Antenna Datasheet

Product OC: Y0YWT00A0AA
Version: 1.0
Date: 2023-07-21
Status: Released

Product Name: 4G FPC Antenna
Key Features:
Frequency Band: 700–960 MHz, 1710–2690 MHz
Dimensions: 37.50 × 17.11 × 8.0 mm
Efficiency: Up to 68.42% (RF1/3/4 0Ω)
RoHS Compliant

Overview

This Quectel embedded 4G FPC antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal antenna for a smooth and stable connection with high-efficiency data transmission even under the influence of the device's internal structure. Ground plane independent, it's designed to be mounted directly to the underside of either a plastic or non-metallic enclosure. Ease of integration with a cable and connector which can be customized to meet your product design and RF module.

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1 Specification

Test Condition: Assembled in test device

1.1. Electrical

Electrical	
Frequency Range	700–960 MHz, 1710–2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical - Detail

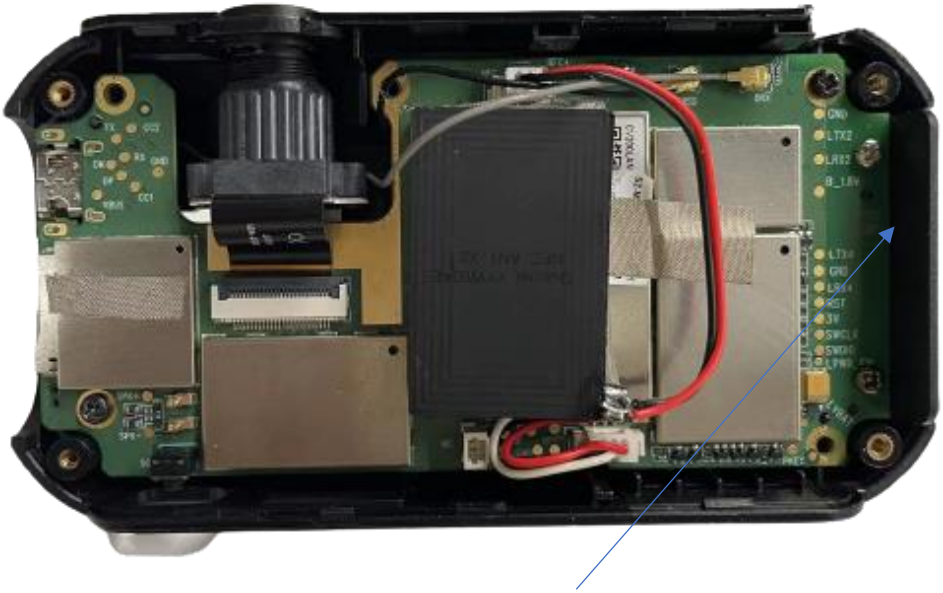
SPEC \ Band	Band	B71	B12 /B13 /B28	B5 /B8 /B26	B1 /B2 /B3	B40	WIFI 2G	B38 /B41
	Freq. (MHz)	**600–700**	**700–810**	**820–960**	**1700 – 2200**	**2300 – 2400**	**2400 – 2500**	**2500 – 2690**
Max VSWR	**RF1/3/4 0Ω**	-	5.3	5.3	2.0	3.2	3.0	3.0
	RF2 1.5nH	-	3.8	4.9	2.4	3.0	2.8	3.5
Max Return Loss (dB)	**RF1/3/4 0Ω**	-	-3.3	-3.3	-9.5	-5.5	-5.9	-6.1
	RF2 1.5nH	-	-4.7	-3.6	-7.7	-6.1	-6.6	-5.1
AVG Eff. (%)	**RF1/3/4 0Ω**	-	41.3	36.3	61.1	43.7	31.7	29.1
	RF2 1.5nH	-	31.1	33.8	63.3	39.9	31.4	28.4
AVG Gain (dB)	**RF1/3/4 0Ω**	-	-4.1	-4.6	-2.1	-3.6	-5.1	-5.5
	RF2 1.5nH	-	-5.1	-4.9	-2.0	-4.0	-5.1	-5.5
Max Peak Gain (dBi)	**RF1/3/4 0Ω**	-	0.7	-0.3	2.1	0.1	-0.2	1.0
	RF2 1.5nH	-	-0.9	0.5	2.0	-0.7	-0.7	-0.1

VSWR	**RF1/3/4 0Ω**	≤ 5.3
	RF2 1.5nH	≤ 4.9
Return Loss	**RF1/3/4 0Ω**	≤ -3.3 dB
	RF2 1.5nH	≤ -3.6 dB
Peak Gain	**RF1/3/4 0Ω**	≤ 2.1 dBi
	RF2 1.5nH	≤ 2.0 dBi

1.2. Mechanical, Environmental & Storage

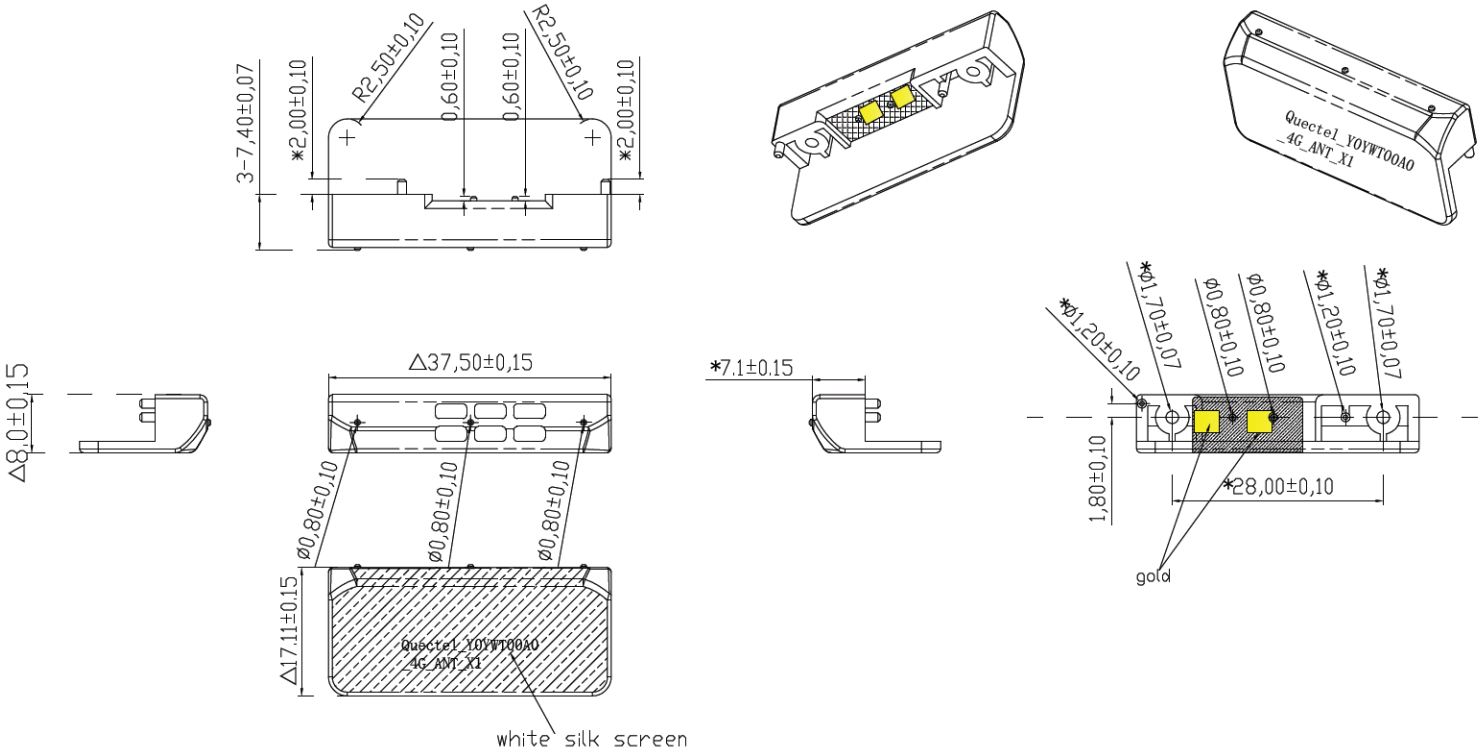
Mechanical	
Antenna Dimensions	37.50 × 17.11 × 8.0 mm
Material & Color	FPC & PC & Black
Weight	Typ. 2.57 g
Mounting Type	Adhesive
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

1.3. Antenna Assembly



Antenna installation

2 Drawing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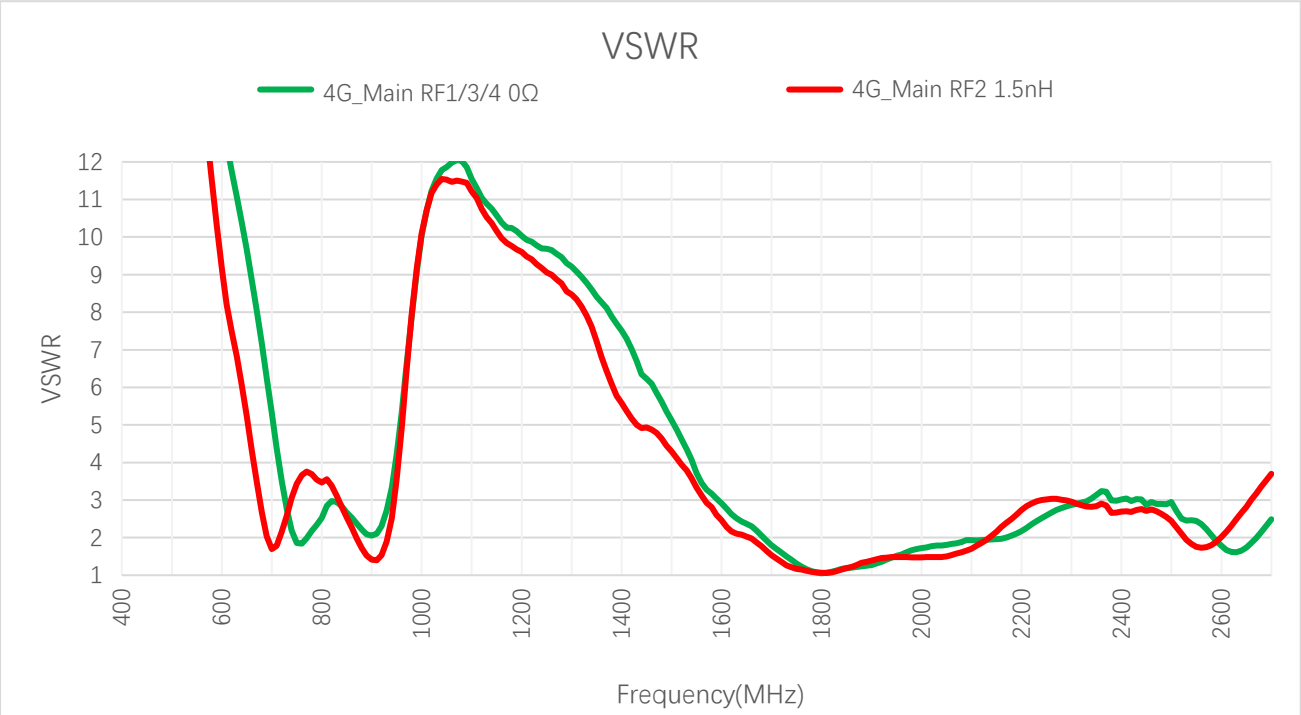
0,60±0,10
R2,50±0,10
3-7,40±0,07
*2,00±0,10
*2,00±0,10
Quectel_Y0YWT00A0
_4G_ANT_X1
*Ø1,70±0,07
Ø0,80±0,10
Ø0,80±0,10
*Ø1,20±0,10
*Ø1,20±0,10
*Ø1,70±0,07
Δ8,0±0,15
Δ37,50±0,15
*7.1±0.15
Ø0,80±0,10
Ø0,80±0,10
Ø0,80±0,10
Δ17.11±0.15
1,80±0,10
*28,00±0,10
gold
Quectel_Y0YWT00A0
_4G_ANT_X1
white silk screen

3 Detailed Performance

3.1. S-Parameter Test

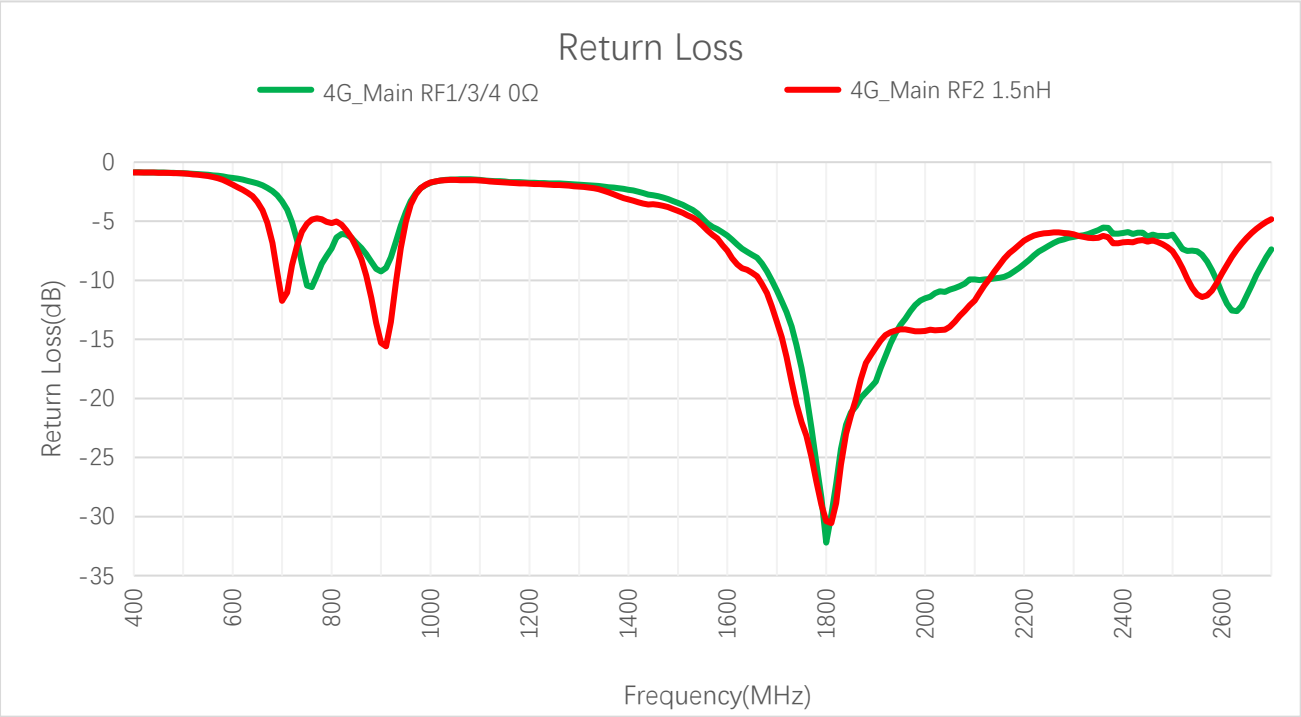
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
RF1/3/4 0Ω	-	-	4.4	2.9	2.1	5.3	-	1.7	1.4	1.2
RF2 1.5nH	-	-	1.8	3.1	1.4	4.9	-	1.4	1.2	1.3
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
RF1/3/4 0Ω	1.5	2.0	3.1	2.9	1.8	2.3	-	-	-	-
RF2 1.5nH	1.5	2.0	2.8	2.7	2.0	3.5	-	-	-	-

3.1.2. Return Loss



Return Loss (dB)

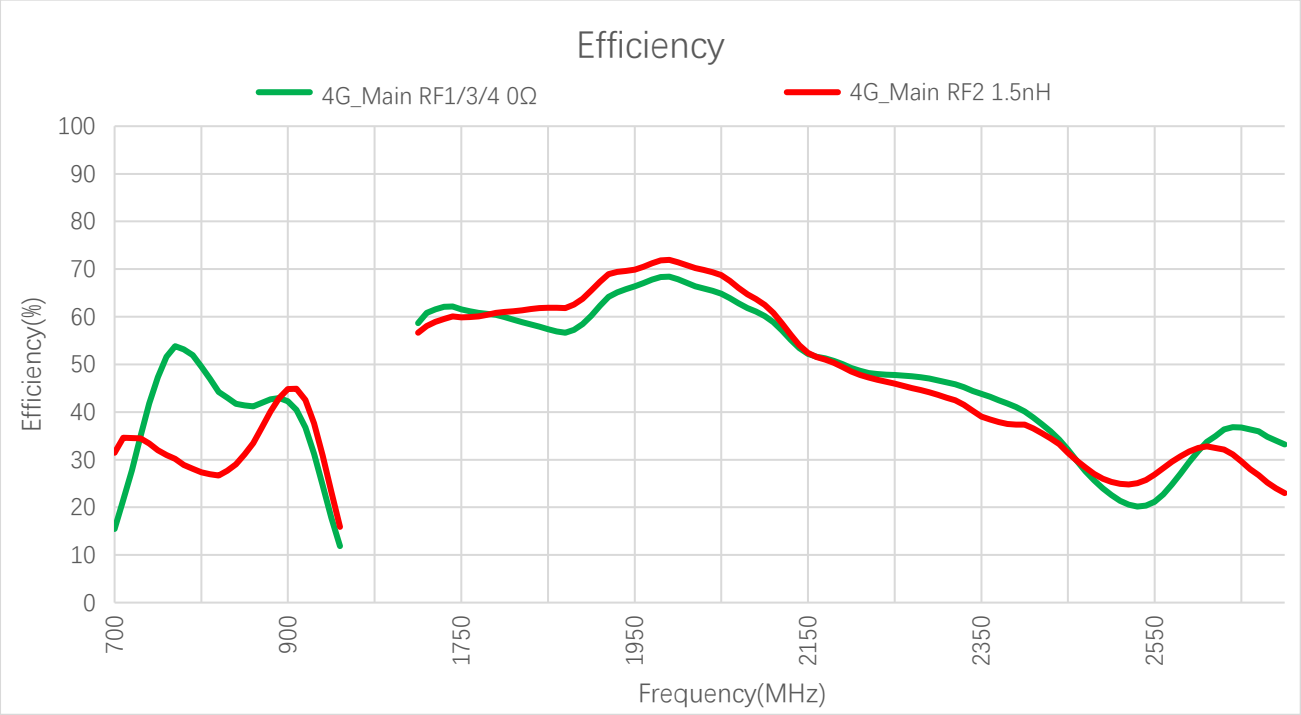
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
RF1/3/4 0Ω	-	-	-4.0	-6.1	-9.3	-3.3	-	-11.8	-15.5	-19.5
RF2 1.5nH	-	-	-11.0	-5.8	-15.3	-3.6	-	-14.8	-20.5	-17.0
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
RF1/3/4 0Ω	-13.8	-9.8	-5.7	-6.3	-11.1	-8.0	-	-	-	-
RF2 1.5nH	-14.2	-9.3	-6.4	-6.7	-9.4	-5.1	-	-	-	-

3.2. OTA Test Data

Band		Channel	TRP (dBm)	Channel	TIS (dBm)
LTE	B2 (10M)	18650	20.86	650	-97.82
		18900	20.49	900	-97.43
		19150	20.63	1150	-96.96
	B4 (10M)	20000	21.17	2000	-95.22
		20175	20.73	2175	-96.07
		20350	21.36	2350	-96.51
	B5 (10M)	20450	20.46	2450	-95.17
		20525	20.23	2525	-94.8
		20600	20.25	2600	-94.59
	B12 (5M)	23035	18.65	5035	-96.66
		23095	19.79	5095	-97.14
		23155	19.87	5155	-97.17
	B13 (10M)	-	-	-	-
		23230	20.78	5230	-94.42
		-	-	-	-
	B14 (10M)	-	-	-	-
		23330	21.71	5330	-95.14
		-	-	-	-
	B17 (10M)	23780	19.08	5780	-94.7
		23790	19.51	5790	-94.84
		23800	19.34	5800	-95.04
	B25 (5M)	26065	20.64	8065	-99.22
		26365	20.57	8365	-99.4
		26665	20.79	8665	-98.49
	B26 (5M)	26715	20.44	8715	-97.72
		26865	20.53	8865	-96.77
		27015	20.67	9015	-96.37
	B66 (10M)	131997	21.09	66461	-95.92
		132322	21.71	66786	-96.19
		132647	21.67	67111	-96.12

3.3. Radiation Performance Test

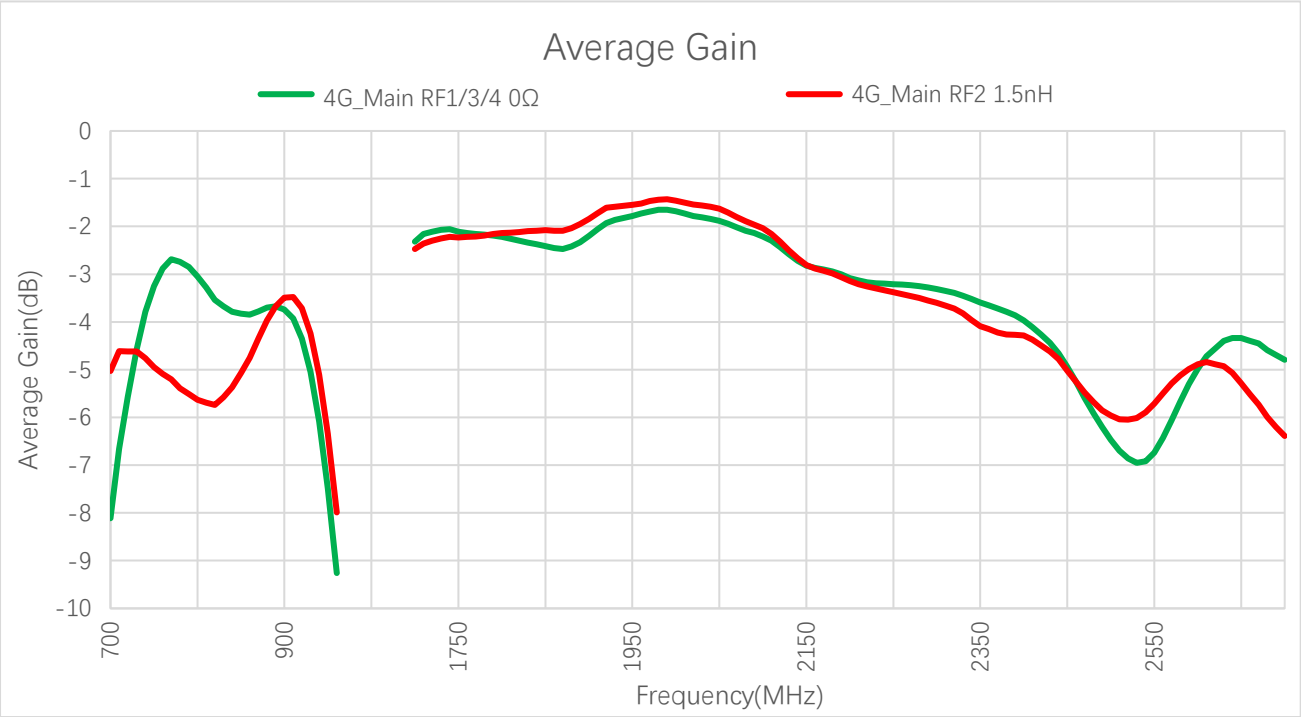
3.3.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
RF1/3/4 0Ω	-	-	21.6	43.0	42.3	11.9	-	60.8	62.2	57.2
RF2 1.5nH	-	-	34.6	27.7	44.8	15.9	-	58.1	60.1	62.5
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
RF1/3/4 0Ω	66.4	53.4	43.8	32.1	31.8	34.0	-	-	-	-
RF2 1.5nH	69.9	54.0	39.0	31.5	32.5	24.0	-	-	-	-

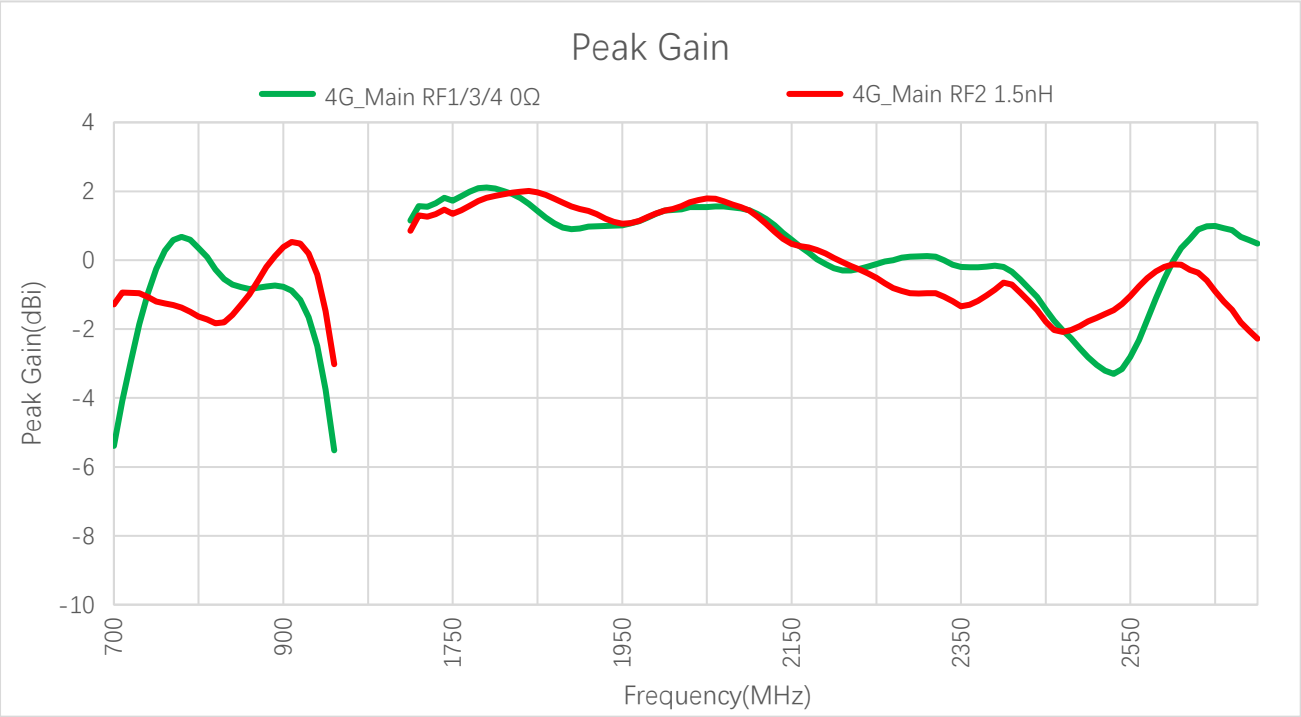
3.3.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
RF1/3/4 0Ω	-	-	-6.7	-3.7	-3.7	-9.3	-	-2.2	-2.1	-2.4
RF2 1.5nH	-	-	-4.6	-5.6	-3.5	-8.0	-	-2.4	-2.2	-2.0
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
RF1/3/4 0Ω	-1.8	-2.7	-3.6	-4.9	-5.0	-4.7	-	-	-	-
RF2 1.5nH	-1.6	-2.7	-4.1	-5.0	-4.9	-6.2	-	-	-	-

3.3.3. Peak Gain

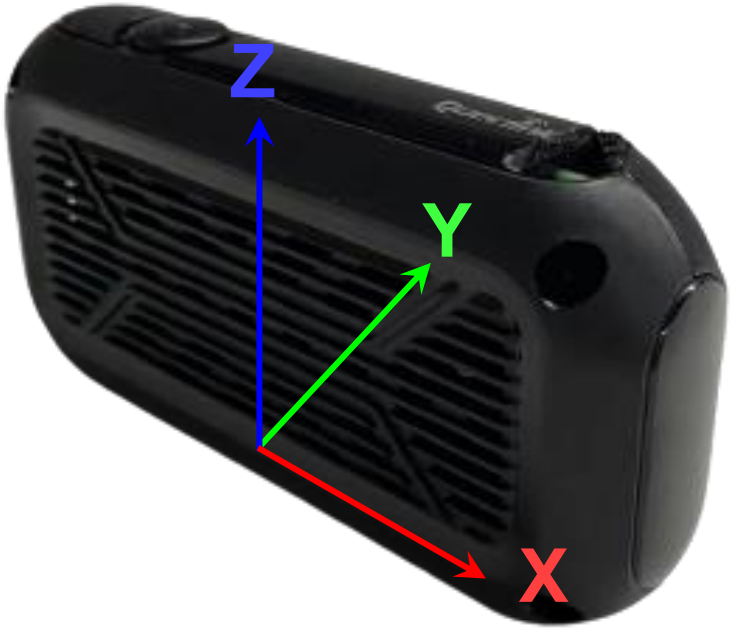


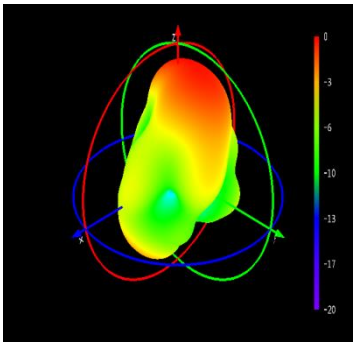
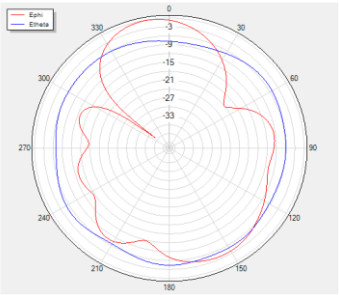
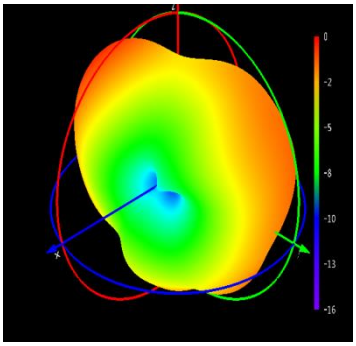
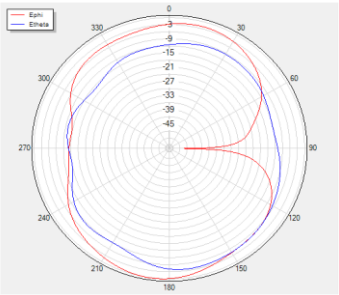
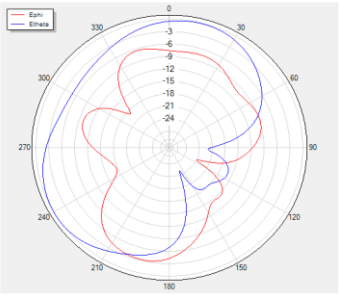
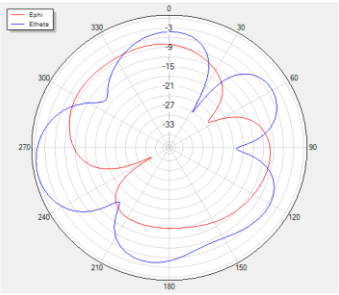
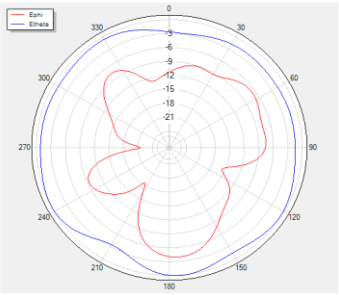
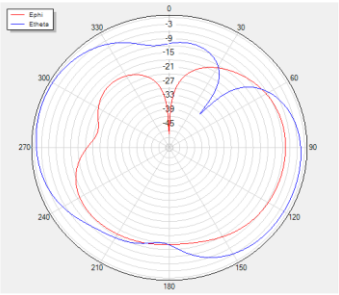
Peak Gain (dBi)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
RF1/3/4 0Ω	-	-	-4.1	-0.6	-0.8	-5.5	-	1.6	1.8	1.0
RF2 1.5nH	-	-	-0.9	-1.8	0.4	-3.0	-	1.3	1.5	1.7
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
RF1/3/4 0Ω	1.0	0.8	-0.2	-1.4	0.0	0.6	-	-	-	-
RF2 1.5nH	1.1	0.6	-1.3	-1.8	-0.1	-2.1	-	-	-	-

3.3.4. 3D & 2D Radiation Pattern

- Test Condition: Assembled in test device
- Test Chamber: SZ-S-1



710 MHz		830 MHz	
	Phi=0 freq=710MHz 		Phi=0 freq=830MHz 
Phi=90 freq=710MHz 	Theta=90 freq=710MHz 	Phi=90 freq=830MHz 	Theta=90 freq=830MHz 
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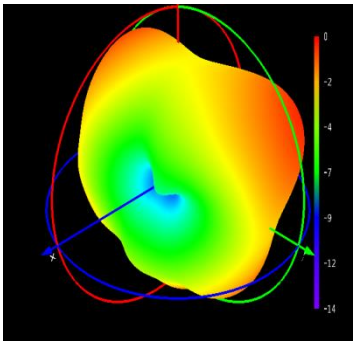
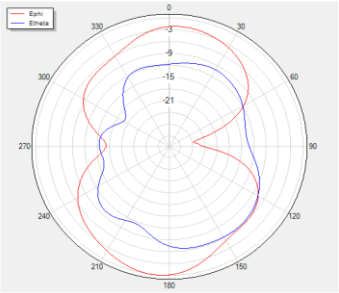
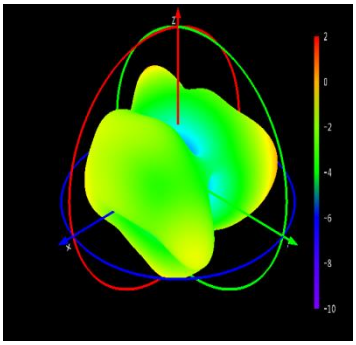
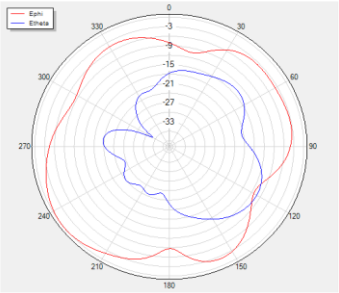
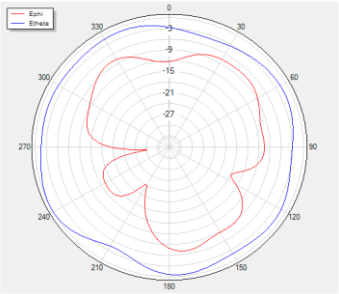
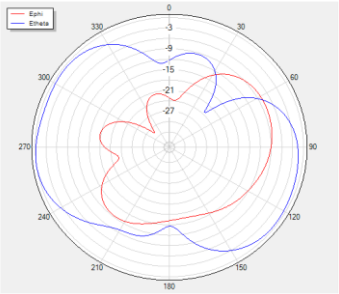
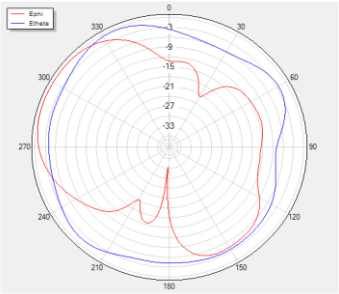
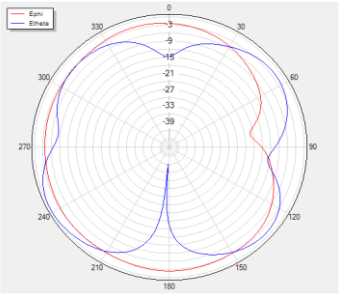
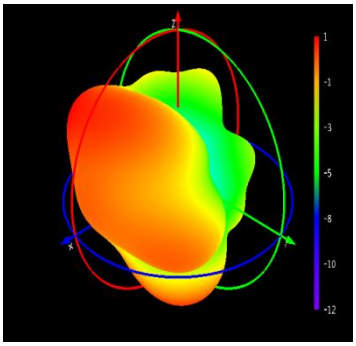
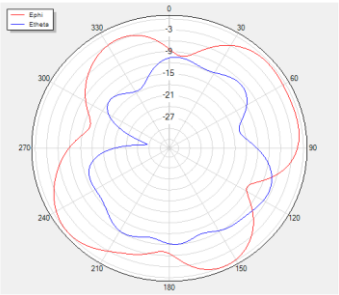
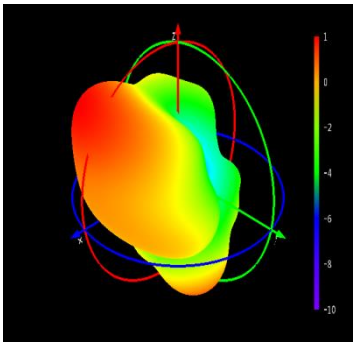
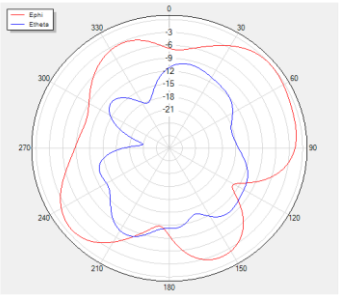
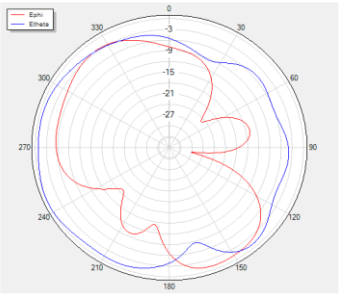
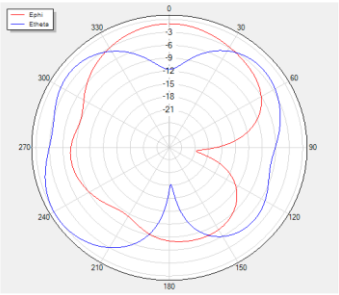
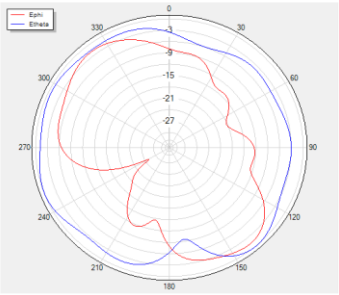
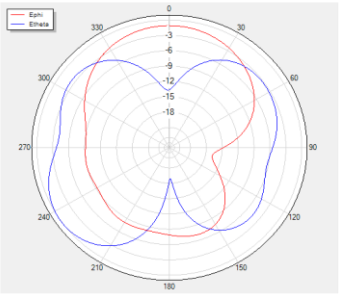
	Phi=0 freq=900MHz 		Phi=0 freq=1740MHz 
Phi=90 freq=900MHz 	Theta=90 freq=900MHz 	Phi=90 freq=1740MHz 	Theta=90 freq=1740MHz 

1880 MHz		1950 MHz	
	Phi=0 freq=1880MHz 		Phi=0 freq=1950MHz 
Phi=90 freq=1880MHz 	Theta=90 freq=1880MHz 	Phi=90 freq=1950MHz 	Theta=90 freq=1950MHz 
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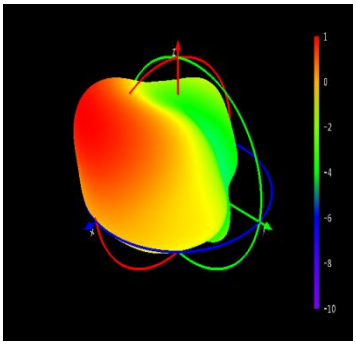
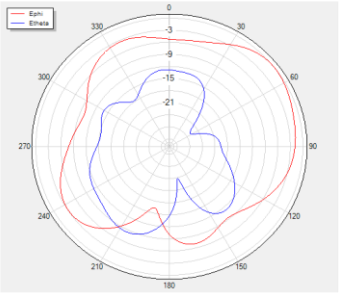
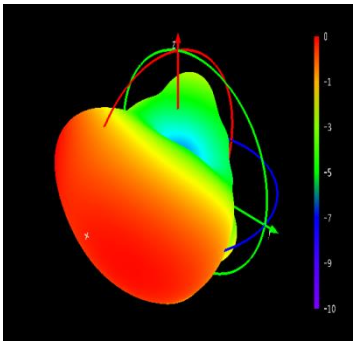
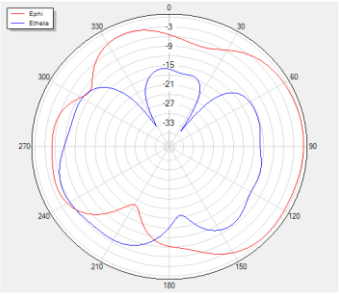
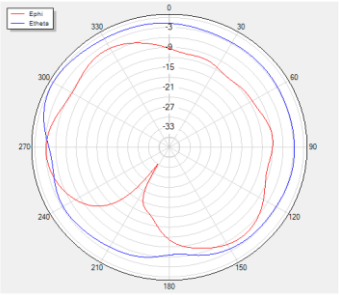
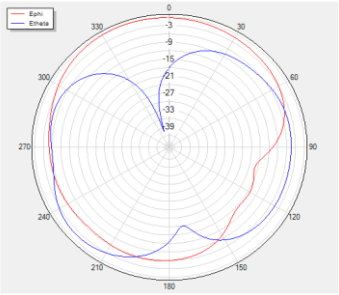
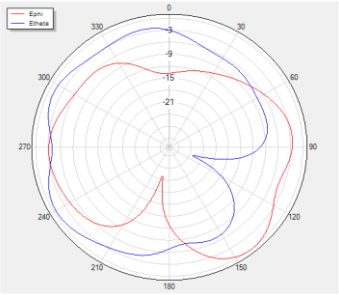
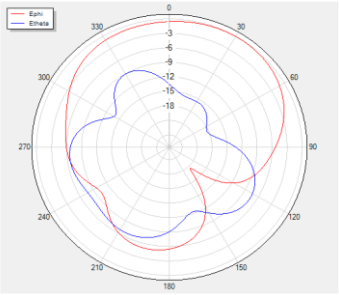
	Phi=0 freq=2140MHz 		Phi=0 freq=2350MHz 
Phi=90 freq=2140MHz 	Theta=90 freq=2140MHz 	Phi=90 freq=2350MHz 	Theta=90 freq=2350MHz 

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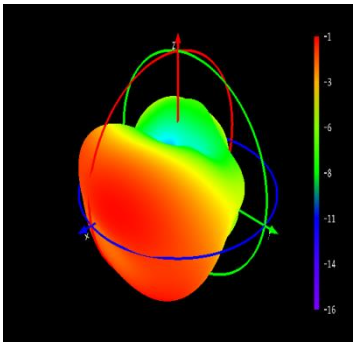
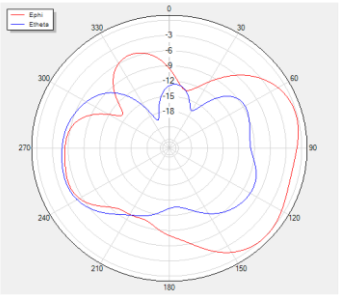
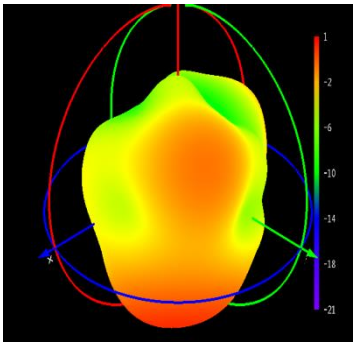
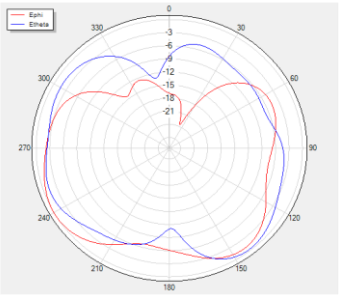
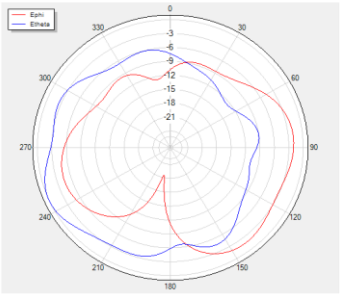
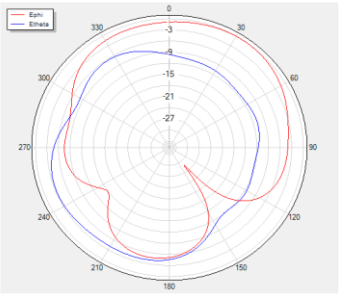
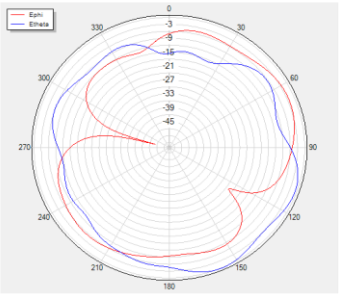
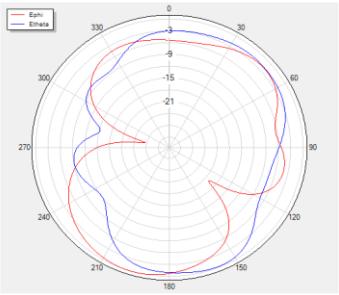
	Phi=0 freq=2450MHz 		Phi=0 freq=2600MHz 
Phi=90 freq=2450MHz 	Theta=90 freq=2450MHz 	Phi=90 freq=2600MHz 	Theta=90 freq=2600MHz 

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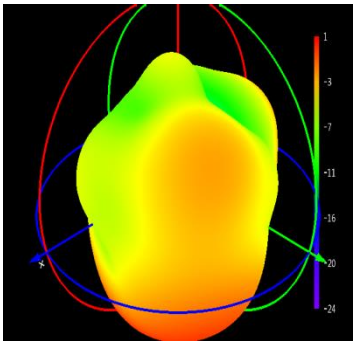
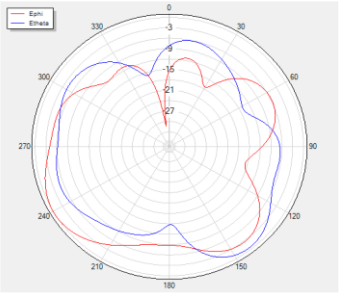
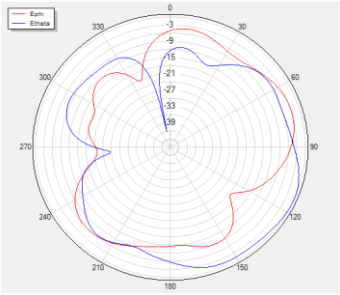
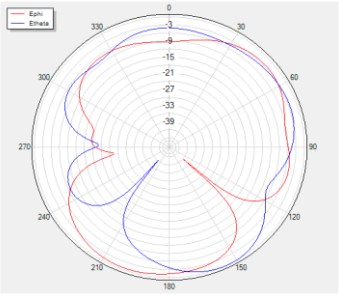
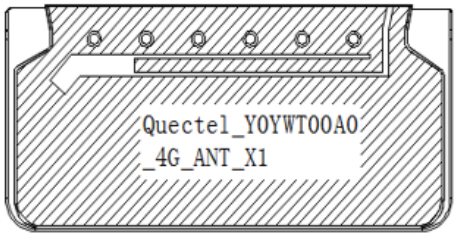
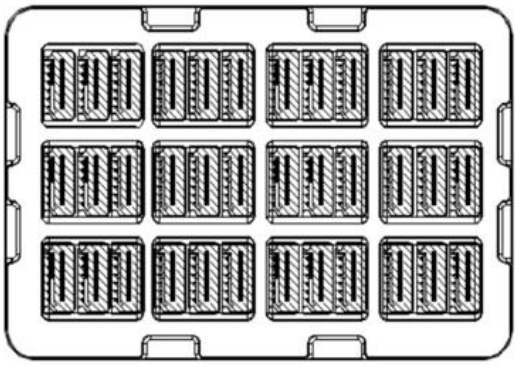
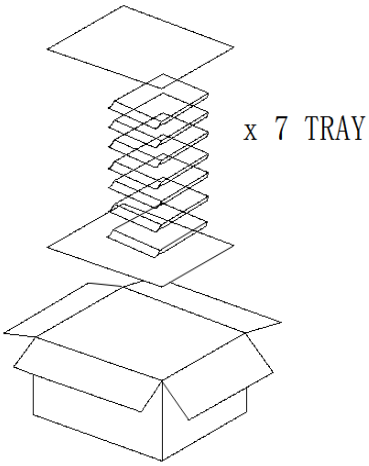
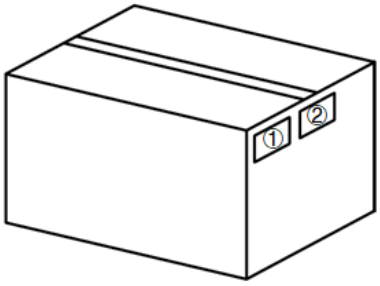
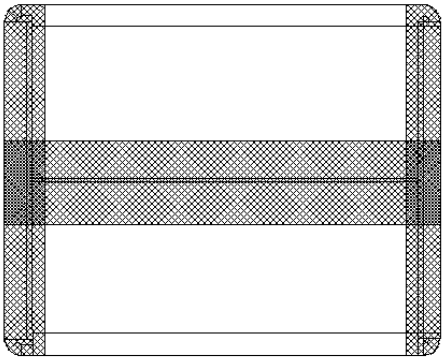
	Phi=0 freq=2690MHz 
Phi=90 freq=2690MHz 	Theta=90 freq=2690MHz 

4 Packaging

Step	Packaging picture / 2D picture	Description
1		product drawing
2		Put the product into the tray 144 pcs / tray
3		Stacking 7 layers of suction cups (1008 pcs antennas / Per Carton Box) Estimated quantity Carton Box Size: L × W × H = 280 × 190 × 160 mm

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** “工” type sealing cartons
6	Initial packaging plan, the final packaging method is subject to the physical supply	

Contact US

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Revision History

Version	Date	Author	Note
-	2023-04-03	Jialin Chen/ Shea Li/ David Liu/ Bunny Zhang	Creation of the document
1.0	2023-07-21	Jialin Chen/ Shea Li/ David Liu/ Bunny Zhang	First official release

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