



Antenna Datasheet

Product OC: YECT009W1AM

Version: 1.0

Date: 2024-06-13

Status: Released

Product Name: 4G Terminal Mount Rubber Monopole Antenna

Key Features:

Frequency Band: 600–960 MHz, 1710–2690 MHz

Dimensions: Φ 10 mm $\times$ 69.5 mm

Efficiency: Up to 66.9 % (Straight)

RoHS Compliant

Overview

YECT009W1AM is a 4G rubber antenna measuring Φ 10 mm × 69.5 mm. This ultra-wide-band 4G antenna provides broad coverage from 600–960 MHz, 1710-2690 MHz whilst offering backward-compatibility to support 3G and 2G networks as well as LTE Cat-M and narrowband IoT (NB-IoT). The antenna is terminated with SMA Male connector. Ideal for applications where the antenna is required to be discrete, this low profile, terminal mount omni-directional antenna is easy to install with maximum durability assured thanks to its POM enclosure. It is compatible with Quectel's RM520x Series modules.

It allows constant and reliable transmission and reception due to its omni-directional gain across all frequency bands. YECT009W1AM is designed as a monopole antenna, which needs to be mounted on a ground plane to offer high efficiency in all working bands. It is a perfect antenna product for customers that desire highest performance. This high-efficiency, high-gain omni-directional antenna is ideally suited for remote monitoring, vehicle tracking and telematics systems, routers and POS devices.

Typical applications include:

- remote monitoring
- vehicle tracking and telematics systems
- routers
- POS devices

Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs. We have regional R & D centers to offer quick response to meet your requirements. Please contact our sales & FAEs if you have any requests.

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1 Specification

Test Condition: On 130 mm × 70 mm EVB

1.1. Electrical

Electrical	
Frequency Range	600–960 MHz, 1710–2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical - Detail												
SPEC	Band	B71	B12 /B13 /B28	B5 /B8 /B26	n74 /n75 /n76	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41	B42 /B48 /n77	n79	Wi-Fi 5G
	Freq. (MHz)	600– 700	700– 810	820– 960	1420– 1520	1700– 2170	2300– 2400	2400– 2500	2500– 2690	3300– 4200	4400– 5000	5150– 5850
Max. VSWR	Straight	7.6	2.8	2.2	-	1.4	1.9	1.8	1.9	-	-	-
	Bent	8.7	3.7	1.7	-	1.4	1.8	1.9	2.3	-	-	-
Max. Return Loss(dB)	Straight	-2.3	-6.4	-8.7	-	-14.8	-10.5	-10.9	-9.9	-	-	-
	Bent	-2.0	-4.9	-11.9	-	-15.5	-10.9	-9.9	-8.1	-	-	-
AVG Eff. (%)	Straight	39.8	58.7	57.6	-	61.9	58.3	52.8	51.7	-	-	-
	Bent	33.6	51.8	55.9	-	62.0	57.9	52.0	50.8	-	-	-
AVG AVG Gain (dB)	Straight	-4.2	-2.3	-2.4	-	-2.1	-2.3	-2.8	-2.9	-	-	-
	Bent	-4.9	-2.9	-2.5	-	-2.1	-2.4	-2.8	-2.9	-	-	-
Max. Peak Gain(dBi)	Straight	-0.3 (700)	0.4 (800)	0.5 (890)	-	1.7 (1840)	2.0 (2350)	1.3 (2400)	1.2 (2500)	-	-	-

Frequency (MHz)	Bent	-0.9 (700)	0.2 (800)	0.6 (900)	-	1.8 (1840)	1.9 (2350)	1.2 (2400)	1.0 (2500)	-	-	-
VSWR	Straight					7.6						
	Bent					8.7						
Return Loss	Straight					-2.3 dB						
	Bent					-2.0 dB						
Gain	Straight					≤ 2.0 dBi						
	Bent					≤ 1.9 dBi						

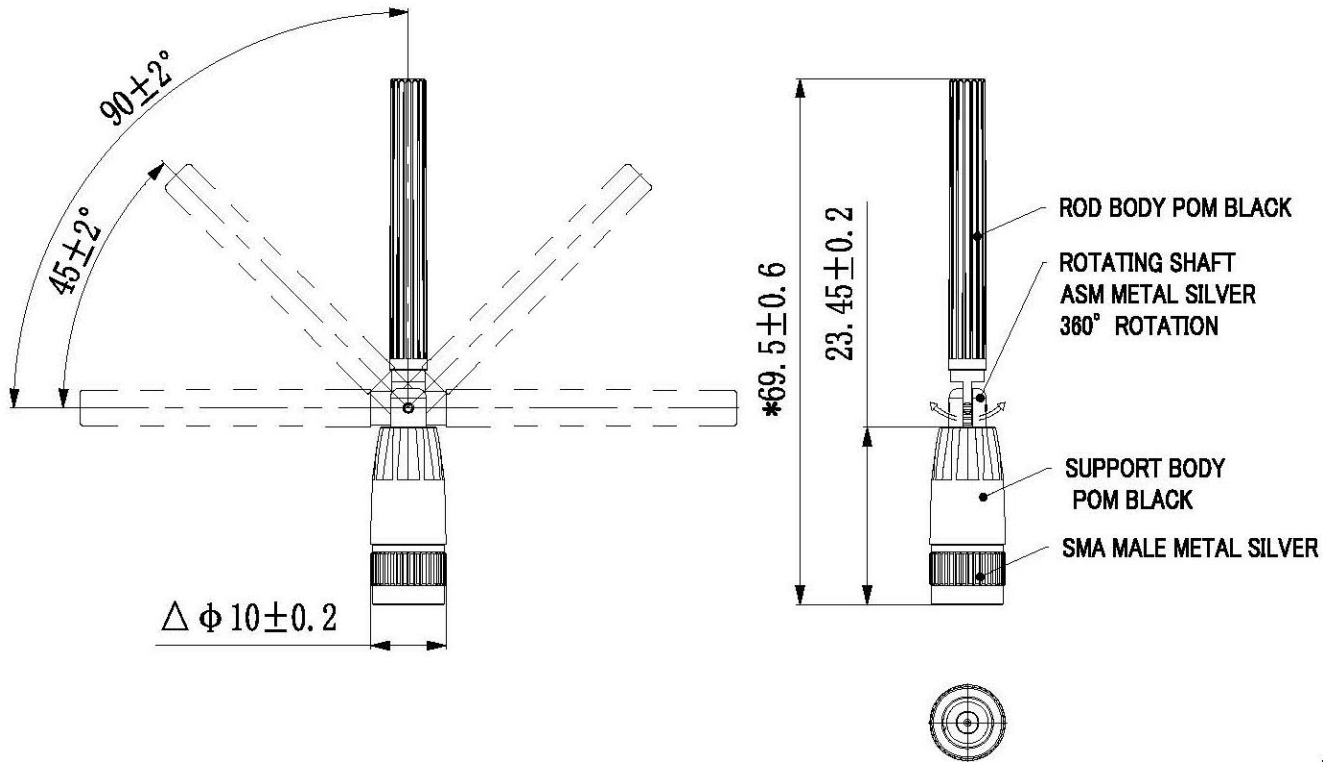
Gain - Detail				
	Band	Freq. (MHz)	Max peak Gain (dBi)	
			Straight	Bent
FDD < 3 dBi	B1	1920-1980	1.3	1.6
	B3	1710-1785	1.3	1.5
	B8	880-915	0.5	0.6
	B18	815-830	0.4	0.0
	B19	830-845	0.4	0.1
	B26	814-849	0.4	0.1
	B28	703-748	0.4	-0.2
TDD < 4 dBi	B39	1888-1920	1.5	1.5
	B41 (Disable HPUE)	2496-2690	1.2	1.0

- **Straight:** The connector is vertical.
- **Bent:** The connector is bend.

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 10 mm × 69.5 mm
Casing Material & Color	POM & Black
Connector Type	SMA Male
Weight	Typ. 8.9 g
Mounting Type	Terminal (Connector)
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

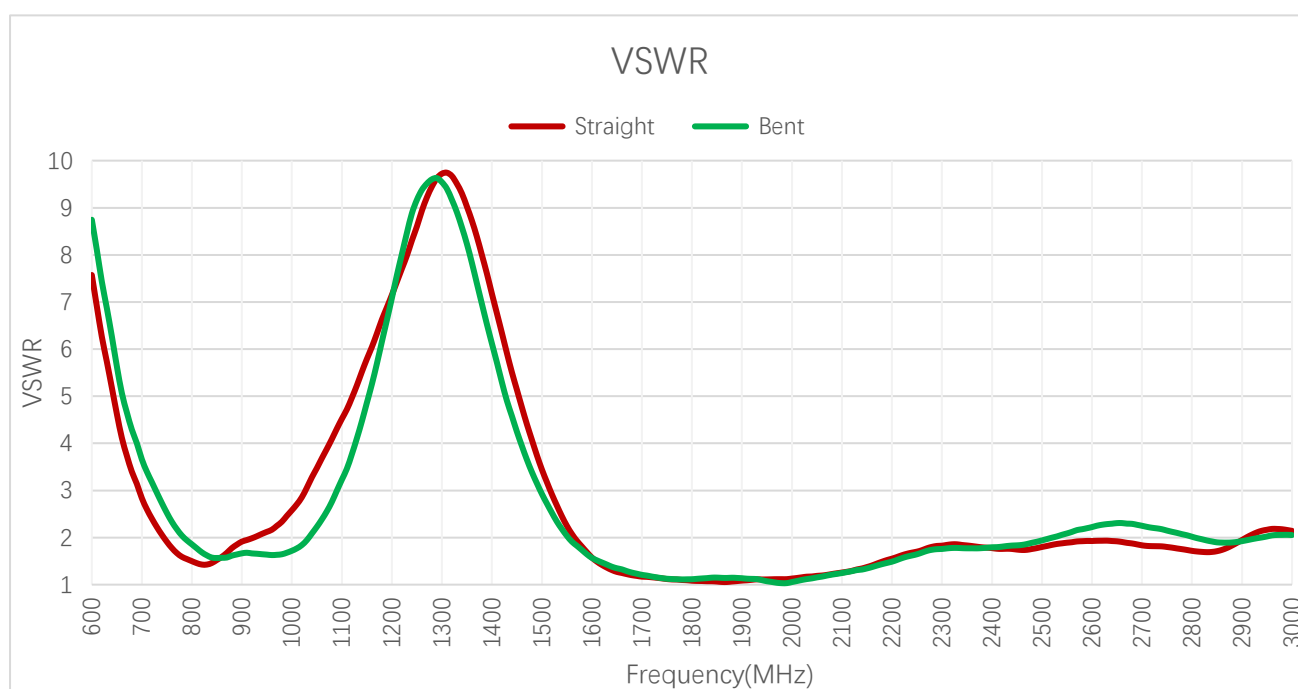
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

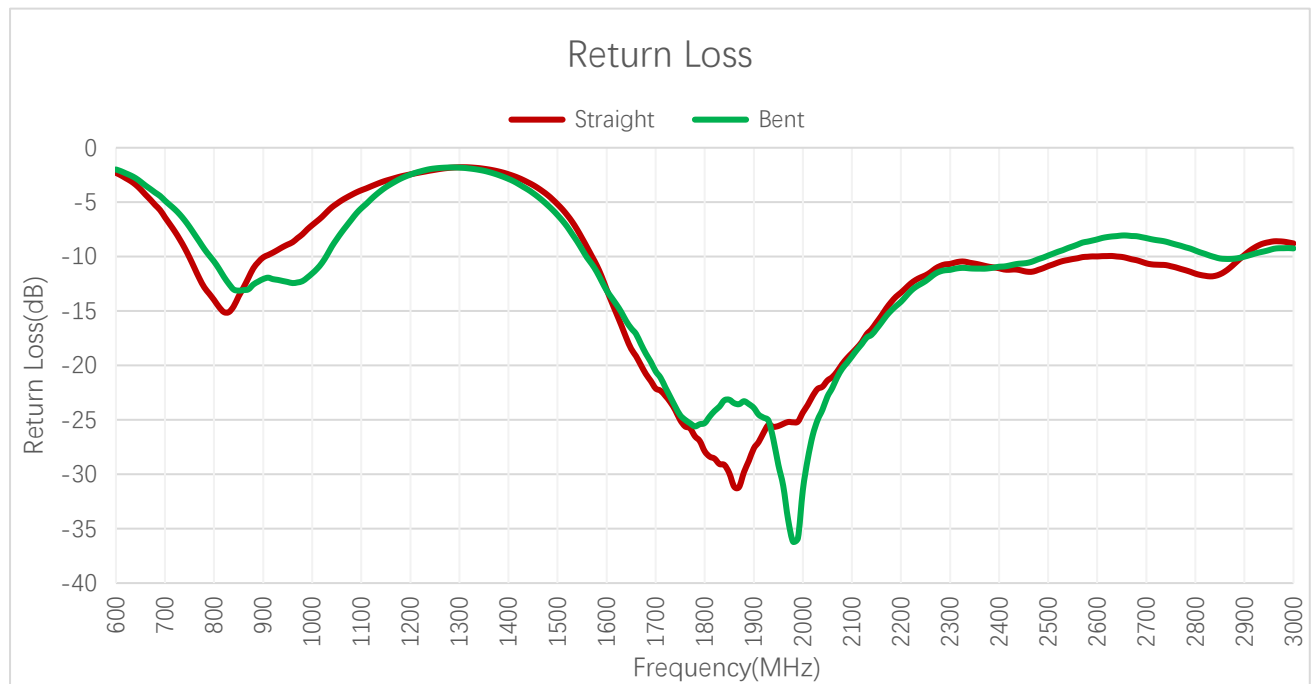
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	7.6	5.7	2.6	1.4	1.9	2.2	-	1.2	1.1	1.1
Bent	8.7	6.9	3.4	1.6	1.7	1.6	-	1.2	1.1	1.1
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	1.1	1.3	1.8	1.7	1.9	1.9	-	-	-	-
Bent	1.1	1.3	1.8	1.8	2.2	2.3	-	-	-	-

3.1.2. Return Loss

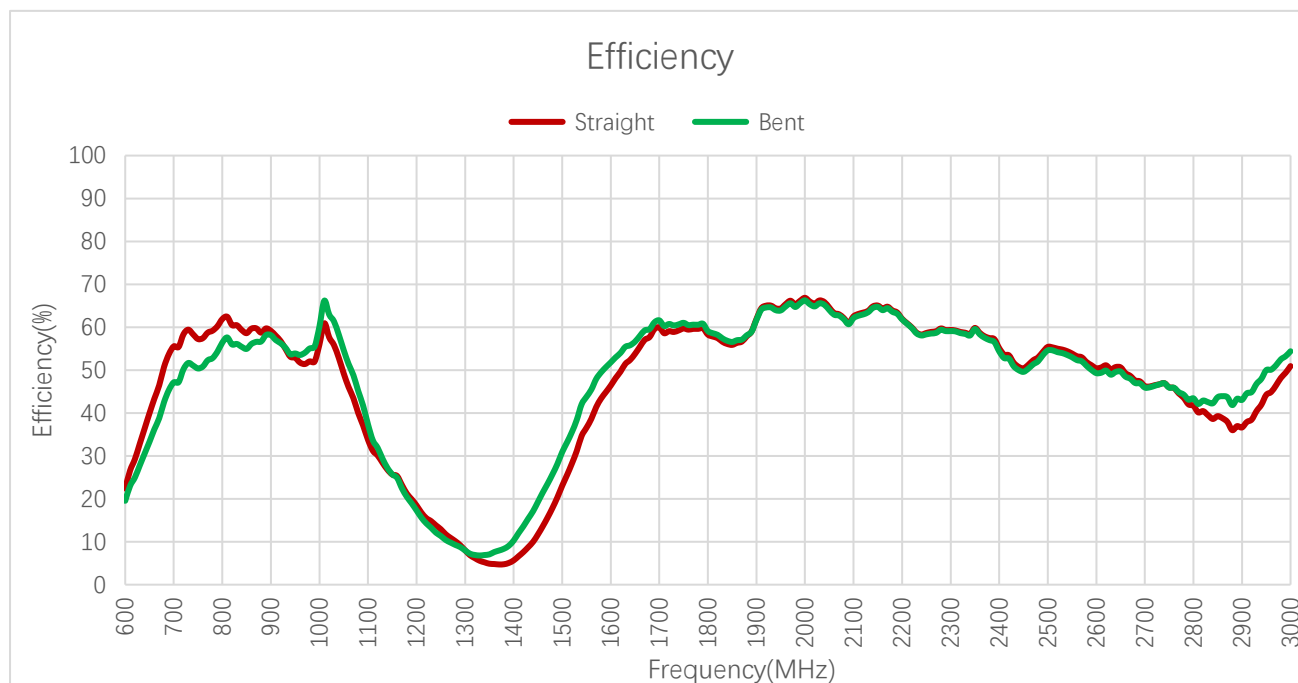


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	-2.3	-3.1	-7.0	-15.1	-10.1	-8.7	-	-22.3	-24.1	-29.8
Bent	-2.0	-2.5	-5.3	-12.5	-12.1	-12.4	-	-21.1	-23.8	-23.3
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	-25.6	-16.7	-10.6	-11.3	-10.0	-10.5	-	-	-	-
Bent	-29.1	-17.2	-11.1	-10.6	-8.4	-8.2	-	-	-	-

3.2. Radiation Performance Test

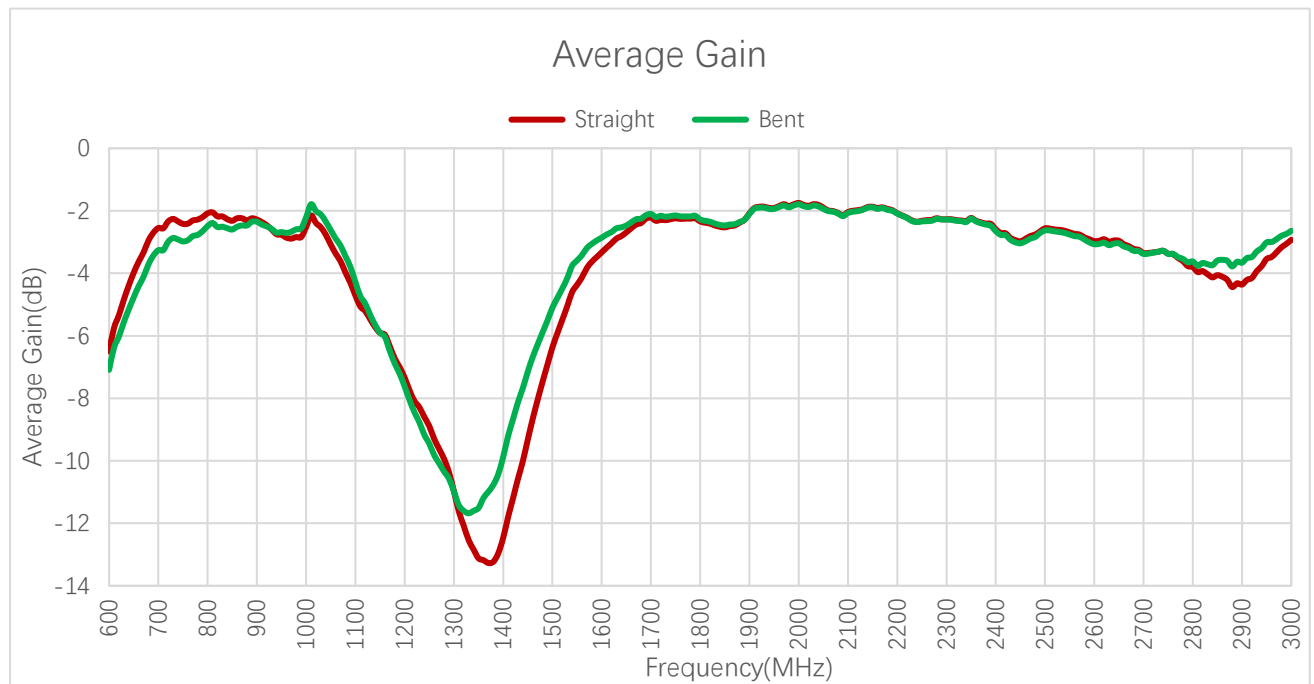
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	22.4	32.8	55.4	60.5	59.2	51.8	-	58.6	59.3	57.9
Bent	19.6	27.8	47.2	56.1	58.2	53.5	-	60.3	60.7	58.1
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	64.4	64.9	59.8	50.4	50.4	47.4	-	-	-	-
Bent	63.9	64.5	59.6	49.6	49.3	46.9	-	-	-	-

3.2.2. Average Gain

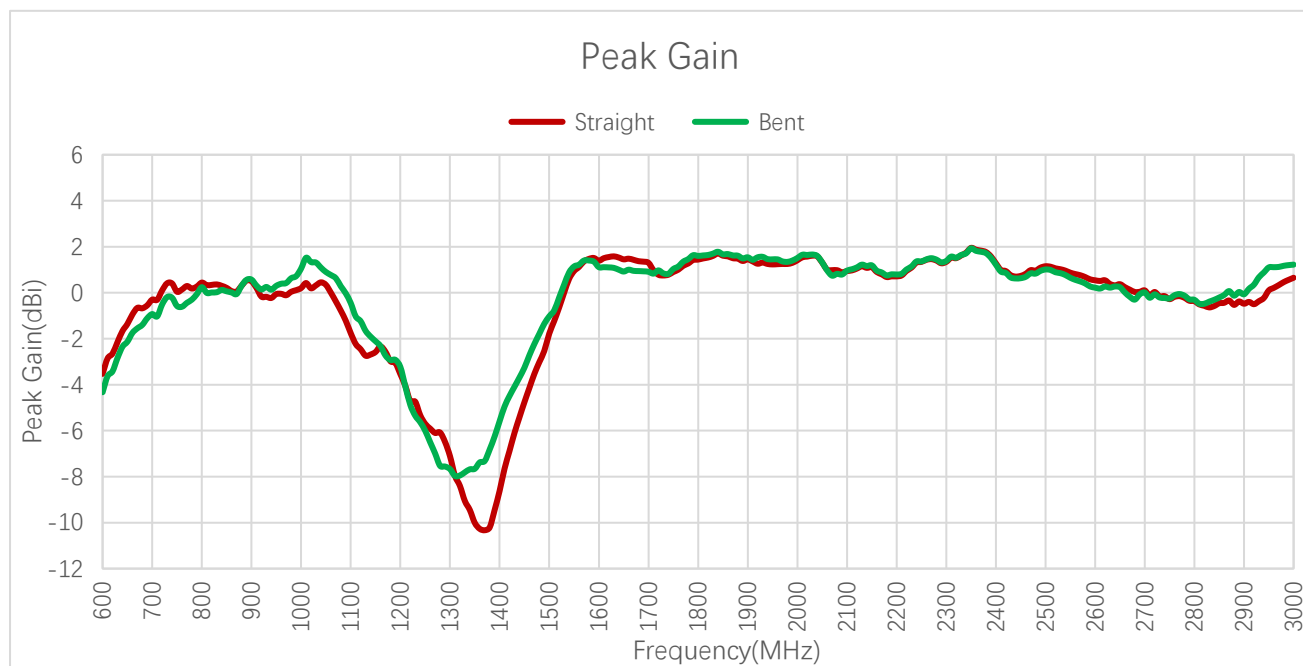


Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	-6.5	-4.8	-2.6	-2.2	-2.3	-2.9	-	-2.3	-2.3	-2.4
Bent	-7.1	-5.6	-3.3	-2.5	-2.4	-2.7	-	-2.2	-2.2	-2.4

Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	-1.9	-1.9	-2.2	-3.0	-3.0	-3.3	-	-	-	-
Bent	-1.9	-1.9	-2.3	-3.0	-3.1	-3.3	-	-	-	-

3.2.3. Peak Gain



Peak Gain (dBi)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	-3.5	-2.2	-0.3	0.4	0.5	-0.1	-	1.0	0.8	1.5
Bent	-4.3	-2.8	-1.0	0.0	0.6	0.4	-	0.8	0.8	1.6

Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	1.2	1.1	2.0	0.7	0.5	0.0	-	-	-	-
Bent	1.5	1.2	1.9	0.6	0.2	-0.1	-	-	-	-

Max Peak Gain (dBi)

Band	B71	B12 /B13 /B28	B5 /B8 /B26	B1 /B2 /B3	B40	WIFI 2G	B38 /B41
Frequency (MHz)	700	800	890	1840	2350	2400	2500
Straight	-0.3	0.4	0.5	1.7	2.0	1.3	1.2

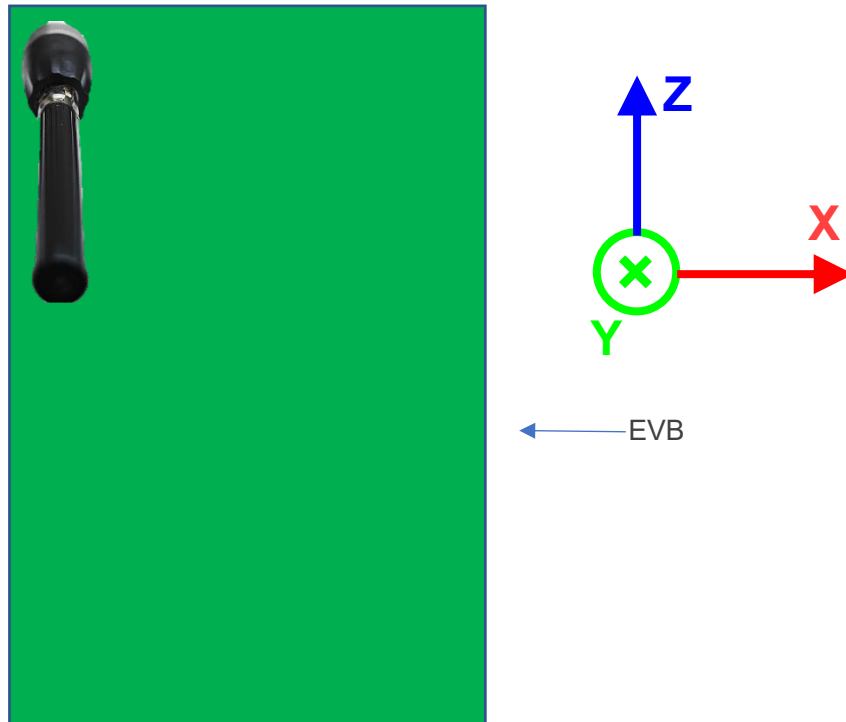
Frequency (MHz)	700	800	900	1840	2350	2400	2500
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Bent	-0.9	0.2	0.6	1.8	1.9	1.2	1.0
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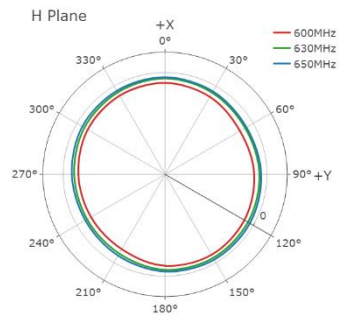
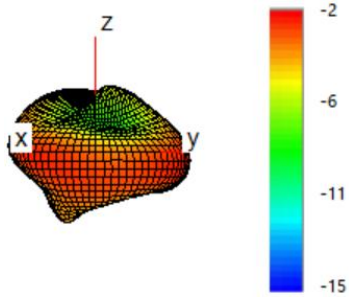
3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test state: Straight

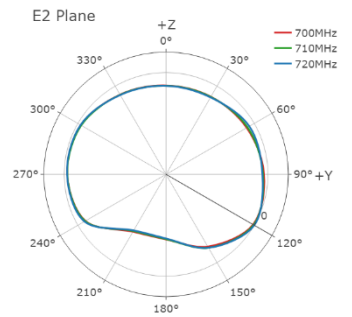
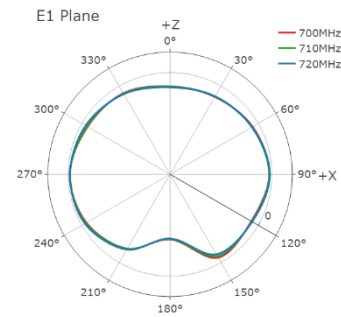
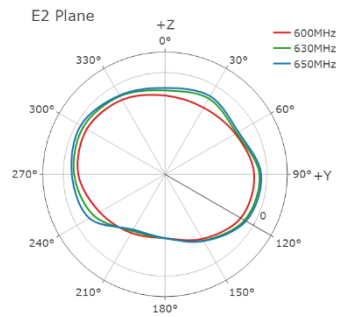
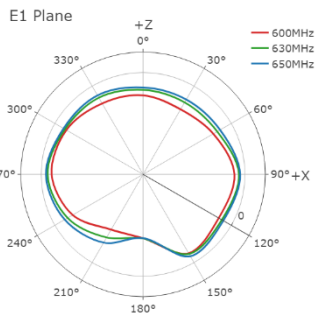
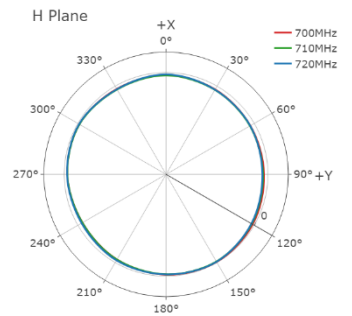
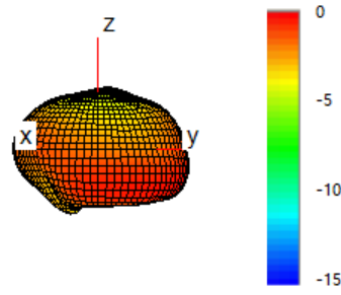
- Test Condition: On 130 mm × 70 mm EVB
- Test Chamber: GL-G-1



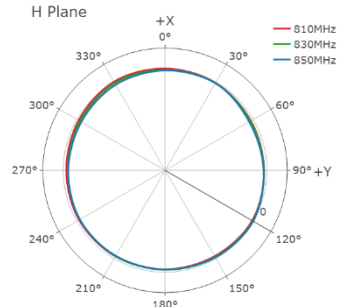
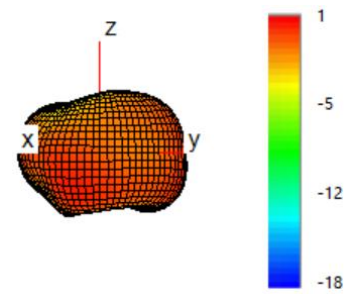
630 MHz



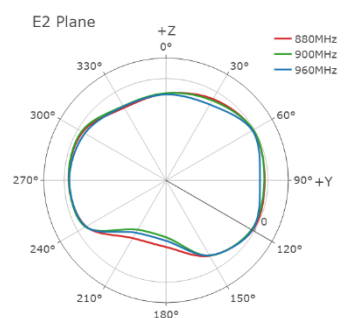
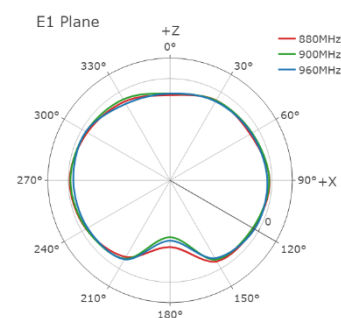
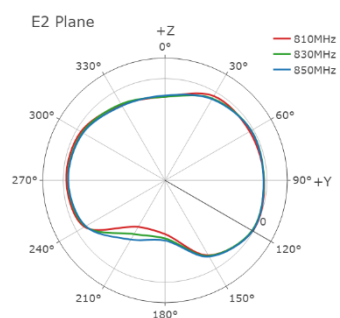
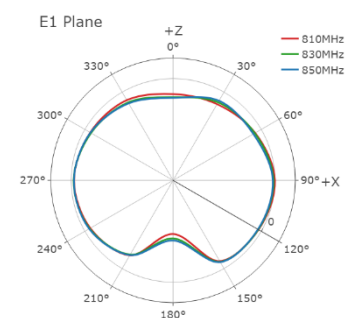
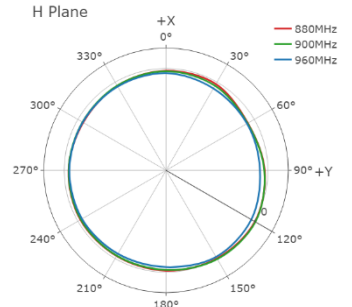
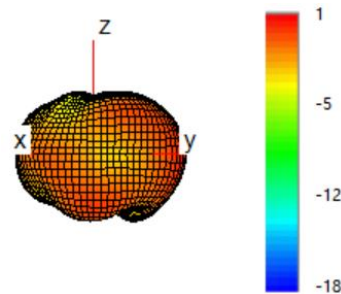
710 MHz

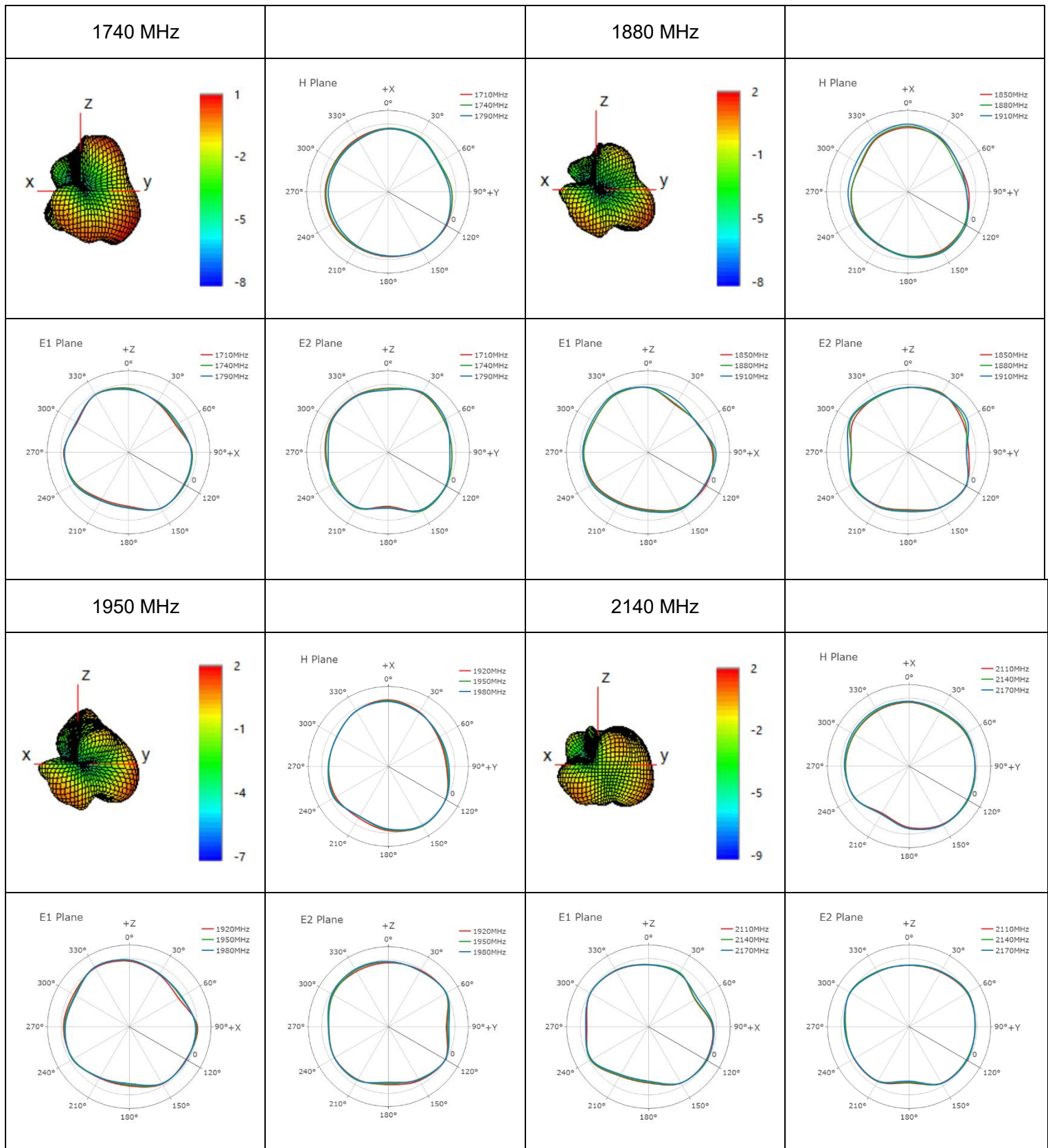


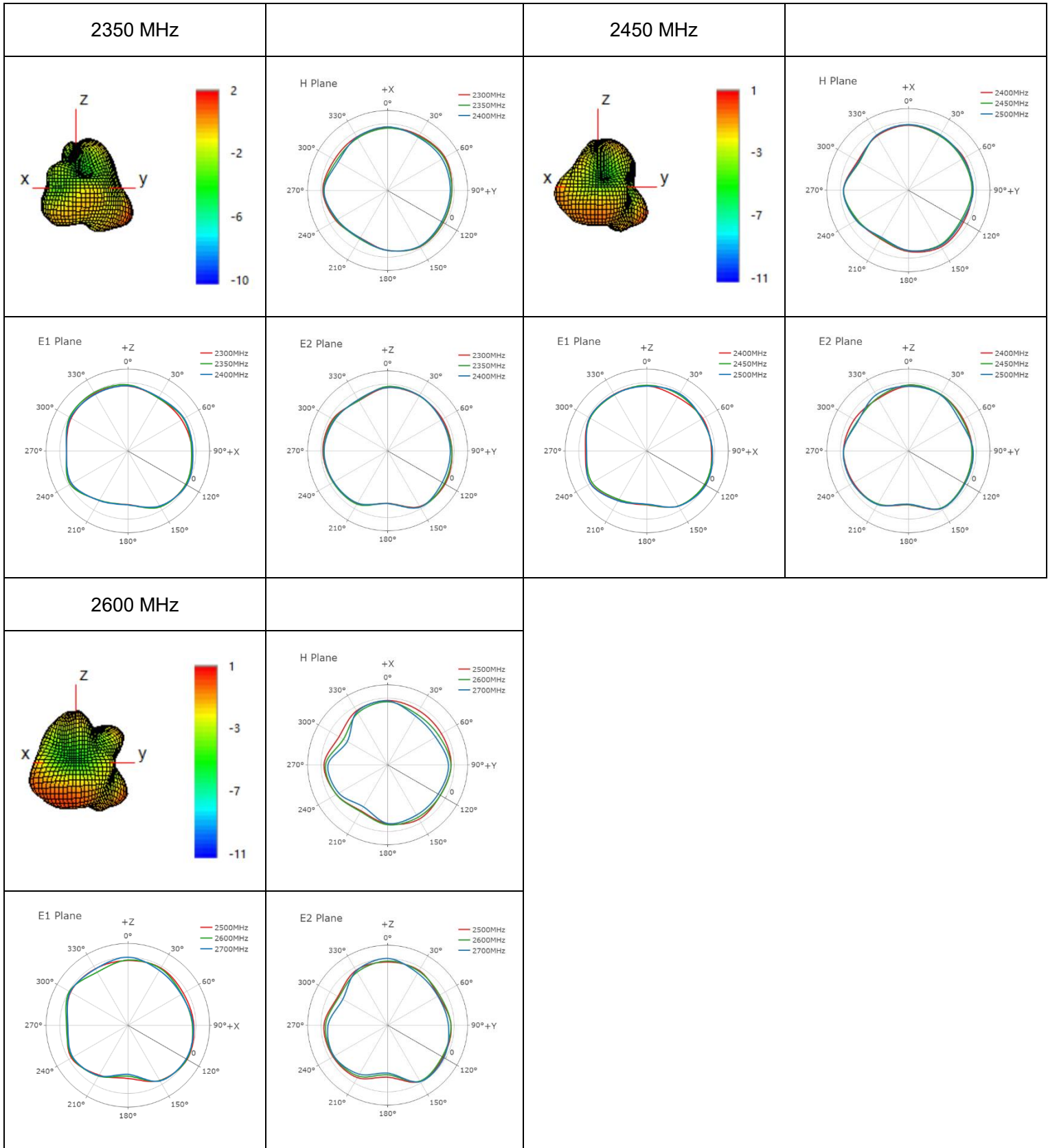
830 MHz



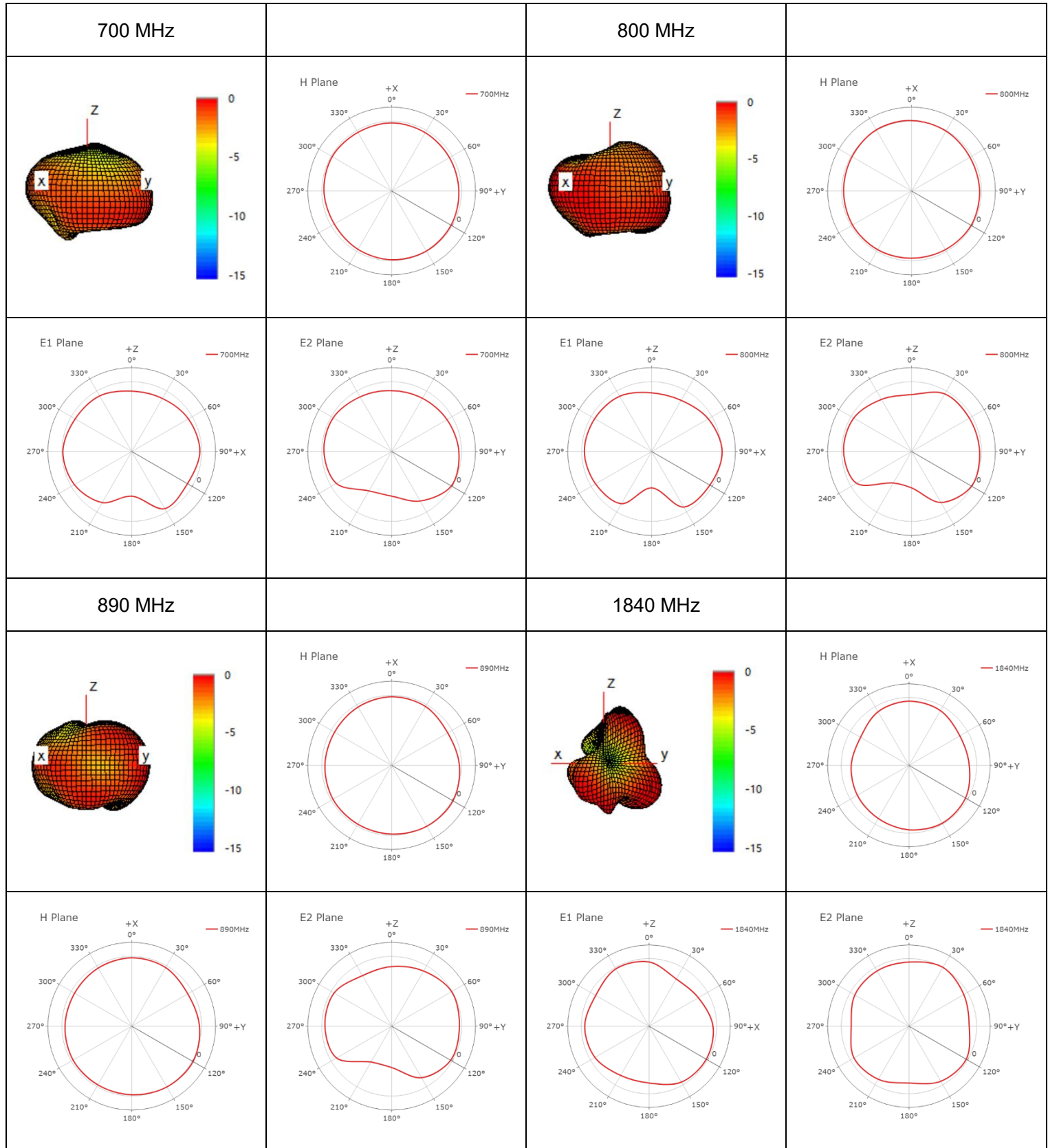
900 MHz

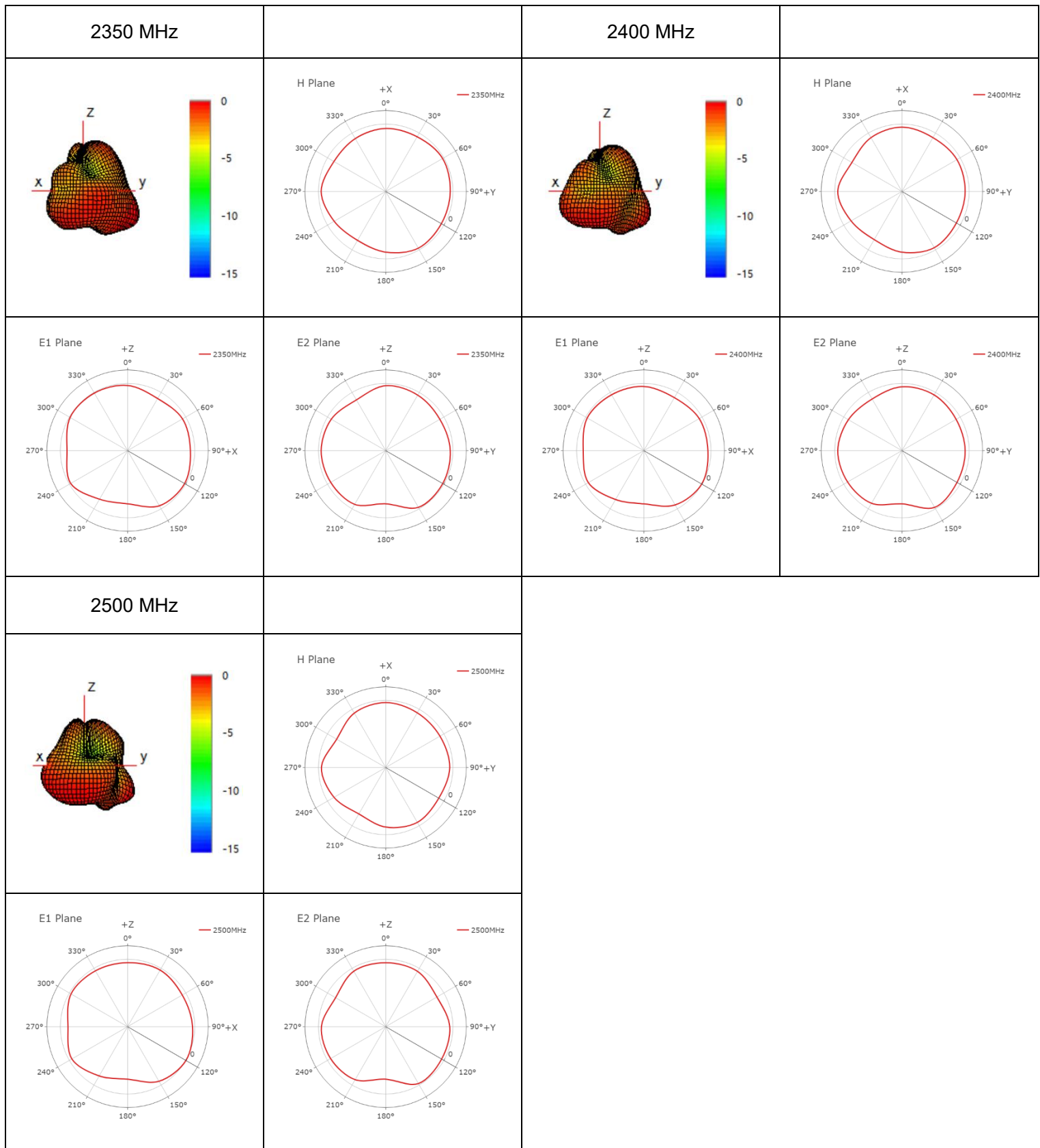






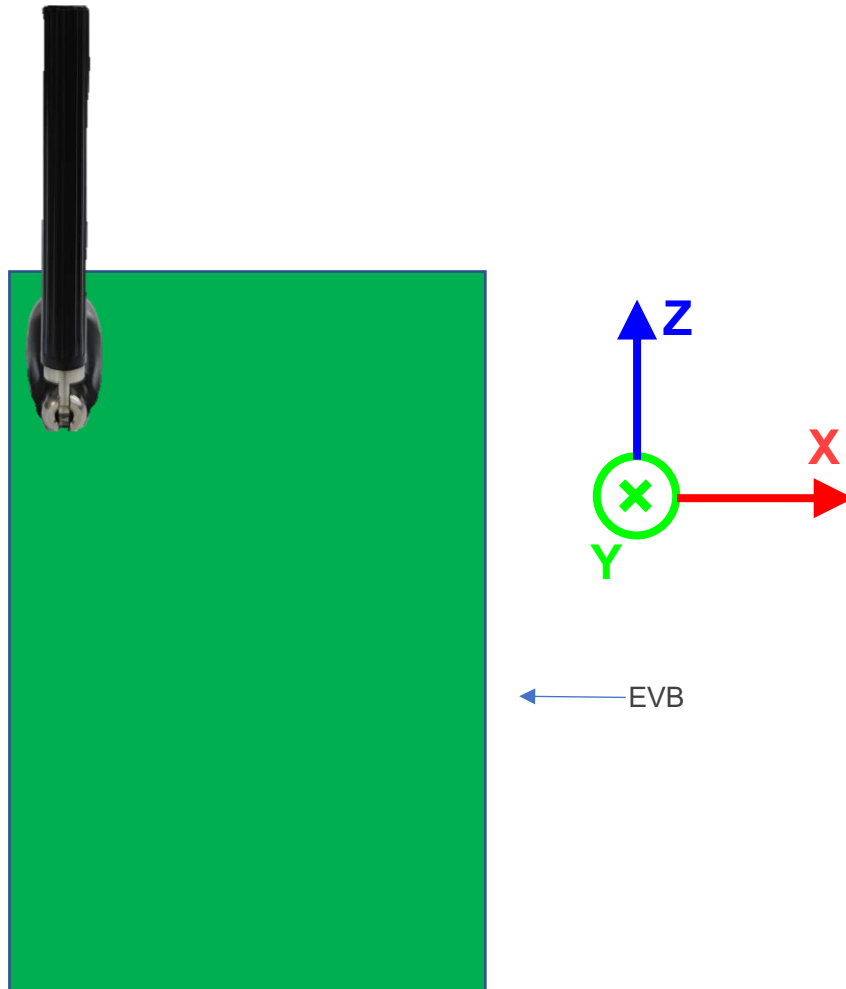
● **Max Peak Gain**



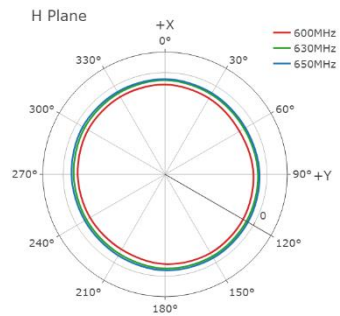
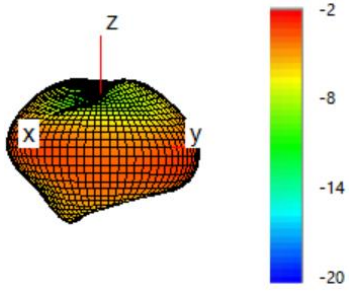


3.2.4.2. Test state: Bent

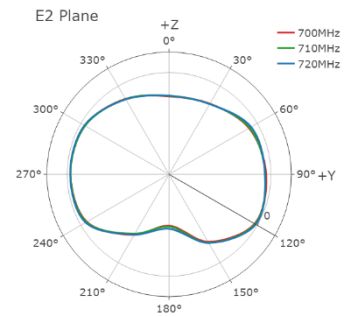
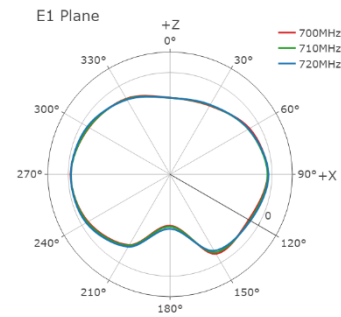
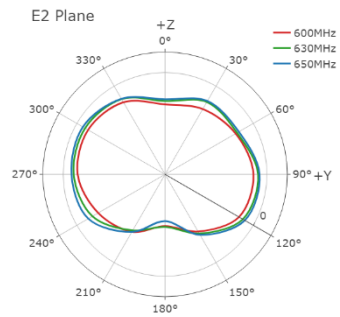
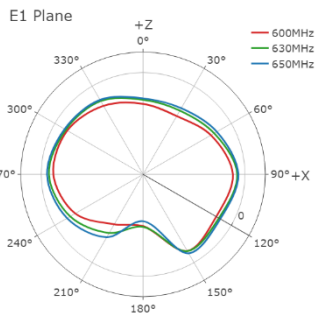
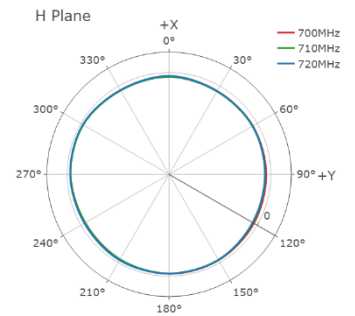
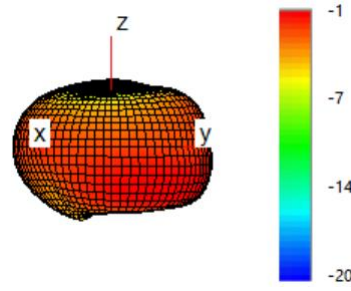
- Test Condition: On 130 mm × 70 mm EVB
- Test Chamber: GL-G-1



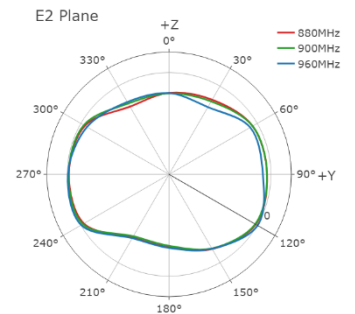
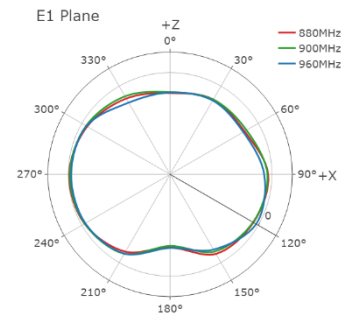
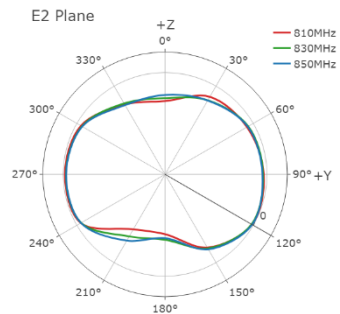
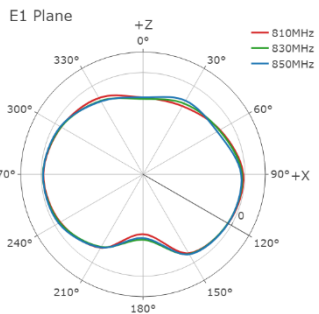
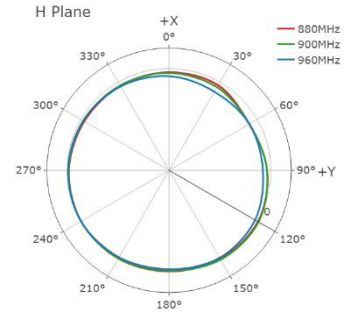
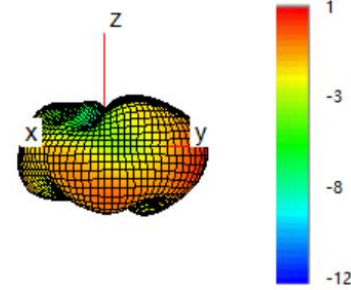
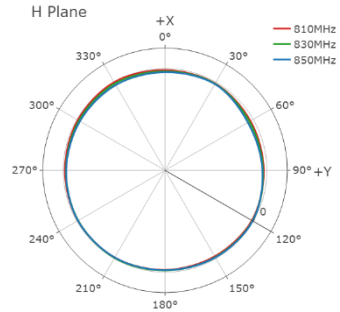
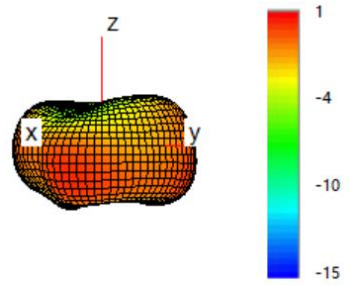
630 MHz

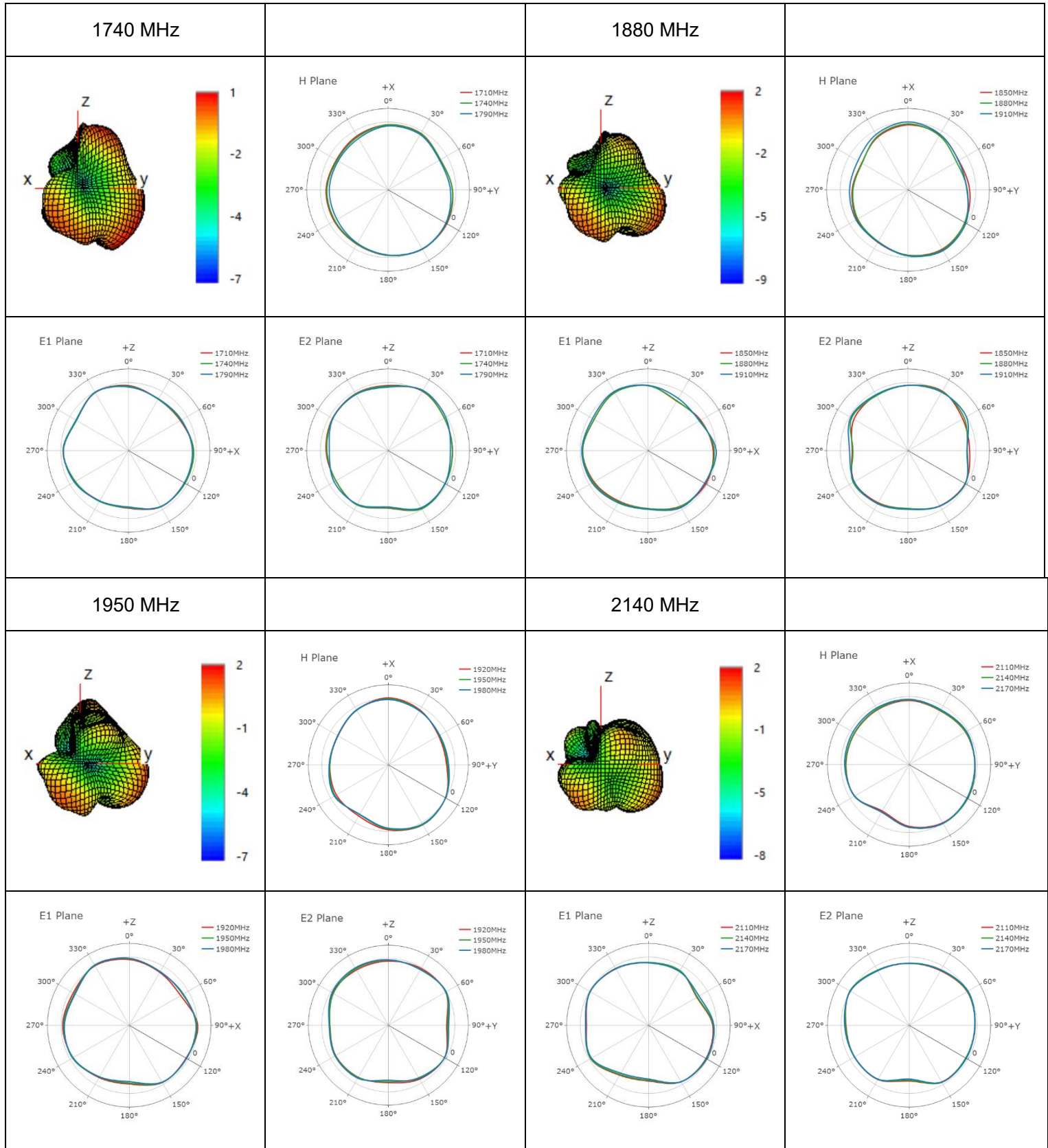


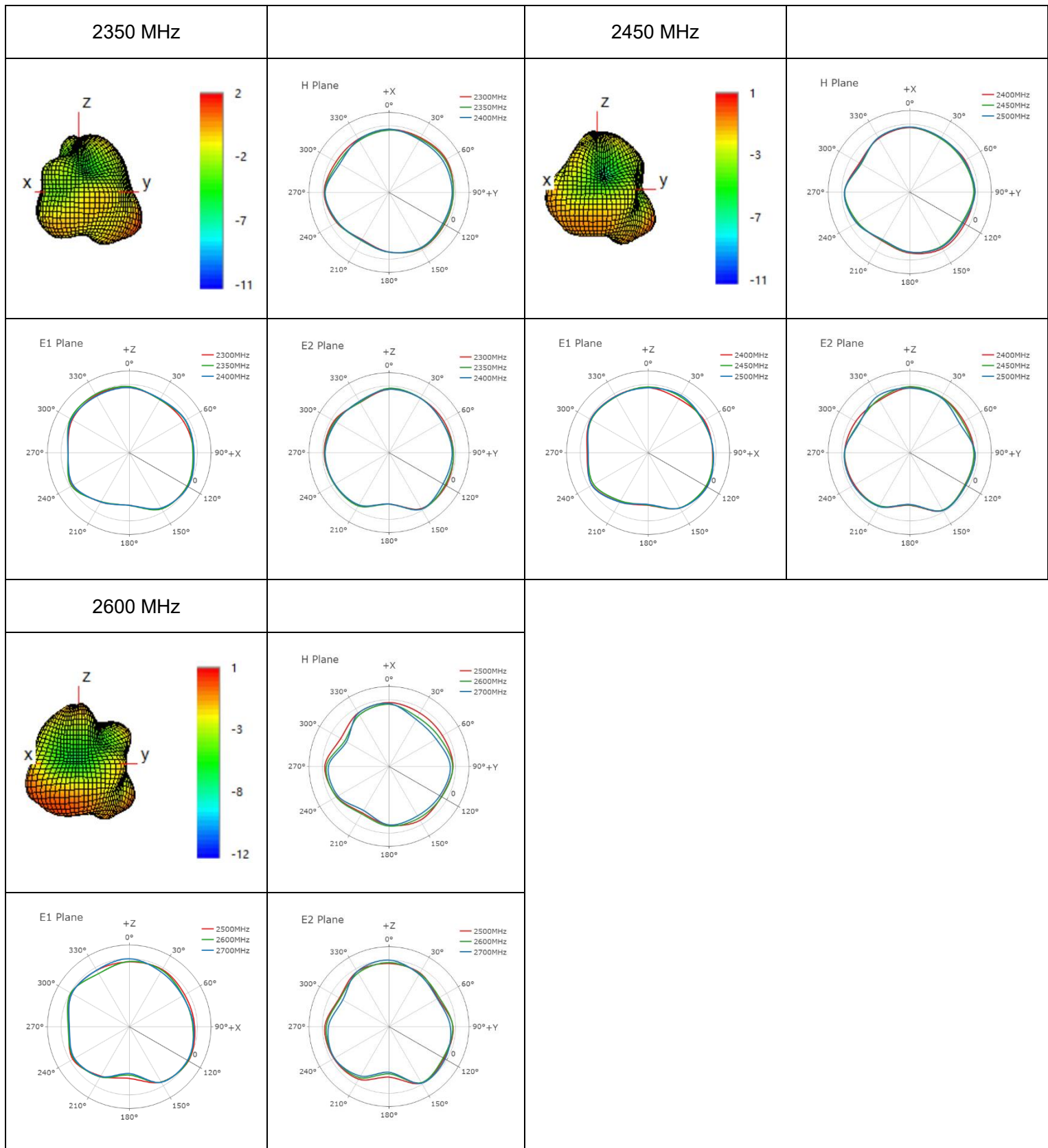
710 MHz



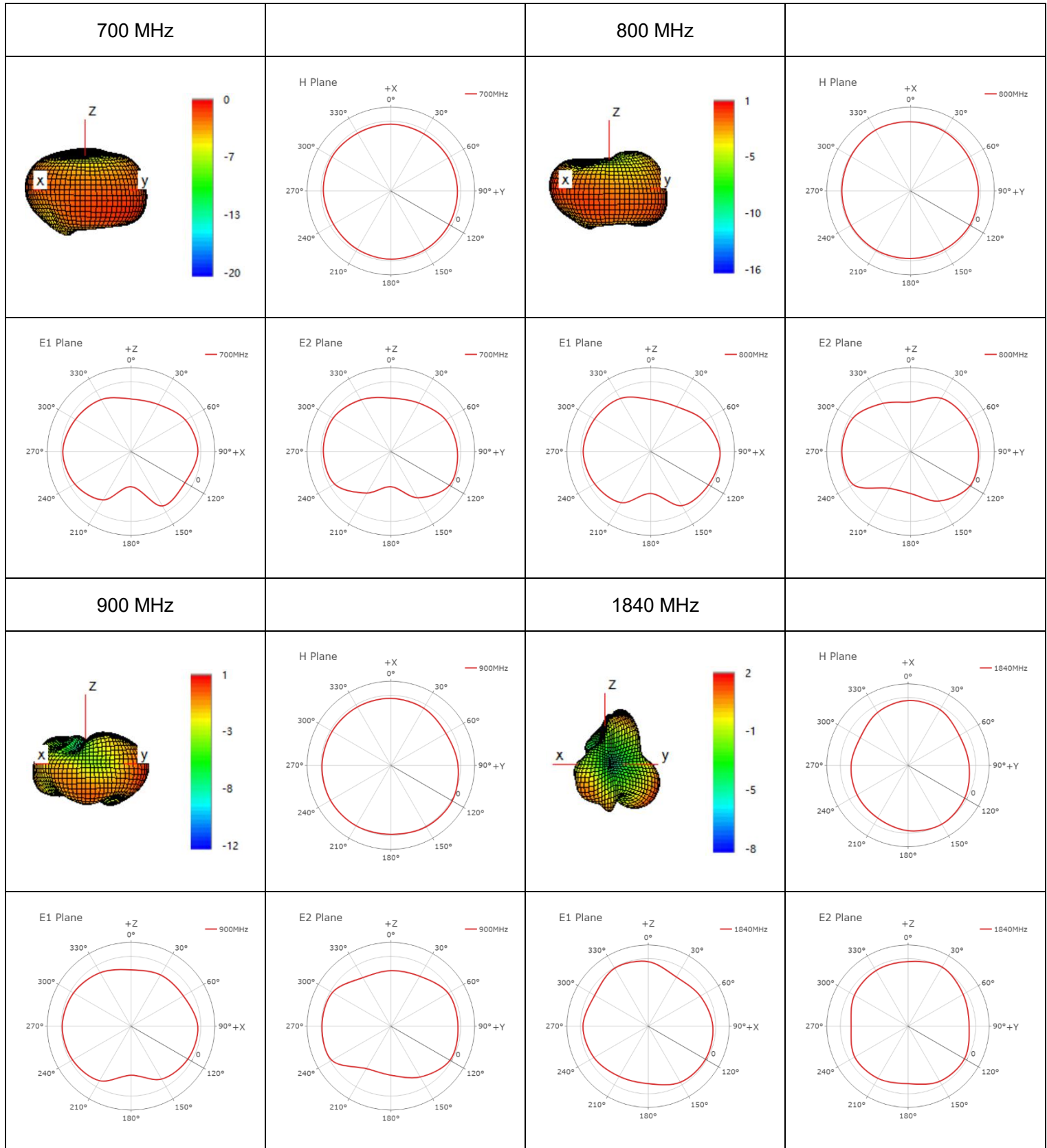
830 MHz

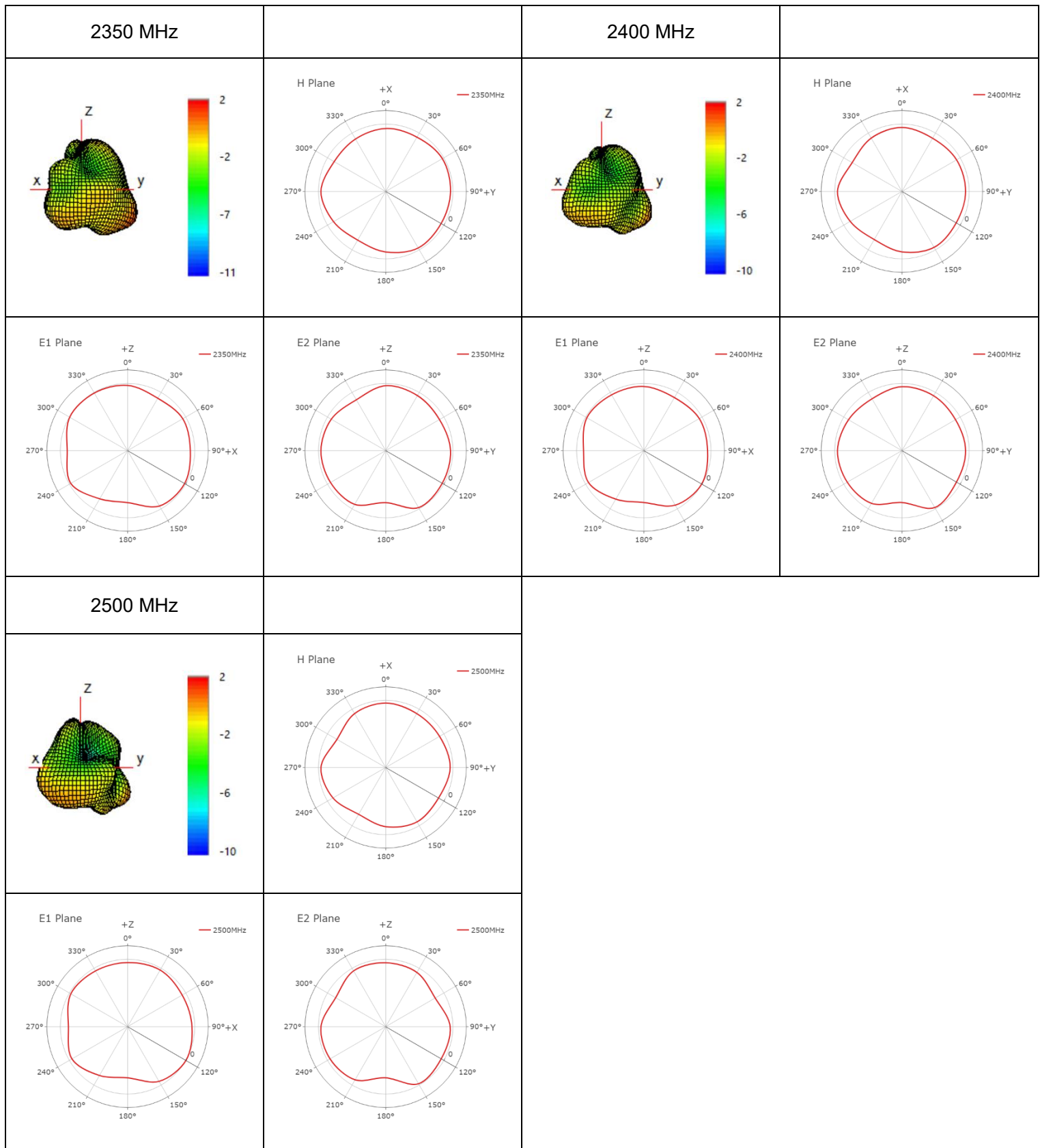




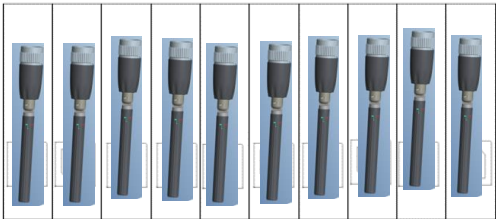
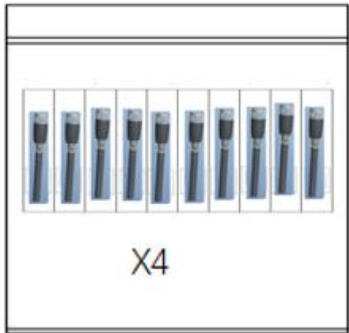
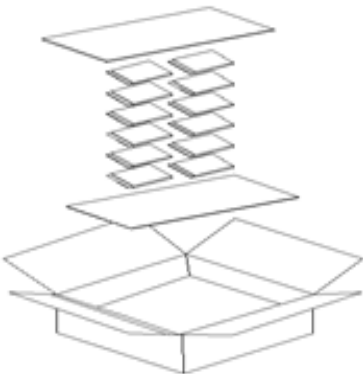


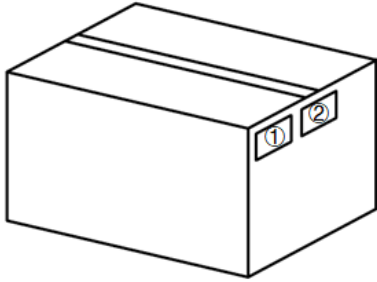
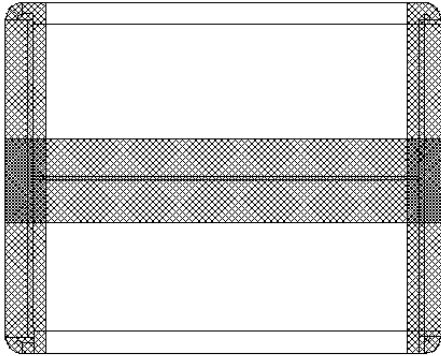
● **Max Peak Gain**





4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		10 pcs antenna products in a one-piece bag. (10 PCS / One-piece Bag)
2		40 pcs antenna products in a PE bag. (40 PCS / PE Bag)
3		(20 PE Bags / Carton Box) (800 PCS Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. <u>Carton Size:</u> <u>L × W × H = 300 × 250 × 200 mm</u>

4		Position for Attaching Labels ① Carton Label ② Quality Label
5		Sealing Cartons “I” type sealing cartons
Note	The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging.	

Contact Us

At Quectel, our aim is to provide timely and comprehensive services to our customers. If you require any assistance, please contact our headquarters:

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Revision History

Version	Date	Author	Note
-	2024-06-13	Black LI/ Rojin LUO/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-06-13	Black LI/ Rojin LUO/ David LIU/ Rainey LIAO	First official release



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