



Antenna Datasheet

Product OC: YE0013CA

Version: 2.0

Date: 2023-05-04

Status: Released

Product Name: 4G External Antenna

Key Features:

Frequency Band: 698–2700 MHz

Dimensions: Φ 10.2 × 115.4 mm

Efficiency: Up to 95.7 % (On 130 × 130 mm EVB)

RoHS Compliant

IP66

Overview

This Quectel external 4G antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands as well. The external antenna is barely influenced by the internal environment of devices, giving a much better performance in efficiency, radiation and gain whilst providing an optimized solution for a customer product. Quectel also offers flexible installation with custom cable length and connector options.

Contents

Overview	1
Contents	2
1 Specification	3
1.1. Electrical.....	3
1.2. Mechanical, Environmental & Storage.....	5
2 Drawing	6
3 Detailed Performance	7
3.1. S-Parameter Test.....	7
3.1.1. VSWR.....	7
3.1.2. Return Loss.....	8
3.2. Radiation Performance Test.....	9
3.2.1. Efficiency.....	9
3.2.2. Average Gain.....	10
3.2.3. Peak Gain.....	11
3.2.4. 3D & 2D Radiation Pattern.....	12
3.2.4.1. Test Condition: On 130 × 130 mm EVB.....	12
3.2.4.2. Test Condition: Free Space.....	16
4 Packaging	20
Contact Us	22
Legal Notices	23
Revision History	25

1 Specification

Test Condition: On 130 × 130 mm EVB & Free Space

1.1. Electrical

Electrical	
Frequency Range	698–2700 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	EVB	-	2.9	3.1	-	2.5	4.6	4.7	4.1	-	-	-
	FS	-	2.1	2.6	-	1.7	2.0	2.2	2.4	-	-	-
Max. Return Loss (dB)	EVB	-	-6.3	-5.8	-	-7.5	-3.9	-3.8	-4.3	-	-	-
	FS	-	-8.9	-7.2	-	-11.9	-9.8	-8.5	-7.7	-	-	-
AVG Eff. (%)	EVB	-	59.2	58.7	-	79.1	52.5	45.4	59.2	-	-	-
	FS	-	38.0	42.8	-	70.4	59.9	65.2	38.0	-	-	-
AVG Gain (dB)	EVB	-	-2.3	-2.3	-	-1.0	-2.8	-3.4	-2.6	-	-	-
	FS	-	-4.3	-3.7	-	-1.5	-2.2	-1.9	-2.1	-	-	-
Max. Peak	EVB	-	1.4	1.7	-	4.9	1.9	1.4	3.9	-	-	-

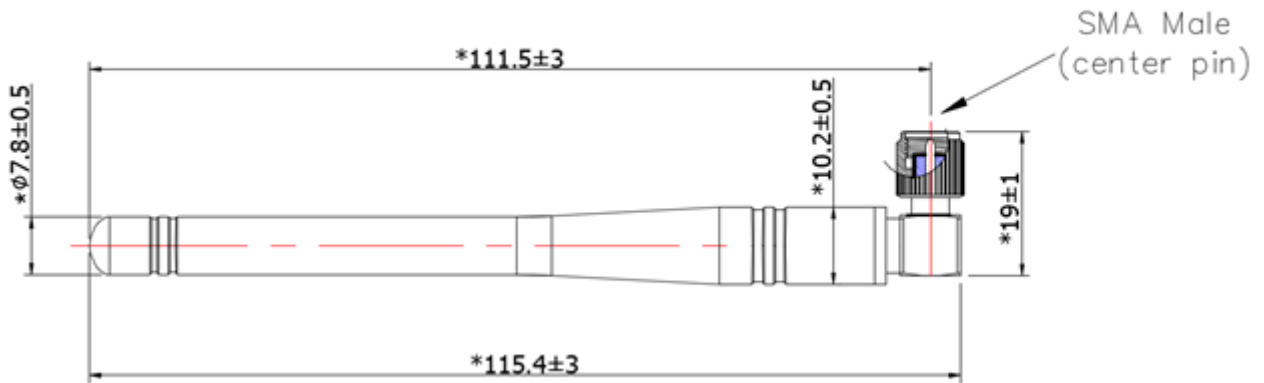
Gain (dBi)	FS	-	-1.5	-0.9	-	1.9	1.8	2.2	2.6	-	-	-
VSWR	EVB		≤ 4.7									
	FS		≤ 2.6									
Return Loss	EVB		≤ -3.8 dB									
	FS		≤ -7.2 dB									
Peak Gain	EVB		≤ 4.9 dBi									
	FS		≤ 2.6 dBi									

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

1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	Φ 10.2 × 115.4 mm
Casing Material & Color	TPEE & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 17 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP66
RoHS Compliant	Yes
Storage	
Storage Temperature	18 °C–27 °C
Humidity	30 %–80 % RH
Storage Place	Away from corrosive gas and direct sunlight
Packaging	Antennas should be stored in unopened sealed manufacturer's plastic packaging

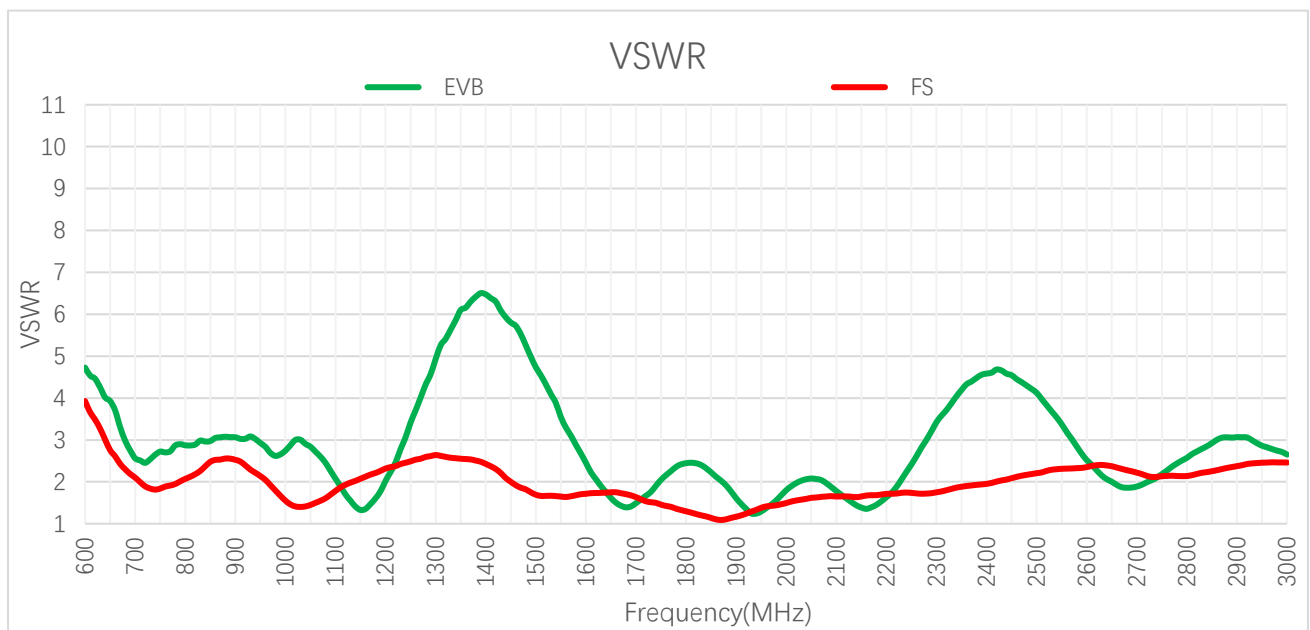
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

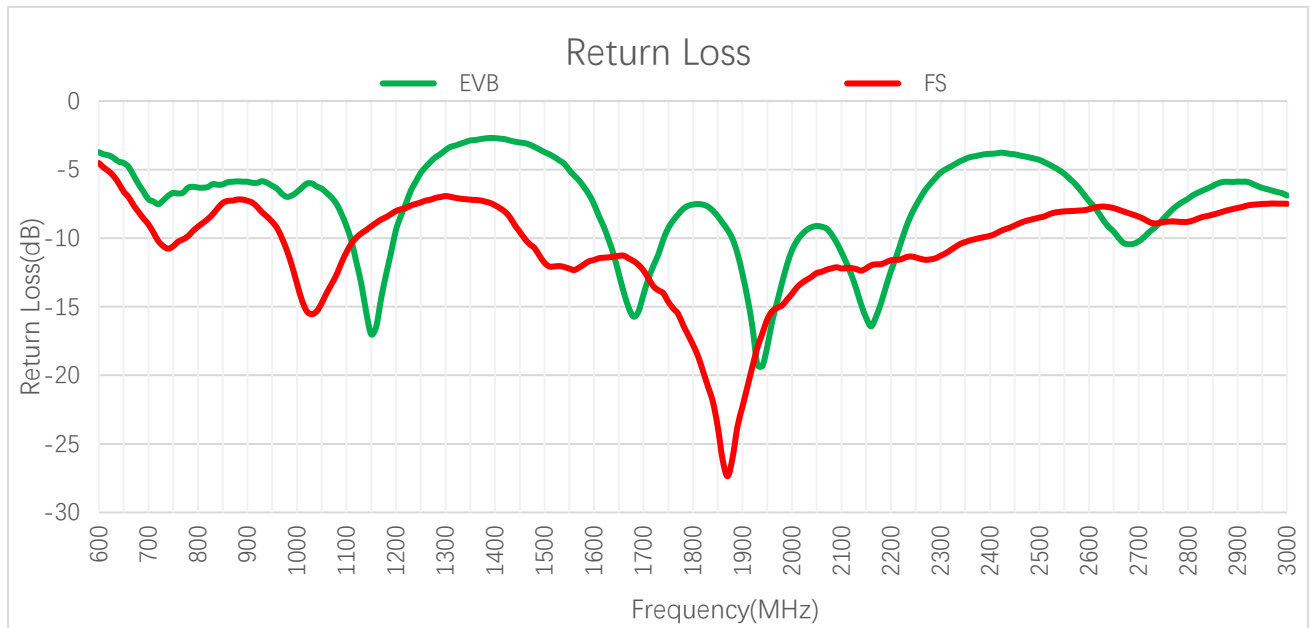
3.1.1. VSWR



VSWR

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
VSWR	EVB	-	-	2.5	3.0	3.1	2.8	-	1.6	1.9	1.9
	FS	-	-	2.0	2.3	2.5	2.0	-	1.6	1.5	1.1
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	EVB	1.3	1.4	4.2	4.5	2.5	1.9	-	-	-	-
	FS	1.4	1.6	1.9	2.1	2.4	2.3	-	-	-	-

3.1.2. Return Loss

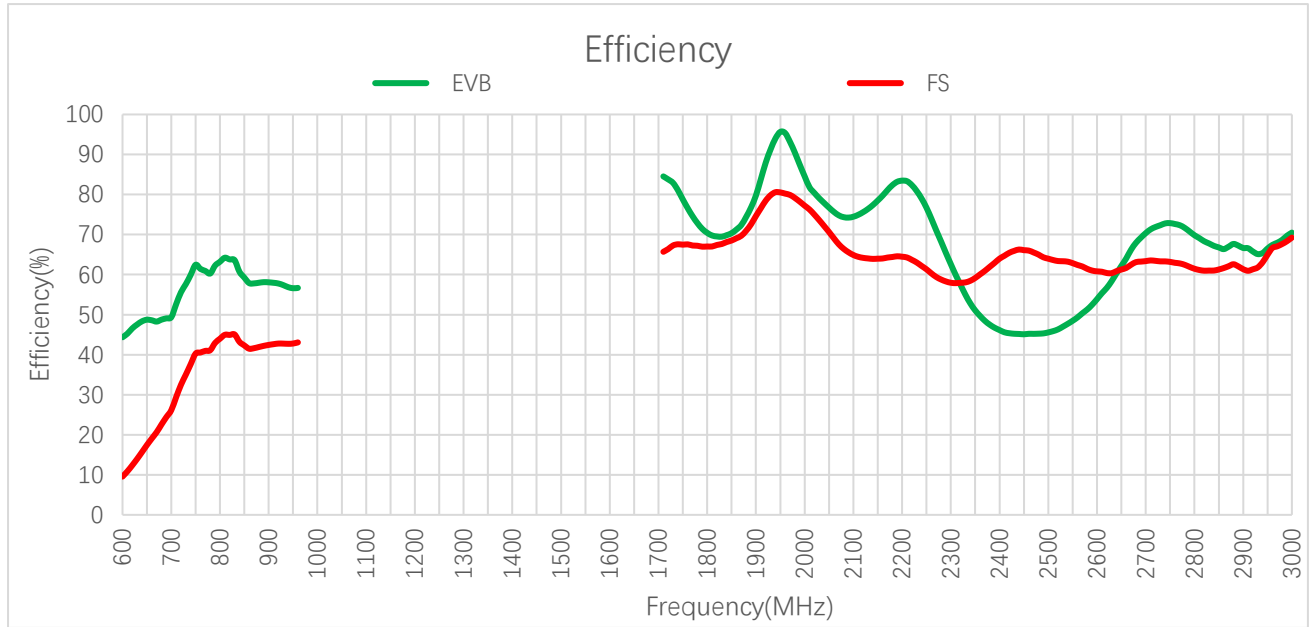


Return Loss (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	EVB	-	-	-7.3	-6.1	-5.9	-6.4	-	-13.0	-10.1	-10.1
	FS	-	-	-9.6	-8.3	-7.3	-9.3	-	-12.9	-14.0	-26.0
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	EVB	-17.9	-14.9	-4.2	-3.9	-7.3	-10.4	-	-	-	-
	FS	-15.9	-12.4	-10.3	-9.1	-7.9	-8.3	-	-	-	-

3.2. Radiation Performance Test

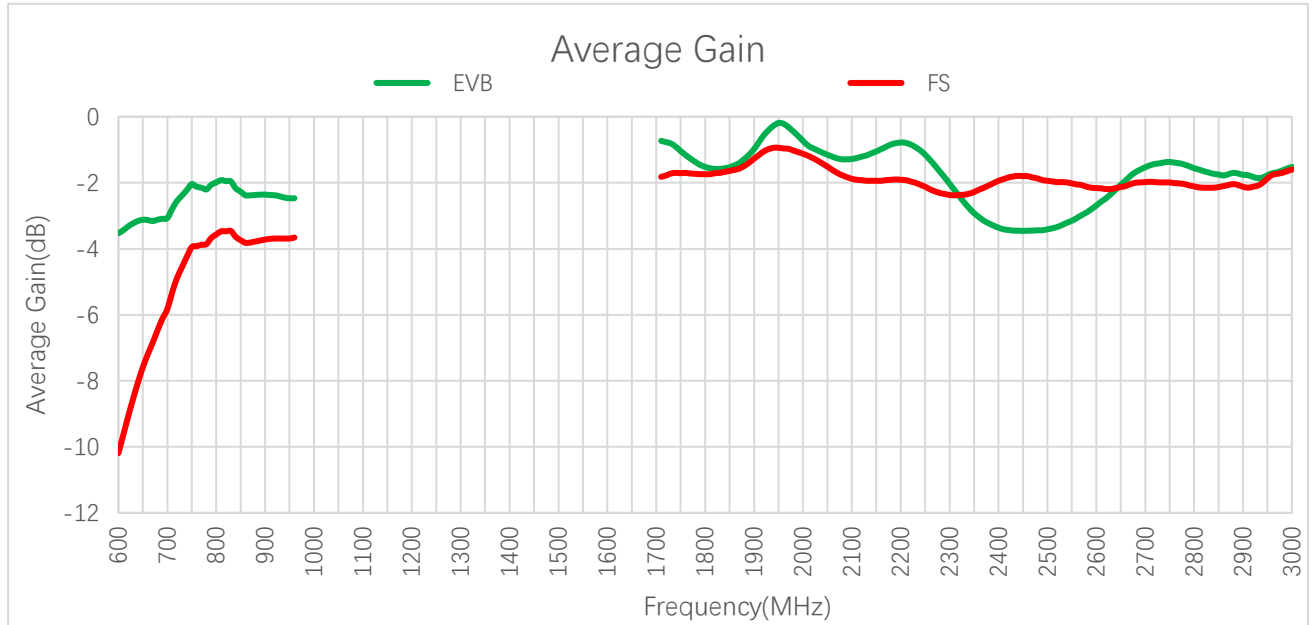
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	EVB	-	-	52.6	63.6	58.1	56.7	-	84.5	81.1	74.4
	FS	-	-	29.4	45.1	42.4	43.1	-	65.7	67.6	71.0
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	EVB	95.7	77.4	51.1	45.1	53.9	69.2	-	-	-	-
	FS	80.5	63.9	59.2	66.1	60.8	63.3	-	-	-	-

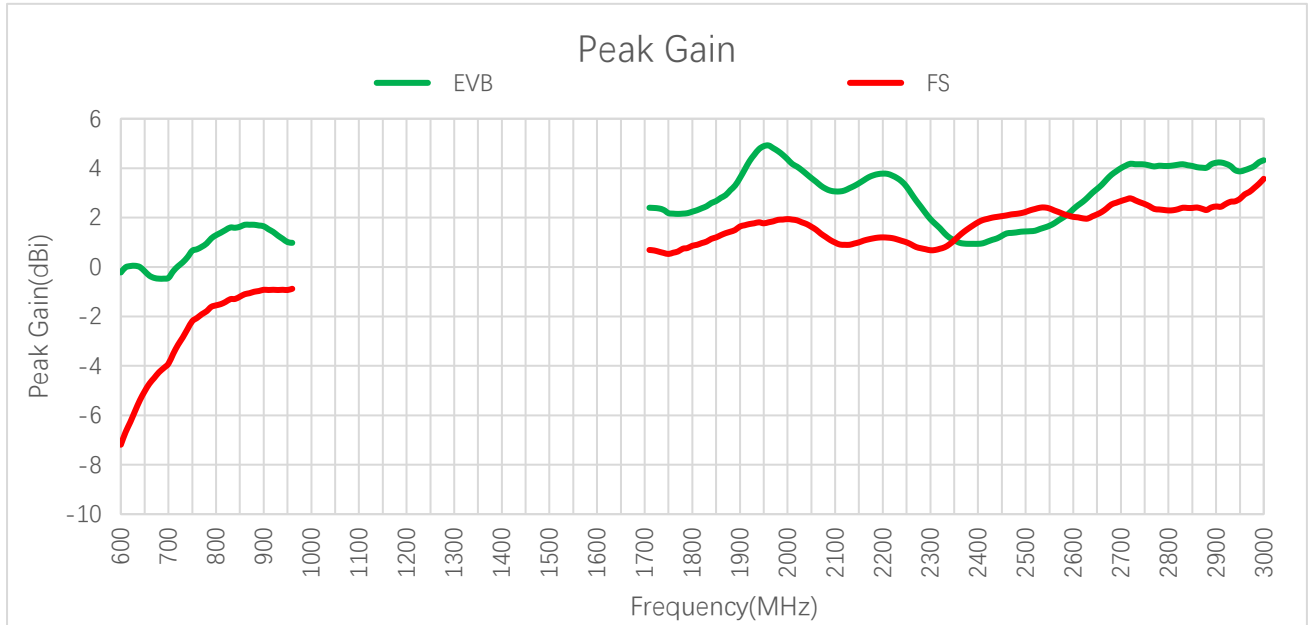
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	EVB	-	-	-2.8	-2.0	-2.4	-2.5	-	-0.7	-0.9	-1.3
	FS	-	-	-5.3	-3.5	-3.7	-3.7	-	-1.8	-1.7	-1.5
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	EVB	-0.2	-1.1	-2.9	-3.5	-2.7	-1.6	-	-	-	-
	FS	-0.9	-1.9	-2.3	-1.8	-2.2	-2.0	-	-	-	-

3.2.3. Peak Gain



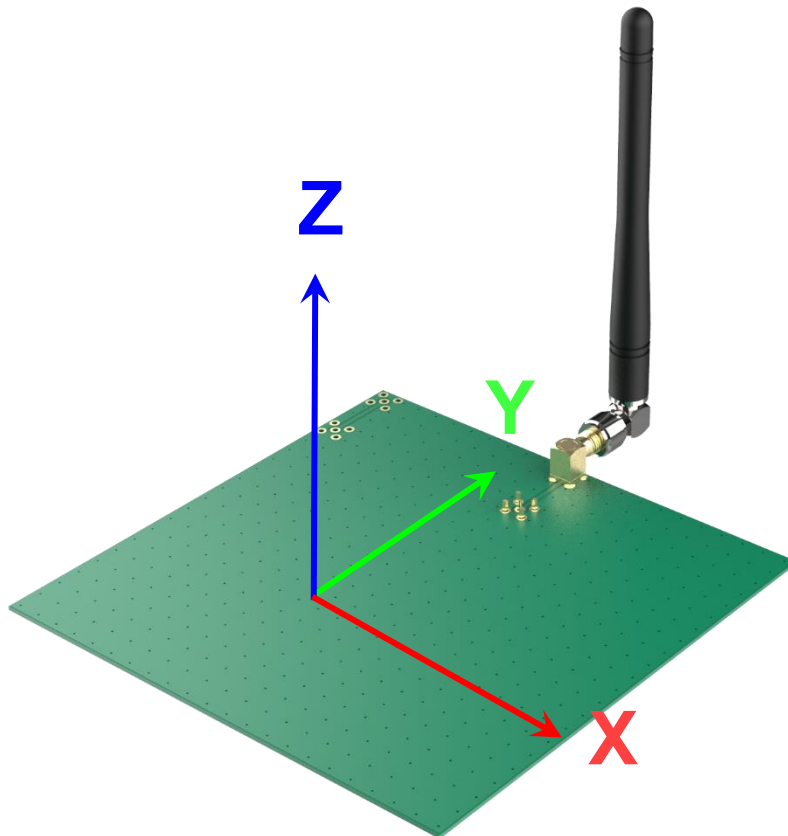
Peak Gain (dBi)

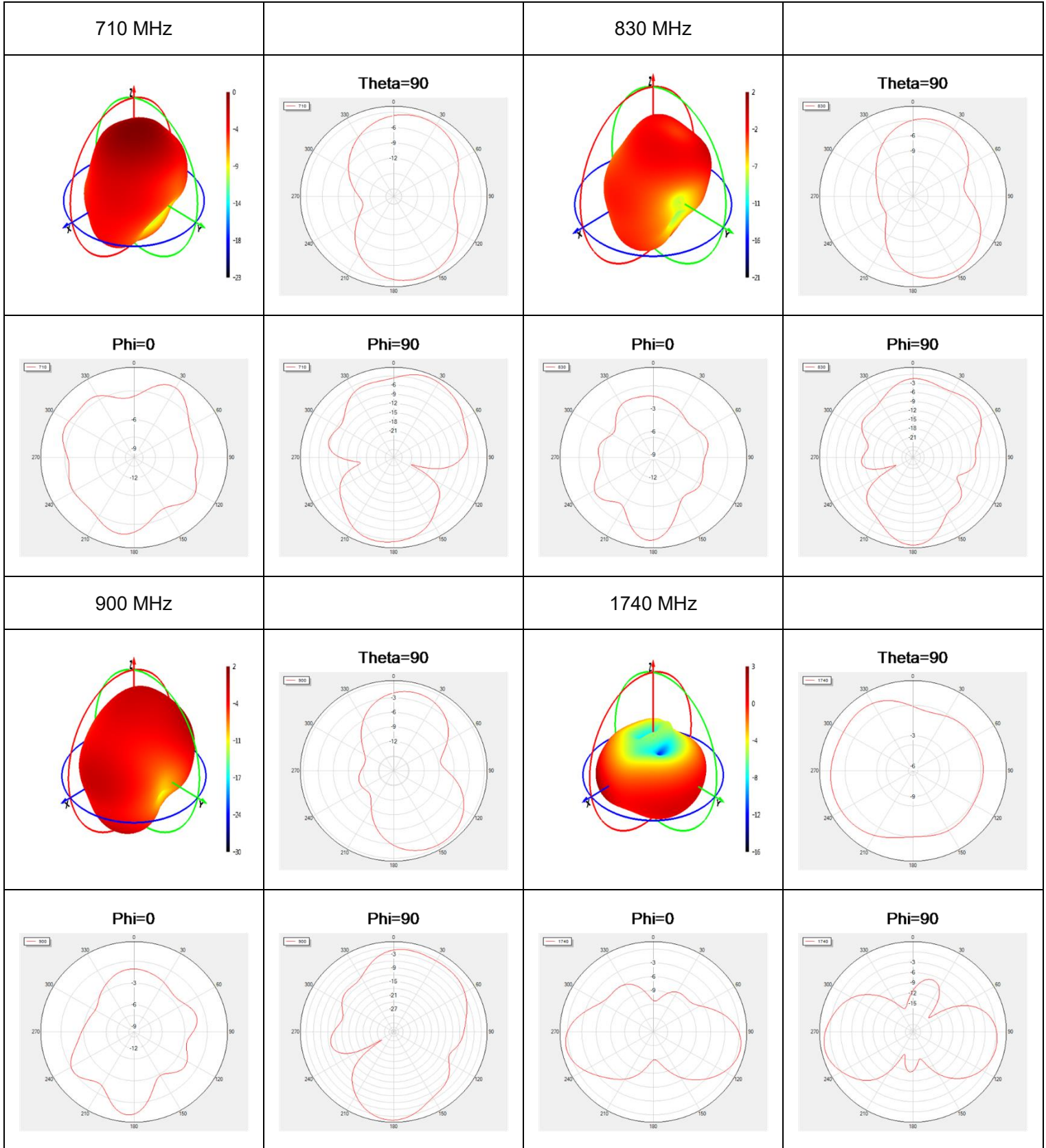
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	EVB	-	-	-0.2	1.6	1.7	1.0	-	2.4	2.3	3.1
	FS	-	-	-3.5	-1.3	-0.9	-0.9	-	0.7	0.6	1.4
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	EVB	4.9	3.3	1.1	1.3	2.3	3.9	-	-	-	-
	FS	1.8	1.0	1.1	2.1	2.0	2.6	-	-	-	-

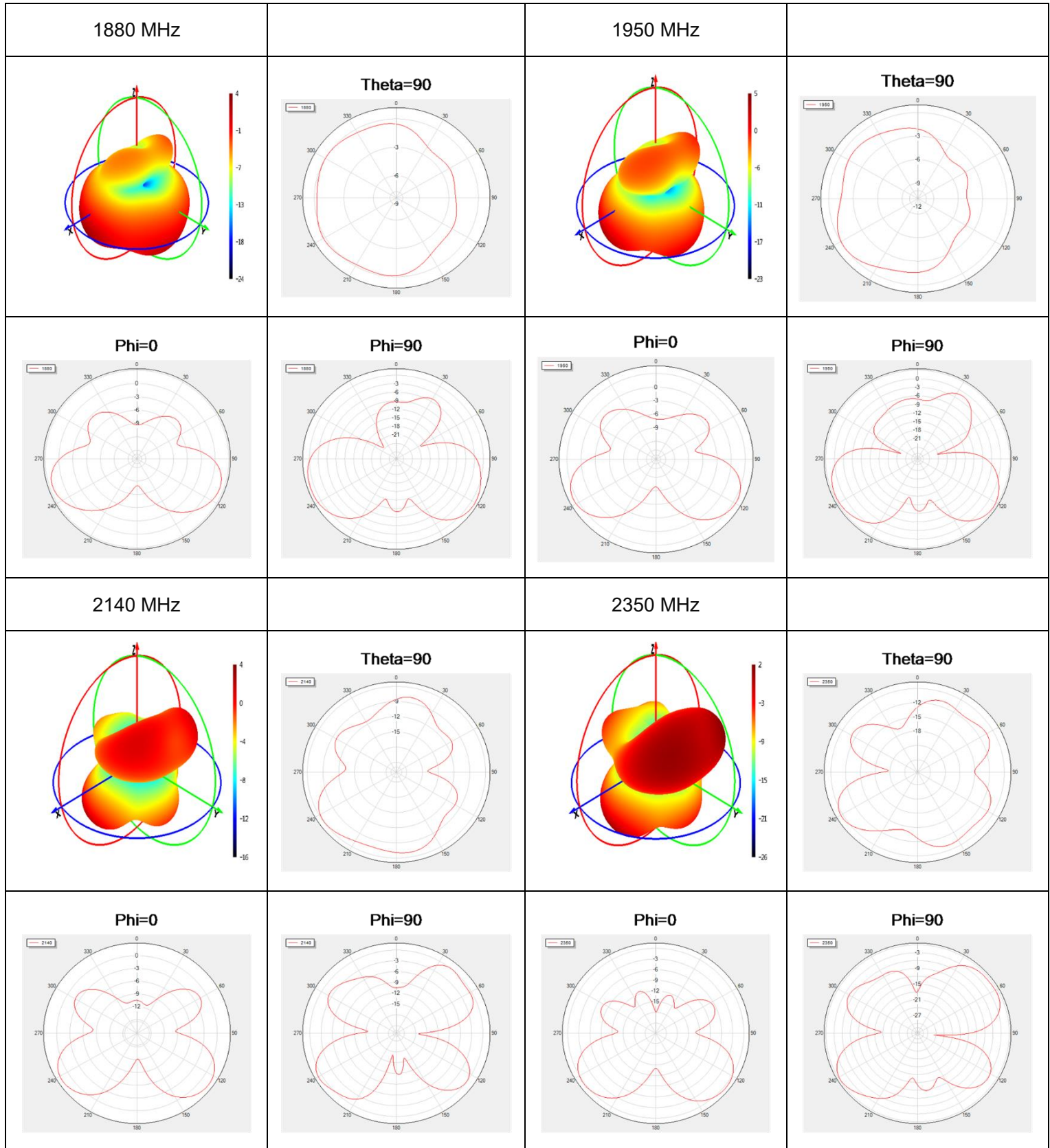
3.2.4. 3D & 2D Radiation Pattern

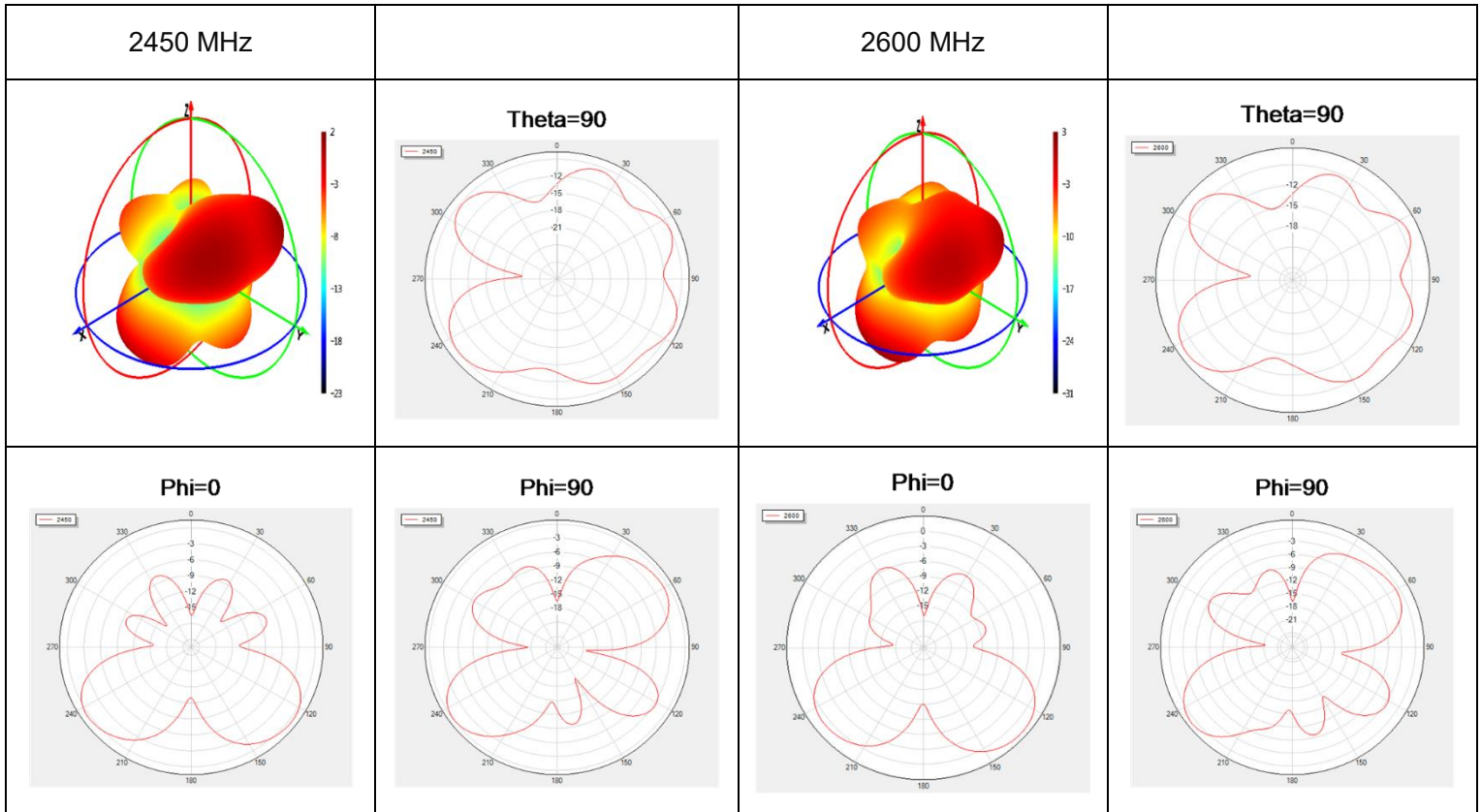
3.2.4.1. Test Condition: On 130 × 130 mm EVB

- Test Chamber: GL-S-1



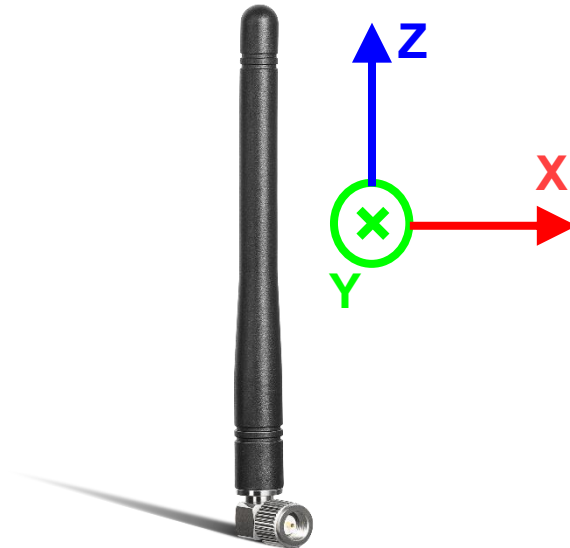


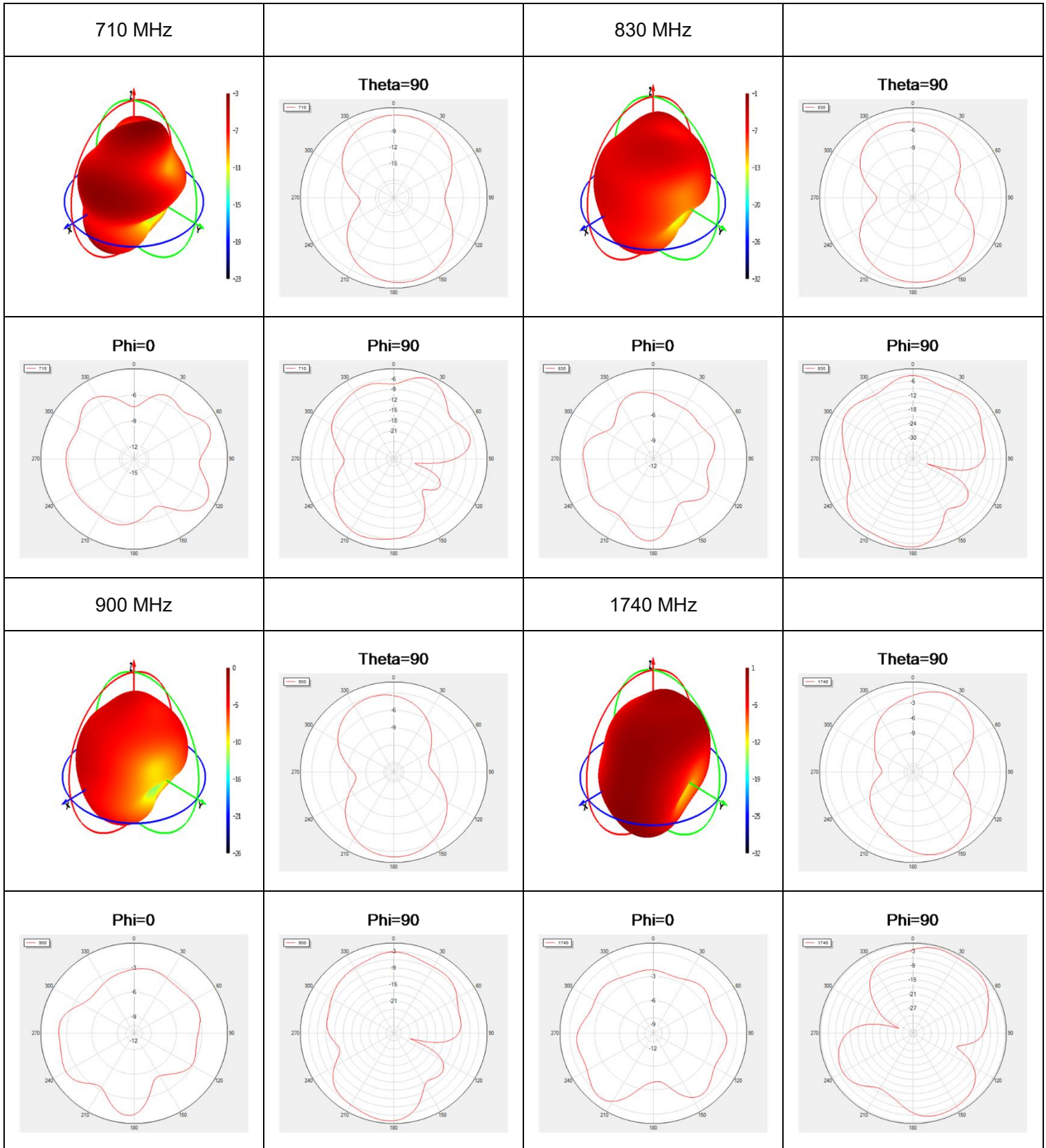


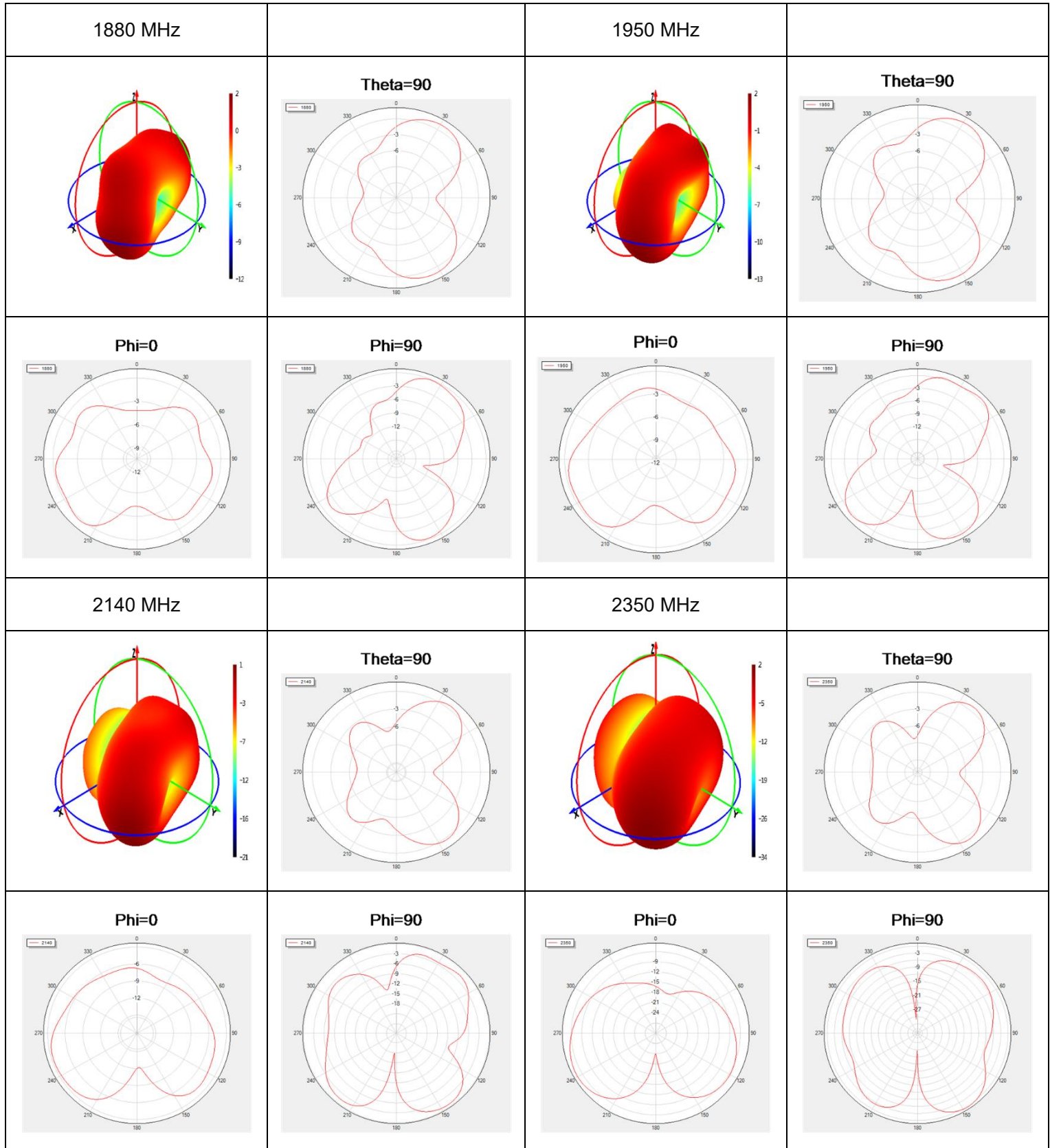


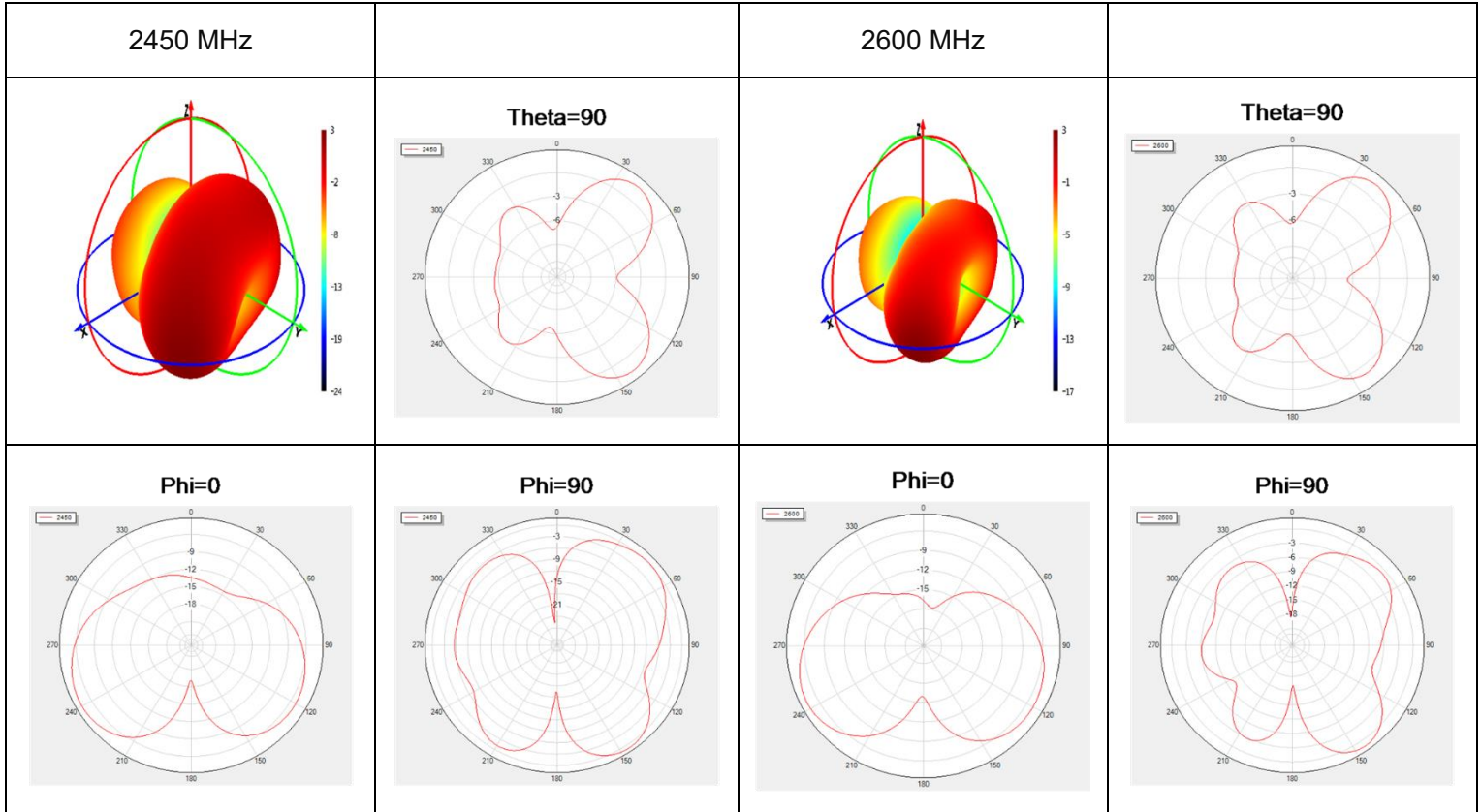
3.2.4.2. Test Condition: Free Space

- Test Chamber: GL-S-1



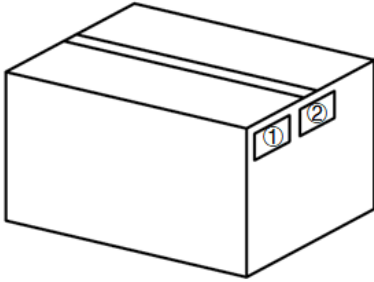
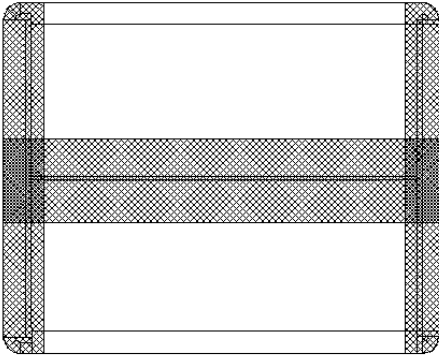






4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>Put the product in a one-piece bag; Each one-piece bag contains 10 products.</p>
2		<p>20 pcs antenna products in a PE bag; (20 pcs antennas per PE bag)</p>
3		<p>(30 PE bags per carton box) (600 pcs antennas per carton box)</p> <p><u>Carton Size:</u> <u>L × W × H = 325 × 325 × 200 mm</u></p>

4		<p>Position for Attaching Labels</p> <ul style="list-style-type: none">① Carton Label② Quality Label
5		<p>Sealing Cartons “工” type sealing cartons</p>

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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Or our local offices. For more information, please visit:

<http://www.quectel.com/support/sales.htm>.

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Revision History

Version	Date	Author	Note
-	2022-06-10	Toby WANG/ Riona HAN	Creation of the document
1.0	2022-06-10	Toby WANG/ Riona HAN	First official release
2.0	2023-05-04	Black LI/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.

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