



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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**Features:**

- Supports MIMO Cellular LTE 698-960/1695-2170/2300-2700/2900-3600MHz
- Supports WiFi and DSRC 2400-2500MHz/4900-5925MHz
- Supports Beidou, GPS, Galileo, GLONASS
- Direct Mount and optional Magnetic Mount features
- See GPSMBMM for magnetic mount details

**Applications:**

- Telematics
- Location based services
- First Responders(Police, Ambulance, Fire)
- Government
- Energy(Utility Vehicles)
- Fleet Management

All dimensions are in mm / inches

Issue: 1706P

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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Preliminary





**ELECTRICAL SPECIFICATIONS**

Frequency (LTE)	698-960/1695-2170/2300-2700/2900-3600 MHz
Frequency (WiFi & DSRC)	2400-2500/4900-5925 MHz
Frequency (Beidou, GPS, Galileo, Glonass)	1561.098±2.046/ 1575.42±1.023/ 1602.5625±4MHz
Nominal Impedance	50 Ω
VSWR** (LTE)	<1.5
VSWR** (WiFi & DSRC)	<1.4
Gain* (LTE antenna, <2170MHz)	4 dBi ± 2.5 dB
Gain* (LTE antenna, >2170MHz)	5 dBi ± 2 dB
Gain* (WiFi antenna, <2500MHz)	4.5 dBi ± 1.5 dB
Gain* (WiFi antenna, >4900MHz)	5 dBi ± 2 dB
Isolation LTE to LTE**	15 dB or better
GNSS antenna RHCP gain	1 dBic ± 2 dB
LNA gain	30 dB ± 2 dB
Noise Figure	2.5 (cascade) dB
Current	9 mA ± 2 mA
Vdc	3-5Vdc
LNA and filter attenuation	
	@ 824 MHz 70 dB
	@960 MHz 65 dB
	@1710 MHz 60 dB
	@2170 MHz 65 dB

\*Measured on 2ft GND plane and with 4 inch cables

\*\*In free space with 17ft cables

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Preliminary

**Description:** MiMo LTE, WiFi, GNSS Vehicle Mount Antenna

**Series:** Panther

**PART NUMBER:** GPSMB401

### ELECTRICAL SPECIFICATIONS

Connector type(s)	SMA (LTE and GPS) /SMA-RP (WiFi)
Cable type(s)	RG-58 (LTE and WiFi) / RG-174 (GPS)
Length	17 Feet

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**Description:** MiMo LTE, WiFi, GNSS Vehicle Mount Antenna

**Series:** Panther

**PART NUMBER:** GPSMB401

## MECHANICAL SPECIFICATIONS

Plastic radome	ABS/PC Material UV Stabilized, UL-94HB
Color	Black
Ingress Protection	IP67
Weight	~1340 g
Fixing system	Roof mounting (Also Magnet mounting accessory available, GPSMBMM) Recommended fastening torque 1518ft-lb (20-25Nm).

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature	MIL-STD 810G -40/+85° C
Humidity	95%RH @ +25°C for 12h and 55°C for 12h
Vibration	MIL-STD 810G, section 514.6 , 5-500 Hz, 60min/axis
Thermal Shocks	MIL-STD 810G, section 503.5, -40 to +85°C, 3 cycles
Drop Test	Minimum of one drop per axis – 4, 1 meter drops

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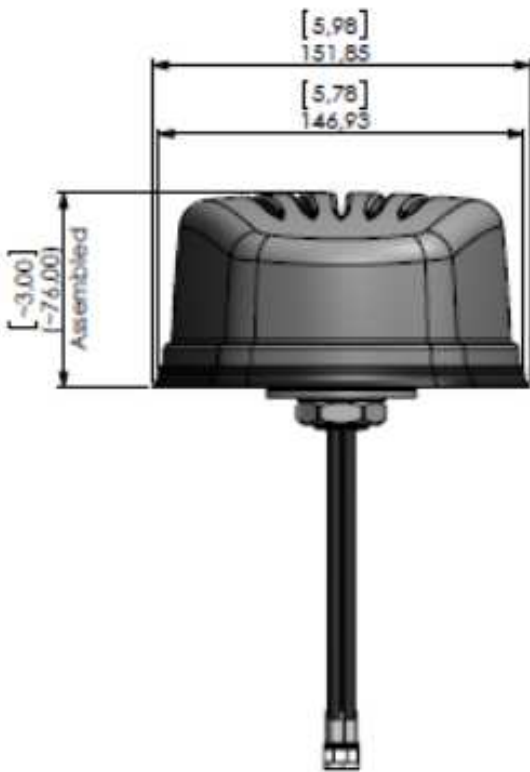
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MECHANICAL DRAWING



**Description:** MiMo LTE, WiFi, GNSS Vehicle Mount Antenna

**Series:** Panther

**PART NUMBER:** GPSMB401

**TEST SETUP**



For VSWR, test in free space with 17ft cables



For radiation performance, test on 2ft GND plane with 4inch cables

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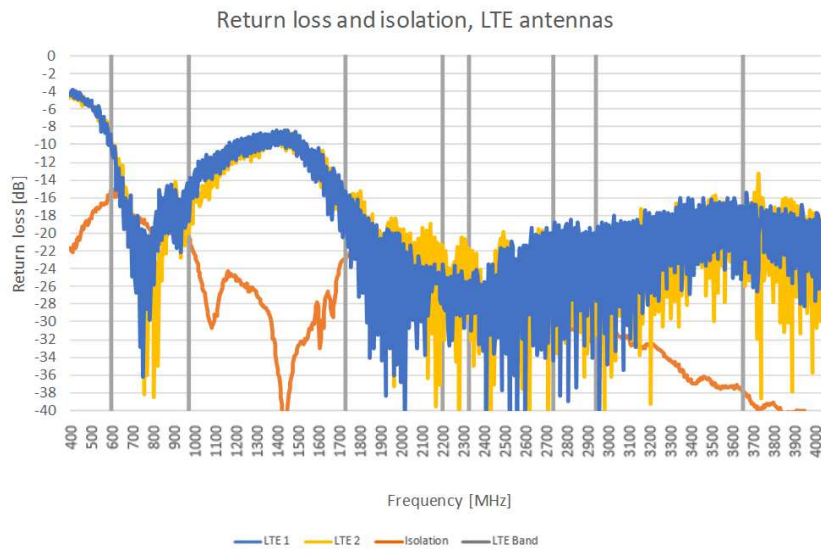
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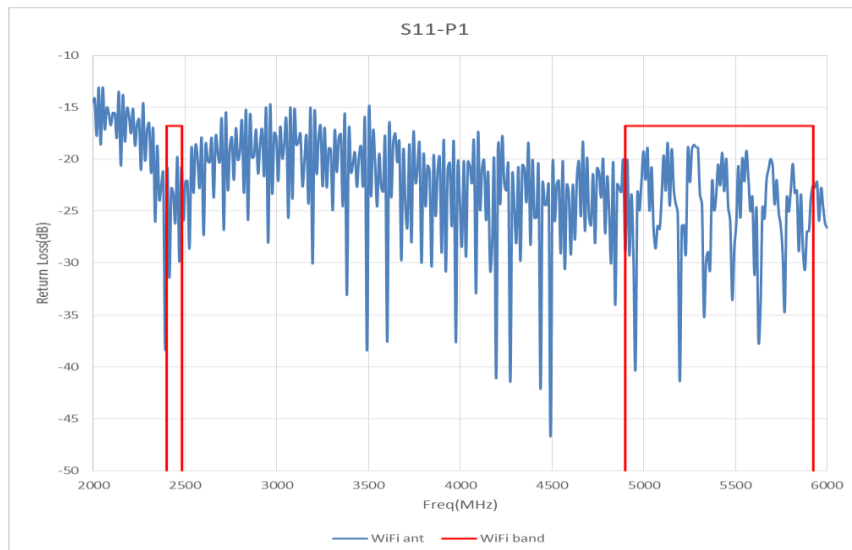
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CHARTS

Return Loss and isolation in free space, LTE antennas\*\*



Return Loss in free space, WiFi antenna\*\*



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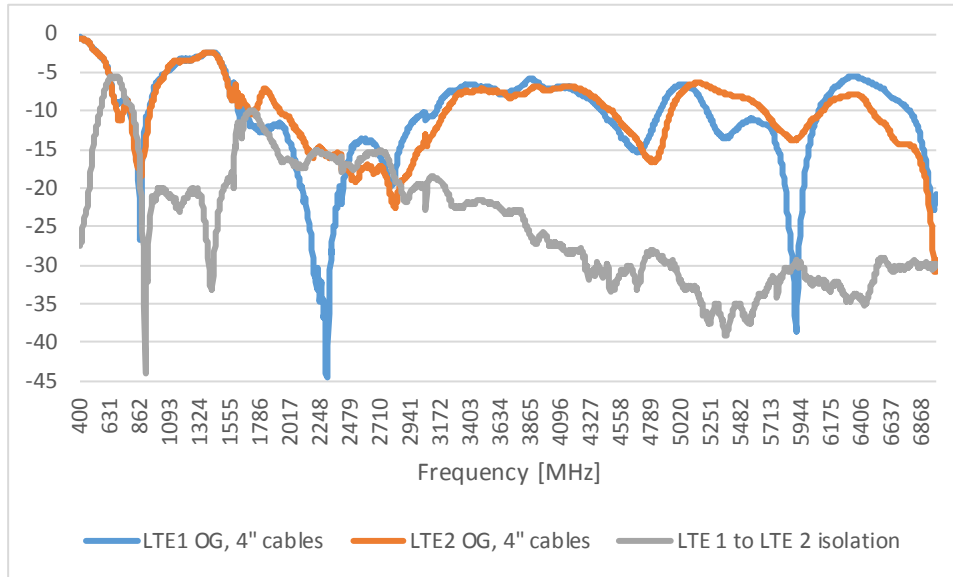
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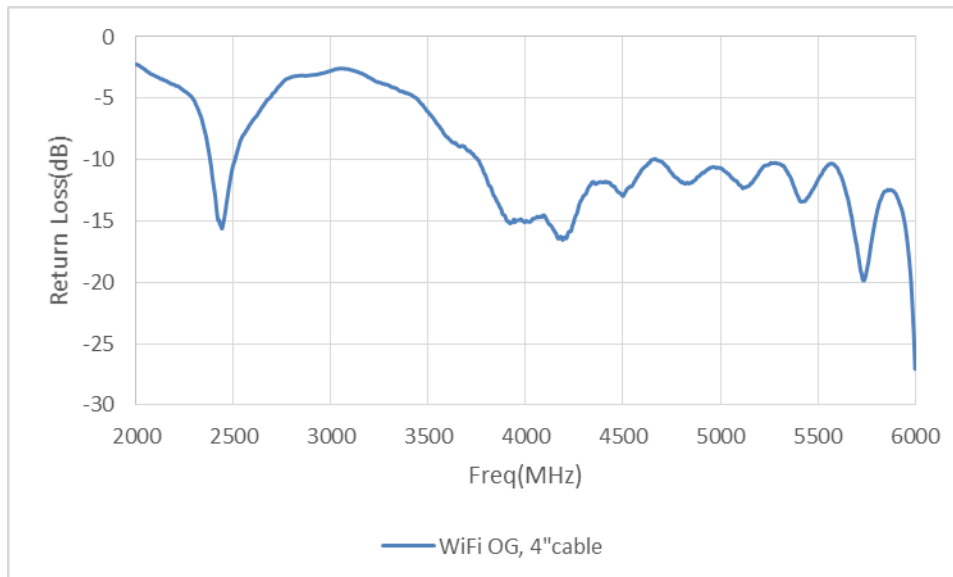


CHARTS

Return Loss and isolation, LTE antennas\*



Return Loss, WiFi antenna\*



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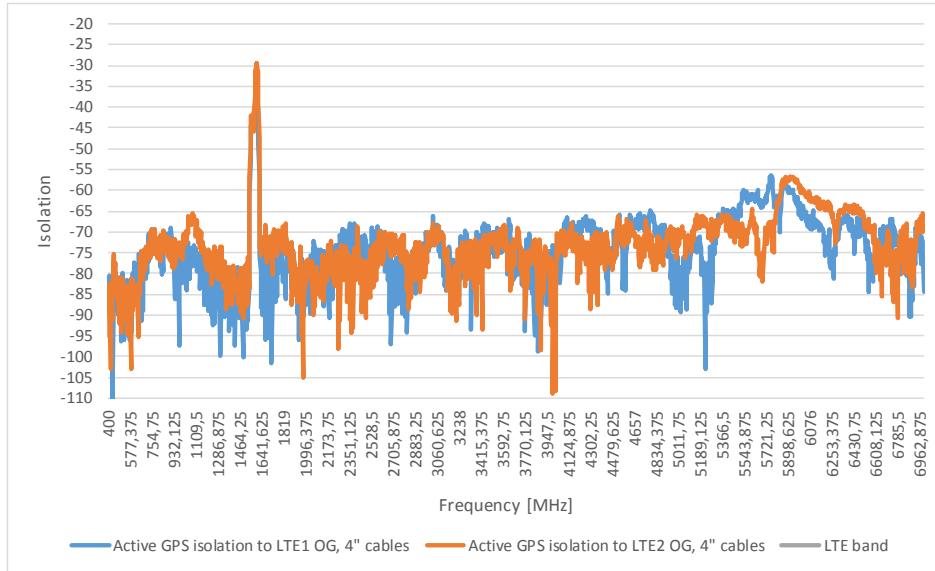
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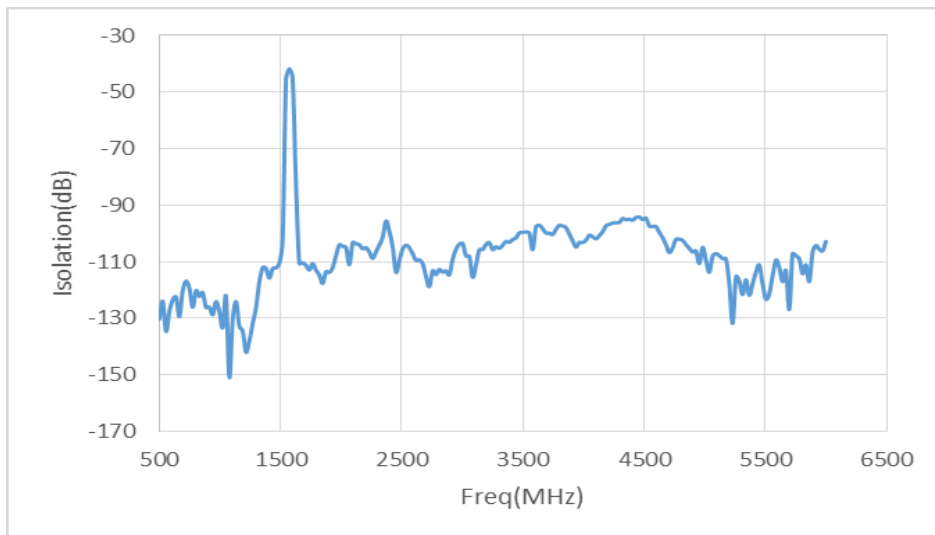


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GPS isolation to LTE 1 and LTE 2 antenna\*



GPS isolation to WiFi antenna\*



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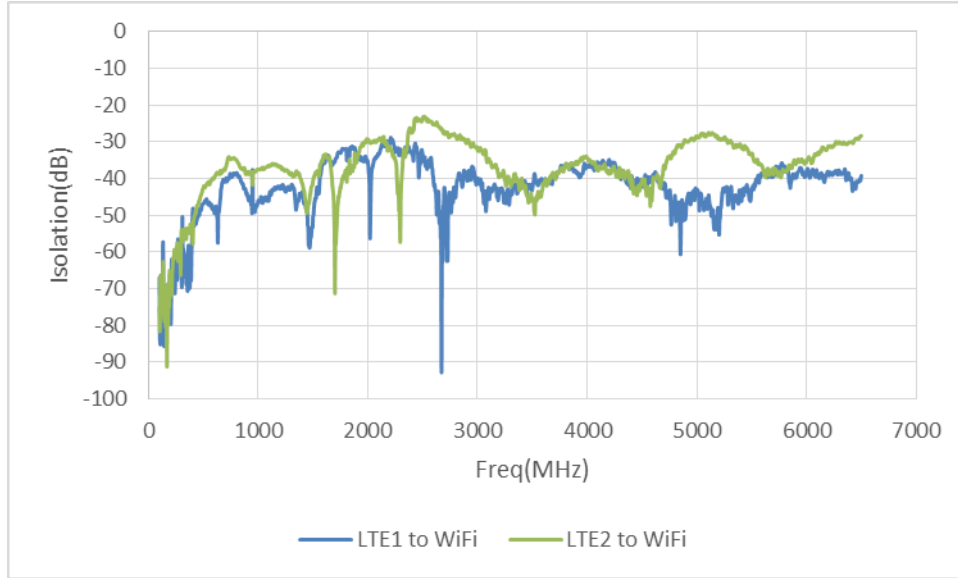
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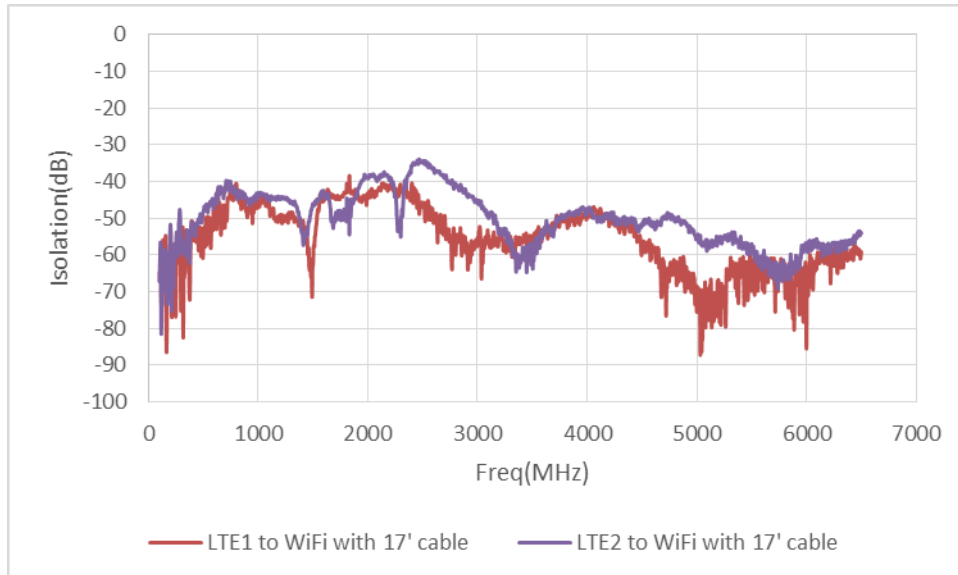


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Isolation characteristics, WiFi to LTE 1 and LTE 2\*



Isolation characteristics, WiFi to LTE 1 and LTE 2\*\*



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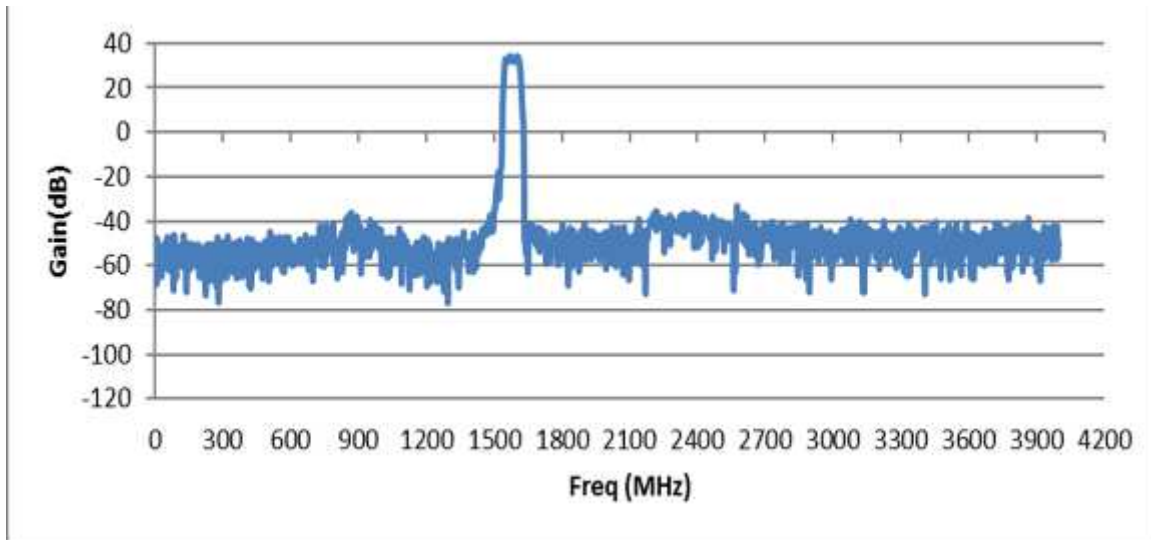
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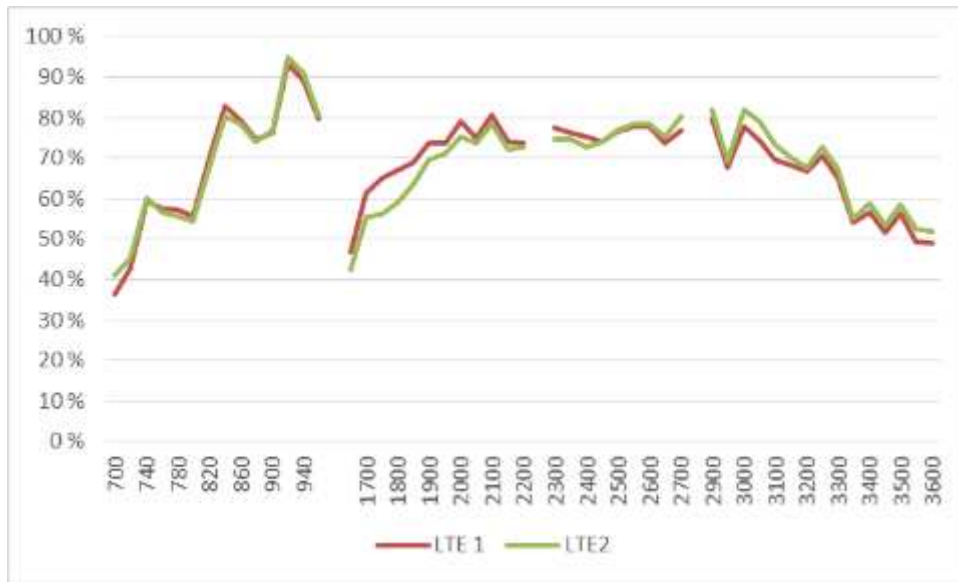
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GNSS LNA performance



CHARTS

LTE antenna total efficiency with 2ft metal plate and 4inch cables



Maximum 3D gain, LTE antenna with 2ft metal plate and 4inch cables



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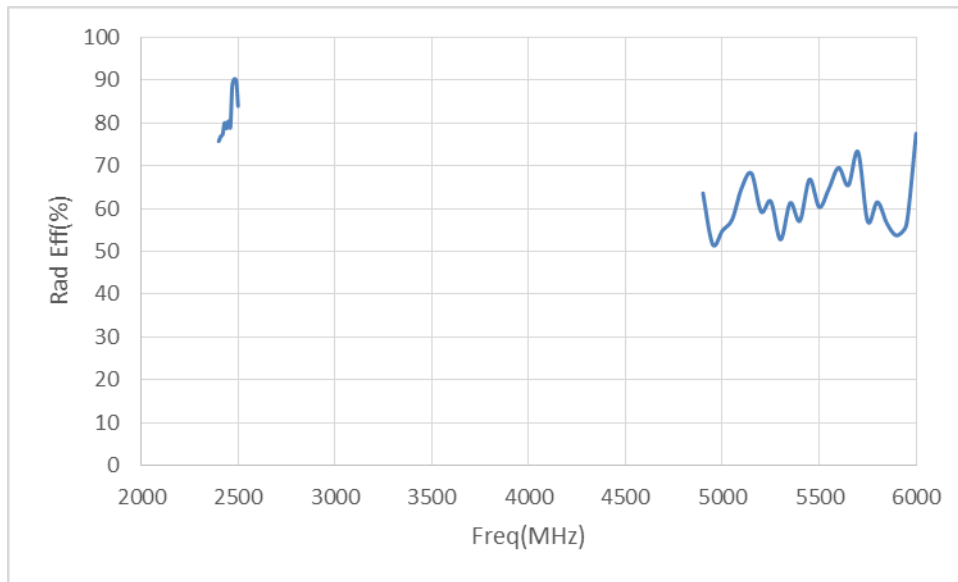
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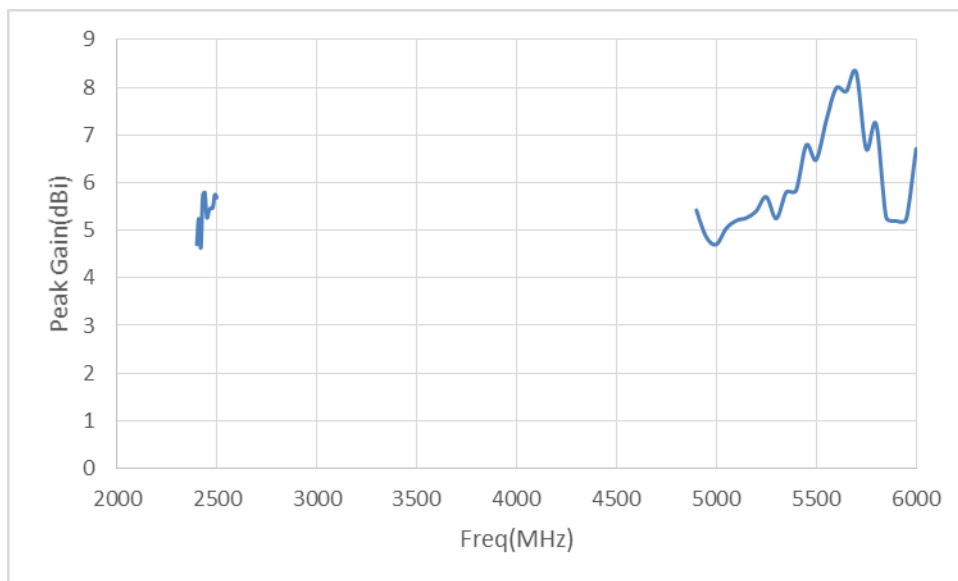


CHARTS

WiFi antenna total efficiency with 2ft metal plate and 4inch cables



Maximum 3D gain, WiFi antenna with 2ft metal plate and 4inch cables



Preliminary

Issue: 1706P

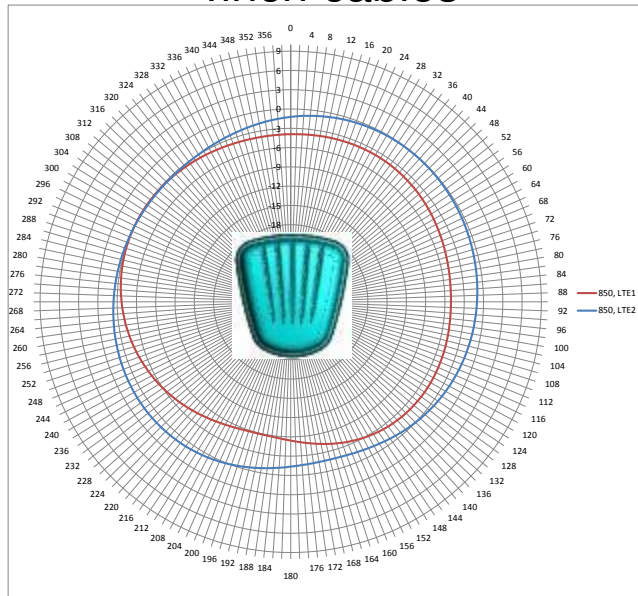
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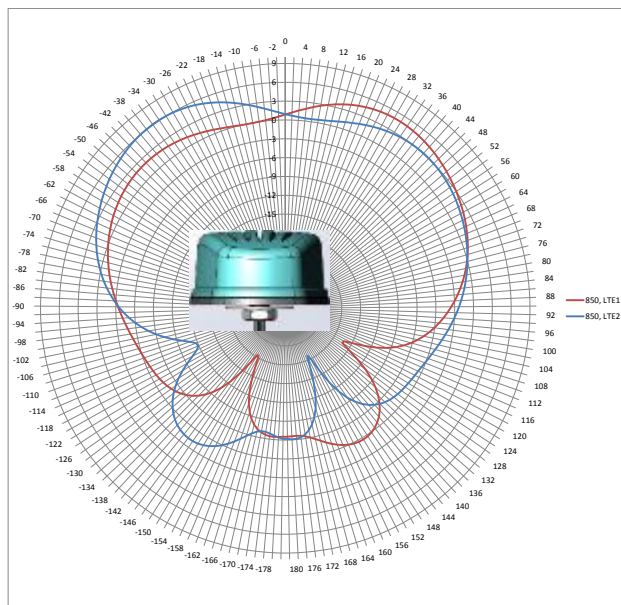
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CHARTS

LTE antenna radiation pattern at 850MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

Issue: 1706P

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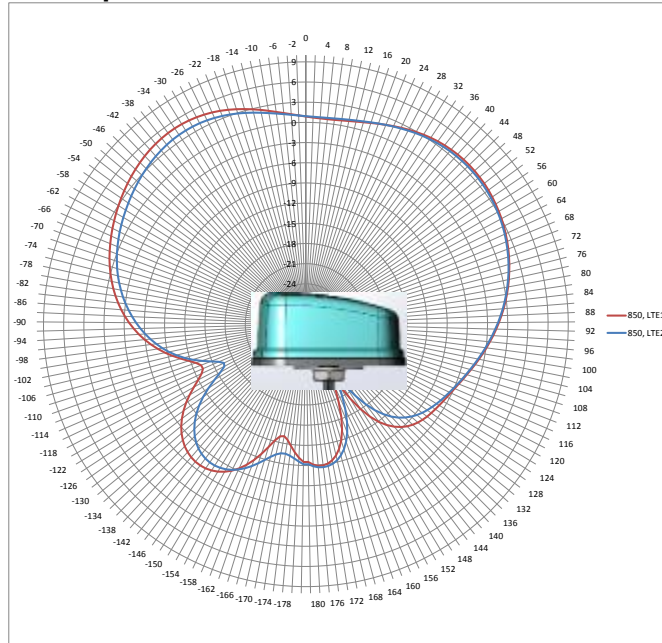
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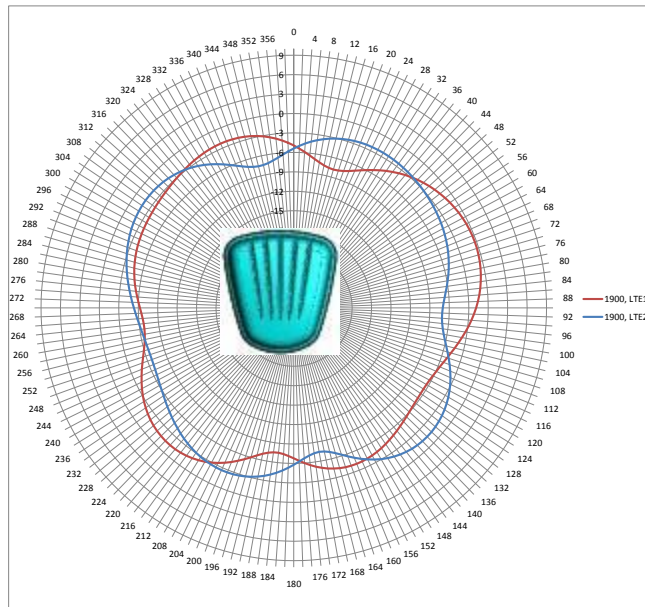
CHARTS

LTE antenna radiation pattern at 850MHz with 2ft metal plate and

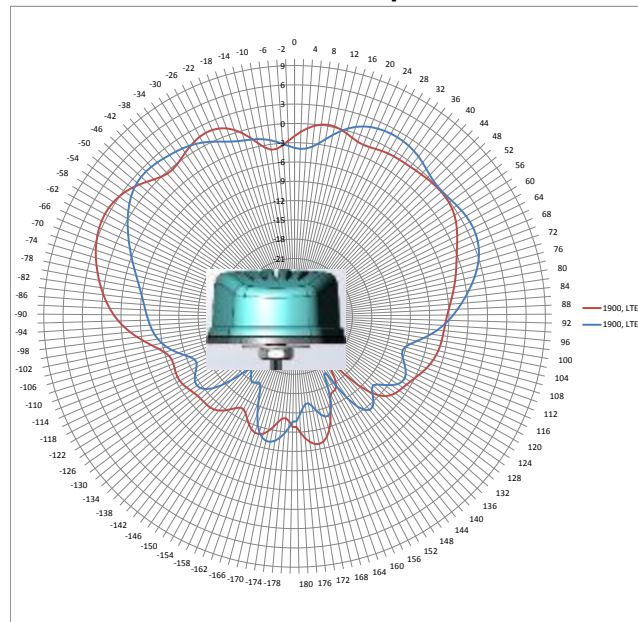


CHARTS

LTE antenna radiation pattern at 1900MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

Issue: 1706P

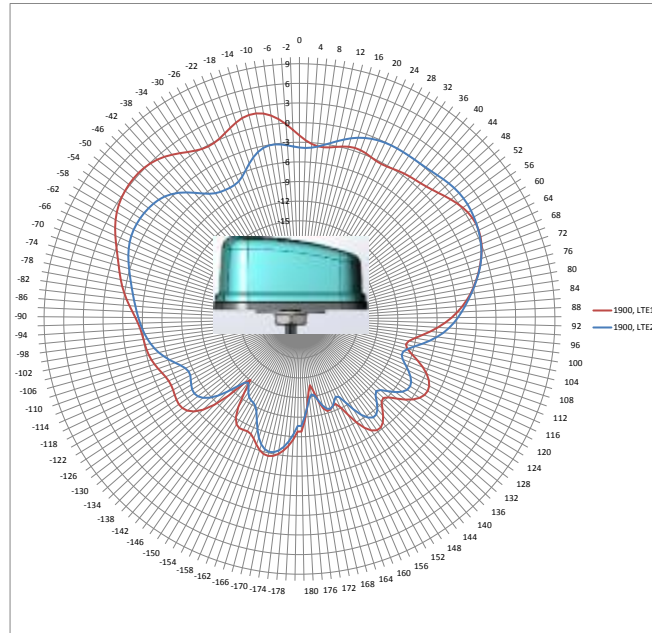
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CHARTS

LTE antenna radiation pattern at 1900MHz with 2ft metal plate and 4inch cables

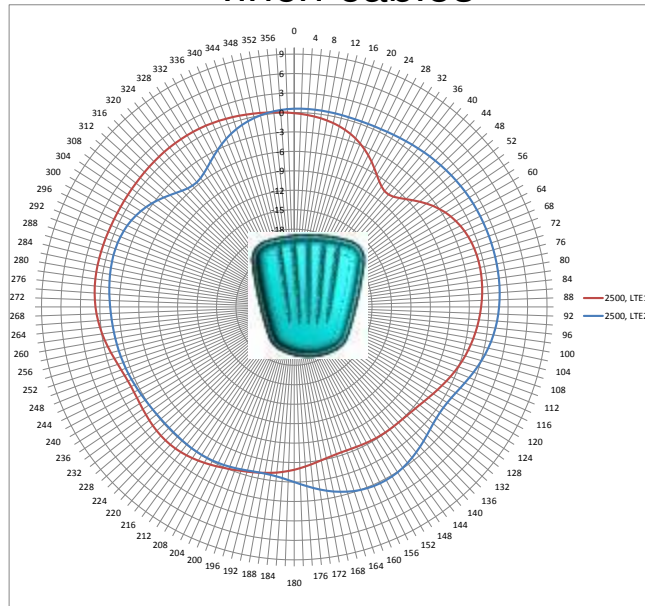


Vertical plot side view

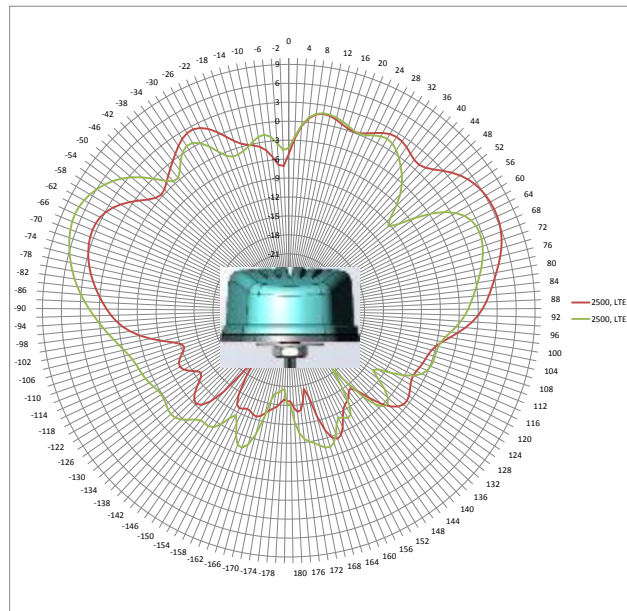


CHARTS

LTE antenna radiation pattern at 2500MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

Issue: 1706P

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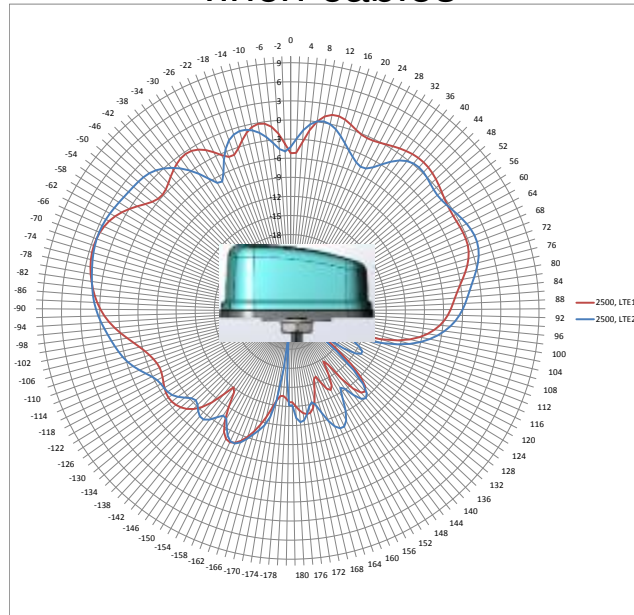
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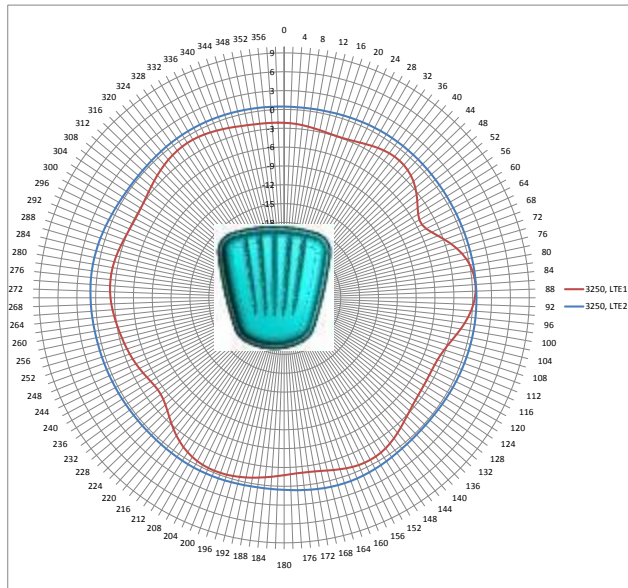
LTE antenna radiation pattern at 2500MHz with 2ft metal plate and 4inch cables



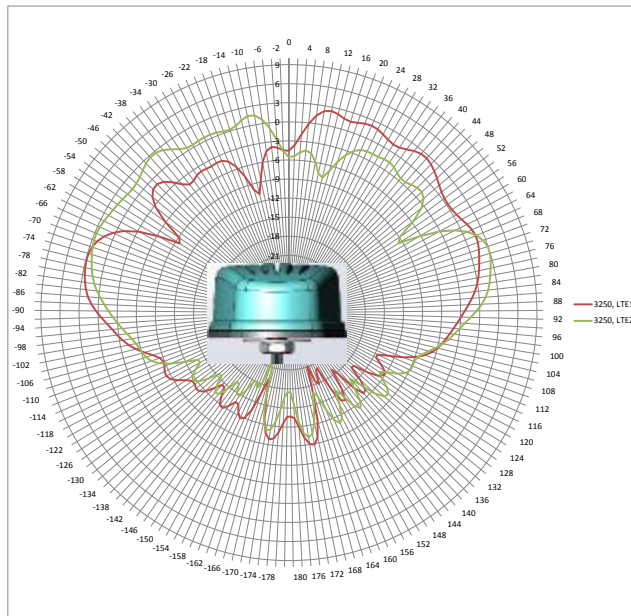
Vertical plot side view

CHARTS

LTE antenna radiation pattern at 3250MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

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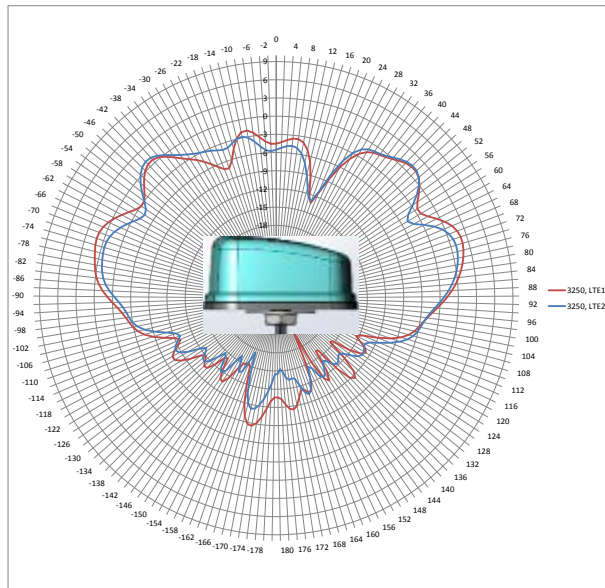
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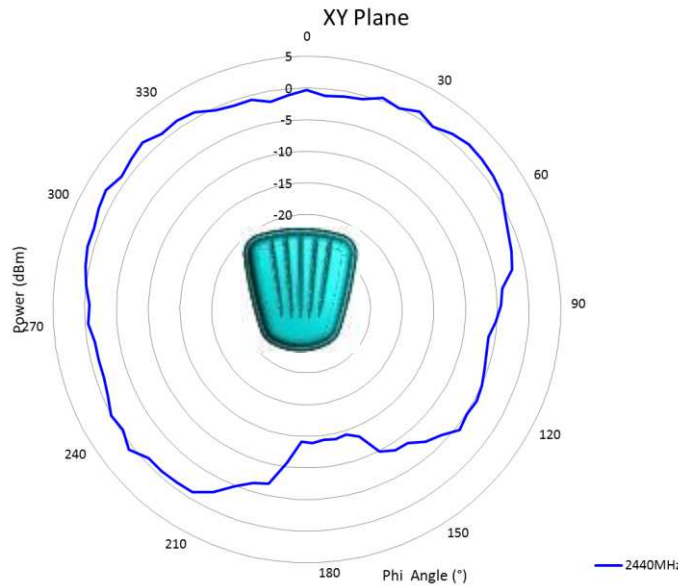
LTE antenna radiation pattern at 3250MHz with 2ft metal plate and 4inch cables



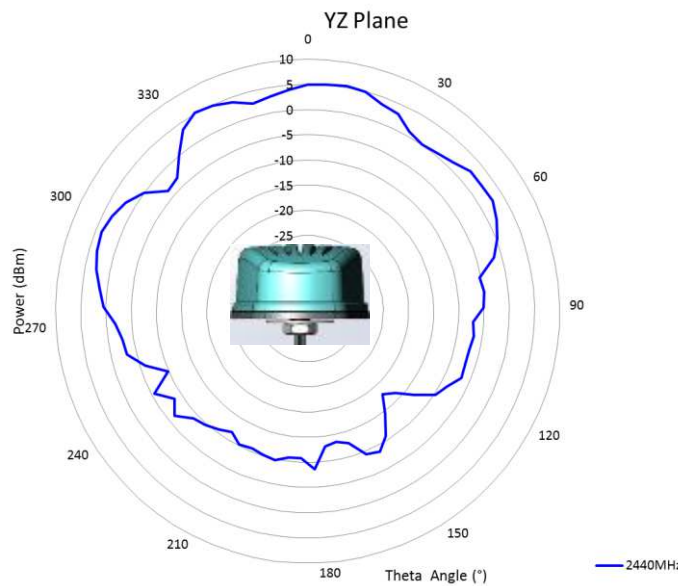
Vertical plot side view

CHARTS

WiFi antenna radiation pattern at 2440MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

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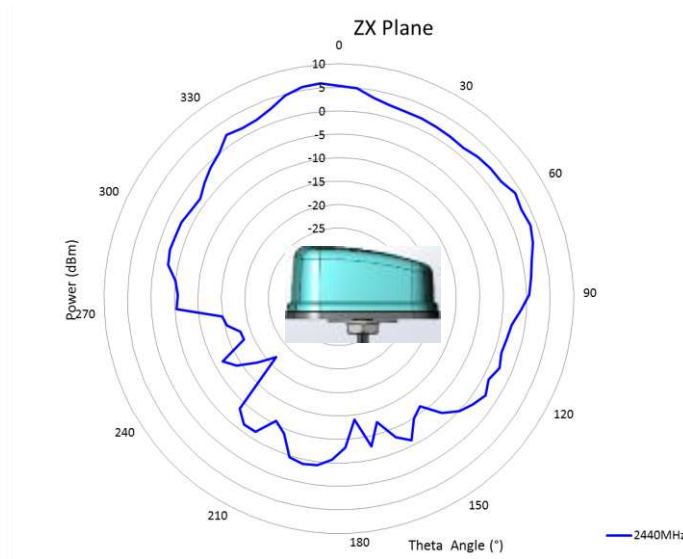
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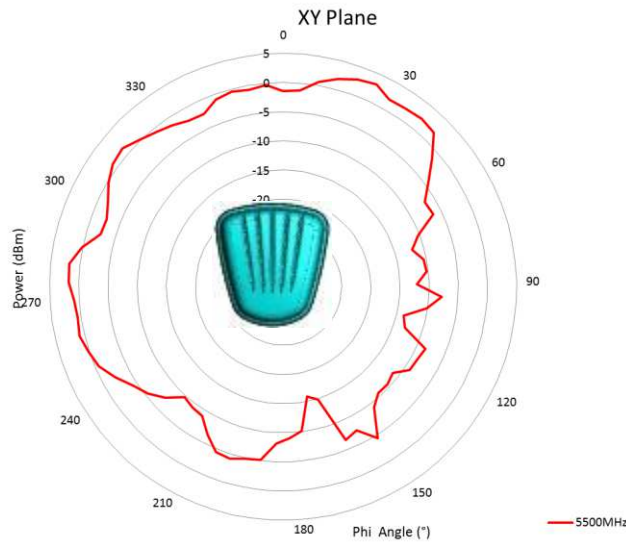
WiFi antenna radiation pattern at 2440MHz with 2ft metal plate and 4inch cables



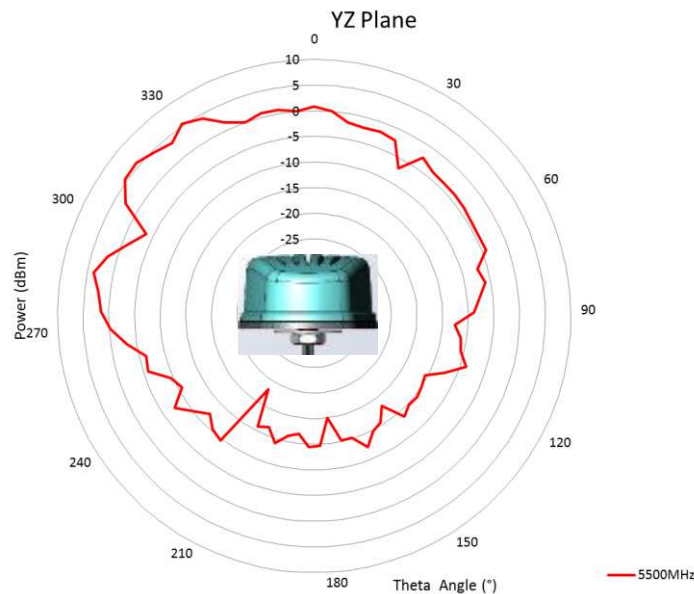
Vertical plot side view

**CHARTS**

WiFi antenna radiation pattern at 5500MHz with 2ft metal plate and 4inch cables



**Horizontal plot**



**Vertical plot front view**

Issue: 1706P

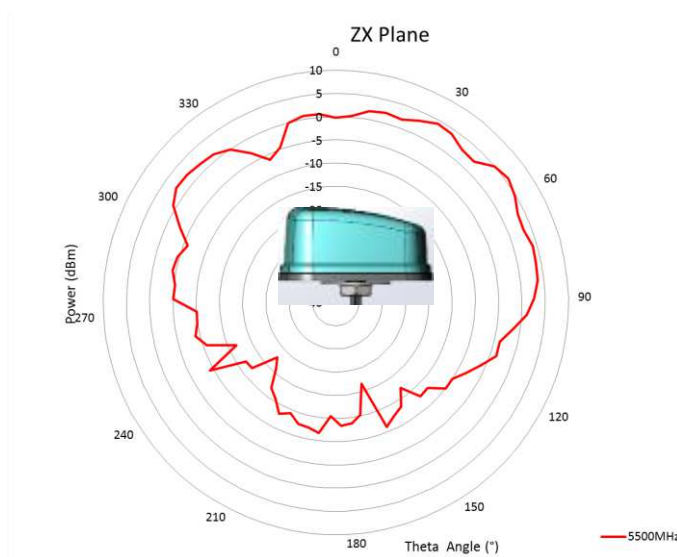
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CHARTS

WiFi antenna radiation pattern at 5500MHz with 2ft metal plate and 4inch cables



Vertical plot side view