antenova

DATASHEET

Moseni

SRFL029 • flexiiANT®



Features

- Antenna for 4G LTE applications including MIMO systems.
- LTE 700, GSM850, GSM900, DCS1800, PCS1900, WCDMA2100, LTE B7(2500-2690 MHz), LTE B40 (2300 – 2400 MHZ)
- 1.13mm diameter RF cable with I-PEX MHF connector
- Self-adhesive mounted
- Quick and simple integration minimizes design cycle
- Available in two standard cable lengths, 100mm and 150mm. Other lengthsare available.

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1. Description

Moseni is intended for use with 4G LTE applications. This product specification shows the performance of this antenna in all workable bands. Moseni offers easy integration with plug and play simplicity.

2. Applications

- Smart meters
- Network devices
- Femto / Pico base stations
- Telematics
- Remote monitoring
- Machine to Machine
- POS (Point of Sale) terminals

3. Part number

SRFL029



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4. General data

Frequency	698-798MHz 824-960MHz 1710-2170MHz 2300-2400MHz 2500-2690MHz
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 antenna	110.0 x 20.0 x 0.15 (mm)
Connection	I-PEX MHF1 (20278-112R-13)

5. RF characteristics

	698 – 798 MHz	824 – 960 MHz	1710 - 2170 MHz
Peak gain	3.50dBi	3.50dBi	3.80dBi
Average gain (Linear)	-1.60dBi	-1.70dBi	-1.40dBi
Average efficiency	>60%	>60%	>65%
Maximum return loss	-5.0dB	-8.0dB	-5.5dB
Maximum VSWR	3.50:1	2.40:1	3.30:1

	2300 – 2400 MHz	2500 – 2690 MHz
Peak gain	4.50dBi	4.60dBi
Average gain (Linear)	-0.70dBi	-0.50dBi
Average efficiency	>80%	>80%
Maximum return loss	-12dB	-16dB
Maximum VSWR	1.40:1	1.70:1

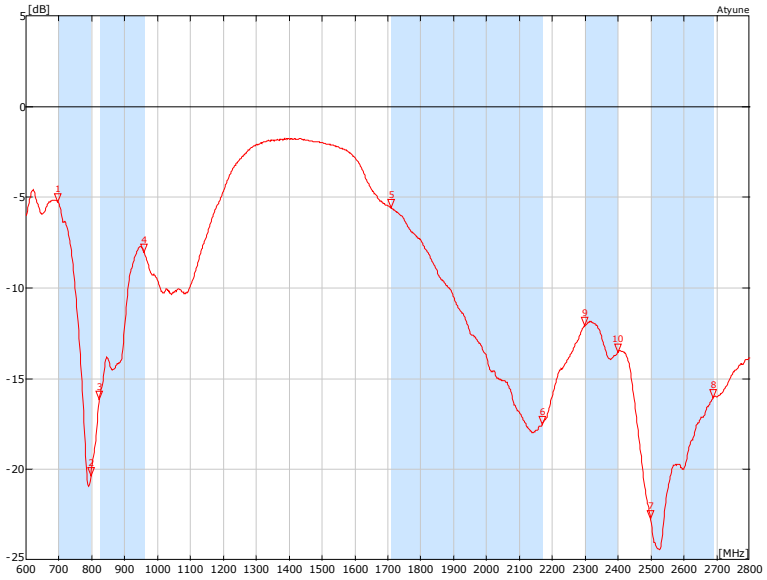
All data measured in a loaded condition adhered to 1.6mm thick plastic carrier free space.

An RF choke was used to prevent cable radiation.

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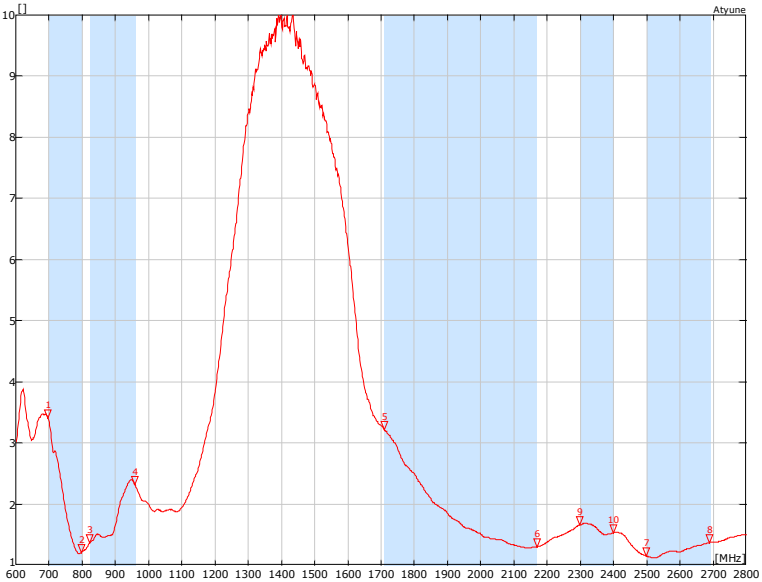
6. RF performance

6.1. Return loss



MARKERS:	MHz	dB	MHz	dB	MHz	dB	MHz	dB	MHz	dB
SRFL029.S1P - S11										
	1: 698	-5.24	3: 824	-16.12	5: 1710	-5.57	7: 2500	-22.67	9: 2300	-12.06
	2: 798	-20.33	4: 960	-8.00	6: 2170	-17.50	8: 2690	-16.02	10: 2400	-13.53

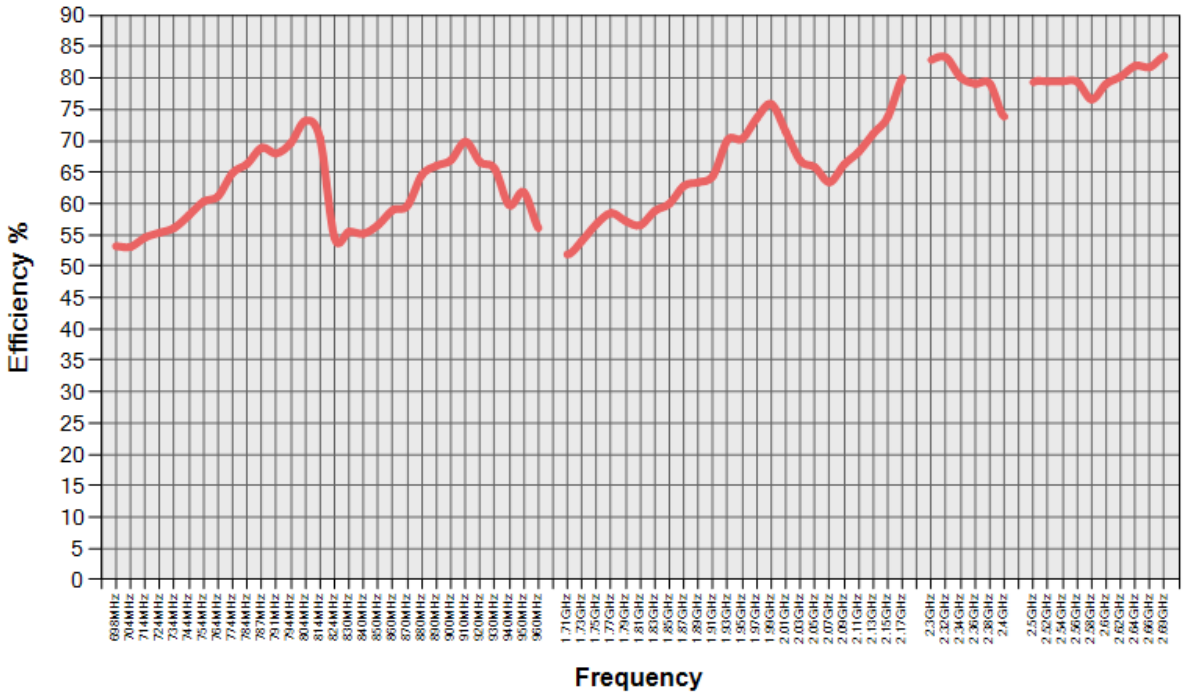
6.2. VSWR



MARKERS:	MHz		MHz		MHz		MHz		MHz	
SRFL029.S1P - S11										
	1: 698	3.41	3: 824	1.37	5: 1710	3.23	7: 2500	1.16	9: 2300	1.67
	2: 798	1.21	4: 960	2.32	6: 2170	1.31	8: 2690	1.38	10: 2400	1.53

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6.3. Efficiency

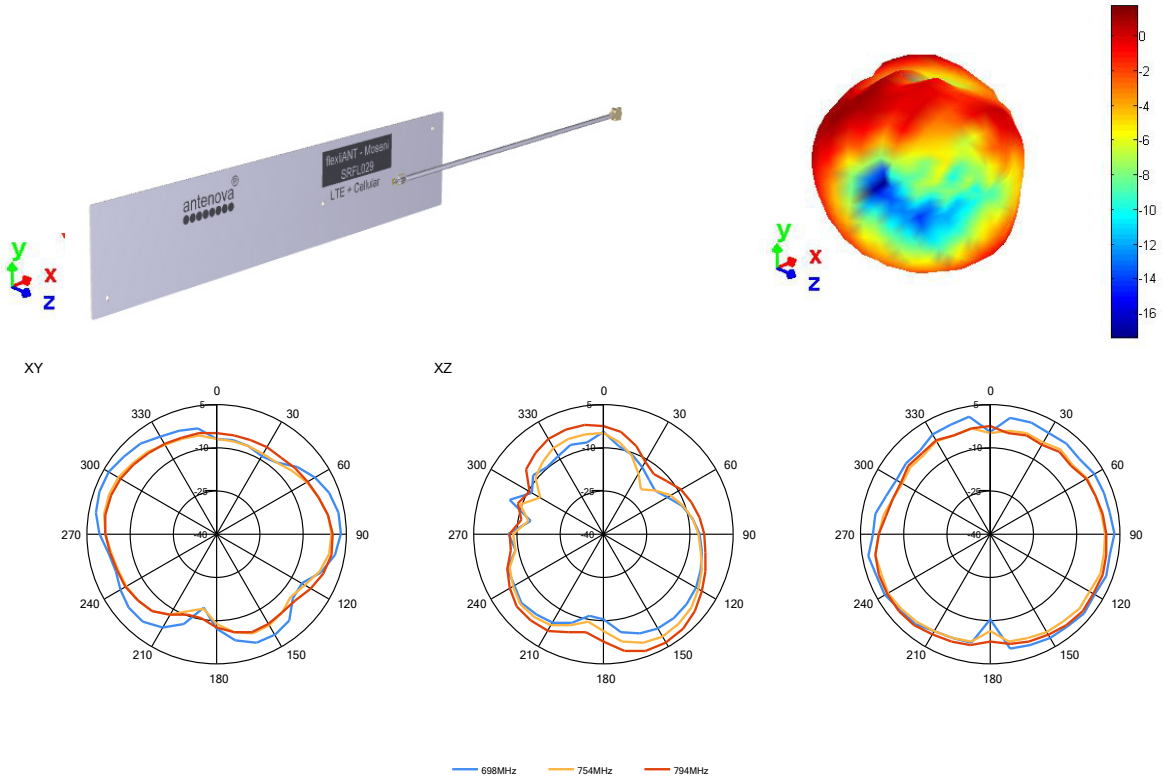


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6.4. Antenna pattern

6.4.1. 698 MHz – 798 MHz

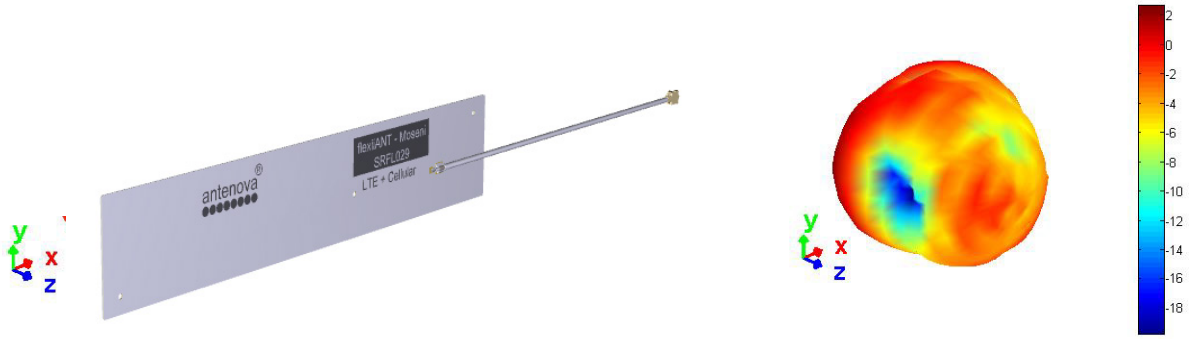
3D pattern at 745 MHz

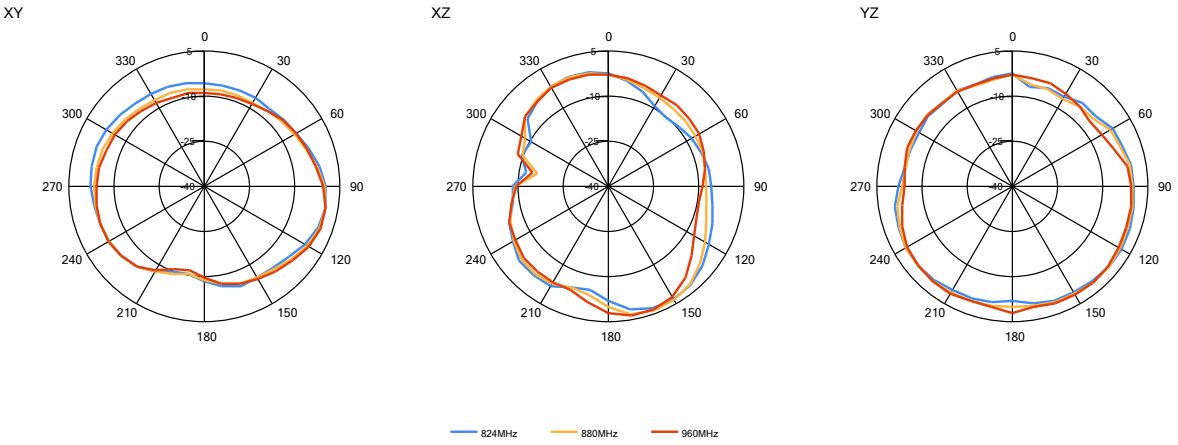


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6.4.2. 824 MHz – 960 MHz

3D pattern at 890 MHz

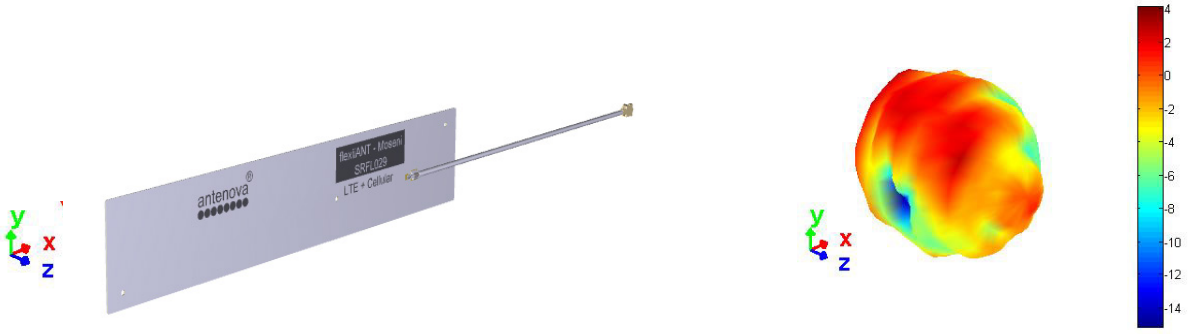




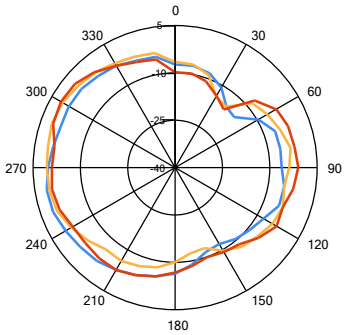
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6.4.3. 1710 MHz – 2170 MHz

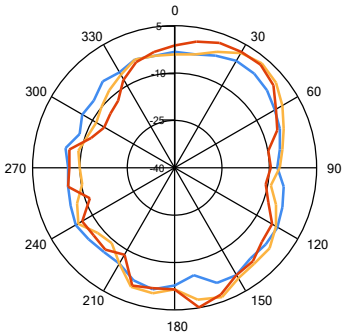
3D pattern at 1990 MHz

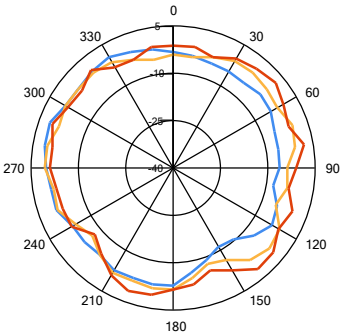


XY



XZ

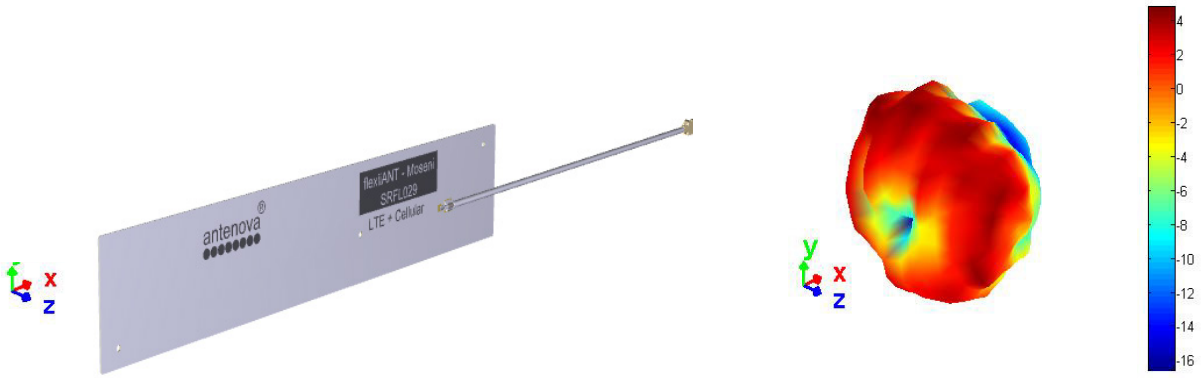


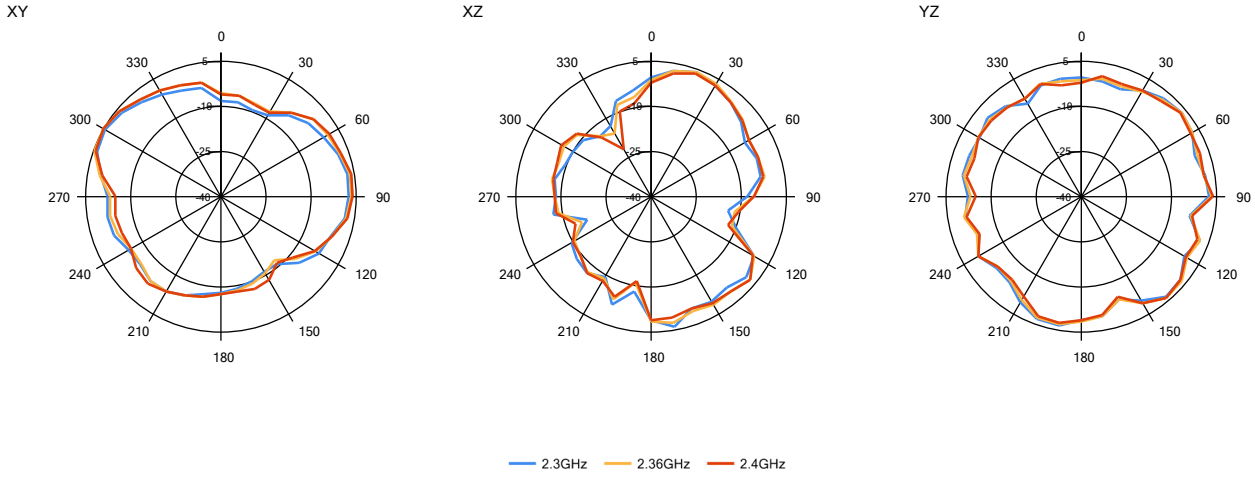


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6.4.4. 2300 MHz – 2400 MHz

3D pattern at 2350 MHz

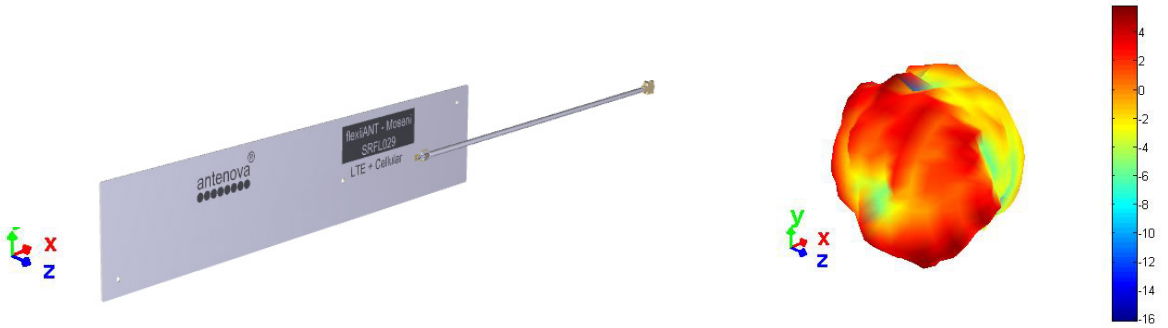


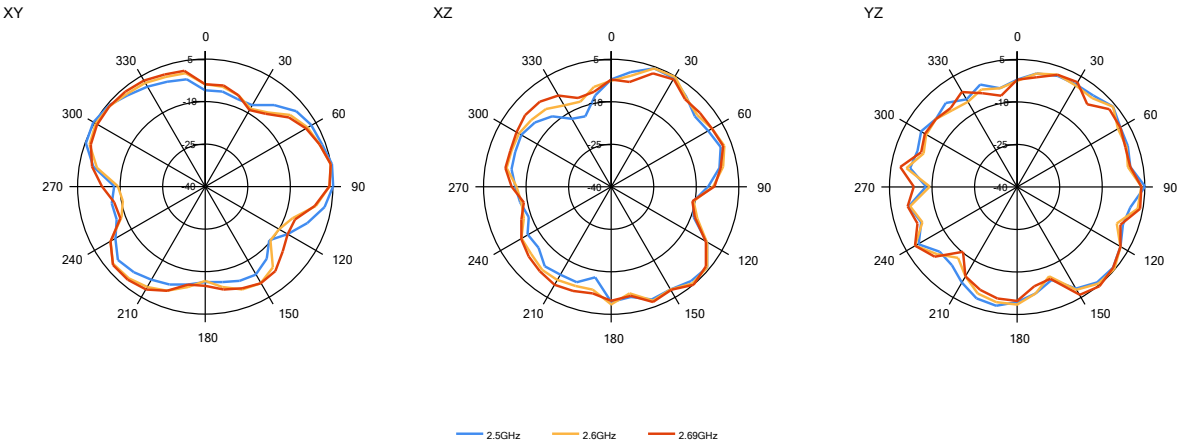


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6.4.5. 2500 MHz – 2690 MHz

3D pattern at 2600 MHz

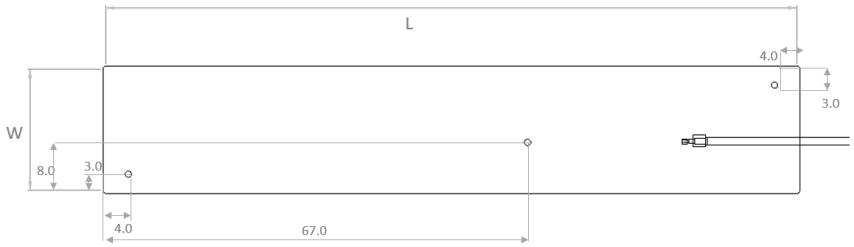




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7. Antenna dimensions

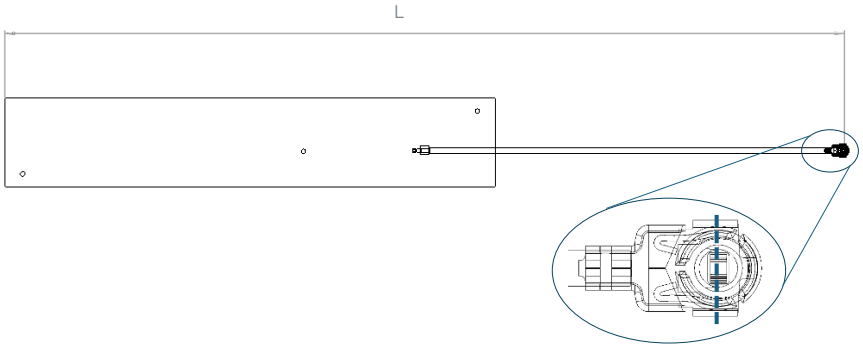
7.1. Dimensions FPC section



L	W	T
110.0 ±0.2	20.0 ±0.2	0.15 (nominal)

All dimensions in (mm)

7.2. Dimensions assembled

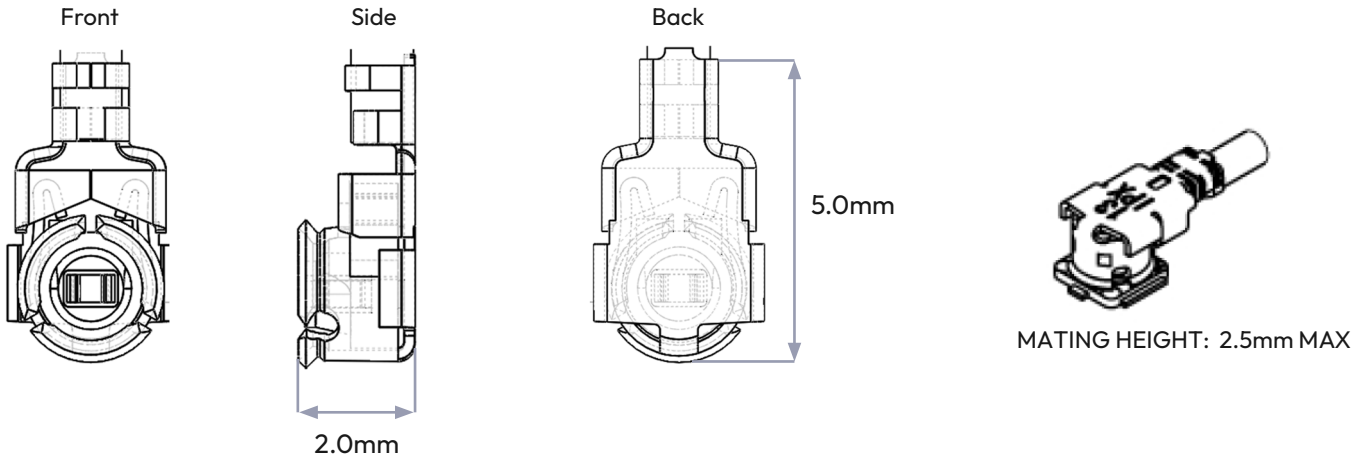


SRFL029-100	SRFL029-150
Length	Length
189 ±2.0	239 ±2.0

All dimensions in (mm)
Standard cable length for this antenna is 100mm and 150mm

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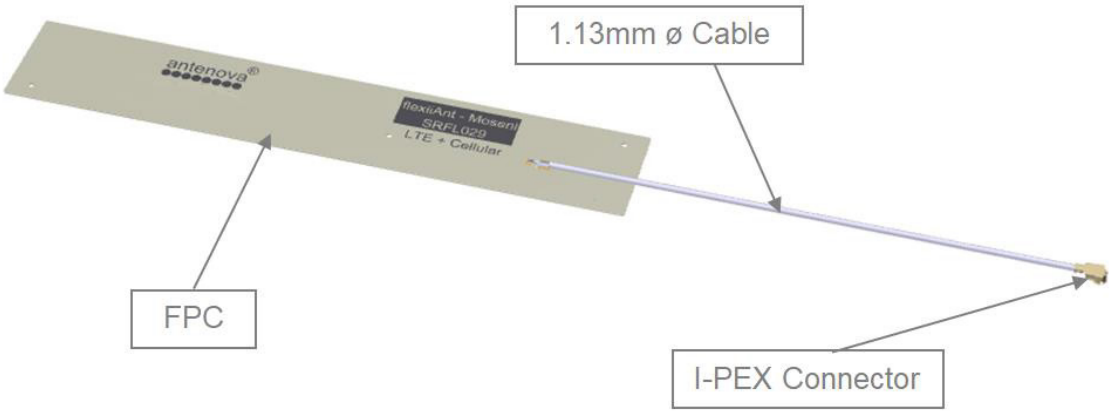
7.3. I-PEX connector MHF1 (20278-112R-13)



I-PEX	
Material	Copper alloy
Plating	Ag

All dimensions in (mm)

7.4. Assembly



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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

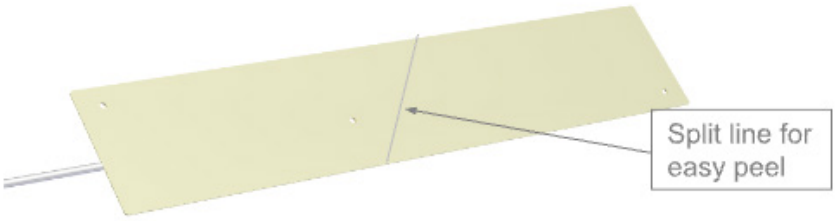
8.2. Transmission line

- Must have a characteristic impedance of 50Ω.
- Length should be kept to a minimum.
- Is recommended to be a co-planar waveguide: log on to Antenova.com and try our Transmission line calculator to easily calculate the dimensions most suited to 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



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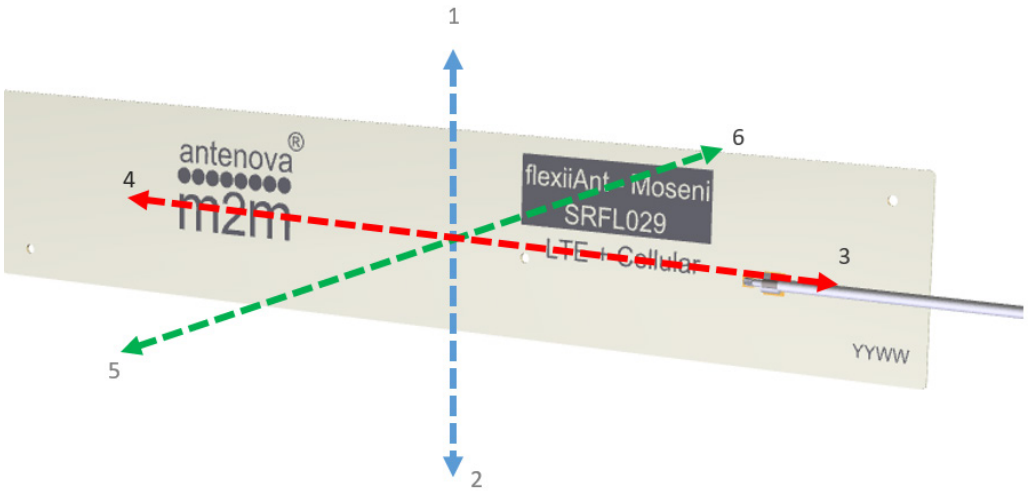
10. Antenna integration guide

10.1. Antenna placement

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

Use six spatial directions, as shown below as a guide. The antenna FPC section should ideally maintain a minimum of three directions free from obstructions to be able to operate effectively. The other directions will have obstacles in their paths - these directions still require a minimum clearance. These minimum clearances are further defined in this section. The plastic case is not included in this, only metal objects/components that will obstruct or come in close proximity to the antenna.

Six spatial directions relative to FPC



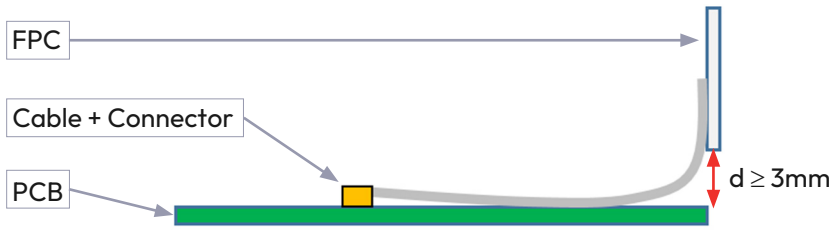
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10.2. Orientation of FPC

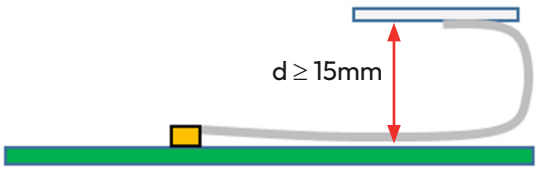
The orientation of the FPC with respect to the host PCB should be defined depending on the unit. The proximity of the GND will have an influence on the antenna so the PCB location relative to the antenna should be considered.

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)



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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, and then stored within a second bag of 100 pcs.

Single antenna per bag



100 units per second bag (Labelled)



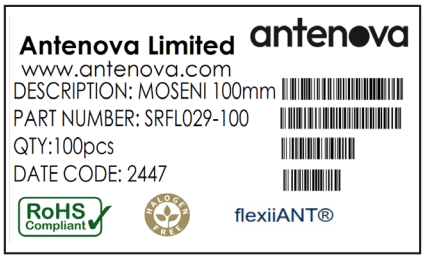
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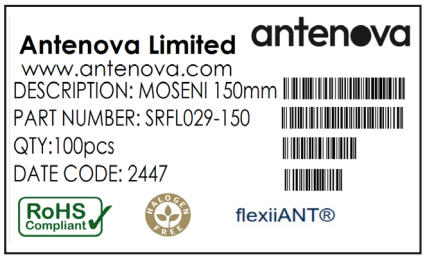
12.1. Optimal storage conditions

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.

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Datasheet version

2.01 release JAN 31 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

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