SSC-N-139

SSC CONCEPTUAL DESIGN REPORT LATTICE

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ABSTRACT

The lattice design used for the SSC Conceptual Design Report is described below. Each of the units which are used in the design are described and plots of lattice functions are shown. A final SYNCH output of the lattice as tuned for both injection and collision optics is included.

Introduction

This report contains summary information on the Conceptual Design Report lattice. The main features of the machine are beamlines separated vertically by 70 cm, 6.6 Tesla, 1-in-1 magnets, 192 meter long cells with 60° phase advance, and eight 1152 meter long straight sections located in two clusters.

Global Structure

The lattice has a racetrack shape with eight long straight sections placed in two clusters of four each, see Figures 1 and 2. Two straight sections in each cluster contain crossing interaction regions. The IRs in the East cluster are the medium-β IRs *M1* and *M2* with ± 102 m free space about the IPs; those in the West cluster are the low-β IRs *L1* and *L2* with ± 20 m. The other two straight sections *U* in the East cluster are utility regions; the two labeled *XF* in the West cluster are identical to the *U* straight sections, but are reserved for future development as IRs. The (vertical) crossings occur only in the four experimental straight sections. The East and West clusters are connected by the North and South arcs. Both arcs are identical and each contains 166 cells.

Each cluster contains four insertion modules which are matched to the beta functions and dispersion of the regular cells. Every module contains a dispersion suppressor, a straight section, another dispersion suppressor, and a half-cell. Apart from the final half-cell, each module is antisymmetric about its center. All of the corresponding dispersion suppressors in the eight modules are identical. All of the straight sections (and modules) have equal length. Each module has betatron phase advance equal to an odd multiple of 90° , so that for each pair of IRs there is cancellation of chromatic perturbations.[1-4] These phase advances do not change between collision and injection optics. The modules are shown in Figures 4, 5, and 6.

Because the two beams pass through common quadrupoles in the IRs, the focussing polarity of two quadrupoles above and below each other on the two beamlines have the opposite sign.

Another global feature concerns the disposition of the correction spools, which are invariably on the clockwise side of each quadrupole when the ring is viewed from above.

Arc Cells C

A diagram of a cell is shown schematically in Fig. 7. The 96 meter long half-cells contain five dipoles whose field at 20 TeV is 6.6 tesla. The quadrupole gradients at 20 TeV have magnitude 212 T/m. There are two types of regular cells: those that contain two chromaticity correcting sextupoles and those that have none. Those with sextupoles occur in multiples of six, i.e., in integral numbers of betatron wavelengths.

Dispersion Suppressors

The suppressor consists of three cells identical to regular ones, except that their quadrupoles have five different lengths but normal gradients and spacing. The five lengths are chosen to fit the cell dispersion and slope values at one end to zero values at the other. The matching is done in such a way that the two suppressors on either side of the straight section, which have equal lengths but opposite gradients in the corresponding quadrupoles, match the dispersion to the centers of QD and QF quadrupoles in the cells respectively.

Crossing Insertions L

The two proton beams collide at the IP at the centers of these low-β crossing insertions (Figures 5 and 8), which have 20 meters of magnet-free space on either side of the IP for the detectors. Just beyond these triplets the beams are separated by dipole splitter magnets and led into separated, parallel beamlines. The quadrupole lengths are such that the gradients do not exceed those of the cells (212 T/m) for any optics, except for the IR triplets which can go up to 235 T/m.

Crossing Insertions M

The medium-β insertions (Figures 6 and 9) are similar to the Ls but they produce collision β values of 10 rather than 0.5 meters, and they have $\pm$ 102 meters of free space.

Vertical Beam Splitting and Dispersion Matching

Fig. 3 shows a side view of the vertical beamlines of the two rings. Moving towards the IP, the beams are brought to horizontal, parallel sections separated by 35 cm from each other by pairs of vertical dipoles that bend the beam through equal and opposite angles. Following these sections the beams are brought to the common beamline containing the IP by additional pairs of equal and opposite vertical bends.

The intermediate vertical step between the cells and the collinear region matches the vertical dispersion caused by the vertical bending, by means of the set of five quadrupoles which comprise two 90° FODO cells. The transfer matrix for the two cells is ideally $M = -1$, which reverses the vertical dispersion and exactly cancels the effects of the vertical bends. Moreover the section is invisible for the beta function matching between the cells and the IP. However, since the center quadrupole, Q4, has little effect on the dispersion (which is zero at its center), it is used to improve the beta function behaviour by allowing its value to be different from that of the QV quadrupoles.

Utility Insertion U

A utility insertion U and its dispersion suppressors are shown in Fig. 4. These insertions are used for the injection, beam abort and radiofrequency acceleration systems. Dipoles in the center (not shown) produce doglegs needed for the beam abort and injection systems. Since there is no quadrupole focussing included in these doglegs, they do not effect the optics. The RF system is to be located in one of the end regions.

Optics

Two principal optical configurations are included in the CDR design, an injection optics where all of the interaction points have relatively large beta values, and an experimental optics where the betas are much smaller. For each optics, both medium-β IRs are tuned identically as are the two low-β IRs.

This report concludes with SYNCH output[5] for both of these optics. Magnetic fields, gradients, lengths and beta functions are given in this part of the report. The SYNCH program was used for designing this lattice. Chromatic properties of the lattice are given in another report.[6]

Acknowlegements

We wish to thank the other participants in the Realistic Lattice workshop and Clustered IR Option workshop held at the CDG for their contributions, and we are especially grateful to A. Chao, M. Harrison, S. Peggs, J. Peterson, and R. Tallman for their valuable work and ideas.

REFERENCES

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3. E. D. Courant and A. A. Garren, "A Realistic Lattice Example," *Report of the Workshop on Realistic SSC Lattices*, **SSC–SR–1015** (1985)
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5. A. Garren, A. Kenney, E. Courant and M. Syphers, "A Users Guide to Synch," Fermilab Report **FN–420** (1985)
6. A. A. Garren and D. E. Johnson,"Chromatic Properties of the SSC Conceptual Design Report Lattice," **SSC–N–162** (1986)

FIGURE CAPTIONS

1. SSC Long Straight Sections.
   L1, L2: low-beta IPs, M1, M2: medium-beta IPs,
   U: Utilities, XF: future IRs (initially same as U's).
   Each straight 1152 m long. (βs and lengths in meters).
2. Cluster Regions
3. Side View of Short IR (right side)
4. Utility Module
5. Short IR, Low-β Module; Collision Optics
6. Long IR, Medium-β Module; Collision Optics
7. Arc Cell
8. Short IR, Low-β Module (left side); Collision Optics
9. Long IR, Medium-β Module (left side); Collision Optics
10. Short IR, Low-β Module (left side); Injection Optics
11. Long IR, Medium-β Module (left side); Injection Optics

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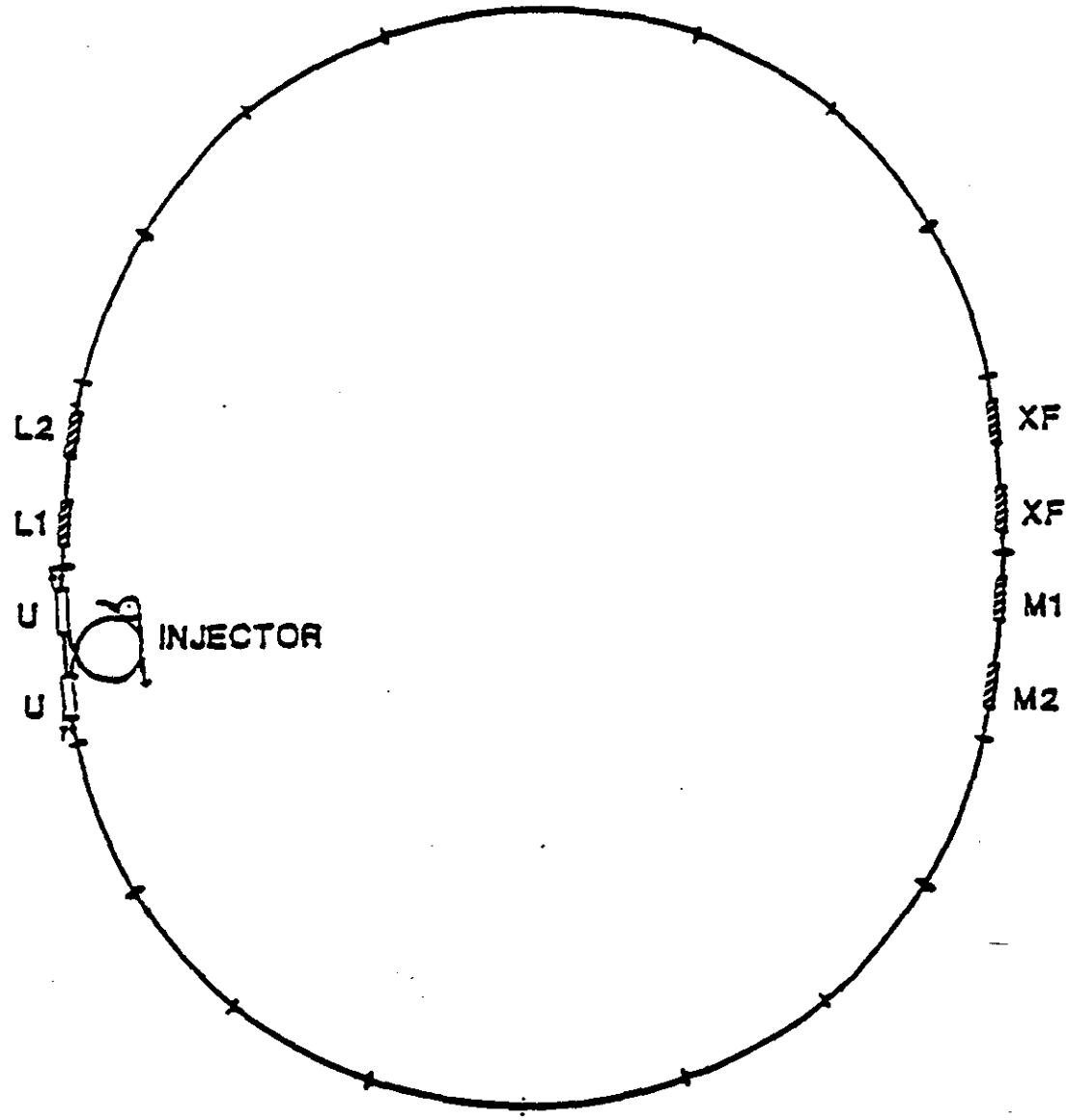
10. Short IR, Low-β Module (left side); Injection Optics
11. Long IR, Medium-β Module (left side); Injection Optics

Figure 1. SSC Long Straight Section Layout



East Cluster: XF — future IRs M1, M2 — medium-β IRs
West Cluster: U — utilities L1, L2 — low-β IRs
XF initially same as U Straight sections 1152 m long

	L		M		U		X	
Optics	β^*	L_{IR}	β^*	L_{IR}	L_{end}	L_{center}	L_{end}	L_{center}
Collision	0.5	20	10	102	200	335	200	335
Injection	6.0	20	64	102	200	335	200	335

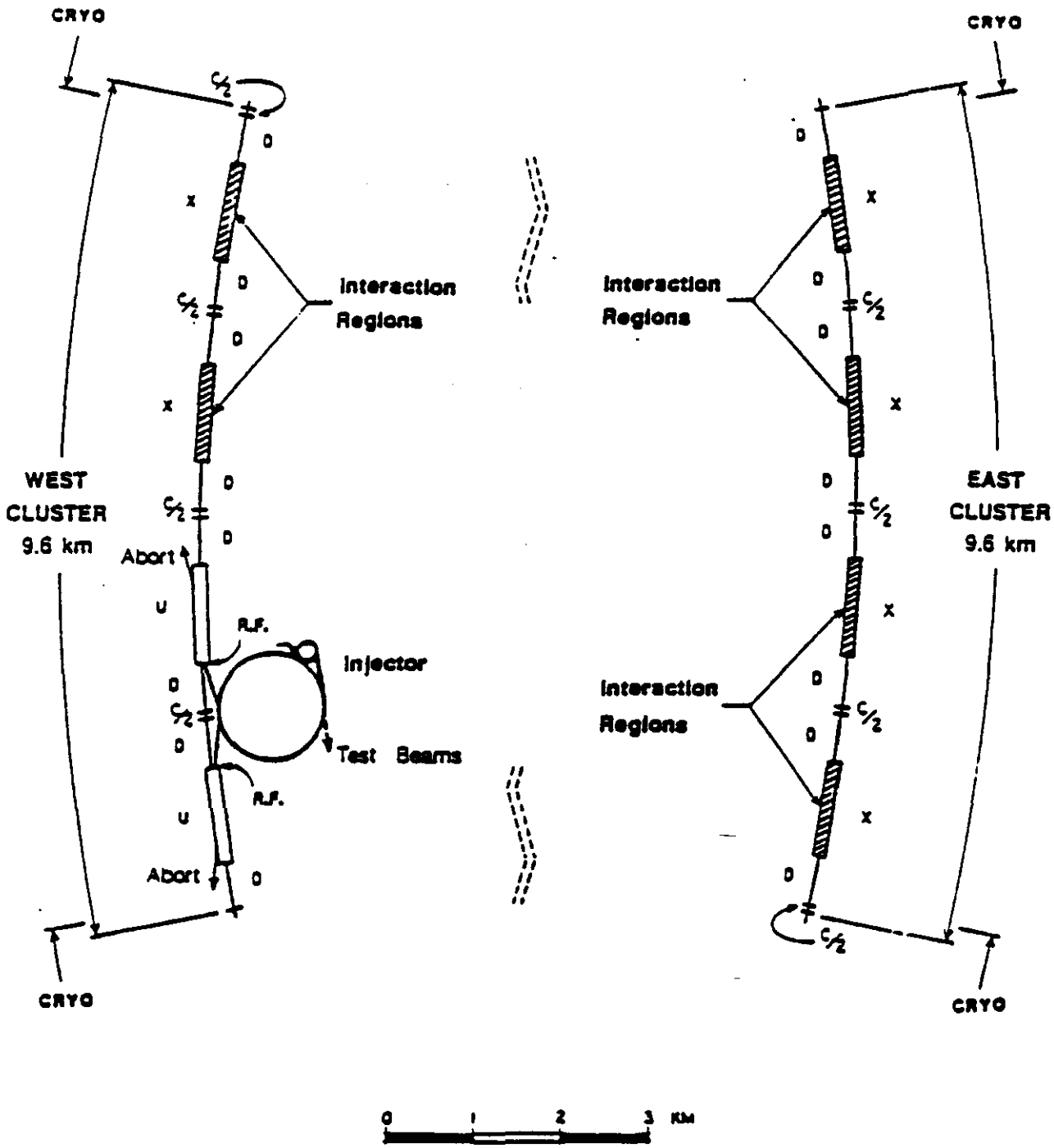


Figure 2. **CLUSTER REGIONS**

X	EXPERIMENTAL STRAIGHT	1152 m	
U	UTILITY STRAIGHT	1152 m	
D	DISPERSION SUPPRESSOR	576 m (3 CELLS)	
C	CELL	192 m	
C/2	HALF CELL	96 m	

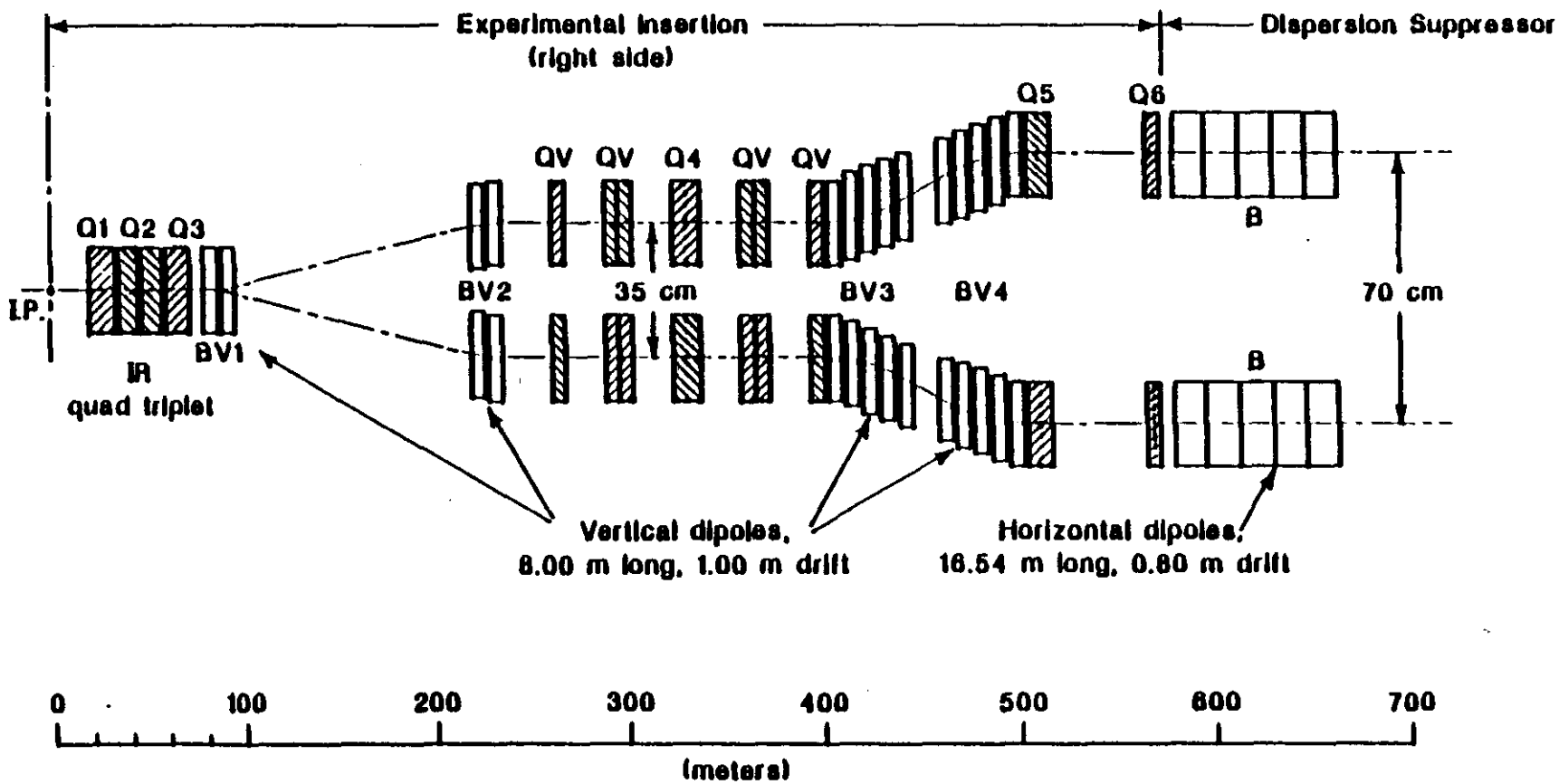


Figure 3. Side View of Short IR (right side)

XBL 861-11305

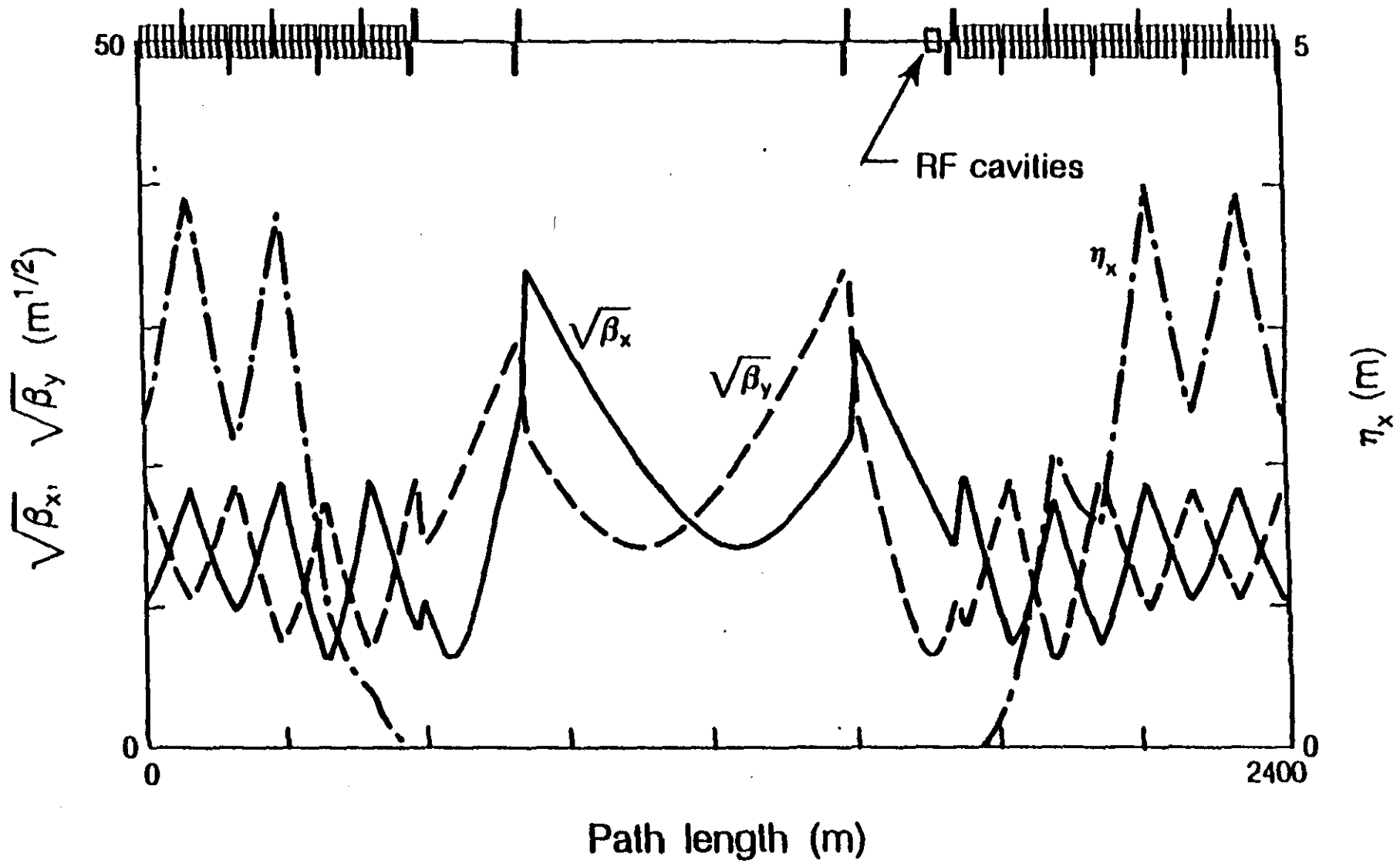


Figure 4. Utility Module

XBL 861-11258

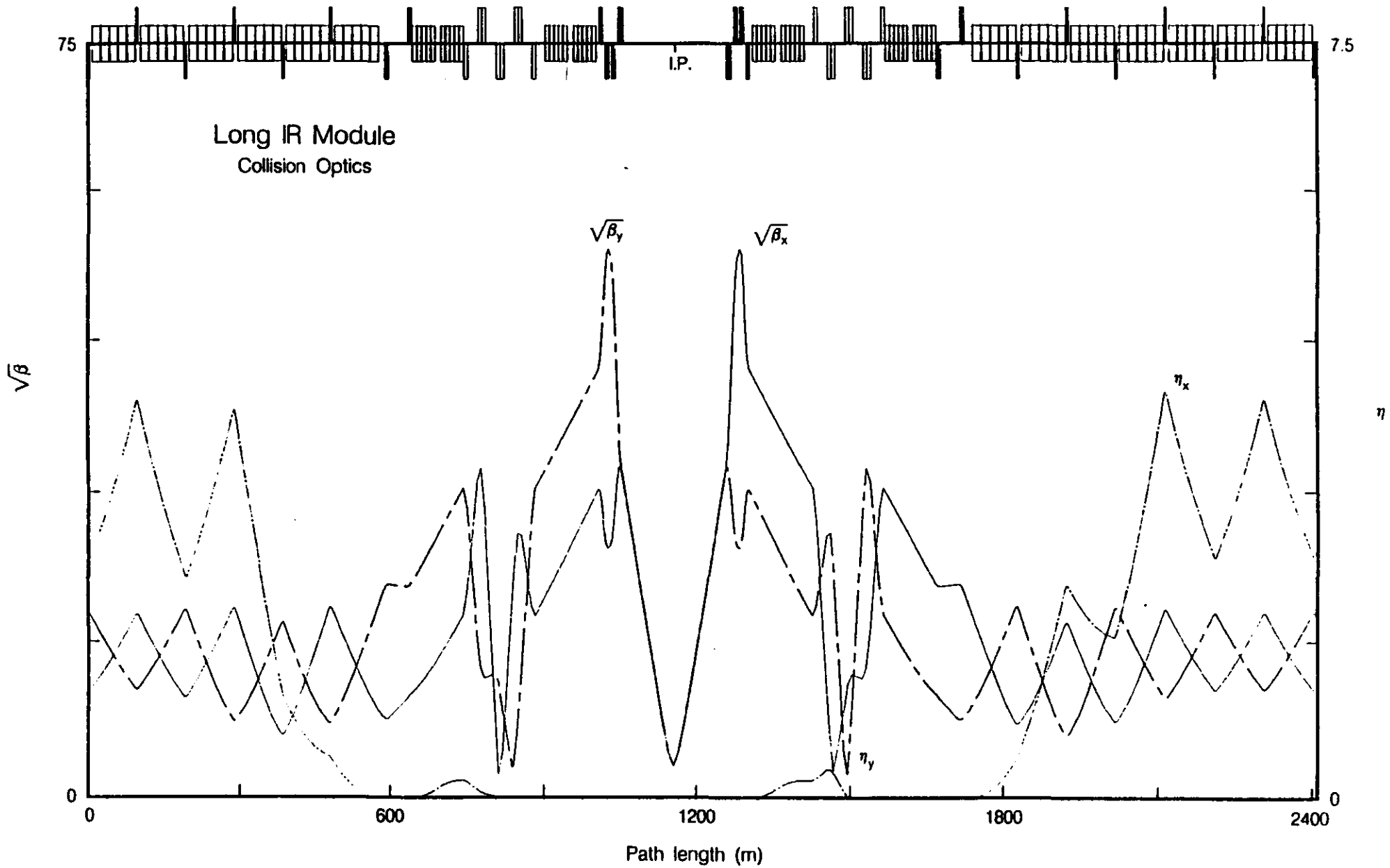


Figure 5

XBL 864-10772

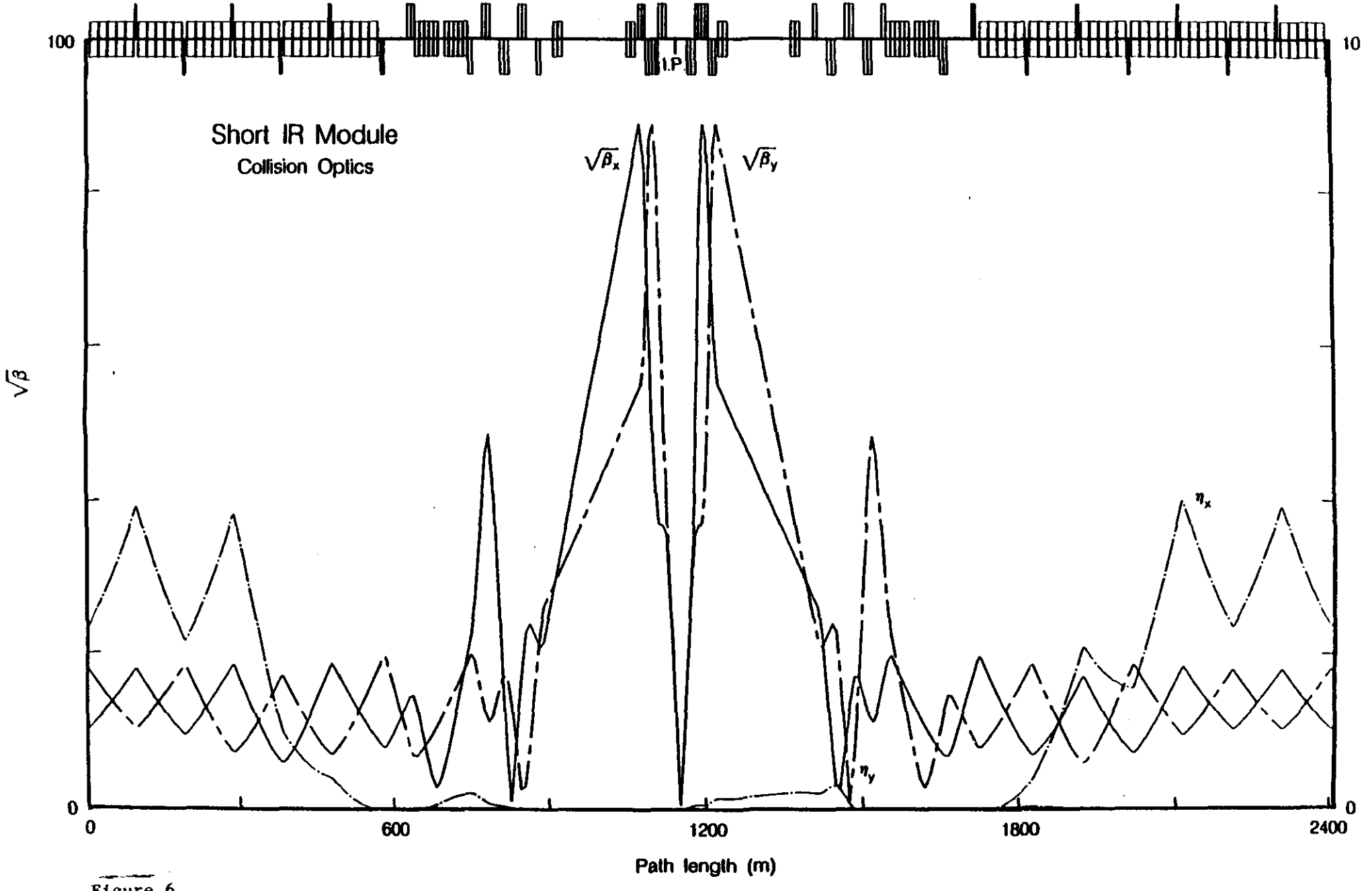


Figure 6

XBL 8C1 1077

SYNCH VERSION VAX.8601

SYNCH RUN L96 CLUSTERED LATTICE WITH 96 METER LENGTH HALF-CELLS
25-APR-86 12:46:42

```
                    > U   U   XX  XX >
                                      v
                    < X   X   U   U  <

     Collision Optics  3-11-86
***   B*      =            //   0.5
***   BL*     =            //  10.0
***   NUX     =            //  78.265
***   NUY     =            //  78.280
     6.60 T, 212 T/M, 235 T/M MAXIMUM IN Q1,Q2,Q3 TRIPLET, 60 DEGREE CELLS
     ARCS ---
     96 METER HALF-CELLS, FIVE 16.54 M DIPOLES
     3.32 M QUADRUPOLE, 5.98 M SPOOL DRIFT, 0.8 M DIPOLE SEPARATION DRIFTS.
     ALL SPOOLS DOWNSTREAM FROM QUADS.

     VERTICAL BEAM SEPARATING SECTION --- CONTAINS STEP WITH TWO 90 DEGREE CELLS
                                      --- 70 CM BEAMLINE SEPARATION
                                      --- SPLITTER MAGNET 79.5 METERS FROM IP
     ARCS CONTAIN 166 CELLS EACH
     TWO 1152 METER LONG CROSSING STRAIGHTS WITH +- 20 METERS FREE SPACE (X)
     TWO 1152 METER LONG CROSSING STRAIGHTS WITH +-101.75 METERS FREE SPACE (XX)
     2400 METERS BETWEEN IP'S
     FOUR 1152 METER UTILITY STRAIGHTS (U)
     STRAIGHTS SEPARATED BY 6 1/2 CELL DISPERSION SUPPRESSORS
     STRAIGHTS X, XX, AND U IMBEDDED IN 2400 M LONG SUPER-CELLS Z, ZZ, AND UU
     ONE SUPERPERIOD, CROSSINGS ALL HAVE DF SEQUENCE, 90 DEG PHASE INTERVALS
     BETWEEN STRAIGHTS (MOD 180 DEG)
     3840 DIPOLES IN RING, CIRCUMFERENCE 82.944 KM, TUNE 78 1/3
    ..............................................................................
***   BRHO    =            //  66712.8
***   B0      =            //  6.59967
***   RHO     =            //  10108.5034

***   ...     ....         //  ..................
```

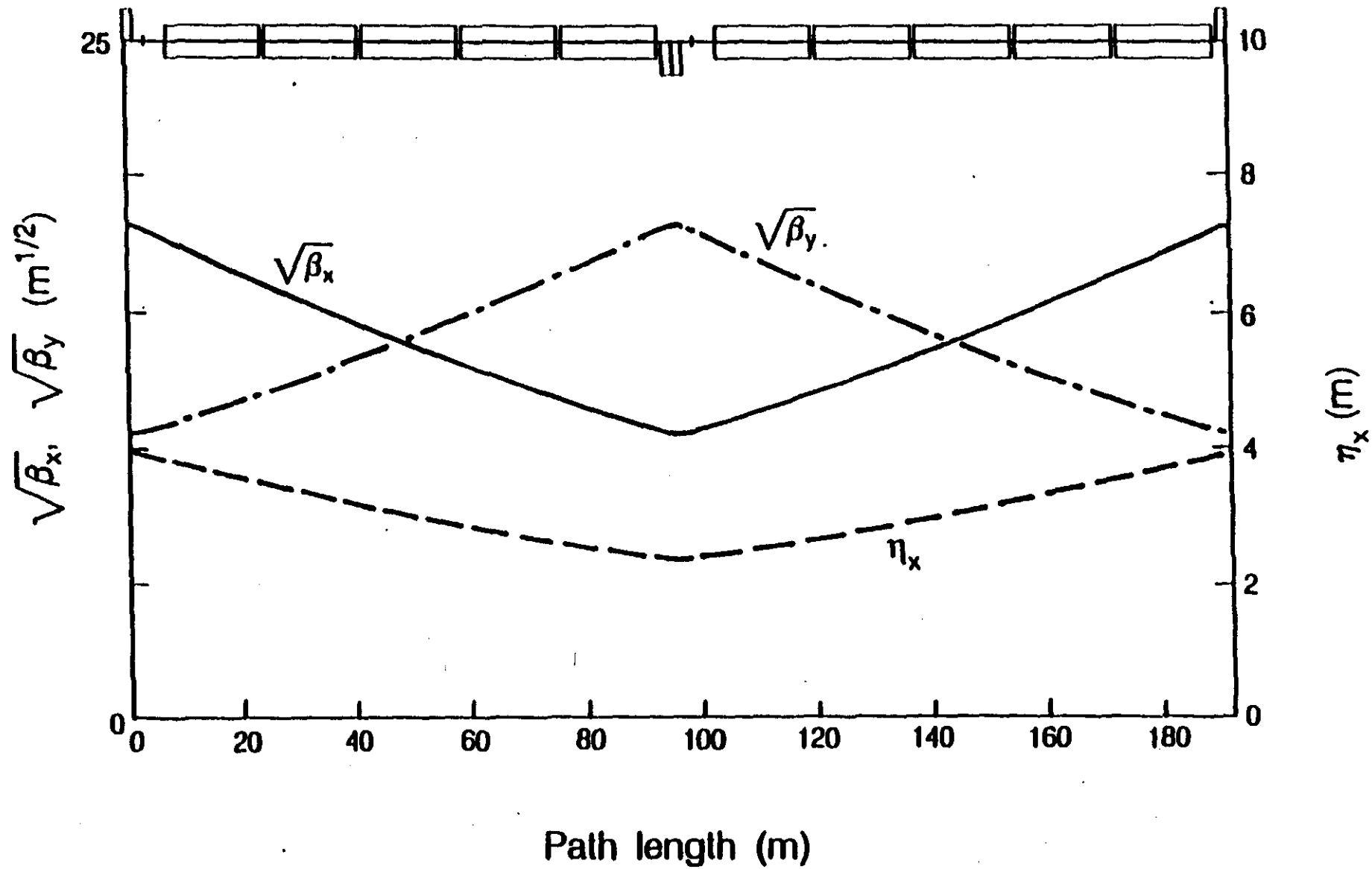


Figure 7. Arc Cell

XBL 861-11255

```
     Arc Cells
***   NUX    =            //  78.265913
***   NUY    =            //  78.281113
***   MUX    CALC         //  RCL  NUX  23.  -    332. /
***   MUY    CALC         //  RCL  NUY  23.  -    332. /
***          FITQ         //  SRG  CF   KF   KD       1    1MUX       MUY

PARAMETER REPLACEMENTS MADE BY FITTING
       1  OF  KF   =       0.003170732959              1  OF  KD   =      -0.003171347692
***   PR1    PRNT         //  LB   LQF  LQD  O    OO   OOO  OOS
  *                       //  B0   RHO  RHOI KF   KD   NUX  NUY  MUX  MUY
-----------------------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
       LB                  LQF                 LQD                 O                   OO
      16.540000000        1.660000000         1.660000000         0.800000000         2.000000000
       OOO                 OOS                 B0                  RHO                 RHOI
       3.980000000         5.980000000         6.599670000     10108.503400000         0.000098927
       KF                  KD                  NUX                 NUY                 MUX
       0.003170733        -0.003171348        78.265913000        78.281113000         0.166463576
       MUY
       0.166509376
-----------------------------------------------------------------------------------------------------------
***   CC     CYC      100 //  .C
-----------------------------------------------------------------------------------------------------------
```

POS	S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0	0.0000	0.00000	0.00000	331.71849	111.33898	3.93139	0.00000	0.0000	0.00001	0.00000	0.00022	0.00000
1 #QF	0.0000	0.00000	0.00000	331.71849	111.33898	3.93139	0.00000	0.0000	0.00001	0.00000	0.00022	0.00000
2 QF	1.6600	0.00080	0.00237	328.83687	112.33944	3.91460	0.00000	0.0000	1.73085	-0.60444	-0.02044	0.00000
3 OO	3.6600	0.00178	0.00517	321.96207	114.80581	3.87371	0.00000	0.0000	1.70655	-0.62875	-0.02044	0.00000
4 SF	3.6600	0.00178	0.00517	321.96207	114.80581	3.87371	0.00000	0.0000	1.70655	-0.62875	-0.02044	0.00000
5 OOO	7.6400	0.00379	0.01057	308.57042	120.00316	3.79236	0.00000	0.0000	1.65819	-0.67712	-0.02044	0.00000
6 B	24.1800	0.01314	0.03053	257.04117	145.72717	3.46778	0.00000	0.0059	1.45724	-0.87814	-0.01881	0.00000
7 O	24.9800	0.01364	0.03139	254.71735	147.13998	3.45273	0.00000	0.0059	1.44752	-0.88787	-0.01881	0.00000
8 B	41.5200	0.02502	0.04761	210.15719	179.83548	3.15520	0.00000	0.0113	1.24656	-1.08889	-0.01717	0.00000
9 O	42.3200	0.02563	0.04831	208.17046	181.58548	3.14147	0.00000	0.0113	1.23684	-1.09861	-0.01717	0.00000
10 B	58.8600	0.03962	0.06146	170.57988	221.25247	2.87100	0.00000	0.0163	1.03587	-1.29963	-0.01553	0.00000
11 O	59.6600	0.04037	0.06203	168.93027	223.33966	2.85857	0.00000	0.0163	1.02614	-1.30936	-0.01553	0.00000
12 B	76.2000	0.05763	0.07276	138.30969	269.97814	2.61515	0.00000	0.0207	0.82516	-1.51038	-0.01390	0.00000
13 O	77.0000	0.05855	0.07323	136.99721	272.40252	2.60403	0.00000	0.0207	0.81544	-1.52010	-0.01390	0.00000
14 B	93.5400	0.07974	0.08207	113.34697	326.01248	2.38768	0.00000	0.0248	0.61444	-1.72113	-0.01226	0.00000
15 O	94.3400	0.08087	0.08246	112.37164	328.77406	2.37787	0.00000	0.0248	0.60472	-1.73085	-0.01226	0.00000
16 QD	96.0000	0.08323	0.08325	111.37072	331.65568	2.36788	0.00000	0.0248	0.00000	0.00000	0.00022	0.00000
17 #QD	96.0000	0.08323	0.08325	111.37072	331.65568	2.36788	0.00000	0.0248	0.00000	0.00000	0.00022	0.00000
18 QD	97.6600	0.08560	0.08405	112.37163	328.77406	2.37860	0.00000	0.0248	-0.60472	1.73085	0.01270	0.00000
19 OO	99.6600	0.08840	0.08503	114.83910	321.89928	2.40400	0.00000	0.0248	-0.62902	1.70654	0.01270	0.00000
20 SD	99.6600	0.08840	0.08503	114.83910	321.89928	2.40400	0.00000	0.0248	-0.62902	1.70654	0.01270	0.00000
21 OOO	103.6400	0.09380	0.08704	120.03863	308.50772	2.45457	0.00000	0.0248	-0.67739	1.65817	0.01270	0.00000
22 B	120.1800	0.11375	0.09640	145.77118	256.98036	2.67823	0.00000	0.0290	-0.87838	1.45715	0.01434	0.00000
23 O	120.9800	0.11462	0.09689	147.18437	254.65670	2.68970	0.00000	0.0290	-0.88811	1.44742	0.01434	0.00000
24 B	137.5200	0.13082	0.10828	179.88718	210.10083	2.94041	0.00000	0.0336	-1.08909	1.24640	0.01598	0.00000
25 O	138.3200	0.13153	0.10889	181.63750	208.11437	2.95319	0.00000	0.0336	-1.09881	1.23668	0.01598	0.00000
26 B	154.8600	0.14467	0.12289	221.31020	170.52998	3.23097	0.00000	0.0387	-1.29978	1.03565	0.01761	0.00000

27	O	155.6600	0.14524	0.12364	223.39763	168.88071	3.24505	0.00000	0.0387	-1.30950	1.02593	0.01761	0.00000
28	B	172.2000	0.15597	0.14090	270.03977	138.26781	3.54988	0.00000	0.0442	-1.51046	0.82491	0.01925	0.00000
29	O	173.0000	0.15644	0.14182	272.46428	136.95574	3.56528	0.00000	0.0442	-1.52018	0.81519	0.01925	0.00000
30	B	189.5400	0.16528	0.16302	326.07535	113.31432	3.89716	0.00000	0.0503	-1.72112	0.61416	0.02088	0.00000
31	O	190.3400	0.16566	0.16414	328.83692	112.33944	3.91386	0.00000	0.0503	-1.73084	0.60444	0.02088	0.00000
32	QF	192.0000	0.16646	0.16651	331.71849	111.33898	3.93139	0.00000	0.0503	0.00001	0.00000	0.00022	0.00000

CIRCUMFERENCE = 19200.0000 M THETX = 1.63624617 RAD NUX = 16.64636 DNUX/(DP/P) = -18.34073
RADIUS = 3055.7749 M THETY = 0.00000000 RAD NUY = 16.65094 DNUY/(DP/P) = -18.34570
(DS/S)/(DP/P)= 0.0002621 TGAM=(61.77105, 0.00000)

MAXIMA	--- BETX(1) =	331.71849	BETY(17) =	331.65568	XEQ(32) =	3.93139	YEQ(32) =	0.00000
MINIMA	--- BETX(17) =	111.37072	BETY(32) =	111.33898	XEQ(17) =	2.36788	YEQ(32) =	0.00000

*** ... . // .....

```
   Dispersion Suppressor Parameters
***  PR2    PRNT          //  KGG  KHH  KII  KJJ  KKK
  *                       //  LQG  LQH  LQI  LQJ  LQK
  *                       //  OOG  OOH  OOI  OOJ  OOK  OOQ
  *                       //  OG   OH   OI   OJ   OK   OQ
-------------------------------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
      KGG                 KHH                 KII                 KJJ                 KKK
      0.003177800        -0.003177800         0.003177800        -0.003177800         0.003177800
      LQG                 LQH                 LQI                 LQJ                 LQK
      2.439786100         2.403893200         2.294079200         2.025018100         1.739815800
      OOG                 OOH                 OOI                 OOJ                 OOK
      4.350213900         4.386106800         4.495920800         4.764981900         5.050184200
      OOQ                 OG                  OH                  OI                  OJ
      5.130000000         0.870213900         0.906106800         1.015920800         1.284981900
      OK                  OQ
      1.570184200         1.650000000
-------------------------------------------------------------------------------------------------------------------

***  ...   ....        //  ..................
```

```
    Utility Module ---
***   PR3     PRNT          //  LRS  LUE  LTU  LUC  LQR  LQS  LQT  LQU
-------------------------------------------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
       LRS                    LUE                    LTU                    LUC                    LQR
       8.372442200          200.000000000          1.000000000          330.008618600          3.914832200
       LQS                    LQT                    LQU
       4.228946700            5.440386700          5.555304000
-------------------------------------------------------------------------------------------------------------------------------
***   UUC     MMM           //  .UU  .CD
***   `2U     BML           //  .UU  UUC
***   2U      BEST          //  `2U
-------------------------------------------------------------------------------------------------------------------------------
```

BETATRON FUNCTIONS OF 2U

POS		S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0		0.0000	0.00000	0.00000	111.37072	331.65568	2.36706	0.00000	0.0000	0.00000	0.00000	0.00024	0.00000
1	#QD	0.0000	0.00000	0.00000	111.37072	331.65568	2.36706	0.00000	0.0000	0.00000	0.00000	0.00024	0.00000
2	QD	1.6600	0.00237	0.00080	112.37163	328.77407	2.37781	0.00000	0.0000	-0.60472	1.73085	0.01272	0.00000
3	QQQ	6.7900	0.00943	0.00335	118.89584	311.33540	2.44308	0.00000	0.0000	-0.66706	1.66850	0.01272	0.00000
4	B	23.3300	0.02958	0.01262	144.28667	259.46631	2.66704	0.00000	0.0042	-0.86805	1.46748	0.01436	0.00000
5	O	24.1300	0.03046	0.01311	145.68334	257.12613	2.67852	0.00000	0.0042	-0.87778	1.45775	0.01436	0.00000
6	B	40.6700	0.04684	0.02439	178.04443	212.22853	2.92954	0.00000	0.0088	-1.07876	1.25673	0.01599	0.00000
7	O	41.4700	0.04755	0.02499	179.77822	210.22553	2.94234	0.00000	0.0088	-1.08848	1.24701	0.01599	0.00000
8	B	58.0100	0.06083	0.03884	219.10923	172.29941	3.22041	0.00000	0.0138	-1.28945	1.04599	0.01763	0.00000
9	O	58.8100	0.06140	0.03958	221.18013	170.63362	3.23451	0.00000	0.0138	-1.29917	1.03626	0.01763	0.00000
10	B	75.3500	0.07224	0.05667	267.48059	139.67898	3.53964	0.00000	0.0193	-1.50013	0.83524	0.01927	0.00000
11	O	76.1500	0.07271	0.05758	269.88858	138.35038	3.55505	0.00000	0.0193	-1.50985	0.82552	0.01927	0.00000
12	B	92.6900	0.08163	0.07857	323.15799	114.36722	3.88723	0.00000	0.0254	-1.71079	0.62449	0.02090	0.00000
13	QK	94.2602	0.08239	0.08078	328.56046	112.43605	3.92005	0.00000	0.0254	-1.72987	0.60541	0.02090	0.00000
14	QFK	96.0000	0.08323	0.08325	331.42758	111.43782	3.93751	0.00000	0.0254	0.08721	-0.02982	-0.00084	0.00000
15	#QFK	96.0000	0.08323	0.08325	331.42758	111.43782	3.93751	0.00000	0.0254	0.08721	-0.02982	-0.00084	0.00000
16	QFK	97.7398	0.08407	0.08573	327.95741	112.64488	3.91714	0.00000	0.0254	1.90095	-0.66619	-0.02257	0.00000
17	QQK	102.7900	0.08660	0.09265	309.11591	119.70058	3.80316	0.00000	0.0254	1.82990	-0.73092	-0.02257	0.00000
18	B	119.3300	0.09602	0.11252	252.43048	147.38599	3.44341	0.00000	0.0313	1.59727	-0.94292	-0.02093	0.00000
19	O	120.1300	0.09653	0.11338	249.88386	148.90287	3.42666	0.00000	0.0313	1.58601	-0.95318	-0.02093	0.00000
20	B	136.6700	0.10828	0.12932	201.26673	183.94043	3.09396	0.00000	0.0367	1.35335	-1.16518	-0.01930	0.00000
21	O	137.4700	0.10892	0.13000	199.11037	185.81292	3.07853	0.00000	0.0367	1.34210	-1.17543	-0.01930	0.00000
22	B	154.0100	0.12375	0.14280	158.56208	228.20263	2.77288	0.00000	0.0415	1.10943	-1.38743	-0.01766	0.00000
23	O	154.8100	0.12456	0.14336	156.79600	230.43072	2.75875	0.00000	0.0415	1.09817	-1.39768	-0.01766	0.00000
24	B	171.3500	0.14346	0.15372	124.31701	280.17257	2.48016	0.00000	0.0457	0.86549	-1.60968	-0.01603	0.00000
25	O	172.1500	0.14449	0.15418	122.94123	282.75627	2.46734	0.00000	0.0457	0.85423	-1.61994	-0.01603	0.00000
26	B	188.6900	0.16850	0.16267	98.53191	339.85027	2.21581	0.00000	0.0496	0.62154	-1.83194	-0.01439	0.00000
27	QJ	189.9750	0.17059	0.16327	96.95781	344.57944	2.19732	0.00000	0.0496	0.60346	-1.84841	-0.01439	0.00000
28	QQJ	192.0000	0.17394	0.16420	95.81940	347.58221	2.18245	0.00000	0.0496	-0.03885	0.37202	-0.00031	0.00000
29	#QQJ	192.0000	0.17394	0.16420	95.81940	347.58221	2.18245	0.00000	0.0496	-0.03885	0.37202	-0.00031	0.00000
30	QQJ	194.0250	0.17729	0.16513	97.27524	341.59218	2.19605	0.00000	0.0496	-0.68320	2.57314	0.01376	0.00000
31	QQQJ	198.7900	0.18483	0.16744	104.12842	317.57685	2.26162	0.00000	0.0496	-0.75504	2.46683	0.01376	0.00000
32	B	215.3300	0.20725	0.17694	133.22996	242.07766	2.50274	0.00000	0.0535	-1.00442	2.09782	0.01540	0.00000
33	O	216.1300	0.20820	0.17747	134.84669	238.73543	2.51506	0.00000	0.0535	-1.01648	2.07997	0.01540	0.00000
34	B	232.6700	0.22549	0.19032	172.59643	176.03360	2.78324	0.00000	0.0578	-1.26585	1.71095	0.01703	0.00000
35	O	233.4700	0.22622	0.19105	174.63143	173.31035	2.79686	0.00000	0.0578	-1.27791	1.69311	0.01703	0.00000
36	B	250.0100	0.23964	0.20909	221.02894	123.40587	3.09210	0.00000	0.0626	-1.52726	1.32409	0.01867	0.00000
37	O	250.8100	0.24021	0.21013	223.48221	121.30160	3.10703	0.00000	0.0626	-1.53932	1.30625	0.01867	0.00000
38	B	267.3500	0.25077	0.23629	278.52697	84.19448	3.42932	0.00000	0.0680	-1.78865	0.93723	0.02030	0.00000
39	O	268.1500	0.25122	0.23782	281.39847	82.70919	3.44556	0.00000	0.0680	-1.80072	0.91938	0.02030	0.00000
40	B	284.6900	0.25967	0.27606	345.08987	58.39942	3.79491	0.00000	0.0739	-2.05003	0.55037	0.02194	0.00000
41	QI	285.7059	0.26014	0.27886	349.27076	57.30418	3.81720	0.00000	0.0739	-2.06535	0.52771	0.02194	0.00000
42	QFI	288.0000	0.26118	0.28533	351.91174	55.93768	3.83551	0.00000	0.0739	0.48708	0.07127	-0.00599	0.00000
43	#QFI	288.0000	0.26118	0.28533	352.91174	55.93768	3.83551	0.00000	0.0739	0.48708	0.07127	-0.00599	0.00000
44	QFI	290.2941	0.26222	0.29183	344.85080	56.64283	3.78977	0.00000	0.0739	3.00711	-0.38036	-0.03383	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
45	COI	294.7900	0.26438	0.30407	318.39999	60.47149	3.63768	0.00000	0.0739	2.87618	-0.47122	-0.03383	0.00000
46	B	311.3300	0.27409	0.34191	231.22217	81.58800	3.09169	0.00000	0.0794	2.39454	-0.80547	-0.03219	0.00000
47	O	312.1300	0.27464	0.34345	227.40954	82.88969	3.06594	0.00000	0.0794	2.37124	-0.82164	-0.03219	0.00000
48	B	328.6700	0.28860	0.37048	156.93551	115.59805	2.54701	0.00000	0.0840	1.88958	-1.15589	-0.03056	0.00000
49	O	329.4700	0.28942	0.37157	153.93082	117.46041	2.52256	0.00000	0.0840	1.86628	-1.17206	-0.03056	0.00000
50	B	346.0100	0.31068	0.39071	100.16136	161.76061	2.03069	0.00000	0.0877	1.38459	-1.50631	-0.02892	0.00000
51	O	346.8100	0.31196	0.39149	97.96465	164.18364	2.00755	0.00000	0.0877	1.36129	-1.52248	-0.02892	0.00000
52	B	363.3500	0.34631	0.40536	60.90037	220.07569	1.54273	0.00000	0.0906	0.87959	-1.85673	-0.02728	0.00000
53	O	364.1500	0.34843	0.40593	59.51166	223.05939	1.52090	0.00000	0.0906	0.85629	-1.87290	-0.02728	0.00000
54	B	380.6900	0.40409	0.41628	39.15296	290.54329	1.08315	0.00000	0.0927	0.37458	-2.20715	-0.02565	0.00000
55	OH	381.5961	0.40780	0.41677	38.49805	294.55970	1.05991	0.00000	0.0927	0.34819	-2.22546	-0.02565	0.00000
56	QDH	384.0000	0.41789	0.41806	37.68408	299.86865	1.00781	0.00000	0.0927	-0.00752	0.03051	-0.01776	0.00000
57	#QDH	384.0000	0.41789	0.41806	37.68408	299.86865	1.00781	0.00000	0.0927	-0.00752	0.03051	-0.01776	0.00000
58	QDH	386.4039	0.42796	0.41934	38.57122	294.26988	0.97424	0.00000	0.0927	-0.36378	2.28426	-0.01020	0.00000
59	OOH	390.7900	0.44527	0.42180	42.32717	274.63839	0.92949	0.00000	0.0927	-0.49255	2.19158	-0.01020	0.00000
60	B	407.3300	0.49567	0.43282	66.65170	207.92144	0.77425	0.00000	0.0941	-0.97810	1.84209	-0.00857	0.00000
61	O	408.1300	0.49756	0.43344	68.23545	204.98761	0.76739	0.00000	0.0941	-1.00159	1.82519	-0.00857	0.00000
62	B	424.6700	0.52821	0.44845	109.39088	150.39079	0.63921	0.00000	0.0953	-1.48713	1.47571	-0.00693	0.00000
63	O	425.4700	0.52936	0.44931	111.79708	148.04318	0.63366	0.00000	0.0953	-1.51062	1.45880	-0.00693	0.00000
64	B	442.0100	0.54852	0.47043	169.79897	105.56649	0.53254	0.00000	0.0962	-1.99614	1.10932	-0.00530	0.00000
65	O	442.8100	0.54926	0.47164	173.01159	103.80510	0.52831	0.00000	0.0962	-2.01963	1.09241	-0.00530	0.00000
66	B	459.3500	0.56199	0.50197	247.85126	73.44854	0.45425	0.00000	0.0970	-2.50514	0.74293	-0.00366	0.00000
67	O	460.1500	0.56250	0.50372	251.87827	72.27338	0.45132	0.00000	0.0970	-2.52862	0.72603	-0.00366	0.00000
68	B	476.6900	0.57145	0.54635	343.55490	54.03694	0.40433	0.00000	0.0977	-3.01410	0.37654	-0.00202	0.00000
69	OG	477.5602	0.57185	0.54893	348.82295	53.39760	0.40257	0.00000	0.0977	-3.03964	0.35815	-0.00202	0.00000
70	QFG	480.0000	0.57295	0.55627	357.08556	52.77087	0.39384	0.00000	0.0977	-0.32559	-0.09966	-0.00512	0.00000
71	#QFG	480.0000	0.57295	0.55627	357.08556	52.77087	0.39384	0.00000	0.0977	-0.32559	-0.09966	-0.00512	0.00000
72	QFG	482.4398	0.57404	0.56355	351.96049	54.38247	0.37768	0.00000	0.0977	2.41295	-0.56505	-0.00811	0.00000
73	OOG	486.7900	0.57606	0.57570	331.33363	59.75778	0.34240	0.00000	0.0977	2.32862	-0.67059	-0.00811	0.00000
74	B	503.3300	0.58505	0.61220	259.60481	88.57750	0.22177	0.00000	0.0982	2.00806	-1.07184	-0.00647	0.00000
75	O	504.1300	0.58554	0.61363	256.40432	90.30796	0.21659	0.00000	0.0982	1.99255	-1.09125	-0.00647	0.00000
76	B	520.6700	0.59730	0.63774	195.79319	133.04304	0.12303	0.00000	0.0984	1.67196	-1.49250	-0.00484	0.00000
77	O	521.4700	0.59795	0.63868	193.13045	135.44656	0.11916	0.00000	0.0984	1.65646	-1.51190	-0.00484	0.00000
78	B	538.0100	0.61378	0.65503	143.63767	192.09700	0.05266	0.00000	0.0986	1.33585	-1.91315	-0.00320	0.00000
79	O	538.8100	0.61468	0.65569	141.51272	195.17358	0.05010	0.00000	0.0986	1.32034	-1.93256	-0.00320	0.00000
80	B	555.3500	0.63654	0.66726	103.13886	265.73938	0.01066	0.00000	0.0986	0.99972	-2.33381	-0.00157	0.00000
81	O	556.1500	0.63778	0.66773	101.55171	269.48901	0.00941	0.00000	0.0986	0.98421	-2.35322	-0.00157	0.00000
82	B	572.6900	0.66827	0.67626	74.29719	353.97018	-0.00296	0.00000	0.0986	0.66358	-2.75447	0.00007	0.00000
83	OQ	574.3400	0.67186	0.67699	72.16015	363.12598	-0.00285	0.00000	0.0986	0.63159	-2.79450	0.00007	0.00000
84	QDR	578.2548	0.68064	0.67869	70.92664	367.26827	-0.00264	0.00000	0.0986	-0.31141	1.75363	0.00004	0.00000
85	#QDR	578.2548	0.68064	0.67869	70.92664	367.26827	-0.00264	0.00000	0.0986	-0.31141	1.75363	0.00004	0.00000
86	QDR	582.1697	0.68914	0.68044	77.19647	336.54830	-0.00256	0.00000	0.0986	-1.31607	5.96564	0.00000	0.00000
87	LRS	590.5421	0.70420	0.68509	101.71463	244.27527	-0.00253	0.00000	0.0986	-1.61237	5.05540	0.00000	0.00000
88	QFS	594.7711	0.71051	0.68805	109.79013	216.00769	-0.00244	0.00000	0.0986	-0.26089	1.75505	0.00004	0.00000
89	#QFS	594.7711	0.71051	0.68805	109.79013	216.00769	-0.00244	0.00000	0.0986	-0.26089	1.75505	0.00004	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
90	QES	599.0000	0.71669	0.69122	105.96254	213.44948	-0.00222	0.00000	0.0986	1.14878	-1.13871	0.00007	0.00000
91	LUE	799.0000	1.05490	0.75895	522.11483	1099.32149	0.01156	0.00000	0.0986	-3.22954	-3.29065	0.00007	0.00000
92	QDT	804.4404	1.05647	0.75975	599.99019	1053.00349	0.01238	0.00000	0.0986	-11.44201	11.58977	0.00023	0.00000
93	#QDT	804.4404	1.05647	0.75975	599.99019	1053.00349	0.01238	0.00000	0.0986	-11.44201	11.58977	0.00023	0.00000
94	QDT	809.8808	1.05775	0.76065	783.79030	859.57287	0.01413	0.00000	0.0986	-23.18552	23.06853	0.00042	0.00000
95	LTU	810.8808	1.05794	0.76084	830.84848	814.05606	0.01455	0.00000	0.0986	-23.87266	22.44827	0.00042	0.00000
96	QFU	816.4361	1.05888	0.76208	1039.58916	636.59460	0.01626	0.00000	0.0986	-12.71451	10.32732	0.00020	0.00000
97	#QFU	816.4361	1.05888	0.76208	1039.58916	636.59460	0.01626	0.00000	0.0986	-12.71451	10.32732	0.00020	0.00000
98	QFU	821.9914	1.05970	0.76357	1098.83280	572.37741	0.01670	0.00000	0.0986	2.33054	1.53303	-0.00004	0.00000
99	LUC	1152.0000	1.18476	0.98194	198.05597	197.98654	0.00427	0.00000	0.0986	0.39901	-0.39855	-0.00004	0.00000
100	#UC	1152.0000	1.18476	0.98194	198.05597	197.98654	0.00427	0.00000	0.0986	0.39901	-0.39855	-0.00004	0.00000
101	LUC	1482.0086	1.40317	1.10706	572.11949	1098.47137	-0.00817	0.00000	0.0986	-1.53251	-2.33013	-0.00004	0.00000
102	QDU	1487.5639	1.40466	1.10787	636.30978	1039.25097	-0.00871	0.00000	0.0986	-10.32288	12.71002	-0.00016	0.00000
103	#QDU	1487.5639	1.40466	1.10787	636.30978	1039.25097	-0.00871	0.00000	0.0986	-10.32288	12.71002	-0.00016	0.00000
104	QDU	1493.1192	1.40590	1.10881	813.69415	830.58169	-0.00993	0.00000	0.0986	-22.43848	23.86463	-0.00029	0.00000
105	LTU	1494.1192	1.40609	1.10901	859.19109	783.53932	-0.01021	0.00000	0.0986	-23.05847	23.17774	-0.00029	0.00000
106	QFT	1499.5596	1.40699	1.11029	1052.53802	599.80154	-0.01137	0.00000	0.0986	-11.58484	11.43804	-0.00014	0.00000
107	#QFT	1499.5596	1.40699	1.11029	1052.53802	599.80154	-0.01137	0.00000	0.0986	-11.58484	11.43804	-0.00014	0.00000
108	QFT	1505.0000	1.40779	1.11185	1098.83766	521.95444	-0.01168	0.00000	0.0986	3.28901	3.22818	0.00002	0.00000
109	LUE	1705.0000	1.47555	1.45000	213.41870	105.94197	-0.00691	0.00000	0.0986	1.13809	-1.14811	0.00002	0.00000
110	QDS	1709.2289	1.47871	1.45619	215.98051	109.76513	-0.00700	0.00000	0.0986	-1.75530	0.26126	-0.00007	0.00000
111	#QDS	1709.2289	1.47871	1.45619	215.98051	109.76513	-0.00700	0.00000	0.0986	-1.75530	0.26126	-0.00007	0.00000
112	QDS	1713.4579	1.48167	1.46250	244.24877	101.68813	-0.00750	0.00000	0.0986	-5.05532	1.61236	-0.00017	0.00000
113	LRS	1721.8303	1.48632	1.47756	336.52105	77.17084	-0.00889	0.00000	0.0986	-5.96563	1.31598	-0.00017	0.00000
114	QFR	1725.7452	1.48808	1.48606	367.24239	70.90060	-0.00932	0.00000	0.0986	-1.75398	0.31160	-0.00005	0.00000
115	#QFR	1725.7452	1.48808	1.48606	367.24239	70.90060	-0.00932	0.00000	0.0986	-1.75398	0.31160	-0.00005	0.00000
116	QFR	1729.6600	1.48977	1.49485	363.10407	72.13136	-0.00930	0.00000	0.0986	2.79385	-0.63107	0.00006	0.00000
117	QDQ	1734.7900	1.49211	1.50566	335.07736	79.11631	-0.00897	0.00000	0.0986	2.66944	-0.73052	0.00006	0.00000
118	B	1751.3300	1.50115	1.53422	253.40575	108.58496	0.00562	0.00000	0.0986	2.26837	-1.05114	0.00170	0.00000
119	O	1752.1300	1.50165	1.53538	249.79187	110.27919	0.00698	0.00000	0.0986	2.24897	-1.06665	0.00170	0.00000
120	B	1768.6700	1.51401	1.55584	182.02987	150.86710	0.04863	0.00000	0.0987	1.84788	-1.38727	0.00334	0.00000
121	O	1769.4700	1.51472	1.55668	179.08878	153.09915	0.05130	0.00000	0.0987	1.82848	-1.40278	0.00334	0.00000
122	B	1786.0100	1.53233	1.57157	125.23713	204.80633	0.12001	0.00000	0.0988	1.42736	-1.72341	0.00497	0.00000
123	O	1786.8100	1.53336	1.57219	122.96888	207.57619	0.12399	0.00000	0.0988	1.40796	-1.73892	0.00497	0.00000
124	B	1803.3500	1.55953	1.58331	83.02820	270.40265	0.21977	0.00000	0.0991	1.00683	-2.05954	0.00661	0.00000
125	O	1804.1500	1.56108	1.58378	81.43279	273.71032	0.22506	0.00000	0.0991	0.98743	-2.07505	0.00661	0.00000
126	B	1820.6900	1.60067	1.59231	55.40352	347.65605	0.34790	0.00000	0.0995	0.58629	-2.39567	0.00824	0.00000
127	CG	1821.5602	1.60320	1.59271	54.40150	351.84022	0.35507	0.00000	0.0995	0.56518	-2.41254	0.00824	0.00000
128	CQD	1824.0000	1.61047	1.59380	52.78960	356.96560	0.37862	0.00000	0.0995	0.09965	0.32506	0.01108	0.00000
129	#CQD	1824.0000	1.61047	1.59380	52.78960	356.96560	0.37862	0.00000	0.0995	0.09965	0.32506	0.01108	0.00000
130	CQD	1826.4398	1.61781	1.59490	53.41666	348.70781	0.40933	0.00000	0.0995	-0.35829	3.03821	0.01413	0.00000
131	CCG	1830.7900	1.63037	1.59696	56.93366	322.82929	0.47082	0.00000	0.0995	-0.45018	2.91058	0.01413	0.00000
132	B	1847.3300	1.67040	1.60653	77.60433	234.57358	0.71813	0.00000	0.1005	-0.79956	2.42531	0.01577	0.00000
133	O	1848.1300	1.67202	1.60708	78.89714	230.71185	0.73075	0.00000	0.1005	-0.81646	2.40184	0.01577	0.00000
134	B	1864.6700	1.70021	1.62083	111.68409	159.28519	1.00513	0.00000	0.1019	-1.16582	1.91658	0.01741	0.00000

POS	S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
135 O	1865.4700	1.70135	1.62164	113.56293	156.23744	1.01905	0.00000	0.1019	-1.18272	1.89311	0.01741	0.00000
136 B	1882.0100	1.72102	1.64259	158.46580	101.63983	1.32049	0.00000	0.1038	-1.53208	1.40784	0.01904	0.00000
137 O	1882.8100	1.72182	1.64386	160.93065	99.40607	1.33572	0.00000	0.1038	-1.54898	1.38437	0.01904	0.00000
138 B	1899.3500	1.73589	1.67774	217.94893	61.63751	1.66422	0.00000	0.1063	-1.89832	0.89910	0.02068	0.00000
139 O	1900.1500	1.73647	1.67983	220.99975	60.21773	1.68076	0.00000	0.1063	-1.91521	0.87563	0.02068	0.00000
140 B	1916.6900	1.74687	1.73506	290.13281	39.27822	2.03632	0.00000	0.1093	-2.26453	0.39036	0.02231	0.00000
141 OH	1917.5961	1.74737	1.73876	294.25397	38.59489	2.05654	0.00000	0.1093	-2.28367	0.36378	0.02231	0.00000
142 HQF	1920.0000	1.74865	1.74883	299.85020	37.70810	2.09116	0.00000	0.1093	-0.03005	0.00737	0.00645	0.00000
143 #HQF	1920.0000	1.74865	1.74883	299.85020	37.70810	2.09116	0.00000	0.1093	-0.03005	0.00737	0.00645	0.00000
144 HQF	1922.4039	1.74993	1.75891	294.53939	38.52311	2.08744	0.00000	0.1093	2.22576	-0.34849	-0.00954	0.00000
145 OOH	1926.7900	1.75239	1.77627	275.40339	42.14013	2.04561	0.00000	0.1093	2.13710	-0.47617	-0.00954	0.00000
146 B	1943.3300	1.76333	1.82710	210.23765	65.85572	1.90141	0.00000	0.1125	1.80278	-0.95766	-0.00790	0.00000
147 O	1944.1300	1.76394	1.82901	207.36614	67.40661	1.89508	0.00000	0.1125	1.78661	-0.98095	-0.00790	0.00000
148 B	1960.6700	1.77871	1.86008	153.79494	107.82042	1.77793	0.00000	0.1155	1.45227	-1.46245	-0.00626	0.00000
149 O	1961.4700	1.77954	1.86125	151.48424	110.17896	1.77292	0.00000	0.1155	1.43610	-1.48573	-0.00626	0.00000
150 B	1978.0100	1.80004	1.88069	109.50818	167.29098	1.68283	0.00000	0.1184	1.10175	-1.96723	-0.00463	0.00000
151 O	1978.8100	1.80121	1.88144	107.75832	170.45718	1.67913	0.00000	0.1184	1.08557	-1.99052	-0.00463	0.00000
152 B	1995.3500	1.83020	1.89436	77.37788	244.26742	1.61609	0.00000	0.1211	0.75121	-2.47201	-0.00299	0.00000
153 O	1996.1500	1.83185	1.89487	76.18888	248.24127	1.61370	0.00000	0.1211	0.73504	-2.49530	-0.00299	0.00000
154 B	2012.6900	1.87209	1.90396	57.40439	338.74973	1.57773	0.00000	0.1237	0.40066	-2.97679	-0.00136	0.00000
155 OI	2013.7059	1.87492	1.90443	56.61117	344.82815	1.57635	0.00000	0.1237	0.38012	-3.00637	-0.00136	0.00000
156 IQD	2016.0000	1.88143	1.90547	55.90664	352.88605	1.58643	0.00000	0.1237	-0.07131	-0.48651	0.01016	0.00000
157 #IQD	2016.0000	1.88143	1.90547	55.90664	352.88605	1.58643	0.00000	0.1237	-0.07131	-0.48651	0.01016	0.00000
158 IQD	2018.2941	1.88790	1.90651	57.27283	349.24287	1.62307	0.00000	0.1237	-0.52754	2.06572	0.02184	0.00000
159 OOI	2022.7900	1.89988	1.90862	62.46749	330.97307	1.72125	0.00000	0.1237	-0.62788	1.99792	0.02184	0.00000
160 B	2039.3300	1.93541	1.91744	89.34354	269.00794	2.09599	0.00000	0.1268	-0.99703	1.74846	0.02347	0.00000
161 O	2040.1300	1.93682	1.91792	90.95307	266.22006	2.11476	0.00000	0.1268	-1.01488	1.73640	0.02347	0.00000
162 B	2056.6700	1.96107	1.92898	130.63102	212.90596	2.51655	0.00000	0.1306	-1.38402	1.48695	0.02511	0.00000
163 O	2057.4700	1.96203	1.92959	132.85974	210.53650	2.53664	0.00000	0.1306	-1.40188	1.47488	0.02511	0.00000
164 B	2074.0100	1.97884	1.94369	185.33915	165.87344	2.96549	0.00000	0.1351	-1.77100	1.22543	0.02675	0.00000
165 O	2074.8100	1.97952	1.94446	188.18703	163.92241	2.98688	0.00000	0.1351	-1.78885	1.21336	0.02675	0.00000
166 B	2091.3500	1.99159	1.96268	253.46732	127.91037	3.44278	0.00000	0.1403	-2.15796	0.96391	0.02838	0.00000
167 O	2092.1500	1.99209	1.96368	256.93433	126.37777	3.46549	0.00000	0.1403	-2.17581	0.95184	0.02838	0.00000
168 B	2108.6900	2.00106	1.98730	335.01475	99.01677	3.94844	0.00000	0.1464	-2.54489	0.70239	0.03002	0.00000
169 OJ	2109.9750	2.00167	1.98939	341.59187	97.23655	3.98702	0.00000	0.1464	-2.57357	0.68301	0.03002	0.00000
170 JQF	2112.0000	2.00260	1.99273	347.58365	95.78098	4.02172	0.00000	0.1464	-0.37245	0.03890	0.00422	0.00000
171 #JQF	2112.0000	2.00260	1.99273	347.58365	95.78098	4.02172	0.00000	0.1464	-0.37245	0.03890	0.00422	0.00000
172 JQF	2114.0250	2.00353	1.99609	344.58261	96.91869	4.00407	0.00000	0.1464	1.84799	-0.60317	-0.02163	0.00000
173 OOJ	2118.7900	2.00579	2.00368	327.26223	102.98633	3.90100	0.00000	0.1464	1.78694	-0.67022	-0.02163	0.00000
174 B	2135.3300	2.01462	2.02660	271.65472	129.00671	3.55675	0.00000	0.1525	1.57506	-0.90296	-0.02000	0.00000
175 O	2136.1300	2.01509	2.02758	269.14282	130.46045	3.54075	0.00000	0.1525	1.56481	-0.91422	-0.02000	0.00000
176 B	2152.6700	2.02590	2.04558	220.88370	164.55245	3.22356	0.00000	0.1580	1.35291	-1.14697	-0.01836	0.00000
177 O	2153.4700	2.02648	2.04635	218.72724	166.39660	3.20887	0.00000	0.1580	1.34266	-1.15822	-0.01836	0.00000
178 B	2170.0100	2.03984	2.06050	177.81704	208.56021	2.91873	0.00000	0.1630	1.13075	-1.39097	-0.01672	0.00000
179 O	2170.8100	2.04056	2.06111	176.01605	210.79476	2.90535	0.00000	0.1630	1.12050	-1.40223	-0.01672	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
180	B	2187.3500	2.05721	2.07234	142.45524	261.02999	2.64227	0.00000	0.1676	0.90857	-1.63497	-0.01509	0.00000
181	O	2188.1500	2.05811	2.07283	141.00972	263.65495	2.63020	0.00000	0.1676	0.89832	-1.64623	-0.01509	0.00000
182	B	2204.6900	2.07886	2.08187	114.79868	321.96179	2.39417	0.00000	0.1717	0.68639	-1.87897	-0.01345	0.00000
183	OK	2206.2602	2.08106	2.08264	112.67477	327.89716	2.37305	0.00000	0.1717	0.66626	-1.90107	-0.01345	0.00000
184	KQD	2208.0000	2.08353	2.08347	111.46774	331.36833	2.36103	0.00000	0.1717	0.02973	-0.08767	-0.00038	0.00000
185	#KQD	2208.0000	2.08353	2.08347	111.46774	331.36833	2.36103	0.00000	0.1717	0.02973	-0.08767	-0.00038	0.00000
186	KQD	2209.7398	2.08601	2.08431	112.46656	328.50336	2.37174	0.00000	0.1717	-0.60566	1.72910	0.01270	0.00000
187	OOK	2214.7900	2.09296	2.08683	118.89394	311.34862	2.43586	0.00000	0.1717	-0.66704	1.66776	0.01270	0.00000
188	B	2231.3300	2.11312	2.09609	144.28400	259.50176	2.65939	0.00000	0.1758	-0.86803	1.46688	0.01433	0.00000
189	O	2232.1300	2.11399	2.09659	145.68062	257.16253	2.67086	0.00000	0.1758	-0.87775	1.45716	0.01433	0.00000
190	B	2248.6700	2.13037	2.10786	178.04091	212.28229	2.92145	0.00000	0.1804	-1.07873	1.25628	0.01597	0.00000
191	O	2249.4700	2.13108	2.10846	179.77466	210.28002	2.93422	0.00000	0.1804	-1.08846	1.24656	0.01597	0.00000
192	B	2266.0100	2.14436	2.12231	219.10482	172.36642	3.21187	0.00000	0.1854	-1.28942	1.04568	0.01760	0.00000
193	O	2266.8100	2.14494	2.12305	221.17568	170.70111	3.22595	0.00000	0.1854	-1.29915	1.03596	0.01760	0.00000
194	B	2283.3500	2.15577	2.14013	267.47527	139.75413	3.53065	0.00000	0.1909	-1.50010	0.83508	0.01924	0.00000
195	O	2284.1500	2.15624	2.14104	269.88321	138.42578	3.54605	0.00000	0.1909	-1.50982	0.82536	0.01924	0.00000
196	B	2300.6900	2.16516	2.16202	323.15170	114.44542	3.87780	0.00000	0.1970	-1.71076	0.62448	0.02088	0.00000
197	OQ	2302.3400	2.16597	2.16433	328.83029	112.41771	3.91225	0.00000	0.1970	-1.73081	0.60444	0.02088	0.00000
198	QF	2304.0000	2.16677	2.16670	331.71184	111.41792	3.92977	0.00000	0.1970	0.00000	-0.00040	0.00022	0.00000
199	#QF	2304.0000	2.16677	2.16670	331.71184	111.41792	3.92977	0.00000	0.1970	0.00000	-0.00040	0.00022	0.00000
200	QF	2305.6600	2.16756	2.16906	328.83030	112.42039	3.91298	0.00000	0.1970	1.73081	-0.60525	-0.02043	0.00000
201	OOS	2311.6400	2.17055	2.17726	308.56434	120.09386	3.79080	0.00000	0.1970	1.65815	-0.67793	-0.02043	0.00000
202	B	2328.1800	2.17991	2.19720	257.03639	145.84485	3.46638	0.00000	0.2030	1.45721	-0.87896	-0.01880	0.00000
203	O	2328.9800	2.18040	2.19807	254.71264	147.25896	3.45134	0.00000	0.2030	1.44748	-0.88868	-0.01880	0.00000
204	B	2345.5200	2.19179	2.21427	210.15366	179.98146	3.15397	0.00000	0.2084	1.24653	-1.08970	-0.01716	0.00000
205	O	2346.3200	2.19240	2.21497	208.16700	181.73276	3.14024	0.00000	0.2084	1.23681	-1.09943	-0.01716	0.00000
206	B	2362.8600	2.20639	2.22811	170.57748	221.42675	2.86993	0.00000	0.2133	1.03584	-1.30045	-0.01553	0.00000
207	O	2363.6600	2.20714	2.22868	168.92792	223.51525	2.85751	0.00000	0.2133	1.02611	-1.31017	-0.01553	0.00000
208	B	2380.2000	2.22439	2.23940	138.30829	270.18074	2.61425	0.00000	0.2177	0.82513	-1.51120	-0.01389	0.00000
209	O	2381.0000	2.22532	2.23987	136.99586	272.60644	2.60314	0.00000	0.2177	0.81541	-1.52092	-0.01389	0.00000
210	B	2397.5400	2.24651	2.24870	113.34646	326.24343	2.38694	0.00000	0.2218	0.61442	-1.72194	-0.01225	0.00000
211	O	2398.3400	2.24763	2.24909	112.37117	329.00632	2.37714	0.00000	0.2218	0.60470	-1.73167	-0.01225	0.00000
212	QD	2400.0000	2.25000	2.24989	111.37032	331.88860	2.36716	0.00000	0.2218	-0.00002	0.00041	0.00023	0.00000
213	UUC	4992.0000	2.66646	2.66635	111.37072	331.65568	2.36706	0.00000	0.4939	0.00000	0.00000	0.00024	0.00000

CIRCUMFERENCE = 4992.0000 M THETX = 0.22907446 RAD NUX = 2.66646 DNUX/(DP/P) = -3.70482
RADIUS = 794.5015 M THETY = 0.00000000 RAD NUY = 2.66635 DNUY/(DP/P) = -3.70477
(DS/S)/(DP/P) = 0.0000989 TGAM=(100.53767, 0.00000)

MAXIMA --- BETX(108) = 1098.83766 BETY(91) = 1099.32149 XEQ(171) = 4.02172 YEQ(213) = 0.00000
MINIMA --- BETX(57) = 37.68408 BETY(143) = 37.70810 XEQ(90) = -0.00222 YEQ(213) = 0.00000

*** ... . // .....

PARAMETER REPLACEMENTS MADE BY FITTING
1 OF KEV = 0.003177802234 1 OF KDV = -0.003177801429

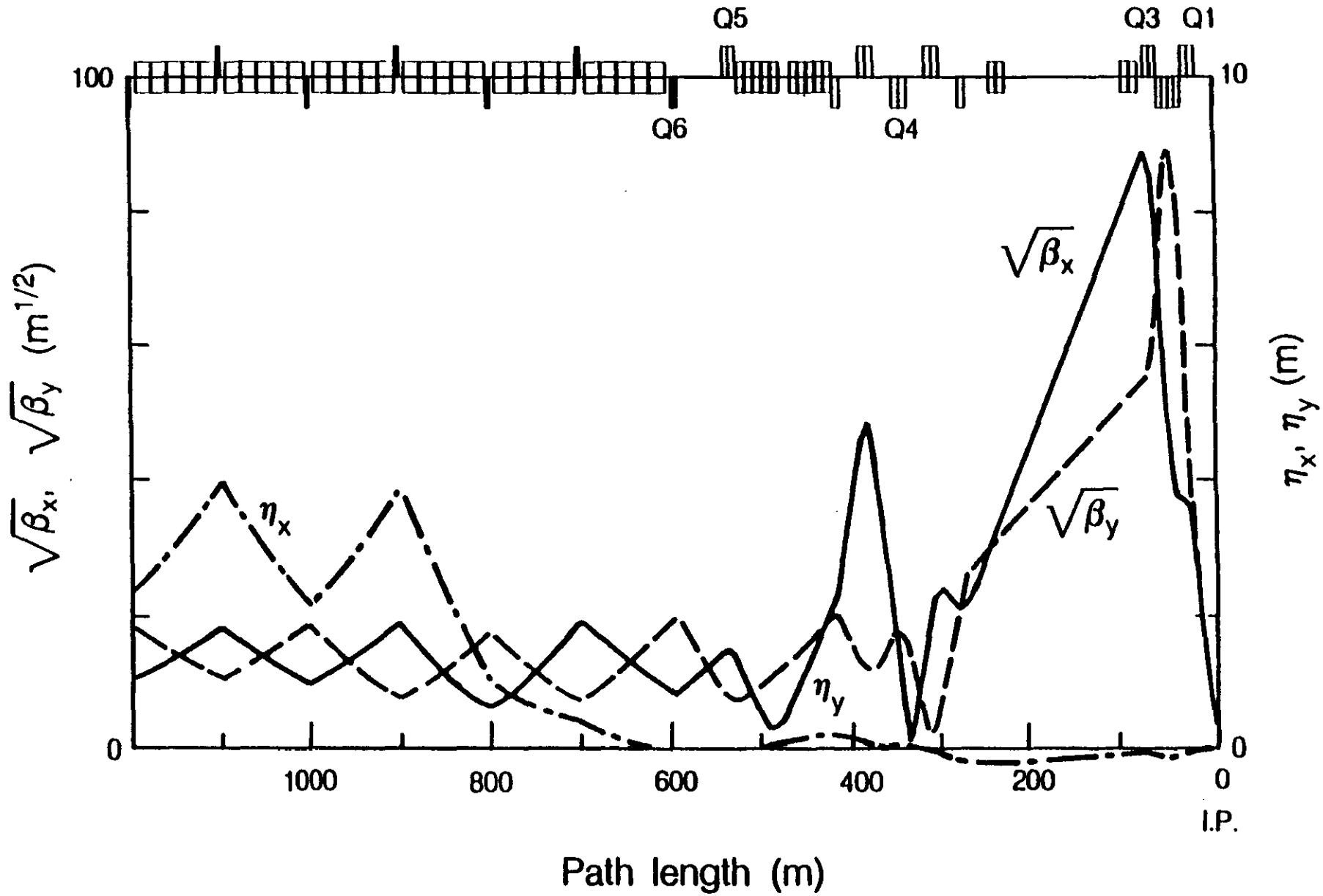


Figure 8. Short IR, Low-β Module (left side) — Collision Optics

XBL 861-11256

Low-Beta Module

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***   PR4     PRNT          //  D0   D    O    D3   DV1  DV2  OOV  OV4  DV3  D5   D56  D6
 *                          //  LQ1  LQ2  LQ3  LQ4  LQ5  LQ6  LQFV LQDV LBV
 *                          //  K1   K2   K3   K4   K5   K6   KFV  KDV  B0V
-------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
      D0                    D                     O                     D3                    DV1
    20.000000000          1.000000000           0.800000000           5.980000000         123.000000000
     DV2                   OOV                   OV4                   DV3                   D5
    26.000000000         19.907200000          19.288600000          12.000000000           0.500000000
     D56                   D6                    LQ1                   LQ2                   LQ3
    48.360000000          3.900000000           7.250000000           5.895000000           6.520000000
     LQ4                   LQ5                   LQ6                   LQFV                  LQDV
     8.165000000           6.800000000           3.400000000           7.546400000           7.546400000
     LBV                   K1                    K2                    K3                    K4
     8.000000000           0.003346654          -0.003195840           0.003236878          -0.003181162
     K5                    K6                    KFV                   KDV                   B0V
     0.002454597          -0.002906912           0.003177802          -0.003177801           5.211937500
-------------------------------------------------------------------------------------------
***   ZDUC    MMM           //  .ZDU .CD
***   '2X     BML           //  .ZUD ZDUC
***   2X      BEST          //  '2X
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BETATRON FUNCTIONS OF 2X

POS		S (M)	MUX	MUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0		0.0000	0.00000	0.00000	111.37045	331.65583	2.36484	-0.00116	0.0000	0.00000	0.00000	0.00030	-0.00009
1	#QD	0.0000	0.00000	0.00000	111.37045	331.65583	2.36484	-0.00116	0.0000	0.00000	0.00000	0.00030	-0.00009
2	QD	1.6600	0.00237	0.00080	112.37135	328.77421	2.37569	-0.00131	0.0000	-0.60471	1.73085	0.01277	-0.00009
3	OOQ	6.7900	0.00943	0.00335	118.89553	311.33553	2.44121	-0.00175	0.0000	-0.66706	1.66850	0.01277	-0.00009
4	B	23.3300	0.02958	0.01262	144.28623	259.46640	2.66598	-0.00318	0.0042	-0.86805	1.46748	0.01441	-0.00009
5	O	24.1300	0.03046	0.01311	145.68289	257.12621	2.67751	-0.00325	0.0042	-0.87777	1.45776	0.01441	-0.00009
6	B	40.6700	0.04684	0.02439	178.04385	212.22857	2.92934	-0.00468	0.0088	-1.07875	1.25673	0.01604	-0.00009
7	O	41.4700	0.04755	0.02499	179.77763	210.22557	2.94217	-0.00475	0.0088	-1.08848	1.24701	0.01604	-0.00009
8	B	58.0100	0.06083	0.03884	219.10850	172.29942	3.22106	-0.00618	0.0138	-1.28945	1.04599	0.01768	-0.00009
9	O	58.8100	0.06140	0.03958	221.17939	170.63362	3.23520	-0.00625	0.0138	-1.29917	1.03626	0.01768	-0.00009
10	B	75.3500	0.07224	0.05667	267.47971	139.67896	3.54114	-0.00768	0.0193	-1.50012	0.83524	0.01931	-0.00009
11	O	76.1500	0.07271	0.05758	269.88769	138.35035	3.55659	-0.00775	0.0193	-1.50985	0.82552	0.01931	-0.00009
12	B	92.6900	0.08163	0.07857	323.15695	114.36718	3.88959	-0.00918	0.0254	-1.71078	0.62449	0.02095	-0.00009
13	OK	94.2602	0.08239	0.08078	328.55940	112.43600	3.92249	-0.00931	0.0254	-1.72986	0.60541	0.02095	-0.00009
14	QFK	96.0000	0.08323	0.08325	331.42651	111.43777	3.94003	-0.00951	0.0254	0.08721	-0.02982	-0.00080	-0.00014
15	#QFK	96.0000	0.08323	0.08325	331.42651	111.43777	3.94003	-0.00951	0.0254	0.08721	-0.02982	-0.00080	-0.00014
16	QFK	97.7398	0.08407	0.08573	327.95636	112.64483	3.91970	-0.00979	0.0254	1.90094	-0.66619	-0.02255	-0.00019
17	OOK	102.7900	0.08660	0.09265	309.11494	119.70051	3.80583	-0.01076	0.0254	1.82990	-0.73092	-0.02255	-0.00019
18	B	119.3300	0.09602	0.11252	252.42972	147.38589	3.44644	-0.01393	0.0314	1.59726	-0.94292	-0.02091	-0.00019
19	O	120.1300	0.09653	0.11338	249.88311	148.90277	3.42971	-0.01409	0.0314	1.58600	-0.95318	-0.02091	-0.00019
20	B	136.6700	0.10828	0.12932	201.26618	183.94028	3.09737	-0.01726	0.0367	1.35335	-1.16518	-0.01928	-0.00019
21	O	137.4700	0.10892	0.13000	199.10982	185.81277	3.08195	-0.01741	0.0367	1.34209	-1.17543	-0.01928	-0.00019
22	B	154.0100	0.12375	0.14280	158.56171	228.20243	2.77666	-0.02058	0.0415	1.10942	-1.38743	-0.01764	-0.00019
23	O	154.8100	0.12456	0.14336	156.79564	230.43052	2.76255	-0.02073	0.0415	1.09817	-1.39768	-0.01764	-0.00019
24	B	171.3500	0.14346	0.15373	124.31680	280.17232	2.48431	-0.02391	0.0458	0.86548	-1.60968	-0.01600	-0.00019
25	O	172.1500	0.14449	0.15418	122.94103	282.75601	2.47151	-0.02406	0.0458	0.85423	-1.61994	-0.01600	-0.00019
26	B	188.6900	0.16850	0.16267	98.53184	339.84996	2.22034	-0.02723	0.0496	0.62154	-1.83194	-0.01437	-0.00019
27	OJ	189.9750	0.17059	0.16327	96.95774	344.57913	2.20187	-0.02748	0.0496	0.60346	-1.84841	-0.01437	-0.00019
28	QDJ	192.0000	0.17394	0.16420	95.81935	347.58190	2.18708	-0.02768	0.0496	-0.03885	0.37202	-0.00026	-0.00001
29	#QDJ	192.0000	0.17394	0.16420	95.81935	347.58190	2.18708	-0.02768	0.0496	-0.03885	0.37202	-0.00026	-0.00001
30	QDJ	194.0250	0.17729	0.16513	97.27520	341.59187	2.20081	-0.02753	0.0496	-0.68320	2.57313	0.01384	0.00016
31	OOJ	198.7900	0.18483	0.16744	104.12841	317.57656	2.26677	-0.02675	0.0496	-0.75505	2.46683	0.01384	0.00016
32	B	215.3300	0.20725	0.17694	133.23008	242.07744	2.50923	-0.02404	0.0535	-1.00442	2.09781	0.01548	0.00016
33	O	216.1300	0.20820	0.17747	134.84681	238.73522	2.52161	-0.02391	0.0535	-1.01649	2.07996	0.01548	0.00016
34	B	232.6700	0.22549	0.19032	172.59670	176.03345	2.79113	-0.02120	0.0579	-1.26585	1.71095	0.01711	0.00016
35	O	233.4700	0.22622	0.19105	174.63171	173.31020	2.80483	-0.02107	0.0579	-1.27791	1.69310	0.01711	0.00016
36	B	250.0100	0.23964	0.20909	221.02940	123.40578	3.10140	-0.01836	0.0627	-1.52726	1.32409	0.01875	0.00016
37	O	250.8100	0.24021	0.21013	223.48268	121.30151	3.11640	-0.01823	0.0627	-1.53933	1.30624	0.01875	0.00016
38	B	267.3500	0.25077	0.23630	278.52765	84.19443	3.44003	-0.01552	0.0680	-1.78866	0.93723	0.02038	0.00016
39	O	268.1500	0.25122	0.23782	281.39915	82.70914	3.45634	-0.01539	0.0680	-1.80072	0.91938	0.02038	0.00016
40	B	284.6900	0.25968	0.27606	345.09079	58.39941	3.80703	-0.01268	0.0740	-2.05004	0.55037	0.02202	0.00016
41	OI	285.7059	0.26014	0.27886	349.27170	57.30417	3.82940	-0.01251	0.0740	-2.06535	0.52771	0.02202	0.00016
42	QFI	288.0000	0.26118	0.28533	352.91270	55.93767	3.84780	-0.01224	0.0740	0.48708	0.07127	-0.00600	0.00007
43	#QFI	288.0000	0.26118	0.28533	352.91270	55.93767	3.84780	-0.01224	0.0740	0.48708	0.07127	-0.00600	0.00007
44	QFI	290.2941	0.26222	0.29183	344.85174	56.64283	3.80193	-0.01217	0.0740	3.00712	-0.38037	-0.03393	-0.00002

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
45	COI	294.7900	0.26438	0.30407	318.40087	60.47150	3.64941	-0.01224	0.0740	2.87619	-0.47122	-0.03393	-0.00002
46	B	311.3300	0.27409	0.34191	231.22286	81.58804	3.10181	-0.01249	0.0795	2.39455	-0.80547	-0.03229	-0.00002
47	O	312.1300	0.27464	0.34345	227.41022	82.88974	3.07598	-0.01250	0.0795	2.37125	-0.82164	-0.03229	-0.00002
48	B	328.6700	0.28860	0.37048	156.93601	115.59814	2.55543	-0.01276	0.0841	1.88958	-1.15589	-0.03065	-0.00002
49	O	329.4700	0.28942	0.37157	153.93132	117.46050	2.53091	-0.01277	0.0841	1.86628	-1.17206	-0.03065	-0.00002
50	B	346.0100	0.31068	0.39071	100.16169	161.76075	2.03742	-0.01302	0.0878	1.38460	-1.50631	-0.02902	-0.00002
51	O	346.8100	0.31196	0.39149	97.96498	164.18378	2.01421	-0.01303	0.0878	1.36130	-1.52248	-0.02902	-0.00002
52	B	363.3500	0.34631	0.40536	60.90055	220.07589	1.54778	-0.01328	0.0907	0.87960	-1.85673	-0.02738	-0.00002
53	O	364.1500	0.34843	0.40593	59.51183	223.05959	1.52587	-0.01329	0.0907	0.85630	-1.87290	-0.02738	-0.00002
54	B	380.6900	0.40409	0.41628	39.15301	290.54355	1.08650	-0.01354	0.0929	0.37459	-2.20715	-0.02575	-0.00002
55	OH	381.5961	0.40780	0.41677	38.49810	294.55997	1.06317	-0.01356	0.0929	0.34820	-2.22546	-0.02575	-0.00002
56	QDH	384.0000	0.41789	0.41806	37.68411	299.86892	1.01087	-0.01347	0.0929	-0.00751	0.03051	-0.01784	0.00009
57	#QDH	384.0000	0.41789	0.41806	37.68411	299.86892	1.01087	-0.01347	0.0929	-0.00751	0.03051	-0.01784	0.00009
58	QDH	386.4039	0.42796	0.41934	38.57124	294.27015	0.97716	-0.01313	0.0929	-0.36378	2.28426	-0.01025	0.00019
59	COH	390.7900	0.44527	0.42180	42.32715	274.63864	0.93218	-0.01230	0.0929	-0.49254	2.19158	-0.01025	0.00019
60	B	407.3300	0.49567	0.43282	66.65155	207.92162	0.77610	-0.00916	0.0943	-0.97810	1.84210	-0.00862	0.00019
61	O	408.1300	0.49756	0.43344	68.23529	204.98779	0.76921	-0.00901	0.0943	-1.00158	1.82519	-0.00862	0.00019
62	B	424.6700	0.52821	0.44845	109.39855	150.39091	0.64019	-0.00586	0.0954	-1.48713	1.47571	-0.00698	0.00019
63	O	425.4700	0.52936	0.44931	111.79674	148.04331	0.63460	-0.00571	0.0954	-1.51061	1.45880	-0.00698	0.00019
64	B	442.0100	0.54852	0.47043	169.79841	105.56656	0.53265	-0.00257	0.0964	-1.99614	1.10932	-0.00535	0.00019
65	O	442.8100	0.54926	0.47164	173.01102	103.80518	0.52837	-0.00242	0.0964	-2.01962	1.09241	-0.00535	0.00019
66	B	459.3500	0.56199	0.50197	247.85044	73.44857	0.45348	0.00073	0.0972	-2.50513	0.74293	-0.00371	0.00019
67	O	460.1500	0.56250	0.50372	251.87743	72.27341	0.45051	0.00088	0.0972	-2.52861	0.72603	-0.00371	0.00019
68	B	476.6900	0.57145	0.54635	343.55377	54.03694	0.40268	0.00402	0.0979	-3.01409	0.37654	-0.00207	0.00019
69	OG	477.5602	0.57185	0.54893	348.82180	53.39760	0.40088	0.00419	0.0979	-3.03963	0.35815	-0.00207	0.00019
70	QFG	480.0000	0.57295	0.55627	357.08438	52.77086	0.39205	0.00469	0.0979	-0.32559	-0.09966	-0.00515	0.00022
71	#QFG	480.0000	0.57295	0.55627	357.08438	52.77086	0.39205	0.00469	0.0979	-0.32559	-0.09966	-0.00515	0.00022
72	QFG	482.4398	0.57404	0.56355	351.95933	54.38246	0.37581	0.00528	0.0979	2.41294	-0.56505	-0.00813	0.00026
73	COG	486.7900	0.57607	0.57570	331.33255	59.75776	0.34043	0.00643	0.0979	2.32862	-0.67059	-0.00813	0.00026
74	B	503.3300	0.58505	0.61220	259.60399	88.57743	0.21943	0.01078	0.0983	2.00805	-1.07184	-0.00650	0.00026
75	O	504.1300	0.58554	0.61363	256.40351	90.30790	0.21423	0.01099	0.0983	1.99254	-1.09124	-0.00650	0.00026
76	B	520.6700	0.59730	0.63774	195.79260	133.04293	0.12029	0.01534	0.0986	1.67196	-1.49249	-0.00486	0.00026
77	O	521.4700	0.59795	0.63868	193.12988	135.44645	0.11640	0.01555	0.0986	1.65645	-1.51190	-0.00486	0.00026
78	B	538.0100	0.61378	0.65503	143.63730	192.09683	0.04953	0.01990	0.0987	1.33584	-1.91315	-0.00323	0.00026
79	O	538.8100	0.61468	0.65569	141.51235	195.17340	0.04695	0.02011	0.0987	1.32034	-1.93256	-0.00323	0.00026
80	B	555.3500	0.63654	0.66726	103.13866	265.73914	0.00713	0.02446	0.0988	0.99972	-2.33381	-0.00159	0.00026
81	O	556.1500	0.63778	0.66774	101.55152	269.48876	0.00586	0.02467	0.0988	0.98421	-2.35322	-0.00159	0.00026
82	B	572.6900	0.66827	0.67626	74.29714	353.96986	-0.00689	0.02902	0.0988	0.66358	-2.75447	0.00005	0.00026
83	OQ	574.3400	0.67186	0.67699	72.16011	363.12565	-0.00681	0.02945	0.0988	0.63159	-2.79450	0.00005	0.00026
84	D6	578.2400	0.68076	0.67865	67.52857	385.29170	-0.00662	0.03048	0.0988	0.55598	-2.88911	0.00005	0.00026
85	QD6	581.6400	0.68890	0.68004	66.18400	391.97484	-0.00657	0.03086	0.0988	-0.15610	0.94554	-0.00002	-0.00004
86	#QD6	581.6400	0.68890	0.68004	66.18400	391.97484	-0.00657	0.03086	0.0988	-0.15610	0.94554	-0.00002	-0.00004
87	QD6	585.0400	0.69691	0.68145	69.69941	372.71845	-0.00674	0.03020	0.0988	-0.88940	4.65452	-0.00008	-0.00034
88	DS6	633.4000	0.76142	0.73183	215.81872	64.74629	-0.01077	0.01359	0.0988	-2.13209	1.71381	-0.00008	-0.00034
89	QF5	640.2000	0.76629	0.75123	220.23155	50.18521	-0.01072	0.01198	0.0988	1.50788	0.50794	0.00010	-0.00013

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
90	#QF5	640.2000	0.76629	0.75123	220.23155	50.18521	-0.01072	0.01198	0.0988	1.50788	0.50794	0.00010	-0.00013
91	QF5	647.0000	0.77166	0.77334	177.83806	49.86106	-0.00947	0.01176	0.0988	4.48878	-0.45848	0.00027	0.00006
92	D5	647.5000	0.77211	0.77493	173.37901	50.32560	-0.00933	0.01179	0.0988	4.42932	-0.47061	0.00027	0.00006
93	D	648.5000	0.77305	0.77806	164.63929	51.29109	-0.00907	0.01185	0.0988	4.31040	-0.49488	0.00027	0.00006
94	#BV+	648.5000	0.77305	0.77806	164.63929	51.29109	-0.00907	0.01185	0.0988	4.31040	-0.49488	0.00027	0.00006
95	BV1+	656.5000	0.78282	0.80095	103.28405	60.76257	-0.00692	0.01486	0.0988	3.35901	-0.68905	0.00027	0.00069
96	D	657.5000	0.78442	0.80354	96.68496	62.16495	-0.00665	0.01555	0.0988	3.24008	-0.71332	0.00027	0.00069
97	BV1+	665.5000	0.80233	0.82221	52.45475	75.13145	-0.00451	0.02357	0.0988	2.28869	-0.90749	0.00027	0.00131
98	D	666.5000	0.80551	0.82431	47.99629	76.97071	-0.00424	0.02488	0.0988	2.16977	-0.93176	0.00027	0.00131
99	BV1+	674.5000	0.84616	0.83934	20.89110	93.43222	-0.00210	0.03789	0.0988	1.21838	-1.12593	0.00027	0.00194
100	D	675.5000	0.85424	0.84103	18.57326	95.70835	-0.00183	0.03983	0.0988	1.09946	-1.15020	0.00027	0.00194
101	BV1+	683.5000	0.96330	0.85314	8.59310	115.66485	0.00031	0.05785	0.0988	0.14807	-1.34436	0.00027	0.00256
102	D	684.5000	0.98214	0.85450	8.41589	118.37784	0.00058	0.06041	0.0988	0.02914	-1.36863	0.00027	0.00256
103	BV1+	692.5000	1.10534	0.86433	15.56075	141.82929	0.00272	0.08342	0.0989	-0.92225	-1.56280	0.00027	0.00319
104	#BV+	692.5000	1.10534	0.86433	15.56075	141.82929	0.00272	0.08342	0.0989	-0.92225	-1.56280	0.00027	0.00319
105	DV3	704.5000	1.17272	0.87620	54.81974	182.83140	0.00594	0.12169	0.0989	-2.34933	-1.85405	0.00027	0.00319
106	#BV-	704.5000	1.17272	0.87620	54.81974	182.83140	0.00594	0.12169	0.0989	-2.34933	-1.85405	0.00027	0.00319
107	BV1-	712.5000	1.18995	0.88264	100.02020	214.04942	0.00808	0.14471	0.0988	-3.30072	-2.04820	0.00027	0.00256
108	D	713.5000	1.19149	0.88338	106.74058	218.17010	0.00835	0.14727	0.0988	-3.41965	-2.07248	0.00027	0.00256
109	BV1-	721.5000	1.20098	0.88880	169.06606	252.88293	0.01049	0.16528	0.0987	-4.37104	-2.26663	0.00027	0.00194
110	D	722.5000	1.20189	0.88942	177.92706	257.44046	0.01076	0.16722	0.0987	-4.48996	-2.29090	0.00027	0.00194
111	BV1-	730.5000	1.20785	0.89404	257.37758	295.64805	0.01290	0.18024	0.0986	-5.44135	-2.48505	0.00027	0.00131
112	D	731.5000	1.20845	0.89457	268.37920	300.64242	0.01317	0.18155	0.0986	-5.56028	-2.50932	0.00027	0.00131
113	BV1-	739.5000	1.21252	0.89854	364.95474	342.34471	0.01531	0.18956	0.0985	-6.51167	-2.70347	0.00027	0.00069
114	D	740.5000	1.21295	0.89900	378.09700	347.77591	0.01558	0.19025	0.0985	-6.63059	-2.72774	0.00027	0.00069
115	BV1-	748.5000	1.21590	0.90245	491.79756	392.97281	0.01773	0.19326	0.0983	-7.58198	-2.92188	0.00027	0.00006
116	#BV-	748.5000	1.21590	0.90245	491.79756	392.97281	0.01773	0.19326	0.0983	-7.58198	-2.92188	0.00027	0.00006
117	D	749.5000	1.21622	0.90285	507.08044	398.84083	0.01799	0.19333	0.0983	-7.70090	-2.94615	0.00027	0.00006
118	#QDV	749.5000	1.21622	0.90285	507.08044	398.84083	0.01799	0.19333	0.0983	-7.70090	-2.94615	0.00027	0.00006
119	#QDV	749.5000	1.21622	0.90285	507.08044	398.84083	0.01799	0.19333	0.0983	-7.70090	-2.94615	0.00027	0.00006
120	QDV	757.0464	1.21824	0.90588	742.47583	371.50551	0.02173	0.17657	0.0983	-25.35152	6.34725	0.00074	-0.00444
121	ODV	776.9536	1.22078	0.91877	2095.40606	162.83622	0.03640	0.08819	0.0983	-42.61034	4.13485	0.00074	-0.00444
122	QFV	784.5000	1.22130	0.92726	2353.27583	130.63307	0.03856	0.06177	0.0983	10.52573	0.38687	-0.00018	-0.00267
123	#QFV	784.5000	1.22130	0.92726	2353.27583	130.63307	0.03856	0.06177	0.0983	10.52573	0.38687	-0.00018	-0.00267
124	QFV	792.0464	1.22187	0.93612	1814.64926	149.69745	0.03384	0.04671	0.0983	56.49111	-3.06375	-0.00106	-0.00139
125	OV4	811.3350	1.22610	0.95078	289.87334	293.70240	0.01345	0.01997	0.0983	22.55951	-4.40206	-0.00106	-0.00139
126	QD4	819.5000	1.23641	0.95499	58.88929	302.14713	0.00597	0.00696	0.0983	7.70218	3.44197	-0.00081	-0.00174
127	#QD4	819.5000	1.23641	0.95499	58.88929	302.14713	0.00597	0.00696	0.0983	7.70218	3.44197	-0.00081	-0.00174
128	QD4	827.6650	1.48433	0.96014	1.21461	196.52087	-0.00023	-0.00749	0.0983	-0.14610	8.56678	-0.00074	-0.00174
129	OV4	846.9536	1.70153	1.04808	319.70148	6.87186	-0.01443	-0.04096	0.0983	-16.36556	1.26540	-0.00074	-0.00174
130	QFV	854.5000	1.70437	1.34454	528.58126	9.59387	-0.01853	-0.05822	0.0983	-9.62362	-1.64760	-0.00033	-0.00291
131	#QFV	854.5000	1.70437	1.34454	528.58126	9.59387	-0.01853	-0.05822	0.0983	-9.62362	-1.64760	-0.00033	-0.00291
132	QFV	862.0464	1.70648	1.39583	576.39594	62.82689	-0.01933	-0.08617	0.0983	3.67444	-5.82697	0.00013	-0.00461
133	ODV	881.9536	1.71277	1.41348	440.07075	515.30299	-0.01681	-0.17800	0.0983	3.17360	-16.90230	0.00013	-0.00461
134	QDV	889.5000	1.71549	1.41544	472.26315	682.77796	-0.01738	-0.19590	0.0983	-7.69381	-3.93523	-0.00028	-0.00006

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
135	#QDV	889.5000	1.71549	1.41544	472.26315	682.77796	-0.01738	-0.19590	0.0983	-7.69381	-3.93523	-0.00028	-0.00006
136	DV2	915.5000	1.72164	1.42071	958.50400	903.73224	-0.02460	-0.19747	0.0983	-11.00777	-4.56301	-0.00028	-0.00006
137	#BV+	915.5000	1.72164	1.42071	958.50400	903.73224	-0.02460	-0.19747	0.0983	-11.00777	-4.56301	-0.00028	-0.00006
138	BV1+	923.5000	1.72285	1.42207	1142.78568	978.28538	-0.02682	-0.19546	0.0982	-12.02744	-4.75613	-0.00028	0.00056
139	D	924.5000	1.72299	1.42223	1166.96803	987.82178	-0.02710	-0.19490	0.0982	-12.15490	-4.78027	-0.00028	0.00056
140	BV1+	932.5000	1.72400	1.42347	1369.60395	1065.85104	-0.02932	-0.18788	0.0981	-13.17458	-4.97338	-0.00028	0.00119
141	#BV+	932.5000	1.72400	1.42347	1369.60395	1065.85104	-0.02932	-0.18788	0.0981	-13.17458	-4.97338	-0.00028	0.00119
142	DV1	1055.5000	1.73054	1.43512	6538.89373	2654.58655	-0.06348	-0.04158	0.0981	-28.85216	-7.94317	-0.00028	0.00119
143	#BV-	1055.5000	1.73054	1.43512	6538.89373	2654.58655	-0.06348	-0.04158	0.0981	-28.85216	-7.94317	-0.00028	0.00119
144	BV1-	1063.5000	1.73073	1.43558	7008.68575	2783.22139	-0.06570	-0.03456	0.0981	-29.87184	-8.13619	-0.00028	0.00056
145	D	1064.5000	1.73075	1.43564	7068.55689	2799.51791	-0.06598	-0.03400	0.0981	-29.99930	-8.16033	-0.00028	0.00056
146	BV1-	1072.5000	1.73093	1.43609	7556.70315	2931.62728	-0.06820	-0.03198	0.0981	-31.01898	-8.35334	-0.00028	-0.00006
147	#BV-	1072.5000	1.73093	1.43609	7556.70315	2931.62728	-0.06820	-0.03198	0.0981	-31.01898	-8.35334	-0.00028	-0.00006
148	D3	1078.4800	1.73105	1.43641	7932.24818	3032.39657	-0.06986	-0.03235	0.0981	-31.78119	-8.49771	-0.00028	-0.00006
149	QF3	1085.0000	1.73118	1.43673	7272.53342	3591.48335	-0.06688	-0.03500	0.0981	128.28033	-81.14925	0.00118	-0.00076
150	#QF3	1085.0000	1.73118	1.43673	7272.53342	3591.48335	-0.06688	-0.03500	0.0981	128.28033	-81.14925	0.00118	-0.00076
151	QF3	1091.5200	1.73135	1.43697	4885.26185	5348.32574	-0.05480	-0.04253	0.0981	220.91550	-200.55225	0.00248	-0.00157
152	O	1092.3200	1.73138	1.43699	4538.19077	5674.02248	-0.05281	-0.04378	0.0981	212.92336	-206.56867	0.00248	-0.00157
153	QD2	1098.2150	1.73165	1.43713	2720.94189	7577.76056	-0.04088	-0.05047	0.0981	106.67457	-104.32787	0.00161	-0.00068
154	#QD2	1098.2150	1.73165	1.43713	2720.94189	7577.76056	-0.04088	-0.05047	0.0981	106.67457	-104.32787	0.00161	-0.00068
155	QD2	1104.1100	1.73208	1.43725	1832.38663	7955.93674	-0.03352	-0.05161	0.0981	49.59484	42.56850	0.00091	0.00029
156	O	1104.9100	1.73215	1.43727	1753.89431	7887.97298	-0.03279	-0.05137	0.0981	48.52055	42.38619	0.00091	0.00029
157	QD2	1110.8050	1.73276	1.43740	1389.05464	6587.98255	-0.02915	-0.04684	0.0981	15.64347	169.91325	0.00033	0.00123
158	#QD2	1110.8050	1.73276	1.43740	1389.05464	6587.98255	-0.02915	-0.04684	0.0981	15.64347	169.91325	0.00033	0.00123
159	QD2	1116.7000	1.73346	1.43757	1357.09706	4171.54067	-0.02878	-0.03715	0.0981	-10.02312	224.71216	-0.00021	0.00203
160	O	1117.5000	1.73355	1.43760	1373.18190	3819.74842	-0.02895	-0.03553	0.0981	-10.08293	215.02815	-0.00021	0.00203
161	QF1	1124.7500	1.73440	1.43807	1278.81823	1709.83979	-0.02790	-0.02357	0.0981	22.32632	92.86132	0.00049	0.00132
162	#QF1	1124.7500	1.73440	1.43807	1278.81823	1709.83979	-0.02790	-0.02357	0.0981	22.32632	92.86132	0.00049	0.00132
163	QF1	1132.0000	1.73551	1.43908	799.02111	799.65964	-0.02201	-0.01582	0.0981	39.92583	39.95718	0.00111	0.00085
164	D0	1152.0000	1.98149	1.68498	0.50093	0.50055	0.00014	0.00117	0.0981	0.00018	0.00078	0.00111	0.00085
165	#IP-	1152.0000	1.98149	1.68498	0.50093	0.50055	0.00014	0.00117	0.0981	0.00018	0.00078	0.00111	0.00085
166	#IP-	1152.0000	1.98149	1.68498	0.50093	0.50055	0.00014	0.00117	0.0981	0.00018	0.00078	0.00111	0.00085
167	D0	1172.0000	2.22754	1.93112	799.00674	799.59737	0.02229	0.01816	0.0981	-39.92547	-39.95562	0.00111	0.00085
168	1QD	1179.2500	2.22855	1.93223	1708.46390	1279.75816	0.03254	0.02256	0.0981	-92.78752	-22.34372	0.00176	0.00035
169	#1QD	1179.2500	2.22855	1.93223	1708.46390	1279.75816	0.03254	0.02256	0.0981	-92.78752	-22.34372	0.00176	0.00035
170	1QD	1186.5000	2.22902	1.93307	3816.69548	1374.20551	0.04861	0.02306	0.0981	-214.85722	10.08947	0.00273	-0.00021
171	O	1187.3000	2.22905	1.93316	4168.20812	1358.11023	0.05080	0.02288	0.0981	-224.53358	10.02963	0.00273	-0.00021
172	2QF	1193.1950	2.22923	1.93386	6582.73313	1390.10350	0.06382	0.02288	0.0981	-169.77880	-15.65626	0.00164	0.00021
173	#2QF	1193.1950	2.22923	1.93386	6582.73313	1390.10350	0.06382	0.02288	0.0981	-169.77880	-15.65626	0.00164	0.00021
174	2QF	1199.0900	2.22935	1.93447	7881.69956	1755.23171	0.06982	0.02545	0.0981	-42.35342	-48.55851	0.00037	0.00066
175	O	1199.8900	2.22937	1.93454	7949.61077	1833.78545	0.07012	0.02598	0.0981	-42.53559	-49.63367	0.00037	0.00066
176	2QF	1205.7850	2.22949	1.93497	7571.74587	2723.03309	0.06842	0.03143	0.0981	104.24413	-106.75752	-0.00094	0.00120
177	#2QF	1205.7850	2.22949	1.93497	7571.74587	2723.03309	0.06842	0.03143	0.0981	104.24413	-106.75752	-0.00094	0.00120
178	2QF	1211.6800	2.22963	1.93524	5669.52824	4541.69349	0.05919	0.04040	0.0981	206.40412	-213.08865	-0.00216	0.00187
179	O	1212.4800	2.22965	1.93527	5344.09093	4889.03404	0.05746	0.04190	0.0981	200.39252	-221.08704	-0.00216	0.00187

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
180	3QD	1219.0000	2.22989	1.93544	3588.64989	7278.16382	0.04707	0.05097	0.0981	81.08429	-128.38060	-0.00107	0.00088
181	#3QD	1219.0000	2.22989	1.93544	3588.64989	7278.16382	0.04707	0.05097	0.0981	81.08429	-128.38060	-0.00107	0.00088
182	3QD	1225.5200	2.23022	1.93557	3030.01576	7938.40203	0.04323	0.05311	0.0981	8.49010	31.80489	-0.00012	-0.00023
183	D3	1231.5000	2.23054	1.93570	2929.33671	7562.57677	0.04249	0.05172	0.0981	8.34586	31.04214	-0.00012	-0.00023
184	#BV+	1231.5000	2.23054	1.93570	2929.33671	7562.57677	0.04249	0.05172	0.0981	8.34586	31.04214	-0.00012	-0.00023
185	BV1+	1239.5000	2.23098	1.93587	2797.34652	7074.06299	0.04149	0.05237	0.0982	8.15291	30.02208	-0.00012	0.00039
186	D	1240.5000	2.23104	1.93589	2781.06482	7014.14639	0.04137	0.05276	0.0982	8.12879	29.89452	-0.00012	0.00039
187	BV1+	1248.5000	2.23151	1.93608	2652.54781	6543.99488	0.04037	0.05841	0.0982	7.93584	28.87441	-0.00012	0.00102
188	#BV+	1248.5000	2.23151	1.93608	2652.54781	6543.99488	0.04037	0.05841	0.0982	7.93584	28.87441	-0.00012	0.00102
189	DV1	1371.5000	2.24316	1.94262	1065.23239	1370.69809	0.02504	0.18371	0.0982	4.96917	13.18491	-0.00012	0.00102
190	#BV-	1371.5000	2.24316	1.94262	1065.23239	1370.69809	0.02504	0.18371	0.0982	4.96917	13.18491	-0.00012	0.00102
191	BV1-	1379.5000	2.24440	1.94362	987.26935	1167.90262	0.02405	0.18936	0.0981	4.77621	12.16452	-0.00012	0.00039
192	D	1380.5000	2.24457	1.94376	977.74105	1143.70114	0.02392	0.18975	0.0981	4.75209	12.03696	-0.00012	0.00039
193	BV1-	1388.5000	2.24592	1.94498	903.25118	959.27314	0.02293	0.19040	0.0980	4.55914	11.01654	-0.00012	-0.00023
194	#BV-	1388.5000	2.24592	1.94498	903.25118	959.27314	0.02293	0.19040	0.0980	4.55914	11.01654	-0.00012	-0.00023
195	DV2	1414.5000	2.25119	1.95112	682.48055	472.64311	0.01969	0.18439	0.0980	3.93204	7.70000	-0.00012	-0.00023
196	#QEV	1414.5000	2.25119	1.95112	682.48055	472.64311	0.01969	0.18439	0.0980	3.93204	7.70000	-0.00012	-0.00023
197	QEV	1422.0464	2.25316	1.95384	515.09734	440.42458	0.01702	0.19953	0.0980	16.89407	-3.17612	-0.00057	0.00430
198	OOV	1441.9536	2.27081	1.96013	62.82292	576.85662	0.00564	0.28520	0.0980	5.82507	-3.67728	-0.00057	0.00430
199	QDV	1449.5000	2.32208	1.96223	9.60224	529.00233	0.00172	0.29129	0.0980	1.64777	9.63140	-0.00048	-0.00271
200	#QDV	1449.5000	2.32208	1.96223	9.60224	529.00233	0.00172	0.29129	0.0980	1.64777	9.63140	-0.00048	-0.00271
201	QDV	1457.0464	2.61839	1.96507	6.86209	319.95476	-0.00189	0.24545	0.0980	-1.26302	16.37866	-0.00049	-0.00925
202	OV4	1476.3350	2.70646	2.18226	196.29439	1.21366	-0.01128	0.06704	0.0980	-8.55792	0.14618	-0.00049	-0.00925
203	4QF	1484.5000	2.71162	2.43022	301.81944	50.93491	-0.01394	-0.00394	0.0980	-3.43932	-7.70836	-0.00015	-0.00844
204	#4QF	1484.5000	2.71162	2.43022	301.81944	50.93491	-0.01394	-0.00394	0.0980	-3.43932	-7.70836	-0.00015	-0.00844
205	4QF	1492.6650	2.71583	2.44052	293.40118	290.10404	-0.01369	-0.07577	0.0980	4.39640	-22.57758	0.00021	-0.00946
206	OV4	1511.9536	2.73051	2.44475	149.57784	1816.10222	-0.00960	-0.25827	0.0980	3.05999	-56.53642	0.00021	-0.00946
207	QDV	1519.5000	2.73937	2.44531	130.54834	2355.16128	-0.00883	-0.30452	0.0980	-0.38801	-10.53424	-0.00001	-0.00261
208	#QDV	1519.5000	2.73937	2.44531	130.54834	2355.16128	-0.00883	-0.30452	0.0980	-0.38801	-10.53424	-0.00001	-0.00261
209	QDV	1527.0464	2.74786	2.44584	162.75531	2097.08603	-0.00969	-0.29648	0.0980	-4.13424	42.64441	-0.00022	0.00471
210	OOV	1546.9536	2.76076	2.44838	371.41032	743.07282	-0.01416	-0.20277	0.0980	-6.34714	25.37184	-0.00022	0.00471
211	QEV	1554.5000	2.76379	2.45039	390.76163	507.48882	-0.01454	-0.18480	0.0980	2.94404	7.70706	0.00012	0.00013
212	#QEV	1554.5000	2.76379	2.45039	390.76163	507.48882	-0.01454	-0.18480	0.0980	2.94404	7.70706	0.00012	0.00013
213	#QEV	1554.5000	2.76379	2.45039	390.76163	507.48882	-0.01454	-0.18480	0.0980	2.94404	7.70706	0.00012	0.00013
214	D	1555.5000	2.76419	2.45071	392.89779	492.19371	-0.01442	-0.18467	0.0980	2.91980	7.58805	0.00012	0.00013
215	#BV+	1555.5000	2.76419	2.45071	392.89779	492.19371	-0.01442	-0.18467	0.0980	2.91980	7.58805	0.00012	0.00013
216	BV1+	1563.5000	2.76764	2.45366	347.73259	378.40175	-0.01342	-0.18113	0.0979	2.72585	6.63595	0.00012	0.00075
217	D	1564.5000	2.76810	2.45409	342.30513	365.24888	-0.01329	-0.18038	0.0979	2.70161	6.51693	0.00012	0.00075
218	BV1+	1572.5000	2.77207	2.45815	300.63100	268.59489	-0.01229	-0.17185	0.0978	2.50766	5.56482	0.00012	0.00138
219	D	1573.5000	2.77260	2.45876	295.63992	257.58427	-0.01217	-0.17047	0.0978	2.48342	5.44580	0.00012	0.00138
220	BV1+	1581.5000	2.77722	2.46470	257.45685	178.06844	-0.01117	-0.15694	0.0977	2.28947	4.49368	0.00012	0.00200
221	D	1582.5000	2.77784	2.46562	252.90216	169.20010	-0.01104	-0.15493	0.0977	2.26522	4.37466	0.00012	0.00200
222	BV1+	1590.5000	2.78326	2.47510	218.21016	106.82255	-0.01004	-0.13640	0.0976	2.07128	3.42253	0.00012	0.00263
223	D	1591.5000	2.78400	2.47664	214.09185	100.09650	-0.00992	-0.13377	0.0976	2.04703	3.30351	0.00012	0.00263
224	BV1+	1599.5000	2.79043	2.49385	182.89092	54.85735	-0.00892	-0.11024	0.0975	1.85308	2.35138	0.00012	0.00325

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
225	#BV+	1599.5000	2.79043	2.49385	182.89092	54.85735	-0.00892	-0.11024	0.0975	1.85308	2.35138	0.00012	0.00325
226	DV3	1611.5000	2.80230	2.56121	141.90797	15.56277	-0.00742	-0.07119	0.0975	1.56216	0.92317	0.00012	0.00325
227	#BV-	1611.5000	2.80230	2.56121	141.90797	15.56277	-0.00742	-0.07119	0.0975	1.56216	0.92317	0.00012	0.00325
228	BV1-	1619.5000	2.81213	2.68446	118.46497	8.40917	-0.00642	-0.04766	0.0975	1.36821	-0.02897	0.00012	0.00263
229	D	1620.5000	2.81349	2.70324	115.75278	8.58613	-0.00630	-0.04503	0.0975	1.34397	-0.14799	0.00012	0.00263
230	BV1-	1628.5000	2.82559	2.81244	95.80085	18.57106	-0.00530	-0.02650	0.0975	1.15002	-1.10013	0.00012	0.00200
231	D	1629.5000	2.82727	2.82052	93.52505	20.89033	-0.00517	-0.02449	0.0975	1.12578	-1.21914	0.00012	0.00200
232	BV1-	1637.5000	2.84229	2.86116	77.06418	48.01376	-0.00417	-0.01096	0.0976	0.93183	-2.17128	0.00012	0.00138
233	D	1638.5000	2.84438	2.86434	75.22476	52.47534	-0.00405	-0.00958	0.0976	0.90759	-2.29030	0.00012	0.00138
234	BV1-	1646.5000	2.86303	2.88224	62.25496	96.73721	-0.00305	-0.00105	0.0976	0.71364	-3.24243	0.00012	0.00075
235	D	1647.5000	2.86561	2.88384	60.85193	103.34110	-0.00292	-0.00029	0.0976	0.68939	-3.36145	0.00012	0.00075
236	BV1-	1655.5000	2.88846	2.89360	51.37320	164.74135	-0.00193	0.00324	0.0976	0.49545	-4.31358	0.00012	0.00013
237	#BV-	1655.5000	2.88846	2.89360	51.37320	164.74135	-0.00193	0.00324	0.0976	0.49545	-4.31358	0.00012	0.00013
238	D	1656.5000	2.89159	2.89454	50.40655	173.48752	-0.00180	0.00337	0.0976	0.47120	-4.43260	0.00012	0.00013
239	D5	1657.0000	2.89318	2.89499	49.94141	177.94987	-0.00174	0.00343	0.0976	0.45908	-4.49210	0.00012	0.00013
240	5QD	1663.8000	2.91526	2.90036	50.26481	220.37711	-0.00097	0.00410	0.0976	-0.50843	-1.50933	0.00010	0.00007
241	#5QD	1663.8000	2.91526	2.90036	50.26481	220.37711	-0.00097	0.00410	0.0976	-0.50843	-1.50933	0.00010	0.00007
242	5QD	1670.6000	2.93463	2.90523	64.84106	215.96710	-0.00032	0.00431	0.0976	-1.71563	2.13314	0.00009	-0.00001
243	D56	1718.9600	2.98495	2.96968	373.00684	69.75337	0.00412	0.00405	0.0976	-4.65670	0.89030	0.00009	-0.00001
244	6QF	1722.3600	2.98636	2.97769	392.26824	66.23355	0.00437	0.00410	0.0976	-0.94482	0.15651	0.00005	0.00003
245	#6QF	1722.3600	2.98636	2.97769	392.26824	66.23355	0.00437	0.00410	0.0976	-0.94482	0.15651	0.00005	0.00003
246	6QF	1725.7600	2.98774	2.98583	385.57045	67.57688	0.00446	0.00429	0.0976	2.89264	-0.55602	0.00001	0.00008
247	D6	1729.6600	2.98940	2.99472	363.37737	72.20847	0.00448	0.00459	0.0976	2.79789	-0.63157	0.00001	0.00008
248	OOQ	1734.7900	2.99174	3.00552	335.31036	79.19823	0.00451	0.00498	0.0976	2.67326	-0.73095	0.00001	0.00008
249	B	1751.3300	3.00077	3.03405	253.52457	108.67804	0.01815	0.00625	0.0976	2.27146	-1.05138	0.00164	0.00008
250	O	1752.1300	3.00128	3.03521	249.90577	110.37265	0.01946	0.00631	0.0976	2.25203	-1.06688	0.00164	0.00008
251	B	1768.6700	3.01363	3.05566	182.05478	150.96486	0.06016	0.00757	0.0976	1.85021	-1.38731	0.00328	0.00008
252	O	1769.4700	3.01434	3.05650	179.11000	153.19694	0.06278	0.00763	0.0976	1.83077	-1.40280	0.00328	0.00008
253	B	1786.0100	3.03195	3.07138	125.19458	204.90155	0.13054	0.00889	0.0978	1.42893	-1.72323	0.00491	0.00008
254	O	1786.8100	3.03298	3.07200	122.92384	207.67111	0.13447	0.00896	0.0978	1.40949	-1.73873	0.00491	0.00008
255	B	1803.3500	3.05917	3.08311	82.94459	270.48811	0.22929	0.01022	0.0981	1.00763	-2.05916	0.00655	0.00008
256	O	1804.1500	3.06072	3.08358	81.34793	273.79515	0.23453	0.01028	0.0981	0.98820	-2.07465	0.00655	0.00008
257	B	1820.6900	3.10037	3.09212	55.30529	347.72454	0.35641	0.01154	0.0986	0.58633	-2.39508	0.00819	0.00008
258	OG	1821.5602	3.10290	3.09251	54.30323	351.90768	0.36354	0.01161	0.0986	0.56518	-2.41194	0.00819	0.00008
259	QQD	1824.0000	3.11018	3.09360	52.68971	357.02881	0.38702	0.01169	0.0986	0.10032	0.32618	0.01109	-0.00001
260	#QQD	1824.0000	3.11018	3.09360	52.68971	357.02881	0.38702	0.01169	0.0986	0.10032	0.32618	0.01109	-0.00001
261	QQD	1826.4398	3.11754	3.09470	53.31181	348.76442	0.41784	0.01154	0.0986	-0.35691	3.03978	0.01421	-0.00010
262	OOG	1830.7900	3.13013	3.09676	56.81725	322.87271	0.47964	0.01109	0.0986	-0.44890	2.91205	0.01421	-0.00010
263	B	1847.3300	3.17024	3.10634	77.45191	234.57465	0.72816	0.00936	0.0995	-0.79866	2.42641	0.01584	-0.00010
264	O	1848.1300	3.17187	3.10688	78.74330	230.71119	0.74084	0.00928	0.0995	-0.81558	2.40292	0.01584	-0.00010
265	B	1864.6700	3.20011	3.12063	111.50746	159.25509	1.01642	0.00755	0.1010	-1.16533	1.91728	0.01748	-0.00010
266	O	1865.4700	3.20124	3.12144	113.38552	156.20623	1.03040	0.00747	0.1010	-1.18224	1.89379	0.01748	-0.00010
267	B	1882.0100	3.22094	3.14240	158.27881	101.59200	1.33305	0.00575	0.1029	-1.53198	1.40815	0.01912	-0.00010
268	O	1882.8100	3.22174	3.14366	160.74352	99.35782	1.34834	0.00566	0.1029	-1.54890	1.38466	0.01912	-0.00010
269	B	1899.3500	3.23583	3.17757	217.76544	61.58563	1.67804	0.00394	0.1054	-1.89862	0.89902	0.02075	-0.00010

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
270	O	1900.1500	3.23641	3.17966	220.81676	60.16598	1.69464	0.00386	0.1054	-1.91553	0.87554	0.02075	-0.00010
271	B	1916.6900	3.24682	3.23495	289.96668	39.23574	2.05140	0.00213	0.1084	-2.26523	0.38990	0.02239	-0.00010
272	OH	1917.5961	3.24731	3.23866	294.08912	38.55327	2.07169	0.00204	0.1084	-2.28439	0.36329	0.02239	-0.00010
273	HQF	1920.0000	3.24860	3.24874	299.69192	37.66821	2.10635	0.00180	0.1084	-0.03204	0.00714	0.00640	-0.00009
274	#HQF	1920.0000	3.24860	3.24874	299.69192	37.66821	2.10635	0.00180	0.1084	-0.03204	0.00714	0.00640	-0.00009
275	HQF	1922.4039	3.24988	3.25882	294.39348	38.48381	2.10239	0.00160	0.1084	2.22264	-0.34849	-0.00970	-0.00008
276	OOH	1926.7900	3.25233	3.27620	275.28414	42.10145	2.05987	0.00127	0.1084	2.13414	-0.47631	-0.00970	-0.00008
277	B	1943.3300	3.26328	3.32706	210.20607	65.82973	1.91304	0.00000	0.1117	1.80044	-0.95829	-0.00806	-0.00008
278	O	1944.1300	3.26389	3.32897	207.33828	67.38165	1.90659	-0.00006	0.1117	1.78430	-0.98161	-0.00806	-0.00008
279	B	1960.6700	3.27865	3.36006	153.83346	107.82525	1.78682	-0.00133	0.1147	1.45057	-1.46359	-0.00642	-0.00008
280	O	1961.4700	3.27949	3.36122	151.52545	110.18565	1.78168	-0.00139	0.1147	1.43443	-1.48691	-0.00642	-0.00008
281	B	1978.0100	3.29997	3.38066	109.59447	167.34459	1.68897	-0.00266	0.1175	1.10069	-1.96889	-0.00479	-0.00008
282	O	1978.8100	3.30114	3.38141	107.84628	170.51348	1.68514	-0.00272	0.1175	1.08455	-1.99221	-0.00479	-0.00008
283	B	1995.3500	3.33010	3.39432	77.48961	244.38775	1.61948	-0.00398	0.1202	0.75080	-2.47419	-0.00315	-0.00008
284	O	1996.1500	3.33176	3.39484	76.30125	248.36511	1.61696	-0.00405	0.1202	0.73465	-2.49751	-0.00315	-0.00008
285	B	2012.6900	3.37192	3.40392	57.51923	338.95472	1.57837	-0.00531	0.1229	0.40090	-2.97949	-0.00152	-0.00008
286	OI	2013.7059	3.37475	3.40439	56.72551	345.03866	1.57683	-0.00539	0.1229	0.38039	-3.00910	-0.00152	-0.00008
287	IQD	2016.0000	3.38124	3.40543	56.02145	353.10560	1.58655	-0.00552	0.1229	-0.07178	-0.48769	0.01000	-0.00004
288	#IQD	2016.0000	3.38124	3.40543	56.02145	353.10560	1.58655	-0.00552	0.1229	-0.07178	-0.48769	0.01000	-0.00004
289	IQD	2018.2941	3.38770	3.40647	57.39159	349.46417	1.62284	-0.00556	0.1229	-0.52879	2.06615	0.02168	0.00000
290	OOI	2022.7900	3.39965	3.40857	62.59709	331.19041	1.72031	-0.00554	0.1229	-0.62904	1.99837	0.02168	0.00000
291	B	2039.3300	3.43511	3.41739	89.50501	269.20917	2.09245	-0.00548	0.1260	-0.99780	1.74899	0.02332	0.00000
292	O	2040.1300	3.43652	3.41787	91.11576	266.42044	2.11111	-0.00548	0.1260	-1.01564	1.73693	0.02332	0.00000
293	B	2056.6700	3.46073	3.42892	130.81237	213.08766	2.51031	-0.00542	0.1297	-1.38440	1.48755	0.02495	0.00000
294	O	2057.4700	3.46169	3.42953	133.04167	210.71724	2.53027	-0.00542	0.1297	-1.40223	1.47548	0.02495	0.00000
295	B	2074.0100	3.47848	3.44362	185.52651	166.03294	2.95652	-0.00535	0.1342	-1.77097	1.22611	0.02659	0.00000
296	O	2074.8100	3.47916	3.44439	188.37433	164.08082	2.97779	-0.00535	0.1342	-1.78881	1.21404	0.02659	0.00000
297	B	2091.3500	3.49122	3.46259	253.64683	128.04498	3.43110	-0.00529	0.1395	-2.15753	0.96466	0.02822	0.00000
298	O	2092.1500	3.49171	3.46359	257.11315	126.51117	3.45368	-0.00529	0.1395	-2.17537	0.95260	0.02822	0.00000
299	B	2108.6900	3.50069	3.48718	335.17256	99.12381	3.93405	-0.00523	0.1455	-2.54406	0.70322	0.02986	0.00000
300	OJ	2109.9750	3.50129	3.48927	341.74752	97.34144	3.97242	-0.00522	0.1455	-2.57271	0.68385	0.02986	0.00000
301	JQF	2112.0000	3.50222	3.49261	347.73376	95.88380	4.00690	-0.00525	0.1455	-0.37058	0.03909	0.00416	-0.00003
302	#JQF	2112.0000	3.50222	3.49261	347.73376	95.88380	4.00690	-0.00525	0.1455	-0.37058	0.03909	0.00416	-0.00003
303	JQF	2114.0250	3.50315	3.49596	344.72323	97.02202	3.98922	-0.00535	0.1455	1.85078	-0.60362	-0.02160	-0.00006
304	OOJ	2118.7900	3.50541	3.50354	327.37680	103.09374	3.88631	-0.00565	0.1455	1.78961	-0.67062	-0.02160	-0.00006
305	B	2135.3300	3.51424	3.52644	271.68759	129.12496	3.54262	-0.00671	0.1516	1.57732	-0.90321	-0.01996	-0.00006
306	O	2136.1300	3.51471	3.52742	269.17209	130.57910	3.52665	-0.00676	0.1516	1.56705	-0.91446	-0.01996	-0.00006
307	B	2152.6700	3.52552	3.54541	220.84545	164.67655	3.21001	-0.00782	0.1571	1.35475	-1.14705	-0.01833	-0.00006
308	O	2153.4700	3.52610	3.54618	218.60607	166.52084	3.19535	-0.00787	0.1571	1.34448	-1.15830	-0.01833	-0.00006
309	B	2170.0100	3.53946	3.56032	177.72255	208.68452	2.90577	-0.00893	0.1621	1.13216	-1.39089	-0.01669	-0.00006
310	O	2170.8100	3.54018	3.56092	175.91932	210.91895	2.89242	-0.00898	0.1621	1.12188	-1.40214	-0.01669	-0.00006
311	B	2187.3500	3.55685	3.57215	142.31937	261.14886	2.62989	-0.01004	0.1666	0.90955	-1.63473	-0.01505	-0.00006
312	O	2188.1500	3.55775	3.57264	140.87231	263.77343	2.61785	-0.01009	0.1666	0.89928	-1.64598	-0.01505	-0.00006
313	B	2204.6900	3.57853	3.58167	114.63631	322.06957	2.38237	-0.01115	0.1707	0.68693	-1.87857	-0.01342	-0.00006
314	OK	2206.2602	3.58073	3.58244	112.51074	328.00365	2.36130	-0.01125	0.1707	0.66677	-1.90065	-0.01342	-0.00006

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
315	KQD	2208.0000	3.58320	3.58328	111.30042	331.47234	2.34929	-0.01131	0.1707	0.03112	-0.08666	-0.00041	0.00000
316	#KQD	2208.0000	3.58320	3.58328	111.30042	331.47234	2.34929	-0.01131	0.1707	0.03112	-0.08666	-0.00041	0.00000
317	KQD	2209.7398	3.58569	3.58412	112.29280	328.60287	2.35989	-0.01126	0.1707	-0.60334	1.73066	0.01260	0.00006
318	OOK	2214.7900	3.59265	3.58663	118.69656	311.43267	2.42352	-0.01095	0.1707	-0.66468	1.66926	0.01260	0.00006
319	B	2231.3300	3.61284	3.59589	144.00704	259.53971	2.64546	-0.00995	0.1748	-0.86557	1.46816	0.01424	0.00006
320	O	2232.1300	3.61372	3.59639	145.39973	257.19843	2.65685	-0.00990	0.1748	-0.87529	1.45844	0.01424	0.00006
321	B	2248.6700	3.63012	3.60766	177.67689	212.27943	2.90585	-0.00889	0.1794	-1.07617	1.25734	0.01587	0.00006
322	O	2249.4700	3.63084	3.60826	179.40653	210.27547	2.91855	-0.00884	0.1794	-1.08589	1.24762	0.01587	0.00006
323	B	2266.0100	3.64414	3.62211	218.65000	172.33043	3.19460	-0.00784	0.1844	-1.28675	1.04652	0.01751	0.00006
324	O	2266.8100	3.64472	3.62285	220.71658	170.66378	3.20861	-0.00779	0.1844	-1.29647	1.03679	0.01751	0.00006
325	B	2283.3500	3.65558	3.63994	266.92593	139.69271	3.51171	-0.00678	0.1899	-1.49732	0.83570	0.01914	0.00006
326	O	2284.1500	3.65605	3.64085	269.32941	138.36337	3.52703	-0.00673	0.1899	-1.50704	0.82597	0.01914	0.00006
327	B	2300.6900	3.66499	3.66184	312.50411	114.36626	3.85719	-0.00573	0.1959	-1.70787	0.62488	0.02078	0.00006
328	OQ	2302.3400	3.66580	3.66416	328.17316	112.33726	3.89148	-0.00563	0.1959	-1.72791	0.60482	0.02078	0.00006
329	QF	2304.0000	3.66660	3.66652	331.05085	111.33553	3.90893	-0.00555	0.1959	-0.00058	0.00039	0.00024	0.00003
330	#QF	2304.0000	3.66660	3.66652	331.05085	111.33553	3.90893	-0.00555	0.1959	-0.00058	0.00039	0.00024	0.00003
331	QF	2305.6600	3.66740	3.66889	328.17701	112.33465	3.89226	-0.00552	0.1959	1.72677	-0.60402	-0.02031	0.00000
332	OOS	2311.6400	3.67039	3.67709	307.95872	119.99327	3.77081	-0.00551	0.1959	1.65421	-0.67668	-0.02031	0.00000
333	B	2328.1800	3.67976	3.69705	256.55577	145.70171	3.44842	-0.00547	0.2018	1.45358	-0.87764	-0.01867	0.00000
334	O	2328.9800	3.68026	3.69792	254.23781	147.11371	3.43348	-0.00547	0.2018	1.44387	-0.88736	-0.01867	0.00000
335	B	2345.5200	3.69167	3.71413	209.79329	179.79137	3.13814	-0.00543	0.2072	1.24322	-1.08832	-0.01704	0.00000
336	O	2346.3200	3.69228	3.71484	207.81191	181.54045	3.12451	-0.00543	0.2072	1.23351	-1.09804	-0.01704	0.00000
337	B	2362.8600	3.70629	3.72799	170.32630	221.18734	2.85622	-0.00539	0.2121	1.03285	-1.29899	-0.01540	0.00000
338	O	2363.6600	3.70704	3.72856	168.68152	223.27351	2.84390	-0.00539	0.2121	1.02314	-1.30871	-0.01540	0.00000
339	B	2380.2000	3.72432	3.73929	130.15526	269.88962	2.60268	-0.00535	0.2165	0.82246	-1.50967	-0.01377	0.00000
340	O	2381.0000	3.72524	3.73976	136.84709	272.31287	2.59166	-0.00535	0.2165	0.81275	-1.51939	-0.01377	0.00000
341	B	2397.5400	3.74645	3.74861	113.28051	325.89821	2.37749	-0.00531	0.2206	0.61207	-1.72035	-0.01213	0.00000
342	O	2398.3400	3.74758	3.74899	112.30897	328.65854	2.36779	-0.00531	0.2206	0.60236	-1.73007	-0.01213	0.00000
343	QD	2400.0000	3.74994	3.74979	111.31533	331.53857	2.35797	-0.00529	0.2206	-0.00204	0.00017	0.00030	0.00003
344	ZDUC	4992.0000	4.66603	4.66612	111.37045	331.65583	2.36484	-0.00116	0.4915	0.00000	0.00000	0.00030	-0.00009

CIRCUMFERENCE = 4992.0000 M THETX = 0.22907446 RAD NUX = 4.66603 DNUX/(DP/P) = -49.33147
RADIUS = 794.5015 M THETY = 0.00000000 RAD NUY = 4.66612 DNUY/(DP/P) = -49.36866
(DS/S)/(DP/P) = 0.0000985 TGAM=(100.78383, 0.00000)

MAXIMA --- BETX(175) = 7949.61077 BETY(155) = 7955.93674 XEQ(302) = 4.00690 YEQ(208) = -0.30452
MINIMA --- BETX(166) = 0.50093 BETY(166) = 0.50055 XEQ(166) = 0.00014 YEQ(277) = 0.00000

*** ... . // .....

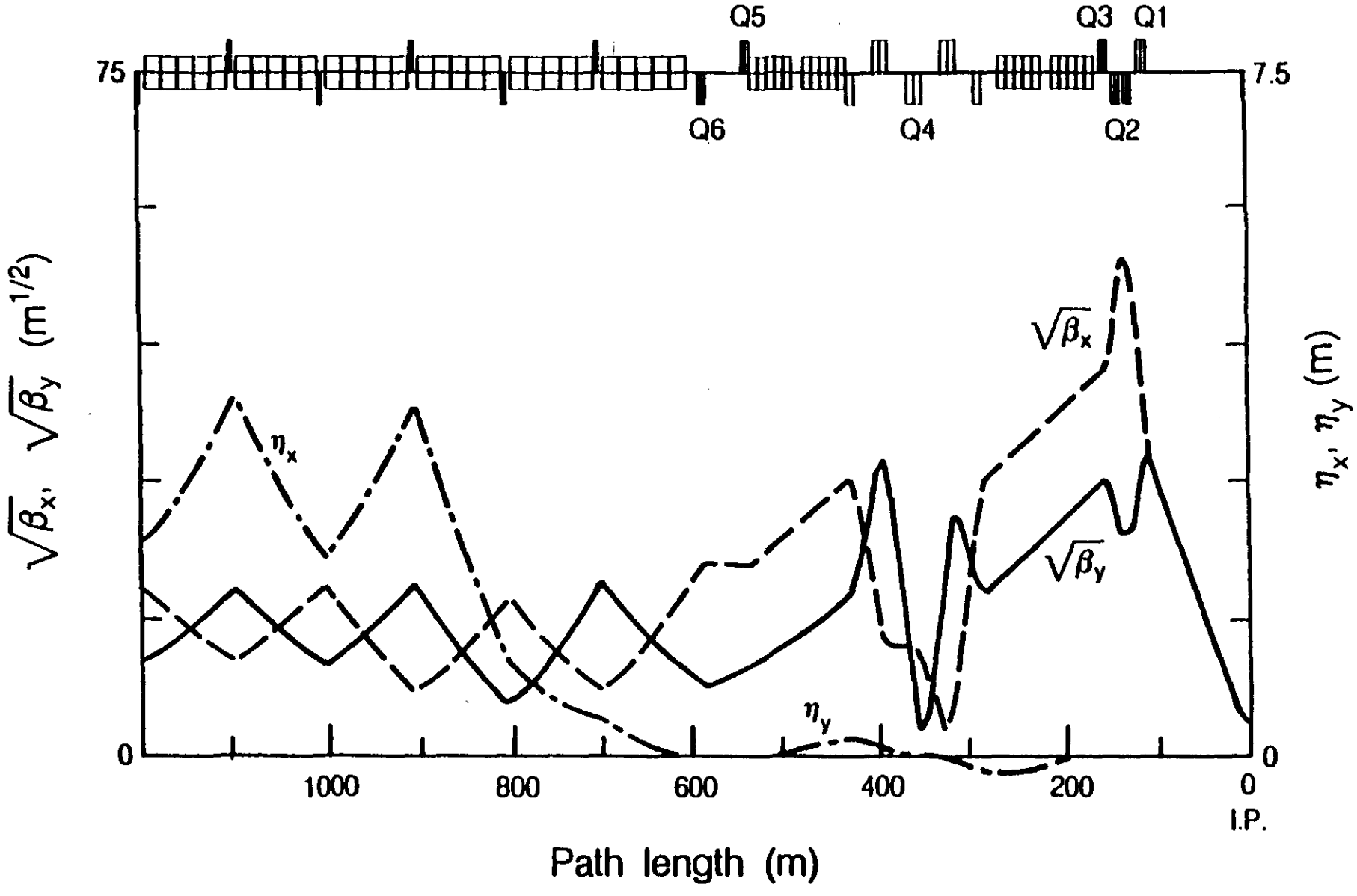

Figure 9. Long IR, Medium-β Module (left side)— Collision Optics

XBL 861-11257

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     Intermediate-Beta Module --
***   PR5     PRNT          //  DD0  D1   D22  D23  DD3  DV3  DDV2 DDV3 DD56 DD6
  *                        //  LP1  LP2  LP3  LP4  LP5  LP6
  *                        //  KK1  KK2  KK3  KK4  KK5  KK6
-------------------------------------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
      DD0                  D1                   D22                  D23                  DD3
   101.650000000           5.900000000          4.500000000          5.000000000          6.080000000
      DV3                  DDV2                 DDV3                 DD56                 DD6
    12.000000000          13.170000000         35.000000000         37.510000000         10.650000000
      LP1                  LP2                  LP3                  LP4                  LP5
     4.600000000           3.750000000          3.500000000          7.546400000          3.750000000
      LP6                  KK1                  KK2                  KK3                  KK4
     3.750000000           0.003136873         -0.002971014          0.002948163         -0.003177800
      KK5                  KK6
     0.000576251          -0.000998148
-------------------------------------------------------------------------------------------------------------------------

***   ZDUI    MMM          //  .ZDU .CD
***   .2XX    BML          //  .ZUD ZDUI
***   2XX     BEST         //  .2XX
-------------------------------------------------------------------------------------------------------------------------
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BETATRON FUNCTIONS OF 2XX

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0		0.0000	0.00000	0.00000	111.37045	331.65695	2.36706	0.00001	0.0000	0.00000	0.00000	0.00024	0.00000
1	#QD	0.0000	0.00000	0.00000	111.37045	331.65695	2.36706	0.00001	0.0000	0.00000	0.00000	0.00024	0.00000
2	QD	1.6600	0.00237	0.00080	112.37135	328.77533	2.37781	0.00001	0.0000	-0.60471	1.73086	0.01272	0.00000
3	QQ	6.7900	0.00943	0.00335	118.89552	311.33658	2.44308	0.00001	0.0000	-0.66706	1.66851	0.01272	0.00000
4	B	23.3300	0.02958	0.01262	144.28622	259.46726	2.66704	0.00000	0.0042	-0.86805	1.46748	0.01436	0.00000
5	O	24.1300	0.03046	0.01311	145.68288	257.12707	2.67852	0.00000	0.0042	-0.87777	1.45776	0.01436	0.00000
6	B	40.6700	0.04684	0.02439	178.04384	212.22925	2.92954	0.00000	0.0088	-1.07875	1.25674	0.01599	0.00000
7	O	41.4700	0.04755	0.02499	179.77763	210.22624	2.94233	0.00000	0.0088	-1.08848	1.24701	0.01599	0.00000
8	B	58.0100	0.06083	0.03884	219.10849	172.29993	3.22041	0.00000	0.0138	-1.28945	1.04599	0.01763	0.00000
9	O	58.8100	0.06140	0.03958	221.17938	170.63412	3.23451	0.00000	0.0138	-1.29917	1.03627	0.01763	0.00000
10	B	75.3500	0.07224	0.05667	267.47970	139.67931	3.53963	-0.00001	0.0193	-1.50012	0.83524	0.01927	0.00000
11	O	76.1500	0.07271	0.05758	269.88768	138.35069	3.55505	-0.00001	0.0193	-1.50985	0.82552	0.01927	0.00000
12	B	92.6900	0.08163	0.07857	323.15694	114.36738	3.88723	-0.00001	0.0254	-1.71078	0.62450	0.02090	0.00000
13	OK	94.2602	0.08239	0.08078	328.55939	112.43619	3.92005	-0.00001	0.0254	-1.72986	0.60541	0.02090	0.00000
14	QFK	96.0000	0.08323	0.08325	331.42650	111.43795	3.93751	-0.00001	0.0254	0.08721	-0.02981	-0.00084	0.00000
15	#QFK	96.0000	0.08323	0.08325	331.42650	111.43795	3.93751	-0.00001	0.0254	0.08721	-0.02981	-0.00084	0.00000
16	QFK	97.7398	0.08407	0.08573	327.95635	112.64500	3.91714	-0.00001	0.0254	1.90094	-0.66619	-0.02257	0.00000
17	QQK	102.7900	0.08660	0.09265	309.11493	119.70066	3.80316	-0.00001	0.0254	1.82990	-0.73092	-0.02257	0.00000
18	B	119.3300	0.09602	0.11252	252.42971	147.38595	3.44341	-0.00002	0.0313	1.59726	-0.94292	-0.02093	0.00000
19	O	120.1300	0.09653	0.11338	249.88310	148.90282	3.42666	-0.00002	0.0313	1.58600	-0.95317	-0.02093	0.00000
20	B	136.6700	0.10828	0.12932	201.26617	183.94023	3.09396	-0.00002	0.0367	1.35335	-1.16517	-0.01930	0.00000
21	O	137.4700	0.10892	0.13000	199.10982	185.81271	3.07852	-0.00002	0.0367	1.34209	-1.17543	-0.01930	0.00000
22	B	154.0100	0.12375	0.14280	158.56170	228.20223	2.77288	-0.00003	0.0415	1.10942	-1.38742	-0.01766	0.00000
23	O	154.8100	0.12456	0.14336	156.79563	230.43031	2.75875	-0.00003	0.0415	1.09817	-1.39768	-0.01766	0.00000
24	B	171.3500	0.14346	0.15372	124.31680	280.17196	2.48016	-0.00003	0.0457	0.86548	-1.60968	-0.01603	0.00000
25	O	172.1500	0.14449	0.15418	122.94103	282.75564	2.46734	-0.00003	0.0457	0.85423	-1.61993	-0.01603	0.00000
26	B	188.6900	0.16850	0.16267	98.53184	339.84940	2.21581	-0.00004	0.0496	0.62154	-1.83193	-0.01439	0.00000
27	OJ	189.9750	0.17059	0.16327	96.95774	344.57856	2.19732	-0.00004	0.0496	0.60346	-1.84840	-0.01439	0.00000
28	QDJ	192.0000	0.17394	0.16420	95.81935	347.58131	2.18245	-0.00004	0.0496	-0.03885	0.37202	-0.00031	0.00000
29	#QDJ	192.0000	0.17394	0.16420	95.81935	347.58131	2.18245	-0.00004	0.0496	-0.03885	0.37202	-0.00031	0.00000
30	QDJ	194.0250	0.17729	0.16513	97.27520	341.59128	2.19605	-0.00004	0.0496	-0.68320	2.57313	0.01376	0.00000
31	QQJ	198.7900	0.18483	0.16744	104.12841	317.57598	2.26162	-0.00004	0.0496	-0.75505	2.46682	0.01376	0.00000
32	B	215.3300	0.20725	0.17694	133.23008	242.07692	2.50274	-0.00004	0.0535	-1.00442	2.09781	0.01540	0.00000
33	O	216.1300	0.20820	0.17747	134.84681	238.73470	2.51506	-0.00004	0.0535	-1.01649	2.07996	0.01540	0.00000
34	B	232.6700	0.22549	0.19032	172.59670	176.03300	2.78323	-0.00003	0.0578	-1.26585	1.71095	0.01703	0.00000
35	O	233.4700	0.22622	0.19105	174.63172	173.30976	2.79686	-0.00003	0.0578	-1.27791	1.69310	0.01703	0.00000
36	B	250.0100	0.23964	0.20909	221.02941	123.40541	3.09209	-0.00003	0.0626	-1.52726	1.32409	0.01867	0.00000
37	O	250.8100	0.24021	0.21013	223.48268	121.30114	3.10703	-0.00003	0.0626	-1.53933	1.30624	0.01867	0.00000
38	B	267.3500	0.25077	0.23629	278.52765	84.19415	3.42932	-0.00003	0.0680	-1.78866	0.93723	0.02030	0.00000
39	O	268.1500	0.25122	0.23782	281.39916	82.70886	3.44556	-0.00003	0.0680	-1.80072	0.91938	0.02030	0.00000
40	B	284.6900	0.25968	0.27606	345.09079	58.39922	3.79490	-0.00002	0.0739	-2.05004	0.55037	0.02194	0.00000
41	OI	285.7059	0.26014	0.27886	349.27171	57.30399	3.81719	-0.00002	0.0739	-2.06535	0.52770	0.02194	0.00000
42	QFI	288.0000	0.26118	0.28533	352.91271	55.93750	3.83551	-0.00002	0.0739	0.48708	0.07127	-0.00599	0.00000
43	#QFI	288.0000	0.26118	0.28533	352.91271	55.93750	3.83551	-0.00002	0.0739	0.48708	0.07127	-0.00599	0.00000
44	QFI	290.2941	0.26222	0.29183	344.85175	56.64267	3.78976	-0.00002	0.0739	3.00712	-0.38037	-0.03383	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
45	OOI	294.7900	0.26438	0.30407	318.40088	60.47134	3.63768	-0.00002	0.0739	2.87619	-0.47122	-0.03383	0.00000
46	B	311.3300	0.27409	0.34191	231.22287	81.58794	3.09169	-0.00002	0.0794	2.39455	-0.80548	-0.03219	0.00000
47	O	312.1300	0.27464	0.34345	227.41023	82.88964	3.06594	-0.00002	0.0794	2.37125	-0.82164	-0.03219	0.00000
48	B	328.6700	0.28860	0.37048	156.93602	115.59813	2.54700	-0.00003	0.0840	1.88958	-1.15590	-0.03056	0.00000
49	O	329.4700	0.28942	0.37157	153.93132	117.46049	2.52256	-0.00003	0.0840	1.86628	-1.17206	-0.03056	0.00000
50	B	346.0100	0.31068	0.39071	100.16170	161.76088	2.03068	-0.00003	0.0877	1.38460	-1.50632	-0.02892	0.00000
51	O	346.8100	0.31196	0.39149	97.96498	164.18391	2.00755	-0.00003	0.0877	1.36130	-1.52248	-0.02892	0.00000
52	B	363.3500	0.34631	0.40536	60.90055	220.07619	1.54273	-0.00003	0.0906	0.87960	-1.85674	-0.02728	0.00000
53	O	364.1500	0.34843	0.40593	59.51184	223.05990	1.52090	-0.00003	0.0906	0.85630	-1.87290	-0.02728	0.00000
54	B	380.6900	0.40409	0.41628	39.15301	290.54407	1.08315	-0.00003	0.0927	0.37459	-2.20716	-0.02565	0.00000
55	OH	381.5961	0.40780	0.41677	38.49810	294.56050	1.05990	-0.00003	0.0927	0.34820	-2.22547	-0.02565	0.00000
56	QDH	384.0000	0.41789	0.41806	37.68411	299.86948	1.00781	-0.00003	0.0927	-0.00751	0.03051	-0.01776	0.00000
57	#QDH	384.0000	0.41789	0.41806	37.68411	299.86948	1.00781	-0.00003	0.0927	-0.00751	0.03051	-0.01776	0.00000
58	QDH	386.4039	0.42796	0.41934	38.57124	294.27070	0.97424	-0.00003	0.0927	-0.36378	2.28426	-0.01020	0.00000
59	OOH	390.7900	0.44527	0.42180	42.32715	274.63918	0.92949	-0.00003	0.0927	-0.49254	2.19158	-0.01020	0.00000
60	B	407.3300	0.49567	0.43282	66.65155	207.92211	0.77424	-0.00002	0.0941	-0.97810	1.84210	-0.00857	0.00000
61	O	408.1300	0.49756	0.43344	68.23529	204.98828	0.76739	-0.00002	0.0941	-1.00158	1.82519	-0.00857	0.00000
62	B	424.6700	0.52821	0.44845	109.39855	150.39133	0.63921	-0.00002	0.0953	-1.48713	1.47571	-0.00693	0.00000
63	O	425.4700	0.52936	0.44931	111.79674	148.04372	0.63366	-0.00002	0.0953	-1.51061	1.45881	-0.00693	0.00000
64	B	442.0100	0.54852	0.47043	169.79840	105.56690	0.53254	-0.00001	0.0962	-1.99614	1.10932	-0.00530	0.00000
65	O	442.8100	0.54926	0.47164	173.01101	103.80551	0.52831	-0.00001	0.0962	-2.01962	1.09242	-0.00530	0.00000
66	B	459.3500	0.56199	0.50197	247.85043	73.44882	0.45425	0.00000	0.0970	-2.50513	0.74293	-0.00366	0.00000
67	O	460.1500	0.56250	0.50372	251.87742	72.27365	0.45132	0.00000	0.0970	-2.52861	0.72603	-0.00366	0.00000
68	B	476.6900	0.57145	0.54635	343.55376	54.03709	0.40433	0.00000	0.0977	-3.01409	0.37654	-0.00202	0.00000
69	OG	477.5601	0.57185	0.54893	348.82179	53.39774	0.40257	0.00000	0.0977	-3.03963	0.35816	-0.00202	0.00000
70	QFG	480.0000	0.57295	0.55627	357.08437	52.77100	0.39385	0.00000	0.0977	-0.32559	-0.09965	-0.00512	0.00000
71	#QFG	480.0000	0.57295	0.55627	357.08437	52.77100	0.39385	0.00000	0.0977	-0.32559	-0.09965	-0.00512	0.00000
72	QFG	482.4398	0.57404	0.56355	351.95932	54.38259	0.37769	0.00000	0.0977	2.41294	-0.56505	-0.00811	0.00000
73	OOG	486.7900	0.57607	0.57570	331.33253	59.75787	0.34240	0.00001	0.0977	2.32862	-0.67058	-0.00811	0.00000
74	B	503.3300	0.58505	0.61220	259.60398	88.57747	0.22177	0.00001	0.0982	2.00805	-1.07183	-0.00647	0.00000
75	O	504.1300	0.58554	0.61363	256.40350	90.30793	0.21660	0.00001	0.0982	1.99254	-1.09124	-0.00647	0.00000
76	B	520.6700	0.59730	0.63774	195.79259	133.04284	0.12303	0.00002	0.0984	1.67196	-1.49249	-0.00484	0.00000
77	O	521.4700	0.59795	0.63868	193.12987	135.44635	0.11916	0.00002	0.0984	1.65645	-1.51190	-0.00484	0.00000
78	B	538.0100	0.61378	0.65503	143.63729	192.09657	0.05266	0.00003	0.0986	1.33584	-1.91315	-0.00320	0.00000
79	O	538.8100	0.61468	0.65569	141.51235	195.17313	0.05010	0.00003	0.0986	1.32034	-1.93255	-0.00320	0.00000
80	B	555.3500	0.63654	0.66726	103.13865	265.73866	0.01066	0.00004	0.0986	0.99972	-2.33380	-0.00157	0.00000
81	O	556.1500	0.63778	0.66773	101.55151	269.48827	0.00941	0.00004	0.0986	0.98421	-2.35321	-0.00157	0.00000
82	B	572.6900	0.66827	0.67626	74.29714	353.96911	-0.00296	0.00004	0.0986	0.66358	-2.75446	0.00007	0.00000
83	OQ	574.3400	0.67186	0.67699	72.16011	363.12487	-0.00285	0.00004	0.0986	0.63159	-2.79449	0.00007	0.00000
84	DD6	584.9900	0.69754	0.68131	60.90607	425.39898	-0.00210	0.00005	0.0986	0.42513	-3.05285	0.00007	0.00000
85	PD6	588.7400	0.70754	0.68268	58.82050	442.47803	-0.00185	0.00005	0.0986	0.13362	-1.48024	0.00006	0.00000
86	#PD6	588.7400	0.70754	0.68268	58.82050	442.47803	-0.00185	0.00005	0.0986	0.13362	-1.48024	0.00006	0.00000
87	PD6	592.4900	0.71771	0.68402	58.88291	447.39533	-0.00163	0.00005	0.0986	-0.15034	0.17510	0.00006	0.00000
88	DD56	630.0000	0.80152	0.69753	94.59658	437.50078	0.00048	0.00005	0.0986	-0.80177	0.08869	0.00006	0.00000
89	PFS	633.7500	0.80765	0.69889	100.05647	440.41941	0.00069	0.00005	0.0986	-0.65027	-0.86909	0.00005	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
90	#PE5	633.7500	0.80765	0.69889	100.05647	440.41941	0.00069	0.00005	0.0986	-0.65027	-0.86909	0.00005	0.00000
91	PE5	637.5000	0.81348	0.70023	104.29799	450.60764	0.00089	0.00005	0.0986	-0.47775	-1.85511	0.00005	0.00000
92	D	638.5000	0.81500	0.70058	105.26526	454.32771	0.00094	0.00005	0.0986	-0.48952	-1.86496	0.00005	0.00000
93	#BV+	638.5000	0.81500	0.70058	105.26526	454.32771	0.00094	0.00005	0.0986	-0.48952	-1.86496	0.00005	0.00000
94	BV1+	646.5000	0.82664	0.70330	113.85130	484.79777	0.00137	0.00256	0.0986	-0.58373	-1.94379	0.00005	0.00063
95	D	647.5000	0.82804	0.70362	115.03054	488.69522	0.00142	0.00318	0.0986	-0.59551	-1.95365	0.00005	0.00063
96	BV1+	655.5000	0.83865	0.70615	125.31237	520.58422	0.00185	0.01068	0.0986	-0.68972	-2.03247	0.00005	0.00125
97	D	656.5000	0.83991	0.70645	126.70358	524.65902	0.00190	0.01193	0.0986	-0.70150	-2.04233	0.00005	0.00125
98	BV1+	664.5000	0.84952	0.70881	138.68119	557.96690	0.00233	0.02444	0.0986	-0.79571	-2.12115	0.00005	0.00188
99	D	665.5000	0.85066	0.70909	140.28438	562.21906	0.00238	0.02631	0.0986	-0.80748	-2.13101	0.00005	0.00188
100	BV1+	673.5000	0.85933	0.71129	153.95777	596.94575	0.00281	0.04381	0.0987	-0.90169	-2.20983	0.00005	0.00250
101	D	674.5000	0.86036	0.71155	155.77293	601.37526	0.00286	0.04631	0.0987	-0.91347	-2.21968	0.00005	0.00250
102	BV1+	682.5000	0.86816	0.71361	171.14210	637.52071	0.00329	0.06882	0.0987	-1.00768	-2.29850	0.00005	0.00313
103	#BV+	682.5000	0.86816	0.71361	171.14210	637.52071	0.00329	0.06882	0.0987	-1.00768	-2.29850	0.00005	0.00313
104	DV3	694.5000	0.87857	0.71648	197.02217	694.10385	0.00392	0.10632	0.0987	-1.14899	-2.41676	0.00005	0.00313
105	#BV-	694.5000	0.87857	0.71648	197.02217	694.10385	0.00392	0.10632	0.0987	-1.14899	-2.41676	0.00005	0.00313
106	BV1-	702.5000	0.88474	0.71827	216.15975	733.40254	0.00435	0.12882	0.0986	-1.24320	-2.49557	0.00005	0.00250
107	D	703.5000	0.88547	0.71848	218.65794	738.40354	0.00440	0.13132	0.0986	-1.25498	-2.50543	0.00005	0.00250
108	BV1-	711.5000	0.89104	0.72016	239.49130	779.12082	0.00483	0.14883	0.0985	-1.34919	-2.58423	0.00005	0.00188
109	D	712.5000	0.89170	0.72036	242.20146	784.29914	0.00488	0.15070	0.0985	-1.36097	-2.59409	0.00005	0.00188
110	BV1-	720.5000	0.89673	0.72195	264.73060	826.43493	0.00531	0.16320	0.0984	-1.45518	-2.67289	0.00005	0.00125
111	D	721.5000	0.89732	0.72214	267.65273	831.79055	0.00536	0.16445	0.0984	-1.46695	-2.68274	0.00005	0.00125
112	BV1-	729.5000	0.90188	0.72363	291.87767	875.34478	0.00579	0.17195	0.0983	-1.56116	-2.76154	0.00005	0.00063
113	D	730.5000	0.90242	0.72381	295.01177	880.87771	0.00584	0.17258	0.0983	-1.57294	-2.77139	0.00005	0.00063
114	BV1-	738.5000	0.90656	0.72522	320.93248	925.85030	0.00627	0.17508	0.0982	-1.66715	-2.85018	0.00005	0.00000
115	#BV-	738.5000	0.90656	0.72522	320.93248	925.85030	0.00627	0.17508	0.0982	-1.66715	-2.85018	0.00005	0.00000
116	D	739.5000	0.90705	0.72539	324.27856	931.56051	0.00632	0.17508	0.0982	-1.67893	-2.86004	0.00005	0.00000
117	#QDV	739.5000	0.90705	0.72539	324.27856	931.56051	0.00632	0.17508	0.0982	-1.67893	-2.86004	0.00005	0.00000
118	#QDV	739.5000	0.90705	0.72539	324.27856	931.56051	0.00632	0.17508	0.0982	-1.67893	-2.86004	0.00005	0.00000
119	QDV	747.0464	0.91043	0.72673	415.81131	811.57495	0.00731	0.15948	0.0982	-11.17340	17.78885	0.00021	-0.00407
120	COV	766.9536	0.91539	0.73365	980.61251	258.33190	0.01158	0.07840	0.0982	-17.19830	10.00226	0.00021	-0.00407
121	QEV	774.5000	0.91653	0.73971	1059.18989	161.77701	0.01212	0.05393	0.0982	7.42157	3.55525	-0.00007	-0.00251
122	#QEV	774.5000	0.91653	0.73971	1059.18989	161.77701	0.01212	0.05393	0.0982	7.42157	3.55525	-0.00007	-0.00251
123	QEV	782.0464	0.91781	0.74801	782.65425	137.59044	0.01049	0.03937	0.0982	26.98547	-0.15915	-0.00035	-0.00141
124	COV	801.9536	0.93069	0.77037	77.48190	146.88022	0.00354	0.01134	0.0982	8.43751	-0.30750	-0.00035	-0.00141
125	PD4	809.5000	0.99255	0.77893	5.43391	126.36502	0.00114	0.00003	0.0982	1.67892	2.86004	-0.00029	-0.00155
126	#PD4	809.5000	0.99255	0.77893	5.43391	126.36502	0.00114	0.00003	0.0982	1.67892	2.86004	-0.00029	-0.00155
127	PD4	817.0464	1.36057	0.79127	20.46326	70.59337	-0.00104	-0.01129	0.0982	-3.78923	4.07917	-0.00029	-0.00141
128	COV	836.9536	1.39315	1.11922	468.76058	7.20889	-0.00687	-0.03934	0.0982	-18.73013	-0.89517	-0.00029	-0.00141
129	QEV	844.5000	1.39521	1.19607	678.94654	38.90415	-0.00840	-0.05391	0.0982	-7.42157	-3.55524	-0.00011	-0.00251
130	#QEV	844.5000	1.39521	1.19607	678.94654	38.90415	-0.00840	-0.05391	0.0982	-7.42157	-3.55524	-0.00011	-0.00251
131	QEV	852.0464	1.39695	1.21365	666.71890	127.95003	-0.00844	-0.07839	0.0982	8.94296	-8.94791	0.00010	-0.00407
132	COV	871.9536	1.40343	1.22398	358.79277	735.28636	-0.00649	-0.15948	0.0982	6.52512	-21.56047	0.00010	-0.00407
133	QDV	879.5000	1.40705	1.22539	324.27865	931.55841	-0.00632	-0.17508	0.0982	-1.67891	-2.86004	-0.00005	0.00000
134	#QDV	879.5000	1.40705	1.22539	324.27865	931.55841	-0.00632	-0.17508	0.0982	-1.67891	-2.86004	-0.00005	0.00000

POS		S (M)	MUX	MUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
135	DDV2	892.6700	1.41310	1.22755	370.54382	1008.60106	-0.00702	-0.17509	0.0982	-1.83401	-2.98982	-0.00005	0.00000
136	#BV+	892.6700	1.41310	1.22755	370.54382	1008.60106	-0.00702	-0.17509	0.0982	-1.83401	-2.98982	-0.00005	0.00000
137	BV1+	900.6700	1.41641	1.22879	400.64159	1057.06844	-0.00745	-0.17259	0.0981	-1.92822	-3.06860	-0.00005	0.00062
138	D	901.6700	1.41680	1.22894	404.50980	1063.21550	-0.00750	-0.17196	0.0981	-1.93999	-3.07846	-0.00005	0.00062
139	BV1+	909.6700	1.41983	1.23011	436.30334	1113.10103	-0.00792	-0.16446	0.0980	-2.03420	-3.15723	-0.00005	0.00125
140	D	910.6700	1.42020	1.23025	440.38352	1119.42535	-0.00798	-0.16322	0.0980	-2.04598	-3.16709	-0.00005	0.00125
141	BV1+	918.6700	1.42298	1.23136	473.87283	1170.72894	-0.00840	-0.15072	0.0979	-2.14019	-3.24586	-0.00005	0.00187
142	D	919.6700	1.42332	1.23150	478.16498	1177.23051	-0.00846	-0.14884	0.0979	-2.15196	-3.25571	-0.00005	0.00187
143	BV1+	927.6700	1.42589	1.23256	513.35005	1229.95206	-0.00888	-0.13134	0.0978	-2.24617	-3.33448	-0.00005	0.00250
144	#BV+	927.6700	1.42589	1.23256	513.35005	1229.95206	-0.00888	-0.13134	0.0978	-2.24617	-3.33448	-0.00005	0.00250
145	DDV3	962.6700	1.43529	1.23669	685.00785	1475.43561	-0.01075	-0.04385	0.0978	-2.65834	-3.67934	-0.00005	0.00250
146	#BV-	962.6700	1.43529	1.23669	685.00785	1475.43561	-0.01075	-0.04385	0.0978	-2.65834	-3.67934	-0.00005	0.00250
147	BV1-	970.6700	1.43709	1.23754	728.29492	1534.93498	-0.01117	-0.02635	0.0978	-2.75255	-3.75809	-0.00005	0.00187
148	D	971.6700	1.43731	1.23764	733.81179	1542.46101	-0.01122	-0.02448	0.0978	-2.76432	-3.76794	-0.00005	0.00187
149	BV1-	979.6700	1.43899	1.23845	778.79462	1603.37796	-0.01165	-0.01198	0.0978	-2.85853	-3.84668	-0.00005	0.00125
150	D	980.6700	1.43920	1.23855	784.52346	1611.08118	-0.01170	-0.01073	0.0978	-2.87031	-3.85653	-0.00005	0.00125
151	BV1-	988.6700	1.44077	1.23933	831.20205	1673.41561	-0.01213	-0.00323	0.0979	-2.96452	-3.93527	-0.00005	0.00062
152	D	989.6700	1.44096	1.23942	837.14286	1681.29600	-0.01218	-0.00261	0.0979	-2.97629	-3.94512	-0.00005	0.00062
153	BV1-	997.6700	1.44244	1.24016	885.51722	1745.04780	-0.01261	-0.00011	0.0979	-3.07050	-4.02385	-0.00005	0.00000
154	#BV-	997.6700	1.44244	1.24016	885.51722	1745.04780	-0.01261	-0.00011	0.0979	-3.07050	-4.02385	-0.00005	0.00000
155	DD3	1003.7500	1.44351	1.24071	923.28985	1794.34201	-0.01293	-0.00011	0.0979	-3.14210	-4.08375	-0.00005	0.00000
156	PF3	1007.2500	1.44412	1.24102	911.95622	1809.33018	-0.01288	-0.00011	0.0979	6.34120	-23.38166	0.00008	0.00000
157	#PF3	1007.2500	1.44412	1.24102	911.95622	1809.33018	-0.01288	-0.00011	0.0979	6.34120	-23.38166	0.00008	0.00000
158	PF3	1010.7500	1.44475	1.24129	836.63505	2129.62367	-0.01237	-0.00012	0.0979	14.91944	-46.09814	0.00021	0.00000
159	D23	1015.7500	1.44579	1.24163	694.12190	2615.56295	-0.01132	-0.00013	0.0979	13.58319	-51.08972	0.00021	0.00000
160	PD2	1019.5000	1.44671	1.24185	622.60391	2894.23198	-0.01076	-0.00014	0.0979	5.75314	-22.18421	0.00009	0.00000
161	#PD2	1019.5000	1.44671	1.24185	622.60391	2894.23198	-0.01076	-0.00014	0.0979	5.75314	-22.18421	0.00009	0.00000
162	PD2	1023.2500	1.44769	1.24205	605.60104	2939.13477	-0.01065	-0.00014	0.0979	-1.10199	10.37736	-0.00003	0.00000
163	D22	1027.7500	1.44886	1.24230	615.39306	2846.48736	-0.01079	-0.00014	0.0979	-1.11845	10.21095	-0.00003	0.00000
164	PD2	1031.5000	1.44981	1.24251	650.14034	2655.25451	-0.01113	-0.00013	0.0979	-8.27617	40.07230	-0.00015	0.00000
165	#PD2	1031.5000	1.44981	1.24251	650.14034	2655.25451	-0.01113	-0.00013	0.0979	-8.27617	40.07230	-0.00015	0.00000
166	PD2	1035.2500	1.45068	1.24276	743.02244	2262.00574	-0.01193	-0.00012	0.0979	-16.83637	63.32953	-0.00028	0.00000
167	D1	1041.1500	1.45179	1.24325	955.01851	1576.45228	-0.01358	-0.00010	0.0979	-19.09517	52.06598	-0.00028	0.00000
168	PF1	1045.7500	1.45251	1.24379	1068.94583	1213.61495	-0.01441	-0.00009	0.0979	-5.12123	27.74923	-0.00008	0.00000
169	#PF1	1045.7500	1.45251	1.24379	1068.94583	1213.61495	-0.01441	-0.00009	0.0979	-5.12123	27.74923	-0.00008	0.00000
170	PF1	1050.3500	1.45319	1.24445	1045.13431	1042.97072	-0.01428	-0.00008	0.0979	10.18260	10.16451	0.00013	0.00000
171	DD0	1152.0000	1.68747	1.47923	9.98358	9.99813	-0.00093	0.00000	0.0979	0.00088	-0.00245	0.00013	0.00000
172	#IPL	1152.0000	1.68747	1.47923	9.98358	9.99813	-0.00093	0.00000	0.0979	0.00088	-0.00245	0.00013	0.00000
173	#IPL	1152.0000	1.68747	1.47923	9.98358	9.99813	-0.00093	0.00000	0.0979	0.00088	-0.00245	0.00013	0.00000
174	DD0	1253.6500	1.92203	1.71324	1044.77782	1043.96891	0.01241	0.00009	0.0979	-10.18085	-10.16942	0.00013	0.00000
175	1PD	1258.2500	1.92269	1.71392	1215.70491	1067.73706	0.01344	0.00009	0.0979	-27.79574	5.11726	0.00032	0.00000
176	#1PD	1258.2500	1.92269	1.71392	1215.70491	1067.73706	0.01344	0.00009	0.0979	-27.79574	5.11726	0.00032	0.00000
177	1PD	1262.8500	1.92322	1.71464	1579.15342	953.92294	0.01536	0.00009	0.0979	-52.95526	19.07507	0.00052	0.00000
178	D1	1268.7500	1.92372	1.71576	2265.86315	742.15129	0.01845	0.00008	0.0979	-63.43622	16.81843	0.00052	0.00000
179	2PF	1272.5000	1.92396	1.71662	2659.77198	649.36545	0.02001	0.00007	0.0979	-40.13916	8.26809	0.00031	0.00000

POS	S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
180 #2PF	1272.5000	1.92396	1.71662	2659.77198	649.36545	0.02001	0.00007	0.0979	-40.13916	8.26809	0.00031	0.00000
181 2PF	1276.2500	1.92417	1.71757	2851.32006	614.64654	0.02075	0.00007	0.0979	-10.22697	1.11887	0.00008	0.00000
182 D22	1280.7500	1.92442	1.71875	2944.11271	604.65094	0.02111	0.00007	0.0979	-10.39362	1.10238	0.00008	0.00000
183 2PF	1284.5000	1.92462	1.71973	2899.12409	621.81915	0.02097	0.00007	0.0979	22.22304	-5.74415	-0.00015	0.00000
184 #2PF	1284.5000	1.92462	1.71973	2899.12409	621.81915	0.02097	0.00007	0.0979	22.22304	-5.74415	-0.00015	0.00000
185 2PF	1288.2500	1.92484	1.72064	2619.97464	693.23322	0.01996	0.00007	0.0979	51.17722	-13.56408	-0.00038	0.00000
186 D23	1293.2500	1.92517	1.72169	2133.20369	835.54511	0.01804	0.00008	0.0979	46.17697	-14.89830	-0.00038	0.00000
187 3PD	1296.7500	1.92545	1.72233	1892.49737	910.75582	0.01702	0.00008	0.0979	23.42220	-6.33117	-0.00020	0.00000
188 #3PD	1296.7500	1.92545	1.72233	1892.49737	910.75582	0.01702	0.00008	0.0979	23.42220	-6.33117	-0.00020	0.00000
189 3PD	1300.2500	1.92576	1.72293	1797.34074	922.06272	0.01661	0.00008	0.0979	4.09192	3.13961	-0.00003	0.00000
190 DD3	1306.3300	1.92630	1.72400	1747.94790	884.32036	0.01643	0.00008	0.0979	4.03190	3.06802	-0.00003	0.00000
191 #BV+	1306.3300	1.92630	1.72400	1747.94790	884.32036	0.01643	0.00008	0.0979	4.03190	3.06802	-0.00003	0.00000
192 BV1+	1314.3300	1.92705	1.72548	1684.06934	835.98535	0.01619	0.00258	0.0979	3.95292	2.97386	-0.00003	0.00062
193 D	1315.3300	1.92714	1.72567	1676.17337	830.04941	0.01616	0.00320	0.0979	3.94305	2.96208	-0.00003	0.00062
194 BV1+	1323.3300	1.92791	1.72725	1613.71641	783.40936	0.01591	0.01070	0.0979	3.86407	2.86792	-0.00003	0.00125
195 D	1324.3300	1.92801	1.72746	1605.99814	777.68530	0.01588	0.01195	0.0979	3.85420	2.85615	-0.00003	0.00125
196 BV1+	1332.3300	1.92882	1.72914	1544.96279	732.74030	0.01564	0.02445	0.0979	3.77522	2.76198	-0.00003	0.00187
197 D	1333.3300	1.92893	1.72936	1537.42222	727.22812	0.01561	0.02632	0.0979	3.76535	2.75020	-0.00003	0.00187
198 BV1+	1341.3300	1.92977	1.73117	1477.80848	683.97826	0.01537	0.04382	0.0979	3.68637	2.65603	-0.00003	0.00250
199 #BV+	1341.3300	1.92977	1.73117	1477.80848	683.97826	0.01537	0.04382	0.0979	3.68637	2.65603	-0.00003	0.00250
200 DDV3	1376.3300	1.93390	1.74058	1231.85612	512.48169	0.01432	0.13131	0.0979	3.34084	2.24387	-0.00003	0.00250
201 #BV-	1376.3300	1.93390	1.74058	1231.85612	512.48169	0.01432	0.13131	0.0979	3.34084	2.24387	-0.00003	0.00250
202 BV1-	1384.3300	1.93496	1.74315	1179.03450	477.33321	0.01408	0.14881	0.0978	3.26186	2.14969	-0.00003	0.00187
203 D	1385.3300	1.93509	1.74349	1172.52064	473.04561	0.01405	0.15068	0.0978	3.25199	2.13791	-0.00003	0.00187
204 BV1-	1393.3300	1.93620	1.74628	1121.12063	439.59253	0.01380	0.16318	0.0977	3.17301	2.04372	-0.00003	0.00125
205 D	1394.3300	1.93634	1.74665	1114.78448	435.51686	0.01377	0.16443	0.0977	3.16314	2.03195	-0.00003	0.00125
206 BV1-	1402.3300	1.93751	1.74968	1064.80607	403.75923	0.01353	0.17192	0.0976	3.08416	1.93776	-0.00003	0.00062
207 D	1403.3300	1.93766	1.75008	1058.64762	399.89550	0.01350	0.17255	0.0976	3.07429	1.92598	-0.00003	0.00062
208 BV1-	1411.3300	1.93889	1.75339	1010.09082	369.83338	0.01326	0.17505	0.0975	2.99531	1.83178	-0.00003	0.00000
209 #BV-	1411.3300	1.93889	1.75339	1010.09082	369.83338	0.01326	0.17505	0.0975	2.99531	1.83178	-0.00003	0.00000
210 DDV2	1424.5000	1.94105	1.75945	932.90666	323.62684	0.01287	0.17504	0.0975	2.86529	1.67668	-0.00003	0.00000
211 #QEV	1424.5000	1.94105	1.75945	932.90666	323.62684	0.01287	0.17504	0.0975	2.86529	1.67668	-0.00003	0.00000
212 QEV	1432.0464	1.94246	1.76309	736.33584	358.05362	0.01150	0.19112	0.0975	21.59239	-6.51063	-0.00033	0.00433
213 OOV	1451.9536	1.95278	1.76958	128.11214	665.29301	0.00499	0.27722	0.0975	8.96056	-8.92295	-0.00033	0.00433
214 QDV	1459.5000	1.97034	1.77131	38.94099	677.48189	0.00291	0.28417	0.0975	3.56017	7.40639	-0.00023	-0.00251
215 #QDV	1459.5000	1.97034	1.77131	38.94099	677.48189	0.00291	0.28417	0.0975	3.56017	7.40639	-0.00023	-0.00251
216 QDV	1467.0464	2.04718	1.77338	7.20349	467.73964	0.00136	0.24047	0.0975	0.89617	18.69010	-0.00018	-0.00890
217 OOV	1486.9536	2.37528	1.80603	70.72078	20.41612	-0.00228	0.06336	0.0975	-4.08684	3.78034	-0.00018	-0.00890
218 4PF	1494.5000	2.38761	2.17386	126.59636	5.43414	-0.00341	-0.00001	0.0975	-2.86530	-1.67668	-0.00011	-0.00815
219 #4PF	1494.5000	2.38761	2.17386	126.59636	5.43414	-0.00341	-0.00001	0.0975	-2.86530	-1.67668	-0.00011	-0.00815
220 4PF	1502.0464	2.39615	2.23577	147.14794	77.35865	-0.00394	-0.06337	0.0975	0.30823	-8.42241	-0.00002	-0.00890
221 OOV	1521.9536	2.41847	2.24867	137.82485	781.21427	-0.00442	-0.24050	0.0975	0.16009	-26.93443	-0.00002	-0.00890
222 QDV	1529.5000	2.42676	2.24995	162.03984	1057.21763	-0.00501	-0.28420	0.0975	-3.56018	-7.40639	-0.00014	-0.00251
223 #QDV	1529.5000	2.42676	2.24995	162.03984	1057.21763	-0.00501	-0.28420	0.0975	-3.56018	-7.40639	-0.00014	-0.00251
224 QDV	1537.0464	2.43280	2.25110	258.73379	978.76764	-0.00653	-0.27724	0.0975	-10.01685	17.16727	-0.00027	0.00433

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
225	COV	1556.9536	2.43971	2.25607	812.76459	414.99614	-0.01194	-0.19112	0.0975	-17.81383	11.15271	-0.00027	0.00433
226	QEV	1564.5000	2.44105	2.25945	932.90857	323.62684	-0.01287	-0.17504	0.0975	2.86530	1.67667	0.00003	0.00000
227	#QEV	1564.5000	2.44105	2.25945	932.90857	323.62684	-0.01287	-0.17504	0.0975	2.86530	1.67667	0.00003	0.00000
228	#QEV	1564.5000	2.44105	2.25945	932.90857	323.62684	-0.01287	-0.17504	0.0975	2.86530	1.67667	0.00003	0.00000
229	D	1565.5000	2.44122	2.25994	927.18784	320.28527	-0.01284	-0.17504	0.0975	2.85543	1.66490	0.00003	0.00000
230	#BV+	1565.5000	2.44122	2.25994	927.18784	320.28527	-0.01284	-0.17504	0.0975	2.85543	1.66490	0.00003	0.00000
231	BV1+	1573.5000	2.44263	2.26409	882.13278	294.40052	-0.01259	-0.17254	0.0974	2.77645	1.57070	0.00003	0.00063
232	D	1574.5000	2.44281	2.26463	876.58975	291.27090	-0.01256	-0.17191	0.0974	2.76658	1.55892	0.00003	0.00063
233	BV1+	1582.5000	2.44430	2.26920	832.95630	267.08177	-0.01232	-0.16441	0.0973	2.68760	1.46472	0.00003	0.00125
234	D	1583.5000	2.44449	2.26980	827.59097	264.16411	-0.01229	-0.16316	0.0973	2.67773	1.45294	0.00003	0.00125
235	BV1+	1591.5000	2.44607	2.27484	785.37914	241.67065	-0.01205	-0.15066	0.0972	2.59875	1.35874	0.00003	0.00188
236	D	1592.5000	2.44628	2.27550	780.19151	238.96495	-0.01202	-0.14878	0.0972	2.58888	1.34696	0.00003	0.00188
237	BV1+	1600.5000	2.44795	2.28108	739.40129	218.16720	-0.01178	-0.13128	0.0971	2.50990	1.25276	0.00003	0.00250
238	D	1601.5000	2.44817	2.28181	734.39136	215.67347	-0.01175	-0.12878	0.0971	2.50003	1.24098	0.00003	0.00250
239	BV1+	1609.5000	2.44995	2.28800	695.02275	196.57147	-0.01151	-0.10627	0.0970	2.42105	1.14677	0.00003	0.00313
240	#BV+	1609.5000	2.44995	2.28800	695.02275	196.57147	-0.01151	-0.10627	0.0970	2.42105	1.14677	0.00003	0.00313
241	DV3	1621.5000	2.45282	2.29843	638.33919	170.74490	-0.01115	-0.06877	0.0970	2.30258	1.00544	0.00003	0.00313
242	#BV-	1621.5000	2.45282	2.29843	638.33919	170.74490	-0.01115	-0.06877	0.0970	2.30258	1.00544	0.00003	0.00313
243	BV1-	1629.5000	2.45487	2.30625	602.12971	155.41149	-0.01091	-0.04627	0.0970	2.22360	0.91123	0.00003	0.00250
244	D	1630.5000	2.45514	2.30728	597.69238	153.60081	-0.01088	-0.04377	0.0970	2.21373	0.89945	0.00003	0.00250
245	BV1-	1638.5000	2.45733	2.31597	562.90452	139.96323	-0.01064	-0.02626	0.0971	2.13475	0.80524	0.00003	0.00188
246	D	1639.5000	2.45762	2.31711	558.64489	138.36452	-0.01061	-0.02439	0.0971	2.12488	0.79346	0.00003	0.00188
247	BV1-	1647.5000	2.45997	2.32674	525.27864	126.42279	-0.01036	-0.01188	0.0971	2.04590	0.69925	0.00003	0.00125
248	D	1648.5000	2.46027	2.32801	521.19671	125.03607	-0.01033	-0.01063	0.0971	2.03603	0.68747	0.00003	0.00125
249	BV1-	1656.5000	2.46279	2.33865	489.25207	114.79021	-0.01009	-0.00313	0.0971	1.95705	0.59326	0.00003	0.00063
250	D	1657.5000	2.46312	2.34004	485.34785	113.61547	-0.01006	-0.00251	0.0971	1.94718	0.58148	0.00003	0.00063
251	BV1-	1665.5000	2.46583	2.35170	454.82482	105.06549	-0.00982	0.00000	0.0971	1.86820	0.48727	0.00003	0.00000
252	#BV-	1665.5000	2.46583	2.35170	454.82482	105.06549	-0.00982	0.00000	0.0971	1.86820	0.48727	0.00003	0.00000
253	D	1666.5000	2.46618	2.35322	451.09829	104.10274	-0.00979	0.00000	0.0971	1.85833	0.47549	0.00003	0.00000
254	5PD	1670.2500	2.46752	2.35907	440.89000	99.87967	-0.00972	0.00000	0.0971	0.87123	0.64762	0.00001	0.00000
255	#5PD	1670.2500	2.46752	2.35907	440.89000	99.87967	-0.00972	0.00000	0.0971	0.87123	0.64762	0.00001	0.00000
256	5PD	1674.0000	2.46888	2.36521	437.95908	94.44083	-0.00972	0.00000	0.0971	-0.08754	0.79882	-0.00001	0.00000
257	DD56	1711.5100	2.48238	2.44907	447.76386	58.91841	-0.01017	0.00002	0.0971	-0.17385	0.14819	-0.00001	0.00000
258	6PF	1715.2600	2.48372	2.45923	442.83208	58.87247	-0.01014	0.00002	0.0971	1.48283	-0.13589	0.00003	0.00000
259	#6PF	1715.2600	2.48372	2.45923	442.83208	58.87247	-0.01014	0.00002	0.0971	1.48283	-0.13589	0.00003	0.00000
260	6PF	1719.0100	2.48509	2.46922	425.72899	60.97584	-0.00997	0.00002	0.0971	3.05664	-0.42763	0.00006	0.00000
261	DD6	1729.6600	2.48940	2.49487	363.37818	72.28468	-0.00930	0.00002	0.0971	2.79790	-0.63423	0.00006	0.00000
262	OOQ	1734.7900	2.49174	2.50566	335.31112	79.30241	-0.00897	0.00003	0.0971	2.67326	-0.73375	0.00006	0.00000
263	B	1751.3300	2.50077	2.53414	253.52516	108.88179	0.00562	0.00004	0.0971	2.27147	-1.05461	0.00170	0.00000
264	O	1752.1300	2.50128	2.53530	249.90636	110.58158	0.00698	0.00004	0.0971	2.25203	-1.07013	0.00170	0.00000
265	B	1768.6700	2.51363	2.55571	182.05523	151.28836	0.04863	0.00005	0.0971	1.85021	-1.39099	0.00334	0.00000
266	O	1769.4700	2.51433	2.55654	179.11044	153.52636	0.05130	0.00005	0.0971	1.83077	-1.40650	0.00334	0.00000
267	B	1786.0100	2.53195	2.57139	125.19488	205.36053	0.12001	0.00005	0.0973	1.42893	-1.72736	0.00497	0.00000
268	O	1786.8100	2.53298	2.57200	122.92414	208.13673	0.12399	0.00006	0.0973	1.40949	-1.74288	0.00497	0.00000
269	B	1803.3500	2.55916	2.58310	82.94477	271.09830	0.21977	0.00006	0.0975	1.00764	-2.06374	0.00661	0.00000

POS		S (M)	MUX	MUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
270	O	1804.1500	2.56071	2.58356	81.34810	274.41271	0.22506	0.00006	0.0975	0.98820	-2.07926	0.00661	0.00000
271	B	1820.6900	2.60037	2.59208	55.30537	348.50167	0.34790	0.00007	0.0980	0.58633	-2.40012	0.00824	0.00000
272	OG	1821.5602	2.60290	2.59247	54.30330	352.69360	0.35507	0.00007	0.0980	0.56519	-2.41700	0.00824	0.00000
273	QQD	1824.0000	2.61018	2.59356	52.68977	357.82451	0.37862	0.00007	0.0980	0.10032	0.32726	0.01108	0.00000
274	#QQD	1824.0000	2.61018	2.59356	52.68977	357.82451	0.37862	0.00007	0.0980	0.10032	0.32726	0.01108	0.00000
275	QQD	1826.4398	2.61753	2.59466	53.31186	349.53992	0.40933	0.00007	0.0980	-0.35691	3.04692	0.01413	0.00000
276	QQG	1830.7900	2.63013	2.59672	56.81728	323.58718	0.47082	0.00007	0.0980	-0.44890	2.91893	0.01413	0.00000
277	B	1847.3300	2.67023	2.60627	77.45185	235.07754	0.71814	0.00006	0.0990	-0.79866	2.43231	0.01577	0.00000
278	O	1848.1300	2.67186	2.60681	78.74324	231.20466	0.73075	0.00006	0.0990	-0.81557	2.40878	0.01577	0.00000
279	B	1864.6700	2.70010	2.62054	111.50729	159.57097	1.00513	0.00005	0.1004	-1.16532	1.92216	0.01741	0.00000
280	O	1865.4700	2.70124	2.62134	113.38534	156.51434	1.01905	0.00005	0.1004	-1.18224	1.89862	0.01741	0.00000
281	B	1882.0100	2.72094	2.64226	158.27850	101.75659	1.32049	0.00004	0.1023	-1.53198	1.41200	0.01904	0.00000
282	O	1882.8100	2.72174	2.64353	160.74320	99.51621	1.33572	0.00004	0.1023	-1.54889	1.38847	0.01904	0.00000
283	B	1899.3500	2.73582	2.67739	217.76496	61.63441	1.66422	0.00003	0.1047	-1.89861	0.90185	0.02068	0.00000
284	O	1900.1500	2.73640	2.67948	220.81628	60.21028	1.68076	0.00003	0.1047	-1.91553	0.87831	0.02068	0.00000
285	B	1916.6900	2.74681	2.73477	289.96601	39.20442	2.03632	0.00002	0.1078	-2.26523	0.39169	0.02231	0.00000
286	OH	1917.5961	2.74731	2.73848	294.08844	38.51874	2.05654	0.00002	0.1078	-2.28439	0.36503	0.02231	0.00000
287	HQF	1920.0000	2.74859	2.74857	299.69122	37.62491	2.09116	0.00002	0.1078	-0.03204	0.00907	0.00645	0.00000
288	#HQF	1920.0000	2.74859	2.74857	299.69122	37.62491	2.09116	0.00002	0.1078	-0.03204	0.00907	0.00645	0.00000
289	HQF	1922.4039	2.74988	2.75867	294.39279	38.43050	2.08745	0.00001	0.1078	2.22264	-0.34623	-0.00954	0.00000
290	OOH	1926.7900	2.75233	2.77607	275.28349	42.02832	2.04562	0.00001	0.1078	2.13414	-0.47404	-0.00954	0.00000
291	B	1943.3300	2.76328	2.82704	210.20556	65.68169	1.90141	0.00001	0.1110	1.80044	-0.95603	-0.00790	0.00000
292	O	1944.1300	2.76389	2.82896	207.33778	67.22998	1.89509	0.00001	0.1110	1.78429	-0.97934	-0.00790	0.00000
293	B	1960.6700	2.77865	2.86011	153.83308	107.59844	1.77794	0.00000	0.1140	1.45057	-1.46132	-0.00626	0.00000
294	O	1961.4700	2.77949	2.86128	151.52508	109.95520	1.77292	0.00000	0.1140	1.43443	-1.48463	-0.00626	0.00000
295	B	1978.0100	2.79997	2.88075	109.59422	167.03876	1.68283	-0.00001	0.1168	1.10069	-1.96661	-0.00463	0.00000
296	O	1978.8100	2.80114	2.88151	107.84603	170.20399	1.67913	-0.00001	0.1168	1.08455	-1.98992	-0.00463	0.00000
297	B	1995.3500	2.83010	2.89444	77.48947	244.00264	1.61610	-0.00001	0.1195	0.75080	-2.47190	-0.00299	0.00000
298	O	1996.1500	2.83175	2.89495	76.30111	247.97634	1.61370	-0.00001	0.1195	0.73465	-2.49522	-0.00299	0.00000
299	B	2012.6900	2.87191	2.90405	57.51919	338.49008	1.57773	-0.00002	0.1221	0.40089	-2.97720	-0.00136	0.00000
300	OI	2013.7059	2.87474	2.90452	56.72547	344.56935	1.57635	-0.00002	0.1221	0.38039	-3.00680	-0.00136	0.00000
301	IQD	2016.0000	2.88124	2.90556	56.02142	352.63368	1.58643	-0.00002	0.1221	-0.07179	-0.48886	0.01016	0.00000
302	#IQD	2016.0000	2.88124	2.90556	56.02142	352.63368	1.58643	-0.00002	0.1221	-0.07179	-0.48886	0.01016	0.00000
303	IQD	2018.2941	2.88770	2.90660	57.39158	349.00540	1.62307	-0.00002	0.1221	-0.52879	2.06161	0.02184	0.00000
304	QOI	2022.7900	2.89965	2.90871	62.59710	330.77181	1.72125	-0.00002	0.1221	-0.62904	1.99398	0.02184	0.00000
305	B	2039.3300	2.93511	2.91754	89.50511	268.92653	2.09599	-0.00002	0.1253	-0.99781	1.74516	0.02347	0.00000
306	O	2040.1300	2.93652	2.91801	91.11587	266.14390	2.11476	-0.00002	0.1253	-1.01564	1.73312	0.02347	0.00000
307	B	2056.6700	2.96073	2.92908	130.81259	212.92764	2.51655	-0.00002	0.1290	-1.38440	1.48431	0.02511	0.00000
308	O	2057.4700	2.96169	2.92968	133.04190	210.56238	2.53664	-0.00002	0.1290	-1.40224	1.47227	0.02511	0.00000
309	B	2074.0100	2.97848	2.94378	185.52690	165.97513	2.96549	-0.00003	0.1335	-1.77098	1.22345	0.02675	0.00000
310	O	2074.8100	2.97916	2.94455	188.37473	164.02723	2.98688	-0.00003	0.1335	-1.78881	1.21142	0.02675	0.00000
311	B	2091.3500	2.99121	2.96276	253.64740	128.06901	3.44278	-0.00003	0.1388	-2.15754	0.96260	0.02838	0.00000
312	O	2092.1500	2.99171	2.96376	257.11373	126.53848	3.46549	-0.00003	0.1388	-2.17537	0.95056	0.02838	0.00000
313	B	2108.6900	3.00068	2.98734	335.17335	99.20927	3.94844	-0.00003	0.1449	-2.54407	0.70175	0.03002	0.00000
314	OJ	2109.9750	3.00129	2.98942	341.74833	97.43064	3.98701	-0.00003	0.1449	-2.57272	0.68242	0.03002	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
315	JQF	2112.0000	3.00222	2.99276	347.73458	95.97988	4.02172	-0.00003	0.1449	-0.37058	0.03711	0.00422	0.00000
316	#JQF	2112.0000	3.00222	2.99276	347.73458	95.97988	4.02172	-0.00003	0.1449	-0.37058	0.03711	0.00422	0.00000
317	JQF	2114.0250	3.00315	2.99610	344.72405	97.12741	4.00407	-0.00003	0.1449	1.85079	-0.60625	-0.02163	0.00000
318	QQJ	2118.7900	3.00541	3.00368	327.37758	103.22461	3.90100	-0.00003	0.1449	1.78962	-0.67334	-0.02163	0.00000
319	B	2135.3300	3.01424	3.02654	271.68825	129.35047	3.55675	-0.00004	0.1510	1.57733	-0.90622	-0.02000	0.00000
320	O	2136.1300	3.01471	3.02752	269.17274	130.80943	3.54075	-0.00004	0.1510	1.56706	-0.91748	-0.02000	0.00000
321	B	2152.6700	3.02551	3.04547	220.84599	165.01156	3.22356	-0.00005	0.1565	1.35475	-1.15036	-0.01836	0.00000
322	O	2153.4700	3.02609	3.04624	218.68661	166.86116	3.20887	-0.00005	0.1565	1.34448	-1.16163	-0.01836	0.00000
323	B	2170.0100	3.03946	3.06035	177.72298	209.13958	2.91873	-0.00005	0.1615	1.13216	-1.39451	-0.01672	0.00000
324	O	2170.8100	3.04018	3.06096	175.91974	211.37980	2.90535	-0.00005	0.1615	1.12189	-1.40577	-0.01672	0.00000
325	B	2187.3500	3.05685	3.07216	142.31969	261.73451	2.64227	-0.00006	0.1660	0.90955	-1.63865	-0.01509	0.00000
326	O	2188.1500	3.05775	3.07264	140.87262	264.36536	2.63019	-0.00006	0.1660	0.89928	-1.64991	-0.01509	0.00000
327	B	2204.6900	3.07852	3.08166	114.63653	322.79635	2.39417	-0.00007	0.1701	0.68694	-1.88279	-0.01345	0.00000
328	OK	2206.2602	3.08072	3.08243	112.51094	328.74373	2.37304	-0.00007	0.1701	0.66678	-1.90490	-0.01345	0.00000
329	KQD	2208.0000	3.08320	3.08326	111.30061	332.22006	2.36102	-0.00007	0.1701	0.03112	-0.08679	-0.00038	0.00000
330	#KQD	2208.0000	3.08320	3.08326	111.30061	332.22006	2.36102	-0.00007	0.1701	0.03112	-0.08679	-0.00038	0.00000
331	KQD	2209.7398	3.08568	3.08410	112.29299	329.34387	2.37173	-0.00007	0.1701	-0.60334	1.73465	0.01270	0.00000
332	OOK	2214.7900	3.09265	3.08660	118.69674	312.13374	2.43586	-0.00007	0.1701	-0.66468	1.67317	0.01270	0.00000
333	B	2231.3300	3.11284	3.09585	144.00719	260.11525	2.65939	-0.00006	0.1743	-0.86557	1.47184	0.01433	0.00000
334	O	2232.1300	3.11372	3.09634	145.39987	257.76810	2.67086	-0.00006	0.1743	-0.87529	1.46210	0.01433	0.00000
335	B	2248.6700	3.13012	3.10759	177.67698	212.73197	2.92145	-0.00006	0.1789	-1.07617	1.26076	0.01597	0.00000
336	O	2249.4700	3.13084	3.10819	179.40662	210.72254	2.93422	-0.00006	0.1789	-1.08588	1.25102	0.01597	0.00000
337	B	2266.0100	3.14414	3.12201	218.65002	172.66875	3.21187	-0.00005	0.1839	-1.28675	1.04969	0.01760	0.00000
338	O	2266.8100	3.14472	3.12275	220.71660	170.99704	3.22595	-0.00005	0.1839	-1.29647	1.03995	0.01760	0.00000
339	B	2283.3500	3.15558	3.13980	266.92586	139.92560	3.53065	-0.00005	0.1894	-1.49732	0.83861	0.01924	0.00000
340	O	2284.1500	3.15605	3.14072	269.32934	138.59161	3.54604	-0.00005	0.1894	-1.50704	0.82888	0.01924	0.00000
341	B	2300.6900	3.16499	3.16167	322.50394	114.50252	3.87780	-0.00004	0.1955	-1.70787	0.62754	0.02088	0.00000
342	OQ	2302.3400	3.16579	3.16399	328.17298	112.46478	3.91224	-0.00004	0.1955	-1.72791	0.60745	0.02088	0.00000
343	QF	2304.0000	3.16659	3.16635	331.05066	111.45541	3.92977	-0.00004	0.1955	-0.00058	0.00237	0.00022	0.00000
344	#QF	2304.0000	3.16659	3.16635	331.05066	111.45541	3.92977	-0.00004	0.1955	-0.00058	0.00237	0.00022	0.00000
345	QF	2305.6600	3.16739	3.16871	328.17680	112.44894	3.91298	-0.00004	0.1955	1.72677	-0.60263	-0.02043	0.00000
346	OOS	2311.6400	3.17039	3.17691	307.95850	120.08985	3.79080	-0.00004	0.1955	1.65422	-0.67512	-0.02043	0.00000
347	B	2328.1800	3.17976	3.19686	256.55552	145.73914	3.46637	-0.00004	0.2014	1.45358	-0.87562	-0.01880	0.00000
348	O	2328.9800	3.18026	3.19773	254.23756	147.14790	3.45134	-0.00004	0.2014	1.44387	-0.88532	-0.01880	0.00000
349	B	2345.5200	3.19167	3.21394	209.79302	179.75073	3.15397	-0.00004	0.2068	1.24322	-1.08583	-0.01716	0.00000
350	O	2346.3200	3.19228	3.21465	207.81163	181.49581	3.14024	-0.00004	0.2068	1.23351	-1.09553	-0.01716	0.00000
351	B	2362.8600	3.20629	3.22780	170.32602	221.05217	2.86993	-0.00004	0.2117	1.03285	-1.29603	-0.01553	0.00000
352	O	2363.6600	3.20704	3.22838	168.68123	223.13358	2.85751	-0.00004	0.2117	1.02314	-1.30573	-0.01553	0.00000
353	B	2380.2000	3.22432	3.23912	138.15498	269.64347	2.61425	-0.00005	0.2162	0.82246	-1.50624	-0.01389	0.00000
354	O	2381.0000	3.22524	3.23959	136.84681	272.06121	2.60314	-0.00005	0.2162	0.81275	-1.51593	-0.01389	0.00000
355	B	2397.5400	3.24645	3.24844	113.28025	325.52464	2.38694	-0.00005	0.2203	0.61207	-1.71644	-0.01225	0.00000
356	O	2398.3400	3.24758	3.24883	112.30871	328.27870	2.37714	-0.00005	0.2203	0.60236	-1.72614	-0.01225	0.00000
357	QD	2400.0000	3.24994	3.24963	111.31507	331.14898	2.36716	-0.00005	0.2203	-0.00204	0.00209	0.00023	0.00000
358	ZDUI	4992.0000	3.66602	3.66610	111.37045	331.65695	2.36706	0.00001	0.4908	0.00000	0.00000	0.00024	0.00000

CIRCUMFERENCE = 4992.0000 M THETX = 0.22907446 RAD NUX = 3.66602 DNUX/(DP/P) = -14.91064
RADIUS = 794.5015 M THETY = 0.00000000 RAD NUY = 3.66610 DNUY/(DP/P) = -14.88975
(DS/S)/(DP/P) = 0.0000983 TGAM=(100.85021, 0.000001)

```
MAXIMA    --- BETX(  182) =  2944.11271    BETY(  162) =  2939.13477     XEQ(  316) =     4.02172     YEQ(  223) =    -0.28420
MINIMA    --- BETX(  126) =     5.43391    BETY(  219) =     5.43414     XEQ(   88) =     0.00048     YEQ(  294) =     0.00000
```

SUPERPERIOD STRUCTURE

```
     -- Printout at Block Boundaries
***   ZUD     MMM          //  .ZUD
***   ZDU     MMM          //  .ZDU
***   WUD     MMM          //  .ZUD
***   WDU     MMM          //  .ZDU
***   UU      MMM          //  .UU
***   ARC     MMM          //  .ARC
***   7SP     BML          //  UU   UU   WUD  WDU  ARC  UU   UU   ZUD  ZDU  ARC
***           CYC          //  7SP
```

POS		S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0		0.0000	0.00000	0.00000	111.37047	331.65656	2.36229	0.03067	0.0000	0.00001	0.00000	0.00016	0.00005
1	UU	2400.0000	0.25000	0.24989	111.37056	331.88772	2.35846	0.01616	0.2215	-0.00002	0.00041	0.00027	-0.00009
2	UU	4800.0000	0.49999	0.49984	111.37047	331.65642	2.37008	-0.03065	0.4432	0.00001	0.00000	0.00030	-0.00005
3	WUD	7200.0000	0.74994	0.74947	111.31504	331.14951	2.37391	-0.01622	0.6637	-0.00204	0.00209	0.00020	0.00009
4	WDU	9600.0000	0.99955	0.99943	111.37110	331.65463	2.36231	0.03067	0.8841	0.00000	0.00000	0.00016	0.00005
5	ARC	41472.0000	1.63251	1.63999	111.37047	331.65636	2.37622	-0.03196	9.2369	0.00001	0.00000	0.00022	0.00004
6	UU	43872.0000	1.88251	1.88988	111.37056	331.88792	2.36472	0.01342	9.4588	-0.00002	0.00041	0.00014	0.00010
7	UU	46272.0000	2.13250	2.13983	111.37047	331.65622	2.35615	0.03197	9.6804	0.00001	0.00000	0.00025	-0.00004
8	ZUD	48672.0000	2.88245	2.88962	111.31530	331.53818	2.36425	-0.02274	9.9010	-0.00204	0.00017	0.00022	0.00013
9	ZDU	51072.0000	3.63207	3.63944	111.37110	331.65608	2.36702	-0.00700	10.1214	0.00000	0.00000	0.00029	-0.00010
10	ARC	82944.0000	4.26502	4.28000	111.37047	331.65656	2.36229	0.03067	18.4746	0.00001	0.00000	0.00016	0.00005

```
CIRCUMFERENCE =  82944.0000 M          THETX =   6.28318530 RAD      NUX =    4.26502      DNUX/(DP/P) =    0.00000
      RADIUS = 13200.9476 M            THETY =   0.00000000 RAD      NUY =    4.28000      DNUY/(DP/P) =    0.00000
(DS/S)/(DP/P)=  0.0002227              TGAM=(  67.00457,    0.00000)

MAXIMA    --- BETX(    4) =   111.37110    BETY(    6) =   331.88792     XEQ(    5) =    2.37622     YEQ(    7) =    0.03197
MINIMA    --- BETX(    3) =   111.31504    BETY(    3) =   331.14951     XEQ(    7) =    2.35615     YEQ(    9) =   -0.00700
```

```
    **********************************************************************
***   .2X     BML          //  .ZUD .ZDU
***   .2XX    BML          //  .ZUD .ZDU
***   .2U     BML          //  .UU  .UU
***   .CLE    BML          //  .2U  .2XX
***   .CLW    BML          //  .2U  .2X
***   .SP     BML          //  .CLE .ARC .CLW .ARC $QD
    **********************************************************************

                    BETA FUNCTIONS OF COMPLETE RING

***   RING    CYC   -1   1 //  .SP       SF   SD   0.         0.
```

BETATRON FUNCTIONS OF RING

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
1	#QD	0.0000	0.00000	0.00000	111.37047	331.65656	2.36229	0.03067	0.0000	0.00001	0.00000	0.00016	0.00005
15	#QFK	96.0000	0.08323	0.08325	331.42628	111.43775	3.92290	0.02007	0.0000	0.08721	-0.02981	-0.00086	0.00000
29	#QDJ	192.0000	0.17394	0.16420	95.81927	347.58109	2.17326	0.03029	0.0253	-0.03885	0.37202	-0.00031	-0.00009
43	#QFI	288.0000	0.26118	0.28533	352.91267	55.93760	3.82067	0.00369	0.0494	0.48708	0.07127	-0.00595	-0.00025
57	#QDH	384.0000	0.41789	0.41806	37.68414	299.86964	1.00772	-0.01783	0.0736	-0.00751	0.03051	-0.01761	-0.00009
71	#QFG	480.0000	0.57295	0.55627	357.08416	52.77090	0.40839	-0.01370	0.0924	-0.32559	-0.09965	-0.00507	-0.00006
85	#QDR	578.2548	0.68064	0.67869	70.92657	367.26702	0.00526	-0.02928	0.0974	-0.31141	1.75362	0.00006	0.00020
89	#QFS	594.7711	0.71051	0.68805	109.79017	216.00694	0.00709	-0.02144	0.0984	-0.26090	1.75505	0.00004	0.00026
93	#QDT	804.4404	1.05647	0.75975	599.98792	1053.00099	-0.00501	-0.02534	0.0984	-11.44196	11.58974	-0.00012	0.00033
97	#QFU	816.4361	1.05888	0.76208	1039.58520	636.59314	-0.00693	-0.01906	0.0984	-12.71446	10.32730	-0.00011	0.00038
100	#UC	1152.0000	1.18476	0.98194	198.05580	197.98716	-0.00890	0.02213	0.0984	0.39901	-0.39855	-0.00001	0.00012
103	#QDU	1487.5639	1.40466	1.10787	636.31119	1039.24928	-0.01101	0.06019	0.0984	-10.32290	12.71000	-0.00016	-0.00075
107	#QFT	1499.5596	1.40699	1.11029	1052.54024	599.80051	-0.01389	0.04559	0.0984	-11.58486	11.43803	-0.00014	-0.00089
111	#QDS	1709.2289	1.47871	1.45619	215.98023	109.76551	-0.00204	-0.01446	0.0984	-1.75529	0.26126	0.00003	-0.00009
115	#QFR	1725.7452	1.48808	1.48606	367.24177	70.90082	-0.00187	-0.01347	0.0984	-1.75397	0.31161	0.00003	-0.00006
129	#CQD	1824.0000	1.61047	1.59380	52.78941	356.96522	0.38497	-0.03575	0.0984	0.09965	0.32506	0.01112	0.00004
143	#HQF	1920.0000	1.74865	1.74883	299.85085	37.70800	2.10550	-0.00551	0.0994	-0.03005	0.00737	0.00642	0.00027
157	#IQD	2016.0000	1.88143	1.90547	55.90681	352.88714	1.58812	0.01690	0.1093	-0.07130	-0.48651	0.01004	0.00011
171	#JQF	2112.0000	2.00260	1.99273	347.58285	95.78126	4.01304	0.01607	0.1237	-0.37245	0.03891	0.00417	0.00009
185	#KQD	2208.0000	2.08353	2.08347	111.46731	331.36812	2.35254	0.03461	0.1464	0.02973	-0.08766	-0.00042	0.00000
199	#QF	2304.0000	2.16677	2.16670	331.71128	111.41755	3.91266	0.01698	0.1716	0.00000	-0.00040	0.00022	-0.00010
213	#QD	2400.0000	2.25000	2.24989	111.37056	331.88772	2.35846	0.01616	0.1968	-0.00002	0.00041	0.00027	-0.00009
227	#QFK	2496.0000	2.33323	2.33311	331.43433	111.43727	3.92719	-0.00076	0.2215	0.08720	-0.02901	-0.00080	-0.00018
241	#QDJ	2592.0000	2.42394	2.41409	95.82138	347.34158	2.18119	-0.01844	0.2469	-0.03884	0.37218	-0.00023	-0.00007
255	#QFI	2688.0000	2.51117	2.53530	352.91102	55.91224	3.84177	-0.01374	0.2710	0.48711	0.07057	-0.00596	-0.00005
269	#QDH	2784.0000	2.66788	2.66801	37.68327	300.08234	1.01299	-0.02772	0.2953	-0.00753	0.03015	-0.01774	0.00006
283	#QFG	2880.0000	2.82294	2.80613	357.09216	52.78486	0.40533	-0.00181	0.3142	-0.32561	-0.09892	-0.00514	0.00026
297	#QDR	2978.2548	2.93064	2.92858	70.92802	366.99016	-0.00186	0.02170	0.3192	-0.31140	1.75259	-0.00006	-0.00002
301	#QFS	2994.7711	2.96050	2.93796	109.79153	215.83791	-0.00316	0.01794	0.3202	-0.26088	1.75387	-0.00005	-0.00005
305	#QDT	3204.4404	3.30647	3.00971	599.99909	1052.32583	-0.00398	0.05627	0.3202	-11.44219	11.58182	-0.00006	-0.00060
309	#QFU	3216.4361	3.30888	3.01204	1039.60518	636.19430	-0.00500	0.04404	0.3202	-12.71473	10.32032	-0.00005	-0.00068
312	#UC	3552.0000	3.43476	3.23184	198.05968	198.13981	0.00327	0.01509	0.3202	0.39904	-0.39861	0.00003	-0.00008
315	#QDU	3887.5639	3.65466	3.35773	636.29504	1038.98950	0.01220	-0.01174	0.3202	-10.32265	12.70759	0.00019	0.00009
319	#QFT	3899.5596	3.65699	3.36015	1052.51388	599.63667	0.01562	-0.00961	0.3202	-11.58458	11.43566	0.00017	0.00011
323	#QDS	4109.2289	3.72871	3.70611	215.97883	109.85417	0.00540	-0.01374	0.3202	-1.75531	0.26145	0.00002	0.00016
327	#QFR	4125.7452	3.73808	3.73596	367.24056	70.95453	0.00664	-0.00868	0.3202	-1.75400	0.31212	0.00001	0.00023
341	#CQD	4224.0000	3.86047	3.84366	52.79085	356.92559	0.38188	0.00374	0.3202	0.09965	0.32582	0.01098	0.00010
355	#HQF	4320.0000	3.99865	3.99878	299.85073	37.68152	2.08649	0.01029	0.3212	-0.03003	0.00697	0.00640	0.00014
369	#IQD	4416.0000	4.13143	4.15543	55.90528	353.11283	1.58055	0.03151	0.3310	-0.07131	-0.48731	0.01010	0.00000
383	#JQF	4512.0000	4.25260	4.24263	347.58346	95.85130	4.00662	0.00943	0.3453	-0.37248	0.03928	0.00422	-0.00017
397	#KQD	4608.0000	4.33353	4.33333	111.47002	331.36595	2.35505	-0.00136	0.3679	0.02971	-0.08686	-0.00031	-0.00010
411	#QF	4704.0000	4.41676	4.41659	331.71905	111.33935	3.92673	-0.01071	0.3931	0.00001	0.00000	0.00027	-0.00015
425	#QD	4800.0000	4.49999	4.49984	111.37047	331.65642	2.37008	-0.03065	0.4184	0.00001	0.00000	0.00030	-0.00005
439	#QFK	4896.0000	4.58323	4.58309	331.42628	111.43766	3.94784	-0.02007	0.4432	0.08721	-0.02981	-0.00082	0.00000
453	#QDJ	4992.0000	4.67394	4.66404	95.81927	347.58094	2.18930	-0.03031	0.4687	-0.03885	0.37202	-0.00031	0.00009

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
467	#QFI	5088.0000	4.76117	4.78517	352.91267	55.93763	3.84712	-0.00370	0.4929	0.48708	0.07127	-0.00603	0.00025
481	#QDH	5184.0000	4.91788	4.91790	37.68414	299.86976	1.00822	0.01780	0.5173	-0.00751	0.03051	-0.01788	0.00009
495	#QFG	5280.0000	5.07294	5.05611	357.08416	52.77086	0.38365	0.01370	0.5362	-0.32559	-0.09965	-0.00515	0.00006
510	#PD6	5388.7400	5.20753	5.18252	58.82047	442.47782	-0.00716	0.03155	0.5411	0.13362	-1.48024	0.00009	0.00005
514	#PF5	5433.7500	5.30764	5.19873	100.05652	440.41943	-0.00428	0.02882	0.5420	-0.65027	-0.86909	0.00007	-0.00001
517	#BV+	5438.5000	5.31500	5.20042	105.26531	454.32775	-0.00391	0.02897	0.5420	-0.48952	-1.86497	0.00008	0.00006
527	#BV+	5482.5000	5.36815	5.21345	171.14225	637.52105	-0.00035	0.10021	0.5420	-1.00768	-2.29850	0.00008	0.00318
529	#BV-	5494.5000	5.37856	5.21632	197.02235	694.10428	0.00062	0.13838	0.5422	-1.14899	-2.41677	0.00008	0.00318
539	#BV-	5538.5000	5.40656	5.22506	320.93277	925.85112	0.00419	0.20962	0.5421	-1.66715	-2.85019	0.00008	0.00006
541	#QDV	5539.5000	5.40705	5.22523	324.27885	931.56135	0.00427	0.20967	0.5416	-1.67893	-2.86004	0.00008	0.00006
542	#QDV	5539.5000	5.40705	5.22523	324.27885	931.56135	0.00427	0.20967	0.5416	-1.67893	-2.86004	0.00008	0.00006
546	#QFV	5574.5000	5.41652	5.23955	1059.19082	161.77722	0.00975	0.06654	0.5416	7.42158	3.55525	-0.00004	-0.00291
550	#PD4	5609.5000	5.49255	5.27877	5.43391	126.36530	0.00174	0.00639	0.5416	1.67892	2.86004	-0.00020	-0.00185
554	#QFV	5644.5000	5.89521	5.69591	678.94716	38.90415	-0.00410	-0.06261	0.5416	-7.42158	-3.55524	-0.00009	-0.00310
558	#QDV	5679.5000	5.90705	5.72523	324.27894	931.55925	-0.00427	-0.20967	0.5416	-1.67892	-2.86004	-0.00008	-0.00006
560	#BV+	5692.6700	5.91310	5.72739	370.54415	1008.60203	-0.00533	-0.21041	0.5416	-1.83401	-2.98983	-0.00008	-0.00006
568	#BV+	5727.6700	5.92588	5.73240	513.35049	1229.95342	-0.00817	-0.16864	0.5414	-2.24617	-3.33449	-0.00008	0.00244
570	#BV-	5762.6700	5.93528	5.73653	685.00840	1475.43742	-0.01100	-0.08311	0.5411	-2.65834	-3.67934	-0.00008	0.00244
578	#BV-	5797.6700	5.94244	5.74000	885.51789	1745.05012	-0.01384	-0.04133	0.5411	-3.07050	-4.02386	-0.00008	-0.00006
581	#PF3	5807.2500	5.94411	5.74086	911.95690	1889.33274	-0.01436	-0.04263	0.5412	6.34121	-23.38169	0.00007	-0.00049
585	#PD2	5819.5000	5.94670	5.74169	622.60436	2894.23596	-0.01226	-0.05230	0.5412	5.75314	-22.18425	0.00007	-0.00037
589	#PD2	5831.5000	5.94980	5.74235	650.14079	2655.25822	-0.01300	-0.04974	0.5412	-8.27618	40.07235	-0.00020	0.00078
593	#PF1	5845.7500	5.95250	5.74363	1068.94656	1213.61668	-0.01720	-0.03317	0.5412	-5.12123	27.74927	-0.00011	0.00081
596	#IPL	5952.0000	6.18747	5.97907	9.98357	9.99812	-0.00315	0.00492	0.5412	0.00088	-0.00245	0.00014	0.00035
597	#IPL	5952.0000	6.18747	5.97907	9.98357	9.99812	-0.00315	0.00492	0.5412	0.00088	-0.00245	0.00014	0.00035
600	#1PD	6058.2500	6.42268	6.21376	1215.70596	1067.73763	0.01185	0.04062	0.5412	-27.79576	5.11726	0.00030	-0.00024
604	#2PF	6072.5000	6.42395	6.21646	2659.77425	649.36585	0.01795	0.03105	0.5412	-40.13920	8.26809	0.00029	-0.00045
608	#2PF	6084.5000	6.42462	6.21957	2899.12656	621.81960	0.01898	0.02967	0.5412	22.22306	-5.74416	-0.00013	0.00021
612	#3PD	6096.7500	6.42545	6.22217	1892.49098	910.75655	0.01556	0.03517	0.5412	23.42222	-6.33117	-0.00017	0.00019
615	#BV+	6106.3300	6.42630	6.22384	1747.94938	884.32111	0.01519	0.03418	0.5412	4.03190	3.06802	-0.00001	-0.00017
623	#BV+	6141.3300	6.42976	6.23101	1477.80970	683.97899	0.01482	0.07199	0.5412	3.68637	2.65603	-0.00001	0.00233
625	#BV-	6176.3300	6.43389	6.24042	1231.85711	512.48238	0.01445	0.15355	0.5413	3.34084	2.24387	-0.00001	0.00233
633	#BV-	6211.3300	6.43889	6.25323	1010.09160	369.83400	0.01408	0.19136	0.5412	2.99531	1.83179	-0.00001	-0.00017
635	#QFV	6224.5000	6.44105	6.25929	932.90737	323.62743	0.01394	0.18913	0.5409	2.86530	1.67669	-0.00001	-0.00017
639	#QDV	6259.5000	6.47033	6.27115	38.94101	677.48330	0.00393	0.30114	0.5409	3.56017	7.40640	-0.00022	-0.00276
643	#4PF	6294.5000	6.88760	6.67370	126.59647	5.43413	-0.00119	-0.00364	0.5409	-2.86530	-1.67668	-0.00012	-0.00880
647	#QDV	6329.5000	6.92675	6.74979	162.03998	1057.21932	-0.00466	-0.31297	0.5409	-3.56018	-7.40640	-0.00018	-0.00266
651	#QFV	6364.5000	6.94105	6.75929	932.90929	323.62743	-0.01394	-0.18913	0.5409	2.86531	1.67667	0.00001	0.00017
652	#QFV	6364.5000	6.94105	6.75929	932.90929	323.62743	-0.01394	-0.18913	0.5409	2.86531	1.67667	0.00001	0.00017
654	#BV+	6365.5000	6.94122	6.75978	927.18855	320.28586	-0.01393	-0.18896	0.5409	2.85543	1.66490	0.00001	0.00017
664	#BV+	6409.5000	6.94995	6.78784	695.02323	196.57193	-0.01347	-0.11274	0.5408	2.42105	1.14677	0.00001	0.00329
666	#BV-	6421.5000	6.95281	6.79827	638.33962	170.74532	-0.01334	-0.07321	0.5404	2.30258	1.00544	0.00001	0.00329
676	#BV-	6465.5000	6.96582	6.85154	454.82508	105.06575	-0.01288	0.00301	0.5404	1.86820	0.48727	0.00001	0.00017
679	#5PD	6470.2500	6.96752	6.85891	440.89024	99.87991	-0.01288	0.00380	0.5405	0.87123	0.64762	-0.00002	0.00016
683	#6PF	6515.2600	6.98371	6.95907	442.83226	58.87245	-0.01476	0.01079	0.5405	1.48283	-0.13588	0.00001	0.00019

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
698	#CQD	6624.0000	7.11018	7.09340	52.68972	357.82361	0.37405	0.03585	0.5405	0.10032	0.32726	0.01105	-0.00004
712	#HQF	6720.0000	7.24859	7.24841	299.69115	37.62497	2.08005	0.00553	0.5413	-0.03204	0.00906	0.00646	-0.00027
726	#IQD	6816.0000	7.38124	7.40540	56.02147	352.63414	1.58475	-0.01694	0.5511	-0.07179	-0.48885	0.01024	-0.00011
740	#JQF	6912.0000	7.50221	7.49260	347.73465	95.97975	4.02722	-0.01611	0.5654	-0.37058	0.03711	0.00426	-0.00009
754	#KQD	7008.0000	7.58320	7.58310	111.30054	332.21921	2.36701	-0.03471	0.5881	0.03112	-0.08679	-0.00034	0.00000
768	#QF	7104.0000	7.66659	7.66619	331.05036	111.45530	3.94245	-0.01703	0.6134	-0.00058	0.00237	0.00023	0.00010
782	#QD	7200.0000	7.74994	7.74947	111.31504	331.14951	2.37391	-0.01622	0.6388	-0.00204	0.00209	0.00020	0.00009
796	#QFK	7296.0000	7.83312	7.83291	331.92981	111.15137	3.94357	0.00076	0.6637	0.08589	-0.03002	-0.00088	0.00018
810	#QDJ	7392.0000	7.92365	7.91402	96.00696	347.19513	2.18138	0.01848	0.6892	-0.03816	0.36927	-0.00039	0.00007
824	#QFI	7488.0000	8.01078	8.03506	352.98722	56.06531	3.82604	0.01378	0.7134	0.48928	0.07021	-0.00601	0.00005
838	#QDH	7584.0000	8.16771	8.16750	37.60850	300.17028	1.00295	0.02781	0.7376	-0.00812	0.03293	-0.01775	-0.00006
852	#QFG	7680.0000	8.32285	8.30586	357.55512	52.63808	0.38669	0.00182	0.7564	-0.32765	-0.09881	-0.00508	-0.00026
867	#PD6	7788.7400	8.45719	8.43252	58.90702	442.23779	0.00024	-0.02468	0.7613	0.13532	-1.48196	0.00016	-0.00015
871	#PF5	7833.7500	8.55727	8.44873	99.95876	440.41085	0.00729	-0.02771	0.7622	-0.64777	-0.87166	0.00014	-0.00012
874	#BV-	7838.5000	8.56464	8.45042	105.14483	454.34393	0.00791	-0.02845	0.7622	-0.48720	-1.86762	0.00013	-0.00018
884	#BV-	7882.5000	8.61788	8.46345	170.80171	637.81230	0.01345	-0.10516	0.7623	-1.00500	-2.30210	0.00013	-0.00331
886	#BV+	7894.5000	8.62831	8.46632	196.61636	694.48497	0.01496	-0.14483	0.7624	-1.14622	-2.42062	0.00013	-0.00331
896	#BV+	7938.5000	8.65636	8.47505	320.26689	926.61259	0.02050	-0.22153	0.7623	-1.66402	-2.85499	0.00013	-0.00018
898	#QDV	7939.5000	8.65686	8.47522	323.60670	932.33244	0.02063	-0.22171	0.7618	-1.67579	-2.86486	0.00013	-0.00018
899	#QDV	7939.5000	8.65686	8.47522	323.60670	932.33244	0.02063	-0.22171	0.7618	-1.67579	-2.86486	0.00013	-0.00018
903	#QFV	7974.5000	8.66635	8.48952	1057.05382	161.97999	0.03788	-0.07458	0.7618	7.40602	3.55744	-0.00026	0.00289
907	#PD4	8009.5000	8.74248	8.52867	5.43018	126.64035	0.00270	-0.02046	0.7618	1.67578	2.86486	-0.00096	0.00196
911	#QFV	8044.5000	9.14499	8.94591	677.52114	38.89983	-0.02910	0.06198	0.7618	-7.40602	-3.55743	-0.00033	0.00347
915	#QDV	8079.5000	9.15686	8.97522	323.60679	932.33034	-0.02063	0.22171	0.7618	-1.67578	-2.86486	-0.00013	0.00018
917	#BV-	8092.6700	9.16292	8.97738	369.78791	1009.50380	-0.02229	0.22409	0.7618	-1.83076	-2.99493	-0.00013	0.00018
925	#BV-	8127.6700	9.17573	8.98238	512.35715	1231.23867	-0.02669	0.18666	0.7617	-2.24264	-3.34034	-0.00013	-0.00232
927	#BV+	8162.6700	9.18514	8.98651	683.75816	1477.15867	-0.03110	0.10548	0.7613	-2.65453	-3.68595	-0.00013	-0.00232
935	#BV+	8197.6700	9.19231	8.98998	883.99094	1747.25990	-0.03551	0.06806	0.7613	-3.06641	-4.03121	-0.00013	0.00018
938	#PF3	8207.2500	9.19399	8.99083	910.40773	1891.77073	-0.03606	0.07104	0.7615	6.32920	-23.41411	0.00025	0.00090
942	#PD2	8219.5000	9.19658	8.99166	621.57236	2898.03841	-0.02982	0.08821	0.7615	5.74231	-22.21562	0.00027	0.00069
946	#PD2	8231.5000	9.19969	8.99232	649.09668	2658.79619	-0.03049	0.08470	0.7615	-8.26424	40.12352	-0.00039	-0.00126
950	#PF1	8245.7500	9.20239	8.99360	1067.27989	1215.27670	-0.03911	0.05753	0.7615	-5.11465	27.78503	-0.00019	-0.00129
953	#IPL	8352.0000	9.43716	9.22867	10.00155	9.98874	-0.00038	0.00348	0.7615	0.00197	-0.00004	0.00038	-0.00049
954	#IPL	8352.0000	9.43716	9.22867	10.00155	9.98874	-0.00038	0.00348	0.7615	0.00197	-0.00004	0.00038	-0.00049
957	#1PD	8458.2500	9.67252	9.46376	1213.31545	1068.23616	0.04093	-0.04720	0.7615	-27.74184	5.11710	0.00094	0.00019
961	#2PF	8472.5000	9.67379	9.46646	2654.57630	649.72494	0.06063	-0.03734	0.7615	-40.06152	8.27014	0.00092	0.00043
965	#2PF	8484.5000	9.67446	9.46956	2893.47972	622.22455	0.06335	-0.03713	0.7615	22.17898	-5.75040	-0.00048	-0.00039
969	#3PD	8496.7500	9.67529	9.47216	1888.82856	911.42378	0.05123	-0.04551	0.7615	23.37598	-6.33829	-0.00063	-0.00036
972	#BV-	8506.3300	9.67614	9.47383	1744.57457	885.01507	0.04928	-0.04521	0.7615	4.02329	3.06796	-0.00011	0.00012
980	#BV-	8541.3300	9.67962	9.48099	1475.01245	684.66528	0.04547	-0.08483	0.7615	3.67848	2.65631	-0.00011	-0.00238
982	#BV+	8576.3300	9.68375	9.49039	1229.58676	513.13738	0.04166	-0.16819	0.7616	3.33368	2.24449	-0.00011	-0.00238
990	#BV+	8611.3300	9.68876	9.50318	1008.29753	370.43408	0.03786	-0.20780	0.7615	2.98887	1.83274	-0.00011	0.00012
992	#QFV	8624.5000	9.69092	9.50923	931.27940	324.20071	0.03642	-0.20625	0.7611	2.85913	1.67777	-0.00011	0.00012
996	#QDV	8659.5000	9.72025	9.52108	38.89400	678.86029	0.00742	-0.33072	0.7611	3.55415	7.41985	-0.00070	0.00299
1000	#4PF	8694.5000	10.13737	9.92369	126.33143	5.42968	-0.01232	0.00254	0.7611	-2.85913	-1.67776	-0.00032	0.00960

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
1004	#QDV	8729.5000	10.17660	9.99975	161.72789	1058.84103	-0.01501	0.33897	0.7611	-3.55416	-7.41985	-0.00035	0.00292
1008	#QFV	8764.5000	10.19092	10.00923	931.28131	324.20072	-0.03642	0.20625	0.7611	2.85914	1.67775	0.00011	-0.00012
1009	#QFV	8764.5000	10.19092	10.00923	931.28131	324.20072	-0.03642	0.20625	0.7611	2.85914	1.67775	0.00011	-0.00012
1011	#BV-	8765.5000	10.19109	10.00973	925.57289	320.85697	-0.03631	0.20613	0.7611	2.84928	1.66599	0.00011	-0.00012
1021	#BV-	8809.5000	10.19983	10.03772	693.90871	197.02843	-0.03153	0.13218	0.7610	2.41581	1.14829	0.00011	-0.00324
1023	#BV+	8821.5000	10.20271	10.04813	637.34788	171.16408	-0.03022	0.09326	0.7606	2.29759	1.00708	0.00011	-0.00324
1033	#BV+	8865.5000	10.21573	10.10127	454.23261	105.32236	-0.02543	0.01930	0.7606	1.86412	0.48932	0.00011	-0.00012
1036	#5PD	8870.2500	10.21743	10.10862	440.33151	100.11482	-0.02502	0.01867	0.7607	0.86845	0.65023	0.00005	-0.00016
1040	#6PF	8915.2600	10.23364	10.20866	442.43269	58.85424	-0.02472	0.00986	0.7607	1.47959	-0.13327	0.00009	-0.00016
1055	#GQD	9024.0000	10.36002	10.34325	52.79072	356.92503	0.37712	-0.00374	0.7607	0.09964	0.32583	0.01119	-0.00010
1069	#HQF	9120.0000	10.49821	10.49837	299.85242	37.68131	2.09902	-0.01030	0.7616	-0.03003	0.00696	0.00649	-0.00014
1083	#IQD	9216.0000	10.63099	10.65502	55.90533	353.11484	1.59233	-0.03152	0.7714	-0.07130	-0.48732	0.01018	0.00000
1097	#JQF	9312.0000	10.75216	10.74222	347.58148	95.85185	4.03370	-0.00943	0.7858	-0.37247	0.03928	0.00421	0.00017
1111	#KQD	9408.0000	10.83309	10.83292	111.46957	331.36570	2.36454	0.00136	0.8086	0.02971	-0.08685	-0.00045	0.00010
1125	#QF	9504.0000	10.91632	10.91617	331.71959	111.33866	3.92844	0.01071	0.8339	0.00001	0.00000	0.00018	0.00015
1139	#QD	9600.0000	10.99955	10.99943	111.37110	331.65463	2.36231	0.03067	0.8593	0.00000	0.00000	0.00016	0.00005
1153	#QF	9696.0000	11.08278	11.08268	331.71854	111.33895	3.91772	0.02007	0.8841	0.00001	0.00000	0.00021	-0.00001
1167	#QD	9792.0000	11.16602	11.16594	111.37035	331.65662	2.35971	0.02936	0.9095	0.00000	0.00000	0.00023	-0.00006
1181	#QF	9888.0000	11.24925	11.24919	331.71735	111.33933	3.92064	0.00940	0.9342	0.00001	0.00000	0.00025	-0.00016
1195	#QD	9984.0000	11.33248	11.33245	111.37070	331.65578	2.36525	-0.00126	0.9596	0.00000	0.00000	0.00029	-0.00010
1211	#QF	10080.0000	11.41571	11.41570	331.71959	111.33867	3.93430	-0.01066	0.9844	0.00001	0.00000	0.00026	-0.00015
1227	#QD	10176.0000	11.49894	11.49896	111.37110	331.65463	2.37342	-0.03062	1.0099	0.00000	0.00000	0.00028	-0.00005
1243	#QF	10272.0000	11.58218	11.58221	331.71855	111.33895	3.94505	-0.02008	1.0348	0.00001	0.00000	0.00024	0.00001
1259	#QD	10368.0000	11.66541	11.66547	111.37035	331.65662	2.37605	-0.02941	1.0603	0.00000	0.00000	0.00020	0.00006
1275	#QF	10464.0000	11.74864	11.74872	331.71734	111.33933	3.94218	-0.00945	1.0852	0.00001	0.00000	0.00019	0.00016
1291	#QD	10560.0000	11.83187	11.83198	111.37069	331.65578	2.37053	0.00116	1.1108	0.00000	0.00000	0.00015	0.00010
1307	#QF	10656.0000	11.91510	11.91523	331.71958	111.33867	3.92855	0.01061	1.1357	0.00001	0.00000	0.00018	0.00015
1323	#QD	10752.0000	11.99833	11.99849	111.37110	331.65463	2.36236	0.03057	1.1612	0.00000	0.00000	0.00016	0.00005
1339	#QF	10848.0000	12.08157	12.08174	331.71856	111.33894	3.91775	0.02008	1.1860	0.00001	0.00000	0.00021	-0.00001
1355	#QD	10944.0000	12.16480	12.16499	111.37035	331.65661	2.35969	0.02947	1.2114	0.00000	0.00000	0.00023	-0.00006
1371	#QF	11040.0000	12.24803	12.24825	331.71734	111.33933	3.92057	0.00950	1.2361	0.00001	0.00000	0.00025	-0.00016
1387	#150	11136.0000	12.33126	12.33150	111.37069	331.65579	2.36519	-0.00106	1.2616	0.00000	0.00000	0.00029	-0.00010
5888	#QD	39936.0000	37.30080	37.30791	111.37053	331.65612	2.36374	0.00407	1.2863	0.00000	0.00000	0.00028	-0.00010
5904	#QF	40032.0000	37.38403	37.39117	331.71923	111.33875	3.93145	-0.00792	8.8342	0.00000	0.00000	0.00027	-0.00017
5920	#QD	40128.0000	37.46726	37.47442	111.37115	331.65453	2.37207	-0.02776	8.8597	0.00000	0.00000	0.00028	-0.00006
5936	#QF	40224.0000	37.55050	37.55768	331.71905	111.33883	3.94388	-0.01995	8.8845	0.00001	0.00000	0.00024	-0.00002
5952	#QD	40320.0000	37.63373	37.64093	111.37047	331.65637	2.37622	-0.03188	8.9101	0.00001	0.00000	0.00022	0.00004
5968	#QF	40416.0000	37.71696	37.72419	331.71720	111.33937	3.94385	-0.01206	8.9350	0.00001	0.00000	0.00020	0.00014
5984	#QD	40512.0000	37.80019	37.80744	111.37053	331.65613	2.37204	-0.00418	8.9606	0.00000	0.00000	0.00015	0.00010
6000	#QF	40608.0000	37.88342	37.89070	331.71923	111.33875	3.93139	0.00787	8.9854	0.00000	0.00000	0.00018	0.00017
6016	#QD	40704.0000	37.96665	37.97395	111.37115	331.65453	2.36371	0.02770	9.0110	0.00000	0.00000	0.00015	0.00006
6032	#QF	40800.0000	38.04989	38.05721	331.71906	111.33883	3.91893	0.01994	9.0357	0.00001	0.00000	0.00020	0.00002
6048	#QD	40896.0000	38.13312	38.14046	111.37047	331.65636	2.35953	0.03192	9.0612	0.00001	0.00000	0.00022	-0.00004
6064	#QF	40992.0000	38.21635	38.22372	331.71720	111.33937	3.91890	0.01211	9.0859	0.00001	0.00000	0.00024	-0.00014
6080	#QD	41088.0000	38.29958	38.30697	111.37052	331.65613	2.36368	0.00428	9.1113	0.00000	0.00000	0.00028	-0.00010

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
6094	#QF	41184.0000	38.38281	38.39023	331.71922	111.33875	3.93134	-0.00781	9.1361	0.00000	0.00000	0.00027	-0.00017
6108	#QD	41280.0000	38.46605	38.47348	111.37115	331.65453	2.37202	-0.02764	9.1616	0.00000	0.00000	0.00028	-0.00006
6122	#QF	41376.0000	38.54928	38.55674	331.71907	111.33883	3.94383	-0.01993	9.1864	0.00001	0.00000	0.00024	-0.00002
6136	#QD	41472.0000	38.63251	38.63999	111.37047	331.65636	2.37622	-0.03196	9.2120	0.00001	0.00000	0.00022	0.00004
6150	#QFK	41568.0000	38.71574	38.72324	331.42628	111.43816	3.94910	-0.01216	9.2369	0.08721	-0.02982	-0.00088	0.00014
6164	#QDJ	41664.0000	38.80645	38.80419	95.81926	347.58258	2.18435	-0.00499	9.2624	-0.03885	0.37202	-0.00040	0.00011
6178	#QFI	41760.0000	38.89369	38.92532	352.91266	55.93752	3.83003	0.00827	9.2866	0.48708	0.07127	-0.00603	0.00020
6192	#QDH	41856.0000	39.05039	39.05805	37.68414	299.86837	1.00247	0.03274	9.3109	-0.00751	0.03051	-0.01780	0.00001
6206	#QFG	41952.0000	39.20545	39.19626	357.08417	52.77103	0.38107	0.01010	9.3297	-0.32559	-0.09966	-0.00510	-0.00016
6220	#QDR	42050.2548	39.31315	39.31868	70.92656	367.26847	-0.00396	0.00183	9.3346	-0.31141	1.75363	0.00014	-0.00011
6224	#QFS	42066.7711	39.34302	39.32804	109.79017	216.00773	-0.00233	-0.00024	9.3354	-0.26090	1.75506	0.00012	-0.00013
6228	#QDT	42276.4404	39.68898	39.39974	599.98793	1053.00104	0.03034	-0.02738	9.3354	-11.44196	11.58974	0.00055	0.00025
6232	#QFU	42288.4361	39.69139	39.40207	1039.58521	636.59308	0.03965	-0.02192	9.3354	-12.71446	10.32730	0.00047	0.00029
6235	#UC	42624.0000	39.81727	39.62193	198.05579	197.98684	0.00615	-0.02571	9.3354	0.39901	-0.39855	-0.00010	-0.00001
6238	#QDU	42959.5639	40.03717	39.74786	636.31121	1039.25378	-0.03008	-0.02916	9.3354	-10.32290	12.71006	-0.00051	0.00041
6242	#QFT	42971.5596	40.03950	39.75028	1052.54028	599.80314	-0.03900	-0.02153	9.3354	-11.58486	11.43808	-0.00045	0.00048
6246	#QDS	43181.2289	40.11122	40.09618	215.98024	109.76519	-0.02010	0.01980	9.3354	-1.75529	0.26126	-0.00017	-0.00007
6250	#QFR	43197.7452	40.12059	40.12605	367.24178	70.90072	-0.02624	0.01526	9.3354	-1.75397	0.31160	-0.00012	-0.00014
6264	#GQD	43296.0000	40.24298	40.23379	52.78941	356.96665	0.37484	0.01982	9.3354	0.09965	0.32506	0.01119	-0.00010
6278	#HQF	43392.0000	40.38116	40.38882	299.85084	37.70802	2.09504	-0.00445	9.3363	-0.03005	0.00738	0.00650	-0.00029
6292	#IQD	43488.0000	40.51394	40.54546	55.90681	352.88557	1.59237	-0.03508	9.3460	-0.07130	-0.48651	0.01022	-0.00007
6306	#JQF	43584.0000	40.63511	40.63272	347.58286	95.78116	4.03783	-0.01749	9.3604	-0.37245	0.03890	0.00422	0.00007
6320	#KQD	43680.0000	40.71604	40.72346	111.46731	331.36934	2.36773	-0.02093	9.3832	0.02973	-0.08767	-0.00044	0.00008
6334	#QF	43776.0000	40.79928	40.80669	331.71127	111.41803	3.93401	-0.00251	9.4086	0.00000	-0.00040	0.00018	0.00018
6348	#QD	43872.0000	40.88251	40.88988	111.37056	331.88792	2.36472	0.01342	9.4340	-0.00002	0.00041	0.00014	0.00010
6362	#QFK	43968.0000	40.96574	40.97310	331.43433	111.43687	3.92453	0.01599	9.4588	0.08720	-0.02900	-0.00088	0.00011
6376	#QDJ	44064.0000	41.05645	41.05408	95.82138	347.34008	2.17239	0.03512	9.4842	-0.03884	0.37218	-0.00035	-0.00002
6390	#QFI	44160.0000	41.14368	41.17529	352.91103	55.91232	3.81626	0.01159	9.5082	0.48711	0.07057	-0.00595	-0.00016
6404	#QDH	44256.0000	41.30039	41.30800	37.68327	300.08361	1.00583	0.00386	9.5324	-0.00753	0.03015	-0.01760	-0.00011
6418	#QFG	44352.0000	41.45545	41.44612	357.09216	52.78473	0.40633	-0.00943	9.5512	-0.32561	-0.09891	-0.00506	-0.00021
6432	#QDR	44450.2548	41.56315	41.56857	70.92803	366.98871	0.00611	-0.03642	9.5562	-0.31140	1.75258	0.00010	0.00017
6436	#QFS	44466.7711	41.59301	41.57795	109.79154	215.83712	0.00872	-0.02797	9.5572	-0.26088	1.75386	0.00007	0.00023
6440	#QDT	44676.4404	41.93897	41.64970	599.99907	1052.32578	-0.00160	-0.05537	9.5572	-11.44219	11.58181	-0.00007	0.00064
6444	#QFU	44688.4361	41.94139	41.65203	1039.60516	636.19436	-0.00257	-0.04273	9.5572	-12.71473	10.32031	-0.00006	0.00073
6447	#UC	45024.0000	42.06727	41.87183	198.05968	198.14014	-0.01044	0.00750	9.5572	0.39904	-0.39861	-0.00002	0.00014
6450	#QDU	45359.5639	42.28716	41.99772	636.29502	1038.98500	-0.01892	0.05397	9.5572	-10.32265	12.70754	-0.00028	-0.00063
6454	#QFT	45371.5596	42.28950	42.00014	1052.51384	599.63405	-0.02404	0.04133	9.5572	-11.58458	11.43561	-0.00025	-0.00075
6458	#QDS	45581.2289	42.36122	42.34610	215.97883	109.85449	-0.00582	-0.00243	9.5572	-1.75531	0.26146	0.00001	-0.00017
6462	#QFR	45597.7452	42.37058	42.37594	367.24055	70.95462	-0.00658	-0.00489	9.5572	-1.75400	0.31213	0.00002	-0.00019
6476	#GQD	45696.0000	42.49297	42.48365	52.79085	356.92417	0.38470	-0.03000	9.5572	0.09965	0.32582	0.01116	-0.00003
6490	#HQF	45792.0000	42.63116	42.63877	299.85075	37.68149	2.10926	-0.01081	9.5582	-0.03003	0.00696	0.00644	0.00012
6504	#IQD	45888.0000	42.76394	42.79542	55.90528	353.11441	1.59049	-0.00698	9.5680	-0.07131	-0.48731	0.01004	0.00009
6518	#JQF	45984.0000	42.88511	42.88262	347.58344	95.85140	4.01727	0.00642	9.5825	-0.37248	0.03928	0.00416	0.00018
6532	#KQD	46080.0000	42.96604	42.97332	111.47002	331.36474	2.35348	0.02760	9.6052	0.02971	-0.08685	-0.00045	0.00007
6546	#QF	46176.0000	43.04927	43.05658	331.71907	111.33887	3.91129	0.01993	9.6304	0.00001	0.00000	0.00020	0.00002

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
6560	#QD	46272.0000	43.13250	43.13983	111.37047	331.65622	2.35615	0.03197	9.6557	0.00001	0.00000	0.00025	-0.00004
6574	#QFK	46368.0000	43.21574	43.22308	331.42628	111.43807	3.92164	0.01217	9.6804	0.08721	-0.02982	-0.00080	-0.00014
6588	#QDJ	46464.0000	43.30645	43.30403	95.81926	347.58244	2.17821	0.00503	9.7057	-0.03885	0.37202	-0.00022	-0.00011
6602	#QFI	46560.0000	43.39368	43.42516	352.91266	55.93756	3.83775	-0.00826	9.7297	0.48708	0.07127	-0.00594	-0.00020
6616	#QDH	46656.0000	43.55039	43.55789	37.68414	299.86849	1.01347	-0.03274	9.7540	-0.00751	0.03051	-0.01769	-0.00001
6630	#QFG	46752.0000	43.70545	43.69610	357.08417	52.77099	0.41097	-0.01011	9.7729	-0.32559	-0.09966	-0.00513	0.00016
6645	#QD6	46853.6400	43.82140	43.81987	66.10394	391.97527	0.00042	-0.00161	9.7780	-0.15610	0.94555	-0.00007	0.00010
6649	#QF5	46912.2000	43.89879	43.89105	220.23154	50.18515	-0.00320	0.00531	9.7790	1.50788	0.50794	-0.00001	0.00019
6653	#BV+	46920.5000	43.90556	43.91789	164.63930	51.29099	-0.00305	0.00739	9.7790	4.31040	-0.49488	0.00004	0.00029
6663	#BV+	46964.5000	44.23784	44.00416	15.56073	141.82893	-0.00128	0.08911	9.7790	-0.92225	-1.56279	0.00004	0.00342
6665	#BV-	46976.5000	44.30523	44.01603	54.81969	182.83097	-0.00080	0.13015	9.7791	-2.34933	-1.85404	0.00004	0.00342
6675	#BV-	47020.5000	44.34840	44.04228	491.79726	392.97208	0.00097	0.21186	9.7790	-7.58198	-2.92187	0.00004	0.00029
6677	#QDV	47021.5000	44.34872	44.04268	507.08013	398.84009	0.00101	0.21216	9.7785	-7.70090	-2.94614	0.00004	0.00029
6678	#QDV	47021.5000	44.34872	44.04268	507.08013	398.84009	0.00101	0.21216	9.7785	-7.70090	-2.94614	0.00004	0.00029
6682	#QFV	47056.5000	44.35380	44.06709	2353.27454	130.63291	0.00304	0.07561	9.7785	10.52573	0.38687	0.00000	-0.00256
6686	#QD4	47091.5000	44.36891	44.09482	58.88927	302.14705	0.00088	0.03270	9.7785	7.70218	3.44197	-0.00004	-0.00195
6690	#QFV	47126.5000	44.83687	44.48437	528.58089	9.59385	-0.00007	-0.05892	9.7785	-9.62362	-1.64760	-0.00003	-0.00369
6694	#QDV	47161.5000	44.84799	44.55527	472.26287	682.77693	-0.00092	-0.22423	9.7785	-7.69380	-3.93523	-0.00004	-0.00029
6696	#BV+	47187.5000	44.85414	44.56054	958.50347	903.73100	-0.00190	-0.23179	9.7785	-11.00776	-4.56301	-0.00004	-0.00029
6700	#BV+	47204.5000	44.85650	44.56330	1369.60323	1065.84967	-0.00267	-0.22610	9.7784	-13.17458	-4.97338	-0.00004	0.00096
6702	#BV-	47327.5000	44.86304	44.57495	6538.89076	2654.58406	-0.00767	-0.10810	9.7782	-28.85215	-7.94316	-0.00004	0.00096
6706	#BV-	47344.5000	44.86343	44.57592	7556.69975	2931.62463	-0.00836	-0.10242	9.7783	-31.01897	-8.35333	-0.00004	-0.00029
6709	#QF3	47357.0000	44.86369	44.57656	7272.53017	3591.48018	-0.00828	-0.11334	9.7784	128.28027	-81.14918	0.00014	-0.00256
6713	#QD2	47370.2150	44.86416	44.57696	2720.94069	7577.75396	-0.00515	-0.16462	9.7784	106.67452	-104.32778	0.00019	-0.00227
6717	#QD2	47382.8050	44.86527	44.57723	1389.05405	6587.97606	-0.00382	-0.15349	9.7784	15.64347	169.91310	0.00003	0.00396
6721	#QE1	47396.7500	44.86690	44.57790	1278.81770	1709.83835	-0.00387	-0.07818	9.7784	22.32631	92.86123	0.00005	0.00425
6724	#IP-	47424.0000	45.11400	44.82481	0.50093	0.50055	-0.00039	0.00004	9.7784	0.00018	0.00078	0.00014	0.00267
6725	#IP-	47424.0000	45.11400	44.82481	0.50093	0.50055	-0.00039	0.00004	9.7784	0.00018	0.00078	0.00014	0.00267
6728	#1QD	47451.2500	45.36106	45.07206	1708.46309	1279.75685	0.00364	0.06771	9.7784	-92.78748	-22.34370	0.00021	0.00118
6732	#2QF	47465.1950	45.36173	45.07369	6582.73005	1390.10214	0.00733	0.07055	9.7784	-169.77872	-15.65624	0.00020	0.00079
6736	#2QF	47477.7850	45.36199	45.07480	7571.74235	2723.03053	0.00794	0.09873	9.7784	104.24408	-106.75742	-0.00010	0.00387
6740	#3QD	47491.0000	45.36240	45.07527	3588.64824	7278.15709	0.00555	0.16140	9.7784	81.08425	-128.38048	-0.00012	0.00285
6743	#BV+	47503.5000	45.36304	45.07553	2929.33538	7562.56984	0.00513	0.16451	9.7784	8.34586	31.04211	0.00000	-0.00068
6747	#BV+	47520.5000	45.36401	45.07591	2652.54663	6543.98896	0.00506	0.16365	9.7785	7.93583	28.87438	0.00000	0.00057
6749	#BV-	47643.5000	45.37567	45.08245	1065.23206	1370.69713	0.00452	0.23425	9.7786	4.96916	13.16490	0.00000	0.00057
6753	#BV-	47660.5000	45.37842	45.08481	903.25093	959.27255	0.00444	0.23338	9.7784	4.55914	11.01653	0.00000	-0.00068
6755	#QFV	47686.5000	45.38370	45.09095	682.48040	472.64292	0.00433	0.21581	9.7783	3.93204	7.69999	0.00000	-0.00068
6759	#QDV	47721.5000	45.45458	45.10206	9.60224	529.00230	0.00118	0.32680	9.7783	1.64777	9.63140	-0.00007	-0.00330
6763	#4QF	47756.5000	45.84412	45.57005	301.81925	58.93485	-0.00050	-0.01347	9.7783	-3.43932	-7.70835	-0.00004	-0.00990
6767	#QDV	47791.5000	45.87187	45.58514	130.54829	2355.15985	-0.00143	-0.37202	9.7783	-0.38801	-10.53424	-0.00005	-0.00294
6771	#QFV	47826.5000	45.89629	45.59022	398.76161	507.48860	-0.00414	-0.21720	9.7783	2.94404	7.70706	0.00000	0.00056
6772	#QFV	47826.5000	45.89629	45.59022	398.76161	507.48860	-0.00414	-0.21720	9.7783	2.94404	7.70706	0.00000	0.00056
6774	#BV+	47827.5000	45.89669	45.59054	392.89777	492.19350	-0.00414	-0.21665	9.7783	2.91980	7.58804	0.00000	0.00056
6784	#BV+	47871.5000	45.92294	45.63368	182.89097	54.85740	-0.00394	-0.12343	9.7781	1.85308	2.35138	0.00000	0.00368
6786	#BV-	47883.5000	45.93480	45.70104	141.90803	15.56281	-0.00389	-0.07926	9.7777	1.56216	0.92317	0.00000	0.00368

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
6796	#BV-	47927.5000	46.02097	46.03343	51.37325	164.74101	-0.00369	0.01396	9.7778	0.49545	-4.31357	0.00000	0.00056
6800	#5QD	47935.8000	46.04776	46.04019	50.26486	220.37669	-0.00386	0.01767	9.7778	-0.50843	-1.50933	-0.00006	0.00028
6804	#6QF	47994.3600	46.11886	46.11752	392.26840	66.23358	-0.01088	0.01768	9.7778	-0.94482	0.15650	-0.00002	0.00015
6819	#GQD	48096.0000	46.24269	46.23343	52.68966	357.02977	0.37967	0.05031	9.7778	0.10032	0.32618	0.01112	-0.00006
6833	#HQF	48192.0000	46.38110	46.38856	299.69185	37.66817	2.09594	0.00776	9.7787	-0.03204	0.00714	0.00645	-0.00039
6847	#IQD	48288.0000	46.51375	46.54526	56.02150	353.10497	1.58805	-0.02379	9.7885	-0.07178	-0.48770	0.01013	-0.00016
6861	#JQF	48384.0000	46.63473	46.63244	347.73383	95.88389	4.02241	-0.02261	9.8029	-0.37058	0.03909	0.00421	-0.00013
6875	#KQD	48480.0000	46.71571	46.72311	111.30034	331.47322	2.35994	-0.04870	9.8256	0.03112	-0.08666	-0.00040	-0.00001
6889	#QF	48576.0000	46.79910	46.80635	331.05054	111.33569	3.92579	-0.02390	9.8509	-0.00058	0.00039	0.00021	0.00014
6903	#QD	48672.0000	46.88245	46.88962	111.31530	331.53818	2.36425	-0.02274	9.8762	-0.00204	0.00017	0.00022	0.00013
6917	#QFK	48768.0000	46.96563	46.97291	331.93040	111.40153	3.93134	0.00107	9.9010	0.08589	-0.03003	-0.00084	0.00025
6931	#QDJ	48864.0000	47.05617	47.05387	96.00689	347.58803	2.17937	0.02595	9.9264	-0.03816	0.37163	-0.00030	0.00009
6945	#QFI	48960.0000	47.14330	47.17496	352.98637	55.95970	3.83180	0.01934	9.9505	0.48928	0.07130	-0.00597	0.00007
6959	#QDH	49056.0000	47.30022	47.30766	37.60852	299.85798	1.00858	0.03902	9.9748	-0.00812	0.03090	-0.01771	-0.00009
6973	#QFG	49152.0000	47.45536	47.44592	357.55584	52.75079	0.40017	0.00255	9.9936	-0.32765	-0.09972	-0.00511	-0.00036
6988	#QD6	49253.6400	47.57109	47.56971	66.30171	392.01208	0.00007	-0.03192	9.9986	-0.15525	0.94525	0.00003	-0.00003
6992	#QF5	49312.2000	47.64841	47.64087	220.24784	50.20315	0.00185	-0.01685	9.9996	1.51009	0.50795	0.00000	0.00000
6996	#BV-	49320.5000	47.65517	47.66770	164.62207	51.31120	0.00172	-0.01827	9.9996	4.31205	-0.49511	-0.00003	-0.00029
7006	#BV-	49364.5000	47.98770	47.75394	15.58970	141.85999	0.00047	-0.09978	9.9996	-0.92495	-1.56281	-0.00003	-0.00341
7008	#BV+	49376.5000	48.05495	47.76581	54.92767	182.86161	0.00013	-0.14075	9.9997	-2.35322	-1.85400	-0.00003	-0.00341
7018	#BV+	49420.5000	48.09805	47.79205	492.43846	392.98876	-0.00112	-0.22226	9.9996	-7.59021	-2.92160	-0.00003	-0.00029
7020	#QDV	49421.5000	48.09837	47.79245	507.73790	398.85624	-0.00115	-0.22255	9.9991	-7.70923	-2.94587	-0.00003	-0.00029
7021	#QDV	49421.5000	48.09837	47.79245	507.73790	398.85624	-0.00115	-0.22255	9.9991	-7.70923	-2.94587	-0.00003	-0.00029
7025	#QEV	49456.5000	48.10345	47.81687	2356.07207	130.62242	-0.00286	-0.07865	9.9991	10.53998	0.38723	0.00001	0.00272
7029	#QD4	49491.5000	48.11854	47.84460	58.93873	302.08427	-0.00063	-0.03215	9.9991	7.71057	3.44159	0.00005	0.00205
7033	#QEV	49526.5000	48.58654	48.23416	529.38895	9.59666	0.00075	0.06223	9.9991	-9.63688	-1.64782	0.00002	0.00382
7037	#QDV	49561.5000	48.59764	48.30505	472.88267	682.76186	0.00109	0.23442	9.9991	-7.70225	-3.93474	0.00003	0.00029
7039	#BV-	49587.5000	48.60378	48.31032	959.63591	903.68747	0.00184	0.24185	9.9991	-11.01902	-4.56240	0.00003	0.00029
7043	#BV-	49604.5000	48.60614	48.31307	1371.14990	1065.78386	0.00233	0.23608	9.9990	-13.18768	-4.97268	0.00003	-0.00096
7045	#BV+	49727.5000	48.61268	48.32472	6545.29661	2654.27057	0.00590	0.11747	9.9988	-28.87855	-7.94185	0.00003	-0.00096
7049	#BV+	49744.5000	48.61306	48.32569	7564.03456	2931.26495	0.00640	0.11171	9.9989	-31.04721	-8.35193	0.00003	0.00029
7052	#QE3	49757.0000	48.61332	48.32633	7279.54537	3591.02867	0.00631	0.12321	9.9989	128.40588	-81.13861	-0.00011	0.00275
7056	#QD2	49770.2150	48.61379	48.32674	2723.53531	7576.78683	0.00389	0.17858	9.9989	106.77812	-104.31409	-0.00015	0.00244
7060	#QD2	49782.8050	48.61490	48.32700	1390.34211	6587.12792	0.00285	0.16627	9.9989	15.65986	169.89158	-0.00003	-0.00431
7064	#QE1	49796.7500	48.61653	48.32767	1279.95368	1709.61262	0.00282	0.08439	9.9989	22.34805	92.84935	-0.00004	-0.00463
7067	#IP-	49824.0000	48.86393	48.57464	0.50045	0.50061	0.00017	-0.00124	9.9989	-0.00169	0.00040	-0.00011	-0.00293
7068	#IP-	49824.0000	48.86393	48.57464	0.50045	0.50061	0.00017	-0.00124	9.9989	-0.00169	0.00040	-0.00011	-0.00293
7071	#1QD	49851.2500	49.11069	48.82183	1710.21578	1279.62336	-0.00289	-0.07531	9.9989	-92.88083	-22.34098	-0.00016	-0.00127
7075	#2QF	49865.1950	49.11136	48.82347	6589.38069	1389.94629	-0.00576	-0.07783	9.9989	-169.94840	-15.65411	-0.00015	-0.00083
7079	#2QF	49877.7850	49.11163	48.82458	7579.34604	2722.71084	-0.00621	-0.10830	9.9989	104.35061	-106.74451	0.00008	-0.00421
7083	#3QD	49891.0000	49.11203	48.82505	3592.21812	7277.28642	-0.00431	-0.17662	9.9989	81.16676	-128.36474	0.00009	-0.00309
7086	#BV-	49903.5000	49.11267	48.82530	2932.20553	7561.65596	-0.00395	-0.17979	9.9989	8.35590	31.03873	0.00001	0.00076
7090	#BV-	49920.5000	49.11364	48.82569	2655.08515	6543.18626	-0.00383	-0.17753	9.9991	7.94530	28.87122	0.00001	-0.00049
7092	#BV+	50043.5000	49.12529	48.83223	1065.94929	1370.48725	-0.00300	-0.23801	9.9992	4.97450	13.18325	0.00001	-0.00049
7096	#BV+	50060.5000	49.12805	48.83459	903.79635	959.11534	-0.00288	-0.23575	9.9990	4.56391	11.01509	0.00001	0.00076

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
7098	#QEV	50086.5000	49.13331	48.84073	682.80058	472.55256	-0.00270	-0.21603	9.9989	3.93593	7.69887	0.00001	0.00076
7102	#QDV	50121.5000	49.20423	48.85185	9.58977	528.87665	-0.00059	-0.32429	9.9989	1.64729	9.62942	0.00005	0.00333
7106	#4QF	50156.5000	49.59377	49.31982	302.23902	58.92927	0.00076	0.01527	9.9989	-3.44252	-7.70724	0.00002	0.00992
7110	#QDV	50191.5000	49.62150	49.33492	130.64850	2354.77033	0.00098	0.37555	9.9989	-0.38635	-10.53214	0.00002	0.00292
7114	#QEV	50226.5000	49.64591	49.34000	398.81746	507.39320	0.00242	0.21761	9.9989	2.94655	7.70596	-0.00001	-0.00064
7115	#QEV	50226.5000	49.64591	49.34000	398.81746	507.39320	0.00242	0.21761	9.9989	2.94655	7.70596	-0.00001	-0.00064
7117	#BV-	50227.5000	49.64631	49.34032	392.94864	492.10029	0.00241	0.21697	9.9989	2.92228	7.58695	-0.00001	-0.00064
7127	#BV-	50271.5000	49.67256	49.38347	182.78907	54.83867	0.00211	0.12015	9.9987	1.85408	2.35078	-0.00001	-0.00376
7129	#BV+	50283.5000	49.68443	49.45086	141.78711	15.55695	0.00203	0.07499	9.9983	1.56275	0.92270	-0.00001	-0.00376
7139	#BV+	50327.5000	49.77074	49.78320	51.26559	164.75515	0.00173	-0.02184	9.9983	0.49456	-4.31356	-0.00001	-0.00064
7143	#5QD	50335.8000	49.79759	49.78996	50.16301	220.38832	0.00177	-0.02577	9.9984	-0.50795	-1.50902	0.00002	-0.00023
7147	#6QF	50394.3600	49.86880	49.86731	391.94020	66.21410	0.00470	-0.01545	9.9984	-0.94596	0.15672	0.00001	0.00005
7162	#CQD	50496.0000	49.99254	49.98326	52.79072	356.92394	0.38273	-0.02523	9.9984	0.09964	0.32582	0.01101	0.00009
7176	#HQF	50592.0000	50.13072	50.13839	299.85242	37.68147	2.09150	0.00228	9.9993	-0.03003	0.00696	0.00641	0.00030
7190	#IQD	50688.0000	50.26350	50.29504	55.90533	353.11475	1.58250	0.03307	10.0091	-0.07130	-0.48731	0.01008	0.00008
7204	#JQF	50784.0000	50.38467	50.38223	347.58148	95.85145	4.00818	0.01840	10.0235	-0.37247	0.03928	0.00421	-0.00004
7218	#KQD	50880.0000	50.46560	50.47293	111.46957	331.36456	2.35432	0.02586	10.0461	0.02971	-0.08685	-0.00034	-0.00006
7232	#QF	50976.0000	50.54883	50.55619	331.71960	111.33876	3.92296	0.00631	10.0713	0.00001	0.00000	0.00026	-0.00017
7246	#QD	51072.0000	50.63207	50.63944	111.37110	331.65608	2.36702	-0.00700	10.0966	0.00000	0.00000	0.00029	-0.00010
7260	#QF	51168.0000	50.71530	50.72270	331.71853	111.33933	3.93727	-0.01334	10.1214	0.00001	0.00000	0.00026	-0.00013
7274	#QD	51264.0000	50.79853	50.80595	111.37034	331.65632	2.37464	-0.03288	10.1469	0.00000	0.00000	0.00026	-0.00003
7288	#QF	51360.0000	50.88176	50.88921	331.71735	111.33885	3.94572	-0.01967	10.1718	0.00001	0.00000	0.00023	0.00004
7302	#QD	51456.0000	50.96499	50.97246	111.37070	331.65462	2.37551	-0.02593	10.1974	0.00000	0.00000	0.00019	0.00007
7318	#QF	51552.0000	51.04823	51.05572	331.71960	111.33876	3.93988	-0.00637	10.2223	0.00001	0.00000	0.00019	0.00017
7334	#QD	51648.0000	51.13146	51.13897	111.37110	331.65607	2.36876	0.00690	10.2479	0.00000	0.00000	0.00015	0.00010
7350	#QF	51744.0000	51.21469	51.22223	331.71854	111.33933	3.92556	0.01329	10.2727	0.00001	0.00000	0.00018	0.00014
7366	#QD	51840.0000	51.29792	51.30548	111.37035	331.65633	2.36114	0.03285	10.2982	0.00000	0.00000	0.00018	0.00003
7382	#QF	51936.0000	51.38115	51.38873	331.71735	111.33885	3.91707	0.01968	10.3230	0.00001	0.00000	0.00022	-0.00004
7398	#QD	52032.0000	51.46438	51.47199	111.37070	331.65463	2.36023	0.02600	10.3484	0.00000	0.00000	0.00025	-0.00007
7414	#QF	52128.0000	51.54762	51.55524	331.71959	111.33876	3.92287	0.00642	10.3731	0.00001	0.00000	0.00026	-0.00017
7430	#QD	52224.0000	51.63085	51.63850	111.37110	331.65607	2.36696	-0.00680	10.3985	0.00000	0.00000	0.00029	-0.00010
7446	#QF	52320.0000	51.71408	51.72175	331.71855	111.33933	3.93717	-0.01325	10.4233	0.00001	0.00000	0.00026	-0.00014
7462	#QD	52416.0000	51.79731	51.80501	111.37035	331.65633	2.37460	-0.03281	10.4488	0.00000	0.00000	0.00026	-0.00003
7478	#QF	52512.0000	51.88054	51.88826	331.71734	111.33885	3.94571	-0.01969	10.4737	0.00001	0.00000	0.00023	0.00004
7494	#150	52608.0000	51.96378	51.97152	111.37070	331.65463	2.37553	-0.02607	10.4993	0.00000	0.00000	0.00019	0.00007
11995	#QD	81408.0000	76.93331	76.94793	111.37054	331.65472	2.37603	-0.02916	10.5242	0.00000	0.00000	0.00020	0.00006
12011	#QF	81504.0000	77.01655	77.03118	331.71925	111.33869	3.94201	-0.00921	10.0720	0.00000	0.00000	0.00019	0.00016
12027	#QD	81600.0000	77.09978	77.11444	111.37115	331.65576	2.37039	0.00160	10.0976	0.00000	0.00000	0.00015	0.00010
12043	#QF	81696.0000	77.18301	77.19769	331.71904	111.33930	3.92828	0.01082	10.1225	0.00001	0.00000	0.00018	0.00015
12059	#QD	81792.0000	77.26624	77.28095	111.37046	331.65655	2.36224	0.03076	10.1480	0.00001	0.00000	0.00016	0.00005
12075	#QF	81888.0000	77.34947	77.36420	331.71720	111.33896	3.91766	0.02006	10.1727	0.00001	0.00000	0.00021	-0.00001
12091	#QD	81984.0000	77.43270	77.44746	111.37053	331.65472	2.35972	0.02921	10.1982	0.00000	0.00000	0.00024	-0.00006
12107	#QF	82080.0000	77.51594	77.53071	331.71924	111.33869	3.92074	0.00927	10.2229	0.00000	0.00000	0.00025	-0.00016
12123	#QD	82176.0000	77.59917	77.61397	111.37115	331.65575	2.36533	-0.00150	10.2483	0.00000	0.00000	0.00029	-0.00010
12139	#QF	82272.0000	77.68240	77.69722	331.71904	111.33930	3.93445	-0.01077	10.2731	0.00001	0.00000	0.00026	-0.00015

POS	S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
12155 #QD	82368.0000	77.76563	77.78048	111.37047	331.65655	2.37349	-0.03071	18.2986	0.00001	0.00000	0.00028	-0.00005
12171 #QF	82464.0000	77.84886	77.86373	331.71720	111.33896	3.94511	-0.02006	18.3234	0.00001	0.00000	0.00023	0.00001
12187 #QD	82560.0000	77.93210	77.94699	111.37053	331.65472	2.37604	-0.02927	18.3490	0.00000	0.00000	0.00020	0.00006
12201 #QF	82656.0000	78.01533	78.03024	331.71923	111.33869	3.94209	-0.00932	18.3739	0.00000	0.00000	0.00019	0.00016
12215 #QD	82752.0000	78.09856	78.11349	111.37115	331.65574	2.37045	0.00140	18.3995	0.00000	0.00000	0.00015	0.00010
12229 #QF	82848.0000	78.18179	78.19675	331.71905	111.33930	3.92839	0.01072	18.4244	0.00001	0.00000	0.00018	0.00015
12243 #QD	82944.0000	78.26502	78.28000	111.37047	331.65656	2.36229	0.03067	18.4499	0.00001	0.00000	0.00016	0.00005

CIRCUMFERENCE = 82944.0000 M THETX = 6.28318530 RAD NUX = 78.26502 DNUX/(DP/P) = -204.21975
RADIUS = 13200.9476 M THETY = 0.00000000 RAD NUY = 78.28000 DNUY/(DP/P) = -204.25228
(DS/S)/(DP/P)= 0.0002227 TGAM=(67.00457, 0.00000)

MAXIMA	--- BETX(7077) =	7957.61213	BETY(6714) =	7955.92983	XEQ(6306) =	4.03783	YEQ(7110) =	0.37555
MINIMA	--- BETX(7068) =	0.50045	BETY(6725) =	0.50055	XEQ(6906) =	-0.00004	YEQ(715) =	0.00000

SEXTUPOLE CORRECTIONS ----- DKSF = 0.98728308E-02 DKSD =-0.15910940E-01 KSF = 0.98728308E-02 KSD =-0.15910940E-01

```
BETATRON FUNCTIONS OF  RING
AMPLITUDE DEPENDENCE OF TUNES DUE TO SEXTUPOLES
NU-X =  78.265022 - 0.266E+04EX  - 0.908E+04EY     DNUX/(DPP/P) =    0.00000
NU-Y =  78.280004 - 0.908E+04EX  - 0.177E+04EY     DNUY/(DPP/P) =    0.00000
-----------------------------------------------------------------------------------------------------------------------------

     ----------------------------------------------------------------------

 ***          FIN    0   0  // CORE USE SUMMARY                          MAXIMUM                 USED        UNUSED
                                  STORE  (ELEMENT STORAGE)                 24000 (LMAX)          16276          7724
                                  INFF   (ELEMENT DEFINITIONS)              1000 (MAX)             524           476

=================================================================================================================
END OF SYNCH RUN  L96
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SYNCH VERSION VAX.8601

SYNCH RUN L96 CLUSTERED LATTICE WITH 96 METER LENGTH HALF-CELLS
25-APR-86 12:49:37

```
                  > U   U   XX  XX >
                ^                    v
                  < X   X   U   U  <

     Injection Optics 3-31-86
***   B*     =            //   0.5
***   BL*    =            //  10.0
***   NUX    =            //  78.265
***   NUY    =            //  78.280
     6.60 T, 212 T/M, 235 T/M MAXIMUM IN Q1,Q2,Q3 TRIPLET, 60 DEGREE CELLS
     ARCS ---
     96 METER HALF-CELLS, FIVE 16.54 M DIPOLES
     3.32 M QUADRUPOLE, 5.98 M SPOOL DRIFT, 0.8 M DIPOLE SEPARATION DRIFTS.
     ALL SPOOLS DOWNSTREAM FROM QUADS.

     VERTICAL BEAM SEPARATING SECTION --- CONTAINS STEP WITH TWO 90 DEGREE CELLS
                                      --- 70 CM BEAMLINE SEPARATION
                                      --- SPLITTER MAGNET 79.5 METERS FROM IP
     ARCS CONTAIN 166 CELLS EACH
     TWO 1152 METER LONG CROSSING STRAIGHTS WITH +- 20 METERS FREE SPACE (X)
     TWO 1152 METER LONG CROSSING STRAIGHTS WITH +-101.75 METERS FREE SPACE (XX)
     2400 METERS BETWEEN IP'S
     FOUR 1152 METER UTILITY STRAIGHTS (U)
     STRAIGHTS SEPARATED BY 6 1/2 CELL DISPERSION SUPPRESSORS
     STRAIGHTS X, XX, AND U IMBEDDED IN 2400 M LONG SUPER-CELLS Z, ZZ, AND UU
     ONE SUPERPERIOD, CROSSINGS ALL HAVE DF SEQUENCE, 90 DEG PHASE INTERVALS
     BETWEEN STRAIGHTS (MOD 180 DEG)
     3840 DIPOLES IN RING, CIRCUMFERENCE 82.944 KM, TUNE 78 1/3
     ..........................................................................
***   BRHO   =            //  66712.8
***   B0     =            //  6.59967
***   RHO    =            //  10108.5034

***   ...    ....         //  ....................
```

POS	S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
1 #QF	0.0000	0.00000	0.00000	331.57425	111.17377	3.92343	0.00000	0.0000	0.00001	0.00000	0.00022	0.00000
17 #QD	96.0000	0.08333	0.08333	111.17303	331.58092	2.36184	0.00000	0.0000	0.00000	0.00000	0.00022	0.00000

```
CIRCUMFERENCE =  63744.0000 M        THETX =   5.43233729 RAD      NUX =   55.33330      DNUX/(DP/P) =  -60.97341
       RADIUS = 10145.1727 M         THETY =   0.00000000 RAD      NUY =   55.33330      DNUY/(DP/P) =  -60.98494
(DS/S)/(DP/P)=  0.0002615             TGAM=(  61.84149,   0.00000)

MAXIMA    --- BETX(    1) =   331.57425    BETY(   17) =   331.58092    XEQ(   32) =     3.92343    YEQ(   32) =     0.00000
MINIMA    --- BETX(   17) =   111.17303    BETY(   32) =   111.17377    XEQ(   17) =     2.36184    YEQ(   32) =     0.00000
```

```
     Arc Cells
     Injection values
***   NUX    =          //  78.26577
***   NUY    =          //  78.28132
***   MUX    CALC       //  RCL  NUX  23.  -    332. /
***   MUY    CALC       //  RCL  NUY  23.  -    332. /
***          FITQ       //  SRG  CF   KF   KD       1    1MUX       MUY

PARAMETER REPLACEMENTS MADE BY FITTING
       1  OF  KF   =       0.003170730343              1  OF  KD   =       -0.003171353911
***   PR1    PRNT        //  LB   LQF  LQD  O    OO   OOO  OOS
  *                      //  B0   RHO  RHOI KF   KD   NUX  NUY  MUX  MUY
-----------------------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
       LB                 LQF                LQD                O                  OO
      16.540000000        1.660000000        1.660000000        0.800000000        2.000000000
       OOO                OOS                B0                 RHO                RHOI
       3.980000000        5.980000000        6.599670000    10108.503400000        0.000098927
       KF                 KD                 NUX                NUY                MUX
       0.003170730       -0.003171354       78.265770000       78.281320000        0.166463163
       MUY
       0.166509996
-----------------------------------------------------------------------------------------------------------
***   CC     CYC      100 //  .C
-----------------------------------------------------------------------------------------------------------
```

POS	S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0	0.0000	0.00000	0.00000	331.71921	111.33851	3.93141	0.00000	0.0000	0.00001	0.00000	0.00022	0.00000
1 #QF	0.0000	0.00000	0.00000	331.71921	111.33851	3.93141	0.00000	0.0000	0.00001	0.00000	0.00022	0.00000
2 QF	1.6600	0.00080	0.00237	328.83759	112.33896	3.91462	0.00000	0.0000	1.73085	-0.60444	-0.02044	0.00000
3 OO	3.6600	0.00178	0.00517	321.96277	114.80532	3.87373	0.00000	0.0000	1.70655	-0.62874	-0.02044	0.00000
4 SF	3.6600	0.00178	0.00517	321.96277	114.80532	3.87373	0.00000	0.0000	1.70655	-0.62874	-0.02044	0.00000
5 OOO	7.6400	0.00379	0.01057	308.57110	120.00265	3.79238	0.00000	0.0000	1.65819	-0.67712	-0.02044	0.00000
6 B	24.1800	0.01314	0.03053	257.04177	145.72658	3.46779	0.00000	0.0059	1.45725	-0.87814	-0.01881	0.00000
7 O	24.9800	0.01364	0.03139	254.71796	147.13938	3.45275	0.00000	0.0059	1.44752	-0.88786	-0.01881	0.00000
8 B	41.5200	0.02502	0.04761	210.15771	179.83480	3.15522	0.00000	0.0113	1.24656	-1.08889	-0.01717	0.00000
9 O	42.3200	0.02563	0.04831	208.17099	181.58480	3.14148	0.00000	0.0113	1.23684	-1.09861	-0.01717	0.00000
10 B	58.8600	0.03962	0.06146	170.58032	221.25172	2.87101	0.00000	0.0163	1.03587	-1.29963	-0.01553	0.00000
11 O	59.6600	0.04037	0.06203	168.93071	223.33891	2.85858	0.00000	0.0163	1.02615	-1.30936	-0.01553	0.00000
12 B	76.2000	0.05763	0.07276	138.31004	269.97734	2.61517	0.00000	0.0207	0.82516	-1.51038	-0.01390	0.00000
13 O	77.0000	0.05855	0.07323	136.99756	272.40172	2.60405	0.00000	0.0207	0.81544	-1.52010	-0.01390	0.00000
14 B	93.5400	0.07974	0.08207	113.34724	326.01164	2.38769	0.00000	0.0248	0.61445	-1.72113	-0.01226	0.00000
15 O	94.3400	0.08087	0.08246	112.37191	328.77322	2.37788	0.00000	0.0248	0.60472	-1.73085	-0.01226	0.00000
16 QD	96.0000	0.08323	0.08326	111.37098	331.65483	2.36789	0.00000	0.0248	0.00000	0.00000	0.00022	0.00000
17 #QD	96.0000	0.08323	0.08326	111.37098	331.65483	2.36789	0.00000	0.0248	0.00000	0.00000	0.00022	0.00000
18 QD	97.6600	0.08560	0.08405	112.37189	328.77322	2.37861	0.00000	0.0248	-0.60472	1.73085	0.01270	0.00000
19 OO	99.6600	0.08840	0.08503	114.83938	321.89844	2.40402	0.00000	0.0248	-0.62902	1.70654	0.01270	0.00000
20 SD	99.6600	0.08840	0.08503	114.83938	321.89844	2.40402	0.00000	0.0248	-0.62902	1.70654	0.01270	0.00000
21 OOO	103.6400	0.09380	0.08704	120.03892	308.50689	2.45458	0.00000	0.0248	-0.67739	1.65817	0.01270	0.00000
22 B	120.1800	0.11375	0.09640	145.77156	256.97958	2.67824	0.00000	0.0290	-0.87839	1.45715	0.01434	0.00000
23 O	120.9800	0.11462	0.09689	147.18475	254.65592	2.68971	0.00000	0.0290	-0.88811	1.44742	0.01434	0.00000
24 B	137.5200	0.13082	0.10829	179.88764	210.10010	2.94043	0.00000	0.0336	-1.08909	1.24640	0.01598	0.00000
25 O	138.3200	0.13153	0.10889	181.63797	208.11364	2.95321	0.00000	0.0336	-1.09881	1.23668	0.01598	0.00000

26	B	154.8600	0.14467	0.12289	221.31075	170.52932	3.23098	0.00000	0.0387	-1.29978	1.03565	0.01761	0.00000
27	O	155.6600	0.14524	0.12364	223.39818	168.88006	3.24507	0.00000	0.0387	-1.30950	1.02593	0.01761	0.00000
28	B	172.2000	0.15597	0.14090	270.04040	138.26724	3.54990	0.00000	0.0442	-1.51046	0.82491	0.01925	0.00000
29	O	173.0000	0.15644	0.14182	272.46492	136.95516	3.56530	0.00000	0.0442	-1.52018	0.81518	0.01925	0.00000
30	B	189.5400	0.16528	0.16302	326.07607	113.31384	3.89718	0.00000	0.0503	-1.72112	0.61416	0.02088	0.00000
31	O	190.3400	0.16566	0.16414	328.83763	112.33896	3.91388	0.00000	0.0503	-1.73084	0.60444	0.02088	0.00000
32	QF	192.0000	0.16646	0.16651	331.71921	111.33851	3.93141	0.00000	0.0503	0.00001	0.00000	0.00022	0.00000

CIRCUMFERENCE = 19200.0000 M THETX = 1.63624617 RAD NUX = 16.64632 DNUX/(DP/P) = -18.34072
RADIUS = 3055.7749 M THETY = 0.00000000 RAD NUY = 16.65100 DNUY/(DP/P) = -18.34573
(DS/S)/(DP/P) = 0.0002621 TGAM=(61.77090, 0.00000)

MAXIMA	--- BETX(1) =	331.71921	BETY(17) =	331.65483	XEQ(32) =	3.93141	YEQ(32) =	0.00000
MINIMA	--- BETX(16) =	111.37098	BETY(1) =	111.33851	XEQ(17) =	2.36789	YEQ(32) =	0.00000

*** ... . // .....

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     Dispersion Suppressor Parameters
***   PR2     PRNT          //  KCC   KHH   KII   KJJ   KKK
  *                          //  LQC   LQH   LQI   LQJ   LQK
  *                          //  OOC   OOH   OOI   OOJ   OOK   OOQ
  *                          //  OC    OH    OI    OJ    OK    OQ
-------------------------------------------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
       KCC                  KHH                  KII                  KJJ                  KKK
       0.003177800          -0.003177800         0.003177800          -0.003177800         0.003177800
       LQC                  LQH                  LQI                  LQJ                  LQK
       2.439786100          2.403893200          2.294079200          2.025018100          1.739815800
       OOC                  OOH                  OOI                  OOJ                  OOK
       4.350213900          4.386106800          4.495920800          4.764981900          5.050184200
       OOQ                  OC                   OH                   OI                   OJ
       5.130000000          0.870213900          0.906106800          1.015920800          1.284981900
       OK                   OQ
       1.570184200          1.650000000
-------------------------------------------------------------------------------------------------------------------------------

***    ...    ....          //  ...................
```

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    Utility Module ---
***   PR3     PRNT          //  LRS  LUE  LTU  LUC  LQR  LQS  LQT  LQU
-------------------------------------------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
       LRS                    LUE                    LTU                    LUC                    LQR
       8.372442200          200.000000000          1.000000000          330.008618600          3.914832200
       LQS                    LQT                    LQU
       4.228946700            5.440386700          5.555304000
-------------------------------------------------------------------------------------------------------------------------------
***    UUC     MMM           //  .UU  .CD
***    `2U     BML           //  .UU  UUC
***    2U      BEST          //  `2U
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BETATRON FUNCTIONS OF 2U

POS		S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0		0.0000	0.00000	0.00000	111.37098	331.65483	2.36707	0.00000	0.0000	0.00000	0.00000	0.00024	0.00000
1	#QD	0.0000	0.00000	0.00000	111.37098	331.65483	2.36707	0.00000	0.0000	0.00000	0.00000	0.00024	0.00000
2	QD	1.6600	0.00237	0.00080	112.37189	328.77322	2.37782	0.00000	0.0000	-0.60472	1.73085	0.01272	0.00000
3	OOQ	6.7900	0.00943	0.00335	118.89613	311.33457	2.44309	0.00000	0.0000	-0.66706	1.66850	0.01272	0.00000
4	B	23.3300	0.02958	0.01262	144.28705	259.46552	2.66705	0.00000	0.0042	-0.86806	1.46748	0.01436	0.00000
5	O	24.1300	0.03046	0.01311	145.68371	257.12534	2.67854	0.00000	0.0042	-0.87778	1.45775	0.01436	0.00000
6	B	40.6700	0.04684	0.02439	178.04489	212.22779	2.92955	0.00000	0.0088	-1.07876	1.25673	0.01599	0.00000
7	O	41.4700	0.04755	0.02499	179.77869	210.22480	2.94235	0.00000	0.0088	-1.08848	1.24701	0.01599	0.00000
8	B	58.0100	0.06083	0.03884	219.10977	172.29875	3.22042	0.00000	0.0138	-1.28945	1.04598	0.01763	0.00000
9	O	58.8100	0.06140	0.03958	221.18067	170.63296	3.23452	0.00000	0.0138	-1.29917	1.03626	0.01763	0.00000
10	B	75.3500	0.07224	0.05667	267.48122	139.67840	3.53965	0.00000	0.0193	-1.50013	0.83524	0.01927	0.00000
11	O	76.1500	0.07271	0.05758	269.88921	138.34980	3.55506	0.00000	0.0193	-1.50985	0.82551	0.01927	0.00000
12	B	92.6900	0.08163	0.07857	323.15870	114.36674	3.88725	0.00000	0.0254	-1.71079	0.62449	0.02090	0.00000
13	OK	94.2602	0.08239	0.08078	328.56117	112.43557	3.92006	0.00000	0.0254	-1.72987	0.60541	0.02090	0.00000
14	QFK	96.0000	0.08323	0.08325	331.42829	111.43735	3.93753	0.00000	0.0254	0.08721	-0.02982	-0.00084	0.00000
15	#QFK	96.0000	0.08323	0.08325	331.42829	111.43735	3.93753	0.00000	0.0254	0.08721	-0.02982	-0.00084	0.00000
16	QFK	97.7398	0.08407	0.08573	327.95811	112.64441	3.91715	0.00000	0.0254	1.90095	-0.66619	-0.02257	0.00000
17	OOK	102.7900	0.08660	0.09265	309.11656	119.70008	3.80318	0.00000	0.0254	1.82991	-0.73092	-0.02257	0.00000
18	B	119.3300	0.09602	0.11252	252.43096	147.38544	3.44342	0.00000	0.0313	1.59727	-0.94292	-0.02093	0.00000
19	O	120.1300	0.09653	0.11338	249.88434	148.90231	3.42668	0.00000	0.0313	1.58602	-0.95318	-0.02093	0.00000
20	B	136.6700	0.10828	0.12932	201.26705	183.93983	3.09398	0.00000	0.0367	1.35336	-1.16518	-0.01930	0.00000
21	O	137.4700	0.10892	0.13001	199.11069	185.81231	3.07854	0.00000	0.0367	1.34210	-1.17543	-0.01930	0.00000
22	B	154.0100	0.12375	0.14280	158.56227	228.20199	2.77289	0.00000	0.0415	1.10943	-1.38743	-0.01766	0.00000
23	O	154.8100	0.12456	0.14336	156.79618	230.43008	2.75876	0.00000	0.0415	1.09818	-1.39768	-0.01766	0.00000
24	B	171.3500	0.14346	0.15373	124.31709	280.17193	2.48018	0.00000	0.0457	0.86549	-1.60968	-0.01603	0.00000
25	O	172.1500	0.14449	0.15418	122.94130	282.75562	2.46735	0.00000	0.0457	0.85424	-1.61994	-0.01603	0.00000
26	B	188.6900	0.16850	0.16267	98.53189	339.84963	2.21582	0.00000	0.0496	0.62154	-1.83194	-0.01439	0.00000
27	OJ	189.9750	0.17059	0.16327	96.95778	344.57880	2.19733	0.00000	0.0496	0.60346	-1.84841	-0.01439	0.00000
28	QDJ	192.0000	0.17394	0.16420	95.81936	347.58158	2.18246	0.00000	0.0496	-0.03885	0.37201	-0.00031	0.00000
29	#QDJ	192.0000	0.17394	0.16420	95.81936	347.58158	2.18246	0.00000	0.0496	-0.03885	0.37201	-0.00031	0.00000
30	QDJ	194.0250	0.17729	0.16513	97.27519	341.59158	2.19606	0.00000	0.0496	-0.68319	2.57313	0.01376	0.00000
31	OOJ	198.7900	0.18483	0.16744	104.12834	317.57632	2.26163	0.00000	0.0496	-0.75504	2.46682	0.01376	0.00000
32	B	215.3300	0.20725	0.17694	133.22978	242.07737	2.50275	0.00000	0.0535	-1.00442	2.09781	0.01540	0.00000
33	O	216.1300	0.20820	0.17747	134.84649	238.73516	2.51507	0.00000	0.0535	-1.01648	2.07996	0.01540	0.00000
34	B	232.6700	0.22549	0.19032	172.59610	176.03352	2.78325	0.00000	0.0578	-1.26584	1.71095	0.01703	0.00000
35	O	233.4700	0.22622	0.19105	174.63110	173.31028	2.79687	0.00000	0.0578	-1.27790	1.69310	0.01703	0.00000
36	B	250.0100	0.23964	0.20909	221.02847	123.40594	3.09211	0.00000	0.0626	-1.52725	1.32409	0.01867	0.00000
37	O	250.8100	0.24021	0.21013	223.48172	121.30167	3.10704	0.00000	0.0626	-1.53932	1.30624	0.01867	0.00000
38	B	267.3500	0.25077	0.23630	278.52632	84.19464	3.42933	0.00000	0.0680	-1.78865	0.93723	0.02030	0.00000
39	O	268.1500	0.25122	0.23782	281.39781	82.70935	3.44557	0.00000	0.0680	-1.80071	0.91938	0.02030	0.00000
40	B	284.6900	0.25967	0.27607	345.08902	58.39962	3.79492	0.00000	0.0739	-2.05002	0.55037	0.02194	0.00000
41	OI	285.7059	0.26014	0.27886	349.26991	57.30438	3.81721	0.00000	0.0739	-2.06534	0.52771	0.02194	0.00000
42	QFI	288.0000	0.26118	0.28533	352.91087	55.93789	3.83552	0.00000	0.0739	0.48708	0.07127	-0.00599	0.00000
43	#QFI	288.0000	0.26118	0.28533	352.91087	55.93789	3.83552	0.00000	0.0739	0.48708	0.07127	-0.00599	0.00000
44	QFI	290.2941	0.26222	0.29184	344.84994	56.64305	3.78978	0.00000	0.0739	3.00710	-0.38037	-0.03383	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
45	COI	294.7900	0.26438	0.30407	318.39919	60.47174	3.63769	0.00000	0.0739	2.87617	-0.47122	-0.03383	0.00000
46	B	311.3300	0.27409	0.34191	231.22158	81.58834	3.09170	0.00000	0.0794	2.39454	-0.80547	-0.03219	0.00000
47	O	312.1300	0.27464	0.34345	227.40896	82.89003	3.06595	0.00000	0.0794	2.37124	-0.82164	-0.03219	0.00000
48	B	328.6700	0.28860	0.37048	156.93510	115.59846	2.54701	0.00000	0.0840	1.88957	-1.15589	-0.03056	0.00000
49	O	329.4700	0.28942	0.37157	153.93042	117.46082	2.52257	0.00000	0.0840	1.86627	-1.17206	-0.03056	0.00000
50	B	346.0100	0.31068	0.39071	100.16111	161.76107	2.03069	0.00000	0.0877	1.38459	-1.50631	-0.02892	0.00000
51	O	346.8100	0.31196	0.39149	97.96441	164.18410	2.00755	0.00000	0.0877	1.36129	-1.52248	-0.02892	0.00000
52	B	363.3500	0.34631	0.40536	60.90025	220.07618	1.54273	0.00000	0.0906	0.87959	-1.85673	-0.02728	0.00000
53	O	364.1500	0.34843	0.40593	59.51155	223.05988	1.52091	0.00000	0.0906	0.85629	-1.87290	-0.02728	0.00000
54	B	380.6900	0.40409	0.41628	39.15295	290.54378	1.08314	0.00000	0.0927	0.37458	-2.20715	-0.02565	0.00000
55	OH	381.5961	0.40780	0.41677	38.49805	294.56020	1.05990	0.00000	0.0927	0.34819	-2.22546	-0.02565	0.00000
56	QDH	384.0000	0.41789	0.41806	37.68409	299.86914	1.00781	0.00000	0.0927	-0.00752	0.03052	-0.01776	0.00000
57	#QDH	384.0000	0.41789	0.41806	37.68409	299.86914	1.00781	0.00000	0.0927	-0.00752	0.03052	-0.01776	0.00000
58	QDH	386.4039	0.42796	0.41934	38.57124	294.27034	0.97424	0.00000	0.0927	-0.36379	2.28426	-0.01020	0.00000
59	COH	390.7900	0.44527	0.42180	42.32722	274.63879	0.92949	0.00000	0.0927	-0.49255	2.19159	-0.01020	0.00000
60	B	407.3300	0.49567	0.43282	66.65185	207.92162	0.77424	0.00000	0.0941	-0.97810	1.84210	-0.00857	0.00000
61	O	408.1300	0.49756	0.43344	68.23560	204.98778	0.76739	0.00000	0.0941	-1.00159	1.82520	-0.00857	0.00000
62	B	424.6700	0.52821	0.44845	109.39917	150.39079	0.63920	0.00000	0.0953	-1.48714	1.47571	-0.00693	0.00000
63	O	425.4700	0.52936	0.44931	111.79737	148.04318	0.63366	0.00000	0.0953	-1.51062	1.45881	-0.00693	0.00000
64	B	442.0100	0.54852	0.47043	169.79940	105.56637	0.53253	0.00000	0.0962	-1.99615	1.10932	-0.00530	0.00000
65	O	442.8100	0.54926	0.47164	178.01203	103.80498	0.52830	0.00000	0.0962	-2.01963	1.09242	-0.00530	0.00000
66	B	459.3500	0.56199	0.50197	247.85188	73.44835	0.45424	0.00000	0.0970	-2.50514	0.74293	-0.00366	0.00000
67	O	460.1500	0.56250	0.50372	251.87889	72.27318	0.45131	0.00000	0.0970	-2.52863	0.72603	-0.00366	0.00000
68	B	476.6900	0.57145	0.54635	343.55571	54.03673	0.40431	0.00000	0.0977	-3.01410	0.37654	-0.00202	0.00000
69	OG	477.5602	0.57185	0.54893	348.82377	53.39739	0.40255	0.00000	0.0977	-3.03965	0.35815	-0.00202	0.00000
70	QEG	480.0000	0.57295	0.55627	357.08639	52.77065	0.39383	0.00000	0.0977	-0.32559	-0.09966	-0.00512	0.00000
71	#QEG	480.0000	0.57295	0.55627	357.08639	52.77065	0.39383	0.00000	0.0977	-0.32559	-0.09966	-0.00512	0.00000
72	QEG	482.4398	0.57404	0.56355	351.96130	54.38225	0.37767	0.00000	0.0977	2.41296	-0.56505	-0.00811	0.00000
73	COG	486.7900	0.57606	0.57570	331.33439	59.75753	0.34238	0.00000	0.0977	2.32863	-0.67058	-0.00811	0.00000
74	B	503.3300	0.58505	0.61220	259.60537	88.57716	0.22176	0.00000	0.0982	2.00806	-1.07184	-0.00647	0.00000
75	O	504.1300	0.58554	0.61363	256.40487	90.30762	0.21658	0.00000	0.0982	1.99256	-1.09124	-0.00647	0.00000
76	B	520.6700	0.59730	0.63774	195.79355	133.04265	0.12302	0.00000	0.0984	1.67197	-1.49249	-0.00484	0.00000
77	O	521.4700	0.59795	0.63868	193.13081	135.44616	0.11915	0.00000	0.0984	1.65646	-1.51190	-0.00484	0.00000
78	B	538.0100	0.61378	0.65503	143.63788	192.09657	0.05265	0.00000	0.0986	1.33585	-1.91315	-0.00320	0.00000
79	O	538.8100	0.61468	0.65569	141.51292	195.17315	0.05009	0.00000	0.0986	1.32035	-1.93256	-0.00320	0.00000
80	B	555.3500	0.63654	0.66726	103.13894	265.73894	0.01065	0.00000	0.0986	0.99972	-2.33381	-0.00157	0.00000
81	O	556.1500	0.63778	0.66774	101.55179	269.48857	0.00940	0.00000	0.0986	0.98422	-2.35322	-0.00157	0.00000
82	B	572.6900	0.66827	0.67626	74.29718	353.96975	-0.00297	0.00000	0.0986	0.66358	-2.75447	0.00007	0.00000
83	OQ	574.3400	0.67186	0.67700	72.16013	363.12555	-0.00286	0.00000	0.0986	0.63160	-2.79450	0.00007	0.00000
84	QDR	578.2548	0.68064	0.67869	70.92660	367.26787	-0.00265	0.00000	0.0986	-0.31140	1.75362	0.00004	0.00000
85	#QDR	578.2548	0.68064	0.67869	70.92660	367.26787	-0.00265	0.00000	0.0986	-0.31140	1.75362	0.00004	0.00000
86	QDR	582.1697	0.68914	0.68045	77.19640	336.54797	-0.00257	0.00000	0.0986	-1.31606	5.96563	0.00000	0.00000
87	LRS	590.5421	0.70420	0.68509	101.71449	244.27509	-0.00254	0.00000	0.0986	-1.61237	5.05540	0.00000	0.00000
88	QFS	594.7711	0.71051	0.68805	109.78996	216.00756	-0.00245	0.00000	0.0986	-0.26089	1.75505	0.00004	0.00000
89	#QFS	594.7711	0.71051	0.68805	109.78996	216.00756	-0.00245	0.00000	0.0986	-0.26089	1.75505	0.00004	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
90	QFS	599.0000	0.71669	0.69122	105.96236	213.44939	-0.00223	0.00000	0.0986	1.14878	-1.13871	0.00007	0.00000
91	LUE	799.0000	1.05490	0.75895	522.11615	1099.32468	0.01158	0.00000	0.0986	-3.22954	-3.29066	0.00007	0.00000
92	QDT	804.4404	1.05647	0.75975	599.99170	1053.00658	0.01240	0.00000	0.0986	-11.44203	11.58980	0.00023	0.00000
93	#QDT	804.4404	1.05647	0.75975	599.99170	1053.00658	0.01240	0.00000	0.0986	-11.44203	11.58980	0.00023	0.00000
94	QDT	809.8808	1.05775	0.76065	783.79226	859.57542	0.01416	0.00000	0.0986	-23.18558	23.06860	0.00042	0.00000
95	LTU	810.8808	1.05794	0.76084	830.85056	814.05849	0.01457	0.00000	0.0986	-23.87272	22.44834	0.00042	0.00000
96	QFU	816.4361	1.05888	0.76208	1039.59175	636.59652	0.01629	0.00000	0.0986	-12.71454	10.32735	0.00020	0.00000
97	#QFU	816.4361	1.05888	0.76208	1039.59175	636.59652	0.01629	0.00000	0.0986	-12.71454	10.32735	0.00020	0.00000
98	QFU	821.9914	1.05970	0.76357	1098.83554	572.37918	0.01673	0.00000	0.0986	2.33055	1.53304	-0.00004	0.00000
99	LUC	1152.0000	1.18476	0.98194	198.05582	197.98621	0.00428	0.00000	0.0986	0.39902	-0.39854	-0.00004	0.00000
100	#UC	1152.0000	1.18476	0.98194	198.05582	197.98621	0.00428	0.00000	0.0986	0.39902	-0.39854	-0.00004	0.00000
101	LUC	1482.0086	1.40317	1.10706	572.11934	1098.46709	-0.00818	0.00000	0.0986	-1.53251	-2.33012	-0.00004	0.00000
102	QDU	1487.5639	1.40466	1.10787	636.30964	1039.24694	-0.00871	0.00000	0.0986	-10.32288	12.70997	-0.00016	0.00000
103	#QDU	1487.5639	1.40466	1.10787	636.30964	1039.24694	-0.00871	0.00000	0.0986	-10.32288	12.70997	-0.00016	0.00000
104	QDU	1493.1192	1.40590	1.10881	813.69399	830.57849	-0.00994	0.00000	0.0986	-22.43848	23.86454	-0.00029	0.00000
105	LTU	1494.1192	1.40609	1.10901	859.19094	783.53630	-0.01022	0.00000	0.0986	-23.05847	23.17765	-0.00029	0.00000
106	QFT	1499.5596	1.40699	1.11029	1052.53786	599.79925	-0.01138	0.00000	0.0986	-11.58484	11.43800	-0.00014	0.00000
107	#QFT	1499.5596	1.40699	1.11029	1052.53786	599.79925	-0.01138	0.00000	0.0986	-11.58484	11.43800	-0.00014	0.00000
108	QFT	1505.0000	1.40779	1.11186	1098.83752	521.95247	-0.01169	0.00000	0.0986	3.28901	3.22816	0.00002	0.00000
109	LUE	1705.0000	1.47555	1.45000	213.41910	105.94197	-0.00692	0.00000	0.0986	1.13809	-1.14811	0.00002	0.00000
110	QDS	1709.2289	1.47871	1.45619	215.98093	109.76509	-0.00701	0.00000	0.0986	-1.75530	0.26126	-0.00007	0.00000
111	#QDS	1709.2289	1.47871	1.45619	215.98093	109.76509	-0.00701	0.00000	0.0986	-1.75530	0.26126	-0.00007	0.00000
112	QDS	1713.4579	1.48167	1.46250	244.24926	101.68806	-0.00751	0.00000	0.0986	-5.05534	1.61236	-0.00017	0.00000
113	LRS	1721.8303	1.48632	1.47756	336.52176	77.17073	-0.00890	0.00000	0.0986	-5.96564	1.31598	-0.00017	0.00000
114	QFR	1725.7452	1.48808	1.48606	367.24318	70.90047	-0.00933	0.00000	0.0986	-1.75399	0.31161	-0.00005	0.00000
115	#QFR	1725.7452	1.48808	1.48606	367.24318	70.90047	-0.00933	0.00000	0.0986	-1.75399	0.31161	-0.00005	0.00000
116	QFR	1729.6600	1.48977	1.49485	363.10485	72.13119	-0.00931	0.00000	0.0986	2.79386	-0.63107	0.00006	0.00000
117	OOQ	1734.7900	1.49211	1.50566	335.07810	79.11609	-0.00898	0.00000	0.0986	2.66945	-0.73051	0.00006	0.00000
118	B	1751.3300	1.50115	1.53422	253.40635	108.58455	0.00561	0.00000	0.0986	2.26838	-1.05114	0.00170	0.00000
119	O	1752.1300	1.50165	1.53538	249.79246	110.27878	0.00697	0.00000	0.0986	2.24898	-1.06664	0.00170	0.00000
120	B	1768.6700	1.51401	1.55585	182.03032	150.86648	0.04862	0.00000	0.0987	1.84788	-1.38727	0.00334	0.00000
121	O	1769.4700	1.51472	1.55668	179.08923	153.09851	0.05129	0.00000	0.0987	1.82848	-1.40278	0.00334	0.00000
122	B	1786.0100	1.53233	1.57157	125.23746	204.80546	0.12000	0.00000	0.0988	1.42737	-1.72340	0.00497	0.00000
123	O	1786.8100	1.53336	1.57219	122.96920	207.57531	0.12398	0.00000	0.0988	1.40796	-1.73891	0.00497	0.00000
124	B	1803.3500	1.55953	1.58331	83.02840	270.40151	0.21976	0.00000	0.0991	1.00683	-2.05953	0.00661	0.00000
125	O	1804.1500	1.56107	1.58378	81.43299	273.70916	0.22505	0.00000	0.0991	0.98743	-2.07504	0.00661	0.00000
126	B	1820.6900	1.60067	1.59231	55.40362	347.65461	0.34789	0.00000	0.0995	0.58629	-2.39566	0.00825	0.00000
127	OG	1821.5602	1.60320	1.59271	54.40159	351.83877	0.35506	0.00000	0.0995	0.56518	-2.41253	0.00825	0.00000
128	CQD	1824.0000	1.61047	1.59380	52.78968	356.96413	0.37861	0.00000	0.0995	0.09966	0.32505	0.01108	0.00000
129	#CQD	1824.0000	1.61047	1.59380	52.78968	356.96413	0.37861	0.00000	0.0995	0.09966	0.32505	0.01108	0.00000
130	CQD	1826.4398	1.61781	1.59490	53.41673	348.70638	0.40932	0.00000	0.0995	-0.35828	3.03820	0.01413	0.00000
131	OOG	1830.7900	1.63037	1.59696	56.93371	322.82797	0.47081	0.00000	0.0995	-0.45018	2.91057	0.01413	0.00000
132	B	1847.3300	1.67040	1.60654	77.60430	234.57266	0.71813	0.00000	0.1005	-0.79955	2.42530	0.01577	0.00000
133	O	1848.1300	1.67202	1.60708	78.89711	230.71095	0.73074	0.00000	0.1005	-0.81645	2.40183	0.01577	0.00000
134	B	1864.6700	1.70021	1.62083	111.68395	159.28463	1.00512	0.00000	0.1019	-1.16582	1.91657	0.01741	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
135	O	1865.4700	1.70134	1.62164	113.56279	156.23689	1.01904	0.00000	0.1019	-1.18272	1.89310	0.01741	0.00000
136	B	1882.0100	1.72102	1.64259	158.46552	101.63955	1.32048	0.00000	0.1038	-1.53207	1.40783	0.01904	0.00000
137	O	1882.8100	1.72182	1.64386	160.93036	99.40580	1.33571	0.00000	0.1038	-1.54897	1.38436	0.01904	0.00000
138	B	1899.3500	1.73589	1.67774	217.94847	61.63744	1.66421	0.00000	0.1063	-1.89831	0.89910	0.02068	0.00000
139	O	1900.1500	1.73647	1.67983	220.99929	60.21766	1.68075	0.00000	0.1063	-1.91521	0.87562	0.02068	0.00000
140	B	1916.6900	1.74687	1.73506	290.13215	39.27829	2.03631	0.00000	0.1093	-2.26453	0.39036	0.02231	0.00000
141	QH	1917.5961	1.74737	1.73876	294.25329	38.59496	2.05653	0.00000	0.1093	-2.28366	0.36378	0.02231	0.00000
142	HQF	1920.0000	1.74865	1.74883	299.84951	37.70819	2.09115	0.00000	0.1093	-0.03005	0.00737	0.00645	0.00000
143	#HQF	1920.0000	1.74865	1.74883	299.84951	37.70819	2.09115	0.00000	0.1093	-0.03005	0.00737	0.00645	0.00000
144	HQF	1922.4039	1.74993	1.75891	294.53870	38.52322	2.08743	0.00000	0.1093	2.22576	-0.34849	-0.00954	0.00000
145	COH	1926.7900	1.75239	1.77627	275.40274	42.14028	2.04560	0.00000	0.1093	2.13710	-0.47617	-0.00954	0.00000
146	B	1943.3300	1.76333	1.82710	210.23713	65.85600	1.90140	0.00000	0.1125	1.80278	-0.95767	-0.00790	0.00000
147	O	1944.1300	1.76394	1.82901	207.36562	67.40690	1.89508	0.00000	0.1125	1.78661	-0.98096	-0.00790	0.00000
148	B	1960.6700	1.77871	1.86008	153.79454	107.82083	1.77793	0.00000	0.1155	1.45227	-1.46245	-0.00626	0.00000
149	O	1961.4700	1.77954	1.86125	151.48385	110.17938	1.77292	0.00000	0.1155	1.43610	-1.48574	-0.00626	0.00000
150	B	1978.0100	1.80004	1.88069	109.50790	167.29152	1.68283	0.00000	0.1184	1.10174	-1.96723	-0.00463	0.00000
151	O	1978.8100	1.80121	1.88144	107.75805	170.45773	1.67912	0.00000	0.1184	1.08557	-1.99052	-0.00463	0.00000
152	B	1995.3500	1.83020	1.89436	77.37771	244.26808	1.61609	0.00000	0.1211	0.75121	-2.47202	-0.00299	0.00000
153	O	1996.1500	1.83185	1.89487	76.18872	248.24194	1.61370	0.00000	0.1211	0.73503	-2.49530	-0.00299	0.00000
154	B	2012.6900	1.87209	1.90396	57.40432	338.75051	1.57773	0.00000	0.1237	0.40066	-2.97680	-0.00136	0.00000
155	OI	2013.7059	1.87492	1.90443	56.61111	344.82893	1.57635	0.00000	0.1237	0.38012	-3.00637	-0.00136	0.00000
156	IQD	2016.0000	1.88143	1.90547	55.90659	352.88684	1.58643	0.00000	0.1237	-0.07131	-0.48650	0.01016	0.00000
157	#IQD	2016.0000	1.88143	1.90547	55.90659	352.88684	1.58643	0.00000	0.1237	-0.07131	-0.48650	0.01016	0.00000
158	IQD	2018.2941	1.88790	1.90651	57.27278	349.24363	1.62307	0.00000	0.1237	-0.52754	2.06573	0.02184	0.00000
159	OOI	2022.7900	1.89988	1.90862	62.46746	330.97376	1.72126	0.00000	0.1237	-0.62788	1.99792	0.02184	0.00000
160	B	2039.3300	1.93541	1.91744	89.34360	269.00839	2.09599	0.00000	0.1268	-0.99703	1.74847	0.02347	0.00000
161	O	2040.1300	1.93682	1.91792	90.95314	266.22049	2.11477	0.00000	0.1268	-1.01489	1.73640	0.02347	0.00000
162	B	2056.6700	1.96107	1.92898	130.63122	212.90619	2.51656	0.00000	0.1306	-1.38403	1.48695	0.02511	0.00000
163	O	2057.4700	1.96203	1.92959	132.85994	210.53672	2.53665	0.00000	0.1306	-1.40188	1.47489	0.02511	0.00000
164	B	2074.0100	1.97884	1.94369	185.33951	165.87349	2.96550	0.00000	0.1351	-1.77100	1.22543	0.02675	0.00000
165	O	2074.8100	1.97952	1.94446	188.18740	163.92245	2.98689	0.00000	0.1351	-1.78886	1.21337	0.02675	0.00000
166	B	2091.3500	1.99159	1.96268	253.46787	127.91028	3.44280	0.00000	0.1403	-2.15796	0.96391	0.02838	0.00000
167	O	2092.1500	1.99209	1.96368	256.93489	126.37767	3.46550	0.00000	0.1403	-2.17582	0.95185	0.02838	0.00000
168	B	2108.6900	2.00106	1.98730	335.01553	99.01657	3.94846	0.00000	0.1464	-2.54490	0.70239	0.03002	0.00000
169	OJ	2109.9750	2.00167	1.98939	341.59267	97.23635	3.98703	0.00000	0.1464	-2.57357	0.68301	0.03002	0.00000
170	JQF	2112.0000	2.00260	1.99273	347.58448	95.78077	4.02173	0.00000	0.1464	-0.37245	0.03891	0.00422	0.00000
171	#JQF	2112.0000	2.00260	1.99273	347.58448	95.78077	4.02173	0.00000	0.1464	-0.37245	0.03891	0.00422	0.00000
172	JQF	2114.0250	2.00353	1.99609	344.58343	96.91846	4.00409	0.00000	0.1464	1.84800	-0.60316	-0.02163	0.00000
173	OOJ	2118.7900	2.00579	2.00368	327.26301	102.98605	3.90101	0.00000	0.1464	1.78694	-0.67021	-0.02163	0.00000
174	B	2135.3300	2.01462	2.02660	271.65540	129.00625	3.55676	0.00000	0.1525	1.57506	-0.90296	-0.02000	0.00000
175	O	2136.1300	2.01509	2.02758	269.14350	130.45999	3.54077	0.00000	0.1525	1.56481	-0.91421	-0.02000	0.00000
176	B	2152.6700	2.02590	2.04558	220.88427	164.55179	3.22357	0.00000	0.1580	1.35291	-1.14696	-0.01836	0.00000
177	O	2153.4700	2.02648	2.04635	218.72781	166.39593	3.20888	0.00000	0.1580	1.34266	-1.15822	-0.01836	0.00000
178	B	2170.0100	2.03984	2.06050	177.81751	208.55934	2.91874	0.00000	0.1630	1.13075	-1.39096	-0.01672	0.00000
179	O	2170.8100	2.04056	2.06111	176.01651	210.79388	2.90536	0.00000	0.1630	1.12050	-1.40222	-0.01672	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
180	B	2187.3500	2.05721	2.07234	142.45560	261.02888	2.64228	0.00000	0.1676	0.90857	-1.63496	-0.01509	0.00000
181	O	2188.1500	2.05811	2.07283	141.01008	263.65383	2.63021	0.00000	0.1676	0.89832	-1.64622	-0.01509	0.00000
182	B	2204.6900	2.07886	2.08187	114.79893	321.96043	2.39418	0.00000	0.1717	0.68639	-1.87897	-0.01345	0.00000
183	OK	2206.2602	2.08106	2.08264	112.67502	327.89577	2.37306	0.00000	0.1717	0.66627	-1.90106	-0.01345	0.00000
184	KQD	2208.0000	2.08353	2.08348	111.46798	331.36693	2.36104	0.00000	0.1717	0.02973	-0.08767	-0.00038	0.00000
185	#KQD	2208.0000	2.08353	2.08348	111.46798	331.36693	2.36104	0.00000	0.1717	0.02973	-0.08767	-0.00038	0.00000
186	KQD	2209.7398	2.08601	2.08431	112.46680	328.50197	2.37175	0.00000	0.1717	-0.60566	1.72909	0.01270	0.00000
187	OOK	2214.7900	2.09296	2.08683	116.89418	311.34731	2.43587	0.00000	0.1717	-0.66704	1.66775	0.01270	0.00000
188	B	2231.3300	2.11312	2.09609	144.28421	259.50069	2.65940	0.00000	0.1758	-0.86803	1.46687	0.01433	0.00000
189	O	2232.1300	2.11399	2.09659	145.68084	257.16148	2.67087	0.00000	0.1758	-0.87775	1.45715	0.01433	0.00000
190	B	2248.6700	2.13037	2.10786	178.04109	212.28147	2.92146	0.00000	0.1804	-1.07873	1.25627	0.01597	0.00000
191	O	2249.4700	2.13108	2.10846	179.77484	210.27921	2.93424	0.00000	0.1804	-1.08845	1.24655	0.01597	0.00000
192	B	2266.0100	2.14436	2.12231	219.10495	172.36581	3.21188	0.00000	0.1854	-1.28942	1.04567	0.01760	0.00000
193	O	2266.8100	2.14494	2.12305	221.17580	170.70051	3.22597	0.00000	0.1854	-1.29914	1.03595	0.01760	0.00000
194	B	2283.3500	2.15577	2.14013	267.47532	139.75372	3.53067	0.00000	0.1909	-1.50010	0.83507	0.01924	0.00000
195	O	2284.1500	2.15624	2.14104	269.88325	138.42538	3.54606	0.00000	0.1909	-1.50982	0.82536	0.01924	0.00000
196	B	2300.6900	2.16516	2.16202	323.15166	114.44520	3.87782	0.00000	0.1970	-1.71076	0.62447	0.02088	0.00000
197	OQ	2302.3400	2.16597	2.16433	328.83025	112.41751	3.91226	0.00000	0.1970	-1.73081	0.60443	0.02088	0.00000
198	QF	2304.0000	2.16677	2.16670	331.71178	111.41773	3.92979	0.00000	0.1970	0.00000	-0.00040	0.00022	0.00000
199	#QF	2304.0000	2.16677	2.16670	331.71178	111.41773	3.92979	0.00000	0.1970	0.00000	-0.00040	0.00022	0.00000
200	QF	2305.6600	2.16756	2.16906	328.83024	112.42021	3.91300	0.00000	0.1970	1.73081	-0.60526	-0.02043	0.00000
201	OOS	2311.6400	2.17055	2.17726	308.56429	120.09370	3.79081	0.00000	0.1970	1.65815	-0.67794	-0.02043	0.00000
202	B	2328.1800	2.17990	2.19720	257.03636	145.84478	3.46639	0.00000	0.2030	1.45720	-0.87896	-0.01880	0.00000
203	O	2328.9800	2.18040	2.19807	254.71261	147.25890	3.45135	0.00000	0.2030	1.44748	-0.88868	-0.01880	0.00000
204	B	2345.5200	2.19179	2.21427	210.15365	179.98150	3.15398	0.00000	0.2084	1.24653	-1.08971	-0.01716	0.00000
205	O	2346.3200	2.19240	2.21497	208.16698	181.73281	3.14026	0.00000	0.2084	1.23681	-1.09943	-0.01716	0.00000
206	B	2362.8600	2.20639	2.22811	170.57748	221.42694	2.86994	0.00000	0.2133	1.03584	-1.30046	-0.01553	0.00000
207	O	2363.6600	2.20714	2.22868	168.92792	223.51545	2.85752	0.00000	0.2133	1.02611	-1.31018	-0.01553	0.00000
208	B	2380.2000	2.22439	2.23940	138.30830	270.18109	2.61426	0.00000	0.2177	0.82513	-1.51120	-0.01389	0.00000
209	O	2381.0000	2.22532	2.23987	136.99587	272.60680	2.60315	0.00000	0.2177	0.81541	-1.52093	-0.01389	0.00000
210	B	2397.5400	2.24650	2.24870	113.34648	326.24396	2.38695	0.00000	0.2218	0.61442	-1.72195	-0.01225	0.00000
211	O	2398.3400	2.24763	2.24909	112.37119	329.00686	2.37715	0.00000	0.2218	0.60470	-1.73167	-0.01225	0.00000
212	QD	2400.0000	2.25000	2.24989	111.37034	331.88915	2.36717	0.00000	0.2218	-0.00002	0.00041	0.00023	0.00000
213	UUC	4992.0000	2.66646	2.66635	111.37098	331.65483	2.36707	0.00000	0.4939	0.00000	0.00000	0.00024	0.00000

CIRCUMFERENCE = 4992.0000 M THETX = 0.22907446 RAD NUX = 2.66646 DNUX/(DP/P) = -3.70482
RADIUS = 794.5015 M THETY = 0.00000000 RAD NUY = 2.66635 DNUY/(DP/P) = -3.70477
(DS/S)/(DP/P)= 0.0000989 TGAM=(100.53760, 0.00000)

MAXIMA --- BETX(108) = 1098.83752 BETY(91) = 1099.32468 XEQ(171) = 4.02173 YEQ(213) = 0.00000
MINIMA --- BETX(57) = 37.68409 BETY(143) = 37.70819 XEQ(90) = -0.00223 YEQ(213) = 0.00000

*** ... . // .....

PARAMETER REPLACEMENTS MADE BY FITTING
1 OF KEV = 0.003177802234 1 OF KDV = -0.003177801429

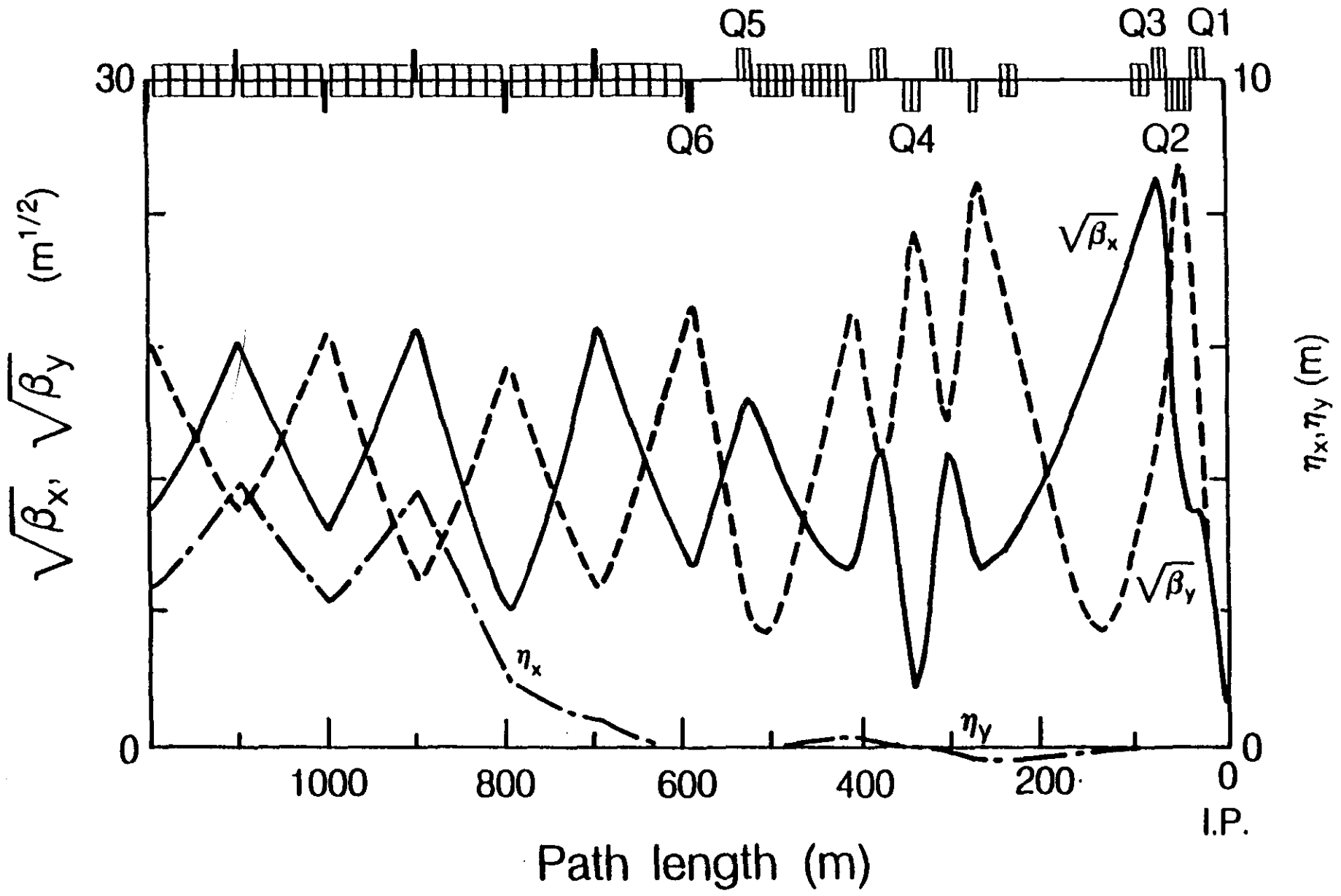

Figure 10. Short IR, Low-β Module (left side) — Injection Optics

XBL 861-11277

Low-Beta Module

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***   PR4     PRNT          //  D0   D    O    D3   DV1  DV2  OOV  OV4  DV3  D5   D56  D6
  *                         //  LQ1  LQ2  LQ3  LQ4  LQ5  LQ6  LQFV LQDV LBV
  *                         //  K1   K2   K3   K4   K5   K6   KFV  KDV  B0V
-------------------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
      D0                    D                     O                     D3                    DV1
   20.000000000          1.000000000           0.800000000           5.980000000         123.000000000
      DV2                   OOV                   OV4                   DV3                    D5
   26.000000000         19.907200000          19.288600000          12.000000000           0.500000000
      D56                   D6                    LQ1                   LQ2                   LQ3
   48.360000000          3.900000000           7.250000000           5.895000000           6.520000000
      LQ4                   LQ5                   LQ6                   LQFV                  LQDV
    8.165000000           6.800000000           3.400000000           7.546400000           7.546400000
      LBV                   K1                    K2                    K3                    K4
    8.000000000           0.003504130          -0.003433946           0.003401908          -0.001877943
      K5                    K6                    KFV                   KDV                   B0V
    0.001252131          -0.003044587           0.003177802          -0.003177801           5.211937500
-------------------------------------------------------------------------------------------
***   ZDUC    MMM           //  .ZDU  .CD
***   '2X     BML           //  .ZUD  ZDUC
***   2X      BEST          //  '2X
-------------------------------------------------------------------------------------------
```

BETATRON FUNCTIONS OF 2X

POS		S (M)	MUX	MUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0		0.0000	0.00000	0.00000	111.37077	331.65560	2.36484	-0.01079	0.0000	0.00000	0.00000	0.00030	0.00000
1	#QD	0.0000	0.00000	0.00000	111.37077	331.65560	2.36484	-0.01079	0.0000	0.00000	0.00000	0.00030	0.00000
2	QD	1.6600	0.00237	0.00080	112.37168	328.77398	2.37568	-0.01075	0.0000	-0.60472	1.73085	0.01277	0.00005
3	QQ	6.7900	0.00943	0.00335	118.89589	311.33527	2.44120	-0.01048	0.0000	-0.66706	1.66851	0.01277	0.00005
4	B	23.3300	0.02958	0.01262	144.28671	259.46606	2.66598	-0.00961	0.0042	-0.86805	1.46748	0.01441	0.00005
5	O	24.1300	0.03046	0.01311	145.68337	257.12586	2.67751	-0.00957	0.0042	-0.87778	1.45776	0.01441	0.00005
6	B	40.6700	0.04684	0.02439	178.04445	212.22816	2.92934	-0.00869	0.0088	-1.07876	1.25673	0.01604	0.00005
7	O	41.4700	0.04755	0.02499	179.77824	210.22517	2.94218	-0.00865	0.0088	-1.08848	1.24701	0.01604	0.00005
8	B	58.0100	0.06083	0.03884	219.10921	172.29898	3.22107	-0.00778	0.0138	-1.28945	1.04599	0.01768	0.00005
9	O	58.8100	0.06140	0.03958	221.18011	170.63317	3.23521	-0.00774	0.0138	-1.29917	1.03626	0.01768	0.00005
10	B	75.3500	0.07224	0.05667	267.48054	139.67850	3.54115	-0.00687	0.0193	-1.50013	0.83524	0.01932	0.00005
11	O	76.1500	0.07271	0.05758	269.88852	138.34989	3.55660	-0.00682	0.0193	-1.50985	0.82552	0.01932	0.00005
12	B	92.6900	0.08163	0.07857	323.15790	114.36673	3.88960	-0.00595	0.0254	-1.71079	0.62449	0.02095	0.00005
13	OK	94.2602	0.08239	0.08078	328.56036	112.43556	3.92250	-0.00587	0.0254	-1.72987	0.60541	0.02095	0.00005
14	QFK	96.0000	0.08323	0.08325	331.42748	111.43732	3.94004	-0.00580	0.0254	0.08721	-0.02981	-0.00080	0.00002
15	#QFK	96.0000	0.08323	0.08325	331.42748	111.43732	3.94004	-0.00580	0.0254	0.08721	-0.02981	-0.00080	0.00002
16	QFK	97.7398	0.08407	0.08573	327.95731	112.64437	3.91971	-0.00580	0.0254	1.90095	-0.66619	-0.02255	-0.00001
17	OOK	102.7900	0.08660	0.09265	309.11581	119.70001	3.80585	-0.00586	0.0254	1.82990	-0.73092	-0.02255	-0.00001
18	B	119.3300	0.09602	0.11252	252.43038	147.38525	3.44645	-0.00605	0.0314	1.59727	-0.94292	-0.02091	-0.00001
19	O	120.1300	0.09653	0.11338	249.88376	148.90212	3.42972	-0.00606	0.0314	1.58601	-0.95317	-0.02091	-0.00001
20	B	136.6700	0.10828	0.12932	201.26663	183.93951	3.09738	-0.00625	0.0367	1.35335	-1.16517	-0.01928	-0.00001
21	O	137.4700	0.10892	0.13001	199.11026	185.81198	3.08196	-0.00626	0.0367	1.34210	-1.17542	-0.01928	-0.00001
22	B	154.0100	0.12375	0.14280	158.56198	228.20151	2.77667	-0.00645	0.0415	1.10943	-1.38742	-0.01764	-0.00001
23	O	154.8100	0.12456	0.14336	156.79590	230.42959	2.76256	-0.00646	0.0415	1.09817	-1.39768	-0.01764	-0.00001
24	B	171.3500	0.14346	0.15373	124.31692	280.17127	2.48433	-0.00665	0.0458	0.86549	-1.60968	-0.01600	-0.00001
25	O	172.1500	0.14449	0.15418	122.94114	282.75495	2.47153	-0.00666	0.0458	0.85423	-1.61993	-0.01600	-0.00001
26	B	188.6900	0.16850	0.16267	98.53183	339.84877	2.22035	-0.00685	0.0496	0.62154	-1.83193	-0.01437	-0.00001
27	OJ	189.9750	0.17059	0.16327	96.95773	344.57793	2.20189	-0.00686	0.0496	0.60346	-1.84840	-0.01437	-0.00001
28	QDJ	192.0000	0.17394	0.16420	95.81932	347.58070	2.18709	-0.00684	0.0496	-0.03885	0.37201	-0.00026	0.00003
29	#QDJ	192.0000	0.17394	0.16420	95.81932	347.58070	2.18709	-0.00684	0.0496	-0.03885	0.37201	-0.00026	0.00003
30	QDJ	194.0250	0.17729	0.16513	97.27516	341.59070	2.20083	-0.00673	0.0496	-0.68319	2.57312	0.01384	0.00008
31	OOJ	198.7900	0.18483	0.16744	104.12834	317.57550	2.26678	-0.00637	0.0496	-0.75504	2.46681	0.01384	0.00008
32	B	215.3300	0.20725	0.17694	133.22986	242.07672	2.50925	-0.00511	0.0535	-1.00442	2.09780	0.01548	0.00008
33	O	216.1300	0.20820	0.17747	134.84658	238.73451	2.52163	-0.00504	0.0535	-1.01648	2.07996	0.01548	0.00008
34	B	232.6700	0.22549	0.19032	172.59631	176.03302	2.79116	-0.00378	0.0579	-1.26585	1.71094	0.01711	0.00008
35	O	233.4700	0.22622	0.19105	174.63132	173.30979	2.80485	-0.00372	0.0579	-1.27791	1.69310	0.01711	0.00008
36	B	250.0100	0.23964	0.20909	221.02882	123.40559	3.10143	-0.00246	0.0627	-1.52726	1.32409	0.01875	0.00008
37	O	250.8100	0.24021	0.21013	223.48208	121.30133	3.11643	-0.00240	0.0627	-1.53932	1.30624	0.01875	0.00008
38	B	267.3500	0.25077	0.23630	278.52684	84.19442	3.44006	-0.00114	0.0680	-1.78865	0.93723	0.02038	0.00008
39	O	268.1500	0.25122	0.23782	281.39833	82.70914	3.45637	-0.00107	0.0680	-1.80072	0.91938	0.02038	0.00008
40	B	284.6900	0.25967	0.27607	345.08972	58.39952	3.80706	0.00019	0.0740	-2.05003	0.55037	0.02202	0.00008
41	OI	285.7059	0.26014	0.27886	349.27062	57.30429	3.82943	0.00026	0.0740	-2.06535	0.52770	0.02202	0.00008
42	QFI	288.0000	0.26118	0.28533	352.91160	55.93781	3.84783	0.00044	0.0740	0.48708	0.07127	-0.00600	0.00008
43	#QFI	288.0000	0.26118	0.28533	352.91160	55.93781	3.84783	0.00044	0.0740	0.48708	0.07127	-0.00600	0.00008
44	QFI	290.2941	0.26222	0.29184	344.85066	56.64298	3.80197	0.00063	0.0740	3.00711	-0.38037	-0.03393	0.00008

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
135	#QDV	889.5000	1.44988	1.12692	62.57302	648.72787	-0.00029	-0.18655	0.0984	-0.07566	4.97510	-0.00010	0.00010
136	DV2	915.5000	1.51083	1.13488	77.37282	416.85688	-0.00296	-0.18388	0.0984	-0.49356	3.94302	-0.00010	0.00010
137	#BV+	915.5000	1.51083	1.13488	77.37282	416.85688	-0.00296	-0.18388	0.0984	-0.49356	3.94302	-0.00010	0.00010
138	BV1+	923.5000	1.52643	1.13818	86.29841	356.30900	-0.00378	-0.18056	0.0983	-0.62214	3.62547	-0.00010	0.00073
139	D	924.5000	1.52826	1.13863	87.55877	349.09776	-0.00389	-0.17983	0.0983	-0.63821	3.58577	-0.00010	0.00073
140	BV1+	932.5000	1.54197	1.14261	98.79885	294.26582	-0.00471	-0.17151	0.0982	-0.76680	3.26822	-0.00010	0.00135
141	#BV+	932.5000	1.54197	1.14261	98.79885	294.26582	-0.00471	-0.17151	0.0982	-0.76680	3.26822	-0.00010	0.00135
142	DV1	1055.5000	1.63223	1.50709	530.59649	90.84881	-0.01733	-0.00512	0.0982	-2.74375	-1.61442	-0.00010	0.00135
143	#BV-	1055.5000	1.63223	1.50709	530.59649	90.84881	-0.01733	-0.00512	0.0982	-2.74375	-1.61442	-0.00010	0.00135
144	BV1-	1063.5000	1.63454	1.51933	575.52521	119.22008	-0.01815	0.00321	0.0982	-2.87234	-1.93199	-0.00010	0.00073
145	D	1064.5000	1.63481	1.52065	581.28596	123.12375	-0.01825	0.00393	0.0982	-2.88841	-1.97168	-0.00010	0.00073
146	BV1-	1072.5000	1.63692	1.52980	628.52916	157.21117	-0.01907	0.00726	0.0981	-3.01699	-2.28924	-0.00010	0.00010
147	#BV-	1072.5000	1.63692	1.52980	628.52916	157.21117	-0.01907	0.00726	0.0981	-3.01699	-2.28924	-0.00010	0.00010
148	D3	1078.4800	1.63839	1.53537	665.18716	186.01007	-0.01969	0.00787	0.0981	-3.11311	-2.52663	-0.00010	0.00010
149	QF3	1085.0000	1.63998	1.54028	610.98258	252.21942	-0.01893	0.00913	0.0981	11.02201	-8.11305	0.00033	0.00029
150	#QF3	1085.0000	1.63998	1.54028	610.98258	252.21942	-0.01893	0.00913	0.0981	11.02201	-8.11305	0.00033	0.00029
151	QF3	1091.5200	1.64202	1.54355	404.65615	418.59594	-0.01547	0.01173	0.0981	19.08276	-18.62323	0.00072	0.00052
152	O	1092.3200	1.64234	1.54384	374.70125	448.92490	-0.01490	0.01215	0.0981	18.36086	-19.28797	0.00072	0.00052
153	QD2	1098.2150	1.64568	1.54557	219.73656	634.93666	-0.01149	0.01442	0.0981	8.96405	-11.00093	0.00045	0.00025
154	#QD2	1098.2150	1.64568	1.54557	219.73656	634.93666	-0.01149	0.01442	0.0981	8.96405	-11.00093	0.00045	0.00025
155	QD2	1104.1100	1.65102	1.54696	146.10722	688.17701	-0.00946	0.01499	0.0981	4.01900	2.33163	0.00024	-0.00005
156	O	1104.9100	1.65191	1.54714	139.75195	684.45238	-0.00926	0.01495	0.0981	3.92509	2.32415	0.00024	-0.00005
157	QD2	1110.8050	1.65959	1.54860	111.30029	581.01133	-0.00836	0.01375	0.0981	1.09179	14.51950	0.00007	-0.00035
158	#QD2	1110.8050	1.65959	1.54860	111.30029	581.01133	-0.00836	0.01375	0.0981	1.09179	14.51950	0.00007	-0.00035
159	QD2	1116.7000	1.66817	1.55059	111.90999	368.67730	-0.00847	0.01093	0.0981	-1.19930	20.05555	-0.00010	-0.00060
160	O	1117.5000	1.66930	1.55095	113.84281	337.28839	-0.00855	0.01045	0.0981	-1.21673	19.18058	-0.00010	-0.00060
161	QF1	1124.7500	1.67926	1.55622	110.76200	150.87737	-0.00849	0.00694	0.0981	1.61525	8.09082	0.00012	-0.00038
162	#QF1	1124.7500	1.67926	1.55622	110.76200	150.87737	-0.00849	0.00694	0.0981	1.61525	8.09082	0.00012	-0.00038
163	QF1	1132.0000	1.69176	1.56759	72.54407	72.76376	-0.00690	0.00473	0.0981	3.32850	3.33698	0.00032	-0.00024
164	D0	1152.0000	1.89556	1.77102	6.00586	5.99598	-0.00058	-0.00001	0.0981	-0.00159	0.00141	0.00032	-0.00024
165	#IP-	1152.0000	1.89556	1.77102	6.00586	5.99598	-0.00058	-0.00001	0.0981	-0.00159	0.00141	0.00032	-0.00024
166	#IP-	1152.0000	1.89556	1.77102	6.00586	5.99598	-0.00058	-0.00001	0.0981	-0.00159	0.00141	0.00032	-0.00024
167	D0	1172.0000	2.09890	1.97487	72.67113	72.65118	0.00574	-0.00474	0.0981	-3.33168	-3.33417	0.00032	-0.00024
168	1QD	1179.2500	2.11028	1.98735	150.66453	110.93659	0.00864	-0.00598	0.0981	-8.07854	-1.61831	0.00050	-0.00010
169	#1QD	1179.2500	2.11028	1.98735	150.66453	110.93659	0.00864	-0.00598	0.0981	-8.07854	-1.61831	0.00050	-0.00010
170	1QD	1186.5000	2.11556	1.99730	336.79427	114.02817	0.01315	-0.00613	0.0981	-19.15171	1.21840	0.00077	0.00006
171	O	1187.3000	2.11592	1.99843	368.13591	112.09268	0.01377	-0.00608	0.0981	-20.02534	1.20097	0.00077	0.00006
172	2QF	1193.1950	2.11791	2.00699	580.14732	111.48441	0.01740	-0.00610	0.0981	-14.49718	-1.09371	0.00045	-0.00006
173	#2QF	1193.1950	2.11791	2.00699	580.14732	111.48441	0.01740	-0.00610	0.0981	-14.49718	-1.09371	0.00045	-0.00006
174	2QF	1199.0900	2.11937	2.01465	683.42559	139.98358	0.01897	-0.00686	0.0981	-2.31996	-3.93155	0.00008	-0.00019
175	O	1199.8900	2.11956	2.01554	687.14351	146.34930	0.01903	-0.00701	0.0981	-2.32743	-4.02560	0.00008	-0.00019
176	2QF	1205.7850	2.12095	2.02088	633.97553	220.09884	0.01836	-0.00860	0.0981	10.98495	-8.97865	-0.00030	-0.00035
177	#2QF	1205.7850	2.12095	2.02088	633.97553	220.09884	0.01836	-0.00860	0.0981	10.98495	-8.97865	-0.00030	-0.00035
178	2QF	1211.6800	2.12268	2.02421	448.23899	375.31573	0.01552	-0.01123	0.0981	19.25914	-18.39073	-0.00065	-0.00055
179	O	1212.4800	2.12297	2.02453	417.95539	405.31934	0.01500	-0.01167	0.0981	18.59536	-19.11378	-0.00065	-0.00055

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
180	3QD	1219.0000	2.12625	2.02657	251.82724	611.97966	0.01175	-0.01433	0.0981	8.10100	-11.03971	-0.00036	-0.00026
181	#3QD	1219.0000	2.12625	2.02657	251.82724	611.97966	0.01175	-0.01433	0.0981	8.10100	-11.03971	-0.00036	-0.00026
182	3QD	1225.5200	2.13116	2.02815	185.71487	666.26858	0.01022	-0.01494	0.0981	2.52309	3.11849	-0.00012	0.00007
183	D3	1231.5000	2.13674	2.02962	156.95711	629.54703	0.00953	-0.01452	0.0981	2.28590	3.02223	-0.00012	0.00007
184	#BV+	1231.5000	2.13674	2.02962	156.95711	629.54703	0.00953	-0.01452	0.0981	2.28590	3.02223	-0.00012	0.00007
185	BV1+	1239.5000	2.14591	2.03173	122.92108	582.22127	0.00859	-0.01145	0.0981	1.96860	2.89348	-0.00012	0.00070
186	D	1240.5000	2.14723	2.03200	119.02354	576.45040	0.00848	-0.01075	0.0981	1.92894	2.87739	-0.00012	0.00070
187	BV1+	1248.5000	2.15949	2.03430	90.69894	531.44222	0.00755	-0.00269	0.0981	1.61164	2.74863	-0.00012	0.00132
188	#BV+	1248.5000	2.15949	2.03430	90.69894	531.44222	0.00755	-0.00269	0.0981	1.61164	2.74863	-0.00012	0.00132
189	DV1	1371.5000	2.52383	2.12447	294.29449	98.82011	-0.00679	0.15981	0.0981	-3.26688	0.76862	-0.00012	0.00132
190	#BV-	1371.5000	2.52383	2.12447	294.29449	98.82011	-0.00679	0.15981	0.0981	-3.26688	0.76862	-0.00012	0.00132
191	BV1-	1379.5000	2.52780	2.13818	349.10306	87.55242	-0.00772	0.16788	0.0980	-3.58419	0.63984	-0.00012	0.00070
192	D	1380.5000	2.52825	2.14001	356.31109	86.28883	-0.00784	0.16858	0.0980	-3.62385	0.62374	-0.00012	0.00070
193	BV1-	1388.5000	2.53156	2.15562	416.83110	77.33916	-0.00877	0.17164	0.0979	-3.94115	0.49497	-0.00012	0.00007
194	#BV-	1388.5000	2.53156	2.15562	416.83110	77.33916	-0.00877	0.17164	0.0979	-3.94115	0.49497	-0.00012	0.00007
195	DV2	1414.5000	2.53952	2.21663	648.58302	62.48306	-0.01180	0.17349	0.0979	-4.97238	0.07642	-0.00012	0.00007
196	#QEV	1414.5000	2.53952	2.21663	648.58302	62.48306	-0.01180	0.17349	0.0979	-4.97238	0.07642	-0.00012	0.00007
197	QEV	1422.0464	2.54138	2.23485	606.56154	74.16509	-0.01160	0.18998	0.0979	10.20077	-1.71672	0.00017	0.00436
198	COV	1441.9536	2.54922	2.26377	269.06212	163.60666	-0.00825	0.27687	0.0979	6.75287	-2.77620	0.00017	0.00436
199	QDV	1449.5000	2.55435	2.27065	216.56748	175.61999	-0.00770	0.28415	0.0979	0.61803	1.28148	-0.00002	-0.00247
200	#QDV	1449.5000	2.55435	2.27065	216.56748	175.61999	-0.00770	0.28415	0.0979	0.61803	1.28148	-0.00002	-0.00247
201	QDV	1457.0464	2.55969	2.27838	248.07294	129.42516	-0.00856	0.24077	0.0979	-5.04178	4.46616	-0.00021	-0.00886
202	OV4	1476.3350	2.56857	2.34510	482.19394	17.34704	-0.01265	0.06995	0.0979	-7.09601	1.34443	-0.00021	-0.00886
203	4QF	1484.5000	2.57107	2.48133	537.55625	7.02505	-0.01356	0.00055	0.0979	0.60092	-0.02793	-0.00001	-0.00832
204	#4QF	1484.5000	2.57107	2.48133	537.55625	7.02505	-0.01356	0.00055	0.0979	0.60092	-0.02793	-0.00001	-0.00832
205	4QF	1492.6650	2.57362	2.61262	464.16545	18.33746	-0.01280	-0.06879	0.0979	8.00926	-1.41488	0.00020	-0.00884
206	OV4	1511.9536	2.58352	2.67627	207.40988	133.82540	-0.00903	-0.23929	0.0979	5.30200	-4.57248	0.00020	-0.00884
207	QDV	1519.5000	2.59020	2.68376	165.71948	188.78855	-0.00834	-0.28267	0.0979	0.55185	-1.27075	-0.00001	-0.00248
208	#QDV	1519.5000	2.59020	2.68376	165.71948	180.78855	-0.00834	-0.28267	0.0979	0.55185	-1.27075	-0.00001	-0.00248
209	QDV	1527.0464	2.59720	2.69046	188.66823	167.72065	-0.00918	-0.27566	0.0979	-3.77414	2.89668	-0.00022	0.00431
210	COV	1546.9536	2.60919	2.71894	370.95343	74.57982	-0.01350	-0.18980	0.0979	-5.38261	1.78207	-0.00022	0.00431
211	QEV	1554.5000	2.61227	2.73717	383.89168	62.03535	-0.01389	-0.17370	0.0979	3.77281	-0.02067	0.00012	0.00002
212	#QEV	1554.5000	2.61227	2.73717	383.89168	62.03535	-0.01389	-0.17370	0.0979	3.77281	-0.02067	0.00012	0.00002
213	#QEV	1554.5000	2.61227	2.73717	383.89168	62.03535	-0.01389	-0.17370	0.0979	3.77281	-0.02067	0.00012	0.00002
214	D	1555.5000	2.61269	2.73974	376.38574	62.09282	-0.01377	-0.17368	0.0979	3.73313	-0.03680	0.00012	0.00002
215	#BV+	1555.5000	2.61269	2.73974	376.38574	62.09282	-0.01377	-0.17368	0.0979	3.73313	-0.03680	0.00012	0.00002
216	BV1+	1563.5000	2.61637	2.76003	319.19543	63.71365	-0.01284	-0.17103	0.0978	3.41566	-0.16581	0.00012	0.00064
217	D	1564.5000	2.61687	2.76253	312.40379	64.06139	-0.01272	-0.17039	0.0978	3.37598	-0.18193	0.00012	0.00064
218	BV1+	1572.5000	2.62133	2.78186	260.92788	68.00441	-0.01179	-0.16274	0.0977	3.05851	-0.31094	0.00012	0.00127
219	D	1573.5000	2.62195	2.78419	254.85054	68.64243	-0.01167	-0.16147	0.0977	3.01883	-0.32707	0.00012	0.00127
220	BV1+	1581.5000	2.62746	2.80199	209.08903	74.90764	-0.01074	-0.14882	0.0976	2.70136	-0.45608	0.00012	0.00189
221	D	1582.5000	2.62824	2.80410	203.72599	75.83593	-0.01063	-0.14692	0.0976	2.66168	-0.47221	0.00012	0.00189
222	BV1+	1590.5000	2.63521	2.82004	163.67889	84.42333	-0.00969	-0.12927	0.0975	2.34421	-0.60122	0.00012	0.00252
223	D	1591.5000	2.63620	2.82191	159.03015	85.64189	-0.00958	-0.12675	0.0975	2.30453	-0.61734	0.00012	0.00252
224	BV1+	1599.5000	2.64524	2.83593	124.69744	96.55145	-0.00865	-0.10410	0.0975	1.98706	-0.74635	0.00012	0.00314

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
225	#BV+	1599.5000	2.64524	2.83593	124.69744	96.55145	-0.00865	-0.10410	0.0975	1.98706	-0.74635	0.00012	0.00314
226	DV3	1611.5000	2.66409	2.85395	82.72238	116.78610	-0.00725	-0.06638	0.0975	1.51086	-0.93987	0.00012	0.00314
227	#BV-	1611.5000	2.66409	2.85395	82.72238	116.78610	-0.00725	-0.06638	0.0975	1.51086	-0.93987	0.00012	0.00314
228	BV1-	1619.5000	2.68204	2.86418	61.08834	132.85607	-0.00631	-0.04372	0.0975	1.19339	-1.06888	0.00012	0.00252
229	D	1620.5000	2.68470	2.86537	58.74124	135.00995	-0.00620	-0.04121	0.0975	1.15371	-1.08500	0.00012	0.00252
230	BV1-	1628.5000	2.71019	2.87422	42.82160	153.40201	-0.00527	-0.02355	0.0975	0.83624	-1.21401	0.00012	0.00189
231	D	1629.5000	2.71398	2.87525	41.18879	155.84615	-0.00515	-0.02166	0.0975	0.79656	-1.23013	0.00012	0.00189
232	BV1-	1637.5000	2.74993	2.88293	30.98356	176.56029	-0.00422	-0.00901	0.0975	0.47909	-1.35913	0.00012	0.00127
233	D	1638.5000	2.75515	2.88382	30.06505	179.29469	-0.00410	-0.00774	0.0975	0.43941	-1.37526	0.00012	0.00127
234	BV1-	1646.5000	2.80173	2.89051	25.57422	202.33086	-0.00317	-0.00009	0.0975	0.12194	-1.50426	0.00012	0.00064
235	D	1647.5000	2.80798	2.89129	25.37001	205.35550	-0.00305	0.00055	0.0975	0.08226	-1.52039	0.00012	0.00064
236	BV1-	1655.5000	2.85780	2.89714	26.59358	230.71367	-0.00212	0.00321	0.0975	-0.23521	-1.64938	0.00012	0.00002
237	#BV-	1655.5000	2.85780	2.89714	26.59358	230.71367	-0.00212	0.00321	0.0975	-0.23521	-1.64938	0.00012	0.00002
238	D	1656.5000	2.86373	2.89783	27.10367	234.02856	-0.00200	0.00322	0.0975	-0.27489	-1.66551	0.00012	0.00002
239	D5	1657.0000	2.86665	2.89817	27.38848	235.69810	-0.00195	0.00323	0.0975	-0.29473	-1.67357	0.00012	0.00002
240	5QD	1663.8000	2.90222	2.90263	35.04059	244.93642	-0.00120	0.00327	0.0975	-0.85221	0.34132	0.00010	-0.00001
241	#5QD	1663.8000	2.90222	2.90263	35.04059	244.93642	-0.00120	0.00327	0.0975	-0.85221	0.34132	0.00010	-0.00001
242	5QD	1670.6000	2.92807	2.90718	51.47382	226.76848	-0.00053	0.00311	0.0975	-1.61090	2.27867	0.00010	-0.00004
243	D56	1718.9600	2.98500	2.96976	370.61736	70.23756	0.00411	0.00136	0.0975	-4.98843	0.95811	0.00010	-0.00004
244	6QF	1722.3600	2.98641	2.97774	391.65455	66.38904	0.00436	0.00126	0.0975	-1.12622	0.18706	0.00005	-0.00002
245	#6QF	1722.3600	2.98641	2.97774	391.65455	66.38904	0.00436	0.00126	0.0975	-1.12622	0.18706	0.00005	-0.00002
246	6QF	1725.7600	2.98779	2.98586	385.57711	67.63345	0.00446	0.00121	0.0975	2.89268	-0.55735	0.00001	-0.00001
247	D6	1729.6600	2.98945	2.99475	363.38370	72.27552	0.00448	0.00117	0.0975	2.79793	-0.63292	0.00001	-0.00001
248	OOQ	1734.7900	2.99179	3.00554	335.31627	79.27931	0.00451	0.00112	0.0975	2.67330	-0.73234	0.00001	-0.00001
249	B	1751.3300	3.00082	3.03404	253.52919	108.80640	0.01815	0.00095	0.0975	2.27150	-1.05286	0.00164	-0.00001
250	O	1752.1300	3.00133	3.03520	249.91034	110.50338	0.01946	0.00095	0.0975	2.25206	-1.06836	0.00164	-0.00001
251	B	1768.6700	3.01368	3.05562	182.05819	151.14614	0.06016	0.00078	0.0976	1.85024	-1.38888	0.00328	-0.00001
252	O	1769.4700	3.01439	3.05646	179.11336	153.38075	0.06278	0.00077	0.0976	1.83080	-1.40438	0.00328	-0.00001
253	B	1786.0100	3.03200	3.07132	125.19690	205.13918	0.13054	0.00061	0.0978	1.42896	-1.72490	0.00491	-0.00001
254	O	1786.8100	3.03303	3.07194	122.92612	207.91143	0.13447	0.00060	0.0978	1.40952	-1.74041	0.00491	-0.00001
255	B	1803.3500	3.05922	3.08304	82.94596	270.78552	0.22930	0.00044	0.0980	1.00766	-2.06093	0.00655	-0.00001
256	O	1804.1500	3.06077	3.08351	81.34926	274.09541	0.23454	0.00043	0.0980	0.98822	-2.07643	0.00655	-0.00001
257	B	1820.6900	3.10042	3.09203	55.30584	348.08517	0.35642	0.00027	0.0985	0.58635	-2.39695	0.00819	-0.00001
258	OG	1821.5602	3.10295	3.09243	54.30374	352.27157	0.36355	0.00026	0.0985	0.56521	-2.41382	0.00819	-0.00001
259	CQD	1824.0000	3.11023	3.09352	52.69013	357.39494	0.38703	0.00023	0.0985	0.10034	0.32715	0.01109	-0.00001
260	#CQD	1824.0000	3.11023	3.09352	52.69013	357.39494	0.38703	0.00023	0.0985	0.10034	0.32715	0.01109	-0.00001
261	CQD	1826.4398	3.11759	3.09462	53.31215	349.11900	0.41784	0.00020	0.0985	-0.35689	3.04351	0.01421	-0.00001
262	OOG	1830.7900	3.13018	3.09668	56.81744	323.19546	0.47965	0.00014	0.0985	-0.44888	2.91563	0.01421	-0.00001
263	B	1847.3300	3.17029	3.10624	77.45145	234.78855	0.72817	-0.00008	0.0995	-0.79864	2.42941	0.01584	-0.00001
264	O	1848.1300	3.17192	3.10679	78.74280	230.92031	0.74085	-0.00009	0.0995	-0.81555	2.40589	0.01584	-0.00001
265	B	1864.6700	3.20016	3.12053	111.50612	159.37559	1.01644	-0.00032	0.1009	-1.16530	1.91967	0.01748	-0.00001
266	O	1865.4700	3.20129	3.12133	113.38413	156.32293	1.03042	-0.00033	0.1009	-1.18221	1.89615	0.01748	-0.00001
267	B	1882.0100	3.22099	3.14228	158.27630	101.64039	1.33307	-0.00055	0.1029	-1.53195	1.40993	0.01912	-0.00001
268	O	1882.8100	3.22179	3.14354	160.74103	99.40332	1.34836	-0.00056	0.1029	-1.54886	1.38641	0.01912	-0.00001
269	B	1899.3500	3.23588	3.17744	217.76172	61.58297	1.67807	-0.00078	0.1053	-1.89858	0.90019	0.02075	-0.00001

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
270	O	1900.1500	3.23646	3.17954	220.81298	60.16149	1.69467	-0.00079	0.1053	-1.91549	0.87667	0.02075	-0.00001
271	B	1916.6900	3.24687	3.23485	289.96146	39.20332	2.05143	-0.00102	0.1084	-2.26519	0.39045	0.02239	-0.00001
272	OH	1917.5961	3.24736	3.23856	294.08382	38.51988	2.07172	-0.00103	0.1084	-2.28435	0.36381	0.02239	-0.00001
273	HQF	1920.0000	3.24865	3.24865	299.68650	37.63188	2.10638	-0.00107	0.1084	-0.03204	0.00785	0.00640	-0.00002
274	#HQF	1920.0000	3.24865	3.24865	299.68650	37.63188	2.10638	-0.00107	0.1084	-0.03204	0.00785	0.00640	-0.00002
275	HQF	1922.4039	3.24993	3.25874	294.38813	38.44349	2.10242	-0.00113	0.1084	2.22261	-0.34754	-0.00970	-0.00003
276	OOH	1926.7900	3.25238	3.27614	275.27910	42.05300	2.05989	-0.00126	0.1084	2.13411	-0.47541	-0.00970	-0.00003
277	B	1943.3300	3.26334	3.32706	210.20214	65.75519	1.91306	-0.00176	0.1117	1.80041	-0.95761	-0.00806	-0.00003
278	O	1944.1300	3.26395	3.32898	207.33440	67.30603	1.90661	-0.00178	0.1117	1.78427	-0.98094	-0.00806	-0.00003
279	B	1960.6700	3.27871	3.36009	153.83059	107.73116	1.78684	-0.00228	0.1147	1.45055	-1.46314	-0.00642	-0.00003
280	O	1961.4700	3.27954	3.36126	151.52263	110.09085	1.78170	-0.00230	0.1147	1.43440	-1.48647	-0.00642	-0.00003
281	B	1978.0100	3.30002	3.38071	109.59256	167.23891	1.68898	-0.00280	0.1175	1.10067	-1.96867	-0.00479	-0.00003
282	O	1978.8100	3.30120	3.38146	107.84441	170.40745	1.68515	-0.00282	0.1175	1.08452	-1.99200	-0.00479	-0.00003
283	B	1995.3500	3.33015	3.39438	77.48855	244.27844	1.61950	-0.00331	0.1202	0.75077	-2.47420	-0.00315	-0.00003
284	O	1996.1500	3.33181	3.39489	76.30023	248.25583	1.61698	-0.00334	0.1202	0.73463	-2.49753	-0.00315	-0.00003
285	B	2012.6900	3.37197	3.40398	57.51893	338.84975	1.57838	-0.00383	0.1228	0.40088	-2.97973	-0.00152	-0.00003
286	OI	2013.7059	3.37480	3.40445	56.72524	344.93419	1.57684	-0.00386	0.1228	0.38037	-3.00935	-0.00152	-0.00003
287	IQD	2016.0000	3.38130	3.40549	56.02127	353.00409	1.58656	-0.00390	0.1228	-0.07180	-0.48872	0.01000	0.00000
288	#IQD	2016.0000	3.38130	3.40549	56.02127	353.00409	1.58656	-0.00390	0.1228	-0.07180	-0.48872	0.01000	0.00000
289	IQD	2018.2941	3.38776	3.40653	57.39150	349.36904	1.62284	-0.00387	0.1228	-0.52881	2.06442	0.02168	0.00003
290	OOI	2022.7900	3.39970	3.40863	62.59717	331.11054	1.72032	-0.00375	0.1228	-0.62905	1.99671	0.02168	0.00003
291	B	2039.3300	3.43517	3.41745	89.50583	269.17975	2.09246	-0.00331	0.1259	-0.99783	1.74760	0.02332	0.00003
292	O	2040.1300	3.43658	3.41793	91.11662	266.39324	2.11111	-0.00329	0.1259	-1.01566	1.73555	0.02332	0.00003
293	B	2056.6700	3.46078	3.42899	130.81418	213.10151	2.51031	-0.00284	0.1297	-1.38443	1.48644	0.02495	0.00003
294	O	2057.4700	3.46175	3.42959	133.04353	210.73284	2.53027	-0.00282	0.1297	-1.40226	1.47439	0.02495	0.00003
295	B	2074.0100	3.47853	3.44368	185.52953	166.08018	2.95653	-0.00238	0.1342	-1.77101	1.22528	0.02659	0.00003
296	O	2074.8100	3.47921	3.44445	188.37742	164.12936	2.97780	-0.00236	0.1342	-1.78885	1.21324	0.02659	0.00003
297	B	2091.3500	3.49127	3.46264	253.65129	128.11576	3.43110	-0.00191	0.1394	-2.15757	0.96413	0.02822	0.00003
298	O	2092.1500	3.49177	3.46364	257.11768	126.58279	3.45368	-0.00189	0.1394	-2.17541	0.95208	0.02822	0.00003
299	B	2108.6900	3.50074	3.48722	335.17867	99.20825	3.93405	-0.00145	0.1455	-2.54411	0.70297	0.02986	0.00003
300	OJ	2109.9750	3.50134	3.48930	341.75376	97.42650	3.97242	-0.00141	0.1455	-2.57276	0.68362	0.02986	0.00003
301	JQF	2112.0000	3.50227	3.49264	347.74013	95.97084	4.00690	-0.00137	0.1455	-0.37059	0.03834	0.00416	0.00002
302	#JQF	2112.0000	3.50227	3.49264	347.74013	95.97084	4.00690	-0.00137	0.1455	-0.37059	0.03834	0.00416	0.00002
303	JQF	2114.0250	3.50320	3.49599	344.72956	97.11326	3.98922	-0.00134	0.1455	1.85081	-0.60494	-0.02160	0.00001
304	OOJ	2118.7900	3.50546	3.50356	327.38284	103.19762	3.88631	-0.00130	0.1455	1.78964	-0.67196	-0.02160	0.00001
305	B	2135.3300	3.51429	3.52643	271.69268	129.27389	3.54262	-0.00115	0.1516	1.57735	-0.90460	-0.01996	0.00001
306	O	2136.1300	3.51476	3.52741	269.17713	130.73025	3.52665	-0.00114	0.1516	1.56708	-0.91585	-0.01996	0.00001
307	B	2152.6700	3.52557	3.54538	220.84959	164.87458	3.21001	-0.00099	0.1571	1.35477	-1.14850	-0.01833	0.00001
308	O	2153.4700	3.52615	3.54615	218.69017	166.72118	3.19535	-0.00098	0.1571	1.34450	-1.15975	-0.01833	0.00001
309	B	2170.0100	3.53952	3.56027	177.72579	208.93359	2.90576	-0.00083	0.1620	1.13218	-1.39239	-0.01669	0.00001
310	O	2170.8100	3.54024	3.56088	175.92251	211.17041	2.89241	-0.00082	0.1620	1.12191	-1.40364	-0.01669	0.00001
311	B	2187.3500	3.55690	3.57209	142.32176	261.45089	2.62988	-0.00067	0.1666	0.90957	-1.63629	-0.01505	0.00001
312	O	2188.1500	3.55780	3.57258	140.87466	264.07796	2.61784	-0.00066	0.1666	0.89930	-1.64754	-0.01505	0.00001
313	B	2204.6900	3.57858	3.58160	114.63790	322.42651	2.38237	-0.00051	0.1706	0.68696	-1.88018	-0.01342	0.00001
314	OK	2206.2602	3.58078	3.58237	112.51226	328.36566	2.36130	-0.00050	0.1706	0.66680	-1.90227	-0.01342	0.00001

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
315	KQD	2208.0000	3.58325	3.58321	111.30188	331.83647	2.34928	-0.00048	0.1706	0.03113	-0.08626	-0.00041	0.00001
316	#KQD	2208.0000	3.58325	3.58321	111.30188	331.83647	2.34928	-0.00048	0.1706	0.03113	-0.08626	-0.00041	0.00001
317	KQD	2209.7398	3.58574	3.58404	112.29422	328.96213	2.35988	-0.00046	0.1706	-0.60333	1.73306	0.01260	0.00001
318	OOK	2214.7900	3.59270	3.58655	118.69792	311.76801	2.42351	-0.00038	0.1706	-0.66468	1.67159	0.01260	0.00001
319	B	2231.3300	3.61289	3.59581	144.00810	259.80104	2.64545	-0.00015	0.1748	-0.86556	1.47030	0.01424	0.00001
320	O	2232.1300	3.61377	3.59630	145.40077	257.45634	2.65684	-0.00013	0.1748	-0.87528	1.46057	0.01424	0.00001
321	B	2248.6700	3.63017	3.60757	177.67750	212.47019	2.90583	0.00010	0.1793	-1.07615	1.25927	0.01587	0.00001
322	O	2249.4700	3.63089	3.60817	179.40712	210.46314	2.91853	0.00012	0.1793	-1.08587	1.24954	0.01587	0.00001
323	B	2266.0100	3.64419	3.62200	218.65003	172.45781	3.19458	0.00036	0.1843	-1.28673	1.04825	0.01751	0.00001
324	O	2266.8100	3.64477	3.62274	220.71658	170.78840	3.20859	0.00037	0.1843	-1.29645	1.03851	0.01751	0.00001
325	B	2283.3500	3.65563	3.63982	266.92525	139.76389	3.51169	0.00061	0.1898	-1.49730	0.83722	0.01914	0.00001
326	O	2284.1500	3.65610	3.64073	269.32870	138.43214	3.52701	0.00062	0.1898	-1.50702	0.82748	0.01914	0.00001
327	B	2300.6900	3.66504	3.66171	322.50259	114.38845	3.85717	0.00086	0.1959	-1.70785	0.62619	0.02078	0.00001
328	OQ	2302.3400	3.66585	3.66403	328.17156	112.35516	3.89145	0.00088	0.1959	-1.72789	0.60611	0.02078	0.00001
329	QF	2304.0000	3.66665	3.66639	331.04917	111.34931	3.90891	0.00091	0.1959	-0.00057	0.00159	0.00024	0.00002
330	#QF	2304.0000	3.66665	3.66639	331.04917	111.34931	3.90891	0.00091	0.1959	-0.00057	0.00159	0.00024	0.00002
331	QF	2305.6600	3.66745	3.66876	328.17529	112.34456	3.89223	0.00094	0.1959	1.72678	-0.60288	-0.02031	0.00002
332	OOS	2311.6400	3.67044	3.67696	307.95693	119.98896	3.77078	0.00109	0.1959	1.65422	-0.67545	-0.02031	0.00002
333	B	2328.1800	3.67981	3.69692	256.55385	145.65310	3.44839	0.00148	0.2018	1.45358	-0.87619	-0.01867	0.00002
334	O	2328.9800	3.68031	3.69779	254.23588	147.06277	3.43345	0.00150	0.2018	1.44387	-0.88590	-0.01867	0.00002
335	B	2345.5200	3.69172	3.71402	209.79129	179.68845	3.13812	0.00190	0.2071	1.24322	-1.08663	-0.01704	0.00002
336	O	2346.3200	3.69233	3.71472	207.80990	181.43483	3.12449	0.00192	0.2071	1.23351	-1.09634	-0.01704	0.00002
337	B	2362.8600	3.70634	3.72788	170.32431	221.02205	2.85621	0.00232	0.2120	1.03284	-1.29708	-0.01540	0.00002
338	O	2363.6600	3.70709	3.72846	168.67952	223.10514	2.84388	0.00234	0.2120	1.02314	-1.30679	-0.01540	0.00002
339	B	2380.2000	3.72437	3.73920	138.15334	269.65389	2.60266	0.00273	0.2165	0.82246	-1.50752	-0.01377	0.00002
340	O	2381.0000	3.72529	3.73967	136.84517	272.07370	2.59165	0.00275	0.2165	0.81275	-1.51723	-0.01377	0.00002
341	B	2397.5400	3.74650	3.74852	113.27875	325.58398	2.37748	0.00315	0.2205	0.61206	-1.71797	-0.01213	0.00002
342	O	2398.3400	3.74763	3.74890	112.30722	328.34050	2.36777	0.00317	0.2205	0.60235	-1.72768	-0.01213	0.00002
343	QD	2400.0000	3.74999	3.74970	111.31358	331.21537	2.35796	0.00319	0.2205	-0.00203	0.00088	0.00030	0.00001
344	ZDUC	4992.0000	4.66613	4.66606	111.37077	331.65560	2.36484	-0.01079	0.4914	0.00000	0.00000	0.00030	0.00000

CIRCUMFERENCE = 4992.0000 M THETX = 0.22907446 RAD NUX = 4.66613 DNUX/(DP/P) = -8.67236
RADIUS = 794.5015 M THETY = 0.00000000 RAD NUY = 4.66606 DNUY/(DP/P) = -8.67829
(DS/S)/(DP/P) = 0.0000984 TCAM=(100.79042, 0.00000)

MAXIMA --- BETX(175) = 687.14351 BETY(155) = 688.17701 XEQ(302) = 4.00690 YEQ(200) = 0.28415
MINIMA --- BETX(166) = 6.00586 BETY(166) = 5.99598 XEQ(120) = 0.00022 YEQ(166) = -0.00001

*** ... . // .....

*** ... . // .....

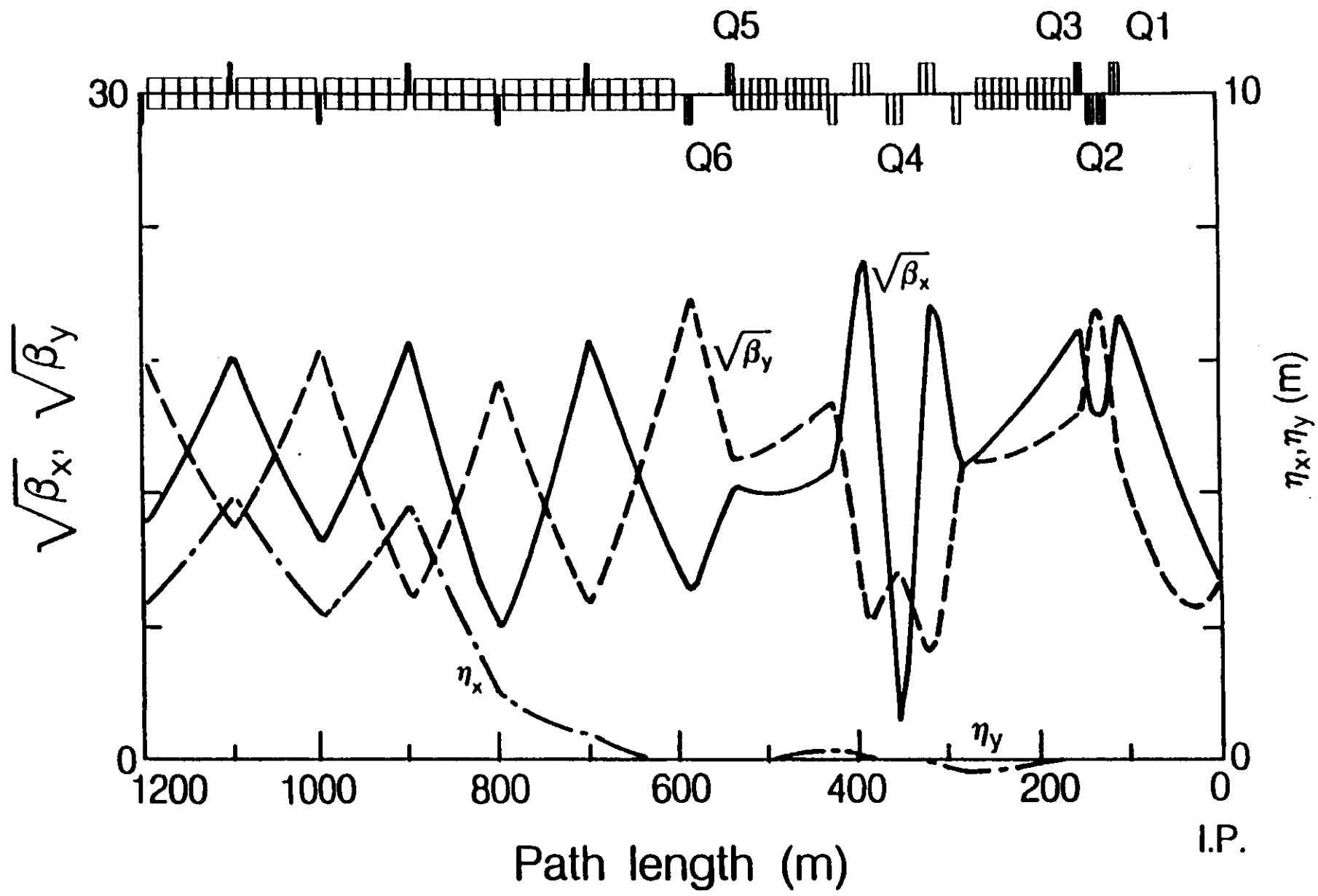

Figure 11. Long IR, Medium-β Module (left side) — Injection Optics

XBL 861-11278

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    Intermediate-Beta Module --
***  PRS    PRNT          //  DD0  D1   D22  D23  DD3  DV3  DDV2 DDV3 DD56 DD6
 *                        //  LP1  LP2  LP3  LP4  LP5  LP6
 *                        //  KK1  KK2  KK3  KK4  KK5  KK6
-------------------------------------------------------------------------------
VARIABLE  1 OF TYPE 5 (LQ  )
      DD0                 D1                  D22                 D23
   101.650000000          5.900000000         4.500000000         5.000000000
      DD3                 DV3                 DDV2                DDV3
     6.080000000          12.000000000        13.170000000        35.000000000
      DD56                DD6                 LP1                 LP2
    37.510000000          10.650000000        4.600000000         3.750000000
      LP3                 LP4                 LP5                 LP6
     3.500000000          7.546400000         3.750000000         3.750000000
      KK1                 KK2                 KK3                 KK4
     0.002714744         -0.002901416         0.003022327        -0.002435395
      KK5                 KK6
     0.001651131         -0.002062501
-------------------------------------------------------------------------------

***  ZDUI   MMM           //  ,ZDU .CD
***  ,2XX   BML           //  ,ZUD ZDUI
***  2XX    BEST          //  ,2XX
-------------------------------------------------------------------------------
```

BETATRON FUNCTIONS OF 2XX

POS		S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0		0.0000	0.00000	0.00000	111.37071	331.65596	2.36707	0.00564	0.0000	0.00000	0.00000	0.00024	-0.00005
1	#QD	0.0000	0.00000	0.00000	111.37071	331.65596	2.36707	0.00564	0.0000	0.00000	0.00000	0.00024	-0.00005
2	QD	1.6600	0.00237	0.00080	112.37161	328.77434	2.37782	0.00554	0.0000	-0.60471	1.73086	0.01272	-0.00007
3	OOQ	6.7900	0.00943	0.00335	118.89582	311.33561	2.44309	0.00515	0.0000	-0.66706	1.66851	0.01272	-0.00007
4	B	23.3300	0.02958	0.01262	144.28660	259.46634	2.66705	0.00392	0.0042	-0.86805	1.46748	0.01436	-0.00007
5	O	24.1300	0.03046	0.01311	145.68326	257.12615	2.67854	0.00386	0.0042	-0.87777	1.45776	0.01436	-0.00007
6	B	40.6700	0.04684	0.02439	178.04431	212.22839	2.92955	0.00262	0.0088	-1.07876	1.25674	0.01599	-0.00007
7	O	41.4700	0.04755	0.02499	179.77809	210.22540	2.94235	0.00256	0.0088	-1.08848	1.24701	0.01599	-0.00007
8	B	58.0100	0.06083	0.03884	219.10904	172.29916	3.22042	0.00133	0.0138	-1.28945	1.04599	0.01763	-0.00007
9	O	58.8100	0.06140	0.03958	221.17993	170.63335	3.23452	0.00127	0.0138	-1.29917	1.03627	0.01763	-0.00007
10	B	75.3500	0.07224	0.05667	267.48033	139.67863	3.53965	0.00003	0.0193	-1.50013	0.83524	0.01927	-0.00007
11	O	76.1500	0.07271	0.05758	269.88831	138.35002	3.55506	-0.00003	0.0193	-1.50985	0.82552	0.01927	-0.00007
12	B	92.6900	0.08163	0.07857	323.15765	114.36682	3.88724	-0.00126	0.0254	-1.71079	0.62449	0.02090	-0.00007
13	OK	94.2602	0.08239	0.08078	328.56011	112.43564	3.92006	-0.00138	0.0254	-1.72987	0.60541	0.02090	-0.00007
14	QFK	96.0000	0.08323	0.08325	331.42722	111.43741	3.93753	-0.00152	0.0254	0.08721	-0.02981	-0.00084	-0.00008
15	#QFK	96.0000	0.08323	0.08325	331.42722	111.43741	3.93753	-0.00152	0.0254	0.08721	-0.02981	-0.00084	-0.00008
16	QFK	97.7398	0.08407	0.08573	327.95706	112.64445	3.91715	-0.00167	0.0254	1.90095	-0.66619	-0.02257	-0.00009
17	OOK	102.7900	0.08660	0.09265	309.11558	119.70009	3.80318	-0.00213	0.0254	1.82990	-0.73092	-0.02257	-0.00009
18	B	119.3300	0.09602	0.11252	252.43020	147.38531	3.44342	-0.00364	0.0313	1.59726	-0.94292	-0.02093	-0.00009
19	O	120.1300	0.09653	0.11338	249.88358	148.90218	3.42668	-0.00371	0.0313	1.58601	-0.95317	-0.02093	-0.00009
20	B	136.6700	0.10828	0.12932	201.26649	183.93954	3.09398	-0.00523	0.0367	1.35335	-1.16517	-0.01930	-0.00009
21	O	137.4700	0.10892	0.13000	199.11013	185.81201	3.07854	-0.00530	0.0367	1.34210	-1.17542	-0.01930	-0.00009
22	B	154.0100	0.12375	0.14280	158.56189	228.20151	2.77289	-0.00681	0.0415	1.10943	-1.38742	-0.01766	-0.00009
23	O	154.8100	0.12456	0.14336	156.79581	230.42959	2.75876	-0.00689	0.0415	1.09817	-1.39768	-0.01766	-0.00009
24	B	171.3500	0.14346	0.15373	124.31687	280.17122	2.48017	-0.00840	0.0457	0.86549	-1.60968	-0.01603	-0.00009
25	O	172.1500	0.14449	0.15418	122.94110	282.75490	2.46735	-0.00847	0.0457	0.85423	-1.61993	-0.01603	-0.00009
26	B	188.6900	0.16850	0.16267	98.53182	339.84867	2.21582	-0.00999	0.0496	0.62154	-1.83193	-0.01439	-0.00009
27	OJ	189.9750	0.17059	0.16327	96.95771	344.57783	2.19733	-0.01010	0.0496	0.60346	-1.84840	-0.01439	-0.00009
28	QDJ	192.0000	0.17394	0.16420	95.81931	347.58059	2.18246	-0.01022	0.0496	-0.03885	0.37201	-0.00031	-0.00003
29	#QDJ	192.0000	0.17394	0.16420	95.81931	347.58059	2.18246	-0.01022	0.0496	-0.03885	0.37201	-0.00031	-0.00003
30	QDJ	194.0250	0.17729	0.16513	97.27515	341.59059	2.19606	-0.01021	0.0496	-0.68320	2.57312	0.01376	0.00004
31	OOJ	198.7900	0.18483	0.16744	104.12833	317.57538	2.26163	-0.01002	0.0496	-0.75504	2.46681	0.01376	0.00004
32	B	215.3300	0.20725	0.17694	133.22989	242.07660	2.50275	-0.00936	0.0535	-1.00442	2.09780	0.01540	0.00004
33	O	216.1300	0.20820	0.17747	134.84661	238.73439	2.51507	-0.00933	0.0535	-1.01648	2.07996	0.01540	0.00004
34	B	232.6700	0.22549	0.19032	172.59638	176.03291	2.78324	-0.00867	0.0578	-1.26585	1.71094	0.01703	0.00004
35	O	233.4700	0.22622	0.19105	174.63138	173.30967	2.79687	-0.00864	0.0578	-1.27791	1.69310	0.01703	0.00004
36	B	250.0100	0.23964	0.20909	221.02893	123.40549	3.09210	-0.00798	0.0626	-1.52726	1.32409	0.01867	0.00004
37	O	250.8100	0.24021	0.21013	223.48219	121.30123	3.10704	-0.00795	0.0626	-1.53932	1.30624	0.01867	0.00004
38	B	267.3500	0.25077	0.23630	278.52700	84.19434	3.42933	-0.00729	0.0680	-1.78866	0.93723	0.02030	0.00004
39	O	268.1500	0.25122	0.23782	281.39850	82.70905	3.44557	-0.00726	0.0680	-1.80072	0.91938	0.02030	0.00004
40	B	284.6900	0.25967	0.27607	345.08994	58.39946	3.79491	-0.00660	0.0739	-2.05003	0.55037	0.02194	0.00004
41	OI	285.7059	0.26014	0.27886	349.27084	57.30423	3.81720	-0.00656	0.0739	-2.06535	0.52770	0.02194	0.00004
42	QFI	288.0000	0.26118	0.28533	352.91183	55.93775	3.83552	-0.00652	0.0739	0.48708	0.07127	-0.00599	-0.00001
43	#QFI	288.0000	0.26118	0.28533	352.91183	55.93775	3.83552	-0.00652	0.0739	0.48708	0.07127	-0.00599	-0.00001
44	QFI	290.2941	0.26222	0.29184	344.85089	56.64292	3.78977	-0.00659	0.0739	3.00711	-0.38037	-0.03383	-0.00006

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
45	OOI	294.7900	0.26438	0.30407	318.40008	60.47163	3.63769	-0.00684	0.0739	2.87618	-0.47123	-0.03383	-0.00006
46	B	311.3300	0.27409	0.34191	231.22227	81.58833	3.09170	-0.00776	0.0794	2.39454	-0.80548	-0.03219	-0.00006
47	O	312.1300	0.27464	0.34345	227.40964	82.89003	3.06594	-0.00781	0.0794	2.37124	-0.82165	-0.03219	-0.00006
48	B	328.6700	0.28860	0.37048	156.93561	115.59860	2.54701	-0.00873	0.0840	1.88958	-1.15590	-0.03056	-0.00006
49	O	329.4700	0.28942	0.37157	153.93092	117.46097	2.52256	-0.00877	0.0840	1.86628	-1.17206	-0.03056	-0.00006
50	B	346.0100	0.31068	0.39071	100.16145	161.76141	2.03069	-0.00969	0.0877	1.38459	-1.50632	-0.02892	-0.00006
51	O	346.8100	0.31196	0.39149	97.96474	164.18445	2.00755	-0.00973	0.0877	1.36129	-1.52248	-0.02892	-0.00006
52	B	363.3500	0.34631	0.40536	60.90043	220.07675	1.54273	-0.01065	0.0906	0.87959	-1.85674	-0.02728	-0.00006
53	O	364.1500	0.34843	0.40593	59.51173	223.06046	1.52090	-0.01070	0.0906	0.85629	-1.87290	-0.02728	-0.00006
54	B	380.6900	0.40409	0.41628	39.15300	290.54463	1.08314	-0.01162	0.0927	0.37458	-2.20716	-0.02565	-0.00006
55	OH	381.5961	0.40780	0.41677	38.49809	294.56106	1.05990	-0.01167	0.0927	0.34819	-2.22547	-0.02565	-0.00006
56	QDH	384.0000	0.41789	0.41806	37.68412	299.87003	1.00780	-0.01169	0.0927	-0.00752	0.03051	-0.01776	0.00003
57	#QDH	384.0000	0.41789	0.41806	37.68412	299.87003	1.00780	-0.01169	0.0927	-0.00752	0.03051	-0.01776	0.00003
58	QDH	386.4039	0.42796	0.41934	38.57126	294.27123	0.97424	-0.01150	0.0927	-0.36378	2.28427	-0.01020	0.00012
59	OOH	390.7900	0.44527	0.42180	42.32720	274.63963	0.92948	-0.01097	0.0927	-0.49255	2.19159	-0.01020	0.00012
60	B	407.3300	0.49567	0.43282	66.65170	207.92231	0.77424	-0.00894	0.0941	-0.97810	1.84210	-0.00857	0.00012
61	O	408.1300	0.49756	0.43344	68.23545	204.98847	0.76738	-0.00884	0.0941	-1.00159	1.82520	-0.00857	0.00012
62	B	424.6700	0.52821	0.44845	109.39883	150.39133	0.63920	-0.00682	0.0953	-1.48713	1.47571	-0.00693	0.00012
63	O	425.4700	0.52936	0.44931	111.79703	148.04371	0.63366	-0.00672	0.0953	-1.51061	1.45881	-0.00693	0.00012
64	B	442.0100	0.54852	0.47043	169.79884	105.56676	0.53253	-0.00469	0.0962	-1.99614	1.10932	-0.00530	0.00012
65	O	442.8100	0.54926	0.47164	173.01146	103.80536	0.52830	-0.00459	0.0962	-2.01963	1.09242	-0.00530	0.00012
66	B	459.3500	0.56199	0.50197	247.85104	73.44860	0.45424	-0.00257	0.0970	-2.50513	0.74293	-0.00366	0.00012
67	O	460.1500	0.56250	0.50372	251.87804	72.27342	0.45131	-0.00247	0.0970	-2.52862	0.72603	-0.00366	0.00012
68	B	476.6900	0.57145	0.54635	343.55457	54.03684	0.40431	-0.00044	0.0977	-3.01409	0.37654	-0.00202	0.00012
69	OG	477.5602	0.57185	0.54893	348.82261	53.39749	0.40255	-0.00033	0.0977	-3.03964	0.35816	-0.00202	0.00012
70	QFG	480.0000	0.57295	0.55627	357.08521	52.77074	0.39383	-0.00004	0.0977	-0.32559	-0.09965	-0.00512	0.00012
71	#QFG	480.0000	0.57295	0.55627	357.08521	52.77074	0.39383	-0.00004	0.0977	-0.32559	-0.09965	-0.00512	0.00012
72	QFG	482.4398	0.57404	0.56355	351.96014	54.38232	0.37767	0.00026	0.0977	2.41295	-0.56505	-0.00811	0.00012
73	OOG	486.7900	0.57606	0.57570	331.33329	59.75757	0.34238	0.00079	0.0977	2.32862	-0.67058	-0.00811	0.00012
74	B	503.3300	0.58505	0.61220	259.60453	88.57709	0.22176	0.00281	0.0982	2.00806	-1.07183	-0.00647	0.00012
75	O	504.1300	0.58554	0.61363	256.40405	90.30754	0.21658	0.00291	0.0982	1.99255	-1.09124	-0.00647	0.00012
76	B	520.6700	0.59730	0.63774	195.79296	133.04239	0.12302	0.00492	0.0984	1.67196	-1.49249	-0.00484	0.00012
77	O	521.4700	0.59795	0.63868	193.13023	135.44590	0.11915	0.00502	0.0984	1.65645	-1.51190	-0.00484	0.00012
78	B	538.0100	0.61378	0.65503	143.63750	192.09608	0.05265	0.00704	0.0986	1.33585	-1.91315	-0.00320	0.00012
79	O	538.8100	0.61468	0.65569	141.51255	195.17264	0.05009	0.00714	0.0986	1.32034	-1.93255	-0.00320	0.00012
80	B	555.3500	0.63654	0.66726	103.13874	265.73816	0.01065	0.00915	0.0986	0.99972	-2.33380	-0.00157	0.00012
81	O	556.1500	0.63778	0.66774	101.55159	269.48777	0.00940	0.00925	0.0986	0.98421	-2.35321	-0.00157	0.00012
82	B	572.6900	0.66827	0.67626	74.29712	353.96863	-0.00297	0.01127	0.0986	0.66358	-2.75446	0.00007	0.00012
83	OQ	574.3400	0.67186	0.67700	72.16009	363.12439	-0.00285	0.01147	0.0986	0.63159	-2.79449	0.00007	0.00012
84	DD6	584.9900	0.69754	0.68131	60.90600	425.39853	-0.00211	0.01277	0.0986	0.42513	-3.05285	0.00007	0.00012
85	PD6	588.7400	0.70749	0.68269	59.71444	435.97320	-0.00187	0.01304	0.0986	-0.10431	0.26025	0.00005	0.00002
86	#PD6	588.7400	0.70749	0.68269	59.71444	435.97320	-0.00187	0.01304	0.0986	-0.10431	0.26025	0.00005	0.00002
87	PD6	592.4900	0.71731	0.68407	62.50115	421.56978	-0.00169	0.01293	0.0986	-0.64598	3.54345	0.00004	-0.00008
88	DD56	630.0000	0.78228	0.70464	142.86774	200.98364	-0.00015	0.00998	0.0986	-1.49656	2.33728	0.00004	-0.00008
89	PF5	633.7500	0.78633	0.70772	150.94378	188.34004	0.00000	0.00980	0.0986	-0.64035	1.06040	0.00004	-0.00002

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
90	#PE5	633.7500	0.78633	0.70772	150.94378	188.34004	0.00000	0.00980	0.0986	-0.64035	1.06040	0.00004	-0.00002
91	PE5	637.5000	0.79025	0.71093	152.32506	184.83020	0.00016	0.00985	0.0986	0.27487	-0.11722	0.00004	0.00004
92	D	638.5000	0.79129	0.71179	151.78239	185.07012	0.00020	0.00989	0.0986	0.26781	-0.12270	0.00004	0.00004
93	#BV+	638.5000	0.79129	0.71179	151.78239	185.07012	0.00020	0.00989	0.0986	0.26781	-0.12270	0.00004	0.00004
94	BV1+	646.5000	0.79979	0.71863	147.94940	187.38426	0.00053	0.01273	0.0986	0.21132	-0.16657	0.00004	0.00067
95	D	647.5000	0.80087	0.71948	147.53382	187.72288	0.00057	0.01340	0.0986	0.20426	-0.17205	0.00004	0.00067
96	BV1+	655.5000	0.80959	0.72621	144.71759	190.82668	0.00090	0.02125	0.0986	0.14777	-0.21592	0.00004	0.00129
97	D	656.5000	0.81069	0.72704	144.42911	191.26401	0.00094	0.02254	0.0986	0.14071	-0.22141	0.00004	0.00129
98	BV1+	664.5000	0.81957	0.73363	142.62966	195.15745	0.00127	0.03538	0.0987	0.08422	-0.26527	0.00004	0.00192
99	D	665.5000	0.82068	0.73445	142.46827	195.69348	0.00131	0.03730	0.0987	0.07716	-0.27076	0.00004	0.00192
100	BV1+	673.5000	0.82965	0.74088	141.68559	200.37656	0.00164	0.05515	0.0987	0.02067	-0.31463	0.00004	0.00254
101	D	674.5000	0.83077	0.74167	141.65130	201.01129	0.00168	0.05769	0.0987	0.01361	-0.32011	0.00004	0.00254
102	BV1+	682.5000	0.83976	0.74792	141.88538	206.48400	0.00201	0.08053	0.0987	-0.04287	-0.36398	0.00004	0.00317
103	#BV+	682.5000	0.83976	0.74792	141.88538	206.48400	0.00201	0.08053	0.0987	-0.04287	-0.36398	0.00004	0.00317
104	DV3	694.5000	0.85314	0.75697	143.93112	216.00924	0.00250	0.11855	0.0987	-0.12760	-0.42979	0.00004	0.00317
105	#BV-	694.5000	0.85314	0.75697	143.93112	216.00924	0.00250	0.11855	0.0987	-0.12760	-0.42979	0.00004	0.00317
106	BV1-	702.5000	0.86191	0.76277	146.42469	223.23685	0.00283	0.14139	0.0986	-0.18409	-0.47366	0.00004	0.00254
107	D	703.5000	0.86300	0.76348	146.79993	224.18965	0.00287	0.14394	0.0986	-0.19115	-0.47914	0.00004	0.00254
108	BV1-	711.5000	0.87158	0.76906	150.31027	232.20686	0.00320	0.16178	0.0985	-0.24764	-0.52301	0.00004	0.00192
109	D	712.5000	0.87263	0.76975	150.81261	233.25836	0.00324	0.16370	0.0985	-0.25470	-0.52849	0.00004	0.00192
110	BV1-	720.5000	0.88095	0.77511	155.33972	242.06515	0.00357	0.17654	0.0984	-0.31119	-0.57236	0.00004	0.00129
111	D	721.5000	0.88198	0.77576	155.96916	243.21535	0.00361	0.17784	0.0984	-0.31825	-0.57784	0.00004	0.00129
112	BV1-	729.5000	0.89000	0.78090	161.51303	252.81171	0.00393	0.18568	0.0983	-0.37474	-0.62170	0.00004	0.00067
113	D	730.5000	0.89099	0.78153	162.26957	254.06060	0.00398	0.18635	0.0983	-0.38180	-0.62719	0.00004	0.00067
114	BV1-	738.5000	0.89868	0.78644	168.83021	264.44652	0.00430	0.18919	0.0982	-0.43828	-0.67105	0.00004	0.00004
115	#BV-	738.5000	0.89868	0.78644	168.83021	264.44652	0.00430	0.18919	0.0982	-0.43828	-0.67105	0.00004	0.00004
116	D	739.5000	0.89962	0.78704	169.71384	265.79410	0.00435	0.18924	0.0982	-0.44534	-0.67654	0.00004	0.00004
117	#QDV	739.5000	0.89962	0.78704	169.71384	265.79410	0.00435	0.18924	0.0982	-0.44534	-0.67654	0.00004	0.00004
118	#QDV	739.5000	0.89962	0.78704	169.71384	265.79410	0.00435	0.18924	0.0982	-0.44534	-0.67654	0.00004	0.00004
119	QDV	747.0464	0.90617	0.79175	210.31419	229.84251	0.00506	0.17269	0.0982	-5.25545	5.14969	0.00015	-0.00436
120	COV	766.9536	0.91622	0.81644	473.48494	72.25964	0.00809	0.08582	0.0982	-7.96443	2.76618	0.00015	-0.00436
121	QEV	774.5000	0.91860	0.83787	506.35649	46.41265	0.00849	0.05978	0.0982	3.87450	0.86306	-0.00005	-0.00264
122	#QEV	774.5000	0.91860	0.83787	506.35649	46.41265	0.00849	0.05978	0.0982	3.87450	0.86306	-0.00005	-0.00264
123	QEV	782.0464	0.92129	0.86574	370.13904	42.94888	0.00737	0.04472	0.0982	13.07391	-0.37670	-0.00024	-0.00141
124	COV	801.9536	0.94982	0.92555	33.68626	68.48360	0.00254	0.01667	0.0982	3.82715	-0.90599	-0.00024	-0.00141
125	PD4	809.5000	1.08851	0.94215	3.02282	73.30615	0.00084	0.00514	0.0982	0.42231	0.29675	-0.00021	-0.00161
126	#PD4	809.5000	1.08851	0.94215	3.02282	73.30615	0.00084	0.00514	0.0982	0.42231	0.29675	-0.00021	-0.00161
127	PD4	817.0464	1.33905	0.95983	19.72685	60.33150	-0.00074	-0.00709	0.0982	-2.73722	1.34233	-0.00021	-0.00159
128	COV	836.9536	1.38076	1.04494	299.31189	25.29171	-0.00494	-0.03882	0.0982	-11.30720	0.41782	-0.00021	-0.00159
129	QEV	844.5000	1.38404	1.09410	422.20804	25.86485	-0.00605	-0.05477	0.0982	-3.98375	-0.49830	-0.00008	-0.00270
130	#QEV	844.5000	1.38404	1.09410	422.20804	25.86485	-0.00605	-0.05477	0.0982	-3.98375	-0.49830	-0.00008	-0.00270
131	QEV	852.0464	1.38685	1.13191	405.57190	42.21464	-0.00607	-0.08079	0.0982	6.05365	-1.79742	0.00007	-0.00430
132	COV	871.9536	1.39795	1.17168	201.33527	153.49402	-0.00467	-0.16640	0.0982	4.20579	-3.79249	0.00007	-0.00430
133	QDV	879.5000	1.40456	1.17863	174.21790	183.30242	-0.00456	-0.18305	0.0982	-0.39818	0.08368	-0.00004	-0.00005
134	#QDV	879.5000	1.40456	1.17863	174.21790	183.30242	-0.00456	-0.18305	0.0982	-0.39818	0.08368	-0.00004	-0.00005

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
135	DDV2	892.6700	1.41622	1.19011	185.85927	182.05117	-0.00507	-0.18366	0.0982	-0.48576	0.01133	-0.00004	-0.00005
136	#BV+	892.6700	1.41622	1.19011	185.85927	182.05117	-0.00507	-0.18366	0.0982	-0.48576	0.01133	-0.00004	-0.00005
137	BV1+	900.6700	1.42292	1.19711	194.05695	182.22144	-0.00538	-0.18152	0.0981	-0.53896	-0.03261	-0.00004	0.00058
138	D	901.6700	1.42374	1.19798	195.14151	182.29216	-0.00542	-0.18094	0.0981	-0.54561	-0.03811	-0.00004	0.00058
139	BV1+	909.6700	1.43012	1.20495	204.29679	183.25339	-0.00573	-0.17381	0.0980	-0.59880	-0.08205	-0.00004	0.00120
140	D	910.6700	1.43090	1.20582	205.50105	183.42297	-0.00577	-0.17261	0.0980	-0.60545	-0.08754	-0.00004	0.00120
141	BV1+	918.6700	1.43695	1.21273	215.61393	185.17514	-0.00608	-0.16048	0.0979	-0.65865	-0.13148	-0.00004	0.00183
142	D	919.6700	1.43768	1.21359	216.93789	185.44359	-0.00612	-0.15865	0.0979	-0.66530	-0.13697	-0.00004	0.00183
143	BV1+	927.6700	1.44341	1.22041	228.00836	187.98670	-0.00643	-0.14151	0.0978	-0.71850	-0.18091	-0.00004	0.00245
144	#BV+	927.6700	1.44341	1.22041	228.00836	187.98670	-0.00643	-0.14151	0.0978	-0.71850	-0.18091	-0.00004	0.00245
145	DDV3	962.6700	1.46527	1.24877	286.44986	207.38039	-0.00779	-0.05562	0.0978	-0.95125	-0.37319	-0.00004	0.00245
146	#BV-	962.6700	1.46527	1.24877	286.44986	207.38039	-0.00779	-0.05562	0.0978	-0.95125	-0.37319	-0.00004	0.00245
147	BV1-	970.6700	1.46960	1.25482	302.09551	213.70296	-0.00810	-0.03849	0.0978	-1.00445	-0.41713	-0.00004	0.00183
148	D	971.6700	1.47013	1.25556	304.11107	214.54271	-0.00814	-0.03666	0.0978	-1.01110	-0.42262	-0.00004	0.00183
149	BV1-	979.6700	1.47420	1.26140	320.71431	221.65619	-0.00845	-0.02453	0.0978	-1.06430	-0.46656	-0.00004	0.00120
150	D	980.6700	1.47470	1.26212	322.84957	222.59481	-0.00849	-0.02332	0.0978	-1.07095	-0.47205	-0.00004	0.00120
151	BV1-	988.6700	1.47854	1.26774	340.41041	230.49919	-0.00880	-0.01619	0.0978	-1.12415	-0.51599	-0.00004	0.00058
152	D	989.6700	1.47901	1.26843	342.66536	231.53667	-0.00884	-0.01561	0.0978	-1.13080	-0.52149	-0.00004	0.00058
153	BV1-	997.6700	1.48263	1.27383	361.18379	240.23193	-0.00915	-0.01348	0.0979	-1.18400	-0.56542	-0.00004	-0.00005
154	#BV-	997.6700	1.48263	1.27383	361.18379	240.23193	-0.00915	-0.01348	0.0979	-1.18400	-0.56542	-0.00004	-0.00005
155	DD3	1003.7500	1.48525	1.27780	375.82708	247.31053	-0.00939	-0.01376	0.0979	-1.22443	-0.59882	-0.00004	-0.00005
156	PF3	1007.2500	1.48674	1.28001	370.52503	260.94451	-0.00935	-0.01417	0.0979	2.72057	-3.34456	0.00006	-0.00019
157	#PF3	1007.2500	1.48674	1.28001	370.52503	260.94451	-0.00935	-0.01417	0.0979	2.72057	-3.34456	0.00006	-0.00019
158	PF3	1010.7500	1.48830	1.28203	338.67233	295.29862	-0.00897	-0.01512	0.0979	6.26761	-6.59174	0.00016	-0.00035
159	D23	1015.7500	1.49089	1.28445	278.96980	364.97927	-0.00818	-0.01686	0.0979	5.67289	-7.34439	0.00016	-0.00035
160	PD2	1019.5000	1.49317	1.28599	248.48977	405.97409	-0.00775	-0.01781	0.0979	2.56536	-3.43848	0.00007	-0.00016
161	#PD2	1019.5000	1.49317	1.28599	248.48977	405.97409	-0.00775	-0.01781	0.0979	2.56536	-3.43848	0.00007	-0.00016
162	PD2	1023.2500	1.49563	1.28744	239.43416	415.16494	-0.00764	-0.01804	0.0979	-0.11777	1.02101	-0.00001	0.00004
163	D22	1027.7500	1.49862	1.28918	240.57987	406.07546	-0.00769	-0.01787	0.0979	-0.13683	0.99887	-0.00001	0.00004
164	PD2	1031.5000	1.50106	1.29068	251.64476	382.51004	-0.00790	-0.01737	0.0979	-2.85383	5.19954	-0.00010	0.00023
165	#PD2	1031.5000	1.50106	1.29068	251.64476	382.51004	-0.00790	-0.01737	0.0979	-2.85383	5.19954	-0.00010	0.00023
166	PD2	1035.2500	1.50331	1.29235	284.56125	330.18660	-0.00842	-0.01616	0.0979	-6.04296	8.56309	-0.00019	0.00041
167	D1	1041.1500	1.50624	1.29571	360.45759	236.97798	-0.00952	-0.01372	0.0979	-6.82083	7.23498	-0.00019	0.00041
168	PF1	1045.7500	1.50814	1.29922	403.25766	186.56846	-0.01009	-0.01220	0.0979	-2.30469	3.93265	-0.00006	0.00025
169	#PF1	1045.7500	1.50814	1.29922	403.25766	186.56846	-0.01009	-0.01220	0.0979	-2.30469	3.93265	-0.00006	0.00025
170	PF1	1050.3500	1.50994	1.30348	401.25841	161.81404	-0.01008	-0.01139	0.0979	2.73095	1.55139	0.00006	0.00010
171	DD0	1152.0000	1.61945	1.54704	63.85860	63.96018	-0.00353	-0.00073	0.0979	0.58828	-0.58874	0.00006	0.00010
172	#IPL	1152.0000	1.61945	1.54704	63.85860	63.96018	-0.00353	-0.00073	0.0979	0.58828	-0.58874	0.00006	0.00010
173	#IPL	1152.0000	1.61945	1.54704	63.85860	63.96018	-0.00353	-0.00073	0.0979	0.58828	-0.58874	0.00006	0.00010
174	DD0	1253.6500	1.86309	1.65645	162.06442	401.19523	0.00302	0.00993	0.0979	-1.55440	-2.72887	0.00006	0.00010
175	1PD	1258.2500	1.86734	1.65825	186.86273	403.17909	0.00340	0.01012	0.0979	-3.93937	2.30589	0.00010	-0.00002
176	#1PD	1258.2500	1.86734	1.65825	186.86273	403.17909	0.00340	0.01012	0.0979	-3.93937	2.30589	0.00010	-0.00002
177	1PD	1262.8500	1.87085	1.66015	237.35683	360.37319	0.00399	0.00974	0.0979	-7.24699	6.82087	0.00015	-0.00015
178	D1	1268.7500	1.87420	1.66309	330.72023	284.47746	0.00487	0.00888	0.0979	-8.57731	6.04281	0.00015	-0.00015
179	2PF	1272.5000	1.87587	1.66533	383.13114	251.55910	0.00533	0.00851	0.0979	-5.20833	2.85448	0.00009	-0.00005

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
180	#2PF	1272.5000	1.87587	1.66533	383.13114	251.55910	0.00533	0.00851	0.0979	-5.20833	2.85448	0.00009	-0.00005
181	2PF	1276.2500	1.87737	1.66778	406.73736	240.48603	0.00558	0.00849	0.0979	-1.00082	0.13839	0.00003	0.00004
182	D22	1280.7500	1.87911	1.67076	415.84436	239.32636	0.00573	0.00868	0.0979	-1.02296	0.11932	0.00003	0.00004
183	2PF	1284.5000	1.88055	1.67323	406.64042	248.36567	0.00575	0.00901	0.0979	3.44387	-2.56250	-0.00003	0.00014
184	#2PF	1284.5000	1.88055	1.67323	406.64042	248.36567	0.00575	0.00901	0.0979	3.44387	-2.56250	-0.00003	0.00014
185	2PF	1288.2500	1.88209	1.67551	365.57997	278.81788	0.00553	0.00971	0.0979	7.35626	-5.66824	-0.00009	0.00024
186	D23	1293.2500	1.88451	1.67810	295.78638	338.47074	0.00508	0.01090	0.0979	6.60246	-6.26233	-0.00009	0.00024
187	3PD	1296.7500	1.88653	1.67967	261.37650	370.29326	0.00486	0.01153	0.0979	3.34997	-2.71733	-0.00004	0.00012
188	#3PD	1296.7500	1.88653	1.67967	261.37650	370.29326	0.00486	0.01153	0.0979	3.34997	-2.71733	-0.00004	0.00012
189	3PD	1300.2500	1.88873	1.68115	247.72066	375.58128	0.00482	0.01173	0.0979	0.59973	1.22516	0.00001	0.00000
190	DD3	1306.3300	1.89269	1.68378	240.63078	360.92953	0.00491	0.01171	0.0979	0.56636	1.18467	0.00001	0.00000
191	#BV+	1306.3300	1.89269	1.68378	240.63078	360.92953	0.00491	0.01171	0.0979	0.56636	1.18467	0.00001	0.00000
192	BV1+	1314.3300	1.89808	1.68740	231.92025	342.40085	0.00502	0.01417	0.0979	0.52245	1.13141	0.00001	0.00062
193	D	1315.3300	1.89877	1.68787	230.88083	340.14468	0.00504	0.01479	0.0979	0.51696	1.12476	0.00001	0.00062
194	BV1+	1323.3300	1.90438	1.69171	222.96069	322.57466	0.00515	0.02226	0.0979	0.47305	1.07150	0.00001	0.00125
195	D	1324.3300	1.90510	1.69221	222.02007	320.43832	0.00517	0.02351	0.0979	0.46757	1.06484	0.00001	0.00125
196	BV1+	1332.3300	1.91093	1.69629	214.89030	303.82698	0.00528	0.03597	0.0979	0.42366	1.01158	0.00001	0.00187
197	D	1333.3300	1.91167	1.69681	214.04848	301.81048	0.00529	0.03784	0.0979	0.41817	1.00492	0.00001	0.00187
198	BV1+	1341.3300	1.91771	1.70115	207.70910	286.15784	0.00541	0.05531	0.0979	0.37426	0.95166	0.00001	0.00250
199	#BV+	1341.3300	1.91771	1.70115	207.70910	286.15784	0.00541	0.05531	0.0979	0.37426	0.95166	0.00001	0.00250
200	DDV3	1376.3300	1.94603	1.72304	188.23491	227.69954	0.00591	0.14267	0.0979	0.18215	0.71858	0.00001	0.00250
201	#BV-	1376.3300	1.94603	1.72304	188.23491	227.69954	0.00591	0.14267	0.0979	0.18215	0.71858	0.00001	0.00250
202	BV1-	1384.3300	1.95285	1.72877	185.67181	216.62841	0.00602	0.16013	0.0978	0.13824	0.66531	0.00001	0.00187
203	D	1385.3300	1.95370	1.72951	185.40082	215.30444	0.00603	0.16201	0.0978	0.13275	0.65865	0.00001	0.00187
204	BV1-	1393.3300	1.96061	1.73557	183.62809	205.19211	0.00615	0.17447	0.0977	0.08884	0.60539	0.00001	0.00125
205	D	1394.3300	1.96147	1.73635	183.45590	203.98800	0.00616	0.17572	0.0977	0.08335	0.59873	0.00001	0.00125
206	BV1-	1402.3300	1.96843	1.74273	182.47356	194.83449	0.00628	0.18318	0.0976	0.03944	0.54546	0.00001	0.00062
207	D	1403.3300	1.96931	1.74355	182.40017	193.75022	0.00629	0.18381	0.0976	0.03395	0.53880	0.00001	0.00062
208	BV1-	1411.3300	1.97629	1.75027	182.20821	185.55555	0.00640	0.18627	0.0975	-0.00996	0.48553	0.00001	0.00000
209	#BV-	1411.3300	1.97629	1.75027	182.20821	185.55555	0.00640	0.18627	0.0975	-0.00996	0.48553	0.00001	0.00000
210	DDV2	1424.5000	1.98777	1.76195	183.42252	173.92173	0.00659	0.18622	0.0975	-0.08224	0.39782	0.00001	0.00000
211	#QEV	1424.5000	1.98777	1.76195	183.42252	173.92173	0.00659	0.18622	0.0975	-0.08224	0.39782	0.00001	0.00000
212	QEV	1432.0464	1.99471	1.76857	153.57427	200.98873	0.00611	0.20329	0.0975	3.79602	-4.19837	-0.00014	0.00460
213	OOV	1451.9536	2.03448	1.77969	42.20282	404.87028	0.00331	0.29481	0.0975	1.79852	-6.04323	-0.00014	0.00460
214	QDV	1459.5000	2.07231	1.78251	25.83945	421.47899	0.00253	0.30218	0.0975	0.49911	3.97675	-0.00007	-0.00267
215	#QDV	1459.5000	2.07231	1.78251	25.83945	421.47899	0.00253	0.30218	0.0975	0.49911	3.97675	-0.00007	-0.00267
216	QDV	1467.0464	2.12154	1.78579	25.25247	298.79700	0.00220	0.25570	0.0975	-0.41669	11.28756	-0.00002	-0.00946
217	OOV	1486.9536	2.20678	1.82756	60.26074	19.69940	0.00190	0.06731	0.0975	-1.34189	2.73238	-0.00002	-0.00946
218	4PF	1494.5000	2.22448	2.07794	73.24051	3.02702	0.00165	-0.00104	0.0975	-0.29785	-0.42185	-0.00005	-0.00886
219	#4PF	1494.5000	2.22448	2.07794	73.24051	3.02702	0.00165	-0.00104	0.0975	-0.29785	-0.42185	-0.00005	-0.00886
220	4PF	1502.0464	2.24108	2.21662	68.44286	33.64380	0.00118	-0.06954	0.0975	0.90393	-3.82114	-0.00007	-0.00950
221	OOV	1521.9536	2.30090	2.24519	42.97466	369.54799	-0.00031	-0.25870	0.0975	0.37541	-13.05237	-0.00007	-0.00950
222	QDV	1529.5000	2.32874	2.24788	46.46292	505.53694	-0.00092	-0.30520	0.0975	-0.86521	-3.86761	-0.00009	-0.00264
223	#QDV	1529.5000	2.32874	2.24788	46.46292	505.53694	-0.00092	-0.30520	0.0975	-0.86521	-3.86761	-0.00009	-0.00264
224	QDV	1537.0464	2.35015	2.25027	72.35847	472.71030	-0.00170	-0.29731	0.0975	-2.77085	7.95196	-0.00012	0.00470

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
225	QOV	1556.9536	2.37480	2.26033	230.20390	209.95801	-0.00409	-0.20377	0.0975	-5.15822	5.24689	-0.00012	0.00470
226	QEV	1564.5000	2.37950	2.26689	266.21797	169.42252	-0.00460	-0.18595	0.0975	0.67728	0.44479	-0.00001	0.00009
227	#QEV	1564.5000	2.37950	2.26689	266.21797	169.42252	-0.00460	-0.18595	0.0975	0.67728	0.44479	-0.00001	0.00009
228	#QEV	1564.5000	2.37950	2.26689	266.21797	169.42252	-0.00460	-0.18595	0.0975	0.67728	0.44479	-0.00001	0.00009
229	D	1565.5000	2.38010	2.26784	264.86888	168.54002	-0.00462	-0.18586	0.0975	0.67181	0.43772	-0.00001	0.00009
230	#BV+	1565.5000	2.38010	2.26784	264.86888	168.54002	-0.00462	-0.18586	0.0975	0.67181	0.43772	-0.00001	0.00009
231	BV1+	1573.5000	2.38501	2.27554	254.47068	161.98895	-0.00473	-0.18260	0.0974	0.62797	0.38117	-0.00001	0.00072
232	D	1574.5000	2.38564	2.27653	253.22022	161.23369	-0.00475	-0.18188	0.0974	0.62249	0.37410	-0.00001	0.00072
233	BV1+	1582.5000	2.39076	2.28457	243.61105	155.70060	-0.00486	-0.17362	0.0973	0.57866	0.31754	-0.00001	0.00134
234	D	1583.5000	2.39142	2.28559	242.45922	155.07259	-0.00488	-0.17228	0.0973	0.57318	0.31047	-0.00001	0.00134
235	BV1+	1591.5000	2.39677	2.29393	233.63909	150.55748	-0.00499	-0.15902	0.0972	0.52934	0.25392	-0.00001	0.00197
236	D	1592.5000	2.39745	2.29499	232.58589	150.05672	-0.00501	-0.15705	0.0972	0.52386	0.24685	-0.00001	0.00197
237	BV1+	1600.5000	2.40302	2.30358	224.55479	146.55960	-0.00512	-0.13879	0.0971	0.48003	0.19029	-0.00001	0.00259
238	D	1601.5000	2.40373	2.30466	223.60022	146.18609	-0.00514	-0.13620	0.0971	0.47455	0.18322	-0.00001	0.00259
239	BV1+	1609.5000	2.40952	2.31345	216.35815	143.70698	-0.00525	-0.11294	0.0970	0.43071	0.12667	-0.00001	0.00322
240	#BV+	1609.5000	2.40952	2.31345	216.35815	143.70698	-0.00525	-0.11294	0.0970	0.43071	0.12667	-0.00001	0.00322
241	DV3	1621.5000	2.41856	2.32685	206.81011	141.68508	-0.00542	-0.07430	0.0970	0.36496	0.04182	-0.00001	0.00322
242	#BV-	1621.5000	2.41856	2.32685	206.81011	141.68508	-0.00542	-0.07430	0.0970	0.36496	0.04182	-0.00001	0.00322
243	BV1-	1629.5000	2.42480	2.33585	201.32145	141.46834	-0.00554	-0.05104	0.0970	0.32112	-0.01473	-0.00001	0.00259
244	D	1630.5000	2.42559	2.33698	200.68468	141.50487	-0.00555	-0.04845	0.0970	0.31564	-0.02180	-0.00001	0.00259
245	BV1-	1638.5000	2.43201	2.34595	195.98506	142.30613	-0.00567	-0.03019	0.0971	0.27181	-0.07836	-0.00001	0.00197
246	D	1639.5000	2.43283	2.34707	195.44692	142.46991	-0.00568	-0.02822	0.0971	0.26633	-0.08543	-0.00001	0.00197
247	BV1-	1647.5000	2.43941	2.35596	191.53633	144.28918	-0.00579	-0.01496	0.0971	0.22249	-0.14198	-0.00001	0.00134
248	D	1648.5000	2.44024	2.35706	191.09682	144.58021	-0.00581	-0.01362	0.0971	0.21701	-0.14905	-0.00001	0.00134
249	BV1-	1656.5000	2.44696	2.36578	187.97526	147.41748	-0.00592	-0.00536	0.0971	0.17318	-0.20561	-0.00001	0.00072
250	D	1657.5000	2.44781	2.36686	187.63438	147.83576	-0.00594	-0.00464	0.0971	0.16770	-0.21268	-0.00001	0.00072
251	BV1-	1665.5000	2.45464	2.37537	185.30186	151.69103	-0.00605	-0.00138	0.0971	0.12387	-0.26923	-0.00001	0.00009
252	#BV-	1665.5000	2.45464	2.37537	185.30186	151.69103	-0.00605	-0.00138	0.0971	0.12387	-0.26923	-0.00001	0.00009
253	D	1666.5000	2.45550	2.37642	185.05960	152.23656	-0.00607	-0.00129	0.0971	0.11839	-0.27630	-0.00001	0.00009
254	5PD	1670.2500	2.45870	2.38034	188.56582	150.86804	-0.00619	-0.00092	0.0971	-1.06060	0.63841	-0.00005	0.00010
255	#5PD	1670.2500	2.45870	2.38034	188.56582	150.86804	-0.00619	-0.00092	0.0971	-1.06060	0.63841	-0.00005	0.00010
256	5PD	1674.0000	2.46178	2.38439	201.21604	142.80793	-0.00646	-0.00053	0.0971	-2.33886	1.49429	-0.00009	0.00011
257	DD56	1711.5100	2.48233	2.44934	421.92043	62.55815	-0.00989	0.00345	0.0971	-3.54502	0.64513	-0.00009	0.00011
258	6PF	1715.2600	2.48371	2.45915	436.32532	59.77903	-0.01008	0.00390	0.0971	-0.25907	0.10312	-0.00001	0.00013
259	#6PF	1715.2600	2.48371	2.45915	436.32532	59.77903	-0.01008	0.00390	0.0971	-0.25907	0.10312	-0.00001	0.00013
260	6PF	1719.0100	2.48509	2.46909	425.73179	60.98131	-0.00999	0.00447	0.0971	3.05665	-0.42682	0.00006	0.00017
261	DD6	1729.6600	2.48940	2.49473	363.38079	72.27135	-0.00931	0.00624	0.0971	2.79791	-0.63328	0.00006	0.00017
262	OOQ	1734.7900	2.49174	2.50553	335.31363	79.27897	-0.00898	0.00710	0.0971	2.67327	-0.73273	0.00006	0.00017
263	B	1751.3300	2.50077	2.53402	253.52735	108.82104	0.00561	0.00985	0.0971	2.27148	-1.05337	0.00170	0.00017
264	O	1752.1300	2.50128	2.53518	249.90854	110.51884	0.00697	0.00999	0.0971	2.25204	-1.06888	0.00170	0.00017
265	B	1768.6700	2.51363	2.55561	182.05706	151.18078	0.04862	0.01275	0.0971	1.85022	-1.38952	0.00334	0.00017
266	O	1769.4700	2.51434	2.55644	179.11226	153.41642	0.05129	0.01288	0.0971	1.83078	-1.40503	0.00334	0.00017
267	B	1786.0100	2.53195	2.57130	125.19634	205.19822	0.12001	0.01564	0.0972	1.42894	-1.72567	0.00497	0.00017
268	O	1786.8100	2.53298	2.57192	122.92558	207.97170	0.12398	0.01577	0.0972	1.40950	-1.74118	0.00497	0.00017
269	B	1803.3500	2.55917	2.58302	82.94584	270.87337	0.21976	0.01853	0.0975	1.00765	-2.06182	0.00661	0.00017

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
270	O	1804.1500	2.56072	2.58348	81.34915	274.18470	0.22505	0.01866	0.0975	0.98821	-2.07733	0.00661	0.00017
271	B	1820.6900	2.60037	2.59201	55.30602	348.20623	0.34789	0.02142	0.0980	0.58634	-2.39797	0.00825	0.00017
272	OG	1821.5602	2.60290	2.59240	54.30394	352.39441	0.35507	0.02157	0.0980	0.56520	-2.41484	0.00825	0.00017
273	QQD	1824.0000	2.61018	2.59349	52.69035	357.52047	0.37861	0.02177	0.0980	0.10033	0.32708	0.01108	0.00000
274	#QQD	1824.0000	2.61018	2.59349	52.69035	357.52047	0.37861	0.02177	0.0980	0.10033	0.32708	0.01108	0.00000
275	QQD	1826.4398	2.61753	2.59459	53.31242	349.24249	0.40933	0.02156	0.0980	-0.35690	3.04441	0.01413	-0.00017
276	OOG	1830.7900	2.63013	2.59665	56.81780	323.31121	0.47081	0.02082	0.0980	-0.44889	2.91651	0.01413	-0.00017
277	B	1847.3300	2.67023	2.60621	77.45213	234.87673	0.71813	0.01801	0.0990	-0.79865	2.43020	0.01577	-0.00017
278	O	1848.1300	2.67186	2.60675	78.74350	231.00724	0.73074	0.01788	0.0990	-0.81556	2.40668	0.01577	-0.00017
279	B	1864.6700	2.70010	2.62049	111.50716	159.43798	1.00512	0.01507	0.1004	-1.16531	1.92037	0.01741	-0.00017
280	O	1865.4700	2.70124	2.62129	113.38518	156.38421	1.01904	0.01493	0.1004	-1.18223	1.89684	0.01741	-0.00017
281	B	1882.0100	2.72094	2.64223	158.27779	101.68019	1.32048	0.01213	0.1023	-1.53196	1.41053	0.01904	-0.00017
282	O	1882.8100	2.72174	2.64350	160.74245	99.44215	1.33572	0.01199	0.1023	-1.54887	1.38701	0.01904	-0.00017
283	B	1899.3500	2.73582	2.67738	217.76351	61.60335	1.66421	0.00918	0.1047	-1.89859	0.90070	0.02068	-0.00017
284	O	1900.1500	2.73640	2.67948	220.81478	60.18104	1.68076	0.00905	0.1047	-1.91550	0.87718	0.02068	-0.00017
285	B	1916.6900	2.74681	2.73477	289.96364	39.20747	2.03631	0.00624	0.1078	-2.26520	0.39087	0.02231	-0.00017
286	OH	1917.5961	2.74731	2.73849	294.08603	38.52327	2.05653	0.00609	0.1078	-2.28436	0.36423	0.02231	-0.00017
287	HQF	1920.0000	2.74859	2.74857	299.68872	37.63333	2.09115	0.00573	0.1078	-0.03203	0.00824	0.00645	-0.00012
288	#HQF	1920.0000	2.74859	2.74857	299.68872	37.63333	2.09115	0.00573	0.1078	-0.03203	0.00824	0.00645	-0.00012
289	HQF	1922.4039	2.74988	2.75867	294.39028	38.44305	2.08744	0.00549	0.1078	2.22263	-0.34714	-0.00954	-0.00008
290	OOH	1926.7900	2.75233	2.77606	275.28106	42.04893	2.04561	0.00513	0.1078	2.13413	-0.47498	-0.00954	-0.00008
291	B	1943.3300	2.76328	2.82700	210.20345	65.73504	1.90140	0.00377	0.1110	1.80043	-0.95707	-0.00790	-0.00008
292	O	1944.1300	2.76389	2.82891	207.33568	67.28501	1.89508	0.00371	0.1110	1.78428	-0.98039	-0.00790	-0.00008
293	B	1960.6700	2.77865	2.86004	153.83133	107.69012	1.77793	0.00236	0.1140	1.45056	-1.46248	-0.00626	-0.00008
294	O	1961.4700	2.77949	2.86121	151.52334	110.04875	1.77292	0.00229	0.1140	1.43442	-1.48580	-0.00626	-0.00008
295	B	1978.0100	2.79997	2.88066	109.59284	167.17285	1.68283	0.00094	0.1168	1.10068	-1.96789	-0.00463	-0.00008
296	O	1978.8100	2.80114	2.88142	107.84467	170.34013	1.67913	0.00087	0.1168	1.08453	-1.99121	-0.00463	-0.00008
297	B	1995.3500	2.83010	2.89434	77.48848	244.18322	1.61609	-0.00048	0.1195	0.75078	-2.47330	-0.00299	-0.00008
298	O	1996.1500	2.83175	2.89486	76.30014	248.15916	1.61370	-0.00055	0.1195	0.73464	-2.49662	-0.00299	-0.00008
299	B	2012.6900	2.87192	2.90394	57.51861	338.72124	1.57773	-0.00190	0.1221	0.40088	-2.97872	-0.00136	-0.00008
300	OI	2013.7059	2.87475	2.90441	56.72492	344.80360	1.57635	-0.00199	0.1221	0.38038	-3.00833	-0.00136	-0.00008
301	IQD	2016.0000	2.88124	2.90546	56.02092	352.87098	1.58643	-0.00216	0.1221	-0.07180	-0.48866	0.01016	-0.00007
302	#IQD	2016.0000	2.88124	2.90546	56.02092	352.87098	1.58643	-0.00216	0.1221	-0.07180	-0.48866	0.01016	-0.00007
303	IQD	2018.2941	2.88770	2.90650	57.39110	349.23784	1.62307	-0.00229	0.1221	-0.52880	2.06352	0.02184	-0.00005
304	OOI	2022.7900	2.89965	2.90860	62.59668	330.98732	1.72126	-0.00252	0.1221	-0.62904	1.99583	0.02184	-0.00005
305	B	2039.3300	2.93511	2.91743	89.50500	269.08414	2.09599	-0.00335	0.1252	-0.99782	1.74680	0.02347	-0.00005
306	O	2040.1300	2.93652	2.91790	91.11578	266.29889	2.11477	-0.00339	0.1252	-1.01565	1.73476	0.02347	-0.00005
307	B	2056.6700	2.96073	2.92896	130.81298	213.03193	2.51656	-0.00423	0.1290	-1.38442	1.48573	0.02511	-0.00005
308	O	2057.4700	2.96169	2.92956	133.04231	210.66439	2.53665	-0.00427	0.1290	-1.40225	1.47369	0.02511	-0.00005
309	B	2074.0100	2.97848	2.94366	185.52794	166.03365	2.96549	-0.00510	0.1335	-1.77100	1.22466	0.02675	-0.00005
310	O	2074.8100	2.97916	2.94443	188.37581	164.08383	2.98689	-0.00514	0.1335	-1.78884	1.21262	0.02675	-0.00005
311	B	2091.3500	2.99121	2.96263	253.64929	128.08931	3.44279	-0.00598	0.1388	-2.15756	0.96359	0.02838	-0.00005
312	O	2092.1500	2.99171	2.96363	257.11565	126.55719	3.46550	-0.00602	0.1388	-2.17540	0.95155	0.02838	-0.00005
313	B	2108.6900	3.00069	2.98721	335.17624	99.19889	3.94846	-0.00685	0.1448	-2.54410	0.70252	0.03002	-0.00005
314	OJ	2109.9750	3.00129	2.98929	341.75130	97.41830	3.98703	-0.00692	0.1448	-2.57275	0.68317	0.03002	-0.00005

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
315	JQF	2112.0000	3.00222	2.99263	347.73765	95.96432	4.02173	-0.00707	0.1448	-0.37059	0.03795	0.00422	-0.00010
316	#JQF	2112.0000	3.00222	2.99263	347.73765	95.96432	4.02173	-0.00707	0.1448	-0.37059	0.03795	0.00422	-0.00010
317	JQF	2114.0250	3.00315	2.99597	344.72712	97.10825	4.00408	-0.00731	0.1448	1.85080	-0.60530	-0.02163	-0.00014
318	OOJ	2118.7900	3.00541	3.00355	327.38058	103.19617	3.90101	-0.00798	0.1448	1.78962	-0.67234	-0.02163	-0.00014
319	B	2135.3300	3.01424	3.02642	271.69100	129.28661	3.55676	-0.01033	0.1509	1.57734	-0.90507	-0.02000	-0.00014
320	O	2136.1300	3.01471	3.02740	269.17548	130.74373	3.54077	-0.01044	0.1509	1.56707	-0.91633	-0.02000	-0.00014
321	B	2152.6700	3.02552	3.04537	220.84846	164.90524	3.22357	-0.01278	0.1565	1.35476	-1.14906	-0.01836	-0.00014
322	O	2153.4700	3.02610	3.04613	218.68906	166.75274	3.20888	-0.01289	0.1565	1.34449	-1.16032	-0.01836	-0.00014
323	B	2170.0100	3.03946	3.06025	177.72513	208.98531	2.91874	-0.01524	0.1615	1.13217	-1.39304	-0.01672	-0.00014
324	O	2170.8100	3.04018	3.06086	175.92188	211.22318	2.90536	-0.01535	0.1615	1.12190	-1.40430	-0.01672	-0.00014
325	B	2187.3500	3.05685	3.07207	142.32151	261.52682	2.64228	-0.01769	0.1660	0.90956	-1.63703	-0.01509	-0.00014
326	O	2188.1500	3.05775	3.07255	140.87443	264.15507	2.63021	-0.01781	0.1660	0.89929	-1.64829	-0.01509	-0.00014
327	B	2204.6900	3.07852	3.08158	114.63799	322.52978	2.39418	-0.02015	0.1701	0.68695	-1.88102	-0.01345	-0.00014
328	OK	2206.2602	3.08072	3.08234	112.51238	328.47155	2.37305	-0.02037	0.1701	0.66679	-1.90311	-0.01345	-0.00014
329	KQD	2208.0000	3.08320	3.08318	111.30202	331.94428	2.36103	-0.02052	0.1701	0.03112	-0.08651	-0.00038	-0.00003
330	#KQD	2208.0000	3.08320	3.08318	111.30202	331.94428	2.36103	-0.02052	0.1701	0.03112	-0.08651	-0.00038	-0.00003
331	KQD	2209.7398	3.08568	3.08402	112.29441	329.06977	2.37174	-0.02047	0.1701	-0.60334	1.73340	0.01270	0.00008
332	OOK	2214.7900	3.09265	3.08653	118.69820	311.87216	2.43587	-0.02004	0.1701	-0.66469	1.67194	0.01270	0.00008
333	B	2231.3300	3.11284	3.09578	144.00875	259.89361	2.65940	-0.01864	0.1743	-0.86557	1.47066	0.01433	0.00008
334	O	2232.1300	3.11372	3.09627	145.40145	257.54835	2.67087	-0.01857	0.1743	-0.87529	1.46092	0.01433	0.00008
335	B	2248.6700	3.13012	3.10753	177.67860	212.55041	2.92146	-0.01717	0.1789	-1.07617	1.25963	0.01597	0.00008
336	O	2249.4700	3.13084	3.10813	179.40824	210.54279	2.93423	-0.01710	0.1789	-1.08588	1.24990	0.01597	0.00008
337	B	2266.0100	3.14414	3.12196	218.65164	172.52549	3.21188	-0.01569	0.1839	-1.28675	1.04861	0.01760	0.00008
338	O	2266.8100	3.14472	3.12270	220.71821	170.85550	3.22596	-0.01563	0.1839	-1.29647	1.03887	0.01760	0.00008
339	B	2283.3500	3.15558	3.13977	266.92740	139.81882	3.53067	-0.01422	0.1894	-1.49732	0.83759	0.01924	0.00008
340	O	2284.1500	3.15605	3.14068	269.33088	138.48647	3.54606	-0.01415	0.1894	-1.50703	0.82785	0.01924	0.00008
341	B	2300.6900	3.16499	3.16166	322.50535	114.43042	3.87781	-0.01275	0.1955	-1.70787	0.62656	0.02088	0.00008
342	OQ	2302.3400	3.16579	3.16397	328.17438	112.39588	3.91226	-0.01261	0.1955	-1.72791	0.60648	0.02088	0.00008
343	QF	2304.0000	3.16659	3.16634	331.05203	111.38913	3.92978	-0.01252	0.1955	-0.00057	0.00176	0.00022	0.00002
344	#QF	2304.0000	3.16659	3.16634	331.05203	111.38913	3.92978	-0.01252	0.1955	-0.00057	0.00176	0.00022	0.00002
345	QF	2305.6600	3.16739	3.16870	328.17813	112.38415	3.91300	-0.01255	0.1955	1.72679	-0.60291	-0.02043	-0.00005
346	OOS	2311.6400	3.17039	3.17690	307.95964	120.02882	3.79081	-0.01283	0.1955	1.65423	-0.67546	-0.02043	-0.00005
347	B	2328.1800	3.17976	3.19686	256.55618	145.69224	3.46639	-0.01361	0.2014	1.45359	-0.87613	-0.01880	-0.00005
348	O	2328.9800	3.18026	3.19773	254.23819	147.10182	3.45135	-0.01365	0.2014	1.44389	-0.88584	-0.01880	-0.00005
349	B	2345.5200	3.19167	3.21395	209.79324	179.72453	3.15398	-0.01443	0.2068	1.24323	-1.08651	-0.01716	-0.00005
350	O	2346.3200	3.19228	3.21465	207.81183	181.47071	3.14025	-0.01446	0.2068	1.23352	-1.09622	-0.01716	-0.00005
351	B	2362.8600	3.20629	3.22781	170.32588	221.05271	2.86994	-0.01524	0.2117	1.03286	-1.29689	-0.01553	-0.00005
352	O	2363.6600	3.20704	3.22838	168.68108	223.13549	2.85752	-0.01528	0.2117	1.02315	-1.30660	-0.01553	-0.00005
353	B	2380.2000	3.22431	3.23912	138.15455	269.67678	2.61426	-0.01606	0.2162	0.82247	-1.50727	-0.01389	-0.00005
354	O	2381.0000	3.22524	3.23959	136.84637	272.09617	2.60315	-0.01610	0.2162	0.81276	-1.51697	-0.01389	-0.00005
355	B	2397.5400	3.24645	3.24844	113.27961	325.59675	2.38695	-0.01688	0.2203	0.61207	-1.71764	-0.01225	-0.00005
356	O	2398.3400	3.24758	3.24883	112.30806	328.35275	2.37714	-0.01692	0.2203	0.60236	-1.72735	-0.01225	-0.00005
357	QD	2400.0000	3.24994	3.24963	111.31439	331.22641	2.36717	-0.01692	0.2203	-0.00203	0.00127	0.00023	0.00004
358	ZDUI	4992.0000	3.66602	3.66597	111.37071	331.65596	2.36707	0.00564	0.4908	0.00000	0.00000	0.00024	-0.00005

CIRCUMFERENCE = 4992.0000 M THETX = 0.22907446 RAD NUX = 3.66602 DNUX/(DP/P) = -6.46507
RADIUS = 794.5015 M THETY = 0.00000000 RAD NUY = 3.66597 DNUY/(DP/P) = -6.45983
(DS/S)/(DP/P) = 0.0000983 TGAM=(100.85328, 0.00000)

MAXIMA	--- BETX(122) =	506.35649	BETY(223) =	505.53694	XEQ(316) =	4.02173	YEQ(223) =	-0.30520
MINIMA	--- BETX(126) =	3.02282	BETY(219) =	3.02702	XEQ(90) =	0.00000	YEQ(11) =	-0.00003

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      SUPERPERIOD STRUCTURE

***    .2X     BML          //  .ZUD .ZDU
***    .2XX    BML          //  ,ZUD ,ZDU
***    .2U     BML          //  .UU  .UU
***    .CLE    BML          //  .2U  .2XX
***    .CLW    BML          //  .2U  .2X
***    ,SP     BML          //  .CLE ,ARC .CLW ,ARC #QD
      -- Printout at Block Boundaries
***    ZUD     MMM          //  .ZUD
***    ZDU     MMM          //  .ZDU
***    WUD     MMM          //  ,ZUD
***    WDU     MMM          //  ,ZDU
***    UU      MMM          //  .UU
***    ARC     MMM          //  ,ARC
***    ?SP     BML          //  UU   UU   WUD  WDU  ARC  UU   UU   ZUD  ZDU  ARC
***            CYC          //  ?SP
```

POS		S(M)	NUX	NUY	BETAX(M)	BETAY(M)	XEQ(M)	YEQ(M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
0		0.0000	0.00000	0.00000	111.37072	331.65601	2.36230	-0.01070	0.0000	0.00000	0.00000	0.00016	-0.00003
1	UU	2400.0000	0.25000	0.24989	111.37060	331.88798	2.35845	-0.00980	0.2215	-0.00002	0.00041	0.00027	0.00003
2	UU	4800.0000	0.49999	0.49984	111.37072	331.65587	2.37009	0.01069	0.4432	0.00000	0.00000	0.00030	0.00003
3	WUD	7200.0000	0.74993	0.74947	111.31439	331.22650	2.37393	0.00788	0.6637	-0.00203	0.00127	0.00020	0.00003
4	WDU	9600.0000	0.99955	0.99930	111.37134	331.65444	2.36232	0.01084	0.8840	0.00000	0.00000	0.00016	-0.00008
5	ARC	41472.0000	1.63244	1.63997	111.37081	331.65583	2.37625	0.01436	9.2369	0.00001	0.00000	0.00022	0.00008
6	UU	43872.0000	1.88244	1.88985	111.37050	331.88815	2.36474	0.02582	9.4588	-0.00002	0.00041	0.00014	-0.00004
7	UU	46272.0000	2.13243	2.13981	111.37081	331.65569	2.35614	-0.01433	9.6804	0.00001	0.00000	0.00025	-0.00008
8	ZUD	48672.0000	2.88243	2.88951	111.31354	331.21528	2.36425	0.02767	9.9010	-0.00204	0.00088	0.00022	0.00000
9	ZDU	51072.0000	3.63210	3.63936	111.37129	331.65487	2.36703	-0.00078	10.1213	0.00000	0.00000	0.00029	0.00004
10	ARC	82944.0000	4.26499	4.28002	111.37072	331.65601	2.36230	-0.01070	18.4746	0.00000	0.00000	0.00016	-0.00003

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CIRCUMFERENCE =  82944.0000 M          THETX =   6.28318530 RAD      NUX =    4.26499      DNUX/(DP/P) =    0.00000
      RADIUS = 13200.9476 M            THETY =   0.00000000 RAD      NUY =    4.28002      DNUY/(DP/P) =    0.00000
(DS/S)/(DP/P)=  0.0002227              TCAM=(  67.00460,   0.00000)

MAXIMA    --- BETX(    4) =   111.37134    BETY(    6) =   331.88815     XEQ(    5) =    2.37625     YEQ(    8) =    0.02767
MINIMA    --- BETX(    8) =   111.31354    BETY(    8) =   331.21528     XEQ(    7) =    2.35614     YEQ(    9) =   -0.00078
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                    BETA FUNCTIONS OF COMPLETE RING

***   RING   CYC   -1   1 //  ,SP       SF   SD   0.         0.
```

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
698	#QQD	6624.0000	7.11018	7.09333	52.69034	357.52024	0.37404	0.00312	0.5404	0.10033	0.32708	0.01105	-0.00004
712	#HQF	6720.0000	7.24859	7.24841	299.68869	37.63334	2.08001	-0.00264	0.5413	-0.03203	0.00824	0.00646	-0.00008
726	#IQD	6816.0000	7.38124	7.40530	56.02093	352.87113	1.58474	-0.01216	0.5510	-0.07180	-0.48866	0.01024	-0.00001
740	#JQF	6912.0000	7.50222	7.49247	347.73767	95.96430	4.02724	-0.00497	0.5653	-0.37059	0.03795	0.00426	0.00004
754	#KQD	7008.0000	7.58320	7.58302	111.30200	331.94407	2.36703	-0.00375	0.5881	0.03112	-0.08651	-0.00034	0.00003
768	#QF	7104.0000	7.66659	7.66618	331.05195	111.38909	3.94249	0.00138	0.6134	-0.00057	0.00176	0.00023	0.00006
782	#QD	7200.0000	7.74993	7.74947	111.31439	331.22650	2.37393	0.00788	0.6388	-0.00203	0.00127	0.00020	0.00003
796	#QFK	7296.0000	7.83312	7.83286	331.92692	111.24270	3.94361	0.00653	0.6637	0.08589	-0.03025	-0.00088	0.00002
810	#QDJ	7392.0000	7.92365	7.91391	96.00677	347.40524	2.18139	0.01196	0.6892	-0.03817	0.37008	-0.00039	-0.00002
824	#QFI	7488.0000	8.01078	8.03495	352.98960	56.03386	3.82604	0.00285	0.7134	0.48927	0.07080	-0.00601	-0.00007
838	#QDH	7584.0000	8.16771	8.16749	37.60860	299.99679	1.00294	-0.00236	0.7376	-0.00811	0.03229	-0.01775	-0.00004
852	#QFG	7680.0000	8.32285	8.30583	357.55196	52.67526	0.38665	-0.00418	0.7564	-0.32765	-0.09935	-0.00508	-0.00005
867	#PD6	7788.7400	8.45714	8.43240	59.80252	435.93416	0.00023	-0.01301	0.7613	-0.10298	0.25842	0.00016	0.00002
871	#PF5	7833.7500	8.53594	8.45743	150.87761	188.42965	0.00731	-0.00803	0.7622	-0.63802	1.05916	0.00012	0.00007
874	#BV-	7838.5000	8.54091	8.46150	151.69657	185.17464	0.00773	-0.00785	0.7622	0.26967	-0.12449	0.00007	0.00002
884	#BV-	7882.5000	8.58943	8.49760	141.65584	206.74512	0.01078	-0.07585	0.7622	-0.04147	-0.36574	0.00007	-0.00311
886	#BV+	7894.5000	8.60283	8.50664	143.66951	216.31260	0.01161	-0.11314	0.7623	-0.12633	-0.43155	0.00007	-0.00311
896	#BV+	7938.5000	8.64846	8.53606	168.47716	264.90301	0.01465	-0.18113	0.7622	-0.43748	-0.67278	0.00007	0.00002
898	#QDV	7939.5000	8.64940	8.53666	169.35919	266.25404	0.01472	-0.18112	0.7618	-0.44455	-0.67826	0.00007	0.00002
899	#QDV	7939.5000	8.64940	8.53666	169.35919	266.25404	0.01472	-0.18112	0.7618	-0.44455	-0.67826	0.00007	0.00002
903	#QFV	7974.5000	8.66842	8.58740	505.34455	46.49245	0.02632	-0.05518	0.7618	3.86613	0.86513	-0.00019	0.00262
907	#PD4	8009.5000	8.83839	8.69157	3.02766	73.29715	0.00138	0.00182	0.7618	0.42163	0.29853	-0.00071	0.00158
911	#QFV	8044.5000	9.13379	8.84373	421.33151	25.82179	-0.02231	0.05696	0.7618	-3.97520	-0.49819	-0.00024	0.00260
915	#QDV	8079.5000	9.15435	8.92835	173.85601	183.26909	-0.01507	0.18331	0.7618	-0.39761	0.08186	-0.00006	-0.00001
917	#BV-	8092.6700	9.16603	8.93983	185.48452	182.06569	-0.01589	0.18312	0.7618	-0.48534	0.00952	-0.00006	-0.00001
925	#BV-	8127.6700	9.19328	8.97011	227.61844	188.12731	-0.01806	0.13887	0.7617	-0.71848	-0.18270	-0.00006	-0.00251
927	#BV+	8162.6700	9.21518	8.99845	286.07240	207.64551	-0.02023	0.05087	0.7614	-0.95163	-0.37496	-0.00006	-0.00251
935	#BV+	8197.6700	9.23255	9.02347	360.84639	240.61996	-0.02240	0.00661	0.7614	-1.18477	-0.56717	-0.00006	-0.00001
938	#PF3	8207.2500	9.23666	9.02964	370.21523	261.38155	-0.02257	0.00660	0.7615	2.71637	-3.35086	0.00018	0.00005
942	#PD2	8219.5000	9.24310	9.03561	248.32125	406.67358	-0.01831	0.00786	0.7615	2.56164	-3.44498	0.00021	0.00004
946	#PD2	8231.5000	9.25100	9.04029	251.52434	383.18094	-0.01817	0.00734	0.7615	-2.85450	5.20819	-0.00018	-0.00013
950	#PF1	8245.7500	9.25808	9.04882	403.13854	186.90327	-0.02266	0.00475	0.7615	-2.30608	3.93943	-0.00011	-0.00014
953	#IPL	8352.0000	9.36927	9.29659	63.98604	63.84615	-0.00483	-0.00417	0.7615	0.58880	-0.58736	0.00017	-0.00008
954	#IPL	8352.0000	9.36927	9.29659	63.98604	63.84615	-0.00483	-0.00417	0.7615	0.58880	-0.58736	0.00017	-0.00008
957	#1PD	8458.2500	9.61706	9.40796	186.49398	402.92378	0.01403	-0.01260	0.7615	-3.93090	2.30273	0.00034	0.00008
961	#2PF	8472.5000	9.62560	9.41505	382.35069	251.43845	0.02072	-0.00989	0.7615	-5.19723	2.85136	0.00031	0.00012
965	#2PF	8484.5000	9.63030	9.42294	405.80190	248.29019	0.02167	-0.00975	0.7615	3.43714	-2.56351	-0.00016	-0.00009
969	#3PD	8496.7500	9.63628	9.42938	260.83188	370.23463	0.01768	-0.01180	0.7615	3.34320	-2.71871	-0.00020	-0.00008
972	#BV-	8506.3300	9.64246	9.43349	240.12701	360.90618	0.01725	-0.01157	0.7615	0.56522	1.18278	-0.00001	0.00005
980	#BV-	8541.3300	9.66753	9.45086	207.29257	286.25216	0.01683	-0.05369	0.7615	0.37290	0.95019	-0.00001	-0.00245
982	#BV+	8576.3300	9.69591	9.47274	187.92069	227.88221	0.01642	-0.13956	0.7615	0.18058	0.71753	-0.00001	-0.00245
990	#BV+	8611.3300	9.72621	9.49994	183.01137	185.79723	0.01601	-0.18168	0.7614	-0.01174	0.48490	-0.00001	0.00005
992	#QFV	8624.5000	9.73770	9.51160	183.27374	174.17802	0.01586	-0.18107	0.7611	-0.08411	0.39735	-0.00001	0.00005
996	#QDV	8659.5000	9.82222	9.53213	25.87288	422.19386	0.00447	-0.29234	0.7611	0.49810	3.98284	-0.00025	0.00261
1000	#4PF	8694.5000	9.97411	9.82754	73.32293	3.02164	-0.00134	0.00190	0.7611	-0.29641	-0.42147	-0.00014	0.00861

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
1004	#QDV	8729.5000	10.07839	9.99756	46.39701	506.17590	-0.00578	0.29788	0.7611	-0.86244	-3.87381	-0.00023	0.00255
1008	#QFV	8764.5000	10.12925	10.01654	265.67033	169.68288	-0.01747	0.18058	0.7611	0.67628	0.44450	0.00001	-0.00013
1009	#QFV	8764.5000	10.12925	10.01654	265.67033	169.68288	-0.01747	0.18058	0.7611	0.67628	0.44450	0.00001	-0.00013
1011	#BV-	8765.5000	10.12985	10.01748	264.32325	168.80093	-0.01746	0.18045	0.7611	0.67080	0.43745	0.00001	-0.00013
1021	#BV-	8809.5000	10.15933	10.06302	215.91317	143.96800	-0.01696	0.10577	0.7610	0.42943	0.12694	0.00001	-0.00326
1023	#BV+	8821.5000	10.16838	10.07640	206.39673	141.93784	-0.01682	0.06666	0.7606	0.36360	0.04224	0.00001	-0.00326
1033	#BV+	8865.5000	10.20452	10.12484	185.01964	151.88306	-0.01631	-0.00802	0.7607	0.12224	-0.26827	0.00001	-0.00013
1036	#SPD	8870.2500	10.20860	10.12980	188.29287	151.04639	-0.01645	-0.00856	0.7607	-1.06058	0.64055	-0.00009	-0.00008
1040	#6PE	8915.2600	10.23363	10.20859	435.92891	59.74890	-0.02458	-0.01011	0.7607	-0.26072	0.10481	0.00000	-0.00011
1055	#CQD	9024.0000	10.36002	10.34312	52.79082	356.92325	0.37710	-0.02994	0.7607	0.09964	0.32583	0.01119	0.00005
1069	#HQF	9120.0000	10.49821	10.49825	299.85234	37.68132	2.09901	-0.00372	0.7615	-0.03003	0.00696	0.00649	0.00025
1083	#IQD	9216.0000	10.63099	10.65490	55.90523	353.11653	1.59234	0.01725	0.7713	-0.07130	-0.48732	0.01018	0.00009
1097	#JQF	9312.0000	10.75216	10.74209	347.58161	95.85187	4.03374	0.01449	0.7858	-0.37247	0.03929	0.00421	0.00006
1111	#KQD	9408.0000	10.83309	10.83279	111.46977	331.36414	2.36456	0.02919	0.8086	0.02971	-0.08685	-0.00045	-0.00001
1125	#QF	9504.0000	10.91632	10.91605	331.72010	111.33817	3.92846	0.01339	0.8339	0.00001	0.00000	0.00018	-0.00010
1139	#QD	9600.0000	10.99955	10.99930	111.37134	331.65444	2.36232	0.01084	0.8593	0.00000	0.00000	0.00016	-0.00008
1153	#QF	9696.0000	11.08278	11.08256	331.71943	111.33872	3.91771	-0.00251	0.8840	0.00001	0.00000	0.00021	-0.00015
1167	#QD	9792.0000	11.16602	11.16581	111.37068	331.65584	2.35970	-0.01834	0.9095	0.00000	0.00000	0.00023	-0.00007
1181	#QF	9888.0000	11.24925	11.24907	331.71812	111.33864	3.92063	-0.01590	0.9342	0.00001	0.00000	0.00025	-0.00006
1195	#QD	9984.0000	11.33248	11.33232	111.37090	331.65420	2.36525	-0.02921	0.9596	0.00000	0.00000	0.00029	0.00001
1211	#QF	10080.0000	11.41571	11.41558	331.72009	111.33817	3.93431	-0.01342	0.9844	0.00001	0.00000	0.00026	0.00010
1227	#QD	10176.0000	11.49894	11.49883	111.37134	331.65444	2.37343	-0.01092	1.0099	0.00000	0.00000	0.00028	0.00008
1243	#QF	10272.0000	11.58217	11.58209	331.71943	111.33872	3.94510	0.00246	1.0347	0.00001	0.00000	0.00024	0.00015
1259	#QD	10368.0000	11.66541	11.66534	111.37068	331.65584	2.37608	0.01827	1.0603	0.00000	0.00000	0.00020	0.00007
1275	#QF	10464.0000	11.74864	11.74860	331.71812	111.33864	3.94223	0.01589	1.0852	0.00001	0.00000	0.00019	0.00006
1291	#QD	10560.0000	11.83187	11.83185	111.37090	331.65421	2.37056	0.02923	1.1108	0.00000	0.00000	0.00015	-0.00001
1307	#QF	10656.0000	11.91510	11.91511	331.72009	111.33817	3.92857	0.01345	1.1357	0.00001	0.00000	0.00018	-0.00009
1323	#QD	10752.0000	11.99833	11.99836	111.37135	331.65443	2.36237	0.01100	1.1612	0.00000	0.00000	0.00016	-0.00008
1339	#QF	10848.0000	12.08156	12.08162	331.71944	111.33872	3.91775	-0.00241	1.1859	0.00001	0.00000	0.00021	-0.00015
1355	#QD	10944.0000	12.16479	12.16487	111.37068	331.65584	2.35969	-0.01820	1.2114	0.00000	0.00000	0.00023	-0.00007
1371	#QF	11040.0000	12.24803	12.24813	331.71811	111.33864	3.92056	-0.01587	1.2361	0.00001	0.00000	0.00025	-0.00006
1387	#150	11136.0000	12.33126	12.33138	111.37090	331.65421	2.36519	-0.02924	1.2615	0.00000	0.00000	0.00029	0.00001
5888	#QD	39936.0000	37.30074	37.30789	111.37076	331.65448	2.36373	-0.02953	1.2863	0.00000	0.00000	0.00028	0.00000
5904	#QF	40032.0000	37.38397	37.39114	331.71973	111.33817	3.93145	-0.01489	8.8342	0.00000	0.00000	0.00027	0.00008
5920	#QD	40128.0000	37.46720	37.47440	111.37136	331.65417	2.37208	-0.01499	8.8597	0.00000	0.00000	0.00028	0.00008
5936	#QF	40224.0000	37.55043	37.55765	331.71986	111.33863	3.94392	-0.00016	8.8845	0.00001	0.00000	0.00024	0.00015
5952	#QD	40320.0000	37.63366	37.64091	111.37081	331.65583	2.37625	0.01451	8.9101	0.00001	0.00000	0.00022	0.00008
5968	#QF	40416.0000	37.71689	37.72416	331.71806	111.33873	3.94391	0.01473	8.9350	0.00001	0.00000	0.00020	0.00008
5984	#QD	40512.0000	37.80012	37.80742	111.37076	331.65448	2.37207	0.02953	8.9606	0.00000	0.00000	0.00015	0.00000
6000	#QF	40608.0000	37.88336	37.89067	331.71972	111.33817	3.93143	0.01491	8.9854	0.00000	0.00000	0.00018	-0.00008
6016	#QD	40704.0000	37.96659	37.97393	111.37136	331.65417	2.36372	0.01506	9.0110	0.00000	0.00000	0.00015	-0.00008
6032	#QF	40800.0000	38.04982	38.05718	331.71987	111.33863	3.91894	0.00021	9.0358	0.00001	0.00000	0.00020	-0.00015
6048	#QD	40896.0000	38.13305	38.14044	111.37081	331.65583	2.35953	-0.01444	9.0612	0.00001	0.00000	0.00022	-0.00008
6064	#QF	40992.0000	38.21628	38.22369	331.71806	111.33873	3.91889	-0.01470	9.0859	0.00001	0.00000	0.00024	-0.00008
6080	#QD	41088.0000	38.29951	38.30695	111.37076	331.65449	2.36368	-0.02952	9.1113	0.00000	0.00000	0.00028	0.00000

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
6094	#QF	41184.0000	38.38275	38.39020	331.71971	111.33817	3.93134	-0.01494	9.1361	0.00000	0.00000	0.00027	0.00007
6108	#QD	41280.0000	38.46598	38.47346	111.37136	331.65416	2.37203	-0.01514	9.1616	0.00000	0.00000	0.00028	0.00008
6122	#QF	41376.0000	38.54921	38.55671	331.71987	111.33862	3.94386	-0.00026	9.1864	0.00001	0.00000	0.00024	0.00015
6136	#QD	41472.0000	38.63244	38.63997	111.37081	331.65583	2.37625	0.01436	9.2120	0.00001	0.00000	0.00022	0.00008
6150	#QFK	41568.0000	38.71567	38.72322	331.42714	111.43753	3.94915	0.01468	9.2369	0.08721	-0.02981	-0.00088	0.00008
6164	#QDJ	41664.0000	38.80638	38.80417	95.81920	347.58112	2.18437	0.03021	9.2624	-0.03885	0.37202	-0.00040	-0.00003
6178	#QFI	41760.0000	38.89362	38.92530	352.91155	55.93773	3.83005	0.00904	9.2866	0.48708	0.07127	-0.00603	-0.00016
6192	#QDH	41856.0000	39.05033	39.05803	37.68416	299.86958	1.00246	0.00020	9.3109	-0.00752	0.03051	-0.01780	-0.00009
6206	#QFG	41952.0000	39.20539	39.19624	357.08517	52.77078	0.38101	-0.00894	9.3297	-0.32559	-0.09965	-0.00510	-0.00016
6220	#QDR	42050.2548	39.31308	39.31865	70.92649	367.26721	-0.00398	-0.03102	9.3346	-0.31141	1.75362	0.00014	0.00015
6224	#QFS	42066.7711	39.34295	39.32802	109.78994	216.00711	-0.00235	-0.02366	9.3354	-0.26090	1.75505	0.00012	0.00021
6228	#QDT	42276.4404	39.68891	39.39972	599.98978	1053.00340	0.03042	-0.04432	9.3354	-11.44200	11.58976	0.00056	0.00051
6232	#QFU	42288.4361	39.69132	39.40205	1039.58839	636.59461	0.03975	-0.03413	9.3354	-12.71450	10.32732	0.00047	0.00059
6235	#UC	42624.0000	39.81720	39.62190	198.05556	197.98679	0.00618	0.00877	9.3354	0.39901	-0.39854	-0.00010	0.00012
6238	#QDU	42959.5639	40.03710	39.74784	636.31117	1039.24772	-0.03011	0.04844	9.3354	-10.32290	12.70998	-0.00052	-0.00057
6242	#QFT	42971.5596	40.03943	39.75026	1052.54031	599.79965	-0.03905	0.03702	9.3354	-11.58486	11.43801	-0.00045	-0.00068
6246	#QDS	43181.2289	40.11115	40.09615	215.98080	109.76537	-0.02013	-0.00392	9.3354	-1.75530	0.26126	-0.00017	-0.00014
6250	#QFR	43197.7452	40.12052	40.12603	367.24281	70.90068	-0.02629	-0.00557	9.3354	-1.75398	0.31161	-0.00012	-0.00015
6264	#QGD	43296.0000	40.24291	40.23377	52.78950	356.96458	0.37482	-0.02726	9.3354	0.09965	0.32506	0.01119	-0.00001
6278	#HQF	43392.0000	40.38189	40.38880	299.84994	37.70808	2.09502	-0.00873	9.3363	-0.03005	0.00737	0.00650	0.00013
6292	#IQD	43488.0000	40.51387	40.54544	55.90676	352.88720	1.59238	-0.00262	9.3461	-0.07131	-0.48651	0.01022	0.00008
6306	#JQF	43584.0000	40.63504	40.63270	347.58392	95.78106	4.03788	0.00708	9.3604	-0.37245	0.03891	0.00422	0.00015
6320	#KQD	43680.0000	40.71597	40.72344	111.46759	331.36746	2.36776	0.02534	9.3833	0.02973	-0.08767	-0.00044	0.00005
6334	#QF	43776.0000	40.79921	40.80666	331.71112	111.41757	3.93406	0.01711	9.4086	0.00000	-0.00040	0.00017	0.00000
6348	#QD	43872.0000	40.88244	40.88985	111.37050	331.88815	2.36474	0.02582	9.4340	-0.00002	0.00041	0.00014	-0.00004
6362	#QFK	43968.0000	40.96567	40.97308	331.43496	111.43674	3.92454	0.00881	9.4588	0.08720	-0.02900	-0.00088	-0.00013
6376	#QDJ	44064.0000	41.05638	41.05405	95.82161	347.33944	2.17238	0.00096	9.4842	-0.03884	0.37218	-0.00035	-0.00009
6390	#QFI	44160.0000	41.14361	41.17527	352.91109	55.91232	3.81622	-0.00808	9.5083	0.48711	0.07056	-0.00595	-0.00015
6404	#QDH	44256.0000	41.30032	41.30798	37.68317	300.08415	1.00582	-0.02809	9.5324	-0.00753	0.03015	-0.01760	0.00000
6418	#QFG	44352.0000	41.45538	41.44610	357.09275	52.78470	0.40631	-0.00768	9.5512	-0.32561	-0.09891	-0.00506	0.00015
6432	#QDR	44450.2548	41.56308	41.56855	70.92819	366.98806	0.00612	0.00184	9.5562	-0.31140	1.75258	0.00010	0.00008
6436	#QFS	44466.7711	41.59294	41.57792	109.79172	215.83676	0.00873	0.00281	9.5572	-0.26088	1.75386	0.00007	0.00009
6440	#QDT	44676.4404	41.93891	41.64968	599.99982	1052.32524	-0.00157	0.02833	9.5572	-11.44221	11.58180	-0.00007	-0.00027
6444	#QFU	44688.4361	41.94132	41.65201	1039.60652	636.19406	-0.00254	0.02253	9.5572	-12.71475	10.32031	-0.00006	-0.00031
6447	#UC	45024.0000	42.06720	41.87180	198.06012	198.14035	-0.01045	0.02108	9.5572	0.39904	-0.39861	-0.00002	0.00000
6450	#QDU	45359.5639	42.28710	41.99770	636.29341	1038.98345	-0.01898	0.01968	9.5572	-10.32262	12.70752	-0.00028	-0.00029
6454	#QFT	45371.5596	42.28943	42.00011	1052.51120	599.63314	-0.02411	0.01439	9.5572	-11.58455	11.43560	-0.00025	-0.00034
6458	#QDS	45581.2289	42.36115	42.34607	215.97857	109.85466	-0.00584	-0.01654	9.5572	-1.75531	0.26146	0.00001	0.00007
6462	#QFR	45597.7452	42.37052	42.37592	367.24022	70.95470	-0.00661	-0.01247	9.5572	-1.75400	0.31213	0.00002	0.00013
6476	#QGD	45696.0000	42.49291	42.48363	52.79097	356.92371	0.38470	-0.01399	9.5572	0.09965	0.32582	0.01116	0.00009
6490	#HQF	45792.0000	42.63109	42.63875	299.85091	37.68146	2.10928	0.00477	9.5582	-0.03002	0.00696	0.00644	0.00023
6504	#IQD	45888.0000	42.76387	42.79540	55.90514	353.11505	1.59051	0.03035	9.5681	-0.07131	-0.48732	0.01004	0.00005
6518	#JQF	45984.0000	42.88504	42.88259	347.58329	95.85149	4.01730	0.01421	9.5825	-0.37248	0.03928	0.00416	-0.00008
6532	#KQD	46080.0000	42.96597	42.97330	111.47023	331.36437	2.35349	0.01516	9.6052	0.02971	-0.08685	-0.00045	-0.00007
6546	#QF	46176.0000	43.04920	43.05655	331.71987	111.33867	3.91128	0.00028	9.6304	0.00001	0.00000	0.00020	-0.00015

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
6560	#QD	46272.0000	43.13243	43.13981	111.37081	331.65569	2.35614	-0.01433	9.6557	0.00001	0.00000	0.00025	-0.00008
6574	#QFK	46368.0000	43.21567	43.22306	331.42714	111.43744	3.92161	-0.01467	9.6804	0.08721	-0.02981	-0.00080	-0.00008
6588	#QDJ	46464.0000	43.30638	43.30401	95.81920	347.58097	1.17820	-0.03021	9.7057	-0.03885	0.37201	-0.00022	0.00003
6602	#QFI	46560.0000	43.39361	43.42514	352.91155	55.93777	3.83774	-0.00905	9.7297	0.48708	0.07127	-0.00594	0.00016
6616	#QDH	46656.0000	43.55032	43.55787	37.68416	299.86969	1.01347	-0.00022	9.7540	-0.00752	0.03051	-0.01769	0.00009
6630	#QFG	46752.0000	43.70538	43.69608	357.08517	52.77074	0.41099	0.00893	9.7729	-0.32559	-0.09965	-0.00513	0.00016
6645	#QD6	46853.6400	43.82133	43.81985	66.28986	391.35402	0.00043	0.03200	9.7780	-0.18743	1.12678	-0.00007	-0.00010
6649	#QE5	46912.2000	43.89651	43.90415	244.85145	34.98402	-0.00325	0.00793	9.7790	-0.34279	0.85086	-0.00004	-0.00035
6653	#BV+	46920.5000	43.90200	43.94863	230.65915	26.55678	-0.00343	0.00535	9.7790	1.64738	0.23405	-0.00001	-0.00029
6663	#BV+	46964.5000	43.94518	44.14230	116.86141	82.85391	-0.00384	0.06138	9.7790	0.93893	-1.51352	-0.00001	0.00284
6665	#BV-	46976.5000	43.96319	44.16112	96.64558	124.89781	-0.00396	0.09542	9.7791	0.74572	-1.99013	-0.00001	0.00284
6675	#BV-	47020.5000	44.05924	44.19362	62.19394	376.92001	-0.00437	0.15146	9.7790	0.03727	-3.73762	-0.00001	-0.00029
6677	#QDV	47021.5000	44.06180	44.19404	62.13549	384.43497	-0.00438	0.15117	9.7786	0.02117	-3.77734	-0.00001	-0.00029
6678	#QDV	47021.5000	44.06180	44.19404	62.13549	384.43497	-0.00438	0.15117	9.7786	0.02117	-3.77734	-0.00001	-0.00029
6682	#QEV	47056.5000	44.11514	44.21609	180.96447	165.90828	-0.00744	0.03648	9.7786	1.27336	-0.55131	0.00006	-0.00264
6686	#QD4	47091.5000	44.31773	44.23519	7.01399	538.00208	-0.00017	-0.03345	9.7786	0.02730	-0.60002	0.00021	-0.00157
6690	#QEV	47126.5000	44.52838	44.25190	175.91272	216.67984	0.00697	-0.07603	9.7786	-1.28385	-0.61681	0.00007	-0.00261
6694	#QDV	47161.5000	44.58231	44.26673	62.57309	648.72854	0.00444	-0.21452	9.7786	-0.07566	4.97511	0.00001	0.00029
6696	#BV+	47187.5000	44.64326	44.27469	77.37283	416.85729	0.00463	-0.20709	9.7786	-0.49356	3.94302	0.00001	0.00029
6700	#BV+	47204.5000	44.67440	44.28242	98.79881	294.26610	0.00475	-0.19160	9.7785	-0.76679	3.26822	0.00001	0.00154
6702	#BV-	47327.5000	44.76467	44.64689	530.59575	90.84884	0.00563	-0.00270	9.7784	-2.74375	-1.61442	0.00001	0.00154
6706	#BV-	47344.5000	44.76935	44.66961	628.52828	157.21127	0.00575	0.01279	9.7784	-3.01699	-2.28925	0.00001	0.00029
6709	#QF3	47357.0000	44.77241	44.68009	610.98172	252.21961	0.00542	0.01747	9.7784	11.02200	-8.11305	-0.00012	0.00064
6713	#QD2	47370.2150	44.77811	44.68537	219.73624	634.93717	0.00297	0.02869	9.7784	8.96404	-11.00094	-0.00016	0.00054
6717	#QD2	47382.8050	44.79202	44.68841	111.30014	581.01181	0.00162	0.02796	9.7784	1.09179	14.51951	-0.00007	-0.00065
6721	#QE1	47396.7500	44.81170	44.69603	110.76185	150.87750	0.00091	0.01489	9.7784	1.61525	8.09082	-0.00007	-0.00071
6724	#IP-	47424.0000	45.02799	44.91083	6.00587	5.99598	-0.00129	0.00319	9.7784	-0.00159	0.00141	-0.00008	-0.00039
6725	#IP-	47424.0000	45.02799	44.91083	6.00587	5.99598	-0.00129	0.00319	9.7784	-0.00159	0.00141	-0.00008	-0.00039
6728	#1QD	47451.2500	45.24271	45.12715	150.66434	110.93660	-0.00382	-0.00690	9.7784	-8.07853	-1.61831	-0.00017	-0.00024
6732	#2QF	47465.1950	45.25035	45.14680	580.14654	111.48445	-0.00695	-0.00878	9.7784	-14.49716	-1.09371	-0.00015	-0.00022
6736	#2QF	47477.7850	45.25339	45.16069	633.97467	220.09896	-0.00704	-0.01407	9.7784	10.98493	-8.97866	0.00014	-0.00066
6740	#3QD	47491.0000	45.25868	45.16638	251.82689	611.98003	-0.00417	-0.02460	9.7784	8.10099	-11.03972	0.00017	-0.00050
6743	#BV+	47503.5000	45.26917	45.16943	156.95689	629.54743	-0.00288	-0.02556	9.7784	2.28590	3.02223	0.00008	0.00007
6747	#BV+	47520.5000	45.29193	45.17411	90.69882	531.44259	-0.00147	-0.01369	9.7784	1.61163	2.74864	0.00008	0.00132
6749	#BV-	47643.5000	45.65626	45.26428	294.29446	98.82021	0.00872	0.14902	9.7784	-3.26688	0.76862	0.00008	0.00132
6753	#BV-	47660.5000	45.66399	45.29543	416.83101	77.33922	0.01013	0.16088	9.7783	-3.94115	0.49497	0.00008	0.00007
6755	#QFV	47686.5000	45.67195	45.35644	648.58279	62.48308	0.01229	0.16278	9.7782	-4.97238	0.07642	0.00008	0.00007
6759	#QDV	47721.5000	45.68678	45.41046	216.56735	175.61989	0.00667	0.26682	9.7782	0.61803	1.28148	-0.00004	-0.00231
6763	#4QF	47756.5000	45.70351	45.62114	537.55578	7.02505	0.00965	0.00064	9.7782	0.60092	-0.02794	-0.00003	-0.00781
6767	#QDV	47791.5000	45.72263	45.82357	165.71930	180.78866	0.00474	-0.26508	9.7782	0.55185	-1.27075	-0.00005	-0.00233
6771	#QFV	47826.5000	45.74471	45.87698	383.89118	62.03535	0.00599	-0.16302	9.7782	3.77281	-0.02067	-0.00008	0.00001
6772	#QFV	47826.5000	45.74471	45.87698	383.89118	62.03535	0.00599	-0.16302	9.7782	3.77281	-0.02067	-0.00008	0.00001
6774	#BV+	47827.5000	45.74513	45.87954	376.38525	62.09281	0.00590	-0.16301	9.7782	3.73312	-0.03680	-0.00008	0.00001
6784	#BV+	47871.5000	45.77768	45.97574	124.69726	96.55135	0.00226	-0.09375	9.7781	1.98706	-0.74635	-0.00008	0.00314
6786	#BV-	47883.5000	45.79653	45.99376	82.72227	116.78598	0.00126	-0.05611	9.7777	1.51086	-0.93987	-0.00008	0.00314

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
6796	#BV-	47927.5000	45.99024	46.03695	26.59361	230.71346	-0.00239	0.01315	9.7778	-0.23521	-1.64938	-0.00008	0.00001
6800	#5QD	47935.8000	46.03466	46.04244	35.04064	244.93621	-0.00315	0.01286	9.7778	-0.85221	0.34132	-0.00011	-0.00010
6804	#6QF	47994.3600	46.11804	46.11755	391.65478	66.38903	-0.01089	0.00122	9.7778	-1.12622	0.18706	-0.00003	-0.00019
6819	#GQD	48096.0000	46.24267	46.23333	52.69006	357.39532	0.37966	-0.01692	9.7778	0.10034	0.32715	0.01112	-0.00005
6833	#HQF	48192.0000	46.38108	46.38845	299.68639	37.63187	2.09593	-0.00933	9.7787	-0.03204	0.00785	0.00645	0.00001
6847	#IQD	48288.0000	46.51373	46.54530	56.02135	353.00379	1.58806	-0.01500	9.7885	-0.07180	-0.48872	0.01013	0.00005
6861	#JQF	48384.0000	46.63471	46.63245	347.74023	95.97086	4.02243	-0.00007	9.8029	-0.37059	0.03834	0.00421	0.00016
6875	#KQD	48480.0000	46.71569	46.72302	111.30176	331.83681	2.35996	0.01482	9.8256	0.03113	-0.08626	-0.00040	0.00007
6889	#QF	48576.0000	46.79908	46.80620	331.04872	111.34940	3.92581	0.01421	9.8509	-0.00057	0.00159	0.00021	0.00007
6903	#QD	48672.0000	46.88243	46.88951	111.31354	331.21528	2.36425	0.02767	9.8762	-0.00204	0.00088	0.00022	0.00000
6917	#QFK	48768.0000	46.96562	46.97289	331.92764	111.27861	3.93135	0.01357	9.9010	0.08588	-0.03048	-0.00084	-0.00007
6931	#QDJ	48864.0000	47.05615	47.05391	96.00773	347.53070	2.17937	0.01356	9.9264	-0.03817	0.37037	-0.00030	-0.00009
6945	#QFI	48960.0000	47.14328	47.17493	352.99192	56.02611	3.83180	-0.00295	9.9505	0.48929	0.07116	-0.00597	-0.00019
6959	#QDH	49056.0000	47.30020	47.30751	37.60823	299.89072	1.00857	-0.02342	9.9747	-0.00811	0.03211	-0.01771	-0.00004
6973	#QFG	49152.0000	47.45534	47.44587	357.55226	52.68734	0.40016	-0.01020	9.9936	-0.32766	-0.09969	-0.00511	0.00006
6988	#QD6	49253.6400	47.57107	47.56975	66.40864	391.42134	0.00007	-0.01169	9.9986	-0.18666	1.12539	0.00003	0.00010
6992	#QF5	49312.2000	47.64618	47.65397	244.88849	35.03532	0.00191	0.00117	9.9995	-0.34074	0.85149	0.00002	0.00023
6996	#BV-	49320.5000	47.65166	47.69839	230.66058	26.59862	0.00196	0.00312	9.9995	1.64950	0.23466	0.00000	0.00024
7006	#BV-	49364.5000	47.69487	47.89201	116.73499	82.74166	0.00197	-0.05493	9.9995	0.93972	-1.51064	0.00000	-0.00288
7008	#BV+	49376.5000	47.71290	47.91085	96.50455	124.70883	0.00198	-0.08951	9.9996	0.74615	-1.98663	0.00000	-0.00288
7018	#BV+	49420.5000	47.80914	47.94340	62.07361	376.32238	0.00198	-0.14757	9.9995	0.03637	-3.73184	0.00000	0.00024
7020	#QDV	49421.5000	47.81170	47.94382	62.01700	383.82572	0.00198	-0.14732	9.9992	0.02024	-3.77151	0.00000	0.00024
7021	#QDV	49421.5000	47.81170	47.94382	62.01700	383.82572	0.00198	-0.14732	9.9992	0.02024	-3.77151	0.00000	0.00024
7025	#QFV	49456.5000	47.86512	47.96591	180.79394	165.66240	0.00323	-0.03689	9.9992	1.27028	-0.55108	-0.00003	0.00251
7029	#QD4	49491.5000	48.06748	47.98504	7.02690	537.30217	-0.00001	0.02813	9.9992	0.02838	-0.60015	-0.00010	0.00150
7033	#QFV	49526.5000	48.27822	48.00177	175.54272	216.44564	-0.00325	0.07015	9.9992	-1.28118	-0.61731	-0.00003	0.00249
7037	#QDV	49561.5000	48.33225	48.01661	62.47187	648.18006	-0.00198	0.20059	9.9992	-0.07689	4.96955	0.00000	-0.00024
7039	#BV-	49587.5000	48.39326	48.02458	77.35484	416.56282	-0.00196	0.19435	9.9992	-0.49553	3.93881	0.00000	-0.00024
7043	#BV-	49604.5000	48.42440	48.03231	98.85646	294.09995	-0.00195	0.17964	9.9991	-0.76927	3.26489	0.00000	-0.00149
7045	#BV+	49727.5000	48.51453	48.39661	531.70054	90.72158	-0.00184	-0.00365	9.9989	-2.74979	-1.61140	0.00000	-0.00149
7049	#BV+	49744.5000	48.51920	48.41936	629.84688	156.96643	-0.00183	-0.01836	9.9989	-3.02352	-2.28535	0.00000	-0.00024
7052	#QF3	49757.0000	48.52226	48.42985	612.26740	251.81922	-0.00169	-0.02285	9.9989	11.04507	-8.10005	0.00004	-0.00071
7056	#QD2	49770.2150	48.52794	48.43515	220.19942	633.92622	-0.00088	-0.03586	9.9989	8.98296	-10.98341	0.00005	-0.00060
7060	#QD2	49782.8050	48.54182	48.43819	111.53068	580.08698	-0.00040	-0.03408	9.9989	1.09444	14.49635	0.00003	0.00087
7064	#QF1	49796.7500	48.56146	48.44582	110.97370	150.63905	-0.00007	-0.01705	9.9989	1.61923	8.07784	0.00003	0.00096
7067	#IP-	49824.0000	48.77783	48.66065	5.99324	6.00505	0.00060	0.00063	9.9989	-0.00161	0.00091	0.00002	0.00060
7068	#IP-	49824.0000	48.77783	48.66065	5.99324	6.00505	0.00060	0.00063	9.9989	-0.00161	0.00091	0.00002	0.00060
7071	#1QD	49851.2500	48.99261	48.87684	150.95269	110.80658	0.00138	0.01582	9.9989	-8.09487	-1.61534	0.00006	0.00024
7075	#2QF	49865.1950	49.00023	48.89651	581.30085	111.32838	0.00244	0.01581	9.9989	-14.52670	-1.09142	0.00005	0.00014
7079	#2QF	49877.7850	49.00327	48.91042	635.25202	219.76652	0.00244	0.02197	9.9989	11.00645	-8.96459	-0.00005	0.00088
7083	#3QD	49891.0000	49.00855	48.91612	252.34353	611.03599	0.00141	0.03638	9.9989	8.11712	-11.02229	-0.00006	0.00064
7086	#BV-	49903.5000	49.01902	48.91918	157.28610	628.56746	0.00092	0.03674	9.9989	2.29048	3.01787	-0.00003	-0.00019
7090	#BV-	49920.5000	49.04173	48.92387	90.88673	530.60629	0.00036	0.02289	9.9989	1.61536	2.74455	-0.00003	-0.00144
7092	#BV+	50043.5000	49.40626	49.01416	294.32714	98.73260	-0.00365	-0.15422	9.9989	-3.26935	0.76662	-0.00003	-0.00144
7096	#BV+	50060.5000	49.41399	49.04533	416.96207	77.31489	-0.00420	-0.16807	9.9988	-3.94447	0.49325	-0.00003	-0.00019

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
7098	#QEV	50086.5000	49.42195	49.10632	648.92062	62.53665	-0.00505	-0.17301	9.9987	-4.97701	0.07515	-0.00003	-0.00019
7102	#QDV	50121.5000	49.43677	49.16027	216.76011	175.88534	-0.00269	-0.28750	9.9987	0.61667	1.28291	0.00002	0.00242
7106	#4QE	50156.5000	49.45347	49.37082	538.23785	7.01741	-0.00380	-0.00303	9.9987	0.60000	-0.02674	0.00001	0.00832
7110	#QDV	50191.5000	49.47257	49.57347	165.98989	180.83312	-0.00180	0.27928	9.9987	0.55142	-1.27264	0.00002	0.00253
7114	#QEV	50226.5000	49.49461	49.62684	384.63417	62.10806	-0.00214	0.17417	9.9987	3.77927	-0.02177	0.00003	0.00010
7115	#QEV	50226.5000	49.49461	49.62684	384.63417	62.10806	-0.00214	0.17417	9.9987	3.77927	-0.02177	0.00003	0.00010
7117	#BV-	50227.5000	49.49502	49.62940	377.11536	62.16772	-0.00211	0.17427	9.9987	3.73954	-0.03788	0.00003	0.00010
7127	#BV-	50271.5000	49.52751	49.72545	124.96012	96.68682	-0.00067	0.10992	9.9986	1.99126	-0.74664	0.00003	-0.00303
7129	#BV+	50283.5000	49.54632	49.74345	82.89151	116.92579	-0.00028	0.07361	9.9982	1.51446	-0.93994	0.00003	-0.00303
7139	#BV+	50327.5000	49.73999	49.78661	26.54359	230.82452	0.00115	0.00926	9.9982	-0.23382	-1.64866	0.00003	0.00010
7143	#5QD	50335.8000	49.78450	49.79209	34.96725	245.02820	0.00146	0.00981	9.9983	-0.85063	0.34299	0.00004	0.00002
7147	#6QE	50394.3600	49.86883	49.86722	391.32043	66.32042	0.00471	0.00637	9.9983	-1.12718	0.18808	0.00001	0.00000
7162	#GQD	50496.0000	49.99257	49.98317	52.79087	356.92281	0.38273	0.01294	9.9983	0.09965	0.32583	0.01101	-0.00003
7176	#HQE	50592.0000	50.13075	50.13830	299.85220	37.68137	2.09149	0.00030	9.9993	-0.03002	0.00696	0.00641	-0.00013
7190	#IQD	50688.0000	50.26353	50.29495	55.90518	353.11662	1.58250	-0.01194	10.0091	-0.07130	-0.48732	0.01008	-0.00004
7204	#JQE	50784.0000	50.38470	50.38214	347.58179	95.85176	4.00817	-0.00776	10.0234	-0.37248	0.03929	0.00421	0.00000
7218	#KQD	50880.0000	50.46564	50.47285	111.46989	331.36370	2.35432	-0.01292	10.0461	0.02971	-0.08685	-0.00034	0.00002
7232	#QE	50976.0000	50.54887	50.55610	331.72027	111.33817	3.92295	-0.00458	10.0713	0.00001	0.00000	0.00026	0.00006
7246	#QD	51072.0000	50.63210	50.63936	111.37129	331.65487	2.36703	-0.00078	10.0966	0.00000	0.00000	0.00029	0.00004
7260	#QE	51168.0000	50.71533	50.72261	331.71909	111.33887	3.93730	0.00380	10.1213	0.00001	0.00000	0.00026	0.00007
7274	#QD	51264.0000	50.79856	50.80587	111.37062	331.65586	2.37466	0.01215	10.1469	0.00000	0.00000	0.00026	0.00002
7288	#QE	51360.0000	50.88179	50.88912	331.71828	111.33850	3.94577	0.00839	10.1717	0.00001	0.00000	0.00023	0.00000
7302	#QD	51456.0000	50.96503	50.97238	111.37102	331.65377	2.37553	0.01295	10.1973	0.00000	0.00000	0.00019	-0.00002
7318	#QE	51552.0000	51.04826	51.05563	331.72027	111.33816	3.93992	0.00461	10.2222	0.00001	0.00000	0.00019	-0.00006
7334	#QD	51648.0000	51.13149	51.13889	111.37129	331.65486	2.36878	0.00082	10.2478	0.00000	0.00000	0.00015	-0.00004
7350	#QE	51744.0000	51.21472	51.22214	331.71909	111.33887	3.92558	-0.00378	10.2727	0.00001	0.00000	0.00018	-0.00007
7366	#QD	51840.0000	51.29795	51.30540	111.37062	331.65586	2.36114	-0.01212	10.2981	0.00000	0.00000	0.00018	-0.00002
7382	#QE	51936.0000	51.38118	51.38865	331.71828	111.33850	3.91706	-0.00839	10.3229	0.00001	0.00000	0.00022	0.00000
7398	#QD	52032.0000	51.46442	51.47191	111.37101	331.65377	2.36023	-0.01297	10.3483	0.00000	0.00000	0.00025	0.00002
7414	#QE	52128.0000	51.54765	51.55516	331.72027	111.33816	3.92286	-0.00463	10.3730	0.00001	0.00000	0.00026	0.00006
7430	#QD	52224.0000	51.63088	51.63842	111.37129	331.65485	2.36696	-0.00087	10.3985	0.00000	0.00000	0.00029	0.00004
7446	#QE	52320.0000	51.71411	51.72167	331.71910	111.33887	3.93720	0.00376	10.4233	0.00001	0.00000	0.00026	0.00007
7462	#QD	52416.0000	51.79734	51.80493	111.37062	331.65587	2.37462	0.01210	10.4488	0.00000	0.00000	0.00026	0.00002
7478	#QE	52512.0000	51.88057	51.88818	331.71827	111.33850	3.94576	0.00839	10.4736	0.00001	0.00000	0.00023	0.00000
7494	#1S0	52608.0000	51.96380	51.97144	111.37101	331.65377	2.37556	0.01299	10.4992	0.00000	0.00000	0.00019	-0.00002
11995	#QD	81408.0000	76.93328	76.94794	111.37086	331.65399	2.37605	0.01380	10.5241	0.00000	0.00000	0.00020	-0.00001
12011	#QE	81504.0000	77.01651	77.03120	331.72001	111.33812	3.94206	0.00563	10.0720	0.00000	0.00000	0.00019	-0.00006
12027	#QD	81600.0000	77.09974	77.11445	111.37135	331.65449	2.37041	0.00303	10.0976	0.00000	0.00000	0.00015	-0.00004
12043	#QE	81696.0000	77.18298	77.19771	331.71955	111.33879	3.92831	-0.00259	10.1224	0.00001	0.00000	0.00018	-0.00007
12059	#QD	81792.0000	77.26621	77.28096	111.37071	331.65600	2.36225	-0.01076	10.1479	0.00000	0.00000	0.00016	-0.00003
12075	#QE	81888.0000	77.34944	77.36422	331.71809	111.33862	3.91766	-0.00822	10.1727	0.00001	0.00000	0.00021	-0.00002
12091	#QD	81984.0000	77.43267	77.44747	111.37086	331.65399	2.35971	-0.01381	10.1981	0.00000	0.00000	0.00024	0.00001
12107	#QE	82080.0000	77.51590	77.53073	331.72000	111.33812	3.92073	-0.00565	10.2229	0.00000	0.00000	0.00025	0.00006
12123	#QD	82176.0000	77.59913	77.61398	111.37135	331.65448	2.36533	-0.00307	10.2483	0.00000	0.00000	0.00029	0.00004
12139	#QE	82272.0000	77.68237	77.69724	331.71956	111.33879	3.93446	0.00256	10.2731	0.00001	0.00000	0.00026	0.00007

POS		S (M)	NUX	NUY	BETAX (M)	BETAY (M)	XEQ (M)	YEQ (M)	ZEQ (M)	ALPHAX	ALPHAY	DXEQ	DYEQ
12155	#QD	82368.0000	77.76560	77.78049	111.37071	331.65600	2.37350	0.01073	18.2986	0.00000	0.00000	0.00028	0.00003
12171	#QF	82464.0000	77.84883	77.86375	331.71809	111.33863	3.94515	0.00821	18.3234	-0.00001	0.00000	0.00023	0.00002
12187	#QD	82560.0000	77.93206	77.94700	111.37086	331.65400	2.37607	0.01382	18.3490	0.00000	0.00000	0.00020	-0.00001
12201	#QF	82656.0000	78.01529	78.03026	331.71999	111.33812	3.94213	0.00566	18.3739	0.00000	0.00000	0.00019	-0.00006
12215	#QD	82752.0000	78.09852	78.11351	111.37136	331.65448	2.37047	0.00311	18.3995	0.00000	0.00000	0.00015	-0.00004
12229	#QF	82848.0000	78.18175	78.19677	331.71957	111.33879	3.92842	-0.00254	18.4244	0.00001	0.00000	0.00018	-0.00007
12243	#QD	82944.0000	78.26499	78.28002	111.37072	331.65601	2.36230	-0.01070	18.4499	0.00000	0.00000	0.00016	-0.00003

CIRCUMFERENCE = 82944.0000 M THETX = 6.28318530 RAD NUX = 78.26499 DNUX/(DP/P) = -105.98720
RADIUS = 13200.9476 M THETY = 0.00000000 RAD NUY = 78.28002 DNUY/(DP/P) = -105.99948
(DS/S)/(DP/P) = 0.0002227 TGAM=(67.00460, 0.00000)

MAXIMA	---	BETX(310) =	1098.85163	BETY(6226) =	1099.32137	XEQ(6306) =	4.03788	YEQ(1004) =	0.29788
MINIMA	---	BETX(549) =	3.02282	BETY(1000) =	3.02164	XEQ(7029) =	-0.00001	YEQ(10411) =	0.00000

SEXTUPOLE CORRECTIONS ----- DKSF = 0.51237723E-02 DKSD =-0.82572580E-02 KSF = 0.51237723E-02 KSD =-0.82572580E-02

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BETATRON FUNCTIONS OF  RING
AMPLITUDE DEPENDENCE OF TUNES DUE TO SEXTUPOLES
NU-X =  78.264987 - 0.716E+03EX  - 0.245E+04EY      DNUX/(DPP/P) =    0.00000
NU-Y =  78.280021 - 0.245E+04EX  - 0.478E+03EY      DNUY/(DPP/P) =    0.00000
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***	FIN	0	0	// CORE USE SUMMARY		MAXIMUM		USED	UNUSED
				STORE	(ELEMENT STORAGE)	24000	(LMAX)	17732	6268
				INFF	(ELEMENT DEFINITIONS)	1000	(MAX)	606	394

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END OF SYNCH RUN  L96
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