

Wien field maps documentation

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The original field files from Jay, modified field files, and GPT field map files are in:

/u/group/inj_group/Archive/JBWienFieldMaps

/u/group/inj_group/Archive/JBWienFieldMaps/less_noisy (uses symmetry to cancel "noisy" field components)

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Here is what I have in my GPT input file and the GPT map element is attached:

```
WienEmap=pathroot1+"FieldMap_Wien/fieldmapE_mirror.gdf";
```

```
WienBmap=pathroot1+"FieldMap_Wien/fieldmapB_mirror.gdf";
```

```
integral_WienBx=2767.07; # G-cm from Jay B.
```

```
integral_WienEx=-415306; # V from Jay B.
```

```
effective_length_Wien=0.30714; # from Jay B.
```

```
WienGap=0.015; # from Jay B.
```

```
VWien_Efac=-1*(VWienHV/(WienGap/2))*effective_length_Wien/integral_WienEx;
```

```
VWien_Bfac=VWien_BDL_setpoint/Integral_WienBx;
```

```
HWien_Efac=-1*(HWienHV/(WienGap/2))*effective_length_Wien/integral_WienEx;
```

```
HWien_Bfac=HWien_BDL_setpoint/Integral_WienBx;
```

```
xymax("wcs","z",zvwien,6e-3,6e-3,50e-2);
```

```
# RH coordinate system E=+E(j) B=-B(i) for HV>0 and BDL>0 (CEBAF H BDL; H BDL>0 kicks beam  
to right (+x LHCS))
```

```
# For on-axis Ex,By > 0 and
```

```
# Ey,Ez,Bx,Bz with relatively smaller amplitudes around 0,
```

```
# the rotation is clockwise about the z-axis and takes (in RHCS)
```

```
# Eorig=(-Ex,Ey,Ez) -> Erotated(Ey,Ex,Ez)
```

```
# Borig=(Bx,-By,Bz) -> Brotated(-By,-Bx,Bz)
```

```
map3D_wien ( "wcs", 0,0,zvwien, 0,-1,0, 1,0,0, WienBmap, "X", "Y", "Z", "newBX", "BY", "BZ",
```

```
VWien_Bfac, WienEmap, "X", "Y", "Z", "EX", "newEY", "EZ", VWien_Efac,"GLOBAL");
```

```
xymax("wcs","z",zhwien,6e-3,6e-3,50e-2);
```

```
# E=-Ex B=-By for HV>0 and BDL>0
```

```
map3D_wien ( "wcs", "z", zhwien, WienBmap, "X", "Y", "Z", "newBX", "BY", "BZ", HWien_Bfac,
```

```
WienEmap, "X", "Y", "Z", "EX", "newEY", "EZ", HWien_Efac,"GLOBAL");
```

=====