Product Brief

ANT-LPC-FPC-ccc
LTE/LPWA/GNSS Flexible Embedded Dipole Antenna

The ANT-LPC-FPC-ccc (LPC) antenna is a flexible embedded multiband cellular and cellular IoT antenna (LTE-M and NB-IoT) ideal for use in LTE applications such as Citizens Broadband Radio Service (CBRS). The LPC also supports low-power, wide-area (LPWA) networking at 868 MHz, 915 MHz and global navigation systems (GNSS/GPS).

The LPC provides a ground plane independent dipole embedded antenna solution comparable in performance to an external antenna. The LPC's flexibility and adhesive backing makes it easy to mount in unique and custom enclosures, while enabling an environmentally sealed enclosure and protection from tampering or accidental antenna damage.

Connection is made to the radio via 1.13 mm coaxial cable terminated in an MHF1/U.FL-type plug connector.



Features

- 3550 MHz to 3700 MHz (CBRS)
  - VSWR: ≤ 4.5
  - Peak Gain: 5.5 dBi
  - Efficiency: 70%
- 2496 MHz to 2690 MHz (LTE 7, 41)
  - VSWR: ≤ 3.1
  - Peak Gain: 5.0 dBi
  - Efficiency: 59%
- Compact, low-profile
  - 64 mm x 17 mm x 0.2 mm
- MHF1/U.FL-type plug (female socket) on 1.13 mm coaxial cable
- Flexible to fit in challenging enclosures
- Adhesive backing permanently adheres to non-metal enclosures using 3M 467MP™/200MP adhesive

Applications

- Worldwide LTE, UMTS and GSM
- Cellular IoT:
  - LTE-M (Cat-M1)
  - NB-IoT
- Low-power, wide-area (LPWA) applications
  - LoRaWAN®
  - Sigfox®
- ISM: Bluetooth® and ZigBee®
- Global Navigation (GNSS)
  - GPS, GLONASS, Galileo, BeiDou
- Citizens Broadband Radio Service (CBRS)

Ordering Information

Part Number	Description
ANT-LPC-FPC-50	Antenna with 50 mm of 1.13 mm coaxial cable and MHF1/U.FL-type plug (female socket)
ANT-LPC-FPC-100	Antenna with 100 mm of 1.13 mm coaxial cable and MHF1/U.FL-type plug (female socket)
ANT-LPC-FPC-150	Antenna with 150 mm of 1.13 mm coaxial cable and MHF1/U.FL-type plug (female socket)

Available from Linx Technologies and select distributors and representatives.

Table 1. Electrical Specifications

Select Bands	Frequency Range	VSWR (max.)	Peak Gain (dBi)	Avg. Gain (dBi)	Efficiency (%)
LTE 12, 13, 14, 17, 26, 28, 29	698 MHz to 803 MHz	8.2	0.1	-6.4	25
LTE 5, 8, 20	791 MHz to 960 MHz	4.8	3.7	-4.5	43
LTE 1, 2, 3, 4, 10, 25, 66	1710 MHz to 2200 MHz	4.9	2.2	-3.6	49
LTE 30, 40	2300 MHz to 2400 MHz	3.5	3.3	-2.8	53
LTE 7, 41	2496 MHz to 2690 MHz	3.1	5.0	-2.7	59
LTE 22, 42, 43, 48, 49, 52	3300 MHz to 3800 MHz	2.0	5.7	-1.8	70
GNSS/GPS	1553 MHz to 1609 MHz	1.7	3.3	-1.5	72
Polarization	Linear				
Radiation	Omnidirectional				
Max Power	2 W				
Wavelength	1/2-wave				
Electrical Type	Dipole				
Impedance	50 Ω				
ESD Sensitivity	NOT ESD sensitive. As a best practice, Linx may use ESD packaging.				

Electrical specifications and plots measured on a 2.0 mm (0.08 in) thick plastic sheet

Table 2. Mechanical Specifications

Part Number	Connection	Coaxial Cable, minimum inside bend radius	Weight
ANT-LPC-FPC-50	MHF1/U.FL-type plug	1.13 mm: 5.0 mm (0.20 in)	50 mm = 0.7 g (0.02 oz)
ANT-LPC-FPC-ccc	MHF1/U.FL-type plug	1.13 mm: 5.0 mm (0.20 in)	100 mm = 0.8 g (0.03 oz)
ANT-LPC-FPC-150	MHF1/U.FL-type plug	1.13 mm: 5.0 mm (0.20 in)	150 mm = 1.0 g (0.03 oz)
Operating Temp. Range	-40 °C to +85 °C		
Dimensions	64.0 mm x 17.0 mm x 0.2 mm (2.52 in x 0.67 in x 0.01 in)		

Product Dimensions

Figure 1 provides the dimensions for the LPC antenna.

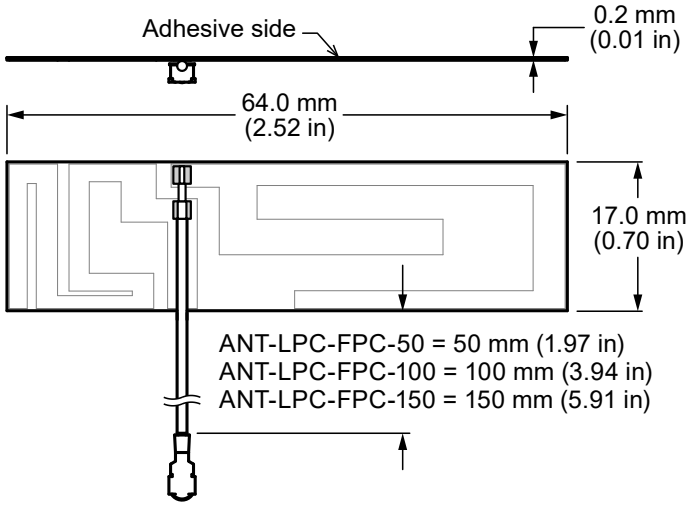


Figure 1. ANT-LPC-FPC-ccc Antenna Dimensions

Packaging Information

The ANT-LPC-FPC-ccc antenna is placed in a clear plastic sleeve, and packaged in sealed plastic bags of of 10 pcs. Distribution channels may offer alternative packaging options.

Antenna Mounting

The ANT-LPC-FPC-ccc is a flexible, adhesive backed antenna that allows it to be permanently installed onto non-metallic surfaces. The adhesive backing is 3M 467MP™/200MP, which provides outstanding adhesion to high surface energy plastics. The adhesive delivers excellent shear strength to resist slippage and edge lifting, but can be repositioned temporarily to allow for repositioning. This adhesive is highly resistant to solvents, humidity and moisture, as well as heat up to 204 °C (400 °F) for short periods.

The antenna should never be bent to the point of creating a crease or allowing the angle of the bend to fall below 90 degrees (i.e. become acute) as this will impair function and may cause permanent damage.

VSWR

Figure 2 provides the voltage standing wave ratio (VSWR) across the antenna bandwidth. VSWR describes the power reflected from the antenna back to the radio. A lower VSWR value indicates better antenna performance at a given frequency. Reflected power is also shown on the right-side vertical axis as a gauge of the percentage of transmitter power reflected back from the antenna.

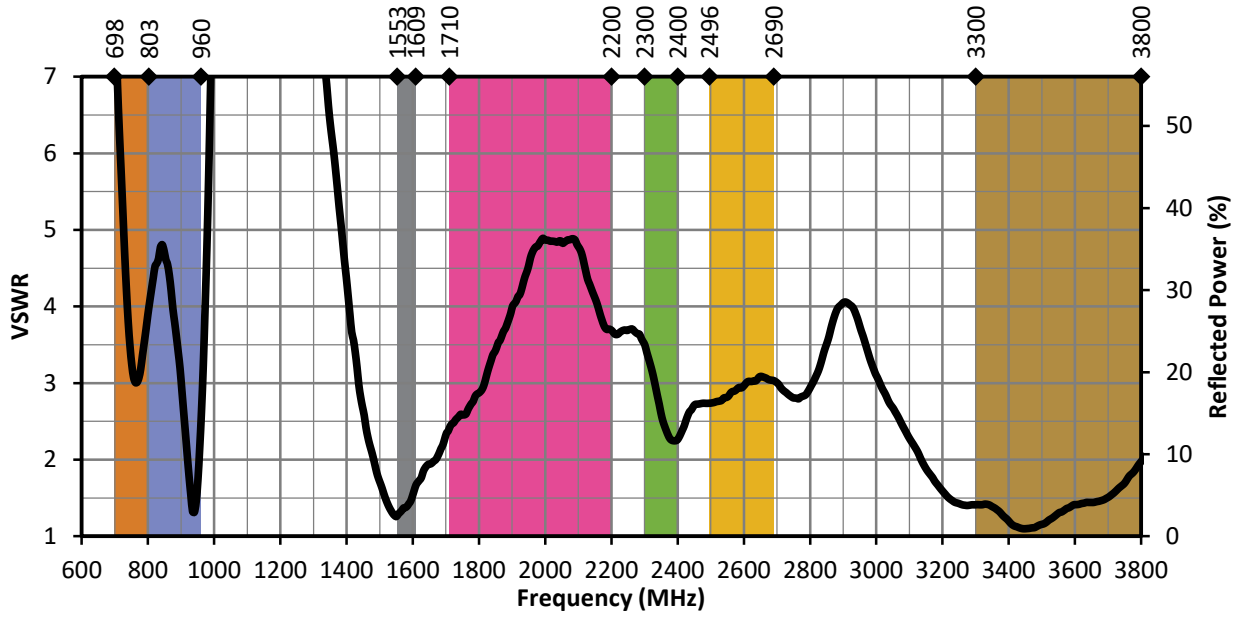


Figure 2. LPC Antenna VSWR with Frequency Band Highlights

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