

### **TECHNICAL DATA SHEET**

**Description**: Vehicular Multiband Antenna with

Magnetic Mount

PART NUMBER: ARMXXXXXMM



## 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
  - Magnetic mount





Issue: 1804P

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

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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



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## 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
ARM62311MM	6	2	3	1	Black	Magnetic Mount;
ARM62312MM	6	2	3	1	wille	
ARM52211MM	5	2	2	1	Black	Pull force: 100N, 22lbf min.
ARM52212MM	5	2	2	1	White	(Tested on 3mm thick steel plate.)
ARM42111MM	4	2	1	1	Black	
ARM42112MM	4	2	1	1	White	

**Product Numbering** 

Vehicular Multiband Antenna with Direct Mount

(Part Number)













•	Product ID: ARMADILLO
	Total Number of Cable leads
<b>(</b>	Total Number of LTE Cable Leads
•	Total Number of WiFi Cable Leads
•	Total Number of GPS Cable Leads
•	The Color of the Plastic Housing 1=Black; 2= White
<b>(</b>	Mounting: Magnetic Mount

ARMXXXXXMM		CABLE	CABLE LENGTH	CONNECTOR
1	LTE-1 Cable Assy	LMR-195 *		SMA Male
2	WiFi-1 Cable Assy			RP-SMA Male
3	WiFi-3 Cable Assy	LIVIK-190	5181 mm /	RP-SMA Male
4	WiFi-2 Cable Assy		204" / 17 FT	RP-SMA Male
5	GPS Cable Assy	LMR-100 *		SMA Male
6	LTE-2 Cable Assy	LMR-195 *		SMA Male

<sup>\*</sup> or equivalent

Issue: 100-1





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## **ELECTRICAL SPECIFICATIONS**

ELECTRICAL SPECIFICATION	DNS
Frequency	698-960MHz, 1710-2690MHz
	2400-2500MHz, 5150-5925MHz
Nominal Impedance	50 Ω
VSWR*	
698-960MHz	<2.5
1710-2690MHz	<2.5
2400-2500MHz	<2.5
5150-5925MHz	<2.5
Isolation*	
698-960MHz, 1710-2690MHz	-8dB
2400-2500MHz, 5150-5925MHz	-12dB
Radiation Pattern	Omni
Average Peak Gain**	
698-960MHz	4.6dBi
1710-2690MHz	5dBi
2400-2500MHz	4.1dBi
5150-5925MHz	6.3dBi
Polarization	Vertical

Issue: 1804P

ary.



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

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



#### **TECHNICAL DATA SHEET**

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## **ELECTRICAL SPECIFICATIONS**

**GPS** Antenna

Frequency 1561.098±2.046MHz/

1575.42±1.023MHz/

1602.5625±4MHz

Nominal Impedance 50  $\Omega$ 

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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## **MECHANICAL SPECIFICATIONS**

Overall Length 202.3mm X 88.5mm X 45mm

Weight 1.1 Kg

Antenna Color / Material

Connector type

Cable type

Cable length

Black or White
Refer to Page 2
Refer to Page 2
Refer to Page 2

## **ENVIRONMENTAL SPECIFICATIONS**

Operating Temperature  $-40 \sim +85^{\circ}$  C Storage Temperature  $-40 \sim +85^{\circ}$  C

Ingress Protection IP67
RoHS Compliant Yes

### OTHER SPECIFICATIONS

Iotal 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



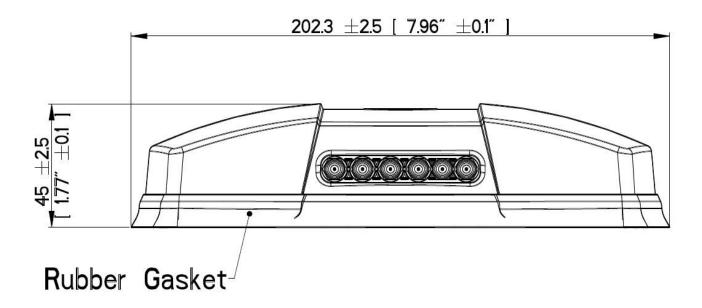
### TECHNICAL DATA SHEET

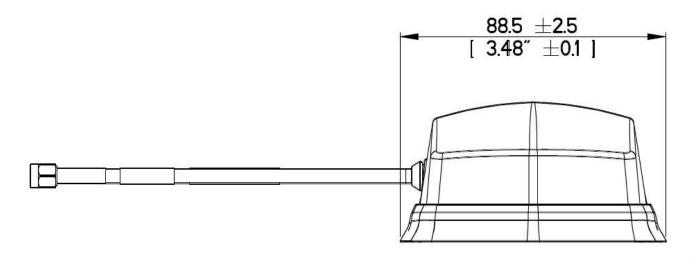
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## **MECHANICAL DRAWING**







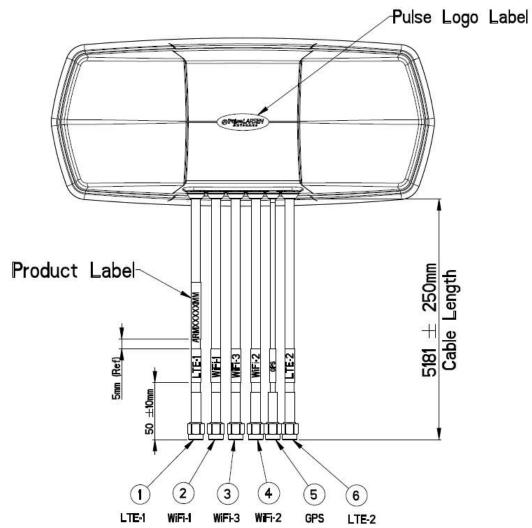
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## **MECHANICAL DRAWING**



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

Issue: 18 \* or equivalent

KOHS



### **TECHNICAL DATA SHEET**

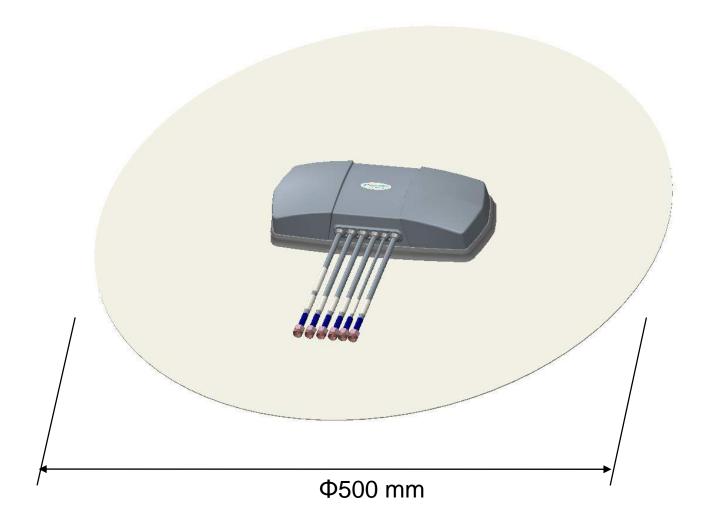
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## **TEST SETUP**

Antenna tested on a Φ500mm ground plane.





### **TECHNICAL DATA SHEET**

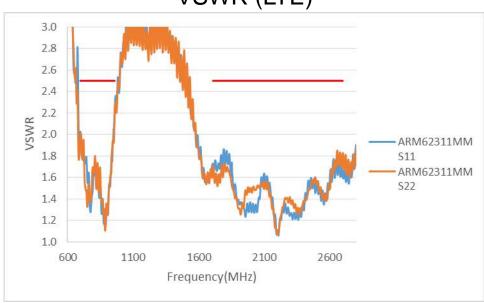
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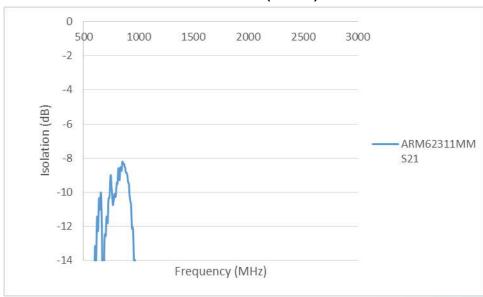
PART NUMBER: ARMXXXXXMM

## **CHARTS**

# VSWR (LTE)



# Isolation (LTE)



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

Issue: 1804P





### TECHNICAL DATA SHEET

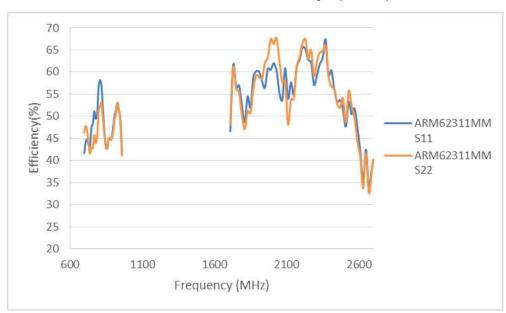
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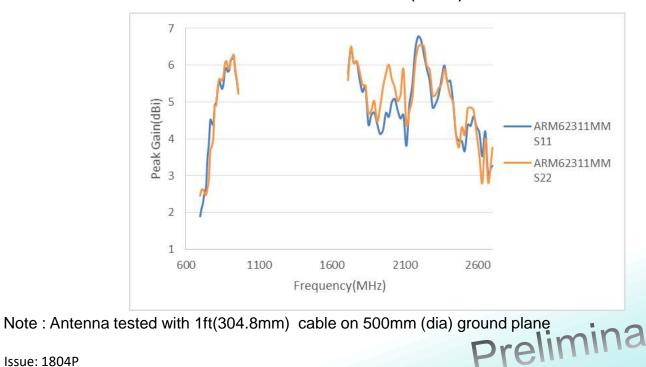
PART NUMBER: ARMXXXXXMM

## **CHARTS**

# Radiation Efficiency (LTE)



## Peak Gain (LTE)



Issue: 1804P

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### **TECHNICAL DATA SHEET**

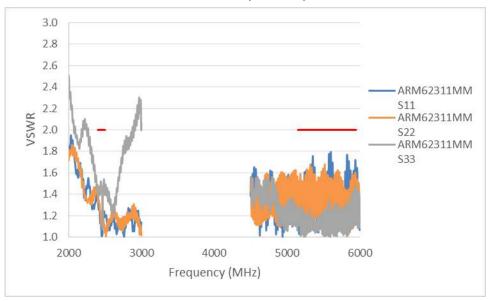
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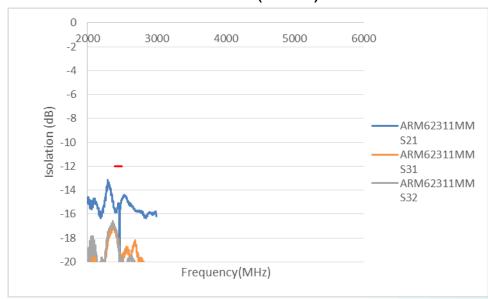
PART NUMBER: ARMXXXXXMM

### **CHARTS**

# VSWR (WIFI)



## Isolation (WIFI)



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

Issue: 1804P





### **TECHNICAL DATA SHEET**

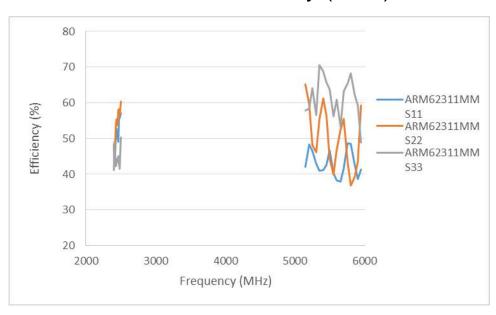
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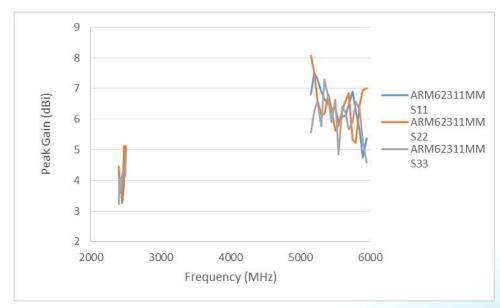
PART NUMBER: ARMXXXXXMM

## **CHARTS**

# Radiation Efficiency (WIFI)



## Peak Gain (WIFI)



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

Issue: 1804P





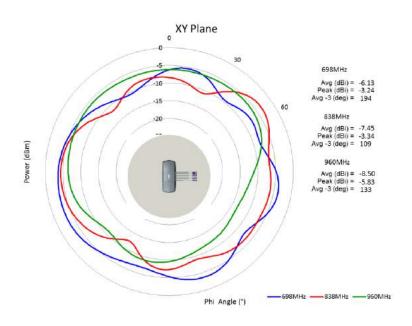
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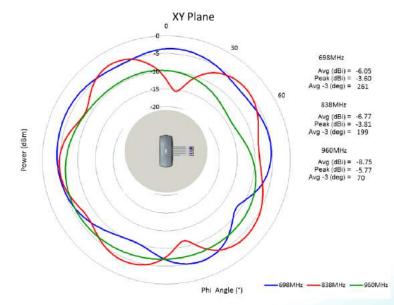
Magnetic Mount

PART NUMBER: ARMXXXXXMM

### **CHARTS**



# LTE1 XY plane radiation pattern



LTE2 XY plane radiation pattern

Issue: 1804P





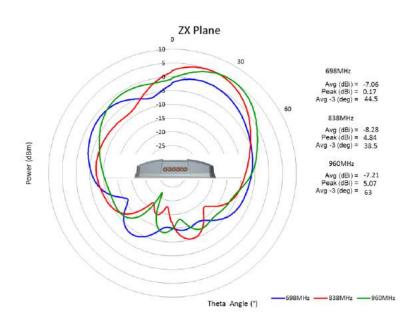
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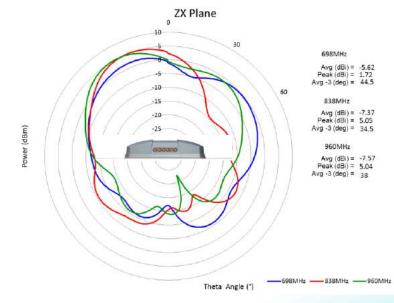
Magnetic Mount

PART NUMBER: ARMXXXXXMM

### **CHARTS**



# LTE1 ZX plane radiation pattern



LTE2 ZX plane radiation pattern

Issue: 1804P





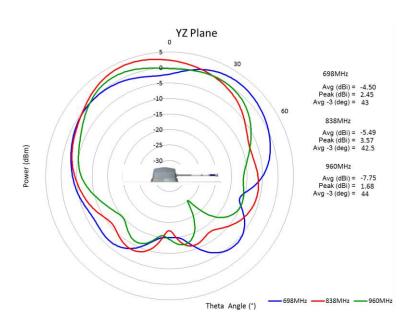
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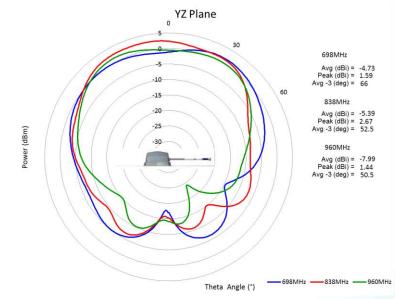
Magnetic Mount

PART NUMBER: ARMXXXXXMM

### **CHARTS**



# LTE1 YZ plane radiation pattern



LTE2 YZ plane radiation pattern

Issue: 1804P





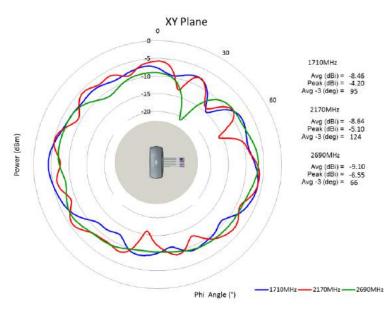
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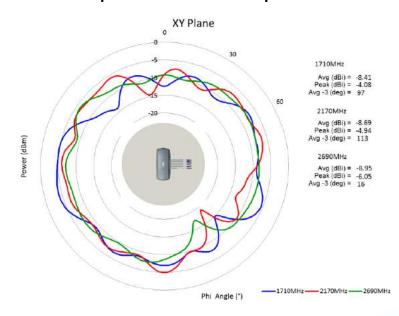
Magnetic Mount

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## **CHARTS**



# LTE1 XY plane radiation pattern



LTE2 XY plane radiation pattern

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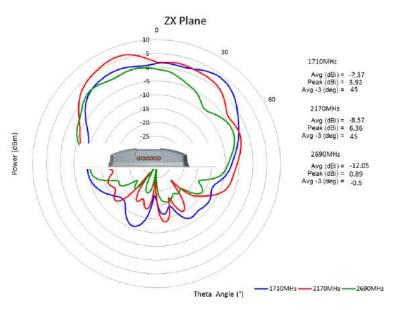
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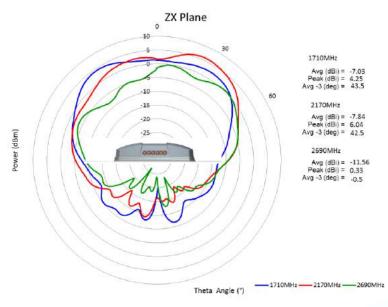
Magnetic Mount

PART NUMBER: ARMXXXXXMM

## **CHARTS**



# LTE1 ZX plane radiation pattern



LTE2 ZX plane radiation pattern

Issue: 1804P

Preliminary

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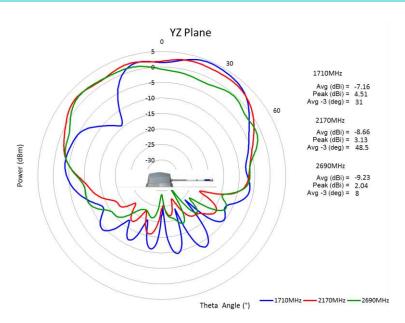
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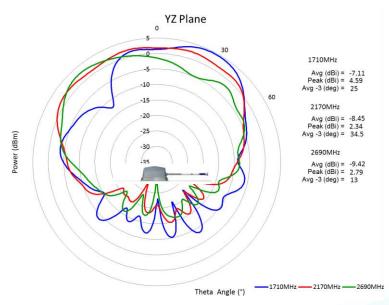
Magnetic Mount

PART NUMBER: ARMXXXXXMM

## **CHARTS**



## LTE1 YZ plane radiation pattern



LTE2 YZ plane radiation pattern

Issue: 1804P

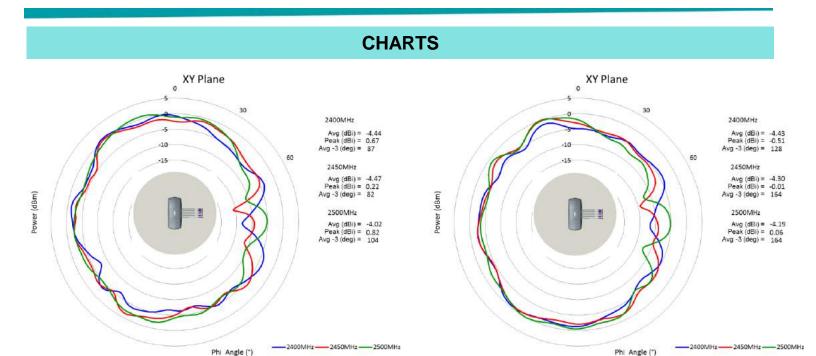


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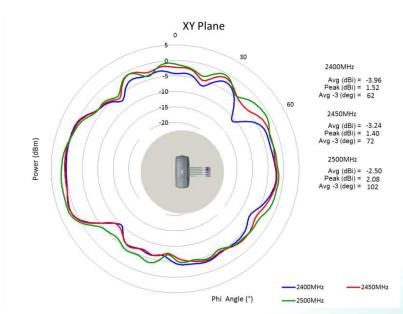
Magnetic Mount

PART NUMBER: ARMXXXXXMM



# WiFi1 XY plane radiation pattern

# WiFi2 XY plane radiation pattern



WiFi3 XY plane radiation patternminal

Issue: 1804P

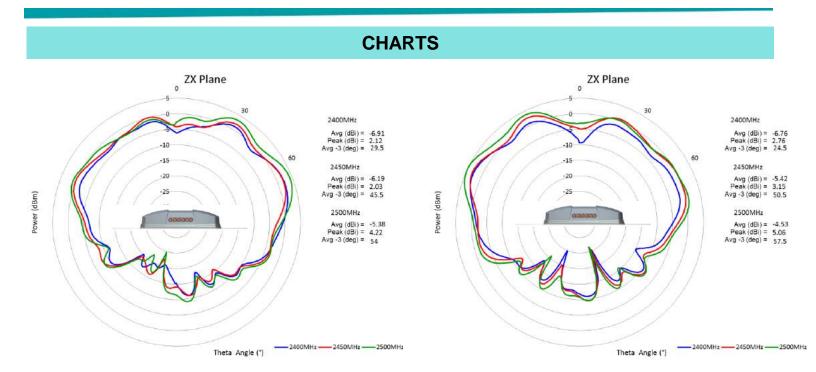


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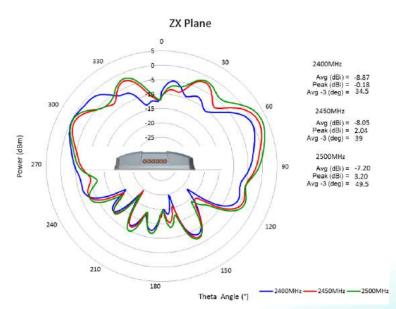
Magnetic Mount

PART NUMBER: ARMXXXXXMM



# WiFi1 ZX plane radiation pattern

# WiFi2 ZX plane radiation pattern



WiFi3 ZX plane radiation pattern minary

Issue: 1804P



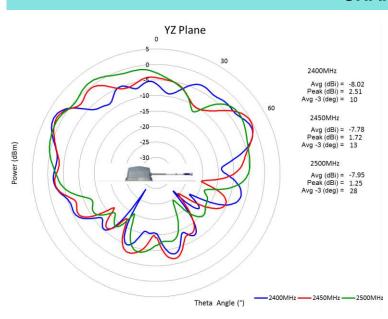
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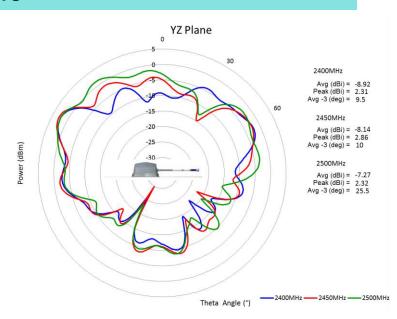
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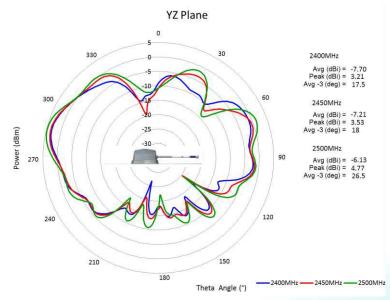
### **CHARTS**





# WiFi1 YZ plane radiation pattern

# WiFi2 YZ plane radiation pattern



WiFi3 YZ plane radiation pattern minary

Issue: 1804P



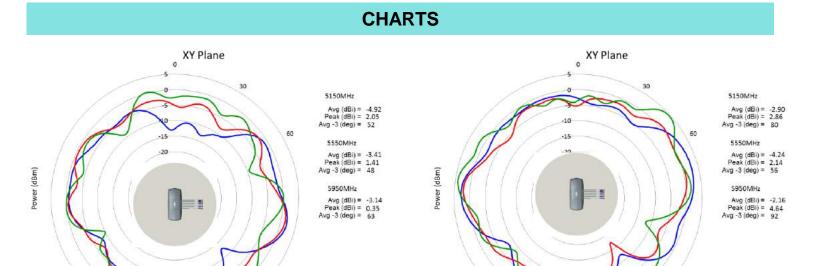


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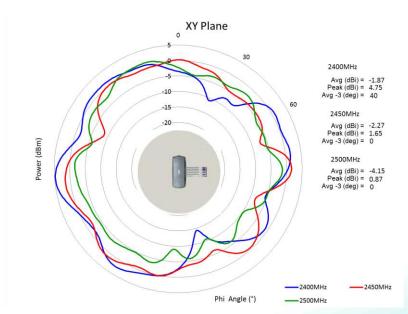
-5150MHz ---- 5550MHz ----- 5950MHz

# WiFi1 XY plane radiation pattern

Phi Angle (°)

# WiFi2 XY plane radiation pattern

Phi Angle (°)



WiFi3 XY plane radiation patternminar

Issue: 1804P

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-5150MHz --- 5550MHz --- 5950MHz

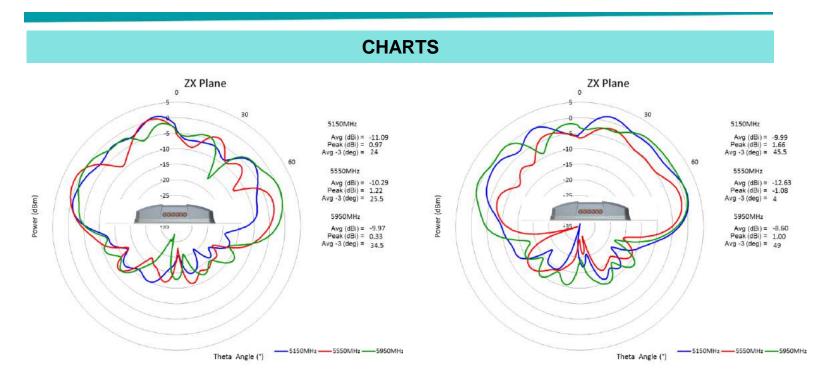


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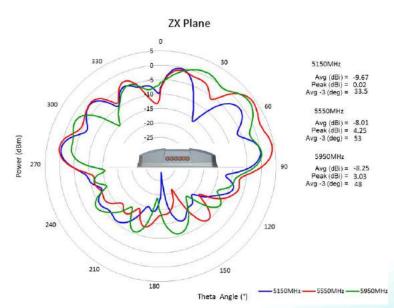
Magnetic Mount

PART NUMBER: ARMXXXXXMM



# WiFi1 ZX plane radiation pattern

# WiFi2 ZX plane radiation pattern



WiFi3 ZX plane radiation pattern minary

Issue: 1804P



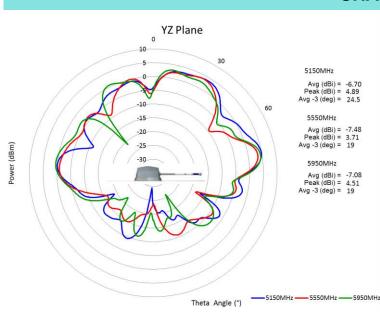
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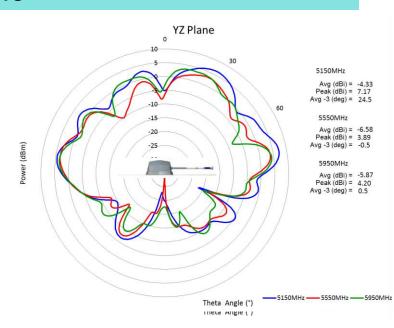
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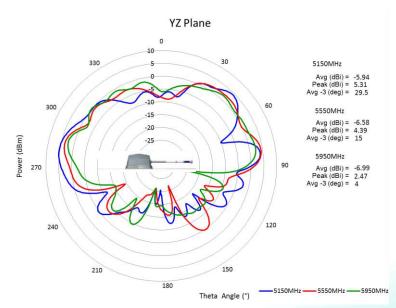
### **CHARTS**





# WiFi1 YZ plane radiation pattern

# WiFi2 YZ plane radiation pattern



WiFi3 YZ plane radiation pattern minary

Issue: 1804P



#### TECHNICAL DATA SHEET

**Description**: Vehicular Multiband Antenna with

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### **PACKAGING**

Each antennas packed in Bubble Bag

6 bags of antennas (Total 6pcs) packed in a cardboard box

1 label on each box with quantity, part number, date code.