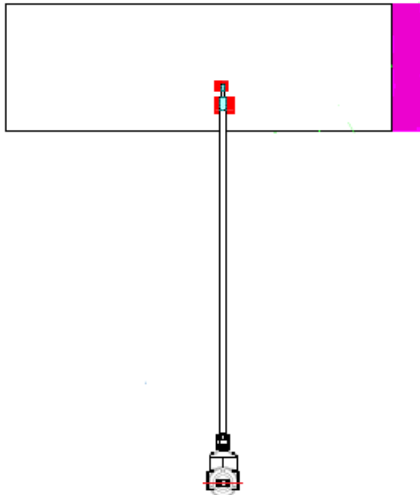









# PCB Antenna Internal Antenna

BTPA0061204G0C4Axx – 698 to 2700MHz



## Features & Applications:

-  4G LTE All Band
-  Nb-IoT, LTE CAT M1
-  Omnidirectional radiation
-  PCB radiator + Coaxial cable
-  IPEX Connector
-  RoHS compliant
-  Mounting with included adhesive tape

## ELECTRICAL SPECIFICATIONS @ 25°C

### General Specifications

Antenna type	Nominal Impedance	Polarization	Radiation pattern	Power withstanding
Dipole	50Ω	Vertical / Linear	Omni	1W
<b>Frequency (MHz)</b>		698-960; 1710-2170; 2300-2700		
<b>Return Loss (dB)</b>		-5 ~ -10		
<b>Peak Gain (dBi)</b>		4.5		
<b>Efficiency (%)</b>		Typical		

## MECHANICAL SPECIFICATIONS

### BTPA0061204G0C4Axx

Dimension (Length x Width)	Material	Color	Cable type	Connector Type	Cable length
61 x20 x 0.4 mm	PCB	Black	1.37 coaxial cable	IPEX Compatible	See PN list

## ENVIRONMENTAL SPECIFICATIONS

### BTPA0061204G0C4Axx

Storage Temperature	Operating Temperature	Ingress Protection	RoHS Compliant
-30/+75° C	-20/+65° C	N/A	Yes

This document covers all product variants of the following product family:

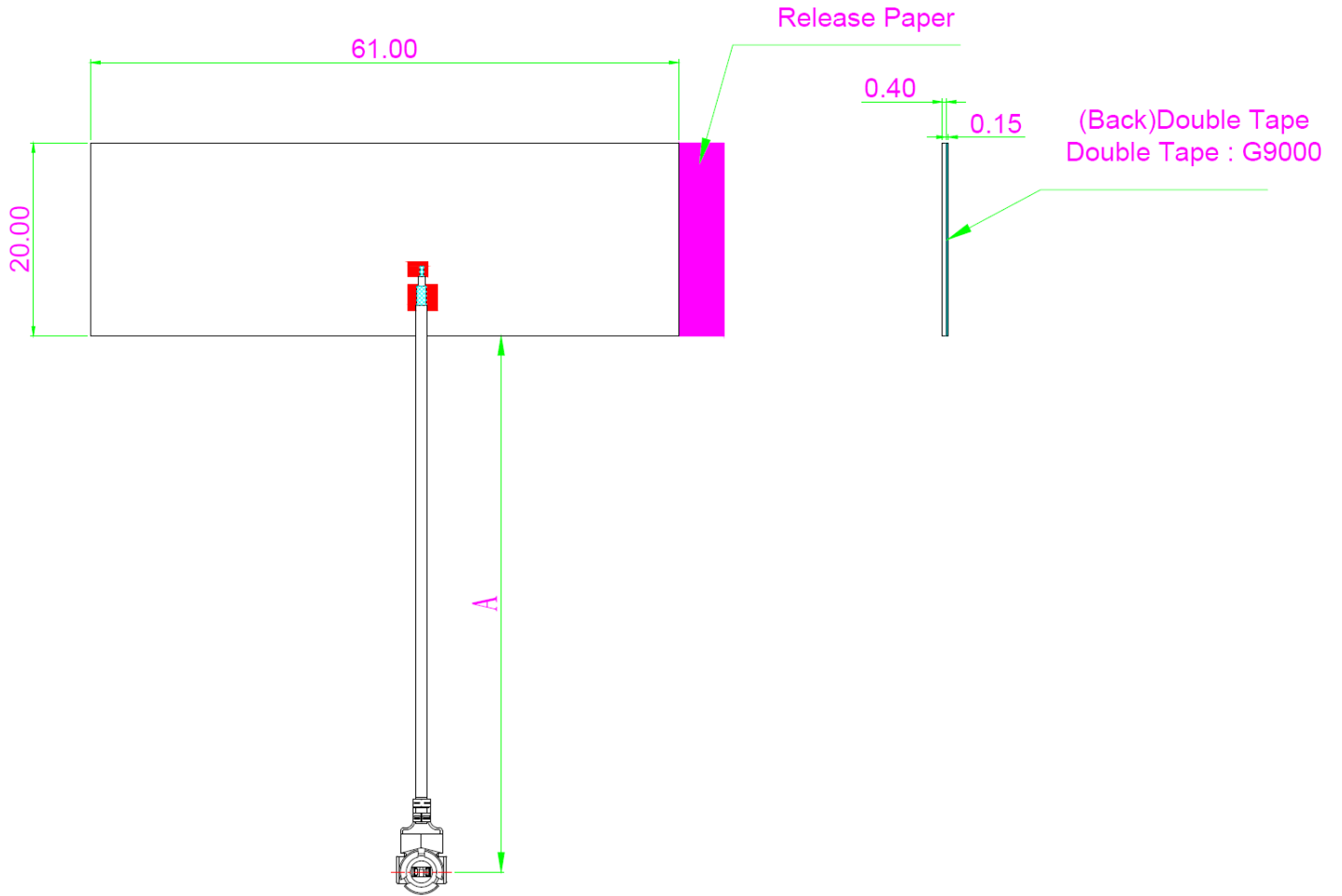
PART NUMBER	Cable Type Length	Connector Type
BTPA0061204G0C4A02	312.3mm ,Ø1.37mm OD cable	IPEX Compatible
BTPA0061204G0C4A03	200mm ,Ø1.37mm OD cable	IPEX Compatible
BTPA0061204G0C4A04	100mm ,Ø1.37mm OD cable	IPEX Compatible

PCB Antenna  
Internal Antenna

BTPA0061204G0C4Axx – 698 to 2700MHz

Mechanical Drawing

BTPA0061204G0C4Axx

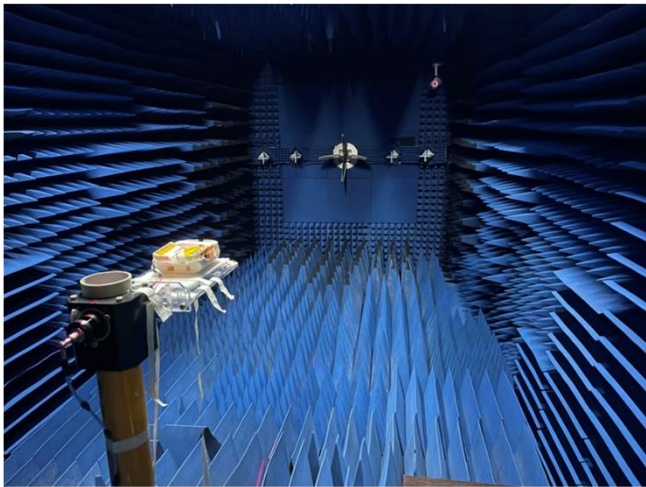


Dimensions: inches (mm) Unless otherwise specified, all tolerances are  $\pm 0.020$  (0.5mm)

PCB Antenna  
Internal Antenna

BTPA0061204G0C4Axx – 698 to 2700MHz

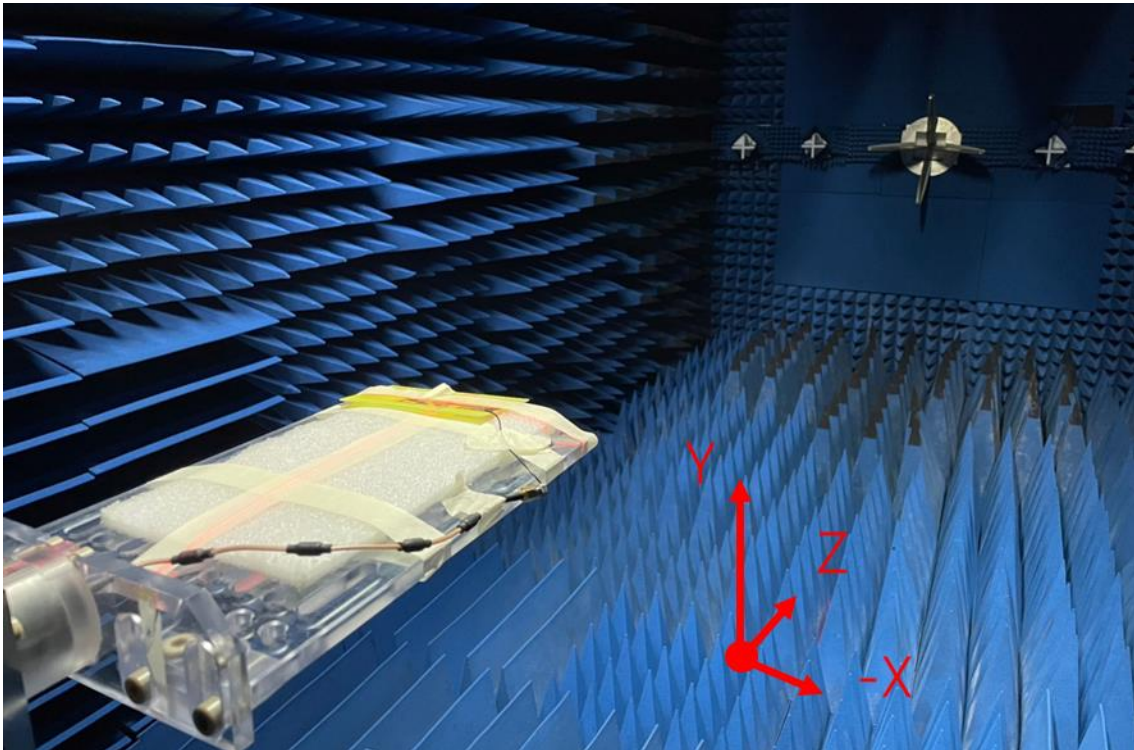
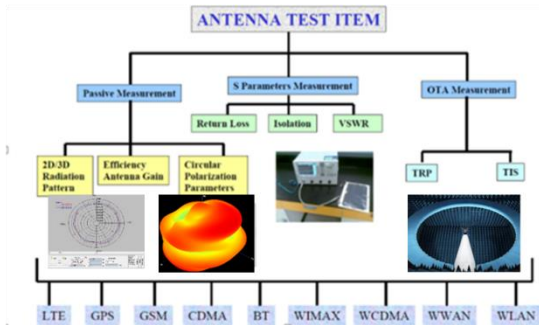
General / Chamber Setup



TRC Chamber



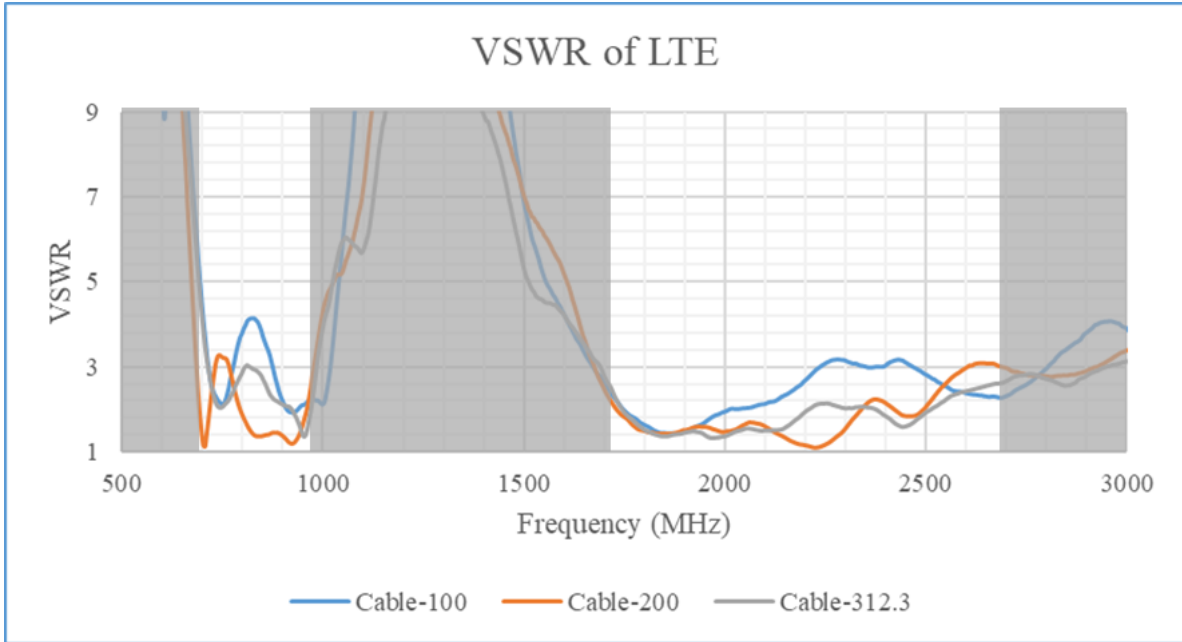
S11 measurements were taken with Agilent E5071C ENA, 9kHz- 8.5GHz



Test Setup

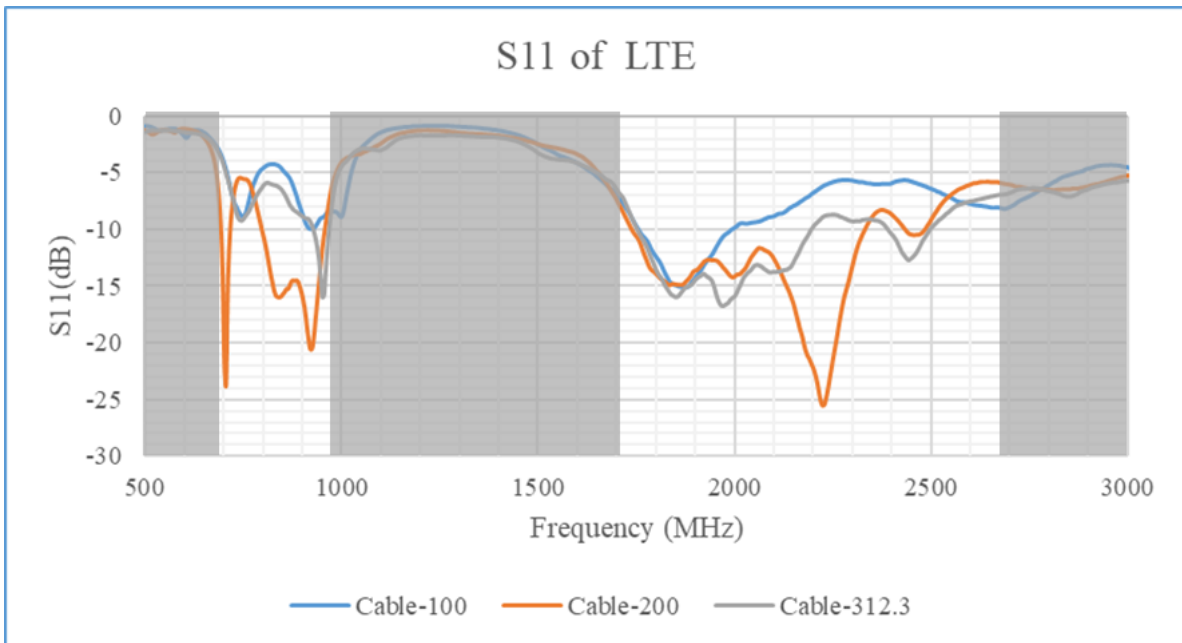
### Charts - VSWR

Test data



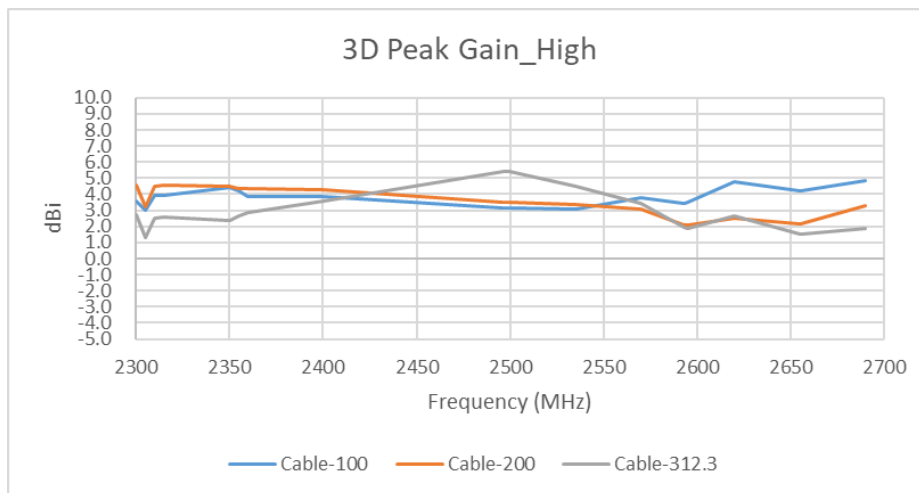
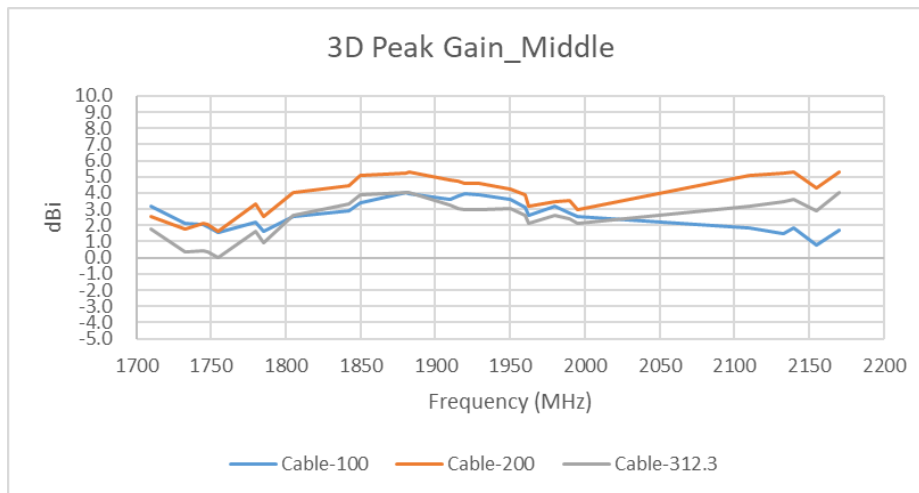
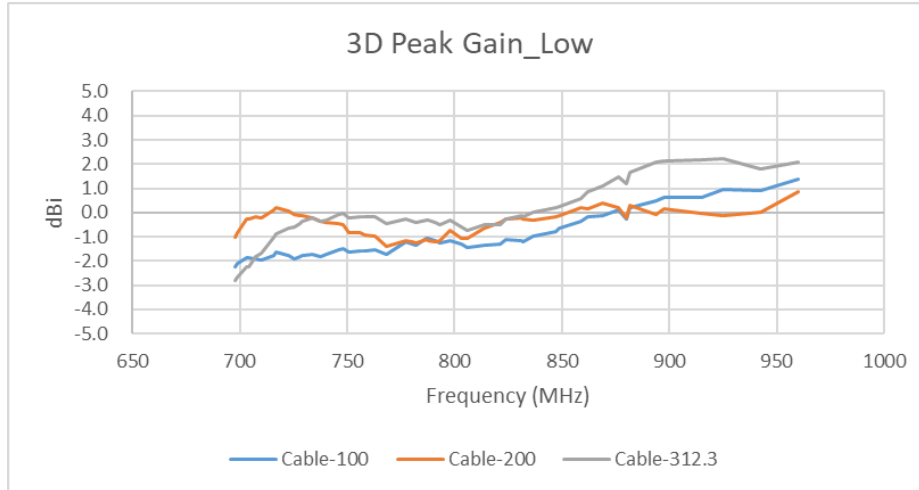
### Charts - Return loss

Test data



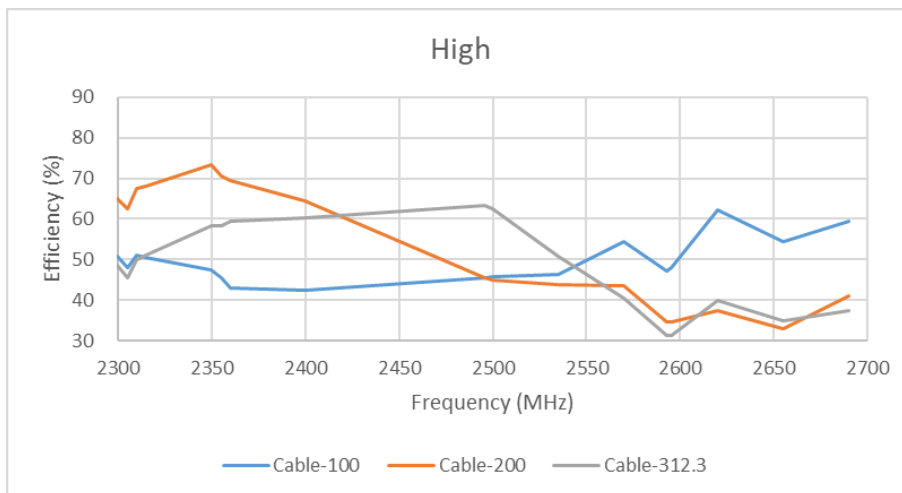
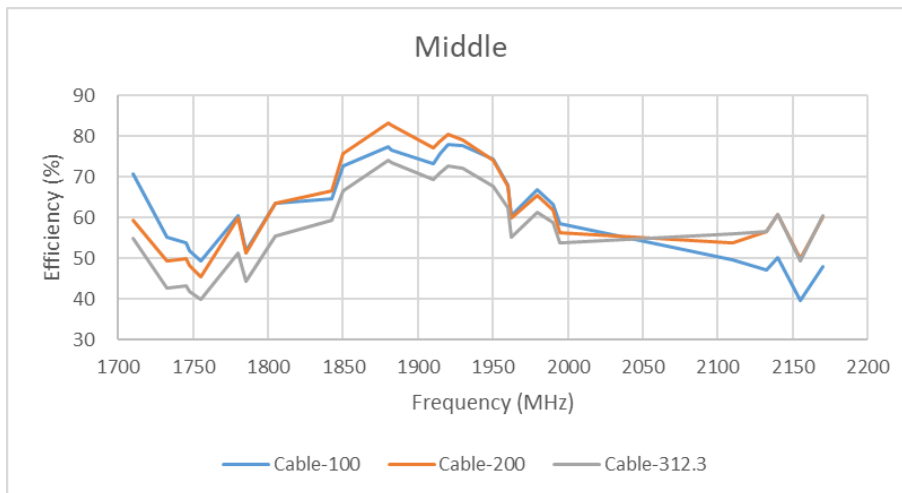
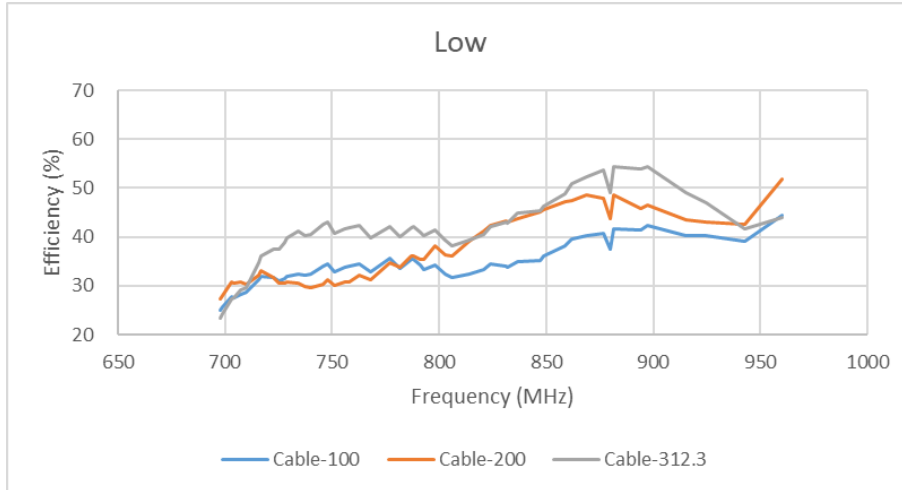
### Charts – Max Gain dBi

Test data



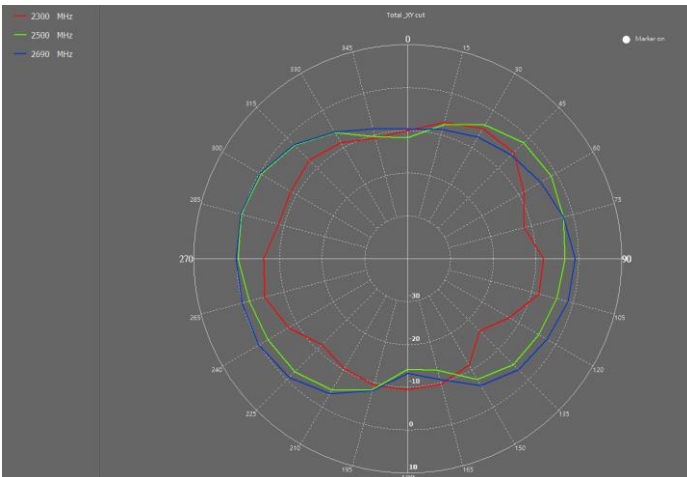
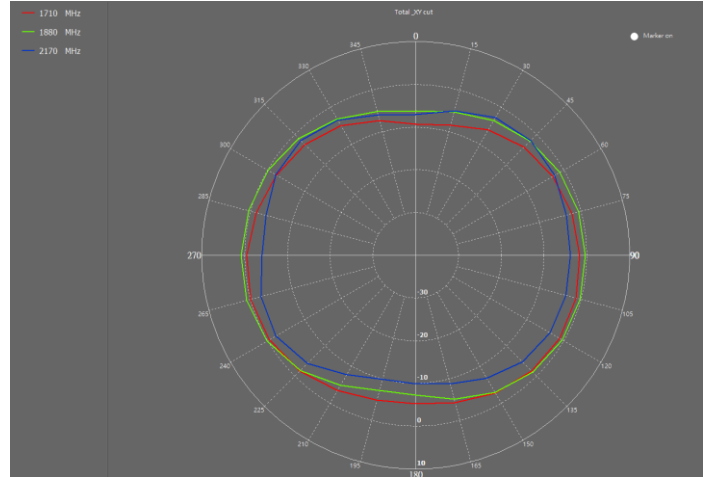
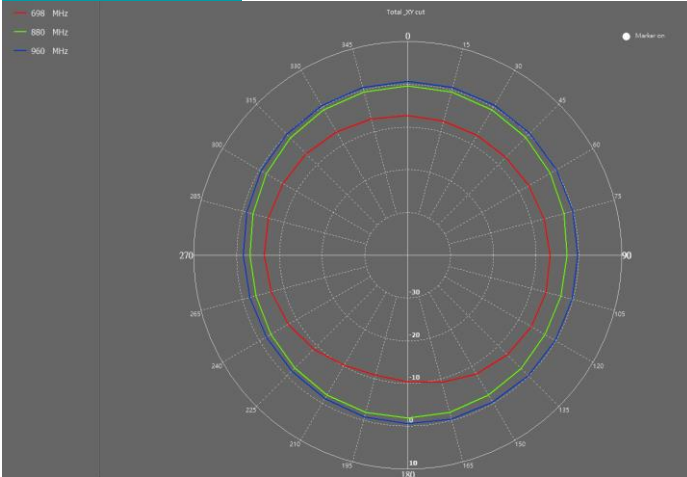
### Charts - Efficiency

Test data



Radiation Pattern – Cable 100mm  
Frequency(MHz): 698~2700. Pattern Field: XY Cut(Theta=90)

Test data



	Max value	Min value	Average
698(MHz)	-6.28 dB	-10.97 dB	-7.62 dB
880(MHz)	-0.37 dB	-3.30 dB	-1.88 dB
960(MHz)	0.71 dB	-1.89 dB	-0.36 dB

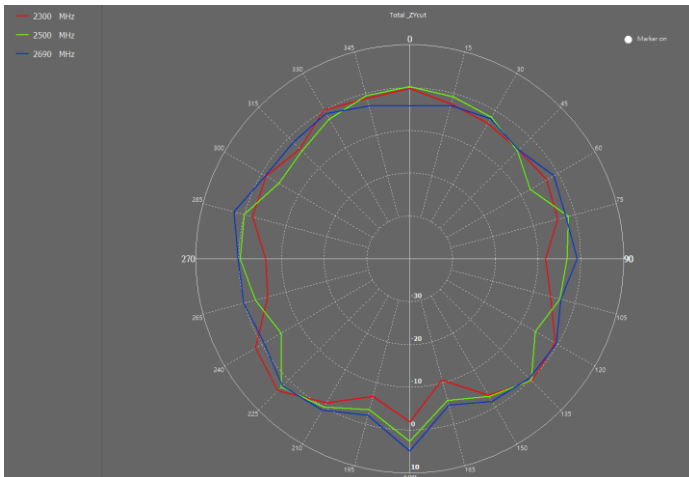
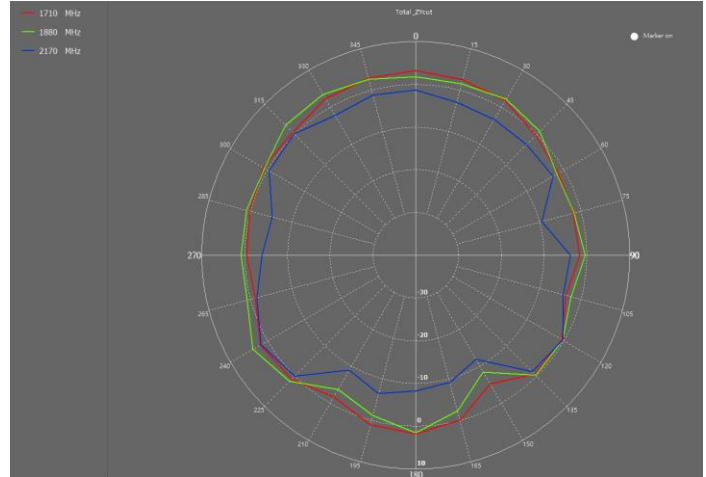
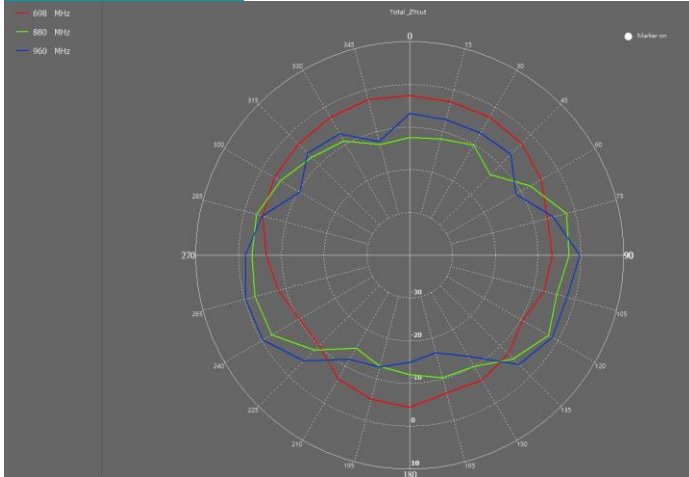
	Max value	Min value	Average
1710(MHz)	-0.10 dB	-9.33 dB	-3.67 dB
1880(MHz)	0.83 dB	-7.29 dB	-2.59 dB
2170(MHz)	-2.00 dB	-10.01 dB	-4.8 dB

	Max value	Min value	Average
2300(MHz)	-4.81 dB	-16.29 dB	-9.14 dB
2500(MHz)	0.30 dB	-14.22 dB	-5.23 dB
2700(MHz)	0.44 dB	-13.22 dB	-4.56 dB



Radiation Pattern – Cable 100mm  
Frequency(MHz): 698~2700. Pattern Field: ZY Cut(Phi=90)

Test data



	Max value	Min value	Average
698(MHz)	-2.28 dB	-10.29 dB	-5.55 dB
880(MHz)	-2.06 dB	-14.95 dB	-8.02 dB
960(MHz)	-0.23 dB	-16.44 dB	-7.34 dB

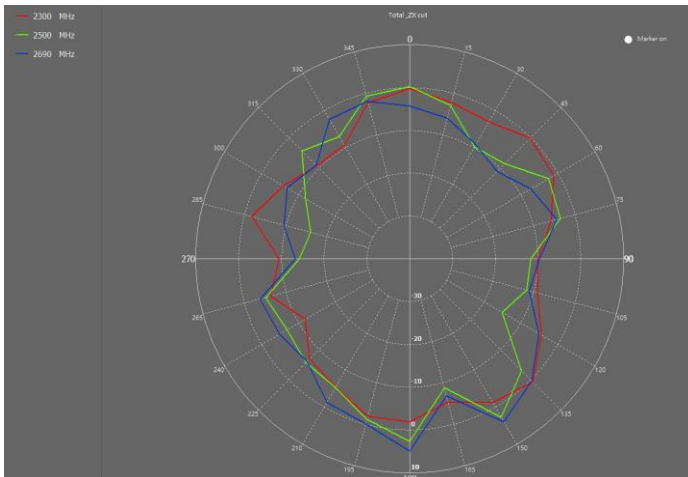
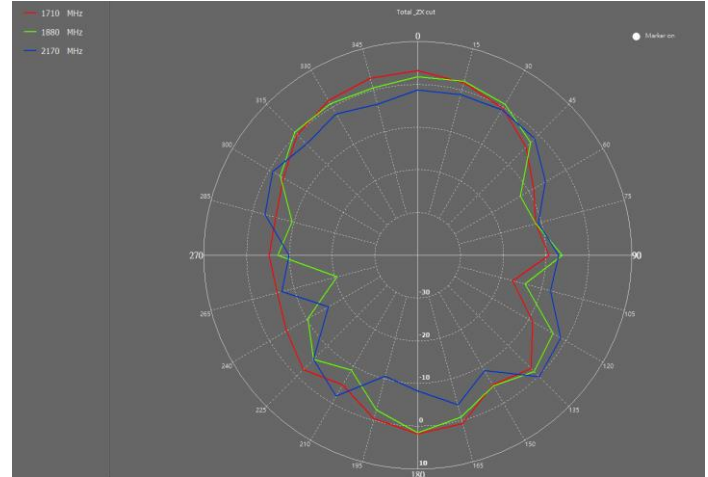
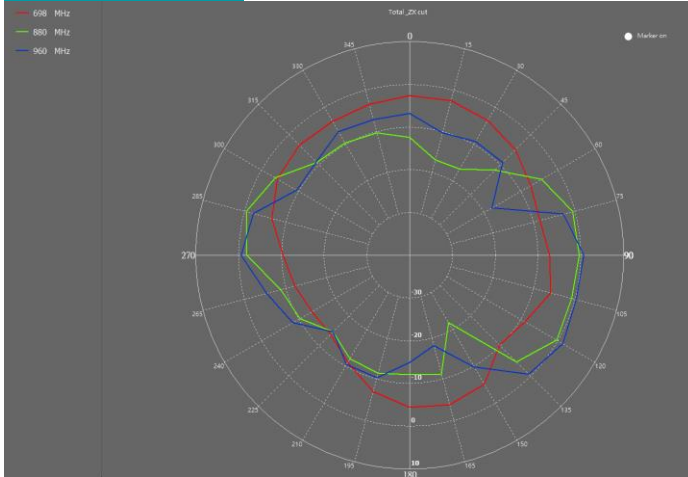
	Max value	Min value	Average
1710(MHz)	3.17 dB	-5.24 dB	0.11 dB
1880(MHz)	4.00 dB	-8.43 dB	0.19 dB
2170(MHz)	1.70 dB	-11.86 dB	-3.97 dB

	Max value	Min value	Average
2300(MHz)	3.60 dB	-10.76 dB	-2.90 dB
2500(MHz)	2.55 dB	-7.50 dB	-2.16 dB
2700(MHz)	4.83 dB	-4.62 dB	-0.90 dB



Radiation Pattern – Cable 100mm  
Frequency(MHz): 698~2700. Pattern Field: ZX Cut(Phi=0)

Test data



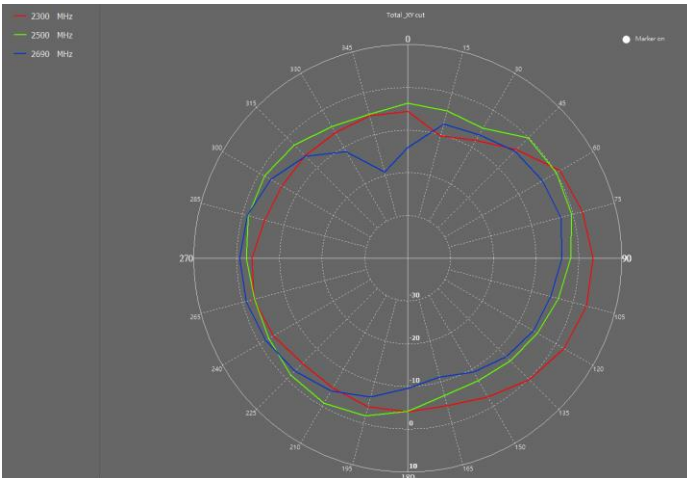
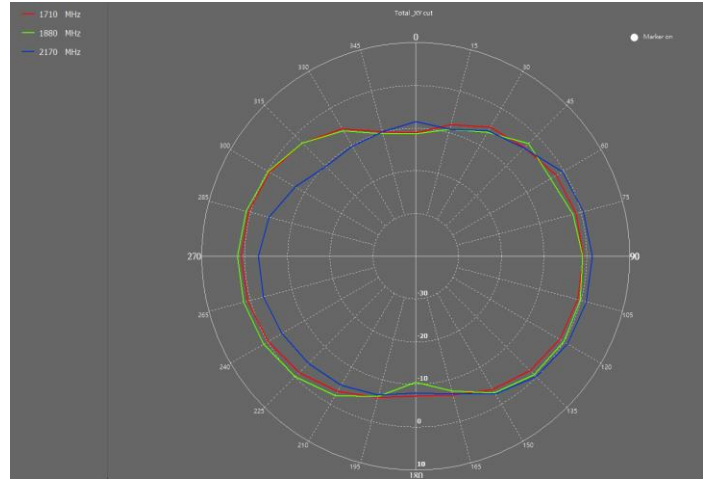
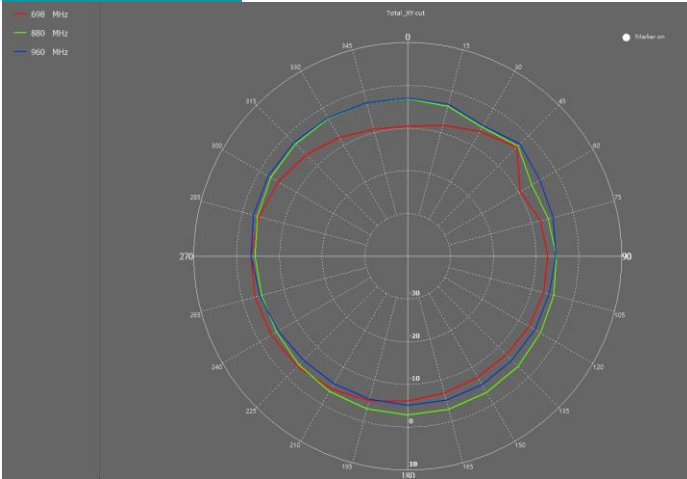
	Max value	Min value	Average
698(MHz)	-2.61 dB	-13.86 dB	-6.81 dB
880(MHz)	-0.32 dB	-21.81 dB	-8.77 dB
960(MHz)	1.35 dB	-18.16 dB	-7.88 dB

	Max value	Min value	Average
1710(MHz)	3.17 dB	-17.04 dB	-3.48 dB
1880(MHz)	2.16 dB	-20.53 dB	-4.60 dB
2170(MHz)	0.24 dB	-15.95 dB	-5.19 dB

	Max value	Min value	Average
2300(MHz)	0.73 dB	-11.74 dB	-4.67 dB
2500(MHz)	2.69 dB	-16.06 dB	-5.93 dB
2700(MHz)	4.83 dB	-13.22 dB	-4.84 dB

Radiation Pattern – Cable 200mm  
Frequency(MHz): 698~2700. Pattern Field: XY Cut(Theta=90)

Test data



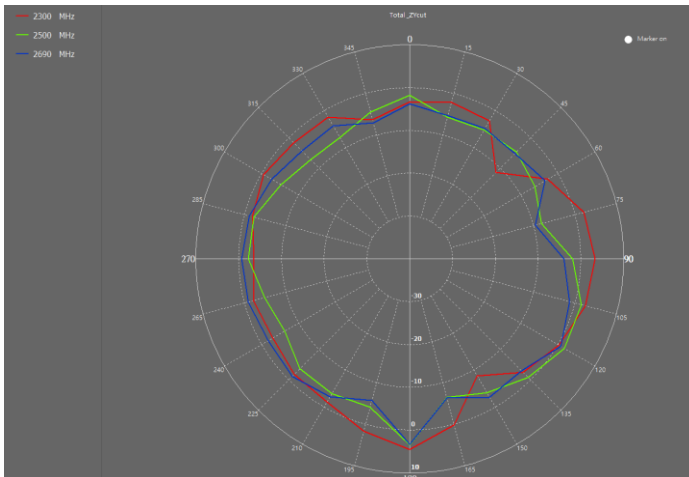
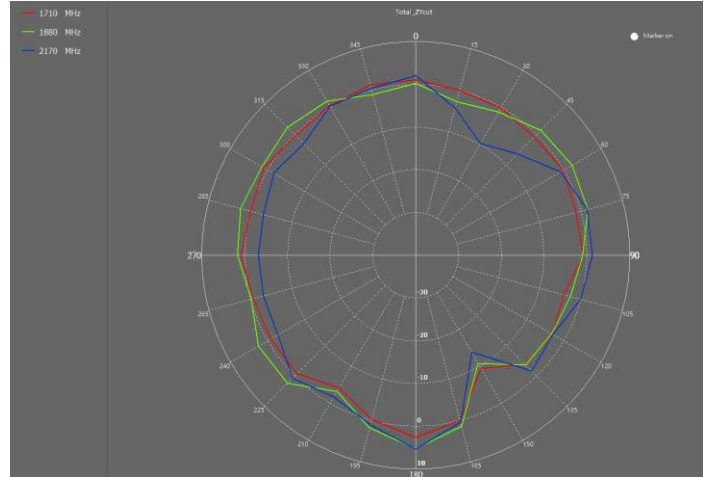
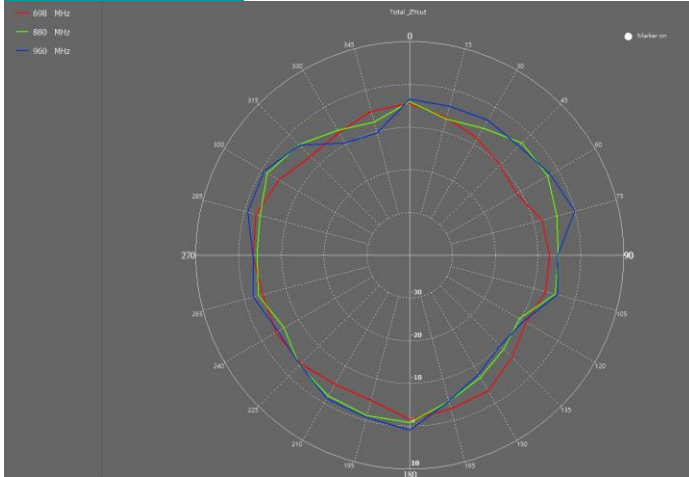
	Max value	Min value	Average
698(MHz)	-3.11 dB	-9.67 dB	-6.39 dB
880(MHz)	-2.74 dB	-6.52 dB	-3.89 dB
960(MHz)	-2.33 dB	-5.75 dB	-4.25 dB

	Max value	Min value	Average
1710(MHz)	0.79 dB	-11.14 dB	-3.74 dB
1880(MHz)	1.68 dB	-11.38 dB	-3.70 dB
2170(MHz)	1.29 dB	-10.30 dB	-4.79 dB

	Max value	Min value	Average
2300(MHz)	3.31 dB	-10.35 dB	-3.46 dB
2500(MHz)	0.16 dB	-6.99 dB	-3.12 dB
2700(MHz)	-0.70 dB	-19.07 dB	-6.56 dB

Radiation Pattern – Cable 200mm  
Frequency(MHz): 698~2700. Pattern Field: ZY Cut(Phi=90)

Test data



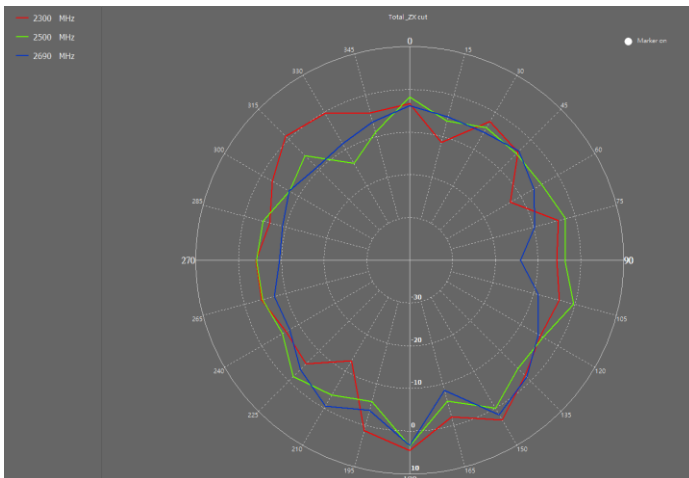
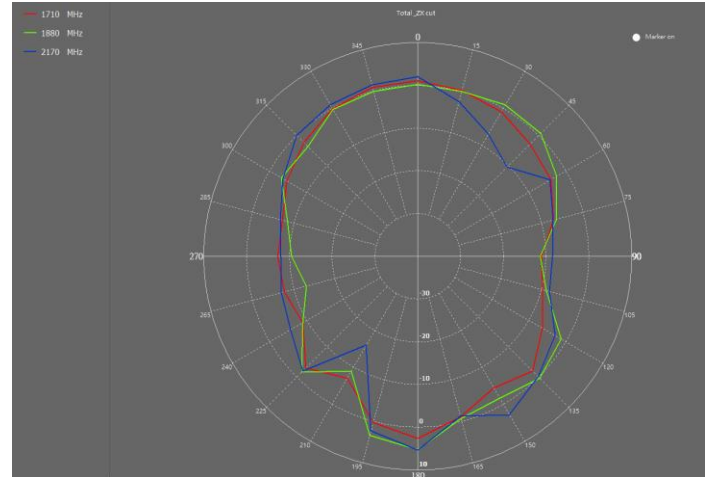
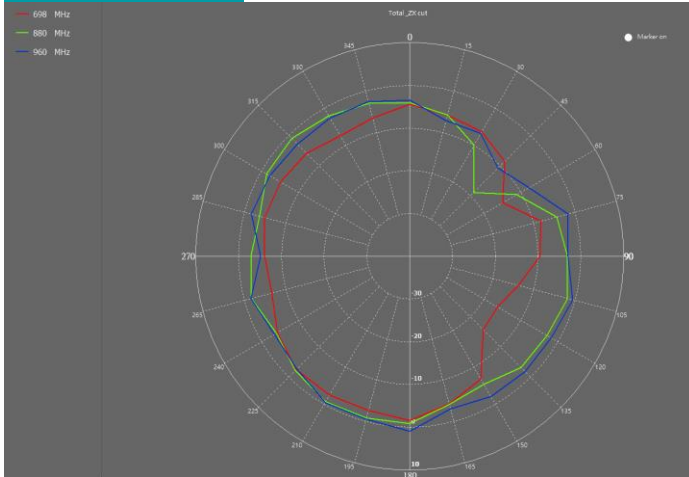
	Max value	Min value	Average
698(MHz)	-1.62 dB	-11.15 dB	-5.61 dB
880(MHz)	-0.91 dB	-10.39 dB	-4.52 dB
960(MHz)	0.87 dB	-10.32 dB	-3.91 dB

	Max value	Min value	Average
1710(MHz)	2.56 dB	-9.45 dB	-0.87 dB
1880(MHz)	5.26 dB	-10.79 dB	0.14 dB
2170(MHz)	5.29 dB	-13.79 dB	-1.63 dB

	Max value	Min value	Average
2300(MHz)	4.57 dB	-11.56 dB	-1.57 dB
2500(MHz)	3.47 dB	-8.11 dB	-3.46 dB
2700(MHz)	3.26 dB	-9.58 dB	-3.01 dB

Radiation Pattern – Cable 200mm  
Frequency(MHz): 698~2700. Pattern Field: ZX Cut(Phi=0)

Test data



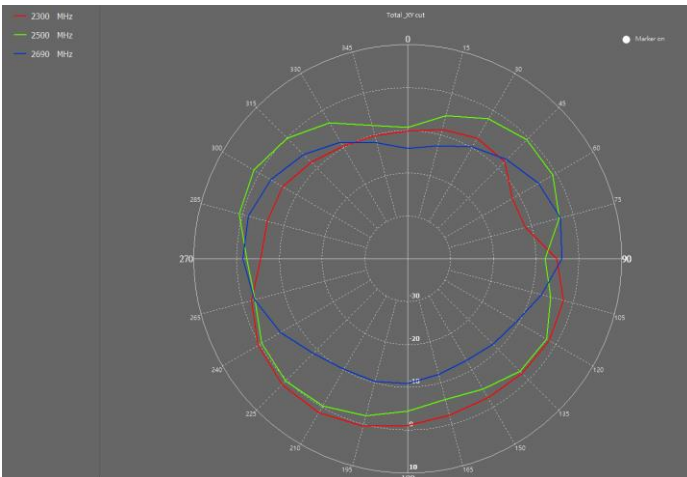
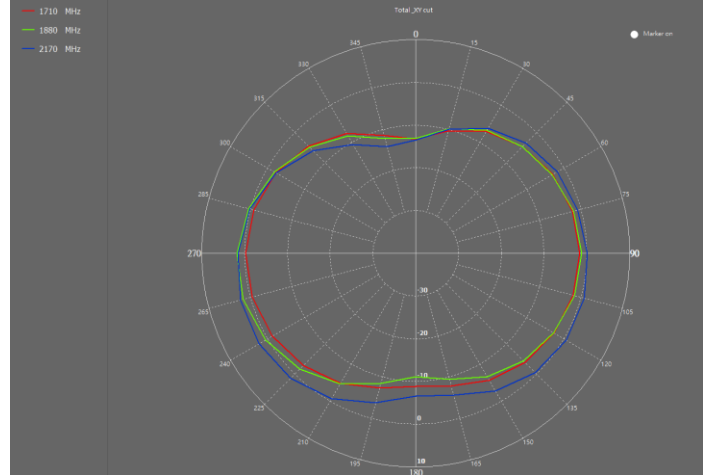
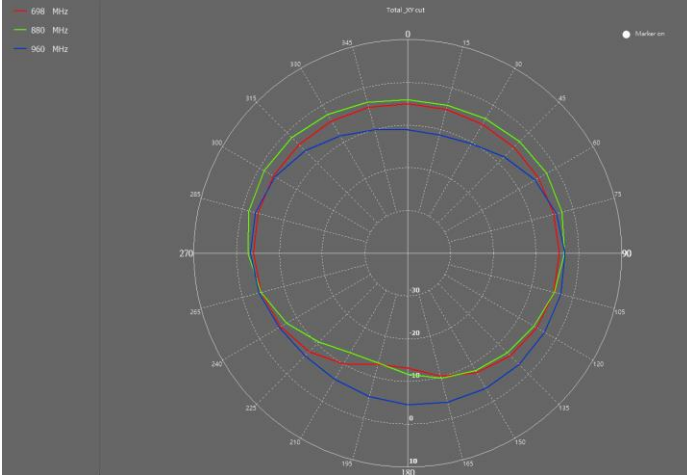
	Max value	Min value	Average
698(MHz)	-1.62 dB	-16.34 dB	-6.91 dB
880(MHz)	-0.73 dB	-18.94 dB	-4.03 dB
960(MHz)	0.87 dB	-10.80 dB	-2.99 dB

	Max value	Min value	Average
1710 (MHz)	2.56 dB	-11.14 dB	-3.65 dB
1880(MHz)	5.26 dB	-13.01 dB	-3.03 dB
2170(MHz)	5.29 dB	-15.99 dB	-3.28 dB

	Max value	Min value	Average
2300(MHz)	4.57 dB	-12.81 dB	-3.57 dB
2500(MHz)	3.47 dB	-13.87 dB	-4.02 dB
2700(MHz)	3.26 dB	-14.15 dB	-5.53 dB

Radiation Pattern – Cable 312.3mm  
Frequency(MHz): 698~2700. Pattern Field: XY Cut(Theta=90)

Test data



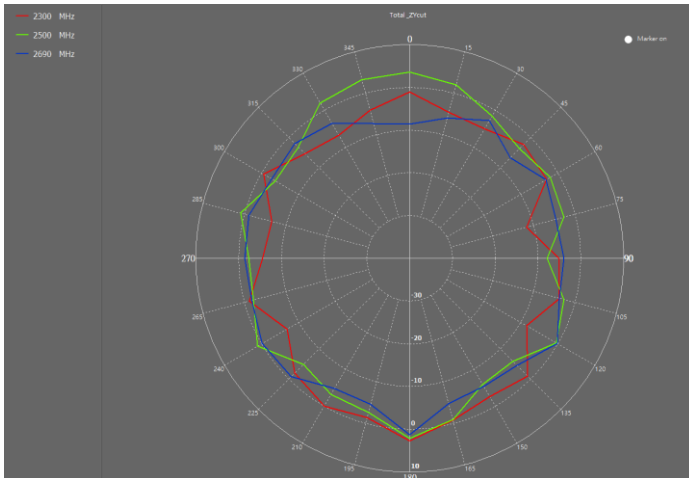
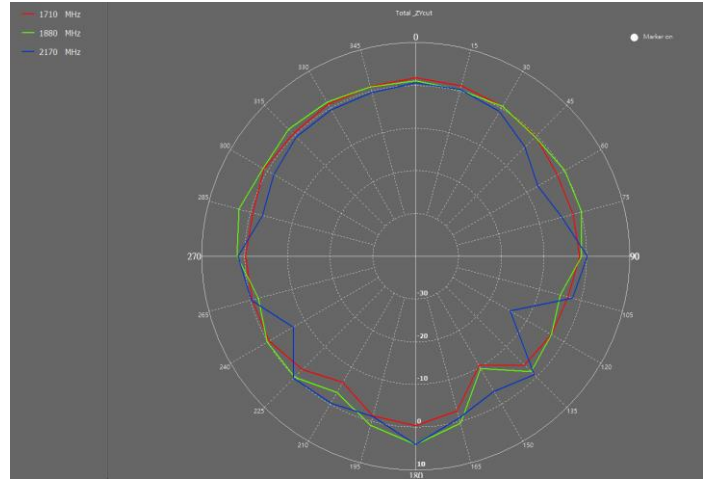
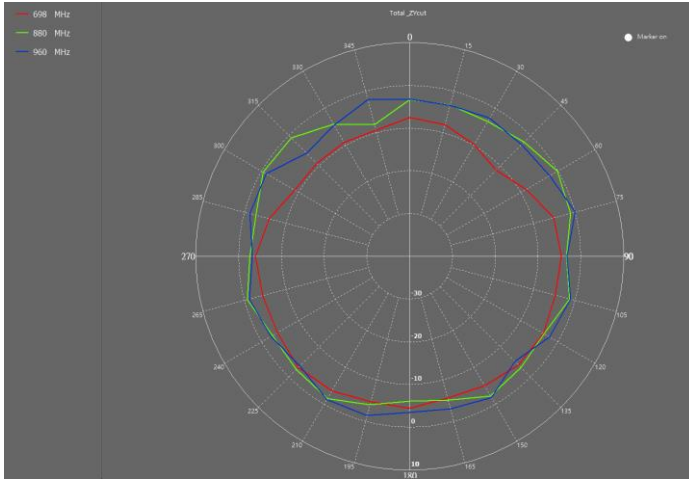
	Max value	Min value	Average
698(MHz)	-3.78 dB	-13.10 dB	-6.08 dB
880(MHz)	-1.24 dB	-13.45 dB	-5.48 dB
960(MHz)	-2.98 dB	-11.34 dB	-5.92 dB

	Max value	Min value	Average
1710(MHz)	-0.26 dB	-13.31 dB	-5.23 dB
1880(MHz)	1.74 dB	-13.14 dB	-5.11 dB
2170(MHz)	2.36 dB	-14.15 dB	-3.74 dB

	Max value	Min value	Average
2300(MHz)	1.53 dB	-11.73 dB	-5.18 dB
2500(MHz)	1.45 dB	-9.36 dB	-3.30 dB
2700(MHz)	-1.42 dB	-14.27 dB	-8.22 dB

Radiation Pattern – Cable 312.3mm  
Frequency(MHz): 698~2700. Pattern Field: ZY Cut(Phi=90)

Test data



	Max value	Min value	Average
698(MHz)	-3.17 dB	-11.43 dB	-6.20 dB
880(MHz)	-0.15 dB	-8.10 dB	-3.06 dB
960(MHz)	0.06 dB	-5.86 dB	-2.67 dB

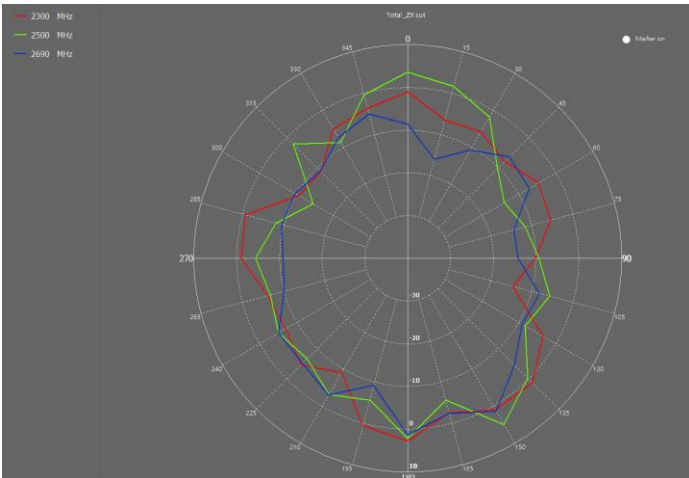
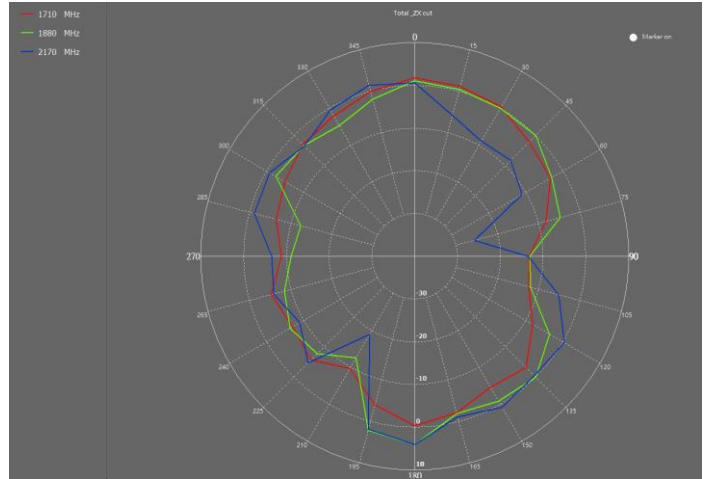
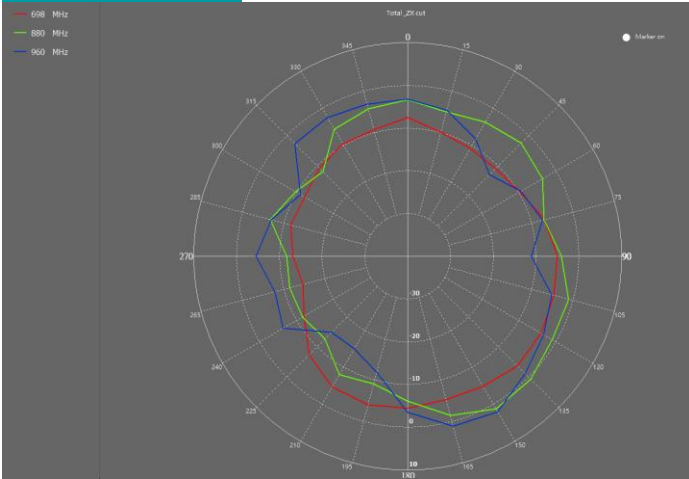
	Max value	Min value	Average
1710(MHz)	1.79 dB	-10.47 dB	-1.39 dB
1880(MHz)	4.02 dB	-9.68 dB	-0.20 dB
2170(MHz)	4.03 dB	-14.48 dB	-1.67 dB

	Max value	Min value	Average
2300(MHz)	2.69 dB	-11.65 dB	-3.42 dB
2500(MHz)	3.51 dB	-7.93 dB	-1.58 dB
2700(MHz)	1.34 dB	-8.67 dB	-3.30 dB



Radiation Pattern – Cable 312.3mm  
Frequency(MHz): 698~2700. Pattern Field: ZX Cut(Phi=0)

Test data



	Max value	Min value	Average
698(MHz)	-3.79 dB	-14.65 dB	-8.10 dB
880(MHz)	1.21 dB	-12.73 dB	-5.87 dB
960(MHz)	2.03 dB	-15.01 dB	-6.31 dB

	Max value	Min value	Average
1710(MHz)	1.79 dB	-13.31 dB	-4.50 dB
1880(MHz)	4.02 dB	-13.14 dB	-3.97 dB
2170(MHz)	4.03 dB	-25.51 dB	-4.72 dB

	Max value	Min value	Average
2300(MHz)	2.69 dB	-14.57 dB	-4.55 dB
2500(MHz)	4.85 dB	-14.48 dB	-4.75 dB
2700(MHz)	1.35 dB	-16.07 dB	-7.39 dB



## PCB Antenna Internal Antenna

BTPA0061204G0C4Axx – 698 to 2700MHz

### PACKAGING

**BTPA0061204G0C4Axx**

50PCS/PE bag  
30 PE bag/ carton box  
Total 1500PCS/Carton box

PE bag : 210\*230\*0.07mm  
pearl cotton: 330\*180\*8mm  
Package box: 347\*192\*198mm



#### For More Information:

[Americas - antennas.us@pulseelectronics.com](mailto:antennas.us@pulseelectronics.com) | [Europe – antennas.eu@pulseelectronics.com](mailto:antennas.eu@pulseelectronics.com) | [Asia – antennas.as@pulseelectronics.com](mailto:antennas.as@pulseelectronics.com) | [Questions?](#) +1-800-ANTENNA  
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