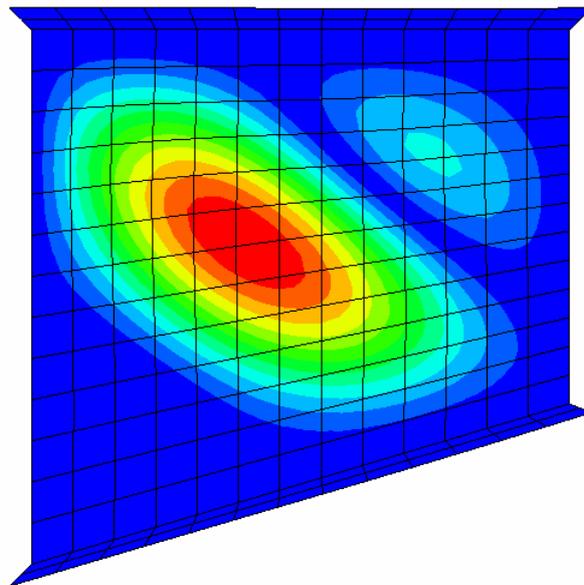**UNIVERSIDADE DO MINHO**
ESCOLA DE ENGENHARIA
Departamento de Engenharia Civil

ANÁLISE DO EFEITO DE REDUÇÃO DE ESPESSURA NO COMPORTAMENTO DE VIGAS METÁLICAS DE INÉRCIA VARIÁVEL COM SECÇÃO EM I

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Dissertação para obtenção de grau de Mestre em Engenharia Civil

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Orientador Científico: Doutor Paulo Jorge de Sousa Cruz

"Diz-me que cara ou coroa eu vou ganhar
Diz-me quanto eu fiz bem em me apostar
E que bem fiz em ter por necessárias
As horas extraordinárias"

Sérgio Godinho, in "Horas Extraordinárias"

Índice Geral

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O meu *muito obrigado*.

Resumo

As vigas metálicas de inércia variável de alma esbelta, compostas por chapas de aço soldadas, são normalmente utilizadas na construção metálica e mista quando se pretendem vencer vãos importantes, resistir a cargas consideráveis e/ou onde exista uma forte variação do momento flector. A variação de inércia é obtida através da variação longitudinal da altura da alma, mantendo horizontal o banzo superior.

O estudo do comportamento estrutural até ao esgotamento perante forças tangenciais, deste tipo de vigas metálicas, deve contemplar o aparecimento de diferentes fenómenos estruturais que são difíceis de quantificar e que estão estreitamente acoplados (enfunamento do painel de alma e a plastificação do material). Estes fenómenos desenvolvem-se, inclusivamente, a baixos níveis de carga.

A avaliação da capacidade resistente de membros estruturais afectados por corrosão é necessária na inspecção e avaliação da segurança das pontes existentes. Esta tarefa complica-se devido, essencialmente, à falta de informação relativa ao comportamento estrutural de painéis de alma afectados por corrosão. A insegurança nesta avaliação deve ser minimizada através da utilização de modelos de previsão baseados em princípios teóricos consensuais, validados por uma base de dados extensa e sustentada.

Até à data, não se tem conhecimento de estudos detalhados e rigorosos relativos ao comportamento estrutural ao corte de vigas de inércia variável com painéis de alma afectados por corrosão, em condições de serviço ou colapso. Surge, assim, a necessidade de desenvolvimento de modelos simplificados de previsão.

Nesta investigação apresenta-se um modelo para a previsão da redução de resistência crítica e última de vigas metálicas compostas por chapas de aço soldadas de inércia variável, quando afectadas por corrosão, através de análises não lineares com elementos finitos. Como objectivo complementar desenvolve-se uma vasta base de dados para suporte de um modelo de previsão da carga crítica de enfunamento elástico e carga última de painéis em serviço, com o recurso a técnicas de Data Mining, tendo em consideração diferentes cenários de corrosão localizada.

Abstract

Tapered plate girders, whit welded steel plates, are usually used in steel and composite structures when large span lengths are involved, the structure is required to bear heavy loads or in zones of high bending moment variation. The variable inertia of these elements is obtained by means of a horizontal top flange and a web panel of which depth varies linearly.

The study of the shear structural behaviour until collapse on this type of beams should take into account several structural phenomena that are difficult to quantify and to differentiate one from another as they occur simultaneously (web buckling and the yielding of the steel). These structural phenomena are developed even at small loads.

The evaluation of strength of structural members deteriorated with corrosion is found in the inspection and evaluation of existing plate girder bridges. This engineer's task is hard because of the lack of information concerning the shear behaviour of corroded web panels. Insecurity in the evaluation of deterioration must be minimized by using models based on sound theoretical principles, validated by extensive and reliable data.

Nowadays, there is not knowledge of the existence of detailed and rigorous studies of the shear structural behaviour of corroded tapered plate girders in service conditions and collapse. In this sense, there is a need to develop a useful simplified model for prediction.

In this investigation is presented a model for the prediction of the reduction of strength in corroded tapered plate girders, for critical and ultimate shear load, using a nonlinear finite element analysis. It is also created a large database with extensive and reliable data, for critical and ultimate shear stress in tapered webs, with Data Mining techniques, taking into account different scenarios of local thickness reduction.

x

Palavras-chave

Vigas metálicas de inércia variável

Corrosão em estruturas metálicas

Inspecção e Avaliação

Força Tangencial

Elementos finitos

Painéis de alma

Data Mining

Índice do Texto

Capítulo 3 – Análise Numérica

Índice de Figuras

xx

Índice de Tabelas

Simbologia

b_f - largura do banzo

t_f - espessura do banzo

t_w - espessura do painel de alma

h_1 - altura do lado maior da alma

h_0 - altura do lado menor da alma

a - comprimento da placa (separação entre elementos transversais)

ϕ - inclinação do banzo inferior

α - parâmetro de forma da placa

λ_f - esbeltez da alma

η - relação entre a largura do banzo e a altura maior da alma

k - coeficiente crítico de enfunamento ao corte

f_{sy} - tensão de cedência do material da alma

f_{su} - tensão resistente última

E - módulo de elasticidade

I - inércia

N - esforço normal

V - esforço transverso

M - momento flector

τ_{cr} - tensão crítica de enfunamento elástico

τ_u - tensão última

f_c - força crítica de enfunamento elástico

f_u - força última

r - reserva de resistência

Capítulo 1

Introdução

1.1. Introdução

A utilização de estruturas metálicas em pontes impôs-se no século dezanove. De facto, nessa altura, houve uma vulgarização muito rápida da aplicação de soluções metálicas, sendo esse fulgor posteriormente interrompido durante as grandes guerras mundiais.

A utilização de soluções metálicas e mistas tem vindo a crescer. O sector da construção metálica em Portugal encontra-se, actualmente, em franca expansão, com o esforço conjunto de vários intervenientes, sendo de salientar o aumento da produtividade e modernização das empresas metalomecânicas nacionais (Gomes et al., 1999). Contudo, no passado, a sua utilização restringia-se quase exclusivamente a pontes ferroviárias. No que se refere às pontes rodoviárias, a situação caracterizava-se por uma pequena abertura, por parte dos Donos de Obra, à utilização de soluções metálicas e mistas (Reis, 1997). O custo inicial da obra e o custo de manutenção são os aspectos apresentados com maior frequência para que seja inviabilizado este tipo de soluções (Gomes, 1999).

Em construção metálica é relativamente frequente que os elementos estruturais não apresentem as dimensões geométricas definidas na fase de projecto devido a potenciais erros de fabrico ou a efeitos causados pelas condições ambientais durante a sua exploração. Dada a crescente utilização de vigas metálicas com secção em I de inércia variável, compostas por chapas de aço soldadas, importa desenvolver um estudo rigoroso e detalhado sobre a sua resposta estrutural em condições de serviço e numa

situação próxima ao esgotamento, quando estes sofrem processos de degradação (Cruz e Guimarães, 2003). Não se tem conhecimento, até à data, da existência de estudos exaustivos nesta direcção.

O número de pontes existentes com essa tipologia é significativo que urge investir, cada vez mais, na inspecção, na manutenção, na reparação, e na reabilitação das mesmas. A detecção e a avaliação das anomalias existentes têm reconhecida importância em todo este processo. Os custos estimados de reparação ou substituição são cada vez mais importantes e serão um pesado fardo para as economias das gerações futuras dos distintos países. Apesar da grandeza do problema, muitas das decisões são, ainda, tomadas tendo por base a experiência do dia a dia, sob a enorme pressão de colocar as estruturas em serviço o mais rapidamente possível e pelo menor custo. Esta situação impede uma análise a longo prazo e o investimento eficaz e optimizado dos escassos recursos disponíveis.

Uma das mais importantes causas de deterioração de pontes metálicas é a corrosão. Existe, assim, uma crescente necessidade de estabelecimento de critérios racionais que possam ser usados na previsão do estado de tensão dos elementos estruturais em serviço, especialmente quando estes são afectados pela corrosão. Neste sentido, foram surgindo, ao longo dos tempos, alguns modelos de deterioração para a análise de pontes metálicas com problemas deste tipo (Kayser e Nowak, 1989). Contudo, a aplicabilidade prática destes permanece reduzida.

1.2. As vigas de inércia variável

Por vezes, perante determinadas situações de dimensionamento de estruturas metálicas, os perfis laminados a quente (perfis I e H) não apresentam a resistência desejada ou a sua utilização não conduz a uma boa solução económica. Nestes casos, é usual o dimensionamento de um outro tipo de vigas, compostas pela união de chapas metálicas que, na maioria dos casos, são soldadas. Estas soluções são utilizadas nos casos em que se pretendem vencer vãos consideráveis, resistir a cargas elevadas ou quando o peso próprio da estrutura condiciona, de forma significativa, o dimensionamento (pontes metálicas e mistas, naves industriais, ...).

Com o objectivo de se obter um elemento ainda mais eficiente, desde o ponto de vista estrutural, as vigas metálicas compostas por chapas metálicas soldadas podem ser dimensionadas com secção de inércia variável (altura variável). Usualmente, a referida inércia variável consegue-se através de um painel de alma cuja altura varia linearmente e um banzo superior que se mantém horizontal. Esta variação proporciona ao elemento a resistência requerida de acordo com a variação da lei dos esforços, obtendo-se, desta forma, uma diminuição do peso global da estrutura. As vigas metálicas soldadas de alma esbelta e inércia variável compostas por chapas de aço soldadas tornam-se, neste sentido, cada vez mais apetecíveis para a construção metálica.

Contudo, devido à esbeltez característica do painel de alma, surgem instabilidades locais perante pequenas cargas tangenciais, relativamente ao valor do esforço que plastifica a secção da alma. Este fenómeno ocorre para um valor de tensão tangencial de corte que é conhecido como tensão crítica de enfunamento elástico.

Posteriormente ao enfunamento, desenvolve-se um outro mecanismo na alma, mecanismo este que permite resistir à instabilidade gerada, até ao esgotamento, pois origina uma certa reserva de resistência no painel de alma (resistência pós-crítica) que depende, principalmente, da esbeltez do referido painel. Relativamente à capacidade última do painel de alma perante o esforço de corte, alguns estudos efectuados puseram em evidência que, para vigas metálicas cujo painel de alma seja muito esbelto, a reserva de resistência pós-crítica é considerável; no entanto, para painéis de alma robustos, esta reserva tende a diminuir. O mesmo sucede em vigas metálicas de inércia variável.

Os primeiros modelos de esgotamento deste tipo de vigas não consideravam a capacidade pós-crítica do painel de alma; as expressões que permitiam determinar a capacidade última ao corte tinham como base a teoria clássica, definindo o esgotamento da viga metálica quando o material plastificava ou quando a alma ou um dos banzos enfunava. No entanto, os modelos mais recentes de capacidade última ao corte já consideram esta capacidade pós-crítica.

Concretamente, no que se refere a vigas metálicas de inércia variável de alma esbelta existem, na bibliografia, poucos estudos rigorosos referentes à sua capacidade

pós-crítica. Por este motivo, Zárate (2002) desenvolveu um modelo de capacidade última ao corte para vigas de inércia variável, o qual considera os diversos mecanismos que se desenvolvem no painel de alma até se alcançar o esgotamento (enfunamento da alma e capacidade pós-crítica).

Tal como referido anteriormente, as vigas de inércia variável são utilizadas onde existe uma forte variação do momento flector. Desta forma, é evidente que, na maioria das situações de dimensionamento de um tramo de viga de inércia variável, o referido tramo se veja submetido, simultaneamente, a um esforço de corte e a um momento flector. Contudo, nesta investigação, a análise da degradação por corrosão localizada em painéis de alma realizou-se considerando somente o esforço de corte.

1.3. Objectivo

A presente investigação tem como principal objectivo a realização de uma análise numérica exaustiva relativa ao comportamento ao corte de um painel de alma de uma viga metálica composta por chapas de aço soldadas com secção em I, afectado por redução de espessura localizada.

Este estudo será uma extensão dos estudos realizados por Zárate (2002) e (Cruz e Guimarães, 2003), tornando-se numa mais valia para o estado do conhecimento relativo à resposta estrutural deste tipo de vigas. A avaliação do comportamento estrutural, até à rotura, contemplará os fenómenos derivados da não-linearidade geométrica (enfunamento dos painéis) e os que são consequência da plastificação do material em zonas localizadas do elemento (rótulas plásticas nos banzos e plastificação do painel de alma). Esta análise será efectuada recorrendo ao programa de cálculo automático de elementos finitos ABAQUS.

A presente investigação tem como objectivo complementar a criação de uma base de dados extensa sobre o efeito da redução de espessura em painéis de alma de vigas de inércia variável, para que, num futuro próximo, possa ser analisada através de técnicas de Data Mining. Este tipo de técnicas foi já utilizado, com excelentes resultados, em problemas similares (Cruz et al., 2003). Aliás, a aplicação de Redes Neuronais

Artificiais em problemas de Engenharia Civil, nomeadamente as referidas técnicas de Data Mining, tem ganho uma crescente aceitação, talvez devido à sua apetência em lidar com problemas pouco definidos, tornando possível a sua aplicação em tarefas como o dimensionamento de estruturas ou a previsão de deterioração.

Uma vez apresentada a base geral da presente investigação, expõe-se, seguidamente, e em síntese, o conteúdo da presente dissertação.

1.4. Conteúdo do documento

Com vista à concretização dos objectivos definidos previamente, a presente dissertação foi dividida em seis capítulos.

No Capítulo 1, introduz-se o tema da investigação, enquadrando-o nas necessidades actuais; estabelecem-se os objectivos gerais que se pretende atingir e expõe-se, resumidamente, o conteúdo do presente documento.

Uma síntese do estado de conhecimento relativo a vigas metálicas compostas por chapas de aço soldadas é apresentada no Capítulo 2. Esta síntese tem a seguinte configuração: em primeiro lugar, descrevem-se os sistemas estruturais onde é comum a utilização deste tipo de vigas, as suas características geométricas e o seu comportamento estrutural até ao esgotamento; em segundo lugar, resumem-se os principais modelos de comportamento ao corte de painéis de alma (com inércia constante e variável), incluindo os preconizados no Eurocódigo 3, bem como os que consideram a degradação de resistência devido a eventual corrosão. Por último, revê-se de forma crítica os modelos apresentados, salientando-se os aspectos mais relevantes e os pontos mais débeis das investigações e estudos até à data apresentados.

As características do modelo numérico, nomeadamente os procedimentos utilizados, os elementos de discretização, as características do material simulado, as condições fronteira, as imperfeições iniciais e a malha de discretização estão presentes no Capítulo 3. Apresenta-se, também, a validação do modelo proposto, que serve de base para as análises numéricas efectuadas, comparando-se os resultados obtidos através do modelo

numérico com resultados experimentais, bem como com resultados obtidos através dos modelos teóricos mais utilizados. Validam-se, desta forma, as características do modelo proposto, nomeadamente as condições fronteira, as propriedades do material, as imperfeições inicias, a malha, os procedimentos utilizados, entre outras. Mostram-se, igualmente, os resultados das análises numéricas efectuadas acerca da influência das várias variáveis geométricas na carga crítica de enfunamento elástico e na carga última, perante um carregamento tangencial. Conclui-se, assim, sobre as variáveis geométricas mais influentes na carga crítica de enfunamento elástico e na carga última. Analisa-se, no mesmo sentido, a influência da redução de espessura no painel de alma e nos banzos, quando a viga é sujeita a esforços tangenciais.

De forma a fundamentar as opções tomadas para a simulação da presença de corrosão, apresentam-se no Capítulo 4 alguns mecanismos de degradação de estruturas metálicas, com especial realce aos fenómenos de corrosão, entre outras patologias correntes em estruturas deste tipo.

No Capítulo 5 são evidenciados os pressupostos de realização do grande número de análises numéricas efectuadas. Os resultados obtidos constituem uma base de dados relativa à carga crítica de enfunamento elástico e carga última, perante diferentes cenários de redução de espessura em painéis de alma de vigas de inércia variável de alma esbelta composta por chapas de aço soldadas, quando sujeitos a cargas tangenciais.

Por último, no Capítulo 6, é efectuado um resumo geral da dissertação, expondo-se as principais conclusões derivadas do trabalho de investigação levado a cabo. Essas conclusões permitem afirmar que os objectivos perseguidos foram alcançados. Sugerem-se linhas futuras de investigação.

No final do documento, apresentam-se, em anexo, todos os resultados obtidos através das análises numéricas efectuadas, incluindo a referida base de dados.

Capítulo 2

Estado do Conhecimento

2.1. Introdução

Em construção metálica e mista apresentam-se, com bastante frequência, situações de dimensionamento de sistemas estruturais onde os esforços que actuam numa determinada secção da viga são de grande intensidade e apresentam uma forte variação ao longo da directriz do elemento. Nestas situações, a utilização de vigas metálicas de inércia variável, compostas por chapas de aço soldadas, proporciona uma solução eficiente e económica.

O presente capítulo pretende dar, em primeiro lugar, uma panorâmica geral relativa ao projecto e fabrico de vigas metálicas de inércia variável, descrevendo os aspectos mais relevantes do ponto de vista estrutural. Apresentam-se os aspectos teóricos básicos relacionados com o comportamento de painéis metálicos esbeltos perante o enfunamento e com a obtenção da tensão tangencial crítica de enfunamento. Posteriormente, abordam-se os aspectos mais relevantes referentes aos modelos desenvolvidos para o cálculo da capacidade última de painéis de alma em vigas metálicas esbeltas compostas por chapas de aço soldadas submetidas ao corte, descrevendo-se a filosofia, as hipóteses de trabalho e as equações em que se fundamentam esses modelos. Entre outros, apresenta-se o modelo de Cardiff (Porter et al., 1975, Rockey et al., 1978). Validado por numerosos resultados experimentais, este modelo é, provavelmente, o mais optimizado e o de maior campo de aplicação, constituindo a base do método de dimensionamento adoptado no Eurocódigo 3. Para a

tipologia de vigas metálicas de inércia variável e de alma esbelta, descrevem-se os estudos mais relevantes no que se refere ao seu comportamento estrutural, desenvolvidos até à data. As bases de partida são as dos modelos de capacidade última de vigas metálicas com alma de altura constante. A apresentação dos referidos modelos atende a uma ordem cronológica, salientando-se o modelo de Zárate e Mirambell (2002), cuja análise numérica serviu de base para o trabalho desenvolvido na presente investigação. É igualmente apresentada uma síntese dos métodos preconizados no Eurocódigo 3, bem como algumas recomendações de dimensionamento.

Os modelos desenvolvidos para o cálculo da capacidade pré e pós-crítica de vigas metálicas esbeltas compostas por chapas de aço soldadas submetidas ao corte apresentam uma limitação geral: não conseguem responder aos efeitos da redução localizada de espessura, quer devido à possível variação não uniforme da espessura das chapas, admitida na norma EN 10029 (1991), aquando do seu fabrico, ou devido à eventual presença de corrosão localizada (uma das mais importantes causas de deterioração das pontes metálicas). Desta forma, a resistência efectiva de uma viga pode não corresponder à prevista em fase de projecto (Cruz e Guimarães, 2003), sustentando a necessidade da existência de modelos que respondam a estas possibilidades. Neste sentido, apresenta-se uma breve síntese dos poucos modelos encontrados na bibliografia que abordam a degradação de resistência provocada por corrosão em paneis metálicos submetidos ao corte em vigas metálicas em I compostas por chapas de aço soldadas.

Por fim, expõe-se uma revisão crítica dos estudos e modelos apresentados, permitindo realçar a existência de alguns pontos débeis nos referidos modelos, contextualizando, desta forma, a presente investigação.

2.2. As vigas metálicas como elementos estruturais

No campo da engenharia e da arquitectura é cada vez mais comum o dimensionamento de estruturas metálicas de forma a resistir a cargas elevadas ou a superar vãos consideráveis, tal com acontece no caso de pavilhões industriais ou de pontes. As tipologias estruturais habituais tendem, nestes casos, a elementos de grande altura como, por exemplo, as treliças ou as vigas metálicas esbeltas (Figura 2.1), dando lugar a secções transversais em I, entre outros tipos de secção transversal.

O dimensionamento eficaz de uma viga metálica de alma esbelta requer que a sua secção transversal proporcione a rigidez e a resistência requerida pelo sistema estrutural, conseguindo-o com o menor peso próprio possível. Isto é, que a relação entre a resistência e o peso próprio da viga (resistência específica) seja a máxima possível, sem esquecer, em nenhum caso, a satisfação das condições de serviço e de funcionamento, a durabilidade e a estética.

a) Viga em treliça   b) Viga metálica esbelta
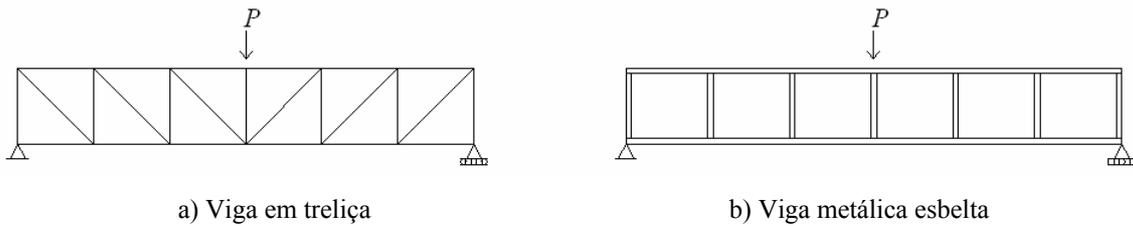
Figura 2.1 – Vigas metálicas de grande altura.

As vigas são dimensionadas com dois dos painéis (banzos) separados consideravelmente, obtendo-se assim uma secção de máximo rendimento geométrico, com inércia suficiente para verificar as condições de serviço. Os banzos trabalham solidariamente devido à presença de um outro painel, o painel de alma, de grande altura que os une, e cuja missão fundamental é a de absorver o esforço de corte. Em geral, para reduzir ainda mais o peso estrutural e aumentar a referida resistência específica, dimensionam-se estas vigas metálicas com almas muito esbeltas.

2.2.1. Optimização estrutural de vigas com chapas metálicas

A optimização estrutural pode obter-se, para além da utilização de almas esbeltas, alterando longitudinalmente a inércia da secção transversal, na largura e/ou na espessura dos banzos, ou mesmo, na espessura e/ou na altura da alma, de acordo com a variação da lei dos momentos flectores.

O dimensionamento de vigas metálicas de inércia variável (Figura 2.2) em estruturas metálicas foi proposto inicialmente por motivos económicos, por conduzir a uma redução no consumo do material. Posteriormente, outras vantagens potenciaram a sua utilização, tais como a diminuição do peso próprio do sistema estrutural, a obtenção de uma aparência mais esbelta e estética de todo o sistema estrutural.

Dependendo da geometria, o painel de alma é capaz de suportar cargas adicionais superiores à crítica (enfunamento). Tirando partido desta reserva de resistência, pode ser dimensionada uma viga com elevada relação entre a resistência e o próprio peso.
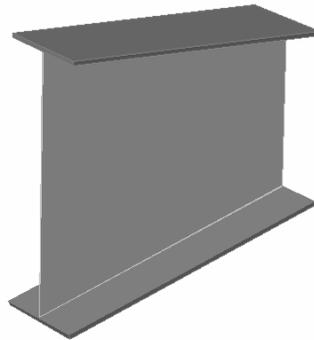
Figura 2.2 – Optimização de uma viga metálica composta por chapas de aço soldadas.

Na Figura 2.3 apresentam-se claros exemplos da utilização de vigas metálicas de inércia variável em estruturas metálicas onde é importante superar vãos consideráveis, como é o caso de pontes ou coberturas de bancadas.

a) Ponte de Grenelle sobre o rio Sena, Paris

b) Ponte em Basel, Suíça

c) Estádio do Dragão, Porto

Figura 2.3 – Utilização de vigas metálicas de inércia variável.

Uma variação da altura da alma representa uma redução do peso da viga. Contudo, pode não representar redução de custos. No dimensionamento deste tipo de vigas, o projectista deve ter em conta o aumento do custo de fabrico associado às variações da altura dos painéis de alma. Múltiplas variações de espessura aumentam o custo de fabrico. O número total de variações não deve exceder as três para vãos superiores a aproximadamente 40 m (Tonias, 1995).

As modernas técnicas de fabrico permitiram impulsionar a utilização de vigas de inércia variável na construção metálica e mista: é cada vez mais clara a existência de um maior número de estruturas com uma sustentada combinação de elementos com inércia constante e variável.

2.2.2. Dimensões usuais

No dimensionamento de estruturas metálicas, o projectista conta com uma vasta gama de possibilidades, no que se refere à geometria e dimensões das secções (banzos e alma), de forma a proporcionar uma secção transversal que permita garantir que a rigidez e a resistência do elemento estrutural são as adequadas para suportar as acções a que estão submetidas, satisfazendo-se as verificações aos estados limite de serviço e último. A geometria e dimensões que podem adoptar-se para vigas de inércia variável são similares às que se escolhem em vigas com altura constante. Na Figura 2.4 definem-se os parâmetros geométricos de uma secção transversal.
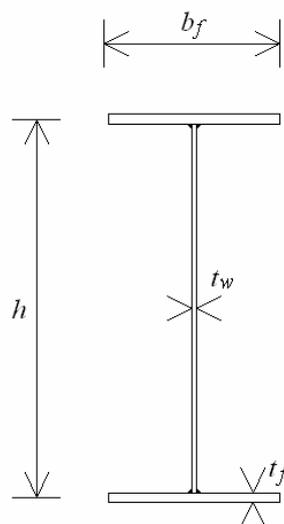
Figura 2.4 – Parâmetros geométricos de uma secção transversal.

2.2.2.1. Banzos

O banzo é normalmente constituído por uma série de painéis, unidos entre si por soldadura topo a topo. A largura b_f do banzo dimensiona-se com base nos requisitos de rigidez e resistência. A espessura t_f do banzo define-se em função da esbeltez do próprio banzo. Contudo, no caso de estar solicitado a esforços de tracção, a espessura t_f será definida por critérios de resistência. Para o banzo solicitado a esforços de compressão, a esbeltez (b_f / t_f) e a espessura t_f, devem cumprir certas exigências respeitantes ao seu comportamento.

2.2.2.2. Alma

Como referido, um painel de alma pode ter altura constante ou variável. No dimensionamento de um painel de alma, deve ser especificada a altura h (dependente do momento flector máximo), bem como a espessura t_w (dependente do esforço de corte máximo).

A altura da alma depende, assim, do vão que se pretende vencer. A altura total h da viga é um parâmetro de grande importância, já que influencia de forma muito significativa a rigidez à flexão da secção transversal. O pré-dimensionamento da altura das vigas metálicas é feito em função do vão L e do tipo de estrutura. As amplitudes de variação da altura h movem-se em torno dos valores apresentados na Tabela 2.1 (Maquoi, 1992; Rui-Wamba, 1993).

Tabela 2.1 – Pré dimensionamento da altura das vigas metálicas.

Edifícios	$L / 25 \leq h \leq L / 15$
Tabuleiros isostáticos	$L / 25 \leq h \leq L / 15$
Tabuleiros contínuos	$L / 30 \leq h \leq L / 20$

A espessura t_w da alma deve satisfazer, fundamentalmente, os requisitos de resistência ao corte e da resistência à fadiga. Esta espessura está definida em função da esbeltez da alma (h / t_w). Como norma prática usual, pode adoptar-se para o tipo estrutural de pontes uma esbeltez próxima de 200, embora para edifícios industriais esta se encontre em

torno de 300. Habitualmente, a espessura t_w apresenta um mínimo entre 6 a 8 mm, de forma a fazer frente a possíveis problemas de corrosão.

Usualmente, à medida que aumenta a altura da alma, aumenta igualmente a sua espessura, embora a área dos banzos diminua. Esta relação implica a necessidade de comparação de se determinar a solução mais eficiente.

Na maioria dos casos práticos de dimensionamento, o esforço de corte é normalmente inferior às forças axiais nos banzos, resultantes da flexão. Desta forma, a espessura de um painel de alma é geralmente muito menor que a dos banzos. Na maioria dos casos, aplicam-se no painel de alma reforços transversais de forma a aumentar a resistência ao enfunamento. O dimensionamento do painel de alma envolve a procura de uma combinação óptima entre a espessura do painel e o espaçamento entre reforços transversais, com vista à obtenção de vantagens económicas em termos de material e custos de fabrico.

2.3. Comportamento estrutural

Embora o comportamento pós-crítico fosse descoberto primeiramente por Wilson, em 1886, e a teoria do campo diagonal de tracções fosse desenvolvida por Wagner, em 1929, o enfunamento elástico foi usado como base de dimensionamento de painéis de alma quase exclusivamente até à década de 60 do passado século, devido ao facto das fórmulas de previsão da resistência ao enfunamento de painéis de alma serem relativamente simples e conhecidas ao longo de vários anos (não tinham sido desenvolvidos até à data procedimentos simples para a previsão da tensão última de rotura ao corte).

Contudo, em 1959, foram efectuados estudos intensivos acerca do comportamento pós-crítico (Basler e Thürlimann, 1959). Como resultado destes estudos, a AISC e a AASHTO adoptaram nas suas especificações, e pela primeira vez, a resistência pós-crítica como base de dimensionamento. Nos anos seguintes, com a alteração dos conceitos de dimensionamento, os estudos iniciados por Basler e Thürlimann foram seguidos por um razoável número de diferentes teorias de colapso de forma a conseguir-se uma melhor correlação entre a teoria e os ensaios. Desenvolveram-se,

assim, diversos modelos simplificados que proporcionam uma aproximação relativamente satisfatória à resposta real deste tipo de estruturas (modelos pós-críticos), posteriormente descritos no presente documento em 2.3.2.

Na Figura 2.5a mostra-se, de forma qualitativa, o enfunamento de uma placa esbelta submetida a um estado de tensão tangencial nos bordos (obtida através do ABAQUS). Com o propósito de se estudar a resposta estrutural do painel de alma, obteve-se a curva tensão tangencial versus deslocamento máximo normal ao plano médio da placa, tal como se mostra na Figura 2.5b. Na referida curva, pode constatar-se a existência de uma força tangencial crítica de enfunamento, para a qual a surgem significativos deslocamentos perpendiculares do painel relativamente ao plano inicial do mesmo.

Posteriormente à instabilidade, desenvolve-se um mecanismo na placa que a permite resistir a forças tangenciais superiores à crítica, até se alcançar o esgotamento. O referido mecanismo dá lugar a uma certa reserva de resistência da placa (resistência pós-crítica) que pode interpretar-se, de maneira simples, através da formulação de um campo diagonal de tracções que torna o painel de alma mais rígido.
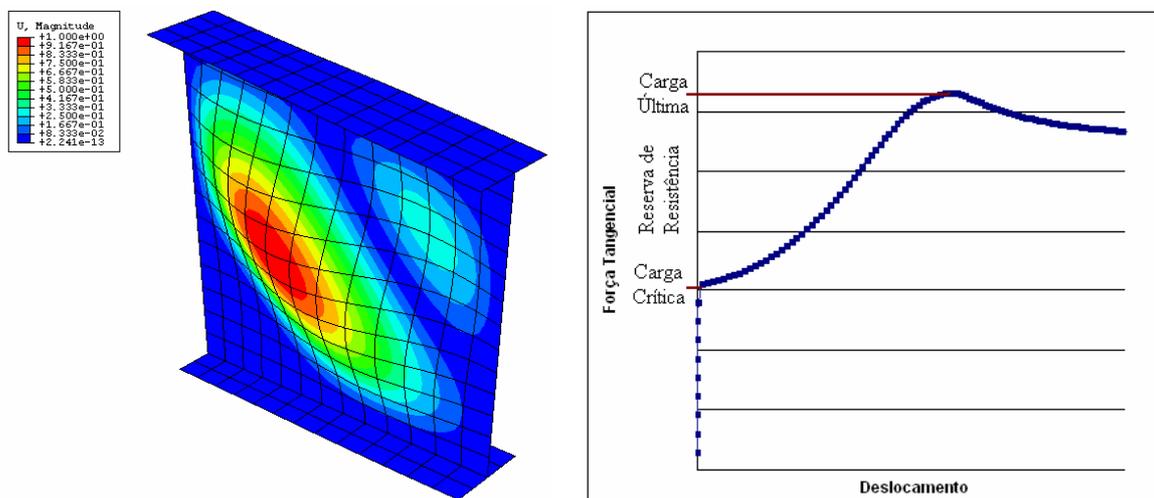
| a) Deformada qualitativa do painel de alma de uma viga metálica quando sofre o enfunamento | b) Curva carga tangencial versus deslocamento máximo perpendicular ao plano médio da placa |

Figura 2.5 – Viga metálica esbelta submetida a forças tangenciais.

O valor da resistência pós-crítica depende, principalmente, da esbeltez da placa, dentre outras variáveis. Para placas muito esbeltas, a capacidade pós-crítica é significativa mas, para placas robustas, esta diminui.

Neste sentido, no caso de vigas metálicas com a espessura do painel de alma reduzida, a resistência pós-crítica do painel é significativa, sendo a sua consideração de grande importância no dimensionamento.

É de salientar que, para que o fenómeno pós-crítico possa ocorrer, deverá haver elementos estruturais onde o campo diagonal de tensões possa ancorar-se; para o caso de uma viga metálica composta por chapas de aço soldadas, esses elementos são os banzos e os reforços transversais.

O comportamento até à rotura de um painel de alma de uma viga metálica composta por chapas de aço soldadas, solicitado por forças tangenciais, apresenta, assim, três fases claramente diferenciadas: a pré-crítica, a pós-crítica e a pós-colapso. Durante a primeira fase (Figura 2.6), o painel de alma apresenta um comportamento linear, enquanto que, numa segunda fase, surgem fenómenos de carácter não linear (Figura 2.7). O colapso do painel surge após a fase pós-crítica (Figura 2.8), com o desenvolvimento de rótulas plásticas.

a) Tensão (*S, Mises*)   b) Deslocamento perpendicular à alma (*U, U3*)
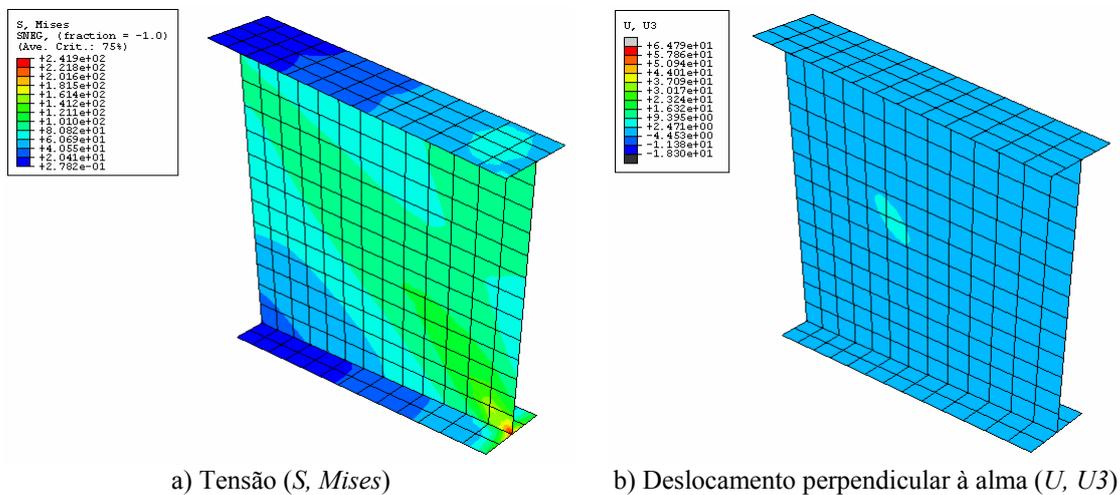
Figura 2.6 – Comportamento pré-crítico.

Na fase linear (comportamento pré-crítico), cumpre-se a hipótese de Navier-Bernoulli, obtendo-se uma distribuição linear de tensões normais na secção transversal da viga. Esta ocorre para valores pequenos do momento flector, desde que não se supere a parte elástica do material. A fase não linear alcança-se quando as tensões que actuam na viga superam a tensão correspondente ao limite elástico do material ou quando aparecem instabilidades locais nos painéis que constituem as vigas metálicas. Para estes casos,

deixam de se cumprir as hipóteses de Navier-Bernoulli e, consequentemente, as expressões derivadas da resistência de materiais não são adequadas para representar a resposta estrutural.

a) Tensão (*S, Mises*) b) Deslocamento perpendicular à alma (*U, U3*)
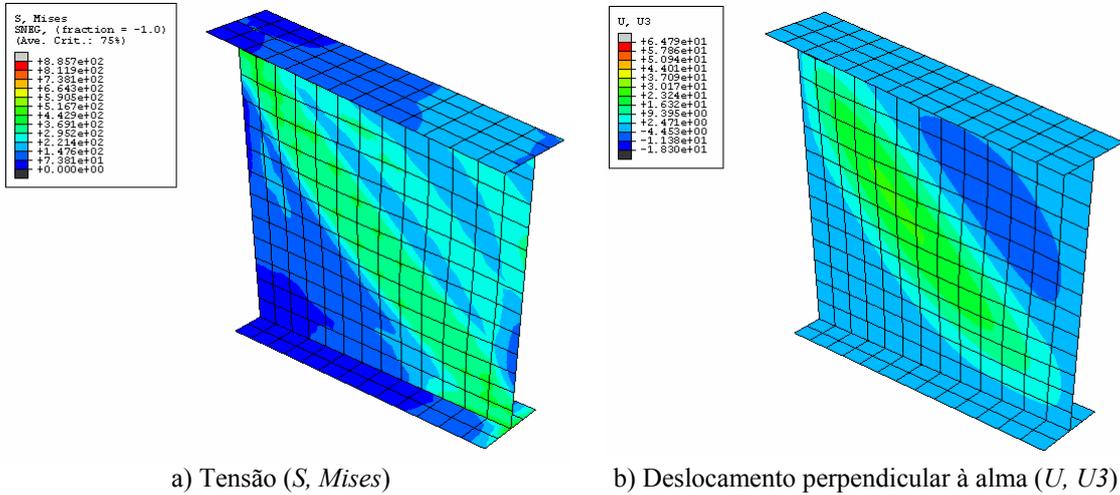
Figura 2.7 – Comportamento pós-crítico.

a) Tensão (*S, Mises*) b) Deslocamento perpendicular à alma (*U, U3*)
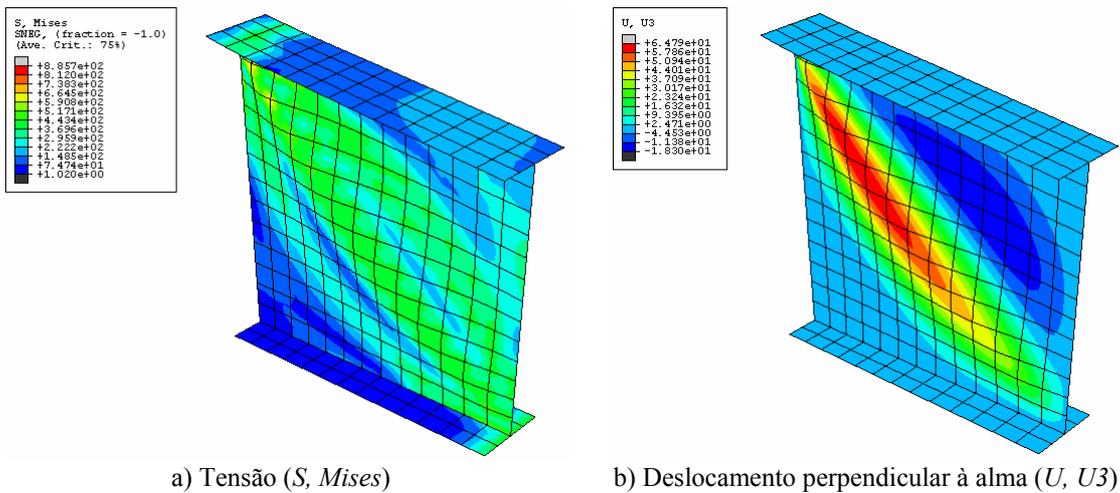
Figura 2.8 – Colapso.

Os métodos de dimensionamento de painéis de alma, existentes até à data, estão divididos em duas categorias: o dimensionamento da tensão admissível baseado no enfunamento elástico como condição limite ou o baseado na carga última, incluindo a resistência pós-crítica como estado limite. Seguidamente, tanto para vigas metálicas de inércia constante como variável, apresenta-se uma breve síntese dos métodos mais relevantes inseridos nas categorias referidas.

2.3.1. Comportamento pré-crítico

No dimensionamento de painéis de alma de vigas metálicas compostas por chapas de aço soldadas é necessário determinar com precisão a tensão crítica de enfunamento elástico perante o esforço de corte. Na secção transversal da viga metálica, dentro da fase linear e elástica do material, surgem tensões normais e tangenciais devidas à flexão e ao corte.

Como a viga deve ter o menor peso próprio possível, a espessura t_w pode reduzir-se, desde que se garanta que o painel de alma seja capaz de resistir às tensões tangenciais que se geram no seu contorno.

Neste sentido, e devido ao facto da alma ser esbelta, a sua resposta estrutural pode interpretar-se através do comportamento que experimenta uma placa esbelta solicitada por um estado de tensões tangenciais no seu contorno. Submetida essa placa a um processo incremental de tensões tangenciais, o comportamento daquela é linear até que, para um determinado valor da tensão tangencial, sofre deslocamentos normais ao seu plano médio (a placa sofre enfunamento). O valor da tensão tangencial para o qual ocorre o enfunamento conhece-se como tensão crítica de enfunamento elástico.

2.3.1.1. Tensão crítica de enfunamento elástico em placas esbeltas

Com o propósito de se conhecerem os diferentes factores e variáveis que intervêm na instabilidade do painel de alma de vigas metálicas, apresenta-se a resolução matemática para o cálculo da tensão crítica de enfunamento de placas esbeltas solicitadas por tensões tangenciais.

A interpretação dos esforços actuantes numa viga metálica está ilustrada na Figura 2.9. A consideração teórica do painel de alma como uma placa simplesmente apoiada, submetida a uma distribuição uniforme de tensões tangenciais em todo o contorno, é uma aproximação à situação real já que, ao longo da altura da alma, a distribuição de tensões tangenciais é parabólica. Contudo, ao considerar-se a referida placa com uma distribuição uniforme de tensões tangenciais, facilita-se a obtenção de uma solução matemática prática para o cálculo da tensão crítica de enfunamento.

A tensão tangencial crítica de enfunamento de placas esbeltas foi inicialmente estudada por Boobnoff e Timoshenko (Bleich, 1952). Boobnoff estudou o problema da instabilidade de uma placa rectangular simplesmente apoiada submetida a um estado de tensão de flexão e a um estado de tensão de compressão. Nesse estudo adoptou-se a hipótese de que as tensões actuavam no plano médio da placa. Timoshenko obteve uma solução prática para o referido problema, apresentando expressões analíticas para calcular a tensão crítica de enfunamento de placas esbeltas com condições fronteira simplesmente apoiadas. Estas expressões foram desenvolvidas para estados de tensão de flexão e de compressão. Desta forma, estendeu as suas investigações para o caso de placas solicitadas por tensões tangenciais.

a) Painel de alma de uma viga metálica   b) Placa simplesmente apoiada
composta por chapas de aço soldadas   submetida a um esforço de corte
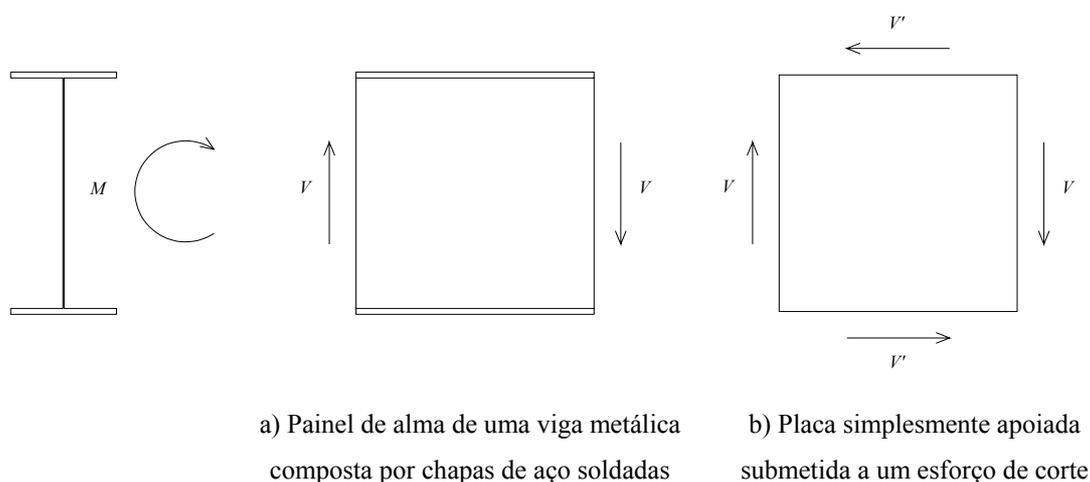
Figura 2.9 – Interpretação dos esforços actuantes numa viga metálica.

Posteriormente às investigações teóricas levadas a cabo por Timoshenko realizaram-se diversos ensaios experimentais em vigas metálicas. Esses ensaios tiveram como finalidade verificar as expressões propostas e, desta forma, confirmar que o comportamento do painel de alma de vigas metálicas se podia interpretar através da teoria clássica de placas. Cabe referir que os ensaios experimentais foram também realizados com o objectivo de se conhecer o comportamento estrutural de vigas metálicas para além da instabilidade do painel de alma (resistência pós-crítica).

2.3.1.2. Modelo matemático proposto por Timoshenko - Teoria Clássica

O modelo matemático que permite determinar a tensão crítica de enfunamento de uma placa rectangular parte das seguintes hipóteses: tratar-se de uma placa rectangular com

condições fronteira simplesmente apoiadas e estar submetida a um estado de tensão tangencial no seu plano médio (ver Figura 2.10).

Os parâmetros geométricos que definem a placa são o comprimento *a*, definido pela separação entre os elementos rígidos transversais, a altura *b* e a espessura *t*. A resposta estrutural desta placa pode obter-se através da resolução da equação diferencial de Saint Venant:

$$\frac{EI}{1-v^2}\left(\frac{\partial^4\omega}{\partial x^4} + 2\frac{\partial^4\omega}{\partial x^2\partial y^2} + \frac{\partial^4\omega}{\partial y^4}\right) + t\cdot\left(\sigma_x\frac{\partial^2\omega}{\partial x^2} + \sigma_y\frac{\partial^2\omega}{\partial y^2} + 2\tau_{xy}\frac{\partial^2\omega}{\partial x\partial y}\right) = 0 \qquad \textbf{(2.1)}$$

A equação (2.1) provém do teorema do potencial estacionário de energia, permitindo, assim, determinar expressões analíticas para o cálculo da tensão crítica de enfunamento elástico para placas.
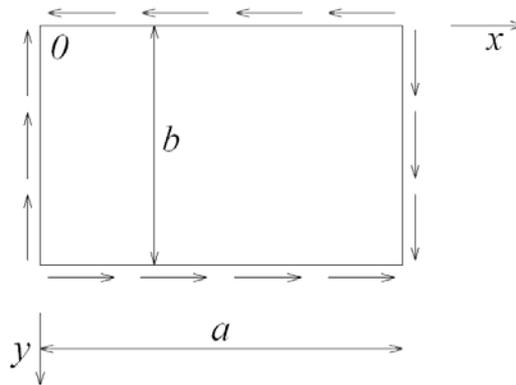
Figura 2.10 – Placa rectangular simplesmente apoiada submetida a forças tangenciais.

Por outro lado, o método do potencial estacionário de energia é utilizado com êxito naqueles problemas em que não é necessário obter uma solução rigorosa exacta, tal como é o caso do painel de alma de vigas metálicas, onde se requer encontrar uma solução prática que permita calcular um valor aproximado da carga crítica de enfunamento. Contudo, este método é aplicável unicamente aos casos em que a forma da deformada da placa se pode aproximar mediante uma função que cumpra as condições fronteira, obtendo-se melhores resultados quanto mais a referida função for ajustada à deformada real da placa enfunada.

Seja um estado de tensões tangenciais que actua no plano médio da placa: por cada incremento de tensão produzem-se pequenos movimentos perpendiculares ao referido plano médio. Se o trabalho realizado pelas forças exteriores é menor que a energia de deformação por flexão da placa, para qualquer configuração de deformada, a placa será estável. Contudo, se o trabalho realizado pelas forças exteriores é maior que a energia de deformação da placa, para qualquer deformada, a placa será instável e, por conseguinte, aparece o enfunamento. Designando por V a energia de deformação por flexão quando a placa sofre o enfunamento e U_w o potencial de energia das forças exteriores, e de acordo com o teorema do potencial estacionário de energia, tem-se que:

$$V + U_\omega = \text{estacionário} \tag{2.2}$$

A energia de deformação por flexão da placa V obtém-se mediante a expressão:

$$V = \frac{D}{2} \int_0^a \int_0^b \left\{ \left(\frac{\partial^2 \omega}{\partial x^2} + \frac{\partial^2 \omega}{\partial y^2} \right)^2 - 2(1-\nu) \left[\frac{\partial^2 \omega}{\partial x^2} \cdot \frac{\partial^2 \omega}{\partial y^2} - \left(\frac{\partial^2 \omega}{\partial x \partial y} \right) \right] \right\} dx dy \tag{2.3}$$

A variação do potencial de energia U_ω define-se como o valor negativo do trabalho realizado por uma distribuição uniforme de tensões tangenciais na placa, o qual pode assumir a seguinte forma:

$$U_\omega = -\tau_{xy} t \int_0^a \int_0^b \frac{\partial \omega}{\partial x} \frac{\partial \omega}{\partial y} dx dy \tag{2.4}$$

No instante em que tem lugar o fenómeno de bifurcação de equilíbrio (τ_{xy} será a tensão tangencial crítica de enfunamento), sob uma pequena perturbação, na qual a placa não ganha nem perde energia, deve-se verificar que $V = U_\omega$.

Por outro lado, é possível definir uma função da deformada do plano médio da placa, através da série de Fourier.

$$\omega = \sum_{i=1}^n \sum_{j=1}^n f_{ij} \sin \frac{i \pi x}{a} \sin \frac{j \pi y}{b} \tag{2.5}$$

Desta forma, limitando-se a dois o número de termos da série de Fourier e definindo-se o parâmetro de forma da placa $\alpha = a \, / \, b$, a consideração da expressão (2.5) nas expressões (2.2), (2.3) e (2.4) permite chegar à expressão de cálculo da tensão crítica de enfunamento.

$$\tau_{cr} = \frac{\pi^2 E}{12(1 - \nu^2)} \left(\frac{t}{b}\right)^2 k \tag{2.6}$$

Nesta expressão, k é o coeficiente crítico de enfunamento ao corte, o qual depende do parâmetro de forma da placa α. Este coeficiente determina-se pela seguinte expressão:

$$k = \frac{9\pi^2}{32} \cdot \frac{\left(1 + \alpha^2\right)^2}{\alpha^3} \tag{2.7}$$

O valor de k obtido, e para $\alpha = 1$, apresenta um erro aproximado de 15% relativamente ao valor real. Este aumenta para valores de $\alpha > 1$, devido ao procedimento adoptado, com a utilização única de dois termos da série de Fourier (n = 2). Por conseguinte, quanto maior o número de termos usados em (2.5), melhor será a aproximação do valor de k. Desta forma, Timoshenko obteve, para vários parâmetros de forma α, os correspondentes valores do coeficiente crítico de enfunamento k ($\alpha < 2.5$).

Posteriormente, Skan e Southwell, através de diversos estudos, obtiveram o valor de $k = 5.34$ para $\alpha = \infty$. Por outro lado, Seydel obteve o valor de $k = 9.34$ para $\alpha = 1$. De igual forma, Stein e Neff obtiveram valores de k para diversos parâmetros de forma (Bleich, 1952). Na Figura 2.11 mostram-se os valores de k correspondentes às diferentes relações de $1/\alpha$, segundo os investigadores anteriormente citados.

Uma curva definida por uma parábola que passe pelo valor de $k = 5.34$ e $k = 9.34$ para $1/\alpha = 0$ e $1/\alpha = 1$, respectivamente, poderá ser considerada uma aproximação satisfatória aos resultados teóricos. A curva referida pode ser definida pela expressão seguinte:

$$k = 5.34 + \frac{4}{\alpha^2} \tag{2.8}$$

Tal como no caso anterior, para uma placa com condições fronteira de bordo encastrado, Southwell e Skan determinaram o valor teórico de $k = 8.98$ para $1/\alpha = 0$. Posteriormente Budiansky e Connor obtiveram os valores de k para diferentes valores do parâmetro de forma α (Bleich, 1952).
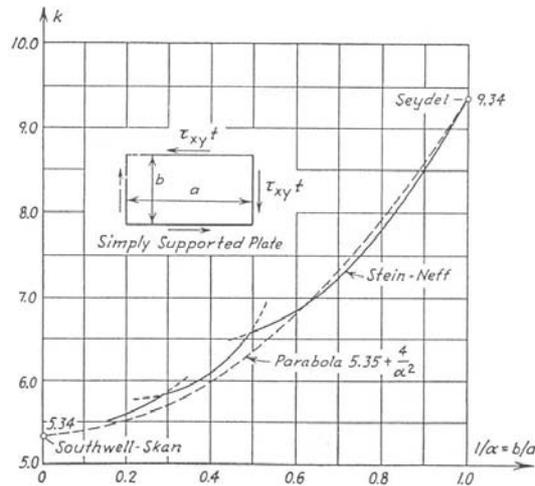
Figura 2.11 – Valores de *k* para placa com fronteira simplesmente apoiada. (Bleich, 1952)

Na Figura 2.12 mostram-se os valores do coeficiente crítico de enfunamento relativamente ao inverso do parâmetro de forma $1/\alpha$. Tal como no caso de uma placa simplesmente apoiada, a variação do coeficiente crítico de enfunamento pode aproximar-se mediante a expressão de uma parábola:

$$k = 8.98 + \frac{5.60}{\alpha^2} \qquad (2.9)$$
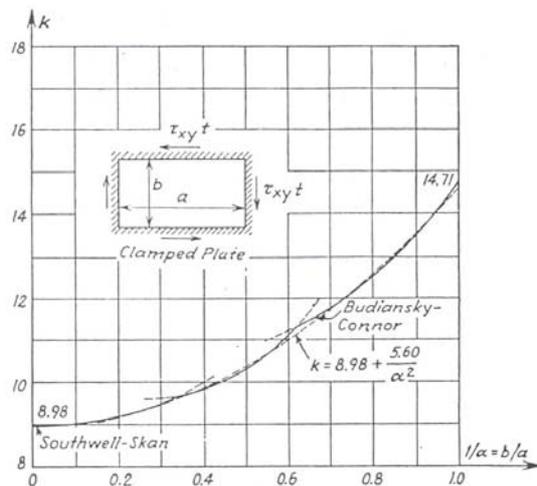
Figura 2.12 – Valores de *k* para placa com fronteira encastrada. (Bleich, 1952)

A solução teórica aproximada para o cálculo da tensão crítica de enfunamento de placas esbeltas, expressa por (2.6), permite concluir que a tensão crítica de enfunamento de uma placa submetida a tensões tangenciais depende das características mecânicas do material, das propriedades geométricas e das próprias condições fronteira.

No caso de vigas metálicas de inércia variável, a variação da altura do painel de alma é outro factor que influencia, de forma determinante, a tensão tangencial crítica de enfunamento. Por conseguinte, a tensão crítica de enfunamento da alma dependerá das características do material, das condições fronteira e da sua geometria (parâmetro de forma α, espessura do painel de alma e inclinação do banzo inferior).

2.3.1.3. Coeficientes de enfunamento elástico propostos por Lee et al.

Um razoável número de análises numéricas (acima de 300), através de um modelo de elementos finitos, foi realizado por Lee et al. (1996). A referida investigação consistiu na análise numérica de vários modelos de vigas, com diferentes relações geométricas (a/h, h/t_w, b_f/h e t_f/t_w, permanecendo constante a altura h da alma, fixada em 1016 mm (40 in). As amplitudes dos parâmetros estudados foram:

$$a/h = 1.0 \rightarrow 6.0 \text{, com } a = 1016 \rightarrow 6096 \text{ mm}$$

$$h/t_w = 80 \rightarrow 200 \text{, com } t_w = 5.08 \rightarrow 12.7 \text{ mm}$$

$$b_f/h = 0.2 \rightarrow 1.0 \text{, com } b_f = 304.8 \rightarrow 1016 \text{ mm}$$

$$t_f/t_w = 0.2 \rightarrow 0.4$$

As referidas amplitudes abrangem, segundo os autores, a maioria dos casos práticos de dimensionamento, incluindo painéis de alma com altura diferente de 1016 mm, pois os parâmetros são usados na forma de relações.

A análise dos resultados obtidos por Lee et al. revelou que a condição de suporte efectiva na junção entre a alma e o banzo depende primeiramente da relação entre a espessura do banzo e a espessura da alma (t_f / t_w). Foi observado que, quando t_f / t_w é muito menor que 1, a condição de suporte efectiva é muito próxima do suporte simples,

enquanto que, para casos em que t_f / t_w seja maior que 2, a condição fronteira efectiva é muito próxima do apoio fixo.

Com base nas investigações numéricas referidas, foram propostas por Lee et al. as duas seguintes equações para a determinação do coeficiente de enfunamento ao corte para painéis de alma:

$$k = k_{ss} + \frac{4}{5}\left(k_{sf} - k_{ss}\right)\left[1 - \frac{2}{3}\left(2 - \frac{t_f}{t_w}\right)\right] \text{para } \frac{1}{2} < \frac{t_f}{t_w} < 2 \qquad \textbf{(2.10)}$$

$$k = k_{ss} + \frac{4}{5}\left(k_{sf} - k_{ss}\right) \text{para } \frac{t_f}{t_w} \geq 2 \qquad \textbf{(2.11)}$$

onde k_{ss} e k_{sf} são fórmulas de regressão para coeficientes de enfunamento ao corte, baseados em resultados de pesquisa por numerosos investigadores, incluindo Timoshenko e Bulson. São expressos pelas seguintes equações:

$$k_{ss} = 4.00 + \frac{5.34}{\left(a/h\right)^2} \text{ para } \frac{a}{h} < 1 \qquad \textbf{(2.12)}$$

$$k_{ss} = 5.34 + \frac{4.00}{\left(a/h\right)^2} \text{ para } \frac{a}{h} \geq 1 \qquad \textbf{(2.13)}$$

$$k_{sf} = \frac{5.34}{\left(a/h\right)^2} + \frac{2.31}{\left(a/h\right)} - 3.44 + 8.39\left(a/h\right) \text{ para } \frac{a}{h} < 1 \qquad \textbf{(2.14)}$$

$$k_{sf} = 8.98 + \frac{5.61}{\left(a/h\right)^2} - \frac{1.99}{\left(a/h\right)^3} \text{ para } \frac{a}{h} \geq 1 \qquad \textbf{(2.15)}$$

2.3.1.4. Coeficientes de enfunamento elástico para vigas de inércia variável

Zárate (2002) realizou vários estudos paramétricos com o objectivo de avaliar a influência de vários factores geométricos de vigas metálicas de inércia variável no

coeficiente crítico de enfunamento e na respectiva tensão tangencial. Posteriormente, procedeu à correlação das variáveis de forma a determinar uma expressão analítica que, baseada nos resultados obtidos pelo modelo numérico de elementos finitos, permite-se quantificar o coeficiente crítico de enfunamento, tendo em conta a geometria dos banzos e a inclinação do banzo inferior $tg\phi$ para vigas de inércia variável de alma esbelta. A referida expressão proposta pelo autor é:

$$k_{f\phi} = c_1 \cdot \eta^{c_2} - c_3 \cdot \eta^{-c_4} \cdot \lambda_f \tag{2.16}$$

em que:

$$c_1 = 13.45 - 12.70 \cdot tg\phi$$
$$c_2 = 0.032 - 0.04 \cdot tg\phi$$
$$c_3 = 0.0075 - 0.0081 \cdot tg\phi \tag{2.17}$$
$$c_4 = 1.39 - 0.76 \cdot tg\phi$$

Os parâmetros c_1, c_2, c_3 e c_4 dependem apenas da inclinação do banzo inferior. O coeficiente k resulta das seguintes expressões:

$$k = \left(k_{f\phi} - 4\right) + \frac{4}{\alpha^2} - 5.0 \left(\tan\phi\right)^{0.8} \left(\alpha - 1\right) \text{ se } \alpha \geq 1 \tag{2.18}$$

$$k = \left(k_{f\phi} - 5.34\right) + \frac{5.34}{\alpha^{1.8}} + 2.0 \left(\tan\phi\right)^{0.8} \left(\alpha - 1\right) \text{ se } \alpha < 1 \tag{2.19}$$

Consequentemente, a tensão crítica de enfunamento de painéis esbeltos de alma de altura variável é obtida através da expressão:

$$\tau_{cr} = k \frac{\pi^2 E}{12\left(1 - \nu^2\right)} \left(\frac{t_w}{h_0}\right) \tag{2.20}$$

ou

$$\tau_{cr} = k \frac{\pi^2 E}{12\left(1 - \nu^2\right)} \left(\frac{t_w}{h_1}\right)^2 \left(1 + \gamma\right)^2 \tag{2.21}$$

em que $\gamma = \left(h_1 - h_0\right)/h_0$ é a relação entre a maior e a menor altura da alma.

2.3.1.5. Modelo de previsão por Cruz e Quintela

Recorrendo à pequena base de dados (tensão crítica de enfunamento elástico para 176 diferentes características geométricas) apresentada em Zárate (2002), Cruz e Quintela apresentaram um modelo de previsão para a carga crítica de enfunamento em painéis de alma em vigas de inércia variável de alma esbelta recorrendo às técnicas de Data Mining (Cruz e Quintela, 2003). A precisão dos resultados obtidos "abriu a porta" ao uso das técnicas de Data Mining na previsão da resistência ao corte de vigas de inércia variável, como alternativa às actuais ferramentas.

2.3.2. Comportamento pós-crítico

Tal como referido anteriormente, o painel de alma está submetido a um estado de tensões tangenciais no seu contorno, eventualmente geradoras de instabilidades no próprio painel, provocando grandes deslocamentos perpendiculares ao seu plano médio.

O comportamento dos referidos painéis de alma até ao esgotamento pode interpretar-se, de forma prática, através do comportamento que experimenta uma placa rectangular com os bordos simplesmente apoiados e submetida a um estado de tensões tangenciais no seu contorno (Zárate, 2002).

2.3.2.1. Modelos de capacidade pós-crítica em vigas metálicas de inércia constante

As expressões que, inicialmente, permitiam determinar a capacidade última de vigas metálicas ao corte baseavam-se na teoria clássica, sendo o esgotamento definido na plastificação do material ou quando algum dos elementos (banzos ou alma) alcançava o enfunamento. Nos primeiros regulamentos, entre eles a EM 62 (1969), o enfunamento do painel de alma era verificado com o método das tensões admissíveis. Contudo, admitia-se um coeficiente de segurança reduzido, pois já se sabia da existência de uma certa reserva de resistência pós-crítica. Esta reserva de resistência era considerada na EA 95 (1996), através da amplificação dos coeficientes de enfunamento de placa obtidos segundo a teoria clássica.

Estas normas baseavam-se na teoria linear de enfunamento de placas, reproduzindo o que podia considerar-se ou definir-se como um enfunamento pré-crítico. Em qualquer caso, o tratamento da EM 62 era mais racional de acordo com a filosofia de dimensionamento existente naquela época (método das tensões admissíveis). No caso da MV103, a consideração da reserva de resistência através da amplificação do coeficiente de enfunamento por 1.25, levando a cabo a verificação do estado limite último, origina um procedimento incoerente e que, em alguns casos, por conduzir a resultados inseguros.

Seguidamente, expõem-se, em síntese, alguns dos diversos modelos que foram contemplando a reserva de resistência como algo associado ao próprio comportamento pós-crítico de chapas de aço, ou seja, que interpretaram esta reserva de resistência de maneira relativamente coerente e não através da linearização do fenómeno, suportado na teoria linear clássica do enfunamento. Alguns destes modelos converteram-se, posteriormente, nas bases do dimensionamento de diversas normas de estruturas metálicas de grande projecção internacional como são a BS 5950, a BS 5400 (British Standard Institution 1992, 1978) e a ENV 1993 (1996).

2.3.2.1.1. Modelo de Wilson

Wilson (1886) observou nas pontes ferroviárias, construídas com vigas metálicas, que as mesmas, com elementos rígidos transversais, tinham uma capacidade adicional de suporte de cargas exteriores depois do painel sofrer o enfunamento (Galambos, 1998).

Através de modelos experimentais simples, Wilson aprofundou o conhecimento acerca do comportamento de vigas metálicas. Estes mesmos estudos permitiram deduzir, por um lado, que os reforços transversais no painel de alma, desde que com uma separação adequada, resistiam a esforços de compressão de igual forma que os montantes de uma treliça tipo Pratt. Observou, no mesmo sentido, que a alma trabalhava como um tirante inclinado submetido a tensões de tracção. Wilson concluiu que, ao aplicar a sua teoria, se obtinham resultados muito adequados aos exemplos práticos. Contudo, não apresentou nenhum modelo de análise que pudesse confirmar a sua teoria.

2.3.2.1.2. Modelo de Rode

O primeiro investigador que apresentou uma explicação física relativa à capacidade pós-crítica de vigas metálicas foi Rode, em 1916 (Dubas e Gehri, 1986). Rode concluiu que a referida capacidade pós-crítica devia-se ao desenvolvimento de um campo diagonal de tracções na alma, após o enfunamento do painel. Desta forma, desenvolveu um modelo segundo o qual o campo diagonal de tracções tinha uma largura 50 vezes superior à espessura do painel de alma. Contudo, esta suposição não foi verificada por ensaios experimentais. Esta teoria nunca foi utilizada em métodos de dimensionamento.

2.3.2.1.3. Modelo de Wagner

Posteriormente, em 1929, Wagner realizou uma investigação no âmbito do dimensionamento de estruturas aeronáuticas (Dubas e Gehri, 1986). Os resultados derivados da referida investigação permitiram definir um modelo teórico para o cálculo da capacidade última ao corte de placas esbeltas, denominado como "teoria do campo de tracções completo". Este modelo considera que a capacidade até ao esgotamento de uma placa solicitada por tensões tangenciais no seu contorno se deve a um sistema de tirantes que se desenvolve na totalidade da superfície média da placa. O campo de aplicação do modelo de Wagner é o dos elementos estruturais com painéis de alma muito esbeltos, com relação de esbeltez (h / t_w) compreendida entre 600 e 1000, e condições fronteira de encastramento. Devido à grande esbeltez do painel de alma, a tensão tangencial crítica de enfunamento seria muito pequena ($\tau_{cr} \approx 0$).

A teoria de Wagner, interpretada pelos estados de tensão que se desenvolvem no painel de alma até ao esgotamento, está ilustrada na Figura 2.13. Observa-se que, posteriormente ao enfunamento da alma, unicamente se considera o incremento das tensões principais de tracção σ_2. Isto deve-se, segundo Wagner, ao sistema de tirantes que se desenvolve no painel de alma.

O modelo de Wagner permite obter resultados satisfatórios para o cálculo da capacidade última a esforços de corte nos elementos estruturais utilizados em engenharia aeronáutica. Contudo, relativamente ao âmbito de utilização de vigas metálicas em engenharia civil, apresenta uma grande discrepância em relação aos resultados

experimentais, devido, por um lado, à esbeltez do painel de alma das vigas metálicas, que pode oscilar entre 200 e 400 e, por outro, às condições fronteira adoptadas para o painel de alma.

a) Desenvolvimento dos tirantes na alma   b) Incremento de tensões de tracção σ_2
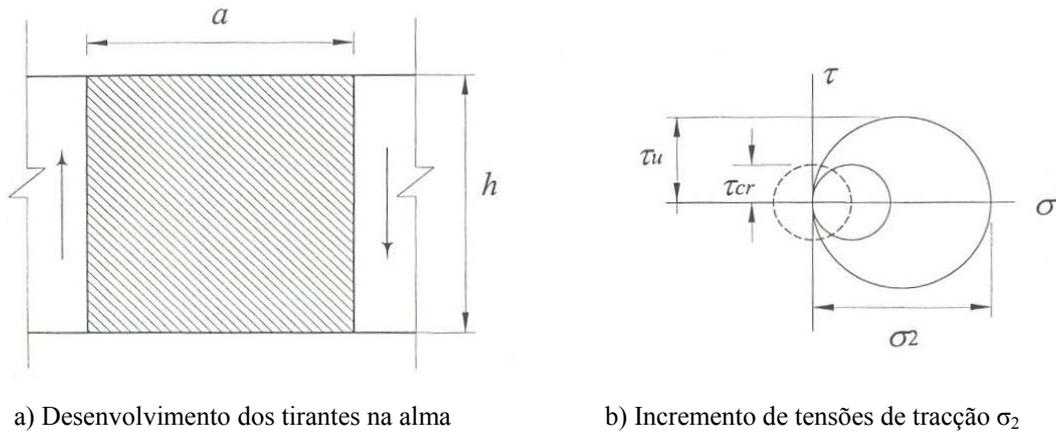
Figura 2.13 – Modelo de Wagner. (Zárate, 2002)

2.3.2.1.4. Teoria do campo de tracções incompleto

Com a finalidade de desenvolver uma teoria útil para o cálculo da capacidade última de painéis de alma em vigas metálicas, Schapitz, em 1937, propôs um método denominado "teoria do campo de tracções incompleto", o qual foi, posteriormente, desenvolvido por Kuhn, em 1956 (Maquoi, 1992). Este modelo para o cálculo da capacidade última de vigas metálicas era mais ajustado relativamente ao apresentado por Wagner.

A teoria do campo de tracções incompleto considera que, na fase pós-crítica do painel de alma, as tensões principais de compressão e tracção dependem da deformada transversal da alma enfunada, entre outras variáveis. Por conseguinte, a tensão principal de compressão, na fase pós-crítica, incrementa-se, ou seja, $\sigma_1 > \tau_{cr}$. Esta teoria pode ser interpretada através do círculo de Mohr, (Figura 2.14), onde, após o painel ter enfunado (círculo pequeno), o círculo de Mohr que define o estado de tensão de esgotamento apresenta um incremento tanto de tensões principais de compressão como de tracção.

As investigações realizadas por Skaloud relativas à capacidade última de placas rectangulares, com condições fronteira de apoio simples e bordos encastrados, permitiram obter um modelo matemático de esgotamento baseado na teoria do campo

de tracções incompleto. Contudo, as expressões obtidas pelo referido autor são dificilmente aplicáveis a situações práticas (Ivanyi e Skaloud, 1992).
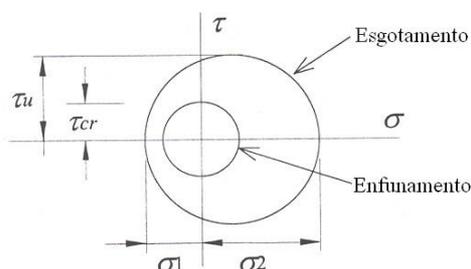
Figura 2.14 – Teoria do campo de tracções incompleto. (Zárate, 2002, adaptada)

2.3.2.1.5. Modelo de Basler

Após um grande período de investigação, Basler (1963) propôs um modelo de capacidade última ao corte de vigas metálicas de alma esbelta com reforços transversais, apoiado em vários ensaios experimentais. Neste estudo, considerou-se que as condições geométricas dos banzos são tais que a rigidez que contribui para a resistência ao corte é muito pequena, podendo desprezar-se.

O modelo de Basler considera, ainda, o desenvolvimento de um campo diagonal de tracções posterior ao enfunamento da alma, ancorado unicamente nos reforços transversais. A determinação da largura do campo diagonal de tracções é feita tendo por base o critério de plastificação do material (critério de von Misses). Desta forma, assume-se que o estado de esgotamento do painel de alma pode ser interpretado através da suposição dos estados de tensão que correspondem à tensão crítica de enfunamento e ao desenvolvimento do campo diagonal de tracções.
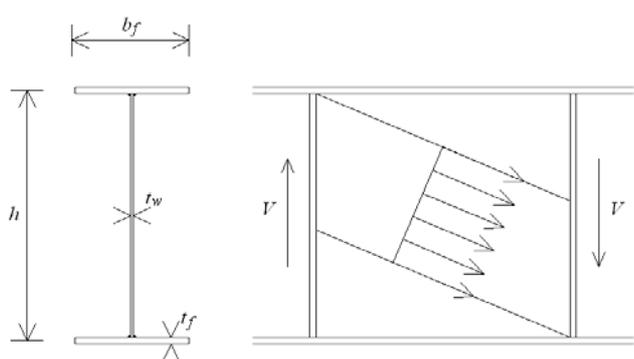
Figura 2.15 – Modelo proposto por Basler.

2.3.2.1.6. Modelo de Chern e Ostapenko

Posteriormente à definição do modelo de Basler, Chern e Ostapenko (1969) propuseram um modelo de capacidade última ao corte de vigas metálicas, baseado igualmente em resultados experimentais obtidos. Segundo os autores, o modelo proposto apresenta melhores resultados comparativamente ao de Basler, devido, essencialmente, ao simples pressuposto assumido relativamente ao ângulo e largura do campo de tensões introduzido na teoria; contudo, a principal razão será a contabilização do efeito da rigidez à flexão dos banzos.

O modelo de Chern e Ostapenko considera o desenvolvimento de um campo diagonal de tracções na fase pós-crítica, o qual, ao contrário do modelo de Basler, é constituído por três faixas, uma central e duas laterais (Figura 2.16). Estas duas últimas faixas são de igual largura e correspondem a uma percentagem da franja central, definida mediante um coeficiente ρ. A largura da faixa central do campo diagonal de tracções é determinada de acordo com o modelo proposto por Basler. Contudo, Chern e Ostapenko consideram, adicionalmente, o desenvolvimento de um mecanismo resistente, que corresponde a um mecanismo tipo pórtico formado pelos painéis dos banzos, os reforços transversais e o campo diagonal de tracções. O esgotamento deste mecanismo tipo pórtico alcança-se quando se desenvolvem rótulas plásticas na união do painel do banzo com o elemento rígido transversal.
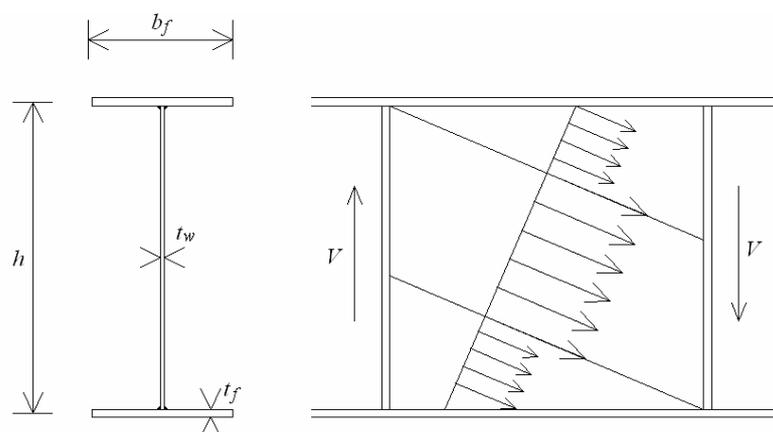
Figura 2.16 – Modelo proposto por Chern e Ostapenko.

Estudos de capacidade última de vigas metálicas, baseados no modelo proposto por Chern e Ostapenko, demonstraram que este modelo conduz a bons resultados

unicamente para uma determinada amplitude de variáveis geométricas de vigas metálicas; por conseguinte, a sua utilização parece limitada (Dubas e Gehri, 1986).

2.3.2.1.7. Modelo da faixa de tracções da treliça de Pratt

O modelo da faixa de tracções da treliça de Pratt modificado, proposto por Dubas, considera uma zona de extremidade que age como o "gusset" da treliça de Pratt, cuja capacidade ao corte é a de uma placa sujeita a corte puro, com um coeficiente de encurvadura k, igual à do painel de alma. As dimensões do "gusset" são determinadas usando a hipótese de von Karman, que admite que a tensão crítica de encurvadura de painéis de largura reduzida h_e deveria ser igual à tensão de cedência,

$$\tau_{crit} = \frac{k_\tau \pi^2 E}{12(1-\nu^2)}\left(\frac{t_w}{h_e}\right)^2 = \frac{k_\tau \pi^2 E}{12(1-\nu^2)}\left(\frac{t_w}{h}\right)^2\left(\frac{h}{h_e}\right)^2 = \frac{f_{yw}}{\sqrt{3}} \tag{2.22}$$

donde resulta

$$\tau_b = \frac{h_e}{h}\left(\frac{f_{yw}}{\sqrt{3}}\right) = \sqrt{\tau_{crit}\left(\frac{f_{yw}}{\sqrt{3}}\right)} \tag{2.23}$$

Este método serve de base para o método pós-crítico simples do Eurocódigo 3-1.1.

2.3.2.1.8. Modelo de Cardiff

Com a finalidade de definir um modelo de capacidade última que permitisse obter resultados satisfatórios perante diversas geometrias de vigas metálicas, vários investigadores realizaram ensaios experimentais com o intuito de estudar, com mais profundidade, o comportamento estrutural dos referidos elementos. Constatou-se que a influência da rigidez à flexão dos banzos deveria ser considerada nos modelos de esgotamento. Neste sentido, definiu-se um modelo de capacidade última denominado "modelo de Cardiff" (Porter et al., 1975; Rockey et al., 1978), que permitia a obtenção de resultados satisfatoriamente próximos aos ensaios experimentais.

O modelo de Cardiff considera que, posteriormente à instabilidade do painel de alma, se desenvolve um campo diagonal de tracções, convenientemente ancorado nos reforços

transversais e nos banzos; este campo diagonal de tracções confere resistência pós-crítica à viga. A distância de ancoragem depende, entre outras variáveis, da rigidez dos banzos, permitindo considerar-se a contribuição dos mesmos para a resistência às solicitações de corte. O esgotamento surge com a formação de quatro rótulas plásticas nos banzos devido à ancoragem do campo diagonal de tracções (ver Figura 2.17). A expressão proposta constitui a base da apresentada no Eurocódigo 3 – Parte 1.1.
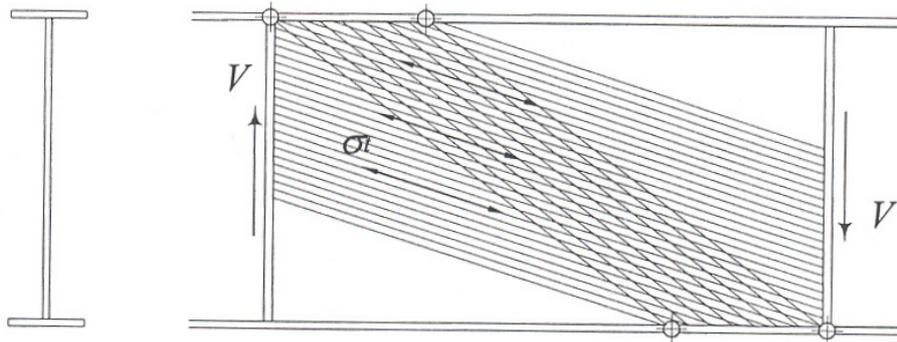
Figura 2.17 – Modelo de Cardiff.

2.3.2.1.9. Modelo do campo de tensões rodado

Neste modelo, para a capacidade resistente perante o esforço de corte de painéis de alma, a redistribuição de tensões que surgem depois de se alcançar a carga crítica da alma, correspondendo a um aumento de tensões de tracção, é explicada por uma distribuição não uniforme da tensão de corte ao longo da extremidade, em substituição do campo de tensão diagonal, resultando num campo de tensões que muda (roda) pela alma. Este modelo é preconizado no Eurocódigo 3 e apresenta-se 2.3.3.3.

2.3.2.1.10. Modelo de Ajam e Marsh

Em Marsh e Ajam (1988) e Ajam e Marsh (1991) apresenta-se um modelo de elementos finitos que confirma, segundo os autores, a hipótese de que a resistência pós-crítica é atribuída a uma distribuição de tensões de corte não uniforme ao longo da fronteira do painel, variando desde a tensão crítica num dos cantos até à tensão de corte de plastificação noutro canto. Não é realçada a tensão diagonal.

A capacidade de carga última de painéis de alma sujeitos ao corte é modelada como um somatório da contribuição da alma e dos banzos. Assim, segundo os autores, para a previsão da capacidade última de painéis de alma sujeitos ao corte, a resistência do próprio painel e a influência da deformação por flexão dos banzos podem ser analisadas separadamente. Ajam e Marsh propuseram expressões de dimensionamento relativamente simples, aplicáveis a maioria dos painéis, com resultados satisfatórios, segundo os autores, quando comparados com outros métodos, oferecendo uma previsão directa da força última de corte, sem necessidade de ajustamentos empíricos. O modelo comprova, segundo os autores, que nas vigas metálicas usadas na maioria das construções actuais, onde a área do banzo é inferior à da alma, a contribuição do banzo na capacidade última e consequente tracção diagonal é secundária.

2.3.2.1.11. Modelo de Lee e Yoo

Lee e Yoo (1998, 1999) efectuaram análises não lineares com o recurso a um modelo de elementos finitos tridimensional, simulando vigas metálicas compostas por chapas de aço com reforços transversais, sujeitas a forças tangenciais. Baseados num estudo paramétrico dos resultados numéricos obtidos, propuseram novas equações de dimensionamento para a determinação da tensão de corte última em painéis de alma. Para validar estas equações, os resultados obtidos foram comparados com os mais relevantes resultados experimentais existentes até à data da investigação (Lee e Yoo, 1998). Os mesmos autores, nos anos posteriores, realizaram ensaios experimentais que vieram, da mesma forma, comprovar as equações propostas (Lee e Yoo, 1999).

Os estudos analíticos apresentados revelam, segundo os autores, que as equações de previsão de Basler (1963) e Porter et al. (1975), adoptadas nas especificações de dimensionamento da British Standard BS5400 (1978), entre outras, são capazes de prever a tensão última de corte de forma adequada, embora entre certas proporções geométricas. Sugeriram, contudo, um novo conjunto de equações, baseados em modos de rotura mais precisos para painéis de alma sob corte puro.

Contudo, este e os restantes modelos já apresentados, não têm em conta a possível variação de inércia da viga. Por esta razão, não permitem tratar a resposta estrutural até ao esgotamento de vigas metálicas de inércia variável.

2.3.2.2. Modelos de capacidade pós-crítica em vigas metálicas de inércia variável

Para a tipologia de vigas metálicas de inércia variável de alma esbelta foram propostos alguns modelos de capacidade última, baseados em alguns modelos já apresentados para vigas metálicas com almas de altura constante. É conveniente assinalar que, até à data, é reduzida a quantidade de trabalhos de investigação rigorosos e/ou ensaios experimentais sobre o comportamento estrutural de vigas metálicas esbeltas de inércia variável.

2.3.2.2.1. Modelo de Falby e Lee

O modelo de capacidade última de vigas metálicas de inércia variável proposto por Falby e Lee (1976) baseia-se na teoria defendida por Basler. As investigações realizadas por Falby e Lee permitiram concluir que os modelos de capacidade última de vigas de inércia constante podiam ser utilizados em situações de vigas com painéis de alma com altura variável, desde que o ângulo de inclinação do banzo inferior fosse pequeno. Para ângulos de inclinação do banzo inferior consideráveis, Falby e Lee propõem a utilização de um modelo simplificado de cálculo.

Este modelo considera, por um lado, que a tensão crítica de enfunamento da alma pode ser calculada mediante as expressões da teoria clássica para chapas rectangulares, adoptando como valor da altura o valor médio das alturas maior e menor do painel de alma com altura variável. Por outro lado, considera-se que a capacidade pós-crítica do painel de alma se deve ao desenvolvimento de um campo diagonal de tracções, que apresenta a distribuição apresentada na Figura 2.18.
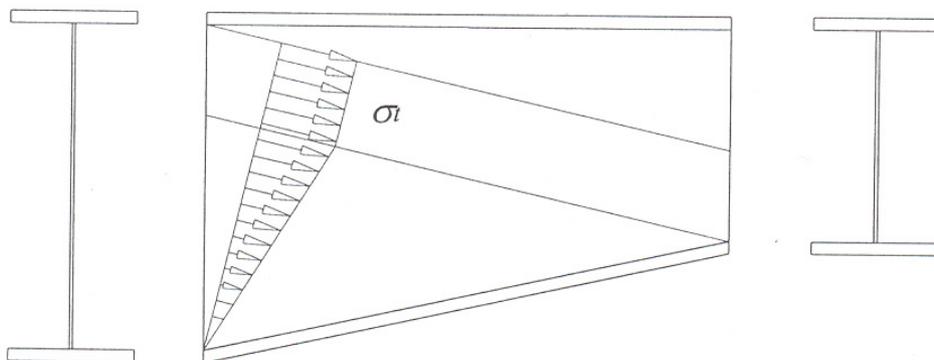
Figura 2.18 – Modelo proposto por Falby e Lee.

Falby e Lee concluem que a distribuição do campo diagonal de tracções na alma é conservadora. Contudo, assinalam que, através do modelo proposto, se obtêm melhores resultados relativamente às expressões para vigas com inércia constante. Tal como no modelo de Basler, despreza-se a contribuição dos banzos para a resistência ao corte; despreza-se, igualmente, a componente vertical do esforço axial no banzo inclinado.

2.3.2.2.2. Modelo de Davies e Mandal

Davies e Mandal (1979) propuseram um modelo de capacidade última para vigas de inércia variável de alma esbelta, com base em ensaios experimentais levados a cabo para esta tipologia de vigas. O modelo considera a viga de inércia variável como uma viga triangular (Figura 2.19a), a qual se vê submetida a uma carga vertical e a um momento flector num ponto obtido como a intersecção entre o eixo do banzo superior e do banzo inferior (ver Figura 2.19b). O momento exterior actuante na viga triangular é o resultado da translação da carga exterior, $P/2$, no dito ponto.

A interpretação do comportamento estrutural da viga triangular realiza-se através da consideração da referida viga como uma treliça (ver Figura 2.19c), onde a diagonal traccionada *AB* representa o campo diagonal de tracções, enquanto que a diagonal comprimida *CD* resiste às tensões principais de compressão, até ao enfunamento do painel de alma. Posteriormente a esta instabilidade, considera-se que as diagonais comprimidas não oferecem capacidade resistente à viga de inércia variável para continuar a suportar o esforço de corte.

a) viga de inércia variável solicitada por uma carga *P*/2

b) discretização através de carregamento num ponto fictício

c) treliça utilizada para o desenvolvimento do modelo
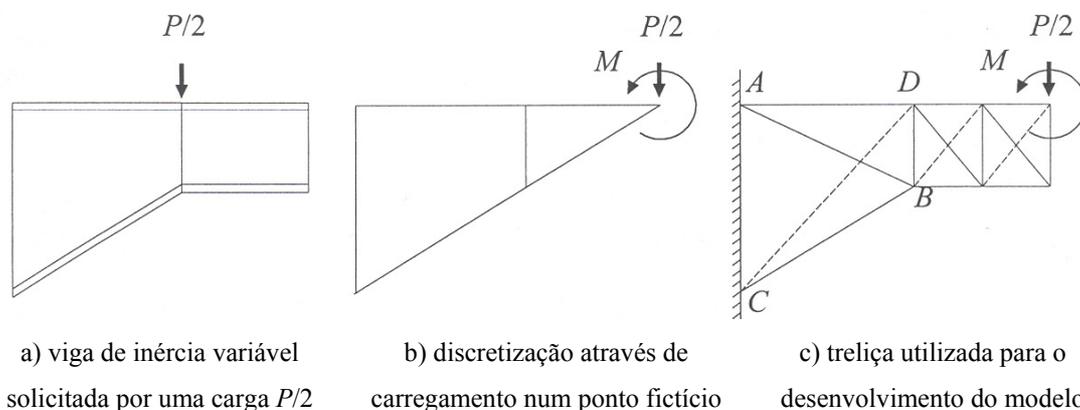
Figura 2.19 – Modelo proposto por Davies e Mandal.

O modelo de capacidade última com base no comportamento de uma viga em treliça de altura variável permitiu desenvolver uma formulação que considera a capacidade de resistência a cargas verticais devido ao facto de um banzo ser inclinado. Esta capacidade adicional depende da componente vertical do esforço axial no referido banzo.

Da mesma forma que para as vigas de inércia constante, Davies e Mandal consideram que a capacidade última do painel de alma das vigas de inércia variável pode ser definido através da sobreposição de dois estados de tensão. O primeiro, correspondente à tensão crítica de enfunamento do painel de alma e, o segundo, referente à capacidade pós-crítica da alma (desenvolvimento do campo diagonal de tracções na alma). Neste modelo, e tal como no proposto por Falby e Lee, a tensão crítica de enfunamento do painel de alma obtém-se mediante as expressões da teoria clássica para a placa rectangular com condições fronteira de bordo simplesmente apoiado.

Por outro lado, Davies e Mandal consideram, no modelo, a rigidez à flexão dos banzos; por conseguinte, é ponderada a contribuição dos banzos na resistência ao corte, tal como se propõe em Porter et al. (1975). O esgotamento desta mesma capacidade resistente da viga de inércia variável alcança-se quando se desenvolvem rótulas plásticas nos banzos.

Os resultados obtidos relativos à capacidade última das vigas ensaiadas foram muito semelhantes aos previstos através do modelo. Contemplou-se, contudo, um único valor para o ângulo de inclinação do banzo. Os autores concluem, no entanto, haver a necessidade de comparar o modelo proposto com ensaios experimentais, em que se contemple uma maior amplitude de parâmetros geométricos (inclinação do banzo inferior e relação entre a altura maior e a distância entre os reforços transversais). Concluem, igualmente, pela necessidade de determinar expressões que permitam calcular, com maior rigor científico, a tensão crítica de enfunamento de paneis de alma de vigas de inércia variável.

Galambos (1998) assinala que o modelo proposto por Davies e Mandal permite a obtenção de resultados muito próximos aos conseguidos mediante ensaios experimentais. Contudo, adverte que não se adequa às tipologias estruturais de vigas de inércia variável típicas em construção metálica e mista, indicando a necessidade de se

desenvolver um modelo que contemple as tipologias utilizadas na prática habitual, bem como as solicitações actuais.

2.3.2.2.3. Modelo de Takeda e Mikami

Um modelo mais recente de capacidade última de vigas de inércia variável é o proposto por Takeda e Mikami (1987), o qual está baseado na teoria proposta por Chern e Ostapenko (1969) para vigas metálicas com painéis de alma com altura constante. A capacidade última vem igualmente definida pela sobreposição de dois estados de tensão, correspondentes às fases pré e pós-crítica, respectivamente. Contudo, ao contrário dos dois modelos anteriores para vigas de inércia variável, a tensão crítica de enfunamento determina-se com base na formulação resultante da aplicação dos modelos de elementos finitos ao estudo da instabilidade de uma placa trapezoidal.

O modelo de Takeda e Mikami considera que o campo diagonal de tracções está constituído por duas faixas: a primeira, correspondente a uma faixa central de largura *s*, ancorada nos reforços transversais; a segunda, no desenvolvimento da parte inferior da faixa central, sendo a sua largura uma percentagem da largura da referida faixa central definida pelo coeficiente ρ (ver Figura 2.20).
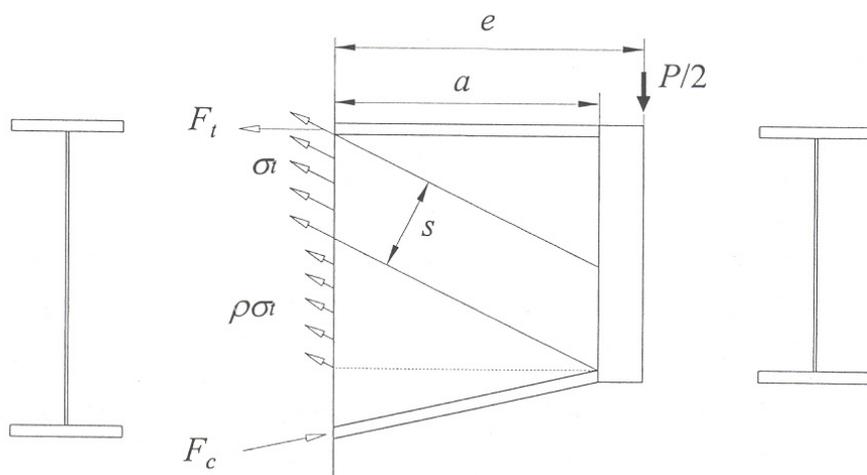
Figura 2.20 – Modelo proposto por Takeda e Mikami.

Ao contrário do modelo proposto por Chern e Ostapenko, despreza-se a contribuição dos banzos para a resistência ao corte, definindo o esgotamento da viga através da capacidade do painel de alma ao corte. Ou seja, os autores consideram que o campo

diagonal de tracções está ancorado unicamente nos reforços transversais (ver Figura 2.20). Esta consideração é contrária ao defendido por Davies e Mandal.

2.3.2.2.4. Modelo de Zárate

Zárate (2002) realizou numerosas análises numéricas, recorrendo a um software de elementos finitos, que permitiram igualmente constatar a existência de uma reserva de resistência adicional resultante do desenvolvimento, na alma, de um campo diagonal de tracções ancorado nos reforços transversais e nos banzos. Neste sentido, o autor desenvolveu um método de dimensionamento e/ou verificação da segurança de vigas em I de inércia variável, mediante a adequação do método do campo diagonal de tracções a esta situação (Figura 2.21).
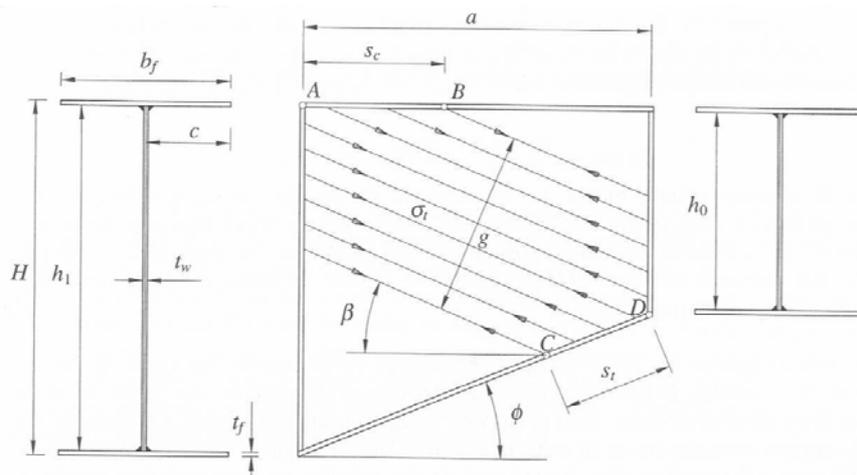
Figura 2.21 – Modelo proposto por Zárate.

Atendendo a que o presente modelo se apresenta como o mais abrangente, relativamente aos já referenciados, expõem-se, seguidamente o modelo de Zárate.

A expressão analítica desenvolvida para determinar a capacidade resistente de uma viga em I de alma esbelta e de inércia variável considera que o esforço transverso aplicado é totalmente absorvido pelo painel de alma e que a resistência máxima resulta do somatório do esforço transverso resistido até ao enfunamento da alma na fase pós-crítica:

$$V_u = \tau_{cr} \cdot h_0 \cdot t_w + \sigma_{bb} \cdot g \cdot t_w \cdot \sin \beta \qquad \textbf{(2.24)}$$

em que: τ_{cr} - tensão crítica de enfunamento; h_0 - altura do lado menor da alma; t_w - espessura do painel de alma; σ_{bb} - resistência do campo diagonal de tracções; g - largura do campo diagonal de tracções; e β - inclinação do campo diagonal de tracções. A resistência do campo diagonal de tracções é determinada pela seguinte expressão:

$$\sigma_{bb} = \rho \cdot \sigma_t \tag{2.25}$$

em que ρ é o factor de redução do campo diagonal de tracções e σ_t a grandeza do mesmo. O factor de redução depende da relação τ_{cr} / τ_p. Assim:

- se $\tau_{cr}/\tau_p < 0.20 \Rightarrow \rho = 1.0$;

- se $0.20 \le \tau_{cr}/\tau_p \le 0.60 \Rightarrow \rho = 1.25\left(1 - \sqrt{3}\,\dfrac{\tau_{cr}}{f_{y,w}}\right)$;

- se $\tau_{cr}/\tau_p > 0.60 \Rightarrow \rho = 0.5$;

em que $\tau_p = f_{y,w}/\sqrt{3}$ é a tensão tangencial última e $f_{y,w}$ é a tensão de cedência do material da alma.

A grandeza do campo diagonal de tracções determina-se através de

$$\sigma_t = -\frac{A}{2} + \frac{\sqrt{A^2 - 4\left({\sigma_b}^2 + 3{\tau_{cr}}^2 - {f_{y,w}}^2\right)}}{2} \tag{2.26}$$

com

$$A = 3\,\tau_{cr}\sin(2\beta) + 2\sigma_b\cos\beta^2 - \sigma_b\sin\beta^2 \tag{2.27}$$

onde σ_b é a tensão normal que actua no painel de alma quando este instabiliza, definindo-se da seguinte forma:

$$\sigma_b = \frac{M\,h_0}{3\,I_{h0}} \tag{2.28}$$

sendo I_{h0} o momento de inércia na secção transversal de altura menor e M o valor do momento flector que actua no elemento quando a alma instabiliza:

$$M = \frac{P\,2\,a}{4}$$ (2.29)

com

$$P = 2\,\tau_{cr}\,h_0\,t_w$$ (2.30)

A largura do campo diagonal de tracções é obtida através da seguinte expressão:

$$g = (s_c - a)\sin\beta + h_0\cos\beta + s_t\sin(\phi + \beta)$$ (2.31)

Na expressão s_c e s_t representam, respectivamente, as distâncias de ancoragem do campo diagonal de tracções no banzo superior e inferior:

$$s_c = \frac{2}{\sin\beta}\sqrt{\frac{M_p}{\sigma_t\,t_w}}$$ (2.32)

$$s_t = \frac{2}{\sin(\beta + \phi)}\sqrt{\frac{M_p}{\sigma_t\,t_w}}$$ (2.33)

M_p é o momento plástico reduzido do banzo, considerando o esforço axial que actua neste painel, podendo ser determinado através de

$$M_p = \frac{t_f^{\,2}}{4}b_f\,f_{y,f}\left[1 - \left(\frac{N}{b_f\,t_f\,f_{y,f}}\right)^2\right]$$ (2.34)

O esforço axial, superior e inferior, que actua no painel que constitui o banzo, pode obter-se recorrendo às expressões seguintes:

$$N_{\text{sup}} = -\sigma_{bb}\,t_w\,s_c\sin\beta\cos\beta$$ (2.35)

$$N_{\text{inf}} = -\left[\frac{M_{h0}}{(h_0 + t_f)\cos\phi} + \sigma_{bb}\, t_w\, s_t\, \sin(\phi + \beta)\cos(\phi + \beta)\right]$$ **(2.36)**

$$M_{h0} = M_{h1} - V_u\, a$$ **(2.37)**

Em que M_{h1} e M_{h0} são os momentos flectores que actuam nas secções transversais de altura maior e menor, respectivamente, da viga de inércia variável.

2.3.3. Métodos preconizados no Eurocódigo 3

A resistência ao corte é correntemente baseada em modelos de dimensionamento pós-críticos. A parte 1.1 do Eurocódigo 3 – Estruturas de Aço – publicado em 1992, estabelece regras gerais, não cobrindo a avaliação da resistência à encurvadura por esforço transverso de almas reforçadas longitudinalmente. Na referida publicação, apresentam-se dois métodos alternativos para a avaliação da resistência à encurvadura por esforço transverso de almas reforçadas apenas transversalmente.

Devido às soluções económicas de vigas passarem, muito frequentemente, por almas muito esbeltas, tornou-se desta forma necessário estabelecer um guia para tais situações (Silva et al., 1998). A parte 1.5 do Eurocódigo apresenta, assim, um terceiro procedimento.

Neste sentido, as recomendações de dimensionamento apresentadas no Eurocódigo correspondem a três diferentes procedimentos: o método pós-crítico simples, o método do campo de tracções e o método do campo de tensões rodado.

A resistência do painel de alma de uma viga de alma cheia, em relação à encurvadura por esforço transverso, deve ser verificada sempre que a relação entre a altura da alma e a sua espessura (h / t_w) satisfaça as condições apresentadas na Tabela 2.2,

Tabela 2.2 – Condições de verificação em relação à encurvadura por esforço transverso.

$h/t_w > 69\,\varepsilon$	Almas sem reforços transversais
$h/t_w > 30\,\varepsilon\,(k\tau)^{0.5}$	Almas reforçadas transversalmente

sendo ε um coeficiente que depende do tipo de aço ($\varepsilon = \sqrt{235/f_{yw}}$) e k_τ o coeficiente de encurvadura da placa. Como o regulamento impõe que as almas cujas dimensões verifiquem a condição da Tabela 2.2 devam ser reforçadas transversalmente nas secções dos apoios, a designação "alma sem reforços transversais" refere-se, assim, a almas com reforços transversais apenas nas secções dos apoios.

Como referido, na parte 1.1 do Eurocódigo são propostos dois métodos de verificação da resistência das almas em relação à encurvadura por esforço transverso: o método simples pós-crítico e o método do campo diagonal de tracções. O primeiro método, que é o mais conservativo, pode ser utilizado em qualquer situação, enquanto que, o segundo, pode somente ser utilizado para almas reforçadas transversalmente, onde,

$$1 \le (a/h) \le 3 \qquad \textbf{(2.38)}$$

em que a é o espaçamento livre entre reforços transversais, e no caso de painéis de extremidade, desde que o reforço de extremidade seja suficientemente rígido.

Como método alternativo, ou no caso de almas com reforços longitudinais, utiliza-se o indicado na Parte 2 (ENV 1993-2 EC3). Este, por sua vez, remete para a parte 1.5 do EC3, que complementa a parte 2 do EC3 com regulamentação específica para placas. Neste caso, o método, indicado como o "método do campo de tensões rodado", refere que a segurança da alma em relação à encurvadura por esforço transverso deve ser verificada sempre que se verifiquem as condições presentes na Tabela 2.3,

Tabela 2.3 – Condições de verificação para o método do campo de tensões rodado.

$h / t_w > 72 \, \varepsilon / \eta$	Almas não reforçadas
$h / t_w > 31 \, \varepsilon \, (k\tau)^{0.5} / \eta$	Almas reforçadas

sendo η um coeficiente dependente do tipo de aço, de acordo com a Tabela 2.4,

Tabela 2.4 – Coeficiente η relativo ao tipo de aço.

$\eta = 1.20 \cdot (\gamma_{M1}/\gamma_{M0})$	Para aços do tipo S235, S275 e S355
$\eta = 1.05 \cdot (\gamma_{M1}/\gamma_{M0})$	Para aços do tipo S420 e S460

e γ_{M1} e γ_{M0} coeficientes de segurança. Pode ser observado, contudo, que os limites para verificação automática da resistência por encurvadura perante o esforço transverso não coincidem entre os três métodos; por exemplo, para aço S235, $72 / \eta = 60 \neq 69$.

2.3.3.1. Método simples pós-crítico

De acordo com este método, a segurança da alma em relação à encurvadura por esforço transverso está garantida se

$$V_{z.Sd} \leq V_{ba.Rd} = h\,t_w\,\tau_{ba}/\gamma_{M1} \tag{2.39}$$

onde, $V_{ba.Rd}$ é o valor de cálculo da resistência da alma à encurvadura por esforço transverso e τ_{ba} é a tensão tangencial média associada ao estado limite último de colapso da alma; o valor de τ_{ba} é função do valor da esbeltez normalizada da alma ao corte, $\overline{\lambda}_w$.

2.3.3.2. Método do campo de tracções

De acordo com este método, a segurança da alma em relação à encurvadura por esforço transverso está garantida se,

$$V_{z.Sd} \leq V_{bb.Rd} = \left(h\,t_w\,\tau_{bb} + 0.9\,g\,t_w\,\sigma_{bb}\sin\phi\right)/\gamma_{M1} \tag{2.40}$$

onde, $V_{bb.Rd}$ é o valor de cálculo da resistência da alma à encurvadura por esforço transverso; τ_{bb} é a tensão tangencial; e σ_{bb} é a tensão instalada no campo diagonal de tracções quando ocorre o colapso.

A primeira parcela da equação (2.40) corresponde à resistência de pré-encurvadura da alma (resistência inicial). O valor de τ_{bb} é condicionado pelos valores da tensão de cedência e da tensão crítica da alma. Tal como no método anterior, também este valor depende de $\overline{\lambda}_w$. A segunda parcela de (2.40) corresponde à resistência de pós-encurvadura da alma, a qual é devida à formação do campo diagonal de tracções e cujo valor é condicionado pela resistência do campo de tracções σ_{bb}, pela largura g e inclinação ϕ do campo diagonal de tracções.

2.3.3.3. Método do campo de tensões rodado

De acordo com este método, a encurvadura por esforço transverso é verificada reduzindo a espessura da alma a uma espessura efectiva, de acordo com as expressões (2.41) e (2.42).

$$V_{z.Sd} \leq V_{bc.Rd} = \left(\chi_v \, d \, t_w \, f_{yw} \sqrt{3} \right) / \gamma_{M1} \tag{2.41}$$

e

$$\chi_v = \chi_w + \chi_f \ \text{ com } \ \chi_v < \eta \tag{2.42}$$

onde $V_{bc.Rd}$ é o valor de cálculo da resistência da alma à encurvadura por esforço transverso; e χ_v o coeficiente de redução da alma, o qual é obtido pela contribuição da alma, χ_w, e pela contribuição dos banzos, χ_f. Por uma questão de simplicidade, a componente χ_f pode ser desprezada.

2.3.4. Degradação de resistência devido a corrosão em painéis de alma

Poucos estudos foram até à data realizados acerca da degradação de resistência provocada por corrosão em vigas com secção em I de alma esbelta, compostas por chapas de aço soldadas. Há a realçar, no entanto, as investigações feitas por Kayser e Nowak (1989), Dinno e Birkemoe (1997) e Cruz e Guimarães (2003).

2.3.4.1. Modelo de Kayser e Nowak

Kayser e Nowak (1989) apresentaram um modelo de danos por corrosão para pontes mistas com vigas metálicas compostas por chapas de aço. A capacidade de suporte da estrutura é determinada considerando o esforço de corte e momento flector.

A degradação de resistência depende da localização e da taxa de corrosão. Uma localização típica de corrosão em pontes de vão único, segundo Kayser e Nowak, é apresentada na Figura 2.24.

O método é demonstrado com a aplicação do mesmo em duas estruturas típicas perante um ambiente agressivo, com os resultados a evidenciarem que os critérios de avaliação

mudam ao longo do tempo. Esta alteração de comportamento baseia-se nas espessuras relativas da alma e dos banzos. A alma apresenta-se, tanto perante o esforço de corte como perante o momento flector, como o elemento tipicamente crítico, particularmente em pequenos vãos sem reforços transversais.
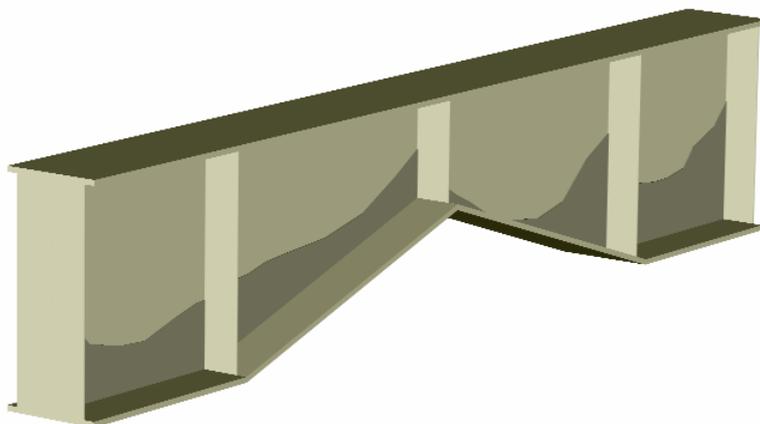
Figura 2.22 – Localização típica de corrosão.

Das suas investigações concluíram que a capacidade de deterioração em pontes mistas pode ser modelada combinando informação acerca da localização e taxa de corrosão em métodos de análise estrutural. A corrosão tem um efeito prejudicial na capacidade de suporte da estrutura. Contudo, o efeito da corrosão varia, dependendo da localização e do grau da mesma. A redução de capacidade de carga ocorre mais rapidamente para estruturas esbeltas.

Quando se prevê que uma ponte não terá apropriada manutenção e pintura, então deve ser construída com reforços transversais no painel de alma. Estes reforços oferecem à viga maior tolerância à corrosão. Recomenda-se assim que, em projecto, se preveja a degradação de resistência durante todo o ciclo de vida da estrutura.

2.3.4.2. Modelo de Dinno e Birkemoe

Em 1997, Dinno e Birkemoe, como resultado das suas investigações, sugeriram um modelo de elementos finitos para vigas metálicas compostas por chapas de aço incorporando corrosão localizada no painel de alma. A resistência e estabilidade de uma região corroída foram estudadas utilizando análises não lineares de elementos finitos.

A Figura 2.25 mostra um painel típico estudado, de dimensões *a* por *h*. A zona afectada, idealizada como rectângulo, tem as dimensões de *m* por *l*. A localização da zona corroída é caracterizada referenciando-se o centro do painel, com o ângulo *θ*, entre um eixo horizontal e um outro que passe no centro do painel e no centro da zona afectada, sendo *shift* a distância entre o centro do painel de alma e o centro da área afectada.
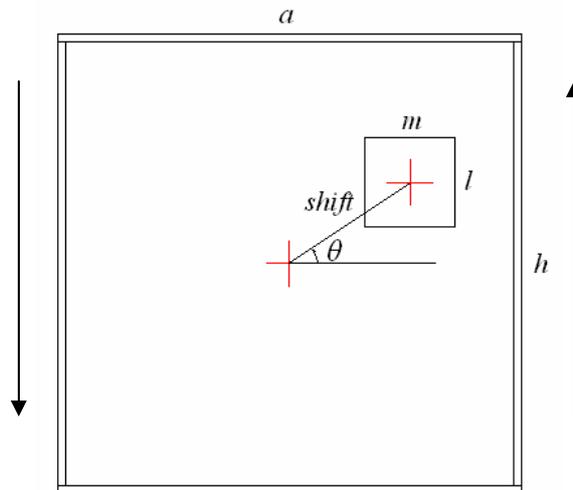
Figura 2.23 – Modelo de Dinno e Birkemoe.

Embora a corrosão possa afectar qualquer painel da viga, o estudo foi restrito apenas ao painel de alma. Este modelo permite considerar somente uma zona afectada.

Assumiu-se que a distribuição de espessura na zona afectada pode ser representada pela equação (2.43),

$$t_n = t\left(t - t_r\right)\sin\left[\frac{\pi x}{l}\right] \text{ com } 0 < x \le \frac{1}{2}l \tag{2.43}$$

onde t_n é a espessura actual, t é a espessura original, t_r a espessura mínima corroída e l a menor dimensão da mancha.

Sendo a corrosão um processo aleatório, dependente de um grande número de factores, a zona afectada pode ter várias formas ou orientações. Na investigação foram examinadas as formas quadrada e rectangular e conclui-se que as rectangulares (com relação entre a largura e a altura maior que 1) têm um efeito de redução de resistência ligeiramente maior relativamente às outras formas (Figura 2.26a).

Relativamente à posição do centro da mancha de corrosão, apesar dos poucos resultados apresentados, verifica-se que, quando a mancha de corrosão está situada na diagonal correspondente ao desenvolvimento do campo de tensões, a degradação de resistência é maior, especialmente se a referida redução de espessura estiver próxima da zona de ancoragem do campo diagonal de tracções (Figura 2.26b).
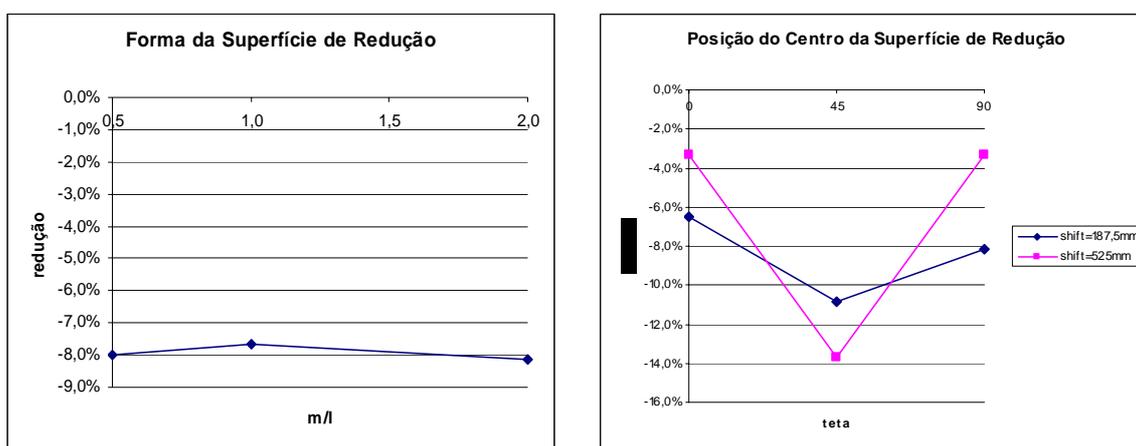
a) Forma da superfície de redução   b) posição da superfície de redução

Figura 2.24 – Resultados obtidos por Dinno e Birkemoe.

Para se obter uma estimativa aproximada da redução de resistência de painéis de alma ao corte devido a corrosão localizada, as cargas últimas obtidas para os painéis com a patologia da corrosão resultantes da análise de elementos finitos foram comparadas com a seguinte equação simples, baseada na redução de espessura do painel:

$$P_u = \left(\frac{A_r}{A_{orig}} \right)^2 \times P_{orig} \tag{2.44}$$

onde P_u é a resistência última do painel corroído, A_r a área de secção do painel na secção de espessura mínima, A_{orig} a área da secção do painel sem corrosão e P_{orig}, a resistência última de uma painel não corroído determinada pela análise de elementos finitos.

Em síntese, concluíram que os parâmetros críticos de corrosão em painéis de alma submetidos a forças tangenciais são: a relação entre a área afectada e a área total do painel de alma; a relação entre a mínima (na zona afectada) e a máxima espessura do

painel de alma; e, por último, a localização da superfície afectada. A relação entre a altura e a largura da zona afectada não apresentou grandes efeitos na carga obtida.

2.3.4.3. Análise numérica por Cruz e Guimarães

Mais recentemente, Cruz e Guimarães (2003) realizaram uma análise numérica acerca do efeito da redução de espessura da alma na estabilidade de vigas I de inércia variável, recorrendo ao programa de elementos finitos ABAQUS.

O modelo de elementos finitos adoptado teve como base as análises efectuadas por Zárate (2002). As investigações realizadas sobre a influência da variação da espessura do painel de alma foram de dois tipos: numa primeira análise, visando os limites de tolerância nos desvios da espessura das chapas, admitidos na norma EN 10029 (por exemplo, para chapas projectadas para espessuras compreendidas entre 8 e 15 mm, o limite de tolerância das espessuras nominais é de -0.5mm a +1.2mm); numa segunda análise, visando a diminuição de espessura efectiva em determinadas zonas do painel de alma, onde o mesmo painel foi dividido em quatro zonas distintas, criando oito casos de análise (Figura 2.27), com a imposição de uma redução de espessura de 1 e 2 mm.
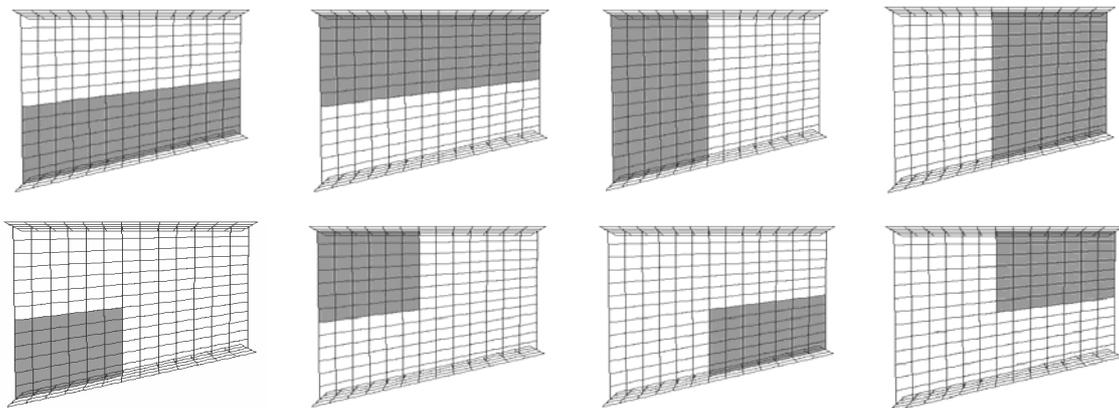
Figura 2.25 – Casos de análise em Cruz e Guimarães (2003).

As análises numéricas realizadas permitiram extrair algumas conclusões relativamente ao comportamento estrutural, seguidamente apresentadas.

A resistência efectiva das vigas I de alma esbelta e inércia variável pode ficar aquém da prevista. Os elementos estruturais nem sempre apresentam as características

geométricas definidas na fase de projecto. Assim, por questões de segurança, é recomendável que sejam efectuados cálculos para prever a capacidade resistente dos elementos estruturais com as espessuras mínimas regulamentares.

A diminuição da espessura no painel de alma provoca a diminuição do valor da carga crítica de enfunamento e da carga máxima perante forças tangenciais. No entanto, o decréscimo do valor da carga crítica é bastante superior à diminuição do valor da carga máxima, o que faz com que a reserva de resistência (resistência pós-crítica) seja maior em painéis de alma de maior esbeltez.

O comportamento da viga não depende directamente da percentagem de área do painel de alma com espessura reduzida, mas sim da zona onde a referida redução se verifica. Uma redução da espessura do painel de alma no quadrante esquerdo superior tem efeitos significativos na diminuição da capacidade resistente. Trata-se de uma zona preponderante na ancoragem do campo diagonal de tracções, de modo que a perfeita ancoragem do campo diagonal de tracções será posta em causa quando a espessura do painel diminui. Se a redução da espessura se localizar no quadrante esquerdo inferior, a resposta da viga face à acção de esforços de corte é praticamente igual à da viga de referência.

2.3.5. Revisão crítica dos modelos descritos

Neste ponto apresenta-se, de forma muito resumida, uma revisão crítica dos modelos descritos anteriormente. Pretende-se expor os aspectos mais relevantes e, sobretudo, destacar os pontos mais débeis dos mesmos.

Em primeiro lugar, convém fazer referência aos aspectos relacionados com o estudo do fenómeno da instabilidade do painel de alma e com a determinação da sua tensão tangencial crítica de enfunamento. O primeiro ponto corresponde a supor que as condições fronteira do painel de alma, para todos os modelos descritos, são as correspondentes à condição de bordo simplesmente apoiado, não se considerando, neste sentido, nenhum efeito de coacção à rotação, que será tanto mais significativo quanto mais robustos forem os banzos. O segundo ponto é o que faz referência à própria altura variável do painel de alma. Os modelos de Falby e Lee, de Davies e Mandal e de

Takeda e Mikami não permitem considerar a existência de um banzo inclinado e, portanto, não permitem determinar a tensão tangencial crítica de enfunamento para painéis com formas trapezoidais. Esta lacuna foi, no entanto, resolvida satisfatoriamente com o método proposto por Zárate e Mirambell.

Na fase pós-crítica, alcançada já a instabilidade da alma, a definição do campo diagonal de tracções influenciará, de forma decisiva, a capacidade última ao corte da viga metálica de inércia variável. Este campo diagonal deverá considerar a formulação de rótulas plásticas nos banzos e a variação da própria geometria e inércia de viga.

Nos modelos de Falby e Lee e de Takeda e Mikami não se considera a ancoragem do campo diagonal de tracções nos banzos e, por conseguinte, despreza-se a capacidade dos banzos na resistência ao corte. Contudo, no modelo de Davies e Mandal propõe-se uma distribuição do campo diagonal de tracções que permite considerar a formulação de rótulas plásticas nos banzos, para vigas metálicas com altura constante. Da mesma forma, mas para vigas de inércia variável de alma esbelta, o modelo de Zárate (2002), baseado no modelo de Cardiff, oferece resultados satisfatórios para a obtenção da carga última. Contudo, cabe apontar algumas limitações ao modelo de Cardiff. Em primeiro lugar, a sua utilização está limitada a valores do parâmetro de forma entre 1 e 3. Em segundo lugar, a componente da capacidade pré-crítica, até alcançar o enfunamento, obtém-se com base nas expressões da teoria linear clássica de enfunamento, considerando como condições fronteira para o painel os bordos simplesmente apoiados. Ou seja, não se tem em consideração a possível coacção à rotação que pode ter a alma como resultado da existência dos banzos e dos reforços. Em qualquer dos casos, o modelo de Cardiff permite obter resultados excelentes no que se refere à obtenção da capacidade última de vigas metálicas de alma esbelta e altura constante.

O modelo de Zárate apresenta-se, desta forma, como o mais abrangente, pois para além de considerar a formulação de rótulas nos banzos, pode ser utilizado tanto para vigas de inércia constante ou variável.

Relativamente aos modelos relativos à degradação de resistência provocada por corrosão, no método apresentado por Kayser e Nowak (1989), é de salientar que a corrosão é prevista como uniformemente generalizada, sendo incompatível com

situações de corrosão localizada. O método foi desenvolvido para vigas sem reforços transversais, e não prevê inércia variável.

Dinno e Birkemoe (1997) realizaram análises numéricas que permitiam observar o comportamento ao corte de vigas metálicas compostas por chapas de aço soldadas. O seu modelo é bastante interessante, principalmente na forma como define a zona afectada por corrosão. Porém, o número de análises foi bastante reduzido, e a previsão foi efectuada somente para a carga última, com a degradação por corrosão limitada a uma só zona. A equação proposta da redução de resistência é demasiado simplificada, sendo pouco provável a sua utilização em situações práticas.

Cruz e Guimarães (2003) apresentaram um modelo mais adaptado à realidade, com a previsão da carga crítica de enfunamento elástico bem como da carga última. No entanto, o número de análises foi igualmente reduzido, e a divisão do painel em quatro zonas poderá dificultar a aplicação em casos práticos. Não é possível prever a redução de resistência para uma diferente situação, com outras variáveis geométricas. Embora a forma como aborda a simulação da corrosão como redução de espessura no painel de alma seja dificilmente encontrada na realidade, a determinação de uma espessura equivalente da zona afectada é um procedimento relativamente simples e de fácil execução em situações práticas.

A falta de informação relativa ao comportamento de membros metálicos corroídos torna difícil a tarefa do engenheiro em analisar e decidir sobre as estruturas existentes, surgindo a necessidade de desenvolvimento de técnicas ainda mais avançadas para avaliar eficientemente a integridade e segurança estrutural. Devido à crescente utilização de vigas I de inércia variável, importa desenvolver estudos rigorosos e detalhados sobre a sua resposta estrutural, em condições de serviço e numa situação próxima ao colapso, quando aqueles elementos sofrem processos de degradação (Cruz e Guimarães, 2003). Com os métodos conhecidos até à data, ainda não é possível determinar com objectividade a carga crítica de enfunamento e a carga última em vigas de inércia variável com variações de espessura localizadas no painel de alma, que se apresenta, como o elemento tipicamente crítico.

Neste sentido, surge a necessidade de levar a cabo um estudo que permita, para uma grande amplitude de variáveis geométricas, obter uma previsão para a carga crítica de enfunamento elástica e da carga última, para vigas afectadas com corrosão, em uma ou mais zonas do painel de alma. Esta investigação terá que ser baseada em modelos consensuais já existentes, com o estudo de um elevado número de casos geométricos.

Capítulo 3

Análise Numérica

3.1. Introdução

O dimensionamento de estruturas metálicas constituídas por chapas de aço requer um estudo aprofundado dos fenómenos de enfunamento, de forma a se prever, com o máximo rigor possível, o comportamento das mesmas perante os estados limites de utilização e último.

A eventual plastificação do aço pode conjugar-se com os fenómenos de instabilidade geométrica de tais estruturas. Neste sentido, para o seu estudo, é necessário usar métodos de análise estrutural avançados que, partindo de uma adequada técnica para a descrição das geometrais iniciais e deformadas, permitam tratar com realismo os principais aspectos do seu comportamento não linear (Zárate e Mirambell, 2002). Entre estes, destacam-se a influência dos efeitos de segunda ordem no equilíbrio (não linearidade geométrica) e as complexidades devidas ao comportamento real do material para níveis de tensão elevados (não linearidade do material).

3.2. Modelo numérico adoptado

A análise estrutural deste tipo de vigas deve abordar-se com técnicas ou modelos avançados que permitam considerar as diversas variáveis que intervêm no seu complexo comportamento até à rotura. Em paralelo, existem, actualmente, diversos programas de cálculo automático comerciais baseados no método dos elementos finitos que

representam o coroar de muitos anos de investigação; embora sejam alvo de uma constante evolução, a qualidade dos resultados obtidos oferece confiança.

Para a concretização dos objectivos da presente investigação, definiu-se um modelo de elementos finitos, baseado no utilizado por Zárate (2002), para o cálculo da capacidade crítica e última ao corte de vigas de inércia variável de alma esbelta, composta por chapas de aço soldadas, quando afectadas por corrosão. Para a obtenção dos resultados, efectuaram-se análises recorrendo ao programa comercial de elementos finitos ABAQUS (Hibbit et al., 2001), amplamente utilizado na modelação de problemas não lineares de engenharia estrutural, validado em numerosas ocasiões. O ambiente ABAQUS é apresentado na Figura 3.1.
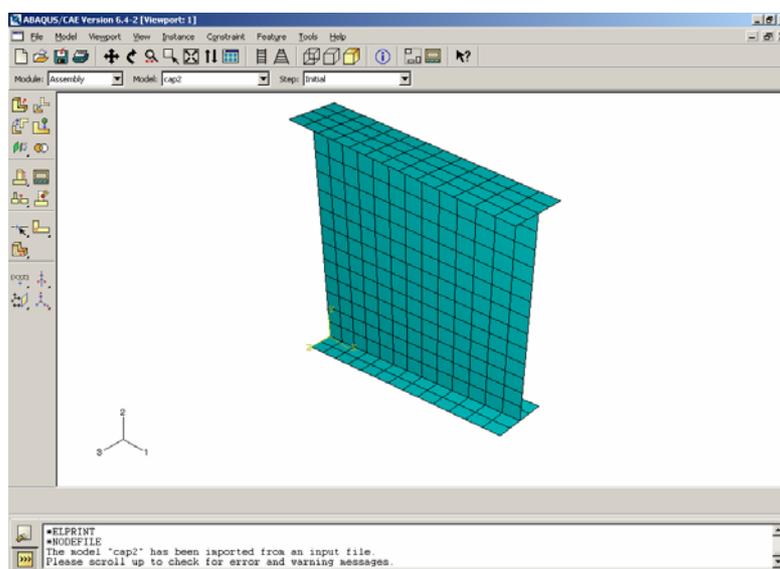
Figura 3.1 – Ambiente ABAQUS.

O ABAQUS é um programa avançado de análise e cálculo de estruturas, incorporando diversas teorias referentes tanto ao comportamento de materiais como aos tipos de elementos finitos mais apropriados para considerar o problema em questão. Os conceitos teóricos acerca de elementos finitos sobre a qual se suporta o código ABAQUS, bem como as técnicas de resolução dos problemas, estão, naturalmente, fora do âmbito desta investigação, podendo ser encontradas em Zárate (2002).

Neste capítulo são apresentadas as características do modelo apresentado, bem como as condições admitidas no ABAQUS.

A validação dos resultados do modelo é igualmente apresentada neste capítulo, comparando-os com os resultados experimentais e resultados obtidos através da utilização de alguns modelos de cálculo da capacidade última ao corte deste tipo de vigas, nomeadamente: resultados experimentais de Lee e Yoo (1999); modelos de cálculo apresentados por Basler (1959), Cardiff (Porter et al., 1975 e Rockey et al., 1978) e Lee e Yoo (1998 e 1999); resultados numéricos em Dinno e Birkemoe (1997) e Cruz e Guimarães (2003).

3.2.1. Generalidades

O módulo de instabilidade do ABAQUS (*buckle*) é usado para se estimar o autovalor de enfunamento, o que significa conhecer as cargas no elemento estrutural para as quais a matriz de rigidez do modelo se torna singular. Neste sentido, o problema

$$K^{MN} v^M = 0 \qquad\qquad (3.1)$$

tem várias soluções. K^{MN} é a matriz de rigidez tangente quando as cargas são aplicadas, e v^M são as soluções indeterminadas para os deslocamentos. As cargas aplicadas podem consistir em pressões, forças concentradas, deslocamentos não nulos prescritos, e/ou solicitações de temperatura (Hibbit et al., 2001).

Uma análise deste tipo permite, assim, determinar vários modos de enfunamento (diferentes autovalores). Na Figura 3.2 apresentam-se, como exemplo, os cinco primeiros modos de enfunamento obtidos para uma viga metálica de inércia variável.

O primeiro modo de enfunamento é normalmente o desejado para a obtenção da carga crítica de enfunamento, pois é originado pela menor solicitação, necessitando de menor energia, sendo o de maior probabilidade de ocorrência (Figura 3.3). Contudo, o primeiro modo referido pode corresponder à instabilidade nos banzos, quando os mesmos apresentam uma reduzida espessura. Nestes casos, terão de ser cuidadosamente avaliados os resultados da análise linear, no sentido de se obterem posteriormente resultados válidos decorrentes da análise não linear.
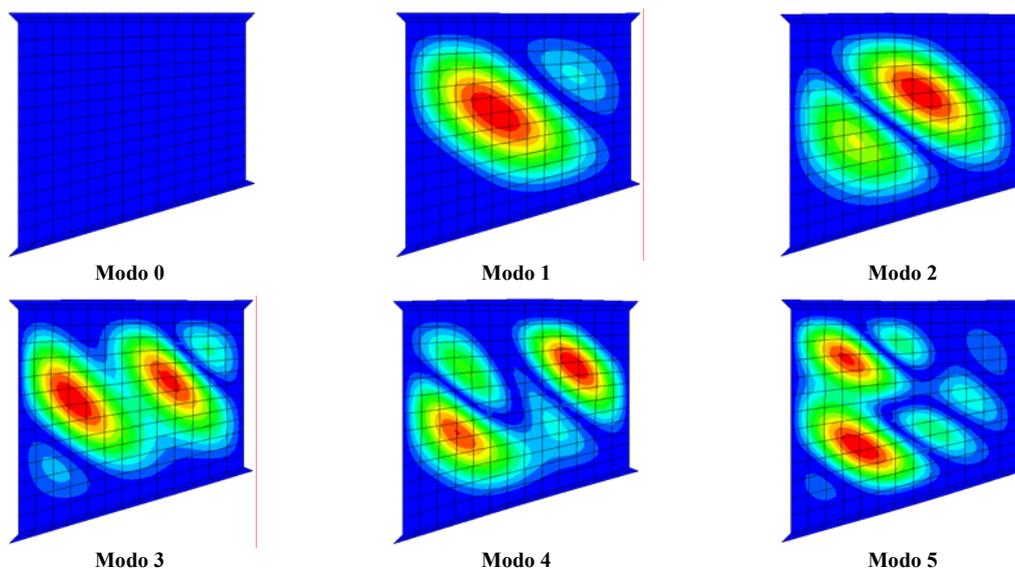
Figura 3.2 – Modos de enfunamento obtidos.

Após a análise linear, onde se obtém uma previsão da carga crítica de enfunamento, procede-se à análise não linear. Para se conhecer o comportamento pós-crítico do elemento, até ao colapso, recorre-se, na maioria das vezes, ao procedimento *static, riks* (ABAQUS). Este procedimento é normalmente utilizado na previsão de instabilidades e colapsos não lineares de uma estrutura. Pode incluir materiais com características não lineares, sendo normalmente o passo seguinte a uma análise de autovalor de enfunamento (*buckle*) de forma a se obter informação completa acerca do colapso da estrutura. No manual do software são encontradas mais informações acerca dos procedimentos referidos (*buckle* e *static, riks*).
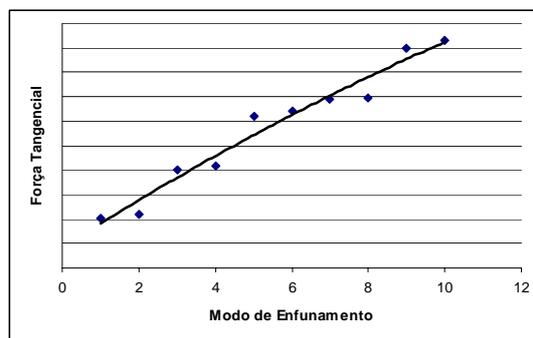
Figura 3.3 – Variação da carga crítica prevista relativamente ao modo de enfunamento.

Em modelos computacionais, uma placa perfeita não sofre o enfunamento, não se obtendo, assim, o comportamento observado em situações reais. Neste sentido, é necessária a imposição de uma imperfeição geométrica (ver 3.2.3).

Devido à esbeltez do painel de alma a analisar, o seu comportamento estrutural pode ser interpretado através do comportamento de estruturas laminares. Neste sentido, a discretização da geometria das peças de inércia variável foi levada a cabo mediante elementos finitos tipo lâmina de nove nós com integração reduzida (S9R5), assumindo a teoria de placas delgadas de Kirchhoff. Estas oferecem um comportamento teórico consistente com o comportamento das chapas de aço que constituem as vigas metálicas de alma esbelta.

Incluem-se, na análise, os fenómenos de não linearidade geométrica, consequência da hipótese de grandes deslocamentos e pequenas deformações. A incorporação de grandes deslocamentos realiza-se mediante uma actualização contínua da geometria da estrutura para cada incremento de deformação, para que a condição de equilíbrio se estabeleça sobre a configuração deformada (Zárate, 2002).

O modelo de comportamento do aço é um modelo constitutivo biaxial e isótropo, combinado com o critério de plastificação em tensões de von Mises. A superfície de cedência pode mover-se como um sólido rígido sem modificar o seu tamanho e forma, podendo reproduzir-se processos monotónicos de carga e processos de descarga e recarga. As relações constitutivas baseiam-se no diagrama tensão-deformação uniaxial do aço com comportamento elastoplástico. Na presente investigação adoptou-se, para os painéis que compõem as vigas, o aço do tipo S355. A tensão de cedência deste tipo de aço, f_{sy}, é de 355 MPa, a tensão resistente, f_{su}, é de 510 MPa, o módulo de elasticidade, E, vale 210 GPa e o coeficiente de Poisson, v, vale 0.3 (ver Figura 3.4).
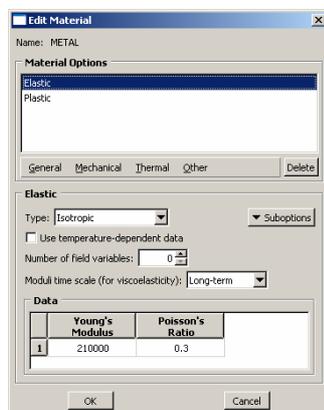
a) Características elásticas   b) Características plásticas
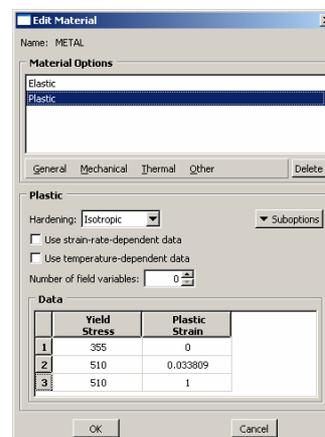
Figura 3.4 – Características do material. (ABAQUS CAE)

O ABAQUS não fornece de forma directa a curva força tangencial versus deslocamento perpendicular ao plano da alma. Neste sentido, e para a obtenção da referida curva, são retirados os resultados de dois nós distintos: no nó 13427 (Figura 3.5), obtém-se o valor da carga concentrada (vertical) no referido nó para, seguidamente, se determinar a carga tangencial total, como somatório das cargas em todos os nós; no nó 13413 (Figura 3.6), obtém-se o deslocamento perpendicular ao plano da alma (como não é objecto de análise o deslocamento perpendicular máximo, não é necessariamente obrigatório a escolha do nó onde se verifica o mesmo deslocamento).
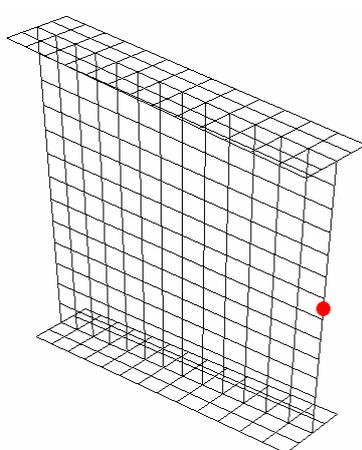
a) Localização do nó 13427
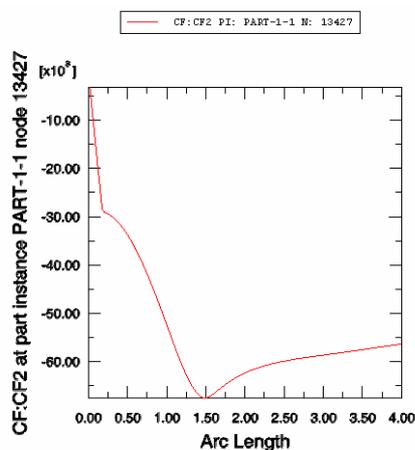
b) Variação da força vertical concentrada no nó 13427, ao longo dos incrementos de carga (exemplo).

Figura 3.5 – Obtenção da carga tangencial. (ABAQUS Viewer)
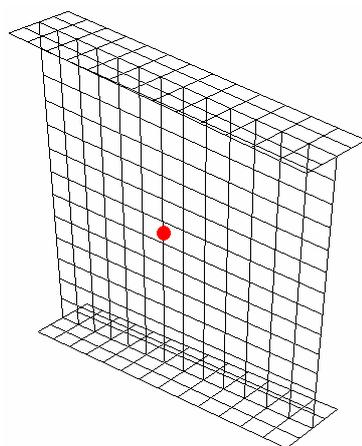
a) Localização do nó 13413
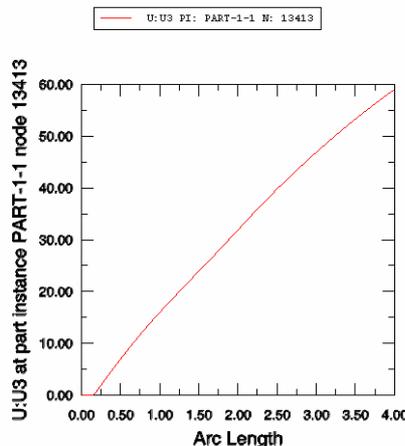
b) Variação do deslocamento perpendicular ao plano inicial da alma no nó 13413, ao longo dos incrementos de carga (exemplo).

Figura 3.6 – Obtenção do deslocamento perpendicular ao plano inicial da alma.

Relacionam-se os resultados obtidos para o mesmo *arc length*, obtendo-se, desta forma, a já apresentada curva característica carga tangencial versus deslocamento perpendicular ao plano da alma.

3.2.2. Condições fronteira

Como referido no Capítulo 2 existem, na bibliografia, diferentes expressões que permitem determinar a tensão crítica de enfunamento de chapas rectangulares submetidas a tensões tangenciais, em função das condições fronteira, do parâmetro de forma e das próprias características do material. No caso de vigas de inércia variável, a tensão crítica de enfunamento ao corte do painel de alma depende igualmente das condições fronteira e, em particular, das condições de vinculação entre a alma e os banzos da viga, e entre a alma e os elementos rígidos transversais; também depende da inclinação do banzo inferior (Zárate, 2002).

Basler e Thürlimann (1959) e Porter et al. (1975) adoptaram, nos seus estudos relativos ao comportamento ao corte último, as condições fronteira correspondentes às de um painel simplesmente apoiado nas suas quatro extremidades. Ostapenko et al. (1971) adoptaram, contudo, condições de contorno dos bordos encastrados dos lados maiores e apoiado nos lados menores. Recentemente, Lee et al. (1996) e Lee e Yoo (1998, 1999), concluíram que adoptar a situação de contorno de bordo simplesmente apoiado na união entre o banzo e a alma de vigas metálicas, para a determinação da tensão crítica de enfunamento da alma ao corte, era uma opção excessivamente conservadora.

No código numérico de análise estrutural proposto por Zárate (2002) foi considerada a presença dos banzos e, por conseguinte, a influência da rigidez destes na carga crítica de enfunamento elástico e na carga última da alma das vigas de inércia variável, o que se traduz num certo grau de resistência à rotação que pode acontecer no painel de alma de altura variável. Os painéis de alma estão delimitados na direcção longitudinal por duas linhas transversais de deformação nula que reproduzem o efeito dos elementos rígidos transversais. Esta união entre a alma e os elementos rígidos interpreta-se, na análise, como uma fronteira simplesmente apoiada. Na Tabela 3.1 apresentam-se as condições de fronteira adoptadas nas análises estruturais efectuadas sobre vigas metálicas de

inércia variável na presente investigação. Na referida tabela, u_x, u_y e u_z representam as restrições segundo os eixos globais *XYZ*, e θ_x, θ_y e θ_z as rotações correspondentes (os graus de liberdade são considerados na superfície média do elemento), onde o algarismo 1 significa impedimento e 0 liberdade.

Tabela 3.1 – Condições fronteira adoptadas.

	u_x	u_y	u_z	θ_x	θ_y	θ_z	
①	0	1	1	1	1	0	
②	0	1	1	1	0	0	
③	0	1	1	1	1	0	
④	0	0	0	0	0	0	
⑤	0	0	0	0	0	0	
⑥	0	0	0	0	0	0	
⑦	0	0	0	0	0	0	
⑧	1	0	1	1	1	1	
⑨	1	0	1	1	0	1	
⑩	1	0	1	1	1	1	
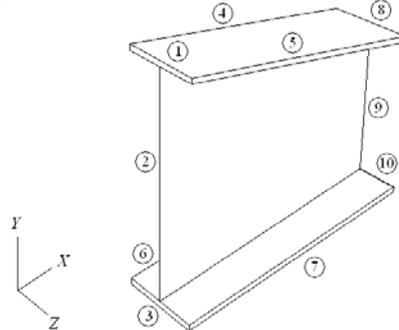
Estas condições fronteira foram as utilizadas por Zárate (2002) e Cruz e Guimarães (2003), baseadas no modelo de análise estrutural proposto por Zárate e Mirambell (2002), apresentado na Figura 3.7. Estas representam as condições próprias de uma viga simplesmente apoiada com carga pontual a meio vão. Estuda-se metade da viga simplesmente apoiada. Supõe-se que, tanto no apoio esquerdo como no direito, existem elementos perpendiculares ao plano médio da alma, pelo que, nos referidos apoios, se impedem os deslocamentos perpendiculares a esse plano. Por outro lado, considera-se que a presença de reforços transversais impede a rotação dos painéis dos banzos em torno do eixo *X* global, na secção de união e entre o banzo e os reforços transversais.
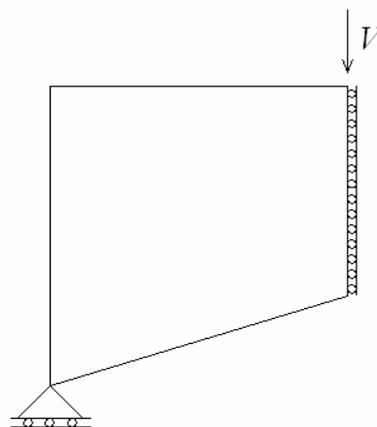
Figura 3.7 – Modelo de análise estrutural.

3.2.3. Imperfeições iniciais

Com o objectivo de se desencadear o fenómeno de enfunamento no painel de alma é necessário introduzir, no código numérico, e exclusivamente por razões de análise, imperfeições geométricas nos painéis que se analisam. Introduz-se, assim, uma pequena deformação na direcção perpendicular ao plano médio da chapa. A grandeza da referida deformação deverá ser a menor possível. Como referido, a forma inicial da deformação perpendicular ao painel de alma é normalmente semelhante ao primeiro modo de enfunamento ao corte dos painéis a estudar, correspondente ao modo de menor energia de deformação.

O software de elementos finitos permite estudar a resposta estrutural do painel de alma em função da imperfeição inicial. Neste sentido, foi analisado um painel rectangular genérico, com parâmetro de forma $\alpha = 1.0$, perante várias magnitudes de imperfeição inicial, obtendo-se curvas força tangencial versus deslocamento máximo normal ao plano da alma (ver Tabela 3.2).

Na presente investigação, o máximo deslocamento imposto, na direcção normal ao plano médio da alma, foi de 0.05 mm, isto é, aproximadamente igual a $t_w / 160$ (t_w é a espessura do painel de alma), ou $h / 40000$ (h é a altura do painel de alma), com vista à convergência do modelo. No entanto, na maioria das análises numéricas efectuadas, o deslocamento imposto foi de 0.01 mm, aproximadamente igual a $t_w / 800$, ou $h / 200000$. Analisando a Tabela 3.2, podemos observar que, variando a imperfeição inicial, varia igualmente a facilidade em determinar a carga crítica de enfunamento. Se a imperfeição inicial for elevada (> 0.1 mm), o ponto de bifurcação entre a fase pré e pós-crítica desaparece, sendo difícil a determinação através de forma gráfica, da carga crítica de enfunamento elástico. No entanto, como se pode observar na Tabela 3.2, relativamente à carga última, as variações são desprezáveis.

No caso de uma placa com pequenas deformações iniciais e para um valor de força tangencial próximo a 635 kN, de acordo com os resultados derivados do modelo, o deslocamento máximo perpendicular ao plano da alma cresce de forma acentuada. Neste instante, considera-se que o painel enfunou.

A previsão da carga crítica de enfunamento elástico através do autovalor de enfunamento evita o problema do desaparecimento do ponto de bifurcação, (grandes imperfeições iniciais), pois, como referido, as imperfeições iniciais são unicamente necessárias para a análise não linear.

Tabela 3.2 – Imperfeição inicial.

Imperfeição Inicial (mm)	Carga Última (kN)	Δ
0,005	1260,83	0,01%
0,010	1260,93	0,00%
0,020	1260,85	0,01%
0,030	1260,76	0,01%
0,050	1260,54	0,03%
0,100	1260,34	0,05%
1,000	1254,04	0,55%
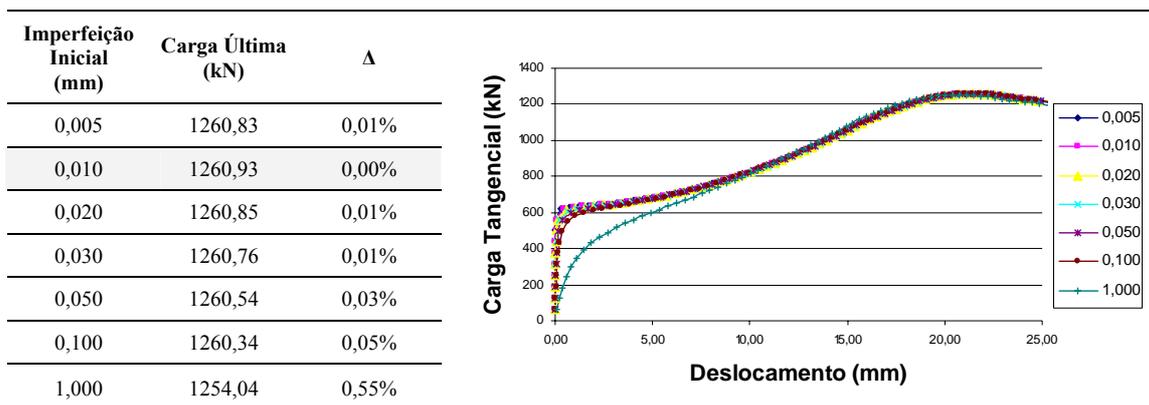
De acordo com ANSI/AASHTO/AWS D1.5-96 Bridge Welding Code (1996), as distorções iniciais permitidas para painéis de alma com reforços transversais intermédios variam entre $a/80$ e $a/130$ (a é o menor dos espaçamentos entre reforços transversais), dependendo das dimensões do painel e das configurações dos reforços. Em Lee e Yoo (1998), as equações propostas foram formuladas com deformações iniciais de $h/120000$. Neste sentido, as imperfeições iniciais impostas no presente modelo apresentam valores admissíveis.

3.2.4. Malha utilizada

Em Zárate (2002) a determinação do número de elementos finitos a utilizar na discretização das vigas de inércia variável (densidade da malha) realizou-se mediante uma análise comparativa dos resultados obtidos com o modelo numérico e a teoria clássica (Timoshenko e Gere, 1961).

Analisou-se, neste sentido, uma placa quadrada submetida a um estado de tensões tangenciais com condições de contorno, nas quatro extremidades, de uma placa simplesmente apoiada. Esta placa, de 4000 mm de lado e 12 mm de espessura, discretizou-se com diferentes densidades de malha (2x2, 4x4, 8x8 e 16x16 elementos).

No plano médio de cada placa considerou-se uma imperfeição inicial, correspondente ao primeiro modo de enfunamento e, posteriormente, submeteu-se a placa a um estado de tensões monotonicamente crescente, determinando a tensão crítica de enfunamento para as diferentes malhas consideradas. Observou-se que, a referida diferença, tende a ser muito pequena para densidades de malha superiores à densidade da malha de 8x8 elementos. Com base nos resultados obtidos, a malha adoptada foi a de 13x13 para o painel de alma e de 4x13 para os banzos.

Sendo a presente investigação baseada nos modelos numéricos de Zárate (2002), utilizou-se a referida malha de 13x13 elementos para o painel de alma e de 13x4 para os banzos. No entanto, efectuou-se uma análise comparativa, para um caso aleatório, entre a malha adoptada (13x13 e 13x4) e uma outra com mais elementos (34x34 e 34x4), com os resultados gráficos obtidos apresentados nas Figuras 3.8 e 3.9.

Relativamente à análise linear, os resultados obtidos foram de 593,4 kN (13x13 e 13x4) e de 593,0 kN (34x34 e 34x4), apresentando uma diferença desprezável.

Conferindo os resultados da análise não linear, observam-se algumas diferenças no estado de tensão do painel de alma na fase pós colapso. A diferença em termos de "pormenorização" é notória, sendo o estado de tensão nos banzos igualmente diferente. Embora as curvas força tangencial versus deslocamento máximo perpendicular ao plano médio da alma não sejam coincidentes, a carga última obtida pelas duas malhas é semelhante (1479 kN para a malha de 34x34 elementos e 1493 kN para a malha de 13x13 elementos), com uma diferença de 1% (Figura 3.10).

Embora, por princípio, uma malha com mais elementos permita obter uma maior precisão nos resultados, foi adoptada a malha de 13x13 para o painel de alma e de 13x4 para os banzos, tal como considerado em estudos anteriores (Zárate, 2002; Cruz e Guimarães, 2003).

As diferenças de resultados entre as malhas são reduzidas, como demonstrado, embora, para uma melhor conclusão, fosse necessário a avaliação de um maior número de casos de análise.

a) Análise linear (malhas: 13x13 e 13x4)   b) Análise linear (malhas: 34x34 e 34x4)
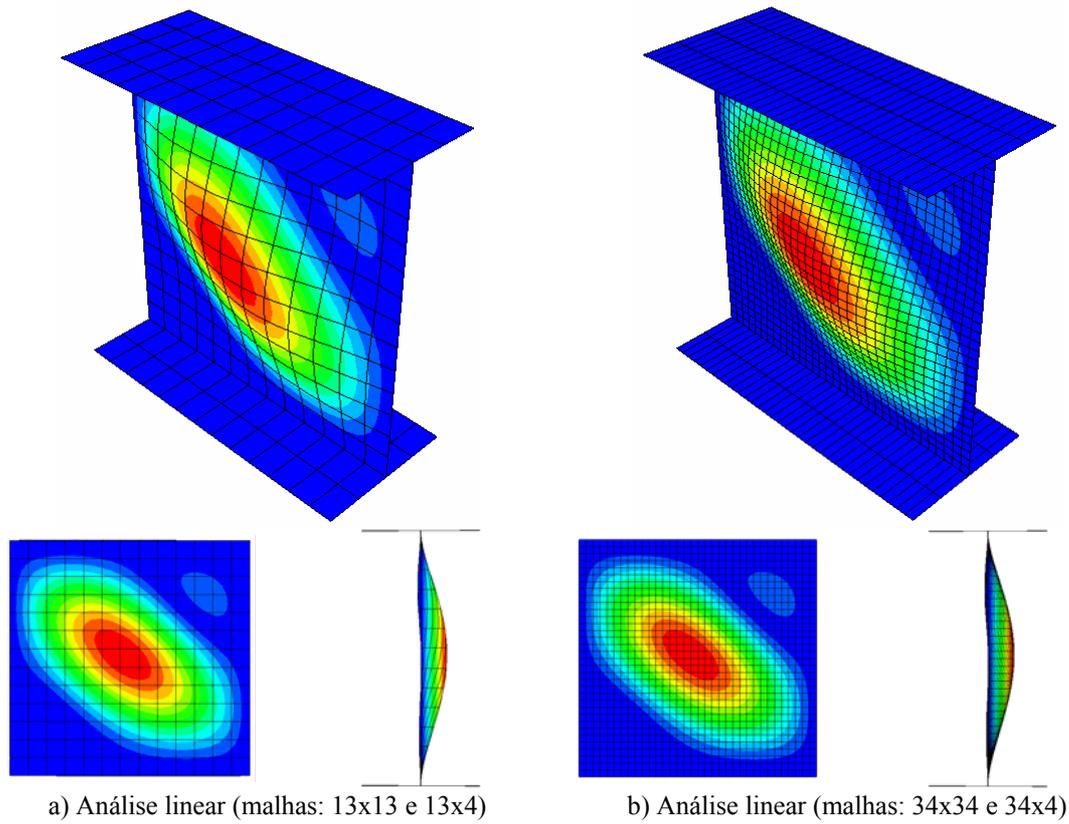
Figura 3.8 – Comparação entre malhas (análise linear).

a) Análise não linear (malhas: 13x13 e 13x4)   b) Análise não linear (malhas: 34x34 e 34x4)
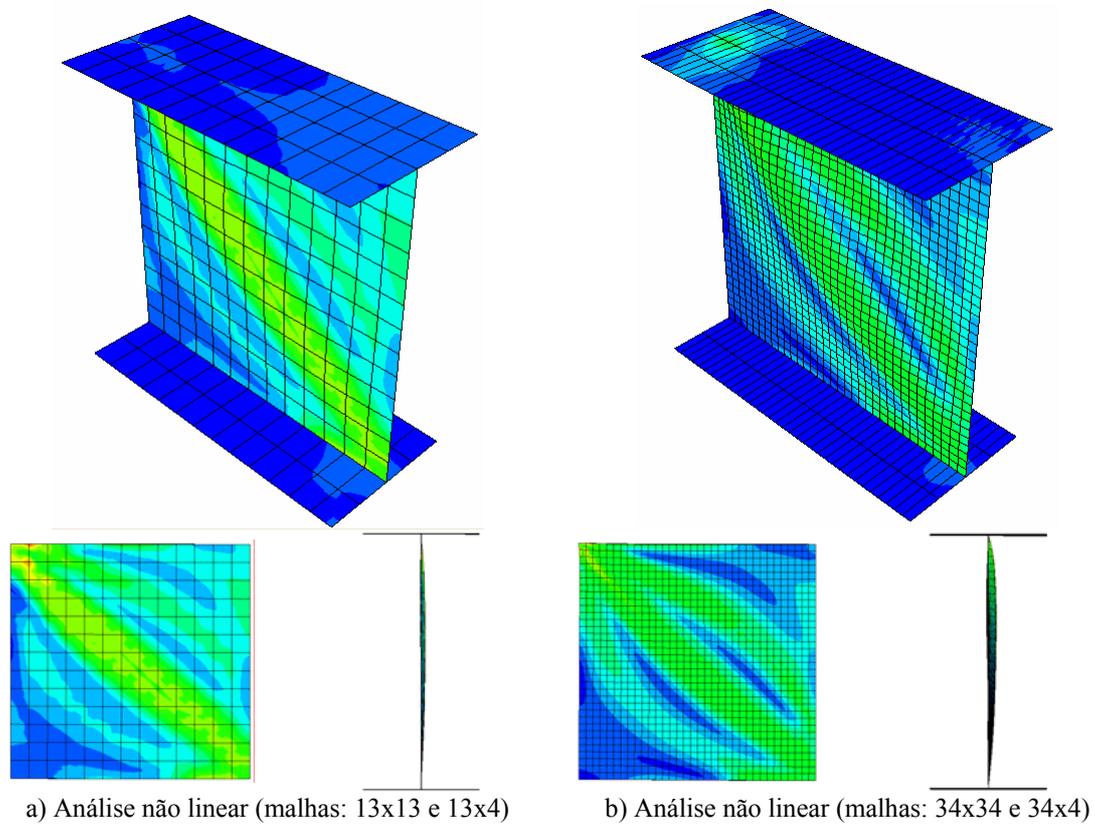
Figura 3.9 – Comparação entre malhas (análise não linear).

Para uma análise de um grande número de cenários geométricos torna-se incomportável a utilização de um modelo com um elevado número de elementos (malha de 34x34 para o painel de alma e 34x4 para os banzos), devido à necessidade de cerca de dez vezes mais do tempo de processamento, relativamente à malha utilizada (13x13 para o painel de alma e 13x4 para os banzos).
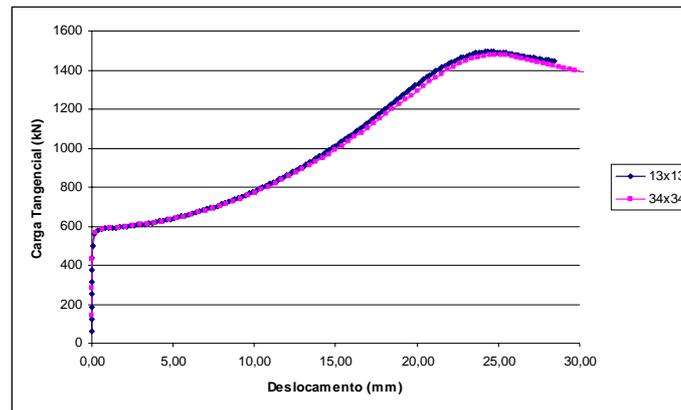
Figura 3.10 – Comparação entre malhas (curvas de comportamento).

3.3. Validação dos resultados derivados do modelo numérico adoptado

Com o objectivo de validar o modelo numérico a utilizar no estudo da capacidade crítica e última de vigas de inércia variável de alma esbelta, no presente ponto comparam-se os resultados obtidos através do modelo numérico com ensaios experimentais de vigas metálicas compostas por chapas de aço soldada. Esta confirmação permitirá confirmar as condições iniciais do modelo, como sejam as condições de contorno, as propriedades do material, as imperfeições inicias, a malha, entre outras.

3.3.1. Resultados obtidos por Lee e Yoo

Na Tabela 3.3 apresenta-se a geometria das vigas ensaiadas, as suas propriedades geométricas e a carga última experimental (Lee e Yoo, 1999).

Na Tabela 3.4, comparam-se os resultados obtidos através do modelo numérico apresentado nesta tese com: os resultados experimentais obtidos por Lee e Yoo (1999); o modelo de capacidade última pelos mesmos autores (1998); o modelo de Basler e o modelo de Cardiff (resultados apresentados em Lee e Yoo, 1999).

Tabela 3.3 – Descrição das vigas ensaiadas experimentalmente. (Lee e Yoo, 1999)

Viga	h_1 (mm)	a (mm)	α	t_w (mm)	t_f (mm)	b_f (mm)	$f_{y,w}$ (N/mm²)	$f_{y,f}$ (N/mm²)	V_u Exp. (kN)
G1	400	400	1.0	4	15	130	318.5	303.8	282.43
G2	600	600	1.0	4	10	200	318.5	303.8	332.45
G3	600	600	1.0	4	15	200	318.5	303.8	337.35
G4	400	600	1.5	4	15	130	318.5	303.8	268.80
G5	600	900	1.5	4	10	200	318.5	303.8	286.35
G6	600	900	1.5	4	20	200	318.5	303.8	312.83
G7	600	1200	2.0	4	10	200	285.2	303.8	258.90
G8	600	1200	2.0	4	15	200	285.2	303.8	276.45
G9	400	1200	3.0	4	10	130	293.0	303.8	161.81
G10	400	1200	3.0	4	15	130	293.0	303.8	194.57

Tabela 3.4 – Comparação entre resultados de capacidade última.

Viga	V_u (ensaios)	V_u (modelo)	Δ	V_u (Lee)	Δ	V_u (Basler)	Δ	V_u (Cardiff)	Δ	Modo de Rotura
G1	282,43	287,09	1,62%	289,10	2,31%	278,31	-1,48%	304,90	7,37%	Corte
G2	332,45	359,07	7,41%	317,83	-4,60%	343,63	3,25%	351,73	5,48%	Corte
G3	337,35	362,04	6,82%	317,83	-6,14%	343,63	1,83%	386,60	12,74%	Corte
G4	268,80	272,27	1,27%	275,57	2,46%	250,68	-7,23%	292,98	8,25%	Corte
G5	286,35	313,08	8,54%	296,26	3,35%	285,47	-0,31%	284,43	-0,68%	Corte
G6	312,83	320,55	2,41%	296,26	-5,59%	285,47	-9,58%	309,26	-1,15%	Corte
G7	258,90	276,87	6,49%	270,17	4,17%	231,14	-12,01%	228,99	-13,06%	Corte
G8	276,45	282,81	2,25%	270,17	-2,32%	231,14	-19,60%	251,64	-9,86%	Corte
G9	161,81	234,18	30,90%	245,56	34,11%	209,76	22,86%	214,08	24,42%	Banzo
G10	194,57	245,13	20,63%	245,56	20,76%	209,76	7,24%	225,06	13,55%	Flexão/Corte

Os resultados obtidos através do modelo apresentado na presente investigação são relativamente satisfatórios, especialmente quando comparados com os modelos teóricos, com a diferença a não ultrapassar os 9% (G1 a G8). As vigas G9 e G10, segundo os autores dos resultados experimentais, sofreram roturas diferentes da de corte, justificando-se assim a grande diferença dos resultados. De referir, igualmente, que os ensaios foram efectuados para tramos de vigas metálicas, compostas por vários painéis de alma, enquanto que o modelo numérico analisa simplesmente o tramo de viga entre separadores verticais de forma isolada.

3.3.2. Resultados por Dinno e Birkemoe

Em Dinno e Birkemoe (1997) apresentam-se alguns resultados para a carga última de vigas de inércia com secção constante solicitadas ao corte, obtidos por um modelo numérico de elementos finitos. A validação dos resultados foi efectuada em três situações onde, saliente-se, não há qualquer tipo de redução de espessura (Figura 3.11). A aproximação dos resultados é satisfatória, com a maior diferença entre os valores a não ultrapassar os 5% (t_w = 16 mm).
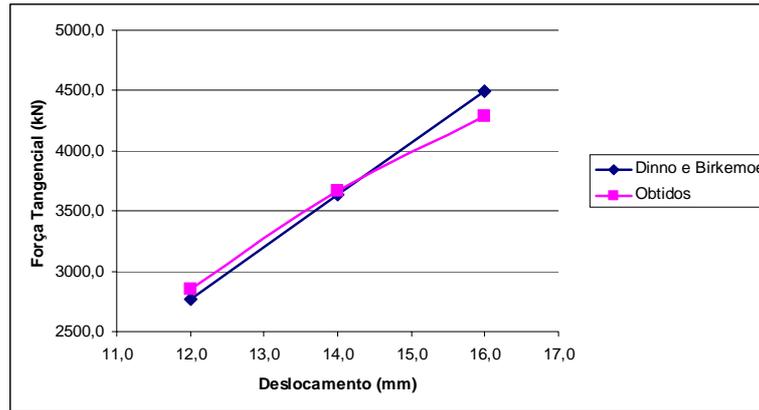
Figura 3.11 – Comparação com os resultados obtidos por Dinno e Birkemoe (1997).

No mesmo trabalho, os referidos autores apresentam outros resultados para painéis de alma com redução de espessura localizada. A concordância dos resultados obtidos com o modelo apresentado na presente dissertação e os apresentados por os presentes autores é igualmente satisfatória (Tabela 3.5). Para proceder à comparação de resultados referida, reduziu-se uniformemente a espessura da alma na zona afectada por corrosão, de forma a se obter uma secção com área equivalente à área da secção afectada em Dinno e Birkemoe. Os resultados obtidos são concordantes, com uma diferença aproximada de 1%. Na Tabela 3.5 apresentam-se, contudo, outras duas análises: uma correspondente à simulação com a espessura mínima do painel de alma em toda a zona afectada (redução de resistência elevada); uma outra, com a redução de espessura feita progressivamente, com aproximação à forma curva.

Esta comparação de resultados permite concluir que a redução uniforme de espessura no painel de alma, de forma a se obter uma secção com área equivalente na zona afectada, permite simular satisfatoriamente várias formas de reduções de espessura por corrosão.

3.3.3. Resultados obtidos por Cruz e Guimarães

Os resultados obtidos através do modelo base da presente investigação foram igualmente validados com os apresentados em Cruz e Guimarães (2003). Como seria de esperar, obteve-se uma boa concordância. As bases em que se sustenta o modelo de Cruz e Guimarães são as mesmas da presente investigação, podendo-se justificar a ligeira diferença de resultados em pontuais alterações das características dos modelos como, por exemplo, o processo incremental.

Tabela 3.5 – Resultados obtidos para várias formas de redução de espessura.

	Secção da Alma na Zona Afectada	Carga Última (kN)	Δ (1)	Δ (2)
(1) Dinno e Birkemoe (1997)		2856	-	-
		2624	- 7,7 %	-
(2) Modelo Numérico		2772	- 2,9 %	-
	12mm – 6mm – 12mm (Espessura mínima)	2413	-	- 13,0 %
	12mm – 8.12mm – 12mm (Área equivalente)	2544	-	- 8,2 %
	12mm – 10.8mm – 8.7mm – 7.0mm – 6.1mm	2581	-	- 6,9 %
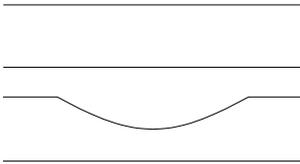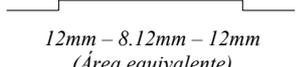
Na Figura 3.12 apresentam-se os resultados obtidos para as vigas sem qualquer redução de espessura, comparando-se apenas o efeito da variação da espessura da chapa, previsto na norma EN 10029 (1991).

A título de exemplo, para chapas que foram projectadas para espessuras compreendidas entre 8 e 15 mm, o limite de tolerância das espessuras nominais é de -0.5 mm a +1.2 mm. Desta forma, uma viga dimensionada com uma espessura de alma de 8.0 mm, poderá apresentar t_w entre 7.5 mm e 9.2 mm.

Analisando os resultados, conclui-se que a chapa dimensionada pode apresentar valores de resistência com uma razoável amplitude, sendo de, aproximadamente, 30% para a carga crítica de enfunamento e 15% para a carga última. Neste sentido, e por razões de segurança, é recomendável que sejam efectuados cálculos para prever a capacidade resistente dos elementos estruturais com as espessuras mínimas regulamentares (Cruz e Guimarães, 2003).
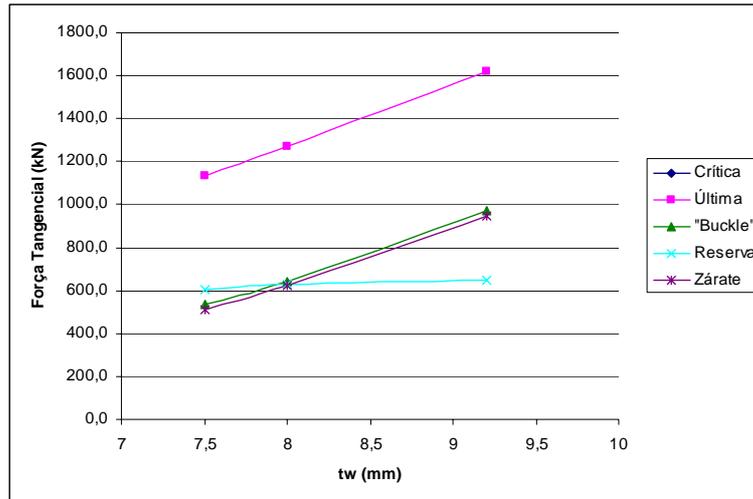
Figura 3.12 – Resultados obtidos por Cruz e Guimarães.

3.4. Análise de sensibilidade

Depois de apresentadas as características do modelo, com a análise e adopção das condições fronteira, a imperfeição inicial, o tipo de elemento e a malha de discreterização, bem como a própria validação do modelo, apresenta-se, neste ponto, uma primeira análise relativa à influência dos parâmetros geométricos, definidos na Figura 3.13, na carga crítica de enfunamento elástico e na carga última.
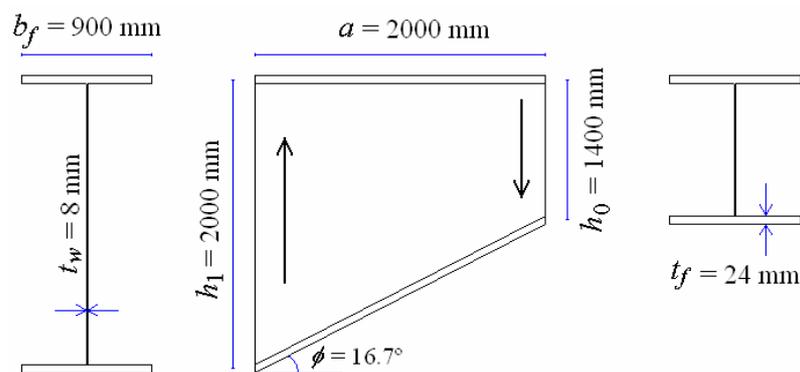
Figura 3.13 – Parâmetros geométricos.

Tomando-se por base uma viga com a geometria descrita na Figura 3.13, procedeu-se à variação individual das variáveis h_1, t_w, t_f, b_f, $tg\phi$ e α com o objectivo se obter uma análise de sensibilidade sobre a influência das variáveis nos valores de carga crítica de enfunamento e carga última. As características da geometria aleatoriamente escolhida estão apresentadas na Tabela 3.6. Todos os resultados numéricos obtidos neste ponto estão expostos no Anexo I.

Tabela 3.6 – Características geométricas da viga de referência.

α	$tg\phi$	h_1	t_w	b_f	t_f
1,00	0,30	2000	8	900	24,00

3.4.1. Altura máxima da alma

A partir da geometria aleatoriamente escolhida, procedeu-se à variação única de h_1 entre 500 mm e 4000 mm (com α = constante). Na Figura 3.14 apresentam-se os resultados obtidos para a carga crítica de enfunamento e carga última, retirados da análise das curvas força tangencial versus deslocamento máximo perpendicular ao plano da alma, bem como os valores obtidos para a carga crítica de enfunamento a partir do procedimento de análise linear denominado *buckle*, e a partir das equações propostas por Zárate (2002). Relativamente à carga crítica obtida através da análise das curvas apresentadas na Figura 3.14b, pode-se observar que os valores estão muito próximos da carga última até, aproximadamente, h_1 = 1000 mm. Com h_1 > 1000 mm, a reserva de resistência aumenta, surgindo uma considerável resistência pós-crítica. Os resultados obtidos através do procedimento *buckle* e equações propostas por Zárate (2002), para h_1 < 1250 mm, são inaceitáveis, sendo mesmo superiores ao valor de carga última; para h_1 > 1250 mm, os resultados são muito próximos aos obtidos a partir da análise das curvas da Figura 3.14b.

3.4.2. Espessura da alma

Procedeu-se à variação única de t_w entre 4 e 16 mm. Os resultados obtidos estão apresentados na Figuras 3.15. Analisando primeiramente a tensão crítica de enfunamento elástico, verifica-se que, para valores de t_w reduzidos (t_w = 4 mm), a carga crítica de enfunamento é muito reduzida, relativamente à carga última, sendo a reserva de resistência aproximadamente igual à carga última. Para valores de t_w elevados (t_w > 15 mm), pelo contrário, a carga crítica é aproximadamente igual à carga última, sendo a reserva de resistência quase nula. Com t_w > 14 mm, os resultados obtidos através do procedimento *buckle* e a partir das equações propostas por Zárate (2002) deixam de ter significado, pois chegam a ultrapassar o valor de carga última. Para a amplitude de valores que se pretende efectuar as variações geométricas (entre 6 e 12 mm), os valores obtidos com o procedimento referido são aceitáveis.
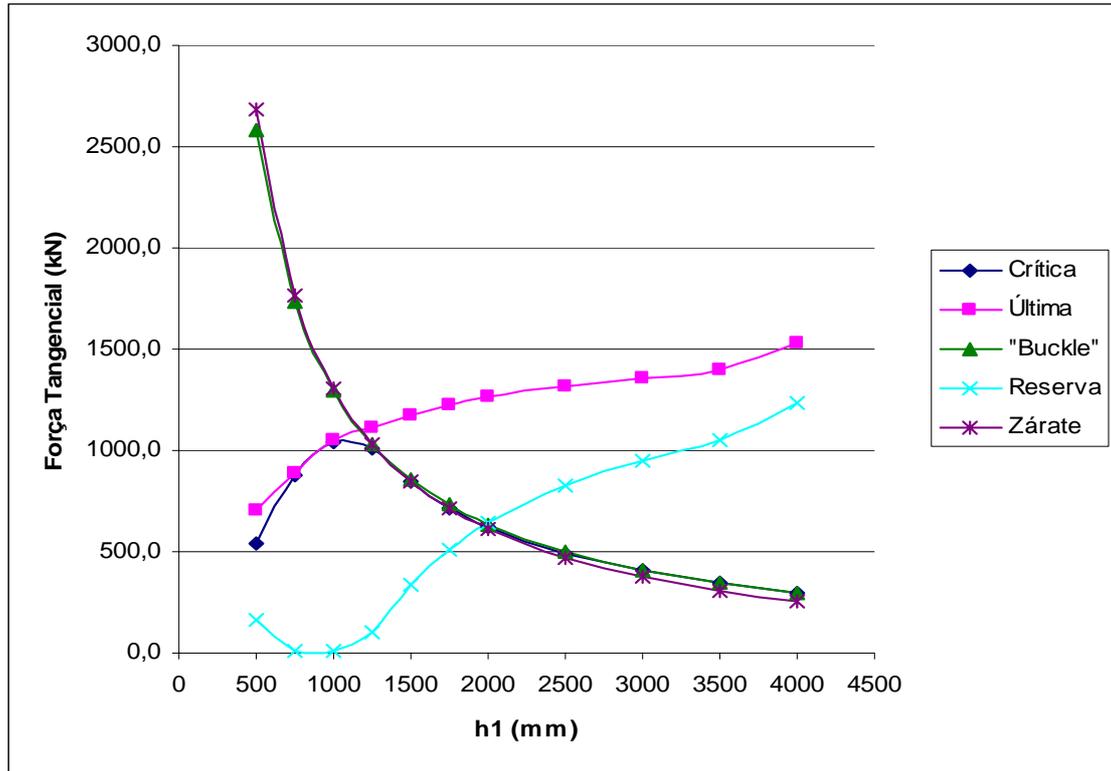
a) Resultados obtidos para a variação do parâmetro h_1.
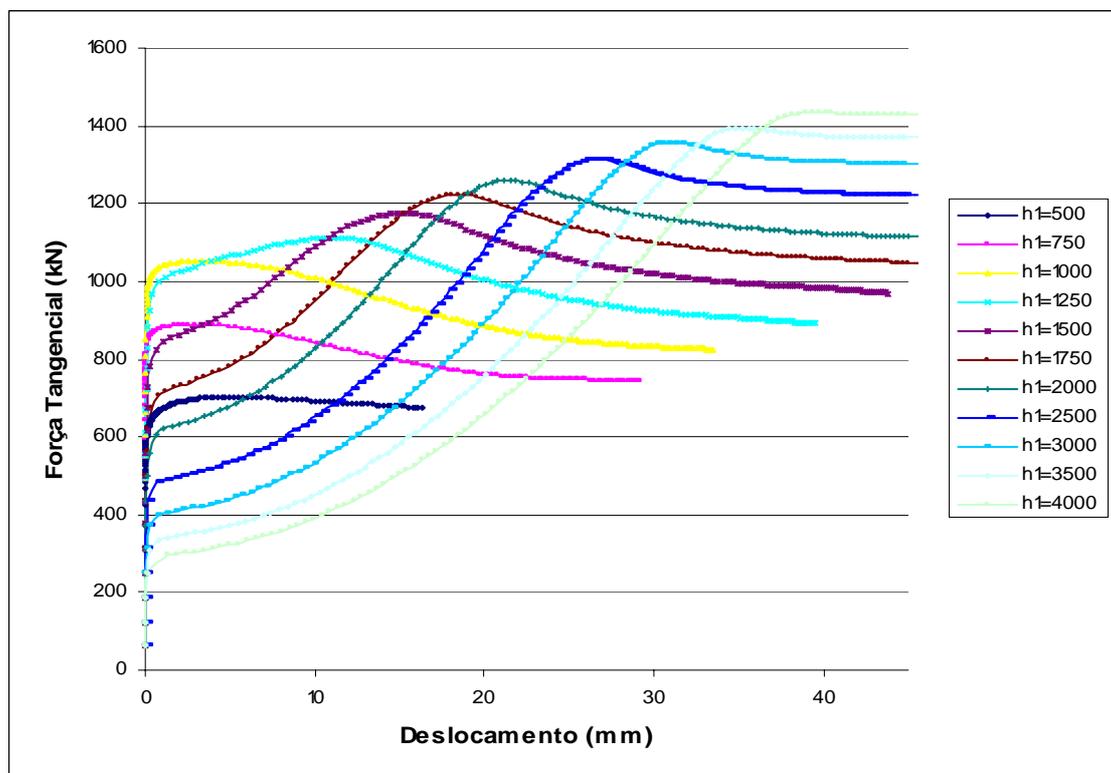
b) Curvas obtidas (força tangencial versus deslocamento perpendicular máximo ao plano da alma) para a variação do parâmetro h_1.

Figura 3.14 – Variação de h_1.
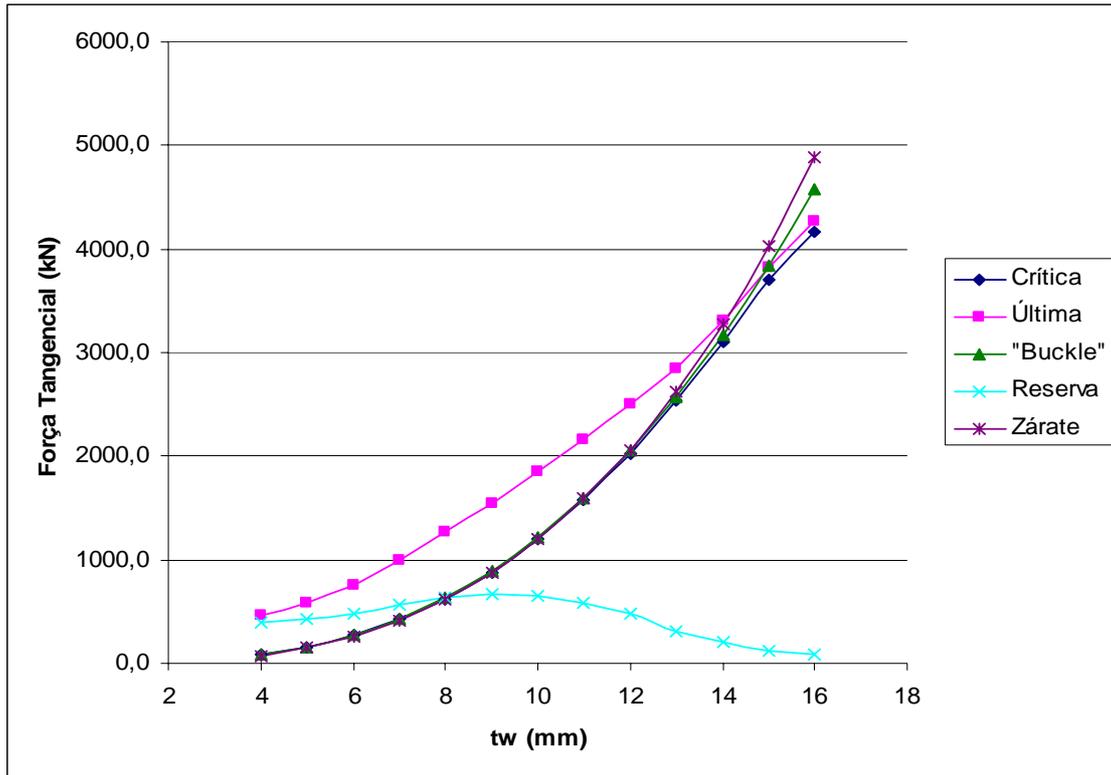
a) Resultados obtidos para a variação do parâmetro t_w.
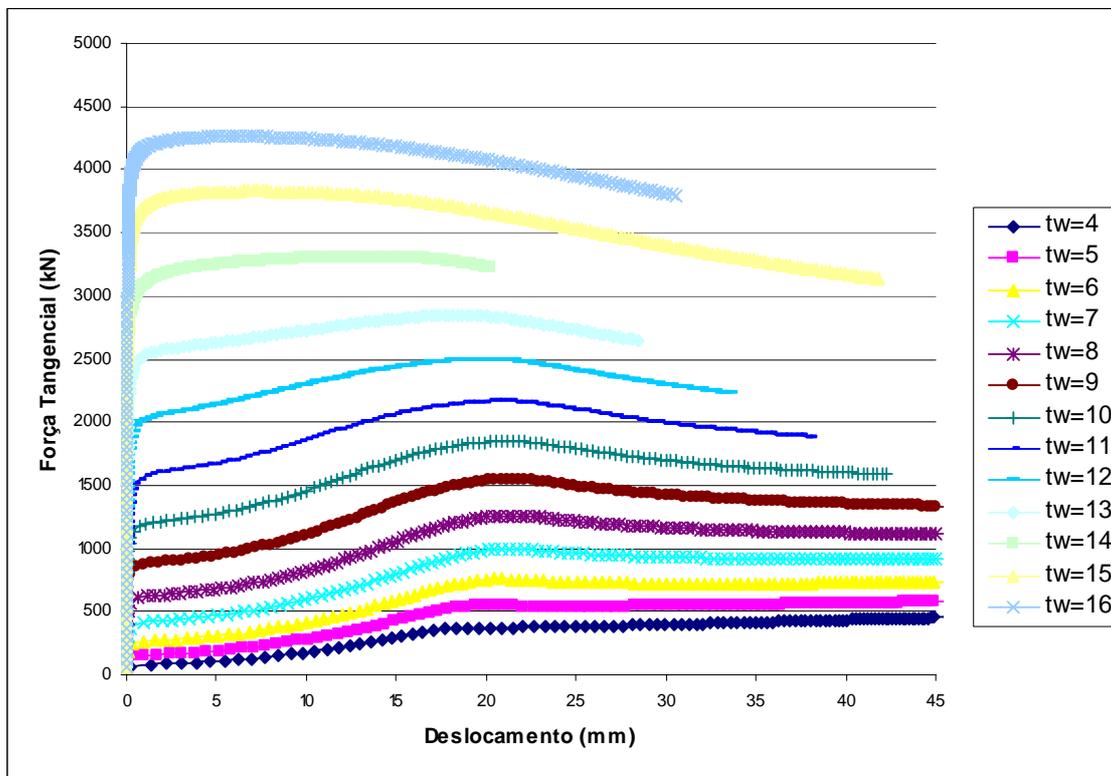
b) Curvas obtidas (força tangencial versus deslocamento perpendicular máximo ao plano da alma) para a variação do parâmetro t_w.

Figura 3.15 – Variação de t_w.

Relativamente à carga última, salienta-se que, à medida que se aumenta a espessura do painel de alma, a mesma aumenta igualmente. Em síntese, conclui-se que a espessura do painel de alma tem uma grande influência tanto na carga crítica como na carga última.

3.4.3. Inclinação do banzo inferior

No mesmo sentido, procedeu-se à variação única de $tg\phi$ entre 0.0 e 0.6. Na Figura 3.16 apresenta-se o primeiro modo de enfunamento obtido através da análise linear, onde é possível observar a deformada prevista do painel de alma que, à medida que aumenta ϕ, se desloca para a parte superior do painel.

Observando a Figura 3.17, conclui-se que a carga crítica é pouco afectada com a variação do parâmetro em análise. Os valores obtidos pelo procedimento de análise linear e pelas equações de Zárate apresentam uma grande semelhança aos resultados obtidos com recurso à análise das curvas da Figura 3.17b. No entanto, a carga última é influenciada consideravelmente com a variação do parâmetro em causa. Os resultados permitem igualmente concluir que os modelos têm um comportamento ao corte idêntico, embora com variações consideráveis na carga de colapso. O parâmetro $tg\phi$ não influencia de forma considerável a carga crítica de enfunamento, embora seja significativa a redução que provoca na carga última com o seu aumento.
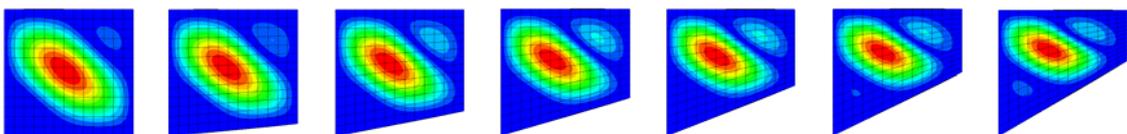
Figura 3.16 – Deformadas do painel de alma para vários valores de $tg\phi$.

3.4.4. Espessura dos banzos

Relativamente à espessura dos banzos, a variação única de t_f efectuada foi entre 8 mm e 44 mm de espessura. Os resultados obtidos estão apresentados nas Figuras 3.13. Tanto em termos de carga crítica de enfunamento elástico, como de carga última, a variação de t_f não produz efeitos consideráveis nas cargas referidas. Porém, o comportamento deixa de ser estável para $t_f < 12$ mm, com um decréscimo acentuado da carga crítica de enfunamento elástico e, consequentemente, um aumento da reserva de resistência.
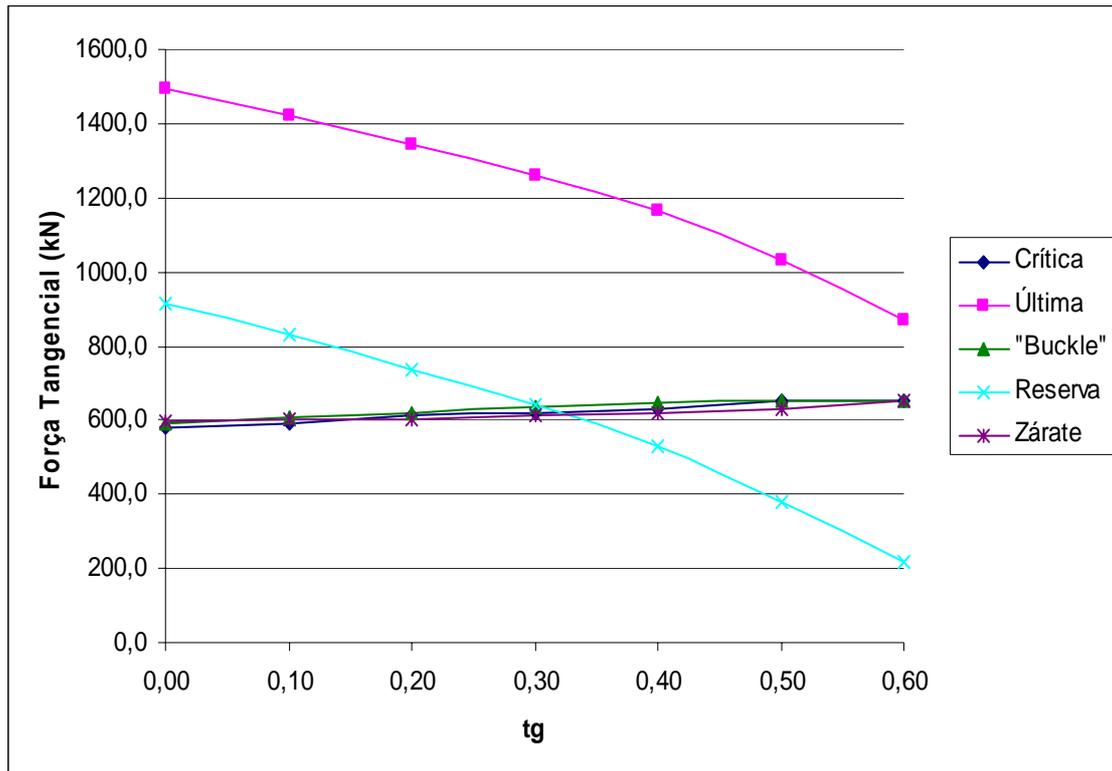
a) Resultados obtidos para a variação do parâmetro *tg φ*.
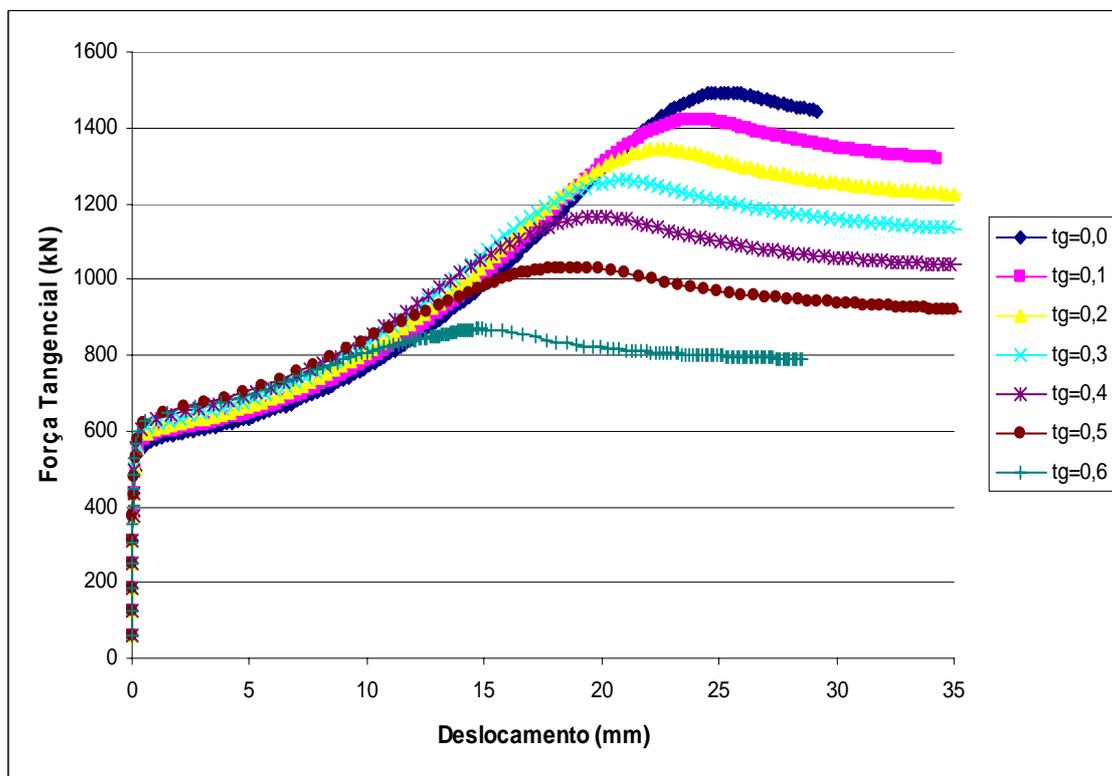
b) Curvas obtidas (força tangencial versus deslocamento perpendicular máximo ao plano da alma) para a variação do parâmetro *tg φ*.

Figura 3.17 – Variação de *tg φ*.
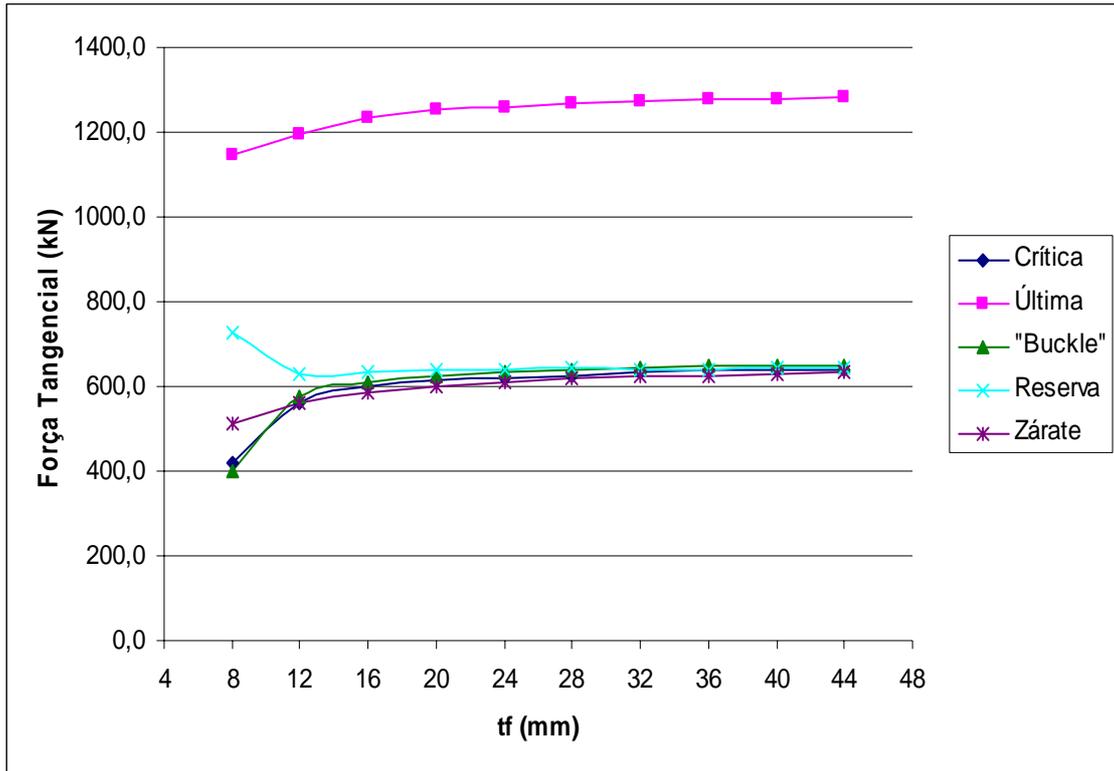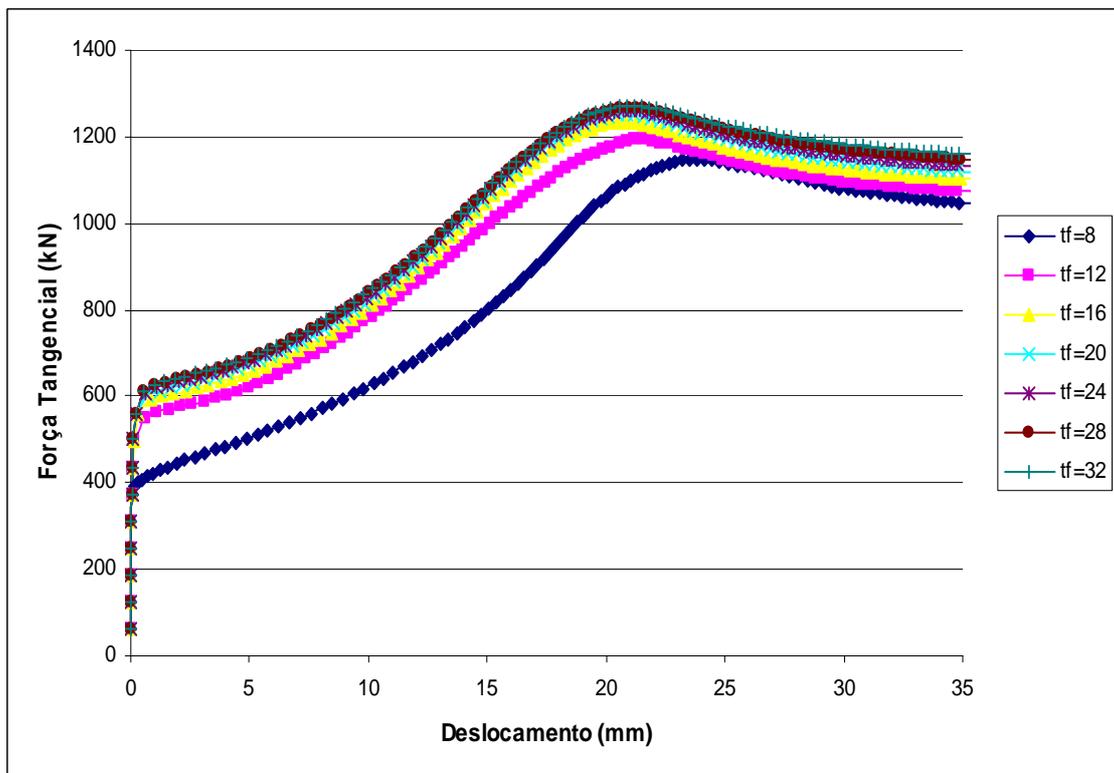
a) Resultados obtidos para a variação do parâmetro t_f.

b) Curvas obtidas (força tangencial versus deslocamento perpendicular máximo ao plano da alma) para a variação do parâmetro t_f.

Figura 3.18 – Variação de t_f.

3.4.5. Largura dos banzos

No mesmo sentido, procedeu-se à variação única de b_f entre 200 mm e 1200 mm de largura. Com a observação da Figura 3.19, torna-se claro que a influência de b_f na carga crítica de enfunamento elástico e na carga última é reduzida. A reserva de resistência permanece relativamente constante.

3.4.6. Parâmetro de forma

Procedeu-se à variação única de α entre 0.5 e 4.0. A análise da Figura 3.20 permite constatar que as curvas referentes à carga crítica de enfunamento elástico apresentam uma configuração idêntica às encontradas na bibliografia para o coeficiente de enfunamento elástico. A concordância das curvas é satisfatória até $\alpha = 2.0$. A partir deste valor, as análises numéricas efectuadas apresentaram dificuldade de convergência. A carga última decresce de forma significativa com o aumento de α, relativamente à reserva de resistência, a mesma apresenta um comportamento idêntico, com excepção dos valores de α obtidos entre 0.5 e 1.0.

3.4.7. Redução localizada de espessura no painel de alma

Após a análise do comportamento de vigas de inércia variável de alma esbelta submetidas ao corte, sob o efeito da variação de variáveis geométricas independentes, procede-se, seguidamente, à análise do comportamento de painéis de alma com degradação de resistência por corrosão no próprio painel de alma, a partir do modelo de referência adoptado em 3.4.

Os resultados obtidos para os vários casos de redução de espessura no painel de alma estão apresentados na Figura 3.21. O painel de alma foi dividido em nove zonas, com as dimensões restringidas à malha utilizada. A redução de espessura nas zonas potencialmente afectadas no painel de alma por corrosão foi de 1 mm ($t_w = 7$ mm), correspondendo a uma redução de 12.5 % da espessura inicial. Estas zonas estão identificadas a sombreado.
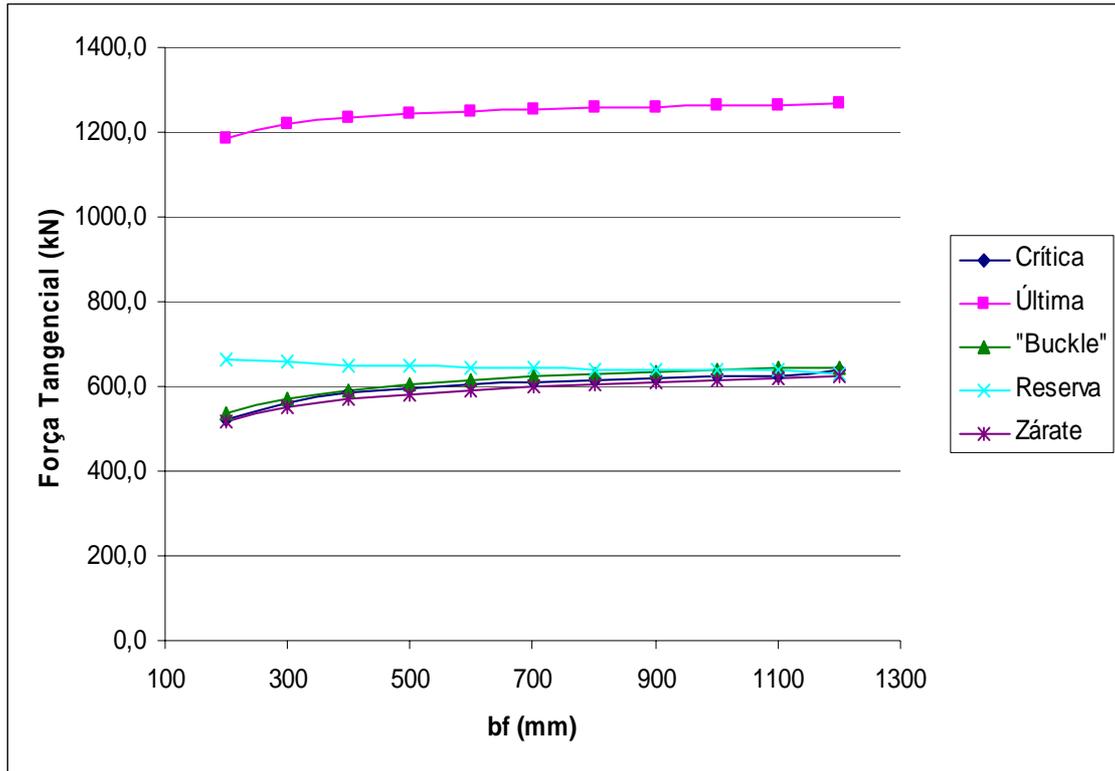
a) Resultados obtidos para a variação do parâmetro b_f.
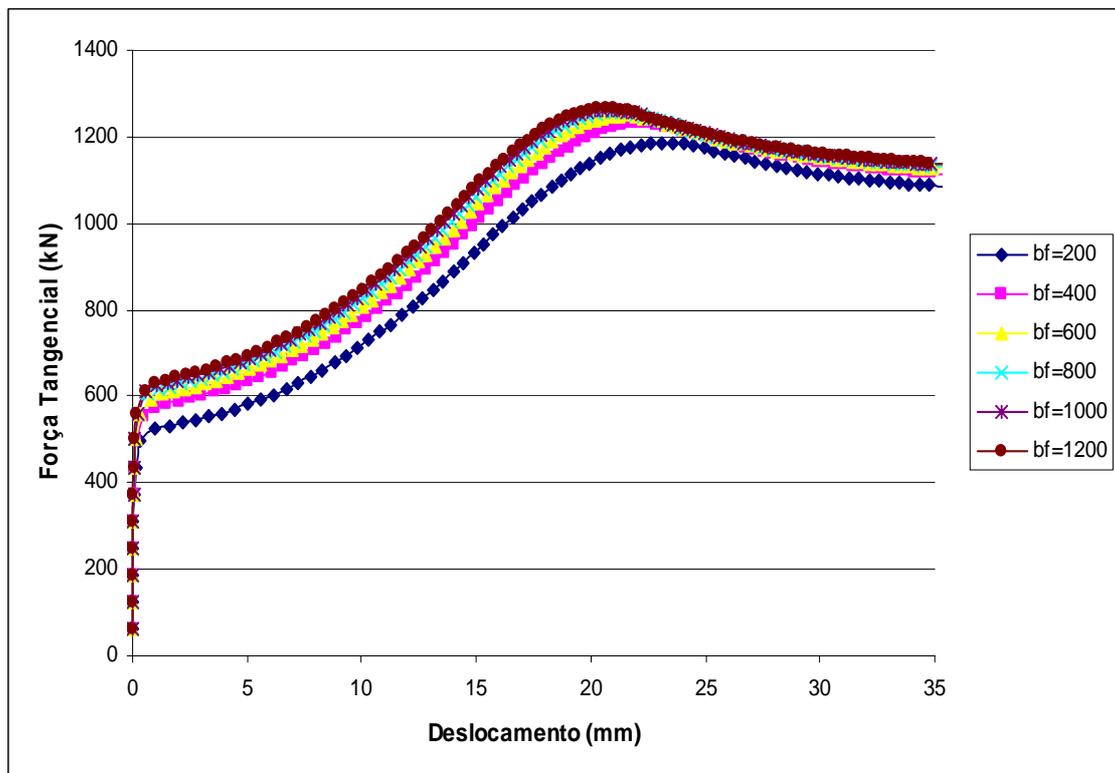
b) Curvas obtidas (força tangencial versus deslocamento perpendicular máximo ao plano da alma) para a variação do parâmetro b_f.

Figura 3.19 – Variação de b_f.
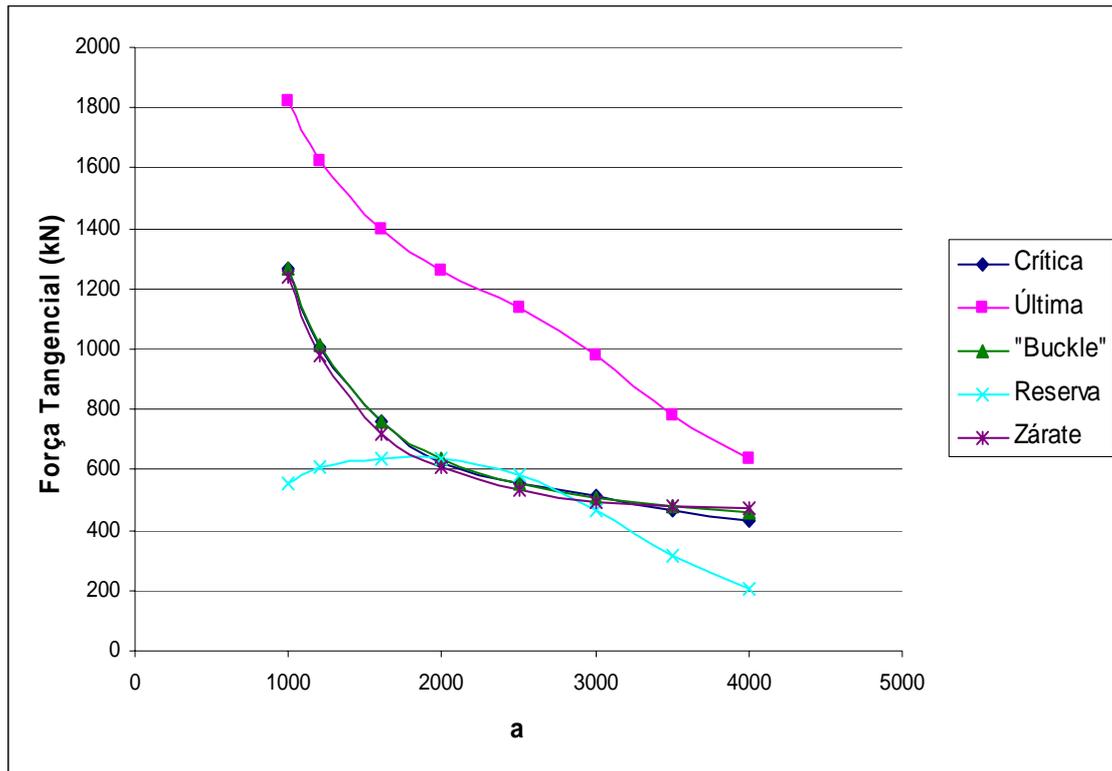
a) Resultados obtidos para a variação do parâmetro α ($\alpha = a / h_1$).
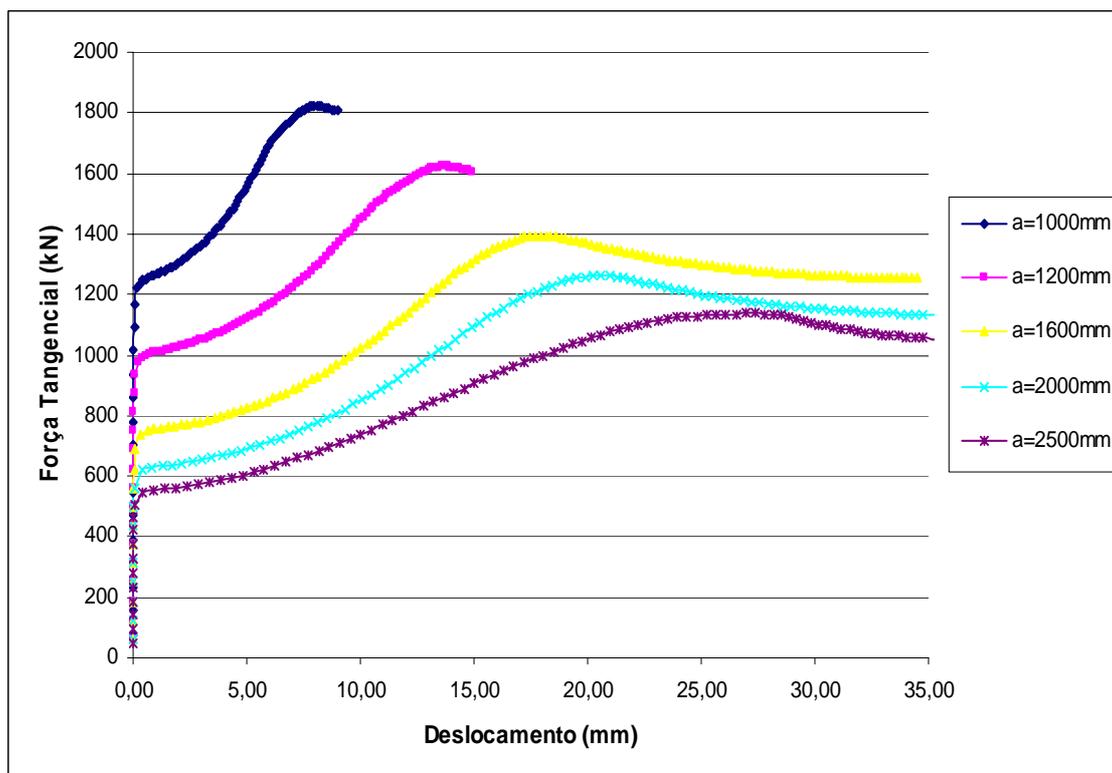
b) Curvas obtidas (força tangencial versus deslocamento perpendicular máximo ao plano da alma) para a variação do parâmetro a ($\alpha = a / h_1$).

Figura 3.20 – Variação de α.

Modelo	Carga Crítica	Carga Última	Modelo	Carga Crítica	Carga Última	Modelo	Carga Crítica	Carga Última
	639,4	1261,0		618,4	1256,8		612,9	1233,6
	0,7%	0,0%		-2,6%	-0,3%		-3,5%	-2,2%
	610,7	1249,1		558,1	1215,8		612,2	1245,1
	-3,8%	-0,9%		-12,1%	-3,6%		-3,6%	-1,3%
	577,1	1097,8		597,2	1235,6		635,8	1260,5
	-9,1%	-12,9%		-6,0%	-2,0%		0,1%	0,0%
	599,8	1230,0		520,3	1191,7		548,8	1075,3
	-5,5%	-2,5%		-18,1%	-5,5%		-13,6%	-14,7%
	557,1	1084,3		512,8	1191,5		588,9	1217,5
	-12,3%	-14,0%		-19,2%	-5,5%		-7,3%	-3,4%
	564,8	1216,2		491,1	1038,7		439,2	996,3
	-11,1%	-3,5%		-22,7%	-17,6%		-30,8%	-21,0%

Figura 3.21 – Redução de espessura localizada no painel de alma.

Como primeira abordagem ao problema, foi analisada a variação da espessura nas diferentes zonas, de forma isolada. Os resultados obtidos permitem concluir que, relativamente à carga crítica de enfunamento elástico, a redução de espessura na zona central do painel é a que provoca um maior decréscimo de resistência; em termos de carga última, a redução de espessura no canto superior esquerdo é a mais desfavorável. Numa fase seguinte, a variação da espessura foi efectuada nas zonas inferior, lateral esquerda, lateral direita, superior e nas diagonais. O decréscimo de espessura na diagonal correspondente à zona onde se desenvolve o campo diagonal de tracções é a mais desfavorável, tanto em termos de carga crítica de enfunamento elástico como em termos de carga última. Como seria de esperar, a redução de espessura na totalidade do painel surge como a situação mais gravosa na totalidade dos casos analisados.

Aprofundando um pouco mais a análise, foram efectuadas variações de espessura no painel de alma de forma aleatória, onde a redução de espessura é feita com a

combinação de diferentes zonas singulares. Os resultados obtidos estão apresentados na Figura 3.22, qualitativamente na forma de histogramas.

| a) Carga crítica de enfunamento elástico | b) Carga última |
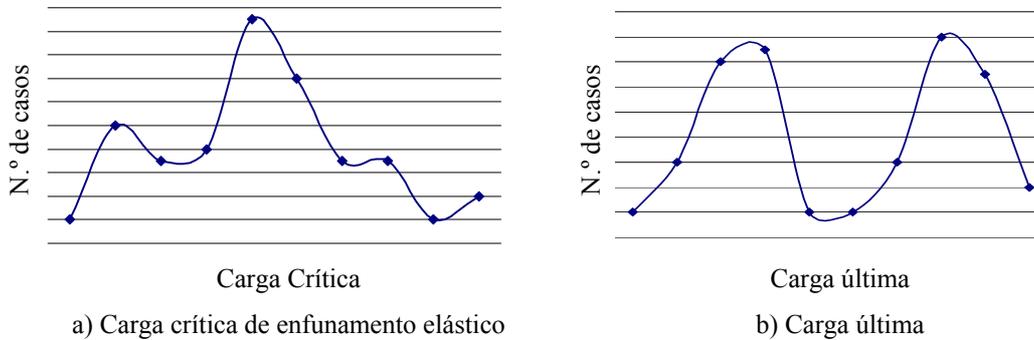
Figura 3.22 – Histogramas representativos dos resultados obtidos para casos aleatórios.

Relativamente à carga crítica de enfunamento elástico, poucas conclusões podem ser retiradas dos resultados obtidos. Contudo, para o caso da carga última, é de salientar a formação de dois grandes grupos de valores. Esta característica contribuiu para um aprofundamento da análise, de forma a se tentar perceber quais as características comuns entre os cenários de cada grupo formado. Neste sentido, procedeu-se à avaliação de um outro cenário de redução de espessura: redução em todo o painel excepto no canto superior esquerdo (Figura 3.23).
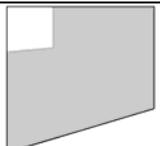
Modelo	Carga Crítica	Carga Última
	464,9	1140,7
	-26,8%	-9,5%

Figura 3.23 – Redução de espessura na zona de ancoragem do campo diagonal de tracções.

Na Figura 3.24, apresentam-se de forma qualitativa os resultados obtidos a partir dos modelos aleatórios referidos, com quatro linhas fundamentais (valores de carga referentes aos cenários de redução), limitadoras dos dois grupos de valores distintos (na referida figura, a espessura do painel de alma é de 8 mm, excepto nas zonas a sombreado, onde é de 7 mm). Os resultados obtidos permitem concluir que a redução de espessura, pelo menos no canto superior esquerdo, origina uma maior degradação de resistência, comparativamente a todos os outros cenários onde não se reduz a espessura no canto superior esquerdo.
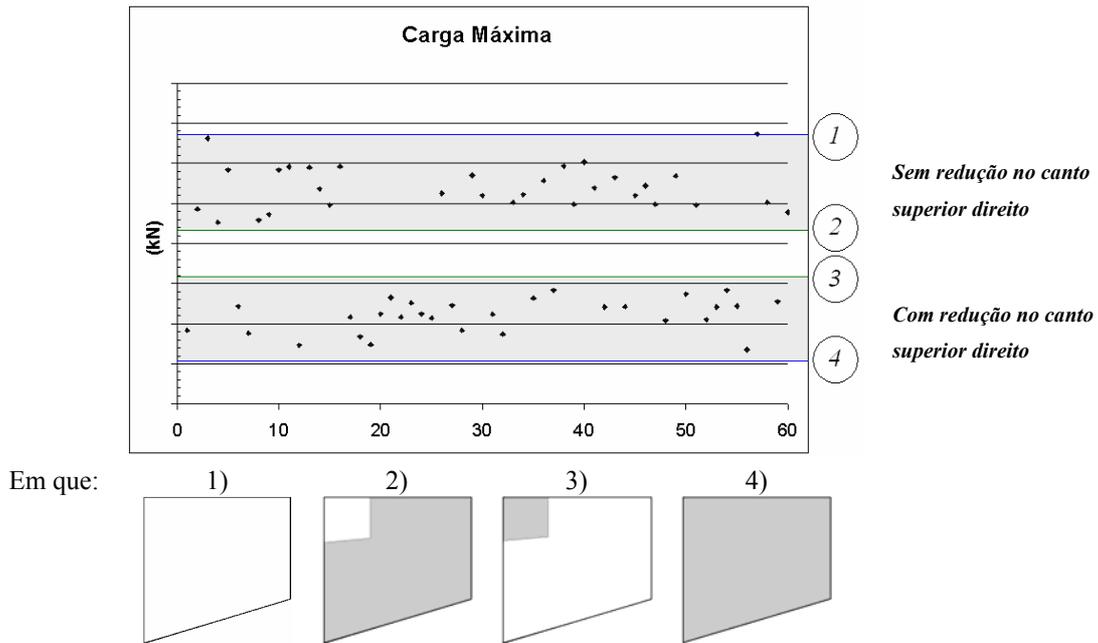
Figura 3.24 – Resultados aleatórios obtidos.

Para diferentes características geométricas do painel de alma e dos banzos, admitem-se comportamentos semelhantes, embora a separação dos dois grupos de valores possa não ser tão clara.

Com os resultados obtidos, embora para um reduzido número de combinações (78 modelos analisados), torna-se claro que a localização da redução de espessura é preponderante para a redução de resistência, como referido em Cruz e Guimarães (2003), onde a zona mais crítica é a zona de ancoragem do campo diagonal de tracções.

3.4.8. Redução localizada de espessura nos banzos

Sendo certo que a corrosão não afecta unicamente o painel de alma de uma viga de inércia variável, será importante analisar a influência de uma redução de espessura localizada nos painéis que constituem os banzos. Para as mesmas características geométricas das análises anteriores, cada banzo foi dividido em seis zonas diferentes, analisando-se alguns cenários de corrosão. Os resultados obtidos estão apresentados na Figura 3.25 para o banzo superior e na Figura 3.26 para o banzo inferior. Para cada caso de redução, apresentam-se a carga crítica de enfunamento elástico (kN) e a carga última (kN) obtidas, bem como a respectiva variação relativamente à viga de referência. As zonas a sombreado nos banzos, $t_f = 15$ mm (redução de espessura em 37,5%).

Modelo	Carga Crítica	Carga Última	Modelo	Carga Crítica	Carga Última	Modelo	Carga Crítica	Carga Última
	631,7	1258,0		626,6	1257,2		628,3	1258,7
	-0,5%	-0,3%		-1,3%	-0,4%		-1,1%	-0,2%
	631,7	1256,9		626,6	1257,4		628,3	1258,1
	-0,5%	-0,4%		-1,3%	-0,3%		-1,1%	-0,3%
	626,7	1253,4		615,9	1252,6		618,9	1254,5
	-1,3%	-0,7%		-3,0%	-0,7%		-2,6%	-0,6%
	618,8	1253,1		618,8	1251,7		591,7	1233,1
	-2,6%	-0,7%		-2,6%	-0,8%		-6,8%	-2,3%
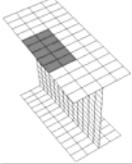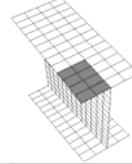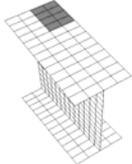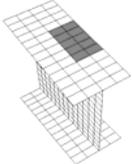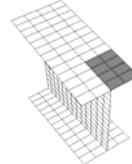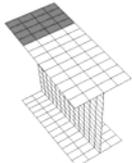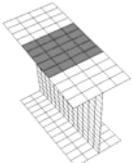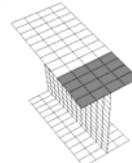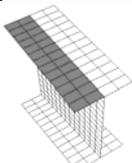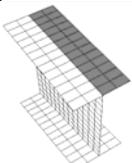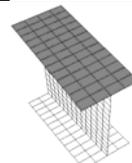
Figura 3.25 – Resultados obtidos para a redução de espessura no banzo superior.

Modelo	Carga Crítica	Carga Última	Modelo	Carga Crítica	Carga Última	Modelo	Carga Crítica	Carga Última
	635,7	1260,8		638,6	1261,0		639,4	1258,4
	0,1%	-0,1%		0,5%	-0,1%		0,7%	-0,3%
	635,7	1260,8		638,6	1260,9		639,4	1258,1
	0,1%	-0,1%		0,5%	-0,1%		0,7%	-0,3%
	636,3	1260,8		641,6	1261,1		642,8	1256,1
	0,2%	-0,1%		1,0%	-0,0%		1,2%	-0,4%
	642,4	1258,2		642,4	1257,9		648,9	1255,5
	1,2%	-0,3%		1,2%	-0,3%		2,2%	-0,5%
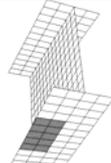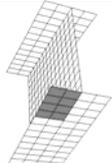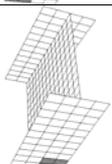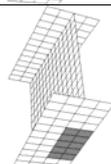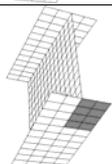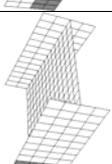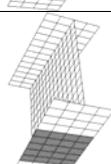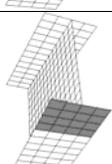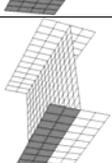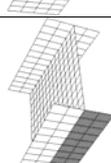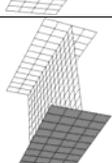
Figura 3.26 – Resultados obtidos para a redução de espessura no banzo inferior.

Com a análise dos resultados, assume-se que a influência da degradação de resistência por corrosão nos banzos perante o esforço de corte é reduzida, vindo de encontro ao referido no Capítulo 2 (o painel de alma é o principal responsável pela resistência ao corte, tendo os banzos como principal função a resistência ao momento flector). Contudo, surge a necessidade de um estudo semelhante para a redução de resistência no caso da viga estar sujeita à flexão simples, estudo esse que não se enquadra na presente investigação.

3.5. Síntese

Da análise de todos os resultados obtidos no ponto 3.4, conclui-se que os parâmetros geométricos h, t_w e α apresentam-se como os mais significativos para a carga crítica de enfunamento elástico e carga última.

Relativamente à previsão da carga crítica de enfunamento elástico, a partir da análise das curvas força tangencial versus deslocamento perpendicular ao plano médio da alma, conclui-se que é relativamente pouco rigorosa, não se encontrando na bibliografia formas exactas de o fazer. Contudo, a determinação efectuada através do procedimento *buckle* é rigorosa, se efectuada entre amplitudes usuais de parâmetros geométricos. Permite, igualmente, a criação, com relativa facilidade, de uma rotina para a realização de uma análise para um grande número de casos de degradação.

Capítulo 4

Mecanismos de Degradação

4.1. Introdução

A engenharia estrutural faz parte do nosso quotidiano desde tempos imemoriais. Pode mesmo dizer-se que esta remonta aos primórdios da civilização humana. As pirâmides egípcias, os templos gregos, as pontes e os aquedutos romanos, os diques holandeses, as catedrais góticas, entre outros, são o testemunho do génio inventivo de "projectistas" e construtores, aliado à durabilidade dos materiais e dos sistemas construtivos.

No que diz respeito às estruturas de pontes, estas caminham para soluções cada vez mais impressionantes, que aliam o engenho dos projectistas à utilização de novos materiais e tecnologias, possibilitadas pelo crescente avanço da técnica e da investigação que se tem desenvolvido nestes domínios. As pontes, que tendem a ser mais leves, largas e longas, são concebidas para desafiar e atenuar os acidentes naturais, enfrentando as diferentes forças da natureza. O seu objectivo é simples: aproximar, cada vez mais, as pessoas. Tornam-se, muitas vezes, símbolos de uma cidade. O Porto, por exemplo, é inimaginável sem as suas pontes.

As primeiras utilizações de estruturas metálicas em pontes remontam, basicamente, ao século dezanove. De facto, nessa altura, houve uma vulgarização muito rápida da aplicação de soluções metálicas em pontes, com o fulgor a ser interrompido durante as guerras mundiais.

A importância destas estruturas conduz à necessidade de uma cuidada inspecção, manutenção e reabilitação, onde o conhecimento, detecção e avaliação das patologias têm uma reconhecida importância no estudo do ciclo de vida de qualquer estrutura rodoviária ou ferroviária. Com efeito, o número de pontes é tão grande que as administrações necessitam de investir cada vez mais neste tipo de operações. Os custos estimados de reparação ou substituição são cada vez mais importantes e serão um pesado fardo para as economias das gerações futuras. Apesar da grandeza do problema, muitas das decisões relacionadas com este tema são, ainda, tomadas tendo por base o dia a dia, sob a enorme pressão de colocar as estruturas em serviço o mais rapidamente possível e pelo menor custo. Esta situação impede uma análise a longo prazo e a correcta aplicação dos escassos recursos disponíveis onde são mais necessários.

4.2. Durabilidade

As pontes metálicas já demonstraram a sua durabilidade funcional. Efectivamente, são inúmeras as pontes centenárias como, por exemplo, a Ponte de Brooklyn em Nova Iorque, a Ponte Eads sobre o rio Mississipi em St. Louis, ou a Ponte Maria Pia e a Ponte Luís I (Figura 4.1) no Porto. Contudo, assegurar a durabilidade exige uma manutenção regular, que envolve inspecções, reparações, reabilitações, reforços estruturais e/ou pintura.

Figura 4.1 – Ponte Luís I.

A corrosão é uma das mais importantes causas de deterioração das pontes metálicas, podendo ser atenuada por vários métodos, um dos quais é a pintura com produtos

apropriados. A fadiga, as roturas frágeis em estruturas metálicas, as mudanças de temperatura, especialmente nos componentes expostos ao sol, a solicitação do vento, os impactos de veículos ou embarcações, as ocorrências naturais, como as inundações e os sismos, podem igualmente provocar deterioração em estruturas de aço (Brinckerhoff, 1993).

4.3. Patologias comuns

Neste ponto, discutem-se algumas patologias relativas a pontes com estrutura metálica, comuns à maioria das tipologias, sejam elas rodoviárias, ferroviárias ou pedestres.

4.3.1. Corrosão

Nos Estados Unidos da América, cerca de 40% das pontes são construídas em aço. Em alguns estados, como no Michigan, o número ultrapassa os 60%. Existe a necessidade de estabelecer critérios racionais que possam ser usados de forma a determinar o estado de tensão actual dos membros afectados. Neste sentido, foram surgindo ao longo dos tempos alguns modelos de deterioração para a análise de pontes metálicas com problemas de corrosão (Kayser e Nowak, 1989).

A corrosão apresenta-se como um campo de investigação de grande interesse. A título de exemplo, referencia-se o estudo de Tesar e Kuglerová (2000), onde se analisa a utilização de técnicas numéricas recentemente desenvolvidas para a avaliação do estado da corrosão e de consequências para a segurança das pontes metálicas antigas sujeitas a forças dinâmicas.

A primeira causa de corrosão é a acumulação de água e sais. As fontes principais da acumulação desta mistura são as escorrências da plataforma ou a condensação. A proveniência desta mistura determina, a maioria das vezes, o tipo de corrosão na estrutura. As consequências provocadas por corrosão dependerão da contaminação da mistura e da temperatura ambiente.

4.3.1.1. Corrosão como processo electroquímico

A corrosão é um processo electroquímico durante o qual um metal se liga a outros elementos e recupera a sua forma de minério, energicamente mais estável. Qualquer pequena heterogeneidade na estrutura do grão do metal ou na sua composição ou qualquer contaminação superficial terá influência sobre o processo corrosivo. Quando uma chapa metálica entra em contacto com um filme contínuo de electrólito, essas pequenas heterogeneidades fazem com que pequenas áreas adjacentes, com maior ou menor tendência para corroer, sirvam como ânodos ou cátodos de pequenas células electroquímicas activas.

No ânodo, a reacção envolve a dissolução do metal, que passa para a solução na forma iónica, e a libertação de electrões que migram para as zonas catódicas. No caso do ferro, tem-se:

$$Fe \rightarrow Fe^{2+} + 2e^{-} \tag{4.1}$$

No cátodo, a reacção principal é o consumo de electrões, de acordo com o tipo de ambiente:

$$O_2 + 2H_2O + 4e^{-} \rightarrow 4OH^{-} \text{ - em meios neutros ou básicos} \tag{4.2}$$

$$2H^{+} + 2e^{-} \rightarrow H_2 \text{ - em meios ácidos na ausência de oxigénio} \tag{4.3}$$

$$O_2 + 4H^{+} + 8e^{-} \rightarrow 4OH^{-} \text{ - em meios ácidos na presença de oxigénio} \tag{4.4}$$
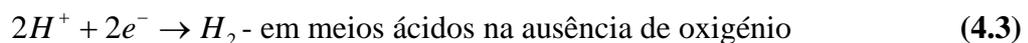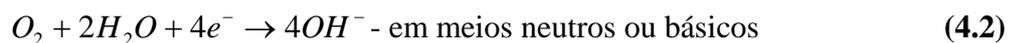
Quando os iões metálicos se combinam com o produto da reacção catódica forma-se um hidróxido ferroso que, por reacção posterior com o oxigénio, produz a substância habitualmente designada por ferrugem.

A velocidade de dissolução do metal é determinada pela diferença de potencial da célula e pela eficiência com que o electrólito consegue transferir a corrente eléctrica gerada

entre as duas áreas. Nas situações em que se estabelece um contacto entre dois metais diferentes existe uma maior diferença de potencial e o metal, com maior tendência para passar a solução, fá-lo-á mais rapidamente do que quando está isolado.

A corrente, *I*, de corrosão está relacionada com a diferença de potencial entre a zona anódica e a zona catódica e a resistência da célula, através da lei de Ohm:

$$I = \frac{V}{R}$$ **(4.5)**

O valor da resistência pode ser dado pela resistência do electrólito já que a resistência dos metais pode ser desprezada. A acumulação de gases e de produtos da corrosão pode impedir a continuação do processo. Não só o metal pode ficar mais ou menos impedido de passar para a solução como à resistência do electrólito são adicionadas as resistências dos filmes que se formam sobre o cátodo e sobre o ânodo.

Assim, a lei de Ohm (4.5) passará a escrever-se:

$$I = \frac{V}{R_{ele} + R_{fa} + R_{fc}}$$ **(4.6)**

em que R_{ele} é a resistência do electrólito e R_{fa} e R_{fc} são as resistências dos filmes depositados sobre o ânodo e o cátodo, respectivamente. Estes efeitos diminuem o valor da corrente *I*.

No caso de alguns metais, como por exemplo o alumínio, os filmes formados podem isolar completamente o metal, parando o processo corrosivo. No caso do ferro, como o produto da corrosão é poroso e pouco aderente, isso não acontece, embora se assista a um abrandamento.

Em termos matemáticos, controlar a corrosão, diminuindo o valor da corrente *I*, significa reduzir a diferença de potencial, *V*, ou aumentar a resistência, *R*. Os métodos para controlo da corrosão que existem actualmente podem ser os mais variados mas, de

uma forma geral, todos eles interferem sobre o processo acima descrito. É esta a chave do controlo da corrosão por revestimentos com pintura, que pode utilizar três conceitos base: a protecção como efeito barreira, a protecção catódica e a protecção por inibição.

Se colocarmos uma chapa de aço num meio extremamente corrosivo, a reacção catódica processa-se muito rapidamente e, sobre o ânodo, incapaz de produzir iões ferro à mesma velocidade, forma-se um filme protector de óxido de ferro. A reacção no ânodo pára, o processo corrosivo é interrompido, e o ferro diz-se passivado.

4.3.1.2. Principais formas genéricas de corrosão

Uma grande quantidade de energia é consumida no fabrico dos metais, essencialmente armazenada no material. Devido ao facto de todas as configurações na natureza tenderem espontaneamente a mudar para menores estados de energia, o metal irá deteriorar-se ou corroer-se. Nas pontes metálicas, a gravidade da deterioração irá depender do grau de exposição. Os danos provocados por corrosão serão consideravelmente superiores com a presença de sais provenientes de ambientes marinhos ou mesmo de operações de degelo, com o espalhamento de sais.

Existem cinco principais formas de corrosão que podem afectar uma ponte com vigas metálicas. A mais importante forma, e a que se apresenta em maior percentagem, é uma perda geral de material à superfície, principalmente por corrosão atmosférica, que irá provocar uma gradual perda de espessura dos membros. A gravidade dos danos por corrosão depende do tipo de ambiente onde se situa a estrutura. A corrosão atmosférica é, em geral, o resultado da acção conjunta de dois factores: oxigénio e humidade. Na falta de um destes factores, o processo de corrosão não ocorre. Em ambientes secos, com humidades relativas abaixo dos 60%, o aço não oxida. Pode, igualmente, desprezar-se o processo de corrosão em regiões polares ou em desertos quentes. A corrosão atmosférica aumenta substancialmente se o ar estiver poluído, particularmente com dióxido de enxofre ou sais agressivos. A corrosão é ainda maior se a superfície do aço estiver coberta por partículas sólidas, como poeiras, resíduos ou fuligens, pois a humidade e os sais ficarão retidos com mais facilidade.

O tipo de corrosão que se apresenta como "picadas" (Figura 4.2) envolve igualmente perda de material à superfície, sendo restrita a uma pequena área. Este tipo de ocorrência é séria em regiões com grandes tensões, pois pode provocar concentrações de tensões locais.

Figura 4.2 – Corrosão por "picadas".

A corrosão galvânica ocorre quando dois metais diferentes estão unidos de forma electromecânica. Esta situação pode ocorrer em ligações aparafusadas ou soldadas. A corrosão galvânica pode ser localizada, promovendo a formação de buracos.

O surgimento de corrosão em "fendas", em pequenas áreas confinadas, como é nas zonas de pintura descascada (Figura 4.3), é normalmente causada por uma reduzida concentração de oxigénio dissolvido na mistura.

Figura 4.3 – Descascar da pintura.

A corrosão devido ao estado de tensão ocorre quando o metal é sujeito a elevadas tensões num ambiente corrosivo. Para o aço de carbono suave, em ambiente ordinário, este tipo de corrosão não é, normalmente, um problema. Na generalidade, quanto menor for a resistência de um material, maior será a sua susceptibilidade a este tipo de corrosão.

A taxa de corrosão em diferente ambientes tem vindo a ser avaliada em vários estudos. Foi observado que a perda por corrosão segue uma função exponencial (Komp, 1987)

$$C = At^B \tag{4.7}$$

onde C = a penetração da corrosão, em microns; t = número de anos; e A e B = parâmetros determinados pela análise de regressão em dados experimentais.

Em Albrecht e Hall (2003) apresentam-se valores para a perda de secção em vários tipos de ambiente, como por exemplo, o rural, o industrial e o marinho, bem como para diferentes tipos de aços, ao longo do tempo. O ambiente rural é o menos penoso para o aço, ao contrário do ambiente marinho, que apresenta maior agressividade.

4.3.1.3. Efeitos genéricos do processo de corrosão em pontes metálicas

Existem três alterações básicas principais, devido à corrosão, numa ponte metálica: a perda de material, a redução dos parâmetros de secção e a libertação de produtos provenientes do processo de corrosão.

A perda de material provocará reduções na secção dos materiais. Isto poderá causar o aumento do nível de tensão para uma dada carga ou a amplitude de tensão perante cargas cíclicas. Quando a corrosão é localizada, como na corrosão por "picadas", podem ocorrer concentrações de tensões, promovendo o aumento do nível de tensão. A redução na área de secção irá reduzir as propriedades geométricas, como o momento de inércia. Esta modificação pode ocorrer de uma forma não linear pois as propriedades geométricas estão relacionadas ao quadrado ou ao cubo das dimensões.

A capacidade resistente dos membros pode ser afectada de forma crítica pela redução da espessura do material. A libertação de produtos de corrosão aumenta o número de detritos, dificulta a drenagem, afecta os membros estruturais, catalisando o processo de corrosão. As formas de corrosão possíveis, os componentes afectados da ponte, e os tipos de danos estruturais estão sumariados em Kayser e Noway (1987).

Para avaliar os efeitos da corrosão no desempenho estrutural, os membros estruturais devem ser avaliados em termos de área restante útil e comportamento estrutural, em paralelo com a avaliação das cargas estruturais.

A capacidade de uma ligação, soldada ou aparafusada, é directamente relacionada com a área útil dos conectores, a área do parafuso, a "garganta" da solda, ou as dimensões base do metal. A perda de material, devido à corrosão, irá diminuir directamente as áreas úteis disponíveis.

Os reforços transversais, membros estruturais secundários, são espaçados em intervalos ao longo do comprimento da ponte. Estes membros oferecem suporte lateral para os elementos principais e distribuem as cargas transversalmente ao longo da plataforma. O primeiro efeito da corrosão em membros secundários é a perda de secção. Esta redução irá reduzir a capacidade resistente dos mesmos.

4.3.1.4. Exemplos

Nos painéis de alma a perda por corrosão é bastante comum. As pontes metálicas ou mistas podem sofrer uma corrosão severa generalizada provocada por acumulação de águas contaminadas por sais ou condensação (Figura 4.4).

Figura 4.4 – Corrosão em painéis de alma.

O banzo inferior e os apoios (Figura 4.5) podem experimentar o processo de corrosão causado pela acumulação de dejectos de aves ou outras substâncias húmidas.

Figura 4.5 – Corrosão nos apoios.

A insuficiente drenagem poderá causar acumulação de água contaminada em zonas não desejadas, zonas essas que se tornam potencialmente capazes de desenvolver o processo de corrosão (Figura 4.6).

Figura 4.6 – Corrosão por drenagem insuficiente.

As uniões metálicas, em forma de treliça, verticais, diagonais ou de apoio são extremamente vulneráveis à perda de secção na zona final de ligação de rebite simples, onde os resíduos e a humidade se acumulam (Figura 4.7).

Figura 4.7 – Uniões metálicas.

As ligações inferiores entre vigas metálicas sustentam, normalmente, excesso de resíduos, que permanecem húmidos e funcionam como catalisador do processo de corrosão (Figura 4.8).

Figura 4.8 – Ligação inferior de viga.

Durante a construção de ligações, as mesmas são revestidas, firmemente ajustadas, e rebitadas rapidamente. Durante o revestimento subsequente, pouco ou nada é feito nesta área, pois é impraticável tentar remover os conectores para proceder-se a um novo revestimento. Qualquer movimento do conector fractura o revestimento de protecção e permite que substâncias não desejadas penetrem e catalisem a corrosão da própria

ligação e materiais adjacentes. Esta aumenta de volume, ficando assim apertada, criando uma situação para a qual não foi dimensionada. Os testes ultrassónicos in situ e a inspecção após a remoção normalmente revelam fissuras e outras patologias induzidas pela corrosão. Nos sistemas com vigas metálicas múltiplas que apresentam uma redundância suficiente, este tipo de patologia não se apresenta como potenciadora de perigo iminente mas, no caso de sistemas mais simples, podem surgir maiores problemas.

4.3.2. Impactos

No transporte e montagem duma estrutura metálica devem ser adoptadas as protecções e as medidas necessárias para evitar, ou pelo menos minimizar, os danos causados por eventuais impactos. Estes danos poderão ir desde simples riscos sobre o sistema de protecção até à deformação acentuada de elementos.

O banzo inferior de vigas metálicas sofre frequentemente danos de impacto (Figuras 4.9 e 4.10).
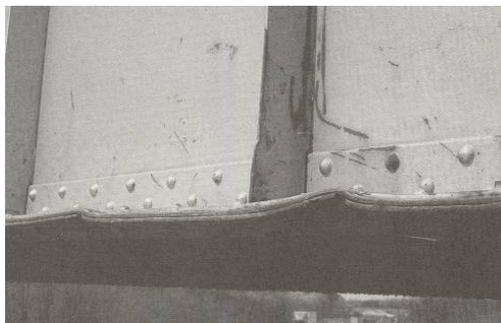
Figura 4.9 – Dano provocado por impacto de veículo. (Brinckerhoff, 1993)
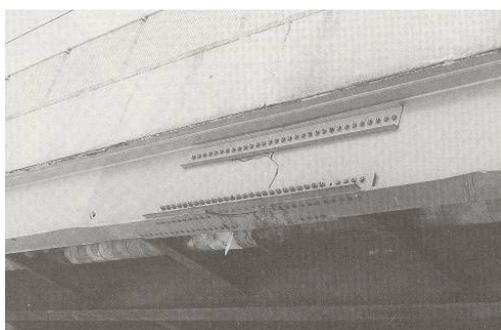
Figura 4.10 – Reparação de painel de alma partido. (Brinckerhoff, 1993)

Similarmente, nos canais principais de circulação de navios, algumas pontes são golpeadas pelos grandes mastros, e outros elementos da super estrutura dos navios. Os banzos inferiores, os reforços transversais e as almas são os elementos que mais evidenciam os danos por impacto.

4.3.3. Fogo

A construção metálica era, em vários países, relativamente penalizada pelos regulamentos de segurança contra incêndios, devido à ideia que o aço apresentava uma má performance sob a acção do fogo. Esta ideia foi-se acentuando, sustentada por vários acidentes que iam surgindo, embora sem uma discussão ou análise das causas que produziam o colapso das estruturas afectadas (Castiglioni e Setti, 1997).

Os fogos em estruturas metálicas podem ser atribuídos a três principais causas: naturais, acidentais ou vandalismo. As estruturas mais susceptíveis ao fogo são, naturalmente, as mais antigas, com alguns elementos em madeira, ou mesmo com vegetação nas proximidades, bem como com restos de óleo (e/ou outros produtos inflamáveis) provenientes de veículos. Num incêndio, os danos aumentam com a altura e afectam, em maior medida, os elementos mais ligeiros (com grande perímetro em relação à área de secção).

Quando o aço é exposto a altas temperaturas, as suas propriedades térmicas e mecânicas são modificadas. De forma a perceber as patologias provocadas pelo fogo, importa determinar como e onde o fogo teve início, como se propagou e qual a extensão dos danos nos diferentes componentes da ponte. As patologias mais comuns, causadas pela ocorrência de um incêndio, são as alterações de geometria e/ou deformações, oxidação do aço e alterações na cor da pintura. As consequências na estrutura dependem sempre da natureza e quantidade do combustível, das temperaturas alcançadas, da velocidade e direcção do vento, da humidade relativa da atmosfera e das características específicas da estrutura. Além disso, a transferência do fogo desde a fonte de ignição até ao aço da estrutura, por condução ou radiação, depende da sua intensidade, duração, distância envolvida, diferença de temperaturas e relação entre a área de exposição ao fogo e o seu volume. Ou seja, um componente com maior relação entre a área exposta e o seu

volume demora menos tempo a alcançar altas temperaturas relativamente a outro com menor relação. Desta forma, os painéis de alma são mais susceptíveis a deformações, pois alcançam mais rapidamente as altas temperaturas, relativamente aos banzos (Uppal, 1982).

Na maioria dos casos, os fogos em pontes metálicas ocorrem na plataforma da estrutura, ou porque o mesmo teve lá início ou se propagou a partir de outra zona. Esta característica deve ser tida em conta no dimensionamento e na manutenção, de forma a diminuir a susceptibilidade de ocorrência de danos por incêndio em pontes metálicas.

Em muitos casos, quando o efeito do fogo é gradual e uniforme e os encontros da estrutura permitem a expansão e contracção, poderão não surgir patologias na estrutura. Porém, o aquecimento provoca a expansão do aço que, dependendo das características dos membros e da intensidade da temperatura, pode causar alongamentos, deformações ou torções nos elementos.

Quando os fogos, nas estruturas metálicas, são extinguidos por água, o processo de arrefecimento pode provocar roturas frágeis nos componentes por alteração drástica da temperatura.

Nas vigas metálicas compostas por chapas metálicas soldadas, com altura relativamente pequena, a temperatura ao longo de uma secção será uniforme, e as vigas irão simplesmente expandir-se, podendo surgir roturas nas ligações ou elementos contíguos. O painel de alma, pelas razões já apresentadas, "quer" expandir-se mais, mas como está restringido pelos banzos e pelos reforços transversais, começa a deformar-se. Com uma altura do painel de alma superior, as temperaturas ao longo da secção da viga não serão uniformes, e poderão surgir problemas com a flexão. As temperaturas não uniformes poderão provocar a perda de eventuais contra-flechas na estrutura. Contudo, estando as vigas ligadas à plataforma da estrutura, existe uma restrição à expansão que pode provocar igualmente deformações nas vigas metálicas.

Na Figura 4.11 apresentam-se as consequências de um acidente provocado por um veículo de transporte de combustível com 25 mil litros de matéria inflamável. A

gasolina que ardeu originou elevadas temperaturas, causando a necessidade de substituir elementos estruturais com deformações permanentes (Castiglioni e Setti, 1997).
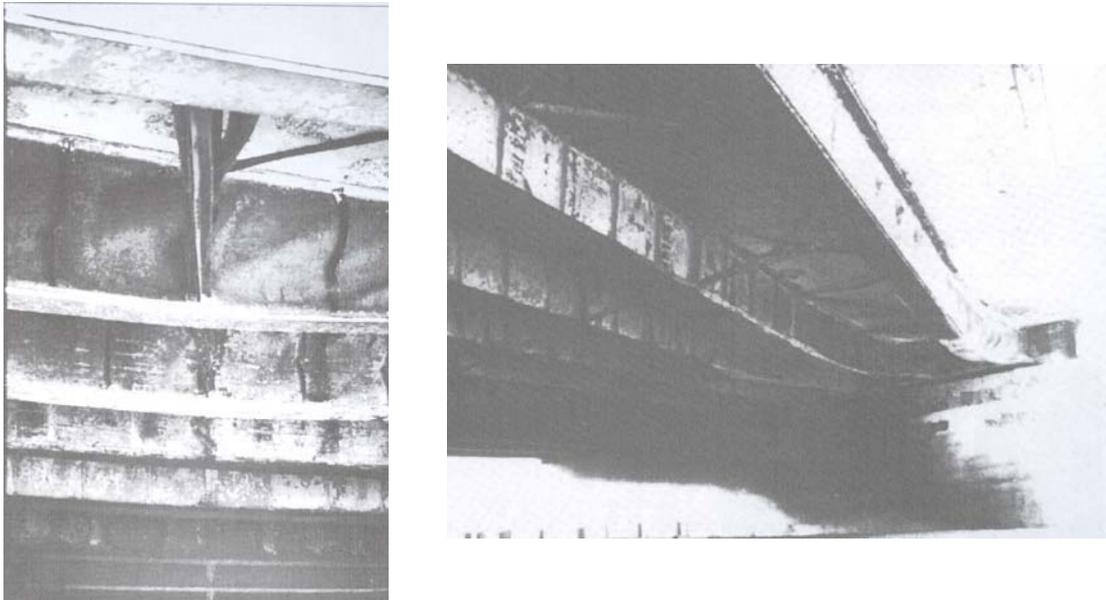
Figura 4.11 – Vista geral de uma ponte após um incêndio. (Castiglioni e Setti, 1997)

4.3.4. Fadiga

Ao longo dos tempos, a fadiga tem sido um interessante campo de investigação. Entre outros estudos, e a título de exemplo, referem-se os ensaios experimentais de Yen e Cooper (1963), com os objectivos de observar o comportamento de duas vigas metálicas em tamanho real compostas por chapas de aço soldadas quando sujeitas a cargas cíclicas e a aplicabilidade das recomendações de dimensionamento, bem como a obtenção de dados preliminares para o planeamento de futuros estudos.

A resistência à fadiga de um elemento estrutural é afectada por numerosos detalhes como são as soldaduras, furos, entalhes, perda de secção ou picadas. Estes detalhes podem originar roturas nos membros, resultando em propagação de fendas, podendo provocar o colapso de toda a estrutura. As fendas podem ser, por vezes, detectadas visualmente quando são relativamente largas e se não estiverem revestidas por pintura ou resíduos. Podem ser encontradas por métodos não destrutivos com o recurso a líquidos, partículas magnéticas, ultra-sons e radiografias.

Geralmente, os elementos com ligações soldadas são mais sensíveis à rotura por fadiga, relativamente a outras ligações, porque são internamente não redundantes. As áreas com maior interesse, em estruturas com chapas de aço soldadas, são as extremidades das placas, as uniões entre os banzos, alma e reforços transversais.

As deformações dos painéis de alma provocadas por deslocamentos no plano perpendicular são uma causa típica de roturas relacionadas com a fadiga. Os painéis de alma deformam-se sob as vigas de plataforma e surgem roturas das ligações devido à deformação causada pela rotação dos membros transversais. Isto é usualmente mais severo em vigas compostas por placas de aço soldadas, embora também surjam em vigas compostas por placas com rebites. Contudo, a ligação com a plataforma necessita de uma inspecção cuidada. Todos os componentes da ponte devem ser examinados cuidadosamente em áreas susceptíveis a problemas causados pela deformação do painel de alma, por vezes resultado da vibração dos cabos de sustentação, que pode causar problemas nas placas de ligação, banzos ou almas.

4.3.5. Roturas frágeis

A rotura frágil (Figura 4.12) é um tipo de rotura que se produz bruscamente sem o desenvolvimento de deformações apreciáveis que avisem do colapso eminente. Na origem deste fenómeno pode estar a propagação repentina de uma fissura (Cruz e Alvarez, 2000).

Figura 4.12 – Rotura frágil de um elemento estrutural.

Para que uma rotura frágil possa ocorrer, são necessárias três condições: falta de ductilidade ou resistência do material; estado de tensão; e descida acentuada de temperatura.

A resistência à rotura depende, principalmente, da resistência do material e da capacidade de redistribuição de cargas para outros componentes estruturais.

4.3.6. Temperatura

No hemisfério norte, os componentes estruturais a sul sofrem uma grande amplitude de temperatura sendo mais vulneráveis a aumentos pronunciados do estado de tensão. Problemas similares ocorrem se um dos lados da estrutura é continuamente arrefecido pela água (queda de água próxima, por exemplo), e o outro lado é aquecido pelo sol.

Nas vigas de vão único, os efeitos não são geralmente notórios, excepto para pontes em curva, onde a estrutura tende a mover-se transversal e longitudinalmente. Para pontes em arco ou em treliça, a plastificação das secções mais esbeltas pode causar a cedência na resistência ao vento.

4.3.7. Idade estrutural

Uma estrutura poderá ser considerada durável se, ao longo da sua vida útil (tipicamente 50 a 100 anos), mantiver a sua integridade e qualidade estética, sem a necessidade de grandes intervenções. A durabilidade não é uma propriedade intrínseca dos materiais, mas sim uma função relacionada com o desempenho dos mesmos sob determinadas condições ambientais. O envelhecimento destes resulta das alterações das propriedades mecânicas, físicas e químicas, tanto na superfície como no seu interior, em grande parte devidas à agressividade do meio ambiente. É pois evidente que, com o passar dos anos, qualquer estrutura se torne menos segura.

Todos os componentes de uma estrutura antiga podem apresentar um mau comportamento e tornar-se ineficazes. As causas são muitas, mas em geral as consequências são a deformação dos membros estruturais e os movimentos laterais

excessivos de toda a estrutura. Os movimentos laterais podem, por vezes, ter um efeito adverso nos apoios e nas juntas. Estes movimentos aumentam o estado de tensão e promovem canais não desejados de drenagem, que aumentam a perda de secção devido à corrosão.

Não se projecta, na maioria dos casos, tendo em clara consideração a durabilidade das construções. A ausência destas preocupações na fase de projecto faz com que, ao longo da vida útil da estrutura, os custos de manutenção possam atingir valores muito elevados. A falta de meios para proceder a uma manutenção regular pode conduzir a casos de deterioração extrema, que será agravada em situações especiais, como a perda de estanquicidade, a penetração de humidade ou a falta de acessibilidade.

4.3.8. Assentamentos diferenciais

A infra-estrutura de muitas estruturas antigas sofre assentamentos diferenciais (Figura 4.13). Os patins dos apoios podem estar inclinados (Figura 4.14), os parafusos podem estar partidos ou torcidos e, ocasionalmente, os apoios poderão estar suportados somente num dos lados da sua base.

Figura 4.13 – Assentamentos diferenciais.

Como é evidente, a ocorrência de assentamentos excessivos não se pode dissociar de erros de concepção ou de projecto, nomeadamente, num deficiente reconhecimento geotécnico.

Para as superestruturas em aço, a correcção pode requerer o levantamento da estrutura para permitir o reposicionamento ou substituição dos apoios. Todos os outros

componentes devem ser analisados devido aos assentamentos. Essencialmente, deve ser cuidadosamente revista a estabilidade do elemento da infra-estrutura.

Figura 4.14 – Movimentação de um apoio. (Brinckerhoff, 1993)

4.3.9. Sismos

Desde os sismos de Northbridge, em 1994, e de Kobe, em 1995, que um grande número de investigações experimentais e teóricas têm sido desenvolvidas no Japão, nos EUA e na Europa, sobre o comportamento sísmico de estruturas metálicas. A ocorrência de um elevado número de roturas frágeis tornou evidente a necessidade de melhorar o comportamento das ligações existentes neste tipo de estruturas.

4.3.10. Erros de projecto ou concepção

Neste ponto pretende-se analisar algumas situações de deficiente concepção. Ainda que, normalmente, os erros de projecto estejam relacionados com graves problemas de segurança, é mais frequente que estes erros se associem a um mau desempenho das estruturas, a problemas de durabilidade, a dificuldade de execução, entre outros (Cruz e Alvarez, 2000).

Um dos primeiros erros encontra-se na modelação estrutural. O facto dos softwares actuais fornecerem grandes quantidades de desenhos ou listagens não significa que o utilizador obtenha os resultados pretendidos. Um apoio mal colocado, uma propriedade física indevidamente atribuída, ou um simples parâmetro de entrada a que não foi dada a devida atenção pode conduzir a resultados indesejados e inadequados.

Outro erro relativamente comum é o da omissão de cargas. Em muitos projectos, para além da deficiente modelação das acções da neve e/ou do vento, são frequentemente omitidas as cargas devidas à acumulação de água e às imperfeições. Mesmo previstas durante o dimensionamento, a actuação de uma carga equivalente à acumulação de água pluvial (por exemplo), usualmente apresenta-se com um valor inferior à realidade se não se proceder a uma inspecção da plataforma e dispositivos de drenagem que garantam um eficaz funcionamento dos mecanismos de evacuação.

4.3.11. Defeitos de fabrico, montagem e protecção

A excentricidade das ligações é frequente em estruturas metálicas. Uma pequena excentricidade dos pernos de fundação pode conduzir a uma significativa inclinação dos pilares. Uma situação relativamente típica, no caso das ligações aparafusadas, é a falta de coincidência na posição dos furos efectuados nas peças a unir. Apesar das consequências destes erros não costumarem ser graves, já que é usual que quando se detectam se reforce a ligação com soldadura, calculada para suportar a totalidade da ligação, implicam sempre um certo atraso.

A existência de entalhes devidos a um deficiente processo de oxicorte é um dos defeitos mais frequentes, onde o uso indiscriminado deste processo pode conduzir a danos graves. Na generalidade dos casos, esta situação produzir-se-á para facilitar uma operação de montagem mal estudada ou para forçar a posição da estrutura.

Um defeito de montagem comum é a de dar a demão de acabamento da pintura sem se ter procedido à soldadura. Na melhor das hipóteses, este tipo de situação provocará a necessidade de limpeza da união, soldando e voltando a pintar.

4.4. A pintura como prevenção da corrosão

A mais importante questão sobre a manutenção para as pontes de aço em ambientes agressivos é como proteger os elementos de aço da corrosão. Yanaka e Kitagawa (2002) apresentam exemplos de métodos anti-corrosão para as pontes de aço, como é a pintura, entre outros. Alguns métodos alternativos de protecção à corrosão para pontes de aço

expostas a ambientes agressivos também podem ser encontrados em Neal (1998). Neste ponto, e de forma sucinta, apresenta-se somente o tratamento de superfícies por pintura.

Côrte-Real e Confraria (2001) definem tinta "como um produto líquido, pastoso ou sólido que, quando aplicado em camada fina sobre uma superfície apropriada, no estado em que é fornecida ou após diluição ou dispersão em produtos voláteis, ou fusão, é convertível, ao fim de certo tempo, numa película sólida, contínua, corada e opaca".

O tratamento de superfícies apresenta-se como uma vasta área, difícil de classificar e sistematizar, com uma enorme variedade de processos e aplicações que foram surgindo recentemente, em conjunto com as novas tecnologias (Côrte-Real e Confraria, 2001).

A escolha do sistema de pintura depende da sua durabilidade. O tipo de ambiente onde a estrutura se situa tem uma decisiva influência na durabilidade estrutural. As pinturas aplicadas no passado foram sujeitas a vários anos de exposição sobre variadas condições, sendo a experiência recolhida neste sentido fundamental para se obter melhores previsões em termos de durabilidade. O mesmo não se passa relativamente à nova geração de tintas, pois não existe a mesma experiência. Desta forma, a abordagem passa por confiar em testes acelerados para a obtenção de estimativas.

Os testes acelerados devem tentar simular as condições naturais, embora a simulação das condições é, obviamente, sempre aproximada. Em Królikowska (2000) são apresentados alguns exemplos de testes acelerados usados actualmente, as correntes tendências e os critérios para sistemas de pintura anti-corrosão. O objectivo é encontrar uma combinação de testes acelerados que resultem em iguais produtos e mecanismos de corrosão e deterioração do revestimento, como os provocados pela exposição ao ambiente natural.

Um bom revestimento por pintura deve ser resistente e constituir uma barreira eficaz entre a superfície a proteger e o ambiente. A durabilidade e eficiência de um revestimento por pintura derivam de vários factores pouco dependentes do produto em si, mas da forma como é aplicado. Assim, um dos factores fundamentais a ter em consideração é a preparação de superfície, que passa pela remoção de todas as

substâncias prejudiciais ao comportamento da tinta e a criação de uma certa rugosidade que proporcione uma maior área de aderência e ancoragem da pintura ao substrato.

No caso do aço, é fundamental a remoção total da calamina (camadas de óxidos de cor azulada), que se forma durante a laminagem a quente do aço, e dos produtos da corrosão (como a ferrugem). O método mecânico mais comum e eficiente é a decapagem por via seca com projecção de abrasivo.

Em síntese, a aplicação do acabamento em tinta constitui uma fase crítica, devendo englobar um planeamento adequado que tenha em consideração os tempos de secagem e cura, intervalos de recobrimento e tempos necessários para montagem e desmontagem dos meios de acesso. Os métodos de aplicação mais comuns são de três diferentes tipos: aplicação manual, aplicação por projecção ou por imersão.

Capítulo 5

Base de Dados

5.1. Introdução

A avaliação da capacidade de carga dos membros deteriorados por corrosão é de crucial importância em pontes metálicas existentes. Esta tarefa, para o avaliador, é susceptível de erro, devido à falta de informação relativa ao comportamento dos elementos estruturais, nomeadamente de painéis de alma ao corte afectados por corrosão, em vigas de inércia variável de alma esbelta compostas por chapas de aço soldadas. A incerteza na avaliação deve ser minimizada usando modelos baseados em princípios teóricos e processos consensuais, validados por um grande número de dados.

As propriedades mecânicas dos materiais tradicionalmente utilizados em pontes (como, por exemplo, o aço) são actualmente conhecidas, reduzindo, desta forma, a incerteza na avaliação do seu desempenho. No mesmo sentido, a incerteza na modelação pode ser igualmente considerada desprezável, na generalidade dos casos. Contudo, quando estas estruturas são afectadas pelo fenómeno da corrosão, a incerteza na avaliação do seu comportamento deve ser minimizada. A previsão da redução da capacidade de carga por corrosão apresenta um grande nível de incerteza e a criação de numa base de dados relativos a estruturas reais pode levar muitos anos a constituir (Akgül and Frangopol, 2003).

As actividades de manutenção, reparação e reabilitação em pontes são muitas vezes baseadas nas necessidades actuais e na experiência. Os sistemas de gestão de pontes só se tornaram num campo activo de investigação quando algumas pontes muito

deterioradas sofreram o colapso, principalmente devido à falta de apropriada manutenção e incerteza no comportamento de elementos afectados pela corrosão (Thompson et al., 1998). Em Portugal, o colapso da ponte Hintze Ribeiro (Figura 5.1) proporcionou um substancial aumento dos esforços para a eficaz manutenção deste tipo de estruturas.

Figura 5.1 – Colapso da Ponte Hintze Ribeiro.

Os custos de manutenção de pontes irão crescer rapidamente, e as entidades decisoras necessitam de usar eficientemente o orçamento limitado, planeando estratégias de custos efectivos a longo prazo (Sato et al., 2004). Na análise dos custos do ciclo de vida, o desempenho pode ser medido em termos de condição física e capacidade de carga (Petcherdchoo et al., 2004).

5.2. Técnicas de Data Mining

A acumulação, cada vez mais comum, de grandes quantidades de dados, em situações do dia a dia, transformou-se num impedimento para o fácil acesso à referida base de dados e obtenção de informação útil através da mesma (Figura 5.2). O desenvolvimento de novas técnicas para a obtenção de informação útil através de elevadas quantidades de dados e variáveis é, actualmente, um dos maiores desafios para o desenvolvimento de programas de cálculo automático. A quantidade de dados e a dificuldade da sua interpretação aumentam consideravelmente.

Actualmente, o conceito de Data Mining torna-se como uma ferramenta cada vez mais popular de geração de informação, revelando estruturas de conhecimento que possam apoiar decisões em condições de certeza limitadas.

Figura 5.2 – Acumulação de dados.

A técnica de Data Mining é parte de um processo de conhecimento denominado Knowledge Discovery in Database (KDD), em que consiste, fundamentalmente, nos seguintes aspectos: estruturação do banco de dados; selecção, preparação e pré-processamento dos dados; transformação, adequação e redução da dimensionalidade dos dados; processo de Data Mining; e, por último, análises, assimilações, interpretações e uso do conhecimento extraído do banco de dados.

5.2.1. Aplicação no campo da Engenharia Civil

O interesse na aplicação de técnicas de Inteligência Artificial no campo da Engenharia Civil teve o seu primeiro "momento" com a publicação de "Artificial Intelligence and Structural Design" (Spillers, 1966). Desde aí, o uso de Redes Neuronais Artificiais em problemas de Engenharia Civil tem ganho uma crescente aceitação devido à sua apetência para lidar com problemas indefinidos, relativamente comuns nesta especialidade de Engenharia. A sua utilização ajusta-se a diferentes tarefas, como o dimensionamento de estruturas ou a previsão de degradação de resistência.

As Redes Neuronais Artificiais imitam o cérebro humano e são conceptualmente compreendidas por um conjunto de nós e ligações ponderadas. O peso inicial das ligações é alterado durante o treino. O treino consiste em apresentar os dados à rede neuronal e usar o algoritmo numérico para ajustar os pesos relativos. Na Figura 5.3 é apresentado o ambiente de um software normalmente utilizado para o tratamento das bases de dados, recorrendo às técnicas referidas (CLEMENTINE).
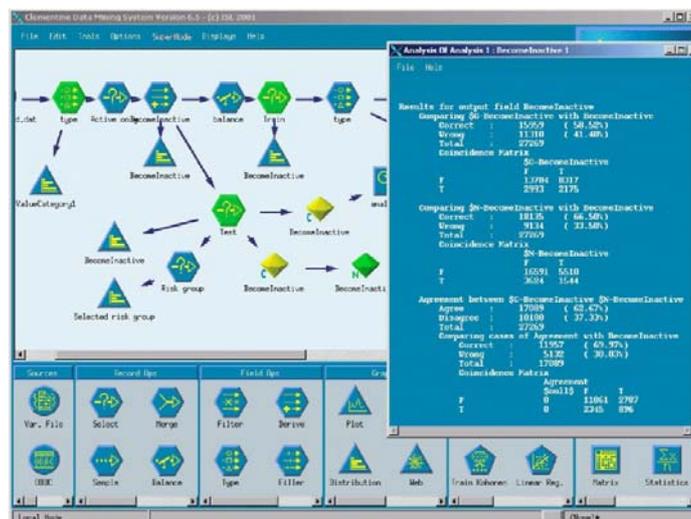
Figura 5.3 – Ambiente CLEMENTINE.

Em Cruz et al (2003) apresenta-se o desenvolvimento de um modelo para a previsão da tensão crítica de enfunamento elástico em vigas de inércia variável, baseado nos resultados obtidos por Zárate (2002), com recurso a técnicas de Data Mining. O trabalho desenvolvido revelou, uma vez mais, que a utilização deste tipo de abordagem para a obtenção de modelos de previsão é sustentável. A previsão do comportamento dos elementos estruturais através de redes neuronais apresenta-se, desta forma, como uma alternativa às actuais ferramentas analíticas, podendo ser incorporadas, num futuro relativamente próximo, nos sistemas de apoio à decisão. As Redes Neuronais Artificiais necessitam da solução de um conjunto relativamente simples de equações, enquanto que os métodos convencionais necessitam de, usualmente, um conjunto de equações mais elaborado.

5.3. Cálculo numérico

Como referido anteriormente, a insegurança na avaliação da degradação de resistência deve ser minimizada usando modelos baseados em princípios teóricos e processos consensuais, validados por um grande número de dados obtidos por modelos consistentes. Neste sentido, importa desenvolver uma ampla base de dados, para uma ampla gama de propriedades geométricas e de cenários de degradação de resistência por corrosão em vigas de inércia variável compostas por chapas de aço soldadas. A referida base de dados será, num futuro próximo, analisada com o recurso a técnicas de Data Mining, com a finalidade de se obter uma ferramenta rigorosa e prática que permita

obter uma previsão da carga crítica de enfunamento elástico e da carga última para painéis de alma de vigas de inércia variável de alma esbelta compostas por chapas de aço soldadas, degradadas ou não por corrosão.

5.3.1. Dados

Com base nos parâmetros geométricos já apresentados na Figura 3.13, surge a necessidade da definição de novos parâmetros geométricos de forma a abranger o maior número de casos práticos de dimensionamento. Neste sentido, as variáveis de dimensionamento que serão objecto de estudo obtêm-se através da relação entre as propriedades geométricas dos elementos de viga, e são:

$$\lambda_f = \frac{b_f}{t_f}, \ \eta = \frac{b_f}{h_1}, \ \alpha = \frac{a}{h_1} \ \text{e} \ tg\phi$$

Nestas relações: λ_f é a esbeltez da alma, definida pela relação entre a largura do banzo b_f e a espessura do banzo t_f; η é a relação entre a largura do banzo b_f e a altura maior da alma h_1; α é o parâmetro de forma da alma, definido pela relação entre a distância de separação entre os elementos rígidos transversais a e a altura maior do painel de alma h_1; ϕ é a inclinação do banzo inferior.

De forma a simular a localização da redução de espessura por corrosão, o painel de alma foi dividido em nove zonas diferentes, identificadas na Figura 5.4, aproximadamente iguais, dependendo da malha e da distância entre os reforços transversais. Na Figura 5.5 estão apresentadas as adaptações efectuadas para outros valores de α.
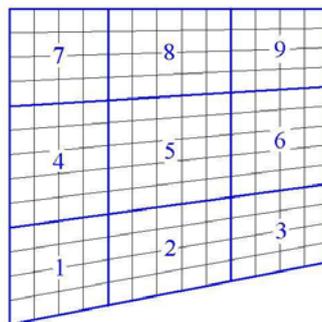
Figura 5.4 – Painel de alma dividido em nove zonas.

Na Tabela 5.1 apresentam-se algumas das variáveis da referida base de dados. A amplitude dos parâmetros foi efectuada mediante os casos práticos mais comuns de dimensionamento. Para uma melhor interpretação da amplitude das variáveis, apresentam-se os histogramas relativos às mesmas na Figura 5.6.

$\alpha = 0.5$ $\alpha = 1.5$ $\alpha = 2.0$
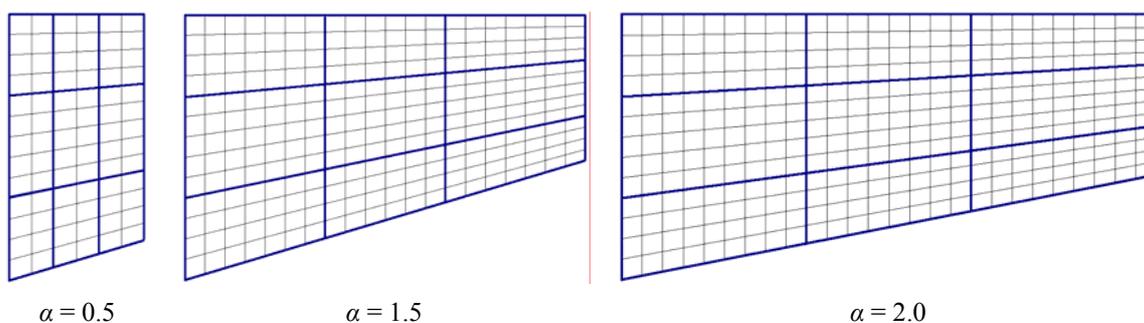
Figura 5.5 – Adaptações para outros valores de α.

As variáveis utilizadas são baseadas em investigações anteriores (Cruz et al., 2003), acrescentando-se as relativas à espessura do painel de alma por zona.

Tabela 5.1 – Variáveis constituintes da base de dados.

Variável	Descrição	Mínimo	Máximo
α	Parâmetro de forma do painel de alma, definido pela relação entre o espaçamento dos reforços transversais e a maior altura do painel de alma	0.5	2.0
λ_f	Esbeltez dos banzos, definida pela relação entre a largura e a espessura dos mesmos	8	113
h_1	Relação entre a largura dos banzos e a altura máxima da alma do elemento em análise	0.10	1.80
$tg\phi$	Inclinação do banzo inferior	0.00	0.60
h_1	Altura máxima do painel de alma	500	4000
b_f	Largura do banzo	200	1200
t_f	Espessura do banzo	8.0	56.0
$z1 \, a \, z9$	Espessura das Zonas 1 a 9 da alma	4.0	16.0

De salientar que a variável h_0 não sofreu variação, embora, sendo as variáveis em forma de relações, poderá ser efectuada uma previsão para a degradação de carga crítica de enfunamento elástico e carga última para outros valores de h_0. As análises centram-se, contudo, para $\alpha = 1.0$ e $t_w = 8$ mm. Todas as outras variáveis tiveram uma amplitude de variação equivalente à efectuada por Zárate (2002).

5.3.2. Resultados

Na Tabela 5.2 apresentam-se os valores da carga crítica de enfunamento elástico e da carga última obtida. Para uma melhor interpretação da amplitude dos mesmos, apresentam-se os histogramas relativos na Figura 5.7. A reserva de resistência é obtida, posteriormente, através da subtracção da carga crítica de enfunamento elástico à carga última.

Tabela 5.2 – Resultados obtidos.

Variável	Mínimo	Máximo
Carga Crítica	71.1	4173.7
Carga Última	309.1	4262.7
Reserva de Resistência	8.7	1308.4
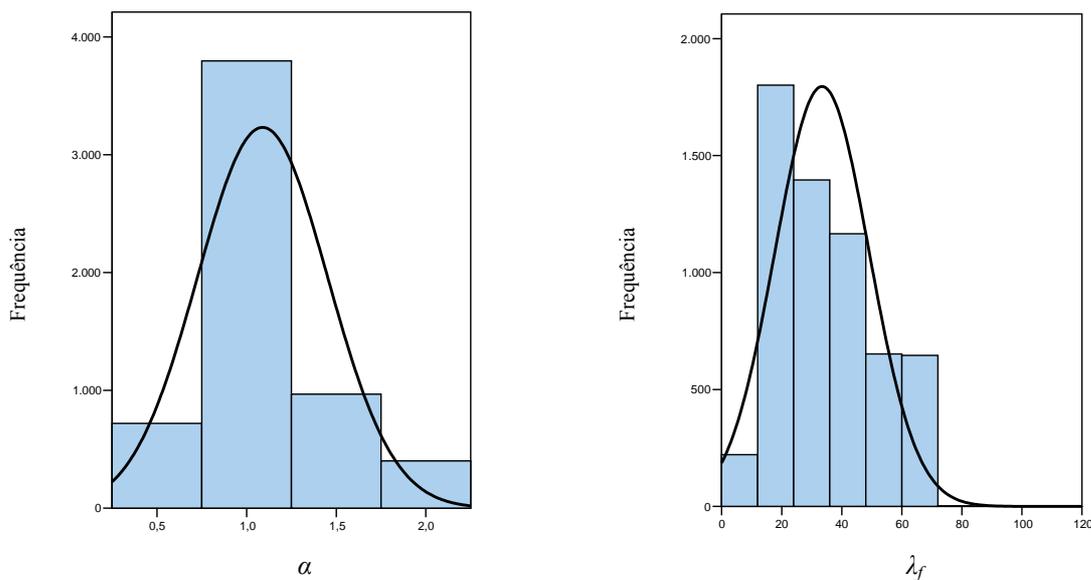
Figura 5.6 – Histogramas relativos aos dados. (continua)
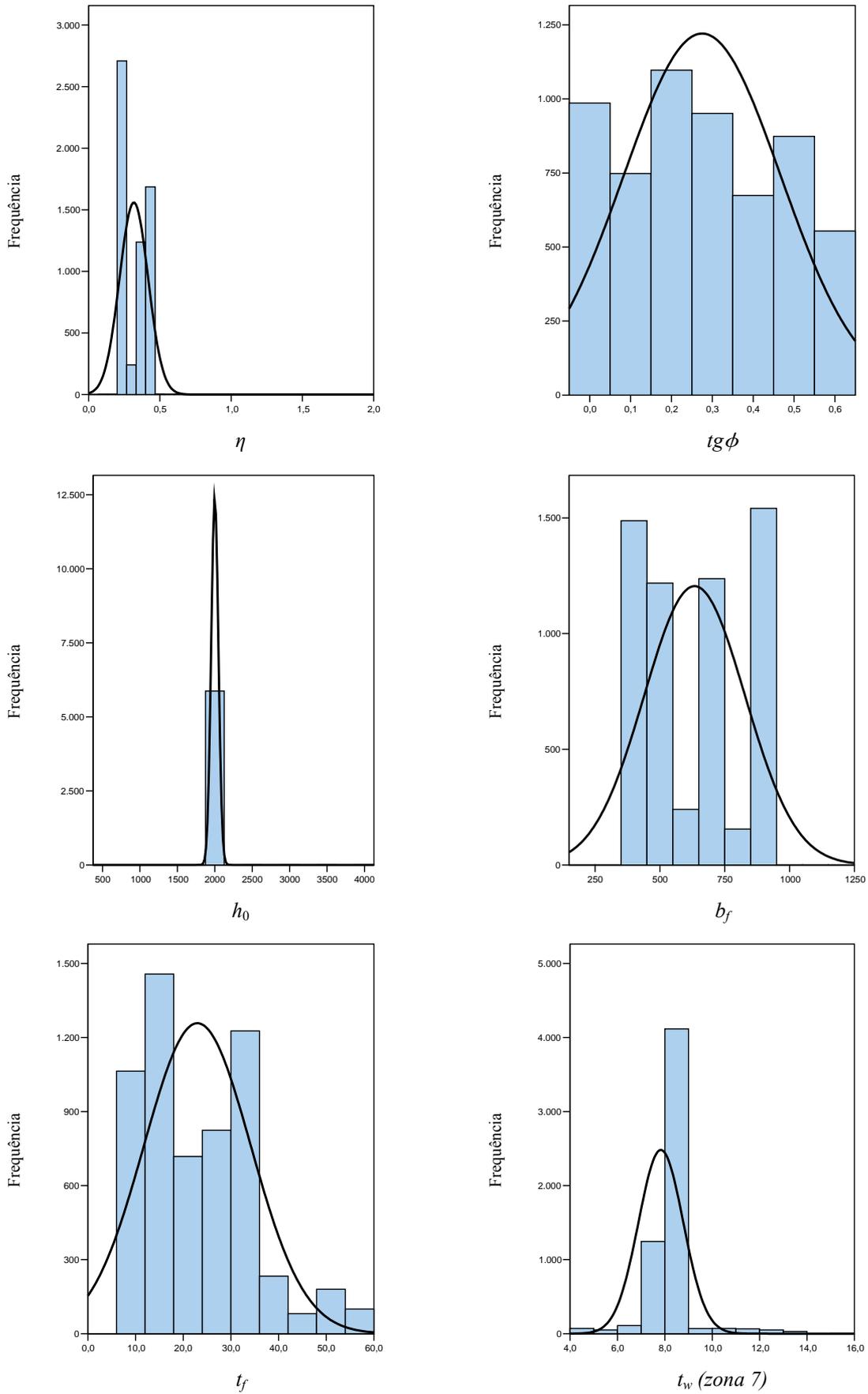
Figura 5.6 – (continuação) Histogramas relativos aos dados.
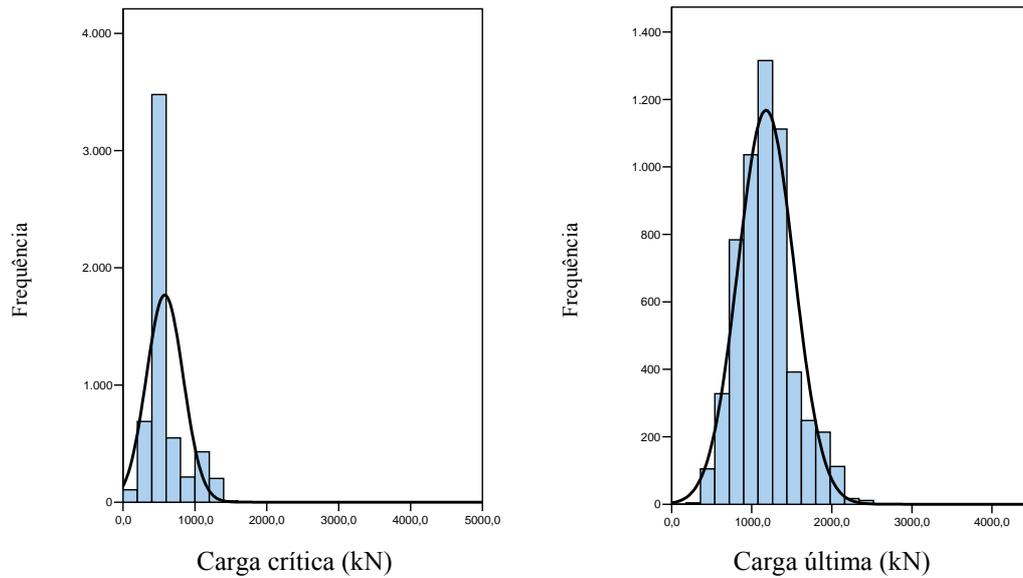
Figura 5.7 – Histogramas relativos aos resultados obtidos.

5.4. Conclusão

No final da análise numérica, obteve-se uma base de dados (apresentada no Anexo II) com 5670 cenários de painéis de alma em vigas de inércia variável submetidas ao corte, intactas ou degradadas pelo processo da corrosão, com resultados obtidos relativos à carga crítica de enfunamento elástico e carga última. Para o efeito utilizou-se um modelo de análise estrutural, validado com resultados experimentais e numéricos, obtidos por outros autores.

Capítulo 6

Conclusões

6.1. Resumo

As vigas metálicas de inércia variável de alma esbelta, compostas por chapas de aço soldadas, são utilizadas na construção metálica e mista quando se pretendem vencer vãos importantes ou resistir a cargas consideráveis. O uso destes elementos é comum em zonas onde existe uma forte variação do momento flector. Na presente dissertação foi estudado este tipo de vigas, onde a variação da inércia se consegue, em geral, através da variação longitudinal da altura, mantendo horizontal o banzo superior. O estudo do comportamento estrutural até ao esgotamento de vigas metálicas de inércia variável de alma esbelta compostas por chapas de aço soldadas, sujeitas a fenómenos de corrosão, deve contemplar o aparecimento de diferentes fenómenos estruturais que são difíceis de quantificar e que estão estreitamente acoplados. Estes fenómenos desenvolvem-se, inclusivamente, a baixos níveis de carga e são devidos, principalmente, ao enfunamento dos painéis que constituem a viga e à plastificação do material.

Para a tipologia estrutural de vigas metálicas de inércia variável de alma esbelta compostas por chapas de aço soldadas, não se tem conhecimento, até à data, da existência de estudos detalhados e rigorosos sobre a sua resposta estrutural em condições de serviço e numa situação próxima do esgotamento, quando afectadas por corrosão localizada. Neste sentido, não existem modelos simplificados de capacidade crítica e última que permitam avaliar a resistência desta tipologia de vigas, quando afectadas pelo fenómeno da corrosão.

A falta de informação relativa ao comportamento de membros metálicos corroídos torna difícil a tarefa do engenheiro em analisar e decidir sobre as estruturas existentes, surgindo a necessidade do desenvolvimento de técnicas ainda mais avançadas para avaliar eficientemente a integridade e segurança estrutural. Devido à crescente utilização de vigas I de inércia variável, importa desenvolver estudos rigorosos e detalhados sobre a sua resposta estrutural, em condições de serviço e numa situação próxima ao colapso, quando aqueles elementos sofrem processos de degradação (Cruz e Guimarães, 2003). Com os métodos conhecidos até à data, ainda não é possível determinar com objectividade a carga crítica de enfunamento e a carga última em vigas de inércia variável com variações de espessura localizadas no painel de alma, que se apresenta como o elemento tipicamente crítico.

Com a intenção de responder a esta lacuna, foi realizada a presente investigação, a qual teve como principal objectivo o desenvolvimento de uma base de dados para diversas tipologias de vigas com diferentes cenários de redução de espessura, que permitisse prever, depois de futuramente analisada com o recurso a técnicas de Data Mining, a carga crítica de enfunamento elástico e carga última. Esta investigação foi efectuada baseada em modelos consensuais já existentes, com o estudo de um elevado número de casos geométricos.

6.2. Síntese das conclusões

As vigas I de inércia variável de alma esbelta, compostas por chapas de aço soldadas, nem sempre apresentam as características geométricas definidas em projecto, tanto devido a problemas de fabrico como a degradações resultantes da utilização e/ou exposição às condições ambientais. Neste sentido, a resistência efectiva desta tipologia de vigas pode ficar aquém da prevista na fase de projecto.

Assim, por questões de segurança, é recomendável que o dimensionamento deste tipo de estruturas preveja a capacidade resistente dos elementos estruturais com as dimensões geométricas que poderão alcançar durante a vida útil prevista para a estrutura, nomeadamente a espessura dos painéis.

Como esperado, a diminuição de espessura no painel de alma provoca a diminuição do valor da carga crítica de enfunamento e da carga máxima perante forças tangenciais. No entanto, a redução de resistência depende significativamente da localização e gravidade da patologia presente nos painéis. Por exemplo, uma redução da espessura do painel de alma no quadrante esquerdo superior tem efeitos significativos na diminuição da capacidade resistente das vigas I de alma esbelta e inércia variável, pois trata-se de uma zona preponderante na ancoragem do campo diagonal de tracções. Se, no entanto, a redução de espessura se localizar no quadrante esquerdo inferior, o comportamento ao corte do painel de alma é similar a uma viga idêntica sem redução de espessura. Usualmente, o decréscimo do valor da carga crítica é bastante superior à diminuição do valor da carga máxima.

Analisando o comportamento ao corte das vigas em termos de parâmetros geométricos, conclui-se que h, t_w e a apresentam-se como os mais influentes na variação da carga crítica de enfunamento elástico e da carga última ao corte de um painel de alma de uma viga de inércia variável.

A redução de resistência em vigas com redução de espessura localizada nos banzos não é significativa quando as vigas estão sujeitas ao corte. No entanto, esta deverá ganhar importância no caso de vigas sujeitas à flexão simples (esta questão não esteve no âmbito da presente investigação).

Relativamente à previsão da carga crítica de enfunamento elástico, a partir da análise das curvas força tangencial versus deslocamento perpendicular ao plano médio da alma, constata-se que pode ser pouco rigorosa, especialmente para grandes imperfeições iniciais, não se encontrando na bibliografia formas definidas e exactas de o fazer. Contudo, a determinação efectuada através do módulo de instabilidade do ABAQUS (buckle) é rigorosa, se efectuada entre amplitudes usuais de parâmetros geométricos. A utilização deste módulo de instabilidade permitiu, igualmente, a criação, com relativa facilidade, de uma rotina para a realização de uma análise num grande número de cenários de degradação. Este procedimento de obtenção da carga crítica de enfunamento elástico apresenta, contudo, valores ligeiramente superiores relativamente aos dados pelas expressões analíticas ($\approx 2\%$), não estando, desta forma, pelo lado da segurança.

6.3. Linhas futuras de investigação

A partir da investigação desenvolvida na presente dissertação e dos resultados obtidos, pode concluir-se que o objectivo geral foi alcançado com êxito. Contudo, o presente trabalho poderá ter continuidade através do desenvolvimento de futuras linhas de investigação. Seguidamente, mencionam-se as que se consideram mais relevantes:

- Estudo do comportamento de vigas de inércia variável de alma esbelta compostas por chapas de aço soldadas, afectadas por corrosão no painel de alma, quando submetidas a uma interacção de esforço de corte e momento-flector;

- Estudo do comportamento de vigas de inércia variável de alma esbelta compostas por chapas de aço soldadas, afectadas por corrosão localizada nos banzos, quando submetidas a diferentes níveis de flexão;

- Estudo do comportamento estrutural para painéis com elementos rígidos longitudinais, quando sujeitos a corrosão localizada;

- Determinação do tempo de vida útil de uma estrutura, com recurso a técnicas de determinação da propagação da corrosão relativamente ao tempo, prevendo-se assim uma "curva" capacidade resistente de um painel versus tempo.

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Anexo I

Resultados relativos à análise de sensibilidade

No presente anexo, apresentam-se os resultados numéricos obtidos referentes à análise de sensibilidade apresentada no Capítulo 3 (ponto 3.4).

Nas seguintes tabelas, para além das variáveis já definidas em 3.4. e em 5.3.1.:

- f_{c1} - representa a força crítica de enfunamento elástico, obtida através do módulo de instabilidade do ABAQUS (buckle);

- f_{c2} - representa a força crítica de enfunamento elástico, obtida através da análise do ponto de bifurcação das curvas de comportamento força tangencial versus deslocamento perpendicular ao painel de alma;

- f_{c3} - representa a força crítica de enfunamento elástico obtida através das expressões de cálculo propostas por Zárate (2002), apresentadas em 2.3.1.4.;

- f_u - representa a força última obtida;

- r - representa a reserva resistência obtida, neste caso, através de $r = f_u - f_{c2}$

Variação de h_1

α	λ_f	η	$tg\phi$	t_w	h_1	b_f	t_f	f_{c1}	f_{c2}	f_{c3}	f_u	r
1,00	37,50	1,80	0,30	8	500	900	24,0	2584,6	543,2	2687,7	703,0	159,8
1,00	37,50	1,20	0,30	8	750	900	24,0	1734,4	879,8	1764,6	888,5	8,6
1,00	37,50	0,90	0,30	8	1000	900	24,0	1299,7	1040,0	1304,1	1052,9	12,9
1,00	37,50	0,72	0,30	8	1250	900	24,0	1035,5	1011,6	1027,6	1111,4	99,8
1,00	37,50	0,60	0,30	8	1500	900	24,0	858,1	842,9	842,9	1175,5	332,5
1,00	37,50	0,51	0,30	8	1750	900	24,0	730,7	718,5	710,4	1224,3	505,7
1,00	**37,50**	**0,45**	**0,30**	**8**	**2000**	**900**	**24,0**	**635,0**	**620,6**	**610,5**	**1260,8**	**640,2**
1,00	37,50	0,36	0,30	8	2500	900	24,0	501,0	490,9	469,3	1313,8	822,9
1,00	37,50	0,30	0,30	8	3000	900	24,0	411,7	404,8	373,7	1357,0	952,2
1,00	37,50	0,26	0,30	8	3500	900	24,0	348,1	342,7	304,2	1394,1	1051,4
1,00	37,50	0,23	0,30	8	4000	900	24,0	300,7	295,8	251,0	1533,5	1237,7

Variação de t_w

α	λ_f	η	$tg\phi$	t_w	h_1	b_f	t_f	f_{c1}	f_{c2}	f_{c3}	f_u	r
1,00	37,50	0,45	0,30	4	2000	900	24,0	82,2	79,6	76,3	466,1	386,5
1,00	37,50	0,45	0,30	5	2000	900	24,0	159,2	160,1	149,0	591,1	431,0
1,00	37,50	0,45	0,30	6	2000	900	24,0	272,9	271,3	257,5	758,0	486,7
1,00	37,50	0,45	0,30	7	2000	900	24,0	429,5	424,0	409,0	996,4	572,4
1,00	**37,50**	**0,45**	**0,30**	**8**	**2000**	**900**	**24,0**	**635,0**	**620,6**	**610,5**	**1260,8**	**640,2**
1,00	37,50	0,45	0,30	9	2000	900	24,0	895,1	881,7	869,2	1546,1	664,4
1,00	37,50	0,45	0,30	10	2000	900	24,0	1214,8	1192,7	1192,3	1847,7	655,0
1,00	37,50	0,45	0,30	11	2000	900	24,0	1598,5	1574,6	1587,0	2165,6	591,1
1,00	37,50	0,45	0,30	12	2000	900	24,0	2050,1	2025,7	2060,3	2497,7	472,0
1,00	37,50	0,45	0,30	13	2000	900	24,0	2572,6	2533,2	2619,5	2847,4	314,2
1,00	37,50	0,45	0,30	14	2000	900	24,0	3168,1	3096,3	3271,7	3309,7	213,4
1,00	37,50	0,45	0,30	15	2000	900	24,0	3837,0	3707,2	4024,1	3831,1	123,9
1,00	37,50	0,45	0,30	16	2000	900	24,0	4578,3	4173,7	4883,7	4262,7	89,1

Variação de $tg\phi$

α	λ_f	η	$tg\phi$	t_w	h_1	b_f	t_f	f_{c1}	f_{c2}	f_{c3}	f_u	r
1,00	37,50	0,45	0,00	8	2000	900	24,0	593,4	578,0	595,5	1493,2	915,2
1,00	37,50	0,45	0,10	8	2000	900	24,0	605,8	592,4	599,3	1422,1	829,6
1,00	37,50	0,45	0,20	8	2000	900	24,0	621,4	610,7	604,1	1344,3	733,6
1,00	**37,50**	**0,45**	**0,30**	**8**	**2000**	**900**	**24,0**	**635,0**	**620,6**	**610,5**	**1260,8**	**640,2**
1,00	37,50	0,45	0,40	8	2000	900	24,0	645,4	632,6	619,1	1164,0	531,4
1,00	37,50	0,45	0,50	8	2000	900	24,0	651,1	650,3	631,7	1031,2	380,9
1,00	37,50	0,45	0,60	8	2000	900	24,0	651,2	650,1	651,1	868,2	218,1

Variação de t_f

α	λ_f	η	$tg\phi$	t_w	h_1	b_f	t_f	f_{c1}	f_{c2}	f_{c3}	f_u	r
1,00	112,50	0,45	0,30	8	2000	900	8,0	398,8	421,0	514,4	1147,8	726,8
1,00	75,00	0,45	0,30	8	2000	900	12,0	575,8	563,3	562,4	1192,9	629,6
1,00	56,25	0,45	0,30	8	2000	900	16,0	609,8	599,9	586,5	1234,7	634,8
1,00	45,00	0,45	0,30	8	2000	900	20,0	625,9	613,6	600,9	1251,9	638,3
1,00	**37,50**	**0,45**	**0,30**	**8**	**2000**	**900**	**24,0**	**635,0**	**620,6**	**610,5**	**1260,8**	**640,2**
1,00	32,14	0,45	0,30	8	2000	900	28,0	640,7	624,6	617,3	1267,0	642,4
1,00	28,13	0,45	0,30	8	2000	900	32,0	644,4	635,0	622,5	1272,0	637,0
1,00	25,00	0,45	0,30	8	2000	900	36,0	646,9	636,9	626,5	1276,3	639,4
1,00	22,50	0,45	0,30	8	2000	900	40,0	648,7	638,1	629,7	1280,4	642,3
1,00	20,45	0,45	0,30	8	2000	900	44,0	649,9	638,9	632,3	1284,5	645,6

Variação de b_f

α	λ_f	η	$tg\phi$	t_w	h_1	b_f	t_f	f_{c1}	f_{c2}	f_{c3}	f_u	r
1,00	8,33	0,10	0,30	8	2000	200	24,0	537,3	523,8	517,3	1187,0	663,1
1,00	12,50	0,15	0,30	8	2000	300	24,0	570,7	560,7	549,5	1217,8	657,1
1,00	16,67	0,20	0,30	8	2000	400	24,0	591,2	583,8	568,6	1233,3	649,5
1,00	20,83	0,25	0,30	8	2000	500	24,0	605,2	595,6	581,7	1243,1	647,5
1,00	25,00	0,30	0,30	8	2000	600	24,0	615,5	604,6	591,5	1249,5	645,0
1,00	29,17	0,35	0,30	8	2000	700	24,0	623,5	611,3	599,1	1254,5	643,2
1,00	33,33	0,40	0,30	8	2000	800	24,0	629,8	616,5	605,3	1257,9	641,4
1,00	**37,50**	**0,45**	**0,30**	**8**	**2000**	**900**	**24,0**	**635,0**	**620,6**	**610,5**	**1260,8**	**640,2**
1,00	41,67	0,50	0,30	8	2000	1000	24,0	639,4	623,9	614,9	1263,0	639,1
1,00	45,83	0,55	0,30	8	2000	1100	24,0	643,0	626,6	618,7	1264,8	638,2
1,00	50,00	0,60	0,30	8	2000	1200	24,0	646,1	636,9	622,1	1266,2	629,4

Variação de α

α	λ_f	η	$tg\phi$	t_w	h_1	b_f	t_f	f_{c1}	f_{c2}	f_{c3}	f_u	r
0,50	37,50	0,45	0,30	8	2000	900	24,0	1265	1268	1238,6	1822	554
0,60	37,50	0,45	0,30	8	2000	900	24,0	1014	1010	980,2	1623	613
0,80	37,50	0,45	0,30	8	2000	900	24,0	761	759	721,3	1396	637
1,00	**37,50**	**0,45**	**0,30**	**8**	**2000**	**900**	**24,0**	**635**	**621**	**610,5**	**1261**	**640**
1,25	37,50	0,45	0,30	8	2000	900	24,0	554	556	534,7	1137	581
1,50	37,50	0,45	0,30	8	2000	900	24,0	506	510	496,4	977	466
1,75	37,50	0,45	0,30	8	2000	900	24,0	477	462	477,7	780	318
2,00	37,50	0,45	0,30	8	2000	900	24,0	461	431	472,1	636	205

$$\lambda_f = \frac{b_f}{t_f}$$

$$\eta = \frac{b_f}{h_1}$$

$$\alpha = \frac{a}{h_1}$$
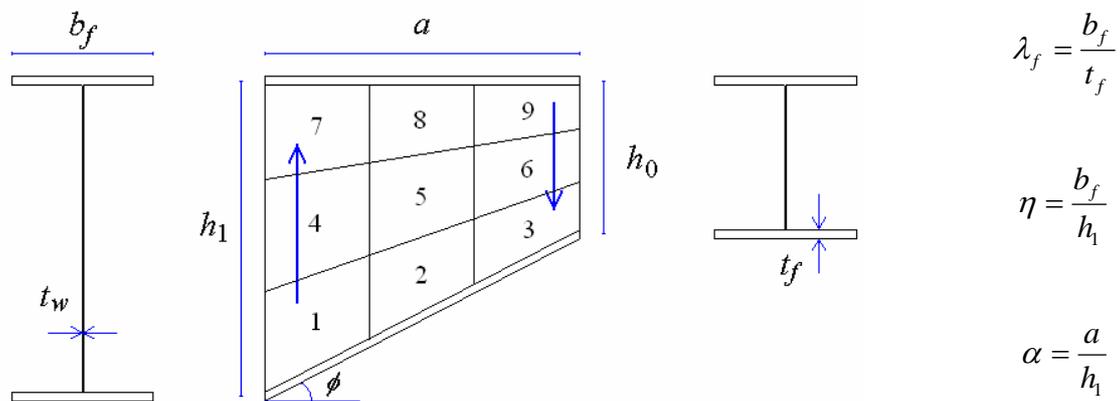
Anexo II

Base de Dados

No presente anexo, apresentam-se todos os resultados obtidos, constituintes da base de dados referida como objectivo principal da presente investigação.

Está separada em vários grupos, com diferentes metodologias de variação, as quais devem ser atendidas na análise através da técnica de Data Mining. A força crítica apresentada foi obtida através do módulo de instabilidade do ABAQUS (buckle).

N.º de cenários	Designação	Redução de espessura	Página
78	Casos aleatórios referidos na Figura 3.22	12,5%	II.2
720	Cenários para $\alpha = 0.5$	12,5%	II.2 a II.11
380	Cenários para $\alpha = 1.0$, com $tg\phi = 0.00$	12,5%	II.11 a II.15
360	Cenários para $\alpha = 1.0$, com $tg\phi = 0.10$	12,5%	II.15 a II.19
420	Cenários para $\alpha = 1.0$, com $tg\phi = 0.20$	12,5%	II.19 a II.24
380	Cenários para $\alpha = 1.0$, com $tg\phi = 0.30$	12,5%	II.24 a II.29
400	Cenários para $\alpha = 1.0$, com $tg\phi = 0.40$	12,5%	II.29 a II.33
380	Cenários para $\alpha = 1.0$, com $tg\phi = 0.50$	12,5%	II.33 a II.38
420	Cenários para $\alpha = 1.0$, com $tg\phi = 0.60$	12,5%	II.38 a II.43
785	Cenários para $\alpha = 1.5$	12,5%	II.43 a II.52
133	Cenários para $\alpha = 1.0$, com $tg\phi = 0.00$	de 5% a 50%	II.52 a II.53
133	Cenários para $\alpha = 1.0$, com $tg\phi = 0.10$	de 5% a 50%	II.53 a II.55
133	Cenários para $\alpha = 1.0$, com $tg\phi = 0.20$	de 5% a 50%	II.55 a II.56
133	Cenários para $\alpha = 1.0$, com $tg\phi = 0.30$	de 5% a 50%	II.56 a II.58
133	Cenários para $\alpha = 1.0$, com $tg\phi = 0.40$	de 5% a 50%	II.58 a II.60
133	Cenários para $\alpha = 1.0$, com $tg\phi = 0.50$	de 5% a 50%	II.60 a II.61
133	Cenários para $\alpha = 1.0$, com $tg\phi = 0.60$	de 5% a 50%	II.61 a II.63
47	Análise de sensibilidade (ponto 3.4)	0,0%	II.63
369	Cenários para $\alpha = 2.0$	12,5%	II.63 a II.67

Total: 5670

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	612,3	1336,7
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	616,4	1336,4
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	596,2	1331,0
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	590,3	1309,4
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	588,5	1321,1
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	537,8	1291,2
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	588,4	1323,4
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	561,2	1158,1
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	579,0	1314,8
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	609,4	1336,6
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	578,6	1304,4
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	541,3	1141,6
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	8,0	7,0	563,0	1295,0
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	529,3	1137,5
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	486,5	1097,1
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	546,6	1291,6
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	428,8	1053,5
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	446,0	1217,6
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	465,6	1091,8
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	7,0	8,0	496,3	1243,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	598,4	1331,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	7,0	8,0	7,0	7,0	8,0	7,0	508,0	1226,6
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	546,6	1291,6
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	8,0	8,0	8,0	7,0	7,0	7,0	7,0	497,5	1121,8
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	7,0	7,0	8,0	7,0	7,0	7,0	7,0	466,5	1088,1
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	8,0	8,0	7,0	8,0	464,7	1229,4
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	8,0	8,0	473,4	1236,3
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	546,6	1291,6
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	563,0	1295,9
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	8,0	7,0	8,0	7,0	7,0	7,0	443,3	1073,4
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	7,0	8,0	8,0	8,0	8,0	7,0	566,2	1294,8
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	7,0	499,2	1268,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	8,0	7,0	7,0	8,0	8,0	7,0	436,6	1248,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	7,0	8,0	8,0	8,0	7,0	8,0	548,7	1296,1
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	7,0	8,0	7,0	7,0	7,0	8,0	436,5	1108,2
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	8,0	7,0	7,0	8,0	7,0	7,0	8,0	438,2	1083,9
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	447,0	1074,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	7,0	7,0	8,0	7,0	7,0	8,0	8,0	508,2	1112,2
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	8,0	8,0	8,0	8,0	7,0	7,0	8,0	520,1	1132,6
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	7,0	494,2	1108,4
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	7,0	8,0	8,0	7,0	7,0	8,0	7,0	525,8	1126,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	483,8	1112,4
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	8,0	8,0	495,2	1107,1
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	8,0	7,0	7,0	7,0	8,0	8,0	7,0	486,3	1262,6
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	7,0	8,0	8,0	7,0	8,0	7,0	521,5	1122,8
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	465,6	1091,8
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	7,0	7,0	553,6	1285,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	8,0	7,0	8,0	8,0	8,0	7,0	506,4	1259,8
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	7,0	7,0	8,0	7,0	7,0	8,0	7,0	507,0	1112,0
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	7,0	7,0	7,0	8,0	7,0	461,2	1087,0
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	7,0	7,0	8,0	8,0	8,0	498,3	1251,1
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	7,0	8,0	7,0	8,0	7,0	8,0	519,7	1261,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	8,0	7,0	8,0	7,0	7,0	7,0	7,0	524,6	1131,8
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	8,0	7,0	7,0	8,0	8,0	8,0	7,0	520,2	1278,6
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	8,0	8,0	7,0	7,0	8,0	7,0	529,6	1141,9
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	8,0	7,0	8,0	8,0	8,0	7,0	8,0	540,6	1296,5
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	8,0	7,0	7,0	7,0	8,0	7,0	8,0	436,4	1248,8
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	7,0	7,0	560,9	1301,7
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	7,0	8,0	8,0	8,0	7,0	8,0	526,7	1269,2
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	8,0	8,0	7,0	7,0	7,0	7,0	502,1	1121,1
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	7,0	7,0	8,0	7,0	8,0	8,0	8,0	553,5	1282,4
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	7,0	7,0	8,0	8,0	7,0	8,0	7,0	524,8	1121,4
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	8,0	7,0	8,0	8,0	8,0	7,0	506,4	1259,9
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	7,0	7,0	507,3	1272,2
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	7,0	8,0	8,0	7,0	7,0	7,0	475,9	1248,9
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	7,0	8,0	8,0	7,0	7,0	8,0	501,7	1103,9
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	7,0	7,0	513,0	1284,2
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	541,6	1137,2
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	8,0	7,0	7,0	8,0	8,0	7,0	436,6	1248,1
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	7,0	7,0	8,0	7,0	8,0	8,0	482,8	1105,0
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	8,0	8,0	7,0	7,0	7,0	7,0	502,1	1121,1
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	8,0	8,0	8,0	7,0	7,0	8,0	7,0	529,3	1141,9
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	7,0	8,0	8,0	7,0	8,0	7,0	521,5	1122,2
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	8,0	7,0	7,0	7,0	8,0	7,0	7,0	8,0	442,5	1067,7
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	609,4	1336,6
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	8,0	7,0	8,0	7,0	7,0	8,0	8,0	8,0	498,3	1251,1
1,0	45,00	0,45	0,20	2000	900	20,0	8,0	7,0	8,0	7,0	8,0	7,0	7,0	8,0	7,0	505,7	1127,5
1,0	45,00	0,45	0,20	2000	900	20,0	7,0	7,0	7,0	8,0	7,0	8,0	8,0	7,0	7,0	481,2	1239,2
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1272,8	2087,5
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1206,8	2026,4
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1087,5	1934,5
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1279,5	2094,9
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1242,1	2056,7
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1214,7	2030,8
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1295,3	2121,7
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1283,5	2099,5

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1250,9	2064,7
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1251,7	1915,3
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1172,2	1856,8
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1039,0	1769,7
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1265,9	1919,7
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1218,6	1882,6
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1185,3	1858,0
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1287,8	1945,0
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1273,5	1923,8
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1232,1	1889,1
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1252,1	1828,6
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1166,5	1768,2
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1022,8	1683,3
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1269,8	1831,8
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1218,9	1792,0
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1182,1	1767,8
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1291,9	1859,2
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1278,7	1835,7
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1234,1	1798,1
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1265,8	1662,8
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1169,3	1600,8
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1003,9	1516,7
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1288,1	1664,5
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1230,0	1623,6
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1187,1	1600,4
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1309,9	1694,7
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1298,6	1668,1
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1247,6	1629,3
0,5	10,00	0,20	0,00	2000	400	40,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1296,9	2085,5
0,5	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1224,7	2022,9
0,5	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1099,4	1931,1
0,5	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1304,7	2091,8
0,5	43,75	0,35	0,00	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1262,8	2053,3
0,5	58,33	0,35	0,00	2000	700	12,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1233,3	2027,5
0,5	16,07	0,45	0,00	2000	900	56,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1323,2	2119,1
0,5	28,13	0,45	0,00	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1309,4	2096,7
0,5	56,25	0,45	0,00	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1272,6	2061,5
0,5	10,00	0,20	0,20	2000	400	40,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1268,4	1914,0
0,5	25,00	0,20	0,20	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1184,8	1855,3
0,5	50,00	0,20	0,20	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1047,6	1768,2
0,5	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1282,9	1918,5
0,5	43,75	0,35	0,20	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1232,8	1881,1
0,5	58,33	0,35	0,20	2000	700	12,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1198,0	1856,6
0,5	16,07	0,45	0,20	2000	900	56,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1307,0	1943,8
0,5	28,13	0,45	0,20	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1290,9	1922,4
0,5	56,25	0,45	0,20	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1246,7	1887,8
0,5	10,00	0,20	0,30	2000	400	40,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1265,2	1828,1
0,5	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1176,3	1767,5
0,5	50,00	0,20	0,30	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1029,5	1682,5
0,5	21,88	0,35	0,30	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1283,1	1831,3
0,5	43,75	0,35	0,30	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1229,7	1791,3
0,5	58,33	0,35	0,30	2000	700	12,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1191,9	1767,2
0,5	16,07	0,45	0,30	2000	900	56,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1307,0	1858,6
0,5	28,13	0,45	0,30	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1292,2	1834,8
0,5	56,25	0,45	0,30	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1245,3	1797,5
0,5	10,00	0,20	0,50	2000	400	40,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1272,8	1662,6
0,5	25,00	0,20	0,50	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1174,4	1600,5
0,5	50,00	0,20	0,50	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1007,5	1516,5
0,5	21,88	0,35	0,50	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1295,1	1664,4
0,5	43,75	0,35	0,50	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1235,6	1623,6
0,5	58,33	0,35	0,50	2000	700	12,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1192,2	1600,5
0,5	16,07	0,45	0,50	2000	900	56,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1318,3	1694,6
0,5	28,13	0,45	0,50	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1305,8	1667,9
0,5	56,25	0,45	0,50	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1253,3	1629,0
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1269,2	2094,4
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1201,0	2020,4
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1082,7	1927,1
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1276,4	2100,7
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1236,5	2053,4
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1208,5	2025,1
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1295,0	2134,3
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1280,9	2105,4
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1245,7	2063,4
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1249,2	1906,7
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1169,6	1848,8
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1037,2	1763,3
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1263,2	1910,8
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1215,7	1874,0
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1182,4	1850,2
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1286,3	1936,0
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1270,8	1914,5
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1229,0	1880,5
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1250,5	1820,8
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1165,1	1761,7
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1022,2	1678,0
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1267,9	1823,8

α	λ$_f$	η	tg φ	h$_1$	b$_f$	t$_f$	z1	z2	z3	z4	z5	z6	z7	z8	z9	f$_c$	f$_u$
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1217,1	1785,1
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1180,6	1761,7
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1290,9	1851,1
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1276,8	1827,5
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1232,2	1790,8
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1265,3	1658,1
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1169,0	1597,3
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1004,6	1513,9
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1287,5	1659,8
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1229,6	1619,8
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1187,0	1597,0
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1310,0	1689,5
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1298,0	1663,0
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1247,2	1625,5
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1244,3	2063,5
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1193,5	2004,0
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1082,3	1915,0
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1247,7	2070,0
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1222,7	2032,9
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1200,1	2008,2
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1253,6	2097,0
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1249,5	2075,1
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1229,2	2040,8
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1236,0	1894,3
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1163,3	1836,8
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1035,0	1750,1
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1249,8	1898,8
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1207,9	1862,1
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1176,6	1837,9
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1266,9	1923,6
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1257,0	1902,9
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1220,9	1868,7
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1241,2	1809,4
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1160,6	1748,2
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1020,3	1662,3
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1259,1	1812,6
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1212,2	1771,9
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1176,8	1747,5
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1277,0	1840,3
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1267,8	1816,5
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1227,3	1777,8
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1261,2	1646,4
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1167,8	1582,9
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1004,0	1496,9
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1284,2	1648,2
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1228,7	1605,7
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1186,4	1582,2
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1302,5	1679,3
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1294,6	1651,8
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1246,3	1611,7
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1212,2	2102,7
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1165,5	2045,5
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1060,8	1936,2
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1215,1	2103,4
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1192,8	2071,1
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1172,2	2050,4
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1221,0	2138,4
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1216,8	2106,4
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1198,7	2076,6
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1208,1	1900,8
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1137,9	1844,2
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1016,0	1758,8
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1220,9	1905,1
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1180,1	1868,9
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1150,3	1845,3
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1238,6	1954,5
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1227,8	1908,8
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1192,4	1875,3
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1213,1	1813,9
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1135,3	1755,2
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1001,2	1672,7
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1229,7	1816,8
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1184,1	1778,2
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1150,2	1754,8
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1248,7	1865,7
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1238,0	1820,1
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1198,4	1783,8
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1234,5	1649,2
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1143,6	1589,8
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	983,9	1508,0
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1256,1	1650,6
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1202,0	1611,3
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1160,9	1589,3
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1275,7	1688,1
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	1266,2	1653,7
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,3	7,0	8,0	8,0	8,0	8,0	8,0	1218,9	1617,1

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1122,3	2011,6
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1072,7	1950,8
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	986,1	1866,0
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1127,0	2018,2
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1099,5	1980,2
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1079,3	1955,3
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1138,4	2045,2
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1129,8	2023,0
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1106,1	1988,2
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1114,2	1847,4
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1048,7	1792,4
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	946,7	1710,7
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1126,7	1852,0
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1088,2	1816,9
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1061,3	1794,1
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1144,1	1876,7
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1133,2	1855,9
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1099,8	1823,2
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1119,2	1765,7
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1050,0	1709,2
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	935,3	1629,6
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1135,1	1769,1
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1092,7	1732,3
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1062,5	1709,5
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1152,8	1794,9
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1142,9	1772,7
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1106,1	1738,2
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1139,3	1607,5
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1056,1	1549,9
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	924,9	1473,0
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1159,7	1609,1
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1110,0	1571,6
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1073,7	1550,3
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1177,4	1637,8
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1169,1	1612,6
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	1125,7	1577,2
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1188,0	2051,3
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1121,6	1989,5
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1002,5	1895,2
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1195,1	2057,6
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1156,5	2019,6
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1128,7	1993,7
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1212,8	2084,5
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1199,4	2062,5
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1165,4	2027,6
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1173,6	1879,5
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1095,8	1820,8
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	961,7	1734,0
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1187,1	1883,9
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1141,0	1846,6
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1107,8	1822,2
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1208,8	1908,9
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1194,5	1887,8
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1154,0	1853,3
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1177,7	1793,4
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1094,5	1733,5
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	949,1	1648,8
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1194,7	1796,5
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1145,4	1757,5
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1109,0	1733,6
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1216,1	1823,9
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1203,3	1800,5
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1160,3	1763,4
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1199,0	1630,2
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1105,6	1569,1
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	936,7	1485,5
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1220,6	1632,0
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1164,9	1592,1
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1122,6	1569,3
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1241,0	1661,7
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1230,7	1635,6
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	1182,1	1598,1
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1145,9	1843,9
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1084,3	1793,8
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	982,7	1723,4
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1153,1	1847,7
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1116,7	1816,7
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1092,0	1797,2
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1171,2	1876,9
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1157,5	1851,3
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1125,1	1822,8
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1112,7	1691,2
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1045,3	1645,0
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	936,8	1579,5
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1124,4	1693,5
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1084,1	1664,1

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1056,4	1645,5
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1144,3	1720,5
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1130,9	1696,5
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1095,2	1669,0
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1106,0	1615,7
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1035,6	1568,6
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	921,2	1505,1
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1120,1	1616,9
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1078,0	1586,1
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1048,5	1568,0
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1139,5	1644,9
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1127,3	1619,7
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1090,3	1590,6
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1104,8	1471,9
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1028,6	1423,5
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	902,8	1362,3
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1121,8	1471,9
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1076,1	1439,8
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1043,3	1422,9
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1140,5	1502,4
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1130,0	1474,5
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	1089,7	1444,2
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1208,5	2027,1
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1132,9	1971,9
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	997,7	1891,3
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1216,4	2033,3
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1172,9	1998,6
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1141,3	1976,0
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1235,9	2057,2
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1221,2	2037,8
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1183,1	2005,8
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1178,8	1855,9
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1094,7	1804,4
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	950,9	1727,5
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1192,3	1859,8
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1142,0	1826,9
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1106,2	1805,5
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1216,5	1880,8
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1199,9	1863,1
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1155,4	1832,8
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1174,2	1770,3
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1085,7	1716,6
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	933,5	1641,4
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1190,4	1772,6
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1137,3	1737,3
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1098,8	1715,8
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1214,6	1795,8
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1199,0	1775,5
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1152,1	1742,7
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1178,1	1604,9
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1081,4	1549,4
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	910,4	1474,5
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1198,0	1605,7
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1139,6	1568,5
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1096,1	1548,2
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1221,7	1632,6
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1207,8	1608,6
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	1156,2	1573,4
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1242,6	2074,4
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1176,5	2015,0
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1062,5	1922,4
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1249,6	2080,6
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1211,7	2044,0
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1184,8	2019,2
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1265,7	2104,9
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1253,7	2085,1
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1220,6	2051,8
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1223,3	1903,4
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1144,3	1846,5
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1017,1	1759,4
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1237,3	1907,7
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1190,4	1871,6
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1157,7	1847,7
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1258,4	1930,3
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1244,9	1911,4
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1203,7	1878,1
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1224,4	1817,2
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1139,5	1758,5
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1002,3	1673,1
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1241,9	1820,2
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1191,3	1781,7
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1155,4	1758,0
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1262,9	1845,4
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1250,7	1824,0
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1206,4	1787,7
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1239,5	1652,9

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1143,0	1592,6
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	986,2	1506,7
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1261,6	1654,6
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1203,5	1615,0
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1161,2	1592,2
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1282,1	1682,5
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1272,0	1658,1
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	1221,0	1620,2
0,5	10,00	0,20	0,00	2000	400	40,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1266,1	2069,9
0,5	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1204,4	1999,4
0,5	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1088,1	1905,2
0,5	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1271,5	2074,0
0,5	43,75	0,35	0,00	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1237,5	2036,6
0,5	58,33	0,35	0,00	2000	700	12,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1211,2	2004,8
0,5	16,07	0,45	0,00	2000	900	56,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1282,8	2083,8
0,5	28,13	0,45	0,00	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1274,6	2077,3
0,5	56,25	0,45	0,00	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1245,6	2044,9
0,5	10,00	0,20	0,20	2000	400	40,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1248,8	1885,3
0,5	25,00	0,20	0,20	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1172,0	1828,8
0,5	50,00	0,20	0,20	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1040,9	1742,8
0,5	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1262,9	1890,2
0,5	43,75	0,35	0,20	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1217,6	1853,5
0,5	58,33	0,35	0,20	2000	700	12,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1185,1	1829,8
0,5	16,07	0,45	0,20	2000	900	56,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1284,0	1915,2
0,5	28,13	0,45	0,20	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1270,4	1894,1
0,5	56,25	0,45	0,20	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1230,9	1859,8
0,5	10,00	0,20	0,30	2000	400	40,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1251,0	1801,4
0,5	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1167,7	1741,6
0,5	50,00	0,20	0,30	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1025,6	1656,6
0,5	21,88	0,35	0,30	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1268,8	1804,4
0,5	43,75	0,35	0,30	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1219,8	1765,0
0,5	58,33	0,35	0,30	2000	700	12,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1183,8	1741,1
0,5	16,07	0,45	0,30	2000	900	56,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1290,1	1832,8
0,5	28,13	0,45	0,30	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1277,7	1808,3
0,5	56,25	0,45	0,30	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1235,0	1770,7
0,5	10,00	0,20	0,50	2000	400	40,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1266,3	1641,4
0,5	25,00	0,20	0,50	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1171,6	1579,3
0,5	50,00	0,20	0,50	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1007,6	1493,9
0,5	21,88	0,35	0,50	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1289,2	1643,8
0,5	43,75	0,35	0,50	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1232,7	1602,3
0,5	58,33	0,35	0,50	2000	700	12,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1190,4	1578,8
0,5	16,07	0,45	0,50	2000	900	56,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1309,9	1674,7
0,5	28,13	0,45	0,50	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1299,8	1647,4
0,5	56,25	0,45	0,50	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	1250,5	1607,8
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1006,2	1973,2
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	968,5	1921,4
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	894,5	1826,9
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1009,2	2010,0
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	989,5	1974,4
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	973,9	1951,4
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1016,5	2043,4
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1011,1	2012,5
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	994,4	1947,6
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1012,6	1807,8
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	956,3	1753,0
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	864,5	1671,8
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1023,5	1811,8
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	991,0	1777,1
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	967,6	1754,3
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1037,9	1890,3
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1029,2	1815,5
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1001,2	1783,4
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1022,9	1725,8
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	959,7	1670,5
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	857,0	1591,8
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1037,2	1728,8
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1000,6	1692,7
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	973,6	1670,6
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1052,3	1804,8
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1044,2	1732,3
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1012,6	1698,3
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1052,4	1569,5
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	977,7	1513,7
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	853,3	1438,2
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1071,4	1570,9
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1027,4	1534,6
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	994,2	1514,2
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1086,6	1634,7
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1080,0	1573,9
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	1041,9	1540,1
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1058,2	1779,6
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	993,4	1737,1
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	886,1	1673,8
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1066,0	1783,2
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1027,5	1756,7
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1001,6	1739,9

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1085,2	1805,7
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1070,8	1786,4
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1036,4	1762,0
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1024,9	1632,5
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	957,3	1593,2
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	846,1	1533,4
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1035,9	1634,6
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	995,4	1609,1
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	967,6	1593,2
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1055,2	1655,6
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1042,0	1637,1
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1006,1	1613,3
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1017,2	1559,2
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	947,5	1518,0
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	831,7	1459,9
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1030,0	1560,0
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	988,4	1532,9
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	959,2	1516,8
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1048,6	1582,7
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1036,8	1562,4
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1000,0	1536,5
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1013,9	1417,8
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	940,1	1375,1
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	814,3	1318,6
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1029,4	1417,3
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	985,0	1388,8
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	953,2	1373,9
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1046,8	1443,9
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	1036,8	1419,3
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	997,7	1392,4
0,5	10,00	0,20	0,00	2000	400	40,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1123,7	1823,8
0,5	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1068,8	1774,4
0,5	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	976,2	1704,8
0,5	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1129,7	1827,5
0,5	43,75	0,35	0,00	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1098,1	1796,7
0,5	58,33	0,35	0,00	2000	700	12,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1076,1	1777,5
0,5	16,07	0,45	0,00	2000	900	56,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1144,1	1857,4
0,5	28,13	0,45	0,00	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1133,3	1831,2
0,5	56,25	0,45	0,00	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1105,5	1802,6
0,5	10,00	0,20	0,20	2000	400	40,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1094,7	1673,6
0,5	25,00	0,20	0,20	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1031,3	1628,1
0,5	50,00	0,20	0,20	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	929,8	1564,1
0,5	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1105,9	1675,5
0,5	43,75	0,35	0,20	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1068,1	1646,6
0,5	58,33	0,35	0,20	2000	700	12,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1042,3	1628,5
0,5	16,07	0,45	0,20	2000	900	56,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1124,4	1703,3
0,5	28,13	0,45	0,20	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1112,0	1678,4
0,5	56,25	0,45	0,20	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1078,7	1651,4
0,5	10,00	0,20	0,30	2000	400	40,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1089,2	1599,4
0,5	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1022,0	1553,5
0,5	50,00	0,20	0,30	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	913,4	1491,2
0,5	21,88	0,35	0,30	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1102,8	1600,1
0,5	43,75	0,35	0,30	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1062,8	1570,1
0,5	58,33	0,35	0,30	2000	700	12,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1034,8	1552,7
0,5	16,07	0,45	0,30	2000	900	56,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1121,3	1628,9
0,5	28,13	0,45	0,30	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1109,8	1602,7
0,5	56,25	0,45	0,30	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1074,7	1574,3
0,5	10,00	0,20	0,50	2000	400	40,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1089,5	1458,4
0,5	25,00	0,20	0,50	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1015,6	1411,7
0,5	50,00	0,20	0,50	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	892,9	1352,0
0,5	21,88	0,35	0,50	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1106,3	1457,8
0,5	43,75	0,35	0,50	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1062,0	1427,2
0,5	58,33	0,35	0,50	2000	700	12,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1030,2	1411,0
0,5	16,07	0,45	0,50	2000	900	56,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1124,6	1488,9
0,5	28,13	0,45	0,50	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1114,3	1460,3
0,5	56,25	0,45	0,50	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	1075,4	1430,9
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1068,9	1944,2
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1014,1	1892,3
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	918,1	1815,6
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1074,3	1949,7
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1043,3	1917,6
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1021,1	1896,3
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1088,6	1972,9
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1077,6	1953,8
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1050,6	1924,3
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1053,9	1784,5
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	987,0	1736,0
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	879,3	1664,3
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1065,5	1788,4
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1025,9	1757,6
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	998,4	1737,3
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1084,9	1808,8
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1071,9	1791,7
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1037,1	1763,1
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1054,6	1704,3
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	982,6	1655,3

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	866,5	1584,6
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1069,1	1707,0
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1026,4	1675,2
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	996,1	1655,3
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1088,6	1729,0
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1076,5	1709,9
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1039,0	1680,2
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1066,1	1550,4
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	985,0	1499,5
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	851,7	1430,0
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1084,4	1551,4
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1035,7	1517,7
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1000,5	1498,9
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1103,7	1575,7
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1093,1	1554,3
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	1050,3	1522,6
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1135,2	2012,5
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1080,8	1956,1
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	972,1	1864,2
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1140,0	2018,7
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1110,5	1983,7
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1087,3	1959,7
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1150,4	2041,2
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1142,9	2023,1
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1117,7	1991,1
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1129,8	1846,7
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1059,7	1790,6
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	934,7	1703,0
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1142,9	1851,2
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1102,4	1815,3
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1072,3	1791,5
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1159,7	1873,5
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1149,8	1854,8
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1114,7	1821,6
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1138,1	1762,8
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1061,3	1703,4
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	924,6	1616,5
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1155,0	1766,0
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1110,5	1726,9
0,5	58,33	0,35	0,30	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1076,8	1703,1
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1171,5	1791,2
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1163,2	1769,6
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1124,8	1732,9
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1165,2	1603,2
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1076,3	1542,3
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	917,0	1454,3
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1187,2	1605,1
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1134,7	1564,5
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1094,5	1541,4
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1202,9	1633,7
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1197,1	1608,5
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	1151,6	1570,5
0,5	10,00	0,20	0,00	2000	400	40,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1120,5	1998,3
0,5	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1063,8	1939,4
0,5	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	974,5	1853,3
0,5	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1126,7	2004,6
0,5	43,75	0,35	0,00	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1094,0	1968,2
0,5	58,33	0,35	0,00	2000	700	12,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1071,3	1943,9
0,5	16,07	0,45	0,00	2000	900	56,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1140,9	2028,8
0,5	28,13	0,45	0,00	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1130,4	2009,3
0,5	56,25	0,45	0,00	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1101,6	1976,0
0,5	10,00	0,20	0,20	2000	400	40,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1105,9	1837,6
0,5	25,00	0,20	0,20	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1036,5	1783,5
0,5	50,00	0,20	0,20	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	934,3	1701,2
0,5	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1118,7	1841,9
0,5	43,75	0,35	0,20	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1077,5	1807,7
0,5	58,33	0,35	0,20	2000	700	12,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1049,4	1784,9
0,5	16,07	0,45	0,20	2000	900	56,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1137,4	1864,3
0,5	28,13	0,45	0,20	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1125,5	1845,6
0,5	56,25	0,45	0,20	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1089,4	1814,0
0,5	10,00	0,20	0,30	2000	400	40,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1108,1	1756,9
0,5	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1033,2	1701,7
0,5	50,00	0,20	0,30	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	922,2	1621,4
0,5	21,88	0,35	0,30	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1124,1	1760,2
0,5	43,75	0,35	0,30	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1079,6	1724,3
0,5	58,33	0,35	0,30	2000	700	12,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1048,5	1701,8
0,5	16,07	0,45	0,30	2000	900	56,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1142,7	1783,9
0,5	28,13	0,45	0,30	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1132,0	1763,7
0,5	56,25	0,45	0,30	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1093,2	1730,1
0,5	10,00	0,20	0,50	2000	400	40,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1124,5	1600,1
0,5	25,00	0,20	0,50	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1039,2	1544,1
0,5	50,00	0,20	0,50	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	910,5	1464,9
0,5	21,88	0,35	0,50	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1144,8	1602,1
0,5	43,75	0,35	0,50	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1093,7	1565,4
0,5	58,33	0,35	0,50	2000	700	12,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1056,9	1543,8
0,5	16,07	0,45	0,50	2000	900	56,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1162,5	1628,5

α	λ_f	η	tg ϕ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
0,5	28,13	0,45	0,50	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1154,2	1605,5
0,5	56,25	0,45	0,50	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	1109,5	1570,5
0,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	991,7	1747,9
0,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	952,6	1702,6
0,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	881,2	1638,5
0,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	995,3	1751,5
0,5	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	974,2	1723,4
0,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	958,0	1705,8
0,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	1003,5	1778,4
0,5	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	997,4	1754,9
0,5	56,25	0,45	0,00	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	979,4	1728,9
0,5	10,00	0,20	0,20	2000	400	40,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	977,8	1608,1
0,5	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	926,1	1564,9
0,5	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	843,6	1503,8
0,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	988,0	1610,7
0,5	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	958,3	1583,1
0,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	936,9	1566,0
0,5	16,07	0,45	0,20	2000	900	56,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	1000,7	1635,9
0,5	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	993,3	1613,5
0,5	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	967,6	1587,9
0,5	10,00	0,20	0,30	2000	400	40,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	978,8	1538,6
0,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	922,4	1494,1
0,5	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	832,9	1434,2
0,5	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	991,8	1540,5
0,5	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	959,2	1511,3
0,5	58,33	0,35	0,30	2000	700	12,0 ·	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	935,4	1494,3
0,5	16,07	0,45	0,30	2000	900	56,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	1004,5	1566,8
0,5	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	998,1	1543,1
0,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	969,9	1515,9
0,5	10,00	0,20	0,50	2000	400	40,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	988,6	1404,5
0,5	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	924,5	1358,4
0,5	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	822,3	1300,8
0,5	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	1004,9	1404,9
0,5	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	967,2	1374,4
0,5	58,33	0,35	0,50	2000	700	12,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	939,3	1358,2
0,5	16,07	0,45	0,50	2000	900	56,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	1017,4	1438,3
0,5	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	1012,2	1407,6
0,5	56,25	0,45	0,50	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	979,6	1378,7
0,5	10,00	0,20	0,00	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	934,5	1875,0
0,5	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	898,1	1833,5
0,5	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	818,0	1756,0
0,5	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	936,8	1876,9
0,5	43,75	0,35	0,00	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	919,2	1852,8
0,5	58,33	0,35	0,00	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	903,3	1836,1
0,5	16,07	0,45	0,00	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	941,7	1900,3
0,5	28,13	0,45	0,00	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	938,1	1879,3
0,5	56,25	0,45	0,00	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	923,9	1857,3
0,5	10,00	0,20	0,20	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	935,9	1716,7
0,5	25,00	0,20	0,20	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	880,9	1670,6
0,5	50,00	0,20	0,20	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	786,7	1597,9
0,5	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	946,0	1719,8
0,5	43,75	0,35	0,20	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	914,5	1690,9
0,5	58,33	0,35	0,20	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	891,4	1671,0
0,5	16,07	0,45	0,20	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	959,6	1737,7
0,5	28,13	0,45	0,20	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	951,3	1722,6
0,5	56,25	0,45	0,20	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	924,1	1696,0
0,5	10,00	0,20	0,30	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	942,4	1638,0
0,5	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	881,4	1590,4
0,5	50,00	0,20	0,30	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	777,7	1518,9
0,5	21,88	0,35	0,30	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	955,6	1640,1
0,5	43,75	0,35	0,30	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	920,4	1609,1
0,5	58,33	0,35	0,30	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	894,2	1589,6
0,5	16,07	0,45	0,30	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	969,8	1660,6
0,5	28,13	0,45	0,30	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	962,0	1642,7
0,5	56,25	0,45	0,30	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	931,7	1613,3
0,5	10,00	0,20	0,50	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	963,8	1489,8
0,5	25,00	0,20	0,50	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	892,6	1439,5
0,5	50,00	0,20	0,50	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	769,7	1367,8
0,5	21,88	0,35	0,50	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	981,2	1490,1
0,5	43,75	0,35	0,50	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	939,6	1456,9
0,5	58,33	0,35	0,50	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	907,7	1438,3
0,5	16,07	0,45	0,50	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	995,1	1514,3
0,5	28,13	0,45	0,50	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	989,1	1492,9
0,5	56,25	0,45	0,50	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	953,2	1461,1
0,5	10,00	0,20	0,00	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	856,4	1644,6
0,5	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	817,9	1604,3
0,5	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	749,5	1544,4
0,5	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	860,2	1648,0
0,5	43,75	0,35	0,00	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	838,8	1623,0
0,5	58,33	0,35	0,00	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	823,3	1606,8
0,5	16,07	0,45	0,00	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	869,1	1670,1
0,5	28,13	0,45	0,00	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	862,5	1651,2
0,5	56,25	0,45	0,00	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	844,0	1627,9
0,5	10,00	0,20	0,20	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	843,8	1511,5
0,5	25,00	0,20	0,20	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	796,5	1474,6
0,5	50,00	0,20	0,20	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	719,1	1417,8

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
0,5	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	852,5	1513,6
0,5	43,75	0,35	0,20	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	825,1	1490,1
0,5	58,33	0,35	0,20	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	805,7	1474,9
0,5	16,07	0,45	0,20	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	865,0	1533,9
0,5	28,13	0,45	0,20	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	857,1	1516,2
0,5	56,25	0,45	0,20	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	833,3	1494,2
0,5	10,00	0,20	0,30	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	844,7	1445,5
0,5	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	793,8	1407,6
0,5	50,00	0,20	0,30	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	710,0	1351,9
0,5	21,88	0,35	0,30	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	855,6	1446,5
0,5	43,75	0,35	0,30	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	826,2	1421,8
0,5	58,33	0,35	0,30	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	804,9	1407,1
0,5	16,07	0,45	0,30	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	867,8	1468,4
0,5	28,13	0,45	0,30	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	861,0	1448,9
0,5	56,25	0,45	0,30	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	835,6	1425,6
0,5	10,00	0,20	0,50	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	854,8	1318,3
0,5	25,00	0,20	0,50	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	797,6	1278,8
0,5	50,00	0,20	0,50	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	701,3	1225,2
0,5	21,88	0,35	0,50	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	868,7	1318,4
0,5	43,75	0,35	0,50	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	835,4	1292,1
0,5	58,33	0,35	0,50	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	810,5	1278,3
0,5	16,07	0,45	0,50	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	880,0	1365,9
0,5	28,13	0,45	0,50	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	875,0	1320,5
0,5	56,25	0,45	0,50	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	848,5	1295,7
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	585,9	1487,1
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	574,0	1472,3
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	545,5	1445,4
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	507,2	1414,9
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	470,8	1402,5
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	454,6	1337,2
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	589,3	1490,3
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	581,2	1480,0
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	556,9	1455,9
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	518,8	1423,8
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	476,6	1410,3
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	596,6	1499,9
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	589,2	1488,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	570,3	1468,2
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	543,6	1438,8
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	599,4	1503,8
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	593,4	1493,3
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	587,7	1486,1
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	573,8	1469,8
1,0	12,50	0,20	0,00	2000	400	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	592,4	1486,2
1,0	16,67	0,20	0,00	2000	400	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	579,8	1471,4
1,0	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	550,5	1444,2
1,0	35,00	0,20	0,00	2000	400	11,4	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	511,5	1413,7
1,0	45,00	0,20	0,00	2000	400	8,9	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	474,4	1400,0
1,0	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	457,9	1336,8
1,0	16,63	0,25	0,00	2000	500	30,1	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	596,0	1489,5
1,0	20,83	0,25	0,00	2000	500	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	587,5	1479,1
1,0	31,25	0,25	0,00	2000	500	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	562,4	1454,9
1,0	45,00	0,25	0,00	2000	500	11,1	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	523,4	1422,5
1,0	60,00	0,25	0,00	2000	500	8,3	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	480,4	1408,3
1,0	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	604,1	1499,2
1,0	29,16	0,35	0,00	2000	700	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	596,2	1487,4
1,0	43,75	0,35	0,00	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	576,4	1467,3
1,0	60,00	0,35	0,00	2000	700	11,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	549,0	1437,6
1,0	28,13	0,45	0,00	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	607,2	1502,9
1,0	37,50	0,45	0,00	2000	900	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	600,8	1492,6
1,0	45,00	0,45	0,00	2000	900	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	594,7	1485,3
1,0	60,00	0,45	0,00	2000	900	15,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	580,2	1468,9
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	569,4	1478,7
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	558,9	1464,2
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	533,9	1437,7
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	499,4	1407,6
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	465,5	1399,6
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	450,1	1332,4
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	572,4	1481,9
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	565,3	1471,8
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	544,0	1448,0
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	509,8	1416,3
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	470,7	1406,0
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	578,9	1491,6
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	572,4	1480,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	555,8	1460,1
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	532,1	1430,9
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	581,5	1495,4
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	576,1	1485,0
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	571,1	1477,8
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	558,8	1461,6
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	564,3	1461,9
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	555,0	1447,9
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	530,8	1422,4
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	496,1	1393,0
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	462,1	1375,1

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	446,8	1313,2
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	566,6	1465,1
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	560,4	1455,3
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	540,2	1432,3
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	506,1	1400,8
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	467,0	1383,0
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	571,4	1474,4
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	566,1	1463,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	550,8	1444,0
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	527,5	1414,9
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	573,1	1478,0
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	568,9	1468,3
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	564,5	1461,4
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	553,1	1445,5
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	562,9	1465,0
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	551,8	1450,5
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	525,5	1423,9
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	490,6	1394,3
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	457,7	1386,1
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	442,8	1334,7
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	566,1	1468,1
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	558,5	1457,9
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	536,1	1434,4
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	501,6	1403,4
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	463,9	1395,9
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	573,0	1477,6
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	566,1	1466,4
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	548,6	1446,3
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	524,5	1418,2
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	575,7	1481,4
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	570,1	1471,0
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	564,7	1464,0
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	551,9	1448,1
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	513,0	1440,0
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	502,8	1426,1
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	478,4	1401,5
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	444,9	1374,9
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	413,1	1356,7
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	399,2	1319,3
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	515,8	1443,3
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	508,8	1433,4
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	487,8	1411,3
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	454,5	1383,1
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	418,0	1363,3
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	522,1	1452,6
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	515,6	1441,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	499,1	1422,7
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	475,7	1396,8
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	524,5	1456,4
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	519,2	1446,2
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	514,2	1439,4
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	502,0	1424,6
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	563,0	1473,7
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	550,8	1459,0
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	522,0	1432,4
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	483,3	1402,5
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	445,1	1401,1
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	428,2	1304,3
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	566,4	1477,2
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	558,3	1466,7
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	534,0	1442,8
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	496,2	1411,5
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	452,7	1403,8
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	573,8	1487,0
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	566,5	1475,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	547,7	1455,1
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	521,8	1426,0
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	576,6	1490,9
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	570,7	1480,3
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	565,1	1473,1
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	551,4	1456,8
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	541,3	1285,1
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	530,6	1272,5
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	505,4	1250,2
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	471,4	1223,4
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	438,0	1205,0
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	422,8	1202,5
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	544,3	1287,0
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	537,1	1278,0
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	515,5	1258,2
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	481,6	1230,7
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	443,2	1217,5
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	551,1	1294,7
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	544,4	1284,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	527,5	1267,3
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	503,9	1244,3

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	553,8	1297,6
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	548,3	1287,2
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	543,2	1281,1
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	530,8	1268,4
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	558,1	1467,3
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	546,0	1453,4
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	517,4	1427,7
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	476,2	1397,3
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	433,7	1382,5
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	415,6	1335,6
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	561,6	1470,4
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	553,6	1460,6
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	529,6	1437,8
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	491,0	1406,0
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	441,1	1390,6
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	568,9	1479,2
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	561,7	1468,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	543,4	1449,3
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	517,7	1420,7
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	571,7	1482,6
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	565,9	1473,0
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	560,4	1466,2
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	547,1	1450,9
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	579,0	1486,5
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	565,9	1472,1
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	535,2	1445,4
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	494,3	1415,1
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	455,1	1350,6
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	437,1	1255,4
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	582,8	1489,9
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	574,0	1479,6
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	548,0	1456,0
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	507,6	1424,6
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	462,6	1416,7
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	590,8	1499,5
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	582,9	1488,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	562,8	1468,0
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	534,8	1438,7
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	593,9	1503,4
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	587,5	1492,8
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	581,5	1485,7
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	566,8	1469,5
1,0	12,50	0,20	0,00	2000	400	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	553,7	1453,3
1,0	16,67	0,20	0,00	2000	400	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	545,1	1439,4
1,0	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	523,4	1413,8
1,0	35,00	0,20	0,00	2000	400	11,4	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	491,9	1385,0
1,0	45,00	0,20	0,00	2000	400	8,9	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	459,9	1368,8
1,0	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	445,3	1307,8
1,0	16,63	0,25	0,00	2000	500	30,1	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	555,9	1456,5
1,0	20,83	0,25	0,00	2000	500	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	550,1	1446,7
1,0	31,25	0,25	0,00	2000	500	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	532,0	1423,9
1,0	45,00	0,25	0,00	2000	500	11,1	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	501,1	1392,8
1,0	60,00	0,25	0,00	2000	500	8,3	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	464,5	1377,1
1,0	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	560,9	1465,7
1,0	29,16	0,35	0,00	2000	700	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	555,7	1455,1
1,0	43,75	0,35	0,00	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	541,7	1435,5
1,0	60,00	0,35	0,00	2000	700	11,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	520,7	1406,6
1,0	28,13	0,45	0,00	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	562,8	1469,3
1,0	37,50	0,45	0,00	2000	900	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	558,5	1459,7
1,0	45,00	0,45	0,00	2000	900	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	554,4	1452,9
1,0	60,00	0,45	0,00	2000	900	15,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	544,0	1437,0
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	475,3	1409,1
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	466,0	1395,4
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	444,0	1371,4
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	414,8	1345,9
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	386,9	1335,3
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	374,5	1288,4
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	478,0	1412,4
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	471,6	1402,4
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	452,7	1380,8
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	423,4	1354,2
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	391,4	1341,5
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	483,8	1421,6
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	477,9	1410,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	463,0	1392,0
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	442,4	1367,4
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	486,1	1425,5
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	481,2	1415,3
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	476,7	1408,5
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	465,7	1394,1
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	511,2	1264,9
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	499,9	1252,7
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	473,8	1230,4
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	439,5	1203,5
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	406,2	1186,6
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	390,6	1195,2

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	514,6	1266,7
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	507,1	1257,9
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	485,0	1238,5
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	451,2	1210,7
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	413,2	1200,9
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	521,8	1274,2
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	515,0	1263,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	498,0	1247,1
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	474,8	1224,2
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	524,6	1276,9
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	519,2	1266,9
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	514,0	1260,9
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	501,8	1248,3
1,0	12,50	0,20	0,00	2000	400	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	523,7	1260,8
1,0	16,67	0,20	0,00	2000	400	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	513,3	1250,4
1,0	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	489,6	1228,4
1,0	35,00	0,20	0,00	2000	400	11,4	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	458,5	1202,0
1,0	45,00	0,20	0,00	2000	400	8,9	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	428,4	1183,0
1,0	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	414,4	1184,7
1,0	16,63	0,25	0,00	2000	500	30,1	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	526,8	1264,6
1,0	20,83	0,25	0,00	2000	500	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	519,7	1255,7
1,0	31,25	0,25	0,00	2000	500	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	499,3	1236,5
1,0	45,00	0,25	0,00	2000	500	11,1	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	468,3	1209,5
1,0	60,00	0,25	0,00	2000	500	8,3	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	433,6	1198,9
1,0	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	533,8	1272,4
1,0	29,16	0,35	0,00	2000	700	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	527,1	1261,8
1,0	43,75	0,35	0,00	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	510,9	1245,4
1,0	60,00	0,35	0,00	2000	700	11,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	489,1	1223,4
1,0	28,13	0,45	0,00	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	536,6	1275,2
1,0	37,50	0,45	0,00	2000	900	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	531,1	1265,0
1,0	45,00	0,45	0,00	2000	900	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	526,1	1258,7
1,0	60,00	0,45	0,00	2000	900	15,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	514,3	1246,5
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	473,6	1415,0
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	464,7	1402,1
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	443,9	1378,7
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	415,2	1353,2
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	386,1	1336,8
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	372,7	1313,8
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	476,1	1418,1
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	470,1	1408,8
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	452,4	1388,0
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	424,0	1360,5
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	391,1	1342,4
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	481,7	1426,7
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	476,2	1416,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	462,4	1398,8
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	442,8	1373,7
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	483,9	1430,1
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	479,4	1420,9
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	475,2	1414,5
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	465,0	1400,5
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	533,2	1449,1
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	522,8	1435,4
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	496,4	1409,9
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	459,4	1380,1
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	422,0	1302,5
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	404,5	1207,4
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	535,9	1452,5
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	529,2	1442,7
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	507,5	1419,9
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	471,9	1388,3
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	429,9	1369,9
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	541,4	1461,9
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	535,7	1451,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	519,7	1431,5
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	496,0	1402,2
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	543,3	1465,6
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	538,9	1455,8
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	534,3	1449,0
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	522,7	1433,1
1,0	12,50	0,20	0,00	2000	400	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	515,5	1439,6
1,0	16,67	0,20	0,00	2000	400	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	504,1	1425,8
1,0	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	477,5	1401,4
1,0	35,00	0,20	0,00	2000	400	11,4	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	442,0	1374,8
1,0	45,00	0,20	0,00	2000	400	8,9	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	408,6	1333,5
1,0	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	393,9	1240,0
1,0	16,63	0,25	0,00	2000	500	30,1	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	518,9	1442,9
1,0	20,83	0,25	0,00	2000	500	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	511,1	1433,0
1,0	31,25	0,25	0,00	2000	500	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	488,2	1411,0
1,0	45,00	0,25	0,00	2000	500	11,1	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	452,8	1383,2
1,0	60,00	0,25	0,00	2000	500	8,3	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	414,5	1366,2
1,0	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	526,2	1452,2
1,0	29,16	0,35	0,00	2000	700	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	518,9	1441,3
1,0	43,75	0,35	0,00	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	500,9	1422,4
1,0	60,00	0,35	0,00	2000	700	11,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	476,0	1396,1
1,0	28,13	0,45	0,00	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	529,0	1456,0

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	37,50	0,45	0,00	2000	900	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	523,1	1445,9
1,0	45,00	0,45	0,00	2000	900	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	517,6	1439,0
1,0	60,00	0,45	0,00	2000	900	15,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	504,3	1424,2
1,0	12,50	0,20	0,00	2000	400	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	457,5	1221,1
1,0	16,67	0,20	0,00	2000	400	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	450,1	1209,9
1,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	431,0	1190,3
1,0	35,00	0,20	0,00	2000	400	11,4	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	403,3	1168,3
1,0	45,00	0,20	0,00	2000	400	8,9	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	375,7	1186,6
1,0	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	363,3	1146,2
1,0	16,63	0,25	0,00	2000	500	30,1	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	459,4	1222,9
1,0	20,83	0,25	0,00	2000	500	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	454,3	1214,8
1,0	31,25	0,25	0,00	2000	500	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	438,2	1197,5
1,0	45,00	0,25	0,00	2000	500	11,1	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	410,8	1174,5
1,0	60,00	0,25	0,00	2000	500	8,3	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	379,4	1159,5
1,0	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	463,5	1230,0
1,0	29,16	0,35	0,00	2000	700	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	459,0	1220,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	446,6	1205,3
1,0	60,00	0,35	0,00	2000	700	11,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	427,8	1185,6
1,0	28,13	0,45	0,00	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	465,1	1232,8
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	461,5	1223,3
1,0	45,00	0,45	0,00	2000	900	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	457,9	1217,7
1,0	60,00	0,45	0,00	2000	900	15,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	448,6	1206,7
1,0	12,50	0,20	0,00	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	402,9	1170,0
1,0	16,67	0,20	0,00	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	396,3	1159,3
1,0	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	380,4	1140,8
1,0	35,00	0,20	0,00	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	358,1	1119,4
1,0	45,00	0,20	0,00	2000	400	8,9	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	335,0	1103,0
1,0	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	323,8	1114,9
1,0	16,63	0,25	0,00	2000	500	30,1	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	404,9	1171,7
1,0	20,83	0,25	0,00	2000	500	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	400,5	1163,9
1,0	31,25	0,25	0,00	2000	500	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	387,1	1147,7
1,0	45,00	0,25	0,00	2000	500	11,1	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	365,4	1125,0
1,0	60,00	0,25	0,00	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	339,2	1118,9
1,0	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	408,9	1178,5
1,0	29,16	0,35	0,00	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	404,9	1169,4
1,0	43,75	0,35	0,00	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	394,8	1155,2
1,0	60,00	0,35	0,00	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	380,2	1135,8
1,0	28,13	0,45	0,00	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	410,4	1181,2
1,0	37,50	0,45	0,00	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	407,3	1172,3
1,0	45,00	0,45	0,00	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	404,2	1166,9
1,0	60,00	0,45	0,00	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	396,9	1156,4
1,0	12,50	0,20	0,00	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	423,4	1362,2
1,0	16,67	0,20	0,00	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	416,1	1349,9
1,0	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	398,4	1327,8
1,0	35,00	0,20	0,00	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	373,8	1302,5
1,0	45,00	0,20	0,00	2000	400	8,9	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	348,5	1276,1
1,0	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	335,8	1184,4
1,0	16,63	0,25	0,00	2000	500	30,1	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	425,5	1365,1
1,0	20,83	0,25	0,00	2000	500	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	420,6	1356,4
1,0	31,25	0,25	0,00	2000	500	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	405,9	1336,7
1,0	45,00	0,25	0,00	2000	500	11,1	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	382,0	1310,0
1,0	60,00	0,25	0,00	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	354,2	1303,1
1,0	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	429,9	1373,5
1,0	29,16	0,35	0,00	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	425,6	1364,0
1,0	43,75	0,35	0,00	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	414,3	1347,0
1,0	60,00	0,35	0,00	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	398,1	1322,4
1,0	28,13	0,45	0,00	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	431,6	1376,7
1,0	37,50	0,45	0,00	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	428,0	1368,1
1,0	45,00	0,45	0,00	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	424,7	1362,2
1,0	60,00	0,45	0,00	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	416,5	1348,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	592,7	1415,5
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	578,1	1401,2
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	545,3	1373,6
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	503,1	1342,1
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	446,3	1214,6
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	597,7	1418,9
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	587,6	1408,8
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	559,1	1384,6
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	516,5	1351,5
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	470,4	1336,6
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	608,6	1428,6
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	599,1	1417,5
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	576,3	1396,9
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	545,8	1365,9
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	613,5	1432,4
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	605,8	1422,2
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	598,7	1415,1
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	582,1	1398,2
1,0	12,50	0,20	0,10	2000	400	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	598,2	1415,0
1,0	16,67	0,20	0,10	2000	400	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	583,1	1400,7
1,0	25,00	0,20	0,10	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	549,7	1373,0
1,0	35,00	0,20	0,10	2000	400	11,4	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	506,7	1341,0
1,0	50,00	0,20	0,10	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	448,9	1214,5
1,0	16,63	0,25	0,10	2000	500	30,1	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	603,4	1418,5
1,0	20,83	0,25	0,10	2000	500	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	593,0	1408,3
1,0	31,25	0,25	0,10	2000	500	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	563,8	1384,1

α	λ_f	η	tg ϕ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	45,00	0,25	0,10	2000	500	11,1	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	520,4	1350,5
1,0	60,00	0,25	0,10	2000	500	8,3	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	473,5	1335,7
1,0	21,88	0,35	0,10	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	614,9	1428,1
1,0	29,16	0,35	0,10	2000	700	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	605,0	1417,0
1,0	43,75	0,35	0,10	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	581,5	1396,4
1,0	60,00	0,35	0,10	2000	700	11,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	550,2	1365,1
1,0	28,13	0,45	0,10	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	620,1	1432,0
1,0	37,50	0,45	0,10	2000	900	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	612,0	1421,8
1,0	45,00	0,45	0,10	2000	900	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	604,6	1414,6
1,0	60,00	0,45	0,10	2000	900	15,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	587,4	1397,7
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	576,2	1408,5
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	563,1	1394,3
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	533,7	1367,2
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	495,1	1336,0
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	441,8	1210,8
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	580,8	1411,9
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	571,7	1401,8
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	546,2	1378,1
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	507,4	1345,7
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	464,5	1334,1
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	590,7	1421,3
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	582,2	1410,4
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	561,7	1390,1
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	534,1	1359,5
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	595,3	1425,2
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	588,3	1415,0
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	581,9	1408,0
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	567,0	1391,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	570,7	1386,8
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	558,6	1373,0
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	530,3	1346,8
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	491,9	1316,8
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	438,6	1190,9
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	574,8	1390,4
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	566,6	1380,7
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	542,2	1357,3
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	503,8	1324,8
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	461,0	1305,2
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	583,6	1400,3
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	576,1	1389,6
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	557,0	1369,8
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	530,0	1338,8
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	587,7	1404,3
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	581,7	1394,6
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	576,0	1387,7
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	561,9	1371,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	569,9	1396,8
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	556,3	1382,5
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	525,8	1355,5
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	486,2	1324,4
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	434,1	1212,5
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	574,5	1400,1
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	565,1	1389,9
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	538,7	1366,1
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	499,0	1333,9
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	456,6	1326,8
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	584,6	1409,6
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	575,8	1398,4
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	554,7	1378,2
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	526,5	1348,4
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	589,2	1413,4
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	582,0	1403,0
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	575,4	1395,9
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	560,1	1379,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	520,4	1369,1
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	508,1	1355,5
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	480,6	1330,7
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	444,6	1303,8
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	396,0	1200,8
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	524,5	1372,5
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	516,0	1362,9
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	492,0	1340,8
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	455,5	1312,2
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	416,3	1290,0
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	533,7	1382,0
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	525,7	1371,4
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	506,3	1352,4
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	480,1	1325,4
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	537,9	1385,8
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	531,3	1376,0
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	525,3	1369,3
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	511,0	1354,2
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	569,3	1402,4
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	554,1	1388,1
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	520,2	1361,0
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	476,4	1330,1

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	419,4	1185,1
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	574,5	1405,0
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	564,1	1395,8
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	534,8	1371,9
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	490,7	1340,0
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	443,8	1328,1
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	585,8	1415,8
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	576,1	1404,7
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	552,8	1384,2
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	521,5	1354,0
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	590,9	1419,8
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	583,0	1409,6
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	575,7	1402,4
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	558,9	1385,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	546,0	1226,7
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	533,3	1214,2
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	505,0	1190,9
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	468,4	1162,5
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	417,3	1150,9
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	550,3	1228,5
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	541,5	1219,4
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	516,9	1199,2
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	480,0	1169,9
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	439,1	1160,9
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	559,8	1236,0
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	551,5	1225,5
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	531,8	1208,2
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	505,4	1183,6
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	564,1	1238,9
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	557,4	1228,8
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	551,2	1222,3
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	536,8	1209,2
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	563,2	1395,5
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	547,9	1381,7
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	513,4	1355,1
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	467,5	1323,2
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	408,4	1212,2
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	568,3	1398,7
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	558,0	1389,0
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	528,5	1365,8
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	482,4	1332,3
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	432,9	1313,5
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	579,4	1407,5
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	569,9	1397,3
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	546,8	1377,5
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	514,6	1346,9
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	584,4	1410,9
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	576,7	1401,7
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	569,6	1394,9
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	552,9	1378,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	586,9	1415,4
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	571,1	1401,3
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	536,1	1373,9
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	490,8	1342,3
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	428,3	1141,5
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	592,3	1417,9
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	581,6	1408,8
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	551,3	1384,9
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	505,9	1353,3
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	455,4	1293,2
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	604,0	1428,3
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	594,0	1417,4
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	570,0	1397,0
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	537,7	1366,4
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	609,2	1432,2
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	601,1	1422,0
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	593,7	1414,9
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	576,3	1398,1
1,0	12,50	0,20	0,10	2000	400	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	559,2	1380,2
1,0	16,67	0,20	0,10	2000	400	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	548,0	1366,5
1,0	25,00	0,20	0,10	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	522,2	1340,5
1,0	35,00	0,20	0,10	2000	400	11,4	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	486,9	1311,1
1,0	50,00	0,20	0,10	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	436,3	1187,0
1,0	16,63	0,25	0,10	2000	500	30,1	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	563,1	1383,8
1,0	20,83	0,25	0,10	2000	500	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	555,4	1374,1
1,0	31,25	0,25	0,10	2000	500	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	533,2	1351,0
1,0	45,00	0,25	0,10	2000	500	11,1	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	498,0	1319,1
1,0	60,00	0,25	0,10	2000	500	8,3	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	457,6	1301,8
1,0	21,88	0,35	0,10	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	571,6	1393,5
1,0	29,16	0,35	0,10	2000	700	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	564,5	1383,0
1,0	43,75	0,35	0,10	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	546,9	1363,2
1,0	60,00	0,35	0,10	2000	700	11,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	522,2	1332,5
1,0	28,13	0,45	0,10	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	575,6	1397,4
1,0	37,50	0,45	0,10	2000	900	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	569,9	1387,8
1,0	45,00	0,45	0,10	2000	900	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	564,5	1381,0
1,0	60,00	0,45	0,10	2000	900	15,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	551,6	1364,7

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	483,1	1341,7
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	471,7	1328,1
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	446,5	1304,0
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	414,4	1278,7
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	371,5	1173,0
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	486,9	1344,9
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	479,0	1335,3
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	457,0	1313,8
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	424,6	1287,4
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	390,1	1274,5
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	495,5	1354,3
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	488,1	1343,7
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	470,3	1325,2
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	446,9	1299,7
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	499,4	1358,2
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	493,3	1348,3
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	487,7	1341,6
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	474,8	1327,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	516,2	1206,7
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	502,7	1194,4
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	472,9	1171,6
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	434,9	1142,7
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	381,8	1137,1
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	520,9	1208,5
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	511,7	1199,6
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	486,0	1179,6
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	448,0	1149,7
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	405,6	1144,7
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	531,0	1215,7
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	522,4	1205,6
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	502,1	1188,5
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	475,4	1163,6
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	535,5	1218,4
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	528,6	1208,8
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	522,3	1202,4
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	507,7	1189,2
1,0	12,50	0,20	0,10	2000	400	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	527,8	1207,0
1,0	16,67	0,20	0,10	2000	400	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	515,6	1194,7
1,0	25,00	0,20	0,10	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	489,0	1171,8
1,0	35,00	0,20	0,10	2000	400	11,4	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	455,3	1143,5
1,0	50,00	0,20	0,10	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	408,6	1145,5
1,0	16,63	0,25	0,10	2000	500	30,1	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	532,0	1208,9
1,0	20,83	0,25	0,10	2000	500	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	523,6	1200,0
1,0	31,25	0,25	0,10	2000	500	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	500,3	1179,9
1,0	45,00	0,25	0,10	2000	500	11,1	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	466,3	1151,1
1,0	60,00	0,25	0,10	2000	500	8,3	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	429,2	1148,2
1,0	21,88	0,35	0,10	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	541,3	1216,5
1,0	29,16	0,35	0,10	2000	700	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	533,2	1206,0
1,0	43,75	0,35	0,10	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	514,5	1189,1
1,0	60,00	0,35	0,10	2000	700	11,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	490,1	1165,1
1,0	28,13	0,45	0,10	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	545,5	1219,4
1,0	37,50	0,45	0,10	2000	900	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	538,9	1209,1
1,0	45,00	0,45	0,10	2000	900	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	532,9	1202,9
1,0	60,00	0,45	0,10	2000	900	15,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	519,3	1190,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	480,1	1345,6
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	469,1	1332,8
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	444,9	1309,0
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	413,6	1282,3
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	369,8	1194,3
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	483,9	1348,8
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	476,4	1339,8
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	455,3	1318,8
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	423,9	1290,7
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	389,1	1268,8
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	492,4	1357,2
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	485,2	1347,6
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	468,3	1329,6
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	445,9	1303,2
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	496,2	1360,8
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	490,3	1351,8
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	485,0	1345,5
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	472,7	1331,2
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	540,4	1374,2
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	526,9	1360,7
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	495,9	1334,5
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	454,2	1303,6
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	395,7	1096,4
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	545,0	1378,0
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	536,0	1368,4
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	509,7	1345,2
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	468,5	1313,2
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	421,5	1242,9
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	554,8	1388,0
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	546,7	1377,3
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	526,3	1357,6
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	497,9	1326,8

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	559,2	1392,0
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	552,8	1382,4
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	546,7	1375,5
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	532,0	1359,2
1,0	12,50	0,20	0,10	2000	400	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	523,2	1369,3
1,0	16,67	0,20	0,10	2000	400	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	509,7	1355,8
1,0	25,00	0,20	0,10	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	479,9	1331,1
1,0	35,00	0,20	0,10	2000	400	11,4	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	441,3	1304,0
1,0	50,00	0,20	0,10	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	389,4	1129,1
1,0	16,63	0,25	0,10	2000	500	30,1	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	527,8	1372,7
1,0	20,83	0,25	0,10	2000	500	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	518,5	1363,1
1,0	31,25	0,25	0,10	2000	500	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	492,5	1341,2
1,0	45,00	0,25	0,10	2000	500	11,1	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	453,6	1313,2
1,0	60,00	0,25	0,10	2000	500	8,3	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	411,7	1275,6
1,0	21,88	0,35	0,10	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	537,1	1382,0
1,0	29,16	0,35	0,10	2000	700	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	529,1	1371,4
1,0	43,75	0,35	0,10	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	508,2	1352,6
1,0	60,00	0,35	0,10	2000	700	11,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	480,4	1325,4
1,0	28,13	0,45	0,10	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	542,5	1385,8
1,0	37,50	0,45	0,10	2000	900	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	535,3	1376,0
1,0	45,00	0,45	0,10	2000	900	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	528,7	1369,3
1,0	60,00	0,45	0,10	2000	900	15,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	513,5	1354,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	462,6	1162,2
1,0	16,67	0,20	0,10	2000	400	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	453,5	1151,1
1,0	25,00	0,20	0,10	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	432,0	1131,8
1,0	35,00	0,20	0,10	2000	400	11,4	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	402,4	1109,4
1,0	50,00	0,20	0,10	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	360,2	1088,7
1,0	16,63	0,25	0,10	2000	500	30,1	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	465,7	1164,0
1,0	20,83	0,25	0,10	2000	500	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	459,4	1155,9
1,0	31,25	0,25	0,10	2000	500	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	440,8	1138,8
1,0	45,00	0,25	0,10	2000	500	11,1	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	411,2	1115,4
1,0	60,00	0,25	0,10	2000	500	8,3	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	377,8	1101,3
1,0	21,88	0,35	0,10	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	472,4	1171,2
1,0	29,16	0,35	0,10	2000	700	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	466,6	1161,7
1,0	43,75	0,35	0,10	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	451,8	1146,7
1,0	60,00	0,35	0,10	2000	700	11,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	431,1	1126,1
1,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	475,5	1174,0
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	470,8	1164,8
1,0	45,00	0,45	0,10	2000	900	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	466,4	1159,2
1,0	60,00	0,45	0,10	2000	900	15,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	455,6	1147,9
1,0	12,50	0,20	0,10	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	408,7	1115,5
1,0	16,67	0,20	0,10	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	400,2	1104,9
1,0	25,00	0,20	0,10	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	381,5	1086,0
1,0	35,00	0,20	0,10	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	356,4	1064,2
1,0	50,00	0,20	0,10	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	319,4	1072,9
1,0	16,63	0,25	0,10	2000	500	30,1	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	411,7	1117,2
1,0	20,83	0,25	0,10	2000	500	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	406,0	1109,3
1,0	31,25	0,25	0,10	2000	500	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	389,8	1093,1
1,0	45,00	0,25	0,10	2000	500	11,1	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	365,1	1069,9
1,0	60,00	0,25	0,10	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	336,4	1069,1
1,0	21,88	0,35	0,10	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	418,1	1123,9
1,0	29,16	0,35	0,10	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	412,9	1114,8
1,0	43,75	0,35	0,10	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	400,2	1100,7
1,0	60,00	0,35	0,10	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	383,1	1080,6
1,0	28,13	0,45	0,10	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	421,1	1126,6
1,0	37,50	0,45	0,10	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	416,9	1117,7
1,0	45,00	0,45	0,10	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	413,0	1112,3
1,0	60,00	0,45	0,10	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	403,9	1101,7
1,0	12,50	0,20	0,10	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	429,9	1292,1
1,0	16,67	0,20	0,10	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	420,5	1279,9
1,0	25,00	0,20	0,10	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	399,4	1257,3
1,0	35,00	0,20	0,10	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	370,9	1231,4
1,0	50,00	0,20	0,10	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	329,3	1077,9
1,0	16,63	0,25	0,10	2000	500	30,1	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	433,3	1295,5
1,0	20,83	0,25	0,10	2000	500	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	426,9	1286,8
1,0	31,25	0,25	0,10	2000	500	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	408,8	1266,9
1,0	45,00	0,25	0,10	2000	500	11,1	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	380,9	1240,3
1,0	60,00	0,25	0,10	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	348,2	1216,5
1,0	21,88	0,35	0,10	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	440,5	1304,4
1,0	29,16	0,35	0,10	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	434,6	1295,0
1,0	43,75	0,35	0,10	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	420,4	1277,9
1,0	60,00	0,35	0,10	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	401,1	1252,4
1,0	28,13	0,45	0,10	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	443,7	1308,0
1,0	37,50	0,45	0,10	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	439,0	1299,5
1,0	45,00	0,45	0,10	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	434,6	1293,5
1,0	60,00	0,45	0,10	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	424,4	1280,1
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	601,6	1335,9
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	584,4	1320,7
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	569,9	1308,5
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	547,0	1290,0
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	499,8	1253,3
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	437,6	1072,3
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	611,1	1342,8
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	598,9	1331,3
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	567,7	1305,3
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	532,9	1275,9

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	463,3	1195,3
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	622,9	1350,9
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	611,8	1339,0
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	585,1	1315,7
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	549,2	1278,6
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	638,4	1379,0
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	630,2	1355,2
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	623,9	1347,1
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	621,3	1344,5
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	598,8	1322,9
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	593,6	1316,8
1,0	12,50	0,20	0,20	2000	400	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	606,3	1335,8
1,0	16,67	0,20	0,20	2000	400	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	588,7	1320,3
1,0	20,00	0,20	0,20	2000	400	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	573,9	1308,3
1,0	25,00	0,20	0,20	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	550,6	1289,6
1,0	35,00	0,20	0,20	2000	400	11,4	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	502,4	1252,6
1,0	50,00	0,20	0,20	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	439,7	1072,2
1,0	15,63	0,25	0,20	2000	500	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	616,1	1342,7
1,0	20,00	0,25	0,20	2000	500	25,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	603,5	1331,1
1,0	30,00	0,25	0,20	2000	500	16,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	571,9	1305,3
1,0	40,00	0,25	0,20	2000	500	12,5	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	536,5	1275,5
1,0	60,00	0,25	0,20	2000	500	8,3	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	465,7	1195,6
1,0	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	628,3	1350,7
1,0	29,17	0,35	0,20	2000	700	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	616,8	1338,8
1,0	43,75	0,35	0,20	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	589,5	1315,4
1,0	60,00	0,35	0,20	2000	700	11,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	553,0	1278,1
1,0	16,67	0,45	0,20	2000	900	54,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	644,4	1378,9
1,0	28,13	0,45	0,20	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	635,7	1355,2
1,0	35,00	0,45	0,20	2000	900	25,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	629,1	1347,0
1,0	37,50	0,45	0,20	2000	900	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	626,5	1344,3
1,0	56,25	0,45	0,20	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	603,4	1322,6
1,0	60,00	0,45	0,20	2000	900	15,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	598,1	1316,6
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	585,4	1330,7
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	569,9	1315,5
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	556,7	1303,8
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	535,9	1285,5
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	491,9	1249,1
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	433,7	1070,0
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	594,1	1337,5
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	583,1	1325,9
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	555,0	1300,8
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	523,0	1271,6
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	458,0	1192,5
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	605,1	1345,3
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	595,1	1333,4
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	571,0	1310,6
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	538,0	1274,2
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	619,0	1373,3
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	611,8	1349,5
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	606,2	1341,5
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	603,9	1338,9
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	583,6	1317,6
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	578,9	1311,5
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	580,1	1305,4
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	565,4	1290,8
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	552,8	1279,8
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	532,4	1262,7
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	488,7	1227,9
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	430,2	1048,4
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	588,5	1312,7
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	578,2	1301,7
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	551,2	1278,3
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	519,8	1250,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	454,6	1166,4
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	599,0	1321,2
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	589,9	1310,4
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	567,0	1289,0
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	535,0	1252,6
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	611,5	1349,4
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	605,5	1326,0
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	600,6	1318,7
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	598,6	1315,9
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	579,5	1296,6
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	575,0	1290,7
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	578,8	1321,1
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	562,8	1305,7
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	549,2	1293,8
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	527,7	1275,4
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	483,3	1239,2
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	427,3	1071,1
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	587,5	1327,9
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	576,2	1316,1
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	547,2	1290,6
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	514,5	1262,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	450,9	1192,7
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	598,4	1335,6

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	588,1	1323,6
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	563,2	1300,6
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	529,6	1264,6
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	612,7	1364,8
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	605,1	1339,8
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	599,2	1331,7
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	596,8	1329,0
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	575,9	1307,6
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	571,0	1301,7
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	529,5	1289,4
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	515,1	1275,2
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	503,1	1264,4
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	484,2	1248,4
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	444,5	1217,6
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	392,3	1063,0
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	537,4	1296,1
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	527,2	1285,4
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	501,4	1262,4
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	472,5	1237,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	414,6	1181,5
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	547,3	1304,0
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	538,0	1293,0
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	515,8	1272,0
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	486,5	1240,7
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	560,3	1330,9
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	553,4	1308,5
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	548,1	1300,8
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	546,0	1298,4
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	527,2	1279,2
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	522,9	1273,9
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	577,8	1322,3
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	560,1	1307,1
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	545,1	1295,4
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	521,6	1277,2
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	473,2	1239,7
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	413,0	1049,0
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	587,6	1329,1
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	575,0	1317,8
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	543,2	1292,6
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	507,4	1263,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	438,2	1167,3
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	599,7	1337,3
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	588,3	1325,6
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	560,9	1302,6
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	524,0	1266,2
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	615,8	1365,6
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	607,1	1341,8
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	600,6	1333,8
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	598,0	1331,2
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	574,9	1309,8
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	569,5	1303,9
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	551,9	1163,2
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	537,3	1149,4
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	525,0	1139,3
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	505,6	1123,0
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	465,3	1091,0
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	410,6	1069,2
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	559,9	1167,9
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	549,5	1157,2
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	523,2	1134,9
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	493,9	1110,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	434,0	1090,5
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	569,8	1173,4
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	560,3	1161,9
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	537,8	1141,4
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	508,0	1112,1
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	583,0	1206,1
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	575,8	1176,5
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	570,4	1168,0
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	568,2	1165,4
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	549,2	1146,5
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	544,9	1142,0
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	568,2	1314,4
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	550,1	1300,0
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	534,8	1288,3
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	510,8	1269,7
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	462,0	1232,4
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	402,3	1069,4
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	578,0	1320,8
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	565,2	1310,0
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	532,7	1284,9
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	496,2	1255,1
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	426,7	1190,7
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	590,1	1328,2
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	578,4	1317,2
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	550,5	1294,5

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	512,5	1257,2
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	606,3	1352,4
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	597,3	1332,3
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	590,6	1324,8
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	588,0	1322,3
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	564,4	1301,3
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	558,9	1295,3
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	597,9	1335,8
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	579,6	1320,7
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	564,2	1308,8
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	540,0	1290,1
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	489,2	1252,5
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	421,0	1010,3
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	608,0	1342,6
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	595,1	1331,1
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	562,5	1305,7
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	525,7	1276,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	449,3	1140,4
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	620,5	1350,6
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	608,9	1338,8
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	581,1	1315,6
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	543,5	1279,0
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	636,4	1378,9
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	628,1	1354,9
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	621,5	1347,0
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	618,9	1344,3
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	595,6	1322,5
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	590,1	1316,4
1,0	12,50	0,20	0,20	2000	400	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	568,0	1300,6
1,0	16,67	0,20	0,20	2000	400	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	554,4	1286,1
1,0	20,00	0,20	0,20	2000	400	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	542,8	1275,3
1,0	25,00	0,20	0,20	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	524,1	1258,3
1,0	35,00	0,20	0,20	2000	400	11,4	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	483,6	1223,6
1,0	50,00	0,20	0,20	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	427,9	1046,0
1,0	15,63	0,25	0,20	2000	500	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	575,9	1307,7
1,0	20,00	0,25	0,20	2000	500	25,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	566,4	1296,9
1,0	30,00	0,25	0,20	2000	500	16,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	541,6	1273,5
1,0	40,00	0,25	0,20	2000	500	12,5	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	512,6	1246,0
1,0	60,00	0,25	0,20	2000	500	8,3	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	451,2	1163,5
1,0	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	585,9	1316,1
1,0	29,17	0,35	0,20	2000	700	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	577,5	1305,5
1,0	43,75	0,35	0,20	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	556,4	1284,2
1,0	60,00	0,35	0,20	2000	700	11,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	526,9	1248,2
1,0	16,67	0,45	0,20	2000	900	54,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	597,8	1343,9
1,0	28,13	0,45	0,20	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	592,2	1320,9
1,0	35,00	0,45	0,20	2000	900	25,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	587,6	1313,7
1,0	37,50	0,45	0,20	2000	900	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	585,7	1311,4
1,0	56,25	0,45	0,20	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	568,2	1291,7
1,0	60,00	0,45	0,20	2000	900	15,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	564,0	1285,7
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	492,3	1264,6
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	479,0	1250,5
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	467,7	1239,9
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	450,2	1224,3
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	414,3	1194,5
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	367,2	1040,4
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	499,7	1271,1
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	490,2	1260,4
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	466,1	1237,7
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	439,7	1214,1
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	387,8	1155,9
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	509,0	1278,9
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	500,3	1268,0
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	479,6	1247,6
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	452,7	1217,7
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	521,2	1307,0
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	514,6	1281,1
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	509,6	1275,7
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	507,7	1273,2
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	490,2	1254,5
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	486,2	1249,6
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	522,2	1142,4
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	506,5	1128,9
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	493,5	1119,0
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	473,1	1102,7
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	431,0	1070,0
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	374,5	1006,3
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	530,7	1147,3
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	519,7	1136,8
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	492,1	1114,5
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	461,4	1089,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	398,9	1071,2
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	541,2	1152,7
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	531,2	1141,3
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	507,7	1121,1
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	476,6	1091,2
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	555,0	1181,8

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	547,4	1155,4
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	541,7	1147,4
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	539,4	1144,7
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	519,7	1126,1
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	515,2	1121,6
1,0	12,50	0,20	0,20	2000	400	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	533,2	1146,8
1,0	16,67	0,20	0,20	2000	400	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	519,3	1133,0
1,0	20,00	0,20	0,20	2000	400	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	507,7	1122,9
1,0	25,00	0,20	0,20	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	489,5	1106,9
1,0	35,00	0,20	0,20	2000	400	11,4	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	452,1	1075,3
1,0	50,00	0,20	0,20	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	402,2	1067,5
1,0	15,63	0,25	0,20	2000	500	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	540,8	1151,5
1,0	20,00	0,25	0,20	2000	500	25,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	530,8	1140,7
1,0	30,00	0,25	0,20	2000	500	16,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	506,1	1118,7
1,0	40,00	0,25	0,20	2000	500	12,5	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	478,7	1095,0
1,0	60,00	0,25	0,20	2000	500	8,3	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	424,1	1085,3
1,0	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	550,2	1156,9
1,0	29,17	0,35	0,20	2000	700	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	541,1	1145,2
1,0	43,75	0,35	0,20	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	519,8	1125,4
1,0	60,00	0,35	0,20	2000	700	11,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	492,1	1096,9
1,0	16,67	0,45	0,20	2000	900	54,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	563,1	1190,6
1,0	28,13	0,45	0,20	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	555,9	1159,9
1,0	35,00	0,45	0,20	2000	900	25,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	550,6	1151,4
1,0	37,50	0,45	0,20	2000	900	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	548,6	1148,8
1,0	56,25	0,45	0,20	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	530,6	1130,4
1,0	60,00	0,45	0,20	2000	900	15,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	526,5	1126,0
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	487,4	1266,5
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	474,3	1253,0
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	463,3	1242,7
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	446,2	1226,8
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	411,1	1196,1
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	364,3	1057,5
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	494,9	1272,8
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	485,5	1262,7
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	462,0	1240,3
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	436,2	1215,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	384,7	1170,3
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	504,1	1279,9
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	495,6	1269,8
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	475,5	1249,4
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	449,1	1218,2
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	516,3	1303,1
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	509,7	1284,0
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	504,9	1277,0
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	503,0	1274,7
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	486,0	1256,3
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	482,1	1251,2
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	551,2	1291,6
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	535,2	1276,9
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	521,5	1266,1
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	499,6	1249,4
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	453,0	1213,1
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	390,0	969,7
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	560,4	1298,8
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	549,3	1287,9
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	520,4	1264,9
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	486,9	1236,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	416,9	1091,5
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	571,8	1307,6
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	562,0	1296,7
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	537,8	1275,7
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	504,0	1239,4
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	585,4	1336,4
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	578,7	1312,6
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	573,4	1305,0
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	571,3	1302,7
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	551,2	1283,3
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	546,5	1277,5
1,0	12,50	0,20	0,20	2000	400	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	533,1	1289,9
1,0	16,67	0,20	0,20	2000	400	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	517,7	1275,8
1,0	20,00	0,20	0,20	2000	400	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	504,7	1264,9
1,0	25,00	0,20	0,20	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	484,3	1248,8
1,0	35,00	0,20	0,20	2000	400	11,4	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	441,7	1218,0
1,0	50,00	0,20	0,20	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	384,9	1001,3
1,0	15,63	0,25	0,20	2000	500	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	541,8	1296,5
1,0	20,00	0,25	0,20	2000	500	25,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	530,8	1285,9
1,0	30,00	0,25	0,20	2000	500	16,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	503,2	1263,0
1,0	40,00	0,25	0,20	2000	500	12,5	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	472,2	1238,1
1,0	60,00	0,25	0,20	2000	500	8,3	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	409,3	1129,6
1,0	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	552,5	1304,3
1,0	29,17	0,35	0,20	2000	700	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	542,5	1293,5
1,0	43,75	0,35	0,20	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	518,8	1272,7
1,0	60,00	0,35	0,20	2000	700	11,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	487,5	1240,9
1,0	16,67	0,45	0,20	2000	900	54,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	566,3	1331,5
1,0	28,13	0,45	0,20	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	558,9	1308,8
1,0	35,00	0,45	0,20	2000	900	25,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	553,3	1301,3

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	37,50	0,45	0,20	2000	900	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	551,1	1298,8
1,0	56,25	0,45	0,20	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	531,1	1279,6
1,0	60,00	0,45	0,20	2000	900	15,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	526,5	1274,3
1,0	12,50	0,20	0,20	2000	400	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	469,2	1099,1
1,0	16,67	0,20	0,20	2000	400	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	458,5	1087,3
1,0	20,00	0,20	0,20	2000	400	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	449,2	1078,5
1,0	25,00	0,20	0,20	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	434,4	1065,9
1,0	35,00	0,20	0,20	2000	400	11,4	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	402,2	1040,4
1,0	50,00	0,20	0,20	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	357,3	1021,2
1,0	15,63	0,25	0,20	2000	500	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	475,2	1103,8
1,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	467,7	1094,4
1,0	30,00	0,25	0,20	2000	500	16,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	447,9	1076,1
1,0	40,00	0,25	0,20	2000	500	12,5	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	425,0	1056,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	376,7	1031,6
1,0	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	482,9	1109,4
1,0	29,17	0,35	0,20	2000	700	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	476,1	1099,5
1,0	43,75	0,35	0,20	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	459,3	1082,7
1,0	60,00	0,35	0,20	2000	700	11,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	436,3	1058,7
1,0	16,67	0,45	0,20	2000	900	54,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	492,1	1139,2
1,0	28,13	0,45	0,20	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	487,5	1112,5
1,0	35,00	0,45	0,20	2000	900	25,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	483,8	1105,2
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	482,3	1103,0
1,0	56,25	0,45	0,20	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	468,4	1087,5
1,0	60,00	0,45	0,20	2000	900	15,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	465,1	1083,9
1,0	12,50	0,20	0,20	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	438,3	1213,6
1,0	16,67	0,20	0,20	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	426,9	1200,2
1,0	20,00	0,20	0,20	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	417,3	1190,7
1,0	25,00	0,20	0,20	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	402,1	1176,2
1,0	35,00	0,20	0,20	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	369,5	1146,4
1,0	50,00	0,20	0,20	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	324,9	955,8
1,0	15,63	0,25	0,20	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	444,9	1220,3
1,0	20,00	0,25	0,20	2000	500	25,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	437,0	1210,1
1,0	30,00	0,25	0,20	2000	500	16,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	416,7	1190,0
1,0	40,00	0,25	0,20	2000	500	12,5	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	393,5	1166,7
1,0	60,00	0,25	0,20	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	344,8	1073,3
1,0	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	453,2	1228,1
1,0	29,17	0,35	0,20	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	446,1	1218,2
1,0	43,75	0,35	0,20	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	429,0	1200,1
1,0	60,00	0,35	0,20	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	405,7	1169,3
1,0	16,67	0,45	0,20	2000	900	54,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	463,3	1251,9
1,0	28,13	0,45	0,20	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	458,2	1232,4
1,0	35,00	0,45	0,20	2000	900	25,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	454,3	1225,8
1,0	37,50	0,45	0,20	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	452,7	1223,7
1,0	56,25	0,45	0,20	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	438,5	1207,2
1,0	60,00	0,45	0,20	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	435,2	1202,4
1,0	12,50	0,20	0,20	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	416,1	1056,0
1,0	16,67	0,20	0,20	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	405,9	1044,3
1,0	20,00	0,20	0,20	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	397,4	1036,1
1,0	25,00	0,20	0,20	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	384,0	1023,4
1,0	35,00	0,20	0,20	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	355,3	998,0
1,0	50,00	0,20	0,20	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	314,7	952,8
1,0	15,63	0,25	0,20	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	421,9	1060,4
1,0	20,00	0,25	0,20	2000	500	25,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	414,8	1051,2
1,0	30,00	0,25	0,20	2000	500	16,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	396,9	1033,6
1,0	40,00	0,25	0,20	2000	500	12,5	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	376,6	1014,3
1,0	60,00	0,25	0,20	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	333,3	1003,8
1,0	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	429,2	1065,5
1,0	29,17	0,35	0,20	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	422,9	1055,7
1,0	43,75	0,35	0,20	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	407,9	1039,9
1,0	60,00	0,35	0,20	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	387,7	1016,0
1,0	16,67	0,45	0,20	2000	900	54,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	438,1	1092,7
1,0	28,13	0,45	0,20	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	433,6	1068,3
1,0	35,00	0,45	0,20	2000	900	25,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	430,2	1061,3
1,0	37,50	0,45	0,20	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	428,8	1059,3
1,0	56,25	0,45	0,20	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	416,4	1044,4
1,0	60,00	0,45	0,20	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	413,5	1040,9
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	610,2	1249,3
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	591,2	1233,4
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	575,0	1220,2
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	549,8	1199,7
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	498,2	1157,5
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	430,3	917,3
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	621,4	1257,3
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	605,2	1243,2
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	568,4	1212,6
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	514,6	1168,3
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	456,8	1023,7
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	635,6	1266,7
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	623,5	1254,5
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	593,5	1227,0
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	552,4	1184,1
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	644,4	1272,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	635,0	1260,9
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	625,9	1251,9
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	603,8	1227,3
1,0	12,50	0,20	0,30	2000	400	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	614,1	1249,3

α	λ_f	η	tg ϕ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	16,67	0,20	0,30	2000	400	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	594,7	1233,5
1,0	20,00	0,20	0,30	2000	400	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	578,3	1220,2
1,0	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	552,7	1198,5
1,0	35,00	0,20	0,30	2000	400	11,4	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	500,1	1156,6
1,0	50,00	0,20	0,30	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	431,9	917,2
1,0	15,63	0,25	0,30	2000	500	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	625,5	1257,4
1,0	20,83	0,25	0,30	2000	500	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	609,0	1243,4
1,0	31,25	0,25	0,30	2000	500	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	571,7	1212,5
1,0	45,00	0,25	0,30	2000	500	11,1	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	517,1	1168,2
1,0	60,00	0,25	0,30	2000	500	8,3	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	457,8	1021,4
1,0	21,88	0,35	0,30	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	640,0	1267,0
1,0	29,17	0,35	0,30	2000	700	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	627,6	1254,5
1,0	43,75	0,35	0,30	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	597,1	1227,4
1,0	60,00	0,35	0,30	2000	700	11,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	555,9	1184,3
1,0	28,13	0,45	0,30	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	649,0	1272,3
1,0	37,50	0,45	0,30	2000	900	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	639,4	1261,0
1,0	45,00	0,45	0,30	2000	900	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	630,0	1252,0
1,0	60,00	0,45	0,30	2000	900	15,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	607,5	1227,3
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	594,7	1245,6
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	577,3	1230,0
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	562,6	1217,0
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	537,5	1196,7
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	491,1	1155,1
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	427,1	915,9
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	605,1	1253,6
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	590,4	1239,5
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	556,8	1209,4
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	506,8	1166,6
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	451,7	1019,1
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,4	1262,8
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	607,5	1250,7
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	580,2	1224,2
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	542,6	1181,9
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	626,7	1268,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,4	1256,8
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	610,1	1248,1
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	590,0	1224,0
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	589,0	1218,8
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	572,5	1204,2
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	558,1	1192,8
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	535,4	1174,7
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	487,0	1135,6
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	422,7	896,3
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	599,1	1227,1
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	585,2	1214,5
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	552,7	1188,2
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	502,9	1146,6
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	447,5	997,9
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	612,1	1237,1
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	602,1	1226,8
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	576,1	1203,5
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	539,3	1162,5
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	620,3	1242,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	612,9	1233,6
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	605,3	1226,3
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	586,1	1204,1
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	587,9	1238,6
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	570,1	1222,6
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	555,1	1210,0
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	531,5	1189,3
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	483,4	1147,9
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	421,9	916,4
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	598,2	1246,4
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	583,1	1232,1
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	548,8	1202,0
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	498,9	1158,4
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	446,0	1019,3
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	611,3	1255,4
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	600,0	1243,3
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	572,1	1216,6
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	534,3	1174,8
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	619,4	1260,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	610,7	1249,1
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	602,2	1240,4
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	581,6	1216,2
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	537,2	1204,0
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	521,3	1189,5
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	507,9	1178,0
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	487,1	1159,7
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	443,9	1124,5
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	387,0	911,9
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	546,6	1211,8
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	533,0	1198,7
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	502,6	1171,8
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	458,3	1133,9
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	410,1	1014,7

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	558,5	1220,7
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	548,4	1209,8
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	523,6	1185,8
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	490,9	1149,0
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	566,0	1225,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	558,1	1215,8
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	550,5	1207,8
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	532,4	1186,9
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	587,0	1232,5
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	567,7	1216,7
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	551,5	1204,2
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	525,9	1183,4
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	474,0	1139,6
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	408,5	900,2
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	598,4	1240,6
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	582,0	1226,9
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	544,9	1196,9
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	490,8	1151,9
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	433,8	998,5
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	612,7	1250,5
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	600,5	1238,5
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	570,3	1212,2
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	529,1	1169,9
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	621,6	1256,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	612,2	1245,1
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	603,0	1236,5
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	580,6	1212,2
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	557,0	1094,8
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	541,0	1079,3
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	527,5	1066,9
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	506,4	1048,6
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	462,7	1013,3
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	403,5	915,5
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	566,2	1100,0
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	552,6	1086,0
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	522,0	1058,2
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	477,2	1020,0
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	427,3	1016,6
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	577,9	1106,4
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	567,7	1093,6
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	542,8	1069,0
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	509,9	1034,4
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	585,1	1110,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	577,1	1097,8
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	569,5	1088,9
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	551,4	1068,7
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	572,9	1224,4
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	553,2	1208,9
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	536,7	1195,9
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	511,0	1175,0
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	459,8	1133,3
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	397,1	916,0
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	584,2	1232,3
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	567,4	1218,5
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	529,9	1187,8
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	476,0	1143,5
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	421,0	1020,9
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	598,4	1241,3
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	585,8	1229,5
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	555,0	1202,3
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	513,4	1159,1
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	607,1	1246,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	597,2	1235,6
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	587,8	1226,4
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	565,0	1202,0
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	609,4	1248,7
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	589,4	1233,1
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	572,6	1219,8
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	546,0	1199,3
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	490,4	1156,1
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	415,4	865,2
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	621,2	1256,6
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	604,4	1242,8
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	566,1	1212,1
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	508,9	1171,8
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	443,3	972,9
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	636,1	1266,1
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	623,7	1254,0
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	592,8	1227,1
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	550,4	1185,0
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	645,3	1271,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	635,8	1260,5
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	626,4	1251,5
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	603,7	1226,9
1,0	12,50	0,20	0,30	2000	400	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	576,7	1215,6
1,0	16,67	0,20	0,30	2000	400	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	561,3	1201,2

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	20,00	0,20	0,30	2000	400	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	548,2	1189,9
1,0	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	527,1	1172,0
1,0	35,00	0,20	0,30	2000	400	11,4	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	482,0	1133,5
1,0	50,00	0,20	0,30	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	420,5	894,7
1,0	15,63	0,25	0,30	2000	500	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	586,3	1223,7
1,0	20,83	0,25	0,30	2000	500	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	573,5	1211,1
1,0	31,25	0,25	0,30	2000	500	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	543,4	1185,2
1,0	45,00	0,25	0,30	2000	500	11,1	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	497,1	1143,8
1,0	60,00	0,25	0,30	2000	500	8,3	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	444,4	995,3
1,0	21,88	0,35	0,30	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	598,7	1233,4
1,0	29,17	0,35	0,30	2000	700	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	589,5	1223,1
1,0	43,75	0,35	0,30	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	565,5	1200,3
1,0	60,00	0,35	0,30	2000	700	11,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	531,4	1159,6
1,0	28,13	0,45	0,30	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	606,6	1238,9
1,0	37,50	0,45	0,30	2000	900	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	599,8	1230,0
1,0	45,00	0,45	0,30	2000	900	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	592,8	1222,8
1,0	60,00	0,45	0,30	2000	900	15,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	575,1	1200,9
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	501,0	1180,1
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	486,2	1165,8
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	473,8	1154,5
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	454,3	1137,1
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	414,7	1101,8
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	363,2	894,4
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	509,7	1187,7
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	497,1	1174,8
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	468,8	1149,1
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	428,2	1113,0
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	385,2	993,3
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	520,8	1196,8
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	511,3	1185,6
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	488,3	1163,0
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	458,1	1127,7
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	527,7	1202,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	520,3	1191,7
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	513,3	1184,0
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	496,5	1164,3
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	527,8	1072,6
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	510,8	1057,2
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	496,7	1045,2
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	474,6	1027,2
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	429,5	990,2
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	369,0	862,3
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	537,5	1077,7
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	523,2	1063,8
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	491,2	1036,7
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	444,8	996,5
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	393,1	970,2
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	549,7	1083,9
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	539,0	1071,3
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	513,2	1046,7
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	478,8	1011,8
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	557,1	1087,3
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	548,8	1075,3
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	540,8	1066,6
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	522,0	1046,7
1,0	12,50	0,20	0,30	2000	400	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	538,3	1081,9
1,0	16,67	0,20	0,30	2000	400	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	523,1	1066,4
1,0	20,00	0,20	0,30	2000	400	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	510,4	1054,1
1,0	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	490,6	1036,2
1,0	35,00	0,20	0,30	2000	400	11,4	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	450,1	1001,5
1,0	50,00	0,20	0,30	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	395,9	914,4
1,0	15,63	0,25	0,30	2000	500	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	547,0	1087,3
1,0	20,83	0,25	0,30	2000	500	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	534,1	1072,9
1,0	31,25	0,25	0,30	2000	500	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	505,2	1045,5
1,0	45,00	0,25	0,30	2000	500	11,1	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	463,7	1007,8
1,0	60,00	0,25	0,30	2000	500	8,3	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	418,4	1012,1
1,0	21,88	0,35	0,30	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	558,1	1093,1
1,0	29,17	0,35	0,30	2000	700	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	548,2	1080,3
1,0	43,75	0,35	0,30	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	524,8	1056,1
1,0	60,00	0,35	0,30	2000	700	11,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	494,1	1022,8
1,0	28,13	0,45	0,30	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	564,8	1096,8
1,0	37,50	0,45	0,30	2000	900	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	557,1	1084,3
1,0	45,00	0,45	0,30	2000	900	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	549,9	1075,8
1,0	60,00	0,45	0,30	2000	900	15,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	532,8	1056,1
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	493,2	1180,4
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	478,4	1166,4
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	466,1	1155,1
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	447,0	1136,8
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	408,3	1101,3
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	358,0	908,7
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	502,0	1187,5
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	489,4	1175,4
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	461,5	1148,4
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	421,6	1110,6
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	379,5	1013,2
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	513,2	1196,1

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	503,8	1185,8
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	481,1	1162,5
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	451,1	1124,8
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	520,1	1200,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	512,8	1191,5
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	505,8	1183,6
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	489,2	1163,1
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	563,2	1203,1
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	545,6	1187,7
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	530,6	1176,5
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	506,6	1158,3
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	455,7	1109,7
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	386,8	831,1
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	574,1	1211,4
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	559,5	1198,2
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	525,4	1171,9
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	473,3	1132,8
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	413,6	931,7
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	588,0	1221,4
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	577,5	1210,6
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	550,6	1187,7
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	512,4	1146,9
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	596,6	1227,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	588,9	1217,5
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	581,0	1210,4
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	561,3	1188,7
1,0	12,50	0,20	0,30	2000	400	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	542,5	1204,3
1,0	16,67	0,20	0,30	2000	400	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	525,5	1189,7
1,0	20,00	0,20	0,30	2000	400	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	511,3	1178,2
1,0	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	489,1	1159,9
1,0	35,00	0,20	0,30	2000	400	11,4	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	442,5	1124,9
1,0	50,00	0,20	0,30	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	380,0	860,0
1,0	15,63	0,25	0,30	2000	500	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	552,5	1211,9
1,0	20,83	0,25	0,30	2000	500	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	538,1	1199,0
1,0	31,25	0,25	0,30	2000	500	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	505,9	1172,1
1,0	45,00	0,25	0,30	2000	500	11,1	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	458,3	1136,0
1,0	60,00	0,25	0,30	2000	500	8,3	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	405,0	967,2
1,0	21,88	0,35	0,30	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	565,3	1220,9
1,0	29,17	0,35	0,30	2000	700	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	554,5	1210,0
1,0	43,75	0,35	0,30	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	528,4	1186,2
1,0	60,00	0,35	0,30	2000	700	11,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	493,8	1149,4
1,0	28,13	0,45	0,30	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	573,1	1226,1
1,0	37,50	0,45	0,30	2000	900	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	564,8	1216,2
1,0	45,00	0,45	0,30	2000	900	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	556,8	1208,2
1,0	60,00	0,45	0,30	2000	900	15,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	537,8	1187,2
1,0	12,50	0,20	0,30	2000	400	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	474,4	1033,2
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	462,4	1019,9
1,0	20,00	0,20	0,30	2000	400	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	452,2	1010,4
1,0	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	435,9	995,8
1,0	35,00	0,20	0,30	2000	400	11,4	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	401,0	967,0
1,0	50,00	0,20	0,30	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	352,7	888,3
1,0	15,63	0,25	0,30	2000	500	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	481,6	1038,3
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	471,5	1026,5
1,0	31,25	0,25	0,30	2000	500	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	448,1	1004,5
1,0	45,00	0,25	0,30	2000	500	11,1	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	412,9	973,3
1,0	60,00	0,25	0,30	2000	500	8,3	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	373,0	958,7
1,0	21,88	0,35	0,30	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	490,8	1044,9
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	483,4	1034,3
1,0	43,75	0,35	0,30	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	464,8	1014,7
1,0	60,00	0,35	0,30	2000	700	11,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	439,7	986,2
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	496,6	1048,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	491,1	1038,7
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	485,5	1031,8
1,0	60,00	0,45	0,30	2000	900	15,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	472,1	1015,7
1,0	12,50	0,20	0,30	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	422,9	991,4
1,0	16,67	0,20	0,30	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	411,7	979,1
1,0	20,00	0,20	0,30	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	402,1	969,7
1,0	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	387,2	956,2
1,0	35,00	0,20	0,30	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	355,6	926,7
1,0	50,00	0,20	0,30	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	311,1	820,0
1,0	15,63	0,25	0,30	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	429,9	996,5
1,0	20,83	0,25	0,30	2000	500	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	420,5	985,1
1,0	31,25	0,25	0,30	2000	500	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	399,2	964,4
1,0	45,00	0,25	0,30	2000	500	11,1	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	367,1	932,7
1,0	60,00	0,25	0,30	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	330,5	917,8
1,0	21,88	0,35	0,30	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	438,8	1002,7
1,0	29,17	0,35	0,30	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	432,0	992,3
1,0	43,75	0,35	0,30	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	415,1	974,2
1,0	60,00	0,35	0,30	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	392,2	946,0
1,0	28,13	0,45	0,30	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	444,3	1006,0
1,0	37,50	0,45	0,30	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	439,2	996,3
1,0	45,00	0,45	0,30	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	434,2	989,9
1,0	60,00	0,45	0,30	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	422,0	975,3
1,0	12,50	0,20	0,30	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	446,4	1127,6
1,0	16,67	0,20	0,30	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	433,7	1114,0
1,0	20,00	0,20	0,30	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	423,0	1103,8

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	406,2	1088,8
1,0	35,00	0,20	0,30	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	370,6	1056,5
1,0	50,00	0,20	0,30	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	322,3	822,2
1,0	15,63	0,25	0,30	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	454,3	1135,2
1,0	20,83	0,25	0,30	2000	500	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	443,8	1123,3
1,0	31,25	0,25	0,30	2000	500	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	419,6	1101,0
1,0	45,00	0,25	0,30	2000	500	11,1	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	383,3	1067,1
1,0	60,00	0,25	0,30	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	342,7	922,6
1,0	21,88	0,35	0,30	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	464,4	1144,1
1,0	29,17	0,35	0,30	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	456,7	1134,3
1,0	43,75	0,35	0,30	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	437,5	1115,4
1,0	60,00	0,35	0,30	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	411,2	1080,8
1,0	28,13	0,45	0,30	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	470,6	1149,1
1,0	37,50	0,45	0,30	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	464,9	1140,7
1,0	45,00	0,45	0,30	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	459,2	1134,7
1,0	60,00	0,45	0,30	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	445,3	1117,4
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	617,3	1149,6
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	597,1	1132,9
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	579,8	1118,6
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	552,7	1096,5
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	497,4	1028,0
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	423,2	762,8
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	629,5	1158,6
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	615,3	1146,2
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	577,9	1115,3
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	536,1	1078,5
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	449,2	850,3
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	645,1	1169,5
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	632,6	1156,9
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	600,2	1127,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	554,2	1080,7
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	660,4	1198,1
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	654,9	1175,7
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	648,3	1167,4
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	645,4	1164,4
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,1	1135,4
1,0	12,50	0,20	0,40	2000	400	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	620,4	1149,8
1,0	16,67	0,20	0,40	2000	400	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	599,9	1133,0
1,0	20,00	0,20	0,40	2000	400	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	582,4	1119,2
1,0	25,00	0,20	0,40	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	555,0	1096,3
1,0	35,00	0,20	0,40	2000	400	11,4	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	498,7	1026,5
1,0	50,00	0,20	0,40	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	424,4	762,8
1,0	15,63	0,25	0,40	2000	500	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	632,8	1158,7
1,0	20,00	0,25	0,40	2000	500	25,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,4	1146,4
1,0	30,00	0,25	0,40	2000	500	16,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	580,7	1115,7
1,0	40,00	0,25	0,40	2000	500	12,5	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	538,3	1079,0
1,0	60,00	0,25	0,40	2000	500	8,3	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	449,6	848,3
1,0	21,88	0,35	0,40	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	648,7	1169,5
1,0	29,17	0,35	0,40	2000	700	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	635,9	1157,3
1,0	43,75	0,35	0,40	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	603,1	1127,4
1,0	60,00	0,35	0,40	2000	700	11,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	557,1	1081,2
1,0	16,67	0,45	0,40	2000	900	54,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	664,6	1198,5
1,0	28,13	0,45	0,40	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	658,6	1175,9
1,0	35,00	0,45	0,40	2000	900	25,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	651,8	1167,7
1,0	37,50	0,45	0,40	2000	900	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	648,9	1164,4
1,0	56,25	0,45	0,40	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	621,2	1135,2
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	602,5	1147,7
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	583,9	1131,2
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	568,1	1117,5
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	543,0	1095,6
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	490,9	1025,5
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	420,5	761,7
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	614,0	1156,2
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	601,0	1144,4
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	566,8	1113,9
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	527,8	1077,8
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	444,9	846,9
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	628,7	1167,1
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	617,4	1154,8
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	587,8	1125,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	545,5	1079,9
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	642,3	1195,1
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	638,1	1173,3
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	632,2	1164,9
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	629,7	1162,1
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	604,7	1133,2
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	595,6	1121,4
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	578,0	1106,9
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	562,6	1094,9
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	538,0	1074,9
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	485,6	1001,0
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	415,3	744,7
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	606,8	1130,6
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	594,7	1120,1
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	561,7	1093,1
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	522,9	1059,2

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	439,7	828,2
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	621,3	1141,9
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	611,1	1131,7
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	582,7	1106,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	541,3	1061,5
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	633,8	1169,8
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	630,5	1148,5
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	625,4	1141,9
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	623,2	1139,6
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	599,7	1114,4
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	596,2	1144,3
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	577,3	1127,1
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	561,1	1113,6
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	535,7	1091,8
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	484,3	1021,3
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	416,6	762,0
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	607,5	1152,8
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	594,3	1140,8
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	559,5	1110,3
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	520,4	1073,9
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	440,8	847,0
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	622,0	1163,6
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	610,3	1151,1
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	580,1	1121,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	537,9	1076,4
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	636,3	1192,5
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	631,1	1169,5
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	624,9	1161,3
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	622,3	1158,2
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	596,8	1129,5
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	542,5	1108,8
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	525,6	1093,5
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	511,2	1081,0
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	488,7	1061,7
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	442,2	1022,1
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	380,6	760,3
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	552,8	1116,8
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	540,9	1105,9
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	510,0	1078,7
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	475,4	1047,5
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	404,0	845,7
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	566,0	1126,8
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	555,5	1115,6
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	528,7	1089,9
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	492,6	1050,4
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	579,0	1154,2
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	574,2	1132,6
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	568,7	1125,2
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	566,3	1122,3
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	543,9	1097,5
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	595,1	1125,1
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	575,0	1108,1
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	557,8	1094,6
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	530,7	1073,4
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	475,6	987,5
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	404,3	749,4
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	607,3	1134,2
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	593,2	1121,1
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	556,2	1091,4
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	514,3	1056,6
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	429,2	830,7
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	622,9	1145,5
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	610,5	1132,0
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	578,3	1103,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	532,9	1058,7
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	638,4	1177,3
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	632,7	1152,0
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	626,1	1142,6
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	623,3	1139,8
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	596,1	1111,4
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	560,7	1021,9
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	543,8	1005,9
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	529,4	993,4
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	506,9	974,3
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	460,3	937,5
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	396,4	761,8
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	570,6	1028,2
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	558,7	1015,6
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	528,0	988,1
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	493,5	957,9
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	420,3	846,8
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	583,3	1035,4
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	572,8	1021,7
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	546,2	995,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	510,2	957,9
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	596,6	1066,7

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	591,2	1039,2
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	585,6	1029,9
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	583,2	1026,7
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	560,9	1001,5
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	576,8	1118,4
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	556,3	1102,1
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	538,9	1088,7
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	512,0	1067,4
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	458,5	1008,4
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	392,0	762,8
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	588,9	1127,4
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	574,5	1115,0
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	537,2	1085,6
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	495,9	1049,4
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	415,5	850,8
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	604,4	1137,9
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	591,6	1125,1
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	558,9	1096,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	513,5	1049,3
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	620,3	1165,4
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	613,9	1143,6
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	607,0	1135,1
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	604,1	1132,2
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	576,4	1104,0
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	619,7	1148,7
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	598,8	1132,5
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	580,8	1118,6
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	552,5	1096,2
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	492,7	1005,9
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	410,2	720,8
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	632,5	1157,8
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	617,9	1145,3
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	579,5	1115,5
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	535,4	1079,1
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	435,9	808,7
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	648,9	1168,3
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	636,1	1155,8
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	602,9	1126,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	555,6	1081,9
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	664,5	1197,4
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	659,0	1174,7
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	652,3	1166,3
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	649,5	1163,4
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	621,7	1134,4
1,0	12,50	0,20	0,40	2000	400	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	583,4	1119,6
1,0	16,67	0,20	0,40	2000	400	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	567,0	1105,1
1,0	20,00	0,20	0,40	2000	400	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	552,7	1093,5
1,0	25,00	0,20	0,40	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	529,8	1073,7
1,0	35,00	0,20	0,40	2000	400	11,4	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	480,8	999,9
1,0	50,00	0,20	0,40	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	413,3	743,7
1,0	15,63	0,25	0,40	2000	500	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	594,1	1128,7
1,0	20,00	0,25	0,40	2000	500	25,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	582,8	1118,1
1,0	30,00	0,25	0,40	2000	500	16,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	552,2	1092,0
1,0	40,00	0,25	0,40	2000	500	12,5	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	516,1	1057,8
1,0	60,00	0,25	0,40	2000	500	8,3	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	437,0	826,8
1,0	21,88	0,35	0,40	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	608,0	1139,7
1,0	29,17	0,35	0,40	2000	700	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	598,5	1129,7
1,0	43,75	0,35	0,40	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	572,3	1104,7
1,0	60,00	0,35	0,40	2000	700	11,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	533,7	1059,9
1,0	16,67	0,45	0,40	2000	900	54,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	619,1	1167,1
1,0	28,13	0,45	0,40	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	616,9	1146,4
1,0	35,00	0,45	0,40	2000	900	25,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	612,3	1139,7
1,0	37,50	0,45	0,40	2000	900	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	610,2	1137,5
1,0	56,25	0,45	0,40	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	588,6	1112,5
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	508,0	1082,6
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	492,3	1066,8
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	479,0	1054,9
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	458,0	1035,9
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	415,3	980,2
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	358,9	746,2
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	517,5	1090,7
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	506,5	1078,7
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	477,8	1052,7
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	445,8	1022,4
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	381,1	827,2
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	529,7	1100,8
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	519,9	1088,7
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	495,2	1063,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	461,8	1026,2
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	541,8	1130,3
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	537,3	1106,5
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	532,1	1098,3
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	530,0	1095,7
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	509,2	1071,4
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	532,5	997,7
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	514,9	981,6

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	499,9	968,9
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	476,7	949,1
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	429,2	909,8
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	364,1	719,2
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	543,0	1003,6
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	530,6	991,4
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	498,8	963,3
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	463,3	931,7
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	387,9	809,1
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	556,1	1010,6
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	545,2	997,6
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	517,8	970,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	480,2	931,9
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	569,8	1038,4
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	564,2	1014,3
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	558,3	1005,3
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	555,9	1002,0
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	532,9	977,1
1,0	12,50	0,20	0,40	2000	400	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	542,5	1012,9
1,0	16,67	0,20	0,40	2000	400	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	526,4	996,9
1,0	20,00	0,20	0,40	2000	400	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	512,9	984,3
1,0	25,00	0,20	0,40	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	491,7	965,4
1,0	35,00	0,20	0,40	2000	400	11,4	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	448,6	928,9
1,0	50,00	0,20	0,40	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	389,8	760,9
1,0	15,63	0,25	0,40	2000	500	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	552,0	1018,8
1,0	20,00	0,25	0,40	2000	500	25,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	540,6	1006,4
1,0	30,00	0,25	0,40	2000	500	16,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	511,6	979,0
1,0	40,00	0,25	0,40	2000	500	12,5	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	479,4	949,4
1,0	60,00	0,25	0,40	2000	500	8,3	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	412,7	844,8
1,0	21,88	0,35	0,40	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	564,0	1025,8
1,0	29,17	0,35	0,40	2000	700	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	553,9	1012,4
1,0	43,75	0,35	0,40	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	528,8	986,5
1,0	60,00	0,35	0,40	2000	700	11,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	495,2	949,7
1,0	16,67	0,45	0,40	2000	900	54,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	576,8	1057,5
1,0	28,13	0,45	0,40	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	571,5	1029,3
1,0	35,00	0,45	0,40	2000	900	25,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	566,0	1020,2
1,0	37,50	0,45	0,40	2000	900	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	563,7	1016,7
1,0	56,25	0,45	0,40	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	542,7	992,8
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	497,0	1080,9
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	481,3	1066,2
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	468,0	1054,5
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	447,5	1035,7
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	406,1	998,1
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	352,0	759,1
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	506,6	1089,1
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	495,6	1078,0
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	467,3	1051,9
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	436,0	1021,0
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	373,4	845,9
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	519,0	1098,7
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	509,3	1087,6
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	484,8	1062,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	451,6	1022,0
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	531,2	1122,9
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	526,7	1104,0
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	521,5	1096,5
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	519,4	1093,8
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	498,8	1069,9
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	573,8	1096,8
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	555,5	1081,0
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	539,7	1069,4
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	514,2	1050,9
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	459,6	936,9
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	384,0	692,5
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	585,6	1105,9
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	573,2	1093,6
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	539,4	1068,4
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	499,3	1035,7
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	409,4	774,9
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	600,8	1116,9
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	590,5	1104,9
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	561,7	1080,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	519,2	1037,5
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	613,7	1149,9
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	610,4	1123,4
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	605,3	1114,9
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	603,0	1112,2
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	579,4	1088,2
1,0	12,50	0,20	0,40	2000	400	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	549,7	1108,7
1,0	16,67	0,20	0,40	2000	400	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	531,9	1093,8
1,0	20,00	0,20	0,40	2000	400	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	516,7	1081,4
1,0	25,00	0,20	0,40	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	492,9	1062,9
1,0	35,00	0,20	0,40	2000	400	11,4	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	442,9	990,6
1,0	50,00	0,20	0,40	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	374,6	718,2
1,0	15,63	0,25	0,40	2000	500	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	560,6	1116,8
1,0	20,00	0,25	0,40	2000	500	25,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	548,1	1105,8

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	30,00	0,25	0,40	2000	500	16,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	515,7	1079,3
1,0	40,00	0,25	0,40	2000	500	12,5	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	478,9	1048,1
1,0	60,00	0,25	0,40	2000	500	8,3	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	399,3	806,4
1,0	21,88	0,35	0,40	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	574,5	1126,8
1,0	29,17	0,35	0,40	2000	700	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	563,5	1115,7
1,0	43,75	0,35	0,40	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	535,6	1089,9
1,0	60,00	0,35	0,40	2000	700	11,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	497,4	1051,2
1,0	16,67	0,45	0,40	2000	900	54,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	588,1	1153,6
1,0	28,13	0,45	0,40	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	583,2	1132,3
1,0	35,00	0,45	0,40	2000	900	25,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	577,4	1125,0
1,0	37,50	0,45	0,40	2000	900	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	574,9	1122,2
1,0	56,25	0,45	0,40	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	551,5	1097,4
1,0	12,50	0,20	0,40	2000	400	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	477,2	961,5
1,0	16,67	0,20	0,40	2000	400	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	464,5	948,9
1,0	20,00	0,20	0,40	2000	400	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	453,5	939,2
1,0	25,00	0,20	0,40	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	436,0	924,4
1,0	35,00	0,20	0,40	2000	400	11,4	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	398,5	894,6
1,0	50,00	0,20	0,40	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	346,6	741,0
1,0	15,63	0,25	0,40	2000	500	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	485,1	967,9
1,0	20,00	0,25	0,40	2000	500	25,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	476,3	958,2
1,0	30,00	0,25	0,40	2000	500	16,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	452,7	936,6
1,0	40,00	0,25	0,40	2000	500	12,5	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	425,7	912,8
1,0	60,00	0,25	0,40	2000	500	8,3	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	367,6	824,3
1,0	21,88	0,35	0,40	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	495,3	975,5
1,0	29,17	0,35	0,40	2000	700	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	487,7	965,0
1,0	43,75	0,35	0,40	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	467,7	944,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	440,3	913,3
1,0	16,67	0,45	0,40	2000	900	54,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	504,4	1002,9
1,0	28,13	0,45	0,40	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	501,7	979,9
1,0	35,00	0,45	0,40	2000	900	25,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	497,9	972,3
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	496,2	970,0
1,0	56,25	0,45	0,40	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	479,8	950,7
1,0	12,50	0,20	0,40	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	453,2	1027,9
1,0	16,67	0,20	0,40	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	439,9	1013,2
1,0	20,00	0,20	0,40	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	428,5	1002,7
1,0	25,00	0,20	0,40	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	410,4	984,9
1,0	35,00	0,20	0,40	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	372,3	916,3
1,0	50,00	0,20	0,40	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	319,9	687,9
1,0	15,63	0,25	0,40	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	461,9	1035,8
1,0	20,00	0,25	0,40	2000	500	25,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	452,7	1024,7
1,0	30,00	0,25	0,40	2000	500	16,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	428,4	1002,1
1,0	40,00	0,25	0,40	2000	500	12,5	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	400,5	975,5
1,0	60,00	0,25	0,40	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	340,8	771,6
1,0	21,88	0,35	0,40	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	472,9	1045,1
1,0	29,17	0,35	0,40	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	465,3	1034,3
1,0	43,75	0,35	0,40	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	444,7	1013,8
1,0	60,00	0,35	0,40	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	415,5	977,0
1,0	16,67	0,45	0,40	2000	900	54,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	482,1	1073,8
1,0	28,13	0,45	0,40	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	479,9	1050,7
1,0	35,00	0,45	0,40	2000	900	25,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	476,1	1043,2
1,0	37,50	0,45	0,40	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	474,4	1041,0
1,0	56,25	0,45	0,40	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	457,5	1021,2
1,0	12,50	0,20	0,40	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	428,3	920,4
1,0	16,67	0,20	0,40	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	416,4	907,9
1,0	20,00	0,20	0,40	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	406,3	898,2
1,0	25,00	0,20	0,40	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	390,2	883,1
1,0	35,00	0,20	0,40	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	356,2	850,8
1,0	50,00	0,20	0,40	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	307,8	686,5
1,0	15,63	0,25	0,40	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	436,0	926,7
1,0	20,00	0,25	0,40	2000	500	25,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	427,8	916,8
1,0	30,00	0,25	0,40	2000	500	16,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	406,3	895,6
1,0	40,00	0,25	0,40	2000	500	12,5	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	381,5	870,5
1,0	60,00	0,25	0,40	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	327,9	769,4
1,0	21,88	0,35	0,40	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	445,7	933,5
1,0	29,17	0,35	0,40	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	438,9	923,5
1,0	43,75	0,35	0,40	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	420,7	903,4
1,0	60,00	0,35	0,40	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	395,4	871,6
1,0	16,67	0,45	0,40	2000	900	54,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	454,1	959,4
1,0	28,13	0,45	0,40	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	451,8	937,4
1,0	35,00	0,45	0,40	2000	900	25,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	448,4	930,5
1,0	37,50	0,45	0,40	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	446,9	927,8
1,0	56,25	0,45	0,40	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	432,1	909,3
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	621,0	1017,6
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	600,3	1001,8
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	582,2	990,6
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	553,7	970,9
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	495,1	827,6
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	414,1	612,8
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	633,6	1026,4
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	616,3	1011,6
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	574,7	984,2
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	512,2	842,0
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	435,3	680,1
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	649,9	1037,4
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	637,5	1023,9
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	603,5	998,4

α	λf	η	tgφ	h1	bf	tf	z1	z2	z3	z4	z5	z6	z7	z8	z9	fc	fu
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	552,3	948,5
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	660,1	1044,1
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	651,1	1031,3
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	641,1	1023,7
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	615,1	995,0
1,0	12,50	0,20	0,50	2000	400	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	623,6	1017,8
1,0	16,67	0,20	0,50	2000	400	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	602,5	1001,9
1,0	20,00	0,20	0,50	2000	400	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	584,3	990,8
1,0	25,00	0,20	0,50	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	555,5	970,9
1,0	35,00	0,20	0,50	2000	400	11,4	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	495,9	804,9
1,0	50,00	0,20	0,50	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	414,9	612,9
1,0	15,63	0,25	0,50	2000	500	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	636,3	1026,4
1,0	20,83	0,25	0,50	2000	500	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,7	1011,8
1,0	31,25	0,25	0,50	2000	500	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	576,7	984,2
1,0	45,00	0,25	0,50	2000	500	11,1	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	513,6	841,6
1,0	60,00	0,25	0,50	2000	500	8,3	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	434,8	678,4
1,0	21,88	0,35	0,50	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	652,8	1037,6
1,0	29,17	0,35	0,50	2000	700	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	640,1	1024,1
1,0	43,75	0,35	0,50	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	605,7	998,5
1,0	60,00	0,35	0,50	2000	700	11,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	554,6	948,9
1,0	28,13	0,45	0,50	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	663,1	1044,2
1,0	37,50	0,45	0,50	2000	900	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	653,9	1031,4
1,0	45,00	0,45	0,50	2000	900	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	643,7	1023,8
1,0	60,00	0,45	0,50	2000	900	15,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	617,4	995,2
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	606,9	1016,9
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	587,7	1001,1
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	571,0	990,2
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	544,5	970,3
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	489,1	825,1
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	411,8	612,6
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,8	1025,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	602,8	1011,0
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	564,3	983,6
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	505,8	840,0
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	431,7	677,4
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	634,3	1036,5
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	623,0	1023,3
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	591,7	997,7
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	544,6	948,6
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	644,1	1043,1
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	636,0	1030,5
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	626,9	1023,1
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	602,9	994,6
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	598,7	990,6
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	580,6	974,6
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	564,6	964,5
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	538,4	947,3
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	482,6	813,3
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	405,8	597,5
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	610,2	999,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	595,5	984,0
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	558,3	960,6
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	499,5	820,8
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	425,8	660,7
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	625,3	1009,8
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	615,3	996,1
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	585,6	975,1
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	539,3	927,2
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	634,9	1016,6
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	628,1	1003,5
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	619,9	996,9
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	597,2	973,4
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	602,0	1016,8
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	582,3	1000,9
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	565,3	990,0
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	538,5	970,1
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	483,9	833,3
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	408,9	612,6
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	613,9	1025,4
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	597,4	1010,9
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	558,3	983,0
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	500,4	840,2
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	429,3	677,2
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	629,1	1036,3
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	617,3	1023,2
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	585,3	997,6
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	538,5	947,9
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	638,7	1042,9
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	630,1	1030,4
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	620,7	1023,0
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	596,3	994,2
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	544,5	984,3
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	527,0	970,2
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	512,0	959,9
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	488,2	941,4
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	438,7	817,5

α	λf	η	tg φ	h1	bf	tf	z1	z2	z3	z4	z5	z6	z7	z8	z9	fc	fu
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	372,2	612,1
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	555,1	992,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	540,5	979,8
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	506,0	953,7
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	454,4	837,8
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	394,3	678,6
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	568,8	1003,0
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	558,4	991,8
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	530,4	967,5
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	491,0	924,4
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	577,4	1009,3
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	569,9	998,7
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	561,6	991,5
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	540,7	966,0
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	599,1	983,8
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	578,6	966,7
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	560,9	956,0
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	532,7	938,2
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	474,8	799,5
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	397,5	601,9
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	611,5	991,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	594,5	975,2
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	553,5	950,3
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	492,0	826,5
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	418,1	664,4
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	627,6	1001,9
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	615,4	986,1
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	581,9	963,2
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	532,1	916,4
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	637,7	1008,3
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	628,8	992,8
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	619,0	984,5
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	593,3	961,2
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	562,1	938,3
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	544,7	922,6
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	529,7	909,8
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	506,1	890,0
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	457,0	825,9
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	388,0	612,8
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	572,4	945,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	557,8	931,1
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	523,6	901,2
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	472,4	843,2
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	409,9	678,2
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	585,5	954,1
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	575,0	941,1
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	547,4	914,0
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	508,2	871,6
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	593,8	959,2
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	586,0	946,9
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	577,9	937,6
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	557,3	912,0
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	577,7	971,5
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	556,9	952,4
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	539,0	941,1
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	511,2	926,0
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	455,9	794,9
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	384,9	612,7
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	590,2	979,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	572,8	960,8
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	531,7	935,6
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	472,1	848,1
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	406,1	681,0
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	606,1	990,0
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	593,5	971,7
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	559,7	947,1
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	510,3	910,6
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	616,0	996,7
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	606,6	978,3
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	596,6	968,1
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	570,5	946,9
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	626,6	1016,2
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	605,1	1003,6
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	586,5	995,2
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	556,8	977,6
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	493,3	793,3
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	401,9	581,2
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	639,7	1024,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	621,9	1012,4
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	579,1	991,7
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	512,2	815,5
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	416,6	648,8
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	656,6	1034,3
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	644,0	1023,7
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	609,3	1005,4
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	556,2	946,7

α	λf	η	tg φ	h1	bf	tf	z1	z2	z3	z4	z5	z6	z7	z8	z9	fc	fu
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	667,2	1040,7
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	658,1	1030,5
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	648,0	1026,0
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	621,5	999,6
1,0	12,50	0,20	0,50	2000	400	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	586,7	990,0
1,0	16,67	0,20	0,50	2000	400	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	569,8	974,0
1,0	20,00	0,20	0,50	2000	400	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	554,8	963,9
1,0	25,00	0,20	0,50	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	530,5	946,7
1,0	35,00	0,20	0,50	2000	400	11,4	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	477,9	811,8
1,0	50,00	0,20	0,50	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	404,0	596,8
1,0	15,63	0,25	0,50	2000	500	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	597,7	998,3
1,0	20,83	0,25	0,50	2000	500	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	584,0	983,4
1,0	31,25	0,25	0,50	2000	500	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	549,4	960,0
1,0	45,00	0,25	0,50	2000	500	11,1	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	494,2	819,2
1,0	60,00	0,25	0,50	2000	500	8,3	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	423,8	659,6
1,0	21,88	0,35	0,50	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	612,2	1009,1
1,0	29,17	0,35	0,50	2000	700	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	603,0	995,4
1,0	43,75	0,35	0,50	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	575,4	974,5
1,0	60,00	0,35	0,50	2000	700	11,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	532,1	926,4
1,0	28,13	0,45	0,50	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	621,5	1015,8
1,0	37,50	0,45	0,50	2000	900	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	615,4	1002,9
1,0	45,00	0,45	0,50	2000	900	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	607,8	996,2
1,0	60,00	0,45	0,50	2000	900	15,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	586,7	972,7
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	511,7	952,1
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	495,5	936,3
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	481,5	926,1
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	459,5	910,0
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	414,0	795,7
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	352,8	601,0
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	521,5	959,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	508,0	945,2
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	476,0	921,3
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	428,6	819,4
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	374,2	664,0
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	534,1	969,6
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	524,5	955,9
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	498,5	934,1
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	462,2	893,0
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	542,1	975,6
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	535,0	962,3
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	527,4	954,6
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	508,0	932,9
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	535,0	906,5
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	517,1	891,0
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	501,7	878,0
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	477,6	858,1
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	428,2	794,7
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	357,8	580,0
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	545,8	913,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	530,8	898,8
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	495,7	869,1
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	443,7	815,2
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	378,6	649,9
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	559,3	921,9
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	548,5	908,4
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	520,1	880,8
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	479,4	840,1
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	567,7	926,7
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	559,7	914,0
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	551,3	904,3
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	530,0	879,2
1,0	12,50	0,20	0,50	2000	400	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	545,1	933,9
1,0	16,67	0,20	0,50	2000	400	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	528,5	917,9
1,0	20,00	0,20	0,50	2000	400	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	514,2	905,7
1,0	25,00	0,20	0,50	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	492,0	885,8
1,0	35,00	0,20	0,50	2000	400	11,4	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	446,5	821,3
1,0	50,00	0,20	0,50	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	382,5	612,0
1,0	15,63	0,25	0,50	2000	500	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	554,9	940,8
1,0	20,83	0,25	0,50	2000	500	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	540,9	926,6
1,0	31,25	0,25	0,50	2000	500	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	508,6	897,0
1,0	45,00	0,25	0,50	2000	500	11,1	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	461,2	841,9
1,0	60,00	0,25	0,50	2000	500	8,3	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	404,3	676,8
1,0	21,88	0,35	0,50	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	567,5	948,9
1,0	29,17	0,35	0,50	2000	700	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	557,3	936,4
1,0	43,75	0,35	0,50	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	531,1	909,4
1,0	60,00	0,35	0,50	2000	700	11,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	494,7	867,8
1,0	28,13	0,45	0,50	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	575,3	954,0
1,0	37,50	0,45	0,50	2000	900	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	567,8	941,5
1,0	45,00	0,45	0,50	2000	900	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	560,0	932,5
1,0	60,00	0,45	0,50	2000	900	15,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	540,5	907,1
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	497,7	946,2
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	481,5	929,2
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	467,8	918,7
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	446,3	903,9
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	402,8	818,6
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	344,7	611,7

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	507,7	954,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	494,2	938,0
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	462,8	913,9
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	417,0	839,9
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	365,8	680,3
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	520,5	964,3
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	510,9	949,1
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	485,3	926,0
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	449,4	890,0
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	528,6	970,7
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	521,6	955,8
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	514,1	946,9
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	494,9	925,9
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	579,8	957,8
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	561,6	944,5
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	545,3	936,9
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	518,8	922,3
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	461,0	763,5
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	378,0	557,4
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	591,9	964,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	577,1	951,8
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	539,6	935,3
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	479,0	782,3
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	395,7	620,6
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	607,5	973,8
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	597,6	961,2
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	567,9	947,1
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	520,9	889,5
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	617,3	979,7
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	610,7	967,1
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	602,6	961,9
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	580,0	943,5
1,0	12,50	0,20	0,50	2000	400	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	553,5	982,1
1,0	16,67	0,20	0,50	2000	400	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	535,2	968,6
1,0	20,00	0,20	0,50	2000	400	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	519,4	959,2
1,0	25,00	0,20	0,50	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	494,5	942,8
1,0	35,00	0,20	0,50	2000	400	11,4	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	441,3	790,0
1,0	50,00	0,20	0,50	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	367,2	580,0
1,0	15,63	0,25	0,50	2000	500	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	564,6	989,8
1,0	20,83	0,25	0,50	2000	500	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	549,4	977,6
1,0	31,25	0,25	0,50	2000	500	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	513,4	954,6
1,0	45,00	0,25	0,50	2000	500	11,1	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	458,1	813,9
1,0	60,00	0,25	0,50	2000	500	8,3	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	388,0	648,7
1,0	21,88	0,35	0,50	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	579,0	999,5
1,0	29,17	0,35	0,50	2000	700	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	568,2	988,7
1,0	43,75	0,35	0,50	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	539,1	967,6
1,0	60,00	0,35	0,50	2000	700	11,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	497,4	925,5
1,0	28,13	0,45	0,50	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	588,0	1005,4
1,0	37,50	0,45	0,50	2000	900	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	580,2	995,3
1,0	45,00	0,45	0,50	2000	900	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	571,6	989,4
1,0	60,00	0,45	0,50	2000	900	15,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	550,0	965,2
1,0	12,50	0,20	0,50	2000	400	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	477,6	882,3
1,0	16,67	0,20	0,50	2000	400	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	464,5	870,9
1,0	20,00	0,20	0,50	2000	400	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	452,9	861,0
1,0	25,00	0,20	0,50	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	434,4	844,7
1,0	35,00	0,20	0,50	2000	400	11,4	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	394,6	799,7
1,0	50,00	0,20	0,50	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	338,8	596,3
1,0	15,63	0,25	0,50	2000	500	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	485,7	889,0
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	474,9	878,8
1,0	31,25	0,25	0,50	2000	500	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	448,6	855,4
1,0	45,00	0,25	0,50	2000	500	11,1	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	407,9	816,5
1,0	60,00	0,25	0,50	2000	500	8,3	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	359,7	661,2
1,0	21,88	0,35	0,50	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	496,2	896,8
1,0	29,17	0,35	0,50	2000	700	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	488,8	888,5
1,0	43,75	0,35	0,50	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	468,1	867,3
1,0	60,00	0,35	0,50	2000	700	11,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	438,5	831,6
1,0	28,13	0,45	0,50	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	502,9	902,1
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	497,8	894,0
1,0	45,00	0,45	0,50	2000	900	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	491,9	887,1
1,0	60,00	0,45	0,50	2000	900	15,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	476,7	866,9
1,0	12,50	0,20	0,50	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	456,7	887,3
1,0	16,67	0,20	0,50	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	443,3	869,9
1,0	20,00	0,20	0,50	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	431,4	860,3
1,0	25,00	0,20	0,50	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	412,5	848,6
1,0	35,00	0,20	0,50	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	372,4	746,5
1,0	50,00	0,20	0,50	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	315,6	554,9
1,0	15,63	0,25	0,50	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	465,6	893,7
1,0	20,83	0,25	0,50	2000	500	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	454,7	876,1
1,0	31,25	0,25	0,50	2000	500	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	427,7	855,3
1,0	45,00	0,25	0,50	2000	500	11,1	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	386,0	776,9
1,0	60,00	0,25	0,50	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	335,6	620,6
1,0	21,88	0,35	0,50	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	477,1	902,2
1,0	29,17	0,35	0,50	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	469,7	884,7
1,0	43,75	0,35	0,50	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	448,4	863,5
1,0	60,00	0,35	0,50	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	416,7	841,0
1,0	28,13	0,45	0,50	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	484,3	907,8

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	37,50	0,45	0,50	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	479,4	889,3
1,0	45,00	0,45	0,50	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	473,4	879,2
1,0	60,00	0,45	0,50	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	457,5	864,5
1,0	12,50	0,20	0,50	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	431,0	829,9
1,0	16,67	0,20	0,50	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	418,9	816,2
1,0	20,00	0,20	0,50	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	408,3	807,7
1,0	25,00	0,20	0,50	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	391,5	792,8
1,0	35,00	0,20	0,50	2000	400	11,4	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	355,6	740,3
1,0	50,00	0,20	0,50	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	303,2	554,3
1,0	15,63	0,25	0,50	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	438,8	836,3
1,0	20,83	0,25	0,50	2000	500	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	429,0	824,5
1,0	31,25	0,25	0,50	2000	500	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	405,1	821,7
1,0	45,00	0,25	0,50	2000	500	11,1	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	368,1	763,6
1,0	60,00	0,25	0,50	2000	500	8,3	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	323,0	620,0
1,0	21,88	0,35	0,50	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	448,9	844,2
1,0	29,17	0,35	0,50	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	442,3	833,9
1,0	43,75	0,35	0,50	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	423,5	813,7
1,0	60,00	0,35	0,50	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	396,1	781,9
1,0	28,13	0,45	0,50	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	455,2	848,8
1,0	37,50	0,45	0,50	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	450,8	839,2
1,0	45,00	0,45	0,50	2000	900	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	445,5	832,0
1,0	60,00	0,45	0,50	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	431,7	813,5
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	620,3	858,4
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	599,6	852,5
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	581,1	848,7
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	551,6	810,6
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	458,0	553,9
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	398,5	467,3
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	632,8	862,9
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,8	857,8
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	578,7	849,0
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	531,7	713,7
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	477,4	583,7
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	648,9	870,0
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	637,3	863,7
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	602,6	855,0
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	542,0	741,2
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	658,2	915,2
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	659,2	875,0
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	651,2	868,3
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	648,3	867,9
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	622,0	858,5
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	613,9	850,8
1,0	12,50	0,20	0,60	2000	400	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	622,3	858,3
1,0	16,67	0,20	0,60	2000	400	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	601,4	852,5
1,0	20,00	0,20	0,60	2000	400	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	582,7	848,6
1,0	25,00	0,20	0,60	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	553,0	810,4
1,0	40,00	0,20	0,60	2000	400	10,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	458,9	554,1
1,0	50,00	0,20	0,60	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	398,9	467,2
1,0	15,63	0,25	0,60	2000	500	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	635,0	863,1
1,0	20,00	0,25	0,60	2000	500	25,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	620,8	857,2
1,0	30,00	0,25	0,60	2000	500	16,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	580,5	848,9
1,0	40,00	0,25	0,60	2000	500	12,5	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	533,0	713,7
1,0	50,00	0,25	0,60	2000	500	10,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	478,2	583,7
1,0	21,88	0,35	0,60	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	651,2	870,1
1,0	29,17	0,35	0,60	2000	700	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	639,4	863,7
1,0	43,75	0,35	0,60	2000	700	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	604,3	854,8
1,0	60,00	0,35	0,60	2000	700	11,7	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	543,1	741,2
1,0	16,67	0,45	0,60	2000	900	54,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	660,2	904,2
1,0	28,13	0,45	0,60	2000	900	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	661,6	875,0
1,0	37,50	0,45	0,60	2000	900	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	653,5	868,2
1,0	40,00	0,45	0,60	2000	900	22,5	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	650,5	867,8
1,0	56,25	0,45	0,60	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	623,9	858,5
1,0	60,00	0,45	0,60	2000	900	15,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	615,7	850,8
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	606,5	856,6
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	587,2	850,8
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	570,0	847,2
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	542,6	809,7
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	454,4	551,5
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	396,7	467,0
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,4	861,2
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	605,4	854,9
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	568,4	847,2
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	524,5	713,4
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	473,4	583,3
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	633,8	868,0
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	623,2	861,8
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	591,1	853,1
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	535,3	740,6
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	640,9	901,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	643,6	872,8
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	636,5	866,2
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	633,8	865,7
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	609,6	856,6
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	602,1	849,0
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	597,1	835,0

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	579,4	828,7
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	563,0	825,3
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	535,9	790,8
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	446,8	535,1
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	390,4	453,1
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	608,4	839,6
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	596,9	833,2
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	561,6	825,7
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	517,4	697,5
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	465,7	565,9
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	623,3	846,3
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	614,4	838,7
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	584,3	830,7
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	529,0	724,2
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	628,2	883,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	632,8	851,1
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	627,5	843,0
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	625,2	842,4
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	602,9	834,2
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	595,9	826,2
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	604,1	857,2
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	584,2	851,2
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	566,6	847,1
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	538,6	809,7
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	451,7	550,9
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	394,9	467,1
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	616,0	861,8
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	602,5	856,2
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	564,5	846,7
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	520,6	714,1
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	470,9	583,3
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	631,3	868,7
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	620,1	862,2
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	587,1	852,8
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	531,6	740,9
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	639,5	902,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	641,0	873,6
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	633,3	866,6
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	630,5	866,1
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	605,6	856,4
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	597,9	848,9
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	542,5	821,8
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	525,1	811,8
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	509,7	811,7
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	485,1	785,9
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	407,2	549,8
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	360,5	467,1
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	553,0	826,7
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	541,3	821,0
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	508,1	812,6
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	469,3	707,5
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	426,5	584,4
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	566,6	833,7
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	556,9	827,3
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	528,5	819,3
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	484,5	735,0
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	573,5	869,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	575,2	838,6
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	568,6	831,7
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	566,2	831,3
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	545,2	823,2
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	539,0	816,4
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	596,7	826,3
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	576,7	816,3
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	558,7	809,6
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	529,9	777,7
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	440,0	540,6
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	383,5	458,3
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	608,8	831,2
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	595,4	822,7
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	556,5	808,1
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	510,6	694,7
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	459,1	573,2
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	624,5	838,1
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	613,4	828,5
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	579,6	814,3
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	521,7	721,6
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	633,5	874,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	634,5	842,8
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	626,9	832,7
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	624,0	831,2
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	598,4	817,7
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	590,6	810,3
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	561,4	815,4
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	543,8	810,9
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	528,4	808,5

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	503,9	790,1
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	426,6	553,0
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	376,5	467,6
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	571,6	821,1
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	559,7	817,4
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	526,7	812,9
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	488,4	713,3
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	445,6	584,3
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	584,7	828,9
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	574,8	825,8
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	546,5	822,9
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	502,2	741,9
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	592,5	854,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	593,0	834,1
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	586,1	831,0
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	583,7	831,6
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	562,8	828,1
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	556,7	818,7
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	573,5	802,9
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	552,9	786,8
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	534,9	777,0
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	506,7	762,7
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	424,0	556,8
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	372,5	465,1
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	585,8	808,6
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	571,8	794,4
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	533,0	773,1
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	488,7	706,3
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	442,2	587,3
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	601,4	817,1
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	589,7	800,2
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	555,6	779,2
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	499,3	729,5
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	611,5	864,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	611,2	823,1
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	603,0	805,6
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	600,0	802,5
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	574,0	784,5
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	566,0	779,9
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	628,2	867,3
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	606,9	863,7
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	587,8	862,7
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	557,0	810,9
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	455,1	533,6
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	380,3	445,4
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	641,2	870,7
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	626,9	867,2
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	585,8	864,4
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	535,9	698,4
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	472,7	568,0
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	658,0	876,6
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	646,2	873,0
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	610,7	868,5
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	544,1	727,8
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	666,8	905,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	668,6	880,8
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	660,6	877,5
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	657,6	877,5
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	630,9	872,0
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	622,6	864,3
1,0	12,50	0,20	0,60	2000	400	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	585,4	832,4
1,0	16,67	0,20	0,60	2000	400	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	568,8	826,5
1,0	20,00	0,20	0,60	2000	400	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	553,4	823,4
1,0	25,00	0,20	0,60	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	528,1	789,7
1,0	40,00	0,20	0,60	2000	400	10,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	443,6	537,2
1,0	50,00	0,20	0,60	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	388,9	453,2
1,0	15,63	0,25	0,60	2000	500	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	596,3	837,4
1,0	20,00	0,25	0,60	2000	500	25,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	585,5	831,1
1,0	30,00	0,25	0,60	2000	500	16,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	552,5	823,9
1,0	40,00	0,25	0,60	2000	500	12,5	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	511,1	697,0
1,0	50,00	0,25	0,60	2000	500	10,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	462,3	565,4
1,0	21,88	0,35	0,60	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	610,6	844,0
1,0	29,17	0,35	0,60	2000	700	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	602,4	836,5
1,0	43,75	0,35	0,60	2000	700	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	574,3	828,7
1,0	60,00	0,35	0,60	2000	700	11,7	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	522,8	723,4
1,0	16,67	0,45	0,60	2000	900	54,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	614,2	881,3
1,0	28,13	0,45	0,60	2000	900	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	619,8	848,8
1,0	37,50	0,45	0,60	2000	900	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	615,0	840,7
1,0	40,00	0,45	0,60	2000	900	22,5	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	612,9	840,1
1,0	56,25	0,45	0,60	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	592,2	831,9
1,0	60,00	0,45	0,60	2000	900	15,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	585,6	825,4
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	510,8	791,4
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	494,7	781,3
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	480,4	775,3
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	457,6	753,5
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	386,0	538,3

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	342,8	458,5
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	520,5	796,2
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	507,3	786,2
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	478,9	779,3
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	443,2	686,3
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	404,4	572,5
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	533,0	802,7
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	524,0	792,7
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	497,6	779,7
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	458,0	714,9
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	539,6	839,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	540,9	807,2
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	534,8	796,9
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	532,5	795,4
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	513,0	783,2
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	507,4	777,3
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	534,4	772,5
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	516,5	763,2
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	500,9	757,7
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	476,2	747,1
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	399,7	530,4
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	346,4	444,4
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	545,0	777,6
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	532,9	769,6
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	499,4	758,4
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	460,9	694,0
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	417,8	570,7
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	558,5	783,7
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	548,4	776,3
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	519,6	766,6
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	473,1	722,5
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	566,7	815,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	566,9	789,9
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	559,8	780,9
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	557,3	780,0
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	535,8	771,8
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	529,5	765,7
1,0	12,50	0,20	0,60	2000	400	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	545,9	813,9
1,0	16,67	0,20	0,60	2000	400	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	529,0	809,2
1,0	20,00	0,20	0,60	2000	400	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	514,4	806,8
1,0	25,00	0,20	0,60	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	491,2	789,1
1,0	40,00	0,20	0,60	2000	400	10,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	419,7	550,0
1,0	50,00	0,20	0,60	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	372,4	467,0
1,0	15,63	0,25	0,60	2000	500	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	555,8	819,6
1,0	20,00	0,25	0,60	2000	500	25,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	544,3	815,9
1,0	30,00	0,25	0,60	2000	500	16,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	512,9	811,2
1,0	40,00	0,25	0,60	2000	500	12,5	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	477,1	713,3
1,0	50,00	0,25	0,60	2000	500	10,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	438,2	583,6
1,0	21,88	0,35	0,60	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	568,4	827,5
1,0	29,17	0,35	0,60	2000	700	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	558,8	824,3
1,0	43,75	0,35	0,60	2000	700	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	531,9	821,4
1,0	60,00	0,35	0,60	2000	700	11,7	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	490,9	741,3
1,0	16,67	0,45	0,60	2000	900	54,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	576,3	853,7
1,0	28,13	0,45	0,60	2000	900	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	576,4	832,6
1,0	37,50	0,45	0,60	2000	900	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	569,6	829,4
1,0	40,00	0,45	0,60	2000	900	22,5	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	567,2	830,0
1,0	56,25	0,45	0,60	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	547,4	826,4
1,0	60,00	0,45	0,60	2000	900	15,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	541,7	817,1
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	494,0	781,6
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	478,0	766,3
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	464,1	757,4
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	442,3	745,2
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	375,7	551,4
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	334,7	465,6
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	503,9	786,6
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	490,8	771,2
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	463,3	753,7
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	429,2	699,1
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	393,2	587,7
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	516,6	794,2
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	507,7	778,0
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	482,0	758,5
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	443,1	720,6
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	523,6	837,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	524,6	799,6
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	518,5	782,8
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	516,3	779,7
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	497,2	762,7
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	491,6	758,7
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	578,4	812,6
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	561,0	801,7
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	544,8	801,6
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	517,5	762,6
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	425,9	508,9
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	360,8	426,2
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	590,0	816,0

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	578,2	809,0
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	543,9	800,9
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	499,2	669,6
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	444,2	542,0
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	605,2	821,4
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	596,7	812,6
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	567,2	804,5
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	511,2	697,0
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	611,1	855,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	614,9	825,5
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	609,9	816,0
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	607,6	814,8
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	586,0	771,9
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	579,1	764,8
1,0	12,50	0,20	0,60	2000	400	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	553,0	831,7
1,0	16,67	0,20	0,60	2000	400	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	534,8	829,9
1,0	20,00	0,20	0,60	2000	400	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	518,7	830,7
1,0	25,00	0,20	0,60	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	492,8	799,2
1,0	40,00	0,20	0,60	2000	400	10,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	408,5	530,8
1,0	50,00	0,20	0,60	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	354,0	445,0
1,0	15,63	0,25	0,60	2000	500	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	564,0	835,3
1,0	20,00	0,25	0,60	2000	500	25,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	551,8	833,1
1,0	30,00	0,25	0,60	2000	500	16,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	517,2	833,8
1,0	40,00	0,25	0,60	2000	500	12,5	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	475,9	694,3
1,0	50,00	0,25	0,60	2000	500	10,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	428,2	568,5
1,0	21,88	0,35	0,60	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	578,2	840,5
1,0	29,17	0,35	0,60	2000	700	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	568,2	837,8
1,0	43,75	0,35	0,60	2000	700	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	538,6	838,0
1,0	60,00	0,35	0,60	2000	700	11,7	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	491,3	724,8
1,0	16,67	0,45	0,60	2000	900	54,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	585,3	867,7
1,0	28,13	0,45	0,60	2000	900	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	587,2	844,4
1,0	37,50	0,45	0,60	2000	900	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	580,4	841,3
1,0	40,00	0,45	0,60	2000	900	22,5	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	577,8	841,6
1,0	56,25	0,45	0,60	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	556,0	839,7
1,0	60,00	0,45	0,60	2000	900	15,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	549,7	833,9
1,0	12,50	0,20	0,60	2000	400	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	476,1	761,1
1,0	16,67	0,20	0,60	2000	400	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	462,7	755,7
1,0	20,00	0,20	0,60	2000	400	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	451,1	754,0
1,0	25,00	0,20	0,60	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	431,7	742,3
1,0	40,00	0,20	0,60	2000	400	10,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	368,5	534,7
1,0	50,00	0,20	0,60	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	329,2	453,3
1,0	15,63	0,25	0,60	2000	500	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	484,1	766,5
1,0	20,00	0,25	0,60	2000	500	25,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	475,4	762,1
1,0	30,00	0,25	0,60	2000	500	16,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	450,1	758,6
1,0	40,00	0,25	0,60	2000	500	12,5	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	419,6	688,5
1,0	50,00	0,25	0,60	2000	500	10,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	385,9	567,3
1,0	21,88	0,35	0,60	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	494,5	773,9
1,0	29,17	0,35	0,60	2000	700	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	487,7	769,9
1,0	43,75	0,35	0,60	2000	700	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	466,6	768,3
1,0	60,00	0,35	0,60	2000	700	11,7	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	434,2	711,8
1,0	16,67	0,45	0,60	2000	900	54,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	498,0	802,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	501,1	778,8
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	496,9	774,7
1,0	40,00	0,45	0,60	2000	900	22,5	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	495,2	775,2
1,0	56,25	0,45	0,60	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	480,1	773,5
1,0	60,00	0,45	0,60	2000	900	15,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	475,7	766,0
1,0	12,50	0,20	0,60	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	455,0	740,4
1,0	16,67	0,20	0,60	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	442,1	729,1
1,0	20,00	0,20	0,60	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	430,2	721,4
1,0	25,00	0,20	0,60	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	410,9	704,5
1,0	40,00	0,20	0,60	2000	400	10,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	347,9	505,0
1,0	50,00	0,20	0,60	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	306,8	425,0
1,0	15,63	0,25	0,60	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	463,7	744,4
1,0	20,00	0,25	0,60	2000	500	25,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	455,3	734,5
1,0	30,00	0,25	0,60	2000	500	16,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	430,1	717,6
1,0	40,00	0,25	0,60	2000	500	12,5	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	399,3	649,4
1,0	50,00	0,25	0,60	2000	500	10,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	364,8	543,3
1,0	21,88	0,35	0,60	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	474,8	750,3
1,0	29,17	0,35	0,60	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	468,5	738,3
1,0	43,75	0,35	0,60	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	447,3	722,0
1,0	60,00	0,35	0,60	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	412,6	670,2
1,0	16,67	0,45	0,60	2000	900	54,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	478,5	790,0
1,0	28,13	0,45	0,60	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	481,9	754,8
1,0	37,50	0,45	0,60	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	478,2	742,0
1,0	40,00	0,45	0,60	2000	900	22,5	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	476,5	739,7
1,0	56,25	0,45	0,60	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	461,2	725,8
1,0	60,00	0,45	0,60	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	456,5	721,4
1,0	12,50	0,20	0,60	2000	400	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	429,8	697,7
1,0	16,67	0,20	0,60	2000	400	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	418,1	688,1
1,0	20,00	0,20	0,60	2000	400	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	407,4	682,4
1,0	25,00	0,20	0,60	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	390,1	673,4
1,0	40,00	0,20	0,60	2000	400	10,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	333,4	505,1
1,0	50,00	0,20	0,60	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	295,3	425,1
1,0	15,63	0,25	0,60	2000	500	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	437,5	702,4
1,0	20,00	0,25	0,60	2000	500	25,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	429,8	693,1
1,0	30,00	0,25	0,60	2000	500	16,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	407,3	682,3

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z_1	z_2	z_3	z_4	z_5	z_6	z_7	z_8	z_9	f_c	f_u
1,0	40,00	0,25	0,60	2000	500	12,5	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	380,0	641,2
1,0	50,00	0,25	0,60	2000	500	10,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	349,4	544,4
1,0	21,88	0,35	0,60	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	447,4	708,7
1,0	29,17	0,35	0,60	2000	700	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	441,5	698,1
1,0	43,75	0,35	0,60	2000	700	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	422,8	688,0
1,0	60,00	0,35	0,60	2000	700	11,7	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	393,0	659,0
1,0	16,67	0,45	0,60	2000	900	54,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	450,6	743,5
1,0	28,13	0,45	0,60	2000	900	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	453,6	712,9
1,0	37,50	0,45	0,60	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	450,1	702,1
1,0	40,00	0,45	0,60	2000	900	22,5	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	448,7	700,4
1,0	56,25	0,45	0,60	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	435,2	692,2
1,0	60,00	0,45	0,60	2000	900	15,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	431,2	687,6
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	496,9	1371,5
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	424,6	1276,2
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	310,9	929,4
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	503,3	1381,2
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	479,8	1344,9
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	423,3	1273,7
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	516,9	1410,1
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	506,2	1385,9
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	494,1	1365,6
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	497,2	1284,0
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	453,4	1225,5
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	509,4	1300,5
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	486,6	1267,3
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	514,9	1307,8
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	472,2	1240,9
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	493,2	1168,8
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	461,6	1129,6
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	407,6	1051,7
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	508,6	1188,5
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	479,5	1151,5
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	424,1	1070,3
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	522,2	1206,1
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	512,3	1192,9
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	470,4	1137,5
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	496,4	964,8
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	426,5	887,9
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	325,0	519,4
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	498,2	966,3
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	454,3	948,8
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	413,1	777,1
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	521,4	1001,1
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	506,1	976,4
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	477,5	957,6
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	491,7	721,1
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	465,2	697,6
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	376,8	452,7
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	452,8	692,1
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	513,5	750,0
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	508,8	730,0
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	469,2	702,4
1,5	10,00	0,20	0,00	2000	400	40,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	501,2	1369,1
1,5	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	427,9	1275,2
1,5	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	312,2	930,0
1,5	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	508,2	1378,3
1,5	35,00	0,35	0,00	2000	700	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	484,2	1342,4
1,5	16,07	0,45	0,00	2000	900	56,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	522,6	1407,9
1,5	30,00	0,45	0,00	2000	900	30,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	511,2	1382,7
1,5	40,91	0,45	0,00	2000	900	22,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	498,8	1362,6
1,5	14,71	0,25	0,10	2000	500	34,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	500,8	1282,2
1,5	27,78	0,25	0,10	2000	500	18,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	456,6	1224,6
1,5	18,42	0,35	0,10	2000	700	38,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	513,4	1298,5
1,5	31,82	0,35	0,10	2000	700	22,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	490,2	1265,4
1,5	22,50	0,45	0,10	2000	900	40,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	519,1	1305,7
1,5	56,25	0,45	0,10	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	475,8	1239,6
1,5	11,43	0,20	0,20	2000	400	35,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	495,9	1168,5
1,5	18,18	0,20	0,20	2000	400	22,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	464,1	1129,8
1,5	28,57	0,20	0,20	2000	400	14,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	409,4	1051,9
1,5	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	511,7	1187,5
1,5	36,84	0,35	0,20	2000	700	19,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	482,4	1151,5
1,5	58,33	0,35	0,20	2000	700	12,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	426,1	1070,2
1,5	15,09	0,40	0,20	2000	800	53,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	525,6	1205,8
1,5	25,00	0,40	0,20	2000	800	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	515,4	1191,8
1,5	50,00	0,40	0,20	2000	800	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	473,2	1135,7
1,5	10,53	0,20	0,30	2000	400	38,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	498,7	965,1
1,5	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	428,3	887,6
1,5	44,44	0,20	0,30	2000	400	9,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	325,3	519,3
1,5	21,43	0,30	0,30	2000	600	28,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	500,6	966,6
1,5	37,50	0,30	0,30	2000	600	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	456,5	949,1
1,5	50,00	0,30	0,30	2000	600	12,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	414,1	777,3
1,5	20,45	0,45	0,30	2000	900	44,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	524,3	1001,4
1,5	37,50	0,45	0,30	2000	900	24,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	508,7	976,8
1,5	56,25	0,45	0,30	2000	900	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	479,8	958,2
1,5	16,67	0,25	0,40	2000	500	30,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	493,4	721,0
1,5	25,00	0,25	0,40	2000	500	20,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	466,8	697,5

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,5	45,45	0,25	0,40	2000	500	11,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	377,4	453,0
1,5	37,50	0,30	0,40	2000	600	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	454,4	692,2
1,5	16,00	0,40	0,40	2000	800	50,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	515,5	749,8
1,5	25,00	0,40	0,40	2000	800	32,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	510,7	729,7
1,5	50,00	0,40	0,40	2000	800	16,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	470,9	702,7
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	472,1	1361,5
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	411,7	1268,7
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	308,3	926,4
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	476,8	1371,4
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	457,8	1337,0
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	409,5	1265,7
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	487,6	1397,8
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	479,0	1376,1
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	469,2	1357,0
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	471,9	1275,5
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	435,5	1219,0
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	481,6	1291,4
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	463,1	1260,1
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	485,9	1298,4
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	450,8	1236,0
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	469,0	1162,2
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	442,6	1125,0
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	395,6	1049,5
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	481,6	1181,7
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	457,4	1147,4
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	409,8	1066,4
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	492,6	1198,7
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	484,6	1186,3
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	449,6	1134,0
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	472,6	963,6
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	412,2	886,9
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	322,9	518,3
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	474,1	965,3
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	436,5	947,5
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	400,8	776,4
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	493,5	999,5
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	480,7	975,5
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	456,5	957,0
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	469,6	718,4
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	446,8	696,6
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	370,4	452,3
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	436,1	692,1
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	488,7	747,3
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	484,3	726,9
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	450,4	702,2
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	485,6	1333,6
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	416,2	1260,3
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	306,1	903,0
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	490,5	1237,3
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	469,1	1315,4
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	499,0	1371,7
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	492,1	1292,9
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	482,3	1326,5
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	484,2	1256,6
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	442,8	1206,2
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	495,1	1255,9
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	474,1	1241,4
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	499,9	1255,3
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	460,3	1211,9
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	478,6	1144,4
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	450,0	1108,2
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	396,2	1026,1
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	492,1	1123,3
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	467,0	1101,9
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	411,6	1049,8
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	501,5	1153,5
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	495,3	1127,2
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	458,4	1095,4
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	478,0	925,5
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	413,7	860,3
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	315,3	509,2
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	480,2	924,8
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	439,9	910,5
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	398,2	760,4
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	498,4	964,2
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	487,9	933,0
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	462,1	913,9
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	471,9	688,6
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	448,3	667,6
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	364,1	439,8
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	436,5	666,5
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	487,8	728,7
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	486,8	699,3
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	452,1	674,7
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	460,7	1331,3
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	398,9	1243,1

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	301,2	859,6
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	466,3	1339,6
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	445,8	1306,5
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	478,5	1369,9
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	468,8	1343,7
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	458,2	1325,1
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	462,3	1249,0
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	424,2	1195,3
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	472,9	1264,6
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	452,9	1233,2
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	477,7	1271,9
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	440,4	1209,9
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	459,9	1147,5
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	432,3	1109,2
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	385,7	1048,5
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	473,1	1165,3
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	447,6	1129,5
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	485,4	1184,0
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	476,3	1169,8
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	439,7	1114,1
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	465,3	963,3
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	403,6	887,2
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	318,2	518,0
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	466,5	965,0
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	427,9	946,1
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	393,1	775,9
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	487,3	998,4
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	473,1	975,0
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	448,1	957,4
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	464,8	716,5
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	440,9	696,6
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	366,0	452,9
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	430,2	691,0
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	485,7	744,4
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	480,2	724,0
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	444,8	700,9
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	452,5	1347,6
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	388,3	1254,8
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	287,4	913,8
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	458,6	1358,0
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	437,8	1322,3
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	387,3	1254,8
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	472,1	1384,5
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	461,4	1363,0
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	450,6	1342,9
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	451,5	1256,6
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	413,3	1200,9
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	462,1	1272,7
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	442,3	1241,2
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	466,9	1279,9
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	430,2	1218,1
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	446,2	1136,0
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	419,0	1101,6
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	367,4	1042,4
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	459,0	1155,9
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	434,1	1123,7
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	382,7	1048,2
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	470,4	1172,2
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	462,1	1160,0
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	426,0	1109,7
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	446,1	936,6
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	384,1	877,8
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	293,5	518,5
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	447,7	938,9
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	409,4	920,8
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	369,8	778,0
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	467,4	970,9
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	454,5	948,6
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	430,2	931,5
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	439,6	689,5
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	417,1	677,6
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	340,0	453,4
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	406,6	680,5
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	458,4	723,4
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	454,2	699,0
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	421,0	689,9
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	463,3	1360,3
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	394,8	1265,7
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	289,3	789,2
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	469,0	1370,2
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	447,2	1334,7
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	393,6	1261,2
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	480,9	1397,9
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	471,5	1375,0
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	460,4	1355,2
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	466,3	1269,6

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	424,4	1212,4
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	478,1	1286,3
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	456,5	1253,8
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	483,4	1293,7
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	442,9	1229,7
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	464,6	1142,1
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	434,0	1106,1
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	382,1	1031,7
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	480,1	1161,0
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	452,3	1127,9
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	493,0	1180,6
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	483,8	1165,6
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	443,7	1113,6
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	468,0	925,7
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	400,6	858,7
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	307,2	511,3
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	470,3	920,7
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	428,2	903,1
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	388,7	761,7
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	492,3	959,5
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	478,6	926,2
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	451,2	918,3
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	459,4	696,9
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	435,1	663,0
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	352,3	447,5
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	423,6	639,3
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	478,5	723,9
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	475,6	704,6
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	439,6	658,7
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	463,9	1175,4
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	399,3	1092,2
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	296,7	927,1
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	470,2	1182,1
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	448,8	1150,7
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	399,2	1092,2
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	483,7	1204,7
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	473,1	1185,4
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	462,0	1168,3
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	463,5	1104,0
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	424,4	1053,6
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	474,4	1117,3
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	454,0	1088,6
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	479,3	1123,1
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	441,5	1066,7
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	459,5	1028,3
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	431,4	991,9
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	382,7	935,6
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	472,5	1042,1
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	446,7	1006,6
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	484,6	1059,2
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	475,6	1044,9
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	438,7	990,7
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	464,1	917,1
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	401,3	854,6
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	308,3	519,5
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	465,1	921,3
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	426,0	880,9
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	389,7	775,4
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	486,0	945,0
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	471,5	930,8
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	446,3	903,4
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	462,3	679,6
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	438,2	682,9
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	361,0	452,9
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	427,6	685,4
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	483,6	713,9
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	477,8	688,2
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	442,2	693,2
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	462,9	1358,0
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	395,4	1267,3
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	293,8	914,7
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	469,6	1366,4
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	447,7	1333,0
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	395,0	1264,2
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	483,0	1396,0
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	472,6	1370,5
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	461,3	1351,7
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	463,4	1269,3
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	421,9	1214,5
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	475,8	1285,2
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	453,9	1253,8
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	481,4	1292,2
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	440,9	1229,9
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	457,5	1151,3
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	427,3	1114,6
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	377,2	1048,2

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	473,4	1168,9
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	445,9	1135,4
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	394,1	1061,0
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	487,1	1186,9
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	477,2	1172,7
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	437,7	1119,9
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	458,6	938,9
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	392,7	878,4
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	304,9	517,1
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	460,9	936,2
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	420,0	920,4
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	381,7	771,7
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	483,6	973,6
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	469,1	945,3
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	442,7	933,2
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	452,3	693,0
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	427,8	651,4
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	348,4	451,6
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	417,0	656,9
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	473,4	738,3
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	468,9	716,8
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	432,9	666,2
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	492,6	1373,8
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	411,9	1276,7
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	286,5	871,1
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	500,1	1384,0
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	475,1	1347,5
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	514,2	1411,8
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	503,3	1388,9
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	490,7	1368,6
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	495,8	1285,9
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	449,1	1226,6
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	508,6	1302,3
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	485,2	1269,4
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	514,4	1309,2
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	470,8	1243,9
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	493,6	1167,8
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	461,0	1130,3
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	398,9	1028,8
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	510,3	1188,1
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	480,9	1153,4
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	419,1	1061,4
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	524,3	1205,0
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	514,2	1192,5
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	472,1	1139,2
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	496,6	959,0
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	423,7	882,2
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	311,7	491,5
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	499,2	958,2
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	454,6	944,0
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	407,4	755,1
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	522,9	993,3
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	508,0	965,5
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	479,5	951,5
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	492,0	725,1
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	465,4	683,2
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	369,7	441,3
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	453,3	668,2
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	514,1	753,4
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	509,8	739,4
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	471,0	683,1
1,5	10,00	0,20	0,00	2000	400	40,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	464,5	1336,8
1,5	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	406,5	1252,6
1,5	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	304,6	914,0
1,5	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	468,9	1345,4
1,5	35,00	0,35	0,00	2000	700	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	450,9	1312,3
1,5	58,33	0,35	0,00	2000	700	12,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	404,1	1263,0
1,5	16,07	0,45	0,00	2000	900	56,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	478,8	1375,5
1,5	30,00	0,45	0,00	2000	900	30,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	470,9	1349,4
1,5	40,91	0,45	0,00	2000	900	22,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	461,7	1330,0
1,5	14,71	0,25	0,10	2000	500	34,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	462,5	1254,3
1,5	27,78	0,25	0,10	2000	500	18,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	427,9	1200,5
1,5	18,42	0,35	0,10	2000	700	38,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	471,5	1269,2
1,5	31,82	0,35	0,10	2000	700	22,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	454,2	1238,4
1,5	22,50	0,45	0,10	2000	900	40,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	475,6	1275,3
1,5	56,25	0,45	0,10	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	442,5	1212,2
1,5	11,43	0,20	0,20	2000	400	35,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	458,9	1138,1
1,5	18,18	0,20	0,20	2000	400	22,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	433,9	1103,1
1,5	28,57	0,20	0,20	2000	400	14,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	387,9	1023,9
1,5	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	471,0	1158,0
1,5	36,84	0,35	0,20	2000	700	19,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	448,3	1126,0
1,5	58,33	0,35	0,20	2000	700	12,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	401,6	1044,9
1,5	15,09	0,40	0,20	2000	800	53,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	480,7	1169,8
1,5	25,00	0,40	0,20	2000	800	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	473,9	1162,2
1,5	50,00	0,40	0,20	2000	800	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	440,8	1092,8
1,5	10,53	0,20	0,30	2000	400	38,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	460,4	924,1

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,5	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	403,1	859,6
1,5	44,44	0,20	0,30	2000	400	9,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	313,3	508,8
1,5	21,43	0,30	0,30	2000	600	28,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	462,4	923,8
1,5	37,50	0,30	0,30	2000	600	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	426,5	909,9
1,5	50,00	0,30	0,30	2000	600	12,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	391,2	759,2
1,5	20,45	0,45	0,30	2000	900	44,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	479,9	961,2
1,5	37,50	0,45	0,30	2000	900	24,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	469,3	932,5
1,5	56,25	0,45	0,30	2000	900	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	446,2	917,1
1,5	16,67	0,25	0,40	2000	500	30,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	455,2	686,7
1,5	25,00	0,25	0,40	2000	500	20,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	434,1	667,0
1,5	45,45	0,25	0,40	2000	500	11,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	359,4	439,5
1,5	37,50	0,30	0,40	2000	600	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	423,7	666,3
1,5	16,00	0,40	0,40	2000	800	50,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	470,7	723,8
1,5	25,00	0,40	0,40	2000	800	32,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	468,8	697,0
1,5	50,00	0,40	0,40	2000	800	16,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	437,6	674,1
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	403,8	1296,8
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	350,2	1212,5
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	263,4	825,1
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	408,6	1306,0
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	391,3	1274,2
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	349,8	1211,0
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	419,0	1332,4
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	410,8	1310,4
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	401,8	1292,6
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	405,5	1209,9
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	372,7	1159,4
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	414,8	1225,1
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	397,6	1196,0
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	419,0	1231,9
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	387,0	1176,5
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	403,1	1092,3
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	379,3	1059,0
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	327,1	1006,5
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	414,7	1110,0
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	392,8	1079,9
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	425,2	1128,1
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	417,5	1114,4
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	386,2	1068,1
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	405,6	894,8
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	352,8	844,8
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	274,0	510,3
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	406,8	893,3
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	374,0	876,0
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	343,3	760,0
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	424,3	927,4
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	412,7	900,0
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	391,6	887,3
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	401,7	660,6
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	381,9	647,1
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	316,5	447,5
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	372,8	628,0
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	417,9	691,3
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	414,4	668,6
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	385,4	642,1
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	436,7	1160,3
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	370,8	1081,2
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	265,8	870,9
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	443,6	1166,5
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	422,4	1137,7
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	372,5	1080,9
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	456,7	1190,5
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	446,6	1169,7
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	435,7	1154,0
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	438,3	1088,8
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	399,0	1041,4
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	450,0	1101,6
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	429,4	1074,5
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	455,2	1107,4
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	417,6	1054,6
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	434,7	1009,8
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	406,3	976,2
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	359,0	921,9
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	449,4	1023,1
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	423,8	990,4
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	376,1	931,8
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	462,1	1041,3
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	452,9	1025,7
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	416,4	976,2
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	438,1	889,7
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	376,1	835,1
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	286,2	490,4
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	440,2	892,7
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	402,1	861,0
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	367,1	749,8
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	461,5	916,7
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	447,7	901,7

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	423,4	879,3
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	434,8	665,1
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	411,7	647,7
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	336,9	440,5
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	401,9	645,8
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	455,4	690,7
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	450,7	671,9
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	417,2	651,9
1,5	10,00	0,20	0,00	2000	400	40,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	427,0	1137,1
1,5	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	373,1	1060,8
1,5	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	286,5	926,5
1,5	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	432,6	1142,8
1,5	35,00	0,35	0,00	2000	700	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	414,5	1114,2
1,5	58,33	0,35	0,00	2000	700	12,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	373,5	1062,0
1,5	16,07	0,45	0,00	2000	900	56,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	444,5	1191,6
1,5	30,00	0,45	0,00	2000	900	30,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	435,1	1145,8
1,5	40,91	0,45	0,00	2000	900	22,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	425,6	1129,8
1,5	14,71	0,25	0,10	2000	500	34,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	427,0	1070,9
1,5	27,78	0,25	0,10	2000	500	18,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	393,9	1024,3
1,5	18,42	0,35	0,10	2000	700	38,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	436,6	1083,5
1,5	31,82	0,35	0,10	2000	700	22,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	418,9	1055,9
1,5	22,50	0,45	0,10	2000	900	40,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	441,0	1089,4
1,5	56,25	0,45	0,10	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	408,5	1036,7
1,5	11,43	0,20	0,20	2000	400	35,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	423,4	1001,2
1,5	18,18	0,20	0,20	2000	400	22,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	399,5	966,3
1,5	28,57	0,20	0,20	2000	400	14,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	359,3	915,3
1,5	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	434,7	1013,2
1,5	36,84	0,35	0,20	2000	700	19,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	412,7	979,9
1,5	15,09	0,40	0,20	2000	800	53,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	445,8	1033,0
1,5	25,00	0,40	0,20	2000	800	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	437,4	1015,9
1,5	50,00	0,40	0,20	2000	800	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	406,0	965,6
1,5	10,53	0,20	0,30	2000	400	38,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	427,9	907,7
1,5	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	374,6	841,8
1,5	44,44	0,20	0,30	2000	400	9,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	298,8	519,3
1,5	21,43	0,30	0,30	2000	600	28,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	428,6	910,6
1,5	37,50	0,30	0,30	2000	600	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	395,6	868,2
1,5	50,00	0,30	0,30	2000	600	12,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	366,5	773,7
1,5	20,45	0,45	0,30	2000	900	44,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	447,1	934,2
1,5	37,50	0,45	0,30	2000	900	24,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	434,0	918,9
1,5	56,25	0,45	0,30	2000	900	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	412,8	888,6
1,5	16,67	0,25	0,40	2000	500	30,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	427,9	677,5
1,5	25,00	0,25	0,40	2000	500	20,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	407,1	680,8
1,5	45,45	0,25	0,40	2000	500	11,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	346,6	452,5
1,5	37,50	0,30	0,40	2000	600	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	398,3	683,3
1,5	16,00	0,40	0,40	2000	800	50,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	447,6	711,1
1,5	25,00	0,40	0,40	2000	800	32,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	441,5	686,6
1,5	50,00	0,40	0,40	2000	800	16,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	410,9	691,1
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	406,2	1328,1
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	355,5	1241,4
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	270,8	911,6
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	411,2	1337,4
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	395,0	1305,9
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	355,6	1084,7
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	421,6	1362,0
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	413,4	1341,8
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	405,0	1324,5
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	404,0	1238,0
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	373,3	1186,8
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	413,1	1253,1
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	397,1	1224,5
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	417,3	1259,8
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	387,7	1204,4
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	397,6	1118,6
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	375,2	1086,0
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	337,0	1030,2
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	409,4	1136,2
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	389,2	1107,0
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	350,9	1037,7
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	422,5	1151,8
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	412,2	1140,6
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	383,3	1093,0
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	396,6	912,7
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	347,0	868,2
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	398,4	914,1
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	368,1	898,4
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	339,5	772,8
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	415,5	946,9
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	404,6	923,5
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	385,5	917,0
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	390,2	675,2
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	371,9	643,4
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	313,1	451,5
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	364,4	648,0
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	406,8	712,0
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	402,8	692,2
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	376,7	656,8

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	439,5	1342,9
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	371,9	1251,7
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	262,4	724,0
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	443,5	1352,8
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	425,3	1317,3
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	451,1	1381,8
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	445,0	1357,5
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	436,4	1337,2
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	442,6	1252,2
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	402,9	1195,9
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	453,1	1268,4
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	434,2	1236,8
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	457,7	1275,3
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	422,4	1214,2
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	439,2	1112,6
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	411,7	1082,2
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	360,1	985,5
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	454,2	1131,2
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	430,6	1105,0
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	379,2	1012,1
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	464,0	1151,6
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	457,6	1135,6
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	423,6	1092,6
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	439,7	888,9
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	379,4	830,1
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	283,9	474,2
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	443,4	882,8
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	406,7	863,4
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	367,5	727,6
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	460,6	919,0
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	452,2	884,3
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	429,5	870,6
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	429,3	662,6
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	409,3	627,3
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	331,7	426,2
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	400,2	608,7
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	442,5	702,0
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	443,5	680,8
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	415,7	623,8
1,5	10,00	0,20	0,00	2000	400	40,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	450,7	1343,9
1,5	25,00	0,20	0,00	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	380,5	1254,6
1,5	50,00	0,20	0,00	2000	400	8,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	271,5	849,1
1,5	21,88	0,35	0,00	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	458,0	1348,0
1,5	35,00	0,35	0,00	2000	700	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	435,4	1326,1
1,5	58,33	0,35	0,00	2000	700	12,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	381,9	1253,1
1,5	16,07	0,45	0,00	2000	900	56,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	473,2	1385,2
1,5	30,00	0,45	0,00	2000	900	30,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	461,3	1349,8
1,5	40,91	0,45	0,00	2000	900	22,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	449,5	1337,2
1,5	14,71	0,25	0,10	2000	500	34,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	452,1	1257,4
1,5	27,78	0,25	0,10	2000	500	18,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	410,2	1201,8
1,5	18,42	0,35	0,10	2000	700	38,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	464,0	1273,2
1,5	31,82	0,35	0,10	2000	700	22,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	442,5	1242,6
1,5	22,50	0,45	0,10	2000	900	40,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	469,4	1280,5
1,5	56,25	0,45	0,10	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	429,8	1221,1
1,5	11,43	0,20	0,20	2000	400	35,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	447,3	1135,5
1,5	18,18	0,20	0,20	2000	400	22,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	417,5	1102,0
1,5	28,57	0,20	0,20	2000	400	14,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	363,0	1021,7
1,5	21,88	0,35	0,20	2000	700	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	461,7	1154,8
1,5	36,84	0,35	0,20	2000	700	19,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	435,0	1124,5
1,5	58,33	0,35	0,20	2000	700	12,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	380,6	1044,3
1,5	15,09	0,40	0,20	2000	800	53,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	473,7	1171,6
1,5	25,00	0,40	0,20	2000	800	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	465,0	1159,2
1,5	50,00	0,40	0,20	2000	800	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	426,6	1110,4
1,5	10,53	0,20	0,30	2000	400	38,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	449,5	932,2
1,5	25,00	0,20	0,30	2000	400	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	382,9	872,3
1,5	44,44	0,20	0,30	2000	400	9,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	286,6	492,3
1,5	21,43	0,30	0,30	2000	600	28,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	451,5	933,2
1,5	37,50	0,30	0,30	2000	600	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	410,5	916,6
1,5	50,00	0,30	0,30	2000	600	12,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	368,8	755,7
1,5	20,45	0,45	0,30	2000	900	44,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	472,1	965,0
1,5	37,50	0,45	0,30	2000	900	24,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	458,8	941,2
1,5	56,25	0,45	0,30	2000	900	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	433,0	925,8
1,5	16,67	0,25	0,40	2000	500	30,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	444,0	697,8
1,5	25,00	0,25	0,40	2000	500	20,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	420,3	681,0
1,5	45,45	0,25	0,40	2000	500	11,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	338,0	442,2
1,5	37,50	0,30	0,40	2000	600	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	409,5	663,9
1,5	16,00	0,40	0,40	2000	800	50,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	463,6	724,6
1,5	25,00	0,40	0,40	2000	800	32,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	459,5	703,8
1,5	50,00	0,40	0,40	2000	800	16,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	425,2	679,8
1,5	10,00	0,20	0,00	2000	400	40,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	406,8	1134,9
1,5	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	354,7	1071,0
1,5	50,00	0,20	0,00	2000	400	8,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	265,7	899,9
1,5	21,88	0,35	0,00	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	411,0	1135,2
1,5	35,00	0,35	0,00	2000	700	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	394,6	1116,9
1,5	58,33	0,35	0,00	2000	700	12,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	352,6	1102,8
1,5	16,07	0,45	0,00	2000	900	56,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	420,7	1181,7

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,5	30,00	0,45	0,00	2000	900	30,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	413,0	1136,0
1,5	40,91	0,45	0,00	2000	900	22,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	404,6	1124,8
1,5	14,71	0,25	0,10	2000	500	34,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	405,6	1062,7
1,5	27,78	0,25	0,10	2000	500	18,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	374,3	1018,4
1,5	18,42	0,35	0,10	2000	700	38,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	413,6	1073,2
1,5	31,82	0,35	0,10	2000	700	22,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	398,0	1053,9
1,5	22,50	0,45	0,10	2000	900	40,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	417,1	1078,9
1,5	56,25	0,45	0,10	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	387,8	1039,2
1,5	11,43	0,20	0,20	2000	400	35,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	401,0	965,5
1,5	18,18	0,20	0,20	2000	400	22,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	378,8	948,1
1,5	28,57	0,20	0,20	2000	400	14,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	335,1	920,9
1,5	21,88	0,35	0,20	2000	700	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	410,6	976,9
1,5	36,84	0,35	0,20	2000	700	19,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	390,5	962,7
1,5	58,33	0,35	0,20	2000	700	12,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	347,7	919,3
1,5	15,09	0,40	0,20	2000	800	53,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	418,5	1000,1
1,5	25,00	0,40	0,20	2000	800	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	412,8	979,8
1,5	50,00	0,40	0,20	2000	800	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	383,7	955,5
1,5	10,53	0,20	0,30	2000	400	38,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	403,5	851,4
1,5	25,00	0,20	0,30	2000	400	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	350,3	817,7
1,5	44,44	0,20	0,30	2000	400	9,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	268,7	511,3
1,5	21,43	0,30	0,30	2000	600	28,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	404,2	852,6
1,5	37,50	0,30	0,30	2000	600	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	371,5	839,5
1,5	50,00	0,30	0,30	2000	600	12,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	337,1	756,0
1,5	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	418,5	876,0
1,5	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	409,0	862,1
1,5	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	388,8	850,0
1,5	16,67	0,25	0,40	2000	500	30,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	402,0	632,6
1,5	25,00	0,25	0,40	2000	500	20,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	382,7	634,5
1,5	45,45	0,25	0,40	2000	500	11,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	312,5	440,6
1,5	37,50	0,30	0,40	2000	600	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	372,8	639,7
1,5	16,00	0,40	0,40	2000	800	50,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	416,1	671,2
1,5	25,00	0,40	0,40	2000	800	32,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	413,5	643,3
1,5	50,00	0,40	0,40	2000	800	16,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	385,6	645,4
1,5	10,00	0,20	0,00	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	352,5	1260,0
1,5	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	310,4	1186,3
1,5	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	231,2	757,4
1,5	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	356,2	1267,7
1,5	35,00	0,35	0,00	2000	700	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	343,5	1240,2
1,5	58,33	0,35	0,00	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	310,5	1183,1
1,5	16,07	0,45	0,00	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	363,4	1294,0
1,5	30,00	0,45	0,00	2000	900	30,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	357,7	1271,3
1,5	40,91	0,45	0,00	2000	900	22,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	351,4	1255,7
1,5	14,71	0,25	0,10	2000	500	34,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	353,7	1174,0
1,5	27,78	0,25	0,10	2000	500	18,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	328,2	1129,5
1,5	18,42	0,35	0,10	2000	700	38,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	361,2	1187,4
1,5	31,82	0,35	0,10	2000	700	22,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	348,3	1162,2
1,5	22,50	0,45	0,10	2000	900	40,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	364,5	1193,5
1,5	56,25	0,45	0,10	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	340,7	1146,7
1,5	11,43	0,20	0,20	2000	400	35,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	351,2	1049,1
1,5	18,18	0,20	0,20	2000	400	22,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	332,3	1021,1
1,5	28,57	0,20	0,20	2000	400	14,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	299,2	974,7
1,5	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	361,6	1065,3
1,5	36,84	0,35	0,20	2000	700	19,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	344,9	1041,2
1,5	58,33	0,35	0,20	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	312,3	973,5
1,5	15,09	0,40	0,20	2000	800	53,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	369,5	1081,1
1,5	25,00	0,40	0,20	2000	800	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	364,0	1068,9
1,5	50,00	0,40	0,20	2000	800	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	340,3	1032,3
1,5	10,53	0,20	0,30	2000	400	38,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	351,6	838,9
1,5	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	309,6	789,3
1,5	21,43	0,30	0,30	2000	600	28,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	353,7	832,3
1,5	37,50	0,30	0,30	2000	600	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	328,3	809,4
1,5	50,00	0,30	0,30	2000	600	12,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	303,5	718,6
1,5	20,45	0,45	0,30	2000	900	44,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	367,2	867,8
1,5	37,50	0,45	0,30	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	359,6	832,6
1,5	56,25	0,45	0,30	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	344,0	819,9
1,5	16,67	0,25	0,40	2000	500	30,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	346,7	622,5
1,5	25,00	0,25	0,40	2000	500	20,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	331,9	581,4
1,5	45,45	0,25	0,40	2000	500	11,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	280,2	424,0
1,5	37,50	0,30	0,40	2000	600	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	325,6	575,4
1,5	16,00	0,40	0,40	2000	800	50,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	358,1	659,4
1,5	25,00	0,40	0,40	2000	800	32,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	357,1	644,9
1,5	50,00	0,40	0,40	2000	800	16,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	336,6	579,2
1,5	10,00	0,20	0,00	2000	400	40,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	336,0	1076,3
1,5	25,00	0,20	0,00	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	295,8	1011,4
1,5	50,00	0,20	0,00	2000	400	8,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	223,1	675,0
1,5	21,88	0,35	0,00	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	339,8	1082,1
1,5	35,00	0,35	0,00	2000	700	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	327,4	1058,2
1,5	58,33	0,35	0,00	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	296,3	1010,6
1,5	16,07	0,45	0,00	2000	900	56,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	347,1	1122,6
1,5	30,00	0,45	0,00	2000	900	30,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	341,4	1084,8
1,5	40,91	0,45	0,00	2000	900	22,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	335,1	1071,7
1,5	14,71	0,25	0,10	2000	500	34,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	336,6	1007,8
1,5	27,78	0,25	0,10	2000	500	18,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	312,5	969,1
1,5	18,42	0,35	0,10	2000	700	38,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	343,4	1018,4
1,5	31,82	0,35	0,10	2000	700	22,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	331,3	996,5
1,5	22,50	0,45	0,10	2000	900	40,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	346,5	1023,3

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,5	56,25	0,45	0,10	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	324,1	981,0
1,5	11,43	0,20	0,20	2000	400	35,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	334,7	927,3
1,5	18,18	0,20	0,20	2000	400	22,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	317,0	900,4
1,5	28,57	0,20	0,20	2000	400	14,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	286,0	856,2
1,5	21,88	0,35	0,20	2000	700	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	343,8	939,4
1,5	36,84	0,35	0,20	2000	700	19,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	328,2	914,6
1,5	58,33	0,35	0,20	2000	700	12,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	298,1	863,7
1,5	15,09	0,40	0,20	2000	800	53,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	351,1	952,5
1,5	25,00	0,40	0,20	2000	800	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	345,9	941,8
1,5	50,00	0,40	0,20	2000	800	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	323,6	903,9
1,5	10,53	0,20	0,30	2000	400	38,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	336,3	797,0
1,5	25,00	0,20	0,30	2000	400	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	297,0	760,3
1,5	21,43	0,30	0,30	2000	600	28,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	338,0	796,7
1,5	37,50	0,30	0,30	2000	600	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	314,1	780,6
1,5	50,00	0,30	0,30	2000	600	12,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	291,2	714,0
1,5	20,45	0,45	0,30	2000	900	44,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	350,7	823,2
1,5	37,50	0,45	0,30	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	343,0	803,0
1,5	56,25	0,45	0,30	2000	900	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	328,2	791,6
1,5	16,67	0,25	0,40	2000	500	30,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	333,4	584,8
1,5	25,00	0,25	0,40	2000	500	20,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	319,2	574,6
1,5	45,45	0,25	0,40	2000	500	11,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	271,2	424,2
1,5	37,50	0,30	0,40	2000	600	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	313,2	570,3
1,5	16,00	0,40	0,40	2000	800	50,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	344,9	615,4
1,5	25,00	0,40	0,40	2000	800	32,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	343,2	592,6
1,5	50,00	0,40	0,40	2000	800	16,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	323,3	574,7
1,0	43,75	0,35	0,00	2000	700	16,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	572,5	1467,8
1,0	43,75	0,35	0,00	2000	700	16,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	575,0	1467,4
1,0	43,75	0,35	0,00	2000	700	16,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	577,9	1467,0
1,0	43,75	0,35	0,00	2000	700	16,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	581,2	1466,7
1,0	43,75	0,35	0,00	2000	700	16,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	589,6	1466,4
1,0	43,75	0,35	0,00	2000	700	16,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	601,4	1466,4
1,0	43,75	0,35	0,00	2000	700	16,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,2	1467,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	564,7	1465,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	558,9	1461,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	552,6	1458,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	545,7	1454,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	528,8	1446,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	502,1	1437,8
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	459,9	1426,4
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	562,9	1458,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	555,0	1448,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	546,5	1438,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	537,4	1428,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	517,2	1406,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	494,2	1383,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	468,2	1357,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	562,5	1459,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	553,6	1450,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	543,3	1441,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	531,1	1431,8
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	499,7	1411,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	455,2	1391,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	384,3	1372,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	541,6	1450,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	513,2	1431,8
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	485,1	1413,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	457,5	1395,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	403,5	1358,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	350,9	1322,8
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	296,9	1286,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	561,8	1463,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	552,7	1457,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	542,6	1452,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	531,3	1446,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	504,0	1433,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	462,8	1413,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	407,5	1383,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	554,2	1387,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	536,8	1307,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	517,8	1227,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	497,2	1147,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	450,7	990,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	397,7	853,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	339,4	807,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	560,1	1460,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	549,1	1453,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	537,4	1445,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	524,5	1437,8
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	478,3	1424,4
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	420,4	1419,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	358,4	1411,4
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	567,7	1468,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	564,7	1468,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	560,8	1468,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	556,0	1468,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	542,4	1468,4

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	518,9	1469,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	469,1	1469,5
1,0	43,75	0,35	0,00	2000	700	16,0	7,6	7,6	7,6	8,0	8,0	8,0	8,0	8,0	8,0	559,4	1455,1
1,0	43,75	0,35	0,00	2000	700	16,0	7,2	7,2	7,2	8,0	8,0	8,0	8,0	8,0	8,0	547,8	1442,1
1,0	43,75	0,35	0,00	2000	700	16,0	6,8	6,8	6,8	8,0	8,0	8,0	8,0	8,0	8,0	535,3	1428,9
1,0	43,75	0,35	0,00	2000	700	16,0	6,4	6,4	6,4	8,0	8,0	8,0	8,0	8,0	8,0	521,6	1415,5
1,0	43,75	0,35	0,00	2000	700	16,0	5,6	5,6	5,6	8,0	8,0	8,0	8,0	8,0	8,0	488,7	1387,6
1,0	43,75	0,35	0,00	2000	700	16,0	4,8	4,8	4,8	8,0	8,0	8,0	8,0	8,0	8,0	443,4	1358,9
1,0	43,75	0,35	0,00	2000	700	16,0	4,0	4,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	374,3	1330,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	7,6	7,6	7,6	8,0	8,0	8,0	526,6	1437,4
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	7,2	7,2	7,2	8,0	8,0	8,0	483,9	1407,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	6,8	6,8	6,8	8,0	8,0	8,0	442,4	1377,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	6,4	6,4	6,4	8,0	8,0	8,0	401,9	1347,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	5,6	5,6	5,6	8,0	8,0	8,0	325,1	1289,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	4,8	4,8	4,8	8,0	8,0	8,0	253,8	1233,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	4,0	4,0	4,0	8,0	8,0	8,0	187,8	1181,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	7,6	7,6	542,2	1380,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	7,2	7,2	513,0	1291,4
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	6,8	6,8	482,8	1203,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	6,4	6,4	451,6	1115,8
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	5,6	5,6	386,3	943,8
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	4,8	4,8	318,6	806,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	4,0	4,0	249,0	671,2
1,0	43,75	0,35	0,00	2000	700	16,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	548,5	1379,3
1,0	43,75	0,35	0,00	2000	700	16,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	524,2	1290,2
1,0	43,75	0,35	0,00	2000	700	16,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	496,9	1200,4
1,0	43,75	0,35	0,00	2000	700	16,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	466,4	1111,7
1,0	43,75	0,35	0,00	2000	700	16,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	395,7	936,1
1,0	43,75	0,35	0,00	2000	700	16,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	315,3	803,3
1,0	43,75	0,35	0,00	2000	700	16,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	231,6	669,1
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	526,5	1439,8
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	483,5	1412,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	441,4	1385,4
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	400,4	1359,3
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	322,3	1309,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	248,5	1271,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	175,9	1232,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	551,7	1453,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	531,0	1438,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	507,7	1424,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	481,4	1409,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	418,4	1378,2
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	339,0	1345,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	246,0	1306,1
1,0	43,75	0,35	0,00	2000	700	16,0	7,6	8,0	8,0	8,0	7,6	8,0	8,0	8,0	7,6	541,8	1449,7
1,0	43,75	0,35	0,00	2000	700	16,0	7,2	8,0	8,0	8,0	7,2	8,0	8,0	8,0	7,2	514,3	1431,5
1,0	43,75	0,35	0,00	2000	700	16,0	6,8	8,0	8,0	8,0	6,8	8,0	8,0	8,0	6,8	487,9	1413,4
1,0	43,75	0,35	0,00	2000	700	16,0	6,4	8,0	8,0	8,0	6,4	8,0	8,0	8,0	6,4	462,6	1395,6
1,0	43,75	0,35	0,00	2000	700	16,0	5,6	8,0	8,0	8,0	5,6	8,0	8,0	8,0	5,6	416,1	1360,5
1,0	43,75	0,35	0,00	2000	700	16,0	4,8	8,0	8,0	8,0	4,8	8,0	8,0	8,0	4,8	374,7	1326,5
1,0	43,75	0,35	0,00	2000	700	16,0	4,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	4,0	336,6	1291,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,6	8,0	7,6	8,0	7,6	8,0	8,0	519,6	1361,6
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	7,2	8,0	7,2	8,0	7,2	8,0	8,0	470,4	1256,9
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	6,8	8,0	6,8	8,0	6,8	8,0	8,0	423,3	1154,7
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	6,4	8,0	6,4	8,0	6,4	8,0	8,0	378,5	1055,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	5,6	8,0	5,6	8,0	5,6	8,0	8,0	297,1	866,0
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	4,8	8,0	4,8	8,0	4,8	8,0	8,0	228,0	692,5
1,0	43,75	0,35	0,00	2000	700	16,0	8,0	8,0	4,0	8,0	4,0	8,0	4,0	8,0	8,0	171,1	511,0
1,0	43,75	0,35	0,00	2000	700	16,0	7,6	7,6	7,6	7,6	7,6	7,6	8,0	7,6	7,6	505,2	1418,1
1,0	43,75	0,35	0,00	2000	700	16,0	7,2	7,2	7,2	7,2	7,2	7,2	8,0	7,2	7,2	443,6	1370,1
1,0	43,75	0,35	0,00	2000	700	16,0	6,8	6,8	6,8	6,8	6,8	6,8	8,0	6,8	6,8	385,9	1324,5
1,0	43,75	0,35	0,00	2000	700	16,0	6,4	6,4	6,4	6,4	6,4	6,4	8,0	6,4	6,4	332,3	1280,9
1,0	43,75	0,35	0,00	2000	700	16,0	5,6	5,6	5,6	5,6	5,6	5,6	8,0	5,6	5,6	237,5	1200,2
1,0	43,75	0,35	0,00	2000	700	16,0	4,8	4,8	4,8	4,8	4,8	4,8	8,0	4,8	4,8	160,0	1134,0
1,0	43,75	0,35	0,00	2000	700	16,0	4,0	4,0	4,0	4,0	4,0	4,0	8,0	4,0	4,0	99,5	1035,6
1,0	43,75	0,35	0,00	2000	700	16,0	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	491,7	1339,3
1,0	43,75	0,35	0,00	2000	700	16,0	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	420,4	1215,2
1,0	43,75	0,35	0,00	2000	700	16,0	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	355,9	1096,7
1,0	43,75	0,35	0,00	2000	700	16,0	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	298,2	983,9
1,0	43,75	0,35	0,00	2000	700	16,0	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	201,6	774,1
1,0	43,75	0,35	0,00	2000	700	16,0	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	128,0	627,4
1,0	43,75	0,35	0,00	2000	700	16,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	74,6	473,0
1,0	12,50	0,20	0,10	2000	400	32,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	594,7	1415,2
1,0	12,50	0,20	0,10	2000	400	32,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	597,0	1415,0
1,0	12,50	0,20	0,10	2000	400	32,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	599,6	1414,9
1,0	12,50	0,20	0,10	2000	400	32,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	602,6	1414,8
1,0	12,50	0,20	0,10	2000	400	32,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	610,3	1414,7
1,0	12,50	0,20	0,10	2000	400	32,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	621,3	1415,0
1,0	12,50	0,20	0,10	2000	400	32,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	637,3	1415,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	586,3	1412,7
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	579,7	1409,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	572,6	1406,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	564,9	1403,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	546,5	1397,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	517,9	1389,7
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	472,8	1380,1

α	λf	η	tgφ	h1	bf	tf	z1	z2	z3	z4	z5	z6	z7	z8	z9	fc	fu
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	584,3	1404,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	575,4	1392,7
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	565,9	1380,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	555,7	1368,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	533,4	1343,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	508,4	1318,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	481,2	1293,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	584,5	1408,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	575,1	1400,7
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	564,2	1392,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	551,4	1383,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	518,3	1365,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	472,0	1347,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	398,1	1333,2
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	563,8	1397,0
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	534,8	1378,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	506,1	1359,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	477,5	1340,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	421,4	1303,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	365,8	1267,2
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	307,9	1228,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	584,0	1410,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	574,5	1405,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	563,9	1399,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	552,1	1393,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	523,6	1381,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	485,7	1364,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	433,5	1332,7
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	575,2	1340,2
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	556,2	1264,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	535,4	1188,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	512,8	1112,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	461,7	1001,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	403,5	908,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	339,8	819,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	581,5	1407,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	569,5	1399,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	556,4	1391,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	541,1	1382,2
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	490,0	1365,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	428,8	1352,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	363,1	1340,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	590,8	1415,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	588,4	1415,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	585,2	1415,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	581,2	1415,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	568,9	1415,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	546,4	1416,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	493,8	1410,2
1,0	12,50	0,20	0,10	2000	400	32,0	7,6	7,6	7,6	8,0	8,0	8,0	8,0	8,0	8,0	579,9	1401,5
1,0	12,50	0,20	0,10	2000	400	32,0	7,2	7,2	7,2	8,0	8,0	8,0	8,0	8,0	8,0	566,3	1387,3
1,0	12,50	0,20	0,10	2000	400	32,0	6,8	6,8	6,8	8,0	8,0	8,0	8,0	8,0	8,0	551,8	1372,8
1,0	12,50	0,20	0,10	2000	400	32,0	6,4	6,4	6,4	8,0	8,0	8,0	8,0	8,0	8,0	536,0	1358,2
1,0	12,50	0,20	0,10	2000	400	32,0	5,6	5,6	5,6	8,0	8,0	8,0	8,0	8,0	8,0	499,5	1329,0
1,0	12,50	0,20	0,10	2000	400	32,0	4,8	4,8	4,8	8,0	8,0	8,0	8,0	8,0	8,0	451,7	1299,4
1,0	12,50	0,20	0,10	2000	400	32,0	4,0	4,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	383,3	1272,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	7,6	7,6	7,6	8,0	8,0	8,0	548,2	1385,7
1,2	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	7,2	7,2	7,2	8,0	8,0	8,0	504,5	1356,2
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	6,8	6,8	6,8	8,0	8,0	8,0	461,9	1327,0
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	6,4	6,4	6,4	8,0	8,0	8,0	420,3	1298,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	5,6	5,6	5,6	8,0	8,0	8,0	340,6	1241,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	4,8	4,8	4,8	8,0	8,0	8,0	266,2	1186,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	4,0	4,0	4,0	8,0	8,0	8,0	197,2	1127,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	7,6	7,6	562,9	1332,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	7,2	7,2	532,1	1248,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	6,8	6,8	500,1	1164,9
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	6,4	6,4	467,1	1081,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	5,6	5,6	398,3	950,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	4,8	4,8	327,3	833,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	4,0	4,0	256,8	750,7
1,0	12,50	0,20	0,10	2000	400	32,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	568,9	1332,9
1,0	12,50	0,20	0,10	2000	400	32,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	542,3	1249,0
1,0	12,50	0,20	0,10	2000	400	32,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	512,6	1164,9
1,0	12,50	0,20	0,10	2000	400	32,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	479,5	1080,1
1,0	12,50	0,20	0,10	2000	400	32,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	403,9	986,0
1,0	12,50	0,20	0,10	2000	400	32,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	319,4	887,2
1,0	12,50	0,20	0,10	2000	400	32,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	232,9	791,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	547,0	1387,0
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	502,2	1359,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	458,3	1332,0
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	415,5	1305,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	333,1	1255,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	251,5	1212,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	177,2	1167,1
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	573,6	1399,3
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	552,1	1382,7

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	527,9	1365,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	500,5	1348,8
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	434,9	1314,0
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	352,9	1280,5
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	256,7	1221,5
1,0	12,50	0,20	0,10	2000	400	32,0	7,6	8,0	8,0	8,0	7,6	8,0	8,0	8,0	7,6	564,3	1396,9
1,0	12,50	0,20	0,10	2000	400	32,0	7,2	8,0	8,0	8,0	7,2	8,0	8,0	8,0	7,2	536,6	1378,4
1,0	12,50	0,20	0,10	2000	400	32,0	6,8	8,0	8,0	8,0	6,8	8,0	8,0	8,0	6,8	509,9	1360,0
1,0	12,50	0,20	0,10	2000	400	32,0	6,4	8,0	8,0	8,0	6,4	8,0	8,0	8,0	6,4	484,2	1341,6
1,0	12,50	0,20	0,10	2000	400	32,0	5,6	8,0	8,0	8,0	5,6	8,0	8,0	8,0	5,6	436,1	1305,4
1,0	12,50	0,20	0,10	2000	400	32,0	4,8	8,0	8,0	8,0	4,8	8,0	8,0	8,0	4,8	392,0	1270,4
1,0	12,50	0,20	0,10	2000	400	32,0	4,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	4,0	349,7	1232,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,6	8,0	7,6	8,0	7,6	8,0	8,0	539,4	1312,7
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	7,2	8,0	7,2	8,0	7,2	8,0	8,0	487,7	1211,7
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	6,8	8,0	6,8	8,0	6,8	8,0	8,0	438,1	1113,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	6,4	8,0	6,4	8,0	6,4	8,0	8,0	391,1	1017,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	5,6	8,0	5,6	8,0	5,6	8,0	8,0	305,8	868,6
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	4,8	8,0	4,8	8,0	4,8	8,0	8,0	233,5	747,4
1,0	12,50	0,20	0,10	2000	400	32,0	8,0	8,0	4,0	8,0	4,0	8,0	4,0	8,0	8,0	174,3	649,4
1,0	12,50	0,20	0,10	2000	400	32,0	7,6	7,6	7,6	7,6	7,6	7,6	8,0	7,6	7,6	524,7	1364,8
1,0	12,50	0,20	0,10	2000	400	32,0	7,2	7,2	7,2	7,2	7,2	7,2	8,0	7,2	7,2	460,5	1315,9
1,0	12,50	0,20	0,10	2000	400	32,0	6,8	6,8	6,8	6,8	6,8	6,8	8,0	6,8	6,8	400,4	1268,6
1,0	12,50	0,20	0,10	2000	400	32,0	6,4	6,4	6,4	6,4	6,4	6,4	8,0	6,4	6,4	344,5	1223,5
1,0	12,50	0,20	0,10	2000	400	32,0	5,6	5,6	5,6	5,6	5,6	5,6	8,0	5,6	5,6	246,0	1140,5
1,0	12,50	0,20	0,10	2000	400	32,0	4,8	4,8	4,8	4,8	4,8	4,8	8,0	4,8	4,8	165,5	1068,6
1,0	12,50	0,20	0,10	2000	400	32,0	4,0	4,0	4,0	4,0	4,0	4,0	8,0	4,0	4,0	102,5	970,7
1,0	12,50	0,20	0,10	2000	400	32,0	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	510,1	1291,7
1,0	12,50	0,20	0,10	2000	400	32,0	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	435,3	1173,0
1,0	12,50	0,20	0,10	2000	400	32,0	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	368,0	1059,3
1,0	12,50	0,20	0,10	2000	400	32,0	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	307,9	950,5
1,0	12,50	0,20	0,10	2000	400	32,0	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	207,7	805,2
1,0	12,50	0,20	0,10	2000	400	32,0	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	131,7	683,4
1,0	12,50	0,20	0,10	2000	400	32,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	76,7	593,2
1,0	60,00	0,25	0,20	2000	500	8,3	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	464,1	1195,5
1,0	60,00	0,25	0,20	2000	500	8,3	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	465,1	1195,5
1,0	60,00	0,25	0,20	2000	500	8,3	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	466,3	1195,6
1,0	60,00	0,25	0,20	2000	500	8,3	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	467,7	1195,6
1,0	60,00	0,25	0,20	2000	500	8,3	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	471,3	1195,8
1,0	60,00	0,25	0,20	2000	500	8,3	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	476,3	1196,1
1,0	60,00	0,25	0,20	2000	500	8,3	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	483,4	1196,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	461,3	1194,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	459,1	1193,1
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	456,8	1192,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	454,1	1190,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	447,2	1188,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	435,8	1187,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	418,3	1183,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	460,0	1184,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	456,5	1172,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	452,7	1160,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	448,7	1147,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	439,7	1121,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	429,5	1094,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	418,5	1065,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	459,0	1194,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	453,9	1193,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	447,5	1192,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	439,7	1191,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	419,3	1189,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	392,1	1188,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	346,6	1183,1
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	444,8	1190,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	424,9	1184,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	404,2	1178,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	383,0	1170,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	340,4	1144,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	297,8	1115,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	254,4	1080,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	454,0	1185,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	443,7	1173,6
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	432,4	1160,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	420,2	1147,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	393,5	1118,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	364,5	1089,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	333,7	1052,6
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	452,7	1185,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	440,7	1124,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	426,9	1056,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	411,3	984,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	374,6	844,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	330,9	741,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	281,7	650,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	450,7	1193,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	435,3	1191,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	417,7	1188,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,3	8,0	8,0	8,0	8,0	6,4	8,0	398,7	1180,5

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	358,6	1136,1
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	316,4	1090,1
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	271,9	1042,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	458,5	1173,6
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	452,7	1151,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	445,7	1129,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	437,1	1108,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	414,3	1068,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	381,5	1016,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	330,5	958,8
1,0	60,00	0,25	0,20	2000	500	8,3	7,6	7,6	7,6	8,0	8,0	8,0	8,0	8,0	8,0	458,7	1183,1
1,0	60,00	0,25	0,20	2000	500	8,3	7,2	7,2	7,2	8,0	8,0	8,0	8,0	8,0	8,0	453,9	1170,2
1,0	60,00	0,25	0,20	2000	500	8,3	6,8	6,8	6,8	8,0	8,0	8,0	8,0	8,0	8,0	448,5	1156,6
1,0	60,00	0,25	0,20	2000	500	8,3	6,4	6,4	6,4	8,0	8,0	8,0	8,0	8,0	8,0	442,4	1142,6
1,0	60,00	0,25	0,20	2000	500	8,3	5,6	5,6	5,6	8,0	8,0	8,0	8,0	8,0	8,0	427,8	1112,6
1,0	60,00	0,25	0,20	2000	500	8,3	4,8	4,8	4,8	8,0	8,0	8,0	8,0	8,0	8,0	406,8	1079,3
1,0	60,00	0,25	0,20	2000	500	8,3	4,0	4,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	371,2	1040,6
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	7,6	7,6	7,6	8,0	8,0	8,0	433,2	1180,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	7,2	7,2	7,2	8,0	8,0	8,0	402,9	1163,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	6,8	6,8	6,8	8,0	8,0	8,0	372,7	1148,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	6,4	6,4	6,4	8,0	8,0	8,0	342,5	1132,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	5,6	5,6	5,6	8,0	8,0	8,0	282,9	1096,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	4,8	4,8	4,8	8,0	8,0	8,0	224,8	1046,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	4,0	4,0	4,0	8,0	8,0	8,0	169,3	969,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,6	7,6	7,6	437,7	1168,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	7,2	7,2	7,2	411,9	1109,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	6,8	6,8	6,8	385,9	1029,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	6,4	6,4	6,4	359,7	946,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	5,6	5,6	5,6	307,3	790,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	4,8	4,8	4,8	255,1	690,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	8,0	8,0	8,0	8,0	4,0	4,0	4,0	204,0	585,8
1,0	60,00	0,25	0,20	2000	500	8,3	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	449,4	1183,2
1,0	60,00	0,25	0,20	2000	500	8,3	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	433,2	1119,8
1,0	60,00	0,25	0,20	2000	500	8,3	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	414,3	1046,7
1,0	60,00	0,25	0,20	2000	500	8,3	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	392,2	959,7
1,0	60,00	0,25	0,20	2000	500	8,3	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	338,0	804,3
1,0	60,00	0,25	0,20	2000	500	8,3	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	272,5	718,1
1,0	60,00	0,25	0,20	2000	500	8,3	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	201,9	609,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	432,3	1187,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	400,7	1178,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	368,6	1160,4
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	336,1	1138,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	270,9	1088,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	208,2	1027,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	149,8	955,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	446,1	1153,9
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	427,1	1112,3
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	406,2	1071,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	383,5	1029,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	333,0	917,7
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	274,5	837,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	197,8	769,5
1,0	60,00	0,25	0,20	2000	500	8,3	7,6	8,0	8,0	8,0	7,6	8,0	8,0	8,0	7,6	441,8	1169,0
1,0	60,00	0,25	0,20	2000	500	8,3	7,2	8,0	8,0	8,0	7,2	8,0	8,0	8,0	7,2	420,0	1142,2
1,0	60,00	0,25	0,20	2000	500	8,3	6,8	8,0	8,0	8,0	6,8	8,0	8,0	8,0	6,8	398,6	1116,6
1,0	60,00	0,25	0,20	2000	500	8,3	6,4	8,0	8,0	8,0	6,4	8,0	8,0	8,0	6,4	377,9	1090,9
1,0	60,00	0,25	0,20	2000	500	8,3	5,6	8,0	8,0	8,0	5,6	8,0	8,0	8,0	5,6	338,8	1041,8
1,0	60,00	0,25	0,20	2000	500	8,3	4,8	8,0	8,0	8,0	4,8	8,0	8,0	8,0	4,8	303,1	987,4
1,0	60,00	0,25	0,20	2000	500	8,3	4,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	4,0	270,0	924,8
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,6	8,0	7,6	8,0	7,6	8,0	8,0	430,4	1157,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	7,2	8,0	7,2	8,0	7,2	8,0	8,0	394,8	1073,5
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	6,8	8,0	6,8	8,0	6,8	8,0	8,0	358,5	990,1
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	6,4	8,0	6,4	8,0	6,4	8,0	8,0	322,4	907,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	5,6	8,0	5,6	8,0	5,6	8,0	8,0	253,9	748,0
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	4,8	8,0	4,8	8,0	4,8	8,0	8,0	193,2	599,2
1,0	60,00	0,25	0,20	2000	500	8,3	8,0	8,0	4,0	8,0	4,0	8,0	4,0	8,0	8,0	142,6	492,2
1,0	60,00	0,25	0,20	2000	500	8,3	7,6	7,6	7,6	7,6	7,6	7,6	8,0	7,6	7,6	414,2	1145,8
1,0	60,00	0,25	0,20	2000	500	8,3	7,2	7,2	7,2	7,2	7,2	7,2	8,0	7,2	7,2	367,4	1097,1
1,0	60,00	0,25	0,20	2000	500	8,3	6,8	6,8	6,8	6,8	6,8	6,8	8,0	6,8	6,8	323,0	1049,9
1,0	60,00	0,25	0,20	2000	500	8,3	6,4	6,4	6,4	6,4	6,4	6,4	8,0	6,4	6,4	281,2	1004,2
1,0	60,00	0,25	0,20	2000	500	8,3	5,6	5,6	5,6	5,6	5,6	5,6	8,0	5,6	5,6	206,4	908,5
1,0	60,00	0,25	0,20	2000	500	8,3	4,8	4,8	4,8	4,8	4,8	4,8	8,0	4,8	4,8	143,1	815,2
1,0	60,00	0,25	0,20	2000	500	8,3	4,0	4,0	4,0	4,0	4,0	4,0	8,0	4,0	4,0	91,3	700,8
1,0	60,00	0,25	0,20	2000	500	8,3	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	405,7	1141,3
1,0	60,00	0,25	0,20	2000	500	8,3	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	352,4	1051,8
1,0	60,00	0,25	0,20	2000	500	8,3	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	303,3	955,0
1,0	60,00	0,25	0,20	2000	500	8,3	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	258,3	858,0
1,0	60,00	0,25	0,20	2000	500	8,3	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	180,5	671,2
1,0	60,00	0,25	0,20	2000	500	8,3	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	118,3	529,0
1,0	60,00	0,25	0,20	2000	500	8,3	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	71,1	412,5
1,0	37,50	0,45	0,30	2000	900	24,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	636,6	1260,8
1,0	37,50	0,45	0,30	2000	900	24,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	638,4	1260,8
1,0	37,50	0,45	0,30	2000	900	24,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	640,4	1260,8
1,0	37,50	0,45	0,30	2000	900	24,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	642,8	1260,9
1,0	37,50	0,45	0,30	2000	900	24,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	648,8	1261,2
1,0	37,50	0,45	0,30	2000	900	24,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	657,4	1261,4

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	37,50	0,45	0,30	2000	900	24,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	669,8	1262,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	628,6	1259,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	621,9	1257,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	614,8	1256,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	607,1	1254,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	588,9	1250,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	560,6	1245,7
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	514,1	1240,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	626,6	1250,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	623,2	1239,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	608,1	1227,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	598,0	1216,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	576,2	1193,3
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	552,5	1172,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	528,1	1154,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	626,4	1256,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	616,3	1251,7
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	604,6	1246,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	590,9	1241,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	555,9	1229,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	506,2	1217,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	429,7	1209,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	604,4	1242,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	573,6	1224,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	542,6	1206,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	511,6	1188,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	449,8	1153,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	387,9	1116,7
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	323,7	1072,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	626,5	1255,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	617,2	1248,7
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	606,9	1241,3
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	595,7	1233,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	569,6	1215,3
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	537,5	1192,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	497,3	1163,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	613,5	1196,7
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	589,8	1131,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	563,9	1064,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	535,7	996,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	472,4	861,3
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	401,5	771,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	326,5	691,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	621,4	1251,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	605,9	1241,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	587,8	1229,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	566,1	1216,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	510,0	1187,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	441,8	1143,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	366,5	1093,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	635,5	1260,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	635,8	1260,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	635,6	1260,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	635,0	1260,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	630,6	1259,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	616,1	1260,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	559,7	1183,7
1,0	37,50	0,45	0,30	2000	900	24,0	7,6	7,6	7,6	8,0	8,0	8,0	8,0	8,0	8,0	621,6	1248,9
1,0	37,50	0,45	0,30	2000	900	24,0	7,2	7,2	7,2	8,0	8,0	8,0	8,0	8,0	8,0	607,3	1236,4
1,0	37,50	0,45	0,30	2000	900	24,0	6,8	6,8	6,8	8,0	8,0	8,0	8,0	8,0	8,0	592,1	1223,2
1,0	37,50	0,45	0,30	2000	900	24,0	6,4	6,4	6,4	8,0	8,0	8,0	8,0	8,0	8,0	575,5	1210,0
1,0	37,50	0,45	0,30	2000	900	24,0	5,6	5,6	5,6	8,0	8,0	8,0	8,0	8,0	8,0	537,5	1183,7
1,0	37,50	0,45	0,30	2000	900	24,0	4,8	4,8	4,8	8,0	8,0	8,0	8,0	8,0	8,0	488,7	1158,1
1,0	37,50	0,45	0,30	2000	900	24,0	4,0	4,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	421,3	1134,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	7,6	7,6	7,6	8,0	8,0	8,0	588,6	1233,3
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	7,2	7,2	7,2	8,0	8,0	8,0	542,9	1205,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	6,8	6,8	6,8	8,0	8,0	8,0	498,0	1177,7
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	6,4	6,4	6,4	8,0	8,0	8,0	454,0	1150,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	5,6	5,6	5,6	8,0	8,0	8,0	369,2	1095,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	4,8	4,8	4,8	8,0	8,0	8,0	289,3	1037,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	4,0	4,0	4,0	8,0	8,0	8,0	214,8	977,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	7,6	7,6	601,5	1187,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	7,2	7,2	566,7	1112,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	6,8	6,8	530,6	1037,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	6,4	6,4	493,5	961,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	5,6	5,6	416,2	809,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	4,8	4,8	336,9	702,8
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	4,0	4,0	258,5	626,8
1,0	37,50	0,45	0,30	2000	900	24,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	606,3	1192,1
1,0	37,50	0,45	0,30	2000	900	24,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	574,4	1120,8
1,0	37,50	0,45	0,30	2000	900	24,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	539,1	1047,3
1,0	37,50	0,45	0,30	2000	900	24,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	500,5	972,7
1,0	37,50	0,45	0,30	2000	900	24,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	414,7	845,1
1,0	37,50	0,45	0,30	2000	900	24,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	322,4	756,8
1,0	37,50	0,45	0,30	2000	900	24,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	231,3	666,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	585,7	1232,8

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	536,9	1205,1
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	488,9	1177,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	449,9	1151,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	348,4	1100,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	261,1	1042,3
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	183,8	975,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	618,3	1244,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	599,3	1226,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	577,8	1208,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	553,2	1188,7
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	492,7	1142,6
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	413,8	1080,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	309,8	976,1
1,0	37,50	0,45	0,30	2000	900	24,0	7,6	8,0	8,0	8,0	7,6	8,0	8,0	8,0	7,6	606,7	1242,9
1,0	37,50	0,45	0,30	2000	900	24,0	7,2	8,0	8,0	8,0	7,2	8,0	8,0	8,0	7,2	578,7	1225,1
1,0	37,50	0,45	0,30	2000	900	24,0	6,8	8,0	8,0	8,0	6,8	8,0	8,0	8,0	6,8	551,1	1207,2
1,0	37,50	0,45	0,30	2000	900	24,0	6,4	8,0	8,0	8,0	6,4	8,0	8,0	8,0	6,4	524,1	1189,7
1,0	37,50	0,45	0,30	2000	900	24,0	5,6	8,0	8,0	8,0	5,6	8,0	8,0	8,0	5,6	471,8	1155,2
1,0	37,50	0,45	0,30	2000	900	24,0	4,8	8,0	8,0	8,0	4,8	8,0	8,0	8,0	4,8	421,3	1118,6
1,0	37,50	0,45	0,30	2000	900	24,0	4,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	4,0	370,0	1070,4
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,6	8,0	7,6	8,0	7,6	8,0	8,0	576,2	1170,9
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	7,2	8,0	7,2	8,0	7,2	8,0	8,0	518,9	1082,2
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	6,8	8,0	6,8	8,0	6,8	8,0	8,0	463,9	995,3
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	6,4	8,0	6,4	8,0	6,4	8,0	8,0	411,7	910,0
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	5,6	8,0	5,6	8,0	5,6	8,0	8,0	317,4	745,7
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	4,8	8,0	4,8	8,0	4,8	8,0	8,0	238,1	642,5
1,0	37,50	0,45	0,30	2000	900	24,0	8,0	8,0	4,0	8,0	4,0	8,0	4,0	8,0	8,0	174,1	556,8
1,0	37,50	0,45	0,30	2000	900	24,0	7,6	7,6	7,6	7,6	7,6	7,6	8,0	7,6	7,6	564,4	1212,9
1,0	37,50	0,45	0,30	2000	900	24,0	7,2	7,2	7,2	7,2	7,2	7,2	8,0	7,2	7,2	497,2	1164,8
1,0	37,50	0,45	0,30	2000	900	24,0	6,8	6,8	6,8	6,8	6,8	6,8	8,0	6,8	6,8	433,6	1116,9
1,0	37,50	0,45	0,30	2000	900	24,0	6,4	6,4	6,4	6,4	6,4	6,4	8,0	6,4	6,4	374,0	1070,8
1,0	37,50	0,45	0,30	2000	900	24,0	5,6	5,6	5,6	5,6	5,6	5,6	8,0	5,6	5,6	267,7	980,7
1,0	37,50	0,45	0,30	2000	900	24,0	4,8	4,8	4,8	4,8	4,8	4,8	8,0	4,8	4,8	179,9	883,8
1,0	37,50	0,45	0,30	2000	900	24,0	4,0	4,0	4,0	4,0	4,0	4,0	8,0	4,0	4,0	111,0	786,6
1,0	37,50	0,45	0,30	2000	900	24,0	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	546,6	1151,9
1,0	37,50	0,45	0,30	2000	900	24,0	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	466,5	1047,1
1,0	37,50	0,45	0,30	2000	900	24,0	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	394,4	946,6
1,0	37,50	0,45	0,30	2000	900	24,0	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	330,0	850,4
1,0	37,50	0,45	0,30	2000	900	24,0	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	222,6	693,0
1,0	37,50	0,45	0,30	2000	900	24,0	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	141,1	590,0
1,0	37,50	0,45	0,30	2000	900	24,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	82,2	521,3
1,0	60,00	0,35	0,40	2000	700	11,7	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	555,1	1080,8
1,0	60,00	0,35	0,40	2000	700	11,7	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	556,0	1080,8
1,0	60,00	0,35	0,40	2000	700	11,7	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	557,2	1080,8
1,0	60,00	0,35	0,40	2000	700	11,7	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	558,5	1080,9
1,0	60,00	0,35	0,40	2000	700	11,7	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	561,8	1080,9
1,0	60,00	0,35	0,40	2000	700	11,7	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	566,5	1080,8
1,0	60,00	0,35	0,40	2000	700	11,7	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	573,3	1081,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	550,8	1080,3
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	547,0	1080,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	543,0	1079,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	538,5	1079,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	527,3	1078,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	509,8	1077,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	481,5	1075,3
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	549,1	1073,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	543,7	1065,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	537,9	1056,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	531,6	1047,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	517,9	1029,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	502,5	1010,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	486,3	988,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	548,3	1079,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	541,4	1077,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	533,2	1074,9
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	523,6	1072,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	499,3	1067,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	464,8	1061,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	406,2	1058,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	530,1	1068,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	505,0	1056,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	479,3	1044,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	453,2	1031,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	400,2	1003,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	346,5	969,9
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	290,6	934,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	546,0	1072,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	537,1	1063,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	527,5	1053,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	517,0	1042,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	493,4	1020,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	466,0	996,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	434,7	967,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	538,0	1034,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	519,8	984,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	499,2	930,4

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	476,3	875,3
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	423,1	764,3
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	361,6	652,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	295,1	571,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	539,3	1068,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	522,3	1055,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	503,2	1042,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	481,8	1028,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	432,3	990,3
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	374,6	944,9
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	310,6	896,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	554,9	1081,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	555,1	1081,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	554,9	1081,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	553,7	1081,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	547,0	1081,3
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	525,7	1072,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	455,9	966,9
1,0	60,00	0,35	0,40	2000	700	11,7	7,6	7,6	7,6	8,0	8,0	8,0	8,0	8,0	8,0	546,3	1072,7
1,0	60,00	0,35	0,40	2000	700	11,7	7,2	7,2	7,2	8,0	8,0	8,0	8,0	8,0	8,0	537,8	1064,2
1,0	60,00	0,35	0,40	2000	700	11,7	6,8	6,8	6,8	8,0	8,0	8,0	8,0	8,0	8,0	528,4	1055,3
1,0	60,00	0,35	0,40	2000	700	11,7	6,4	6,4	6,4	8,0	8,0	8,0	8,0	8,0	8,0	518,1	1045,7
1,0	60,00	0,35	0,40	2000	700	11,7	5,6	5,6	5,6	8,0	8,0	8,0	8,0	8,0	8,0	493,2	1025,3
1,0	60,00	0,35	0,40	2000	700	11,7	4,8	4,8	4,8	8,0	8,0	8,0	8,0	8,0	8,0	460,0	1002,6
1,0	60,00	0,35	0,40	2000	700	11,7	4,0	4,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	411,4	975,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	7,6	7,6	7,6	8,0	8,0	8,0	517,1	1058,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	7,2	7,2	7,2	8,0	8,0	8,0	479,9	1036,9
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	6,8	6,8	6,8	8,0	8,0	8,0	442,9	1014,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	6,4	6,4	6,4	8,0	8,0	8,0	406,2	992,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	5,6	5,6	5,6	8,0	8,0	8,0	334,1	942,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	4,8	4,8	4,8	8,0	8,0	8,0	264,8	889,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	4,0	4,0	4,0	8,0	8,0	8,0	199,0	834,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,6	7,6	7,6	525,1	1022,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	7,2	7,2	7,2	495,1	962,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	6,8	6,8	6,8	464,3	900,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	6,4	6,4	6,4	432,6	836,9
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	5,6	5,6	5,6	366,8	709,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	4,8	4,8	4,8	298,9	584,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	8,0	8,0	8,0	8,0	4,0	4,0	4,0	231,1	494,7
1,0	60,00	0,35	0,40	2000	700	11,7	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	532,9	1032,6
1,0	60,00	0,35	0,40	2000	700	11,7	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	508,4	978,2
1,0	60,00	0,35	0,40	2000	700	11,7	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	480,5	919,7
1,0	60,00	0,35	0,40	2000	700	11,7	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	449,1	859,4
1,0	60,00	0,35	0,40	2000	700	11,7	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	376,5	737,2
1,0	60,00	0,35	0,40	2000	700	11,7	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	295,4	634,9
1,0	60,00	0,35	0,40	2000	700	11,7	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	213,3	553,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	513,0	1056,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	471,8	1033,3
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	430,7	1010,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	389,9	988,5
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	309,9	938,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	234,2	882,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	165,4	815,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	541,3	1064,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	526,7	1046,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	510,1	1027,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	490,9	1004,7
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	442,4	960,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	374,3	885,4
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	272,4	754,5
1,0	60,00	0,35	0,40	2000	700	11,7	7,6	8,0	8,0	8,0	7,6	8,0	8,0	8,0	7,6	531,7	1069,1
1,0	60,00	0,35	0,40	2000	700	11,7	7,2	8,0	8,0	8,0	7,2	8,0	8,0	8,0	7,2	508,7	1057,3
1,0	60,00	0,35	0,40	2000	700	11,7	6,8	8,0	8,0	8,0	6,8	8,0	8,0	8,0	6,8	485,4	1044,7
1,0	60,00	0,35	0,40	2000	700	11,7	6,4	8,0	8,0	8,0	6,4	8,0	8,0	8,0	6,4	462,2	1032,4
1,0	60,00	0,35	0,40	2000	700	11,7	5,6	8,0	8,0	8,0	5,6	8,0	8,0	8,0	5,6	416,4	1004,9
1,0	60,00	0,35	0,40	2000	700	11,7	4,8	8,0	8,0	8,0	4,8	8,0	8,0	8,0	4,8	371,5	969,3
1,0	60,00	0,35	0,40	2000	700	11,7	4,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	4,0	326,0	925,1
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,6	8,0	7,6	8,0	7,6	8,0	8,0	509,2	1015,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	7,2	8,0	7,2	8,0	7,2	8,0	8,0	463,1	947,8
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	6,8	8,0	6,8	8,0	6,8	8,0	8,0	417,1	878,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	6,4	8,0	6,4	8,0	6,4	8,0	8,0	372,2	808,0
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	5,6	8,0	5,6	8,0	5,6	8,0	8,0	288,6	670,6
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	4,8	8,0	4,8	8,0	4,8	8,0	8,0	216,5	539,2
1,0	60,00	0,35	0,40	2000	700	11,7	8,0	8,0	4,0	8,0	4,0	8,0	4,0	8,0	8,0	157,6	438,2
1,0	60,00	0,35	0,40	2000	700	11,7	7,6	7,6	7,6	7,6	7,6	7,6	8,0	7,6	7,6	497,1	1039,4
1,0	60,00	0,35	0,40	2000	700	11,7	7,2	7,2	7,2	7,2	7,2	7,2	8,0	7,2	7,2	441,9	997,9
1,0	60,00	0,35	0,40	2000	700	11,7	6,8	6,8	6,8	6,8	6,8	6,8	8,0	6,8	6,8	389,1	955,9
1,0	60,00	0,35	0,40	2000	700	11,7	6,4	6,4	6,4	6,4	6,4	6,4	8,0	6,4	6,4	338,8	912,0
1,0	60,00	0,35	0,40	2000	700	11,7	5,6	5,6	5,6	5,6	5,6	5,6	8,0	5,6	5,6	247,1	825,9
1,0	60,00	0,35	0,40	2000	700	11,7	4,8	4,8	4,8	4,8	4,8	4,8	8,0	4,8	4,8	168,9	730,2
1,0	60,00	0,35	0,40	2000	700	11,7	4,0	4,0	4,0	4,0	4,0	4,0	8,0	4,0	4,0	105,9	608,2
1,0	60,00	0,35	0,40	2000	700	11,7	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	483,4	995,4
1,0	60,00	0,35	0,40	2000	700	11,7	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	417,7	912,0
1,0	60,00	0,35	0,40	2000	700	11,7	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	357,2	831,0
1,0	60,00	0,35	0,40	2000	700	11,7	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	302,1	751,7
1,0	60,00	0,35	0,40	2000	700	11,7	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	207,9	599,8

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
1,0	60,00	0,35	0,40	2000	700	11,7	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	134,1	461,3
1,0	60,00	0,35	0,40	2000	700	11,7	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	79,4	365,5
1,0	20,83	0,25	0,50	2000	500	24,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	617,2	1011,7
1,0	20,83	0,25	0,50	2000	500	24,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	618,2	1011,7
1,0	20,83	0,25	0,50	2000	500	24,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	619,3	1011,7
1,0	20,83	0,25	0,50	2000	500	24,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	620,6	1011,8
1,0	20,83	0,25	0,50	2000	500	24,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	623,9	1011,9
1,0	20,83	0,25	0,50	2000	500	24,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	628,6	1012,0
1,0	20,83	0,25	0,50	2000	500	24,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	635,2	1012,2
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	611,1	1011,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	605,7	1011,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	599,9	1010,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	593,9	1010,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	579,7	1010,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	558,7	1010,0
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	521,0	1009,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	608,4	1000,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	600,0	989,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	590,9	978,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	581,1	966,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	559,2	943,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	534,6	921,0
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	508,0	899,4
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	609,6	1011,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	601,8	1011,0
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	592,6	1010,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	581,4	1010,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	552,0	1009,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	508,4	1006,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	439,9	1006,2
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	586,2	999,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	555,8	987,0
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	525,2	972,4
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	494,5	956,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	432,9	923,0
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	371,1	887,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	307,0	851,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	608,2	996,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	599,3	982,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	589,5	968,2
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	578,7	954,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	553,4	927,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	522,7	899,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	485,7	868,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	594,7	985,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	570,7	950,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	544,2	909,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	515,2	861,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	449,8	755,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	377,3	646,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	301,6	578,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	600,8	993,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	582,9	972,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	561,7	949,0
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	536,3	924,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	473,6	877,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	400,8	832,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	323,2	804,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	618,5	1010,4
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	620,8	1011,0
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	623,0	1014,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	624,9	1023,2
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	626,2	1046,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	615,5	980,4
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	538,9	855,9
1,0	20,83	0,25	0,50	2000	500	24,0	7,6	7,6	7,6	8,0	8,0	8,0	8,0	8,0	8,0	604,0	1000,5
1,0	20,83	0,25	0,50	2000	500	24,0	7,2	7,2	7,2	8,0	8,0	8,0	8,0	8,0	8,0	590,9	989,1
1,0	20,83	0,25	0,50	2000	500	24,0	6,8	6,8	6,8	8,0	8,0	8,0	8,0	8,0	8,0	576,8	977,6
1,0	20,83	0,25	0,50	2000	500	24,0	6,4	6,4	6,4	8,0	8,0	8,0	8,0	8,0	8,0	561,5	965,8
1,0	20,83	0,25	0,50	2000	500	24,0	5,6	5,6	5,6	8,0	8,0	8,0	8,0	8,0	8,0	525,9	942,1
1,0	20,83	0,25	0,50	2000	500	24,0	4,8	4,8	4,8	8,0	8,0	8,0	8,0	8,0	8,0	480,9	917,8
1,0	20,83	0,25	0,50	2000	500	24,0	4,0	4,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	420,5	895,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	7,6	7,6	7,6	8,0	8,0	8,0	572,7	985,2
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	7,2	7,2	7,2	8,0	8,0	8,0	529,4	958,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	6,8	6,8	6,8	8,0	8,0	8,0	486,7	931,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	6,4	6,4	6,4	8,0	8,0	8,0	444,5	903,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	5,6	5,6	5,6	8,0	8,0	8,0	362,7	847,4
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	4,8	4,8	4,8	8,0	8,0	8,0	285,1	792,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	4,0	4,0	4,0	8,0	8,0	8,0	212,5	748,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	7,6	7,6	583,0	970,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	7,2	7,2	548,5	924,7
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	6,8	6,8	512,7	872,2
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	6,4	6,4	475,9	815,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	5,6	5,6	399,5	694,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	4,8	4,8	321,2	568,2
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	4,0	4,0	243,7	472,3

α	λ_f	η	tg φ	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	20,83	0,25	0,50	2000	500	24,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	588,8	985,1
1,0	20,83	0,25	0,50	2000	500	24,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	557,8	947,8
1,0	20,83	0,25	0,50	2000	500	24,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	523,1	902,4
1,0	20,83	0,25	0,50	2000	500	24,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	484,8	849,9
1,0	20,83	0,25	0,50	2000	500	24,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	399,4	731,5
1,0	20,83	0,25	0,50	2000	500	24,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	308,3	637,7
1,0	20,83	0,25	0,50	2000	500	24,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	219,3	566,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	567,1	983,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	518,4	953,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	470,2	922,4
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	422,4	890,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	329,5	830,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	244,5	775,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	170,2	727,9
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	602,3	984,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	586,2	961,6
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	567,4	942,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	545,3	924,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	488,5	882,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	409,9	781,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	301,1	649,0
1,0	20,83	0,25	0,50	2000	500	24,0	7,6	8,0	8,0	8,0	7,6	8,0	8,0	8,0	7,6	589,5	998,7
1,0	20,83	0,25	0,50	2000	500	24,0	7,2	8,0	8,0	8,0	7,2	8,0	8,0	8,0	7,2	562,8	984,9
1,0	20,83	0,25	0,50	2000	500	24,0	6,8	8,0	8,0	8,0	6,8	8,0	8,0	8,0	6,8	536,2	969,5
1,0	20,83	0,25	0,50	2000	500	24,0	6,4	8,0	8,0	8,0	6,4	8,0	8,0	8,0	6,4	509,9	952,8
1,0	20,83	0,25	0,50	2000	500	24,0	5,6	8,0	8,0	8,0	5,6	8,0	8,0	8,0	5,6	457,9	915,8
1,0	20,83	0,25	0,50	2000	500	24,0	4,8	8,0	8,0	8,0	4,8	8,0	8,0	8,0	4,8	406,2	873,6
1,0	20,83	0,25	0,50	2000	500	24,0	4,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	4,0	352,2	825,2
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,6	8,0	7,6	8,0	7,6	8,0	8,0	558,7	964,1
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	7,2	8,0	7,2	8,0	7,2	8,0	8,0	502,4	908,3
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	6,8	8,0	6,8	8,0	6,8	8,0	8,0	448,2	847,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	6,4	8,0	6,4	8,0	6,4	8,0	8,0	396,7	782,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	5,6	8,0	5,6	8,0	5,6	8,0	8,0	303,9	648,5
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	4,8	8,0	4,8	8,0	4,8	8,0	8,0	226,2	537,8
1,0	20,83	0,25	0,50	2000	500	24,0	8,0	8,0	4,0	8,0	4,0	8,0	4,0	8,0	8,0	163,8	472,7
1,0	20,83	0,25	0,50	2000	500	24,0	7,6	7,6	7,6	7,6	7,6	7,6	8,0	7,6	7,6	549,7	955,3
1,0	20,83	0,25	0,50	2000	500	24,0	7,2	7,2	7,2	7,2	7,2	7,2	8,0	7,2	7,2	485,6	901,3
1,0	20,83	0,25	0,50	2000	500	24,0	6,8	6,8	6,8	6,8	6,8	6,8	8,0	6,8	6,8	424,6	852,3
1,0	20,83	0,25	0,50	2000	500	24,0	6,4	6,4	6,4	6,4	6,4	6,4	8,0	6,4	6,4	367,0	808,4
1,0	20,83	0,25	0,50	2000	500	24,0	5,6	5,6	5,6	5,6	5,6	5,6	8,0	5,6	5,6	263,3	732,7
1,0	20,83	0,25	0,50	2000	500	24,0	4,8	4,8	4,8	4,8	4,8	4,8	8,0	4,8	4,8	176,6	655,5
1,0	20,83	0,25	0,50	2000	500	24,0	4,0	4,0	4,0	4,0	4,0	4,0	8,0	4,0	4,0	108,5	539,7
1,0	20,83	0,25	0,50	2000	500	24,0	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	531,9	936,6
1,0	20,83	0,25	0,50	2000	500	24,0	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	455,2	861,7
1,0	20,83	0,25	0,50	2000	500	24,0	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	385,9	787,6
1,0	20,83	0,25	0,50	2000	500	24,0	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	323,8	714,3
1,0	20,83	0,25	0,50	2000	500	24,0	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	219,6	573,8
1,0	20,83	0,25	0,50	2000	500	24,0	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	139,9	469,9
1,0	20,83	0,25	0,50	2000	500	24,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	81,9	397,5
1,0	28,13	0,45	0,60	2000	900	32,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	660,0	875,0
1,0	28,13	0,45	0,60	2000	900	32,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	661,0	875,0
1,0	28,13	0,45	0,60	2000	900	32,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	662,2	875,0
1,0	28,13	0,45	0,60	2000	900	32,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	663,4	875,0
1,0	28,13	0,45	0,60	2000	900	32,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	666,5	875,0
1,0	28,13	0,45	0,60	2000	900	32,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	670,6	875,1
1,0	28,13	0,45	0,60	2000	900	32,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	676,4	875,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	653,1	874,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	646,8	873,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	640,2	872,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	633,1	871,5
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	616,3	869,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	590,4	868,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	544,4	863,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	649,3	865,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	638,6	855,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	626,9	846,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	614,1	836,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	585,3	817,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	551,8	798,2
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	514,3	776,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	8,0	652,8	874,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	8,0	645,3	873,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	8,0	636,3	873,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	8,0	625,3	872,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	8,0	595,6	871,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	8,0	550,5	870,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	8,0	479,2	868,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	8,0	625,7	860,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	8,0	592,1	846,2
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	8,0	558,3	831,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	8,0	524,3	816,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	8,0	456,3	787,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	8,0	387,9	759,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	8,0	317,2	735,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	8,0	650,1	861,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	8,0	639,9	849,1

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	8,0	628,7	836,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	8,0	616,2	824,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	8,0	586,6	798,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	8,0	549,9	772,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	8,0	505,2	741,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	8,0	634,9	859,5
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	8,0	607,7	843,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	8,0	577,6	823,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	8,0	544,5	799,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	8,0	470,1	721,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	8,0	388,5	648,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	8,0	304,9	598,5
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	8,0	642,3	854,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	8,0	622,6	833,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	8,0	598,8	812,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	8,0	569,3	792,5
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	8,0	496,2	754,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	8,0	413,4	722,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	8,0	327,3	698,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	662,8	877,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	666,6	879,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	670,6	882,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	674,8	886,2
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	682,6	891,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	684,2	845,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	626,1	761,7
1,0	28,13	0,45	0,60	2000	900	32,0	7,6	7,6	7,6	8,0	8,0	8,0	8,0	8,0	8,0	644,2	864,6
1,0	28,13	0,45	0,60	2000	900	32,0	7,2	7,2	7,2	8,0	8,0	8,0	8,0	8,0	8,0	628,2	854,1
1,0	28,13	0,45	0,60	2000	900	32,0	6,8	6,8	6,8	8,0	8,0	8,0	8,0	8,0	8,0	611,1	843,5
1,0	28,13	0,45	0,60	2000	900	32,0	6,4	6,4	6,4	8,0	8,0	8,0	8,0	8,0	8,0	592,5	833,0
1,0	28,13	0,45	0,60	2000	900	32,0	5,6	5,6	5,6	8,0	8,0	8,0	8,0	8,0	8,0	549,4	813,7
1,0	28,13	0,45	0,60	2000	900	32,0	4,8	4,8	4,8	8,0	8,0	8,0	8,0	8,0	8,0	495,5	793,8
1,0	28,13	0,45	0,60	2000	900	32,0	4,0	4,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	425,1	775,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	7,6	7,6	7,6	8,0	8,0	8,0	611,5	847,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	7,2	7,2	7,2	8,0	8,0	8,0	564,3	820,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	6,8	6,8	6,8	8,0	8,0	8,0	517,6	793,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	6,4	6,4	6,4	8,0	8,0	8,0	471,7	767,5
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	5,6	5,6	5,6	8,0	8,0	8,0	382,6	719,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	4,8	4,8	4,8	8,0	8,0	8,0	298,5	689,4
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	4,0	4,0	4,0	8,0	8,0	8,0	220,7	638,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	7,6	7,6	623,4	842,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	7,2	7,2	586,1	808,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	6,8	6,8	547,3	771,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	6,4	6,4	507,0	731,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	5,6	5,6	423,0	640,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	4,8	4,8	336,5	571,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	4,0	4,0	250,6	477,4
1,0	28,13	0,45	0,60	2000	900	32,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	629,2	858,9
1,0	28,13	0,45	0,60	2000	900	32,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	595,1	841,9
1,0	28,13	0,45	0,60	2000	900	32,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	556,6	821,7
1,0	28,13	0,45	0,60	2000	900	32,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	514,1	793,9
1,0	28,13	0,45	0,60	2000	900	32,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	419,8	705,3
1,0	28,13	0,45	0,60	2000	900	32,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	320,5	647,4
1,0	28,13	0,45	0,60	2000	900	32,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	225,4	602,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	8,0	604,8	842,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	8,0	551,1	813,2
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	8,0	498,1	787,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	8,0	445,2	763,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	8,0	343,2	720,0
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	8,0	252,2	679,2
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	174,0	638,7
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,6	8,0	8,0	7,6	8,0	8,0	7,6	643,4	855,1
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,2	8,0	8,0	7,2	8,0	8,0	7,2	625,2	835,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	6,8	8,0	8,0	6,8	8,0	8,0	6,8	603,8	815,8
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	6,4	8,0	8,0	6,4	8,0	8,0	6,4	578,6	796,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	5,6	8,0	8,0	5,6	8,0	8,0	5,6	514,1	741,9
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	4,8	8,0	8,0	4,8	8,0	8,0	4,8	427,3	658,5
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	4,0	8,0	8,0	4,0	8,0	8,0	4,0	315,9	567,9
1,0	28,13	0,45	0,60	2000	900	32,0	7,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,6	630,3	863,5
1,0	28,13	0,45	0,60	2000	900	32,0	7,2	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,2	601,5	851,1
1,0	28,13	0,45	0,60	2000	900	32,0	6,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,8	572,9	837,5
1,0	28,13	0,45	0,60	2000	900	32,0	6,4	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,4	544,3	822,9
1,0	28,13	0,45	0,60	2000	900	32,0	5,6	8,0	8,0	8,0	8,0	8,0	8,0	8,0	5,6	487,3	790,2
1,0	28,13	0,45	0,60	2000	900	32,0	4,8	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,8	429,5	752,6
1,0	28,13	0,45	0,60	2000	900	32,0	4,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	4,0	368,0	710,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,6	8,0	7,6	8,0	7,6	8,0	8,0	594,2	836,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	7,2	8,0	7,2	8,0	7,2	8,0	8,0	531,5	798,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	6,8	8,0	6,8	8,0	6,8	8,0	8,0	471,6	758,3
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	6,4	8,0	6,4	8,0	6,4	8,0	8,0	415,3	714,6
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	5,6	8,0	5,6	8,0	5,6	8,0	8,0	314,9	658,5
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	4,8	8,0	4,8	8,0	4,8	8,0	8,0	232,1	611,2
1,0	28,13	0,45	0,60	2000	900	32,0	8,0	8,0	4,0	8,0	4,0	8,0	4,0	8,0	8,0	166,4	561,6
1,0	28,13	0,45	0,60	2000	900	32,0	7,6	7,6	7,6	7,6	7,6	7,6	8,0	7,6	7,6	586,1	823,2
1,0	28,13	0,45	0,60	2000	900	32,0	7,2	7,2	7,2	7,2	7,2	7,2	8,0	7,2	7,2	515,8	776,3
1,0	28,13	0,45	0,60	2000	900	32,0	6,8	6,8	6,8	6,8	6,8	6,8	8,0	6,8	6,8	449,0	734,7
1,0	28,13	0,45	0,60	2000	900	32,0	6,4	6,4	6,4	6,4	6,4	6,4	8,0	6,4	6,4	386,2	697,5

α	λf	η	tg φ	h1	bf	tf	z1	z2	z3	z4	z5	z6	z7	z8	z9	fc	fu
1,0	28,13	0,45	0,60	2000	900	32,0	5,6	5,6	5,6	5,6	5,6	5,6	8,0	5,6	5,6	273,8	612,6
1,0	28,13	0,45	0,60	2000	900	32,0	4,8	4,8	4,8	4,8	4,8	4,8	8,0	4,8	4,8	180,5	550,9
1,0	28,13	0,45	0,60	2000	900	32,0	4,0	4,0	4,0	4,0	4,0	4,0	8,0	4,0	4,0	109,0	491,8
1,0	28,13	0,45	0,60	2000	900	32,0	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	566,5	807,9
1,0	28,13	0,45	0,60	2000	900	32,0	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	482,7	743,8
1,0	28,13	0,45	0,60	2000	900	32,0	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	407,5	682,8
1,0	28,13	0,45	0,60	2000	900	32,0	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	340,4	624,9
1,0	28,13	0,45	0,60	2000	900	32,0	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6	228,9	531,3
1,0	28,13	0,45	0,60	2000	900	32,0	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	4,8	144,6	453,9
1,0	28,13	0,45	0,60	2000	900	32,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	83,9	406,0
1,0	37,50	0,45	0,30	2000	900	24,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	79,6	466,1
1,0	37,50	0,45	0,30	2000	900	24,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	160,1	591,1
1,0	37,50	0,45	0,30	2000	900	24,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	271,3	758,0
1,0	37,50	0,45	0,30	2000	900	24,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	424,0	996,4
1,0	37,50	0,45	0,30	2000	900	24,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	881,7	1546,1
1,0	37,50	0,45	0,30	2000	900	24,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	1192,7	1847,7
1,0	37,50	0,45	0,30	2000	900	24,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1574,6	2165,6
1,0	37,50	0,45	0,30	2000	900	24,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	2025,7	2497,7
1,0	37,50	0,45	0,30	2000	900	24,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	2533,2	2847,4
1,0	37,50	0,45	0,30	2000	900	24,0	14,0	14,0	14,0	14,0	14,0	14,0	14,0	14,0	14,0	3096,3	3309,7
1,0	37,50	0,45	0,30	2000	900	24,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	3707,2	3831,1
1,0	37,50	0,45	0,30	2000	900	24,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	4173,7	4262,7
1,0	37,50	1,80	0,30	500	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	543,2	703,0
1,0	37,50	1,20	0,30	750	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	879,8	888,5
1,0	37,50	0,90	0,30	1000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1040,0	1052,9
1,0	37,50	0,72	0,30	1250	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	1011,6	1111,4
1,0	37,50	0,60	0,30	1500	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	842,9	1175,5
1,0	37,50	0,51	0,30	1750	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	718,5	1224,3
1,0	37,50	0,36	0,30	2500	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	490,9	1313,8
1,0	37,50	0,30	0,30	3000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	404,8	1357,0
1,0	37,50	0,26	0,30	3500	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	342,7	1394,1
1,0	37,50	0,23	0,30	4000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	295,8	1533,5
1,0	37,50	0,45	0,00	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	578,0	1493,2
1,0	37,50	0,45	0,10	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	592,4	1422,1
1,0	37,50	0,45	0,20	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	610,7	1344,3
1,0	37,50	0,45	0,40	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	632,6	1164,0
1,0	37,50	0,45	0,50	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	650,3	1031,2
1,0	37,50	0,45	0,60	2000	900	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	650,1	868,2
1,0	112,50	0,45	0,30	2000	900	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	421,0	1147,8
1,0	75,00	0,45	0,30	2000	900	12,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	563,3	1192,9
1,0	56,25	0,45	0,30	2000	900	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	599,9	1234,7
1,0	45,00	0,45	0,30	2000	900	20,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	613,6	1251,9
1,0	32,14	0,45	0,30	2000	900	28,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	624,6	1267,0
1,0	28,13	0,45	0,30	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	635,0	1272,0
1,0	25,00	0,45	0,30	2000	900	36,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	636,9	1276,3
1,0	22,50	0,45	0,30	2000	900	40,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	638,1	1280,4
1,0	20,45	0,45	0,30	2000	900	44,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	638,9	1284,5
1,0	8,33	0,10	0,30	2000	200	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	523,8	1187,0
1,0	12,50	0,15	0,30	2000	300	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	560,7	1217,8
1,0	16,67	0,20	0,30	2000	400	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	583,8	1233,3
1,0	20,83	0,25	0,30	2000	500	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	595,6	1243,1
1,0	25,00	0,30	0,30	2000	600	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	604,6	1249,5
1,0	29,17	0,35	0,30	2000	700	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	611,3	1254,5
1,0	33,33	0,40	0,30	2000	800	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	616,5	1257,9
1,0	41,67	0,50	0,30	2000	1000	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	623,9	1263,0
1,0	45,83	0,55	0,30	2000	1100	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	626,6	1264,8
1,0	50,00	0,60	0,30	2000	1200	24,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	636,9	1266,2
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	668,6	1627,4
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	195,0	751,0
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	182,2	722,7
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	511,0	1434,7
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	1487,7	2350,9
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	807,0	1843,6
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	662,9	1477,3
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	469,5	1202,2
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	950,4	1613,2
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1149,3	2040,9
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	296,3	901,0
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	1513,5	2363,2
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1121,6	2010,7
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	1324,1	1520,8
2,0	12,20	0,25	0,20	2000	500	41,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	198,8	617,5
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	617,4	1118,5
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1162,5	1546,6
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	895,0	1342,0
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	915,0	1361,1
2,0	11,76	0,30	0,00	2000	600	51,0	7,2	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	672,7	1622,6
2,0	23,08	0,30	0,00	2000	600	26,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	195,7	750,8
2,0	29,41	0,25	0,00	2000	500	17,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	182,9	722,2
2,0	25,00	0,20	0,00	2000	400	16,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	511,7	1434,0
2,0	33,33	0,30	0,00	2000	600	18,0	10,4	13,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	1492,9	2352,4
2,0	14,81	0,20	0,00	2000	400	27,0	7,2	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	813,6	1840,3
2,0	28,13	0,45	0,10	2000	900	32,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	664,3	1477,7
2,0	13,64	0,30	0,10	2000	600	44,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	470,5	1201,9
2,0	27,78	0,25	0,10	2000	500	18,0	9,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	952,7	1612,3
2,0	24,14	0,35	0,10	2000	700	29,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1151,5	2041,8

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	$z1$	$z2$	$z3$	$z4$	$z5$	$z6$	$z7$	$z8$	$z9$	f_c	f_u
2,0	47,06	0,40	0,10	2000	800	17,0	5,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	297,6	900,0
2,0	11,36	0,25	0,10	2000	500	44,0	10,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	1518,4	2366,9
2,0	16,13	0,25	0,10	2000	500	31,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1123,7	2011,7
2,0	15,38	0,20	0,20	2000	400	26,0	8,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	1331,3	1522,0
2,0	12,20	0,25	0,20	2000	500	41,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	199,1	617,6
2,0	20,00	0,25	0,20	2000	500	25,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	618,4	1117,1
2,0	13,16	0,25	0,20	2000	500	38,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1163,8	1547,0
2,0	15,79	0,30	0,20	2000	600	38,0	7,2	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	894,4	1344,5
2,0	19,05	0,40	0,20	2000	800	42,0	9,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	916,2	1363,0
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	7,2	9,0	9,0	9,0	9,0	9,0	9,0	9,0	603,0	1587,9
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	6,0	184,9	747,2
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	6,0	174,6	717,9
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	502,5	1422,4
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	10,4	13,0	13,0	13,0	13,0	13,0	13,0	13,0	1428,8	2353,4
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	7,2	10,0	10,0	10,0	10,0	10,0	10,0	10,0	722,8	1785,8
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	631,8	1463,1
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	443,9	1189,3
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	9,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	907,6	1612,9
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1111,9	2027,2
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	5,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	254,5	881,9
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	10,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	1410,3	2339,3
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1088,4	1997,8
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	8,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	1143,3	1513,0
2,0	12,20	0,25	0,20	2000	500	41,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	6,0	188,0	615,0
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	593,7	1114,2
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	1124,5	1543,8
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	7,2	10,0	10,0	10,0	10,0	10,0	10,0	10,0	763,1	1333,4
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	9,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	877,0	1358,4
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	7,2	9,0	9,0	9,0	9,0	9,0	9,0	621,4	1598,7
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	188,0	742,6
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	176,8	716,1
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	500,8	1422,0
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	10,4	13,0	13,0	13,0	13,0	13,0	13,0	1427,7	2314,5
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	7,2	10,0	10,0	10,0	10,0	10,0	10,0	744,2	1792,8
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	639,3	1437,7
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	449,7	1170,5
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	9,0	11,0	11,0	11,0	11,0	11,0	11,0	906,8	1575,4
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	1120,1	1974,4
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	5,0	7,0	7,0	7,0	7,0	7,0	7,0	263,1	865,1
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	10,0	12,0	12,0	12,0	12,0	12,0	12,0	1432,6	2198,1
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	1094,9	1946,3
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	8,0	12,0	12,0	12,0	12,0	12,0	12,0	1160,5	1396,2
2,0	12,20	0,25	0,20	2000	500	41,0	6,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	6,0	190,0	594,9
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	597,7	1065,4
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	1131,2	1490,6
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	7,2	10,0	10,0	10,0	10,0	10,0	10,0	784,4	1190,1
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	9,0	10,0	10,0	10,0	10,0	10,0	10,0	884,5	1307,0
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	7,2	9,0	9,0	9,0	9,0	9,0	574,6	1532,3
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	180,7	743,7
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	170,1	708,2
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	492,4	1396,1
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	13,0	10,4	13,0	13,0	13,0	13,0	13,0	1365,7	2351,1
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	7,2	10,0	10,0	10,0	10,0	10,0	646,9	1687,0
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	621,3	1443,9
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	8,0	435,2	1171,3
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	9,0	11,0	11,0	11,0	11,0	11,0	873,0	1612,9
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	1097,1	2011,9
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	7,0	5,0	7,0	7,0	7,0	7,0	7,0	231,0	850,4
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	10,0	12,0	12,0	12,0	12,0	12,0	1359,9	2313,6
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	1073,2	1982,4
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	12,0	8,0	12,0	12,0	12,0	12,0	12,0	997,5	1517,8
2,0	12,20	0,25	0,20	2000	500	41,0	6,0	6,0	6,0	5,3	6,0	6,0	6,0	6,0	6,0	185,1	612,8
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	9,0	584,4	1112,8
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	11,0	1112,5	1543,1
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	7,2	10,0	10,0	10,0	10,0	10,0	700,8	1329,0
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	9,0	10,0	10,0	10,0	10,0	10,0	867,8	1357,1
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	9,0	7,2	9,0	9,0	9,0	9,0	556,4	1564,4
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	6,0	5,3	6,0	6,0	6,0	6,0	175,9	738,1
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	6,0	5,3	6,0	6,0	6,0	6,0	164,8	712,3
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	468,6	1411,7
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	13,0	13,0	10,4	13,0	13,0	13,0	13,0	1260,4	2352,1
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	10,0	7,2	10,0	10,0	10,0	10,0	614,0	1732,6
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	601,2	1434,3
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	8,0	419,6	1165,6
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	11,0	9,0	11,0	11,0	11,0	11,0	807,7	1609,0
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	1065,2	1980,7
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	7,0	7,0	5,0	7,0	7,0	7,0	7,0	217,9	848,8
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	12,0	10,0	12,0	12,0	12,0	12,0	1296,5	2226,5
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	1040,4	1951,8
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	12,0	12,0	8,0	12,0	12,0	12,0	12,0	900,5	1491,5
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	9,0	557,6	1086,2
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	11,0	1071,0	1520,6
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	10,0	7,2	10,0	10,0	10,0	10,0	645,8	1239,2
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	10,0	9,0	10,0	10,0	10,0	10,0	834,0	1331,1
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	9,0	9,0	7,2	9,0	9,0	9,0	579,7	1602,2
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	6,0	6,0	5,3	6,0	6,0	6,0	181,4	746,0

α	λf	η	tg φ	h1	bf	tf	z1	z2	z3	z4	z5	z6	z7	z8	z9	fc	fu
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	6,0	6,0	5,3	6,0	6,0	6,0	169,0	718,4
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	477,8	1423,3
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	13,0	13,0	13,0	10,4	13,0	13,0	13,0	1295,4	2291,9
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	10,0	10,0	7,2	10,0	10,0	10,0	631,9	1793,7
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	629,1	1450,0
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	440,7	1181,8
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	11,0	11,0	9,0	11,0	11,0	11,0	838,6	1580,2
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	1102,3	1990,1
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	7,0	7,0	7,0	5,0	7,0	7,0	7,0	233,4	872,6
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	12,0	12,0	10,0	12,0	12,0	12,0	1364,7	2224,8
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	1073,5	1961,5
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	12,0	12,0	12,0	8,0	12,0	12,0	12,0	948,5	1340,4
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	581,8	1058,5
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	1113,1	1465,4
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	10,0	10,0	7,2	10,0	10,0	10,0	694,8	1210,8
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	10,0	10,0	9,0	10,0	10,0	10,0	872,1	1293,0
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	9,0	9,0	9,0	7,2	9,0	9,0	601,1	1271,7
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	6,0	6,0	184,7	664,4
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	6,0	6,0	173,2	628,2
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	495,5	1264,2
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	13,0	13,0	13,0	13,0	10,4	13,0	13,0	1381,2	2330,1
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	10,0	10,0	10,0	7,2	10,0	10,0	683,4	1304,5
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	632,3	1329,2
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	8,0	444,4	1051,6
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	11,0	11,0	11,0	9,0	11,0	11,0	888,3	1607,3
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	1109,3	1927,6
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	12,0	12,0	12,0	10,0	12,0	12,0	1398,9	2150,8
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	1083,9	1898,9
2,0	12,20	0,25	0,20	2000	500	41,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	6,0	6,0	188,0	553,8
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	9,0	590,7	1093,5
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	11,0	1122,5	1539,9
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	10,0	10,0	10,0	7,2	10,0	10,0	742,2	1233,9
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	10,0	10,0	10,0	9,0	10,0	10,0	878,0	1349,4
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	7,2	9,0	585,9	1608,9
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	6,0	181,0	746,1
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	6,0	168,4	719,6
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	477,0	1428,3
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	10,4	13,0	1305,3	2369,2
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	7,2	10,0	640,0	1846,0
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	622,7	1462,7
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	8,0	436,6	1191,1
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	9,0	11,0	837,3	1618,2
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	1091,6	2009,9
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	5,0	7,0	236,5	887,9
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	10,0	12,0	1356,0	2242,7
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	1062,9	1982,1
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	8,0	12,0	965,4	1421,0
2,0	12,20	0,25	0,20	2000	500	41,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	6,0	184,6	607,0
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	9,0	576,0	1076,2
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	11,0	1101,8	1496,9
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	7,2	10,0	711,6	1189,4
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	9,0	10,0	864,6	1315,1
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	7,2	648,2	1628,3
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	192,7	750,8
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	177,8	722,9
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	482,6	1419,3
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	13,0	10,4	1320,3	2184,4
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	7,2	667,8	1848,6
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	657,6	1475,3
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	464,4	1200,8
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	9,0	885,2	1543,1
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	1140,5	2035,8
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	10,0	1471,4	2344,4
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	1109,8	2006,1
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	8,0	1063,5	1355,1
2,0	12,20	0,25	0,20	2000	500	41,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	196,9	616,7
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	609,8	1107,5
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	1153,5	1529,1
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	7,2	823,3	1337,4
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	9,0	909,8	1347,2
2,0	11,76	0,30	0,00	2000	600	51,0	7,2	7,2	7,2	9,0	9,0	9,0	9,0	9,0	9,0	577,2	1552,0
2,0	23,08	0,30	0,00	2000	600	26,0	5,3	5,3	5,3	6,0	6,0	6,0	6,0	6,0	6,0	180,0	735,2
2,0	29,41	0,25	0,00	2000	500	17,0	5,3	5,3	5,3	6,0	6,0	6,0	6,0	6,0	6,0	170,7	710,2
2,0	33,33	0,30	0,00	2000	600	18,0	10,4	10,4	10,4	13,0	13,0	13,0	13,0	13,0	13,0	1392,3	2306,2
2,0	14,81	0,20	0,00	2000	400	27,0	7,2	7,2	7,2	10,0	10,0	10,0	10,0	10,0	10,0	687,8	1720,1
2,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	614,8	1424,7
2,0	13,64	0,30	0,10	2000	600	44,0	7,0	7,0	7,0	8,0	8,0	8,0	8,0	8,0	8,0	430,2	1158,0
2,0	27,78	0,25	0,10	2000	500	18,0	9,0	9,0	9,0	11,0	11,0	11,0	11,0	11,0	11,0	879,2	1571,7
2,0	24,14	0,35	0,10	2000	700	29,0	10,0	10,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	1089,4	1965,6
2,0	11,36	0,25	0,10	2000	500	44,0	10,0	10,0	10,0	12,0	12,0	12,0	12,0	12,0	12,0	1357,5	2181,9
2,0	16,13	0,25	0,10	2000	500	31,0	10,0	10,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	1067,4	1937,5
2,0	15,38	0,20	0,20	2000	400	26,0	8,0	8,0	8,0	12,0	12,0	12,0	12,0	12,0	12,0	1060,7	1374,5
2,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	9,0	9,0	9,0	9,0	9,0	9,0	578,6	1062,5
2,0	13,16	0,25	0,20	2000	500	38,0	10,0	10,0	10,0	11,0	11,0	11,0	11,0	11,0	11,0	1099,7	1487,1
2,0	15,79	0,30	0,20	2000	600	38,0	7,2	7,2	7,2	10,0	10,0	10,0	10,0	10,0	10,0	710,7	1173,4
2,0	19,05	0,40	0,20	2000	800	42,0	9,0	9,0	9,0	10,0	10,0	10,0	10,0	10,0	10,0	853,7	1303,6

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	7,2	7,2	7,2	9,0	9,0	9,0	475,2	1451,6
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	5,3	5,3	5,3	6,0	6,0	6,0	159,4	723,1
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	5,3	5,3	5,3	6,0	6,0	6,0	149,7	691,5
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	8,0	8,0	8,0	9,0	9,0	9,0	436,7	1362,9
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	7,2	7,2	7,2	10,0	10,0	10,0	498,3	1551,3
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	8,0	8,0	8,0	9,0	9,0	9,0	555,1	1379,2
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	7,0	7,0	7,0	8,0	8,0	8,0	383,4	1120,5
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	9,0	9,0	9,0	11,0	11,0	11,0	723,5	1570,3
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	10,0	10,0	10,0	11,0	11,0	11,0	999,3	1913,0
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	10,0	10,0	10,0	12,0	12,0	12,0	1152,7	2074,2
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	10,0	10,0	10,0	11,0	11,0	11,0	976,7	1886,2
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	12,0	8,0	8,0	8,0	12,0	12,0	12,0	738,9	1244,4
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	8,0	8,0	8,0	9,0	9,0	9,0	519,5	1028,1
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	10,0	10,0	10,0	11,0	11,0	11,0	1009,4	1441,5
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	7,2	7,2	7,2	10,0	10,0	10,0	540,8	1068,6
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	9,0	9,0	9,0	10,0	10,0	10,0	780,0	1262,5
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	9,0	9,0	9,0	9,0	7,2	7,2	7,2	542,8	1248,1
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	5,3	5,3	172,6	658,9
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	6,0	6,0	6,0	6,0	5,3	5,3	5,3	160,3	623,7
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	8,0	8,0	452,2	1254,0
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	13,0	13,0	13,0	13,0	10,4	10,4	10,4	1194,4	2177,5
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	10,0	10,0	10,0	10,0	7,2	7,2	7,2	565,4	1261,7
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	8,0	8,0	598,1	1313,2
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	8,0	8,0	8,0	8,0	7,0	7,0	7,0	417,1	1039,5
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	11,0	11,0	11,0	11,0	9,0	9,0	9,0	784,1	1534,2
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	10,0	10,0	1056,6	1904,1
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	7,0	7,0	7,0	7,0	5,0	5,0	5,0	213,5	597,2
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	12,0	12,0	12,0	12,0	10,0	10,0	10,0	1275,8	2083,8
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	10,0	10,0	1028,1	1876,9
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	12,0	12,0	12,0	12,0	8,0	8,0	8,0	873,0	1327,7
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	9,0	9,0	9,0	9,0	8,0	8,0	8,0	555,3	1055,0
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	11,0	11,0	11,0	11,0	10,0	10,0	10,0	1068,4	1475,0
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	10,0	10,0	10,0	10,0	7,2	7,2	7,2	651,1	1120,0
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	10,0	10,0	10,0	10,0	9,0	9,0	9,0	836,0	1295,2
2,0	11,76	0,30	0,00	2000	600	51,0	7,2	9,0	9,0	7,2	9,0	9,0	7,2	9,0	9,0	475,1	1215,9
2,0	23,08	0,30	0,00	2000	600	26,0	5,3	6,0	6,0	5,3	6,0	6,0	5,3	6,0	6,0	165,5	656,9
2,0	29,41	0,25	0,00	2000	500	17,0	5,3	6,0	6,0	5,3	6,0	6,0	5,3	6,0	6,0	156,8	617,9
2,0	25,00	0,20	0,00	2000	400	16,0	8,0	9,0	9,0	8,0	9,0	9,0	8,0	9,0	9,0	468,6	1225,8
2,0	33,33	0,30	0,00	2000	600	18,0	10,4	13,0	13,0	10,4	13,0	13,0	10,4	13,0	13,0	1191,9	2156,4
2,0	14,81	0,20	0,00	2000	400	27,0	7,2	10,0	10,0	7,2	10,0	10,0	7,2	10,0	10,0	476,6	1175,1
2,0	28,13	0,45	0,10	2000	900	32,0	8,0	9,0	9,0	8,0	9,0	9,0	8,0	9,0	9,0	576,0	1286,8
2,0	13,64	0,30	0,10	2000	600	44,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	396,8	1017,1
2,0	27,78	0,25	0,10	2000	500	18,0	9,0	11,0	11,0	9,0	11,0	11,0	9,0	11,0	11,0	766,2	1525,7
2,0	24,14	0,35	0,10	2000	700	29,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	1041,3	1881,8
2,0	47,06	0,40	0,10	2000	800	17,0	5,0	7,0	7,0	5,0	7,0	7,0	5,0	7,0	7,0	165,7	592,6
2,0	11,36	0,25	0,10	2000	500	44,0	10,0	12,0	12,0	10,0	12,0	12,0	10,0	12,0	12,0	1178,7	2021,3
2,0	16,13	0,25	0,10	2000	500	31,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	1019,9	1855,5
2,0	15,38	0,20	0,20	2000	400	26,0	8,0	12,0	12,0	8,0	12,0	12,0	8,0	12,0	12,0	657,6	1338,0
2,0	20,00	0,25	0,20	2000	500	25,0	8,0	9,0	9,0	8,0	9,0	9,0	8,0	9,0	9,0	542,6	1086,7
2,0	13,16	0,25	0,20	2000	500	38,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	1052,8	1535,8
2,0	15,79	0,30	0,20	2000	600	38,0	7,2	10,0	10,0	7,2	10,0	10,0	7,2	10,0	10,0	498,9	1117,6
2,0	19,05	0,40	0,20	2000	800	42,0	9,0	10,0	10,0	9,0	10,0	10,0	9,0	10,0	10,0	811,9	1344,4
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	7,2	9,0	9,0	7,2	9,0	9,0	7,2	9,0	448,0	1528,4
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	5,3	6,0	6,0	5,3	6,0	6,0	5,3	6,0	155,6	729,9
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	5,3	6,0	6,0	5,3	6,0	6,0	5,3	6,0	146,7	706,1
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	10,4	13,0	13,0	10,4	13,0	13,0	10,4	13,0	1078,1	2386,4
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	7,2	10,0	10,0	7,2	10,0	10,0	7,2	10,0	449,7	1715,0
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	8,0	9,0	9,0	8,0	9,0	9,0	8,0	9,0	540,1	1413,9
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	370,6	1148,9
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	9,0	11,0	11,0	9,0	11,0	11,0	9,0	11,0	691,8	1613,4
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	803,4	1948,6
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	10,0	12,0	12,0	10,0	12,0	12,0	10,0	12,0	1092,1	2133,2
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	786,1	1921,3
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	8,0	12,0	12,0	8,0	12,0	12,0	8,0	12,0	603,2	1342,8
2,0	12,20	0,25	0,20	2000	500	41,0	6,0	5,3	6,0	6,0	5,3	6,0	6,0	5,3	6,0	155,1	586,9
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	8,0	9,0	9,0	8,0	9,0	9,0	8,0	9,0	501,3	1054,5
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	794,6	1474,0
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	7,2	10,0	10,0	7,2	10,0	10,0	7,2	10,0	460,4	1131,2
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	9,0	10,0	10,0	9,0	10,0	10,0	9,0	10,0	756,0	1290,9
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	7,2	9,0	9,0	7,2	9,0	9,0	7,2	484,8	1567,3
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	5,3	6,0	6,0	5,3	6,0	6,0	5,3	167,7	750,5
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	5,3	6,0	6,0	5,3	6,0	6,0	5,3	156,2	711,7
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	8,0	9,0	9,0	8,0	9,0	9,0	8,0	438,7	1390,2
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	10,4	13,0	13,0	10,4	13,0	13,0	10,4	1086,0	2101,2
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	7,2	10,0	10,0	7,2	10,0	10,0	7,2	459,1	1733,2
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	8,0	9,0	9,0	8,0	9,0	9,0	8,0	588,7	1405,4
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	7,0	8,0	8,0	7,0	8,0	8,0	7,0	405,7	1149,5
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	9,0	11,0	11,0	9,0	11,0	11,0	9,0	721,5	1481,9
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	1051,6	1916,0
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	5,0	7,0	7,0	5,0	7,0	7,0	5,0	168,9	822,4
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	10,0	12,0	12,0	10,0	12,0	12,0	10,0	1191,7	2063,2
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	1022,5	1890,6
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	8,0	12,0	12,0	8,0	12,0	12,0	8,0	618,6	1084,0
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	8,0	9,0	9,0	8,0	9,0	9,0	8,0	542,2	1007,8
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	10,0	11,0	11,0	10,0	11,0	11,0	10,0	1057,4	1411,8
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	7,2	10,0	10,0	7,2	10,0	10,0	7,2	495,9	1072,3

α	λ_f	η	$tg\,\phi$	h_1	b_f	t_f	z1	z2	z3	z4	z5	z6	z7	z8	z9	f_c	f_u
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	9,0	10,0	10,0	9,0	10,0	10,0	9,0	821,2	1232,9
2,0	11,76	0,30	0,00	2000	600	51,0	7,2	9,0	9,0	9,0	7,2	9,0	9,0	9,0	7,2	555,9	1563,7
2,0	23,08	0,30	0,00	2000	600	26,0	5,3	6,0	6,0	6,0	5,3	6,0	6,0	6,0	5,3	175,0	737,5
2,0	29,41	0,25	0,00	2000	500	17,0	5,3	6,0	6,0	6,0	5,3	6,0	6,0	6,0	5,3	162,4	712,1
2,0	25,00	0,20	0,00	2000	400	16,0	8,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	8,0	452,5	1410,1
2,0	33,33	0,30	0,00	2000	600	18,0	10,4	13,0	13,0	13,0	10,4	13,0	13,0	13,0	10,4	1198,9	2178,8
2,0	14,81	0,20	0,00	2000	400	27,0	7,2	10,0	10,0	10,0	7,2	10,0	10,0	10,0	7,2	589,6	1737,0
2,0	28,13	0,45	0,10	2000	900	32,0	8,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	8,0	600,8	1432,5
2,0	13,64	0,30	0,10	2000	600	44,0	7,0	8,0	8,0	8,0	7,0	8,0	8,0	8,0	7,0	419,5	1164,4
2,0	27,78	0,25	0,10	2000	500	18,0	9,0	11,0	11,0	11,0	9,0	11,0	11,0	11,0	9,0	788,4	1545,5
2,0	24,14	0,35	0,10	2000	700	29,0	10,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	10,0	1061,9	1977,3
2,0	47,06	0,40	0,10	2000	800	17,0	5,0	7,0	7,0	7,0	5,0	7,0	7,0	7,0	5,0	220,8	849,3
2,0	11,36	0,25	0,10	2000	500	44,0	10,0	12,0	12,0	12,0	10,0	12,0	12,0	12,0	10,0	1292,3	2218,3
2,0	16,13	0,25	0,10	2000	500	31,0	10,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	10,0	1034,8	1948,7
2,0	15,38	0,20	0,20	2000	400	26,0	8,0	12,0	12,0	12,0	8,0	12,0	12,0	12,0	8,0	909,9	1360,0
2,0	20,00	0,25	0,20	2000	500	25,0	8,0	9,0	9,0	9,0	8,0	9,0	9,0	9,0	8,0	556,6	1080,2
2,0	13,16	0,25	0,20	2000	500	38,0	10,0	11,0	11,0	11,0	10,0	11,0	11,0	11,0	10,0	1069,9	1510,9
2,0	15,79	0,30	0,20	2000	600	38,0	7,2	10,0	10,0	10,0	7,2	10,0	10,0	10,0	7,2	664,1	1218,7
2,0	19,05	0,40	0,20	2000	800	42,0	9,0	10,0	10,0	10,0	9,0	10,0	10,0	10,0	9,0	835,8	1321,3
2,0	11,76	0,30	0,00	2000	600	51,0	9,0	9,0	7,2	9,0	7,2	9,0	7,2	9,0	9,0	484,3	1201,4
2,0	23,08	0,30	0,00	2000	600	26,0	6,0	6,0	5,3	6,0	5,3	6,0	5,3	6,0	6,0	162,6	650,9
2,0	29,41	0,25	0,00	2000	500	17,0	6,0	6,0	5,3	6,0	5,3	6,0	5,3	6,0	6,0	153,4	608,0
2,0	25,00	0,20	0,00	2000	400	16,0	9,0	9,0	8,0	9,0	8,0	9,0	8,0	9,0	9,0	443,4	1234,6
2,0	33,33	0,30	0,00	2000	600	18,0	13,0	13,0	10,4	13,0	10,4	13,0	10,4	13,0	13,0	1113,7	2186,8
2,0	14,81	0,20	0,00	2000	400	27,0	10,0	10,0	7,2	10,0	7,2	10,0	7,2	10,0	10,0	510,7	1210,3
2,0	28,13	0,45	0,10	2000	900	32,0	9,0	9,0	8,0	9,0	8,0	9,0	8,0	9,0	9,0	559,9	1268,3
2,0	13,64	0,30	0,10	2000	600	44,0	8,0	8,0	7,0	8,0	7,0	8,0	7,0	8,0	8,0	386,8	1001,1
2,0	27,78	0,25	0,10	2000	500	18,0	11,0	11,0	9,0	11,0	9,0	11,0	9,0	11,0	11,0	723,8	1496,1
2,0	24,14	0,35	0,10	2000	700	29,0	11,0	11,0	10,0	11,0	10,0	11,0	10,0	11,0	11,0	1009,4	1833,7
2,0	47,06	0,40	0,10	2000	800	17,0	7,0	7,0	5,0	7,0	5,0	7,0	5,0	7,0	7,0	179,5	568,8
2,0	11,36	0,25	0,10	2000	500	44,0	12,0	12,0	10,0	12,0	10,0	12,0	10,0	12,0	12,0	1168,8	1922,3
2,0	16,13	0,25	0,10	2000	500	31,0	11,0	11,0	10,0	11,0	10,0	11,0	10,0	11,0	11,0	988,3	1808,7
2,0	15,38	0,20	0,20	2000	400	26,0	12,0	12,0	8,0	12,0	8,0	12,0	8,0	12,0	12,0	731,2	1172,9
2,0	20,00	0,25	0,20	2000	500	25,0	9,0	9,0	8,0	9,0	8,0	9,0	8,0	9,0	9,0	524,0	1009,7
2,0	13,16	0,25	0,20	2000	500	38,0	11,0	11,0	10,0	11,0	10,0	11,0	10,0	11,0	11,0	1016,7	1451,8
2,0	15,79	0,30	0,20	2000	600	38,0	10,0	10,0	7,2	10,0	7,2	10,0	7,2	10,0	10,0	540,3	970,7
2,0	19,05	0,40	0,20	2000	800	42,0	10,0	10,0	9,0	10,0	9,0	10,0	9,0	10,0	10,0	784,4	1254,7
2,0	11,76	0,30	0,00	2000	600	51,0	7,2	7,2	7,2	7,2	7,2	7,2	9,0	7,2	7,2	366,4	1384,8
2,0	23,08	0,30	0,00	2000	600	26,0	5,3	5,3	5,3	5,3	5,3	5,3	6,0	5,3	5,3	137,0	704,5
2,0	29,41	0,25	0,00	2000	500	17,0	5,3	5,3	5,3	5,3	5,3	5,3	6,0	5,3	5,3	129,4	677,7
2,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	9,0	8,0	8,0	386,9	1334,0
2,0	33,33	0,30	0,00	2000	600	18,0	10,4	10,4	10,4	10,4	10,4	10,4	13,0	10,4	10,4	893,2	2071,9
2,0	14,81	0,20	0,00	2000	400	27,0	7,2	7,2	7,2	7,2	7,2	7,2	10,0	7,2	7,2	344,3	1461,4
2,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	9,0	8,0	8,0	485,6	1321,1
2,0	13,64	0,30	0,10	2000	600	44,0	7,0	7,0	7,0	7,0	7,0	7,0	8,0	7,0	7,0	328,7	1073,4
2,0	27,78	0,25	0,10	2000	500	18,0	9,0	9,0	9,0	9,0	9,0	9,0	11,0	9,0	9,0	588,3	1441,8
2,0	24,14	0,35	0,10	2000	700	29,0	10,0	10,0	10,0	10,0	10,0	10,0	11,0	10,0	10,0	900,1	1820,6
2,0	47,06	0,40	0,10	2000	800	17,0	5,0	5,0	5,0	5,0	5,0	5,0	7,0	5,0	5,0	121,4	717,6
2,0	11,36	0,25	0,10	2000	500	44,0	10,0	10,0	10,0	10,0	10,0	10,0	12,0	10,0	10,0	935,6	1865,5
2,0	16,13	0,25	0,10	2000	500	31,0	10,0	10,0	10,0	10,0	10,0	10,0	11,0	10,0	10,0	879,7	1796,7
2,0	15,38	0,20	0,20	2000	400	26,0	8,0	8,0	8,0	8,0	8,0	8,0	12,0	8,0	8,0	464,1	950,8
2,0	12,20	0,25	0,20	2000	500	41,0	5,3	5,3	5,3	5,3	5,3	5,3	6,0	5,3	5,3	138,6	540,5
2,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	9,0	8,0	8,0	455,3	948,9
2,0	13,16	0,25	0,20	2000	500	38,0	10,0	10,0	10,0	10,0	10,0	10,0	11,0	10,0	10,0	905,7	1337,5
2,0	15,79	0,30	0,20	2000	600	38,0	7,2	7,2	7,2	7,2	7,2	7,2	10,0	7,2	7,2	364,5	905,1
2,0	19,05	0,40	0,20	2000	800	42,0	9,0	9,0	9,0	9,0	9,0	9,0	10,0	9,0	9,0	690,2	1169,5
2,0	11,76	0,30	0,00	2000	600	51,0	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	345,6	1079,2
2,0	23,08	0,30	0,00	2000	600	26,0	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,3	131,9	621,2
2,0	29,41	0,25	0,00	2000	500	17,0	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,3	124,9	589,0
2,0	25,00	0,20	0,00	2000	400	16,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	377,9	1170,9
2,0	33,33	0,30	0,00	2000	600	18,0	10,4	10,4	10,4	10,4	10,4	10,4	10,4	10,4	10,4	851,9	1936,2
2,0	14,81	0,20	0,00	2000	400	27,0	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	321,5	1029,3
2,0	28,13	0,45	0,10	2000	900	32,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	469,4	1198,9
2,0	13,64	0,30	0,10	2000	600	44,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0	316,6	946,1
2,0	27,78	0,25	0,10	2000	500	18,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	564,3	1356,2
2,0	24,14	0,35	0,10	2000	700	29,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	876,2	1743,6
2,0	11,36	0,25	0,10	2000	500	44,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	893,6	1759,5
2,0	16,13	0,25	0,10	2000	500	31,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	857,3	1720,5
2,0	15,38	0,20	0,20	2000	400	26,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	434,6	924,0
2,0	12,20	0,25	0,20	2000	500	41,0	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,3	133,9	495,1
2,0	20,00	0,25	0,20	2000	500	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	442,3	933,1
2,0	13,16	0,25	0,20	2000	500	38,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	883,5	1331,5
2,0	15,79	0,30	0,20	2000	600	38,0	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	341,9	818,0
2,0	19,05	0,40	0,20	2000	800	42,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	9,0	670,9	1158,5