

GNSS Array

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SpaceLab - UFSC

Summary

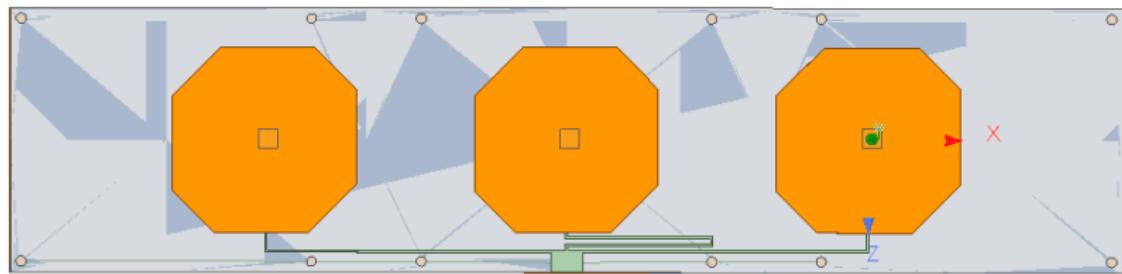
GNSS Array

Patch of the array

Inset examination

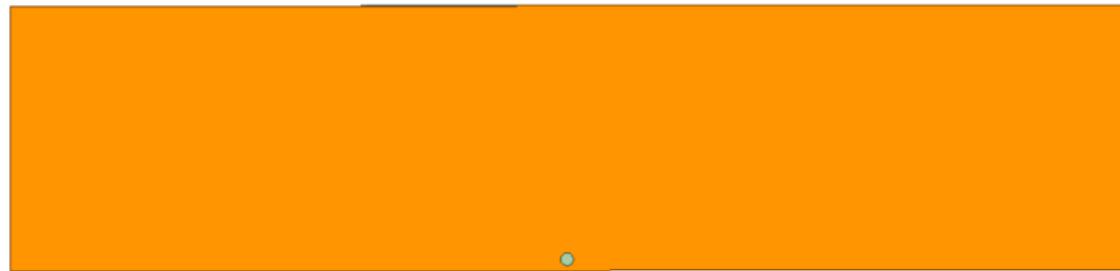
GNSS Array

Array



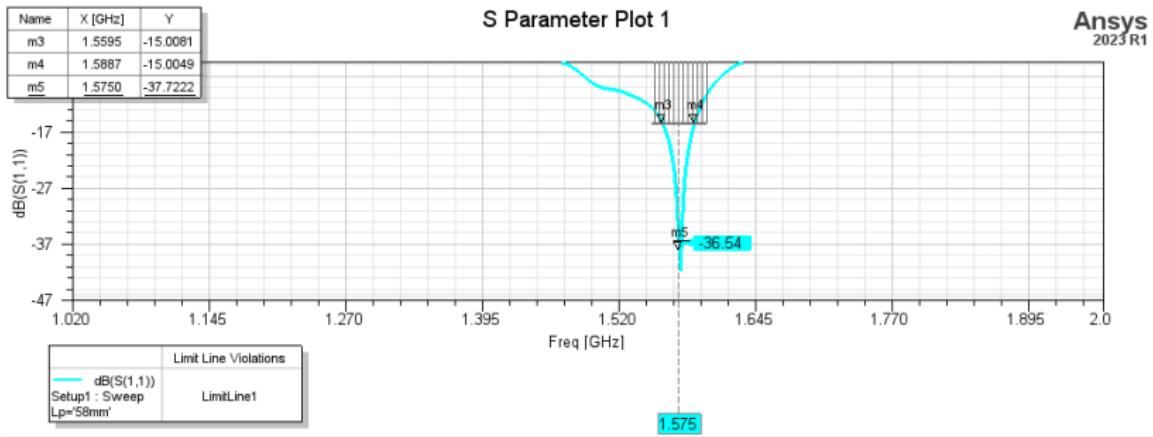
Front array

Array



Back array

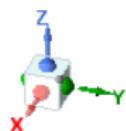
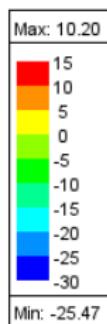
Array



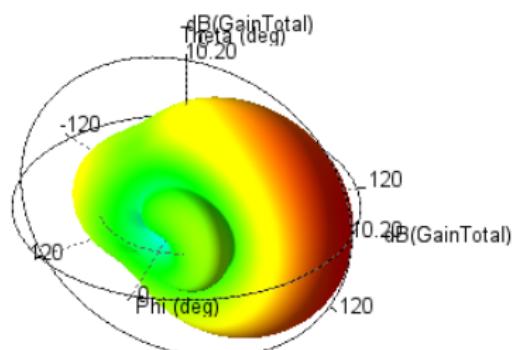
S-parameter array

Array

Ansys Inc.

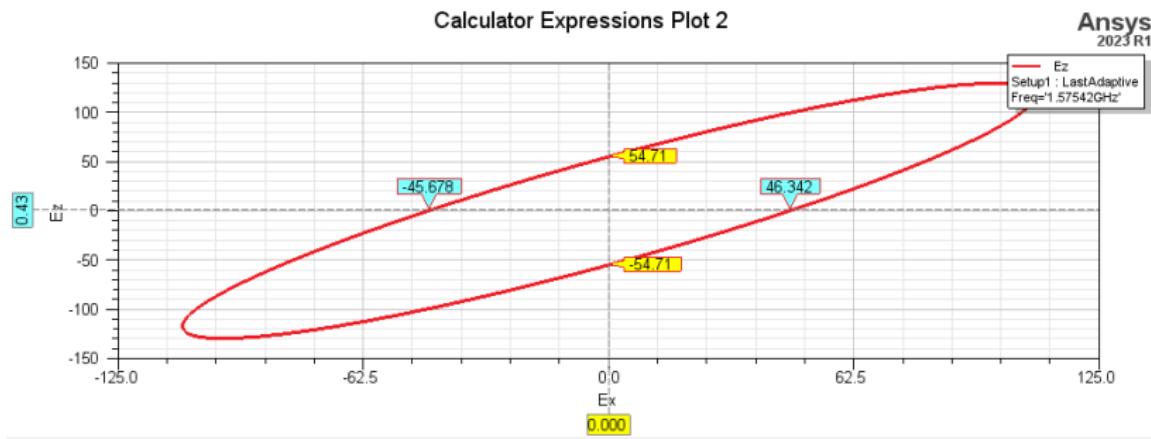


Gain Plot 1



Gain array

Array



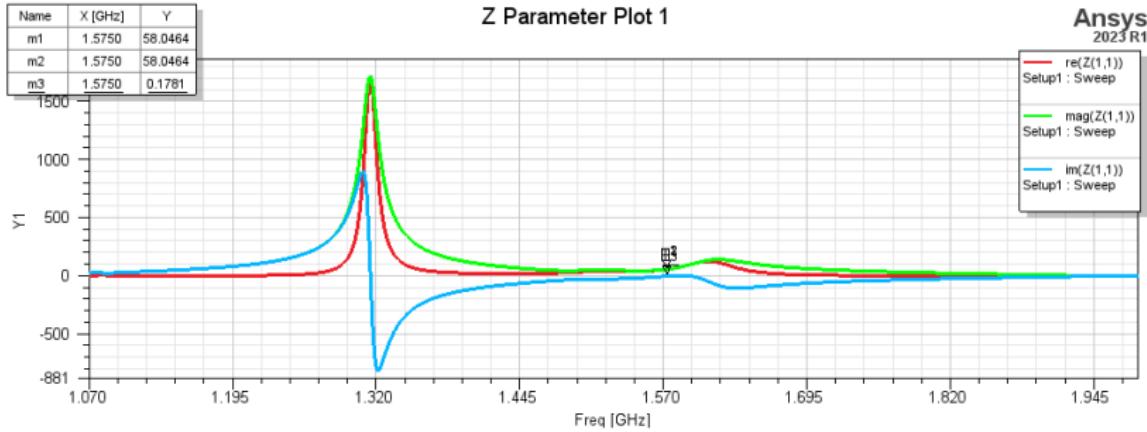
Polarização array

Array



Phase S-parameter array

Array



Z parameter plot array

Array

Dado os valores obtidos anteriormente:

$$Zin = R_0 R_X = 50 * \frac{Zin}{Z_0} = 50 * \frac{1+S11}{1-S11}$$

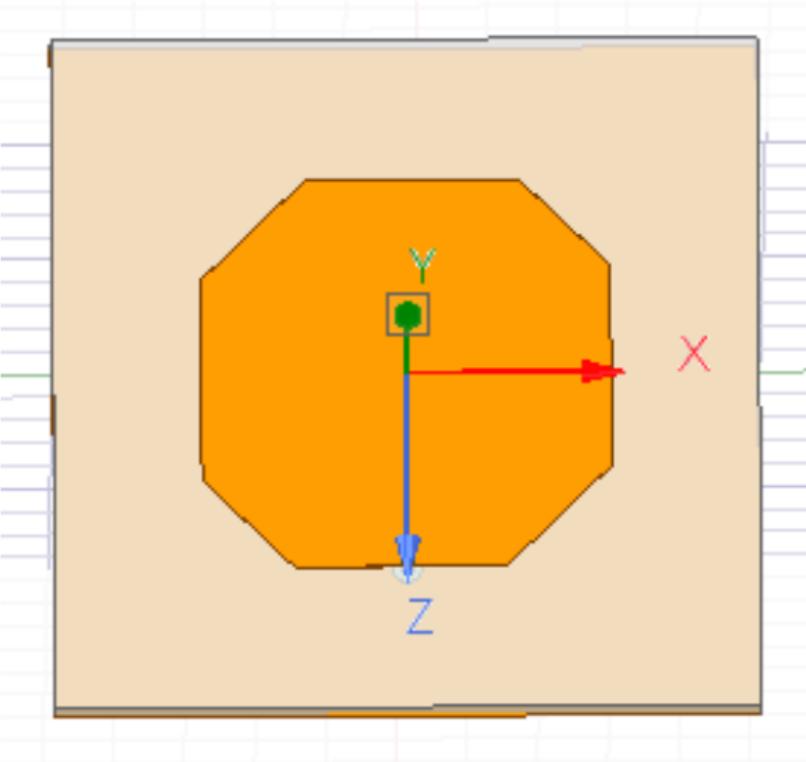
$$Zin = 50 * (0.98 - j0.0164) = 49 - j0.82$$

Transformador de 1/4 de onda:

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

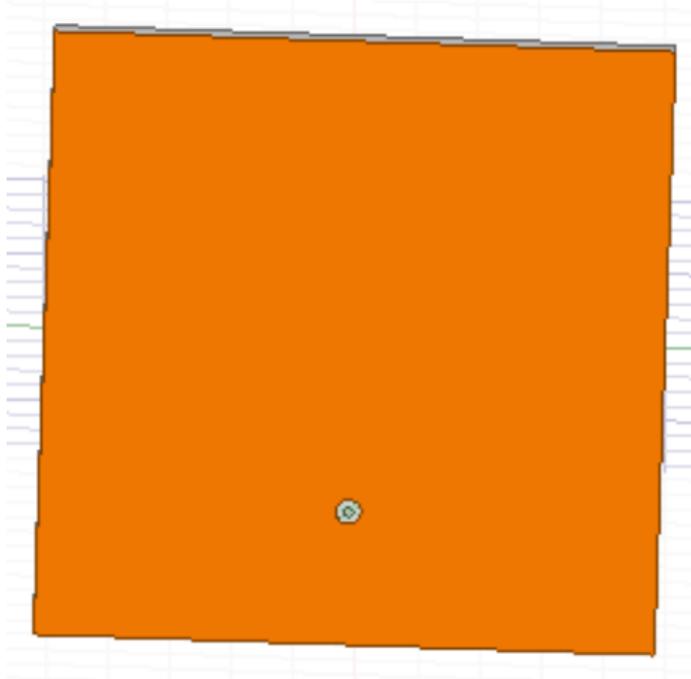
Patch of the array

Patch



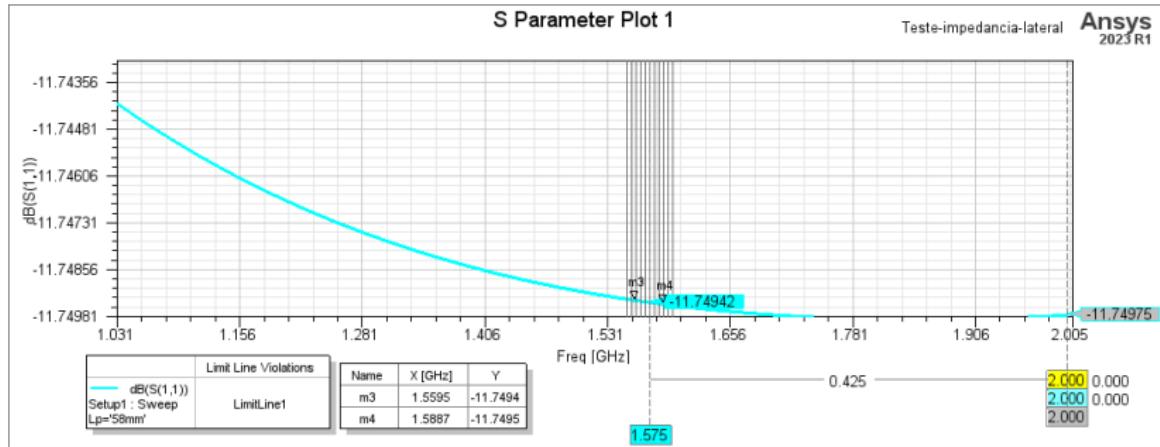
Front of one patch of the Array

Patch



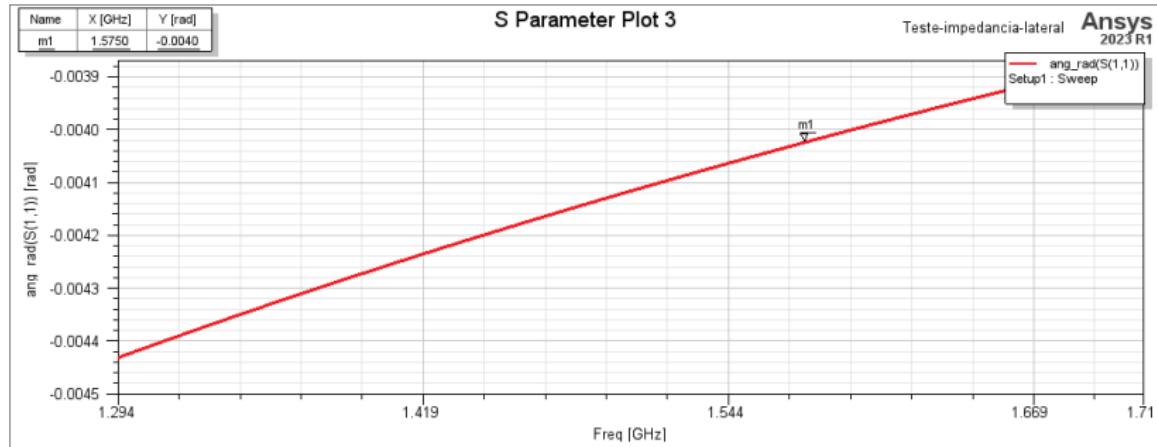
Back of one patch of the Array

Patch



S-parameter magnitude

Patch

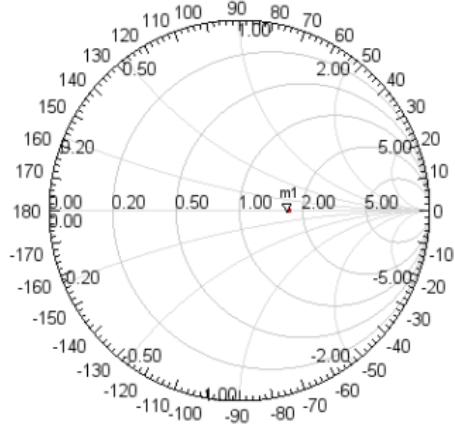


S-parameter phase

Patch

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:

$$Zin = R_0 R_X = 50 * \frac{Zin}{Z_0} = 50 * \frac{1+S11}{1-S11}$$

$$Zin = 50 * (1.6964 - j0.0034) = 84.9 - j0.15$$

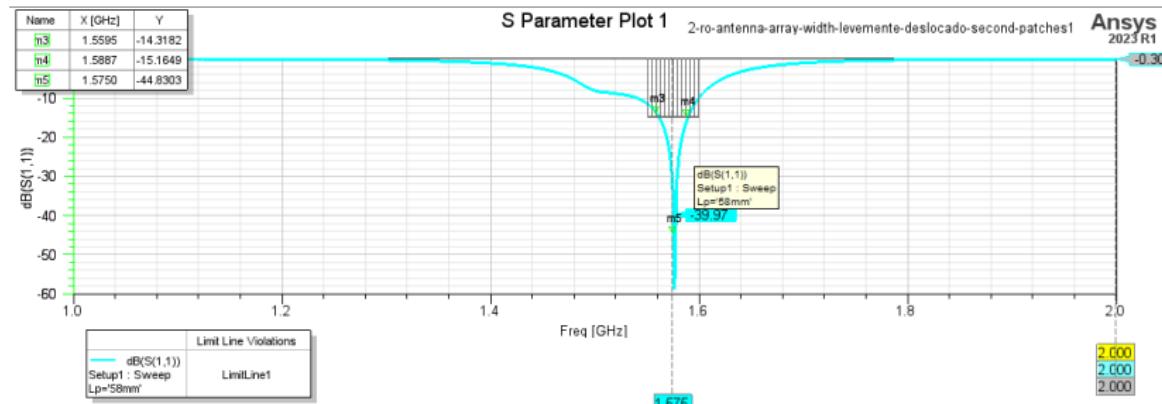
$$L=0.0476190476$$

Parameters

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

Inset examination

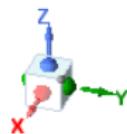
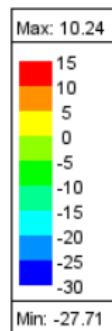
Array



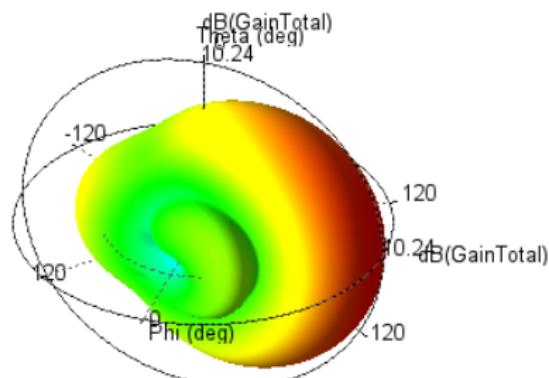
S11 para hmz=-2

Array

Ansys Inc.

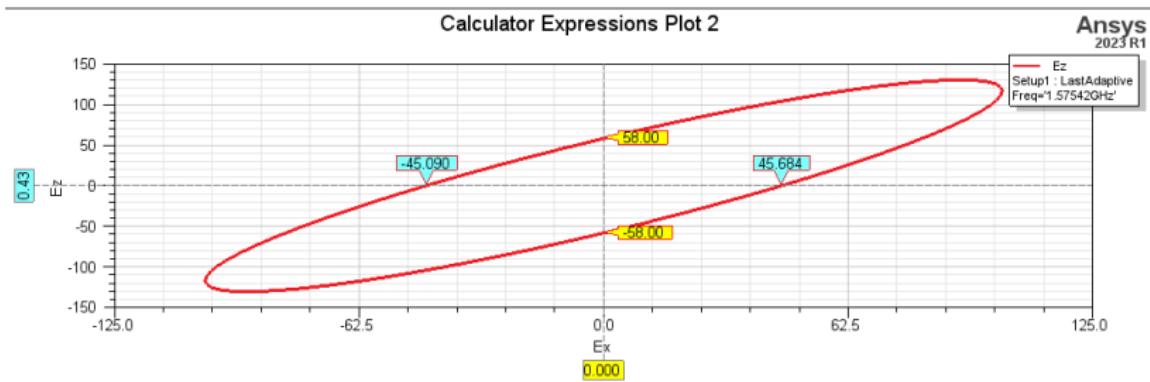


Gain Plot 1



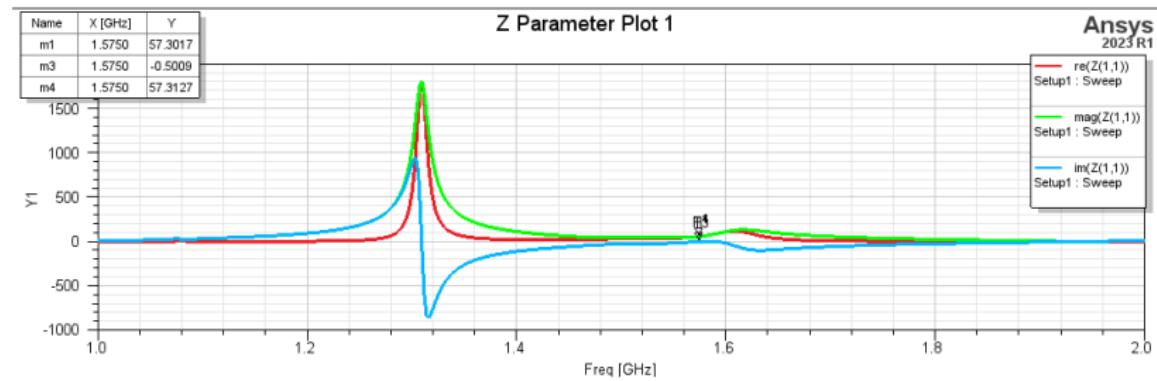
gain para hmz=-2

Array



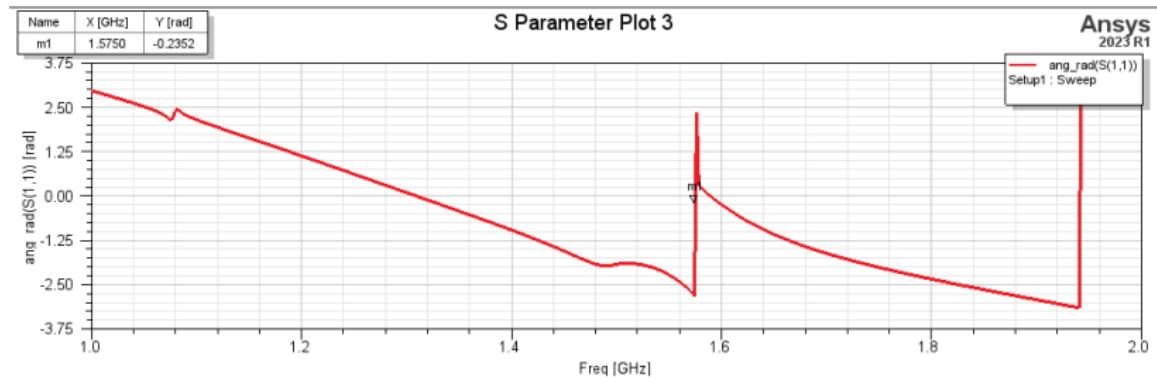
polarização para $h_{mz}=-2$

Array



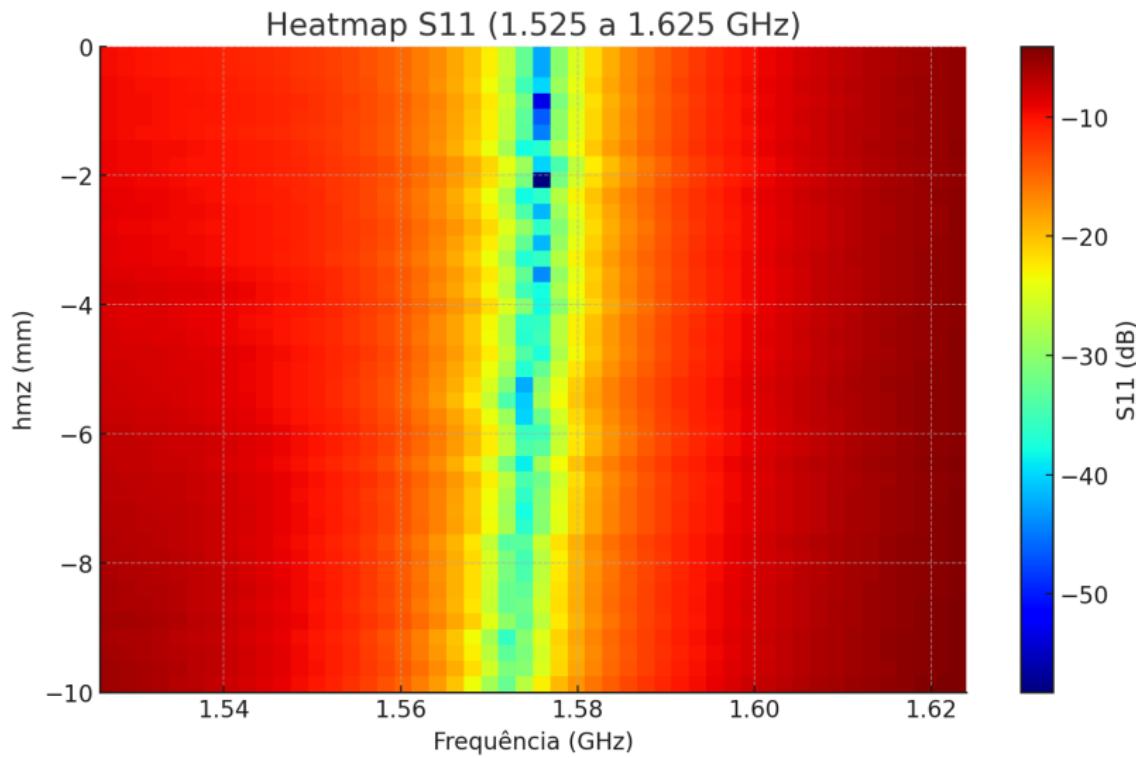
Z-parameter hmz=-2

Array

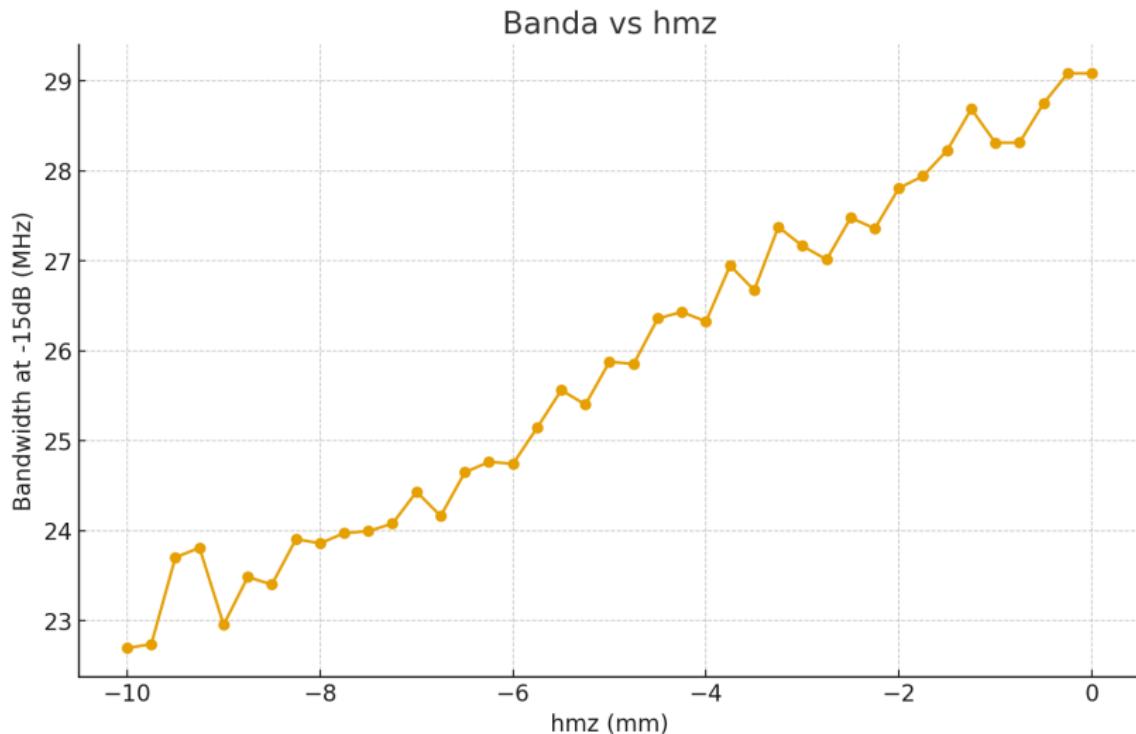


S-parameter phase hmz=-2

Array



Array



Banda x hmz

Thanks!

