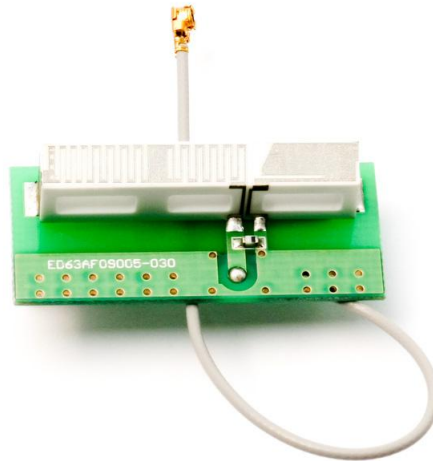




Specification

# SPECIFICATION

Part No. : PA-24  
Product Name : Tri-band GSM Dielectric PIFA Antenna (DPA™)  
PCB with Coaxial output  
Description : 880~960 MHz, 1710~1990 MHz, 0dB Gain  
Size: 35mm\*15mm\*7mm



## REVISION STATUS

Version	Date	Page	Revision Description	Prepared	Approved
01	May 5th 2006	All	New product	TW Product Centre	Ronan Quinlan
02	July 20 <sup>th</sup> 2007	9	Added PCB layout	TW Product Centre	Ronan Quinlan
03	Dec 12 <sup>th</sup> 2008	All	New Format	Taoglas Ireland	Aine Doyle



## Specification

### 1.0 Scope

This specification is for a Tri-band GSM miniature PIFA (Dielectric Planar inverted-F Type Antenna) (DPA™) Antenna on PCB board with Coaxial cable output for ease of mounting in wireless products. Antenna can be further optimized through tuning of antenna upon receipt of customer's housing and PCB at a Taoglas facility. Custom size PCB mountings and cable assemblies can be also designed. This antenna is suited to tri-band GSM Telematics devices and is in use in ETSI approved GSM 900/1800Mhz devices. If US PTCRB approval is required please contact Taoglas for a custom antenna solution.

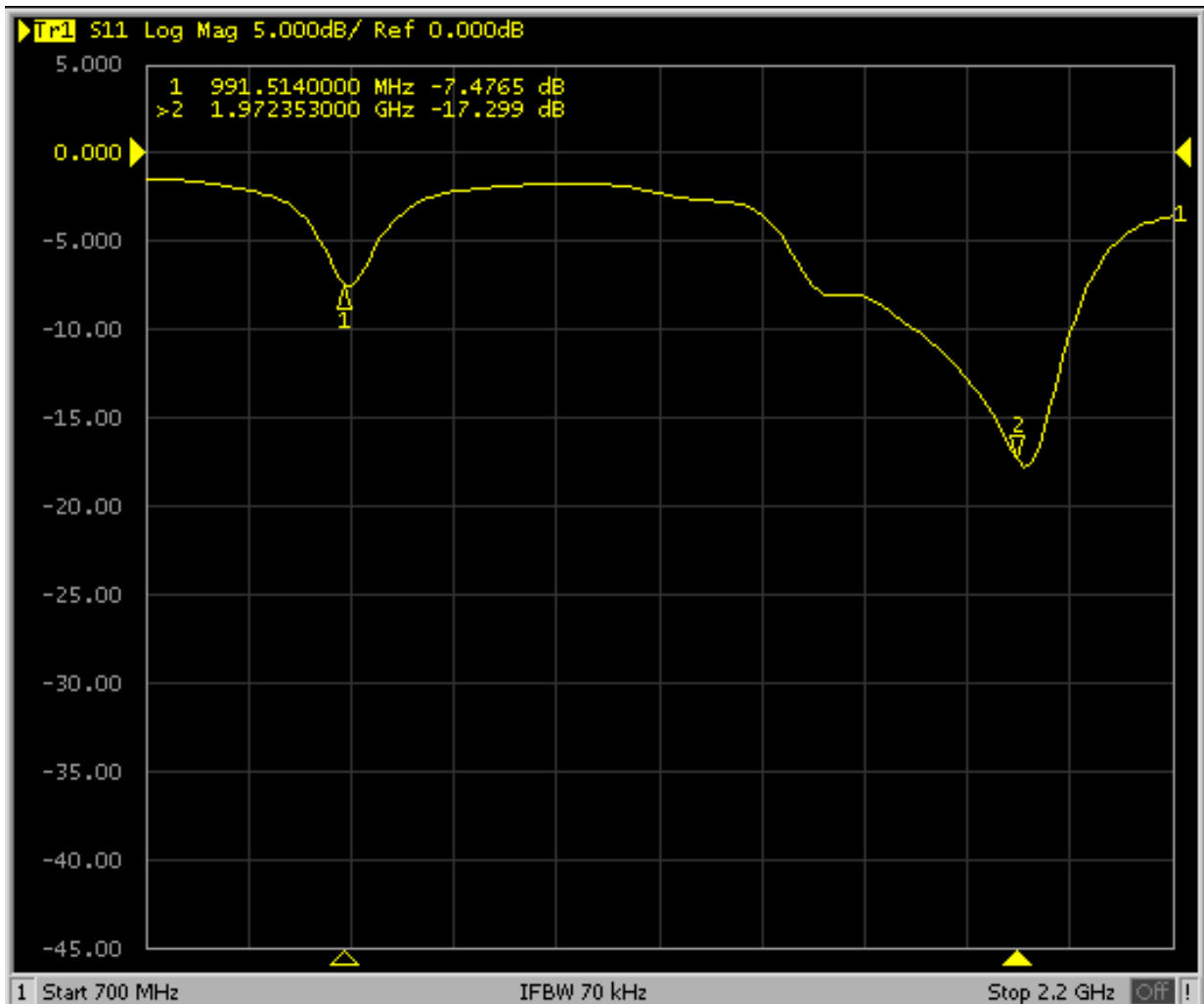
### 2.0 Electrical Specifications

The antenna has the electrical characteristics given in Table 1 under the Taoglas standard installation conditions as shown in the Evaluation Board. Figure.

No.	Parameter	Specification
1	Frequency	880~960 MHz , 1710~1990 MHz
2	Dimensions	35*15*7 mm
3	Impedance	50 Ohms
4	VSWR	3.0 max (depends on environment)
5	Polarization	Linear
6	Operating Temperature	-40~85°C
7	Termination	Ag (Environmentally Friendly Lead- Free)
8	Cable	IPEX 1.13mm diameter L=100mm MHF

\* Data is measured on Taoglas Standard Reference PCB.

### S11 Response Measurement (in free-space)





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### 3.0 Environmental Conditions

#### 3.1 Operating Conditions

The antenna has the electrical characteristics given in Table 1 in the temperature range of -30°C to +85°C and under the environmental conditions of +40°C and 0-95%r.h.

#### 3.2 Storage Temperature range

The storage temperature range of the product is -40°C to +100°C

### 4.0 Reliability Tests

#### 4.1 Low-temperature test

Expose the specimen to -30°C for 500 hours and then to normal temperature/humidity for 24 hours or more. After that examine the appearance and functions.

#### 4.2 High-temperature test

Expose the specimen to +85°C for 500 hours and then to normal temperature/humidity for 24 hours or more. After that examine the appearance and functions.

#### 4.3 High-temperature/High-humidity test

Subject the object to the environmental conditions of +85°C and 90-95% r.h. for 96 hours, then expose to normal temperature/humidity for 24 hours or more. After this, check the appearance and functions.

#### 4.4 Thermal Shock test

Subject the object to cyclic temperature change (-30°C, 30 minutes +85°C, 30 minutes ) for 5 cycles, the expose to normal temperature/humidity for 24 hours or more.



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## 4.5 Vibration Test

### 4.5.1 Sinusoidal Vibration Test

Subject the object to vibrations of 5 to 200 to 5Hz swept in 10 minutes, 4.5G at maximum (2mm amplitude), in X and Y directions for two hours each and in Z direction for four hours. After this, check the appearance functions.

### 4.5.2 Vibration test in packaged condition

Subject the object, which is packaged as illustrated, to vibrations of 15 to 60 to 15Hz swept in 6 minutes, 4G at maximum (2mm amplitude at maximum), applied in X, Y and Z directions for two hours each, i.e. six hours in total. After this, check the appearance and functions.

### 4.5.3 Free fall test in packaged condition

Drop the object, which is packaged as illustrated, to a concrete surface from the height of 90 cm, on one corner, three edges and six faces once each, i.e. 10 times in total. After this, check the appearance and functions.

### 4.5.4 Soldering Heat Resistance Test

The lead pins of the unit are soaked in solder bath at  $270 \pm 5^{\circ}\text{C}$  for  $10 \pm 0.5$  seconds and then left for more than 1 hour at  $25 \pm 5^{\circ}\text{C}$  in less than 65% relative humidity.

### 4.5.5 Adhesion Test

The device is directly soldered on test PCB. Then apply 0.5Kg (5N) of force for  $10 \pm 1$  seconds in a parallel direction to the substrate. (Note: the soldering should be done by reflow and conducted with care so that the soldering is uniform and free of defect by stress such as heat shock).



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**5.0 Inspection**

Under mass production examination, the reception characteristic of the ratio wave sent in a shield box from the standard antenna and VSWR are confirmed by sampling.

**6.0 Precautions for Use**

- 6.1** The antenna pattern uses a Ag electrode.
- 6.2** Avoid contact with corrosive gas (sulfur gas, chlorine gas) in the atmosphere.
- 6.3** Do not directly solder onto the gold electrode of the Antenna pattern.



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### 7.0 Drawings

#### 7.1 Outline Dimensions

