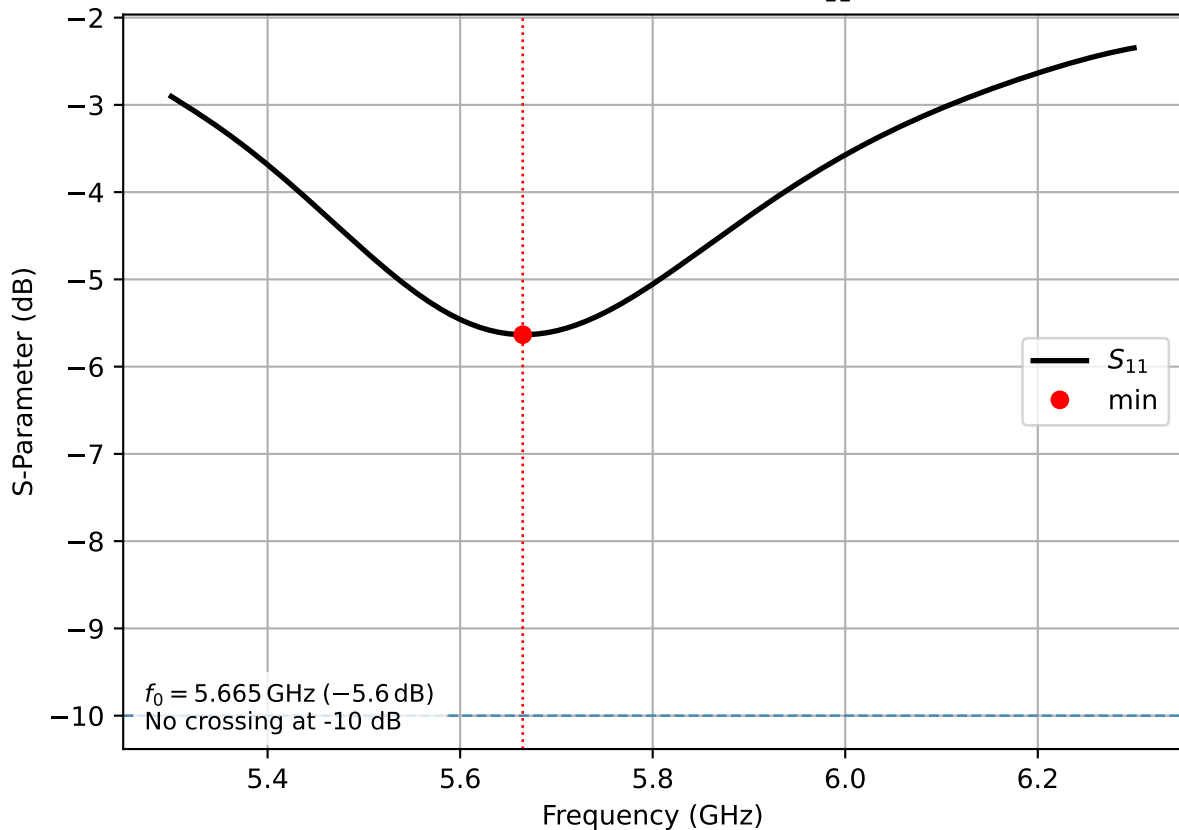


# Reflection Coefficient $S_{11}$

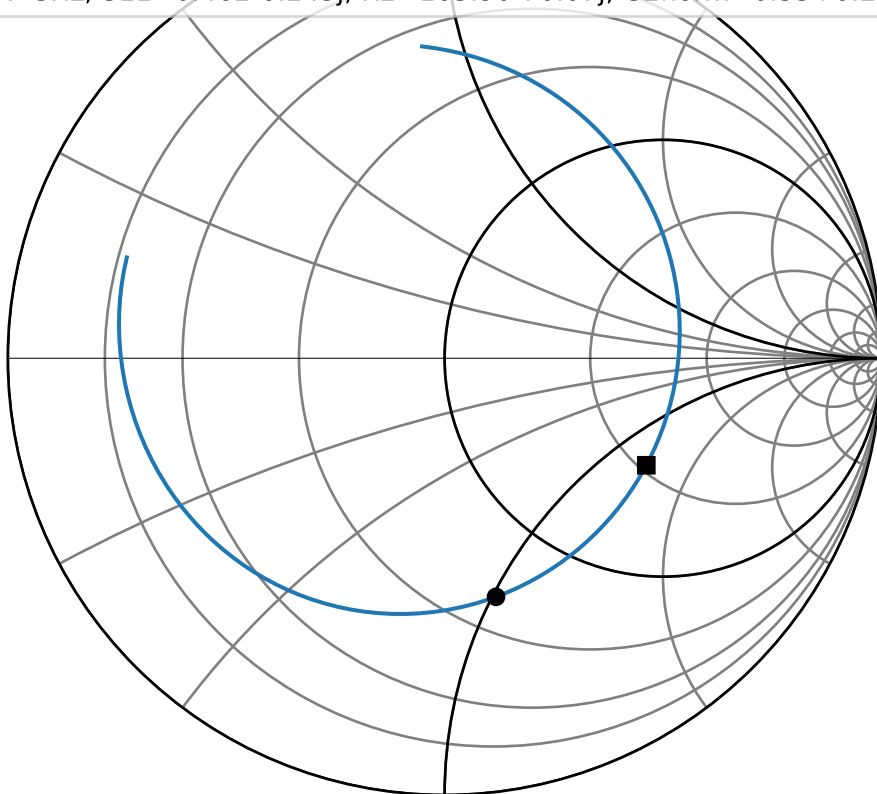


# Smith Chart

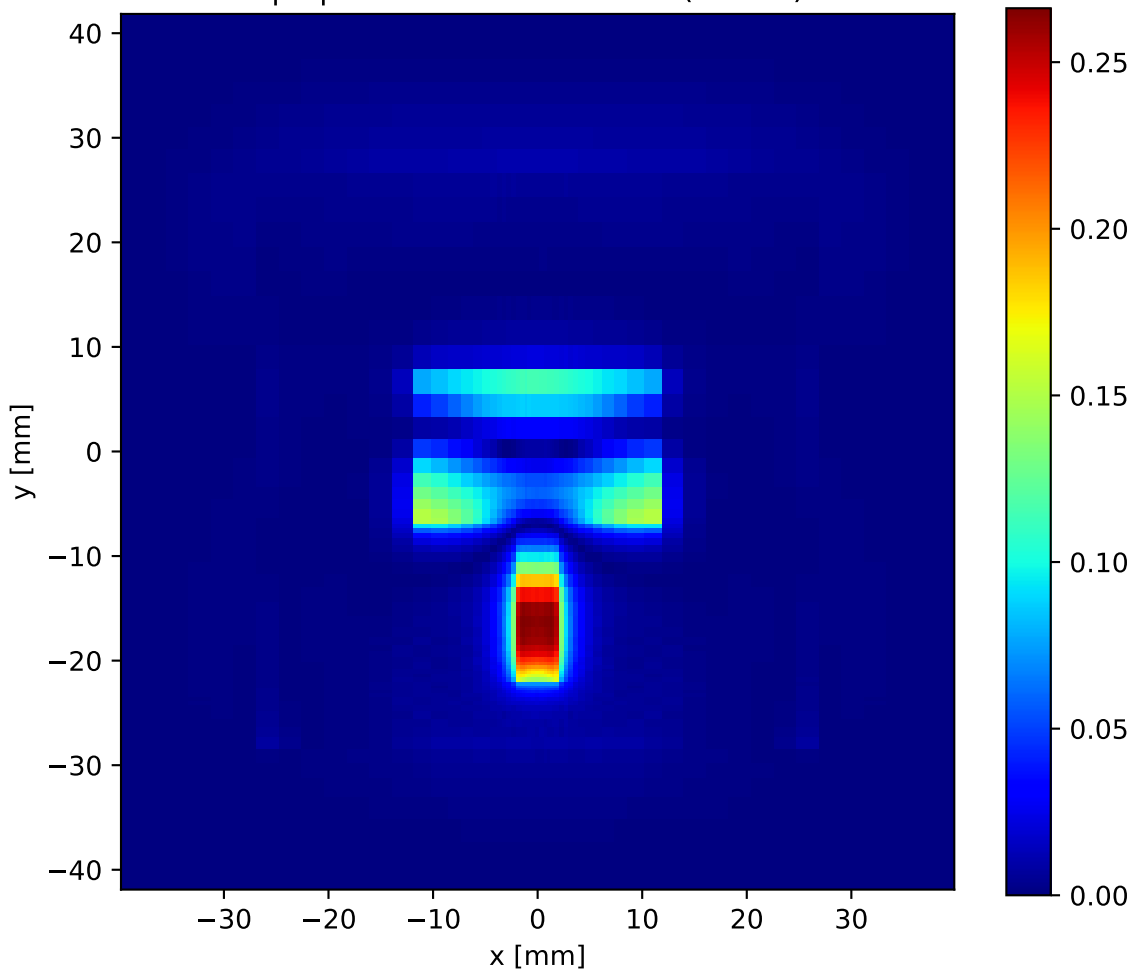
— S11 (Patch W=22.00 mm, L=13.40 mm)

● 5.80 GHz,  $S_{11}=0.118-0.546j$ ,  $R=31.94-50.73j$ ,  $G_{\text{norm}}=0.44+0.71j$

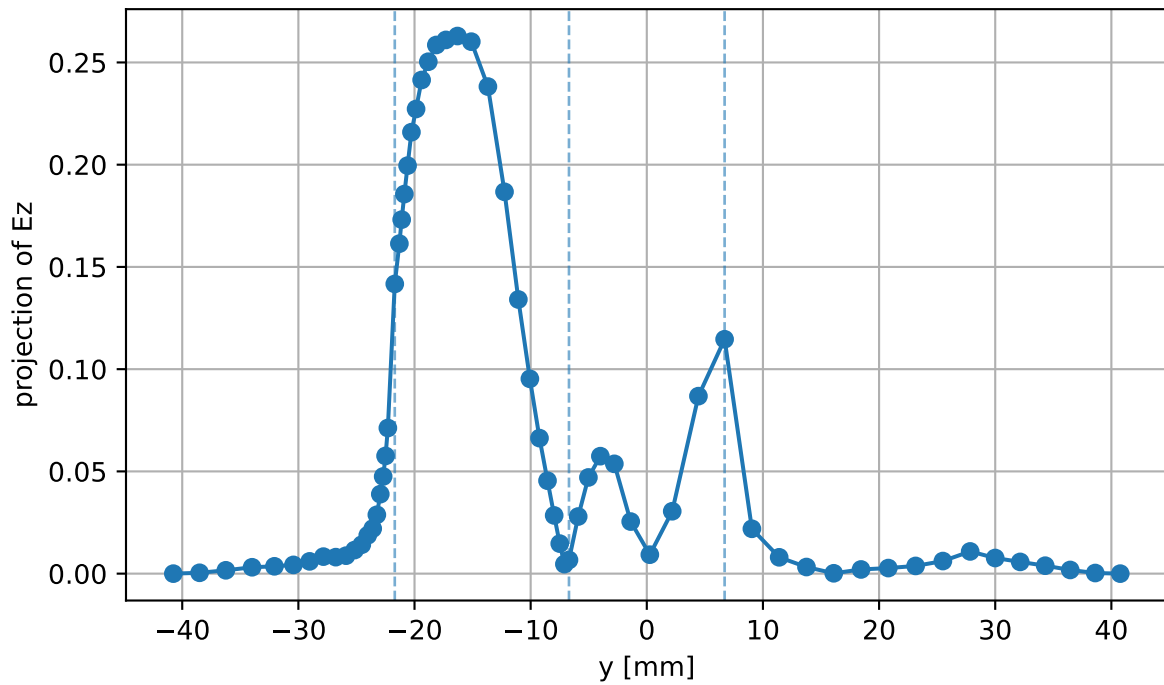
■ 5.67 GHz,  $S_{11}=0.462-0.245j$ ,  $R_2=103.90-70.07j$ ,  $G_{2\text{norm}}=0.33+0.22j$



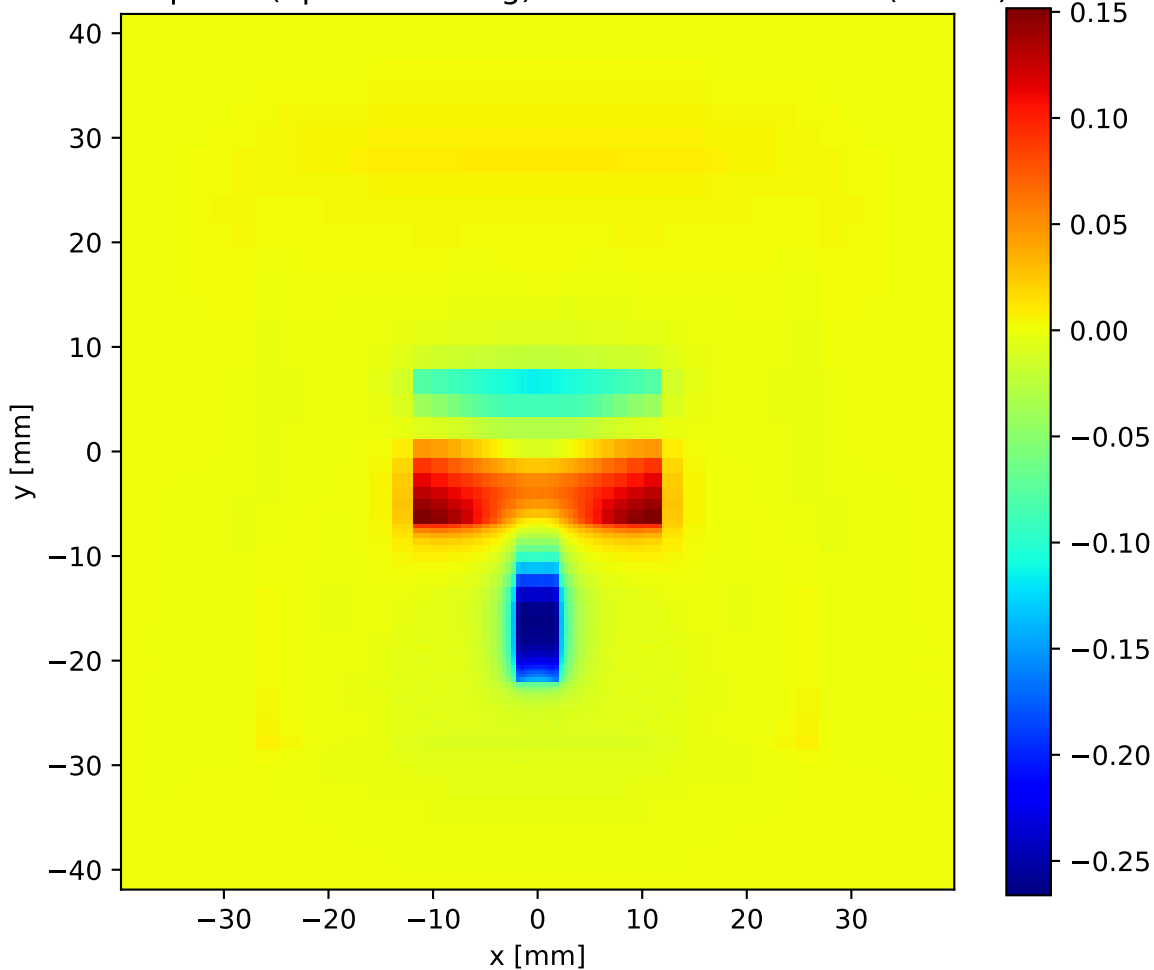
$|E_z|$  slice at  $z = 0.76$  mm (idx 15)



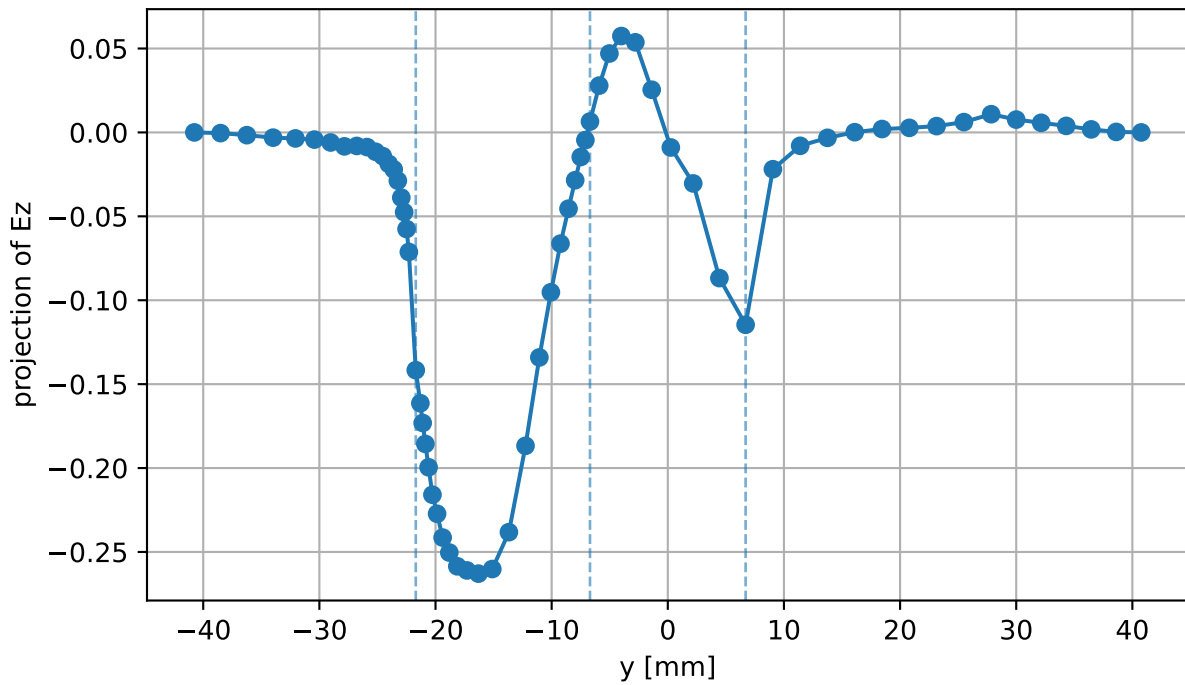
$|E_z|$  line cut along Y at  $x=0.00$  mm,  $z=0.76$  mm  
(idx x=30, z=15)



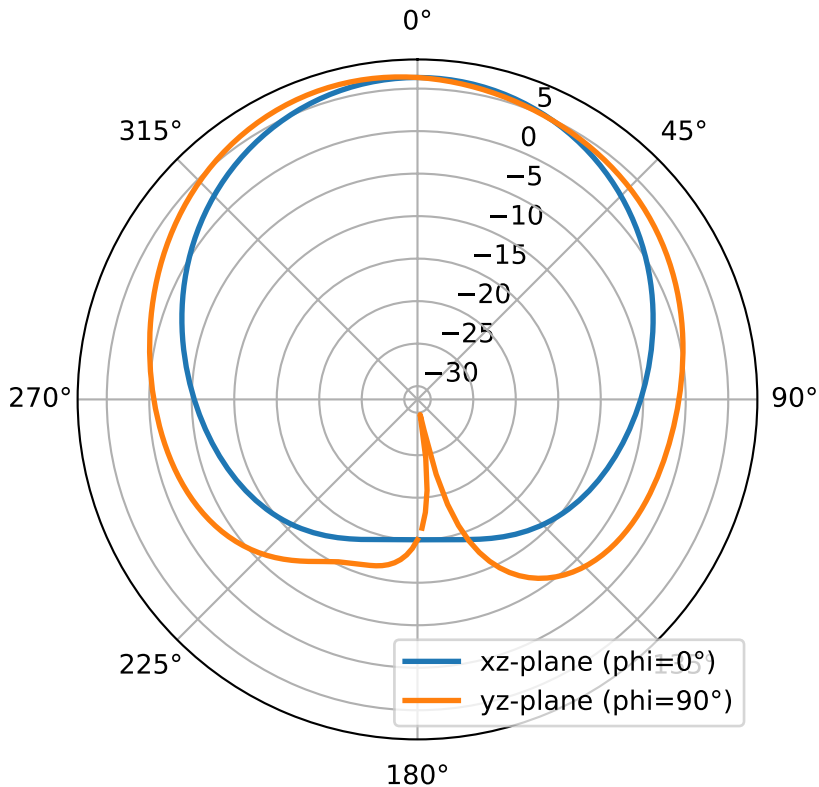
Ez snapshot (dphi=-0.16deg) slice at z = 0.76 mm (idx 15)



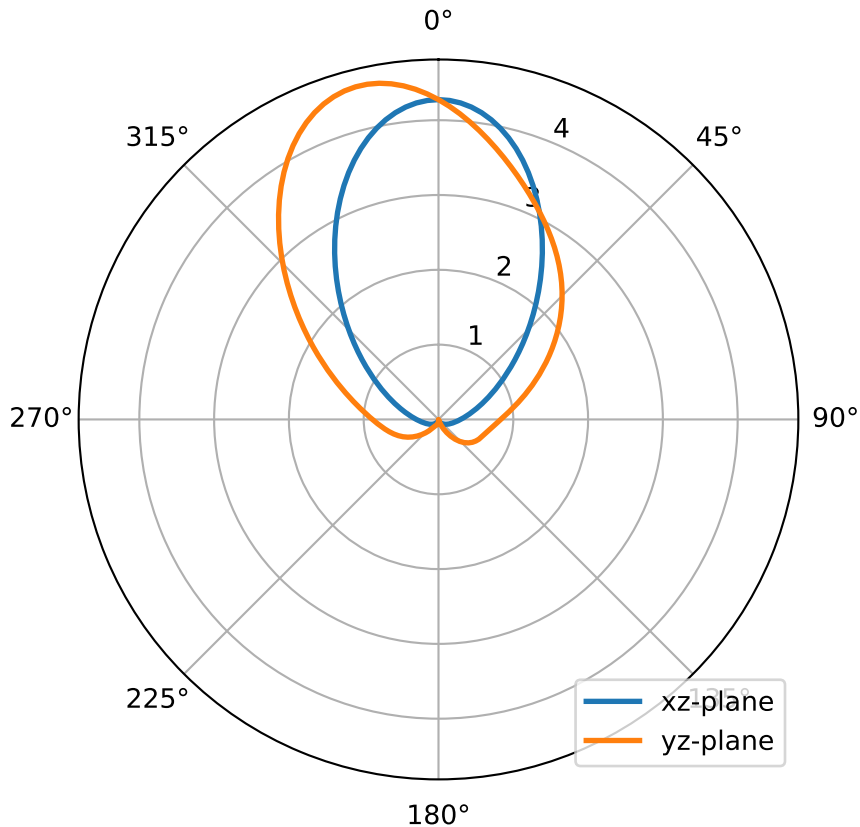
Ez snapshot (dphi=-0.16deg) line cut along Y at x=0.00 mm, z=0.76 mm  
(idx x=30, z=15)



$f = 5.665 \text{ GHz}$  — Directivity (dB)  
 $D_{\text{max}} (\text{integrated}) \approx 6.61 \text{ dB}$ ,  $\text{nf2ff } D_{\text{max}} = 6.61 \text{ dB}$



Frequency: 5.665 GHz — Directivity (linear). Dmax: 4.582



Frequency: 5.665 GHz  
xz-plane: HPBW=78.4°  
yz-plane: HPBW=100.1°

