TAOGLAS

Datasheet

# Freedom

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

**Description:**

2.4GHz Freedom Flexible PCB Antenna

with 53mm 1.13 Cable and IPEX MHFI (U.FL) Connector

**Features:**

Low profile antenna

High performance magnetic field antenna

Flexible PCB Antenna with 3M adhesive

Dimensions: 27*25*0.2mm

Cable: 53mm 1.13

Connector: IPEX MHFI (U.FL)

RoHS & Reach Compliant

| | | |
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Ireland ISO 9001: 2015 Certified

Taiwan ISO 9001: 2015 Certified

# 1. Introduction

The FXP70 Freedom 2.4GHz Antenna works on Wi-Fi, 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 2mm of thickness as a baseline for testing.

Many module manufacturers specify peak gain limits for any antennas that are to be connected to that module. Those peak gain limits are based on free-space conditions. In practice, the peak gain of an antenna tested in free-space can degrade by at least 1 or 2dBi when put inside a device. So ideally you should go for a slightly higher peak gain antenna than mentioned on the module specification to compensate for this effect, giving you better performance.

Upon testing of any of our antennas 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 limits. Taoglas can then issue a specification and/or report for the selected antenna in your device that will clearly show it complying with the peak gain limits, so you can be assured you are meeting regulatory requirements for that module.

For example, a module manufacturer may state that the antenna must have less than 2dBi peak gain, but you don't need to select an embedded antenna that has a peak gain of less than 2dBi in free-space. This will give you a less optimized solution. It is better to go for a slightly higher free-space peak gain of 3dBi or more if available. Once that antenna gets integrated into your device, performance will degrade below this 2dBi peak gain due to the effects of GND plane, surrounding components, and device housing. If you want to be absolutely sure, contact Taoglas and we will test. Choosing a Taoglas antenna with a higher peak gain than what is specified by the module manufacturer and enlisting our help will ensure you are getting the best performance possible without exceeding the peak gain limits.

The cable and connector are fully customizable, for more information please contact your regional Taoglas customer support team.

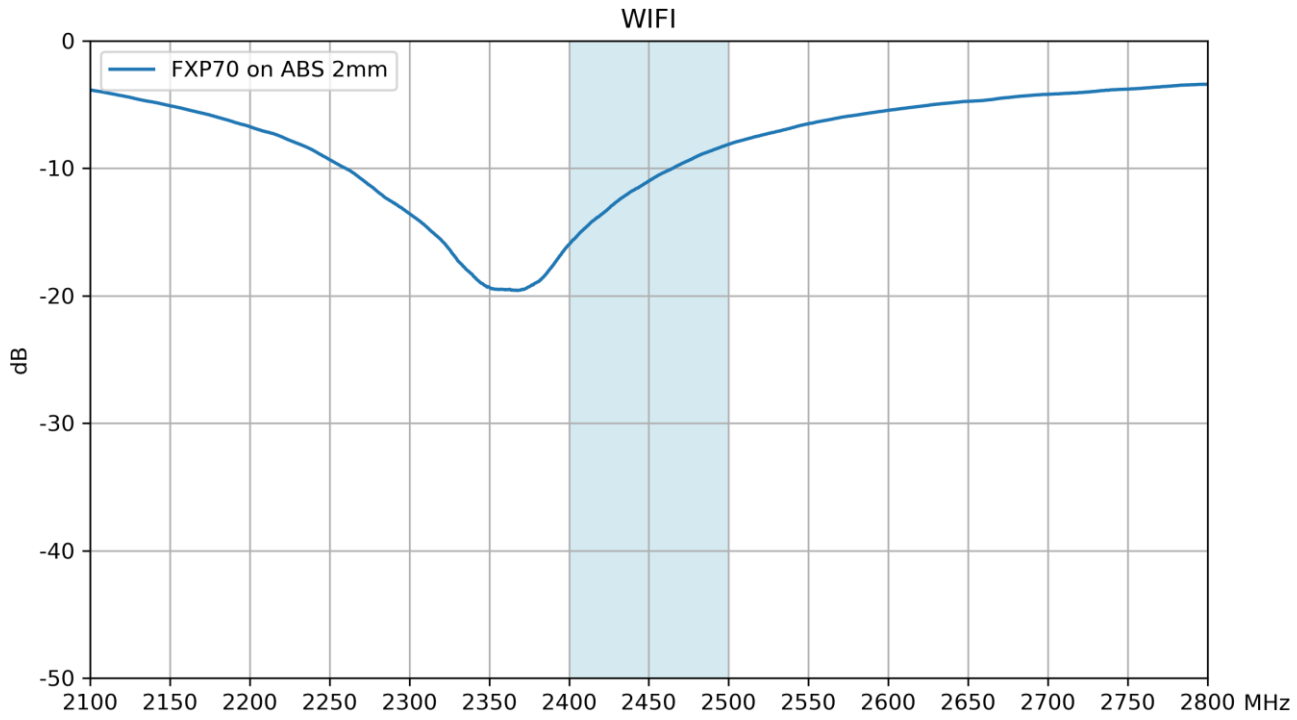
# 2. Specifications

| Wi-Fi MIMO | |
|---|---|
| **Frequency (MHz)** | **2400~2500** |
| **Efficiency (%)** | |
| 2mm ABS | 63.7 |
| Free Space | 30.5 |
| **Average Gain (dB)** | |
| 2mm ABS | -2 |
| Free Space | -5.2 |
| **Peak Gain (dBi)** | |
| 2mm ABS | 2.0 |
| Free Space | -1.9 |
| Impedance | 50 Ω |
| Polarization | Linear |
| Radiation Pattern | Omni |
| VSWR | ≤1.5:1 |
| Max. input power | 5W |

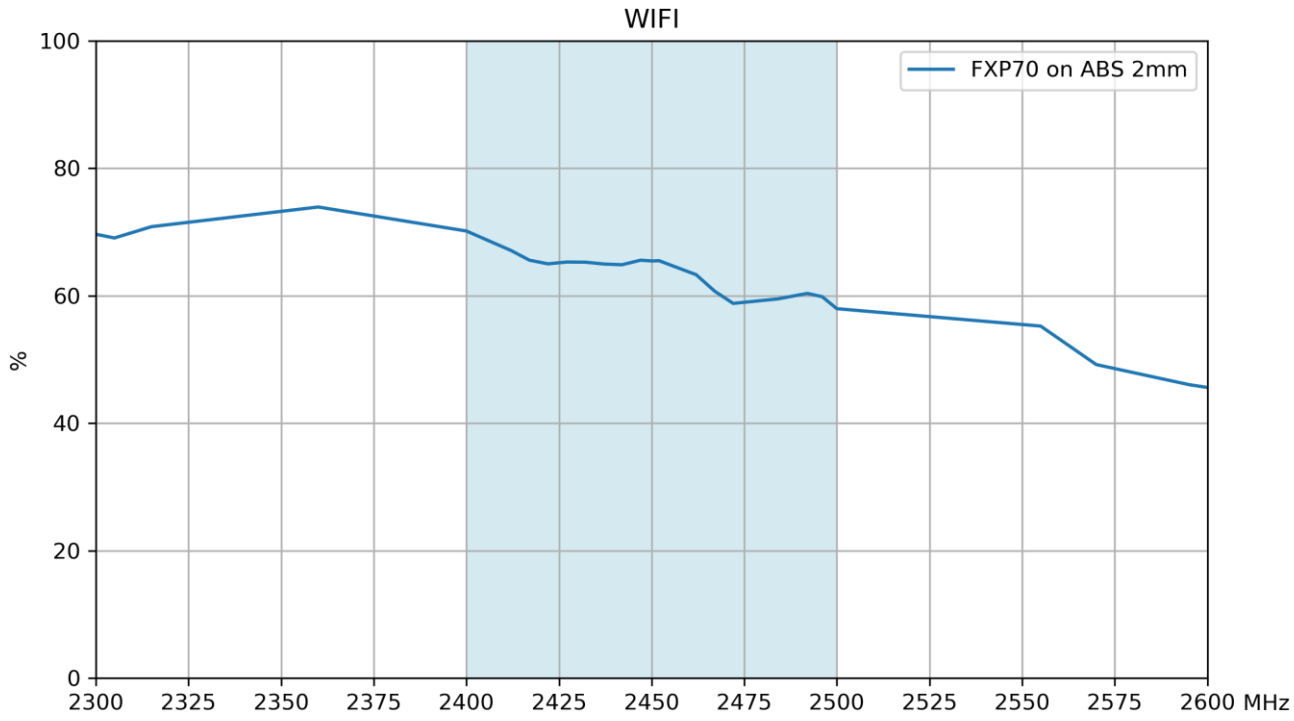
| Mechanical | |
|---|---|
| **Dimensions** | 27 X 25 X 0.08 mm |
| **Weight** | 1.2 g |
| **Connector** | MHFI (U.FL Compatible) |
| **Cable** | 53mm of Mini-Coax 1.13 mm |
| **Adhesive** | 3M 467 |
| **Environmental** | |
| **Temperature Range** | -40°C to 85°C |
| **Humidity** | Non-condensing 65°C 95% RH |

# 3. Antenna Characteristics

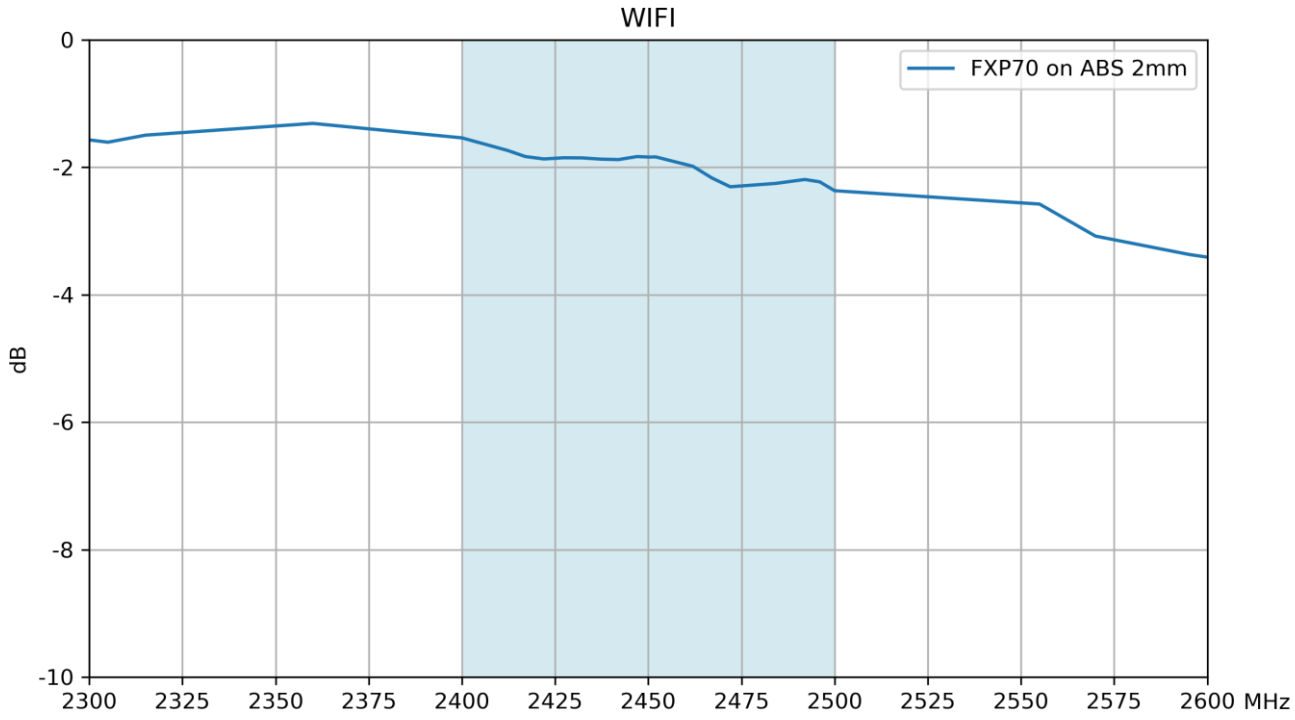
## 3.1 Return Loss



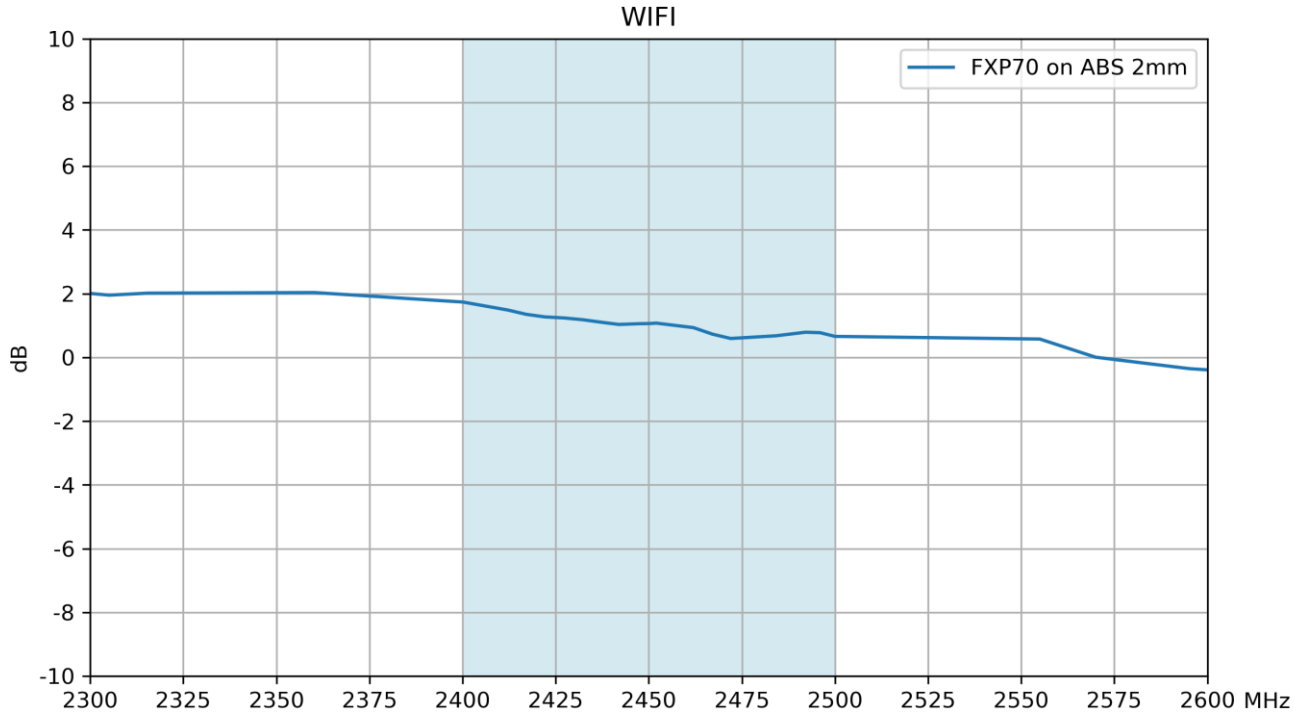

## 3.2 Efficiency



## 3.3 Average Gain

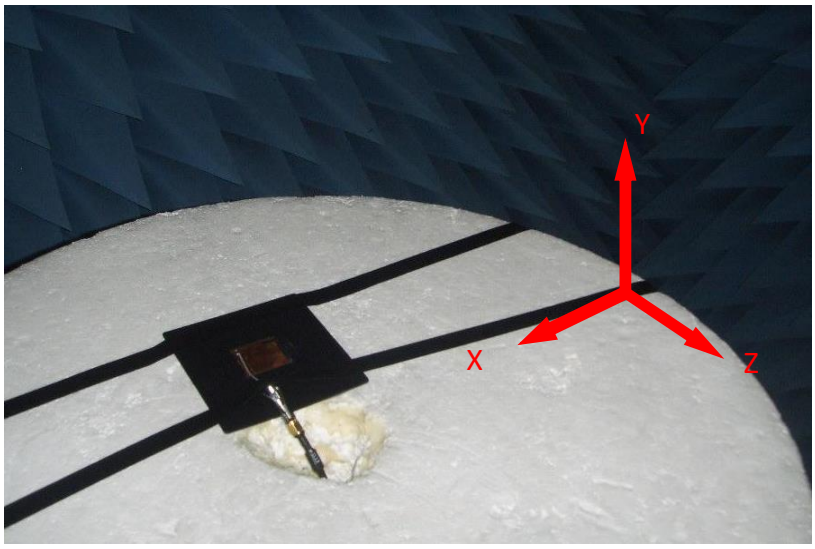



## 3.4 Peak Gain

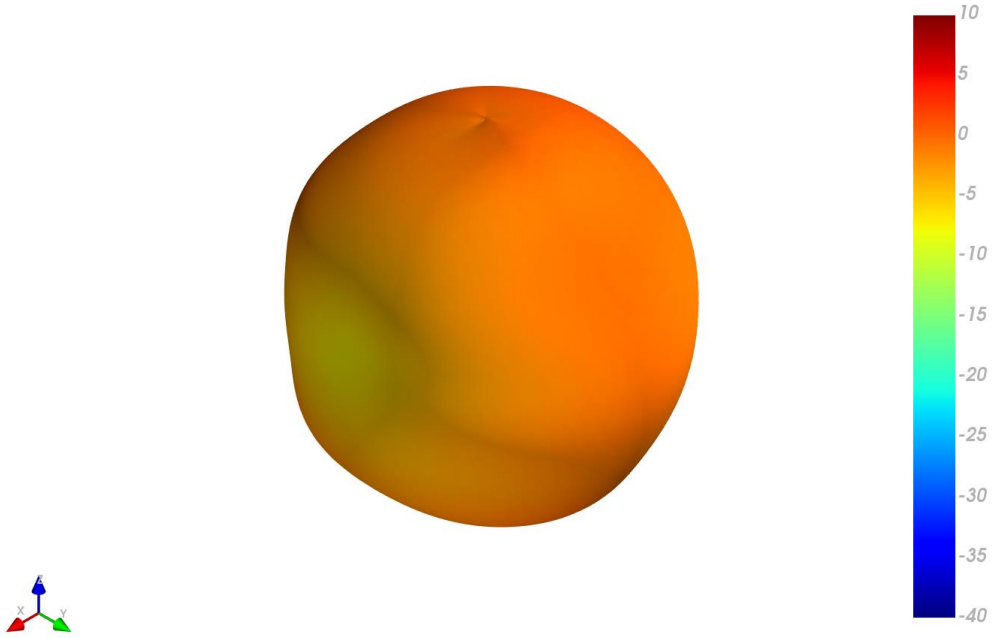


# 4. Radiation Patterns

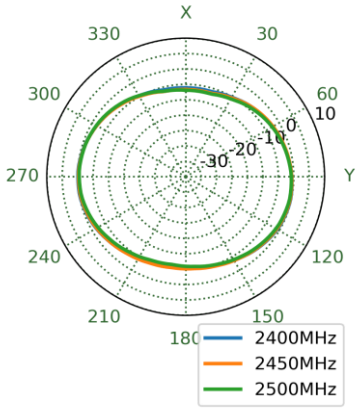
## 4.1 Test Setup

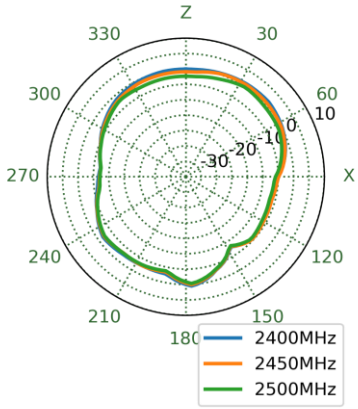


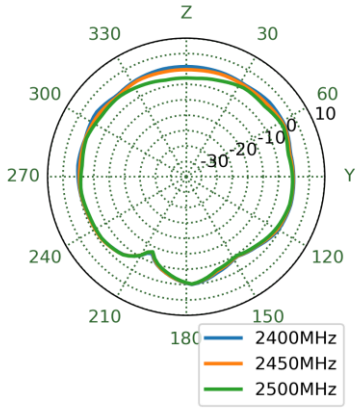
## 4.2 2450MHz 3D and 2D Radiation Patterns



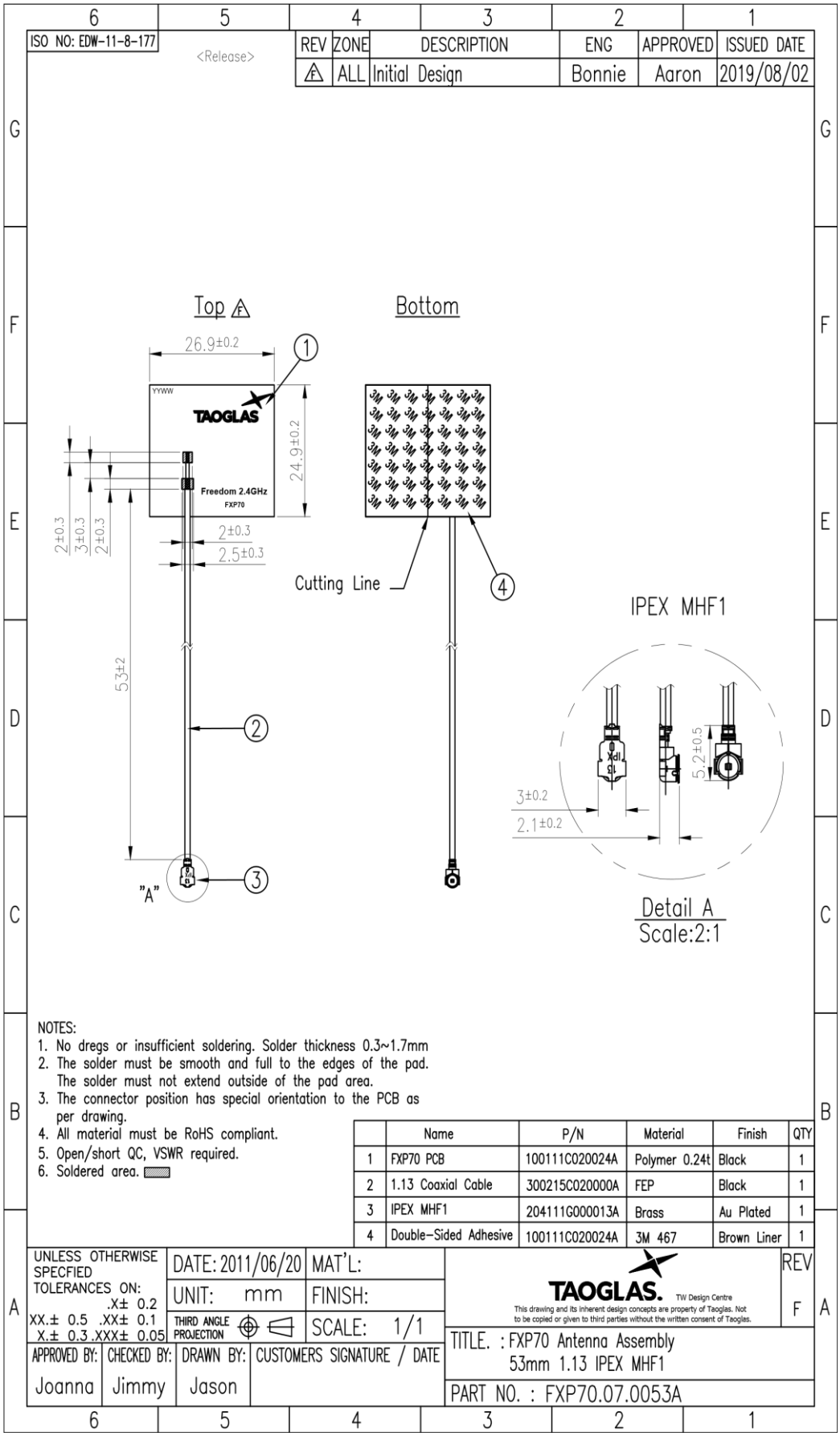

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



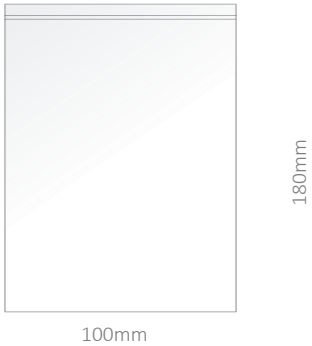



# 5. Mechanical Drawing (Units: mm)



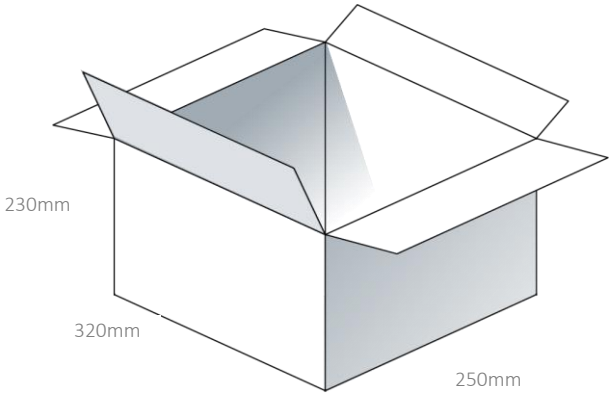
# 6. Packaging

100pcs FXP70.07.0053A per PE Bag
Dimensions - 180*100mm
Weight - 130g




1000pcs FXP70.07.0053A per Large PE Bag
Dimensions - 280*450mm
Weight - 1.4Kg

6000pcs FXP70.07.0053A per carton
Dimensions - 320*250*230mm
Weight - 8.5Kg



Changelog for the datasheet

## SPE-12-8-013 - FXP70.07.0053A

| Revision: F (Current Version) | |
|---|---|
| Date: | 2019-12-13 |
| Changes: | Updated with new data |
| Changes Made by: | Jack Conroy |

### Previous Revisions

| Revision: E | |
|---|---|
| Date: | 2016-08-23 |
| Changes: | Drawing updated |
| Changes Made by: | Andy Mahoney |

| Revision: D | |
|---|---|
| Date: | 2015-08-20 |
| Changes: | Added note on Gain |
| Changes Made by: | Aine Doyle |

| Revision: C | |
|---|---|
| Date: | 2015-01-14 |
| Changes: | Updated Intro |
| Changes Made by: | Andy Mahoney |

| Revision: B | |
|---|---|
| Date: | 2015-01-13 |
| Changes: | Packaging Details Updated |
| Changes Made by: | Andy Mahoney |

| Revision: A (Original First Release) | |
|---|---|
| Date: | 2012-06-02 |
| Notes: | |
| Author: | Aine Doyle |

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