

# External MIMO 2x5GNR + MIMO 2xWi-Fi + GNSS Combo Antenna



**AECR1808A12**

Request Samples



Check Inventory



189.0 x 182.0 x 85.0 mm  
**RoHS/RoHS II Compliant**  
MSL Level = 1

## Features

- Wide band : 600 MHz ~ 6 GHz
- 5 in 1 Combo Antenna
  - 2xMIMO 5G NR/ 4G/ LTE
  - 2xMIMO Wi-Fi 2.4/5 GHz
  - 1x Active GNSS/GPS/GLONASS/BeiDou/QZSS
- Global 4G cellular band coverage including CAT M and NB-IoT
- IP67 rated
- Easy installation using Screw
- Fully customizable RF cable and connector options

## Applications

- IoT
- M2M
- Smart City
- Telematics
- Transportation
- Smart Agriculture
- Geolocation and Tracking

## Product Image



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## Part Number Builder

**AECR1808A12** □ - □□□□□

Color / UV Coating	
Code	Description
<b>S</b> (Standard)	Black without UV coating
A	Black with UV Coating
B	White without UV Coating
C	White with UV Coating

Cable length in 'mm'	
Maximum cable length supported : RG-174 (up to 3000 mm) LMR-100 (up to 5000 mm)	
Code	Description
<b>3000</b> (Standard)	3000 mm
Other Examples :	
0200	200 mm
2000	2000 mm

Cable Type & Connector Type				
Code	Cable Type	Connector Type		
		5G NR	GNSS	Wi-Fi
<b>S</b> (Standard)	RG-174	-	SMA (M)	-
	LMR-100	SMA (M)	-	SMA (M)
A	LMR-100	SMA (M)	SMA (M)	SMA (M)
B		SMA (M)	FAKRA C (F)	SMA (M)
C		FAKRA D (F)	SMA (M)	SMA (M)
D		FAKRA D (F)	FAKRA C (F)	SMA (M)
E	RG-174	-	FAKRA C (F)	-
	LMR-100	SMA (M)	-	SMA (M)
F	RG-174	-	SMA (M)	-
	LMR-100	FAKRA D (F)	-	SMA (M)
G	RG-174	-	FAKRA C (F)	-
	LMR-100	FAKRA D (F)	-	SMA (M)

## Example Configurations :

Part Number	UV Protection Coating / Color	Cable length	Cable Type / Connector Type
AECR1808A12 <b>S-3000S</b>	No / Black	3000 mm	2xLMR-100 with 2xSMA (M) for 5G NR + 1xRG-174 with 1xSMA (M) for GNSS + 2xLMR-100 with 2xSMA (M) for Wi-Fi (Standard)
AECR1808A12 <b>A-1000A</b>	Yes / Black	1000 mm	2xLMR-100 with 2xFAKRA-D (F) for 5G NR + 1xLMR-100 with 1xFAKRA-C (F) for GNSS + 2xLMR-100 with 2xSMA (M) for Wi-Fi
AECR1808A12 <b>B-5000G</b>	No / White	5000 mm	2xLMR-100 with 2xFAKRA D (F) for 5G NR + 1xRG-174 with 1xFAKRA C (F) for GNSS + 2xLMR-100 with 2xSMA (M) for Wi-Fi

## Note :

- For the standard part number (AECR1808A12**S-3000S**), please refer to the packaging at the end of the document.
- For additional configuration (AECR1808A12□ - □□□□□), MOQs, pricing and packaging changes may be applicable.



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## Electrical Specifications

Parameter	Specification			Unit
	Min	Typ	Max	
<b>MIMO 2x 5G NR (Main + Aux)</b>				
Operating Frequency	600		6000	MHz
VSWR			4.0	
Peak Gain			4	dBi
Impedance		50		$\Omega$
Polarization	Linear			
Power Rating			10	W
<b>MIMO 2x Wi-Fi (Main + Aux)</b>				
Operating Frequency	2400		2483.5	MHz
	4900		5925	
VSWR			2.5	
Peak Gain			4	dBi
Impedance		50		$\Omega$
Polarization	Linear			
Power Rating			10	W
<b>1x GNSS</b>				
Operating Frequency	1561.098		1606	MHz
Peak Gain			3	dBi
VSWR			2.0	
Impedance		50		$\Omega$
Polarization	RHCP			
LNA Gain	26	28	30	dBi
LNA NF			1.5	dB
Supply Voltage (DC)	3		5	V
Current Consumption			15	mA

## Mechanical Specifications

Parameter	Specification
Antenna Dimension	189 x 182 x 85 mm
Material	PC + ABS
Mounting Type	Screw
RF Cable Type	1x RG-174 (GNSS) + 4x LMR100 (LTE, Wi-Fi)
RF Cable Length	3 m
RF Connector	5x SMA (M)
Mounting Torque	Recommended
	Maximum
	1.5 ~ 3 Nm
	5 Nm



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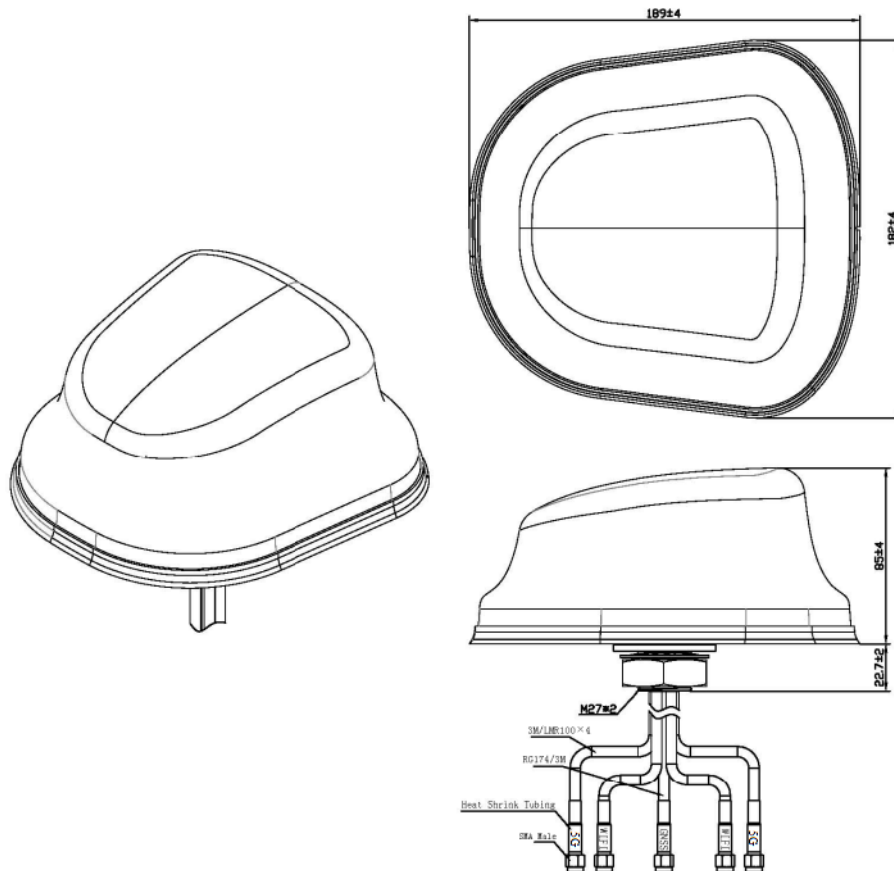


**189.0 x 182.0 x 85.0 mm**  
**RoHS/RoHS II Compliant**  
**MSL Level = 1**

## Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
IP Rating	IP67 (Excluding Cable Outlet)
UL Rating	UL-94 HB
RoHS Compliance	Yes
PB Free	Yes
MSL	1
ESD Sensitive	Yes
Relative Humidity	Up to 95%
Vibration	10 ~ 55 Hz with 1.5 mm amplitude 2 hrs

## Product Dimension



Unit : mm



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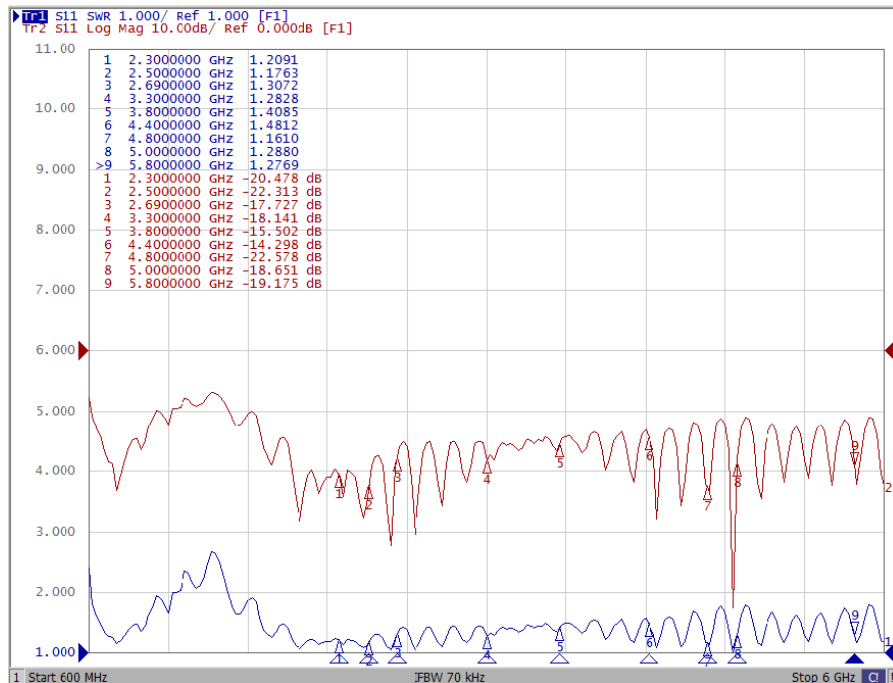
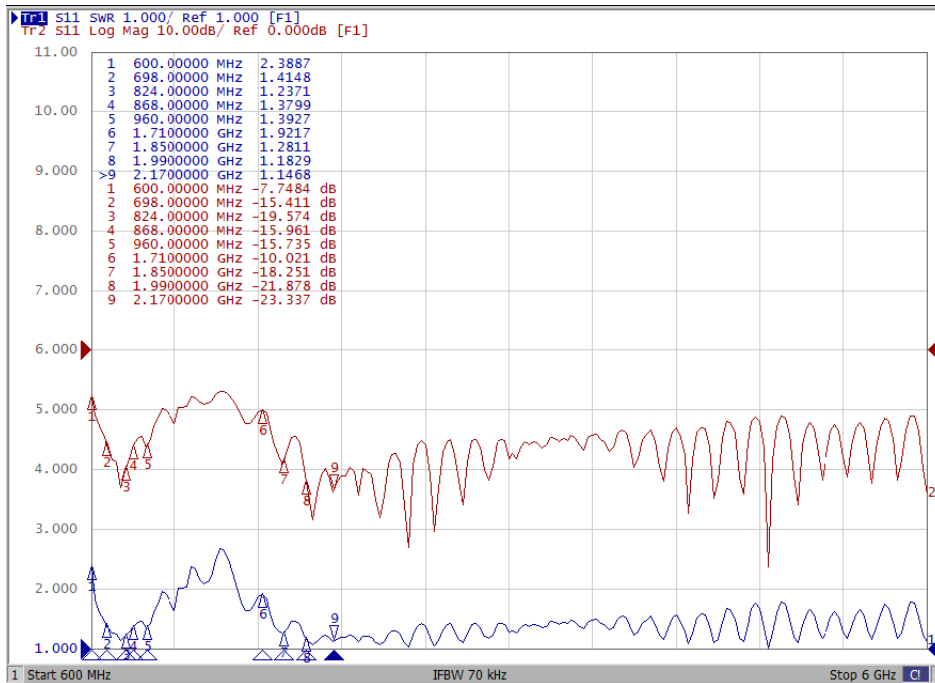
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## Test Measurement - VSWR

### Cellular – 5G NR / 4G/ LTE



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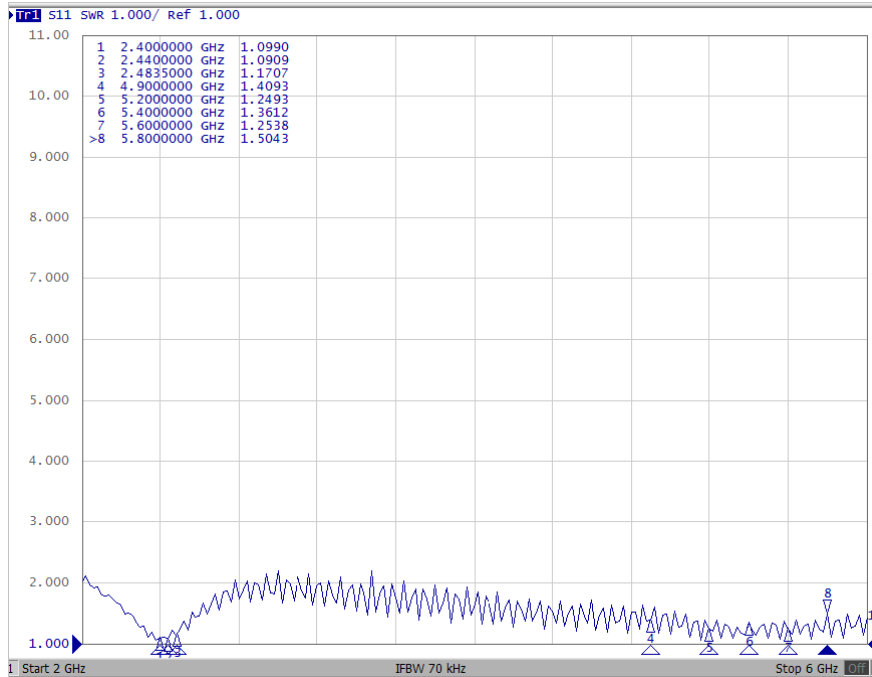


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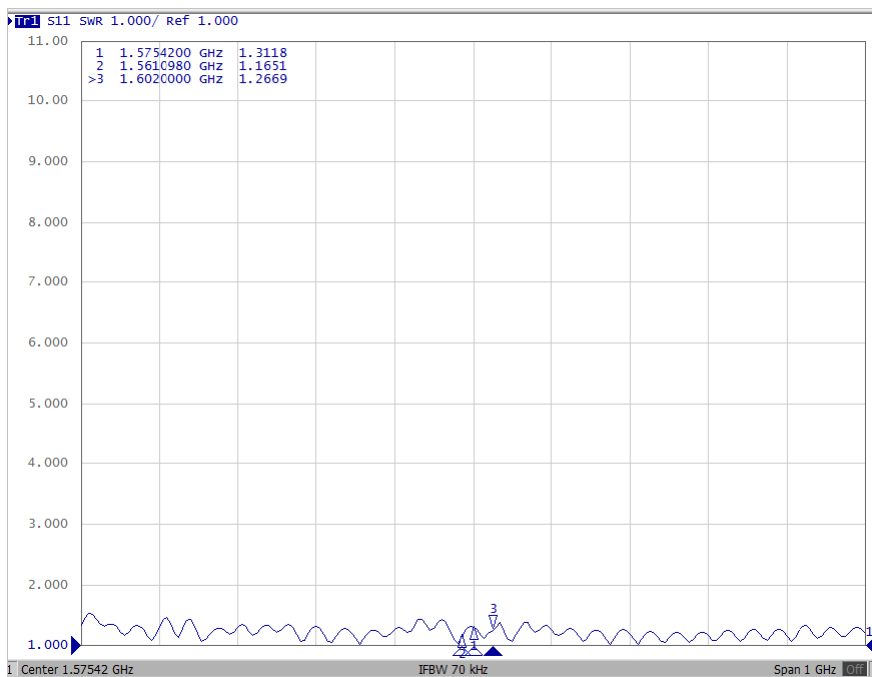


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## Wi-Fi



## GNSS



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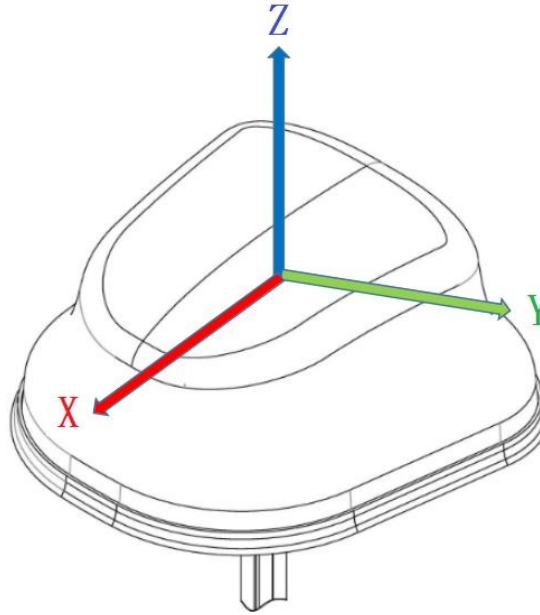


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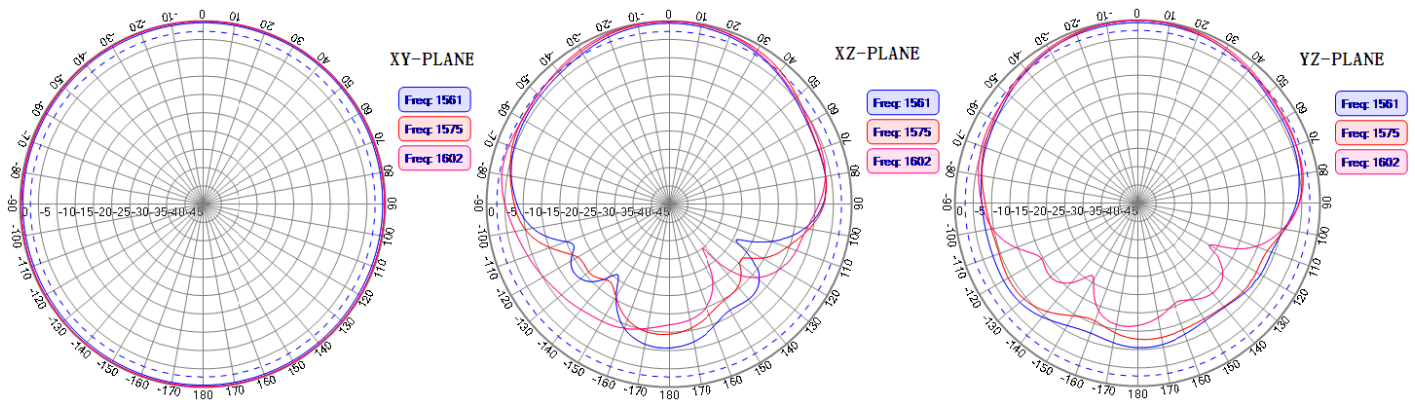
189.0 x 182.0 x 85.0 mm  
RoHS/RoHS II Compliant  
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## Radiation Characteristics



### GNSS

#### 2D Pattern



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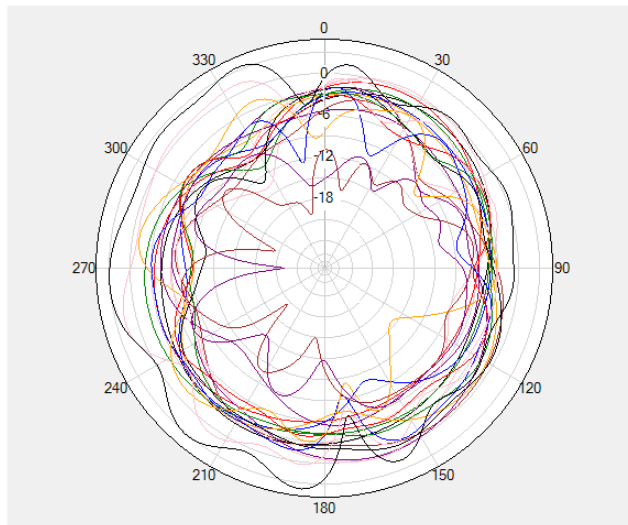


**189.0 x 182.0 x 85.0 mm**  
**RoHS/RoHS II Compliant**  
**MSL Level = 1**

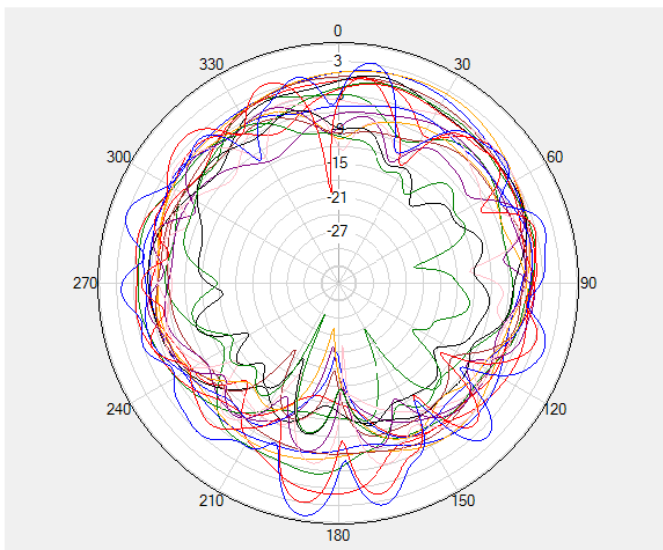
## MIMO 2x5G NR : Main & Aux

### 2D Pattern

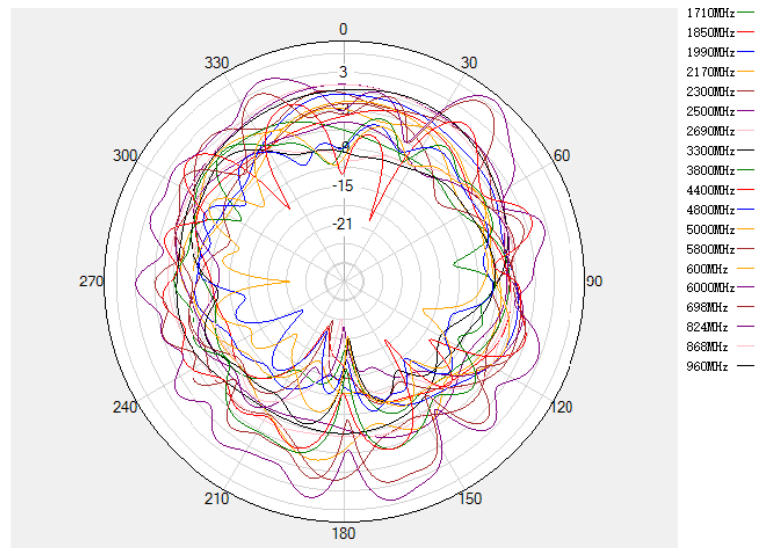
#### XY - Plane



#### XZ - Plane



#### YZ - Plane



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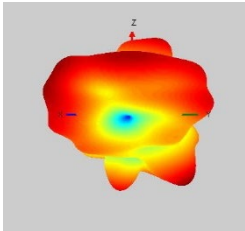
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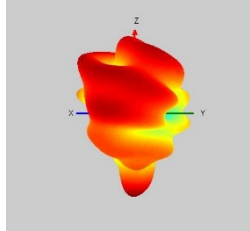
**189.0 x 182.0 x 85.0 mm**  
**RoHS/RoHS II Compliant**  
MSL Level = 1

## 3D Pattern

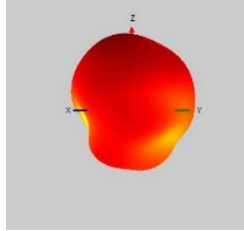
600 MHz



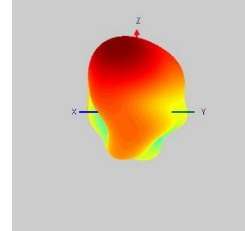
698 MHz



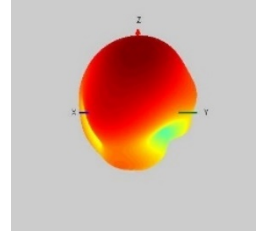
824 MHz



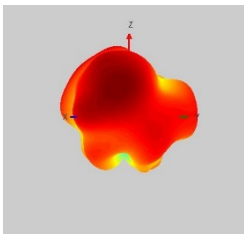
868 MHz



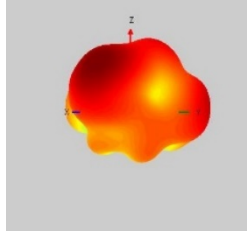
960 MHz



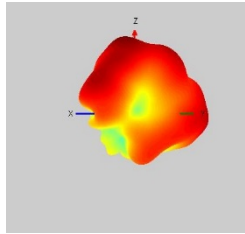
1710 MHz



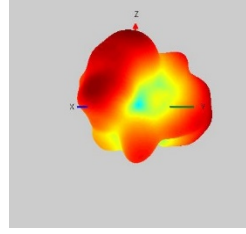
1850 MHz



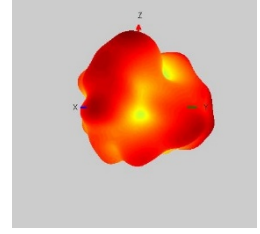
1990 MHz



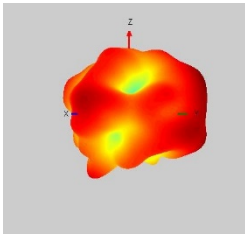
2170 MHz



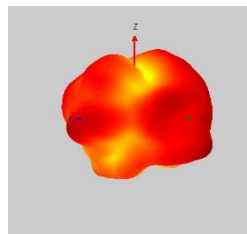
2300 MHz



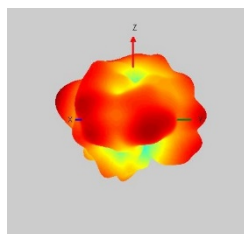
2500 MHz



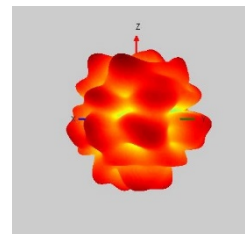
2690 MHz



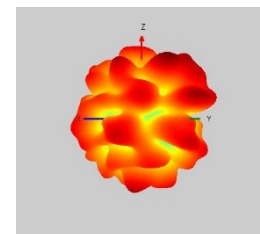
3300 MHz



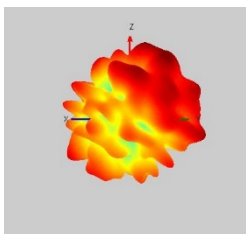
3800 MHz



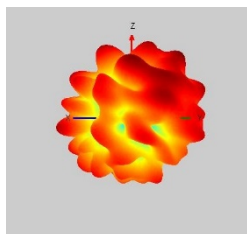
4400 MHz



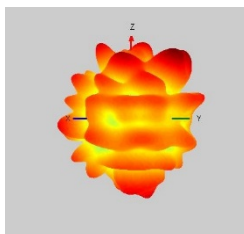
4800 MHz



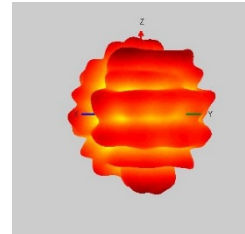
5000 MHz



5800 MHz



6000 MHz



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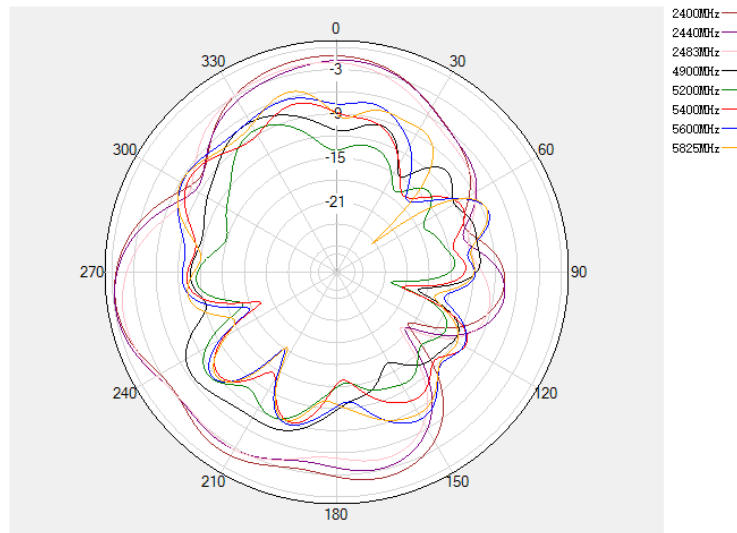


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RoHS/RoHS II Compliant  
MSL Level = 1

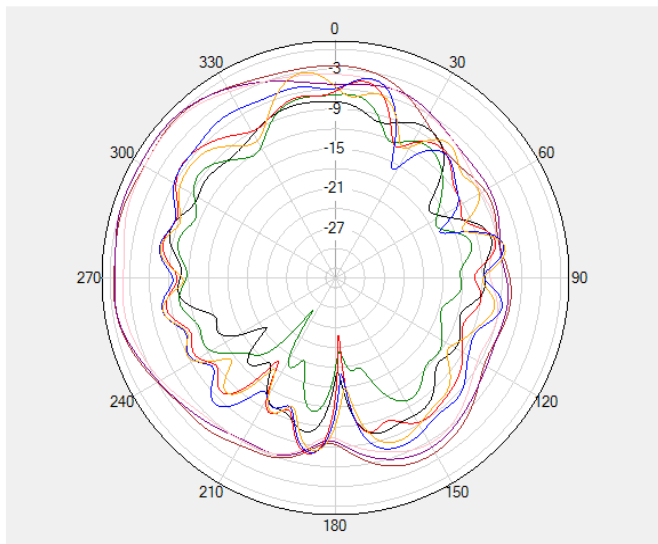
## MIMO 2xWi-Fi : Main & Aux

### 2D Pattern

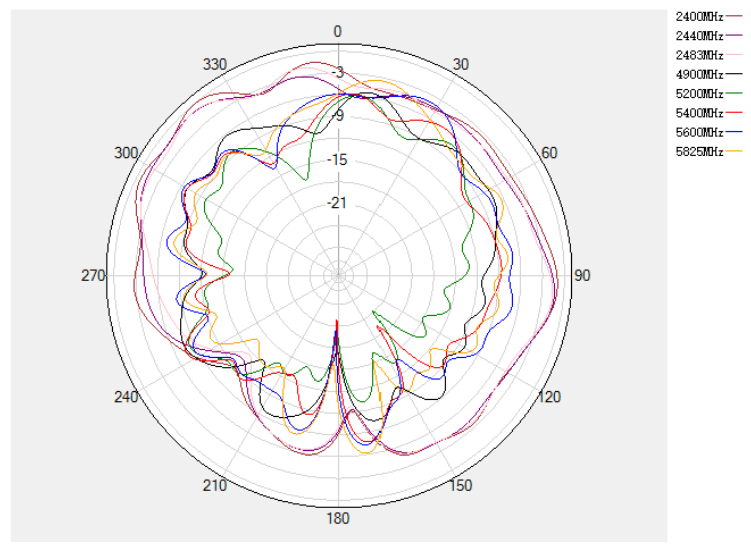
#### XY - Plane



#### XZ - Plane



#### YZ - Plane



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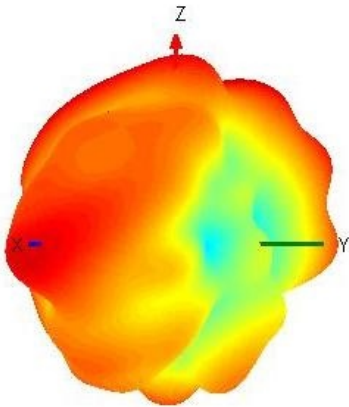
Check Inventory



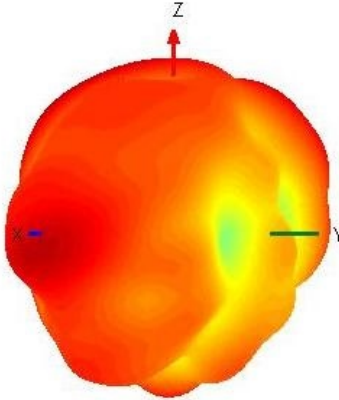
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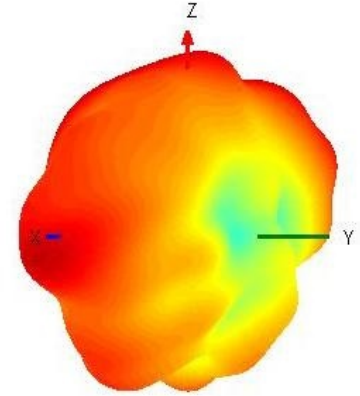
2400 MHz



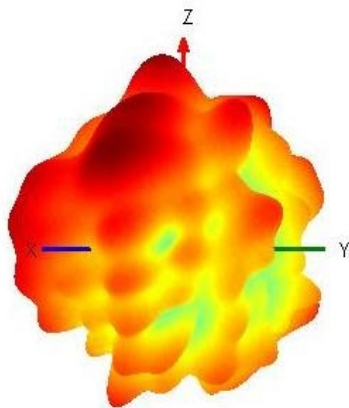
2440 MHz



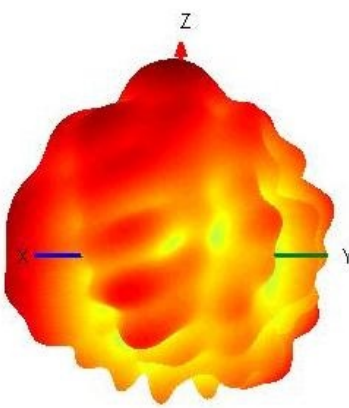
2483 MHz



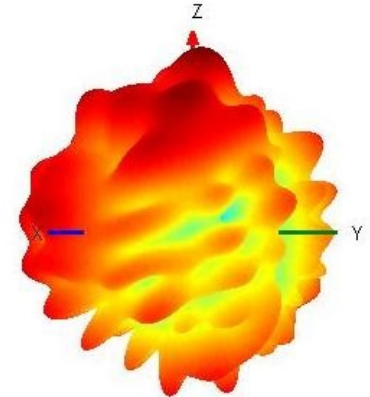
4900 MHz



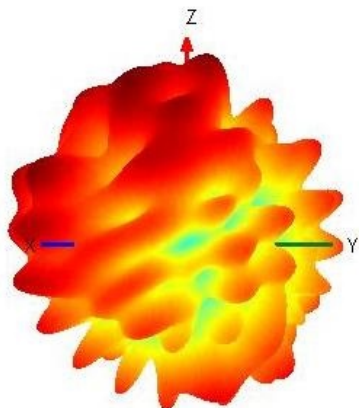
5200 MHz



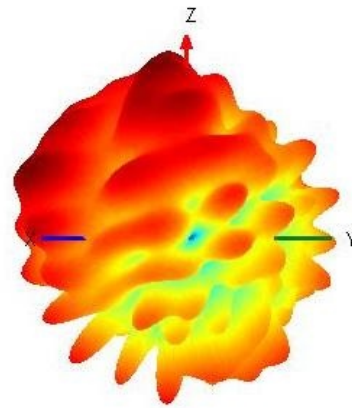
5400 MHz



5600 MHz



5825 MHz



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## Efficiency & Gain

Frequency (MHz)	Efficiency	Gain (dBi)
<b>MIMO 2x5G NR (Main + Aux)</b>		
600	0.63	1.58
698	0.66	1.92
824	0.69	3.26
868	0.55	1.34
960	0.54	1.74
1710	0.57	0.75
1850	0.54	0.72
1990	0.57	0.65
2170	0.59	2.98
2300	0.57	2.75
2500	0.57	2.57
2690	0.61	1.38
3300	0.52	-0.49
3800	0.51	-1.49
4400	0.65	2.16
4800	0.56	-0.17
5000	0.59	-0.57
5800	0.57	4.27
6000	0.55	3.97
<b>MIMO 2xWi-Fi (Main + Aux)</b>		
2400	0.57	4.05
2440	0.54	1.65
2483	0.55	1.47
4900	0.54	-0.75
5200	0.49	-0.59
5400	0.49	1.05
5600	0.51	2.10
5825	0.52	3.17



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**MSL Level = 1**

## Packaging Information

Number of Antenna/ Carton : 8 pcs  
Dimension of the Carton : 430 x 430 x 340 mm  
Weight of 1 pc of antenna : 1 kg  
Weight of the Carton : 9.5 kg

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