RIAPMTQ Benchmarking Study of the ANL RIA Low-Beta Linac Design

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1. Introduction

The objective of this work is to compare the simulation results of the RIAPMTQ code with those of the ANL simulation code for the low-beta section of an ANL RIA Driver Linac design. However, the approach taken is not precisely that of a direct comparison of the two simulations of the same linac section, which is what one would normally expect to do. The reason is that the RFQ design approach used by the ANL codes and the LANL codes are approximately but not exactly the same, particularly at the ends of the RFQ, and it did not appear to be easy to make the two RFQ designs exactly identical. The effects on the beam of the different RFQ design approaches are not expected to be large, as long as the beam is properly matched at the transitions.

What was done in the RIAPMTQ input file to compensate for the RFQ design difference was to use TRACE3D to adjust the four solenoid strengths and the two matching rf cavities in the MEBT (the beam transport system between the end of the RFQ and the beginning of the superconducting linac) to obtain the same match (Courant-Snyder parameters) into the superconducting linac as was obtained from the ANL code. We also matched the beam into the RFQ. The result is that we generate a RIAPMTQ input file for the low-beta section of the linac, which is not exactly identical to, but should be near to that of the ANL design. Then, what we wish to compare from the two codes are the rms emittances at the beginning of the superconducting linac, and the beam losses in the first or prestripper section of the superconducting (SC) linac.

In this report, we describe the procedure and present the results. Section 2 gives the procedures and results, and Section 3 gives the summary.

2. Procedure and Results

The low-beta section of the RIA driver-linac design consists of three sections, first the LEBT (after charge-state selection which leaves two charge states of uranium), next the RFQ, and finally the MEBT. The parameters of the LEBT and RFQ for the ANL design under study were provided to us by Peter Ostroumov.

The LEBT transports two uranium charge states, $q=28$ and $q=29$, of an unbunched initial beam of ^{238}U ions from the beginning of the multiharmonic buncher system to the input of the RFQ. The kinetic energy of the LEBT beam is 2.851 MeV, or 0.01198 MeV/amu, corresponding to a velocity, $\beta=0.005072$. At the input to the LEBT in RIAPMTQ, we launched a 4D Waterbag distribution with the same transverse Courant-Snyder and emittance parameters for both x and y. These parameter values are $\alpha=1.0$, $\beta=30$ cm/rad, and total unnormalized emittance (for 4D Waterbag) = 0.00980 cm-rad for both x and y. These parameters were also provided to us by Peter Ostroumov. The resulting rms normalized emittances at the LEBT input are 0.0828 mm-mrad in both the x and y planes. For all the calculations done, we assumed zero beam current.

We did make a small modification to the initial LEBT parameters; using TRACE3D we adjusted two solenoid focusing strengths in the LEBT to try to provide the best transverse match into the RFQ that we used. The RFQ then accelerates the beam from 2.851 MeV to a final kinetic energy of 45.453 MeV or 0.19098 MeV/amu, corresponding to a velocity $\beta=0.020247$. The MEBT then transports the beam from the exit of the RFQ to the beginning of the first superconducting linac section; this SC linac section ends at the first stripper.

We (Ji Qiang) also had results provided by ANL for the first superconducting linac section, and had already run this with the IMPACT code using ANL matched parameters at the SC linac input for the total beam, including both charge states. This IMPACT run from the end of the MEBT through the superconducting linac to the first stripper already produced good agreement with the ANL results at a level of 2000 total particles in the simulation. The ANL matched parameters at the end of the MEBT, which is the same as the beginning of the superconducting linac, are given in Table 1.

Table 1. ANL Matched Courant-Snyder Parameters and RMS Normalized Emittances at Beginning of the Superconducting Linac for the Total Beam Including Both Charge States, $q=28$ and $q=29$.

α_x	1.18
β_x	0.596 mm/mrad
$\epsilon_{rms,x,norm}$	0.0883 mm-mrad
α_y	0.915
β_y	0.570 mm/mrad
$\epsilon_{rms,y,norm}$	0.0916 mm-mrad
α_z	-0.78
β_z	2122 deg/MeV/amu=0.008916 deg/keV
$\epsilon_{rms,z}$	0.00366 deg-MeV/amu=871.1 deg-keV

The MEBT parameters for the RIAPMTQ run still needed to be determined. They were obtained in the following way. First, an initial TRACE3D input file for the MEBT was provided by Peter Ostroumov. This MEBT is comprised of three quads, four solenoids, and two rf gaps, where the TRACE3D initial and final MEBT phase-space plots and profiles are shown in Fig.1. For the purpose of running TRACE3D for the MEBT, the initial Courant-Snyder parameters in the MEBT were obtained by running RIAPMTQ through the LEBT to the end of the RFQ, which is the beginning of the MEBT. For the comparison with the 2000 particle ANL results, we also ran a total of approximately 2000 particles equally distributed in the two charge states. For better statistics, we also ran a total of 40000 initial particles, beginning at the input to the LEBT, 20000 initial particles in each of the two charge states. The number of particles coming out of the RFQ is about 33,000. These beam parameters for the total beam including both charge states are given in Table 2.

Table 2. Beam Parameters at the Beginning of the MEBT Including Both Charge States As Obtained from the RIAPMTQ Run with 40000 particles at the Input to the LEBT.

α_x	1.489
β_x	0.1951 mm/mrad
$\epsilon_{rms,x,n}$	0.093 mm-mrad=22.96 mm-mrad rms, unnorm
α_y	-1.761
β_y	0.1553 mm/mrad
$\epsilon_{rms,y,n}$	0.093 mm-mrad=22.96 mm-mrad rms, unnorm
α_z	0.011
β_z	6434 deg/MeV/amu=0.0271 deg/keV
$\epsilon_{rms,z}$	0.0044 deg-MeV/amu=5236 deg-keV rms, unnorm

To obtain the best agreement with the ANL Courant-Snyder parameters given in Table 2, using TRACE3D, we found the two gap voltages and the four solenoid strengths in the MEBT needed to provide as closely as possible the same transverse Courant-Snyder beam parameters that ANL had obtained. We performed the match in TRACE3D assuming the mean charge state, $q=28.5$. Fig.1 shows the final MEBT layout from TRACE3D. The TRACE3D input file is given in Appendix 1. The MEBT elements and their final fitted parameters from TRACE3D to match into the superconducting linac are given in Table 3.

Table 3. MEBT Elements and Final Parameters from TRACE3D for the Match into the Superconducting Linac

Drift	L= 156.25 mm
Quad	G=-99.16 T/m, L= 50 mm
Drift	L=50 mm
Quad	G=111.66 T/m, G= 50 mm
Drift	L=50 mm
Quad	G=-35.81 T/m, G= 50 mm
Drift	L=50 mm
Drift	L=100 mm
Drift	L=150 mm
Drift	L=37.26 mm
Solenoid	B=2271.1 G, L=105.482mm
Drift	L=72.26 mm
Drift	L=145 mm
RF Gap	V=0.044148 MV, Phi=-90 deg
Drift	L=198.509 mm
Solenoid	B=75954.4 G, L=105.482 mm
Drift	L=300 mm
Drift	L=349.52 mm
Solenoid	B=58424.3 G, L=105.482 mm
Drift	L=198.509 mm
RF Gap	V=0.089020 MV, phi=-90 deg
Drift	L=378.259 mm
Solenoid	B=25620.9 G, L=105.482 mm
Drift	L=212.26 mm

Fig. 1. Final MEFT layout and Parameters from TRACE3D

After the matching was done with TRACE3D, we ran the two-charge-state beam in RIAPMTQ from the beginning of the LEBT, this time all the way to the end of the MEFT. To facilitate a comparison with the ANL results, we launched with a beam with a nominal 2000 particles in the LEBT, 1,000 particles in each of the two charge states. The beam current was $I=0$. The RIAPMTQ phase-space plots at the end of the MEFT, and the profile plots (rms beam sizes versus distance in meters) from the beginning of the LEBT, through the RFQ, and to the end of the MEFT, are shown in Fig.2.

Fig. 2. The RIAPMTQ nominal 2,000 particle run results, showing at the top the final phase-space plots for both charge states ($q=28$ in red and $q=29$ in blue) at the end of the MEBT. At the bottom are shown versus distance in meters the rms beam profiles for x and y for both charge states from the beginning of the LEBT ($z=0$), through the LEBT to the beginning of the RFQ ($z=2.08\text{m}$), to the end of the RFQ ($z=5.97\text{m}$), and to the end of the MEBT ($z=8.99\text{m}$).

We also launched a 40,000 particle RIAPMTQ run at the input to the LEBT. The complete RIAPMTQ output file used for that simulation is given in Appendix 2. There were 32,866 good particles left at the end of the MEBT (82% transmission through the RFQ). Then, comparing the RIAPMTQ x and y rms normalized emittances with the previous ANL results at the end of the MEBT, we find that the LANL emittances are somewhat larger than ANL values (18% for x, 9% for y, and 20% for z), but within about 20% (See Table 4). This is fairly good agreement. Also shown are the Courant-Snyder parameters, which show fairly good agreement. Rather than the rms emittances, the most important issue is how well the codes agree with respect to beam losses in the superconducting linac, which we will present later.

Table 4. Courant-Snyder and Emittance Comparisons for the ANL versus RIAPMTQ Simulations at the end of the MEBT

	ANL results	RIAPMTQ results
α_x	1.18	0.969
β_x	0.596 mm/mrad	0.662 mm/mrad
$\epsilon_{n,rms,x}$	0.0883 mm-mrad	0.104 mm-mrad
α_y	0.915	0.892
β_y	0.570 mm/mrad	0.432 mm/mrad
$\epsilon_{n,rms,y}$	0.0916 mm-mrad	0.100 mm-mrad
α_z	0.78	0.615
β_z	2122 deg/MeV/amu	2184 deg/MeV/amu
ϵ_z	0.00366 deg-MeV/amu	0.0044 deg-MeV/amu

The transverse phase-space distributions at the end of the MEBT are shown in Figs.3 and 4. The x-y cross section at the end of the MEBT is shown in Fig.5. 2000 ANL points are in green and about 2000 RIAPMTQ points are in red. The red RIAPMTQ points appear to occupy a slightly larger phase-space area than the green ANL points, which is qualitatively consistent with the differences in the rms emittances in Table 4. Fig. 6 shows the longitudinal phase space plots at the end of the MEBT. Fair, but not precise agreement is observed in the details of the longitudinal phase-space distribution.

Fig.3. x - p_x phase space plots at the end of the MEBT for the total beam including both $q=28$ and 29 charge states. The 2000 ANL points are in green and the approximately 2000 RIAPMTQ

points are in red. Dimensionless units are used, where x is really $2\pi f x/c$ ($f=57.5 \times 10^6$ Hz) and P_x is really p_x/mc .

Fig.4. y - p_y phase space plots at the end of the MEBT for the total beam including both $q=28$ and 29 charge states. The 2000 ANL points are in green and the approximately 2000 RIAPMTQ points are in red. Dimensionless units are used, where y is really $2\pi f y/c$ ($f=57.5 \times 10^6$ Hz) and p_y is really p_y/mc .

Fig.5. x-y plot space plots at the end of the MEBT for the total beam including both q=28 and 29 charge states. The 2000 ANL points are in green and the approximately 2000 RIAPMTQ points are in red. Dimensionless units are used, where x is really $2\pi f x/c$ ($f=57.5 \times 10^6$ Hz) and similarly for y.

Fig.6 Energy-phase phase-space plots at the end of the MEBT including both q=28 and 29 charge states. The 2000 ANL points are in green and the approximately 2000 RIAPMTQ points

are in red. Dimensionless units are used, where phase is in radians and energy deviation is really $\delta W/mc^2 = \delta\gamma$.

For reference the approximately 33,000 RIAPMTQ points together with the same 2000 ANL phase-space plots are shown in Figs. 7, 8, and 9 at the end of the MEBT for the total beam including both $q=28$ and 29 charge states. In each plot the 2000 ANL points are shown in green. We expect a more extended distribution for the red points than for the green points, since the red points include about a factor of about 17 more points.

Fig. 7. x - p_x space plots at the end of the MEBT including both $q=28$ and 29 charge states. The 2000 ANL points are shown in green for reference, and the 33,000 RIAPMTQ points are in red. Dimensionless units are used, where x is really $2\pi f x/c$ ($f=57.5 \times 10^6$ Hz) and p_x is really p_x/mc .

Fig.8. y - p_y space plots at the end of the MEFT for the total beam including both $q=28$ and 29 charge states. The 2000 ANL points are shown in green for reference, and the 33,000 RIAPMTQ points are in red. Dimensionless units are used, where x is really $2\pi fx/c$ ($f=57.5 \times 10^6$ Hz) and p_y is really p_y/mc .

Fig.9. Phase-energy phase-space plots at the end of the MEBT for the total beam including both $q=28$ and 29 charge states. The 2000 ANL points are shown in green for reference, and the 33,000 RIAPMTQ points are in red. Dimensionless units are used, where phase is in radians and energy deviation is really $\delta W/mc^2 = \delta\gamma$.

The RIAPMTQ particle coordinates at the end of the MEBT were saved in a file, which was read as input by the IMPACT code. We then used IMPACT to run the 2000 particles through the 60-m-long first section of the superconducting linac all the way to the first stripper. Fig. 10 shows the transverse rms beam sizes for x and y versus distance along the superconducting linac section for both the 2000 particle ANL run and the 2000 particle RIAPMTQ run. Fairly good agreement is observed.

Fig.13. Transverse rms beam sizes for x and y versus distance along the superconducting linac section for both the 2000 ANL points and the approximately 2000 RIAPMTQ points.

The results for beam loss in the first section of the superconducting linac (before the first stripper) are as follows. The ANL run with 2000 particles at the input to the SC linac (1000 particles per charge state) gave no beam losses. The RIAPMTQ/IMPACT case with approximately 2000 particles at the input to the SC linac also gave no beam losses. For the RIAPMTQ/IMPACT case with approximately 33000 particles at the input to the SC linac, there was 1 particle lost in the SC linac. This is a fractional loss of only about 3×10^{-5} .

3. Summary

At the 2000 particle level, comparing the RIAPMTQ x and y emittances with the previous ANL results at the end of the MEBT, the LANL emittances are somewhat larger than the ANL emittances, (18% for x, 9% for y, and 20% for z), but all within about 20% (See Table 4).

At the 2000 particle level, both the ANL and the RIAPMTQ runs gave no beam losses in the first section of the superconducting linac.

At higher statistics, for the RIAPMTQ/IMPACT case with approximately 33000 particles at the input to the SC linac, there was only 1 particle lost in the SC linac. This is a fractional loss of only about 3×10^{-5} .

This far, we would consider the agreement between the codes quite acceptable. This study should be repeated at higher statistics.

APPENDIX 1 TRACE3D Input File

&DATA

```

ER=221695.65 Q=28.5 W=45.4294 XI=0.0
EMITI= 22.96 22.96 5236
EMITO= 22.960256 22.960256 5236
BEAMI= 1.489 0.1951 -1.761 0.1553 0.011 0.0271
BEAMO= 1.0395683 0.57149365 1.0774281 0.61364858 0.77973294 0.008914363
BEAMF= 1.18 0.596 0.915 0.57 0.78 0.008916
BEAMCI= 0.0 0.0 0.0 0.0 0.0 0.0
FREQ=28.75 PQEXT=2.5 ICHROM=1 IBS=0 XC=0.0
XM=25 XPM=10 YM=20 DPM=0.0 DWM=0.0 DPP=30
DISPR=0.0 BETAX=0.0 BETAY=0.0
XMI=20 XPMI=30 XMF=20 XPMF=30
DPMI=20 DPMF=25 DWMI=1000 DWMF=1000
N1=1 N2=25 NEL1=1 NEL2=25 NP1=1 NP2=25 SMAX=10 PQSMAX=2.5
MT=8 NC=4 IPLANE=0,0,0
MP=1,12 1,17 1,20 1,24 0,0 0,0
MVC=0,0,0 0,0,0 0,0,0 0,0,0 0,0,0 0,0,0
VAL= 0.0 0.0 0.0 0.0 0.0 0.0
CMT(1)= " " NT(1)=1 A(1,1)= 0.0
CMT(2)= " " NT(2)=1 A(1,2)= 156.25
CMT(3)= " " NT(3)=3 A(1,3)= -99.16 50 0.0 0.0 0.0
CMT(4)= " " NT(4)=1 A(1,4)= 50
CMT(5)= " " NT(5)=3 A(1,5)= 111.66 50 0.0 0.0 0.0
CMT(6)= " " NT(6)=1 A(1,6)= 50
CMT(7)= " " NT(7)=3 A(1,7)= -35.81 50 0.0 0.0 0.0
CMT(8)= " " NT(8)=1 A(1,8)= 50
CMT(9)= " " NT(9)=1 A(1,9)= 100
CMT(10)=" " NT(10)=1 A(1,10)= 150
CMT(11)=" " NT(11)=1 A(1,11)= 37.26
CMT(12)=" " NT(12)=5 A(1,12)= 2271.1467 105.482
CMT(13)=" " NT(13)=1 A(1,13)= 72.26
CMT(14)=" " NT(14)=1 A(1,14)= 145
CMT(15)=" " NT(15)=10 A(1,15)= 0.04414829 -90 0.0 1 2
CMT(16)=" " NT(16)=1 A(1,16)= 198.509
CMT(17)=" " NT(17)=5 A(1,17)= 75954.352 105.482
CMT(18)=" " NT(18)=1 A(1,18)= 300
CMT(19)=" " NT(19)=1 A(1,19)= 349.52
CMT(20)=" " NT(20)=5 A(1,20)= 58424.327 105.482
CMT(21)=" " NT(21)=1 A(1,21)= 198.509
CMT(22)=" " NT(22)=10 A(1,22)= 0.08901994 -90 0.0 1 2
CMT(23)=" " NT(23)=1 A(1,23)= 378.259
CMT(24)=" " NT(24)=5 A(1,24)= 25620.85 105.482
CMT(25)=" " NT(25)=1 A(1,25)= 212.26
WS= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
SIGI(1,1)= 4.47950 -34.18744 0.00000 0.00000 0.00000 0.00000
SIGI(1,2)= -34.18744 378.60122 0.00000 0.00000 0.00000 0.00000

```

```
SIGI(1,3)= 0.00000 0.00000 3.56569 40.43256 0.00000 0.00000
SIGI(1,4)= 0.00000 0.00000 40.43256 606.32156 0.00000 0.00000
SIGI(1,5)= 0.00000 0.00000 0.00000 0.00000 48.77598 0.37170
SIGI(1,6)= 0.00000 0.00000 0.00000 0.00000 0.37170 23.41197
COMENT= ""
&END
```

APPENDIX 2 RIAPMTQ Output File

Pari binary data file:

ANL.BIN

run 1 1

title

design ,new LEBT, freq=57.50 MHz, q=28.50,Wi=0.01198,Wf= 0.193 amu= 238

title

linac 1 0.01198 57.5 1.00 .11975 .11765 .12185 .00 .00

BeamFreq 28.75

VaneVoltage 0.0679

tank 1 0.191 -24.843 0.06847 0 0 6 0 0 0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0.0679 0.0120 0.0 0.0 0.00000 -24.8 6.000 1.000 0.066

RIAPMTQ does not use data on the TANK line.

zdata -4	-7.9324075	0.066	-24.843	1.0000	
	-6.6103395	0.114	-24.843	1.0000	
	-5.2882716	0.823	-24.843	1.0000	
	-3.9662037	2.329	-24.843	1.0000	
	-2.6441358	4.279	-24.843	1.0000	
	-1.3220679	5.937	-24.843	1.0000	
	0.000	6.6464	-24.843	1.0000	6

RIAPMTQ does not use data on the ZDATA line.

zdata -4	0.000	6.6464	-24.843	1.0000
	1.3302	6.6464	-24.8430	1.0739
	2.6752	6.6464	-24.8430	1.0749
	4.0351	6.6464	-24.8430	1.0752
	5.4098	6.6464	-24.8430	1.0762
	6.7997	6.6464	-24.8430	1.0780
	8.2051	6.6464	-24.8430	1.0799
	9.6260	6.6464	-24.8430	1.0801
	11.0628	6.6464	-24.8430	1.0820
	12.5154	6.6464	-24.8430	1.0823
	13.9840	6.6464	-24.8430	1.0841
	15.4690	6.6464	-24.8430	1.0860
	16.9704	6.6464	-24.8430	1.0863
	18.4884	6.6464	-24.8430	1.0881
	20.0233	6.6464	-24.8430	1.0901
	21.5751	6.6464	-24.8430	1.0902
	23.1440	6.6464	-24.8430	1.0921
	24.7303	6.6464	-24.8430	1.0941
	26.3343	6.6464	-24.8430	1.0960
	27.9559	6.6464	-24.8430	1.0963
	29.5954	6.6464	-24.8430	1.0982
	31.2530	6.6464	-24.8430	1.1001
	32.9290	6.6464	-24.8430	1.1019
	34.6234	6.6464	-24.8430	1.1039
	36.3367	6.6464	-24.8430	1.1058
	38.0690	6.6464	-24.8430	1.1078
	39.8206	6.6464	-24.8430	1.1098
	41.5916	6.6464	-24.8430	1.1116
	43.3824	6.6464	-24.8430	1.1136
	45.1930	6.6464	-24.8430	1.1155
	47.0236	6.6464	-24.8430	1.1175
	48.8746	6.6464	-24.8430	1.1195
	50.7460	6.6464	-24.8430	1.1214
	52.6381	6.6464	-24.8430	1.1235
	54.5511	6.6464	-24.8430	1.1254
	56.4850	6.6464	-24.8430	1.1274

58.4403	6.6464	-24.8430	1.1303
60.4170	6.6464	-24.8430	1.1332
62.4157	6.6464	-24.8430	1.1354
64.4365	6.6464	-24.8430	1.1390
66.4797	6.6464	-24.8430	1.1412
68.5456	6.6464	-24.8430	1.1448
70.6345	6.6464	-24.8430	1.1469
72.7465	6.6464	-24.8430	1.1505
74.8821	6.6464	-24.8430	1.1527
77.0413	6.6464	-24.8430	1.1562
79.2245	6.6464	-24.8430	1.1598
81.4318	6.6464	-24.8430	1.1620
83.6635	6.6464	-24.8430	1.1656
85.9198	6.6464	-24.8430	1.1677
88.2010	6.6464	-24.8430	1.1713
90.5073	6.6464	-24.8430	1.1748
92.8392	6.6464	-24.8430	1.1798
95.1968	6.6464	-24.8430	1.1834
97.5806	6.6464	-24.8430	1.1870
99.9907	6.6464	-24.8430	1.1905
102.4274	6.6464	-24.8430	1.1941
104.8911	6.6464	-24.8430	1.1991
107.3818	6.6464	-24.8430	1.2027
109.9000	6.6464	-24.8430	1.2063
112.4459	6.6464	-24.8430	1.2099
115.0196	6.6464	-24.8430	1.2150
117.6217	6.6464	-24.8430	1.2200
120.2523	6.6464	-24.8430	1.2251
122.9118	6.6464	-24.8430	1.2301
125.6004	6.6464	-24.8430	1.2338
128.3186	6.6464	-24.8430	1.2403
131.0666	6.6464	-24.8430	1.2454
133.8449	6.6464	-24.8430	1.2520
136.6538	6.6464	-24.8430	1.2572
139.4936	6.6464	-24.8430	1.2639
142.3646	6.6464	-24.8430	1.2690
145.2672	6.6464	-24.8430	1.2743
148.2016	6.6464	-24.8430	1.2810
151.1682	6.6464	-24.8430	1.2878
154.1674	6.6464	-24.8430	1.2946
157.1994	6.6464	-24.8430	1.3014
160.2648	6.6464	-24.8430	1.3098
163.3639	6.6464	-24.8430	1.3168
166.4972	6.6464	-24.8430	1.3253
169.6650	6.6464	-24.8430	1.3323
172.8676	6.6464	-24.8430	1.3410
176.1053	6.6464	-24.8430	1.3481
179.3787	6.6464	-24.8430	1.3569
182.6879	6.6464	-24.8430	1.3658
186.0334	6.6464	-24.8430	1.3747
189.4156	6.6464	-24.8430	1.3837
192.8349	6.6464	-24.8430	1.3944
196.2917	6.6464	-24.8430	1.4053
199.7864	6.6464	-24.8430	1.4163
203.3195	6.6464	-24.8430	1.4256
206.8913	6.6464	-24.8430	1.4369
210.5023	6.6464	-24.8430	1.4499
214.1530	6.6464	-24.8430	1.4632
217.8438	6.6464	-24.8430	1.4748
221.5751	6.6464	-24.8430	1.4885

225.3474	6.6464	-24.8430	1.5004
229.1610	6.6464	-24.8430	1.5144
233.0165	6.6464	-24.8430	1.5286
236.9143	6.6464	-24.8430	1.5450
240.8547	6.6464	-24.8430	1.5597
244.8384	6.6464	-24.8430	1.5766
248.8658	6.6464	-24.8430	1.5939
252.9373	6.6464	-24.8430	1.6114
257.0535	6.6464	-24.8430	1.6315
261.2148	6.6464	-24.8430	1.6498
265.4217	6.6464	-24.8430	1.6707
269.6748	6.6464	-24.8430	1.6922
273.9745	6.6464	-24.8430	1.7141
278.3213	6.6464	-24.8430	1.7390
282.7152	6.6464	-24.8430	1.7381
287.1557	6.6464	-24.8430	1.7396
291.6425	6.6464	-24.8430	1.7388
296.1750	6.6464	-24.8430	1.7404
300.7530	6.6464	-24.8430	1.7397
305.3759	6.6464	-24.8430	1.7413
310.0433	6.6464	-24.8430	1.7406
314.7550	6.6464	-24.8430	1.7424
319.5105	6.6464	-24.8430	1.7417
324.3095	6.6464	-24.8430	1.7410
329.1515	6.6464	-24.8430	1.7429
334.0364	6.6464	-24.8430	1.7423
338.9636	6.6464	-24.8430	1.7441
343.9329	6.6464	-24.8430	1.7435
348.9440	6.6464	-24.8430	1.7430
353.9966	6.6464	-24.8430	1.7449
359.0903	6.6464	-24.8430	1.7444
364.2248	6.6464	-24.8430	1.7439
369.3999	6.6464	-24.8430	1.7458
374.6152	6.6464	-24.8430	1.7453
379.8705	6.6464	-24.8430	1.7449
385.1655	6.6464	-24.8430	1.7444 -1

RIAPMTQ does not use data on the ZDATA line.

rfqout 1

design ,new LEBT, freq=57.50 MHz, q=28.50,Wi=0.01198,Wf= 0.193 amu= 238

RFQ parameters for each cell

(First line in table for cell 0 refers to starting values.)

RFQ length = 389.273 cm

Number of cells = 137

Charge state 0.

The column headings are:

V: Intervane voltage in kV

Wsyn: Energy of the synchronous particle in MeV

Sig0T: Transverse zero-current phase advance in degrees per period

Sig0L: Longitudinal zero-current phase advance in degrees per period

A10: Acceleration term [first theta-independent term in expansion]

Phi: Synchronous phase in degrees

a: Minimum radial aperture in cm

m: Modulation (dimensionless)

B: Focusing parameter (dimensionless) $B = q V \lambda^2 / (m c^2 r_0^2)$

L: Cell length in cm

Z: Distance to end of cell from the beam-entrance end wall in cm

A0: Quadrupole term [first z-independent term in expansion]

RFdef: RF defocusing term

Oct:	Octopole term									
A1:	Duodecapole term [second z-independent term in expansion]									
Cell	V	Wsyn	Sig0T	Sig0L	A10	Phi	a	m	B	L
Z	A0	RFdef	Oct	A1						
0	0.0679	0.0120	0.0	0.0	0.00000	-24.8	5.996	1.000	0.066	
1	0.0679	0.0120	0.7	0.0	0.00000	-24.8	4.562	1.000	0.114	1.322
1.32										
2	0.0679	0.0120	5.3	0.0	0.00000	-24.8	1.698	1.000	0.823	1.322
2.64										
3	0.0679	0.0120	15.0	0.0	0.00000	-24.8	1.009	1.000	2.329	1.322
3.97										
4	0.0679	0.0120	27.6	0.0	0.00000	-24.8	0.745	1.000	4.279	1.322
5.29										
5	0.0679	0.0120	38.3	0.0	0.00000	-24.8	0.632	1.000	5.937	1.322
6.61										
6	0.0679	0.0120	42.9	0.2	0.00001	-24.8	0.598	1.000	6.646	1.322
7.93										
7	0.0679	0.0121	41.6	14.4	0.04543	-24.8	0.577	1.074	6.646	1.325
9.26	1.0000	0.0287	0.0000	0.0000						
8	0.0679	0.0124	41.6	14.4	0.04657	-24.8	0.576	1.075	6.646	1.337
10.59	1.0000	0.0287	0.0000	0.0000						
9	0.0679	0.0127	41.6	14.4	0.04716	-24.8	0.576	1.075	6.646	1.351
11.95	1.0000	0.0283	0.0000	0.0000						
10	0.0679	0.0129	41.6	14.3	0.04815	-24.8	0.576	1.076	6.646	1.366
13.31	1.0000	0.0281	0.0000	0.0000						
11	0.0679	0.0132	41.6	14.4	0.04964	-24.8	0.575	1.078	6.646	1.381
14.69	1.0000	0.0282	0.0000	0.0000						
12	0.0679	0.0135	41.6	14.5	0.05121	-24.8	0.575	1.080	6.646	1.396
16.09	1.0000	0.0283	0.0000	0.0000						
13	0.0679	0.0138	41.6	14.4	0.05178	-24.8	0.575	1.080	6.646	1.411
17.50	1.0000	0.0279	0.0000	0.0000						
14	0.0679	0.0141	41.6	14.5	0.05333	-24.8	0.574	1.082	6.646	1.427
18.93	1.0000	0.0280	0.0000	0.0000						
15	0.0679	0.0144	41.6	14.4	0.05397	-24.8	0.574	1.082	6.646	1.443
20.37	1.0000	0.0276	0.0000	0.0000						
16	0.0679	0.0148	41.6	14.4	0.05547	-24.8	0.574	1.084	6.646	1.458
21.83	1.0000	0.0276	0.0000	0.0000						
17	0.0679	0.0151	41.6	14.5	0.05708	-24.8	0.573	1.086	6.646	1.475
23.30	1.0000	0.0277	0.0000	0.0000						
18	0.0679	0.0154	41.6	14.4	0.05776	-24.8	0.573	1.086	6.646	1.491
24.79	1.0000	0.0273	0.0000	0.0000						
19	0.0679	0.0158	41.6	14.4	0.05926	-24.8	0.572	1.088	6.646	1.507
26.30	1.0000	0.0273	0.0000	0.0000						
20	0.0679	0.0161	41.6	14.5	0.06095	-24.8	0.572	1.090	6.646	1.524
27.82	1.0000	0.0274	0.0000	0.0000						
21	0.0679	0.0165	41.6	14.4	0.06155	-24.8	0.572	1.090	6.646	1.540
29.37	1.0000	0.0270	0.0000	0.0000						
22	0.0679	0.0168	41.6	14.4	0.06309	-24.8	0.571	1.092	6.646	1.557
30.92	1.0000	0.0269	0.0000	0.0000						
23	0.0679	0.0172	41.6	14.4	0.06482	-24.8	0.571	1.094	6.646	1.574
32.50	1.0000	0.0270	0.0000	0.0000						
24	0.0679	0.0176	41.6	14.5	0.06650	-24.8	0.570	1.096	6.646	1.592
34.09	1.0000	0.0270	0.0000	0.0000						
25	0.0679	0.0180	41.6	14.4	0.06724	-24.8	0.570	1.096	6.646	1.609
35.70	1.0000	0.0266	0.0000	0.0000						
26	0.0679	0.0184	41.6	14.4	0.06880	-24.8	0.570	1.098	6.646	1.627
37.33	1.0000	0.0265	0.0000	0.0000						
27	0.0679	0.0188	41.6	14.4	0.07049	-24.8	0.569	1.100	6.646	1.645
38.97	1.0000	0.0265	0.0000	0.0000						

28	0.0679	0.0192	41.6	14.4	0.07213	-24.8	0.569	1.102	6.646	1.663
40.63	1.0000	0.0265	0.0000	0.0000						
29	0.0679	0.0196	41.6	14.4	0.07389	-24.8	0.568	1.104	6.646	1.681
42.31	1.0000	0.0264	0.0000	0.0000						
30	0.0679	0.0201	41.6	14.4	0.07561	-24.8	0.568	1.106	6.646	1.700
44.01	1.0000	0.0264	0.0000	0.0000						
31	0.0679	0.0205	41.6	14.5	0.07739	-24.8	0.567	1.107	6.646	1.718
45.73	1.0000	0.0263	0.0000	0.0000						
32	0.0679	0.0210	41.6	14.5	0.07919	-24.8	0.567	1.109	6.646	1.737
47.47	1.0000	0.0263	0.0000	0.0000						
33	0.0679	0.0214	41.6	14.5	0.08088	-24.8	0.566	1.111	6.646	1.757
49.23	1.0000	0.0262	0.0000	0.0000						
34	0.0679	0.0219	41.6	14.5	0.08266	-24.8	0.565	1.113	6.646	1.776
51.00	1.0000	0.0261	0.0000	0.0000						
35	0.0679	0.0224	41.6	14.4	0.08442	-24.8	0.565	1.115	6.646	1.796
52.80	1.0000	0.0260	0.0000	0.0000						
36	0.0679	0.0229	41.6	14.4	0.08623	-24.8	0.564	1.117	6.646	1.815
54.61	1.0000	0.0259	0.0000	0.0000						
37	0.0679	0.0234	41.6	14.4	0.08805	-24.8	0.564	1.119	6.646	1.835
56.45	1.0000	0.0258	0.0000	0.0000						
38	0.0679	0.0239	41.6	14.4	0.08982	-24.8	0.563	1.121	6.646	1.856
58.30	1.0000	0.0257	0.0000	0.0000						
39	0.0679	0.0244	41.6	14.4	0.09169	-24.8	0.563	1.123	6.646	1.876
60.18	1.0000	0.0256	0.0000	0.0000						
40	0.0679	0.0250	41.6	14.4	0.09348	-24.8	0.562	1.125	6.646	1.897
62.08	1.0000	0.0255	0.0000	0.0000						
41	0.0679	0.0255	41.6	14.4	0.09530	-24.8	0.562	1.127	6.646	1.917
63.99	1.0000	0.0253	0.0000	0.0000						
42	0.0679	0.0261	41.6	14.4	0.09763	-24.8	0.561	1.130	6.646	1.938
65.93	1.0000	0.0253	0.0000	0.0000						
43	0.0679	0.0267	41.6	14.4	0.10011	-24.8	0.560	1.133	6.646	1.960
67.89	1.0000	0.0253	0.0000	0.0000						
44	0.0679	0.0272	41.6	14.4	0.10221	-24.8	0.560	1.135	6.646	1.981
69.87	1.0000	0.0253	0.0000	0.0000						
45	0.0679	0.0278	41.6	14.4	0.10496	-24.8	0.559	1.138	6.646	2.003
71.88	1.0000	0.0253	0.0000	0.0000						
46	0.0679	0.0285	41.6	14.4	0.10720	-24.8	0.558	1.141	6.646	2.025
73.90	1.0000	0.0252	0.0000	0.0000						
47	0.0679	0.0291	41.6	14.5	0.10994	-24.8	0.557	1.144	6.646	2.047
75.95	1.0000	0.0253	0.0000	0.0000						
48	0.0679	0.0297	41.6	14.4	0.11214	-24.8	0.556	1.146	6.646	2.070
78.02	1.0000	0.0252	0.0000	0.0000						
49	0.0679	0.0304	41.6	14.5	0.11486	-24.8	0.556	1.150	6.646	2.093
80.11	1.0000	0.0252	0.0000	0.0000						
50	0.0679	0.0311	41.6	14.4	0.11714	-24.8	0.555	1.152	6.646	2.116
82.23	1.0000	0.0250	0.0000	0.0000						
51	0.0679	0.0318	41.6	14.4	0.11981	-24.8	0.554	1.155	6.646	2.139
84.37	1.0000	0.0250	0.0000	0.0000						
52	0.0679	0.0325	41.6	14.5	0.12280	-24.8	0.553	1.159	6.646	2.163
86.53	1.0000	0.0250	0.0000	0.0000						
53	0.0679	0.0332	41.6	14.4	0.12510	-24.8	0.552	1.161	6.646	2.187
88.72	1.0000	0.0249	0.0000	0.0000						
54	0.0679	0.0339	41.6	14.4	0.12781	-24.8	0.552	1.165	6.646	2.211
90.93	1.0000	0.0248	0.0000	0.0000						
55	0.0679	0.0347	41.6	14.4	0.13008	-24.8	0.551	1.167	6.646	2.235
93.16	1.0000	0.0247	0.0000	0.0000						
56	0.0679	0.0354	41.6	14.4	0.13275	-24.8	0.550	1.170	6.646	2.260
95.42	1.0000	0.0246	0.0000	0.0000						
57	0.0679	0.0362	41.6	14.4	0.13571	-24.8	0.549	1.174	6.646	2.284
97.71	1.0000	0.0246	0.0000	0.0000						

58	0.0679	0.0370	41.6	14.4	0.13937	-24.8	0.548	1.178	6.646	2.309
100.01	1.0000	0.0246	0.0000	0.0000						
59	0.0679	0.0378	41.6	14.4	0.14270	-24.8	0.547	1.182	6.646	2.335
102.35	1.0000	0.0246	0.0000	0.0000						
60	0.0679	0.0387	41.6	14.4	0.14570	-24.8	0.546	1.186	6.646	2.361
104.71	1.0000	0.0246	0.0000	0.0000						
61	0.0679	0.0395	41.6	14.4	0.14866	-24.8	0.545	1.189	6.646	2.387
107.10	1.0000	0.0245	0.0000	0.0000						
62	0.0679	0.0404	41.6	14.4	0.15163	-24.8	0.544	1.193	6.646	2.413
109.51	1.0000	0.0244	0.0000	0.0000						
63	0.0679	0.0413	41.6	14.4	0.15527	-24.8	0.543	1.197	6.646	2.439
111.95	1.0000	0.0244	0.0000	0.0000						
64	0.0679	0.0422	41.6	14.4	0.15861	-24.8	0.542	1.201	6.646	2.466
114.42	1.0000	0.0243	0.0000	0.0000						
65	0.0679	0.0431	41.6	14.4	0.16160	-24.8	0.541	1.205	6.646	2.493
116.91	1.0000	0.0242	0.0000	0.0000						
66	0.0679	0.0441	41.6	14.4	0.16458	-24.8	0.540	1.209	6.646	2.521
119.43	1.0000	0.0241	0.0000	0.0000						
67	0.0679	0.0451	41.6	14.4	0.16822	-24.8	0.539	1.213	6.646	2.548
121.98	1.0000	0.0241	0.0000	0.0000						
68	0.0679	0.0460	41.6	14.4	0.17220	-24.8	0.537	1.218	6.646	2.576
124.55	1.0000	0.0241	0.0000	0.0000						
69	0.0679	0.0471	41.6	14.4	0.17619	-24.8	0.536	1.223	6.646	2.604
127.16	1.0000	0.0241	0.0000	0.0000						
70	0.0679	0.0481	41.6	14.4	0.18015	-24.8	0.535	1.228	6.646	2.633
129.79	1.0000	0.0241	0.0000	0.0000						
71	0.0679	0.0492	41.6	14.4	0.18353	-24.8	0.534	1.232	6.646	2.661
132.45	1.0000	0.0240	0.0000	0.0000						
72	0.0679	0.0502	41.6	14.4	0.18770	-24.8	0.532	1.238	6.646	2.690
135.14	1.0000	0.0239	0.0000	0.0000						
73	0.0679	0.0513	41.6	14.4	0.19207	-24.8	0.531	1.243	6.646	2.720
137.86	1.0000	0.0239	0.0000	0.0000						
74	0.0679	0.0525	41.6	14.4	0.19664	-24.8	0.529	1.249	6.646	2.750
140.61	1.0000	0.0240	0.0000	0.0000						
75	0.0679	0.0536	41.6	14.4	0.20106	-24.8	0.528	1.255	6.646	2.780
143.39	1.0000	0.0239	0.0000	0.0000						
76	0.0679	0.0548	41.6	14.4	0.20564	-24.8	0.526	1.261	6.646	2.810
146.20	1.0000	0.0239	0.0000	0.0000						
77	0.0679	0.0560	41.6	14.4	0.21003	-24.8	0.525	1.267	6.646	2.841
149.04	1.0000	0.0239	0.0000	0.0000						
78	0.0679	0.0573	41.6	14.4	0.21401	-24.8	0.524	1.272	6.646	2.872
151.91	1.0000	0.0238	0.0000	0.0000						
79	0.0679	0.0585	41.6	14.4	0.21856	-24.8	0.522	1.278	6.646	2.904
154.82	1.0000	0.0237	0.0000	0.0000						
80	0.0679	0.0598	41.6	14.4	0.22354	-24.8	0.521	1.285	6.646	2.935
157.75	1.0000	0.0237	0.0000	0.0000						
81	0.0679	0.0611	41.6	14.4	0.22852	-24.8	0.519	1.291	6.646	2.967
160.72	1.0000	0.0237	0.0000	0.0000						
82	0.0679	0.0625	41.6	14.4	0.23348	-24.8	0.517	1.298	6.646	3.000
163.72	1.0000	0.0237	0.0000	0.0000						
83	0.0679	0.0638	41.6	14.4	0.23898	-24.8	0.515	1.306	6.646	3.033
166.75	1.0000	0.0237	0.0000	0.0000						
84	0.0679	0.0652	41.6	14.4	0.24445	-24.8	0.513	1.313	6.646	3.066
169.82	1.0000	0.0237	0.0000	0.0000						
85	0.0679	0.0667	41.6	14.4	0.24997	-24.8	0.512	1.321	6.646	3.099
172.92	1.0000	0.0237	0.0000	0.0000						
86	0.0679	0.0681	41.6	14.4	0.25541	-24.8	0.510	1.329	6.646	3.133
176.05	1.0000	0.0236	0.0000	0.0000						
87	0.0679	0.0696	41.6	14.4	0.26091	-24.8	0.508	1.337	6.646	3.168
179.22	1.0000	0.0236	0.0000	0.0000						

88	0.0679	0.0712	41.6	14.4	0.26639	-24.8	0.506	1.345	6.646	3.202
182.42	1.0000	0.0236	0.0000	0.0000						
89	0.0679	0.0727	41.6	14.4	0.27187	-24.8	0.504	1.352	6.646	3.237
185.66	1.0000	0.0235	0.0000	0.0000						
90	0.0679	0.0743	41.6	14.4	0.27787	-24.8	0.502	1.361	6.646	3.273
188.93	1.0000	0.0235	0.0000	0.0000						
91	0.0679	0.0760	41.6	14.4	0.28386	-24.8	0.500	1.370	6.646	3.309
192.24	1.0000	0.0235	0.0000	0.0000						
92	0.0679	0.0776	41.6	14.4	0.28983	-24.8	0.498	1.379	6.646	3.345
195.59	1.0000	0.0234	0.0000	0.0000						
93	0.0679	0.0794	41.6	14.4	0.29627	-24.8	0.496	1.389	6.646	3.381
198.97	1.0000	0.0234	0.0000	0.0000						
94	0.0679	0.0811	41.6	14.4	0.30326	-24.8	0.493	1.400	6.646	3.418
202.39	1.0000	0.0234	0.0000	0.0000						
95	0.0679	0.0829	41.6	14.4	0.31026	-24.8	0.491	1.410	6.646	3.456
205.84	1.0000	0.0234	0.0000	0.0000						
96	0.0679	0.0847	41.6	14.4	0.31677	-24.8	0.488	1.421	6.646	3.493
209.33	1.0000	0.0234	0.0000	0.0000						
97	0.0679	0.0866	41.6	14.4	0.32320	-24.8	0.486	1.431	6.646	3.532
212.87	1.0000	0.0233	0.0000	0.0000						
98	0.0679	0.0885	41.6	14.4	0.33065	-24.8	0.483	1.443	6.646	3.570
216.44	1.0000	0.0233	0.0000	0.0000						
99	0.0679	0.0904	41.6	14.4	0.33862	-24.8	0.480	1.456	6.646	3.609
220.05	1.0000	0.0234	0.0000	0.0000						
100	0.0679	0.0924	41.6	14.4	0.34616	-24.8	0.478	1.468	6.646	3.649
223.69	1.0000	0.0234	0.0000	0.0000						
101	0.0679	0.0944	41.6	14.4	0.35358	-24.8	0.475	1.481	6.646	3.689
227.38	1.0000	0.0233	0.0000	0.0000						
102	0.0679	0.0965	41.6	14.4	0.36115	-24.8	0.472	1.494	6.646	3.729
231.11	1.0000	0.0233	0.0000	0.0000						
103	0.0679	0.0986	41.6	14.4	0.36853	-24.8	0.469	1.506	6.646	3.770
234.88	1.0000	0.0233	0.0000	0.0000						
104	0.0679	0.1008	41.6	14.4	0.37652	-24.8	0.467	1.520	6.646	3.811
238.69	1.0000	0.0232	0.0000	0.0000						
105	0.0679	0.1030	41.6	14.4	0.38493	-24.8	0.463	1.535	6.646	3.853
242.55	1.0000	0.0232	0.0000	0.0000						
106	0.0679	0.1053	41.6	14.4	0.39352	-24.8	0.460	1.551	6.646	3.895
246.44	1.0000	0.0232	0.0000	0.0000						
107	0.0679	0.1076	41.6	14.4	0.40191	-24.8	0.457	1.566	6.646	3.937
250.38	1.0000	0.0232	0.0000	0.0000						
108	0.0679	0.1100	41.6	14.4	0.41091	-24.8	0.453	1.583	6.646	3.980
254.36	1.0000	0.0232	0.0000	0.0000						
109	0.0679	0.1124	41.6	14.4	0.41990	-24.8	0.450	1.601	6.646	4.024
258.38	1.0000	0.0232	0.0000	0.0000						
110	0.0679	0.1148	41.6	14.4	0.42927	-24.8	0.446	1.619	6.646	4.068
262.45	1.0000	0.0232	0.0000	0.0000						
111	0.0679	0.1174	41.6	14.4	0.43889	-24.8	0.443	1.638	6.646	4.112
266.56	1.0000	0.0232	0.0000	0.0000						
112	0.0679	0.1200	41.6	14.4	0.44826	-24.8	0.439	1.658	6.646	4.157
270.72	1.0000	0.0231	0.0000	0.0000						
113	0.0679	0.1226	41.6	14.4	0.45826	-24.8	0.435	1.679	6.646	4.203
274.92	1.0000	0.0231	0.0000	0.0000						
114	0.0679	0.1253	41.6	14.4	0.46828	-24.8	0.431	1.700	6.646	4.249
279.17	1.0000	0.0231	0.0000	0.0000						
115	0.0679	0.1280	41.6	14.4	0.47865	-24.8	0.427	1.723	6.646	4.295
283.47	1.0000	0.0231	0.0000	0.0000						
116	0.0679	0.1308	41.6	14.3	0.48572	-24.8	0.424	1.739	6.646	4.342
287.81	1.0000	0.0229	0.0000	0.0000						
117	0.0679	0.1337	41.7	14.2	0.48605	-24.8	0.424	1.739	6.646	4.389
292.20	1.0000	0.0225	0.0000	0.0000						

118	0.0679	0.1365	41.7	14.0	0.48669	-24.8	0.424	1.739	6.646	4.435
296.63	1.0000	0.0220	0.0000	0.0000						
119	0.0679	0.1393	41.7	13.9	0.48703	-24.8	0.423	1.739	6.646	4.482
301.11	1.0000	0.0216	0.0000	0.0000						
120	0.0679	0.1421	41.7	13.8	0.48770	-24.8	0.423	1.740	6.646	4.527
305.64	1.0000	0.0212	0.0000	0.0000						
121	0.0679	0.1450	41.8	13.7	0.48803	-24.8	0.423	1.740	6.646	4.573
310.21	1.0000	0.0208	0.0000	0.0000						
122	0.0679	0.1478	41.8	13.5	0.48868	-24.8	0.423	1.741	6.646	4.618
314.83	1.0000	0.0204	0.0000	0.0000						
123	0.0679	0.1507	41.8	13.4	0.48901	-24.8	0.423	1.741	6.646	4.662
319.49	1.0000	0.0200	0.0000	0.0000						
124	0.0679	0.1535	41.8	13.3	0.49004	-24.8	0.423	1.743	6.646	4.707
324.20	1.0000	0.0197	0.0000	0.0000						
125	0.0679	0.1563	41.8	13.2	0.49108	-24.8	0.422	1.745	6.646	4.751
328.95	1.0000	0.0193	0.0000	0.0000						
126	0.0679	0.1592	41.8	13.1	0.49211	-24.8	0.422	1.747	6.646	4.794
333.74	1.0000	0.0190	0.0000	0.0000						
127	0.0679	0.1621	41.9	13.0	0.49313	-24.8	0.422	1.748	6.646	4.837
338.58	1.0000	0.0187	0.0000	0.0000						
128	0.0679	0.1649	41.9	12.9	0.49416	-24.8	0.421	1.750	6.646	4.880
343.46	1.0000	0.0184	0.0000	0.0000						
129	0.0679	0.1678	41.9	12.8	0.49518	-24.8	0.421	1.752	6.646	4.923
348.39	1.0000	0.0181	0.0000	0.0000						
130	0.0679	0.1707	41.9	12.7	0.49620	-24.8	0.420	1.754	6.646	4.965
353.35	1.0000	0.0179	0.0000	0.0000						
131	0.0679	0.1736	41.9	12.6	0.49721	-24.8	0.420	1.756	6.646	5.007
358.36	1.0000	0.0176	0.0000	0.0000						
132	0.0679	0.1764	41.9	12.5	0.49823	-24.8	0.420	1.758	6.646	5.049
363.41	1.0000	0.0173	0.0000	0.0000						
133	0.0679	0.1793	41.9	12.4	0.49925	-24.8	0.419	1.760	6.646	5.091
368.50	1.0000	0.0171	0.0000	0.0000						
134	0.0679	0.1822	42.0	12.3	0.50026	-24.8	0.419	1.762	6.646	5.132
373.63	1.0000	0.0169	0.0000	0.0000						
135	0.0679	0.1852	42.0	12.2	0.50127	-24.8	0.419	1.764	6.646	5.173
378.80	1.0000	0.0166	0.0000	0.0000						
136	0.0679	0.1881	42.0	12.2	0.50229	-24.8	0.418	1.766	6.646	5.214
384.02	1.0000	0.0164	0.0000	0.0000						
137	0.0679	0.1910	42.0	12.1	0.50330	-24.8	0.418	1.768	6.646	5.255
389.27	1.0000	0.0162	0.0000	0.0000						
Cell	V	Wsyn	Sig0T	Sig0L	A10	Phi	a	m	B	L
Z	A0	RFdef	Oct	A1						
trans1	1	0.01	0	1.	0	1				!drift
trans1	1	8.67	2	1.	0	1				!drift
trans1	1	3.67	1	2.	0	0				!drift (half mhb length)
trans1	2	-0.000117	-90.	2.0	2.0	0				!mhb 4th harmonic at half freq
trans1	1	3.67	1	2.	0	0				!drift (half mhb length)
trans1	1	3.985	1	2.	0	0				!drift (half mhb length)
trans1	2	-0.000684	-90.	1.0	2.0	0				!mhb 2nd harmonic at half freq
trans1	1	3.985	1	2.	0	0				!drift (half mhb length)
trans1	1	3.32	1	2.	0	0				!drift (half mhb length)
trans1	2	.001699	-90.	0.5	2.0	0				!mhb 1st harmonic at half freq
trans1	2	.000308	-90.	1.5	2.0	0				!mhb 3rd harmonic at half freq
trans1	1	3.32	1	2.	0	0				!drift (half mhb length)
trans1	5	1.	.1	.13219	20	40	5	0	0	1 5.2876 !set scheff parameters
trans1	1	18.05	4	3.	0	1				!drift
trans1	1	3.0	0	3.	0	1				!drift
trans1	10	15470.	8.0	3.	0	0				!solenoid

```

trans1 1 3.0 0 3. 0 1 !drift
trans1 1 29.08 6 3. 0 1 !drift
trans1 1 29.08 6 3. 0 1 !drift
trans1 1 3.0 0 3. 0 1 !drift
trans1 10 -15935. 8.0 3. 0 0 !solenoid (-15470. 8.0 3. 0
0 !solenoid)
trans1 1 3.0 0 3. 0 1 !drift
trans1 1 29.08 6 3. 0 1 !drift
trans1 1 7.6 2 3. 0 1 !drift
trans1 1 3.32 1 2. 0 0 !drift (half mhb length)
trans1 2 .001817 -90. 0.5 2.0 0 !mhb 1st harmonic at half freq
trans1 1 3.32 1 2. 0 1 !drift (half mhb length)
trans1 1 9.3 2 3. 0 1 !drift
trans1 1 3.15 0 3. 0 1 !drift
trans1 10 28606. 7.7 3. 0 0 !solenoid (29090. 7.7 3. 0 0
!solenoid)
trans1 1 3.15 0 3. 0 1 !drift
trans1 1 6.27 1 3. 0 1 !drift
trans2 1 15.625 1 2.0 0 1 !drift
trans2 3 -9916. 5 2.0 0 1 !quad
trans2 1 5.0 1 2.0 0 1 !drift
trans2 3 11166. 5 2.0 0 1 !quad
trans2 1 5.0 1 2.0 0 1 !drift
trans2 3 -3581. 5 2.0 0 1 !quad
trans2 1 5.0 1 2.0 0 1 !drift
trans2 1 10.0 2 2.0 0 1 !drift
trans2 1 15.0 2 2.0 0 1 !drift
trans2 1 3.726 1 2.0 0 1 !drift
trans2 10 2271.1467 10.5482 2. 0 1 !solenoid 1
trans2 1 7.226 1 2.0 0 1 !drift
trans2 1 14.5 2 2.0 0 1 !drift
trans2 2 0.04414829 -90. 1.0 3.0 1 !cavity
trans2 1 19.8509 2 2.0 0 1 !drift
trans2 10 75954.352 10.5482 2. 0 1 !solenoid 2
trans2 1 30. 1 2.0 0 1 !drift
trans2 1 34.952 1 2.0 0 1 !drift
trans2 10 58424.327 10.5482 2. 0 1 !solenoid 3
trans2 1 19.8509 1 3.0 0 1 !drift
trans2 2 0.08901994 -90. 1.0 3.0 1 !cavity
trans2 1 37.8259 1 3.0 0 1 !drift
trans2 10 25620.85 10.5482 2. 0 1 !solenoid 4
trans2 1 21.226 3 3.0 0 1 !drift
start 0
stop 1000
elimit 0.004484
mpoles 1 0 1 0 0 0 0 0
image 0 0
input -6 20000 1.000 30 .00980 1.000 30 .00980 360. 0.
0 0 0 0 0 -0.00021
Starting the random-number generator from the system clock.
First random number = 0.309060240970211D-001
input -6 20000 1.000 30 .00980 1.000 30 .00980 360. 0.
0 0 0 0 0 0.00021
;input 4 1 0 0 0 0 0 0
Starting the random-number generator from the system clock.
First random number = 0.314903790322205D-001
scheff .00 .1 .13219 20 40 0 0 0 1 5.2876
output 2 -1 0 0 0 0 1 150 1
output 3 1 10 00 00 01 1
output 2 -1 10 05 .005 01 10 400 10

```

```

output 4 1 10 05 .005 01 1
optcon 140. 7 .6 2 0.02 2 30. 0 0.004 3
begin
Multipoles off/on: A0 A1 A10 A12 A21 A23 A30 A32
                   0 1: 1 0 1 0 0 0 0 0
Image effects: Not Included
Voltage beam dynamics (not cell design) factor = 1.00000
Voltage beam dynamics (cell 1 to cell 137) tilt factor = 1.00000 1.00000
Beam centroid at cell 0, Ngood= 40000/ 40000
X(cm),Xp(mrad)= 0.00000 0.00000
Y(cm),Yp(mrad)= 0.00000 0.00000
Phase(deg),Energy(MeV/amu)= -24.82500 0.01198

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Begin Transl section

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Doing transport element 1, Type= 1
phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg,keV) (deg)
0.00 1,x-x' 0.994 0.2981E-01 0.0083 0.00 0.00 20000 0.221
0.00 1,y-y' 0.994 0.2983E-01 0.0083 0.00 0.00 20000 0.221
0.00 1,p-dw 0.000 0.000 0.0000 -0.01 -0.21 20000 0.000
0.00 2,x-x' 1.007 0.3022E-01 0.0083 0.00 0.00 20000 0.222
0.00 2,y-y' 0.995 0.2986E-01 0.0083 0.00 0.00 20000 0.221
0.00 2,p-dw 0.000 0.000 0.0000 0.01 0.21 20000 0.000
0.00 TOTx-x 1.001 0.3002E-01 0.0083 0.00 0.00 40000 0.221
0.00 TOTy-y 0.995 0.2984E-01 0.0083 0.00 0.00 40000 0.221
0.00 TOTp-w 0.000 0.9897E+06 0.0436 0.00 0.00 40000 207.846
Doing transport element 2, Type= 1
phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg,keV) (deg)
0.09 1,x-x' 0.416 0.1759E-01 0.0083 0.00 0.00 20000 0.170
0.09 1,y-y' 0.416 0.1760E-01 0.0083 0.00 0.00 20000 0.170
0.09 1,p-dw 0.000 0.000 0.0000 0.01 -0.21 20000 0.000
0.09 2,x-x' 0.429 0.1776E-01 0.0083 0.00 0.00 20000 0.170
0.09 2,y-y' 0.417 0.1761E-01 0.0083 0.00 0.00 20000 0.170
0.09 2,p-dw 0.000 0.000 0.0000 -0.01 0.21 20000 0.000
0.09 TOTx-x 0.423 0.1768E-01 0.0083 0.00 0.00 40000 0.170
0.09 TOTy-y 0.417 0.1761E-01 0.0083 0.00 0.00 40000 0.170
0.09 TOTp-w 0.000 0.9897E+06 0.0436 0.00 0.00 40000 207.846
Doing transport element 3, Type= 1
Doing transport element 4, Type= 2
Doing transport element 5, Type= 1
Doing transport element 6, Type= 1
Doing transport element 7, Type= 2
Doing transport element 8, Type= 1
Doing transport element 9, Type= 1
Doing transport element 10, Type= 2
Doing transport element 11, Type= 2
Doing transport element 12, Type= 1
Doing transport element 13, Type= 5
Doing transport element 14, Type= 1
phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg,keV) (deg)
0.49 1,x-x' -2.248 0.9067E-01 0.0083 0.00 0.00 20000 0.386

```


0.49	1,y-y'	-2.248	0.9066E-01	0.0083	0.00	0.00	20000	0.386
0.49	1,p-dw	-1.776	0.2354E+07	0.0152	13.57	-0.21	20000	189.253
0.49	2,x-x'	-2.239	0.8986E-01	0.0083	0.00	-0.01	20000	0.385
0.49	2,y-y'	-2.245	0.9057E-01	0.0083	0.00	0.00	20000	0.386
0.49	2,p-dw	-1.777	0.2266E+07	0.0157	-13.89	0.21	20000	188.572
0.49	TOTx-x	-2.243	0.9026E-01	0.0083	0.00	0.00	40000	0.385
0.49	TOTy-y	-2.247	0.9061E-01	0.0083	0.00	0.00	40000	0.386
0.49	TOTp-w	-0.553	0.8071E+06	0.0445	-0.01	0.00	40000	189.411
Doing transport element				15,	Type=		1	
phiref = -24.843, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
0.52	1,x-x'	-2.449	0.1048	0.0083	0.00	0.00	20000	0.415
0.52	1,y-y'	-2.448	0.1047	0.0083	0.00	0.00	20000	0.415
0.52	1,p-dw	-1.707	0.2258E+07	0.0155	15.74	-0.21	20000	186.940
0.52	2,x-x'	-2.439	0.1039	0.0083	0.00	-0.01	20000	0.414
0.52	2,y-y'	-2.446	0.1046	0.0083	0.00	0.00	20000	0.415
0.52	2,p-dw	-1.719	0.2181E+07	0.0159	-16.46	0.21	20000	186.143
0.52	TOTx-x	-2.444	0.1043	0.0083	0.00	0.00	40000	0.414
0.52	TOTy-y	-2.447	0.1047	0.0083	0.00	0.00	40000	0.415
0.52	TOTp-w	-0.529	0.7900E+06	0.0444	-0.02	0.00	40000	187.236
Doing transport element				16,	Type=		10	
Doing transport element				17,	Type=		1	
phiref = -24.843, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
0.63	1,x-x'	0.502	0.1184	0.0083	0.00	0.00	20000	0.440
0.63	1,y-y'	0.508	0.1177	0.0084	0.00	0.00	20000	0.442
0.63	1,p-dw	-1.509	0.1974E+07	0.0162	26.04	-0.21	20000	178.643
0.63	2,x-x'	0.603	0.1163	0.0083	0.00	0.00	20000	0.437
0.63	2,y-y'	0.601	0.1160	0.0083	0.00	0.00	20000	0.437
0.63	2,p-dw	-1.513	0.1896E+07	0.0166	-25.50	0.21	20000	177.502
0.63	TOTx-x	0.552	0.1172	0.0083	0.00	0.00	40000	0.439
0.63	TOTy-y	0.553	0.1167	0.0084	0.00	0.00	40000	0.439
0.63	TOTp-w	-0.438	0.7324E+06	0.0442	0.01	0.00	40000	179.928
Doing transport element				18,	Type=		1	
phiref = -24.843, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
0.92	1,x-x'	0.194	0.9817E-01	0.0083	0.00	0.00	20000	0.401
0.92	1,y-y'	0.197	0.9725E-01	0.0084	0.00	0.00	20000	0.401
0.92	1,p-dw	-1.100	0.1439E+07	0.0175	54.54	-0.21	20000	158.619
0.92	2,x-x'	0.262	0.9111E-01	0.0083	0.00	0.00	20000	0.387
0.92	2,y-y'	0.259	0.9095E-01	0.0083	0.00	0.00	20000	0.387
0.92	2,p-dw	-1.100	0.1372E+07	0.0179	-55.05	0.21	20000	156.640
0.92	TOTx-x	0.228	0.9448E-01	0.0083	0.00	0.00	40000	0.394
0.92	TOTy-y	0.228	0.9399E-01	0.0084	0.00	0.00	40000	0.394
0.92	TOTp-w	-0.180	0.6323E+06	0.0440	-0.01	0.00	40000	166.885
Doing transport element				19,	Type=		1	
phiref = -24.843, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
1.21	1,x-x'	-0.113	0.9580E-01	0.0083	0.00	0.00	20000	0.396
1.21	1,y-y'	-0.114	0.9482E-01	0.0084	0.00	0.00	20000	0.396
1.21	1,p-dw	-0.770	0.1094E+07	0.0185	84.85	-0.21	20000	142.113
1.21	2,x-x'	-0.079	0.8577E-01	0.0083	0.00	0.00	20000	0.376

1.21	2,y-y'	-0.082	0.8579E-01	0.0083	0.00	0.00	20000	0.376
1.21	2,p-dw	-0.764	0.1033E+07	0.0188	-86.39	0.21	20000	139.409
1.21	TOTx-x	-0.096	0.9063E-01	0.0083	0.00	0.00	40000	0.386
1.21	TOTy-y	-0.098	0.9020E-01	0.0084	0.00	0.00	40000	0.386
1.21	TOTp-w	0.084	0.6165E+06	0.0440	-0.04	0.00	40000	164.762
Doing transport element				20,	Type=		1	
phiref = -24.843, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
1.24	1,x-x'	-0.145	0.9658E-01	0.0083	0.00	0.00	20000	0.397
1.24	1,y-y'	-0.146	0.9560E-01	0.0084	0.00	0.00	20000	0.398
1.24	1,p-dw	-0.740	0.1067E+07	0.0185	88.11	-0.21	20000	140.606
1.24	2,x-x'	-0.114	0.8635E-01	0.0083	0.00	0.00	20000	0.377
1.24	2,y-y'	-0.117	0.8639E-01	0.0083	0.00	0.00	20000	0.377
1.24	2,p-dw	-0.731	0.1006E+07	0.0189	-89.65	0.21	20000	137.906
1.24	TOTx-x	-0.129	0.9130E-01	0.0083	0.00	0.00	40000	0.387
1.24	TOTy-y	-0.131	0.9089E-01	0.0084	0.00	0.00	40000	0.388
1.24	TOTp-w	0.111	0.6198E+06	0.0440	-0.04	0.00	40000	165.207
Doing transport element				21,	Type=		10	
Doing transport element				22,	Type=		1	
phiref = -24.843, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
1.35	1,x-x'	1.984	0.6564E-01	0.0084	0.00	0.00	20000	0.329
1.35	1,y-y'	1.981	0.6552E-01	0.0083	0.00	0.00	20000	0.328
1.35	1,p-dw	-0.632	0.9783E+06	0.0188	100.74	-0.21	20000	135.520
1.35	2,x-x'	1.829	0.5832E-01	0.0084	0.00	0.01	20000	0.310
1.35	2,y-y'	1.813	0.5764E-01	0.0083	0.00	0.00	20000	0.308
1.35	2,p-dw	-0.622	0.9204E+06	0.0191	-101.35	0.21	20000	132.637
1.35	TOTx-x	1.902	0.6183E-01	0.0084	0.00	0.00	40000	0.320
1.35	TOTy-y	1.892	0.6142E-01	0.0084	0.00	0.00	40000	0.318
1.35	TOTp-w	0.212	0.6401E+06	0.0440	-0.01	0.00	40000	167.896
Doing transport element				23,	Type=		1	
phiref = -24.843, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
1.64	1,x-x'	-0.203	0.1385E-01	0.0084	0.00	0.00	20000	0.151
1.64	1,y-y'	-0.205	0.1386E-01	0.0083	0.00	0.00	20000	0.151
1.64	1,p-dw	-0.373	0.8138E+06	0.0192	133.87	-0.21	20000	124.914
1.64	2,x-x'	-0.337	0.1495E-01	0.0084	0.00	0.01	20000	0.157
1.64	2,y-y'	-0.350	0.1509E-01	0.0083	0.00	0.00	20000	0.157
1.64	2,p-dw	-0.349	0.7625E+06	0.0196	-134.19	0.21	20000	122.163
1.64	TOTx-x	-0.269	0.1437E-01	0.0084	0.00	0.00	40000	0.154
1.64	TOTy-y	-0.276	0.1444E-01	0.0084	0.00	0.00	40000	0.154
1.64	TOTp-w	0.480	0.7540E+06	0.0441	-0.01	0.00	40000	182.284
Doing transport element				24,	Type=		1	
phiref = -24.843, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
1.72	1,x-x'	-0.774	0.2127E-01	0.0084	0.00	0.00	20000	0.187
1.72	1,y-y'	-0.776	0.2132E-01	0.0083	0.00	0.00	20000	0.187
1.72	1,p-dw	-0.310	0.7853E+06	0.0192	142.70	-0.21	20000	122.910
1.72	2,x-x'	-0.903	0.2438E-01	0.0084	0.00	0.01	20000	0.200
1.72	2,y-y'	-0.915	0.2470E-01	0.0083	0.00	0.00	20000	0.201
1.72	2,p-dw	-0.280	0.7372E+06	0.0197	-142.81	0.21	20000	120.460
1.72	TOTx-x	-0.837	0.2277E-01	0.0084	0.00	0.00	40000	0.194

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1.72 TOTy-y -0.843 0.2294E-01 0.0084 0.00 0.00 40000 0.194
1.72 TOTp-w 0.550 0.7984E+06 0.0441 0.00 0.00 40000 187.584
Doing transport element 25, Type= 1
Doing transport element 26, Type= 2
Doing transport element 27, Type= 1
phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (deg,keV) (cm) (deg)
(deg/MeV) (deg-MeV)
1.78 1,x-x' -1.270 0.3496E-01 0.0083 0.00 0.00 20000 0.239
1.78 1,y-y' -1.272 0.3503E-01 0.0083 0.00 0.00 20000 0.240
1.78 1,p-dw -0.856 0.8220E+06 0.0176 147.01 -0.04 20000 120.200
1.78 2,x-x' -1.389 0.3924E-01 0.0085 0.00 0.01 20000 0.256
1.78 2,y-y' -1.401 0.3973E-01 0.0084 0.00 0.00 20000 0.257
1.78 2,p-dw -0.806 0.7529E+06 0.0184-147.07 0.03 20000 117.579
1.78 TOTx-x -1.327 0.3705E-01 0.0084 0.00 0.01 40000 0.248
1.78 TOTy-y -1.334 0.3731E-01 0.0084 0.00 0.00 40000 0.248
1.78 TOTp-w -0.259 0.9765E+06 0.0366 0.00 -0.01 40000 189.093
Doing transport element 28, Type= 1
phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (deg,keV) (cm) (deg)
(deg/MeV) (deg-MeV)
1.87 1,x-x' -1.965 0.6505E-01 0.0083 0.00 0.00 20000 0.327
1.87 1,y-y' -1.967 0.6515E-01 0.0083 0.00 0.00 20000 0.327
1.87 1,p-dw -0.741 0.7385E+06 0.0177 148.97 -0.04 20000 114.221
1.87 2,x-x' -2.083 0.7152E-01 0.0085 0.00 0.01 20000 0.345
1.87 2,y-y' -2.095 0.7225E-01 0.0084 0.00 0.00 20000 0.346
1.87 2,p-dw -0.683 0.6764E+06 0.0185-148.16 0.03 20000 111.996
1.87 TOTx-x -2.021 0.6819E-01 0.0084 0.00 0.01 40000 0.336
1.87 TOTy-y -2.027 0.6857E-01 0.0084 0.00 0.00 40000 0.337
1.87 TOTp-w -0.202 0.9523E+06 0.0366 0.02 -0.01 40000 186.723
Doing transport element 29, Type= 1
phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (deg,keV) (cm) (deg)
(deg/MeV) (deg-MeV)
1.91 1,x-x' -2.200 0.7817E-01 0.0083 0.00 0.00 20000 0.358
1.91 1,y-y' -2.202 0.7829E-01 0.0083 0.00 0.00 20000 0.358
1.91 1,p-dw -0.700 0.7136E+06 0.0177 149.47 -0.04 20000 112.539
1.91 2,x-x' -2.318 0.8539E-01 0.0085 0.00 0.01 20000 0.377
1.91 2,y-y' -2.330 0.8619E-01 0.0084 0.00 0.00 20000 0.378
1.91 2,p-dw -0.645 0.6526E+06 0.0185-148.72 0.03 20000 110.010
1.91 TOTx-x -2.256 0.8166E-01 0.0084 0.00 0.01 40000 0.368
1.91 TOTy-y -2.262 0.8208E-01 0.0084 0.00 0.00 40000 0.368
1.91 TOTp-w -0.182 0.9454E+06 0.0366 0.02 -0.01 40000 186.049
Doing transport element 30, Type= 10
Doing transport element 31, Type= 1
phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (deg,keV) (cm) (deg)
(deg/MeV) (deg-MeV)
2.01 1,x-x' 3.099 0.3740E-01 0.0083 0.00 -0.01 20000 0.247
2.01 1,y-y' 3.087 0.3715E-01 0.0084 0.00 0.01 20000 0.249
2.01 1,p-dw -0.559 0.6352E+06 0.0180 153.23 -0.05 20000 107.025
2.01 2,x-x' 3.461 0.3497E-01 0.0086 0.00 0.01 20000 0.243
2.01 2,y-y' 3.431 0.3480E-01 0.0086 0.00 0.00 20000 0.243
2.01 2,p-dw -0.507 0.5752E+06 0.0188-148.52 0.02 20000 103.879
2.01 TOTx-x 3.150 0.3471E-01 0.0088 0.00 0.00 40000 0.245
2.01 TOTy-y 3.140 0.3463E-01 0.0088 0.00 0.00 40000 0.246

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2.01 TOTp-w -0.122 0.9230E+06 0.0367 0.11 -0.02 40000 184.083
Doing transport element 32, Type= 1
phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg,keV) (deg)
2.08 1,x-x' 1.321 0.9685E-02 0.0083 0.00 -0.01 20000 0.126
2.08 1,y-y' 1.310 0.9584E-02 0.0084 0.00 0.01 20000 0.126
2.08 1,p-dw -0.483 0.5998E+06 0.0181 154.75 -0.05 20000 104.268
2.08 2,x-x' 1.134 0.6163E-02 0.0086 0.00 0.01 20000 0.102
2.08 2,y-y' 1.130 0.6204E-02 0.0086 0.00 0.00 20000 0.103
2.08 2,p-dw -0.428 0.5423E+06 0.0188-149.15 0.02 20000 100.930
2.08 TOTx-x 1.177 0.7576E-02 0.0088 0.00 0.00 40000 0.115
2.08 TOTy-y 1.174 0.7585E-02 0.0088 0.00 0.00 40000 0.115
2.08 TOTp-w -0.083 0.9157E+06 0.0367 0.14 -0.02 40000 183.352
Restoring original space-charge parameters...
Beam centroid at cell 0, Ngood= 40000/ 40000
X(cm),Xp(mrad)= 0.00005 -0.00250
Y(cm),Yp(mrad)= -0.00003 0.00194
Phase(deg),Energy(MeV/amu)= -22.04054 0.01196

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Begin RFQdyn section

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phiref = -24.843, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg,keV) (deg)
2.08 1,x-x' 1.321 0.9685E-02 0.0083 0.00 -0.01 20000 0.126
2.08 1,y-y' 1.310 0.9584E-02 0.0084 0.00 0.01 20000 0.126
2.08 1,p-dw -0.066 0.2490E+06 0.0092 4.11 -0.05 20000 47.979
2.08 2,x-x' 1.134 0.6163E-02 0.0086 0.00 0.01 20000 0.102
2.08 2,y-y' 1.130 0.6204E-02 0.0086 0.00 0.00 20000 0.103
2.08 2,p-dw -0.152 0.2356E+06 0.0094 8.96 0.02 20000 47.164
2.08 TOTx-x 1.177 0.7576E-02 0.0088 0.00 0.00 40000 0.115
2.08 TOTy-y 1.174 0.7585E-02 0.0088 0.00 0.00 40000 0.115
2.08 TOTp-w -0.116 0.2387E+06 0.0095 0.32 -0.02 40000 47.635
phiref = 65.157, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg,keV) (deg)
2.08 1,x-x' 1.274 0.1003E-01 0.0085 0.00 -0.01 20000 0.130
2.08 1,y-y' 1.385 0.1002E-01 0.0087 0.00 0.01 20000 0.131
2.08 1,p-dw -0.050 0.2486E+06 0.0092 4.31 -0.05 20000 47.939
2.08 2,x-x' 1.151 0.6718E-02 0.0089 0.00 0.00 20000 0.108
2.08 2,y-y' 1.226 0.6825E-02 0.0089 0.00 -0.01 20000 0.110
2.08 2,p-dw -0.136 0.2345E+06 0.0094 8.90 0.02 20000 47.057
2.08 TOTx-x 1.169 0.8048E-02 0.0090 0.00 0.00 40000 0.120
2.08 TOTy-y 1.263 0.8132E-02 0.0091 0.00 0.00 40000 0.121
2.08 TOTp-w -0.100 0.2379E+06 0.0095 0.32 -0.02 40000 47.555
phiref = 65.157, wref = 0.01198
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg,keV) (deg)
2.10 1,x-x' 1.036 0.7029E-02 0.0085 0.00 -0.02 20000 0.109
2.10 1,y-y' 0.876 0.6832E-02 0.0088 0.00 0.01 20000 0.109
2.10 1,p-dw -0.020 0.2481E+06 0.0092 4.71 -0.05 20000 47.893
2.10 2,x-x' 0.761 0.4245E-02 0.0089 0.00 0.03 20000 0.086
2.10 2,y-y' 0.669 0.4233E-02 0.0090 0.00 0.00 20000 0.087
2.10 2,p-dw -0.103 0.2327E+06 0.0094 8.77 0.02 20000 46.878
2.10 TOTx-x 0.865 0.5417E-02 0.0090 0.00 0.00 40000 0.098

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2.10	TOTy-y	0.748	0.5348E-02	0.0092	0.00	0.01	40000	0.099
2.10	TOTp-w	-0.068	0.2366E+06	0.0095	0.33	-0.02	40000	47.431
phiref = 65.157, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
2.11	1,x-x'	0.140	0.4690E-02	0.0090	0.00	-0.03	20000	0.091
2.11	1,y-y'	0.988	0.4837E-02	0.0090	0.00	0.01	20000	0.093
2.11	1,p-dw	0.011	0.2480E+06	0.0092	5.11	-0.05	20000	47.891
2.11	2,x-x'	-0.031	0.2875E-02	0.0091	0.00	-0.07	20000	0.072
2.11	2,y-y'	0.506	0.3028E-02	0.0091	0.00	-0.01	20000	0.074
2.11	2,p-dw	-0.071	0.2314E+06	0.0094	8.64	0.02	20000	46.748
2.11	TOTx-x	0.052	0.3656E-02	0.0094	0.00	-0.05	40000	0.082
2.11	TOTy-y	0.723	0.3811E-02	0.0093	0.00	0.00	40000	0.084
2.11	TOTp-w	-0.037	0.2358E+06	0.0095	0.33	-0.02	40000	47.356
phiref = 65.157, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
2.12	1,x-x'	1.221	0.4068E-02	0.0094	0.00	0.03	20000	0.087
2.12	1,y-y'	-0.682	0.3220E-02	0.0093	0.00	-0.02	20000	0.077
2.12	1,p-dw	0.042	0.2487E+06	0.0092	5.52	-0.05	20000	47.934
2.12	2,x-x'	0.568	0.3110E-02	0.0095	0.00	0.02	20000	0.076
2.12	2,y-y'	-0.933	0.2647E-02	0.0094	0.00	-0.03	20000	0.070
2.12	2,p-dw	-0.038	0.2305E+06	0.0094	8.52	0.02	20000	46.666
2.12	TOTx-x	0.866	0.3481E-02	0.0097	0.00	0.02	40000	0.082
2.12	TOTy-y	-0.788	0.2859E-02	0.0095	0.00	-0.02	40000	0.073
2.12	TOTp-w	-0.004	0.2355E+06	0.0095	0.34	-0.02	40000	47.328
phiref = 65.157, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
2.14	1,x-x'	-1.354	0.2571E-02	0.0100	0.00	-0.20	20000	0.071
2.14	1,y-y'	1.615	0.3942E-02	0.0106	0.00	0.03	20000	0.091
2.14	1,p-dw	0.072	0.2493E+06	0.0092	5.96	-0.06	20000	48.022
2.14	2,x-x'	-1.829	0.2732E-02	0.0116	0.00	-0.20	20000	0.079
2.14	2,y-y'	1.320	0.4210E-02	0.0112	0.00	-0.09	20000	0.096
2.14	2,p-dw	-0.005	0.2288E+06	0.0095	8.43	0.01	20000	46.633
2.14	TOTx-x	-1.581	0.2610E-02	0.0110	0.00	-0.20	40000	0.075
2.14	TOTy-y	1.436	0.4001E-02	0.0111	0.00	-0.03	40000	0.094
2.14	TOTp-w	0.028	0.2350E+06	0.0095	0.35	-0.02	40000	47.349
phiref = 65.157, wref = 0.01198								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
2.15	1,x-x'	2.425	0.4534E-02	0.0114	0.00	0.36	20000	0.101
2.15	1,y-y'	-1.493	0.1977E-02	0.0136	0.00	0.01	20000	0.073
2.15	1,p-dw	0.104	0.2504E+06	0.0093	6.43	-0.06	20000	48.155
2.15	2,x-x'	2.754	0.5584E-02	0.0139	0.00	0.18	20000	0.124
2.15	2,y-y'	-1.833	0.2189E-02	0.0187	0.00	-0.29	20000	0.090
2.15	2,p-dw	0.029	0.2272E+06	0.0096	8.39	0.00	20000	46.651
2.15	TOTx-x	2.578	0.5057E-02	0.0128	0.00	0.27	40000	0.113
2.15	TOTy-y	-1.682	0.2090E-02	0.0162	0.00	-0.14	40000	0.082
2.15	TOTp-w	0.061	0.2349E+06	0.0096	0.36	-0.03	40000	47.419
phiref = 65.344, wref = 0.01202								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
2.16	1,x-x'	-1.409	0.1745E-02	0.0148	0.00	-0.10	20000	0.071
2.16	1,y-y'	3.233	0.5480E-02	0.0121	0.00	0.14	20000	0.114

2.16	1,p-dw	0.102	0.2405E+06	0.0097	6.92	-0.07	20000	48.326
2.16	2,x-x'	-1.779	0.2131E-02	0.0210	0.00	-0.07	20000	0.094
2.16	2,y-y'	4.265	0.7164E-02	0.0156	0.00	-0.13	20000	0.148
2.16	2,p-dw	0.009	0.2377E+06	0.0092	8.39	0.00	20000	46.706
2.16	TOTx-x	-1.618	0.1961E-02	0.0180	0.00	-0.08	40000	0.083
2.16	TOTy-y	3.780	0.6371E-02	0.0140	0.00	0.01	40000	0.132
2.16	TOTp-w	0.053	0.2353E+06	0.0096	0.37	-0.03	40000	47.529
phiref = 65.500, wref = 0.01223								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.18	1,x-x'	3.479	0.5846E-02	0.0113	0.00	0.41	20000	0.114
2.18	1,y-y'	-1.507	0.1952E-02	0.0138	0.00	0.06	20000	0.073
2.18	1,p-dw	0.121	0.1806E+06	0.0131	7.62	-0.11	20000	48.613
2.18	2,x-x'	4.725	0.7583E-02	0.0146	0.00	0.12	20000	0.147
2.18	2,y-y'	-1.815	0.2596E-02	0.0170	0.00	-0.22	20000	0.093
2.18	2,p-dw	-0.075	0.2459E+06	0.0089	8.53	-0.03	20000	46.771
2.18	TOTx-x	4.128	0.6739E-02	0.0131	0.00	0.26	40000	0.131
2.18	TOTy-y	-1.655	0.2277E-02	0.0156	0.00	-0.08	40000	0.083
2.18	TOTp-w	0.039	0.2005E+06	0.0113	0.39	-0.07	40000	47.703
phiref = 65.499, wref = 0.01249								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.19	1,x-x'	-1.506	0.1944E-02	0.0129	0.00	0.06	20000	0.070
2.19	1,y-y'	3.654	0.5927E-02	0.0109	0.00	0.10	20000	0.111
2.19	1,p-dw	0.188	0.1299E+06	0.0186	8.70	-0.16	20000	49.118
2.19	2,x-x'	-1.641	0.2672E-02	0.0138	0.00	0.00	20000	0.085
2.19	2,y-y'	4.736	0.7014E-02	0.0122	0.00	0.14	20000	0.129
2.19	2,p-dw	-0.078	0.1785E+06	0.0122	8.94	-0.06	20000	46.755
2.19	TOTx-x	-1.531	0.2255E-02	0.0138	0.00	0.03	40000	0.077
2.19	TOTy-y	4.139	0.6367E-02	0.0118	0.00	0.12	40000	0.120
2.19	TOTp-w	0.079	0.1445E+06	0.0159	0.43	-0.11	40000	47.951
phiref = 65.498, wref = 0.01277								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.20	1,x-x'	3.778	0.6145E-02	0.0104	0.00	0.28	20000	0.110
2.20	1,y-y'	-1.371	0.1820E-02	0.0111	0.00	0.00	20000	0.062
2.20	1,p-dw	0.279	0.1020E+06	0.0245	10.19	-0.21	20000	50.036
2.20	2,x-x'	4.016	0.5793E-02	0.0112	0.00	-0.01	20000	0.111
2.20	2,y-y'	-0.945	0.1910E-02	0.0107	0.00	-0.03	20000	0.062
2.20	2,p-dw	-0.026	0.1248E+06	0.0175	9.66	-0.11	20000	46.750
2.20	TOTx-x	3.798	0.5804E-02	0.0111	0.00	0.13	40000	0.111
2.20	TOTy-y	-1.130	0.1812E-02	0.0112	0.00	-0.01	40000	0.062
2.20	TOTp-w	0.149	0.1088E+06	0.0216	0.48	-0.16	40000	48.422
phiref = 65.499, wref = 0.01305								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.22	1,x-x'	-1.383	0.1816E-02	0.0106	0.00	0.08	20000	0.060
2.22	1,y-y'	3.111	0.5117E-02	0.0107	0.00	0.09	20000	0.101
2.22	1,p-dw	0.397	0.8737E+05	0.0305	12.07	-0.26	20000	51.611
2.22	2,x-x'	-0.753	0.1364E-02	0.0104	0.00	0.08	20000	0.052
2.22	2,y-y'	2.197	0.3322E-02	0.0108	0.00	0.21	20000	0.083
2.22	2,p-dw	0.060	0.9405E+05	0.0234	10.71	-0.15	20000	46.935
2.22	TOTx-x	-1.046	0.1555E-02	0.0108	0.00	0.08	40000	0.056
2.22	TOTy-y	2.575	0.4091E-02	0.0111	0.00	0.15	40000	0.092
2.22	TOTp-w	0.246	0.8844E+05	0.0275	0.55	-0.21	40000	49.333
phiref = 65.502, wref = 0.01334								

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
2.23	1,x-x'	3.014	0.5032E-02	0.0107	0.00 0.22	20000	0.100
2.23	1,y-y'	-1.296	0.1637E-02	0.0114	0.00 -0.21	20000	0.059
2.23	1,p-dw	0.543	0.8119E+05	0.0361	14.33 -0.31	20000	54.104
2.23	2,x-x'	1.758	0.3090E-02	0.0113	0.00 -0.04	20000	0.081
2.23	2,y-y'	-1.076	0.1247E-02	0.0137	0.00 -0.04	20000	0.056
2.23	2,p-dw	0.175	0.7673E+05	0.0295	12.10 -0.19	20000	47.583
2.23	TOTx-x	2.296	0.3911E-02	0.0113	0.00 0.09	40000	0.091
2.23	TOTy-y	-1.163	0.1409E-02	0.0127	0.00 -0.12	40000	0.058
2.23	TOTp-w	0.372	0.7775E+05	0.0334	0.64 -0.25	40000	50.960
phiref = 65.502, wref = 0.01363							
tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
2.25	1,x-x'	-1.315	0.1671E-02	0.0117	0.00 0.06	20000	0.060
2.25	1,y-y'	2.850	0.5018E-02	0.0110	0.00 0.18	20000	0.101
2.25	1,p-dw	0.715	0.8156E+05	0.0408	16.96 -0.36	20000	57.710
2.25	2,x-x'	-1.316	0.1511E-02	0.0175	0.00 0.17	20000	0.070
2.25	2,y-y'	2.244	0.4569E-02	0.0131	0.00 0.16	20000	0.105
2.25	2,p-dw	0.320	0.6804E+05	0.0353	13.81 -0.23	20000	49.030
2.25	TOTx-x	-1.311	0.1570E-02	0.0146	0.00 0.11	40000	0.065
2.25	TOTy-y	2.477	0.4691E-02	0.0123	0.00 0.17	40000	0.103
2.25	TOTp-w	0.525	0.7400E+05	0.0388	0.74 -0.30	40000	53.569
phiref = 65.501, wref = 0.01393							
tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
2.26	1,x-x'	2.985	0.5293E-02	0.0107	0.00 0.12	20000	0.102
2.26	1,y-y'	-1.423	0.1753E-02	0.0138	0.00 0.01	20000	0.066
2.26	1,p-dw	0.907	0.8760E+05	0.0445	19.88 -0.39	20000	62.469
2.26	2,x-x'	3.024	0.5935E-02	0.0140	0.00 -0.12	20000	0.123
2.26	2,y-y'	-1.628	0.1987E-02	0.0220	0.00 0.00	20000	0.089
2.26	2,p-dw	0.491	0.6589E+05	0.0404	15.80 -0.26	20000	51.586
2.26	TOTx-x	2.969	0.5586E-02	0.0125	0.00 0.00	40000	0.113
2.26	TOTy-y	-1.546	0.1894E-02	0.0179	0.00 0.00	40000	0.079
2.26	TOTp-w	0.699	0.7596E+05	0.0433	0.86 -0.33	40000	57.322
phiref = 65.501, wref = 0.01424							
tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
2.27	1,x-x'	-1.379	0.1723E-02	0.0141	0.00 0.05	20000	0.066
2.27	1,y-y'	3.700	0.6532E-02	0.0108	0.00 0.11	20000	0.113
2.27	1,p-dw	1.107	0.9847E+05	0.0473	23.01 -0.42	20000	68.247
2.27	2,x-x'	-1.688	0.2226E-02	0.0226	0.00 0.28	20000	0.095
2.27	2,y-y'	4.751	0.8601E-02	0.0138	0.00 -0.05	20000	0.147
2.27	2,p-dw	0.685	0.6919E+05	0.0444	17.99 -0.29	20000	55.409
2.27	TOTx-x	-1.556	0.2015E-02	0.0185	0.00 0.17	40000	0.082
2.27	TOTy-y	4.244	0.7611E-02	0.0124	0.00 0.03	40000	0.131
2.27	TOTp-w	0.889	0.8283E+05	0.0467	0.99 -0.35	40000	62.211
phiref = 65.500, wref = 0.01456							
tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
2.29	1,x-x'	3.940	0.6979E-02	0.0104	0.00 -0.11	19849	0.114
2.29	1,y-y'	-1.472	0.1887E-02	0.0139	0.00 0.08	19849	0.068
2.29	1,p-dw	0.309	0.7068E+05	0.0675	13.28 -0.40	19849	69.075
2.29	2,x-x'	5.711	0.9886E-02	0.0126	0.00 -0.04	20000	0.149
2.29	2,y-y'	-1.816	0.2652E-02	0.0173	0.00 -0.07	20000	0.090

2.29	2,p-dw	0.891	0.7728E+05	0.0473	20.33	-0.30	20000	60.440
2.29	TOTx-x	4.832	0.8435E-02	0.0117	0.00	-0.07	39849	0.133
2.29	TOTy-y	-1.631	0.2267E-02	0.0159	0.00	0.01	39849	0.080
2.29	TOTp-w	0.526	0.7083E+05	0.0596	0.81	-0.35	39849	64.980
phiref = 65.502, wref = 0.01488								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.30	1,x-x'	-1.465	0.1913E-02	0.0133	0.00	-0.16	19595	0.067
2.30	1,y-y'	4.505	0.7814E-02	0.0096	0.00	-0.09	19595	0.115
2.30	1,p-dw	-0.135	0.6498E+05	0.0572	6.47	-0.36	19595	60.944
2.30	2,x-x'	-1.693	0.2711E-02	0.0137	0.00	0.16	19767	0.081
2.30	2,y-y'	6.123	0.9830E-02	0.0104	0.00	-0.11	19767	0.135
2.30	2,p-dw	0.370	0.6036E+05	0.0532	13.89	-0.26	19767	56.686
2.30	TOTx-x	-1.538	0.2257E-02	0.0138	0.00	0.00	39362	0.074
2.30	TOTy-y	5.209	0.8634E-02	0.0103	0.00	-0.10	39362	0.125
2.30	TOTp-w	0.103	0.6075E+05	0.0572	0.49	-0.31	39362	58.961
phiref = 65.501, wref = 0.01521								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.32	1,x-x'	4.369	0.7582E-02	0.0099	0.00	-0.07	19474	0.115
2.32	1,y-y'	-1.344	0.1911E-02	0.0120	0.00	0.11	19474	0.063
2.32	1,p-dw	-0.210	0.6151E+05	0.0503	6.40	-0.34	19474	55.633
2.32	2,x-x'	4.926	0.7656E-02	0.0104	0.00	-0.06	19550	0.118
2.32	2,y-y'	-1.013	0.1982E-02	0.0097	0.00	-0.15	19550	0.058
2.32	2,p-dw	-0.039	0.5288E+05	0.0462	8.45	-0.22	19550	49.448
2.32	TOTx-x	4.510	0.7383E-02	0.0105	0.00	-0.06	39024	0.116
2.32	TOTy-y	-1.175	0.1910E-02	0.0111	0.00	-0.02	39024	0.061
2.32	TOTp-w	-0.128	0.5693E+05	0.0487	0.36	-0.28	39024	52.635
phiref = 65.501, wref = 0.01554								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.33	1,x-x'	-1.297	0.1948E-02	0.0122	0.00	-0.08	19342	0.064
2.33	1,y-y'	3.477	0.5931E-02	0.0113	0.00	-0.52	19342	0.108
2.33	1,p-dw	-0.132	0.5544E+05	0.0453	8.36	-0.33	19342	50.137
2.33	2,x-x'	-0.746	0.1497E-02	0.0103	0.00	0.06	19453	0.052
2.33	2,y-y'	2.578	0.3993E-02	0.0114	0.00	0.08	19453	0.089
2.33	2,p-dw	0.017	0.4961E+05	0.0426	8.86	-0.20	19453	45.989
2.33	TOTx-x	-1.025	0.1709E-02	0.0114	0.00	-0.01	38795	0.058
2.33	TOTy-y	2.937	0.4813E-02	0.0117	0.00	-0.22	38795	0.099
2.33	TOTp-w	-0.060	0.5226E+05	0.0443	0.42	-0.26	38795	48.102
phiref = 65.502, wref = 0.01589								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.35	1,x-x'	2.953	0.5397E-02	0.0133	0.00	-0.12	19114	0.111
2.35	1,y-y'	-1.214	0.1753E-02	0.0122	0.00	0.32	19114	0.061
2.35	1,p-dw	0.132	0.4889E+05	0.0367	11.78	-0.30	19114	42.373
2.35	2,x-x'	1.811	0.3370E-02	0.0143	0.00	-0.08	19323	0.091
2.35	2,y-y'	-0.869	0.1323E-02	0.0162	0.00	-0.17	19323	0.061
2.35	2,p-dw	0.146	0.4584E+05	0.0378	9.83	-0.18	19323	41.648
2.35	TOTx-x	2.294	0.4223E-02	0.0142	0.00	-0.10	38437	0.101
2.35	TOTy-y	-1.007	0.1492E-02	0.0143	0.00	0.08	38437	0.061
2.35	TOTp-w	0.140	0.4722E+05	0.0374	0.52	-0.24	38437	42.022
phiref = 65.501, wref = 0.01624								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)

2.36	1,x-x'	-1.179	0.1786E-02	0.0130	0.00	0.10	18847	0.063
2.36	1,y-y'	2.716	0.5205E-02	0.0129	0.00	-0.43	18847	0.107
2.36	1,p-dw	0.581	0.5186E+05	0.0259	14.62	-0.26	18847	36.677
2.36	2,x-x'	-1.087	0.1505E-02	0.0211	0.00	-0.13	19085	0.073
2.36	2,y-y'	2.160	0.4796E-02	0.0152	0.00	0.00	19085	0.111
2.36	2,p-dw	0.720	0.4866E+05	0.0241	12.22	-0.14	19085	34.258
2.36	TOTx-x	-1.116	0.1603E-02	0.0172	0.00	-0.01	37932	0.068
2.36	TOTy-y	2.375	0.4902E-02	0.0143	0.00	-0.21	37932	0.109
2.36	TOTp-w	0.646	0.4999E+05	0.0252	0.65	-0.20	37932	35.501

phiref = 65.500, wref = 0.01660

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm, mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.38	1,x-x'	2.783	0.5399E-02	0.0121	0.00	-0.07	18625	0.104
2.38	1,y-y'	-1.216	0.1809E-02	0.0156	0.00	0.31	18625	0.069
2.38	1,p-dw	1.494	0.7873E+05	0.0147	16.27	-0.23	18625	34.076
2.38	2,x-x'	2.970	0.6488E-02	0.0148	0.00	0.09	18850	0.127
2.38	2,y-y'	-1.392	0.1869E-02	0.0253	0.00	0.23	18850	0.089
2.38	2,p-dw	1.178	0.6166E+05	0.0170	12.10	-0.09	18850	32.396
2.38	TOTx-x	2.834	0.5893E-02	0.0137	0.00	0.01	37475	0.116
2.38	TOTy-y	-1.322	0.1842E-02	0.0205	0.00	0.27	37475	0.080
2.38	TOTp-w	1.318	0.6901E+05	0.0161	0.68	-0.16	37475	33.307

phiref = 65.501, wref = 0.01696

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm, mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.39	1,x-x'	-1.195	0.1823E-02	0.0161	0.00	0.19	18427	0.070
2.39	1,y-y'	3.336	0.6559E-02	0.0115	0.00	-0.23	18427	0.112
2.39	1,p-dw	1.709	0.8905E+05	0.0126	16.00	-0.21	18427	33.561
2.39	2,x-x'	-1.579	0.2166E-02	0.0242	0.00	-0.13	18656	0.093
2.39	2,y-y'	4.989	0.1001E-01	0.0134	0.00	0.20	18656	0.149
2.39	2,p-dw	1.203	0.6466E+05	0.0157	10.96	-0.05	18656	31.821
2.39	TOTx-x	-1.418	0.2017E-02	0.0203	0.00	0.03	37083	0.082
2.39	TOTy-y	4.134	0.8237E-02	0.0127	0.00	-0.01	37083	0.132
2.39	TOTp-w	1.416	0.7457E+05	0.0144	0.65	-0.13	37083	32.794

phiref = 65.503, wref = 0.01734

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm, mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.41	1,x-x'	3.578	0.7153E-02	0.0107	0.00	0.01	18238	0.112
2.41	1,y-y'	-1.301	0.1980E-02	0.0164	0.00	0.33	18238	0.073
2.41	1,p-dw	1.692	0.9043E+05	0.0118	15.40	-0.18	18238	32.699
2.41	2,x-x'	6.314	0.1218E-01	0.0115	0.00	0.33	18491	0.152
2.41	2,y-y'	-1.830	0.2693E-02	0.0180	0.00	0.11	18491	0.089
2.41	2,p-dw	1.212	0.6625E+05	0.0145	9.74	-0.02	18491	30.988
2.41	TOTx-x	4.818	0.9410E-02	0.0115	0.00	0.17	36729	0.133
2.41	TOTy-y	-1.561	0.2327E-02	0.0174	0.00	0.22	36729	0.082
2.41	TOTp-w	1.417	0.7624E+05	0.0134	0.61	-0.10	36729	31.975

phiref = 65.501, wref = 0.01772

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm, mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.43	1,x-x'	-1.402	0.1996E-02	0.0145	0.00	0.20	18061	0.069
2.43	1,y-y'	4.350	0.8469E-02	0.0100	0.00	0.05	18061	0.117
2.43	1,p-dw	1.627	0.8941E+05	0.0110	14.69	-0.16	18061	31.399
2.43	2,x-x'	-1.830	0.2898E-02	0.0136	0.00	-0.01	18347	0.080
2.43	2,y-y'	6.529	0.1170E-01	0.0102	0.00	-0.07	18347	0.139
2.43	2,p-dw	1.216	0.6722E+05	0.0135	8.50	0.01	18347	30.119
2.43	TOTx-x	-1.578	0.2386E-02	0.0144	0.00	0.09	36408	0.075
2.43	TOTy-y	5.267	0.9760E-02	0.0105	0.00	-0.01	36408	0.129

2.43	TOTp-w	1.396	0.7658E+05	0.0125	0.56	-0.07	36408	30.917
phiref = 65.500, wref = 0.01811								
	tdist	state	alpha	beta	Erms	offsets	ngood	rms
	(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
				(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.44	1,x-x'	4.529	0.8841E-02	0.0097	0.00	0.08	17915	0.117
2.44	1,y-y'	-1.456	0.2073E-02	0.0118	0.00	-0.09	17915	0.063
2.44	1,p-dw	1.580	0.8868E+05	0.0105	14.13	-0.14	17915	30.519
2.44	2,x-x'	4.844	0.8486E-02	0.0113	0.00	0.07	18227	0.124
2.44	2,y-y'	-1.179	0.2301E-02	0.0096	0.00	-0.06	18227	0.060
2.44	2,p-dw	1.233	0.6846E+05	0.0128	7.34	0.02	18227	29.572
2.44	TOTx-x	4.556	0.8384E-02	0.0109	0.00	0.08	36142	0.121
2.44	TOTy-y	-1.301	0.2128E-02	0.0110	0.00	-0.08	36142	0.061
2.44	TOTp-w	1.389	0.7726E+05	0.0118	0.52	-0.06	36142	30.236
phiref = 65.500, wref = 0.01851								
	tdist	state	alpha	beta	Erms	offsets	ngood	rms
	(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
				(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.46	1,x-x'	-1.509	0.2103E-02	0.0107	0.00	0.01	17809	0.060
2.46	1,y-y'	3.882	0.7516E-02	0.0104	0.00	0.05	17809	0.111
2.46	1,p-dw	1.591	0.8843E+05	0.0106	13.88	-0.13	17809	30.598
2.46	2,x-x'	-0.784	0.1670E-02	0.0097	0.00	0.04	18107	0.051
2.46	2,y-y'	2.651	0.4696E-02	0.0117	0.00	0.00	18107	0.093
2.46	2,p-dw	1.212	0.6868E+05	0.0120	6.08	0.04	18107	28.649
2.46	TOTx-x	-1.124	0.1835E-02	0.0105	0.00	0.02	35916	0.055
2.46	TOTy-y	3.109	0.5794E-02	0.0115	0.00	0.03	35916	0.103
2.46	TOTp-w	1.393	0.7788E+05	0.0115	0.48	-0.05	35916	29.887
phiref = 65.501, wref = 0.01892								
	tdist	state	alpha	beta	Erms	offsets	ngood	rms
	(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
				(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.48	1,x-x'	3.722	0.7266E-02	0.0107	0.00	-0.14	17673	0.110
2.48	1,y-y'	-1.283	0.1859E-02	0.0105	0.00	-0.38	17673	0.055
2.48	1,p-dw	1.511	0.8556E+05	0.0102	13.23	-0.11	17673	29.593
2.48	2,x-x'	1.959	0.3942E-02	0.0121	0.00	-0.08	17989	0.086
2.48	2,y-y'	-0.856	0.1284E-02	0.0127	0.00	-0.10	17989	0.051
2.48	2,p-dw	1.151	0.6810E+05	0.0110	4.77	0.05	17989	27.426
2.48	TOTx-x	2.651	0.5236E-02	0.0119	0.00	-0.11	35662	0.099
2.48	TOTy-y	-1.029	0.1515E-02	0.0118	0.00	-0.24	35662	0.053
2.48	TOTp-w	1.330	0.7672E+05	0.0108	0.43	-0.03	35662	28.833
phiref = 65.502, wref = 0.01934								
	tdist	state	alpha	beta	Erms	offsets	ngood	rms
	(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
				(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.49	1,x-x'	-1.228	0.1881E-02	0.0110	0.00	0.03	17556	0.057
2.49	1,y-y'	3.164	0.6431E-02	0.0108	0.00	0.59	17556	0.104
2.49	1,p-dw	1.444	0.8259E+05	0.0101	12.69	-0.10	17556	28.878
2.49	2,x-x'	-1.095	0.1516E-02	0.0167	0.00	0.24	17912	0.063
2.49	2,y-y'	2.159	0.5314E-02	0.0122	0.00	-0.14	17912	0.100
2.49	2,p-dw	1.155	0.6867E+05	0.0109	3.84	0.05	17912	27.338
2.49	TOTx-x	-1.139	0.1648E-02	0.0140	0.00	0.14	35468	0.060
2.49	TOTy-y	2.535	0.5634E-02	0.0119	0.00	0.22	35468	0.102
2.49	TOTp-w	1.302	0.7588E+05	0.0107	0.40	-0.03	35468	28.457
phiref = 65.502, wref = 0.01977								
	tdist	state	alpha	beta	Erms	offsets	ngood	rms
	(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
				(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.51	1,x-x'	3.110	0.6444E-02	0.0105	0.00	0.03	17415	0.102
2.51	1,y-y'	-1.245	0.1826E-02	0.0127	0.00	-0.22	17415	0.060
2.51	1,p-dw	1.285	0.7811E+05	0.0094	11.80	-0.08	17415	27.042

2.51	2,x-x'	2.966	0.7263E-02	0.0123	0.00	0.09	17832	0.117
2.51	2,y-y'	-1.520	0.2046E-02	0.0207	0.00	-0.25	17832	0.081
2.51	2,p-dw	1.124	0.6822E+05	0.0107	2.86	0.05	17832	26.956
2.51	TOTx-x	2.934	0.6668E-02	0.0118	0.00	0.06	35247	0.110
2.51	TOTy-y	-1.412	0.1957E-02	0.0168	0.00	-0.24	35247	0.071
2.51	TOTp-w	1.207	0.7359E+05	0.0102	0.35	-0.01	35247	27.366

phiref = 65.502, wref = 0.02021

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.53	1,x-x'	-1.249	0.1852E-02	0.0129	0.00	0.09	17326	0.060
2.53	1,y-y'	3.464	0.7502E-02	0.0103	0.00	0.68	17326	0.109
2.53	1,p-dw	1.217	0.7516E+05	0.0093	11.35	-0.07	17326	26.420
2.53	2,x-x'	-1.781	0.2464E-02	0.0200	0.00	0.32	17746	0.087
2.53	2,y-y'	5.260	0.1190E-01	0.0112	0.00	-0.01	17746	0.142
2.53	2,p-dw	1.055	0.6713E+05	0.0102	1.82	0.05	17746	26.206
2.53	TOTx-x	-1.559	0.2203E-02	0.0167	0.00	0.21	35072	0.075
2.53	TOTy-y	4.275	0.9519E-02	0.0111	0.00	0.34	35072	0.127
2.53	TOTp-w	1.139	0.7187E+05	0.0099	0.32	-0.01	35072	26.740

phiref = 65.503, wref = 0.02066

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.54	1,x-x'	3.680	0.8046E-02	0.0096	0.00	0.11	17237	0.108
2.54	1,y-y'	-1.492	0.2100E-02	0.0130	0.00	-0.39	17237	0.064
2.54	1,p-dw	1.137	0.7197E+05	0.0091	10.85	-0.06	17237	25.651
2.54	2,x-x'	6.646	0.1444E-01	0.0100	0.00	-0.05	17669	0.147
2.54	2,y-y'	-2.045	0.3142E-02	0.0162	0.00	-0.12	17669	0.088
2.54	2,p-dw	0.980	0.6611E+05	0.0098	0.85	0.05	17669	25.476
2.54	TOTx-x	4.991	0.1087E-01	0.0102	0.00	0.03	34906	0.129
2.54	TOTy-y	-1.762	0.2624E-02	0.0150	0.00	-0.25	34906	0.077
2.54	TOTp-w	1.060	0.6998E+05	0.0097	0.28	0.00	34906	26.047

phiref = 65.503, wref = 0.02111

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.56	1,x-x'	-1.563	0.2156E-02	0.0123	0.00	-0.03	17160	0.063
2.56	1,y-y'	4.533	0.9745E-02	0.0093	0.00	0.30	17160	0.116
2.56	1,p-dw	1.080	0.6906E+05	0.0092	10.42	-0.05	17160	25.144
2.56	2,x-x'	-2.049	0.3402E-02	0.0129	0.00	0.09	17602	0.081
2.56	2,y-y'	6.845	0.1375E-01	0.0096	0.00	0.05	17602	0.140
2.56	2,p-dw	0.911	0.6534E+05	0.0095	0.01	0.04	17602	24.902
2.56	TOTx-x	-1.747	0.2697E-02	0.0131	0.00	0.03	34762	0.072
2.56	TOTy-y	5.541	0.1143E-01	0.0098	0.00	0.17	34762	0.129
2.56	TOTp-w	0.992	0.6823E+05	0.0096	0.25	0.00	34762	25.557

phiref = 65.503, wref = 0.02158

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.58	1,x-x'	4.647	0.1008E-01	0.0092	0.00	0.06	17084	0.117
2.58	1,y-y'	-1.622	0.2331E-02	0.0109	0.00	-0.04	17084	0.061
2.58	1,p-dw	1.013	0.6608E+05	0.0091	9.96	-0.04	17084	24.472
2.58	2,x-x'	5.437	0.1058E-01	0.0103	0.00	-0.20	17552	0.127
2.58	2,y-y'	-1.374	0.2830E-02	0.0096	0.00	-0.01	17552	0.063
2.58	2,p-dw	0.875	0.6474E+05	0.0095	-0.60	0.02	17552	24.838
2.58	TOTx-x	4.890	0.9981E-02	0.0101	0.00	-0.07	34636	0.122
2.58	TOTy-y	-1.445	0.2470E-02	0.0107	0.00	-0.03	34636	0.062
2.58	TOTp-w	0.932	0.6635E+05	0.0096	0.22	-0.01	34636	25.217

phiref = 65.503, wref = 0.02206

tdist	state	alpha	beta	Erms	offsets	ngood	rms
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(m)		(cm/mr)	(cm-mr)	(cm,mr)			(cm)
		(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.60	1,x-x'	-1.625	0.2338E-02	0.0104	0.00	-0.15	17000 0.059
2.60	1,y-y'	4.434	0.9385E-02	0.0093	0.00	0.10	17000 0.113
2.60	1,p-dw	0.919	0.6286E+05	0.0087	9.39	-0.03	17000 23.440
2.60	2,x-x'	-0.907	0.2102E-02	0.0094	0.00	-0.08	17491 0.054
2.60	2,y-y'	2.883	0.5580E-02	0.0117	0.00	0.00	17491 0.098
2.60	2,p-dw	0.785	0.6328E+05	0.0093	-1.25	0.01	17491 24.222
2.60	TOTx-x	-1.225	0.2132E-02	0.0103	0.00	-0.11	34491 0.057
2.60	TOTy-y	3.403	0.6919E-02	0.0110	0.00	0.05	34491 0.105
2.60	TOTp-w	0.830	0.6390E+05	0.0093	0.19	-0.01	34491 24.426
phiref = 65.502, wref = 0.02255							
tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.61	1,x-x'	4.379	0.9319E-02	0.0093	0.00	0.08	16935 0.112
2.61	1,y-y'	-1.363	0.2047E-02	0.0097	0.00	0.35	16935 0.054
2.61	1,p-dw	0.864	0.6015E+05	0.0087	8.96	-0.03	16935 22.846
2.61	2,x-x'	2.143	0.4443E-02	0.0114	0.00	-0.16	17451 0.085
2.61	2,y-y'	-0.816	0.1457E-02	0.0113	0.00	0.07	17451 0.049
2.61	2,p-dw	0.742	0.6145E+05	0.0096	-1.59	-0.02	17451 24.253
2.61	TOTx-x	2.929	0.6173E-02	0.0111	0.00	-0.04	34386 0.099
2.61	TOTy-y	-1.046	0.1694E-02	0.0107	0.00	0.21	34386 0.051
2.61	TOTp-w	0.769	0.6135E+05	0.0095	0.17	-0.02	34386 24.154
phiref = 65.502, wref = 0.02305							
tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.63	1,x-x'	-1.320	0.2036E-02	0.0098	0.00	-0.12	16859 0.053
2.63	1,y-y'	3.571	0.7791E-02	0.0096	0.00	-0.06	16859 0.103
2.63	1,p-dw	0.755	0.5735E+05	0.0082	8.39	-0.02	16859 21.645
2.63	2,x-x'	-1.080	0.1632E-02	0.0141	0.00	-0.11	17398 0.057
2.63	2,y-y'	1.928	0.5271E-02	0.0112	0.00	-0.16	17398 0.091
2.63	2,p-dw	0.658	0.5873E+05	0.0096	-1.96	-0.04	17398 23.785
2.63	TOTx-x	-1.170	0.1785E-02	0.0120	0.00	-0.11	34257 0.055
2.63	TOTy-y	2.521	0.6048E-02	0.0110	0.00	-0.11	34257 0.097
2.63	TOTp-w	0.663	0.5844E+05	0.0093	0.15	-0.03	34257 23.338
phiref = 65.501, wref = 0.02356							
tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.65	1,x-x'	3.482	0.7690E-02	0.0096	0.00	0.00	16799 0.102
2.65	1,y-y'	-1.309	0.1871E-02	0.0104	0.00	0.50	16799 0.052
2.65	1,p-dw	0.672	0.5503E+05	0.0078	7.95	-0.01	16799 20.751
2.65	2,x-x'	2.641	0.7348E-02	0.0111	0.00	-0.07	17343 0.107
2.65	2,y-y'	-1.612	0.2197E-02	0.0171	0.00	0.09	17343 0.073
2.65	2,p-dw	0.558	0.5557E+05	0.0096	-2.26	-0.07	17343 23.063
2.65	TOTx-x	2.854	0.7082E-02	0.0109	0.00	-0.03	34142 0.104
2.65	TOTy-y	-1.494	0.2069E-02	0.0139	0.00	0.29	34142 0.063
2.65	TOTp-w	0.563	0.5552E+05	0.0092	0.13	-0.04	34142 22.541
phiref = 65.501, wref = 0.02408							
tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
2.67	1,x-x'	-1.312	0.1902E-02	0.0106	0.00	-0.07	16749 0.053
2.67	1,y-y'	3.593	0.8361E-02	0.0095	0.00	-0.33	16749 0.105
2.67	1,p-dw	0.608	0.5293E+05	0.0076	7.57	-0.01	16749 20.055
2.67	2,x-x'	-1.828	0.2603E-02	0.0179	0.00	-0.25	17299 0.080
2.67	2,y-y'	5.110	0.1301E-01	0.0101	0.00	-0.16	17299 0.135
2.67	2,p-dw	0.488	0.5227E+05	0.0097	-2.38	-0.09	17299 22.559

2.67	TOTx-x	-1.622	0.2321E-02	0.0145	0.00	-0.16	34048	0.068
2.67	TOTy-y	4.209	0.1035E-01	0.0102	0.00	-0.25	34048	0.121
2.67	TOTp-w	0.490	0.5259E+05	0.0091	0.12	-0.05	34048	21.936
phiref = 65.500, wref = 0.02462								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.69	1,x-x'	3.674	0.8691E-02	0.0091	0.00	-0.13	16704	0.104
2.69	1,y-y'	-1.573	0.2183E-02	0.0112	0.00	0.27	16704	0.058
2.69	1,p-dw	0.550	0.5093E+05	0.0074	7.23	0.00	16704	19.407
2.69	2,x-x'	6.644	0.1614E-01	0.0094	0.00	0.04	17238	0.144
2.69	2,y-y'	-2.208	0.3360E-02	0.0151	0.00	0.08	17238	0.084
2.69	2,p-dw	0.356	0.4900E+05	0.0092	-2.60	-0.10	17238	21.236
2.69	TOTx-x	4.957	0.1193E-01	0.0097	0.00	-0.05	33942	0.126
2.69	TOTy-y	-1.892	0.2794E-02	0.0135	0.00	0.18	33942	0.072
2.69	TOTp-w	0.388	0.4984E+05	0.0088	0.11	-0.05	33942	20.942
phiref = 65.499, wref = 0.02516								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.71	1,x-x'	-1.628	0.2239E-02	0.0108	0.00	0.04	16665	0.057
2.71	1,y-y'	4.501	0.1064E-01	0.0091	0.00	-0.38	16665	0.115
2.71	1,p-dw	0.512	0.4893E+05	0.0073	6.94	0.00	16665	18.919
2.71	2,x-x'	-2.184	0.3560E-02	0.0130	0.00	-0.10	17199	0.079
2.71	2,y-y'	7.489	0.1668E-01	0.0093	0.00	-0.01	17199	0.145
2.71	2,p-dw	0.288	0.4586E+05	0.0092	-2.56	-0.12	17199	20.488
2.71	TOTx-x	-1.863	0.2858E-02	0.0124	0.00	-0.03	33864	0.069
2.71	TOTy-y	5.799	0.1320E-01	0.0096	0.00	-0.19	33864	0.131
2.71	TOTp-w	0.330	0.4702E+05	0.0088	0.10	-0.06	33864	20.294
phiref = 65.499, wref = 0.02571								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.73	1,x-x'	4.694	0.1122E-01	0.0088	0.00	-0.17	16627	0.115
2.73	1,y-y'	-1.692	0.2490E-02	0.0106	0.00	0.05	16627	0.060
2.73	1,p-dw	0.473	0.4690E+05	0.0072	6.64	0.00	16627	18.392
2.73	2,x-x'	6.248	0.1344E-01	0.0101	0.00	0.13	17163	0.135
2.73	2,y-y'	-1.631	0.3207E-02	0.0099	0.00	0.01	17163	0.065
2.73	2,p-dw	0.239	0.4262E+05	0.0092	-2.42	-0.14	17163	19.770
2.73	TOTx-x	5.304	0.1191E-01	0.0099	0.00	-0.02	33790	0.126
2.73	TOTy-y	-1.603	0.2741E-02	0.0106	0.00	0.03	33790	0.063
2.73	TOTp-w	0.281	0.4414E+05	0.0087	0.10	-0.07	33790	19.634
phiref = 65.500, wref = 0.02628								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.75	1,x-x'	-1.727	0.2511E-02	0.0101	0.00	0.13	16588	0.058
2.75	1,y-y'	4.939	0.1143E-01	0.0087	0.00	-0.15	16588	0.115
2.75	1,p-dw	0.427	0.4477E+05	0.0071	6.33	0.01	16588	17.779
2.75	2,x-x'	-1.119	0.2488E-02	0.0093	0.00	-0.07	17121	0.055
2.75	2,y-y'	3.831	0.7826E-02	0.0105	0.00	0.10	17121	0.105
2.75	2,p-dw	0.160	0.3942E+05	0.0088	-2.28	-0.16	17121	18.648
2.75	TOTx-x	-1.372	0.2396E-02	0.0101	0.00	0.03	33709	0.057
2.75	TOTy-y	4.107	0.8956E-02	0.0101	0.00	-0.02	33709	0.110
2.75	TOTp-w	0.217	0.4129E+05	0.0085	0.09	-0.08	33709	18.727
phiref = 65.501, wref = 0.02686								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.77	1,x-x'	5.019	0.1167E-01	0.0086	0.00	-0.25	16546	0.115

2.77	1,y-y'	-1.460	0.2276E-02	0.0095	0.00	-0.15	16546	0.053
2.77	1,p-dw	0.340	0.4285E+05	0.0066	5.96	0.01	16546	16.830
2.77	2,x-x'	2.667	0.5670E-02	0.0107	0.00	0.08	17090	0.089
2.77	2,y-y'	-0.734	0.1492E-02	0.0098	0.00	-0.09	17090	0.044
2.77	2,p-dw	0.130	0.3627E+05	0.0088	-1.98	-0.18	17090	17.838
2.77	TOTx-x	3.430	0.7699E-02	0.0104	0.00	-0.08	33636	0.103
2.77	TOTy-y	-1.053	0.1815E-02	0.0099	0.00	-0.12	33636	0.049
2.77	TOTp-w	0.159	0.3853E+05	0.0082	0.09	-0.08	33636	17.798

phiref = 65.501, wref = 0.02745

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.79	1,x-x'	-1.464	0.2262E-02	0.0091	0.00	0.12	16513	0.052
2.79	1,y-y'	4.089	0.9564E-02	0.0089	0.00	0.13	16513	0.105
2.79	1,p-dw	0.276	0.4099E+05	0.0063	5.67	0.02	16513	16.093
2.79	2,x-x'	-0.918	0.1478E-02	0.0118	0.00	0.12	17051	0.048
2.79	2,y-y'	1.942	0.5375E-02	0.0099	0.00	0.26	17051	0.083
2.79	2,p-dw	0.070	0.3315E+05	0.0083	-1.71	-0.19	17051	16.611
2.79	TOTx-x	-1.125	0.1773E-02	0.0107	0.00	0.12	33564	0.050
2.79	TOTy-y	2.750	0.6851E-02	0.0100	0.00	0.20	33564	0.095
2.79	TOTp-w	0.099	0.3590E+05	0.0078	0.09	-0.09	33564	16.769

phiref = 65.502, wref = 0.02806

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.81	1,x-x'	4.041	0.9494E-02	0.0088	0.00	-0.13	16485	0.104
2.81	1,y-y'	-1.369	0.1969E-02	0.0090	0.00	-0.27	16485	0.048
2.81	1,p-dw	0.219	0.3918E+05	0.0061	5.41	0.02	16485	15.420
2.81	2,x-x'	2.577	0.7675E-02	0.0098	0.00	0.05	17019	0.099
2.81	2,y-y'	-1.557	0.1941E-02	0.0140	0.00	-0.07	17019	0.059
2.81	2,p-dw	0.031	0.3036E+05	0.0079	-1.36	-0.20	17019	15.485
2.81	TOTx-x	3.027	0.7918E-02	0.0100	0.00	-0.04	33504	0.101
2.81	TOTy-y	-1.477	0.1942E-02	0.0116	0.00	-0.16	33504	0.054
2.81	TOTp-w	0.055	0.3350E+05	0.0075	0.10	-0.09	33504	15.819

phiref = 65.502, wref = 0.02868

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.83	1,x-x'	-1.340	0.1977E-02	0.0091	0.00	0.08	16463	0.048
2.83	1,y-y'	3.679	0.9196E-02	0.0091	0.00	0.18	16463	0.103
2.83	1,p-dw	0.189	0.3731E+05	0.0060	5.20	0.02	16463	14.921
2.83	2,x-x'	-1.918	0.2389E-02	0.0145	0.00	0.16	16999	0.066
2.83	2,y-y'	5.378	0.1484E-01	0.0093	0.00	0.21	16999	0.133
2.83	2,p-dw	0.062	0.2810E+05	0.0078	-0.89	-0.20	16999	14.843
2.83	TOTx-x	-1.677	0.2205E-02	0.0120	0.00	0.12	33462	0.058
2.83	TOTy-y	4.326	0.1150E-01	0.0097	0.00	0.19	33462	0.119
2.83	TOTp-w	0.063	0.3134E+05	0.0074	0.10	-0.09	33462	15.190

phiref = 65.503, wref = 0.02932

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
2.85	1,x-x'	3.632	0.9242E-02	0.0090	0.00	0.02	16444	0.102
2.85	1,y-y'	-1.575	0.2188E-02	0.0100	0.00	-0.35	16444	0.052
2.85	1,p-dw	0.170	0.3549E+05	0.0059	5.02	0.02	16444	14.476
2.85	2,x-x'	7.199	0.1897E-01	0.0089	0.00	-0.09	16972	0.146
2.85	2,y-y'	-2.456	0.3339E-02	0.0131	0.00	-0.07	16972	0.074
2.85	2,p-dw	0.065	0.2597E+05	0.0074	-0.49	-0.19	16972	13.877
2.85	TOTx-x	5.078	0.1323E-01	0.0096	0.00	-0.04	33416	0.126
2.85	TOTy-y	-2.037	0.2789E-02	0.0119	0.00	-0.21	33416	0.065
2.85	TOTp-w	0.062	0.2944E+05	0.0071	0.11	-0.09	33416	14.440

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phiref = 65.503, wref = 0.02997
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
2.87 1,x-x' -1.548 0.2189E-02 0.0103 0.00 -0.01 16422 0.053
2.87 1,y-y' 4.504 0.1162E-01 0.0089 0.00 0.30 16422 0.114
2.87 1,p-dw 0.146 0.3363E+05 0.0058 4.81 0.02 16422 13.935
2.87 2,x-x' -2.580 0.3772E-02 0.0115 0.00 0.22 16945 0.073
2.87 2,y-y' 8.708 0.2116E-01 0.0088 0.00 0.08 16945 0.153
2.87 2,p-dw 0.065 0.2410E+05 0.0069 -0.13 -0.19 16945 12.855
2.87 TOTx-x -2.023 0.2925E-02 0.0113 0.00 0.11 33367 0.064
2.87 TOTy-y 6.238 0.1547E-01 0.0094 0.00 0.19 33367 0.135
2.87 TOTp-w 0.057 0.2771E+05 0.0067 0.11 -0.08 33367 13.623
phiref = 65.502, wref = 0.03063
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
2.89 1,x-x' 4.709 0.1229E-01 0.0086 0.00 0.14 16402 0.114
2.89 1,y-y' -1.717 0.2542E-02 0.0104 0.00 -0.10 16402 0.057
2.89 1,p-dw 0.129 0.3189E+05 0.0056 4.61 0.03 16402 13.413
2.89 2,x-x' 7.779 0.1825E-01 0.0094 0.00 -0.26 16929 0.145
2.89 2,y-y' -2.035 0.3652E-02 0.0094 0.00 -0.01 16929 0.065
2.89 2,p-dw 0.123 0.2305E+05 0.0066 0.30 -0.18 16929 12.366
2.89 TOTx-x 5.921 0.1444E-01 0.0096 0.00 -0.06 33331 0.131
2.89 TOTy-y -1.813 0.2983E-02 0.0102 0.00 -0.05 33331 0.061
2.89 TOTp-w 0.085 0.2638E+05 0.0065 0.12 -0.08 33331 13.070
phiref = 65.502, wref = 0.03131
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
2.91 1,x-x' -1.765 0.2600E-02 0.0100 0.00 -0.21 16384 0.056
2.91 1,y-y' 5.290 0.1340E-01 0.0085 0.00 0.24 16384 0.118
2.91 1,p-dw 0.123 0.3026E+05 0.0055 4.42 0.03 16384 12.935
2.91 2,x-x' -1.411 0.2978E-02 0.0090 0.00 0.07 16913 0.057
2.91 2,y-y' 5.080 0.1121E-01 0.0097 0.00 -0.01 16913 0.115
2.91 2,p-dw 0.182 0.2238E+05 0.0064 0.69 -0.17 16913 11.941
2.91 TOTx-x -1.529 0.2670E-02 0.0099 0.00 -0.07 33297 0.057
2.91 TOTy-y 4.856 0.1146E-01 0.0097 0.00 0.11 33297 0.117
2.91 TOTp-w 0.119 0.2532E+05 0.0063 0.12 -0.07 33297 12.579
phiref = 65.503, wref = 0.03201
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
2.93 1,x-x' 5.420 0.1381E-01 0.0084 0.00 0.15 16367 0.118
2.93 1,y-y' -1.589 0.2542E-02 0.0093 0.00 0.04 16367 0.053
2.93 1,p-dw 0.118 0.2877E+05 0.0054 4.24 0.03 16367 12.448
2.93 2,x-x' 3.578 0.7918E-02 0.0096 0.00 -0.18 16894 0.096
2.93 2,y-y' -0.672 0.1687E-02 0.0095 0.00 0.05 16894 0.044
2.93 2,p-dw 0.231 0.2189E+05 0.0060 1.02 -0.16 16894 11.466
2.93 TOTx-x 4.080 0.9800E-02 0.0097 0.00 -0.02 33261 0.107
2.93 TOTy-y -1.069 0.2008E-02 0.0098 0.00 0.04 33261 0.049
2.93 TOTp-w 0.145 0.2444E+05 0.0060 0.13 -0.06 33261 12.067
phiref = 65.503, wref = 0.03272
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
2.95 1,x-x' -1.617 0.2571E-02 0.0088 0.00 -0.16 16353 0.052
2.95 1,y-y' 4.581 0.1157E-01 0.0086 0.00 0.07 16353 0.109
2.95 1,p-dw 0.140 0.2742E+05 0.0054 4.08 0.03 16353 12.119
2.95 2,x-x' -0.745 0.1376E-02 0.0103 0.00 0.00 16879 0.041

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2.95	2,y-y'	2.076	0.5746E-02	0.0092	0.00	-0.10	16879	0.079
2.95	2,p-dw	0.290	0.2202E+05	0.0057	1.34	-0.14	16879	11.217
2.95	TOTx-x	-1.085	0.1824E-02	0.0101	0.00	-0.08	33232	0.047
2.95	TOTy-y	3.050	0.7947E-02	0.0095	0.00	-0.01	33232	0.095
2.95	TOTp-w	0.190	0.2398E+05	0.0058	0.13	-0.06	33232	11.749
phiref = 65.502, wref = 0.03344								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
2.98	1,x-x'	4.516	0.1147E-01	0.0085	0.00	0.18	16335	0.108
2.98	1,y-y'	-1.371	0.2164E-02	0.0088	0.00	0.20	16335	0.047
2.98	1,p-dw	0.136	0.2611E+05	0.0052	3.88	0.04	16335	11.602
2.98	2,x-x'	2.508	0.7890E-02	0.0090	0.00	0.03	16868	0.092
2.98	2,y-y'	-1.406	0.1698E-02	0.0122	0.00	0.14	16868	0.049
2.98	2,p-dw	0.365	0.2284E+05	0.0055	1.65	-0.13	16868	11.244
2.98	TOTx-x	3.214	0.8894E-02	0.0095	0.00	0.10	33203	0.100
2.98	TOTy-y	-1.359	0.1846E-02	0.0108	0.00	0.17	33203	0.048
2.98	TOTp-w	0.232	0.2379E+05	0.0055	0.13	-0.05	33203	11.475
phiref = 65.501, wref = 0.03419								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.00	1,x-x'	-1.329	0.2155E-02	0.0088	0.00	-0.04	16323	0.047
3.00	1,y-y'	3.827	0.1024E-01	0.0088	0.00	-0.15	16323	0.102
3.00	1,p-dw	0.168	0.2517E+05	0.0051	3.73	0.04	16323	11.334
3.00	2,x-x'	-1.985	0.2282E-02	0.0117	0.00	-0.14	16849	0.056
3.00	2,y-y'	5.273	0.1592E-01	0.0088	0.00	-0.15	16849	0.128
3.00	2,p-dw	0.388	0.2334E+05	0.0051	1.85	-0.11	16849	10.950
3.00	TOTx-x	-1.645	0.2146E-02	0.0107	0.00	-0.09	33172	0.052
3.00	TOTy-y	4.304	0.1238E-01	0.0093	0.00	-0.15	33172	0.116
3.00	TOTp-w	0.260	0.2377E+05	0.0053	0.13	-0.04	33172	11.180
phiref = 65.500, wref = 0.03494								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.02	1,x-x'	3.776	0.1026E-01	0.0086	0.00	0.11	16312	0.101
3.02	1,y-y'	-1.478	0.2201E-02	0.0097	0.00	0.30	16312	0.050
3.02	1,p-dw	0.213	0.2449E+05	0.0051	3.58	0.03	16312	11.157
3.02	2,x-x'	7.080	0.2046E-01	0.0088	0.00	0.12	16835	0.144
3.02	2,y-y'	-2.763	0.3581E-02	0.0112	0.00	0.12	16835	0.068
3.02	2,p-dw	0.406	0.2435E+05	0.0049	2.01	-0.08	16835	10.873
3.02	TOTx-x	5.111	0.1447E-01	0.0093	0.00	0.11	33147	0.125
3.02	TOTy-y	-2.095	0.2841E-02	0.0108	0.00	0.21	33147	0.060
3.02	TOTp-w	0.294	0.2409E+05	0.0051	0.13	-0.02	33147	11.041
phiref = 65.500, wref = 0.03571								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.04	1,x-x'	-1.497	0.2204E-02	0.0095	0.00	0.05	16295	0.049
3.04	1,y-y'	4.417	0.1243E-01	0.0087	0.00	-0.25	16295	0.111
3.04	1,p-dw	0.226	0.2370E+05	0.0049	3.40	0.04	16295	10.760
3.04	2,x-x'	-3.014	0.4288E-02	0.0100	0.00	-0.12	16826	0.070
3.04	2,y-y'	8.889	0.2383E-01	0.0091	0.00	-0.14	16826	0.157
3.04	2,p-dw	0.419	0.2573E+05	0.0047	2.14	-0.06	16826	11.007
3.04	TOTx-x	-2.165	0.3114E-02	0.0103	0.00	-0.04	33121	0.061
3.04	TOTy-y	6.329	0.1723E-01	0.0094	0.00	-0.19	33121	0.136
3.04	TOTp-w	0.312	0.2446E+05	0.0049	0.13	-0.01	33121	10.904
phiref = 65.501, wref = 0.03650								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)

			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
3.07	1,x-x'	4.562	0.1304E-01	0.0084	0.00	-0.05	16279 0.111
3.07	1,y-y'	-1.758	0.2646E-02	0.0098	0.00	0.17	16279 0.054
3.07	1,p-dw	0.242	0.2310E+05	0.0047	3.22	0.04	16279 10.407
3.07	2,x-x'	8.519	0.2211E-01	0.0092	0.00	0.13	16811 0.151
3.07	2,y-y'	-2.408	0.4348E-02	0.0090	0.00	0.04	16811 0.066
3.07	2,p-dw	0.367	0.2647E+05	0.0044	2.17	-0.03	16811 10.849
3.07	TOTx-x	6.177	0.1655E-01	0.0095	0.00	0.04	33090 0.133
3.07	TOTy-y	-1.978	0.3313E-02	0.0098	0.00	0.11	33090 0.061
3.07	TOTp-w	0.297	0.2460E+05	0.0046	0.13	0.00	33090 10.647
phiref = 65.502, wref = 0.03731							
tdist	state	alpha	beta	Erms	offsets		ngood rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
3.09	1,x-x'	-1.908	0.2787E-02	0.0090	0.00	0.16	16258 0.053
3.09	1,y-y'	5.334	0.1488E-01	0.0085	0.00	-0.28	16258 0.119
3.09	1,p-dw	0.209	0.2224E+05	0.0043	2.99	0.04	16258 9.781
3.09	2,x-x'	-1.713	0.3677E-02	0.0087	0.00	-0.05	16801 0.060
3.09	2,y-y'	6.004	0.1463E-01	0.0093	0.00	-0.08	16801 0.123
3.09	2,p-dw	0.303	0.2727E+05	0.0043	2.17	-0.01	16801 10.834
3.09	TOTx-x	-1.694	0.3024E-02	0.0095	0.00	0.05	33059 0.057
3.09	TOTy-y	5.313	0.1377E-01	0.0095	0.00	-0.18	33059 0.121
3.09	TOTp-w	0.252	0.2462E+05	0.0043	0.12	0.01	33059 10.338
phiref = 65.502, wref = 0.03813							
tdist	state	alpha	beta	Erms	offsets		ngood rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
3.11	1,x-x'	5.496	0.1545E-01	0.0084	0.00	-0.16	16247 0.119
3.11	1,y-y'	-1.762	0.2884E-02	0.0089	0.00	0.03	16247 0.053
3.11	1,p-dw	0.219	0.2206E+05	0.0041	2.84	0.04	16247 9.556
3.11	2,x-x'	4.328	0.1040E-01	0.0090	0.00	0.06	16793 0.102
3.11	2,y-y'	-0.706	0.2030E-02	0.0090	0.00	-0.07	16793 0.045
3.11	2,p-dw	0.222	0.2784E+05	0.0042	2.13	0.01	16793 10.830
3.11	TOTx-x	4.484	0.1175E-01	0.0094	0.00	-0.05	33040 0.111
3.11	TOTy-y	-1.150	0.2301E-02	0.0095	0.00	-0.02	33040 0.049
3.11	TOTp-w	0.217	0.2483E+05	0.0042	0.12	0.02	33040 10.229
phiref = 65.502, wref = 0.03898							
tdist	state	alpha	beta	Erms	offsets		ngood rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
3.14	1,x-x'	-1.818	0.2983E-02	0.0085	0.00	0.16	16236 0.053
3.14	1,y-y'	4.916	0.1356E-01	0.0085	0.00	-0.17	16236 0.112
3.14	1,p-dw	0.222	0.2194E+05	0.0040	2.70	0.04	16236 9.347
3.14	2,x-x'	-0.658	0.1482E-02	0.0094	0.00	0.06	16789 0.039
3.14	2,y-y'	2.206	0.6248E-02	0.0087	0.00	0.04	16789 0.077
3.14	2,p-dw	0.144	0.2814E+05	0.0042	2.09	0.02	16789 10.904
3.14	TOTx-x	-1.114	0.2027E-02	0.0096	0.00	0.11	33025 0.046
3.14	TOTy-y	3.269	0.9096E-02	0.0093	0.00	-0.07	33025 0.096
3.14	TOTp-w	0.179	0.2495E+05	0.0041	0.12	0.03	33025 10.173
phiref = 65.501, wref = 0.03984							
tdist	state	alpha	beta	Erms	offsets		ngood rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
3.16	1,x-x'	4.920	0.1366E-01	0.0083	0.00	-0.15	16222 0.111
3.16	1,y-y'	-1.445	0.2498E-02	0.0086	0.00	-0.16	16222 0.048
3.16	1,p-dw	0.179	0.2162E+05	0.0037	2.53	0.04	16222 8.947
3.16	2,x-x'	2.328	0.7782E-02	0.0086	0.00	-0.04	16786 0.085
3.16	2,y-y'	-1.374	0.1673E-02	0.0102	0.00	-0.13	16786 0.043
3.16	2,p-dw	0.063	0.2792E+05	0.0043	2.01	0.04	16786 10.947
3.16	TOTx-x	3.296	0.9780E-02	0.0092	0.00	-0.09	33008 0.099

3.16	TOTy-y	-1.339	0.1946E-02	0.0099	0.00	-0.14	33008	0.046
3.16	TOTp-w	0.115	0.2480E+05	0.0040	0.11	0.04	33008	10.018
phiref = 65.501, wref = 0.04072								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.18	1,x-x'	-1.408	0.2478E-02	0.0085	0.00	0.09	16220	0.047
3.18	1,y-y'	4.000	0.1152E-01	0.0085	0.00	0.06	16220	0.102
3.18	1,p-dw	0.209	0.2208E+05	0.0037	2.46	0.03	16220	9.091
3.18	2,x-x'	-2.023	0.2371E-02	0.0102	0.00	0.12	16779	0.051
3.18	2,y-y'	4.709	0.1581E-01	0.0087	0.00	0.13	16779	0.121
3.18	2,p-dw	-0.054	0.2724E+05	0.0042	1.86	0.06	16779	10.752
3.18	TOTx-x	-1.654	0.2287E-02	0.0099	0.00	0.10	32999	0.049
3.18	TOTy-y	4.095	0.1288E-01	0.0092	0.00	0.10	32999	0.112
3.18	TOTp-w	0.067	0.2449E+05	0.0041	0.10	0.05	32999	9.974
phiref = 65.501, wref = 0.04162								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.21	1,x-x'	3.919	0.1146E-01	0.0083	0.00	-0.08	16212	0.100
3.21	1,y-y'	-1.463	0.2340E-02	0.0090	0.00	-0.25	16212	0.047
3.21	1,p-dw	0.186	0.2210E+05	0.0036	2.36	0.03	16212	8.969
3.21	2,x-x'	6.513	0.2094E-01	0.0089	0.00	-0.11	16775	0.140
3.21	2,y-y'	-3.063	0.4105E-02	0.0098	0.00	-0.13	16775	0.065
3.21	2,p-dw	-0.152	0.2612E+05	0.0043	1.69	0.08	16775	10.573
3.21	TOTx-x	4.921	0.1532E-01	0.0092	0.00	-0.10	32987	0.122
3.21	TOTy-y	-2.191	0.3104E-02	0.0099	0.00	-0.19	32987	0.057
3.21	TOTp-w	0.003	0.2384E+05	0.0040	0.10	0.06	32987	9.823
phiref = 65.500, wref = 0.04254								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.23	1,x-x'	-1.456	0.2320E-02	0.0089	0.00	-0.04	16208	0.046
3.23	1,y-y'	4.272	0.1313E-01	0.0084	0.00	0.22	16208	0.107
3.23	1,p-dw	0.178	0.2224E+05	0.0036	2.30	0.02	16208	8.998
3.23	2,x-x'	-3.342	0.4979E-02	0.0092	0.00	0.10	16769	0.069
3.23	2,y-y'	8.784	0.2619E-01	0.0090	0.00	0.17	16769	0.157
3.23	2,p-dw	-0.271	0.2482E+05	0.0042	1.46	0.11	16769	10.208
3.23	TOTx-x	-2.258	0.3432E-02	0.0097	0.00	0.03	32977	0.059
3.23	TOTy-y	6.238	0.1878E-01	0.0092	0.00	0.20	32977	0.135
3.23	TOTp-w	-0.059	0.2295E+05	0.0041	0.09	0.07	32977	9.641
phiref = 65.499, wref = 0.04348								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.26	1,x-x'	4.351	0.1358E-01	0.0082	0.00	0.03	16202	0.108
3.26	1,y-y'	-1.770	0.2781E-02	0.0093	0.00	-0.23	16202	0.052
3.26	1,p-dw	0.149	0.2210E+05	0.0036	2.23	0.02	16202	8.929
3.26	2,x-x'	8.727	0.2516E-01	0.0091	0.00	-0.09	16766	0.154
3.26	2,y-y'	-2.706	0.5115E-02	0.0088	0.00	-0.07	16766	0.068
3.26	2,p-dw	-0.351	0.2316E+05	0.0042	1.20	0.13	16766	9.869
3.26	TOTx-x	6.213	0.1836E-01	0.0093	0.00	-0.03	32968	0.133
3.26	TOTy-y	-2.094	0.3690E-02	0.0096	0.00	-0.15	32968	0.061
3.26	TOTp-w	-0.112	0.2185E+05	0.0041	0.08	0.07	32968	9.433
phiref = 65.499, wref = 0.04443								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.28	1,x-x'	-1.885	0.2908E-02	0.0088	0.00	-0.14	16196	0.051
3.28	1,y-y'	5.275	0.1622E-01	0.0084	0.00	0.28	16196	0.118

3.28	1,p-dw	0.111	0.2177E+05	0.0036	2.18	0.01	16196	8.831
3.28	2,x-x'	-1.947	0.4365E-02	0.0087	0.00	0.05	16765	0.062
3.28	2,y-y'	6.756	0.1823E-01	0.0088	0.00	0.10	16765	0.128
3.28	2,p-dw	-0.386	0.2121E+05	0.0043	0.93	0.14	16765	9.552
3.28	TOTx-x	-1.771	0.3369E-02	0.0095	0.00	-0.04	32961	0.057
3.28	TOTy-y	5.627	0.1607E-01	0.0093	0.00	0.18	32961	0.123
3.28	TOTp-w	-0.147	0.2062E+05	0.0041	0.07	0.08	32961	9.226
phiref = 65.499, wref = 0.04541								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
3.31	1,x-x'	5.395	0.1675E-01	0.0083	0.00	0.13	16188	0.119
3.31	1,y-y'	-1.901	0.3232E-02	0.0086	0.00	-0.08	16188	0.053
3.31	1,p-dw	0.047	0.2120E+05	0.0035	2.13	0.01	16188	8.602
3.31	2,x-x'	4.887	0.1292E-01	0.0088	0.00	-0.03	16763	0.107
3.31	2,y-y'	-0.803	0.2454E-02	0.0088	0.00	0.04	16763	0.047
3.31	2,p-dw	-0.410	0.1928E+05	0.0043	0.63	0.16	16763	9.154
3.31	TOTx-x	4.708	0.1354E-01	0.0093	0.00	0.05	32951	0.113
3.31	TOTy-y	-1.244	0.2636E-02	0.0093	0.00	-0.02	32951	0.050
3.31	TOTp-w	-0.187	0.1932E+05	0.0041	0.07	0.08	32951	8.918
phiref = 65.500, wref = 0.04640								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
3.34	1,x-x'	-1.956	0.3367E-02	0.0083	0.00	-0.17	16180	0.053
3.34	1,y-y'	5.177	0.1568E-01	0.0084	0.00	0.15	16180	0.115
3.34	1,p-dw	-0.030	0.2052E+05	0.0034	2.08	0.00	16180	8.310
3.34	2,x-x'	-0.643	0.1708E-02	0.0090	0.00	-0.03	16760	0.039
3.34	2,y-y'	2.399	0.7030E-02	0.0086	0.00	-0.02	16760	0.078
3.34	2,p-dw	-0.432	0.1747E+05	0.0043	0.30	0.17	16760	8.672
3.34	TOTx-x	-1.162	0.2292E-02	0.0094	0.00	-0.10	32940	0.046
3.34	TOTy-y	3.459	0.1036E-01	0.0092	0.00	0.07	32940	0.098
3.34	TOTp-w	-0.228	0.1802E+05	0.0040	0.06	0.09	32940	8.543
phiref = 65.500, wref = 0.04743								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
3.36	1,x-x'	5.188	0.1582E-01	0.0083	0.00	0.17	16177	0.114
3.36	1,y-y'	-1.544	0.2899E-02	0.0084	0.00	0.11	16177	0.049
3.36	1,p-dw	-0.067	0.1987E+05	0.0034	2.09	0.00	16177	8.190
3.36	2,x-x'	2.200	0.7740E-02	0.0087	0.00	0.04	16759	0.082
3.36	2,y-y'	-1.309	0.1705E-02	0.0092	0.00	0.12	16759	0.039
3.36	2,p-dw	-0.411	0.1570E+05	0.0044	-0.03	0.18	16759	8.266
3.36	TOTx-x	3.329	0.1064E-01	0.0093	0.00	0.10	32936	0.099
3.36	TOTy-y	-1.329	0.2121E-02	0.0094	0.00	0.11	32936	0.045
3.36	TOTp-w	-0.225	0.1677E+05	0.0041	0.05	0.09	32936	8.297
phiref = 65.499, wref = 0.04847								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
3.39	1,x-x'	-1.507	0.2886E-02	0.0083	0.00	-0.09	16172	0.049
3.39	1,y-y'	4.196	0.1304E-01	0.0084	0.00	-0.04	16172	0.103
3.39	1,p-dw	-0.121	0.1907E+05	0.0033	2.09	-0.01	16172	7.949
3.39	2,x-x'	-1.997	0.2471E-02	0.0094	0.00	-0.08	16758	0.048
3.39	2,y-y'	4.099	0.1528E-01	0.0088	0.00	-0.11	16758	0.115
3.39	2,p-dw	-0.371	0.1410E+05	0.0044	-0.38	0.19	16758	7.872
3.39	TOTx-x	-1.651	0.2482E-02	0.0095	0.00	-0.08	32930	0.048
3.39	TOTy-y	3.868	0.1325E-01	0.0092	0.00	-0.07	32930	0.109
3.39	TOTp-w	-0.219	0.1557E+05	0.0041	0.04	0.09	32930	8.006
phiref = 65.499, wref = 0.04954								

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
3.42	1,x-x'	4.119	0.1294E-01	0.0083	0.00 0.11	16170	0.102
3.42	1,y-y'	-1.442	0.2541E-02	0.0086	0.00 0.22	16170	0.046
3.42	1,p-dw	-0.145	0.1826E+05	0.0033	2.12 -0.02	16170	7.801
3.42	2,x-x'	5.814	0.2080E-01	0.0090	0.00 0.06	16755	0.134
3.42	2,y-y'	-3.202	0.4512E-02	0.0091	0.00 0.12	16755	0.063
3.42	2,p-dw	-0.339	0.1268E+05	0.0043	-0.75 0.20	16755	7.404
3.42	TOTx-x	4.661	0.1589E-01	0.0093	0.00 0.09	32925	0.120
3.42	TOTy-y	-2.212	0.3344E-02	0.0095	0.00 0.17	32925	0.055
3.42	TOTp-w	-0.200	0.1448E+05	0.0041	0.03 0.09	32925	7.736

phiref = 65.499, wref = 0.05062

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
3.44	1,x-x'	-1.423	0.2508E-02	0.0086	0.00 0.03	16168	0.045
3.44	1,y-y'	4.112	0.1371E-01	0.0083	0.00 -0.20	16168	0.105
3.44	1,p-dw	-0.159	0.1738E+05	0.0034	2.17 -0.02	16168	7.644
3.44	2,x-x'	-3.441	0.5460E-02	0.0090	0.00 -0.08	16753	0.069
3.44	2,y-y'	8.384	0.2782E-01	0.0089	0.00 -0.15	16753	0.154
3.44	2,p-dw	-0.285	0.1150E+05	0.0043	-1.13 0.21	16753	7.012
3.44	TOTx-x	-2.289	0.3742E-02	0.0095	0.00 -0.02	32921	0.058
3.44	TOTy-y	5.982	0.1988E-01	0.0092	0.00 -0.17	32921	0.132
3.44	TOTp-w	-0.165	0.1355E+05	0.0042	0.02 0.10	32921	7.512

phiref = 65.500, wref = 0.05174

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
3.47	1,x-x'	4.147	0.1404E-01	0.0082	0.00 0.01	16164	0.105
3.47	1,y-y'	-1.774	0.2927E-02	0.0088	0.00 0.23	16164	0.049
3.47	1,p-dw	-0.184	0.1641E+05	0.0033	2.21 -0.03	16164	7.387
3.47	2,x-x'	8.626	0.2769E-01	0.0090	0.00 0.08	16752	0.154
3.47	2,y-y'	-2.925	0.5851E-02	0.0089	0.00 0.06	16752	0.070
3.47	2,p-dw	-0.211	0.1062E+05	0.0043	-1.51 0.22	16752	6.731
3.47	TOTx-x	6.099	0.1990E-01	0.0092	0.00 0.05	32916	0.132
3.47	TOTy-y	-2.181	0.4083E-02	0.0095	0.00 0.14	32916	0.061
3.47	TOTp-w	-0.127	0.1278E+05	0.0042	0.02 0.10	32916	7.302

phiref = 65.500, wref = 0.05288

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
3.50	1,x-x'	-1.858	0.3012E-02	0.0084	0.00 0.13	16160	0.049
3.50	1,y-y'	5.140	0.1740E-01	0.0083	0.00 -0.27	16160	0.116
3.50	1,p-dw	-0.211	0.1546E+05	0.0033	2.26 -0.03	16160	7.095
3.50	2,x-x'	-2.171	0.5103E-02	0.0089	0.00 -0.04	16751	0.065
3.50	2,y-y'	7.197	0.2159E-01	0.0087	0.00 -0.09	16751	0.133
3.50	2,p-dw	-0.132	0.1005E+05	0.0042	-1.90 0.22	16751	6.527
3.50	TOTx-x	-1.837	0.3730E-02	0.0096	0.00 0.05	32911	0.058
3.50	TOTy-y	5.801	0.1829E-01	0.0091	0.00 -0.18	32911	0.125
3.50	TOTp-w	-0.087	0.1222E+05	0.0042	0.01 0.10	32911	7.121

phiref = 65.500, wref = 0.05404

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
3.53	1,x-x'	5.258	0.1796E-01	0.0083	0.00 -0.09	16158	0.117
3.53	1,y-y'	-1.973	0.3483E-02	0.0085	0.00 0.09	16158	0.052
3.53	1,p-dw	-0.210	0.1457E+05	0.0032	2.32 -0.04	16158	6.881
3.53	2,x-x'	5.424	0.1585E-01	0.0087	0.00 0.07	16751	0.113
3.53	2,y-y'	-0.952	0.3047E-02	0.0088	0.00 -0.02	16751	0.050

3.53	2,p-dw	-0.046	9849.	0.0042	-2.27	0.22	16751	6.469
3.53	TOTx-x	4.925	0.1554E-01	0.0092	0.00	-0.01	32909	0.115
3.53	TOTy-y	-1.331	0.3004E-02	0.0094	0.00	0.03	32909	0.051
3.53	TOTp-w	-0.035	0.1194E+05	0.0042	0.00	0.09	32909	7.058
phiref = 65.500, wref = 0.05524								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.55	1,x-x'	-2.023	0.3631E-02	0.0083	0.00	0.15	16154	0.053
3.55	1,y-y'	5.441	0.1809E-01	0.0083	0.00	-0.16	16154	0.118
3.55	1,p-dw	-0.228	0.1369E+05	0.0031	2.38	-0.04	16154	6.566
3.55	2,x-x'	-0.679	0.2093E-02	0.0089	0.00	0.02	16751	0.041
3.55	2,y-y'	2.681	0.8213E-02	0.0087	0.00	-0.01	16751	0.081
3.55	2,p-dw	0.034	9934.	0.0043	-2.62	0.21	16751	6.502
3.55	TOTx-x	-1.210	0.2596E-02	0.0094	0.00	0.08	32905	0.047
3.55	TOTy-y	3.674	0.1188E-01	0.0093	0.00	-0.08	32905	0.101
3.55	TOTp-w	0.006	0.1179E+05	0.0041	-0.01	0.09	32905	6.995
phiref = 65.500, wref = 0.05645								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.58	1,x-x'	5.486	0.1837E-01	0.0082	0.00	-0.13	16153	0.117
3.58	1,y-y'	-1.644	0.3272E-02	0.0084	0.00	-0.06	16153	0.050
3.58	1,p-dw	-0.211	0.1298E+05	0.0031	2.45	-0.04	16153	6.381
3.58	2,x-x'	2.152	0.7832E-02	0.0088	0.00	0.02	16751	0.079
3.58	2,y-y'	-1.180	0.1789E-02	0.0088	0.00	-0.10	16751	0.038
3.58	2,p-dw	0.102	0.1025E+05	0.0043	-2.95	0.19	16751	6.614
3.58	TOTx-x	3.385	0.1164E-01	0.0094	0.00	-0.05	32904	0.100
3.58	TOTy-y	-1.319	0.2349E-02	0.0091	0.00	-0.08	32904	0.044
3.58	TOTp-w	0.050	0.1189E+05	0.0042	-0.01	0.08	32904	7.039
phiref = 65.499, wref = 0.05769								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.61	1,x-x'	-1.604	0.3262E-02	0.0083	0.00	0.10	16152	0.049
3.61	1,y-y'	4.535	0.1521E-01	0.0083	0.00	-0.01	16152	0.106
3.61	1,p-dw	-0.187	0.1236E+05	0.0031	2.53	-0.04	16152	6.213
3.61	2,x-x'	-1.882	0.2579E-02	0.0089	0.00	0.07	16751	0.045
3.61	2,y-y'	3.371	0.1402E-01	0.0090	0.00	0.08	16751	0.106
3.61	2,p-dw	0.156	0.1074E+05	0.0043	-3.24	0.17	16751	6.785
3.61	TOTx-x	-1.645	0.2727E-02	0.0092	0.00	0.08	32903	0.047
3.61	TOTy-y	3.610	0.1343E-01	0.0094	0.00	0.04	32903	0.106
3.61	TOTp-w	0.086	0.1212E+05	0.0042	-0.02	0.07	32903	7.122
phiref = 65.499, wref = 0.05896								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
3.64	1,x-x'	4.465	0.1511E-01	0.0082	0.00	-0.12	16151	0.105
3.64	1,y-y'	-1.418	0.2737E-02	0.0083	0.00	-0.19	16151	0.045
3.64	1,p-dw	-0.161	0.1186E+05	0.0031	2.61	-0.04	16151	6.066
3.64	2,x-x'	4.871	0.1961E-01	0.0091	0.00	-0.02	16748	0.126
3.64	2,y-y'	-3.127	0.4836E-02	0.0090	0.00	-0.11	16748	0.062
3.64	2,p-dw	0.175	0.1114E+05	0.0042	-3.53	0.16	16748	6.844
3.64	TOTx-x	4.309	0.1612E-01	0.0094	0.00	-0.07	32899	0.116
3.64	TOTy-y	-2.178	0.3608E-02	0.0093	0.00	-0.15	32899	0.055
3.64	TOTp-w	0.104	0.1236E+05	0.0042	-0.02	0.06	32899	7.164
phiref = 65.499, wref = 0.06026								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)

3.67	1,x-x'	-1.403	0.2722E-02	0.0083	0.00	0.01	16150	0.044
3.67	1,y-y'	4.051	0.1453E-01	0.0083	0.00	0.15	16150	0.103
3.67	1,p-dw	-0.133	0.1147E+05	0.0031	2.69	-0.04	16150	5.941
3.67	2,x-x'	-3.397	0.5921E-02	0.0092	0.00	0.08	16748	0.069
3.67	2,y-y'	7.640	0.2844E-01	0.0090	0.00	0.14	16748	0.150
3.67	2,p-dw	0.192	0.1179E+05	0.0042	-3.77	0.14	16748	7.053
3.67	TOTx-x	-2.285	0.4100E-02	0.0095	0.00	0.05	32898	0.058
3.67	TOTy-y	5.597	0.2059E-01	0.0092	0.00	0.14	32898	0.129
3.67	TOTp-w	0.119	0.1276E+05	0.0042	-0.03	0.05	32898	7.284

phiref = 65.499, wref = 0.06158

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm, mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.70	1,x-x'	4.010	0.1462E-01	0.0083	0.00	-0.05	16149	0.102
3.70	1,y-y'	-1.746	0.3056E-02	0.0083	0.00	-0.21	16149	0.047
3.70	1,p-dw	-0.106	0.1116E+05	0.0031	2.76	-0.04	16149	5.836
3.70	2,x-x'	8.276	0.2974E-01	0.0089	0.00	-0.04	16747	0.152
3.70	2,y-y'	-3.045	0.6573E-02	0.0093	0.00	-0.08	16747	0.073
3.70	2,p-dw	0.184	0.1241E+05	0.0042	-3.98	0.11	16747	7.217
3.70	TOTx-x	5.883	0.2124E-01	0.0091	0.00	-0.05	32896	0.130
3.70	TOTy-y	-2.219	0.4489E-02	0.0097	0.00	-0.14	32896	0.062
3.70	TOTp-w	0.118	0.1316E+05	0.0041	-0.03	0.04	32896	7.387

phiref = 65.499, wref = 0.06294

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm, mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.73	1,x-x'	-1.777	0.3115E-02	0.0083	0.00	-0.10	16149	0.047
3.73	1,y-y'	4.876	0.1812E-01	0.0083	0.00	0.22	16149	0.114
3.73	1,p-dw	-0.071	0.1101E+05	0.0031	2.84	-0.03	16149	5.802
3.73	2,x-x'	-2.372	0.5927E-02	0.0094	0.00	0.06	16747	0.069
3.73	2,y-y'	7.577	0.2534E-01	0.0087	0.00	0.12	16747	0.137
3.73	2,p-dw	0.160	0.1306E+05	0.0042	-4.14	0.08	16747	7.403
3.73	TOTx-x	-1.885	0.4162E-02	0.0098	0.00	-0.02	32896	0.059
3.73	TOTy-y	5.902	0.2056E-01	0.0090	0.00	0.17	32896	0.126
3.73	TOTp-w	0.106	0.1362E+05	0.0042	-0.03	0.03	32896	7.522

phiref = 65.500, wref = 0.06432

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm, mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.76	1,x-x'	4.974	0.1871E-01	0.0082	0.00	0.05	16149	0.115
3.76	1,y-y'	-2.018	0.3756E-02	0.0084	0.00	-0.11	16149	0.052
3.76	1,p-dw	-0.039	0.1095E+05	0.0031	2.91	-0.03	16149	5.794
3.76	2,x-x'	5.997	0.1945E-01	0.0087	0.00	-0.08	16746	0.120
3.76	2,y-y'	-1.169	0.3892E-02	0.0090	0.00	0.02	16746	0.055
3.76	2,p-dw	0.110	0.1357E+05	0.0042	-4.26	0.05	16746	7.515
3.76	TOTx-x	5.107	0.1771E-01	0.0091	0.00	-0.01	32895	0.117
3.76	TOTy-y	-1.431	0.3486E-02	0.0095	0.00	-0.05	32895	0.053
3.76	TOTp-w	0.077	0.1401E+05	0.0041	-0.04	0.01	32895	7.620

phiref = 65.500, wref = 0.06574

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm, mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.79	1,x-x'	-2.044	0.3857E-02	0.0083	0.00	-0.15	16149	0.052
3.79	1,y-y'	5.556	0.2035E-01	0.0083	0.00	0.17	16149	0.119
3.79	1,p-dw	-0.010	0.1096E+05	0.0031	2.97	-0.03	16149	5.810
3.79	2,x-x'	-0.770	0.2709E-02	0.0089	0.00	0.01	16746	0.045
3.79	2,y-y'	3.099	0.1003E-01	0.0088	0.00	0.02	16746	0.086
3.79	2,p-dw	0.045	0.1398E+05	0.0042	-4.32	0.01	16746	7.618
3.79	TOTx-x	-1.260	0.2984E-02	0.0094	0.00	-0.07	32895	0.049
3.79	TOTy-y	3.900	0.1365E-01	0.0094	0.00	0.10	32895	0.104

3.79	TOTp-w	0.036	0.1433E+05	0.0041	-0.04	-0.01	32895	7.707
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phiref = 65.500, wref = 0.06719

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.82	1,x-x'	5.622	0.2076E-01	0.0082	0.00	0.12	16149	0.119
3.82	1,y-y'	-1.748	0.3707E-02	0.0084	0.00	0.04	16149	0.051
3.82	1,p-dw	0.014	0.1105E+05	0.0031	3.03	-0.02	16149	5.845
3.82	2,x-x'	2.231	0.8255E-02	0.0090	0.00	-0.05	16746	0.079
3.82	2,y-y'	-1.001	0.1921E-02	0.0088	0.00	0.09	16746	0.037
3.82	2,p-dw	-0.033	0.1418E+05	0.0041	-4.33	-0.03	16746	7.666
3.82	TOTx-x	3.442	0.1272E-01	0.0095	0.00	0.03	32895	0.101
3.82	TOTy-y	-1.288	0.2632E-02	0.0091	0.00	0.06	32895	0.045
3.82	TOTp-w	-0.015	0.1450E+05	0.0042	-0.03	-0.02	32895	7.760

phiref = 65.500, wref = 0.06867

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.85	1,x-x'	-1.724	0.3741E-02	0.0083	0.00	-0.12	16147	0.051
3.85	1,y-y'	4.862	0.1774E-01	0.0083	0.00	0.02	16147	0.110
3.85	1,p-dw	0.016	0.1107E+05	0.0031	3.06	-0.02	16147	5.811
3.85	2,x-x'	-1.610	0.2540E-02	0.0089	0.00	-0.05	16746	0.043
3.85	2,y-y'	2.761	0.1271E-01	0.0090	0.00	-0.07	16746	0.097
3.85	2,p-dw	-0.119	0.1415E+05	0.0041	-4.29	-0.07	16746	7.655
3.85	TOTx-x	-1.580	0.2952E-02	0.0091	0.00	-0.09	32893	0.047
3.85	TOTy-y	3.408	0.1371E-01	0.0095	0.00	-0.02	32893	0.103
3.85	TOTp-w	-0.078	0.1449E+05	0.0041	-0.03	-0.04	32893	7.741

phiref = 65.500, wref = 0.07018

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.89	1,x-x'	4.803	0.1767E-01	0.0082	0.00	0.14	16147	0.109
3.89	1,y-y'	-1.422	0.3097E-02	0.0083	0.00	0.16	16147	0.046
3.89	1,p-dw	0.024	0.1123E+05	0.0031	3.11	-0.01	16147	5.859
3.89	2,x-x'	4.111	0.1856E-01	0.0090	0.00	0.02	16746	0.117
3.89	2,y-y'	-2.741	0.4574E-02	0.0096	0.00	0.11	16746	0.060
3.89	2,p-dw	-0.205	0.1390E+05	0.0041	-4.20	-0.11	16746	7.584
3.89	TOTx-x	4.035	0.1651E-01	0.0095	0.00	0.08	32893	0.113
3.89	TOTy-y	-2.032	0.3705E-02	0.0094	0.00	0.13	32893	0.053
3.89	TOTp-w	-0.137	0.1436E+05	0.0041	-0.03	-0.06	32893	7.711

phiref = 65.499, wref = 0.07173

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.92	1,x-x'	-1.400	0.3072E-02	0.0082	0.00	-0.04	16147	0.045
3.92	1,y-y'	4.054	0.1562E-01	0.0083	0.00	-0.12	16147	0.102
3.92	1,p-dw	0.023	0.1140E+05	0.0031	3.14	-0.01	16147	5.908
3.92	2,x-x'	-3.083	0.5676E-02	0.0099	0.00	-0.08	16746	0.067
3.92	2,y-y'	7.215	0.2993E-01	0.0088	0.00	-0.12	16746	0.145
3.92	2,p-dw	-0.285	0.1344E+05	0.0041	-4.06	-0.14	16746	7.455
3.92	TOTx-x	-2.196	0.4250E-02	0.0096	0.00	-0.06	32893	0.057
3.92	TOTy-y	5.323	0.2155E-01	0.0092	0.00	-0.12	32893	0.126
3.92	TOTp-w	-0.194	0.1408E+05	0.0041	-0.03	-0.07	32893	7.641

phiref = 65.499, wref = 0.07330

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.95	1,x-x'	3.982	0.1557E-01	0.0083	0.00	0.08	16147	0.101
3.95	1,y-y'	-1.623	0.3149E-02	0.0083	0.00	0.20	16147	0.046
3.95	1,p-dw	0.015	0.1157E+05	0.0031	3.17	0.00	16147	5.954

3.95	2,x-x'	8.276	0.3301E-01	0.0087	0.00	0.08	16746	0.152
3.95	2,y-y'	-3.079	0.6822E-02	0.0097	0.00	0.07	16746	0.073
3.95	2,p-dw	-0.356	0.1282E+05	0.0041	-3.89	-0.17	16746	7.272
3.95	TOTx-x	5.805	0.2301E-01	0.0091	0.00	0.08	32893	0.129
3.95	TOTy-y	-2.233	0.4761E-02	0.0098	0.00	0.13	32893	0.061
3.95	TOTp-w	-0.246	0.1368E+05	0.0042	-0.02	-0.09	32893	7.535

phiref = 65.499, wref = 0.07492

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
3.98	1,x-x'	-1.660	0.3215E-02	0.0082	0.00	0.06	16147	0.045
3.98	1,y-y'	4.559	0.1855E-01	0.0084	0.00	-0.19	16147	0.111
3.98	1,p-dw	0.001	0.1170E+05	0.0031	3.19	0.00	16147	5.993
3.98	2,x-x'	-2.600	0.6539E-02	0.0096	0.00	-0.08	16746	0.070
3.98	2,y-y'	8.208	0.3039E-01	0.0087	0.00	-0.10	16746	0.144
3.98	2,p-dw	-0.415	0.1205E+05	0.0041	-3.68	-0.20	16746	7.042
3.98	TOTx-x	-1.984	0.4596E-02	0.0098	0.00	-0.01	32893	0.059
3.98	TOTy-y	6.028	0.2307E-01	0.0091	0.00	-0.15	32893	0.129
3.98	TOTp-w	-0.292	0.1316E+05	0.0042	-0.01	-0.10	32893	7.395

phiref = 65.499, wref = 0.07656

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
4.02	1,x-x'	4.609	0.1902E-01	0.0083	0.00	-0.02	16147	0.111
4.02	1,y-y'	-2.008	0.3987E-02	0.0083	0.00	0.14	16147	0.051
4.02	1,p-dw	-0.018	0.1178E+05	0.0031	3.21	0.01	16147	6.023
4.02	2,x-x'	6.822	0.2445E-01	0.0088	0.00	0.10	16746	0.129
4.02	2,y-y'	-1.451	0.4784E-02	0.0090	0.00	-0.01	16746	0.058
4.02	2,p-dw	-0.456	0.1117E+05	0.0041	-3.45	-0.23	16746	6.771
4.02	TOTx-x	5.327	0.2020E-01	0.0092	0.00	0.04	32893	0.121
4.02	TOTy-y	-1.565	0.4026E-02	0.0095	0.00	0.06	32893	0.055
4.02	TOTp-w	-0.330	0.1254E+05	0.0042	-0.01	-0.11	32893	7.226

phiref = 65.499, wref = 0.07824

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
4.05	1,x-x'	-2.036	0.4106E-02	0.0083	0.00	0.13	16147	0.051
4.05	1,y-y'	5.451	0.2207E-01	0.0083	0.00	-0.17	16147	0.119
4.05	1,p-dw	-0.042	0.1182E+05	0.0031	3.22	0.02	16147	6.039
4.05	2,x-x'	-0.924	0.3436E-02	0.0089	0.00	-0.02	16746	0.048
4.05	2,y-y'	3.784	0.1309E-01	0.0089	0.00	-0.03	16746	0.095
4.05	2,p-dw	-0.476	0.1020E+05	0.0041	-3.18	-0.25	16746	6.470
4.05	TOTx-x	-1.332	0.3442E-02	0.0094	0.00	0.05	32893	0.050
4.05	TOTy-y	4.179	0.1584E-01	0.0094	0.00	-0.10	32893	0.107
4.05	TOTp-w	-0.356	0.1184E+05	0.0042	0.00	-0.12	32893	7.032

phiref = 65.499, wref = 0.07996

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
4.08	1,x-x'	5.586	0.2281E-01	0.0082	0.00	-0.11	16147	0.119
4.08	1,y-y'	-1.871	0.4225E-02	0.0084	0.00	0.02	16147	0.052
4.08	1,p-dw	-0.070	0.1180E+05	0.0031	3.22	0.02	16147	6.041
4.08	2,x-x'	2.565	0.9627E-02	0.0091	0.00	0.06	16745	0.082
4.08	2,y-y'	-0.815	0.2024E-02	0.0087	0.00	-0.08	16745	0.037
4.08	2,p-dw	-0.484	9194.	0.0041	-2.90	-0.27	16745	6.110
4.08	TOTx-x	3.591	0.1425E-01	0.0095	0.00	-0.03	32892	0.102
4.08	TOTy-y	-1.238	0.2885E-02	0.0092	0.00	-0.03	32892	0.045
4.08	TOTp-w	-0.374	0.1109E+05	0.0042	0.00	-0.13	32892	6.803

phiref = 65.500, wref = 0.08172

tdist	state	alpha	beta	Erms	offsets	ngood	rms
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(m)		(cm/mr)	(cm-mr)	(cm,mr)			(cm)
		(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
4.12	1,x-x'	-1.854	0.4257E-02	0.0084	0.00	0.13	16147
4.12	1,y-y'	5.165	0.2062E-01	0.0083	0.00	-0.07	16147
4.12	1,p-dw	-0.102	0.1171E+05	0.0031	3.21	0.03	16147
4.12	2,x-x'	-1.282	0.2300E-02	0.0090	0.00	0.04	16745
4.12	2,y-y'	2.445	0.1198E-01	0.0089	0.00	0.06	16745
4.12	2,p-dw	-0.458	8235.	0.0041	-2.60	-0.29	16745
4.12	TOTx-x	-1.459	0.3032E-02	0.0092	0.00	0.09	32892
4.12	TOTy-y	3.393	0.1462E-01	0.0094	0.00	0.00	32892
4.12	TOTp-w	-0.374	0.1035E+05	0.0042	0.01	-0.13	32892
phiref = 65.499, wref = 0.08352							
tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
4.15	1,x-x'	5.167	0.2077E-01	0.0082	0.00	-0.15	16146
4.15	1,y-y'	-1.472	0.3563E-02	0.0084	0.00	-0.12	16146
4.15	1,p-dw	-0.144	0.1151E+05	0.0031	3.19	0.04	16146
4.15	2,x-x'	3.626	0.1796E-01	0.0088	0.00	-0.03	16745
4.15	2,y-y'	-2.449	0.4151E-02	0.0094	0.00	-0.09	16745
4.15	2,p-dw	-0.409	7370.	0.0041	-2.29	-0.30	16745
4.15	TOTx-x	3.957	0.1753E-01	0.0094	0.00	-0.09	32891
4.15	TOTy-y	-1.887	0.3665E-02	0.0094	0.00	-0.10	32891
4.15	TOTp-w	-0.365	9646.	0.0042	0.02	-0.13	32891
phiref = 65.499, wref = 0.08535							
tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
4.19	1,x-x'	-1.447	0.3544E-02	0.0082	0.00	0.07	16146
4.19	1,y-y'	4.200	0.1737E-01	0.0083	0.00	0.06	16146
4.19	1,p-dw	-0.180	0.1127E+05	0.0031	3.18	0.04	16146
4.19	2,x-x'	-2.900	0.5350E-02	0.0098	0.00	0.10	16744
4.19	2,y-y'	6.879	0.3145E-01	0.0087	0.00	0.09	16744
4.19	2,p-dw	-0.351	6611.	0.0040	-1.99	-0.30	16744
4.19	TOTx-x	-2.118	0.4278E-02	0.0096	0.00	0.08	32890
4.19	TOTy-y	5.187	0.2290E-01	0.0092	0.00	0.07	32890
4.19	TOTp-w	-0.344	9001.	0.0041	0.03	-0.13	32890
phiref = 65.499, wref = 0.08723							
tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
4.22	1,x-x'	4.104	0.1719E-01	0.0082	0.00	-0.11	16144
4.22	1,y-y'	-1.511	0.3295E-02	0.0083	0.00	-0.17	16144
4.22	1,p-dw	-0.231	0.1091E+05	0.0030	3.14	0.05	16144
4.22	2,x-x'	8.267	0.3629E-01	0.0087	0.00	-0.09	16744
4.22	2,y-y'	-3.240	0.7123E-02	0.0095	0.00	-0.06	16744
4.22	2,p-dw	-0.271	6046.	0.0040	-1.69	-0.29	16744
4.22	TOTx-x	5.818	0.2518E-01	0.0091	0.00	-0.10	32888
4.22	TOTy-y	-2.281	0.5003E-02	0.0096	0.00	-0.12	32888
4.22	TOTp-w	-0.319	8426.	0.0041	0.03	-0.12	32888
phiref = 65.500, wref = 0.08915							
tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)
4.26	1,x-x'	-1.521	0.3315E-02	0.0082	0.00	-0.03	16144
4.26	1,y-y'	4.319	0.1910E-01	0.0083	0.00	0.15	16144
4.26	1,p-dw	-0.265	0.1053E+05	0.0030	3.12	0.05	16144
4.26	2,x-x'	-2.892	0.7186E-02	0.0094	0.00	0.08	16744
4.26	2,y-y'	8.807	0.3597E-01	0.0087	0.00	0.09	16744
4.26	2,p-dw	-0.182	5660.	0.0040	-1.40	-0.28	16744

4.26	TOTx-x	-2.090	0.4998E-02	0.0095	0.00	0.03	32888	0.059
4.26	TOTy-y	6.172	0.2586E-01	0.0092	0.00	0.12	32888	0.131
4.26	TOTp-w	-0.281	7962.	0.0041	0.04	-0.11	32888	5.682
phiref = 65.500, wref = 0.09111								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
4.30	1,x-x'	4.329	0.1945E-01	0.0082	0.00	-0.01	16144	0.107
4.30	1,y-y'	-1.922	0.4053E-02	0.0083	0.00	-0.15	16144	0.049
4.30	1,p-dw	-0.295	0.1011E+05	0.0030	3.08	0.06	16144	5.532
4.30	2,x-x'	7.629	0.3019E-01	0.0089	0.00	-0.11	16744	0.138
4.30	2,y-y'	-1.771	0.5748E-02	0.0089	0.00	0.00	16744	0.060
4.30	2,p-dw	-0.092	5456.	0.0040	-1.14	-0.26	16744	4.663
4.30	TOTx-x	5.581	0.2309E-01	0.0093	0.00	-0.06	32888	0.124
4.30	TOTy-y	-1.688	0.4531E-02	0.0094	0.00	-0.07	32888	0.055
4.30	TOTp-w	-0.239	7590.	0.0040	0.05	-0.10	32888	5.527
phiref = 65.500, wref = 0.09312								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
4.33	1,x-x'	-1.965	0.4184E-02	0.0082	0.00	-0.10	16144	0.049
4.33	1,y-y'	5.317	0.2371E-01	0.0083	0.00	0.17	16144	0.118
4.33	1,p-dw	-0.318	9641.	0.0030	3.05	0.07	16144	5.397
4.33	2,x-x'	-1.119	0.4285E-02	0.0088	0.00	0.03	16744	0.052
4.33	2,y-y'	4.584	0.1724E-01	0.0089	0.00	0.03	16744	0.104
4.33	2,p-dw	-0.004	5427.	0.0040	-0.89	-0.24	16744	4.649
4.33	TOTx-x	-1.391	0.3877E-02	0.0093	0.00	-0.03	32888	0.051
4.33	TOTy-y	4.498	0.1852E-01	0.0094	0.00	0.10	32888	0.111
4.33	TOTp-w	-0.196	7311.	0.0040	0.05	-0.09	32888	5.401
phiref = 65.500, wref = 0.09517								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
4.37	1,x-x'	5.428	0.2446E-01	0.0082	0.00	0.08	16144	0.118
4.37	1,y-y'	-1.984	0.4676E-02	0.0083	0.00	-0.06	16144	0.052
4.37	1,p-dw	-0.334	9146.	0.0030	3.00	0.07	16144	5.251
4.37	2,x-x'	3.064	0.1198E-01	0.0089	0.00	-0.05	16744	0.087
4.37	2,y-y'	-0.682	0.2263E-02	0.0088	0.00	0.07	16744	0.037
4.37	2,p-dw	0.077	5560.	0.0040	-0.67	-0.22	16744	4.704
4.37	TOTx-x	3.786	0.1618E-01	0.0095	0.00	0.01	32888	0.103
4.37	TOTy-y	-1.202	0.3149E-02	0.0093	0.00	0.01	32888	0.045
4.37	TOTp-w	-0.154	7124.	0.0040	0.05	-0.08	32888	5.307
phiref = 65.499, wref = 0.09726								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
4.41	1,x-x'	-1.990	0.4786E-02	0.0083	0.00	-0.12	16144	0.052
4.41	1,y-y'	5.390	0.2365E-01	0.0083	0.00	0.10	16144	0.116
4.41	1,p-dw	-0.341	8633.	0.0030	2.96	0.08	16144	5.097
4.41	2,x-x'	-1.000	0.2159E-02	0.0090	0.00	-0.04	16744	0.037
4.41	2,y-y'	2.282	0.1169E-01	0.0088	0.00	-0.04	16744	0.084
4.41	2,p-dw	0.144	5836.	0.0040	-0.47	-0.20	16744	4.817
4.41	TOTx-x	-1.354	0.3137E-02	0.0093	0.00	-0.08	32888	0.045
4.41	TOTy-y	3.432	0.1586E-01	0.0094	0.00	0.03	32888	0.101
4.41	TOTp-w	-0.115	7026.	0.0039	0.06	-0.06	32888	5.243
phiref = 65.499, wref = 0.09940								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
4.45	1,x-x'	5.425	0.2396E-01	0.0082	0.00	0.14	16144	0.116

4.45	1,y-y'	-1.592	0.4190E-02	0.0083	0.00	0.06	16144	0.049
4.45	1,p-dw	-0.340	8116.	0.0030	2.91	0.08	16144	4.938
4.45	2,x-x'	3.203	0.1728E-01	0.0087	0.00	0.02	16744	0.102
4.45	2,y-y'	-2.165	0.3769E-02	0.0092	0.00	0.09	16744	0.049
4.45	2,p-dw	0.193	6225.	0.0040	-0.30	-0.17	16744	4.969
4.45	TOTx-x	3.887	0.1866E-01	0.0093	0.00	0.08	32888	0.109
4.45	TOTy-y	-1.769	0.3696E-02	0.0094	0.00	0.08	32888	0.049
4.45	TOTp-w	-0.082	7008.	0.0039	0.06	-0.05	32888	5.206
phiref = 65.499, wref = 0.10158								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
4.48	1,x-x'	-1.563	0.4192E-02	0.0082	0.00	-0.08	16144	0.048
4.48	1,y-y'	4.407	0.1968E-01	0.0083	0.00	-0.01	16144	0.105
4.48	1,p-dw	-0.330	7609.	0.0030	2.85	0.09	16144	4.780
4.48	2,x-x'	-2.768	0.5201E-02	0.0094	0.00	-0.08	16744	0.057
4.48	2,y-y'	6.303	0.3186E-01	0.0087	0.00	-0.08	16744	0.137
4.48	2,p-dw	0.220	6688.	0.0040	-0.16	-0.14	16744	5.143
4.48	TOTx-x	-2.068	0.4422E-02	0.0094	0.00	-0.08	32888	0.053
4.48	TOTy-y	4.998	0.2412E-01	0.0092	0.00	-0.05	32888	0.123
4.48	TOTp-w	-0.056	7053.	0.0038	0.06	-0.03	32888	5.190
phiref = 65.499, wref = 0.10381								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
4.52	1,x-x'	4.327	0.1950E-01	0.0082	0.00	0.11	16144	0.104
4.52	1,y-y'	-1.444	0.3594E-02	0.0083	0.00	0.15	16144	0.045
4.52	1,p-dw	-0.312	7130.	0.0030	2.79	0.09	16144	4.627
4.52	2,x-x'	7.848	0.3808E-01	0.0089	0.00	0.08	16744	0.150
4.52	2,y-y'	-3.379	0.7601E-02	0.0092	0.00	0.07	16744	0.068
4.52	2,p-dw	0.223	7176.	0.0039	-0.05	-0.10	16744	5.320
4.52	TOTx-x	5.736	0.2718E-01	0.0092	0.00	0.09	32888	0.130
4.52	TOTy-y	-2.302	0.5328E-02	0.0094	0.00	0.10	32888	0.058
4.52	TOTp-w	-0.039	7137.	0.0038	0.07	-0.01	32888	5.190
phiref = 65.499, wref = 0.10610								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
4.56	1,x-x'	-1.421	0.3547E-02	0.0082	0.00	0.01	16144	0.044
4.56	1,y-y'	4.151	0.1986E-01	0.0083	0.00	-0.12	16144	0.104
4.56	1,p-dw	-0.285	6696.	0.0030	2.73	0.10	16144	4.484
4.56	2,x-x'	-3.171	0.8059E-02	0.0090	0.00	-0.08	16744	0.069
4.56	2,y-y'	8.969	0.4056E-01	0.0089	0.00	-0.08	16744	0.155
4.56	2,p-dw	0.202	7638.	0.0039	0.02	-0.06	16744	5.483
4.56	TOTx-x	-2.168	0.5481E-02	0.0094	0.00	-0.03	32888	0.058
4.56	TOTy-y	6.206	0.2854E-01	0.0093	0.00	-0.10	32888	0.132
4.56	TOTp-w	-0.033	7232.	0.0037	0.07	0.02	32888	5.198
phiref = 65.499, wref = 0.10843								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
4.60	1,x-x'	4.119	0.2004E-01	0.0082	0.00	0.03	16144	0.104
4.60	1,y-y'	-1.789	0.4101E-02	0.0083	0.00	0.16	16144	0.047
4.60	1,p-dw	-0.252	6321.	0.0030	2.67	0.10	16144	4.355
4.60	2,x-x'	8.116	0.3557E-01	0.0090	0.00	0.09	16744	0.145
4.60	2,y-y'	-2.084	0.6898E-02	0.0087	0.00	0.01	16744	0.063
4.60	2,p-dw	0.158	8031.	0.0039	0.06	-0.02	16744	5.622
4.60	TOTx-x	5.764	0.2612E-01	0.0093	0.00	0.06	32888	0.126
4.60	TOTy-y	-1.776	0.5081E-02	0.0093	0.00	0.08	32888	0.056
4.60	TOTp-w	-0.036	7316.	0.0037	0.06	0.04	32888	5.207

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phiref = 65.499, wref = 0.11081
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
4.64 1,x-x' -1.831 0.4201E-02 0.0083 0.00 0.09 16144 0.047
4.64 1,y-y' 5.080 0.2492E-01 0.0083 0.00 -0.17 16144 0.116
4.64 1,p-dw -0.214 6014. 0.0030 2.61 0.10 16144 4.246
4.64 2,x-x' -1.351 0.5349E-02 0.0087 0.00 -0.02 16744 0.055
4.64 2,y-y' 5.277 0.2183E-01 0.0089 0.00 -0.03 16744 0.112
4.64 2,p-dw 0.097 8322. 0.0039 0.06 0.01 16744 5.727
4.64 TOTx-x -1.441 0.4378E-02 0.0093 0.00 0.03 32888 0.051
4.64 TOTy-y 4.734 0.2127E-01 0.0094 0.00 -0.10 32888 0.114
4.64 TOTp-w -0.048 7372. 0.0037 0.06 0.06 32888 5.213
phiref = 65.499, wref = 0.11324
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
4.68 1,x-x' 5.182 0.2572E-01 0.0082 0.00 -0.07 16144 0.116
4.68 1,y-y' -2.020 0.5007E-02 0.0083 0.00 0.09 16144 0.052
4.68 1,p-dw -0.173 5779. 0.0030 2.55 0.11 16144 4.158
4.68 2,x-x' 3.567 0.1493E-01 0.0088 0.00 0.04 16744 0.092
4.68 2,y-y' -0.648 0.2757E-02 0.0088 0.00 -0.05 16744 0.039
4.68 2,p-dw 0.023 8494. 0.0039 0.04 0.05 16744 5.792
4.68 TOTx-x 3.937 0.1821E-01 0.0094 0.00 -0.01 32888 0.105
4.68 TOTy-y -1.194 0.3511E-02 0.0093 0.00 0.01 32888 0.046
4.68 TOTp-w -0.067 7388. 0.0037 0.06 0.08 32888 5.210
phiref = 65.499, wref = 0.11573
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
4.72 1,x-x' -2.057 0.5186E-02 0.0082 0.00 0.12 16144 0.052
4.72 1,y-y' 5.523 0.2668E-01 0.0083 0.00 -0.13 16144 0.119
4.72 1,p-dw -0.132 5612. 0.0030 2.48 0.11 16144 4.094
4.72 2,x-x' -0.823 0.2277E-02 0.0090 0.00 0.03 16744 0.036
4.72 2,y-y' 2.190 0.1166E-01 0.0087 0.00 0.03 16744 0.080
4.72 2,p-dw -0.061 8534. 0.0040 -0.01 0.08 16744 5.814
4.72 TOTx-x -1.289 0.3349E-02 0.0094 0.00 0.07 32888 0.045
4.72 TOTy-y 3.444 0.1715E-01 0.0094 0.00 -0.05 32888 0.101
4.72 TOTp-w -0.091 7355. 0.0037 0.06 0.09 32888 5.196
phiref = 65.499, wref = 0.11828
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
4.76 1,x-x' 5.586 0.2718E-01 0.0082 0.00 -0.12 16144 0.119
4.76 1,y-y' -1.718 0.4846E-02 0.0083 0.00 -0.02 16144 0.050
4.76 1,p-dw -0.093 5510. 0.0030 2.42 0.11 16144 4.053
4.76 2,x-x' 2.804 0.1645E-01 0.0087 0.00 -0.02 16743 0.095
4.76 2,y-y' -1.909 0.3576E-02 0.0091 0.00 -0.09 16743 0.045
4.76 2,p-dw -0.156 8409. 0.0039 -0.09 0.12 16743 5.759
4.76 TOTx-x 3.767 0.1967E-01 0.0093 0.00 -0.07 32887 0.107
4.76 TOTy-y -1.688 0.3869E-02 0.0094 0.00 -0.05 32887 0.048
4.76 TOTp-w -0.121 7247. 0.0037 0.06 0.11 32887 5.150
phiref = 65.499, wref = 0.12088
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
4.81 1,x-x' -1.693 0.4888E-02 0.0082 0.00 0.08 16144 0.050
4.81 1,y-y' 4.684 0.2270E-01 0.0083 0.00 -0.04 16144 0.108
4.81 1,p-dw -0.057 5466. 0.0030 2.36 0.11 16144 4.034
4.81 2,x-x' -2.610 0.5171E-02 0.0091 0.00 0.07 16743 0.054

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4.81	2,y-y'	5.591	0.3143E-01	0.0088	0.00	0.08	16743	0.131
4.81	2,p-dw	-0.244	8179.	0.0040	-0.19	0.15	16743	5.686
4.81	TOTx-x	-2.029	0.4683E-02	0.0093	0.00	0.08	32887	0.052
4.81	TOTy-y	4.768	0.2521E-01	0.0093	0.00	0.02	32887	0.121
4.81	TOTp-w	-0.149	7095.	0.0037	0.05	0.13	32887	5.107
phiref = 65.499, wref = 0.12353								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
4.85	1,x-x'	4.617	0.2255E-01	0.0082	0.00	-0.11	16144	0.107
4.85	1,y-y'	-1.425	0.4040E-02	0.0083	0.00	-0.11	16144	0.045
4.85	1,p-dw	-0.026	5472.	0.0030	2.30	0.10	16144	4.034
4.85	2,x-x'	7.227	0.3898E-01	0.0090	0.00	-0.06	16743	0.147
4.85	2,y-y'	-3.452	0.8198E-02	0.0090	0.00	-0.07	16743	0.067
4.85	2,p-dw	-0.325	7820.	0.0040	-0.32	0.19	16743	5.570
4.85	TOTx-x	5.578	0.2906E-01	0.0093	0.00	-0.09	32887	0.129
4.85	TOTy-y	-2.308	0.5768E-02	0.0093	0.00	-0.09	32887	0.058
4.85	TOTp-w	-0.173	6883.	0.0037	0.05	0.15	32887	5.049
phiref = 65.499, wref = 0.12625								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
4.89	1,x-x'	-1.388	0.3974E-02	0.0083	0.00	0.01	16144	0.045
4.89	1,y-y'	4.063	0.2096E-01	0.0083	0.00	0.08	16144	0.103
4.89	1,p-dw	-0.003	5519.	0.0030	2.24	0.10	16144	4.049
4.89	2,x-x'	-3.387	0.9087E-02	0.0088	0.00	0.06	16743	0.070
4.89	2,y-y'	8.843	0.4446E-01	0.0090	0.00	0.08	16743	0.156
4.89	2,p-dw	-0.390	7351.	0.0040	-0.47	0.22	16743	5.413
4.89	TOTx-x	-2.239	0.6116E-02	0.0093	0.00	0.04	32887	0.059
4.89	TOTy-y	6.136	0.3108E-01	0.0093	0.00	0.08	32887	0.132
4.89	TOTp-w	-0.191	6622.	0.0037	0.04	0.16	32887	4.980
phiref = 65.498, wref = 0.12902								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
4.93	1,x-x'	4.001	0.2096E-01	0.0082	0.00	-0.04	16144	0.102
4.93	1,y-y'	-1.666	0.4237E-02	0.0084	0.00	-0.15	16144	0.046
4.93	1,p-dw	0.012	5594.	0.0030	2.19	0.10	16144	4.074
4.93	2,x-x'	8.341	0.4061E-01	0.0090	0.00	-0.07	16743	0.148
4.93	2,y-y'	-2.389	0.8248E-02	0.0087	0.00	-0.02	16743	0.066
4.93	2,p-dw	-0.436	6806.	0.0040	-0.64	0.25	16743	5.223
4.93	TOTx-x	5.870	0.2922E-01	0.0093	0.00	-0.06	32887	0.127
4.93	TOTy-y	-1.856	0.5743E-02	0.0094	0.00	-0.08	32887	0.057
4.93	TOTp-w	-0.200	6333.	0.0038	0.04	0.18	32887	4.903
phiref = 65.493, wref = 0.13183								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
4.98	1,x-x'	-1.690	0.4279E-02	0.0083	0.00	-0.06	16144	0.046
4.98	1,y-y'	4.778	0.2573E-01	0.0083	0.00	0.16	16144	0.112
4.98	1,p-dw	0.019	5685.	0.0030	2.15	0.09	16144	4.105
4.98	2,x-x'	-1.598	0.6550E-02	0.0087	0.00	0.02	16743	0.058
4.98	2,y-y'	5.884	0.2690E-01	0.0088	0.00	0.04	16743	0.119
4.98	2,p-dw	-0.458	6225.	0.0040	-0.82	0.28	16743	5.008
4.98	TOTx-x	-1.496	0.4977E-02	0.0094	0.00	-0.02	32887	0.053
4.98	TOTy-y	4.914	0.2416E-01	0.0093	0.00	0.10	32887	0.116
4.98	TOTp-w	-0.201	6036.	0.0039	0.03	0.18	32887	4.821
phiref = 65.486, wref = 0.13466								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)

			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
5.02	1,x-x'	4.866	0.2652E-01	0.0082	0.00	0.03	16144	0.113
5.02	1,y-y'	-1.999	0.5264E-02	0.0084	0.00	-0.11	16144	0.051
5.02	1,p-dw	0.018	5779.	0.0030	2.10	0.08	16144	4.136
5.02	2,x-x'	4.096	0.1861E-01	0.0088	0.00	-0.04	16743	0.098
5.02	2,y-y'	-0.689	0.3435E-02	0.0088	0.00	0.04	16743	0.042
5.02	2,p-dw	-0.456	5646.	0.0040	-1.02	0.30	16743	4.779
5.02	TOTx-x	4.078	0.2044E-01	0.0093	0.00	0.00	32887	0.106
5.02	TOTy-y	-1.205	0.3948E-02	0.0094	0.00	-0.03	32887	0.047
5.02	TOTp-w	-0.191	5751.	0.0039	0.02	0.19	32887	4.739

phiref = 65.480, wref = 0.13748

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
5.07	1,x-x'	-2.059	0.5465E-02	0.0082	0.00	-0.10	16144	0.051
5.07	1,y-y'	5.551	0.2951E-01	0.0083	0.00	0.15	16144	0.120
5.07	1,p-dw	0.010	5863.	0.0030	2.07	0.07	16144	4.164
5.07	2,x-x'	-0.728	0.2571E-02	0.0089	0.00	-0.02	16743	0.037
5.07	2,y-y'	2.230	0.1217E-01	0.0087	0.00	-0.02	16743	0.079
5.07	2,p-dw	-0.432	5098.	0.0041	-1.22	0.31	16743	4.548
5.07	TOTx-x	-1.246	0.3620E-02	0.0093	0.00	-0.06	32887	0.044
5.07	TOTy-y	3.474	0.1862E-01	0.0094	0.00	0.06	32887	0.101
5.07	TOTp-w	-0.173	5492.	0.0040	0.02	0.20	32887	4.664

phiref = 65.474, wref = 0.14031

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
5.11	1,x-x'	5.628	0.3013E-01	0.0083	0.00	0.10	16144	0.120
5.11	1,y-y'	-1.837	0.5481E-02	0.0083	0.00	-0.01	16144	0.051
5.11	1,p-dw	-0.004	5931.	0.0030	2.04	0.07	16144	4.187
5.11	2,x-x'	2.502	0.1570E-01	0.0088	0.00	0.00	16743	0.089
5.11	2,y-y'	-1.672	0.3425E-02	0.0089	0.00	0.07	16743	0.042
5.11	2,p-dw	-0.389	4605.	0.0041	-1.43	0.32	16743	4.327
5.11	TOTx-x	3.644	0.2062E-01	0.0094	0.00	0.05	32887	0.105
5.11	TOTy-y	-1.621	0.4070E-02	0.0093	0.00	0.03	32887	0.047
5.11	TOTp-w	-0.147	5267.	0.0040	0.01	0.20	32887	4.599

phiref = 65.468, wref = 0.14314

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
5.16	1,x-x'	-1.836	0.5614E-02	0.0081	0.00	-0.09	16144	0.051
5.16	1,y-y'	4.962	0.2614E-01	0.0084	0.00	0.06	16144	0.112
5.16	1,p-dw	-0.022	5975.	0.0030	2.02	0.06	16144	4.202
5.16	2,x-x'	-2.424	0.5106E-02	0.0089	0.00	-0.06	16743	0.051
5.16	2,y-y'	4.893	0.3051E-01	0.0089	0.00	-0.06	16743	0.124
5.16	2,p-dw	-0.329	4184.	0.0041	-1.65	0.33	16743	4.129
5.16	TOTx-x	-1.997	0.4966E-02	0.0092	0.00	-0.07	32887	0.051
5.16	TOTy-y	4.538	0.2619E-01	0.0094	0.00	0.00	32887	0.118
5.16	TOTp-w	-0.114	5083.	0.0041	0.01	0.20	32887	4.550

phiref = 65.462, wref = 0.14598

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
5.20	1,x-x'	4.896	0.2597E-01	0.0083	0.00	0.10	16144	0.110
5.20	1,y-y'	-1.464	0.4635E-02	0.0083	0.00	0.09	16144	0.047
5.20	1,p-dw	-0.043	5993.	0.0030	2.00	0.05	16144	4.209
5.20	2,x-x'	6.509	0.3898E-01	0.0090	0.00	0.04	16743	0.141
5.20	2,y-y'	-3.441	0.8663E-02	0.0089	0.00	0.07	16743	0.066
5.20	2,p-dw	-0.256	3852.	0.0041	-1.86	0.34	16743	3.966
5.20	TOTx-x	5.346	0.3056E-01	0.0093	0.00	0.07	32887	0.127

5.20	TOTy-y	-2.319	0.6254E-02	0.0093	0.00	0.08	32887	0.057
5.20	TOTp-w	-0.075	4948.	0.0041	0.00	0.19	32887	4.520
phiref = 65.456, wref = 0.14881								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
5.25	1,x-x'	-1.418	0.4578E-02	0.0082	0.00	-0.02	16144	0.046
5.25	1,y-y'	4.055	0.2240E-01	0.0083	0.00	-0.06	16144	0.102
5.25	1,p-dw	-0.065	5982.	0.0030	1.99	0.03	16144	4.206
5.25	2,x-x'	-3.449	0.9834E-02	0.0089	0.00	-0.05	16743	0.070
5.25	2,y-y'	8.583	0.4776E-01	0.0089	0.00	-0.09	16743	0.154
5.25	2,p-dw	-0.173	3621.	0.0041	-2.08	0.34	16743	3.849
5.25	TOTx-x	-2.301	0.6794E-02	0.0093	0.00	-0.04	32887	0.059
5.25	TOTy-y	6.008	0.3336E-01	0.0092	0.00	-0.07	32887	0.131
5.25	TOTp-w	-0.034	4869.	0.0042	0.00	0.19	32887	4.511
phiref = 65.451, wref = 0.15165								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
5.30	1,x-x'	3.976	0.2225E-01	0.0082	0.00	0.05	16144	0.100
5.30	1,y-y'	-1.563	0.4453E-02	0.0084	0.00	0.14	16144	0.045
5.30	1,p-dw	-0.089	5943.	0.0030	1.98	0.02	16144	4.194
5.30	2,x-x'	8.432	0.4534E-01	0.0089	0.00	0.05	16743	0.150
5.30	2,y-y'	-2.597	0.9423E-02	0.0088	0.00	0.02	16743	0.068
5.30	2,p-dw	-0.086	3496.	0.0041	-2.29	0.34	16743	3.785
5.30	TOTx-x	5.924	0.3224E-01	0.0092	0.00	0.05	32887	0.128
5.30	TOTy-y	-1.916	0.6421E-02	0.0095	0.00	0.08	32887	0.058
5.30	TOTp-w	0.007	4847.	0.0042	-0.01	0.18	32887	4.526
phiref = 65.446, wref = 0.15450								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
5.34	1,x-x'	-1.574	0.4451E-02	0.0083	0.00	0.05	16144	0.045
5.34	1,y-y'	4.452	0.2603E-01	0.0083	0.00	-0.14	16144	0.109
5.34	1,p-dw	-0.112	5874.	0.0030	1.99	0.01	16144	4.172
5.34	2,x-x'	-1.811	0.7731E-02	0.0089	0.00	-0.02	16743	0.062
5.34	2,y-y'	6.380	0.3204E-01	0.0087	0.00	-0.05	16743	0.124
5.34	2,p-dw	0.000	3479.	0.0041	-2.49	0.33	16743	3.776
5.34	TOTx-x	-1.551	0.5642E-02	0.0094	0.00	0.01	32887	0.054
5.34	TOTy-y	5.037	0.2691E-01	0.0092	0.00	-0.09	32887	0.117
5.34	TOTp-w	0.045	4882.	0.0043	-0.01	0.17	32887	4.563
phiref = 65.442, wref = 0.15735								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
5.39	1,x-x'	4.513	0.2671E-01	0.0082	0.00	-0.02	16144	0.109
5.39	1,y-y'	-1.951	0.5487E-02	0.0084	0.00	0.11	16144	0.050
5.39	1,p-dw	-0.133	5779.	0.0030	2.00	0.00	16144	4.140
5.39	2,x-x'	4.579	0.2257E-01	0.0088	0.00	0.04	16743	0.104
5.39	2,y-y'	-0.776	0.4269E-02	0.0088	0.00	-0.03	16743	0.045
5.39	2,p-dw	0.080	3560.	0.0041	-2.69	0.31	16743	3.820
5.39	TOTx-x	4.187	0.2258E-01	0.0092	0.00	0.01	32887	0.106
5.39	TOTy-y	-1.224	0.4442E-02	0.0094	0.00	0.04	32887	0.048
5.39	TOTp-w	0.077	4966.	0.0043	-0.02	0.16	32887	4.618
phiref = 65.437, wref = 0.16020								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)			(deg)
5.44	1,x-x'	-2.003	0.5650E-02	0.0083	0.00	0.09	16144	0.050
5.44	1,y-y'	5.418	0.3145E-01	0.0083	0.00	-0.14	16144	0.119

5.44	1,p-dw	-0.152	5660.	0.0030	2.01	-0.01	16144	4.101
5.44	2,x-x'	-0.695	0.3035E-02	0.0089	0.00	0.01	16743	0.038
5.44	2,y-y'	2.331	0.1299E-01	0.0088	0.00	0.00	16743	0.078
5.44	2,p-dw	0.148	3725.	0.0041	-2.87	0.29	16743	3.907
5.44	TOTx-x	-1.216	0.3955E-02	0.0093	0.00	0.05	32887	0.044
5.44	TOTy-y	3.450	0.1977E-01	0.0094	0.00	-0.07	32887	0.100
5.44	TOTp-w	0.103	5089.	0.0043	-0.02	0.14	32887	4.687
phiref = 65.433, wref = 0.16306								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
5.49	1,x-x'	5.539	0.3235E-01	0.0082	0.00	-0.08	16144	0.119
5.49	1,y-y'	-1.916	0.6024E-02	0.0083	0.00	0.03	16144	0.052
5.49	1,p-dw	-0.167	5523.	0.0030	2.03	-0.02	16144	4.054
5.49	2,x-x'	2.250	0.1484E-01	0.0089	0.00	0.01	16743	0.084
5.49	2,y-y'	-1.495	0.3466E-02	0.0088	0.00	-0.07	16743	0.040
5.49	2,p-dw	0.203	3956.	0.0041	-3.03	0.26	16743	4.027
5.49	TOTx-x	3.460	0.2102E-01	0.0094	0.00	-0.03	32887	0.103
5.49	TOTy-y	-1.585	0.4379E-02	0.0092	0.00	-0.02	32887	0.046
5.49	TOTp-w	0.121	5240.	0.0043	-0.03	0.12	32887	4.767
phiref = 65.429, wref = 0.16593								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
5.54	1,x-x'	-1.916	0.6122E-02	0.0082	0.00	0.09	16144	0.052
5.54	1,y-y'	5.226	0.2974E-01	0.0083	0.00	-0.08	16144	0.114
5.54	1,p-dw	-0.177	5375.	0.0030	2.06	-0.03	16144	4.002
5.54	2,x-x'	-2.243	0.5164E-02	0.0089	0.00	0.04	16743	0.049
5.54	2,y-y'	4.141	0.2851E-01	0.0089	0.00	0.06	16743	0.116
5.54	2,p-dw	0.240	4233.	0.0041	-3.17	0.23	16743	4.168
5.54	TOTx-x	-1.971	0.5298E-02	0.0091	0.00	0.06	32887	0.050
5.54	TOTy-y	4.254	0.2659E-01	0.0094	0.00	-0.01	32887	0.115
5.54	TOTp-w	0.132	5409.	0.0044	-0.03	0.10	32887	4.852
phiref = 65.425, wref = 0.16881								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
5.59	1,x-x'	5.222	0.2984E-01	0.0082	0.00	-0.09	16144	0.114
5.59	1,y-y'	-1.511	0.5159E-02	0.0083	0.00	-0.07	16144	0.047
5.59	1,p-dw	-0.182	5223.	0.0030	2.09	-0.03	16144	3.946
5.59	2,x-x'	5.779	0.3814E-01	0.0090	0.00	-0.02	16743	0.134
5.59	2,y-y'	-3.312	0.8899E-02	0.0090	0.00	-0.07	16743	0.065
5.59	2,p-dw	0.261	4537.	0.0041	-3.30	0.19	16743	4.318
5.59	TOTx-x	5.100	0.3165E-01	0.0093	0.00	-0.06	32887	0.125
5.59	TOTy-y	-2.302	0.6667E-02	0.0093	0.00	-0.07	32887	0.057
5.59	TOTp-w	0.134	5588.	0.0044	-0.03	0.08	32887	4.938
phiref = 65.421, wref = 0.17169								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
5.64	1,x-x'	-1.471	0.5102E-02	0.0082	0.00	0.04	16144	0.047
5.64	1,y-y'	4.229	0.2469E-01	0.0083	0.00	0.03	16144	0.103
5.64	1,p-dw	-0.183	5071.	0.0030	2.12	-0.04	16144	3.889
5.64	2,x-x'	-3.402	0.1028E-01	0.0091	0.00	0.04	16743	0.070
5.64	2,y-y'	8.249	0.5027E-01	0.0089	0.00	0.08	16743	0.152
5.64	2,p-dw	0.264	4853.	0.0041	-3.41	0.16	16743	4.467
5.64	TOTx-x	-2.336	0.7345E-02	0.0093	0.00	0.04	32887	0.060
5.64	TOTy-y	5.920	0.3560E-01	0.0092	0.00	0.06	32887	0.131
5.64	TOTp-w	0.129	5770.	0.0044	-0.03	0.06	32887	5.021
phiref = 65.417, wref = 0.17457								

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
5.69	1,x-x'	4.139	0.2440E-01	0.0082	0.00 -0.07	16144	0.102
5.69	1,y-y'	-1.478	0.4608E-02	0.0083	0.00 -0.12	16144	0.044
5.69	1,p-dw	-0.178	4923.	0.0030	2.16 -0.05	16144	3.833
5.69	2,x-x'	8.445	0.4955E-01	0.0089	0.00 -0.04	16743	0.151
5.69	2,y-y'	-2.760	0.1040E-01	0.0091	0.00 -0.03	16743	0.070
5.69	2,p-dw	0.249	5164.	0.0041	-3.49 0.12	16743	4.608
5.69	TOTx-x	6.029	0.3543E-01	0.0091	0.00 -0.06	32887	0.129
5.69	TOTy-y	-1.962	0.6985E-02	0.0096	0.00 -0.07	32887	0.059
5.69	TOTp-w	0.114	5946.	0.0044	-0.03 0.04	32887	5.099

phiref = 65.413, wref = 0.17746

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
5.74	1,x-x'	-1.477	0.4586E-02	0.0082	0.00 -0.03	16144	0.044
5.74	1,y-y'	4.250	0.2647E-01	0.0083	0.00 0.11	16144	0.106
5.74	1,p-dw	-0.170	4783.	0.0030	2.20 -0.06	16144	3.779
5.74	2,x-x'	-2.015	0.8846E-02	0.0091	0.00 0.03	16743	0.064
5.74	2,y-y'	6.856	0.3741E-01	0.0088	0.00 0.05	16743	0.130
5.74	2,p-dw	0.217	5452.	0.0041	-3.56 0.08	16743	4.733
5.74	TOTx-x	-1.610	0.6261E-02	0.0095	0.00 0.00	32887	0.055
5.74	TOTy-y	5.217	0.2992E-01	0.0092	0.00 0.08	32887	0.119
5.74	TOTp-w	0.090	6107.	0.0044	-0.04 0.01	32887	5.166

phiref = 65.410, wref = 0.18036

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
5.79	1,x-x'	4.270	0.2693E-01	0.0082	0.00 0.00	16144	0.106
5.79	1,y-y'	-1.863	0.5508E-02	0.0084	0.00 -0.11	16144	0.048
5.79	1,p-dw	-0.158	4653.	0.0030	2.24 -0.06	16144	3.728
5.79	2,x-x'	5.096	0.2707E-01	0.0088	0.00 -0.04	16743	0.110
5.79	2,y-y'	-0.900	0.5213E-02	0.0089	0.00 0.02	16743	0.048
5.79	2,p-dw	0.169	5701.	0.0041	-3.60 0.03	16743	4.837
5.79	TOTx-x	4.369	0.2507E-01	0.0092	0.00 -0.02	32887	0.108
5.79	TOTy-y	-1.242	0.4892E-02	0.0094	0.00 -0.04	32887	0.048
5.79	TOTp-w	0.058	6240.	0.0044	-0.04 -0.01	32887	5.220

phiref = 65.406, wref = 0.18326

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
5.84	1,x-x'	-1.917	0.5688E-02	0.0083	0.00 -0.08	16144	0.049
5.84	1,y-y'	5.252	0.3289E-01	0.0083	0.00 0.13	16144	0.117
5.84	1,p-dw	-0.143	4537.	0.0030	2.28 -0.06	16144	3.683
5.84	2,x-x'	-0.694	0.3612E-02	0.0088	0.00 0.00	16743	0.040
5.84	2,y-y'	2.550	0.1447E-01	0.0089	0.00 0.00	16743	0.080
5.84	2,p-dw	0.108	5893.	0.0041	-3.61 -0.02	16743	4.915
5.84	TOTx-x	-1.183	0.4267E-02	0.0092	0.00 -0.04	32887	0.045
5.84	TOTy-y	3.481	0.2108E-01	0.0094	0.00 0.07	32887	0.100
5.84	TOTp-w	0.019	6336.	0.0044	-0.03 -0.04	32887	5.258

phiref = 65.403, wref = 0.18617

tdist (m)	state	alpha	beta (cm/mr) (deg/MeV)	Erms (cm-mr) (deg-MeV)	offsets (cm,mr) (deg, keV)	ngood	rms (cm) (deg)
5.89	1,x-x'	5.343	0.3371E-01	0.0082	0.00 0.06	16144	0.118
5.89	1,y-y'	-1.970	0.6449E-02	0.0084	0.00 -0.05	16144	0.052
5.89	1,p-dw	-0.125	4437.	0.0030	2.33 -0.07	16144	3.644
5.89	2,x-x'	2.156	0.1453E-01	0.0090	0.00 -0.02	16743	0.081
5.89	2,y-y'	-1.284	0.3401E-02	0.0088	0.00 0.06	16743	0.039

5.89	2,p-dw	0.038	6018.	0.0041	-3.61	-0.07	16743	4.965
5.89	TOTx-x	3.331	0.2147E-01	0.0094	0.00	0.02	32887	0.101
5.89	TOTy-y	-1.513	0.4561E-02	0.0091	0.00	0.01	32887	0.046
5.89	TOTp-w	-0.024	6389.	0.0044	-0.03	-0.07	32887	5.279

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
5.97	1,x-x'	1.851	0.1866E-01	0.0082	0.00	0.04	16144	0.087
5.97	1,y-y'	-1.107	0.1267E-01	0.0083	0.00	0.04	16144	0.072
5.97	1,p-dw	-0.023	4321.	0.0030	2.39	-0.11	16144	3.599
5.97	2,x-x'	1.449	0.2382E-01	0.0090	0.00	0.00	16743	0.103
5.97	2,y-y'	-2.575	0.2022E-01	0.0088	0.00	0.03	16743	0.094
5.97	2,p-dw	0.024	6063.	0.0041	-3.55	-0.07	16743	4.980
5.97	TOTx-x	1.508	0.1972E-01	0.0094	0.00	0.02	32887	0.096
5.97	TOTy-y	-1.743	0.1545E-01	0.0092	0.00	0.04	32887	0.084
5.97	TOTp-w	0.018	6375.	0.0044	-0.03	-0.09	32887	5.275

End RFQdyn section

Beam centroid at cell 137, Ngood= 32887/ 40000

X(cm),Xp(mrad)=	-0.00034	0.01924
Y(cm),Yp(mrad)=	0.00016	0.03620
Phase(deg),Energy(MeV/amu)=	-25.47606	0.19089

Begin Trans2 section

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
6.13	1,x-x'	-1.857	0.1874E-01	0.0082	0.00	0.04	16144	0.087
6.13	1,y-y'	-3.852	0.9016E-01	0.0083	0.00	0.04	16144	0.192
6.13	1,p-dw	0.300	4708.	0.0030	2.55	-0.11	16144	3.757
6.13	2,x-x'	-0.584	0.1031E-01	0.0090	0.00	0.00	16743	0.068
6.13	2,y-y'	-8.471	0.1928	0.0088	0.00	0.03	16743	0.289
6.13	2,p-dw	0.254	6450.	0.0041	-3.45	-0.07	16743	5.137
6.13	TOTx-x	-1.086	0.1312E-01	0.0094	0.00	0.02	32887	0.078
6.13	TOTy-y	-5.829	0.1338	0.0092	0.00	0.04	32887	0.247
6.13	TOTp-w	0.237	6731.	0.0044	-0.02	-0.09	32887	5.420

Doing transport element 1, Type= 1

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
6.18	1,x-x'	-7.778	0.6068E-01	0.0082	0.00	0.06	16144	0.157
6.18	1,y-y'	4.588	0.8594E-01	0.0083	0.00	-0.02	16144	0.188
6.18	1,p-dw	0.404	5023.	0.0030	2.61	-0.11	16144	3.880
6.18	2,x-x'	-3.459	0.2783E-01	0.0090	0.00	-0.02	16743	0.111
6.18	2,y-y'	10.325	0.1834	0.0087	0.00	-0.05	16743	0.281
6.18	2,p-dw	0.327	6709.	0.0041	-3.42	-0.07	16743	5.239
6.18	TOTx-x	-5.072	0.3998E-01	0.0093	0.00	0.02	32887	0.136
6.18	TOTy-y	6.970	0.1257	0.0093	0.00	-0.03	32887	0.240
6.18	TOTp-w	0.307	6974.	0.0044	-0.02	-0.09	32887	5.517

Doing transport element 2, Type= 3

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
6.18	1,x-x'	-7.778	0.6068E-01	0.0082	0.00	0.06	16144	0.157
6.18	1,y-y'	4.588	0.8594E-01	0.0083	0.00	-0.02	16144	0.188
6.18	1,p-dw	0.404	5023.	0.0030	2.61	-0.11	16144	3.880
6.18	2,x-x'	-3.459	0.2783E-01	0.0090	0.00	-0.02	16743	0.111
6.18	2,y-y'	10.325	0.1834	0.0087	0.00	-0.05	16743	0.281
6.18	2,p-dw	0.327	6709.	0.0041	-3.42	-0.07	16743	5.239
6.18	TOTx-x	-5.072	0.3998E-01	0.0093	0.00	0.02	32887	0.136
6.18	TOTy-y	6.970	0.1257	0.0093	0.00	-0.03	32887	0.240
6.18	TOTp-w	0.307	6974.	0.0044	-0.02	-0.09	32887	5.517

Doing transport element 3, Type= 1

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
6.18	1,x-x'	-7.778	0.6068E-01	0.0082	0.00	0.06	16144	0.157
6.18	1,y-y'	4.588	0.8594E-01	0.0083	0.00	-0.02	16144	0.188
6.18	1,p-dw	0.404	5023.	0.0030	2.61	-0.11	16144	3.880
6.18	2,x-x'	-3.459	0.2783E-01	0.0090	0.00	-0.02	16743	0.111
6.18	2,y-y'	10.325	0.1834	0.0087	0.00	-0.05	16743	0.281
6.18	2,p-dw	0.327	6709.	0.0041	-3.42	-0.07	16743	5.239
6.18	TOTx-x	-5.072	0.3998E-01	0.0093	0.00	0.02	32887	0.136
6.18	TOTy-y	6.970	0.1257	0.0093	0.00	-0.03	32887	0.240
6.18	TOTp-w	0.307	6974.	0.0044	-0.02	-0.09	32887	5.517

6.23	1,x-x'	-12.845	0.1638	0.0082	0.00	0.06	16144	0.258
6.23	1,y-y'	3.305	0.4648E-01	0.0083	0.00	-0.02	16144	0.138
6.23	1,p-dw	0.507	5430.	0.0030	2.66	-0.11	16144	4.034
6.23	2,x-x'	-5.787	0.7406E-01	0.0090	0.00	-0.02	16743	0.182
6.23	2,y-y'	7.391	0.9477E-01	0.0087	0.00	-0.05	16743	0.202
6.23	2,p-dw	0.401	7034.	0.0041	-3.39	-0.07	16743	5.364
6.23	TOTx-x	-8.413	0.1074	0.0093	0.00	0.02	32887	0.222
6.23	TOTy-y	4.998	0.6589E-01	0.0093	0.00	-0.03	32887	0.174
6.23	TOTp-w	0.377	7279.	0.0044	-0.02	-0.09	32887	5.637

Doing transport element 4, Type= 3

0 1

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)
6.28	1,x-x'	6.647	0.2008	0.0082	0.00 -0.02	16144	0.286
6.28	1,y-y'	-1.099	0.3701E-01	0.0083	0.00 0.04	16144	0.123
6.28	1,p-dw	0.611	5929.	0.0030	2.71 -0.11	16144	4.216
6.28	2,x-x'	3.258	0.8914E-01	0.0091	0.00 0.02	16743	0.200
6.28	2,y-y'	-1.528	0.6959E-01	0.0088	0.00 0.00	16743	0.174
6.28	2,p-dw	0.474	7424.	0.0041	-3.35 -0.07	16743	5.511
6.28	TOTx-x	4.371	0.1276	0.0096	0.00 0.00	32887	0.246
6.28	TOTy-y	-1.239	0.5059E-01	0.0091	0.00 0.02	32887	0.151
6.28	TOTp-w	0.447	7647.	0.0044	-0.02 -0.09	32887	5.777

Doing transport element 5, Type= 1

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)
6.33	1,x-x'	5.522	0.1399	0.0082	0.00 -0.02	16144	0.239
6.33	1,y-y'	-1.397	0.4949E-01	0.0083	0.00 0.04	16144	0.142
6.33	1,p-dw	0.714	6521.	0.0030	2.76 -0.11	16144	4.421
6.33	2,x-x'	2.607	0.5982E-01	0.0091	0.00 0.02	16743	0.164
6.33	2,y-y'	-1.768	0.8608E-01	0.0088	0.00 0.00	16743	0.193
6.33	2,p-dw	0.548	7880.	0.0041	-3.32 -0.07	16743	5.678
6.33	TOTx-x	3.583	0.8778E-01	0.0096	0.00 0.00	32887	0.204
6.33	TOTy-y	-1.489	0.6423E-01	0.0091	0.00 0.02	32887	0.170
6.33	TOTp-w	0.517	8077.	0.0044	-0.02 -0.09	32887	5.938

Doing transport element 6, Type= 3

0 1

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)
6.38	1,x-x'	0.999	0.1091	0.0082	0.00 0.00	16144	0.211
6.38	1,y-y'	0.258	0.5552E-01	0.0083	0.00 0.01	16144	0.151
6.38	1,p-dw	0.817	7205.	0.0030	2.81 -0.11	16144	4.647
6.38	2,x-x'	0.513	0.4509E-01	0.0091	0.00 0.01	16743	0.142
6.38	2,y-y'	1.252	0.8890E-01	0.0088	0.00 -0.01	16743	0.196
6.38	2,p-dw	0.622	8402.	0.0041	-3.29 -0.07	16743	5.863
6.38	TOTx-x	0.672	0.6805E-01	0.0095	0.00 0.01	32887	0.179
6.38	TOTy-y	0.720	0.6758E-01	0.0092	0.00 0.00	32887	0.175
6.38	TOTp-w	0.587	8570.	0.0044	-0.01 -0.09	32887	6.116

Doing transport element 7, Type= 1

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)
6.43	1,x-x'	0.907	0.9955E-01	0.0082	0.00 0.00	16144	0.201
6.43	1,y-y'	0.162	0.5342E-01	0.0083	0.00 0.01	16144	0.148

6.43	1,p-dw	0.921	7981.	0.0030	2.87	-0.11	16144	4.891
6.43	2,x-x'	0.373	0.4066E-01	0.0091	0.00	0.01	16743	0.135
6.43	2,y-y'	1.108	0.7711E-01	0.0088	0.00	-0.01	16743	0.183
6.43	2,p-dw	0.695	8990.	0.0041	-3.25	-0.07	16743	6.064
6.43	TOTx-x	0.565	0.6187E-01	0.0095	0.00	0.01	32887	0.171
6.43	TOTy-y	0.608	0.6094E-01	0.0092	0.00	0.00	32887	0.166
6.43	TOTp-w	0.657	9125.	0.0044	-0.01	-0.09	32887	6.311
Doing transport element				8,	Type=	1		
phiref = -24.843, wref = 0.19098								
tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
6.53	1,x-x'	0.724	0.8324E-01	0.0082	0.00	0.00	16144	0.184
6.53	1,y-y'	-0.030	0.5209E-01	0.0083	0.00	0.01	16144	0.146
6.53	1,p-dw	1.127	9809.	0.0030	2.97	-0.11	16144	5.423
6.53	2,x-x'	0.093	0.3600E-01	0.0091	0.00	0.01	16743	0.127
6.53	2,y-y'	0.819	0.5784E-01	0.0088	0.00	-0.01	16743	0.158
6.53	2,p-dw	0.843	0.1036E+05	0.0041	-3.19	-0.07	16743	6.511
6.53	TOTx-x	0.352	0.5270E-01	0.0095	0.00	0.01	32887	0.158
6.53	TOTy-y	0.383	0.5103E-01	0.0092	0.00	0.00	32887	0.152
6.53	TOTp-w	0.797	0.1042E+05	0.0044	-0.01	-0.09	32887	6.745
Doing transport element				9,	Type=	1		
phiref = -24.843, wref = 0.19098								
tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
6.68	1,x-x'	0.449	0.6564E-01	0.0082	0.00	0.00	16144	0.163
6.68	1,y-y'	-0.318	0.5731E-01	0.0083	0.00	0.01	16144	0.153
6.68	1,p-dw	1.437	0.1324E+05	0.0030	3.12	-0.11	16144	6.301
6.68	2,x-x'	-0.327	0.3951E-01	0.0091	0.00	0.01	16743	0.133
6.68	2,y-y'	0.386	0.3977E-01	0.0088	0.00	-0.01	16743	0.131
6.68	2,p-dw	1.064	0.1291E+05	0.0041	-3.09	-0.07	16743	7.269
6.68	TOTx-x	0.032	0.4694E-01	0.0095	0.00	0.01	32887	0.149
6.68	TOTy-y	0.046	0.4459E-01	0.0092	0.00	0.00	32887	0.142
6.68	TOTp-w	1.007	0.1284E+05	0.0044	0.00	-0.09	32887	7.486
Doing transport element				10,	Type=	1		
phiref = -24.843, wref = 0.19098								
tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
6.71	1,x-x'	0.381	0.6254E-01	0.0082	0.00	0.00	16144	0.159
6.71	1,y-y'	-0.390	0.5994E-01	0.0083	0.00	0.01	16144	0.157
6.71	1,p-dw	1.514	0.1422E+05	0.0030	3.16	-0.11	16144	6.530
6.71	2,x-x'	-0.432	0.4234E-01	0.0091	0.00	0.01	16743	0.138
6.71	2,y-y'	0.278	0.3730E-01	0.0088	0.00	-0.01	16743	0.127
6.71	2,p-dw	1.118	0.1364E+05	0.0041	-3.07	-0.07	16743	7.470
6.71	TOTx-x	-0.048	0.4700E-01	0.0095	0.00	0.01	32887	0.149
6.71	TOTy-y	-0.038	0.4456E-01	0.0092	0.00	0.00	32887	0.142
6.71	TOTp-w	1.059	0.1353E+05	0.0044	0.00	-0.09	32887	7.684
Doing transport element				11,	Type=	10		
phiref = -24.843, wref = 0.19098								
tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg, keV)		(deg)	
6.82	1,x-x'	0.190	0.5651E-01	0.0082	0.00	0.00	16144	0.151
6.82	1,y-y'	-0.588	0.7023E-01	0.0083	0.00	0.01	16144	0.170
6.82	1,p-dw	1.732	0.1728E+05	0.0030	3.27	-0.11	16144	7.197
6.82	2,x-x'	-0.724	0.5451E-01	0.0091	0.00	0.01	16743	0.156
6.82	2,y-y'	-0.026	0.3465E-01	0.0088	0.00	-0.01	16743	0.122
6.82	2,p-dw	1.274	0.1589E+05	0.0041	-3.00	-0.07	16743	8.063

6.82	TOTx-x	-0.270	0.5034E-01	0.0095	0.00	0.01	32887	0.154
6.82	TOTy-y	-0.272	0.4784E-01	0.0092	0.00	0.00	32887	0.148
6.82	TOTp-w	1.207	0.1566E+05	0.0044	0.00	-0.09	32887	8.268
Doing transport element				12,	Type=		1	
phiref = -24.843, wref = 0.19098								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
6.89	1,x-x'	0.058	0.5471E-01	0.0082	0.00	0.00	16144	0.149
6.89	1,y-y'	-0.726	0.7973E-01	0.0083	0.00	0.01	16144	0.181
6.89	1,p-dw	1.882	0.1961E+05	0.0030	3.34	-0.11	16144	7.667
6.89	2,x-x'	-0.926	0.6644E-01	0.0091	0.00	0.01	16743	0.172
6.89	2,y-y'	-0.234	0.3653E-01	0.0088	0.00	-0.01	16743	0.126
6.89	2,p-dw	1.380	0.1760E+05	0.0041	-2.95	-0.07	16743	8.486
6.89	TOTx-x	-0.424	0.5536E-01	0.0095	0.00	0.01	32887	0.161
6.89	TOTy-y	-0.435	0.5295E-01	0.0092	0.00	0.00	32887	0.155
6.89	TOTp-w	1.308	0.1728E+05	0.0044	0.01	-0.09	32887	8.685
Doing transport element				13,	Type=		1	
phiref = -24.843, wref = 0.19098								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
7.04	1,x-x'	-0.208	0.5689E-01	0.0082	0.00	0.00	16144	0.152
7.04	1,y-y'	-1.004	0.1048	0.0083	0.00	0.01	16144	0.207
7.04	1,p-dw	2.181	0.2487E+05	0.0030	3.49	-0.11	16144	8.634
7.04	2,x-x'	-1.332	0.9918E-01	0.0091	0.00	0.01	16743	0.211
7.04	2,y-y'	-0.653	0.4940E-01	0.0088	0.00	-0.01	16743	0.146
7.04	2,p-dw	1.594	0.2145E+05	0.0041	-2.86	-0.07	16743	9.368
7.04	TOTx-x	-0.733	0.7213E-01	0.0095	0.00	0.01	32887	0.184
7.04	TOTy-y	-0.760	0.7028E-01	0.0092	0.00	0.00	32887	0.179
7.04	TOTp-w	1.511	0.2093E+05	0.0044	0.01	-0.09	32887	9.558
Doing transport element				14,	Type=		2	
phiref = -24.843, wref = 0.19098								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
7.04	1,x-x'	-0.436	0.5694E-01	0.0082	0.00	0.01	16144	0.152
7.04	1,y-y'	-1.425	0.1049	0.0083	0.00	0.01	16144	0.207
7.04	1,p-dw	-0.056	0.2486E+05	0.0030	3.49	0.20	16144	8.634
7.04	2,x-x'	-1.739	0.9891E-01	0.0091	0.00	0.01	16743	0.211
7.04	2,y-y'	-0.858	0.4942E-01	0.0088	0.00	-0.01	16743	0.146
7.04	2,p-dw	-0.387	0.2128E+05	0.0041	-2.86	-0.34	16743	9.368
7.04	TOTx-x	-1.027	0.7197E-01	0.0095	0.00	0.01	32887	0.184
7.04	TOTy-y	-1.045	0.7026E-01	0.0092	0.00	0.00	32887	0.179
7.04	TOTp-w	-0.397	0.2079E+05	0.0044	0.01	-0.07	32887	9.558
Doing transport element				15,	Type=		1	
phiref = -24.843, wref = 0.19098								
tdist	state	alpha	beta	Erms	offsets		ngood	rms
(m)			(cm/mr)	(cm-mr)	(cm,mr)			(cm)
			(deg/MeV)	(deg-MeV)	(deg, keV)			(deg)
7.23	1,x-x'	-0.851	0.8248E-01	0.0082	0.00	0.01	16144	0.183
7.23	1,y-y'	-1.999	0.1729	0.0083	0.00	0.01	16144	0.266
7.23	1,p-dw	0.016	0.2479E+05	0.0030	3.14	0.20	16144	8.622
7.23	2,x-x'	-2.547	0.1840	0.0091	0.00	0.01	16743	0.287
7.23	2,y-y'	-1.556	0.9734E-01	0.0088	0.00	-0.01	16743	0.205
7.23	2,p-dw	-0.291	0.2008E+05	0.0041	-2.26	-0.34	16743	9.100
7.23	TOTx-x	-1.593	0.1240	0.0095	0.00	0.01	32887	0.242
7.23	TOTy-y	-1.636	0.1235	0.0092	0.00	0.00	32887	0.237
7.23	TOTp-w	-0.299	0.1955E+05	0.0044	0.02	-0.07	32887	9.270
Doing transport element				16,	Type=		10	

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phiref = -24.843, wref = 0.19098
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
7.34 1,x-x' 3.932 0.8414E-01 0.0087 0.00 -0.08 16144 0.190
7.34 1,y-y' 3.996 0.8553E-01 0.0090 0.00 -0.02 16144 0.195
7.34 1,p-dw 0.046 0.2464E+05 0.0030 3.05 0.17 16144 8.626
7.34 2,x-x' 4.575 0.9644E-01 0.0093 0.00 -0.01 16743 0.210
7.34 2,y-y' 4.690 0.9825E-01 0.0097 0.00 0.04 16743 0.216
7.34 2,p-dw -0.242 0.1930E+05 0.0042 -1.82 -0.37 16743 8.977
7.34 TOTx-x 4.258 0.9035E-01 0.0090 0.00 -0.04 32887 0.201
7.34 TOTy-y 4.346 0.9190E-01 0.0094 0.00 0.01 32887 0.206
7.34 TOTp-w -0.249 0.1882E+05 0.0044 0.03 -0.11 32887 9.137
Doing transport element 17, Type= 1
phiref = -24.843, wref = 0.19098
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
7.64 1,x-x' -1.938 0.2430E-01 0.0087 0.00 -0.08 16144 0.102
7.64 1,y-y' -1.955 0.2431E-01 0.0090 0.00 -0.02 16144 0.104
7.64 1,p-dw 0.155 0.2518E+05 0.0030 2.59 0.17 16144 8.719
7.64 2,x-x' -2.246 0.2659E-01 0.0093 0.00 -0.01 16743 0.110
7.64 2,y-y' -2.332 0.2751E-01 0.0097 0.00 0.04 16743 0.115
7.64 2,p-dw -0.095 0.1840E+05 0.0042 -0.82 -0.37 16743 8.765
7.64 TOTx-x -2.094 0.2543E-01 0.0090 0.00 -0.04 32887 0.106
7.64 TOTy-y -2.146 0.2590E-01 0.0094 0.00 0.01 32887 0.110
7.64 TOTp-w -0.098 0.1789E+05 0.0044 0.04 -0.11 32887 8.908
Doing transport element 18, Type= 1
phiref = -24.843, wref = 0.19098
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
7.99 1,x-x' -8.777 0.3988 0.0087 0.00 -0.08 16144 0.414
7.99 1,y-y' -8.888 0.4033 0.0090 0.00 -0.02 16144 0.424
7.99 1,p-dw 0.282 0.2654E+05 0.0030 2.06 0.17 16144 8.952
7.99 2,x-x' -10.193 0.4614 0.0093 0.00 -0.01 16743 0.460
7.99 2,y-y' -10.513 0.4765 0.0097 0.00 0.04 16743 0.477
7.99 2,p-dw 0.076 0.1834E+05 0.0042 0.34 -0.37 16743 8.750
7.99 TOTx-x -9.495 0.4305 0.0090 0.00 -0.04 32887 0.438
7.99 TOTy-y -9.710 0.4403 0.0094 0.00 0.01 32887 0.451
7.99 TOTp-w 0.078 0.1782E+05 0.0044 0.06 -0.11 32887 8.892
Doing transport element 19, Type= 10
phiref = -24.843, wref = 0.19098
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)
8.10 1,x-x' 6.165 0.5985 0.0083 0.00 0.04 16144 0.496
8.10 1,y-y' 3.960 0.3529 0.0084 0.00 -0.02 16144 0.383
8.10 1,p-dw 0.328 0.2731E+05 0.0030 2.09 0.19 16144 9.038
8.10 2,x-x' 4.762 0.3664 0.0087 0.00 -0.01 16742 0.398
8.10 2,y-y' 9.198 0.7034 0.0093 0.00 -0.02 16742 0.567
8.10 2,p-dw 0.134 0.1872E+05 0.0041 0.95 -0.35 16742 8.794
8.10 TOTx-x 4.499 0.3953 0.0103 0.00 0.02 32886 0.449
8.10 TOTy-y 5.840 0.4669 0.0102 0.00 -0.02 32886 0.486
8.10 TOTp-w 0.138 0.1814E+05 0.0044 0.07 -0.08 32886 8.933
Doing transport element 20, Type= 1
phiref = -24.843, wref = 0.19098
tdist state alpha beta Erms offsets ngood rms
(m) (cm/mr) (cm-mr) (cm,mr) (cm)
(deg/MeV) (deg-MeV) (deg, keV) (deg)

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8.29	1,x-x'	4.871	0.3794	0.0083	0.00	0.04	16144	0.395
8.29	1,y-y'	3.022	0.2143	0.0084	0.00	-0.02	16144	0.299
8.29	1,p-dw	0.400	0.2860E+05	0.0030	1.75	0.19	16144	9.249
8.29	2,x-x'	3.479	0.2028	0.0087	0.00	-0.01	16742	0.296
8.29	2,y-y'	6.782	0.3862	0.0093	0.00	-0.02	16742	0.420
8.29	2,p-dw	0.230	0.1936E+05	0.0041	1.56	-0.35	16742	8.944
8.29	TOTx-x	3.432	0.2379	0.0103	0.00	0.02	32886	0.348
8.29	TOTy-y	4.347	0.2646	0.0102	0.00	-0.02	32886	0.366
8.29	TOTp-w	0.238	0.1881E+05	0.0044	0.08	-0.08	32886	9.096

Doing transport element 21, Type= 2

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
8.29	1,x-x'	1.761	0.3791	0.0083	0.00	0.02	16144	0.395
8.29	1,y-y'	1.272	0.2141	0.0084	0.00	-0.01	16144	0.299
8.29	1,p-dw	-4.841	0.2841E+05	0.0030	1.75	0.51	16144	9.249
8.29	2,x-x'	1.773	0.2039	0.0087	0.00	0.00	16742	0.296
8.29	2,y-y'	3.441	0.3805	0.0094	0.00	-0.01	16742	0.420
8.29	2,p-dw	-3.450	0.1928E+05	0.0041	1.56	-0.04	16742	8.944
8.29	TOTx-x	1.486	0.2421	0.0101	0.00	0.01	32886	0.348
8.29	TOTy-y	2.153	0.2682	0.0101	0.00	-0.01	32886	0.366
8.29	TOTp-w	-3.306	0.1890E+05	0.0044	0.08	0.23	32886	9.096

Doing transport element 22, Type= 1

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
8.67	1,x-x'	1.352	0.2613	0.0083	0.00	0.02	16144	0.328
8.67	1,y-y'	0.810	0.1354	0.0084	0.00	-0.01	16144	0.237
8.67	1,p-dw	-1.937	5527.	0.0030	0.02	0.51	16144	4.079
8.67	2,x-x'	1.004	0.9882E-01	0.0087	0.00	0.00	16742	0.206
8.67	2,y-y'	2.165	0.1685	0.0094	0.00	-0.01	16742	0.280
8.67	2,p-dw	-1.191	3612.	0.0041	1.71	-0.04	16742	3.871
8.67	TOTx-x	0.984	0.1486	0.0101	0.00	0.01	32886	0.273
8.67	TOTy-y	1.358	0.1354	0.0101	0.00	-0.01	32886	0.260
8.67	TOTp-w	-1.175	3773.	0.0044	0.04	0.23	32886	4.063

Doing transport element 23, Type= 10

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
8.78	1,x-x'	2.670	0.2265	0.0083	0.00	0.02	16144	0.305
8.78	1,y-y'	1.322	0.1073	0.0082	0.00	-0.02	16144	0.209
8.78	1,p-dw	-1.126	2639.	0.0030	-0.44	0.51	16144	2.820
8.78	2,x-x'	1.259	0.7303E-01	0.0087	0.00	-0.01	16742	0.178
8.78	2,y-y'	2.619	0.1193	0.0093	0.00	-0.01	16742	0.234
8.78	2,p-dw	-0.560	1963.	0.0042	1.76	-0.05	16742	2.855
8.78	TOTx-x	1.591	0.1205	0.0104	0.00	0.01	32886	0.248
8.78	TOTy-y	1.775	0.9983E-01	0.0100	0.00	-0.02	32886	0.222
8.78	TOTp-w	-0.580	2118.	0.0044	0.03	0.23	32886	3.045

Doing transport element 24, Type= 1

phiref = -24.843, wref = 0.19098

tdist	state	alpha	beta	Erms	offsets	ngood	rms	
(m)			(cm/mr)	(cm-mr)	(cm,mr)		(cm)	
			(deg/MeV)	(deg-MeV)	(deg,keV)		(deg)	
8.99	1,x-x'	1.908	0.1294	0.0083	0.00	0.02	16144	0.231
8.99	1,y-y'	0.778	0.6270E-01	0.0082	0.00	-0.02	16144	0.159
8.99	1,p-dw	0.502	1457.	0.0030	-1.41	0.51	16144	2.095
8.99	2,x-x'	0.508	0.3554E-01	0.0087	0.00	-0.01	16742	0.124

8.99	2,y-y'	1.220	0.3776E-01	0.0093	0.00	-0.01	16742	0.132
8.99	2,p-dw	0.708	2244.	0.0042	1.86	-0.05	16742	3.052
8.99	TOTx-x	0.969	0.6617E-01	0.0104	0.00	0.01	32886	0.184
8.99	TOTy-y	0.892	0.4321E-01	0.0100	0.00	-0.02	32886	0.146
8.99	TOTp-w	0.615	2184.	0.0044	0.01	0.23	32886	3.092

Beam centroid at cell 137, **Ngood= 32886/ 40000**

X(cm),Xp(mrad)=	-0.00044	0.00759
Y(cm),Yp(mrad)=	0.00055	-0.01614
Phase(deg),Energy(MeV/amu)=	-24.59002	0.19121

End of run 1

Waiting for key stroke...

End of run 1

end

RIAPMTQ done.