

TraceWin

Project Process Optimisation Options Charts[1] Help Exe

Auto calculation

D:/Pantehnik/A. Morana/Test PA...eChargeTest/SpaceChargeTest.ini

Main Matching Multiparticle Output Edit Data Charts Errors VA

Input Main beam parameters

Structure

Go to second beam

Norm. rms emit (n.mm.mrad)

Emit. XX' 0.1469974

Emit. YY' 0.148174

Emit. ZZ' 0

Rms Energy spread(MeV)[tracking]

SpreadW 0

CW beam

Proton

Current (mA) 4.37

Kinetic Energy (MeV) 0.028960371

Nbr of particle 9998

Bunch Freq. (MHz) 10

Duty cycle (%)

Beam data 100

Multiparticle input file

Import all beam parameters from file

10000-proton_@412_tw.dst

Twiss Parameters

Options

Back simulation

Use file to set phase advance

Linear phase advance per meter

Reverse focusing

Set doublet with same gradient

Open or Create Data file

SpaceChargeTest.dat

Include errors defined in study Data N°: 1

Froze random seed to: Set or View

Calculation Directory

Calc

Max memory (MBytes) for Field Map allocation 250

Nb step of cal. per (Envelope) $\beta\lambda$ 100

Meter

Simulation options

Transient calculation options

Send project

102 ms

Free memory: 75%

TraceWin

Input Beam parameters

Visualize preview of rms values

Twiss parameters

AlphaX -0.77321154

BetaX 2.9019878 mm/pi.mrad

AlphaY -0.75399449

BetaY 3.07964 mm/pi.mrad

AlphaZ 0

BetaZ 0 mm/pi.mrad

BetaW 0 deg/pi.MeV

Beam Center

Dx 0 mm

Dx' 0 mrad

Dy 0 mm

Dy' 0 mrad

Dz 0 mm

Dp 0 deg

Dz' 0 mrad

Dw 0 MeV

Dp/p 0 %

Mismatchings (%)

X 0 Y 0 Z 0

Ok Beam From file From calcul Cancel

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Launch tracking

Partran Toutatis (RFQ)

Input distribution type

Particles are generated randomly in :

Real space (x,y) & (x',y') generated randomly in each phase space

Mask

Max size / rms size

Transverse Uniform 2.1

Longitudinal Uniform

PARMILA distribution type 8

Input Halo distribution

Partran space charge options

Partran step of calcul and space-charge

99.XX% emittances and Halo

Partran Scattering and Stripping

Partran Energy and Phase limits for (Emittances, losses, Density file)

Distribution output file (PLT) and Losses file (losses_PAR.dat)

Partran options

Toutatis Options

Multi-Threading

2960 ms

Free memory: 75%

; Structure file

;REPEAT_ELE 100 1

;DRIFT 1 100

;REPEAT_ELE 100 1

;DRIFT 1 100

DRIFT 100 100

DRIFT 100 100

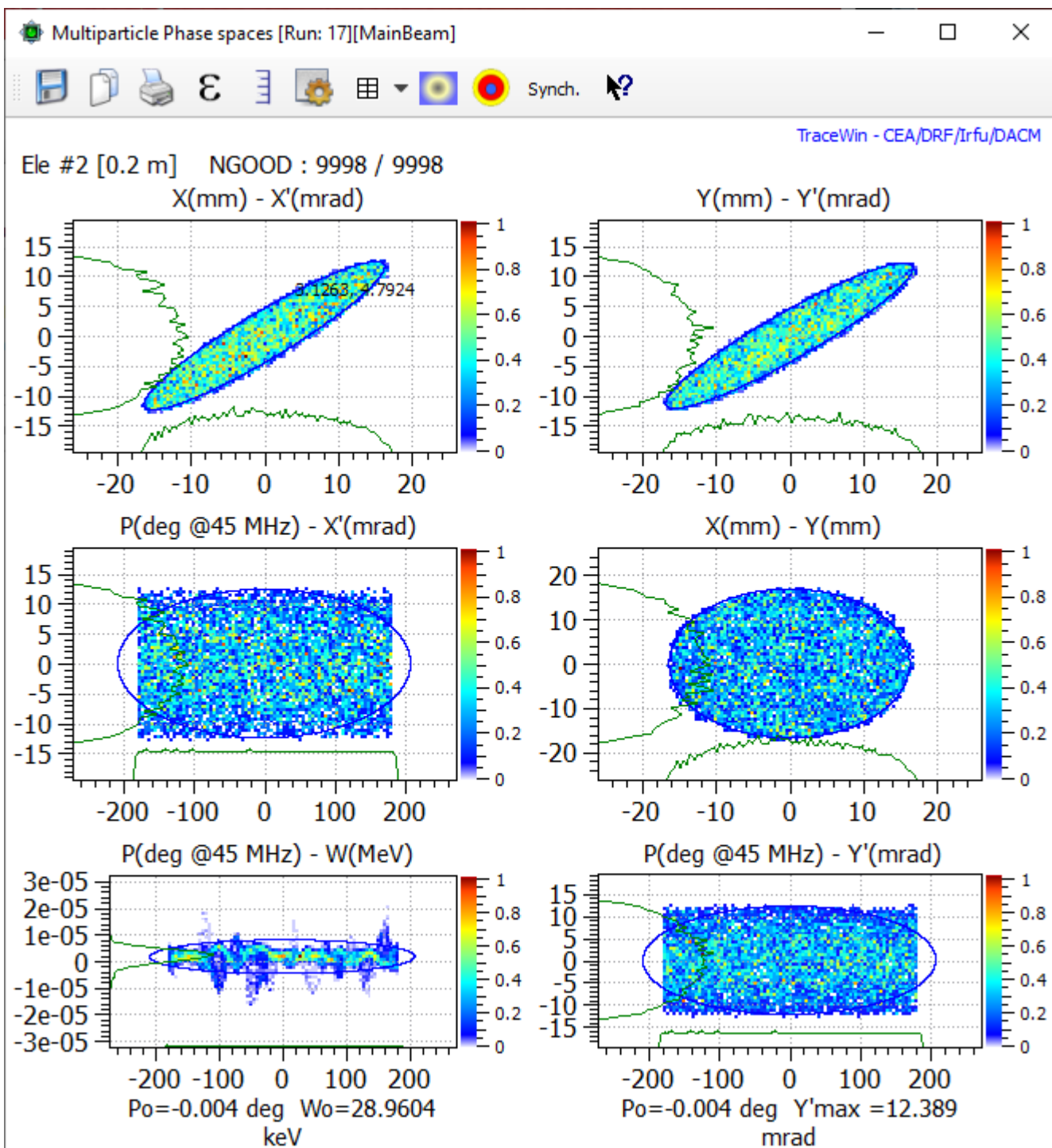
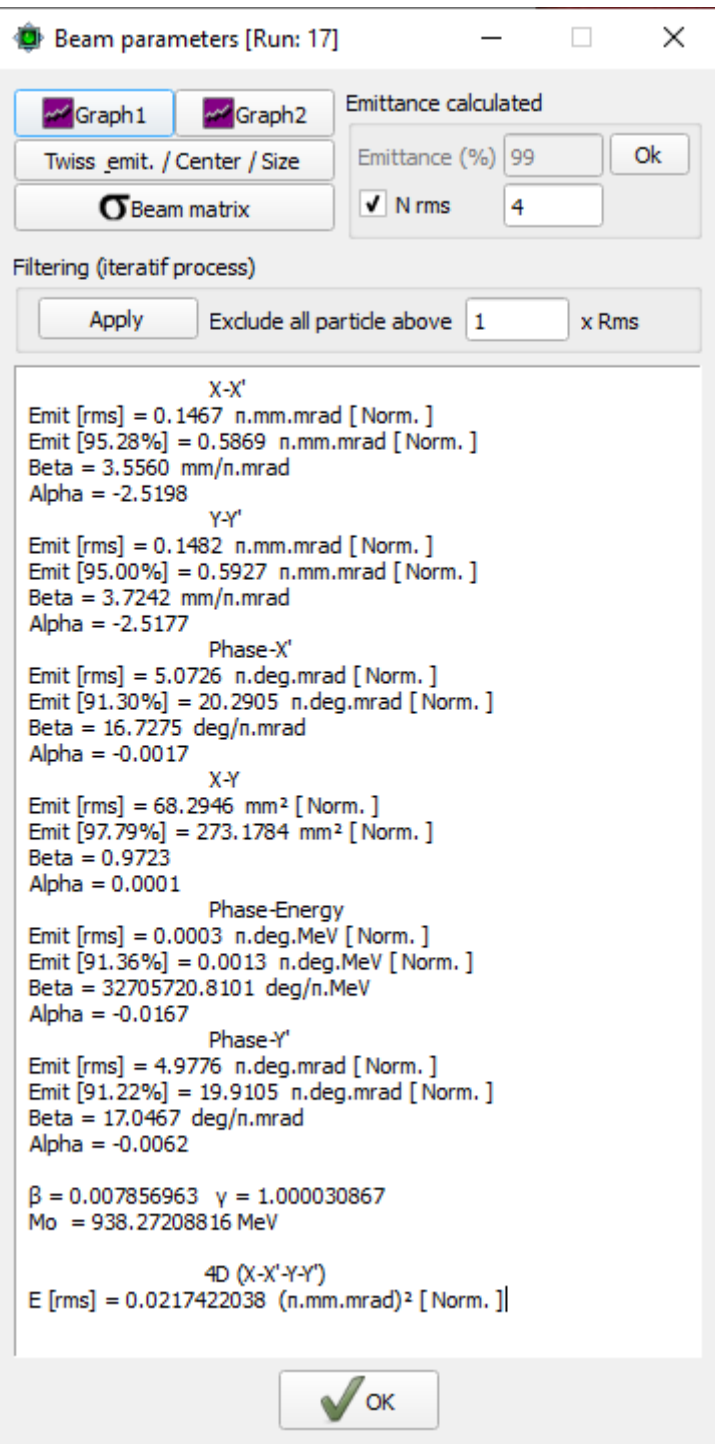
END

$$0.0078567441 \cdot \frac{c}{45 \text{ MHz}} = 52.342 \text{ mm}$$

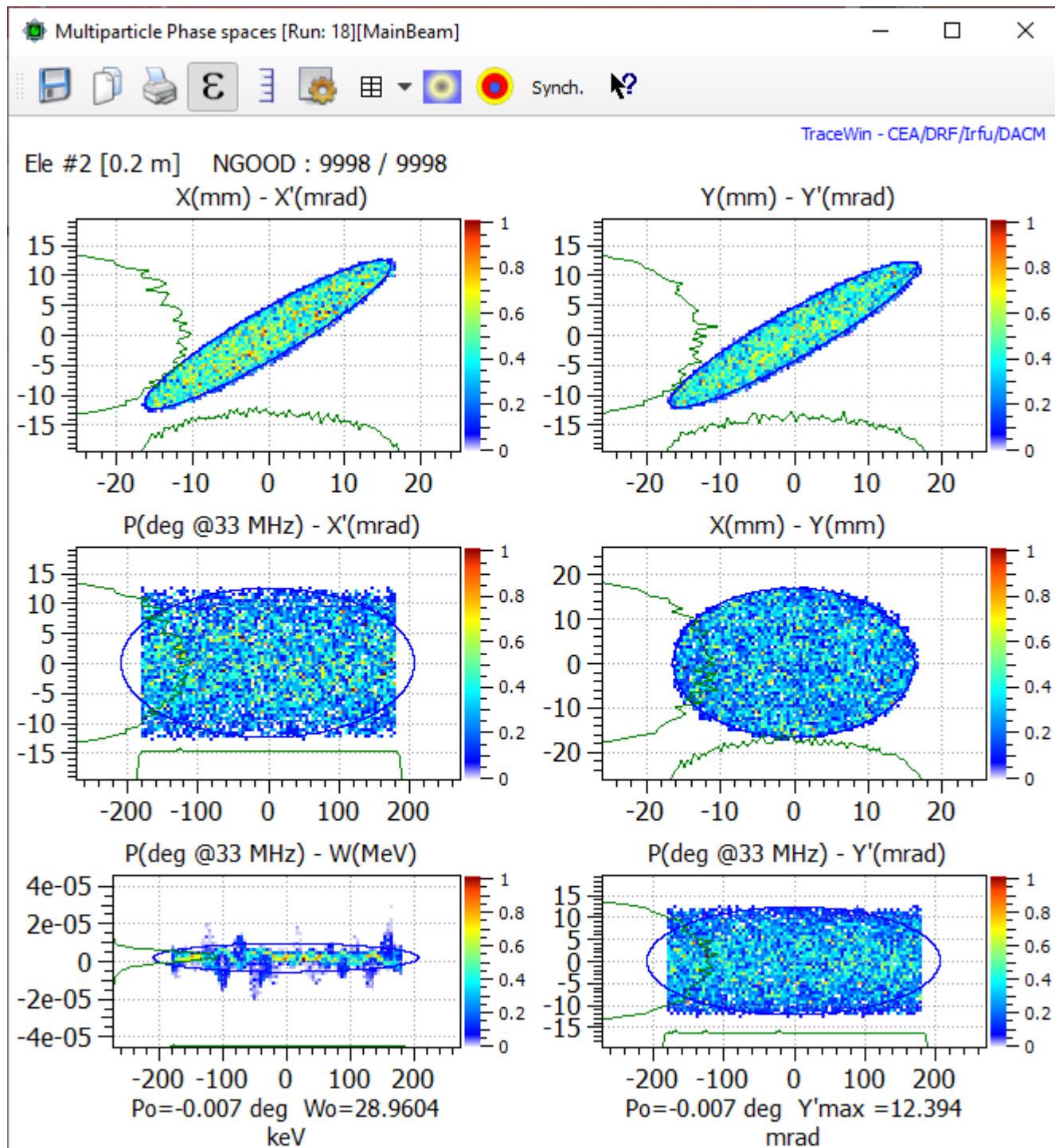
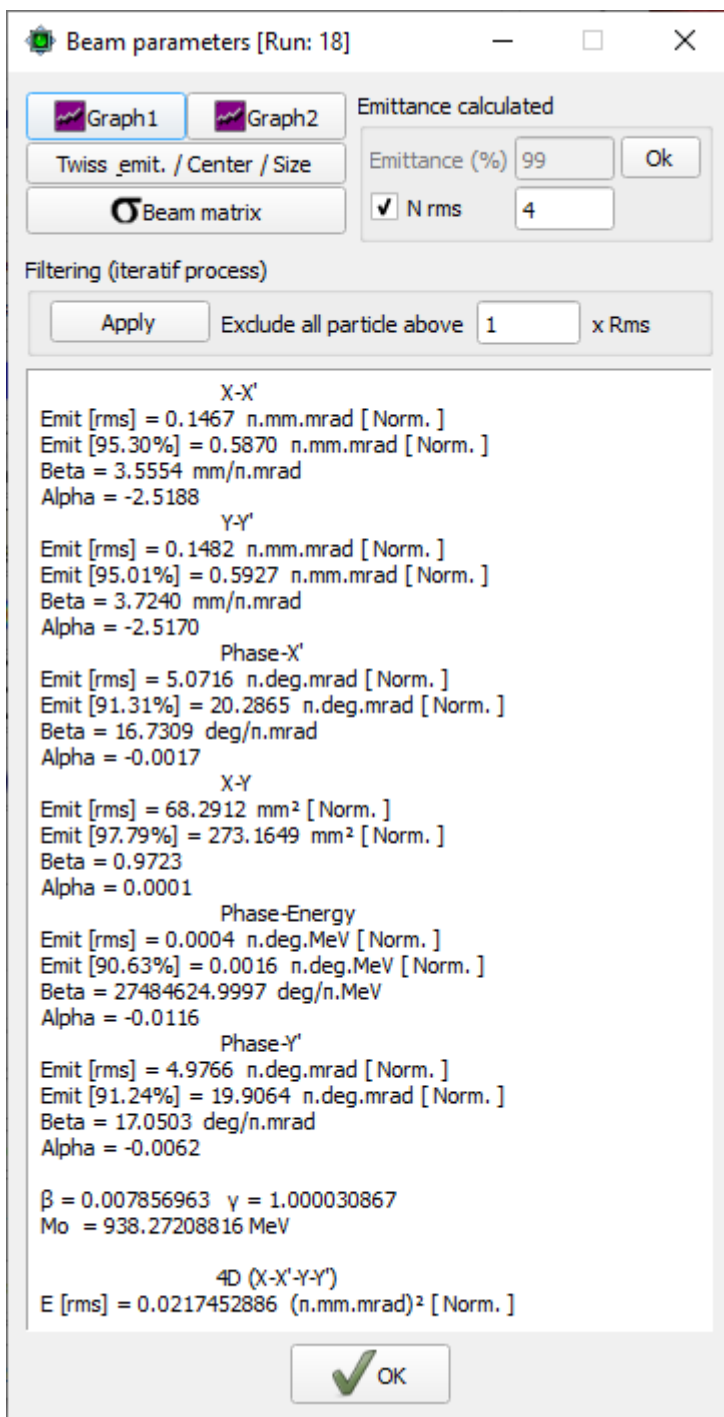
$$0.0078567441 \cdot \frac{c}{33 \text{ MHz}} = 71.376 \text{ mm}$$

$$7.3684 \text{ mm} \cdot 7 = 51.579 \text{ mm}$$

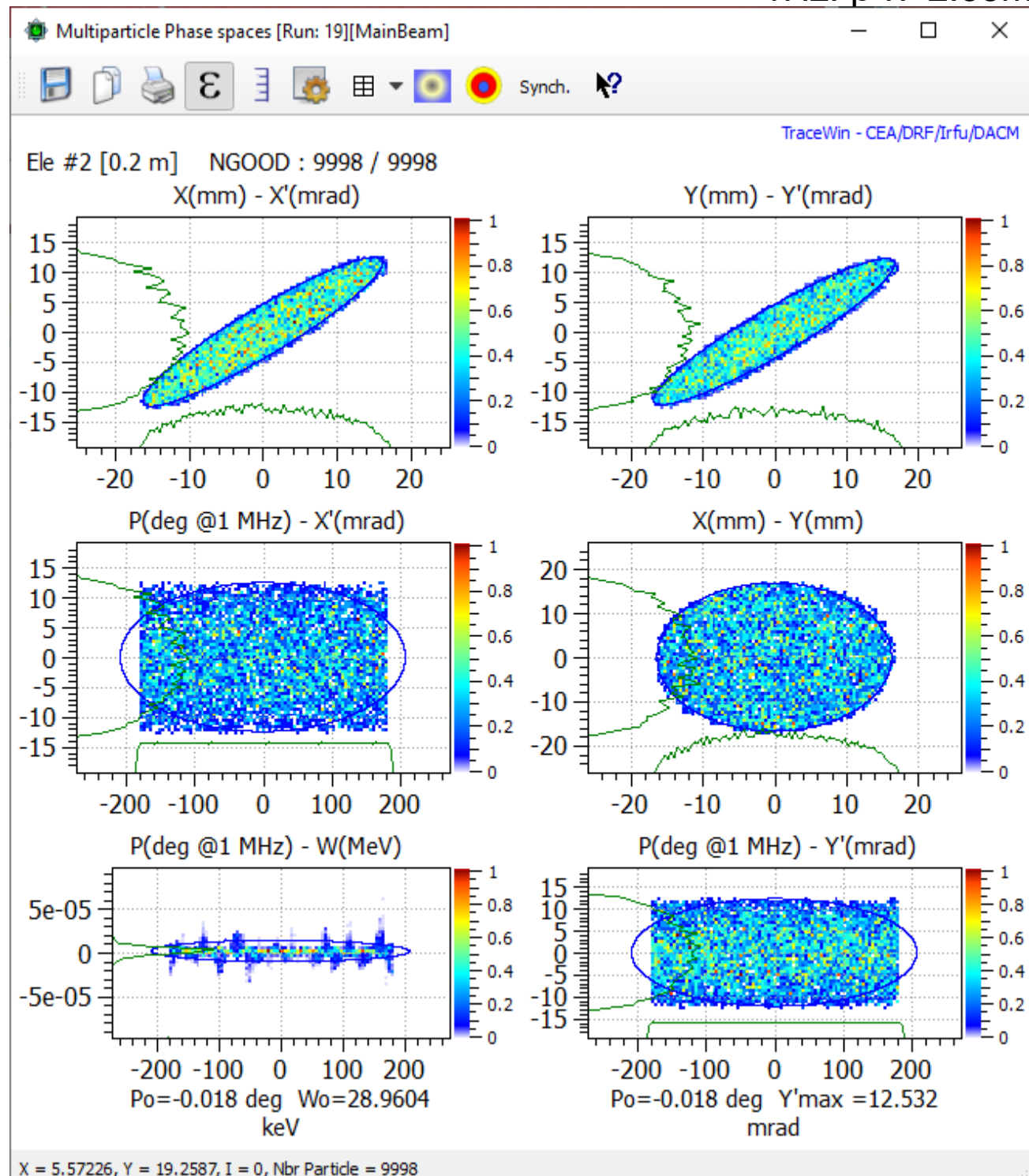
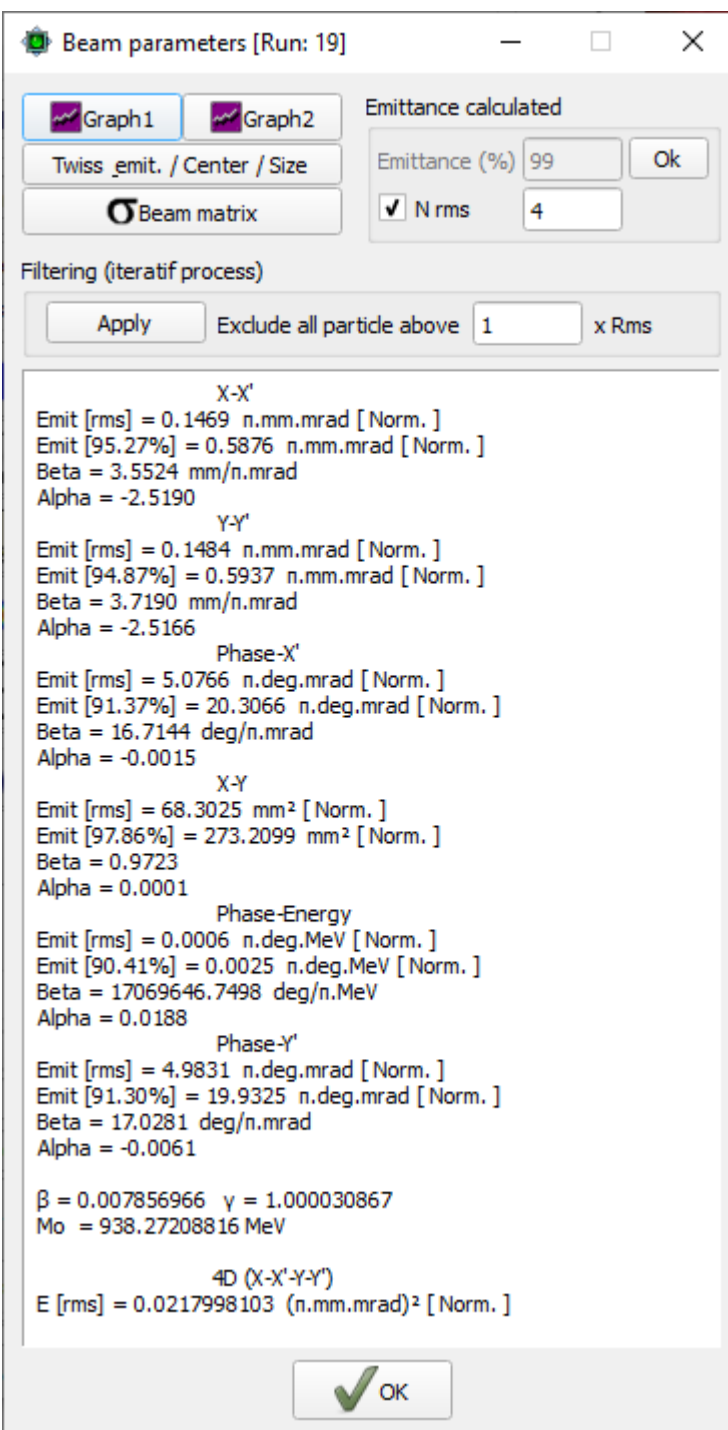
$$7.3684 \text{ mm} \cdot 10 = 73.684 \text{ mm}$$



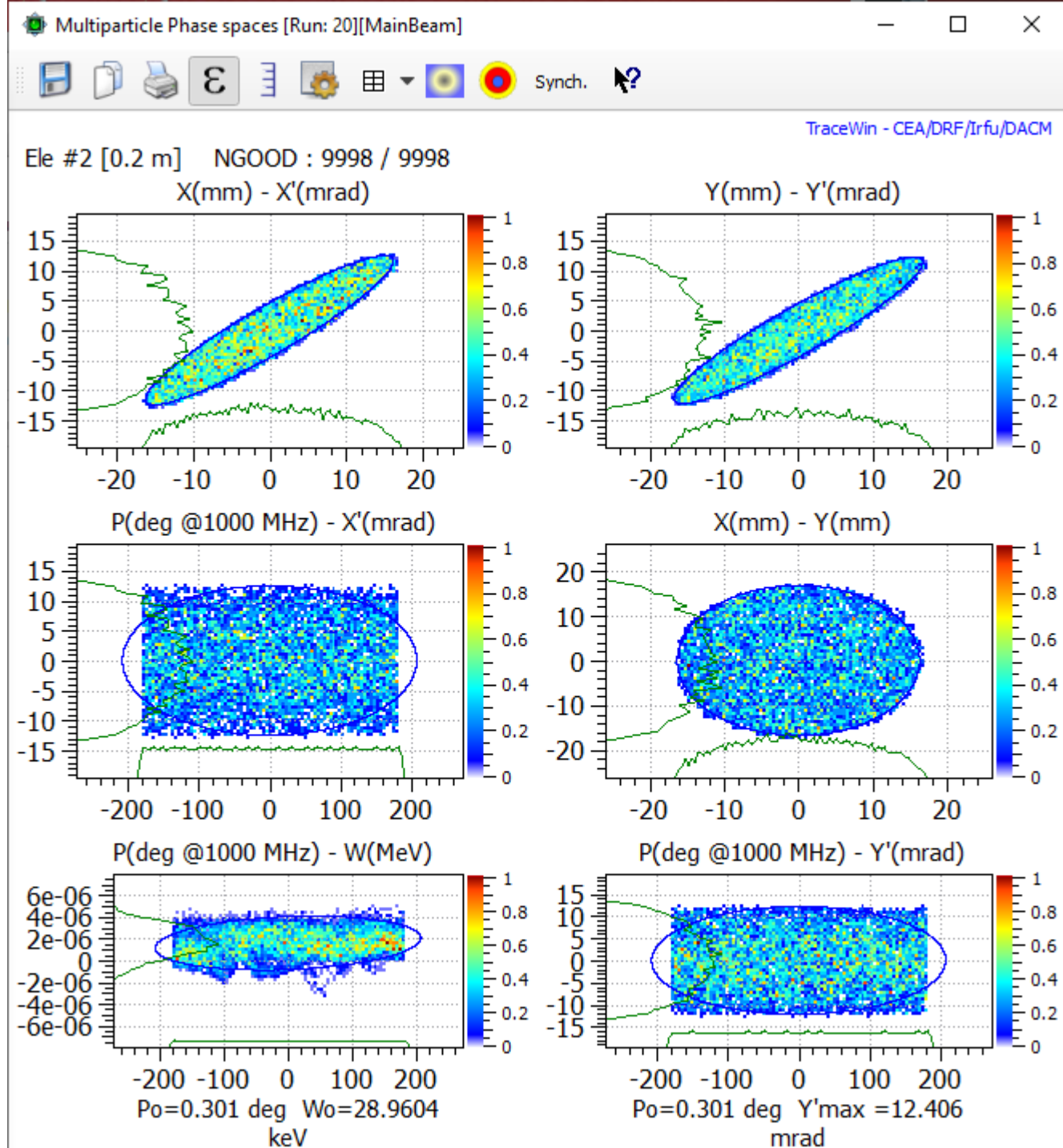
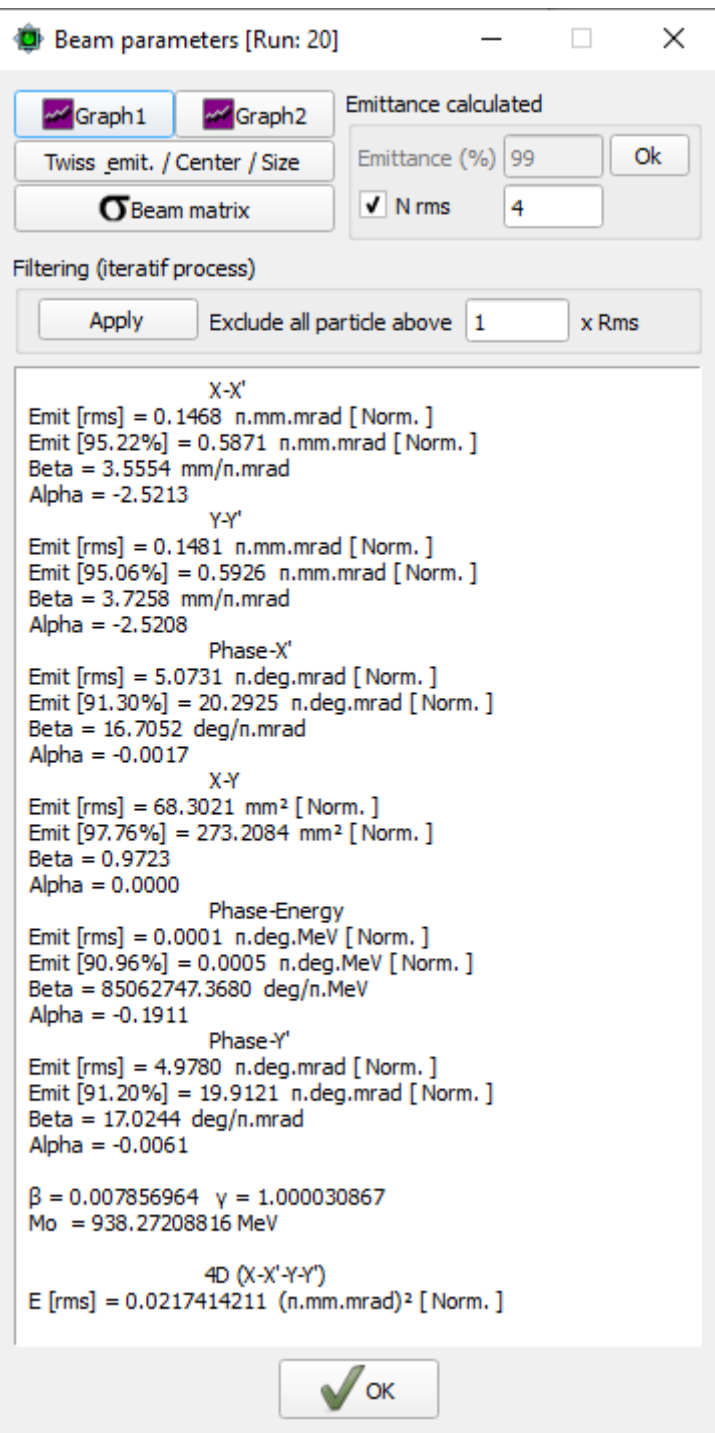
33Hz



1Hz: $\beta \cdot \lambda = 2.35\text{m}$



1000Hz: $\beta \cdot \lambda = 2.35\text{mm}$



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Transient calculation options

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Dx' 0 mrad

Dy 0 mm

Dy' 0 mrad

Dz 0 mm

Dp 0 deg

Dz' 0 mrad

Dw 0 MeV

Dp/p 0 %

Mismatchings (%)

X 0 Y 0 Z 0

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☒ Partran ☐ Toutatis (RFQ)

Input distribution type

Particles are generated randomly in :

Use distribution from input particle file (*.dst)

Mask

Transverse Uniform

Longitudinal Uniform

PARMILA distribution type 8

Max size / rms size

Input Halo distribution

Partran space charge options

Partran step of calcul and space-charge

99.XX% emittances and Halo

Partran Scattering and Stripping

Partran Energy and Phase limits for (Emittances, losses, Density file)

Distribution output file (PLT) and Losses file (losses_PAR.dat)

Partran options

Toutatis Options

Multi-Threading

3575 ms

Free memory: 74%

; Structure file

```
;REPEAT_ELE 100 1
;DRIFT 1 100
;REPEAT_ELE 100 1
;DRIFT 1 100
DRIFT 100 100
```

```
DRIFT 100 100
END
```

$$0.0078567441 \cdot \frac{c}{45 \text{ MHz}} = 52.342 \text{ mm}$$

$$0.0078567441 \cdot \frac{c}{33 \text{ MHz}} = 71.376 \text{ mm}$$

$$7.3684 \text{ mm} \cdot 7 = 51.579 \text{ mm}$$

$$7.3684 \text{ mm} \cdot 10 = 73.684 \text{ mm}$$

45Hz

Beam parameters [Run: 24]

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] = 0.4017 n.mm.mrad [Norm.]

Emit [92.64%] = 1.6068 n.mm.mrad [Norm.]

Beta = 1.6092 mm/n.mrad

Alpha = -2.5263

Y-Y'

Emit [rms] = 0.4125 n.mm.mrad [Norm.]

Emit [92.49%] = 1.6502 n.mm.mrad [Norm.]

Beta = 1.6559 mm/n.mrad

Alpha = -2.5335

Phase-X'

Emit [rms] = 0.0544 n.deg.mrad [Norm.]

Emit [99.34%] = 0.2176 n.deg.mrad [Norm.]

Beta = 0.0295 deg/n.mrad

Alpha = -0.0176

X-Y

Emit [rms] = 84.5394 mm² [Norm.]Emit [90.29%] = 338.1577 mm² [Norm.]

Beta = 0.9730

Alpha = 0.0216

Phase-Energy

Emit [rms] = 0.0000 n.deg.MeV [Norm.]

Emit [99.16%] = 0.0001 n.deg.MeV [Norm.]

Beta = 14986.4230 deg/n.MeV

Alpha = 1.6441

Phase-Y'

Emit [rms] = 0.0544 n.deg.mrad [Norm.]

Emit [99.38%] = 0.2176 n.deg.mrad [Norm.]

Beta = 0.0295 deg/n.mrad

Alpha = -0.0539

 $\beta = 0.007858194 \quad \gamma = 1.000030877$

Mo = 938.27208816 MeV

4D (X-X'-Y-Y')

E [rms] = 0.1655207218 (n.mm.mrad)² [Norm.]

OK

Multiparticle Phase spaces [Run: 24][MainBeam]



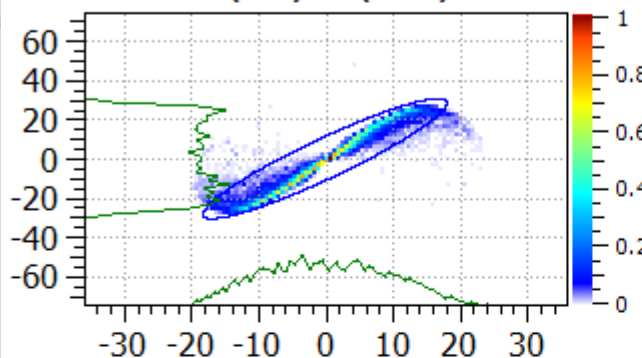
Synch.



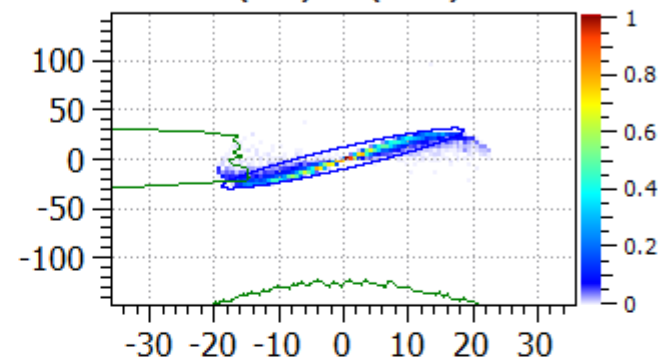
TraceWin - CEA/DRF/Irfu/DACM

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

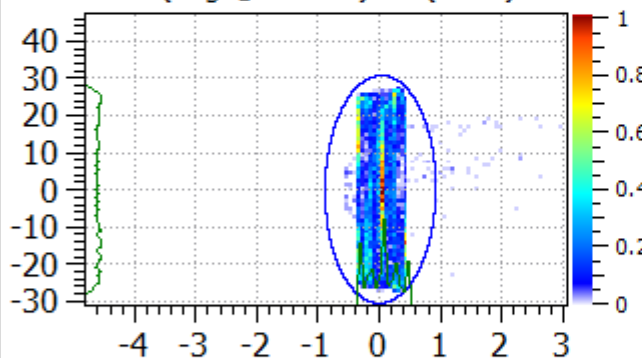
X(mm) - X'(mrad)



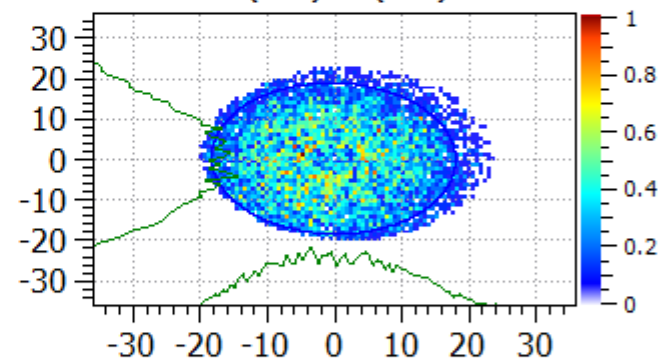
Y(mm) - Y'(mrad)



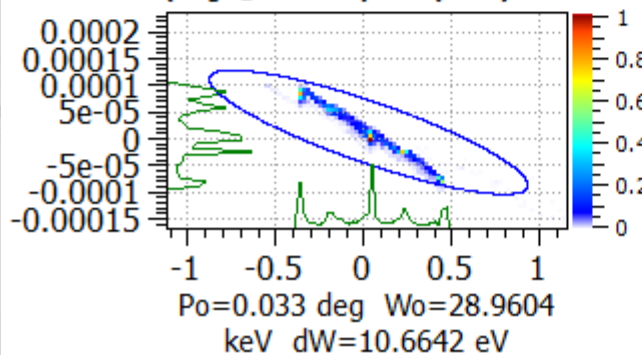
P(deg @45 MHz) - X'(mrad)



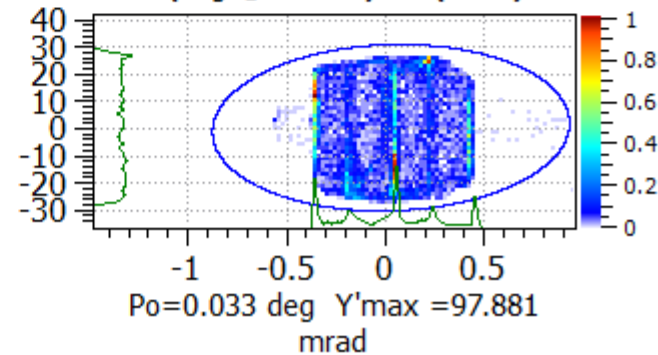
X(mm) - Y(mm)



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



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



33Hz

