

TECHNICAL DATA SHEET

Description: 5G-FR1/WiFi/GNSS Low Profile

Vehicular Multiband Antenna

PART NUMBER: ARM5GXXXXXDM





Features:

- 2x 617-960/1710-6000MHz
 - 4G (LTE) / 5G-FR1
 - Includes Band 71 (617-698 MHz)
- 2x 2400-2500/5150-5925MHz WiFi
- 1x GNSS Active:
 - · Beidou, GPS, Glonass
 - RHCP polarization
 - Amplifier Gain 30dBi
- Omni radiation pattern
- Size: L x W x H 202.3 x 88.5 x 45mm
- IP67

Applications:

- 2G/3G/4G/5G radios
- CBRS Band 42 and 48 (3.4-3.7GHz)
- Vehicular use
- Utility boxes
- · Smart metering
- IoT Devices

Issue: 2150

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 34th 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,4th Phase Suzhou New District Jiangsu Province, Suzhou 215009 PR China Tel: 86 512 6807 9998



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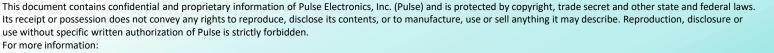
PART NUMBER: ARM5GXXXXXDM

This document covers all product variants of the following product family

Product	Total Cable Leads	5G Cable Leads	WiFi Cable Leads	GNSS Cable Leads	Housing Color	Cable Length	Mounting
ARM5G62311DM	6	2 (with SMA Male)	3 (with RP-SMA Male)	1 (with SMA Male)	Black	17 FT or 5181mm	1. Direct Mount; 7/8" Hole Required 2. Mounting Surface thickness < 0.25"
ARM5G62312DM	6	2 (with SMA Male)	3 (with RP-SMA Male)	1 (with SMA Male)	White		
ARM5G52211DM	5	2 (with SMA Male)	2 (with RP-SMA Male)	1 (with SMA Male)	Black		
ARM5G52212DM	5	2 (with SMA Male)	2 (with RP-SMA Male)	1 (with SMA Male)	White		
ARM5G42111DM	4	2 (with SMA Male)	1 (with RP-SMA Male)	1 (with SMA Male)	Black		
ARM5G42112DM	4	2 (with SMA Male)	1 (with RP-SMA Male)	1 (with SMA Male)	White		
ARM5G32011DM	3	2 (with SMA Male)	0	1 (with SMA Male)	Black		
ARM5G32012DM	3	2 (with SMA Male)	0	1 (with SMA Male)	White		

Issue: 2150

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Pulse/Larsen Antennas 18110 SE 34th 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

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Product Numbering

Vehicular Multiband Antenna with Direct Mount

(Part Number)









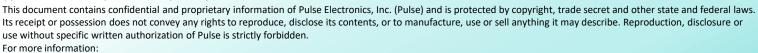




	Product ID: ARMADILLO			
(Total Number of Cable leads			
	Total Number of 5G NR Cable Leads			
	Total Number of WiFi Cable Leads			
	Total Number of GNSS Cable Leads			
()	The Color of the Plastic Housing 1=Black; 2= White			
	Mounting: Direct Mount; 7/8" Hole Required			

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ELECTRICAL SPECIFICATIONS

Frequency 5G-FR1/LTE	617-960MHz, 1710-6000MHz		
Frequency WiFi	2400-2500MHz, 5150-5925MHz		
Nominal Impedance	50 Ω		
VSWR*			
617-960MHz	<2.5		
1710-6000MHz	<2.2		
2400-2500MHz	<2		
5150-5925MHz	<2		
Isolation*			
617-960MHz, 1710-6000MHz	-8dB		
2400-2500MHz, 5150-5925MHz	-10dB		
Average Peak Gain**			
617-960MHz;	2.2dBi		
1710-6000MHz	4.6dBi		
2400-2500MHz	5.4dBi		
5150-5925MHz	6.3dBi		
Polarization	Vertical		

^{**}Test on 500mm ground plane with 1ft(304.8mm) LMR195 cable





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



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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

617 MHz >70 dB

960 MHz >65 dB

1710 MHz >60 dB

6000 MHz >60 dB

2400 MHz >65 dB

2700 MHz >65 dB

Noise Figure <2.4 dB

Operating Voltage 3.3 – 5 Vdc

Current Consumption <15mA

RF-chain line-up Ant-Filter1-LNA1-Filter2-LNA2



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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 $-40 \sim +85^{\circ}$ 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



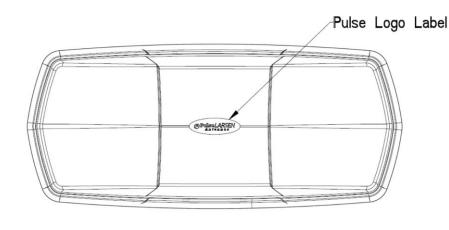
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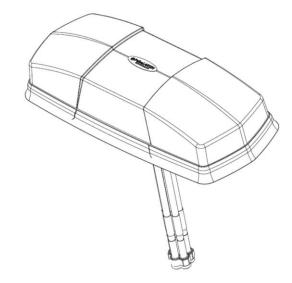
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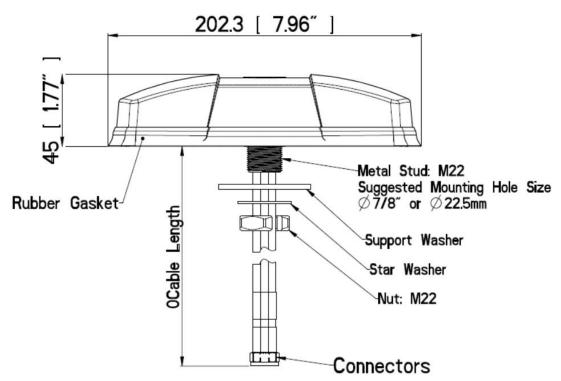
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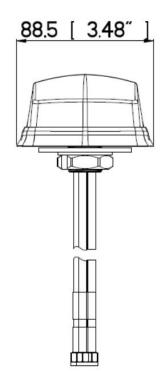
PART NUMBER: ARM5GXXXXXDM

MECHANICAL DRAWING











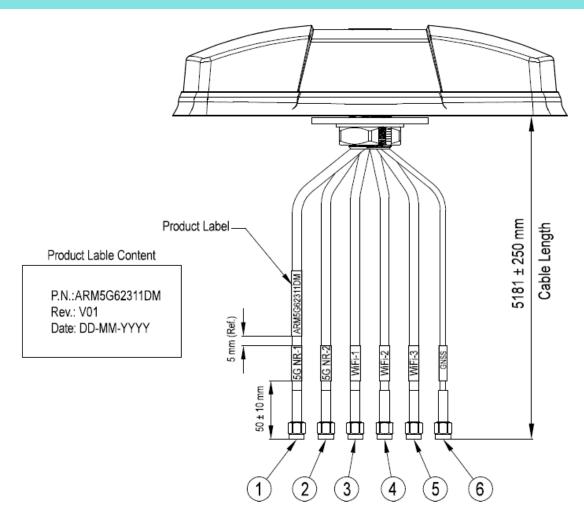
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MECHANICAL DRAWING



ARM5G62311DM		CABLE	CABLE LENGTH	CONNECTOR
1	5G NR-1 Cable Assy	LMR-195*		SMA Male
2	5G NR-2 Cable Assy	FMK-199		
3	WiFi-1 Cable Assy		5181 mm /	RP-SMA Male
4	WiFi-2 Cable Assy	LMR-195*	204" /	
5	WiFi-3 Cable Assy		17 FT	
6	GNSS Cable Assy	LMR-100*		SMA Male

^{*} or equivalent



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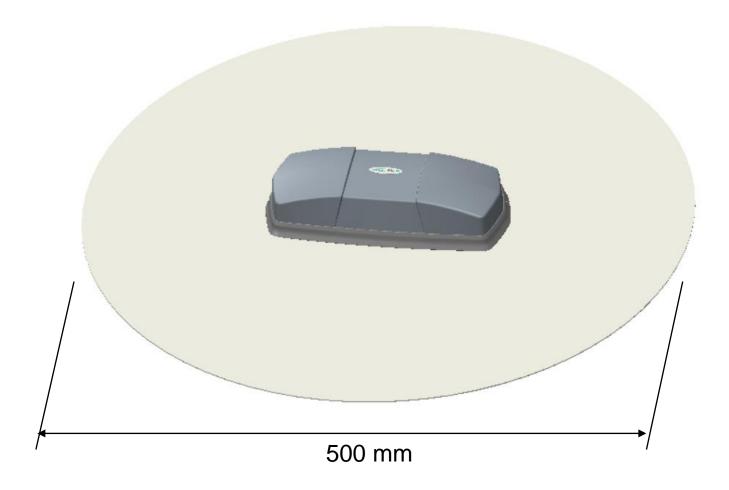
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TEST SETUP

Antenna tested on a Ø500mm ground plane.





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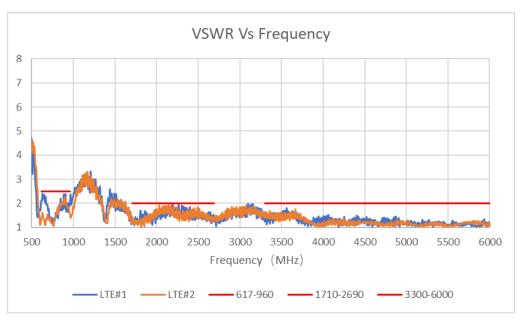
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Vehicular Multiband Antenna

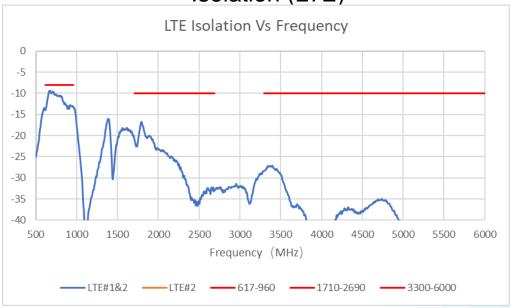
PART NUMBER: ARM5GXXXXXDM

CHARTS

VSWR (LTE)



Isolation (LTE)



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





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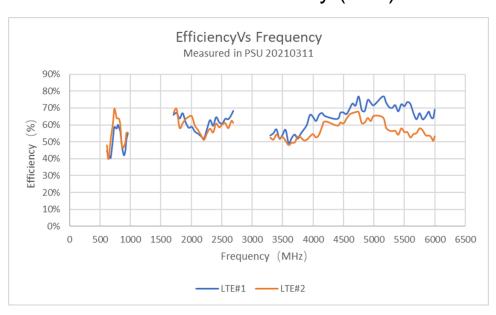
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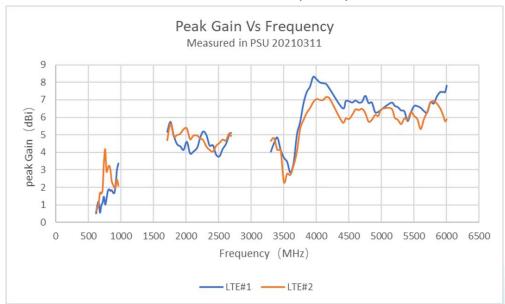
PART NUMBER: ARM5GXXXXXDM

CHARTS

Radiation Efficiency (LTE)



Peak Gain (LTE)



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

Issue: 2150



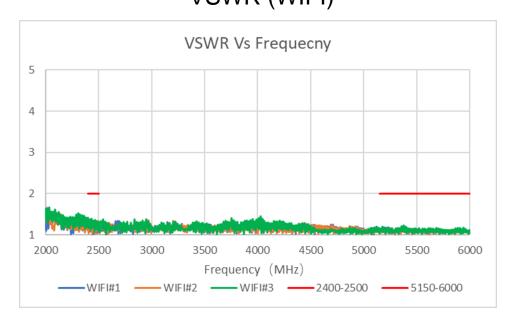
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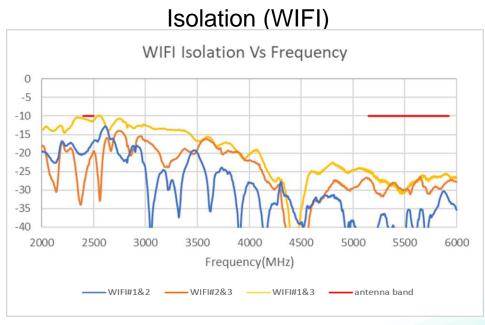
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PART NUMBER: ARM5GXXXXXDM

CHARTS VSWR (WIFI)





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





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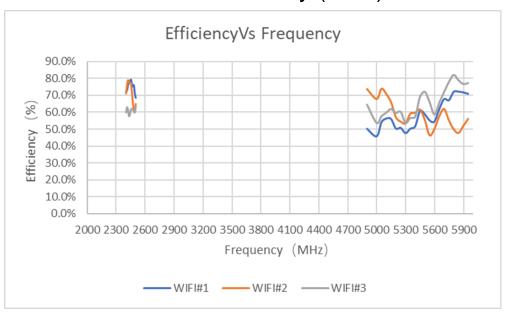
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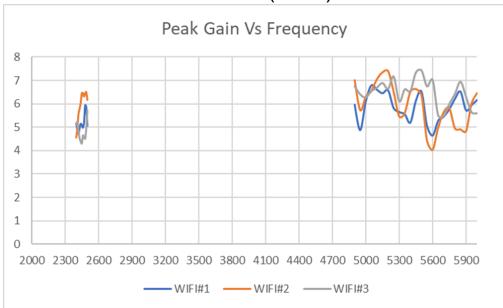
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CHARTS

Radiation Efficiency (WIFI)



Peak Gain (WIFI)



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





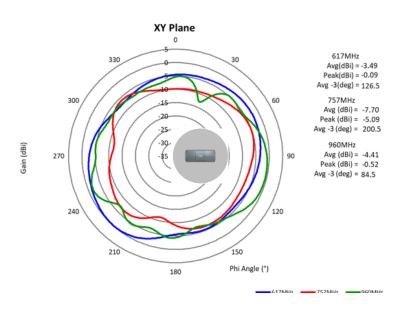
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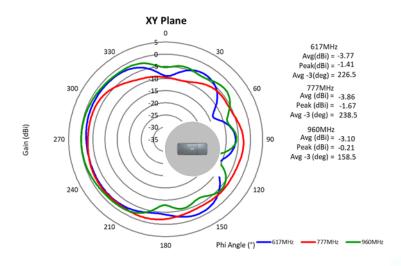
Vehicular Multiband Antenna

PART NUMBER: ARM5GXXXXXDM

CHARTS



LTE1 XY plane radiation pattern



LTE2 XY plane radiation pattern







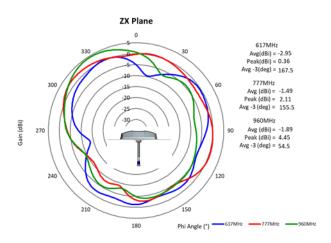
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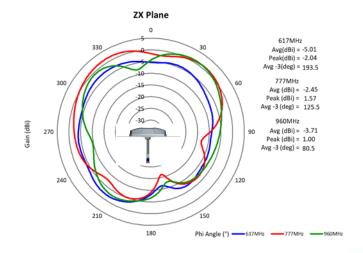
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CHARTS



LTE1 ZX plane radiation pattern



LTE2 ZX plane radiation pattern







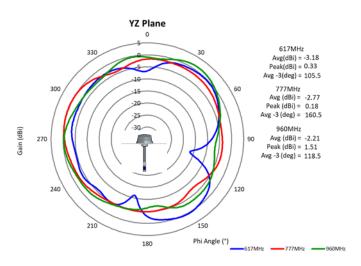
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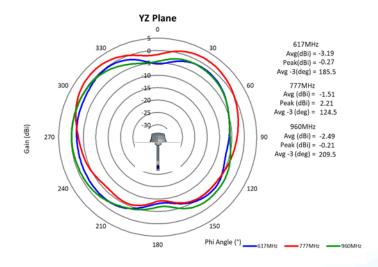
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PART NUMBER: ARM5GXXXXXDM

CHARTS



LTE1 YZ plane radiation pattern



LTE2 YZ plane radiation pattern







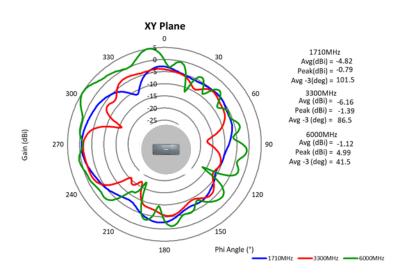
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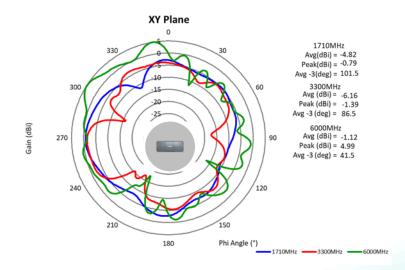
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CHARTS



LTE1 XY plane radiation pattern



LTE2 XY plane radiation pattern







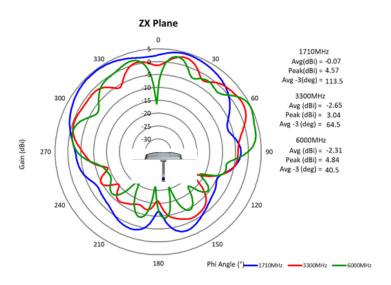
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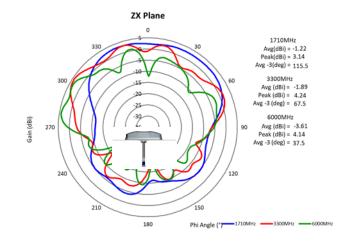
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CHARTS



LTE1 ZX plane radiation pattern



LTE2 ZX plane radiation pattern







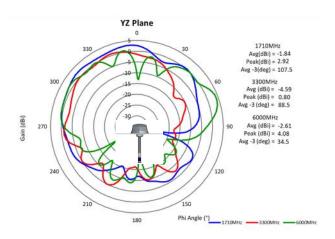
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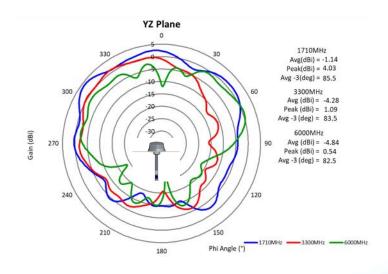
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CHARTS



LTE1 YZ plane radiation pattern



LTE2 YZ plane radiation pattern

Issue: 2150





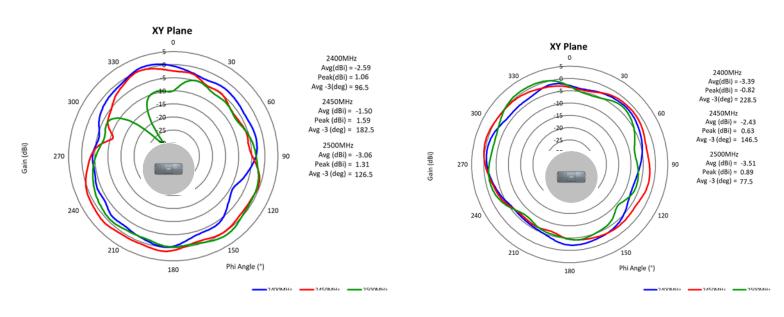
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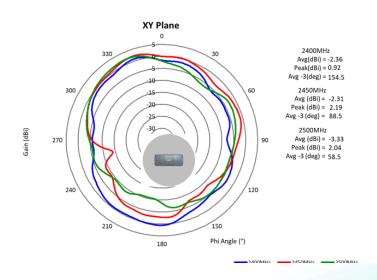
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CHARTS



WiFi1 XY plane radiation pattern

WiFi2 XY plane radiation pattern









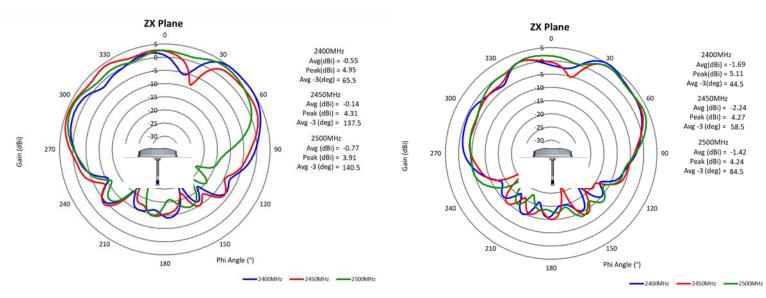
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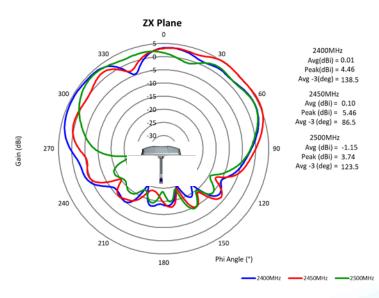
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CHARTS



WiFi1 ZX plane radiation pattern

WiFi2 ZX plane radiation pattern



WiFi3 ZX plane radiation pattern

Issue: 2150





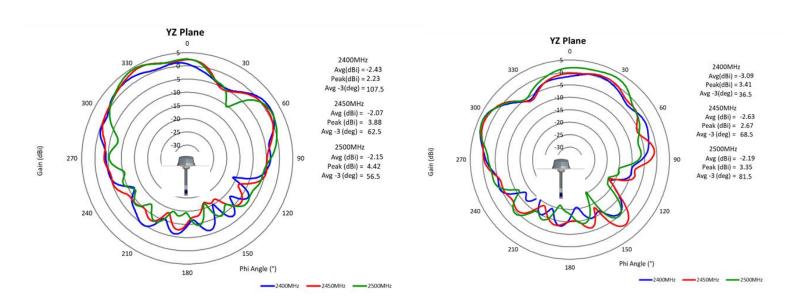
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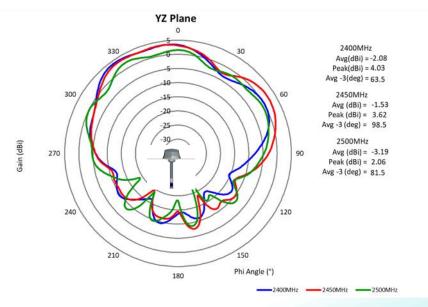
PART NUMBER: ARM5GXXXXXDM

CHARTS



WiFi1 YZ plane radiation pattern

WiFi2 YZ plane radiation pattern







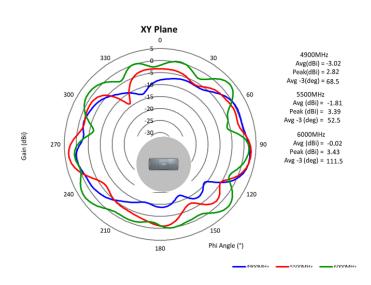
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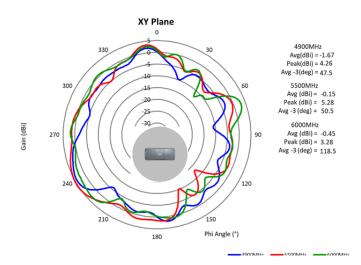
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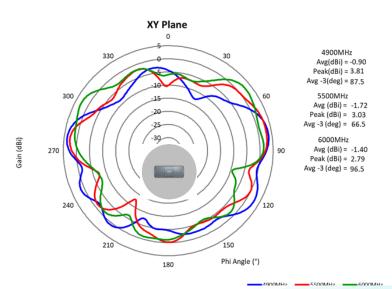
CHARTS





WiFi1 XY plane radiation pattern

WiFi2 XY plane radiation pattern



WiFi3 XY plane radiation pattern

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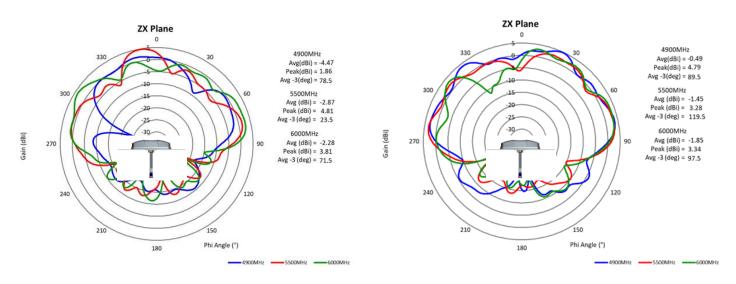
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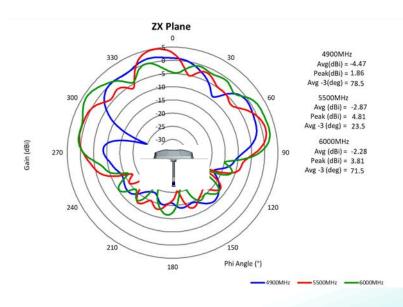
PART NUMBER: ARM5GXXXXXDM

CHARTS



WiFi1 ZX plane radiation pattern

WiFi2 ZX plane radiation pattern



WiFi3 ZX plane radiation pattern







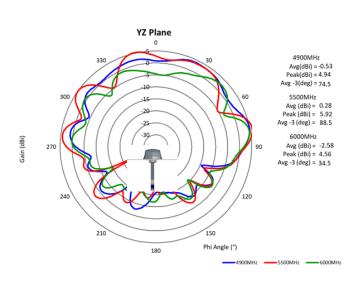
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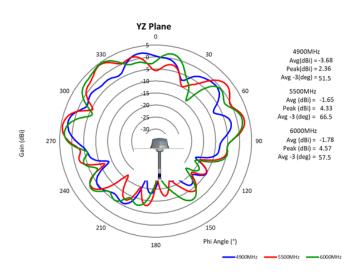
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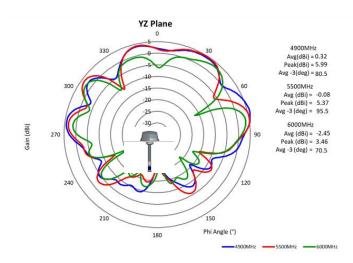
CHARTS





WiFi1 YZ plane radiation pattern

WiFi2 YZ plane radiation pattern







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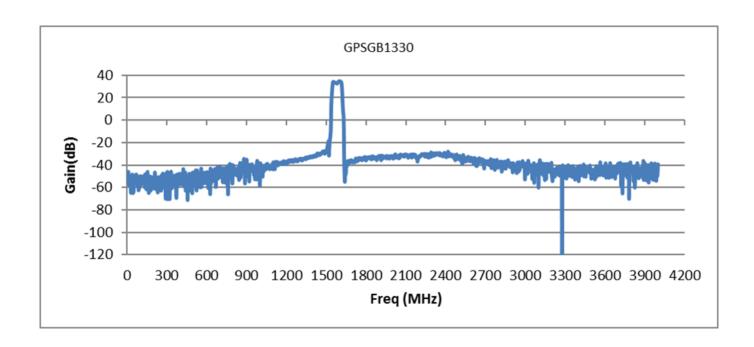
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CHARTS

LNA Gain and out-of-band rejection







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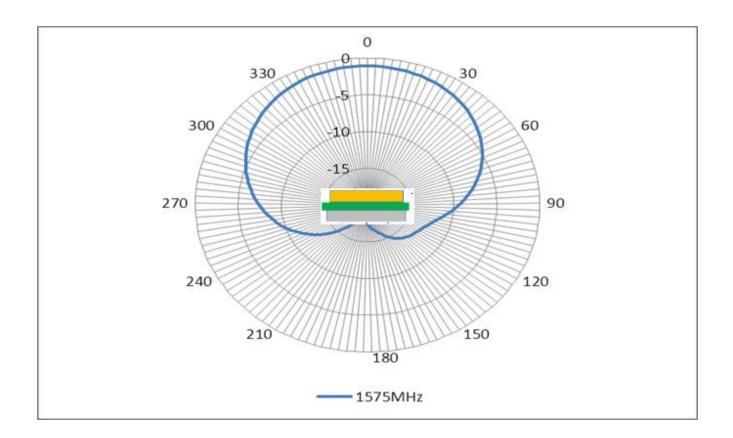
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CHARTS

Radiation Pattern (70mm x 70mm ground plane) GPS & Galileo









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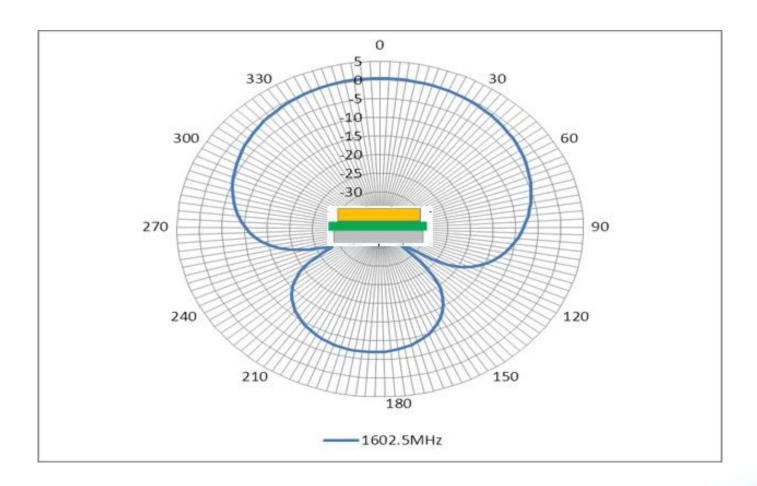
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CHARTS

Radiation Pattern (70mm x 70mm ground plane) GLONASS









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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.