



Antenna Datasheet

Product OC: YECT011W1AM

Version: 1.3

Date: 2025-04-23

Status: Released

Product Name: 4G Terminal Mount Rubber Dipole External Antenna

Key Features:

Frequency Band: 698–960 MHz, 1710–2690 MHz

Dimensions: 135 mm × 15.6 mm × 13 mm

Efficiency: Up to 79.5 % (EVB)

RoHS and REACH Compliant

IP67

Compatible with FAKRA, TNC and N-Type connectors

Overview

YECT011W1AM is a 4G external antenna measuring 135 mm × 15.6 mm × 13 mm. This ultra-wide-band 4G antenna provides broad coverage from 698–960 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 IP67 rated, PC + ABS enclosure.

The antenna is designed as dipole type to work with various GND plane sizes or in free space for ease of integration with a hinged SMA Male connector to achieve the optimum position. Hinged structure helps to avoid other antennas or objects by rotating to different directions when mounted on terminals. This omni-directional antenna is ideally suited for Gateways & Routers, Smart Metering, Vending Machines, Industrial IoT, Smart Home, Connected Enterprise, offering great performance with its high gain and efficiency.

Typical applications include:

- Gateways & Routers
- Smart Metering
- Vending Machines
- Industrial IoT
- Smart Home
- Connected Enterprise

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 × 60 mm EVB

1.1. Electrical

Electrical	
Frequency Range	689–960 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	-	2.3	3.7	-	2.3	2.7	3.0	3.0	-	-	-
	Bent	-	2.1	3.6	-	1.6	2.8	3.2	3.2	-	-	-
Max. Return Loss (dB)	Straight	-	-8.2	-4.8	-	-8.1	-6.7	-6.1	-6.1	-	-	-
	Bent	-	-9.0	-5.0	-	-12.9	-6.6	-5.6	-5.6	-	-	-
AVG Eff. (%)	Straight	-	49.9	46.8	-	70.3	65.2	62.2	60.8	-	-	-
	Bent	-	51.6	45.4	-	74.2	65.5	54.8	52.7	-	-	-
AVG AVG Gain (dB)	Straight	-	-3.0	-3.3	-	-1.5	-1.9	-2.1	-2.2	-	-	-
	Bent	-	-2.9	-3.4	-	-1.3	-1.8	-2.6	-2.8	-	-	-
Max. Peak	Straight	-	1.2	1.6	-	5.3	4.3	3.8	3.6	-	-	-

Gain (dBi)	Bent	-	-0.1	-0.4	-	4.5	3.4	3.3	2.9	-	-	-
VSWR	Straight		≤ 3.7									
	Bent		≤ 3.6									
Return Loss	Straight		≤ -4.8 dB									
	Bent		≤ -5.0 dB									
Peak Gain	Straight		≤ 5.3 dBi									
	Bent		≤ 4.5 dBi									

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

1.2. Supported Bands

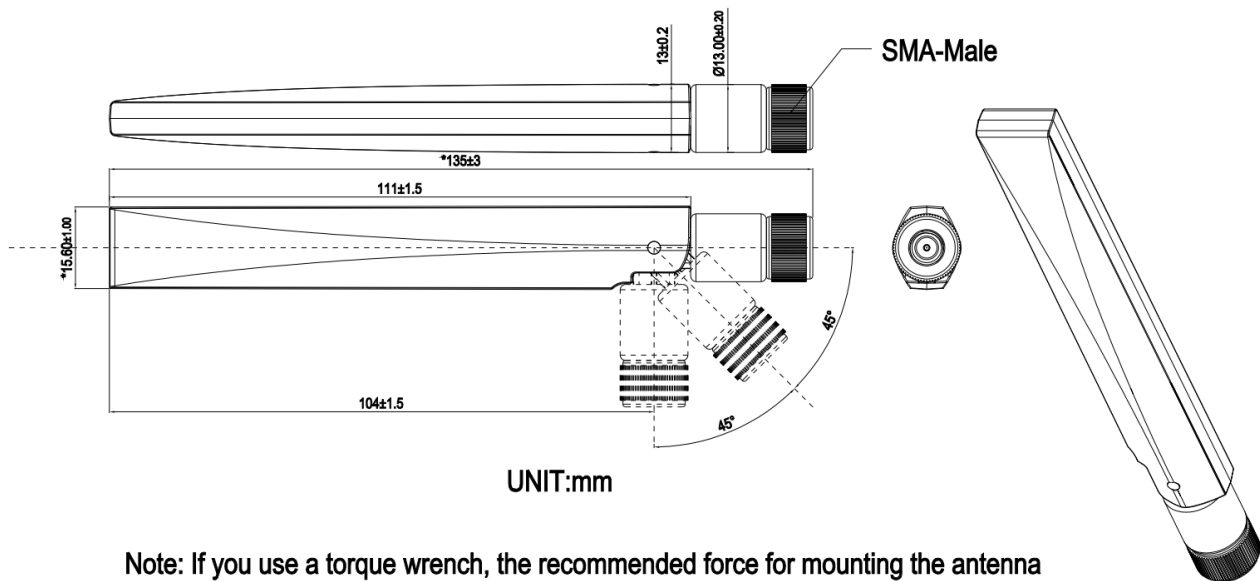
5G NR/LTE/LTE-Advanced/WCDMA/HSPA/HSPA+/GPRS/GSM/NB-IoT					
Band	Frequency (MHz)	Uplink (MHz)	Downlink (MHz)	Straight	Bent
1	2100	1920–1980	2110–2170	√	√
2	1900	1850–1910	1930–1990	√	√
3	1800	1710–1785	1805–1880	√	√
4	1700	1710–1755	2110–2155	√	√
5	850	824–849	869–894	√	√
7	2600	2500–2570	2620–2690	√	√
8	900	880–915	925–960	√	√
9	1800	1749.9–1784.9	1844.9–1879.9	√	√
11	1500	1427.9–1447.9	1475.9–1495.9	-	-
12	700	699–716	729–746	√	√
13	700	777–787	746–756	√	√
14	700	788–798	758–768	√	√
17	700	704–716	734–746	√	√
18	850	815–830	860–875	√	√
19	850	830–845	875–890	√	√
20	800	832–862	791–821	√	√
21	1500	1447.9–1462.9	1495.9–1510.9	-	-
22	3500	3410–3490	3510–3590	-	-
23	2100	2000–2020	2180–2200	√	√
24	1600	1626.5–1660.5	1525–1559	-	-
25	1900	1850–1915	1930–1995	√	√
26	850	814–849	859–894	√	√

5G NR/LTE/LTE-Advanced/WCDMA/HSPA/HSPA+/GPRS/GSM/NB-IoT					
Band	Frequency (MHz)	Uplink (MHz)	Downlink (MHz)	Straight	Bent
28	700	703–748	758–803	√	√
31	450	452.5–457.5	462.5–467.5	-	-
34	2100	2010–2025		√	√
38	2600	2570–2620		√	√
39	1900	1880–1920		√	√
40	2300	2300–2400		√	√
41	2500	2496–2690		√	√
42	3500	3400–3600		-	-
48	3500	3550–3700		-	-
66	1700	1710–1780	2110–2200	√	√
71	600	663–698	617–652	-	-
74	1500	1427–1470	1475–1518	-	-
77	3500	3300–4200		-	-
78	3500	3300–3800		-	-
79	4500	4400–5000		-	-

1.3. Mechanical & Environmental

Mechanical	
Antenna Dimensions	135 mm × 15.6 mm × 13 mm
Material & Color	PC + ABS & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 17 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP67 (After Installation)
RoHS and REACH Compliant	Yes

2 Drawing

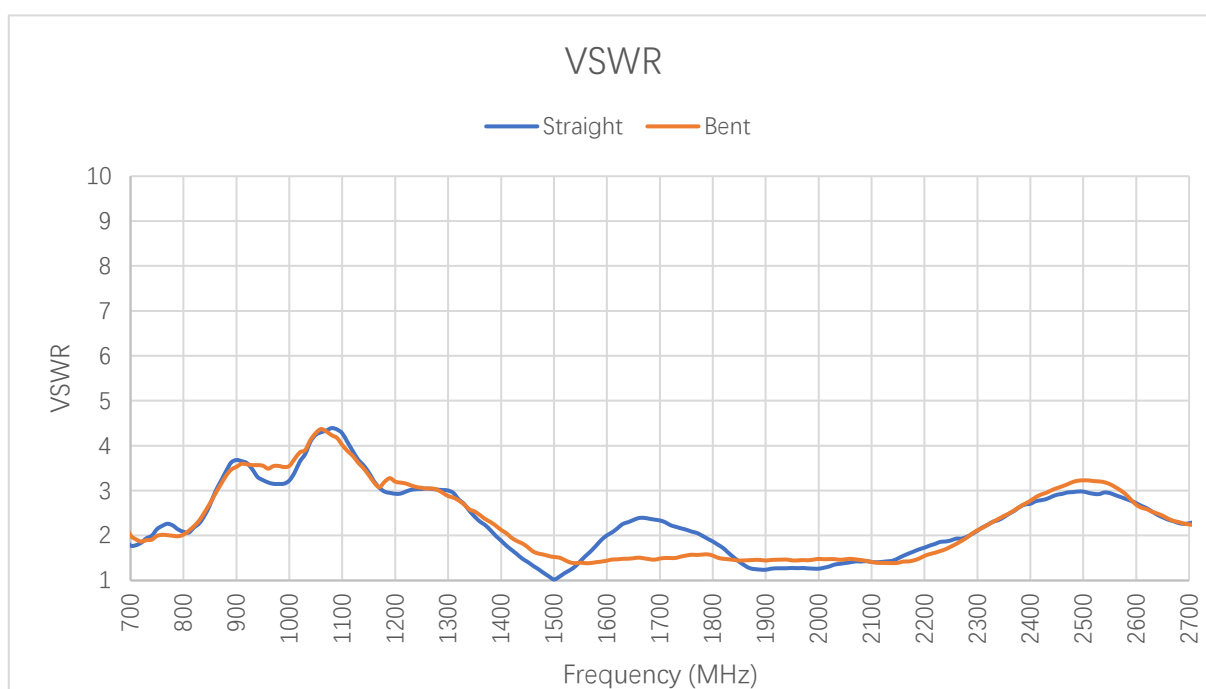


Note: If you use a torque wrench, the recommended force for mounting the antenna is 0.9Nm and the maximum torque to prevent antenna damage is 1.17Nm.

3 Detailed Performance

3.1. S-Parameter Test

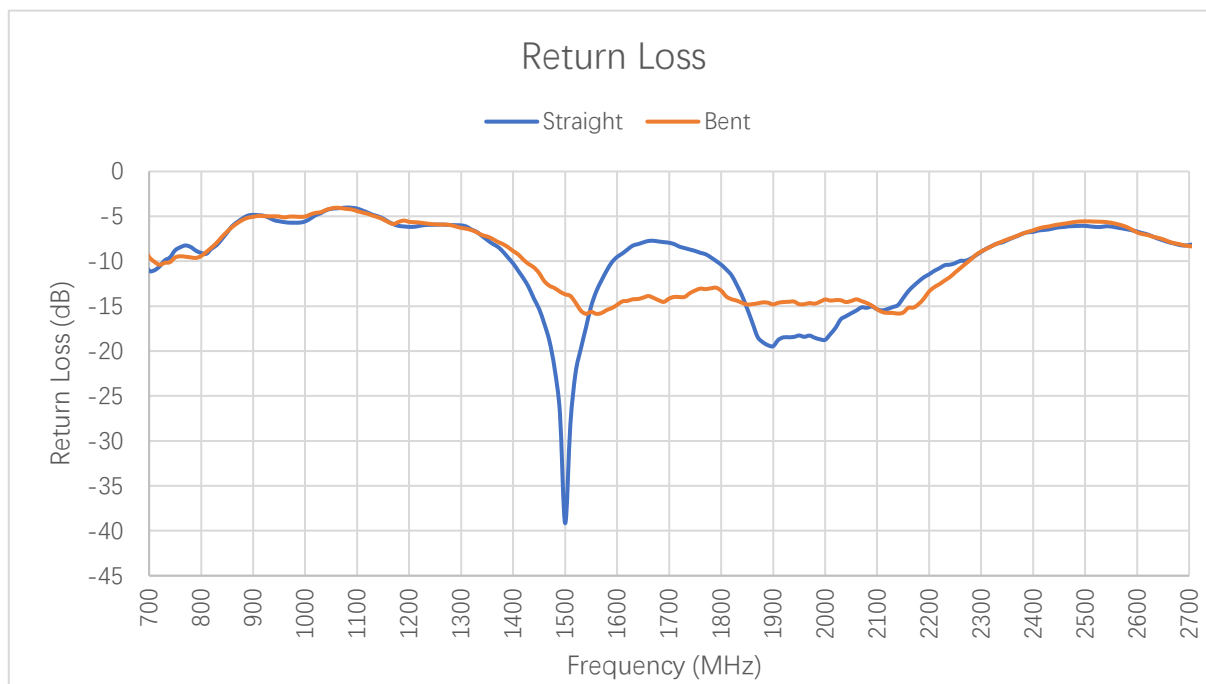
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	-	-	1.8	2.3	3.7	3.2	-	2.3	2.2	1.3
Bent	-	-	1.9	2.3	3.5	3.5	-	1.5	1.5	1.5
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	1.3	1.4	2.4	2.9	2.7	2.3	-	-	-	-
Bent	1.4	1.4	2.4	3.1	2.7	2.3	-	-	-	-

3.1.2. Return Loss

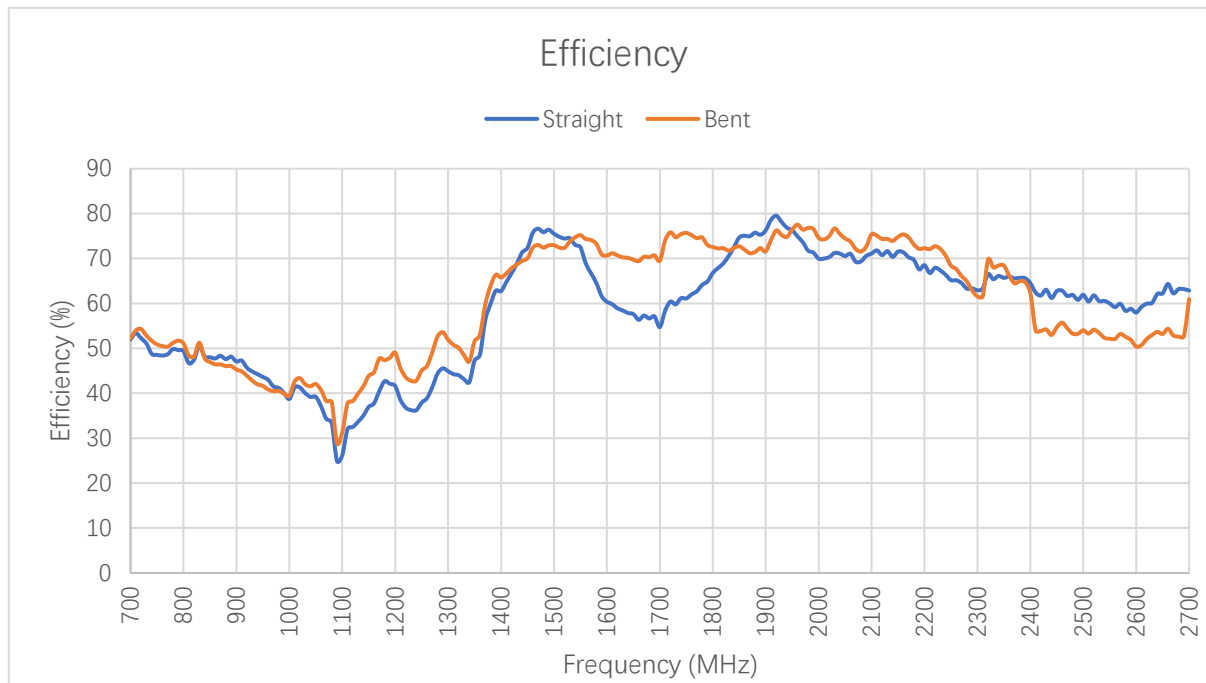


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	-	-	-11.0	-8.2	-4.8	-5.7	-	-8.1	-8.7	-19.0
Bent	-	-	-10.1	-7.9	-5.1	-5.1	-	-14.0	-13.6	-14.6
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	-18.3	-14.9	-7.7	-6.2	-6.7	-8.3	-	-	-	-
Bent	-14.8	-15.8	-7.6	-5.9	-6.8	-8.2	-	-	-	-

3.2. Radiation Performance Test

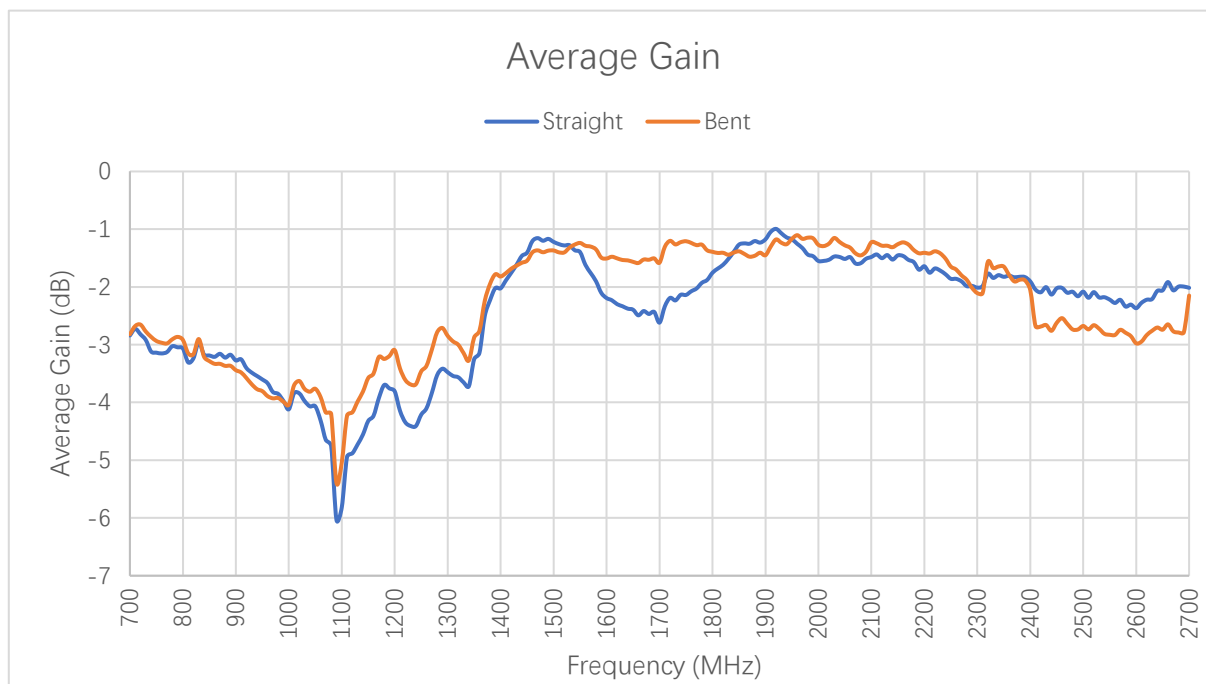
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	-	-	53.4	50.6	47.1	43.0	-	58.4	61.1	75.7
Bent	-	-	54.0	51.3	45.3	40.8	-	74.0	75.4	71.4
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	76.3	70.4	65.7	62.8	58.0	63.2	-	-	-	-
Bent	76.4	73.9	68.4	54.7	50.4	52.7	-	-	-	-

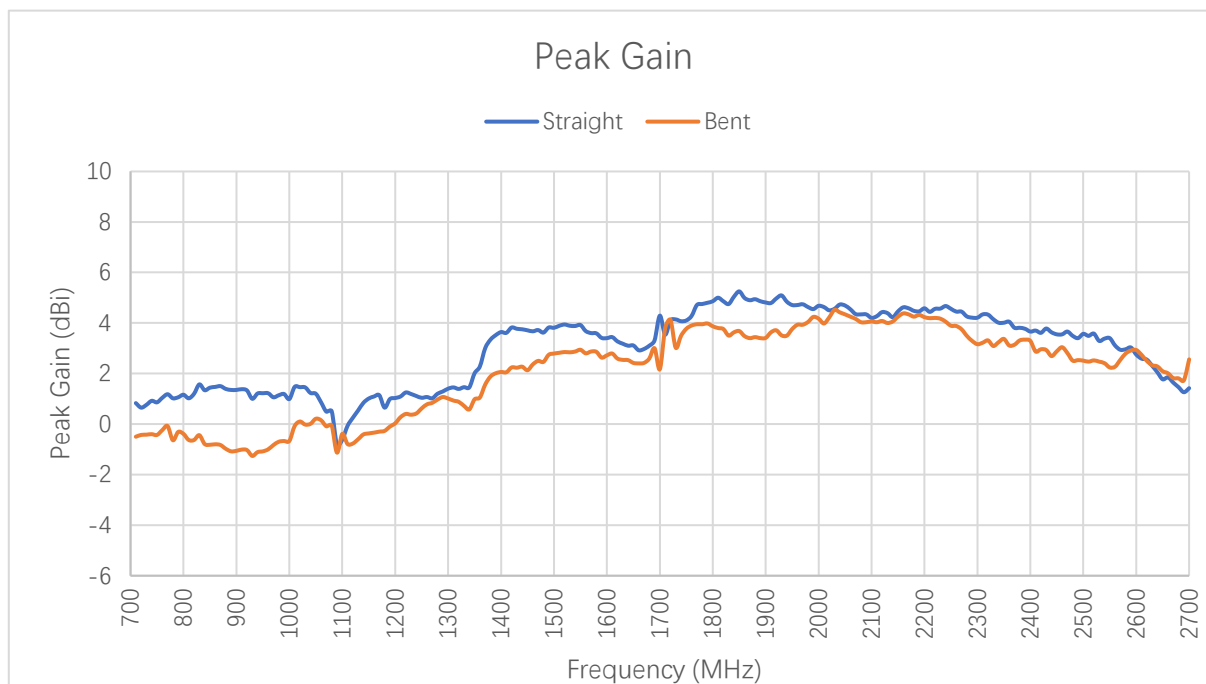
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	-	-	-2.7	-3.0	-3.3	-3.7	-	-2.3	-2.1	-1.2
Bent	-	-	-2.7	-2.9	-3.4	-3.9	-	-1.3	-1.2	-1.5
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	-1.2	-1.5	-1.8	-2.0	-2.4	-2.0	-	-	-	-
Bent	-1.2	-1.3	-1.6	-2.6	-3.0	-2.8	-	-	-	-

3.2.3. Peak Gain



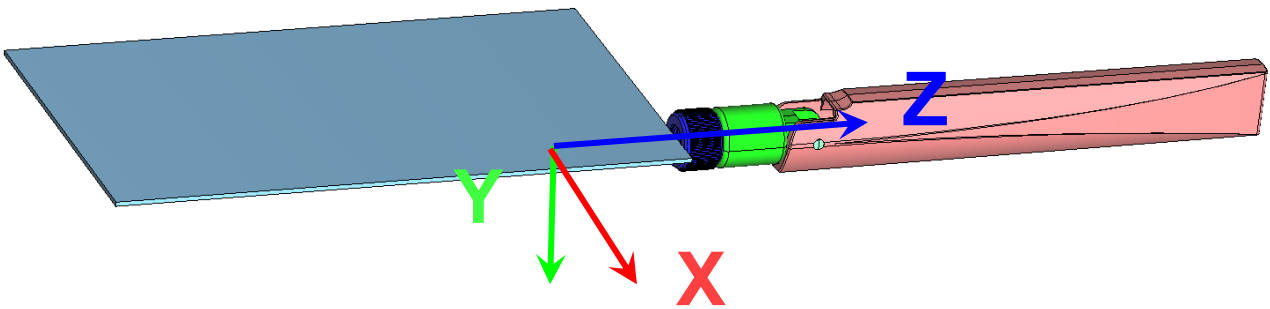
Peak Gain (dBi)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Straight	-	-	0.8	1.6	1.4	1.2	-	3.5	4.1	4.9
Bent	-	-	-0.5	-0.4	-1.1	-1.0	-	3.8	3.5	3.4
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Straight	4.7	4.2	4.0	3.6	2.8	1.3	-	-	-	-
Bent	3.8	4.1	3.4	2.9	2.9	1.7	-	-	-	-

3.2.4. 3D & 2D Radiation Pattern

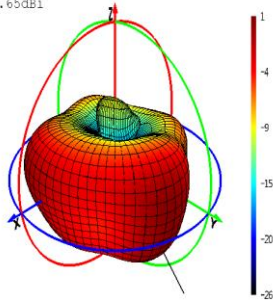
3.2.4.1. Test Condition: On 130 mm × 60 mm EVB and Straight

- Test Chamber: FS-S-1

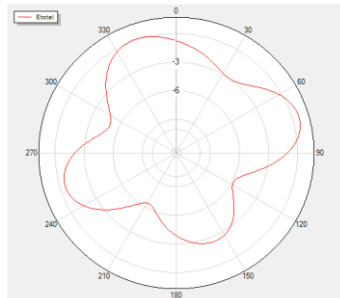


710 MHz

MAX: 0.83dBi
MIN: -26.65dBi

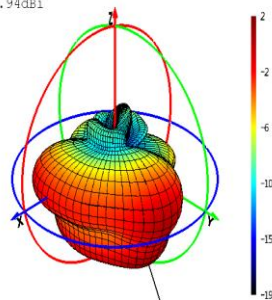


Theta=90 Freq=710MHz

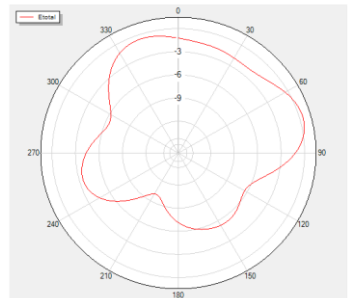


830 MHz

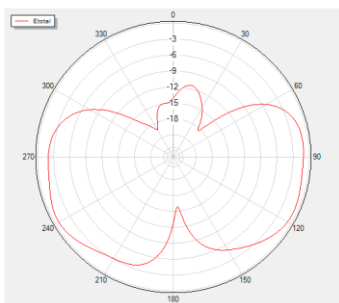
MAX: 1.57dBi
MIN: -19.94dBi



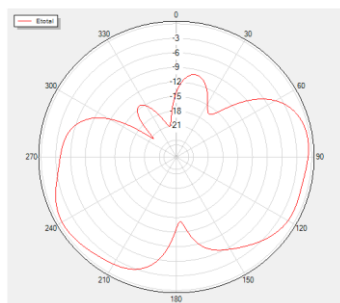
Theta=90 Freq=830MHz



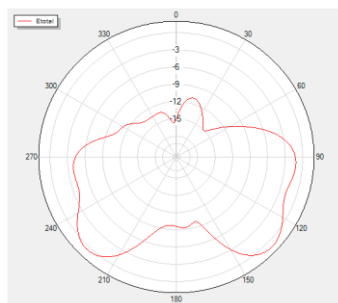
Phi=90 Freq=710MHz



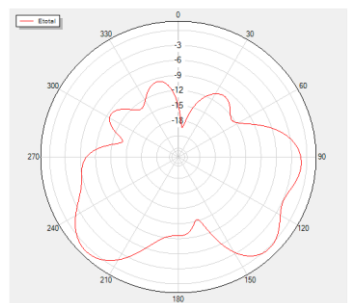
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Phi=90 Freq=830MHz

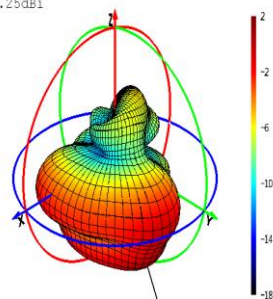


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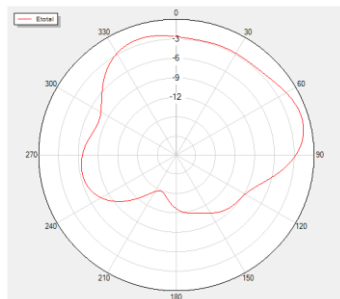


900 MHz

MAX: 1.35dBi
MIN: -19.25dBi

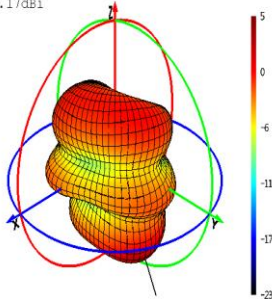


Theta=90 Freq=900MHz

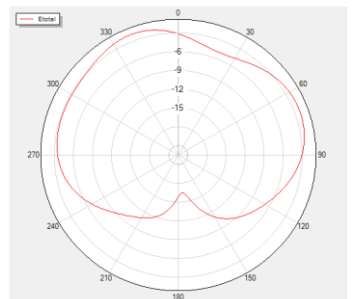


1740 MHz

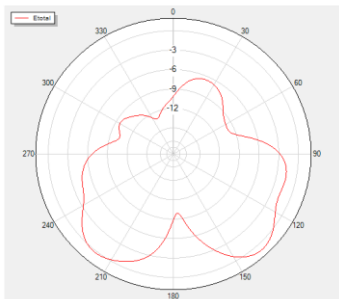
MAX: 4.07dBi
MIN: -24.17dBi



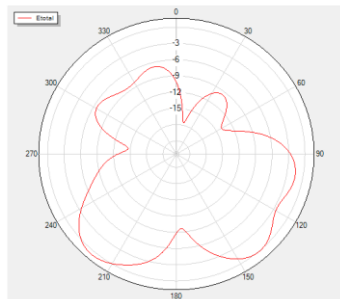
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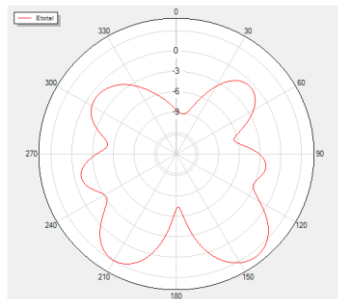
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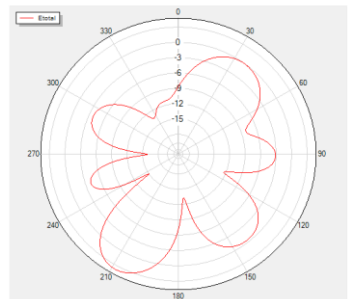
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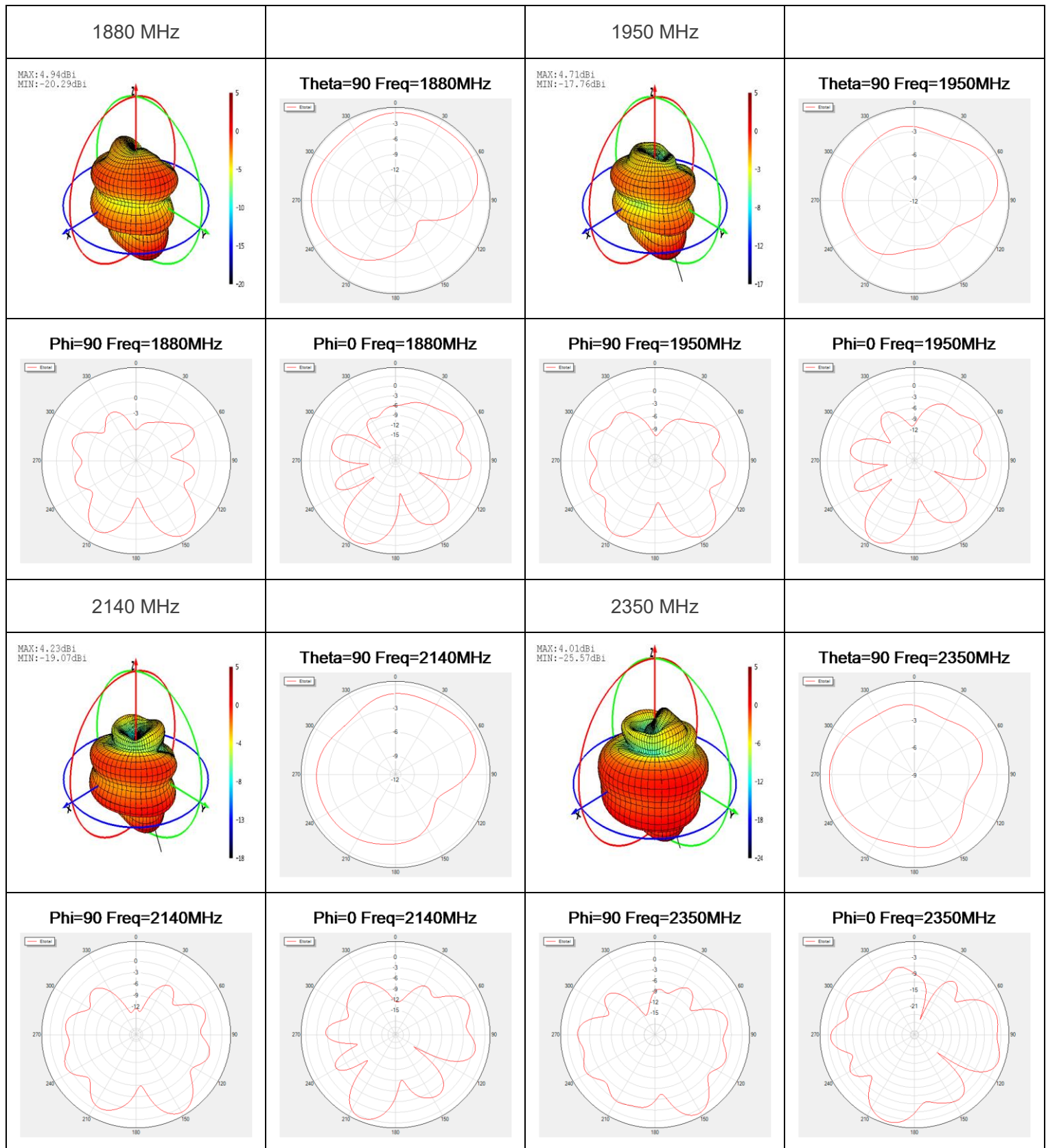


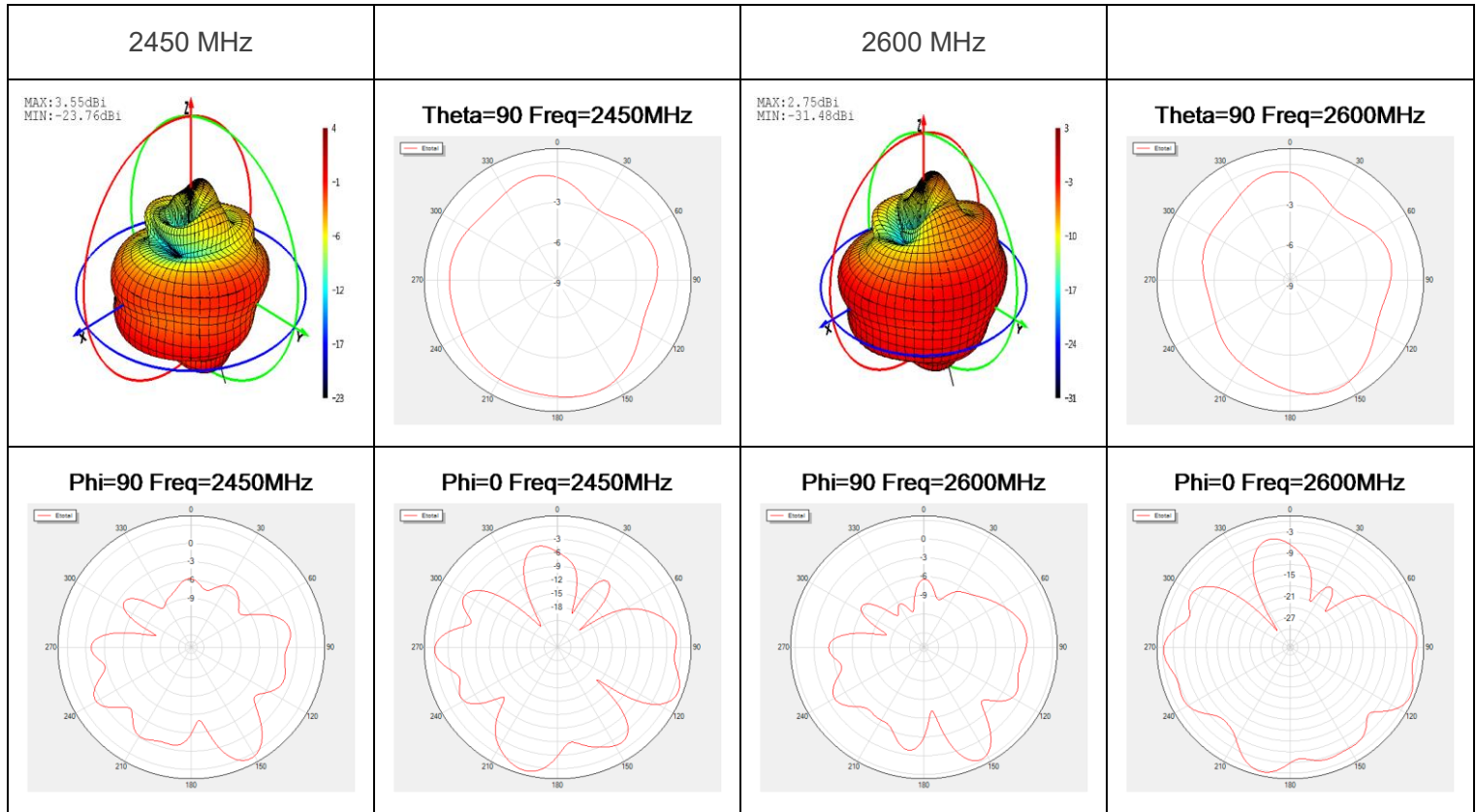
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Phi=0 Freq=1740MHz

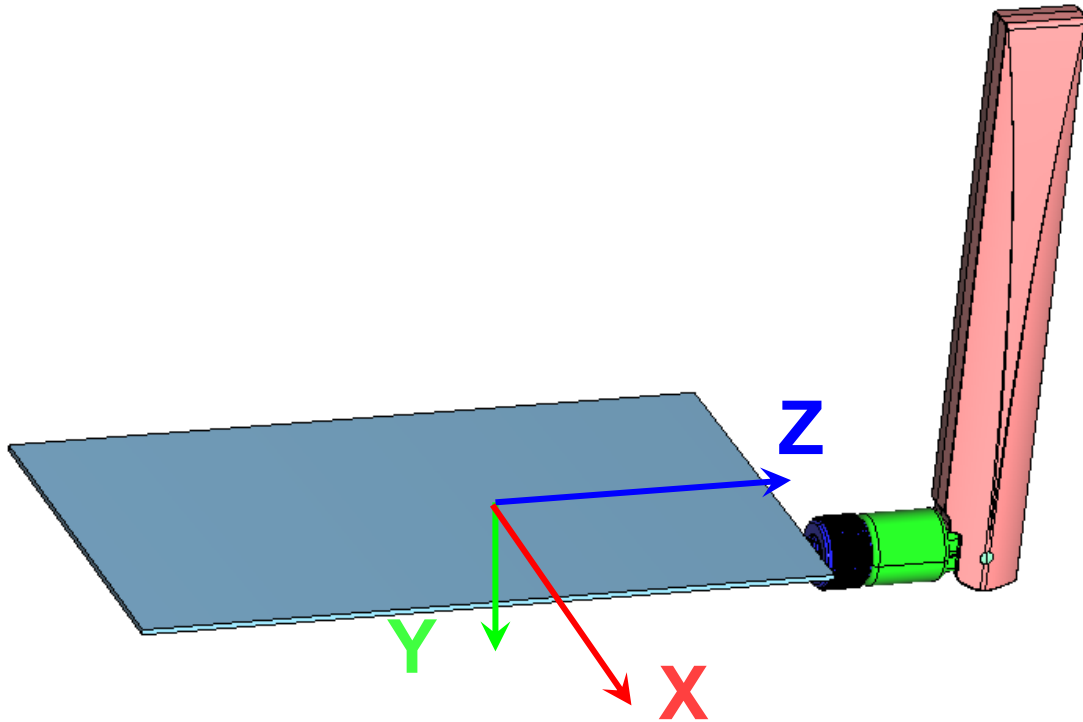






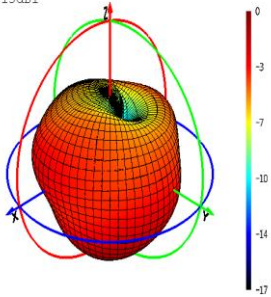
3.2.4.2. Test Condition: On 130 mm × 60 mm EVB and Bent

- Test Chamber: FS-S-1

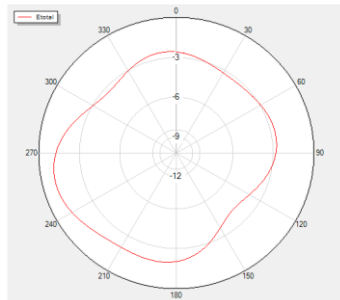


710 MHz

MAX:-0.5dBi
MIN:-18.13dBi

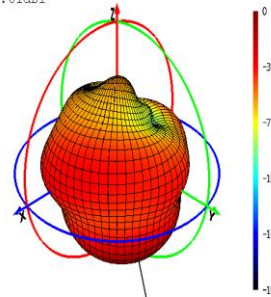


Theta=90 Freq=710MHz

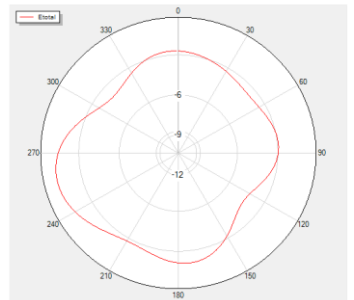


830 MHz

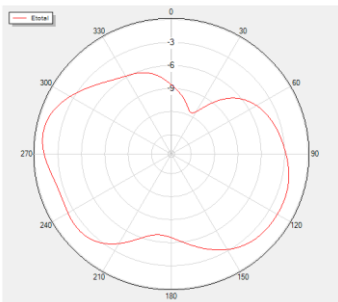
MAX:-0.44dBi
MIN:-18.61dBi



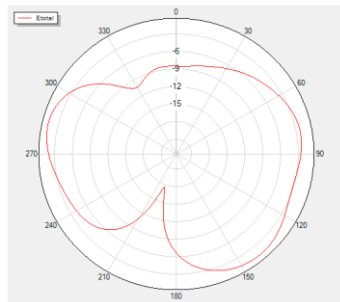
Theta=90 Freq=830MHz



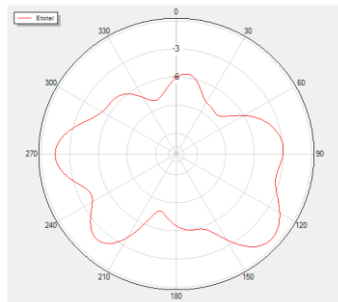
Phi=90 Freq=710MHz



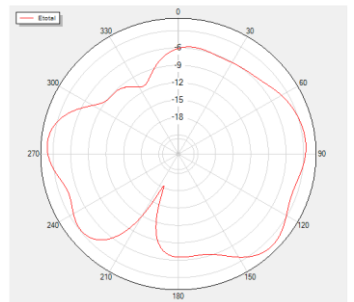
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Phi=90 Freq=830MHz

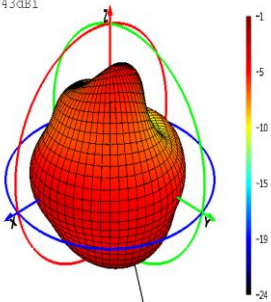


Phi=0 Freq=830MHz

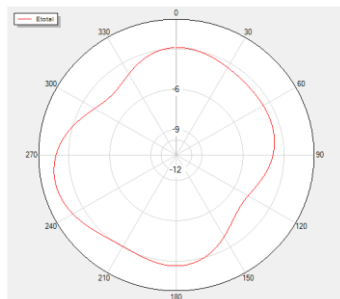


900 MHz

MAX:-1.06dBi
MIN:-24.43dBi

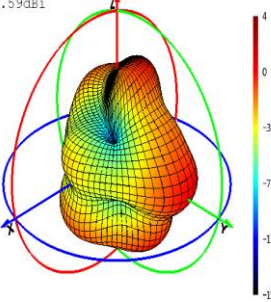


Theta=90 Freq=900MHz

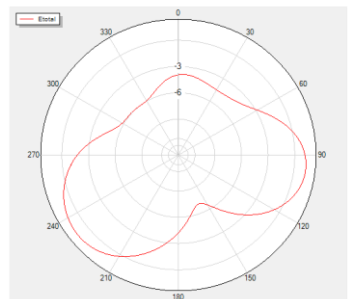


1740 MHz

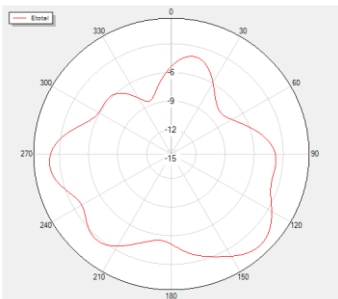
MAX:3.49dBi
MIN:-16.59dBi



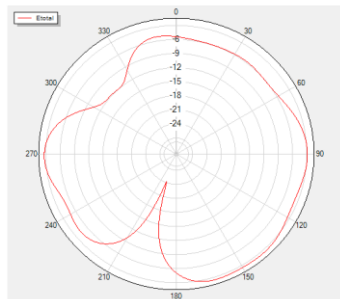
Theta=90 Freq=1740MHz



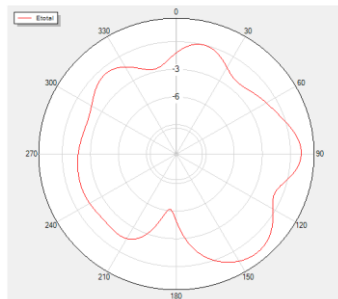
Phi=90 Freq=900MHz



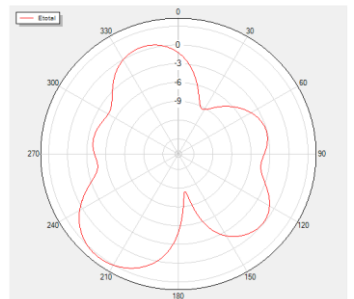
Phi=0 Freq=900MHz

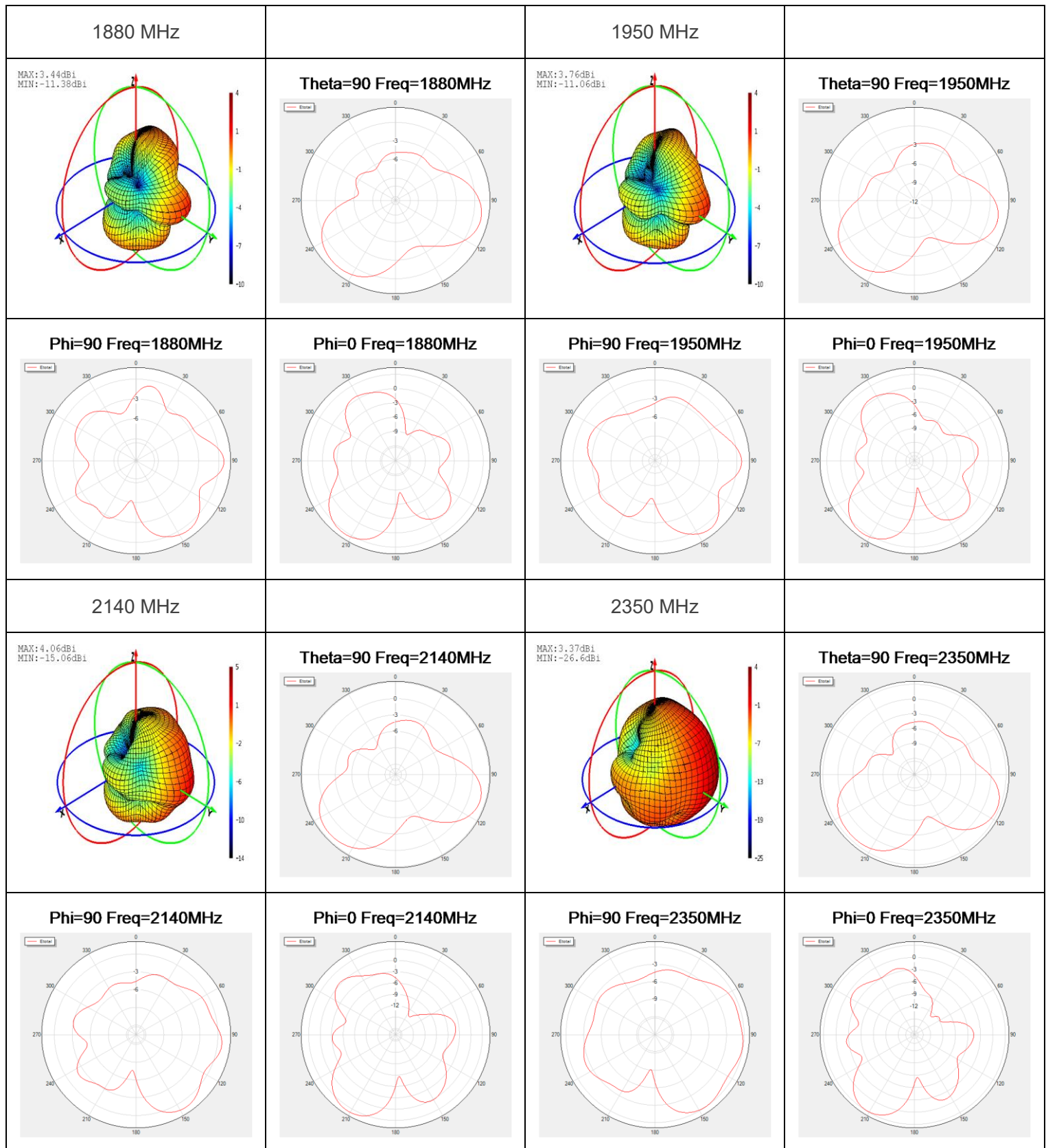


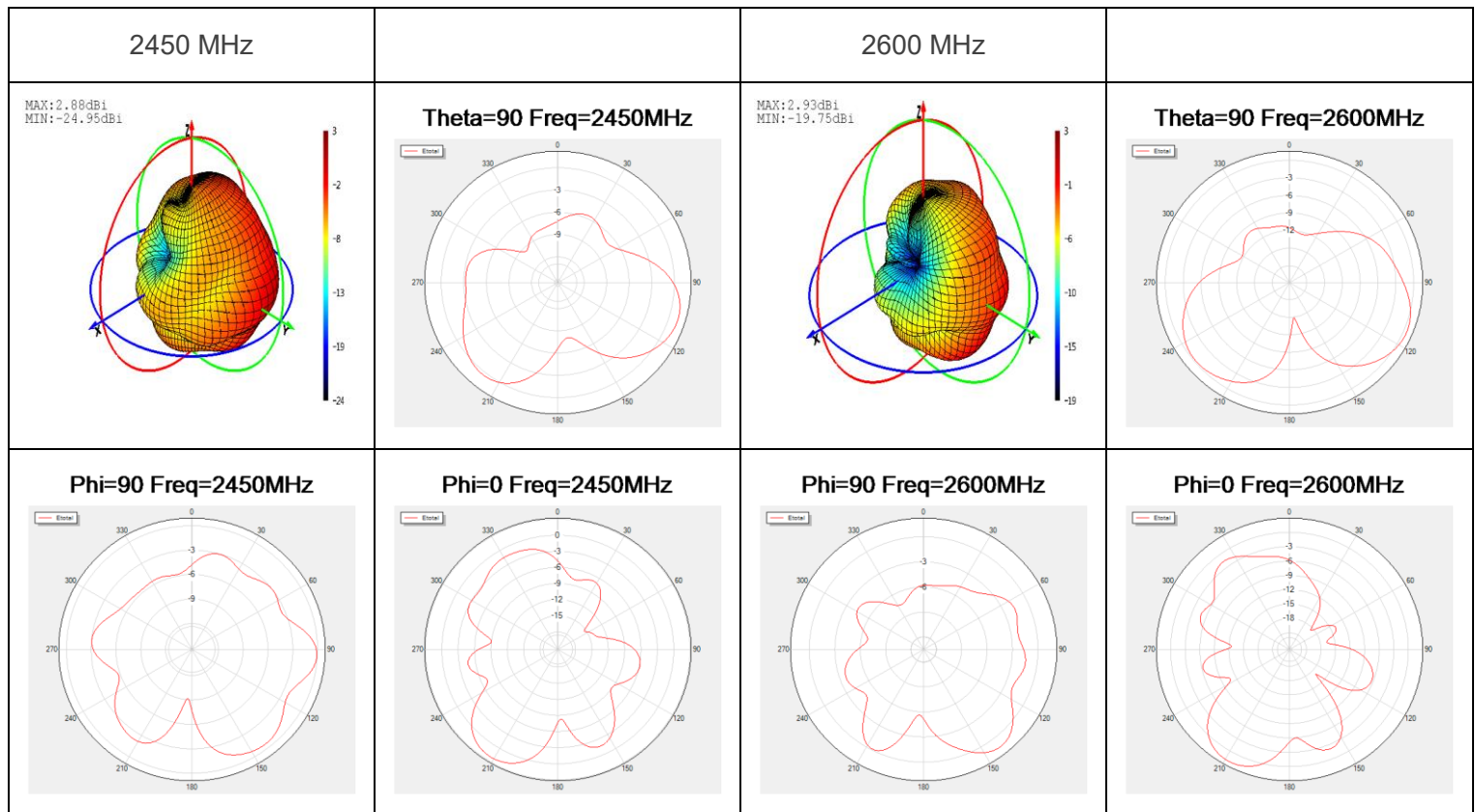
Phi=90 Freq=1740MHz



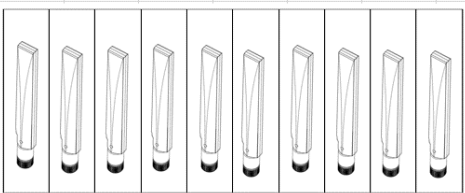
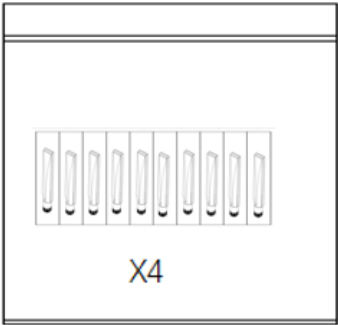
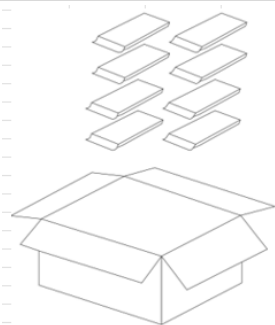
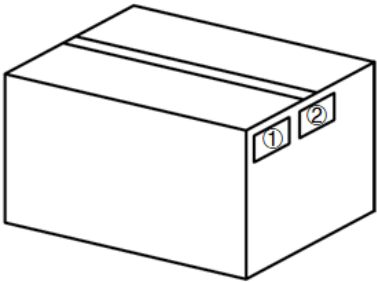
Phi=0 Freq=1740MHz

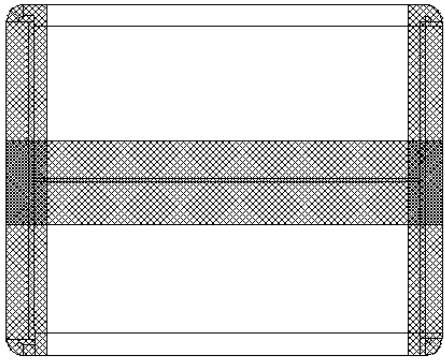






4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		10 pcs antenna products in a one-piece bag. (10 PCS Antennas / One-piece Bag)
2		40 pcs antenna products in a PE bag. (40 PCS Antennas / PE Bag)
3		(8 PE Bags / Carton Box) (320 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 = 325 × 325 × 200 mm</u>
4		Position for Attaching Labels ① Carton Label ② Quality Label

5		Sealing Cartons H-shaped 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

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Revision History

Version	Date	Author	Note
-	2024-08-27	Mordecai LIU/ Lance SUN/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-08-27	Mordecai LIU/ Lance SUN/ David LIU/ Rainey LIAO	First official release
1.1	2024-11-07	Lance SUN	Updated the drawing (Chapter 2).
1.2	2025-03-11	Rainey LIAO	Updated the starting frequency to 698 MHz (Homepage, Overview and Chapter 1.1).
1.3	2025-04-24	Mordecai LIU	Numerous changes were made to this document. It should be read in its entirety.



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