



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



Series: RAZORBACK

PART NUMBER: RAZ32011AM, RAZ32012AM, RAZ42111AM,
RAZ42112AM, RAZ52211AM, RAZ52212AM, RAZ62311AM, RAZ62312AM



RAZ52211AM (Black)



RAZ52212AM (White)

Features:

- 2x LTE 644-2700MHz (MiMo)
- 0, 1x, 2x or 3x WiFi 2.4/5GHz
- DSRC
- GNSS Active:
 - Beidou, GPS, Glonass
 - RHCP polarization
 - Amplifier Gain 30dBi
- Size: 88.5 x 195.1 x 92.6mm
3.48 x 7.68 x 3.65 in
- Power withstanding 45W
- Available Models
 - RAZ32011AM = 3 Cable, Black
 - RAZ32012AM = 3 Cable, White
 - RAZ42111AM = 4 Cable, Black
 - RAZ42112AM = 4 Cable, White
 - RAZ52211AM = 5 Cable, Black
 - RAZ52212AM = 5 Cable, White
 - RAZ62311AM = 6 Cable, Black
 - RAZ62312AM = 6 Cable, White

Applications:

- Vehicular use Telematics
- Fleet management
- Trucking
- Navigation, GIS and survey
- Public safety
- Search and Rescue
- Metering, Utility boxes

Issue: 1742

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Pulse (Suzhou) Wireless Products Co, Inc.
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Suzhou New District
Jiangsu Province, Suzhou 215009 PR China
Tel: 86 512 6807 9998



Series: RAZORBACK

PART NUMBER: RAZ32011AM, RAZ32012AM, RAZ42111AM,
RAZ42112AM, RAZ52211AM, RAZ52212AM, RAZ62311AM, RAZ62312AM

ELECTRICAL SPECIFICATIONS

Antenna Type	Monopole, measured on Ø1.02m (40") ground plane
Frequency (2x LTE)	644-960/1710-2700 MHz
Frequency (1x, 2x or 3x WiFi)	2400-2500/4900-5925 MHz
Nominal Impedance	50 Ω
VSWR	2:1
Radiation Pattern	Omni
HPBW / Vertical Plane (LTE, 644-960)	42°
HPBW / Vertical Plane (LTE, 1710-2700)	31°
HPBW / Vertical Plane (WIFI, 2400-2500)	25°
HPBW / Vertical Plane (WIFI, 4900-5925)	20°
Polarization	Vertical
Average Peak Gain (LTE, 644-960) (LTE, 1710-2700)	4.6/4.9 dBi
Average Peak Gain (WIFI, 2400-2500) (WIFI, 4900-5925)	6/6.6 dBi
Isolation (LTE1 to LTE2)	<-13
Isolation (WiFi1/2, WiF2/3 & WiFi1/3)	<-13
Average Efficiency (LTE)	67 %
Average Efficiency (WiFi)	57 %
Power Withstanding	45 W
GNSS Beidou-GPS-Glonass	
Frequency	1561.098±2.046,1575.42±1.023,1602.5625±4 MHz
VSWR	2:1
Nominal Impedance	50 Ω
Gain (Radiating element)	1 dBic +/- 1dB
Gain (LNA gain)	30 dB +/- 2 dB
Polarization	RHCP

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Description: GNSS / 2x LTE / 0, 1x, 2x or 3x WiFi
Adhesive Mount

Series: RAZORBACK

PART NUMBER: RAZ32011AM, RAZ32012AM, RAZ42111AM,
RAZ42112AM, RAZ52211AM, RAZ52212AM, RAZ62311AM, RAZ62312AM

ELECTRICAL SPECIFICATIONS

Out of Band Rejection	960MHz >65 dB, 1710MHz >60 dB, 2170MHz >65 dB, 2400MHz >65 dB
Noise Figure	< 2.4dB
Operating Voltage	3.3 - 5 Vdc ± 0.5 V
Current Consumption	< 11 mA

MECHANICAL SPECIFICATIONS

Length/Height/Width	195.1mm (7.68")/92.6 (3.65")/88.5mm (3.48")
Weight	856 g (1.9 lbs)
Antenna Color / Material	Black or White / PC/ABS, UV protected
Cable / Connector	2x LTE, 5.2m (17') LMR-195/SMA-Male 1x, 2x or 3x WiFi, 5.2m (17') LMR-195/RP-SMA-Male GNSS, 5.2m (17') RG-174/SMA-Male
Mounting Configuration	Adhesive Mount

ENVIRONMENTAL SPECIFICATIONS

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

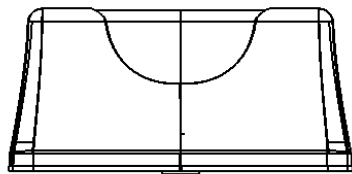
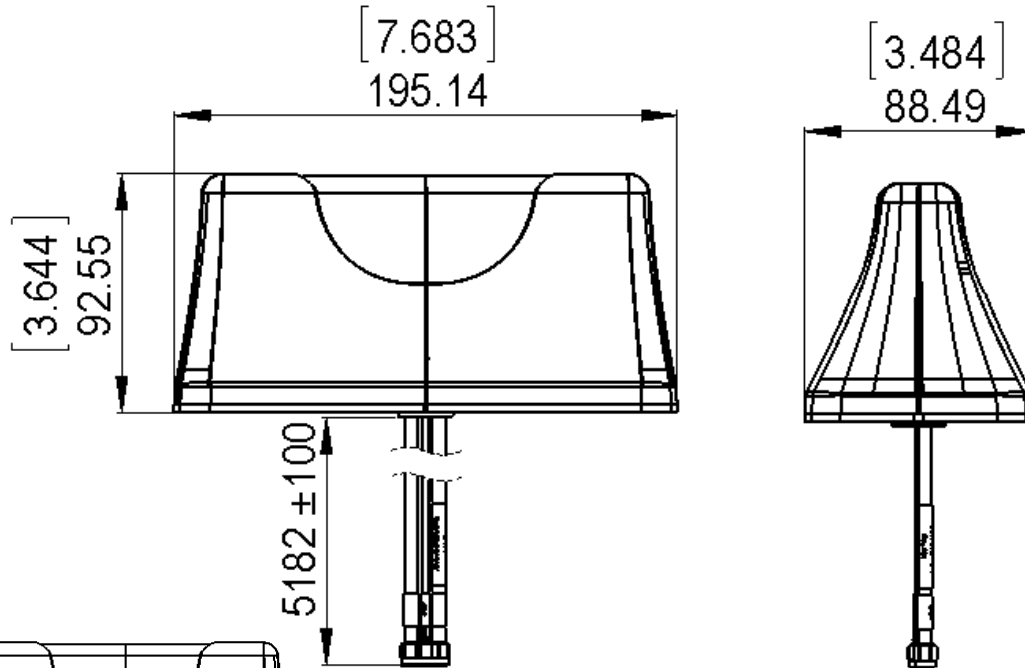
OTHER SPECIFICATIONS

Total cable assembly loss for 5.2m (17') LMR-195 @ 850MHz	2.1 dB
Total cable assembly loss for 5.2m (17') RG-174 @ 1575MHz	6.0 dB
Total cable assembly loss for 5.2m (17') LMR-195 @ 1930MHz	3.2 dB
Total cable assembly loss for 5.2m (17') LMR-195 @ 2500MHz	3.7 dB
Total cable assembly loss for 5.2m (17') LMR-195 @ 2450MHz	3.6 dB
Total cable assembly loss for 5.2m (17') LMR-195 @ 5350MHz	5.5 dB

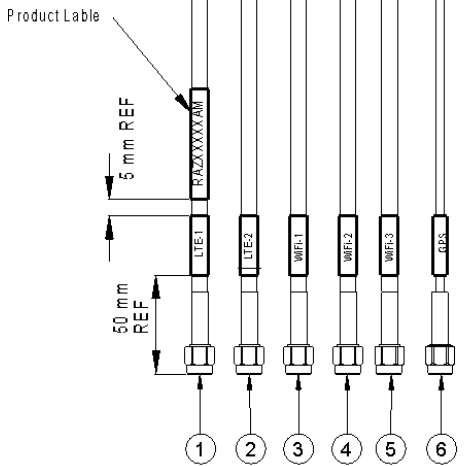
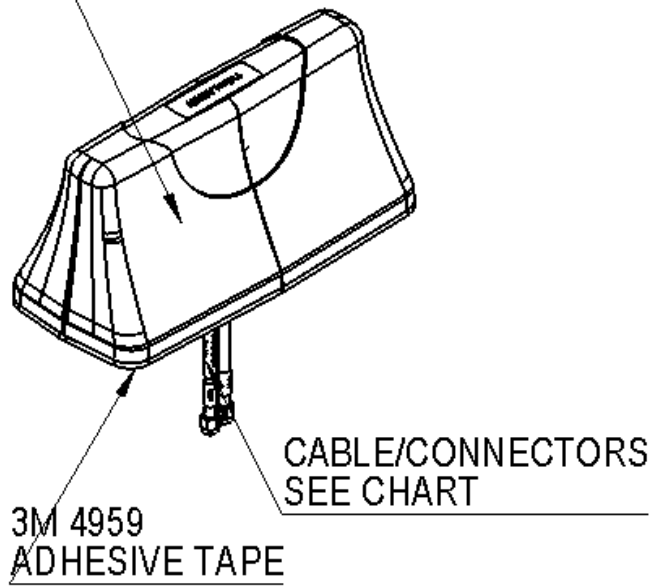
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MECHANICAL DRAWING



UV STABILIZED PLASTIC



All dimensions are in mm / inches

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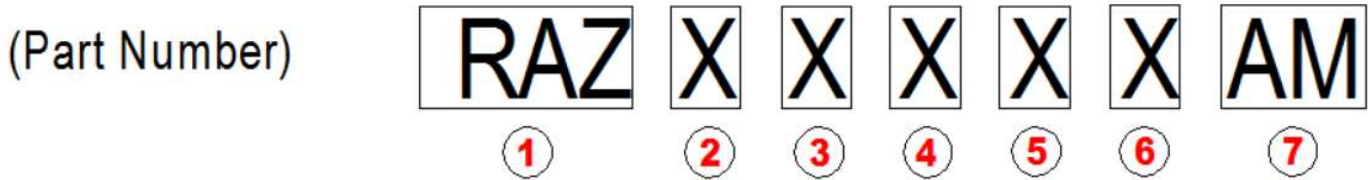
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MECHANICAL DRAWING

Vehicular Multiband Antenna with Adhesive Mount



①	Product ID: RAZORBACK
②	Total Number of Cable leads
③	Total Number of LTE Cable Leads
④	Total Number of WiFi Cable Leads
⑤	Total Number of GPS Cable Leads
⑥	The Color of the Plastic Housing 1=Black; 2= White
⑦	Mounting: Adhesive Mount

RAZXXXXXAM		CABLE	CABLE LENGTH	CONNECTOR
1	LTE-1 Cable Assy	LMR195	5181 mm / 204" / 17 FT	SMA Male
2	LTE-2 Cable Assy			RP-SMA Male
3	WiFi-1 Cable Assy			
4	WiFi-2 Cable Assy			
5	WiFi-3 Cable Assy	RG-174	SMA Male	
6	GPS Cable Assy			

All dimensions are in mm / inches

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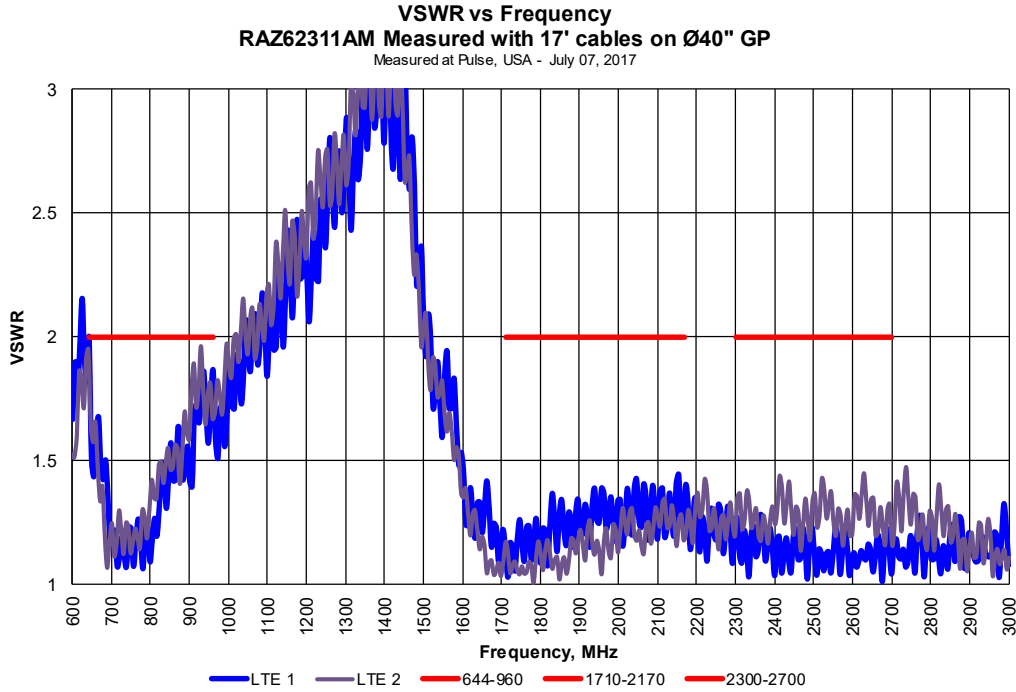
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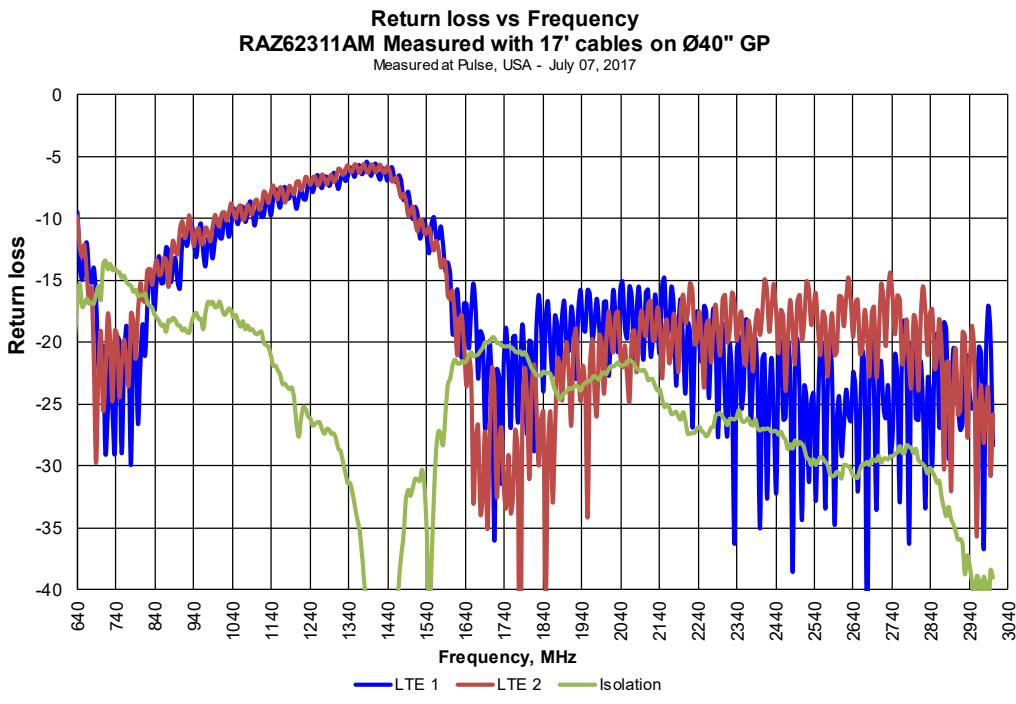
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CHARTS

LTE 1 & 2
Measured with 5.2m
(17') cable



LTE 1 & 2
Measured with 5.2m
(17') cable



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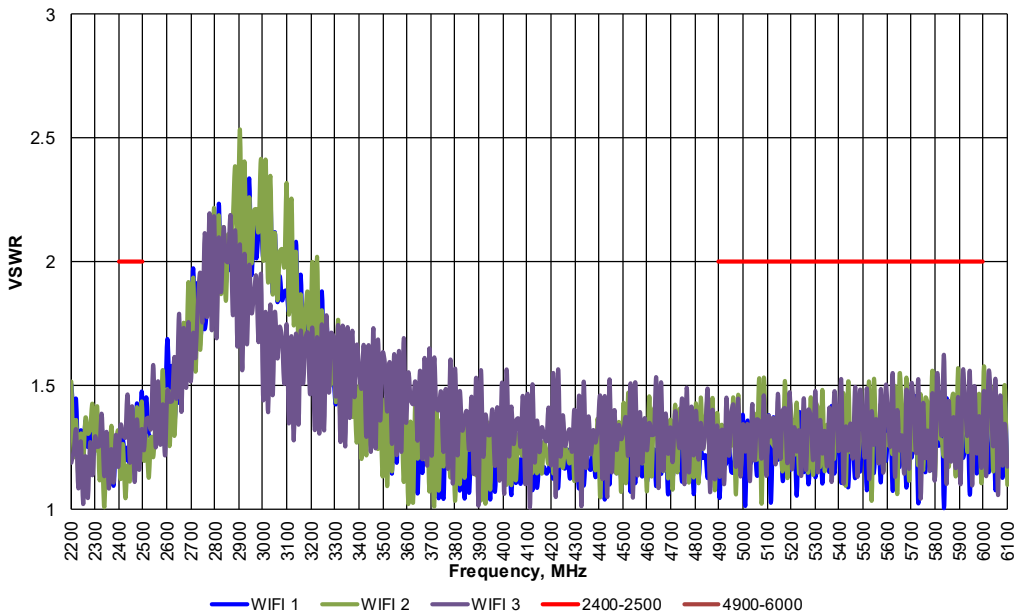
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CHARTS

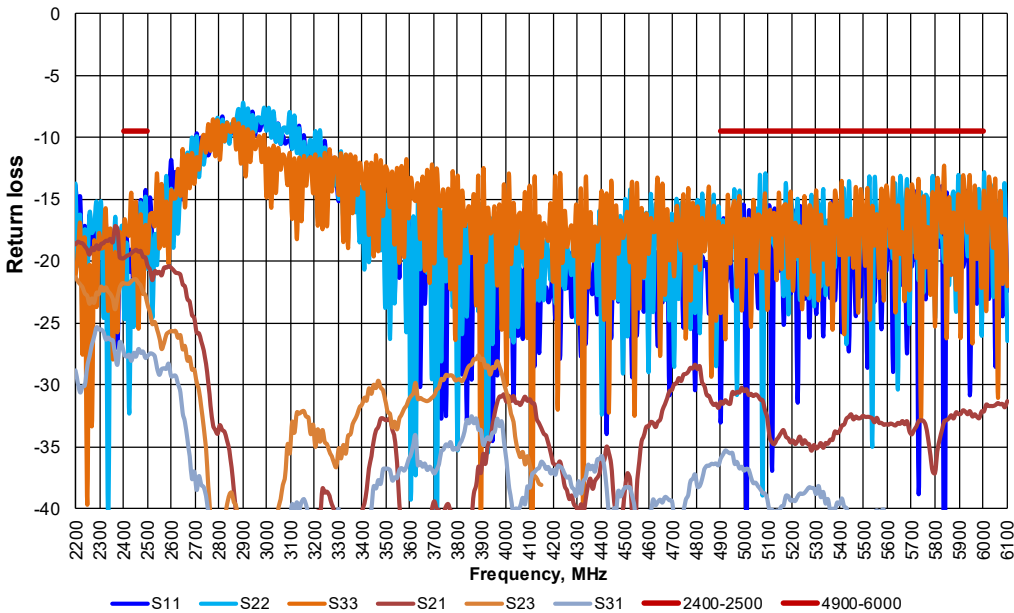
WiFi 1, 2 & 3
Measured with 5.2m
(17') cable

VSWR vs Frequency
RAZ62311AM Measured with 17' cables on Ø40" GP (WiFi 1, 2 & 3)
Measured at Pulse, USA - July 07, 2017



WiFi 1, 2 & 3
Measured with 5.2m
(17') cable

Return loss vs Frequency
RAZ62311AM Measured with 17' cables on Ø40" GP (WiFi 1, 2 & 3)
Measured at Pulse, USA - July 07, 2017



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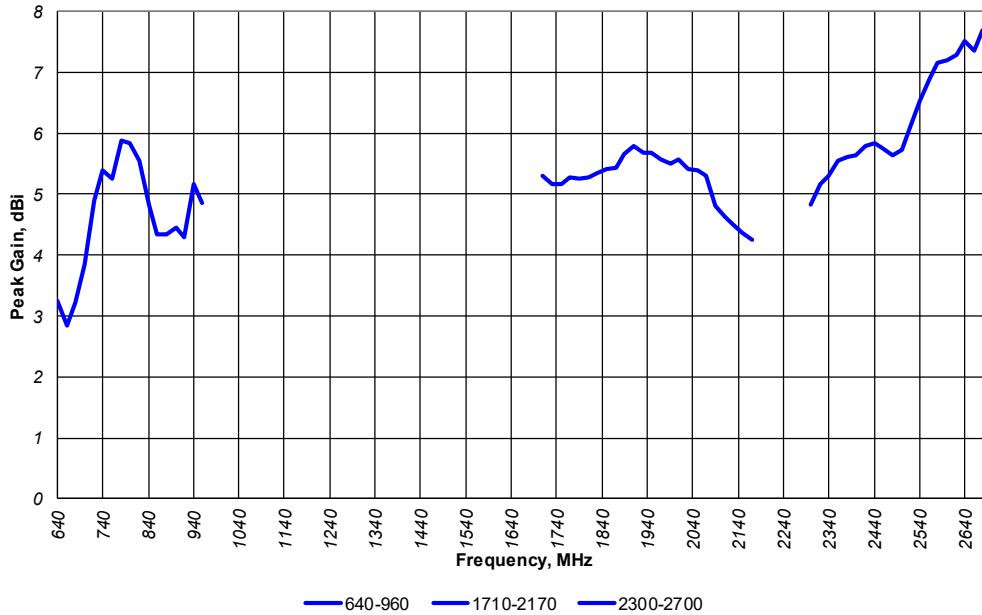
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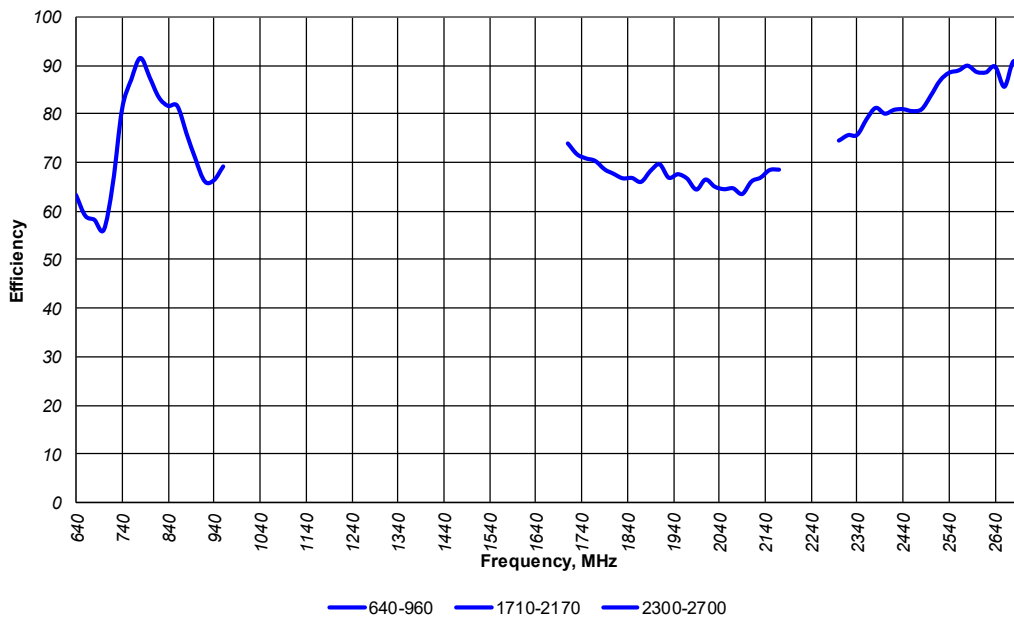
CHARTS

Peak Gain vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (LTE 1)
Measured at Pulse, USA - Aug 04, 2017



LTE 1
Measured with
102mm (4") cable

Efficiency vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (LTE 1)
Measured at Pulse, USA - aUG 04, 2017



LTE 1
Measured with
102mm (4") cable

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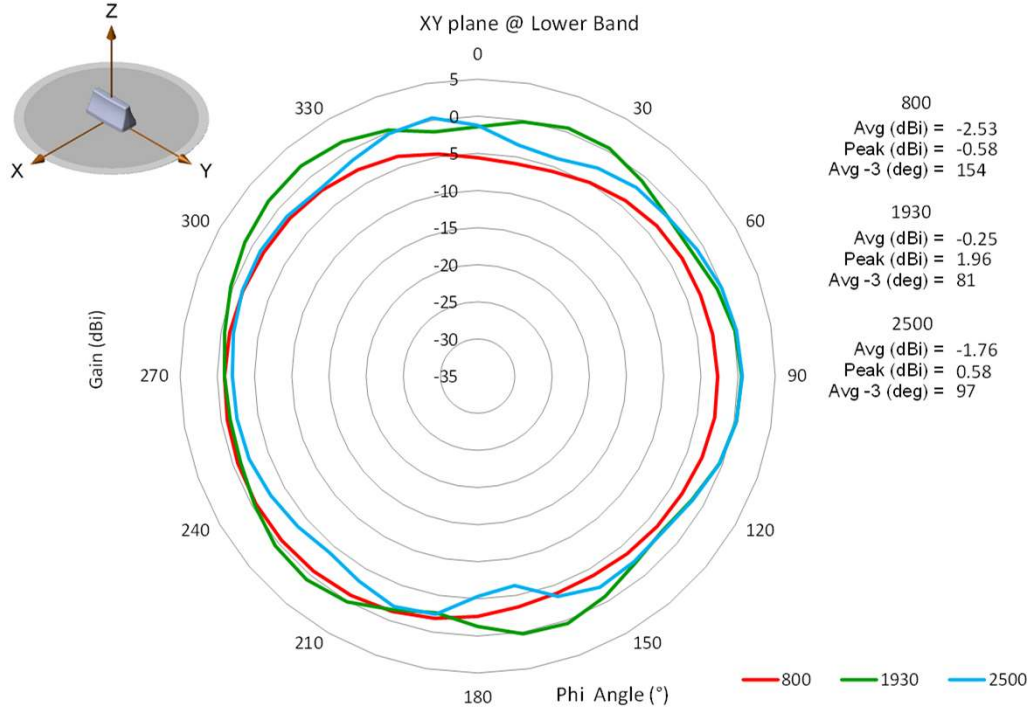
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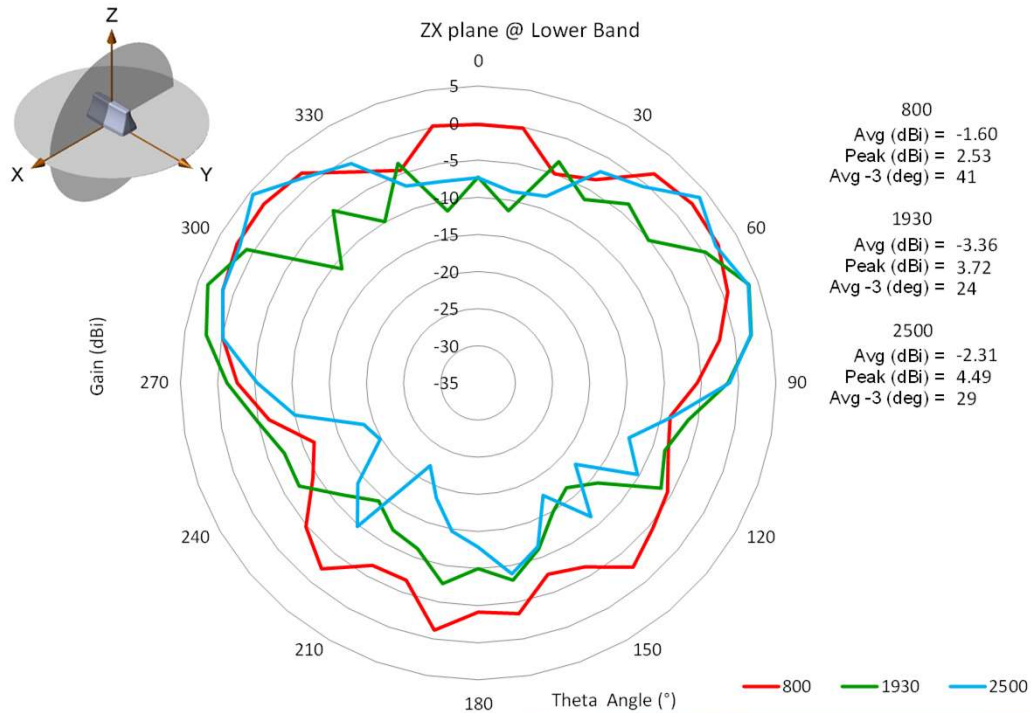
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CHARTS

LTE 1
Measured with
102mm (4") cable



LTE 1
Measured with
102mm (4") cable



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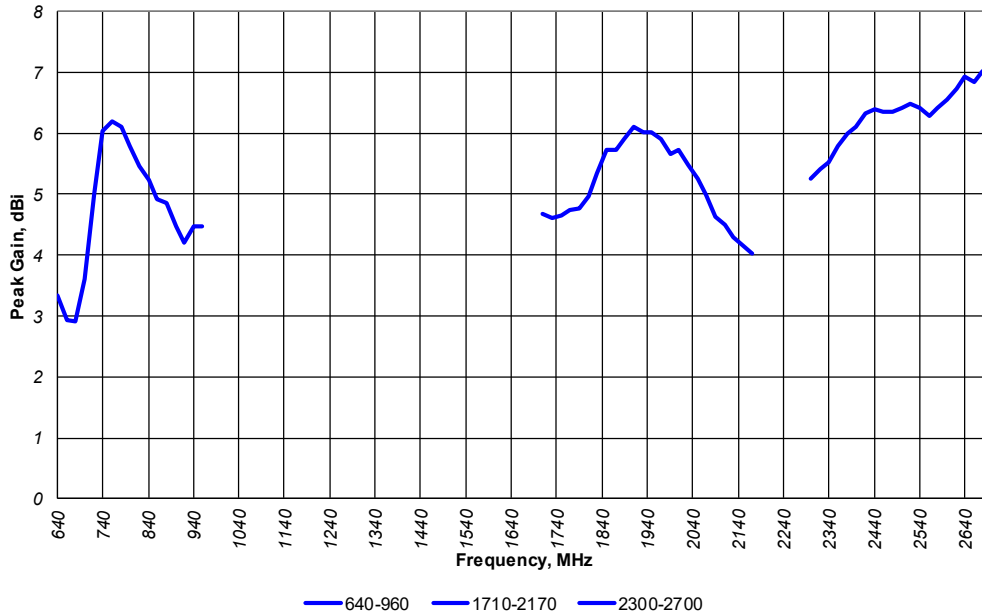
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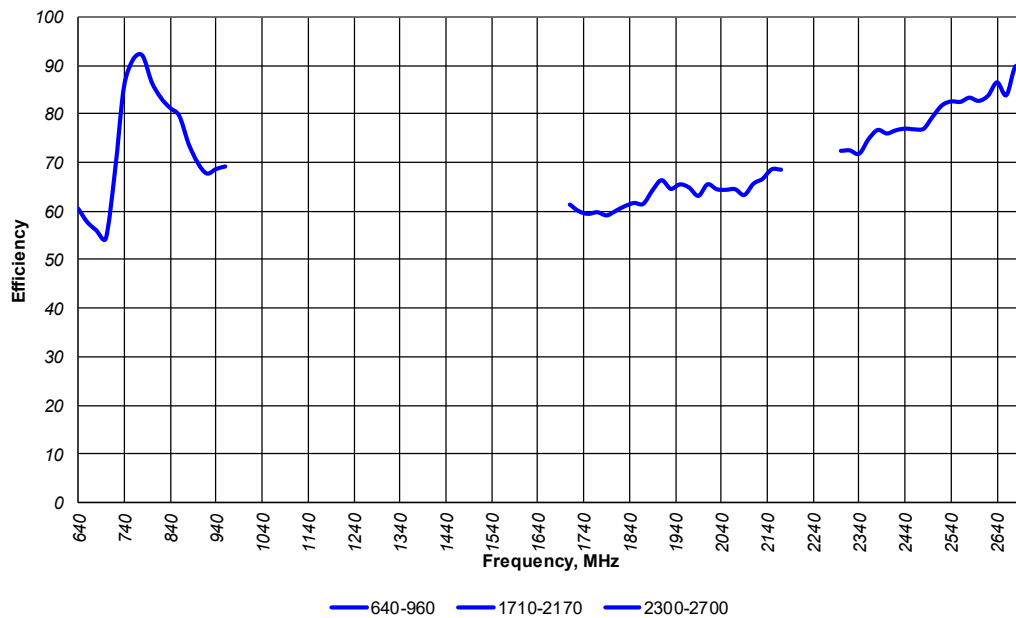
CHARTS

Peak Gain vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (LTE 2)
Measured at Pulse, USA - Aug 04, 2017



LTE 2
Measured with
102mm (4") cable

Efficiency vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (LTE 2)
Measured at Pulse, USA - AUG 04, 2017



LTE 2
Measured with
102mm (4") cable

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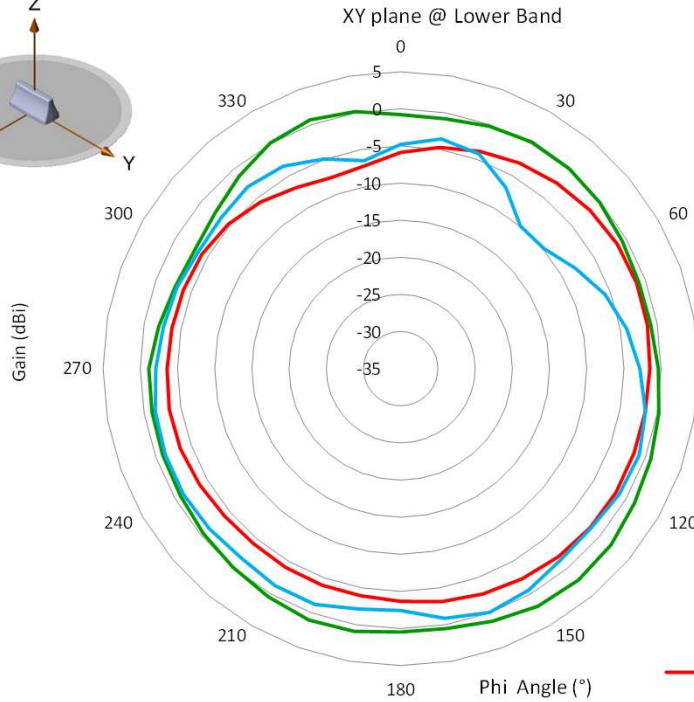
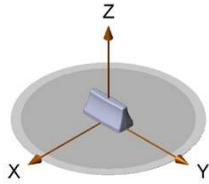
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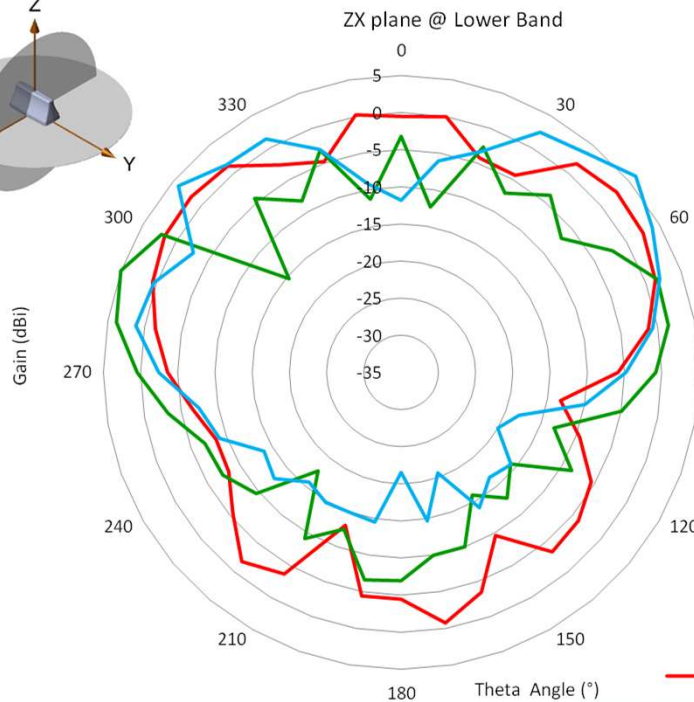
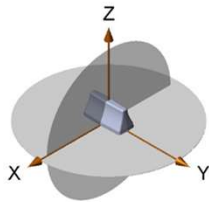
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CHARTS



LTE 2
Measured with
102mm (4") cable



LTE 2
Measured with
102mm (4") cable

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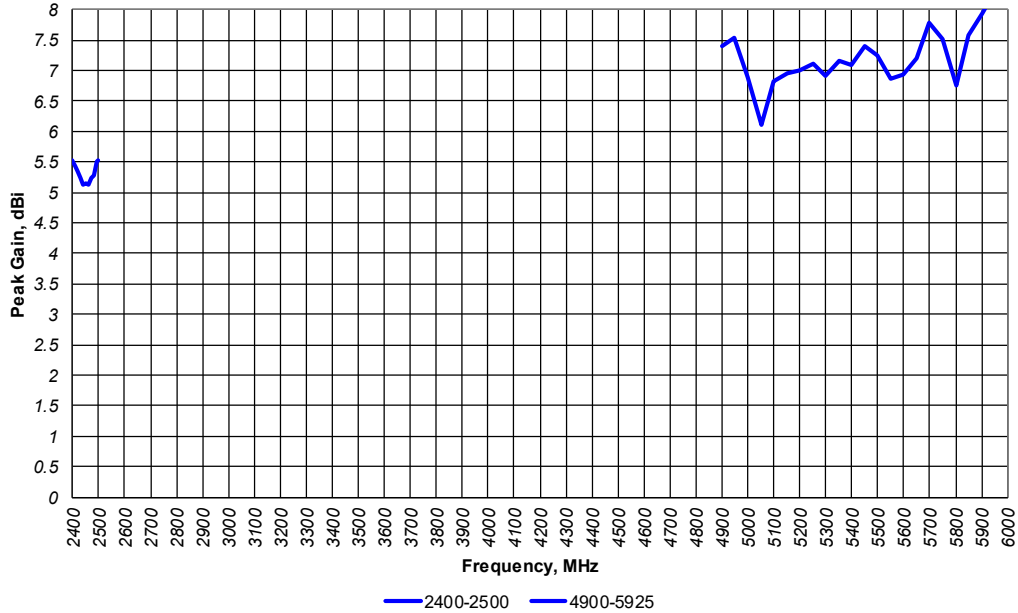
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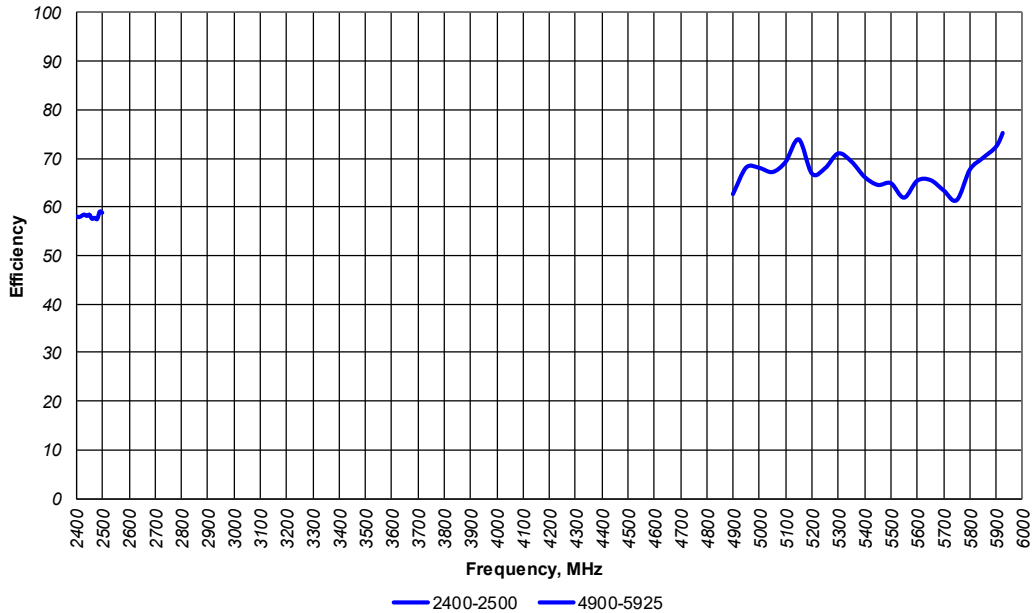
CHARTS

Peak Gain vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (WiFi 1)
Measured at Pulse, USA - Aug 04, 2017



WiFi 1
Measured with
102mm (4") cable

Efficiency vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (WiFi 1)
Measured at Pulse, USA - Aug 04, 2017



WiFi 1
Measured with
102mm (4") cable

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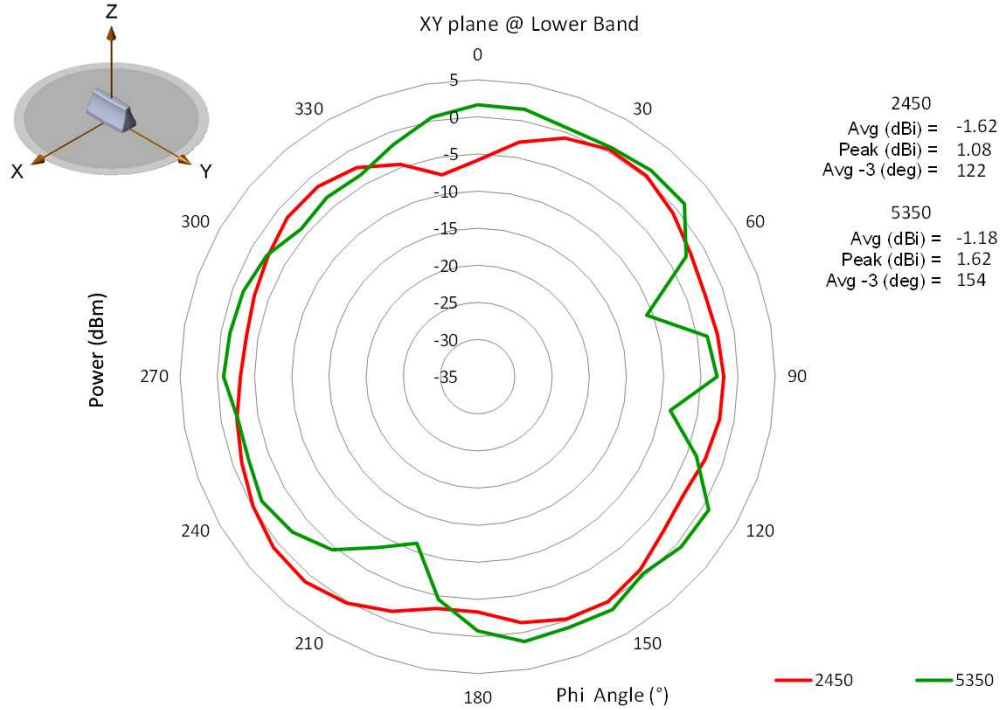
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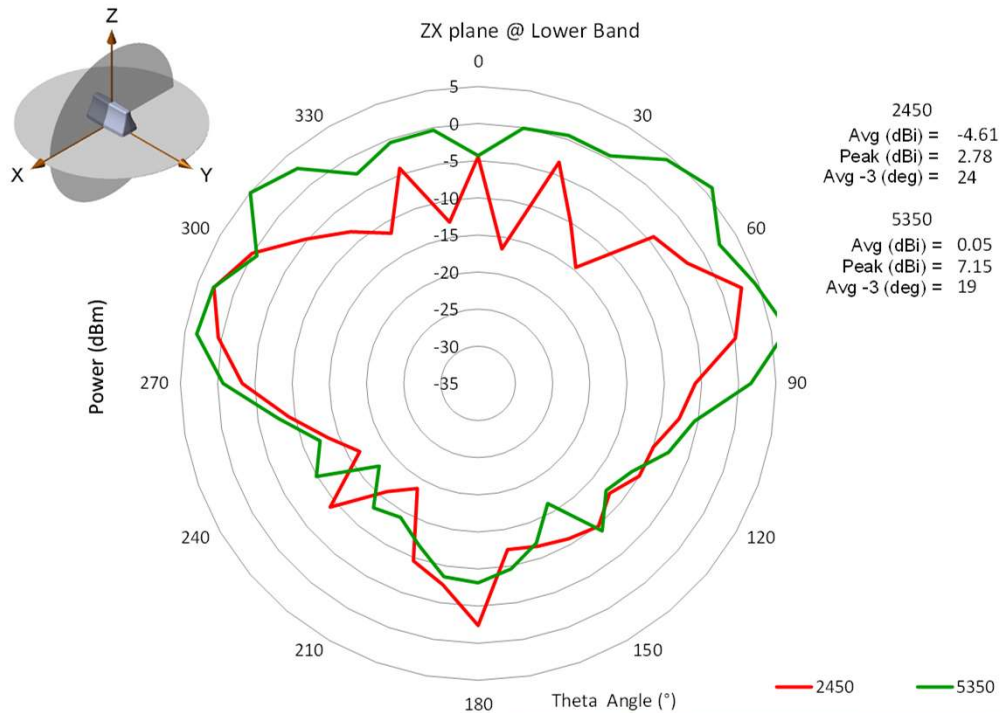
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CHARTS

WiFi 1
Measured with
102mm (4") cable



WiFi 1
Measured with
102mm (4") cable



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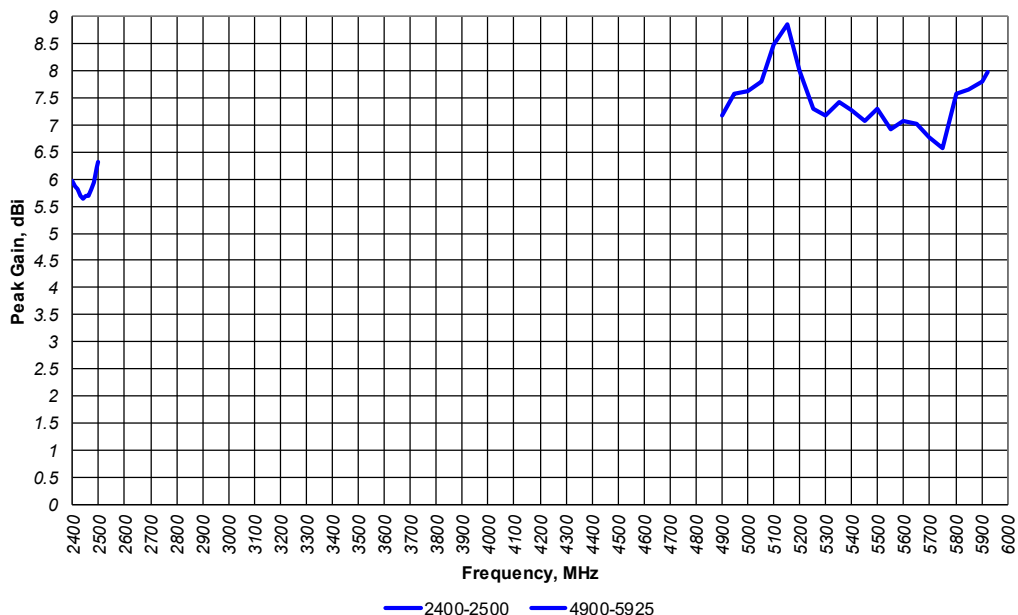
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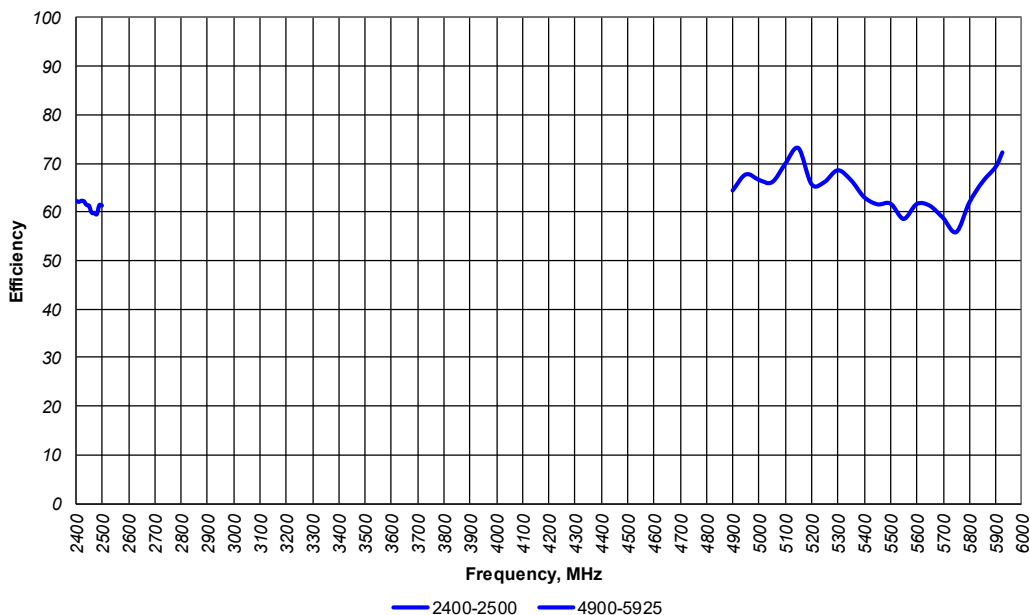
CHARTS

Peak Gain vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (WiFi 2)
Measured at Pulse, USA - Aug 04, 2017



WiFi 2
Measured with
102mm (4") cable

Efficiency vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (WiFi 2)
Measured at Pulse, USA - Aug 04, 2017



WiFi 2
Measured with
102mm (4") cable

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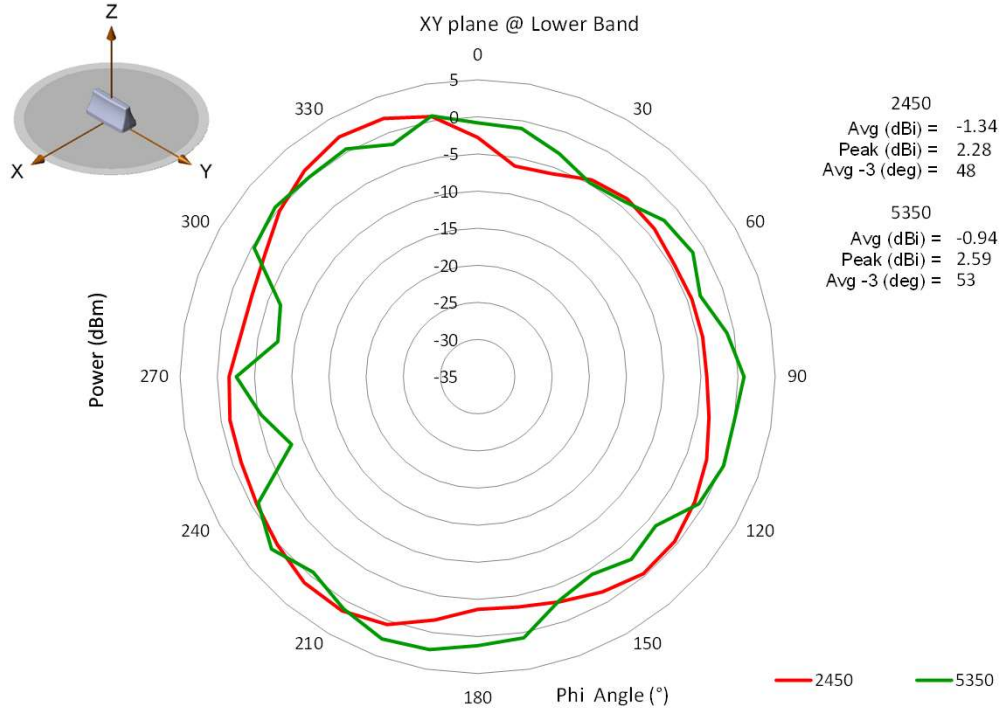
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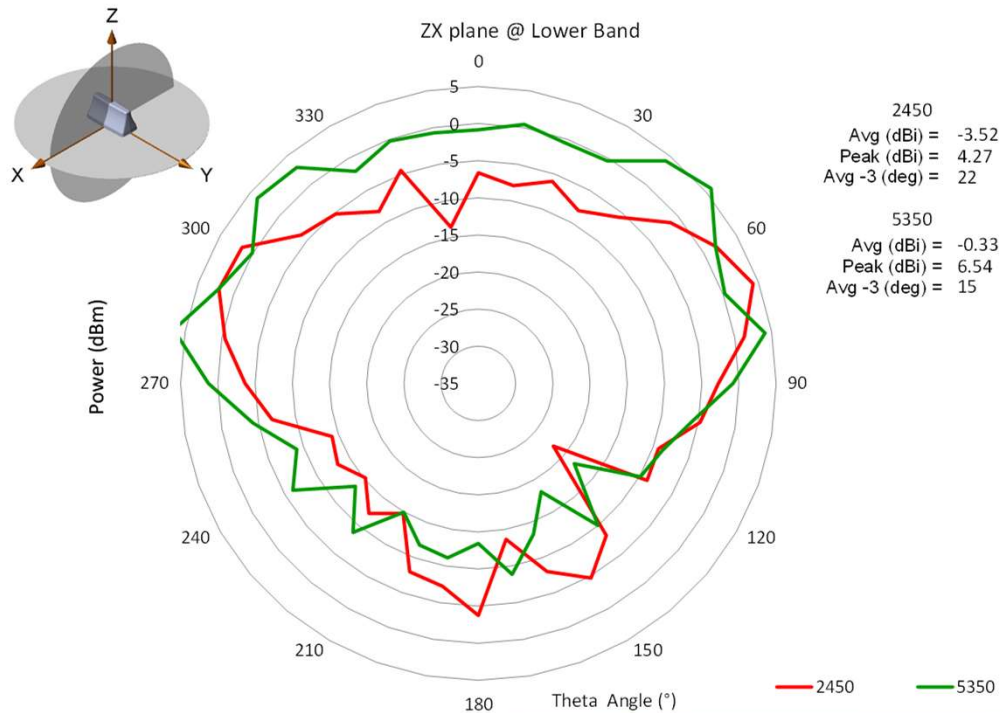
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CHARTS

WiFi 2
Measured with
102mm (4") cable



WiFi 2
Measured with
102mm (4") cable



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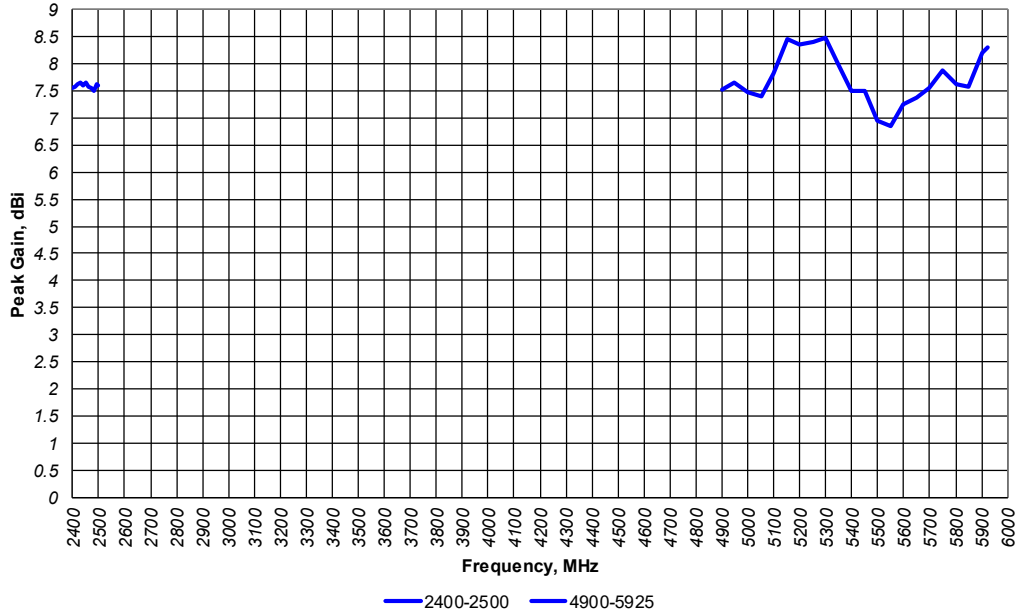
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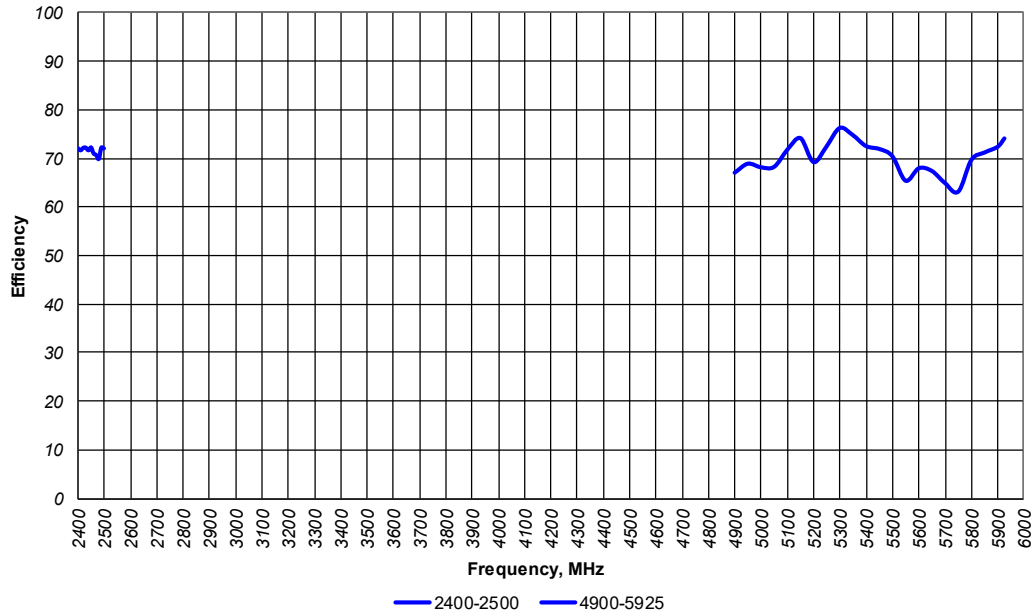
CHARTS

Peak Gain vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (WiFi 3)
Measured at Pulse, USA - Aug 04, 2017



WiFi 3
Measured with
102mm (4") cable

Efficiency vs Frequency
RAZ62311AM Measured with 4" cables on Ø40" GP (WiFi 3)
Measured at Pulse, USA - Aug 04, 2017



WiFi 3
Measured with
102mm (4") cable

Issue: 1742

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

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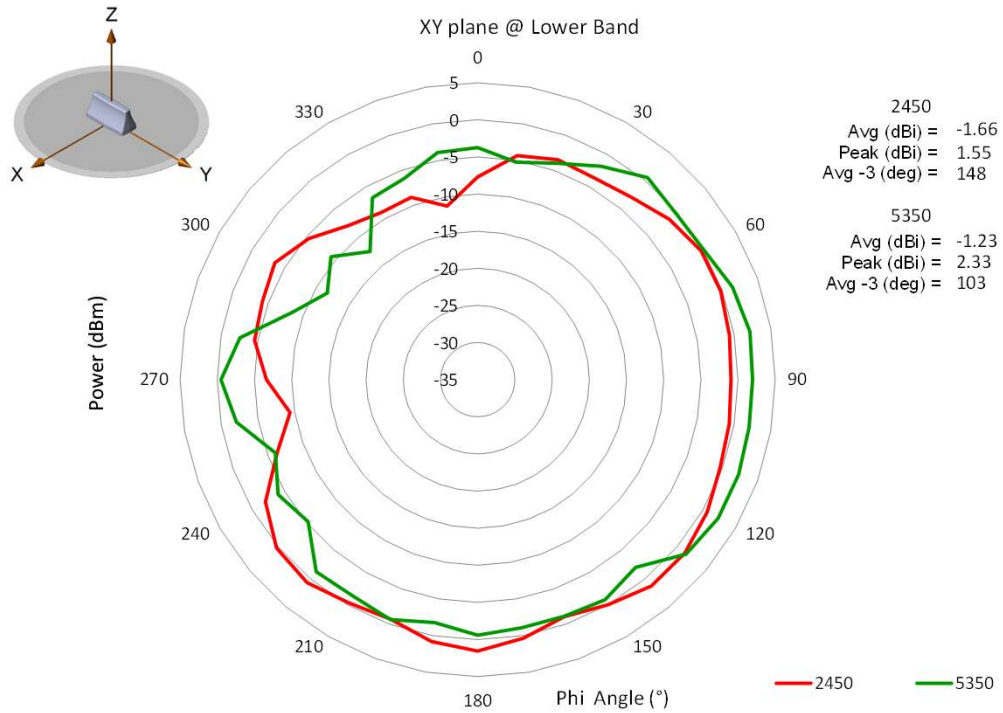
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Series: RAZORBACK

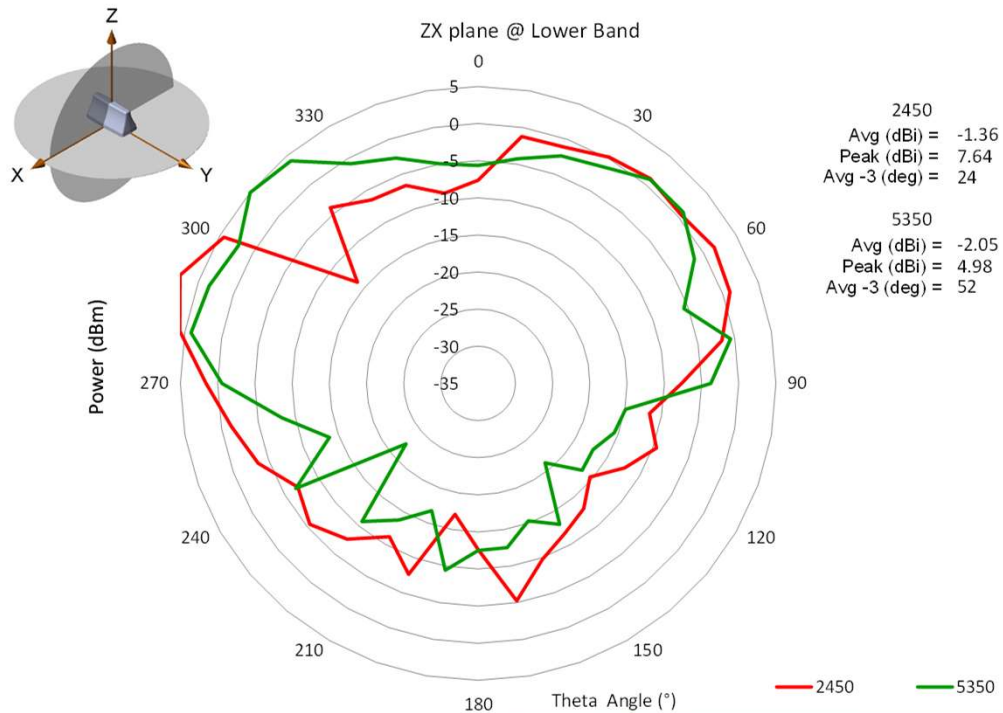
PART NUMBER: RAZ32011AM, RAZ32012AM, RAZ42111AM,
RAZ42112AM, RAZ52211AM, RAZ52212AM, RAZ62311AM, RAZ62312AM

CHARTS

WiFi 3
Measured with
102mm (4") cable



WiFi 3
Measured with
102mm (4") cable



Issue: 1742

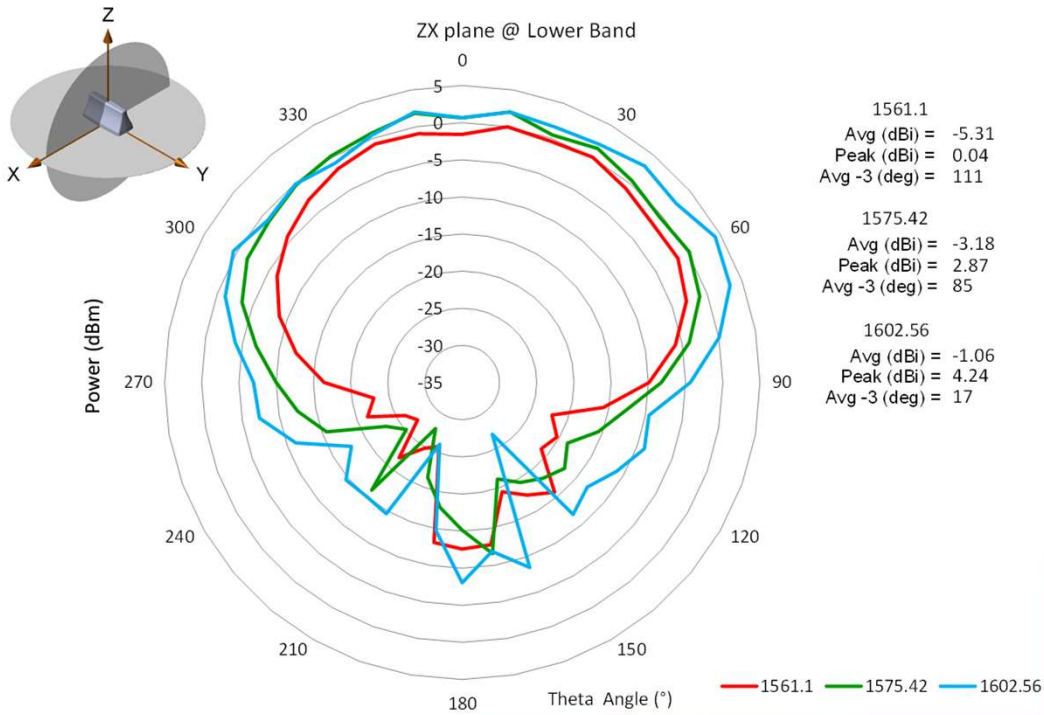
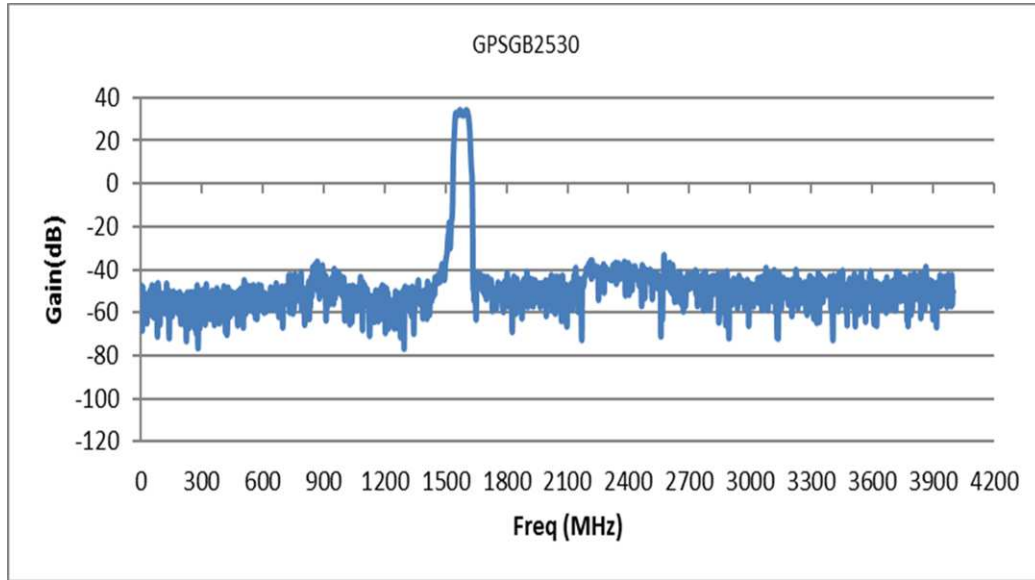
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CHARTS

GNSS LNA Gain and out-of-band rejection



GNSS

Passive
Measurement
Measured with
152mm (6") cable

Issue: 1742

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Description: GNSS / 2x LTE / 0, 1x, 2x or 3x WiFi
Adhesive Mount

Series: RAZORBACK

PART NUMBER: RAZ32011AM, RAZ32012AM, RAZ42111AM,
RAZ42112AM, RAZ52211AM, RAZ52212AM, RAZ62311AM, RAZ62312AM

PACKAGING

1pcs antennas per foam bag

6pcs antennas per package box

Total 6pcs antenna per package box

Package box: 558mm*386mm*210mm