

# Zhengi Antenna for Cellular applications

Part No. SRFC015

flexiiANT<sup>®</sup>

Product Specification

## 1. Features

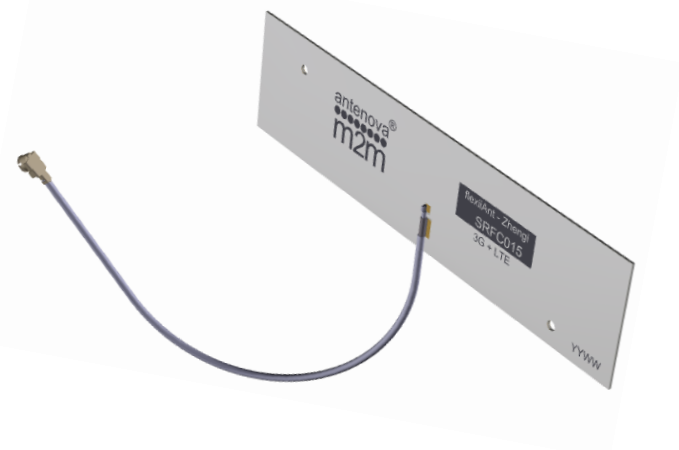
- Antenna for 3G and 4G LTE applications including MIMO systems.
- GSM850, GSM900, DCS1800, PCS1900, WCDMA2100, LTE B7 (2500-2690 MHz), LTE B30, B40 (2300-2400 MHz)
- 1.13mm diameter RF cable with IPEX MHF connector
- Self-adhesive mounted
- Quick and simple integration minimizes design cycle
- Available in 3 standard cable lengths

## 2. Description

Zhengi is intended for use with 3G + 4G LTE applications. Covers all 3G bands along with additional LTE bands (B7, B30, B38, B40, B41). This product specification shows the performance of this antenna in all workable bands.

## 3. Applications

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



## 4. Part Number

**Zhengi: SRFC015**



## 5. General Data

|                         |                                                                            |
|-------------------------|----------------------------------------------------------------------------|
| Product name            | Zhengi                                                                     |
| Part Number             | SRFC015                                                                    |
| Frequency               | 824-960MHz<br>1710-1990MHz<br>2110-2170MHz<br>2300-2400MHz<br>2500-2690MHz |
| Polarization            | Linear                                                                     |
| Operating temperature   | -40°C to 85°C                                                              |
| Impedance with matching | 50 $\Omega$                                                                |
| Weight                  | < 0.5 g                                                                    |
| Antenna type            | FPC Self-adhesive 3M 468P                                                  |
| Dimensions (Antenna)    | 80.0 x 20.0 x 0.15 (mm)                                                    |
| Connection              | IPEX                                                                       |

## 6. RF Characteristics

|                     | 824 – 960 MHz | 1710 – 1990 MHz | 2110 – 2170 MHz |
|---------------------|---------------|-----------------|-----------------|
| Peak gain           | 0.50dBi       | 4.00dBi         | 3.50dBi         |
| Average gain        | -2.50dBi      | -1.50dBi        | -2.50dBi        |
| Average efficiency  | >50%          | >65%            | >50%            |
| Maximum return loss | -5.4dB        | -6.0dB          | -8.0dB          |
| Maximum VSWR        | 3.30:1        | 2.90:1          | 2.10:1          |

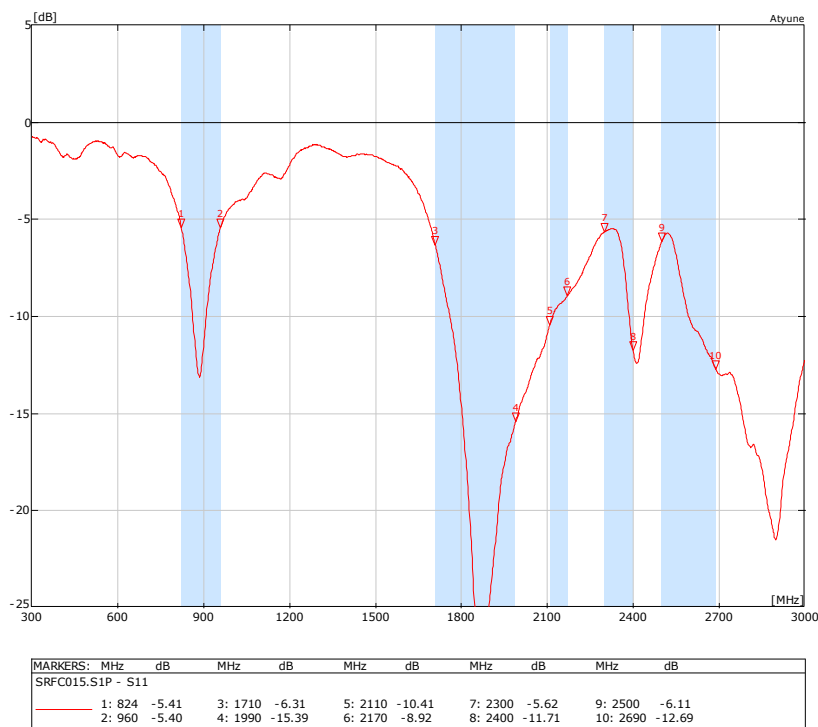
|                     | 2300 – 2400 MHz | 2500 – 2690 MHz |
|---------------------|-----------------|-----------------|
| Peak gain           | 3.80dBi         | 5.00dBi         |
| Average gain        | -2.50dBi        | -1.50dBi        |
| Average efficiency  | >50%            | >65%            |
| Maximum return loss | -5.5dB          | -6.0dB          |
| Maximum VSWR        | 3.20:1          | 2.90:1          |

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

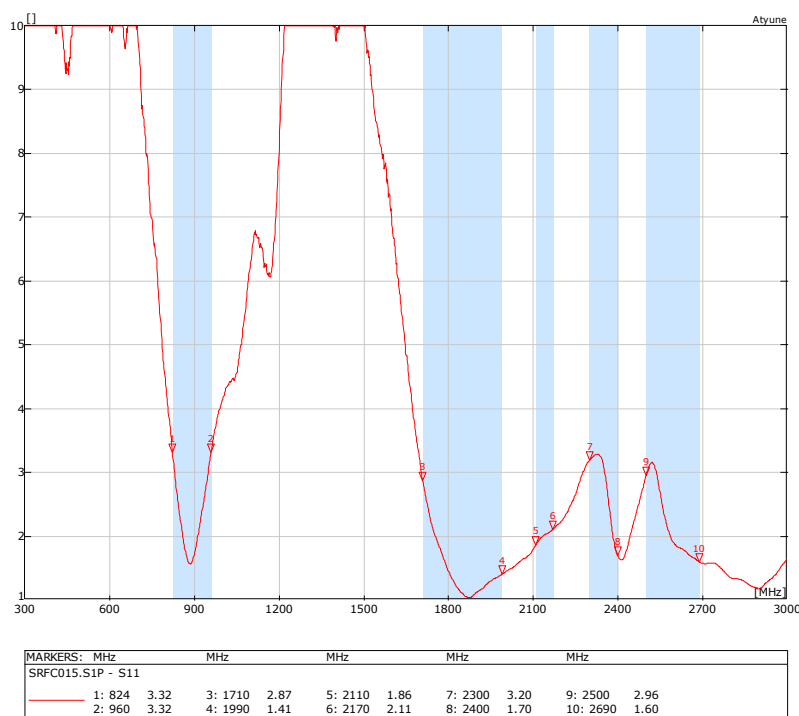
*An RF choke was used to prevent cable radiation.*

## 7. RF Performance

### 7.1 Return Loss



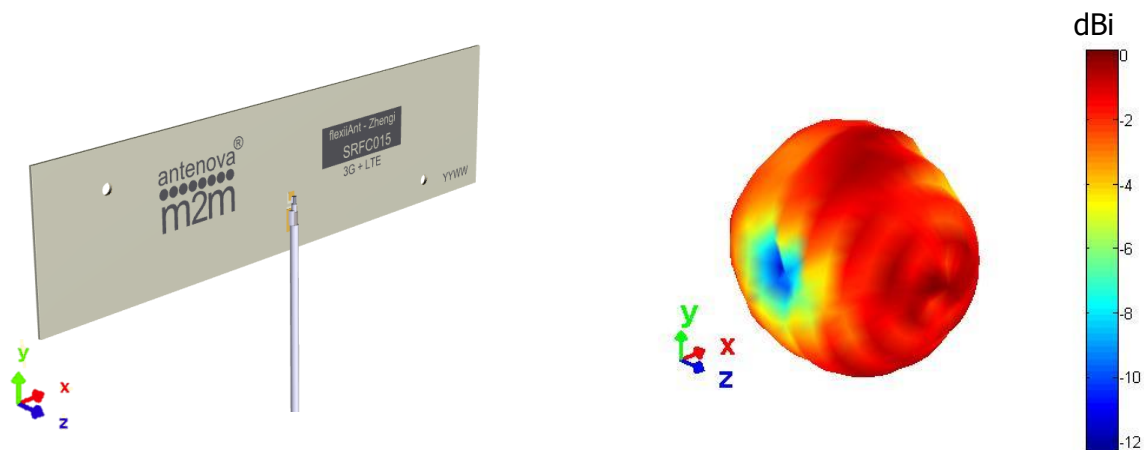
### 7.2 VSWR



Antennas for Wireless M2M Applications

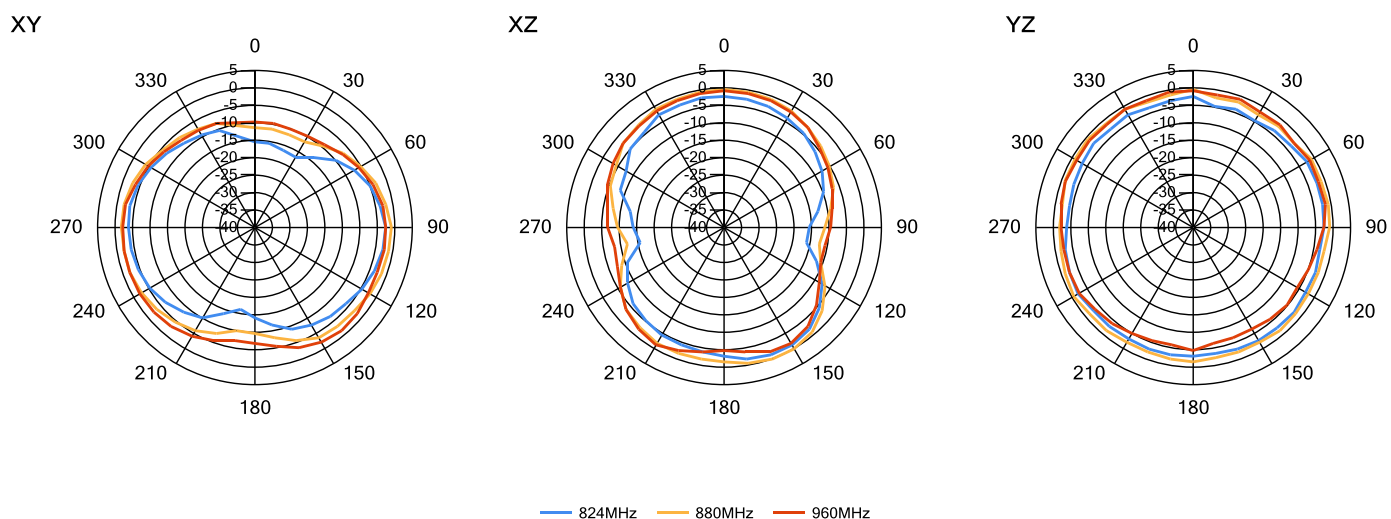
## 7.3 Antenna patterns

### 7.3.1 824 MHz – 960 MHz



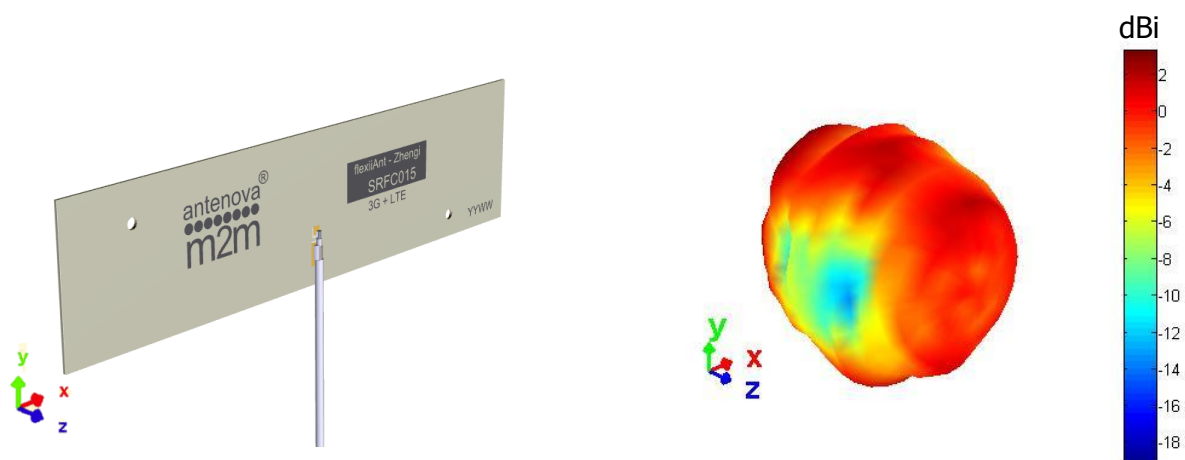
#### 3D pattern at 890 MHz

Drag to rotate pattern and PCB by using Adobe Reader  
(Click to Activate)



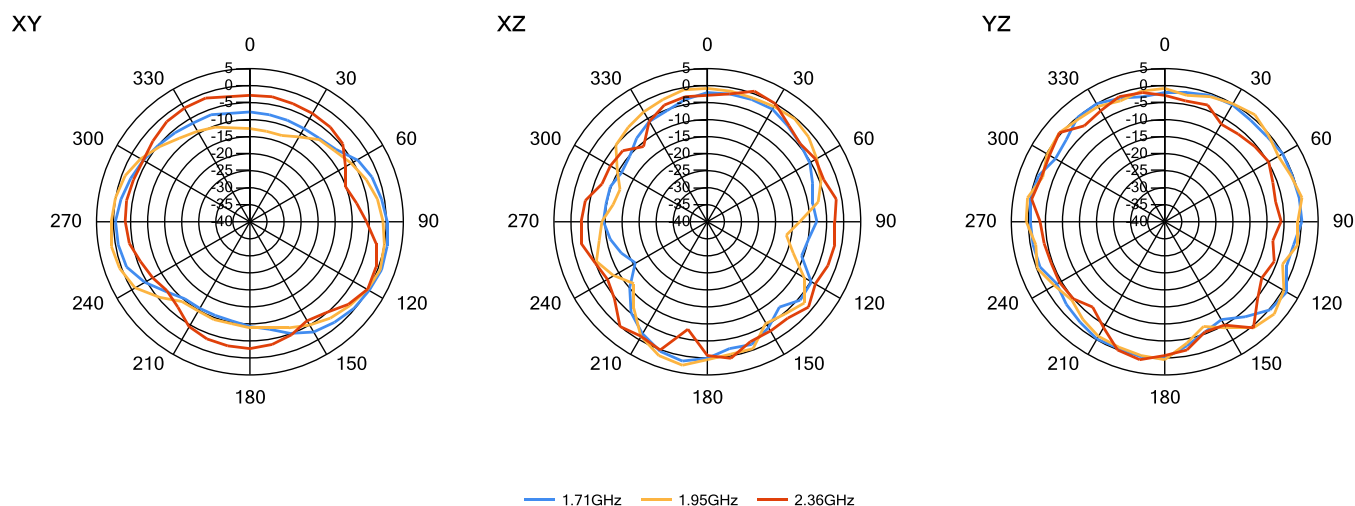
Antennas for Wireless M2M Applications

## 7.3.2 1710 MHz – 2170 MHz



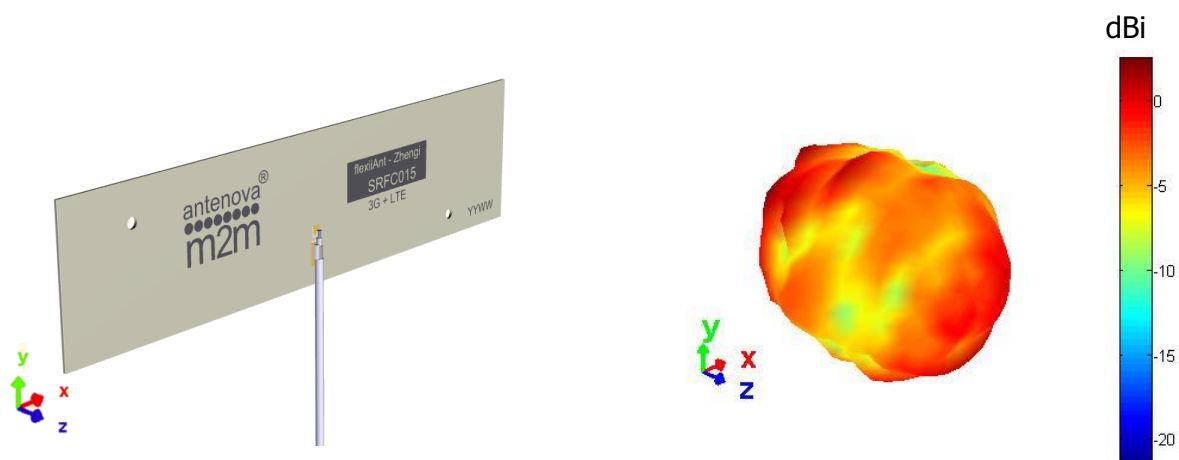
### 3D pattern at 1990 MHz

*Drag to rotate pattern and PCB by using Adobe Reader  
(Click to Activate)*

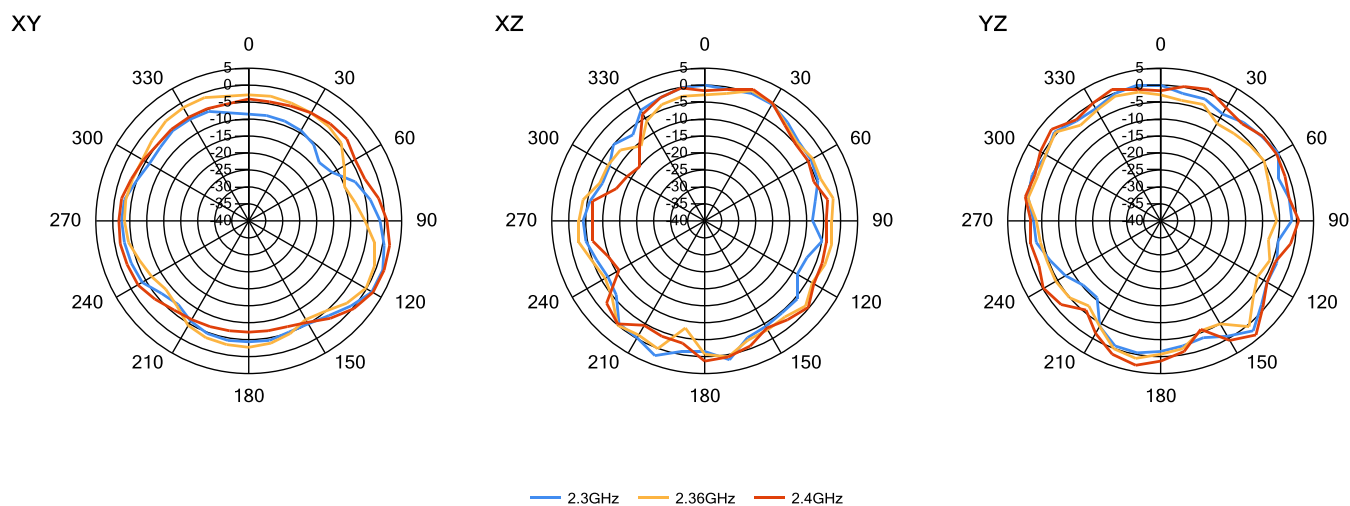


Antennas for Wireless M2M Applications

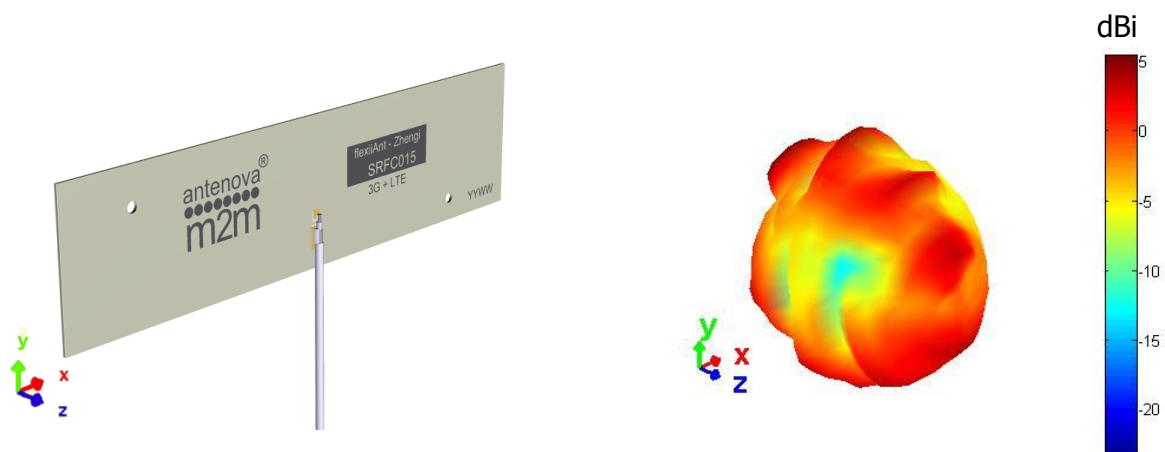
### 7.3.3 2300 MHz – 2400 MHz



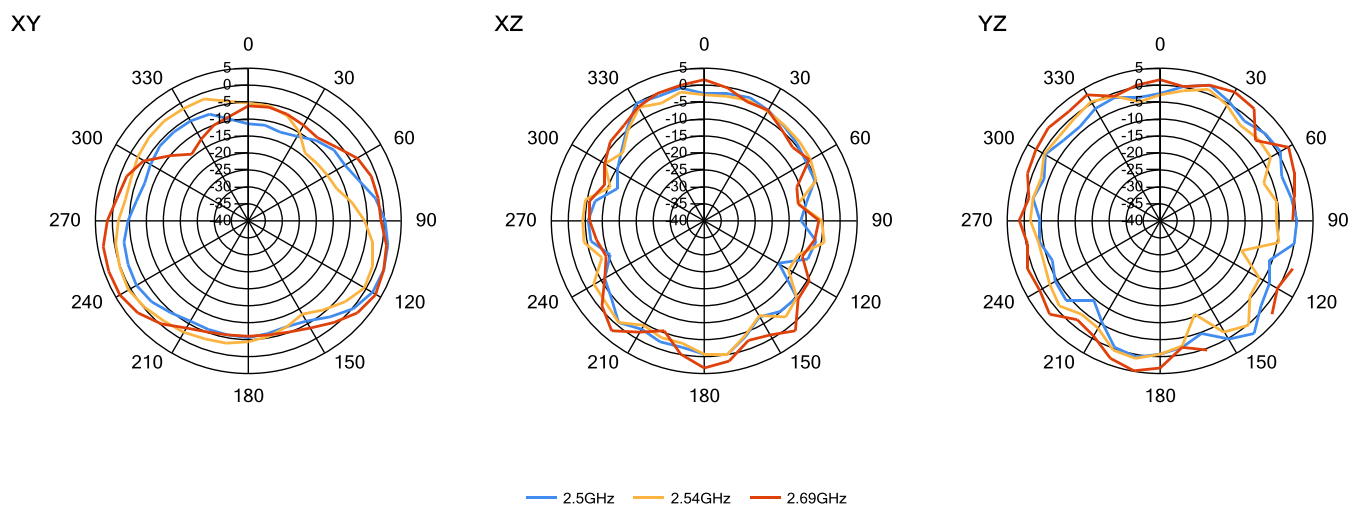
**3D pattern at 2350 MHz**  
*Drag to rotate pattern and PCB by using Adobe Reader  
(Click to Activate)*



## 7.3.4 2500 MHz – 2690 MHz

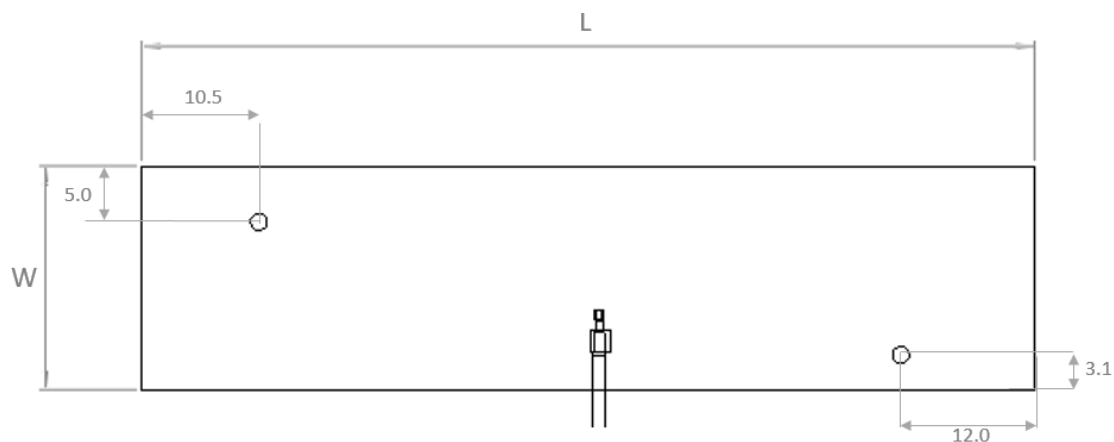


**3D pattern at 2600 MHz**  
*Drag to rotate pattern and PCB by using Adobe Reader  
(Click to Activate)*



## 8. Antenna Dimensions

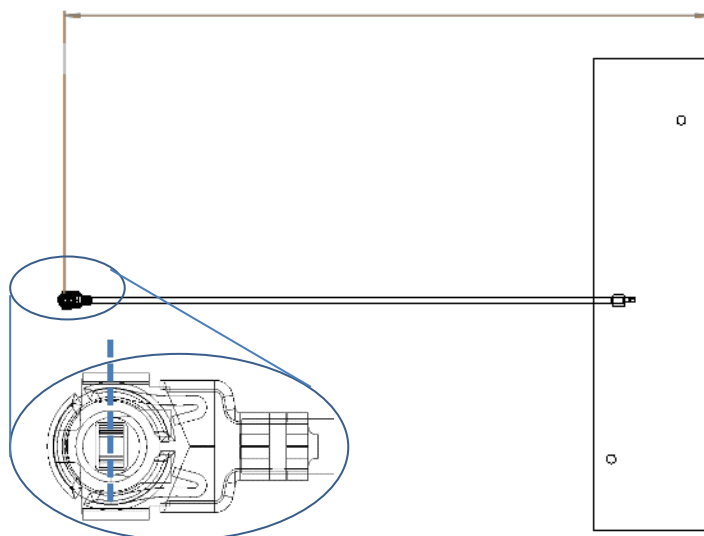
### 8.1 Dimensions FPC section



| L               | W               | T                 |
|-----------------|-----------------|-------------------|
| Length          | Width           | Thickness         |
| 80.0 ± 0.2 (mm) | 20.0 ± 0.2 (mm) | 0.15 (mm) nominal |

All dimensions in mm

### 8.2 Dimensions assembled

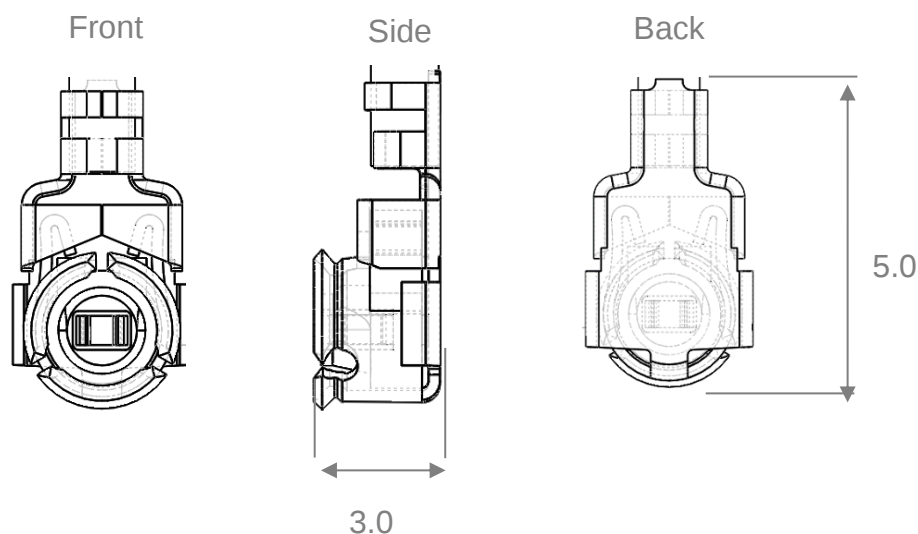
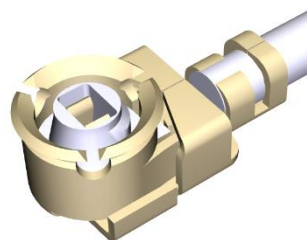


| SRFC015-100    | SRFC015-150    | SRFC015-200    |
|----------------|----------------|----------------|
| L              | L              | L              |
| 113 ± 2.0 (mm) | 163 ± 2.0 (mm) | 213 ± 2.0 (mm) |

Antennas for Wireless M2M Applications

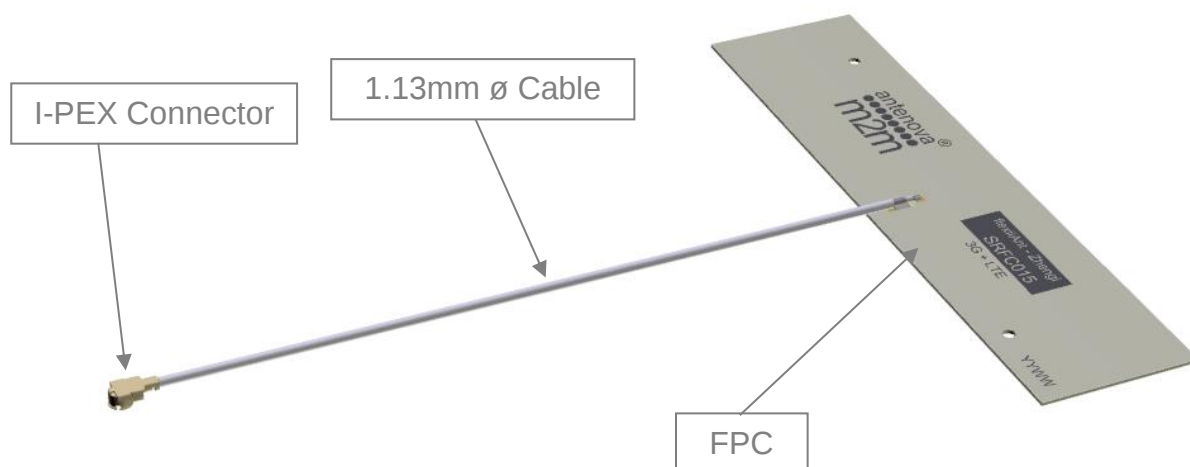
## 8.3 IPEX Connector

| I-PEX    |              |
|----------|--------------|
| Material | Copper Alloy |
| Plating  | Ag           |



All dimensions in mm

## 8.4 Assembly



Antennas for Wireless M2M Applications

## 9. Electrical Interface

### 9.1 Host Interface

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

### 9.2 Transmission Line

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

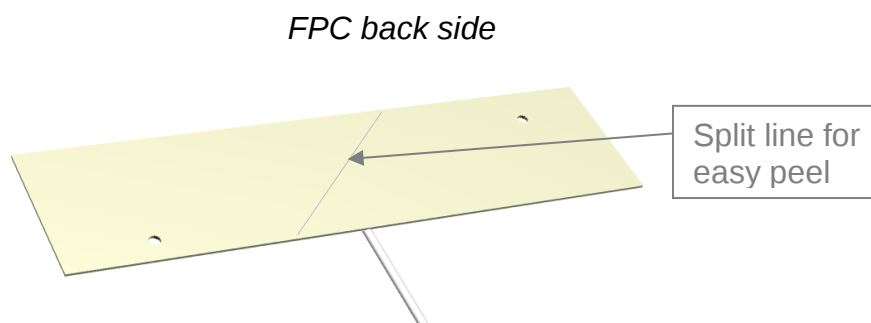
- The length of the transmission lines should be kept to a minimum
- Any other parts of the RF system like transceivers, power amplifiers, etc, should also be designed to have an impedance of 50 Ω

Once the material for the PCB has been chosen (PCB thickness and dielectric constant), a coplanar transmission line can easily be designed using any of the commercial software packages for transmission line design. For the chosen PCB thickness, copper thickness and substrate dielectric constant, the program will calculate the appropriate transmission line width and gaps on either side of the feed.

A DC blocking capacitor should be placed in line to protect the RF front end.

## 10. 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.



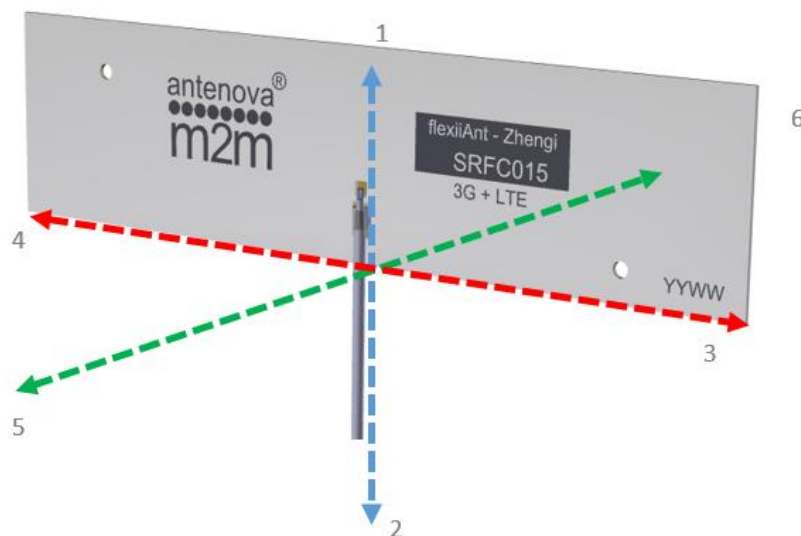
## 10.0 Antenna Integration Guide

### 10.1 Placement

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

Using six spatial directions shown below as a guide. The antenna FPC section should try to 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.

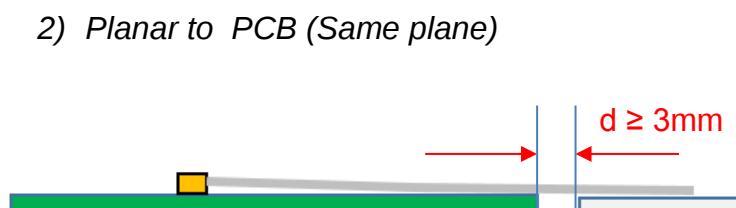
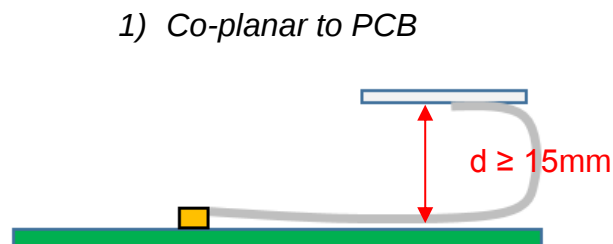
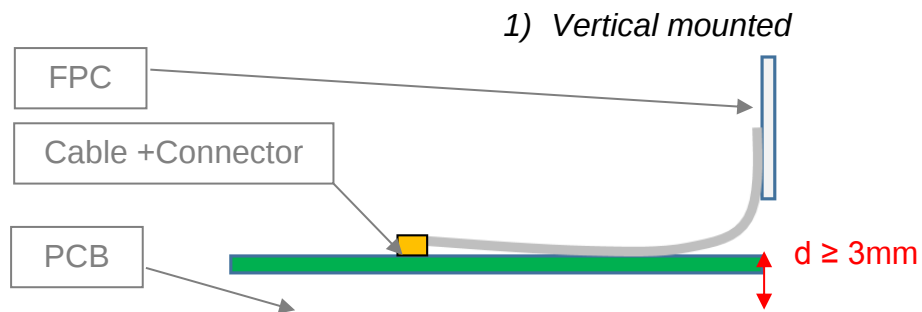
*Six spatial directions relative to FPC*



## 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. Below shows the minimum value of (d) for each. Other obstructions may increase this dimension.



## 11. Hazardous Material Regulation Conformance

The antenna has been tested to conform to RoHS requirements. A certificate of conformance is available from Antenova M2M's website.

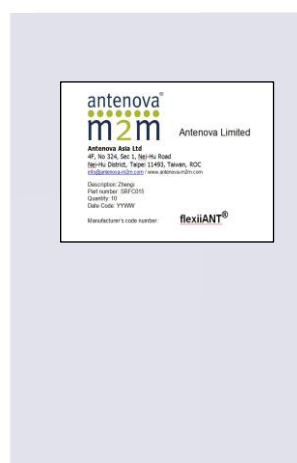
## 12. Packaging

The antennas are stored in individual plastic (PE) bags. Then stored within a second bag of 10pcs.

*Single antenna per bag*



*10 units per second bag (Labelled)*

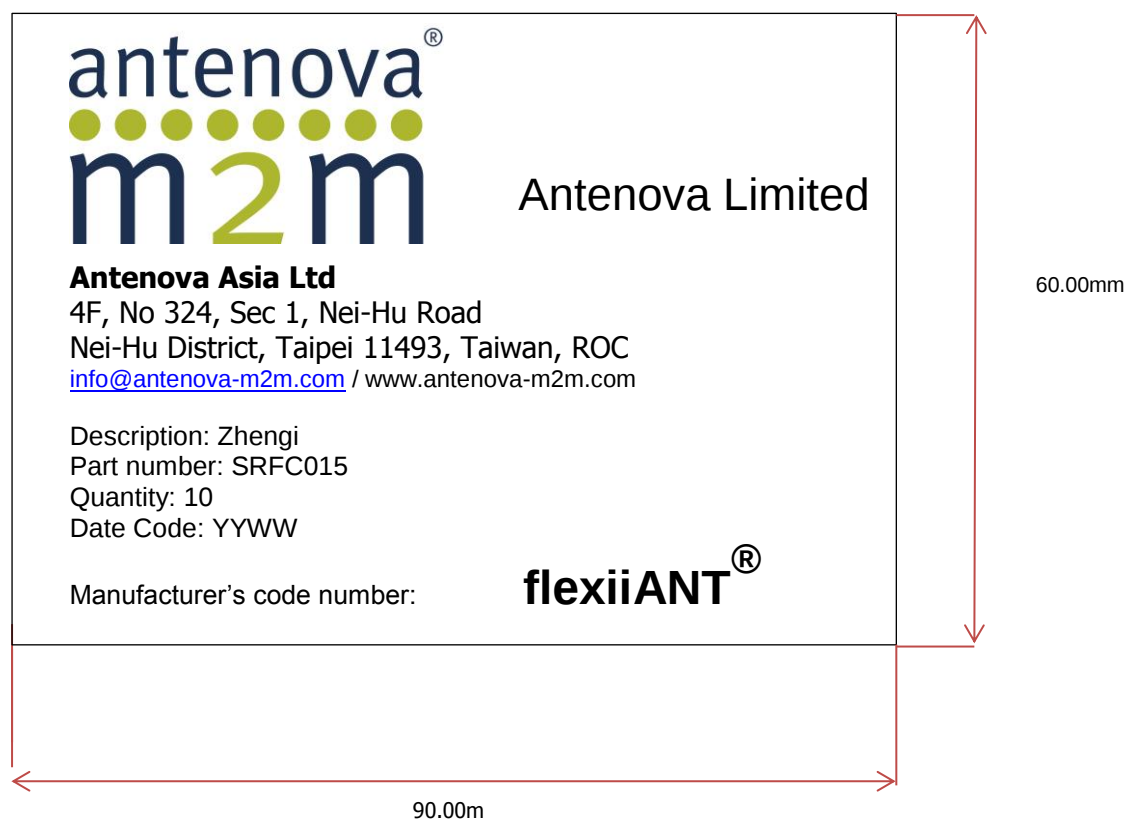


### 12.1 Optimal Storage Conditions

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

## Antennas for Wireless M2M Applications

## 12.2 Label Information





[www.antenova-m2m.com](http://www.antenova-m2m.com)

#### Corporate Headquarters

Antenova Limited  
2<sup>nd</sup> Floor Titan Court  
3 Bishop Square  
Hatfield  
AL10 9NA  
UK

**Tel:** +44 1223 810600

**Email:** [sales@antenova-m2m.com](mailto:sales@antenova-m2m.com)

#### North America Headquarters

Antenova Limited  
100 Brush Creek Road, Suite 103  
Santa Rosa  
California 95404  
USA

**Tel:** +1 707 890 5202

**Email:** [sales@antenova-m2m.com](mailto:sales@antenova-m2m.com)

#### Asia Headquarters

Antenova Asia Limited  
4F, No. 324, Sec. 1, Nei-Hu Road  
Nei-Hu District  
Taipei 11493  
Taiwan, ROC

**Tel:** +886 (0) 2 8797 8630

**Fax:** +886 (0) 2 8797 6890

**Email:** [sales@antenova-m2m.com](mailto:sales@antenova-m2m.com)

**Copyright® Antenova Ltd.** All Rights Reserved. Antenova®, Antenova M2M®, gigaNOVA®, the Antenova product family names, and the Antenova and Antenova M2M logos are trademarks and/or registered trademarks of Antenova Ltd. Any other names and/or trademarks belong to their respective companies.

The materials provided herein are believed to be reliable and correct at the time of printing. Antenova does not warrant the accuracy or completeness of the information, text, graphics or other items contained within this information. Antenova further assumes no responsibility for the use of this information, and all such information shall be entirely at the user's risk.



Certificate No: 4598

## Antennas for Wireless M2M Applications

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9