

Optim Deck for 8 degree hall D line.

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The first 32 pages are for baseline input values. The second 32 pages are for dba input. See also the bottom of this page.

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# moved first nA BPM to higher dispersion point after first triplet in ramp
# of 36 measurements in the halls in 2003-2005, a fourth had beta within factor of two of design
# of 36 measurements, half had alphas within +-1 of design (zero)
# no correlation observed between betaX and alphaX
# for 33 of 36 hall line measurements, alphaY is perfectly correlated with betaY with relationship below
# for existing halls with design alphaY zero and betas either 10 or 20 m, yalpha=-0.28+0.00035*betay
# I should therefore run a three variable three level L9 array of tests with yalpha dependent on ybeta in header
# but given that design input alpha is -1 and betaY 181.8m, I don't like the scaled equation
# so I will run a four variable three level array instead
# for xbscale and ybscale, levels will be (0.5, 1, 2)
# for xalpha and yalpha, differences from design (aldiff) will be (-1, 0, 1)
#
# trial  xbscaleybscalealdiff yaldiff
# T1    0.5    0.5    -1    -1
# T2    0.5    1      0      0
# T3    0.5    2      1      1
# T4    1      0.5    0      1
# T5    1      1      1     -1
# T6    1      2     -1      0
# T7    2      0.5    1      0
# T8    2      1     -1      1
# T9    2      2      0     -1
#orig   1      1      0      0
#
# end of linac B BetaX[cm]=26365  BetaY[cm]=18822.1  AlfaX=2.16842      AlfaY=-1.72148
# end of linac B, dba BetaX[cm]=23515  BetaY[cm]=18143  AlfaX=1.92      AlfaY=-1.64
# emittances from dba-only 2.7, 0.86nm  I use 3, 0.9 nm below
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$xbyscale=1; =>      1
$betax=26365*$xbyscale; =>    26365
$yyscale=1; =>      1
$betay=18822*$yyscale; =>    18822
$xaldiff=0; =>      0
$xalpha=2.16842+$xaldiff; =>  2.16842
$yaldiff=0; =>      0
$yalpha=-1.72148+$yaldiff; => -1.72148
OptiM
Energy[MeV]=12112.489  Mass[MeV]=0.511006
Emittance: ex[cm]=.6e-06  ey[cm]=1e-07  DP/P=2.5e-04
Initial: BetaX[cm]=$betax  BetaY[cm]=$betay
        AlfaX=$xalpha      AlfaY=$yalpha
        DispersX[cm]=0      DispersY[cm]=0
        Dsp_PrimeX=0        DspPrimeY=0
        X[cm]=8060.0000     Y[cm]=10000.0000  Z[cm]=9055.3720  S[cm]=680045.186
        tetax[deg]=0        tetay[deg]=0
begin lattice. Number of periods=1
oD1200 gMAQ1S01 bMAQ1S01 GMAQ1S01 oD1201 gMAS3S02 bMAS3S02
GMAS3S02 oD1202 gMYR7S03 bMYR7S03 GMYR7S03 oD1203 gMYR9S04
bMYR9S04 GMYR9S04 oD1204 gMYRBS05 bMYRBS05 GMYRBS05 oD1205a
iTIVBS01 oD1205b iIPMBS01 oD1301 qMQPBS01 oD1302 kMBDBS01H oD1303
kMBDBS01V oD1206c iIHABS01 oD1206d gMBBBS06 bMBBBS06 GMBBBS06 oD1207a
oD1207b
iIPMBS02 oD1301 qMQPBS02 oD1302 kMBDBS02H oD1303 kMBDBS02V oD1208c
iIPMBS03 oD1301 qMQPBS03 oD1302 kMBDBS03H oD1303 kMBDBS03V oD1209c
iIPMBS04 oD1301 qMQPBS04 oD1302 kMBDBS04H oD1303 kMBDBS04V
oD1215h kFFBBS04H oD1215h kFFBBS04V oD1210c1
iIPMBE01 oD1301 qMQABE01 oD1302 kMBDBE01H oD1303 kMBDBE01V oD1211a
iIPMBE02 oD1301 qMQABE02 oD1302 kMBDBE02H oD1303 kMBDBE02V oD1211a
iIPMBE03 oD1301 qMQABE03 oD1302 kMBDBE03H oD1303 kMBDBE03V oD1211a
iIPMBE04 oD1301 qMQABE04 oD1302 kMBDBE04H oD1303 kMBDBE04V oD1212a
iIHABE04 oD1212b

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iIPMBT01 oD1301 qMQABT01 oD1302 kMBDBT01H oD1303 kMBDBT01V oD1213a1  
iIPMBT02 oD1301 qMQABT02 oD1302 kMBDBT02H oD1303 kMBDBT02V oD1213a1  
iIPMBT03 oD1301 qMQABT03 oD1302 kMBDBT03H oD1303 kMBDBT03V oD1215a  
iIPM5C00 oD1215e iTV5C00 oD1215f kMBD5C00V oD1215g kMBD5C00V oD1215h  
kFFB5C00V oD1215h kFFB5C00H oD1215i iIDA5C00 iSBS5C00 iSIW5C00 oD1215c  
#iITV5C00 oD1215b iIDA5C00 iSBS5C00 iSIW5C00 oD1215c  
iSSS5C00 oD1215d  
gMAR5C01 bMAR5C01 GMAR5C01 oD1216 gMAR5C02 bMAR5C02 GMAR5C02 oD1217a iSLM5C01 oD1217b  
iIPM5C01 oD1301 qMQA5C01 oD1302 kMBD5C01H oD1303 kMBD5C01V oD1318a1  
iIPM5C02 oD1301 qMQA5C02 oD1319 qMQA5C02A oD1302 kMBD5C02H oD1303 kMBD5C02V oD1218b iTV5C02A  
oD1318c1  
iIPM5C03 oD1301 qMQA5C03 oD1302 kMBD5C03H oD1303 kMBD5C03V oD1220a2 oD1220a3  
iIPM5C04 oD1301 qMQA5C04 oD1302 kMBD5C04H oD1303 kMBD5C04V  
oD1215h kFFB5C04H oD1215h kFFB5C04V oD1221a1 oD1221b1  
iIPM5C05 oD1301 qMQA5C05 oD1302 kMBD5C05H oD1303 kMBD5C05V oD1318a1  
iIPM5C06 oD1301 qMQA5C06 oD1319 qMQA5C06A oD1302 kMBD5C06H oD1303 kMBD5C06V oD1318a1  
iIPM5C07 oD1301 qMQA5C07 oD1302 kMBD5C07H oD1303 kMBD5C07V oD1222a1  
gMAR5C03 bMAR5C03 GMAR5C03 oD1216 gMAR5C04 bMAR5C04 GMAR5C04 oD1223a1 iSLM5C08 iTV5C08 oD1223b  
iIPM5C08 oD1301 qMQP5C08 oD1319 qMQP5C08A oD1302 kMBD5C08H oD1303 kMBD5C08V oD1224a4  
iIPM5C09 oD1301 qMQP5C09 oD1319 qMQP5C09A oD1302 kMBD5C09H oD1303 kMBD5C09V oD1224a3  
iIPM5C10 oD1301 qMQP5C10 oD1219 qMQP5C10A oD1302 kMBD5C10H oD1303 kMBD5C10V oD1224a3  
iIPM5C11 oD1301 qMQP5C11 oD1219 qMQP5C11A oD1302 kMBD5C11H oD1303 kMBD5C11V oD1225a1  
iITV5C11 oD1227b iHA5C11 oD1227c iCLnAbpm2 oD1227d  
kMBD5C12H oD1226 kMBD5C12V oD1228a iTV5C12 oD1228b1 iIPM5C12 oD1228b2 iHA5C12 oD1228c iCLnAbpm3  
oD1228d KRADIATOR  
oD1229 iActCol KCOLLIM oD1230 Kbackwall oD1231  
end lattice  
begin list  
gMAQ1S01 B[kG]=12.89107 Angle[deg]=0 EffLen[cm]=1.90844 Tilt[deg]=90  
bMAQ1S01 L[cm]=100.017 B[kG]=12.89107 G[kG/cm]=0 Tilt[deg]=-90  
GMAQ1S01 B[kG]=12.89107 Angle[deg]=1.82833 EffLen[cm]=1.9133 Tilt[deg]=90  
gMAS3S02 B[kG]=11.90002 Angle[deg]=-1.82833 EffLen[cm]=2.39549 Tilt[deg]=90  
bMAS3S02 L[cm]=100.113 B[kG]=11.90002 G[kG/cm]=0 Tilt[deg]=-90

GMAS3S02	B[kG]=11.90002	Angle[deg]=3.51772	EffLen[cm]=2.412	Tilt[deg]=90
gMYR7S03	B[kG]=-8.263705	Angle[deg]=3.51772	EffLen[cm]=1.27854	Tilt[deg]=90
bMYR7S03	L[cm]=300.189	B[kG]=-8.263705	G[kG/cm]=0	Tilt[deg]=-90
GMYR7S03	B[kG]=-8.263705	Angle[deg]=0	EffLen[cm]=1.26656	Tilt[deg]=90
gMYR9S04	B[kG]=-4.919079	Angle[deg]=0	EffLen[cm]=1.27	Tilt[deg]=90
bMYR9S04	L[cm]=200.02	B[kG]=-4.919079	G[kG/cm]=0	Tilt[deg]=-90
GMYR9S04	B[kG]=-4.919079	Angle[deg]=1.39524	EffLen[cm]=1.27188	Tilt[deg]=90
gMYRBS05	B[kG]=-5.636266	Angle[deg]=0.799274	EffLen[cm]=1.27	Tilt[deg]=90
bMYRBS05	L[cm]=200.006	B[kG]=-5.636266	G[kG/cm]=0	Tilt[deg]=-90
GMYRBS05	B[kG]=-5.636266	Angle[deg]=0.799274	EffLen[cm]=1.27	Tilt[deg]=90
gMBBBS06	B[kG]=10.55479	Angle[deg]=1.4969	EffLen[cm]=1.27	Tilt[deg]=90
bMBBBS06	L[cm]=200.023	B[kG]=10.55479	G[kG/cm]=0	Tilt[deg]=-90
GMBBBS06	B[kG]=10.55479	Angle[deg]=1.4969	EffLen[cm]=1.27	Tilt[deg]=90
gMAR5C01	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=-90
bMAR5C01	L[cm]=400.0114	B[kG]=6.85839	G[kG/cm]=0	Tilt[deg]=-90
GMAR5C01	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=-90
gMAR5C02	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=-90
bMAR5C02	L[cm]=400.0114	B[kG]=6.85839	G[kG/cm]=0	Tilt[deg]=-90
GMAR5C02	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=-90
gMAR5C03	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=90
bMAR5C03	L[cm]=400.0114	B[kG]=6.85839	G[kG/cm]=0	Tilt[deg]=90
GMAR5C03	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=90
gMAR5C04	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=90
bMAR5C04	L[cm]=400.0114	B[kG]=6.85839	G[kG/cm]=0	Tilt[deg]=90
GMAR5C04	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=90
qMQPBS01	L[cm]=30	G[kG/cm]=-0.6758357	Tilt[deg]=0	
qMQPBS02	L[cm]=30	G[kG/cm]=0.9715377	Tilt[deg]=0	
qMQPBS03	L[cm]=30	G[kG/cm]=-0.4435786	Tilt[deg]=0	
qMQPBS04	L[cm]=30	G[kG/cm]=-0.2537409	Tilt[deg]=0	
qMQABE01	L[cm]=30	G[kG/cm]=0.3918394	Tilt[deg]=0	
qMQABE02	L[cm]=30	G[kG/cm]=-1.115868	Tilt[deg]=0	
qMQABE03	L[cm]=30	G[kG/cm]=0.740169	Tilt[deg]=0	
qMQABE04	L[cm]=30	G[kG/cm]=-0.4283048	Tilt[deg]=0	

qMQABT01	L[cm]=30	G[kG/cm]=1.527015	Tilt[deg]=0
qMQABT02	L[cm]=30	G[kG/cm]=-2.59384	Tilt[deg]=0
qMQABT02A	L[cm]=30	G[kG/cm]=-1.31852	Tilt[deg]=0
qMQABT03	L[cm]=30	G[kG/cm]=1.535961	Tilt[deg]=0
qMQA5C01	L[cm]=30	G[kG/cm]=2.423514	Tilt[deg]=0
qMQA5C02	L[cm]=30	G[kG/cm]=-2.523307	Tilt[deg]=0
qMQA5C02A	L[cm]=30	G[kG/cm]=-2.523307	Tilt[deg]=0
qMQA5C03	L[cm]=30	G[kG/cm]=2.423514	Tilt[deg]=0
qMQA5C04	L[cm]=30	G[kG/cm]=0.4269391	Tilt[deg]=0
qMQA5C05	L[cm]=30	G[kG/cm]=2.464866	Tilt[deg]=0
qMQA5C06	L[cm]=30	G[kG/cm]=-2.67392	Tilt[deg]=0
qMQA5C06A	L[cm]=30	G[kG/cm]=-2.67392	Tilt[deg]=0
qMQA5C07	L[cm]=30	G[kG/cm]=2.464866	Tilt[deg]=0
qMQP5C08	L[cm]=30	G[kG/cm]=-0.05633894	Tilt[deg]=0
qMQP5C08A	L[cm]=30	G[kG/cm]=0	Tilt[deg]=0
qMQP5C09A	L[cm]=30	G[kG/cm]=-0.9238117	Tilt[deg]=0
qMQP5C09	L[cm]=30	G[kG/cm]=0	Tilt[deg]=0
qMQP5C10	L[cm]=30	G[kG/cm]=0	Tilt[deg]=0
qMQP5C10A	L[cm]=30	G[kG/cm]=-1.534146	Tilt[deg]=0
qMQP5C11	L[cm]=30	G[kG/cm]=0	Tilt[deg]=0
qMQP5C11A	L[cm]=30	G[kG/cm]=1.732309	Tilt[deg]=0
iActCol	L[cm]= 0		
iCLnAbpm1	L[cm]= 0		
iCLnAbpm2	L[cm]= 0		
iCLnAbpm3	L[cm]= 0		
iIDA5C00	L[cm]= 0		
iIHA5C11	L[cm]= 0		
iIHA5C12	L[cm]= 0		
iIHABE04	L[cm]= 0		
iIHABS01	L[cm]= 0		
iIPM5C00	L[cm]= 0		
iIPM5C01	L[cm]= 0		
iIPM5C02	L[cm]= 0		

iIPM5C03 L[cm]= 0  
iIPM5C04 L[cm]= 0  
iIPM5C05 L[cm]= 0  
iIPM5C06 L[cm]= 0  
iIPM5C07 L[cm]= 0  
iIPM5C08 L[cm]= 0  
iIPM5C09 L[cm]= 0  
iIPM5C10 L[cm]= 0  
iIPM5C11 L[cm]= 0  
iIPM5C12 L[cm]= 0  
iIPMBE01 L[cm]= 0  
iIPMBE02 L[cm]= 0  
iIPMBE03 L[cm]= 0  
iIPMBE04 L[cm]= 0  
iIPMBS01 L[cm]= 0  
iIPMBS02 L[cm]= 0  
iIPMBS03 L[cm]= 0  
iIPMBS04 L[cm]= 0  
iIPMBT01 L[cm]= 0  
iIPMBT02 L[cm]= 0  
iIPMBT03 L[cm]= 0  
iITV5C00 L[cm]= 0  
iITV5C02A L[cm]= 0  
iITV5C08 L[cm]= 0  
iITV5C11 L[cm]= 0  
iITV5C12 L[cm]= 0  
iITVBS01 L[cm]= 0  
iSBS5C00 L[cm]= 0  
iSIW5C00 L[cm]= 0  
iSLM5C01 L[cm]= 0  
iSLM5C08 L[cm]= 0  
iSSS5C00 L[cm]= 0  
Kbackwall L[cm]= 0

KCOLLIM L[cm]= 0  
kMBD5C00H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C00V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kFFB5C00H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kFFB5C00V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kFFBBS04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kFFBBS04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kFFB5C04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kFFB5C04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C01H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C01V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C02H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C02V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C03H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C03V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C05H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C05V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C06H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C06V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C07H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C07V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C08H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C08V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C09H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C09V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C10H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C10V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C11H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C11V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C12H L[cm]= 15 B[kG]=0 Tilt[deg]=0  
kMBD5C12V L[cm]= 15 B[kG]=0 Tilt[deg]=90

kMBDBE01H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBE01V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBE02H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBE02V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBE03H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBE03V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBE04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBE04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBS01H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBS01V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBS02H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBS02V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBS03H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBS03V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBS04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBS04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBT01H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBT01V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBT02H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBT02V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBT03H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBT03V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
KRADIATOR L[cm]= 0  
oD1200 L[cm]= 0  
oD1201 L[cm]= 100.051  
oD1202 L[cm]= 88.354  
oD1203 L[cm]= 60.001  
oD1204 L[cm]= 60.017  
oD1205a L[cm]= 778.46  
oD1205b L[cm]= 25  
oD1206c L[cm]= 161  
oD1206d L[cm]= 41.42  
oD1207a L[cm]= 50



oD1207b L[cm]= 454.753  
oD1208c L[cm]= 308.714  
oD1209c L[cm]= 1556.111  
oD1210c L[cm]= 2777.811  
oD1210c1 L[cm]= 2657.811  
oD1211a L[cm]= 138.611  
oD1211a L[cm]= 138.611  
oD1211a L[cm]= 138.611  
oD1212a L[cm]= 161  
oD1212b L[cm]= 1344.611  
oD1213a L[cm]= 211.386  
oD1213a1 L[cm]= 233.611  
oD1214 L[cm]= 14.45  
oD1215a L[cm]= 1554.706  
oD1215b L[cm]= 100  
oD1215c L[cm]= 400  
oD1215d L[cm]= 200  
oD1215e L[cm]= 20  
oD1215f L[cm]= 20  
oD1215g L[cm]= 19.609  
oD1215h L[cm]= 60  
oD1215i L[cm]= 20.391  
oD1216 L[cm]= 50  
oD1216 L[cm]= 50  
oD1217a L[cm]= 40  
oD1217b L[cm]= 199.656  
oD1218a L[cm]= 98.611  
oD1318a L[cm]= 98.886  
oD1318a1 L[cm]= 113.886  
oD1318c1 L[cm]= 73.886  
oD1318c L[cm]= 58.886  
oD1218b L[cm]= 40  
oD1218c L[cm]= 58.611

oD1219 L[cm]= 15  
oD1319 L[cm]= 14.45  
oD1219 L[cm]= 15  
oD1220a L[cm]= 481.111  
oD1220a1 L[cm]= 486.111  
oD1220a2 L[cm]= 70  
oD1220a3 L[cm]= 416.111  
oD1221a L[cm]= 280  
oD1221a1 L[cm]= 160  
oD1221b L[cm]= 596.111  
oD1221b1 L[cm]= 601.111  
oD1222a L[cm]= 193.576  
oD1222a1 L[cm]= 198.576  
oD1223a L[cm]= 48.841  
oD1223a1 L[cm]= 53.841  
oD1223b L[cm]= 40  
oD1224a L[cm]= 248.611  
oD1224a1 L[cm]= 258.611  
oD1224a2 L[cm]= 248.611  
oD1224a3 L[cm]= 214.161  
oD1224a4 L[cm]= 169.711  
oD1225a L[cm]= 19.8  
oD1225a1 L[cm]= 24.8  
oD1226 L[cm]= 5  
oD1227a L[cm]= 20.251  
oD1227b L[cm]= 21  
oD1227c L[cm]= 48  
oD1227d L[cm]= 1180.949  
oD1228a L[cm]= 40  
oD1228b L[cm]= 121  
oD1228b1 L[cm]= 100  
oD1228b2 L[cm]= 21  
oD1228c L[cm]= 70

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oD1228d L[cm]= 112.633
oD1229 L[cm]= 7500
oD1230 L[cm]= 4200
oD1231 L[cm]= 500
oD1301 L[cm]= 22.465
oD1302 L[cm]= 19.315
oD1303 L[cm]= 19.609
end list
#
# Optimized first with BetaXYmax and element 131, using first eight quads
# Optimized second using 5C04, the final ramp triplet, and final quadruplet, at elements 2151 (disp) and 268 (rest)
#
BetaFitBlock dL[cm]=0.01 dB[kGs]=0.0001 dG[kGs/cm]=0.005
#Required parameters and their accuracy listed below(dPARM<=0. - no fitting)
#Maximum Betas[cm] and MomentumCompaction are on the next line
BtXmax=50000 dBtXmax=-30 BtYmax=50000 dBtYmax=-50 Alfa=0 dAlfa=0
#Fitting parameters at the end of the lattice
Beta_X[cm]=100 dBeta_X[cm]=0 Alfa_X=0 dAlfa_X=0
Beta_Y[cm]=100 dBeta_Y[cm]=0 Alfa_Y=0 dAlfa_Y=0
Disp_X[cm]=0 dDisp_X[cm]=0 D_prime_X=0 dD_prime_X=0
Disp_Y[cm]=0 dDisp_Y[cm]=0 D_prime_Y=0 dD_prime_Y=0
Qx=0 dQx=0
Qy=0 dQy=0
# Parameters at exit of element 143 (oD11019), drift before ramp dipole
Fit at element with number =143
Beta_X[cm]=1544.64 dBeta_X[cm]=-0.01 Alfa_X=-1.27093 dAlfa_X=-0.0001
Beta_Y[cm]=669.11 dBeta_Y[cm]=-0.01 Alfa_Y=-0.431425 dAlfa_Y=-0.0001
Disp_X[cm]=0 dDisp_X[cm]=0 D_prime_X=0 dD_prime_X=0
Disp_Y[cm]=-20.3 dDisp_Y[cm]=-0.002 D_prime_Y=-0.002184 dD_prime_Y=-1e-06
Qx=0 dQx=0
Qy=0 dQy=0
#element 233 is drift after last dipole, just before final quadruplet
Fit at element with number =233

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Beta_X[cm]=1609.7  dBeta_X[cm]=-10   Alfa_X=-1.37      dAlfa_X=-0.01
Beta_Y[cm]=15503  dBeta_Y[cm]=-10   Alfa_Y=-21.8     dAlfa_Y=-0.01
Disp_X[cm]=0      dDisp_X[cm]=0     D_prime_X=0      dD_prime_X=0
Disp_Y[cm]=0      dDisp_Y[cm]=-0.0001  D_prime_Y=0      dD_prime_Y=-3e-07
Qx=0  dQx=0
Qy=0  dQy=0
# element 289 is the collimator
Fit at element with number =293
Beta_X[cm]=2000  dBeta_X[cm]=20   Alfa_X=-0.1  dAlfa_X=0.002
Beta_Y[cm]=6000  dBeta_Y[cm]=50   Alfa_Y=-0.1  dAlfa_Y=0.002
Disp_X[cm]=0     dDisp_X[cm]=0     D_prime_X=0   dD_prime_X=0
Disp_Y[cm]=0     dDisp_Y[cm]=0     D_prime_Y=0   dD_prime_Y=0
Qx=0  dQx=0
Qy=0  dQy=0
#To create a Fitting at intermidiate element: uncomment the line above,
# write the correct element number and insert six lines describing the
# fit parameters. You can use up to 4 intermidiate points
#Each point has to be determined as described above
#
#Insert groups of elements below. Each group has to be located on one line.
#Start from the letter describing the type of changable parameter such as: L:, B:, G:
#G: qMQPBS01
#G: qMQPBS02
#G: qMQPBS03
#G: qMQPBS04
#G: qMQABE01
#G: qMQABE02
#G: qMQABE03
#G: qMQABE04
#G: qMQABT01 qMQABT03
#G: qMQABT02
#G: qMQABT04
#G: qMQA5C01 qMQA5C03

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#G: qMQA5C02 qMQA5C02A  
#G: qMQA5C04  
#G: qMQA5C05 qMQA5C07  
#G: qMQA5C06 qMQA5C06A  
G: qMQP5C08  
G: qMQP5C09A  
G: qMQP5C10A  
G: qMQP5C11A  
EndBetaFitBlock

## Lattice

Quads:

MQPBS01.BDL	-20275.071
MQPBS02.BDL	29146.131
MQPBS03.BDL	-13307.358
MQPBS04.BDL	-7612.227
MQABE01.BDL	11755.182
MQABE02.BDL	-33476.040
MQABE03.BDL	22205.070
MQABE04.BDL	-12849.144
MQABT01.BDL	45810.450
MQABT02.BDL	-77815.200
MQABT03.BDL	46078.830
MQA5C01.BDL	72705.420
MQA5C02.BDL	-75699.210
MQA5C02A.BDL	-75699.210
MQA5C03.BDL	72705.420
MQA5C04.BDL	12808.173
MQA5C05.BDL	73945.980
MQA5C06.BDL	-80217.600
MQA5C06A.BDL	-80217.600
MQA5C07.BDL	73945.980

MQP5C08.BDL -1690.168  
MQP5C08A.BDL 0.000  
MQP5C09.BDL 0.000  
MQP5C09A.BDL -27714.351  
MQP5C10.BDL 0.000  
MQP5C10A.BDL -46024.380  
MQP5C11.BDL 0.000  
MQP5C11A.BDL 51969.270

Everything

N	Name	S[cm]	L[cm]	B[kG]	G[kG/cm]	S[kG/cm/cm]	Tilt[deg]	Tilt_out	BendAng[deg]
1	oD1200		0	0					
2	gMAQ1S01		0	0	12.8911	Angle[deg]=0	Eff.Length[cm]=1.90844	Tilt[deg]=90	
3	bMAQ1S01	100.017			100.017	12.8911	0	0	-90 -90 1.82833
4	GMAQ1S01	100.017			0	12.8911	Angle[deg]=1.82833	Eff.Length[cm]=1.9133	Tilt[deg]=90
5	oD1201		200.068		100.051				
6	gMAS3S02		200.068		0	11.9	Angle[deg]=-1.82833	Eff.Length[cm]=2.39549	Tilt[deg]=90
7	bMAS3S02	300.181			100.113	11.9	0	0	-90 -90 1.68939
8	GMAS3S02	300.181			0	11.9	Angle[deg]=3.51772	Eff.Length[cm]=2.412	Tilt[deg]=90
9	oD1202		388.535		88.354				
10	gMYR7S03		388.535		0	-8.2637	Angle[deg]=3.51772	Eff.Length[cm]=1.27854	Tilt[deg]=90
11	bMYR7S03	688.724			300.189	-8.2637	0	0	-90 -90 -3.51772
12	GMYR7S03	688.724			0	-8.2637	Angle[deg]=0	Eff.Length[cm]=1.26656	Tilt[deg]=90
13	oD1203		748.725		60.001				
14	gMYR9S04		748.725		0	-4.91908	Angle[deg]=0	Eff.Length[cm]=1.27	Tilt[deg]=90
15	bMYR9S04	948.745			200.02	-4.91908	0	0	-90 -90 -1.39524
16	GMYR9S04	948.745			0	-4.91908	Angle[deg]=1.39524	Eff.Length[cm]=1.27188	Tilt[deg]=90
17	oD1204		1008.76		60.017				
18	gMYRBS05		1008.76		0	-5.63627	Angle[deg]=0.799274	Eff.Length[cm]=1.27	Tilt[deg]=90
19	bMYRBS05	1208.77			200.006	-5.63627	0	0	-90 -90 -1.59855
20	GMYRBS05	1208.77			0	-5.63627	Angle[deg]=0.799274	Eff.Length[cm]=1.27	Tilt[deg]=90
21	oD1205a		1987.23		778.46				
22	iITVBS01		1987.23		0	0	0	0	0

23	oD1205b	2012.23	25						
24	iIPMBS01	2012.23	0	0	0	0	0		
25	oD1301	2034.69	22.465						
26	qMQPBS01	2064.69	30	0	-0.675836	0	0		
27	oD1302	2084.01	19.315						
28	kMBDBS01H	2084.01	1e-06	0	0	0	0		
29	oD1303	2103.62	19.609						
30	kMBDBS01V	2103.62	1e-06	0	0	0	90		
31	oD1206c	2264.62	161						
32	iIHABS01	2264.62	0	0	0	0	0		
33	oD1206d	2306.04	41.42						
34	gMBBBS06	2306.04	0	10.5548	Angle[deg]=1.4969	Eff.Length[cm]=1.27	Tilt[deg]=90		
35	bMBBBS06	2506.06	200.023	10.5548	0	0	-90 -90	2.99379	
36	GMBBBS06	2506.06	0	10.5548	Angle[deg]=1.4969	Eff.Length[cm]=1.27	Tilt[deg]=90		
37	oD1207a	2556.06	50						
38	oD1207b	3010.81	454.753						
39	iIPMBS02	3010.81	0	0	0	0	0		
40	oD1301	3033.28	22.465						
41	qMQPBS02	3063.28	30	0	0.971538	0	0		
42	oD1302	3082.59	19.315						
43	kMBDBS02H	3082.59	1e-06	0	0	0	0		
44	oD1303	3102.2	19.609						
45	kMBDBS02V	3102.2	1e-06	0	0	0	90		
46	oD1208c	3410.92	308.714						
47	iIPMBS03	3410.92	0	0	0	0	0		
48	oD1301	3433.38	22.465						
49	qMQPBS03	3463.38	30	0	-0.443579	0	0		
50	oD1302	3482.7	19.315						
51	kMBDBS03H	3482.7	1e-06	0	0	0	0		
52	oD1303	3502.31	19.609						
53	kMBDBS03V	3502.31	1e-06	0	0	0	90		
54	oD1209c	5058.42	1556.11						
55	iIPMBS04	5058.42	0	0	0	0	0		

56	oD1301	5080.88	22.465					
57	qMQPBS04	5110.88	30	0	-0.253741	0	0	
58	oD1302	5130.2	19.315					
59	kMBDBS04H	5130.2	1e-06	0	0	0	0	
60	oD1303	5149.81	19.609					
61	kMBDBS04V	5149.81	1e-06	0	0	0	90	
62	oD1215h	5209.81	60					
63	kFFBBS04H	5209.81	1e-06	0	0	0	0	
64	oD1215h	5269.81	60					
65	kFFBBS04V	5269.81	1e-06	0	0	0	90	
66	oD1210c1	7927.62	2657.81					
67	iIPMBE01	7927.62	0	0	0	0	0	
68	oD1301	7950.08	22.465					
69	qMQABE01	7980.08	30	0	0.391839	0	0	
70	oD1302	7999.4	19.315					
71	kMBDBE01H	7999.4	1e-06	0	0	0	0	
72	oD1303	8019.01	19.609					
73	kMBDBE01V	8019.01	1e-06	0	0	0	90	
74	oD1211a	8157.62	138.611					
75	iIPMBE02	8157.62	0	0	0	0	0	
76	oD1301	8180.08	22.465					
77	qMQABE02	8210.08	30	0	-1.11587	0	0	
78	oD1302	8229.4	19.315					
79	kMBDBE02H	8229.4	1e-06	0	0	0	0	
80	oD1303	8249.01	19.609					
81	kMBDBE02V	8249.01	1e-06	0	0	0	90	
82	oD1211a	8387.62	138.611					
83	iIPMBE03	8387.62	0	0	0	0	0	
84	oD1301	8410.08	22.465					
85	qMQABE03	8440.08	30	0	0.740169	0	0	
86	oD1302	8459.4	19.315					
87	kMBDBE03H	8459.4	1e-06	0	0	0	0	
88	oD1303	8479.01	19.609					



89	kMBDBE03V	8479.01	1e-06	0	0	0	90
90	oD1211a	8617.62	138.611				
91	iPMBE04	8617.62	0	0	0	0	
92	oD1301	8640.08	22.465				
93	qMQABE04	8670.08	30	0	-0.428305	0	0
94	oD1302	8689.4	19.315				
95	kMBDBE04H	8689.4	1e-06	0	0	0	0
96	oD1303	8709.01	19.609				
97	kMBDBE04V	8709.01	1e-06	0	0	0	90
98	oD1212a	8870.01	161				
99	iHABE04	8870.01	0	0	0	0	
100	oD1212b	10214.6	1344.61				
101	iPMBT01	10214.6	0	0	0	0	
102	oD1301	10237.1	22.465				
103	qMQABT01	10267.1	30	0	1.52702	0	0
104	oD1302	10286.4	19.315				
105	kMBDBT01H	10286.4	1e-06	0	0	0	0
106	oD1303	10306	19.609				
107	kMBDBT01V	10306	1e-06	0	0	0	90
108	oD1213a1	10539.6	233.611				
109	iPMBT02	10539.6	0	0	0	0	
110	oD1301	10562.1	22.465				
111	qMQABT02	10592.1	30	0	-2.59384	0	0
112	oD1302	10611.4	19.315				
113	kMBDBT02H	10611.4	1e-06	0	0	0	0
114	oD1303	10631	19.609				
115	kMBDBT02V	10631	1e-06	0	0	0	90
116	oD1213a1	10864.6	233.611				
117	iPMBT03	10864.6	0	0	0	0	
118	oD1301	10887.1	22.465				
119	qMQABT03	10917.1	30	0	1.53596	0	0
120	oD1302	10936.4	19.315				
121	kMBDBT03H	10936.4	1e-06	0	0	0	0

122	oD1303	10956	19.609						
123	kMBDBT03V	10956	1e-06	0	0	0	90		
124	oD1215a	12510.7	1554.71						
125	iIPM5C00	12510.7	0	0	0	0	0		
126	oD1215e	12530.7	20						
127	iITV5C00	12530.7	0	0	0	0	0		
128	oD1215f	12550.7	20						
129	kMBD5C00V	12550.7	1e-06	0	0	0	90		
130	oD1215g	12570.3	19.609						
131	kMBD5C00V	12570.3	1e-06	0	0	0	90		
132	oD1215h	12630.3	60						
133	kFFB5C00V	12630.3	1e-06	0	0	0	90		
134	oD1215h	12690.3	60						
135	kFFB5C00H	12690.3	1e-06	0	0	0	0		
136	oD1215i	12710.7	20.391						
137	iIDA5C00	12710.7	0	0	0	0	0		
138	iSBS5C00	12710.7	0	0	0	0	0		
139	iSIW5C00	12710.7	0	0	0	0	0		
140	oD1215c	13110.7	400						
141	iSSS5C00	13110.7	0	0	0	0	0		
142	oD1215d	13310.7	200						
143	gMAR5C01	13310.7	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=-90		
144	bMAR5C01	13710.7	400.011	6.85839	0	0	-90	-90	3.89033
145	GMAR5C01	13710.7	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=-90		
146	oD1216	13760.7	50						
147	gMAR5C02	13760.7	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=-90		
148	bMAR5C02	14160.7	400.011	6.85839	0	0	-90	-90	3.89033
149	GMAR5C02	14160.7	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=-90		
150	oD1217a	14200.7	40						
151	iSLM5C01	14200.7	0	0	0	0	0		
152	oD1217b	14400.4	199.656						
153	iIPM5C01	14400.4	0	0	0	0	0		
154	oD1301	14422.9	22.465						

155	qMQA5C01	14452.9	30	0	2.42351	0	0
156	oD1302	14472.2	19.315				
157	kMBD5C01H	14472.2	1e-06	0	0	0	
158	oD1303	14491.8	19.609				
159	kMBD5C01V	14491.8	1e-06	0	0	0	90
160	oD1318a1	14605.7	113.886				
161	iIPM5C02	14605.7	0	0	0	0	
162	oD1301	14628.1	22.465				
163	qMQA5C02	14658.1	30	0	-2.52331	0	0
164	oD1319	14672.6	14.45				
165	qMQA5C02A	14702.6	30	0	-2.52331	0	0
166	oD1302	14721.9	19.315				
167	kMBD5C02H	14721.9	1e-06	0	0	0	
168	oD1303	14741.5	19.609				
169	kMBD5C02V	14741.5	1e-06	0	0	0	90
170	oD1218b	14781.5	40				
171	iITV5C02A	14781.5	0	0	0	0	
172	oD1318c1	14855.4	73.886				
173	iIPM5C03	14855.4	0	0	0	0	
174	oD1301	14877.9	22.465				
175	qMQA5C03	14907.9	30	0	2.42351	0	0
176	oD1302	14927.2	19.315				
177	kMBD5C03H	14927.2	1e-06	0	0	0	
178	oD1303	14946.8	19.609				
179	kMBD5C03V	14946.8	1e-06	0	0	0	90
180	oD1220a2	15016.8	70				
181	oD1220a3	15432.9	416.111				
182	iIPM5C04	15432.9	0	0	0	0	
183	oD1301	15455.4	22.465				
184	qMQA5C04	15485.4	30	0	0.426939	0	0
185	oD1302	15504.7	19.315				
186	kMBD5C04H	15504.7	1e-06	0	0	0	
187	oD1303	15524.3	19.609				

188	kMBD5C04V	15524.3	1e-06	0	0	0	90
189	oD1215h	15584.3	60				
190	kFFB5C04H	15584.3	1e-06	0	0	0	0
191	oD1215h	15644.3	60				
192	kFFB5C04V	15644.3	1e-06	0	0	0	90
193	oD1221a1	15804.3	160				
194	oD1221b1	16405.4	601.111				
195	iIPM5C05	16405.4	0	0	0	0	0
196	oD1301	16427.9	22.465				
197	qMQA5C05	16457.9	30	0	2.46487	0	0
198	oD1302	16477.2	19.315				
199	kMBD5C05H	16477.2	1e-06	0	0	0	0
200	oD1303	16496.8	19.609				
201	kMBD5C05V	16496.8	1e-06	0	0	0	90
202	oD1318a1	16610.7	113.886				
203	iIPM5C06	16610.7	0	0	0	0	0
204	oD1301	16633.1	22.465				
205	qMQA5C06	16663.1	30	0	-2.67392	0	0
206	oD1319	16677.6	14.45				
207	qMQA5C06A	16707.6	30	0	-2.67392	0	0
208	oD1302	16726.9	19.315				
209	kMBD5C06H	16726.9	1e-06	0	0	0	0
210	oD1303	16746.5	19.609				
211	kMBD5C06V	16746.5	1e-06	0	0	0	90
212	oD1318a1	16860.4	113.886				
213	iIPM5C07	16860.4	0	0	0	0	0
214	oD1301	16882.9	22.465				
215	qMQA5C07	16912.9	30	0	2.46487	0	0
216	oD1302	16932.2	19.315				
217	kMBD5C07H	16932.2	1e-06	0	0	0	0
218	oD1303	16951.8	19.609				
219	kMBD5C07V	16951.8	1e-06	0	0	0	90
220	oD1222a1	17150.4	198.576				

221	gMAR5C03	17150.4	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=90
222	bMAR5C03	17550.4	400.011	6.85839	0	0	90 90 3.89033
223	GMAR5C03	17550.4	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=90
224	oD1216	17600.4	50				
225	gMAR5C04	17600.4	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=90
226	bMAR5C04	18000.4	400.011	6.85839	0	0	90 90 3.89033
227	GMAR5C04	18000.4	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=90
228	oD1223a1	18054.2	53.841				
229	iSLM5C08	18054.2	0	0	0	0	
230	iITV5C08	18054.2	0	0	0	0	
231	oD1223b	18094.2	40				
232	iIPM5C08	18094.2	0	0	0	0	
233	oD1301	18116.7	22.465				
234	qMQP5C08	18146.7	30	0	-0.0563389	0	0
235	oD1319	18161.1	14.45				
236	qMQP5C08A	18191.1	30	0	0	0	
237	oD1302	18210.4	19.315				
238	kMBD5C08H	18210.4	1e-06	0	0	0	0
239	oD1303	18230.1	19.609				
240	kMBD5C08V	18230.1	1e-06	0	0	0	90
241	oD1224a4	18399.8	169.711				
242	iIPM5C09	18399.8	0	0	0	0	
243	oD1301	18422.2	22.465				
244	qMQP5C09	18452.2	30	0	0	0	
245	oD1319	18466.7	14.45				
246	qMQP5C09A	18496.7	30	0	-0.923812	0	0
247	oD1302	18516	19.315				
248	kMBD5C09H	18516	1e-06	0	0	0	0
249	oD1303	18535.6	19.609				
250	kMBD5C09V	18535.6	1e-06	0	0	0	90
251	oD1224a3	18749.8	214.161				
252	iIPM5C10	18749.8	0	0	0	0	
253	oD1301	18772.2	22.465				

254	qMQP5C10	18802.2	30	0	0	0	0	
255	oD1219	18817.2	15					
256	qMQP5C10A	18847.2	30	0	-1.53415	0	0	0
257	oD1302	18866.5	19.315					
258	kMBD5C10H	18866.5	1e-06	0	0	0	0	
259	oD1303	18886.2	19.609					
260	kMBD5C10V	18886.2	1e-06	0	0	0	90	
261	oD1224a3	19100.3	214.161					
262	iIPM5C11	19100.3	0	0	0	0	0	
263	oD1301	19122.8	22.465					
264	qMQP5C11	19152.8	30	0	0	0	0	
265	oD1219	19167.8	15					
266	qMQP5C11A	19197.8	30	0	1.73231	0	0	0
267	oD1302	19217.1	19.315					
268	kMBD5C11H	19217.1	1e-06	0	0	0	0	
269	oD1303	19236.7	19.609					
270	kMBD5C11V	19236.7	1e-06	0	0	0	90	
271	oD1225a1	19261.5	24.8					
272	iITV5C11	19261.5	0	0	0	0	0	
273	oD1227b	19282.5	21					
274	iIHA5C11	19282.5	0	0	0	0	0	
275	oD1227c	19330.5	48					
276	iCLnAbpm2	19330.5	0	0	0	0	0	
277	oD1227d	20511.5	1180.95					
278	kMBD5C12H	20526.5	15	0	0	0	0	
279	oD1226	20531.5	5					
280	kMBD5C12V	20546.5	15	0	0	0	90	
281	oD1228a	20586.5	40					
282	iITV5C12	20586.5	0	0	0	0	0	
283	oD1228b1	20686.5	100					
284	iIPM5C12	20686.5	0	0	0	0	0	
285	oD1228b2	20707.5	21					
286	iIHA5C12	20707.5	0	0	0	0	0	

287	oD1228c	20777.5	70					
288	iCLnAbpm3	20777.5	0	0	0	0	0	
289	oD1228d	20890.1	112.633					
290	KRADIATOR	20890.1	0	0	0	0	0	
291	oD1229	28390.1	7500					
292	iActCol	28390.1	0	0	0	0	0	
293	KCOLLIM	28390.1	0	0	0	0	0	
294	oD1230	32590.1	4200					
295	Kbackwall	32590.1	0	0	0	0	0	
296	oD1231	33090.1	500					

## Orbit

N	name	S[cm]	X[cm]	Y[cm]	Z[cm]	TetaX[deg]	TetaY[deg]	Energy[MeV]	
0		680045.186	8060.000	10000.000	9055.372	0.0000	0.0000	12112.4890	
1	oD1200	680045.186	8060.000	10000.000	9055.372	0.0000	0.0000	12112.4890	
2	gMAQ1S01	680045.186	8060.000	10000.000	9055.372	0.0000	0.0000	12112.4890	
3	bMAQ1S01	680145.203	8060.000	10001.596	9155.372	0.0000	1.8283	12112.4890	
4	GMAQ1S01	680145.203	8060.000	10001.596	9155.372	0.0000	1.8283	12112.4890	
5	oD1201	680245.254	8060.000	10004.788	9255.372	0.0000	1.8283	12112.4890	
6	gMAS3S02	680245.254	8060.000	10004.788	9255.372	0.0000	1.8283	12112.4890	
7	bMAS3S02	680345.367	8060.000	10009.456	9355.373	0.0000	3.5177	12112.4890	
8	GMAS3S02	680345.367	8060.000	10009.456	9355.373	0.0000	3.5177	12112.4890	
9	oD1202	680433.721	8060.000	10014.878	9443.560	0.0000	3.5177	12112.4890	
10	gMYR7S03	680433.721	8060.000	10014.878	9443.560	0.0000	3.5177	12112.4890	
11	bMYR7S03	680733.910	8060.000	10024.090	9743.561	0.0000	0.0000	12112.4890	
12	GMYR7S03	680733.910	8060.000	10024.090	9743.561	0.0000	0.0000	12112.4890	
13	oD1203	680793.911	8060.000	10024.090	9803.562	0.0000	0.0000	12112.4890	
14	gMYR9S04	680793.911	8060.000	10024.090	9803.562	0.0000	0.0000	12112.4890	
15	bMYR9S04	680993.931	8060.000	10021.655	10003.562	0.0000	-1.3952	12112.4890	
16	GMYR9S04	680993.931	8060.000	10021.655	10003.562	0.0000	-1.3952	12112.4890	
17	oD1204	681053.948	8060.000	10020.193	10063.561	0.0000	-1.3952	12112.4890	

18	gMYRBS05	681053.948	8060.000	10020.193	10063.561	0.0000	-1.3952	12112.4890
19	bMYRBS05	681253.954	8060.000	10012.535	10263.414	0.0000	-2.9938	12112.4890
20	GMYRBS05	681253.954	8060.000	10012.535	10263.414	0.0000	-2.9938	12112.4890
21	oD1205a	682032.414	8060.000	9971.878	11040.811	0.0000	-2.9938	12112.4890
22	iITVBS01	682032.414	8060.000	9971.878	11040.811	0.0000	-2.9938	12112.4890
23	oD1205b	682057.414	8060.000	9970.572	11065.777	0.0000	-2.9938	12112.4890
24	iIPMBS01	682057.414	8060.000	9970.572	11065.777	0.0000	-2.9938	12112.4890
25	oD1301	682079.879	8060.000	9969.399	11088.212	0.0000	-2.9938	12112.4890
26	qMQPBS01	682109.879	8060.000	9967.832	11118.171	0.0000	-2.9938	12112.4890
27	oD1302	682129.194	8060.000	9966.823	11137.459	0.0000	-2.9938	12112.4890
28	kMBDBS01H	682129.194	8060.000	9966.823	11137.459	0.0000	-2.9938	12112.4890
29	oD1303	682148.803	8060.000	9965.799	11157.041	0.0000	-2.9938	12112.4890
30	kMBDBS01V	682148.803	8060.000	9965.799	11157.041	0.0000	-2.9938	12112.4890
31	oD1206c	682309.803	8060.000	9957.390	11317.822	0.0000	-2.9938	12112.4890
32	iIHABS01	682309.803	8060.000	9957.390	11317.822	0.0000	-2.9938	12112.4890
33	oD1206d	682351.223	8060.000	9955.227	11359.185	0.0000	-2.9938	12112.4890
34	gMBBBS06	682351.223	8060.000	9955.227	11359.185	0.0000	-2.9938	12112.4890
35	bMBBBS06	682551.246	8060.000	9950.002	11559.117	0.0000	0.0000	12112.4890
36	GMBBBS06	682551.246	8060.000	9950.002	11559.117	0.0000	0.0000	12112.4890
37	oD1207a	682601.246	8060.000	9950.002	11609.117	0.0000	0.0000	12112.4890
38	oD1207b	683055.999	8060.000	9950.002	12063.870	0.0000	0.0000	12112.4890
39	iIPMBS02	683055.999	8060.000	9950.002	12063.870	0.0000	0.0000	12112.4890
40	oD1301	683078.464	8060.000	9950.002	12086.335	0.0000	0.0000	12112.4890
41	qMQPBS02	683108.464	8060.000	9950.002	12116.335	0.0000	0.0000	12112.4890
42	oD1302	683127.779	8060.000	9950.002	12135.650	0.0000	0.0000	12112.4890
43	kMBDBS02H	683127.779	8060.000	9950.002	12135.650	0.0000	0.0000	12112.4890
44	oD1303	683147.388	8060.000	9950.002	12155.259	0.0000	0.0000	12112.4890
45	kMBDBS02V	683147.388	8060.000	9950.002	12155.259	0.0000	0.0000	12112.4890
46	oD1208c	683456.102	8060.000	9950.002	12463.973	0.0000	0.0000	12112.4890
47	iIPMBS03	683456.102	8060.000	9950.002	12463.973	0.0000	0.0000	12112.4890
48	oD1301	683478.567	8060.000	9950.002	12486.438	0.0000	0.0000	12112.4890
49	qMQPBS03	683508.567	8060.000	9950.002	12516.438	0.0000	0.0000	12112.4890
50	oD1302	683527.882	8060.000	9950.002	12535.753	0.0000	0.0000	12112.4890



51	kMBDBS03H	683527.882	8060.000	9950.002	12535.753	0.0000	0.0000	12112.4890
52	oD1303	683547.491	8060.000	9950.002	12555.362	0.0000	0.0000	12112.4890
53	kMBDBS03V	683547.491	8060.000	9950.002	12555.362	0.0000	0.0000	12112.4890
54	oD1209c	685103.602	8060.000	9950.002	14111.473	0.0000	0.0000	12112.4890
55	iIPMBS04	685103.602	8060.000	9950.002	14111.473	0.0000	0.0000	12112.4890
56	oD1301	685126.067	8060.000	9950.002	14133.938	0.0000	0.0000	12112.4890
57	qMQPBS04	685156.067	8060.000	9950.002	14163.938	0.0000	0.0000	12112.4890
58	oD1302	685175.382	8060.000	9950.002	14183.253	0.0000	0.0000	12112.4890
59	kMBDBS04H	685175.382	8060.000	9950.002	14183.253	0.0000	0.0000	12112.4890
60	oD1303	685194.991	8060.000	9950.002	14202.862	0.0000	0.0000	12112.4890
61	kMBDBS04V	685194.991	8060.000	9950.002	14202.862	0.0000	0.0000	12112.4890
62	oD1215h	685254.991	8060.000	9950.002	14262.862	0.0000	0.0000	12112.4890
63	kFFBBS04H	685254.991	8060.000	9950.002	14262.862	0.0000	0.0000	12112.4890
64	oD1215h	685314.991	8060.000	9950.002	14322.862	0.0000	0.0000	12112.4890
65	kFFBBS04V	685314.991	8060.000	9950.002	14322.862	0.0000	0.0000	12112.4890
66	oD1210c1	687972.802	8060.000	9950.002	16980.673	0.0000	0.0000	12112.4890
67	iIPMBE01	687972.802	8060.000	9950.002	16980.673	0.0000	0.0000	12112.4890
68	oD1301	687995.267	8060.000	9950.002	17003.138	0.0000	0.0000	12112.4890
69	qMQABE01	688025.267	8060.000	9950.002	17033.138	0.0000	0.0000	12112.4890
70	oD1302	688044.582	8060.000	9950.002	17052.453	0.0000	0.0000	12112.4890
71	kMBDBE01H	688044.582	8060.000	9950.002	17052.453	0.0000	0.0000	12112.4890
72	oD1303	688064.191	8060.000	9950.002	17072.062	0.0000	0.0000	12112.4890
73	kMBDBE01V	688064.191	8060.000	9950.002	17072.062	0.0000	0.0000	12112.4890
74	oD1211a	688202.802	8060.000	9950.002	17210.673	0.0000	0.0000	12112.4890
75	iIPMBE02	688202.802	8060.000	9950.002	17210.673	0.0000	0.0000	12112.4890
76	oD1301	688225.267	8060.000	9950.002	17233.138	0.0000	0.0000	12112.4890
77	qMQABE02	688255.267	8060.000	9950.002	17263.138	0.0000	0.0000	12112.4890
78	oD1302	688274.582	8060.000	9950.002	17282.453	0.0000	0.0000	12112.4890
79	kMBDBE02H	688274.582	8060.000	9950.002	17282.453	0.0000	0.0000	12112.4890
80	oD1303	688294.191	8060.000	9950.002	17302.062	0.0000	0.0000	12112.4890
81	kMBDBE02V	688294.191	8060.000	9950.002	17302.062	0.0000	0.0000	12112.4890
82	oD1211a	688432.802	8060.000	9950.002	17440.673	0.0000	0.0000	12112.4890
83	iIPMBE03	688432.802	8060.000	9950.002	17440.673	0.0000	0.0000	12112.4890

84	oD1301	688455.267	8060.000	9950.002	17463.138	0.0000	0.0000	12112.4890
85	qMQABE03	688485.267	8060.000	9950.002	17493.138	0.0000	0.0000	12112.4890
86	oD1302	688504.582	8060.000	9950.002	17512.453	0.0000	0.0000	12112.4890
87	kMBDBE03H	688504.582	8060.000	9950.002	17512.453	0.0000	0.0000	12112.4890
88	oD1303	688524.191	8060.000	9950.002	17532.062	0.0000	0.0000	12112.4890
89	kMBDBE03V	688524.191	8060.000	9950.002	17532.062	0.0000	0.0000	12112.4890
90	oD1211a	688662.802	8060.000	9950.002	17670.673	0.0000	0.0000	12112.4890
91	iIPMBE04	688662.802	8060.000	9950.002	17670.673	0.0000	0.0000	12112.4890
92	oD1301	688685.267	8060.000	9950.002	17693.138	0.0000	0.0000	12112.4890
93	qMQABE04	688715.267	8060.000	9950.002	17723.138	0.0000	0.0000	12112.4890
94	oD1302	688734.582	8060.000	9950.002	17742.453	0.0000	0.0000	12112.4890
95	kMBDBE04H	688734.582	8060.000	9950.002	17742.453	0.0000	0.0000	12112.4890
96	oD1303	688754.191	8060.000	9950.002	17762.062	0.0000	0.0000	12112.4890
97	kMBDBE04V	688754.191	8060.000	9950.002	17762.062	0.0000	0.0000	12112.4890
98	oD1212a	688915.191	8060.000	9950.002	17923.062	0.0000	0.0000	12112.4890
99	iIHABE04	688915.191	8060.000	9950.002	17923.062	0.0000	0.0000	12112.4890
100	oD1212b	690259.802	8060.000	9950.002	19267.673	0.0000	0.0000	12112.4890
101	iIPMBT01	690259.802	8060.000	9950.002	19267.673	0.0000	0.0000	12112.4890
102	oD1301	690282.267	8060.000	9950.002	19290.138	0.0000	0.0000	12112.4890
103	qMQABT01	690312.267	8060.000	9950.002	19320.138	0.0000	0.0000	12112.4890
104	oD1302	690331.582	8060.000	9950.002	19339.453	0.0000	0.0000	12112.4890
105	kMBDBT01H	690331.582	8060.000	9950.002	19339.453	0.0000	0.0000	12112.4890
106	oD1303	690351.191	8060.000	9950.002	19359.062	0.0000	0.0000	12112.4890
107	kMBDBT01V	690351.191	8060.000	9950.002	19359.062	0.0000	0.0000	12112.4890
108	oD1213a1	690584.802	8060.000	9950.002	19592.673	0.0000	0.0000	12112.4890
109	iIPMBT02	690584.802	8060.000	9950.002	19592.673	0.0000	0.0000	12112.4890
110	oD1301	690607.267	8060.000	9950.002	19615.138	0.0000	0.0000	12112.4890
111	qMQABT02	690637.267	8060.000	9950.002	19645.138	0.0000	0.0000	12112.4890
112	oD1302	690656.582	8060.000	9950.002	19664.453	0.0000	0.0000	12112.4890
113	kMBDBT02H	690656.582	8060.000	9950.002	19664.453	0.0000	0.0000	12112.4890
114	oD1303	690676.191	8060.000	9950.002	19684.062	0.0000	0.0000	12112.4890
115	kMBDBT02V	690676.191	8060.000	9950.002	19684.062	0.0000	0.0000	12112.4890
116	oD1213a1	690909.802	8060.000	9950.002	19917.673	0.0000	0.0000	12112.4890

117	iIPMBT03	690909.802	8060.000	9950.002	19917.673	0.0000	0.0000	12112.4890
118	oD1301	690932.267	8060.000	9950.002	19940.138	0.0000	0.0000	12112.4890
119	qMQABT03	690962.267	8060.000	9950.002	19970.138	0.0000	0.0000	12112.4890
120	oD1302	690981.582	8060.000	9950.002	19989.453	0.0000	0.0000	12112.4890
121	kMBDBT03H	690981.582	8060.000	9950.002	19989.453	0.0000	0.0000	12112.4890
122	oD1303	691001.191	8060.000	9950.002	20009.062	0.0000	0.0000	12112.4890
123	kMBDBT03V	691001.191	8060.000	9950.002	20009.062	0.0000	0.0000	12112.4890
124	oD1215a	692555.897	8060.000	9950.002	21563.768	0.0000	0.0000	12112.4890
125	iIPM5C00	692555.897	8060.000	9950.002	21563.768	0.0000	0.0000	12112.4890
126	oD1215e	692575.897	8060.000	9950.002	21583.768	0.0000	0.0000	12112.4890
127	iITV5C00	692575.897	8060.000	9950.002	21583.768	0.0000	0.0000	12112.4890
128	oD1215f	692595.897	8060.000	9950.002	21603.768	0.0000	0.0000	12112.4890
129	kMBD5C00V	692595.897	8060.000	9950.002	21603.768	0.0000	0.0000	12112.4890
130	oD1215g	692615.506	8060.000	9950.002	21623.377	0.0000	0.0000	12112.4890
131	kMBD5C00V	692615.506	8060.000	9950.002	21623.377	0.0000	0.0000	12112.4890
132	oD1215h	692675.506	8060.000	9950.002	21683.377	0.0000	0.0000	12112.4890
133	kFFB5C00V	692675.506	8060.000	9950.002	21683.377	0.0000	0.0000	12112.4890
134	oD1215h	692735.506	8060.000	9950.002	21743.377	0.0000	0.0000	12112.4890
135	kFFB5C00H	692735.506	8060.000	9950.002	21743.377	0.0000	0.0000	12112.4890
136	oD1215i	692755.897	8060.000	9950.002	21763.768	0.0000	0.0000	12112.4890
137	iIDA5C00	692755.897	8060.000	9950.002	21763.768	0.0000	0.0000	12112.4890
138	iSBS5C00	692755.897	8060.000	9950.002	21763.768	0.0000	0.0000	12112.4890
139	iSIW5C00	692755.897	8060.000	9950.002	21763.768	0.0000	0.0000	12112.4890
140	oD1215c	693155.897	8060.000	9950.002	22163.768	0.0000	0.0000	12112.4890
141	iSSS5C00	693155.897	8060.000	9950.002	22163.768	0.0000	0.0000	12112.4890
142	oD1215d	693355.897	8060.000	9950.002	22363.768	0.0000	0.0000	12112.4890
143	gMAR5C01	693355.897	8060.000	9950.002	22363.768	0.0000	0.0000	12112.4890
144	bMAR5C01	693755.908	8060.000	9963.577	22763.472	0.0000	3.8903	12112.4890
145	GMAR5C01	693755.908	8060.000	9963.577	22763.472	0.0000	3.8903	12112.4890
146	oD1216	693805.908	8060.000	9966.970	22813.357	0.0000	3.8903	12112.4890
147	gMAR5C02	693805.908	8060.000	9966.970	22813.357	0.0000	3.8903	12112.4890
148	bMAR5C02	694205.920	8060.000	10007.632	23211.219	0.0000	7.7807	12112.4890
149	GMAR5C02	694205.920	8060.000	10007.632	23211.219	0.0000	7.7807	12112.4890

150	oD1217a	694245.920	8060.000	10013.047	23250.851	0.0000	7.7807	12112.4890
151	iSLM5C01	694245.920	8060.000	10013.047	23250.851	0.0000	7.7807	12112.4890
152	oD1217b	694445.576	8060.000	10040.077	23448.669	0.0000	7.7807	12112.4890
153	iIPM5C01	694445.576	8060.000	10040.077	23448.669	0.0000	7.7807	12112.4890
154	oD1301	694468.041	8060.000	10043.118	23470.927	0.0000	7.7807	12112.4890
155	qMQA5C01	694498.041	8060.000	10047.180	23500.651	0.0000	7.7807	12112.4890
156	oD1302	694517.356	8060.000	10049.794	23519.788	0.0000	7.7807	12112.4890
157	kMBD5C01H	694517.356	8060.000	10049.794	23519.788	0.0000	7.7807	12112.4890
158	oD1303	694536.965	8060.000	10052.449	23539.216	0.0000	7.7807	12112.4890
159	kMBD5C01V	694536.965	8060.000	10052.449	23539.216	0.0000	7.7807	12112.4890
160	oD1318a1	694650.851	8060.000	10067.867	23652.054	0.0000	7.7807	12112.4890
161	iIPM5C02	694650.851	8060.000	10067.867	23652.054	0.0000	7.7807	12112.4890
162	oD1301	694673.316	8060.000	10070.908	23674.312	0.0000	7.7807	12112.4890
163	qMQA5C02	694703.316	8060.000	10074.970	23704.036	0.0000	7.7807	12112.4890
164	oD1319	694717.766	8060.000	10076.926	23718.353	0.0000	7.7807	12112.4890
165	qMQA5C02A	694747.766	8060.000	10080.988	23748.077	0.0000	7.7807	12112.4890
166	oD1302	694767.081	8060.000	10083.602	23767.214	0.0000	7.7807	12112.4890
167	kMBD5C02H	694767.081	8060.000	10083.602	23767.214	0.0000	7.7807	12112.4890
168	oD1303	694786.690	8060.000	10086.257	23786.642	0.0000	7.7807	12112.4890
169	kMBD5C02V	694786.690	8060.000	10086.257	23786.642	0.0000	7.7807	12112.4890
170	oD1218b	694826.690	8060.000	10091.672	23826.274	0.0000	7.7807	12112.4890
171	iITV5C02A	694826.690	8060.000	10091.672	23826.274	0.0000	7.7807	12112.4890
172	oD1318c1	694900.576	8060.000	10101.675	23899.480	0.0000	7.7807	12112.4890
173	iIPM5C03	694900.576	8060.000	10101.675	23899.480	0.0000	7.7807	12112.4890
174	oD1301	694923.041	8060.000	10104.716	23921.738	0.0000	7.7807	12112.4890
175	qMQA5C03	694953.041	8060.000	10108.778	23951.462	0.0000	7.7807	12112.4890
176	oD1302	694972.356	8060.000	10111.393	23970.599	0.0000	7.7807	12112.4890
177	kMBD5C03H	694972.356	8060.000	10111.393	23970.599	0.0000	7.7807	12112.4890
178	oD1303	694991.965	8060.000	10114.047	23990.028	0.0000	7.7807	12112.4890
179	kMBD5C03V	694991.965	8060.000	10114.047	23990.028	0.0000	7.7807	12112.4890
180	oD1220a2	695061.965	8060.000	10123.524	24059.383	0.0000	7.7807	12112.4890
181	oD1220a3	695478.076	8060.000	10179.858	24471.663	0.0000	7.7807	12112.4890
182	iIPM5C04	695478.076	8060.000	10179.858	24471.663	0.0000	7.7807	12112.4890

183	oD1301	695500.541	8060.000	10182.899	24493.921	0.0000	7.7807	12112.4890
184	qMQA5C04	695530.541	8060.000	10186.960	24523.645	0.0000	7.7807	12112.4890
185	oD1302	695549.856	8060.000	10189.575	24542.782	0.0000	7.7807	12112.4890
186	kMBD5C04H	695549.856	8060.000	10189.575	24542.782	0.0000	7.7807	12112.4890
187	oD1303	695569.465	8060.000	10192.230	24562.211	0.0000	7.7807	12112.4890
188	kMBD5C04V	695569.465	8060.000	10192.230	24562.211	0.0000	7.7807	12112.4890
189	oD1215h	695629.465	8060.000	10200.353	24621.659	0.0000	7.7807	12112.4890
190	kFFB5C04H	695629.465	8060.000	10200.353	24621.659	0.0000	7.7807	12112.4890
191	oD1215h	695689.465	8060.000	10208.476	24681.106	0.0000	7.7807	12112.4890
192	kFFB5C04V	695689.465	8060.000	10208.476	24681.106	0.0000	7.7807	12112.4890
193	oD1221a1	695849.465	8060.000	10230.137	24839.633	0.0000	7.7807	12112.4890
194	oD1221b1	696450.576	8060.000	10311.516	25435.210	0.0000	7.7807	12112.4890
195	iIPM5C05	696450.576	8060.000	10311.516	25435.210	0.0000	7.7807	12112.4890
196	oD1301	696473.041	8060.000	10314.557	25457.468	0.0000	7.7807	12112.4890
197	qMQA5C05	696503.041	8060.000	10318.618	25487.192	0.0000	7.7807	12112.4890
198	oD1302	696522.356	8060.000	10321.233	25506.329	0.0000	7.7807	12112.4890
199	kMBD5C05H	696522.356	8060.000	10321.233	25506.329	0.0000	7.7807	12112.4890
200	oD1303	696541.965	8060.000	10323.888	25525.758	0.0000	7.7807	12112.4890
201	kMBD5C05V	696541.965	8060.000	10323.888	25525.758	0.0000	7.7807	12112.4890
202	oD1318a1	696655.851	8060.000	10339.306	25638.595	0.0000	7.7807	12112.4890
203	iIPM5C06	696655.851	8060.000	10339.306	25638.595	0.0000	7.7807	12112.4890
204	oD1301	696678.316	8060.000	10342.347	25660.853	0.0000	7.7807	12112.4890
205	qMQA5C06	696708.316	8060.000	10346.409	25690.577	0.0000	7.7807	12112.4890
206	oD1319	696722.766	8060.000	10348.365	25704.894	0.0000	7.7807	12112.4890
207	qMQA5C06A	696752.766	8060.000	10352.427	25734.618	0.0000	7.7807	12112.4890
208	oD1302	696772.081	8060.000	10355.041	25753.755	0.0000	7.7807	12112.4890
209	kMBD5C06H	696772.081	8060.000	10355.041	25753.755	0.0000	7.7807	12112.4890
210	oD1303	696791.690	8060.000	10357.696	25773.184	0.0000	7.7807	12112.4890
211	kMBD5C06V	696791.690	8060.000	10357.696	25773.184	0.0000	7.7807	12112.4890
212	oD1318a1	696905.576	8060.000	10373.114	25886.021	0.0000	7.7807	12112.4890
213	iIPM5C07	696905.576	8060.000	10373.114	25886.021	0.0000	7.7807	12112.4890
214	oD1301	696928.041	8060.000	10376.155	25908.279	0.0000	7.7807	12112.4890
215	qMQA5C07	696958.041	8060.000	10380.217	25938.003	0.0000	7.7807	12112.4890

216	oD1302	696977.356	8060.000	10382.832	25957.140	0.0000	7.7807	12112.4890
217	kMBD5C07H	696977.356	8060.000	10382.832	25957.140	0.0000	7.7807	12112.4890
218	oD1303	696996.965	8060.000	10385.486	25976.569	0.0000	7.7807	12112.4890
219	kMBD5C07V	696996.965	8060.000	10385.486	25976.569	0.0000	7.7807	12112.4890
220	oD1222a1	697195.541	8060.000	10412.370	26173.317	0.0000	7.7807	12112.4890
221	gMAR5C03	697195.541	8060.000	10412.370	26173.317	0.0000	7.7807	12112.4890
222	bMAR5C03	697595.552	8060.000	10453.032	26571.179	0.0000	3.8903	12112.4890
223	GMAR5C03	697595.552	8060.000	10453.032	26571.179	0.0000	3.8903	12112.4890
224	oD1216	697645.552	8060.000	10456.425	26621.063	0.0000	3.8903	12112.4890
225	gMAR5C04	697645.552	8060.000	10456.425	26621.063	0.0000	3.8903	12112.4890
226	bMAR5C04	698045.564	8060.000	10470.000	27020.768	0.0000	0.0000	12112.4890
227	GMAR5C04	698045.564	8060.000	10470.000	27020.768	0.0000	0.0000	12112.4890
228	oD1223a1	698099.405	8060.000	10470.000	27074.609	0.0000	0.0000	12112.4890
229	iSLM5C08	698099.405	8060.000	10470.000	27074.609	0.0000	0.0000	12112.4890
230	iITV5C08	698099.405	8060.000	10470.000	27074.609	0.0000	0.0000	12112.4890
231	oD1223b	698139.405	8060.000	10470.000	27114.609	0.0000	0.0000	12112.4890
232	iIPM5C08	698139.405	8060.000	10470.000	27114.609	0.0000	0.0000	12112.4890
233	oD1301	698161.870	8060.000	10469.999	27137.074	0.0000	0.0000	12112.4890
234	qMQP5C08	698191.870	8060.000	10469.999	27167.074	0.0000	0.0000	12112.4890
235	oD1319	698206.320	8060.000	10469.999	27181.524	0.0000	0.0000	12112.4890
236	qMQP5C08A	698236.320	8060.000	10469.999	27211.524	0.0000	0.0000	12112.4890
237	oD1302	698255.635	8060.000	10469.999	27230.839	0.0000	0.0000	12112.4890
238	kMBD5C08H	698255.635	8060.000	10469.999	27230.839	0.0000	0.0000	12112.4890
239	oD1303	698275.244	8060.000	10469.999	27250.448	0.0000	0.0000	12112.4890
240	kMBD5C08V	698275.244	8060.000	10469.999	27250.448	0.0000	0.0000	12112.4890
241	oD1224a4	698444.955	8060.000	10469.999	27420.159	0.0000	0.0000	12112.4890
242	iIPM5C09	698444.955	8060.000	10469.999	27420.159	0.0000	0.0000	12112.4890
243	oD1301	698467.420	8060.000	10469.999	27442.624	0.0000	0.0000	12112.4890
244	qMQP5C09	698497.420	8060.000	10469.999	27472.624	0.0000	0.0000	12112.4890
245	oD1319	698511.870	8060.000	10469.999	27487.074	0.0000	0.0000	12112.4890
246	qMQP5C09A	698541.870	8060.000	10469.999	27517.074	0.0000	0.0000	12112.4890
247	oD1302	698561.185	8060.000	10469.999	27536.389	0.0000	0.0000	12112.4890
248	kMBD5C09H	698561.185	8060.000	10469.999	27536.389	0.0000	0.0000	12112.4890

249	oD1303	698580.794	8060.000	10469.999	27555.998	0.0000	0.0000	12112.4890
250	kMBD5C09V	698580.794	8060.000	10469.999	27555.998	0.0000	0.0000	12112.4890
251	oD1224a3	698794.955	8060.000	10469.999	27770.159	0.0000	0.0000	12112.4890
252	iIPM5C10	698794.955	8060.000	10469.999	27770.159	0.0000	0.0000	12112.4890
253	oD1301	698817.420	8060.000	10469.999	27792.624	0.0000	0.0000	12112.4890
254	qMQP5C10	698847.420	8060.000	10469.999	27822.624	0.0000	0.0000	12112.4890
255	oD1219	698862.420	8060.000	10469.999	27837.624	0.0000	0.0000	12112.4890
256	qMQP5C10A	698892.420	8060.000	10469.999	27867.624	0.0000	0.0000	12112.4890
257	oD1302	698911.735	8060.000	10469.999	27886.939	0.0000	0.0000	12112.4890
258	kMBD5C10H	698911.735	8060.000	10469.999	27886.939	0.0000	0.0000	12112.4890
259	oD1303	698931.344	8060.000	10469.999	27906.548	0.0000	0.0000	12112.4890
260	kMBD5C10V	698931.344	8060.000	10469.999	27906.548	0.0000	0.0000	12112.4890
261	oD1224a3	699145.505	8060.000	10469.999	28120.709	0.0000	0.0000	12112.4890
262	iIPM5C11	699145.505	8060.000	10469.999	28120.709	0.0000	0.0000	12112.4890
263	oD1301	699167.970	8060.000	10469.999	28143.174	0.0000	0.0000	12112.4890
264	qMQP5C11	699197.970	8060.000	10469.999	28173.174	0.0000	0.0000	12112.4890
265	oD1219	699212.970	8060.000	10469.999	28188.174	0.0000	0.0000	12112.4890
266	qMQP5C11A	699242.970	8060.000	10469.999	28218.174	0.0000	0.0000	12112.4890
267	oD1302	699262.285	8060.000	10469.999	28237.489	0.0000	0.0000	12112.4890
268	kMBD5C11H	699262.285	8060.000	10469.999	28237.489	0.0000	0.0000	12112.4890
269	oD1303	699281.894	8060.000	10469.999	28257.098	0.0000	0.0000	12112.4890
270	kMBD5C11V	699281.894	8060.000	10469.999	28257.098	0.0000	0.0000	12112.4890
271	oD1225a1	699306.694	8060.000	10469.999	28281.898	0.0000	0.0000	12112.4890
272	iITV5C11	699306.694	8060.000	10469.999	28281.898	0.0000	0.0000	12112.4890
273	oD1227b	699327.694	8060.000	10469.999	28302.898	0.0000	0.0000	12112.4890
274	iIHA5C11	699327.694	8060.000	10469.999	28302.898	0.0000	0.0000	12112.4890
275	oD1227c	699375.694	8060.000	10469.999	28350.898	0.0000	0.0000	12112.4890
276	iCLnAbpm2	699375.694	8060.000	10469.999	28350.898	0.0000	0.0000	12112.4890
277	oD1227d	700556.643	8060.000	10469.999	29531.847	0.0000	0.0000	12112.4890
278	kMBD5C12H	700571.643	8060.000	10469.999	29546.847	0.0000	0.0000	12112.4890
279	oD1226	700576.643	8060.000	10469.999	29551.847	0.0000	0.0000	12112.4890
280	kMBD5C12V	700591.643	8060.000	10469.999	29566.847	0.0000	0.0000	12112.4890
281	oD1228a	700631.643	8060.000	10469.999	29606.847	0.0000	0.0000	12112.4890

282	iITV5C12	700631.643	8060.000	10469.999	29606.847	0.0000	0.0000	12112.4890
283	oD1228b1	700731.643	8060.000	10469.999	29706.847	0.0000	0.0000	12112.4890
284	iIPM5C12	700731.643	8060.000	10469.999	29706.847	0.0000	0.0000	12112.4890
285	oD1228b2	700752.643	8060.000	10469.999	29727.847	0.0000	0.0000	12112.4890
286	iHA5C12	700752.643	8060.000	10469.999	29727.847	0.0000	0.0000	12112.4890
287	oD1228c	700822.643	8060.000	10469.999	29797.847	0.0000	0.0000	12112.4890
288	iCLnAbpm3	700822.643	8060.000	10469.999	29797.847	0.0000	0.0000	12112.4890
289	oD1228d	700935.276	8060.000	10469.999	29910.480	0.0000	0.0000	12112.4890
290	KRADIATOR	700935.276	8060.000	10469.999	29910.480	0.0000	0.0000	12112.4890
291	oD1229	708435.276	8060.000	10469.999	37410.480	0.0000	0.0000	12112.4890
292	iActCol	708435.276	8060.000	10469.999	37410.480	0.0000	0.0000	12112.4890
293	KCOLLIM	708435.276	8060.000	10469.999	37410.480	0.0000	0.0000	12112.4890
294	oD1230	712635.276	8060.000	10469.999	41610.480	0.0000	0.0000	12112.4890
295	Kbackwall	712635.276	8060.000	10469.999	41610.480	0.0000	0.0000	12112.4890
296	oD1231	713135.276	8060.000	10469.999	42110.480	0.0000	0.0000	12112.4890



Optim deck for DBA input

#moved BT triplet upstream 32 cm at request of ME 8.21.08

#

# moved first nA BPM to higher dispersion point after first triplet in ramp

# of 36 measurements in the halls in 2003-2005, a fourth had beta within factor of two of design

# of 36 measurements, half had alphas within +/-1 of design (zero)

# no correlation observed between betaX and alphaX

#for 33 of 36 hall line measurements, alphaY is perfectly correlated with betaY with relationship below

# for existing halls with design alphaY zero and betas either 10 or 20 m,  $y_{\alpha} = -0.28 + 0.00035 * \beta_{y}$

# I should therefore run a three variable three level L9 array of tests with yalpha dependent on ybeta in header

# but given that design input alpha is -1 and betaY 181.8m, I don't like the scaled equation

# so I will run a four variable three level array instead

# for xbscale and ybscale, levels will be (0.5, 1, 2)

# for xalpha and yalpha, differences from design (aldiff) will be (-1, 0, 1)

#

# trial xbscaleybscalealdiff yaldiff

# T1 0.5 0.5 -1 -1

# T2 0.5 1 0 0

# T3 0.5 2 1 1

# T4 1 0.5 0 1

# T5 1 1 1 -1

# T6 1 2 -1 0

# T7 2 0.5 1 0

# T8 2 1 -1 1

# T9 2 2 0 -1

#orig 1 1 0 0

#

# end of linac B BetaX[cm]=26365 BetaY[cm]=18822.1 AlfaX=2.16842 AlfaY=-1.72148

# end of linac B, dba BetaX[cm]=23515 BetaY[cm]=18143 AlfaX=1.92 AlfaY=-1.64

# emittances from dba-only 2.7, 0.86nm I use 3, 0.9 nm below

\$xbscale=1; => 1

\$betax=23515\*\$xbscale; => 23515

\$ybscale=1; => 1

```

$betay=18143*$ybscale; => 18143
$xaldiff=0; => 0
$xalpha=1.92+$xaldiff; => 1.92
$yaldiff=0; => 0
$yalpha=-1.64+$yaldiff; => -1.64
OptiM
Energy[MeV]=12112.489 Mass[MeV]=0.511006
Emittance: ex[cm]=.3e-06 ey[cm]=.9e-07 DP/P=2.5e-04
Initial: BetaX[cm]=$betax BetaY[cm]=$betay
        AlfaX=$xalpha AlfaY=$yalpha
        DispersX[cm]=0 DispersY[cm]=0
        Dsp_PrimeX=0 DspPrimeY=0
        X[cm]=8060.0000 Y[cm]=10000.0000 Z[cm]=9055.3720 S[cm]=680045.186
        tetaX[deg]=0 tetaY[deg]=0
begin lattice. Number of periods=1
oD1200 gMAQ1S01 bMAQ1S01 GMAQ1S01 oD1201 gMAS3S02 bMAS3S02
GMAS3S02 oD1202 gMYR7S03 bMYR7S03 GMYR7S03 oD1203 gMYR9S04
bMYR9S04 GMYR9S04 oD1204 gMYRBS05 bMYRBS05 GMYRBS05 oD1205a
iTIVBS01 oD1205b iIPMBS01 oD1301 qMQPBS01 oD1302 kMBDBS01H oD1303
kMBDBS01V oD1206c iIHABS01 oD1206d gMBBBS06 bMBBBS06 GMBBBS06 oD1207a
iSLMBS02 oD1207b
iIPMBS02 oD1301 qMQPBS02 oD1302 kMBDBS02H oD1303 kMBDBS02V oD1208c
iIPMBS03 oD1301 qMQPBS03 oD1302 kMBDBS03H oD1303 kMBDBS03V oD1209c
iIPMBS04 oD1301 qMQPBS04 oD1302 kMBDBS04H oD1303 kMBDBS04V
oD1215h kFFBBS04H oD1215h kFFBBS04V oD1210c1
iIPMBE01 oD1301 qMQABE01 oD1302 kMBDBE01H oD1303 kMBDBE01V oD1211a
iIPMBE02 oD1301 qMQABE02 oD1302 kMBDBE02H oD1303 kMBDBE02V oD1211a
iIPMBE03 oD1301 qMQABE03 oD1302 kMBDBE03H oD1303 kMBDBE03V oD1211a
iIPMBE04 oD1301 qMQABE04 oD1302 kMBDBE04H oD1303 kMBDBE04V oD1212a
iIHABE04 oD1212b
iIPMBT01 oD1301 qMQABT01 oD1302 kMBDBT01H oD1303 kMBDBT01V oD1213a1
iIPMBT02 oD1301 qMQABT02 oD1302 kMBDBT02H oD1303 kMBDBT02V oD1213a1
iIPMBT03 oD1301 qMQABT03 oD1302 kMBDBT03H oD1303 kMBDBT03V oD1215a

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iIPM5C00 oD1215e iTV5C00 oD1215f kMBD5C00V oD1215g kMBD5C00V oD1215h  
kFFB5C00V oD1215h kFFB5C00H oD1215i iIDA5C00 iSBS5C00 iSIW5C00 oD1215c  
#iITV5C00 oD1215b iIDA5C00 iSBS5C00 iSIW5C00 oD1215c  
iSSS5C00 oD1215d  
gMAR5C01 bMAR5C01 GMAR5C01 oD1216 gMAR5C02 bMAR5C02 GMAR5C02 oD1217a iSLM5C01 oD1217b  
iIPM5C01 oD1301 qMQA5C01 oD1302 kMBD5C01H oD1303 kMBD5C01V oD1318a1  
iIPM5C02 oD1301 qMQA5C02 oD1319 qMQA5C02A oD1302 kMBD5C02H oD1303 kMBD5C02V oD1218b iITV5C02A  
oD1318c1  
iIPM5C03 oD1301 qMQA5C03 oD1302 kMBD5C03H oD1303 kMBD5C03V oD1220a2 oD1220a3  
iIPM5C04 oD1301 qMQA5C04 oD1302 kMBD5C04H oD1303 kMBD5C04V  
oD1215h kFFB5C04H oD1215h kFFB5C04V oD1221a1 oD1221b1  
iIPM5C05 oD1301 qMQA5C05 oD1302 kMBD5C05H oD1303 kMBD5C05V oD1318a1  
iIPM5C06 oD1301 qMQA5C06 oD1319 qMQA5C06A oD1302 kMBD5C06H oD1303 kMBD5C06V oD1318a1  
iIPM5C07 oD1301 qMQA5C07 oD1302 kMBD5C07H oD1303 kMBD5C07V oD1222a1  
gMAR5C03 bMAR5C03 GMAR5C03 oD1216 gMAR5C04 bMAR5C04 GMAR5C04 oD1223a1 iITV5C08 oD1223b  
iIPM5C08 oD1301 qMQP5C08 oD1319 qMQP5C08A oD1302 kMBD5C08H oD1303 kMBD5C08V oD1224a4  
iIPM5C09 oD1301 qMQP5C09 oD1319 qMQP5C09A oD1302 kMBD5C09H oD1303 kMBD5C09V oD1224a3  
iIPM5C10 oD1301 qMQP5C10 oD1219 qMQP5C10A oD1302 kMBD5C10H oD1303 kMBD5C10V oD1224a3  
iIPM5C11 oD1301 qMQP5C11 oD1219 qMQP5C11A oD1302 kMBD5C11H oD1303 kMBD5C11V oD1225a1  
iITV5C11 oD1227b iIHA5C11 oD1227c iCLnAbpm2 oD1227d  
kMBD5C12H oD1226 kMBD5C12V oD1228a iITV5C12 oD1228b1 iIPM5C12 oD1228b2 iIHA5C12 oD1228c iCLnAbpm3  
oD1228d KRADIATOR  
oD1229 iActCol KCOLLIM oD1230 Kbackwall oD1231  
end lattice  
begin list  
gMAQ1S01 B[kG]=12.89107 Angle[deg]=0 EffLen[cm]=1.90844 Tilt[deg]=90  
bMAQ1S01 L[cm]=100.017 B[kG]=12.89107 G[kG/cm]=0 Tilt[deg]=-90  
GMAQ1S01 B[kG]=12.89107 Angle[deg]=1.82833 EffLen[cm]=1.9133 Tilt[deg]=90  
gMAS3S02 B[kG]=11.90002 Angle[deg]=-1.82833 EffLen[cm]=2.39549 Tilt[deg]=90  
bMAS3S02 L[cm]=100.113 B[kG]=11.90002 G[kG/cm]=0 Tilt[deg]=-90  
GMAS3S02 B[kG]=11.90002 Angle[deg]=3.51772 EffLen[cm]=2.412 Tilt[deg]=90  
gMYR7S03 B[kG]=-8.263705 Angle[deg]=3.51772 EffLen[cm]=1.27854 Tilt[deg]=90  
bMYR7S03 L[cm]=300.189 B[kG]=-8.263705 G[kG/cm]=0 Tilt[deg]=-90

GMYR7S03	B[kG]=-8.263705	Angle[deg]=0	EffLen[cm]=1.26656	Tilt[deg]=90
gMYR9S04	B[kG]=-4.919079	Angle[deg]=0	EffLen[cm]=1.27	Tilt[deg]=90
bMYR9S04	L[cm]=200.02	B[kG]=-4.919079	G[kG/cm]=0	Tilt[deg]=-90
GMYR9S04	B[kG]=-4.919079	Angle[deg]=1.39524	EffLen[cm]=1.27188	Tilt[deg]=90
gMYRBS05	B[kG]=-5.636266	Angle[deg]=0.799274	EffLen[cm]=1.27	Tilt[deg]=90
bMYRBS05	L[cm]=200.006	B[kG]=-5.636266	G[kG/cm]=0	Tilt[deg]=-90
GMYRBS05	B[kG]=-5.636266	Angle[deg]=0.799274	EffLen[cm]=1.27	Tilt[deg]=90
gMBBBS06	B[kG]=10.55479	Angle[deg]=1.4969	EffLen[cm]=1.27	Tilt[deg]=90
bMBBBS06	L[cm]=200.023	B[kG]=10.55479	G[kG/cm]=0	Tilt[deg]=-90
GMBBBS06	B[kG]=10.55479	Angle[deg]=1.4969	EffLen[cm]=1.27	Tilt[deg]=90
gMAR5C01	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=-90
bMAR5C01	L[cm]=400.0114	B[kG]=6.85839	G[kG/cm]=0	Tilt[deg]=-90
GMAR5C01	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=-90
gMAR5C02	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=-90
bMAR5C02	L[cm]=400.0114	B[kG]=6.85839	G[kG/cm]=0	Tilt[deg]=-90
GMAR5C02	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=-90
gMAR5C03	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=90
bMAR5C03	L[cm]=400.0114	B[kG]=6.85839	G[kG/cm]=0	Tilt[deg]=90
GMAR5C03	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=90
gMAR5C04	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=90
bMAR5C04	L[cm]=400.0114	B[kG]=6.85839	G[kG/cm]=0	Tilt[deg]=90
GMAR5C04	B[kG]=6.85839	Angle[deg]=2.052	EffLen[cm]=1.27054	Tilt[deg]=90
qMQPBS01	L[cm]=30	G[kG/cm]=-0.6342163	Tilt[deg]=0	
qMQPBS02	L[cm]=30	G[kG/cm]=1.054883	Tilt[deg]=0	
qMQPBS03	L[cm]=30	G[kG/cm]=-0.5992689	Tilt[deg]=0	
qMQPBS04	L[cm]=30	G[kG/cm]=-0.2291704	Tilt[deg]=0	
qMQABE01	L[cm]=30	G[kG/cm]=0.8637222	Tilt[deg]=0	
qMQABE02	L[cm]=30	G[kG/cm]=-1.655575	Tilt[deg]=0	
qMQABE03	L[cm]=30	G[kG/cm]=1.006971	Tilt[deg]=0	
qMQABE04	L[cm]=30	G[kG/cm]=-0.4832984	Tilt[deg]=0	
qMQABT01	L[cm]=30	G[kG/cm]=1.527015	Tilt[deg]=0	
qMQABT02	L[cm]=30	G[kG/cm]=-2.59384	Tilt[deg]=0	
qMQABT02A	L[cm]=30	G[kG/cm]=-1.31852	Tilt[deg]=0	

qMQABT03	L[cm]=30	G[kG/cm]=1.535961	Tilt[deg]=0
qMQA5C01	L[cm]=30	G[kG/cm]=2.423514	Tilt[deg]=0
qMQA5C02	L[cm]=30	G[kG/cm]=-2.523307	Tilt[deg]=0
qMQA5C02A	L[cm]=30	G[kG/cm]=-2.523307	Tilt[deg]=0
qMQA5C03	L[cm]=30	G[kG/cm]=2.423514	Tilt[deg]=0
qMQA5C04	L[cm]=30	G[kG/cm]=0.1543573	Tilt[deg]=0
qMQA5C05	L[cm]=30	G[kG/cm]=2.425589	Tilt[deg]=0
qMQA5C06	L[cm]=30	G[kG/cm]=-2.661684	Tilt[deg]=0
qMQA5C06A	L[cm]=30	G[kG/cm]=-2.661684	Tilt[deg]=0
qMQA5C07	L[cm]=30	G[kG/cm]=2.425589	Tilt[deg]=0
qMQP5C08	L[cm]=30	G[kG/cm]=-0.2738137	Tilt[deg]=0
qMQP5C08A	L[cm]=30	G[kG/cm]=0	Tilt[deg]=0
qMQP5C09A	L[cm]=30	G[kG/cm]=-0.7782973	Tilt[deg]=0
qMQP5C09	L[cm]=30	G[kG/cm]=0	Tilt[deg]=0
qMQP5C10	L[cm]=30	G[kG/cm]=0	Tilt[deg]=0
qMQP5C10A	L[cm]=30	G[kG/cm]=-1.567767	Tilt[deg]=0
qMQP5C11	L[cm]=30	G[kG/cm]=0	Tilt[deg]=0
qMQP5C11A	L[cm]=30	G[kG/cm]=1.749695	Tilt[deg]=0
iActCol	L[cm]= 0		
iCLnAbpm1	L[cm]= 0		
iCLnAbpm2	L[cm]= 0		
iCLnAbpm3	L[cm]= 0		
iIDA5C00	L[cm]= 0		
iHA5C11	L[cm]= 0		
iHA5C12	L[cm]= 0		
iHABE04	L[cm]= 0		
iHABS01	L[cm]= 0		
iPM5C00	L[cm]= 0		
iPM5C01	L[cm]= 0		
iPM5C02	L[cm]= 0		
iPM5C03	L[cm]= 0		
iPM5C04	L[cm]= 0		
iPM5C05	L[cm]= 0		

iIPM5C06 L[cm]= 0  
iIPM5C07 L[cm]= 0  
iIPM5C08 L[cm]= 0  
iIPM5C09 L[cm]= 0  
iIPM5C10 L[cm]= 0  
iIPM5C11 L[cm]= 0  
iIPM5C12 L[cm]= 0  
iIPMBE01 L[cm]= 0  
iIPMBE02 L[cm]= 0  
iIPMBE03 L[cm]= 0  
iIPMBE04 L[cm]= 0  
iIPMBS01 L[cm]= 0  
iIPMBS02 L[cm]= 0  
iIPMBS03 L[cm]= 0  
iIPMBS04 L[cm]= 0  
iIPMBT01 L[cm]= 0  
iIPMBT02 L[cm]= 0  
iIPMBT03 L[cm]= 0  
iITV5C00 L[cm]= 0  
iITV5C02A L[cm]= 0  
iITV5C08 L[cm]= 0  
iITV5C11 L[cm]= 0  
iITV5C12 L[cm]= 0  
iITVBS01 L[cm]= 0  
iSBS5C00 L[cm]= 0  
iSIW5C00 L[cm]= 0  
iSLM5C01 L[cm]= 0  
iSLMBS02 L[cm]= 0  
iSSS5C00 L[cm]= 0  
Kbackwall L[cm]= 0  
KCOLLIM L[cm]= 0  
kMBD5C00H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C00V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90

kFFB5C00H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kFFB5C00V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kFFBBS04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kFFBBS04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kFFB5C04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kFFB5C04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C01H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C01V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C02H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C02V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C03H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C03V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C05H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C05V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C06H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C06V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C07H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C07V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C08H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C08V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C09H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C09V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C10H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C10V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C11H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBD5C11V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBD5C12H L[cm]= 15 B[kG]=0 Tilt[deg]=0  
kMBD5C12V L[cm]= 15 B[kG]=0 Tilt[deg]=90  
kMBDBE01H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBE01V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBE02H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0

kMBDBE02V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBE03H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBE03V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBE04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBE04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBS01H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBS01V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBS02H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBS02V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBS03H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBS03V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBS04H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBS04V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBT01H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBT01V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBT02H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBT02V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
kMBDBT03H L[cm]= 0.000001 B[kG]=0 Tilt[deg]=0  
kMBDBT03V L[cm]= 0.000001 B[kG]=0 Tilt[deg]=90  
KRADIATOR L[cm]= 0  
oD1200 L[cm]= 0  
oD1201 L[cm]= 100.051  
oD1202 L[cm]= 88.354  
oD1203 L[cm]= 60.001  
oD1204 L[cm]= 60.017  
oD1205a L[cm]= 778.46  
oD1205b L[cm]= 25  
oD1206c L[cm]= 161  
oD1206d L[cm]= 41.42  
oD1207a L[cm]= 50  
oD1207b L[cm]= 454.753  
oD1208c L[cm]= 308.714  
oD1209c L[cm]= 1556.111



oD1210c L[cm]= 2777.811  
oD1210c1 L[cm]= 2657.811  
oD1211a L[cm]= 138.611  
oD1211a L[cm]= 138.611  
oD1211a L[cm]= 138.611  
oD1212a L[cm]= 161  
oD1212b L[cm]= 1344.611-32  
oD1213a L[cm]= 211.386  
oD1213a1 L[cm]= 233.611  
oD1214 L[cm]= 14.45  
oD1215a L[cm]= 1554.706+32  
oD1215b L[cm]= 100  
oD1215c L[cm]= 400  
oD1215d L[cm]= 200  
oD1215e L[cm]= 20  
oD1215f L[cm]= 20  
oD1215g L[cm]= 19.609  
oD1215h L[cm]= 60  
oD1215i L[cm]= 20.391  
oD1216 L[cm]= 50  
oD1216 L[cm]= 50  
oD1217a L[cm]= 40  
oD1217b L[cm]= 199.656  
oD1218a L[cm]= 98.611  
oD1318a L[cm]= 98.886  
oD1318a1 L[cm]= 113.886  
oD1318c1 L[cm]= 73.886  
oD1318c L[cm]= 58.886  
oD1218b L[cm]= 40  
oD1218c L[cm]= 58.611  
oD1219 L[cm]= 15  
oD1319 L[cm]= 14.45  
oD1219 L[cm]= 15

oD1220a L[cm]= 481.111  
oD1220a1 L[cm]= 486.111  
oD1220a2 L[cm]= 70  
oD1220a3 L[cm]= 416.111  
oD1221a L[cm]= 280  
oD1221a1 L[cm]= 160  
oD1221b L[cm]= 596.111  
oD1221b1 L[cm]= 601.111  
oD1222a L[cm]= 193.576  
oD1222a1 L[cm]= 198.576  
oD1223a L[cm]= 48.841  
oD1223a1 L[cm]= 53.841  
oD1223b L[cm]= 40  
oD1224a L[cm]= 248.611  
oD1224a1 L[cm]= 258.611  
oD1224a2 L[cm]= 248.611  
oD1224a3 L[cm]= 214.161  
oD1224a4 L[cm]= 169.711  
oD1225a L[cm]= 19.8  
oD1225a1 L[cm]= 24.8  
oD1226 L[cm]= 5  
oD1227a L[cm]= 20.251  
oD1227b L[cm]= 21  
oD1227c L[cm]= 48  
oD1227d L[cm]= 1180.949  
oD1228a L[cm]= 40  
oD1228b L[cm]= 121  
oD1228b1 L[cm]= 100  
oD1228b2 L[cm]= 21  
oD1228c L[cm]= 70  
oD1228d L[cm]= 112.633  
oD1229 L[cm]= 7500  
oD1230 L[cm]= 4200

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oD1231 L[cm]= 500
oD1301 L[cm]= 22.465
oD1302 L[cm]= 19.315
oD1303 L[cm]= 19.609
end list
#
# Optimized first with BetaXYmax and element 131, using first eight quads
# Optimized second using 5C04, the final ramp triplet, and final quadruplet, at elements 2151 (disp) and 268 (rest)
#
BetaFitBlock dL[cm]=0.01 dB[kGs]=0.0001 dG[kGs/cm]=0.001
#Required parameters and their accuracy listed below(dPARM<=0. - no fitting)
#Maximum Betas[cm] and MomentumCompaction are on the next line
BtXmax=50000 dBtXmax=-30 BtYmax=50000 dBtYmax=-50 Alfa=0 dAlfa=0
#Fitting parameters at the end of the lattice
Beta_X[cm]=100 dBeta_X[cm]=0 Alfa_X=0 dAlfa_X=0
Beta_Y[cm]=100 dBeta_Y[cm]=0 Alfa_Y=0 dAlfa_Y=0
Disp_X[cm]=0 dDisp_X[cm]=0 D_prime_X=0 dD_prime_X=0
Disp_Y[cm]=0 dDisp_Y[cm]=0 D_prime_Y=0 dD_prime_Y=0
Qx=0 dQx=0
Qy=0 dQy=0
# Parameters at exit of element 143 (oD11019), drift before ramp dipole
Fit at element with number =143
Beta_X[cm]=1544.64 dBeta_X[cm]=-0.01 Alfa_X=-1.27093 dAlfa_X=-0.0001
Beta_Y[cm]=669.11 dBeta_Y[cm]=-0.01 Alfa_Y=-0.431425 dAlfa_Y=-0.0001
Disp_X[cm]=0 dDisp_X[cm]=0 D_prime_X=0 dD_prime_X=0
Disp_Y[cm]=-20.3 dDisp_Y[cm]=-0.002 D_prime_Y=-0.002184 dD_prime_Y=-1e-06
Qx=0 dQx=0
Qy=0 dQy=0
#element 233 is drift after last dipole, just before final quadruplet
Fit at element with number =233
Beta_X[cm]=1609.7 dBeta_X[cm]=-10 Alfa_X=-1.37 dAlfa_X=-0.01
Beta_Y[cm]=15503 dBeta_Y[cm]=-10 Alfa_Y=-21.8 dAlfa_Y=-0.01
Disp_X[cm]=0 dDisp_X[cm]=0 D_prime_X=0 dD_prime_X=0

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Disp_Y[cm]=0      dDisp_Y[cm]=-0.0001      D_prime_Y=0      dD_prime_Y=-3e-07
Qx=0  dQx=0
Qy=0  dQy=0
# element 289 is the collimator
Fit at element with number =293
Beta_X[cm]=2000  dBeta_X[cm]=20  Alfa_X=-0.1  dAlfa_X=0.002
Beta_Y[cm]=6000  dBeta_Y[cm]=50  Alfa_Y=-0.1  dAlfa_Y=0.002
Disp_X[cm]=0      dDisp_X[cm]=0      D_prime_X=0      dD_prime_X=0
Disp_Y[cm]=0      dDisp_Y[cm]=0      D_prime_Y=0      dD_prime_Y=0
Qx=0  dQx=0
Qy=0  dQy=0
#To create a Fitting at intermediate element: uncomment the line above,
# write the correct element number and insert six lines describing the
# fit parameters. You can use up to 4 intermediate points
#Each point has to be determined as described above
#
#Insert groups of elements below. Each group has to be located on one line.
#Start from the letter describing the type of changable parameter such as: L:, B:, G:
#G: qMQPBS01
#G: qMQPBS02
#G: qMQPBS03
#G: qMQPBS04
#G: qMQABE01
#G: qMQABE02
#G: qMQABE03
#G: qMQABE04
#G: qMQABT01 qMQABT03
#G: qMQABT02
#G: qMQABT04
#G: qMQA5C01 qMQA5C03
#G: qMQA5C02 qMQA5C02A
#G: qMQA5C04
#G: qMQA5C05 qMQA5C07

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#G: qMQA5C06 qMQA5C06A  
G: qMQP5C08  
G: qMQP5C09A  
G: qMQP5C10A  
G: qMQP5C11A  
EndBetaFitBlock

DBA quads

MQPBS01.BDL 1 -19026.489  
MQPBS02.BDL 1 31646.490  
MQPBS03.BDL 1 -17978.067  
MQPBS04.BDL 1 -6875.112  
MQABE01.BDL 1 25911.666  
MQABE02.BDL 1 -49667.250  
MQABE03.BDL 1 30209.130  
MQABE04.BDL 1 -14498.952  
MQABT01.BDL 1 45810.450  
MQABT02.BDL 1 -77815.200  
MQABT03.BDL 1 46078.830  
MQA5C01.BDL 1 72705.420  
MQA5C02.BDL 1 -75699.210  
MQA5C02A.BDL 1 -75699.210  
MQA5C03.BDL 1 72705.420  
MQA5C04.BDL 1 4630.719  
MQA5C05.BDL 1 72767.670  
MQA5C06.BDL 1 -79850.520  
MQA5C06A.BDL 1 -79850.520  
MQA5C07.BDL 1 72767.670  
MQP5C08.BDL 1 -8214.411  
MQP5C08A.BDL 1 0.000  
MQP5C09.BDL 1 0.000  
MQP5C09A.BDL 1 -23348.919  
MQP5C10.BDL 1 0.000  
MQP5C10A.BDL 1 -47033.010  
MQP5C11.BDL 1 0.000  
MQP5C11A.BDL 1 52490.850

Full DBA lattice

N	Name	S[cm]	L[cm]	B[kG]	G[kG/cm]	S[kG/cm/cm]	Tilt[deg]	Tilt_out	BendAng[deg]
1	oD1200		0	0					
2	gMAQ1S01		0	0	12.8911	Angle[deg]=0	Eff.Length[cm]=1.90844	Tilt[deg]=90	
3	bMAQ1S01	100.017			100.017	12.8911	0	0	-90 -90 1.82833
4	GMAQ1S01	100.017			0	12.8911	Angle[deg]=1.82833	Eff.Length[cm]=1.9133	Tilt[deg]=90
5	oD1201	200.068			100.051				
6	gMAS3S02	200.068			0	11.9	Angle[deg]=-1.82833	Eff.Length[cm]=2.39549	Tilt[deg]=90
7	bMAS3S02	300.181			100.113	11.9	0	0	-90 -90 1.68939
8	GMAS3S02	300.181			0	11.9	Angle[deg]=3.51772	Eff.Length[cm]=2.412	Tilt[deg]=90
9	oD1202	388.535			88.354				
10	gMYR7S03	388.535			0	-8.2637	Angle[deg]=3.51772	Eff.Length[cm]=1.27854	Tilt[deg]=90
11	bMYR7S03	688.724			300.189	-8.2637	0	0	-90 -90 -3.51772
12	GMYR7S03	688.724			0	-8.2637	Angle[deg]=0	Eff.Length[cm]=1.26656	Tilt[deg]=90
13	oD1203	748.725			60.001				
14	gMYR9S04	748.725			0	-4.91908	Angle[deg]=0	Eff.Length[cm]=1.27	Tilt[deg]=90
15	bMYR9S04	948.745			200.02	-4.91908	0	0	-90 -90 -1.39524
16	GMYR9S04	948.745			0	-4.91908	Angle[deg]=1.39524	Eff.Length[cm]=1.27188	Tilt[deg]=90
17	oD1204	1008.76			60.017				
18	gMYRBS05	1008.76			0	-5.63627	Angle[deg]=0.799274	Eff.Length[cm]=1.27	Tilt[deg]=90
19	bMYRBS05	1208.77			200.006	-5.63627	0	0	-90 -90 -1.59855
20	GMYRBS05	1208.77			0	-5.63627	Angle[deg]=0.799274	Eff.Length[cm]=1.27	Tilt[deg]=90
21	oD1205a	1987.23			778.46				
22	iITVBS01	1987.23			0	0	0	0	0
23	oD1205b	2012.23			25				
24	iIPMBS01	2012.23			0	0	0	0	0
25	oD1301	2034.69			22.465				
26	qMQPBS01	2064.69			30	0	-0.634216	0	0
27	oD1302	2084.01			19.315				
28	kMBDBS01H	2084.01			1e-06	0	0	0	0
29	oD1303	2103.62			19.609				
30	kMBDBS01V	2103.62			1e-06	0	0	0	90

31	oD1206c	2264.62	161						
32	iIHABS01	2264.62	0	0	0	0	0		
33	oD1206d	2306.04	41.42						
34	gMBBBS06	2306.04	0	10.5548	Angle[deg]=1.4969	Eff.Length[cm]=1.27	Tilt[deg]=90		
35	bMBBBS06	2506.06	200.023	10.5548	0	0	-90	-90	2.99379
36	GMBBBS06	2506.06	0	10.5548	Angle[deg]=1.4969	Eff.Length[cm]=1.27	Tilt[deg]=90		
37	oD1207a	2556.06	50						
38	iSLMBS02	2556.06	0	0	0	0	0		
39	oD1207b	3010.81	454.753						
40	iIPMBS02	3010.81	0	0	0	0	0		
41	oD1301	3033.28	22.465						
42	qMQPBS02	3063.28	30	0	1.05488	0	0		
43	oD1302	3082.59	19.315						
44	kMBDBS02H	3082.59	1e-06	0	0	0	0		
45	oD1303	3102.2	19.609						
46	kMBDBS02V	3102.2	1e-06	0	0	0	90		
47	oD1208c	3410.92	308.714						
48	iIPMBS03	3410.92	0	0	0	0	0		
49	oD1301	3433.38	22.465						
50	qMQPBS03	3463.38	30	0	-0.599269	0	0		
51	oD1302	3482.7	19.315						
52	kMBDBS03H	3482.7	1e-06	0	0	0	0		
53	oD1303	3502.31	19.609						
54	kMBDBS03V	3502.31	1e-06	0	0	0	90		
55	oD1209c	5058.42	1556.11						
56	iIPMBS04	5058.42	0	0	0	0	0		
57	oD1301	5080.88	22.465						
58	qMQPBS04	5110.88	30	0	-0.22917	0	0		
59	oD1302	5130.2	19.315						
60	kMBDBS04H	5130.2	1e-06	0	0	0	0		
61	oD1303	5149.81	19.609						
62	kMBDBS04V	5149.81	1e-06	0	0	0	90		
63	oD1215h	5209.81	60						



64	kFFBBS04H	5209.81	1e-06	0	0	0	0
65	oD1215h	5269.81	60				
66	kFFBBS04V	5269.81	1e-06	0	0	0	90
67	oD1210c1	7927.62	2657.81				
68	iIPMBE01	7927.62	0	0	0	0	0
69	oD1301	7950.08	22.465				
70	qMQABE01	7980.08	30	0	0.863722	0	0
71	oD1302	7999.4	19.315				
72	kMBDBE01H	7999.4	1e-06	0	0	0	0
73	oD1303	8019.01	19.609				
74	kMBDBE01V	8019.01	1e-06	0	0	0	90
75	oD1211a	8157.62	138.611				
76	iIPMBE02	8157.62	0	0	0	0	0
77	oD1301	8180.08	22.465				
78	qMQABE02	8210.08	30	0	-1.65558	0	0
79	oD1302	8229.4	19.315				
80	kMBDBE02H	8229.4	1e-06	0	0	0	0
81	oD1303	8249.01	19.609				
82	kMBDBE02V	8249.01	1e-06	0	0	0	90
83	oD1211a	8387.62	138.611				
84	iIPMBE03	8387.62	0	0	0	0	0
85	oD1301	8410.08	22.465				
86	qMQABE03	8440.08	30	0	1.00697	0	0
87	oD1302	8459.4	19.315				
88	kMBDBE03H	8459.4	1e-06	0	0	0	0
89	oD1303	8479.01	19.609				
90	kMBDBE03V	8479.01	1e-06	0	0	0	90
91	oD1211a	8617.62	138.611				
92	iIPMBE04	8617.62	0	0	0	0	0
93	oD1301	8640.08	22.465				
94	qMQABE04	8670.08	30	0	-0.483298	0	0
95	oD1302	8689.4	19.315				
96	kMBDBE04H	8689.4	1e-06	0	0	0	0

97	oD1303	8709.01	19.609					
98	kMBDBE04V	8709.01	1e-06	0	0	0	90	
99	oD1212a	8870.01	161					
100	iHABE04	8870.01	0	0	0	0		
101	oD1212b	10182.6	1312.61					
102	iPMBT01	10182.6	0	0	0	0		
103	oD1301	10205.1	22.465					
104	qMQABT01	10235.1	30	0	1.52702	0	0	
105	oD1302	10254.4	19.315					
106	kMBDBT01H	10254.4	1e-06	0	0	0	0	
107	oD1303	10274	19.609					
108	kMBDBT01V	10274	1e-06	0	0	0	90	
109	oD1213a1	10507.6	233.611					
110	iPMBT02	10507.6	0	0	0	0	0	
111	oD1301	10530.1	22.465					
112	qMQABT02	10560.1	30	0	-2.59384	0	0	
113	oD1302	10579.4	19.315					
114	kMBDBT02H	10579.4	1e-06	0	0	0	0	
115	oD1303	10599	19.609					
116	kMBDBT02V	10599	1e-06	0	0	0	90	
117	oD1213a1	10832.6	233.611					
118	iPMBT03	10832.6	0	0	0	0	0	
119	oD1301	10855.1	22.465					
120	qMQABT03	10885.1	30	0	1.53596	0	0	
121	oD1302	10904.4	19.315					
122	kMBDBT03H	10904.4	1e-06	0	0	0	0	
123	oD1303	10924	19.609					
124	kMBDBT03V	10924	1e-06	0	0	0	90	
125	oD1215a	12510.7	1586.71					
126	iPM5C00	12510.7	0	0	0	0	0	
127	oD1215e	12530.7	20					
128	iITV5C00	12530.7	0	0	0	0	0	
129	oD1215f	12550.7	20					

130	kMBD5C00V	12550.7	1e-06	0	0	0	90	
131	oD1215g	12570.3	19.609					
132	kMBD5C00V	12570.3	1e-06	0	0	0	90	
133	oD1215h	12630.3	60					
134	kFFB5C00V	12630.3	1e-06	0	0	0	90	
135	oD1215h	12690.3	60					
136	kFFB5C00H	12690.3	1e-06	0	0	0	0	
137	oD1215i	12710.7	20.391					
138	iIDA5C00	12710.7	0	0	0	0	0	
139	iSBS5C00	12710.7	0	0	0	0	0	
140	iSIW5C00	12710.7	0	0	0	0	0	
141	oD1215c	13110.7	400					
142	iSSS5C00	13110.7	0	0	0	0	0	
143	oD1215d	13310.7	200					
144	gMAR5C01	13310.7	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=-90	
145	bMAR5C01	13710.7	400.011	6.85839	0	0	-90 -90	3.89033
146	GMAR5C01	13710.7	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=-90	
147	oD1216	13760.7	50					
148	gMAR5C02	13760.7	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=-90	
149	bMAR5C02	14160.7	400.011	6.85839	0	0	-90 -90	3.89033
150	GMAR5C02	14160.7	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=-90	
151	oD1217a	14200.7	40					
152	iSLM5C01	14200.7	0	0	0	0	0	
153	oD1217b	14400.4	199.656					
154	iIPM5C01	14400.4	0	0	0	0	0	
155	oD1301	14422.9	22.465					
156	qMQA5C01	14452.9	30	0	2.42351	0	0	
157	oD1302	14472.2	19.315					
158	kMBD5C01H	14472.2	1e-06	0	0	0	0	
159	oD1303	14491.8	19.609					
160	kMBD5C01V	14491.8	1e-06	0	0	0	90	
161	oD1318a1	14605.7	113.886					
162	iIPM5C02	14605.7	0	0	0	0	0	

163	oD1301	14628.1	22.465					
164	qMQA5C02	14658.1	30	0	-2.52331	0	0	
165	oD1319	14672.6	14.45					
166	qMQA5C02A	14702.6	30	0	-2.52331	0	0	
167	oD1302	14721.9	19.315					
168	kMBD5C02H	14721.9	1e-06	0	0	0	0	
169	oD1303	14741.5	19.609					
170	kMBD5C02V	14741.5	1e-06	0	0	0	90	
171	oD1218b	14781.5	40					
172	iITV5C02A	14781.5	0	0	0	0	0	
173	oD1318c1	14855.4	73.886					
174	iIPM5C03	14855.4	0	0	0	0	0	
175	oD1301	14877.9	22.465					
176	qMQA5C03	14907.9	30	0	2.42351	0	0	
177	oD1302	14927.2	19.315					
178	kMBD5C03H	14927.2	1e-06	0	0	0	0	
179	oD1303	14946.8	19.609					
180	kMBD5C03V	14946.8	1e-06	0	0	0	90	
181	oD1220a2	15016.8	70					
182	oD1220a3	15432.9	416.111					
183	iIPM5C04	15432.9	0	0	0	0	0	
184	oD1301	15455.4	22.465					
185	qMQA5C04	15485.4	30	0	0.154357	0	0	
186	oD1302	15504.7	19.315					
187	kMBD5C04H	15504.7	1e-06	0	0	0	0	
188	oD1303	15524.3	19.609					
189	kMBD5C04V	15524.3	1e-06	0	0	0	90	
190	oD1215h	15584.3	60					
191	kFFB5C04H	15584.3	1e-06	0	0	0	0	
192	oD1215h	15644.3	60					
193	kFFB5C04V	15644.3	1e-06	0	0	0	90	
194	oD1221a1	15804.3	160					
195	oD1221b1	16405.4	601.111					

196	iIPM5C05	16405.4	0	0	0	0	0		
197	oD1301	16427.9	22.465						
198	qMQA5C05	16457.9	30	0	2.42559	0	0		
199	oD1302	16477.2	19.315						
200	kMBD5C05H	16477.2	1e-06	0	0	0	0		
201	oD1303	16496.8	19.609						
202	kMBD5C05V	16496.8	1e-06	0	0	0	90		
203	oD1318a1	16610.7	113.886						
204	iIPM5C06	16610.7	0	0	0	0	0		
205	oD1301	16633.1	22.465						
206	qMQA5C06	16663.1	30	0	-2.66168	0	0		
207	oD1319	16677.6	14.45						
208	qMQA5C06A	16707.6	30	0	-2.66168	0	0		
209	oD1302	16726.9	19.315						
210	kMBD5C06H	16726.9	1e-06	0	0	0	0		
211	oD1303	16746.5	19.609						
212	kMBD5C06V	16746.5	1e-06	0	0	0	90		
213	oD1318a1	16860.4	113.886						
214	iIPM5C07	16860.4	0	0	0	0	0		
215	oD1301	16882.9	22.465						
216	qMQA5C07	16912.9	30	0	2.42559	0	0		
217	oD1302	16932.2	19.315						
218	kMBD5C07H	16932.2	1e-06	0	0	0	0		
219	oD1303	16951.8	19.609						
220	kMBD5C07V	16951.8	1e-06	0	0	0	90		
221	oD1222a1	17150.4	198.576						
222	gMAR5C03	17150.4	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=90		
223	bMAR5C03	17550.4	400.011	6.85839	0	0	90	90	3.89033
224	GMAR5C03	17550.4	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=90		
225	oD1216	17600.4	50						
226	gMAR5C04	17600.4	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=90		
227	bMAR5C04	18000.4	400.011	6.85839	0	0	90	90	3.89033
228	GMAR5C04	18000.4	0	6.85839	Angle[deg]=2.052	Eff.Length[cm]=1.27054	Tilt[deg]=90		

229	oD1223a1	18054.2	53.841					
230	iITV5C08	18054.2	0	0	0	0	0	
231	oD1223b	18094.2	40					
232	iIPM5C08	18094.2	0	0	0	0	0	
233	oD1301	18116.7	22.465					
234	qMQP5C08	18146.7	30	0	-0.273814	0	0	
235	oD1319	18161.1	14.45					
236	qMQP5C08A	18191.1	30	0	0	0	0	
237	oD1302	18210.4	19.315					
238	kMBD5C08H	18210.4	1e-06	0	0	0	0	
239	oD1303	18230.1	19.609					
240	kMBD5C08V	18230.1	1e-06	0	0	0	90	
241	oD1224a4	18399.8	169.711					
242	iIPM5C09	18399.8	0	0	0	0	0	
243	oD1301	18422.2	22.465					
244	qMQP5C09	18452.2	30	0	0	0	0	
245	oD1319	18466.7	14.45					
246	qMQP5C09A	18496.7	30	0	-0.778297	0	0	
247	oD1302	18516	19.315					
248	kMBD5C09H	18516	1e-06	0	0	0	0	
249	oD1303	18535.6	19.609					
250	kMBD5C09V	18535.6	1e-06	0	0	0	90	
251	oD1224a3	18749.8	214.161					
252	iIPM5C10	18749.8	0	0	0	0	0	
253	oD1301	18772.2	22.465					
254	qMQP5C10	18802.2	30	0	0	0	0	
255	oD1219	18817.2	15					
256	qMQP5C10A	18847.2	30	0	-1.56777	0	0	
257	oD1302	18866.5	19.315					
258	kMBD5C10H	18866.5	1e-06	0	0	0	0	
259	oD1303	18886.2	19.609					
260	kMBD5C10V	18886.2	1e-06	0	0	0	90	
261	oD1224a3	19100.3	214.161					

262	iIPM5C11	19100.3	0	0	0	0	0	
263	oD1301	19122.8	22.465					
264	qMQP5C11	19152.8	30	0	0	0	0	
265	oD1219	19167.8	15					
266	qMQP5C11A	19197.8	30	0	1.7497	0	0	0
267	oD1302	19217.1	19.315					
268	kMBD5C11H	19217.1	1e-06	0	0	0	0	
269	oD1303	19236.7	19.609					
270	kMBD5C11V	19236.7	1e-06	0	0	0	90	
271	oD1225a1	19261.5	24.8					
272	iITV5C11	19261.5	0	0	0	0	0	
273	oD1227b	19282.5	21					
274	iIHA5C11	19282.5	0	0	0	0	0	
275	oD1227c	19330.5	48					
276	iCLnAbpm2	19330.5	0	0	0	0	0	
277	oD1227d	20511.5	1180.95					
278	kMBD5C12H	20526.5	15	0	0	0	0	
279	oD1226	20531.5	5					
280	kMBD5C12V	20546.5	15	0	0	0	90	
281	oD1228a	20586.5	40					
282	iITV5C12	20586.5	0	0	0	0	0	
283	oD1228b1	20686.5	100					
284	iIPM5C12	20686.5	0	0	0	0	0	
285	oD1228b2	20707.5	21					
286	iIHA5C12	20707.5	0	0	0	0	0	
287	oD1228c	20777.5	70					
288	iCLnAbpm3	20777.5	0	0	0	0	0	
289	oD1228d	20890.1	112.633					
290	KRADIATOR	20890.1	0	0	0	0	0	0
291	oD1229	28390.1	7500					
292	iActCol	28390.1	0	0	0	0	0	
293	KCOLLIM	28390.1	0	0	0	0	0	
294	oD1230	32590.1	4200					

295	Kbackwall	32590.1	0	0	0	0	0
296	oD1231	33090.1	500				

Orbit for DBA

N	name	S[cm]	X[cm]	Y[cm]	Z[cm]	TetaX[deg]	TetaY[deg]	Energy[MeV]
0		680045.186	8060.000	10000.000	9055.372	0.0000	0.0000	12112.4890
1	oD1200	680045.186	8060.000	10000.000	9055.372	0.0000	0.0000	12112.4890
2	gMAQ1S01	680045.186	8060.000	10000.000	9055.372	0.0000	0.0000	12112.4890
3	bMAQ1S01	680145.203	8060.000	10001.596	9155.372	0.0000	1.8283	12112.4890
4	GMAQ1S01	680145.203	8060.000	10001.596	9155.372	0.0000	1.8283	12112.4890
5	oD1201	680245.254	8060.000	10004.788	9255.372	0.0000	1.8283	12112.4890
6	gMAS3S02	680245.254	8060.000	10004.788	9255.372	0.0000	1.8283	12112.4890
7	bMAS3S02	680345.367	8060.000	10009.456	9355.373	0.0000	3.5177	12112.4890
8	GMAS3S02	680345.367	8060.000	10009.456	9355.373	0.0000	3.5177	12112.4890
9	oD1202	680433.721	8060.000	10014.878	9443.560	0.0000	3.5177	12112.4890
10	gMYR7S03	680433.721	8060.000	10014.878	9443.560	0.0000	3.5177	12112.4890
11	bMYR7S03	680733.910	8060.000	10024.090	9743.561	0.0000	0.0000	12112.4890
12	GMYR7S03	680733.910	8060.000	10024.090	9743.561	0.0000	0.0000	12112.4890
13	oD1203	680793.911	8060.000	10024.090	9803.562	0.0000	0.0000	12112.4890
14	gMYR9S04	680793.911	8060.000	10024.090	9803.562	0.0000	0.0000	12112.4890
15	bMYR9S04	680993.931	8060.000	10021.655	10003.562	0.0000	-1.3952	12112.4890
16	GMYR9S04	680993.931	8060.000	10021.655	10003.562	0.0000	-1.3952	12112.4890
17	oD1204	681053.948	8060.000	10020.193	10063.561	0.0000	-1.3952	12112.4890
18	gMYRBS05	681053.948	8060.000	10020.193	10063.561	0.0000	-1.3952	12112.4890
19	bMYRBS05	681253.954	8060.000	10012.535	10263.414	0.0000	-2.9938	12112.4890
20	GMYRBS05	681253.954	8060.000	10012.535	10263.414	0.0000	-2.9938	12112.4890
21	oD1205a	682032.414	8060.000	9971.878	11040.811	0.0000	-2.9938	12112.4890
22	iTVBS01	682032.414	8060.000	9971.878	11040.811	0.0000	-2.9938	12112.4890
23	oD1205b	682057.414	8060.000	9970.572	11065.777	0.0000	-2.9938	12112.4890
24	iIPMBS01	682057.414	8060.000	9970.572	11065.777	0.0000	-2.9938	12112.4890
25	oD1301	682079.879	8060.000	9969.399	11088.212	0.0000	-2.9938	12112.4890



26	qMQPBS01	682109.879	8060.000	9967.832	11118.171	0.0000	-2.9938	12112.4890
27	oD1302	682129.194	8060.000	9966.823	11137.459	0.0000	-2.9938	12112.4890
28	kMBDBS01H	682129.194	8060.000	9966.823	11137.459	0.0000	-2.9938	12112.4890
29	oD1303	682148.803	8060.000	9965.799	11157.041	0.0000	-2.9938	12112.4890
30	kMBDBS01V	682148.803	8060.000	9965.799	11157.041	0.0000	-2.9938	12112.4890
31	oD1206c	682309.803	8060.000	9957.390	11317.822	0.0000	-2.9938	12112.4890
32	iHABS01	682309.803	8060.000	9957.390	11317.822	0.0000	-2.9938	12112.4890
33	oD1206d	682351.223	8060.000	9955.227	11359.185	0.0000	-2.9938	12112.4890
34	gMBBBS06	682351.223	8060.000	9955.227	11359.185	0.0000	-2.9938	12112.4890
35	bMBBBS06	682551.246	8060.000	9950.002	11559.117	0.0000	0.0000	12112.4890
36	GMBBBS06	682551.246	8060.000	9950.002	11559.117	0.0000	0.0000	12112.4890
37	oD1207a	682601.246	8060.000	9950.002	11609.117	0.0000	0.0000	12112.4890
38	iSLMBS02	682601.246	8060.000	9950.002	11609.117	0.0000	0.0000	12112.4890
39	oD1207b	683055.999	8060.000	9950.002	12063.870	0.0000	0.0000	12112.4890
40	iIPMBS02	683055.999	8060.000	9950.002	12063.870	0.0000	0.0000	12112.4890
41	oD1301	683078.464	8060.000	9950.002	12086.335	0.0000	0.0000	12112.4890
42	qMQPBS02	683108.464	8060.000	9950.002	12116.335	0.0000	0.0000	12112.4890
43	oD1302	683127.779	8060.000	9950.002	12135.650	0.0000	0.0000	12112.4890
44	kMBDBS02H	683127.779	8060.000	9950.002	12135.650	0.0000	0.0000	12112.4890
45	oD1303	683147.388	8060.000	9950.002	12155.259	0.0000	0.0000	12112.4890
46	kMBDBS02V	683147.388	8060.000	9950.002	12155.259	0.0000	0.0000	12112.4890
47	oD1208c	683456.102	8060.000	9950.002	12463.973	0.0000	0.0000	12112.4890
48	iIPMBS03	683456.102	8060.000	9950.002	12463.973	0.0000	0.0000	12112.4890
49	oD1301	683478.567	8060.000	9950.002	12486.438	0.0000	0.0000	12112.4890
50	qMQPBS03	683508.567	8060.000	9950.002	12516.438	0.0000	0.0000	12112.4890
51	oD1302	683527.882	8060.000	9950.002	12535.753	0.0000	0.0000	12112.4890
52	kMBDBS03H	683527.882	8060.000	9950.002	12535.753	0.0000	0.0000	12112.4890
53	oD1303	683547.491	8060.000	9950.002	12555.362	0.0000	0.0000	12112.4890
54	kMBDBS03V	683547.491	8060.000	9950.002	12555.362	0.0000	0.0000	12112.4890
55	oD1209c	685103.602	8060.000	9950.002	14111.473	0.0000	0.0000	12112.4890
56	iIPMBS04	685103.602	8060.000	9950.002	14111.473	0.0000	0.0000	12112.4890
57	oD1301	685126.067	8060.000	9950.002	14133.938	0.0000	0.0000	12112.4890
58	qMQPBS04	685156.067	8060.000	9950.002	14163.938	0.0000	0.0000	12112.4890

59	oD1302	685175.382	8060.000	9950.002	14183.253	0.0000	0.0000	12112.4890
60	kMBDBS04H	685175.382	8060.000	9950.002	14183.253	0.0000	0.0000	12112.4890
61	oD1303	685194.991	8060.000	9950.002	14202.862	0.0000	0.0000	12112.4890
62	kMBDBS04V	685194.991	8060.000	9950.002	14202.862	0.0000	0.0000	12112.4890
63	oD1215h	685254.991	8060.000	9950.002	14262.862	0.0000	0.0000	12112.4890
64	kFFBBS04H	685254.991	8060.000	9950.002	14262.862	0.0000	0.0000	12112.4890
65	oD1215h	685314.991	8060.000	9950.002	14322.862	0.0000	0.0000	12112.4890
66	kFFBBS04V	685314.991	8060.000	9950.002	14322.862	0.0000	0.0000	12112.4890
67	oD1210c1	687972.802	8060.000	9950.002	16980.673	0.0000	0.0000	12112.4890
68	iIPMBE01	687972.802	8060.000	9950.002	16980.673	0.0000	0.0000	12112.4890
69	oD1301	687995.267	8060.000	9950.002	17003.138	0.0000	0.0000	12112.4890
70	qMQABE01	688025.267	8060.000	9950.002	17033.138	0.0000	0.0000	12112.4890
71	oD1302	688044.582	8060.000	9950.002	17052.453	0.0000	0.0000	12112.4890
72	kMBDBE01H	688044.582	8060.000	9950.002	17052.453	0.0000	0.0000	12112.4890
73	oD1303	688064.191	8060.000	9950.002	17072.062	0.0000	0.0000	12112.4890
74	kMBDBE01V	688064.191	8060.000	9950.002	17072.062	0.0000	0.0000	12112.4890
75	oD1211a	688202.802	8060.000	9950.002	17210.673	0.0000	0.0000	12112.4890
76	iIPMBE02	688202.802	8060.000	9950.002	17210.673	0.0000	0.0000	12112.4890
77	oD1301	688225.267	8060.000	9950.002	17233.138	0.0000	0.0000	12112.4890
78	qMQABE02	688255.267	8060.000	9950.002	17263.138	0.0000	0.0000	12112.4890
79	oD1302	688274.582	8060.000	9950.002	17282.453	0.0000	0.0000	12112.4890
80	kMBDBE02H	688274.582	8060.000	9950.002	17282.453	0.0000	0.0000	12112.4890
81	oD1303	688294.191	8060.000	9950.002	17302.062	0.0000	0.0000	12112.4890
82	kMBDBE02V	688294.191	8060.000	9950.002	17302.062	0.0000	0.0000	12112.4890
83	oD1211a	688432.802	8060.000	9950.002	17440.673	0.0000	0.0000	12112.4890
84	iIPMBE03	688432.802	8060.000	9950.002	17440.673	0.0000	0.0000	12112.4890
85	oD1301	688455.267	8060.000	9950.002	17463.138	0.0000	0.0000	12112.4890
86	qMQABE03	688485.267	8060.000	9950.002	17493.138	0.0000	0.0000	12112.4890
87	oD1302	688504.582	8060.000	9950.002	17512.453	0.0000	0.0000	12112.4890
88	kMBDBE03H	688504.582	8060.000	9950.002	17512.453	0.0000	0.0000	12112.4890
89	oD1303	688524.191	8060.000	9950.002	17532.062	0.0000	0.0000	12112.4890
90	kMBDBE03V	688524.191	8060.000	9950.002	17532.062	0.0000	0.0000	12112.4890
91	oD1211a	688662.802	8060.000	9950.002	17670.673	0.0000	0.0000	12112.4890

92	iIPMBE04	688662.802	8060.000	9950.002	17670.673	0.0000	0.0000	12112.4890
93	oD1301	688685.267	8060.000	9950.002	17693.138	0.0000	0.0000	12112.4890
94	qMQABE04	688715.267	8060.000	9950.002	17723.138	0.0000	0.0000	12112.4890
95	oD1302	688734.582	8060.000	9950.002	17742.453	0.0000	0.0000	12112.4890
96	kMBDBE04H	688734.582	8060.000	9950.002	17742.453	0.0000	0.0000	12112.4890
97	oD1303	688754.191	8060.000	9950.002	17762.062	0.0000	0.0000	12112.4890
98	kMBDBE04V	688754.191	8060.000	9950.002	17762.062	0.0000	0.0000	12112.4890
99	oD1212a	688915.191	8060.000	9950.002	17923.062	0.0000	0.0000	12112.4890
100	iIHABE04	688915.191	8060.000	9950.002	17923.062	0.0000	0.0000	12112.4890
101	oD1212b	690227.802	8060.000	9950.002	19235.673	0.0000	0.0000	12112.4890
102	iIPMBT01	690227.802	8060.000	9950.002	19235.673	0.0000	0.0000	12112.4890
103	oD1301	690250.267	8060.000	9950.002	19258.138	0.0000	0.0000	12112.4890
104	qMQABT01	690280.267	8060.000	9950.002	19288.138	0.0000	0.0000	12112.4890
105	oD1302	690299.582	8060.000	9950.002	19307.453	0.0000	0.0000	12112.4890
106	kMBDBT01H	690299.582	8060.000	9950.002	19307.453	0.0000	0.0000	12112.4890
107	oD1303	690319.191	8060.000	9950.002	19327.062	0.0000	0.0000	12112.4890
108	kMBDBT01V	690319.191	8060.000	9950.002	19327.062	0.0000	0.0000	12112.4890
109	oD1213a1	690552.802	8060.000	9950.002	19560.673	0.0000	0.0000	12112.4890
110	iIPMBT02	690552.802	8060.000	9950.002	19560.673	0.0000	0.0000	12112.4890
111	oD1301	690575.267	8060.000	9950.002	19583.138	0.0000	0.0000	12112.4890
112	qMQABT02	690605.267	8060.000	9950.002	19613.138	0.0000	0.0000	12112.4890
113	oD1302	690624.582	8060.000	9950.002	19632.453	0.0000	0.0000	12112.4890
114	kMBDBT02H	690624.582	8060.000	9950.002	19632.453	0.0000	0.0000	12112.4890
115	oD1303	690644.191	8060.000	9950.002	19652.062	0.0000	0.0000	12112.4890
116	kMBDBT02V	690644.191	8060.000	9950.002	19652.062	0.0000	0.0000	12112.4890
117	oD1213a1	690877.802	8060.000	9950.002	19885.673	0.0000	0.0000	12112.4890
118	iIPMBT03	690877.802	8060.000	9950.002	19885.673	0.0000	0.0000	12112.4890
119	oD1301	690900.267	8060.000	9950.002	19908.138	0.0000	0.0000	12112.4890
120	qMQABT03	690930.267	8060.000	9950.002	19938.138	0.0000	0.0000	12112.4890
121	oD1302	690949.582	8060.000	9950.002	19957.453	0.0000	0.0000	12112.4890
122	kMBDBT03H	690949.582	8060.000	9950.002	19957.453	0.0000	0.0000	12112.4890
123	oD1303	690969.191	8060.000	9950.002	19977.062	0.0000	0.0000	12112.4890
124	kMBDBT03V	690969.191	8060.000	9950.002	19977.062	0.0000	0.0000	12112.4890

125	oD1215a	692555.897	8060.000	9950.002	21563.768	0.0000	0.0000	12112.4890
126	iIPM5C00	692555.897	8060.000	9950.002	21563.768	0.0000	0.0000	12112.4890
127	oD1215e	692575.897	8060.000	9950.002	21583.768	0.0000	0.0000	12112.4890
128	iITV5C00	692575.897	8060.000	9950.002	21583.768	0.0000	0.0000	12112.4890
129	oD1215f	692595.897	8060.000	9950.002	21603.768	0.0000	0.0000	12112.4890
130	kMBD5C00V	692595.897	8060.000	9950.002	21603.768	0.0000	0.0000	12112.4890
131	oD1215g	692615.506	8060.000	9950.002	21623.377	0.0000	0.0000	12112.4890
132	kMBD5C00V	692615.506	8060.000	9950.002	21623.377	0.0000	0.0000	12112.4890
133	oD1215h	692675.506	8060.000	9950.002	21683.377	0.0000	0.0000	12112.4890
134	kFFB5C00V	692675.506	8060.000	9950.002	21683.377	0.0000	0.0000	12112.4890
135	oD1215h	692735.506	8060.000	9950.002	21743.377	0.0000	0.0000	12112.4890
136	kFFB5C00H	692735.506	8060.000	9950.002	21743.377	0.0000	0.0000	12112.4890
137	oD1215i	692755.897	8060.000	9950.002	21763.768	0.0000	0.0000	12112.4890
138	iIDA5C00	692755.897	8060.000	9950.002	21763.768	0.0000	0.0000	12112.4890
139	iSBS5C00	692755.897	8060.000	9950.002	21763.768	0.0000	0.0000	12112.4890
140	iSIW5C00	692755.897	8060.000	9950.002	21763.768	0.0000	0.0000	12112.4890
141	oD1215c	693155.897	8060.000	9950.002	22163.768	0.0000	0.0000	12112.4890
142	iSSS5C00	693155.897	8060.000	9950.002	22163.768	0.0000	0.0000	12112.4890
143	oD1215d	693355.897	8060.000	9950.002	22363.768	0.0000	0.0000	12112.4890
144	gMAR5C01	693355.897	8060.000	9950.002	22363.768	0.0000	0.0000	12112.4890
145	bMAR5C01	693755.908	8060.000	9963.577	22763.472	0.0000	3.8903	12112.4890
146	GMAR5C01	693755.908	8060.000	9963.577	22763.472	0.0000	3.8903	12112.4890
147	oD1216	693805.908	8060.000	9966.970	22813.357	0.0000	3.8903	12112.4890
148	gMAR5C02	693805.908	8060.000	9966.970	22813.357	0.0000	3.8903	12112.4890
149	bMAR5C02	694205.920	8060.000	10007.632	23211.219	0.0000	7.7807	12112.4890
150	GMAR5C02	694205.920	8060.000	10007.632	23211.219	0.0000	7.7807	12112.4890
151	oD1217a	694245.920	8060.000	10013.047	23250.851	0.0000	7.7807	12112.4890
152	iSLM5C01	694245.920	8060.000	10013.047	23250.851	0.0000	7.7807	12112.4890
153	oD1217b	694445.576	8060.000	10040.077	23448.669	0.0000	7.7807	12112.4890
154	iIPM5C01	694445.576	8060.000	10040.077	23448.669	0.0000	7.7807	12112.4890
155	oD1301	694468.041	8060.000	10043.118	23470.927	0.0000	7.7807	12112.4890
156	qMQA5C01	694498.041	8060.000	10047.180	23500.651	0.0000	7.7807	12112.4890
157	oD1302	694517.356	8060.000	10049.794	23519.788	0.0000	7.7807	12112.4890

158	kMBD5C01H	694517.356	8060.000	10049.794	23519.788	0.0000	7.7807	12112.4890
159	oD1303	694536.965	8060.000	10052.449	23539.216	0.0000	7.7807	12112.4890
160	kMBD5C01V	694536.965	8060.000	10052.449	23539.216	0.0000	7.7807	12112.4890
161	oD1318a1	694650.851	8060.000	10067.867	23652.054	0.0000	7.7807	12112.4890
162	iIPM5C02	694650.851	8060.000	10067.867	23652.054	0.0000	7.7807	12112.4890
163	oD1301	694673.316	8060.000	10070.908	23674.312	0.0000	7.7807	12112.4890
164	qMQA5C02	694703.316	8060.000	10074.970	23704.036	0.0000	7.7807	12112.4890
165	oD1319	694717.766	8060.000	10076.926	23718.353	0.0000	7.7807	12112.4890
166	qMQA5C02A	694747.766	8060.000	10080.988	23748.077	0.0000	7.7807	12112.4890
167	oD1302	694767.081	8060.000	10083.602	23767.214	0.0000	7.7807	12112.4890
168	kMBD5C02H	694767.081	8060.000	10083.602	23767.214	0.0000	7.7807	12112.4890
169	oD1303	694786.690	8060.000	10086.257	23786.642	0.0000	7.7807	12112.4890
170	kMBD5C02V	694786.690	8060.000	10086.257	23786.642	0.0000	7.7807	12112.4890
171	oD1218b	694826.690	8060.000	10091.672	23826.274	0.0000	7.7807	12112.4890
172	iITV5C02A	694826.690	8060.000	10091.672	23826.274	0.0000	7.7807	12112.4890
173	oD1318c1	694900.576	8060.000	10101.675	23899.480	0.0000	7.7807	12112.4890
174	iIPM5C03	694900.576	8060.000	10101.675	23899.480	0.0000	7.7807	12112.4890
175	oD1301	694923.041	8060.000	10104.716	23921.738	0.0000	7.7807	12112.4890
176	qMQA5C03	694953.041	8060.000	10108.778	23951.462	0.0000	7.7807	12112.4890
177	oD1302	694972.356	8060.000	10111.393	23970.599	0.0000	7.7807	12112.4890
178	kMBD5C03H	694972.356	8060.000	10111.393	23970.599	0.0000	7.7807	12112.4890
179	oD1303	694991.965	8060.000	10114.047	23990.028	0.0000	7.7807	12112.4890
180	kMBD5C03V	694991.965	8060.000	10114.047	23990.028	0.0000	7.7807	12112.4890
181	oD1220a2	695061.965	8060.000	10123.524	24059.383	0.0000	7.7807	12112.4890
182	oD1220a3	695478.076	8060.000	10179.858	24471.663	0.0000	7.7807	12112.4890
183	iIPM5C04	695478.076	8060.000	10179.858	24471.663	0.0000	7.7807	12112.4890
184	oD1301	695500.541	8060.000	10182.899	24493.921	0.0000	7.7807	12112.4890
185	qMQA5C04	695530.541	8060.000	10186.960	24523.645	0.0000	7.7807	12112.4890
186	oD1302	695549.856	8060.000	10189.575	24542.782	0.0000	7.7807	12112.4890
187	kMBD5C04H	695549.856	8060.000	10189.575	24542.782	0.0000	7.7807	12112.4890
188	oD1303	695569.465	8060.000	10192.230	24562.211	0.0000	7.7807	12112.4890
189	kMBD5C04V	695569.465	8060.000	10192.230	24562.211	0.0000	7.7807	12112.4890
190	oD1215h	695629.465	8060.000	10200.353	24621.659	0.0000	7.7807	12112.4890

191	kFFB5C04H	695629.465	8060.000	10200.353	24621.659	0.0000	7.7807	12112.4890
192	oD1215h	695689.465	8060.000	10208.476	24681.106	0.0000	7.7807	12112.4890
193	kFFB5C04V	695689.465	8060.000	10208.476	24681.106	0.0000	7.7807	12112.4890
194	oD1221a1	695849.465	8060.000	10230.137	24839.633	0.0000	7.7807	12112.4890
195	oD1221b1	696450.576	8060.000	10311.516	25435.210	0.0000	7.7807	12112.4890
196	iIPM5C05	696450.576	8060.000	10311.516	25435.210	0.0000	7.7807	12112.4890
197	oD1301	696473.041	8060.000	10314.557	25457.468	0.0000	7.7807	12112.4890
198	qMQA5C05	696503.041	8060.000	10318.618	25487.192	0.0000	7.7807	12112.4890
199	oD1302	696522.356	8060.000	10321.233	25506.329	0.0000	7.7807	12112.4890
200	kMBD5C05H	696522.356	8060.000	10321.233	25506.329	0.0000	7.7807	12112.4890
201	oD1303	696541.965	8060.000	10323.888	25525.758	0.0000	7.7807	12112.4890
202	kMBD5C05V	696541.965	8060.000	10323.888	25525.758	0.0000	7.7807	12112.4890
203	oD1318a1	696655.851	8060.000	10339.306	25638.595	0.0000	7.7807	12112.4890
204	iIPM5C06	696655.851	8060.000	10339.306	25638.595	0.0000	7.7807	12112.4890
205	oD1301	696678.316	8060.000	10342.347	25660.853	0.0000	7.7807	12112.4890
206	qMQA5C06	696708.316	8060.000	10346.409	25690.577	0.0000	7.7807	12112.4890
207	oD1319	696722.766	8060.000	10348.365	25704.894	0.0000	7.7807	12112.4890
208	qMQA5C06A	696752.766	8060.000	10352.427	25734.618	0.0000	7.7807	12112.4890
209	oD1302	696772.081	8060.000	10355.041	25753.755	0.0000	7.7807	12112.4890
210	kMBD5C06H	696772.081	8060.000	10355.041	25753.755	0.0000	7.7807	12112.4890
211	oD1303	696791.690	8060.000	10357.696	25773.184	0.0000	7.7807	12112.4890
212	kMBD5C06V	696791.690	8060.000	10357.696	25773.184	0.0000	7.7807	12112.4890
213	oD1318a1	696905.576	8060.000	10373.114	25886.021	0.0000	7.7807	12112.4890
214	iIPM5C07	696905.576	8060.000	10373.114	25886.021	0.0000	7.7807	12112.4890
215	oD1301	696928.041	8060.000	10376.155	25908.279	0.0000	7.7807	12112.4890
216	qMQA5C07	696958.041	8060.000	10380.217	25938.003	0.0000	7.7807	12112.4890
217	oD1302	696977.356	8060.000	10382.832	25957.140	0.0000	7.7807	12112.4890
218	kMBD5C07H	696977.356	8060.000	10382.832	25957.140	0.0000	7.7807	12112.4890
219	oD1303	696996.965	8060.000	10385.486	25976.569	0.0000	7.7807	12112.4890
220	kMBD5C07V	696996.965	8060.000	10385.486	25976.569	0.0000	7.7807	12112.4890
221	oD1222a1	697195.541	8060.000	10412.370	26173.317	0.0000	7.7807	12112.4890
222	gMAR5C03	697195.541	8060.000	10412.370	26173.317	0.0000	7.7807	12112.4890
223	bMAR5C03	697595.552	8060.000	10453.032	26571.179	0.0000	3.8903	12112.4890

224	GMAR5C03	697595.552	8060.000	10453.032	26571.179	0.0000	3.8903	12112.4890
225	oD1216	697645.552	8060.000	10456.425	26621.063	0.0000	3.8903	12112.4890
226	gMAR5C04	697645.552	8060.000	10456.425	26621.063	0.0000	3.8903	12112.4890
227	bMAR5C04	698045.564	8060.000	10470.000	27020.768	0.0000	0.0000	12112.4890
228	GMAR5C04	698045.564	8060.000	10470.000	27020.768	0.0000	0.0000	12112.4890
229	oD1223a1	698099.405	8060.000	10470.000	27074.609	0.0000	0.0000	12112.4890
230	iITV5C08	698099.405	8060.000	10470.000	27074.609	0.0000	0.0000	12112.4890
231	oD1223b	698139.405	8060.000	10470.000	27114.609	0.0000	0.0000	12112.4890
232	iIPM5C08	698139.405	8060.000	10470.000	27114.609	0.0000	0.0000	12112.4890
233	oD1301	698161.870	8060.000	10469.999	27137.074	0.0000	0.0000	12112.4890
234	qMQP5C08	698191.870	8060.000	10469.999	27167.074	0.0000	0.0000	12112.4890
235	oD1319	698206.320	8060.000	10469.999	27181.524	0.0000	0.0000	12112.4890
236	qMQP5C08A	698236.320	8060.000	10469.999	27211.524	0.0000	0.0000	12112.4890
237	oD1302	698255.635	8060.000	10469.999	27230.839	0.0000	0.0000	12112.4890
238	kMBD5C08H	698255.635	8060.000	10469.999	27230.839	0.0000	0.0000	12112.4890
239	oD1303	698275.244	8060.000	10469.999	27250.448	0.0000	0.0000	12112.4890
240	kMBD5C08V	698275.244	8060.000	10469.999	27250.448	0.0000	0.0000	12112.4890
241	oD1224a4	698444.955	8060.000	10469.999	27420.159	0.0000	0.0000	12112.4890
242	iIPM5C09	698444.955	8060.000	10469.999	27420.159	0.0000	0.0000	12112.4890
243	oD1301	698467.420	8060.000	10469.999	27442.624	0.0000	0.0000	12112.4890
244	qMQP5C09	698497.420	8060.000	10469.999	27472.624	0.0000	0.0000	12112.4890
245	oD1319	698511.870	8060.000	10469.999	27487.074	0.0000	0.0000	12112.4890
246	qMQP5C09A	698541.870	8060.000	10469.999	27517.074	0.0000	0.0000	12112.4890
247	oD1302	698561.185	8060.000	10469.999	27536.389	0.0000	0.0000	12112.4890
248	kMBD5C09H	698561.185	8060.000	10469.999	27536.389	0.0000	0.0000	12112.4890
249	oD1303	698580.794	8060.000	10469.999	27555.998	0.0000	0.0000	12112.4890
250	kMBD5C09V	698580.794	8060.000	10469.999	27555.998	0.0000	0.0000	12112.4890
251	oD1224a3	698794.955	8060.000	10469.999	27770.159	0.0000	0.0000	12112.4890
252	iIPM5C10	698794.955	8060.000	10469.999	27770.159	0.0000	0.0000	12112.4890
253	oD1301	698817.420	8060.000	10469.999	27792.624	0.0000	0.0000	12112.4890
254	qMQP5C10	698847.420	8060.000	10469.999	27822.624	0.0000	0.0000	12112.4890
255	oD1219	698862.420	8060.000	10469.999	27837.624	0.0000	0.0000	12112.4890
256	qMQP5C10A	698892.420	8060.000	10469.999	27867.624	0.0000	0.0000	12112.4890

257	oD1302	698911.735	8060.000	10469.999	27886.939	0.0000	0.0000	12112.4890
258	kMBD5C10H	698911.735	8060.000	10469.999	27886.939	0.0000	0.0000	12112.4890
259	oD1303	698931.344	8060.000	10469.999	27906.548	0.0000	0.0000	12112.4890
260	kMBD5C10V	698931.344	8060.000	10469.999	27906.548	0.0000	0.0000	12112.4890
261	oD1224a3	699145.505	8060.000	10469.999	28120.709	0.0000	0.0000	12112.4890
262	iIPM5C11	699145.505	8060.000	10469.999	28120.709	0.0000	0.0000	12112.4890
263	oD1301	699167.970	8060.000	10469.999	28143.174	0.0000	0.0000	12112.4890
264	qMQP5C11	699197.970	8060.000	10469.999	28173.174	0.0000	0.0000	12112.4890
265	oD1219	699212.970	8060.000	10469.999	28188.174	0.0000	0.0000	12112.4890
266	qMQP5C11A	699242.970	8060.000	10469.999	28218.174	0.0000	0.0000	12112.4890
267	oD1302	699262.285	8060.000	10469.999	28237.489	0.0000	0.0000	12112.4890
268	kMBD5C11H	699262.285	8060.000	10469.999	28237.489	0.0000	0.0000	12112.4890
269	oD1303	699281.894	8060.000	10469.999	28257.098	0.0000	0.0000	12112.4890
270	kMBD5C11V	699281.894	8060.000	10469.999	28257.098	0.0000	0.0000	12112.4890
271	oD1225a1	699306.694	8060.000	10469.999	28281.898	0.0000	0.0000	12112.4890
272	iITV5C11	699306.694	8060.000	10469.999	28281.898	0.0000	0.0000	12112.4890
273	oD1227b	699327.694	8060.000	10469.999	28302.898	0.0000	0.0000	12112.4890
274	iHA5C11	699327.694	8060.000	10469.999	28302.898	0.0000	0.0000	12112.4890
275	oD1227c	699375.694	8060.000	10469.999	28350.898	0.0000	0.0000	12112.4890
276	iCLnAbpm2	699375.694	8060.000	10469.999	28350.898	0.0000	0.0000	12112.4890
277	oD1227d	700556.643	8060.000	10469.999	29531.847	0.0000	0.0000	12112.4890
278	kMBD5C12H	700571.643	8060.000	10469.999	29546.847	0.0000	0.0000	12112.4890
279	oD1226	700576.643	8060.000	10469.999	29551.847	0.0000	0.0000	12112.4890
280	kMBD5C12V	700591.643	8060.000	10469.999	29566.847	0.0000	0.0000	12112.4890
281	oD1228a	700631.643	8060.000	10469.999	29606.847	0.0000	0.0000	12112.4890
282	iITV5C12	700631.643	8060.000	10469.999	29606.847	0.0000	0.0000	12112.4890
283	oD1228b1	700731.643	8060.000	10469.999	29706.847	0.0000	0.0000	12112.4890
284	iIPM5C12	700731.643	8060.000	10469.999	29706.847	0.0000	0.0000	12112.4890
285	oD1228b2	700752.643	8060.000	10469.999	29727.847	0.0000	0.0000	12112.4890
286	iHA5C12	700752.643	8060.000	10469.999	29727.847	0.0000	0.0000	12112.4890
287	oD1228c	700822.643	8060.000	10469.999	29797.847	0.0000	0.0000	12112.4890
288	iCLnAbpm3	700822.643	8060.000	10469.999	29797.847	0.0000	0.0000	12112.4890
289	oD1228d	700935.276	8060.000	10469.999	29910.480	0.0000	0.0000	12112.4890



290	KRADIATOR	700935.276	8060.000	10469.999	29910.480	0.0000	0.0000	12112.4890
291	oD1229	708435.276	8060.000	10469.999	37410.480	0.0000	0.0000	12112.4890
292	iActCol	708435.276	8060.000	10469.999	37410.480	0.0000	0.0000	12112.4890
293	KCOLLIM	708435.276	8060.000	10469.999	37410.480	0.0000	0.0000	12112.4890
294	oD1230	712635.276	8060.000	10469.999	41610.480	0.0000	0.0000	12112.4890
295	Kbackwall	712635.276	8060.000	10469.999	41610.480	0.0000	0.0000	12112.4890
296	oD1231	713135.276	8060.000	10469.999	42110.480	0.0000	0.0000	12112.4890