

"High Frequency Ceramic Solutions"

2.45 GHz Antenna

P/N 2450AT42A100

Detail Specification: 01/25/2012

Page 1 of 3

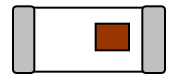
General Specifications

Part Number	2450AT42A100
Frequency Range	2400 - 2500 Mhz
Peak Gain	0 dBi typ. (XZ-V)
Average Gain	-1 dBi typ. (XZ-V)
Return Loss	9.5 dB min.

Input Power	3 Watts max.
Impedance	50 Ω
Operating Temp.	-40 to +85°C
Reel Quantity	2,000

P/N	Packaging Style	Bulk	Suffix = S	Eg. 2450AT42A100S
		T & R	Suffix = E	Eg. 2450AT42A100E
Suffix	Termination Style	100% Tin	Suffix = None	Eg. 2450AT42A100(E or S)
	Evaluation Board	2450AT42A100-EB1SMA		

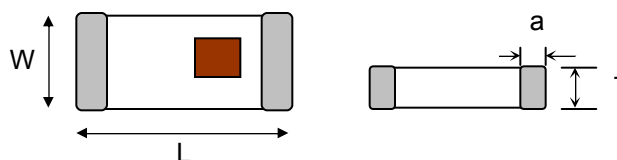
Terminal Configuration



No.	Function
1	Feeding Point
2	NC

Mechanical Dimensions

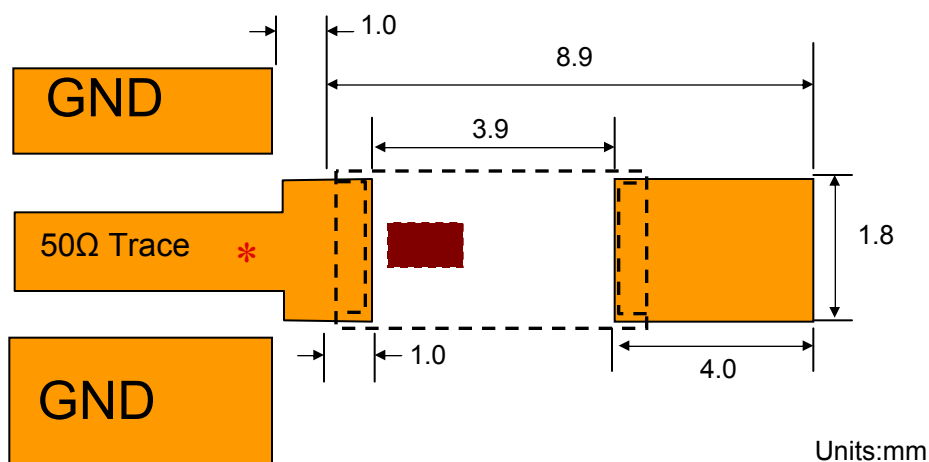
	In	mm
L	0.197 ± 0.008	5.00 ± 0.20
W	0.079 ± 0.008	2.00 ± 0.20
T	0.043 ± 0.008	1.10 ± 0.20
a	0.020 ± 0.012	0.50 ± 0.30



Mounting Considerations

Mount these devices with brown mark facing up. Units: mm

*Line width should be designed to provide 50Ω impedance matching characteristics. Final mounting on customer's PCB might need a shunt-series-shunt type antenna matching circuit



Johanson Technology, Inc. reserves the right to make design changes without notice.

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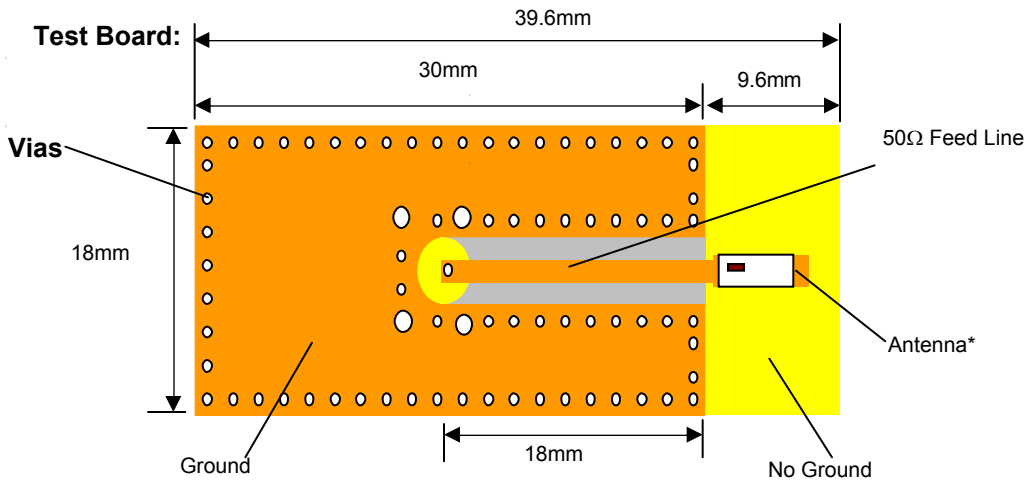
2.45 GHz Antenna

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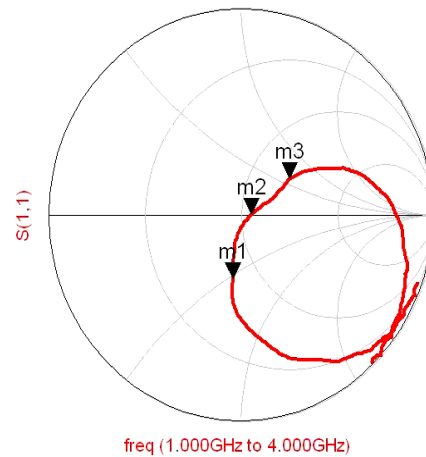
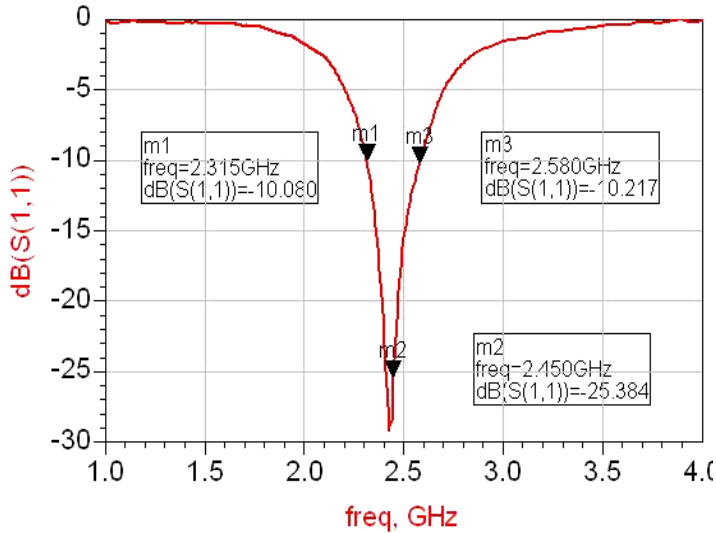
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Typical Electrical Characteristics (T=25°C)



Return Loss

*No Matching Circuit required



Storage Conditions	+5 to +35°C, Humidity: 45-75%RH, 18 mos. Max
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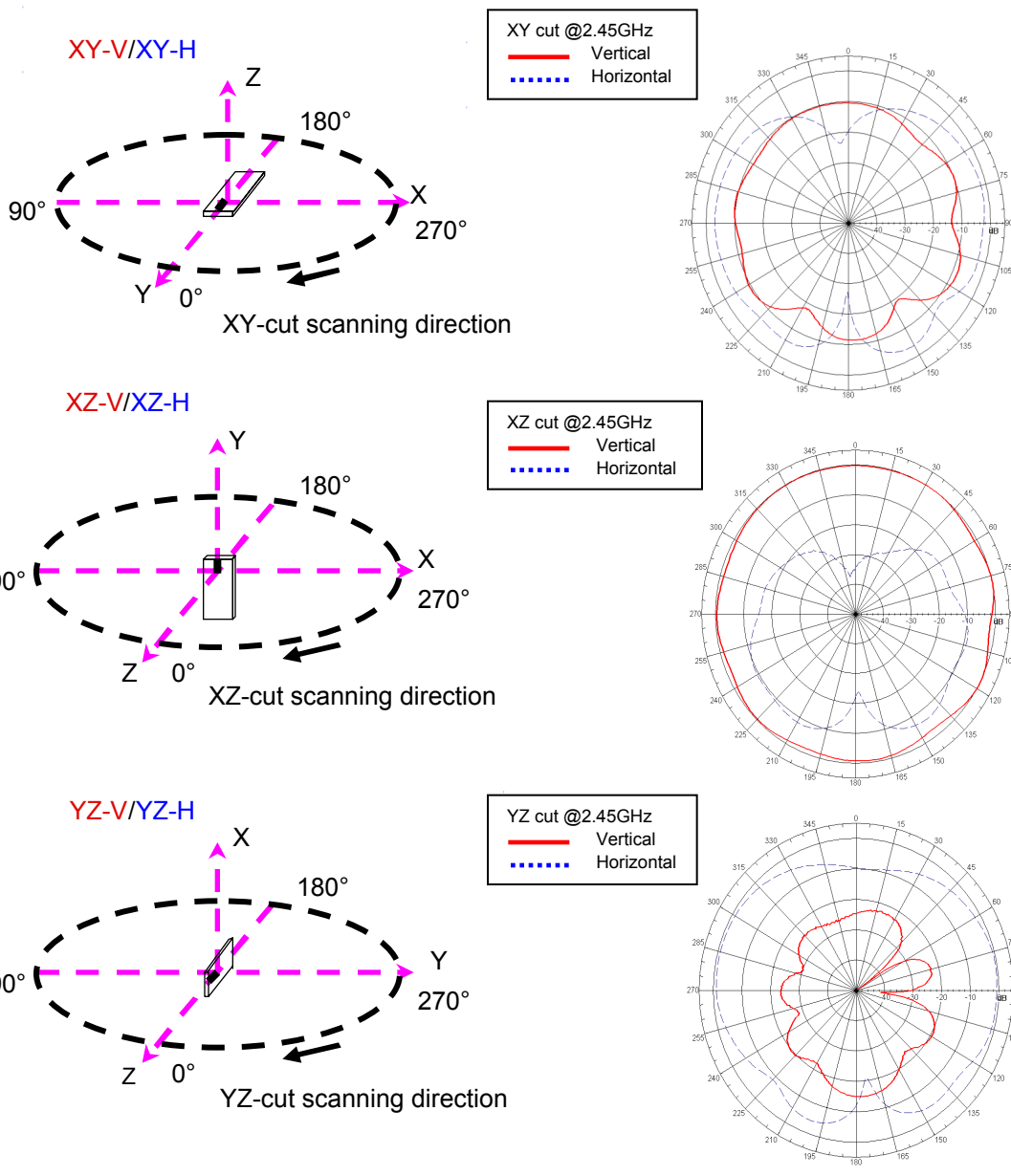
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Typical Radiation Patterns



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Report No. QEC-2209027

September 14, 2022

Measurement report of chip antenna design

**JTI Chip Antenna P/N:
2450AT42A100**

Prepared By:

Jian Cheng

RF Applications Engineer

Johanson Technology Inc.

jcheng@johansontechnology.com

Tel: (805) 389-1166 ext.1154

www.johansontechnology.com

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1. Abstract:

This measurement report includes antenna return loss, radiated efficiency and radiation pattern for the Johanson Technology antenna P/N. **2450AT42A100**.

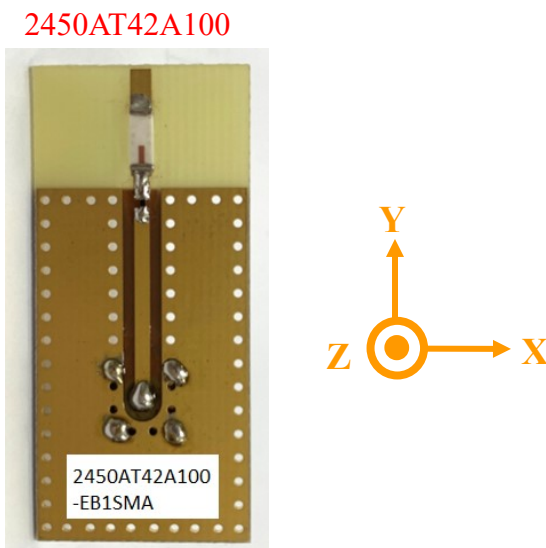
Antenna Gain Table Summary (Table 1)

Unit in dBi	XY-plane		XZ-plane		YZ-plane		Efficiency
	Peak	Avg.	Peak	Avg.	Peak	Avg.	
@2400MHz	0.1	-3.5	1.9	-0.2	1.4	-3.7	70.0%
@2410MHz	-0.1	-3.5	2.0	-0.2	1.2	-3.8	69.0%
@2420MHz	0.1	-3.3	1.9	-0.2	1.0	-3.9	69.0%
@2430MHz	0.3	-3.1	1.8	-0.2	1.0	-3.9	70.0%
@2440MHz	0.2	-3.1	1.9	-0.2	1.1	-3.9	70.0%
@2450MHz	0.5	-2.9	1.9	-0.2	1.1	-3.8	72.0%
@2460MHz	0.5	-2.8	1.8	-0.2	1.4	-3.6	72.0%
@2470MHz	0.5	-2.8	1.6	-0.2	1.5	-3.6	73.0%
@2480MHz	0.6	-2.7	1.6	-0.2	1.6	-3.5	73.0%
@2490MHz	0.6	-2.8	1.4	-0.4	1.4	-3.6	71.0%
@2500MHz	0.6	-2.7	1.3	-0.5	1.3	-3.6	70.0%

Summary:

The antenna gains are listed on the above table.

Evaluation Board Structure:



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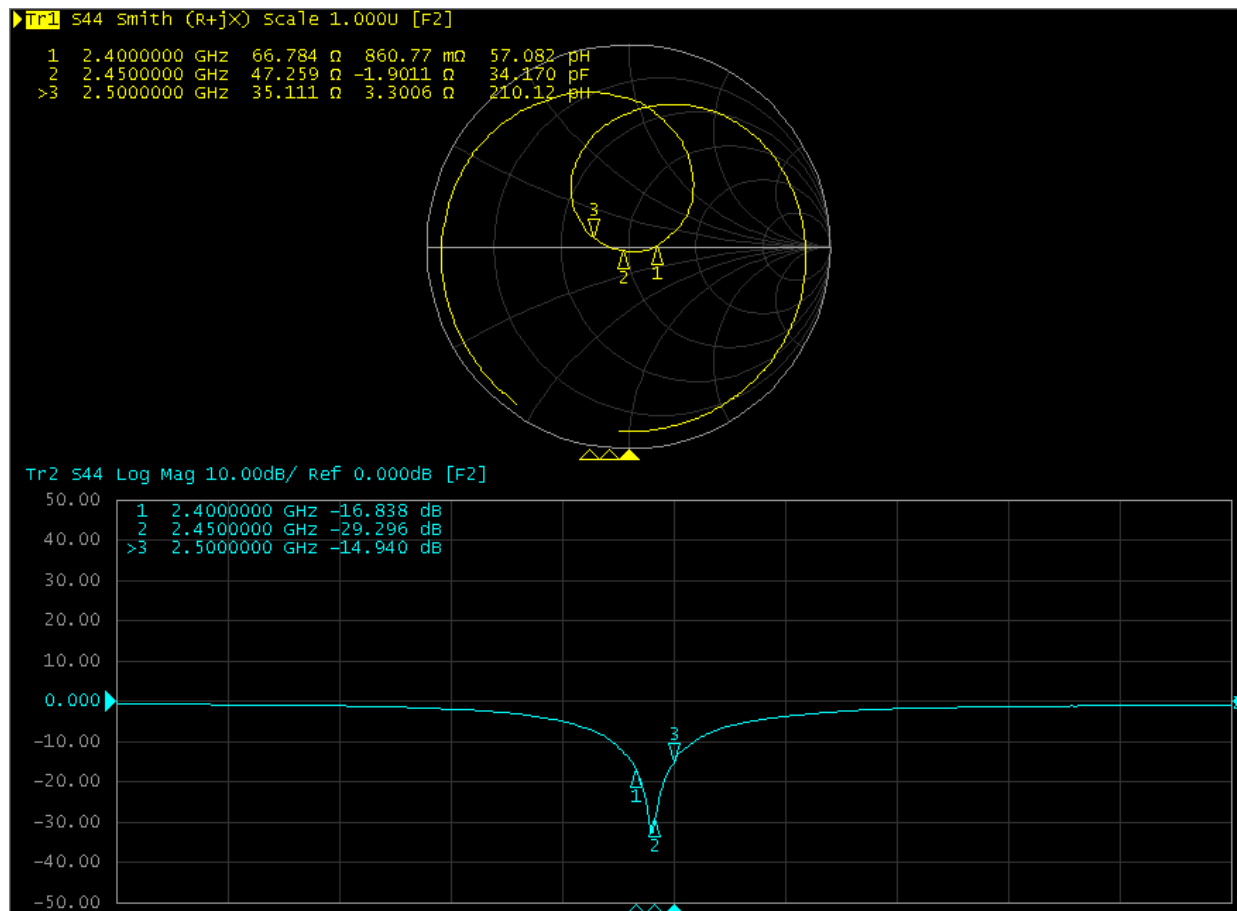
2. Measurement results:

A. Instrument setup

- ▲ Return Loss / VSWR:
 - Instrument: vector network analyzer-Agilent E5071C
 - Calibration method: open/short/load –Cal.Kit 85052D
- ▲ Radiation pattern:
 - NSI 800F-10 Far Field antenna measurement system

B. Antenna Return Loss with matching circuit

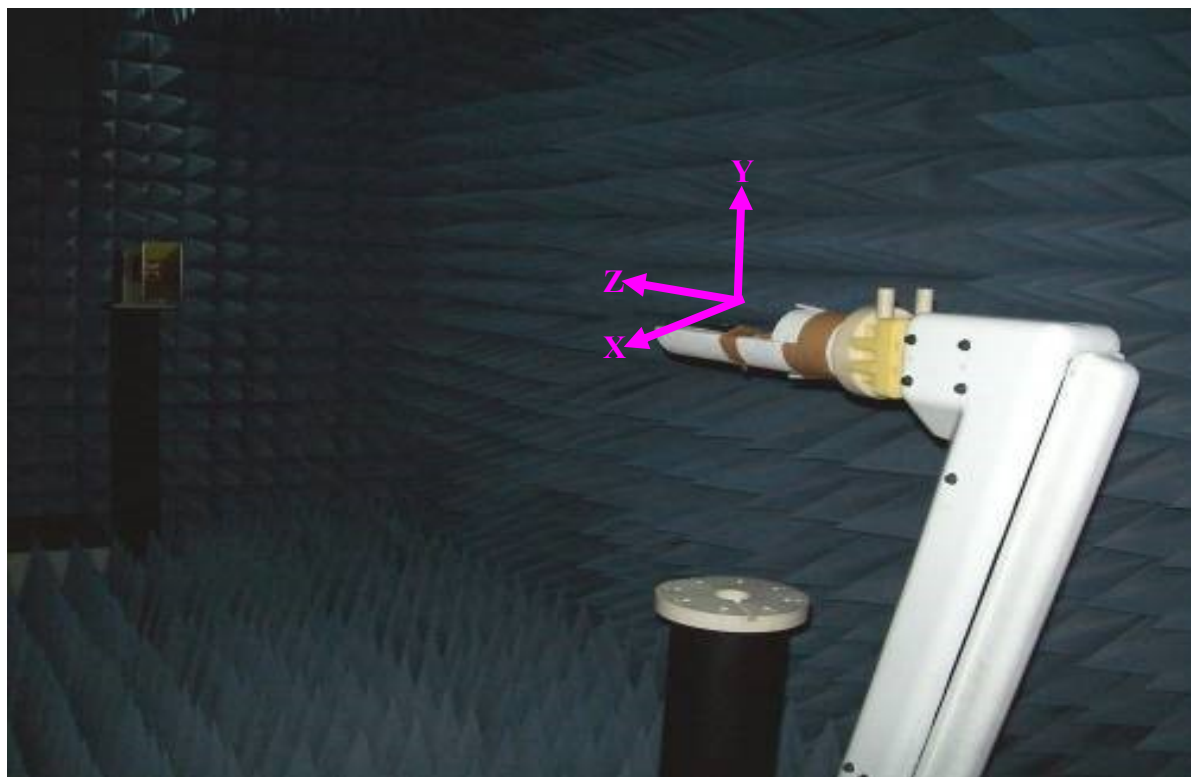
Return loss



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C. Antenna Radiation Patterns

- Scanning directions



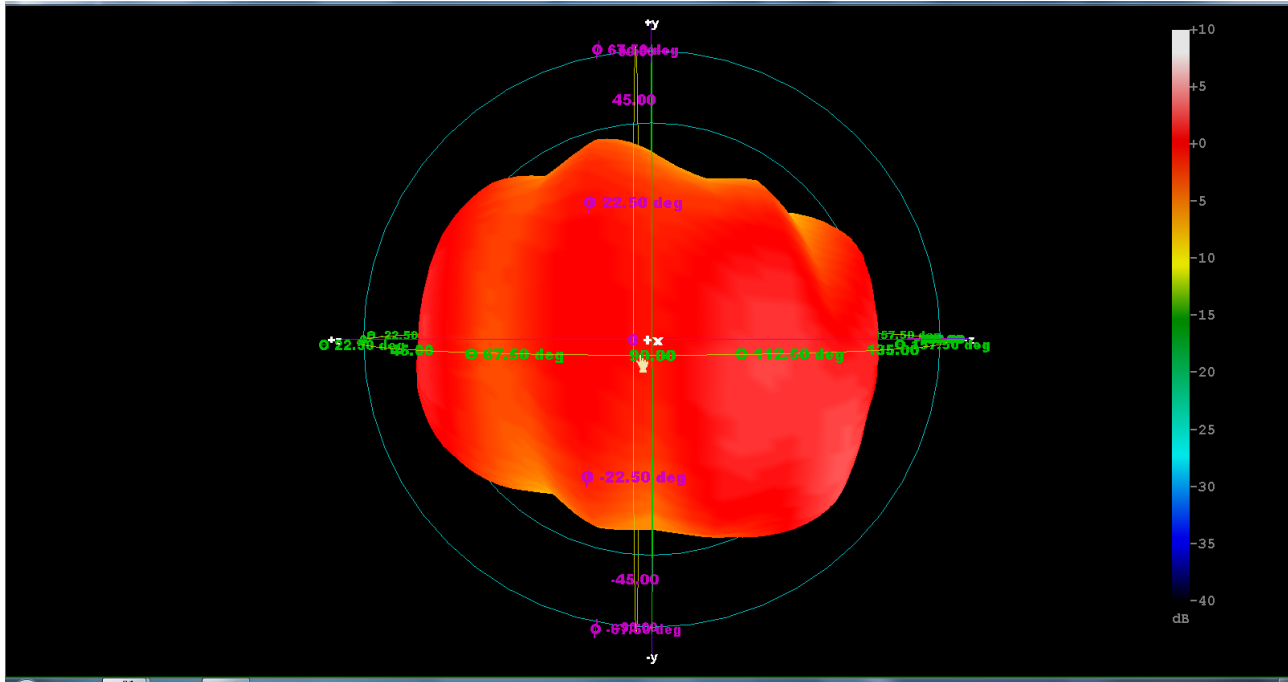
- Plane definitions

XY-plane	Theta=90°
XZ-plane	Phi=0°
YZ-plane	Phi=90°

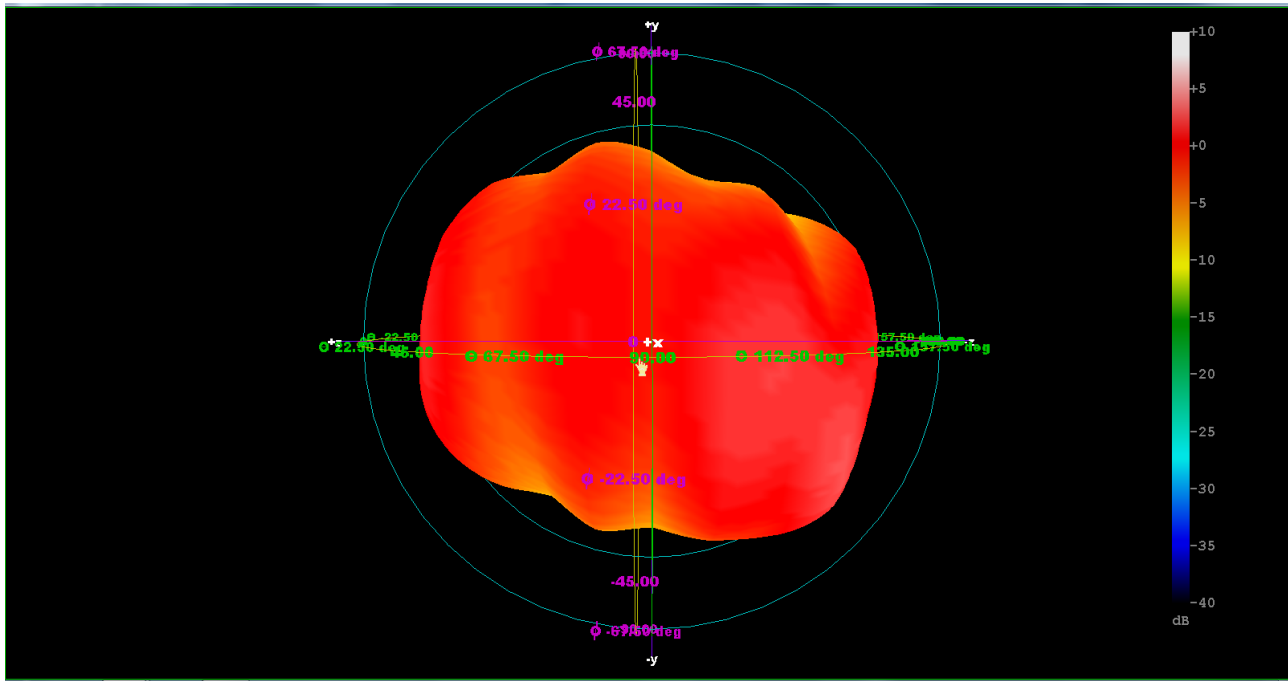
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• 3D Radiation Patterns

@2400MHz

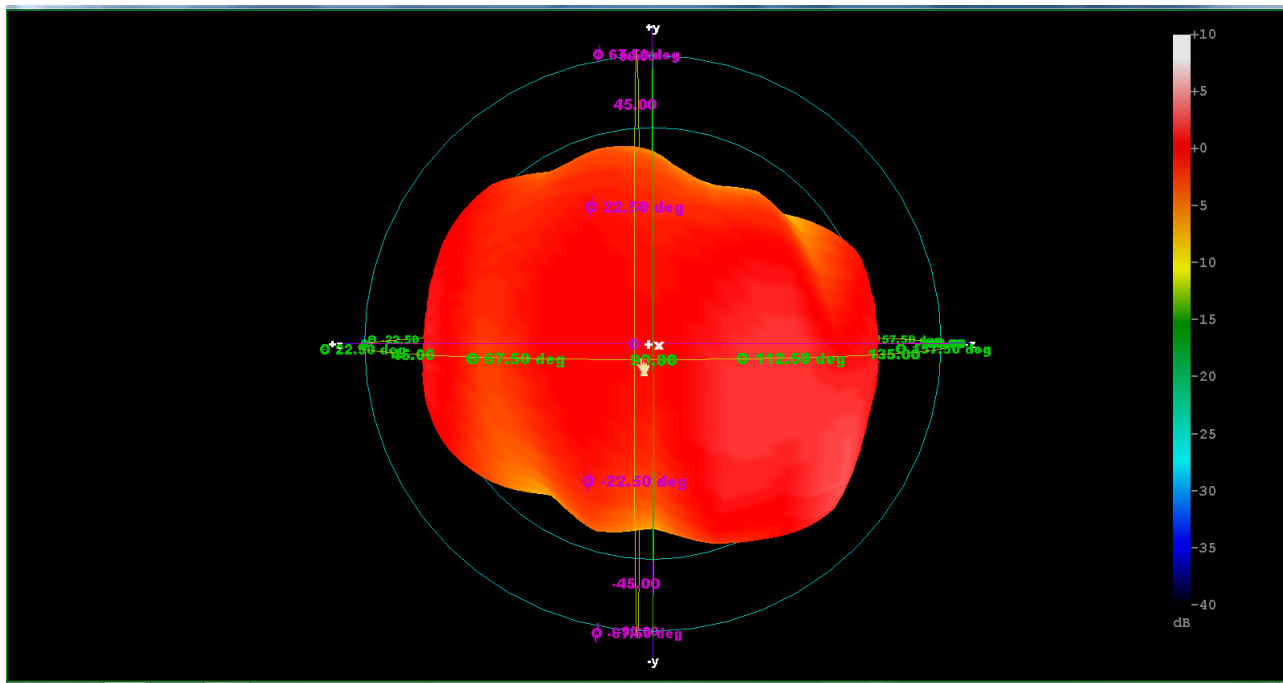


@2410MHz

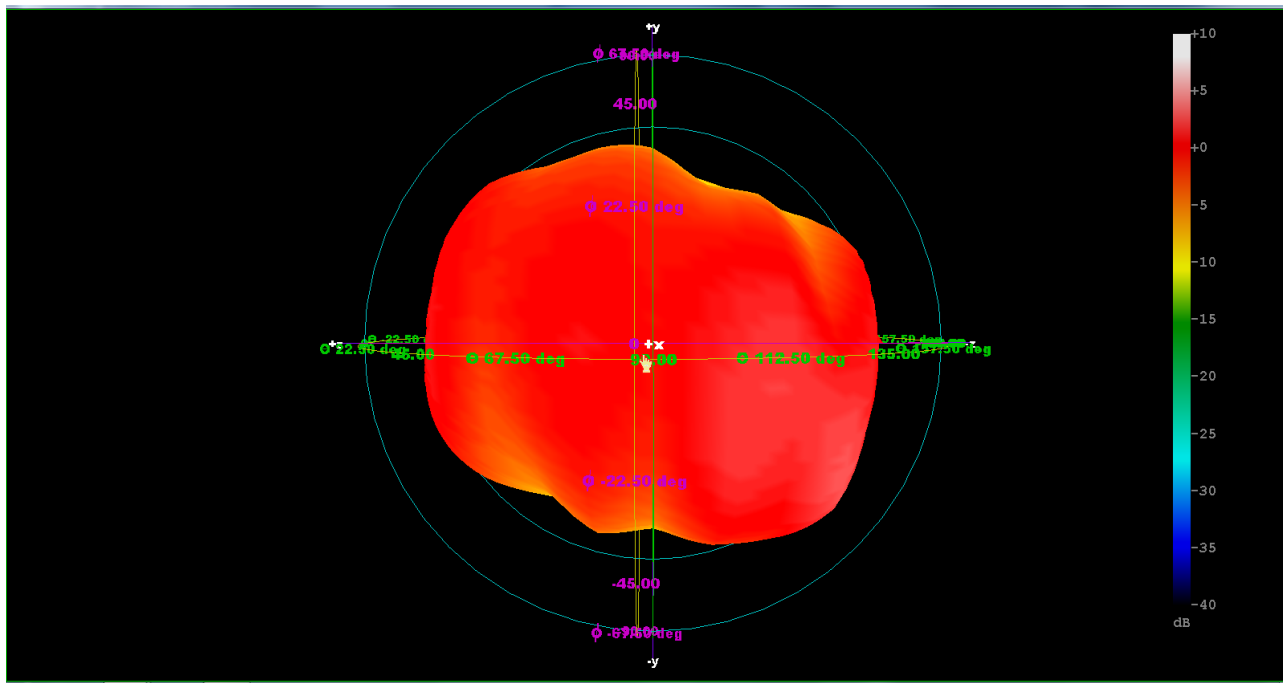


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@2420MHz

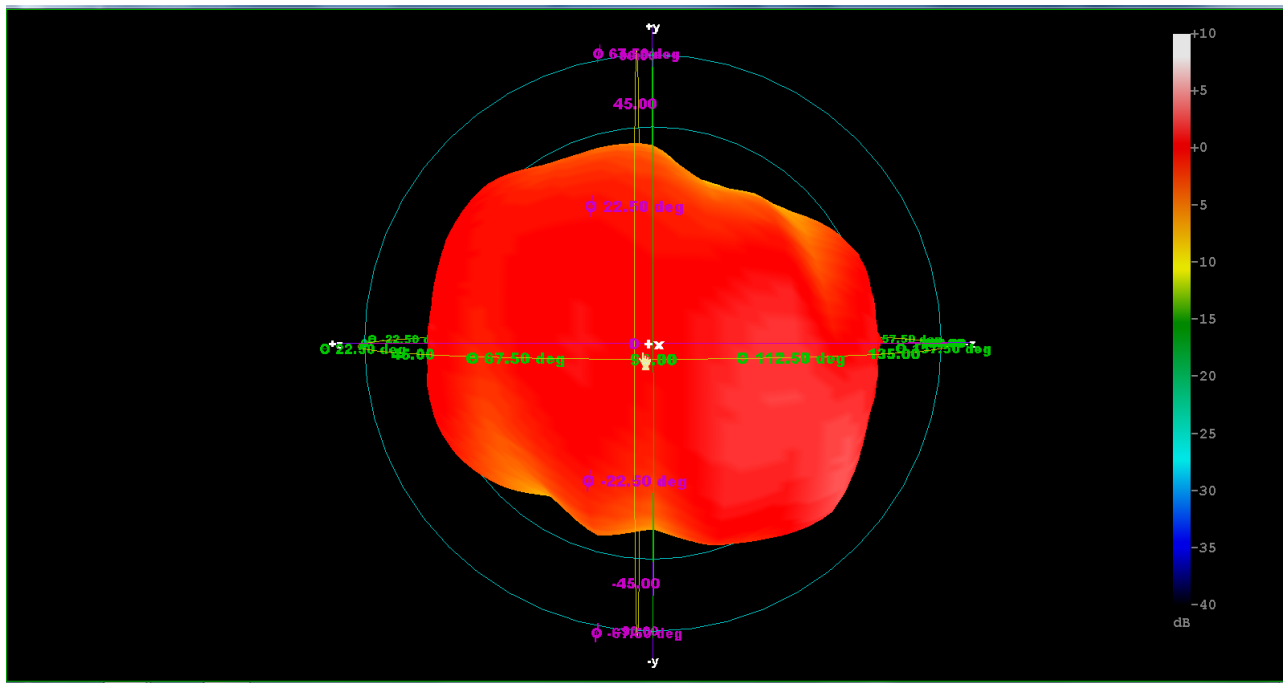


@2430MHz

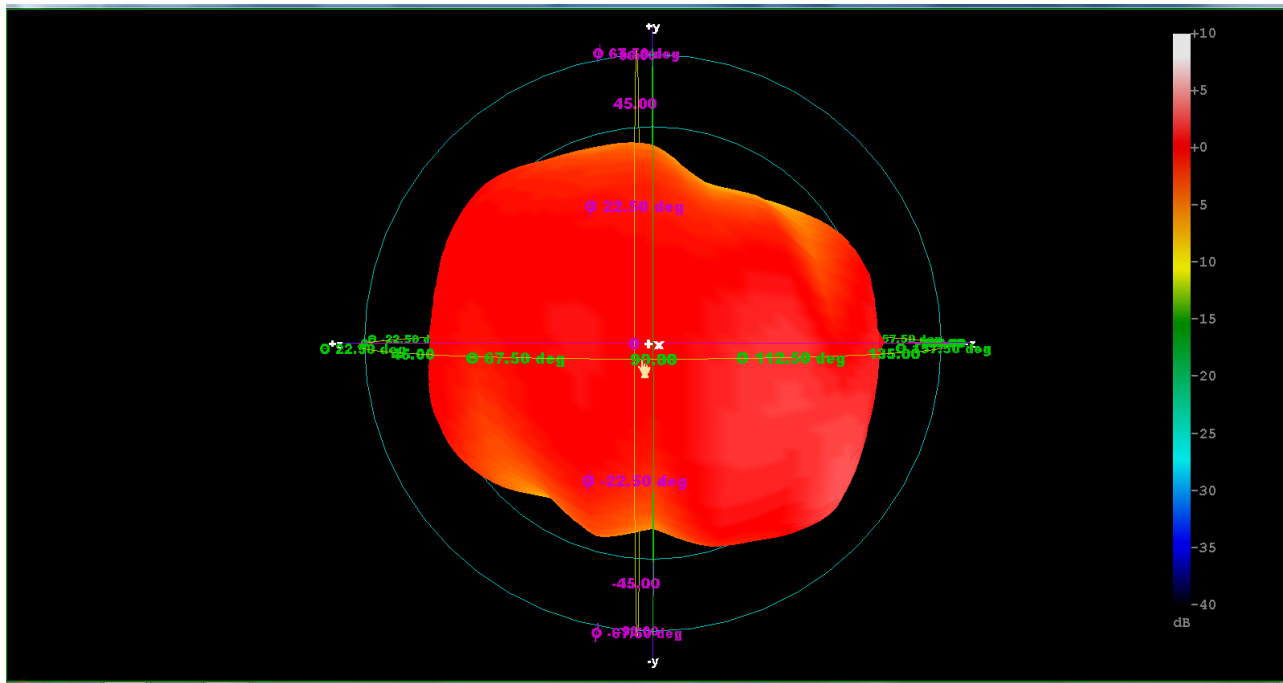


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@2440MHz

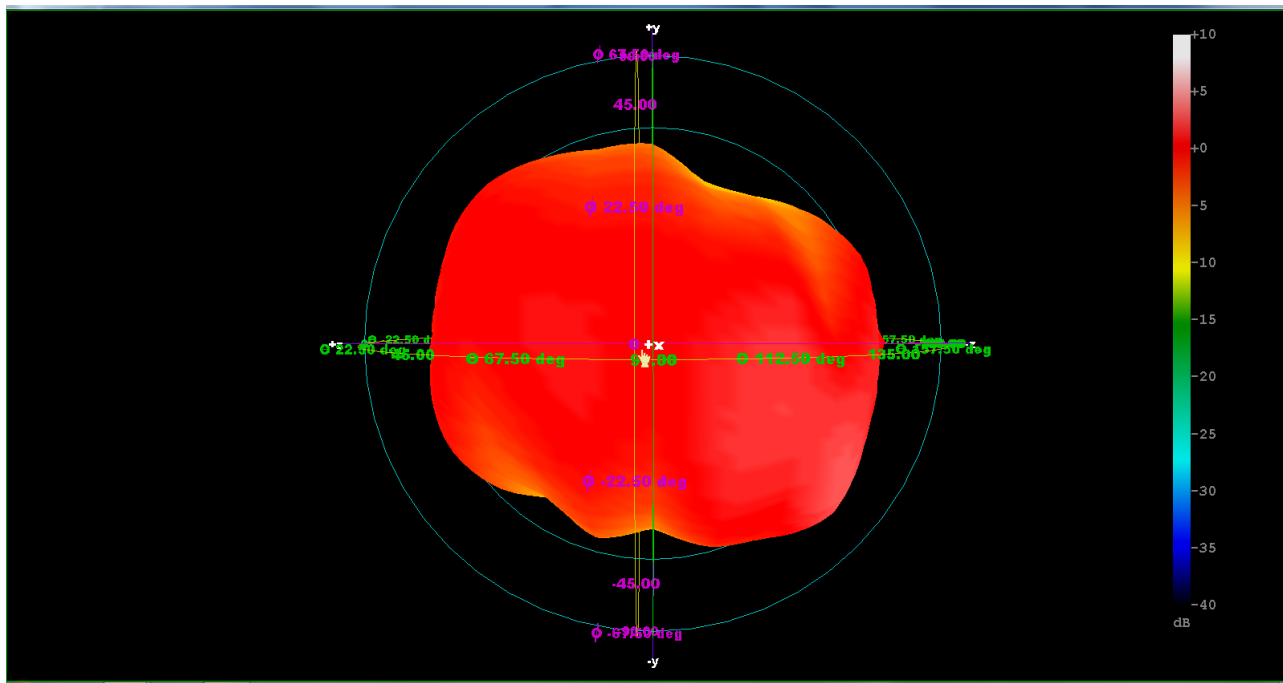


@2450MHz

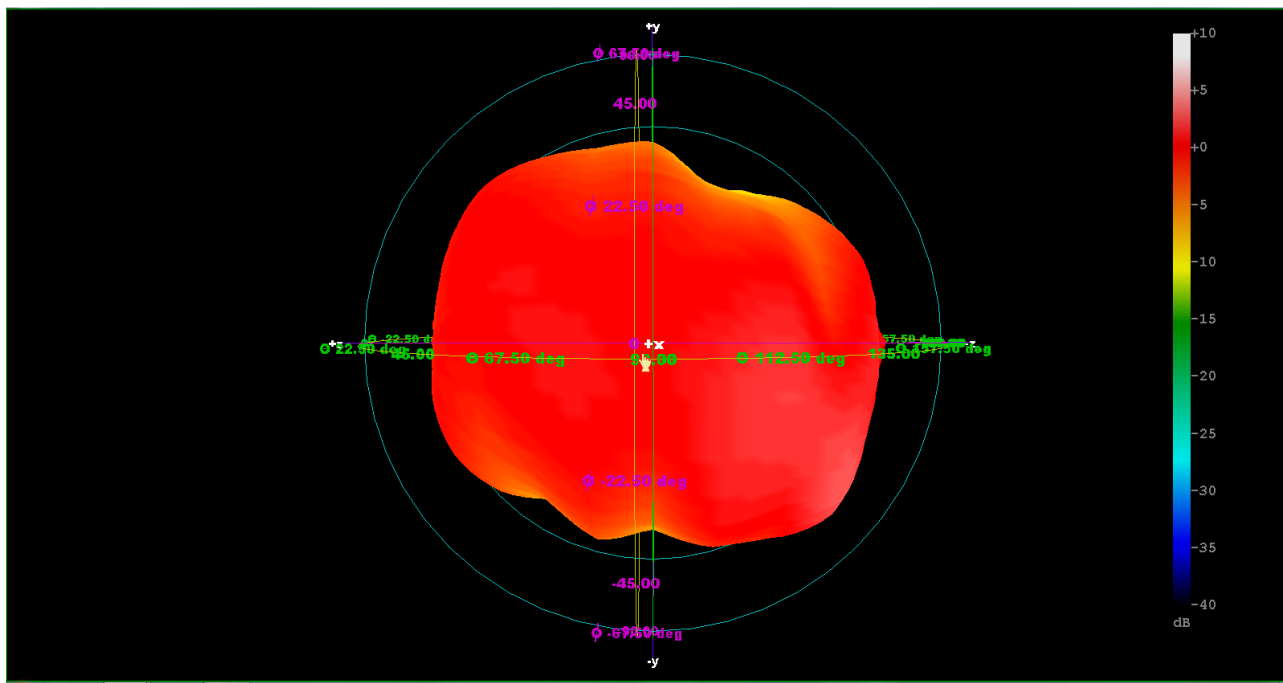


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@2460MHz

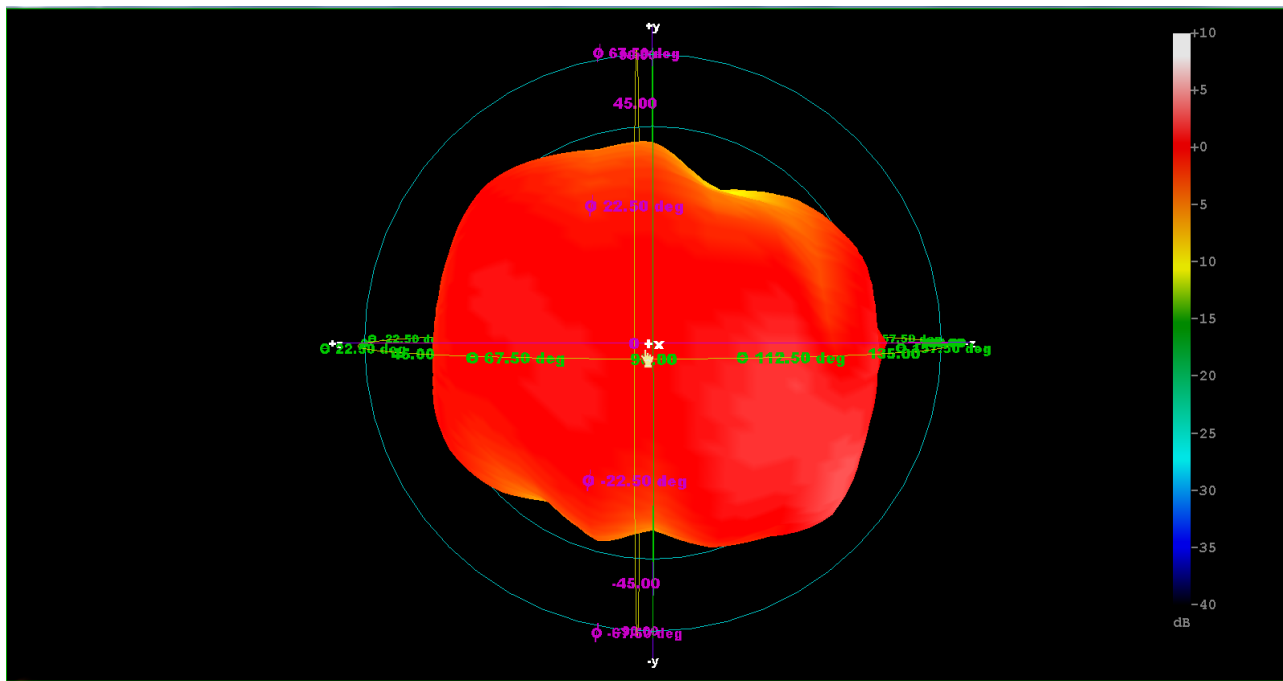


@2470MHz

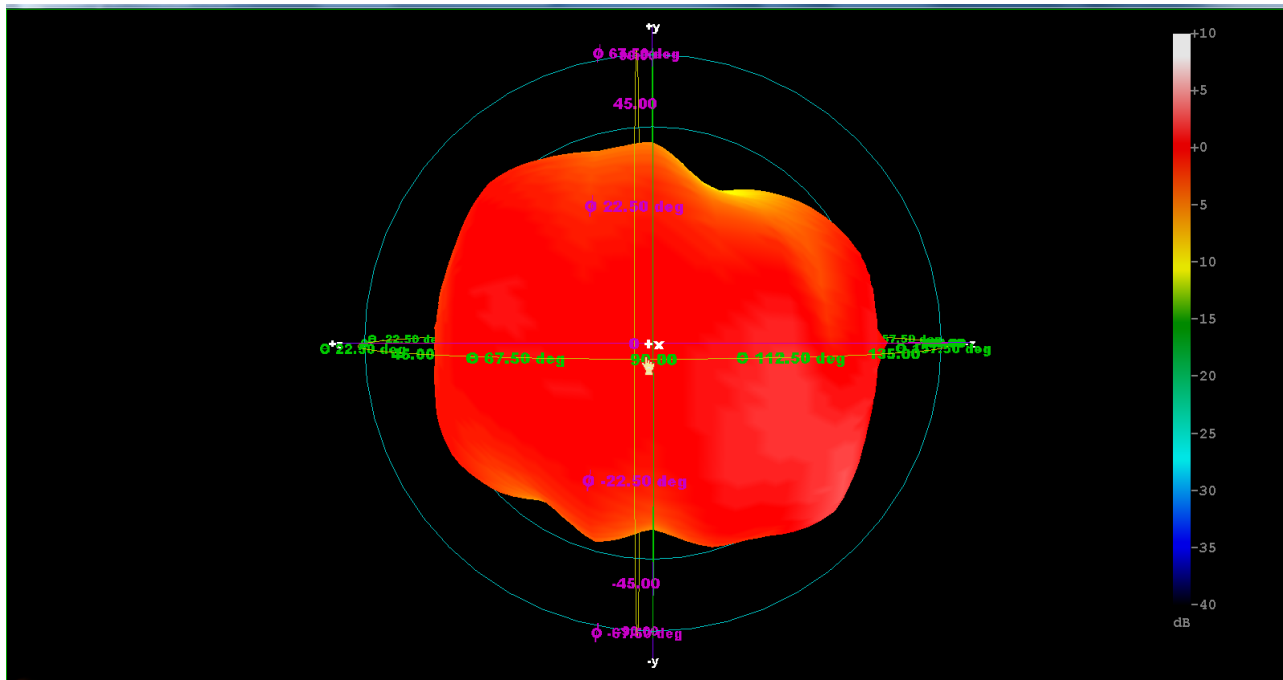


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@2480MHz

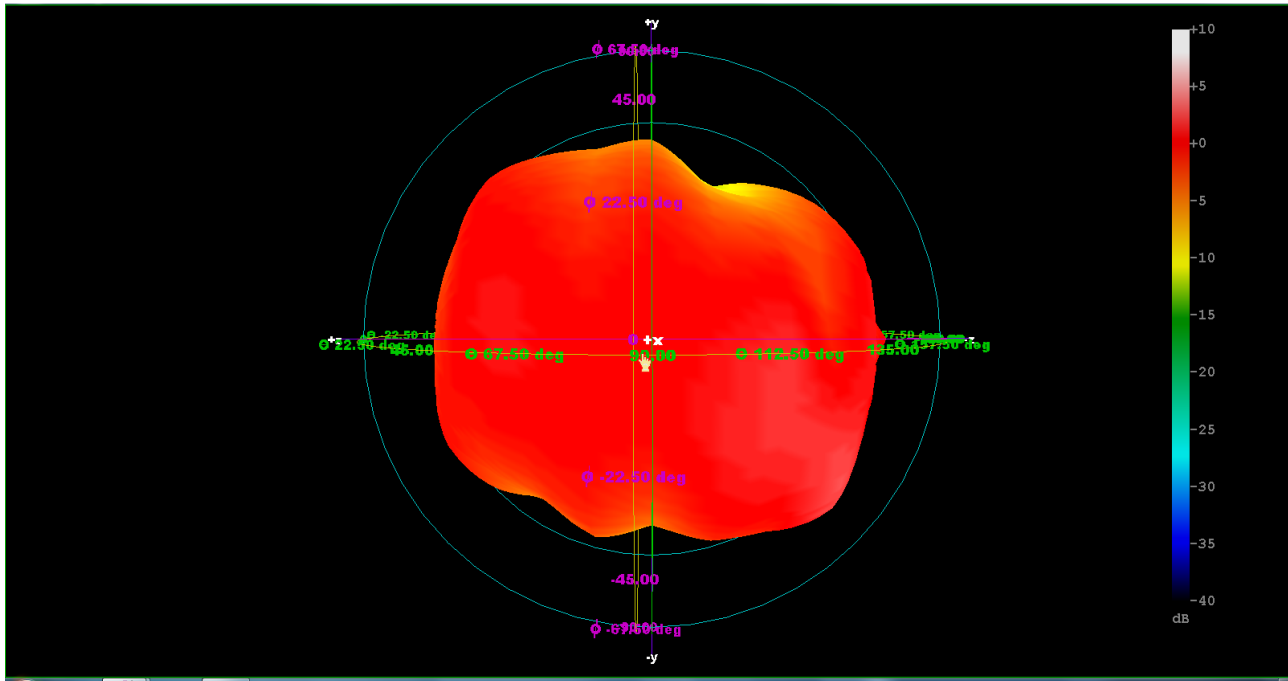


@2490MHz



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@2500MHz



3. Appendix

a. Antenna Datasheet:

<https://www.johansontechnology.com/antennas>

b. Johanson Chip RF Inductors:

<https://www.johansontechnology.com/ceramic-inductors>

c. Johanson Chip RF Capacitors (High-Q):

<https://www.johansontechnology.com/high-q-multi-layer-capacitors>

Printed Wednesday, September 14, 2022

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