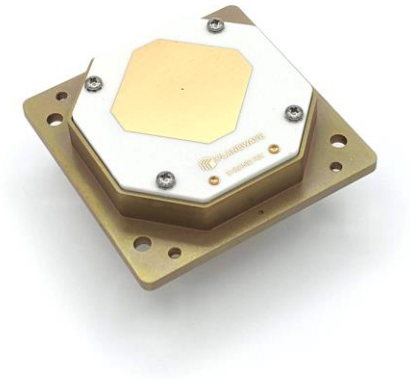
PW2020-000

Active S-Band RHCP RX Omni Antenna

Features

- ✓ Size < 1U
- ✓ Omni-directional pattern
- ✓ Integrated LNA and filter with low current consumption
- ✓ Radiation tolerant
- ✓ 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

PW2020-000 is a high-performance uplink antenna designed for TT&C applications in harsh space environments. It features excellent axial ratio over the entire frequency band, making it ideal for demanding and reliable space communication links.

The integrated LNA and filter further improve signal fidelity and make this antenna a perfect choice for applications where link budget is tight or interference is a concern. PW2020-000 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
PW2020-300	S-Band RHCP RX Omni Test Hat
PW2020-200	S-Band LNA
PW2020-110	S-Band Dual-CP RX Omni Antenna
PW2222-110	S-Band Dual-CP TX Omni Antenna
PW1515-001	Active GPS L1 Antenna

Electrical Specifications

Parameter / Condition	Min	Typ	Max	Unit
Operating Frequency	2025		2110	MHz
Polarization		RHCP		
Axial Ratio		2	3	dB
VSWR			2:1	
Passive Gain	4	4.5	5	dBic
Pattern Coverage		Omni		
LNA Gain (Notes 1 and 2)	26	28	32	dB
Noise Figure (Note 2)		2.2	3.5	dB
Rejection @ 2200 MHz	60			dBc
Voltage	4.5	5	12	V
Current		50	60	mA

Note 1: LNA gain is customizable upon request
Note 2: Measured over the full operating temperature range

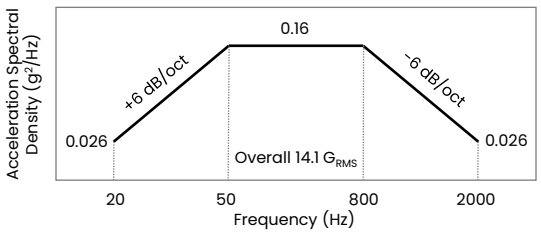
Mechanical Specifications

Parameter / Condition	Value	Unit	Limits
Connector	SMA Female		
Mass	140	g	Max
Compatible Test Hat	PW2020-300		

Environmental Specifications

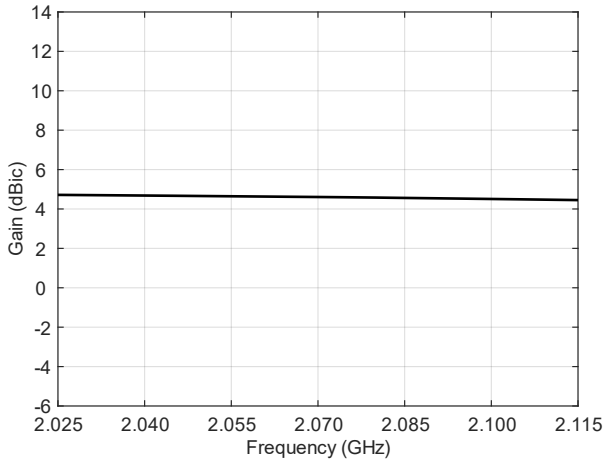
Parameter / Condition	Min	Typ	Max	Unit
Operating Temperature	-70		100	°C
Storage Temperature	-70		100	°C
Radiation Hardness (TID)	500			krad
Destructive Single Event Effects (Note 1)	37			MeV-cm²/mg
Vibration	14.1			G_{RMS}

Random Vibration Test Levels
(GSFC-STD-7000)

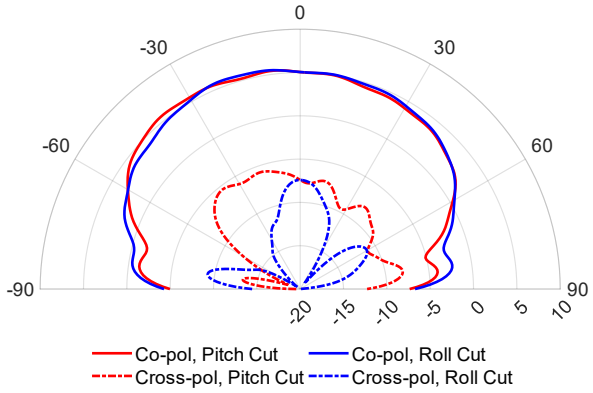


Note 1: No destructive SEE was observed when tested with heavy ions up to the above LET

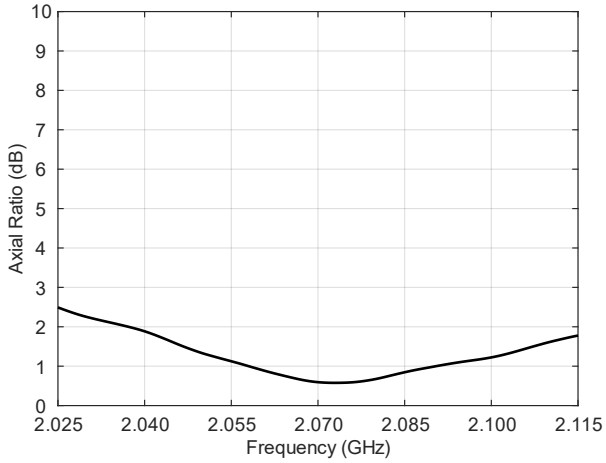
Boresight Passive Gain



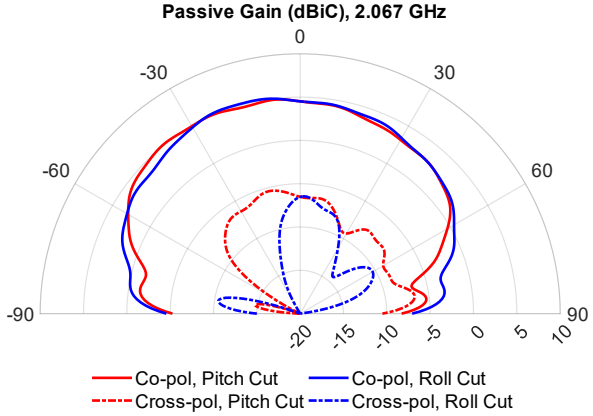
Passive Gain (dBiC), 2.025 GHz



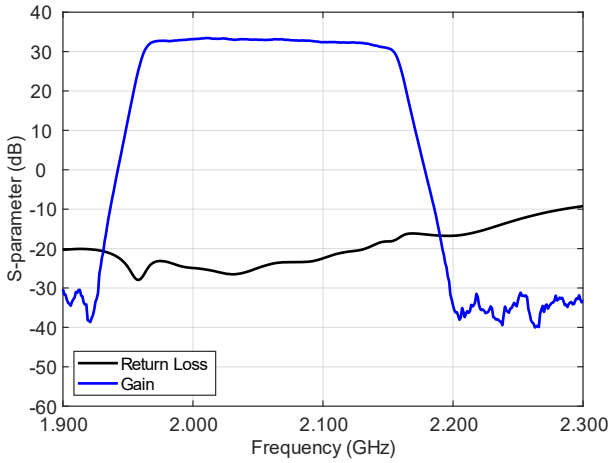
Boresight Axial Ratio



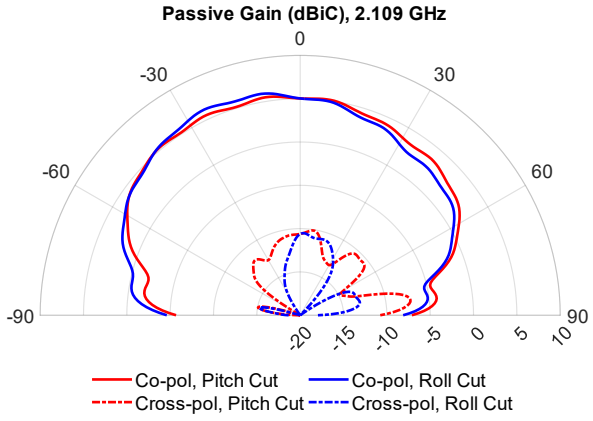
Passive Gain (dBiC), 2.067 GHz

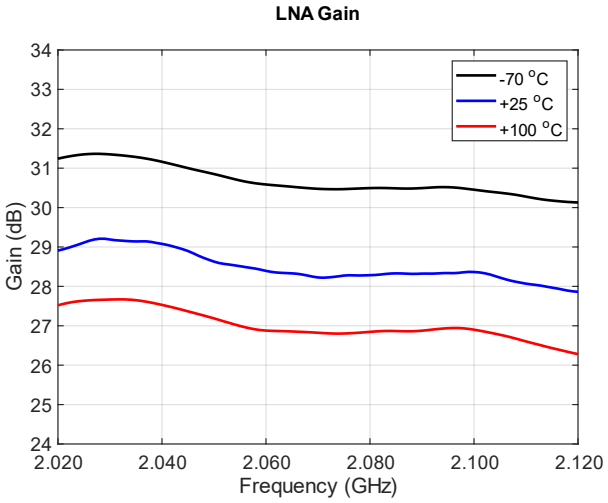


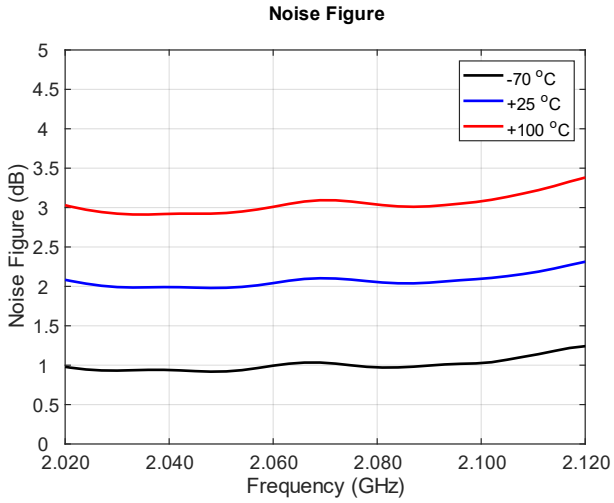
Boresight Active Antenna Gain



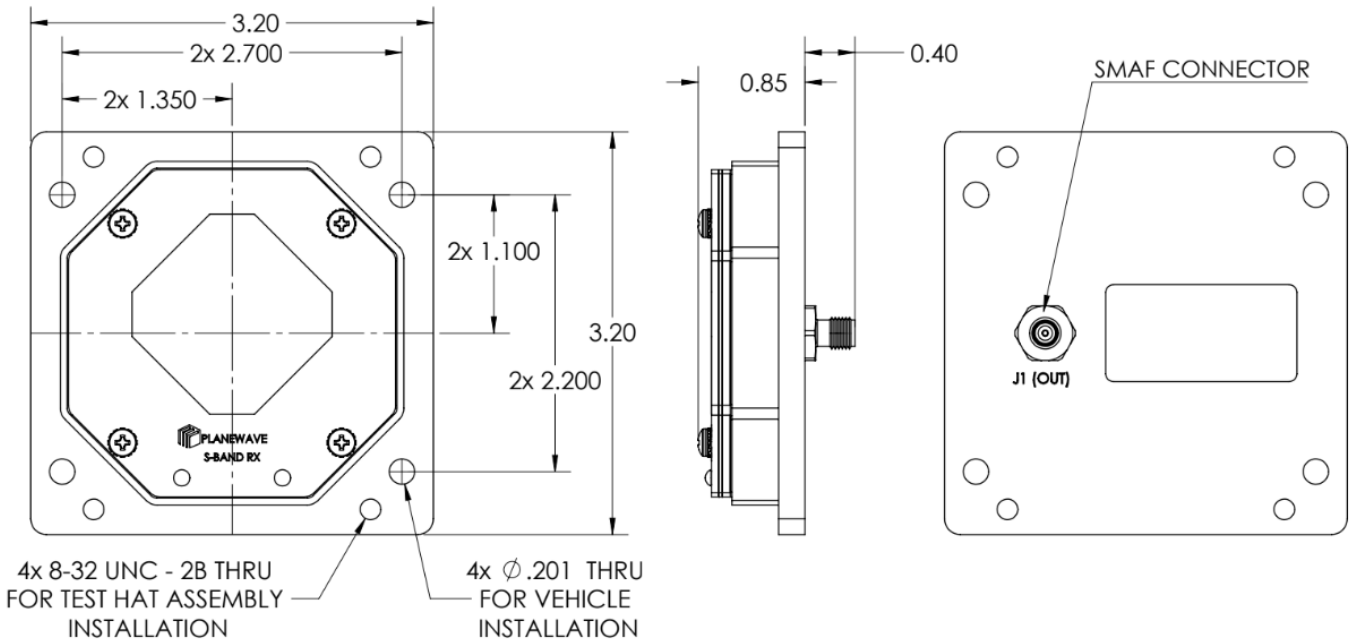
Passive Gain (dBiC), 2.109 GHz







Mechanical Outline



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

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