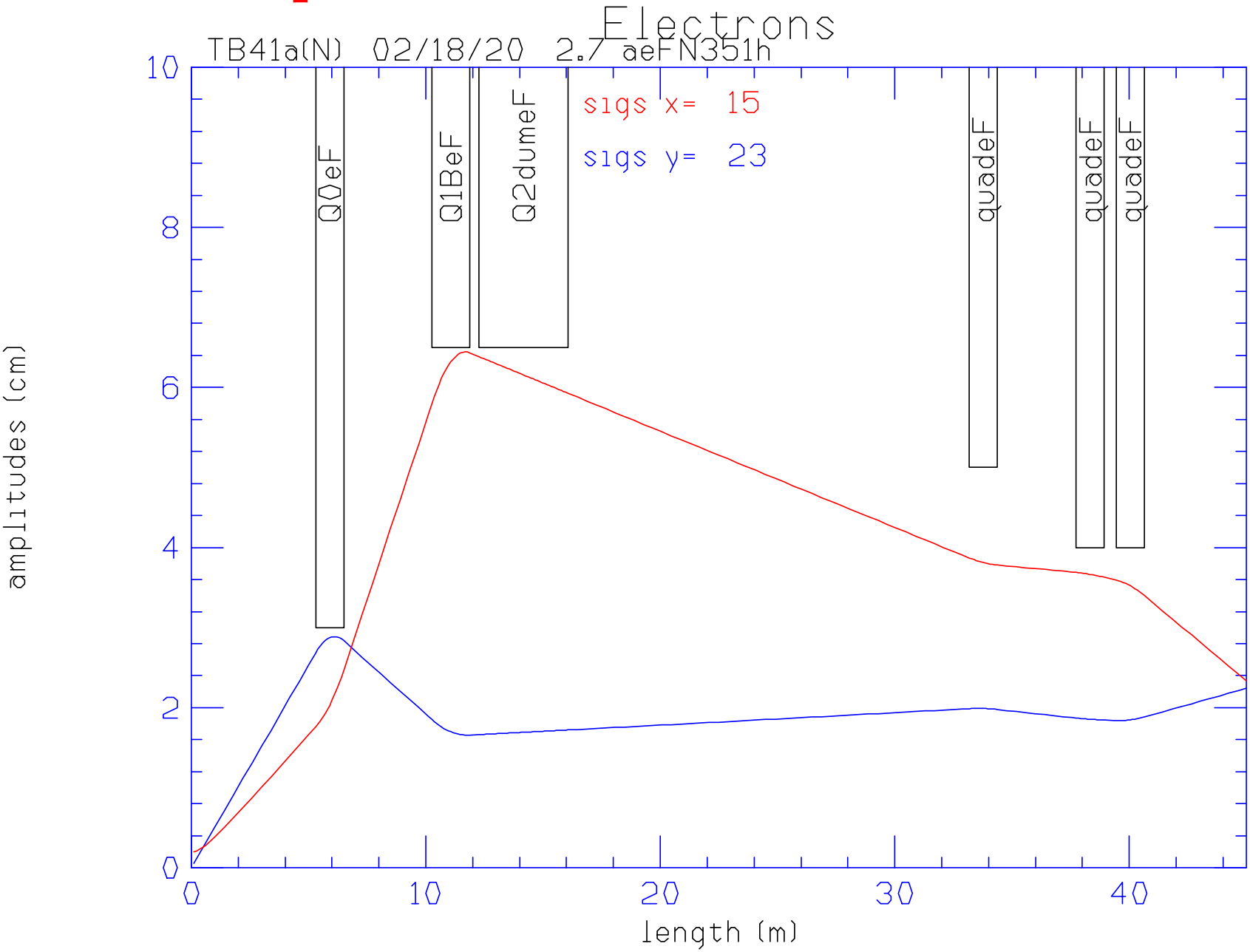
file: 2002-close-v3.pdf

2/14/20

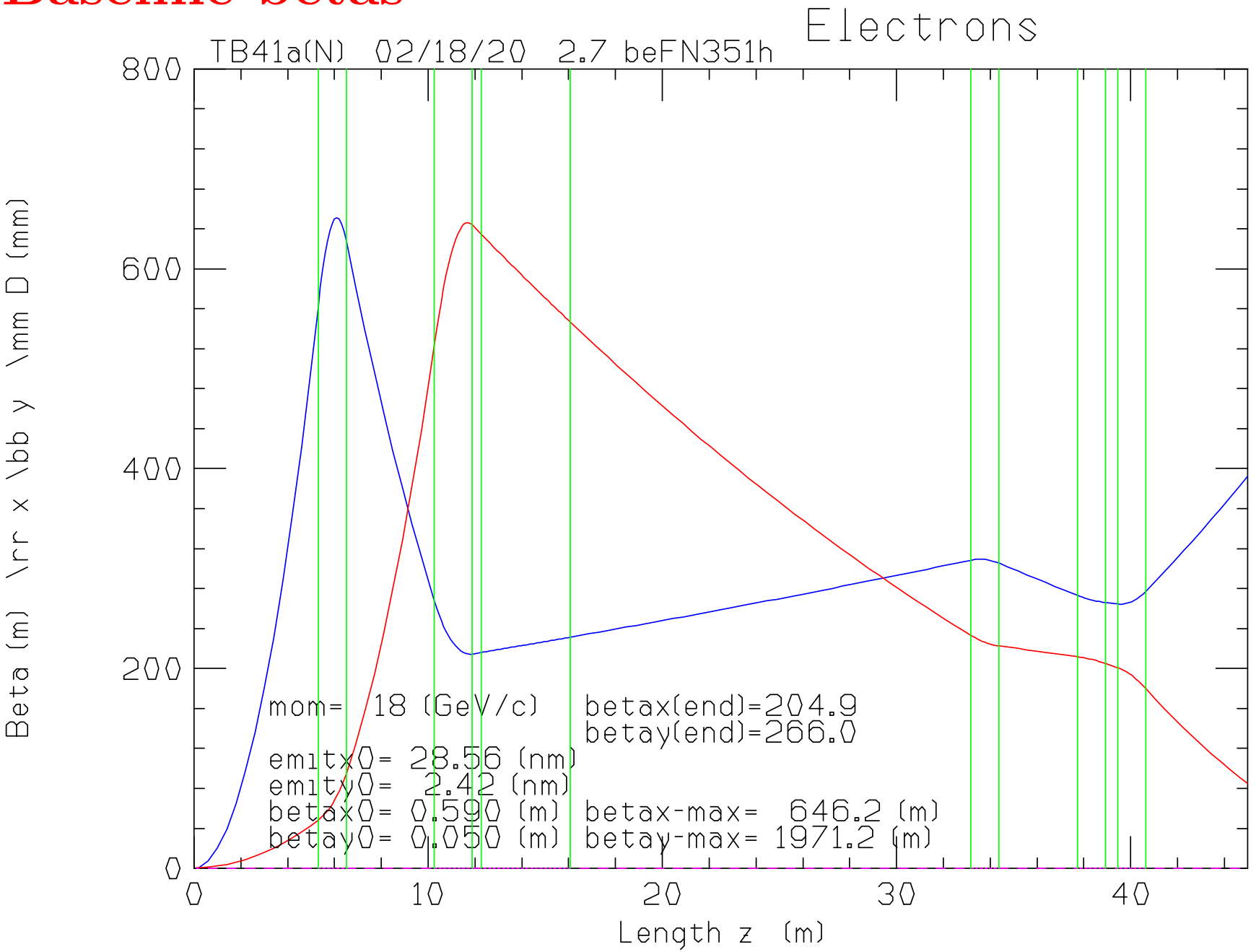
Bob Palmer

Baseline apertures



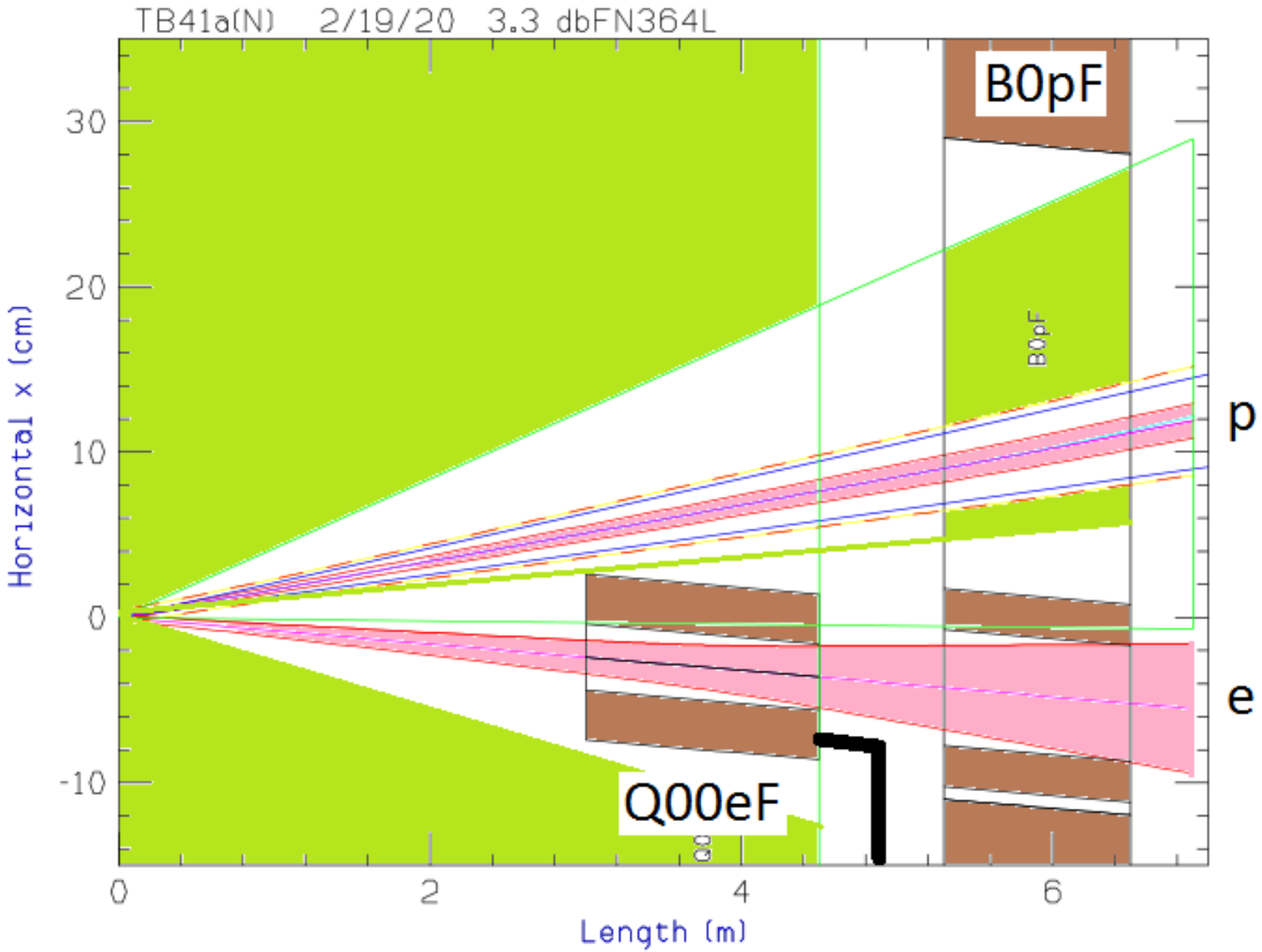
Note 6.5 cm hole in Q2pF (was 6.0)

Baseline betas



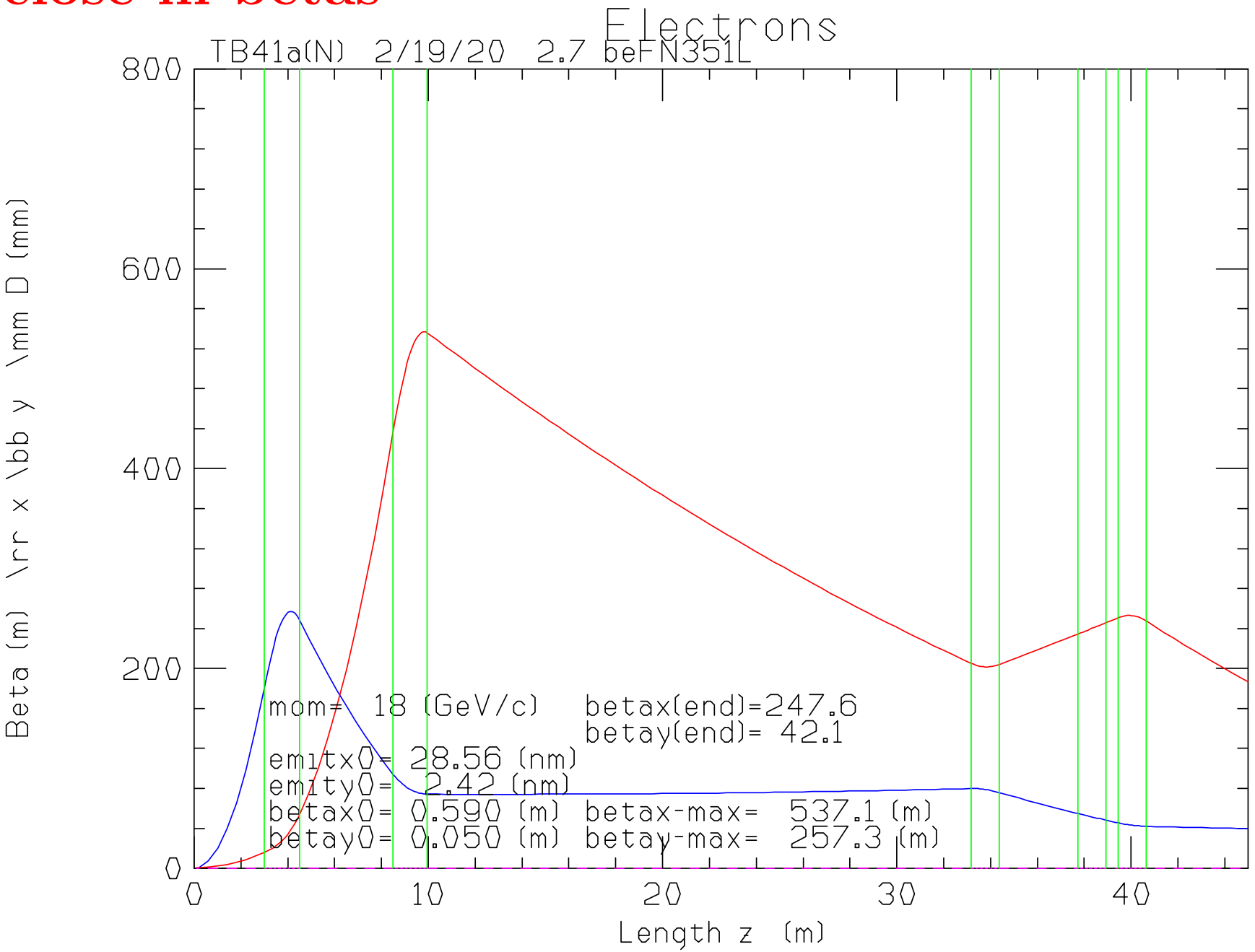
beta y max is 650 m

close in Q00



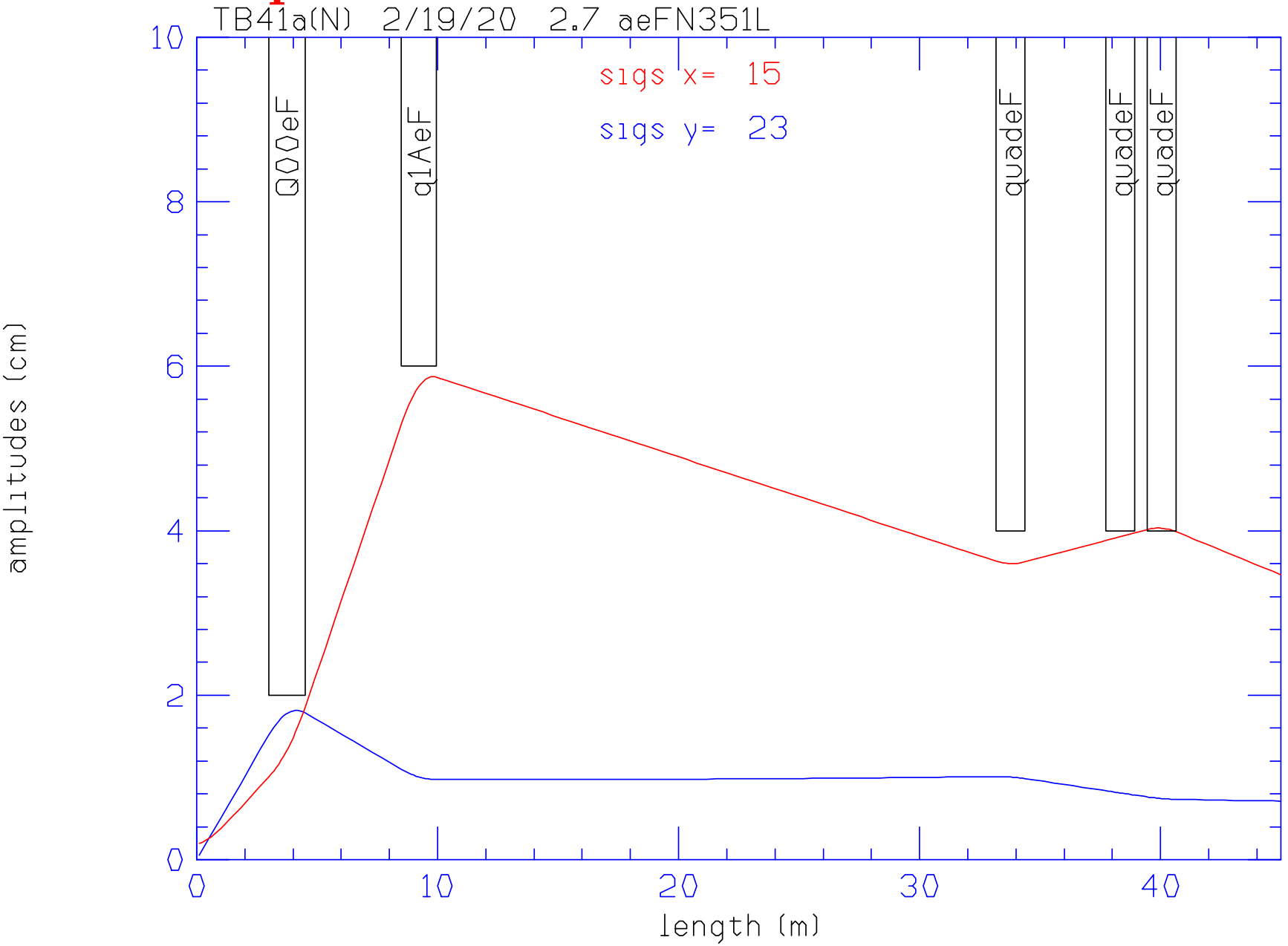
Assumed warm Need to check stray field on protons

close in betas



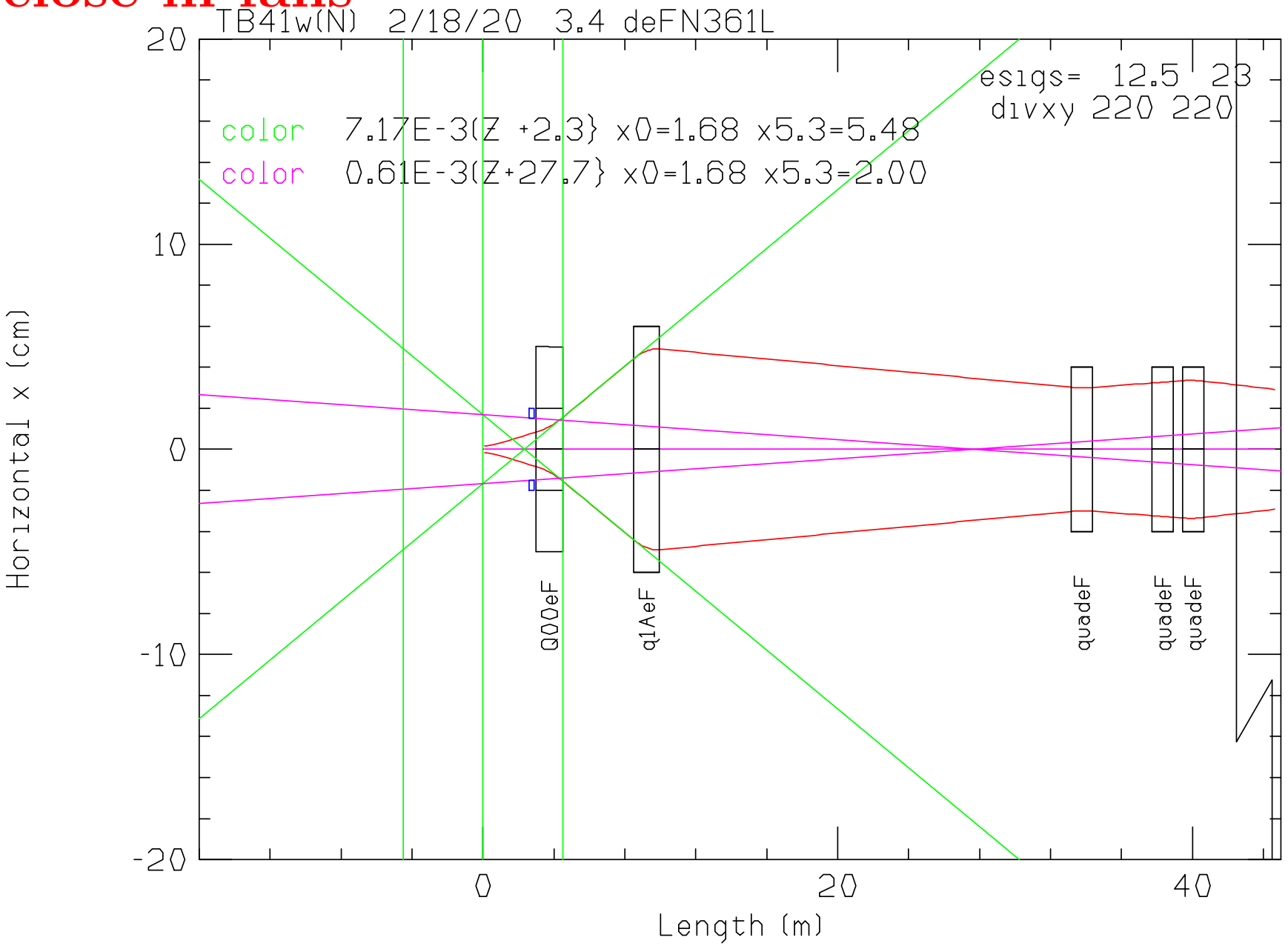
beta y max now 260 m cf 650 m

close in aperturs

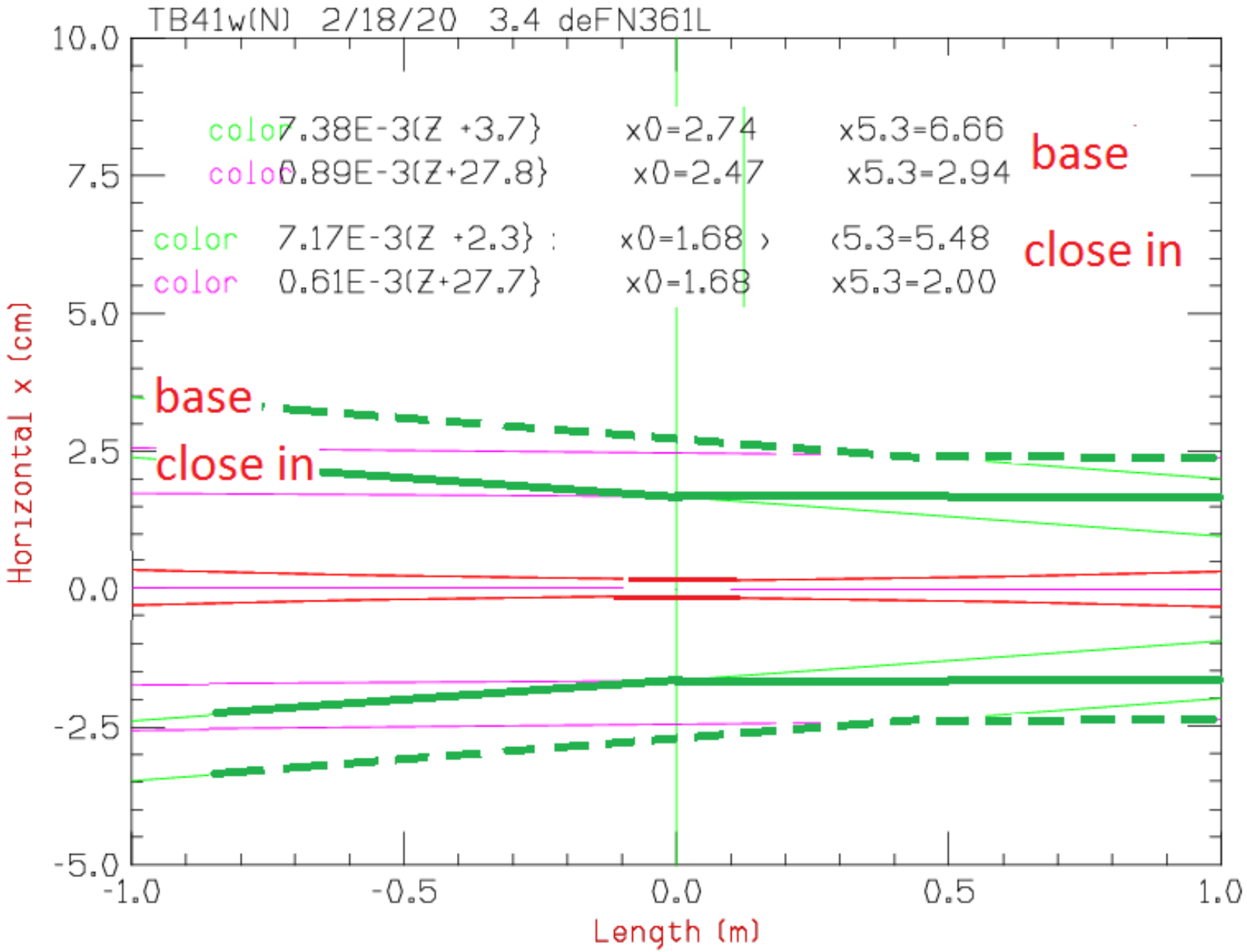


Now back to 6.0 cm at Q2pF

close in fans



close in compare at IP



Fan angle near the same, but start delayed

close in parameters

```
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# TB41a(N)  02/14/20  zeFN351L Electron Forward  18
#
# beta*_x  beta*_y  gm emit_x gm emit_y  angle_x  angle_y    mom
#  [m]      [m]       [nm]      [nm]      [mrad]    [mrad]     GeV/c
 0.5900   0.0500     28.5560    2.4200       25       0         18
#
# name    center_z  center_x rad1  rad2  length  angle     B       grad    ap x grad
#           [m]       [m]     {m}   [m]    [m]   [mrad]    [T]     [T/m]      [T]
  Q00eF    3.75  -0.0938  0.020  0.020   1.50   25.0   0.000   -15.600    -0.312
  q1AeF    8.500  -0.2307  0.060  0.060   1.46   25.0   0.000     6.900     0.414
  quadeF   33.170  -0.8443  0.040  0.040   1.20   25.0   0.000    -2.400    -0.096
```

Conclusion

- Access for water and power outside central detector
- 1 cm smaller SR fan helps Q1AeR
- Reduction in beam radius at IP from 2.74 to 1.68 cm
- May ease design of anti-dipole inside B0pF (now no Q0eF)
- Returns Q2pF hole to 6.0 cm from 6.5 cm
- But reduces acceptance of spectrometer on e side

To Do

- Design magnet with minimum outer radius
- Study stray field on p beam