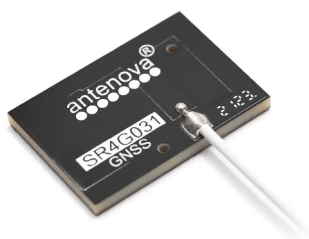


DATASHEET

Robusta

SR4G031 • Reflector



Features

- REFLECTOR Technology
- Antenna for GNSS applications
- GPS, GLONASS, Beidou and Galileo
- Maintains high performance within device: DFI (Designed For Integration)
- 1.13mm diameter RF cable with IPEX MHF connector
- Self-Adhesive mounted
- Quick integration minimizes design cycle
- High performance
- Available in 2 standard cable lengths

1. Description

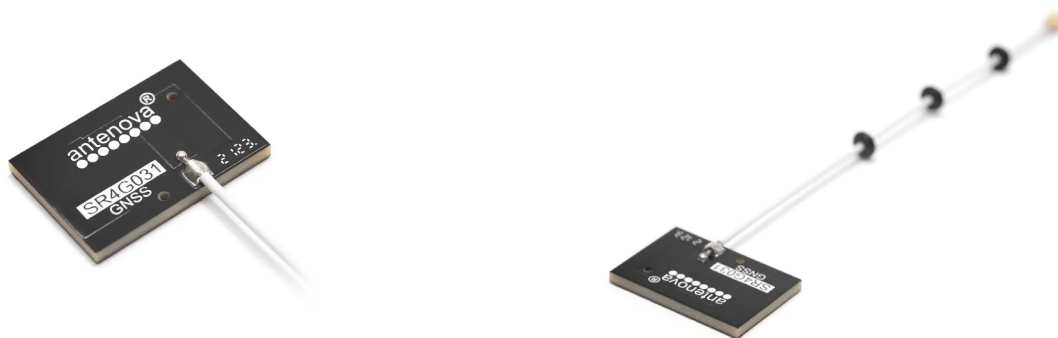
The Robusta antenna is intended for use with all positioning applications. It is a rigid antenna with a cable that enables direct connection to the host device (Plastic/Metal/PCB). This antenna can be placed against any material and will not detune. It is designed for simple integration with plug and play simplicity. This product specification shows the performance of the antenna covering the frequency range: 1559 - 1609 MHz.

2. Applications

- Trackers
- Portable Devices
- Drones
- Wearable devices

3. Part number

SR4G031-xxx



Note. -xxx refers to cable length option:

Part number	Cable Length
SR4G031-100	100mm
SR4G031-150	150mm

4. General data

Frequency	1559 – 1609 MHz
Polarization	Linear
Operating Temperature	-40°C to +85°C
Environmental Condition Test	ISO16750-4 5.1.1.1/5.1.2.1/5.3.2
Impedance with Matching	50 Ω
Weight	< 0.5g
Antenna Assembly type	FR4 Self-adhesive (3M 468MP)
Dimensions	23.0 x 16.0 x 1.6 (mm)
Cable length	100 / 150 (mm)
Connection	MHF IPEX

5. RF characteristics

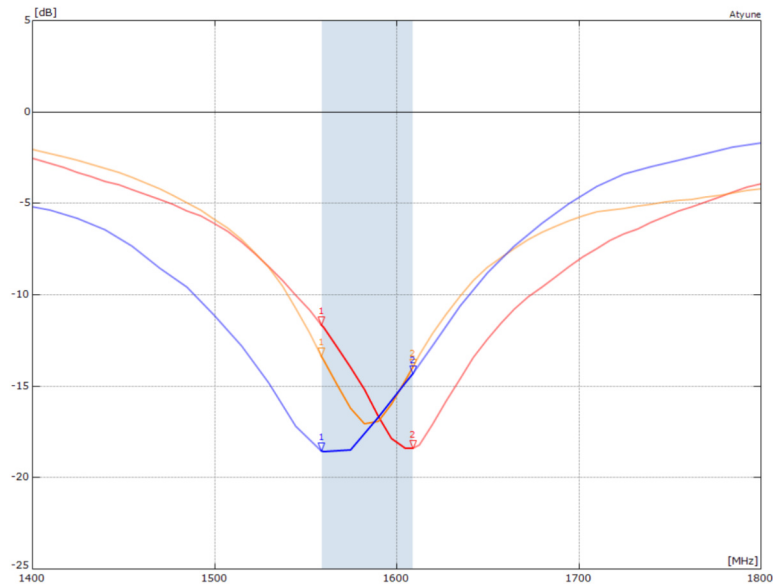
The RF characteristics are shown with the antenna placed in three scenarios:

- 1) Placed on a metal surface (RF GND Plane)
- 2) In free space
- 3) Placed on a metal surface (Floating unconnected copper)

1559-1609MHz			
	Metal (RF GND) 	Free space 	Metal (Floating) 
Peak gain	3.80dBi	2.45dBi	3.60dBi
Average gain	-3.00dBi	-2.45dBi	-3.00dBi
Average efficiency	>50%	>55%	>50%
Maximum return loss	<-11.0dB	<-13.0dB	<-13.0dB
Maximum VSWR	1.70:1	1.60 0:1	1.55:1

6. RF performance

6.1. Return loss

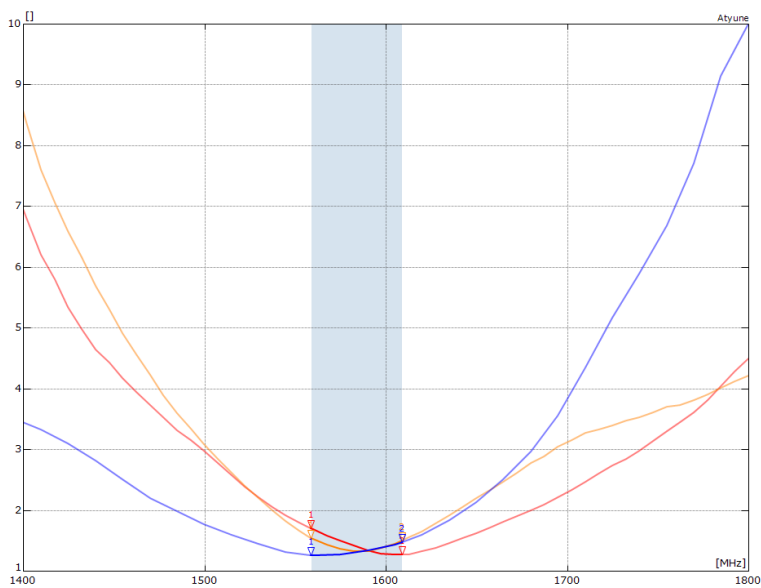


Placed on Metal surface (RF GND Plane)

Free space

Placed on metal surface (Floating unconnected copper)

6.2. VSWR



Placed on Metal surface (RF GND Plane)

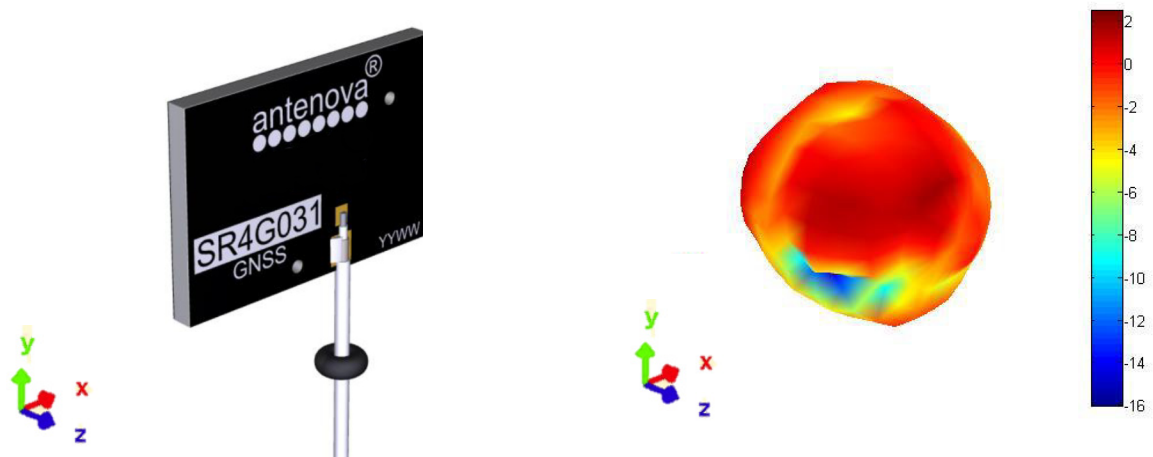
Free space

Placed on metal surface (Floating unconnected copper)

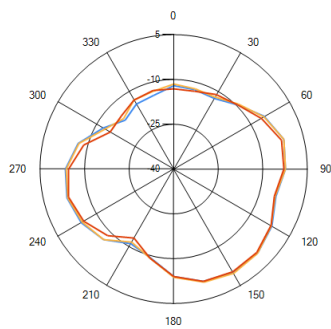
6.4. Antenna pattern free space

6.4.1. 1559MHz - 1609MHz

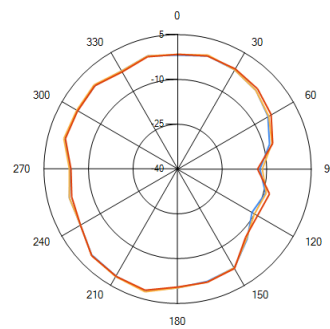
3D pattern at 1575.4 MHz



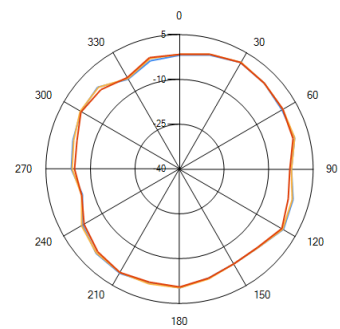
XY



XZ

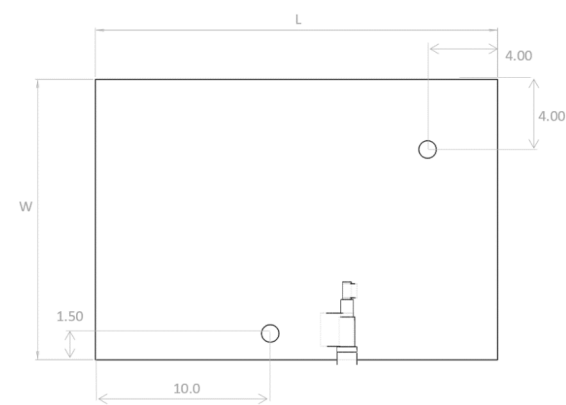


YZ



— 1.56GHz — 1.575GHz — 1.605GHz

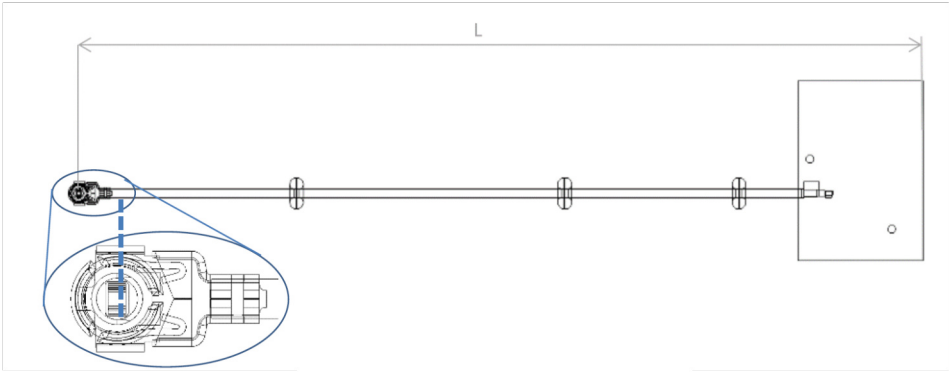
7. Antenna dimensions



L	W	T
Length	Width	Thickness
23.0 ±0.2mm	16.0 ±0.2mm	1.6mm nominal

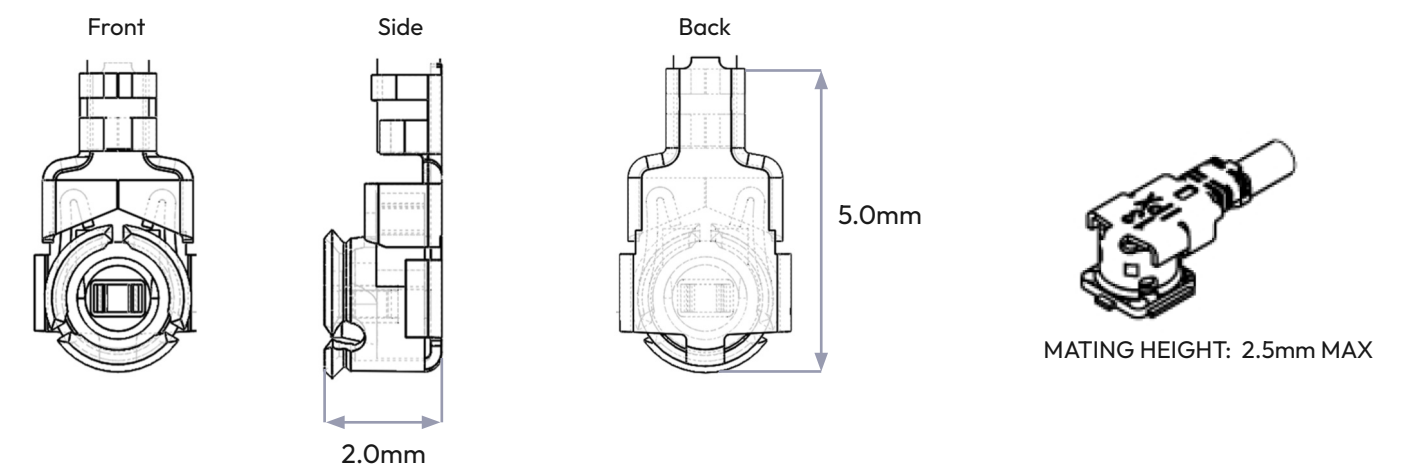
All dimensions in (mm)
2 Holes = 1mm Ø (diameter)

7.1. Dimensions assembled



SR4G031-100	SR4G031-150
L	L
108 ±2.0 mm	158 ±2.0 mm

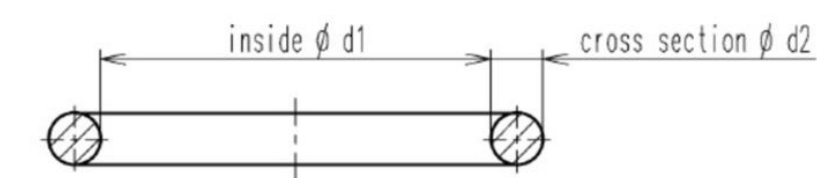
7.2. I-PEX connector MHF1 (20278-112R-13)



I-PEX	
Material	Copper alloy
Plating	Ag

All dimensions in (mm)

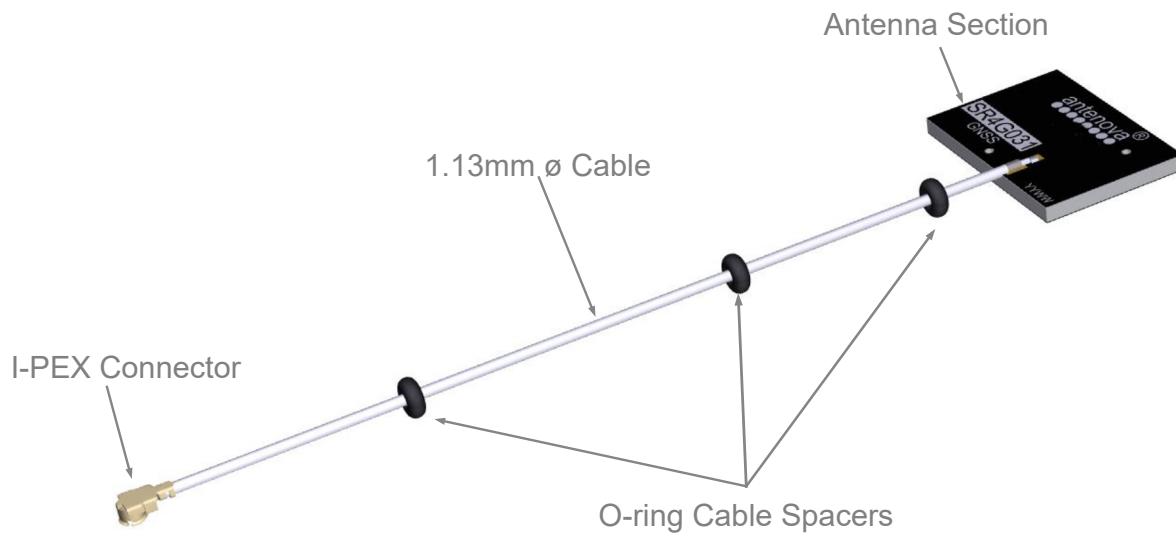
7.3. O-ring spacer



d1	d2
1.02 ±0.1	1.78 ±0.08

All dimensions in (mm)

7.4. Assembly



8. Electrical interface

8.1. Host interface

The host PCB requires the mating connector which is the IPEX MHF (UFL) receptacle. The location should be close to the chip/modules pin for the RF. Any feed from this receptacle should be maintained at 50 Ω impedance.

8.2. Transmission line

All transmission lines should be designed to have a characteristic impedance of 50 Ω .

- The length of each transmission lines should be kept to a minimum
- All other parts of the RF system like transceivers, power amplifiers, etc, should also be designed to have a 50 Ω impedance

A co-planar transmission line can be designed using an online transmission line calculator tool, such as:

<https://blog.antenova.com/rf-transmission-line-calculator>

The PCB thickness, copper thickness and substrate dielectric constant are entered, then the tool calculates the transmission line width and gaps on either side of the track to give a 50 Ω impedance.

9. Mechanical fixing

The antenna uses 3M 468MP adhesive on the reverse side of the antenna section. It is designed for a one time fix to a clean smooth surface.

Antenna back side

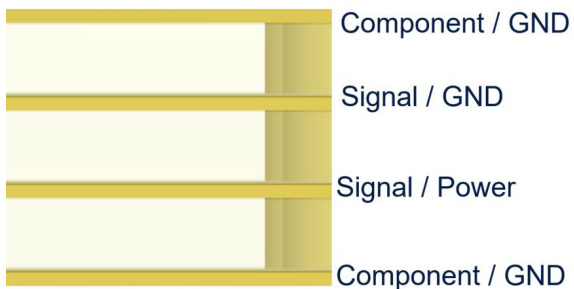


10. Antenna integration guide

We recommend the following during the design phase to maximise antenna performance and minimize noise:

- Minimum 4 layer PCB
- Route signals and power internally where possible
- Flood all layers with ground
- Knit ground on all layers together with plenty of vias

Follow placement guidance carefully, in addition Antenova provide technical support to help you through all stages of your design. Register for an account on <https://ask.antenova.com/> to access technical support.



10.1. Applied surface material

The antenna can be placed on any material and will radiate effectively in the direction away from the material. The performance will vary depending on the type of material or surface used. This antenna is intended for use internally within a device and this simply illustrates the versatility of the antenna.

The material behind the antenna is not critical, which enables it to be used in close proximity in devices that are thin, and it can be placed on a variety of surfaces.

Examples:

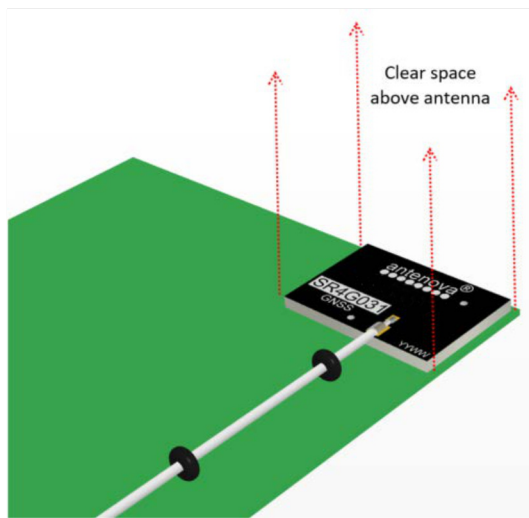
- Wall mounted devices
- Mounting onto metal chassis
- Direct to host PCB
- Devices installed in places where the material is not defined or where it may be any of the above.



10.2. Antenna placement

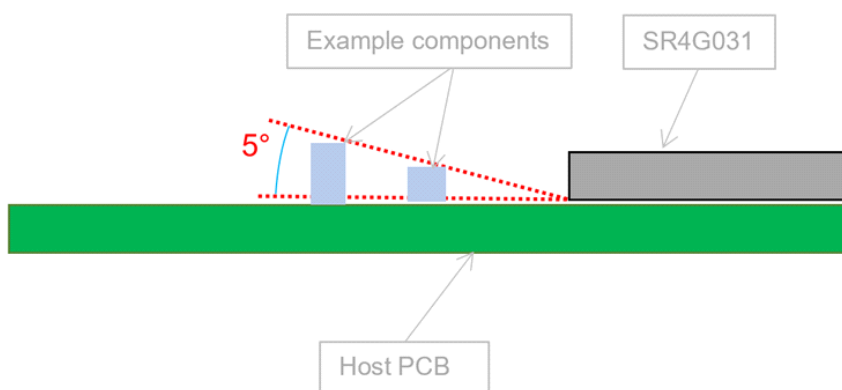
When placing the antenna within a device, the host PCB size is not a factor as with PCB mounted antennas. However, the placement still needs to follow some basic rules, as any antenna is sensitive to its environment.

The top side of the antenna must be clear of all obstructions that are electrically conductive.



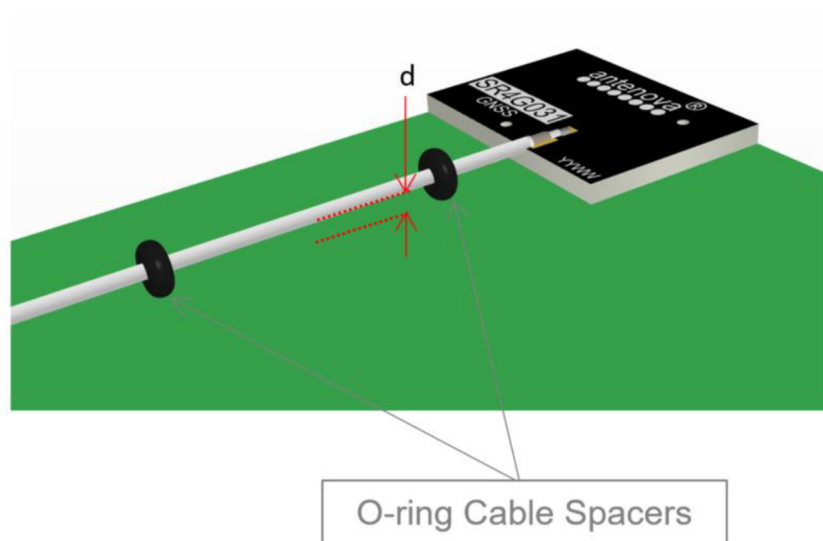
The location within the device should ideally be along any outer edge. The antenna can be in direct contact with any surface.

If the antenna is placed on a PCB, it should be kept a minimum distance away from any other board mounted component. This distance can be defined by projecting a 5° angle from the bottom of the antenna as shown below.



10.3. Cable routing

The cable has three spacers for clearance and to prevent it from being in direct contact with any surface. The distance 'd' is defined by the O-ring (d=1.78mm).



11. Hazardous material regulation conformance

The RF antenna module has been tested to conform to RoHS and REACH requirements. A certificate of conformance is available from Antenova's website.

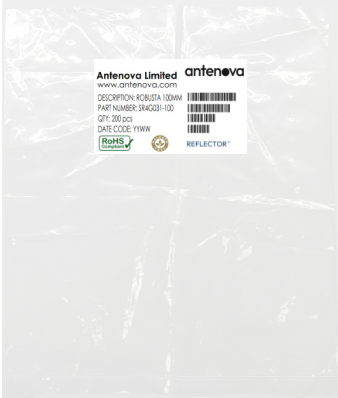
12. Packaging

The antennas are stored in individual plastic (PE) bags. These are stored within a second bag of 100 pieces.

Single antenna per bag



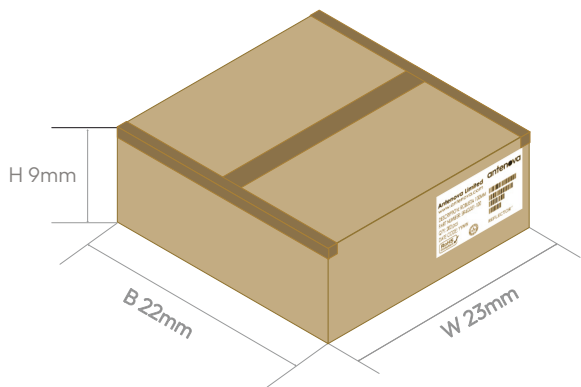
100 units per second bag (labelled)



12.1. Optimal storage conditions

Temperature	-10°C to 40°C
Humidity	Less than 75% RH
Shelf life	18 Months
Storage place	Away from corrosive gas and direct sunlight
Packaging	Antennas should be stored in unopened sealed manufacturer's plastic packaging.

12.2.Box Dimensions



Width(W)	Breadth (B)	Height(H)
23mm	22mm	9mm

12.3. Label information

Antenova Limited

www.antenova.com

DESCRIPTION: ROBUSTA 100MM

PART NUMBER: SR4G031-100

QTY: 200 pcs

DATE CODE: YYWW

RoHS

Compliant

HALOGEN

FREE

antenova

REFLECTOR®

Antenova Limited

www.antenova.com

DESCRIPTION: ROBUSTA 150MM

PART NUMBER: SR4G031-150

QTY: 200 pcs

DATE CODE: YYWW

RoHS

Compliant

HALOGEN

FREE

antenova

REFLECTOR®

Quality statements

Antenova's products conform to REACH and RoHS legislation. For our statements regarding these and other quality standards, please see [antenova.com](https://www.antenova.com).

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Datasheet version

2.01 released 10th June 2026

Antenna design, integration and test resources

Product designers – the details contained in this datasheet will help you to complete your embedded antenna design. Please follow our technical advice carefully to obtain optimum antenna performance.

We aim to support our customers to create high performance wireless products. You will find a wealth of design resources, calculators and case studies to aid your design on our website.

Antenova's design laboratories are equipped with the latest antenna design tools and test chambers. We provide antenna design, test and technical integration services to help you complete your design and obtain the required certifications.

If you cannot find the antenna you require in our product range, please contact us to discuss creating a custom antenna to meet your exact requirements.

Share knowledge with RF Experts around the world

ask.antenova is a global forum for
designers and engineers working with
wireless technology

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