



Antenna Datasheet

Product OC: YEMN017AA-0BWAHA0A

Version: 1.0

Date: 2025-01-07

Product Name: 5G/4G & WIFI & GNSS 4-in-1 Screw Mount Combo Antenna

Key Features:

Frequency Band: 5G/4G × 2: 600–960 MHz, 1420–2690 MHz, 3300–4200 MHz, 4400–6000 MHz; WIFI × 1: 2400–2500 MHz, 5150–5850 MHz; GNSS × 1: GPS L1+L5

Dimensions: Φ 103.5 mm × 42.5 mm

Efficiency: Up to 42.7 % (5G/4G-1 FS)

GNSS LNA Gain: 28 ±3 dB

RoHS and REACH Compliant

IP67

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1 Specification

Test Condition: In Free Space & On 300 mm × 300 mm Metal Plane

1.1. Electrical

Electrical Specifications			
Frequency Range	5G/4G	600–960 MHz, 1420–2690 MHz, 3300–4200 MHz, 4400–6000 MHz	
	Wi-Fi	2400–2500 MHz, 5150–5850 MHz	
	GNSS	1164–1189 MHz, 1565–1606 MHz	
Radiation Pattern	5G/4G & Wi-Fi	Omni-directional	
	GNSS	Directional	
Polarization	5G/4G & Wi-Fi	Linear	
	GNSS	RHCP	
Impedance		50 Ω	
VSWR	5G/4G-1	FS	≤ 3.7
		MP	≤ 3.6
	5G/4G-2	FS	≤ 3.5
		MP	≤ 3.5
	Wi-Fi	FS	≤ 1.7
		MP	≤ 1.7
Peak Gain	5G/4G-1	FS	0.5 dBi
		MP	3.3 dBi
	5G/4G-2	FS	0.4 dBi

	Wi-Fi	MP	2.8 dBi
		FS	-1.1 dBi
		MP	0.9 dBi
Isolation	FS	≤ -9.3 dB	
	MP	≤ -11.9 dB	

Band	GPS L5 GALILEO E5a BDS B2a- B2I QZSS L5 IRNSS L5	GALILEO E5b BDS B2b	GPS L2 QZSS L2C	GLONASS G2	BDS B3	BDS B1I	GPS L1 GALILEO E1 BDS B1C QZSS L1	GLONASS G1
Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	1.61	-	-	-	-	-	1.52	1.49
Return Loss (dB)	-12.8	-	-	-	-	-	-13.6	-14
Efficiency (%)	47	-	-	-	-	-	42	40
Peak Gain (dBi)	-0.04	-	-	-	-	-	-1.49	-1.17

LNA Electrical	
LNA Gain	28 ±3 dB
Noise Figure	≤ 2.5 dB
Output VSWR	< 2.0
Filter Out-of-Band Attenuation	65 dB f0 ±100 MHz f0 (1176 MHz, 1588 MHz)
Working Voltage	DC 2–5 V
Working Current	< 20 mA
Impedance	50 Ω

Note:

FS: In Free Space

MP: On 300 mm × 300 mm Metal Plane

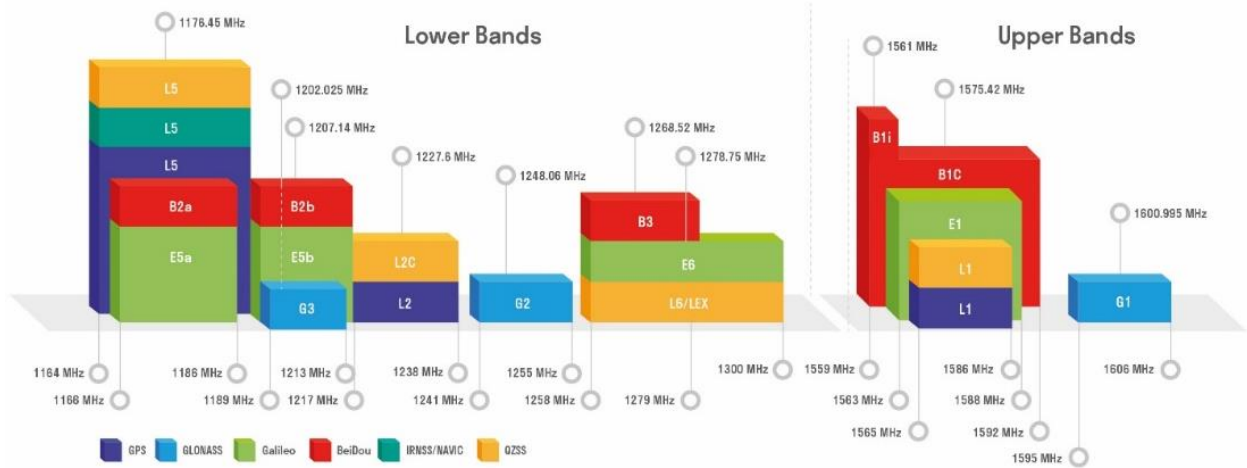
1.2. Mechanical & Environmental

Mechanical		
Antenna Dimensions		Φ 103.5 mm × 42.5 mm
Casing Material & Color		PC & Black
Cable Type & Color & Length	5G/4G	RG405 & Black & 3000 mm
	WIFI	RG405 & Black & 3000 mm
	GNSS	RG174 & Black & 3000 mm
Connector Type	5G/4G & GNSS	SMA Male
	WIFI	RP SMA Male
Mounting Type		Screw
Weight		Typ. 445 g
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 Flame Rating		UL 94 V-0
Housing UV Resistant		UL 746c f1

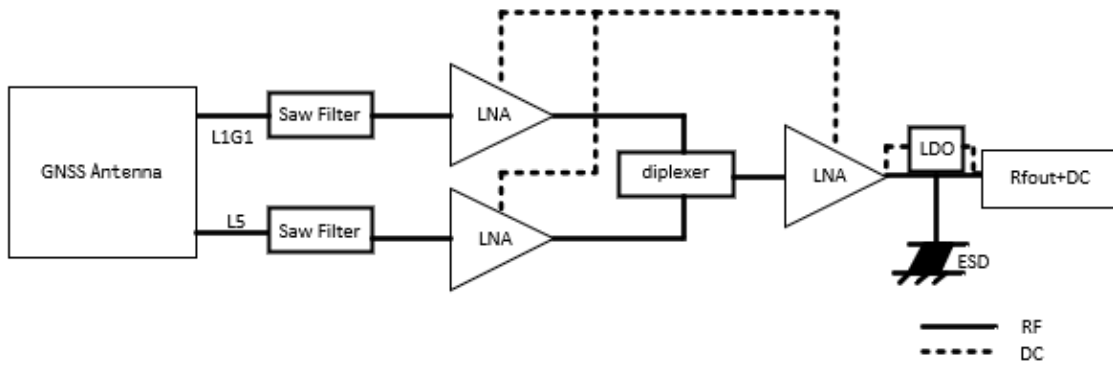
1.3. Supported GNSS Frequency Bands

GNSS Frequency Bands (MHz)					
GPS	L1 Centre 1575.42 (1565–1586)	L2 Centre 1227.6 (1217–1238)	L5 Centre 1176.45 (1164–1189)		
	√	-	√		
GLONASS	G1-L10C-L10F Centre 1601 (1595–1606)	G2-L20C-L20F Centre 1248.06 (1241–1255)	G3-L30C Centre 1202.025 (1189–1213)		
	√	-	-		
GALILEO	E1 Centre 1575.42 (1563–1588)	E5a Centre 1176.45 (1166–1187)	E5b Centre 1207.14 (1197–1218)	E6 Centre 1278.75 (1258–1300)	
	√	√	-	-	
BDS	B1I Centre 1561.098 (1559–1564)	B1C (BDS-3) Centre 1575.42 (1559–1592)	B2a-B2I Centre 1176.45 (1166–1187)	B2b Centre 1207.14 (1197–1217)	B3 Centre 1268.52 (1258–1279)
	-	√	√	-	-
QZSS	L1 Centre 1575.42 (1573–1578)	L2C Centre 1227.6 (1226–1229)	L5 Centre 1176.45 (1166–1187)	L6 Centre 1278.75 (1257–1300)	
	√	-	√	-	
IRNSS	L5 Centre 1176.45 (1164–1189)				
	√				

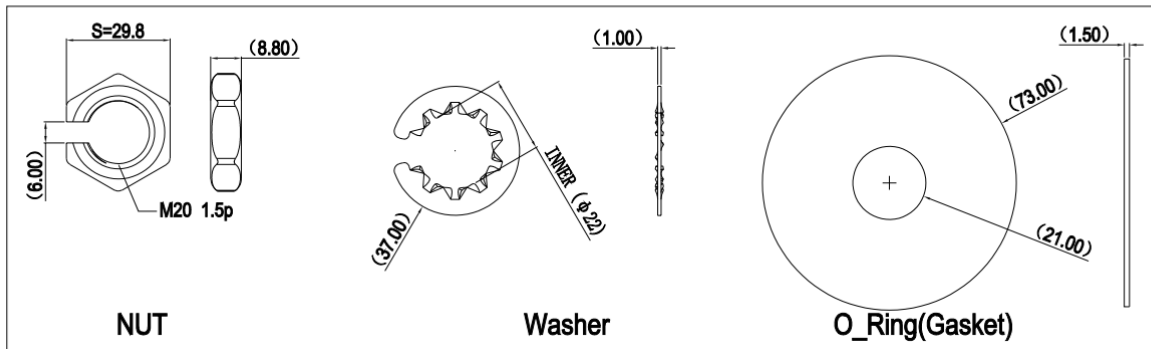
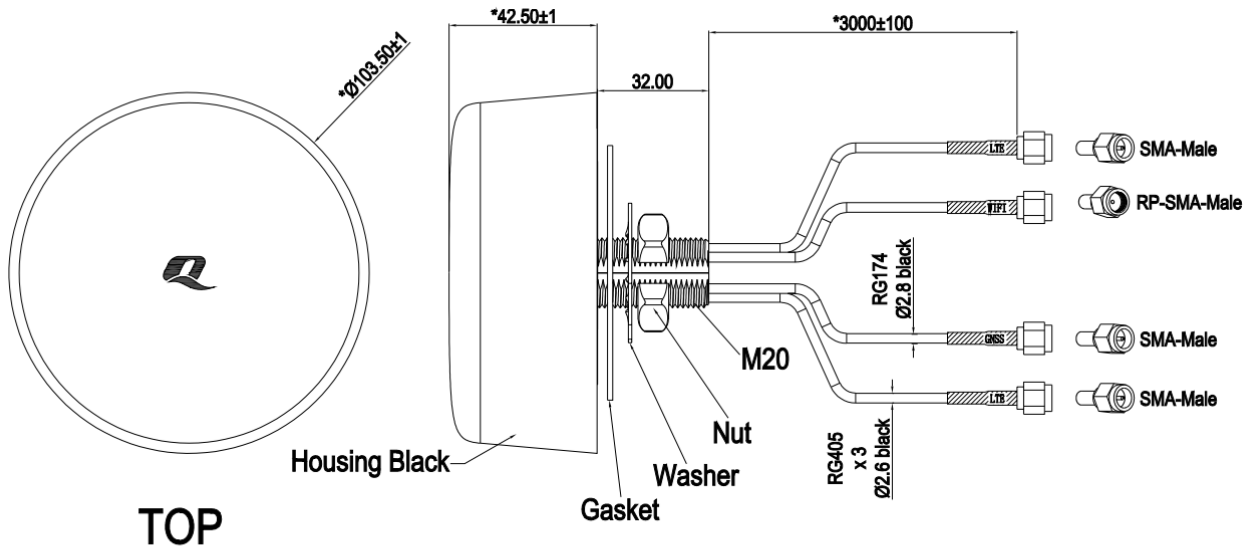
GNSS Bands and Constellations



1.4. Block Diagram (Active Antenna)



2 Drawing

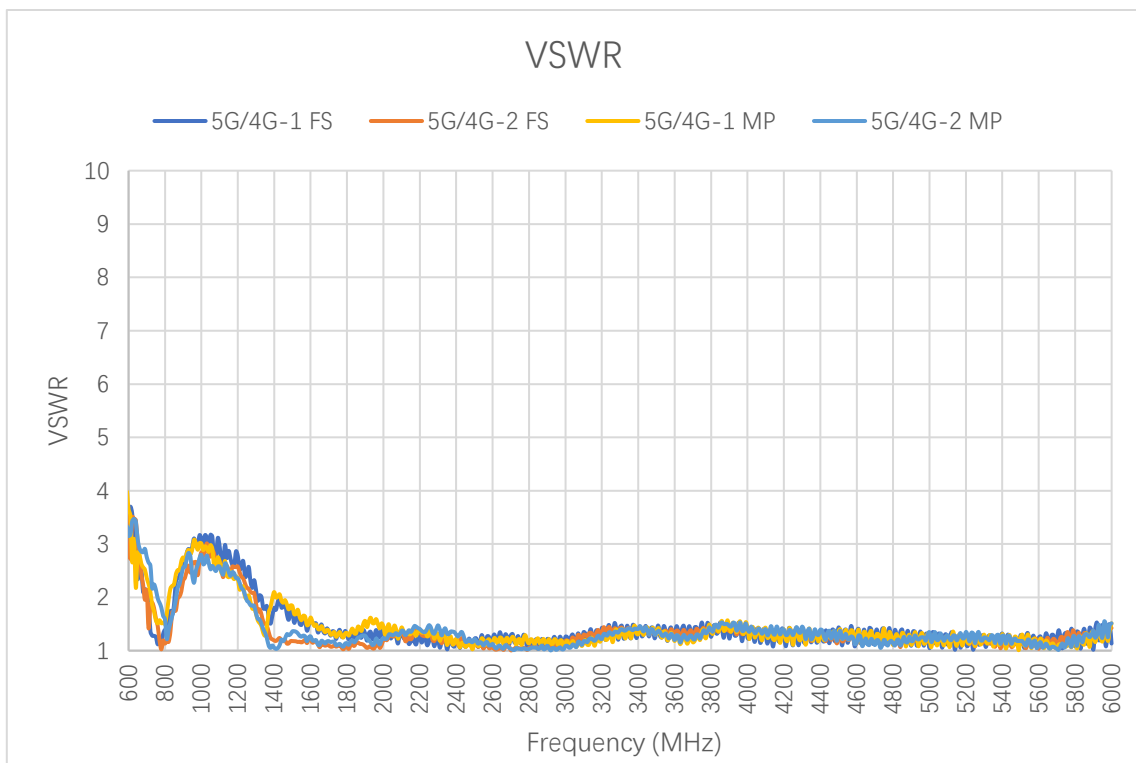


The current state of the SMA connector is not waterproof. If a waterproof connector is required, it can be customized, such as a waterproof FAKRA connector.

3 Detailed Performance

3.1. S-Parameter Test

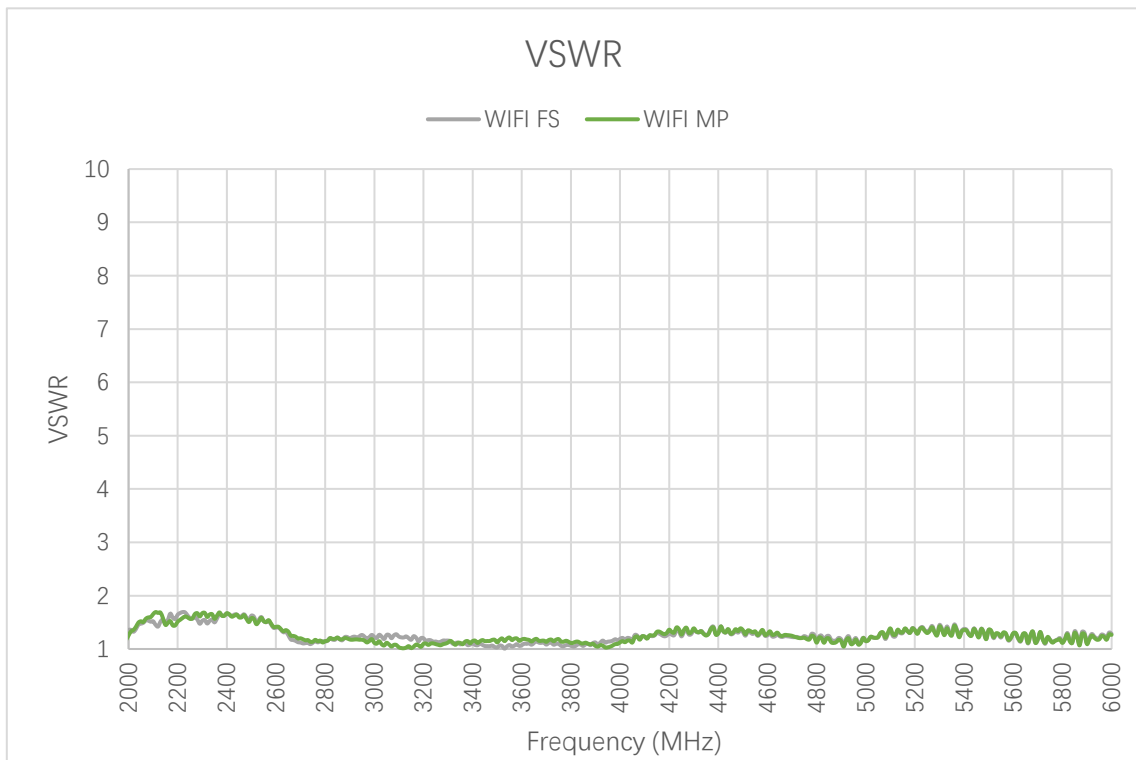
3.1.1. VSWR



VSWR – 5G/4G

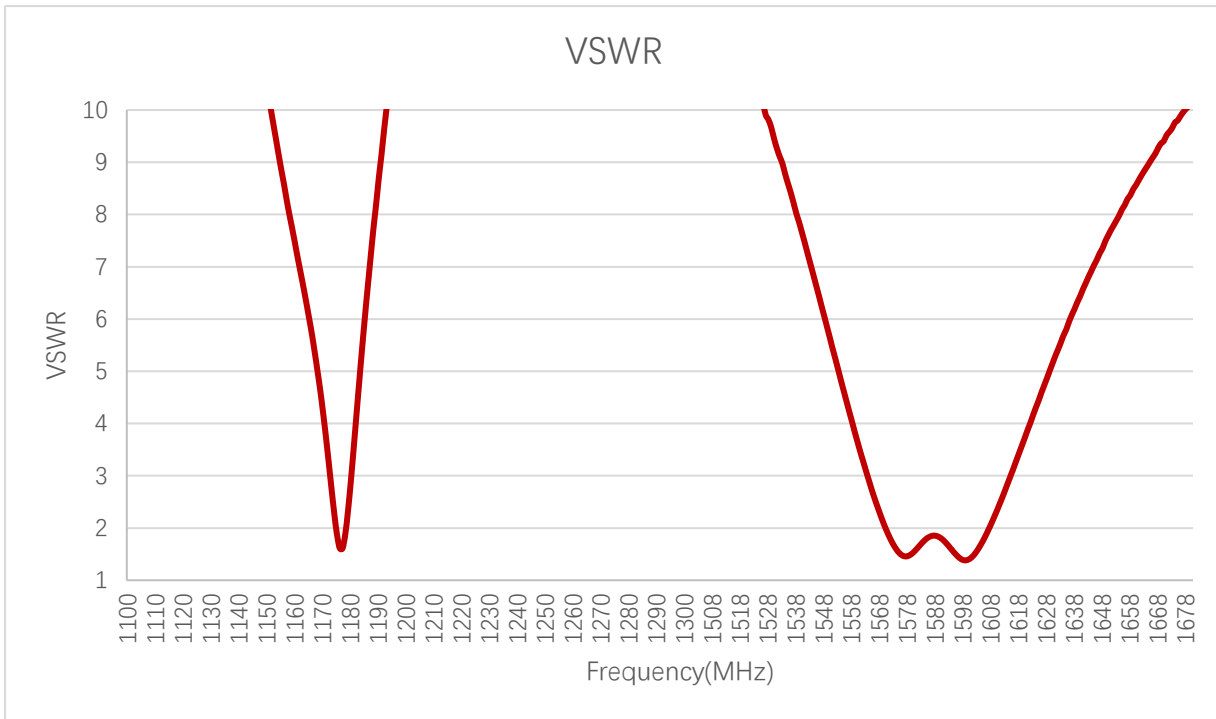
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
5G/4G-1 FS	3.4	3.1	1.9	1.7	2.6	3.1	1.8	1.3	1.2	1.2
5G/4G-2 FS	3.4	3.5	1.4	1.4	2.3	2.6	1.2	1.1	1.1	1.1
5G/4G-1 MP	3.6	3.1	2.3	2.2	2.7	3.1	1.9	1.3	1.3	1.4
5G/4G-2 MP	3.2	3.5	2.7	1.5	2.6	2.3	1.2	1.2	1.1	1.3

Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
5G/4G-1 FS	1.3	1.1	1.0	1.1	1.2	1.3	1.3	1.0	1.3	1.1
5G/4G-2 FS	1.0	1.3	1.1	1.1	1.1	1.3	1.1	1.3	1.1	1.4
5G/4G-1 MP	1.5	1.3	1.1	1.1	1.1	1.2	1.1	1.2	1.2	1.5
5G/4G-2 MP	1.1	1.4	1.3	1.2	1.1	1.2	1.1	1.3	1.2	1.5



VSWR – WIFI

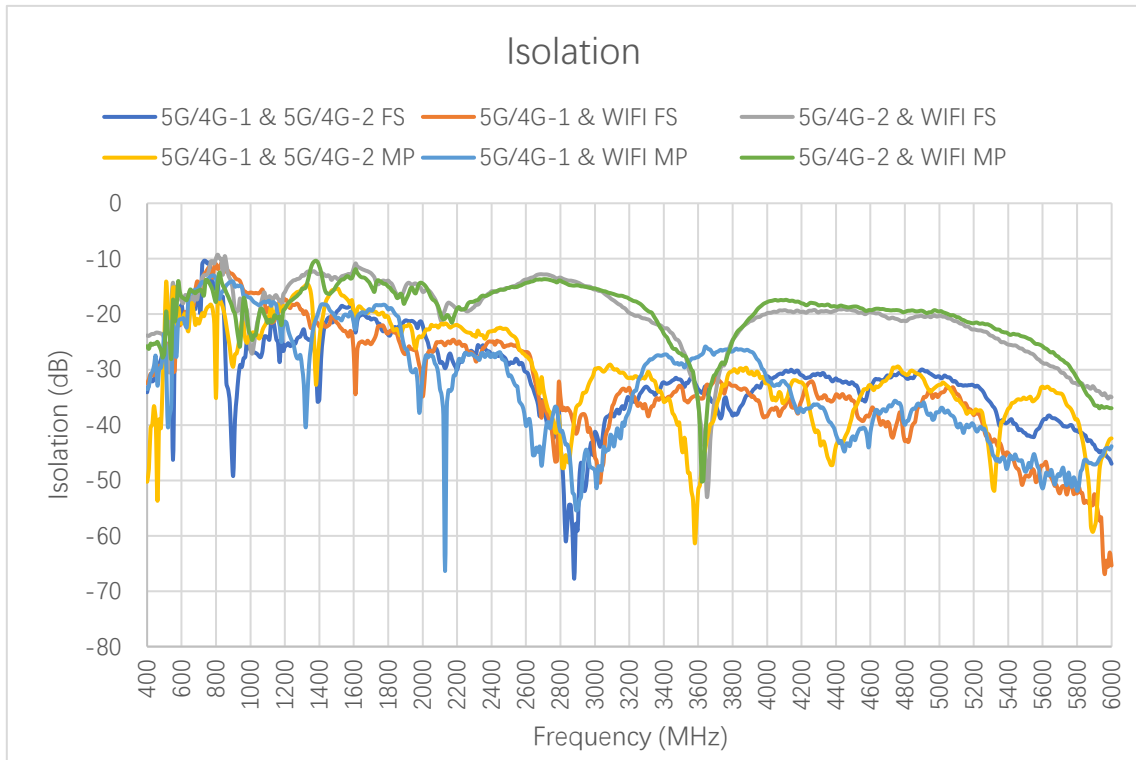
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	1.7	1.6	1.6	1.3	1.4	1.3	-	-	-	-
MP	1.7	1.6	1.6	1.3	1.4	1.3	-	-	-	-



VSWR – GNSS

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	1.61	-	-	-	-	-	1.52	1.49

3.1.2. Isolation

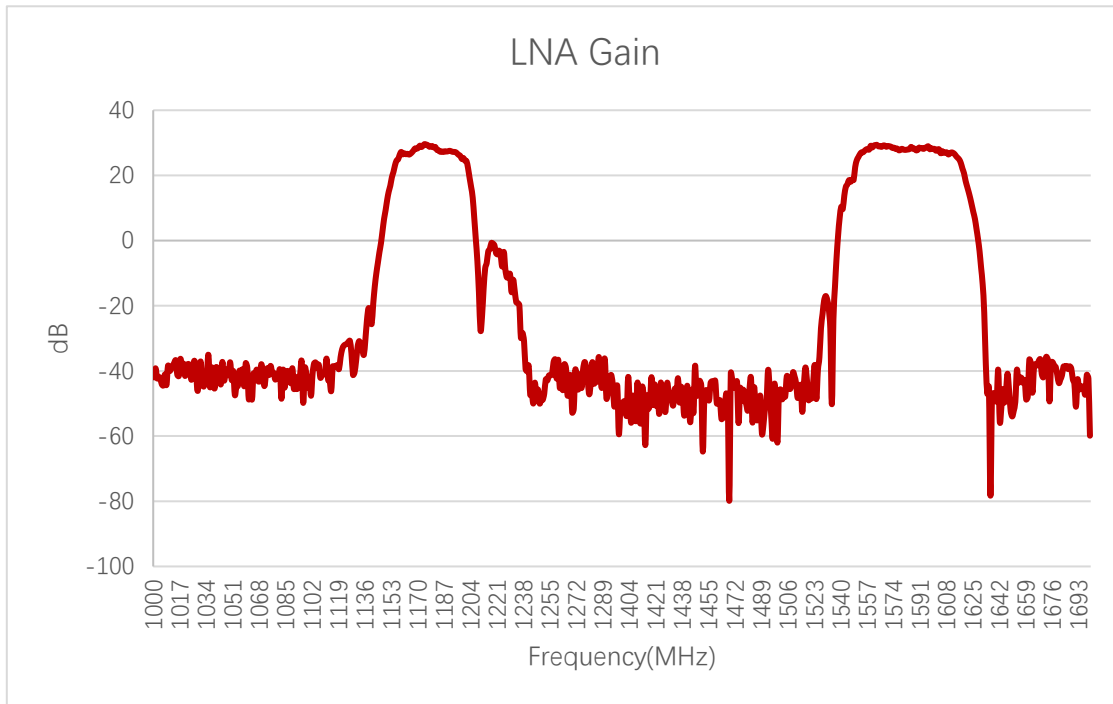


Max Isolation (dB)

	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
5G/4G-1 & 5G/4G-2	FS	-14.8	-10.4	-16.9	-18.9	-20.8	-25.6	-27.2	-28.1	-30.0	-30.0	-32.7
	MP	-18.0	-17.8	-17.3	-15.4	-19.2	-23.0	-22.4	-23.2	-29.7	-29.4	-33.1
5G/4G-1 & Wi-Fi	FS	-14.1	-10.9	-10.2	-20.0	-22.0	-24.9	-24.8	-25.5	-31.4	-33.7	-36.0
	MP	-15.1	-13.0	-14.1	-18.2	-18.3	-26.9	-26.9	-31.0	-25.9	-35.7	-39.7
5G/4G-2 & Wi-Fi	FS	-15.5	-9.3	-9.6	-12.6	-12.6	-15.9	-15.3	-12.8	-19.3	-19.1	-22.2
	MP	-15.6	-13.8	-12.5	-13.9	-13.9	-16.2	-15.3	-13.7	-17.4	-18.4	-21.2

- FS: In Free Space
- MP: On 300 × 300 mm Metal Plane

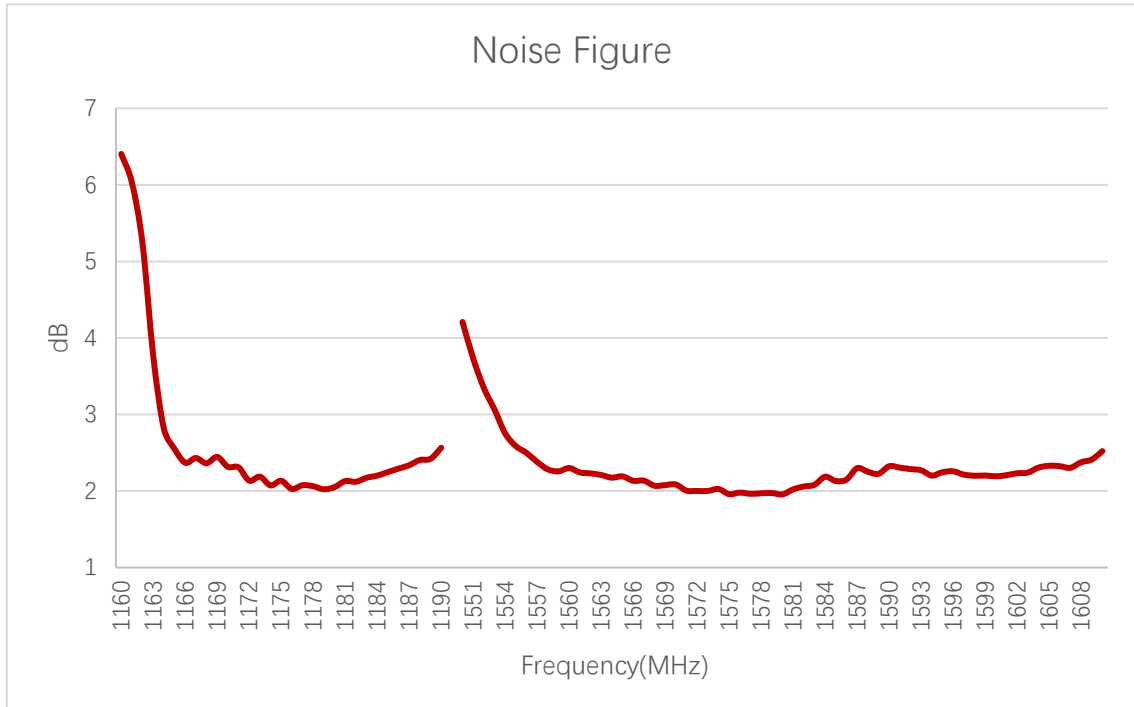
3.1.3. GNSS LNA Gain



LNA Gain (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
LNA Gain (dB)	29.3	-	-	-	-	-	28.1	27.9

3.1.4. GNSS Noise Figure

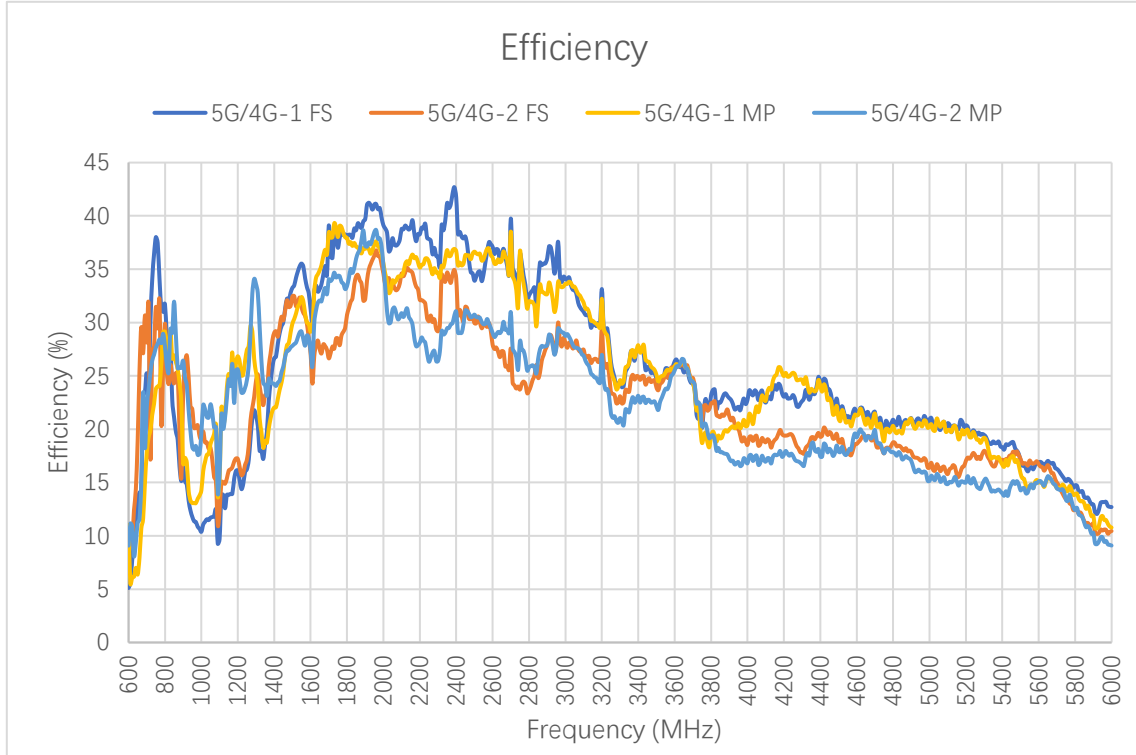


Noise Figure (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Noise Figure (dB)	2.02	-	-	-	-	-	1.95	2.23

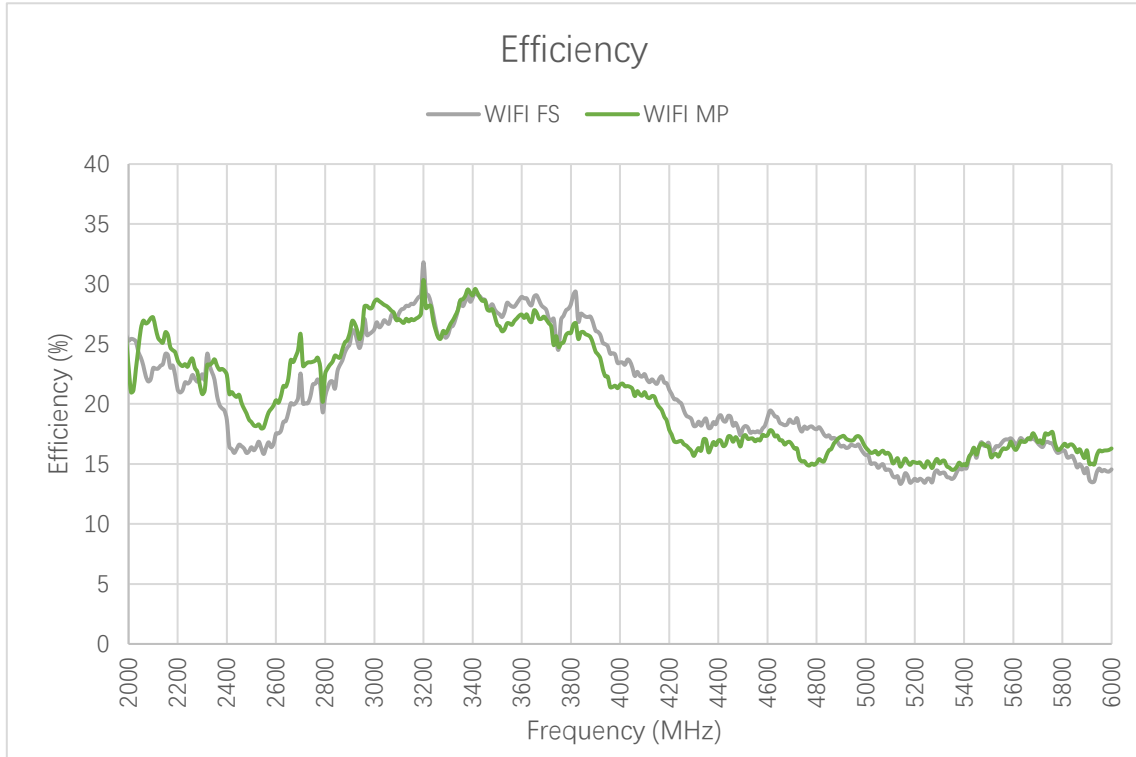
3.2. Radiation Performance Test

3.2.1. Efficiency



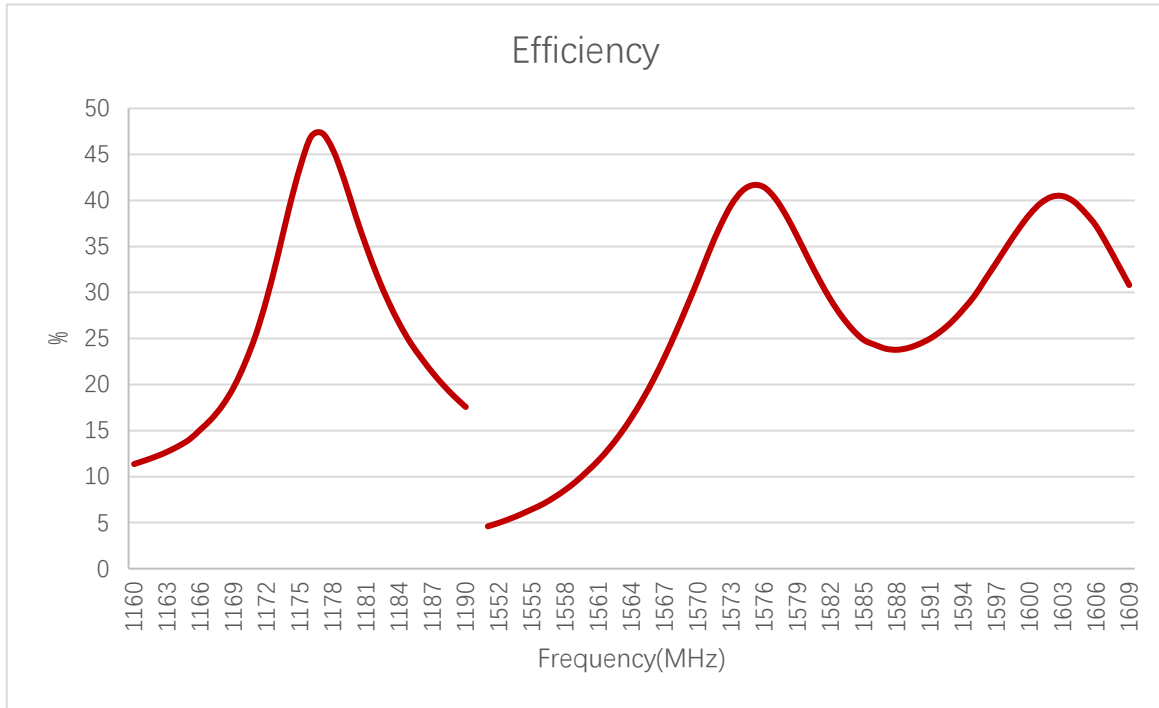
Efficiency (%) – 5G/4G

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
5G/4G-1 FS	5.1	9.5	22.6	28.1	16.5	11.4	29.7	36.3	38.2	38.9
5G/4G-2 FS	8.4	12.4	31.6	26.0	23.3	20.1	30.5	27.1	28.5	33.6
5G/4G-1 MP	11.0	6.2	19.2	29.3	16.8	13.1	24.4	38.0	38.9	36.5
5G/4G-2 MP	9.1	8.1	23.7	29.4	26.4	18.1	25.3	33.9	34.2	37.8
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
5G/4G-1 FS	41.1	38.7	41.2	38.1	37.1	26.4	21.6	20.9	17.1	12.7
5G/4G-2 FS	36.3	34.9	34.7	31.5	27.9	25.7	19.0	16.4	17.2	10.5
5G/4G-1 MP	37.3	35.5	36.8	36.3	36.1	25.9	21.5	20.3	15.9	10.8
5G/4G-2 MP	38.5	30.5	29.5	31.1	29.0	25.5	19.9	15.2	14.3	9.1



Efficiency (%) – WIFI

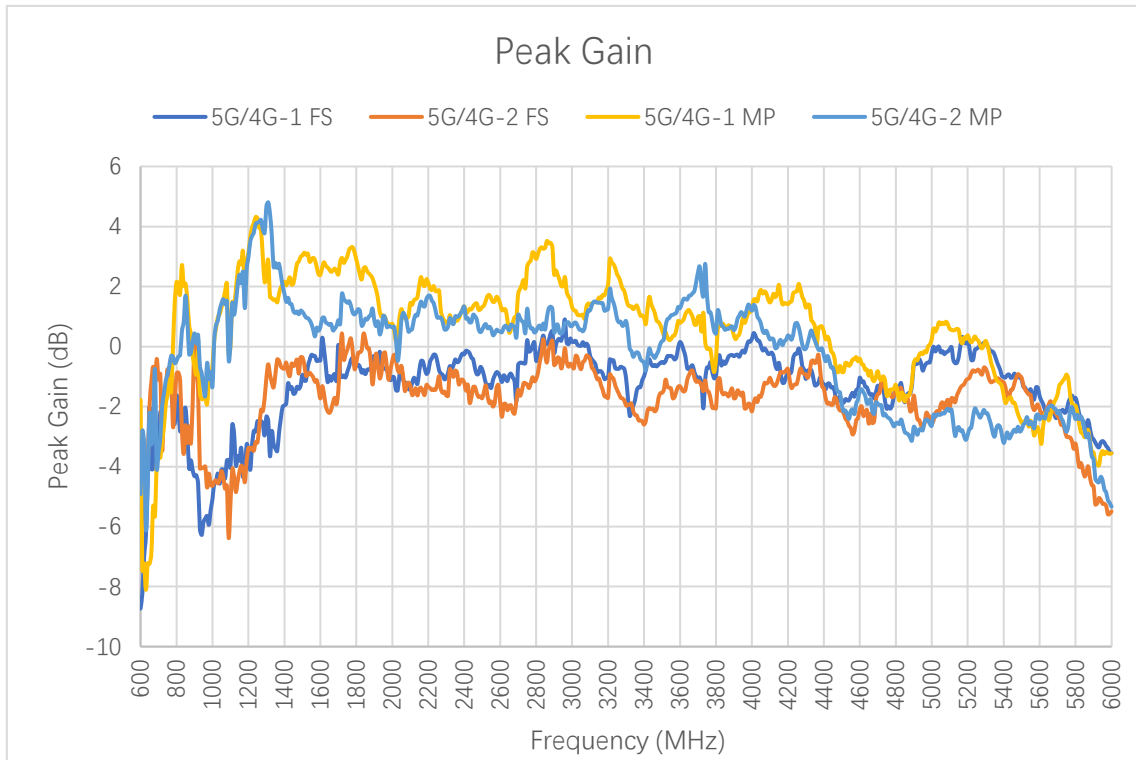
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	18.7	16.6	16.4	13.6	16.8	15.3	-	-	-	-
MP	22.4	20.8	18.5	15.1	16.4	16.4	-	-	-	-



Efficiency (%) – GNSS

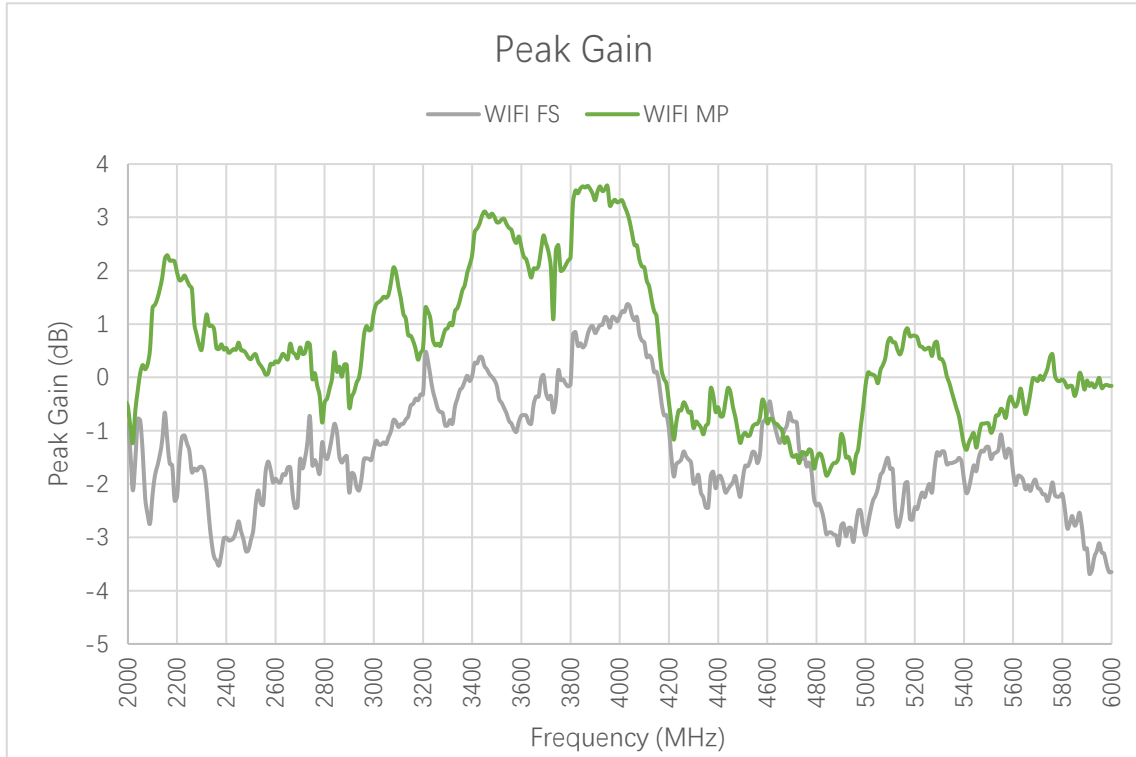
Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	47	-	-	-	-	-	42	40

3.2.2. Peak Gain



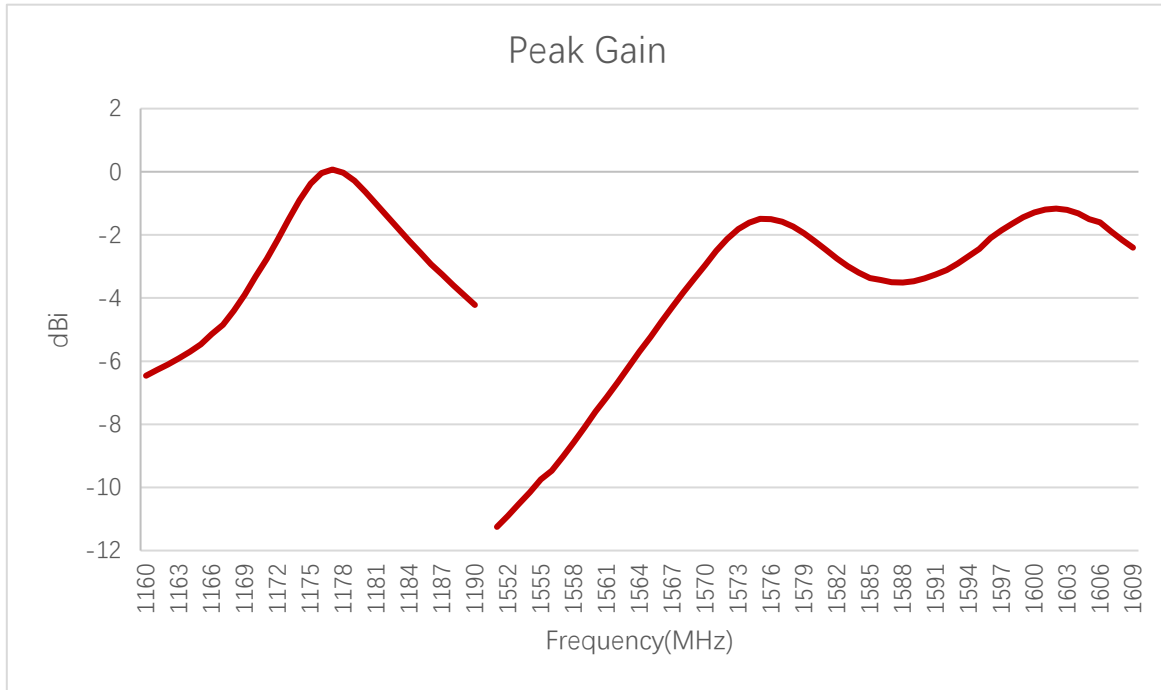
Peak Gain (dBi) – 5G/4G

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
5G/4G-1 FS	-8.7	-6.3	-2.2	-2.7	-4.3	-5.7	-1.4	-1.0	-1.0	-0.7
5G/4G-2 FS	-6.6	-4.7	-0.9	-2.8	0.1	-4.0	-0.6	-0.4	-0.3	-0.5
5G/4G-1 MP	-1.8	-8.1	-3.7	2.7	-0.6	-1.7	2.1	2.8	2.9	2.4
5G/4G-2 MP	-4.9	-6.1	-3.1	0.5	0.4	-1.6	1.4	0.8	1.5	1.1
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
5G/4G-1 FS	-0.7	-1.2	-0.4	-0.4	-1.0	0.2	-1.3	-0.2	-1.1	-3.6
5G/4G-2 FS	-0.2	-1.6	-0.8	-1.4	-1.8	-1.3	-1.6	-2.6	-1.0	-5.5
5G/4G-1 MP	1.0	1.7	0.9	1.4	1.4	0.8	-0.8	0.2	-2.5	-3.6
5G/4G-2 MP	1.0	1.0	1.0	1.1	0.5	1.3	-1.9	-2.6	-2.8	-5.3



Peak Gain (dBi) – WIFI

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	-3.0	-2.7	-3.1	-2.4	-1.3	-2.8	-	-	-	-
MP	0.6	0.7	0.3	0.6	-0.9	-0.4	-	-	-	-



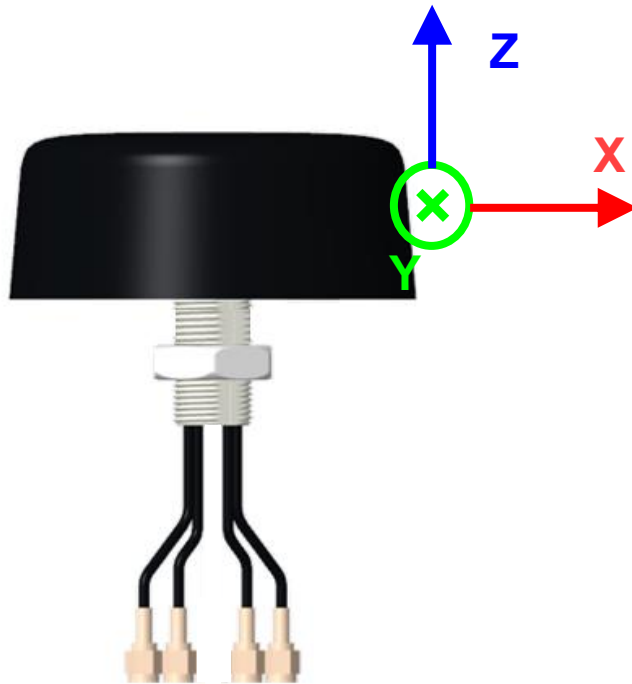
Peak Gain (dBi)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-0.04	-	-	-	-	-	-1.49	-1.17

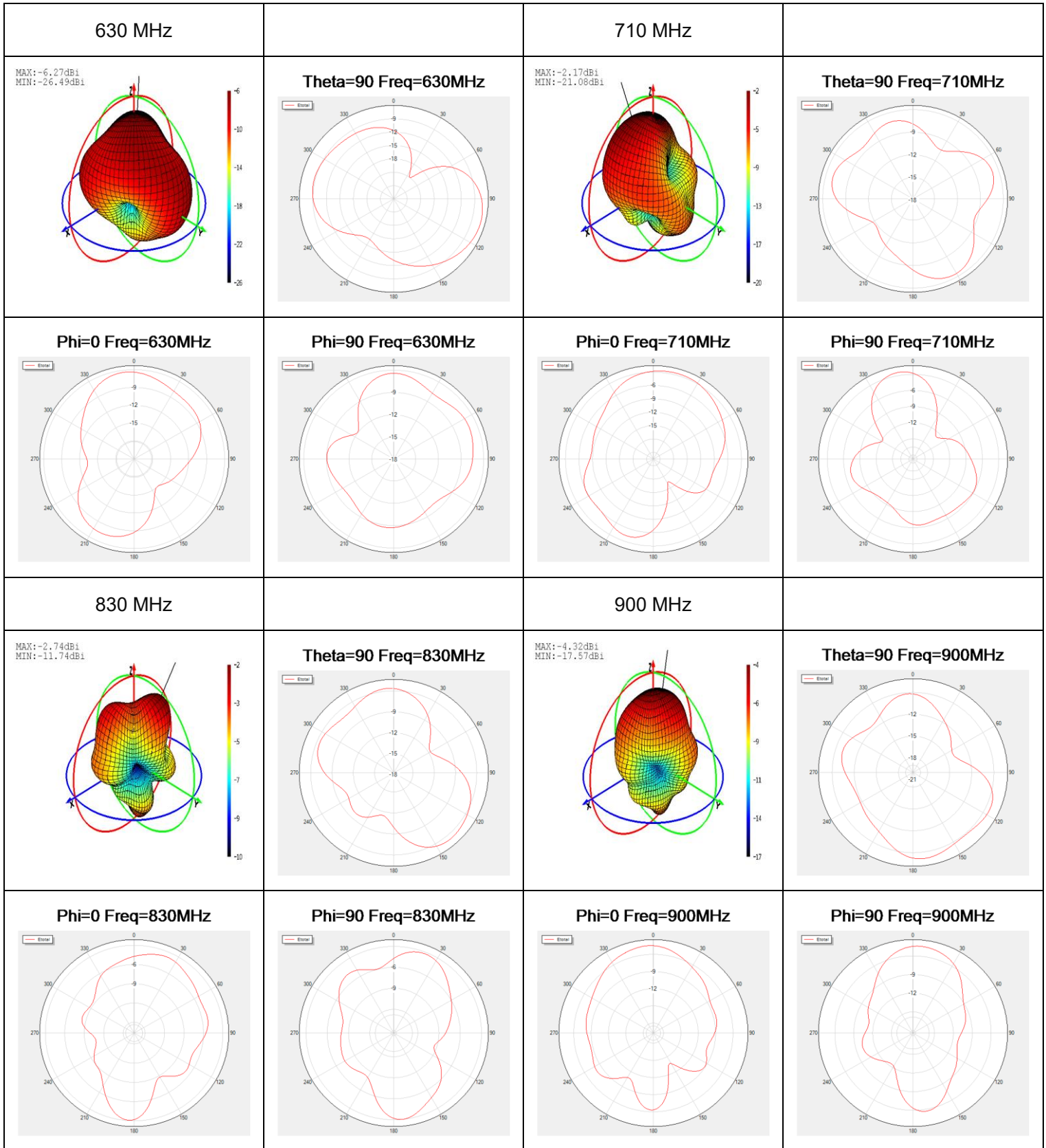
3.2.3. 3D & 2D Radiation Pattern

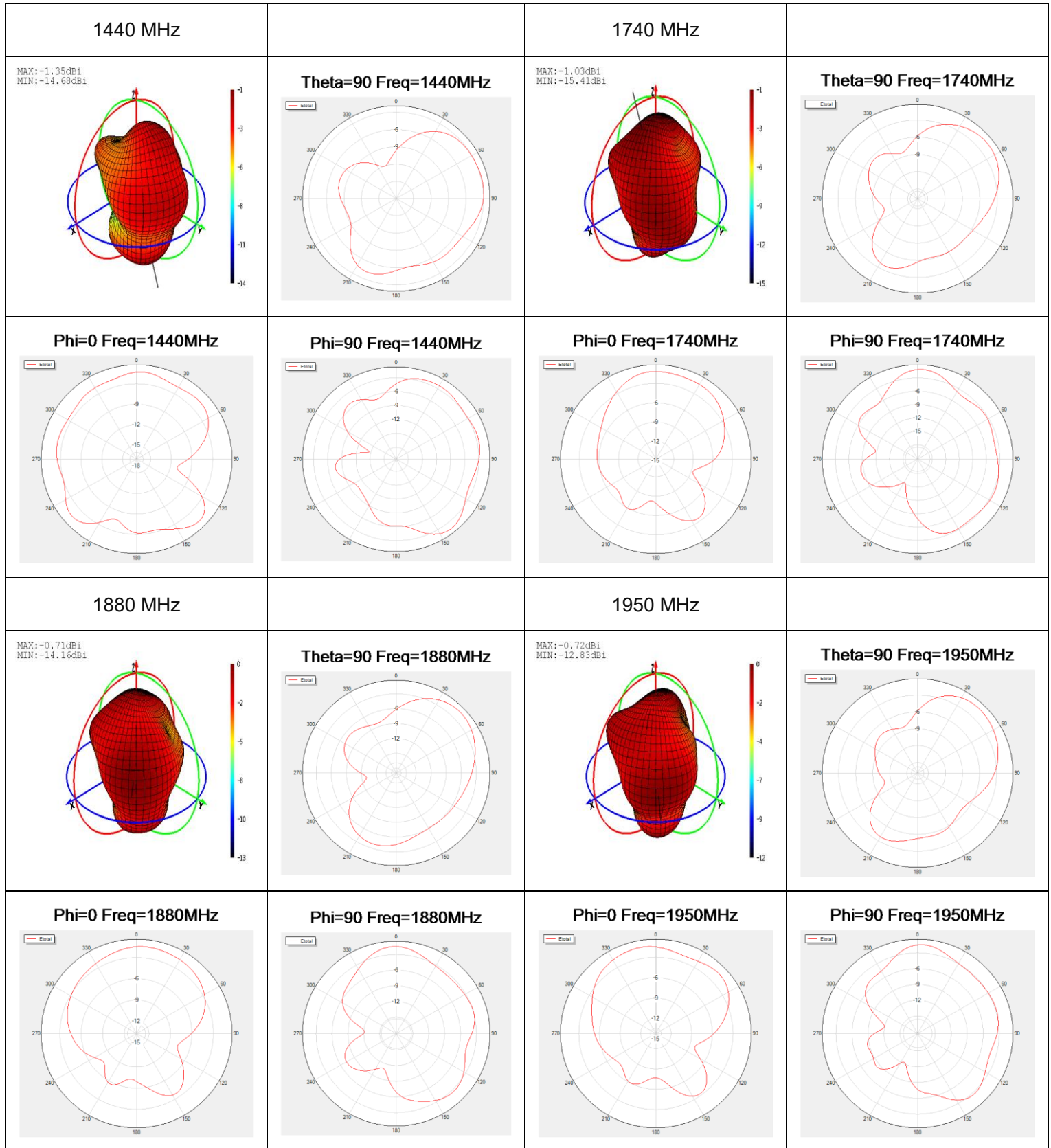
3.2.4.1 Test Status: In Free Space

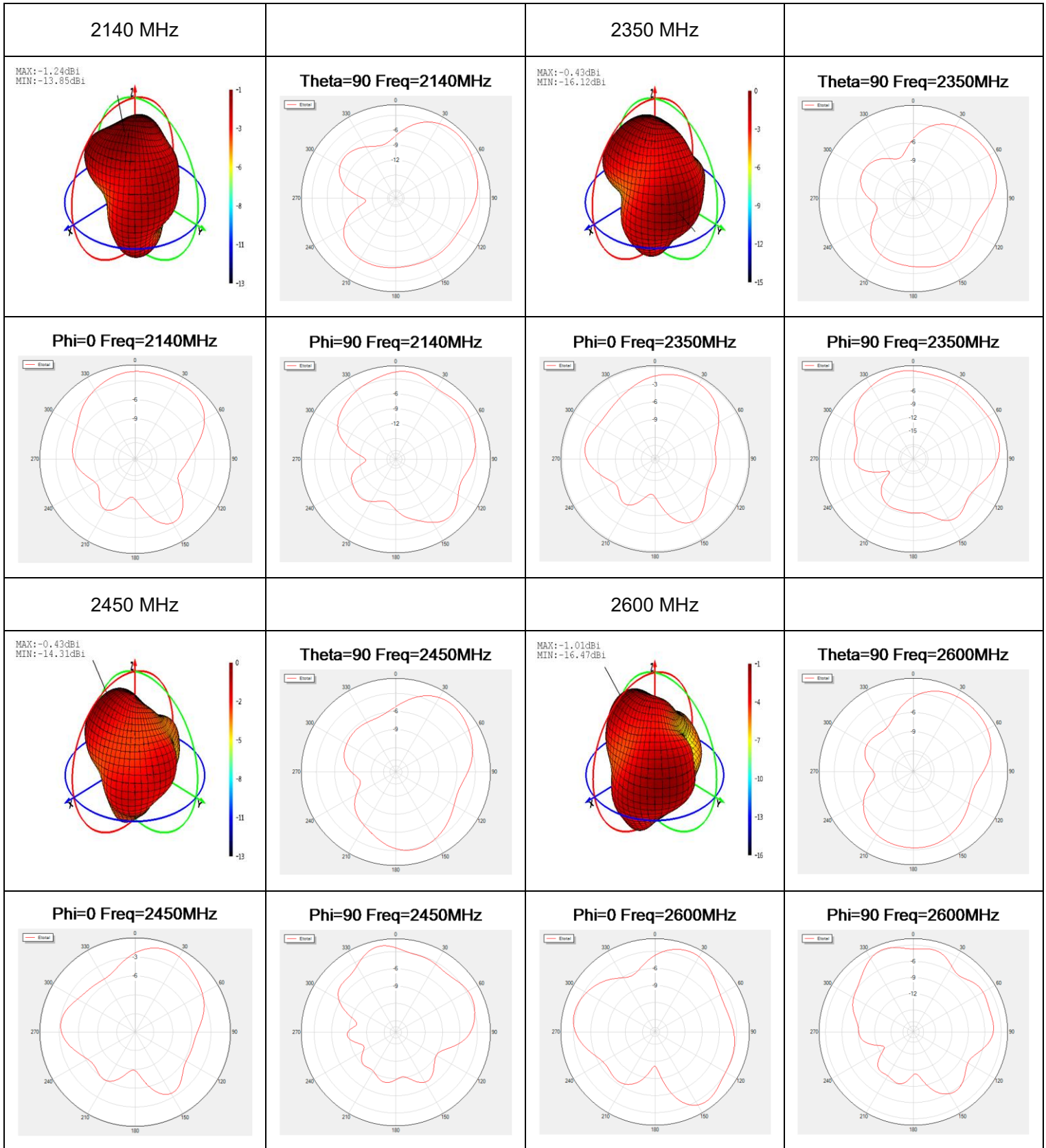
- Test Chamber: FS-S-1 (5G/4G & WIFI); SH-SY-16 (GNSS)

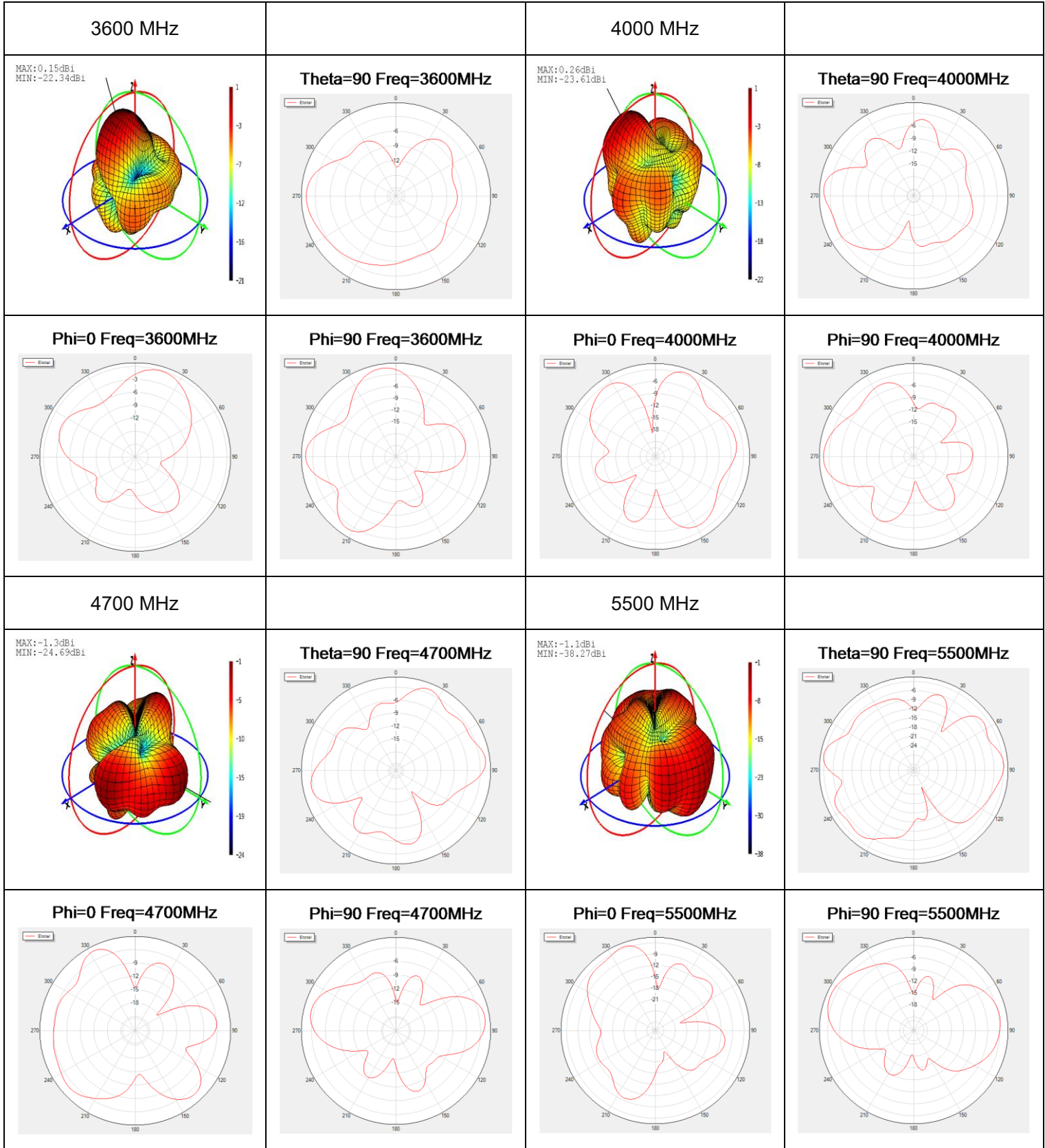


● **5G/4G-1**

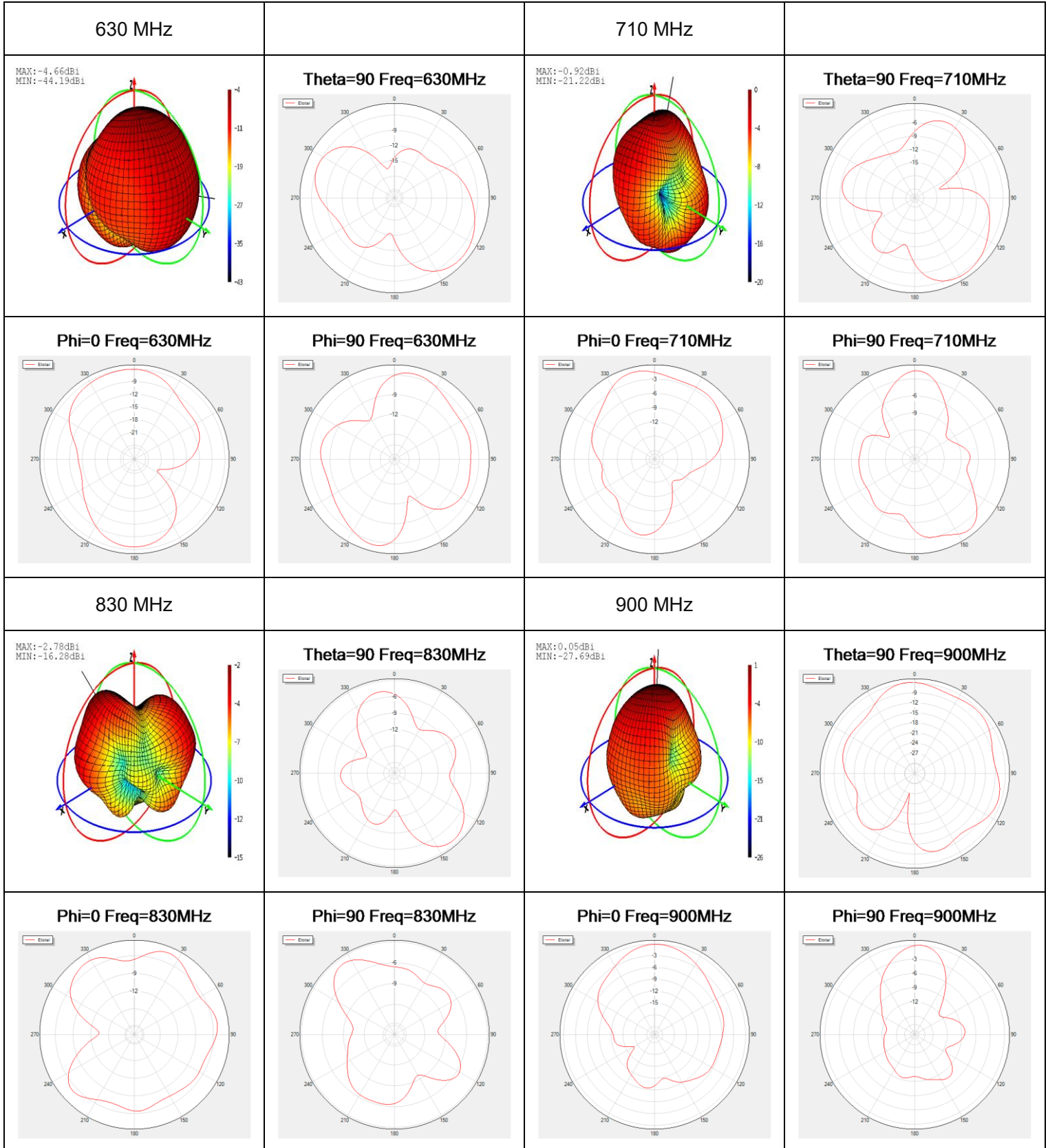


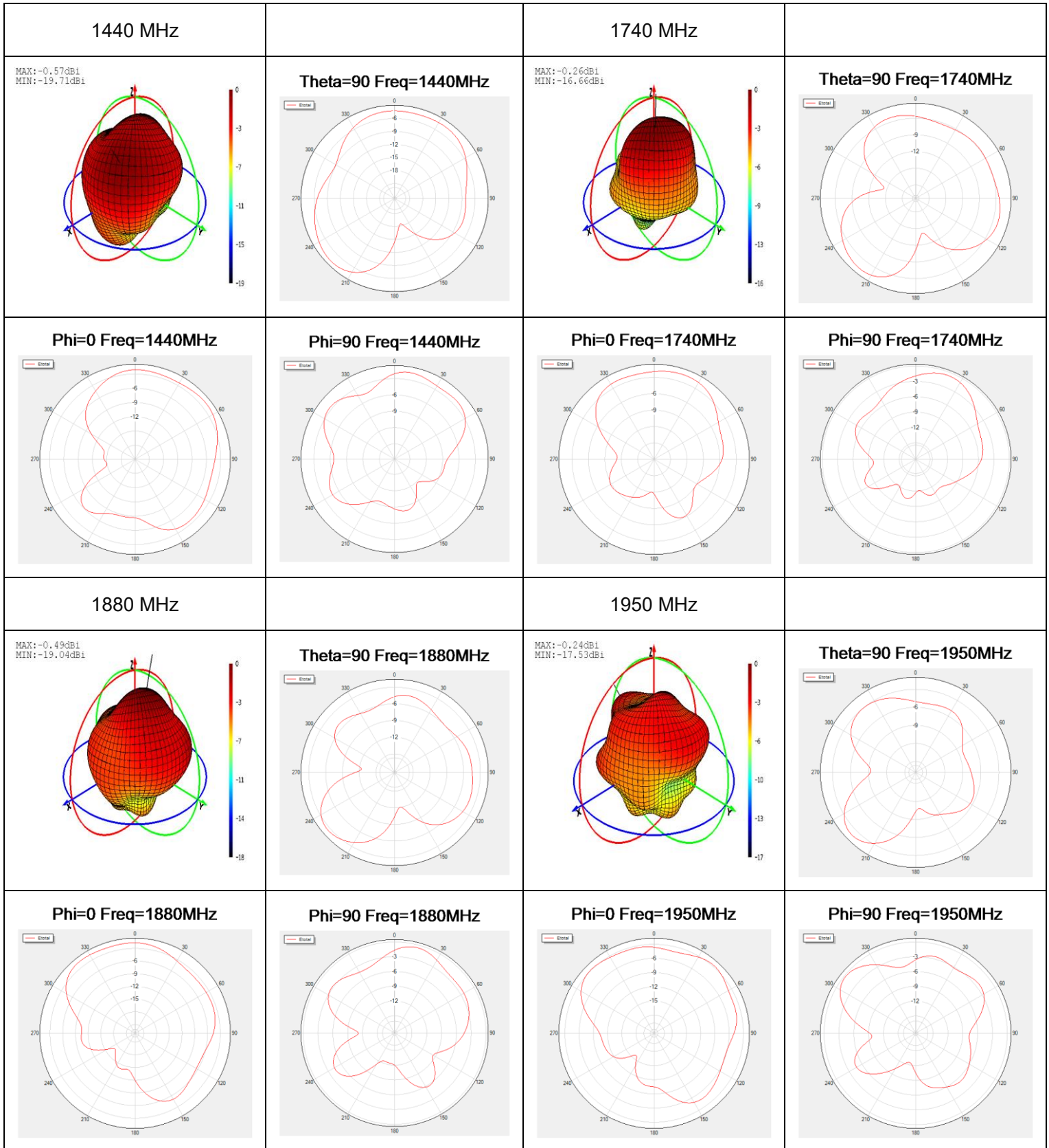


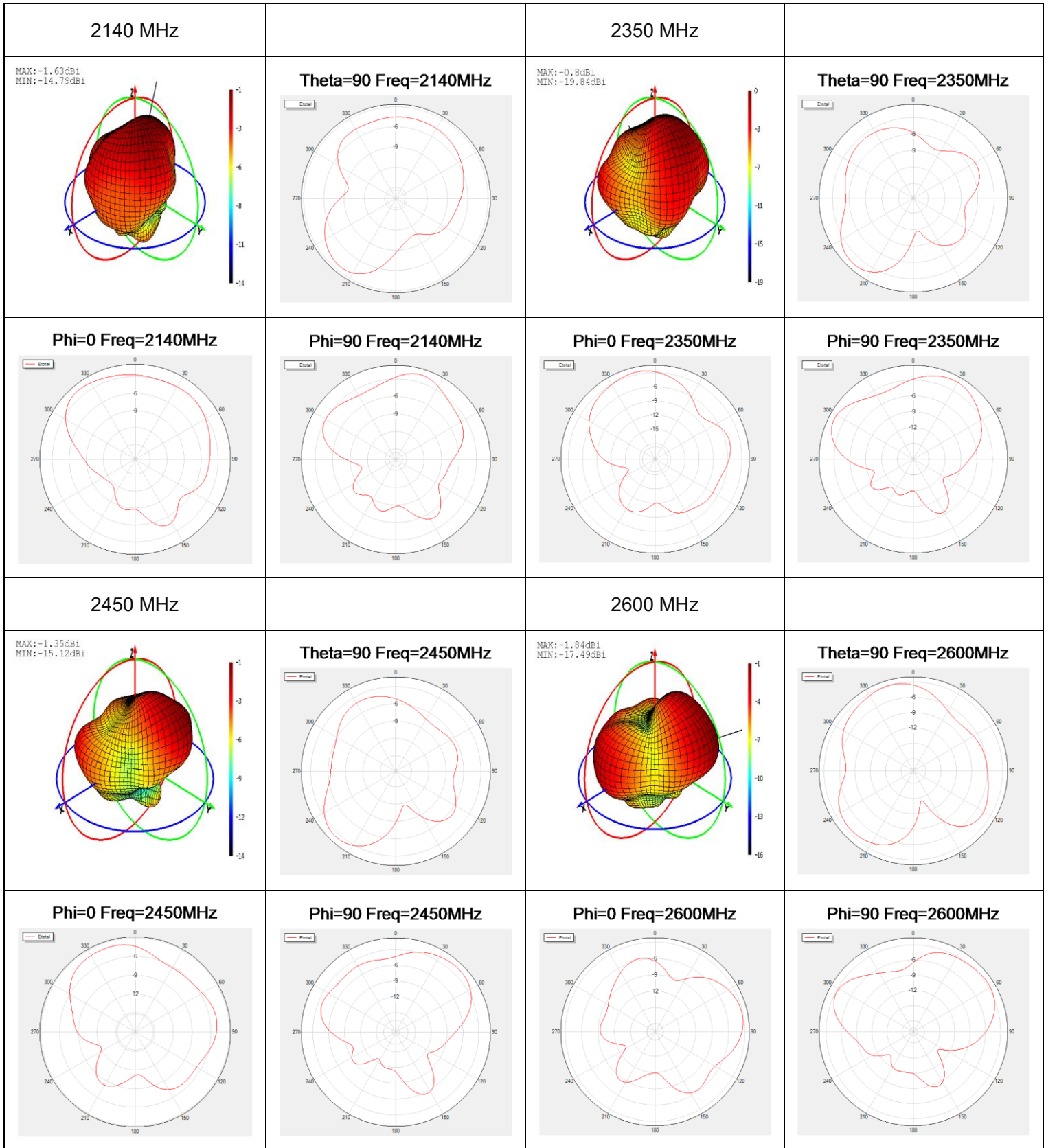


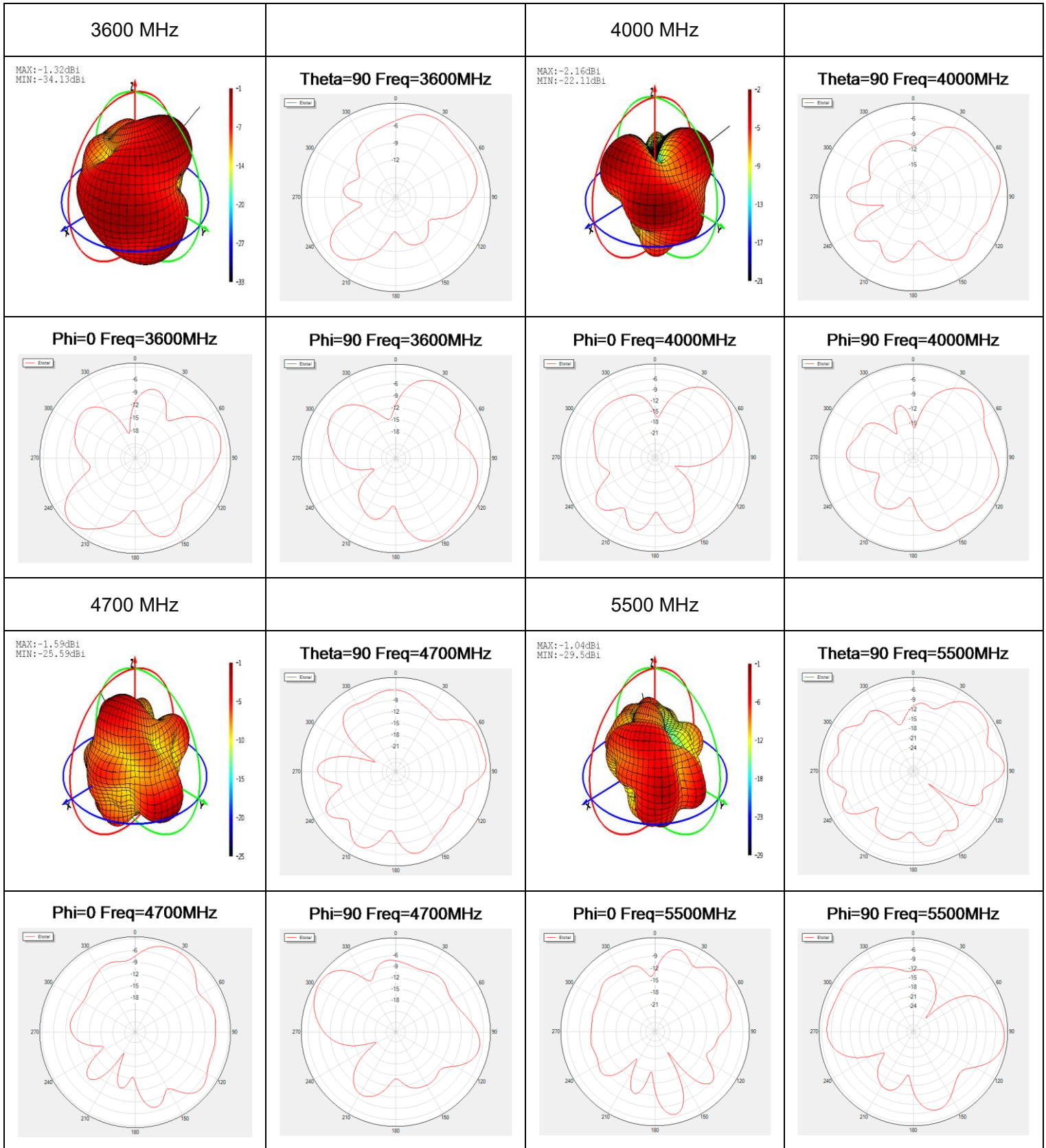


● 5G/4G-2

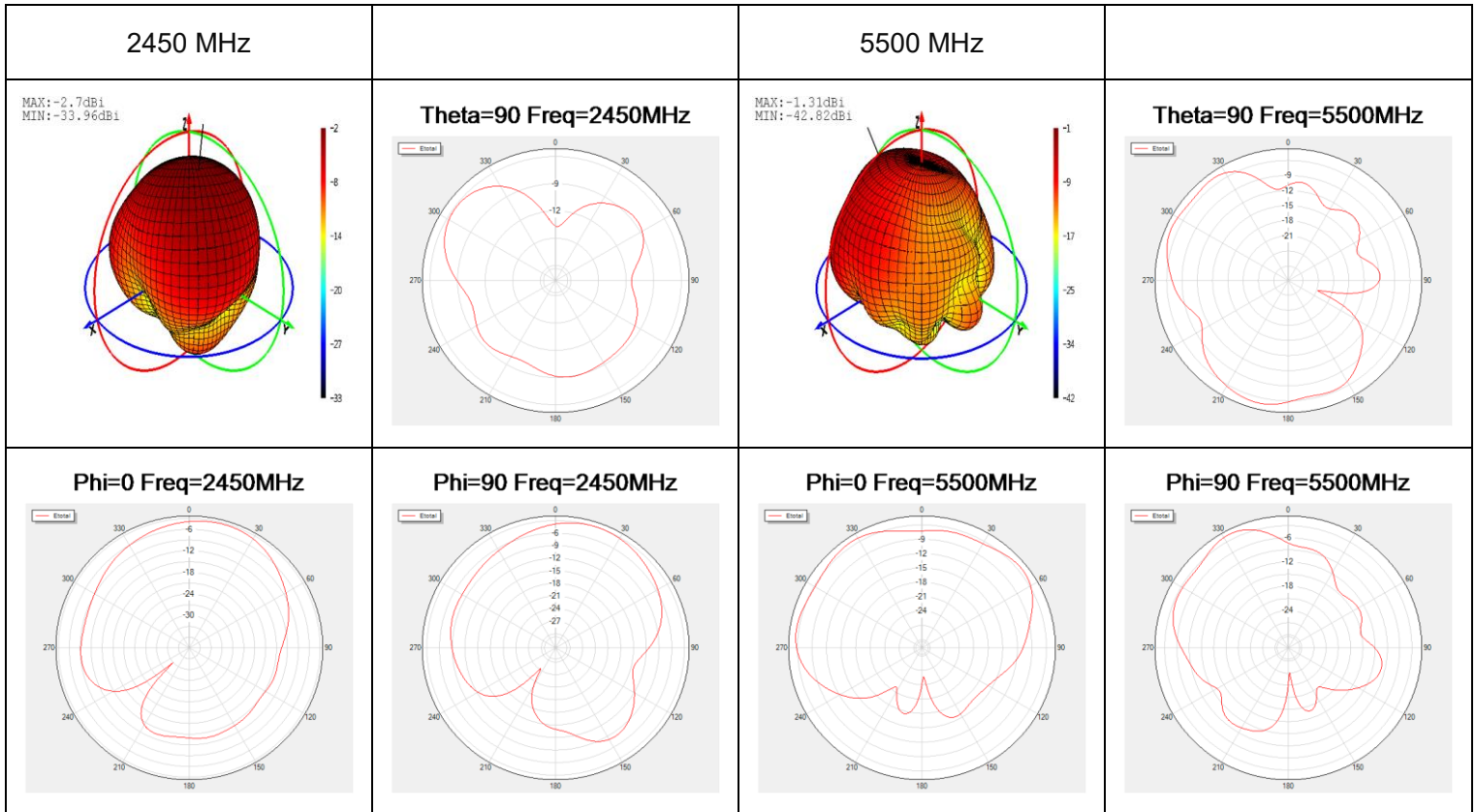




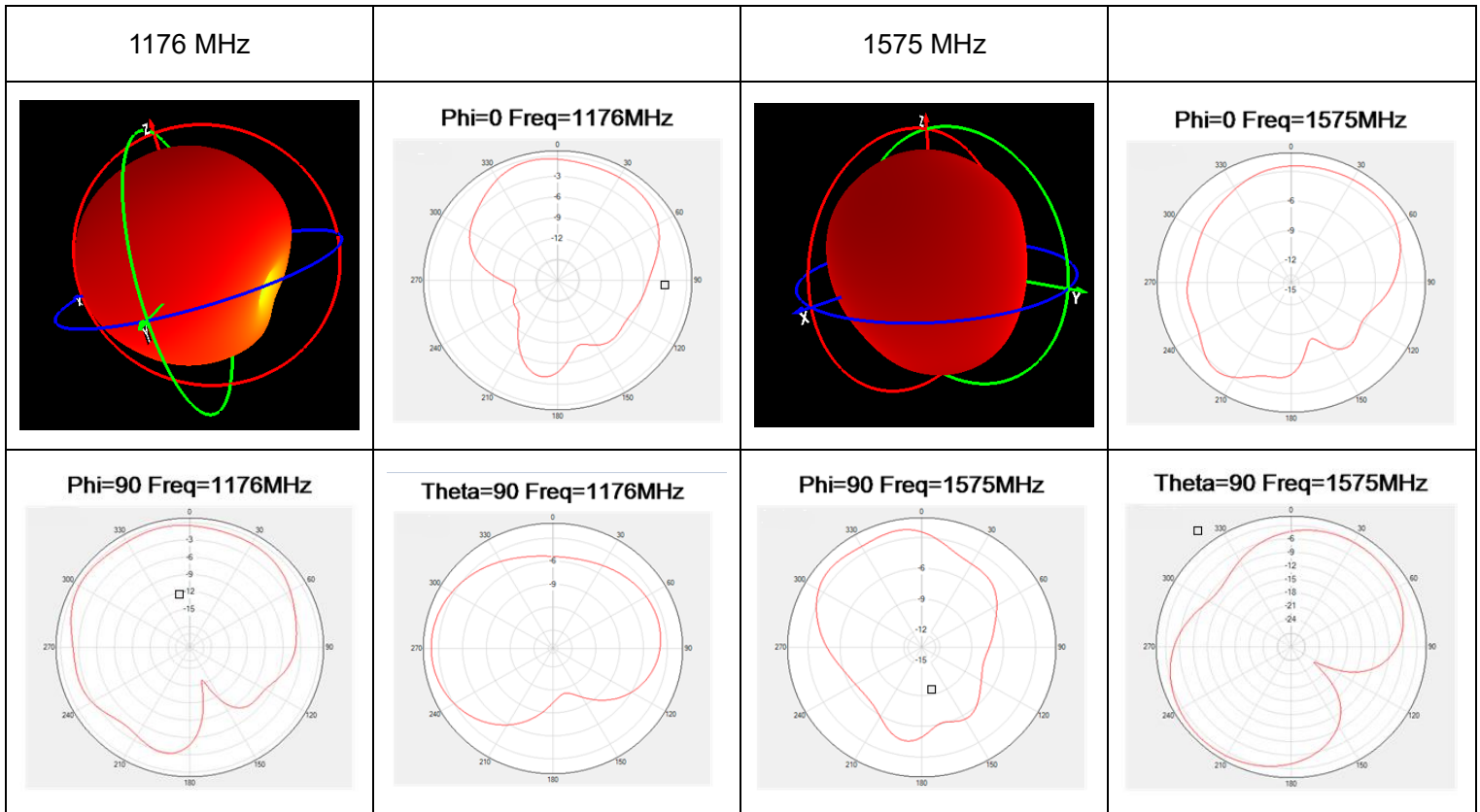


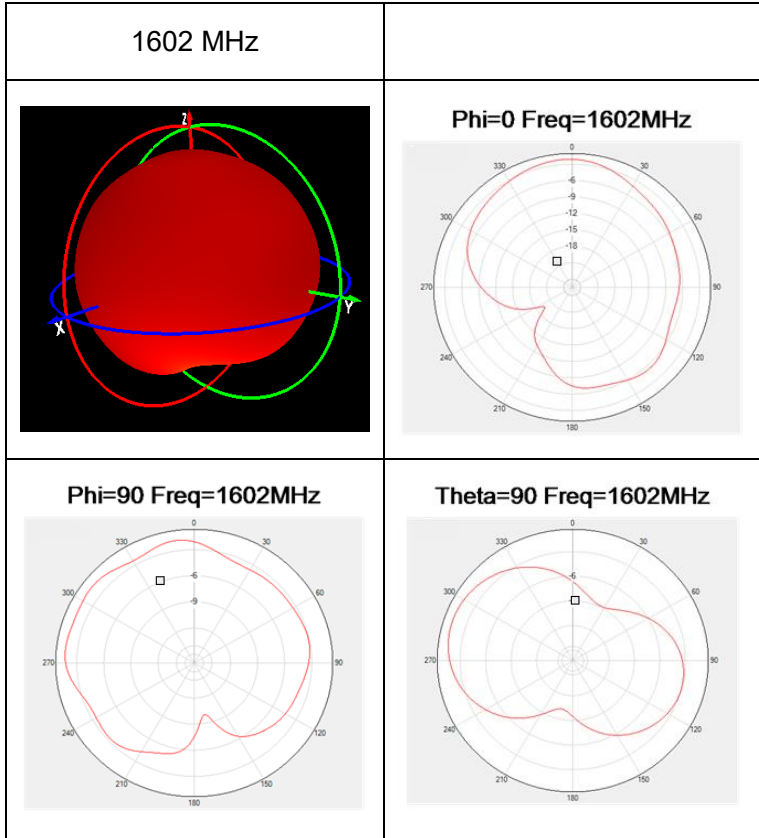


● **Wi-Fi**



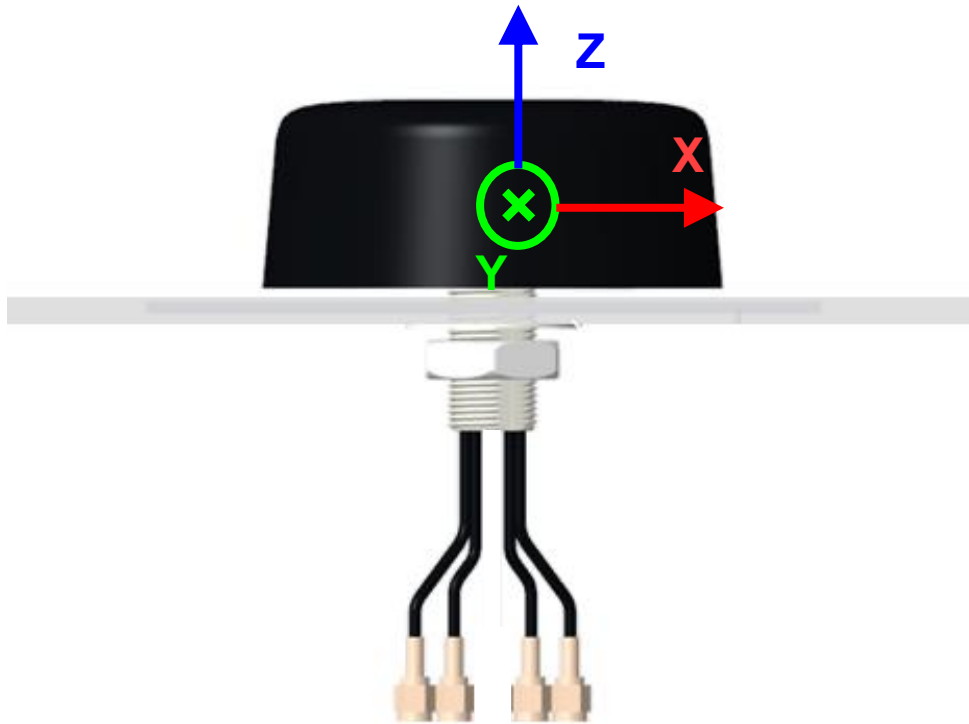
● **GNSS**



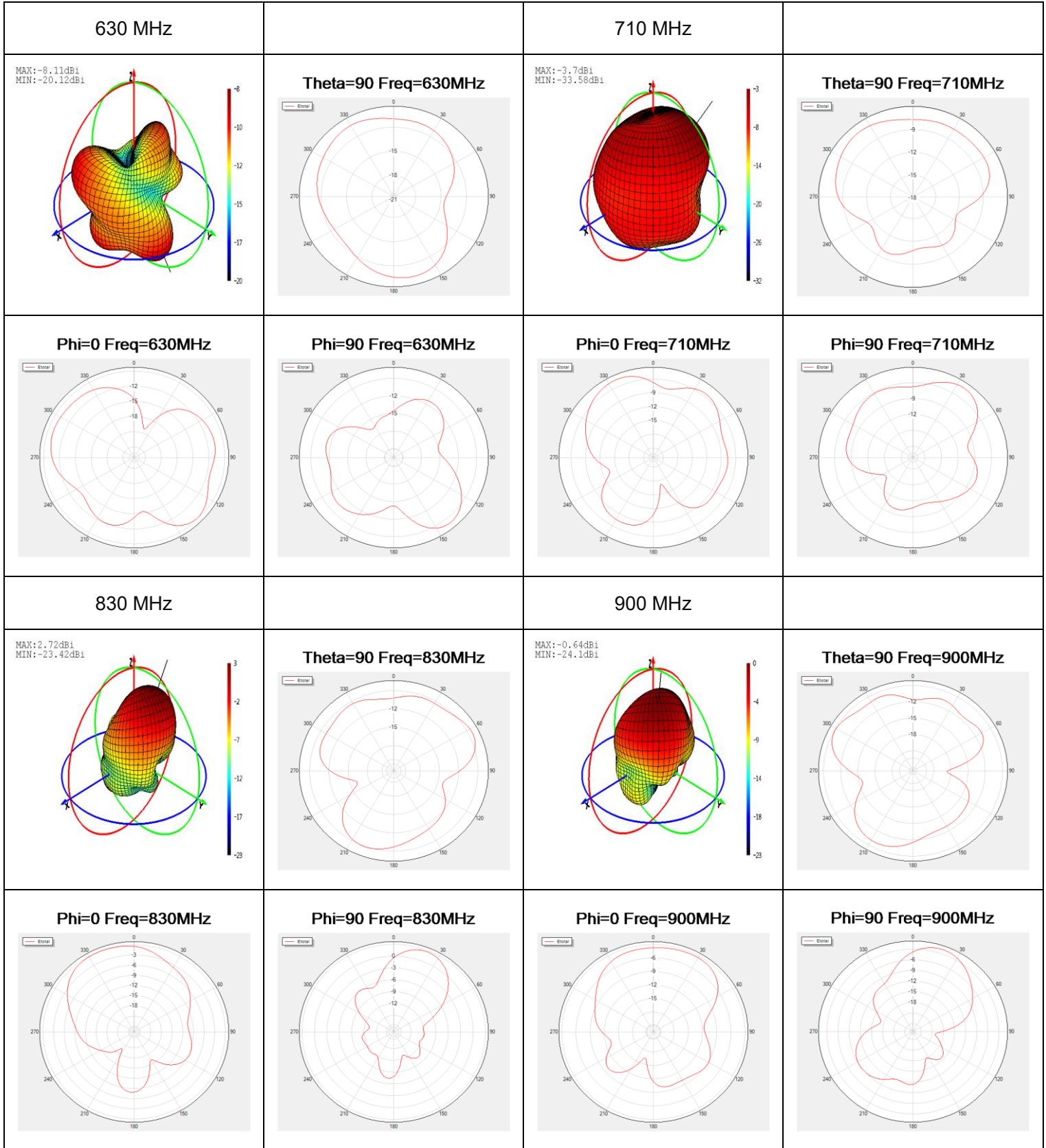


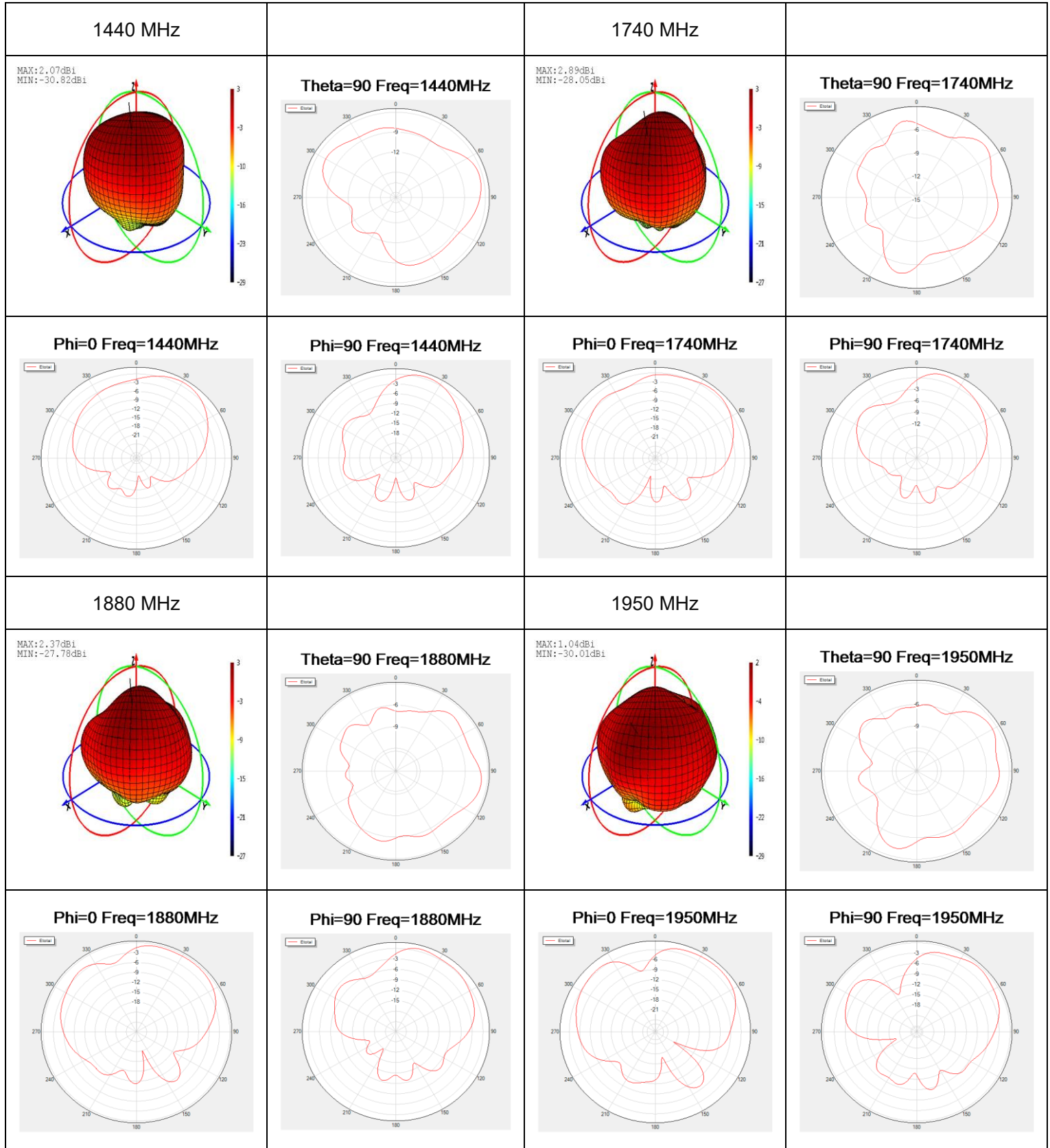
3.2.4.2 Test Status: On 300 mm x 300 mm Metal Plane

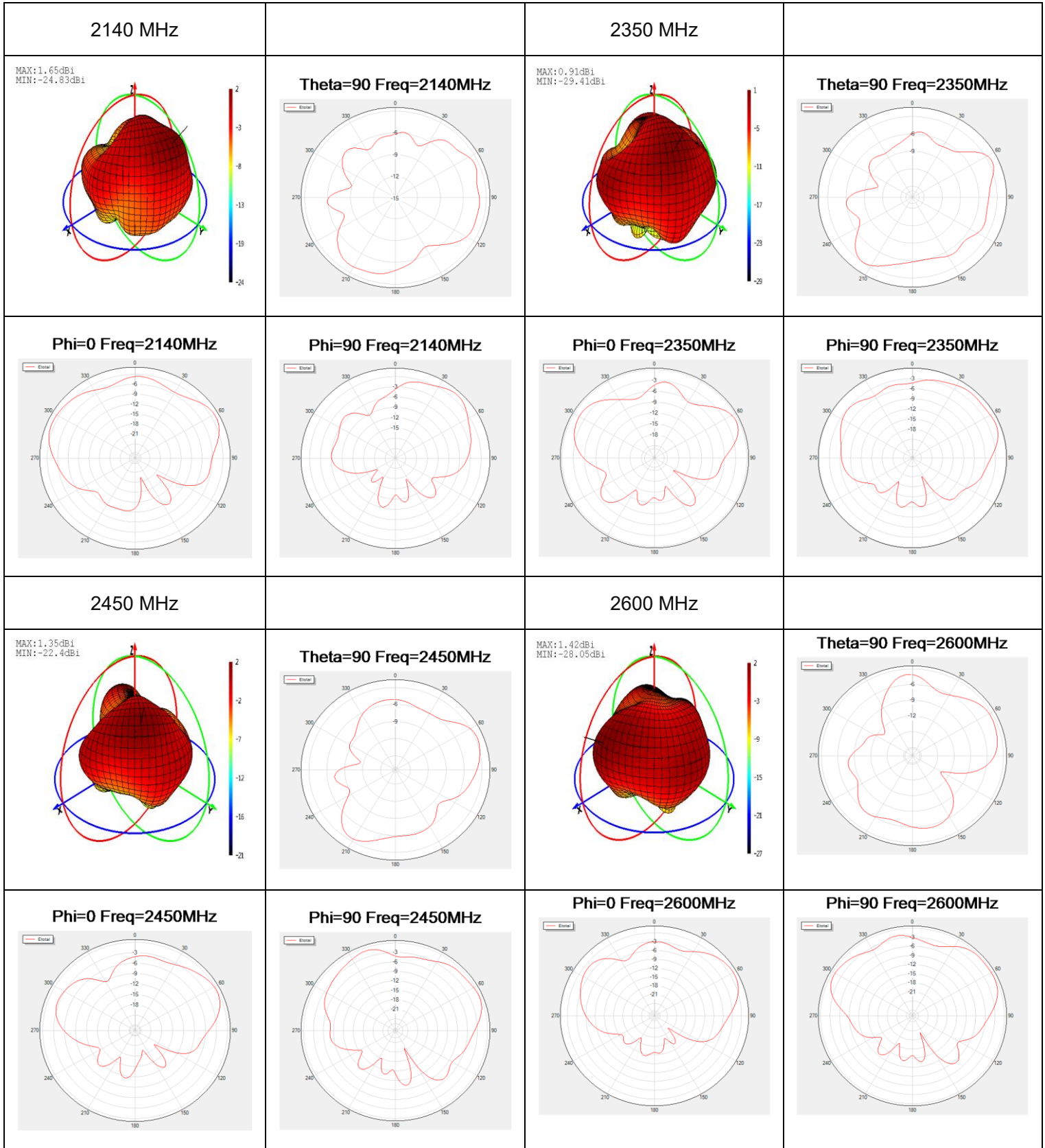
- Test Chamber: FS-S-1 (5G/4G & WIFI); SH-SY-16 (GNSS)

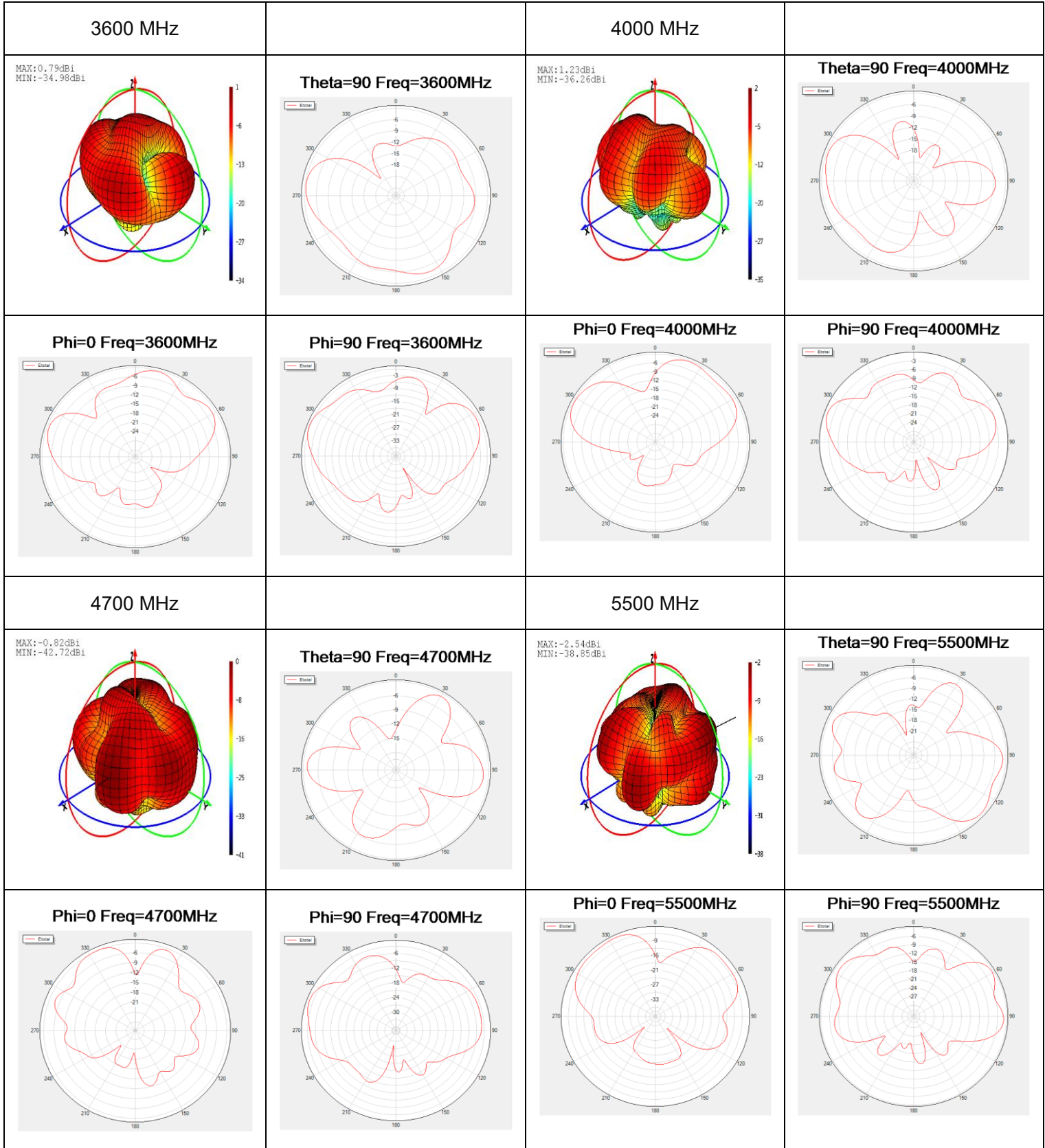


● **5G/4G-1**

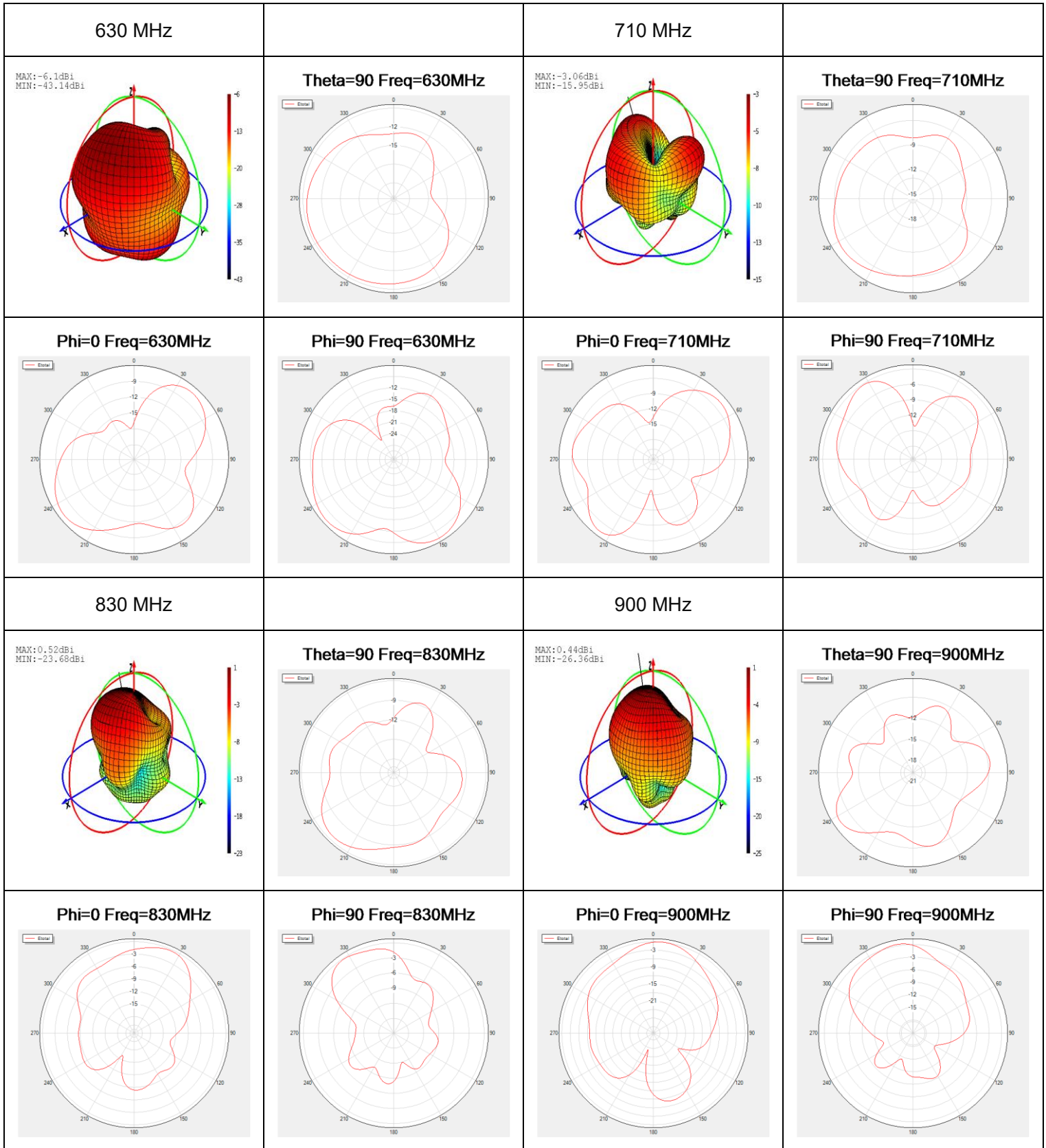


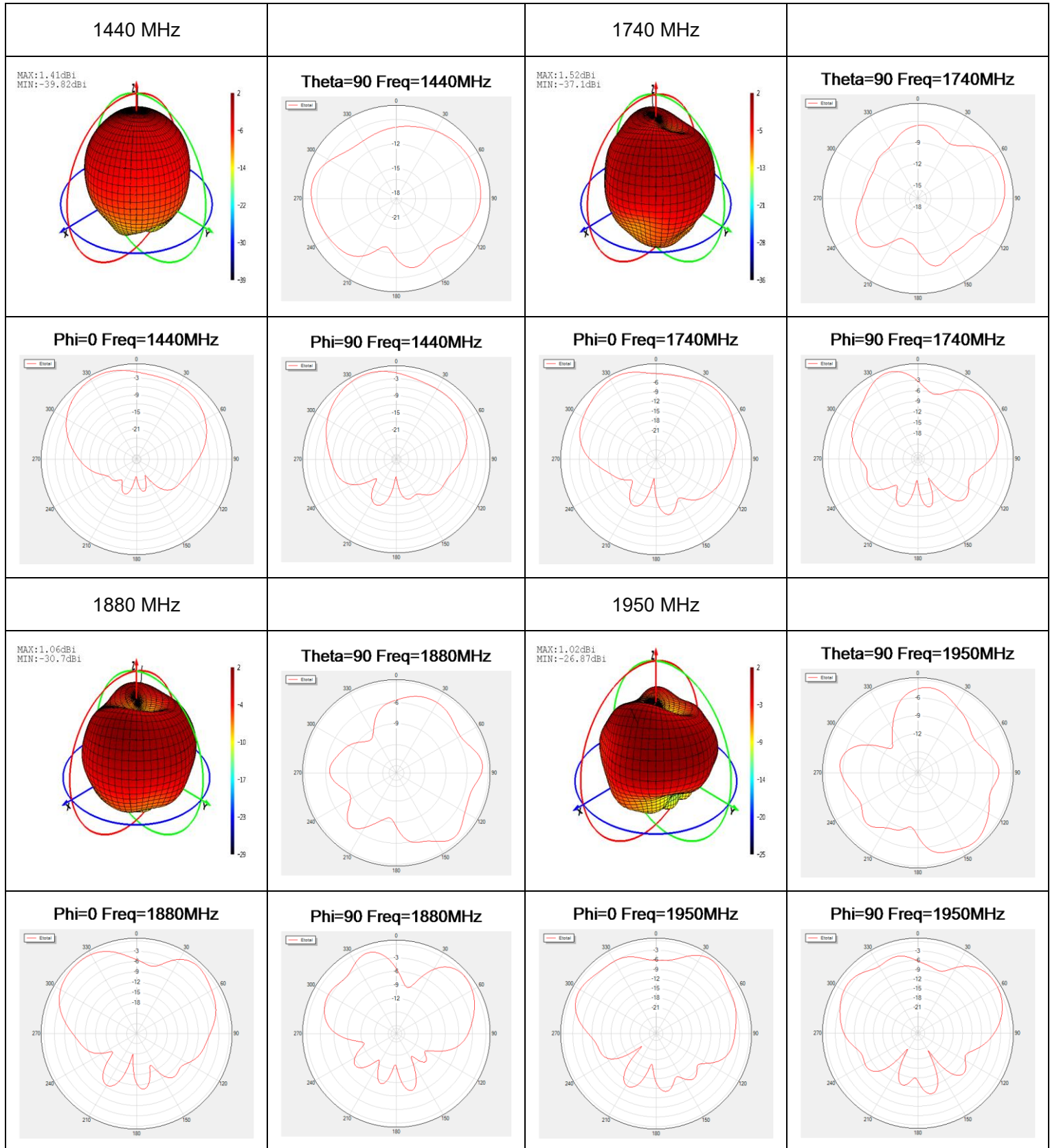


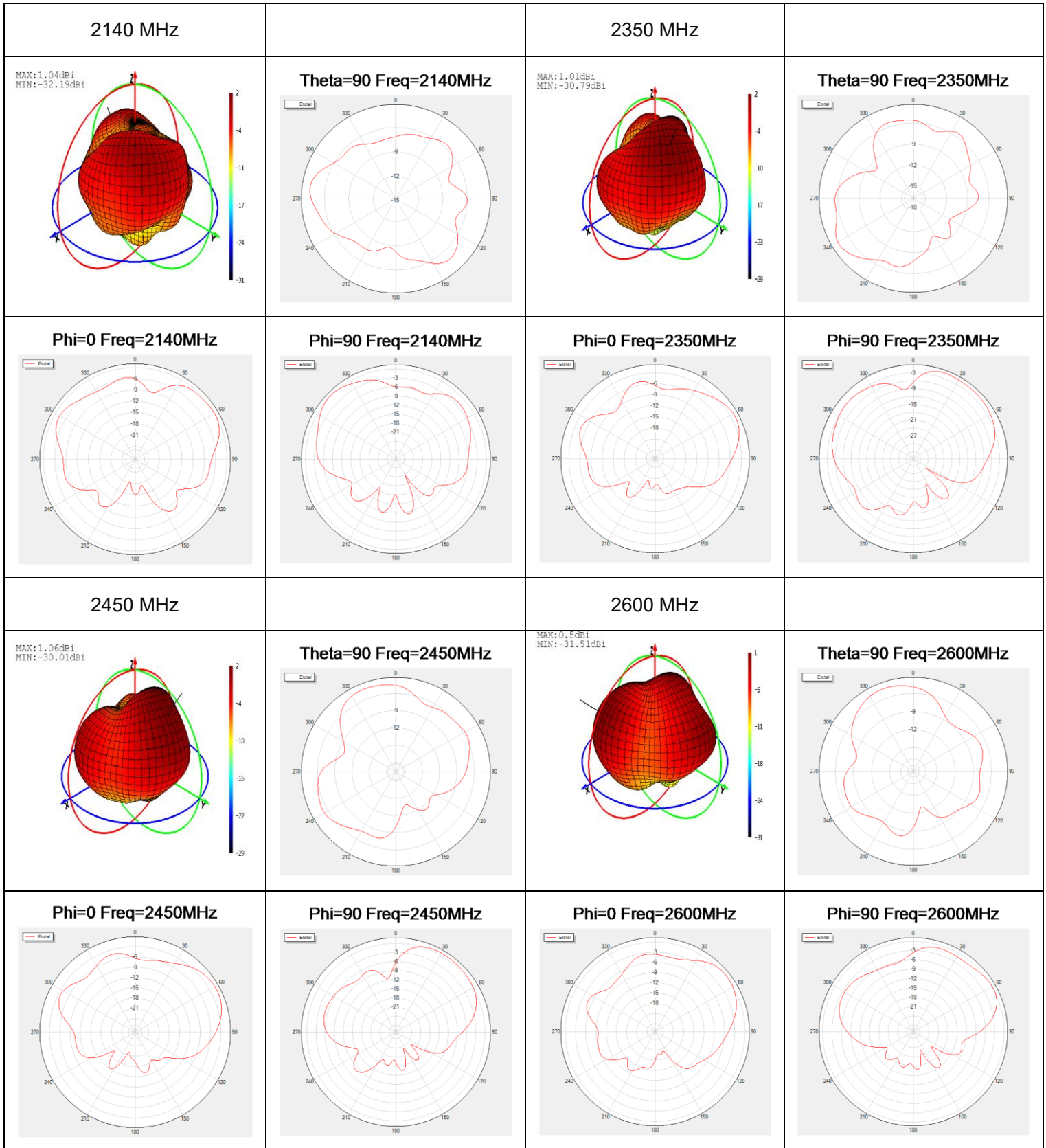


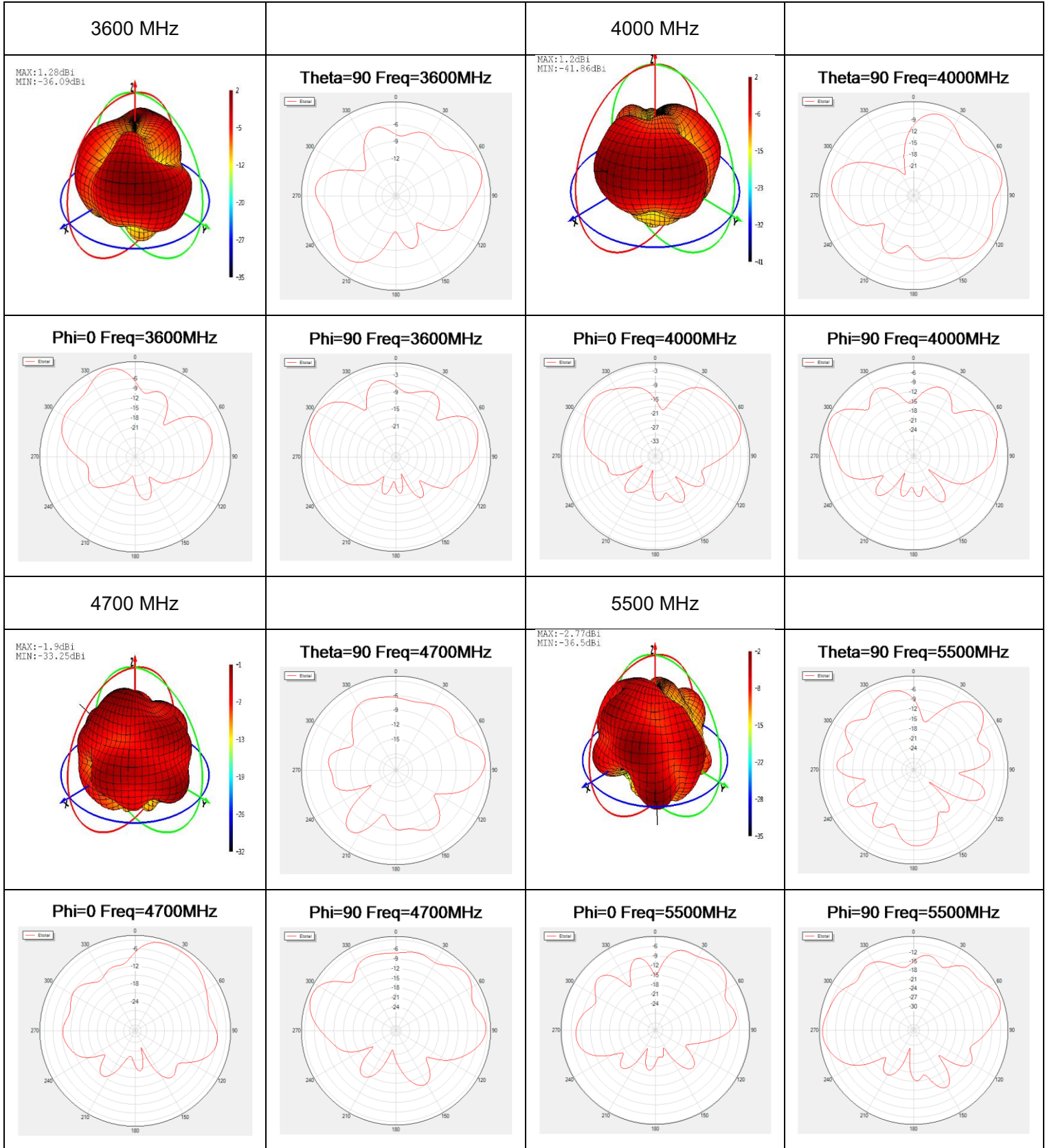


● 5G/4G-2

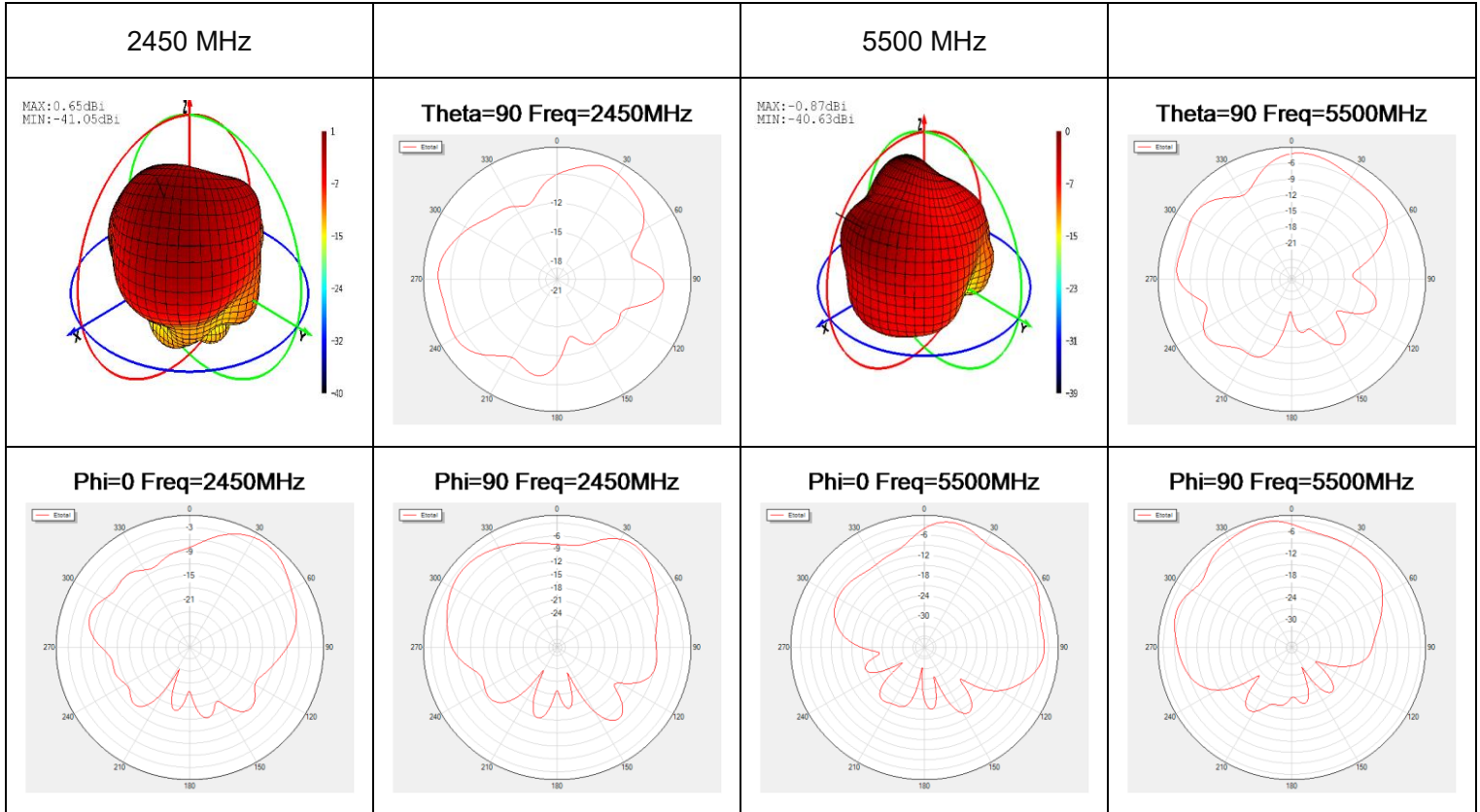






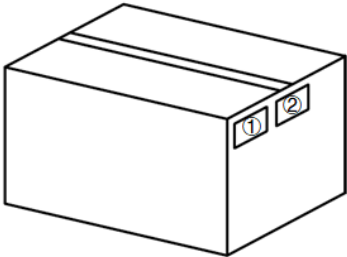


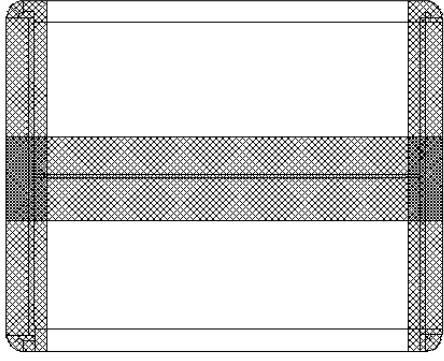


● **Wi-Fi**



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>1 pc antenna product in an inner box. (1 PC / inner box)</p>
2		<p>Top the product with pearl cotton</p>
3		<p>(6 inner boxes / Carton Box) (6 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 x W x H = 606 x 410 x 218 mm</u></p>
4		<p>Position for Attaching Labels</p> <ul style="list-style-type: none"> ① Carton Label ② Quality Label

5	 A technical drawing of an H-shaped sealing carton. It consists of a central horizontal rectangular section with a cross-hatched texture, flanked by two vertical rectangular sections, also with a cross-hatched texture. The corners of the vertical sections are rounded. The entire structure is shown in a perspective view.	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
-	2025-01-07	Mordecai LIU/ Junsen LI/ Lance SUN/ Riva REN Rainey LIAO	Creation of the document
1.0	2025-01-07	Mordecai LIU/ Junsen LI/ Lance SUN/ Riva REN Rainey LIAO	First official release

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