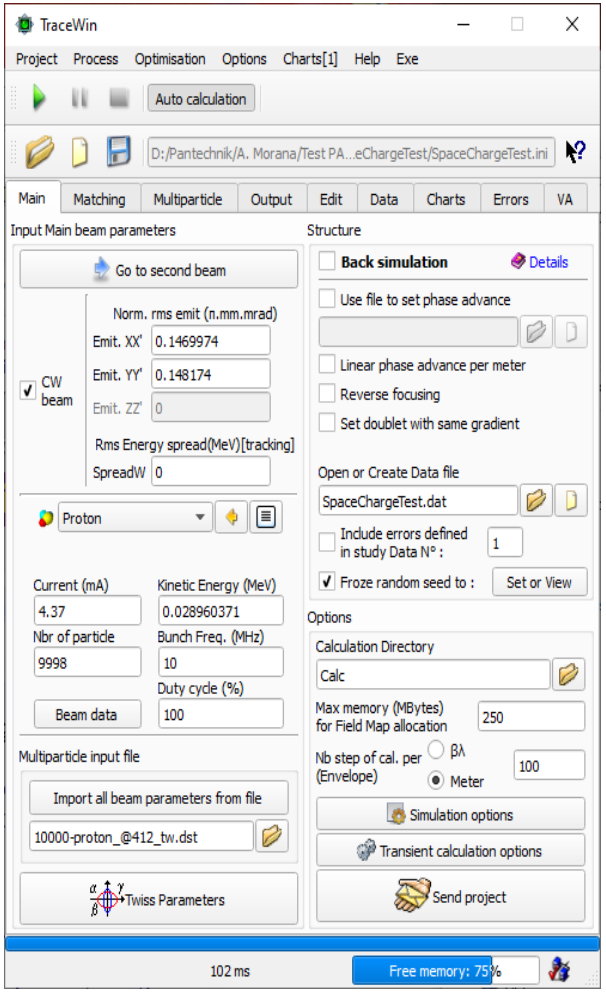
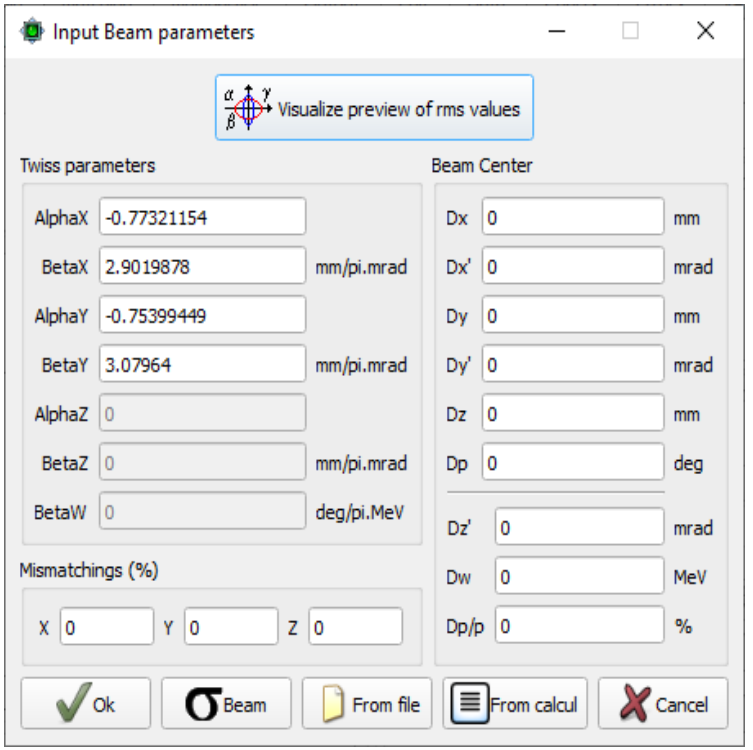
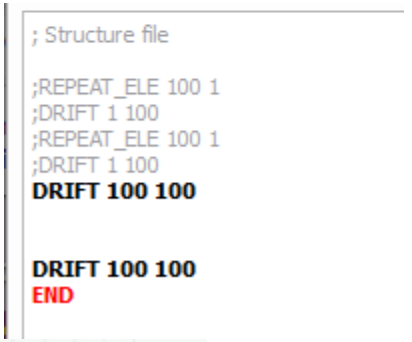
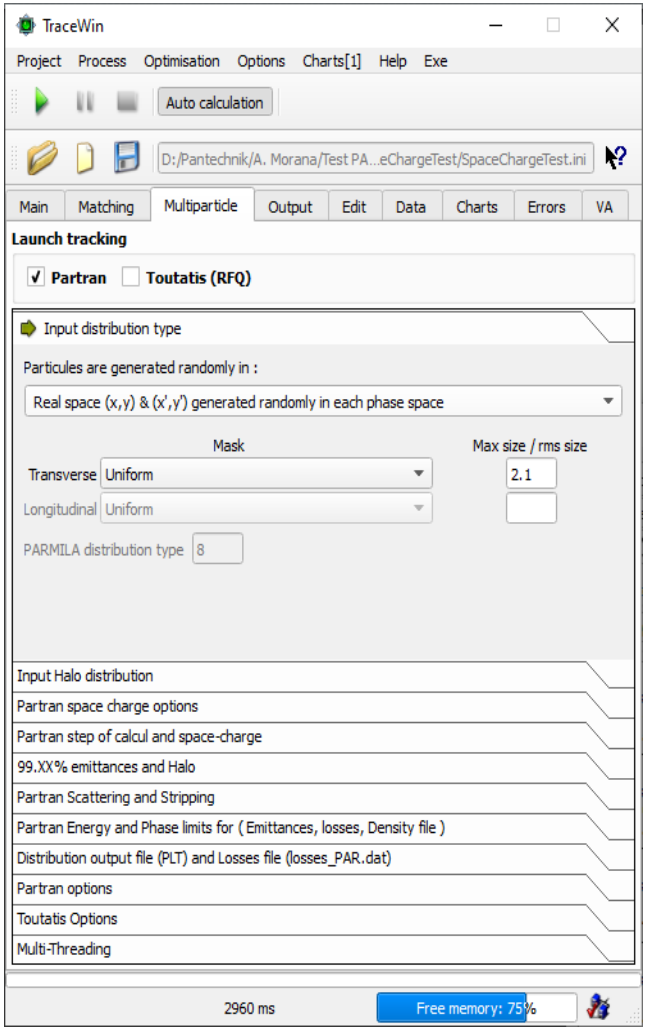








$$0.0078567441 \cdot \frac{c}{45\ MHz} = 52.342\ mm \qquad 0.0078567441 \cdot \frac{c}{33\ MHz} = 71.376\ mm$$

$$7.3684\ mm \cdot 7 = 51.579\ mm \qquad 7.3684\ mm \cdot 10 = 73.684\ mm$$

45Hz

Beam parameters [Run: 17]

Graph1 | Graph2 | Twiss _emit. / Center / Size | Beam matrix

Emittance calculated

Emittance (%) 99 Ok

N rms 4

Filtering (iteratif process)

Apply Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1467 n.mm.mrad [Norm.]
Emit [95.28%] = 0.5869 n.mm.mrad [Norm.]
Beta = 3.5560 mm/n.mrad
Alpha = -2.5198

Y-Y'
Emit [rms] = 0.1482 n.mm.mrad [Norm.]
Emit [95.00%] = 0.5927 n.mm.mrad [Norm.]
Beta = 3.7242 mm/n.mrad
Alpha = -2.5177

Phase-X'
Emit [rms] = 5.0726 n.deg.mrad [Norm.]
Emit [91.30%] = 20.2905 n.deg.mrad [Norm.]
Beta = 16.7275 deg/n.mrad
Alpha = -0.0017

X-Y
Emit [rms] = 68.2946 mm² [Norm.]
Emit [97.79%] = 273.1784 mm² [Norm.]
Beta = 0.9723
Alpha = 0.0001

Phase-Energy
Emit [rms] = 0.0003 n.deg.MeV [Norm.]
Emit [91.36%] = 0.0013 n.deg.MeV [Norm.]
Beta = 32705720.8101 deg/n.MeV
Alpha = -0.0167

Phase-Y'
Emit [rms] = 4.9776 n.deg.mrad [Norm.]
Emit [91.22%] = 19.9105 n.deg.mrad [Norm.]
Beta = 17.0467 deg/n.mrad
Alpha = -0.0062

β = 0.007856963 γ = 1.000030867
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0217422038 (n.mm.mrad)² [Norm.]

OK

Multiparticle Phase spaces [Run: 17][MainBeam]

Synch.

TraceWin - CEA/DRF/Irfu/DACM

Ele #2 [0.2 m] NGOOD : 9998 / 9998

X(mm) - X'(mrad)

3.1262, 4.7924

Y(mm) - Y'(mrad)

P(deg @45 MHz) - X'(mrad)

X(mm) - Y(mm)

P(deg @45 MHz) - W(MeV)

Po=-0.004 deg Wo=28.9604 keV

P(deg @45 MHz) - Y'(mrad)

Po=-0.004 deg Y'max =12.389 mrad

X = 3.12628, Y = 4.79245, I = 0.404, Nbr Particle = 9998

33Hz

Beam parameters [Run: 18]

Graph1 | Graph2

Twiss _emit. / Center / Size

Beam matrix

Emittance calculated

Emittance (%) 99 Ok

N rms 4

Filtering (iteratif process)

Apply Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1467 n.mm.mrad [Norm.]
Emit [95.30%] = 0.5870 n.mm.mrad [Norm.]
Beta = 3.5554 mm/n.mrad
Alpha = -2.5188

Y-Y'
Emit [rms] = 0.1482 n.mm.mrad [Norm.]
Emit [95.01%] = 0.5927 n.mm.mrad [Norm.]
Beta = 3.7240 mm/n.mrad
Alpha = -2.5170

Phase-X'
Emit [rms] = 5.0716 n.deg.mrad [Norm.]
Emit [91.31%] = 20.2865 n.deg.mrad [Norm.]
Beta = 16.7309 deg/n.mrad
Alpha = -0.0017

X-Y
Emit [rms] = 68.2912 mm² [Norm.]
Emit [97.79%] = 273.1649 mm² [Norm.]
Beta = 0.9723
Alpha = 0.0001

Phase-Energy
Emit [rms] = 0.0004 n.deg.MeV [Norm.]
Emit [90.63%] = 0.0016 n.deg.MeV [Norm.]
Beta = 27484624.9997 deg/n.MeV
Alpha = -0.0116

Phase-Y'
Emit [rms] = 4.9766 n.deg.mrad [Norm.]
Emit [91.24%] = 19.9064 n.deg.mrad [Norm.]
Beta = 17.0503 deg/n.mrad
Alpha = -0.0062

β = 0.007856963 γ = 1.000030867
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0217452886 (n.mm.mrad)² [Norm.]

OK

Multiparticle Phase spaces [Run: 18][MainBeam]

Synch.

TraceWin - CEA/DRF/Irfu/DACM

Ele #2 [0.2 m] NGOOD : 9998 / 9998

X(mm) - X'(mrad)

Y(mm) - Y'(mrad)

P(deg @33 MHz) - X'(mrad)

X(mm) - Y(mm)

P(deg @33 MHz) - W(MeV)
Po=-0.007 deg Wo=28.9604 keV

P(deg @33 MHz) - Y'(mrad)
Po=-0.007 deg Y'max =12.394 mrad

1Hz: β*λ=2.35m

Beam parameters [Run: 19]

Graph1 | Graph2

Twiss _emit. / Center / Size

Beam matrix

Emittance calculated

Emittance (%) 99 Ok

N rms 4

Filtering (iteratif process)

Apply Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1469 n.mm.mrad [Norm.]
Emit [95.27%] = 0.5876 n.mm.mrad [Norm.]
Beta = 3.5524 mm/n.mrad
Alpha = -2.5190

Y-Y'
Emit [rms] = 0.1484 n.mm.mrad [Norm.]
Emit [94.87%] = 0.5937 n.mm.mrad [Norm.]
Beta = 3.7190 mm/n.mrad
Alpha = -2.5166

Phase-X'
Emit [rms] = 5.0766 n.deg.mrad [Norm.]
Emit [91.37%] = 20.3066 n.deg.mrad [Norm.]
Beta = 16.7144 deg/n.mrad
Alpha = -0.0015

X-Y
Emit [rms] = 68.3025 mm² [Norm.]
Emit [97.86%] = 273.2099 mm² [Norm.]
Beta = 0.9723
Alpha = 0.0001

Phase-Energy
Emit [rms] = 0.0006 n.deg.MeV [Norm.]
Emit [90.41%] = 0.0025 n.deg.MeV [Norm.]
Beta = 17069646.7498 deg/n.MeV
Alpha = 0.0188

Phase-Y'
Emit [rms] = 4.9831 n.deg.mrad [Norm.]
Emit [91.30%] = 19.9325 n.deg.mrad [Norm.]
Beta = 17.0281 deg/n.mrad
Alpha = -0.0061

β = 0.007856966 γ = 1.000030867
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0217998103 (n.mm.mrad)² [Norm.]

OK

Multiparticle Phase spaces [Run: 19][MainBeam]

Synch.

TraceWin - CEA/DRF/Irfu/DACM

Ele #2 [0.2 m] NGOOD : 9998 / 9998

X(mm) - X'(mrad)

Y(mm) - Y'(mrad)

P(deg @1 MHz) - X'(mrad)

X(mm) - Y(mm)

P(deg @1 MHz) - W(MeV)

Po=-0.018 deg Wo=28.9604 keV

P(deg @1 MHz) - Y'(mrad)

Po=-0.018 deg Y'max =12.532 mrad

X = 5.57226, Y = 19.2587, I = 0, Nbr Particle = 9998

1000Hz: β*λ=2.35mm

Beam parameters [Run: 20]

Graph1 | Graph2 | Twiss _emit. / Center / Size | Beam matrix

Emittance calculated

Emittance (%) 99 Ok

N rms 4

Filtering (iteratif process)

Apply Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1468 n.mm.mrad [Norm.]
Emit [95.22%] = 0.5871 n.mm.mrad [Norm.]
Beta = 3.5554 mm/n.mrad
Alpha = -2.5213

Y-Y'
Emit [rms] = 0.1481 n.mm.mrad [Norm.]
Emit [95.06%] = 0.5926 n.mm.mrad [Norm.]
Beta = 3.7258 mm/n.mrad
Alpha = -2.5208

Phase-X'
Emit [rms] = 5.0731 n.deg.mrad [Norm.]
Emit [91.30%] = 20.2925 n.deg.mrad [Norm.]
Beta = 16.7052 deg/n.mrad
Alpha = -0.0017

X-Y
Emit [rms] = 68.3021 mm² [Norm.]
Emit [97.76%] = 273.2084 mm² [Norm.]
Beta = 0.9723
Alpha = 0.0000

Phase-Energy
Emit [rms] = 0.0001 n.deg.MeV [Norm.]
Emit [90.96%] = 0.0005 n.deg.MeV [Norm.]
Beta = 85062747.3680 deg/n.MeV
Alpha = -0.1911

Phase-Y'
Emit [rms] = 4.9780 n.deg.mrad [Norm.]
Emit [91.20%] = 19.9121 n.deg.mrad [Norm.]
Beta = 17.0244 deg/n.mrad
Alpha = -0.0061

β = 0.007856964 γ = 1.000030867
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0217414211 (n.mm.mrad)² [Norm.]

OK

Multiparticle Phase spaces [Run: 20][MainBeam]

Synch.

TraceWin - CEA/DRF/Irfu/DACM

Ele #2 [0.2 m] NGOOD : 9998 / 9998

X(mm) - X'(mrad)

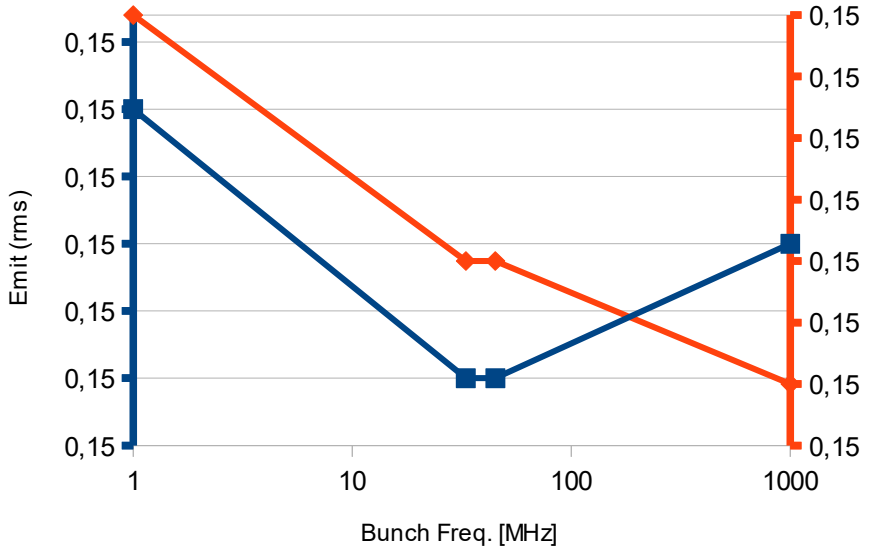
Y(mm) - Y'(mrad)

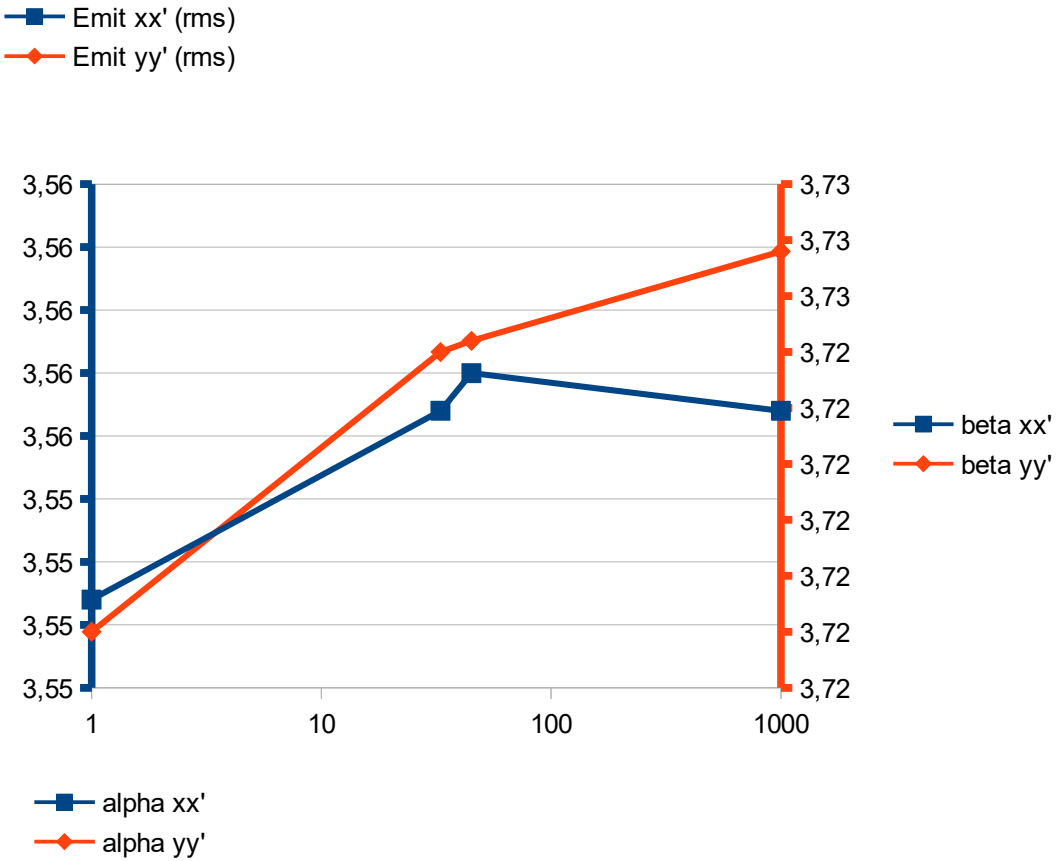
P(deg @1000 MHz) - X'(mrad)

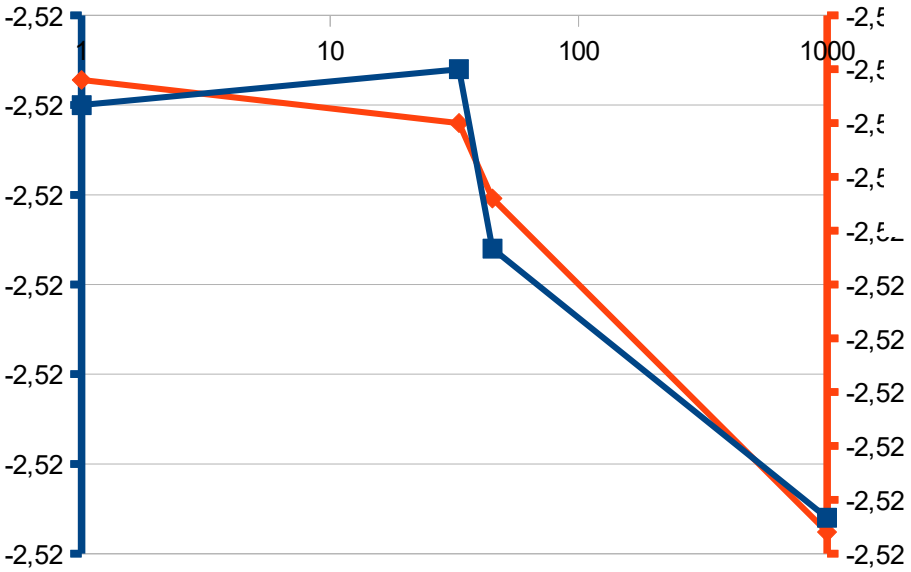
X(mm) - Y(mm)

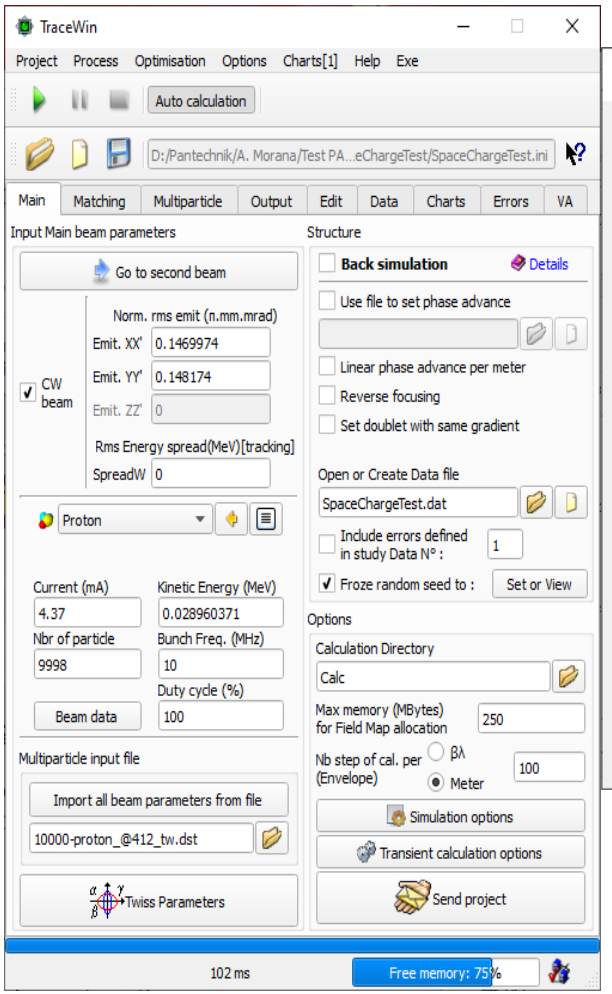
P(deg @1000 MHz) - W(MeV)
Po=0.301 deg Wo=28.9604 keV

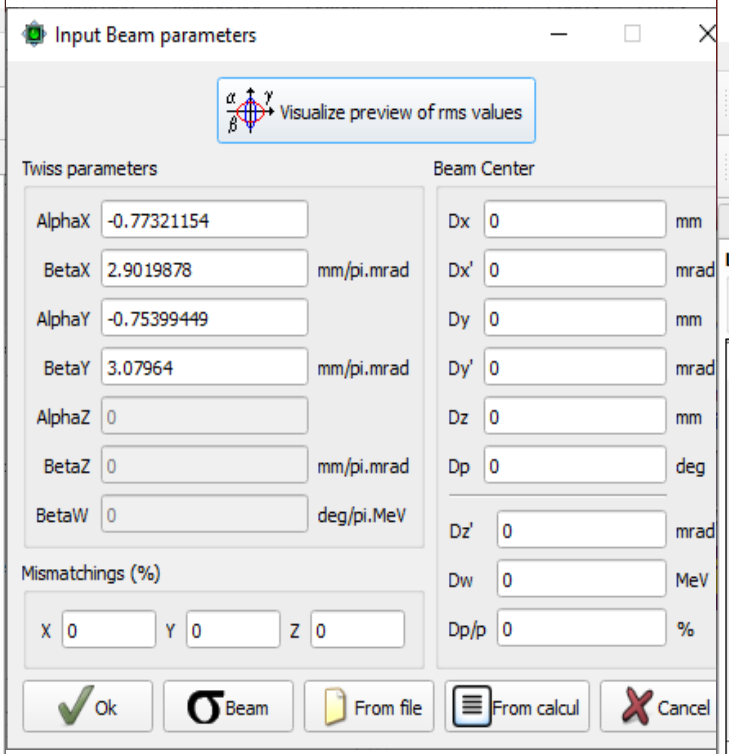
P(deg @1000 MHz) - Y'(mrad)
Po=0.301 deg Y'max =12.406 mrad

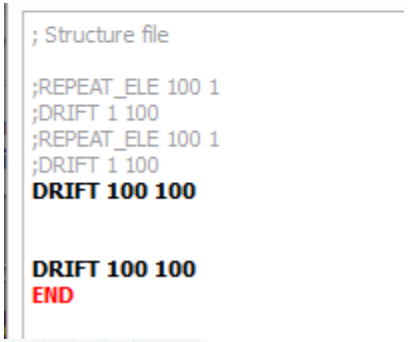

Emit (rms)
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
0,15
1
10
100
1000
Bunch Freq. [MHz]

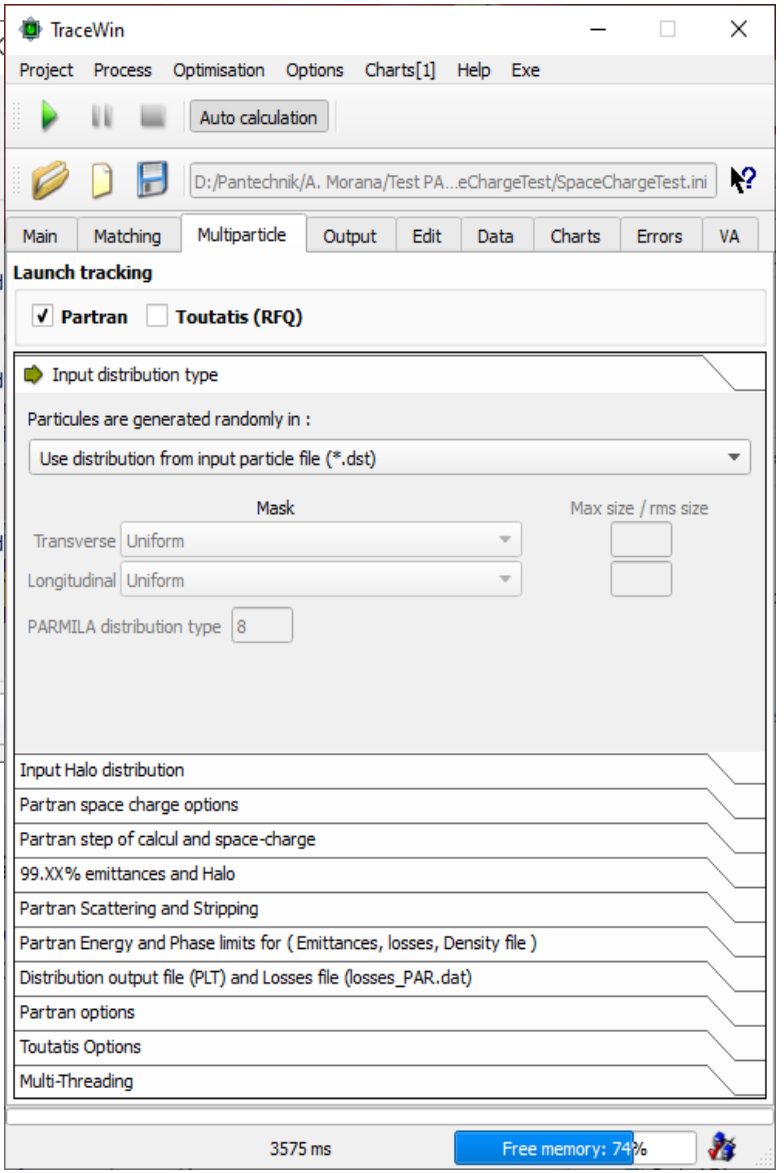

Emit xx' (rms)
Emit yy' (rms)
3,56
3,56
3,56
3,56
3,56
3,55
3,55
3,55
3,73
3,73
3,73
3,72
3,72
3,72
3,72
3,72
3,72
3,72
1
10
100
1000
beta xx'
beta yy'
alpha xx'
alpha yy'

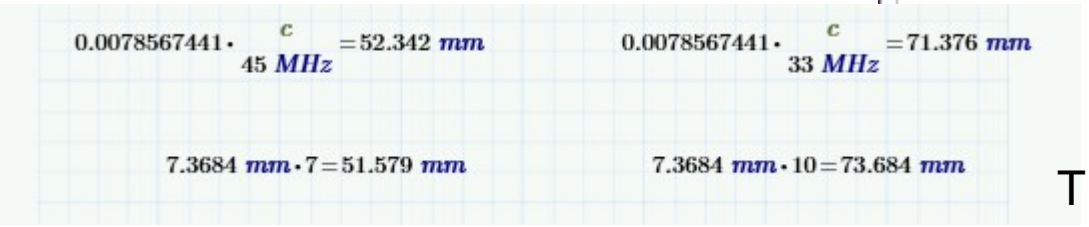

-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
-2,52
10
100
1000











The bunch in the converted dst is now a real CW

45Hz

Beam parameters [Run: 26]

Graph1 | Graph2

Twiss _emit. / Center / Size

Beam matrix

Emittance calculated

Emittance (%) 99 Ok

N rms 4

Filtering (iteratif process)

Apply Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1914 n.mm.mrad [Norm.]
Emit [92.42%] = 0.7655 n.mm.mrad [Norm.]
Beta = 2.7282 mm/n.mrad
Alpha = -1.9466

Y-Y'
Emit [rms] = 0.1957 n.mm.mrad [Norm.]
Emit [92.97%] = 0.7829 n.mm.mrad [Norm.]
Beta = 2.8229 mm/n.mrad
Alpha = -1.9289

Phase-X'
Emit [rms] = 5.3259 n.deg.mrad [Norm.]
Emit [91.74%] = 21.3035 n.deg.mrad [Norm.]
Beta = 15.8555 deg/n.mrad
Alpha = 0.0126

X-Y
Emit [rms] = 68.3367 mm² [Norm.]
Emit [86.86%] = 273.3468 mm² [Norm.]
Beta = 0.9724
Alpha = 0.0245

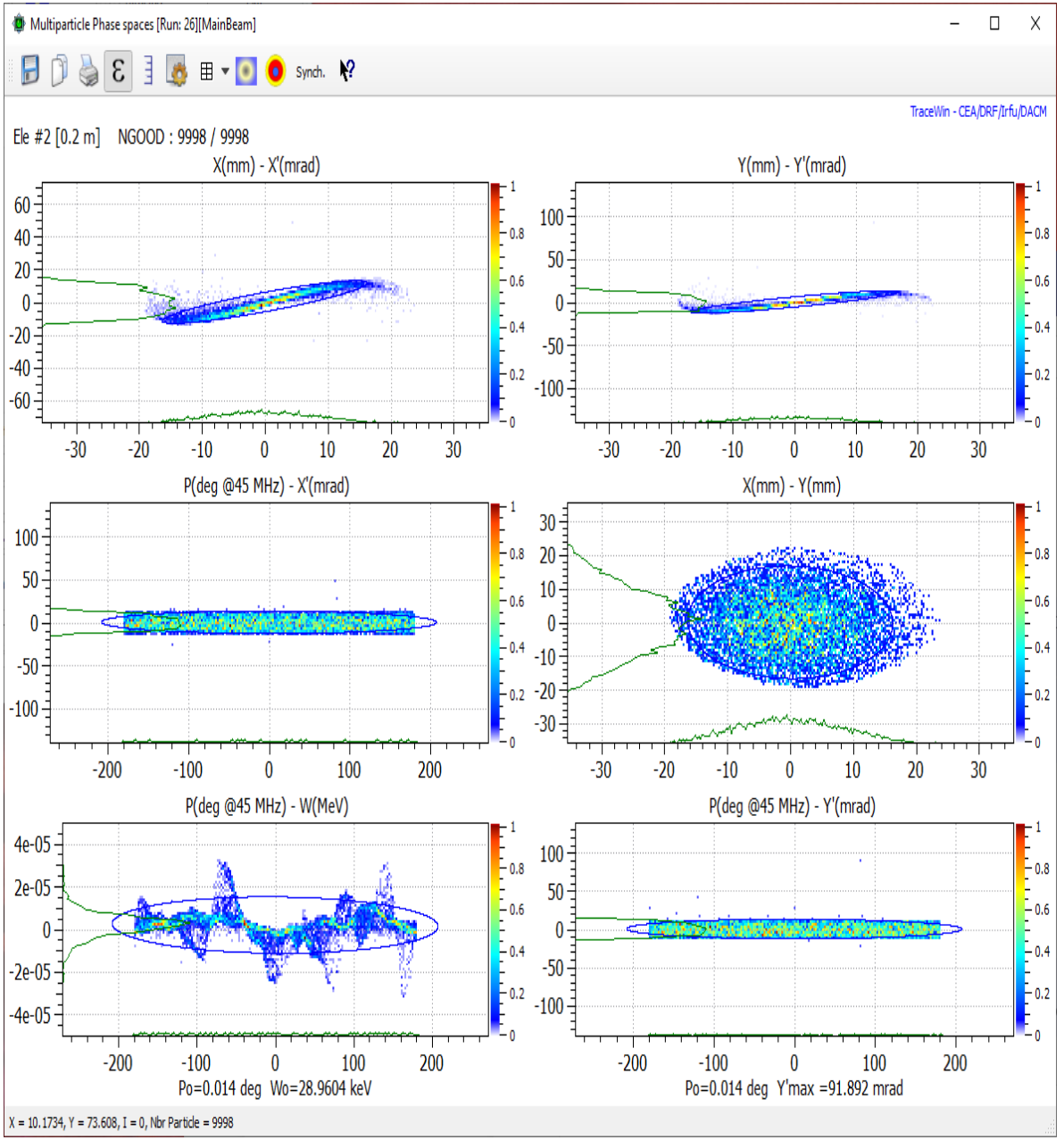
Phase-Energy
Emit [rms] = 0.0007 n.deg.MeV [Norm.]
Emit [92.15%] = 0.0027 n.deg.MeV [Norm.]
Beta = 15712521.0338 deg/n.MeV
Alpha = 0.0461

Phase-Y'
Emit [rms] = 5.2567 n.deg.mrad [Norm.]
Emit [92.82%] = 21.0270 n.deg.mrad [Norm.]
Beta = 16.0640 deg/n.mrad
Alpha = 0.0140

β = 0.007856997 γ = 1.000030868
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0371953397 (n.mm.mrad)² [Norm.]

OK



39Hz

Beam parameters [Run: 30]

Graph1 | Graph2 | Emittance calculated

Twiss _emit. / Center / Size | Emittance (%) 99 | Ok

Beam matrix | N rms 4

Filtering (iteratif process)

Apply | Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1912 n.mm.mrad [Norm.]
Emit [92.43%] = 0.7649 n.mm.mrad [Norm.]
Beta = 2.7304 mm/n.mrad
Alpha = -1.9483

Y-Y'
Emit [rms] = 0.1955 n.mm.mrad [Norm.]
Emit [92.98%] = 0.7822 n.mm.mrad [Norm.]
Beta = 2.8255 mm/n.mrad
Alpha = -1.9308

Phase-X'
Emit [rms] = 5.3253 n.deg.mrad [Norm.]
Emit [91.74%] = 21.3012 n.deg.mrad [Norm.]
Beta = 15.8573 deg/n.mrad
Alpha = 0.0126

X-Y
Emit [rms] = 68.3370 mm² [Norm.]
Emit [86.86%] = 273.3478 mm² [Norm.]
Beta = 0.9724
Alpha = 0.0245

Phase-Energy
Emit [rms] = 0.0007 n.deg.MeV [Norm.]
Emit [92.03%] = 0.0030 n.deg.MeV [Norm.]
Beta = 14374972.6476 deg/n.MeV
Alpha = 0.0513

Phase-Y'
Emit [rms] = 5.2560 n.deg.mrad [Norm.]
Emit [92.83%] = 21.0240 n.deg.mrad [Norm.]
Beta = 16.0663 deg/n.mrad
Alpha = 0.0140

β = 0.007856997 γ = 1.000030868
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0371305034 (n.mm.mrad)² [Norm.]

OK

Multiparticle Phase spaces [Run: 30][MainBeam]

Synch.

TraceWin - CEA/DRF/Irfu/DACM

Ele #2 [0.2 m] NGOOD : 9998 / 9998

X(mm) - X'(mrad)

Y(mm) - Y'(mrad)

P(deg @39 MHz) - X'(mrad)

X(mm) - Y(mm)

P(deg @39 MHz) - W(MeV)

Po=0.012 deg Wo=28.9604 keV

P(deg @39 MHz) - Y'(mrad)

Po=0.012 deg Y'max =91.884 mrad

33Hz

Beam parameters [Run: 27]

Graph1 | Graph2 | Twiss _emit. / Center / Size | Beam matrix

Emittance calculated

Emittance (%) 99 Ok

N rms 4

Filtering (iteratif process)

Apply Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1910 n.mm.mrad [Norm.]
Emit [92.42%] = 0.7640 n.mm.mrad [Norm.]
Beta = 2.7334 mm/n.mrad
Alpha = -1.9498

Y-Y'
Emit [rms] = 0.1953 n.mm.mrad [Norm.]
Emit [92.98%] = 0.7812 n.mm.mrad [Norm.]
Beta = 2.8290 mm/n.mrad
Alpha = -1.9324

Phase-X'
Emit [rms] = 5.3224 n.deg.mrad [Norm.]
Emit [91.73%] = 21.2897 n.deg.mrad [Norm.]
Beta = 15.8659 deg/n.mrad
Alpha = 0.0126

X-Y
Emit [rms] = 68.3327 mm² [Norm.]
Emit [86.85%] = 273.3308 mm² [Norm.]
Beta = 0.9724
Alpha = 0.0246

Phase-Energy
Emit [rms] = 0.0008 n.deg.MeV [Norm.]
Emit [91.96%] = 0.0033 n.deg.MeV [Norm.]
Beta = 13068174.8003 deg/n.MeV
Alpha = 0.0575

Phase-Y'
Emit [rms] = 5.2529 n.deg.mrad [Norm.]
Emit [92.82%] = 21.0117 n.deg.mrad [Norm.]
Beta = 16.0758 deg/n.mrad
Alpha = 0.0140

β = 0.007856996 γ = 1.000030868
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0370376897 (n.mm.mrad)² [Norm.]

OK

Multiparticle Phase spaces [Run: 27][MainBeam]

Synch.

TraceWin - CEA/DRF/Irfu/DACM

Ele #2 [0.2 m] NGOOD : 9998 / 9998

X(mm) - X'(mrad)

Y(mm) - Y'(mrad)

P(deg @33 MHz) - X'(mrad)

X(mm) - Y(mm)

P(deg @33 MHz) - W(MeV)

P(deg @33 MHz) - Y'(mrad)

Po=0.011 deg Wo=28.9604 keV

Po=0.011 deg Y'max =91.870 mrad

1Hz: β*λ=2.35m

Beam parameters [Run: 28]

Graph1 | Graph2 | Twiss _emit. / Center / Size | Beam matrix

Emittance calculated

Emittance (%) 99 Ok

N rms 4

Filtering (iteratif process)

Apply Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1920 n.mm.mrad [Norm.]
Emit [92.37%] = 0.7679 n.mm.mrad [Norm.]
Beta = 2.7202 mm/n.mrad
Alpha = -1.9435

Y-Y'
Emit [rms] = 0.1962 n.mm.mrad [Norm.]
Emit [92.99%] = 0.7850 n.mm.mrad [Norm.]
Beta = 2.8160 mm/n.mrad
Alpha = -1.9273

Phase-X'
Emit [rms] = 5.3349 n.deg.mrad [Norm.]
Emit [91.76%] = 21.3398 n.deg.mrad [Norm.]
Beta = 15.8270 deg/n.mrad
Alpha = 0.0125

X-Y
Emit [rms] = 68.3497 mm² [Norm.]
Emit [86.86%] = 273.3990 mm² [Norm.]
Beta = 0.9724
Alpha = 0.0246

Phase-Energy
Emit [rms] = 0.0018 n.deg.MeV [Norm.]
Emit [90.11%] = 0.0071 n.deg.MeV [Norm.]
Beta = 6078841.1600 deg/n.MeV
Alpha = 0.0977

Phase-Y'
Emit [rms] = 5.2665 n.deg.mrad [Norm.]
Emit [92.75%] = 21.0658 n.deg.mrad [Norm.]
Beta = 16.0328 deg/n.mrad
Alpha = 0.0140

β = 0.007857002 γ = 1.000030868
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0374105685 (n.mm.mrad)² [Norm.]

OK

Multiparticle Phase spaces [Run: 28][MainBeam]

Synch.

TraceWin - CEA/DRF/Irfu/DACM

Ele #2 [0.2 m] NGOOD : 9998 / 9998

X(mm) - X'(mrad)

Y(mm) - Y'(mrad)

P(deg @1 MHz) - X'(mrad)

X(mm) - Y(mm)

P(deg @1 MHz) - W(MeV)

Po=0.000 deg Wo=28.9604 keV

P(deg @1 MHz) - Y'(mrad)

Po=0.000 deg Y'max =91.748 mrad

11860.2 ms

1000Hz: β*λ=2.35mm

Beam parameters [Run: 29]

Graph1 | Graph2 | Twiss _emit. / Center / Size | Beam matrix

Emittance calculated

Emittance (%) 99 Ok

N rms 4

Filtering (iteratif process)

Apply Exclude all particle above 1 x Rms

X-X'
Emit [rms] = 0.1913 n.mm.mrad [Norm.]
Emit [92.45%] = 0.7651 n.mm.mrad [Norm.]
Beta = 2.7299 mm/n.mrad
Alpha = -1.9493

Y-Y'
Emit [rms] = 0.1956 n.mm.mrad [Norm.]
Emit [92.97%] = 0.7825 n.mm.mrad [Norm.]
Beta = 2.8246 mm/n.mrad
Alpha = -1.9314

Phase-X'
Emit [rms] = 5.3258 n.deg.mrad [Norm.]
Emit [91.79%] = 21.3031 n.deg.mrad [Norm.]
Beta = 15.8383 deg/n.mrad
Alpha = 0.0113

X-Y
Emit [rms] = 68.3440 mm² [Norm.]
Emit [86.87%] = 273.3760 mm² [Norm.]
Beta = 0.9724
Alpha = 0.0245

Phase-Energy
Emit [rms] = 0.0001 n.deg.MeV [Norm.]
Emit [94.65%] = 0.0005 n.deg.MeV [Norm.]
Beta = 78911006.9334 deg/n.MeV
Alpha = -0.2026

Phase-Y'
Emit [rms] = 5.2566 n.deg.mrad [Norm.]
Emit [92.80%] = 21.0265 n.deg.mrad [Norm.]
Beta = 16.0467 deg/n.mrad
Alpha = 0.0111

β = 0.007856998 γ = 1.000030868
Mo = 938.27208816 MeV

4D (X-X'-Y-Y')
E [rms] = 0.0371568343 (n.mm.mrad)² [Norm.]

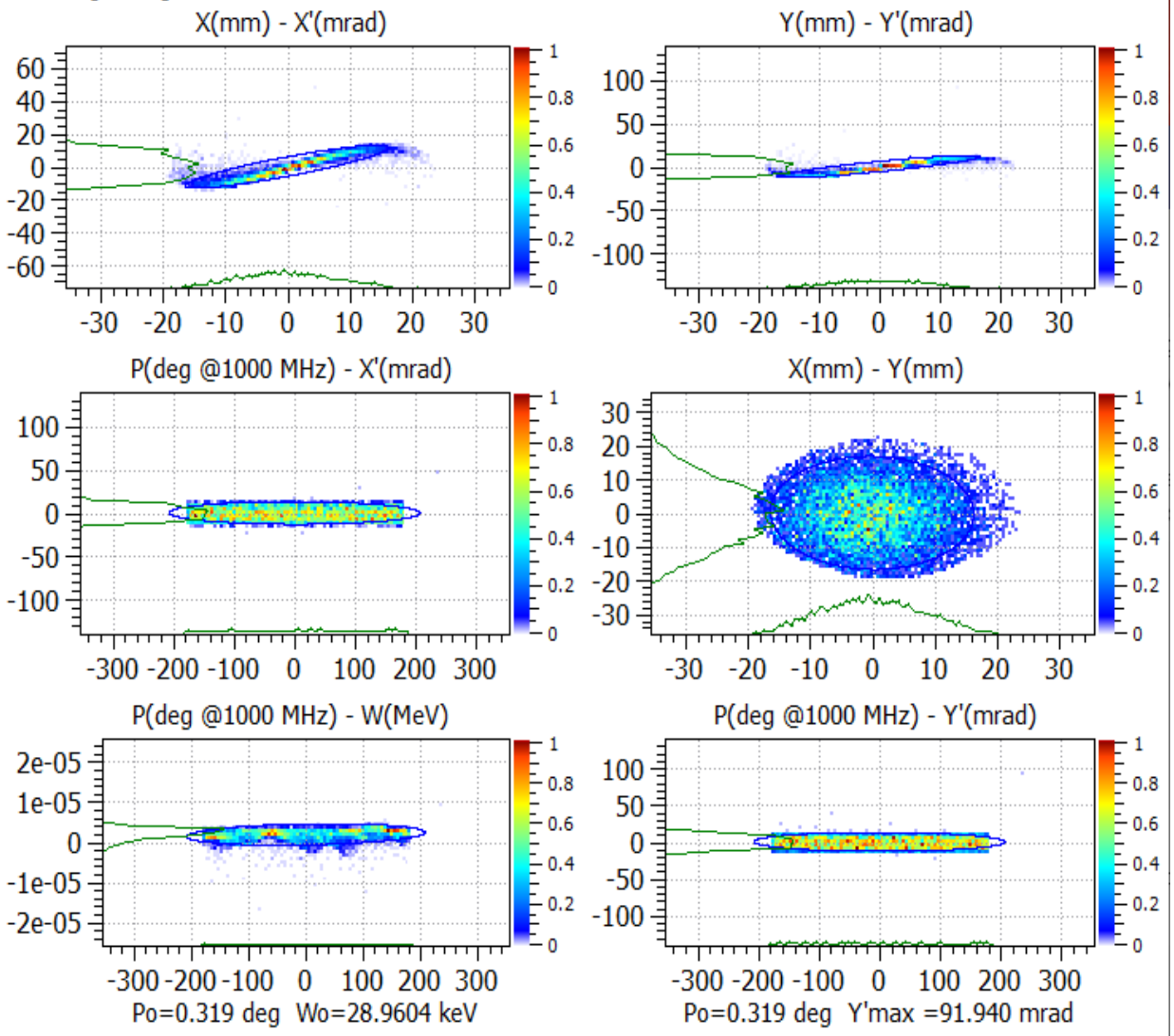
OK

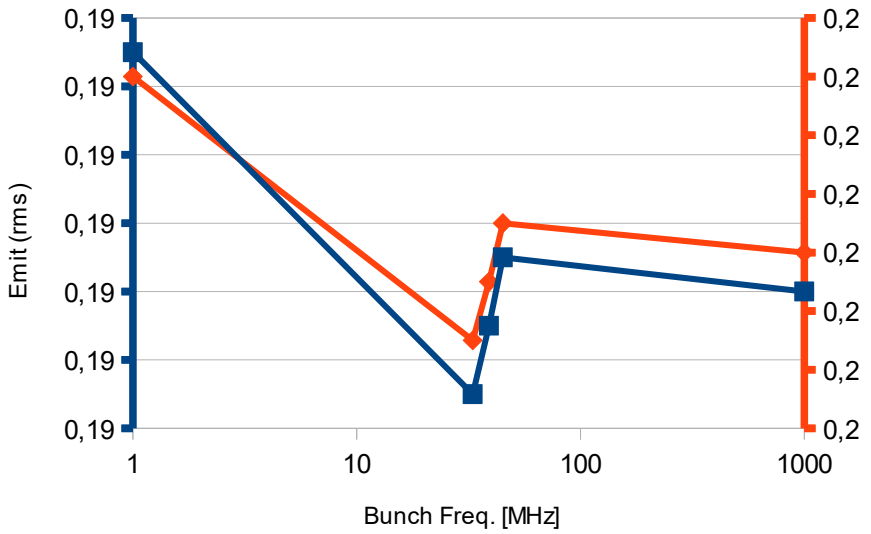
Multiparticle Phase spaces [Run: 29][MainBeam]

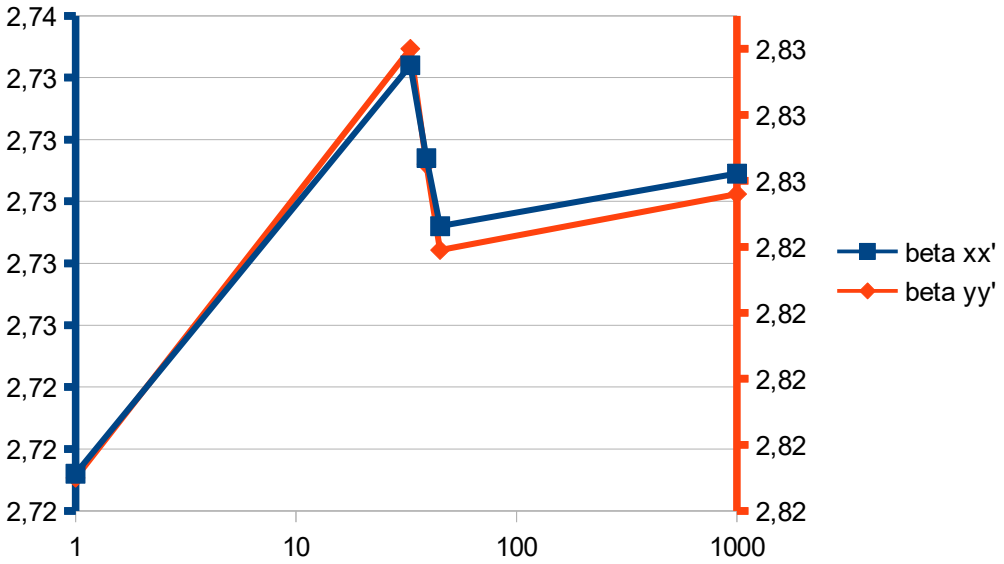
Synch.

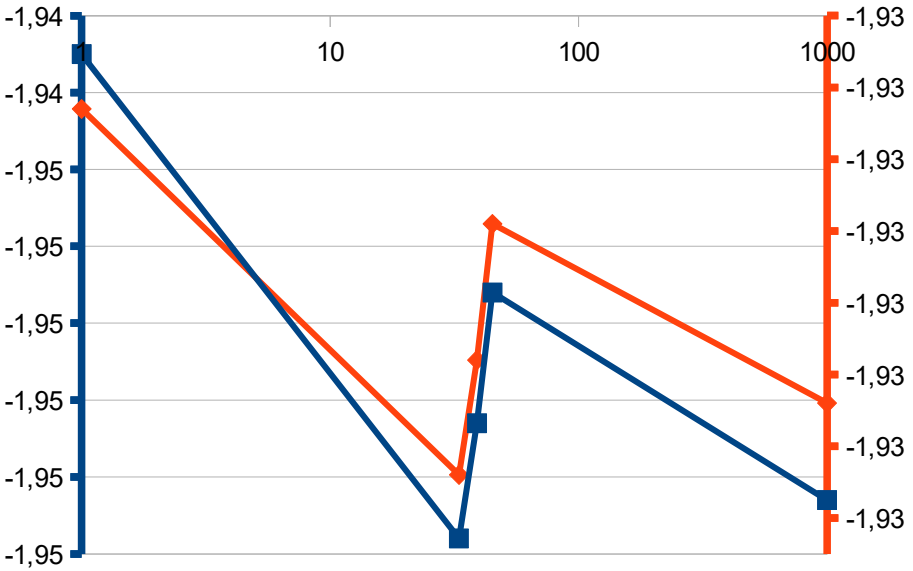
TraceWin - CEA/DRF/Irfu/DACM

Ele #2 [0.2 m] NGOOD : 9998 / 9998




0,19
0,19
0,19
0,19
0,19
0,19
0,19
0,2
0,2
0,2
0,2
0,2
0,2
0,2
Emit (rms)
1
10
100
1000
Bunch Freq. [MHz]
Emit xx' (rms)
Emit yy' (rms)


2,74
2,73
2,73
2,73
2,73
2,72
2,72
2,83
2,83
2,83
2,82
2,82
2,82
2,82
2,82
1
10
100
1000
beta xx'
beta yy'


-1,94
-1,94
-1,95
-1,95
-1,95
-1,95
-1,95
-1,93
-1,93
-1,93
-1,93
-1,93
-1,93
-1,93
10
100
1000
alpha xx'
alpha yy'