



Specification

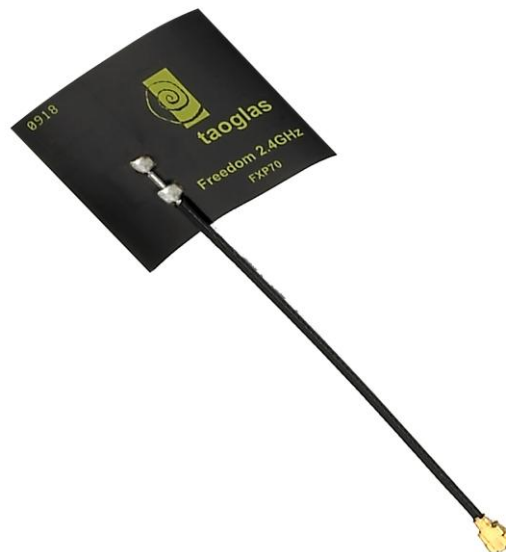
## SPECIFICATION

### FXP70 Freedom 2.4GHz Series

Part No. : **FXP70.07.0053A**

Product Name : FXP70 Freedom 2.4GHz  
Multi Standard Antenna

Feature : 5dBi Gain  
IPEX MHFII Connector (U.FL compatible)  
53 mm Cable  
27\*25\*0.1 mm  
RoHS Compliant



| VERSION | DATE       | PAGE | DESCRIPTION            | CENTRE | APPROVED         |
|---------|------------|------|------------------------|--------|------------------|
| A       | 03/06/2009 | All  | Antenna Specifications | Taiwan | Ruben F. Cuadras |



## Specification

### I. OVERVIEW

The FXP70 Freedom 2.4GHz Antenna works on WiFi, ZigBee, Bluetooth and ISM band at 2.4GHz. This antenna has been designed as a general solution to cover the current market applications, with easy installation through a cable connection. The antenna has been designed to work on different plastics material and thickness. We have selected a piece of ABS plastic with 1.5 mm of thickness as a baseline for testing.

### II. ANTENNA CHARACTERISTICS

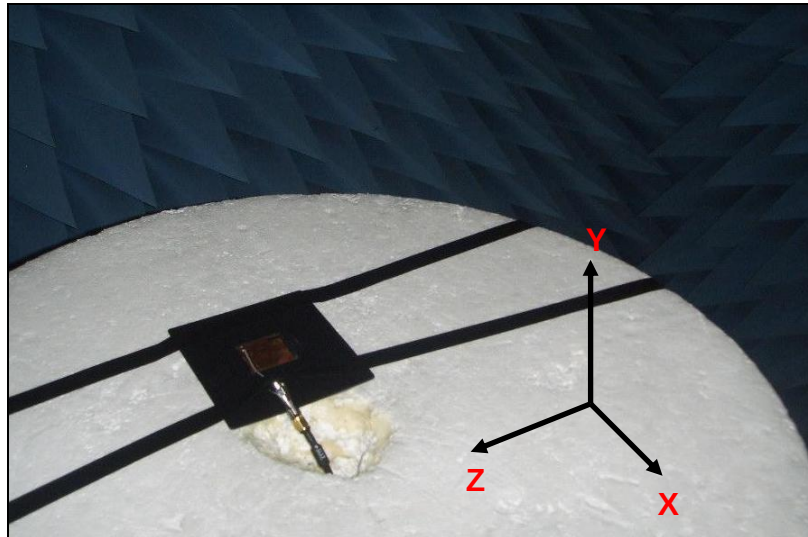
| Parameter              | Multi-Standard          |           |           |             |
|------------------------|-------------------------|-----------|-----------|-------------|
| Communication System   | Bluetooth               | WiFi      | ZigBee    | 2.4GHz ISM  |
|                        | 2401-2480               | 2412-2462 | 2410-2480 | 2400-2483.5 |
| Efficiency (%)         | 80                      |           |           |             |
| Gain (dBi)             | 5                       |           |           |             |
| Return Loss (dB)       | 20                      |           |           |             |
| Impedance              | 50 Ohms                 |           |           |             |
| VSWR                   | ≤1.5:1                  |           |           |             |
| Polarization           | Linear                  |           |           |             |
| Power Handled          | 5 W                     |           |           |             |
| Operation Temperature  | -40 °C ~ +85 °C         |           |           |             |
| Storage Temperature    | -40 °C ~ +85 °C         |           |           |             |
| Dimensions             | 27 X 25 X 0.08 mm       |           |           |             |
| Weight                 | 1.2 g                   |           |           |             |
| Connector              | MHFII (U.FL Compatible) |           |           |             |
| Cable Standard         | Mini-Coax 1.13 mm       |           |           |             |
| Cable Length and color | 53 mm, Black            |           |           |             |
| RoHS Compliant         | Yes                     |           |           |             |
| Adhesive               | 3M 467                  |           |           |             |



## Specification

### III. TEST SET UP

A Satimo SG24 3D Scan System with Anechoic Chamber.



**Figure 1.** Satimo System.

Agilent 8753ES Vector Network Analyzer.



**Figure 2.** Network Analyzer.



## IV. ANTENNA PARAMETERS

The next antenna parameter graphs like Return Loss, Smith Chart and VSWR were measured in the Agilent 8753ES Vector Network Analyzer. The Gain, Efficiency and Radiation Patterns were measured in the reliable Satimo 3D Scan System.

### A. Return Loss Data

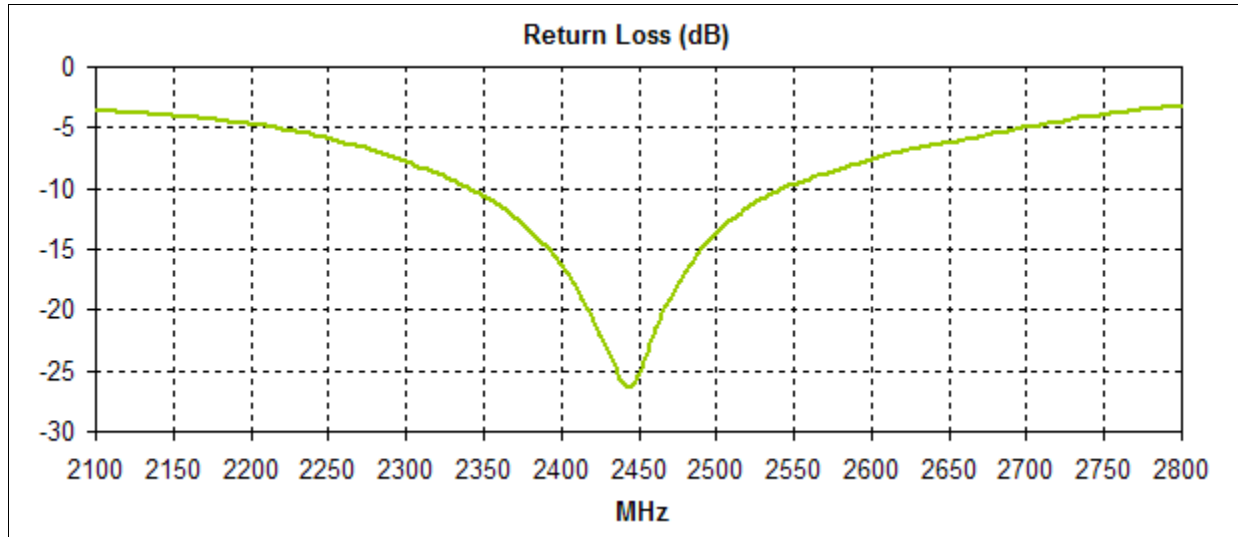


Figure 3. Return Loss for the FXP70 Antenna.

### B. VSWR Data

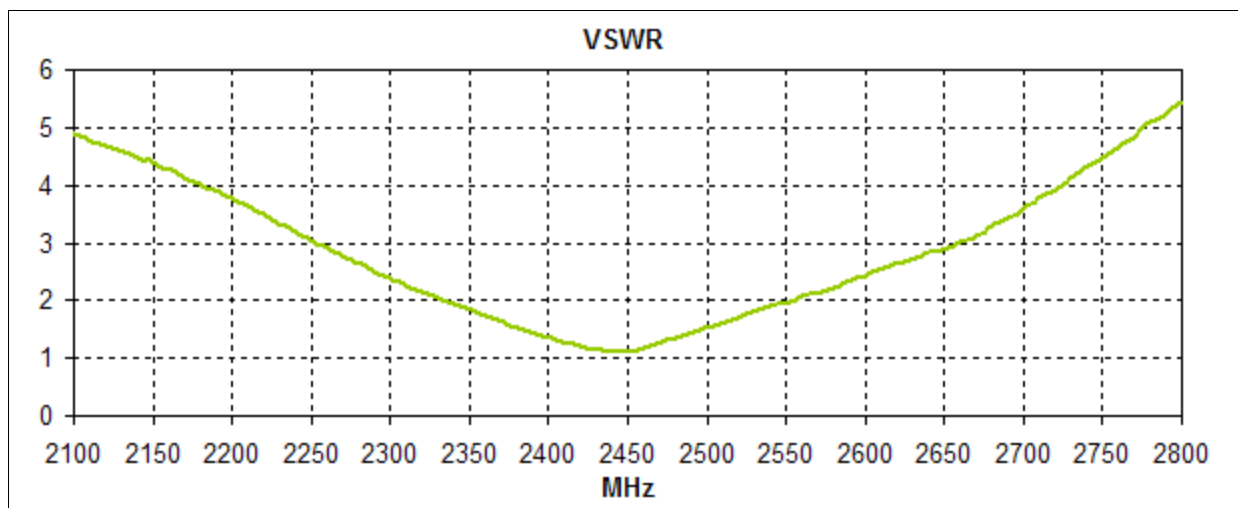


Figure 4. VSWR for the FXP70 Antenna.



Specification

## C. Smith Chart Data

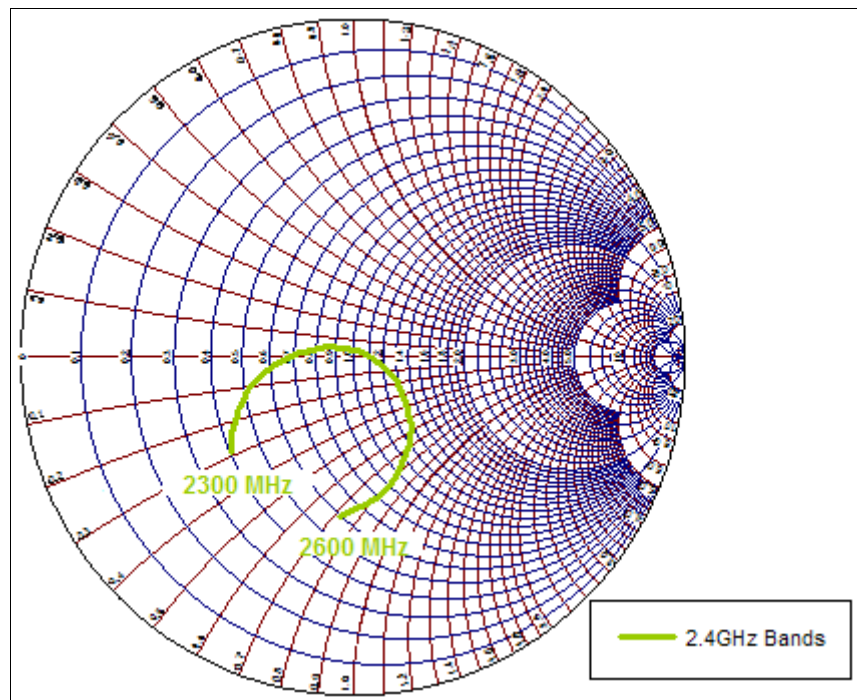


Figure 5. Smith Chart for the FXP70 Antenna.

## D. Gain Data

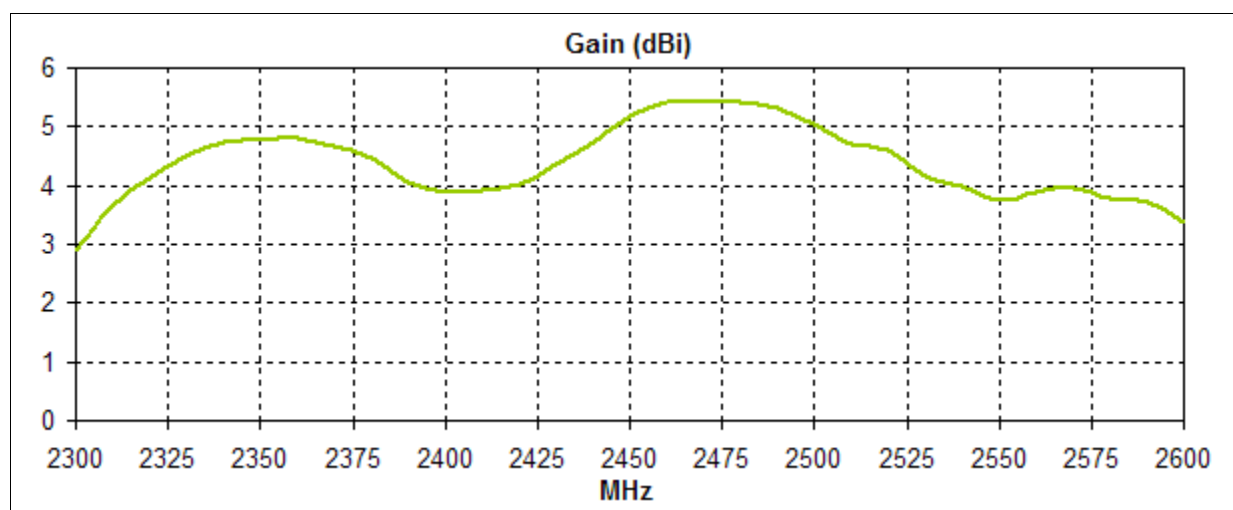


Figure 6. Gain for the FXP70 Antenna.



## Specification

### E. Efficiency Data

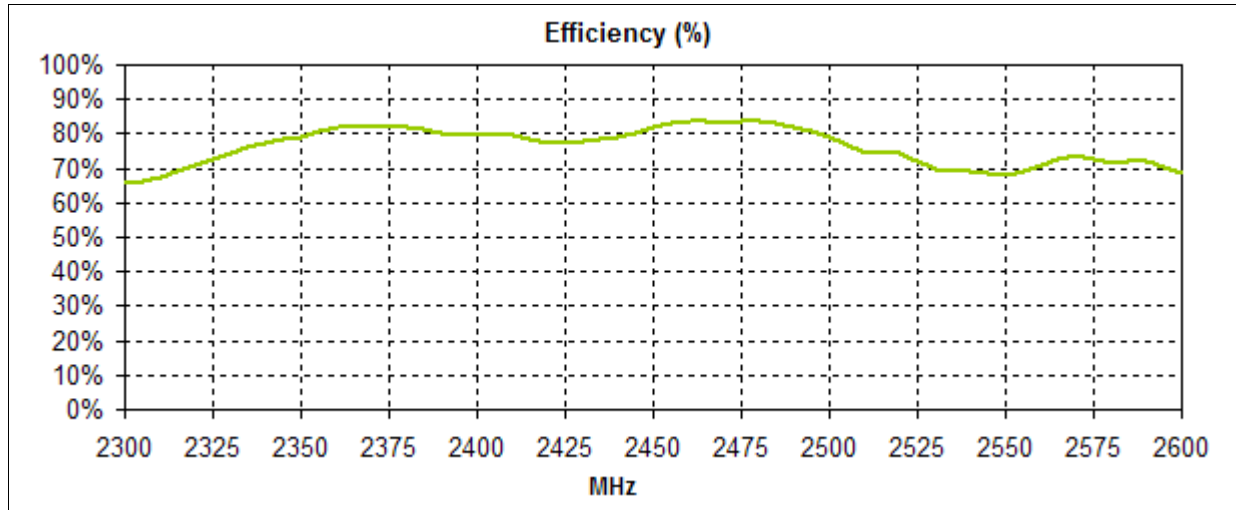


Figure 7. Efficiency for the FXP70 Antenna.

### F. Radiation Pattern Data

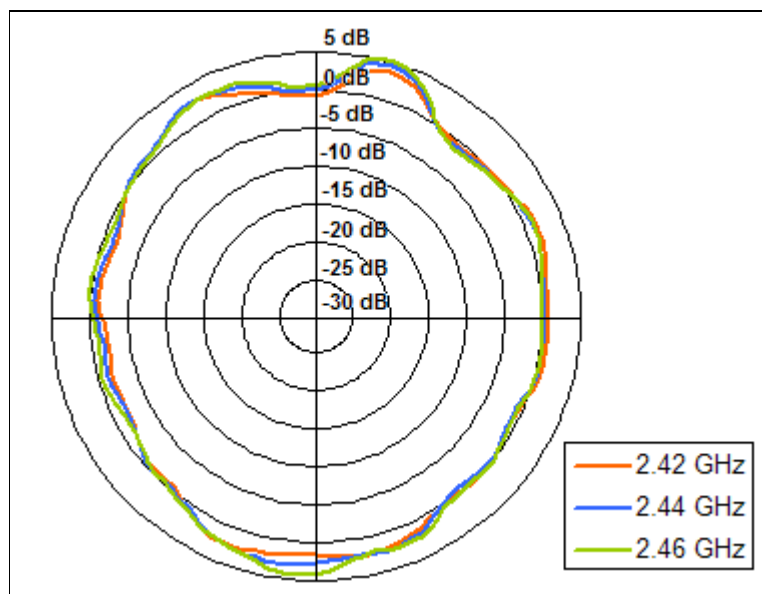
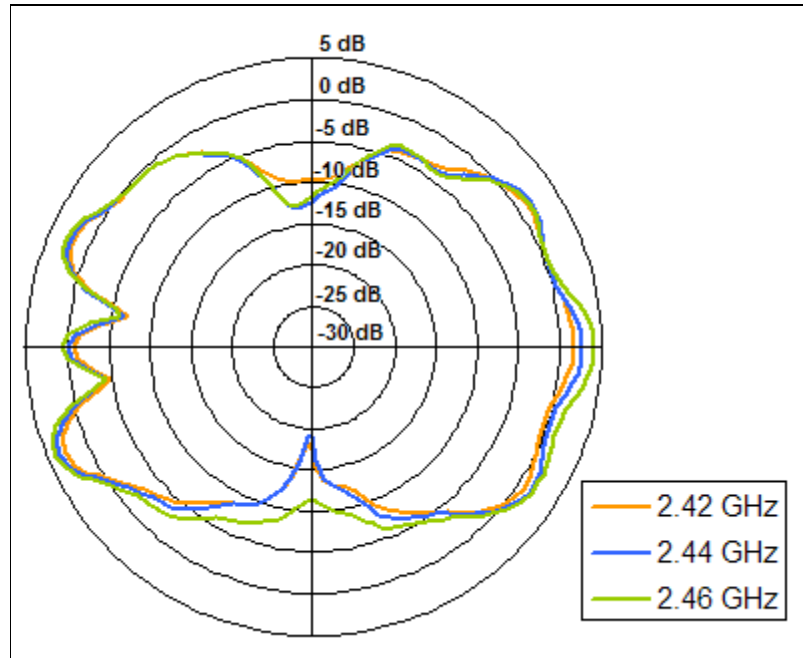


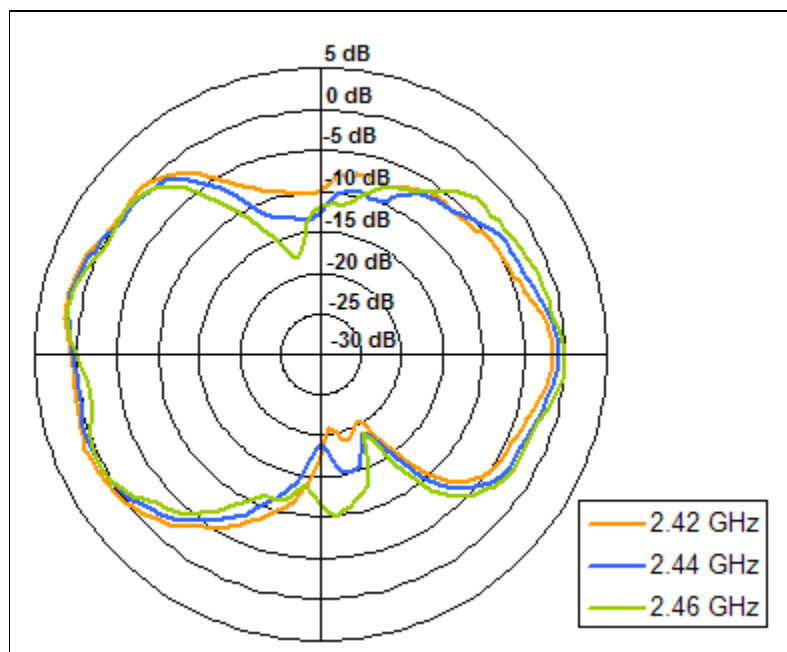
Figure 8. Radiation pattern XZ Plane, Figure 1 as reference (dB).



Specification



**Figure 9.** Radiation pattern YZ Plane, Figure 1 as reference (dB).



**Figure 10.** Radiation pattern XY plane, Figure 1 as reference (dB).



## Specification

## V. MECHANICAL DRAWING

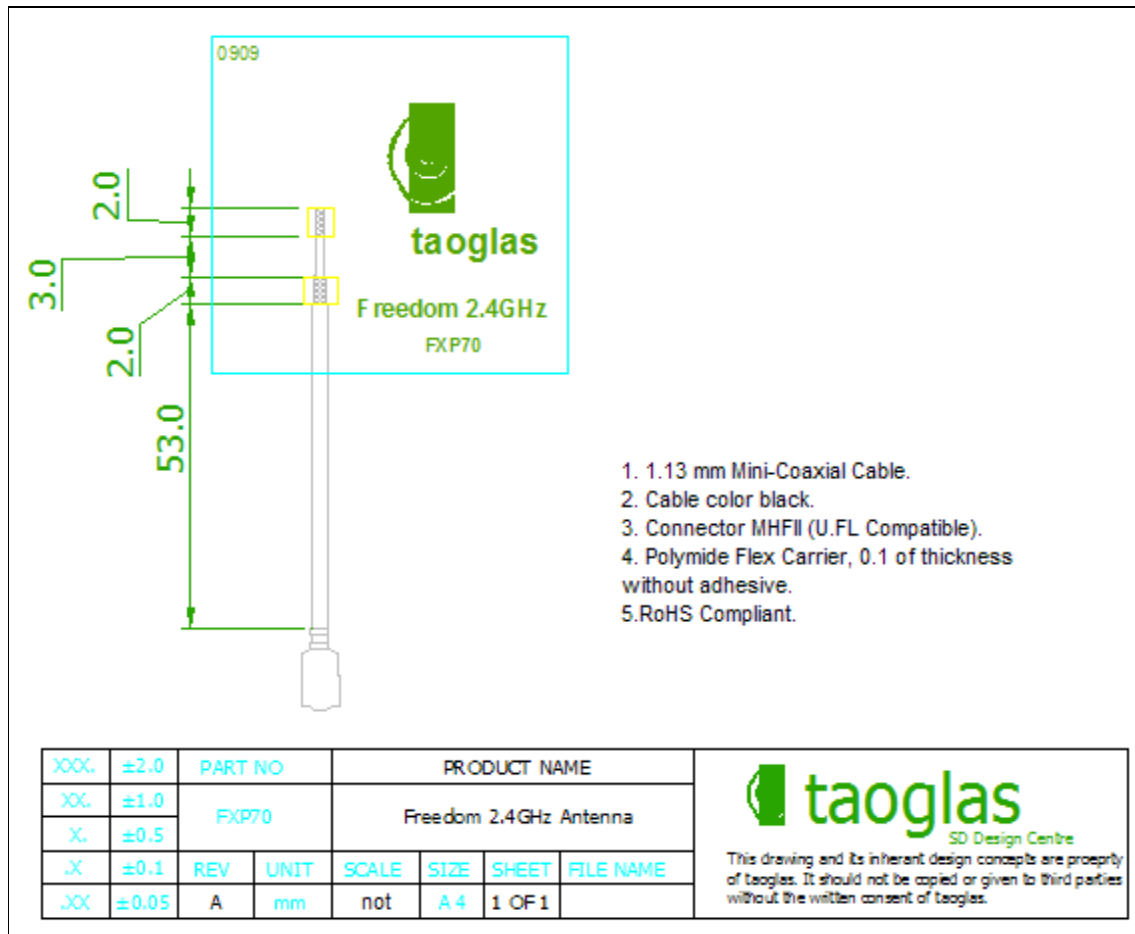


Figure 11. Mechanical Drawing for the FXP70 Antenna.