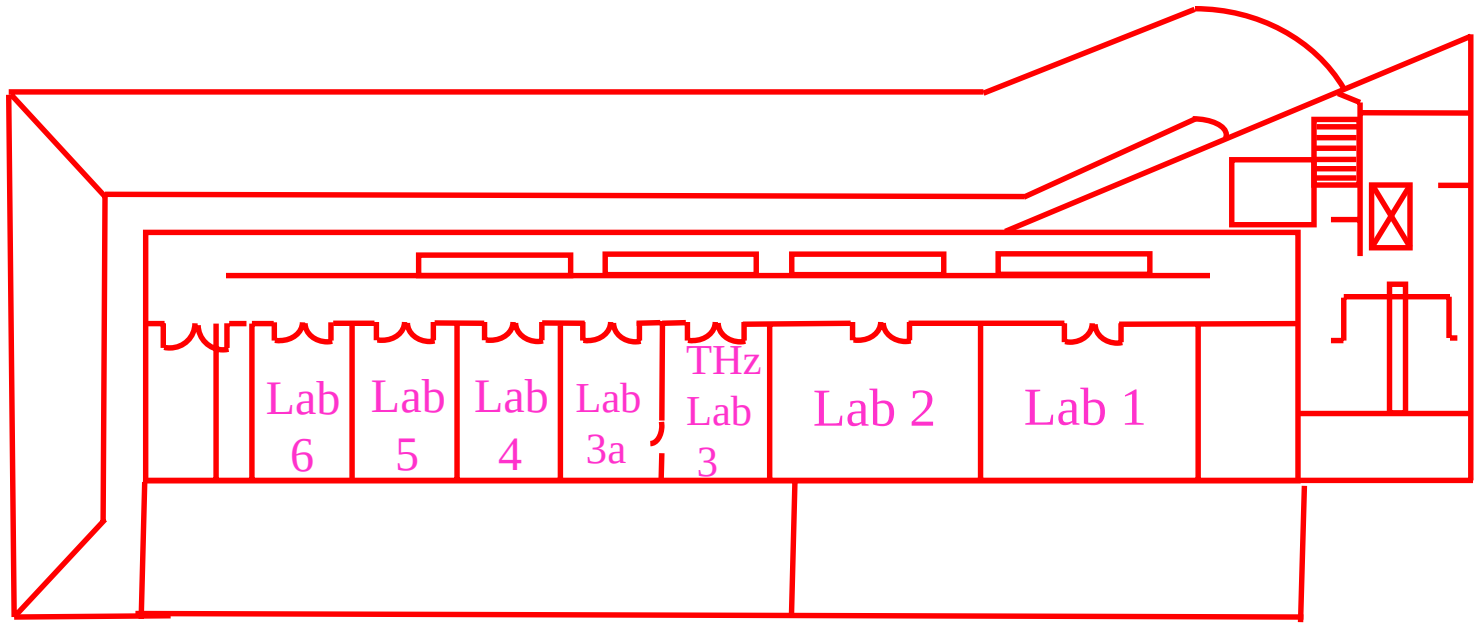
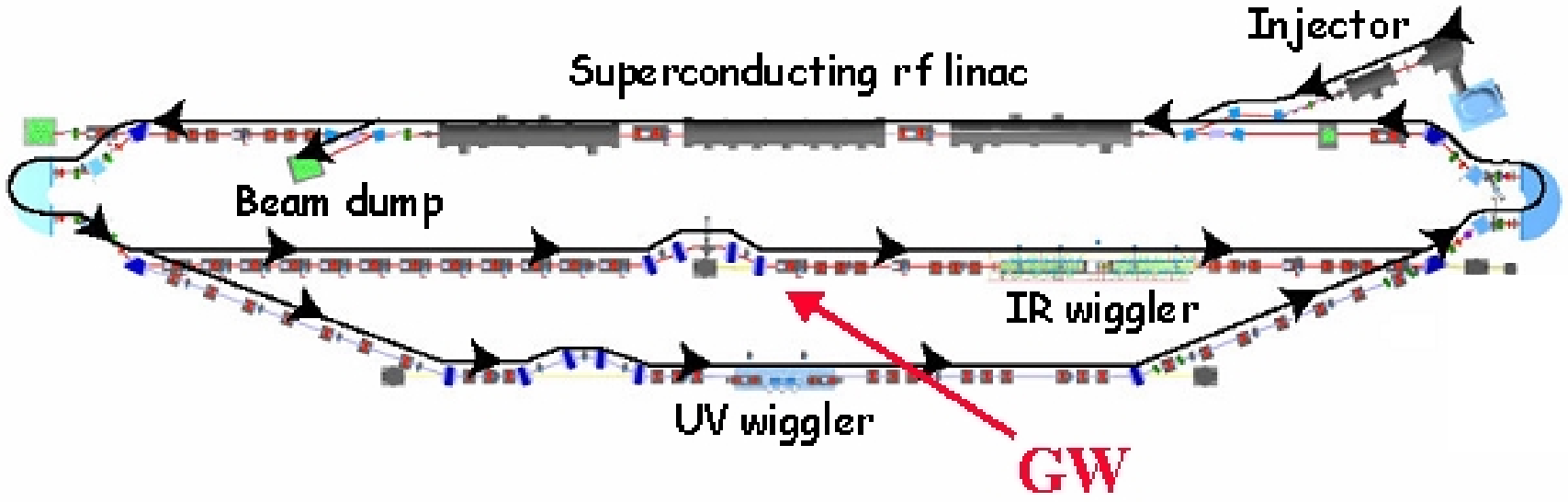
JLab FEL Layout

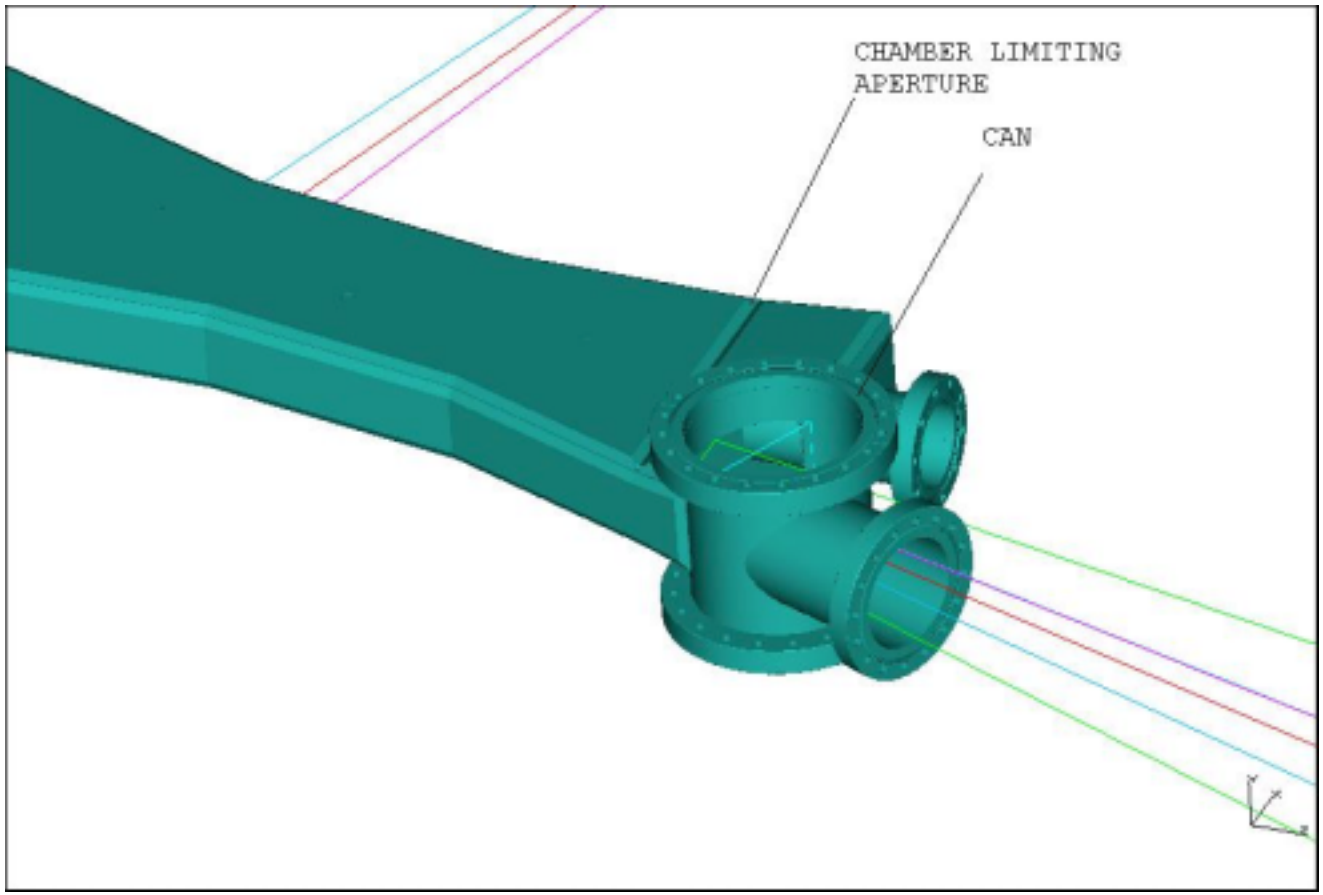


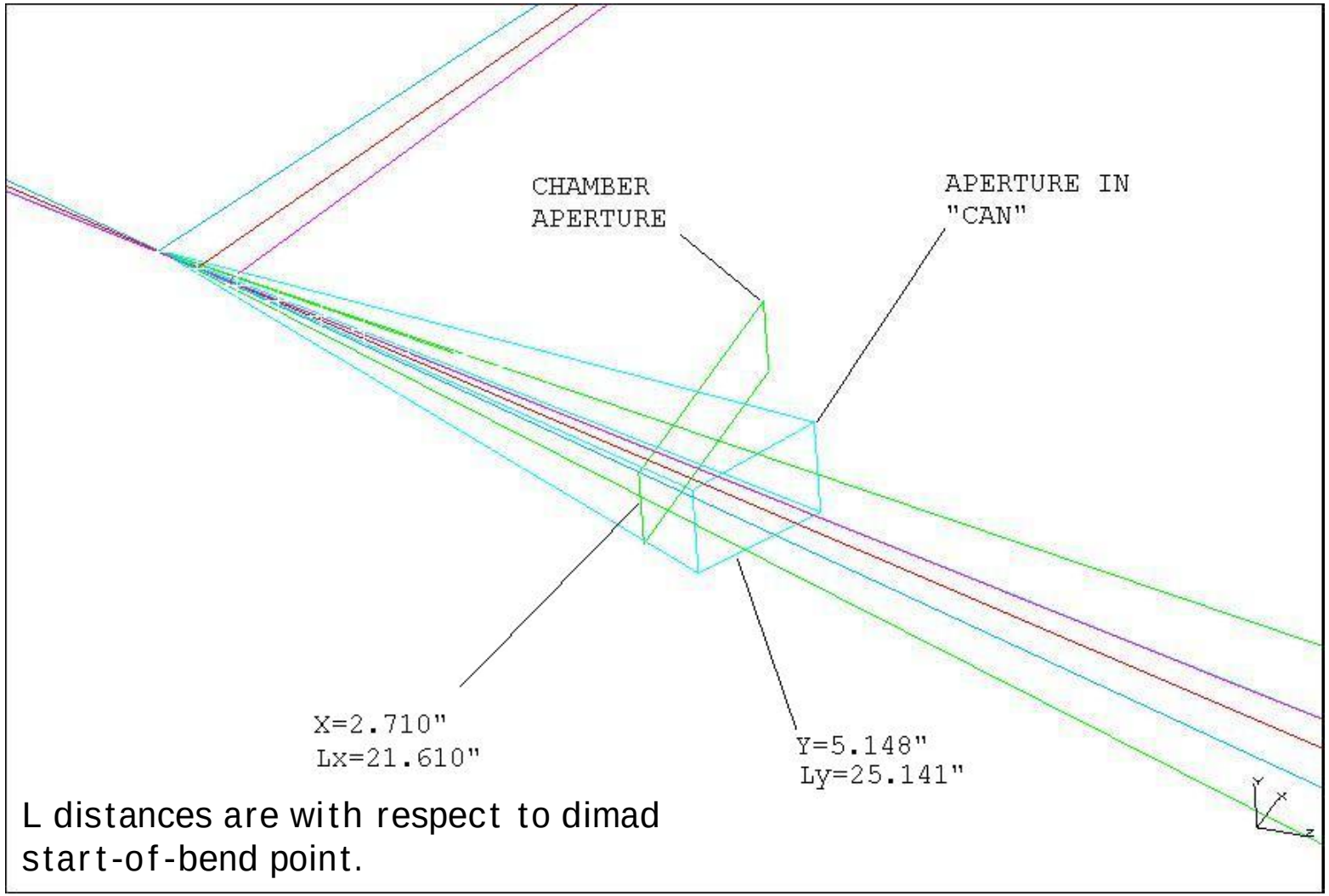
THz Beamline Conceptual Design Report Figure 1.



THz Beamline location point GW.

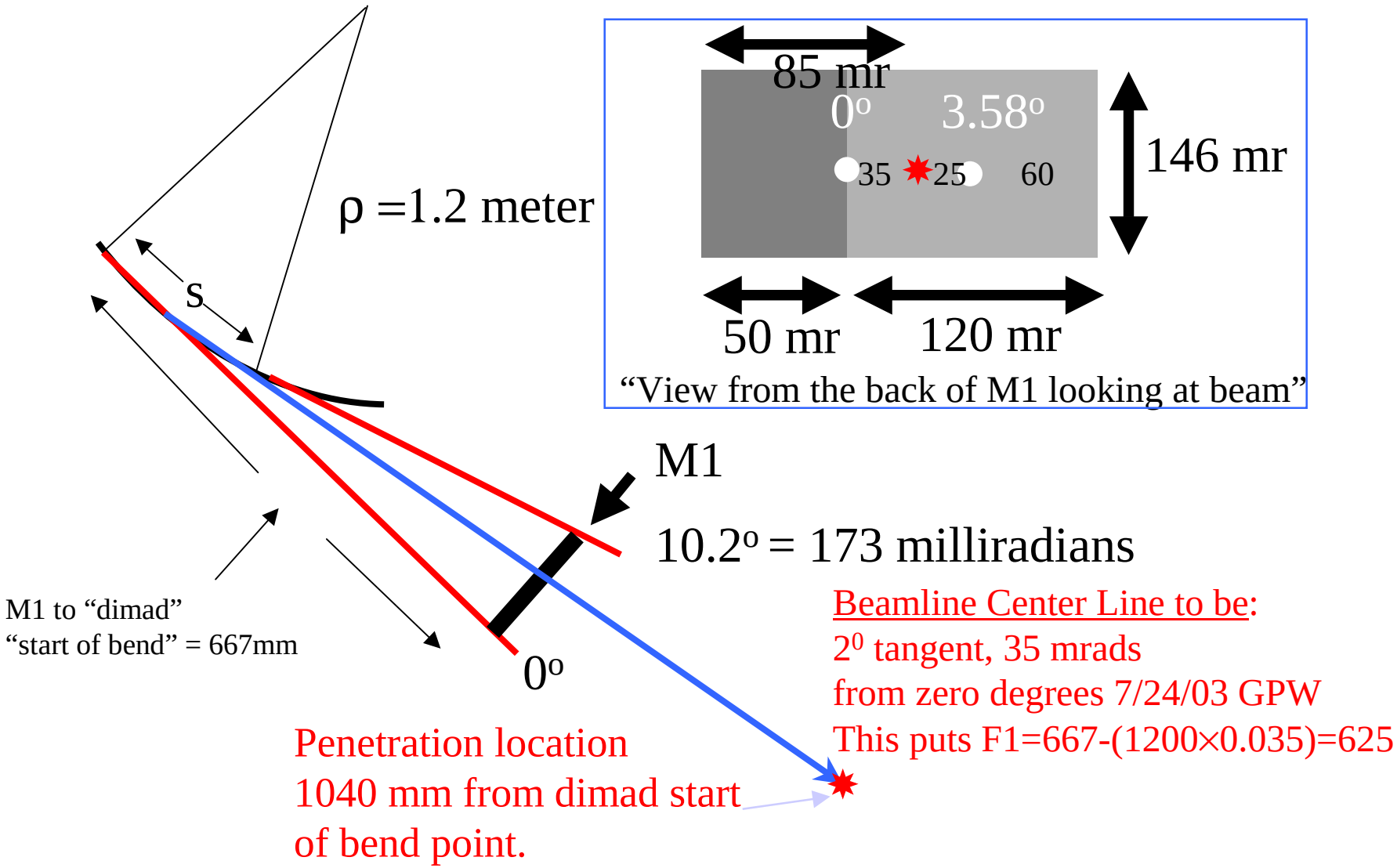
THz Beamline Conceptual Design Report Figure 2.


CHAMBER LIMITING
APERTURE
CAN



THz Beamline Conceptual Design Report Figure 4.

JFEL THz Port Description

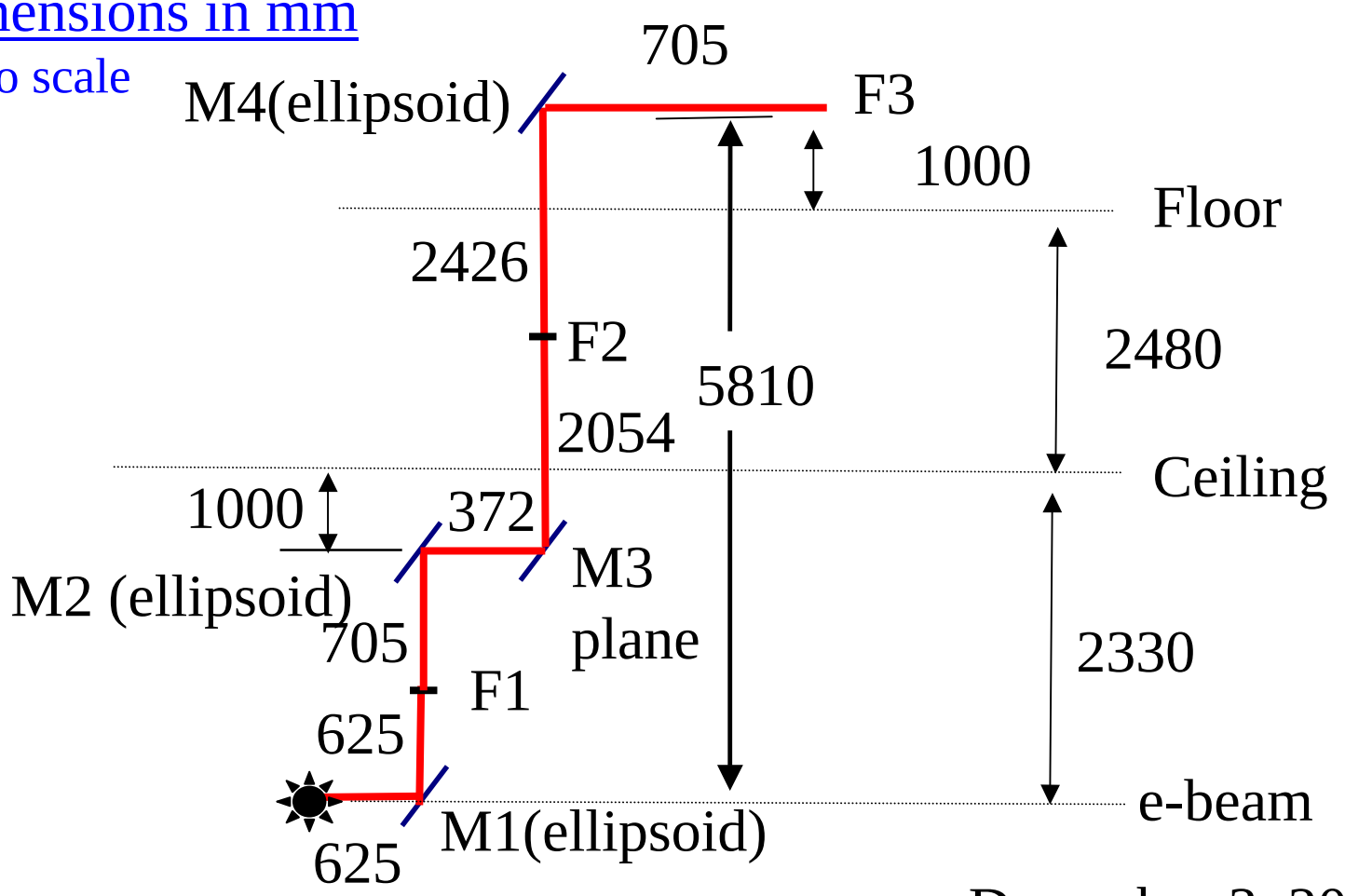


THz Beamline Conceptual Design Report Figure 5.

JFEL THz Port Description

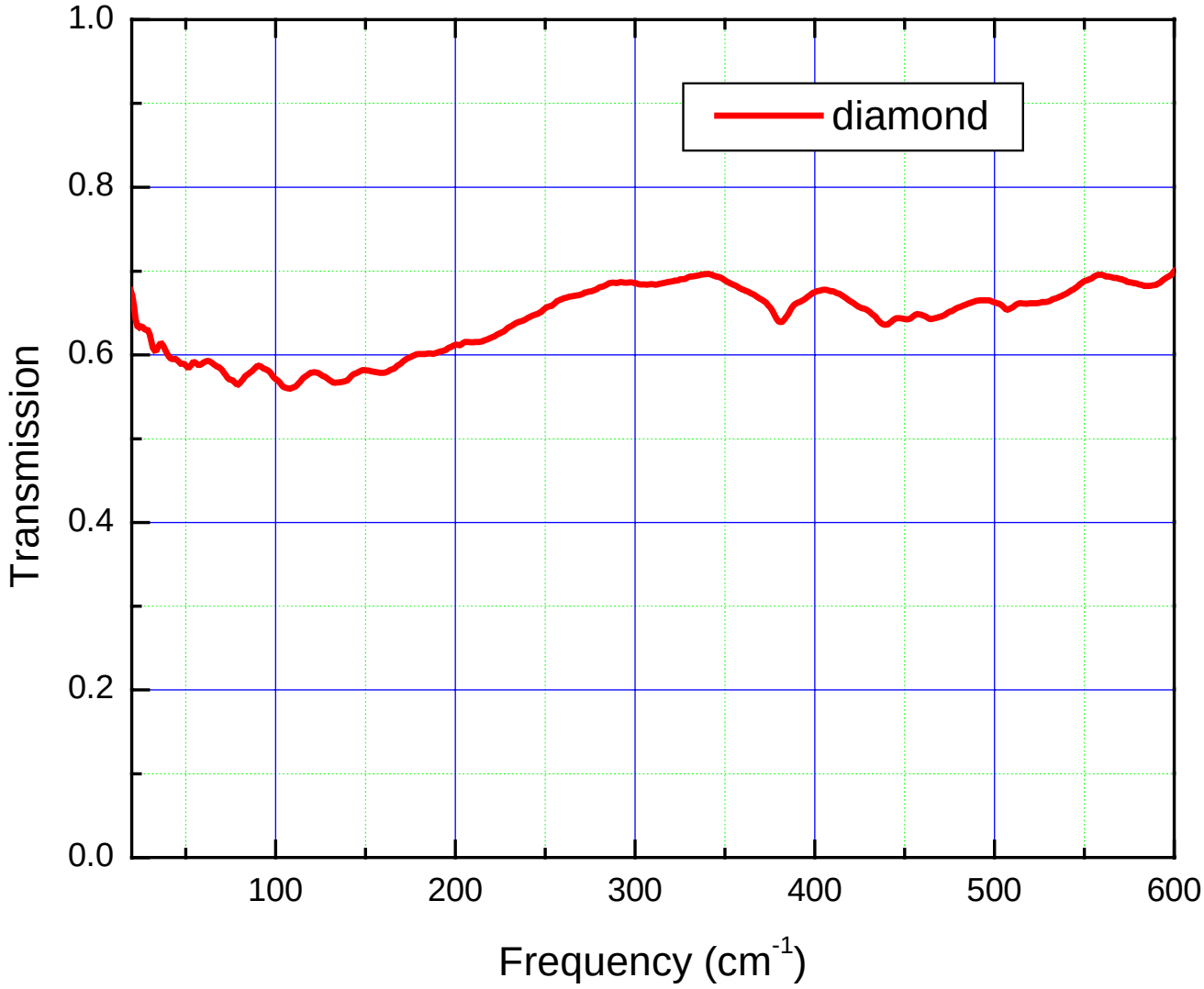
Dimensions in mm

not to scale



December 3, 2003

THz Beamline Conceptual Design Report Figure 6.

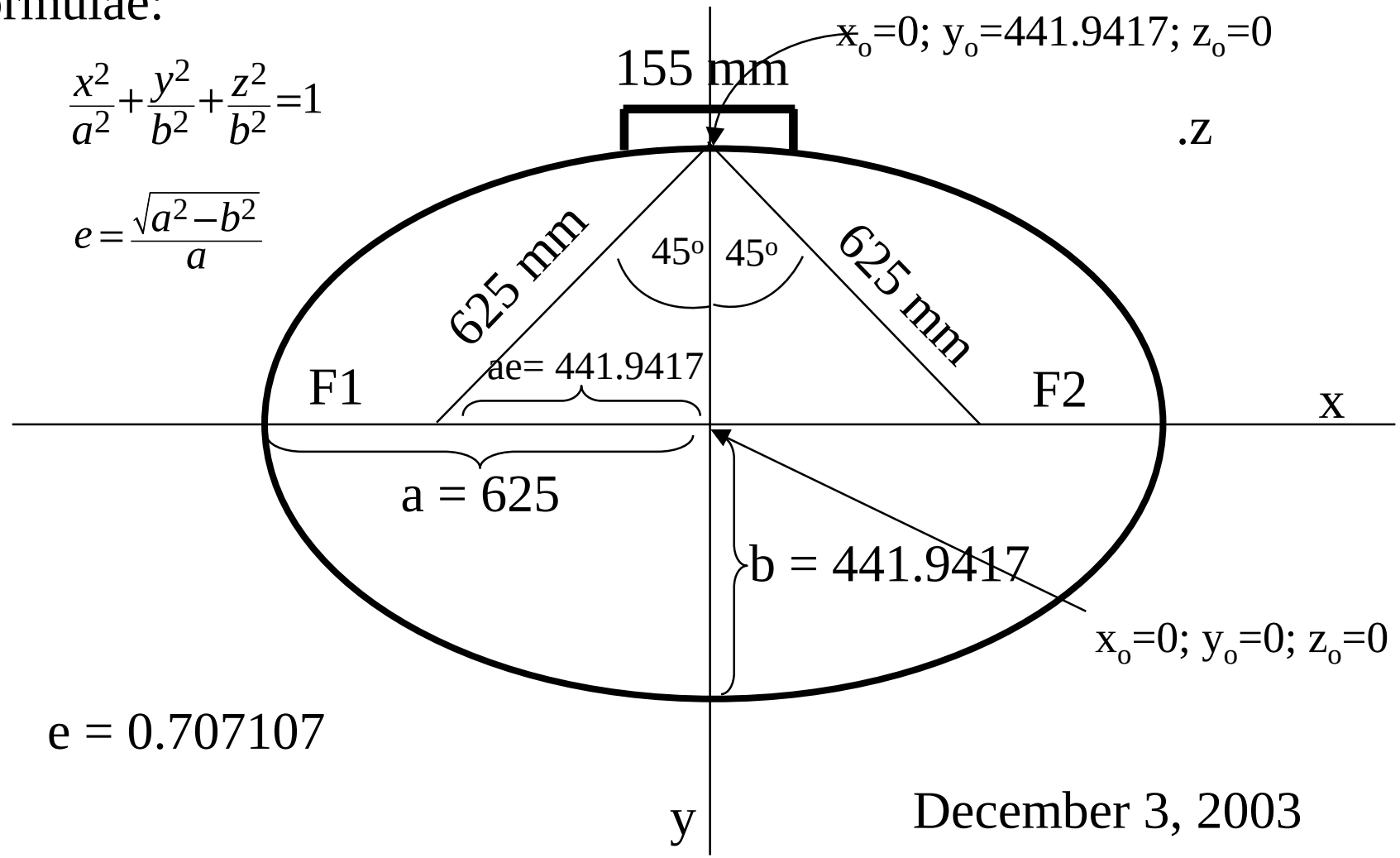

diamond
Transmission
Frequency (cm-1)
1.0
0.8
0.6
0.4
0.2
0.0
100
200
300
400
500
600

M1 Mirror for Jefferson Lab THz Beamline

Formulae:

$$\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{b^2}=1$$

$$e=\frac{\sqrt{a^2-b^2}}{a}$$



e = 0.707107

December 3, 2003

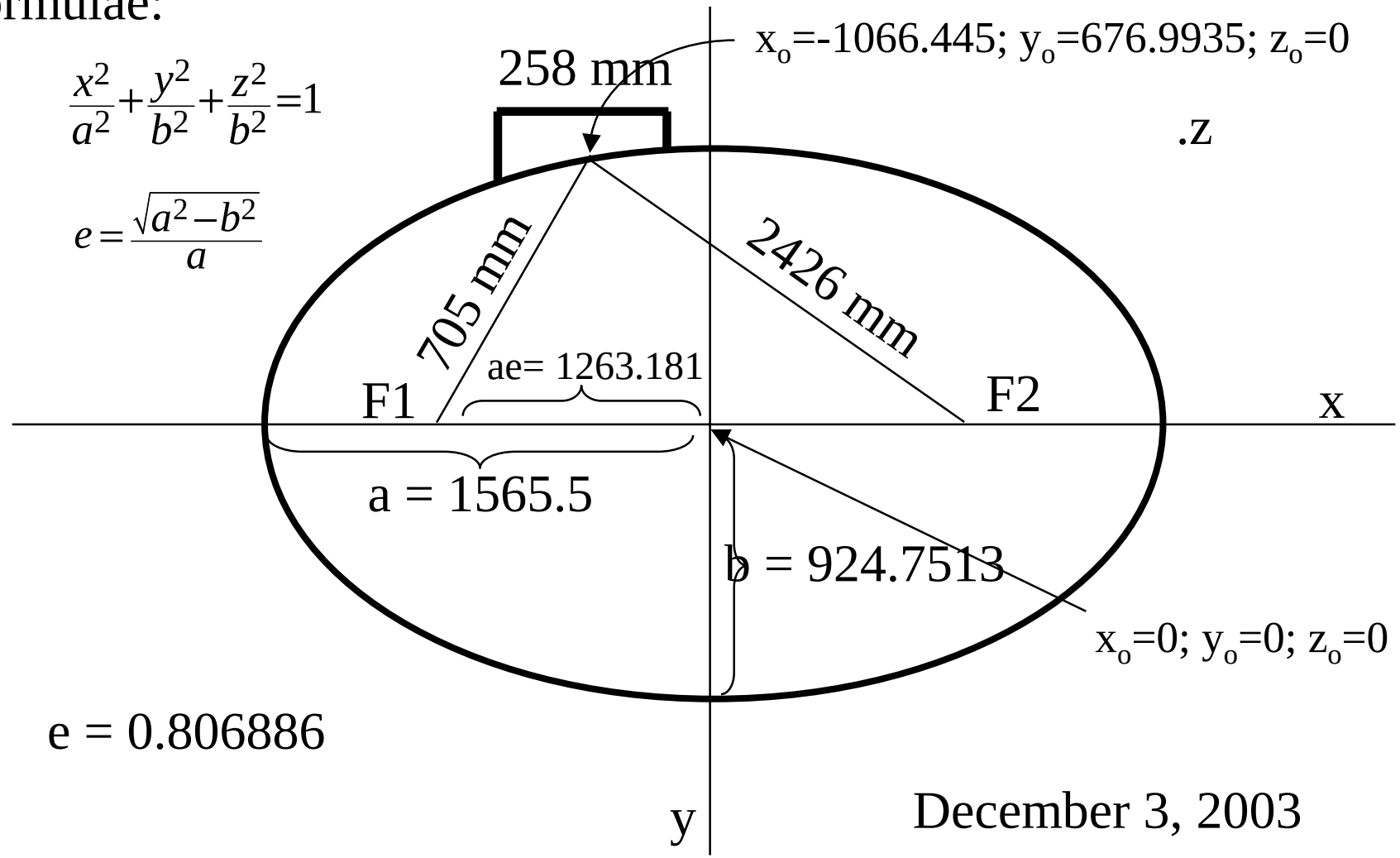
THz Beamline Conceptual Design Report Figure 8.

M2/M4 Mirrors for Jefferson Lab THz Beamline

Formulae:

$$\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{b^2}=1$$

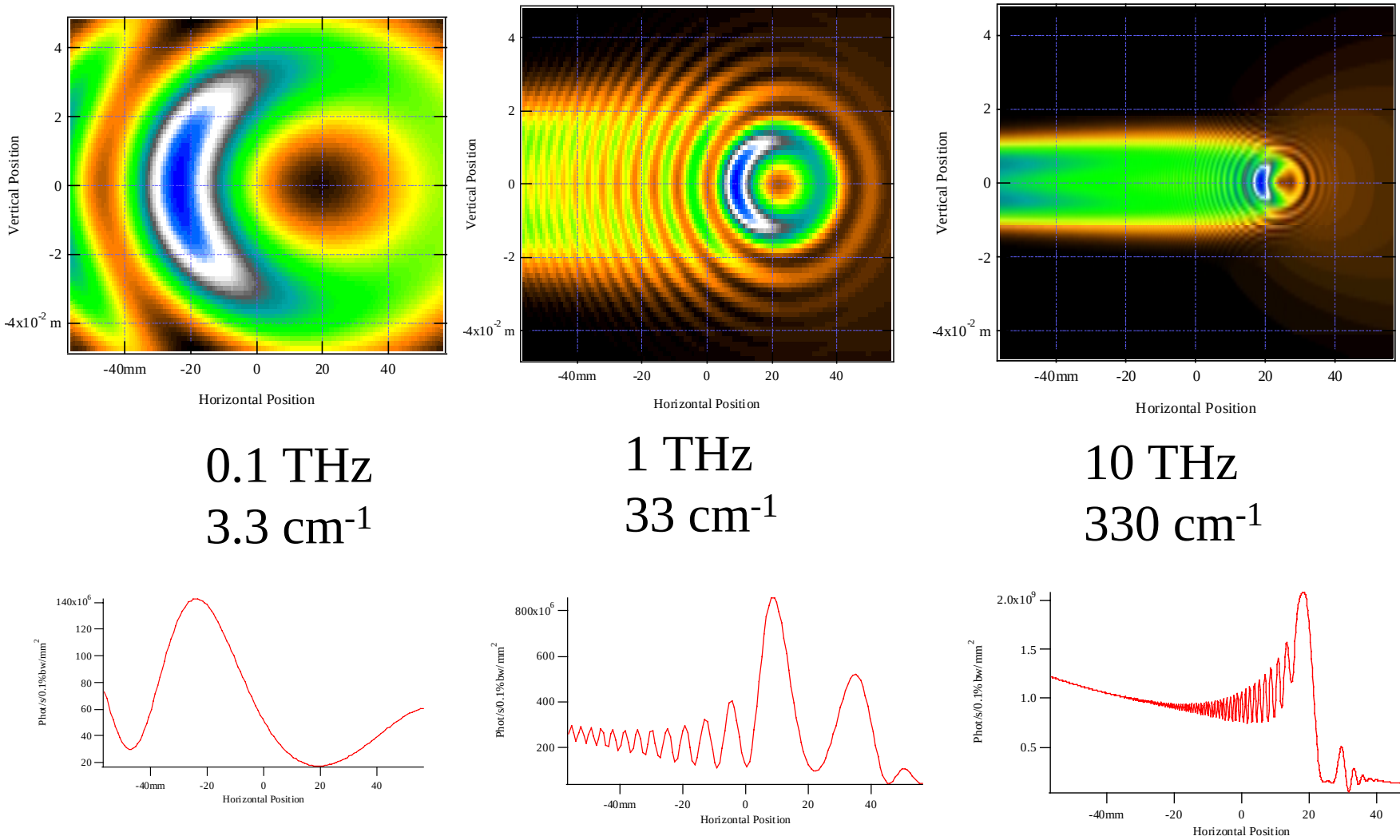
$$e=\frac{\sqrt{a^2-b^2}}{a}$$



e = 0.806886

December 3, 2003

THz Beamline Conceptual Design Report Figure 9.



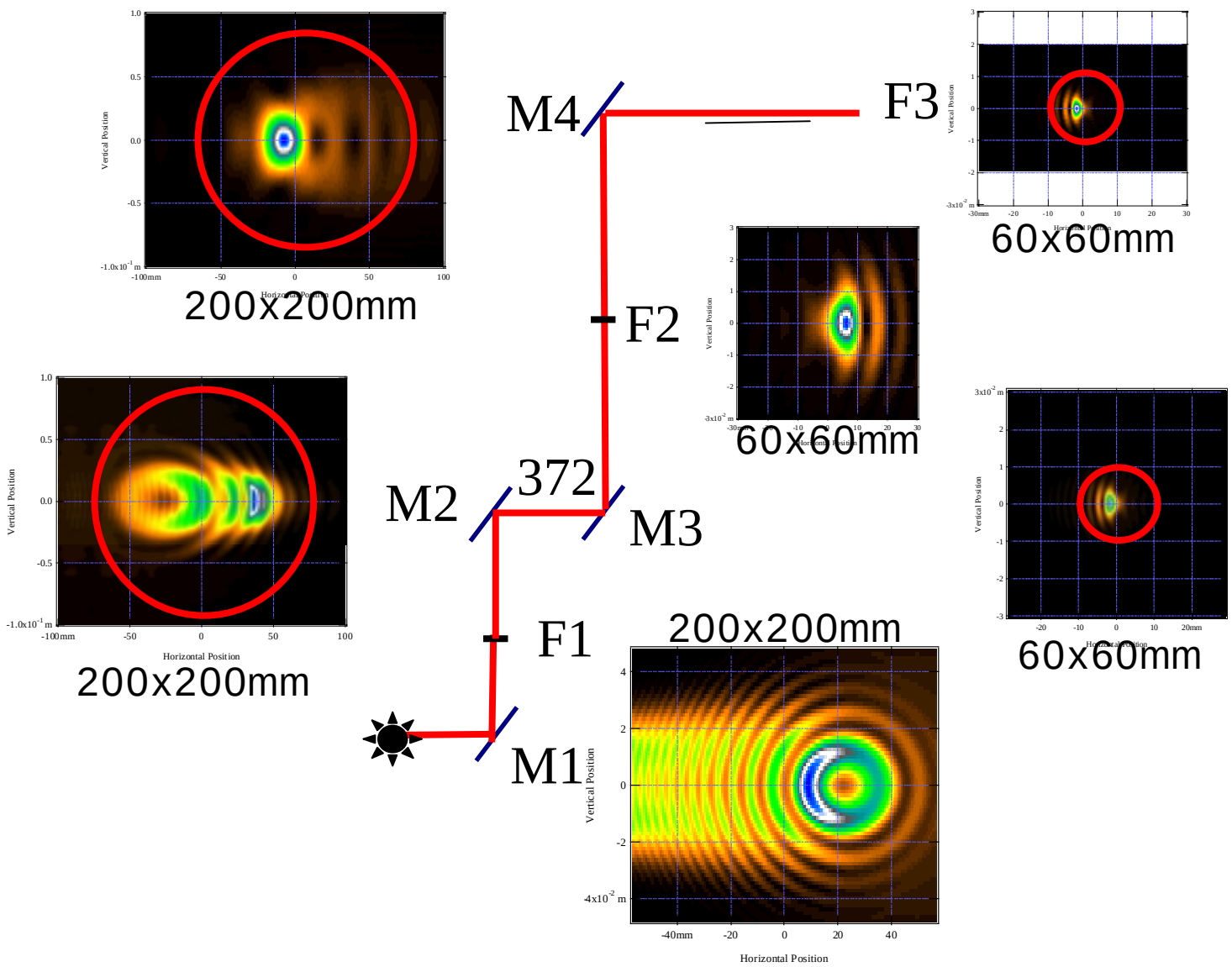
0.1 THz
3.3 cm^{-1}

1 THz
33 cm^{-1}

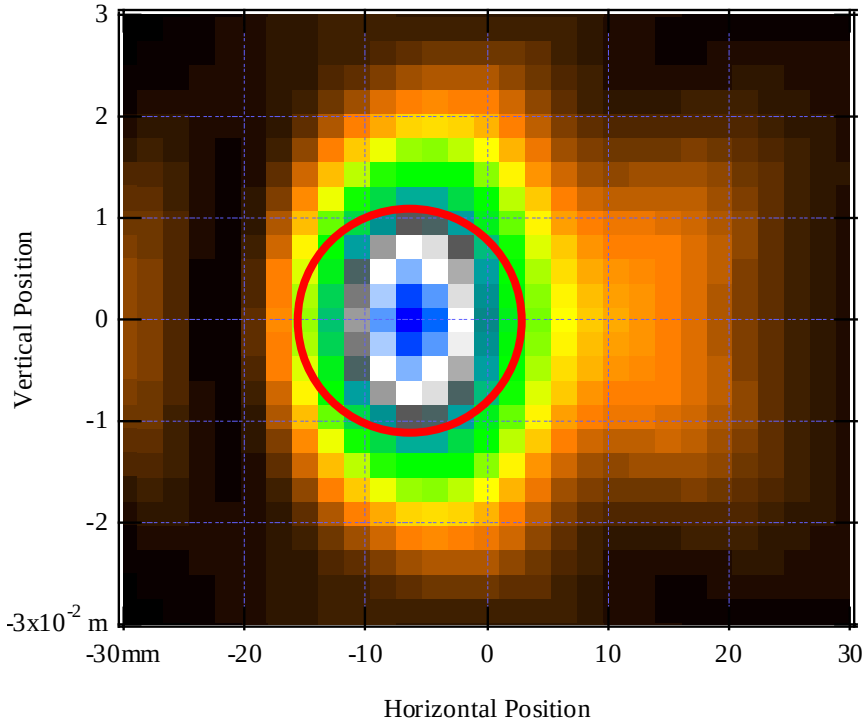
10 THz
330 cm^{-1}

THz Beamline Conceptual Design Report Figure 10.

JFEL THz Port Description

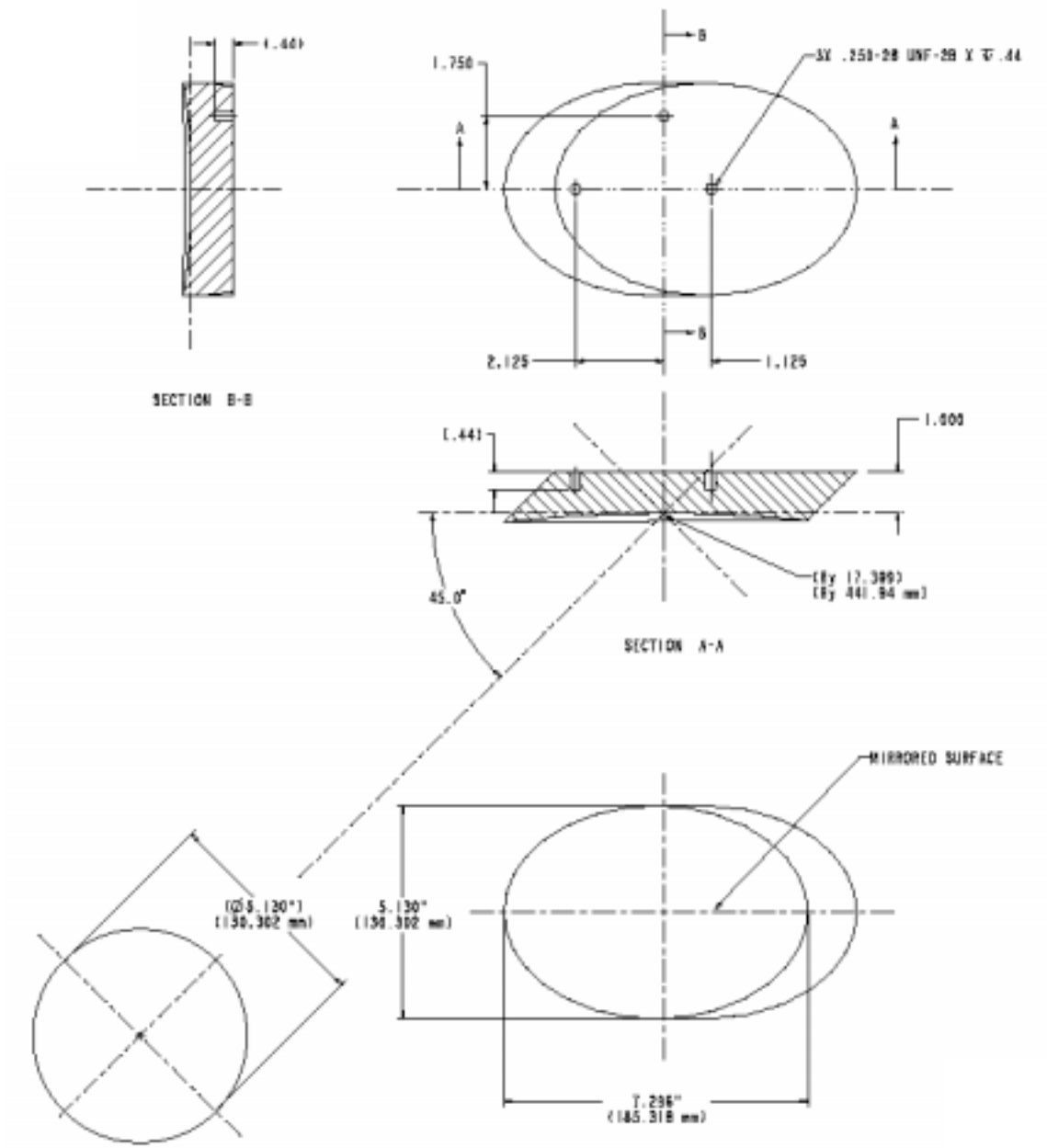


THz Beamline Conceptual Design Report Figure 11.



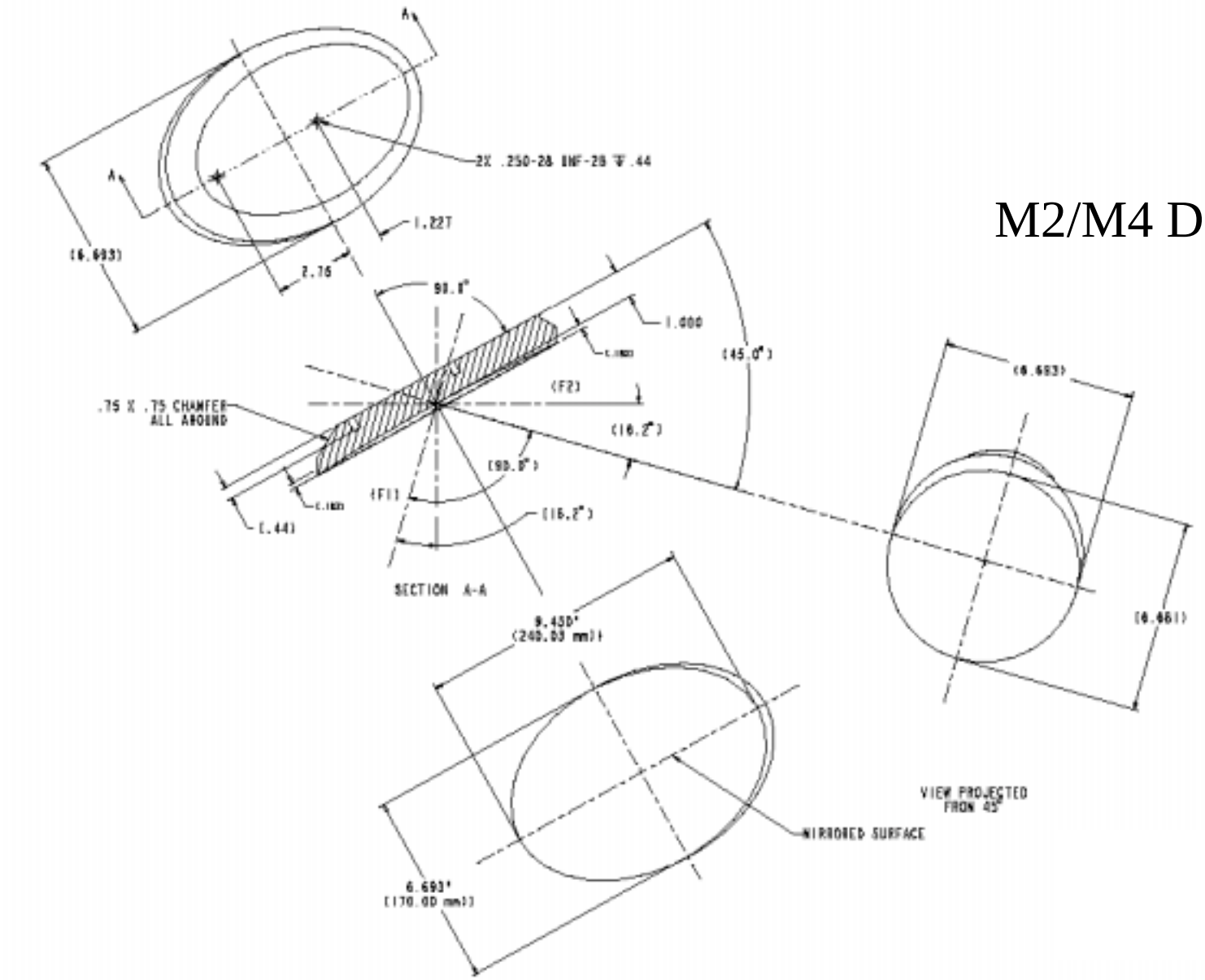
67.5% of light passes aperture

F1 for 3mm light with 20mm aperture



M1 Detail

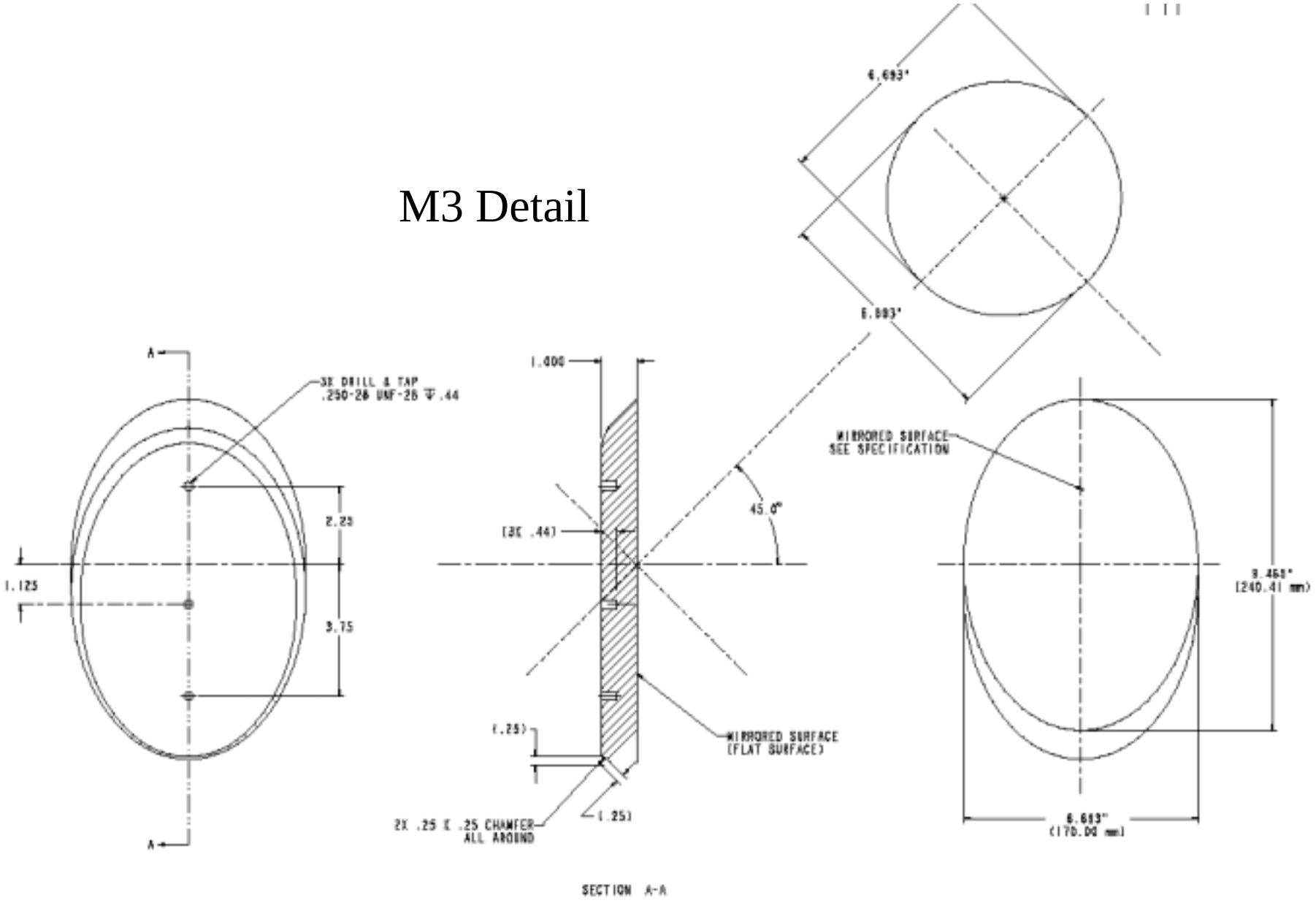
THz Beamline Conceptual Design Report Figure 13.



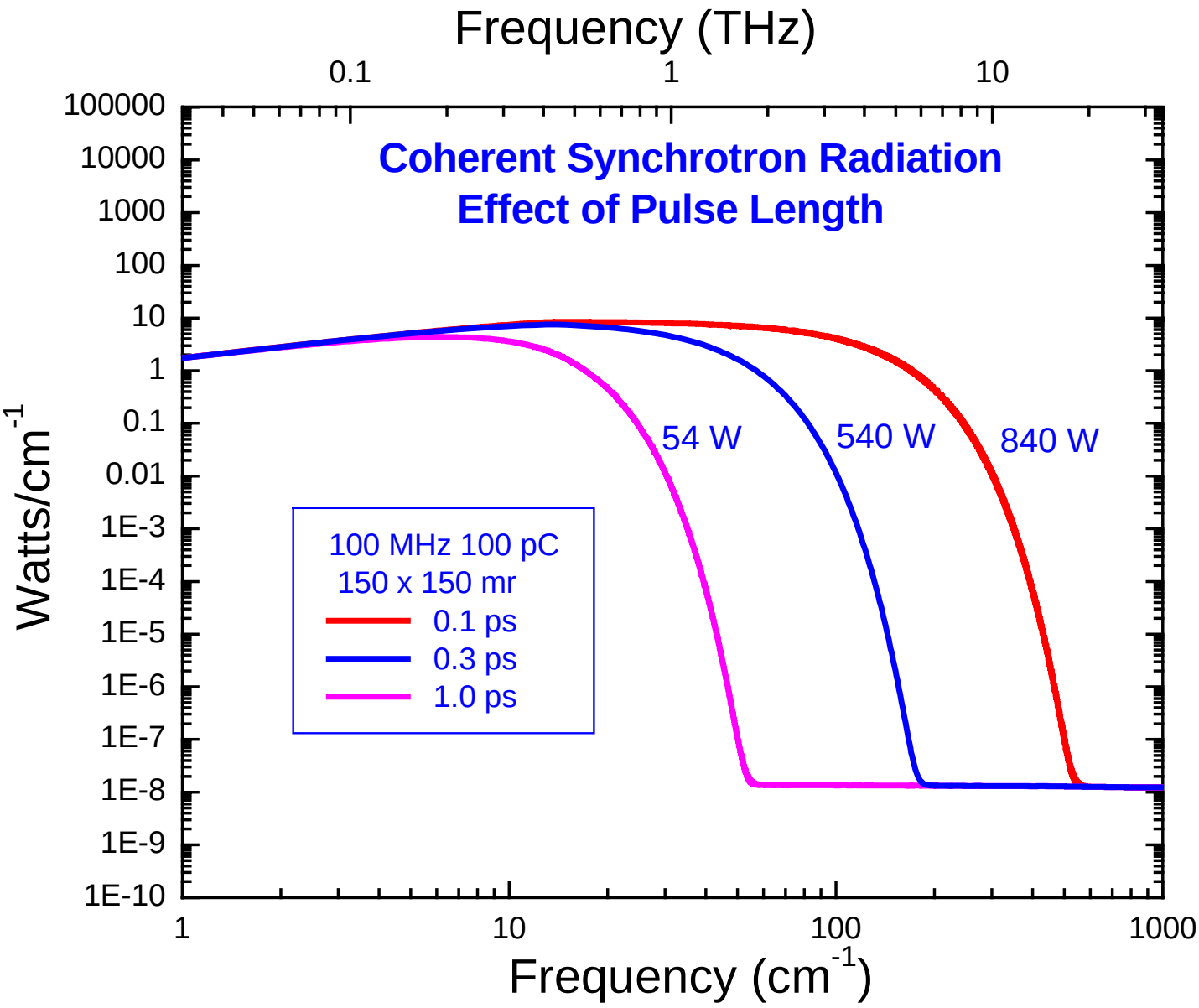
M2/M4 Detail

THz Beamline Conceptual Design Report Figure 14.

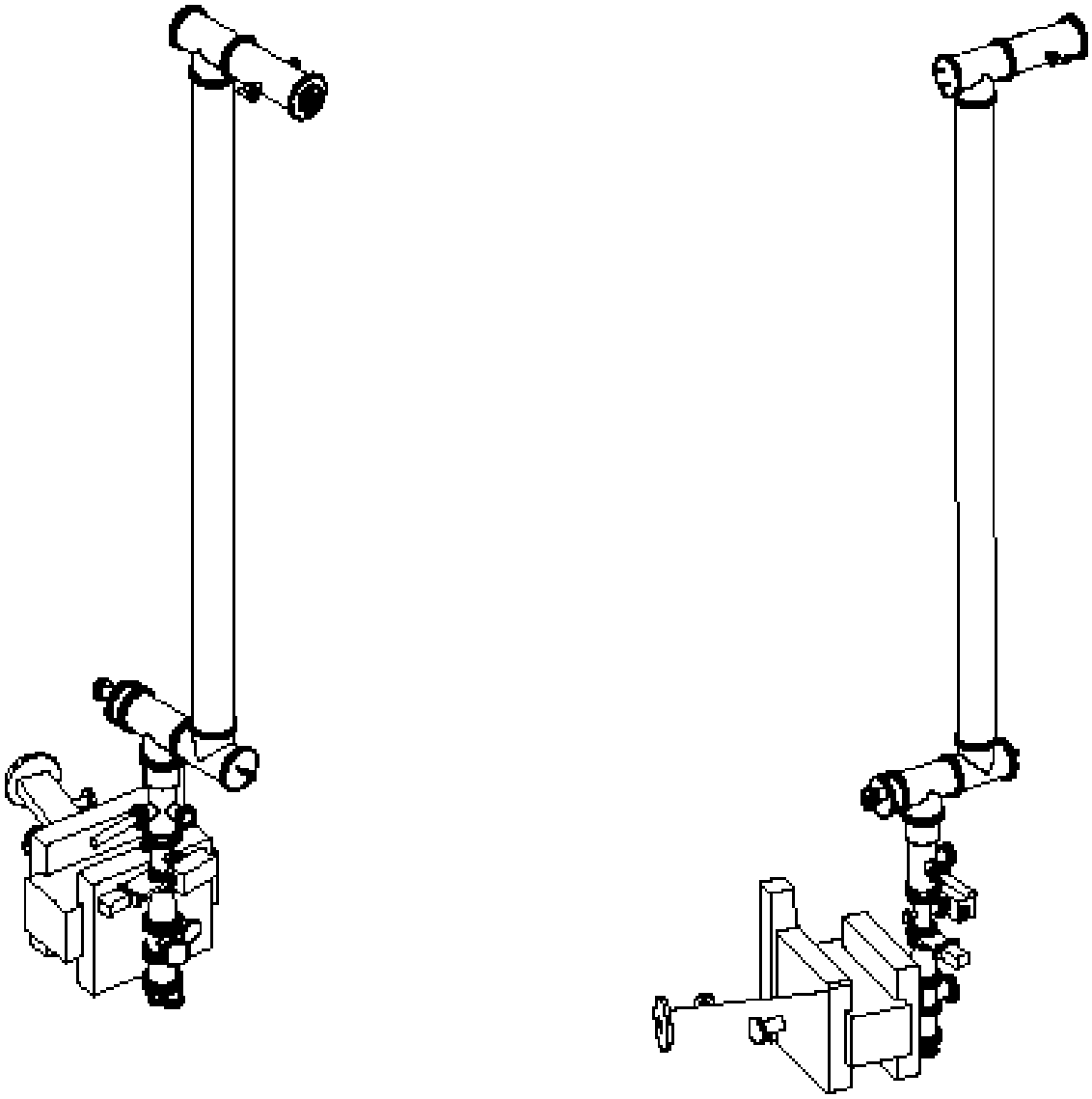
M3 Detail

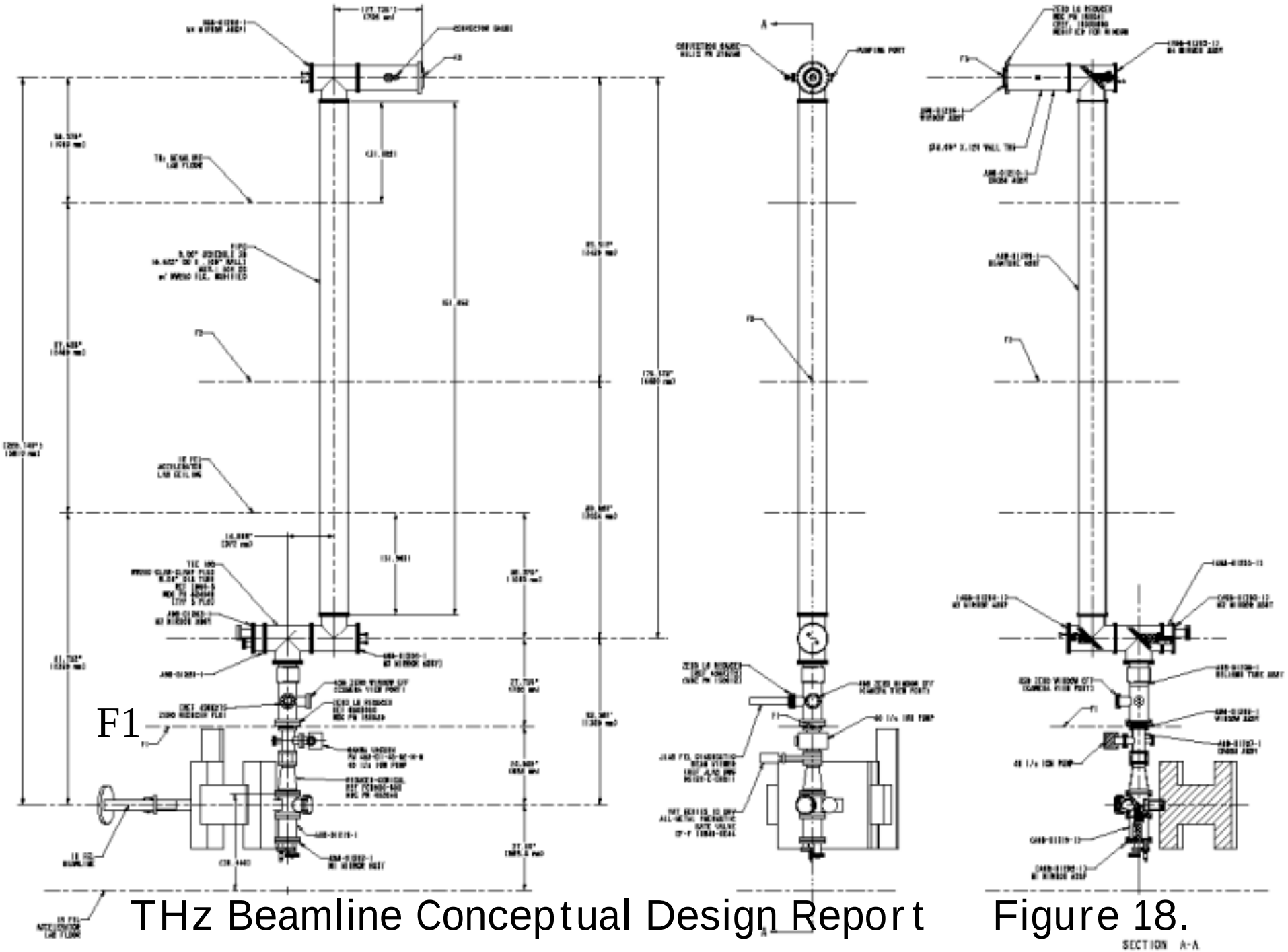


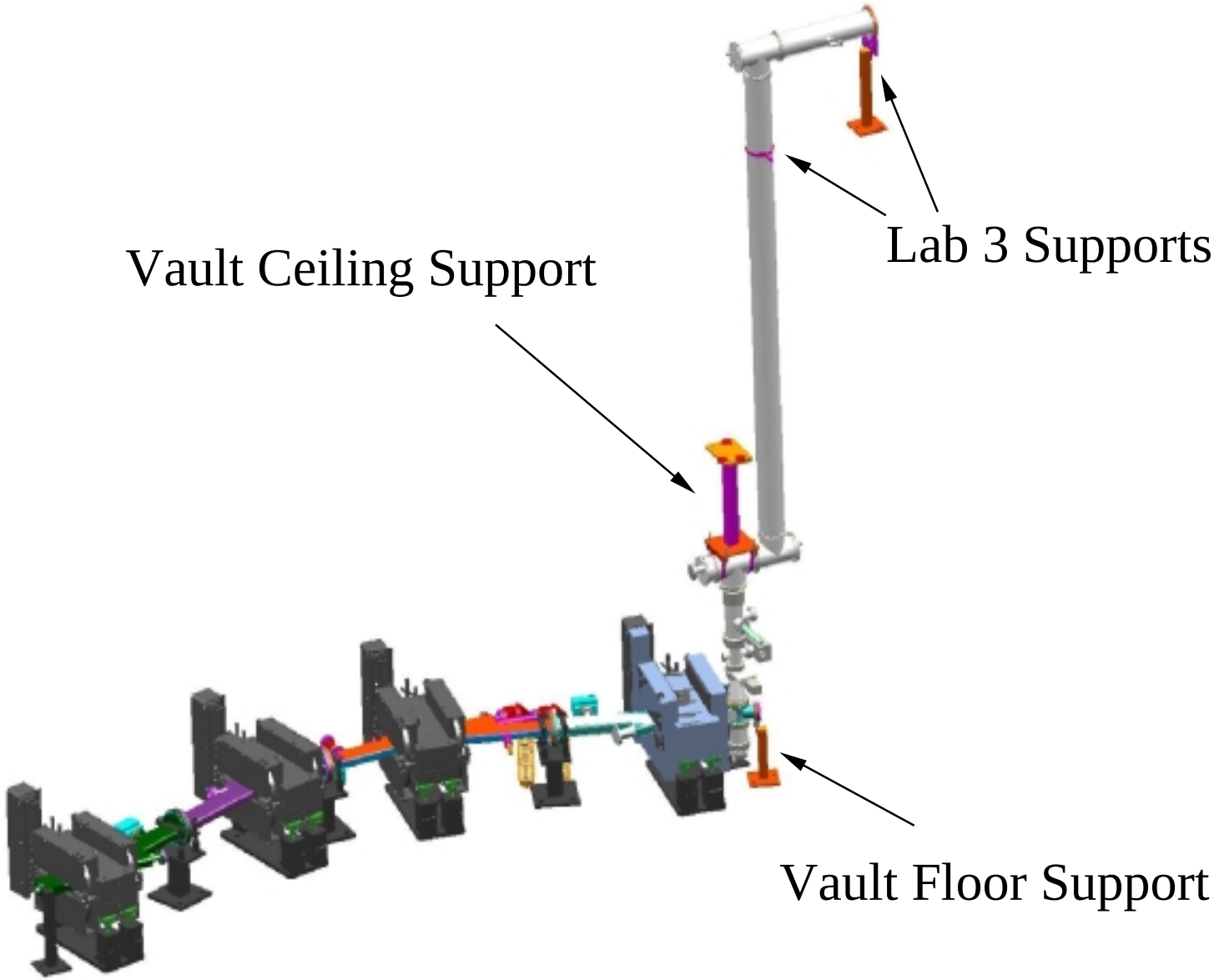
THz Beamline Conceptual Design Report Figure 15.

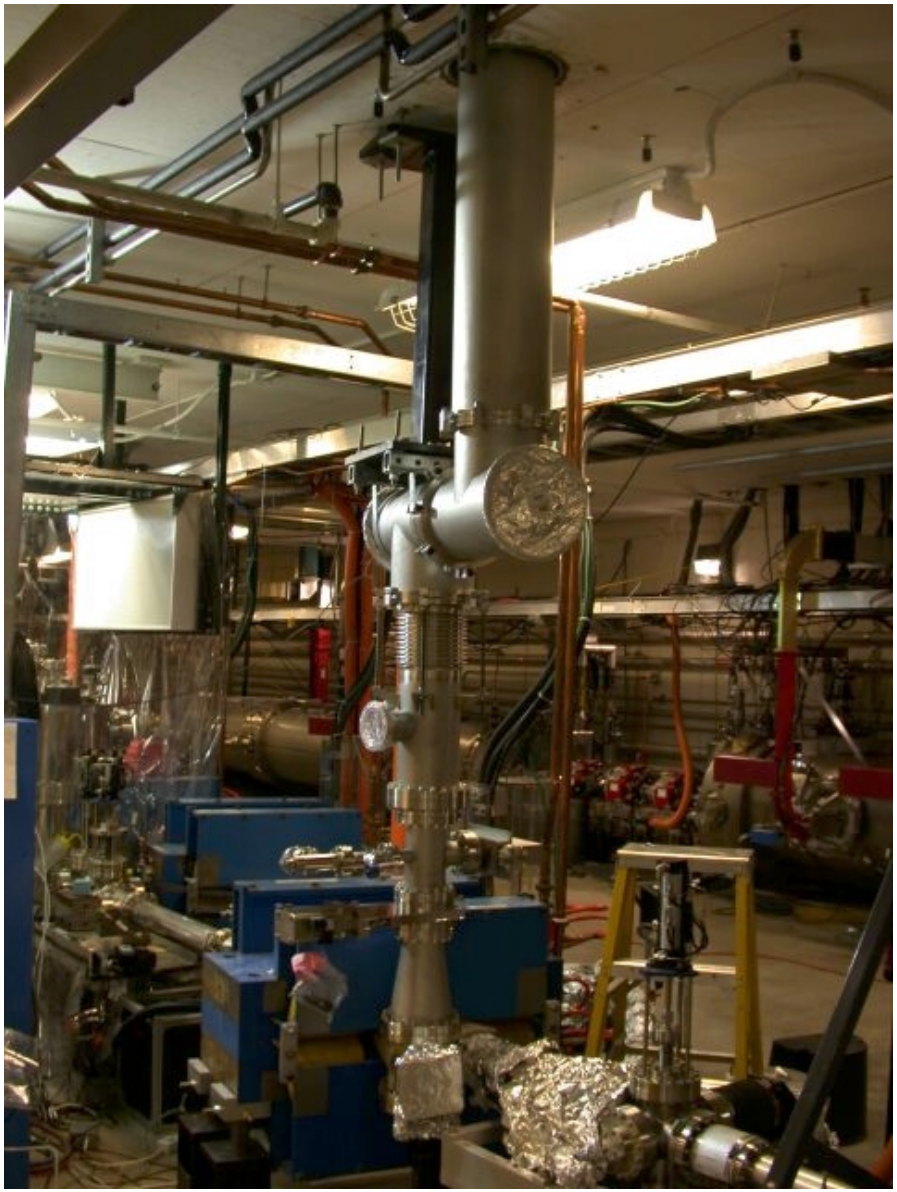


THz Beamline Conceptual Design Report Figure 16.



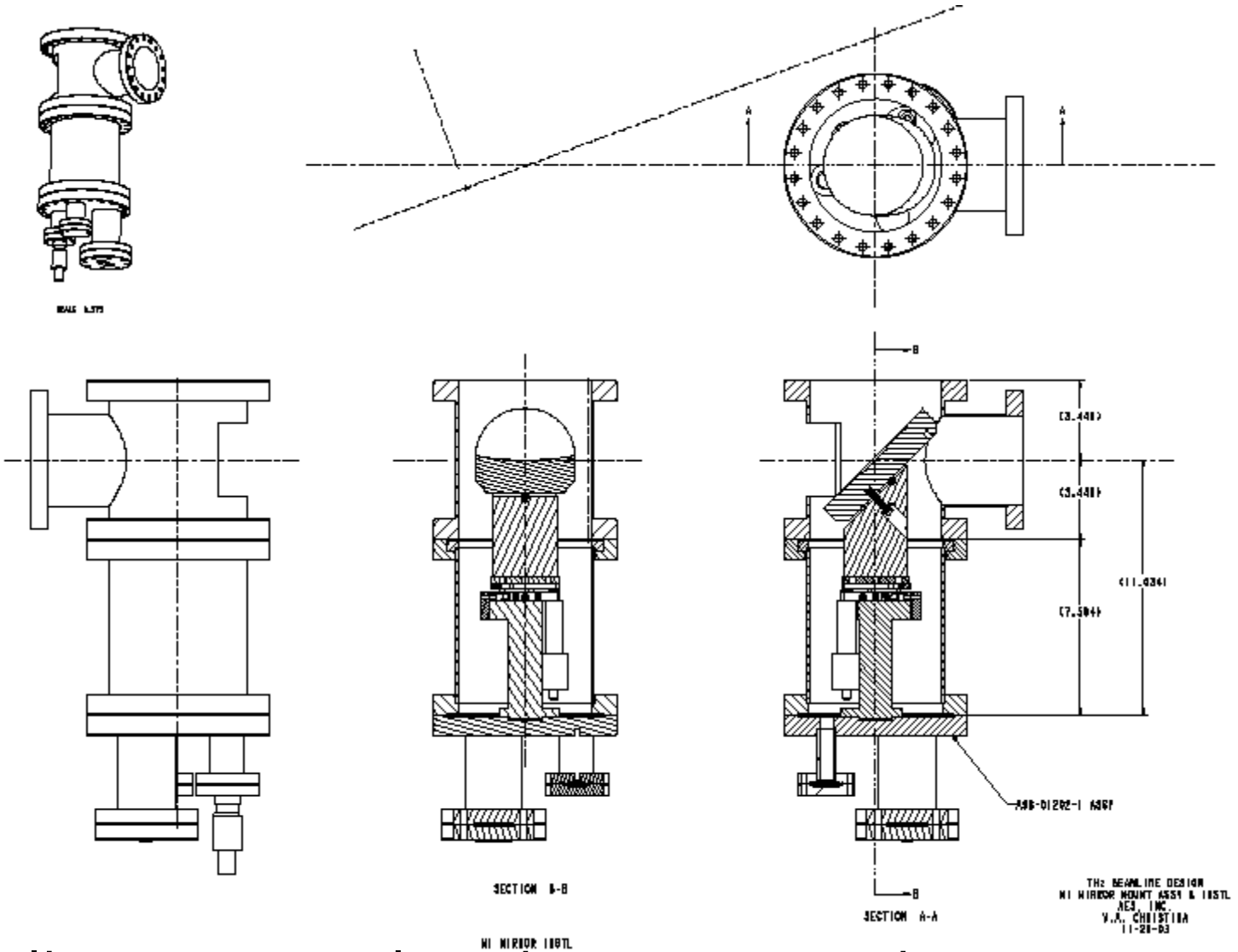

F1
SECTION A-A


Vault Ceiling Support
Lab 3 Supports
Vault Floor Support



Mirror M1

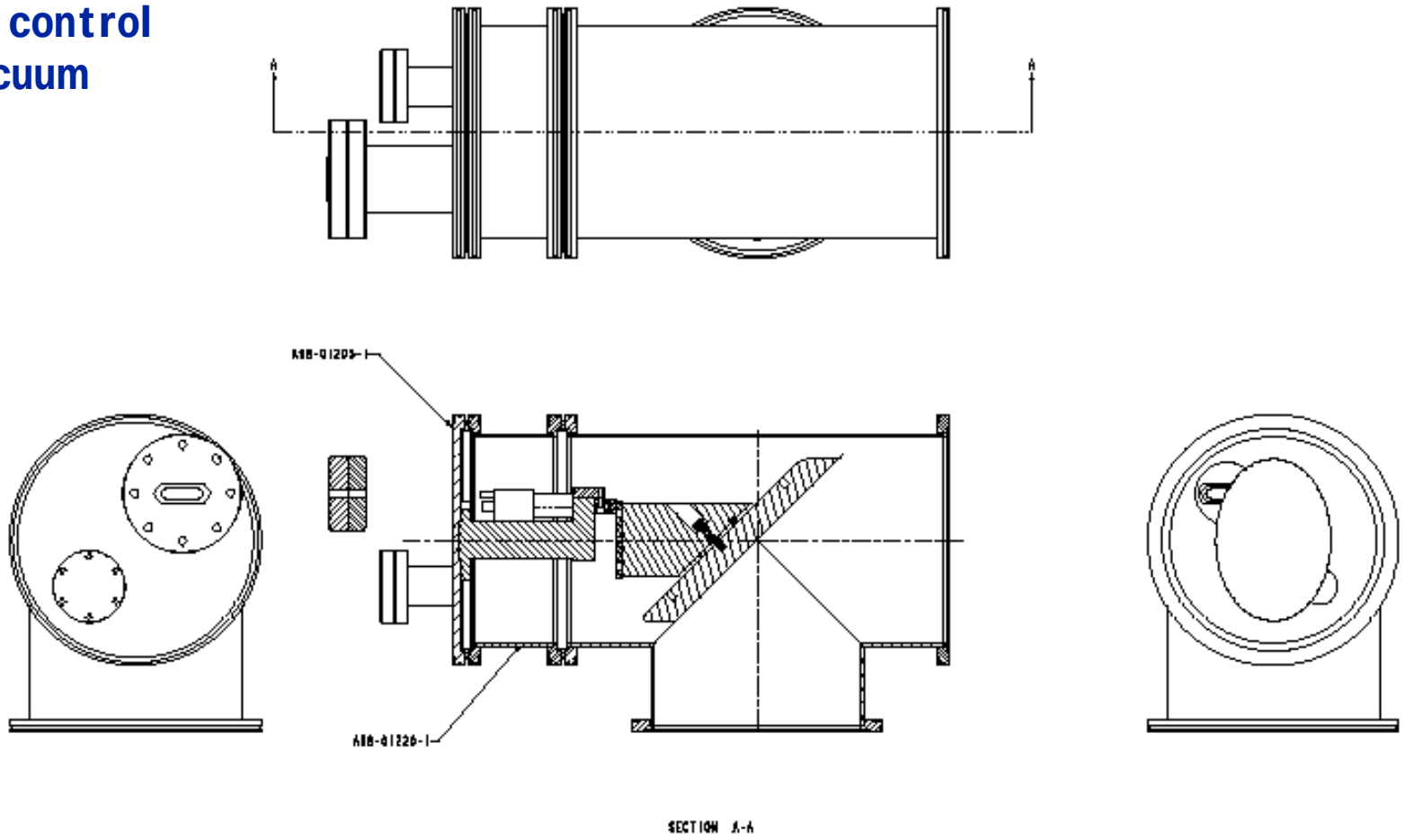
Remote control
10^{-9} vacuum
Phytron



THz Beamline Conceptual Design Report Figure 21.

Mirror M2

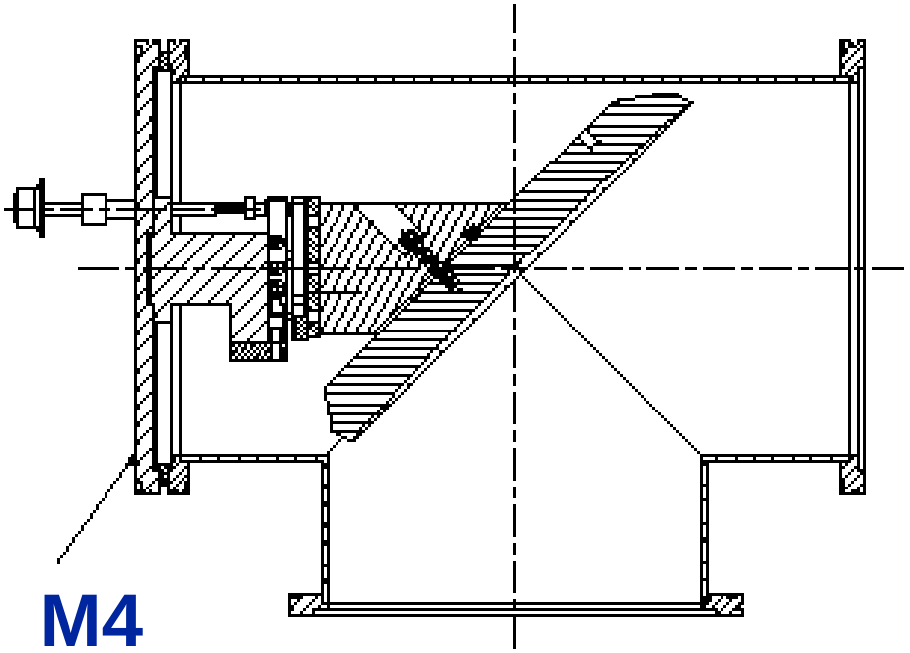
Remote control
10^{-6} vacuum
Phytron



THz Beamline Conceptual Design Report Figure 22.

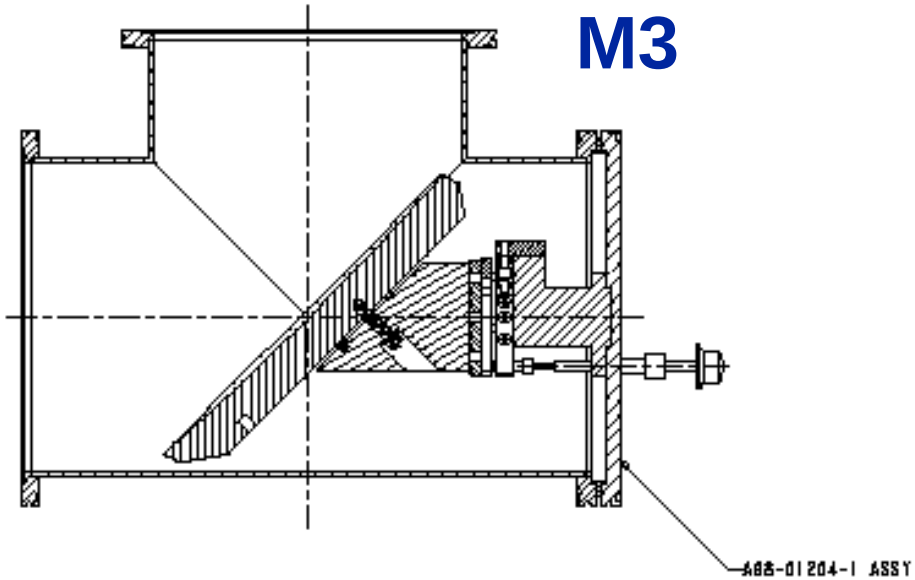
Mirrors M3 & M4

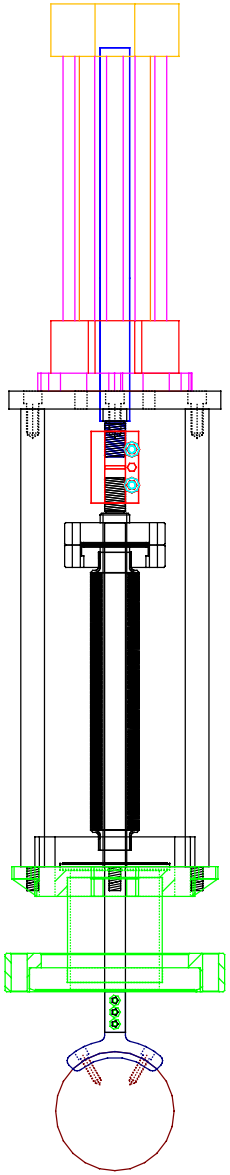
Manual adjustment

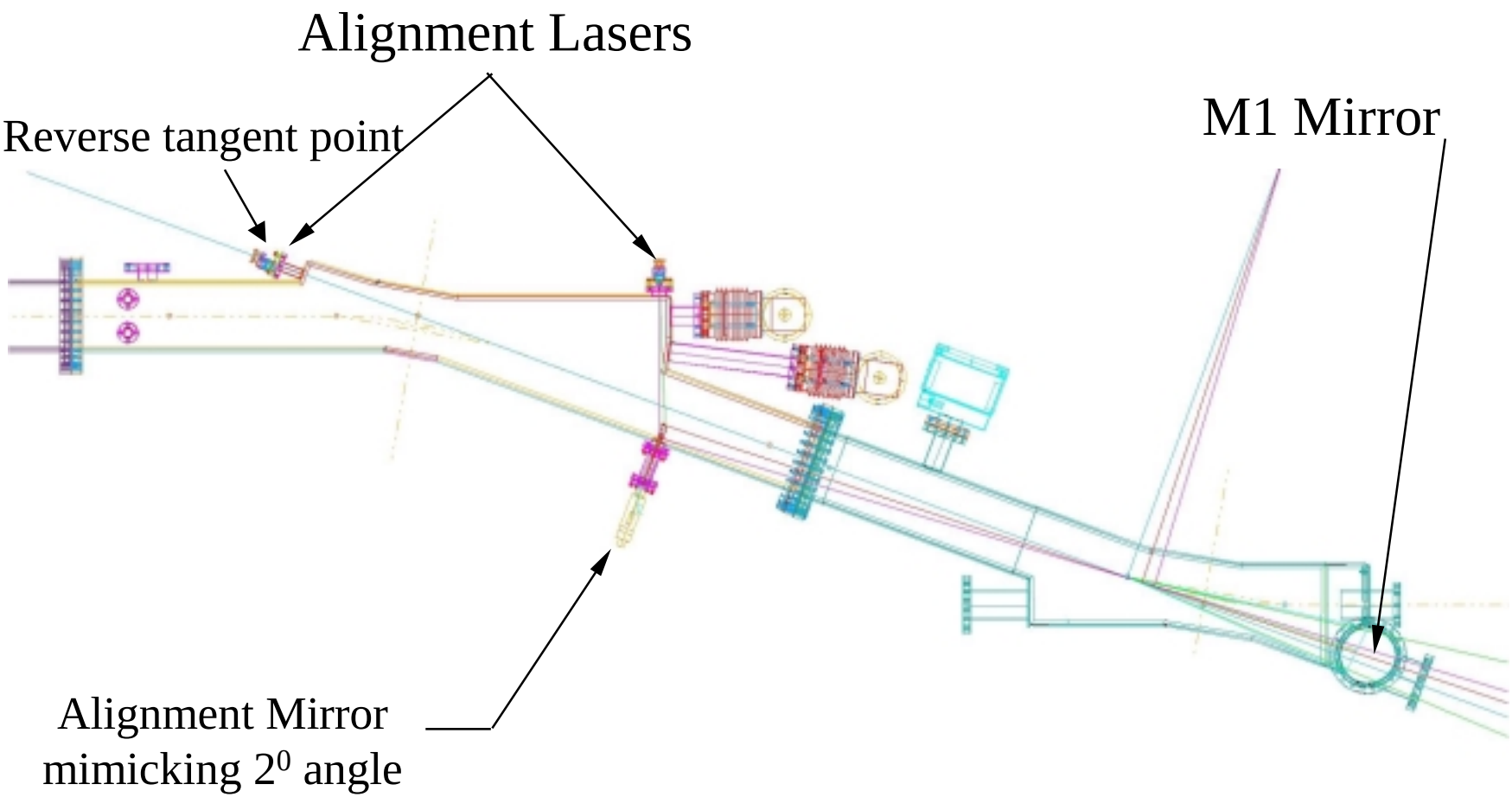


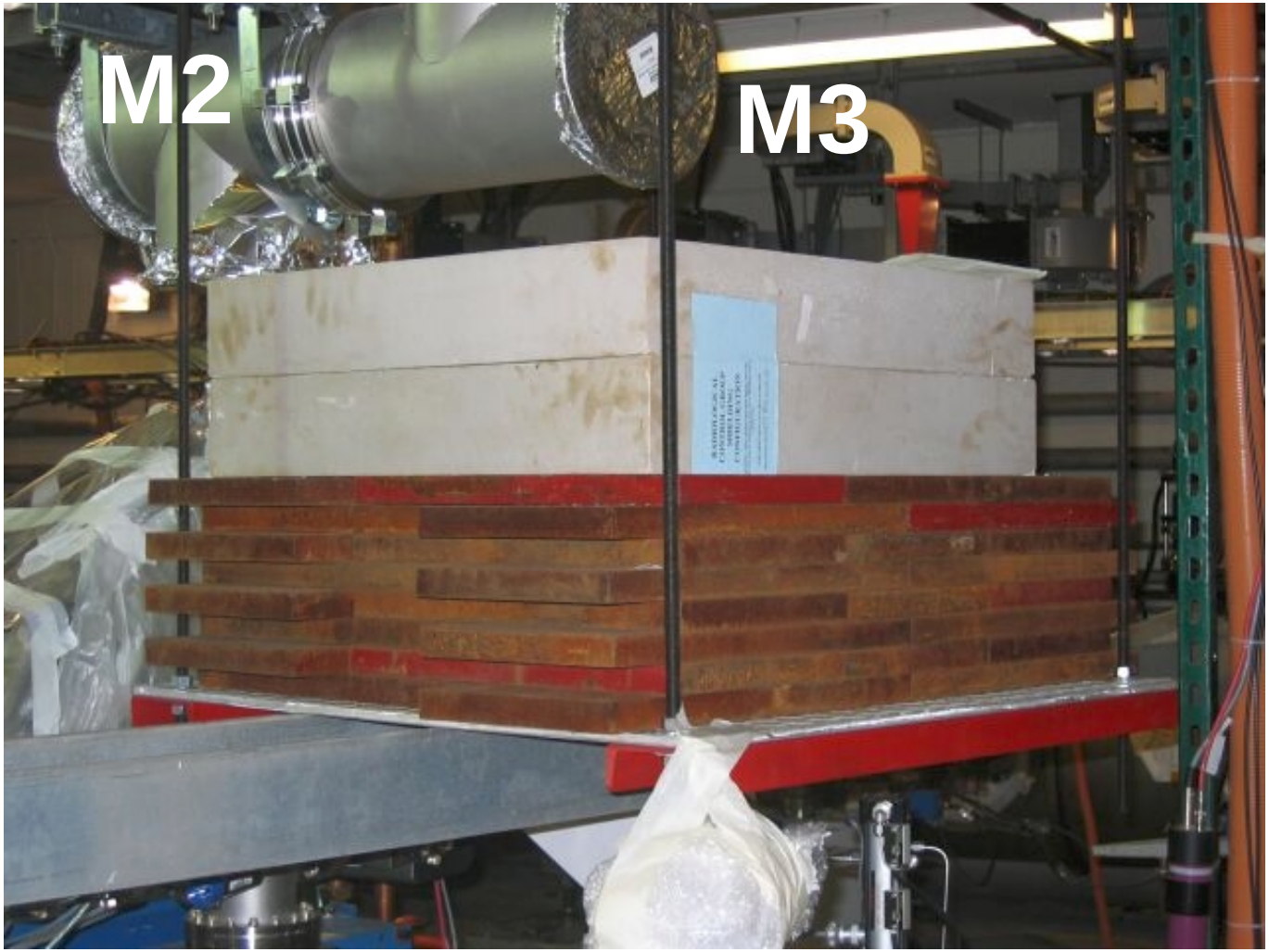
M4

M3






Alignment Lasers
Reverse tangent point
M1 Mirror
Alignment Mirror
mimicking 2^0 angle


M2
M3