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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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TECHNICAL DATA SHEET

Description: Vehicular Multiband Antenna with

Adhesive Mount

PART NUMBER: ARMXXXXXAM





All dimensions are in mm / inches



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/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

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





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Description: Vehicular Multiband Antenna with

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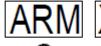
ELECTRICAL SPECIFICATIONS

| Product | Total Cable Leads | LTE Cable Leads | WiFi Cable Leads | GPS Cable Leads | Housing Color | Mounting |
|------------|----------------------|--------------------|---------------------|--------------------|------------------|---|
| ARM62311AM | 6 | 2 | 3 | 1 | Black | Adhesive Mount; 3M VHB4959 Thickness: 3mm |
| ARM62312AM | 6 | 2 | 3 | 1 | White | |
| ARM52211AM | 5 | 2 | 2 | 1 | Black | |
| ARM52212AM | 5 | 2 | 2 | 1 | White | |
| ARM42111AM | 4 | 2 | 1 | 1 | Black | |
| ARM42112AM | 4 | 2 | 1 | 1 | White | |

Product Numbering

Vehicular Multiband Antenna with Direct Mount

(Part Number)













| @ | Product ID: ARMADILLO |
|----------|---|
| 6 | Total Number of Cable leads |
| 0 | Total Number of LTE Cable Leads |
| 4 | Total Number of WiFi Cable Leads |
| • | Total Number of GPS Cable Leads |
| • | The Color of the Plastic Housing 1=Black; 2= White |
| • | Mounting: Adhesive Mount |

| | ARM62311AM | CABLE | CABLE LENGTH | CONNECTOR |
|---|-------------------|------------|------------------------------|-------------|
| 1 | LTE-1 Cable Assy | 1.840 4001 | | DIA NOTE OF |
| 2 | LTE-2 Cable Assy | LMR-1951 | - PANALISAL WORLD | SMA Male |
| 3 | WiFi-1 Cable Assy | | 5181 mm / 204" / 17 FT | RP-SMA Male |
| 4 | WiFi-2 Cable Assy | LMR-195* | | |
| 5 | WiFi-3 Cable Assy | | | |
| 6 | GPS Cable Assy | LMR-100* | | SMA Male |

* or equivalent







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ELECTRICAL SPECIFICATIONS

| 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; | 4.6dBi | | | |
| 1710-2690MHz | 5.1dBi | | | |
| 2400-2500MHz | 4.9dBi | | | |
| 5150-5925MHz | 7.9dBi | | | |
| Polarization | Vertical | | | |
| | | | | |

Issue: 1804P

Preliminary

^{*}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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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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MECHANICAL SPECIFICATIONS

Overall Length 202.3mm X 88.5mm X 45mm

Weight 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

| 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 |

Preliminary



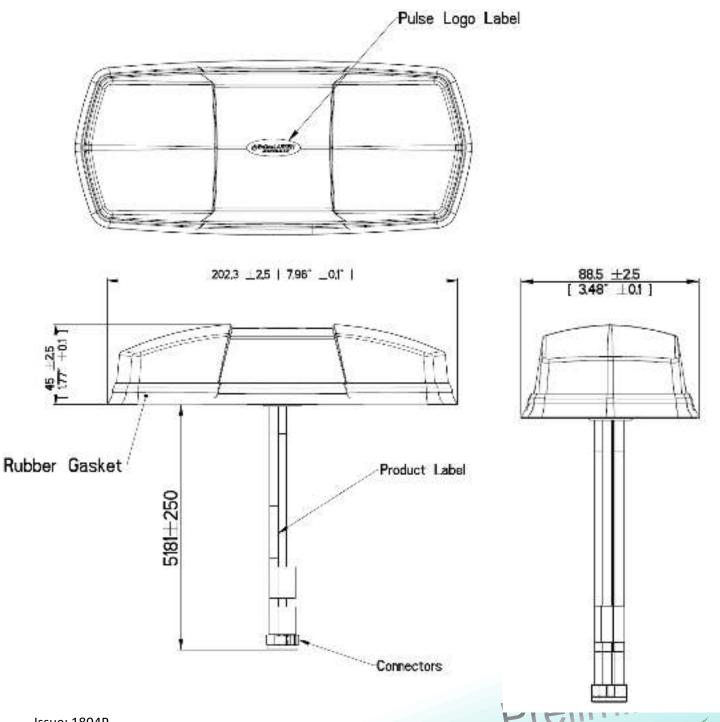
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Description: Vehicular Multiband Antenna with

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MECHANICAL DRAWING



Issue: 1804P



TECHNICAL DATA SHEET

Description: Vehicular Multiband Antenna with

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MECHANICAL DRAWING Product Lable Product Lable Content 5181 ± 250mm P.N.:ARM62311AM Rev.: V01 Date: DD-MM-YYYY 2 5 ARM62311AM CABLE CABLE LENGTH CONNECTOR LTE-1 Cable Assy LMR-195* SMA Male LTE-2 Cable Assy 3 5181 mm / WiFi-1 Cable Assy Adhesive Tape 3M VIIB 4959 2041 RP-SMA Wale WiFi-2 Cable Assy LMR-195* 5 WiFi-3 Cable Assy. Thickness: 3mm ß GPS Cable Assy LMR-100* SMA Male

" or ecuivalent

Issue: 1804P





TECHNICAL DATA SHEET

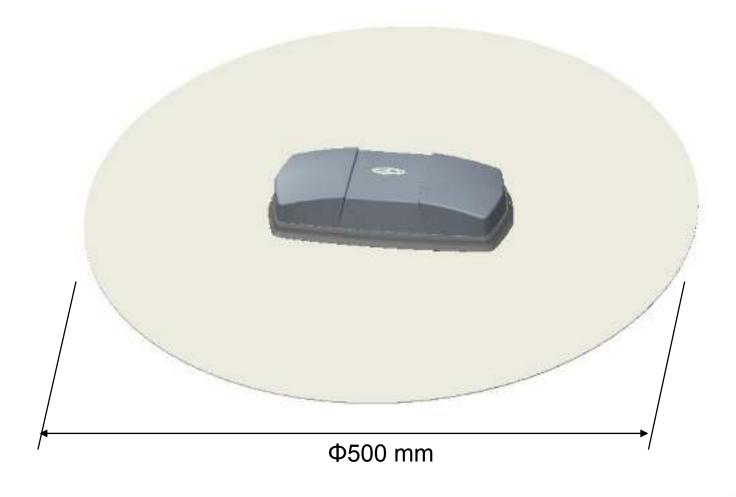
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TEST SETUP

Antenna tested on a Φ500mm ground plane.



Issue: 1804P

Preliminary



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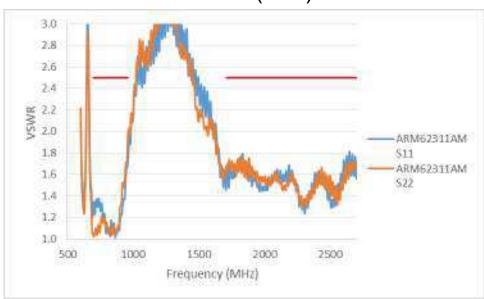
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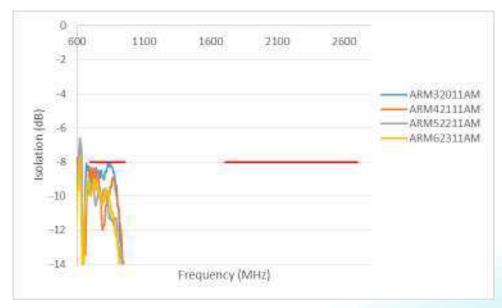
PART NUMBER: ARMXXXXXAM

CHARTS

VSWR (LTE)



Isolation (LTE)



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

Issue: 1804P





TECHNICAL DATA SHEET

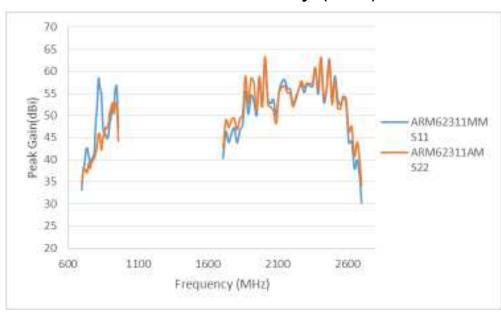
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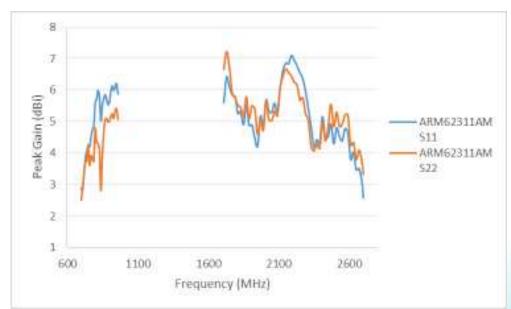
PART NUMBER: ARMXXXXXAM

CHARTS

Radiation Efficiency (LTE)



Peak Gain (LTE)



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

Issue: 1804P





TECHNICAL DATA SHEET

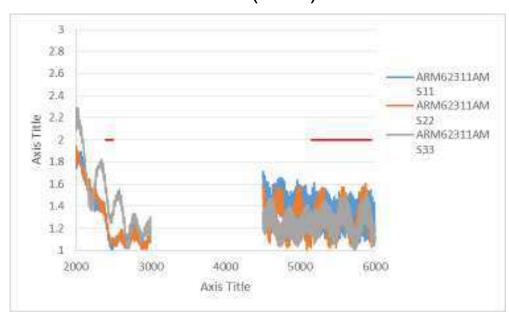
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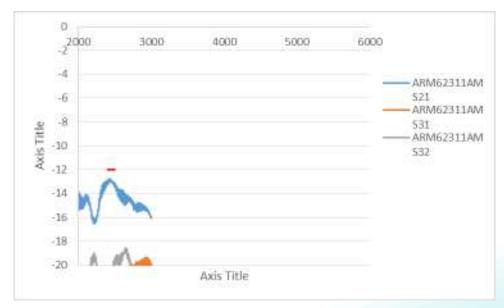
PART NUMBER: ARMXXXXXAM

CHARTS

VSWR (WIFI)

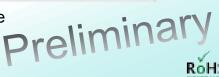


Isolation (WIFI)



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

Issue: 1804P





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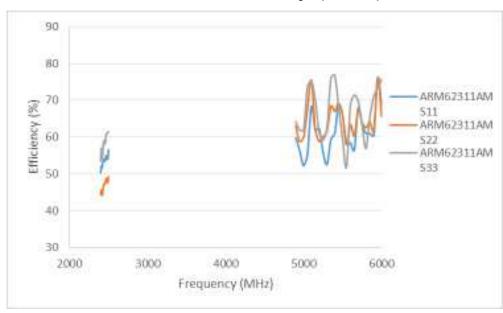
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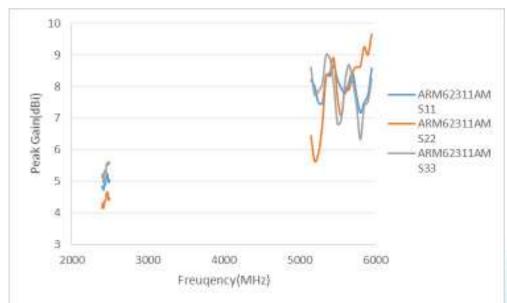
PART NUMBER: ARMXXXXXAM

CHARTS

Radiation Efficiency (WIFI)



Peak Gain (WIFI)



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

Issue: 1804P





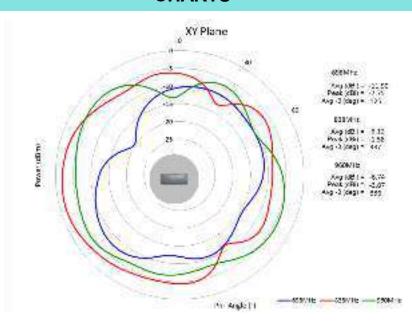
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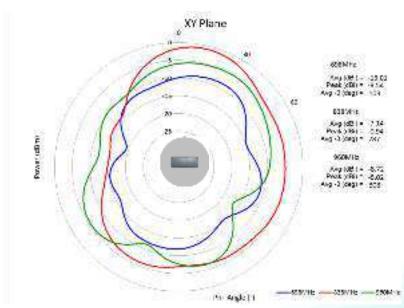
Adhesive Mount

PART NUMBER: ARMXXXXXAM

CHARTS



LTE1 XY plane radiation pattern



LTE2 XY plane radiation patterninary

Issue: 1804P





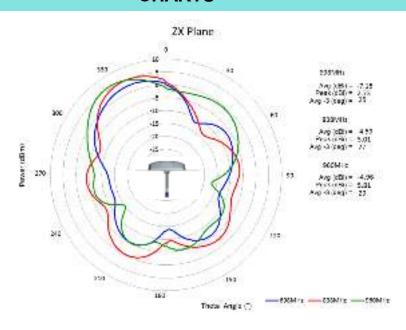
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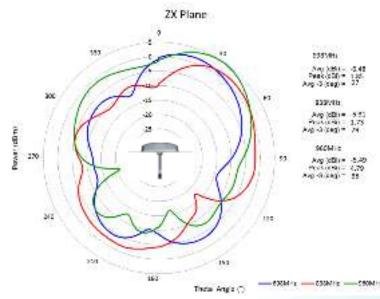
Adhesive Mount

PART NUMBER: ARMXXXXXAM

CHARTS



LTE1 ZX plane radiation pattern



LTE2 ZX plane radiation patterninary

Issue: 1804P



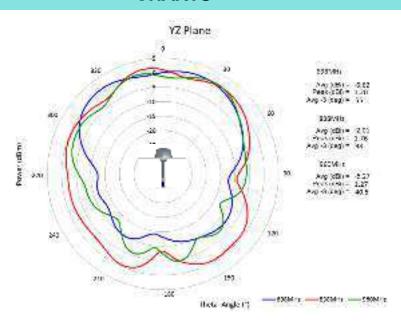
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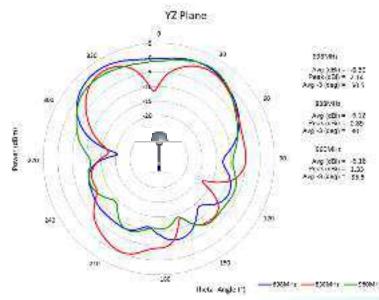
Adhesive Mount

PART NUMBER: ARMXXXXXAM

CHARTS



LTE1 YZ plane radiation pattern



LTE2 YZ plane radiation patternimary

Issue: 1804P



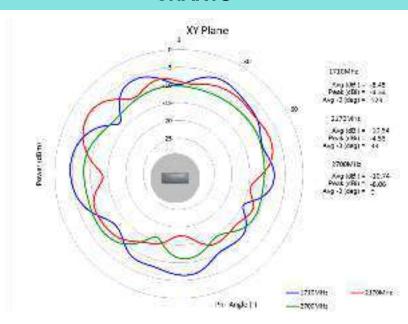
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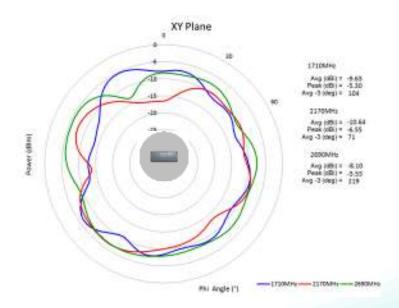
Adhesive Mount

PART NUMBER: ARMXXXXXAM

CHARTS



LTE1 XY plane radiation pattern



LTE2 XY plane radiation patterninary

Issue: 1804P



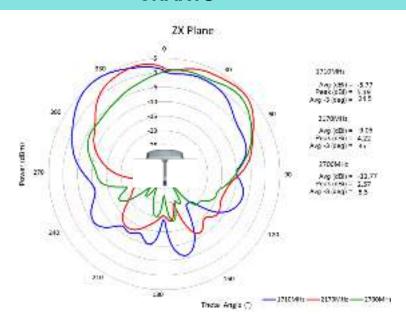
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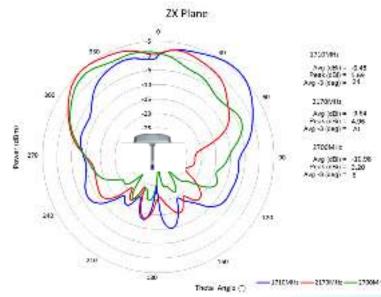
Adhesive Mount

PART NUMBER: ARMXXXXXAM

CHARTS



LTE1 ZX plane radiation pattern



LTE2 ZX plane radiation patterninary

Issue: 1804P



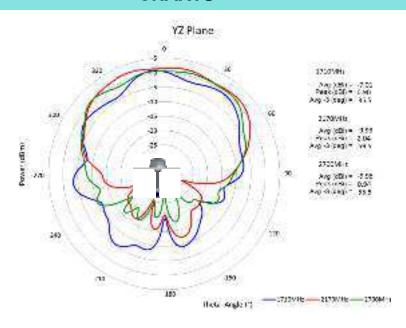
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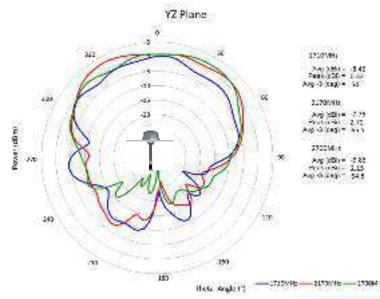
Adhesive Mount

PART NUMBER: ARMXXXXXAM

CHARTS



LTE1 YZ plane radiation pattern



LTE2 YZ plane radiation patterninary

Issue: 1804P



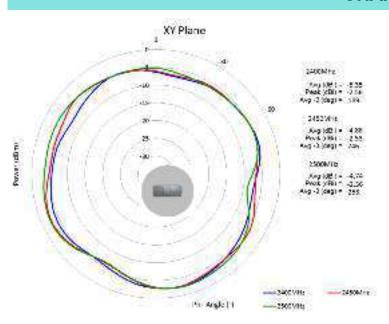
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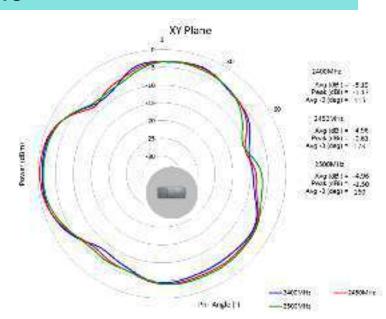
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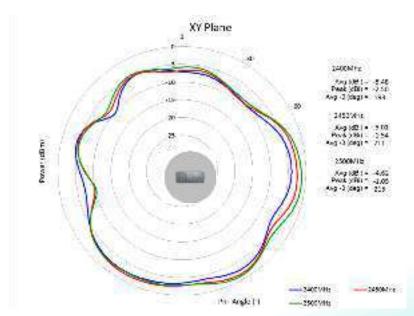
CHARTS





WiFi1 XY plane radiation pattern

WiFi2 XY plane radiation pattern



WiFi3 XY plane radiation pattern

Issue: 1804P



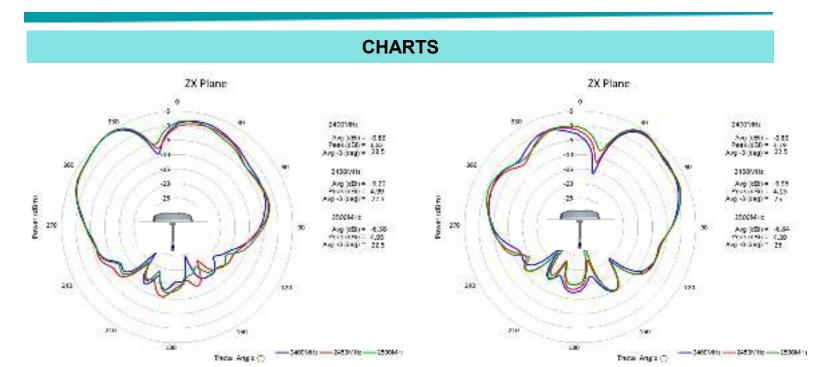


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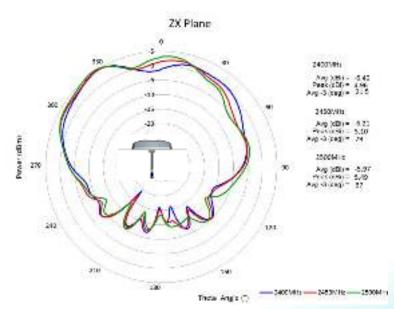
Adhesive Mount

PART NUMBER: ARMXXXXXAM



WiFi1 ZX plane radiation pattern

WiFi2 ZX plane radiation pattern



WiFi3 ZX plane radiation pattern minary

Issue: 1804P





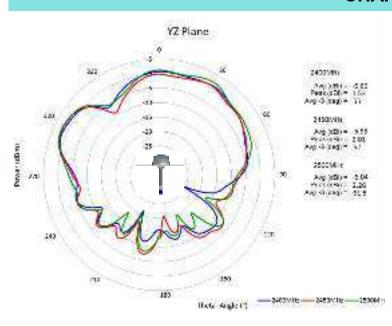
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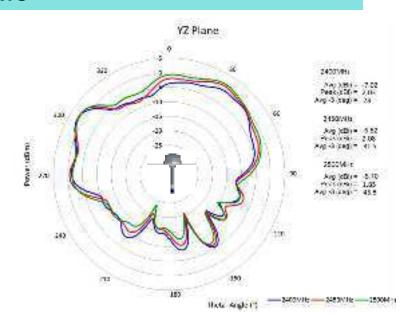
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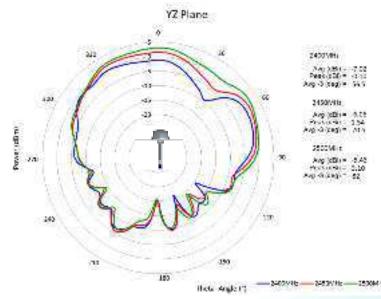
CHARTS





WiFi1 YZ plane radiation pattern

WiFi2 YZ plane radiation pattern



WiFi3 YZ plane radiation pattern minary

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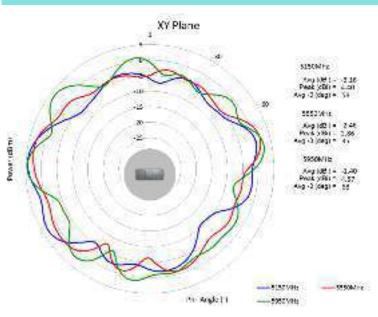
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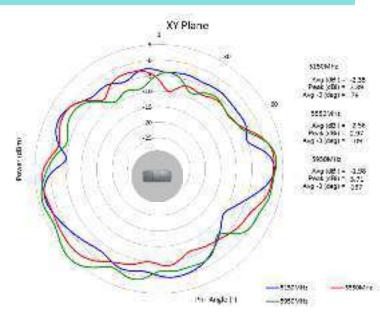
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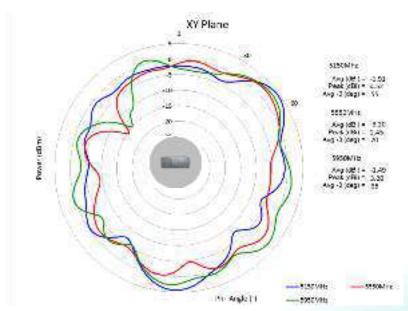
CHARTS





WiFi1 XY plane radiation pattern

WiFi2 XY plane radiation pattern



WiFi3 XY plane radiation pattern minar

Issue: 1804P

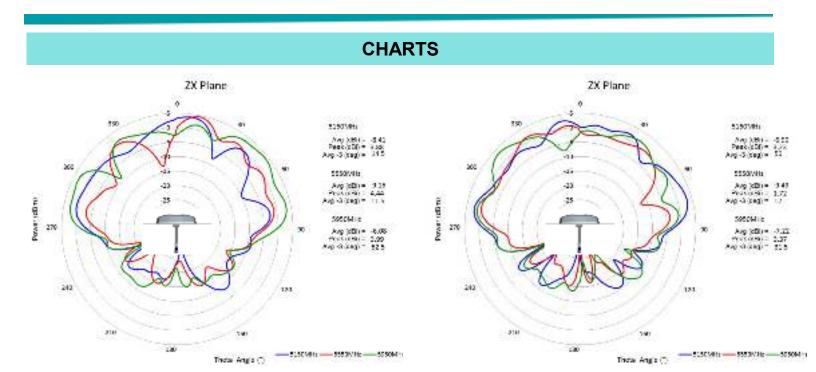


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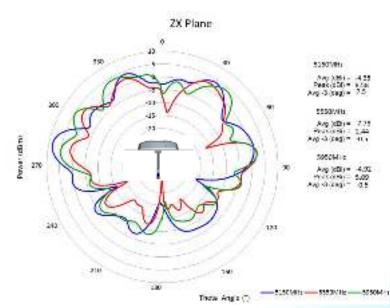
Adhesive Mount

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WiFi1 ZX plane radiation pattern

WiFi2 ZX plane radiation pattern



WiFi3 ZX plane radiation pattern minary

Issue: 1804P

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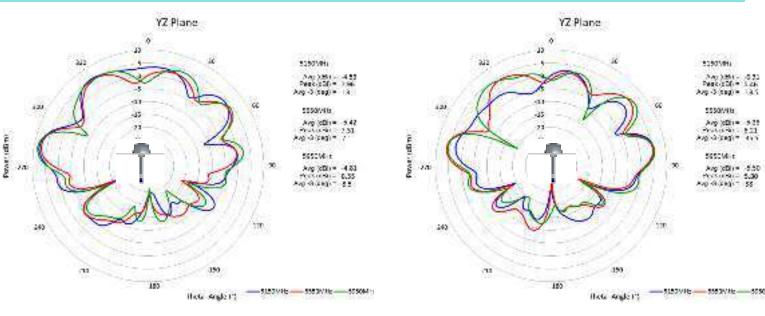
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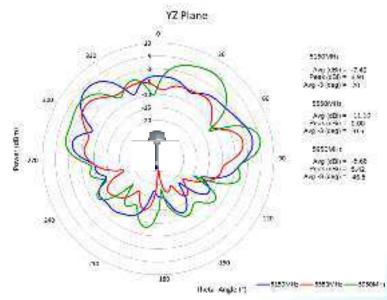
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CHARTS



WiFi1 YZ plane radiation pattern

WiFi2 YZ plane radiation pattern



WiFi3 YZ plane radiation pattern minary

Issue: 1804P





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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.

Preliminary