

### Key Features

- 2dBi GSM gain, 28 ± 2 dBi gain
- Quad band GSM, 3G and ISM compatible
- GPS antenna combined
- IP67 rated
- Rugged and durable
- Through hole mount
- O ring seal - prevents water ingress
- RoHS compliant



### General Description

The TANGO16 is an IP67 rated and fully weatherproof combination GSM/GPS antenna intended for outdoor equipment such as vending machines and similar. The TANGO16 has a GSM gain of 2dBi, the GPS antenna has an LNA gain of 28dB and a V.S.W.R of <2.0.

The TANGO16 mounts via an M12 stud and is 50mm diameter at its base and 48mm tall. The circular rubber O ring on the bottom face is to ensure that water does not seep through the bolt hole when secured to the equipment using the antenna.

The TANGO16 is a robust and well-made antenna that has a great performance and will last for years in an outdoor environment.

#### Moisture Proof

The device should satisfy the electrical characteristics specified in the table 'Key Specifications - Dielectric Antenna' after exposed to the temperature 40±2°C and the relative humidity 90~95% RH for 96 hours and 1~2 hours recovery time under normal condition.

#### Vibration Resist

The device should satisfy the electrical characteristics specified in the table 'Key Specifications - Dielectric Antenna' after applied to the vibration of 10 to 55MHz with amplitude of 1.5mm for 2 hours each in X, Y, and Z directions.

#### Drop Shock

The device should satisfy the electrical characteristics specified in the table 'Key Specifications - Dielectric Antenna' after dropping onto the hard wooden board from the height of 30cm for 3 times each facet of the 3 dimensions of the device.

#### High Temperature Endurance

The device should satisfy the electrical characteristics specified in the table 'Key Specifications - Dielectric Antenna' after exposed to the temperature 80±5°C for 24±2 hours and 1~2 hours recovery time under normal temperature.

#### Low Temperature Endurance

The device should satisfy the electrical characteristics specified in the table 'Key Specifications - Dielectric Antenna' after exposed to the temperature -40±5°C for 24±2 hours and 2 hours recovery time under normal temperature.

#### Temperature Cycle Test

The device should satisfy the electrical characteristics specified in the table 'Key Specifications - Dielectric Antenna' after exposed to the low temperature -25°C and high temperature +85°C for 30±2 minutes each by 5 cycles and 1~2 hours recovery time under normal temperature.

Rev 1.3

### GPS Antenna - Dielectric Antenna

Center frequency:	1575.42 ± 1MHz
Bandwidth:	CF ± 5MHz
Polarization:	RHCP
Gain:	5dBic (Zenith)
V.S.W.R:	<1.5
Impedance:	50ohm
Axial ratio:	3dB (max)

### GPS Antenna - LNA

Gain:	28 ± 2dB
Noise figure:	<1.5
Ex-band attenuation:	12dB @ CF + 50MHz 16dB @ CF - 50MHz
V.S.W.R:	<2.0
Supply voltage:	2.2 ~ 5V DC
Current consumption:	5 ~ 15mA

### Key Specifications - GSM Antenna

Frequency range:	824 ~ 960MHz 1710 ~ 2170MHz
V.S.W.R:	<2.0
Polarization:	Linear
Impedance:	50ohm

### Key Specifications - Environmental

Operating temperature:	-40 to +85°C
Relative humidity:	Up to 95%
Ingress protection:	IP67 (exclude cable outlet)
Vibration:	10 to 55Hz with 1.5mm amplitude 2 hours
Environmentally friendly:	RoHS compliant

### Gain

#### ISM

868MHz:	1.5dBi
915MHz:	2dBi

#### GSM

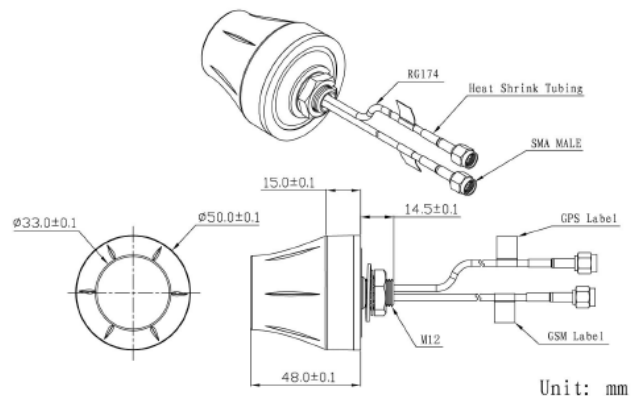
850MHz:	0.93dBi
900MHz:	1.41dBi
1800MHz:	1.95dBi
1900MHz:	1.95dBi

#### 3G

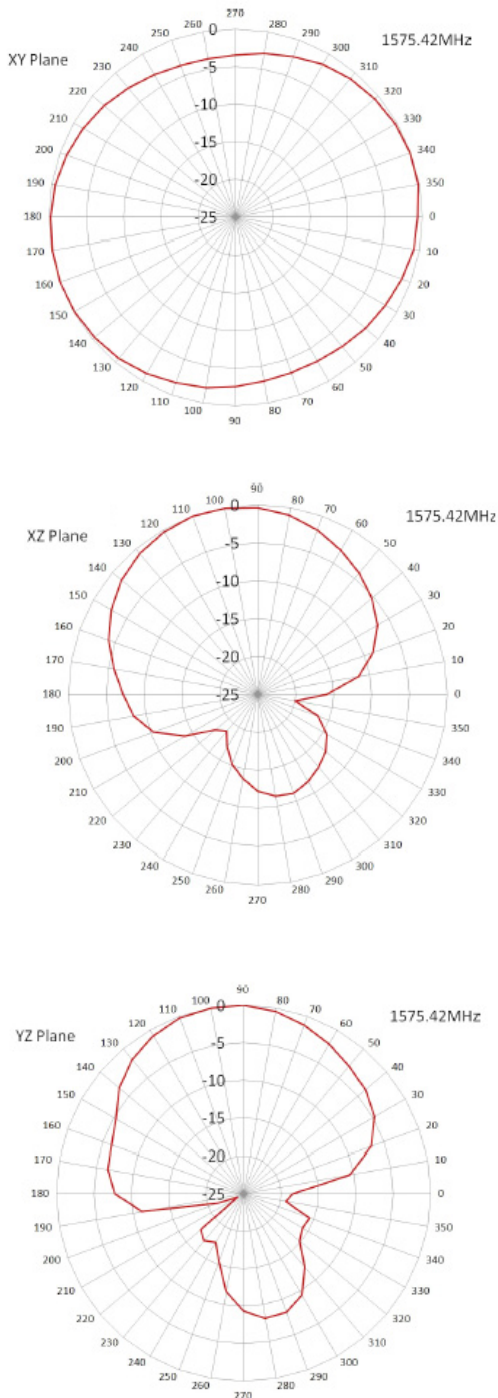
2100MHz:	2.33dBi
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### Key Specifications - Mechanical

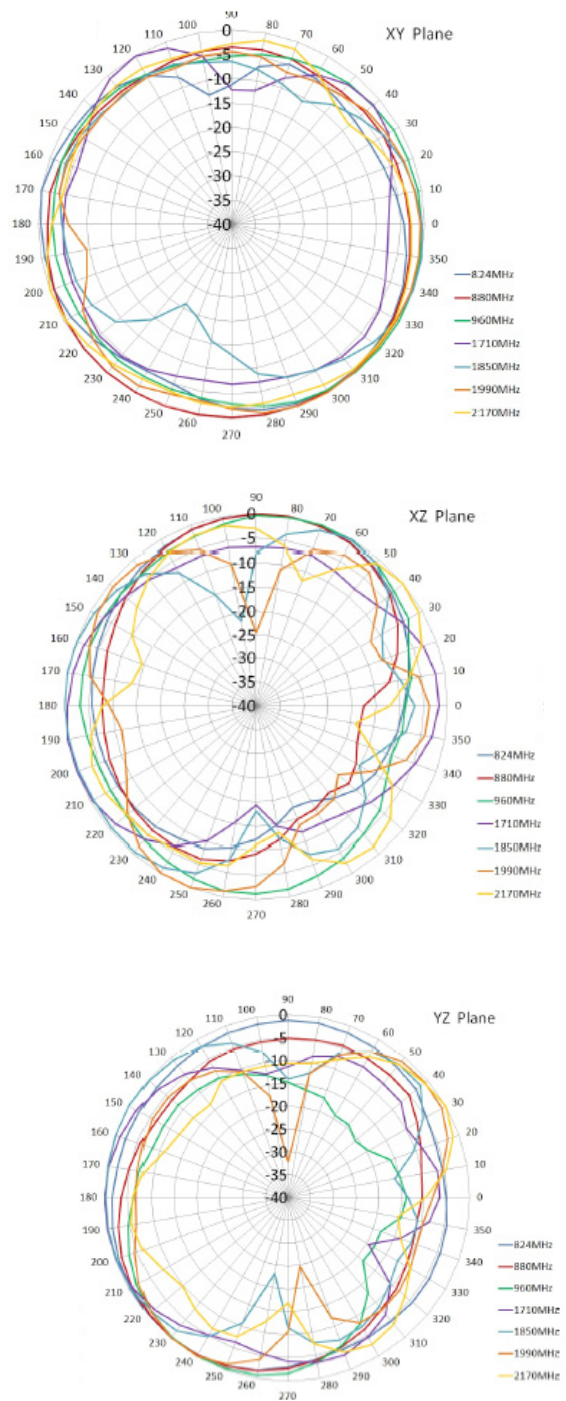
Cable:	RG174
Connector:	SMA/MCX/FAKRA or others
Material:	ABS
Mounting method:	Screw



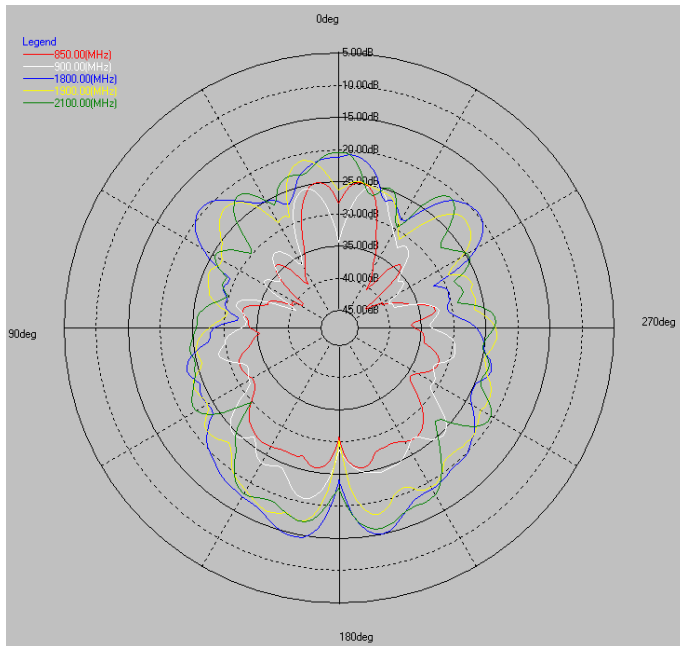
### GPS Radiation Patterns



### GSM Radiations Patterns



### GSM Gain vs. Frequency Graph



**UL Tested (Basingstoke, UK)**  
Part: TANGO16

### GPS Gain vs. Frequency Graph

