



 **KATALYST**

SIREN

ANTENNA DATASHEET

Product Name: KATALYST SIREN 4-1 Omni Directional 5G Antenna

Key Features:

- Optimized for 4G and 5G networks
- High efficiency
- Pole/wall/suction mount included
- SMA male connector
- IP rating: IP67 & IP69K
- Durable KIBILAC® ASA enclosure
- Compatible with all 4 cell SMA port routers (CAT18+ : 4G/5G)



OVERVIEW

Maximize Your Connectivity with the SIREN Antenna

Stay connected in even the most demanding environments with the SIREN Omni-Directional Ultra-Wide-Band 5G/4G Antenna. Covering an extensive range from 400-6000 MHz, this antenna ensures broad compatibility, including support for 2G/3G networks and next-gen technologies like CAT-M and NB-IoT. Whether you're deploying in urban, rural, or industrial settings, the SIREN antenna offers unmatched reliability with easy installation on poles, walls, or suction mounts.

Built for endurance, its IP67 & IP69K-rated ASA enclosure guarantees maximum durability in any weather condition. Integrate seamlessly with a single cable connection via SMA connectors and experience top-tier performance with up to 76.2% efficiency on 4G/5G networks.

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1. SPECIFICATION

Test Condition: Free Space

1.1. Electrical

Electrical	
Frequency Range	410-470 MHz, 617-2690 MHz, 3300-6000 MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50 Ω
Isolation	≤ -8.8 dB

1.1.1. 4G/5G - 1

Electrical Detail													
SPEC	Band	B31/ B88	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)	410- 470	610- 700	700- 810	820- 960	1420- 1520	1700- 2170	2300- 2400	2400- 2500	2500- 2690	3300- 4200	4400- 5000	5150- 5850
Max. VSWR		3.5	4.6	3.9	3.0	2.8	2.1	1.6	1.7	1.8	2.1	1.6	2.0
Max. Return Loss (dB)		-5.2	-3.8	-4.6	-6.1	-6.4	-9.2	-12.8	-12.0	-10.6	-9.0	-12.9	-9.8
AVG Eff. (%)		23.1	33.7	52.7	57.5	43.0	58.4	66.6	56.5	59.1	66.7	69.9	62.3
AVG AVG Gain (dBi)		-6.4	-4.7	-2.8	-2.4	-3.7	-2.3	-1.8	-2.5	-2.3	-1.8	-1.6	-2.1
Max. Peak Gain (dBi)		-0.5	1.2	5.6	5.6	4.8	3.5	3.9	3.5	4.2	3.6	4.9	3.0
VSWR								≤ 4.6					
Return Loss								≤ 3.8 dBi					
Peak Gain								≤ 5.6 dBi					

1.1.2. 4G/5G - 2

Electrical Detail													
Band SPEC	Band	B31/ B88	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)	410- 470	610- 700	700- 810	820- 960	1420- 1520	1700- 2170	2300- 2400	2400- 2500	2500- 2690	3300- 4200	4400- 5000	5150- 5850
Max. VSWR		6.2	4.1	2.6	2.2	3.0	2.6	1.4	1.4	2.1	2.2	1.7	1.9
Max. Return Loss (dB)		-2.8	-4.4	-7.0	-8.6	-6.1	-7.2	-14.9	-16.5	-9.0	-8.7	-11.7	-10.3
AVG Eff. (%)		26.0	27.7	41.7	48.6	38.2	53.3	66.4	56.0	56.6	64.1	64.6	62.6
AVG AVG Gain (dBi)		-5.8	-5.6	-3.8	-3.1	-4.2	-2.7	-1.8	-2.5	-2.5	-1.9	-1.9	-2.0
Max. Peak Gain (dBi)		-0.3	2.2	4.9	4.4	4.0	4.8	2.5	4.7	4.7	5.3	4.4	4.0
VSWR								≤ 6.2					
Return Loss								≤ -2.8 dB					
Peak Gain								≤ 5.3 dBi					

1.1.3. 4G/5G - 3

Electrical Detail													
Band SPEC	Band	B31/ B88	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)	410- 470	610- 700	700- 810	820- 960	1420- 1520	1700- 2170	2300- 2400	2400- 2500	2500- 2690	3300- 4200	4400- 5000	5150- 5850
Max. VSWR		5.1	4.6	3.1	2.6	2.6	2.3	1.5	1.5	2.2	2.2	1.7	1.9
Max. Return Loss (dB)		-3.4	-3.9	-5.8	-7.1	-6.9	-8.1	-13.7	-14.6	-8.3	-8.4	-11.4	-10.0
AVG Eff. (%)		27.3	30.8	48.7	54.6	52.2	54.6	67.1	64.4	54.5	66.9	63.5	62.6
AVG AVG Gain (dBi)		-5.6	-5.1	-3.1	-2.6	-2.8	-2.6	-1.7	-1.9	-2.6	-1.7	-2.0	-2.0
Max. Peak Gain (dBi)		-0.5	0.2	1.8	3.1	3.1	4.8	2.7	4.6	5.1	6.2	5.0	3.7
VSWR								≤ 5.1					
Return Loss								≤ -3.4 dB					
Peak Gain								≤ 6.2 dBi					

1.1.4. 4G/5G - 4

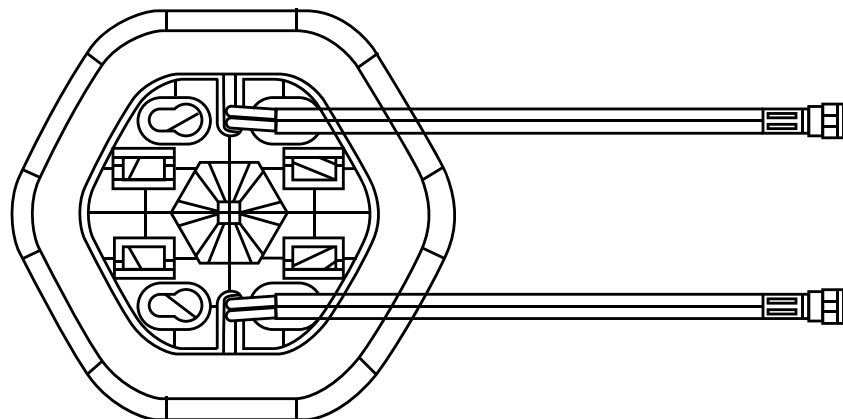
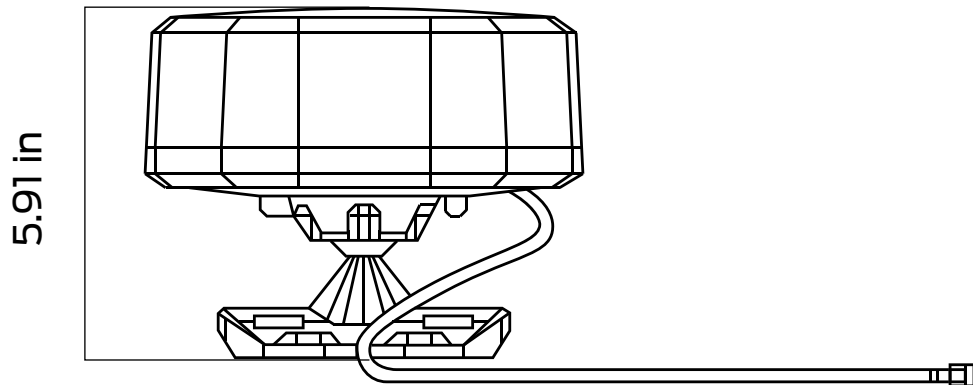
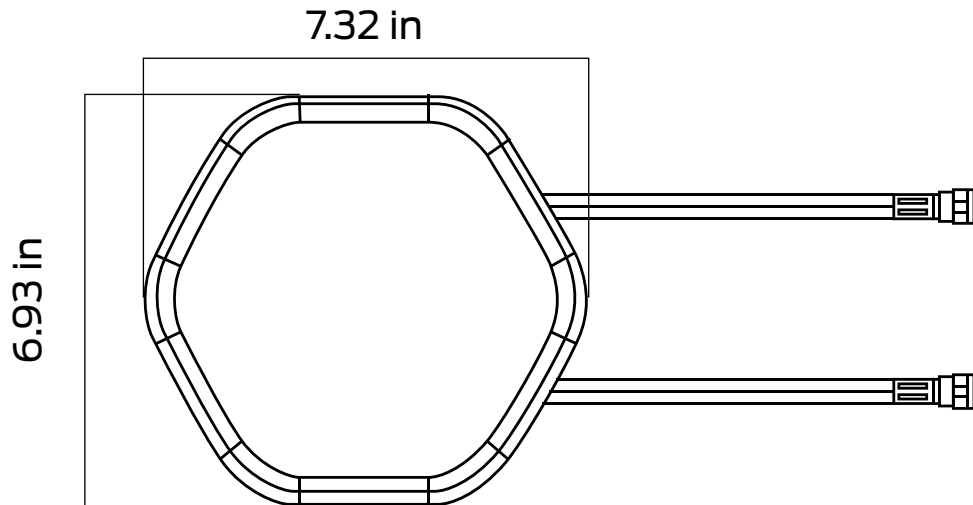
Electrical Detail													
SPEC	Band	B31/ B88	B71	B12 /B13 /B28	B5 /B8 /B26	n74 /n75 /n76	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41	B42 /B48 /n77	n79	Wi-Fi 5G
	Freq. (MHz)	410- 470	610- 700	700- 810	820- 960	1420- 1520	1700- 2170	2300- 2400	2400- 2500	2500- 2690	3300- 4200	4400- 5000	5150- 5850
Max. VSWR		5.4	5.3	3.7	3.2	3.2	2.0	1.6	1.7	2.3	2.1	1.7	1.8
Max. Return Loss (dB)		-3.2	-3.3	-4.8	-5.7	-5.7	-9.4	-12.3	-11.8	-8.2	-9.1	-11.9	-10.7
AVG Eff. (%)		23.3	33.4	62.4	60.9	44.8	59.7	66.9	55.3	53.9	65.9	63.9	59.1
AVG AVG Gain (dBi)		-6.3	-4.8	-2.0	-2.2	-3.5	-2.2	-1.7	-2.6	-2.7	-1.8	-1.9	-2.3
Max. Peak Gain (dBi)		0.4	1.4	3.1	3.5	2.8	5.3	4.3	4.4	4.2	5.1	3.2	3.7
VSWR								≤ 5.4					
Return Loss								≤ -3.2 dB					
Peak Gain								≤ 5.3 dBi					

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	7.32 in. × 6.93 in. × 5.91 in.
Antenna Material & Color	ASA
Cable Type & Color & Length	ALSR200 & Black & 450mm
Connector Type	SMA Male
Weight	650g
Mounting Type	Pole /Wall /Suction Cup

Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress	Protection (IP) Rating IP67
RoHS & REACH Compliant	Yes
Housing UV Resistant	UL 746c fl

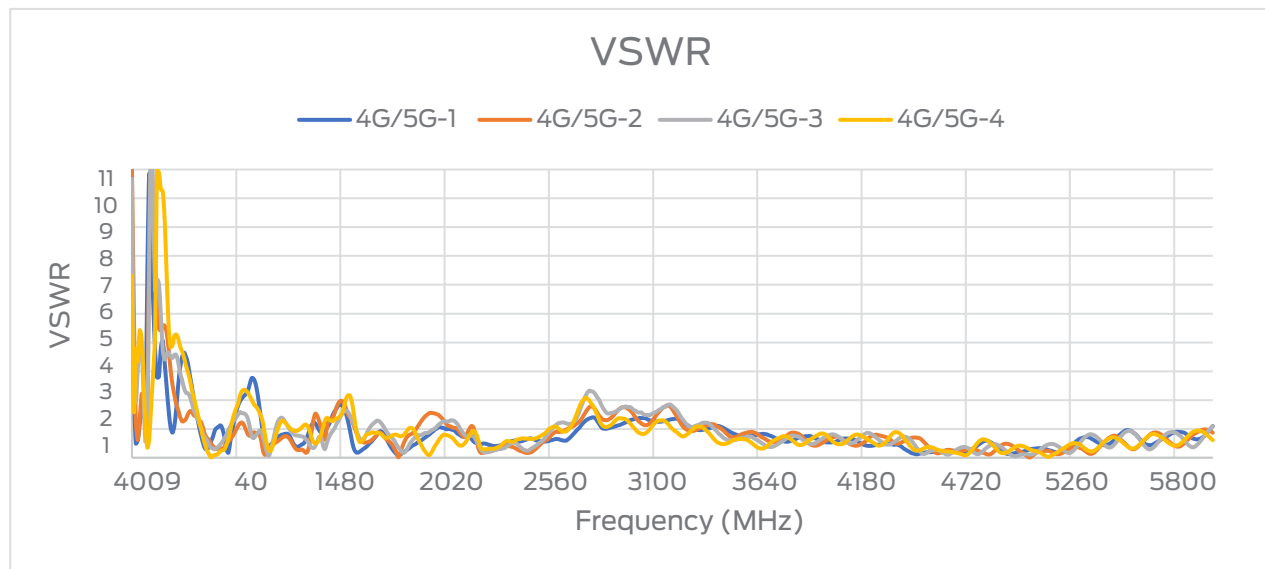
2. DRAWING



3. DETAILED PERFORMANCE

3.1. S-Parameter Test

3.1.1. VSWR



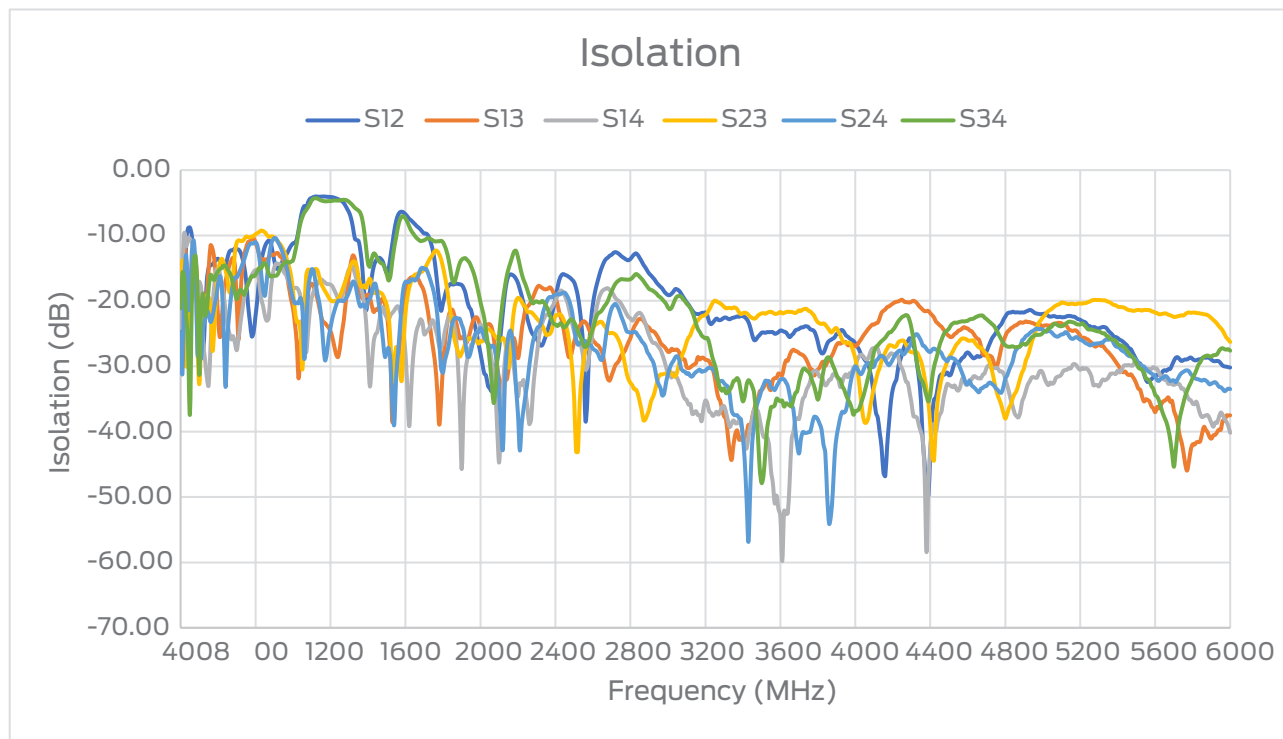
VSWR										
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
4G/5G-1	2.1	2.7	3.5	2.0	1.2	3.0	2.5	1.8	1.4	1.5
4G/5G-2	4.1	2.8	2.6	1.3	1.6	2.2	2.4	1.7	1.5	2.1
4G/5G-3	4.5	4.6	2.9	1.3	2.0	2.6	1.9	2.0	1.7	1.8
4G/5G-4	4.8	5.3	3.4	1.1	1.7	3.2	2.3	1.7	1.7	1.7
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
4G/5G-1	1.9	1.8	1.5	1.6	1.7	1.7	1.2	1.2	1.7	2.1
4G/5G-2	2.6	1.9	1.4	1.2	1.9	1.9	1.2	1.2	1.7	1.9
4G/5G-3	1.9	1.7	1.4	1.2	2.1	1.7	1.4	1.1	1.5	2.1
4G/5G-4	1.2	1.7	1.6	1.7	2.1	1.6	1.1	1.4	1.7	1.6

3.1.2. Return Loss



Return Loss (dB)										
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
4G/5G-1	-9.2	-6.7	-5.1	-9.8	-21.9	-6.1	-7.5	-11.3	-15.8	-13.6
4G/5G-2	-4.4	-6.4	-7.1	-16.9	-13.1	-8.6	-7.8	-11.7	-13.7	-9.1
4G/5G-3	-3.9	-3.9	-6.3	-17.9	-9.8	-7.1	-10.0	-9.5	-11.5	-11.1
4G/5G-4	-3.6	-3.3	-5.3	-26.6	-12.1	-5.7	-8.2	-11.7	-11.4	-11.9
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
4G/5G-1	-10.4	-10.8	-13.6	-12.2	-12.2	-11.3	-21.5	-21.2	-11.8	-9.0
4G/5G-2	-7.2	-10.2	-15.5	-22.3	-10.2	-10.2	-19.5	-19.9	-11.3	-10.4
4G/5G-3	-9.9	-11.5	-15.0	-19.3	-8.8	-11.5	-16.2	-26.8	-13.5	-9.1
4G/5G-4	-22.7	-12.1	-13.0	-12.1	-9.2	-13.2	-25.4	-15.2	-11.9	-12.6

3.1.3. Isolation



Max Isolation (dB)												
Band	B31/ B88	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)	410- 470	610- 700	700- 810	820- 960	1420- 1520	1700- 2170	2300- 2400	2400- 2500	2500- 2690	3300- 4200	4400- 5000	5150- 5850
S12	8.8	12.0	12.1	10.8	13.2	9.7	19.5	15.9	13.1	22.3	21.4	22.3
S13	-12.0	-13.4	-10.4	-12.7	-19.7	-20.1	-17.7	-19.4	-23.1	-20.4	-21.9	-24.5
S14	-9.6	-14.9	-15.3	-14.3	-21.0	-22.1	-19.9	-18.4	-18.1	-27.2	-29.9	-29.4
S23	-13.1	-11.1	-9.6	-9.2	-17.5	-12.3	-22.2	-22.0	-23.2	-20.9	-22.5	-19.8
S24	-10.7	-16.2	-11.0	-10.4	-17.4	-15.1	-19.1	-18.7	-22.1	-28.4	-24.2	-25.5
S34	-13.7	-14.6	-15.4	-14.0	-12.8	-10.4	-20.0	-22.9	-19.2	-24.4	-22.2	-23.2

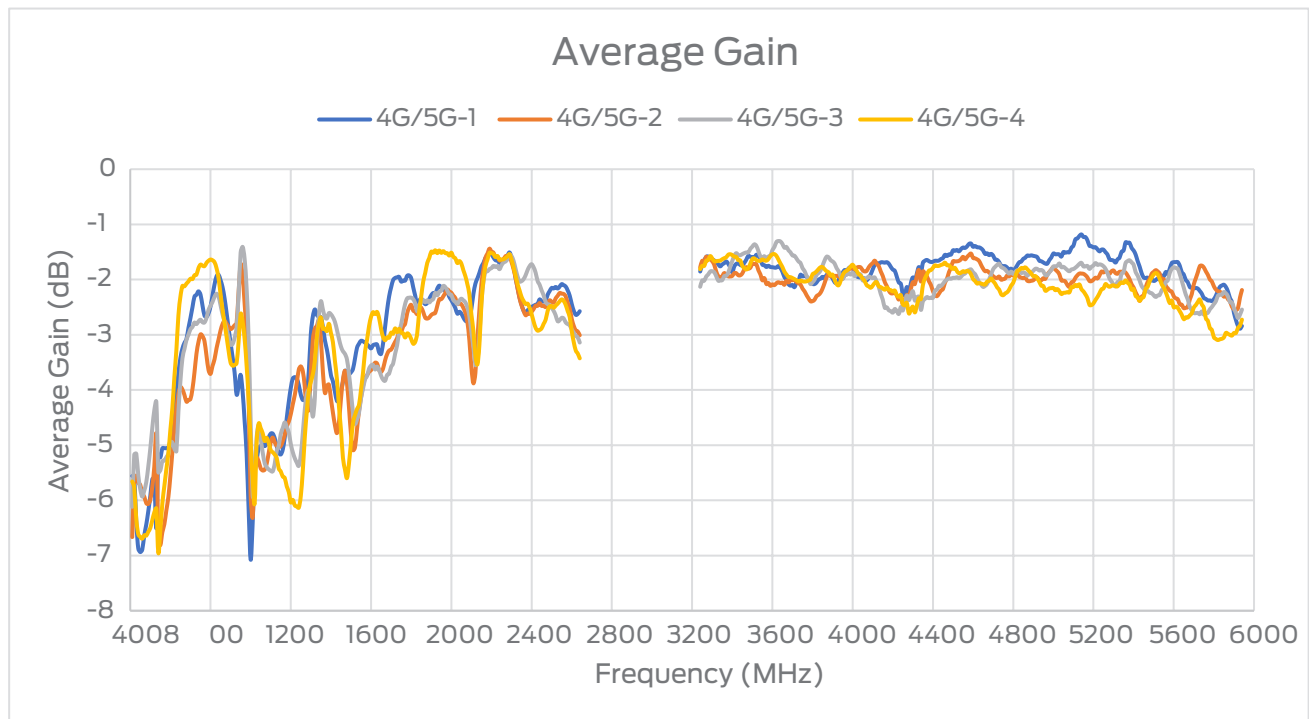
3.2. Radiation Performance Test

3.2.1. Efficiency



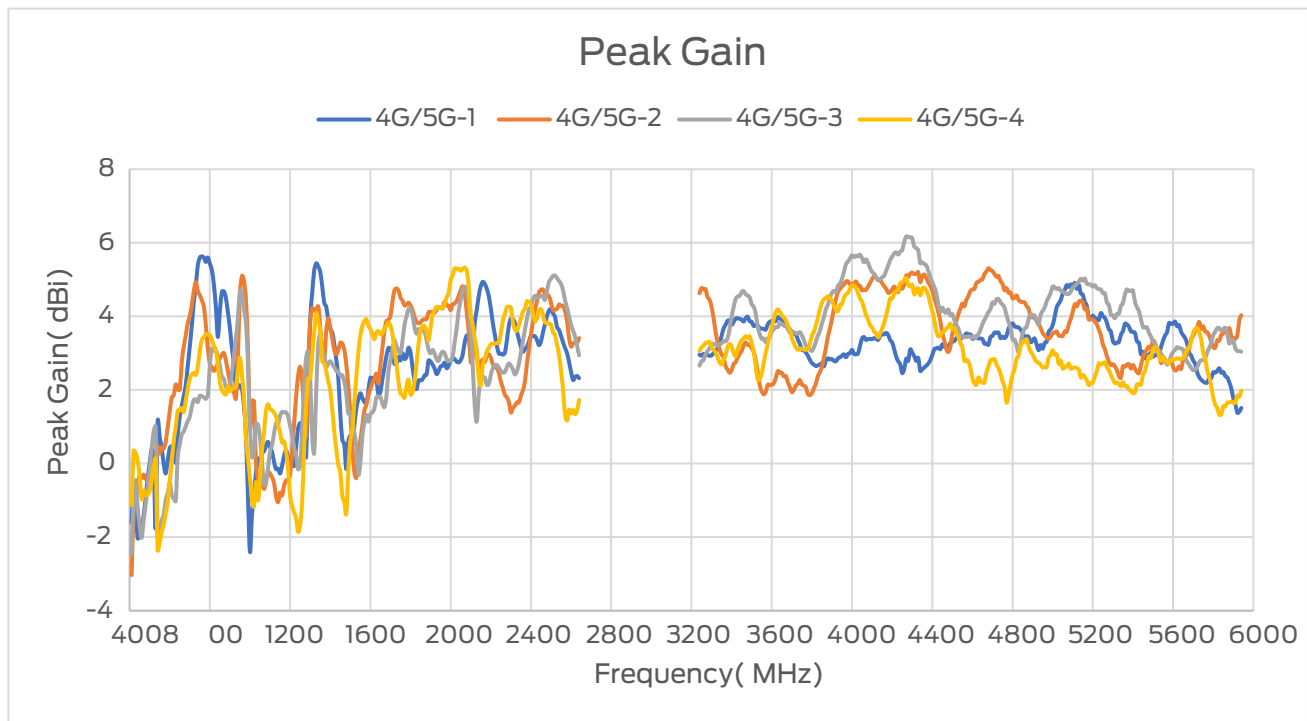
Efficiency (%)										
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
4G/5G-1	30.4	31.2	45.5	54.3	64.4	48.4	44.8	46.3	55.6	59.0
4G/5G-2	21.3	22.7	40.3	48.8	49.1	51.3	40.7	42.9	46.2	55.2
4G/5G-3	28.2	29.7	41.3	52.8	58.8	48.1	54.9	42.3	42.4	57.1
4G/5G-4	20.2	26.7	58.8	66.7	63.5	44.6	52.5	51.4	49.6	48.7
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
4G/5G-1	58.2	53.0	70.7	55.8	61.3	68.6	71.9	68.1	64.8	52.0
4G/5G-2	53.9	52.9	69.6	54.7	59.7	64.5	67.1	62.9	58.8	60.4
4G/5G-3	57.4	56.2	70.1	66.7	53.3	69.5	61.8	65.7	61.4	55.7
4G/5G-4	69.0	61.9	70.2	56.1	57.6	68.2	62.1	61.5	58.4	53.4

3.2.2. Average Gain



Average Gain (dB)										
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
4G/5G-1	-5.2	-5.1	-3.4	-2.7	-1.9	-3.1	-3.5	-3.3	-2.6	-2.3
4G/5G-2	-6.7	-6.4	-3.9	-3.1	-3.1	-2.9	-3.9	-3.7	-3.4	-2.6
4G/5G-3	-5.5	-5.3	-3.8	-2.8	-2.3	-3.2	-2.6	-3.7	-3.7	-2.4
4G/5G-4	-7.0	-5.7	-2.3	-1.8	-2.0	-3.5	-2.8	-2.9	-3.0	-3.1
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
4G/5G-1	-2.4	-2.8	-1.5	-2.5	-2.1	-1.6	-1.4	-1.7	-1.9	-2.8
4G/5G-2	-2.7	-2.8	-1.6	-2.6	-2.2	-1.9	-1.7	-2.0	-2.3	-2.2
4G/5G-3	-2.4	-2.5	-1.5	-1.8	-2.7	-1.6	-2.1	-1.8	-2.1	-2.5
4G/5G-4	-1.6	-2.1	-1.5	-2.5	-2.4	-1.7	-2.1	-2.1	-2.3	-2.7

3.2.3. Peak Gain

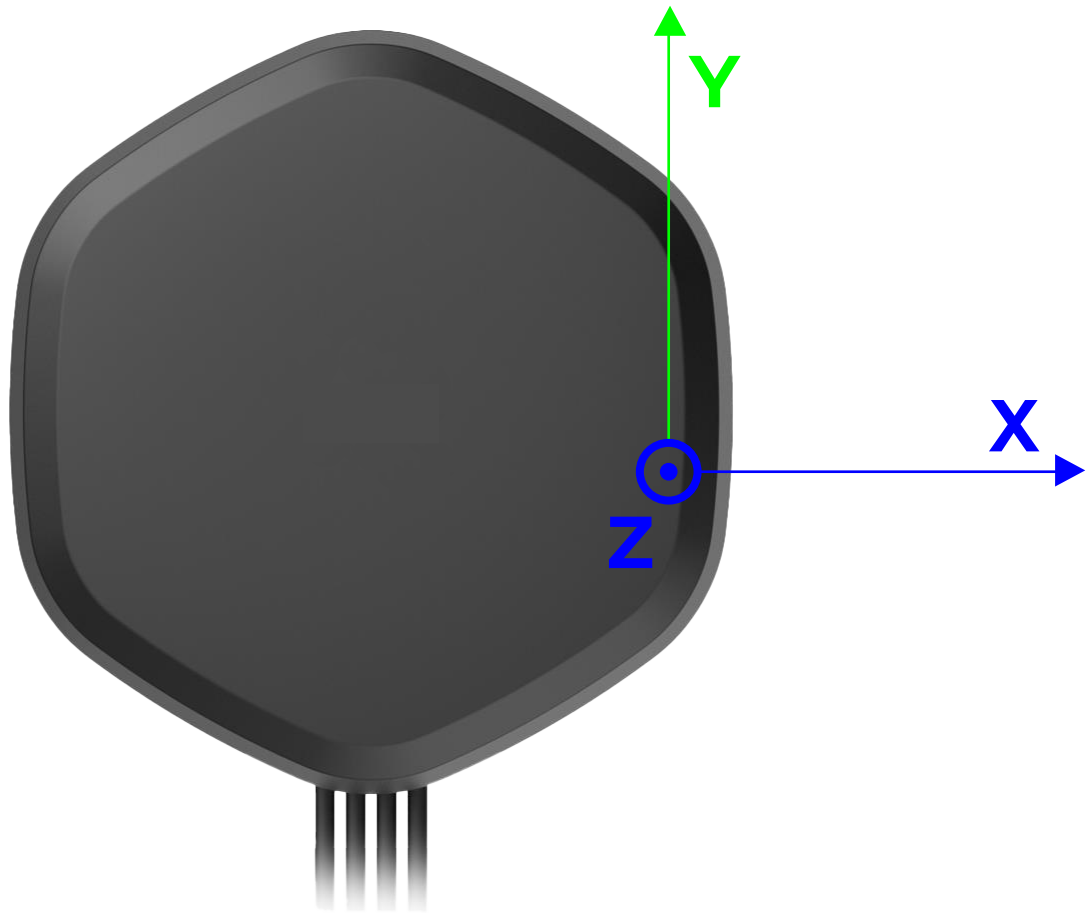


Peak Gain (dBi)										
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
4G/5G-1	1.2	0.0	1.3	5.6	3.4	3.7	3.9	2.0	2.9	2.2
4G/5G-2	0.5	0.4	2.0	4.3	2.7	2.2	4.0	2.7	3.9	4.0
4G/5G-3	-2.0	-1.4	0.5	1.8	2.9	2.1	2.7	1.8	1.8	3.7
4G/5G-4	-2.4	-1.7	1.5	3.4	2.7	2.0	2.2	3.5	3.7	2.2
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
4G/5G-1	2.8	3.5	3.8	3.3	3.6	3.7	3.4	3.2	3.0	1.5
4G/5G-2	4.1	4.1	1.7	3.1	4.3	2.1	5.0	3.7	2.7	4.0
4G/5G-3	3.1	4.8	2.7	4.2	5.0	3.5	3.6	4.0	3.9	3.0
4G/5G-4	3.4	5.3	4.3	4.4	3.0	2.3	2.2	2.7	2.2	2.0

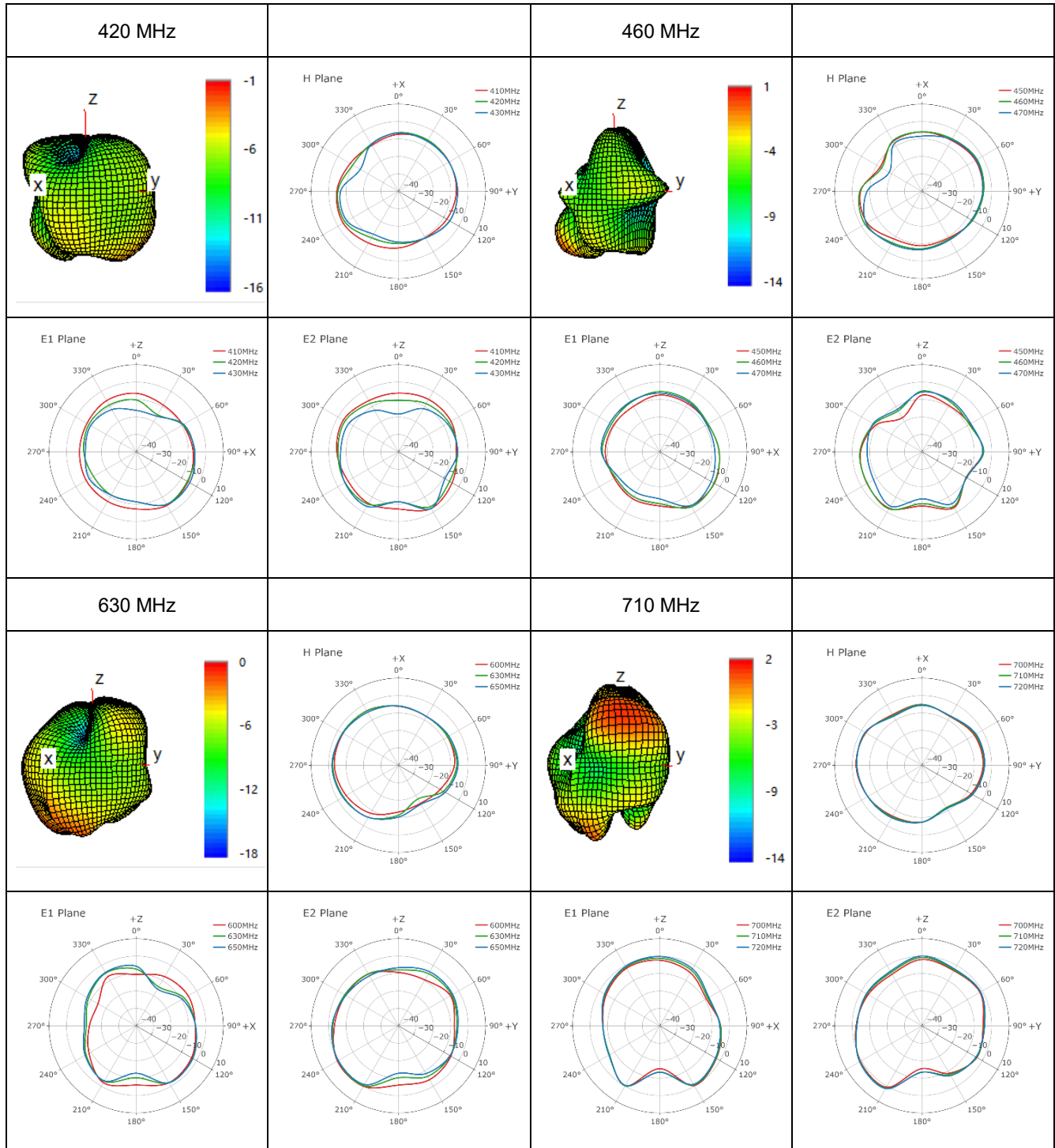
3.2.4. 3D & 2D Radiation Pattern

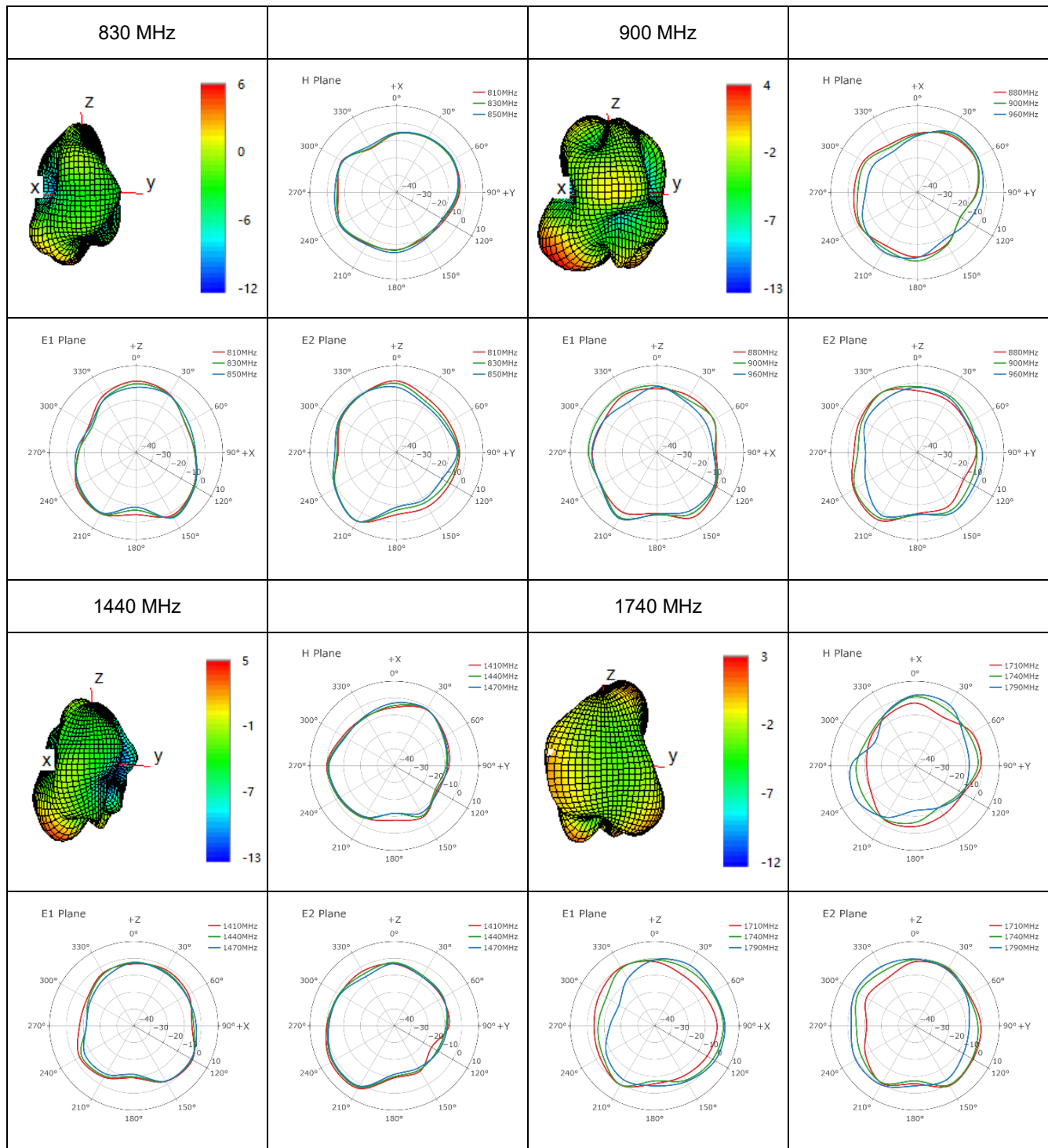
Test Status: Free space

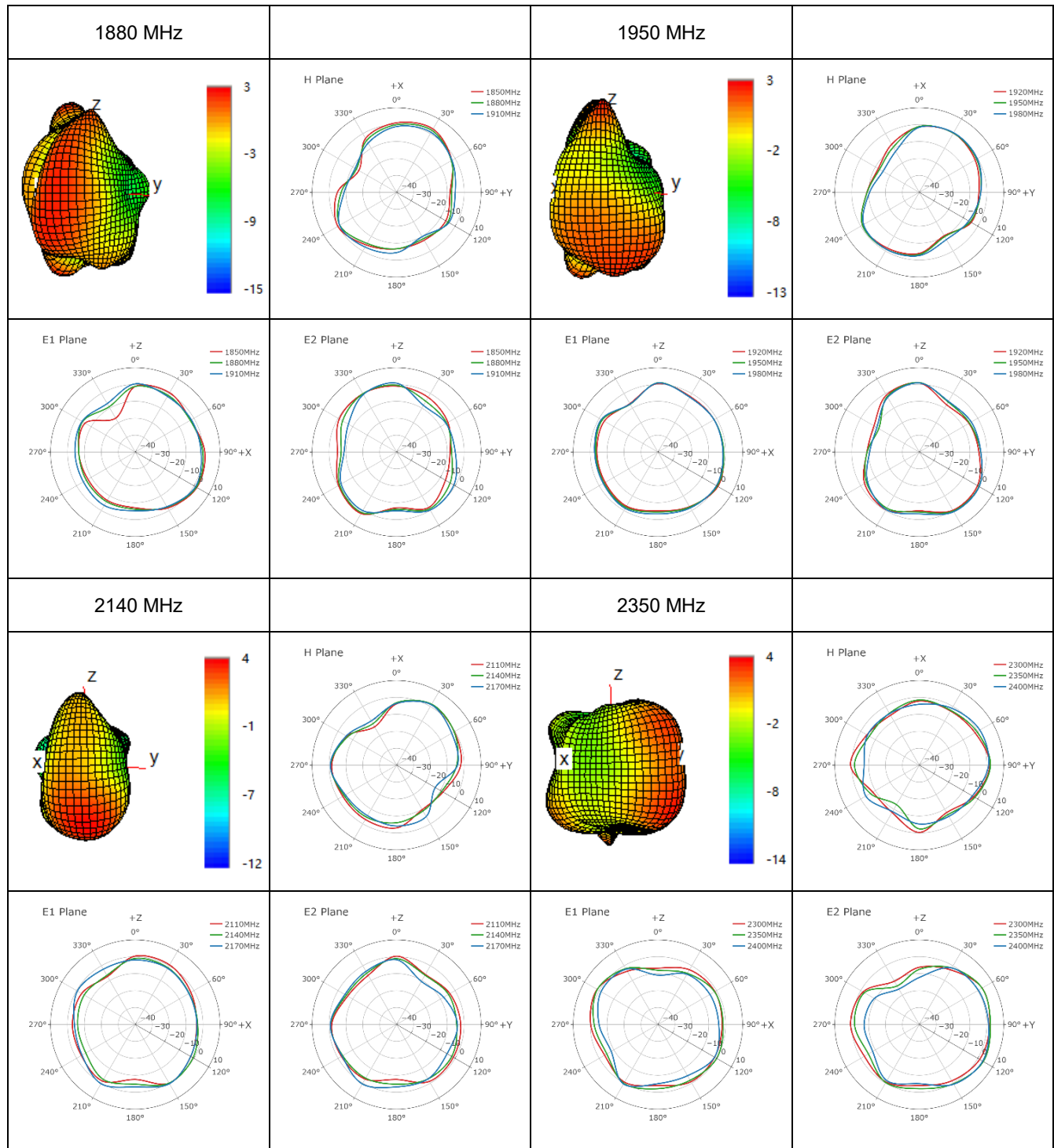
Test Chamber: FS-G-1

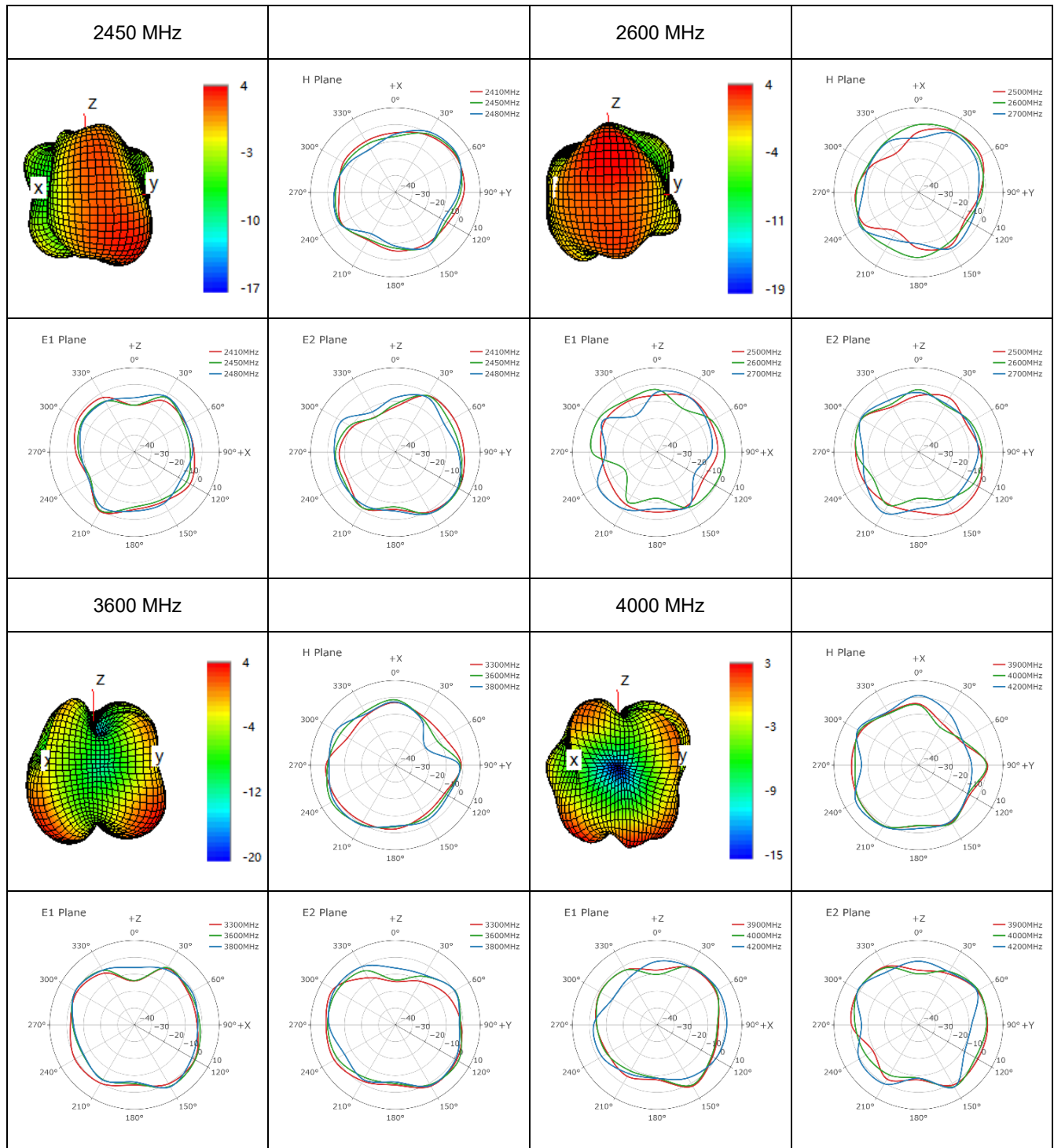


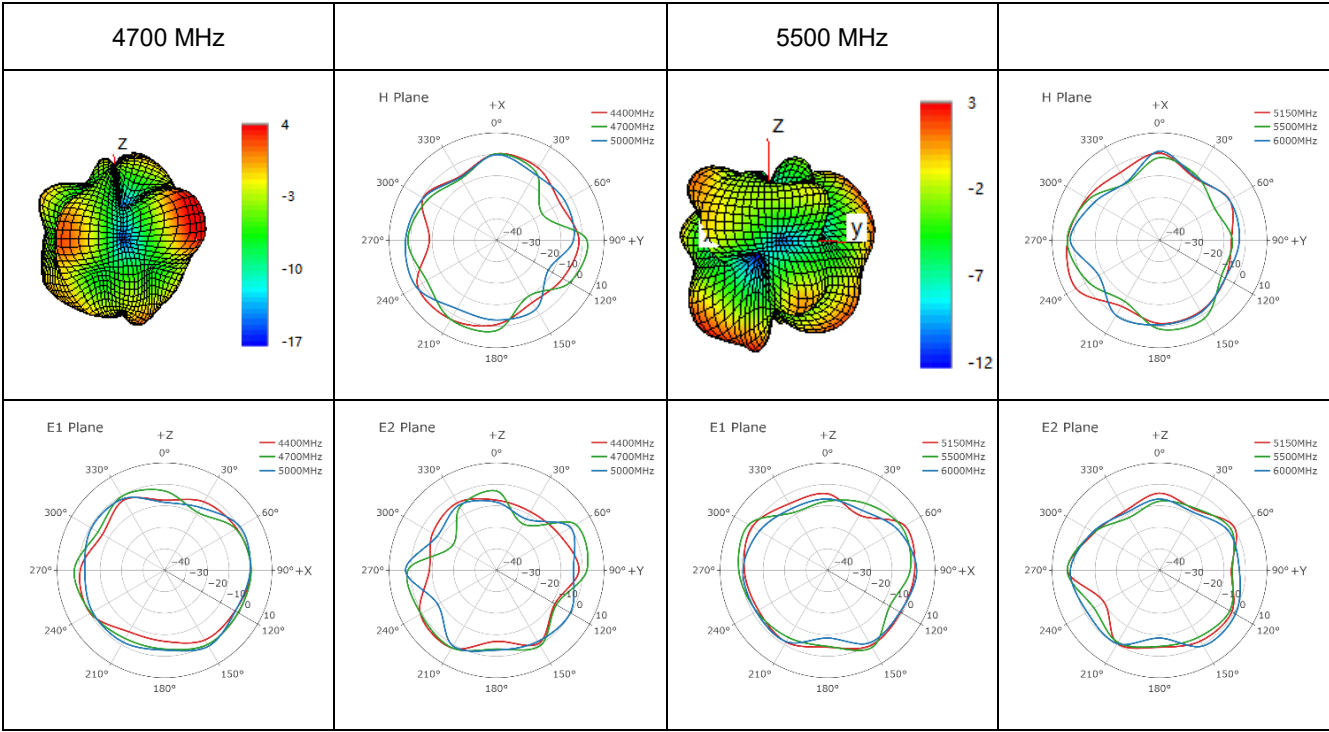
4G/5G-1



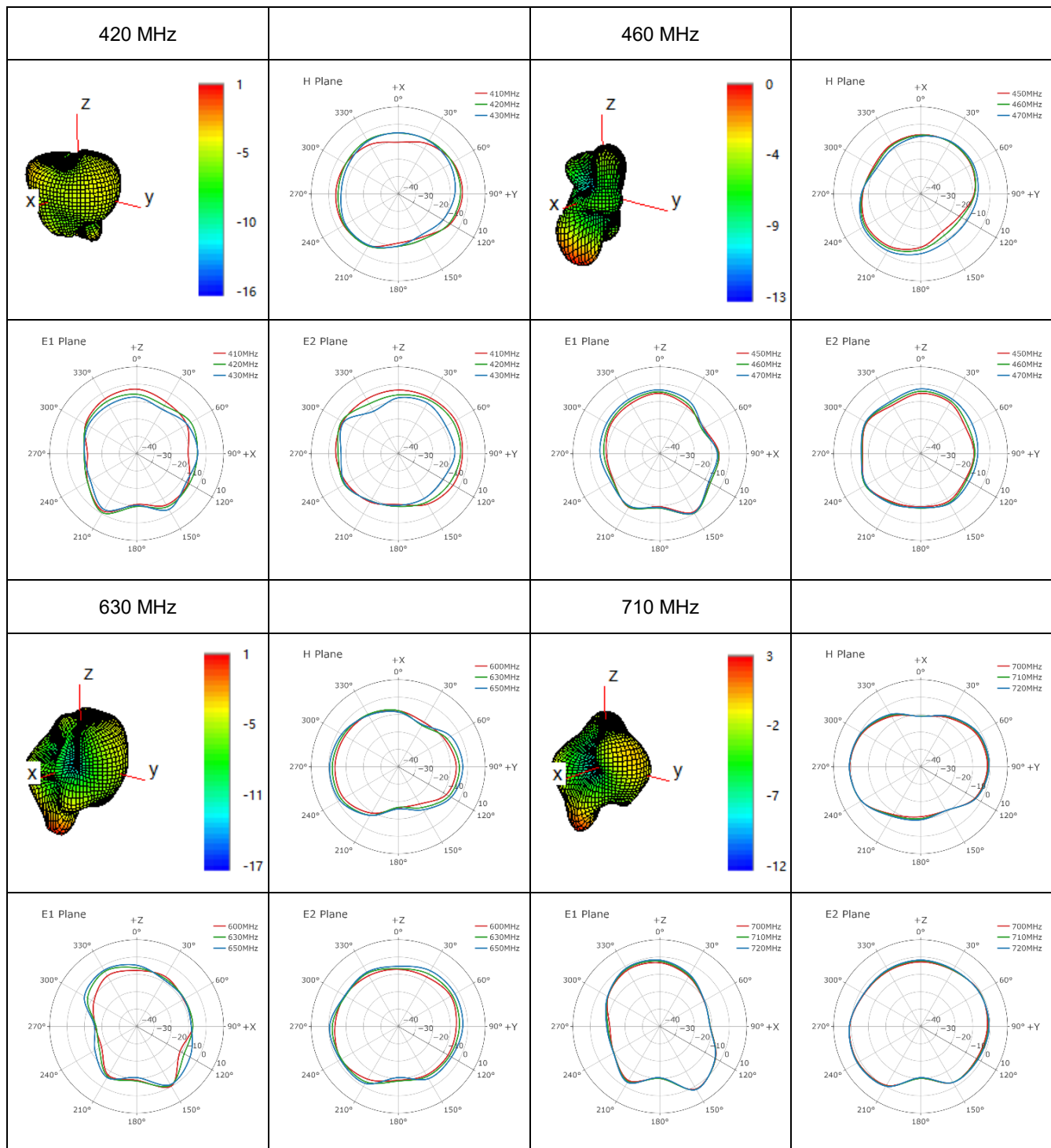


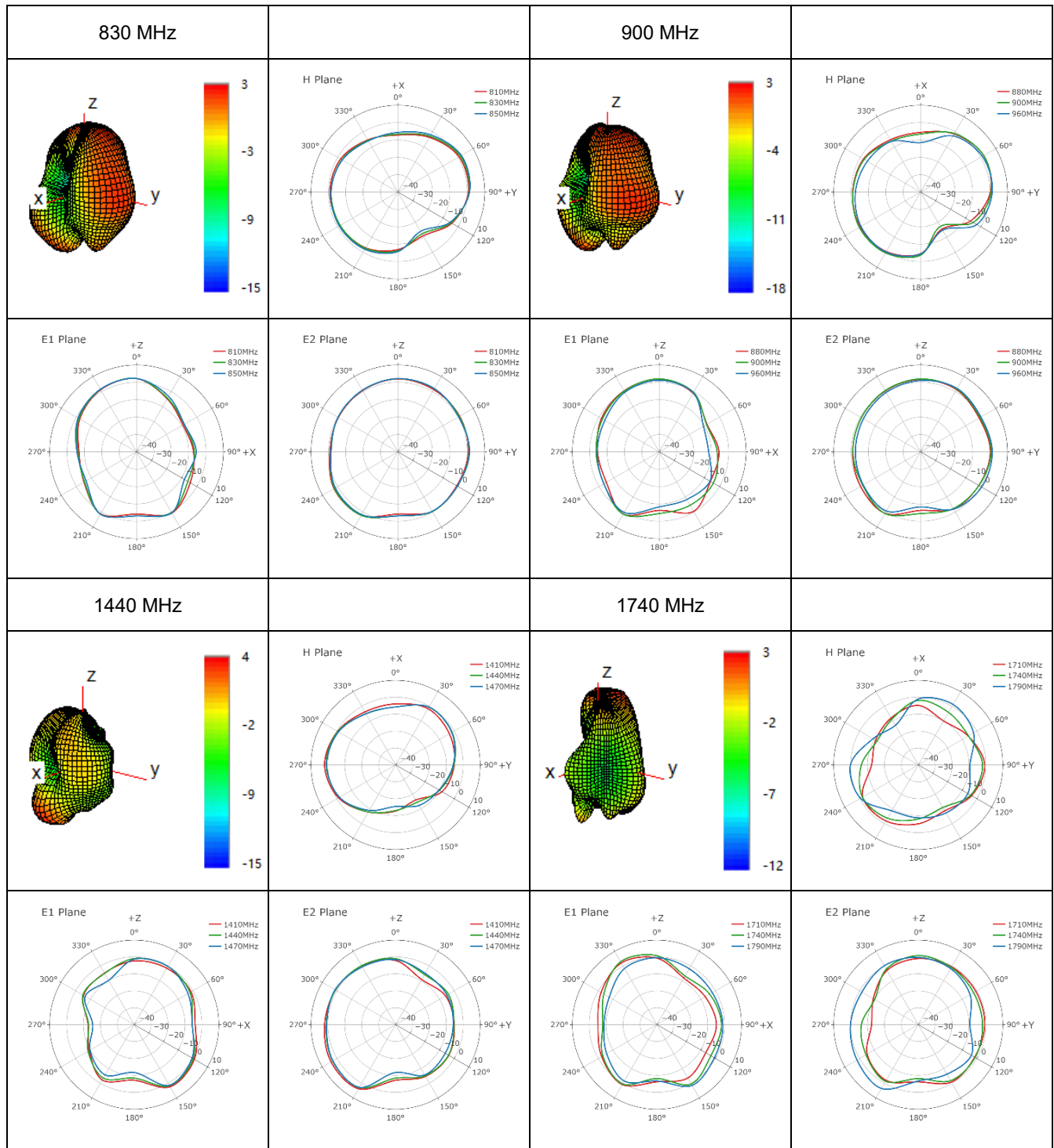


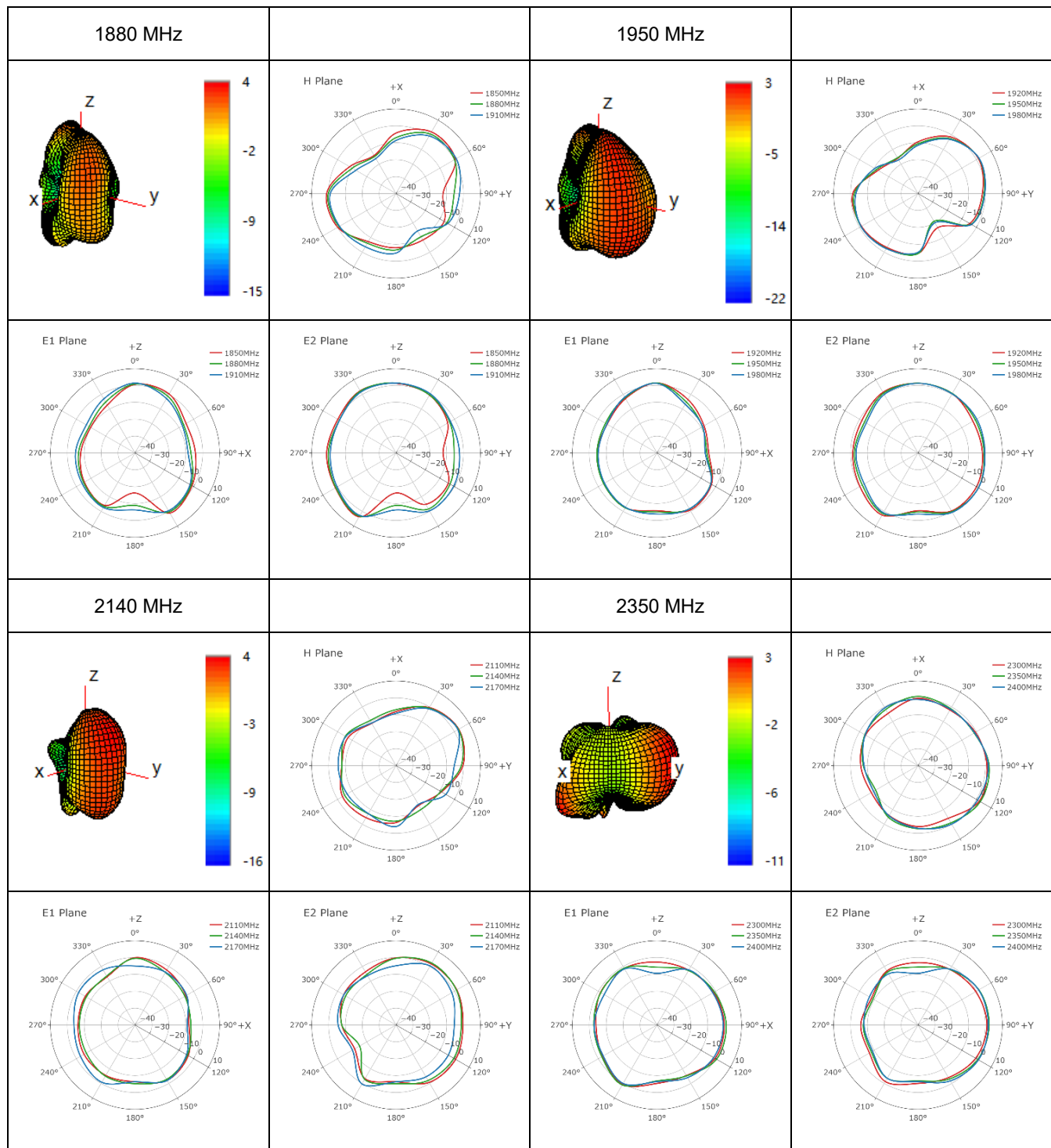


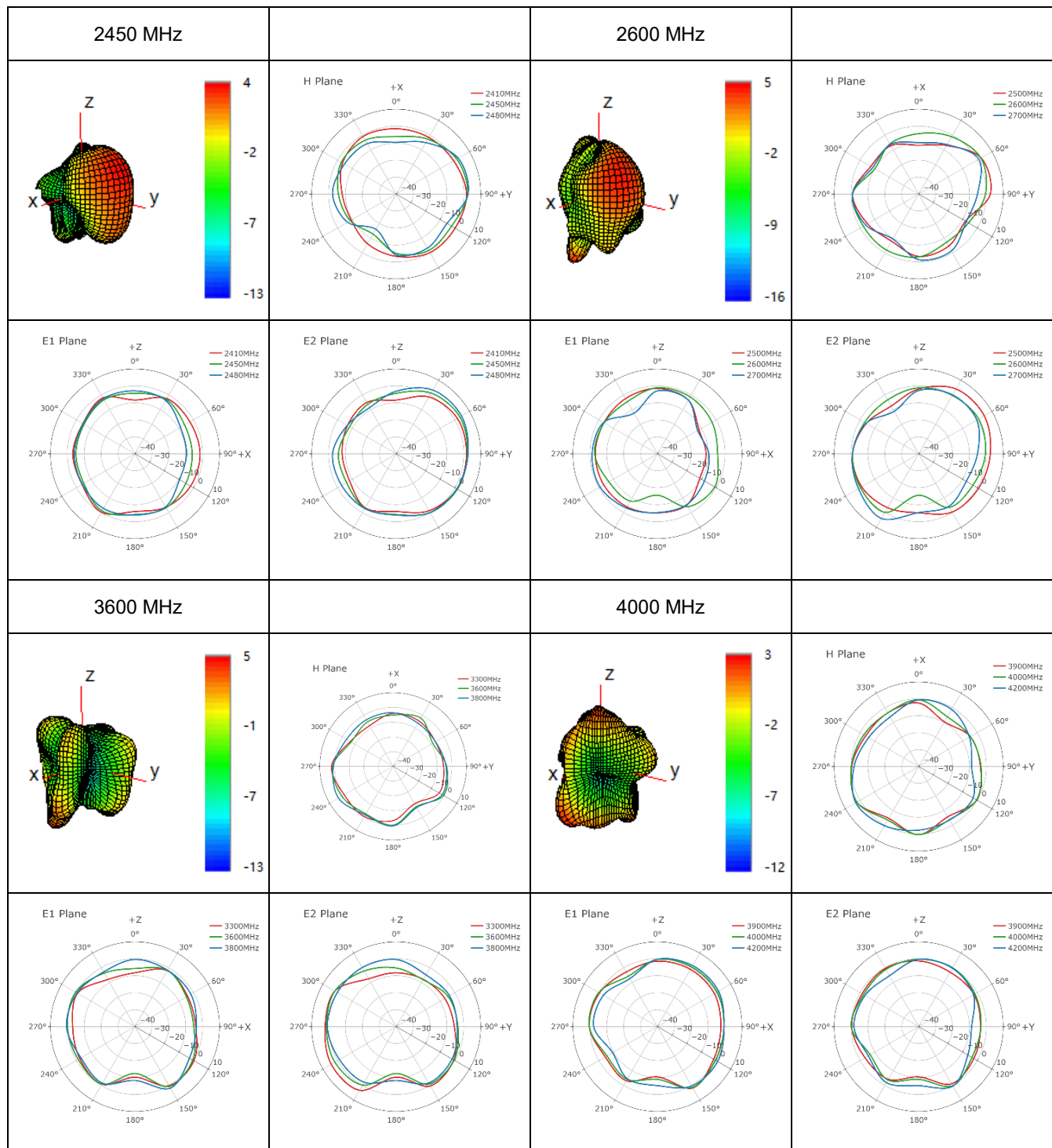


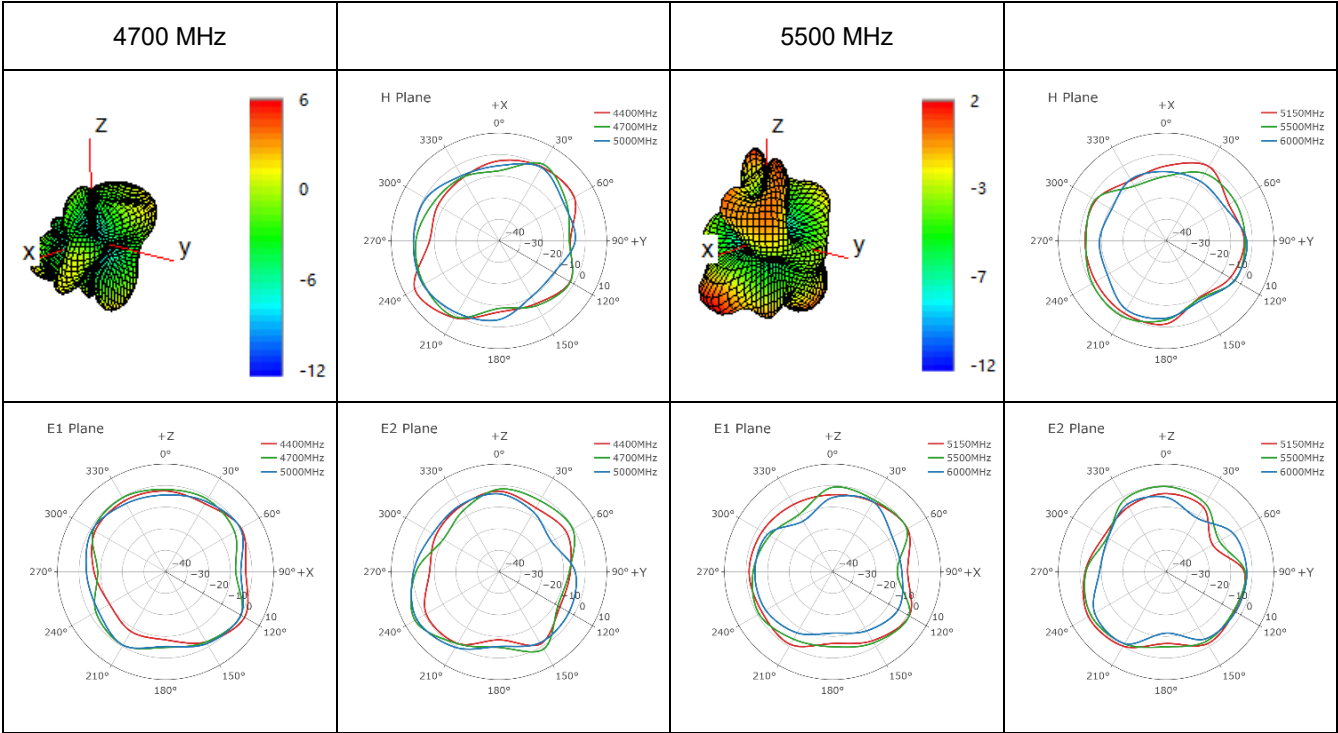
4G/5G-2



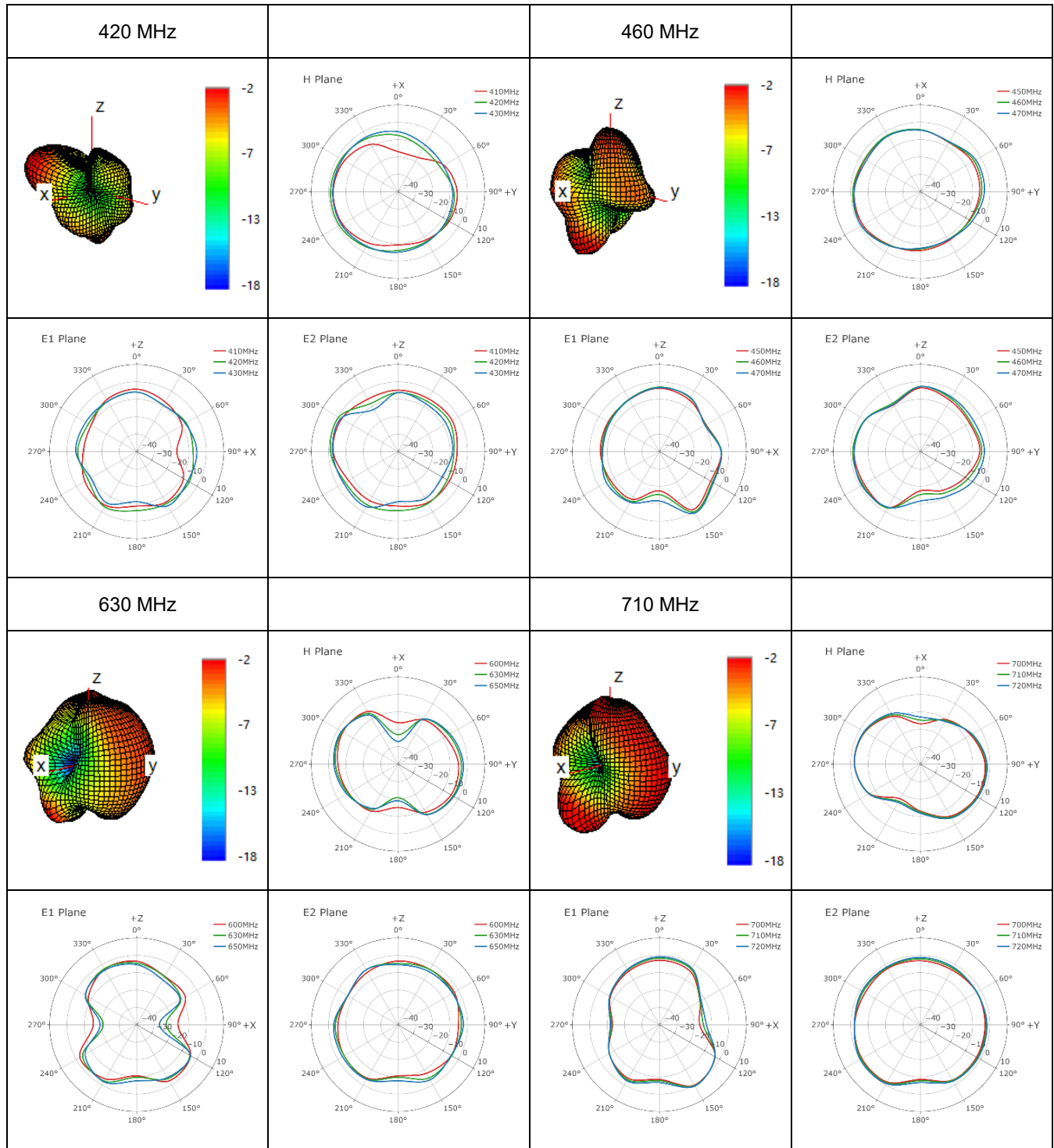


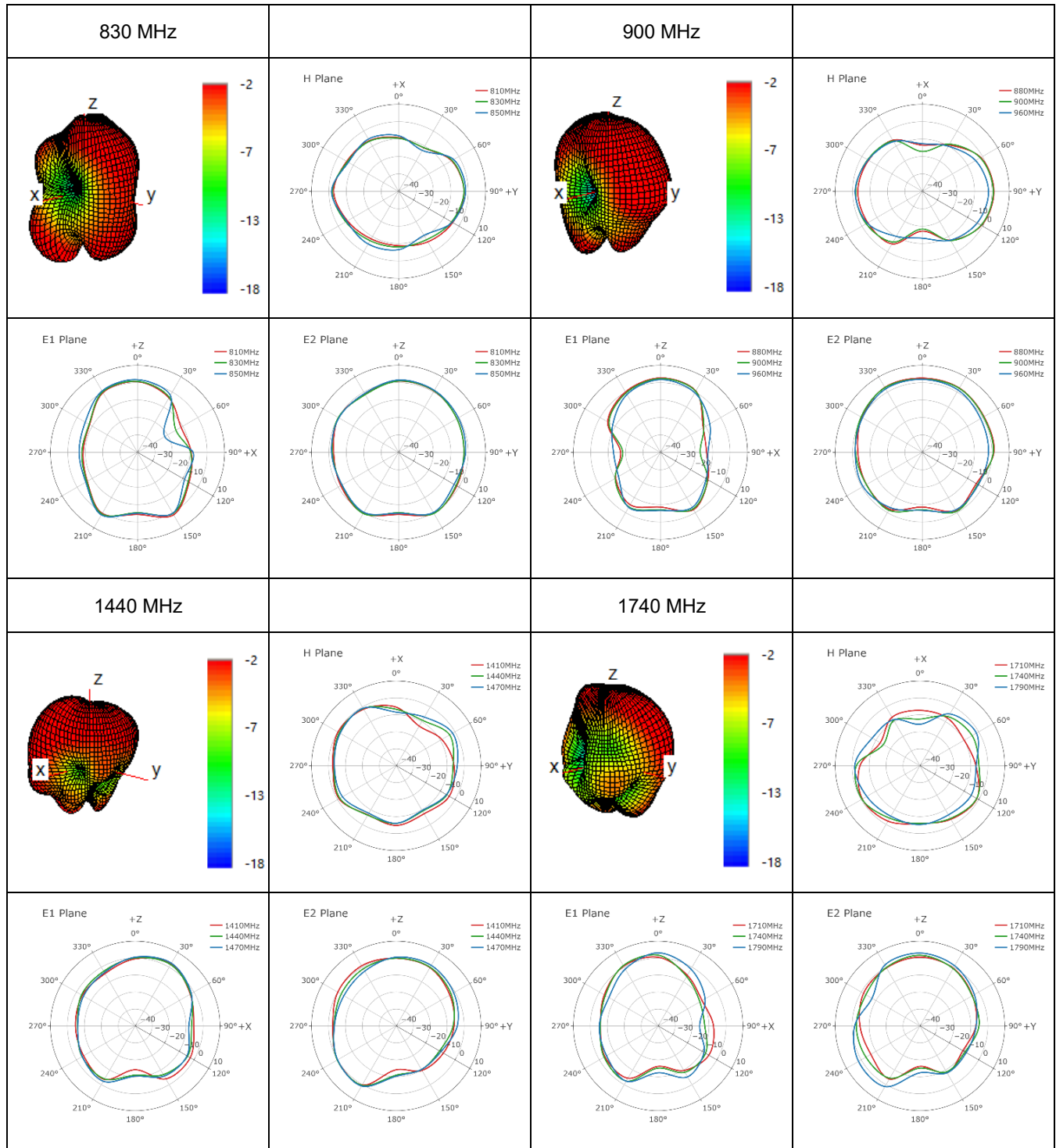


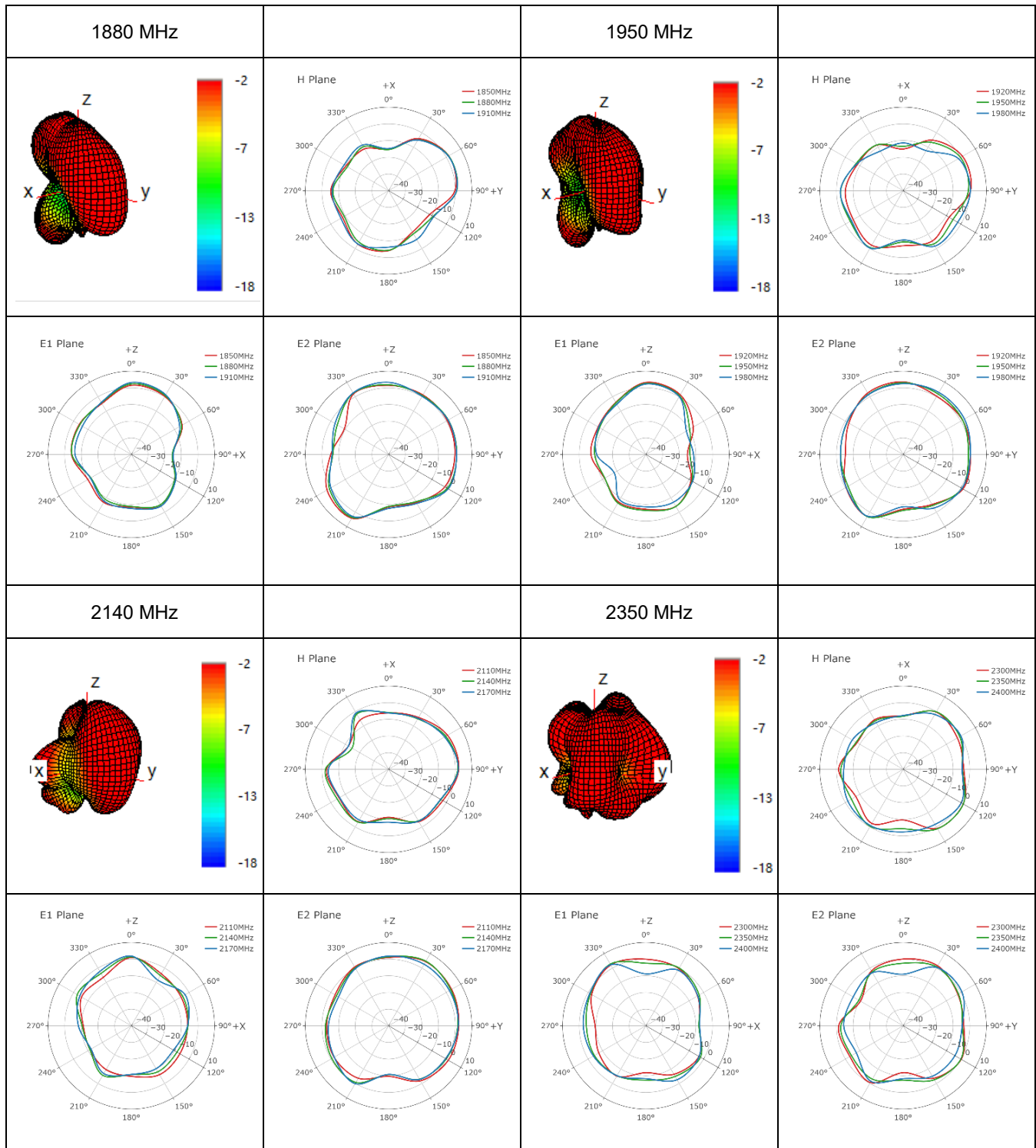


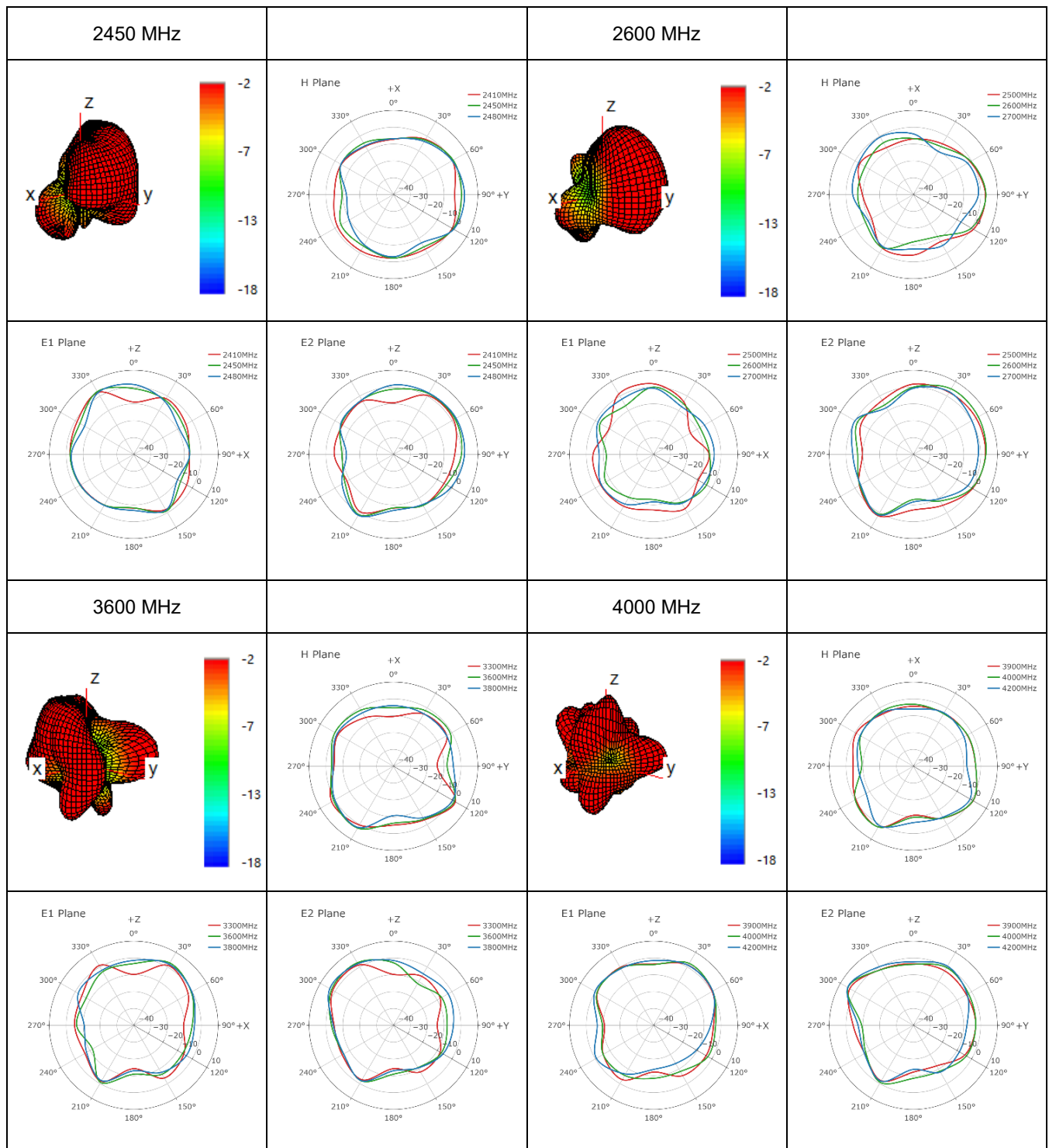


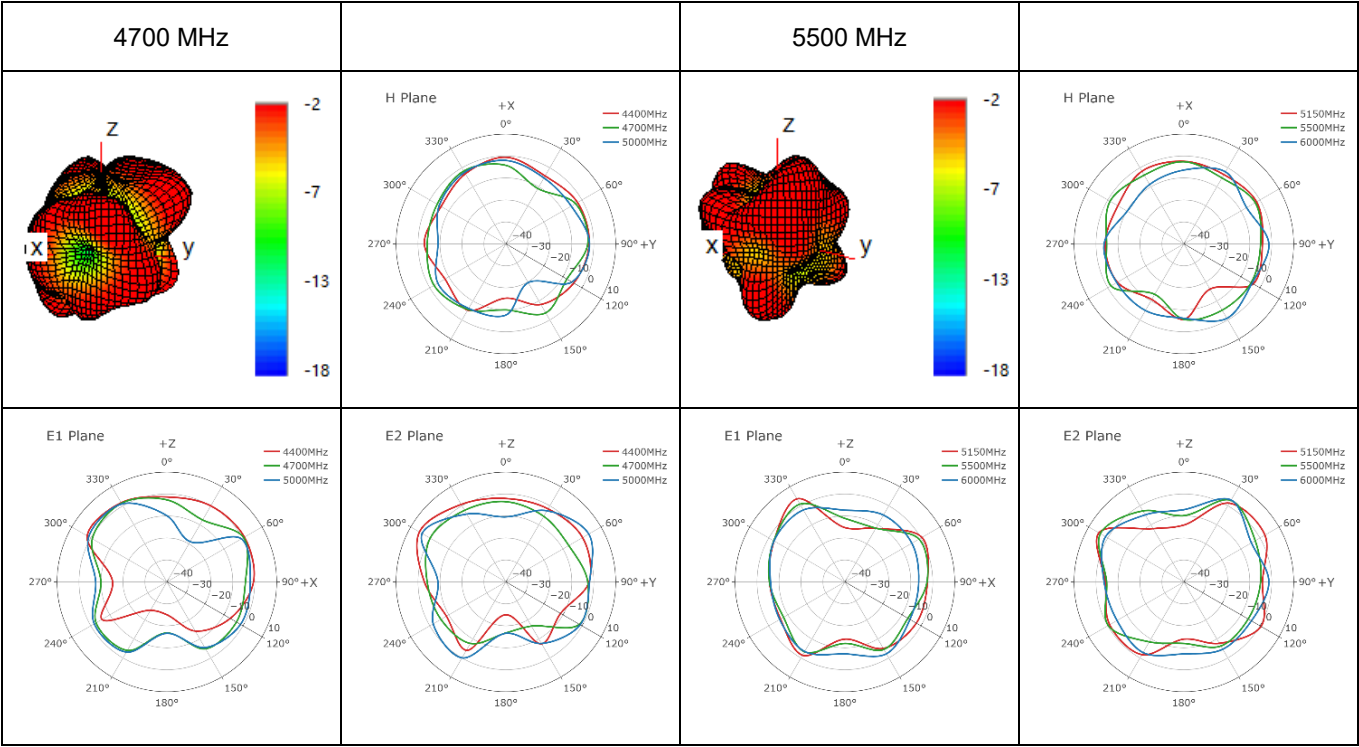
4G/5-3



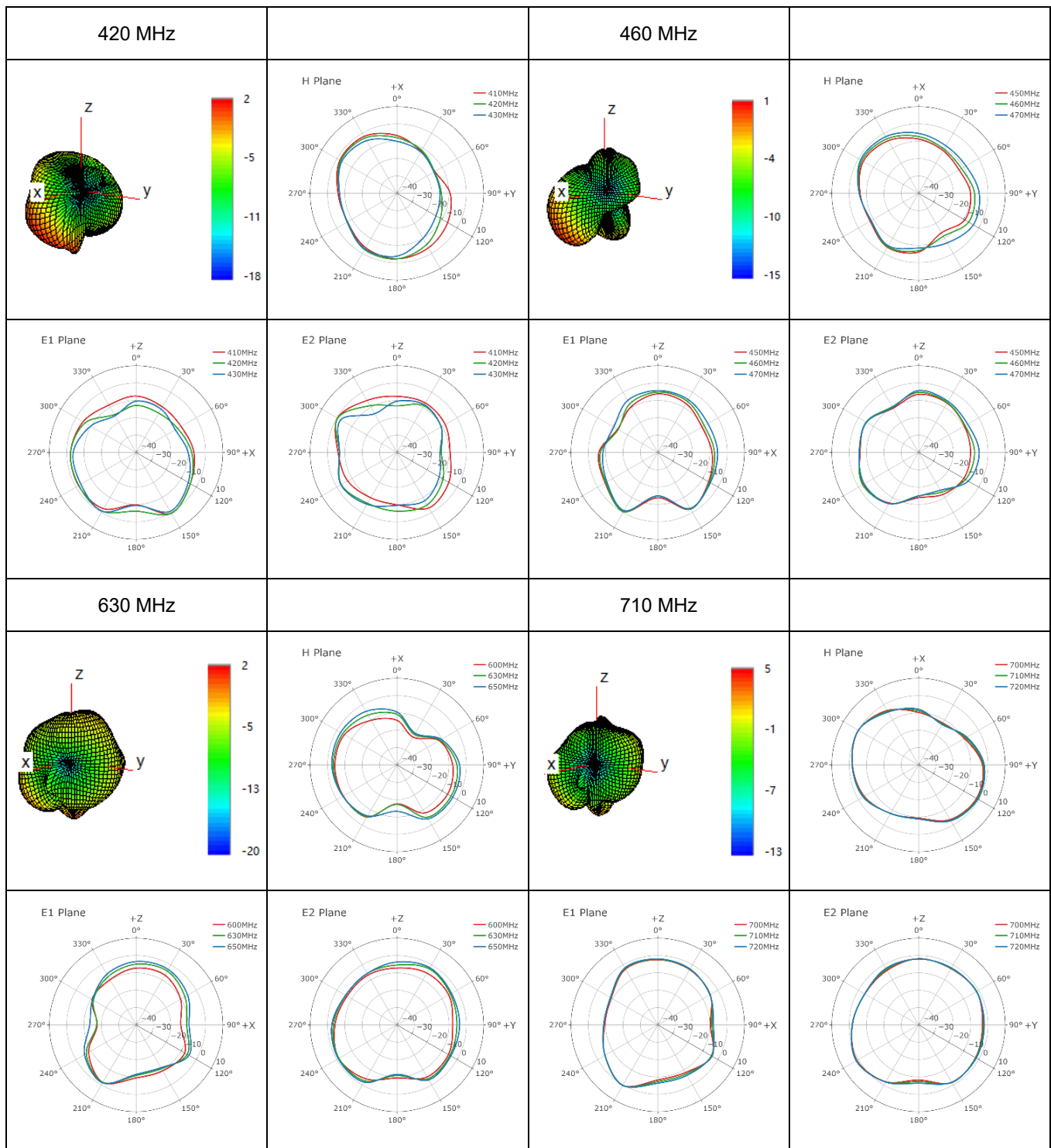


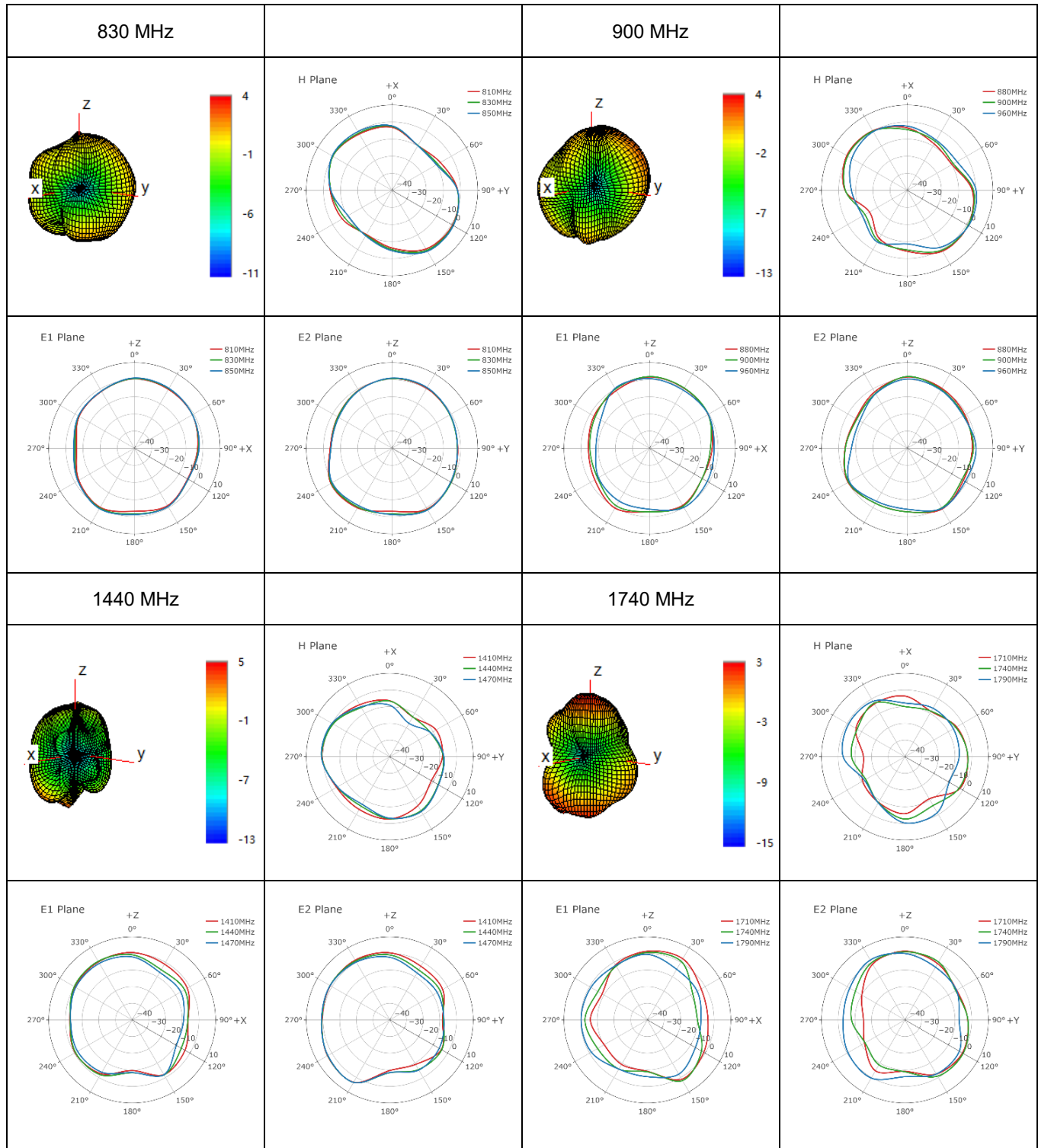




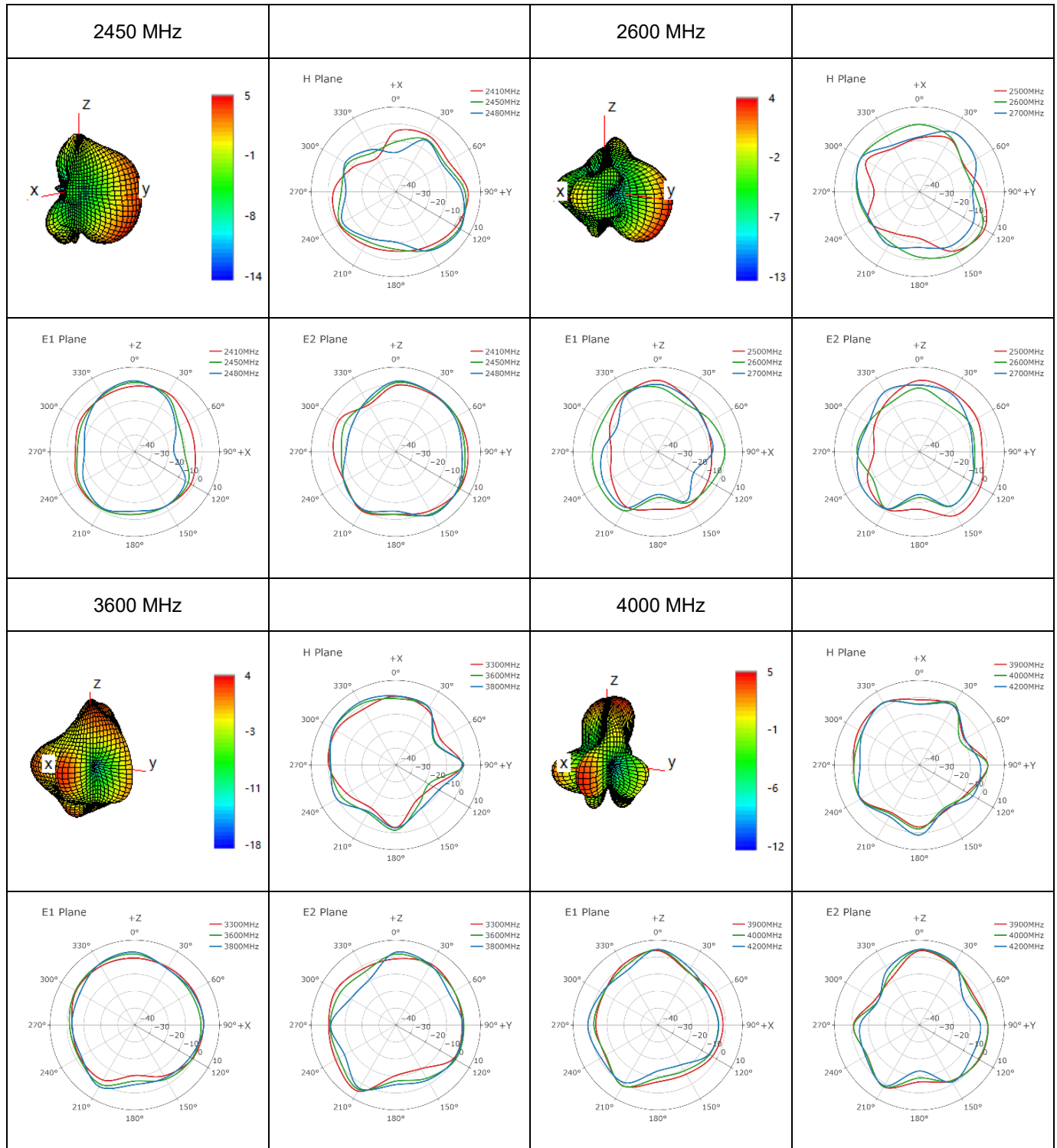


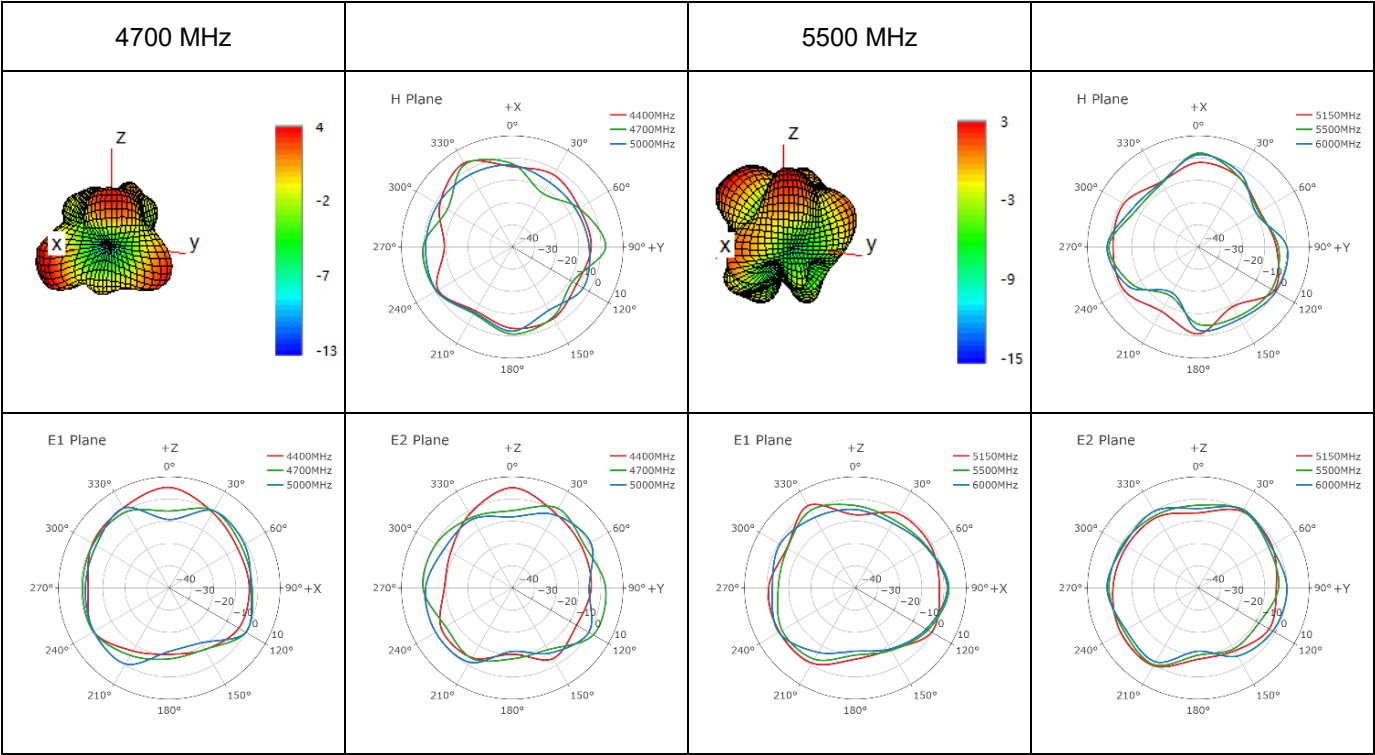
4G/5-4





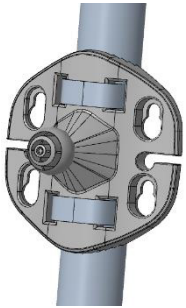




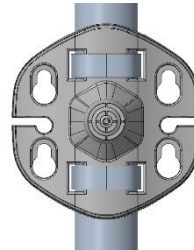


4. INSTALLATION

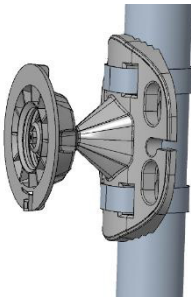
Pole Mounting Installation

**Step 1:**

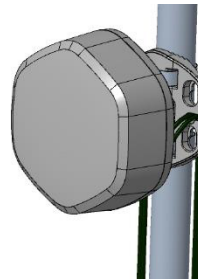
Thread the metal clamp through the assembly holes of the pole and base, and pre-tighten the screws.

**Step 2:**

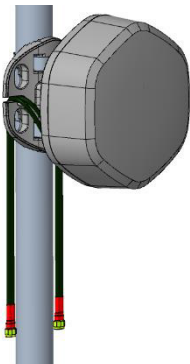
Move the base to the desired position on the pole, lock the screws with a screwdriver, and secure the clamp.

**Step 3:**

Insert the plastic nut into the base ball head.

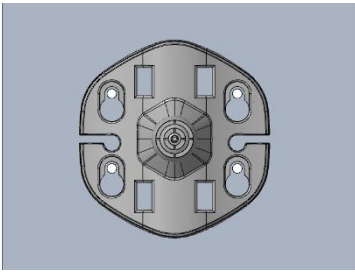
**Step 4:**

Press the antenna body into the ball head base, adjust the antenna to the desired angle, tighten the nut, and place the cable into the corresponding cable slot.

**Step 5:**

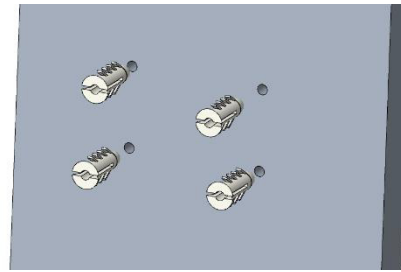
Installation completed.

Wall Mounting Installation



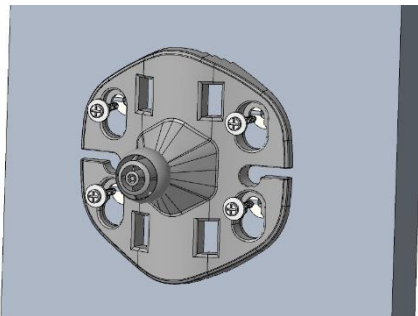
Step 1:

Mark the appropriate positions on the wall with the four mounting holes on the base, and drill four holes with a diameter of 6mm and a depth of 25mm.



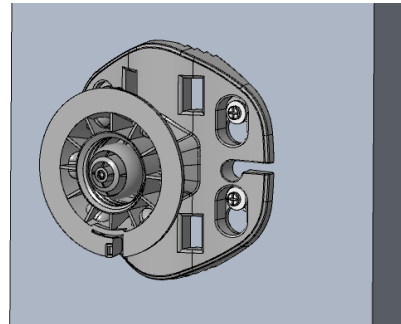
Step 2:

Insert the expansion bolts into the four holes.



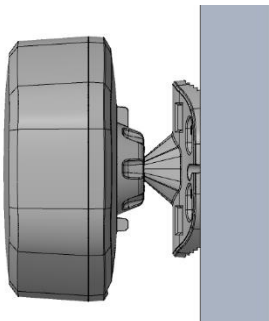
Step 3:

Lock the base into the expansion bolt with screw components.



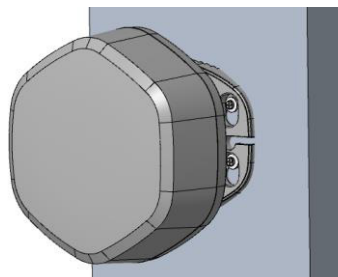
Step 4:

Insert the plastic nut into the base ball head.



Step 5:

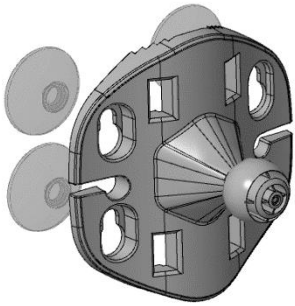
Press the antenna body into the ball head base, adjust the antenna to the desired angle, and then tighten the nut.



Step 6:

Installation completed.

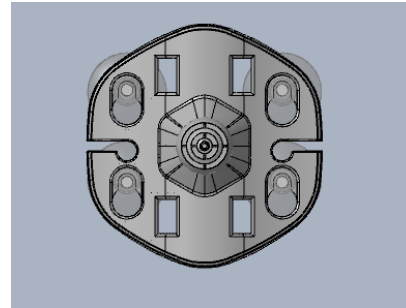
Suction Cup Mounting Installation



Step 1:

Install the suction cup into the corresponding mounting holes around the base.

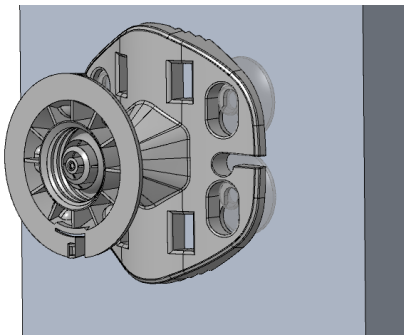
Attention: Check if the suction cup is deformed. If there is obvious deformation, soak the suction cup in warm water at around 60 degrees Celsius to eliminate the deformation and restore it to its normal state.



Step 2:

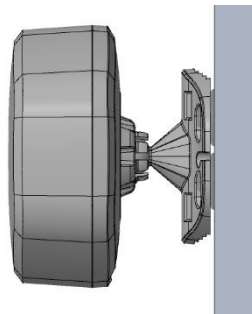
Align the base with the safety installation surface, press the suction cup firmly to eliminate internal air, and fix the base.

Attention: The installation surface should be a smooth surface, such as a smooth glass surface, smooth mirror surface, or smooth ceramic tile. Before installation, the installation surface needs to be cleaned to ensure that there is no dust or other contaminants.



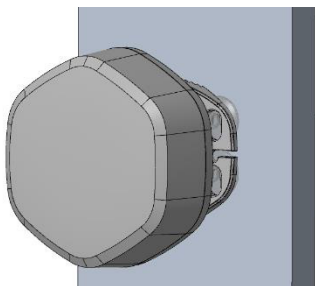
Step 3:

Insert the plastic nut into the base ball head.



Step 4:

Press the antenna body into the ball head base, adjust the antenna to the desired angle, and then tighten the nut.



Step 5:

Installation completed.

Installation Instructions

Mark	Frequency (MHz)	Tube Color	Technology
4G/5G-1	410-6000 MHz	Red	5G/4G/3G/2G
4G/5G-2	410-6000 MHz	Red	5G/4G/3G/2G
4G/5G-3	410-6000 MHz	Red	5G/4G/3G/2G
4G/5G-4	410-6000 MHz	Red	5G/4G/3G/2G