External Active GPS Antenna

APAMP-129

Features

- Multi-Constellation Active GNSS Antenna
  - GPS: L1
  - Galileo: E1
- High LNA Gain of 28±2 dB
- Right-Hand Circular Polarization (RHCP)
- IP 67 Rated
- Low Profile: 44*37*14.5mm
- Custom Cables and Connectors Available

Applications

- IoT / M2M
- GPS/Galileo applications
- Fleet Management and Asset Tracking
- Telematics
- Unmanned Aerial Vehicle (UAV)
- Precision Agriculture
- Geolocation and Tracking

Product Image

ABRACON

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Phone: 512-371-6159 | Fax: 512-351-8858
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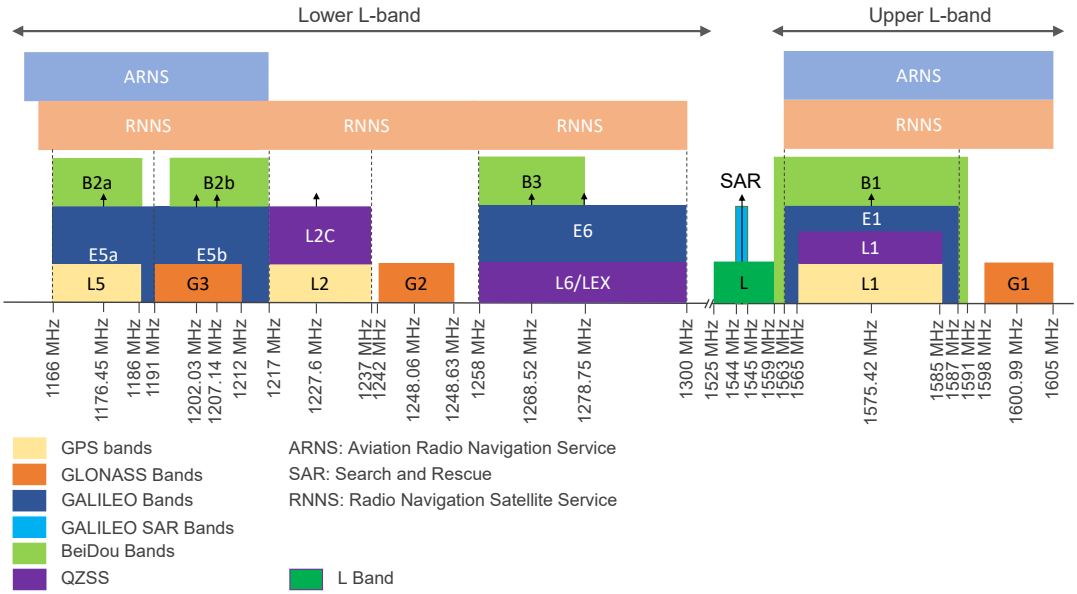
GNSS Frequency Bands Covered				
GPS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	
	■	□	□	
GLONASS	G1 1598.06-1609.31MHz	G2 1242.93-1251.68MHz	G3 1202.025MHz	
	□	□	□	
Galileo	E1 1575.42MHz	E5a 1176.45MHz	E5b 1201.5MHz	E6 1278.75MHz
	■	□	□	□
BeiDou	B1 1561MHz	B2 1207.14MHz	B3 1268.52MHz	
	□	□	□	
QZSS	L1 1575.42MHz	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 band

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Electrical Specification

Parameters	Min.	Typ.	Max.	Units	Note
Antenna					
Frequency		GPS: L1 GALILEO: E1			
VSWR		≤ 2		-	
Polarization		RHCP		-	(Right Hand Circular Polarization)
Nominal Impedance		50		Ω	
Gain RHCP		5		dBic	On 27x27mm ground
LNA					
VSWR		≤ 2.0		-	
DC Input	2.5	3.0	3.5	V	
Gain	25	27	29	dB	@+25°C ± 10°C
Current Consumption		≤ 10	≤ 12.5	mA	
Noise Figure		≤ 1.5		dB	@+25°C ± 10°C

Please note: All measurement data is based on the standard configuration (conducted in free space unless otherwise specified).

Mechanical Specification

Parameter	Specification
Antenna Dimension	44 x 37 x 14.5 mm
Housing Material	ABS
Mounting Type	Magnetic
RF Connector	SMA (M) (fully customizable)
Cable Length	3m RG174 (fully customizable)

Environmental Specification

Parameter	Specification
Operating Temperature	-40ºC to +85ºC
Storage Temperature	-45ºC to +85ºC
RoHS Compliance	RoHS/RoHS II compliant
Relative Humidity	Up to 95%

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Ordering Information

Part Number	Description	Connector Option
APAMP-129	External Active GPS Antenna 3m cable & SMA connector	SMA (M)

Note: Different cable and connector configurations that are not listed may be available upon request via Abracon online support

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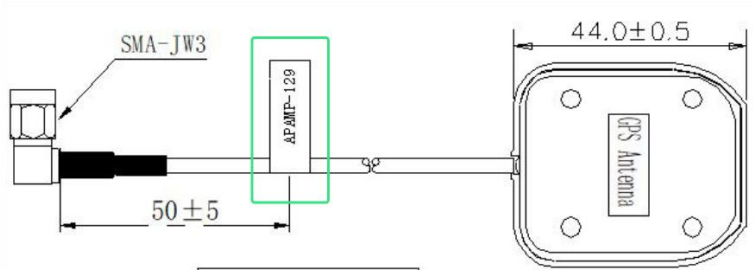
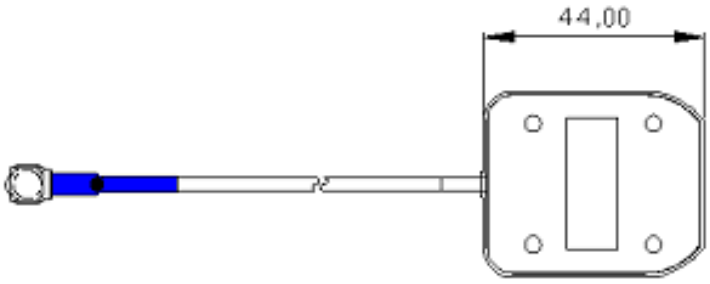
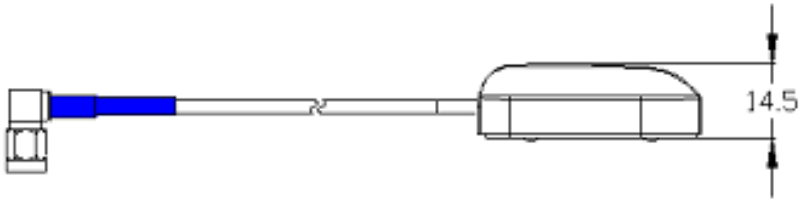
Product Dimension

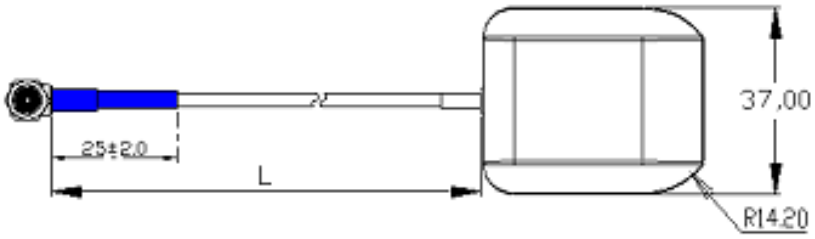




Bottom View



Side View



Top View

Unit: mm

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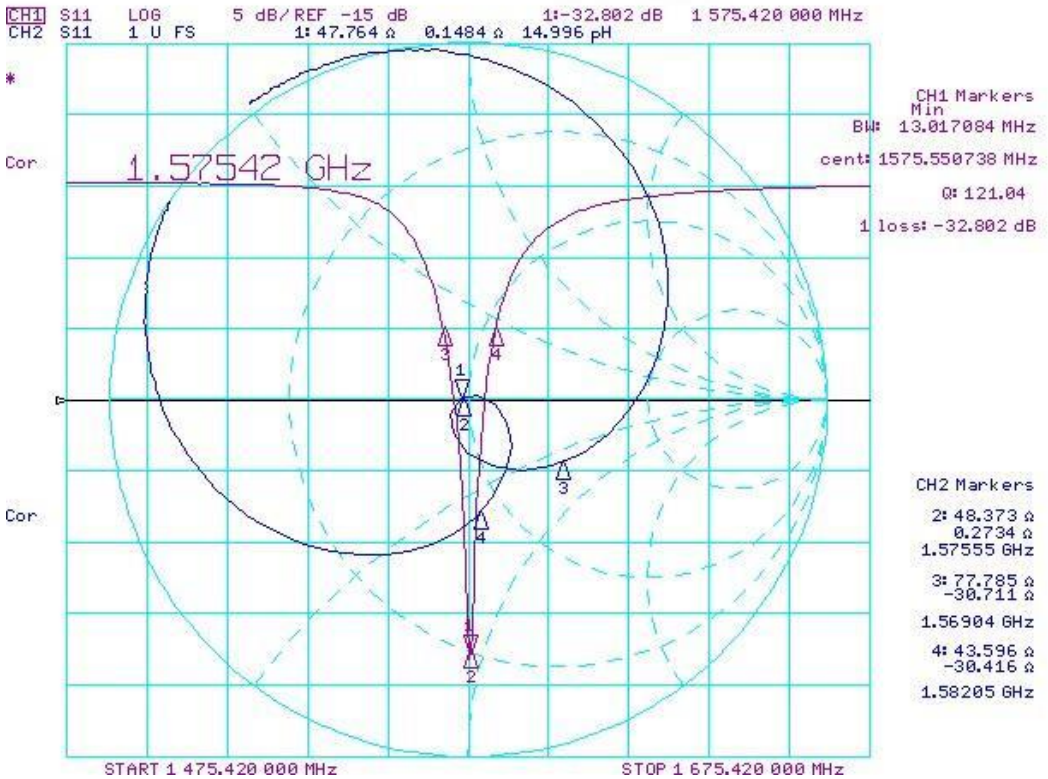
Parameters	Description
L (Cable Length)	300±10cm
Antenna	Dielectric Ceramics
RF Cable	RG174
PCB	FR4
RF Connector	SMA-JW3
Shielding	Tinplate
Thickness	14.5mm
Mounting Type	Magnet Base

Antenna's Impedance and Return-Loss Characteristics



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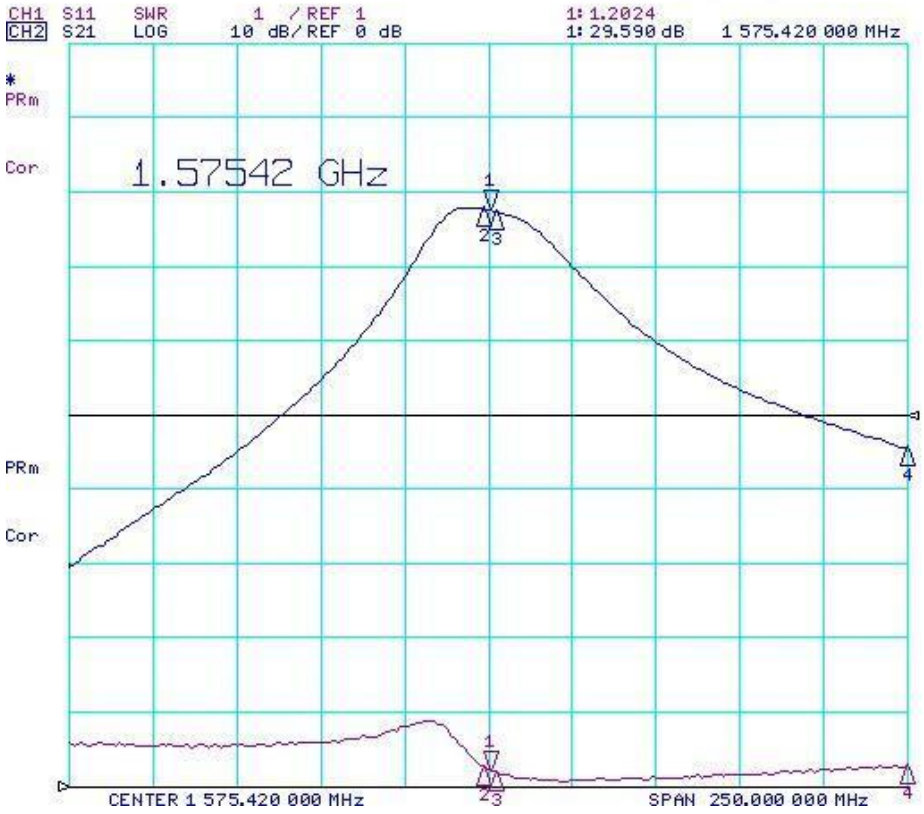
LNA Characteristics –LNA Gain



S21: LNA Gain

Reliability Test

Item	Test Condition	Remark
Humidity Test	The device is subjected to 93±2% relative humidity 40℃±3℃ for 48h, then dry out at 25℃±5℃ and less than 65% relative humidity for 12h. After dry out the device shall satisfy the specification in table 8.1.	
High Temperature	The device shall satisfy the specification in table 8.1 after leaving at 85℃ for 16h, provided it would be	

Storage	measured after 2h leaving in 25℃±5 ℃ and less than 65% relative humidity.	
Low Temperature Storage	The device shall satisfy the specification in table 8.1 after leaving at -40℃ for 16 h, provided it would be measured after 2h leaving in 25℃±5 ℃ and less than 65% relative humidity.	
High Temperature Operation	Operating the device at 80℃ and 3.0Vfor 2h, the device shall satisfy the specification in table 8.1.	
Low Temperature Operation	Operating the device at -40℃ and 3.0Vfor 2h, the device shall satisfy the specification in table 8.1.	
Vibration	Subject the device to Sinusoidal vibration for 2h each in x, y and z axis with the amplitude of 1.5mm (max), the frequency shall be varied uniformly between the limits of 10Hz~55Hz~10Hz.	
Free Fall	Handling the product at the 1000mm dropped 3 times with random fall surface, the device shall satisfy the specification in table 8.1.	(Mechanical damage such as breaks shall not occur.)

Note

Devices subjected to test gone through reliability test will behave as following table.

Parameters	Min.	Typ.	Max.	Units	Note
Appearance change	None				
ΔS21			2.0	dB	(Gain change)
ΔS22			0.2	dB	(Output VWSR change)
ΔI			0.5	mA	(LNA DC current change)

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Packaging

100 pcs antennas per carton
Dimensions : 630 x 460 x 105 mm

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