

Antenna

YC0018CA Datasheet

Antenna Services

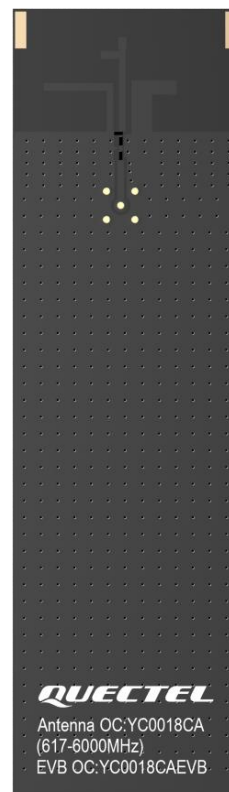
Version: 1.1

OC (Antenna Only): **YC0018CA**

OC (Antenna + EVB): **YC0018CAEVB**

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About the Document

Revision History

Version	Date	Author	Note
-	2022-12-13	Edison LIU/ Joye WANG/ Vinnie LIU	Creation of the document
1.0	2023-01-20	Edison LIU/ Joye WANG/ Vinnie LIU	First official release
1.1	2023-06-26	Joye WANG/ Vinnie LIU	Updated the drawing (Chapter 5).

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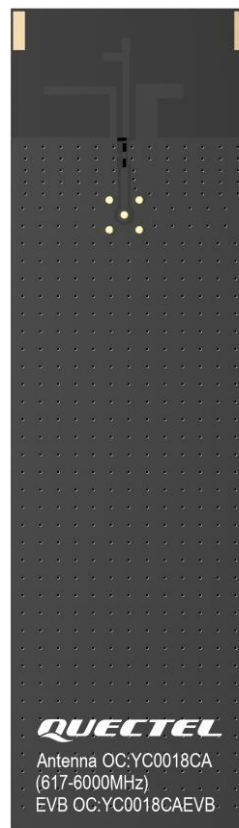
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1 Product Description

This Quectel embedded 5G SMD antenna covers 5G NR Sub-6 GHz frequency bands and is compatible with 4G/3G/2G/LPWA bands. Ground plane dependent, it's designed to be mounted directly to the device host PCB using a conventional PCB reflow process. Supplied tape and reel for high volume pick and place assembly, this SMD antenna can be tuned specifically for the final device environment with a simple PI matching circuit. Used with other 5G antennas, it can achieve MIMO (multiple input, multiple output) antenna technology for wireless communications in which multiple antennas are used at both the source (transmitter) and the destination (receiver).

2 Product Features

- 0.6-6G_ANT
- High efficiency
- Excellent performance



3 Product Specifications

Passive Electrical Specifications

Frequency Range	600–960 MHz; 1427–1707 MHz; 1710–2170 MHz; 2300–2700 MHz; 3300–5000 MHz; 5100–6000 MHz
Input Impedance	50 Ω
VSWR	≤ 3.36
Gain	≤ 5.52 dBi
Polarization Type	Linear

Detailed Passive Electrical Specifications

Frequency Range (MHz)	600–960	1176–1280	1427–1710	1710–2170	2170–2690	3300–4000	4000–5000	5000–6000
VSWR (Max.)	3.36	-	2.94	3.36	3.36	3.05	3.10	3.10
Average Efficiency (%)	47	-	55	53	64	67	62	61
Max. Peak Gain (dBi)	0.89	-	2.74	2.39	4.94	5.52	4.91	4.17

Mechanical Specifications

Antenna Size	40 × 7 × 3 mm
Material	FR4
Color	Black
Working Temperature	-40 °C to +85 °C
Mounting Type	SMD

EVB Mechanical Specifications

EVB Size	141 × 40.4 × 0.8 mm
Material & Color	FR4 & Black
Connector Type	SMA Female
Working Temperature	-40 °C to +85 °C
Mounting Type	Screw
Weight	Typ. 15 g

4 Overall Performance

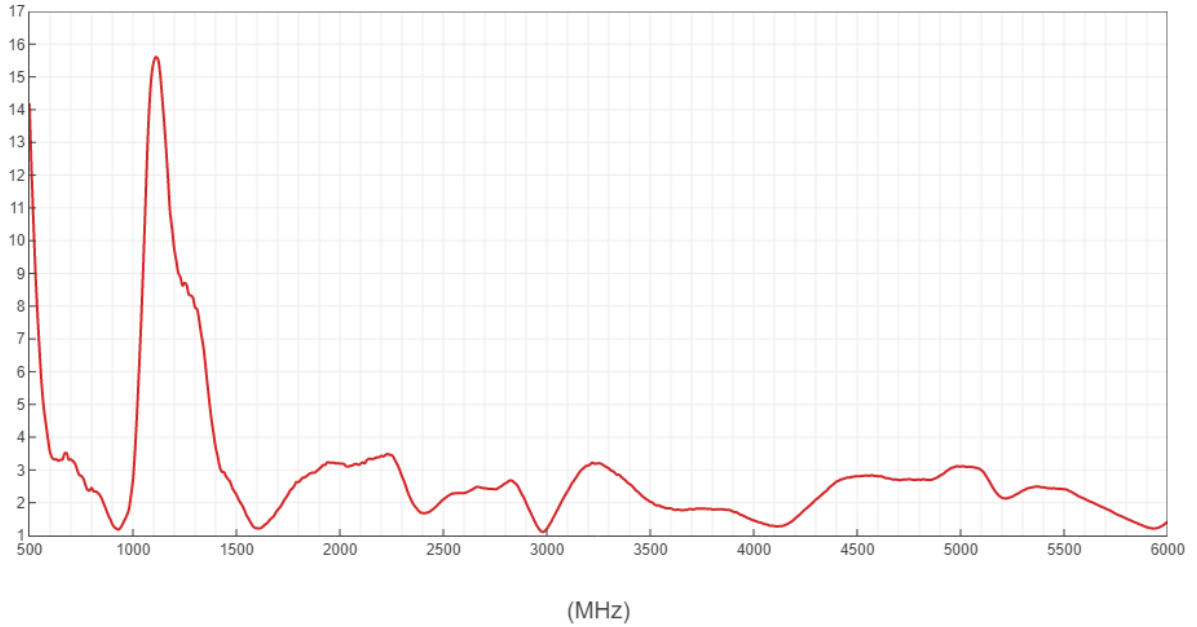
4.1. Test Environment

- KEYSIGHT ENA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 600 MHz – 8.5 GHz



4.2. VSWR

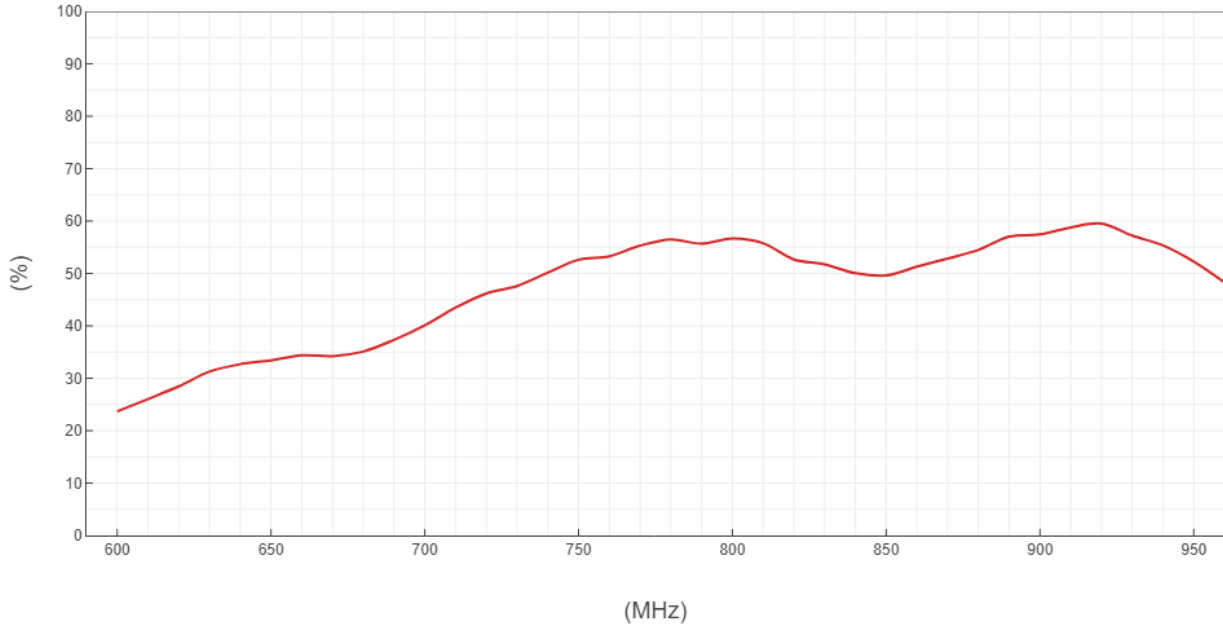
VSWR



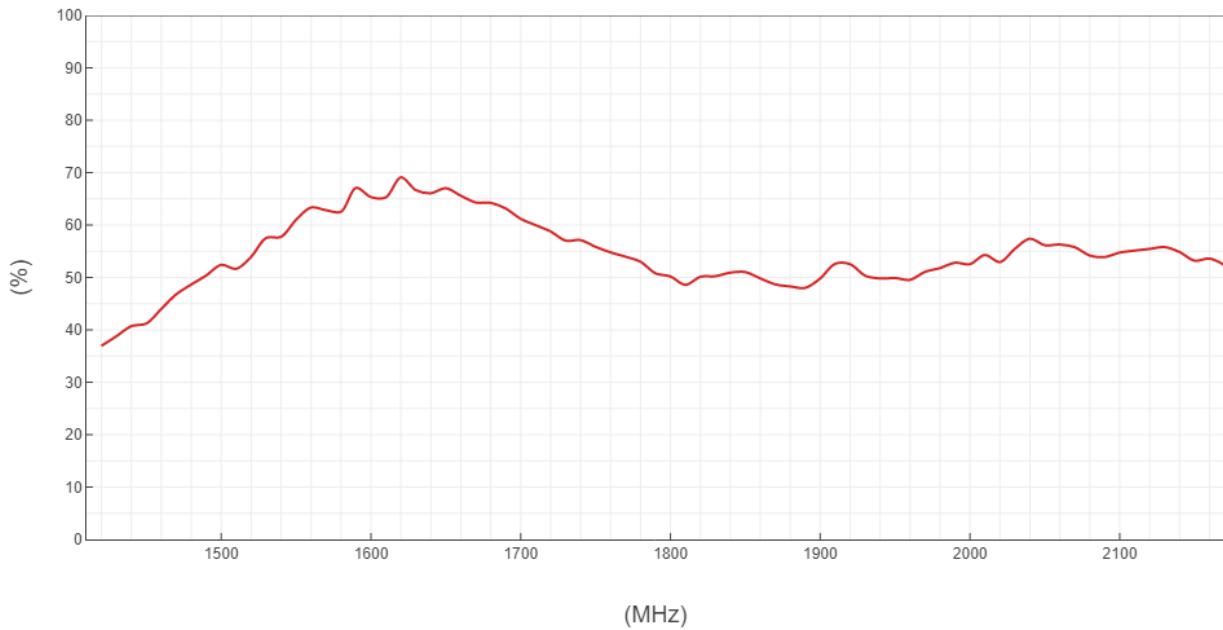
Frequency (MHz)	600	960	1420	1710	2170	2690	3300	4000	5000	6000
VSWR	3.28	1.47	3.07	1.85	3.36	2.45	3.08	1.54	3.12	1.42

4.3. Efficiency

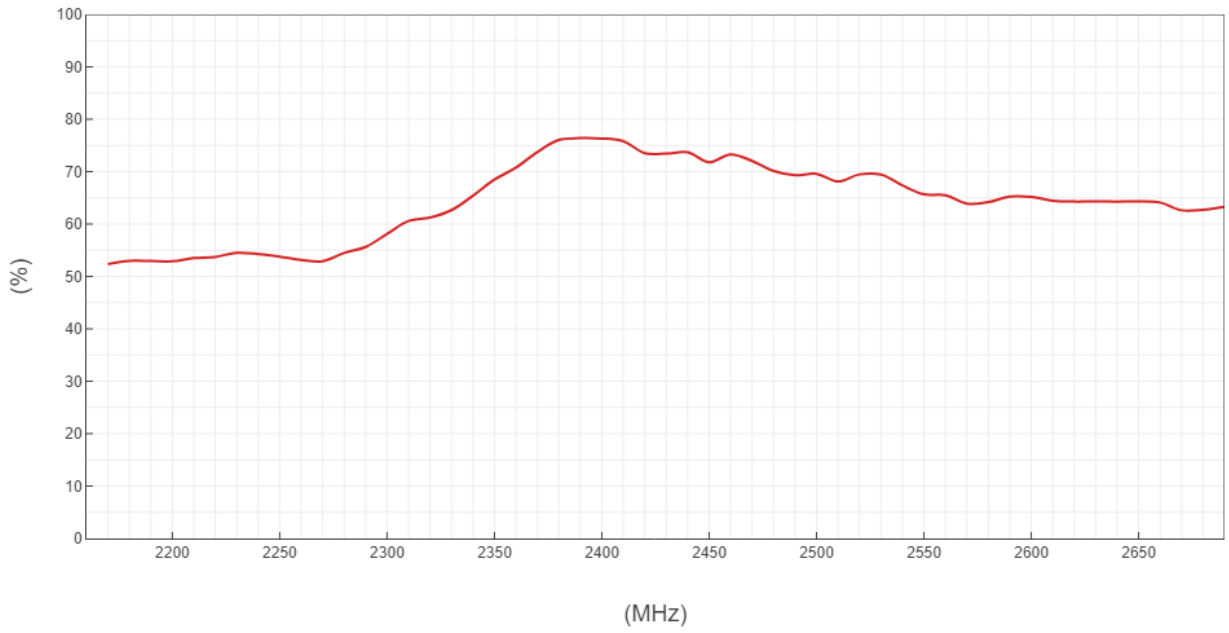
Efficiency



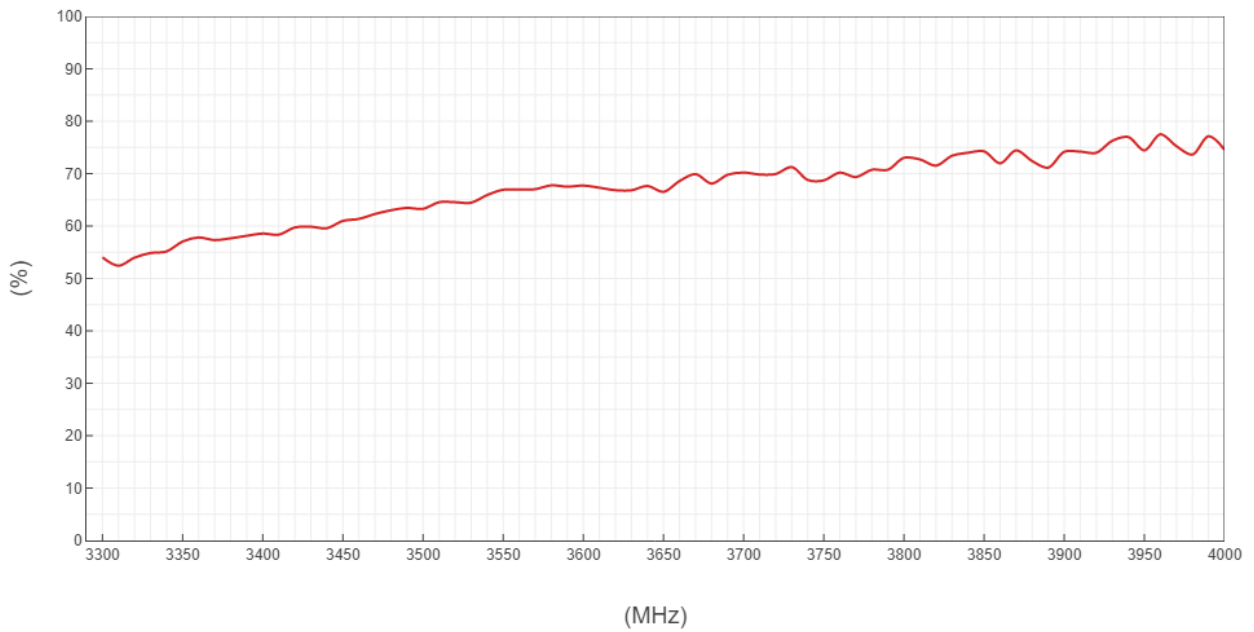
Efficiency



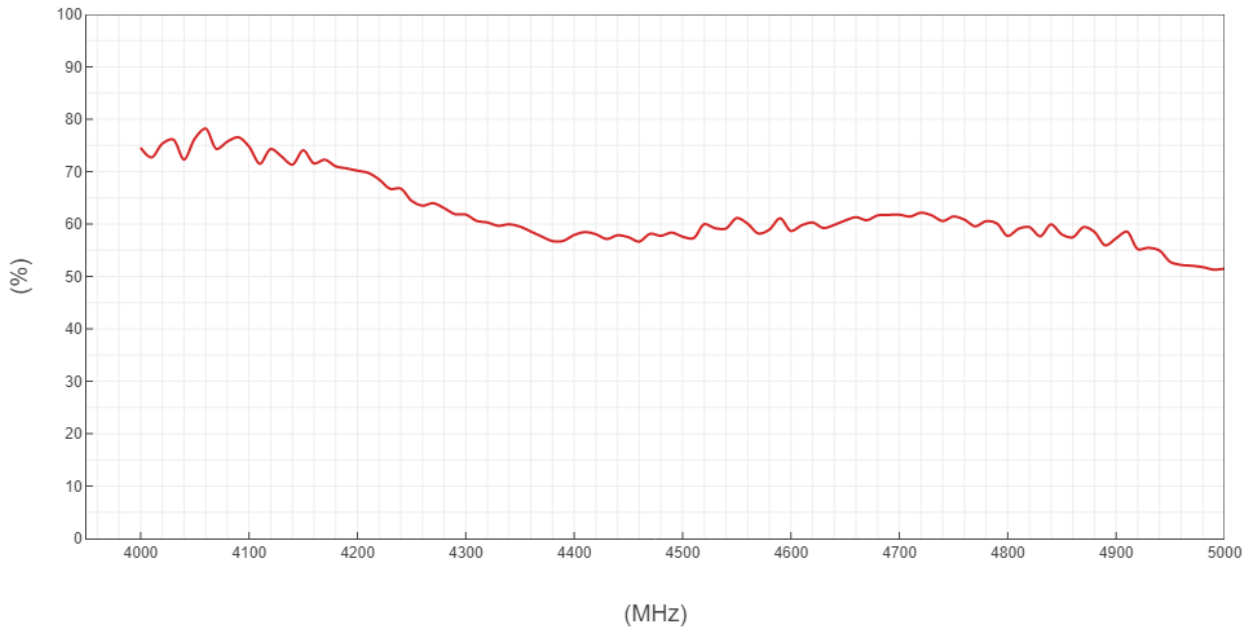
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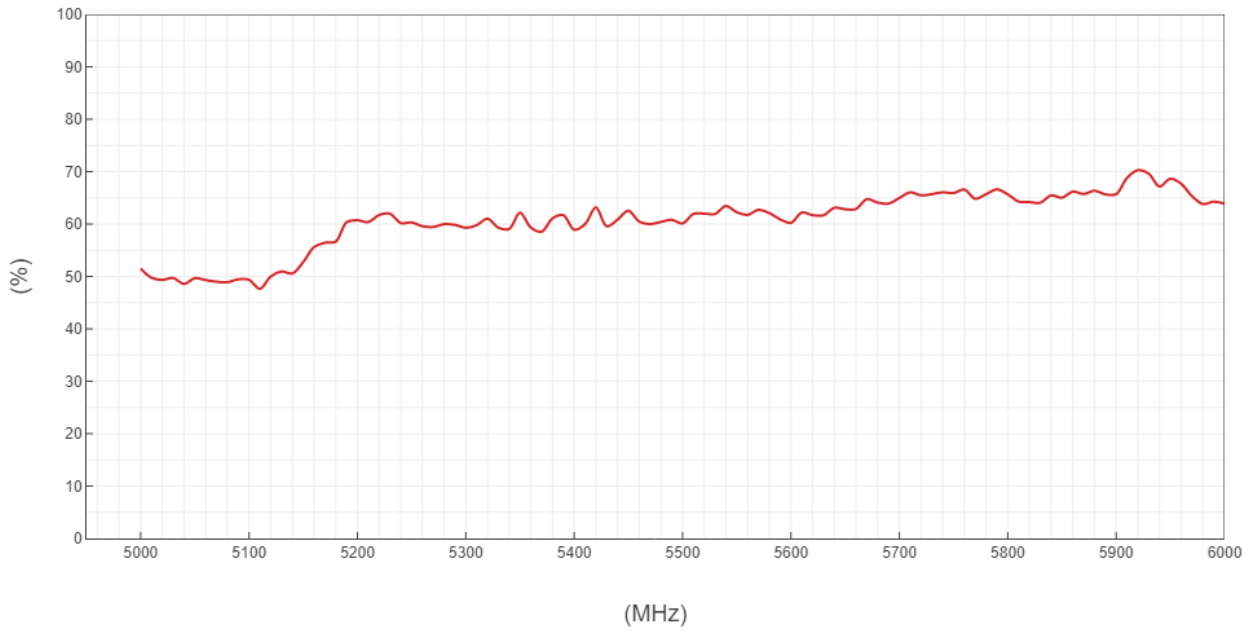
Efficiency



Efficiency



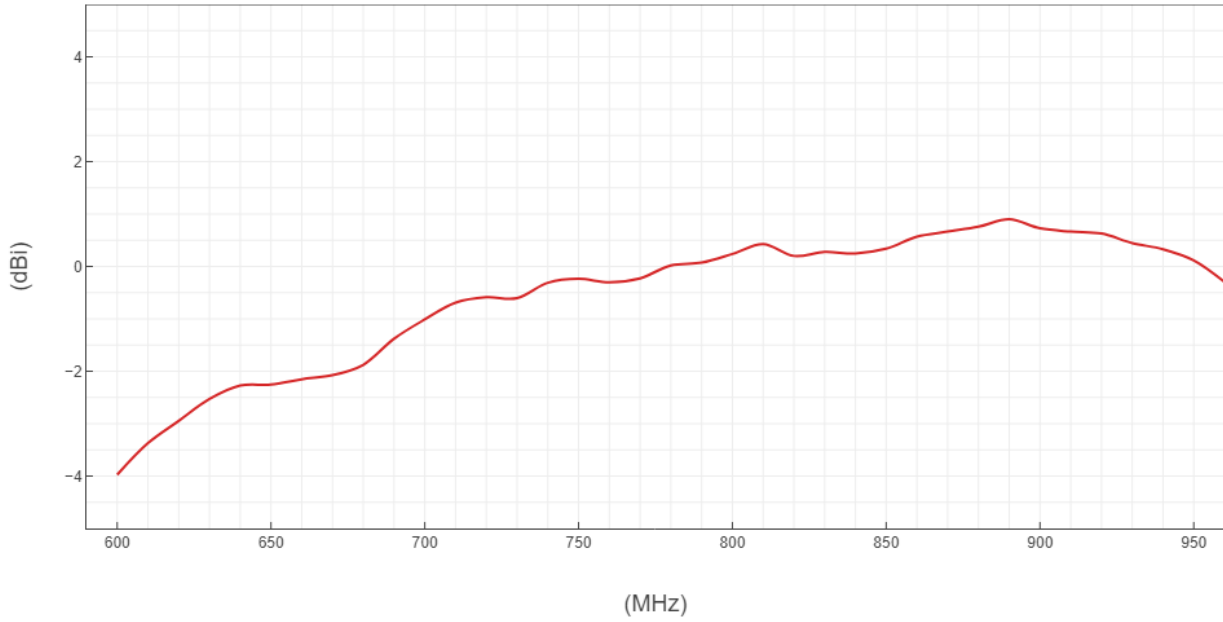
Efficiency



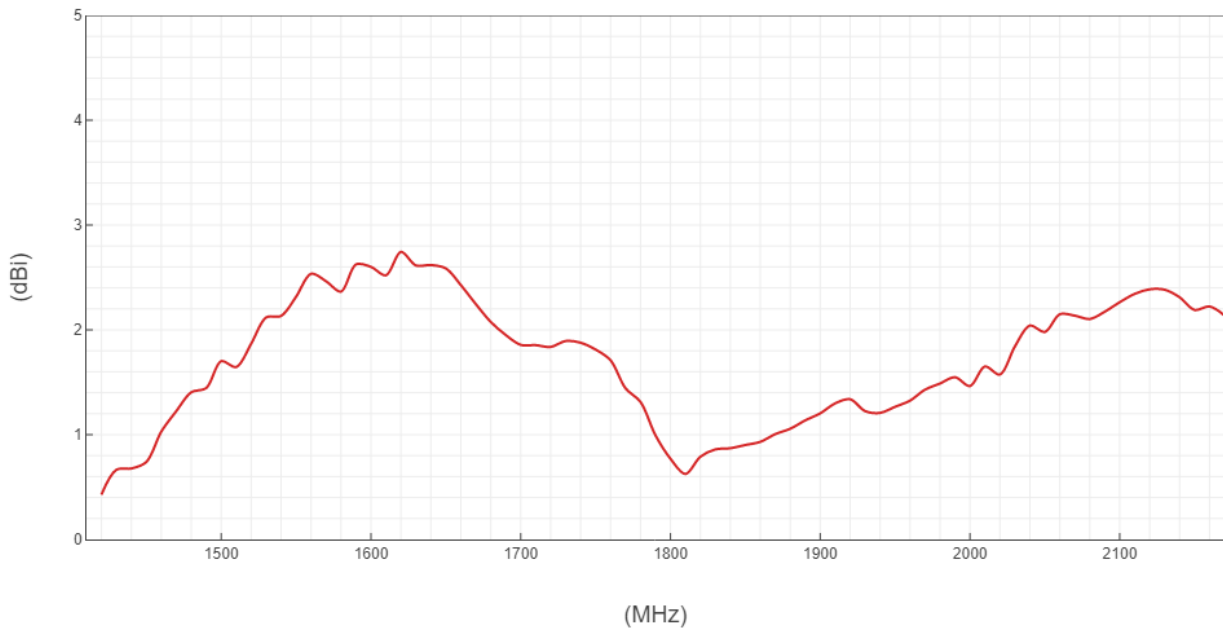
Frequency (MHz)	600	960	1420	1710	2170	2690	3300	4000	5000	6000
Efficiency (%)	24.73	48.28	36.43	59.97	52.34	63.28	54.85	74.83	51.49	63.89

4.4. Gain

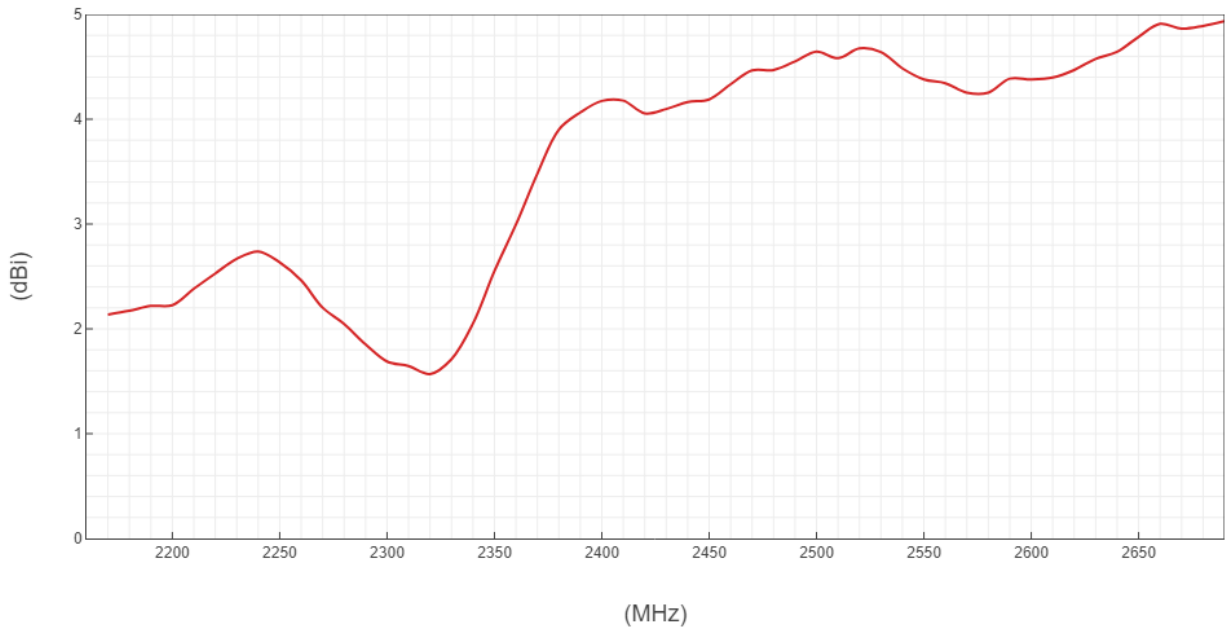
Peak Gain



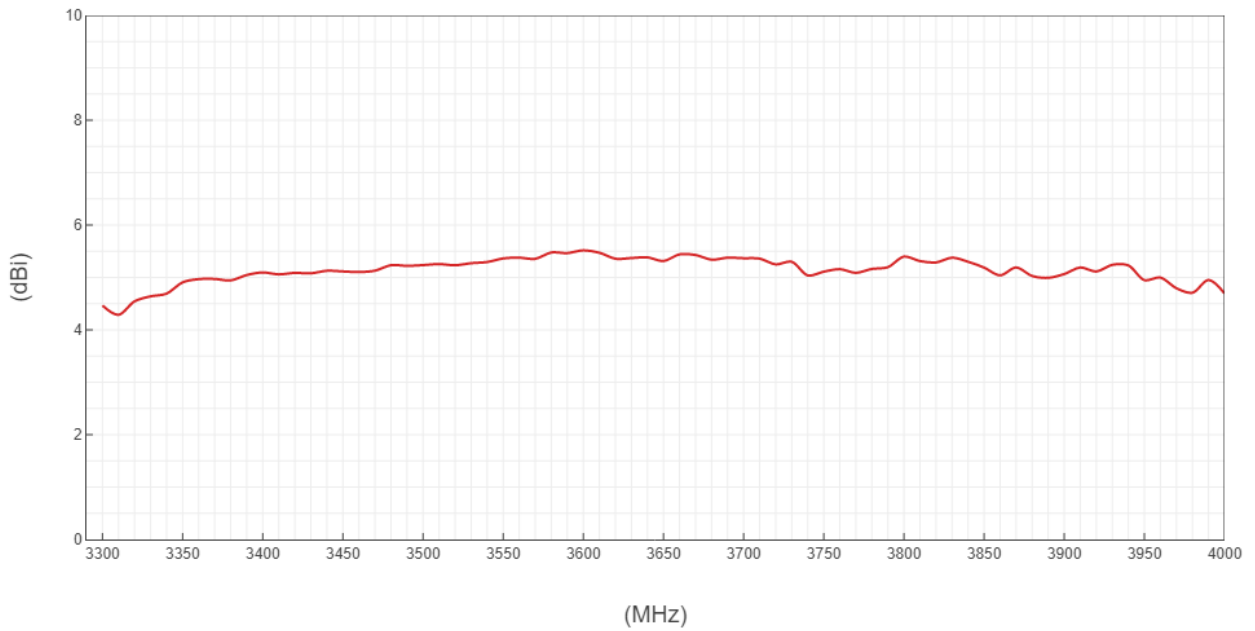
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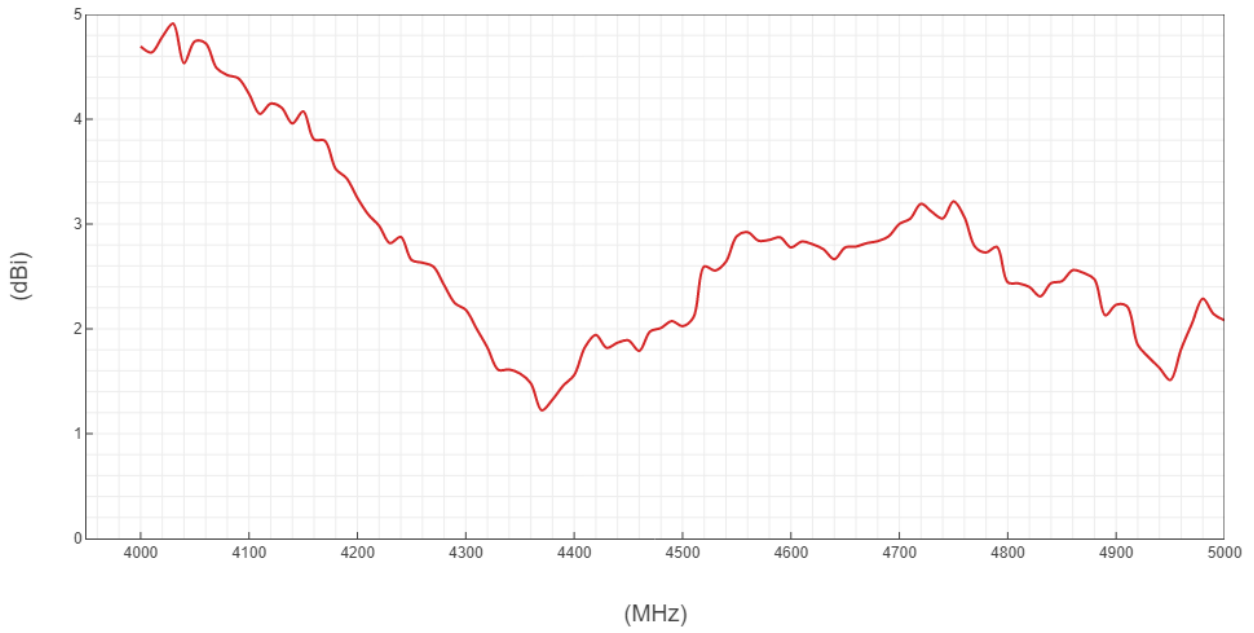
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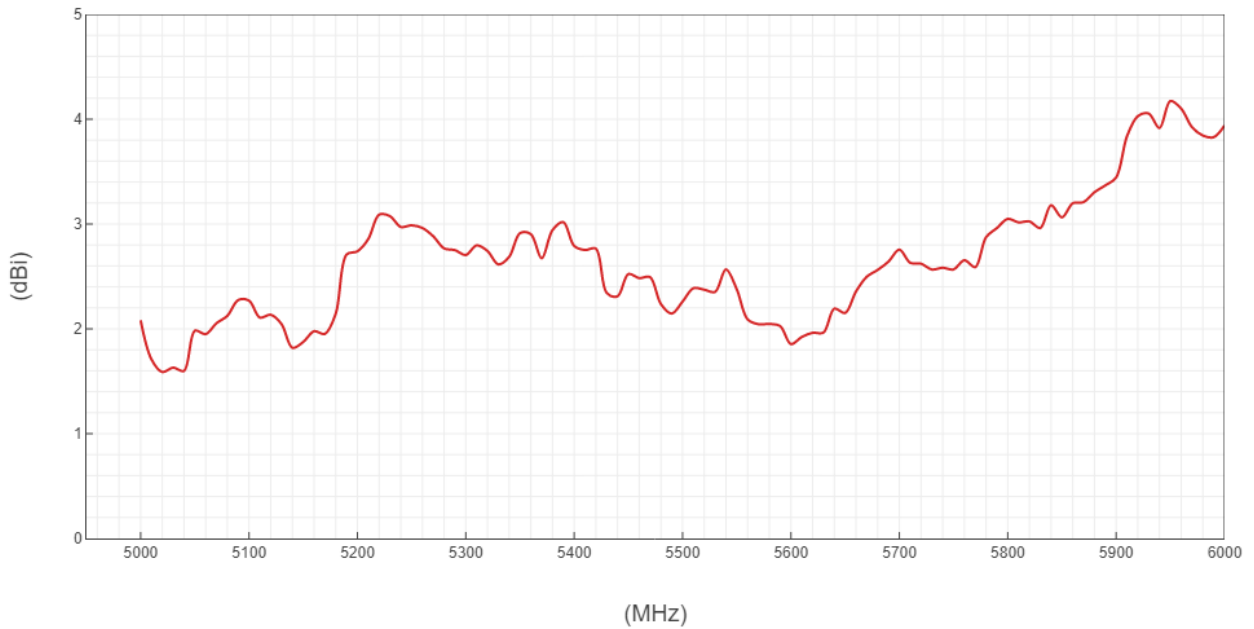
Peak Gain



Peak Gain



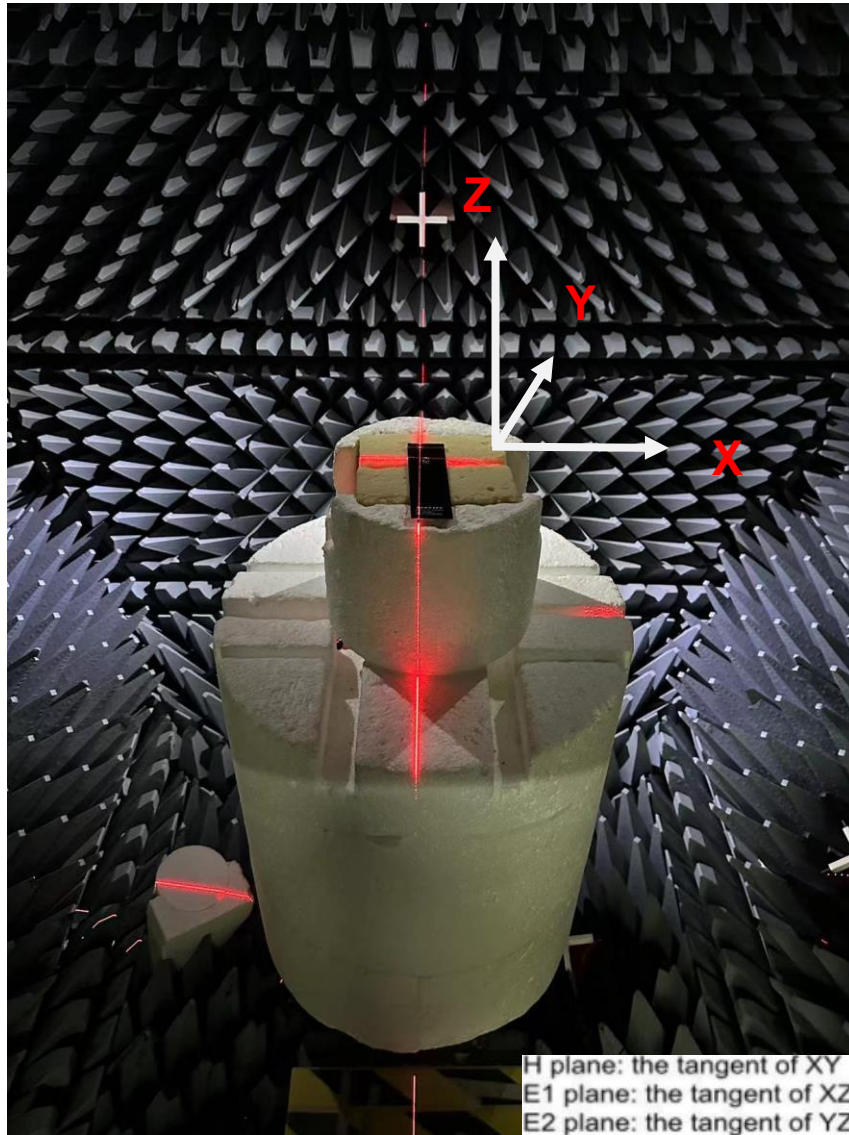
Peak Gain

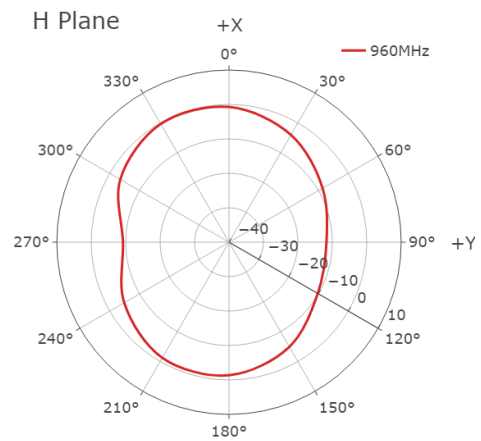
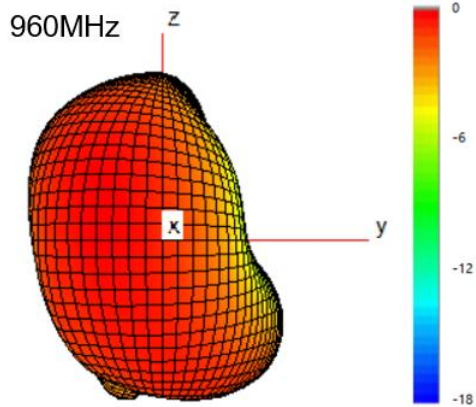
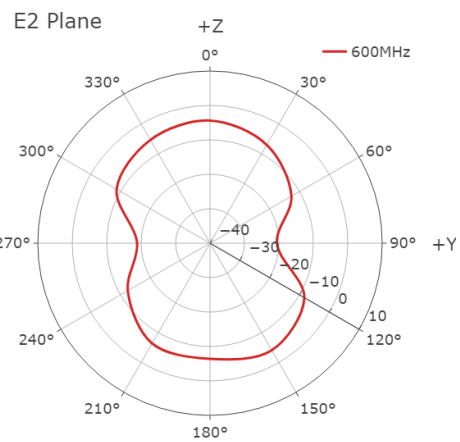
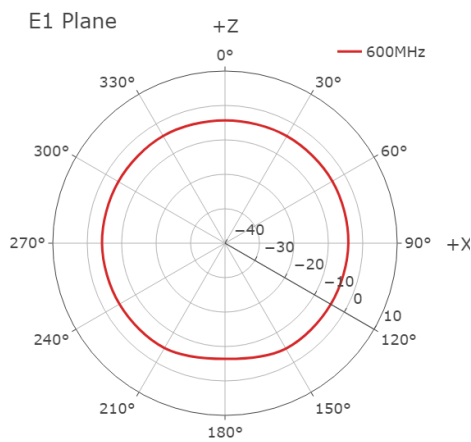
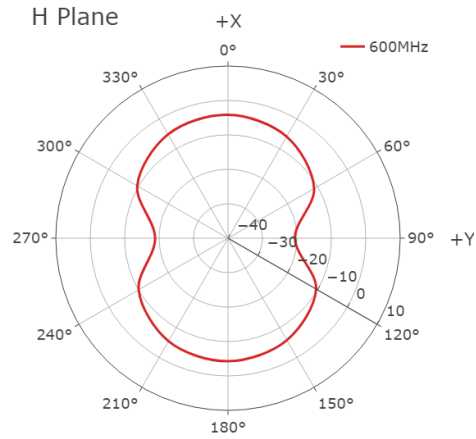
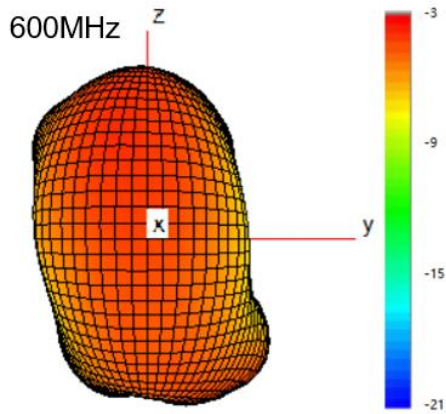


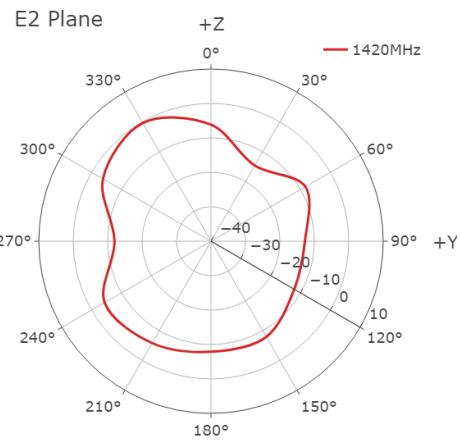
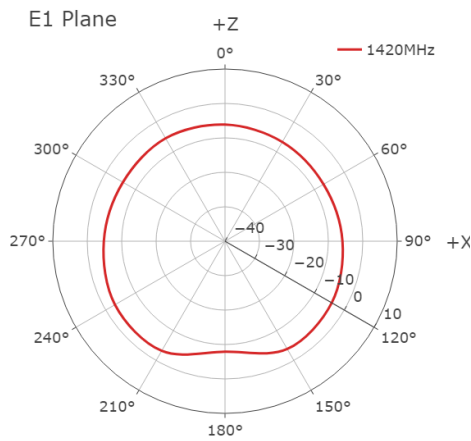
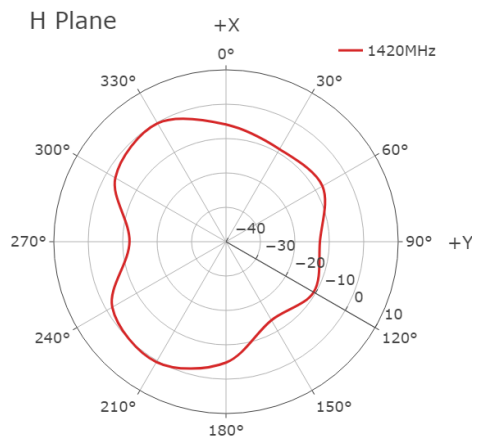
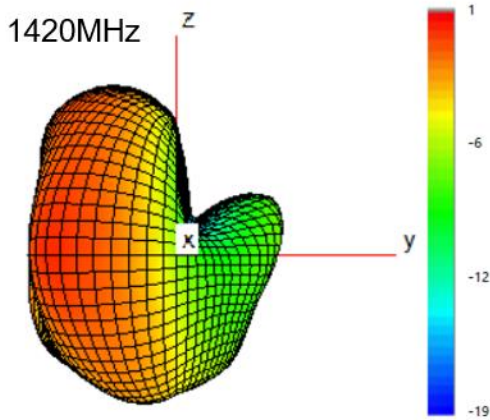
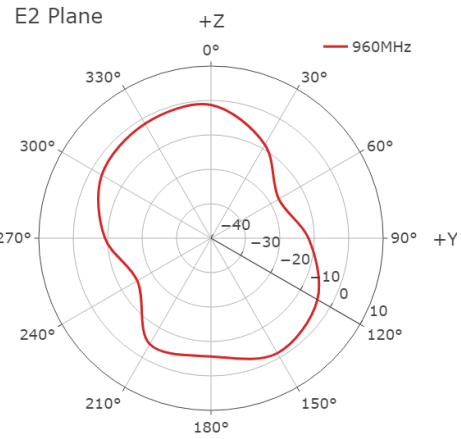
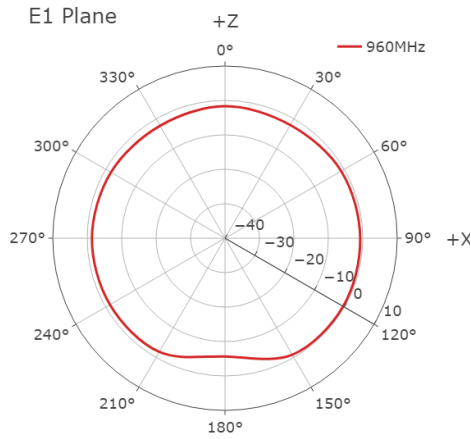
Frequency (MHz)	600	960	1420	1710	2170	2690	3300	4000	5000	6000
Gain (dBi)	-4.03	-0.29	0.43	1.85	2.14	4.94	4.64	4.69	2.08	3.94

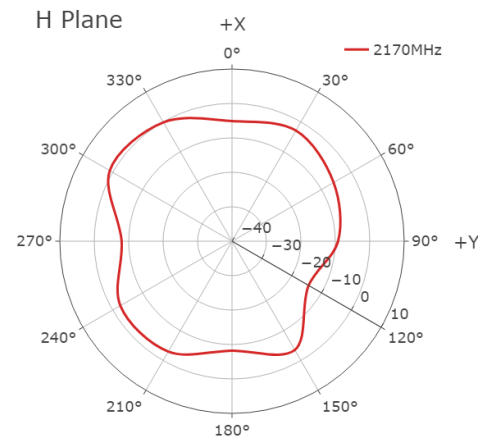
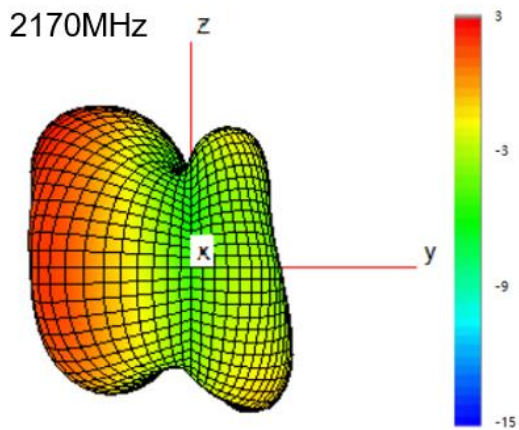
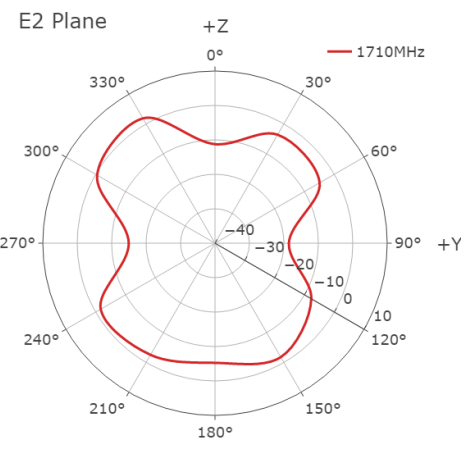
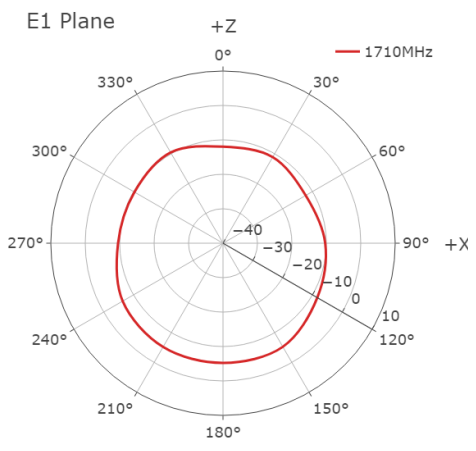
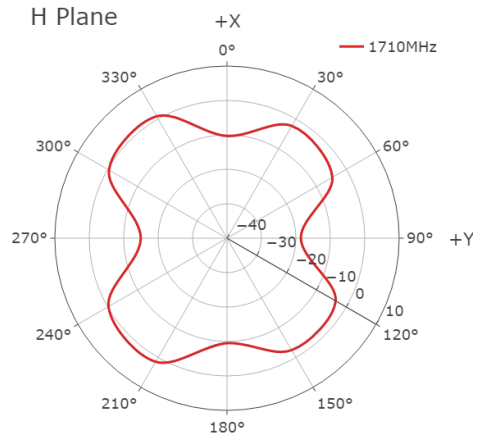
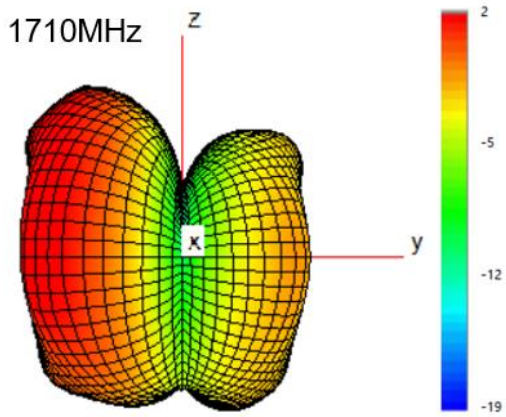
4.5. Radiation Pattern

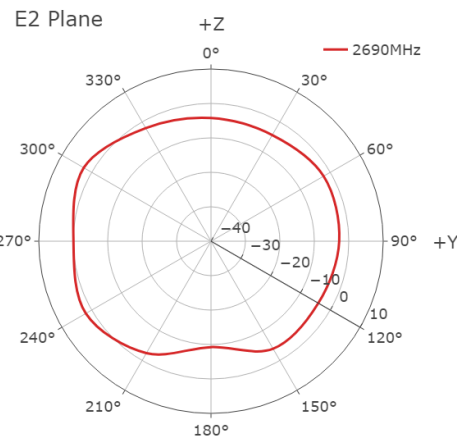
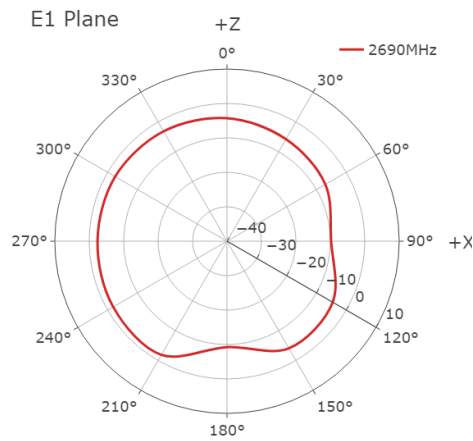
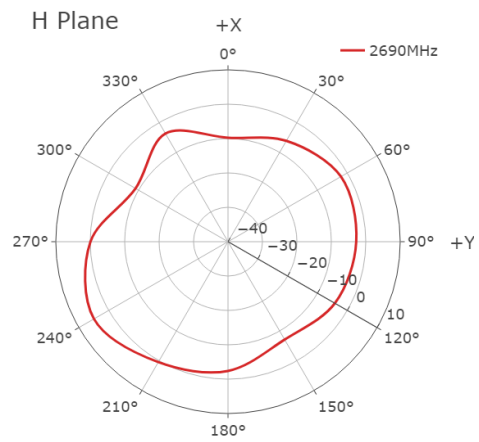
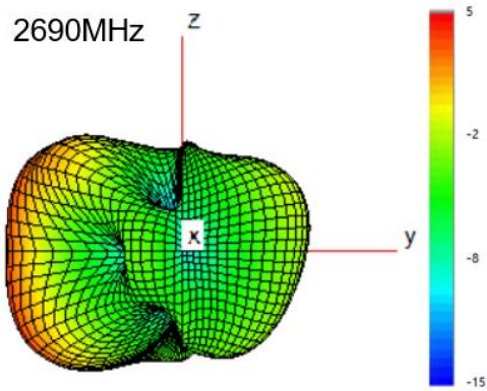
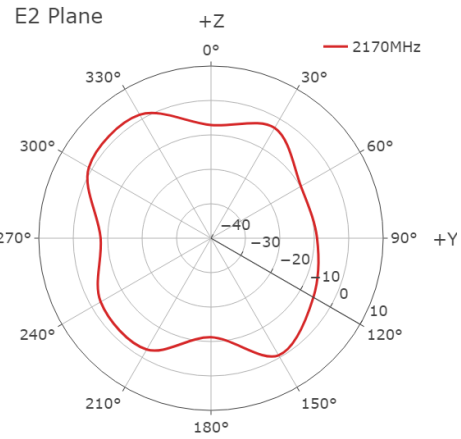
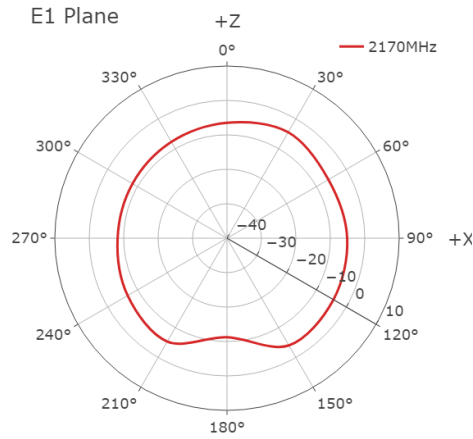
- Test condition: assembled on EVB

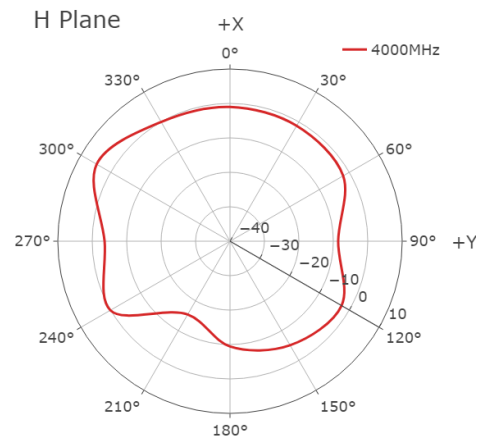
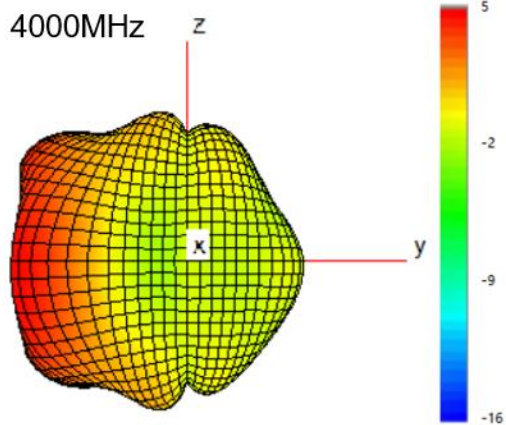
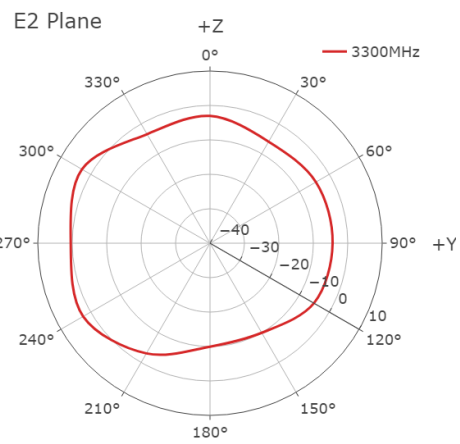
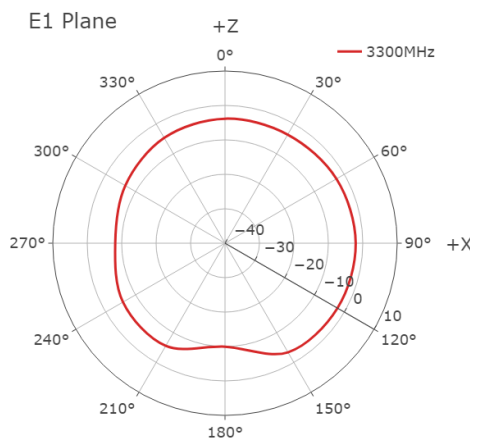
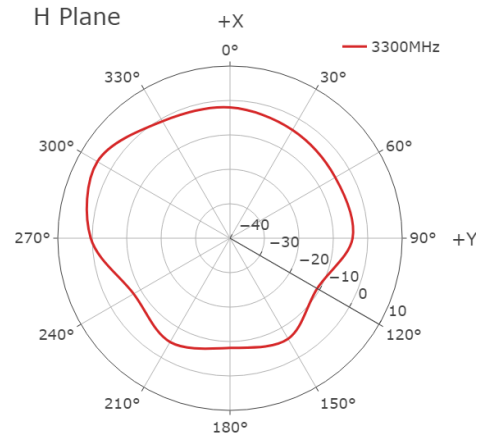
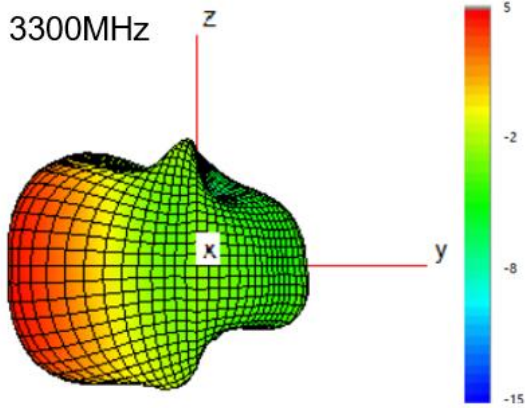


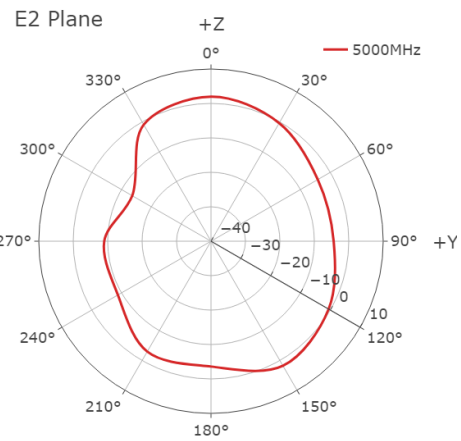
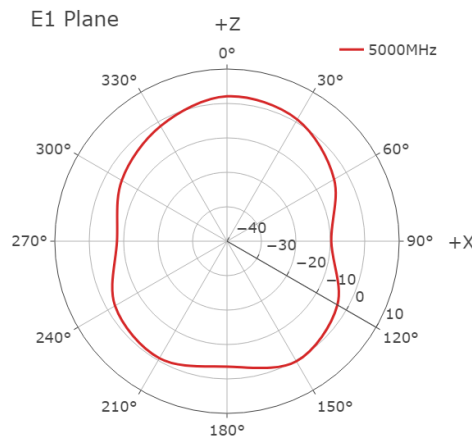
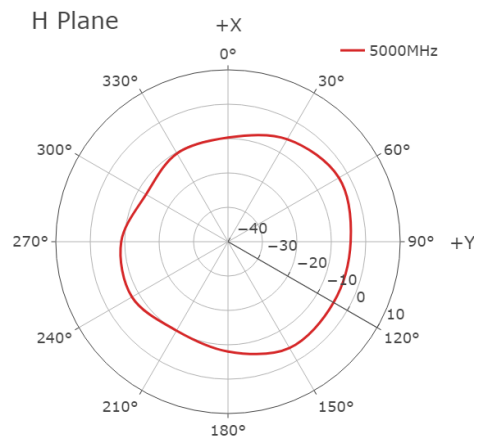
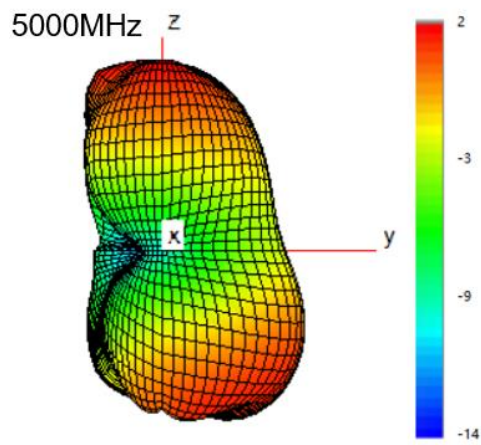
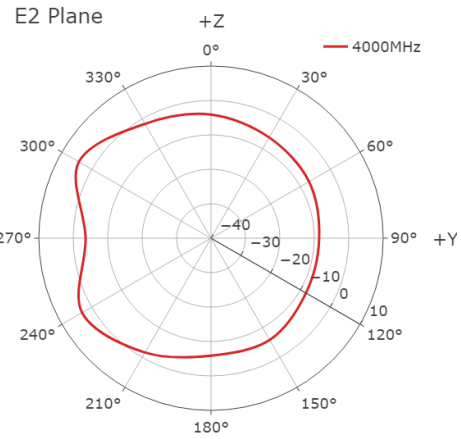
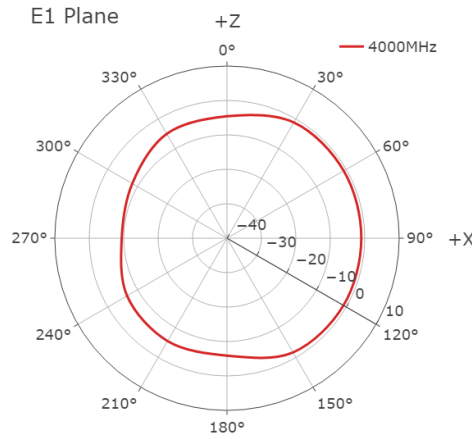


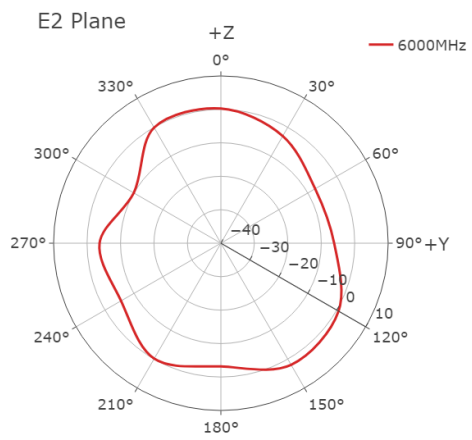
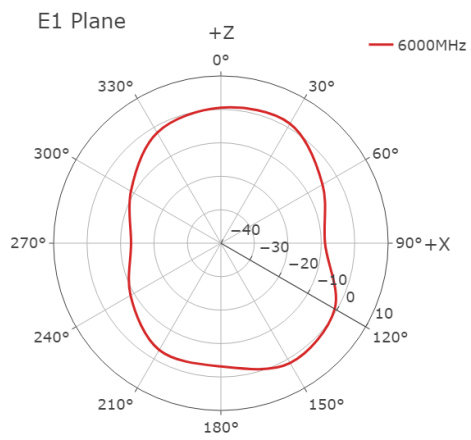
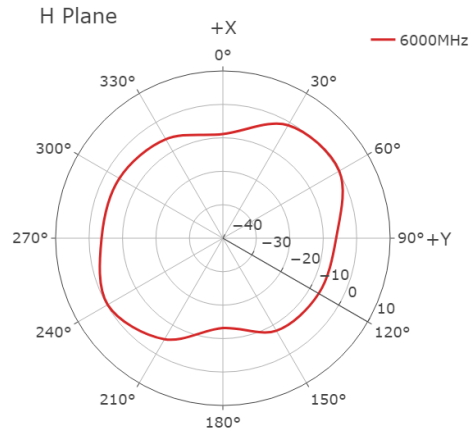
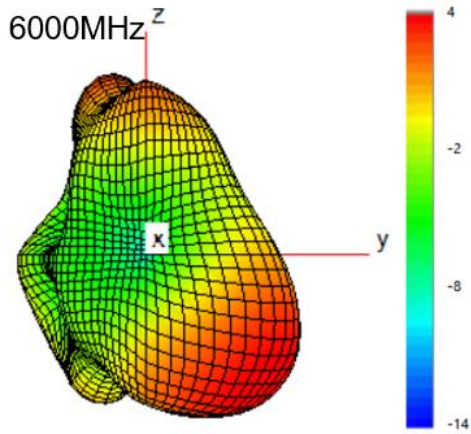




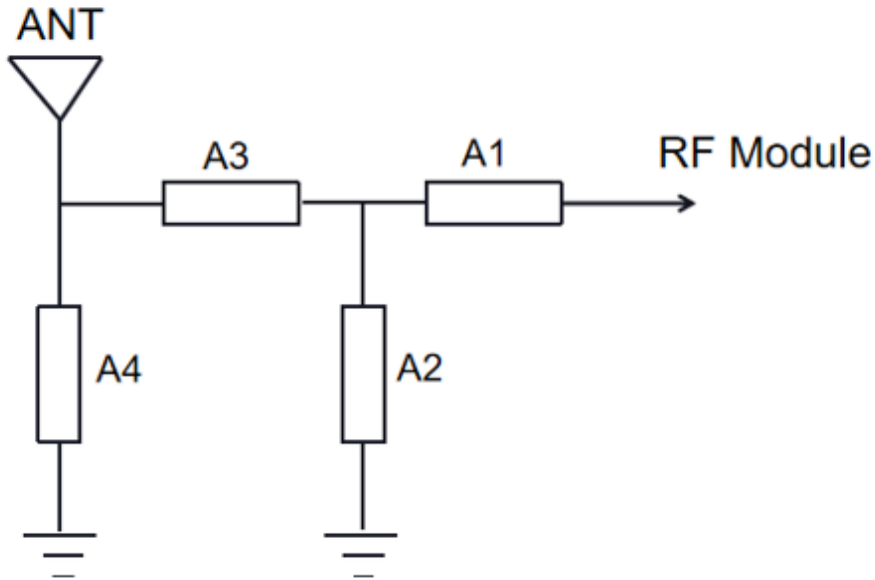




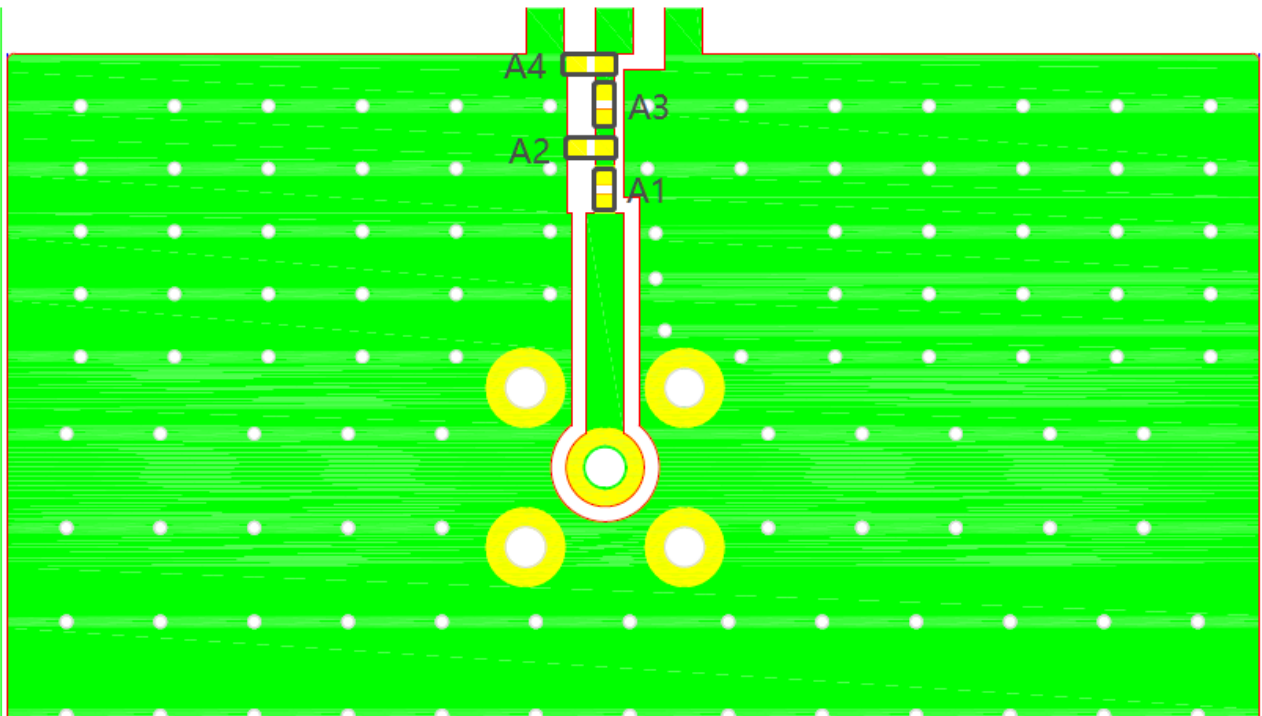




4.6. Matching Circuit



A4	11nH
A3	3.6pF
A2	/
A1	0Ω



5 Product Size

