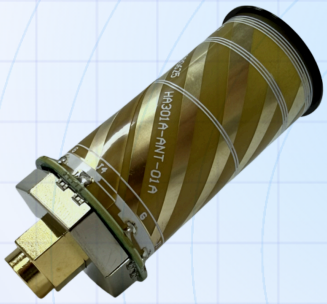
SP TECHNOLOGY

PRODUCT DATASHEET



ACTIVE GNSS HELICAL

AQUILA

Active Quadrifilar Helical GNSS Antenna (No Enclosure)

CZ0068-6G01

BANDS	LNA GAIN	CONNECTOR	HOUSING
L1 / L2 / L5 / L6 / L-band	33 dB typical	SMA Male	None

L2 / L5 / L6	1164 to 1300 MHz	Covers GPS L5, L2; Galileo E5a, E5b, E6; BeiDou B2a, B2b, B3; GLONASS G2, G3
L1 / L-BAND	1525 to 1615 MHz	Covers GPS L1, Galileo E1, BeiDou B1, B1C, GLONASS G1, SBAS, L-band corrections

Key Features

- GPS, GLONASS, BDS, Galileo: L1 L2 L5 L6
- L band correction services (1525 to 1559 MHz)
- RHCP, low axial ratio, ground plane independent
- 33 dB LNA, 3 to 15 V
- SMA male connector, no enclosure

Synzen Precision Technology Ltd
Taipei, Taiwan · www.synzen.com.tw · sales@synzen.com.tw

2026
Rev B

1 Introduction

AQUILA is a high-performance active Quadrifilar Helical Antenna (QHA) designed for applications that require reliable, multi band precision. Its compact form integrates a tightly engineered RHCP helix, providing stable phase characteristics and dependable gain across all major global navigation satellite systems. AQUILA supports GPS L1 L2 L5, GLONASS L1 L2 L3, BDS B1 B2 B3, and Galileo E1 E5 E6, ensuring robust performance in environments where signal conditions vary. An integrated low noise amplifier enhances sensitivity and improves signal acquisition, delivering consistent results where weaker antennas may lose lock. When compared with competing helical GNSS designs from established brands, AQUILA demonstrates wideband capability, strong RHCP purity, and stable electrical performance across all supported bands.

Features

- Multi constellation reception for GPS, GLONASS, BDS, and Galileo
- Wideband support for L1 L2 L5, E1 E5 E6, B1 B2 B3, G1 G2 G3 for RTK and PPP
- Covers L band correction services (1525 to 1559 MHz)
- RHCP polarization with low axial ratio
- Ground plane independent
- Integrated low noise amplifier with 33 dB typical gain
- DC input range from 3 to 15 V
- Compact helix structure for stable phase center performance
- SMA male connector
- Operating temperature from -40°C to +85°C

Applications

- High precision GNSS receivers
- Survey and mapping equipment
- Precision agriculture systems
- Industrial timing and synchronization
- UAV, robotics, and autonomous platforms
- Asset tracking and fleet positioning

2 Mechanical Specifications

Part Number	CZ0068-6G01
Name	AQUILA (No Enclosure)
Dimensions (mm)	54.0 × Ø 24.0
Weight	8 g (typical)
Antenna Type	Quadrifilar Helical GNSS Antenna
Connector*	SMA Male
Housing	None

**Alternate cable length and connectors available on request*

3 Electrical / RF Specifications

Band	Frequency Range (MHz)	Peak Gain (dBic)	Out of Band Rejection (dB)	Axial Ratio	Impedance
L5, L2, E5a, E5b, E6, B2a, B2b, B3, G2, G3	1164 to 1300	**>2.00**	>35 below 1050 MHz	**≤1.5**	**50 Ω**
L1, E1, B1, B1C, G1, SBAS, L band corrections	1525 to 1615		>35 at 1700 to 1800 MHz, >40 above 1800 MHz		

4 LNA Specifications

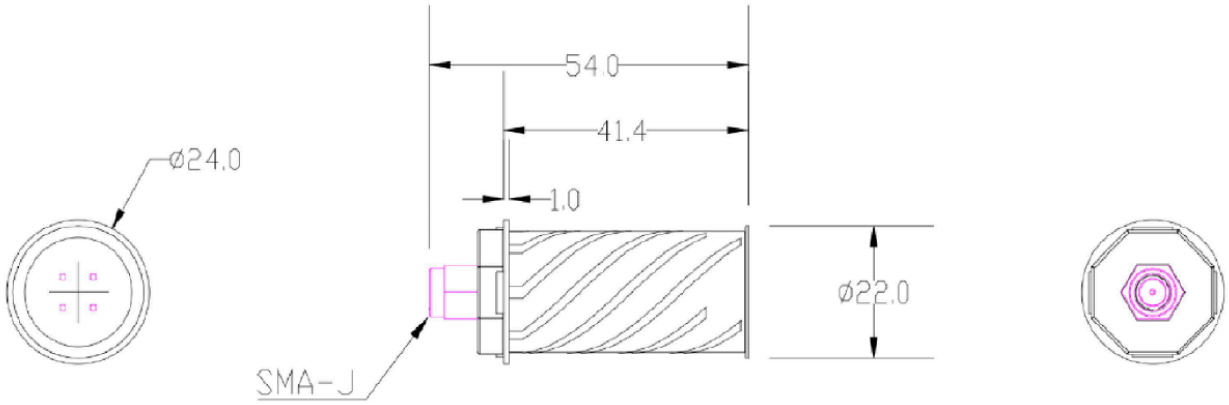
Frequency Range (MHz)	DC Voltage (V)	Current (mA) Typical	Gain (dB) Typical	VSWR	Noise Figure (dB)
1164 to 1300	**3 to 15**	**20**	**33**	**≤2.00**	**≤2.00**
1525 to 1615					

First stage LNA input P1dB: -5 dBm (3 V supply)

5 Environmental

Operational Temperature	-40 to +85°C
Storage Temperature	-40 to +85°C
Relative Humidity (Storage)	65 ±20% RH
RoHS and REACH compliant	Yes

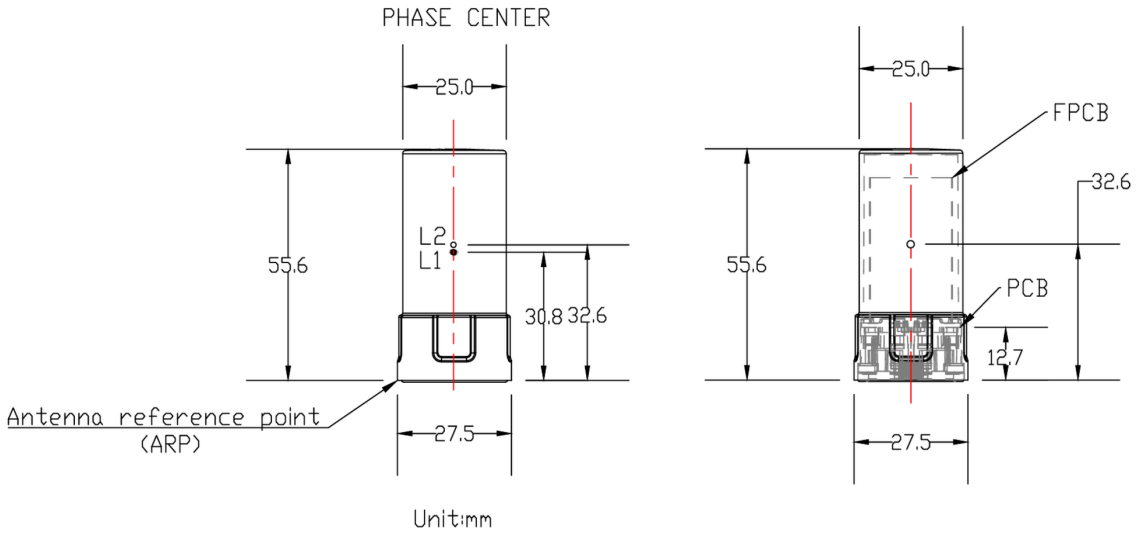
6 Mechanical Drawing



All dimensions in mm. Sizes marked * are critical; values in ( ) are for reference.

7 Phase Centre Reference

The antenna phase centre is located on the mechanical axis as defined in the associated mechanical drawing. Due to the quadrifilar helical structure, the phase centre behaviour is inherently stable across elevation angles.

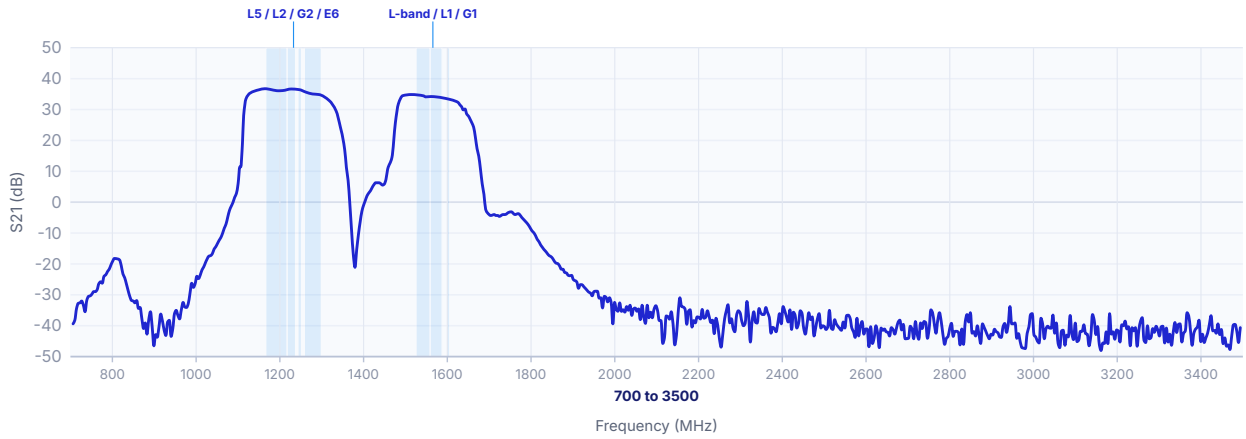


Unit: mm

8 LNA Gain (S21) and Output VSWR (S22)

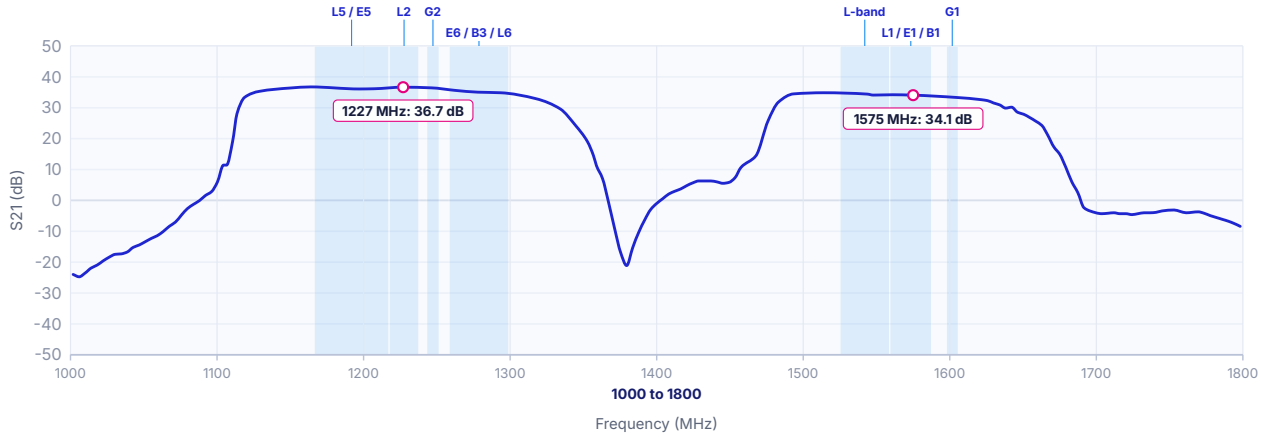
LNA gain, S21: full range

700 to 3500 MHz



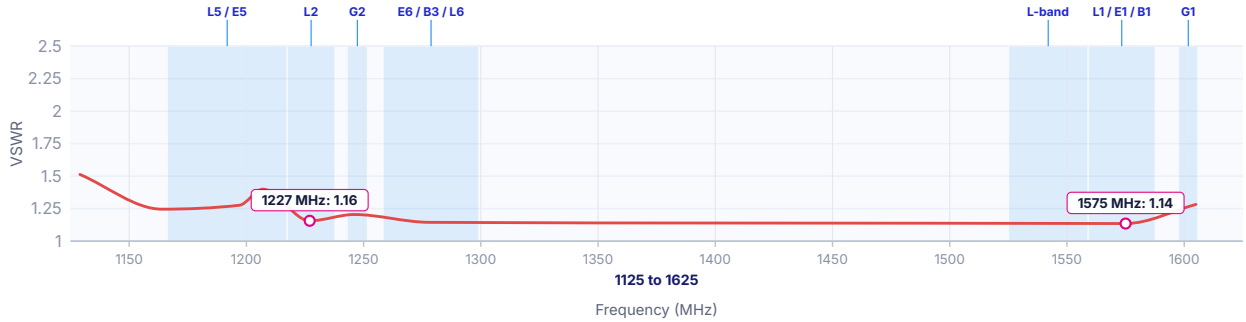
LNA gain, S21: close up

1000 to 1800 MHz



Output VSWR, S22

1125 to 1625 MHz



Shaded: L5 / E5a / E5b / B2 / G3 1166 to 1217, L2 1217 to 1238, G2 1243 to 1252, E6 / B3 / L6 1258 to 1299, L-band corrections 1525 to 1559, B1 / L1 / E1 1559 to 1588, G1 1598 to 1606 MHz.

9 Packaging

- Antennas packed in PE bag (1 per bag)
- Bulk: units individually bagged and boxed; standard carton quantity: 50

10 Compliance

ROHS
Compliant
Conforms to EU RoHS Directive 2011/65/EU as amended by Delegated Directive (EU) 2015/863.

REACH
Compliant
Conforms to EU REACH Regulation (EC) No 1907/2006.

CERTIFICATE
On request
A certificate of conformance is available upon request from sales@synzen.com.tw.

Synzen Precision Technology Ltd makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Synzen reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.