

# ISM 433 MHz FPC ANTENNAS

## FEATURES & BENEFITS

- ISM 433 MHz FPC antennas for LoRaWAN/LPWA and other IoT products
- Available cable lengths: 50,100,150 mm
- Available connectors: MHF-type & MHF4-type
- FPC with double side adhesive tape simplifies mounting within the device even on curved areas
- Omnidirectional coverage

## PART NUMBERS

| PART NUMBER      | CABLE LENGTH(A) |       | CONNECTOR TYPE<br>(ON CABLE) |
|------------------|-----------------|-------|------------------------------|
|                  | MM              | INCH  |                              |
| <b>L000605-1</b> | 50.0            | 1.968 | MHF-TYPE PLUG                |
| <b>L000605-2</b> | 100.0           | 3.937 | MHF-TYPE PLUG                |
| <b>L000605-3</b> | 150.0           | 5.905 | MHF-TYPE PLUG                |
| <b>L000605-4</b> | 50.0            | 1.968 | MHF4L-TYPE PLUG              |
| <b>L000605-5</b> | 100.0           | 3.937 | MHF4L-TYPE PLUG              |
| <b>L000605-6</b> | 150.0           | 5.905 | MHF4L-TYPE PLUG              |

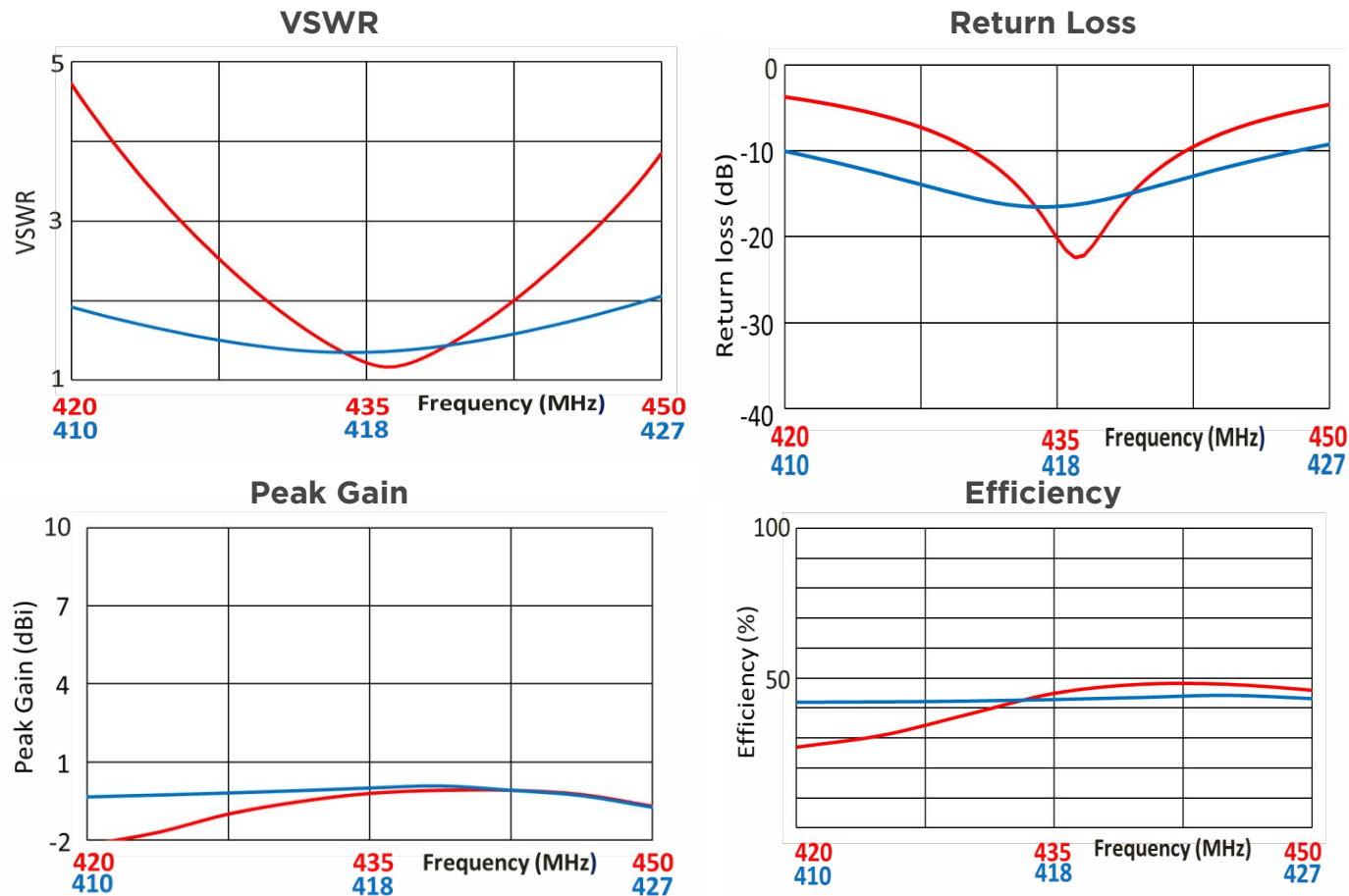
**SPECIFICATIONS** (Shown as L000605-2 : Others can vary with different cable lengths.)

|                       |                                                                                |
|-----------------------|--------------------------------------------------------------------------------|
| Frequency Range (MHz) | 433 – 435                                                                      |
| VSWR                  | < 1.6 : 1                                                                      |
| Average Efficiency    | 47 %                                                                           |
| Peak Gain             | -0.3 dBi                                                                       |
| Average Gain          | -3.2 dB                                                                        |
| Power Handling        | 10 Watt cw                                                                     |
| Feed Point Impedance  | 50 ohms                                                                        |
| Polarization          | Linear                                                                         |
| Size                  | 100.0 mm x 20.0 mm x 0.15 mm                                                   |
| Weight                | < 1 g                                                                          |
| Mounting              | Adhesive Tape                                                                  |
| Mating Connectors     | MHF and MHF4L type                                                             |
| Cable                 | 1.13mm Dia.                                                                    |
| Operating Temperature | -40 to +85°C                                                                   |
| Storage Temperature   | -40 to +85°C                                                                   |
| Hazardous Materials   | A certificate of conformance is available from the product page on TE website. |

**ANTENNA RF SPECIFICATIONS WITH DIFFERENT CABLE ASSEMBLIES**

| P/N<br>Cable Length/<br>Connector/Cable OD | RF<br>DATA      | VSWR      |           |
|--------------------------------------------|-----------------|-----------|-----------|
|                                            |                 | 433 - 435 | 410 - 427 |
| 50 mm                                      | VSWR            | < 1.5 :1  | NA        |
|                                            | Avg. Efficiency | 65 %      | NA        |
|                                            | Peak Gain (Max) | 1.0 dBi   | NA        |
|                                            | Average Gain    | -1.87 dBi | NA        |
| 100 mm                                     | VSWR            | <1.6 :1   | <2.1 :1   |
|                                            | Avg. Efficiency | 47 %      | 42 %      |
|                                            | Peak Gain (Max) | -0.2 dBi  | 0.1 dBi   |
|                                            | Average Gain    | -3.28 dBi | -3.77 dBi |
| 150 mm                                     | VSWR            | <1.9 :1   | <2.6 :1   |
|                                            | Avg. Efficiency | 33 %      | 30%       |
|                                            | Peak Gain (Max) | -2.0 dBi  | -1.5 dBi  |
|                                            | Average Gain    | -4.81 dBi | -5.23 dBi |

**RF DATA** (Shown as L000605-2 : Others can vary with different cable lengths.)

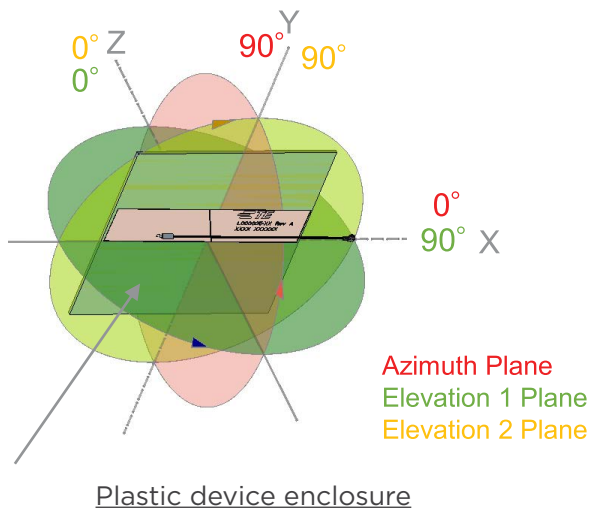


Data measured in free space and on reference ground plane of 41 x 90 x 1.6 mm ground plane condition, application data might vary.

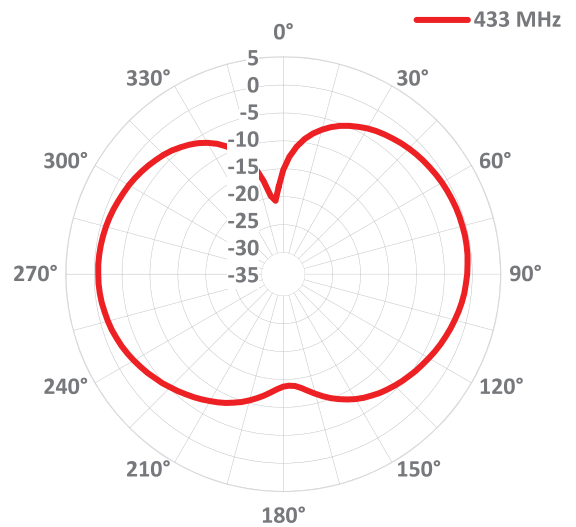
## RADIATION PATTERN

(Shown as L000605-2 : Others can vary with different cable lengths.)

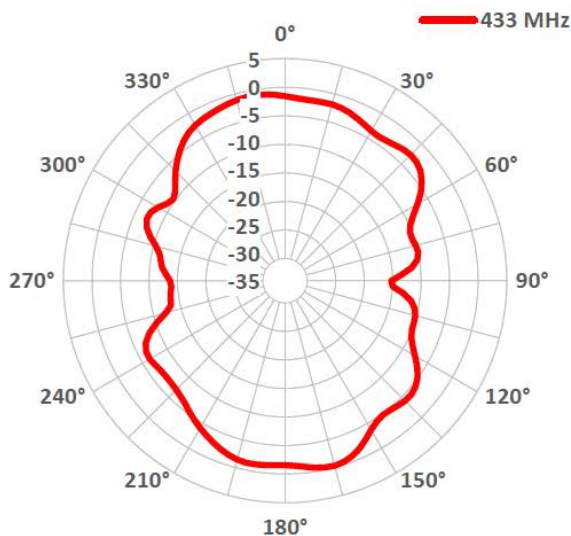
### Test setup



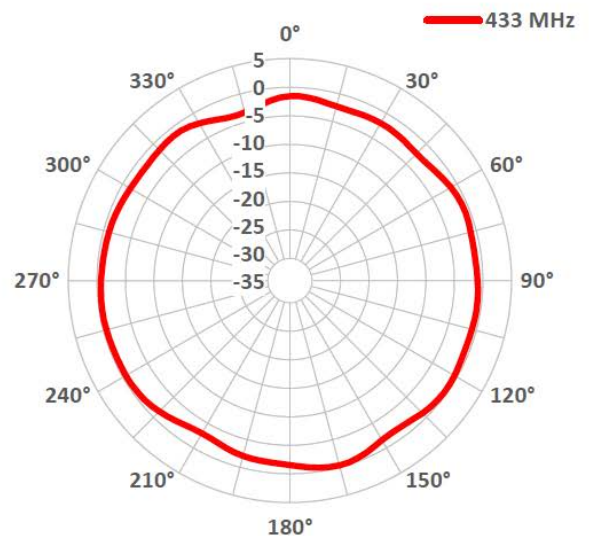
### Azimuth



### Elevation

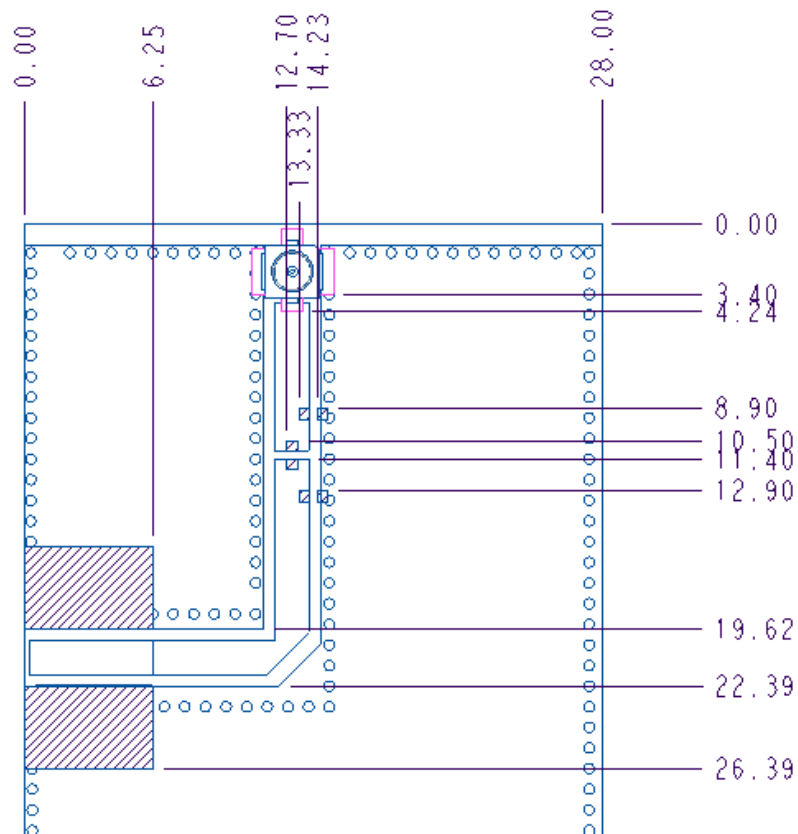


### Elevation 2



Data measured on 1.7mm thick PC plastic with reference evaluation board and matching circuit. Application data might vary.

## EVALUATION BOARD MATCHING NETWORK LAYOUT



## NOTES

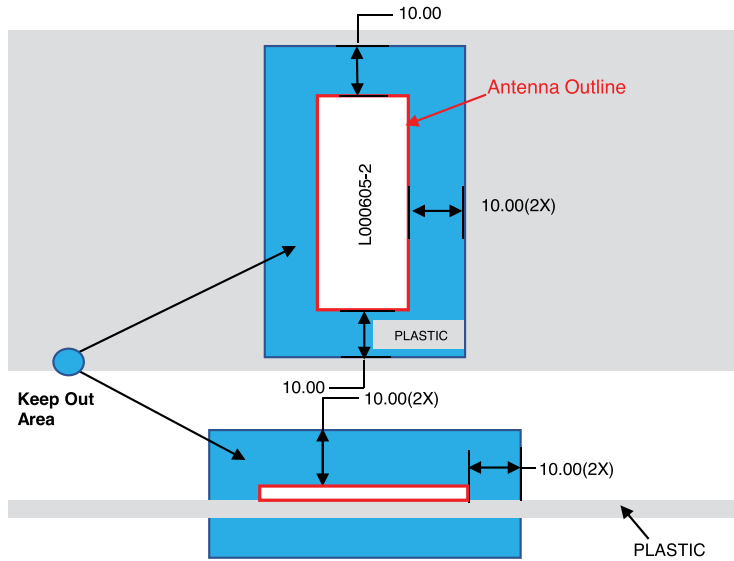
1. Antenna is connected to evaluation board with MHF
2. Measured with below matching circuit condition.
3. Reference PCB Dimension(mm) - 28 x 103 x 1.6mm
4. NC = Non connection (mechanical mounting pads).
5. NA = Not available for the frequency band.
6. For more information please contact TE.

Dimension: mm

Diagram is not to scale

| P/N               | Matching Network |      |    |               |      |      |
|-------------------|------------------|------|----|---------------|------|------|
|                   | 433 - 435 MHz    |      |    | 410 - 427 MHz |      |      |
|                   | 1                | 2    | 3  | 1             | 2    | 3    |
| <b>L000605-01</b> | 56nH             | 3pF  | NC | 56nH          | 3pF  | NC   |
| <b>L000605-02</b> | 56nH             | 3pF  | NC | 4.5pF         | 40nH | NC   |
| <b>L000605-03</b> | 6.2nH            | 13nH | NC | NC            | 4pF  | 20nH |

### KEEP OUT AREA



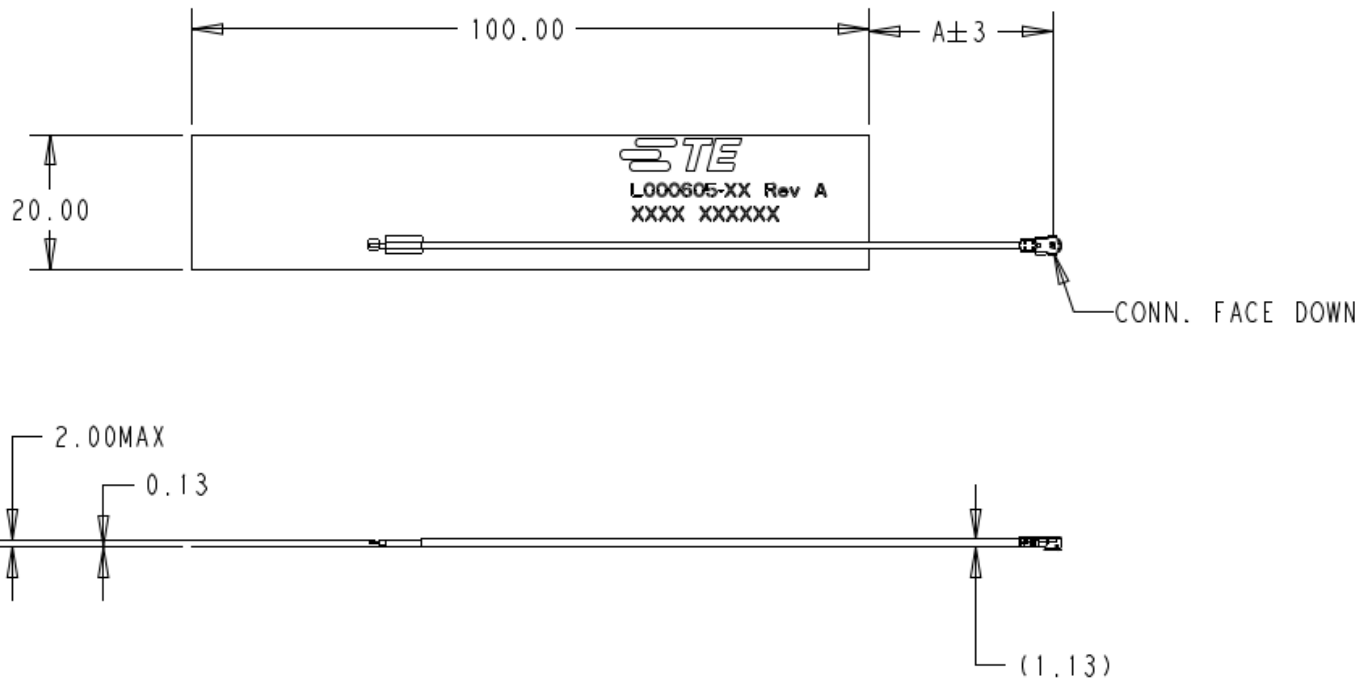
#### NOTES

1. Antenna designed to be mounted on plastic cover.
2. Area in blue above indicates Keep Out Area.
3. For more information please call TE.

Dimension: mm

Diagram is not to scale

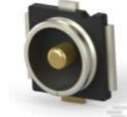
### DIMENSIONS



Dimension: mm

Diagram is not to scale

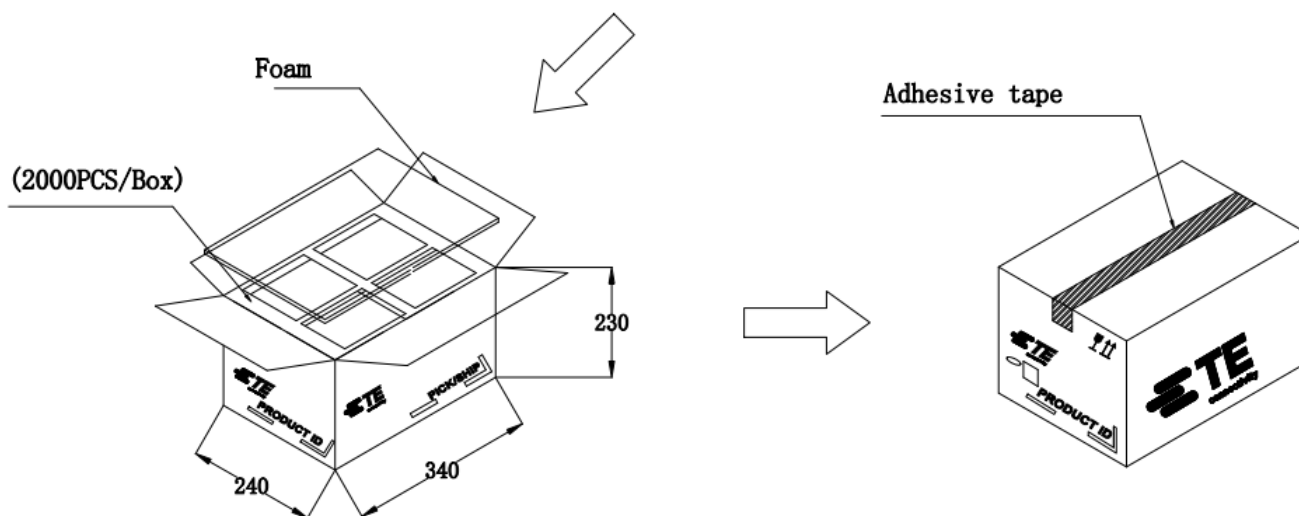
## MATING COMPONENTS TO PART NUMBERS AND DIMENSIONS

| PART NUMBER | CABLE LENGTH(A) |       | CABLE O.D,<br>MM | CONNECTOR TYPE<br>(ON CABLE) | PART NUMBER MATING<br>COMPONENTS | IMAGE                                                                               |
|-------------|-----------------|-------|------------------|------------------------------|----------------------------------|-------------------------------------------------------------------------------------|
|             | MM              | INCH  |                  |                              |                                  |                                                                                     |
| L000605-1   | 50.0            | 1.968 | 1.13             | MHF-TYPE PLUG                | RECEPTACLE (TE PN: 2337019-1)    |  |
| L000605-2   | 100.0           | 3.937 | 1.13             | MHF-TYPE PLUG                | RECEPTACLE (TE PN: 2337019-1)    |                                                                                     |
| L000605-3   | 150.0           | 5.905 | 1.13             | MHF-TYPE PLUG                | RECEPTACLE (TE PN: 2337019-1)    |                                                                                     |
| L000605-4   | 50.0            | 1.968 | 1.13             | MHF4L-TYPE PLUG              | RECEPTACLE (TE PN: 2334884-1)    |  |
| L000605-5   | 100.0           | 3.937 | 1.13             | MHF4L-TYPE PLUG              | RECEPTACLE (TE PN: 2334884-1)    |                                                                                     |
| L000605-6   | 150.0           | 5.905 | 1.13             | MHF4L-TYPE PLUG              | RECEPTACLE (TE PN: 2334884-1)    |                                                                                     |

## PACKAGING



50pcs/Bag  
drying agent:1pcs/Bag



## ISM 433 MHz FPC ANTENNAS

### Standard Antenna Solutions

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## TE TECHNICAL SUPPORT CENTER

|                   |                       |
|-------------------|-----------------------|
| USA:              | +1 (800) 522-6752     |
| Canada:           | +1 (905) 475-6222     |
| Mexico:           | +52 (0) 55-1106-0800  |
| Latin/S. America: | +54 (0) 11-4733-2200  |
| Germany:          | +49 (0) 6251-133-1999 |
| UK:               | +44 (0) 800-267666    |
| France:           | +33 (0) 1-3420-8686   |
| Netherlands:      | +31 (0) 73-6246-999   |
| China:            | +86 (0) 400-820-6015  |

For phone numbers in other countries, go to [te.com/support-center](https://te.com/support-center)

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