



Antenna Datasheet

Product OC: YECN009AA

Version: 5.4

Date: 2026-01-26

Status: Released

Product Name: 5G Terminal Mount Rubber Dipole External Antenna

Key Features:

Frequency Band: 5G: 600–6000 MHz;

Wi-Fi: 2400–2500 MHz, 5150–7125 MHz

Dimensions: 200 mm × 21 mm × 8 mm

Efficiency: Up to 79.6 % (FS)

RoHS and REACH Compliant

Overview

YECT005WFA is a 5G external antenna measuring 200 mm × 21 mm × 8 mm. This ultra-wide-band 5G antenna provides broad coverage from 600–6000 MHz whilst offering backward-compatibility to support 4G/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 PC 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 × 130 mm EVB & Free Space

1.1. Electrical

Electrical	
Frequency Range	5G: 600–6000 MHz Wi-Fi: 2400–2500 MHz, 5150–7125 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical – 5G												
SPEC	Band	B71	B12 /B13 /B28	B5 /B8 /B26	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41	B48	B42 /n77	n79	Wi-Fi 5G
	Freq. (MHz)	600–700	700–810	820–960	1700–2170	2300–2400	2400–2500	2500–2690	3550–3700	3300–4200	4400–5000	5150–5850
Max. VSWR	EVB	4.5	2.1	2.1	1.6	1.7	2.3	2.5	3.1	3.4	2.3	4.0
	FS	3.2	2.1	1.4	1.7	1.9	1.7	2.2	2.0	2.0	1.8	2.7
Max. Return Loss (dB)	EVB	-3.9	-9.1	-9.1	-12.2	-11.5	-8.2	-7.5	-5.7	-5.3	-8.0	-4.4
	FS	-5.7	-9.2	-14.8	-12.1	-10.4	-11.6	-8.7	-9.6	-9.5	-11.1	-6.8
AVG Eff. (%)	EVB	44.0	62.0	56.3	73.3	73.2	66.5	60.9	57.2	57.2	52.4	37.1
	FS	36.9	35.8	35.4	58.8	67.5	69.2	65.7	53.1	48.8	51.0	47.9
AVG AVG Gain (dB)	EVB	-3.7	-2.1	-2.5	-1.4	-1.4	-1.8	-2.2	-2.4	-2.5	-2.8	-4.4
	FS	-4.3	-4.5	-4.5	-2.4	-1.7	-1.6	-1.8	-2.7	-3.2	-3.0	-3.2
Max. Peak Gain (dBi)	EVB	1.3	1.7	1.9	3.4	2.2	2.0	1.7	3.3	3.6	4.3	3.0
	FS	-0.9 (698)	-0.5 (710)	0.3 (850)	2.6 (2140)	1.5 (2350)	1.2 (2500)	1.4 (2590)	3.6 (3630)	3.6 (3340)	4.0 (4670)	3.9 (5460)
VSWR	EVB		≤ 4.5									
	FS		≤ 3.2									
Return Loss	EVB		≤ -3.9 dB									
	FS		≤ -5.7 dB									
Peak Gain	EVB		≤ 4.3 dBi									
	FS		≤ 4.0 dBi									

Electrical – NTN						
SPEC	Band	L Band	L Band	L Band	B256 / B23	B256 / B23
		1518–1559	1620–1665	1668–1675	1980–2020	2170–2200
Max. VSWR	EVB	1.8	1.3	1.4	1.6	1.5
	FS	1.5	1.4	1.4	1.5	1.5
Max. Return Loss (dB)	EVB	-10.7	-16.9	-16.4	-12.2	-13.5
	FS	-13.6	-15.9	-15.5	-14.3	-13.5
AVG Eff. (%)	EVB	60.2	63.4	61.8	72.6	67.8
	FS	49.8	47.4	47.7	65.5	75.3
AVG AVG Gain (dB)	EVB	-2.2	-2.0	-2.1	-1.4	-1.7
	FS	-3.0	-3.2	-3.2	-1.8	-1.2
Max. Peak Gain (dBi)	EVB	2.2	2.7	2.0	3.4	1.8
	FS	0.1 (1520)	0.9 (1660)	1.0 (1675)	2.0 (2020)	2.4 (2170)
VSWR	EVB	≤ 1.8				
	FS	≤ 1.5				
Return Loss	EVB	≤ -10.7 dB				
	FS	≤ -13.5 dB				
Peak Gain	EVB	≤ 3.4 dBi				
	FS	≤ 2.4 dBi				

- FS: Free Space
- EVB: On 130 mm × 130 mm EVB

Electrical – Wi-Fi					
Specification	Band	Band	Wi-Fi 2G	Wi-Fi 5G	Wi-Fi 6G
		Freq. (MHz)	2400–2500	5150–5850	5925–7125
Max. VSWR	EVB		2.3	4.0	3.9
	FS		1.7	2.7	2.0
Max. Return Loss (dB)	EVB		-8.2	-4.4	-4.5
	FS		-11.6	-6.8	-9.5
AVG Eff. (%)	EVB		66.5	37.1	38.2
	FS		69.2	47.9	47.1
AVG. AVG Gain (dB)	EVB		-1.8	-4.4	-4.3
	FS		-1.6	-3.2	-3.3
Max. Peak Gain (dBi)	EVB		2.0	3.0	4.2
	FS		1.2 (2500)	3.9 (5460)	4.3 (6690)
VSWR	EVB		≤ 4.0		
	FS		≤ 2.7		
Return Loss	EVB		≤ -4.4 dB		
	FS		≤ -6.8 dB		
Peak Gain	EVB		≤ 4.2 dBi		
	FS		≤ 4.3 dBi		

- FS: Free Space
- EVB: On 130 mm × 130 mm EVB

1.2. Supported Bands

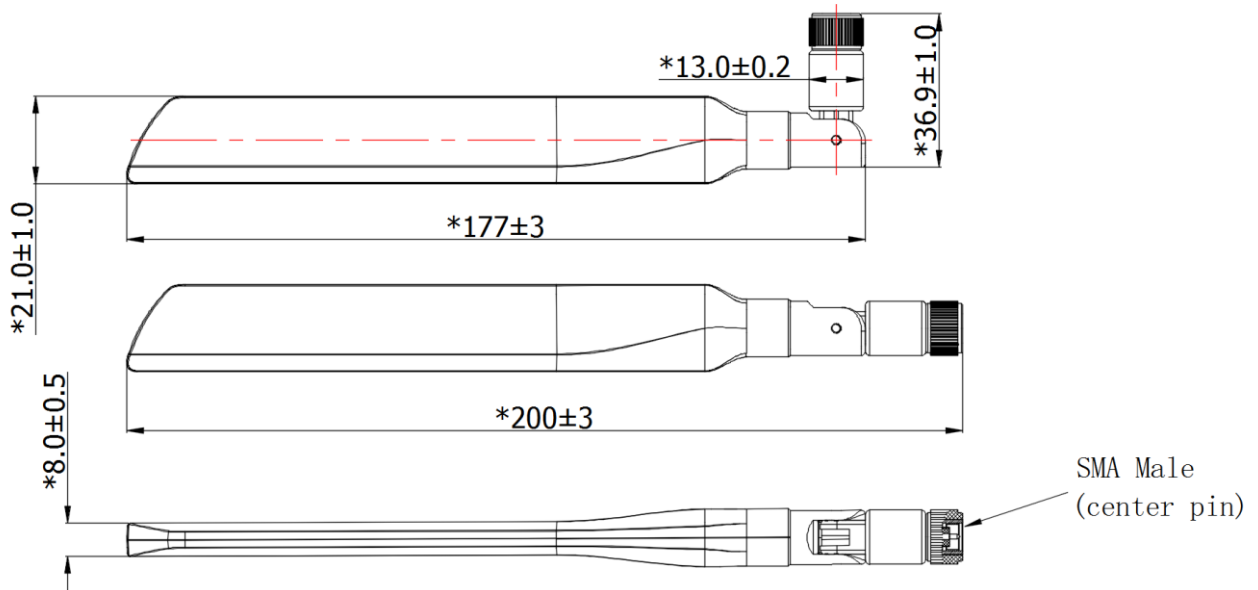
5G NR/LTE/LTE-Advanced/WCDMA/HSPA/HSPA+/GPRS/GSM/NB-IoT					
Band	Frequency (MHz)	Uplink (MHz)	Downlink (MHz)	EVB	FS
1	2100	1920–1980	2110–2170	√	√
2	1900	1850–1910	1930–1990	√	√
3	1800	1710–1785	1805–1880	√	√
4	1700	1710–1755	2110–2155	√	√
5	850	824–849	869–894	√	√
7	2600	2500–2570	2620–2690	√	√
8	900	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)	EVB	FS
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	200 mm × 21 mm × 8 mm
Material & Color	PC & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 24.9 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS and REACH Compliant	Yes

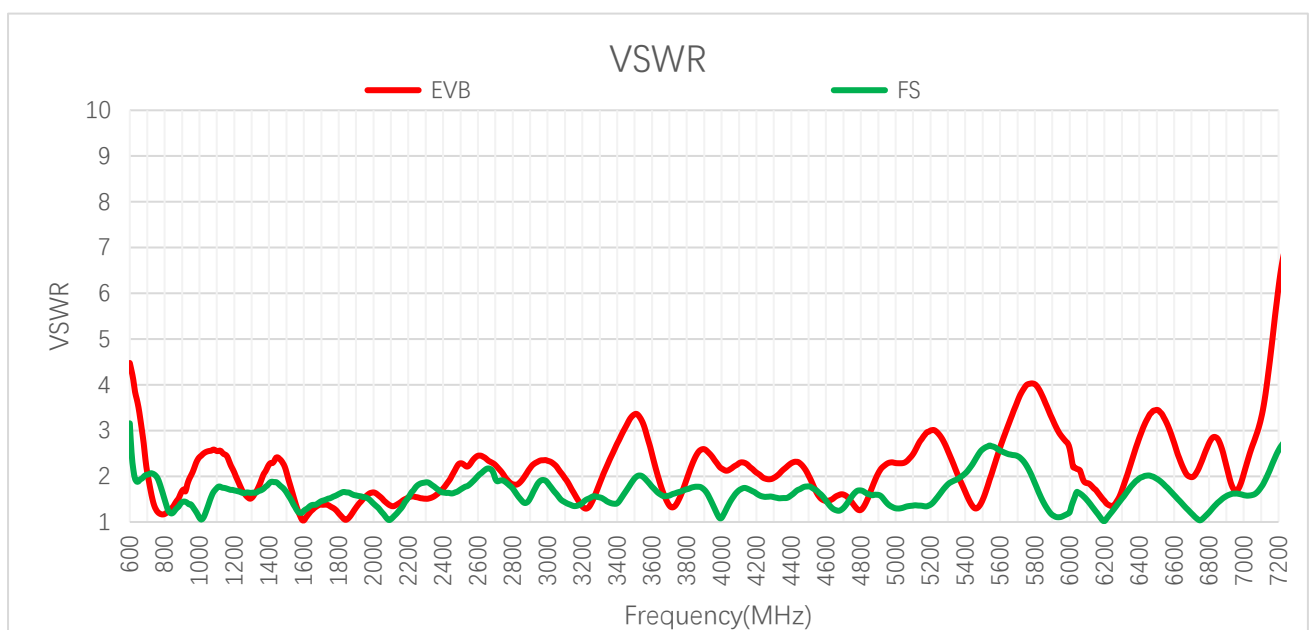
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

3.1.1. VSWR



VSWR – 5G

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
EVB	4.5	3.8	1.9	1.3	1.7	2.1	2.4	1.4	1.4	1.2
FS	3.2	1.9	2.0	1.2	1.4	1.3	1.9	1.5	1.5	1.6
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
EVB	1.5	1.4	1.6	2.0	2.4	2.5	1.6	2.3	1.5	2.7
FS	1.5	1.2	1.8	1.6	2.0	1.8	1.3	1.3	2.6	1.2

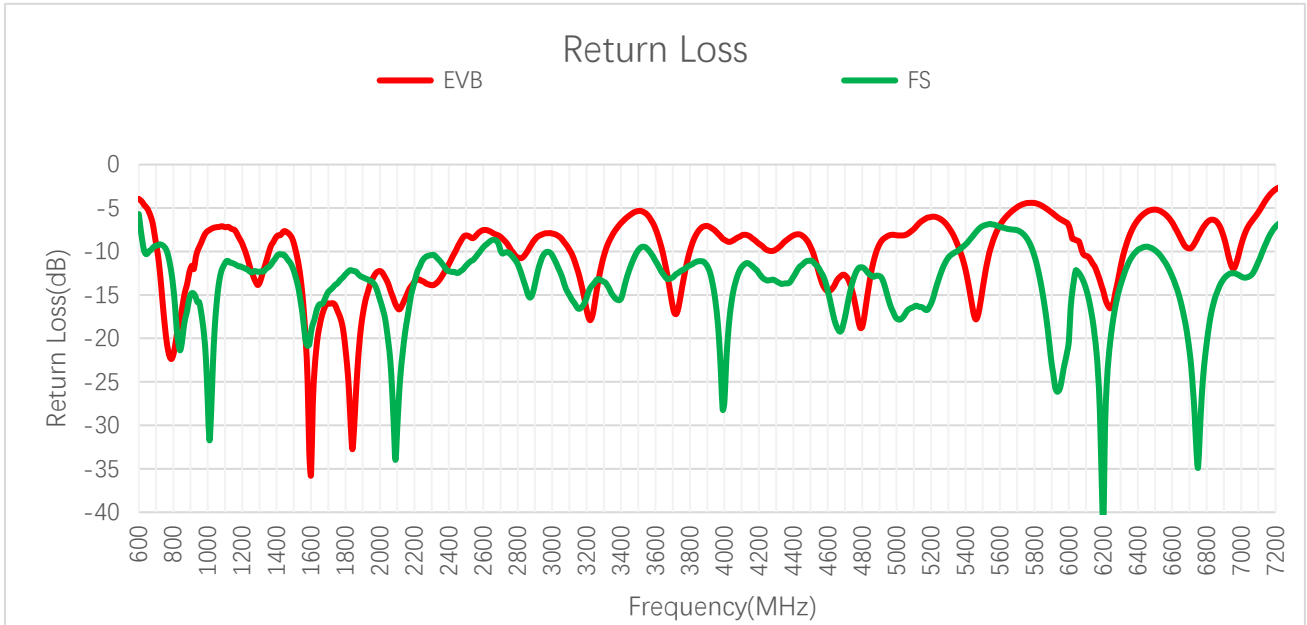
VSWR – NTN Bands

Frequency (MHz)	1520	1560	1630	1680	2000	2200
EVB	1.8	1.3	1.2	1.4	1.6	1.5
FS	1.5	1.3	1.3	1.4	1.4	1.5

VSWR – Wi-Fi

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
EVB	1.7	2.0	2.3	2.8	1.5	3.7	3.0	2.0	2.1	3.9
FS	1.6	1.6	1.7	1.4	2.6	1.4	1.1	1.7	1.1	2.0

3.1.2. Return Loss



Return Loss (dB) – 5G

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
EVB	-3.9	-4.6	-10.3	-18.6	-12.0	-9.1	-7.7	-16.0	-16.2	-20.7
FS	-5.7	-9.9	-9.3	-20.6	-15.0	-16.8	-10.4	-14.5	-13.8	-12.7
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
EVB	-13.4	-15.7	-13.2	-9.5	-7.5	-7.4	-12.7	-8.1	-14.2	-6.8
FS	-13.4	-20.3	-11.1	-12.5	-9.5	-11.1	-17.6	-17.7	-7.1	-20.3

Return Loss (dB) – NTN Bands

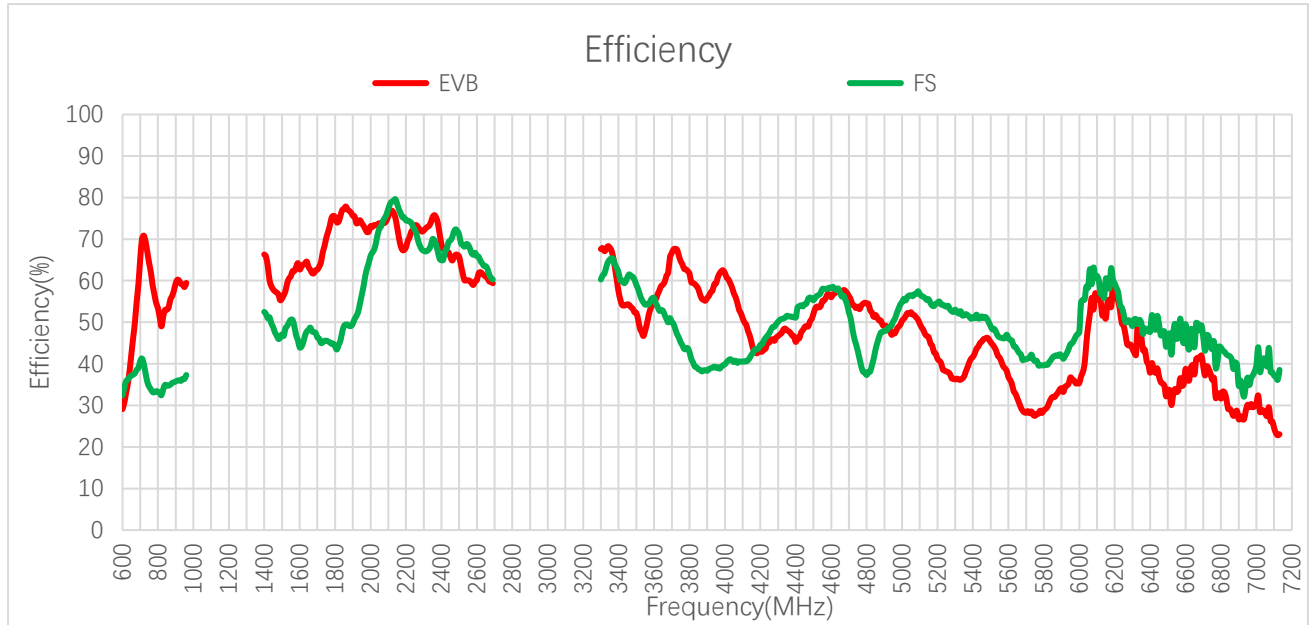
Frequency (MHz)	1520	1560	1630	1680	2000	2200
EVB	-10.7	-17.4	-21.3	-16.4	-12.2	-13.5
FS	-13.6	-18.9	-17.0	-15.5	-15.5	-13.5

Return Loss (dB) – Wi-Fi

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
EVB	-11.5	-9.5	-8.2	-6.5	-14.2	-4.8	-6.0	-9.4	-9.1	-4.5
FS	-12.3	-12.5	-11.6	-16.4	-7.1	-15.1	-26.1	-12.1	-28.7	-9.7

3.2. Radiation Performance Test

3.2.1. Efficiency



Efficiency (%) – 5G

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
EVB	29.1	35.2	70.0	51.5	59.3	59.5	58.7	63.4	68.3	76.8
FS	32.5	36.2	41.3	33.9	35.7	37.3	49.7	46.1	45.5	49.1
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
EVB	73.9	75.2	75.3	65.8	60.2	55.6	56.3	50.4	45.2	35.4
FS	56.5	79.6	70.0	69.7	65.9	55.8	52.3	54.8	49.0	47.6

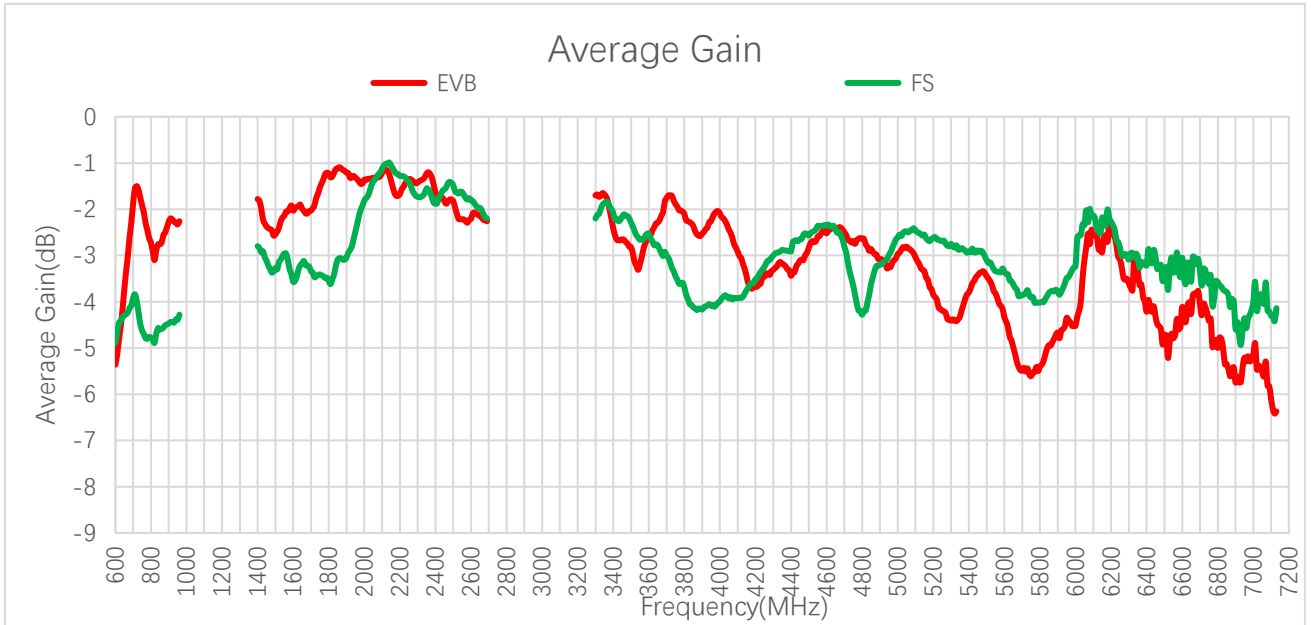
Efficiency (%) – NTN Bands

Frequency (MHz)	1520	1560	1630	1680	2000	2200
EVB	57.6	62.3	64.2	61.8	73.1	68.1
FS	48.6	50.6	46.8	47.7	66.0	74.5

Efficiency (%) – Wi-Fi

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
EVB	68.8	65.8	65.8	46.4	45.2	32.1	34.7	49.7	38.8	23.1
FS	64.9	69.7	71.1	55.6	49.0	41.6	42.6	49.6	46.6	38.6

3.2.2. Average Gain



Average Gain (dB) – 5G

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
EVB	-5.4	-4.5	-1.6	-2.9	-2.3	-2.3	-2.3	-2.0	-1.7	-1.2
FS	-4.9	-4.4	-3.8	-4.7	-4.5	-4.3	-3.0	-3.4	-3.4	-3.1
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
EVB	-1.3	-1.2	-1.2	-1.8	-2.2	-2.6	-2.5	-3.0	-3.5	-4.5
FS	-2.5	-1.0	-1.6	-1.6	-1.8	-2.5	-2.8	-2.6	-3.1	-3.2

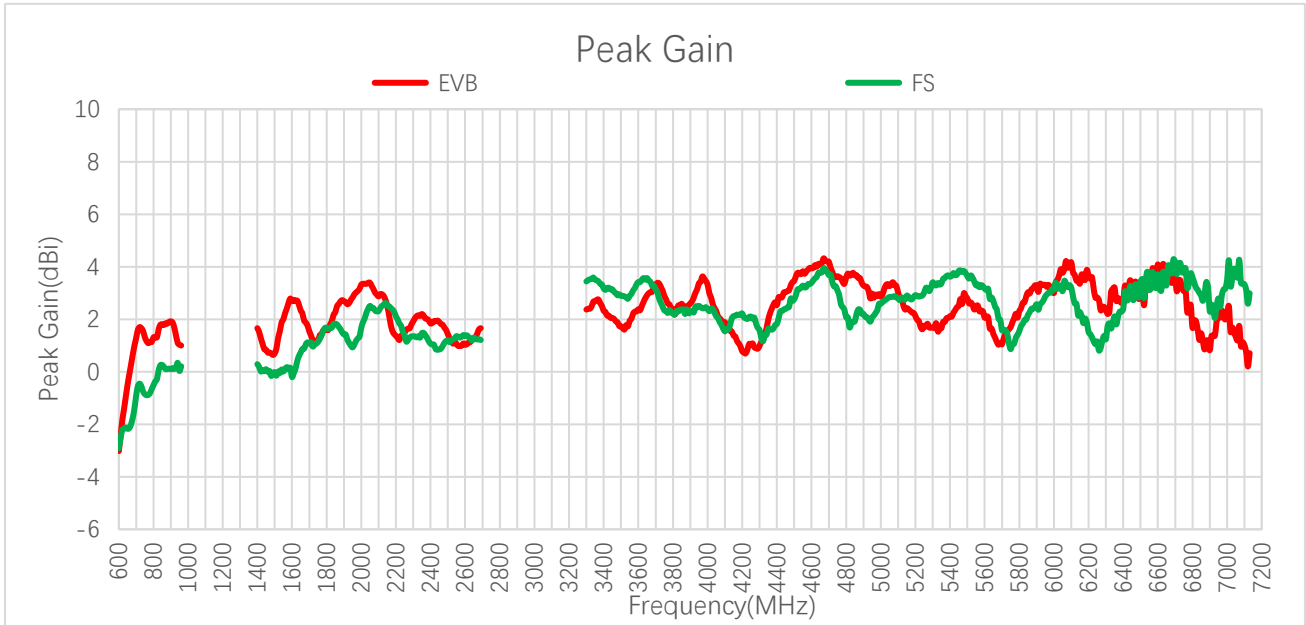
Average Gain (dB) – NTN Bands

Frequency (MHz)	1520	1560	1630	1680	2000	2200
EVB	-2.4	-2.1	-1.9	-2.1	-1.4	-1.7
FS	-3.1	-3.0	-3.3	-3.2	-1.8	-1.3

Average Gain (dB) – Wi-Fi

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
EVB	-1.6	-1.8	-1.8	-3.3	-3.5	-4.9	-4.6	-3.0	-4.1	-6.4
FS	-1.9	-1.6	-1.5	-2.6	-3.1	-3.8	-3.7	-3.0	-3.3	-4.1

3.2.3. Peak Gain



Peak Gain (dBi) – 5G

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
EVB	-3.0	-1.4	1.6	1.6	1.9	1.0	0.9	1.4	1.1	2.7
FS	-2.9	-2.2	-0.5	0.1	0.1	0.2	0.0	1.1	1.1	1.6
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
EVB	2.8	2.7	2.2	1.9	1.0	2.4	4.2	2.9	2.8	3.0
FS	0.9	2.6	1.5	0.9	1.4	3.4	3.7	2.6	3.6	3.1

Peak Gain (dBi) – NTN Bands

Frequency (MHz)	1520	1560	1630	1680	2000	2200
EVB	1.3	2.2	2.7	1.9	3.3	1.4
FS	0.0	0.1	0.4	1.1	1.7	2.1

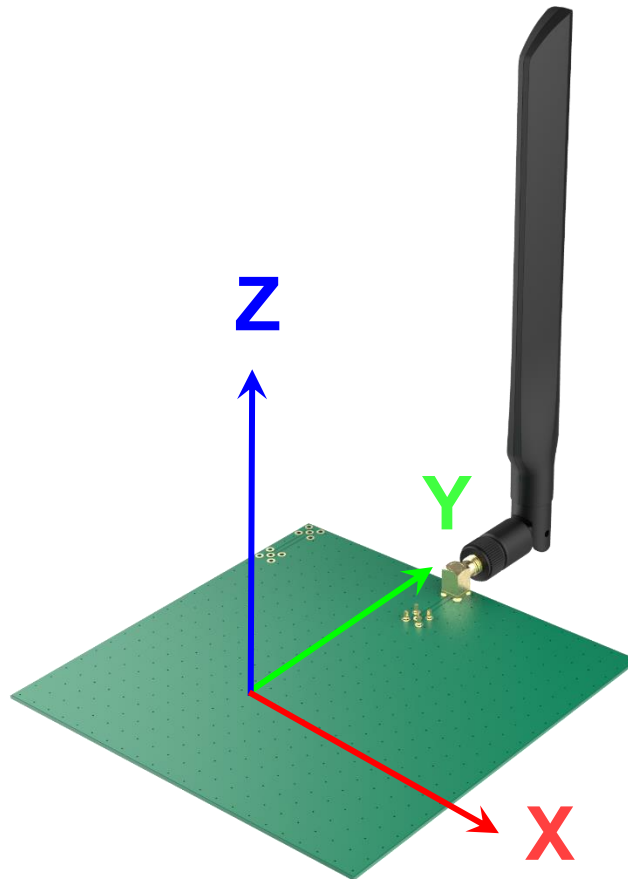
Peak Gain (dBi) – Wi-Fi

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
EVB	1.8	1.9	1.4	2.4	2.8	3.0	3.3	3.0	3.5	0.7
FS	1.1	0.9	1.2	2.9	3.6	2.2	2.6	1.6	4.1	3.0

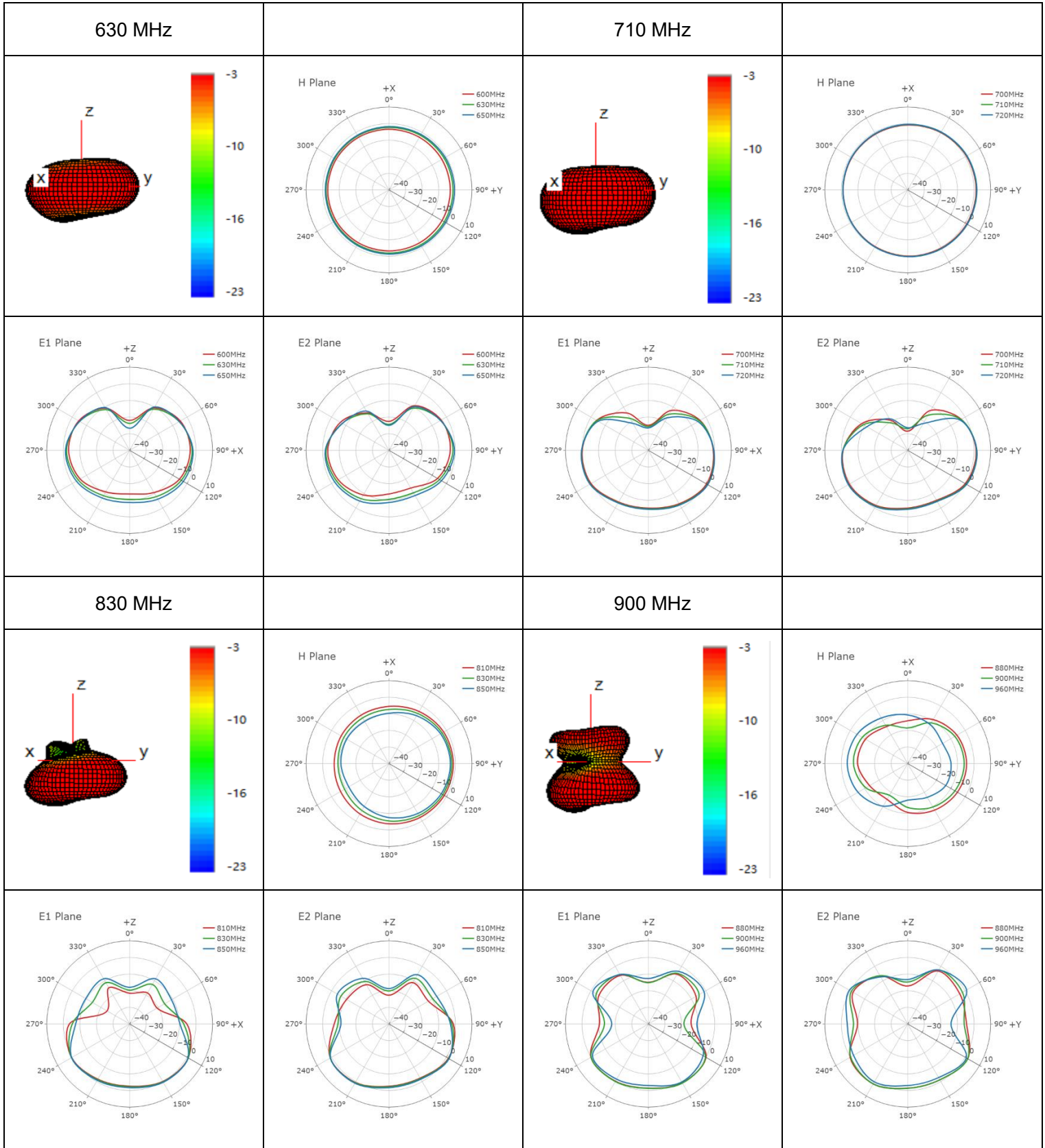
3.2.4. 3D & 2D Radiation Pattern

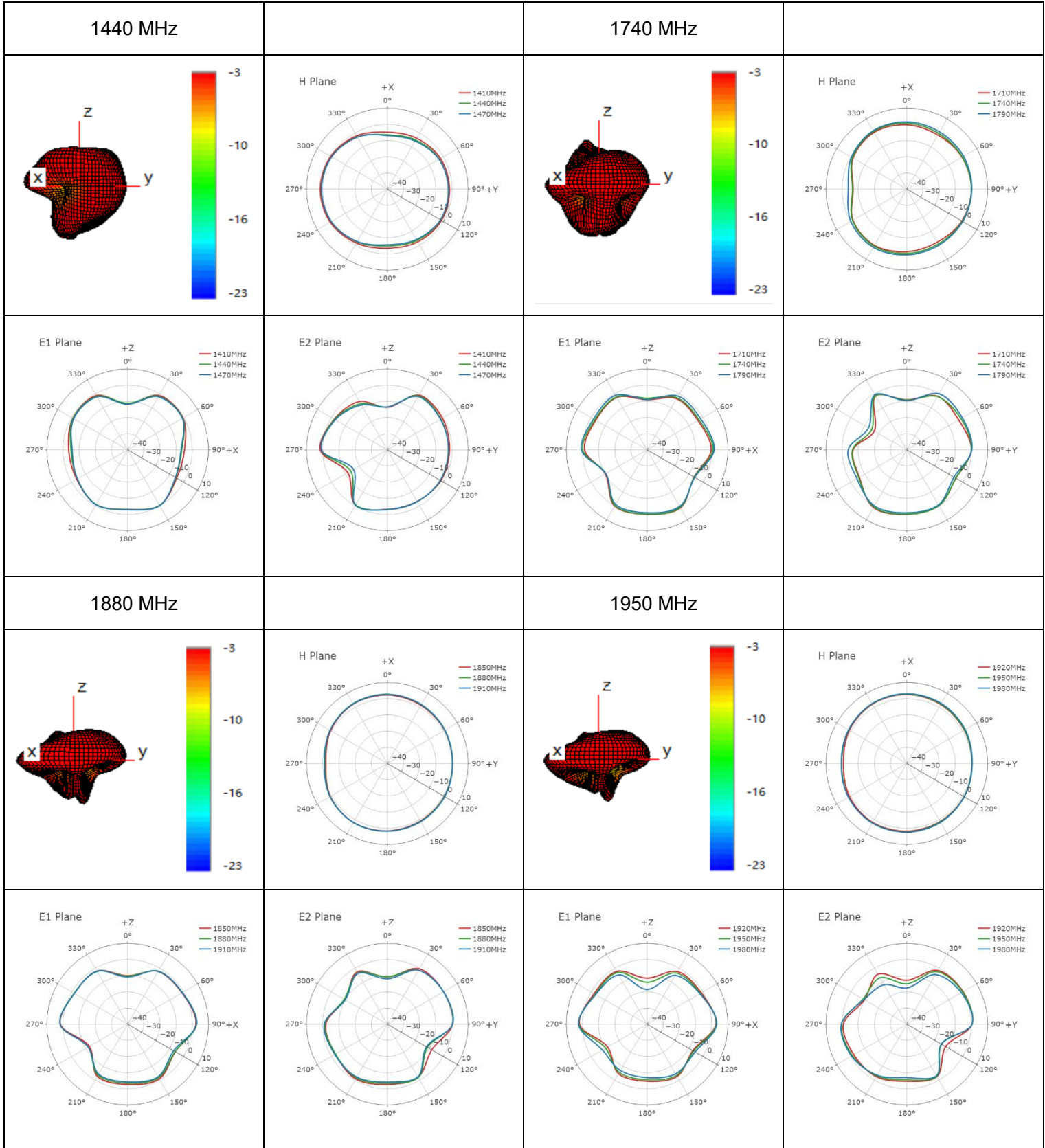
3.2.4.1. Test Condition: On 130 mm × 130 mm EVB

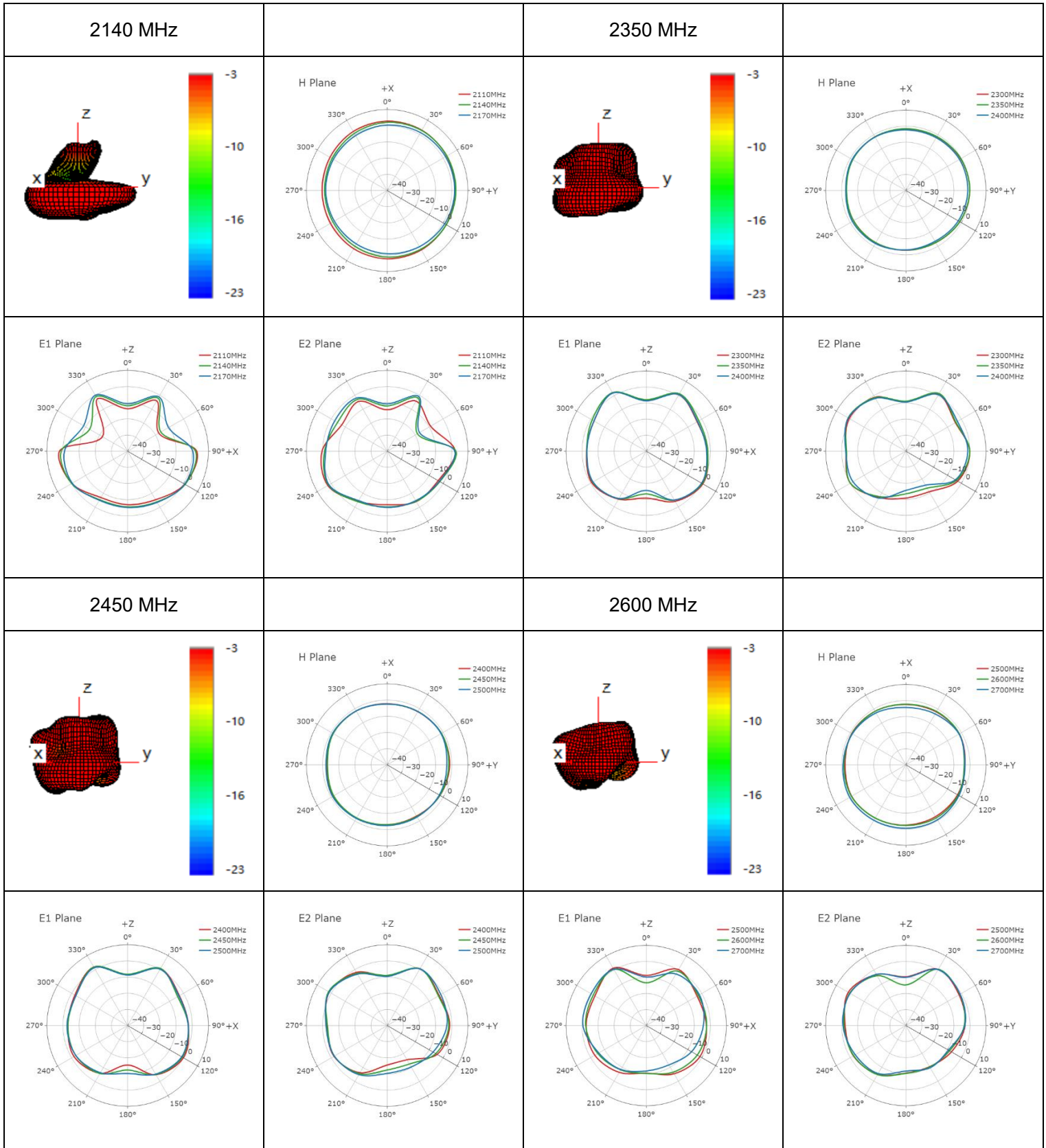
- Test Chamber: HF-G-1

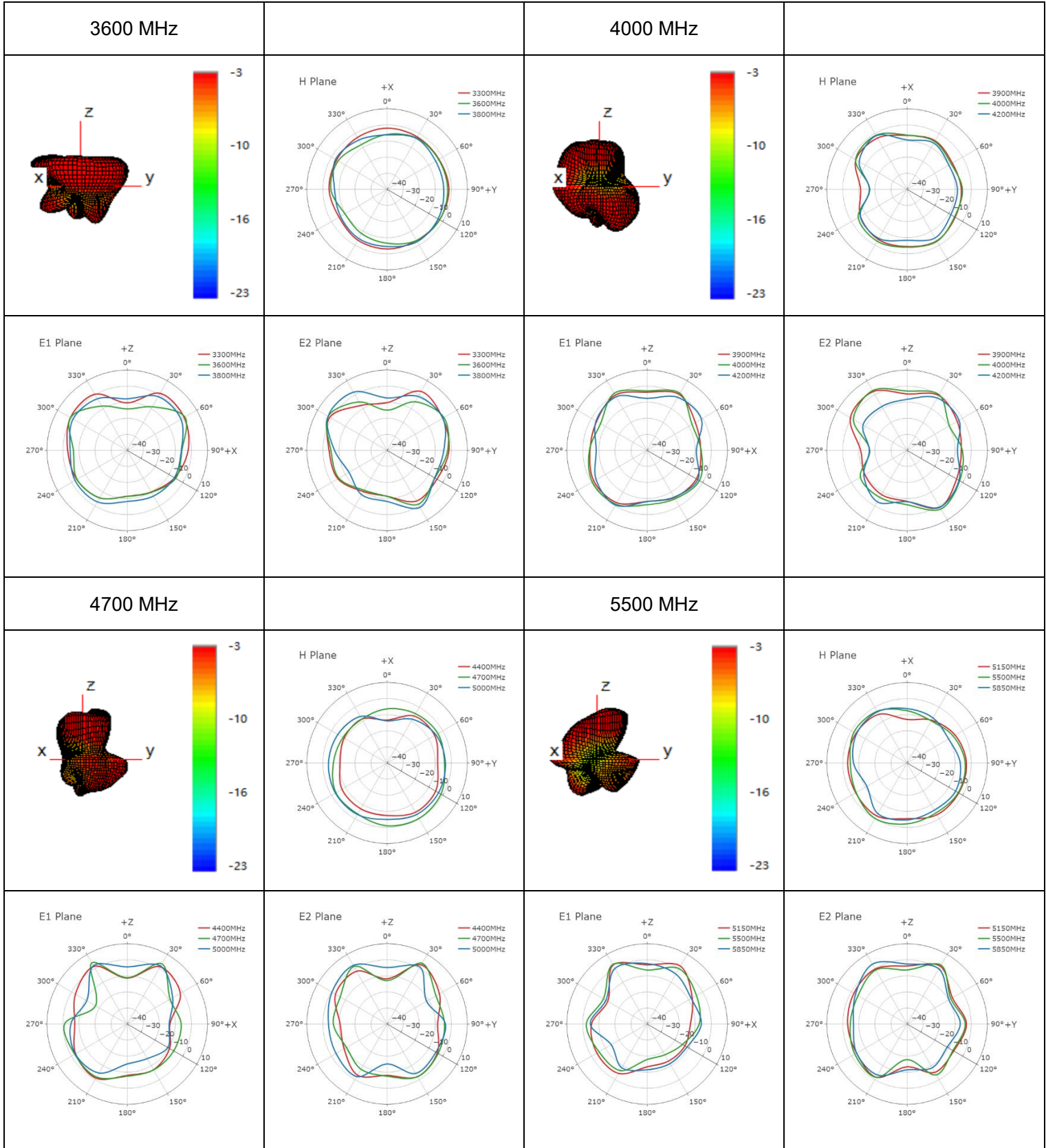


● **5G**

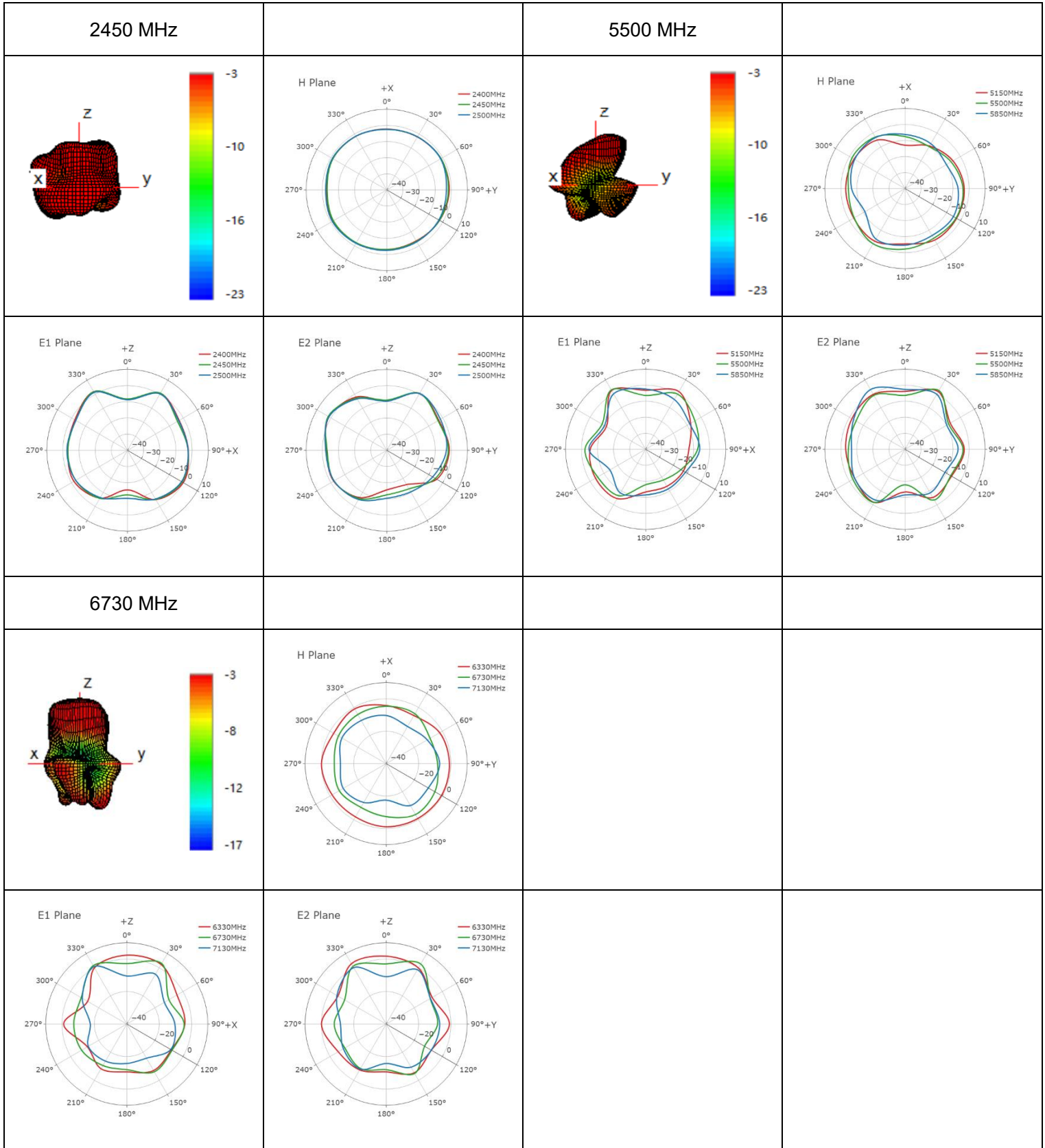






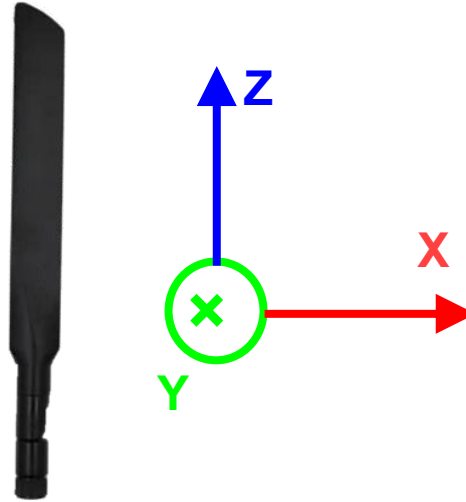


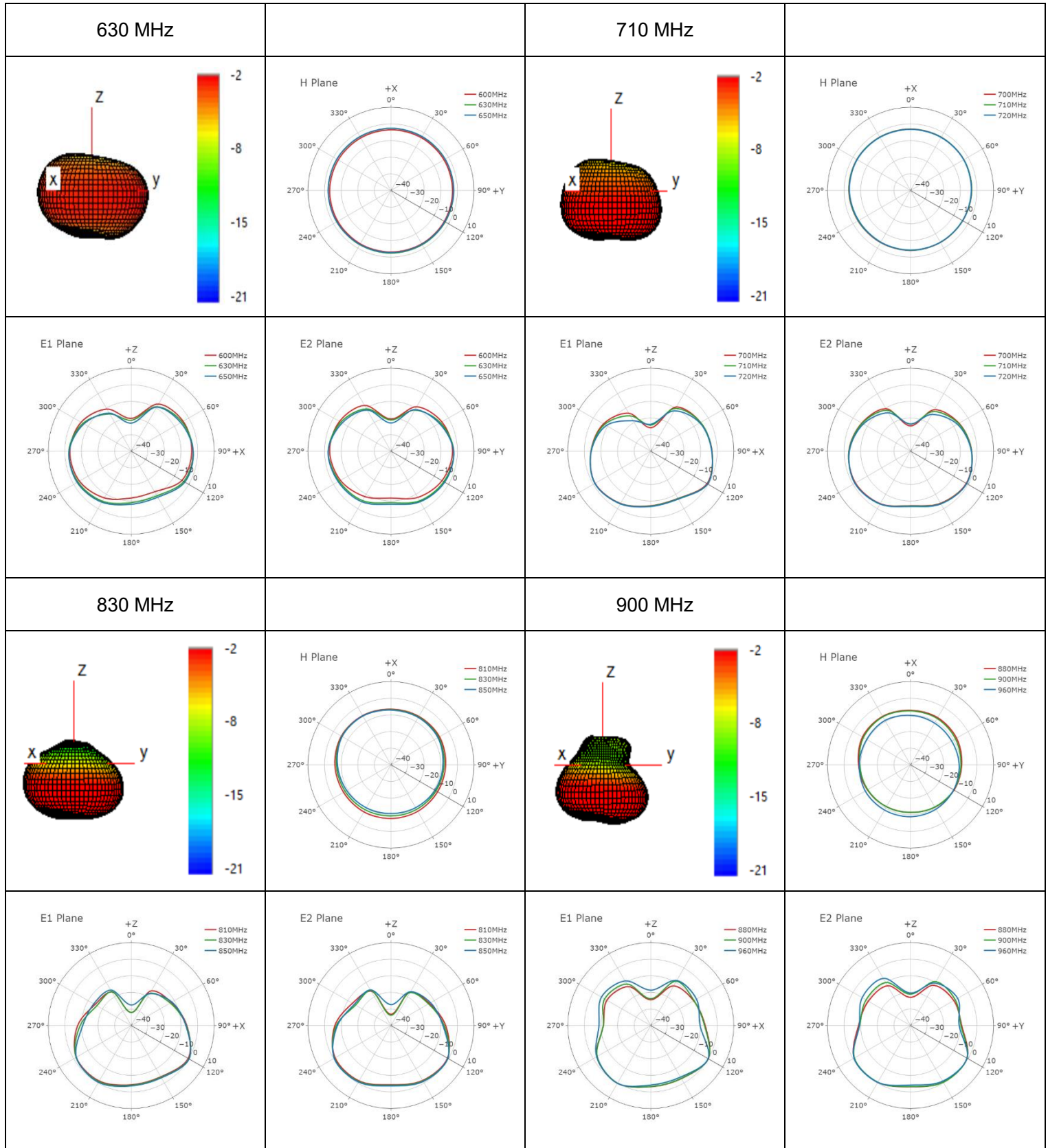
● **Wi-Fi**

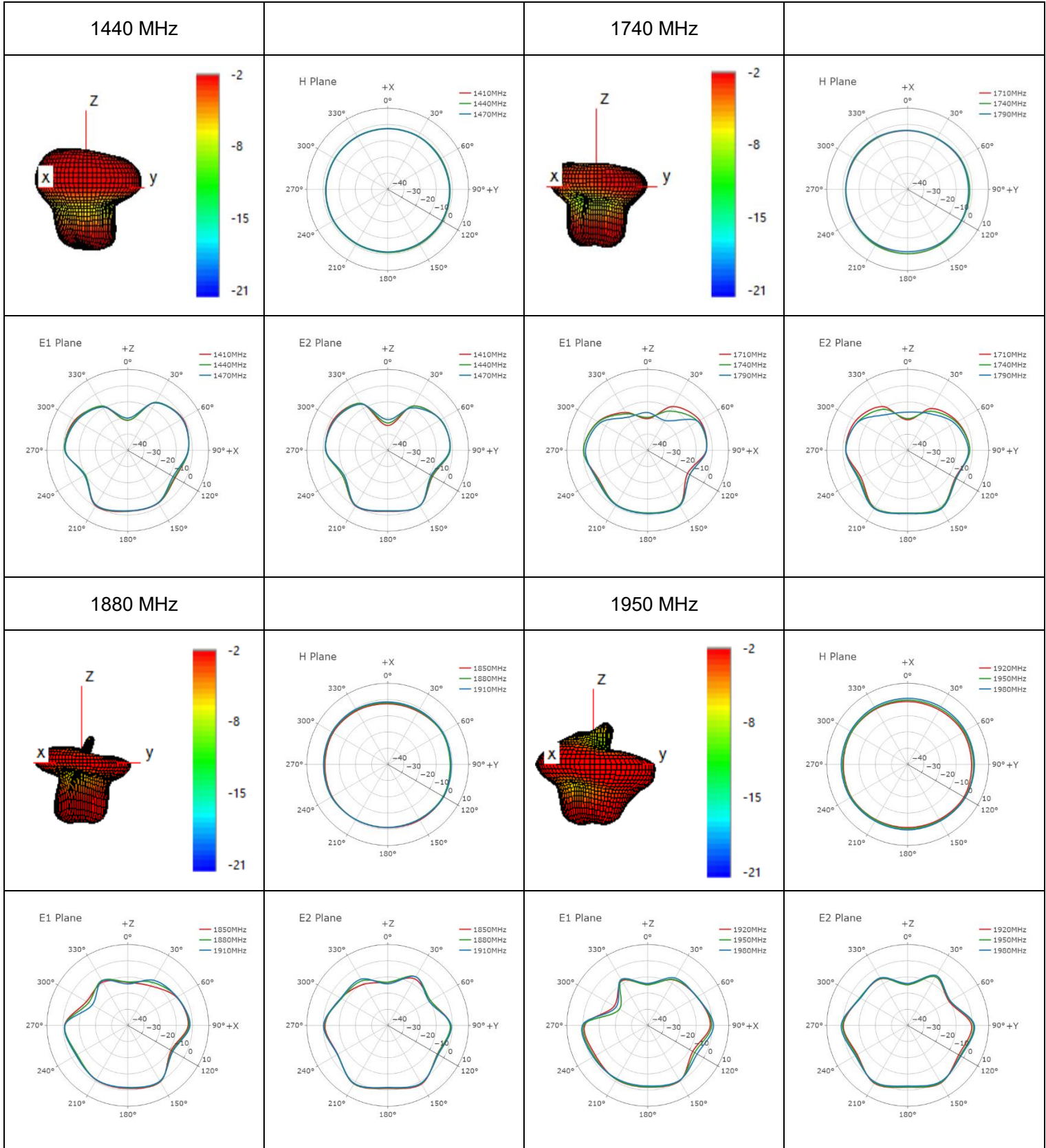


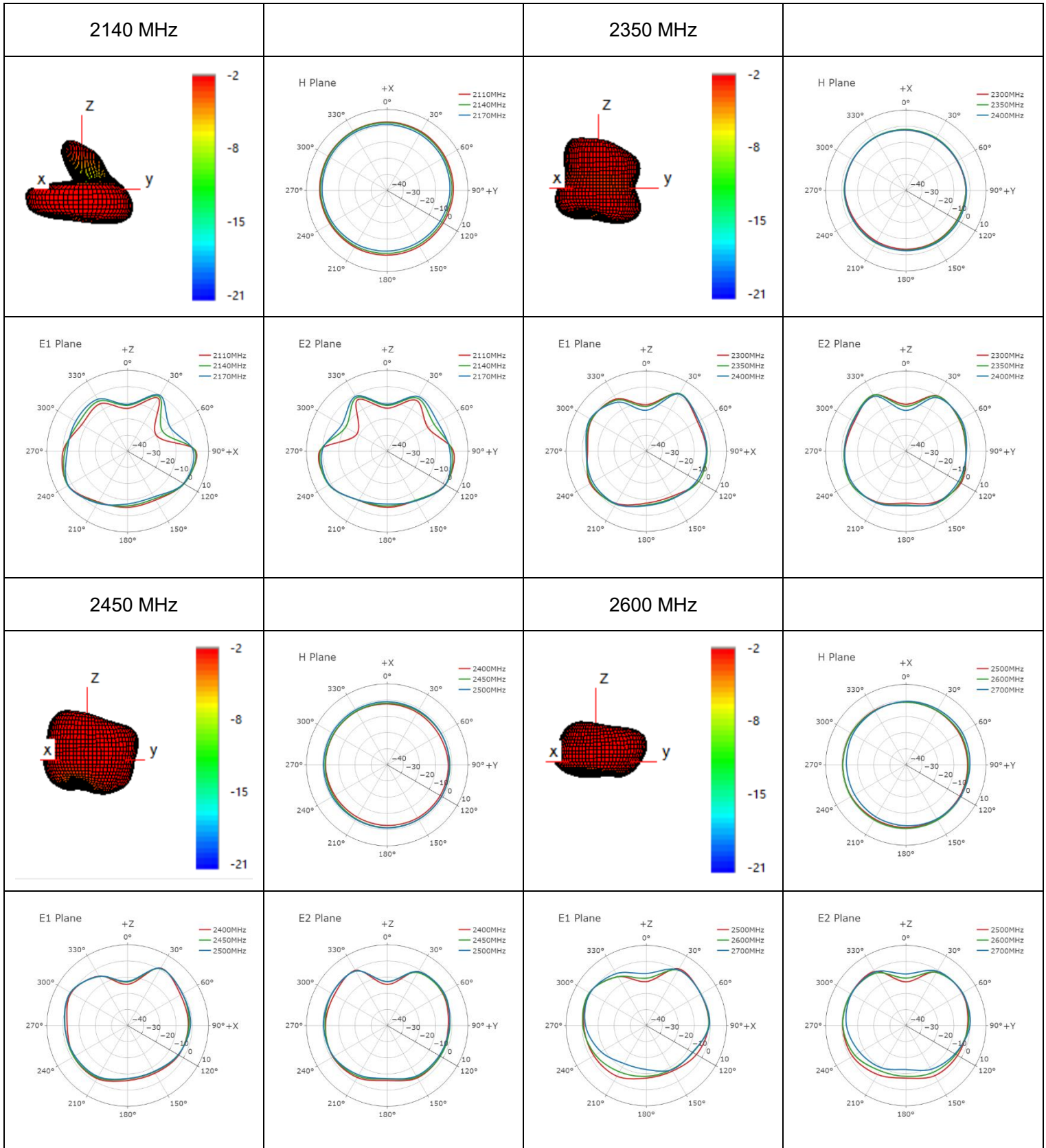
3.2.4.2. Test Condition: Free Space

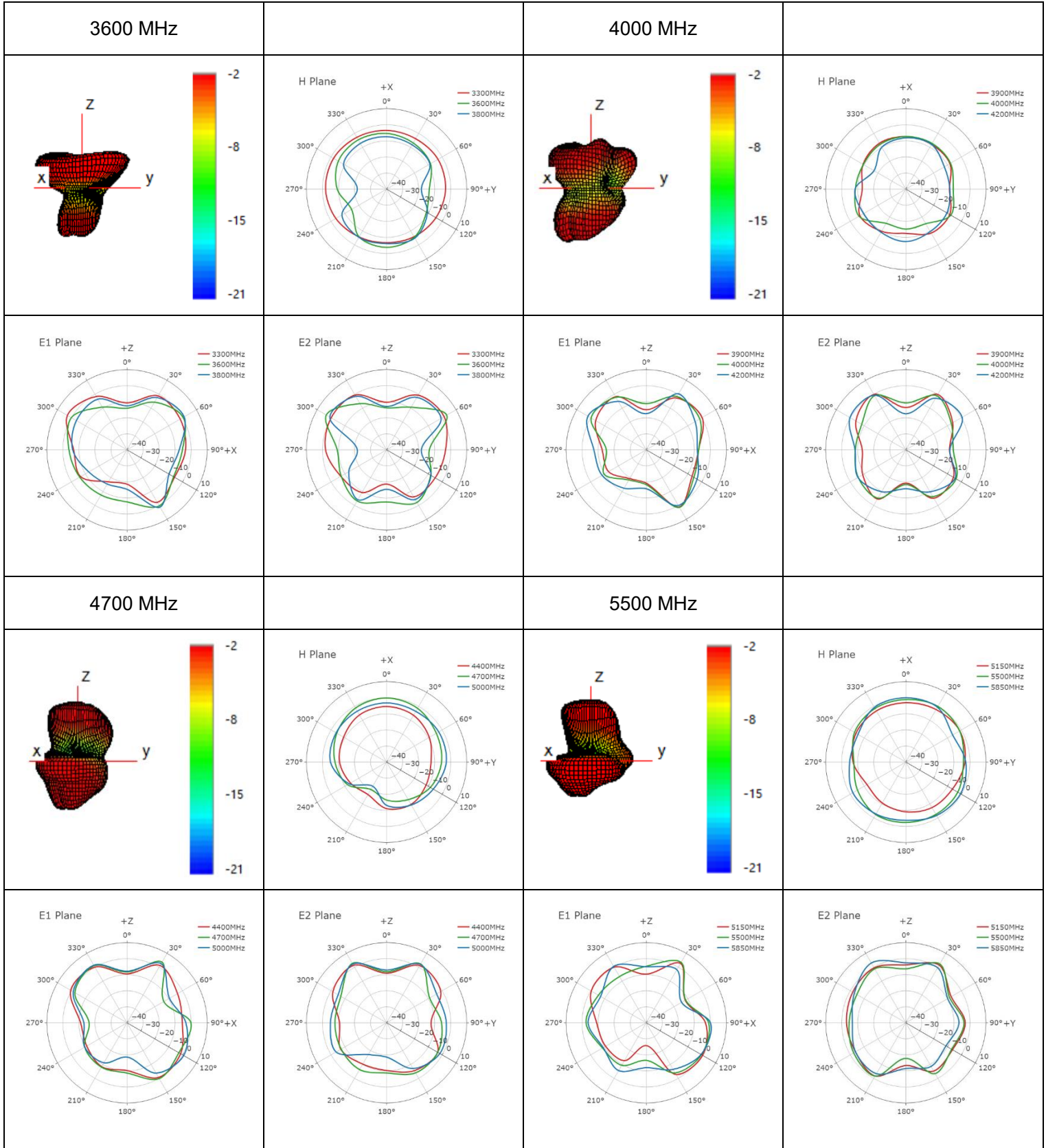
- Test Chamber: HF-G-1



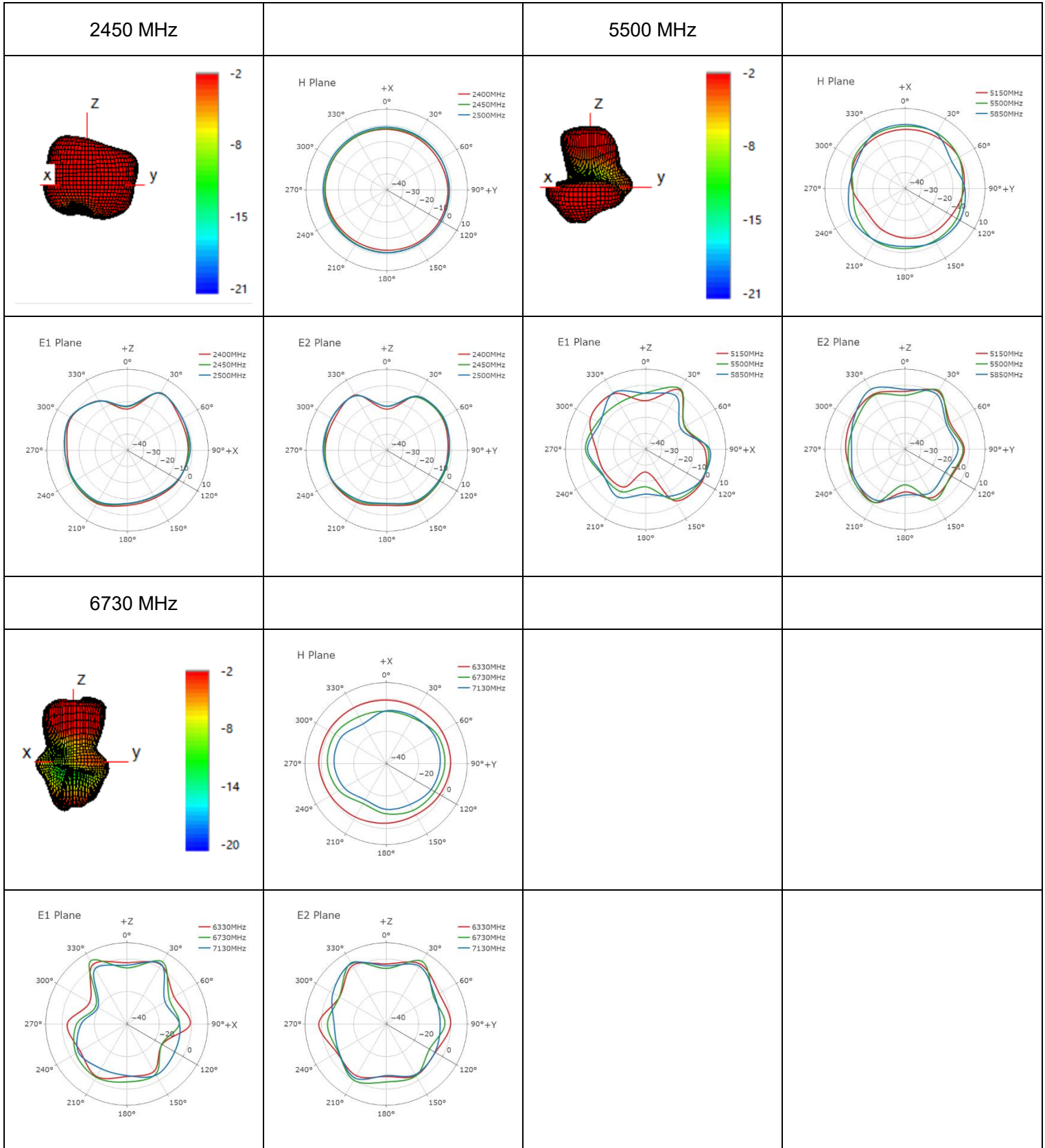




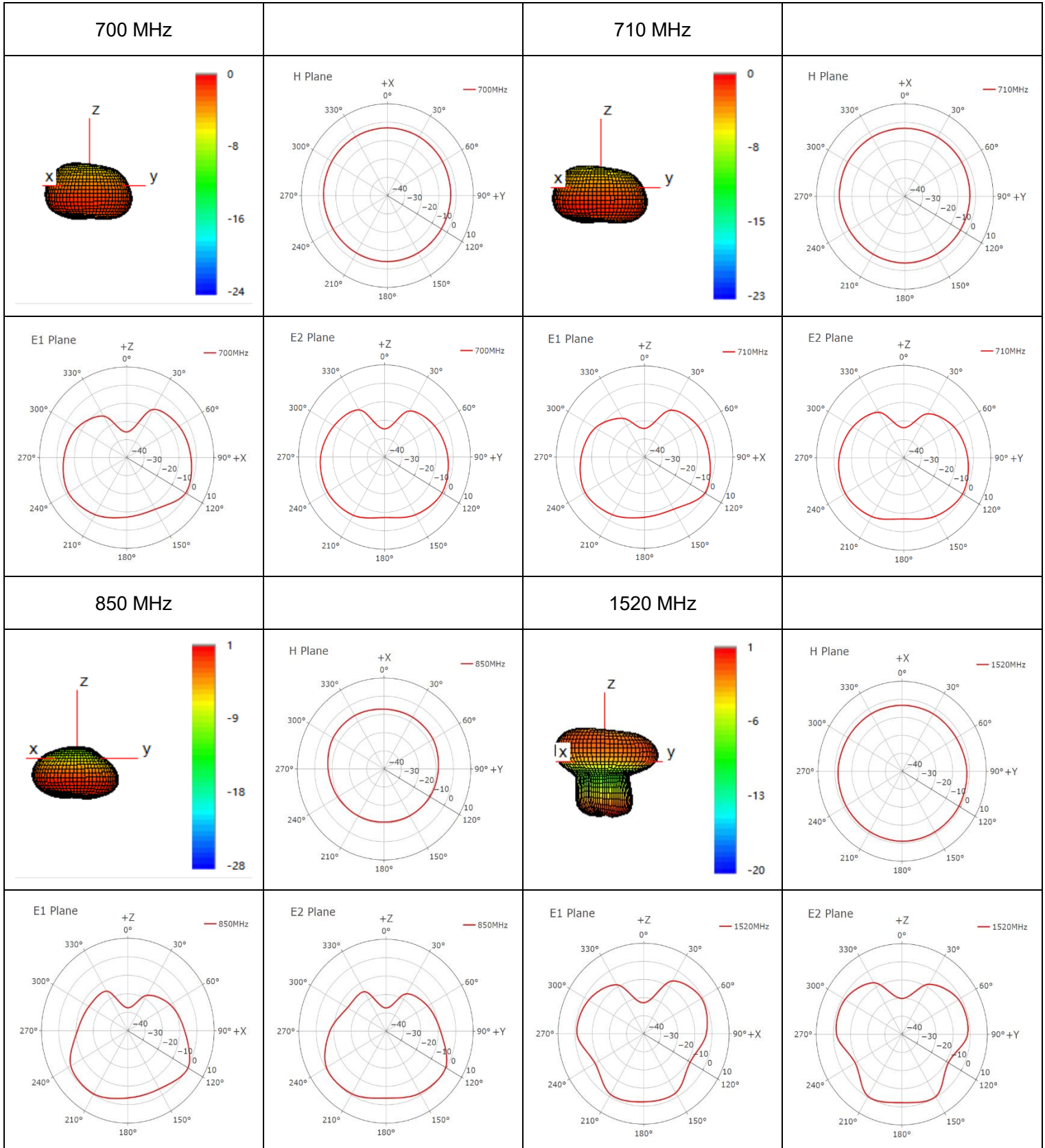


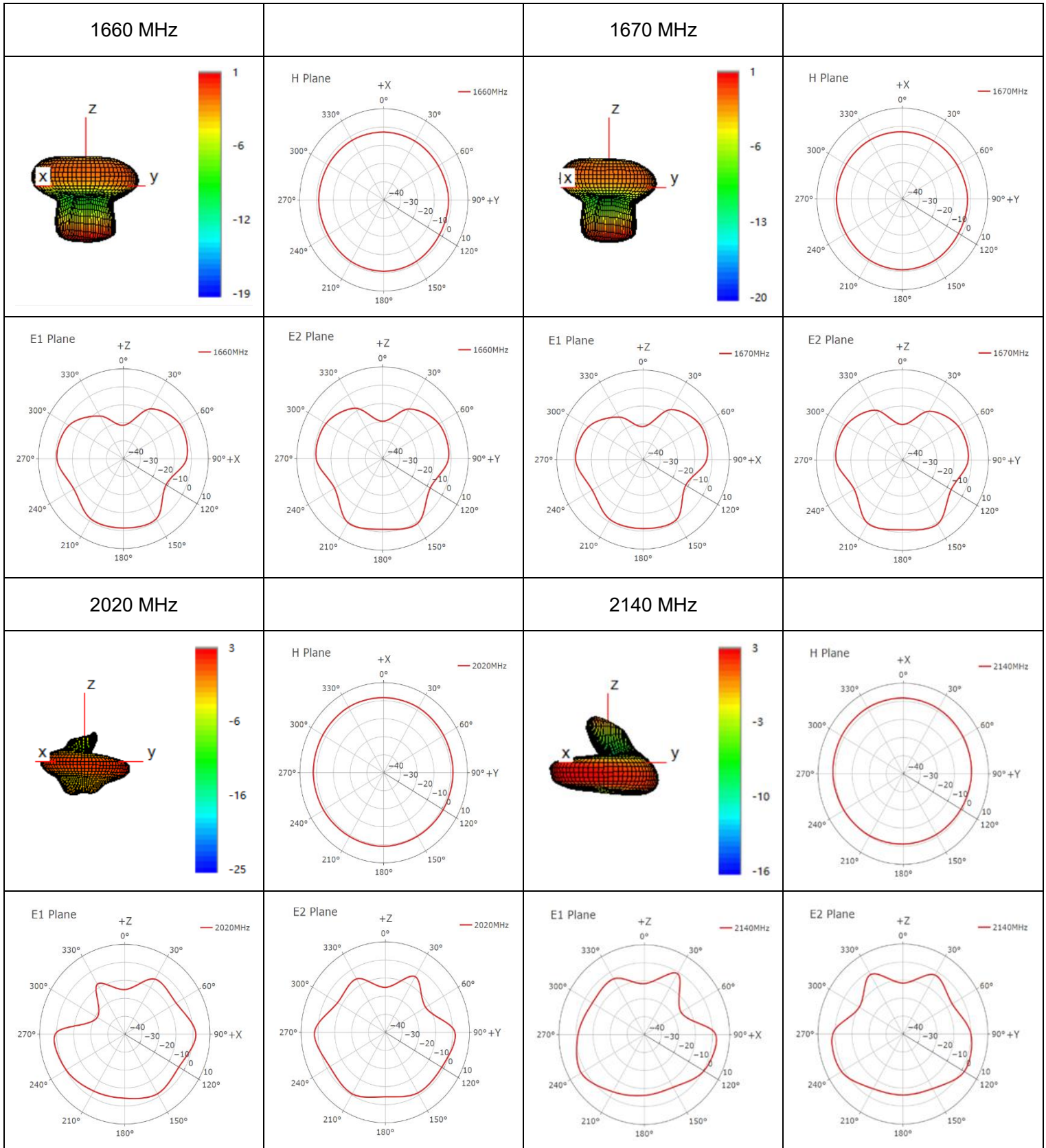


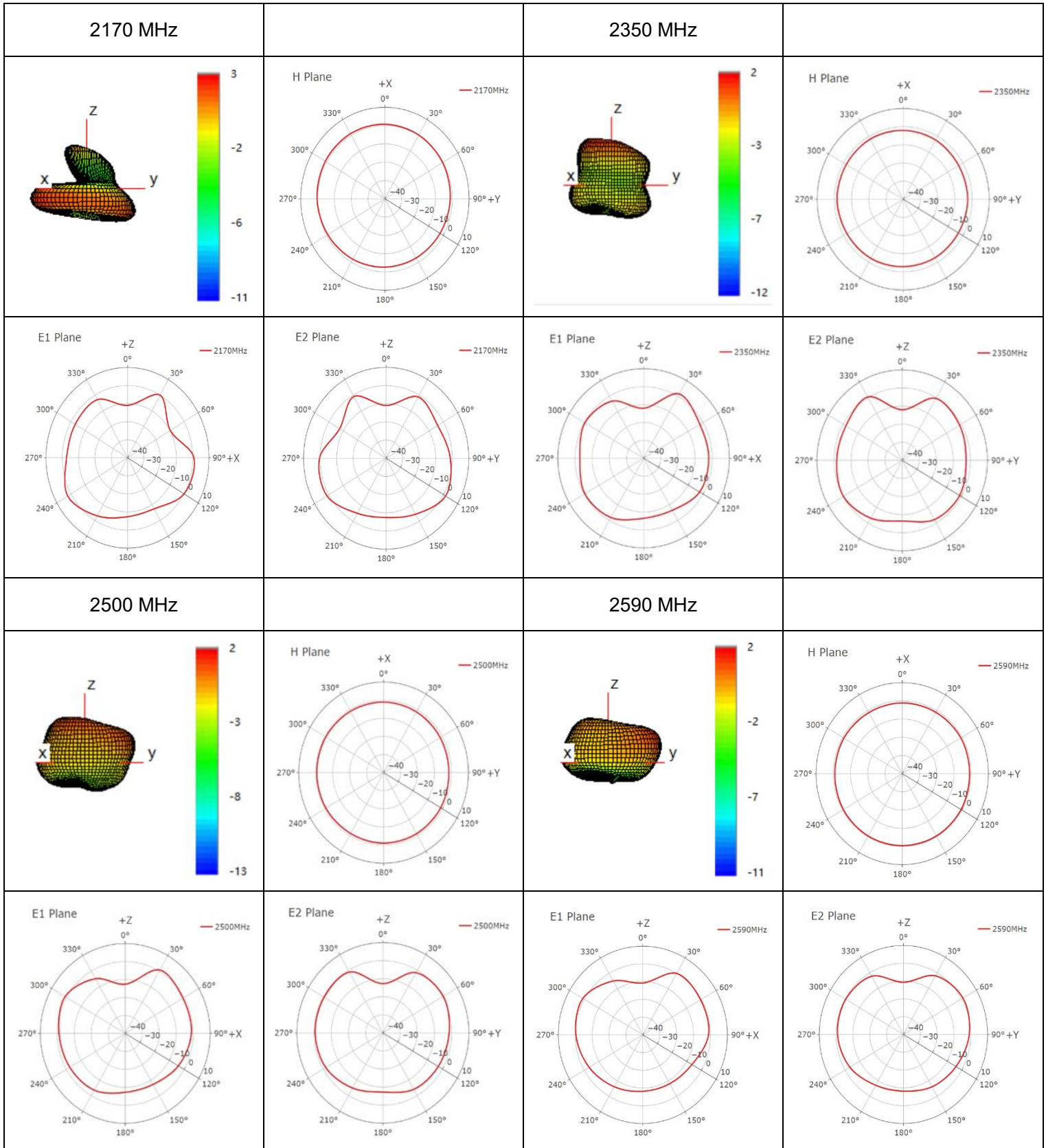
● **Wi-Fi**

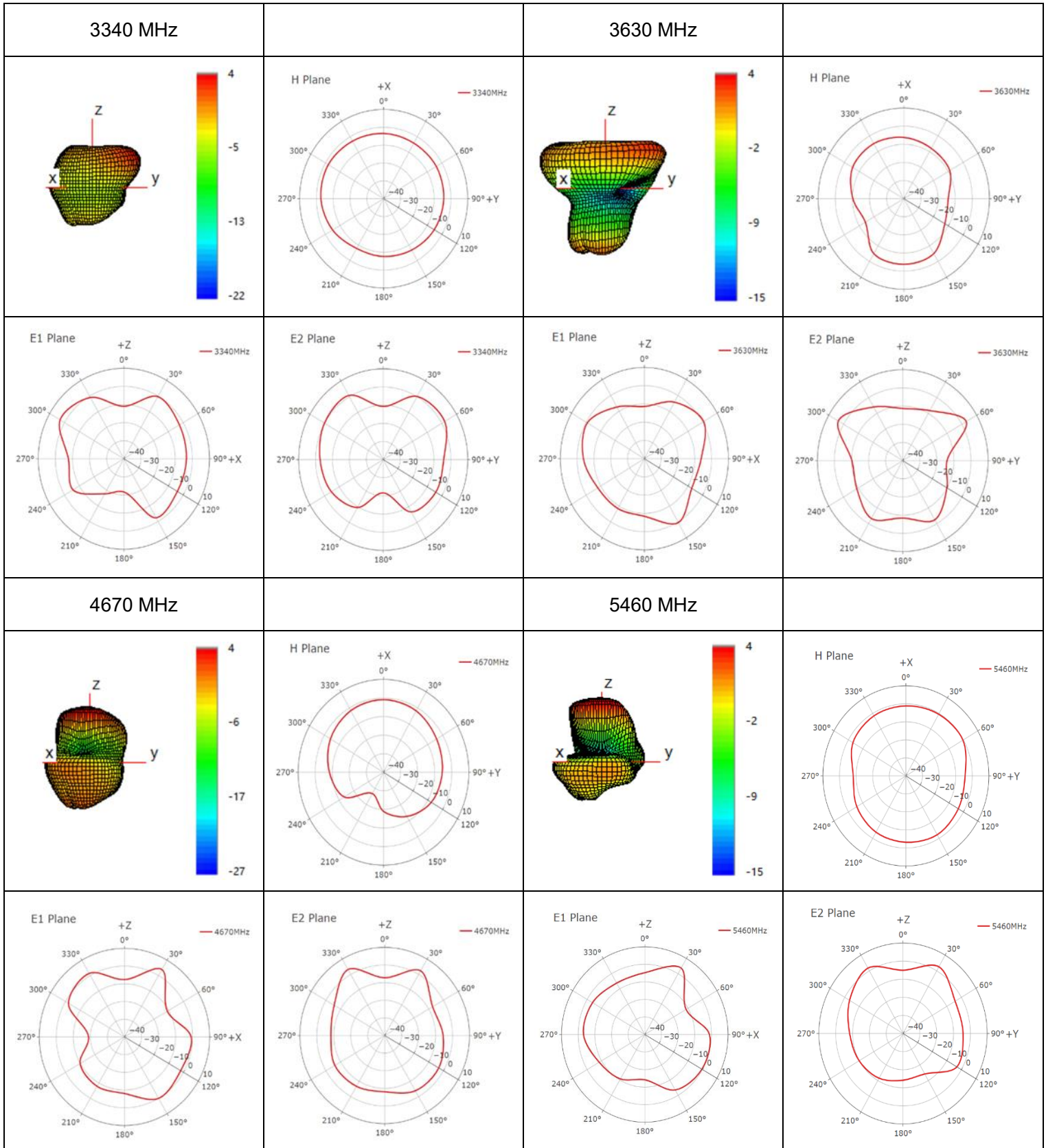


● **5G-Max Peak Gain**

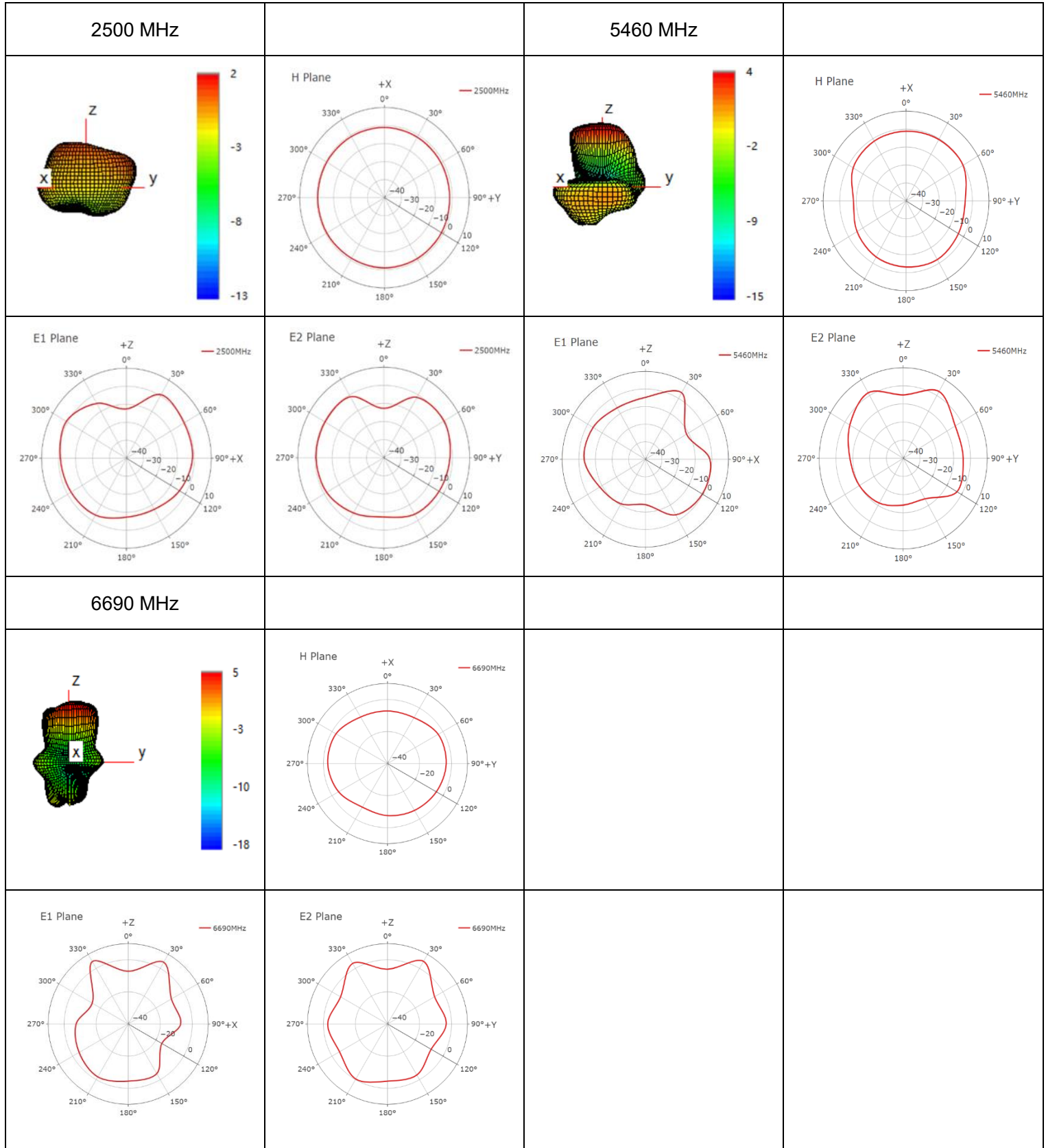






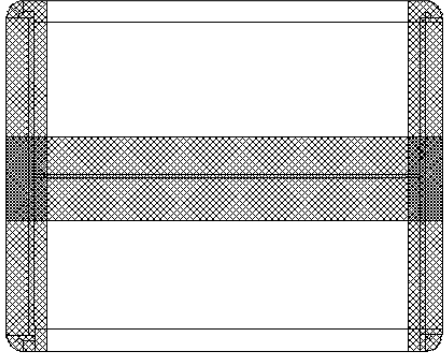


● **Wi-Fi-Max Peak Gain**



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>10 antenna products in a one-piece bag. (10 Antennas / one-piece bag)</p>
2		<p>4 one-piece bags in a PE bag. 40 antenna products in a PE bag. (40 Antennas / PE Bag)</p>
3		<p>(12 PE Bags / Carton Box) (480 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 x W x H = 370x 370 x 295 mm</u></p>
4		<p>Position for Attaching Labels</p> <ul style="list-style-type: none"> 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

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

Quectel Wireless Solutions Co., Ltd.

No. 8 Waipojing Road, Sijing Town, Songjiang District, Shanghai 201601, China

Tel: +86 21 5108 6236

Email: info@quectel.com

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Revision History

Version	Date	Author	Note
-	2021-11-02	Winfred Wu/ Toby Wang	Creation of the document
1.0	2021-11-02	Winfred Wu/ Toby Wang	First official release
2.0	2022-08-19	Winfred Wu/ Toby Wang	Updated the test data (Chapter 4).
2.1	2022-10-17	Aria Chu	Deleted the IP rating.
3.0	2023-04-26	Damon Zhang/ Lucky Feng/ David Liu/ Aria Chu	Updated all data and datasheet template.
4.0	2023-07-13	Damon Zhang/ Vinnie Liu	Updated the test data, deleted storage conditions of the antenna and added its storage temperature (Chapter 1).
5.0	2023-10-10	Damon Zhang/ Aria Chu	Updated all test data in this datasheet.
5.1	2024-06-05	Black Li/ Aria Chu	Updated multiple RF data (Chapter 1 and 3).
5.2	2024-09-20	Damon Zhang/ Rainey Liao	Added max peak gain data (Chapter 1 and 3).
5.3	2025-01-11	Riva Ren/ Aria Chu	<ol style="list-style-type: none"> Deleted the last line note: (Chapter 1.1). Updated the package (Chapter 4).
5.4	2026-01-26	Mayes Li	<ol style="list-style-type: none"> Updated the product name and frequency ranges. Added the electrical Wi-Fi data (Chapter 1.1). Updated the S-parameter test data (Chapter 3.1). Added the Wi-Fi pattern (Chapter 3.2.4).

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