DATASHEET GNSS/GPS ANTENNAS

High Gain Multi-GNSS High Performance Precision Antenna

GNSS/GPS Antenna – Precision

GNSS-L1256-40TNC

Description

High gain, low-profile multi-GNSS antenna designed to meet stringent Association of American Railroads (AAR) environmental standards.

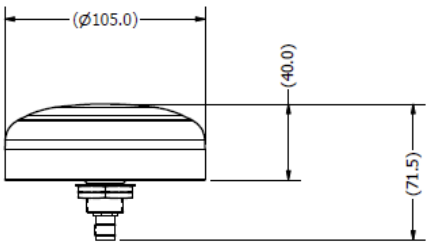
Technologies

- GPS: L1/L2/L5
- GLONASS: G1/G2/G3
- Galileo: E1/E5/E6
- Beidou: B1/B1-2/B2/B3
- QZSS: L1/L2/L5/L6
- Navic L5
- L Band

Features

- Full GNSS compatibilty covering 1164 - 1300 MHz and 1525 - 1610 MHz frequency ranges
- High Gain (40dB typ.)
- AAR compliant
- Excellent multipath mitigation
- Certified to MIL-STD-810G military-grade standards

PCTEL
an **Amphenol** company



GNSS-L1256-40TNC

High Gain Multi-GNSS High Performance Precision Antenna

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The GNSS-L1256-40TNC is a high gain, multi-GNSS high performance antenna designed to meet stringent AAR environmental standards. The antenna features a multi-stacked patch design covering global GNSS frequencies, a multi-stage LNA, and advanced filtering to combat the effects of adjacent band interference. The antenna has a hermetic seal, is AAR tested and approved. This antenna comes with a 5 year warranty.

Features

- Full GNSS Compatibility
- High Gain (40dB typ.)
- Advanced Out-of-Band Filtering
- AAR Compliant
- Excellent Multipath Mitigation
- IP67 ingress protection
- Certified to MIL-STD-810G military-grade standards

Applications

- PTC Rolling Stock Tracking
- Military Vehicle & Asset Tracking
- Precision Agriculture
- Differential Correction
- GNSS Indoor Reradiation
- High Accuracy Time Sync

Certifications

RoHS COMPLIANT

SPECIFICATIONS

High Gain Multi-GNSS High Performance Precision Antenna

GNSS/GPS Antenna – Precision

Electrical Specifications – All bands

Specification	Measurement	Technologies
Antenna Type	Stacked Patch	
Polarization	RHCP	
Frequency	1525 - 1610 MHz	GPS L1, Beidou B1/B1-2, Galileo E1, GLONASS L1
	1214 - 1300 MHz	GPS L2, GLONASS L2, Beidou B3, Galileo E6
	1164 - 1214 MHz	GPS L5, Galileo E5, GLONASS L3, Beidou B2
ESD Protection	>15kV	
VSWR	<2.0:1 (typical)	
Noise Figure	3.0 dB (typical)	
DC Voltage	2.5 - 12.0 VDC	
DC Current	37 mA (typical) <50 mA	
Out-of-Band Rejection	<1050 MHz >80 dB <1450 MHz >70dB <1125 MHz >30 dB >1690 MHz >30dB >1350 MHz >70 dB >1730 MHz >80dB ***See Figures 1 and 2 for details concerning Out-of-Band Rejection***	

Figure 1: Frequency Sweep 900-1900MHz

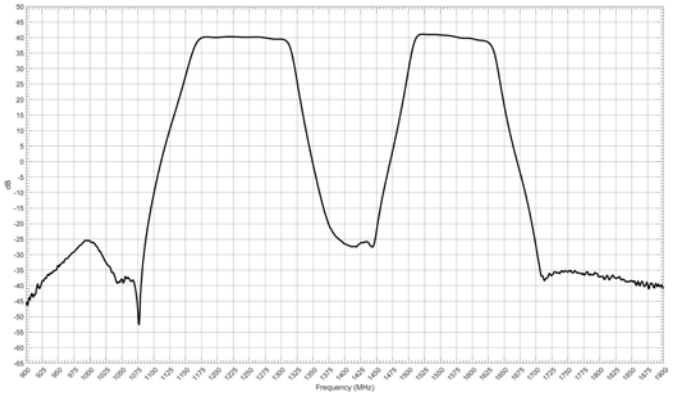
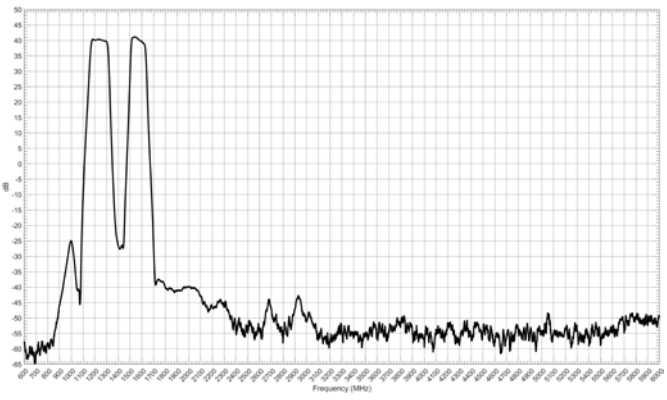


Figure 2: Frequency Sweep 600-60000MHz



SPECIFICATIONS

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High Gain Multi-GNSS High Performance Precision Antenna

GNSS/GPS Antenna – Precision

Electrical Specifications – Band Specific

Band	Center Frequency (MHz)	Gain @ 90° Elevation (Zenith) [dB]	Gain @ 45° Elevation [dB]	Gain @ 10° Elevation [dB]	Axial Ratio @ 90° Elevation (Zenith) [dB]	Average Axial Ratio @ 45° Elevation [dB]	Average Axial Ratio @ 10° Elevation [dB]
GPS L1	1575	4.7	2.3	-2.6	0.4	1.3	3.3
GPS L2	1227	4.0	1.0	-4.7	1.0	1.2	1.5
GPS L5	1176	5.0	2.0	-3.6	1.3	1.5	2.9
GALILEO E1	1575	4.7	2.3	-2.6	0.4	1.3	3.3
GALILEO E5	1191	5.7	2.7	-3.1	0.9	1.2	2.2
GALILEO E5a	1176	5.0	2.0	-3.6	1.3	1.5	2.9
GALILEO E5b	1207	5.3	2.4	-3.4	0.7	1.0	1.7
GALILEO E6	1278	0.3	-2.7	-8.7	1.3	1.8	2.6
GLONASS L1	1602	3.8	1.6	-3.3	1.1	1.6	3.8
GLONASS L2	1246	2.5	-0.5	-6.2	1.2	1.4	1.6
GLONASS L3OC	1202	5.5	2.5	-3.3	0.7	1.0	1.8
BEIDOU B1	1561	4.1	1.6	-3.5	0.3	1.3	3.2
BEIDOU B11-2	1589	4.5	2.3	-2.5	0.8	1.4	3.3
BEIDOU B2	1201	5.6	2.5	-3.3	0.7	1.1	1.8
BEIDOU B3	1268	0.8	-2.1	-7.9	1.3	1.8	2.3
QZSS L1	1575	4.7	2.3	-2.6	0.4	1.3	3.3
QZSS L2	1227	4.0	1.0	-4.7	1.0	1.2	1.5
QZSS L5	1176	5.0	2.0	-3.6	1.3	1.5	2.9
QZSS L6	1278	0.3	-2.7	-8.7	1.3	1.8	2.6

LNA Specifications

Gain	Nominal Impedance	ESD Protection	Noise Figure 1164-1300 MHz	Noise Figure 1559-1610 MHz	DC Input Voltage	DC Current	Out-of-Band Rejection
40 dB, typ	50 Ω	IEC-61000-4-2, 15 kV	2.0 dB, typ	2.8 dB, typ	2.8 V - 5.5 V	43 mA typ.	≤ 925 MHz ≥ 80dBc ≤ 1110 MHz ≥ 40dBc ≥ 1350 MHz ≥ 40dBc

Mechanical and Environmental Specifications

Specification	Measurement
Antenna Dimensions (D x H)	4.13" x 1.57" (105.0 x 40.0 mm)
Weight	16 oz (453.6 g)
Connector	TNC Female
Mount[1]	¾" thru-hole or bracket mount
Radome Color	White
IP Rating	IP67
Radome Seal	Rubber Gasket
Environmental Rating	AAR compliant

CONTACT US

For more information about this product contact your sales representative or visit

> pctel.com/antenna-products

Solving Complex Wireless Challenges

PCTEL, an Amphenol company, is a leading global provider of wireless technology solutions, including purpose-built Industrial IoT devices, antenna systems, and test and measurement products. Trusted by our customers for decades, we solve complex wireless challenges to help organizations stay connected, transform, and grow.

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