



CUSTOM **ANTENNA** DESIGN & **RF** SOLUTIONS

BLINK
ORCHID

RF Passive Measurement DVT
2-19-2026

Purpose of Report: RF passive measurement of the Orchid antennas [DVT-Unit 2]

www.fieldtheoryinc.com

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Testing Conditions

Field Theory Setup

Test Conducted	Passive RF measurements of Orchid DVT Antennas with housing.
Equipment Used	3-meter anechoic antenna chamber equipped with a dual-pol quad-ridge horn receiver antenna and an EL-AZ positioner with laser positioner
Notes on DUT	Battery was installed, DSN: GSK5-7V01-6064-34EQ [UNIT 2]

Equipment	Manufacturer	Model No.	Serial No.	last Cal.	Due Date
Network Analyzer	Anritsu	MS46122B	2135304	7/10/2025	11/10/2026
Quad-Ridge Horn Antenna	ETS-Lindgreen	3164-10	217936	7/10/2025	11/10/2026
3 Meter Anechoic Chamber	Braden Shielding Systems	NA	F70331	NA	NA
RF Cable	ENS Microwave	S160-160-MKS-MKS	3042020	7/10/2025	11/10/2026
RF Cable	ENS Microwave	S160-120-MKS-MKS	12042018	7/10/2025	11/10/2026
RF Cable	ENS Microwave	EMC1-K1K1-72	1GVT4 19002201	7/10/2025	11/10/2026
RF Cable	ENS Microwave	EMC1-K1K1-72	1GVT4 19002202	7/10/2025	11/10/2026
RF Cable	ENS Microwave	EMC1-K1K1-216	1GVT4 19002202 001	7/10/2025	11/10/2026
RF Cable	ENS Microwave	EMC1-K1K1-216	1GVT4 19002202 002	7/10/2025	11/10/2026
DUT Positioner	DE LCC	D6025	NA	NA	NA
RF Switch	Mini-Circuits	RC-1SPDT-A18	1810010005	7/10/2025	11/10/2026

Testing Information

Field Theory Setup

Antenna Type	1. Low Frequency Range (LFR-US)-Stamped Metal-PiFa 2. WiFi Antenna-PCB Antenna-PiFa
Connector	SMA Pigtail
Model Name	Passive model in Free Space
Antenna Company	Field Theory Consulting Inc.
Address	1029 Butterfield Road, Vernon Hills, IL 60061
Person	Zabed Iqbal
Commercial Test Software	Antenna Measurement System
Polarization	Linear

Test Procedure:

Test Conditions
 Results were collected from a passive antenna measurement within a 5-meter fully anechoic antenna chamber equipped with a dual-pol quad-ridged horn receiver antenna and an EL-AZ positioner with laser positioner.

Test Conducted	Passive
DUT SN/PN	Prototype units

Formula & Calculations
 Gain: $G_{AUT} = \frac{[S_{21}^2]}{[G_{REF}]} (\frac{\lambda}{4\pi d})^{-2}$
 Efficiency: $\epsilon = \frac{\pi}{2NM} \sum_n \sum_m \frac{S_{11}^2(\theta_n, \phi_n)}{P_t G_t} Cos(\phi_n)$

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Summary

Orchid DVT

	Frequency(GHz)	Efficiency(%)	Peak Gain(dBi)
900 MHz	0.902 GHz	54.0%	0.70 dBi
	0.915 GHz	60.0%	1.20 dBi
	0.928 GHz	59.1%	1.20 dBi
Wifi LPF	2.4 GHz	64.0%	3.20 dBi
	2.44 GHz	61.2%	3.30 dBi
	2.48 GHz	56.7%	2.80 dBi

GSK5-7V01-6064-34EQ [Unit 2]



FULLY ANECHOIC 3 METER
ANTENNA CHAMBER

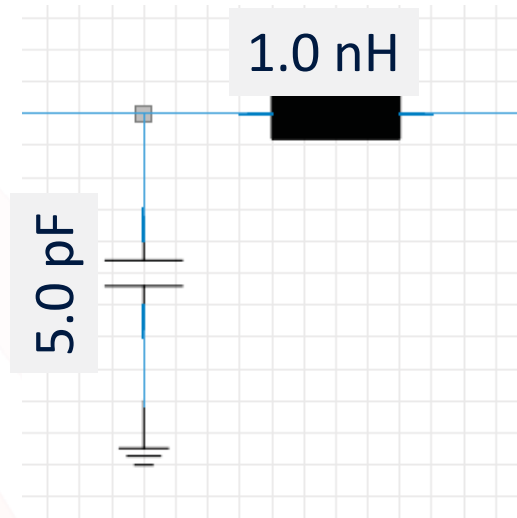
Orchid 900 MHz Antenna

Unit 2

[GSK5-7V01-6064-34EQ]

LPF Matching

Orchid 900 MHz antenna



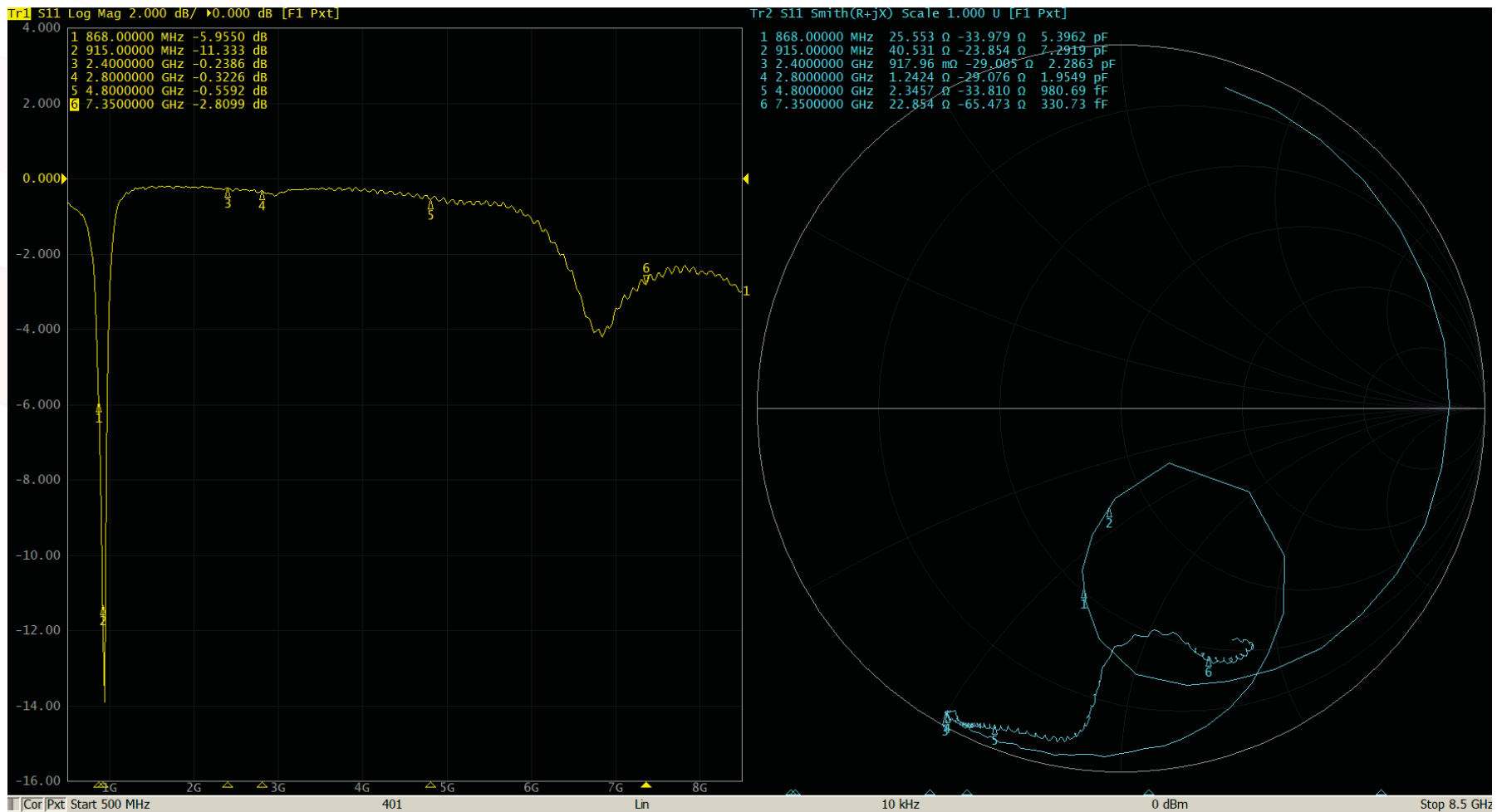
Antenna side

Matching values are same as EVT unit.

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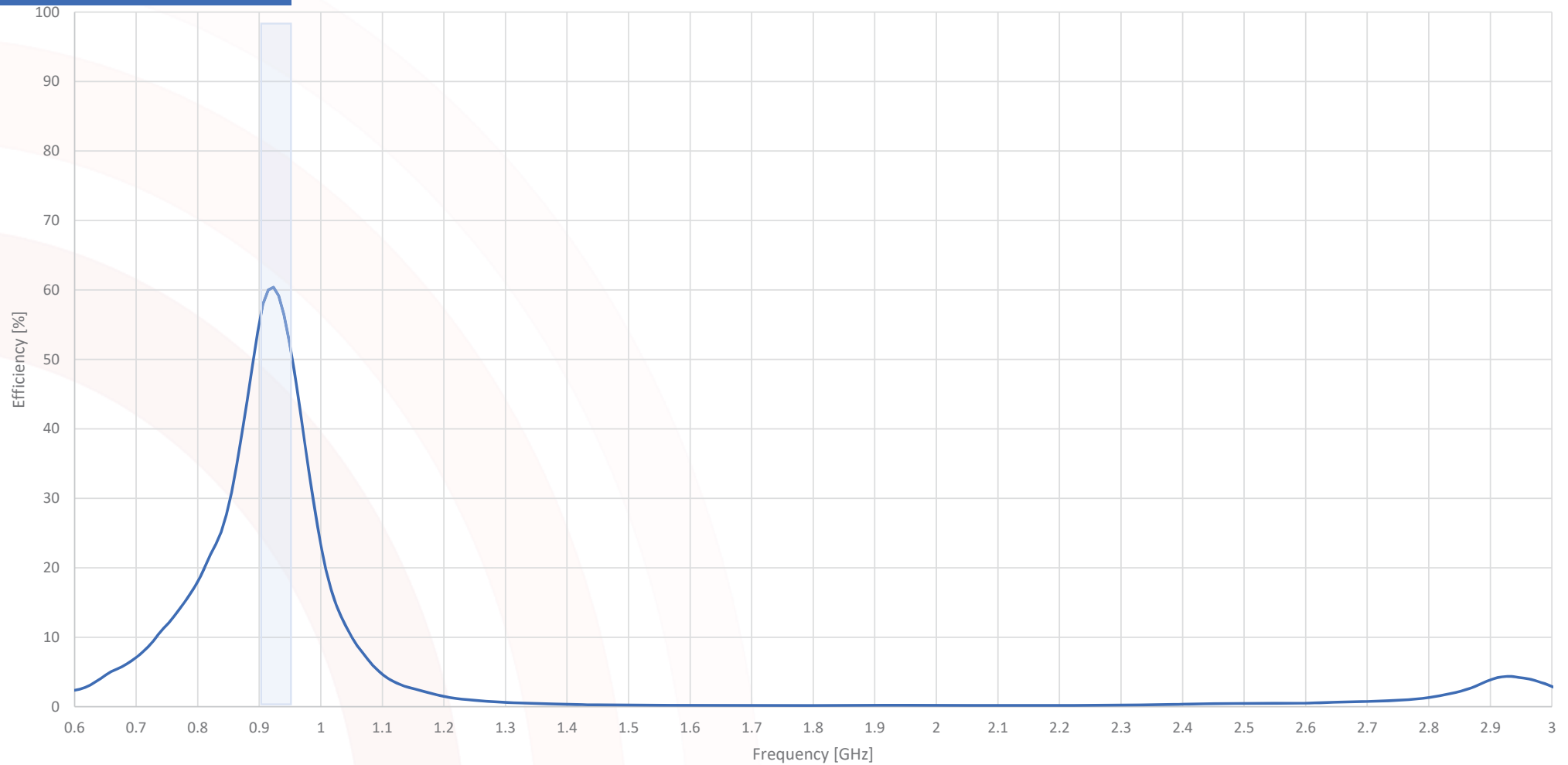
S-parameter

900 MHz antenna DVT



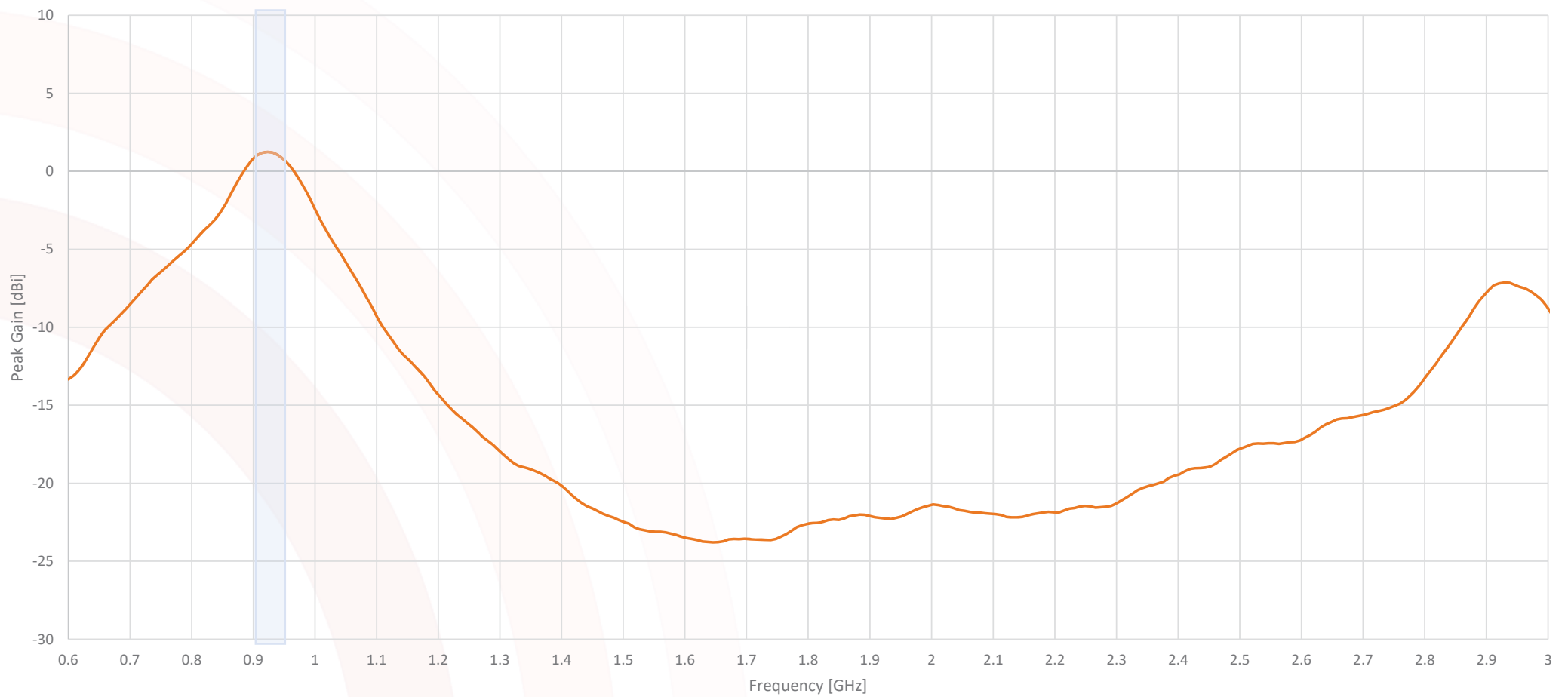
Passive Efficiency

Orchid 900 MHz Antenna



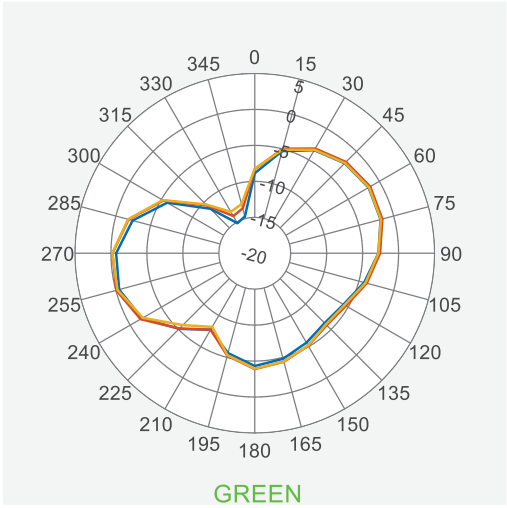
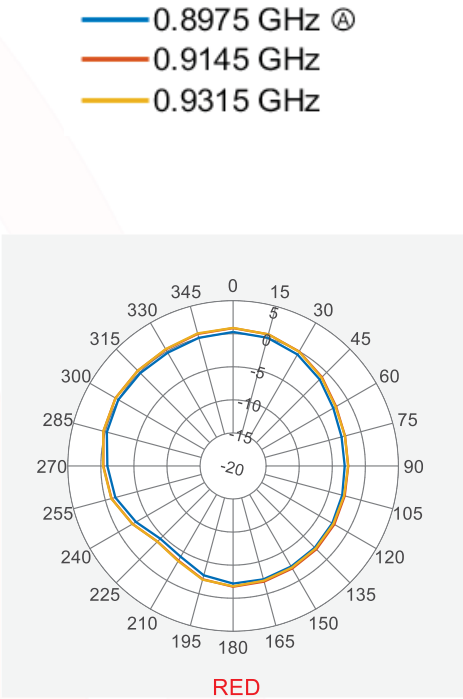
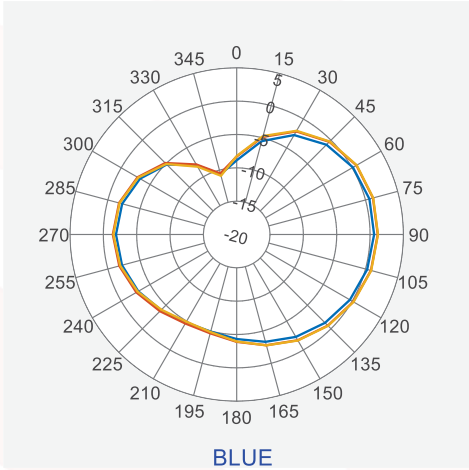
Peak Gain

Orchid 900 MHz Antenna



1D Radiation Patterns

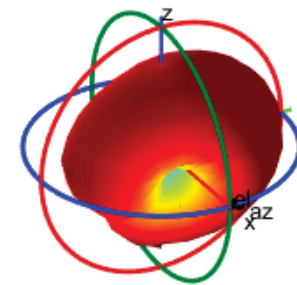
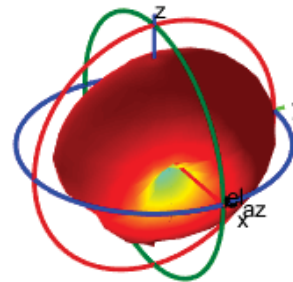
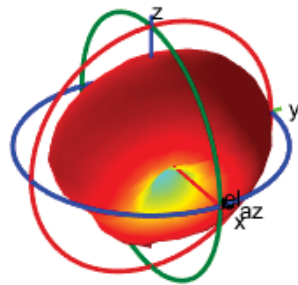
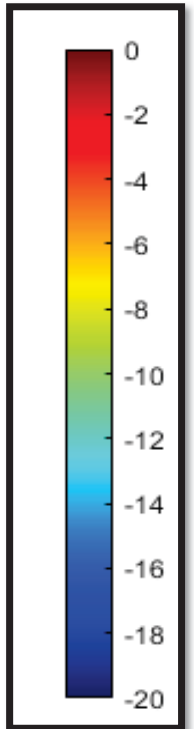
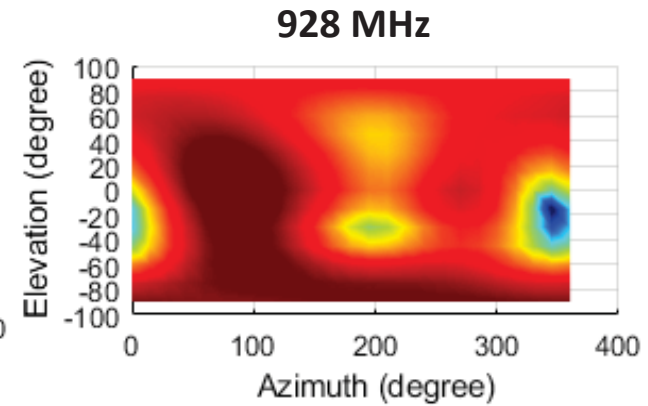
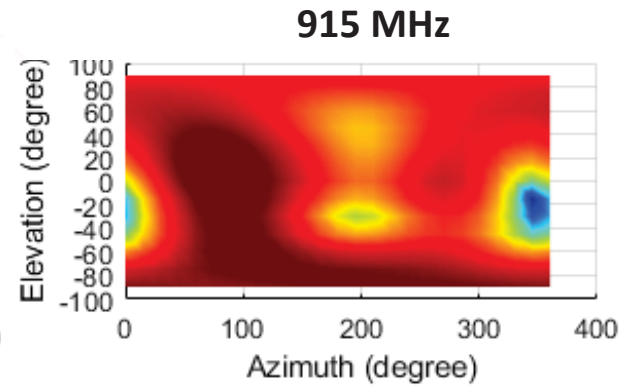
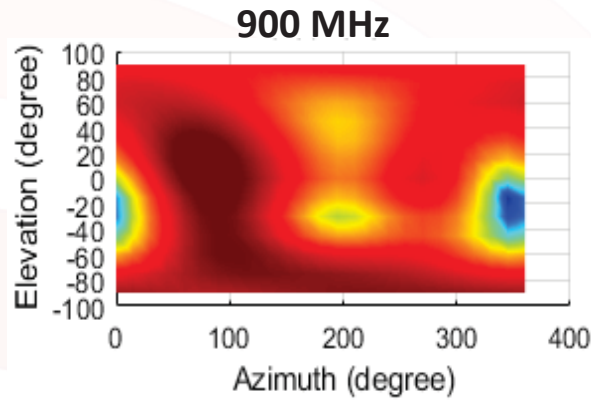
Orchid 900 MHz Antenna



— 0.8975 GHz Ⓐ
— 0.9145 GHz
— 0.9315 GHz

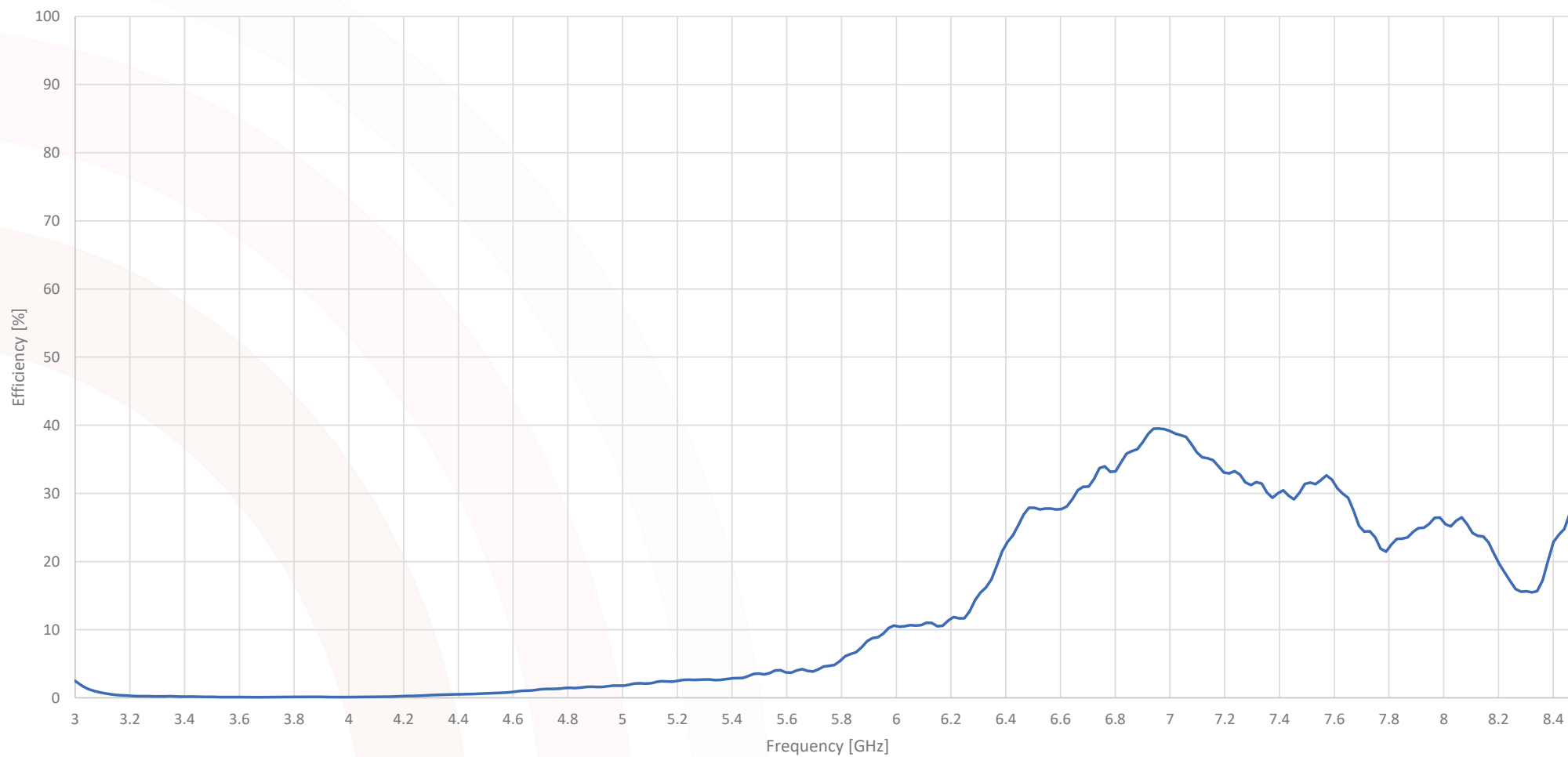
2D Heat Map & 3D Spherical

Orchid 900 MHz Antenna



Passive Efficiency [up to 8.5 GHz]

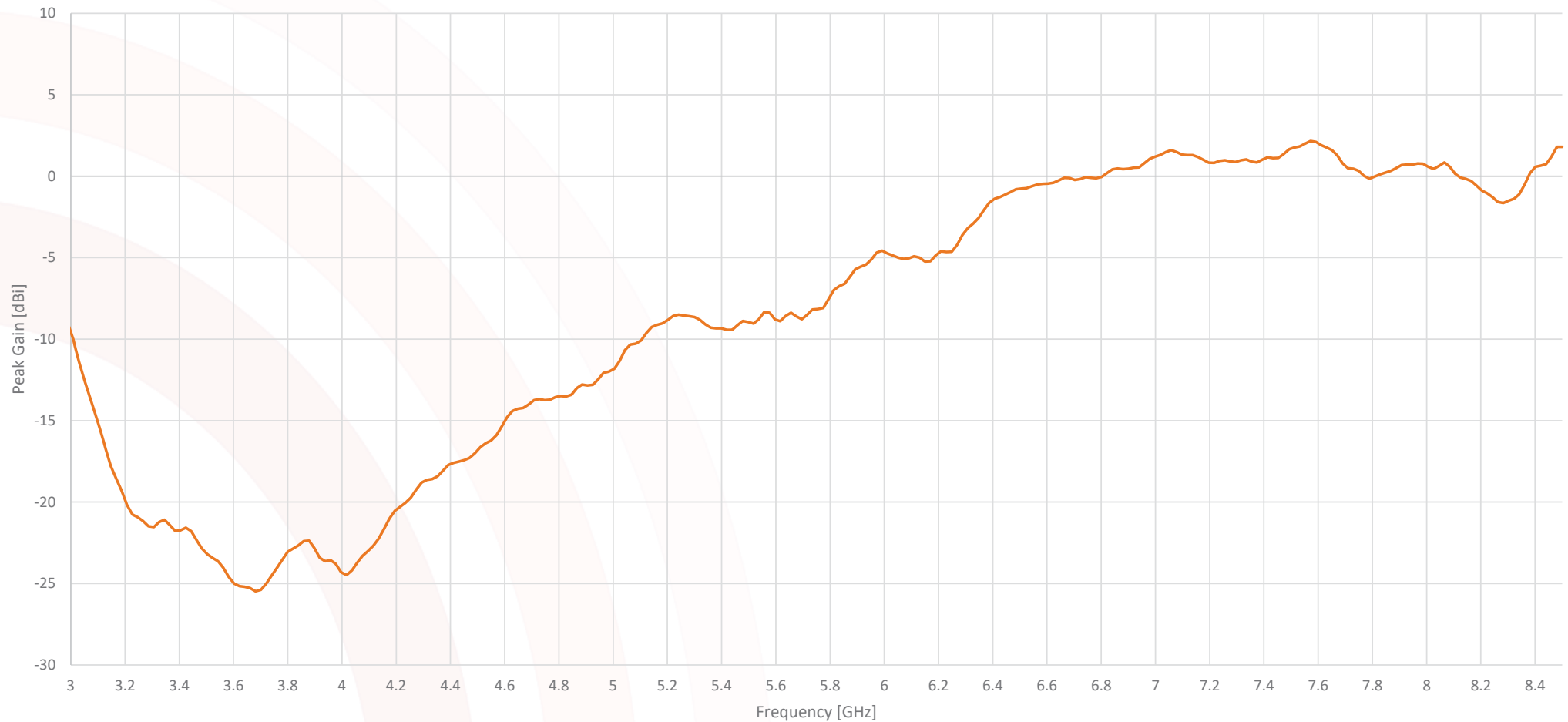
900 MHz Antenna



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Peak Gain [up to 8.5 GHz]

900 MHz Antenna



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FULLY ANECHOIC 3 METER
ANTENNA CHAMBER

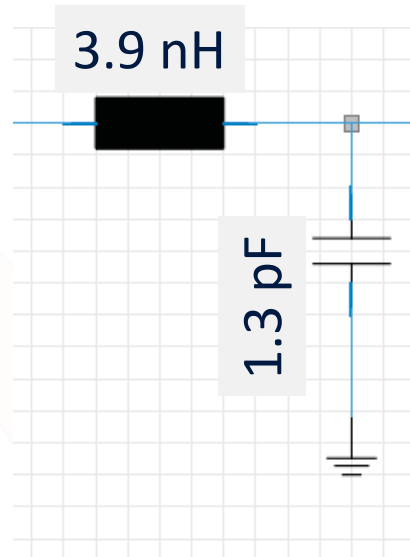
Orchid Wi-Fi Antenna

Unit 2

[GSK5-7V01-6064-34EQ]

LPF Matching

Orchid WiFi antenna



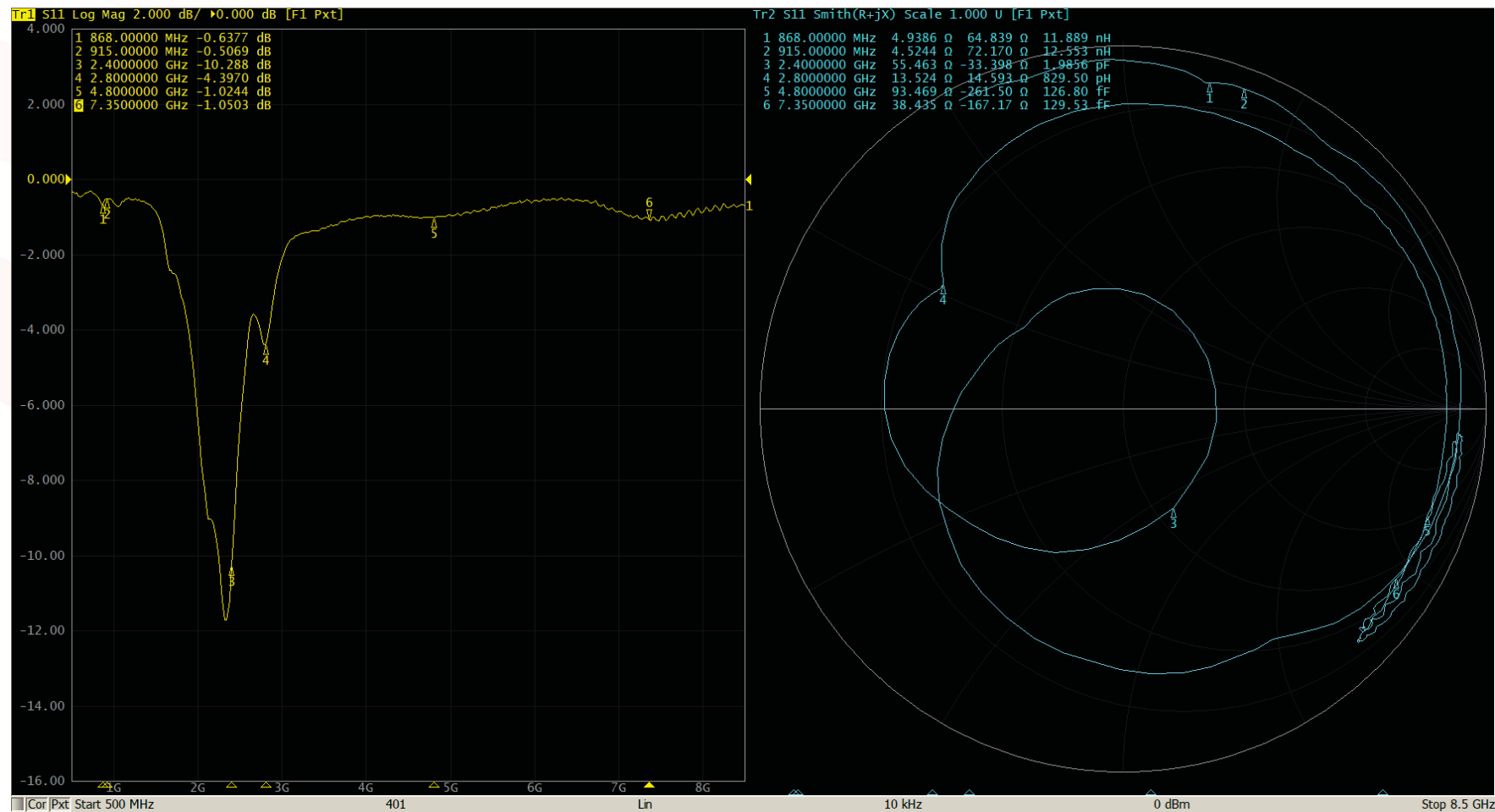
Antenna side

Matching values are same as EVT unit.

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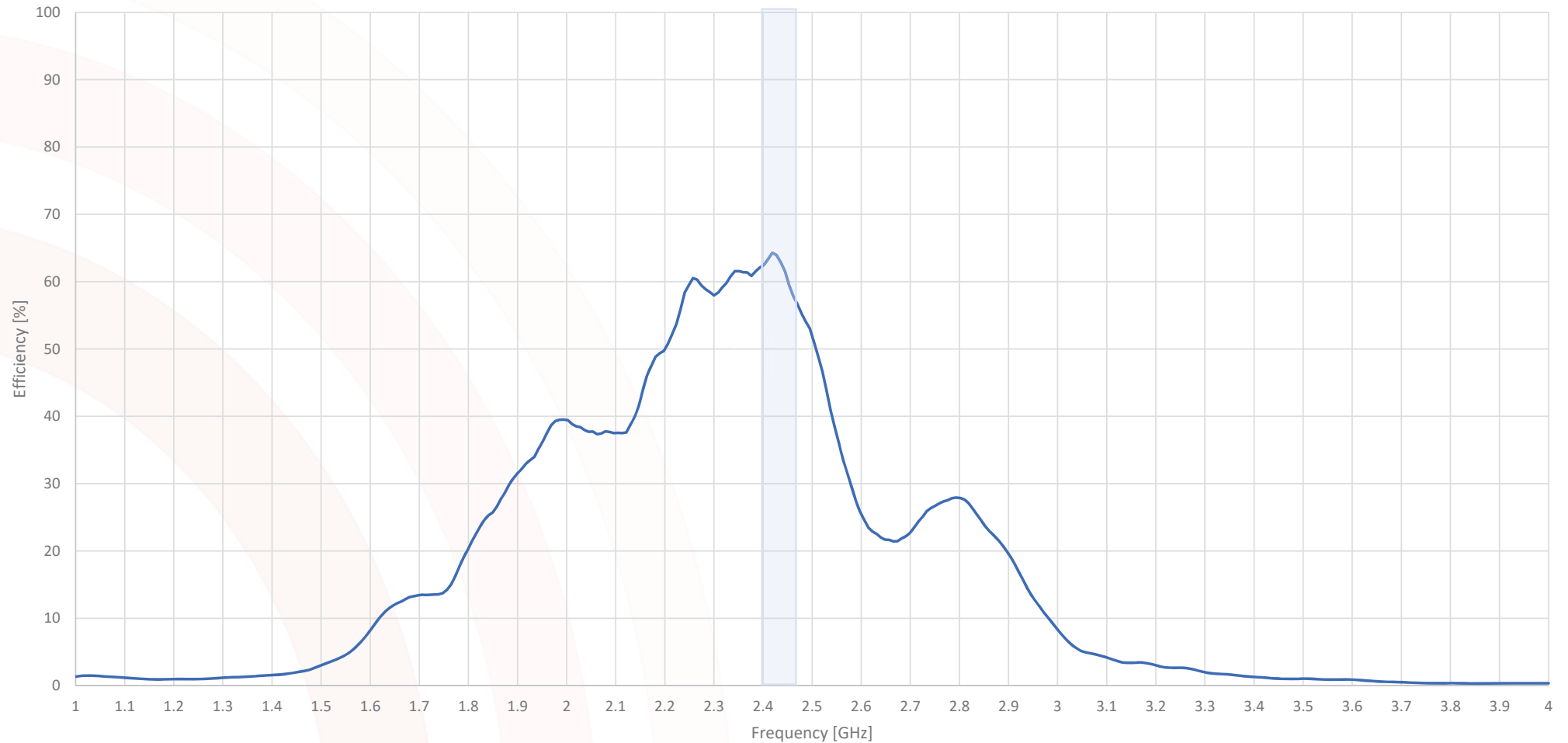
S-parameter

Wi-Fi Antenna



Passive Efficiency

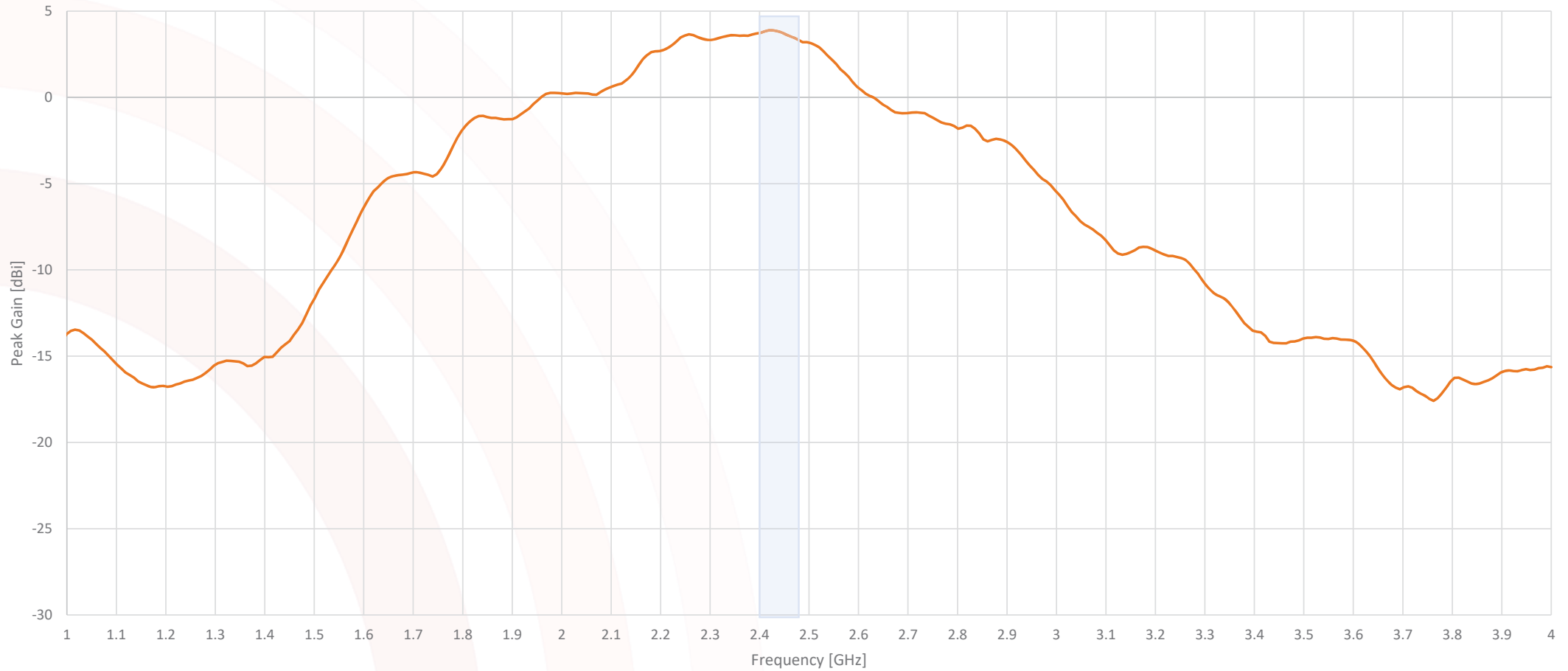
Orchid Wi-Fi Antenna



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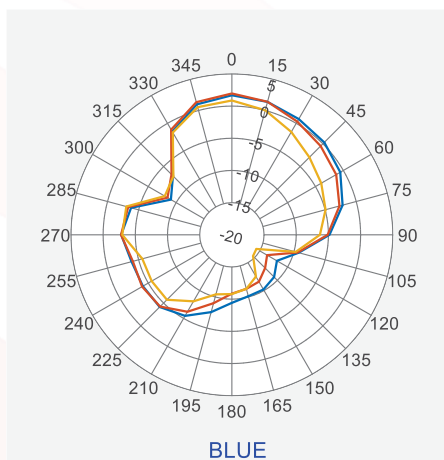
Peak Gain

Orchid Wi-Fi Antenna

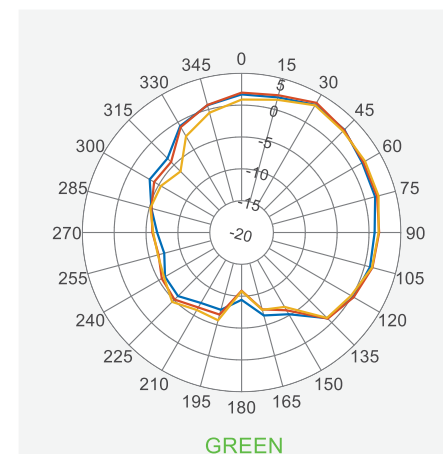
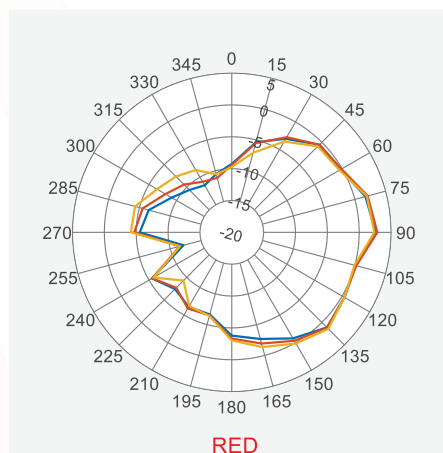


1D Radiation Patterns

Wi-Fi Antenna

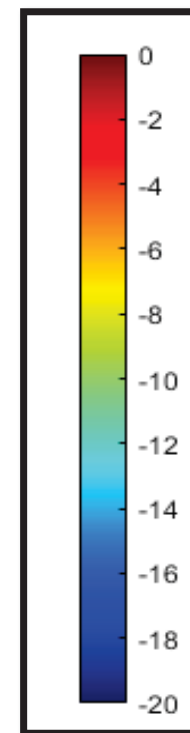
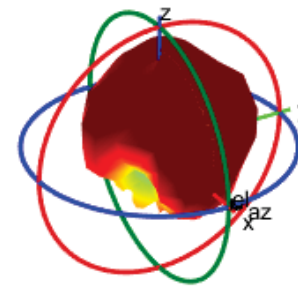
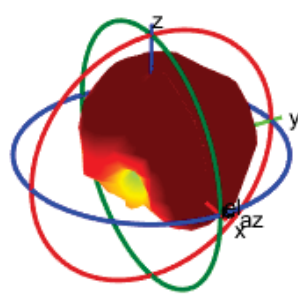
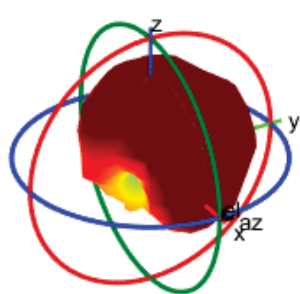
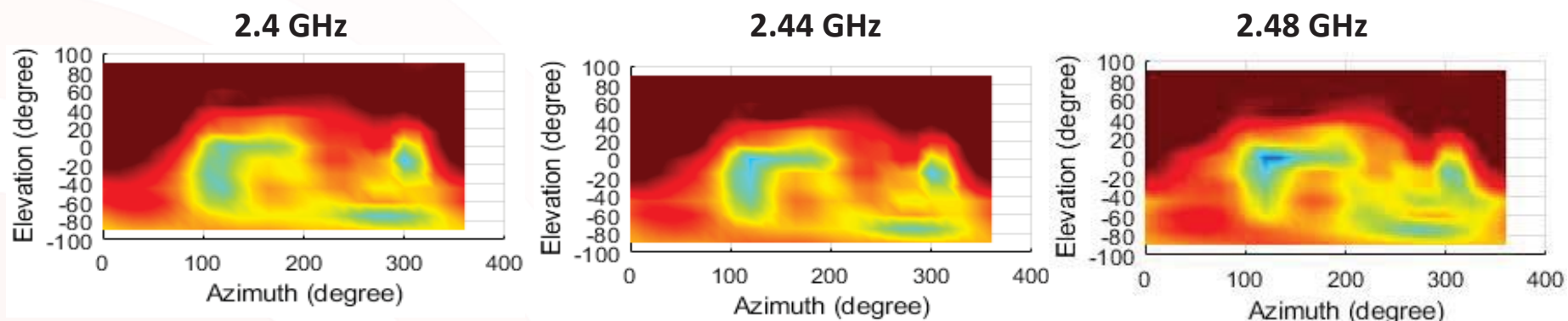


— 2.402 GHz Ⓐ
— 2.436 GHz
— 2.4785 GHz



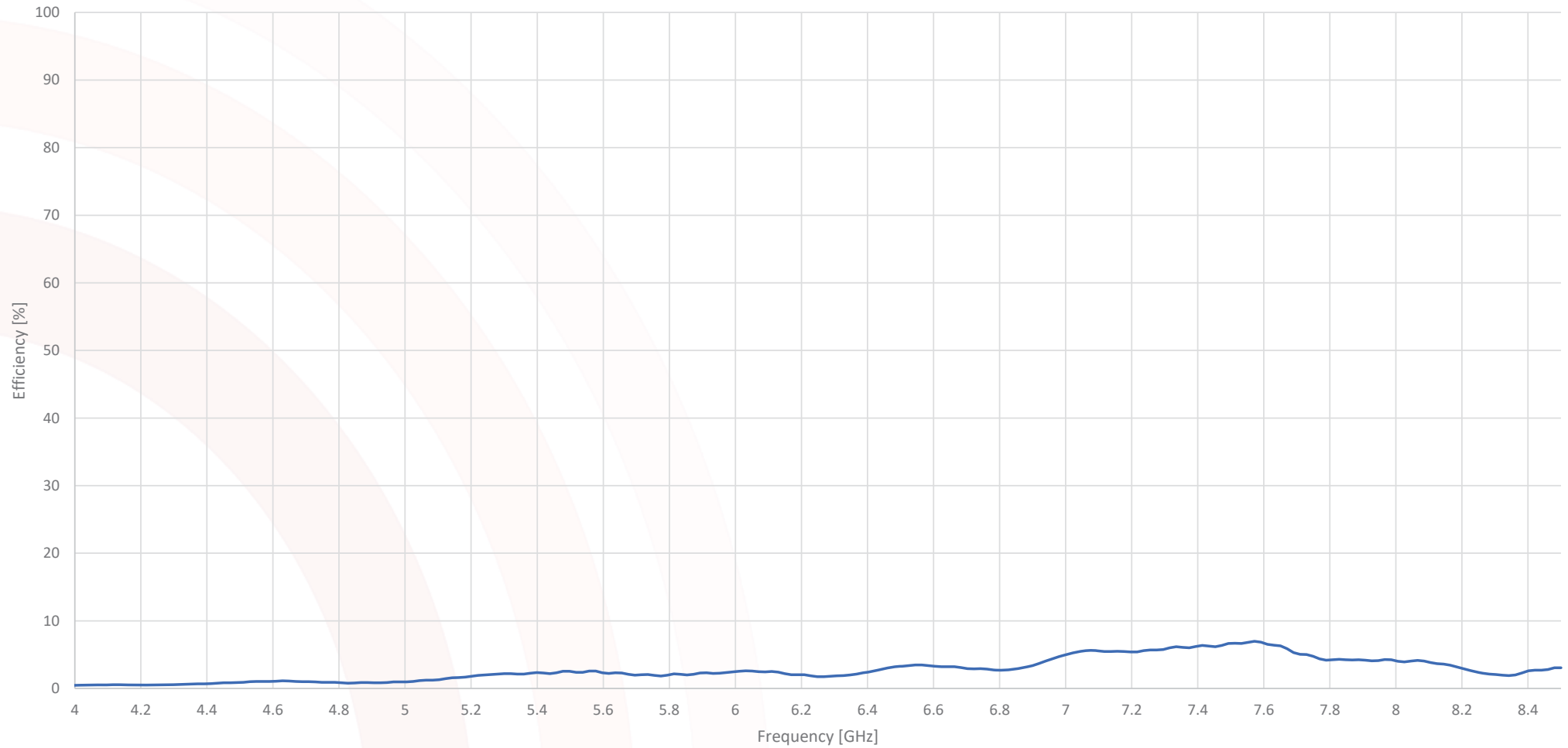
2D Heat Map & 3D Spherical

Wi-Fi Antenna



Passive Efficiency [up to 8.5 GHz]

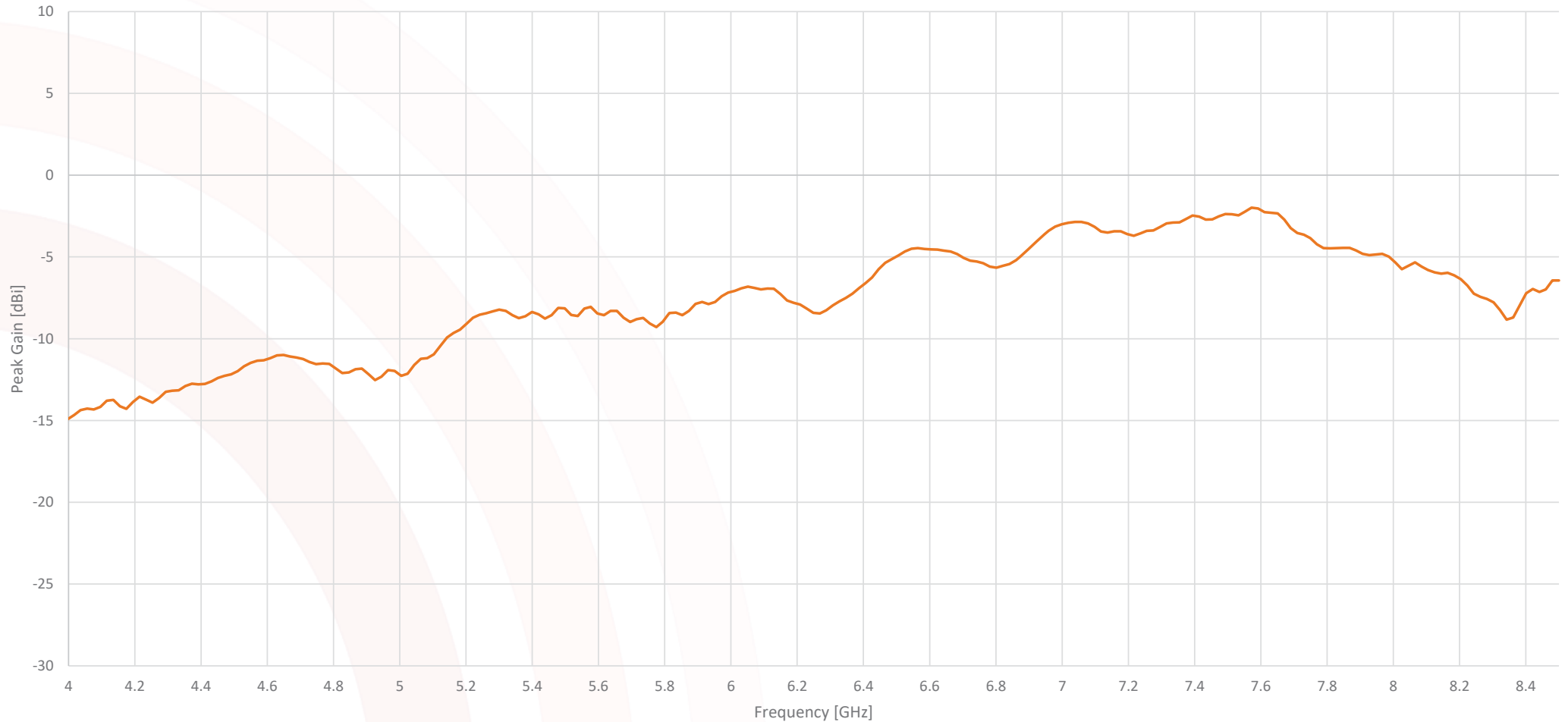
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Peak Gain [up to 8.5 GHz]

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Questions?

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