



Antenna Datasheet

Product OC: YECT003AA

Version: 3.0

Date: 2023-05-04

Status: Released

Product Name: 4G External Antenna

Key Features:

Frequency Band: 698–2700 MHz

Dimensions: Φ 10 × 113 mm

Efficiency: Up to 84.0 % (On 130 × 130 mm EVB)

RoHS Compliant

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.

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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	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	-	4.0	4.3	-	3.4	4.0	4.1	3.8	-	-	-	
	FS	-	2.9	2.6	-	3.0	1.7	1.2	2.0	-	-	-	
Max. Return Loss (dB)	EVB	-	-4.4	-4.1	-	-5.3	-4.4	-4.3	-4.7	-	-	-	
	FS	-	-6.2	-7.1	-	-5.9	-11.8	-20.6	-9.7	-	-	-	
AVG Eff. (%)	EVB	-	66.5	55.0	-	70.2	48.5	46.9	50.7	-	-	-	
	FS	-	25.9	39.7	-	58.0	42.3	43.2	41.2	-	-	-	
AVG Gain (dB)	EVB	-	-1.8	-2.6	-	-1.6	-3.1	-3.3	-3.0	-	-	-	
	FS	-	-5.9	-4.0	-	-2.4	-3.7	-3.6	-3.9	-	-	-	
Max. Peak	EVB	-	0.0	-0.5	-	0.7	0.6	1.1	2.5	-	-	-	

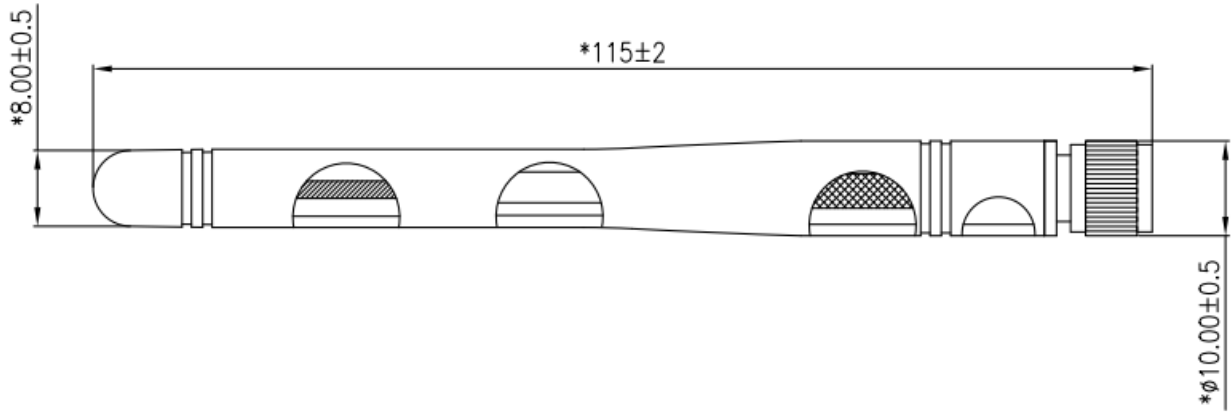
Gain (dBi)	FS	-	-3.3	-1.6	-	1.8	1.0	1.8	2.1	-	-	-
VSWR	EVB		≤ 4.3									
	FS		≤ 3.0									
Return Loss	EVB		≤ -4.1 dB									
	FS		≤ -5.9 dB									
Peak Gain	EVB		≤ 2.5 dBi									
	FS		≤ 2.1 dBi									

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

1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	Φ 10 × 113 mm
Casing Material & Color	TPEE & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 12.5 g
Environmental	
Operation Temperature	-40 °C to +85 °C
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

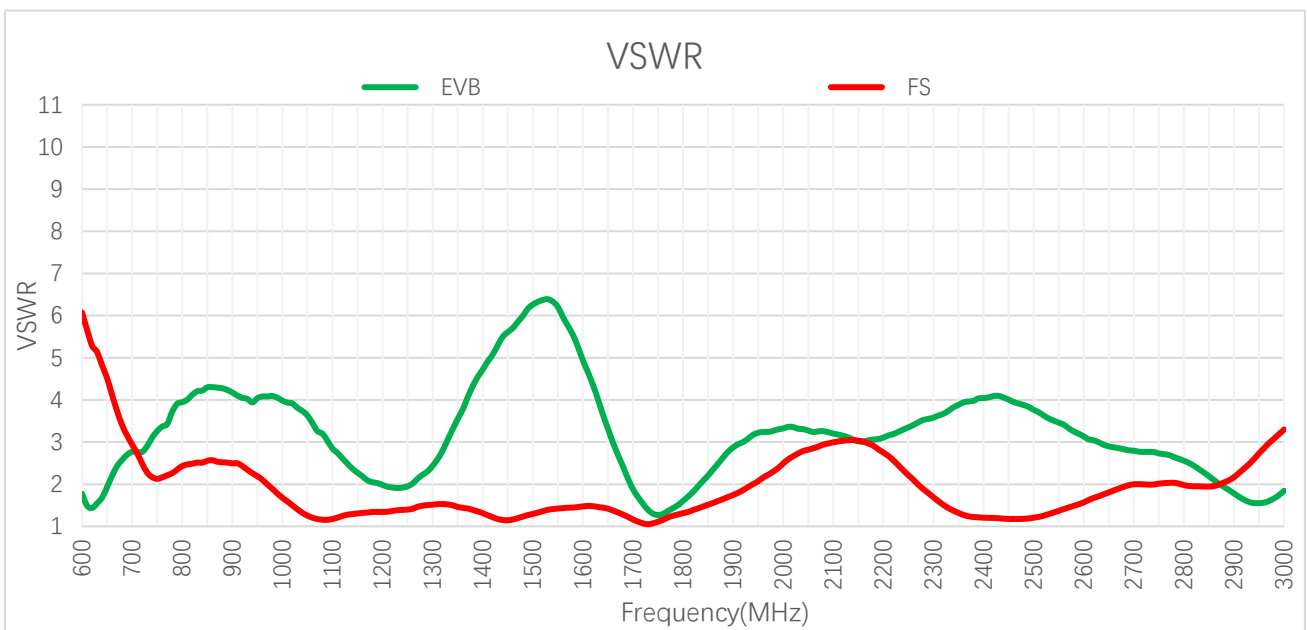
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

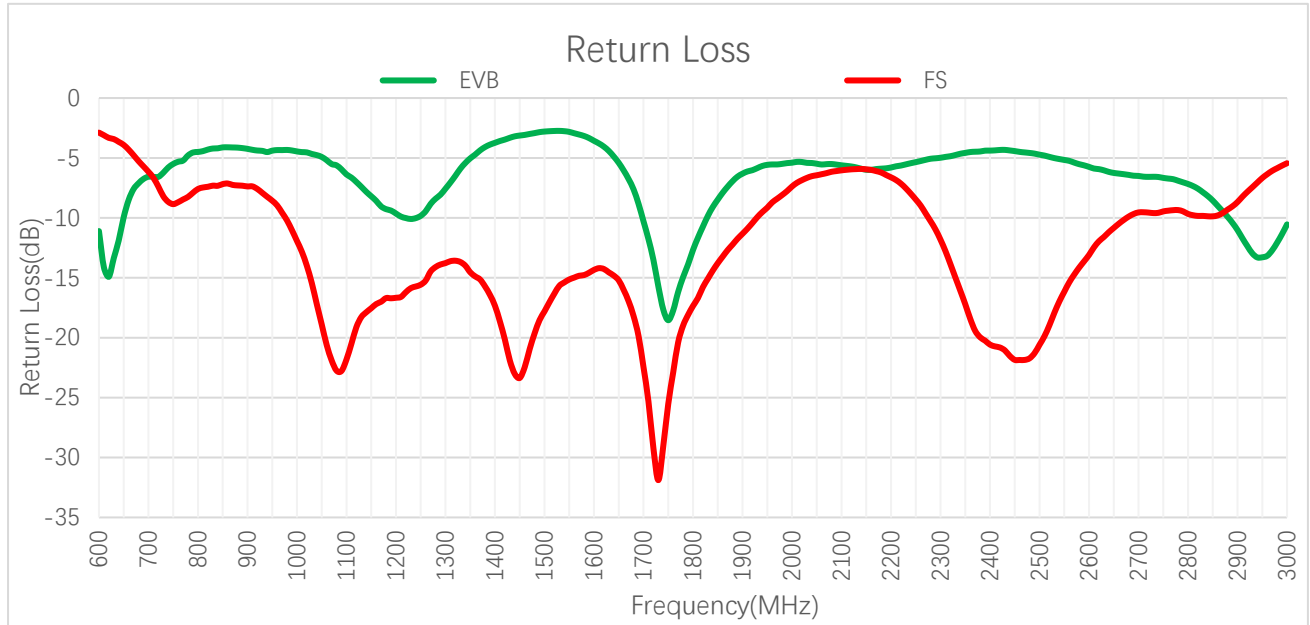
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880	
VSWR	EVB	-	-	2.8	4.2	4.2	4.1	-	1.7	1.3	2.6
	FS	-	-	2.7	2.5	2.5	2.1	-	1.1	1.1	1.6
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000	
VSWR	EVB	3.2	3.1	3.9	4.0	3.1	2.8	-	-	-	-
	FS	2.1	3.0	1.3	1.2	1.6	2.0	-	-	-	-

3.1.2. Return Loss

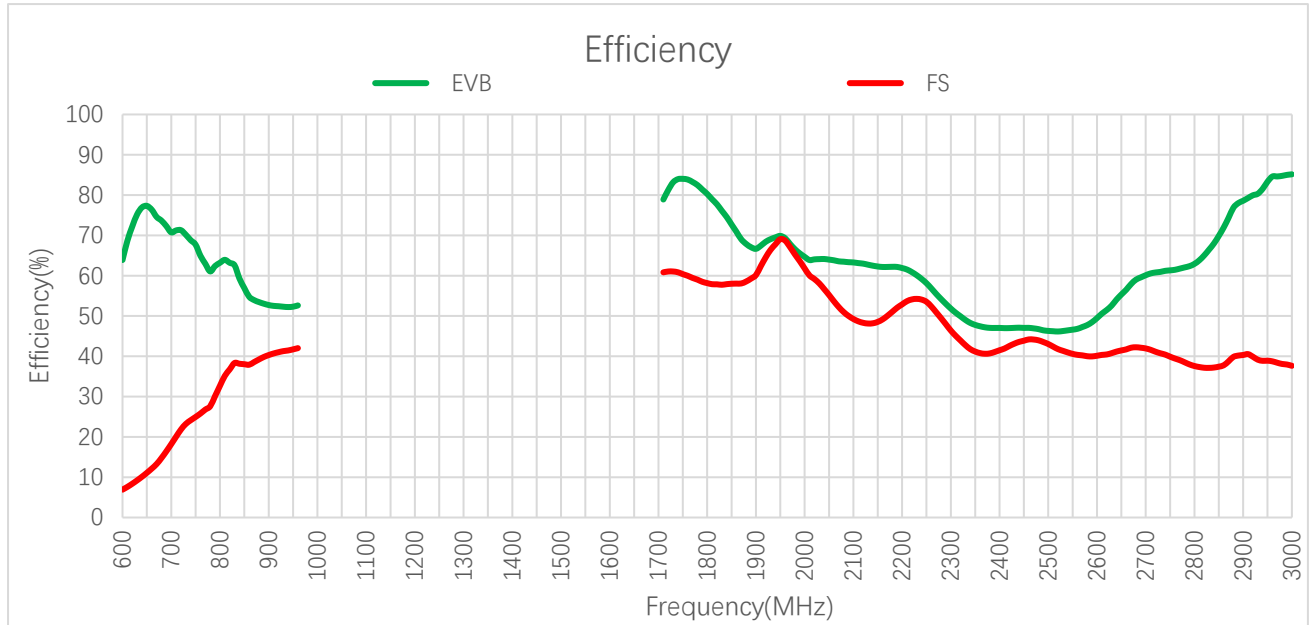


Return Loss (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	EVB	-	-	-6.6	-4.2	-4.2	-4.3	-	-11.8	-17.7	-6.9
	FS	-	-	-6.7	-7.3	-7.4	-9.0	-	-25.3	-29.0	-12.2
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	EVB	-5.6	-5.9	-4.6	-4.4	-5.7	-6.5	-	-	-	-
	FS	-9.2	-5.9	-17.2	-21.9	-13.1	-9.7	-	-	-	-

3.2. Radiation Performance Test

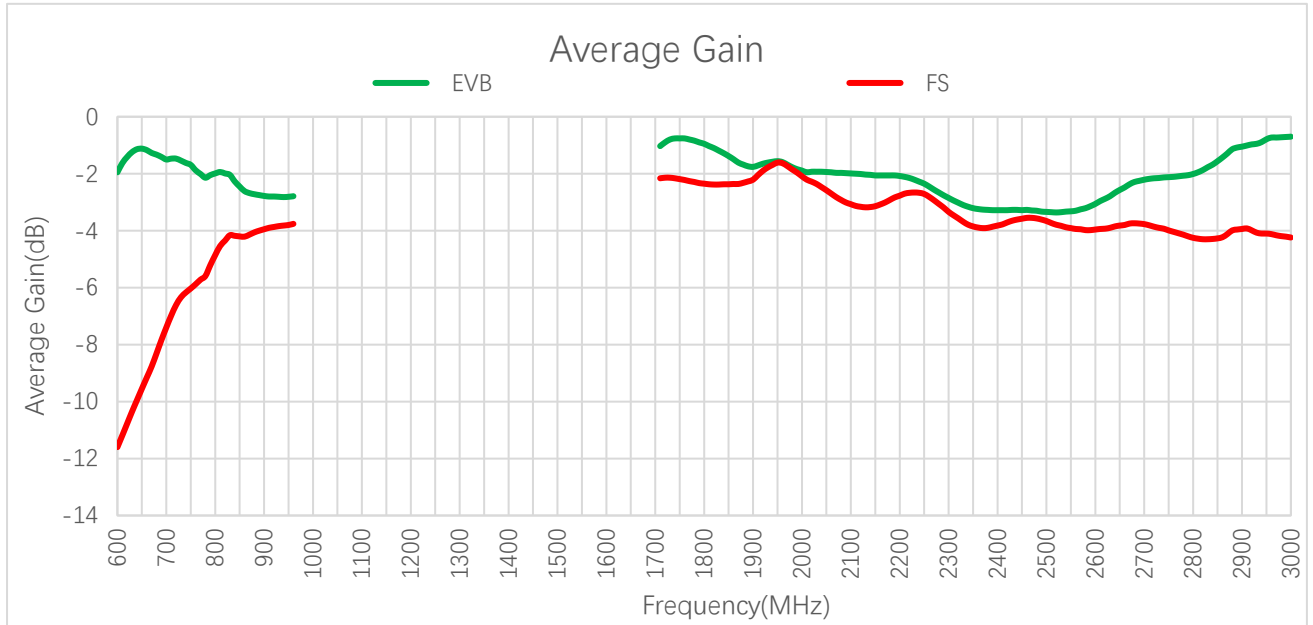
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	EVB	-	-	71.2	62.6	52.7	52.6	-	78.9	84.0	67.9
	FS	-	-	20.1	38.3	40.3	42.0	-	60.8	60.8	58.6
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	EVB	69.9	62.5	47.8	47.0	49.5	59.6	-	-	-	-
	FS	69.1	48.2	41.2	43.9	40.1	42.1	-	-	-	-

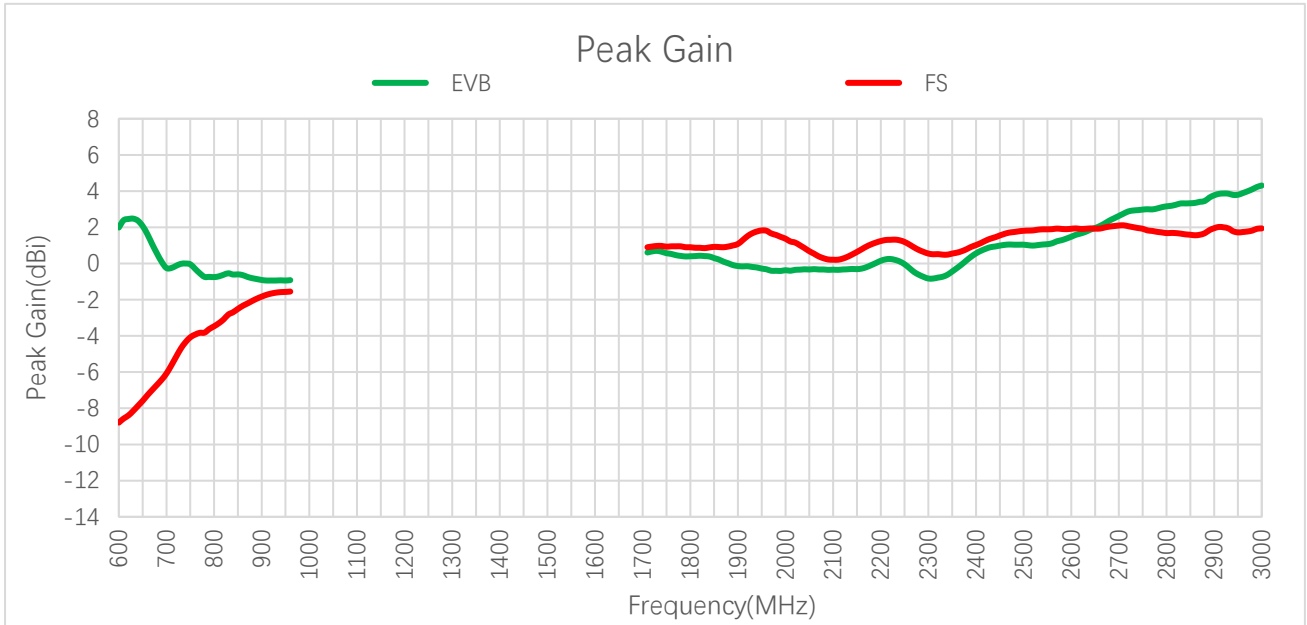
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	EVB	-	-	-1.5	-2.0	-2.8	-2.8	-	-1.0	-0.8	-1.7
	FS	-	-	-7.0	-4.2	-4.0	-3.8	-	-2.2	-2.2	-2.3
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	EVB	-1.6	-2.0	-3.2	-3.3	-3.1	-2.3	-	-	-	-
	FS	-1.6	-3.2	-3.9	-3.6	-4.0	-3.8	-	-	-	-

3.2.3. Peak Gain



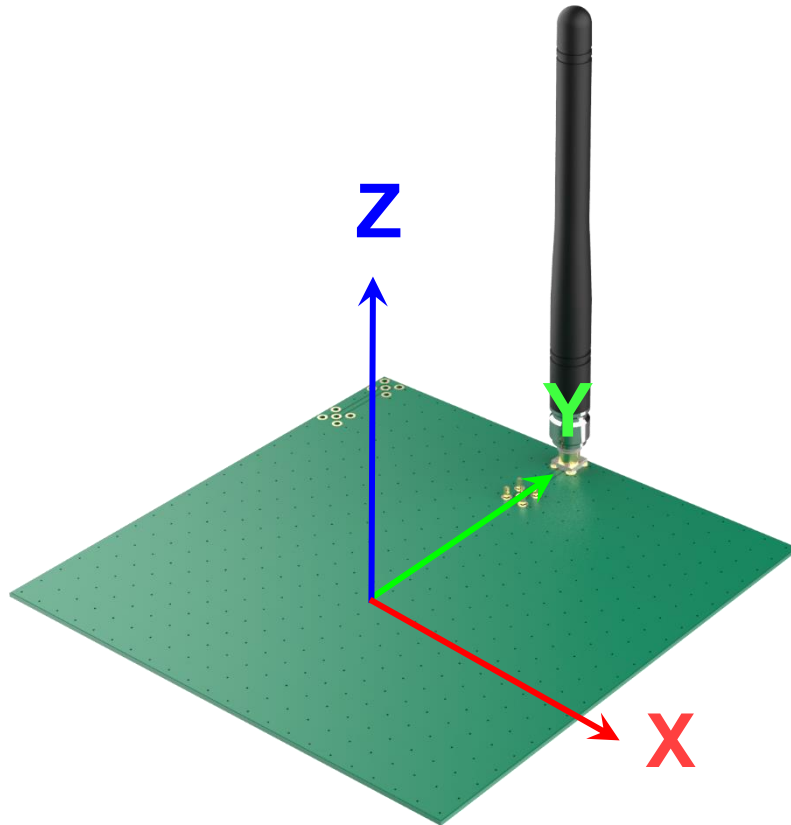
Peak Gain (dBi)

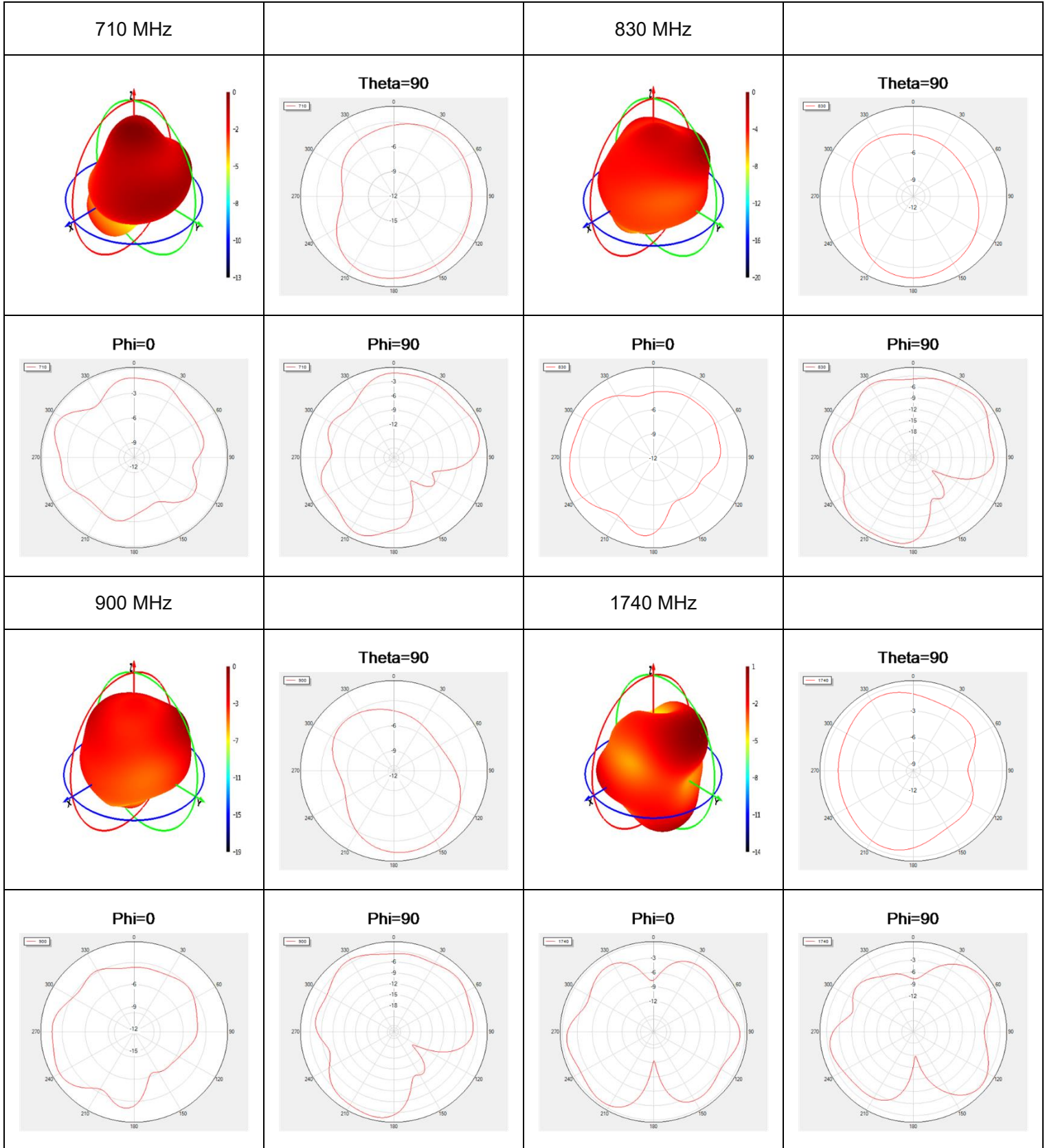
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	EVB	-	-	-0.3	-0.5	-0.9	-0.9	-	0.6	0.7	0.0
	FS	-	-	-5.6	-2.8	-1.8	-1.6	-	0.9	1.0	0.9
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	EVB	-0.3	-0.3	-0.4	1.0	1.5	2.5	-	-	-	-
	FS	1.8	0.5	0.6	1.6	1.9	2.1	-	-	-	-

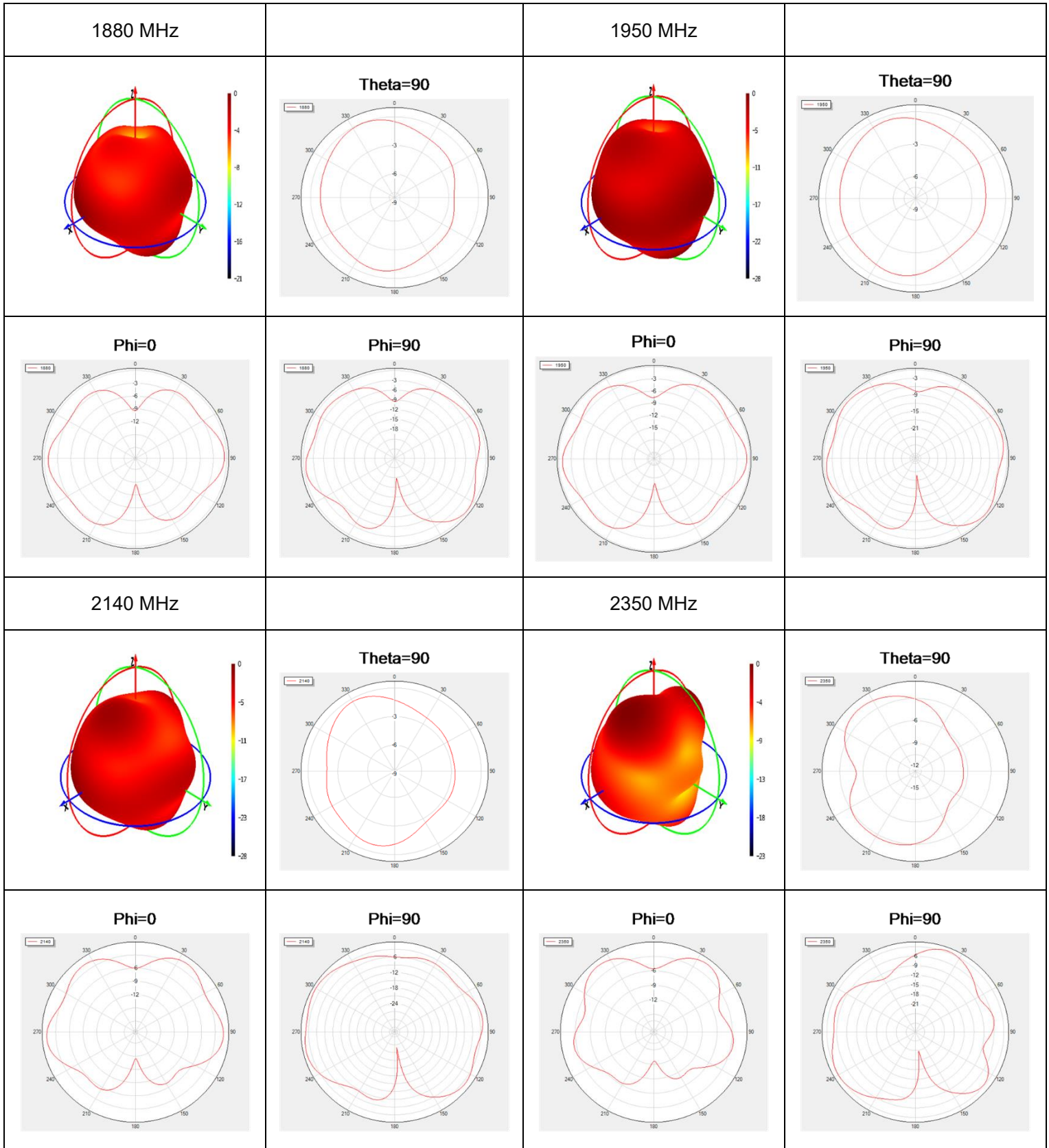
3.2.4. 3D & 2D Radiation Pattern

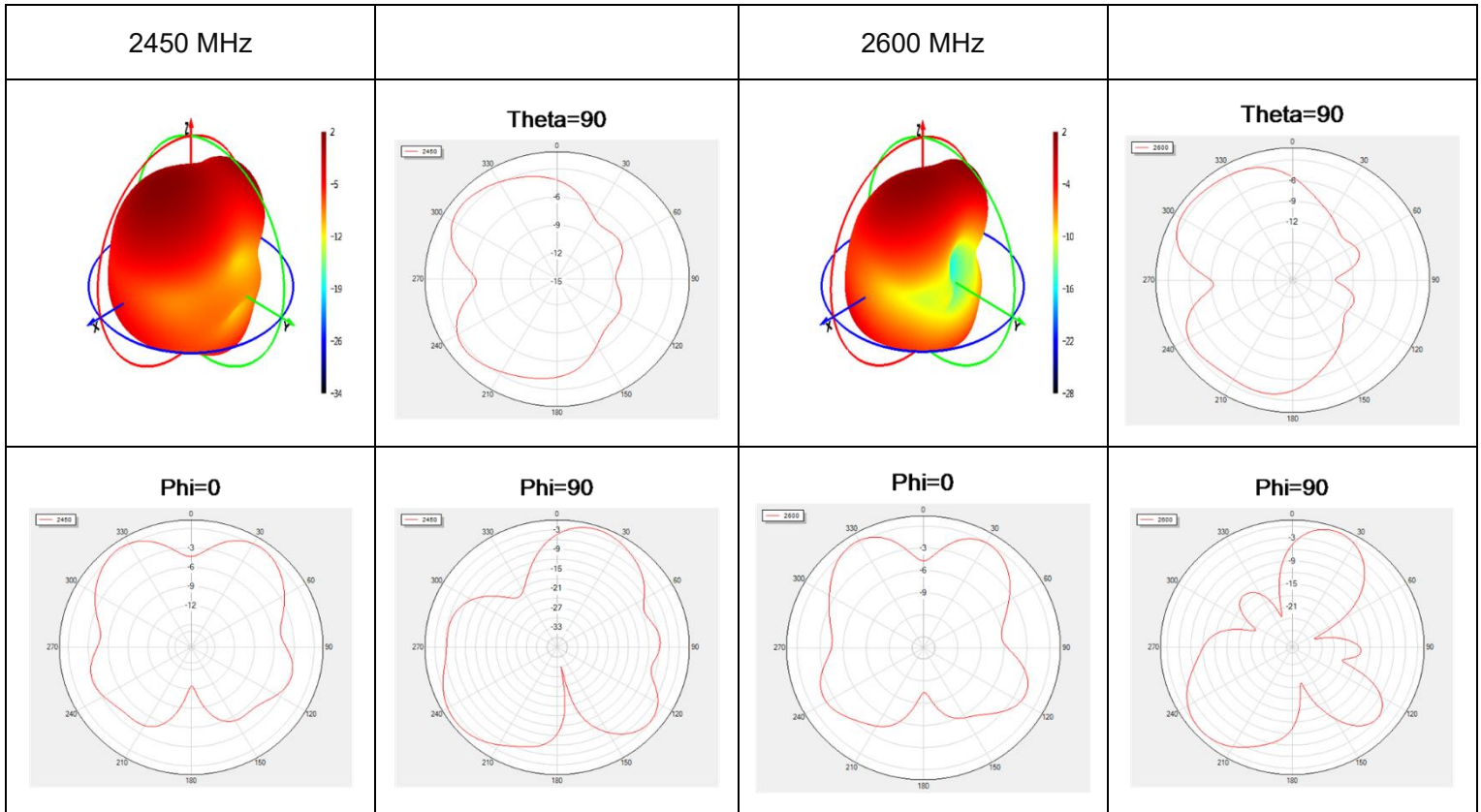
3.2.4.1. Test Condition: On 130 × 130 mm EVB

- Test Chamber: GL-S-1



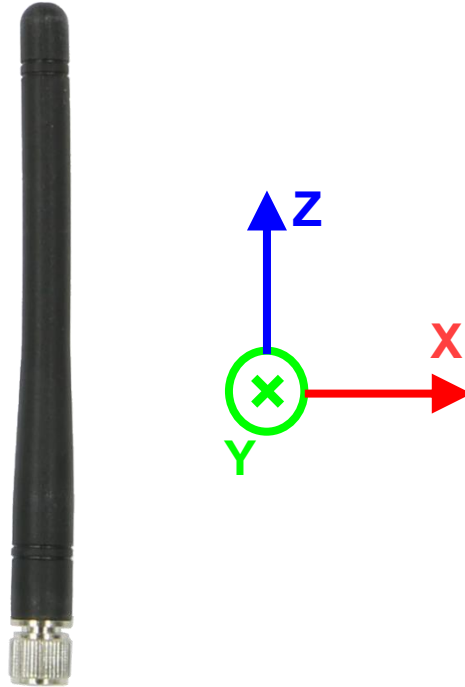


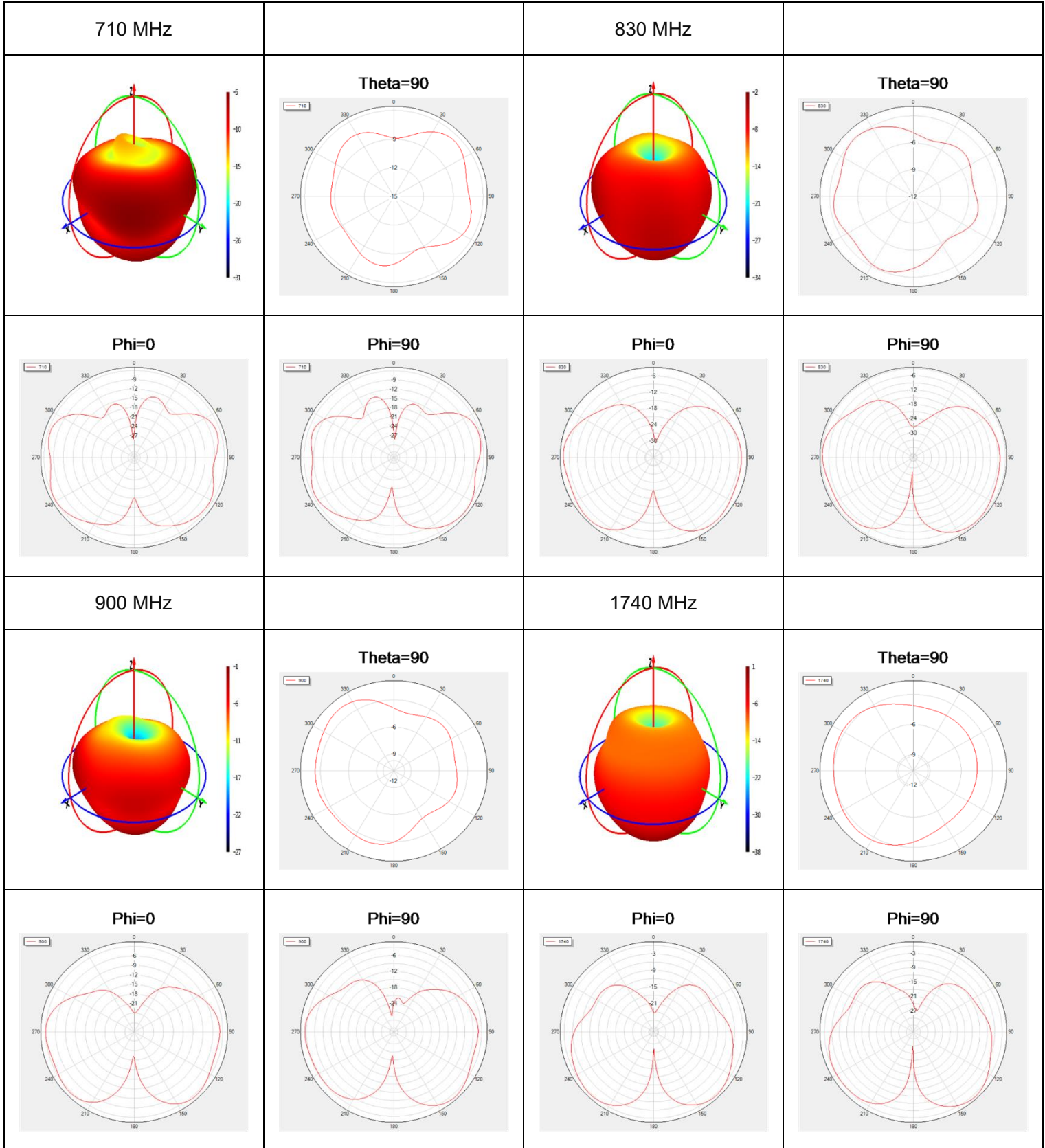


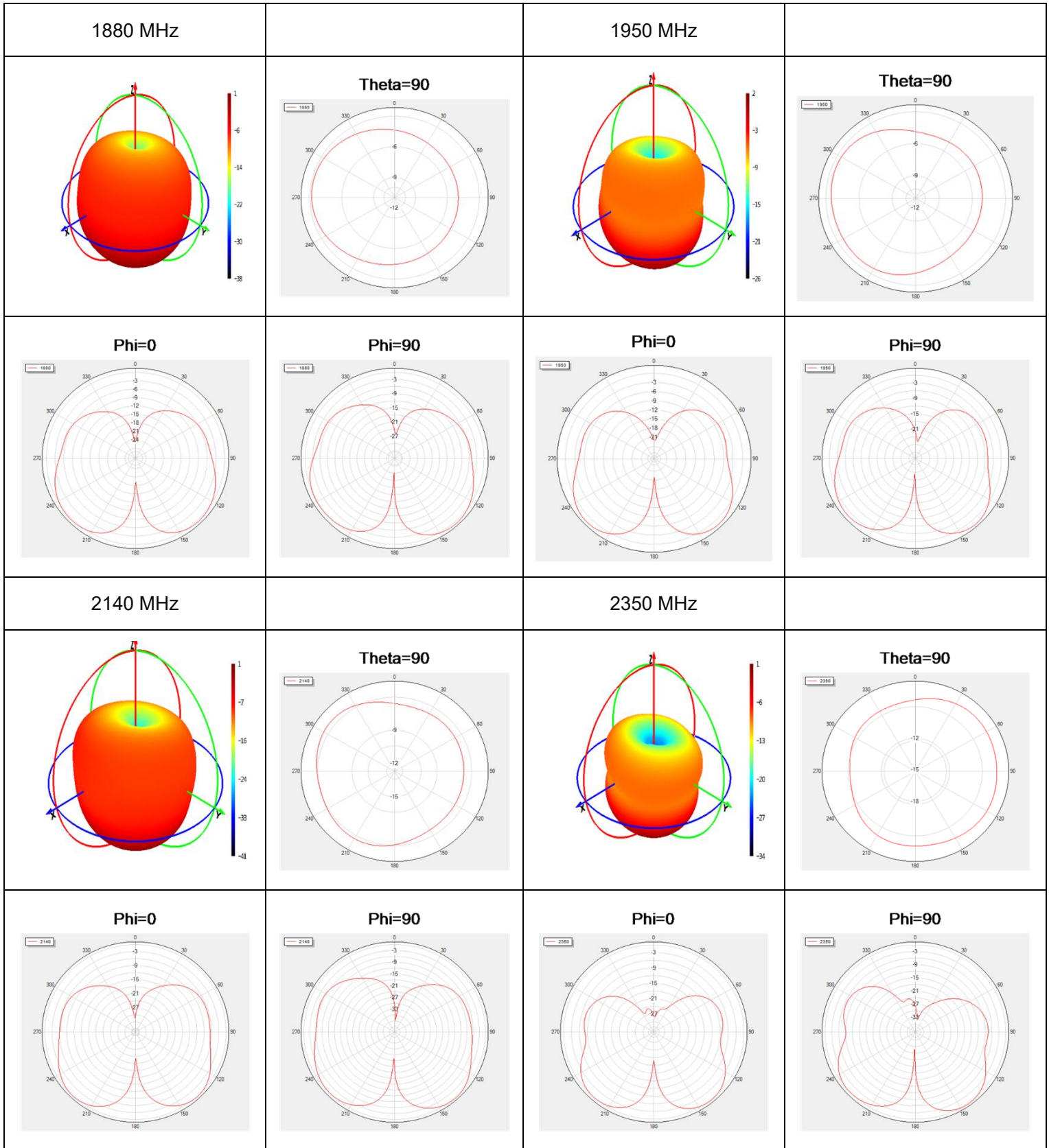


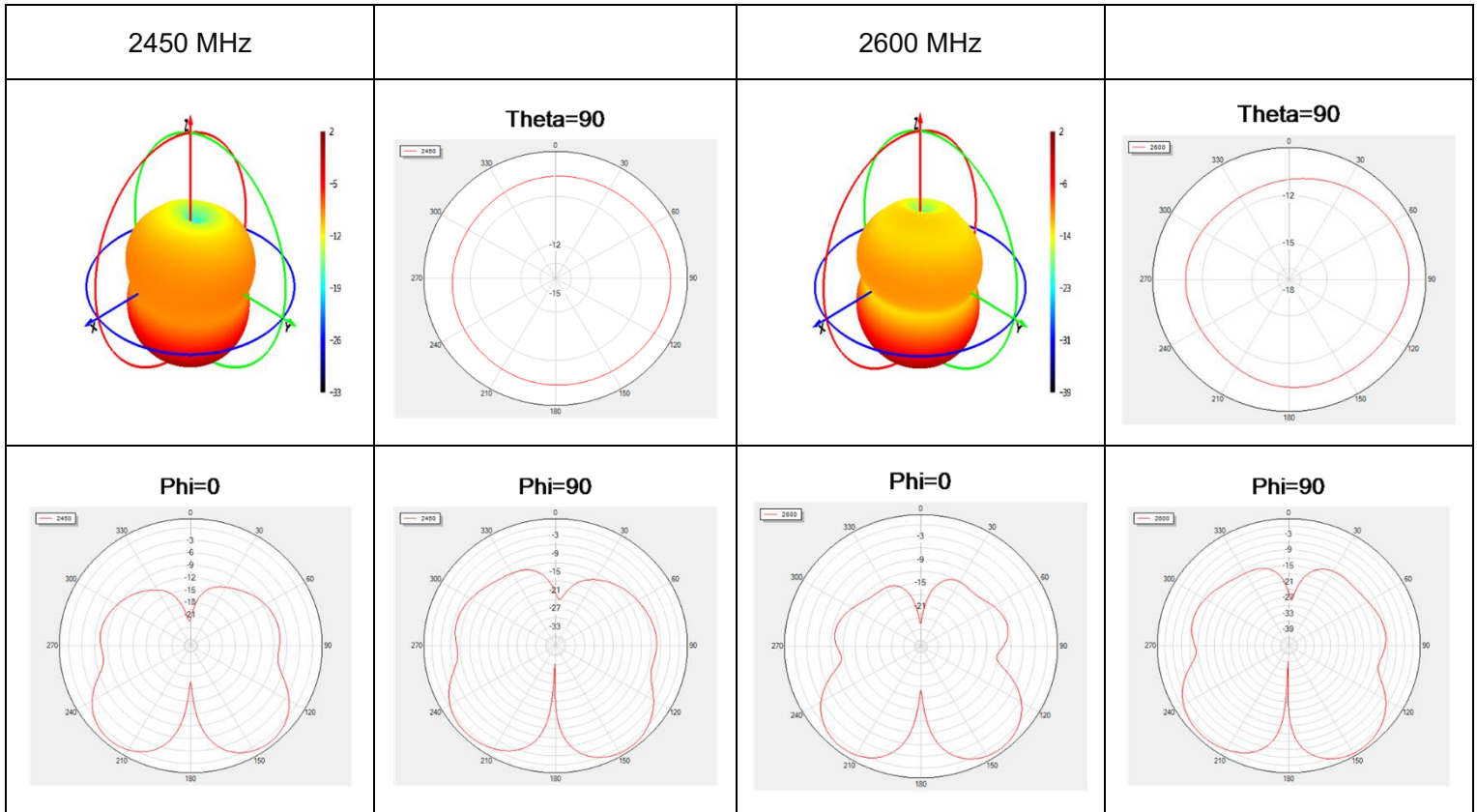
3.2.4.2. Test Condition: Free Space

- Test Chamber: GL-S-1






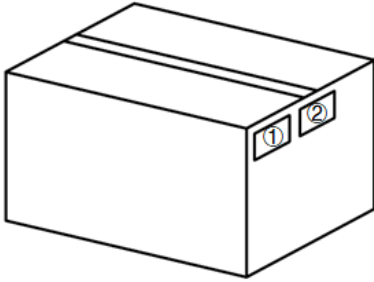
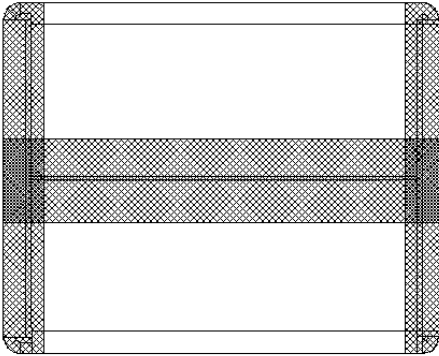






4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>10 pcs antenna products in a one-piece bag;</p>
2		<p>20 pcs antenna products in a PE bag; (20 pcs antennas per PE bag)</p>
3		<p>Put a bubble bag on top of product; (36 PE bags per carton box) (720 pcs antennas per carton box)</p> <p><u>Carton Size:</u> <u>L × W × H = 405 × 293 × 185 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 “I” 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>.

For technical support, or to report documentation errors, please visit:

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Or email us at: support@quectel.com.

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Revision History

Version	Date	Author	Note
-	2021-06-02	Kenny YIN/ Aria CHU	Creation of the document
1.0	2021-06-02	Kenny YIN/ Aria CHU	First official release
1.1	2021-07-25	Kenny YIN/ Aria CHU	<ol style="list-style-type: none"> Updated working temperature (Chapter 3). Added detailed passive electrical specifications (Chapter 3).
1.2	2021-11-27	Kenny YIN/ Aria CHU	Updated the product description (Chapter 1).
1.3	2022-10-17	Aria CHU	Deleted the IP rating.
2.0	2022-11-22	Mary LI	Updated the drawing (Chapter 5).
3.0	2023-05-04	Black LI/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.

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