

# Part No. 1003657

## External Balanced LTE / Cellular Antenna

**LTE Band 17. Band 13 and Band 4**

Supports: LTE CAT-M, NB-IoT, SigFox, LoRa, Cellular LPWA



KYOCERA AVX 1003657 antenna is designed to offer the best cellular performances across the LTE bands regardless of the ground it is connected to, and a low profile for easy integration.

The 1003657 wideband antenna offers full coverage for LTE bands 17, 13 and 4. KYOCERA AVX antennas are a versatile easy plug and play solution for any major network carrier.

### High Performance Balanced External LTE Antenna

Low Band : 698 - 787 MHz  
 High Band: 1710 - 2155 MHz

#### KEY BENEFITS

##### Greater Flexibility

Different connector options upon request. Small form factor and low profile. Independent of ground, the performances are maintained across design.

##### Quicker Time-to-Market

Standard antenna eliminates design fees, redesign cycle time and minimize risk associated with a customer solution. Quicker time to market.

##### Environmental Compliance

Comply with latest RoHS requirements

#### APPLICATIONS

- Medical applications
- Home automation
- Smart metering
- M2M, Industrial devices
- IoT
- M2M
- Healthcare (FDA Class I)
- Point of Sale
- Tracking
- NB-IoT
- Sigfox
- LoRa
- Cellular LPWA
- RPMA
- LTE CAT-M

### Electrical Specifications

Measured in Free space with 218 mm coax cable

Frequency (MHz)	B17 704-746	B13 746-787	B4 Tx 1710-1755	B4 Rx 2110-2155
VSWR Match	2.5:1 max	2:1 max	2:1 max	2:1 max
Average Efficiency	45.1%	51.4%	65.8%	79.6%
Peak Gain	1 dBi	1.6 dBi	3.2 dBi	3.4 dBi
Feed Point Impedance	50 Ω unbalanced			

### Mechanical Specifications & Ordering Part Number

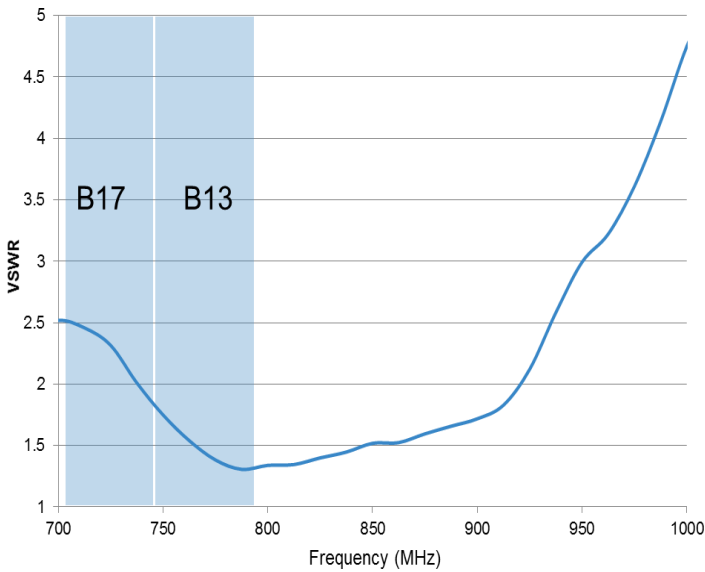
Ordering Part Number	1003657
Size (mm)	104.0 x 22.0 x 4.2
Cable/Connector (mm)	1.80 diameter, 218 RG178 long coax cable MMCX 90° connector
Weight (grams)	8.3
Material	FR4 with black heat shrink cover
Additional Resources	<a href="#">Download 3D FIT File</a>

LTE / Cellular Balanced KYOCERA AVX External Antenna Specifications  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

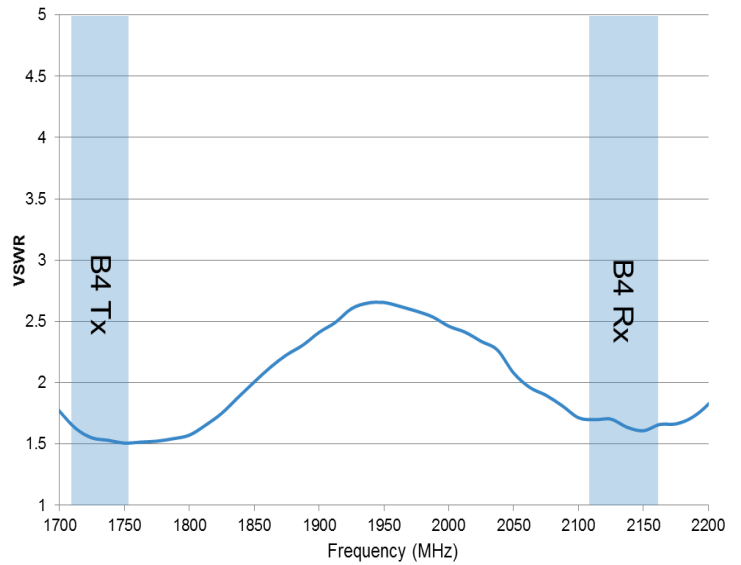
**VSWR and Efficiency Plots**

Typical performance, measured in free space with 218 mm cable

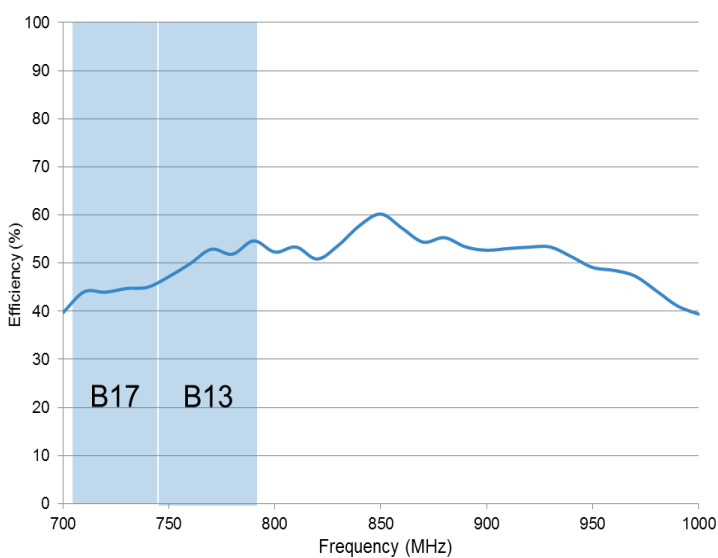
**Low Band VSWR**



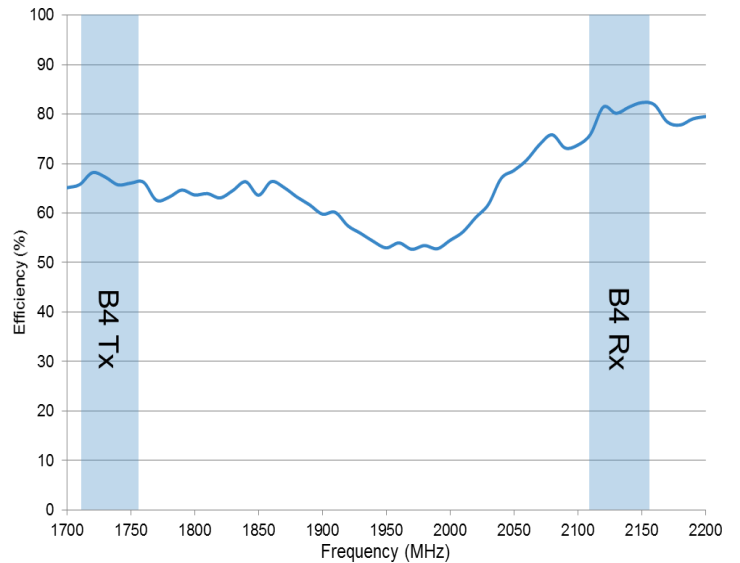
**High Band VSWR**



**Low Band Efficiency**



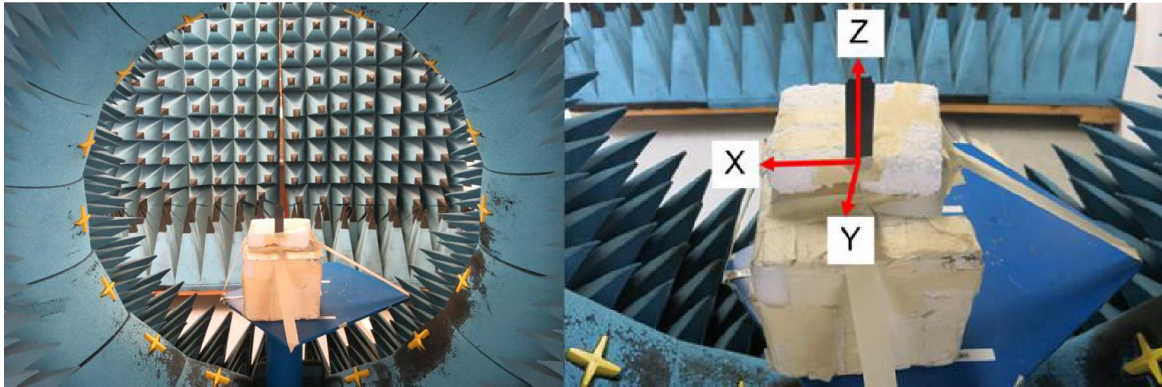
**High Band Efficiency**



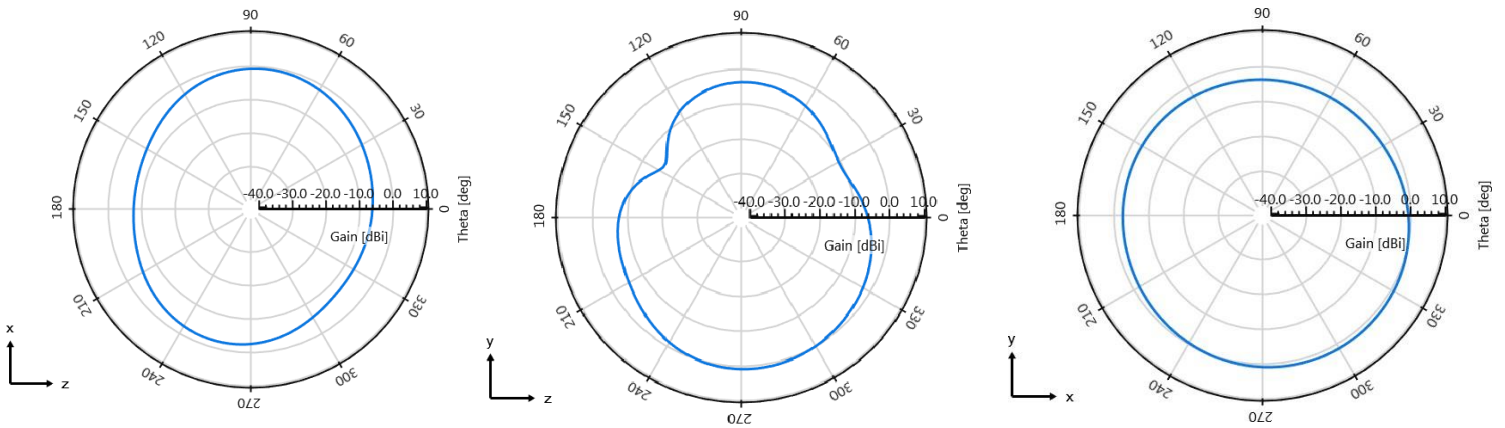
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**Antenna Radiation Patterns – Low Band**

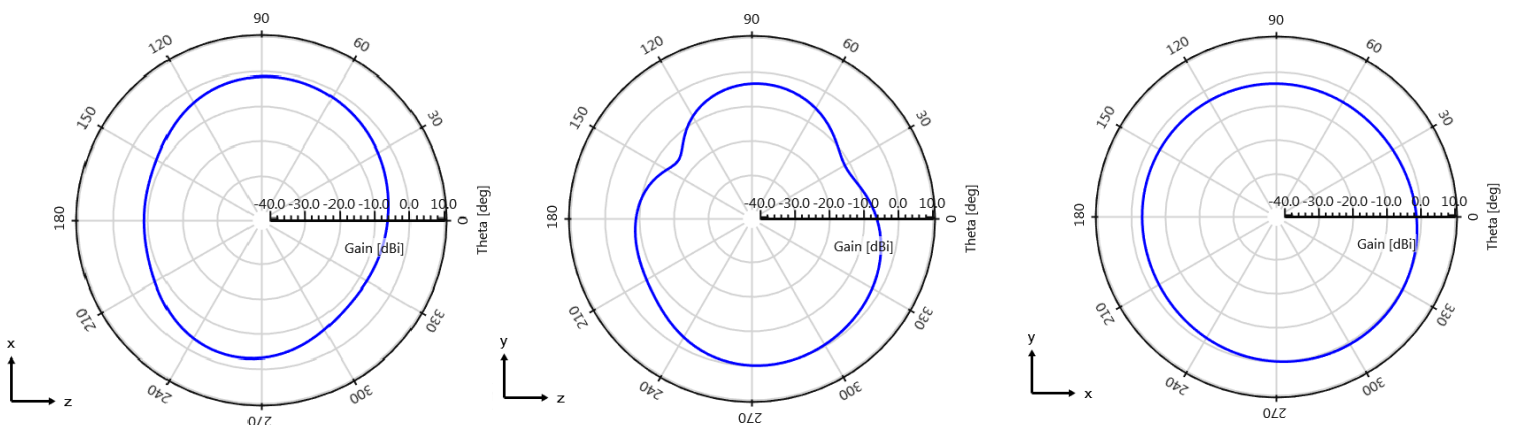
Typical performances in free space with 218 mm cable



**Band 13 measured at 750 MHz**



**Band 17 measured at 710 MHz**

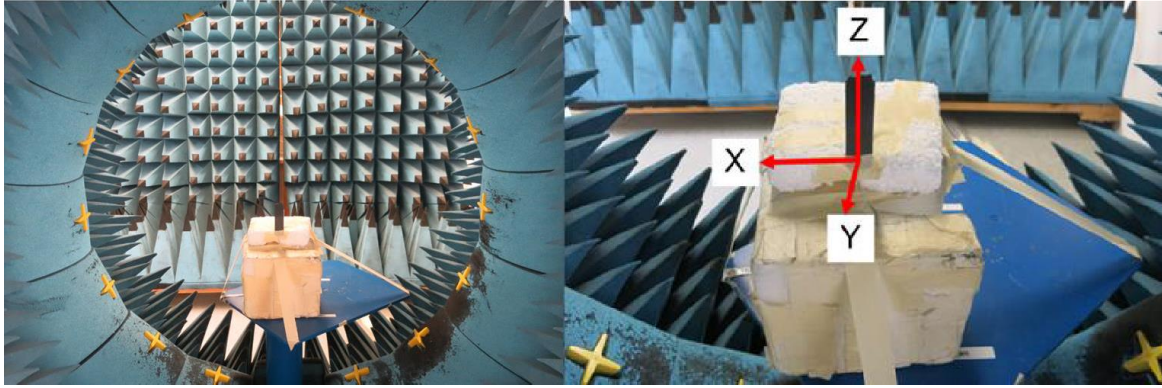


\*All dimensions provided in this document are for informational purposes only.

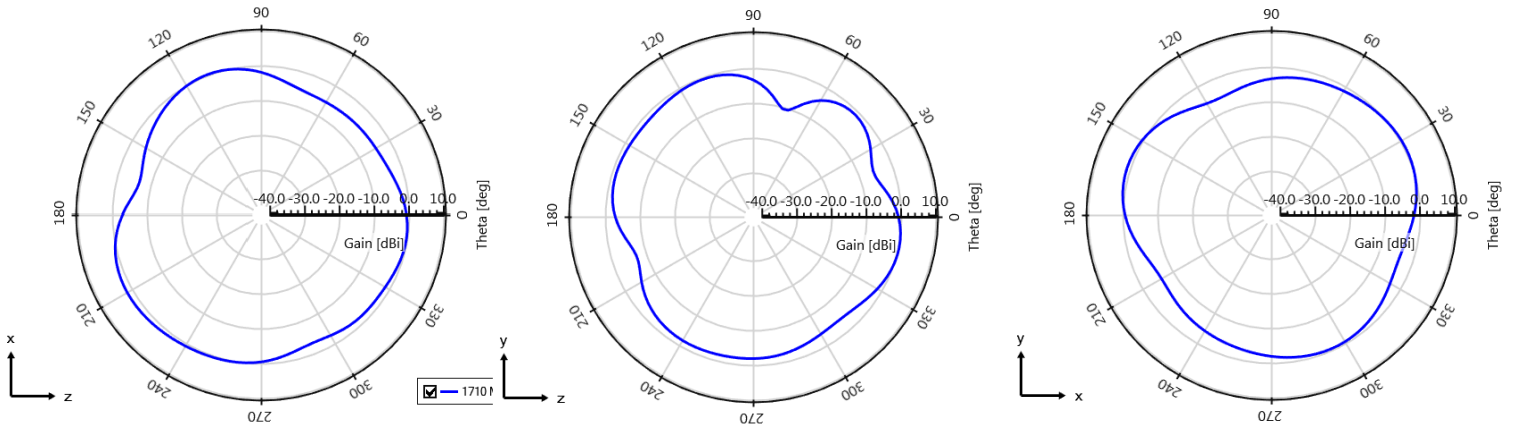
**LTE / Cellular Balanced KYOCERA AVX External Antenna Specifications**  
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**Antenna Radiation Patterns – High Band**

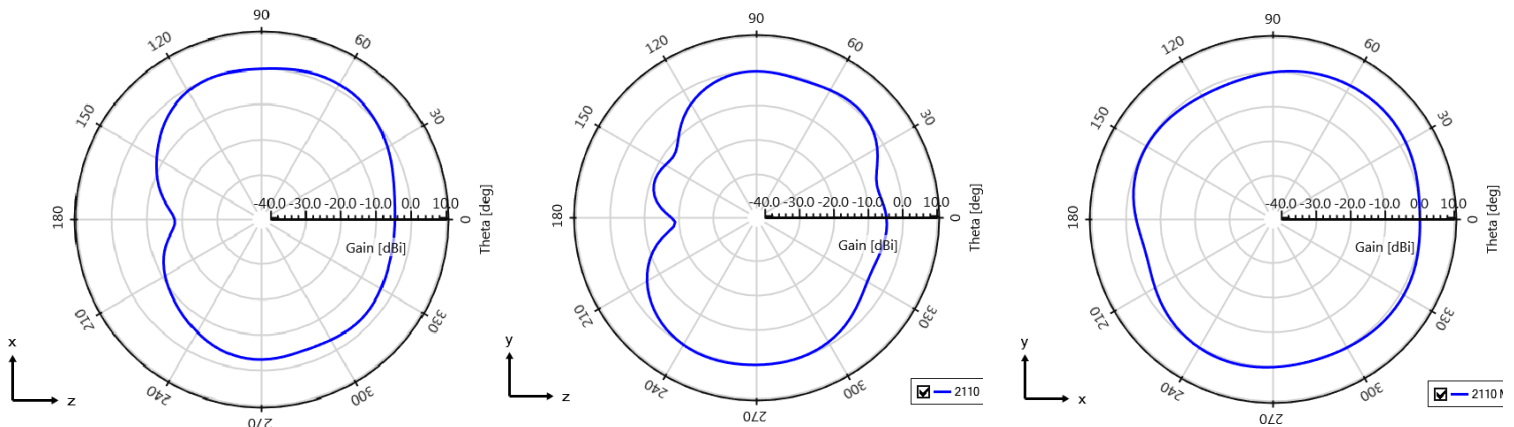
Typical performances in free space with 218 mm cable



**Band 4 Tx measured at 1710 MHz**



**Band 4 Rx measured at 2110 MHz**



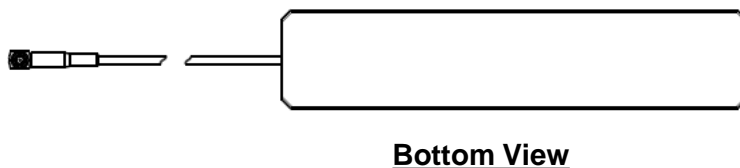
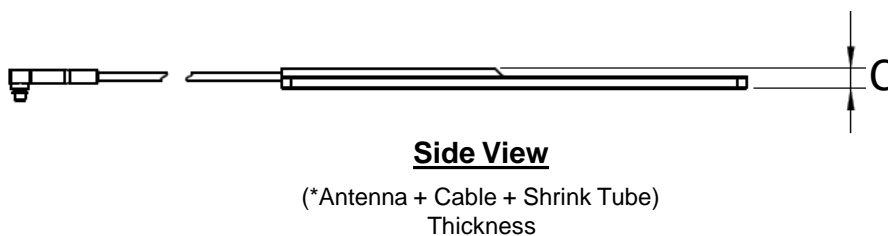
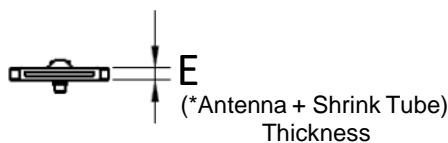
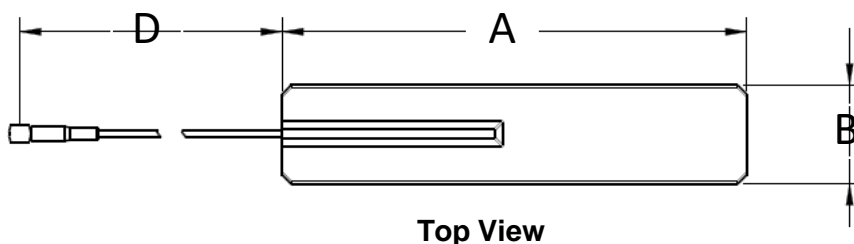
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**Mechanical Dimensions**

Typical antenna dimensions (mm)

Part Number	A	B	C	D	E
1003657	104.0 ± 3.0	22.0 ± 1.5	4.2 ± 0.8	218.0 ± 4.0	2.4 ± 0.8



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**Additional Resources - 1003657**

**3D FIT File:**

[https://www.kyocera-avx.com/download/antennas/ME-FIT/1003657\\_ME\\_fit.zip](https://www.kyocera-avx.com/download/antennas/ME-FIT/1003657_ME_fit.zip)