

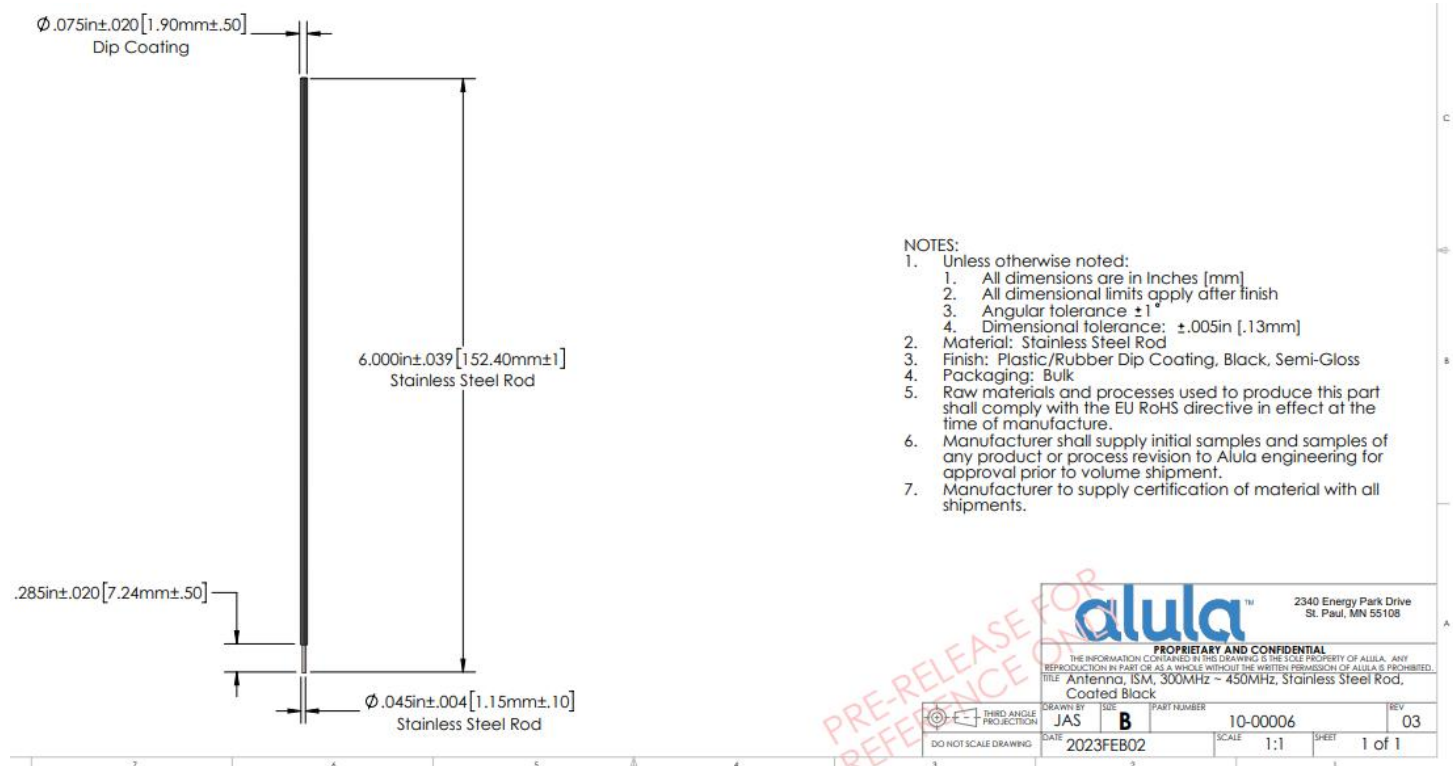
CONNECT-XIP Antennas

433.92MHz Antenna

The sensor antennas 319.5MHz – 433.92MHz are monopole antennas. This antenna type has a gain of 2-5dBi.

Manufacturer: Alula

Address: 428 Minnesota Street Suite 300, St. Paul, MN 55101



$\phi .075\text{in}\pm .020 [1.90\text{mm}\pm .50]$
Dip Coating

8.700in $\pm .039 [220.98\text{mm}\pm 1]$
Stainless Steel Rod

.285in $\pm .020 [7.24\text{mm}\pm .50]$

$\phi .045\text{in}\pm .004 [1.15\text{mm}\pm .10]$
Stainless Steel Rod

REVISIONS				
DATE	REV.	DESCRIPTION	ECO NO.	BY
2025OCT15	01	Initial Drawing	n.a.	JAS

NOTES:

1. Unless otherwise noted:
 1. All dimensions are in inches [mm]
 2. All dimensional limits apply after finish
 3. Angular tolerance $\pm 1^\circ$
 4. Dimensional tolerance: $\pm .005\text{in} [.13\text{mm}]$
2. Material: Stainless Steel Rod
3. Finish: Plastic/Rubber Dip Coating, Black, Semi-Gloss
4. Packaging: Bulk
5. Raw materials and processes used to produce this part shall comply with the EU RoHS directive in effect at the time of manufacture.
6. Manufacturer shall supply initial samples and samples of any product or process revision to Alula engineering for approval prior to volume shipment.
7. Manufacturer to supply certification of material with all shipments.

		2340 Energy Park Drive St. Paul, MN 55108	
PROPRIETARY AND CONFIDENTIAL			
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ALULA. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ALULA IS PROHIBITED.			
TITLE: Antenna, ISM, Long, 300MHz ~ 450MHz, Stainless Steel Rod, Coated Black			
DRAWN BY: JAS	SIZE: B	PART NUMBER: 10-00006-01	REV: 01
DATE: 2023FEB02	SCALE: 1:1	SHEET 1 of 1	

Z-Wave Antenna

The Zwave 908.42MHz-921MHz antenna is an SMA connected antenna, Tekfun part number W50-S. The antenna gain is 1-3dBi.

2dBi 700-2700MHz 4G LTE Boardband (GSM UMTS) & GPS 1575MHz Antenna with SMA male (Swivel)

Home / Products / Indoor Rubber External / 4G LTE (700~2700MHz) / 2dBi 700-2700MHz 4G LTE Boardband (GSM UMTS) & GPS 1575MHz Antenna with SMA male (Swivel)

M50 : single band 2.4GHz
F50 : Dual Bands 2.4/5GHz
W50 Series: Sub 6GHz 5G or 4G LTE



Availability : In Stock Model Number : E131

Part no.	Standard SMA Male	Reverse polarity SMA Male
SMA Swivel	W50-S	W50-SR

Inquiry

Quantity

1

Add to cart

Share



Electrical:

- Type: Dipole antenna
- Frequency: **704-960/1575/1710-2170/2300/2500-2690MHz**
- VSWR: ≤ 2.0
- Impedance: 50ohms
- Gain: 704-960MHz: 1dBi; 1575MHz: 1dBi; 1710-2170MHz: 3dBi; 2500-2690MHz: 2.5dBi
- Radiation: omni
- Electrical Wave: 1/4
- Polarization: Vertical
- Max Power: 1W

WiFi Antenna

The WiFi 2.412GHz – 2.462GHz antenna is an SMA connected antenna, Tekfun part number W50-S. The antenna gain is 1-3dBi.

2dBi 700-2700MHz 4G LTE Boardband (GSM UMTS) & GPS 1575MHz Antenna with SMA male (Swivel)

Home / Products / Indoor Rubber External / 4G LTE (700~2700MHz) / 2dBi 700-2700MHz 4G LTE Boardband (GSM UMTS) & GPS 1575MHz Antenna with SMA male (Swivel)

M50 : single band 2.4GHz
F50 : Dual Bands 2.4/5GHz
W50 Series: Sub 6GHz 5G or 4G LTE



Availability : In Stock Model Number : E131

Part no.	Standard SMA Male	Reverse polarity SMA Male
SMA Swivel	W50-S	W50-SR

Inquiry

Quantity

1

Add to cart

Share



Electrical:

- Type: Dipole antenna
- Frequency: **704-960/1575/1710-2170/2300/2500-2690MHz**
- VSWR: ≤ 2.0
- Impedance: 50ohms
- Gain: 704-960MHz: 1dBi; 1575MHz: 1dBi; 1710-2170MHz: 3dBi; 2500-2690MHz: 2.5dBi
- Radiation: omni
- Electrical Wave: 1/4
- Polarization: Vertical
- Max Power: 1W

Cellular Antenna

The Cellular antenna (698-748MHz, 814-849MHz, 1710-1780MHz, 1850-1915Mhz) is an SMA connected antenna, Tekfun part number W50-S. The antenna gain is 1-3dBi.

2dBi 700-2700MHz 4G LTE Boardband (GSM UMTS) & GPS 1575MHz Antenna with SMA male (Swivel)

Home / Products / Indoor Rubber External / 4G LTE (700~2700MHz) / 2dBi 700-2700MHz 4G LTE Boardband (GSM UMTS) & GPS 1575MHz Antenna with SMA male (Swivel)

M50 : single band 2.4GHz
F50 : Dual Bands 2.4/5GHz
W50 Series: Sub 6GHz 5G or 4G LTE



Availability : In Stock Model Number : E131

Part no.	Standard SMA Male	Reverse polarity SMA Male
SMA Swivel	W50-S	W50-SR

Inquiry

Quantity

1

Add to cart

Share



Electrical:

- Type: Dipole antenna
- Frequency: 704-960/1575/1710-2170/2300/2500-2690MHz
- VSWR: ≤ 2.0
- Impedance: 50ohms
- Gain: 704-960MHz: 1dBi; 1575MHz: 1dBi; 1710-2170MHz: 3dBi; 2500-2690MHz: 2.5dBi
- Radiation: omni
- Electrical Wave: 1/4
- Polarization: Vertical
- Max Power: 1W



Tekfun Co., Ltd.

SPECIFICATION FOR APPROVAL

CUSTOMER _____

DESCRIPTION 3G/4G LTE GSM Multi Band Antenna with SMA male (Swivel)
704-960/1427.9-1510.9/1710-2170/2300-2400/2400-2690MHz

PART NO. W50-S-V4

DATE 2023.2.10

DESIGNER		DIRECTOR	
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Approved by Customer/date:





Tekfun Co., Ltd.

ANTENNA SPECIFICATIONS FOR APPROVAL

1 GENERAL DESCRIPTION

1.1 Type No. : W50-S-V4

1.2 Customer P/N :

2 DESCRIPTION & APPLICATION

This antenna assembly is designed for use in

704-960/1427.9-1510.9/1710-2170/2300-2400/2400-2690MHz

3 ELECTRICAL CHARACTERISTICS

3.1 Frequency Rang: 704-960/1427.9-1510.9/1710-2170/2300-2400/2400-2690MHz

3.2 V.S.W.R: < 3

3.3 Impedance: 50 OHM

3.4 Type of Radiation: Omni-directional

3.5 Polarization: Vertical

3.6 Gain:
704-960 MHz ==> 1dBi
1447.9-1510.9 MHz ==> 2dBi
1710-2170 MHz ==> 2dBi
2300-2400 MHz ==> 2dBi
2500-2690MHz==> 2dBi

3.7 Connector: SMA Male (Swivel) Brass

Whip Material: ABS

3.8 Size: 135.6x20.1mm

3.9 Color: Black

4 ENVIRONMENTAL CHARACTERISTICS

4.1 Operating temperature range -35°C to + 75°C

4.2 Storage temperature range -40°C to + 80°C

5 QUALIFICATION TESTING

5.1 All products shall be able to withstand the following testing.

5.2 Physical dimensions identified within this specification.

6 PACKING STYLE

Polybag/each 600pcs in a carton: GW: 9.5kgs / Carton Size: 41*31*22cm





Tekfun Co., Ltd.

ANTENNA SPECIFICATIONS FOR APPROVAL

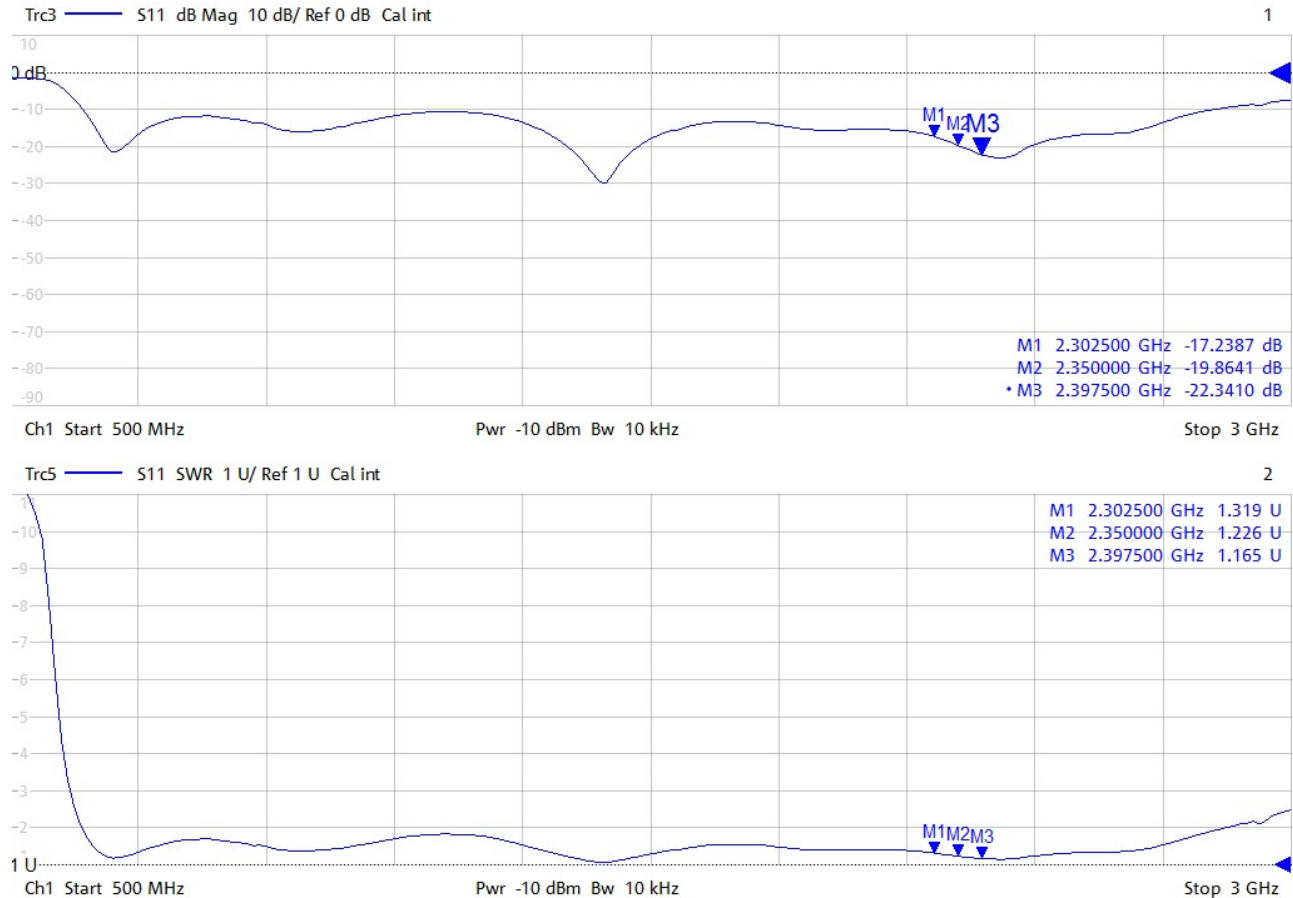
7 DRAWING (MM)



ANTENNA SPECIFICATIONS FOR APPROVAL

8 TEST- VSWR & RETURN LOSS

2300-2400MHz

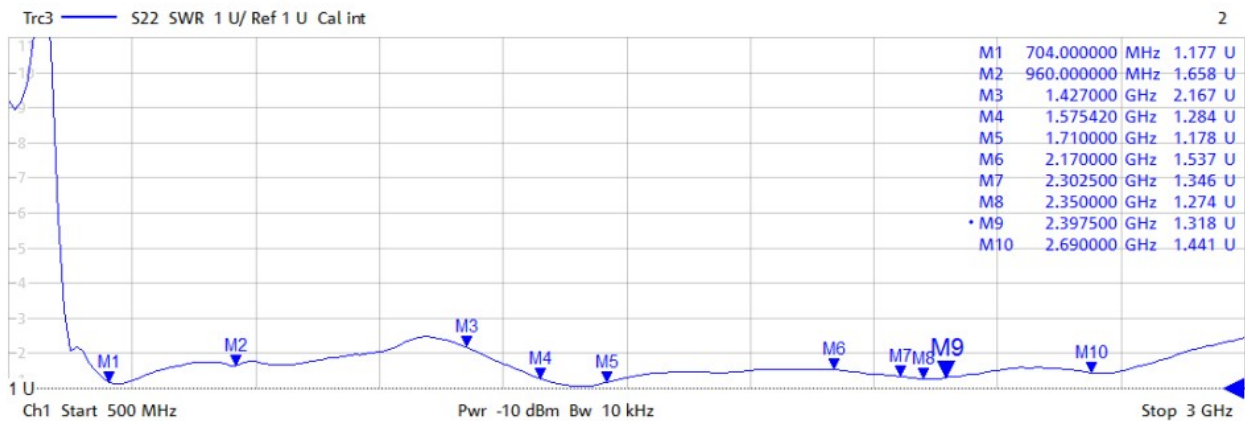
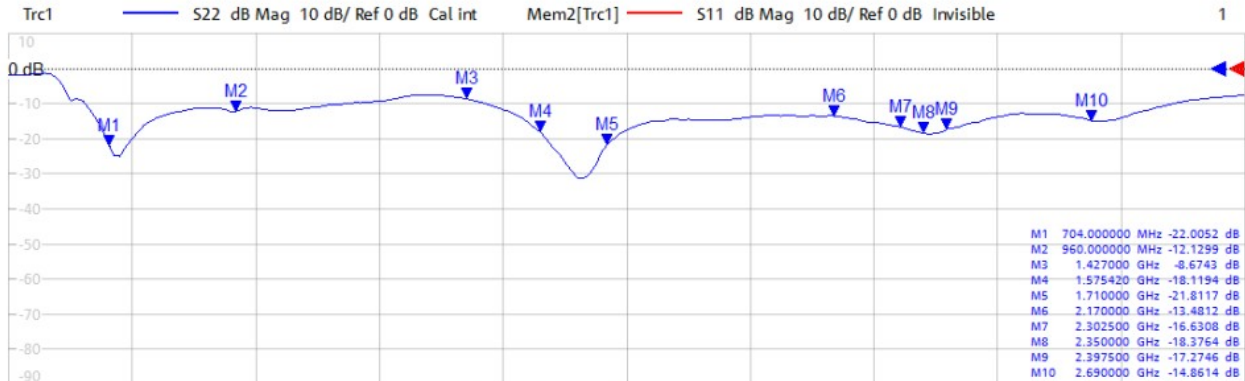




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ANTENNA SPECIFICATIONS FOR APPROVAL

704~2690MHz



ANTENNA SPECIFICATIONS FOR APPROVAL

9 Antenna Efficiency

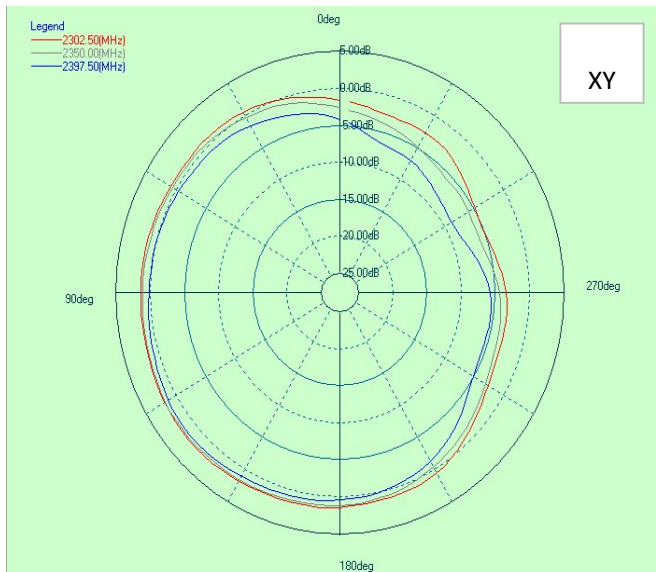
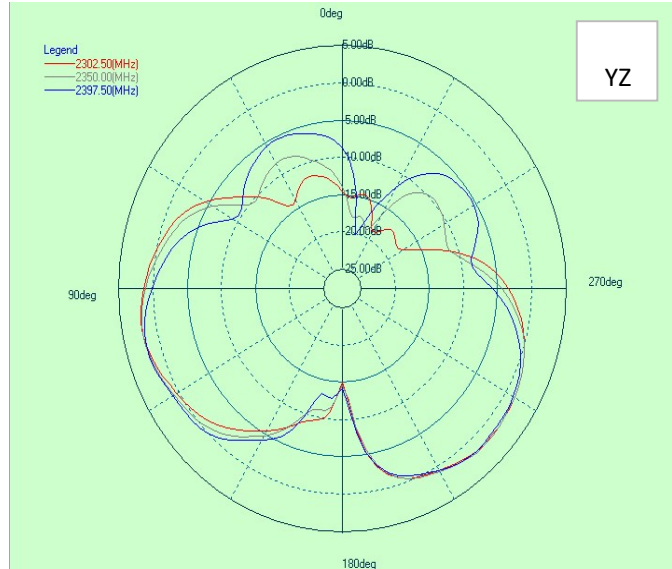
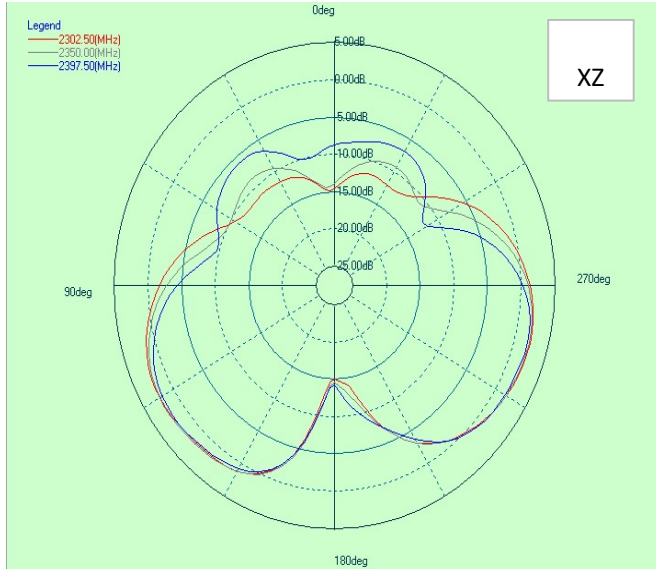
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)	V+H Peak Gain (dBi)		
			X-Y plane	Y-Z plane	X-Z plane
704	55.92	1.45	-1.25	-1.21	-1.82
960	51.78	2.82	-2.18	-2.25	-2.11
1427.9	60.13	2.52	-1.27	-2.63	-0.52
1575.42	65.56	2.74	0.58	-1.12	0.84
1710	65.81	2.97	0.68	-0.88	0.70
2170	62.63	2.91	1.43	0.70	1.74
2302.5	68.58	2.86	2.01	2.09	2.35
2350	67.74	2.68	1.86	2.10	2.35
2397.5	66.91	2.48	1.48	2.03	1.98
2400	66.13	2.85	1.48	1.95	1.98
2690	63.18	2.89	-0.92	0.29	1.87

ANTENNA SPECIFICATIONS FOR APPROVAL

10 Antenna Pattern

2D Radiation Pattern

2300~2400 MHz





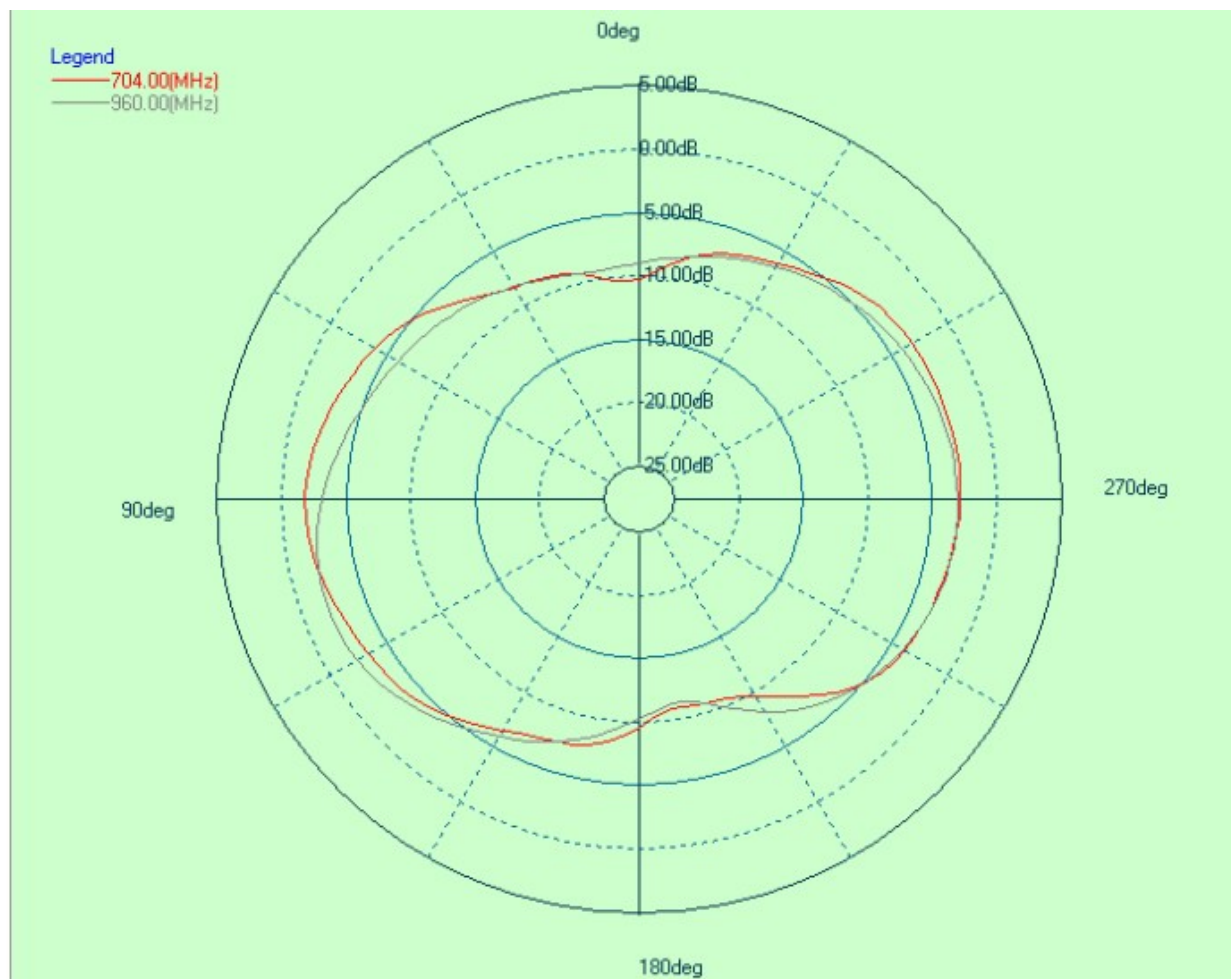
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ANTENNA SPECIFICATIONS FOR APPROVAL

2D Radiation Pattern

704~ 960 MHz

XZ Plane

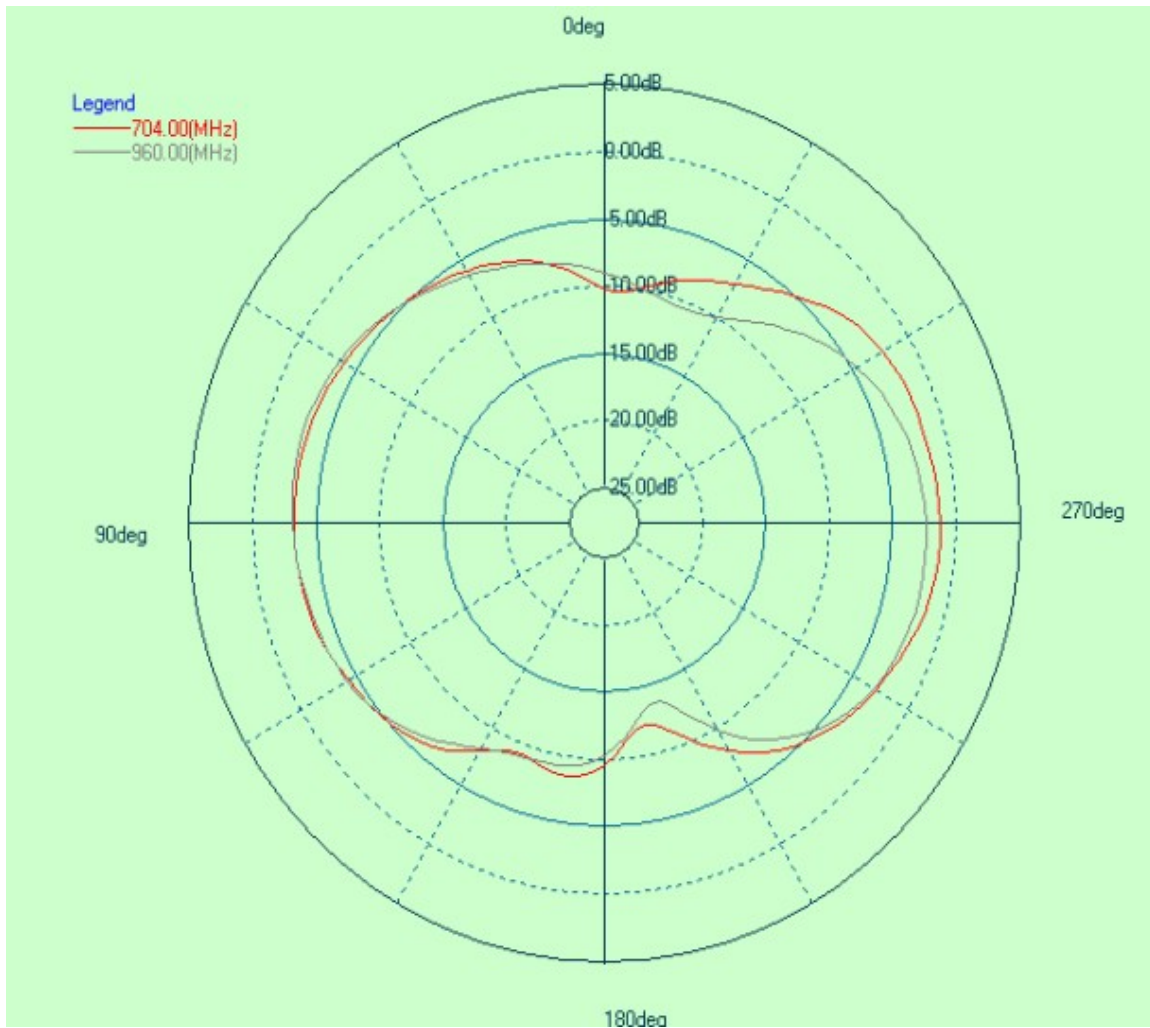


ANTENNA SPECIFICATIONS FOR APPROVAL

2D Radiation Pattern

704~ 960 MHz

YZ Plane





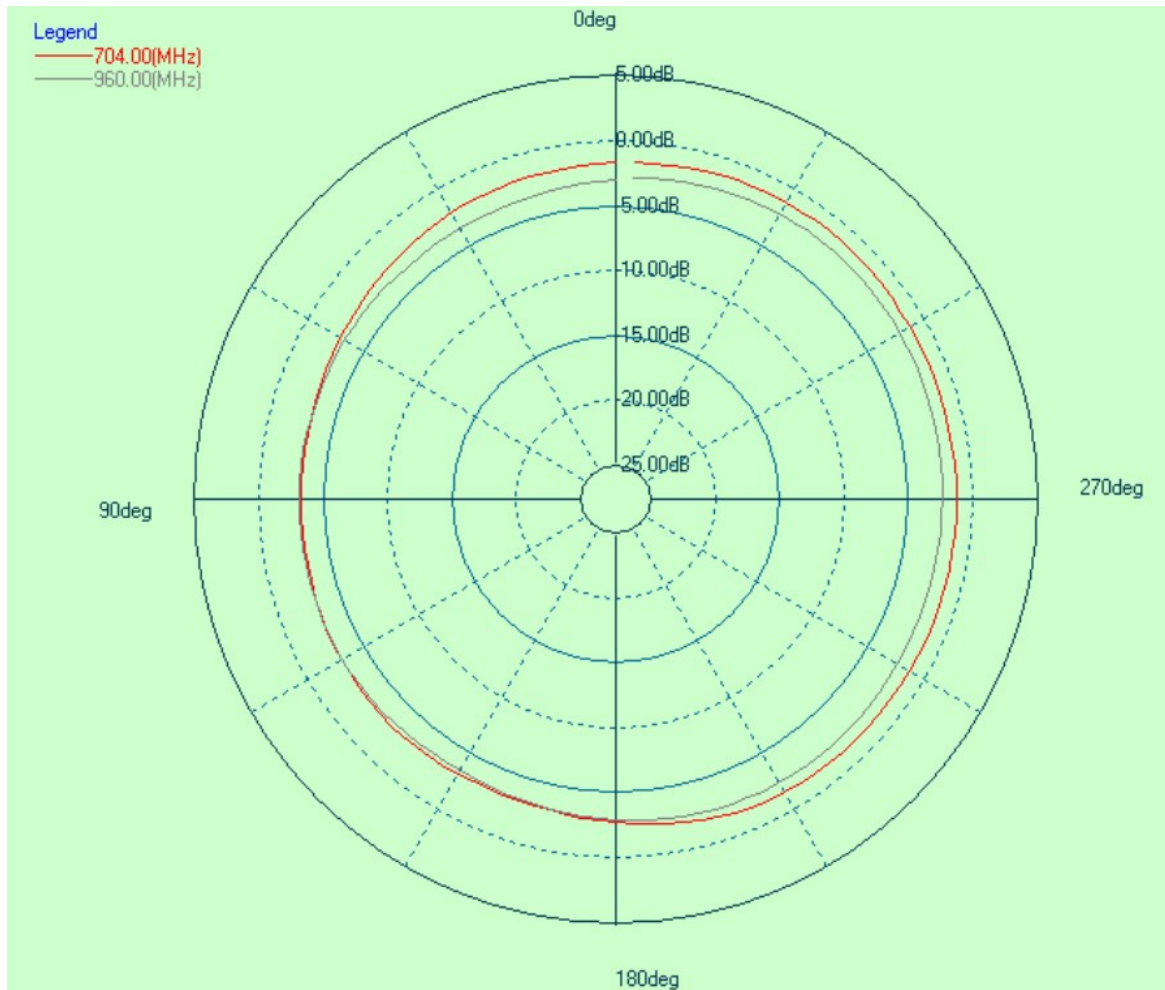
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ANTENNA SPECIFICATIONS FOR APPROVAL

2D Radiation Pattern

704~ 960 MHz

XY Plane





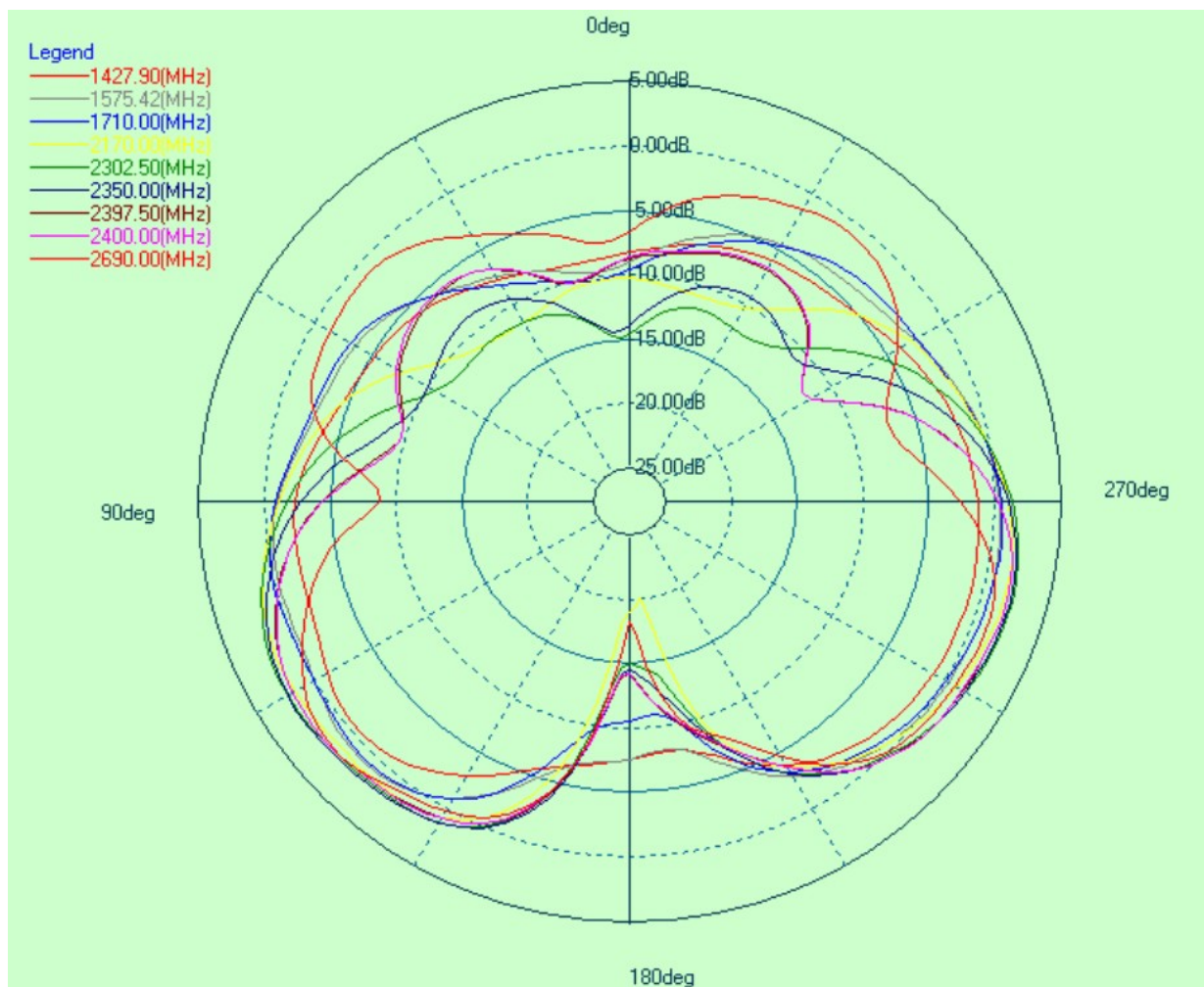
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ANTENNA SPECIFICATIONS FOR APPROVAL

2D Radiation Pattern

1427.9~2690 MHz

XZ Plane

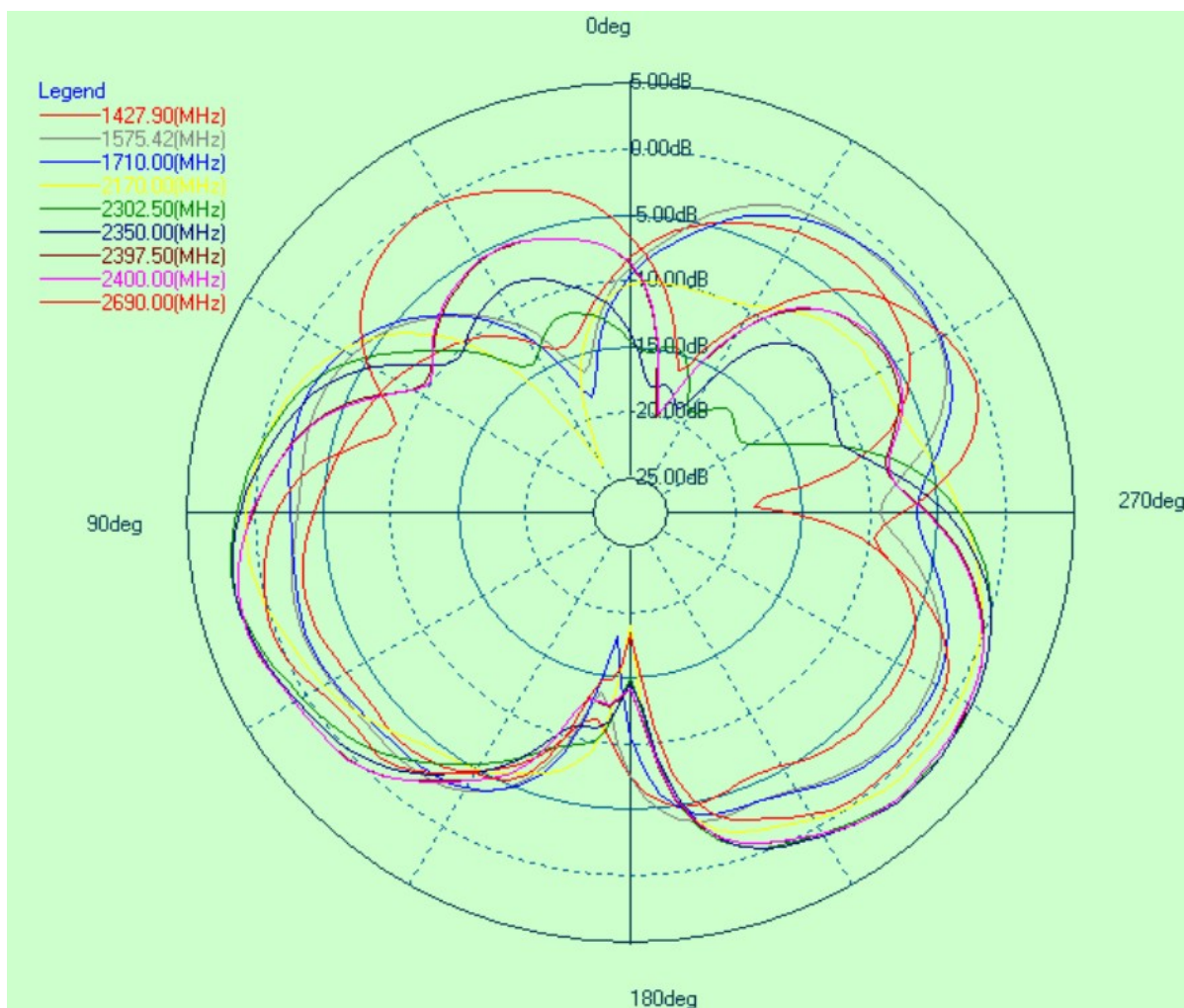


ANTENNA SPECIFICATIONS FOR APPROVAL

2D Radiation Pattern

1427.9~2690 MHz

YZ Plane



ANTENNA SPECIFICATIONS FOR APPROVAL

2D Radiation Pattern

1427.9~2690 MHz

XY Plane

