



Molex's compact, lightweight Cellular 6-band Standalone Antennas with ground-plane-independent features simplify integration in industrial, medical and other wireless devices

Providing excellent communication and range coverage in cellular bands including GSM850, GSM900, GSM1800, GSM1900, UMTS band-1 and LTE band-7, Molex's Cellular 6-band Standalone Antenna is ideal for use in smart meters, medical devices, industrial and other wireless applications.

Featuring a small 106.6 by 13.0mm footprint, this lightweight antenna with its compact design offers more space savings than any similar antenna operating over the same frequency bands in the industry.

The antenna's balanced feed-structure facilitates true ground-plane independence that enables easy integration into wireless devices without PCB-size limitations and influence from land-ground-induced currents. This feature helps free up costly investments in engineering resources and expertise required for frequency tuning and (multiple) band optimization.

Molex's unique Cellular 6-band antenna design provides reflection coefficient values better than -7dB over these bands. Combined with radiation efficiencies of 80% at the low band (GSM850, GSM900) and 70% at the high band (GSM1800, GSM1900 and LTE band-7), the antenna offers unmatched price-performance features.

Molex's 105263 series of standalone antennas are very easy to use. Simply peel off the poly-flexible adhesive tape on the underside of antenna and apply the latter on any desired location within the device casing. Then mount the *UFL-type coaxial connector (located at the end of the micro-coaxial cable) to the device radio and the antenna is ready to use.

For optimum design flexibility, the micro-coaxial cables come in lengths of 100, 150 and 200mm. These thin, flexible cables are designed for small areas to optimize board space. With a pull-force of at least 18N, they provide robust connectivity for its SMT-mounted terminal coaxial connector.

More information is available on our website at:
www.molex.com/link/standard_antennas.html

Features and Benefits

Total average efficiency of 80% at the low band (GSM850, GSM900) and 70% at the high band (GSM1800, GSM1900 and LTE band-7) enables excellent communication range and coverage

Balanced, ground-plane independence significantly cuts costs and engineering resources needed for additional circuitry, frequency tuning and electronic component integration

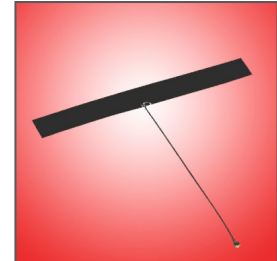
Poly-flexible double-sided adhesive tape for easy peel-and-stick mounting anywhere within the device casing

Robust coaxial cable to flexi-antenna with a pull-force of over 18N ensures maximum antenna reliability

Choice of 100,150 and 200mm micro-coaxial cable lengths for extended flexibility in positioning the antenna anywhere near the radio device

Cellular 6-band Standalone Antenna

105263 Cellular 6 band Standalone Antenna



A 106.6 by 13mm Cellular 6-band Standalone Antenna with 100mm UFL-type connector micro-coaxial cable

* Surface-mount, micro-coaxial Jack (Molex Part Number: 73412-0110). Refer to Molex's product datasheet (Order No. 987650-3242)

Specifications

Reference Information

Packaging: Tray

Mates With:

Micro-coaxial SMT Jack (Part Number: 73412-0110)

Use In:

Any ground plane independent environment

Designed In: mm

RoHS: Yes

Halogen Free: Yes

Glow Wire Compliant: No

Electrical

Frequency Band:

Refer to Ordering Information table

Reflection |S11|:

Refer to Figure 1

Total Efficiency:

Refer to Figure 2

Peak Gain:

Refer to Ordering Information table

Polarization: Linear

Input Impedance: 50 Ohms

Max PWR: 2 W / 33 dBm

Physical

Contact:

Micro coaxial

(< 2.5 mm mating height).

PCB Thickness: 0.10 mm (0.004")

Operating Temperature:

-30 to +75°C

Mechanical

Connector Mating Force:

Initial 20N max, 15N after 30 mating cycles

Connector Unmating Force:

Initial 2N min, 1.5N after 30 mating cycles

Connector Mating Cycles: 30

Cable Pull-force: 18N max.

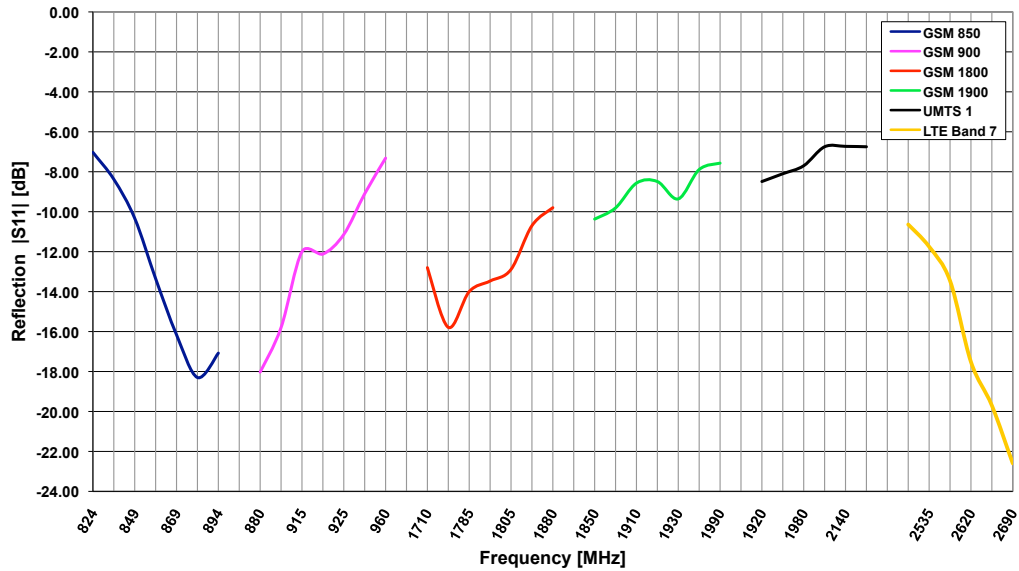


Figure 1: Reflection |S11| measured using Molex's Cellular 6-band Standalone antenna with 100mm micro-coaxial cable, mounted on a 2.50mm-thick PC material plate

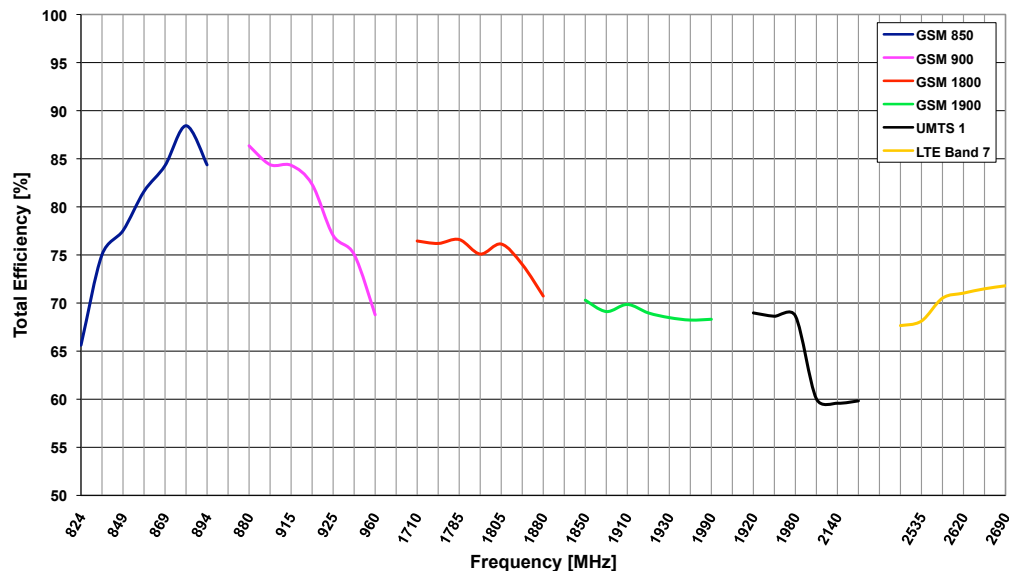


Figure 2: Total Radiation Efficiency using Molex's Cellular 6-band Standalone antenna with 100mm micro-coaxial cable, mounted on a 2.50mm-thick PC material plate

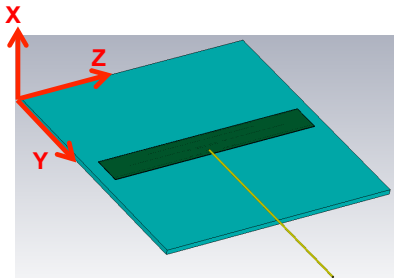


Figure 3a: Antenna with a 100 mm micro coaxial cable mounted on a 2.50mm-thick PC material plate

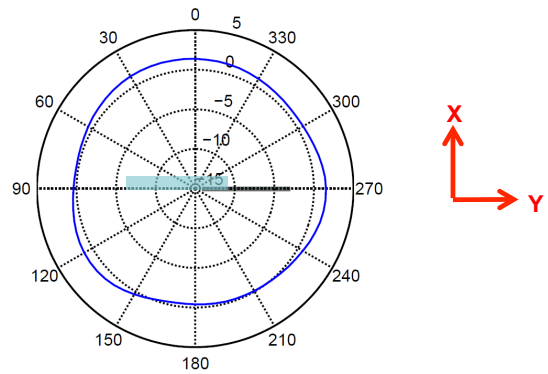


Figure 3b: Radiation pattern at XY plane, Total Gain [dBi] at 882 MHz

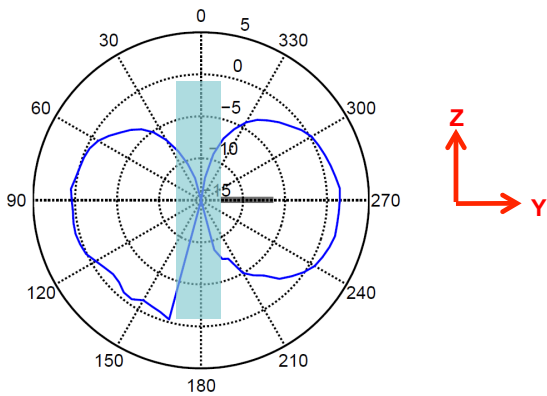


Figure 3c: Radiation pattern at YZ plane, Total Gain [dBi] at 882 MHz

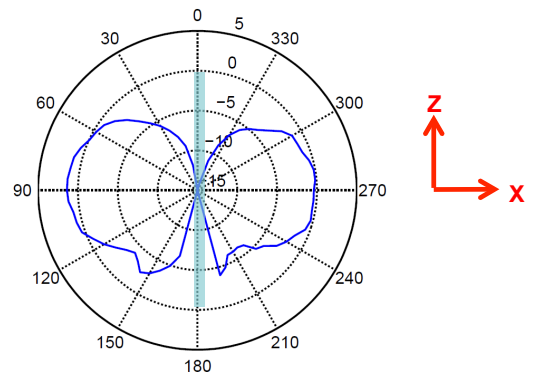


Figure 3d: Radiation pattern at XZ plane, Total Gain [dBi] at 882 MHz

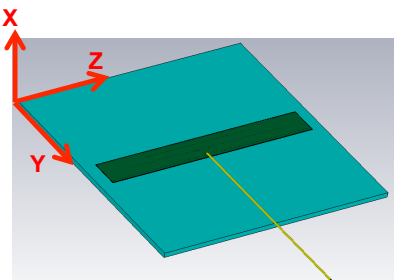


Figure 4a: Antenna with a 100 mm micro coaxial cable mounted on a 2.50mm-thick PC material plate

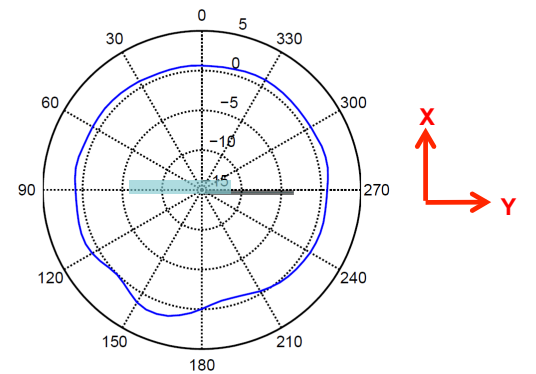


Figure 4b: Radiation pattern at XY plane, Total Gain [dBi] at 1850 MHz

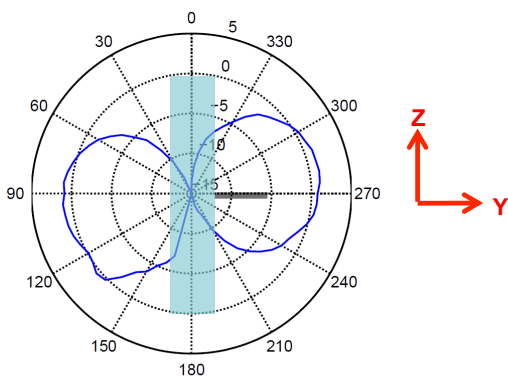


Figure 4c: Radiation pattern at YZ plane, Total Gain [dBi] at 1850 MHz

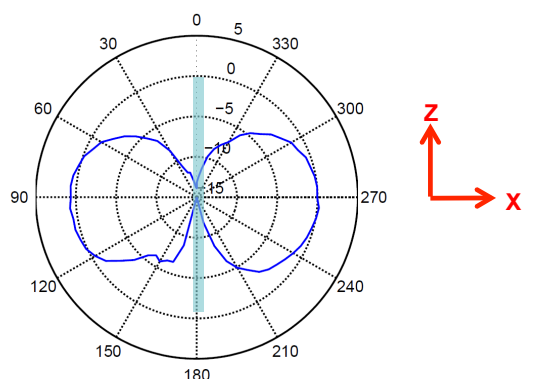
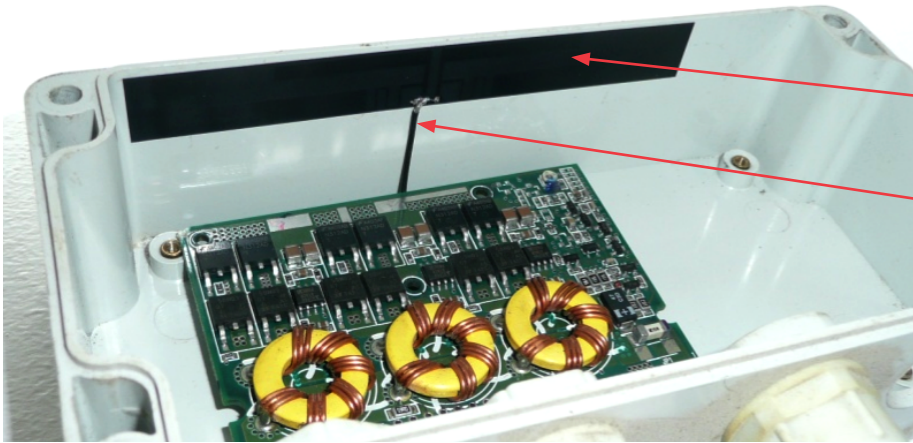


Figure 4d: Radiation pattern at XZ plane, Total Gain [dBi] at 1850 MHz



Product Features

Cellular 6-band Standalone Antenna



Peel-and-stick antenna is mounted on the wireless device housing

A variety of flexible, microcoaxial cable lengths with terminal UFL-type connector makes connection with the device radio easy

Illustration of the Cellular 6-band Standalone Antenna mounted within a wireless device housing

Applications

Industrial Applications

- Smart meters
- Smart grid concentrators
- Home energy displays
- Remote sensors
- Electronic locks
- Alarm and monitoring equipment

Medical Applications

- Telemedicine and telehealth devices

Other Markets

- Building automation
- Automotive sensors



Telemedicine and telehealth devices



Smart meters

Ordering Information

Antennas

Order No.	Cable Length
105263-0001	100 mm (3.94")
105263-0002	150 mm (5.91")
105263-0003	200 mm (7.87")

Order No.	Miniature Coaxial cable Length [mm/inches]	Application	Frequency Range [MHz]	Reflection S11 [dB]	Total Efficiency	Peak Gain [dBi]
105263-0001	100.0 mm (3.9")	GSM 850	824 - 894	< -7.0	> -1.8 dB (>66 %)	2.3
		GSM 900	880 - 960	< -7.5	> -1.6 dB (>69 %)	2.2
		GSM 1800	1710 - 1880	< -10.0	> -1.5 dB (>70 %)	2.3
		GSM 1900	1850 - 1990	< -7.5	> -1.7 dB (>68 %)	2
		UMTS band-1	1920 - 2170	< -6.8	> -2.2 dB (>60 %)	2
		LTE band-7	2500 - 2690	< -10.5	> -1.7 dB (>68 %)	3.1
105263-0002	150.0 mm (5.9")	GSM 850	824 - 894	< -7.7	> -1.7 dB (>67 %)	2.2
		GSM 900	880 - 960	< -7.5	> -1.4 dB (>72 %)	2.1
		GSM 1800	1710 - 1880	< -10.5	> -1.4 dB (>72 %)	1.5
		GSM 1900	1850 - 1990	< -8.5	> -1.6 dB (>70 %)	1.8
		UMTS band-1	1920 - 2170	< -6.8	> -2.2 dB (>60 %)	1.7
		LTE band-7	2500 - 2690	< -11.0	> -1.7 dB (>68 %)	3.0
105263-0003	200.0 mm (7.8")	GSM 850	824 - 894	< -8.0	> -1.9 dB (>65 %)	2.2
		GSM 900	880 - 960	< -7.5	> -1.8 dB (>66 %)	2.0
		GSM 1800	1710 - 1880	< -9.0	> -1.7 dB (>68 %)	1.7
		GSM 1900	1850 - 1990	< -8.5	> -2.0 dB (>63 %)	1.3
		UMTS band-1	1920 - 2170	< -8.8	> -2.2 dB (>61 %)	1.7
		LTE band-7	2500 - 2690	< -12.0	> -1.9 dB (>64 %)	3.0

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