

# SPECIFICATION

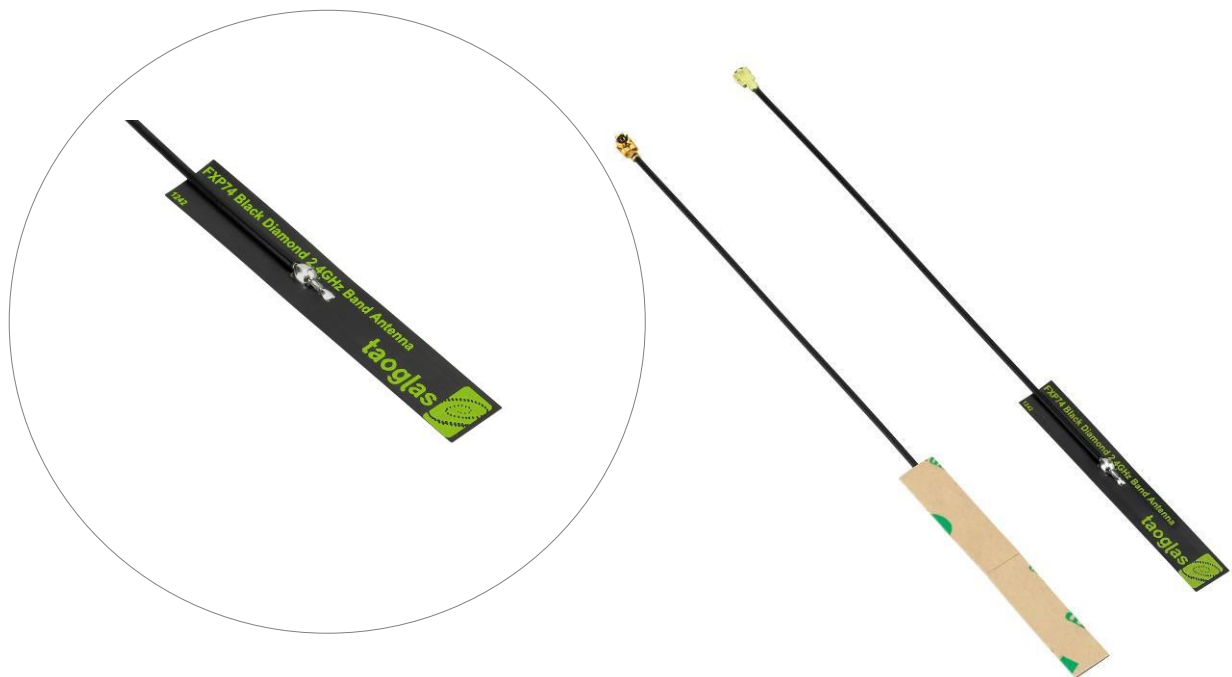
**Patent Pending**

## FXP74 Black Diamond 2.4GHz Band Antenna

Part No. : **FXP74.07.0100A**

Product Name : FXP.74 Black Diamond 2.4GHz Antenna

Feature : 4dBi Peak Gain  
Flexible, Ultra Low Profile  
IPEX MHF I Connector (U.FL compatible)  
100mm 1.13 Mini-Coaxial Cable  
47\*7\*0.1 mm  
RoHS Compliant✓



## 1. Introduction

The FXP.74 Black Diamond is a small ultra-low profile antenna for 2.4GHz band that includes Bluetooth, Zigbee and Wi-Fi single band application. The FXP.74 has a peak gain of 4dBi at 2.4GHz and efficiencies of above 50%.

This Taoglas patent pending antenna is unique in the market with exceptionally stable performance different applications. It is made from a flexible polymer, has a tiny form factor (14mm\*7.0mm\*0.1mm) and has double-sided 3M tape for easy and robust “peel and stick” mounting.

The FXP.74 is the ideal all-round antenna solution for fitting into narrow spaces and still maintaining high performance, for example on the inside top or adjacent side applied directly to the plastic housing of LCD monitors, tablets, smartphones, small AP routers, etc.

Many module manufacturers specify peak gain requirements for any antennas that is to be connected to that module. Upon testing of any of our antenna with your device and a selection of appropriate layout, integration technique, or cable, Taoglas can make sure any of our antennas peak gain will be below the peak gain requirements. Taoglas can then issue a specification and/or report for this selected WiFi antennas in your device that will clearly show it complying with the peak gain requirements, so you can be assured you are meeting regulatory requirements for that module.

It is better not to select an embedded antenna with very low free-space peak gain (<2dBi) directly, as this antenna would have worse performance in your device, and lead to compromised performance compared to using a Taoglas antenna.

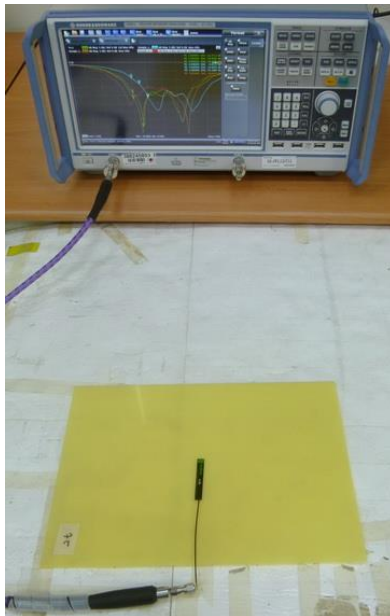
## 2. Specification

| Communication System   | Bluetooth              | WiFi      | ZigBee    | 2.4GHz ISM  |
|------------------------|------------------------|-----------|-----------|-------------|
|                        | 2401-2480              | 2412-2462 | 2410-2480 | 2400-2483.5 |
| Efficiency             | 50%                    |           |           |             |
| Gain                   | 4dBi                   |           |           |             |
| Return Loss            | < -10dB                |           |           |             |
| Impedance              | 50 Ohms                |           |           |             |
| VSWR                   | ≤ 2:1                  |           |           |             |
| Polarization           | Linear                 |           |           |             |
| Power Handled          | 5 W                    |           |           |             |
| MECHANICAL             |                        |           |           |             |
| Dimensions             | 47*7*0.1 mm            |           |           |             |
| Weight                 | 1.2 g                  |           |           |             |
| Connector              | MHFI (U.FL Compatible) |           |           |             |
| Cable Standard         | Mini-Coax 1.13 mm      |           |           |             |
| Cable Length and color | 100mm, Black           |           |           |             |
| Adhesive tape          | 3M 467                 |           |           |             |
| ENVIRONMENTAL          |                        |           |           |             |
| Operation Temperature  | -40 °C ~ +85 °C        |           |           |             |
| Storage Temperature    | -40 °C ~ +85 °C        |           |           |             |
| RoHS Compliant         | Yes                    |           |           |             |

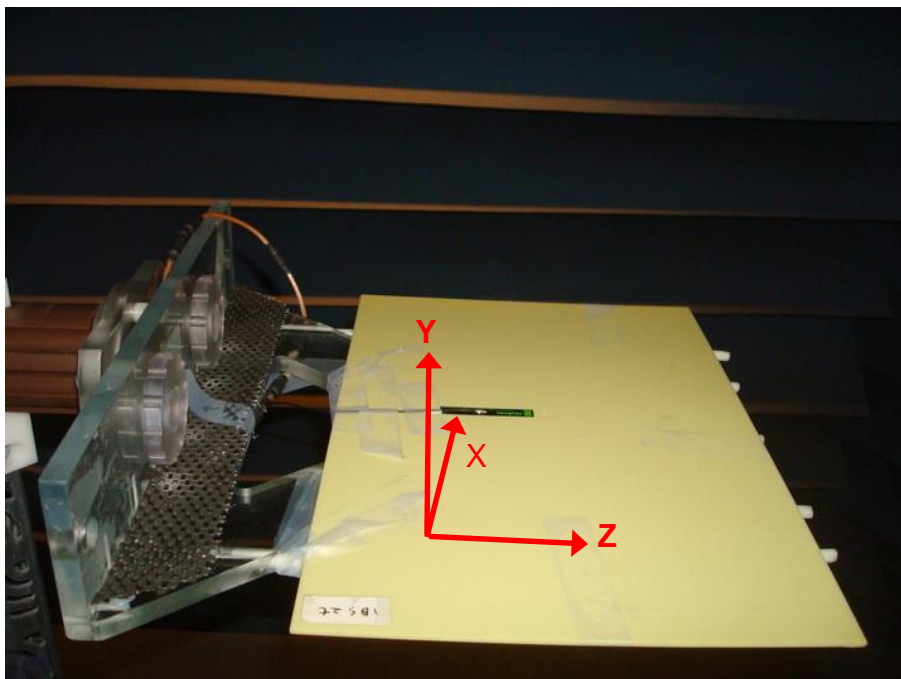
## 3. Antenna Characteristics

### 3.1. Test Setup

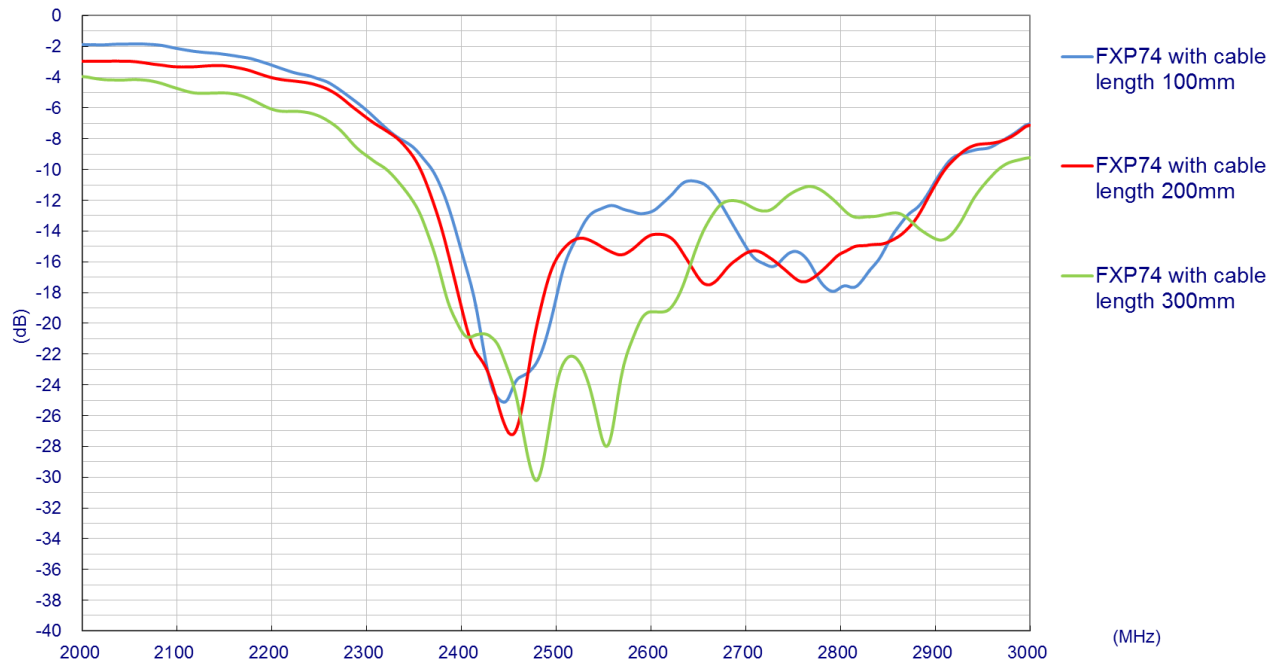
Rohde & Schwarz ZNB 8 Vector Network Analyzer



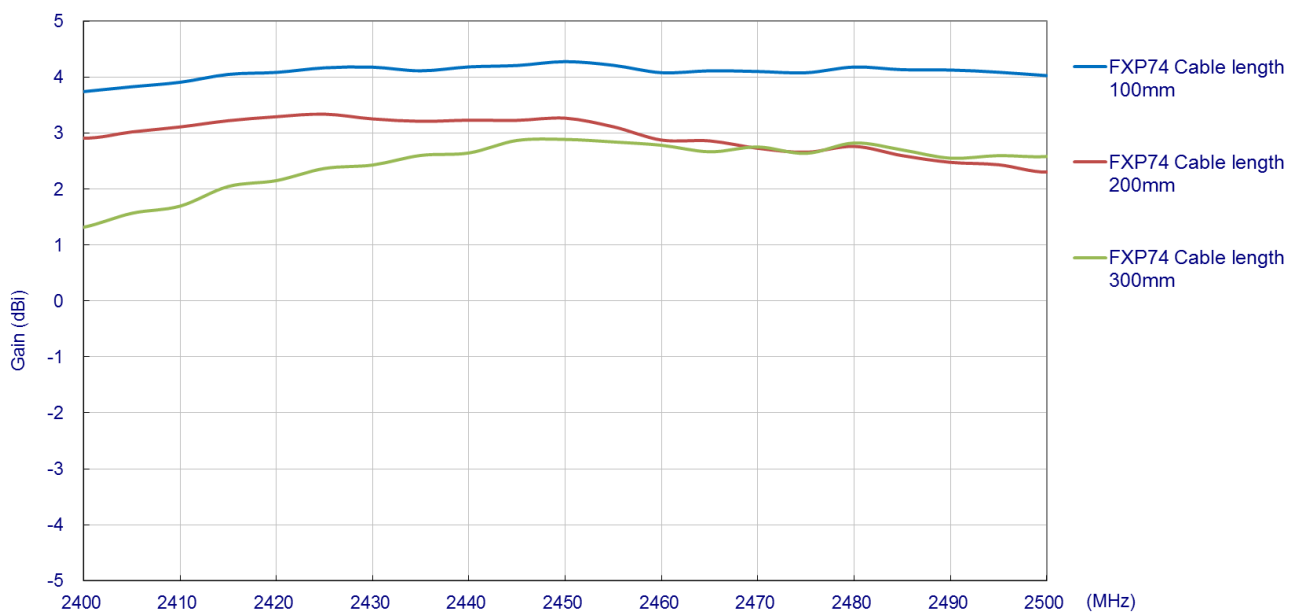
ETS 3D Radiation Scan System with Anechoic Chamber



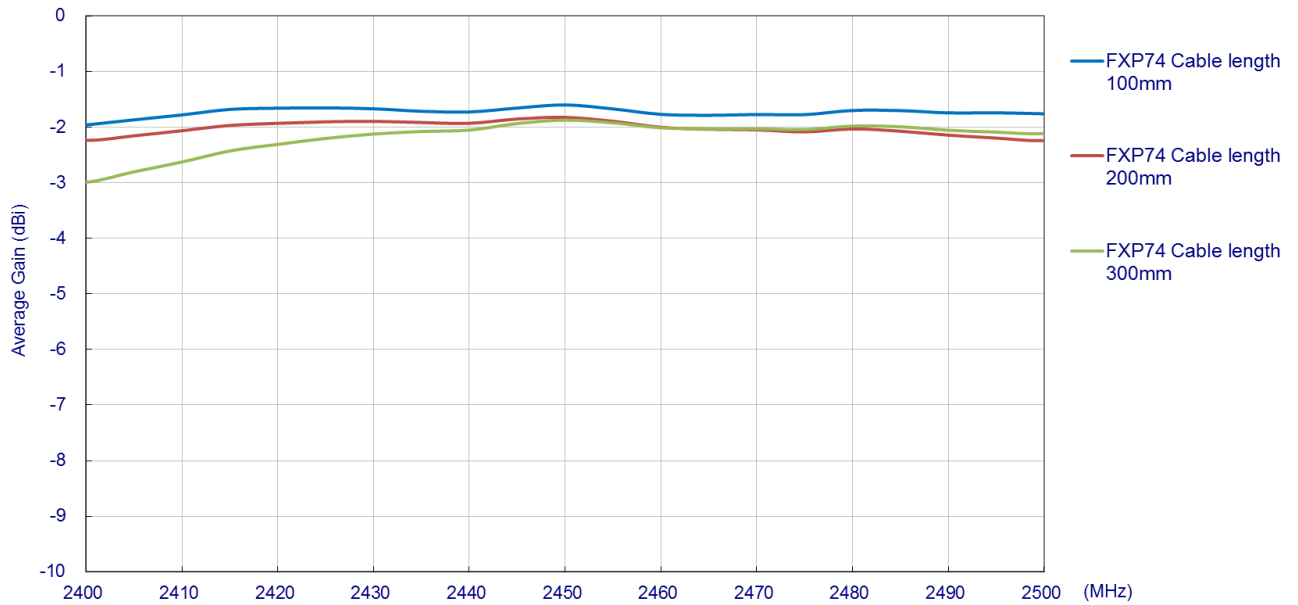
### 3.2. Return Loss



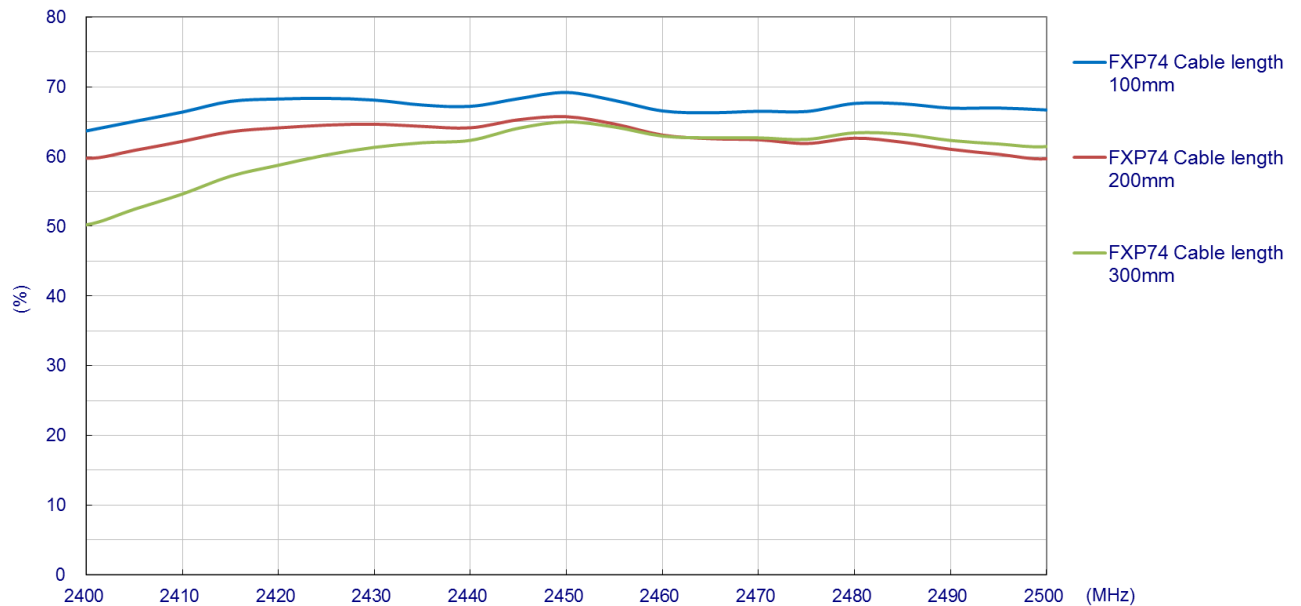
### 3.3. Peak Gain



### 3.4. Average Gain

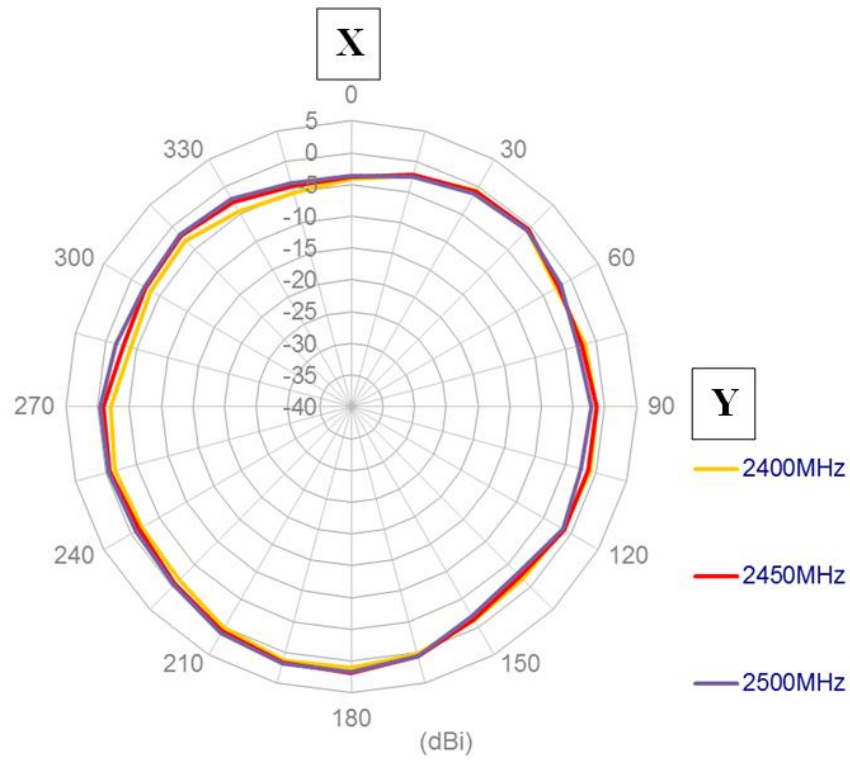


### 3.5. Efficiency

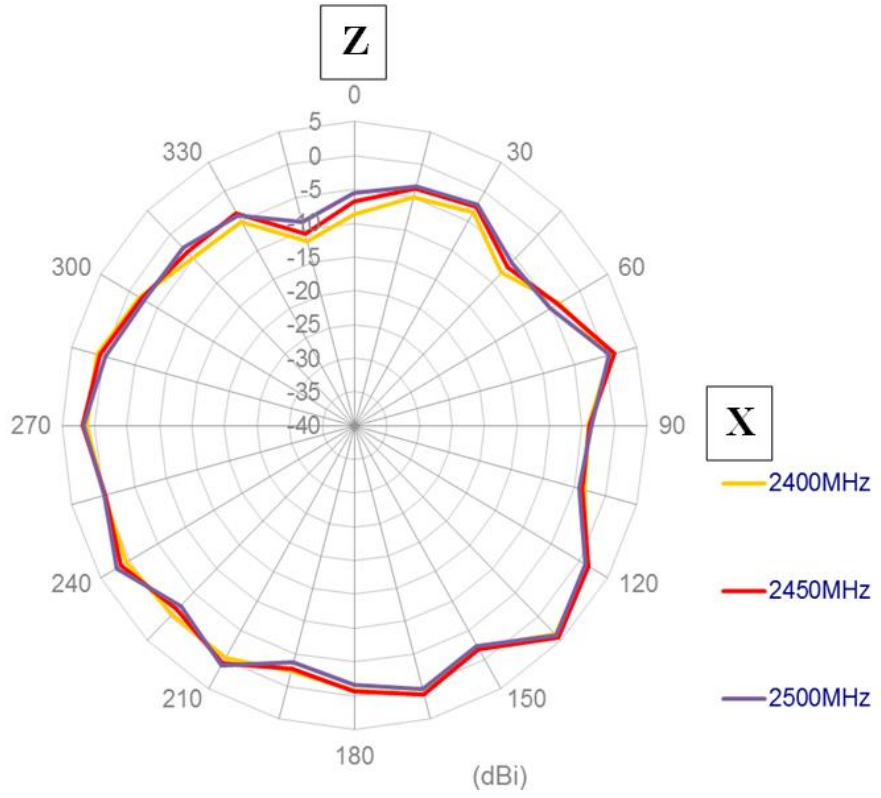


## 4. Antenna Radiation Pattern

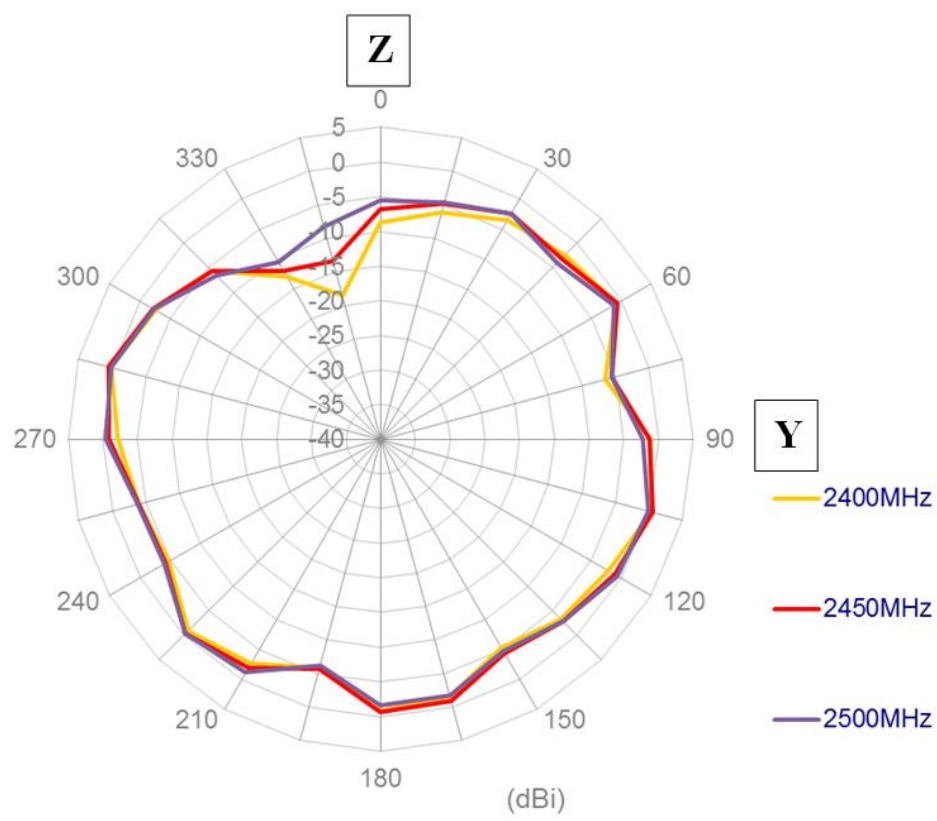
### XY-plane



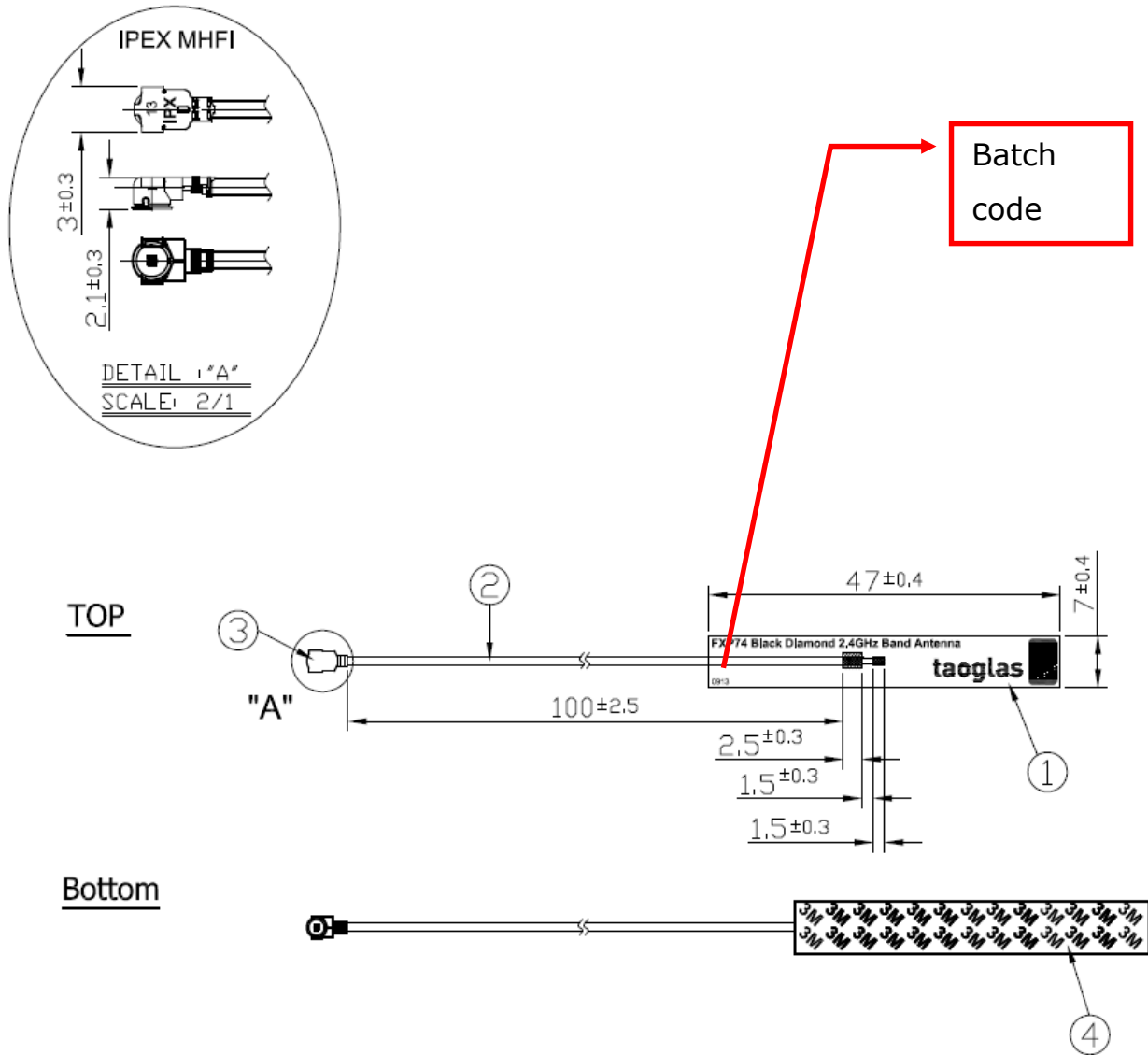
# XZ-plane



# YZ-plane



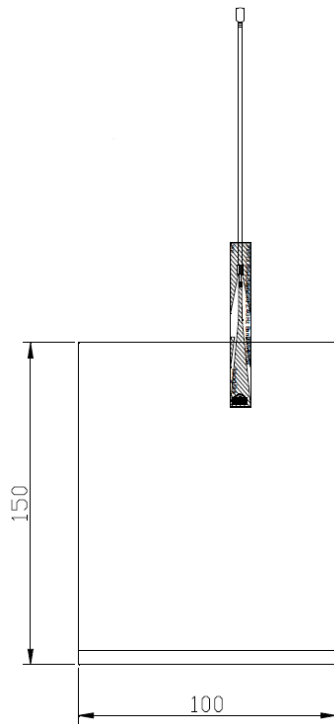
## 5. Antenna Drawing



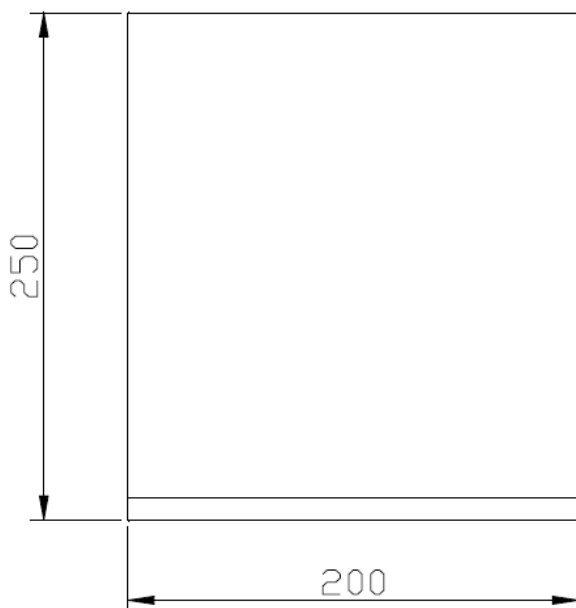
|   | Name                    | P/N            | Material   | Finish      | QTY |
|---|-------------------------|----------------|------------|-------------|-----|
| ① | FXP74 PCB               | 100112F000033A | FPCB 0.15t | Black       | 1   |
| ② | 1.13 Mini-Coaxial Cable | OD.113.AD      | FEP        | Black       | 1   |
| ③ | IPEX MHFI               | IPEX.MHFI.113  | Brass      | Gold        | 1   |
| ④ | Double-Sided Adhesive   | 100111D0000XXA | 3M 467     | Brown Liner | 1   |

## 6. Packaging

100pcs per small PE bag



10pcs small PE bags per 1 big PE bag



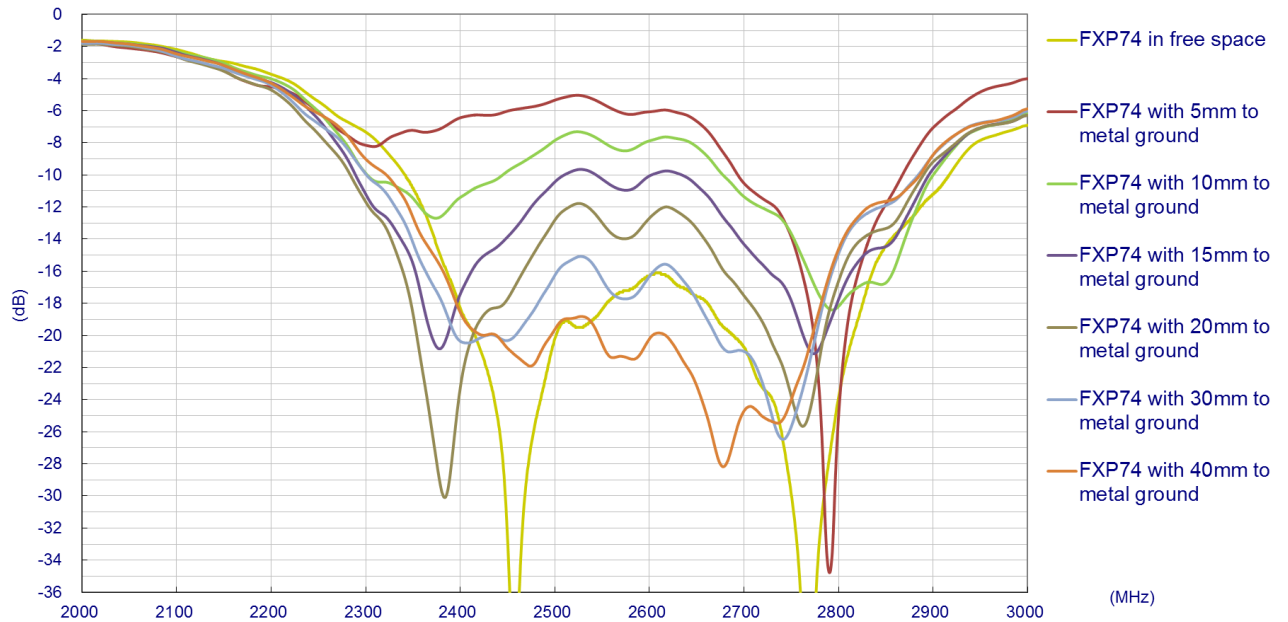
## 7. Return Loss – environmental effects

### 7.1. Antenna on different ABS thickness (Cable Length 100mm)



## 7.2. Proximities to metal ground plane

(Cable Length 100mm, antenna stuck on 2mm ABS base)



### 7.3. Antenna with different cable type (Antenna stuck on 2mm ABS base)

