



DATASHEET

AQUILA LITE | SZA-N-5G51 | Active Quadrifilar Helical GNSS Antenna

Features:

GNSS: 1164-1278; 1525-1615MHz

>2.0dBi Peak Gain
35dBm LNA Gain

Dimensions: 40.8 x 43.5Ø mm
Connector: SMA
RoHs Compliant

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Introduction

AQUILA LITE is a compact, high performance Active Quadrifilar Helical GNSS Antenna designed for applications that demand reliable multi band positioning in a reduced form factor. With a shortened 40 mm body, AQUILA LITE integrates a carefully engineered RHCP helix to deliver stable phase characteristics and consistent gain across all major global navigation satellite systems. It supports GPS L1 L2 L5, GLONASS L1 L2 L3, BDS B1 B2 B3, and Galileo E1 E5 E6, ensuring dependable performance in space constrained designs where signal conditions may vary.

An integrated low noise amplifier improves sensitivity and signal acquisition, maintaining robust GNSS lock even in challenging RF environments. The durable ABS plus PC enclosure and IP67 sealing provide reliable protection for outdoor and industrial applications. Compared with other compact helical GNSS antennas, AQUILA LITE offers wideband capability, strong RHCP purity, and stable electrical performance, now delivered in a lighter, shorter mechanical form.

FEATURES

- Multi constellation reception for GPS, GLONASS, BDS, and Galileo
- Wideband support for L1 L2 L5, E1 E5 E6, B1 B2 B3
- RHCP polarization with low axial ratio
- Integrated low noise amplifier with 35 dB typical gain
- DC input range from 3 to 15 V
- Compact helix structure optimized for reduced length designs
- SMA male connector
- ABS plus PC radome with IP67 protection
- Operating temperature from minus 45°C to plus 85°C

APPLICATIONS

- Compact high precision GNSS receivers
- Asset tracking and fleet positioning
- Automotive and industrial navigation systems
- Outdoor and industrial IoT devices
- UAV, robotics, and autonomous platforms
- Survey, monitoring, and timing applications

Mechanical Specifications

Parameter	
Part Number	SZA-N-5G51
Name	AQUILA LITE
Dimensions (mm)	40.8 x 43.5 Ø
Weight (g)	<32
Antenna Type	Active Quadrifilar Helical
Connector Type	SMA Male
Housing Material	ABS + PC

Electrical / RF Specifications

Antenna

Band	Frequency Range (MHz)	Peak Gain (dBi)	Out-of-band Rejection	Impedance	Axial Ratio
L5, E5a, E5b, E5, B2a, B2b, B2, L2, L2, E6	1164-1278	>2.00	>35	50 Ω	≤1.5
L1, E1, B1, G1, L band (SBAS), B1C, E2-L1-E	1525-1615	>2.00	>40		

Phase Centre Characteristics

Phase Centre Reference	Mechanical axis (see drawing on page 5)
Phase Centre Variation (PCV)	Typical ≤ ±3mm

LNA

Frequency Range (MHz)	Gain (dB) Typical	Noise Figure	DC Voltage (V)	Current Consumption Typ. (mA)	VSWR
1164-1278	35±3.0	≤2.00	3 - 15	25	≤2.00
1525-1615	35±3.0	≤2.00			

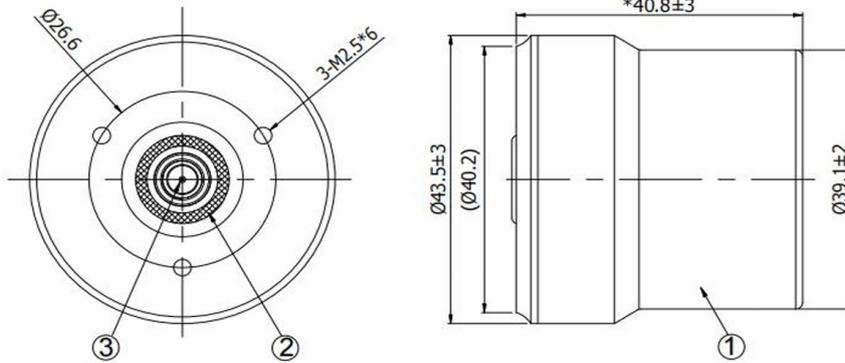
Environmental

Parameter	
Operational Temperature	-45 to +85°C

Storage Temperature
 Relative Humidity (Storage)
 IP Rating
 RoHs and REACH compliant

-45 to +85°C
 65±20% RH
 IP67
 Yes

Mechanical Drawing



1.ELECTRICAL PROPERTIES :

- 1.1 Frequency Range.....1164~1278MHz&1525~1615MHz
- 1.2 Impedance.....50 Ohm Nominal
- 1.3 VSWR.....2.0(Max)
- 1.4 LNA Gain.....35±3dB
- 1.5 DC Voltage.....3~15V

2.Waterproof:IP67

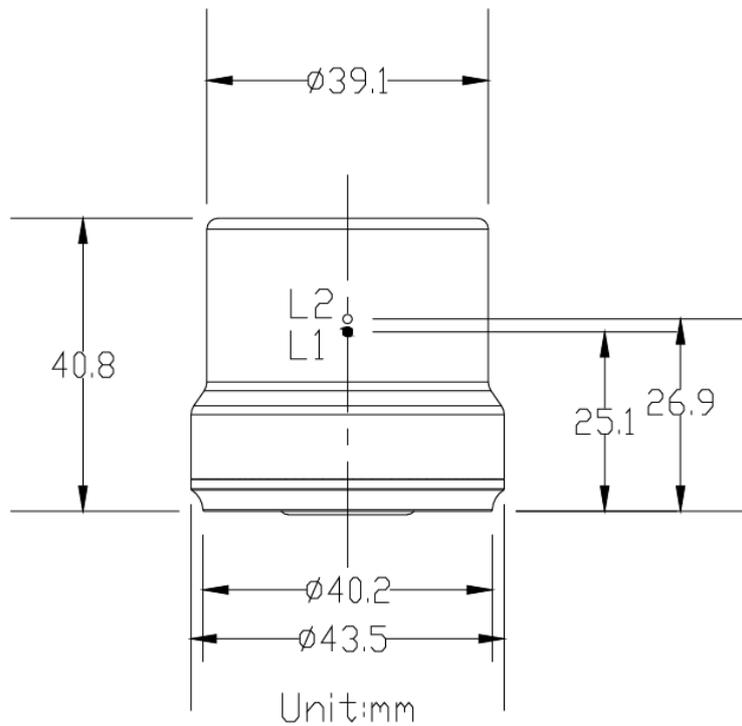
- 3.These Products are in conformity with ROHS 2.0
- 4.Connector complied with the 48-hour salt spray test
- 5.Important dimensions marked "*"and () for reference

UNIT
mm

3	Connector	SMA, Male Connector, Silver Plated	1
2	O-Ring	Rubber, Black	1
1	Antenna-Cover	PC+ABS, Black	1
NO	DESCRIPTION		Q'TY

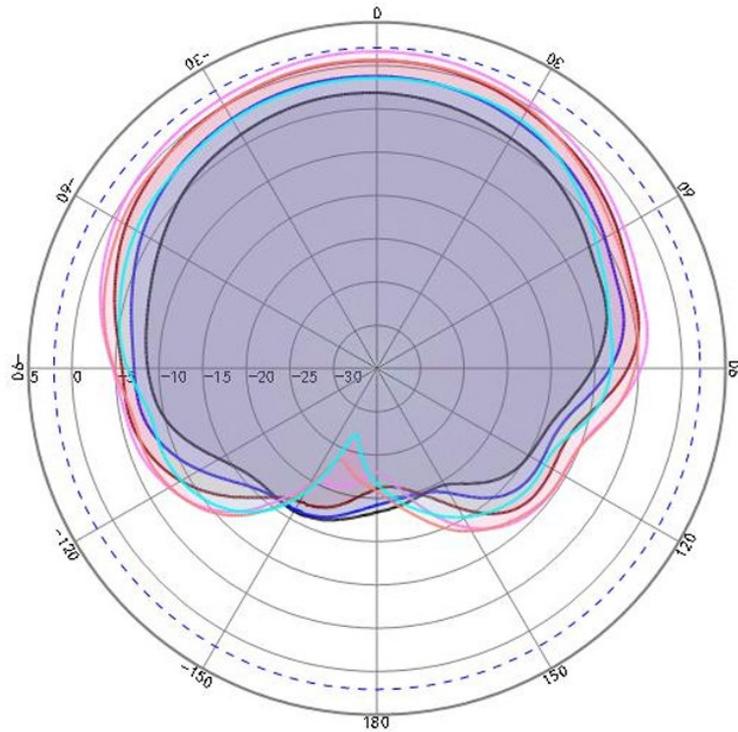
Phase Centre Reference

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.



Radiation Patterns and Polarization Characteristics

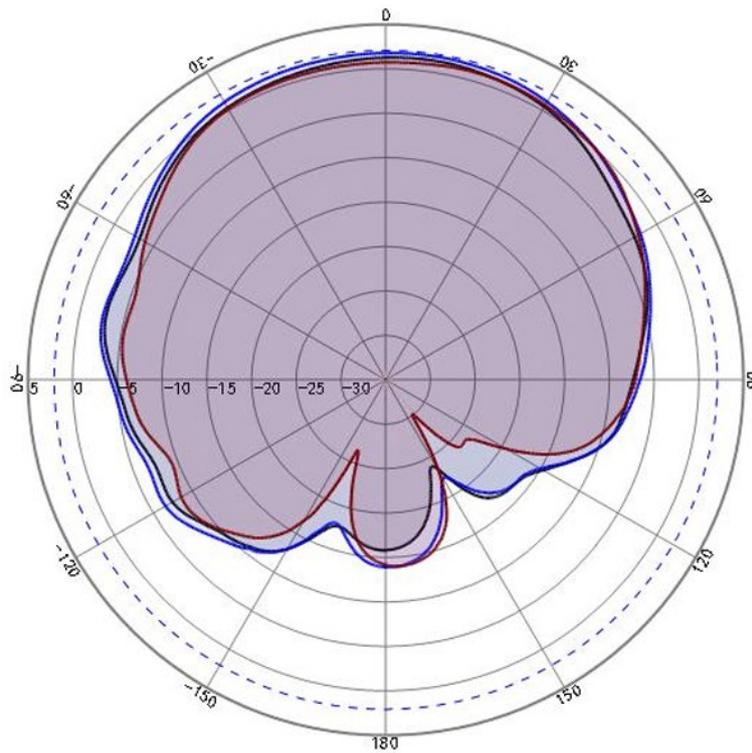
Elevation Radiation Pattern @ L2 ($\phi = 0^\circ$)



Passive Antenna Vertical Plane Radiation Pattern @ L2

Frequency (MHz)	Polarization	Peak Gain (dBi)	HPBW (3dB) (Deg)
1176	RHCP	-1.3	112
1192		0.6	109
1207		2.3	114
1227		3.1	108
1246		2.4	107
1268		0.5	119

Elevation Radiation Pattern @ L1 ($\phi = 0^\circ$)

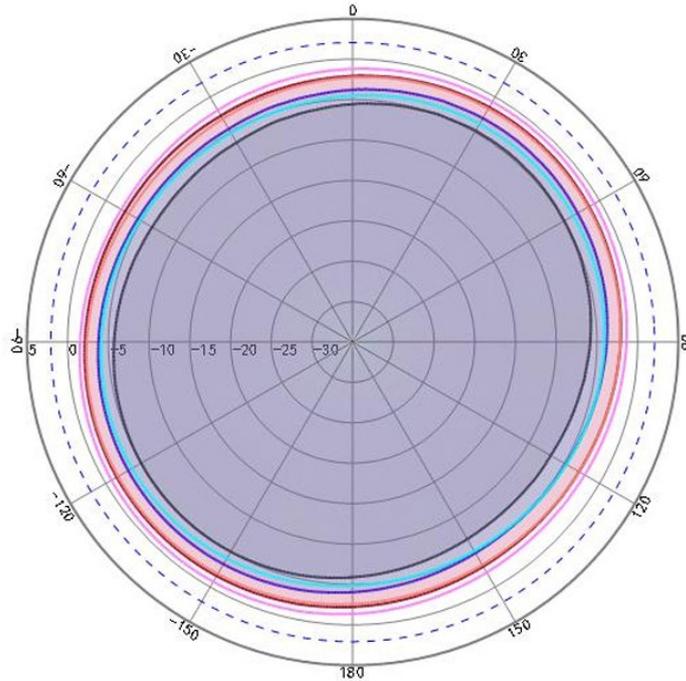


Passive Antenna Vertical Plane Radiation Pattern @ L1

Frequency (MHz)	Polarization	Peak Gain (dBi)	HPBW (3dB) (Deg)
1561	RHCP	2.6	108
1575		2.9	107
1602		2.9	94

Azimuth Radiation Pattern @ L2 ($\theta = 90^\circ$)

Azimuth radiation pattern shown to illustrate radiation uniformity around 360 degrees



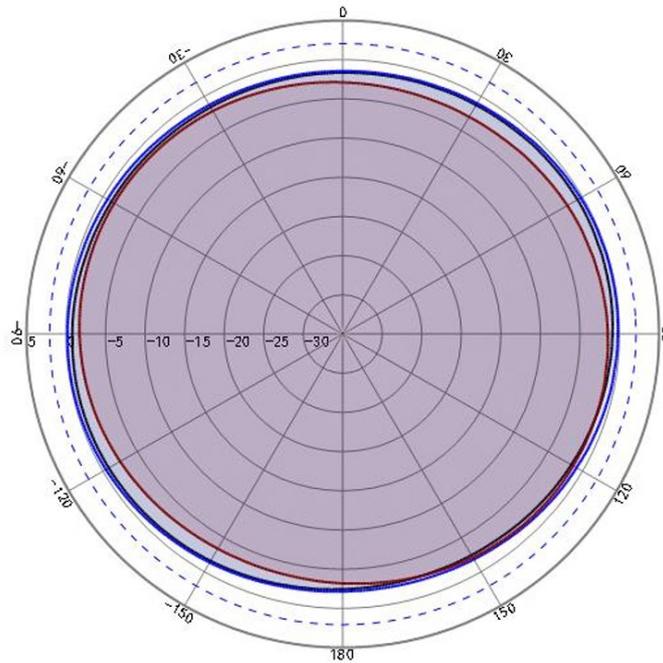
RHCP Circularity in Azimuth Plane @ L2

Frequency (MHz)	Circularity (dB)
1176	1.2
1192	1.0
1207	0.9
1227	0.8
1246	0.9
1268	0.8

Circularity values represent RHCP polarization uniformity in the azimuth plane. Lower values indicate improved circular polarization performance.

Azimuth Radiation Pattern @ L1 ($\theta = 90^\circ$)

Azimuth radiation pattern shown to illustrate radiation uniformity around 360 degrees



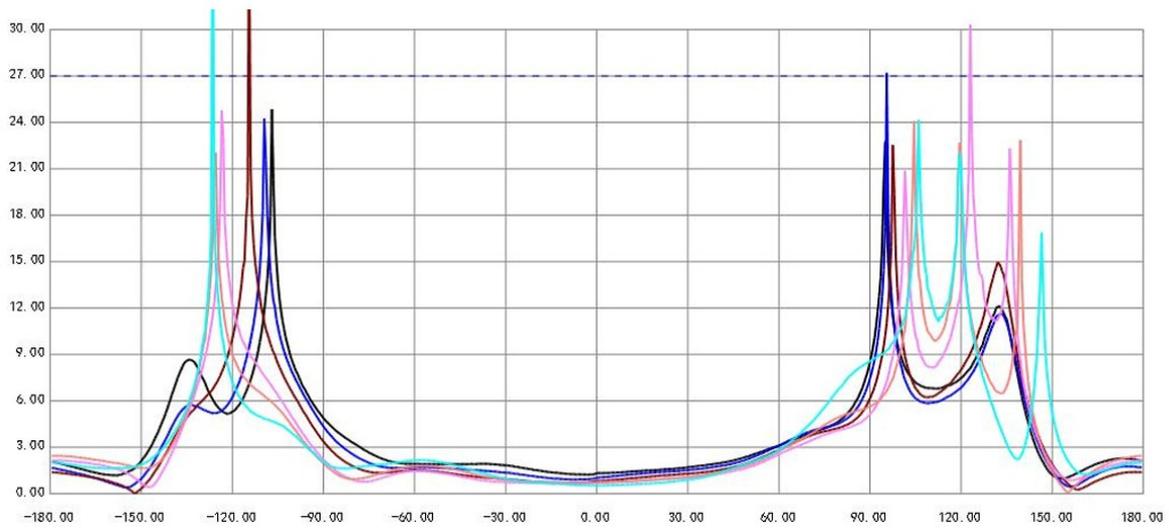
RHCP Circularity in Azimuth Plane @ L1

Frequency (MHz)	Circularity (dB)
1561	1.2
1575	1.2
1602	1.2

Circularity values represent RHCP polarization uniformity in the azimuth plane. Lower values indicate improved circular polarization performance.

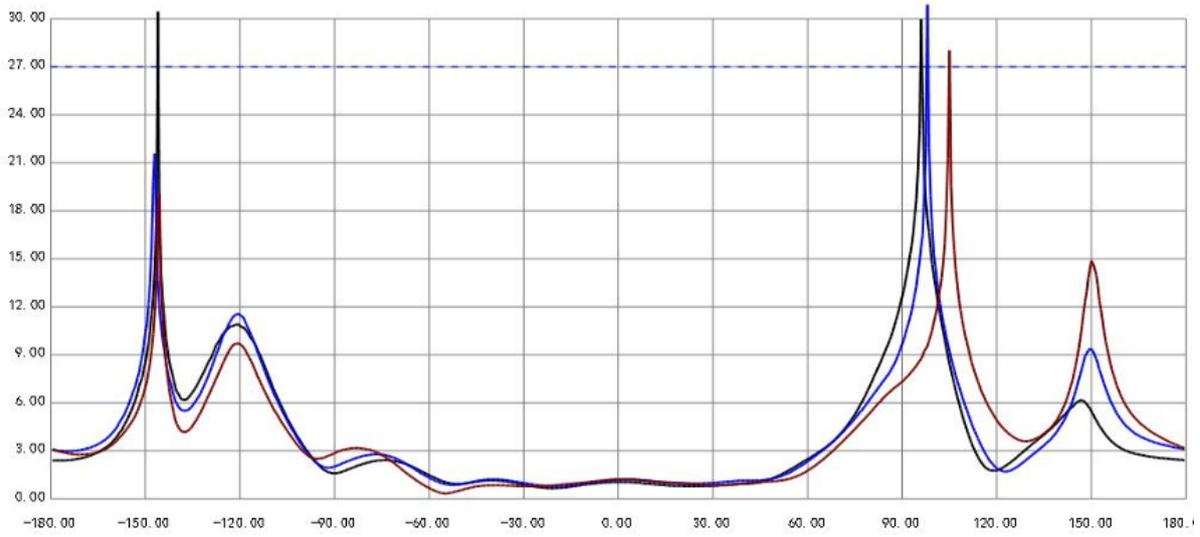
Axial Ratio

Axial Ratio at Zenith @ L2



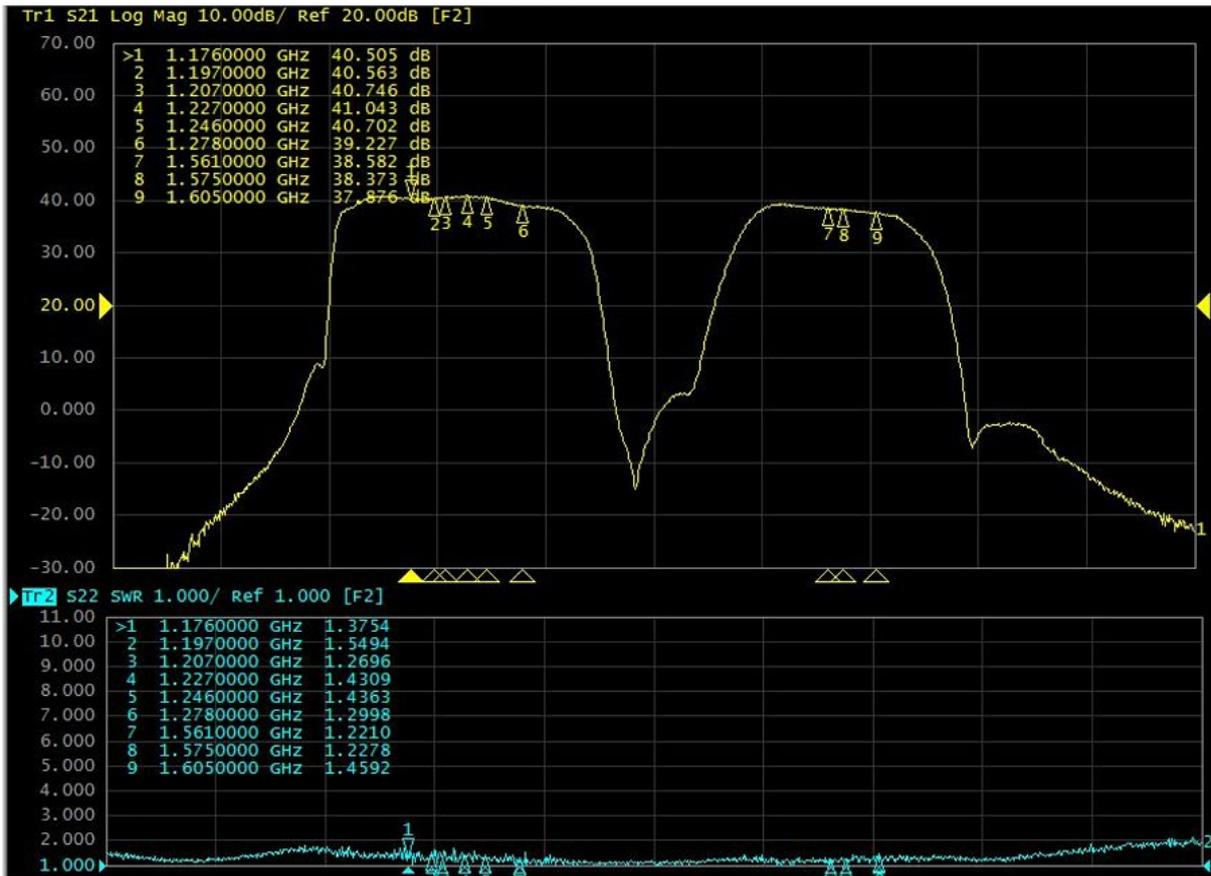
Frequency (MHz)	Axial Ratio at Zenith (dB)
1176	1.3
1192	1.0
1207	0.8
1227	0.7
1246	0.7
1268	0.5

Axial Ratio at Zenith @ L1



Frequency (MHz)	Axial Ratio at Zenith (dB)
1561	1.0
1575	1.1
1602	1.2

LNA Gain / VSWR



Packaging

Antennas packed in PE bag (1 per bag)

Bulk (units individually bagged and boxed; standard carton quantity: 50)

Material Regulation

The antenna has been assessed to conform to RoHS requirements. A certificate of conformance is available upon request.



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