

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 (ON CABLE)
	MM	INCH	
L000604-1	50.0	1.968	MHF-TYPE PLUG
L000604-2	100.0	3.937	MHF-TYPE PLUG
L000604-3	150.0	5.905	MHF-TYPE PLUG
L000604-4	50.0	1.968	MHF4L-TYPE PLUG
L000604-5	100.0	3.937	MHF4L-TYPE PLUG
L000604-6	150.0	5.905	MHF4L-TYPE PLUG

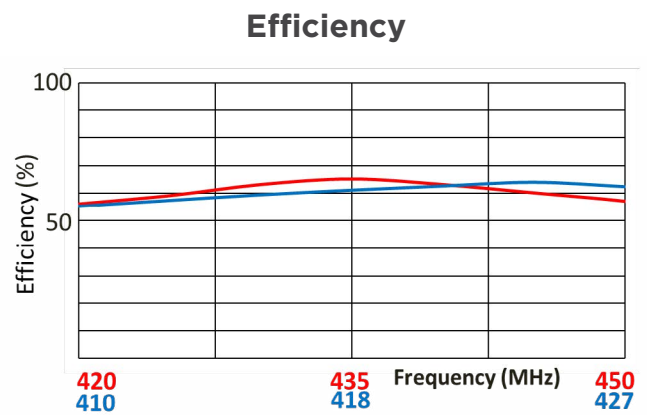
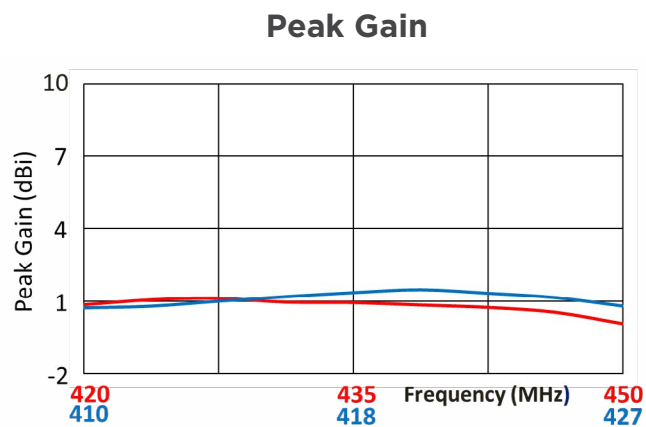
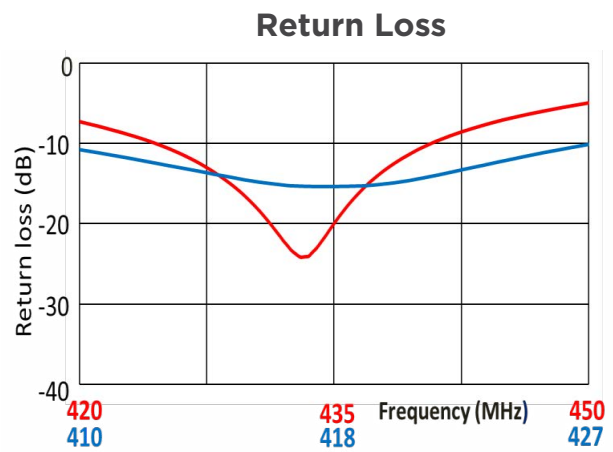
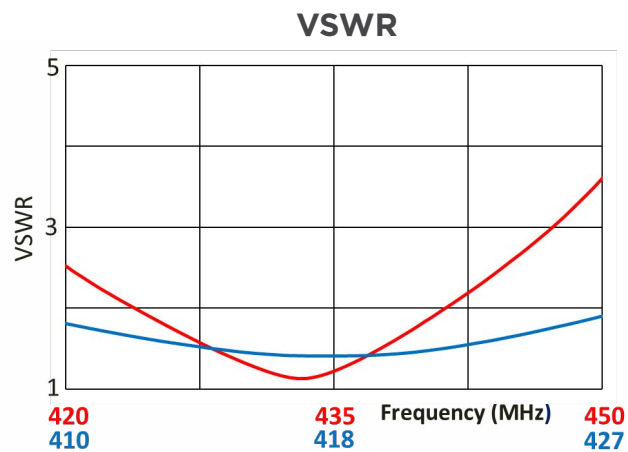
SPECIFICATIONS (Shown as L000604-2 : Others can vary with different cable lengths.)

Frequency Range (MHz)	433 - 435
VSWR	< 1.5:1
Average Efficiency	60 %
Peak Gain	0.9 dBi
Average Gain	-2.0 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.

SPECIFICATIONS (Shown as L000604-2 : Others can vary with different cable lengths.)

P/N Cable Length/ Connector/Cable OD	RF DATA	VSWR	
		433 - 435	410 - 427
50 mm	VSWR	< 1.3 :1	NA
	Avg. Efficiency	60 %	NA
	Peak Gain (Max)	0.74 dBi	NA
	Average Gain	-2.22 dBi	NA
100 mm	VSWR	< 1.3 :1	<1.9 :1
	Avg. Efficiency	63 %	60%
	Peak Gain (Max)	0.95 dBi	1.46 dBi
	Average Gain	-2.0 dBi	-2.22 dBi
150 mm	VSWR	<1.4 :1	<2.5 :1
	Avg. Efficiency	48 %	43%
	Peak Gain (Max)	-0.25 dBi	0.30 dBi
	Average Gain	-3.19 dBi	-3.67 dBi

RF DATA (Shown as L000604-2 : Others can vary with different cable lengths.)

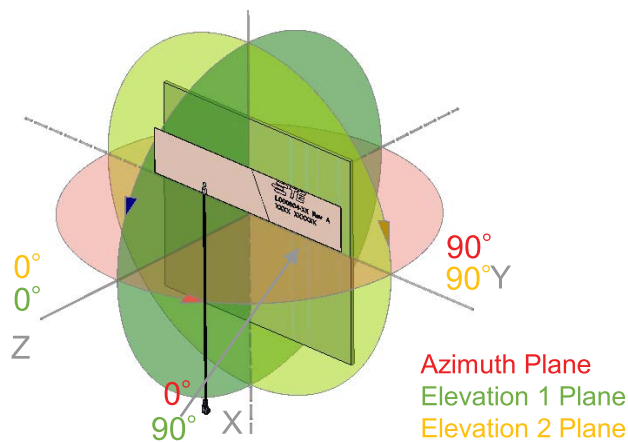


Data measured in free space and on reference ground plane of 41 x 90 x 1.6 mm ground plane condition, application data might vary.

RADIATION PATTERN

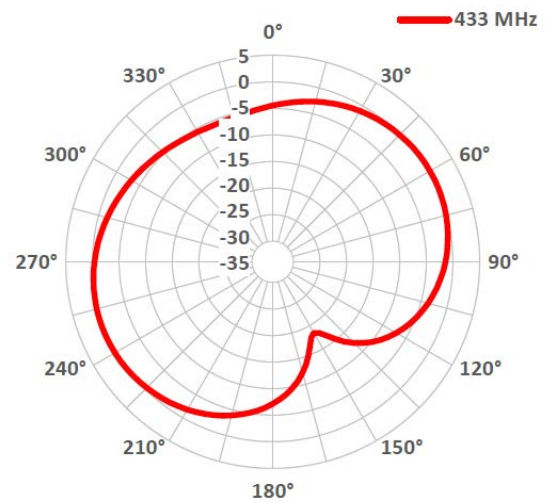
(Shown as L000604-2 : Others can vary with different cable lengths.)

Test setup

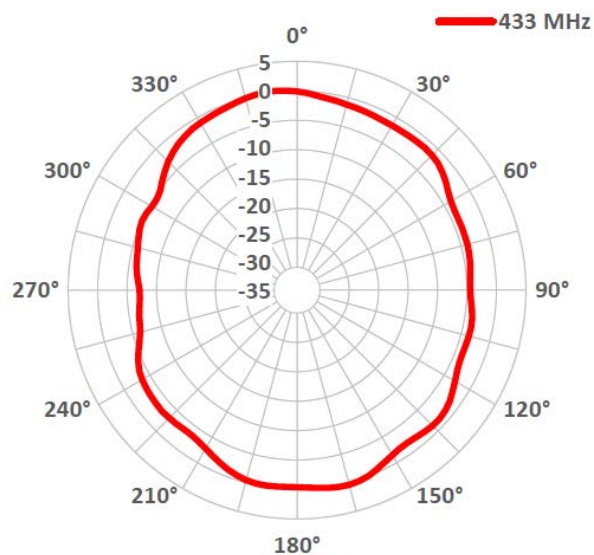


Plastic device enclosure

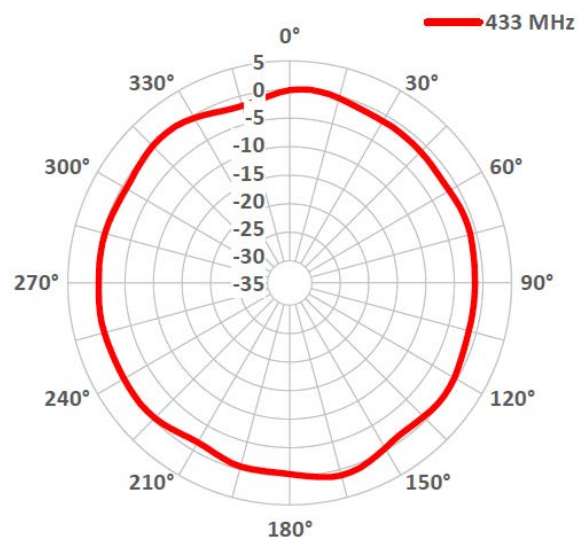
Azimuth



Elevation

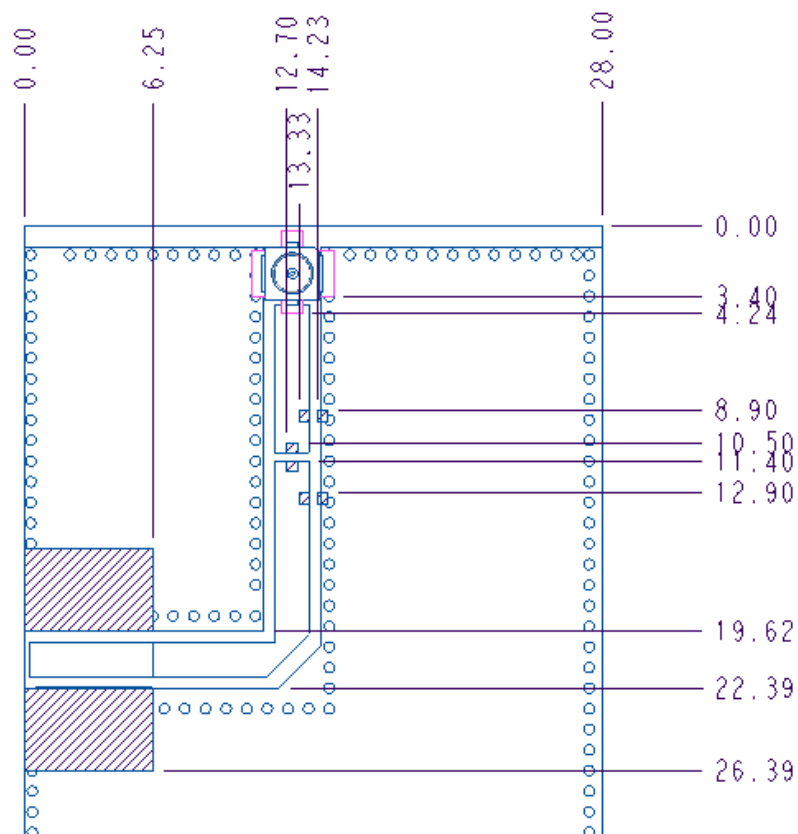


Elevation 2



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.

EVALUATION BOARD MATCHING NETWORK LAYOUT



NOTES

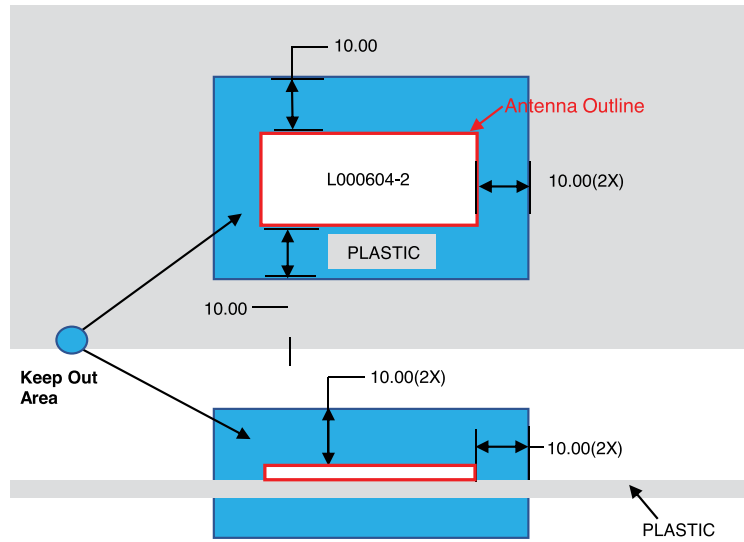
1. Antenna is connected to evaluation board with MHF
2. Measured with below matching circuit condition.
3. Reference PCB Dimension(mm) - 28 x 103 x 1.6mm
4. NC = Non connection (mechanical mounting pads).
5. NA = Not available for the frequency band.
6. For more information please contact TE.

Dimension: mm

Diagram is not to scale

P/N	Matching Network					
	433 - 435 MHz			410 - 427 MHz		
	1	2	3	1	2	3
L000604-01	NC	5nH	20nH	NA	NA	NA
L000604-02	NC	22pF	9pF	8pF	10pF	NC
L000604-03	1.5pF	30nH	NC	NC	4pF	62nH

KEEP OUT AREA



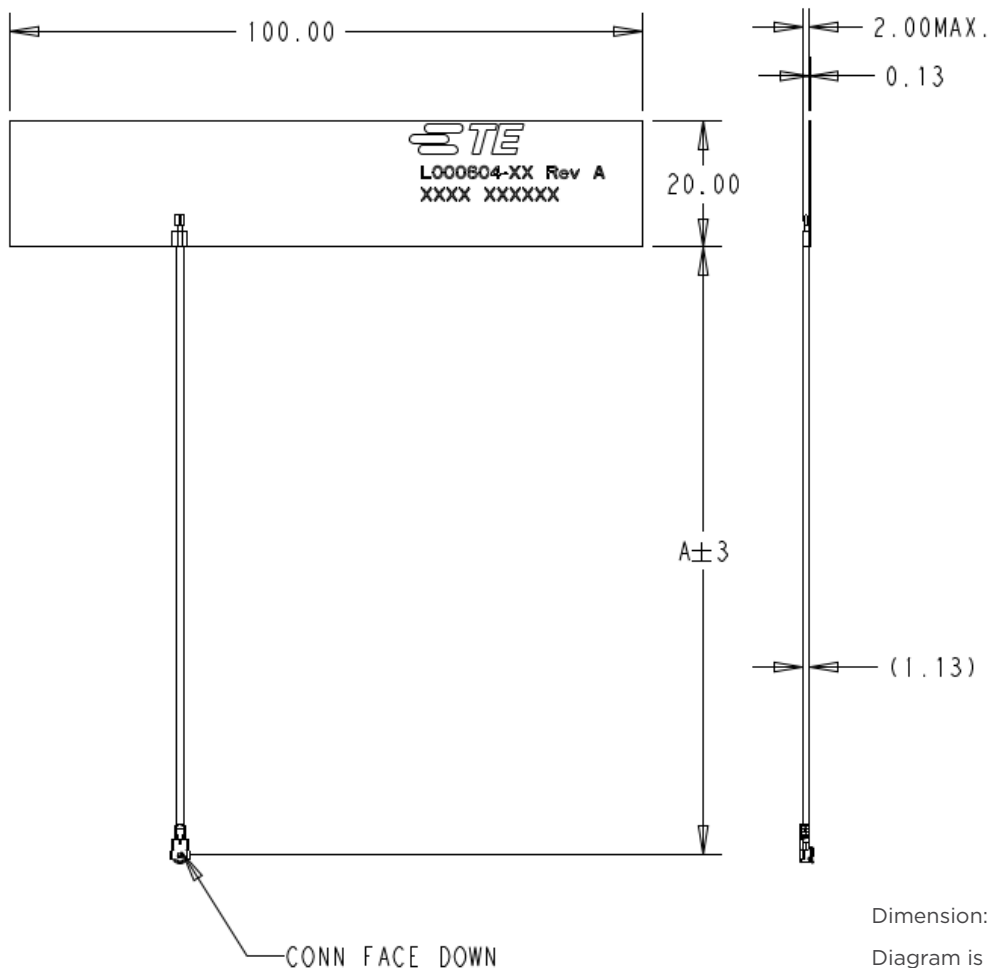
NOTES

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



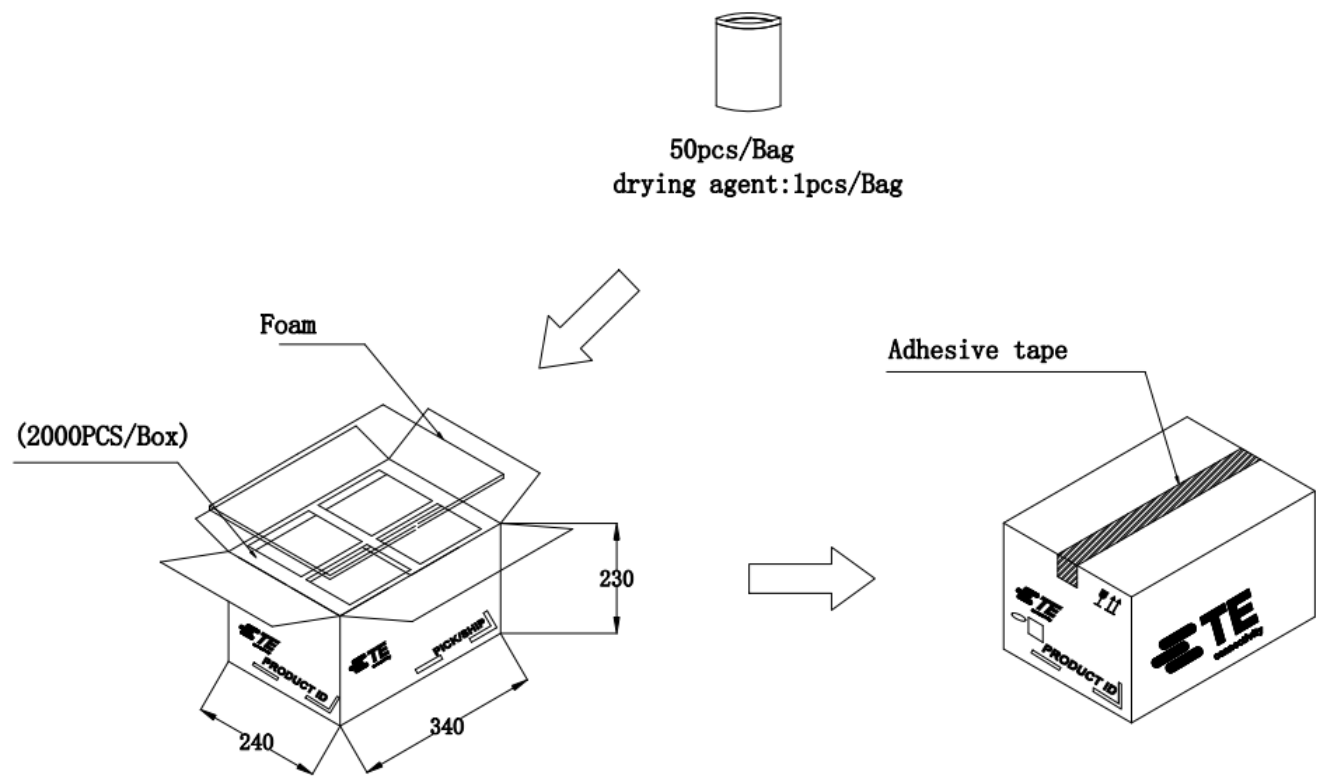
Dimension: mm

Diagram is not to scale

MATING COMPONENTS TO PART NUMBERS AND DIMENSIONS

PART NUMBER	CABLE LENGTH(A)		CABLE O.D, MM	CONNECTOR TYPE (ON CABLE)	PART NUMBER MATING COMPONENTS	IMAGE
	MM	INCH				
L000604-1	50.0	1.968	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000604-2	100.0	3.937	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000604-3	150.0	5.905	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000604-4	50.0	1.968	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000604-5	100.0	3.937	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000604-6	150.0	5.905	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	

PACKAGING



ISM 433 MHz FPC ANTENNAS

Standard Antenna Solutions

TE TECHNICAL SUPPORT CENTER

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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

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