antenova

DATASHEET

Zenon

SR4W030 • Reflector®

Features

- REFLECTOR® Technology
- Antenna for 2.4GHz applications
- Bluetooth®, Wi-Fi®, ZigBee®, ISM
- 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

Note: This product is compatible with Bluetooth® technology but does not incorporate Bluetooth® technology

1. Description

Zenon is intended for use with all Wi-Fi®/Bluetooth®/ISM applications. A rigid antenna with cable enables direct connection to the host device (Plastic/ Metal/PCB). The antenna can be placed against any material and will not detune. Simple integration with plug and play simplicity. This product specification shows the performance of the antenna to cover the frequency range: 2.4-2.5 GHz.

2. Applications

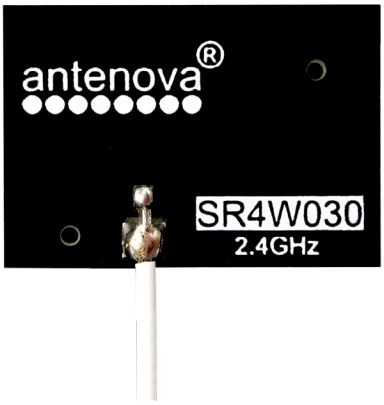
- Smart lighting
- Portable Devices
- Set-Top-Box
- Network Devices
- Wearable devices
- MIMO Systems

3. General data

Frequency	2.4-2.5GHz
Polarization	Linear
Operating temperature	-40°C to +85°C
Environmental condition test	ISO16750-4 5.1.1./5.1.2
Impedance with matching	50 Ω
Weight	<0.5g
Antenna type	FPC Self-adhesive 3M 468MP
Dimensions	23.0 x 16.0 x 1.6 (mm)
Connection	I-PEX MHF1 (20278-112R-13)

4. Part number

SR4W030-xxx



Note. -xxx refers to cable length option:

Part Number	Cable Length
SR4W030-100	100mm
SR4W030-150	150mm

5. RF characteristics

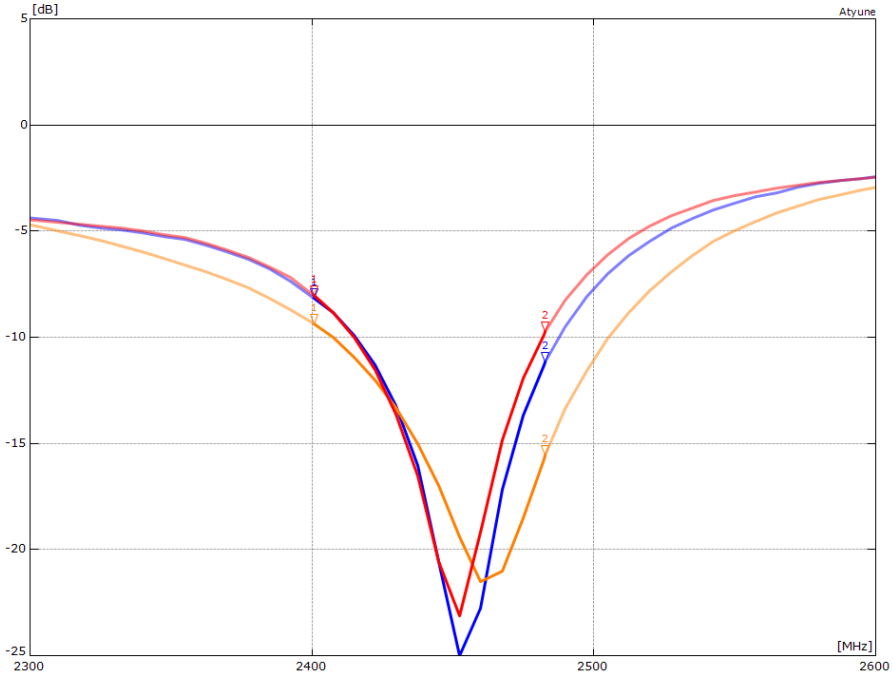
The RF characteristics are shown with the antenna placed in three scenarios:

- Placed on Metal surface (RF GND Plane)
- Free space
- Placed on metal surface (Floating unconnected copper)

Frequency: 2.4-2.5 GHz	Metal (RF GND)	Free space	Metal (Floating)
Peak gain	5.20dBi	2.60dBi	3.30dBi
Average gain	-3.00dBi	-2.50dBi	-3.00dBi
Average efficiency	>50%	>60%	>50%
Maximum return loss	<-8.0dB	<-9.3dB	<-8.0dB
Maximum VSWR	2.30:1	2.00:1	2.30:1

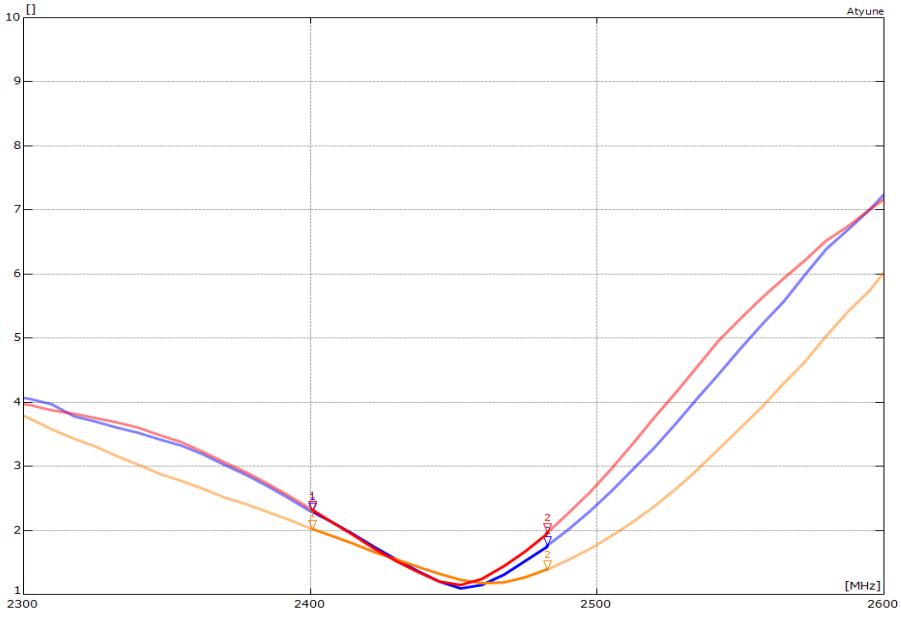
6. RF performance

6.1. Return loss



All data measured on Antenova's evaluation PCB Part No. SRC5G027-EVB-1
Placed on Metal surface (RF GND Plane)
Free space
Placed on metal surface (Floating unconnected copper)

6.2. VSWR

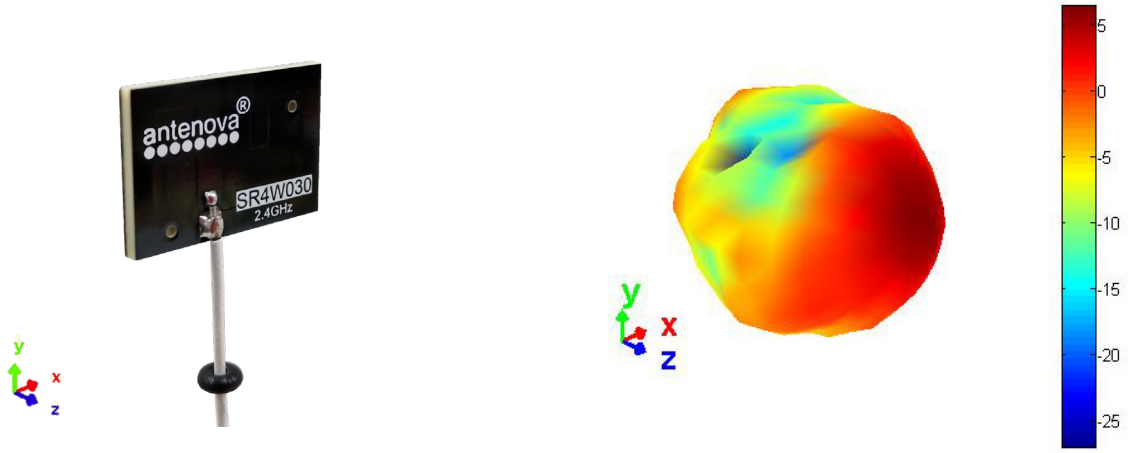


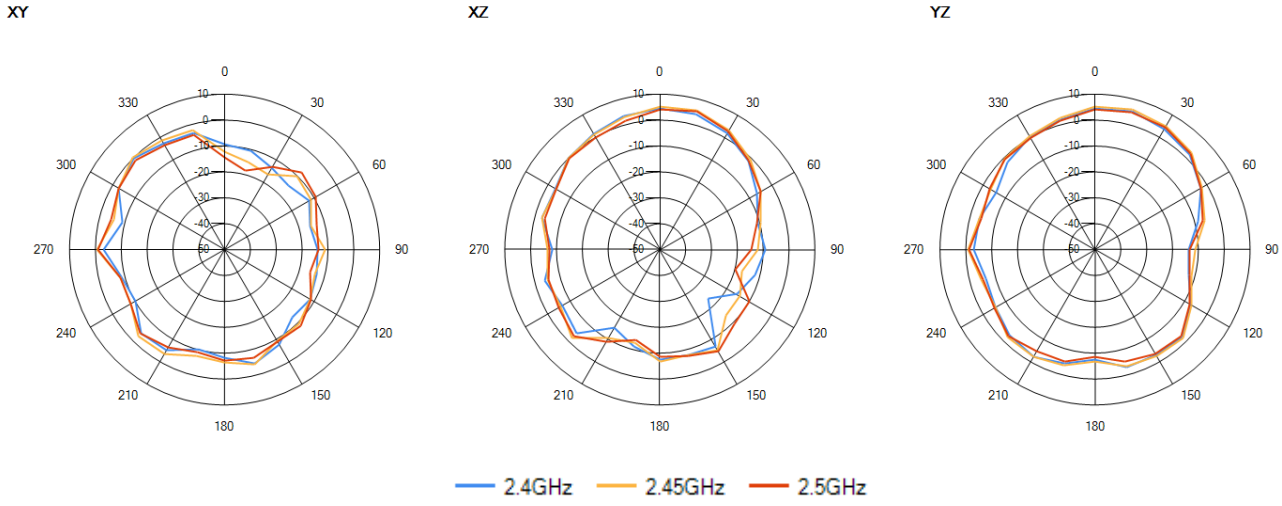
Placed on Metal surface (RF GND Plane) 5G027-EVB-1
Free space
Placed on metal surface (Floating unconnected copper)

6.3. Antenna patterns

6.3.1. 2400 MHz – 2500 MHz

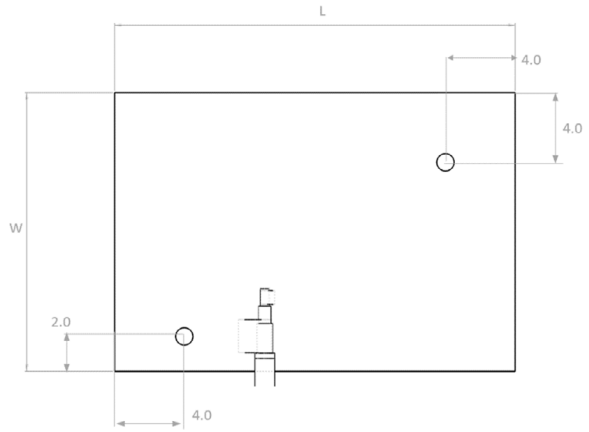
3D pattern at 2450MHz





7. Antenna dimensions

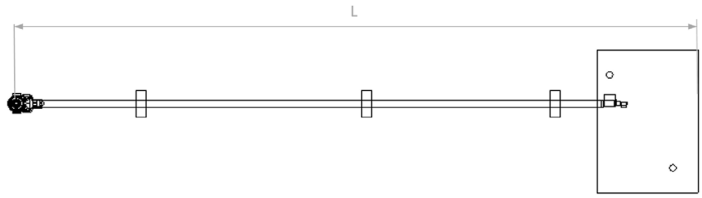
7.1. Dimensions Antenna section



L	W	H
23.0 ±0.2	16.0 ±0.2	1.6 (nominal)

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

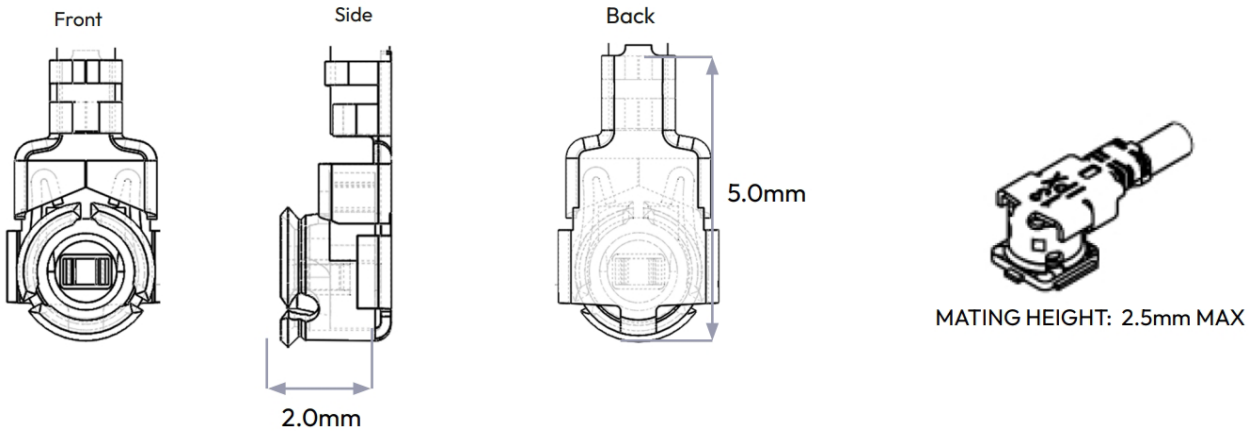
7.1. Dimensions assembled



SR4W030-100	SR4W030-150
Length	Length
111 ±2.0	161 ±2.0

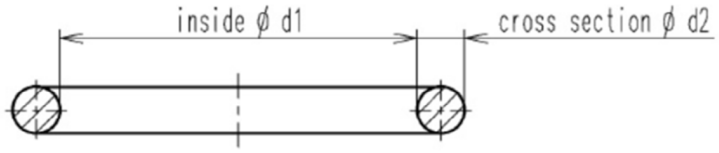
All dimensions in (mm)
Standard cable lengths for this antenna are 100mm and 150mm

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



	I-PEX
Material	Copper alloy
Plating	Ag

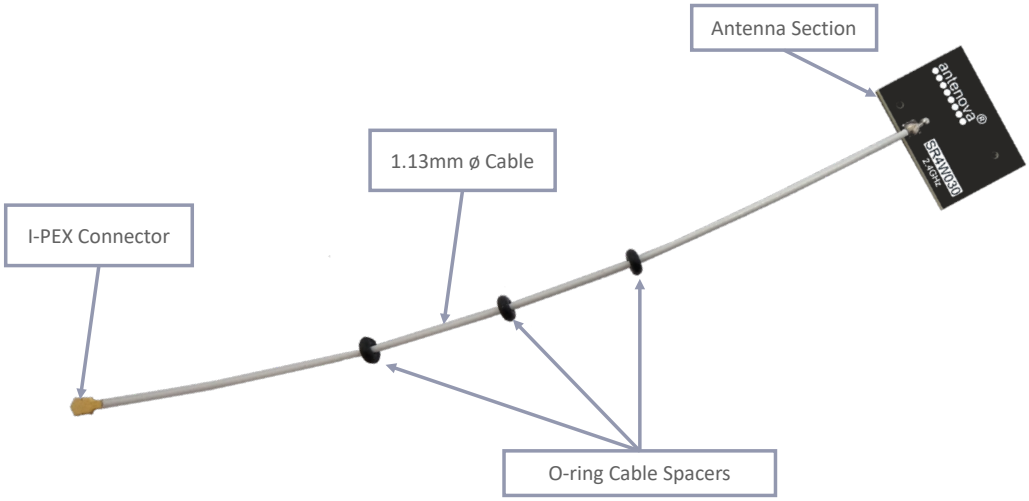
7.4. O-ring spacer



D1	D2
1.02 ±0.1	1.78 ±0.08

All dimensions in (mm)

7.5. Assembly



8. Electrical interface

8.1. Host interface

The host PCB requires the mating connector which is the I-PEX 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 50Ω impedance.

8.2. Transmission line

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

- 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.

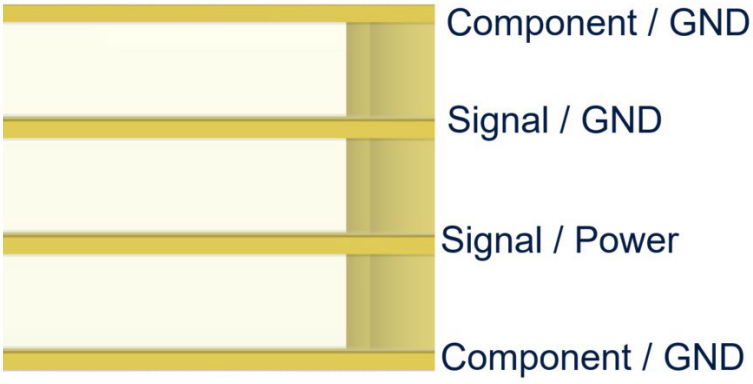
Antenna section reverse side

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 applied. This antenna is intended for use internal to a device and this simply illustrates the versatility of the antenna.

The material behind the antenna is not critical and can enable proximity for devices that are thin and placed on a variety of surfaces.

Examples:

- Wall mounted devices.
- Mounting onto metal chassis (e.g. Light switch chassis)
- Direct to host PCB
- Devices installed in places where the material is not defined or could be any of the above.

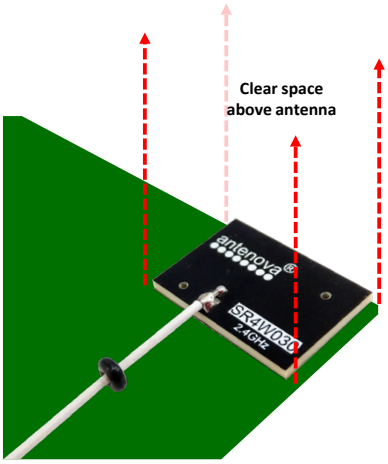
10.2. Antenna placement

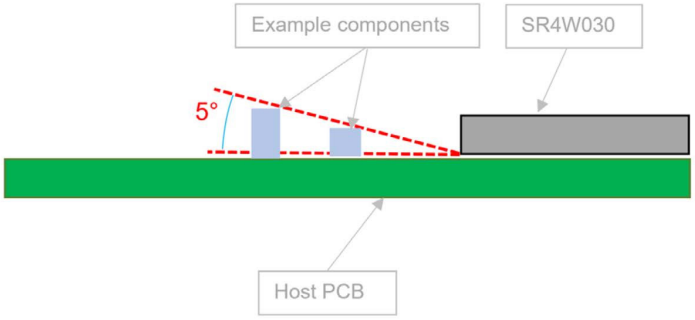
For placing the antenna within a device, the host PCB size is not a factor as it is with PCB mounted antennas. Placement still needs to follow some basic rules, as any antenna is sensitive to its environment.

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

The location within a device will shoujldld ideally be along any outer edge. The height to any surface can be direct contact.

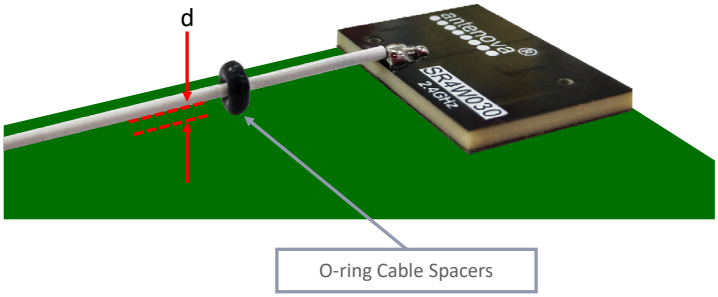
If placed on to a PCB, the proximity to any other board mounted component should be kept a minimum distance away. This distance can be defined from projecting a 5° angle from the bottom of the antenna as shown below.





10.3. Cable routing

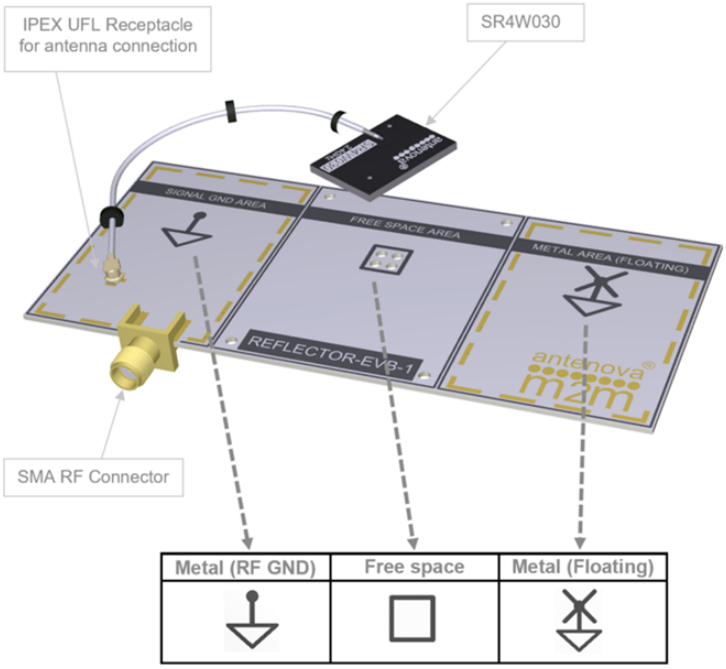
The cable has 3 spacers to keep the clearance from any surface being in direct contact. Where ‘d’ is defined by the O-ring (d=1.78mm).



11. Reference board

A reference board is used for evaluating the antenna SR4W030 and it contains antenna samples and an evaluation PCB with 3 sections that can demonstrate the various placement options.. (Part number: SR4W030-EVB-1)

To order a reference board
please see antenova.com



Dimensions: 110 x 50 (mm)

12. Hazardous material regulation conformance

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

13. Packaging

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

Single antenna per bag

100 units per bag (Labelled)

13.1. 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.

Note: The shelf life of the antenna is 18 months, provided the bag of 100 pieces remains factory- sealed.

13.2. Label information

Quality statements

Antenova's products conform to REACH and RoHS legislation. For our statements regarding these and other quality standards, please see

antenova.com

Datasheet version

2.01 released Oct 31st 2025

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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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sales@antenova.com

+ 44 (0) 23 9400 1023

Global headquarters

Antenova Ltd, 7 The Briars, Waterberry Drive, Waterlooville, Hampshire, PO7 7YH