

ZENITH The GNSS Active Antenna V3a

DATASHEET

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GLOSSARY

GNSS	Global Navigation Satellite System
LDO	Low-dropout voltage regulator
LNA	Low noise amplifier
NF	Noise figure
RF	Radio frequency

1 PRODUCT OVERVIEW

The ZENITH GNSS antenna is an active antenna module designed for nanosatellite GNSS applications. The module combines a low noise figure, high amplifier gain, and enhanced resistance to strong off-band interference signals.

Configuration options available:

- Output connector MMCX female
- Output connector MMCX male on RG-178 cable

2 TECHNICAL SPECIFICATION

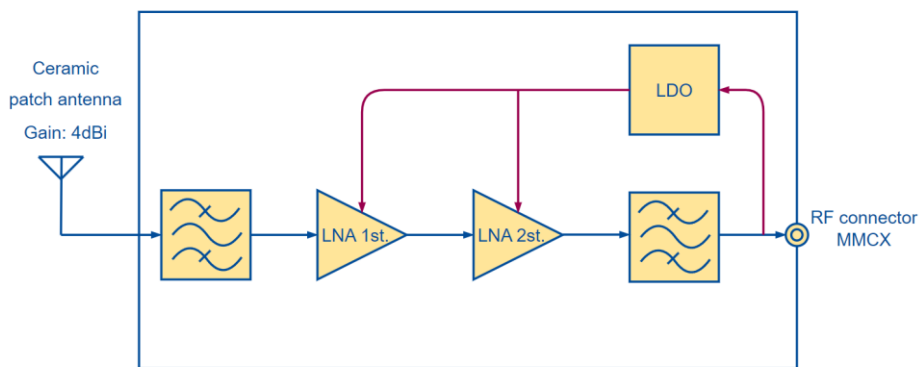


Figure 2-1: ZENITH GNSS antenna block diagram

Table 2-1: Technical specification

Parameter	Value	Unit
Operating Temperature	-40 to +85	°C
Dimensions	50 x 50 x 10	mm
Mass	~ 20	g
Input voltage	3.3 to 5	V
Power Consumption - average	24	mW
Frequency range	1550 - 1620	MHz
GNSS bands	L1/E1/B1/G1	
Patch antenna gain (peak)	~4	dBi
Patch antenna efficiency	~70	%
Patch antenna polarization	RHCP	
LNA gain	30	dB
LNA NF	~2	dB
Output impedance	50	Ω

Table 2-2: Absolute maximum ratings

Parameter	Value	Unit
Input voltage range	-0.3 to 6	V
LNA input RF power	+15	dBm
Operating Temperature	-40 to +105	°C
Storage Temperature	-40 to +150	°C

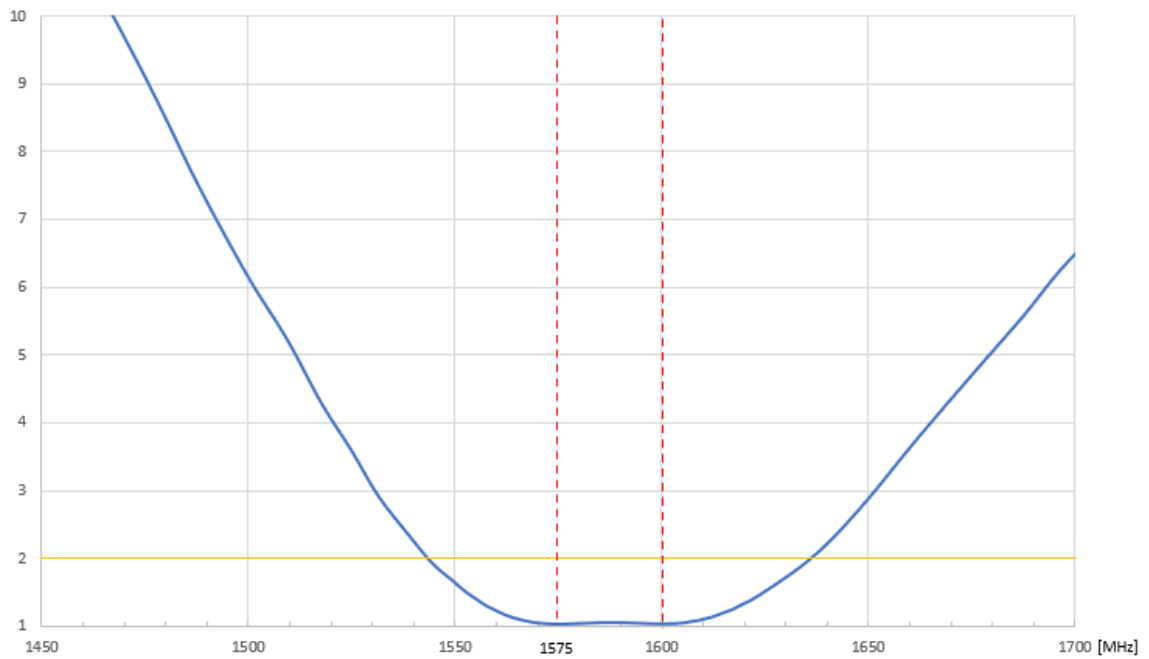


Figure 2-2: Ceramic patch antenna VSWR

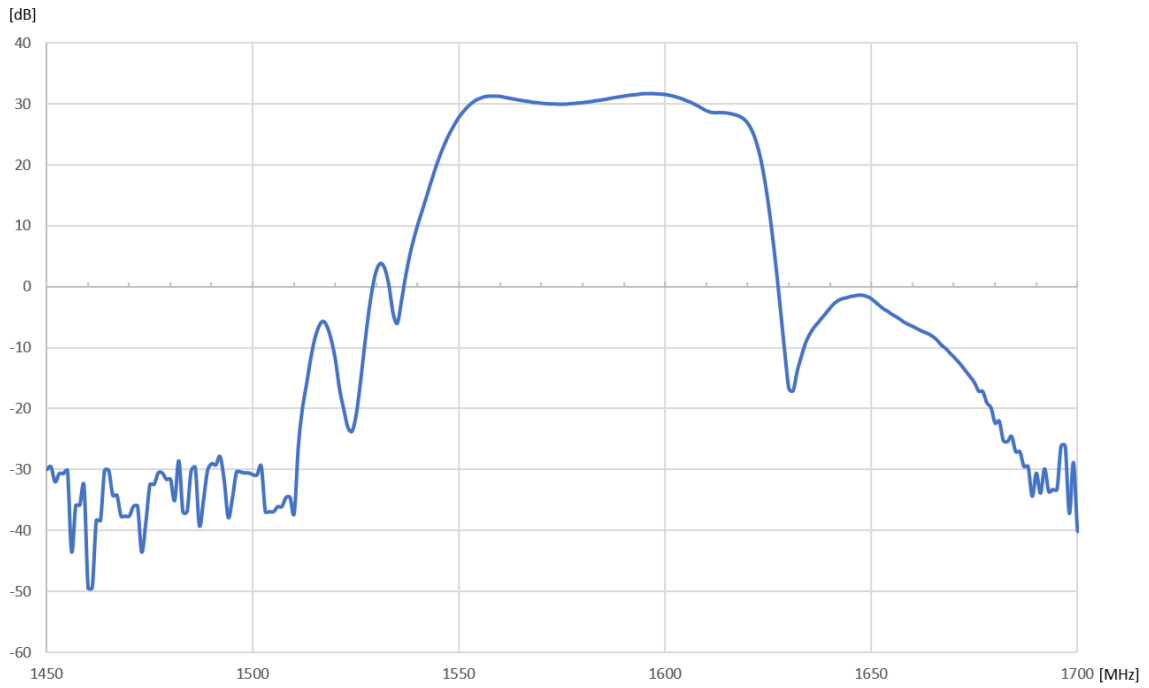


Figure 2-3: LNA gain

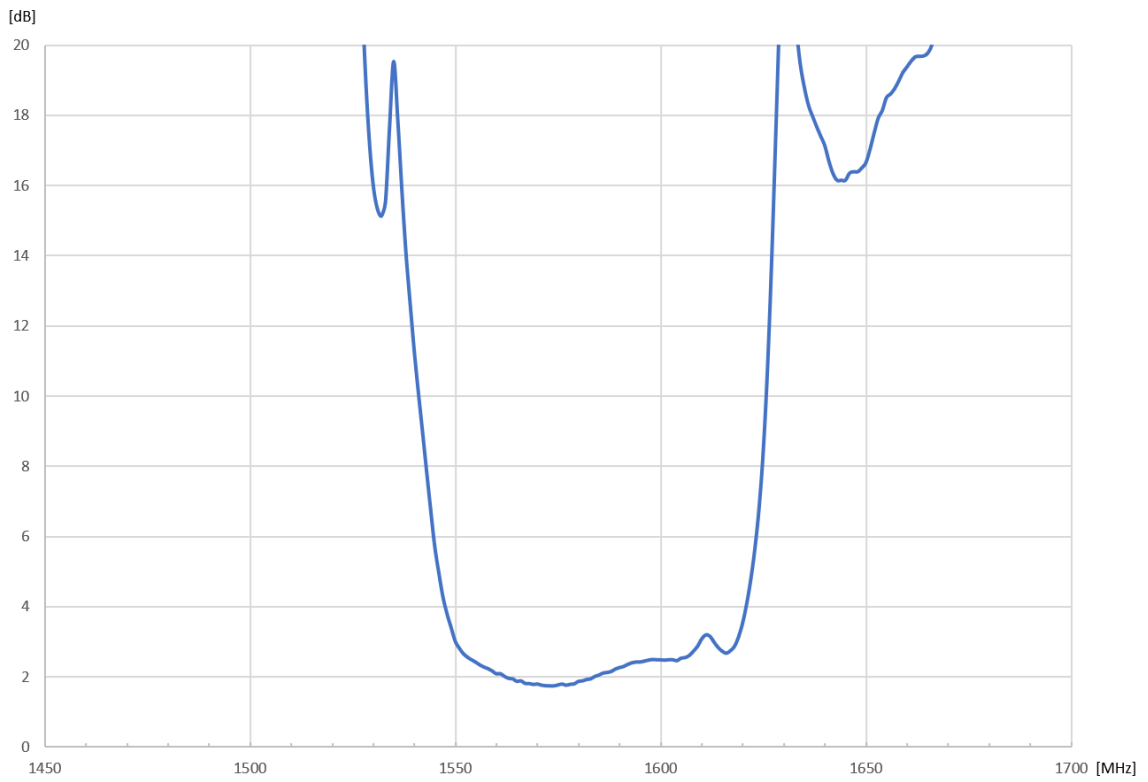


Figure 2-4: LNA noise figure

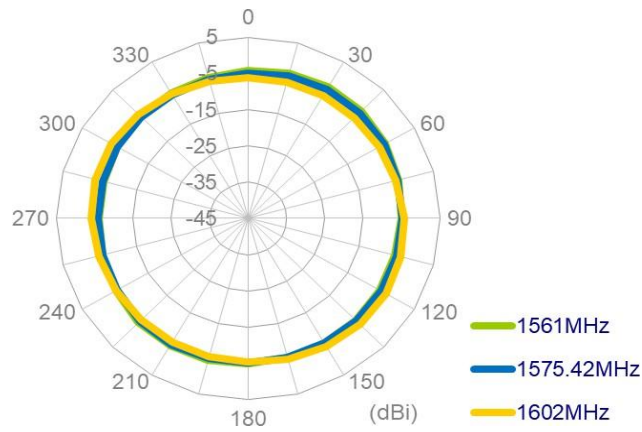


Figure 2-5: XY Plane 2D radiation pattern

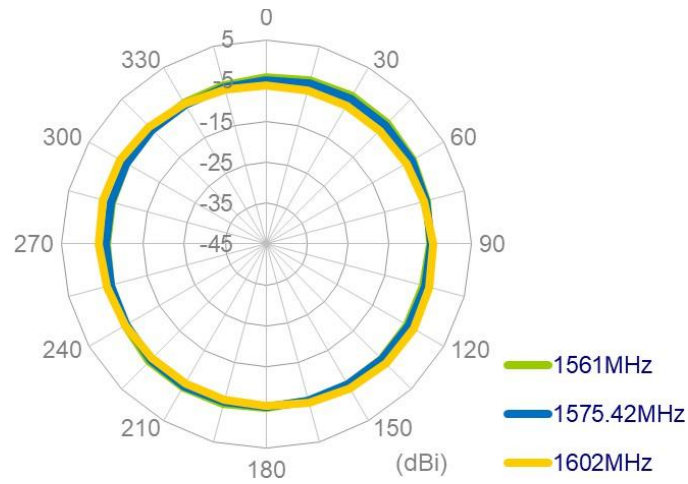


Figure 2-6: XZ Plane 2D radiation pattern

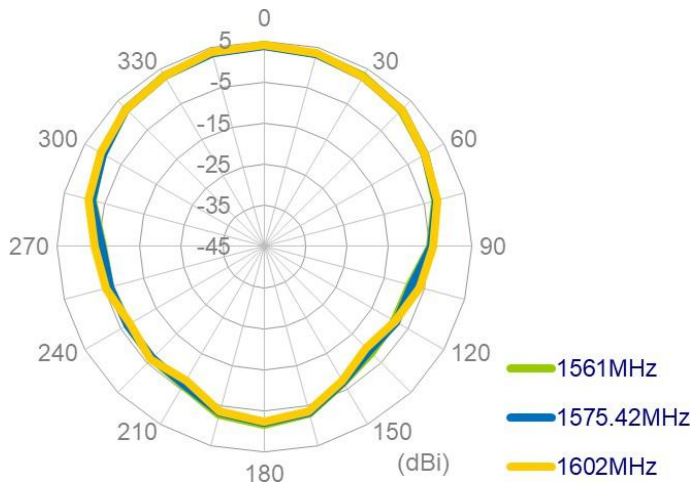


Figure 2-7: YZ Plane 2D radiation pattern

3 INTERFACES

3.1 ELECTRICAL

The Zenith antenna module is equipped with a single 50 Ω RF interface connector, which serves as both the RF signal output and the DC power supply input.

Table 3-1: RF connector reference

Placement	Connector type
On module opt.1	MMCX Molex 73415-1471
Mates with opt.1 (example)	MMCX Molex73415-0950
On module opt.2	Pigtail RG-178 with MMCX Molex 73415-0950 or MMCX Molex 73415-0972
Mates with opt.2 (example)	Molex MMCX 73415-1000

3.2 MECHANICAL

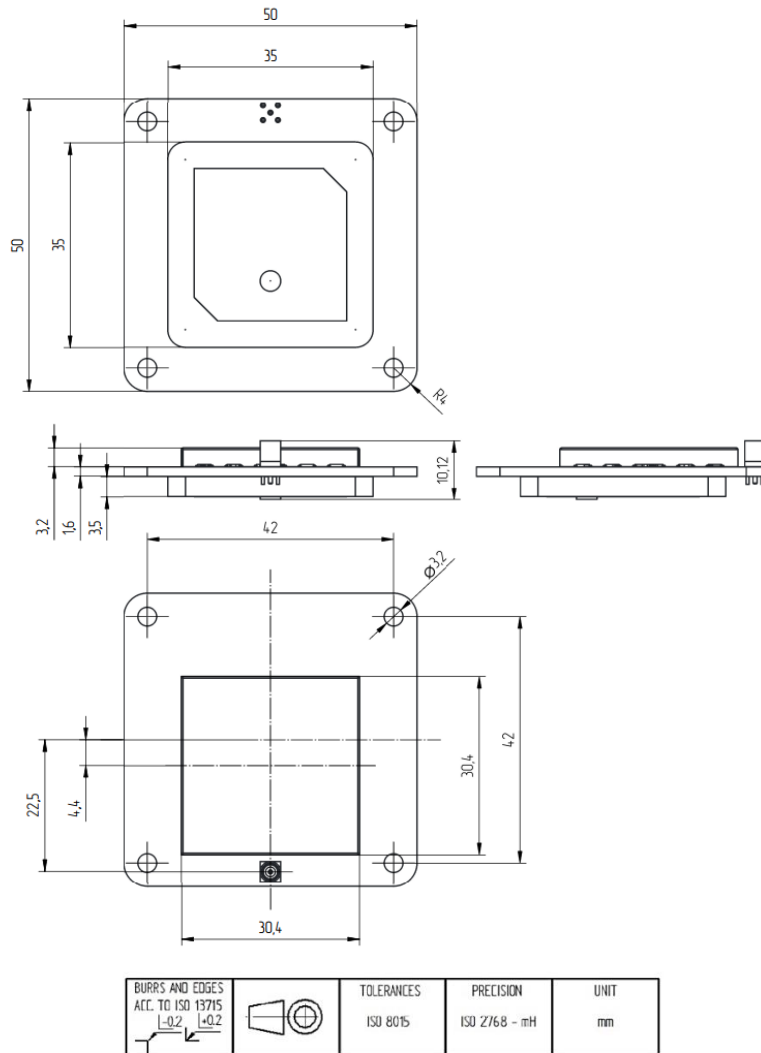


Figure 3-1 Mechanical dimensions

4 DELIVERABLES

Table 4-1: Deliverables

Type	Item	Note
Documentation	Interface Control Document	
Support	Engineering support: 1 hour	

5 RELATED PRODUCTS

You may also be interested in:

- [Celeste the GNSS receiver](#)

6 DISCLAIMER

Spacemanic shall not be liable for any damages, losses, delays, or other consequences arising from improper use, unauthorized modifications, or incompatibility of the product with other systems, even in cases where these products are deployed in demanding environments such as satellite or space applications. The product is designed for specific use according to the technical specifications outlined in the official documentation, and the company is not responsible for any issues arising from usage beyond this scope.

The company is also not liable for damages caused by external factors that cannot be predicted or controlled, including but not limited to infrastructure failures, space conditions (e.g., radiation, microgravity), natural disasters, human error, unauthorized third-party interference, or unplanned changes in regulatory or legal requirements.

By using the product, the user acknowledges awareness of the risks associated with its use in satellite and space applications and accepts full responsibility for the correct deployment and use of the product.