ANT Datasheet

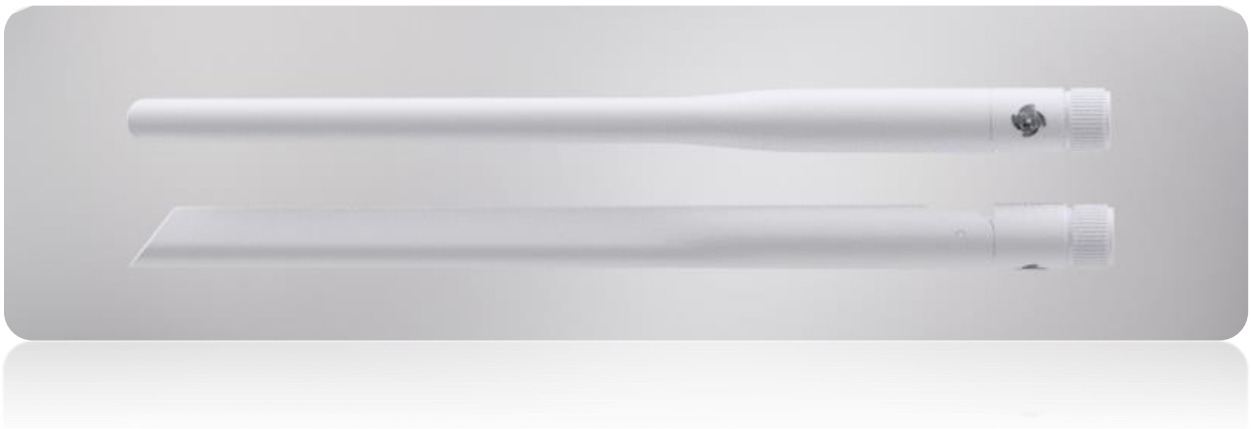
Shenzhen RAKwireless Technology Co.,Ltd.

Room 506, Building B, New Compark, Pingshan First Road,

Taoyuan Street, Nanshan District, Shenzhen, Guangdong, P.R. China

Features

- Frequency Range: 902~928MHz
- Quite good VSWR
- Max Gain: 2.3dBi
- High efficiency
- Vertically polari



Specifications

Model		KRAKBJ2701C01A
Electrical Specifications	Frequency Range	902MHz~928MHz
	Peak Gain	2.3 dBi
	VSWR	≤ 1.5
	Efficiency	>80%
	Feed Impedance	50 Ohms
	Polarization	Vertical

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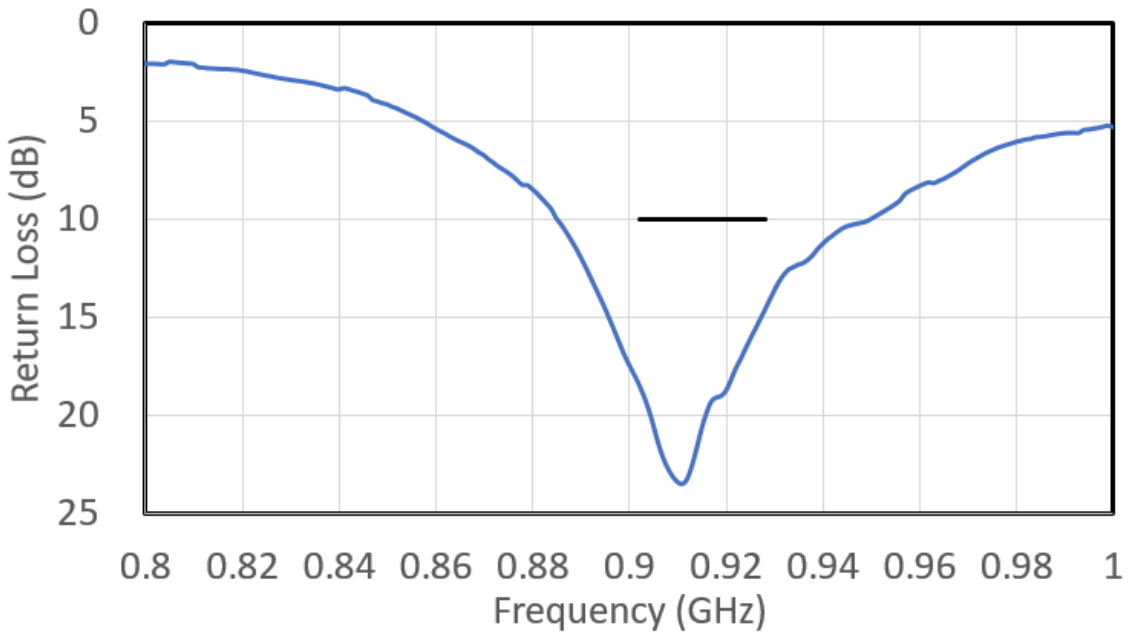
Mechanical Specifications	**Cover material(color)**	Plastic(White)
	Interface	RPSMA
	Dimensions (mm)	Φ13.0mm x 198.0mm
	Operation Temp (°C)	-30°C ~ +75°C
	Humidity range	5%~95%

S11&VSWR

Frequency(MHz)	S11	VSWR
902MHz	-18.3	1.28
928MHz	-14.6	1.46



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Peak Gain & Efficiency

Frequency(MHz)	Peak Gain (dBi)	Efficiency (%)
902	2.3	82.6
904	2.2	82.3
906	2.2	82.7
908	2.3	84.0
910	2.3	85.0
912	2.3	85.7
914	2.3	86.0
916	2.2	86.1
918	2.2	85.9
920	2.2	86.0
922	2.2	86.4
924	1.9	85.9
926	1.9	85.1
928	2.1	85.5
Average	-	84.9

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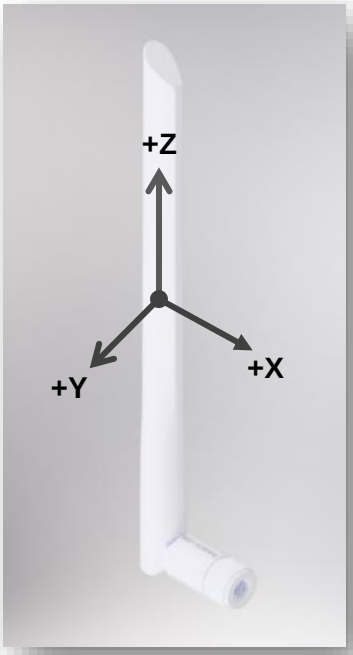
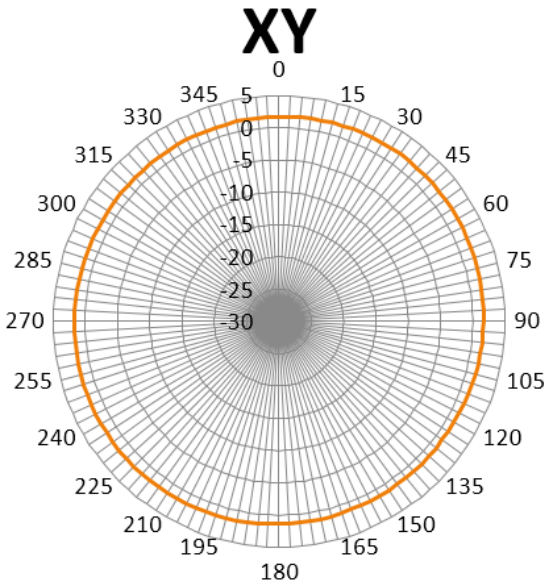
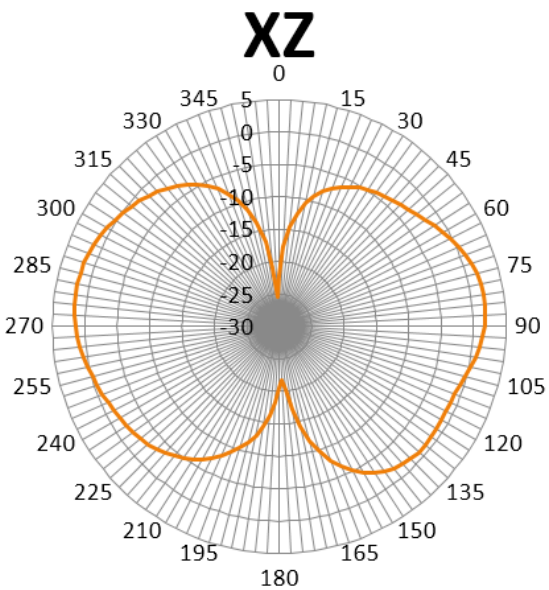
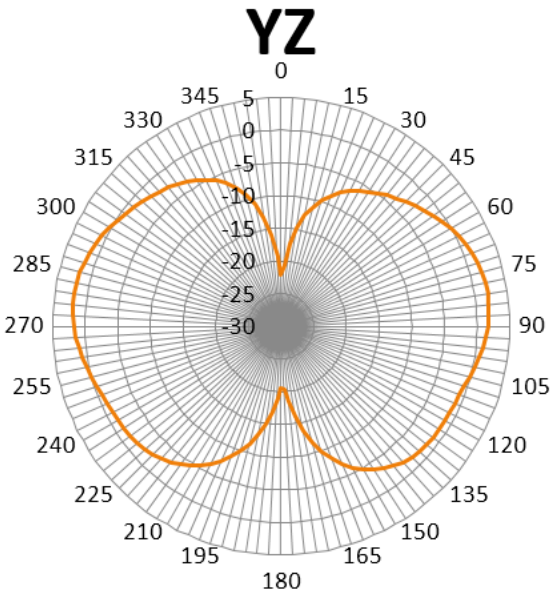
Radiation Patterns









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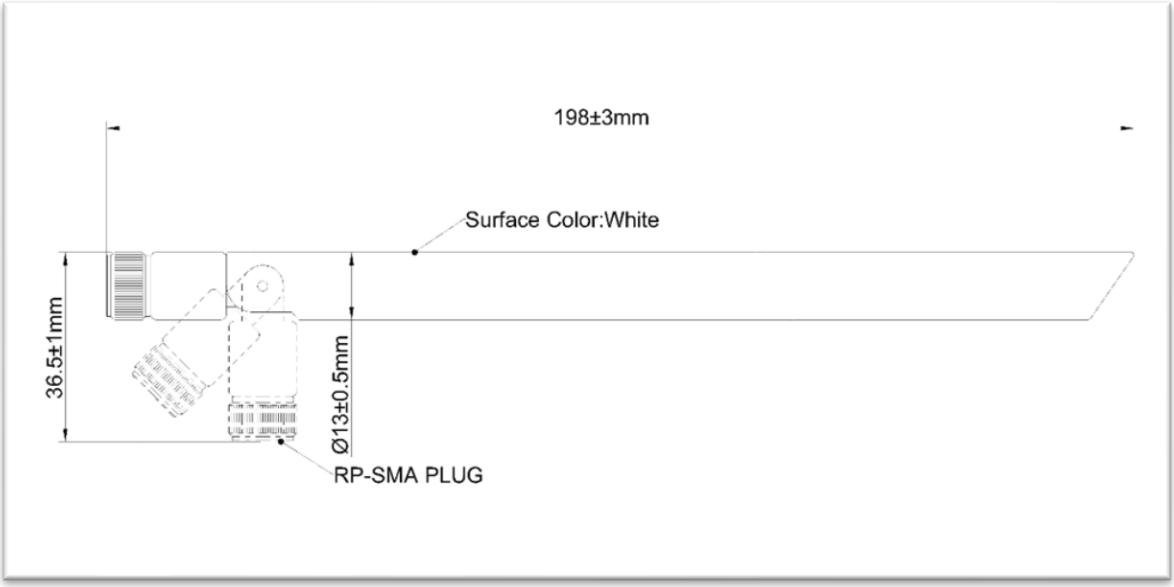
Mechanical Specifications



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上海增信电子有限公司
Signal Plus Technology Co., Ltd.

Antenna Test Report

0

Tel:021-54266190 Fax:021-54266191 Web:www.zxsignal.com

Revision History

Revision	Note	Date
V1	New Issue	2020.06.11

Data Preview

2.4G:

Freq.(MHz)	**2400**	**2450**	**2500**	2600	2700	2800
VSWR	4.05	3.67	3.00	2.04	1.41	1.05
Gain(dBi)	0.78	1.57	1.75	2.15	2.23	2.17
Eff.	43.6%	49.5%	58.7%	73.5%	77.9%	78.1%

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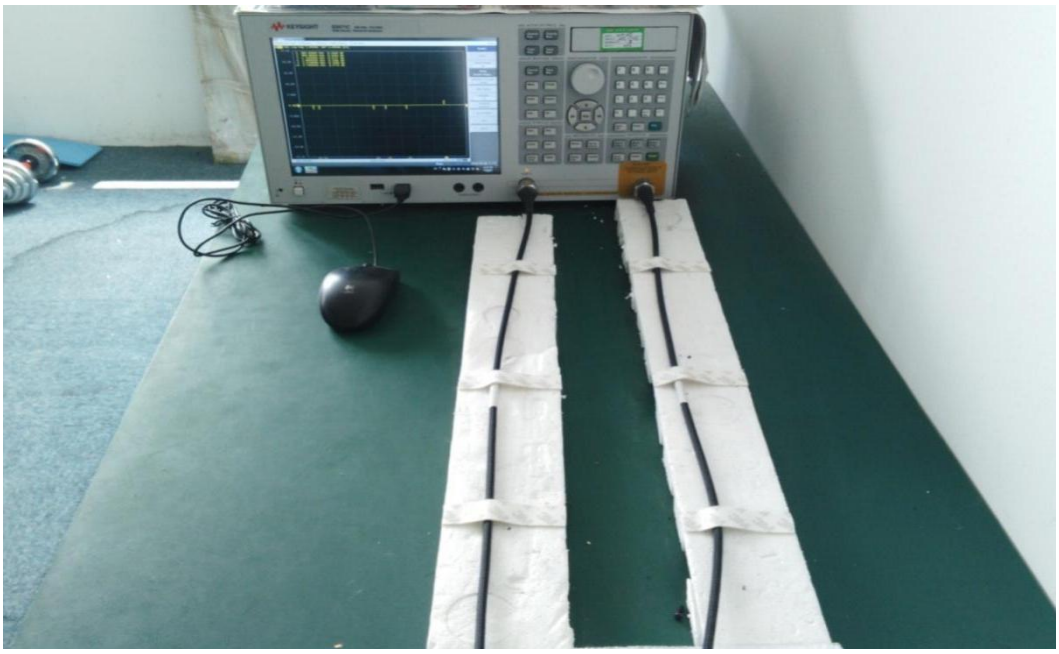
1. RF Fixture Experiment

1.1 Test Setup

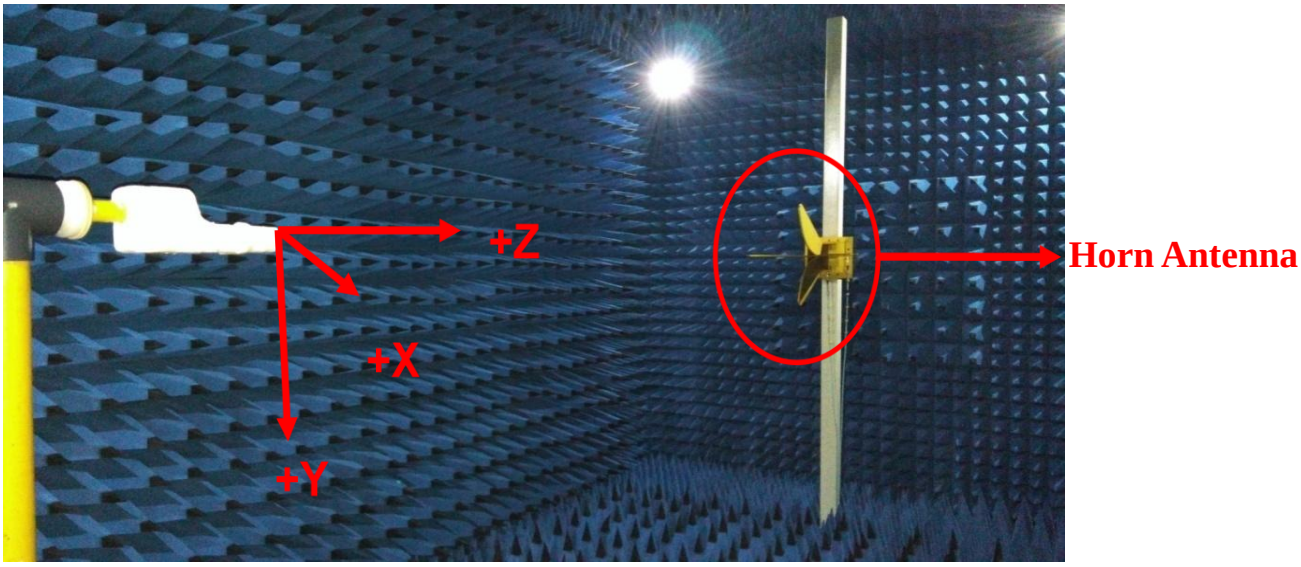
1.1.1 VNA Test Setup

VSWR and Return Loss measurements (S11) were performed using an KeySight E5071C Network Analyzer. The isolation between antennas is also tested. The testing wasperformed with apparatus in free space.

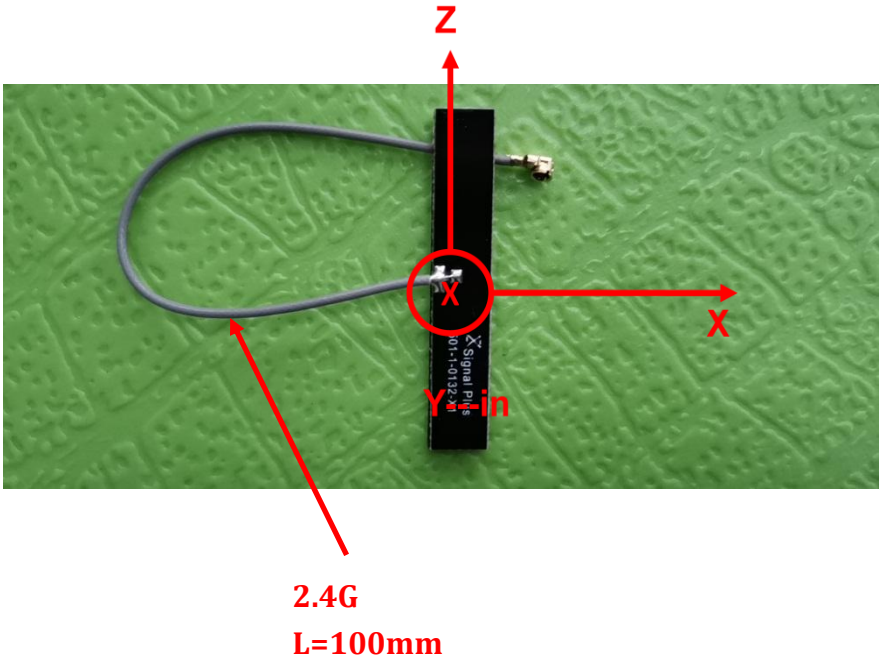


1.1.2 Anechoic Chamber Test Setup

The gain of the antenna was measured in the anechoic chamber. The chamber provides less than –30 dB reflectivity from 400 MHz through 6 GHz. The chamber size is:7m*4m*3m.The measurement results are calibrated using a leaky wave horn standard. We can measure the antenna gain and efficiency accurately.



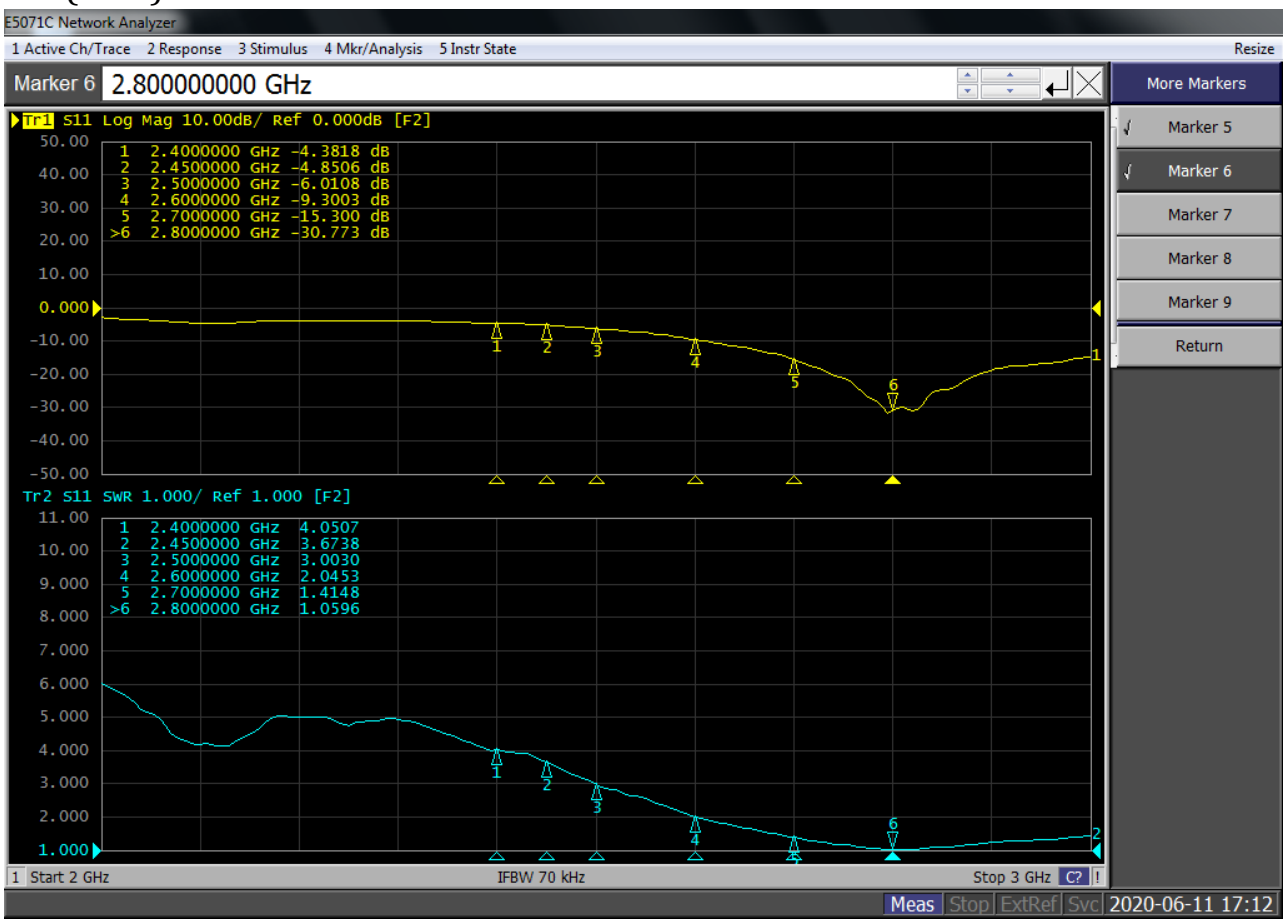
2.Antenna Solution



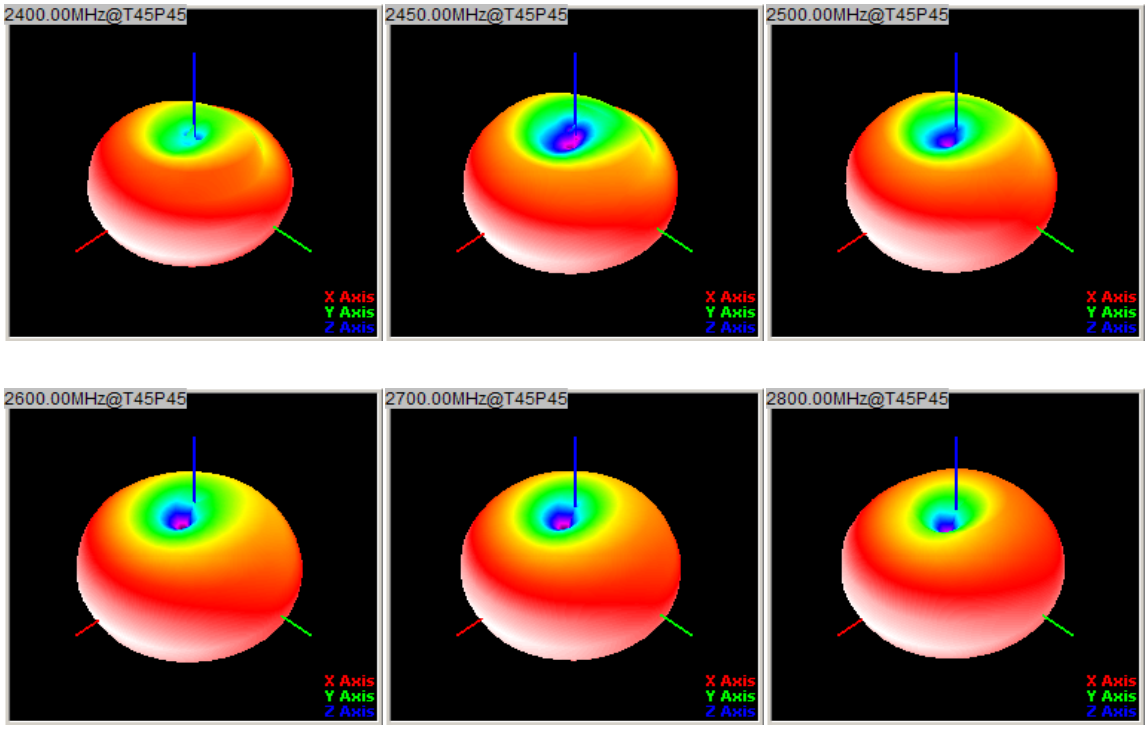
2.4G

L=100mm

S11(2.4G)

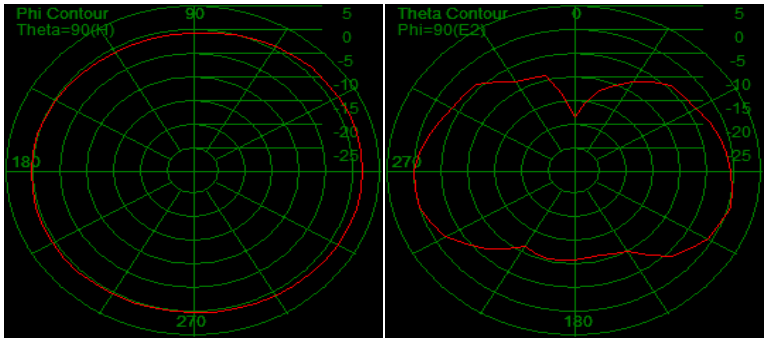


Radiation patterns:3D

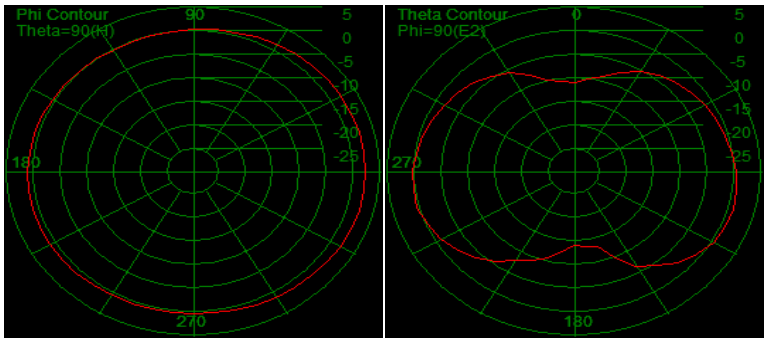


Radiation patterns:2D

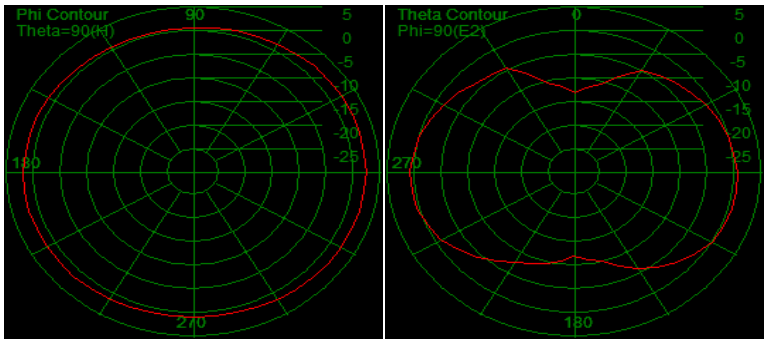
2450MHz



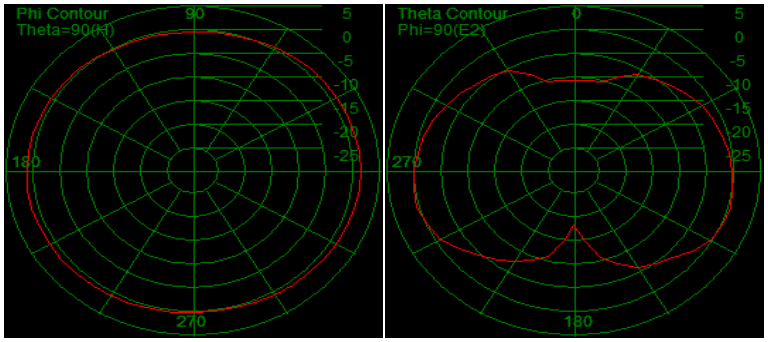
2600MHz



2700MHz



2800MHz



HL GLOBAL

PRELIMINARY ENGINEERING DATASHEET

PC85019LOC01RA-P3M48-LG54FC1

HL GLOBAL
850 NEW BURTON ROAD.
SUITE 201, DOVER, DE 19904
UNITED STATES OF AMERICA

INFORMATION: info@hlglobalcorp.com

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Datasheet Revision History

Revision	Date	Change Log
PC85019LOC01RA-P3M48-LG54FC1 / Rev.1	2th-Dec -2020	Preliminary Datasheet 1.0

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1. Antenna Product Description

PC85019LOC01RA-P3M48-LG54FC1 is an PCB antenna supporting 698-894MHZ,1710-2690MHZ bands for LTE;Off-board;Cable-fed;3M 9448(HK)0.15mm thick 3M adhesive tape;cable length 54mm; UFL connector.

2. Features Overview

PC85019LOC01RA-P3M48-LG54FC1 Embedded Antenna features

- Covering both 698-894MHZ and 1710-2690MHZ freq
- Superior performance
- Off-board, low profile design
- 2.9dBi@780MHz,3.5dBi@2300MHz
- Low Cost, High performance

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3. Product Photographs

Figure 1. Photo of HL Global antenna PC85019LOC01RA-P3M48-LG54FC1.

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4. Antenna Specification Summary

Wireless Standard	LTE
Frequency Range	698-894MHZ; 1710-2690MHZ
Peak Realized Gain(Max)	2.9dBi @780MHz ,3.5dBi @2300MHz
Realized Efficiency	39% @780MHz ,45% @2300MHz
Return Loss	<-6.4dB
Polarization	Linear Polarization
Axial Ratio	/
Radiation Pattern	Omni-directional
Feed Impedance	50Ω
Power Handling	30dBm
Antenna Structure	PCB antenna
Feeding Description	Cable Feeding
Connector	UFL
Antenna Dimensions	134.6*26.5*22.8 (mm)
Weight	7.1g
Temperature Range	Operating temperature: -40° C to +75° C (-40° F to +167° F) Storage temperature: -40° C to +85° C (-40° F to +185° F)

Table 1.PC85019LOC01RA-P3M48-LG54FC1 antenna specification summary.

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5. Principal Product Dimensions

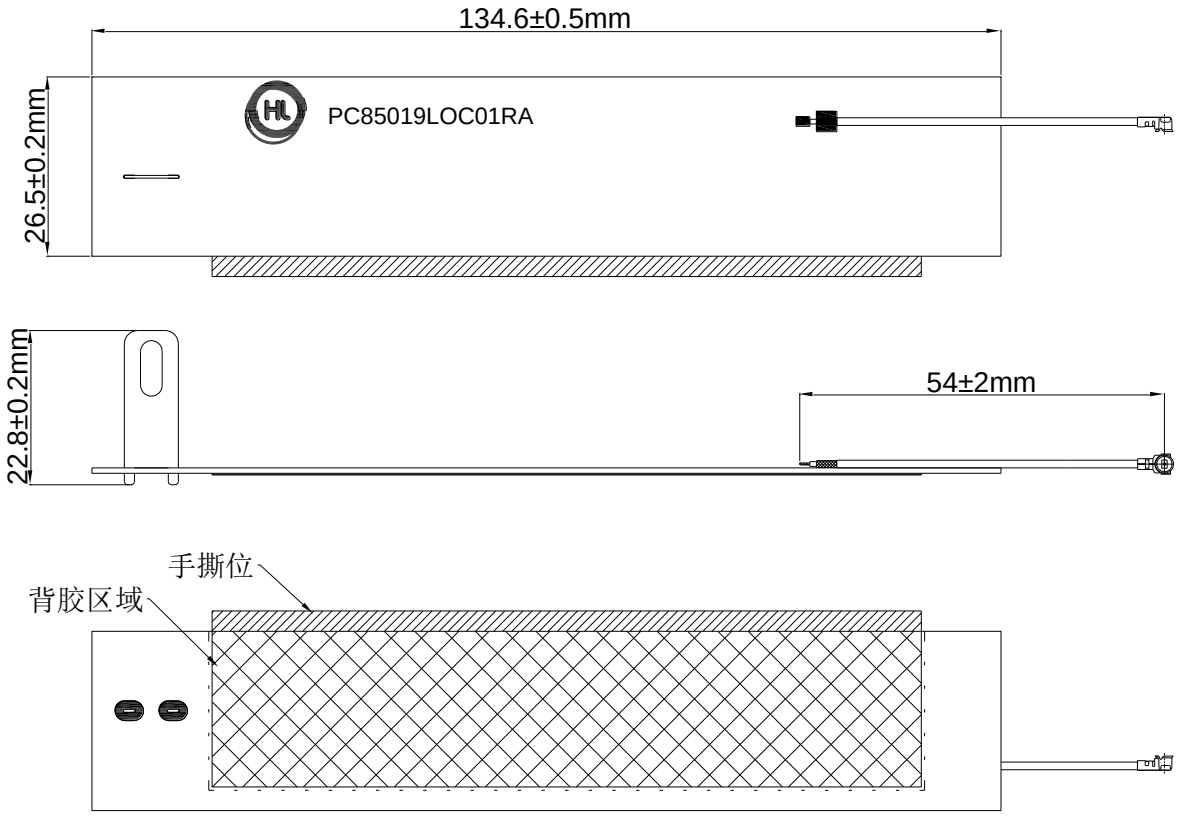

Figure 2. Basic dimensions and tolerances of PC85019LOC01RA-P3M48-LG54FC1 antenna.

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6. Return Loss

Return Loss (RL) was measured by using Keysight E5071C Vector Network Analyzer (VNA).

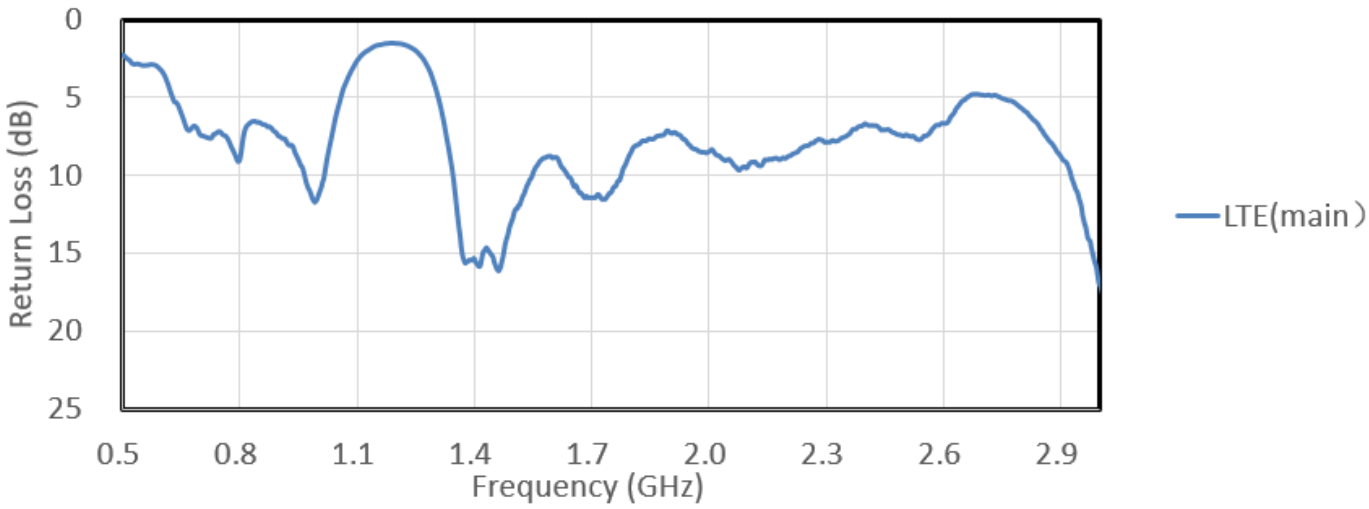

Figure 3. Measured Return Loss of PC85019LOC01RA-P3M48-LG54FC1.

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7. Radiation Pattern Characteristics

Radiation characteristics for PC85019LOC01RA-P3M48-LG54FC1 were measured in customer's housing by using Satimo SG24L anechoic chamber.

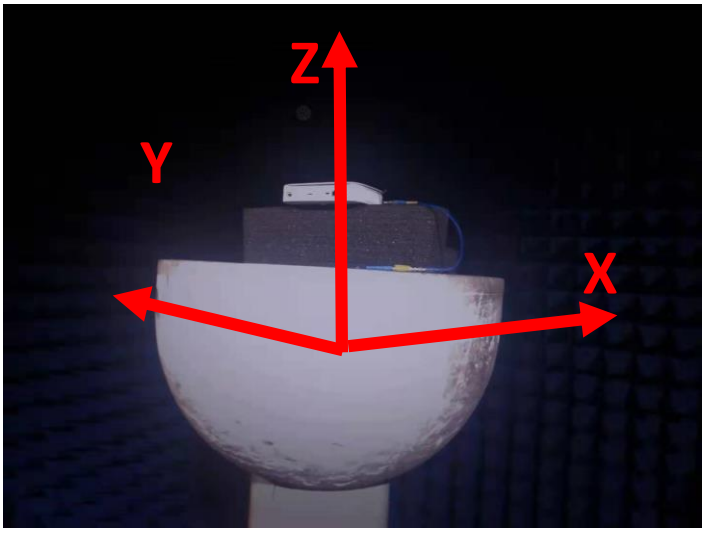

Figure 4.PC85019LOC01RA-P3M48-LG54FC1 integrated customer's housing for radiation pattern measurements. Coordinate system used for radiation pattern visualization.

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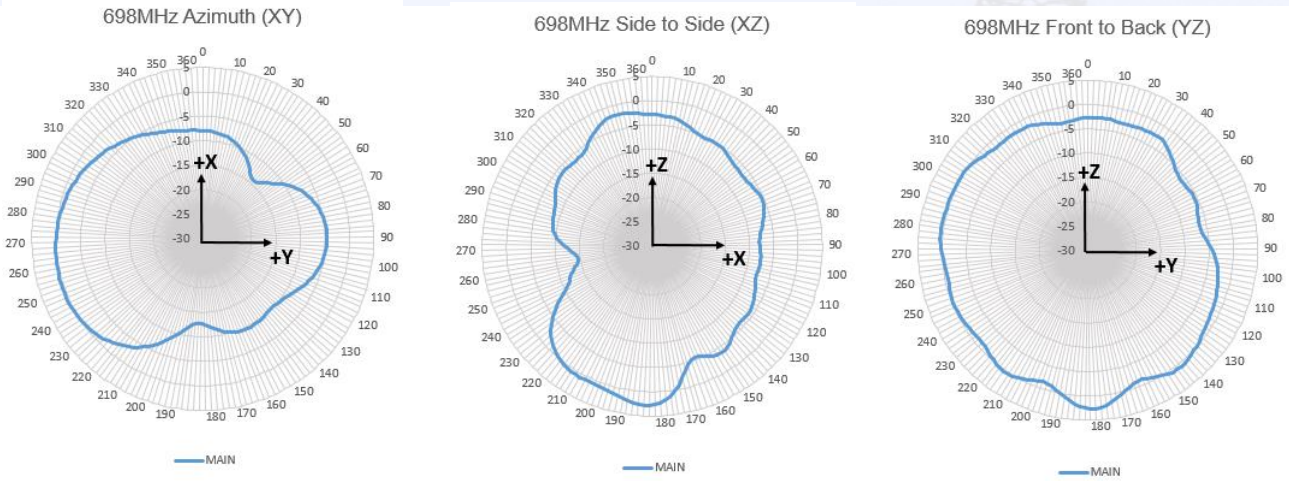

Figure 5. Measured radiation pattern characteristics in principal planes at 698MHz.

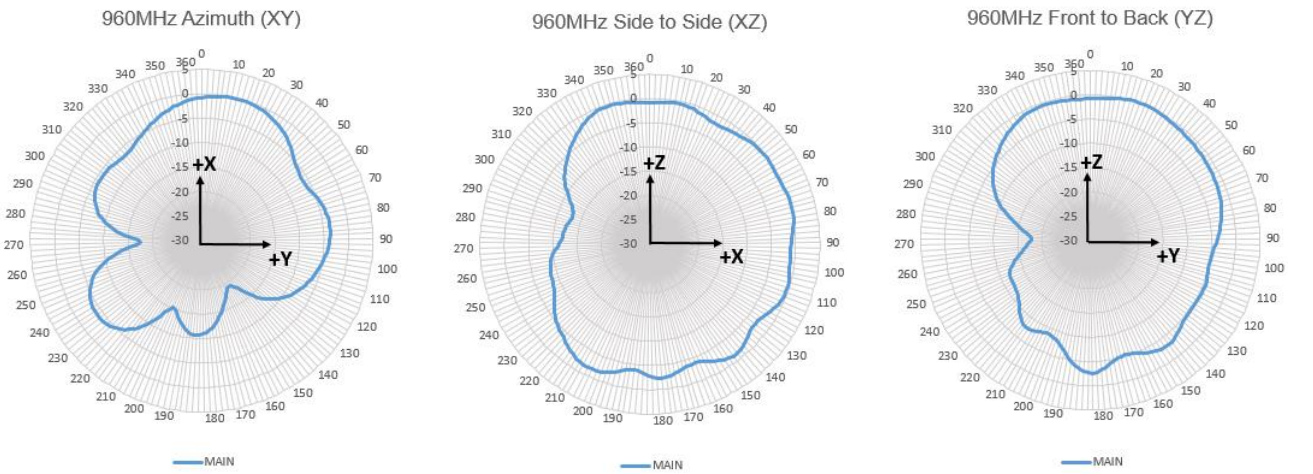

Figure 6. Measured radiation pattern characteristics in principal planes at 960MHz.

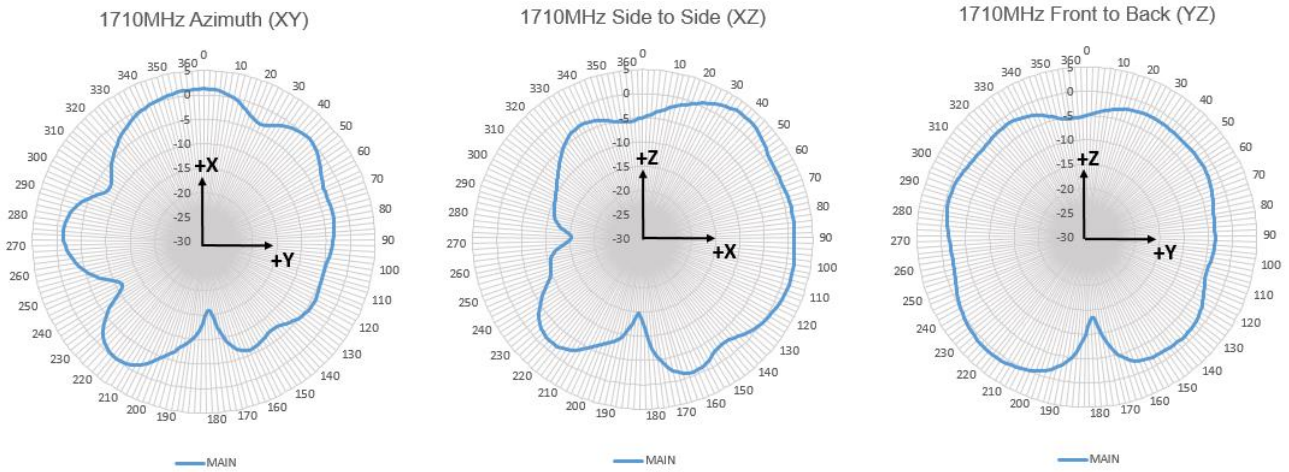

Figure 7. Measured radiation pattern characteristics in principal planes at 1710MHz.

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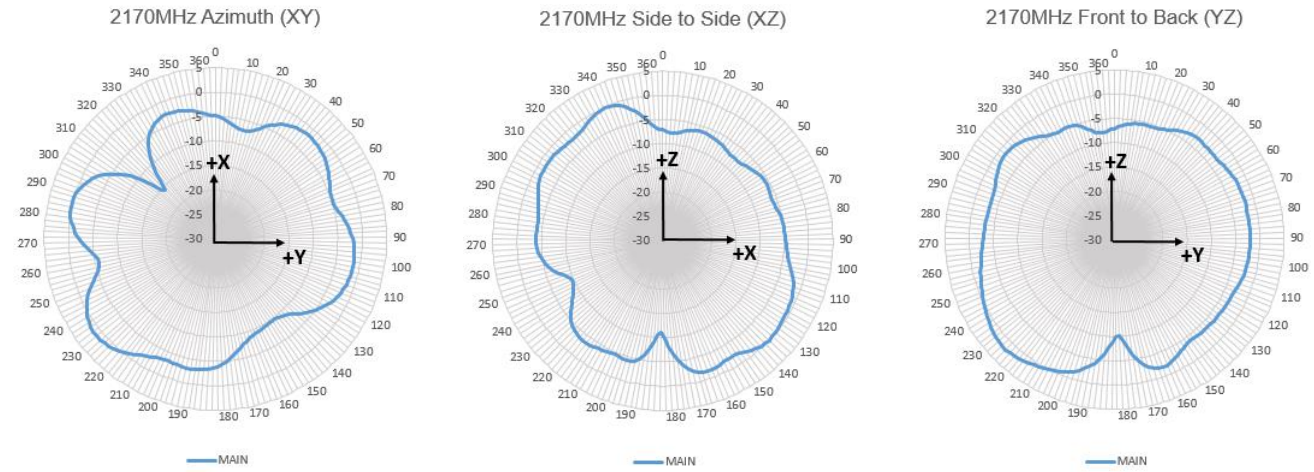

Figure 8. Measured radiation pattern characteristics in principal planes at 2170MHz.

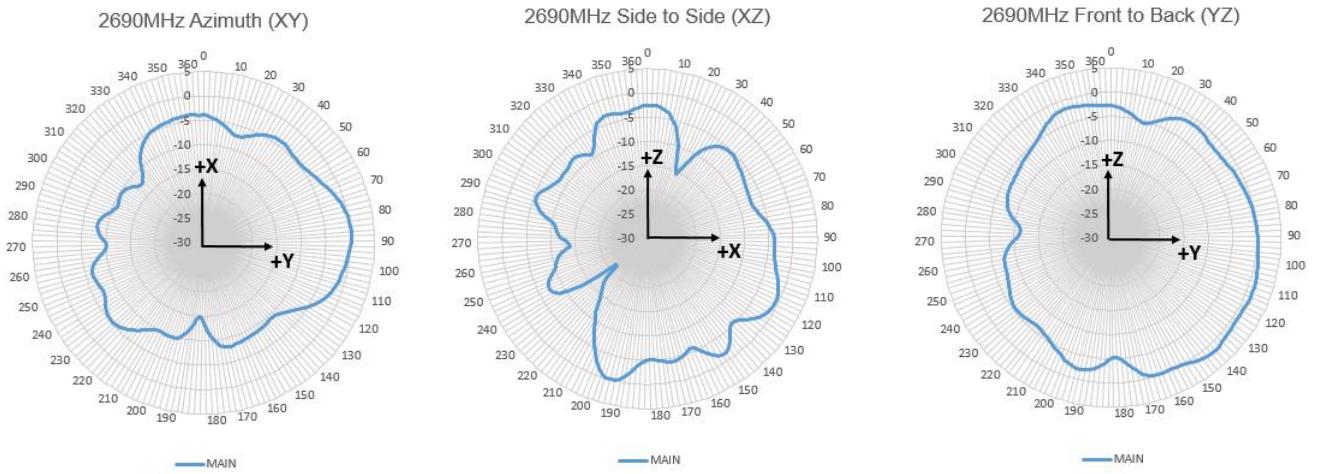

Figure 9. Measured radiation pattern characteristics in principal planes at 2690MHz.

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8. Realized Efficiency and Peak Realized Gain

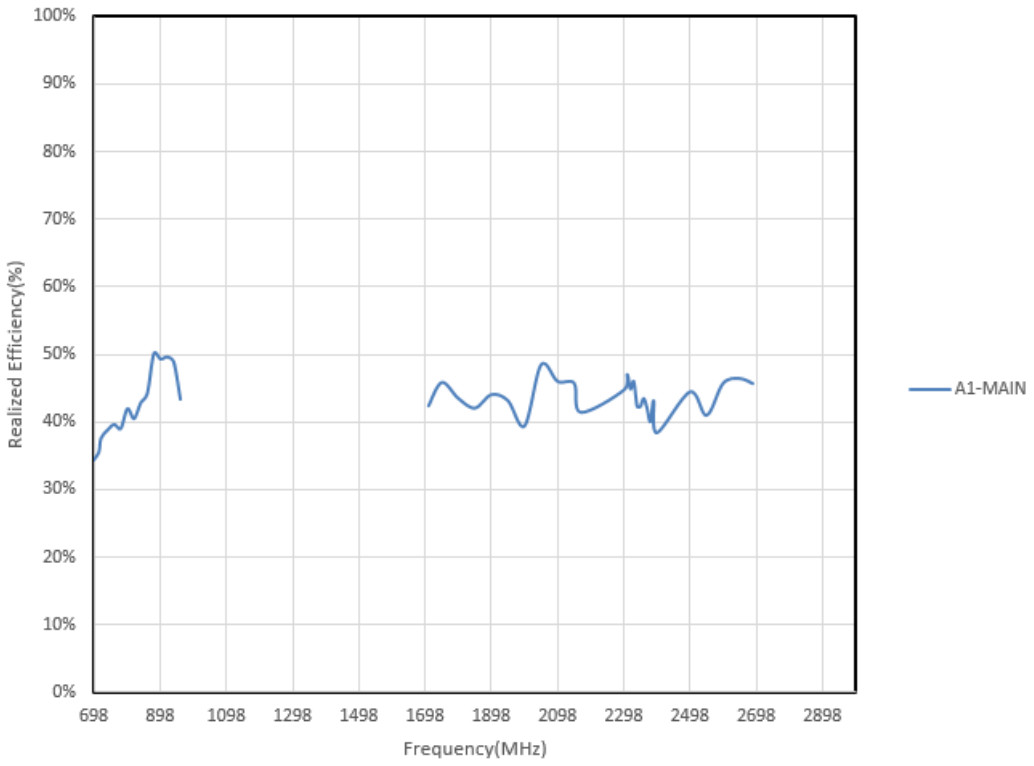

Figure 10. Measured realized efficiency over frequency.

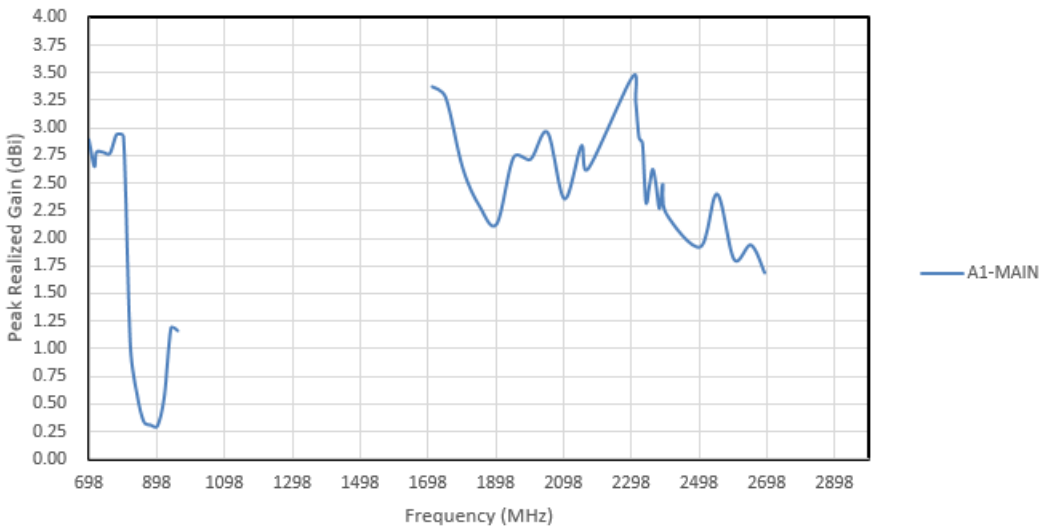

Figure 11. Measured peak realized gain over frequency.

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Frequency(MHZ)	Efficiency	Peak Realized Gain（dBi）
698	34%	2.9
714	36%	2.7
720	37%	2.8
740	39%	2.8
760	40%	2.8
780	39%	2.9
800	42%	2.9
820	40%	1.0
840	43%	0.6
860	44%	0.3
880	50%	0.3
900	49%	0.3
920	49%	0.6
940	49%	1.2
960	43%	1.2
1710	42%	3.4
1750	46%	3.3
1800	43%	2.6
1850	42%	2.3
1900	44%	2.1
1950	43%	2.7
2000	39%	2.7
2050	48%	3.0
2100	46%	2.4
2150	46%	2.8
2170	41%	2.6
2300	45%	3.5
2310	47%	3.2
2320	45%	2.9
2330	46%	2.9
2340	42%	2.3
2350	42%	2.5
2360	43%	2.6
2370	42%	2.5
2380	40%	2.3
2390	43%	2.5
2400	38%	2.2
2500	44%	1.9
2550	41%	2.4
2600	46%	1.8
2650	46%	1.9
2690	46%	1.7
Average	43%	2.2

Table 2. Summary of realized efficiency and peak realized gain results.

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9. Assembly Drawing

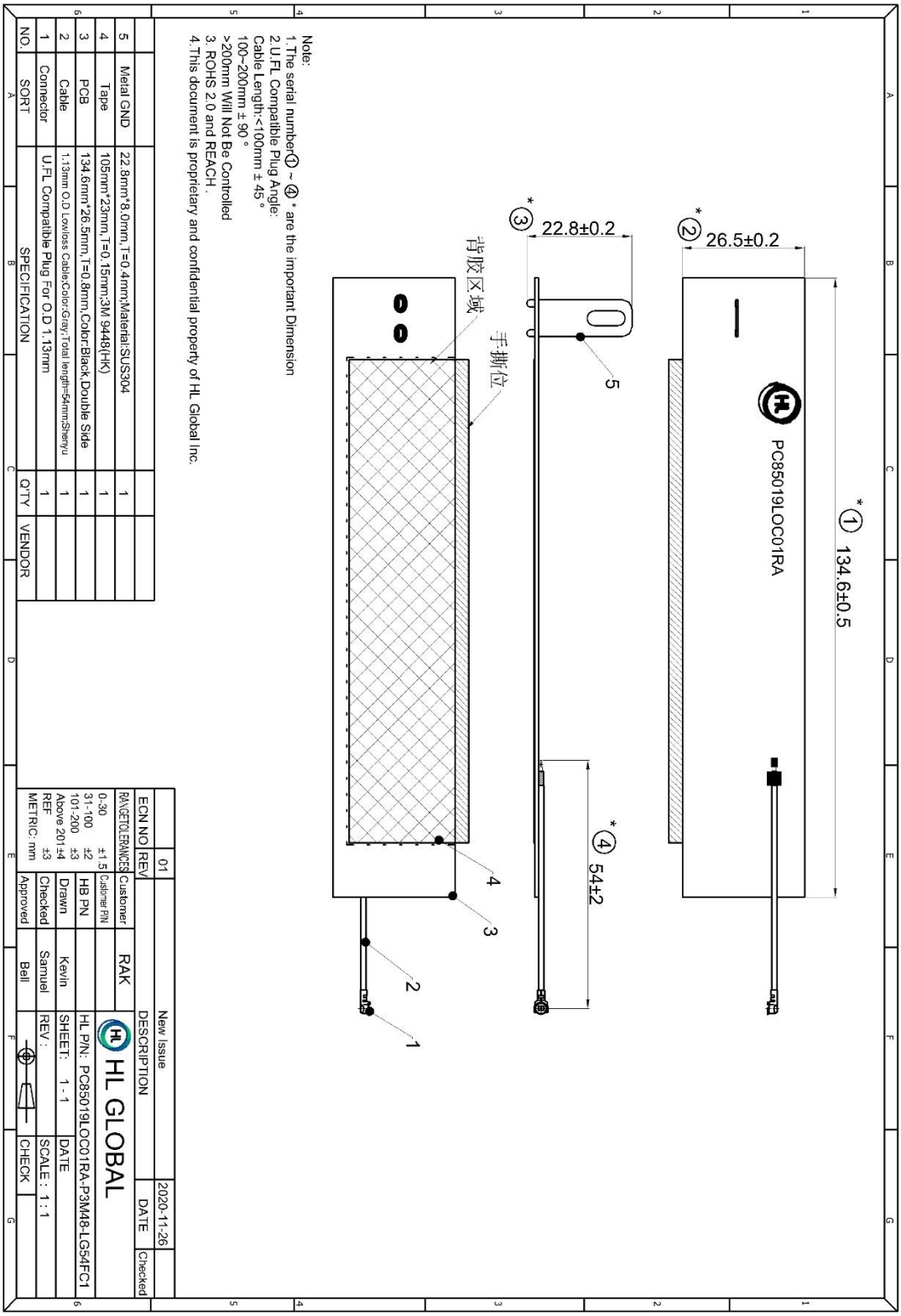

Figure 12. Assembly Drawing.

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