

GNSS Array

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2025 October 22

SpaceLab - UFSC

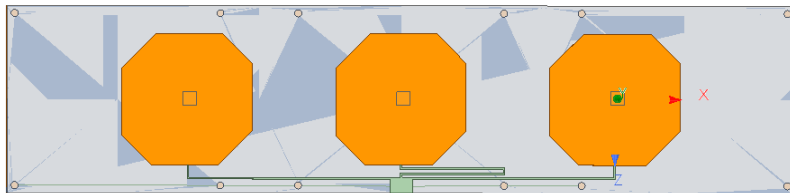
GNSS Array

Patch of the array

Inset examination

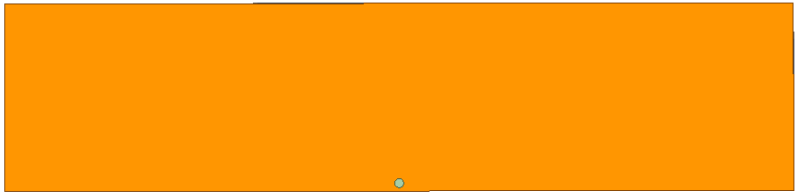
GNSS Array

Array



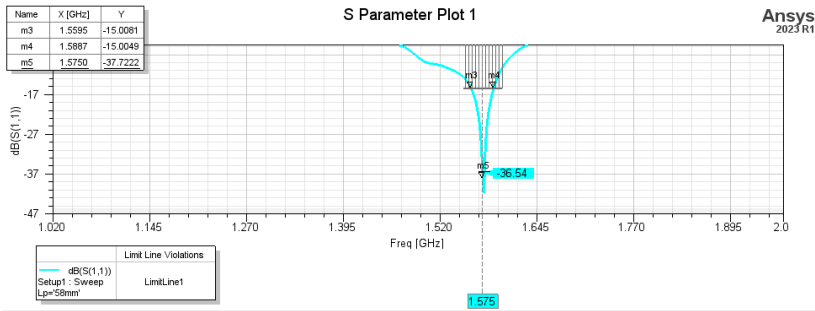
Front array

Array



Back array

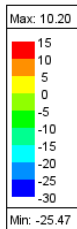
Array



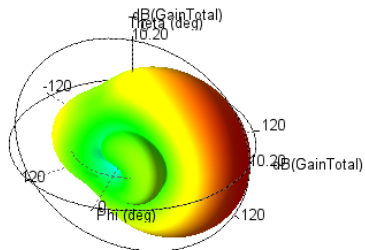
S-parameter array

Array

Ansys Inc.

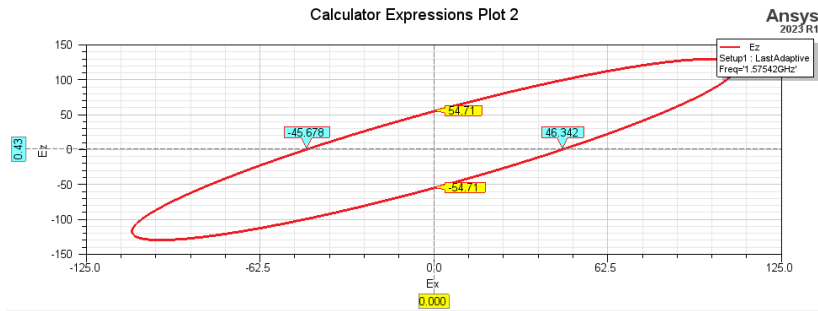


Gain Plot 1



Gain array

Array



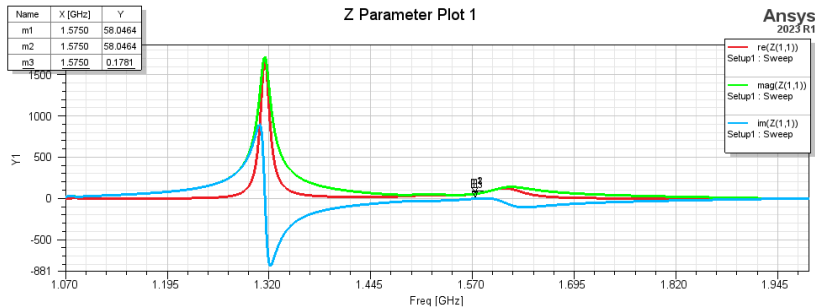
Polarização array

Array



Phase S-parameter array

Array



Z parameter plot array

Dado os valores obtidos anteriormente:

$$Z_{in} = R_0 R_X = 50 * \frac{Z_{in}}{Z_0} = 50 * \frac{1+S_{11}}{1-S_{11}}$$

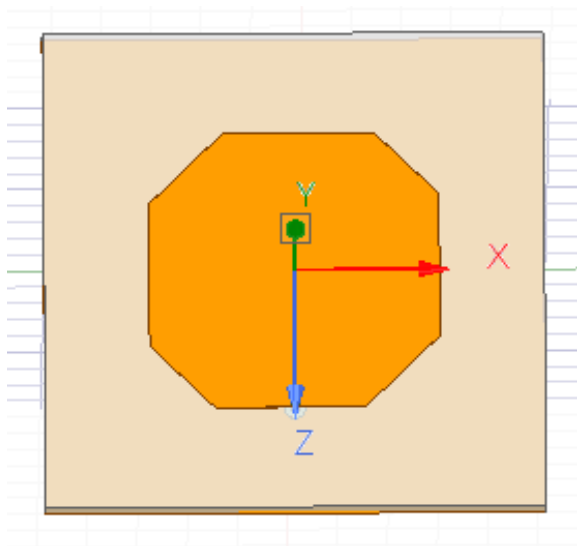
$$Z_{in} = 50 * (0.98 - j0.0164) = 49 - j0.82$$

Transformador de 1/4 de onda:

$$Z_q = \sqrt{(75 * 85)} = 79.8436\Omega$$

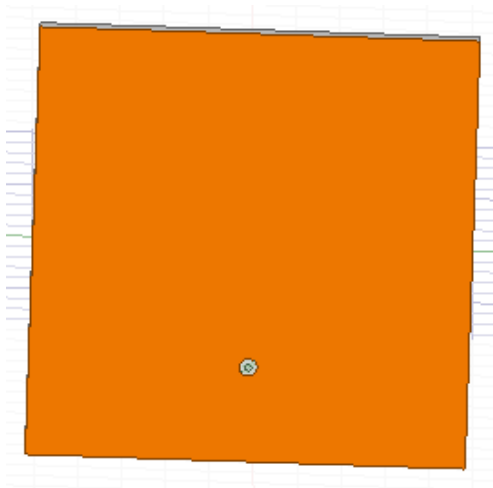
Patch of the array

Patch

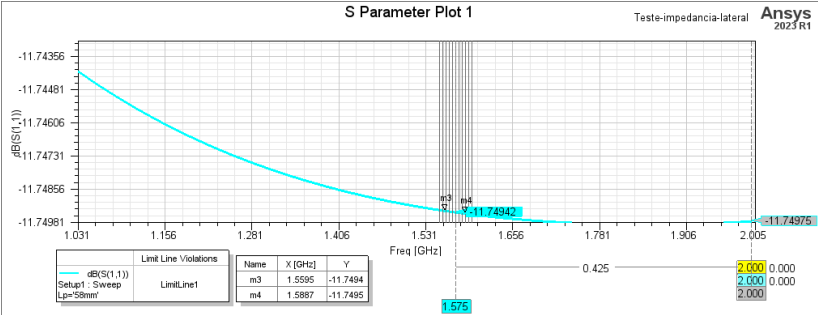


Front of one patch of the Array

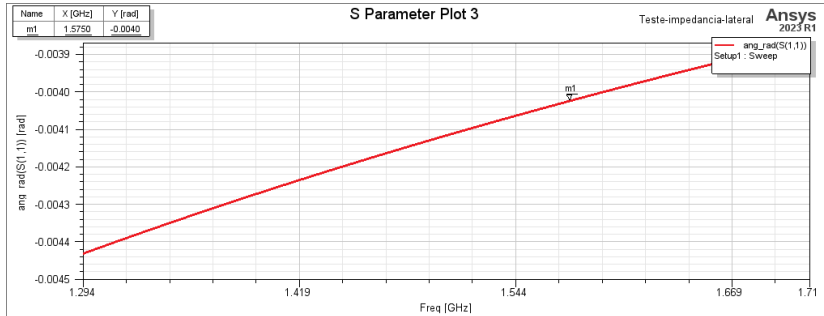
Patch



Back of one patch of the Array



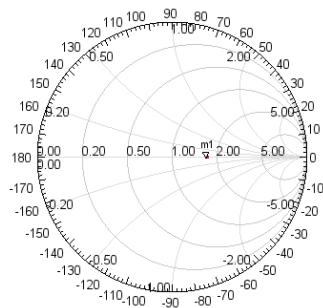
S-parameter magnitude



S-parameter phase

Name	Freq [GHz]	Ang	Mag	RX
m1	2.0	-0.2054	0.2583	1.6964 - 0.0034i

S Parameter Chart 3



Smith chart

Dado os valores obtidos anteriormente:

$$Z_{in} = R_0 R_X = 50 * \frac{Z_{in}}{Z_0} = 50 * \frac{1+S_{11}}{1-S_{11}}$$

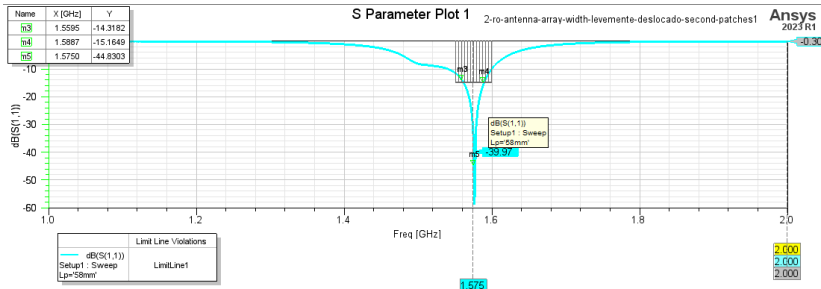
$$Z_{in} = 50 * (1.6964 - j0.0034) = 84.9 - j0.15$$

$$L=0.0476190476$$

Xsize = 350.9mm Zsize = 83mm h = 4mm

Inset examination

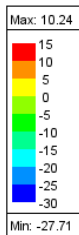
Array



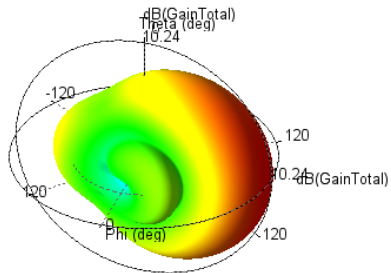
S11 para h_{mz}=-2

Array

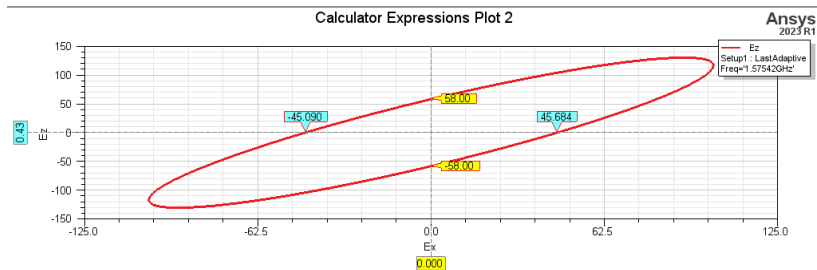
Ansys Inc.



Gain Plot 1

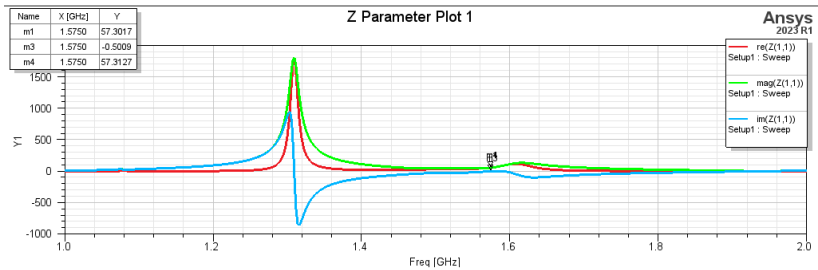


gain para $hmz=-2$



polarização para $h_{mz}=-2$

Array

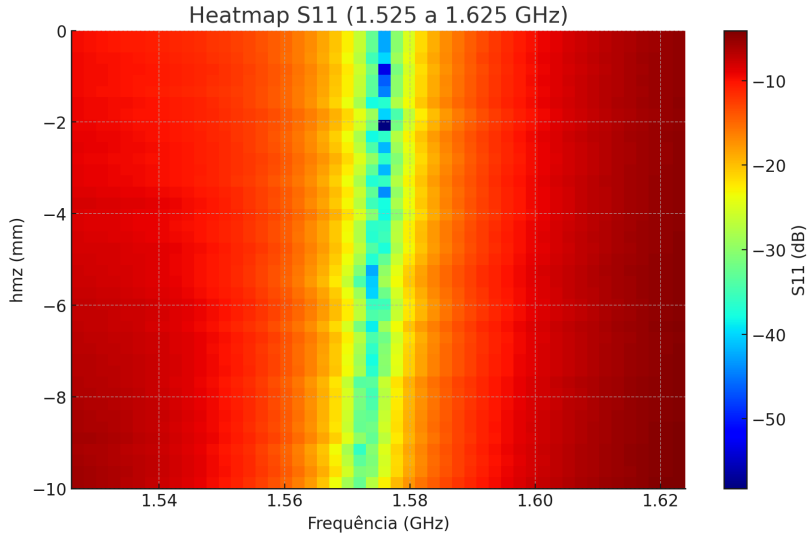


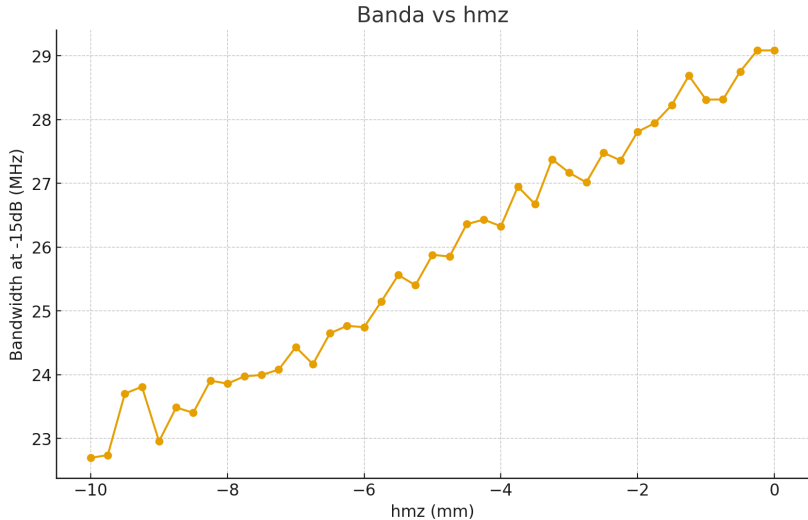
Z-parameter $hmz=-2$

Array



S-parameter phase $\text{hmz}=-2$





Banda x h_{mz}

Thanks!

