antenova®

DATASHEET

# Dromus

SRF2W012 • flexiiANT®

## Features

- Antenna for 2.4 – 2.5 GHz, 4.9 – 5.9 GHz and 5.925- 7.125GHz bands
- 802.11a/b/g/j/n/ac/ax
- Maintains high performance within device: DFI (Designed For Integration)
- 1.13mm diameter RF cable with IPEX MHF1 connector
- Self-Adhesive mounted
- Quick integration minimizes design cycle
- High performance
- 100mm cable – (other lengths available, MOQs apply)

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## 1. Description

Dromus is intended for use with all Wi-Fi applications. A flexible antenna with cable enables direct connection to the host PCB. Simple integration with plug and play simplicity. This product specification shows the performance of the antenna to include the Wi-Fi6E/Wi-Fi7 bands: 2.4-2.5/ 4.9-5.9GHz/5.925-7.125GHz.

## 2. Applications

- Access Points
- Portable Devices
- PC-cards
- Game Consoles
- Set-Top-Box
- Network Devices
- Wearable devices
- MIMO Systems

## 3. General data

| | |
|---|---|
| FREQUENCY | 2400-2500MHz<br>4900-5900MHz<br>5925-7125MHz |
| POLARIZATION | Linear |
| OPERATING TEMPERATURE | -40°C to +85°C |
| ENVIRONMENTAL CONDITION TEST | ISO16750-4 5.1.1./5.1.2 |
| IMPEDANCE | 50 Ω |
| WEIGHT | <0.5g |
| ANTENNA TYPE | FPC Self-adhesive 3M 468MP |
| DIMENSIONS | 30.0 x 6.0 x 0.15 (mm) |

## 4. Part number

**DROMUS**
**SRF2W012-100**

## 5. RF characteristics

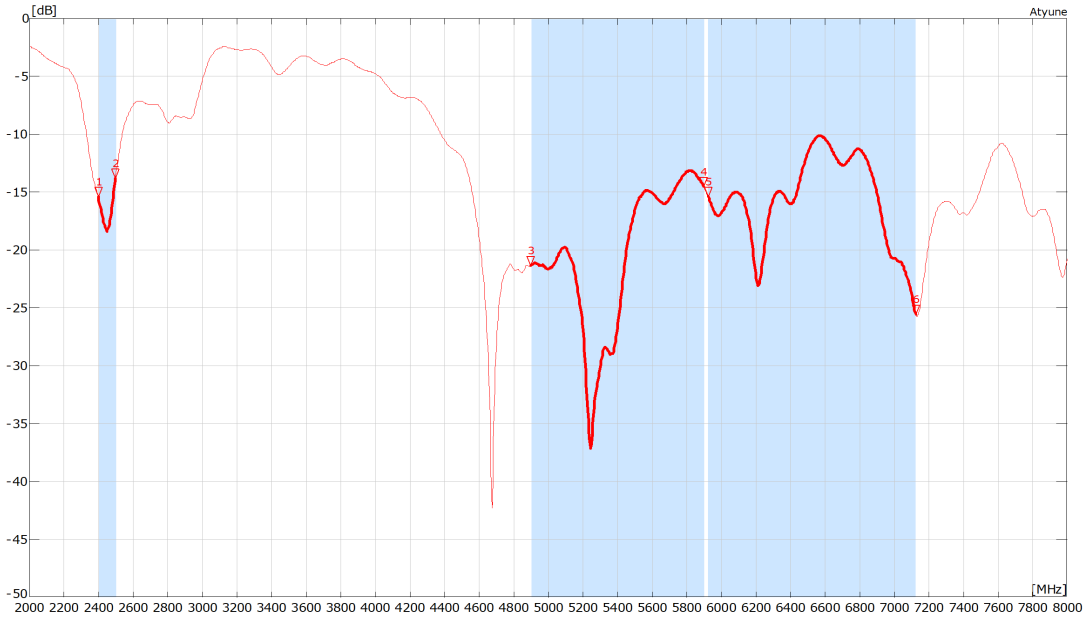
| FREQUNCY | 2400-2500MHZ | 4900-5900MHZ | 5925-7125MHZ |
|---|---|---|---|
| PEAK GAIN | 2.9dBi | 4.5dBi | 4.7dBi |
| AVERAGE GAIN (LINEAR) | -1.8dB | -1.6dB | -1.6dB |
| AVERAGE EFFICIENCY | 65% | 65% | 70% |
| MAXIMUM RETURN LOSS | -13dB | -13dB | -10dB |
| MAXIMUM VSWR | 1.6:1 | 1.6:1 | 1.9:1 |

*All data measured on SRF2W012 in a loaded condition adhered to a 2mm thick ABS carrier*

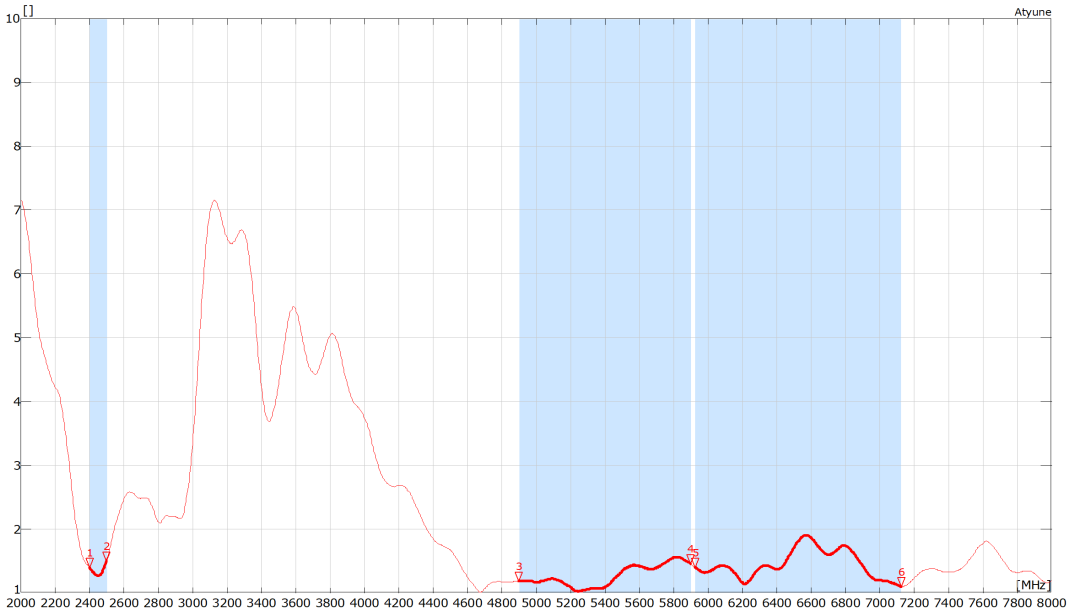
*Standard cable length for this antenna is 100mm*

# 6. RF performance

## 6.1. Return loss



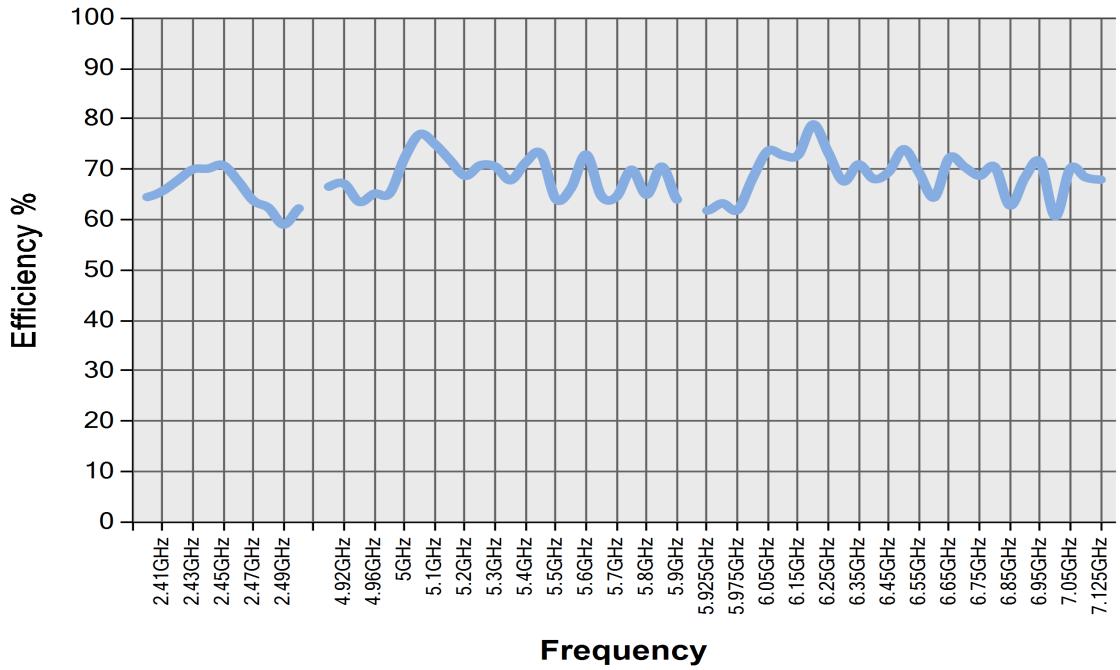

## 6.2. VSWR




*All data measured on SRF2W012 in a loaded condition adhered to a 2mm thick ABS carrier*

*Standard cable length for this antenna is 100mm*

## 6.3. Efficiency



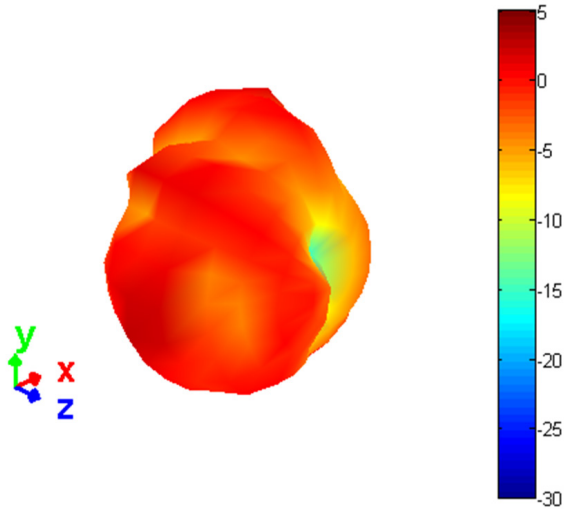

*All data measured on SRF2W012 in a loaded condition adhered to a 2mm thick ABS carrier*

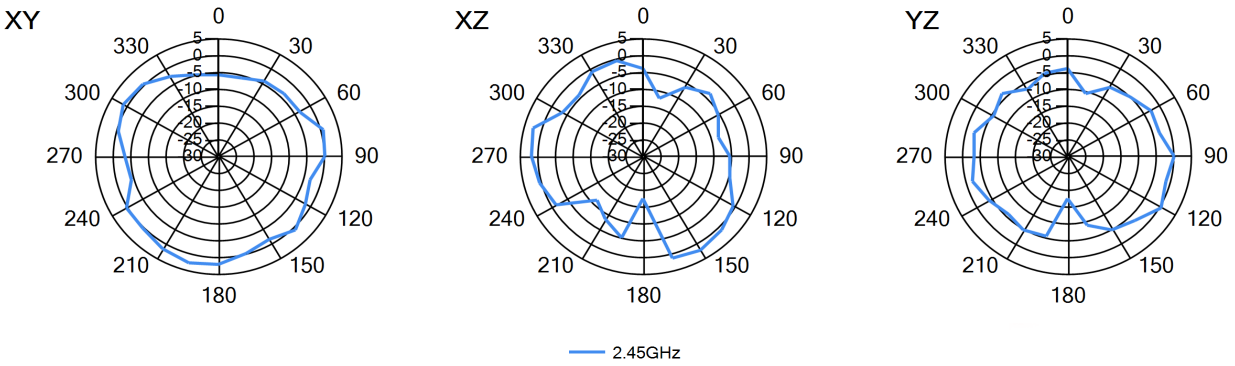
*Standard cable length for this antenna is 100mm*

## 6.4. Antenna pattern

### 6.4.1. 2400 MHz – 2500 MHz

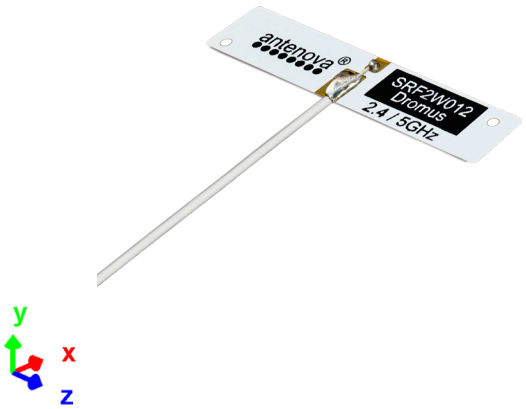
*3D pattern at 2450MHz*

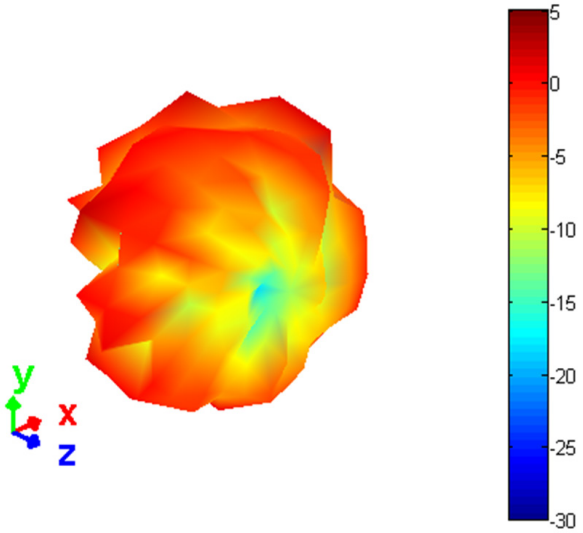


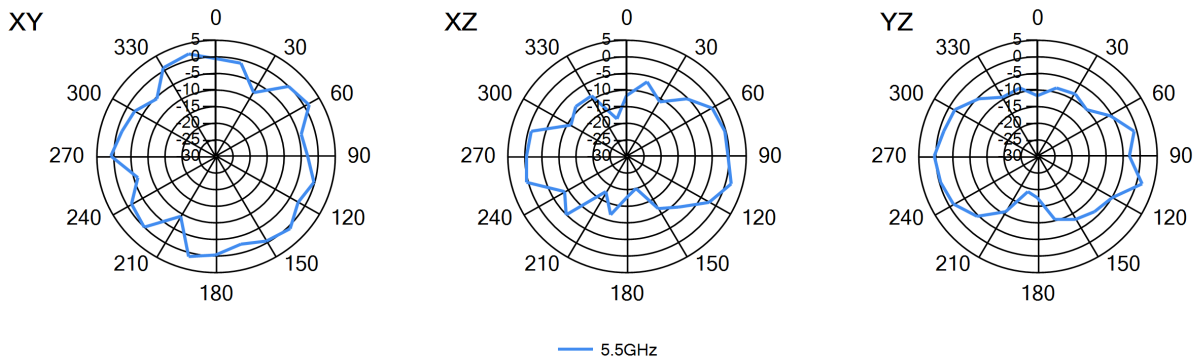



## 6.4.2.4900-5900MHZ

*3D pattern at 5500MHz*

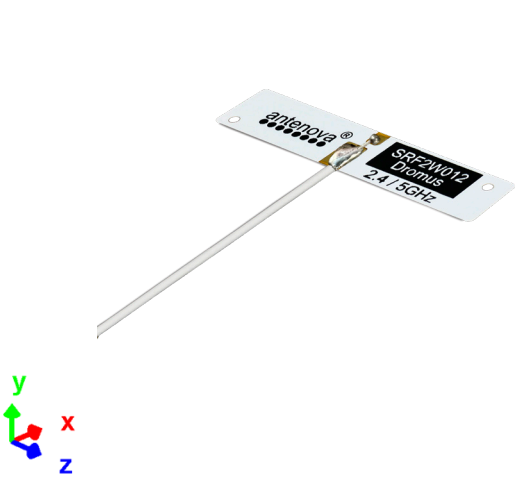


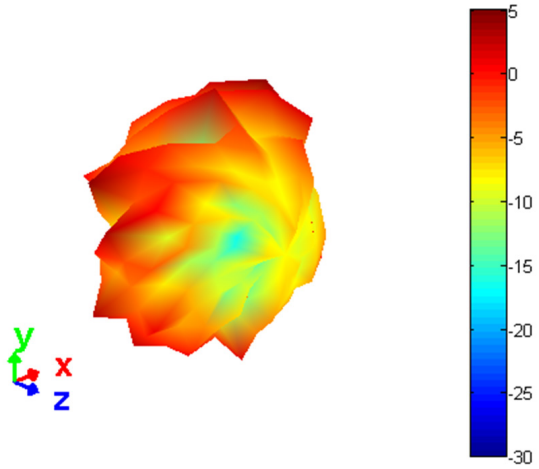



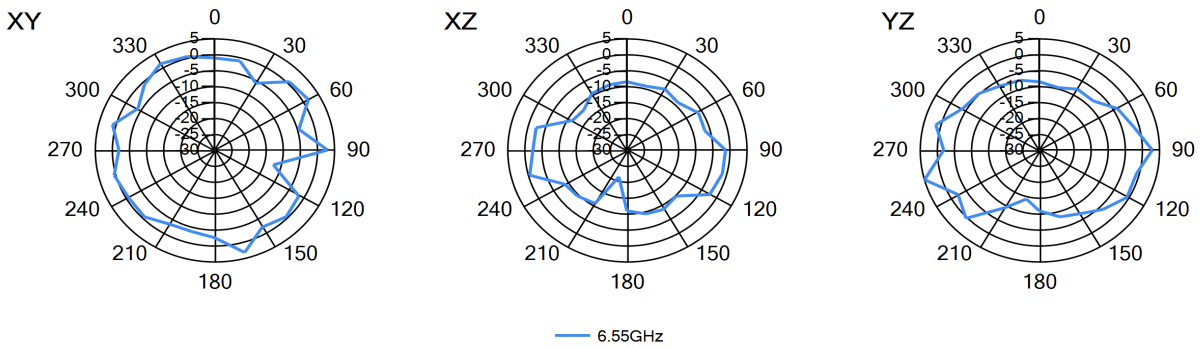



### 6.4.3. 5925-7125MHZ

*3D pattern at 6550MHz*

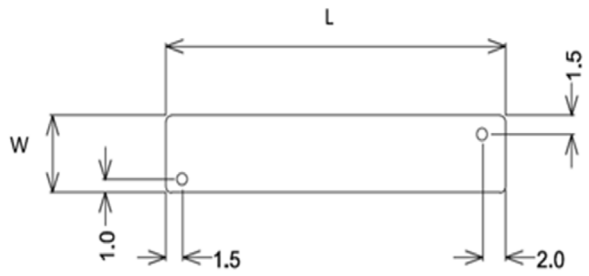


# 7. Antenna dimensions

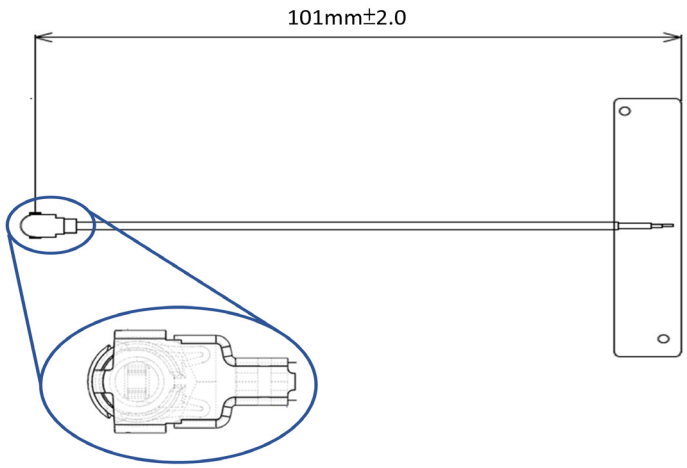
## 7.1. Dimensions FPC section




| L | W | T |
|---|---|---|
| Length | Width | Thickness |
| 30.0 ±0.2 | 6.0 ±0.2 | 0.15 (nominal) |

*All dimensions in (mm)*

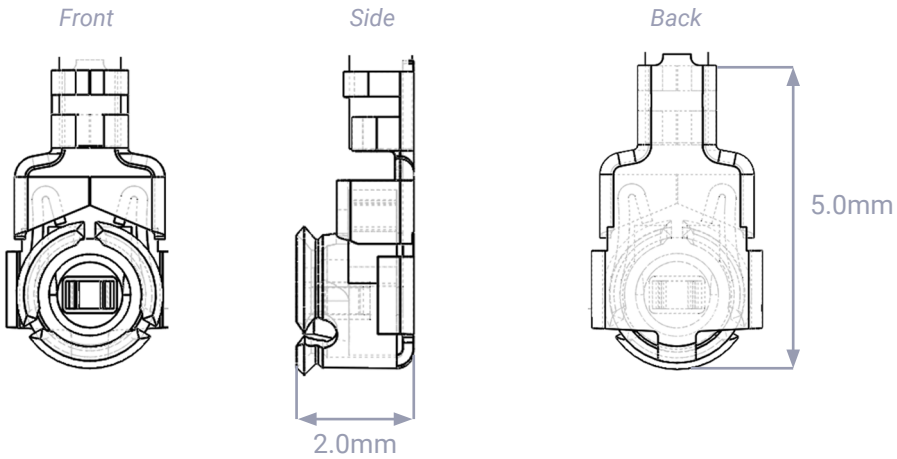
## 7.2. Dimensions assembled

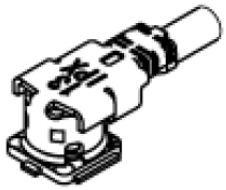



| SRF2W012-100 |
|---|
| Length |
| 101 ±2.0 |

*All dimensions in (mm)*
*Standard cable length for this antenna is 100mm*

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



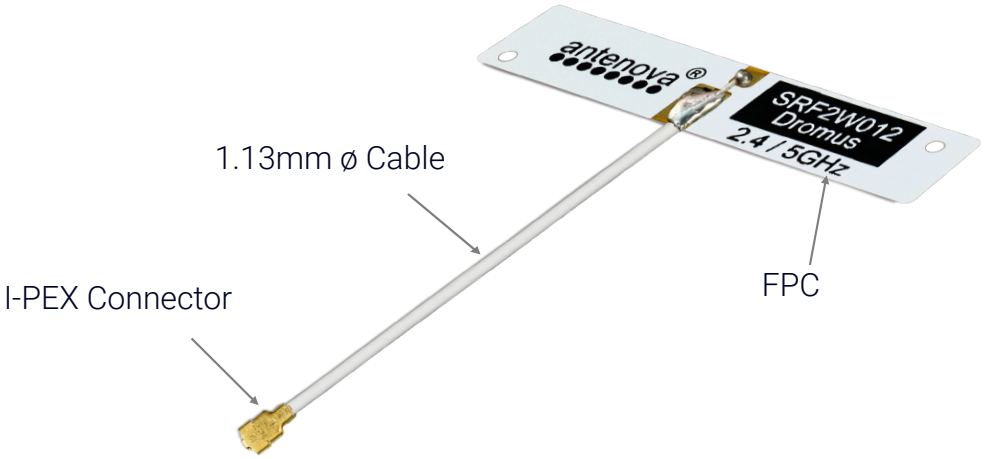



*MATING HEIGHT: 2.5mm MAX*

| | I-PEX |
|---|---|
| MATERIAL | Copper Alloy |
| PLATING | Ag |

*All dimensions in (mm)*

## 7.4. 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

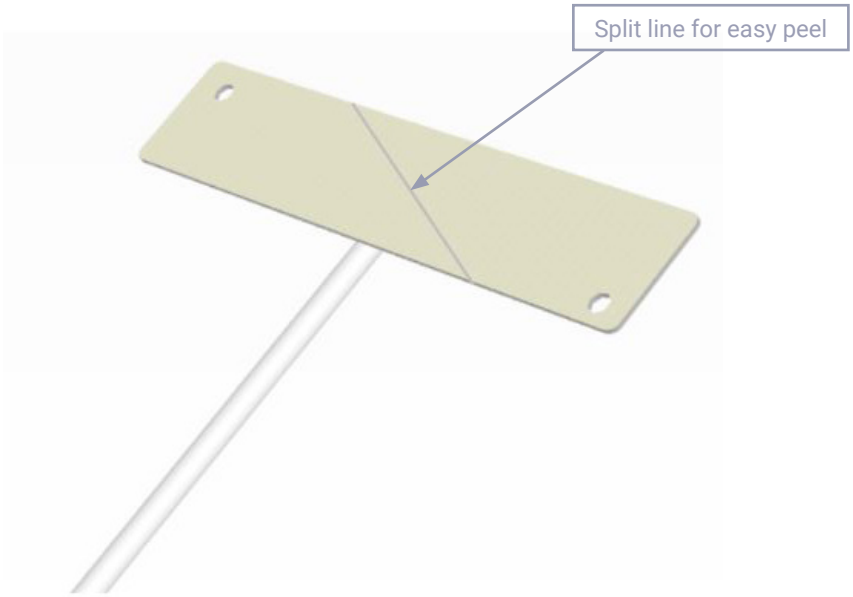
## 8.2. Transmission line

- Must have a characteristic impedance of 50Ω.
- Length should be kept to a minimum.
- It is recommended to design a co-planar waveguide, you can use the Transmission line calculator on Antenova.com to calculate the dimensions for your requirements
- Should have DC blocking capacitor (e.g. 220pF) placed in line to protect the RF front end.

# 9. Mechanical fixing

The antenna uses 3M 468MP adhesive on the reverse side of the FPC. The antenna has an easy access split line to peel off to reveal the adhesive side. It is designed for a one time fix to a clean smooth surface. The antenna is keyed with two 1mm locating holes for easy positioning.

*FPC 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

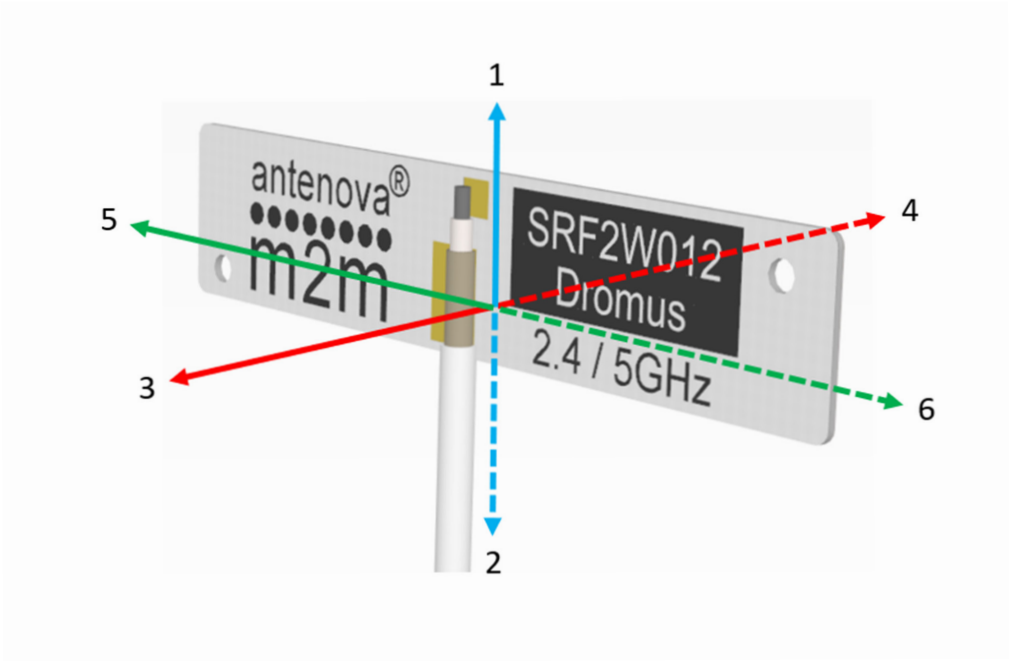
Follow placement guidance carefully, in addition Antenova provide technical support to help you through all stages of your design. Register for an account on https://ask.antenova.com/ to access technical support.

## 10.1. Antenna placement

For FPC antennas the host PCB size is not critical to performance, however consideration must be given to placement. Using six spatial directions, as shown below, the antenna should ideally maintain a minimum of three directions free from obstruction in order to radiate effectively. Where there are obstructions (e.g. PCB, metal parts, battery etc.) a minimum clearance should still be maintained. These minimum clearances are described later in this section.

*Six spatial directions relative to FPC*

*Example with 5 spatial directions clear*

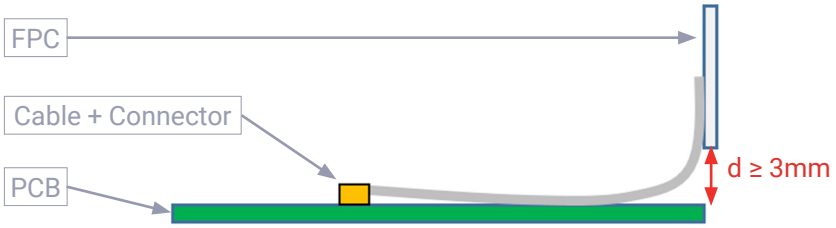


## 10.2. Orientation of FPC

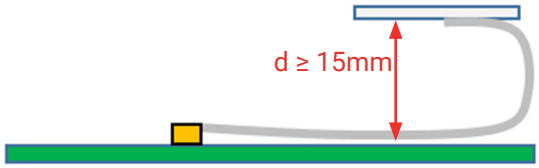
The orientation of the FPC with respect to the host PCB should be defined depending on the unit. The proximity of the GND will have an influence on the antenna so the PCB location relative to the antenna should be considered.

The FPC will normally be placed in one of the three following options for orientation. In each option a distance (d) is the critical dimension to consider. The diagram below shows the minimum value of (d) for each. Other obstructions may increase this dimension.

*Vertical mounted*




*Co-planar to PCB*




*Planar to PCB (Same plane)*

## 11. Hazardous material regulation conformance

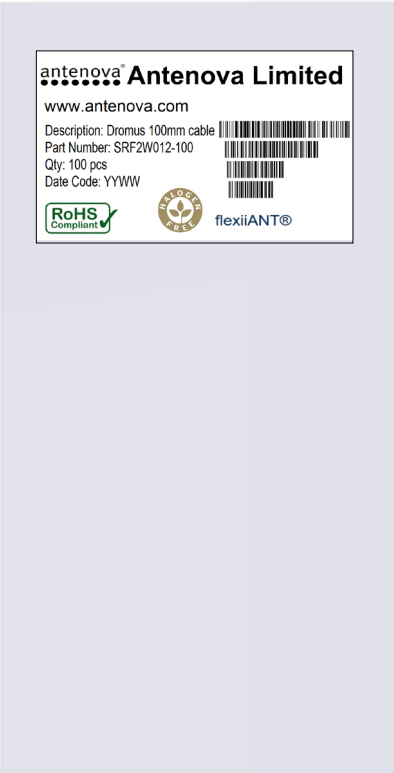
The connector has been tested to conform to RoHS requirements.

A certification of conformance is available from Antenova's website.

## 12. Packaging

The antennas are stored within a plastic bag of 100 pcs.

*100 units per 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. |

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

## 12.2. 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.

Antenova reserves all rights to the contents of this document. Antenova gives no warranties based solely on the accuracy or completeness of the contents of this document and reserves the right to make changes to the specifications of the products described herein at any time and without

### Datasheet version

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2.01 release May 1st 2023

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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**

Global headquarters

**Antenova Ltd, 2nd Floor Titan Court, 3 Bishop Square, Hatfield, AL10 9NA**

**+44 (0) 1707 927589**

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# Antenova SRF2W012

## Supplier Info

Telephone: +44 (0) 1707 927589

Address: 2nd Floor Titan Court, 3 Bishop Square, Hatfield, AL10 9NA

## Antenna Type

Dipole