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| <p>A TABLE OF THE INTEGRALS</p> $\int_0^x J_0(\rho e^{i\phi}) d\rho, \int_0^x N_0(\rho e^{i\phi}) d\rho,$ $\int_0^x H_0^{(1)}(\rho e^{i\phi}) d\rho, \text{ and } \int_0^x H_0^{(2)}(\rho e^{i\phi}) d\rho$ <p>for $0 \leq x \leq 10.0$ and $-\frac{\pi}{2} \leq \phi \leq \frac{\pi}{2}$</p> <p>R. T. Compton, Jr. Grant Number NsG-448</p> | |
| 1691-12 | 1 July 1965 |

Prepared for:
National Aeronautics and Space Administration
Office of Grants and Research Contracts
Washington, D. C. 20546

Department of ELECTRICAL ENGINEERING



THE OHIO STATE UNIVERSITY
RESEARCH FOUNDATION
Columbus, Ohio

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REPORT
by
THE OHIO STATE UNIVERSITY RESEARCH FOUNDATION
COLUMBUS, OHIO 43212

Sponsor National Aeronautics and Space Administration
Office of Grants and Research Contracts
Washington, D. C.

Grant Number NsG-448

Investigation of Spacecraft Antenna Problems

Subject of Report A Table of the Integrals

$$\int_0^x J_0(\rho e^{i\phi}) d\rho, \int_0^x N_0(\rho e^{i\phi}) d\rho$$

$$\int_0^x H_0^{(1)}(\rho e^{i\phi}) d\rho, \text{ and } \int_0^x H_0^{(2)}(\rho e^{i\phi}) d\rho$$
for $0 \leq x \leq 10.0$ and $-\frac{\pi}{2} \leq \phi \leq \frac{\pi}{2}$

Submitted by R. T. Compton, Jr.
Antenna Laboratory
Department of Electrical Engineering

Date 1 July 1965

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A Table of ^{THE} integrals [for the Bessel and Neumann Functions of order zero] ^{Handel,}

I. EXPLANATION OF THE TABLE

This report contains a tabulation of the following four integrals:

$$(1) \quad IJ(x, \phi) = \int_0^x J_0(\rho e^{+i\phi}) d\rho,$$

$$(2) \quad IN(x, \phi) = \int_0^x N_0(\rho e^{+i\phi}) d\rho,$$

$$(3) \quad IH1(x, \phi) = \int_0^x H_0^{(1)}(\rho e^{+i\phi}) d\rho,$$

$$(4) \quad IH2(x, \phi) = \int_0^x H_0^{(2)}(\rho e^{+i\phi}) d\rho,$$

where $i = \sqrt{-1}$ and $J_0(Z)$ and $N_0(Z)$ are respectively the Bessel and Neumann Functions of order zero and complex argument Z . $H_0^{(1)}(Z)$ and $H_0^{(2)}(Z)$ are the Hankel Functions of order zero of the first and second kinds, defined by

$$(5) \quad H_0^{(1)}(Z) = J_0(Z) + iN_0(Z)$$

$$(6) \quad H_0^{(2)}(Z) = J_0(Z) - iN_0(Z).$$

The integrals (1) to (4) are tabulated for $0 \leq x \leq 10.0$ in increments of 0.2 and for $-\frac{\pi}{2} \leq \phi \leq \frac{\pi}{2}$ in increments of $\frac{\pi}{12}$ (i. e., 15°).

The evaluation of these integrals was performed using a Fortran program on The Ohio State University Numerical Computation Laboratory's IBM 1620 digital computer. The values of the function $J_0(Z)$ and $N_0(Z)$ were read from existing tables [1, 2] to four significant figures after the decimal point. The values of $H_0^{(1)}(Z)$ and $H_0^{(2)}(Z)$ were obtained from $J_0(Z)$ and $N_0(Z)$ using Eqs. (5) and (6). The integrals (1) to (4) were evaluated by Simpson's Rule, using an integration increment of $x = 0.1$.

The results are listed as a function of x , with the value of ϕ constant for each page of the table. The value of ϕ applying for each page is listed at the top of that page.

The value of each integral is listed in terms of its real and imaginary parts. The notation used is:

$$IJ(x, \phi) = \text{RE}(IJ) + i \text{IM}(IJ)$$

$$IN(x, \phi) = \text{RE}(IN) + i \text{IM}(IN)$$

$$IH1(x, \phi) = \text{RE}(IH1) + i \text{IM}(IH1)$$

$$IH2(x, \phi) = \text{RE}(IH2) + i \text{IM}(IH2).$$

These integrals appear frequently in many areas of mathematical physics, such as, for example, in the study of electromagnetic waves in lossy media. The integrals have been tabulated previously for $\phi = 0$ [3], but not for $\phi \neq 0$.

II. THE TABLE

$\phi = -90^\circ$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|------------|---------|---------|------------|
| +0.2 | +0.2006 | +0.0000 | -.3483 | -.2006 |
| +0.4 | +0.4053 | +0.0000 | -.5256 | -.4053 |
| +0.6 | +0.6182 | +0.0000 | -.6442 | -.6182 |
| +0.8 | +0.8436 | +0.0000 | -.7288 | -.8436 |
| +1.0 | +1.0865 | +0.0000 | -.7910 | -1.0865 |
| +1.2 | +1.3519 | +0.0000 | -.8377 | -1.3519 |
| +1.4 | +1.6461 | +0.0000 | -.8733 | -1.6461 |
| +1.6 | +1.9758 | +0.0000 | -.9006 | -1.9758 |
| +1.8 | +2.3489 | +0.0000 | -.9217 | -2.3489 |
| +2.0 | +2.7749 | +0.0000 | -.9382 | -2.7749 |
| +2.2 | +3.2647 | +0.0000 | -.9511 | -3.2647 |
| +2.4 | +3.8313 | +0.0000 | -.9612 | -3.8313 |
| +2.6 | +4.4900 | +0.0000 | -.9691 | -4.4900 |
| +2.8 | +5.2592 | +0.0000 | -.9754 | -5.2592 |
| +3.0 | +6.1609 | +0.0000 | -.9804 | -6.1609 |
| +3.2 | +7.2210 | +0.0000 | -.9843 | -7.2210 |
| +3.4 | +8.4711 | +0.0000 | -.9875 | -8.4711 |
| +3.6 | +9.9486 | +0.0000 | -.9900 | -9.9486 |
| +3.8 | +11.6986 | +0.0000 | -.9920 | -11.6986 |
| +4.0 | +13.7750 | +0.0000 | -.9936 | -13.7750 |
| +4.2 | +16.2430 | +0.0000 | -.9948 | -16.2430 |
| +4.4 | +19.1804 | +0.0000 | -.9959 | -19.1804 |
| +4.6 | +22.6813 | +0.0000 | -.9967 | -22.6813 |
| +4.8 | +26.8586 | +0.0000 | -.9973 | -26.8586 |
| +5.0 | +31.8483 | +0.0000 | -.9979 | -31.8483 |
| +5.2 | +37.8142 | +0.0000 | -.9983 | -37.8142 |
| +5.4 | +44.9537 | +0.0000 | -.9986 | -44.9537 |
| +5.6 | +53.5044 | +0.0000 | -.9989 | -53.5044 |
| +5.8 | +63.7532 | +0.0000 | -.9991 | -63.7532 |
| +6.0 | +76.0457 | +0.0000 | -.9993 | -76.0457 |
| +6.2 | +90.7990 | +0.0000 | -.9994 | -90.7990 |
| +6.4 | +108.5163 | +0.0000 | -.9996 | -108.5163 |
| +6.6 | +129.8051 | +0.0000 | -.9997 | -129.8051 |
| +6.8 | +155.3987 | +0.0000 | -.9997 | -155.3987 |
| +7.0 | +186.1826 | +0.0000 | -.9998 | -186.1826 |
| +7.2 | +223.2265 | +0.0000 | -.9998 | -223.2265 |
| +7.4 | +267.8226 | +0.0000 | -.9999 | -267.8226 |
| +7.6 | +321.5327 | +0.0000 | -.9999 | -321.5327 |
| +7.8 | +386.2443 | +0.0000 | -.9999 | -386.2443 |
| +8.0 | +464.2393 | +0.0000 | -1.0000 | -464.2393 |
| +8.2 | +558.2770 | +0.0000 | -1.0000 | -558.2770 |
| +8.4 | +671.6944 | +0.0000 | -1.0000 | -671.6944 |
| +8.6 | +808.5281 | +0.0000 | -1.0000 | -808.5281 |
| +8.8 | +973.6618 | +0.0000 | -1.0000 | -973.6618 |
| +9.0 | +1173.0047 | +0.0000 | -1.0000 | -1173.0047 |
| +9.2 | +1413.7086 | +0.0000 | -1.0000 | -1413.7086 |
| +9.4 | +1704.4302 | +0.0000 | -1.0000 | -1704.4302 |
| +9.6 | +2055.6496 | +0.0000 | -1.0000 | -2055.6496 |
| +9.8 | +2480.0561 | +0.0000 | -1.0000 | -2480.0561 |
| +10.0 | +2993.0162 | +0.0000 | -1.0000 | -2993.0162 |

$$\phi = -90^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|------------|---------|---------|---------|
| +0.2 | +0.4013 | -0.3483 | +0.0000 | +0.3483 |
| +0.4 | +0.8107 | -0.5256 | +0.0000 | +0.5256 |
| +0.6 | +1.2364 | -0.6442 | +0.0000 | +0.6442 |
| +0.8 | +1.6873 | -0.7288 | +0.0000 | +0.7288 |
| +1.0 | +2.1730 | -0.7910 | +0.0000 | +0.7910 |
| +1.2 | +2.7039 | -0.8377 | +0.0000 | +0.8377 |
| +1.4 | +3.2922 | -0.8733 | +0.0000 | +0.8733 |
| +1.6 | +3.9516 | -0.9006 | +0.0000 | +0.9006 |
| +1.8 | +4.6979 | -0.9217 | +0.0000 | +0.9217 |
| +2.0 | +5.5499 | -0.9382 | +0.0000 | +0.9382 |
| +2.2 | +6.5295 | -0.9511 | +0.0000 | +0.9511 |
| +2.4 | +7.6626 | -0.9612 | +0.0000 | +0.9612 |
| +2.6 | +8.9800 | -0.9691 | +0.0000 | +0.9691 |
| +2.8 | +10.5185 | -0.9754 | +0.0000 | +0.9754 |
| +3.0 | +12.3218 | -0.9804 | +0.0000 | +0.9804 |
| +3.2 | +14.4421 | -0.9843 | +0.0000 | +0.9843 |
| +3.4 | +16.9423 | -0.9875 | +0.0000 | +0.9875 |
| +3.6 | +19.8973 | -0.9900 | +0.0000 | +0.9900 |
| +3.8 | +23.3972 | -0.9920 | +0.0000 | +0.9920 |
| +4.0 | +27.5501 | -0.9936 | +0.0000 | +0.9936 |
| +4.2 | +32.4860 | -0.9948 | +0.0000 | +0.9948 |
| +4.4 | +38.3609 | -0.9959 | +0.0000 | +0.9959 |
| +4.6 | +45.3627 | -0.9967 | +0.0000 | +0.9967 |
| +4.8 | +53.7173 | -0.9973 | +0.0000 | +0.9973 |
| +5.0 | +63.6967 | -0.9979 | +0.0000 | +0.9979 |
| +5.2 | +75.6285 | -0.9983 | +0.0000 | +0.9983 |
| +5.4 | +89.9074 | -0.9986 | +0.0000 | +0.9986 |
| +5.6 | +107.0089 | -0.9989 | +0.0000 | +0.9989 |
| +5.8 | +127.5064 | -0.9991 | +0.0000 | +0.9991 |
| +6.0 | +152.0914 | -0.9993 | +0.0000 | +0.9993 |
| +6.2 | +181.5980 | -0.9994 | +0.0000 | +0.9994 |
| +6.4 | +217.0327 | -0.9996 | +0.0000 | +0.9996 |
| +6.6 | +259.6103 | -0.9997 | +0.0000 | +0.9997 |
| +6.8 | +310.7974 | -0.9997 | +0.0000 | +0.9997 |
| +7.0 | +372.3652 | -0.9998 | +0.0000 | +0.9998 |
| +7.2 | +446.4530 | -0.9998 | +0.0000 | +0.9998 |
| +7.4 | +535.6452 | -0.9999 | +0.0000 | +0.9999 |
| +7.6 | +643.0654 | -0.9999 | +0.0000 | +0.9999 |
| +7.8 | +772.4886 | -0.9999 | +0.0000 | +0.9999 |
| +8.0 | +928.4786 | -1.0000 | +0.0000 | +1.0000 |
| +8.2 | +1116.5540 | -1.0000 | +0.0000 | +1.0000 |
| +8.4 | +1343.3889 | -1.0000 | +0.0000 | +1.0000 |
| +8.6 | +1617.0564 | -1.0000 | +0.0000 | +1.0000 |
| +8.8 | +1947.3236 | -1.0000 | +0.0000 | +1.0000 |
| +9.0 | +2346.0094 | -1.0000 | +0.0000 | +1.0000 |
| +9.2 | +2827.4172 | -1.0000 | +0.0000 | +1.0000 |
| +9.4 | +3408.8604 | -1.0000 | +0.0000 | +1.0000 |
| +9.6 | +4111.2992 | -1.0000 | +0.0000 | +1.0000 |
| +9.8 | +4960.1122 | -1.0000 | +0.0000 | +1.0000 |
| +10.0 | +5986.0324 | -1.0000 | +0.0000 | +1.0000 |

$$\phi = -75^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|------------|------------|------------|------------|
| +0.2 | +0.2005 | +0.0003 | -0.3478 | -0.1678 |
| +0.4 | +0.4046 | +0.0027 | -0.5223 | -0.3412 |
| +0.6 | +0.6157 | +0.0092 | -0.6334 | -0.5246 |
| +0.8 | +0.8374 | +0.0222 | -0.7035 | -0.7217 |
| +1.0 | +1.0737 | +0.0444 | -0.7418 | -0.9364 |
| +1.2 | +1.3285 | +0.0789 | -0.7521 | -1.1724 |
| +1.4 | +1.6064 | +0.1295 | -0.7350 | -1.4341 |
| +1.6 | +1.9119 | +0.2007 | -0.6890 | -1.7257 |
| +1.8 | +2.2503 | +0.2980 | -0.6107 | -2.0522 |
| +2.0 | +2.6271 | +0.4282 | -0.4949 | -2.4190 |
| +2.2 | +3.0484 | +0.5994 | -0.3346 | -2.8318 |
| +2.4 | +3.5209 | +0.8217 | -0.1206 | -3.2971 |
| +2.6 | +4.0517 | +1.1073 | +0.1587 | -3.8220 |
| +2.8 | +4.6486 | +1.4712 | +0.5179 | -4.4138 |
| +3.0 | +5.3197 | +1.9316 | +0.9747 | -5.0807 |
| +3.2 | +6.0737 | +2.5105 | +1.5510 | -5.8311 |
| +3.4 | +6.9194 | +3.2347 | +2.2732 | -6.6739 |
| +3.6 | +7.8658 | +4.1366 | +3.1736 | -7.6180 |
| +3.8 | +8.9217 | +5.2552 | +4.2912 | -8.6718 |
| +4.0 | +10.0949 | +6.6376 | +5.6729 | -9.8434 |
| +4.2 | +11.3923 | +8.3406 | +7.3753 | -11.1394 |
| +4.4 | +12.8185 | +10.4319 | +9.4662 | -12.5645 |
| +4.6 | +14.3748 | +12.9929 | +12.0270 | -14.1199 |
| +4.8 | +16.0580 | +16.1209 | +15.1548 | -15.8023 |
| +5.0 | +17.8585 | +19.9317 | +18.9654 | -17.6022 |
| +5.2 | +19.7576 | +24.5630 | +23.5968 | -19.5008 |
| +5.4 | +21.7249 | +30.1786 | +29.2123 | -21.4677 |
| +5.6 | +23.7139 | +36.9721 | +36.0058 | -23.4564 |
| +5.8 | +25.6574 | +45.1723 | +44.2060 | -25.3996 |
| +6.0 | +27.4612 | +55.0490 | +54.0827 | -27.2032 |
| +6.2 | +28.9961 | +66.9190 | +65.9527 | -28.7380 |
| +6.4 | +30.0883 | +81.1538 | +80.1876 | -29.8300 |
| +6.6 | +30.5069 | +98.1876 | +97.2213 | -30.2485 |
| +6.8 | +29.9493 | +118.5261 | +117.5599 | -29.6908 |
| +7.0 | +28.0218 | +142.7566 | +141.7904 | -27.7632 |
| +7.2 | +24.2172 | +171.5588 | +170.5927 | -23.9586 |
| +7.4 | +17.8861 | +205.7162 | +204.7500 | -17.6274 |
| +7.6 | +8.2019 | +246.1278 | +245.1617 | -7.9432 |
| +7.8 | -5.8809 | +293.8211 | +292.8550 | +6.1397 |
| +8.0 | -25.6795 | +349.9641 | +348.9980 | +25.9383 |
| +8.2 | -52.8450 | +415.8764 | +414.9103 | +53.1038 |
| +8.4 | -89.4387 | +493.0400 | +492.0739 | +89.6975 |
| +8.6 | -138.0252 | +583.1059 | +582.1399 | +138.2841 |
| +8.8 | -201.7833 | +687.8980 | +686.9320 | +202.0421 |
| +9.0 | -284.6400 | +809.4095 | +808.4435 | +284.8989 |
| +9.2 | -391.4325 | +949.7913 | +948.8253 | +391.6913 |
| +9.4 | -528.1000 | +1111.3279 | +1110.3619 | +528.3589 |
| +9.6 | -701.9154 | +1296.3963 | +1295.4303 | +702.1742 |
| +9.8 | -921.7591 | +1507.4028 | +1506.4368 | +922.0179 |
| +10.0 | -1198.4461 | +1746.6898 | +1745.7238 | +1198.7050 |

$$\phi = -75^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|------------|------------|---------|---------|
| +0.2 | +0.3683 | -0.3475 | +0.0327 | +0.3482 |
| +0.4 | +0.7458 | -0.5196 | +0.0633 | +0.5250 |
| +0.6 | +1.1403 | -0.6241 | +0.0910 | +0.6426 |
| +0.8 | +1.5592 | -0.6812 | +0.1156 | +0.7257 |
| +1.0 | +2.0101 | -0.6974 | +0.1373 | +0.7863 |
| +1.2 | +2.5010 | -0.6731 | +0.1560 | +0.8311 |
| +1.4 | +3.0405 | -0.6054 | +0.1723 | +0.8645 |
| +1.6 | +3.6377 | -0.4882 | +0.1861 | +0.8897 |
| +1.8 | +4.3026 | -0.3126 | +0.1980 | +0.9088 |
| +2.0 | +5.0461 | -0.0667 | +0.2081 | +0.9232 |
| +2.2 | +5.8803 | +0.2647 | +0.2166 | +0.9341 |
| +2.4 | +6.8181 | +0.7010 | +0.2237 | +0.9423 |
| +2.6 | +7.8738 | +1.2660 | +0.2297 | +0.9486 |
| +2.8 | +9.0624 | +1.9892 | +0.2348 | +0.9533 |
| +3.0 | +10.4005 | +2.9064 | +0.2390 | +0.9568 |
| +3.2 | +11.9049 | +4.0615 | +0.2425 | +0.9594 |
| +3.4 | +13.5934 | +5.5080 | +0.2454 | +0.9614 |
| +3.6 | +15.4838 | +7.3102 | +0.2478 | +0.9629 |
| +3.8 | +17.5935 | +9.5464 | +0.2498 | +0.9639 |
| +4.0 | +19.9384 | +12.3106 | +0.2514 | +0.9647 |
| +4.2 | +22.5318 | +15.7159 | +0.2528 | +0.9652 |
| +4.4 | +25.3830 | +19.8981 | +0.2539 | +0.9656 |
| +4.6 | +28.4947 | +25.0200 | +0.2548 | +0.9659 |
| +4.8 | +31.8604 | +31.2758 | +0.2556 | +0.9661 |
| +5.0 | +35.4607 | +38.8972 | +0.2562 | +0.9662 |
| +5.2 | +39.2585 | +48.1598 | +0.2567 | +0.9662 |
| +5.4 | +43.1926 | +59.3909 | +0.2571 | +0.9663 |
| +5.6 | +47.1703 | +72.9779 | +0.2575 | +0.9663 |
| +5.8 | +51.0571 | +89.3784 | +0.2577 | +0.9663 |
| +6.0 | +54.6645 | +109.1317 | +0.2579 | +0.9663 |
| +6.2 | +57.7341 | +132.8718 | +0.2581 | +0.9662 |
| +6.4 | +59.9183 | +161.3414 | +0.2583 | +0.9662 |
| +6.6 | +60.7555 | +195.4090 | +0.2584 | +0.9662 |
| +6.8 | +59.6401 | +236.0860 | +0.2585 | +0.9662 |
| +7.0 | +55.7851 | +284.5471 | +0.2585 | +0.9661 |
| +7.2 | +48.1759 | +342.1516 | +0.2586 | +0.9661 |
| +7.4 | +35.5135 | +410.4662 | +0.2586 | +0.9661 |
| +7.6 | +16.1451 | +491.2895 | +0.2587 | +0.9661 |
| +7.8 | -12.0206 | +586.6762 | +0.2587 | +0.9661 |
| +8.0 | -51.6179 | +698.9621 | +0.2587 | +0.9660 |
| +8.2 | -105.9488 | +830.7868 | +0.2588 | +0.9660 |
| +8.4 | -179.1363 | +985.1139 | +0.2588 | +0.9660 |
| +8.6 | -276.3093 | +1165.2459 | +0.2588 | +0.9660 |
| +8.8 | -403.8254 | +1374.8301 | +0.2588 | +0.9660 |
| +9.0 | -569.5390 | +1617.8530 | +0.2588 | +0.9660 |
| +9.2 | -783.1238 | +1898.6166 | +0.2588 | +0.9660 |
| +9.4 | -1056.4590 | +2221.6898 | +0.2588 | +0.9660 |
| +9.6 | -1404.0897 | +2591.8266 | +0.2588 | +0.9660 |
| +9.8 | -1843.7771 | +3013.8396 | +0.2588 | +0.9660 |
| +10.0 | -2397.1511 | +3492.4136 | +0.2589 | +0.9660 |

$$\phi = -60^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|-----------|-----------|-----------|-----------|
| +0.2 | +0.2003 | +0.0005 | -0.3472 | -0.1346 |
| +0.4 | +0.4026 | +0.0046 | -0.5184 | -0.2754 |
| +0.6 | +0.6088 | +0.0158 | -0.6219 | -0.4256 |
| +0.8 | +0.8208 | +0.0378 | -0.6788 | -0.5877 |
| +1.0 | +1.0400 | +0.0748 | -0.6971 | -0.7630 |
| +1.2 | +1.2678 | +0.1314 | -0.6794 | -0.9528 |
| +1.4 | +1.5052 | +0.2125 | -0.6254 | -1.1575 |
| +1.6 | +1.7525 | +0.3239 | -0.5326 | -1.3769 |
| +1.8 | +2.0095 | +0.4718 | -0.3971 | -1.6104 |
| +2.0 | +2.2752 | +0.6636 | -0.2134 | -1.8562 |
| +2.2 | +2.5472 | +0.9071 | +0.0252 | -2.1118 |
| +2.4 | +2.8221 | +1.2113 | +0.3270 | -2.3732 |
| +2.6 | +3.0949 | +1.5862 | +0.7010 | -2.6349 |
| +2.8 | +3.3583 | +2.0426 | +1.1576 | -2.8892 |
| +3.0 | +3.6029 | +2.5923 | +1.7082 | -3.1264 |
| +3.2 | +3.8159 | +3.2480 | +2.3652 | -3.3337 |
| +3.4 | +3.9816 | +4.0227 | +3.1415 | -3.4947 |
| +3.6 | +4.0797 | +4.9301 | +4.0506 | -3.5891 |
| +3.8 | +4.0852 | +5.9838 | +5.1059 | -3.5918 |
| +4.0 | +3.9674 | +7.1966 | +6.3203 | -3.4718 |
| +4.2 | +3.6891 | +8.5803 | +7.7054 | -3.1919 |
| +4.4 | +3.2056 | +10.1440 | +9.2705 | -2.7071 |
| +4.6 | +2.4636 | +11.8938 | +11.0215 | -1.9642 |
| +4.8 | +1.4003 | +13.8303 | +12.9591 | -0.9003 |
| +5.0 | -0.0573 | +15.9475 | +15.0771 | +0.5578 |
| +5.2 | -1.9944 | +18.2298 | +17.3602 | +2.4952 |
| +5.4 | -4.5081 | +20.6493 | +19.7804 | +5.0090 |
| +5.6 | -7.7087 | +23.1627 | +22.2944 | +8.2097 |
| +5.8 | -11.7203 | +25.7065 | +24.8386 | +12.2213 |
| +6.0 | -16.6802 | +28.1924 | +27.3249 | +17.1812 |
| +6.2 | -22.7392 | +30.5016 | +29.6344 | +23.2402 |
| +6.4 | -30.0596 | +32.4778 | +31.6108 | +30.5605 |
| +6.6 | -38.8132 | +33.9197 | +33.0529 | +39.3140 |
| +6.8 | -49.1779 | +34.5721 | +33.7055 | +49.6786 |
| +7.0 | -61.3321 | +34.1101 | +33.2496 | +61.8327 |
| +7.2 | -75.4479 | +32.1580 | +31.2915 | +75.9485 |
| +7.4 | -91.6813 | +28.2170 | +27.3507 | +92.1817 |
| +7.6 | -110.1590 | +21.7128 | +20.8465 | +110.6594 |
| +7.8 | -130.9625 | +11.9508 | +11.0846 | +131.4628 |
| +8.0 | -154.1064 | -1.8911 | -2.7573 | +154.5067 |
| +8.2 | -179.5154 | -20.7781 | -21.6443 | +180.0130 |
| +8.4 | -206.9808 | -45.8313 | -46.6975 | +207.4783 |
| +8.6 | -236.1368 | -78.3407 | -79.2069 | +236.6342 |
| +8.8 | -266.4015 | -119.7750 | -120.6412 | +266.8989 |
| +9.0 | -296.9224 | -171.7881 | -172.6542 | +297.4199 |
| +9.2 | -326.5077 | -236.2191 | -237.0853 | +327.0051 |
| +9.4 | -353.5457 | -315.0858 | -315.9520 | +354.0431 |
| +9.6 | -375.9119 | -410.5663 | -411.4325 | +376.4093 |
| +9.8 | -390.8604 | -524.9672 | -525.8335 | +391.3578 |
| +10.0 | -394.9019 | -660.6740 | -661.5402 | +395.3992 |

$$\phi = -60^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|-----------|-----------|---------|---------|
| +0.2 | +0.3350 | -0.3467 | +0.0656 | +0.3478 |
| +0.4 | +0.6780 | -0.5138 | +0.1272 | +0.5231 |
| +0.6 | +1.0345 | -0.6061 | +0.1831 | +0.6377 |
| +0.8 | +1.4085 | -0.6410 | +0.2330 | +0.7167 |
| +1.0 | +1.8031 | -0.6222 | +0.2769 | +0.7720 |
| +1.2 | +2.2207 | -0.5480 | +0.3150 | +0.8108 |
| +1.4 | +2.6627 | -0.4125 | +0.3477 | +0.8350 |
| +1.6 | +3.1295 | -0.2357 | +0.3756 | +0.8565 |
| +1.8 | +3.6200 | +0.0747 | +0.3991 | +0.8690 |
| +2.0 | +4.1314 | +0.4501 | +0.4189 | +0.8770 |
| +2.2 | +4.6591 | +0.9323 | +0.4353 | +0.8818 |
| +2.4 | +5.1954 | +1.5383 | +0.4487 | +0.8843 |
| +2.6 | +5.7298 | +2.2672 | +0.4600 | +0.8851 |
| +2.8 | +6.2476 | +3.2003 | +0.4691 | +0.8850 |
| +3.0 | +6.7293 | +4.3006 | +0.4764 | +0.8840 |
| +3.2 | +7.1497 | +5.6132 | +0.4822 | +0.8827 |
| +3.4 | +7.4764 | +7.1642 | +0.4869 | +0.8811 |
| +3.6 | +7.6689 | +8.9508 | +0.4905 | +0.8795 |
| +3.8 | +7.5771 | +11.0093 | +0.4934 | +0.8779 |
| +4.0 | +7.4375 | +13.3175 | +0.4955 | +0.8763 |
| +4.2 | +6.9811 | +15.8857 | +0.4972 | +0.8748 |
| +4.4 | +5.9127 | +19.4146 | +0.4984 | +0.8735 |
| +4.6 | +4.4278 | +22.9153 | +0.4993 | +0.8723 |
| +4.8 | +2.3359 | +26.7695 | +0.5000 | +0.8712 |
| +5.0 | -0.6152 | +31.0247 | +0.5004 | +0.8703 |
| +5.2 | -4.4896 | +35.5700 | +0.5007 | +0.8695 |
| +5.4 | -9.5171 | +40.4295 | +0.5009 | +0.8688 |
| +5.6 | -15.9185 | +45.4571 | +0.5009 | +0.8683 |
| +5.8 | -23.9416 | +50.6451 | +0.5010 | +0.8678 |
| +6.0 | -33.8515 | +55.9173 | +0.5009 | +0.8674 |
| +6.2 | -45.9794 | +60.1363 | +0.5009 | +0.8672 |
| +6.4 | -60.6251 | +64.2695 | +0.5008 | +0.8670 |
| +6.6 | -78.1273 | +68.2725 | +0.5007 | +0.8668 |
| +6.8 | -98.8555 | +72.2276 | +0.5006 | +0.8666 |
| +7.0 | -123.1648 | +76.0657 | +0.5005 | +0.8665 |
| +7.2 | -151.3364 | +79.7425 | +0.5005 | +0.8664 |
| +7.4 | -183.0551 | +83.2673 | +0.5004 | +0.8663 |
| +7.6 | -220.0135 | +86.6393 | +0.5003 | +0.8662 |
| +7.8 | -262.4253 | +89.8355 | +0.5003 | +0.8662 |
| +8.0 | -310.7131 | +92.8454 | +0.5002 | +0.8661 |
| +8.2 | -365.5254 | +95.6224 | +0.4999 | +0.8661 |
| +8.4 | -414.4322 | +98.1208 | +0.4997 | +0.8661 |
| +8.6 | -473.7715 | +100.4476 | +0.4994 | +0.8661 |
| +8.8 | -534.3355 | +102.4463 | +0.4994 | +0.8661 |
| +9.0 | -594.3425 | +104.1425 | +0.4994 | +0.8661 |
| +9.2 | -653.3125 | +105.5394 | +0.4994 | +0.8661 |
| +9.4 | -711.5385 | +106.6379 | +0.4993 | +0.8661 |
| +9.6 | -768.5212 | +107.4369 | +0.4993 | +0.8661 |
| +9.8 | -822.2182 | +108.0308 | +0.4993 | +0.8662 |
| +10.0 | -872.5111 | +108.2143 | +0.4993 | +0.8662 |

$$\phi = -45^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|-----------|----------|----------|-----------|
| +0.2 | +0.1999 | +0.0006 | -0.3466 | -0.1012 |
| +0.4 | +0.3999 | +0.0053 | -0.5148 | -0.2080 |
| +0.6 | +0.5997 | +0.0179 | -0.6121 | -0.3223 |
| +0.8 | +0.7989 | +0.0426 | -0.6594 | -0.4448 |
| +1.0 | +0.9968 | +0.0832 | -0.6652 | -0.5752 |
| +1.2 | +1.1922 | +0.1437 | -0.6333 | -0.7119 |
| +1.4 | +1.3831 | +0.2280 | -0.5649 | -0.8528 |
| +1.6 | +1.5672 | +0.3396 | -0.4601 | -0.9947 |
| +1.8 | +1.7410 | +0.4821 | -0.3181 | -1.1334 |
| +2.0 | +1.9003 | +0.6587 | -0.1379 | -1.2640 |
| +2.2 | +2.0398 | +0.8718 | +0.0816 | -1.3804 |
| +2.4 | +2.1531 | +1.1236 | +0.3415 | -1.4754 |
| +2.6 | +2.2327 | +1.4150 | +0.6417 | -1.5409 |
| +2.8 | +2.2700 | +1.7461 | +0.9818 | -1.5676 |
| +3.0 | +2.2553 | +2.1154 | +1.3599 | -1.5451 |
| +3.2 | +2.1777 | +2.5198 | +1.7725 | -1.4621 |
| +3.4 | +2.0255 | +2.9539 | +2.2141 | -1.3064 |
| +3.6 | +1.7863 | +3.4101 | +2.6770 | -1.0650 |
| +3.8 | +1.4471 | +3.8778 | +3.1506 | -0.7249 |
| +4.0 | +0.9950 | +4.3432 | +3.6209 | -0.2728 |
| +4.2 | +0.4177 | +4.7886 | +4.0704 | +0.3038 |
| +4.4 | -0.2962 | +5.1922 | +4.4775 | +1.0168 |
| +4.6 | -1.1563 | +5.5281 | +4.8162 | +1.8757 |
| +4.8 | -2.1692 | +5.7656 | +5.0558 | +2.8872 |
| +5.0 | -3.3376 | +5.8689 | +5.1609 | +4.0543 |
| +5.2 | -4.6594 | +5.7977 | +5.0909 | +5.3746 |
| +5.4 | -6.1256 | +5.5068 | +4.8009 | +6.8394 |
| +5.6 | -7.7192 | +4.9468 | +4.2415 | +8.4318 |
| +5.8 | -9.4134 | +4.0647 | +3.3598 | +10.1250 |
| +6.0 | -11.1700 | +2.8053 | +2.1006 | +11.8805 |
| +6.2 | -12.9370 | +1.1121 | +0.4074 | +13.6467 |
| +6.4 | -14.6472 | -1.0701 | -1.7749 | +15.3562 |
| +6.6 | -16.2163 | -3.7932 | -4.4982 | +16.9247 |
| +6.8 | -17.5410 | -7.1023 | -7.8075 | +18.2488 |
| +7.0 | -18.4980 | -11.0319 | -11.7374 | +19.2053 |
| +7.2 | -18.9425 | -15.6015 | -16.3072 | +19.6495 |
| +7.4 | -18.7085 | -20.8102 | -21.5161 | +19.4153 |
| +7.6 | -17.6089 | -26.6308 | -27.3369 | +18.3156 |
| +7.8 | -15.4368 | -33.0030 | -33.7094 | +16.1433 |
| +8.0 | -11.9683 | -39.8261 | -40.5327 | +12.6748 |
| +8.2 | -6.9668 | -46.9510 | -47.6577 | +7.6733 |
| +8.4 | -0.1888 | -54.1715 | -54.8784 | +0.8952 |
| +8.6 | +8.6079 | -61.2166 | -61.9237 | -7.9014 |
| +8.8 | +19.6538 | -67.7417 | -68.4489 | -18.9473 |
| +9.0 | +33.1543 | -73.3209 | -74.0281 | -32.4478 |
| +9.2 | +49.2739 | -77.4403 | -78.1476 | -48.5673 |
| +9.4 | +68.1163 | -79.4933 | -80.2007 | -67.4097 |
| +9.6 | +89.7026 | -78.7780 | -79.4854 | -88.9959 |
| +9.8 | +113.9442 | -74.4976 | -75.2050 | -113.2375 |
| +10.0 | +140.6144 | -65.7655 | -66.4729 | -139.9077 |

$$\phi = -45^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|-----------|-----------|---------|---------|
| +0.2 | +0.3012 | -0.3460 | +0.0987 | +0.3473 |
| +0.4 | +0.6079 | -0.5095 | +0.1919 | +0.5201 |
| +0.6 | +0.9220 | -0.5941 | +0.2774 | +0.6301 |
| +0.8 | +1.2438 | -0.6167 | +0.3540 | +0.7020 |
| +1.0 | +1.5721 | -0.5819 | +0.4216 | +0.7485 |
| +1.2 | +1.9041 | -0.4895 | +0.4802 | +0.7771 |
| +1.4 | +2.2360 | -0.3369 | +0.5303 | +0.7929 |
| +1.6 | +2.5619 | -0.1204 | +0.5725 | +0.7998 |
| +1.8 | +2.8745 | +0.1640 | +0.6076 | +0.8003 |
| +2.0 | +3.1644 | +0.5207 | +0.6363 | +0.7966 |
| +2.2 | +3.4202 | +0.9535 | +0.6594 | +0.7902 |
| +2.4 | +3.6285 | +1.4651 | +0.6776 | +0.7821 |
| +2.6 | +3.7737 | +2.0568 | +0.6917 | +0.7732 |
| +2.8 | +3.8377 | +2.7280 | +0.7024 | +0.7642 |
| +3.0 | +3.8005 | +3.4754 | +0.7102 | +0.7555 |
| +3.2 | +3.6399 | +4.2923 | +0.7156 | +0.7472 |
| +3.4 | +3.3319 | +5.1681 | +0.7191 | +0.7397 |
| +3.6 | +2.8514 | +6.0872 | +0.7212 | +0.7330 |
| +3.8 | +2.1721 | +7.0284 | +0.7221 | +0.7271 |
| +4.0 | +1.2679 | +7.9641 | +0.7221 | +0.7222 |
| +4.2 | +0.1138 | +8.8590 | +0.7216 | +0.7182 |
| +4.4 | -1.3131 | +9.6698 | +0.7206 | +0.7147 |
| +4.6 | -3.0320 | +10.3444 | +0.7194 | +0.7119 |
| +4.8 | -5.0564 | +10.8215 | +0.7180 | +0.7097 |
| +5.0 | -7.3920 | +11.0298 | +0.7166 | +0.7080 |
| +5.2 | -10.0341 | +10.8887 | +0.7152 | +0.7067 |
| +5.4 | -12.9651 | +10.3077 | +0.7138 | +0.7058 |
| +5.6 | -16.1510 | +9.1883 | +0.7126 | +0.7052 |
| +5.8 | -19.5384 | +7.4246 | +0.7115 | +0.7049 |
| +6.0 | -23.0506 | +4.9060 | +0.7105 | +0.7047 |
| +6.2 | -26.5837 | +1.5196 | +0.7096 | +0.7047 |
| +6.4 | -30.0035 | -2.8450 | +0.7089 | +0.7048 |
| +6.6 | -33.1410 | -8.2915 | +0.7083 | +0.7049 |
| +6.8 | -35.7899 | -14.9099 | +0.7078 | +0.7051 |
| +7.0 | -37.7034 | -22.7693 | +0.7073 | +0.7054 |
| +7.2 | -38.5921 | -31.9087 | +0.7070 | +0.7056 |
| +7.4 | -38.1239 | -42.3263 | +0.7068 | +0.7059 |
| +7.6 | -35.9245 | -53.9678 | +0.7066 | +0.7061 |
| +7.8 | -31.5802 | -66.7125 | +0.7065 | +0.7063 |
| +8.0 | -24.6432 | -80.3589 | +0.7064 | +0.7065 |
| +8.2 | -14.6401 | -94.6087 | +0.7064 | +0.7067 |
| +8.4 | -1.0841 | -109.0500 | +0.7064 | +0.7069 |
| +8.6 | +16.5093 | -123.1404 | +0.7064 | +0.7070 |
| +8.8 | +38.6011 | -136.1907 | +0.7065 | +0.7071 |
| +9.0 | +65.6021 | -147.3490 | +0.7065 | +0.7072 |
| +9.2 | +97.8412 | -155.5879 | +0.7065 | +0.7073 |
| +9.4 | +135.5261 | -159.6941 | +0.7066 | +0.7073 |
| +9.6 | +178.6985 | -158.2635 | +0.7066 | +0.7073 |
| +9.8 | +227.1818 | -149.7026 | +0.7067 | +0.7074 |
| +10.0 | +280.5222 | -132.2385 | +0.7067 | +0.7074 |

$$\phi = -30^\circ$$

| . X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|----------|----------|----------|----------|
| +0.2 | +0.1996 | +0.0005 | -0.3461 | -0.0676 |
| +0.4 | +0.3973 | +0.0045 | -0.5120 | -0.1393 |
| +0.6 | +0.5908 | +0.0153 | -0.6049 | -0.2160 |
| +0.8 | +0.7781 | +0.0360 | -0.6466 | -0.2975 |
| +1.0 | +0.9568 | +0.0694 | -0.6471 | -0.3824 |
| +1.2 | +1.1243 | +0.1179 | -0.6121 | -0.4683 |
| +1.4 | +1.2779 | +0.1834 | -0.5454 | -0.5525 |
| +1.6 | +1.4145 | +0.2672 | -0.4501 | -0.6315 |
| +1.8 | +1.5311 | +0.3698 | -0.3292 | -0.7013 |
| +2.0 | +1.6244 | +0.4910 | -0.1853 | -0.7578 |
| +2.2 | +1.6907 | +0.6297 | -0.0219 | -0.7963 |
| +2.4 | +1.7269 | +0.7838 | +0.1575 | -0.8125 |
| +2.6 | +1.7296 | +0.9502 | +0.3488 | -0.8019 |
| +2.8 | +1.6958 | +1.1249 | +0.5468 | -0.7605 |
| +3.0 | +1.6230 | +1.3028 | +0.7459 | -0.6847 |
| +3.2 | +1.5092 | +1.4778 | +0.9397 | -0.5715 |
| +3.4 | +1.3533 | +1.6428 | +1.1208 | -0.4191 |
| +3.6 | +1.1554 | +1.7899 | +1.2815 | -0.2266 |
| +3.8 | +0.9166 | +1.9108 | +1.4132 | +0.0052 |
| +4.0 | +0.6398 | +1.9963 | +1.5071 | +0.2745 |
| +4.2 | +0.3294 | +2.0373 | +1.5542 | +0.5770 |
| +4.4 | -0.0082 | +2.0245 | +1.5456 | +0.9069 |
| +4.6 | -0.3649 | +1.9493 | +1.4728 | +1.2562 |
| +4.8 | -0.7302 | +1.8038 | +1.3283 | +1.6147 |
| +5.0 | -1.0918 | +1.5815 | +1.1058 | +1.9701 |
| +5.2 | -1.4350 | +1.2776 | +0.8007 | +2.3080 |
| +5.4 | -1.7436 | +0.8895 | +0.4109 | +2.6121 |
| +5.6 | -1.9995 | +0.4176 | -0.0632 | +2.8644 |
| +5.8 | -2.1837 | -0.1344 | -0.6179 | +3.0457 |
| +6.0 | -2.2763 | -0.7593 | -1.2454 | +3.1362 |
| +6.2 | -2.2572 | -1.4454 | -1.9342 | +3.1156 |
| +6.4 | -2.1071 | -2.1765 | -2.6679 | +2.9647 |
| +6.6 | -1.8082 | -2.9317 | -3.4254 | +2.6654 |
| +6.8 | -1.3453 | -3.6851 | -4.1810 | +2.2026 |
| +7.0 | -0.7066 | -4.4062 | -4.9039 | +1.5643 |
| +7.2 | +0.1145 | -5.0598 | -5.5591 | +0.7437 |
| +7.4 | +1.1192 | -5.6070 | -6.1076 | -0.2601 |
| +7.6 | +2.3012 | -6.0056 | -6.5072 | -1.4412 |
| +7.8 | +3.6460 | -6.2112 | -6.7136 | -2.7851 |
| +8.0 | +5.1298 | -6.1790 | -6.6819 | -4.2679 |
| +8.2 | +6.7187 | -5.8649 | -6.3682 | -5.8559 |
| +8.4 | +8.3677 | -5.2279 | -5.7313 | -7.5041 |
| +8.6 | +10.0212 | -4.2319 | -4.7353 | -9.1567 |
| +8.8 | +11.6121 | -2.8488 | -3.3520 | -10.7470 |
| +9.0 | +13.0632 | -1.0603 | -1.5634 | -12.1975 |
| +9.2 | +14.2877 | +1.1383 | +0.6356 | -13.4215 |
| +9.4 | +15.1910 | +3.7367 | +3.2343 | -14.3245 |
| +9.6 | +15.6734 | +6.7054 | +6.2033 | -14.8066 |
| +9.8 | +15.6326 | +9.9943 | +9.4926 | -14.7656 |
| +10.0 | +14.9677 | +13.5301 | +13.0287 | -14.1005 |

$$\phi = -30^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|----------|----------|---------|---------|
| +0.2 | +0.2673 | -0.3456 | +0.1319 | +0.3467 |
| +0.4 | +0.5366 | -0.5074 | +0.2579 | +0.5166 |
| +0.6 | +0.8069 | -0.5895 | +0.3747 | +0.6203 |
| +0.8 | +1.0757 | -0.6106 | +0.4805 | +0.6827 |
| +1.0 | +1.3392 | -0.5777 | +0.5744 | +0.7166 |
| +1.2 | +1.5926 | -0.4941 | +0.6559 | +0.7301 |
| +1.4 | +1.8304 | -0.3619 | +0.7253 | +0.7289 |
| +1.6 | +2.0461 | -0.1829 | +0.7830 | +0.7174 |
| +1.8 | +2.2325 | +0.0406 | +0.8298 | +0.6991 |
| +2.0 | +2.3822 | +0.3056 | +0.8665 | +0.6764 |
| +2.2 | +2.4871 | +0.6078 | +0.8944 | +0.6516 |
| +2.4 | +2.5395 | +0.9414 | +0.9144 | +0.6262 |
| +2.6 | +2.5316 | +1.2990 | +0.9276 | +0.6014 |
| +2.8 | +2.4564 | +1.6718 | +0.9352 | +0.5781 |
| +3.0 | +2.3077 | +2.0488 | +0.9382 | +0.5568 |
| +3.2 | +2.0807 | +2.4175 | +0.9376 | +0.5380 |
| +3.4 | +1.7724 | +2.7636 | +0.9341 | +0.5219 |
| +3.6 | +1.3820 | +3.0715 | +0.9287 | +0.5084 |
| +3.8 | +0.9114 | +3.3241 | +0.9219 | +0.4975 |
| +4.0 | +0.3653 | +3.5035 | +0.9143 | +0.4892 |
| +4.2 | -0.2475 | +3.5915 | +0.9065 | +0.4830 |
| +4.4 | -0.9151 | +3.5701 | +0.8987 | +0.4789 |
| +4.6 | -1.6211 | +3.4221 | +0.8913 | +0.4765 |
| +4.8 | -2.3450 | +3.1322 | +0.8844 | +0.4755 |
| +5.0 | -3.0619 | +2.6873 | +0.8783 | +0.4757 |
| +5.2 | -3.7430 | +2.0783 | +0.8730 | +0.4768 |
| +5.4 | -4.3557 | +1.3004 | +0.8685 | +0.4786 |
| +5.6 | -4.8640 | +0.3543 | +0.8648 | +0.4809 |
| +5.8 | -5.2295 | -0.7523 | +0.8620 | +0.4834 |
| +6.0 | -5.4125 | -2.0048 | +0.8598 | +0.4861 |
| +6.2 | -5.3728 | -3.3797 | +0.8584 | +0.4887 |
| +6.4 | -5.0718 | -4.8445 | +0.8576 | +0.4913 |
| +6.6 | -4.4737 | -6.3572 | +0.8572 | +0.4937 |
| +6.8 | -3.5479 | -7.8662 | +0.8573 | +0.4958 |
| +7.0 | -2.2710 | -9.3102 | +0.8576 | +0.4977 |
| +7.2 | -0.6292 | -10.6190 | +0.8583 | +0.4993 |
| +7.4 | +1.3793 | -11.7147 | +0.8591 | +0.5006 |
| +7.6 | +3.7424 | -12.5128 | +0.8600 | +0.5016 |
| +7.8 | +6.4311 | -12.9249 | +0.8609 | +0.5023 |
| +8.0 | +9.3978 | -12.8610 | +0.8618 | +0.5029 |
| +8.2 | +12.5746 | -12.2331 | +0.8628 | +0.5032 |
| +8.4 | +15.8719 | -10.9592 | +0.8636 | +0.5033 |
| +8.6 | +19.1780 | -8.9673 | +0.8644 | +0.5033 |
| +8.8 | +22.3592 | -6.2009 | +0.8651 | +0.5032 |
| +9.0 | +25.2608 | -2.6238 | +0.8656 | +0.5030 |
| +9.2 | +27.7092 | +1.7740 | +0.8661 | +0.5027 |
| +9.4 | +29.5155 | +6.9710 | +0.8665 | +0.5024 |
| +9.6 | +30.4800 | +12.9088 | +0.8668 | +0.5020 |
| +9.8 | +30.3982 | +19.4869 | +0.8670 | +0.5017 |
| +10.0 | +29.0683 | +26.5588 | +0.8671 | +0.5013 |

$$\phi = -15^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|---------|---------|---------|---------|
| +0.2 | +0.1994 | +0.0003 | -0.3458 | -0.0338 |
| +0.4 | +0.3953 | +0.0026 | -0.5102 | -0.0698 |
| +0.6 | +0.5845 | +0.0087 | -0.6007 | -0.1083 |
| +0.8 | +0.7635 | +0.0204 | -0.6400 | -0.1488 |
| +1.0 | +0.9294 | +0.0390 | -0.6392 | -0.1901 |
| +1.2 | +1.0791 | +0.0654 | -0.6058 | -0.2310 |
| +1.4 | +1.2103 | +0.1004 | -0.5457 | -0.2696 |
| +1.6 | +1.3207 | +0.1438 | -0.4637 | -0.3037 |
| +1.8 | +1.4085 | +0.1955 | -0.3649 | -0.3314 |
| +2.0 | +1.4724 | +0.2543 | -0.2536 | -0.3505 |
| +2.2 | +1.5116 | +0.3188 | -0.1345 | -0.3593 |
| +2.4 | +1.5258 | +0.3872 | -0.0121 | -0.3560 |
| +2.6 | +1.5153 | +0.4571 | +0.1090 | -0.3395 |
| +2.8 | +1.4811 | +0.5258 | +0.2250 | -0.3091 |
| +3.0 | +1.4246 | +0.5906 | +0.3316 | -0.2644 |
| +3.2 | +1.3480 | +0.6484 | +0.4250 | -0.2060 |
| +3.4 | +1.2540 | +0.6962 | +0.5018 | -0.1347 |
| +3.6 | +1.1458 | +0.7312 | +0.5590 | -0.0524 |
| +3.8 | +1.0273 | +0.7508 | +0.5941 | +0.0387 |
| +4.0 | +0.9025 | +0.7530 | +0.6054 | +0.1359 |
| +4.2 | +0.7760 | +0.7360 | +0.5918 | +0.2356 |
| +4.4 | +0.6524 | +0.6989 | +0.5530 | +0.3343 |
| +4.6 | +0.5365 | +0.6415 | +0.4896 | +0.4278 |
| +4.8 | +0.4316 | +0.5644 | +0.4029 | +0.5119 |
| +5.0 | +0.3450 | +0.4689 | +0.2953 | +0.5826 |
| +5.2 | +0.2794 | +0.3574 | +0.1698 | +0.6358 |
| +5.4 | +0.2384 | +0.2330 | +0.0303 | +0.6680 |
| +5.6 | +0.2249 | +0.0995 | -0.1185 | +0.6761 |
| +5.8 | +0.2410 | -0.0384 | -0.2714 | +0.6578 |
| +6.0 | +0.2878 | -0.1756 | -0.4228 | +0.6117 |
| +6.2 | +0.3654 | -0.3066 | -0.5666 | +0.5372 |
| +6.4 | +0.4727 | -0.4255 | -0.6967 | +0.4351 |
| +6.6 | +0.6075 | -0.5266 | -0.8071 | +0.3072 |
| +6.8 | +0.7663 | -0.6043 | -0.8921 | +0.1563 |
| +7.0 | +0.9446 | -0.6536 | -0.9467 | -0.0133 |
| +7.2 | +1.1366 | -0.6701 | -0.9665 | -0.1964 |
| +7.4 | +1.3358 | -0.6503 | -0.9483 | -0.3868 |
| +7.6 | +1.5347 | -0.5921 | -0.8899 | -0.5775 |
| +7.8 | +1.7255 | -0.4946 | -0.7906 | -0.7607 |
| +8.0 | +1.8999 | -0.3582 | -0.6513 | -0.9284 |
| +8.2 | +2.0498 | -0.1853 | -0.4744 | -1.0727 |
| +8.4 | +2.1671 | +0.0202 | -0.2642 | -1.1855 |
| +8.6 | +2.2447 | +0.2531 | -0.0262 | -1.2598 |
| +8.8 | +2.2762 | +0.5062 | +0.2320 | -1.2892 |
| +9.0 | +2.2566 | +0.7709 | +0.5019 | -1.2686 |
| +9.2 | +2.1825 | +1.0375 | +0.7735 | -1.1946 |
| +9.4 | +2.0524 | +1.2956 | +1.0362 | -1.0654 |
| +9.6 | +1.8669 | +1.5338 | +1.2784 | -0.8816 |
| +9.8 | +1.6287 | +1.7407 | +1.4888 | -0.6457 |
| +10.0 | +1.3430 | +1.9053 | +1.6562 | -0.3627 |

$$\phi = -15^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|---------|---------|---------|---------|
| +0.2 | +0.2333 | -0.3455 | +0.1655 | +0.3461 |
| +0.4 | +0.4652 | -0.5076 | +0.3255 | +0.5128 |
| +0.6 | +0.6928 | -0.5919 | +0.4761 | +0.6095 |
| +0.8 | +0.9124 | -0.6195 | +0.6147 | +0.6604 |
| +1.0 | +1.1195 | -0.6002 | +0.7392 | +0.6782 |
| +1.2 | +1.3102 | -0.5404 | +0.8481 | +0.6713 |
| +1.4 | +1.4799 | -0.4452 | +0.9407 | +0.6461 |
| +1.6 | +1.6245 | -0.3198 | +1.0170 | +0.6076 |
| +1.8 | +1.7399 | -0.1693 | +1.0771 | +0.5604 |
| +2.0 | +1.8230 | +0.0006 | +1.1218 | +0.5079 |
| +2.2 | +1.8709 | +0.1842 | +1.1523 | +0.4534 |
| +2.4 | +1.8819 | +0.3750 | +1.1697 | +0.3994 |
| +2.6 | +1.8549 | +0.5661 | +1.1757 | +0.3480 |
| +2.8 | +1.7902 | +0.7509 | +1.1719 | +0.3008 |
| +3.0 | +1.6890 | +0.9223 | +1.1601 | +0.2589 |
| +3.2 | +1.5540 | +1.0734 | +1.1419 | +0.2233 |
| +3.4 | +1.3887 | +1.1980 | +1.1192 | +0.1943 |
| +3.6 | +1.1982 | +1.2902 | +1.0934 | +0.1722 |
| +3.8 | +0.9885 | +1.3450 | +1.0660 | +0.1567 |
| +4.0 | +0.7666 | +1.3584 | +1.0384 | +0.1475 |
| +4.2 | +0.5403 | +1.3279 | +1.0117 | +0.1441 |
| +4.4 | +0.3180 | +1.2520 | +0.9867 | +0.1459 |
| +4.6 | +0.1086 | +1.1312 | +0.9643 | +0.1519 |
| +4.8 | -0.0803 | +0.9674 | +0.9436 | +0.1614 |
| +5.0 | -0.2375 | +0.7643 | +0.9276 | +0.1736 |
| +5.2 | -0.3563 | +0.5272 | +0.9152 | +0.1876 |
| +5.4 | -0.4295 | +0.2633 | +0.9064 | +0.2027 |
| +5.6 | -0.4512 | -0.0190 | +0.9010 | +0.2180 |
| +5.8 | -0.4168 | -0.3099 | +0.8988 | +0.2330 |
| +6.0 | -0.3238 | -0.5985 | +0.8995 | +0.2471 |
| +6.2 | -0.1718 | -0.8732 | +0.9027 | +0.2600 |
| +6.4 | +0.0375 | -1.1222 | +0.9079 | +0.2712 |
| +6.6 | +0.3003 | -1.3337 | +0.9147 | +0.2805 |
| +6.8 | +0.6100 | -1.4965 | +0.9227 | +0.2878 |
| +7.0 | +0.9579 | -1.6003 | +0.9313 | +0.2931 |
| +7.2 | +1.3330 | -1.6367 | +0.9401 | +0.2964 |
| +7.4 | +1.7226 | -1.5987 | +0.9489 | +0.2979 |
| +7.6 | +2.1122 | -1.4820 | +0.9572 | +0.2977 |
| +7.8 | +2.4862 | -1.2852 | +0.9648 | +0.2959 |
| +8.0 | +2.8284 | -1.0096 | +0.9715 | +0.2930 |
| +8.2 | +3.1225 | -0.6598 | +0.9771 | +0.2891 |
| +8.4 | +3.3527 | -0.2439 | +0.9816 | +0.2845 |
| +8.6 | +3.5046 | +0.2268 | +0.9848 | +0.2794 |
| +8.8 | +3.5655 | +0.7382 | +0.9869 | +0.2742 |
| +9.0 | +3.5253 | +1.2728 | +0.9879 | +0.2689 |
| +9.2 | +3.3771 | +1.8111 | +0.9879 | +0.2640 |
| +9.4 | +3.1179 | +2.3318 | +0.9870 | +0.2594 |
| +9.6 | +2.7485 | +2.8122 | +0.9853 | +0.2553 |
| +9.8 | +2.2744 | +3.2296 | +0.9830 | +0.2518 |
| +10.0 | +1.7058 | +3.5615 | +0.9803 | +0.2491 |

$$\phi = 0^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|---------|---------|---------|---------|
| +0.2 | +0.1993 | +0.0000 | -0.3457 | +0.0000 |
| +0.4 | +0.3946 | +0.0000 | -0.5096 | +0.0000 |
| +0.6 | +0.5822 | +0.0000 | -0.5993 | +0.0000 |
| +0.8 | +0.7583 | +0.0000 | -0.6379 | +0.0000 |
| +1.0 | +0.9197 | +0.0000 | -0.6371 | +0.0000 |
| +1.2 | +1.0635 | +0.0000 | -0.6050 | +0.0000 |
| +1.4 | +1.1874 | +0.0000 | -0.5479 | +0.0000 |
| +1.6 | +1.2898 | +0.0000 | -0.4716 | +0.0000 |
| +1.8 | +1.3693 | +0.0000 | -0.3814 | +0.0000 |
| +2.0 | +1.4257 | +0.0000 | -0.2823 | +0.0000 |
| +2.2 | +1.4591 | +0.0000 | -0.1788 | +0.0000 |
| +2.4 | +1.4702 | +0.0000 | -0.0753 | +0.0000 |
| +2.6 | +1.4606 | +0.0000 | +0.0240 | +0.0000 |
| +2.8 | +1.4322 | +0.0000 | +0.1160 | +0.0000 |
| +3.0 | +1.3875 | +0.0000 | +0.1975 | +0.0000 |
| +3.2 | +1.3292 | +0.0000 | +0.2660 | +0.0000 |
| +3.4 | +1.2605 | +0.0000 | +0.3198 | +0.0000 |
| +3.6 | +1.1846 | +0.0000 | +0.3576 | +0.0000 |
| +3.8 | +1.1049 | +0.0000 | +0.3788 | +0.0000 |
| +4.0 | +1.0247 | +0.0000 | +0.3835 | +0.0000 |
| +4.2 | +0.9471 | +0.0000 | +0.3723 | +0.0000 |
| +4.4 | +0.8750 | +0.0000 | +0.3465 | +0.0000 |
| +4.6 | +0.8118 | +0.0000 | +0.3076 | +0.0000 |
| +4.8 | +0.7590 | +0.0000 | +0.2579 | +0.0000 |
| +5.0 | +0.7171 | +0.0000 | +0.1995 | +0.0000 |
| +5.2 | +0.6882 | +0.0000 | +0.1353 | +0.0000 |
| +5.4 | +0.6731 | +0.0000 | +0.0680 | +0.0000 |
| +5.6 | +0.6717 | +0.0000 | +0.0002 | +0.0000 |
| +5.8 | +0.6836 | +0.0000 | -0.0652 | +0.0000 |
| +6.0 | +0.7080 | +0.0000 | -0.1260 | +0.0000 |
| +6.2 | +0.7434 | +0.0000 | -0.1798 | +0.0000 |
| +6.4 | +0.7880 | +0.0000 | -0.2248 | +0.0000 |
| +6.6 | +0.8400 | +0.0000 | -0.2594 | +0.0000 |
| +6.8 | +0.8969 | +0.0000 | -0.2826 | +0.0000 |
| +7.0 | +0.9564 | +0.0000 | -0.2938 | +0.0000 |
| +7.2 | +1.0161 | +0.0000 | -0.2930 | +0.0000 |
| +7.4 | +1.0737 | +0.0000 | -0.2805 | +0.0000 |
| +7.6 | +1.1268 | +0.0000 | -0.2571 | +0.0000 |
| +7.8 | +1.1737 | +0.0000 | -0.2240 | +0.0000 |
| +8.0 | +1.2125 | +0.0000 | -0.1828 | +0.0000 |
| +8.2 | +1.2420 | +0.0000 | -0.1352 | +0.0000 |
| +8.4 | +1.2612 | +0.0000 | -0.0834 | +0.0000 |
| +8.6 | +1.2695 | +0.0000 | -0.0295 | +0.0000 |
| +8.8 | +1.2670 | +0.0000 | +0.0243 | +0.0000 |
| +9.0 | +1.2540 | +0.0000 | +0.0761 | +0.0000 |
| +9.2 | +1.2312 | +0.0000 | +0.1237 | +0.0000 |
| +9.4 | +1.1998 | +0.0000 | +0.1653 | +0.0000 |
| +9.6 | +1.1610 | +0.0000 | +0.1995 | +0.0000 |
| +9.8 | +1.1168 | +0.0000 | +0.2251 | +0.0000 |
| +10.0 | +1.0688 | +0.0000 | +0.2411 | +0.0000 |

$$\phi = 0^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|---------|---------|---------|---------|
| +0.2 | +0.1993 | -0.3457 | +0.1993 | +0.3457 |
| +0.4 | +0.3946 | -0.5096 | +0.3946 | +0.5096 |
| +0.6 | +0.5822 | -0.5993 | +0.5822 | +0.5993 |
| +0.8 | +0.7583 | -0.6379 | +0.7583 | +0.6379 |
| +1.0 | +0.9197 | -0.6371 | +0.9197 | +0.6371 |
| +1.2 | +1.0635 | -0.6050 | +1.0635 | +0.6050 |
| +1.4 | +1.1874 | -0.5479 | +1.1874 | +0.5479 |
| +1.6 | +1.2898 | -0.4716 | +1.2898 | +0.4716 |
| +1.8 | +1.3693 | -0.3814 | +1.3693 | +0.3814 |
| +2.0 | +1.4257 | -0.2823 | +1.4257 | +0.2823 |
| +2.2 | +1.4591 | -0.1788 | +1.4591 | +0.1788 |
| +2.4 | +1.4702 | -0.0753 | +1.4702 | +0.0753 |
| +2.6 | +1.4606 | +0.0240 | +1.4606 | -0.0240 |
| +2.8 | +1.4322 | +0.1160 | +1.4322 | -0.1160 |
| +3.0 | +1.3875 | +0.1975 | +1.3875 | -0.1975 |
| +3.2 | +1.3292 | +0.2660 | +1.3292 | -0.2660 |
| +3.4 | +1.2605 | +0.3198 | +1.2605 | -0.3198 |
| +3.6 | +1.1846 | +0.3576 | +1.1846 | -0.3576 |
| +3.8 | +1.1049 | +0.3788 | +1.1049 | -0.3788 |
| +4.0 | +1.0247 | +0.3835 | +1.0247 | -0.3835 |
| +4.2 | +0.9471 | +0.3723 | +0.9471 | -0.3723 |
| +4.4 | +0.8750 | +0.3465 | +0.8750 | -0.3465 |
| +4.6 | +0.8118 | +0.3076 | +0.8118 | -0.3076 |
| +4.8 | +0.7590 | +0.2579 | +0.7590 | -0.2579 |
| +5.0 | +0.7171 | +0.1995 | +0.7171 | -0.1995 |
| +5.2 | +0.6882 | +0.1353 | +0.6882 | -0.1353 |
| +5.4 | +0.6731 | +0.0680 | +0.6731 | -0.0680 |
| +5.6 | +0.6717 | +0.0002 | +0.6717 | -0.0002 |
| +5.8 | +0.6836 | -0.0652 | +0.6836 | +0.0652 |
| +6.0 | +0.7080 | -0.1260 | +0.7080 | +0.1260 |
| +6.2 | +0.7434 | -0.1798 | +0.7434 | +0.1798 |
| +6.4 | +0.7880 | -0.2248 | +0.7880 | +0.2248 |
| +6.6 | +0.8400 | -0.2594 | +0.8400 | +0.2594 |
| +6.8 | +0.8969 | -0.2826 | +0.8969 | +0.2826 |
| +7.0 | +0.9564 | -0.2938 | +0.9564 | +0.2938 |
| +7.2 | +1.0161 | -0.2930 | +1.0161 | +0.2930 |
| +7.4 | +1.0737 | -0.2805 | +1.0737 | +0.2805 |
| +7.6 | +1.1268 | -0.2571 | +1.1268 | +0.2571 |
| +7.8 | +1.1737 | -0.2240 | +1.1737 | +0.2240 |
| +8.0 | +1.2125 | -0.1828 | +1.2125 | +0.1828 |
| +8.2 | +1.2420 | -0.1352 | +1.2420 | +0.1352 |
| +8.4 | +1.2612 | -0.0834 | +1.2612 | +0.0834 |
| +8.6 | +1.2695 | -0.0295 | +1.2695 | +0.0295 |
| +8.8 | +1.2670 | +0.0243 | +1.2670 | -0.0243 |
| +9.0 | +1.2540 | +0.0761 | +1.2540 | -0.0761 |
| +9.2 | +1.2312 | +0.1237 | +1.2312 | -0.1237 |
| +9.4 | +1.1998 | +0.1653 | +1.1998 | -0.1653 |
| +9.6 | +1.1610 | +0.1995 | +1.1610 | -0.1995 |
| +9.8 | +1.1168 | +0.2251 | +1.1168 | -0.2251 |
| +10.0 | +1.0688 | +0.2411 | +1.0688 | -0.2411 |

$$\phi = 15^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|---------|---------|---------|---------|
| +0.2 | +0.1994 | -0.0003 | -0.3458 | +0.0338 |
| +0.4 | +0.3953 | -0.0026 | -0.5102 | +0.0698 |
| +0.6 | +0.5845 | -0.0087 | -0.6007 | +0.1083 |
| +0.8 | +0.7635 | -0.0204 | -0.6400 | +0.1488 |
| +1.0 | +0.9294 | -0.0390 | -0.6392 | +0.1901 |
| +1.2 | +1.0791 | -0.0654 | -0.6058 | +0.2310 |
| +1.4 | +1.2103 | -0.1004 | -0.5457 | +0.2696 |
| +1.6 | +1.3207 | -0.1438 | -0.4637 | +0.3037 |
| +1.8 | +1.4085 | -0.1955 | -0.3649 | +0.3314 |
| +2.0 | +1.4724 | -0.2543 | -0.2536 | +0.3505 |
| +2.2 | +1.5116 | -0.3188 | -0.1345 | +0.3593 |
| +2.4 | +1.5258 | -0.3872 | -0.0121 | +0.3560 |
| +2.6 | +1.5153 | -0.4571 | +0.1090 | +0.3395 |
| +2.8 | +1.4811 | -0.5258 | +0.2250 | +0.3091 |
| +3.0 | +1.4246 | -0.5906 | +0.3316 | +0.2644 |
| +3.2 | +1.3480 | -0.6484 | +0.4250 | +0.2060 |
| +3.4 | +1.2540 | -0.6952 | +0.5018 | +0.1347 |
| +3.6 | +1.1458 | -0.7312 | +0.5590 | +0.0524 |
| +3.8 | +1.0273 | -0.7508 | +0.5941 | -0.0387 |
| +4.0 | +0.9025 | -0.7530 | +0.6054 | -0.1359 |
| +4.2 | +0.7760 | -0.7360 | +0.5918 | -0.2356 |
| +4.4 | +0.6524 | -0.6989 | +0.5530 | -0.3343 |
| +4.6 | +0.5365 | -0.6415 | +0.4896 | -0.4278 |
| +4.8 | +0.4316 | -0.5644 | +0.4029 | -0.5119 |
| +5.0 | +0.3450 | -0.4689 | +0.2953 | -0.5826 |
| +5.2 | +0.2794 | -0.3574 | +0.1698 | -0.6358 |
| +5.4 | +0.2384 | -0.2330 | +0.0303 | -0.6680 |
| +5.6 | +0.2249 | -0.0995 | -0.1185 | -0.6761 |
| +5.8 | +0.2410 | +0.0384 | -0.2714 | -0.6578 |
| +6.0 | +0.2878 | +0.1756 | -0.4228 | -0.6117 |
| +6.2 | +0.3654 | +0.3066 | -0.5666 | -0.5372 |
| +6.4 | +0.4727 | +0.4255 | -0.6967 | -0.4351 |
| +6.6 | +0.6075 | +0.5266 | -0.8071 | -0.3072 |
| +6.8 | +0.7663 | +0.6043 | -0.8921 | -0.1563 |
| +7.0 | +0.9446 | +0.6536 | -0.9467 | +0.0133 |
| +7.2 | +1.1366 | +0.6701 | -0.9665 | +0.1964 |
| +7.4 | +1.3358 | +0.6503 | -0.9483 | +0.3868 |
| +7.6 | +1.5347 | +0.5921 | -0.8899 | +0.5775 |
| +7.8 | +1.7255 | +0.4946 | -0.7906 | +0.7607 |
| +8.0 | +1.8999 | +0.3582 | -0.6513 | +0.9284 |
| +8.2 | +2.0498 | +0.1853 | -0.4744 | +1.0727 |
| +8.4 | +2.1671 | -0.0202 | -0.2642 | +1.1855 |
| +8.6 | +2.2447 | -0.2531 | -0.0262 | +1.2598 |
| +8.8 | +2.2762 | -0.5062 | +0.2320 | +1.2892 |
| +9.0 | +2.2566 | -0.7709 | +0.5019 | +1.2686 |
| +9.2 | +2.1825 | -1.0375 | +0.7735 | +1.1946 |
| +9.4 | +2.0524 | -1.2956 | +1.0362 | +1.0654 |
| +9.6 | +1.8669 | -1.5338 | +1.2784 | +0.8816 |
| +9.8 | +1.6287 | -1.7407 | +1.4888 | +0.6457 |
| +10.0 | +1.3430 | -1.9053 | +1.6562 | +0.3627 |

$$\phi = 15^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|---------|---------|---------|---------|
| +0.2 | +0.1655 | -0.3461 | +0.2333 | +0.3455 |
| +0.4 | +0.3255 | -0.5128 | +0.4652 | +0.5076 |
| +0.6 | +0.4761 | -0.6095 | +0.6928 | +0.5919 |
| +0.8 | +0.6147 | -0.6604 | +0.9124 | +0.6195 |
| +1.0 | +0.7392 | -0.6782 | +1.1195 | +0.6002 |
| +1.2 | +0.8481 | -0.6713 | +1.3102 | +0.5404 |
| +1.4 | +0.9407 | -0.6461 | +1.4799 | +0.4452 |
| +1.6 | +1.0170 | -0.6076 | +1.6245 | +0.3198 |
| +1.8 | +1.0771 | -0.5604 | +1.7399 | +0.1693 |
| +2.0 | +1.1218 | -0.5079 | +1.8230 | -0.0006 |
| +2.2 | +1.1523 | -0.4534 | +1.8709 | -0.1842 |
| +2.4 | +1.1697 | -0.3994 | +1.8819 | -0.3750 |
| +2.6 | +1.1757 | -0.3480 | +1.8549 | -0.5661 |
| +2.8 | +1.1719 | -0.3008 | +1.7902 | -0.7509 |
| +3.0 | +1.1601 | -0.2589 | +1.6890 | -0.9223 |
| +3.2 | +1.1419 | -0.2233 | +1.5540 | -1.0734 |
| +3.4 | +1.1192 | -0.1943 | +1.3887 | -1.1980 |
| +3.6 | +1.0934 | -0.1722 | +1.1982 | -1.2902 |
| +3.8 | +1.0660 | -0.1567 | +0.9885 | -1.3450 |
| +4.0 | +1.0384 | -0.1475 | +0.7666 | -1.3584 |
| +4.2 | +1.0117 | -0.1441 | +0.5403 | -1.3279 |
| +4.4 | +0.9867 | -0.1459 | +0.3180 | -1.2520 |
| +4.6 | +0.9643 | -0.1519 | +0.1086 | -1.1312 |
| +4.8 | +0.9436 | -0.1614 | -0.0803 | -0.9674 |
| +5.0 | +0.9276 | -0.1736 | -0.2375 | -0.7643 |
| +5.2 | +0.9152 | -0.1876 | -0.3563 | -0.5272 |
| +5.4 | +0.9064 | -0.2027 | -0.4295 | -0.2633 |
| +5.6 | +0.9010 | -0.2180 | -0.4512 | +0.0190 |
| +5.8 | +0.8988 | -0.2330 | -0.4168 | +0.3099 |
| +6.0 | +0.8995 | -0.2471 | -0.3238 | +0.5985 |
| +6.2 | +0.9027 | -0.2600 | -0.1718 | +0.8732 |
| +6.4 | +0.9079 | -0.2712 | +0.0375 | +1.1222 |
| +6.6 | +0.9147 | -0.2805 | +0.3003 | +1.3337 |
| +6.8 | +0.9227 | -0.2878 | +0.6100 | +1.4965 |
| +7.0 | +0.9313 | -0.2931 | +0.9579 | +1.6003 |
| +7.2 | +0.9401 | -0.2964 | +1.3330 | +1.6367 |
| +7.4 | +0.9489 | -0.2979 | +1.7226 | +1.5987 |
| +7.6 | +0.9572 | -0.2977 | +2.1122 | +1.4820 |
| +7.8 | +0.9648 | -0.2959 | +2.4862 | +1.2852 |
| +8.0 | +0.9715 | -0.2930 | +2.8284 | +1.0096 |
| +8.2 | +0.9771 | -0.2891 | +3.1225 | +0.6598 |
| +8.4 | +0.9816 | -0.2845 | +3.3527 | +0.2439 |
| +8.6 | +0.9848 | -0.2794 | +3.5046 | -0.2268 |
| +8.8 | +0.9869 | -0.2742 | +3.5655 | -0.7382 |
| +9.0 | +0.9879 | -0.2689 | +3.5253 | -1.2728 |
| +9.2 | +0.9879 | -0.2640 | +3.3771 | -1.8111 |
| +9.4 | +0.9870 | -0.2594 | +3.1179 | -2.3318 |
| +9.6 | +0.9853 | -0.2553 | +2.7485 | -2.8122 |
| +9.8 | +0.9830 | -0.2518 | +2.2744 | -3.2296 |
| +10.0 | +0.9803 | -0.2491 | +1.7058 | -3.5615 |

$\phi = 30^\circ$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|----------|----------|----------|----------|
| +0.2 | +0.1996 | -0.0000 | -0.3461 | +0.0676 |
| +0.4 | +0.3973 | -0.0045 | -0.5120 | +0.1393 |
| +0.6 | +0.5908 | -0.0153 | -0.6049 | +0.2160 |
| +0.8 | +0.7781 | -0.0360 | -0.6466 | +0.2975 |
| +1.0 | +0.9568 | -0.0694 | -0.6471 | +0.3824 |
| +1.2 | +1.1243 | -0.1179 | -0.6121 | +0.4683 |
| +1.4 | +1.2779 | -0.1834 | -0.5454 | +0.5525 |
| +1.6 | +1.4145 | -0.2672 | -0.4501 | +0.6315 |
| +1.8 | +1.5311 | -0.3698 | -0.3292 | +0.7013 |
| +2.0 | +1.6244 | -0.4910 | -0.1853 | +0.7576 |
| +2.2 | +1.6907 | -0.6297 | -0.0219 | +0.7963 |
| +2.4 | +1.7269 | -0.7838 | +0.1575 | +0.8125 |
| +2.6 | +1.7296 | -0.9502 | +0.3488 | +0.8019 |
| +2.8 | +1.6958 | -1.1249 | +0.5468 | +0.7605 |
| +3.0 | +1.6230 | -1.3028 | +0.7459 | +0.6847 |
| +3.2 | +1.5092 | -1.4778 | +0.9397 | +0.5715 |
| +3.4 | +1.3533 | -1.6428 | +1.1208 | +0.4191 |
| +3.6 | +1.1554 | -1.7879 | +1.2815 | +0.2266 |
| +3.8 | +0.9166 | -1.9108 | +1.4132 | -0.0052 |
| +4.0 | +0.6398 | -1.9963 | +1.5071 | -0.2745 |
| +4.2 | +0.3294 | -2.0373 | +1.5542 | -0.5770 |
| +4.4 | -0.0082 | -2.0245 | +1.5456 | -0.9069 |
| +4.6 | -0.3649 | -1.9493 | +1.4728 | -1.2562 |
| +4.8 | -0.7302 | -1.8038 | +1.3283 | -1.6147 |
| +5.0 | -1.0918 | -1.5815 | +1.1058 | -1.9701 |
| +5.2 | -1.4350 | -1.2776 | +0.8007 | -2.3080 |
| +5.4 | -1.7436 | -0.8895 | +0.4109 | -2.6121 |
| +5.6 | -1.9995 | -0.4176 | -0.0632 | -2.8644 |
| +5.8 | -2.1837 | +0.1344 | -0.6179 | -3.0457 |
| +6.0 | -2.2763 | +0.7593 | -1.2454 | -3.1362 |
| +6.2 | -2.2572 | +1.4454 | -1.9342 | -3.1156 |
| +6.4 | -2.1371 | +2.1765 | -2.6679 | -2.9647 |
| +6.6 | -1.8082 | +2.9317 | -3.4254 | -2.6654 |
| +6.8 | -1.3453 | +3.6851 | -4.1810 | -2.2026 |
| +7.0 | -0.7066 | +4.4062 | -4.9039 | -1.5643 |
| +7.2 | +0.1145 | +5.0598 | -5.5591 | -0.7437 |
| +7.4 | +1.1192 | +5.6070 | -6.1076 | +0.2601 |
| +7.6 | +2.3012 | +6.0056 | -6.5072 | +1.4412 |
| +7.8 | +3.6460 | +6.2112 | -6.7136 | +2.7851 |
| +8.0 | +5.1298 | +6.1790 | -6.6819 | +4.2679 |
| +8.2 | +6.7187 | +5.8649 | -6.3682 | +5.8559 |
| +8.4 | +8.3677 | +5.2279 | -5.7313 | +7.5041 |
| +8.6 | +10.0212 | +4.2319 | -4.7353 | +9.1567 |
| +8.8 | +11.6121 | +2.8468 | -3.3520 | +10.7470 |
| +9.0 | +13.0632 | +1.0603 | -1.5634 | +12.1975 |
| +9.2 | +14.2877 | -1.1383 | +0.6356 | +13.4215 |
| +9.4 | +15.1910 | -2.7367 | +3.2343 | +14.3245 |
| +9.6 | +15.6734 | -6.7054 | +6.2033 | +14.8066 |
| +9.8 | +15.6326 | -9.9943 | +9.4926 | +14.7656 |
| +10.0 | +14.9677 | -13.5391 | +13.0287 | +14.1005 |

$$\phi = 30^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|---------|---------|----------|----------|
| +0.2 | +0.1319 | -0.3467 | +0.2673 | +0.3496 |
| +0.4 | +0.2579 | -0.5166 | +0.5366 | +0.5074 |
| +0.6 | +0.3747 | -0.6203 | +0.8069 | +0.5895 |
| +0.8 | +0.4805 | -0.6827 | +1.0757 | +0.6106 |
| +1.0 | +0.5744 | -0.7166 | +1.3392 | +0.5777 |
| +1.2 | +0.6559 | -0.7301 | +1.5926 | +0.4941 |
| +1.4 | +0.7253 | -0.7289 | +1.8304 | +0.3619 |
| +1.6 | +0.7830 | -0.7174 | +2.0461 | +0.1829 |
| +1.8 | +0.8298 | -0.6991 | +2.2325 | -0.0406 |
| +2.0 | +0.8665 | -0.6764 | +2.3822 | -0.3056 |
| +2.2 | +0.8944 | -0.6516 | +2.4871 | -0.6078 |
| +2.4 | +0.9144 | -0.6262 | +2.5395 | -0.9414 |
| +2.6 | +0.9276 | -0.6014 | +2.5316 | -1.2990 |
| +2.8 | +0.9352 | -0.5781 | +2.4564 | -1.6718 |
| +3.0 | +0.9382 | -0.5568 | +2.3077 | -2.0488 |
| +3.2 | +0.9376 | -0.5380 | +2.0807 | -2.4175 |
| +3.4 | +0.9341 | -0.5219 | +1.7724 | -2.7636 |
| +3.6 | +0.9287 | -0.5084 | +1.3820 | -3.0715 |
| +3.8 | +0.9219 | -0.4975 | +0.9114 | -3.3241 |
| +4.0 | +0.9143 | -0.4892 | +0.3653 | -3.5035 |
| +4.2 | +0.9065 | -0.4830 | -0.2475 | -3.5915 |
| +4.4 | +0.8987 | -0.4789 | -0.9151 | -3.5701 |
| +4.6 | +0.8913 | -0.4765 | -1.6211 | -3.4221 |
| +4.8 | +0.8844 | -0.4755 | -2.3450 | -3.1322 |
| +5.0 | +0.8783 | -0.4757 | -3.0619 | -2.6873 |
| +5.2 | +0.8730 | -0.4768 | -3.7430 | -2.0783 |
| +5.4 | +0.8685 | -0.4786 | -4.3557 | -1.3004 |
| +5.6 | +0.8648 | -0.4809 | -4.8640 | -0.3543 |
| +5.8 | +0.8620 | -0.4834 | -5.2295 | +0.7523 |
| +6.0 | +0.8598 | -0.4861 | -5.4125 | +2.0048 |
| +6.2 | +0.8584 | -0.4887 | -5.3728 | +3.3797 |
| +6.4 | +0.8576 | -0.4913 | -5.0718 | +4.8445 |
| +6.6 | +0.8572 | -0.4937 | -4.4737 | +6.3572 |
| +6.8 | +0.8573 | -0.4958 | -3.5479 | +7.8662 |
| +7.0 | +0.8576 | -0.4977 | -2.2710 | +9.3102 |
| +7.2 | +0.8583 | -0.4993 | -0.6292 | +10.6190 |
| +7.4 | +0.8591 | -0.5006 | +1.3793 | +11.7147 |
| +7.6 | +0.8600 | -0.5016 | +3.7424 | +12.5128 |
| +7.8 | +0.8609 | -0.5023 | +6.4311 | +12.9249 |
| +8.0 | +0.8618 | -0.5029 | +9.3978 | +12.8610 |
| +8.2 | +0.8628 | -0.5032 | +12.5746 | +12.2331 |
| +8.4 | +0.8636 | -0.5033 | +15.8719 | +10.9592 |
| +8.6 | +0.8644 | -0.5033 | +19.1780 | +8.9673 |
| +8.8 | +0.8651 | -0.5032 | +22.3592 | +6.2009 |
| +9.0 | +0.8656 | -0.5030 | +25.2608 | +2.6238 |
| +9.2 | +0.8661 | -0.5027 | +27.7092 | -1.7740 |
| +9.4 | +0.8665 | -0.5024 | +29.5155 | -6.9710 |
| +9.6 | +0.8668 | -0.5020 | +30.4800 | -12.9088 |
| +9.8 | +0.8670 | -0.5017 | +30.3982 | -19.4869 |
| +10.0 | +0.8671 | -0.5013 | +29.0683 | -26.5588 |

$$\phi = 45^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|-----------|----------|----------|-----------|
| +0.2 | +0.1999 | -0.0006 | -0.3466 | +0.1012 |
| +0.4 | +0.3999 | -0.0053 | -0.5148 | +0.2080 |
| +0.6 | +0.5997 | -0.0179 | -0.6121 | +0.3223 |
| +0.8 | +0.7989 | -0.0426 | -0.6594 | +0.4448 |
| +1.0 | +0.9968 | -0.0832 | -0.6652 | +0.5752 |
| +1.2 | +1.1922 | -0.1437 | -0.6333 | +0.7119 |
| +1.4 | +1.3831 | -0.2280 | -0.5649 | +0.8528 |
| +1.6 | +1.5672 | -0.3396 | -0.4601 | +0.9947 |
| +1.8 | +1.7410 | -0.4821 | -0.3181 | +1.1334 |
| +2.0 | +1.9053 | -0.6587 | -0.1379 | +1.2640 |
| +2.2 | +2.0398 | -0.8718 | +0.0816 | +1.3804 |
| +2.4 | +2.1531 | -1.1236 | +0.3415 | +1.4754 |
| +2.6 | +2.2327 | -1.4150 | +0.6417 | +1.5409 |
| +2.8 | +2.2700 | -1.7461 | +0.9818 | +1.5676 |
| +3.0 | +2.2553 | -2.1154 | +1.3599 | +1.5451 |
| +3.2 | +2.1777 | -2.5198 | +1.7725 | +1.4621 |
| +3.4 | +2.0255 | -2.9539 | +2.2141 | +1.3064 |
| +3.6 | +1.7863 | -3.4101 | +2.6770 | +1.0650 |
| +3.8 | +1.4471 | -3.8778 | +3.1506 | +0.7249 |
| +4.0 | +0.9950 | -4.3432 | +3.6209 | +0.2728 |
| +4.2 | +0.4177 | -4.7886 | +4.0704 | -0.3038 |
| +4.4 | -0.2262 | -5.1922 | +4.4775 | -1.0168 |
| +4.6 | -1.1563 | -5.5281 | +4.8162 | -1.8757 |
| +4.8 | -2.1692 | -5.7656 | +5.0558 | -2.8872 |
| +5.0 | -3.3376 | -5.8689 | +5.1609 | -4.0543 |
| +5.2 | -4.6594 | -5.7977 | +5.0909 | -5.3746 |
| +5.4 | -6.1256 | -5.5068 | +4.8009 | -6.8394 |
| +5.6 | -7.7192 | -4.9468 | +4.2415 | -8.4318 |
| +5.8 | -9.4134 | -4.0647 | +3.3598 | -10.1250 |
| +6.0 | -11.1700 | -2.9053 | +2.1006 | -11.8805 |
| +6.2 | -12.9370 | -1.1121 | +0.4074 | -13.6467 |
| +6.4 | -14.6472 | +1.0701 | -1.7749 | -15.3562 |
| +6.6 | -16.2163 | +3.7932 | -4.4982 | -16.9247 |
| +6.8 | -17.5410 | +7.1023 | -7.8075 | -18.2488 |
| +7.0 | -18.4980 | +11.0319 | -11.7374 | -19.2053 |
| +7.2 | -18.9425 | +15.6015 | -16.3072 | -19.6495 |
| +7.4 | -18.7585 | +20.8102 | -21.5161 | -19.4153 |
| +7.6 | -17.6089 | +26.6308 | -27.3369 | -18.3156 |
| +7.8 | -15.4368 | +33.0030 | -33.7094 | -16.1433 |
| +8.0 | -11.9683 | +39.5261 | -40.5327 | -12.6748 |
| +8.2 | -6.9668 | +46.2510 | -47.6577 | -7.6733 |
| +8.4 | -1.1888 | +54.1715 | -54.8784 | -1.8952 |
| +8.6 | +8.6079 | +61.2166 | -61.9237 | +7.9014 |
| +8.8 | +19.6538 | +67.7417 | -68.4489 | +18.9473 |
| +9.0 | +33.1543 | +73.3209 | -74.0281 | +32.4478 |
| +9.2 | +49.2739 | +77.4403 | -78.1476 | +48.5673 |
| +9.4 | +68.1163 | +79.4933 | -80.2007 | +67.4097 |
| +9.6 | +89.7026 | +78.7780 | -79.4854 | +88.9959 |
| +9.8 | +113.9442 | +74.4976 | -75.2050 | +113.2375 |
| +10.0 | +140.6144 | +65.7655 | -66.4729 | +139.9077 |

$$\phi = 45^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|---------|---------|-----------|-----------|
| +0.2 | +0.0987 | -0.3473 | +0.3012 | +0.3460 |
| +0.4 | +0.1919 | -0.5201 | +0.6079 | +0.5095 |
| +0.6 | +0.2774 | -0.6301 | +0.9220 | +0.5941 |
| +0.8 | +0.3540 | -0.7020 | +1.2438 | +0.6167 |
| +1.0 | +0.4216 | -0.7485 | +1.5721 | +0.5819 |
| +1.2 | +0.4802 | -0.7771 | +1.9041 | +0.4895 |
| +1.4 | +0.5303 | -0.7929 | +2.2360 | +0.3369 |
| +1.6 | +0.5725 | -0.7998 | +2.5619 | +0.1204 |
| +1.8 | +0.6076 | -0.8003 | +2.8745 | -0.1640 |
| +2.0 | +0.6363 | -0.7966 | +3.1644 | -0.5207 |
| +2.2 | +0.6594 | -0.7902 | +3.4202 | -0.9535 |
| +2.4 | +0.6776 | -0.7821 | +3.6285 | -1.4651 |
| +2.6 | +0.6917 | -0.7732 | +3.7737 | -2.0568 |
| +2.8 | +0.7024 | -0.7642 | +3.8377 | -2.7280 |
| +3.0 | +0.7102 | -0.7555 | +3.8005 | -3.4754 |
| +3.2 | +0.7156 | -0.7472 | +3.6399 | -4.2923 |
| +3.4 | +0.7191 | -0.7397 | +3.3319 | -5.1681 |
| +3.6 | +0.7212 | -0.7330 | +2.8514 | -6.0872 |
| +3.8 | +0.7221 | -0.7271 | +2.1721 | -7.0284 |
| +4.0 | +0.7221 | -0.7222 | +1.2679 | -7.9641 |
| +4.2 | +0.7216 | -0.7182 | +0.1138 | -8.8590 |
| +4.4 | +0.7206 | -0.7147 | -1.3131 | -9.6698 |
| +4.6 | +0.7194 | -0.7119 | -3.0320 | -10.3444 |
| +4.8 | +0.7180 | -0.7097 | -5.0564 | -10.8215 |
| +5.0 | +0.7166 | -0.7080 | -7.3920 | -11.0298 |
| +5.2 | +0.7152 | -0.7067 | -10.0341 | -10.8887 |
| +5.4 | +0.7138 | -0.7058 | -12.9651 | -10.3077 |
| +5.6 | +0.7126 | -0.7052 | -16.1510 | -9.1883 |
| +5.8 | +0.7115 | -0.7049 | -19.5384 | -7.4246 |
| +6.0 | +0.7105 | -0.7047 | -23.0506 | -4.9060 |
| +6.2 | +0.7096 | -0.7047 | -26.5837 | -1.5196 |
| +6.4 | +0.7089 | -0.7048 | -30.0035 | +2.8450 |
| +6.6 | +0.7083 | -0.7049 | -33.1410 | +8.2915 |
| +6.8 | +0.7078 | -0.7051 | -35.7899 | +14.9099 |
| +7.0 | +0.7073 | -0.7054 | -37.7034 | +22.7693 |
| +7.2 | +0.7070 | -0.7056 | -38.5921 | +31.9087 |
| +7.4 | +0.7068 | -0.7059 | -38.1239 | +42.3263 |
| +7.6 | +0.7066 | -0.7061 | -35.9245 | +53.9678 |
| +7.8 | +0.7065 | -0.7063 | -31.5802 | +66.7125 |
| +8.0 | +0.7064 | -0.7065 | -24.6432 | +80.3589 |
| +8.2 | +0.7064 | -0.7067 | -14.6401 | +94.6087 |
| +8.4 | +0.7064 | -0.7069 | -1.0841 | +109.0500 |
| +8.6 | +0.7064 | -0.7070 | +16.5093 | +123.1404 |
| +8.8 | +0.7065 | -0.7071 | +38.6011 | +136.1907 |
| +9.0 | +0.7065 | -0.7072 | +65.6021 | +147.3490 |
| +9.2 | +0.7065 | -0.7073 | +97.8412 | +155.5879 |
| +9.4 | +0.7066 | -0.7073 | +135.5261 | +159.6941 |
| +9.6 | +0.7066 | -0.7073 | +178.6985 | +158.2635 |
| +9.8 | +0.7067 | -0.7074 | +227.1818 | +149.7026 |
| +10.0 | +0.7067 | -0.7074 | +280.5222 | +132.2385 |

$$\phi = 60^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|-----------|-----------|-----------|-----------|
| +0.2 | +0.2003 | -0.0005 | -0.3472 | +0.1346 |
| +0.4 | +0.4026 | -0.0046 | -0.5184 | +0.2754 |
| +0.6 | +0.6088 | -0.0158 | -0.6219 | +0.4256 |
| +0.8 | +0.8208 | -0.0378 | -0.6788 | +0.5877 |
| +1.0 | +1.0400 | -0.0748 | -0.6971 | +0.7630 |
| +1.2 | +1.2678 | -0.1314 | -0.6794 | +0.9528 |
| +1.4 | +1.5052 | -0.2125 | -0.6254 | +1.1575 |
| +1.6 | +1.7525 | -0.3239 | -0.5326 | +1.3769 |
| +1.8 | +2.0095 | -0.4718 | -0.3971 | +1.6104 |
| +2.0 | +2.2752 | -0.6636 | -0.2134 | +1.8562 |
| +2.2 | +2.5472 | -0.9071 | +0.0252 | +2.1118 |
| +2.4 | +2.8221 | -1.2113 | +0.3270 | +2.3732 |
| +2.6 | +3.0949 | -1.5862 | +0.7010 | +2.6349 |
| +2.8 | +3.3583 | -2.0426 | +1.1576 | +2.8892 |
| +3.0 | +3.6029 | -2.5923 | +1.7082 | +3.1264 |
| +3.2 | +3.8159 | -3.2480 | +2.3652 | +3.3337 |
| +3.4 | +3.9816 | -4.0227 | +3.1415 | +3.4947 |
| +3.6 | +4.0797 | -4.9301 | +4.0506 | +3.5891 |
| +3.8 | +4.0852 | -5.9838 | +5.1059 | +3.5918 |
| +4.0 | +3.9674 | -7.1966 | +6.3203 | +3.4718 |
| +4.2 | +3.6891 | -8.5803 | +7.7054 | +3.1919 |
| +4.4 | +3.2056 | -10.1440 | +9.2705 | +2.7071 |
| +4.6 | +2.4636 | -11.8938 | +11.0215 | +1.9642 |
| +4.8 | +1.4003 | -13.8303 | +12.9591 | +0.9003 |
| +5.0 | -0.0573 | -15.9475 | +15.0771 | -0.5578 |
| +5.2 | -1.9944 | -18.2298 | +17.3602 | -2.4952 |
| +5.4 | -4.5081 | -20.6493 | +19.7804 | -5.0090 |
| +5.6 | -7.7087 | -23.1627 | +22.2944 | -8.2097 |
| +5.8 | -11.7293 | -25.7065 | +24.8386 | -12.2213 |
| +6.0 | -16.6802 | -28.1924 | +27.3249 | -17.1812 |
| +6.2 | -22.7392 | -30.5016 | +29.6344 | -23.2402 |
| +6.4 | -30.0596 | -32.4778 | +31.6108 | -30.5605 |
| +6.6 | -38.8132 | -33.9197 | +33.0529 | -39.3140 |
| +6.8 | -49.1779 | -34.5721 | +33.7055 | -49.6786 |
| +7.0 | -61.3321 | -34.1161 | +33.2496 | -61.9327 |
| +7.2 | -75.4479 | -32.1580 | +31.2915 | -75.9485 |
| +7.4 | -91.6813 | -28.2170 | +27.3507 | -92.1817 |
| +7.6 | -110.1590 | -21.7128 | +20.8465 | -110.6594 |
| +7.8 | -130.9625 | -11.7508 | +11.0846 | -131.4628 |
| +8.0 | -154.1064 | +1.8911 | -2.7573 | -154.6067 |
| +8.2 | -179.5154 | +20.7781 | -21.6443 | -180.0130 |
| +8.4 | -206.9808 | +45.6313 | -46.6975 | -207.4783 |
| +8.6 | -236.1368 | +78.3407 | -79.2069 | -236.6342 |
| +8.8 | -266.4015 | +119.7750 | -120.6412 | -266.8989 |
| +9.0 | -296.9224 | +171.7881 | -172.6542 | -297.4199 |
| +9.2 | -326.5077 | +236.2191 | -237.0853 | -327.0051 |
| +9.4 | -353.5457 | +315.0858 | -315.9520 | -354.0431 |
| +9.6 | -375.9119 | +410.5663 | -411.4325 | -376.4093 |
| +9.8 | -390.8604 | +524.9672 | -525.8535 | -391.3578 |
| +10.0 | -394.9019 | +660.6740 | -661.5402 | -395.3992 |

$$\phi = 60^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|---------|---------|-----------|------------|
| +0.2 | +0.0656 | -0.3478 | +0.3350 | +0.3467 |
| +0.4 | +0.1272 | -0.5231 | +0.6780 | +0.5138 |
| +0.6 | +0.1831 | -0.6377 | +1.0345 | +0.6061 |
| +0.8 | +0.2330 | -0.7167 | +1.4085 | +0.6410 |
| +1.0 | +0.2769 | -0.7720 | +1.8031 | +0.6222 |
| +1.2 | +0.3150 | -0.8108 | +2.2207 | +0.5480 |
| +1.4 | +0.3477 | -0.8380 | +2.6627 | +0.4128 |
| +1.6 | +0.3756 | -0.8566 | +3.1295 | +0.2087 |
| +1.8 | +0.3991 | -0.8690 | +3.6200 | -0.0747 |
| +2.0 | +0.4189 | -0.8770 | +4.1314 | -0.4501 |
| +2.2 | +0.4353 | -0.8813 | +4.6591 | -0.9323 |
| +2.4 | +0.4489 | -0.8843 | +5.1954 | -1.5383 |
| +2.6 | +0.4600 | -0.8851 | +5.7298 | -2.2872 |
| +2.8 | +0.4691 | -0.8850 | +6.2476 | -3.2003 |
| +3.0 | +0.4764 | -0.8840 | +6.7293 | -4.3006 |
| +3.2 | +0.4822 | -0.8827 | +7.1497 | -5.6132 |
| +3.4 | +0.4869 | -0.8811 | +7.4764 | -7.1642 |
| +3.6 | +0.4905 | -0.8795 | +7.6689 | -8.9808 |
| +3.8 | +0.4934 | -0.8779 | +7.6771 | -11.0898 |
| +4.0 | +0.4955 | -0.8763 | +7.4393 | -13.5170 |
| +4.2 | +0.4972 | -0.8748 | +6.8811 | -16.2857 |
| +4.4 | +0.4984 | -0.8735 | +5.9127 | -19.4146 |
| +4.6 | +0.4993 | -0.8723 | +4.4278 | -22.9153 |
| +4.8 | +0.5000 | -0.8712 | +2.3006 | -26.7895 |
| +5.0 | +0.5004 | -0.8703 | -0.6152 | -31.0247 |
| +5.2 | +0.5007 | -0.8695 | -4.4696 | -35.5900 |
| +5.4 | +0.5009 | -0.8688 | -9.5171 | -40.4298 |
| +5.6 | +0.5009 | -0.8683 | -14.9185 | -45.4571 |
| +5.8 | +0.5010 | -0.8678 | -23.9416 | -50.5451 |
| +6.0 | +0.5009 | -0.8674 | -33.6615 | -55.5173 |
| +6.2 | +0.5009 | -0.8672 | -45.7794 | -60.1360 |
| +6.4 | +0.5008 | -0.8670 | -60.6201 | -64.0886 |
| +6.6 | +0.5007 | -0.8668 | -78.1273 | -66.9726 |
| +6.8 | +0.5006 | -0.8666 | -98.8565 | -68.2776 |
| +7.0 | +0.5006 | -0.8665 | -123.1646 | -67.3657 |
| +7.2 | +0.5005 | -0.8664 | -151.3984 | -63.4495 |
| +7.4 | +0.5004 | -0.8663 | -183.8631 | -55.5678 |
| +7.6 | +0.5003 | -0.8662 | -220.8185 | -42.5593 |
| +7.8 | +0.5003 | -0.8662 | -262.4253 | -23.0355 |
| +8.0 | +0.5002 | -0.8662 | -308.7131 | +4.6484 |
| +8.2 | +0.4975 | -0.8661 | -359.5284 | +42.4224 |
| +8.4 | +0.4975 | -0.8661 | -414.4592 | +92.5288 |
| +8.6 | +0.4974 | -0.8661 | -472.7710 | +157.5476 |
| +8.8 | +0.4974 | -0.8661 | -533.3005 | +240.4163 |
| +9.0 | +0.4974 | -0.8661 | -594.3423 | +344.4423 |
| +9.2 | +0.4974 | -0.8661 | -653.5128 | +473.3045 |
| +9.4 | +0.4973 | -0.8661 | -707.5889 | +631.0379 |
| +9.6 | +0.4973 | -0.8661 | -752.3212 | +821.9989 |
| +9.8 | +0.4973 | -0.8662 | -782.2153 | +1050.8008 |
| +10.0 | +0.4973 | -0.8662 | -799.3011 | +1322.2143 |

$$\phi = 75^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|------------|------------|------------|------------|
| +0.2 | +0.2005 | -0.0003 | -0.3478 | +0.1670 |
| +0.4 | +0.4046 | -0.0027 | -0.6223 | +0.3412 |
| +0.6 | +0.6157 | -0.0092 | -0.6334 | +0.5246 |
| +0.8 | +0.8374 | -0.0222 | -0.7035 | +0.7217 |
| +1.0 | +1.0737 | -0.0444 | -0.7418 | +0.9364 |
| +1.2 | +1.3285 | -0.0789 | -0.7521 | +1.1724 |
| +1.4 | +1.6064 | -0.1295 | -0.7350 | +1.4341 |
| +1.6 | +1.9119 | -0.2007 | -0.6890 | +1.7257 |
| +1.8 | +2.2503 | -0.2980 | -0.6107 | +2.0522 |
| +2.0 | +2.6271 | -0.4282 | -0.4949 | +2.4190 |
| +2.2 | +3.0484 | -0.5994 | -0.3346 | +2.8318 |
| +2.4 | +3.5209 | -0.8217 | -0.1206 | +3.2971 |
| +2.6 | +4.0517 | -1.1073 | +0.1587 | +3.8220 |
| +2.8 | +4.6486 | -1.4712 | +0.5179 | +4.4138 |
| +3.0 | +5.3197 | -1.9316 | +0.9747 | +5.0807 |
| +3.2 | +6.0737 | -2.5105 | +1.5510 | +5.8311 |
| +3.4 | +6.9124 | -3.2347 | +2.2732 | +6.6739 |
| +3.6 | +7.8658 | -4.1366 | +3.1736 | +7.6180 |
| +3.8 | +8.9217 | -5.2552 | +4.2912 | +8.6718 |
| +4.0 | +10.0949 | -6.6376 | +5.6729 | +9.8434 |
| +4.2 | +11.3923 | -8.3406 | +7.3753 | +11.1394 |
| +4.4 | +12.8185 | -10.4319 | +9.4682 | +12.5645 |
| +4.6 | +14.3748 | -12.9929 | +12.0270 | +14.1199 |
| +4.8 | +16.0580 | -16.1209 | +15.1548 | +15.8023 |
| +5.0 | +17.8585 | -19.9317 | +18.9654 | +17.6022 |
| +5.2 | +19.7757 | -24.5630 | +23.5968 | +19.5008 |
| +5.4 | +21.7249 | -30.1786 | +29.2123 | +21.4677 |
| +5.6 | +23.7139 | -36.9721 | +36.0058 | +23.4564 |
| +5.8 | +25.6574 | -45.1723 | +44.2060 | +25.3996 |
| +6.0 | +27.4612 | -55.0490 | +54.0827 | +27.2032 |
| +6.2 | +28.9961 | -66.9190 | +65.9527 | +28.7380 |
| +6.4 | +30.0883 | -81.1538 | +80.1876 | +29.8300 |
| +6.6 | +30.5789 | -98.1676 | +97.2213 | +30.2485 |
| +6.8 | +29.9493 | -118.5261 | +117.5599 | +29.6908 |
| +7.0 | +28.0218 | -142.7566 | +141.7904 | +27.7632 |
| +7.2 | +24.2172 | -171.5588 | +170.5927 | +23.9586 |
| +7.4 | +17.8861 | -205.7182 | +204.7500 | +17.6274 |
| +7.6 | +8.2019 | -246.1278 | +245.1617 | +7.9432 |
| +7.8 | -5.3589 | -292.3211 | +292.5550 | -6.1397 |
| +8.0 | -25.6795 | -349.9641 | +348.9930 | -25.9383 |
| +8.2 | -52.8450 | -415.6764 | +414.9103 | -53.1038 |
| +8.4 | -89.4387 | -495.0400 | +492.0739 | -89.6975 |
| +8.6 | -138.0252 | -588.1059 | +582.1399 | -138.2841 |
| +8.8 | -201.7333 | -687.8950 | +666.9320 | -202.0421 |
| +9.0 | -284.5400 | -807.4895 | +808.4435 | -284.8989 |
| +9.2 | -391.4325 | -949.7913 | +948.8253 | -391.6913 |
| +9.4 | -528.1959 | -1111.3279 | +1110.3619 | -528.3589 |
| +9.6 | -701.9154 | -1296.3965 | +1295.4303 | -702.1742 |
| +9.8 | -921.7091 | -1507.4928 | +1506.4368 | -922.0179 |
| +10.0 | -1198.4461 | -1746.5698 | +1745.7238 | -1198.7050 |

$$\phi = 75^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|---------|---------|------------|------------|
| +0.2 | +0.0327 | -0.3482 | +0.3683 | +0.3475 |
| +0.4 | +0.0633 | -0.5250 | +0.7458 | +0.5196 |
| +0.6 | +0.0910 | -0.6426 | +1.1403 | +0.6241 |
| +0.8 | +0.1156 | -0.7257 | +1.5592 | +0.6812 |
| +1.0 | +0.1373 | -0.7863 | +2.0101 | +0.6974 |
| +1.2 | +0.1560 | -0.8311 | +2.5010 | +0.6731 |
| +1.4 | +0.1723 | -0.8645 | +3.0405 | +0.6054 |
| +1.6 | +0.1861 | -0.8897 | +3.6377 | +0.4882 |
| +1.8 | +0.1980 | -0.9088 | +4.3026 | +0.3126 |
| +2.0 | +0.2081 | -0.9232 | +5.0461 | +0.0667 |
| +2.2 | +0.2166 | -0.9341 | +5.8803 | -0.2647 |
| +2.4 | +0.2237 | -0.9423 | +6.8181 | -0.7010 |
| +2.6 | +0.2297 | -0.9486 | +7.8738 | -1.2660 |
| +2.8 | +0.2348 | -0.9533 | +9.0624 | -1.9892 |
| +3.0 | +0.2390 | -0.9568 | +10.4005 | -2.9064 |
| +3.2 | +0.2425 | -0.9594 | +11.9049 | -4.0615 |
| +3.4 | +0.2454 | -0.9614 | +13.5934 | -5.5080 |
| +3.6 | +0.2478 | -0.9629 | +15.4838 | -7.3102 |
| +3.8 | +0.2498 | -0.9639 | +17.5935 | -9.5464 |
| +4.0 | +0.2514 | -0.9647 | +19.9384 | -12.3106 |
| +4.2 | +0.2528 | -0.9652 | +22.5318 | -15.7159 |
| +4.4 | +0.2539 | -0.9656 | +25.3830 | -19.8981 |
| +4.6 | +0.2548 | -0.9659 | +28.4947 | -25.0200 |
| +4.8 | +0.2556 | -0.9661 | +31.8604 | -31.2758 |
| +5.0 | +0.2562 | -0.9662 | +35.4607 | -38.8972 |
| +5.2 | +0.2567 | -0.9662 | +39.2585 | -48.1598 |
| +5.4 | +0.2571 | -0.9663 | +43.1926 | -59.3909 |
| +5.6 | +0.2575 | -0.9663 | +47.1703 | -72.9779 |
| +5.8 | +0.2577 | -0.9663 | +51.0571 | -89.3784 |
| +6.0 | +0.2579 | -0.9663 | +54.6645 | -109.1317 |
| +6.2 | +0.2581 | -0.9662 | +57.7341 | -132.8718 |
| +6.4 | +0.2583 | -0.9662 | +59.9183 | -161.3414 |
| +6.6 | +0.2584 | -0.9662 | +60.7555 | -195.4090 |
| +6.8 | +0.2585 | -0.9662 | +59.6401 | -236.0860 |
| +7.0 | +0.2585 | -0.9661 | +55.7851 | -284.5471 |
| +7.2 | +0.2586 | -0.9661 | +48.1759 | -342.1516 |
| +7.4 | +0.2586 | -0.9661 | +35.5135 | -410.4662 |
| +7.6 | +0.2587 | -0.9661 | +16.1451 | -491.2895 |
| +7.8 | +0.2587 | -0.9661 | -12.0206 | -586.6762 |
| +8.0 | +0.2587 | -0.9660 | -51.6179 | -698.9621 |
| +8.2 | +0.2588 | -0.9660 | -105.9488 | -830.7868 |
| +8.4 | +0.2588 | -0.9660 | -179.1363 | -985.1139 |
| +8.6 | +0.2588 | -0.9660 | -276.3093 | -1165.2459 |
| +8.8 | +0.2588 | -0.9660 | -403.8254 | -1374.8301 |
| +9.0 | +0.2588 | -0.9660 | -569.5390 | -1617.8530 |
| +9.2 | +0.2588 | -0.9660 | -783.1238 | -1898.6166 |
| +9.4 | +0.2588 | -0.9660 | -1056.4590 | -2221.6898 |
| +9.6 | +0.2588 | -0.9660 | -1404.0897 | -2591.8266 |
| +9.8 | +0.2588 | -0.9660 | -1843.7771 | -3013.8396 |
| +10.0 | +0.2589 | -0.9660 | -2397.1511 | -3492.4136 |

$$\phi = 90^\circ$$

| X | RE(IJ) | IM(IJ) | RE(IN) | IM(IN) |
|-------|------------|---------|---------|------------|
| +0.2 | +0.2006 | +0.0000 | -0.3483 | +0.2006 |
| +0.4 | +0.4053 | +0.0000 | -0.5256 | +0.4053 |
| +0.6 | +0.6182 | +0.0000 | -0.6442 | +0.6182 |
| +0.8 | +0.8436 | +0.0000 | -0.7288 | +0.8436 |
| +1.0 | +1.0865 | +0.0000 | -0.7910 | +1.0865 |
| +1.2 | +1.3519 | +0.0000 | -0.8377 | +1.3519 |
| +1.4 | +1.6461 | +0.0000 | -0.8733 | +1.6461 |
| +1.6 | +1.9758 | +0.0000 | -0.9006 | +1.9758 |
| +1.8 | +2.3489 | +0.0000 | -0.9217 | +2.3489 |
| +2.0 | +2.7749 | +0.0000 | -0.9382 | +2.7749 |
| +2.2 | +3.2647 | +0.0000 | -0.9511 | +3.2647 |
| +2.4 | +3.8313 | +0.0000 | -0.9612 | +3.8313 |
| +2.6 | +4.4900 | +0.0000 | -0.9691 | +4.4900 |
| +2.8 | +5.2592 | +0.0000 | -0.9754 | +5.2592 |
| +3.0 | +6.1609 | +0.0000 | -0.9804 | +6.1609 |
| +3.2 | +7.2210 | +0.0000 | -0.9843 | +7.2210 |
| +3.4 | +8.4711 | +0.0000 | -0.9875 | +8.4711 |
| +3.6 | +9.9486 | +0.0000 | -0.9900 | +9.9486 |
| +3.8 | +11.6986 | +0.0000 | -0.9920 | +11.6986 |
| +4.0 | +13.7750 | +0.0000 | -0.9936 | +13.7750 |
| +4.2 | +16.2430 | +0.0000 | -0.9948 | +16.2430 |
| +4.4 | +19.1804 | +0.0000 | -0.9959 | +19.1804 |
| +4.6 | +22.6813 | +0.0000 | -0.9967 | +22.6813 |
| +4.8 | +26.8586 | +0.0000 | -0.9973 | +26.8586 |
| +5.0 | +31.8483 | +0.0000 | -0.9979 | +31.8483 |
| +5.2 | +37.8142 | +0.0000 | -0.9983 | +37.8142 |
| +5.4 | +44.9537 | +0.0000 | -0.9986 | +44.9537 |
| +5.6 | +53.5044 | +0.0000 | -0.9989 | +53.5044 |
| +5.8 | +63.7532 | +0.0000 | -0.9991 | +63.7532 |
| +6.0 | +76.0457 | +0.0000 | -0.9993 | +76.0457 |
| +6.2 | +90.7990 | +0.0000 | -0.9994 | +90.7990 |
| +6.4 | +108.5163 | +0.0000 | -0.9996 | +108.5163 |
| +6.6 | +129.8051 | +0.0000 | -0.9997 | +129.8051 |
| +6.8 | +155.3987 | +0.0000 | -0.9997 | +155.3987 |
| +7.0 | +186.1826 | +0.0000 | -0.9998 | +186.1826 |
| +7.2 | +223.2265 | +0.0000 | -0.9998 | +223.2265 |
| +7.4 | +267.8226 | +0.0000 | -0.9999 | +267.8226 |
| +7.6 | +321.5327 | +0.0000 | -0.9999 | +321.5327 |
| +7.8 | +386.2443 | +0.0000 | -0.9999 | +386.2443 |
| +8.0 | +464.2393 | +0.0000 | -1.0000 | +464.2393 |
| +8.2 | +558.2770 | +0.0000 | -1.0000 | +558.2770 |
| +8.4 | +671.6944 | +0.0000 | -1.0000 | +671.6944 |
| +8.6 | +808.5281 | +0.0000 | -1.0000 | +808.5281 |
| +8.8 | +973.6618 | +0.0000 | -1.0000 | +973.6618 |
| +9.0 | +1173.0047 | +0.0000 | -1.0000 | +1173.0047 |
| +9.2 | +1413.7086 | +0.0000 | -1.0000 | +1413.7086 |
| +9.4 | +1704.4302 | +0.0000 | -1.0000 | +1704.4302 |
| +9.6 | +2055.6496 | +0.0000 | -1.0000 | +2055.6496 |
| +9.8 | +2480.0561 | +0.0000 | -1.0000 | +2480.0561 |
| +10.0 | +2993.0162 | +0.0000 | -1.0000 | +2993.0162 |

$$\phi = 90^\circ$$

| X | RE(IH1) | IM(IH1) | RE(IH2) | IM(IH2) |
|-------|---------|---------|------------|---------|
| +0.2 | +0.0000 | -.3483 | +0.4013 | +0.3483 |
| +0.4 | +0.0000 | -.5256 | +0.8107 | +0.5256 |
| +0.6 | +0.0000 | -.6442 | +1.2364 | +0.6442 |
| +0.8 | +0.0000 | -.7288 | +1.6873 | +0.7288 |
| +1.0 | +0.0000 | -.7910 | +2.1730 | +0.7910 |
| +1.2 | +0.0000 | -.8377 | +2.7039 | +0.8377 |
| +1.4 | +0.0000 | -.8733 | +3.2922 | +0.8733 |
| +1.6 | +0.0000 | -.9006 | +3.9516 | +0.9006 |
| +1.8 | +0.0000 | -.9217 | +4.6979 | +0.9217 |
| +2.0 | +0.0000 | -.9382 | +5.5499 | +0.9382 |
| +2.2 | +0.0000 | -.9511 | +6.5295 | +0.9511 |
| +2.4 | +0.0000 | -.9612 | +7.6626 | +0.9612 |
| +2.6 | +0.0000 | -.9691 | +8.9800 | +0.9691 |
| +2.8 | +0.0000 | -.9754 | +10.5185 | +0.9754 |
| +3.0 | +0.0000 | -.9804 | +12.3218 | +0.9804 |
| +3.2 | +0.0000 | -.9843 | +14.4421 | +0.9843 |
| +3.4 | +0.0000 | -.9875 | +16.9423 | +0.9875 |
| +3.6 | +0.0000 | -.9900 | +19.8973 | +0.9900 |
| +3.8 | +0.0000 | -.9920 | +23.3972 | +0.9920 |
| +4.0 | +0.0000 | -.9936 | +27.5501 | +0.9936 |
| +4.2 | +0.0000 | -.9948 | +32.4860 | +0.9948 |
| +4.4 | +0.0000 | -.9959 | +38.3609 | +0.9959 |
| +4.6 | +0.0000 | -.9967 | +45.3627 | +0.9967 |
| +4.8 | +0.0000 | -.9973 | +53.7173 | +0.9973 |
| +5.0 | +0.0000 | -.9979 | +63.6967 | +0.9979 |
| +5.2 | +0.0000 | -.9983 | +75.6285 | +0.9983 |
| +5.4 | +0.0000 | -.9986 | +89.9074 | +0.9986 |
| +5.6 | +0.0000 | -.9989 | +107.0089 | +0.9989 |
| +5.8 | +0.0000 | -.9991 | +127.5064 | +0.9991 |
| +6.0 | +0.0000 | -.9993 | +152.0914 | +0.9993 |
| +6.2 | +0.0000 | -.9994 | +181.5980 | +0.9994 |
| +6.4 | +0.0000 | -.9996 | +217.0327 | +0.9996 |
| +6.6 | +0.0000 | -.9997 | +259.6103 | +0.9997 |
| +6.8 | +0.0000 | -.9997 | +310.7974 | +0.9997 |
| +7.0 | +0.0000 | -.9998 | +372.3652 | +0.9998 |
| +7.2 | +0.0000 | -.9998 | +446.4530 | +0.9998 |
| +7.4 | +0.0000 | -.9999 | +535.6452 | +0.9999 |
| +7.6 | +0.0000 | -.9999 | +643.0654 | +0.9999 |
| +7.8 | +0.0000 | -.9999 | +772.4800 | +0.9999 |
| +8.0 | +0.0000 | -1.0000 | +928.4786 | +1.0000 |
| +8.2 | +0.0000 | -1.0000 | +1116.5540 | +1.0000 |
| +8.4 | +0.0000 | -1.0000 | +1343.3889 | +1.0000 |
| +8.6 | +0.0000 | -1.0000 | +1617.0564 | +1.0000 |
| +8.8 | +0.0000 | -1.0000 | +1947.3236 | +1.0000 |
| +9.0 | +0.0000 | -1.0000 | +2346.0094 | +1.0000 |
| +9.2 | +0.0000 | -1.0000 | +2827.4172 | +1.0000 |
| +9.4 | +0.0000 | -1.0000 | +3408.8604 | +1.0000 |
| +9.6 | +0.0000 | -1.0000 | +4111.2992 | +1.0000 |
| +9.8 | +0.0000 | -1.0000 | +4960.1122 | +1.0000 |
| +10.0 | +0.0000 | -1.0000 | +5986.0524 | +1.0000 |

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