



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.

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## Contact us

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



**Description:** Vehicular Multiband Antenna with Direct Mount

**PART NUMBER:** ARMXXXXDM



## Features:

- Low profile, only 1.8" tall
- Up to 6-lead Configuration
  - LTE(2x) MIMO
  - WiFi(3x) MIMO-|2.4/5.x GHz
  - GPS/GNSS (1x)
- Frequency of Operation:
  - 698-960MHz,1710-2690MHz
  - 2400-2500MHz,5150-5925MHz
  - 1559-1606MHz

## Applications:

- Telematics, Navigation
- First Responders(Police, Fire, Ambulance/EMS)
- Energy, Utility, Construction
- Fleet Management
- DSRC(Dedicated Short Range Communications)
- Available Configurations:
  - Black, White
  - Direct, Magnetic, Adhes.Mount

Issue: 1804P

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

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For more information:

Pulse Worldwide Headquarters  
15255 Innovation Drive #100  
San Diego, CA 92128  
USA  
Tel:1-858-674-8100

Pulse/Larsen Antennas  
18110 SE 34<sup>th</sup> St Bldg 2 Suite 250  
Vancouver, WA 98683  
USA  
Tel: 1-360-944-7551

Europe Headquarters  
Pulse GmbH & Do, KG  
Zeppelinstrasse 15  
Herrenberg, Germany  
Tel: 49 7032 7806 0

Pulse (Suzhou) Wireless Products Co, Inc.  
99 Huo Ju Road(#29 Bldg,4<sup>th</sup> Phase  
Suzhou New District  
Jiangsu Province, Suzhou 215009 PR China  
Tel: 86 512 6807 9998

Preliminary





Series: ARMADILLO

Description: Vehicular Multiband Antenna with Direct Mount

PART NUMBER: ARMXXXXDM

This document covers all product variants of the following product family

Product	Total Cable Leads	LTE Cable Leads	WiFi Cable Leads	GPS Cable Leads	Housing Color	Mounting
ARM62311DM	6	2	3	1	Black	Direct Mount; 7/8" Hole Required
ARM62312DM	6	2	3	1	White	
ARM52211DM	5	2	2	1	Black	
ARM52212DM	5	2	2	1	White	
ARM42111DM	4	2	1	1	Black	
ARM42112DM	4	2	1	1	White	
ARM32011DM	3	2	0	1	Black	
ARM32012DM	3	2	0	1	White	
ARM21011DM	2	1	0	1	Black	
ARM21012DM	2	1	0	1	White	

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Product Numbering

Vehicular Multiband Antenna with Direct Mount



<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">1</span>	Product ID: ARMADILLO
<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">2</span>	Total Number of Cable leads
<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3</span>	Total Number of LTE Cable Leads
<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">4</span>	Total Number of WiFi Cable Leads
<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">5</span>	Total Number of GPS Cable Leads
<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span>	The Color of the Plastic Housing 1=Black; 2= White
<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">7</span>	Mounting: Direct Mount, 7/8" Hole Required

ARM62311DM		CABLE	CABLE LENGTH	CONNECTOR
1	LTE-1 Cable Assy	LMR-195*	5181 mm / 204" / 17 FT	SMA Male
2	LTE-2 Cable Assy			
3	WiFi-1 Cable Assy	LMR-195*		RP-SMA Male
4	WiFi-2 Cable Assy			
5	WiFi-3 Cable Assy			
6	GPS Cable Assy	LMR-100*		SMA Male

\* or equivalent

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**Description:** Vehicular Multiband Antenna with Direct Mount

**Series:** ARMADILLO

**PART NUMBER:** ARMXXXXDM

**ELECTRICAL SPECIFICATIONS**

Frequency	698-960MHz, 1710-2690MHz 2400-2500MHz, 5150-5925MHz
Nominal Impedance	50 Ω
VSWR*	
698-960MHz	<2.5
1710-2690MHz	<2.5
2400-2500MHz	<2
5150-5925MHz	<2
Isolation*	
698-960MHz, 1710-2690MHz	-8dB
2400-2500MHz, 5150-5925MHz	-12dB
Average Peak Gain**	
698-960MHz;	4.9dBi
1710-2690MHz	5.3dBi
2400-2500MHz	4.6dBi
5150-5925MHz	6.6dBi
Polarization	Vertical

\*Test on 500mm ground plane with 17ft(5.2m) LMR195 cable

\*\*Test on 500mm ground plane with 1ft(304.8) LMR195 cable

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Series: ARMADILLO

Description: Vehicular Multiband Antenna with Direct Mount

PART NUMBER: ARMXXXXDM

## ELECTRICAL SPECIFICATIONS

GPS Antenna	
Frequency	1561.098±2.046MHz/ 1575.42±1.023MHz/ 1602.5625±4MHz
Nominal Impedance	50 Ω
VSWR	<2
Gain (Radiating Element)	1 dBic±1 dB
Gain (LNA Gain)	30 dB± 2 dB
Polarization	RHCP
Out of Band Rejection	
698 MHz	>70 dB
960 MHz	>65 dB
1710 MHz	>60 dB
2170 MHz	>65 dB
2400 MHz	>65 dB
2700 MHz	>65 dB
Noise Figure	<2.4 dB
Operating Voltage	3.3 – 5 Vdc
Current Consumption	<15mA

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Preliminary



**Series: ARMADILLO**

**Description:** Vehicular Multiband Antenna with Direct Mount

**PART NUMBER: ARMXXXXDM**

**MECHANICAL SPECIFICATIONS**

Overall Length	202.3mm X 88.5mm X 45mm
Weight	1.15 Kg
Antenna Color / Material	Black or White
Connector type	Refer to Page 2
Cable type	Refer to Page 2
Cable length	Refer to Page 2

**ENVIRONMENTAL SPECIFICATIONS**

Operating Temperature	-40 ~ +85° C
Storage Temperature	-40 ~ +85° C
Ingress Protection	IP67
RoHS Compliant	Yes

**OTHER SPECIFICATIONS**

Total cable assembly loss for 5.2m (17') LMR-195 @850MHz	2.1dB
Total cable assembly loss for 5.2m (17') LMR-100 @1575MHz	5.9dB
Total cable assembly loss for 5.2m (17') LMR-195 @1930MHz	3.2dB
Total cable assembly loss for 5.2m (17') LMR-195 @2450MHz	3.6dB
Total cable assembly loss for 5.2m (17') LMR-195 @2500MHz	3.7dB
Total cable assembly loss for 5.2m (17') LMR-195 @5350MHz	5.5dB

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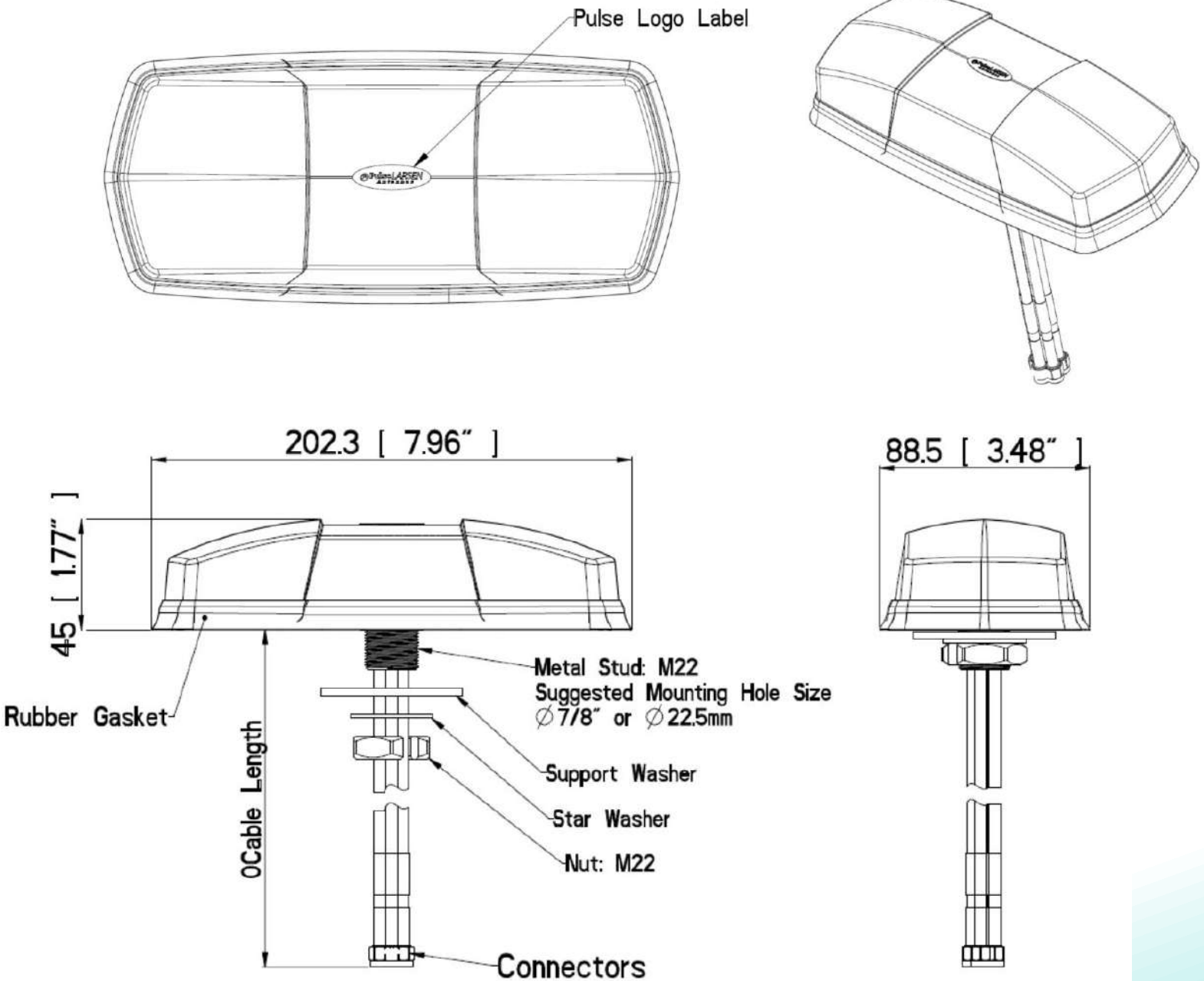


Series: ARMADILLO

Description: Vehicular Multiband Antenna with Direct Mount

PART NUMBER: ARMXXXXDM

MECHANICAL DRAWING



Preliminary

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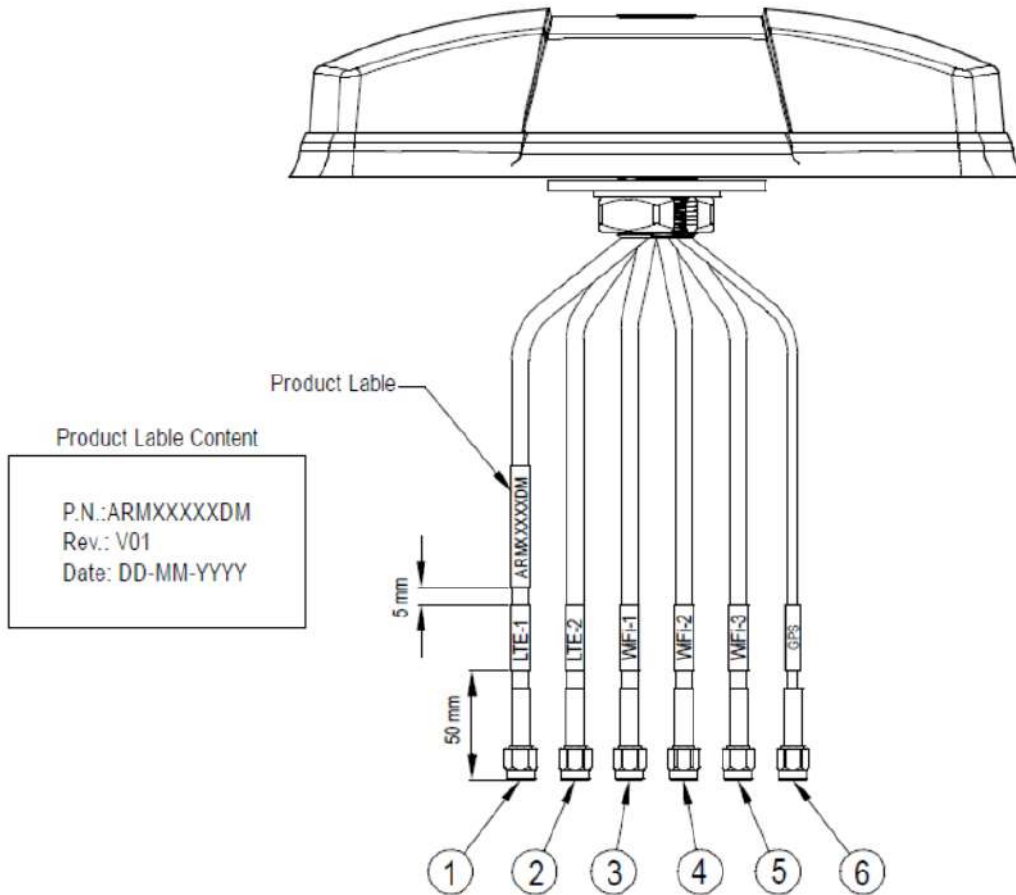


**Description:** Vehicular Multiband Antenna with Direct Mount

**Series:** ARMADILLO

**PART NUMBER:** ARMXXXXDM

**MECHANICAL DRAWING**



	ARM62311DM	CABLE	CABLE LENGTH	CONNECTOR
1	LTE-1 Cable Assy	LMR-195 *	5181 mm / 204" / 17 FT	SMA Male
2	LTE-2 Cable Assy			
3	WiFi-1 Cable Assy	LMR-195*		RP-SMA Male
4	WiFi-2 Cable Assy			
5	WiFi-3 Cable Assy			
6	GPS Cable Assy	LMR-100*		SMA Male

\* or equivalent

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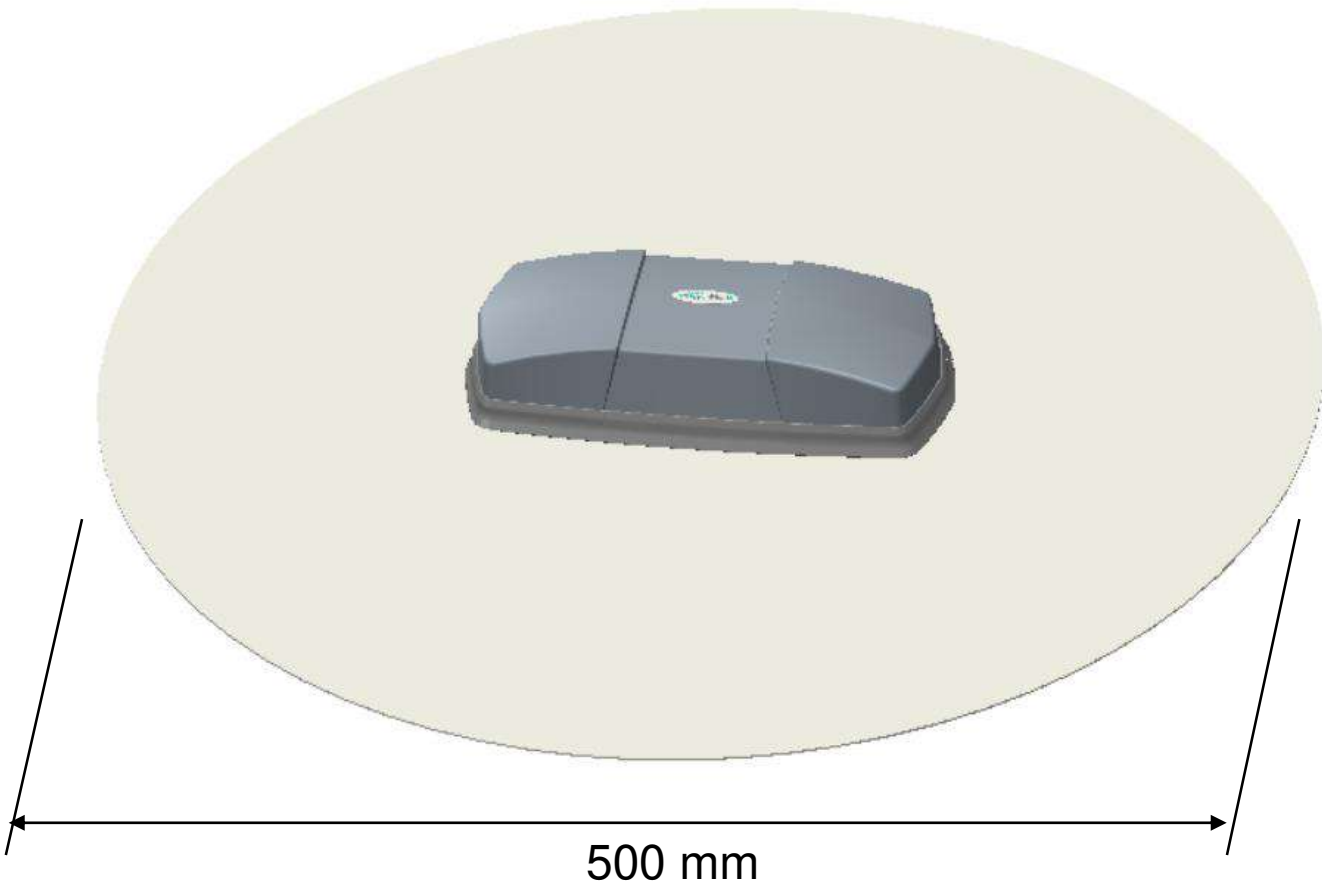
Series: ARMADILLO

Description: Vehicular Multiband Antenna with Direct Mount

PART NUMBER: ARMXXXXDM

### TEST SETUP

Antenna tested on a 500mm (dia) ground plane.



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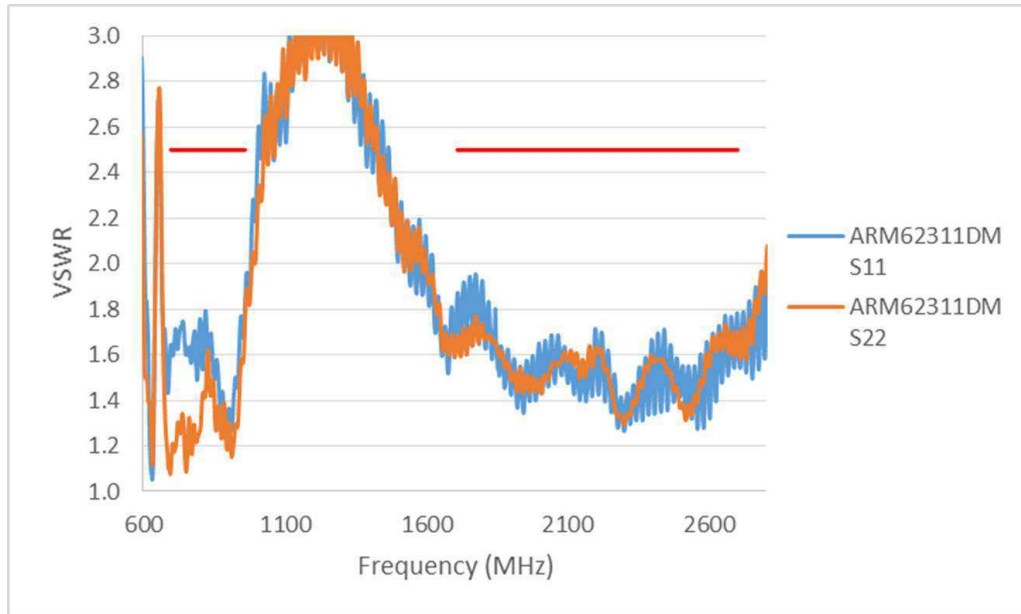
Series: ARMADILLO

Description: Vehicular Multiband Antenna with Direct Mount

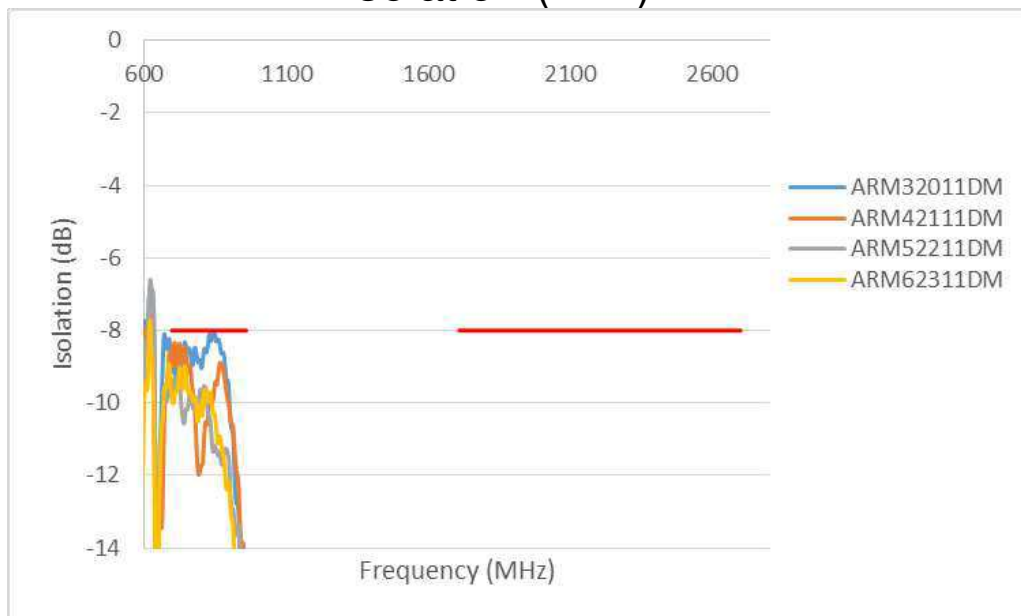
PART NUMBER: ARMXXXXDM

CHARTS

VSWR (LTE)



Isolation (LTE)



Note : Antenna tested with 5m cable on 500mm (dia) ground plane

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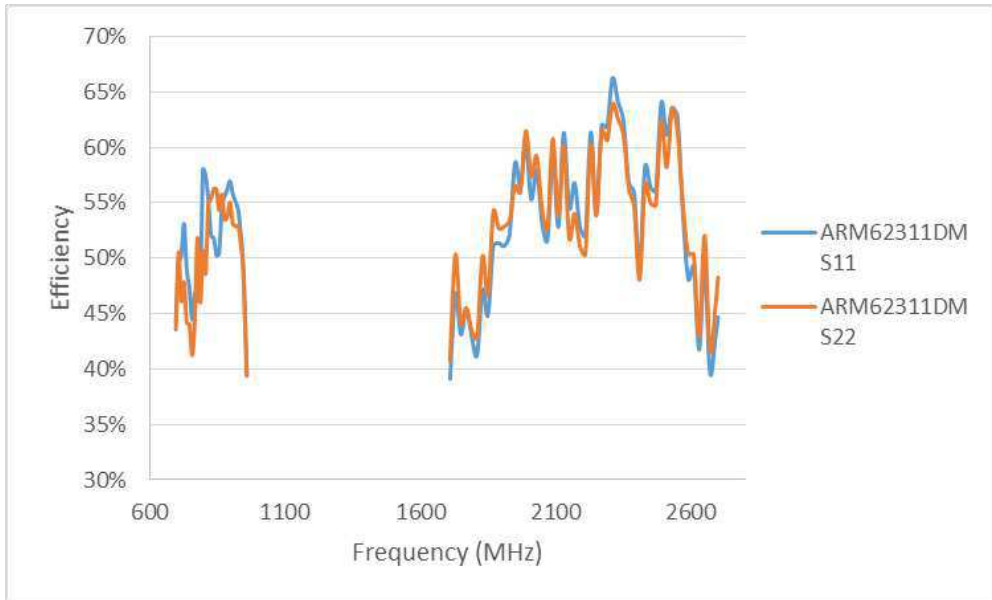
**Description:** Vehicular Multiband Antenna with Direct Mount

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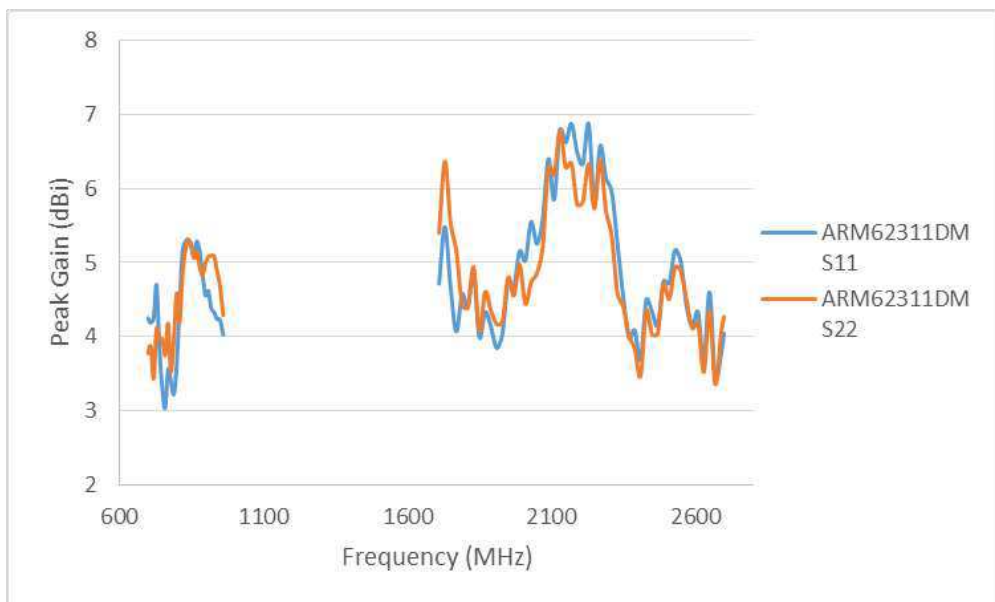
**PART NUMBER:** ARMXXXXDM

CHARTS

Radiation Efficiency (LTE)



Peak Gain (LTE)



Note : Antenna tested with 1ft(304.8mm) cable on 500mm (dia) ground plane

Issue: 1804P

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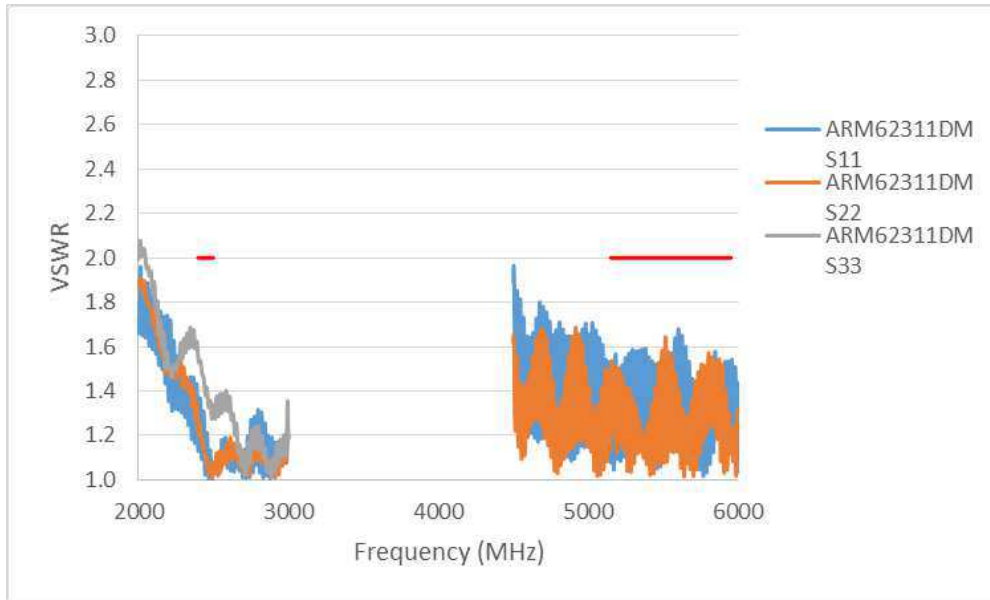
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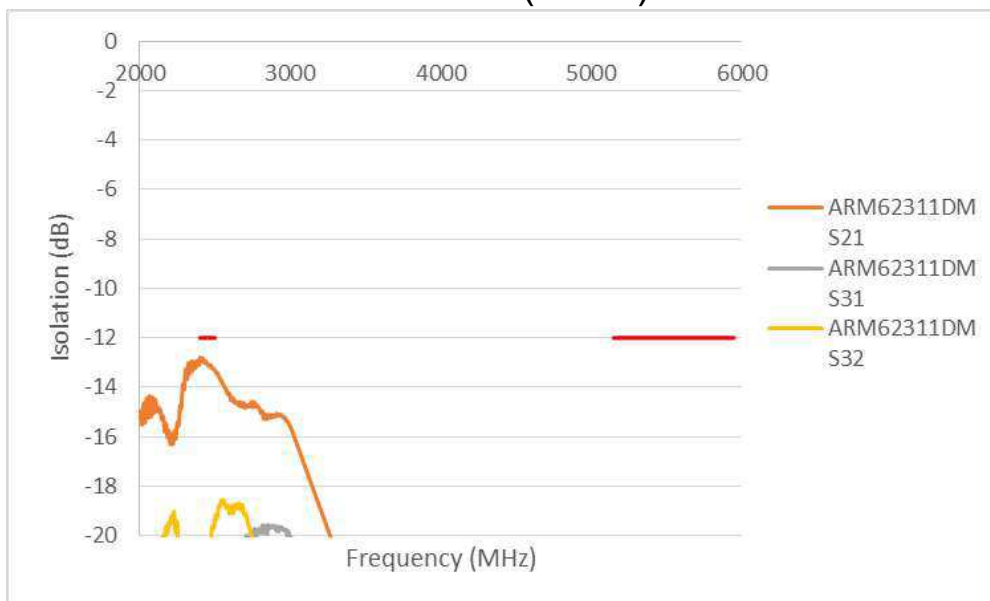
PART NUMBER: ARMXXXXDM

CHARTS

VSWR (WIFI)



Isolation (WIFI)



Note : Antenna tested with 5m cable on 500mm (dia) ground plane

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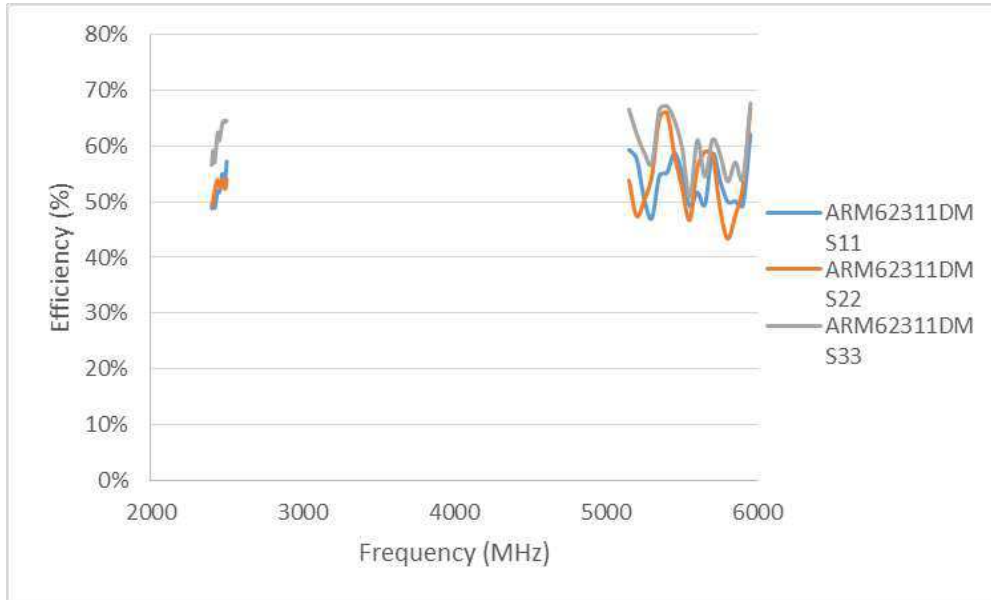
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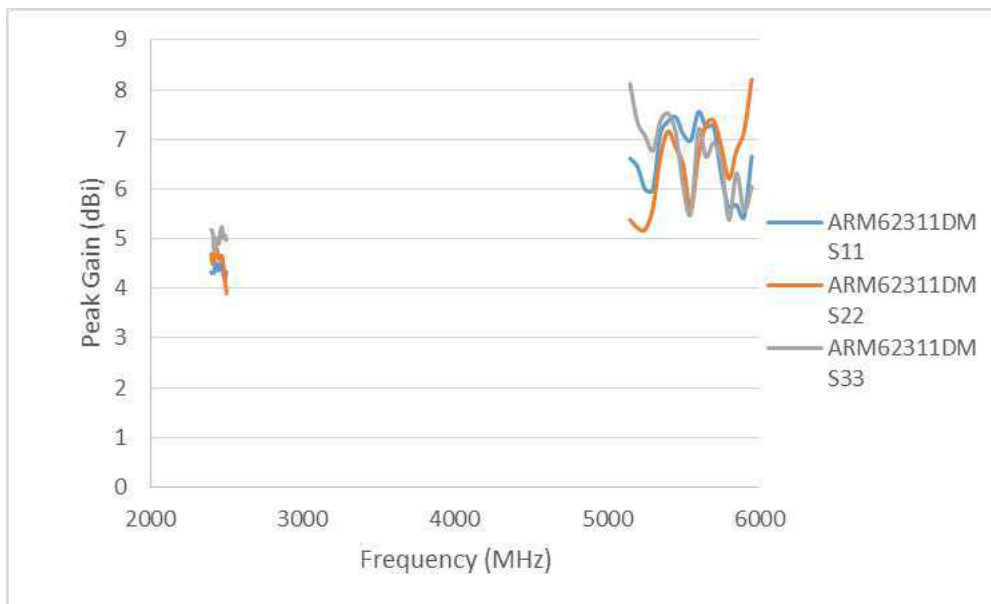
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CHARTS

Radiation Efficiency (WIFI)



Peak Gain (WIFI)



Note : Antenna tested with 1ft(304.8mm) cable on 500mm (dia) ground plane

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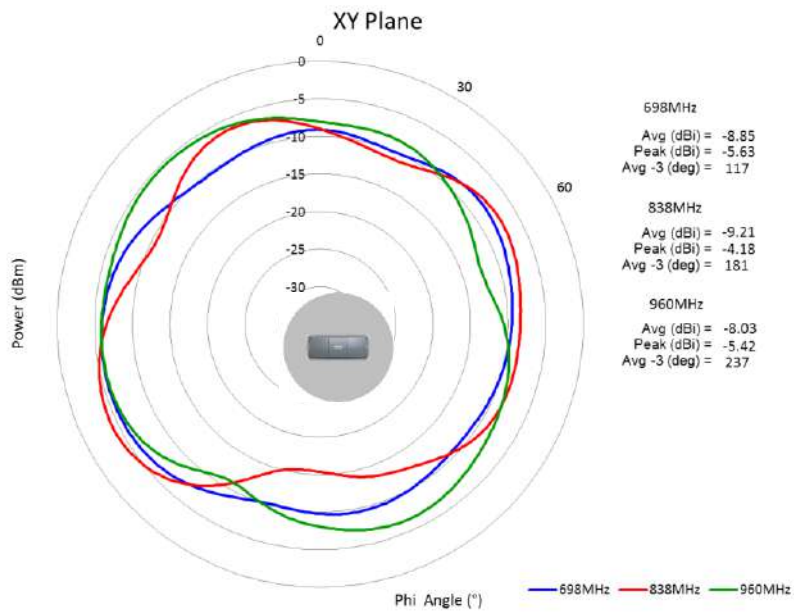
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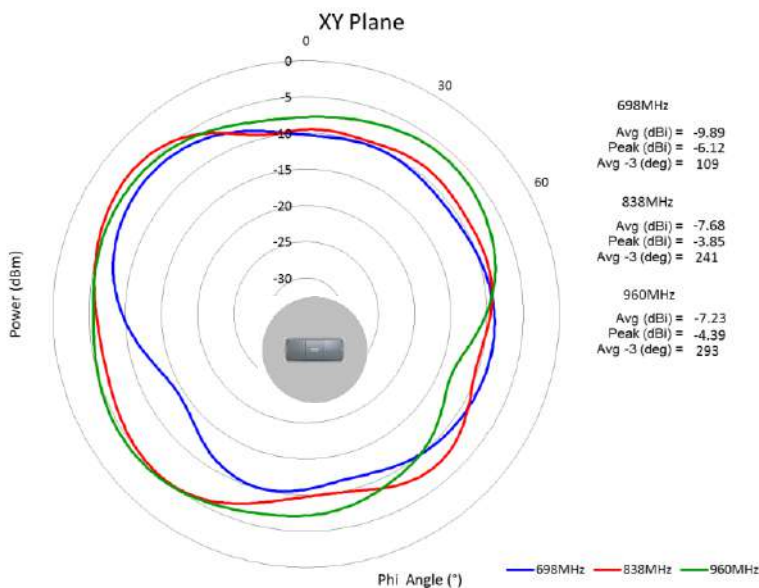
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CHARTS



LTE1 XY plane radiation pattern



LTE2 XY plane radiation pattern

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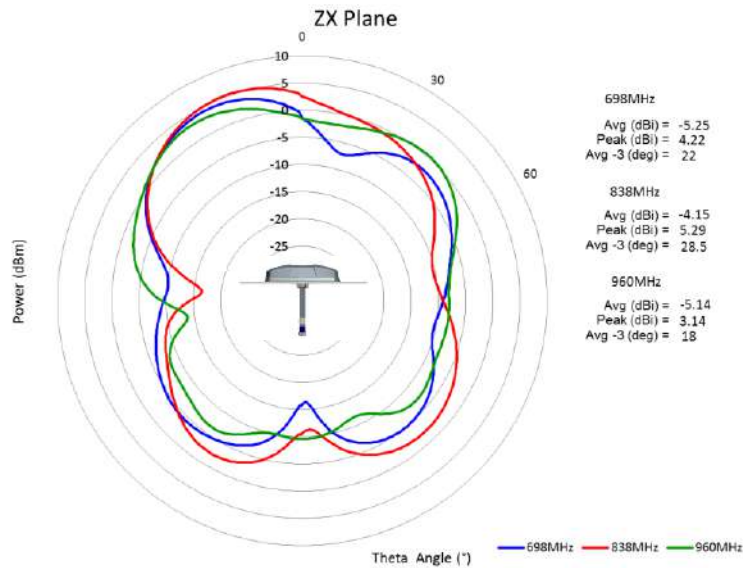
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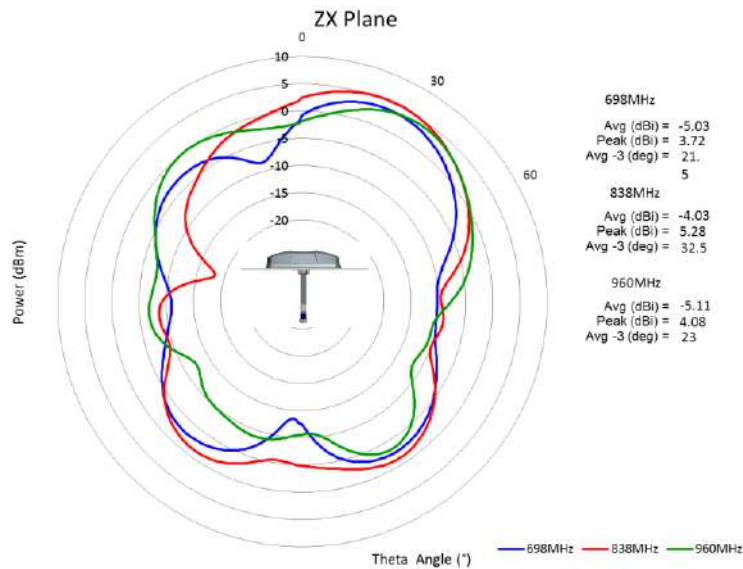
**Series:** ARMADILLO

**PART NUMBER:** ARMXXXXDM

CHARTS



LTE1 ZX plane radiation pattern



LTE2 ZX plane radiation pattern

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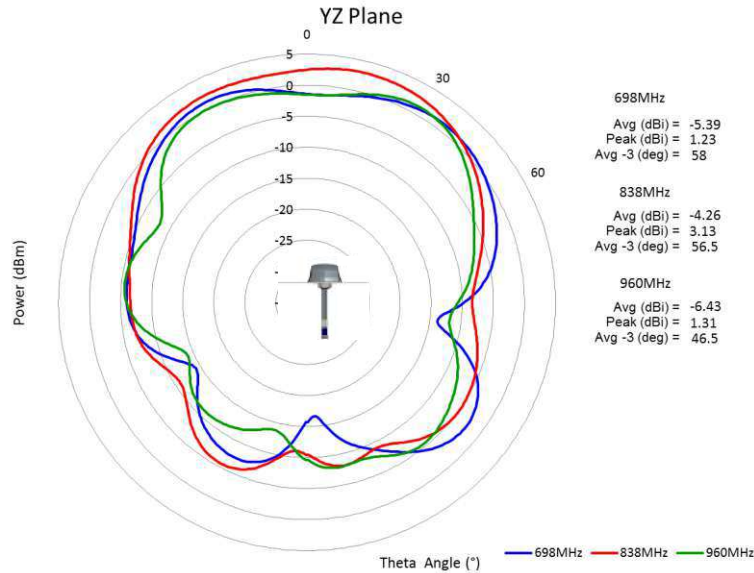


Series: ARMADILLO

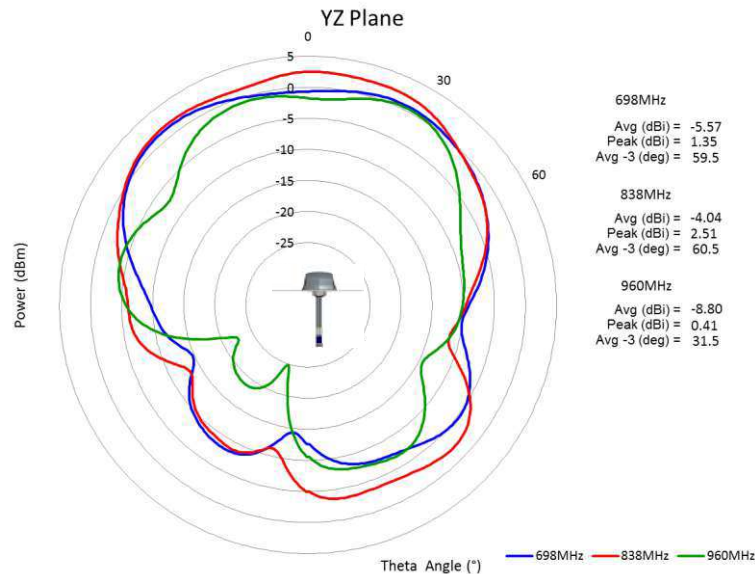
Description: Vehicular Multiband Antenna with Direct Mount

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CHARTS



LTE1 YZ plane radiation pattern



LTE2 YZ plane radiation pattern

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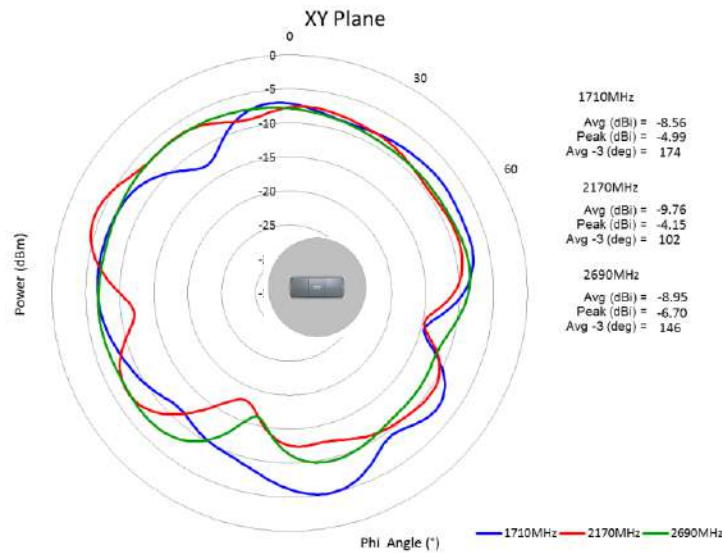
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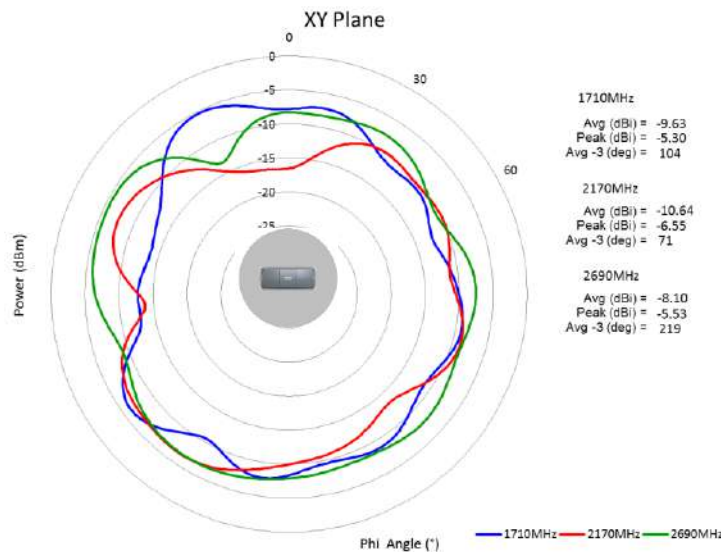
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LTE1 XY plane radiation pattern



LTE2 XY plane radiation pattern

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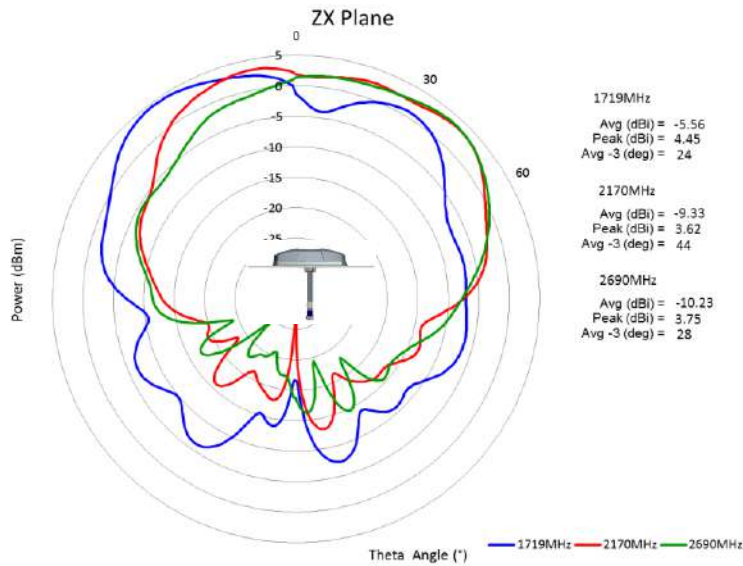
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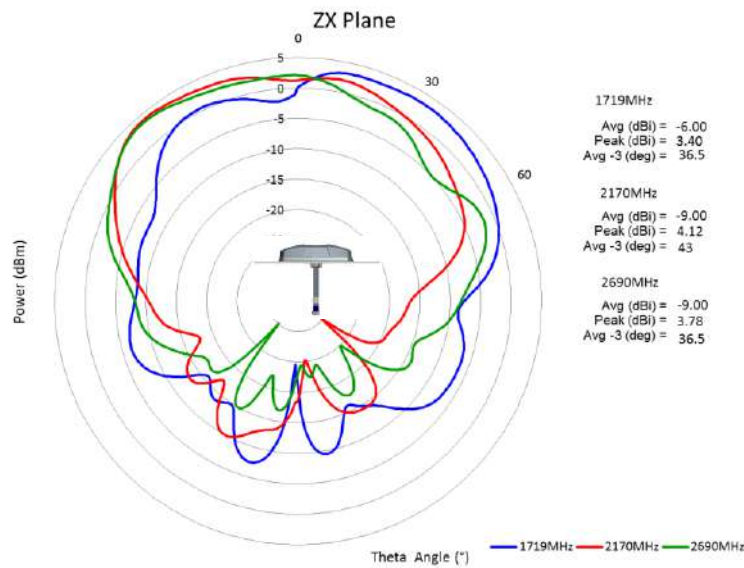
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CHARTS



LTE1 ZX plane radiation pattern



LTE2 ZX plane radiation pattern

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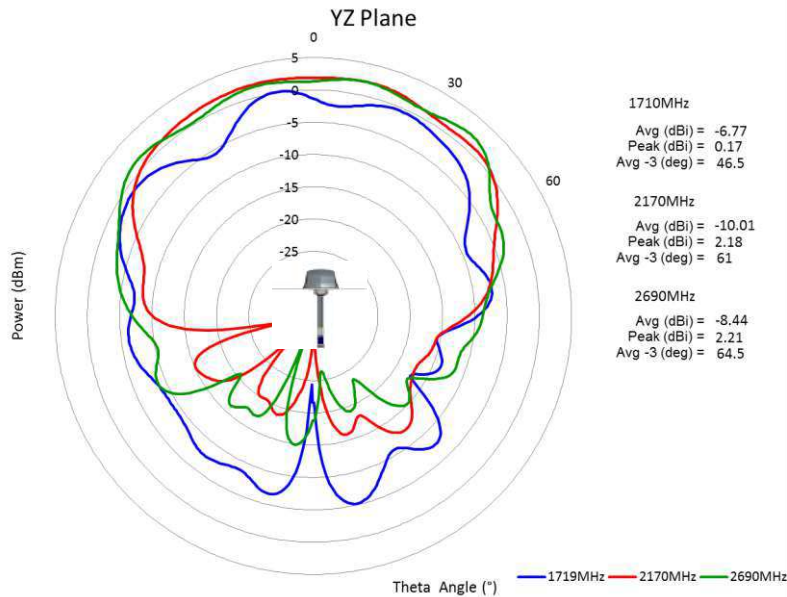
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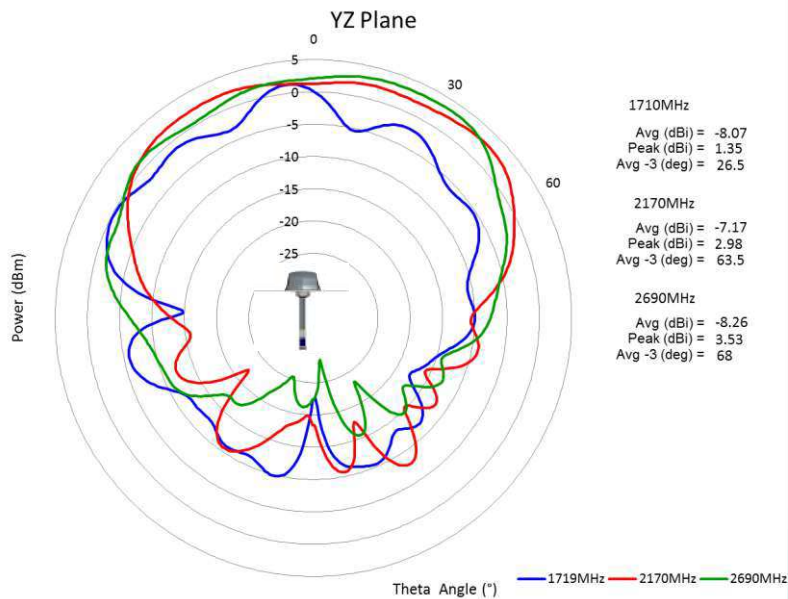
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CHARTS



LTE1 YZ plane radiation pattern



LTE2 YZ plane radiation pattern

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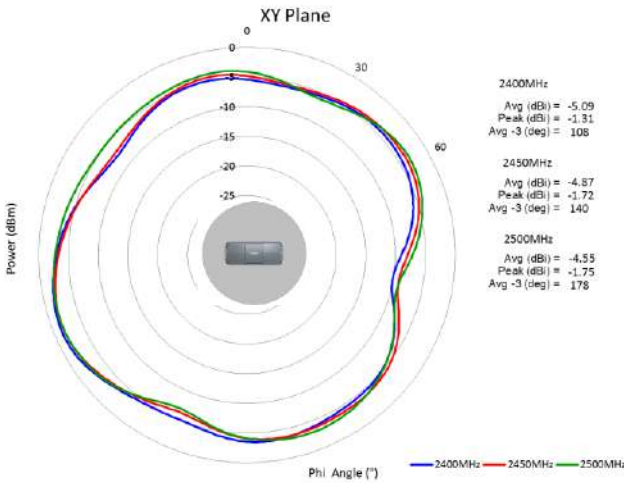


Series: ARMADILLO

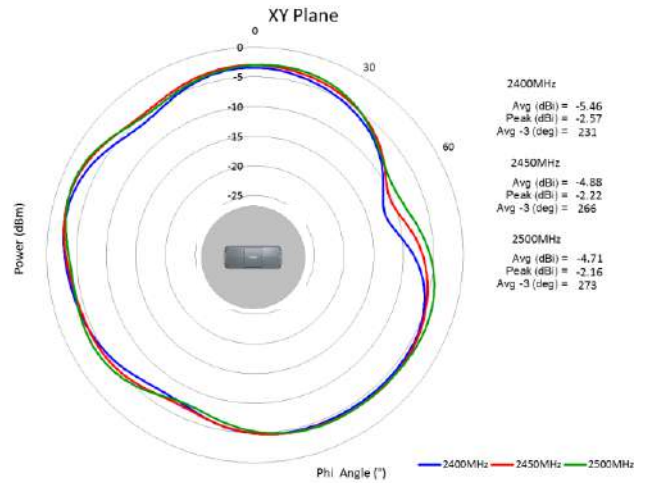
Description: Vehicular Multiband Antenna with Direct Mount

PART NUMBER: ARMXXXXDM

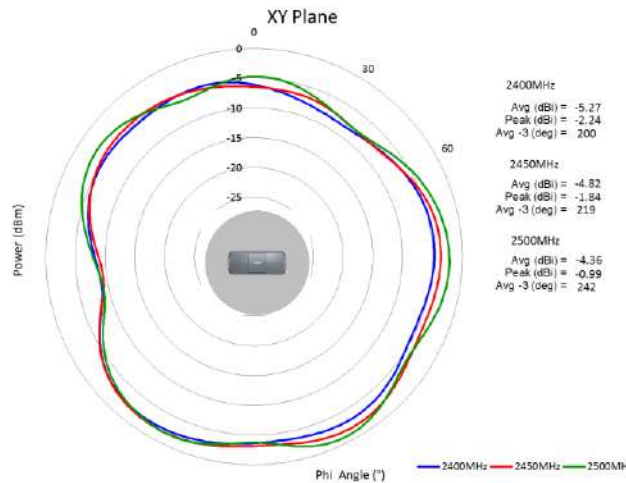
CHARTS



WiFi1 XY plane radiation pattern



WiFi2 XY plane radiation pattern



WiFi3 XY plane radiation pattern

Preliminary

Issue: 1804P

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

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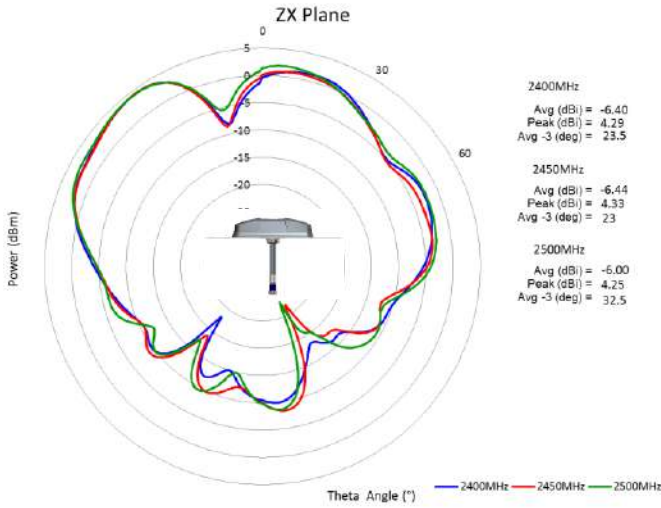
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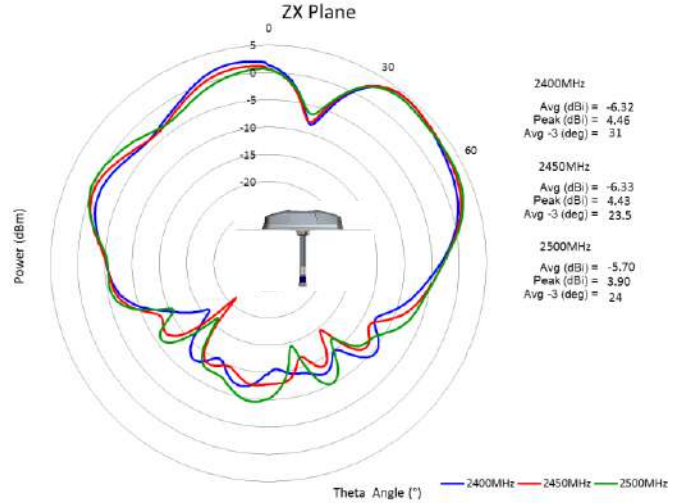
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PART NUMBER: ARMXXXXDM

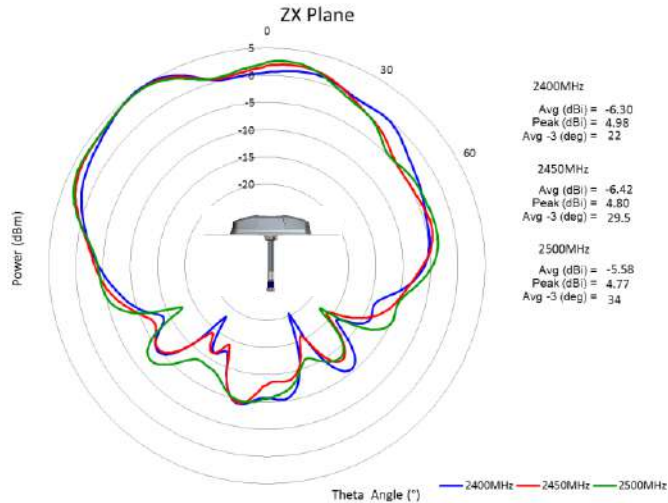
CHARTS



WiFi1 ZX plane radiation pattern



WiFi2 ZX plane radiation pattern



WiFi3 ZX plane radiation pattern

Preliminary

Issue: 1804P

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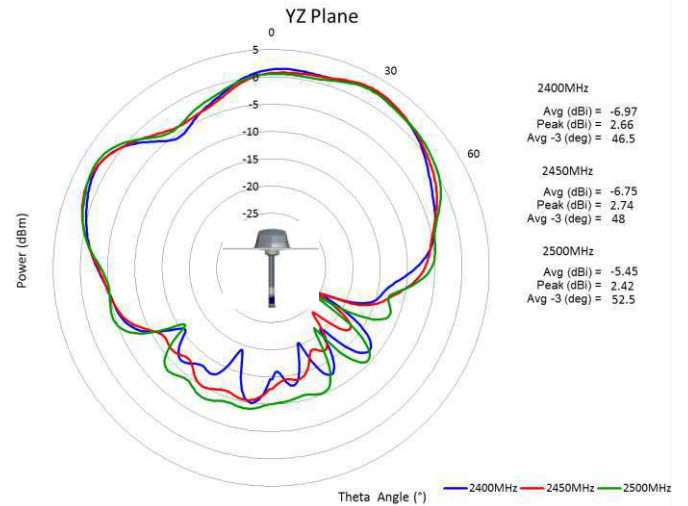
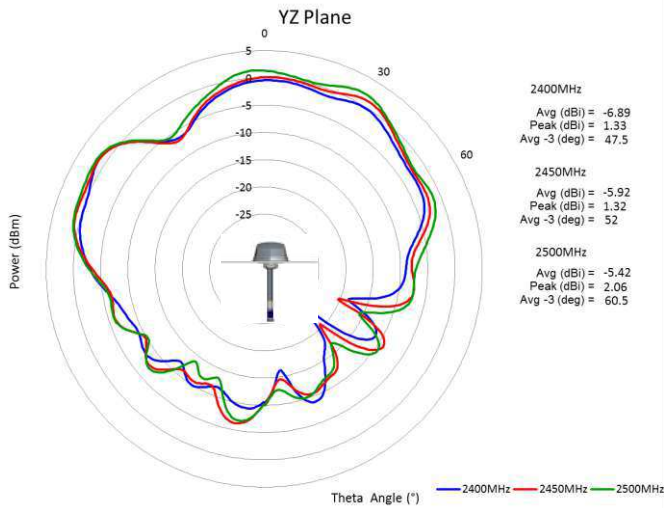
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Description: Vehicular Multiband Antenna with Direct Mount

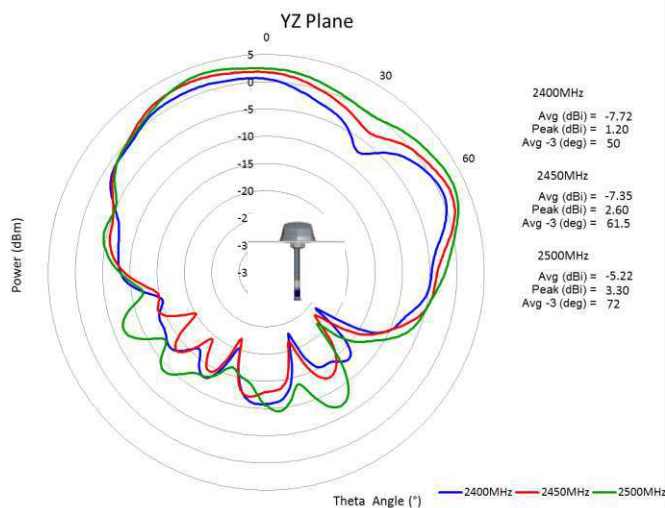
PART NUMBER: ARMXXXXDM

CHARTS



WiFi1 YZ plane radiation pattern

WiFi2 YZ plane radiation pattern



WiFi3 YZ plane radiation pattern

Preliminary

Issue: 1804P

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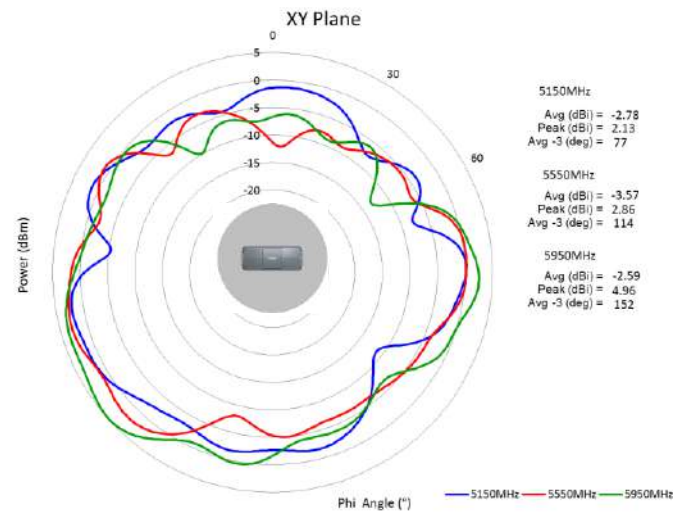
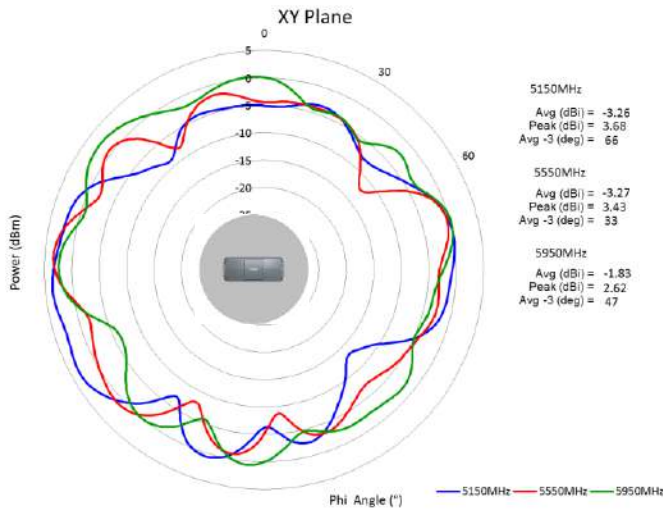
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Description: Vehicular Multiband Antenna with Direct Mount

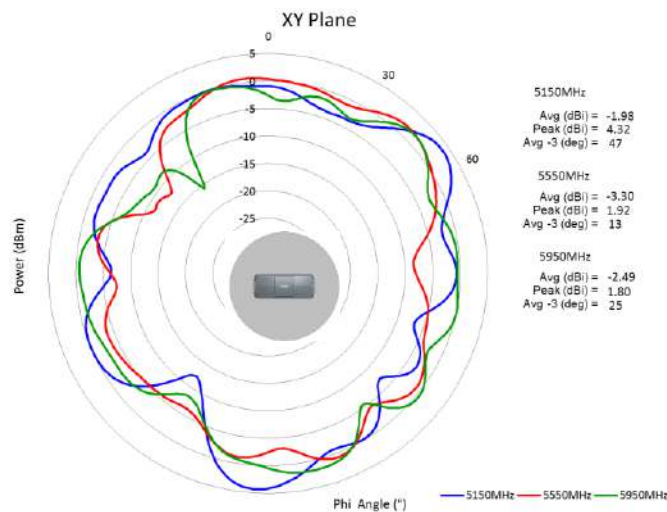
PART NUMBER: ARMXXXXDM

CHARTS



WiFi1 XY plane radiation pattern

WiFi2 XY plane radiation pattern



WiFi3 XY plane radiation pattern

Preliminary

Issue: 1804P

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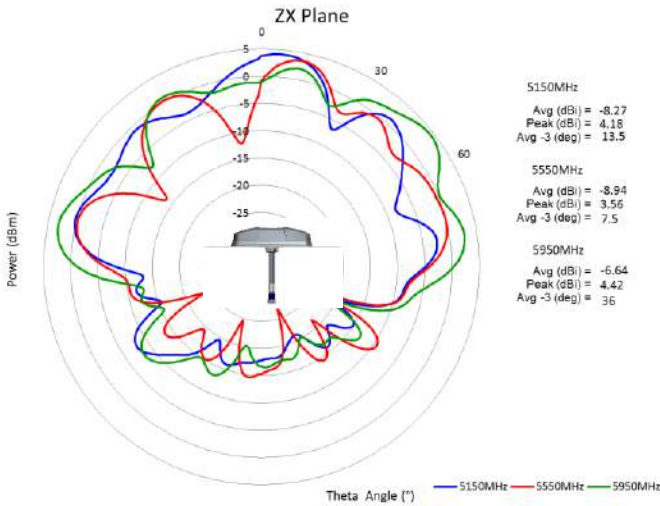


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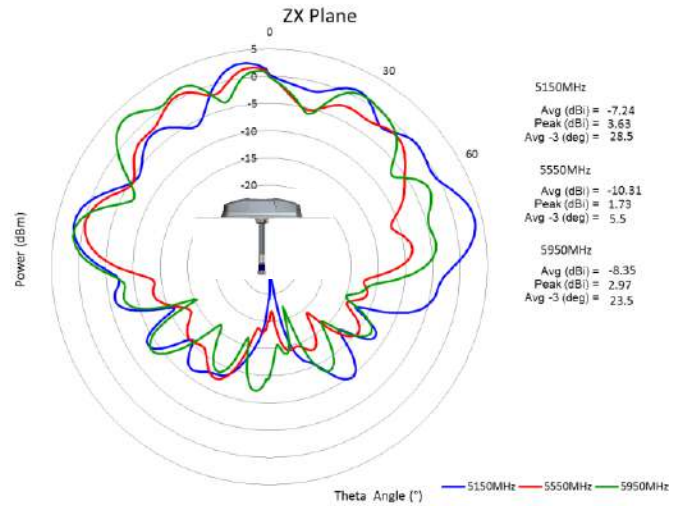
**Series:** ARMADILLO

**PART NUMBER:** ARMXXXXDM

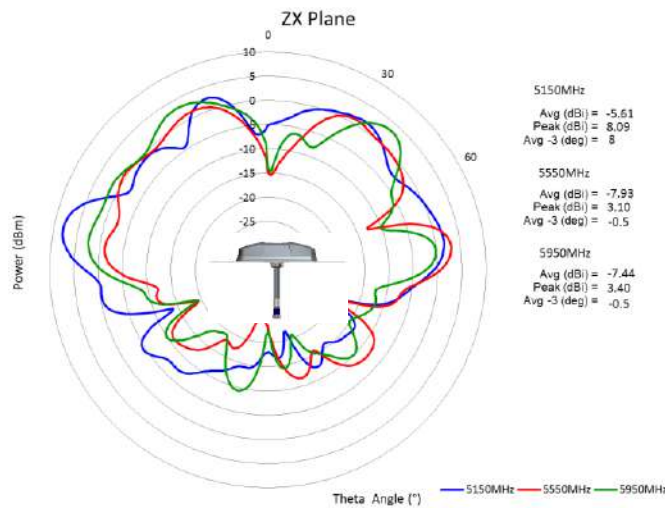
CHARTS



WiFi1 ZX plane radiation pattern



WiFi2 ZX plane radiation pattern



WiFi3 ZX plane radiation pattern

Preliminary

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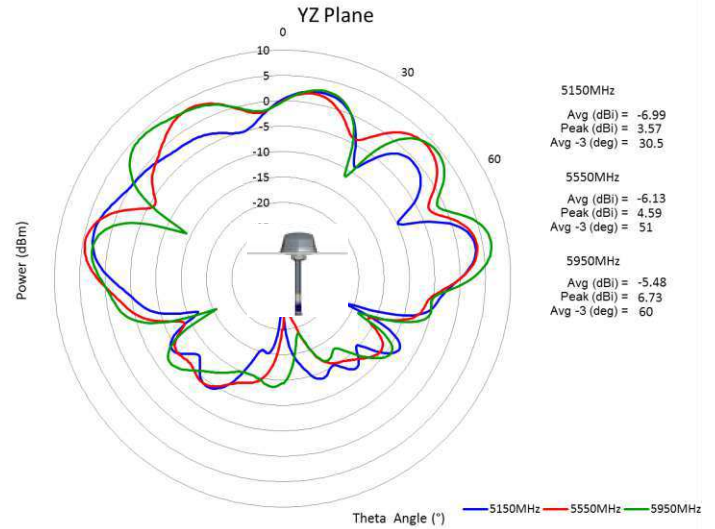
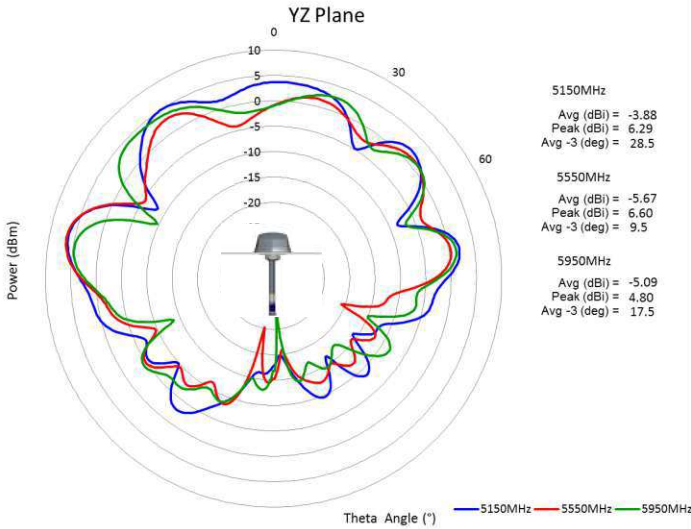
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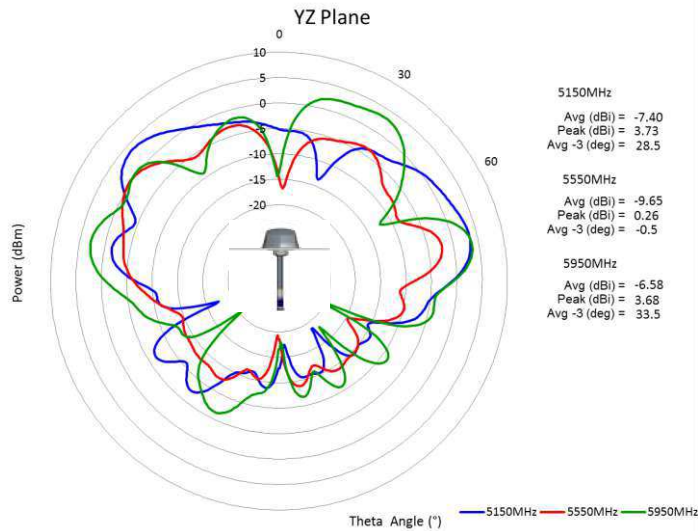
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CHARTS



WiFi1 YZ plane radiation pattern

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WiFi3 YZ plane radiation pattern

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Issue: 1804P

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