

**AANE-SH-0247**

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209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
 MSL Level = 1

Description

This comprehensive 6-in-1 shark-fin antenna integrates GNSS (1575 - 1612 MHz) x 2, LTE (617 – 960 / 1427 - 2690 MHz), Wi-Fi (2400 - 2500 MHz / 5150 - 5850 MHz), AM/FM (535 - 1705 kHz / 88 - 108 MHz), and DAB (174 - 240 MHz) into a single 209.8 x 93.4 x 74.6 mm vehicle-mount housing with UN R118 compliant Cable Output. Designed for demanding automotive applications, it consolidates multiple wireless services including dual GNSS positioning, cellular connectivity, in-vehicle Wi-Fi, and broadcast radio reception. This RoHS-compliant, MSL Level 1 solution simplifies installation while delivering reliable performance for telematics, infotainment, and connected car applications.



Features

- 6-in-1 LTE/Wi-Fi/GNSS/AM/FM/DAB Combo Antenna
- 2 x Low Axial-Ratio Active GPS/GLONASS/BeiDou/Galileo
- 1 x 5G/LTE 617 - 960 MHz / 1427 - 2690 MHz
- 1 x Dual-Band Wi-Fi 2400 - 2500 MHz / 5150 - 5850 MHz
- 1 x Active AM/FM 535 - 1705 kHz / 88 - 108 MHz
- 1 x Active DAB 174 - 240 MHz
- Housing Size 209.8 x 93.4 x 74.6 mm
- Vehicle Roof Mount with UN R118 compliant Cable Output
- [RoHS Compliant](#) | [MSL Level 1](#)

Applications

- Bus/Coach/Heavy Truck Fleet Management
- Asset Tracking and Telematics
- Aftermarket Connected -Vehicles
- GNSS Vehicle Applications
- LTE / Wi-Fi Vehicle Applications
- AM / FM / DAB Vehicle Applications
- Networking & Telecommunication

Ordering Information

Part Number	Description
AANE-SH-0247	6-in-1 Vehicle Mount GNSS x 2 / LTE / Wi-Fi / AM&FM / DAB Combo Shark-Fin Antenna

Note: Other options not listed may be available upon request via [Abracon online support](#)



12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
 Phone: 512-371-6159 | Fax: 512-351-8858
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www.abracon.com

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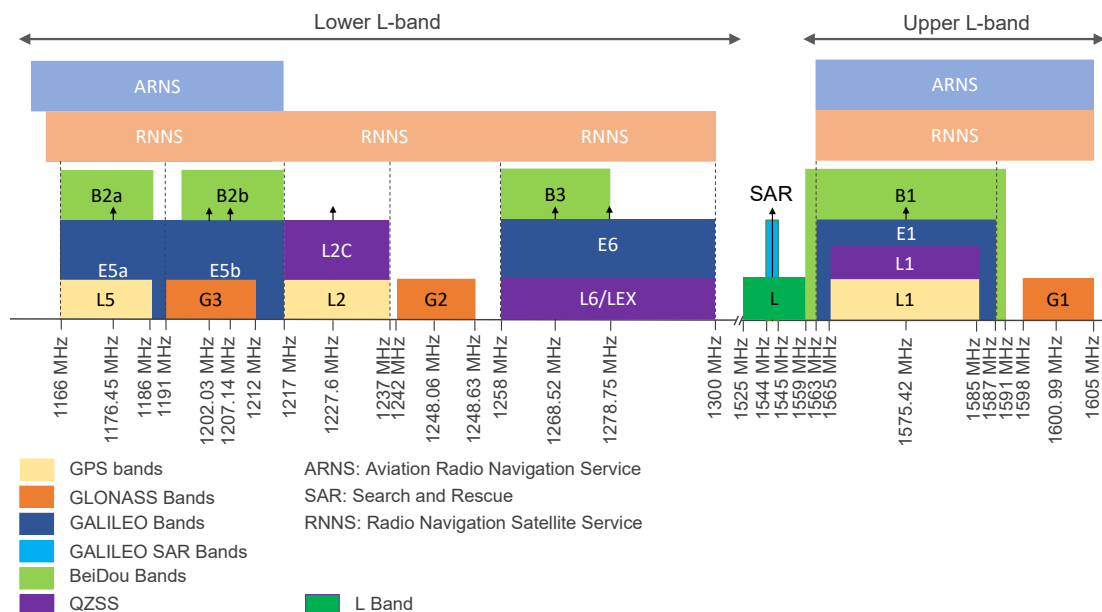
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GNSS Frequency Bands Covered

GPS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	
GLONASS	G1 1598.06-1609.31MHz	G2 1242.93-1251.68MHz	G3 1202.025MHz	
Galileo	E1 1575.42MHz	E5a 1176.45MHz	E5b 1201.5MHz	E6 1278.75MHz
BeiDou	B1I 1561MHz	B2a 1176.45MHz	B2 1207.14MHz	B3 1268.52MHz
QZSS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	L6 1278.75MHz
IRNSS/NAVIC			L5 1176.45MHz	
SBAS	L1/E1/B1 1575.42MHz		L5/B2a/E5a 1176.45MHz	



Frequency allocation: GNSS systems, upper L bands and lower L bands



AANE-SH-0247

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Electrical Specification

Parameter	Specification			Unit
LTE Antenna				
Operating Frequency	617 - 960		1710 - 2690	MHz
VSWR	1.7 Typ. (4.5 Max)		1.3 Typ. (3.5 Max)	:1
Peak Gain ⁽¹⁾	2.1		5.3	dBi
Maximum Efficiency ⁽¹⁾	62.7		71.8	%
Average Efficiency ⁽¹⁾	44.5		58.4	%
Impedance	50			Ω
Polarization	Linear			-
Radiation Pattern (Azimuth)	Omni-directional			-
Input Power (Ambient 25°C)	5			W
Wi-Fi Antenna				
Operating Frequency	2400 - 2500		5150 - 5850	MHz
VSWR	< 1.5		< 1.5	:1
Peak Gain ⁽¹⁾	4.5		4.6	dBi
Maximum Efficiency ⁽¹⁾	55.3		45.4	%
Average Efficiency ⁽¹⁾	51.5		37.7	%
Impedance	50			Ω
Polarization	Linear			-
Radiation Pattern (Azimuth)	Omni-directional			-
Input Power (Ambient 25°C)	5			W
GNSS Antenna				
Operating Frequency	1561 (B1I)	1575.42 (L1/E1)	1602 (G1)	MHz
VSWR	< 2.0			:1
Peak Gain ⁽¹⁾	1.3	2.8	2.8	dBic (Zenith)
Maximum Efficiency ⁽¹⁾	29.6	43.8	43.9	%
Average Efficiency ⁽¹⁾	28	42.7	42	%
Impedance	50			Ω
Polarization	RHCP			-
Axial Ratio ⁽¹⁾	1.5			dB
GNSS LNA				
VSWR	< 2.0			:1
Gain	28			dB
Noise Figure	< 1.3			dB
Supply Voltage	3 - 5			V
Current Consumption	6 - 15			mA

Note (1): Measured with 285 × 218 mm Ground Plate



AANE-SH-0247

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Parameter	Specification		Unit
	AM Antenna	FM Antenna	
Center Frequency	0.5535 - 1.705	88 - 108	MHz
VSWR	2.2 Typ. (3.5 Max)	< 1.5	:1
Impedance	50		Ω
Polarization	Linear		-
AM/FM LNA			
VSWR	< 2.0		:1
Gain	12		dB
Supply Voltage	12		V
Current Consumption	69		mA
DAB Antenna			
Center Frequency	174 - 240		MHz
VSWR	< 1.5		:1
Impedance	50		Ω
Polarization	Linear		-
DAB LNA			
VSWR	< 2.0		:1
Gain	12		dB
Supply Voltage	12		V
Current Consumption	69		mA

Note (1): Measured with 285 × 218 mm Ground Plate

Antenna to Antenna Isolation

Parameter	Specification			Unit
Isolation	GNSS to LTE	GNSS to Wi-Fi	LTE to Wi-Fi	
	> 16	> 15	> 18	dB



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Mechanical Specification

Parameter	Specification
Dimension	209.8 x 93.4 x 74.6 mm
Material	ASA
Mounting Type	Screw Mount
RF Connector	2 x Fakra Jack Blue (C), Fakra Jack Violet (D), Fakra Jack Beige (I), Fakra Jack White (B), Fakra Jack Gray (G)
Power Connector	12V Power: Positive Lock Black (PN: 154719-0) 12V Ground: Fastin-Faston Tab Black (PN: 180916-5)
RF Cable Type	RG-174 (ECE R118.02 compliant)
RF Cable Length	GNSS 1: 250 mm, GNSS 2: 250 mm, LTE: 200 mm, Wi-Fi: 300 mm, AM/FM: 150 mm, DAB+: 150 mm
Power Cable Length	12V Power: 500 mm 12V Ground: 500 mm

Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
IP Rating	IP67
RoHS Compliance	Yes



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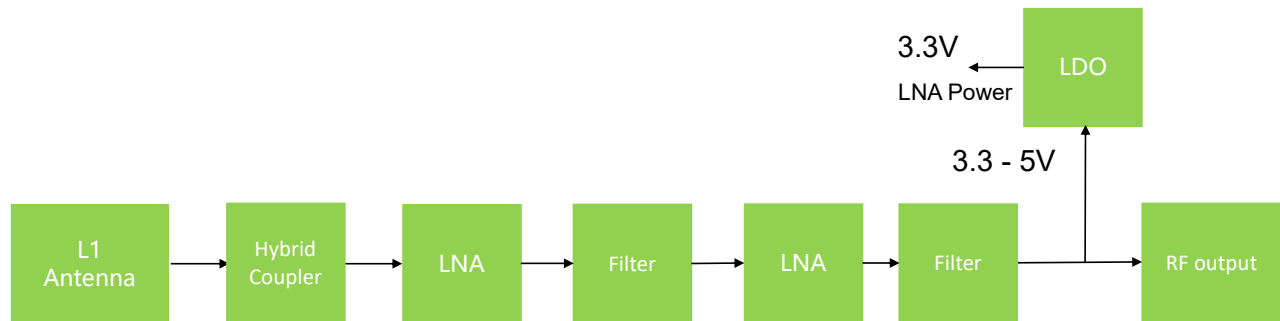


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Function Block (GNSS)



6-in-1 Vehicle Mount GNSS x 2 / LTE / Wi-Fi / AM&FM / DAB Combo Shark-Fin Antenna



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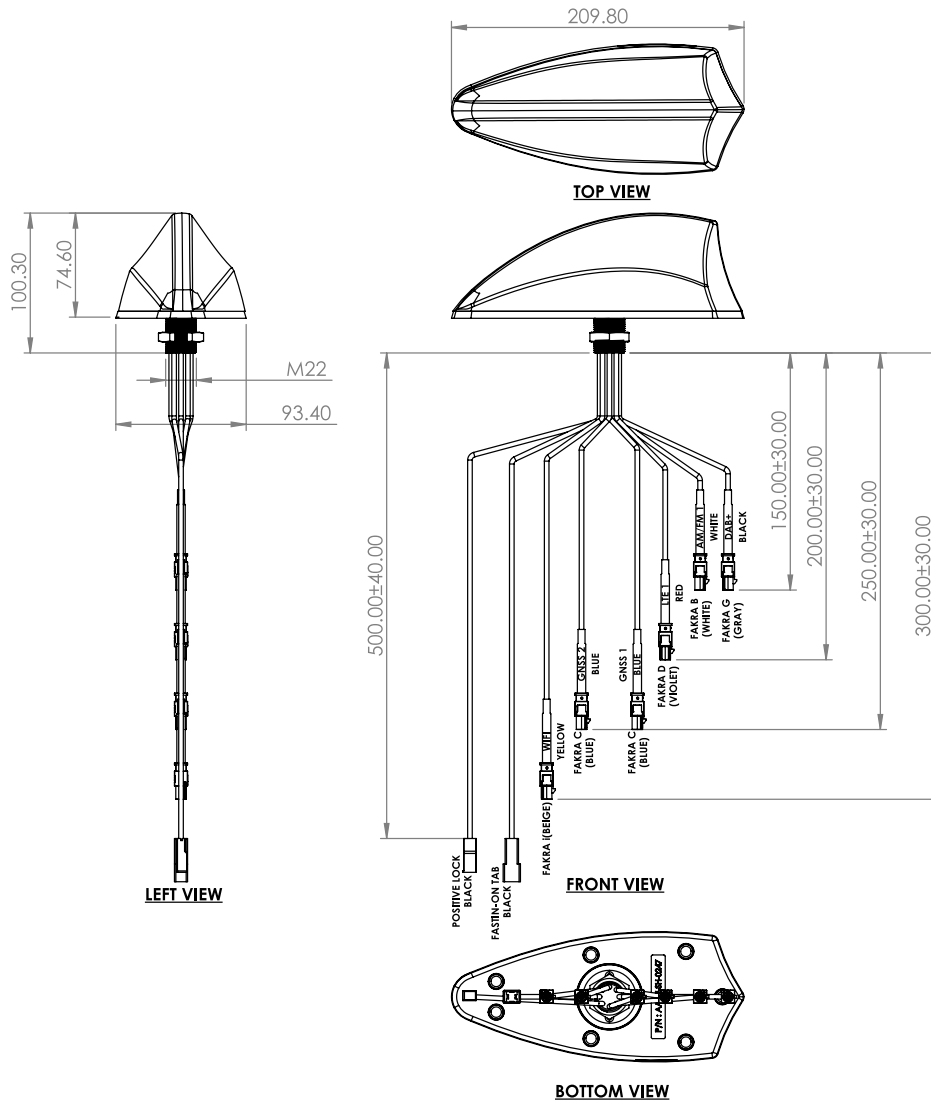


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Product Dimensions



Unit: mm



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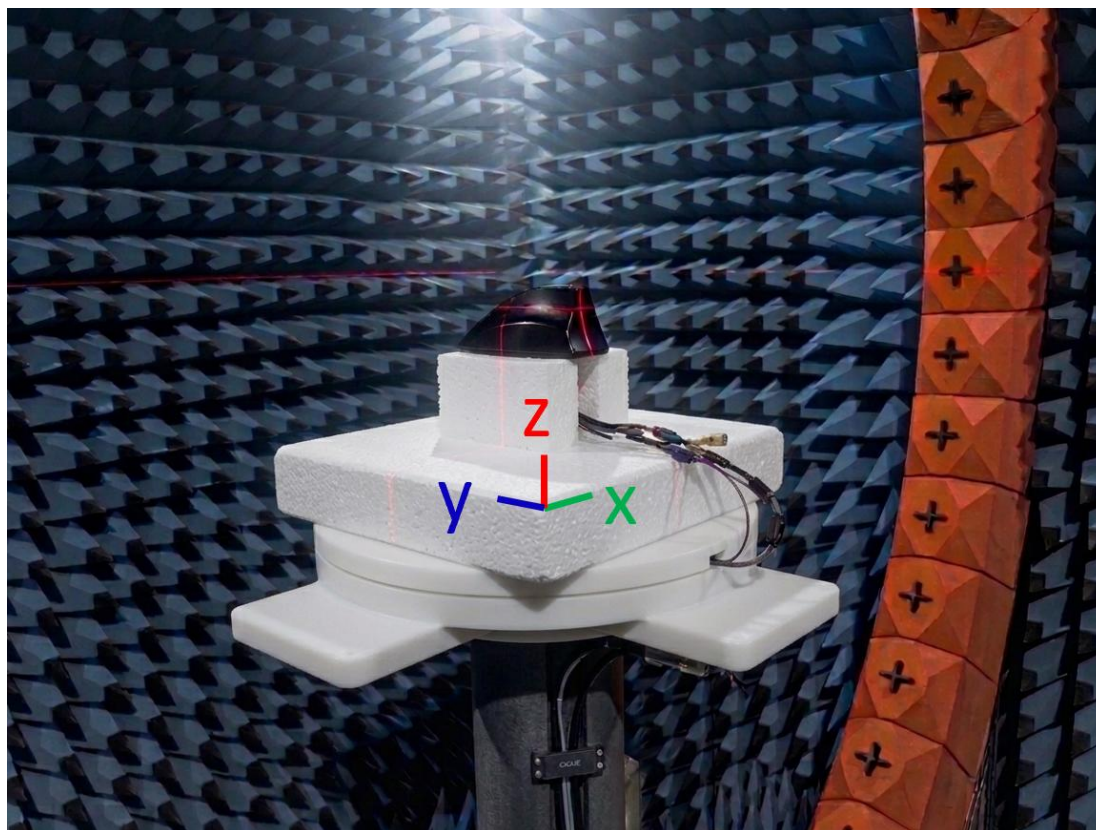


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Measurement Setup Photo





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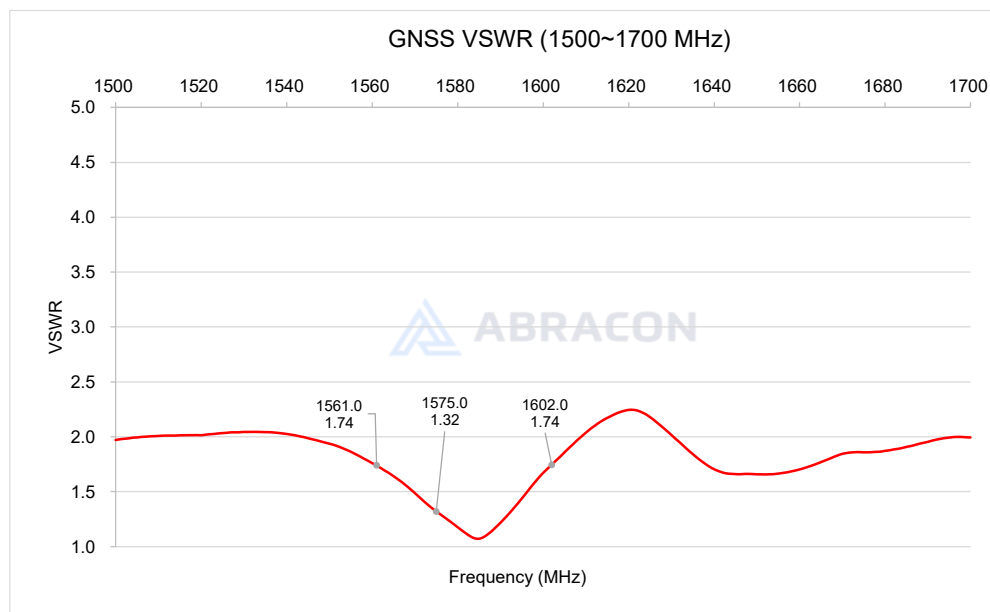
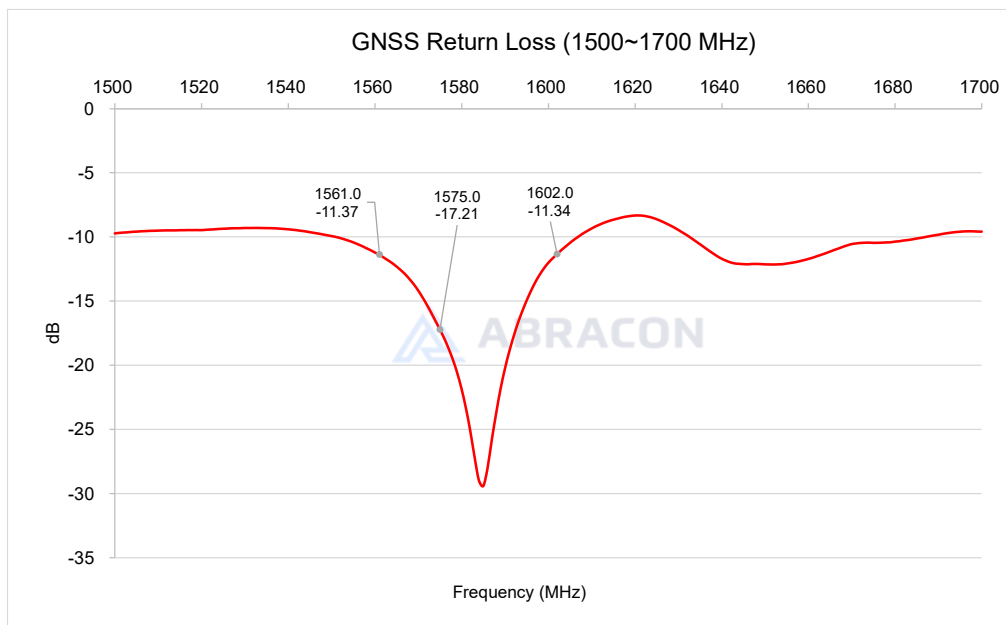


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RoHS/RoHS II Compliant
MSL Level = 1

Reflection Characteristics – GNSS Return Loss & VSWR





AANE-SH-0247

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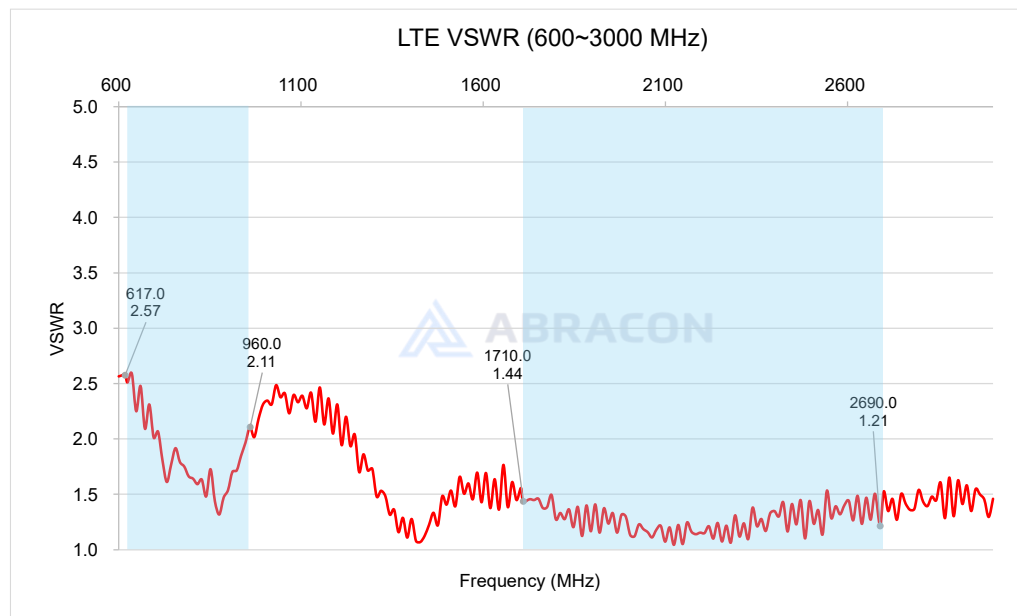
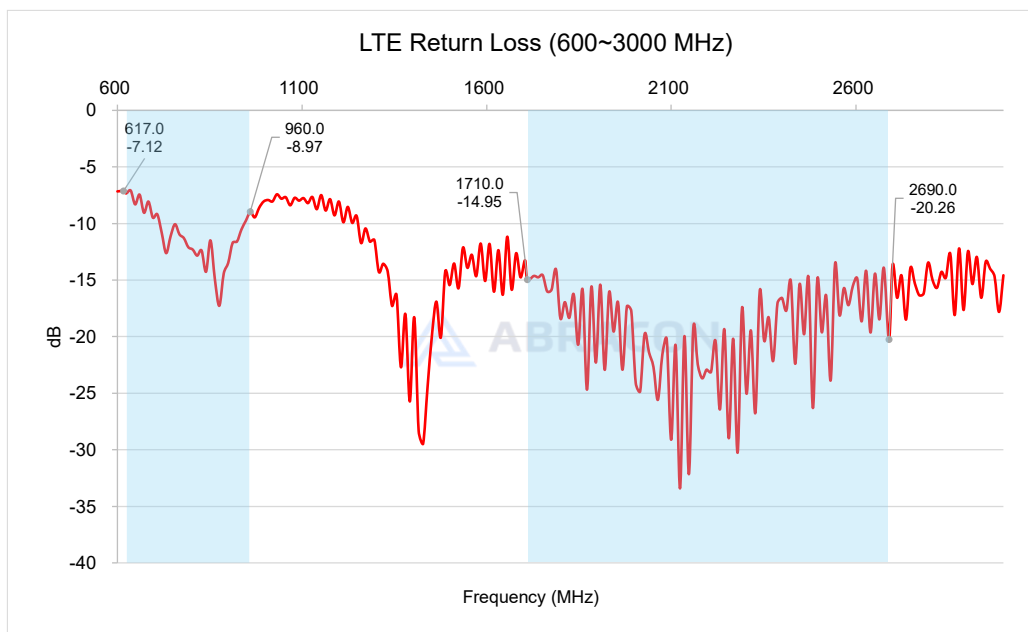


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209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
MSL Level = 1

Reflection Characteristics – LTE Return Loss & VSWR





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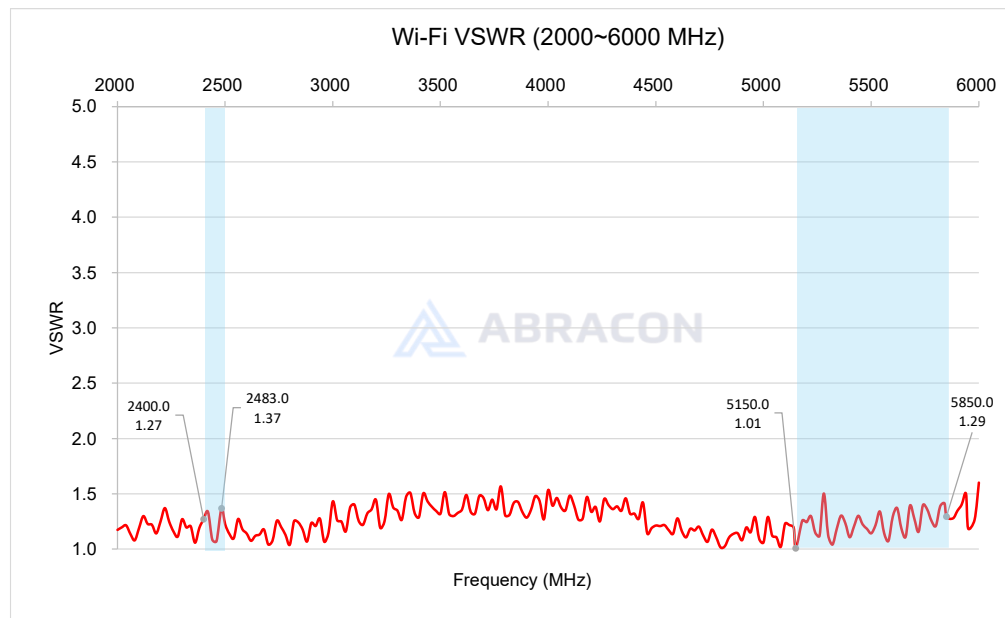
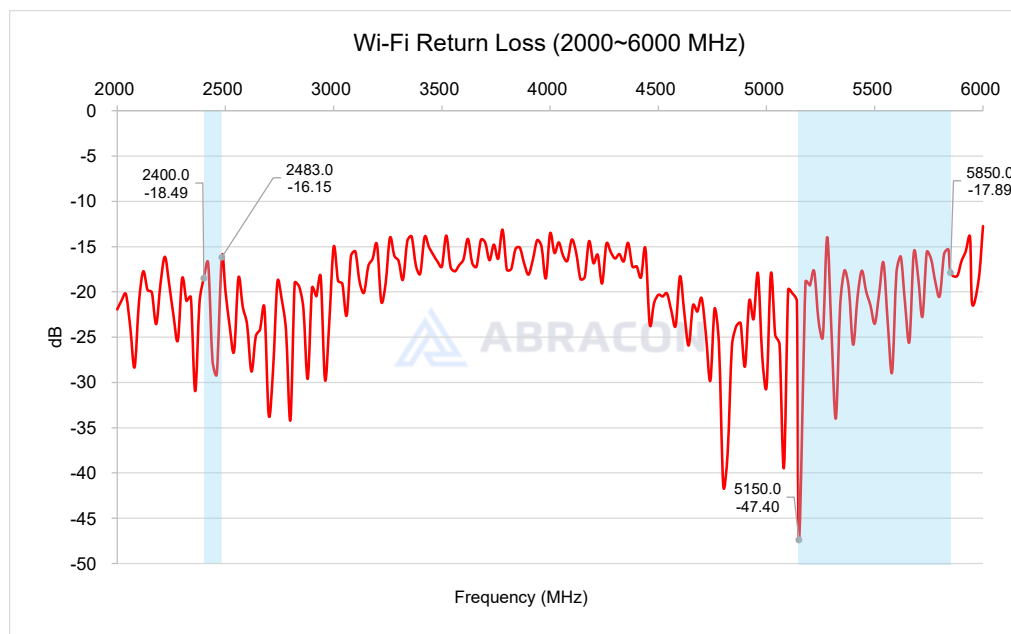


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RoHS/RoHS II Compliant
MSL Level = 1

Reflection Characteristics – Wi-Fi Return Loss & VSWR





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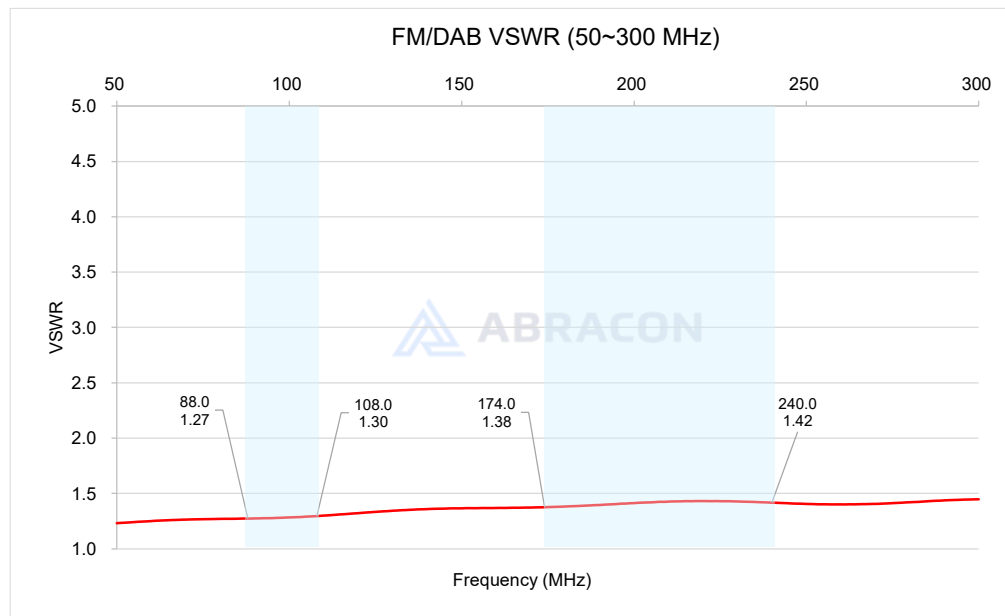
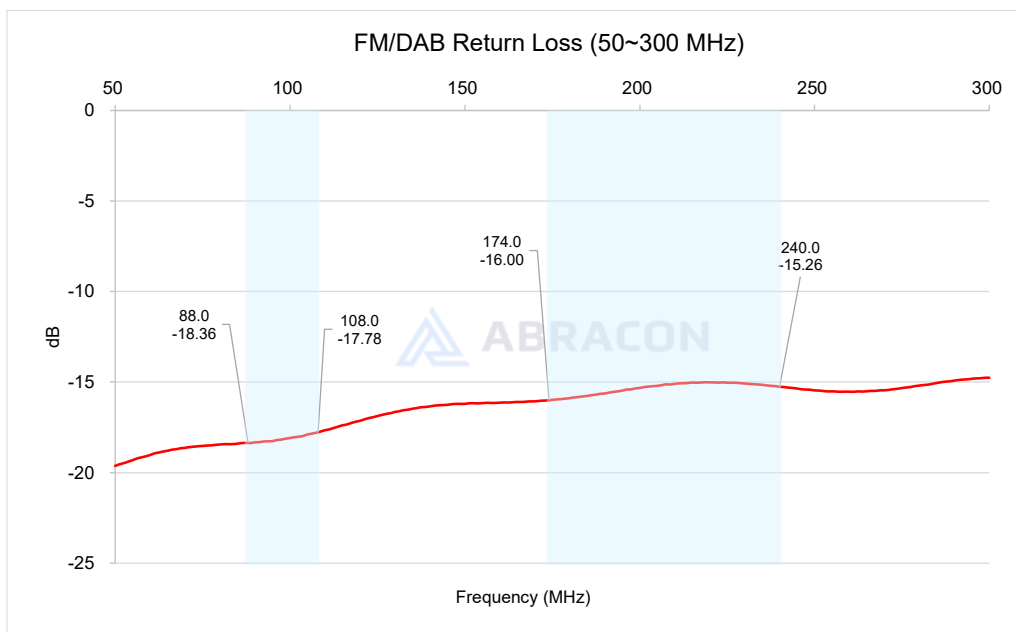


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209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
MSL Level = 1

Reflection Characteristics – FM/DAB Return Loss & VSWR





AANE-SH-0247

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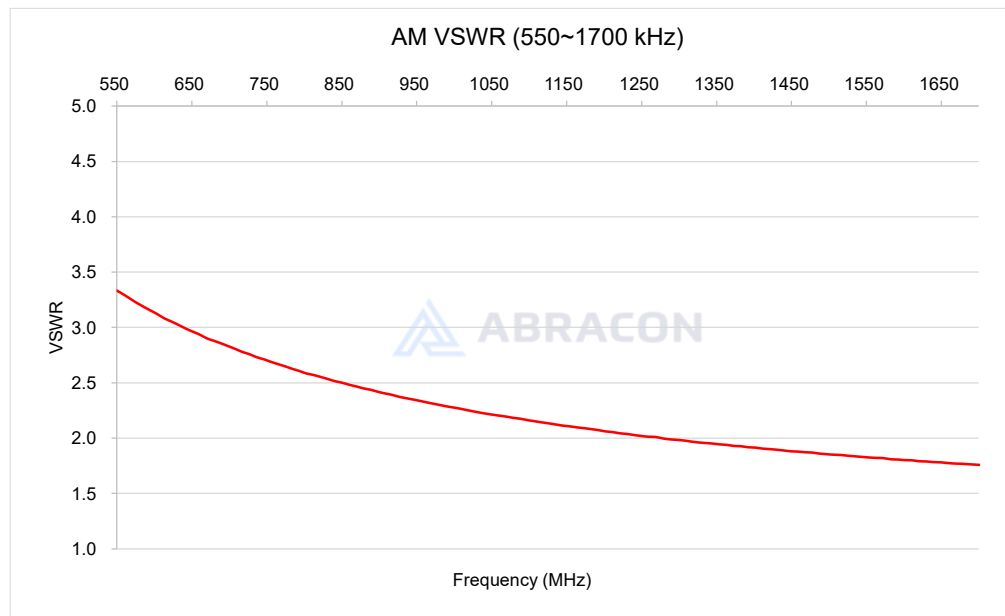
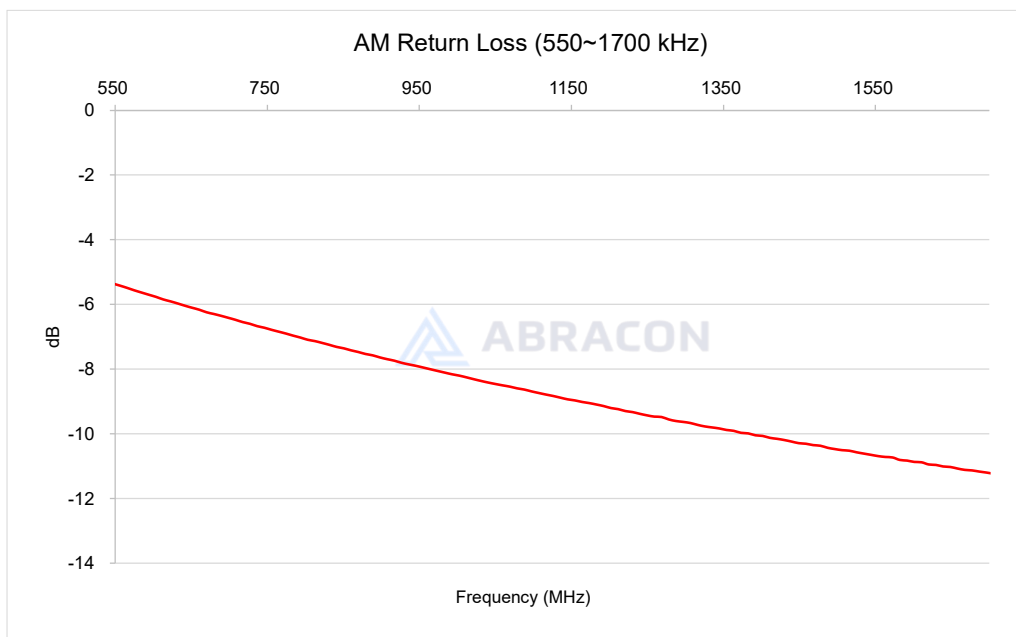


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209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
MSL Level = 1

Reflection Characteristics – AM Return Loss & VSWR





AANE-SH-0247

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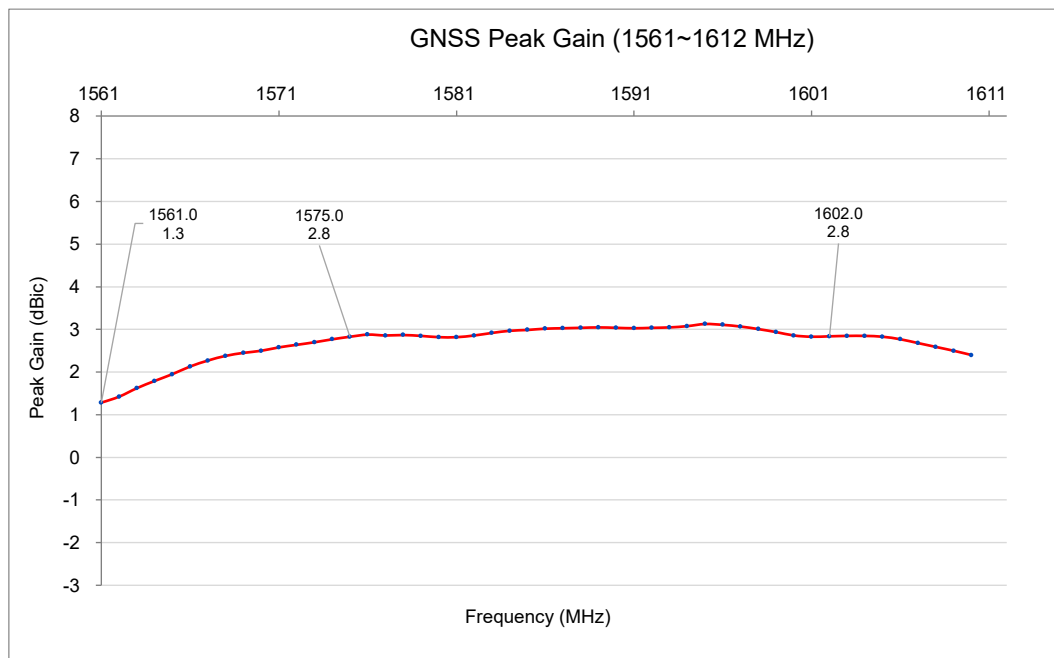


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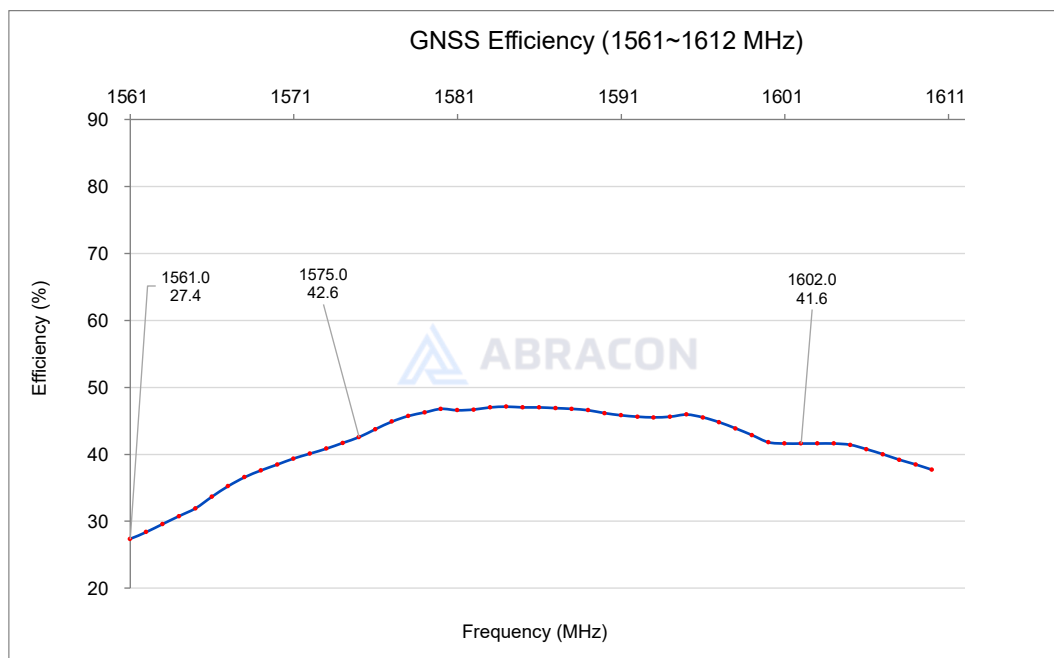


209.8 x 93.4 x 74.6 mm
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MSL Level = 1

Radiation Characteristics – GNSS Peak Gain



Radiation Characteristics – GNSS Total Efficiency (%)





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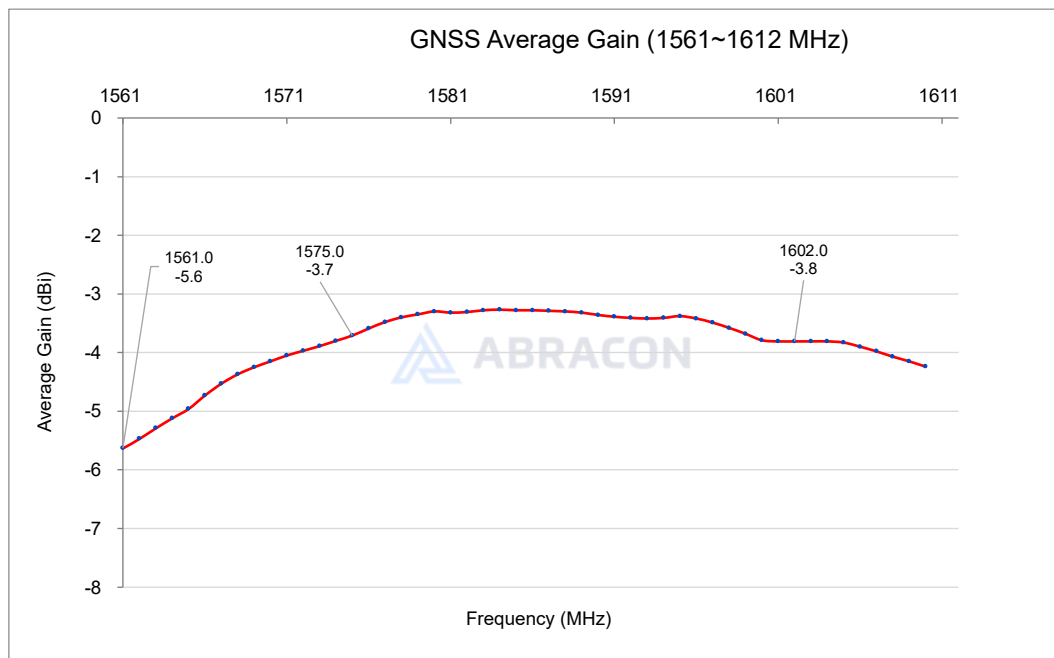


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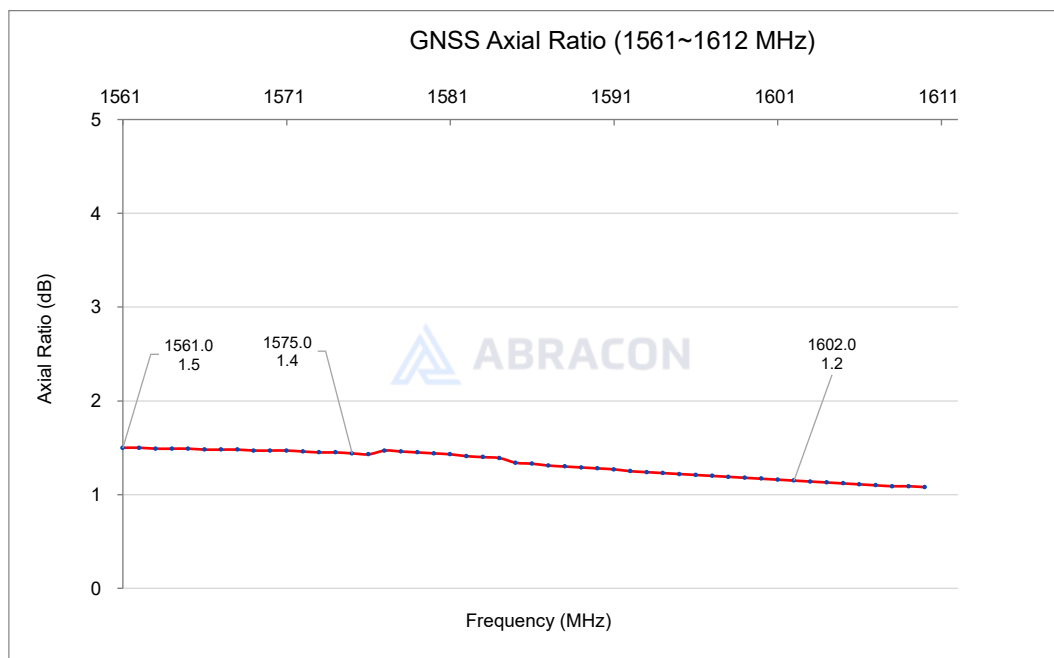


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Radiation Characteristics – GNSS Average Gain



Radiation Characteristics – GNSS Axial Ratio





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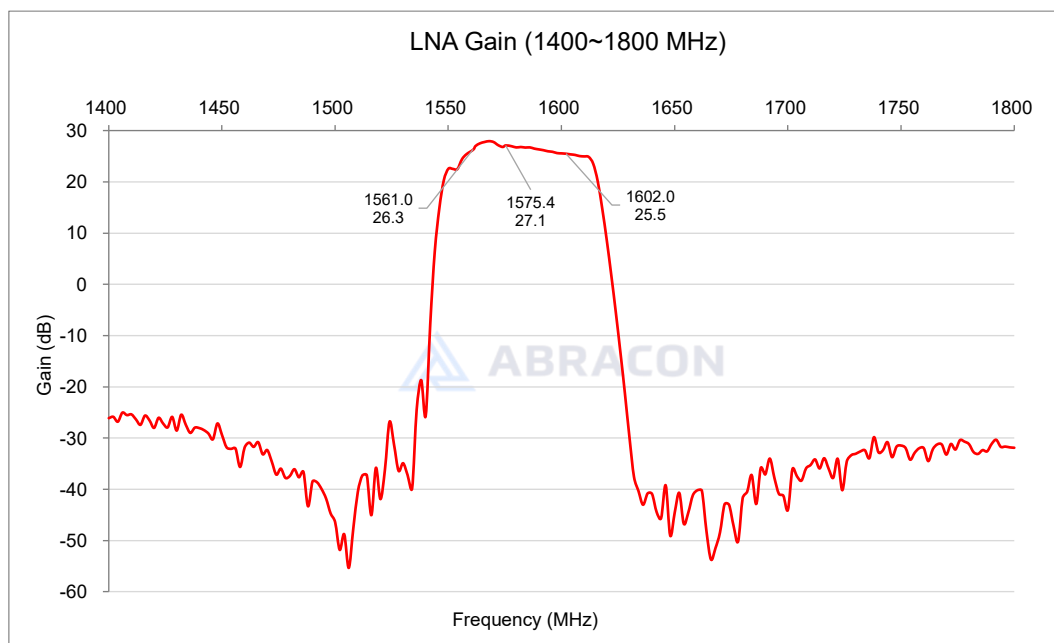


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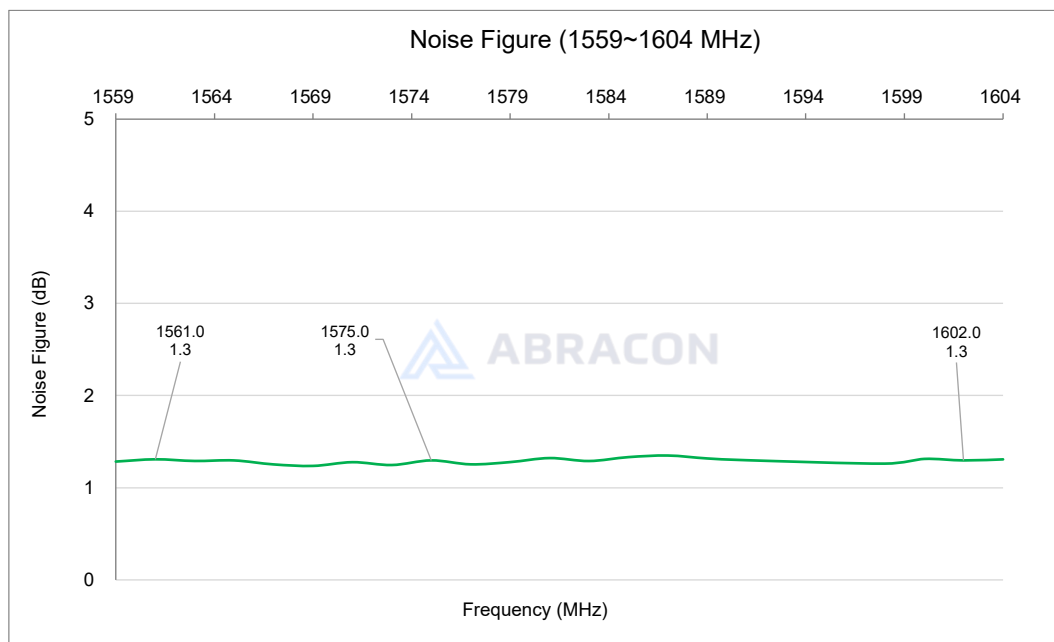


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Radiation Characteristics – GNSS LNA Gain



Radiation Characteristics – GNSS Noise Figure





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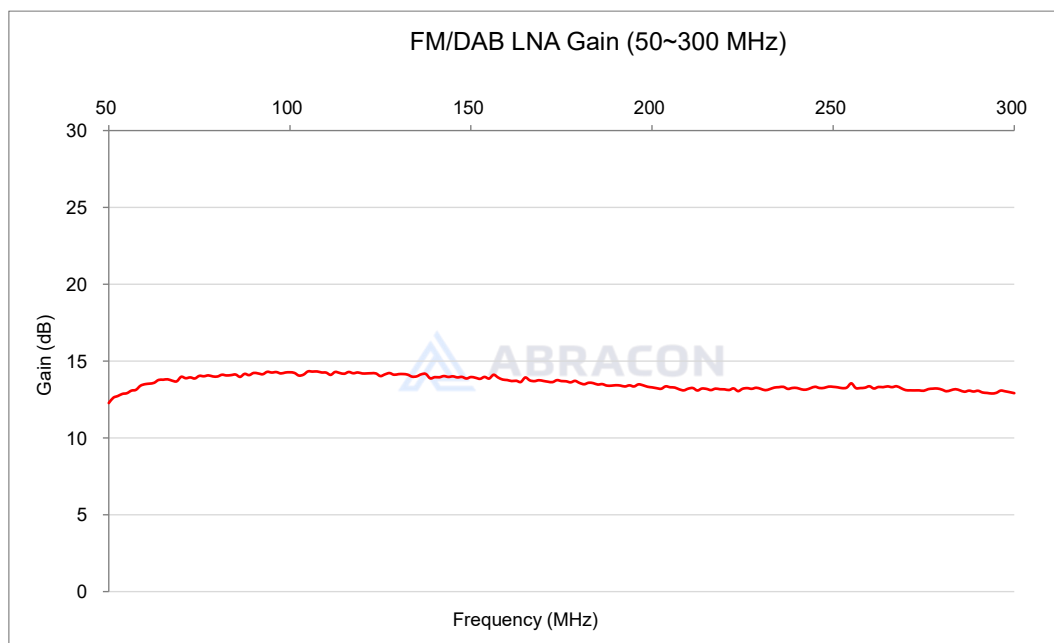


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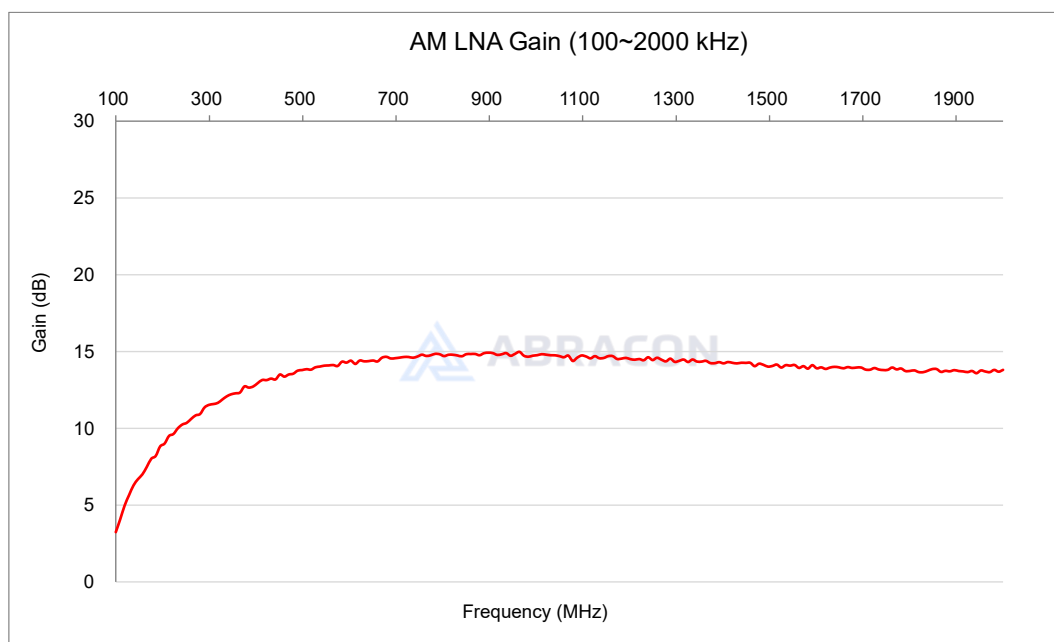


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Radiation Characteristics – FM/DAB LNA Gain



Radiation Characteristics – AM LNA Gain





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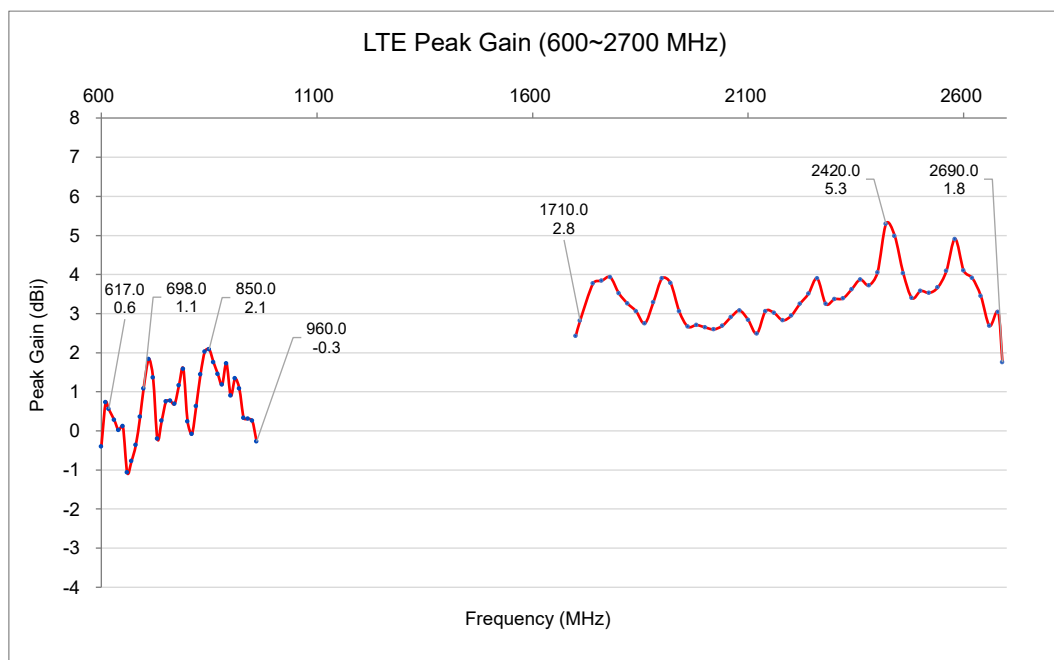


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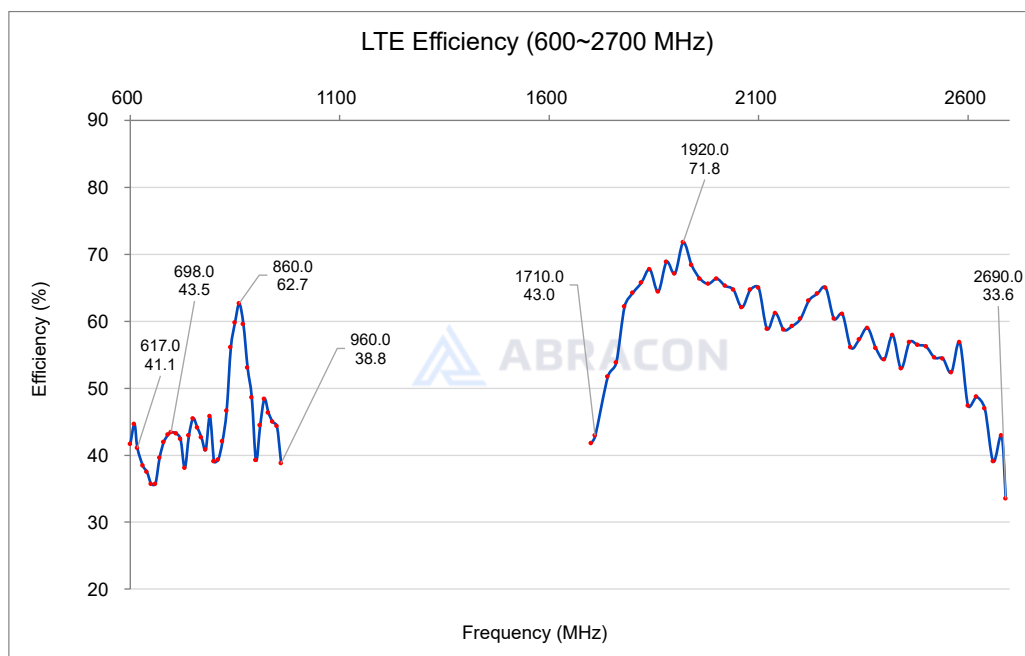


209.8 x 93.4 x 74.6 mm
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Radiation Characteristics – LTE Peak Gain



Radiation Characteristics – LTE Total Efficiency (%)





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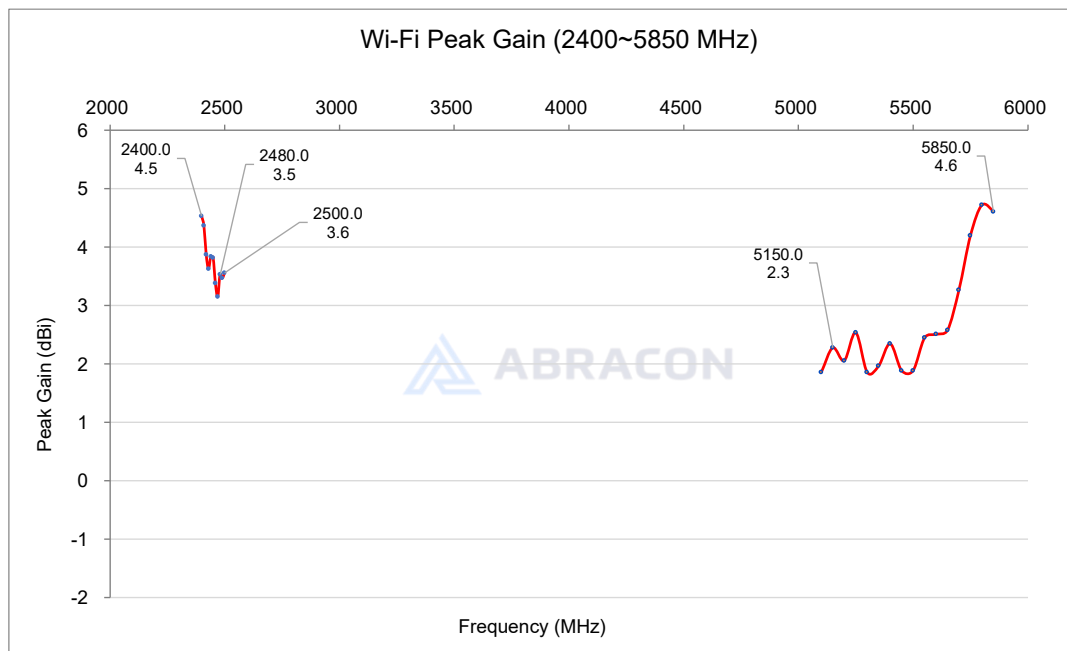


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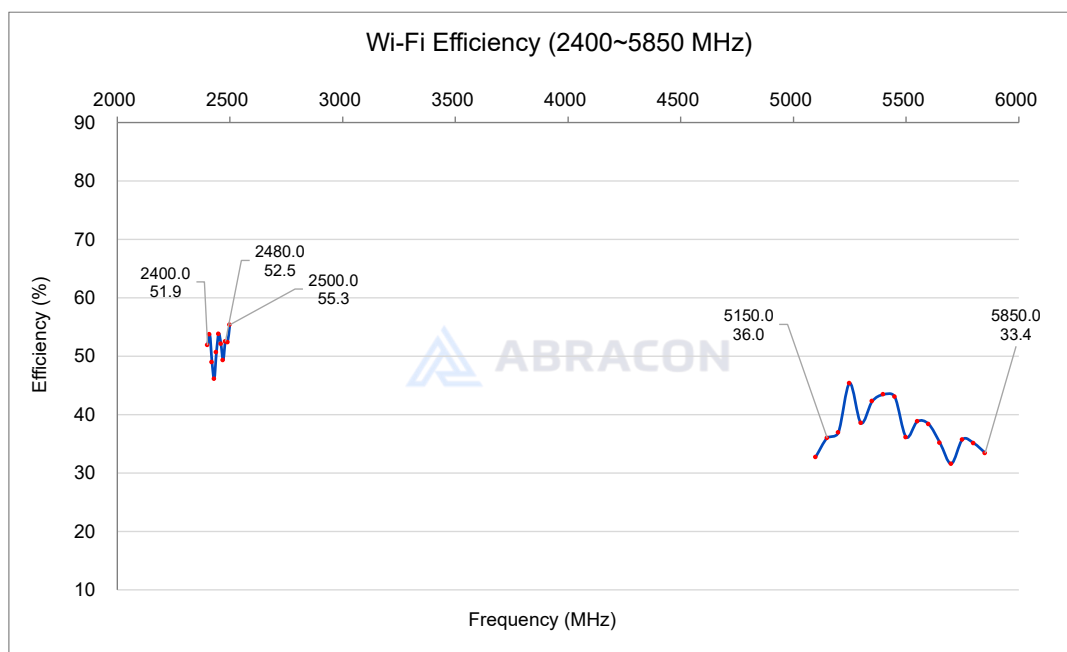


209.8 x 93.4 x 74.6 mm
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Radiation Characteristics – Wi-Fi Peak Gain



Radiation Characteristics – Wi-Fi Total Efficiency (%)





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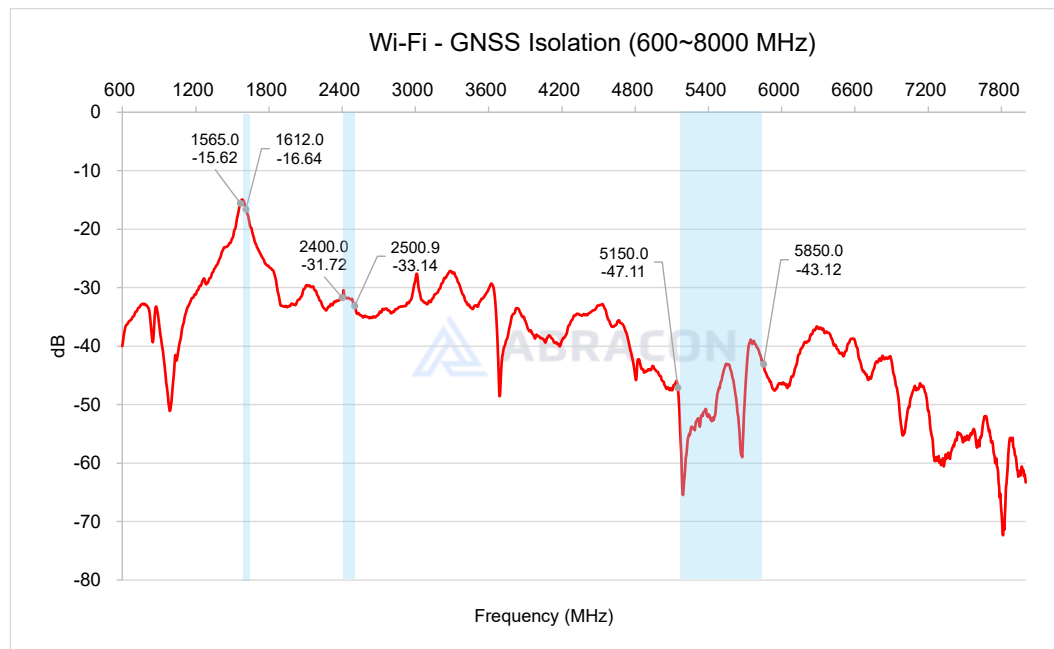
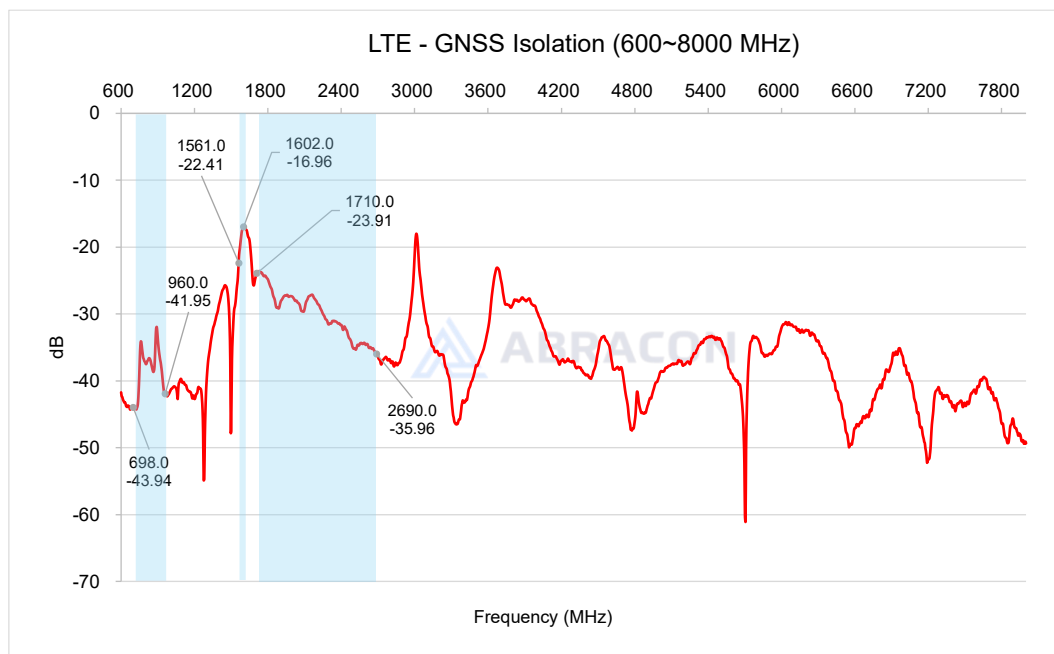


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209.8 x 93.4 x 74.6 mm
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MSL Level = 1

Radiation Characteristics – Isolation





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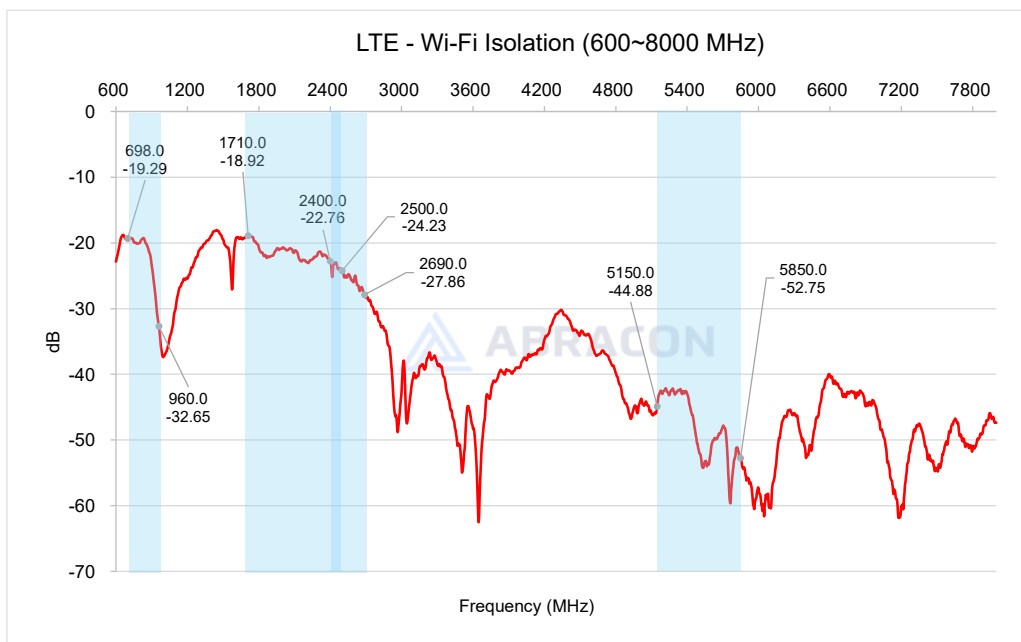


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MSL Level = 1

Radiation Characteristics – Isolation





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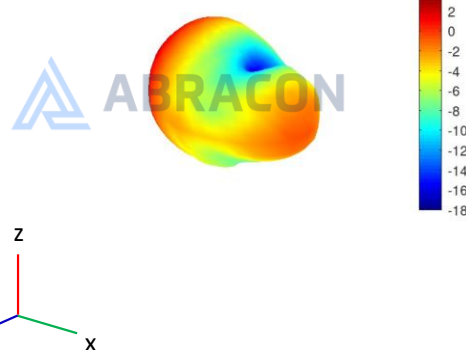
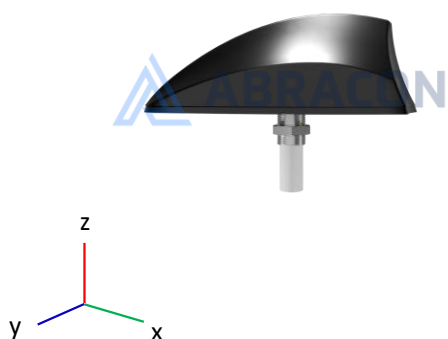
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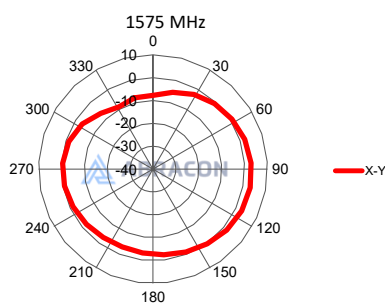
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GNSS Radiation Characteristics – 3D & 2D pattern

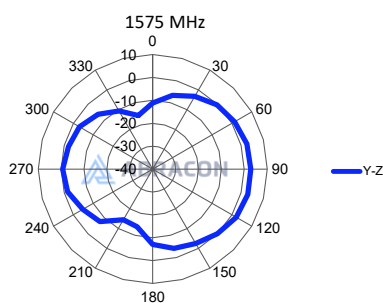
1575MHz



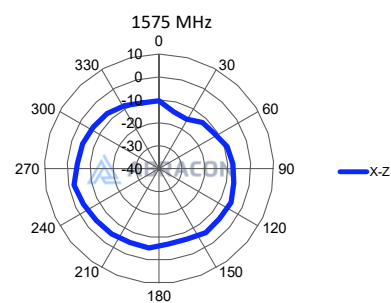
XY plane



YZ plane



XZ plane





AANE-SH-0247

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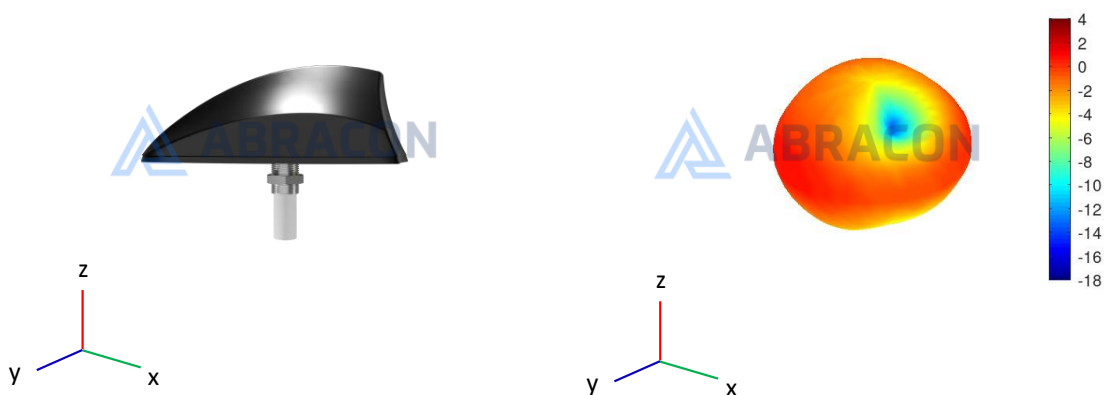
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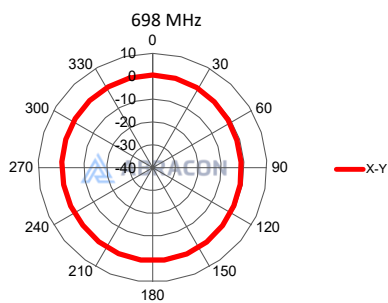
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RoHS/RoHS II Compliant
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LTE Radiation Characteristics – 3D & 2D pattern

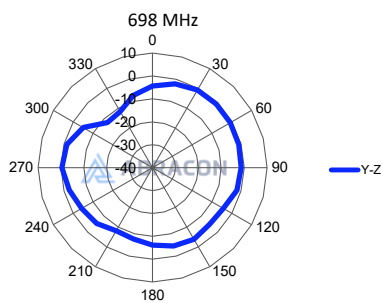
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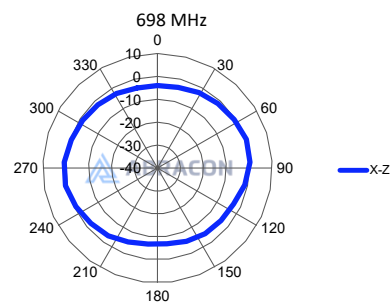
XY plane



YZ plane



XZ plane





AANE-SH-0247

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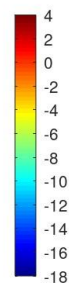
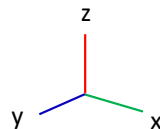
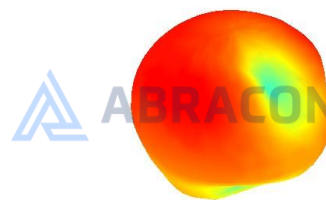
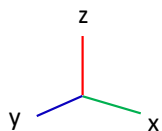
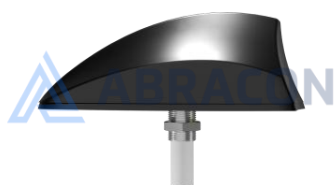


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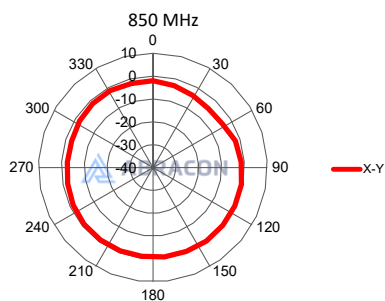


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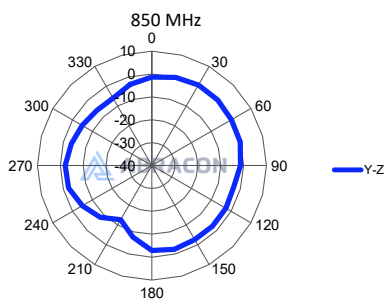
850MHz



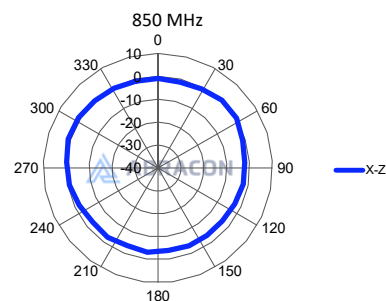
XY plane



YZ plane



XZ plane





AANE-SH-0247

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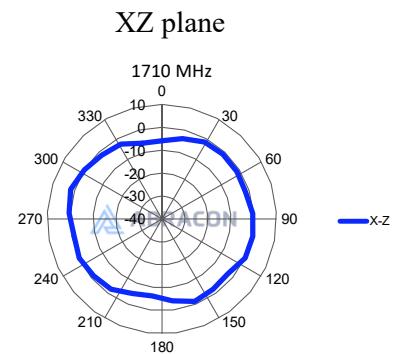
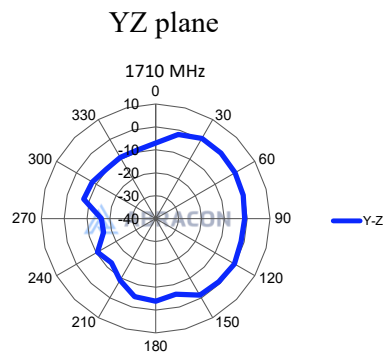
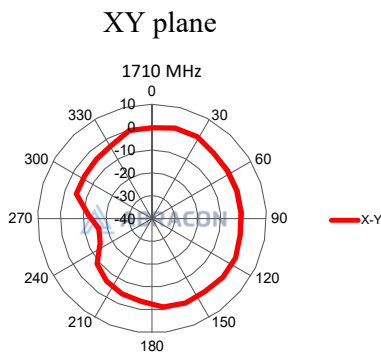
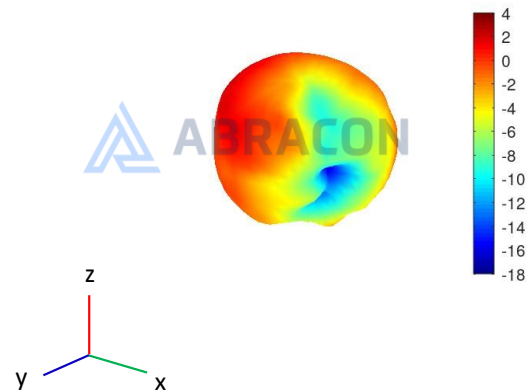
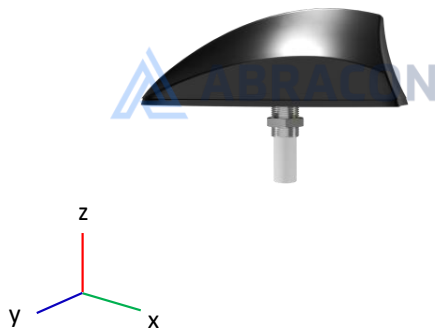


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1710MHz





AANE-SH-0247

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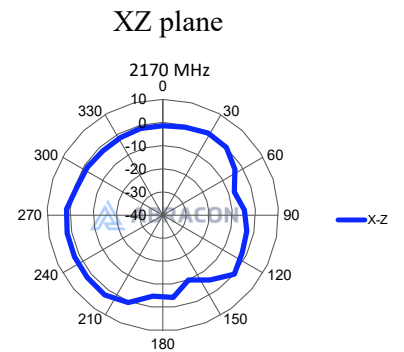
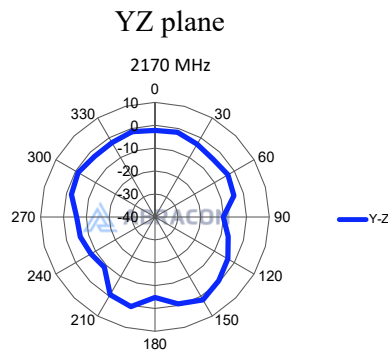
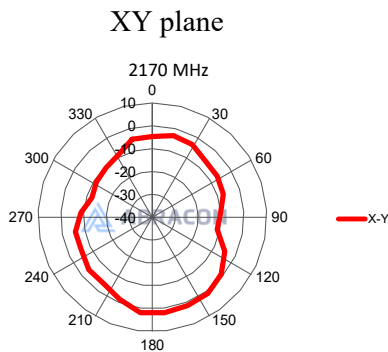
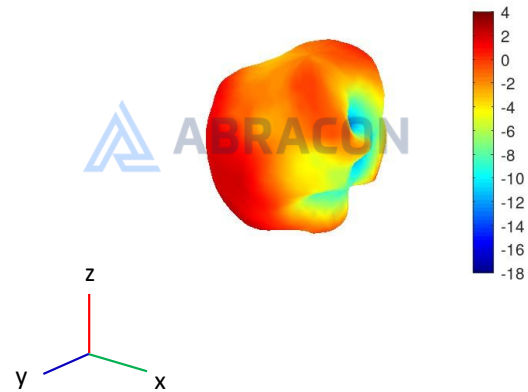
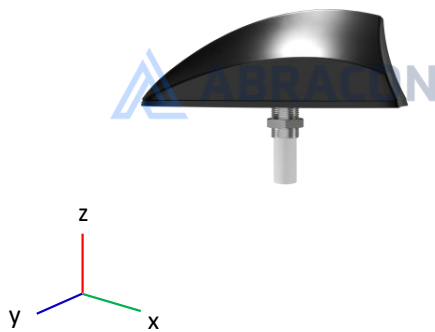


Check Inventory



209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
MSL Level = 1

2170MHz





AANE-SH-0247

Request Samples

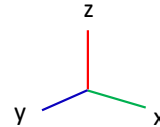
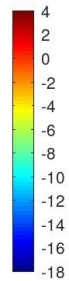
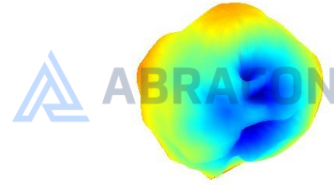
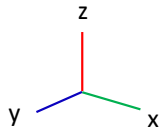
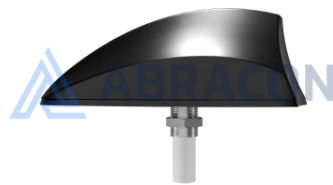


Check Inventory

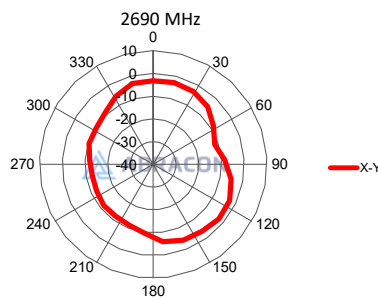


209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
MSL Level = 1

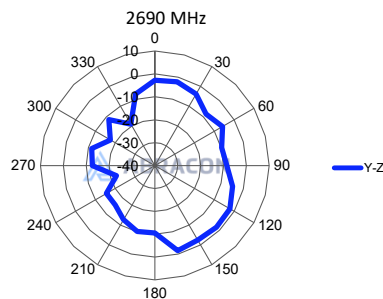
2690MHz



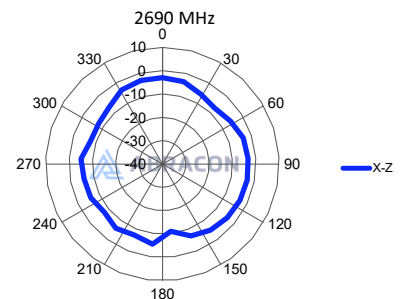
XY plane



YZ plane



XZ plane





AANE-SH-0247

Request Samples



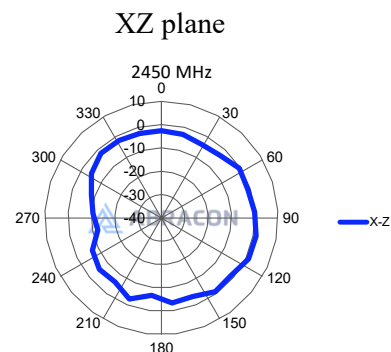
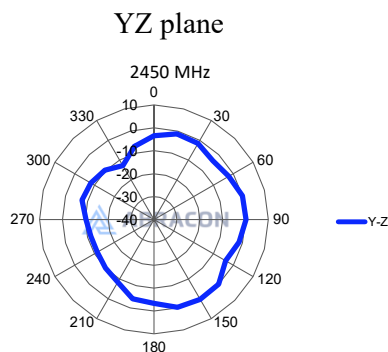
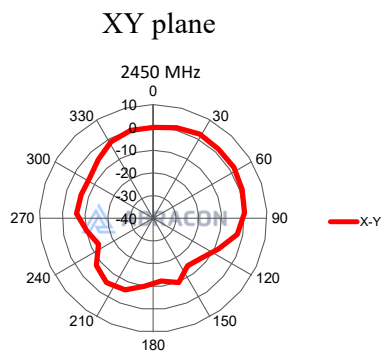
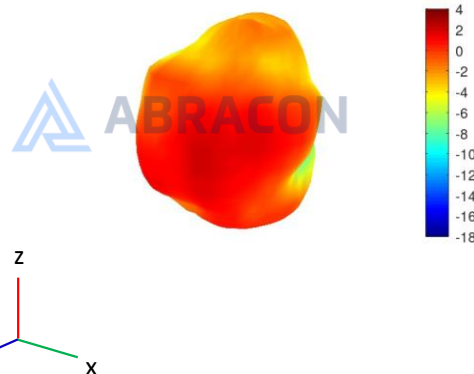
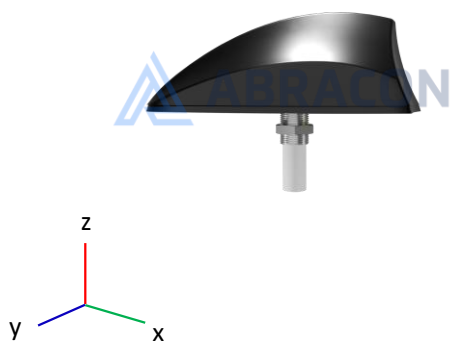
Check Inventory



209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
MSL Level = 1

Wi-Fi Radiation Characteristics – 3D & 2D pattern

2450MHz





AANE-SH-0247

Request Samples

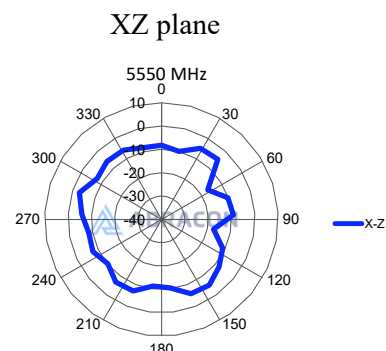
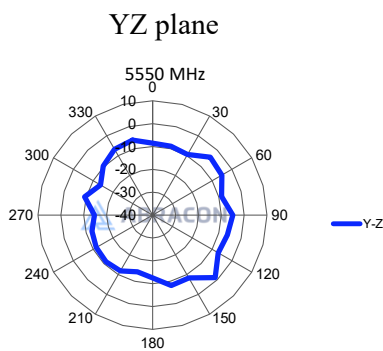
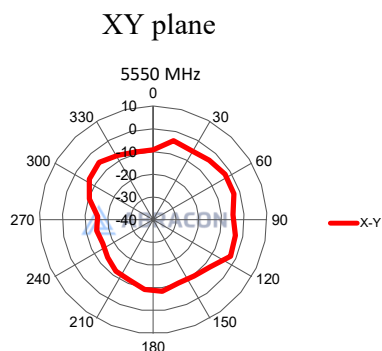
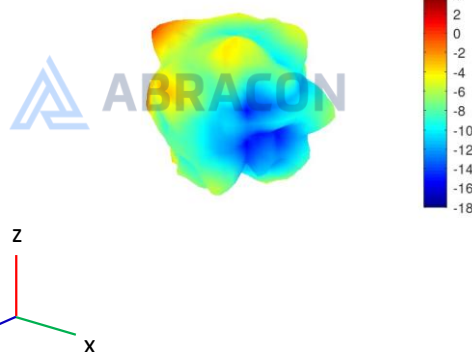
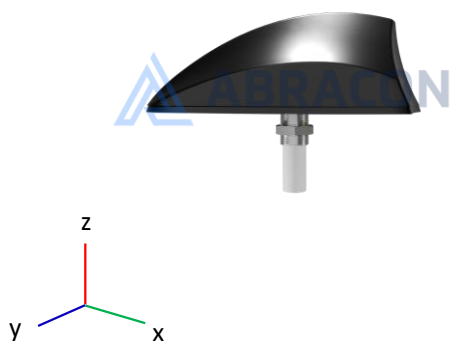


Check Inventory



209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
MSL Level = 1

5550MHz





AANE-SH-0247

Request Samples



Check Inventory



209.8 x 93.4 x 74.6 mm
RoHS/RoHS II Compliant
MSL Level = 1

Packaging

One antenna with 6 cables in one 115 x 360 x 360 mm inner box

9 inner boxes in 610 x 370 x 730 mm outer box

ATTENTION: Abracon LLC's products are Commercial-Off-The-Shelf ('COTS'), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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www.abracon.com

REVISED: 08-31-26

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CERTIFIED