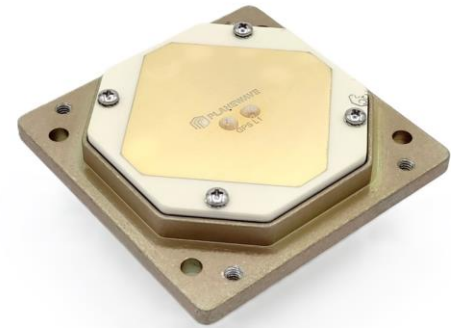


PW1515-001

Active GPS L1 Antenna

Features

- ✓ Size < 1U
- ✓ Omni-directional pattern
- ✓ Integrated LNA and filter 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
- ✓ LNA-only version (without radiating element) available for Hardware-In-The-Loop (HITL) tests
- ✓ Qualified for space applications
- ✓ True circular polarization with extremely low Axial Ratio over the entire frequency band
- ✓ Consultation services available (link budget, architecture and system design)

Product Overview

PW1515-001 is a high-performance GPS L1 antenna designed for harsh space environments. It features excellent axial ratio over the entire frequency band, making it ideal for reliable space vehicle navigation.

The integrated LNA and filter further improve signal fidelity and make this antenna a perfect choice for applications where interference may be an issue. PW1515-001 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
PW1515-301	GPS L1 Test Hat
PW1515-201	GPS L1 LNA
PW2020-110	S-Band Dual-CP RX Omni Antenna
PW2022-002	Active S-Band RHCP Dual-Port (TX+RX) Omni Antenna
PW1115-002	Active GNSS L1/E1/L2/L5/E5 Antenna

Information furnished by PlaneWave, Inc. is believed to be accurate and reliable. However, no responsibility is assumed by PlaneWave for its use, nor for any infringements of patents or other rights of third parties that may result from its use.

Electrical Specifications

Parameter / Condition	Min	Typ	Max	Unit
Operating Frequency	1563.42		1587.42	MHz
Polarization		RHCP		
Axial Ratio		2	3	dB
VSWR			2:1	
Passive Gain	4.5	5	5.5	dBic
Pattern Coverage		Omni		
LNA Gain (Notes 1 and 2)	12	15	18	dB
Noise Figure (Note 2)		2.5	3.5	dB
Rejection @ 1650 MHz	50			dBc
Voltage	4.5	5	12	V
Current		25	30	mA

Note 1: LNA gain is customizable upon request

Note 2: Measured over the full operating temperature range

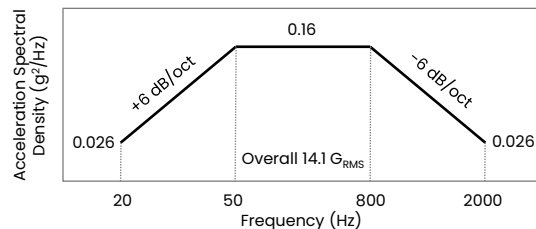
Mechanical Specifications

Parameter / Condition	Value	Unit	Limits
Connector	SMA Female		
Mass	130	g	Max
Compatible Test Hat	PW1515-301		

Environmental Specifications

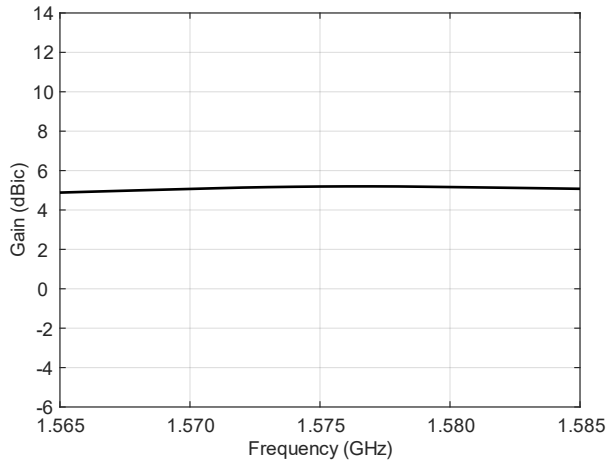
Parameter / Condition	Min	Typ	Max	Unit
Operating Temperature	-70		100	°C
Storage Temperature	-70		100	°C
Radiation Hardness (TID)	500			krad
Destructive Single Event Effects (Note 1)	37			MeV-cm ² /mg
Vibration	14.1			G _{RMS}

Random Vibration Test Levels
(GSFC-STD-7000)

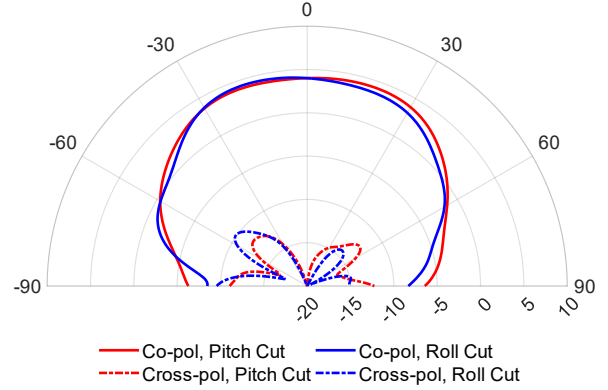


Note 1: No destructive SEE was observed when tested with heavy ions up to the above LET

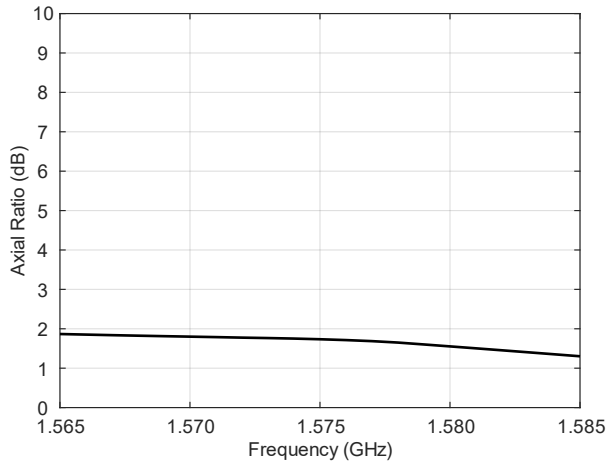
Boresight Passive Gain



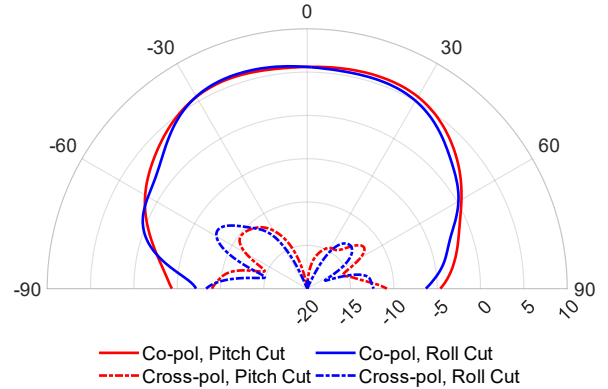
Passive Gain (dBiC), 1.565 GHz



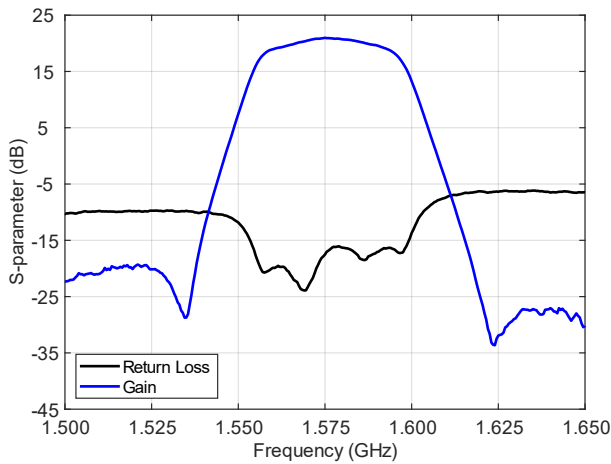
Boresight Axial Ratio



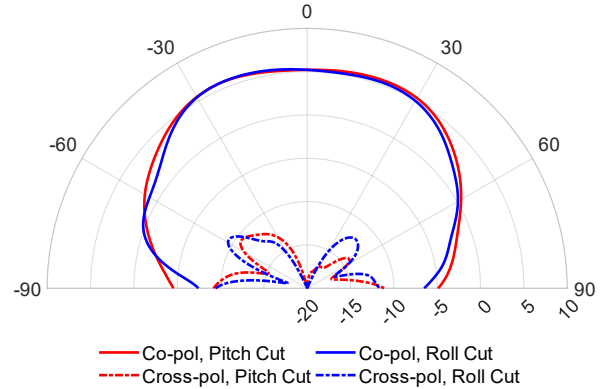
Passive Gain (dBiC), 1.575 GHz

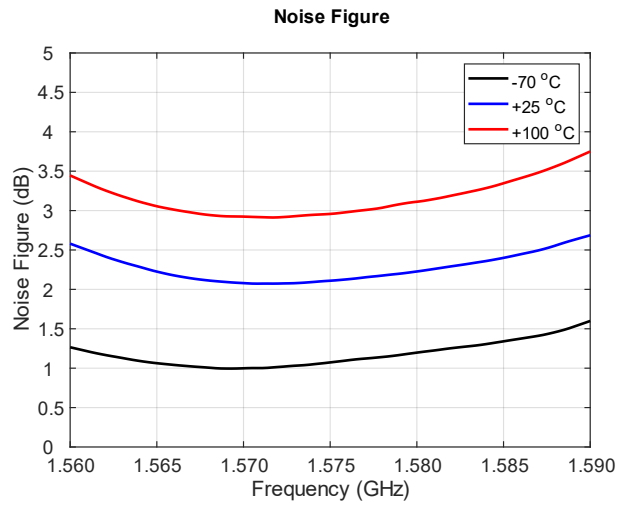
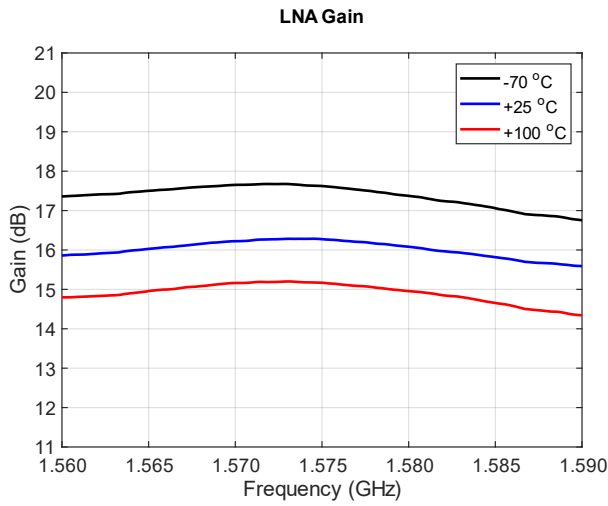


Boresight Active Antenna Gain

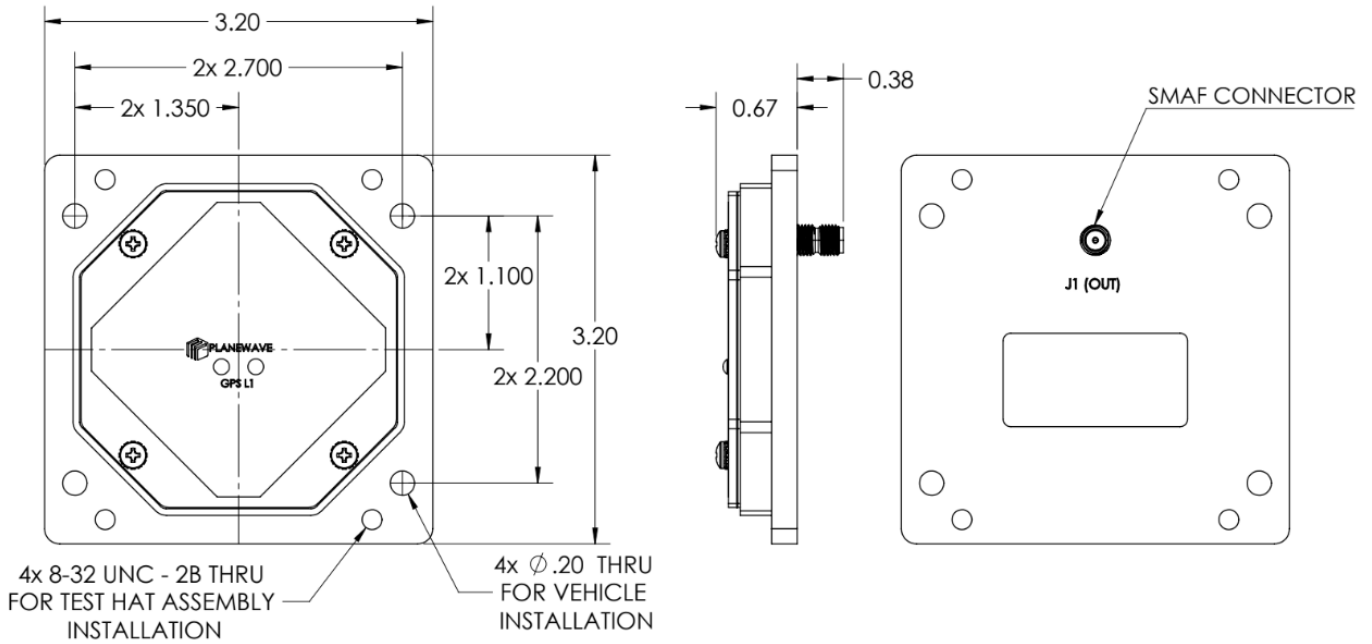


Passive Gain (dBiC), 1.585 GHz





Mechanical Outline



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

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