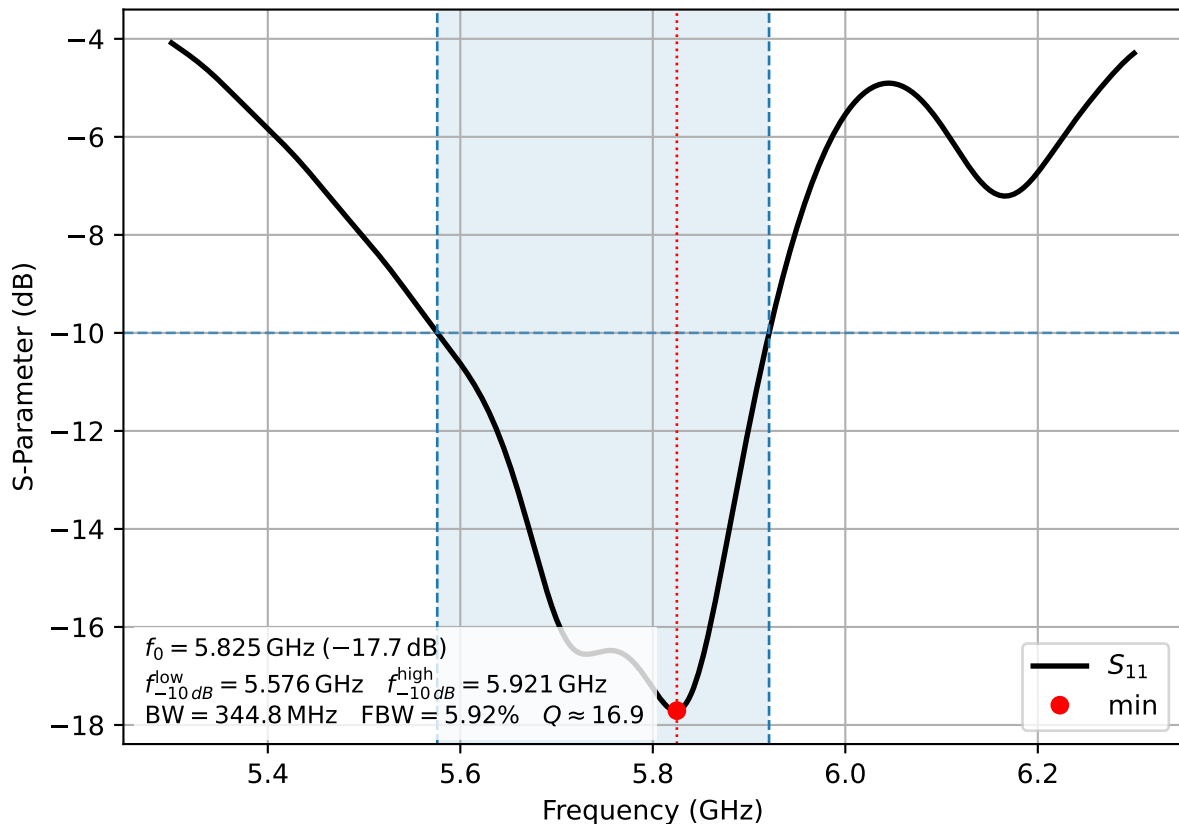


# Reflection Coefficient $S_{11}$

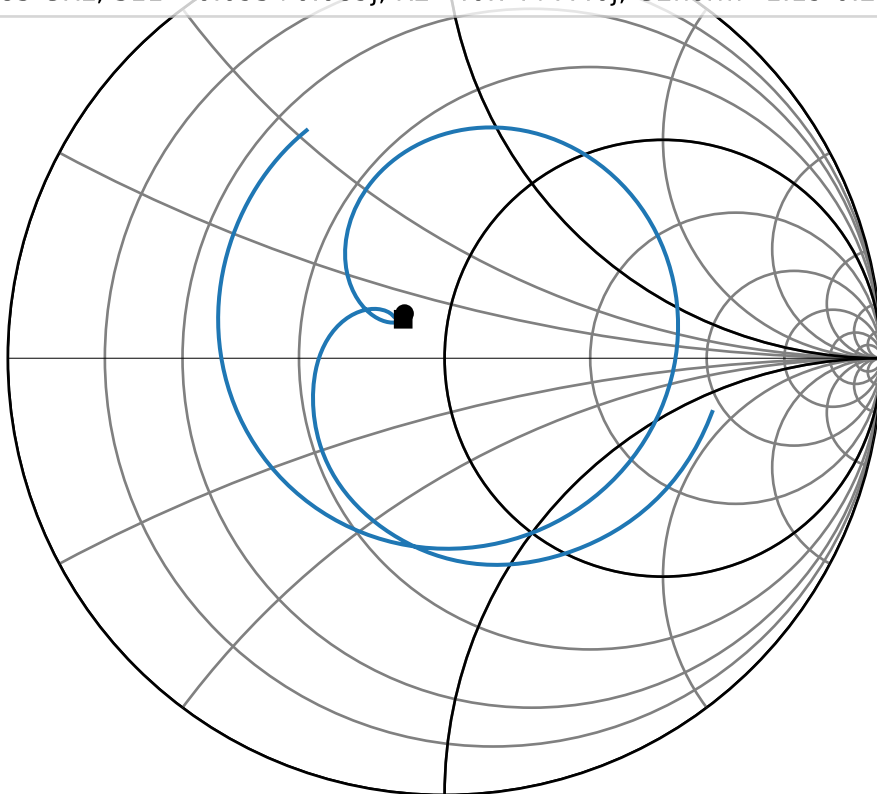


# Smith Chart

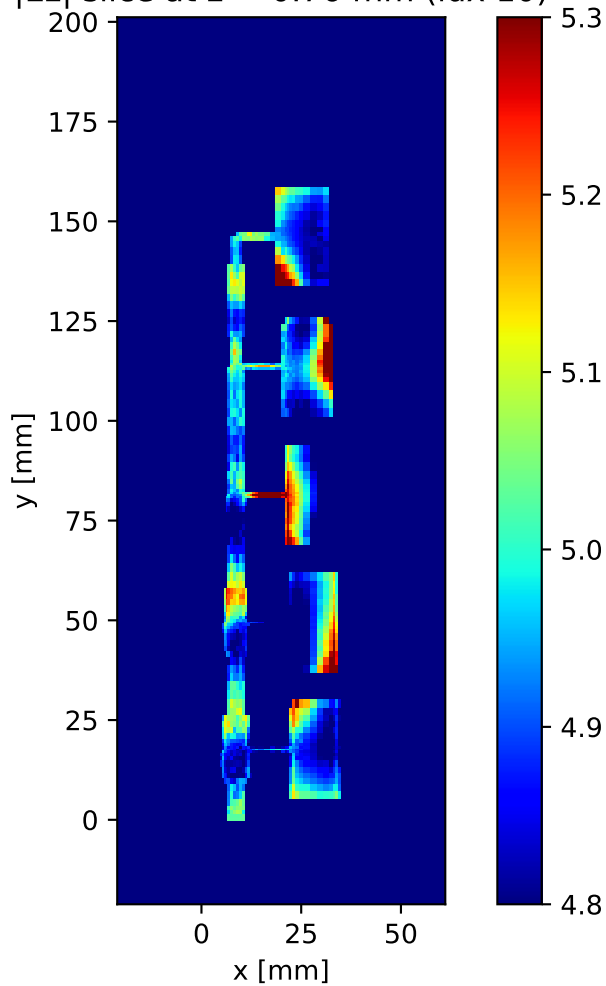
— S11 (Patch W=20.10 mm, L=10.70 mm)

● 5.80 GHz,  $S_{11} = -0.092 + 0.102j$ ,  $R = 40.80 + 8.50j$ ,  $G_{\text{norm}} = 1.17 - 0.24j$

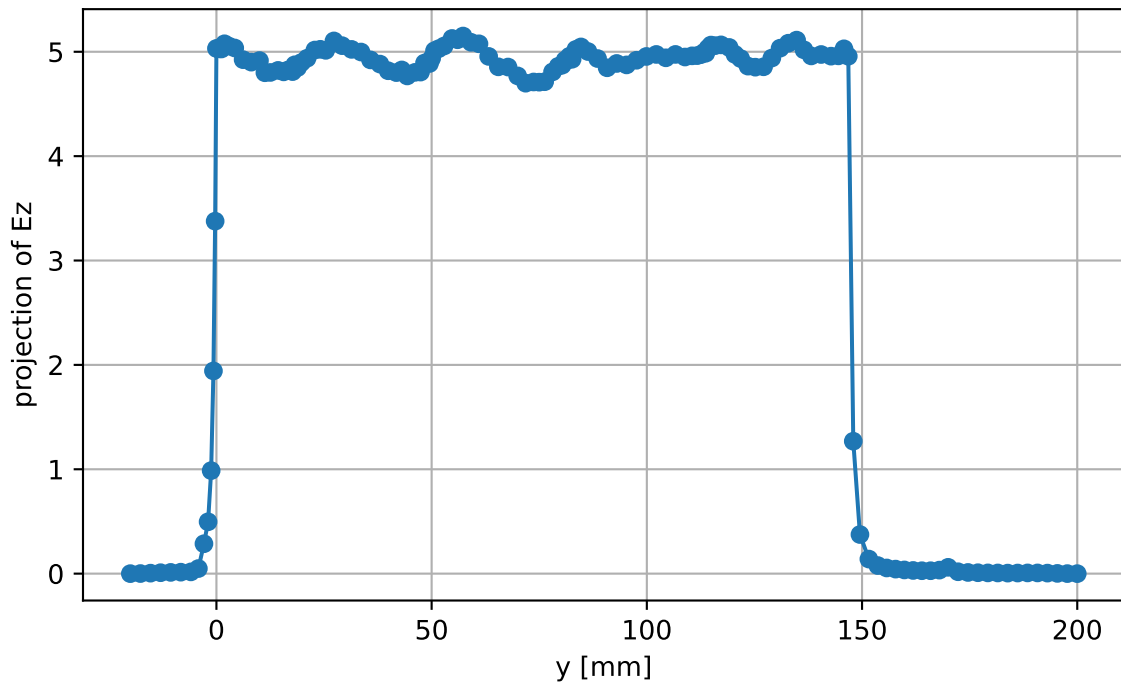
■ 5.83 GHz,  $S_{11} = -0.095 + 0.089j$ ,  $R_2 = 40.74 + 7.40j$ ,  $G_{2\text{norm}} = 1.19 - 0.22j$



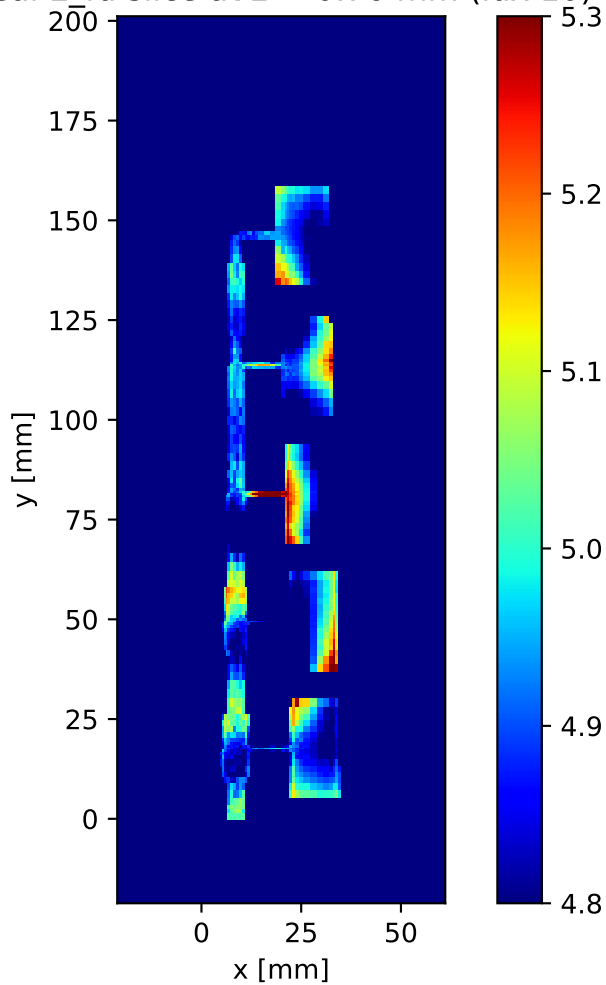
$|E_z|$  slice at  $z = 0.76$  mm (idx 10)



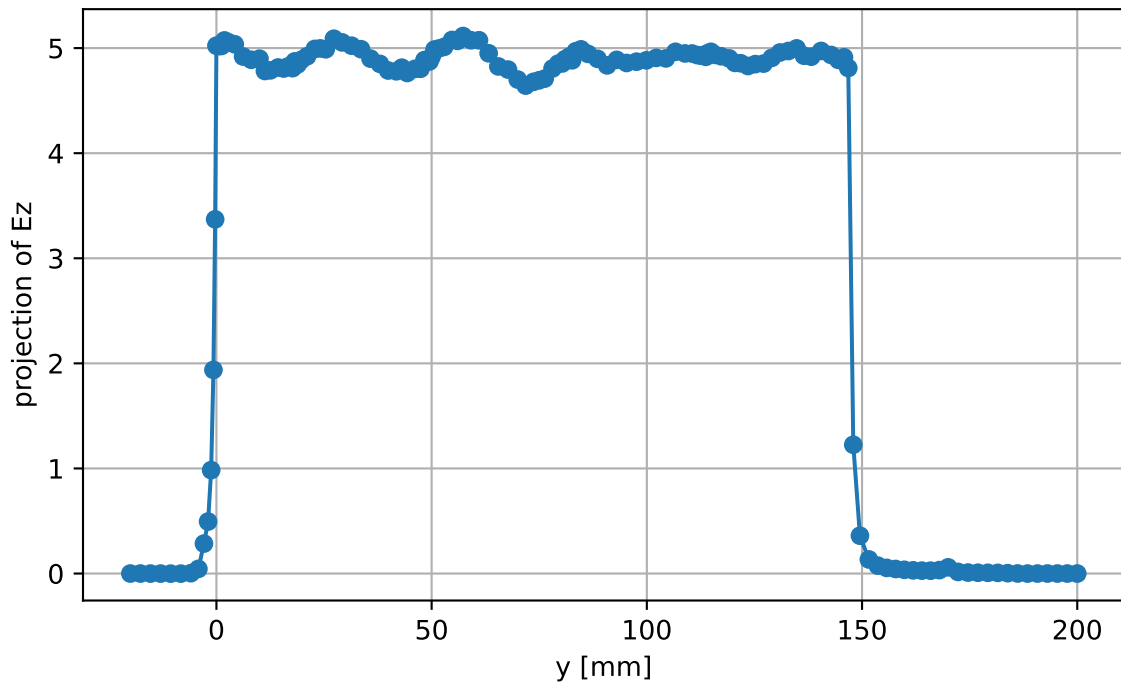
$|E_z|$  line cut along Y at  $x=9.20$  mm,  $z=0.76$  mm  
(idx  $x=20$ ,  $z=10$ )



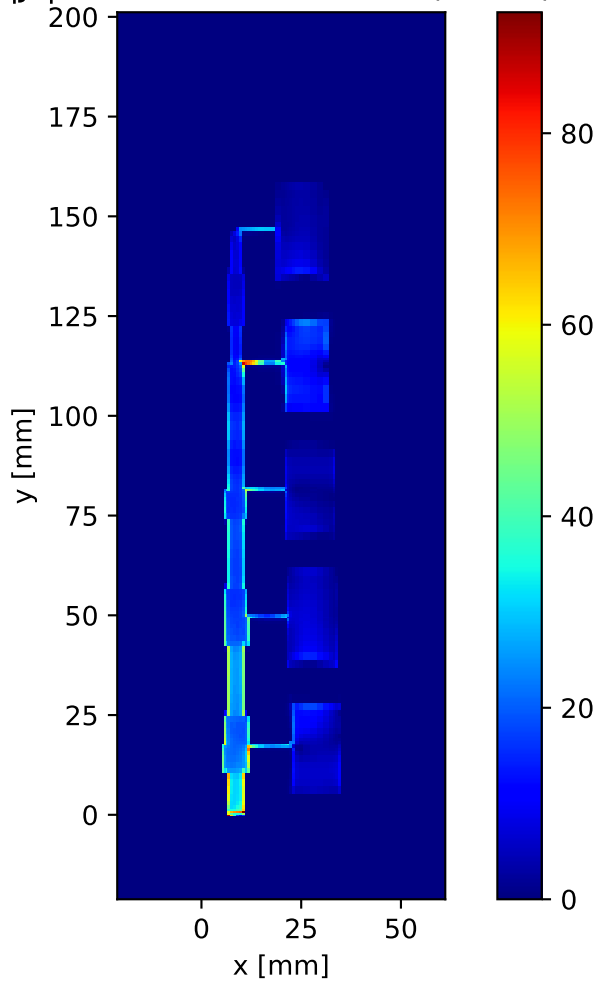
Real E<sub>fd</sub> slice at z = 0.76 mm (idx 10)



Real E<sub>fd</sub> line cut along Y at x=9.20 mm, z=0.76 mm  
(idx x=20, z=10)

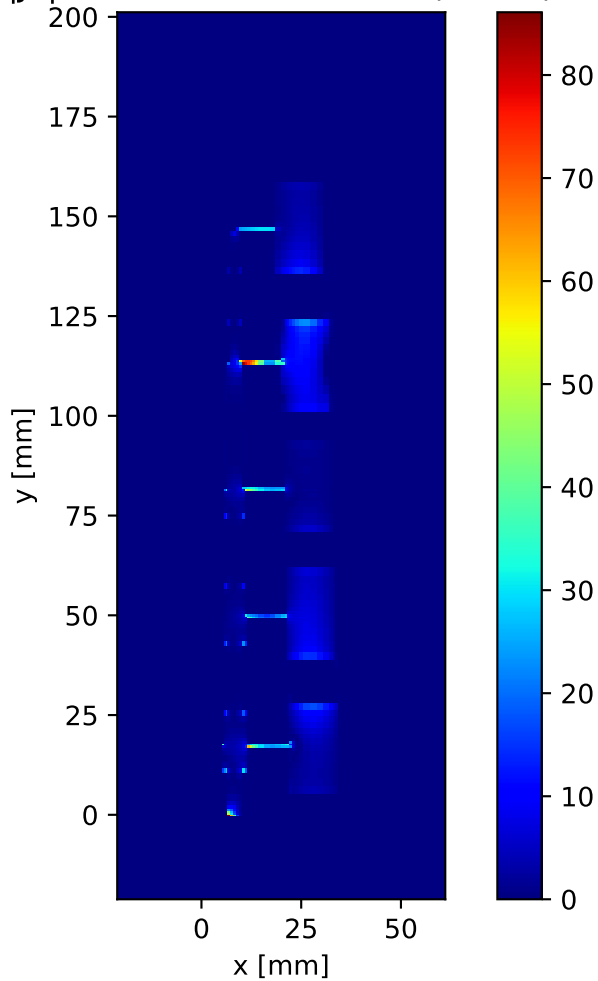


$|J_s|$  slice at  $z = 1.525$  mm (idx 12)

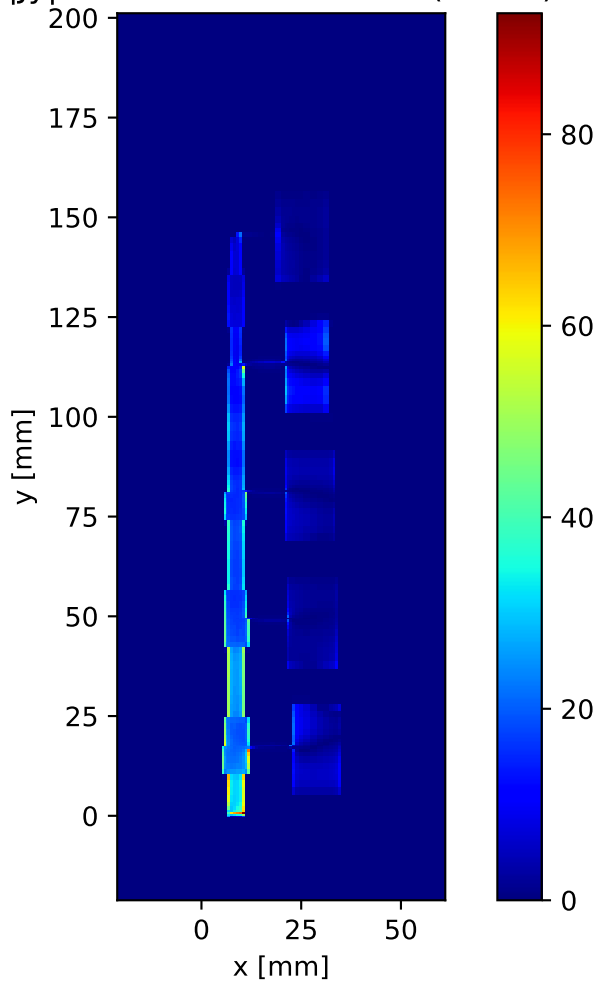




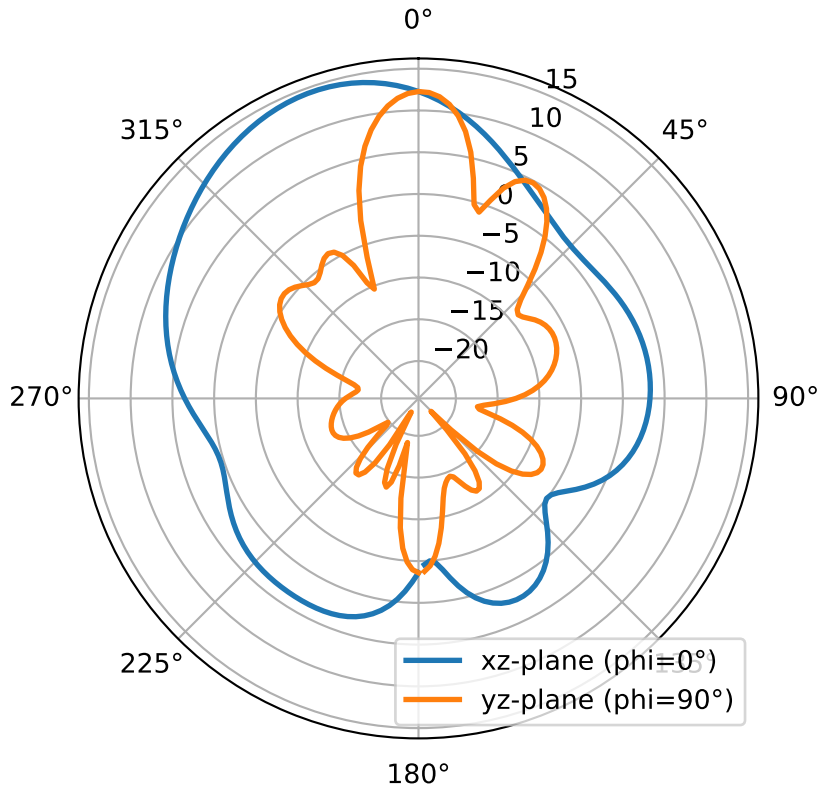
$|j_x|$  slice at  $z = 1.525$  mm (idx 12)



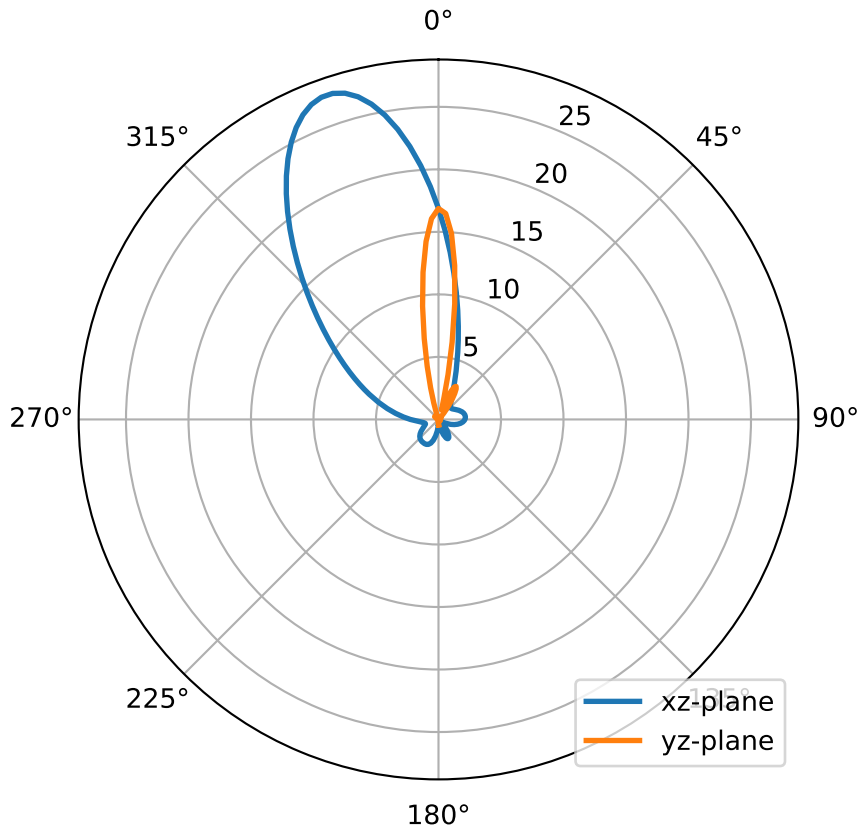
$|j_y|$  slice at  $z = 1.525$  mm (idx 12)



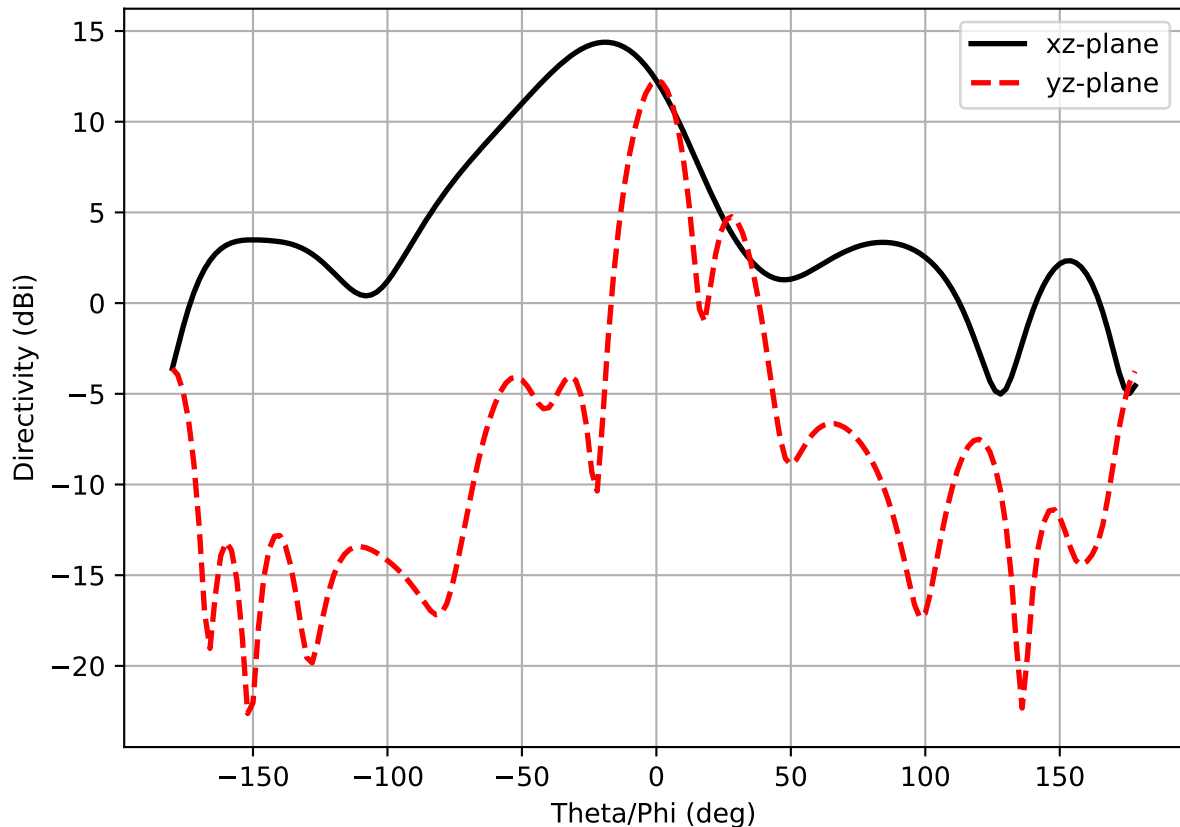
$f = 5.800 \text{ GHz}$  — Directivity (dB)  
 $D_{\text{max}} (\text{integrated}) \approx 14.38 \text{ dB}$ ,  $\text{nf2ff } D_{\text{max}} = 14.38 \text{ dB}$



Frequency: 5.800 GHz — Directivity (linear). Dmax: 27.418



Frequency: 5.800 GHz



3D Directivity Pattern  
 $f = 5.800$  GHz,  $D_{\max} = 14.38$  dBi

