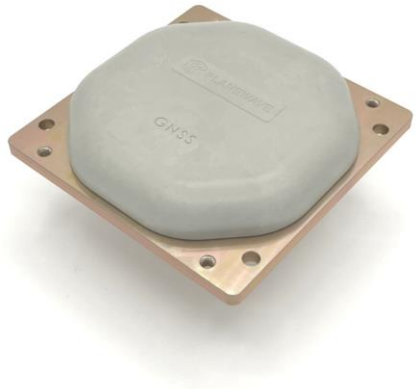
PW1115-032

Active GNSS L1/E1/L2/L5/E5 Antenna, 35 dB

Features

- ✓ Size < 1U
- ✓ Omni-directional pattern
- ✓ Integrated filter and LNA with low current consumption
- ✓ Radiation tolerant
- ✓ Stable phase center
- ✓ Wide operating temperature range
- ✓ Designed to NASA GEVS (GSFC-STD-7000)
- ✓ TRL 9



Benefits

- ✓ Commercial off-the-shelf (COTS)
- ✓ Acceptance Tests available
- ✓ Compatible Test Hat available
- ✓ Qualified for space applications
- ✓ Consultation services available (link budget, architecture and system design)

Product Overview

PW1115-032 is a high-performance GNSS L1/E1/L2/L5/E5 antenna designed for harsh space environments. It features stable phase center and excellent axial ratio over the entire frequency band, making it ideal for reliable space vehicle navigation.

This antenna is a perfect choice for LEO, MEO, and GEO missions. Specifically, it is designed to overcome challenges present in the LEO environment over long mission lives, such as Atomic Oxygen, MMOD, etc.

The integrated LNA and filter further improve signal fidelity and make this antenna a perfect choice for applications where interference may be an issue. PW1115-032 is radiation tolerant, lightweight and easy to integrate. It is also available with Test Hats and HITL versions to facilitate testing and integration.

Related Products

Part Number	Description
PW1115-302	GNSS L1/E1/L2/L5/E5 Test Hat
PW1115-002	Active GNSS L1/E1/L2/L5/E5 Antenna, 15 dB
PW2022-002	Active S-Band RHCP Dual-Port (TX+RX) Omni Antenna

Electrical Specifications

Parameter / Condition	Min	Typ	Max	Unit
Operating Frequency				
L5/E5/L2	1164		1240	MHz
L1/E1	1559		1591	MHz
Polarization		RHCP		
VSWR			2:1	
Passive Gain				
L5/E5/L2	1	3.5	4.5	dBic
L1/E1	4.5	4.5	4.5	dBic
Pattern Coverage		Omni		
LNA Gain (Notes 1 and 2)				
L5/E5/L2	33	36	39	dB
L1/E1	32	35	38	dB
Noise Figure (Note 2)				
L5/E5/L2	0.5	1.5	2.5	dB
L1/E1	1	2.5	4	dB
Rejection @ 1650 MHz	50			dBc
Voltage	4.5	5	12	V
Current		75	85	mA

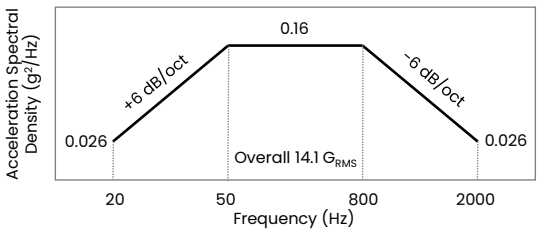
Note 1: LNA gain is customizable upon request

Note 2: Measured over the full operating temperature range

Environmental Specifications

Parameter / Condition	Min	Typ	Max	Unit
LEO Mission Life	5			years
Operating Temperature	-70		100	°C
Humidity (MIL-STD-810 Method 507.6)	65%			
Sealing		Sealed + Venting Mechanism		
Radiation Hardness (TID)	500			krad(Si)
Destructive Single Event Effects (Note 1)	37			MeV-cm²/mg
Vibration	14.1			G_{RMS}

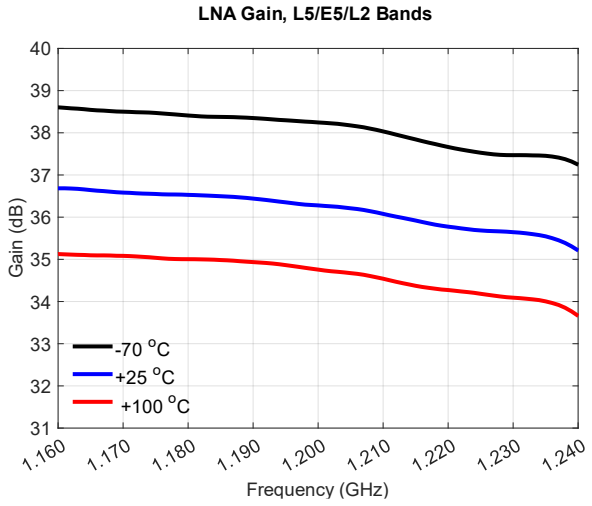
Random Vibration Test Levels
(GSFC-STD-7000)

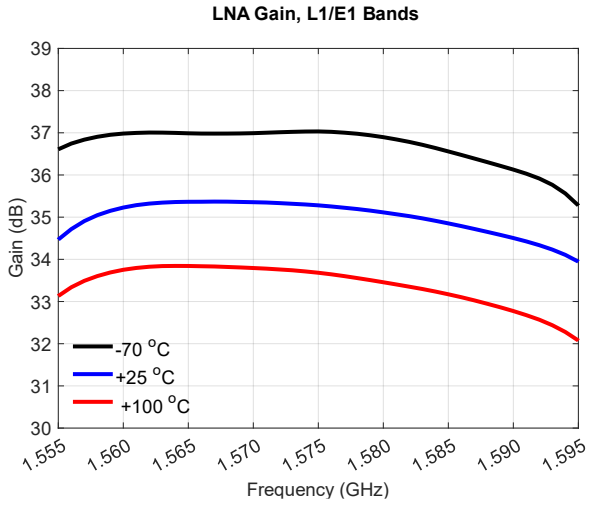


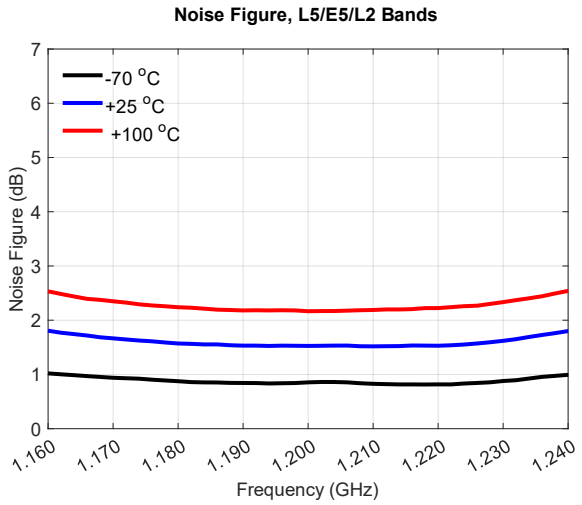
Note 1: No destructive SEE was observed when tested with heavy ions up to the above LET

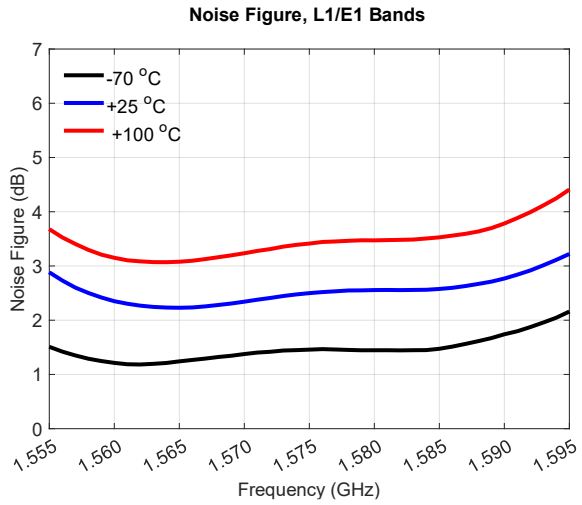
Mechanical Specifications

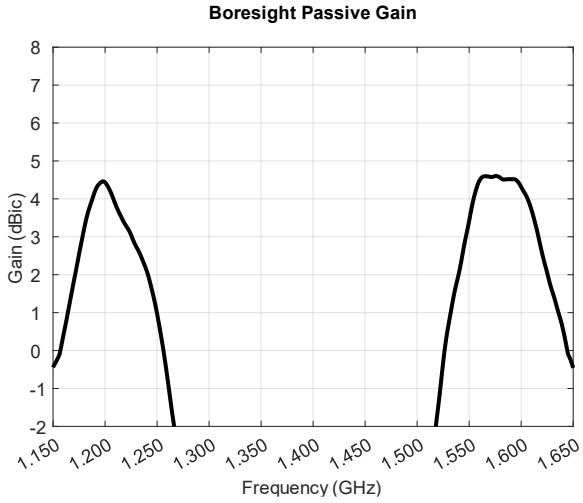
Parameter / Condition	Value	Unit	Limits
Connector	SMA Female		
Mass	310	g	Max
Compatible Test Hat	PW1115-302		

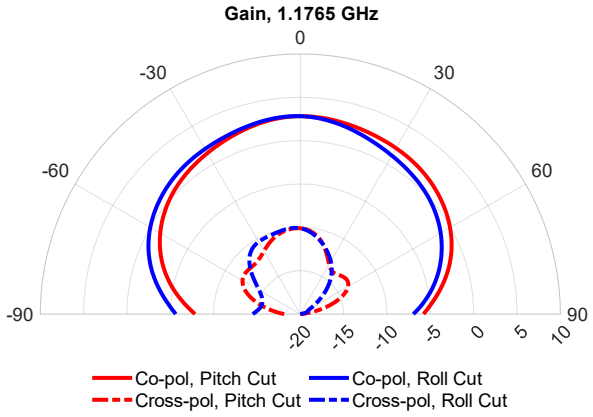


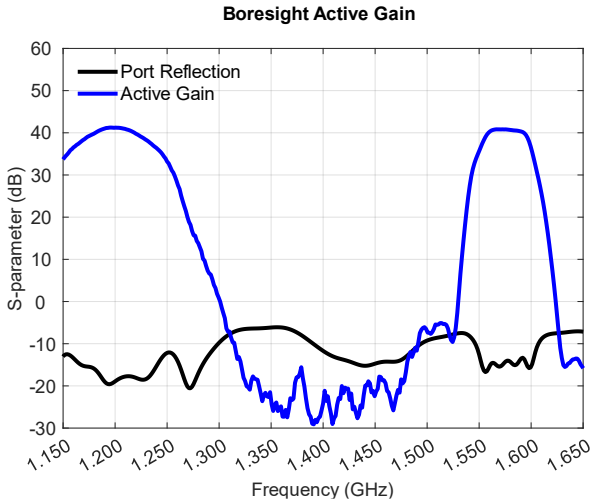


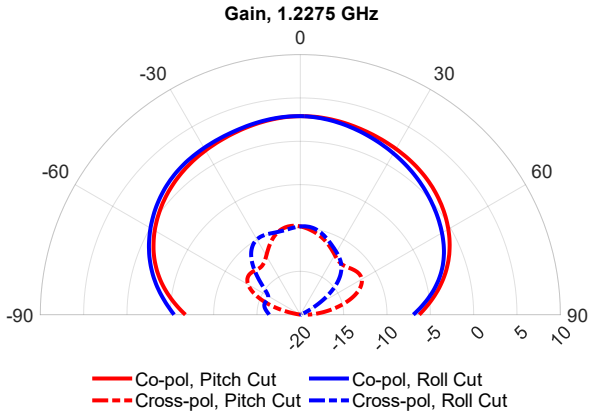


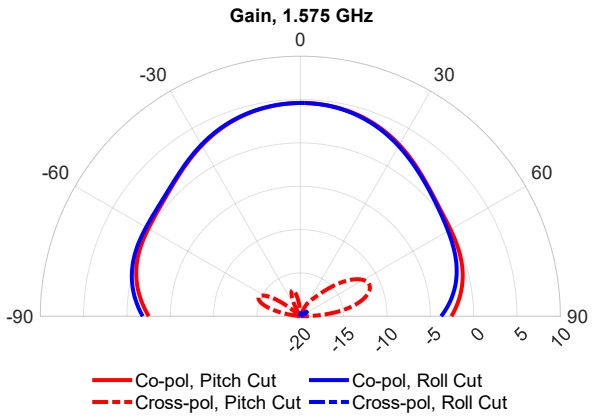



Boresight Passive Gain
Gain (dBic)
Frequency (GHz)

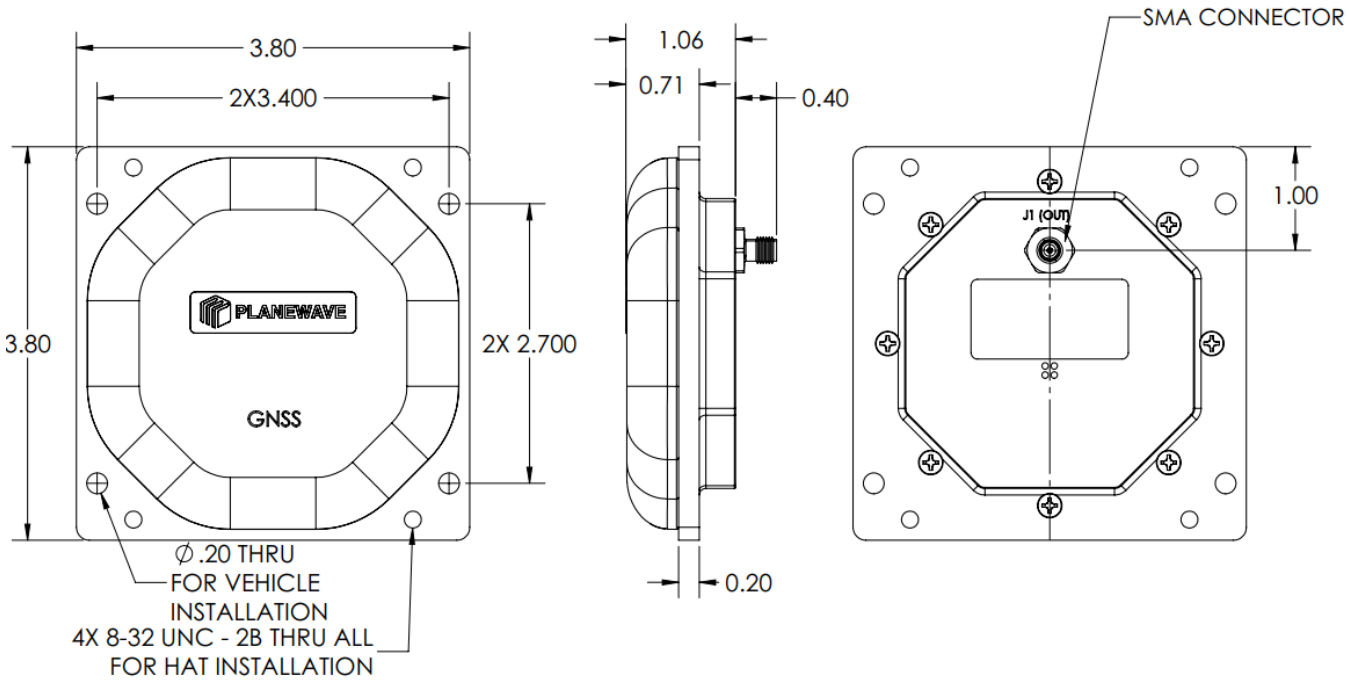

Gain, 1.1765 GHz
Co-pol, Pitch Cut
Co-pol, Roll Cut
Cross-pol, Pitch Cut
Cross-pol, Roll Cut


Boresight Active Gain
Port Reflection
Active Gain
S-parameter (dB)
Frequency (GHz)


Gain, 1.2275 GHz
Co-pol, Pitch Cut
Co-pol, Roll Cut
Cross-pol, Pitch Cut
Cross-pol, Roll Cut


Gain, 1.575 GHz
Co-pol, Pitch Cut
Co-pol, Roll Cut
Cross-pol, Pitch Cut
Cross-pol, Roll Cut

Mechanical Outline



Dimensions shown in inches.
Tolerances - Two Place Decimal: ±0.010, Three Place Decimal: ±0.005

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