



# TAOGLAS®



# Datasheet

## Freedom

**Part No:**  
FXP830.54.0100C

### Description:

FXP830 Freedom Wi-Fi 2.4/5.8/7.1GHz Dipole Antenna, Wi-Fi 6 included with 100mm of 1.37mm cable and I-PEX MHF®4L (HSC) connector

### Features:

- Flexible Polymer Antenna
- Covers Newly established Wi-Fi 6
- Covers 2.4/5.8/7.1GHz Wi-Fi Bands
- Dipole Antenna
- Operates in Free Space (Ground Plane Independent)
- Cable: 100mm of  $\varnothing$ 1.37mm
- Connector: IPEX MHF4L (HSC)
- CE Certified
- RoHS & Reach Compliant



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# 1. Introduction



The FXP830 is a high efficiency, small, dipole antenna covering 2.4/5.8/7.1GHz bands including Bluetooth, Wi-Fi and the newly established Wi-Fi 6/Wi-Fi 6E, making this an ideal solution for future-proofing an IoT device. This Taoglas patent pending antenna is unique in the market because it is made from poly-flexible material, has a tiny form factor (42\*7\*.01mm) and has double-sided 3M tape for easy “peel and stick” mounting.

The FXP830 is the ideal all-round antenna solution for squeezing into narrow spaces and still maintaining high performance, for example at the top of LCD devices.

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 further information contact your regional Taoglas customer support team.

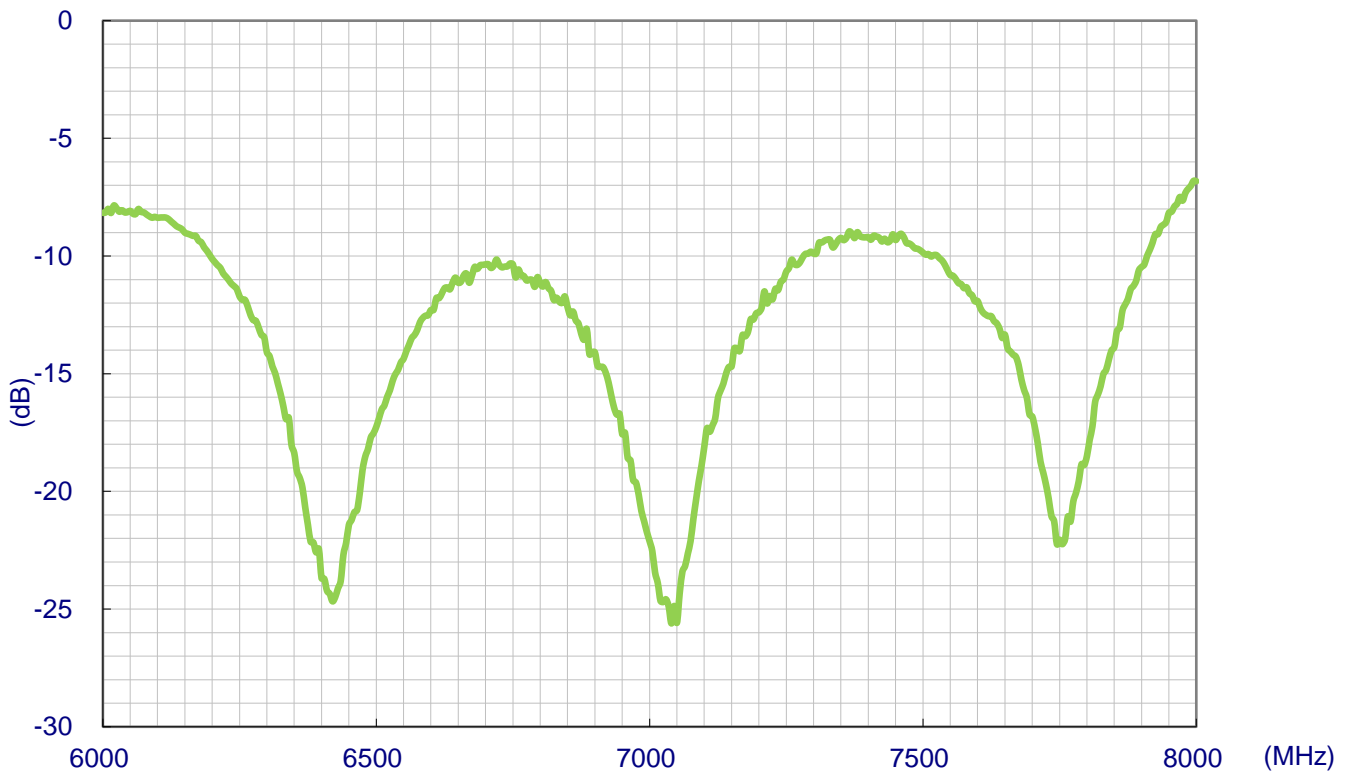
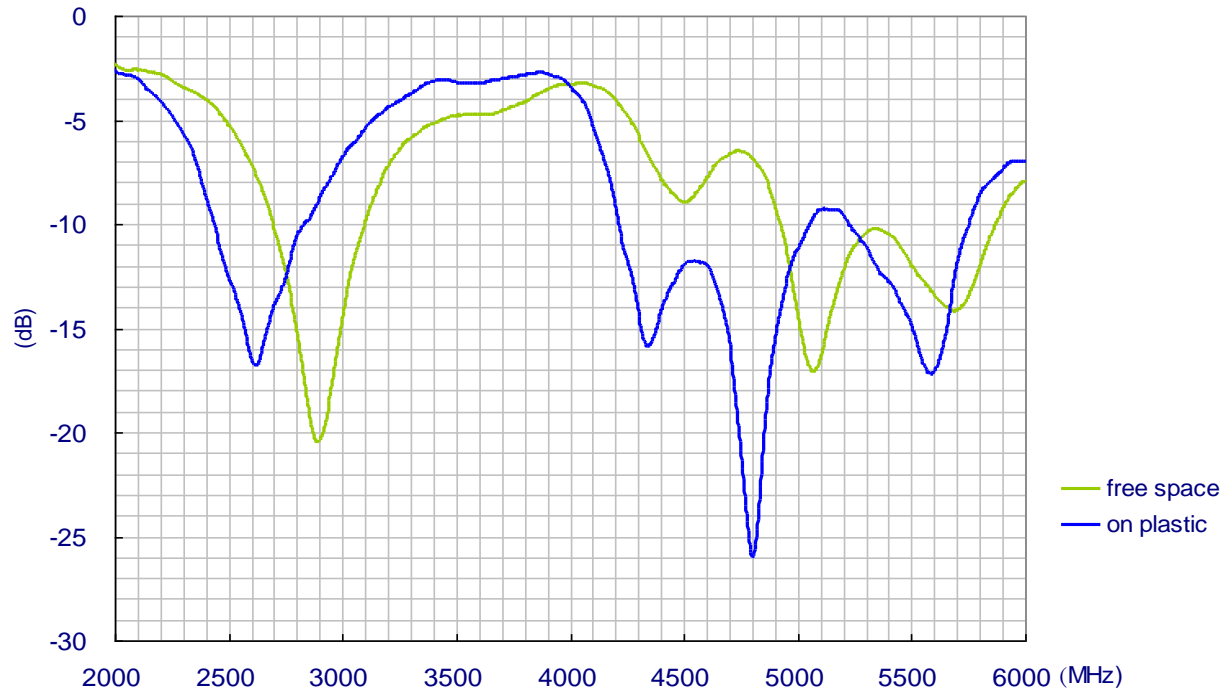
## 2. Specifications

Wi-Fi Electrical								
Band	Frequency (MHz)	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Max Power Input	Polarization	Radiation Pattern
2.4GHz Wi-Fi	2400~2500	50	-3	2.5	50Ω	2W	Linear	Omnidirectional
5.8GHz Wi-Fi	5150~5850	86	-3	4.7				
7.1GHz Wi-Fi 6	5925~7125	65	-1.8	3.1				

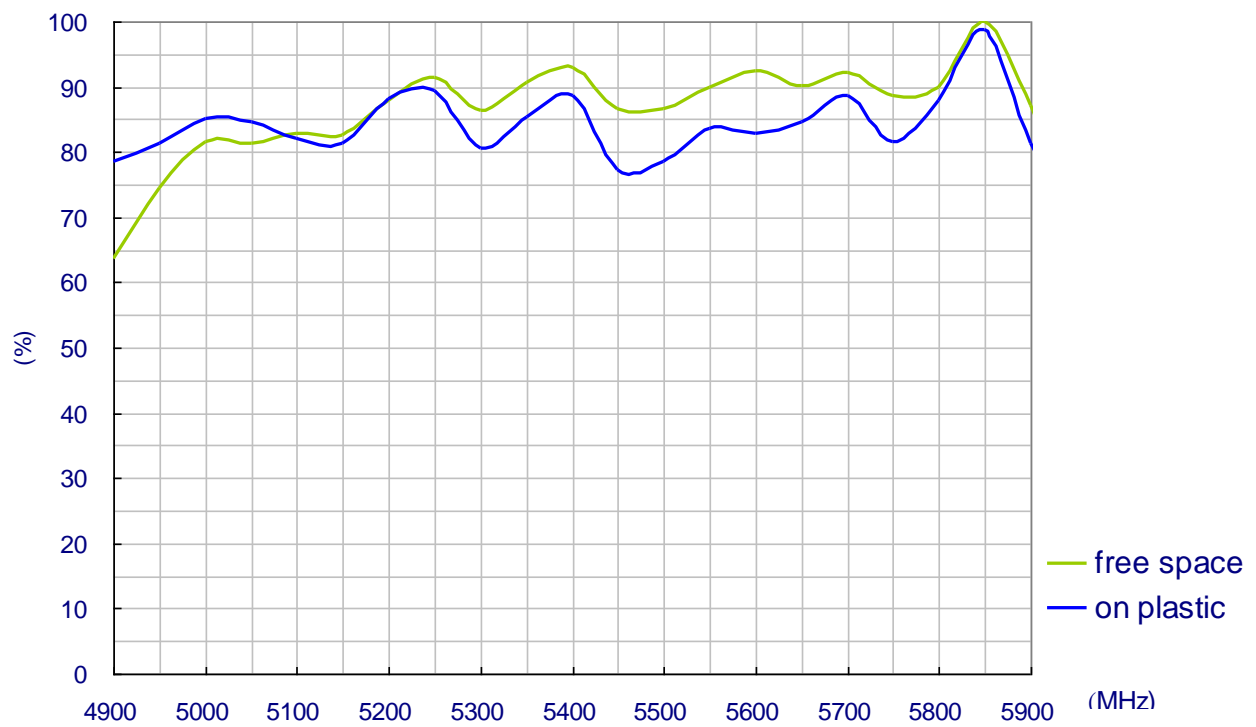
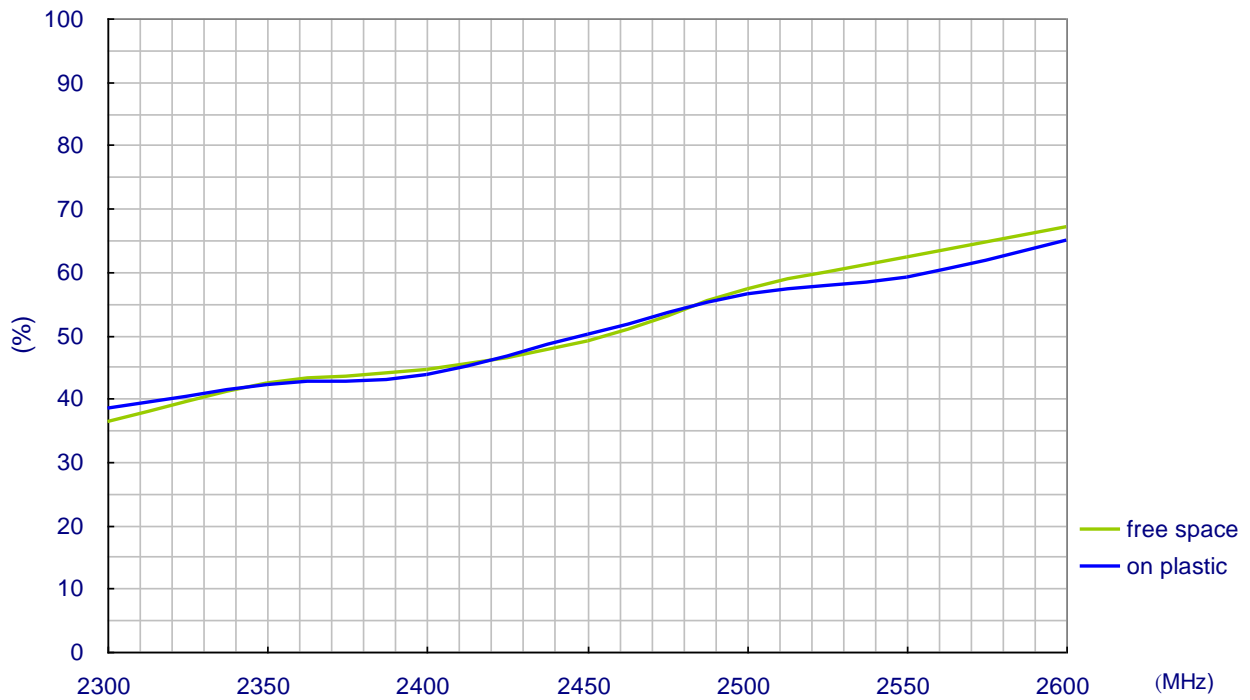
Mechanical	
Dimensions	42*7mm
Antenna Body Material	Polymer
Cable	Gray 100mm 1.37 co-axial
Connector	I-PEX MHF®4L (HSC Compatible)
Weight	7g
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

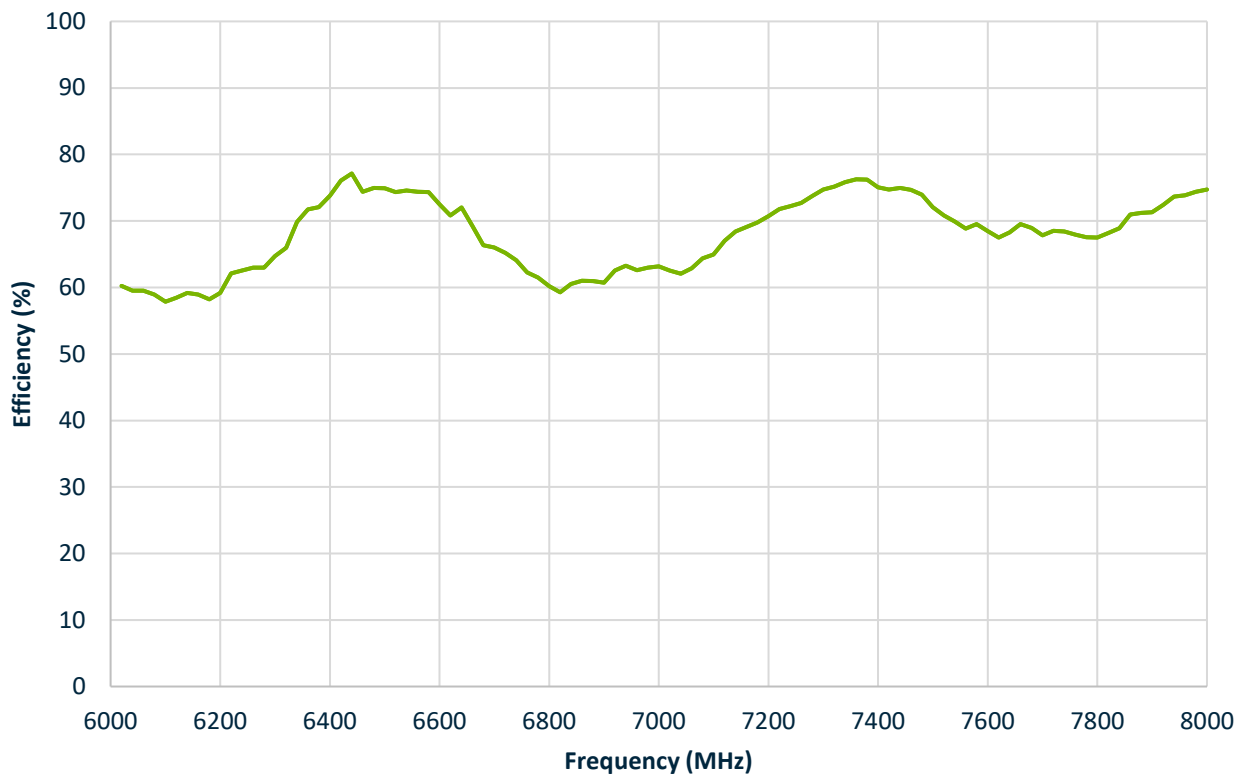
### 3. Antenna Characteristics

#### 3.1 Return Loss

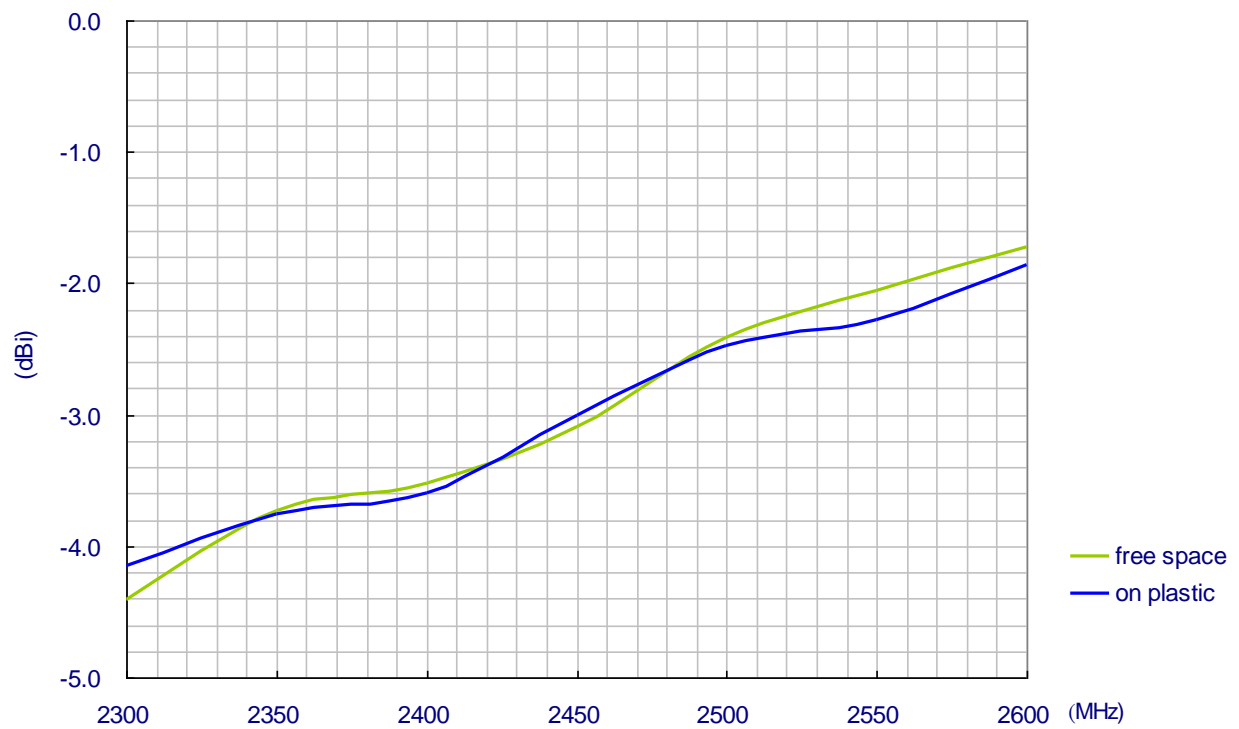


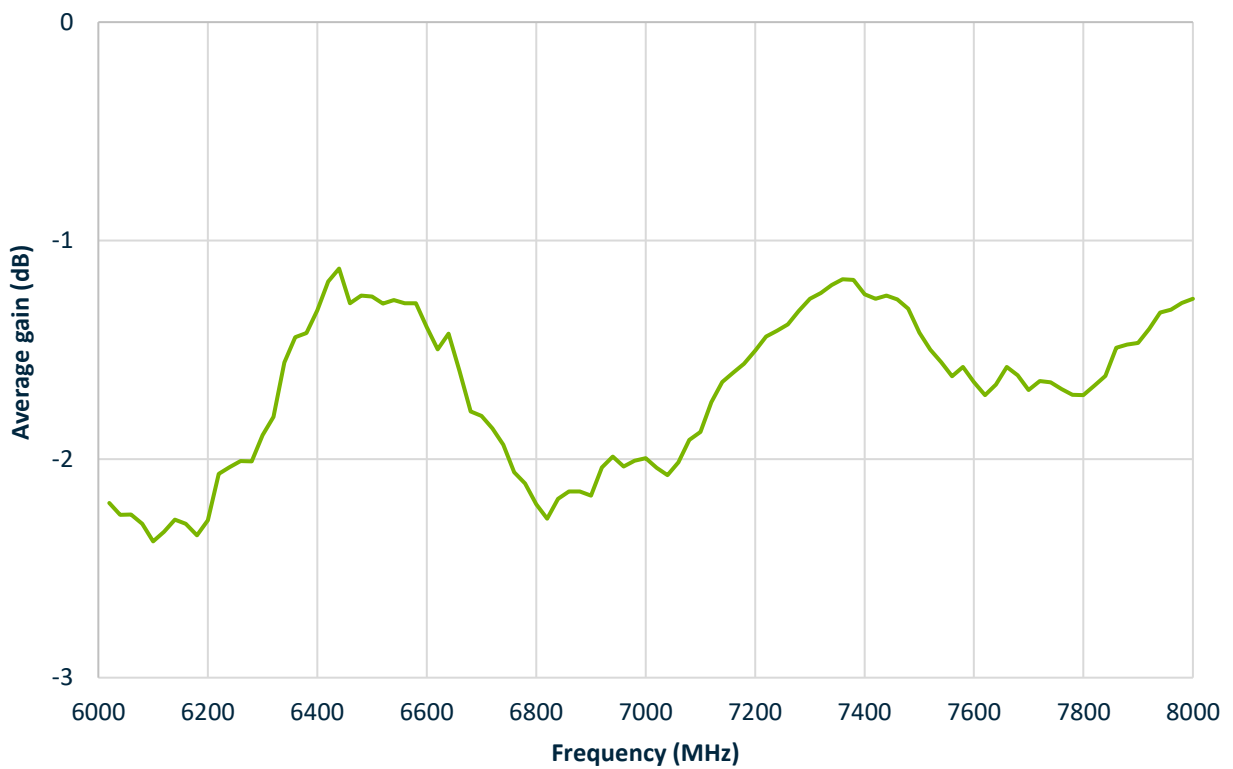
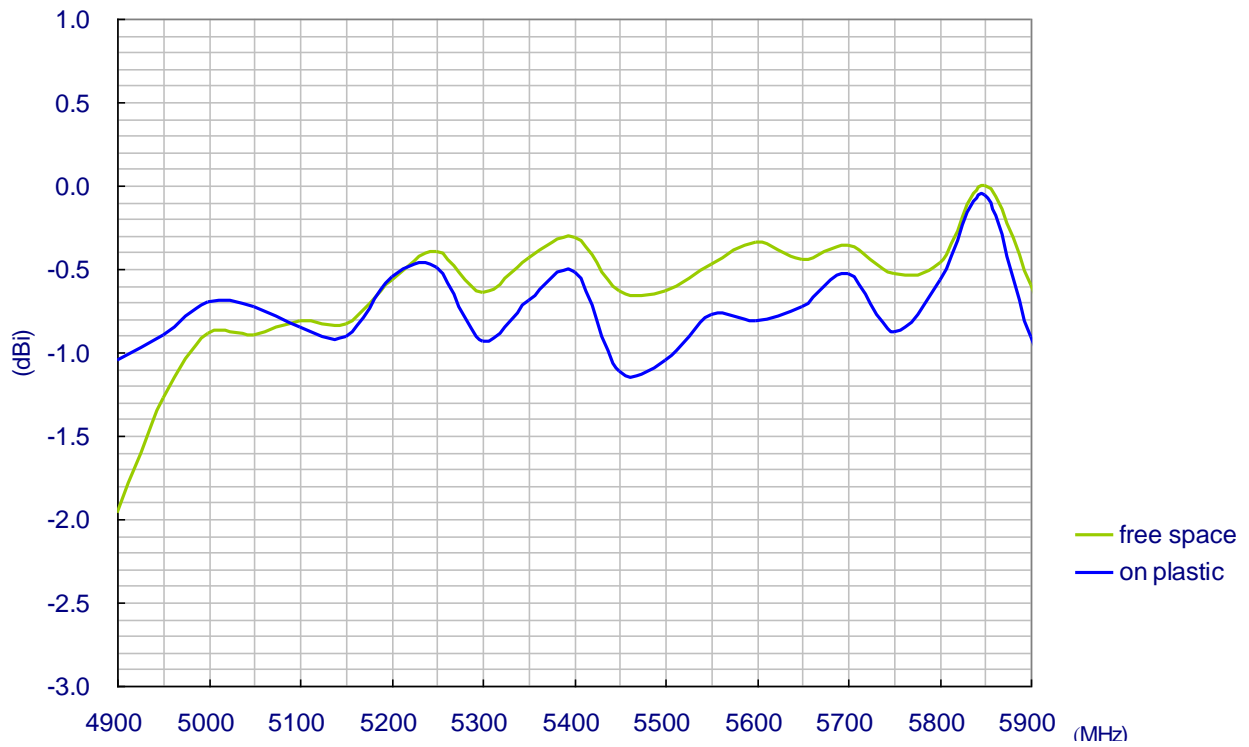
### 3.2 Efficiency





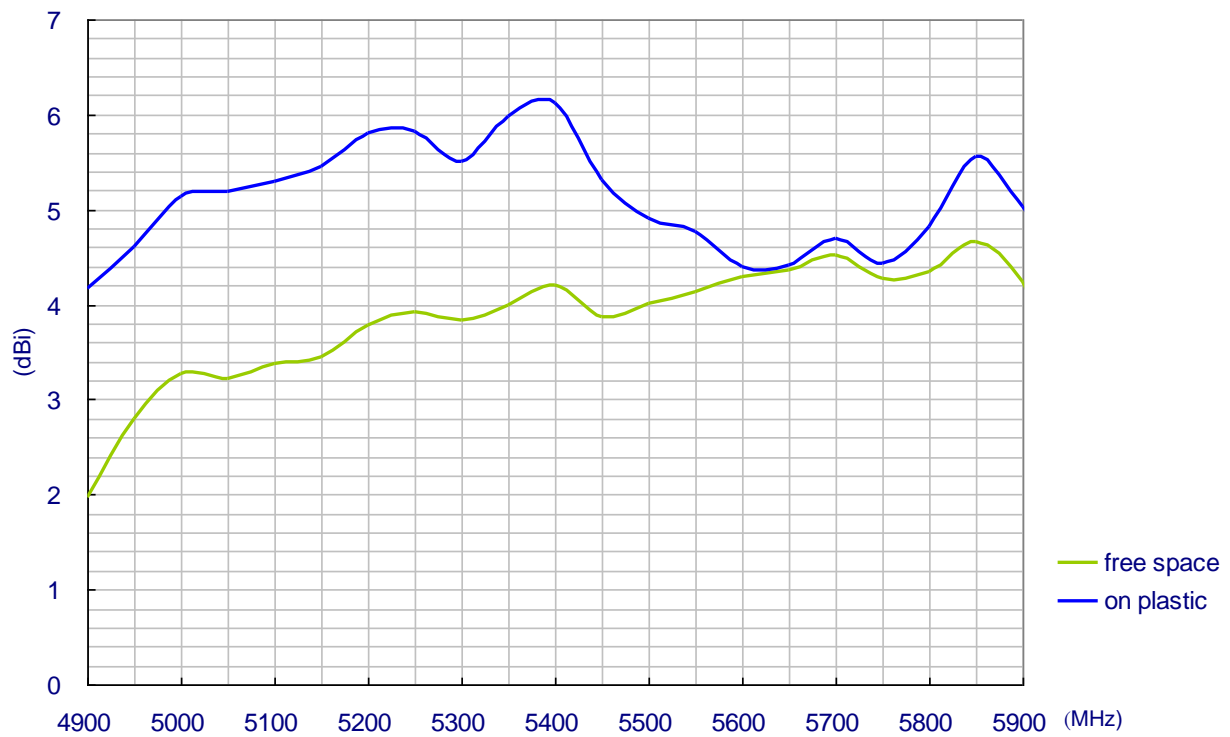
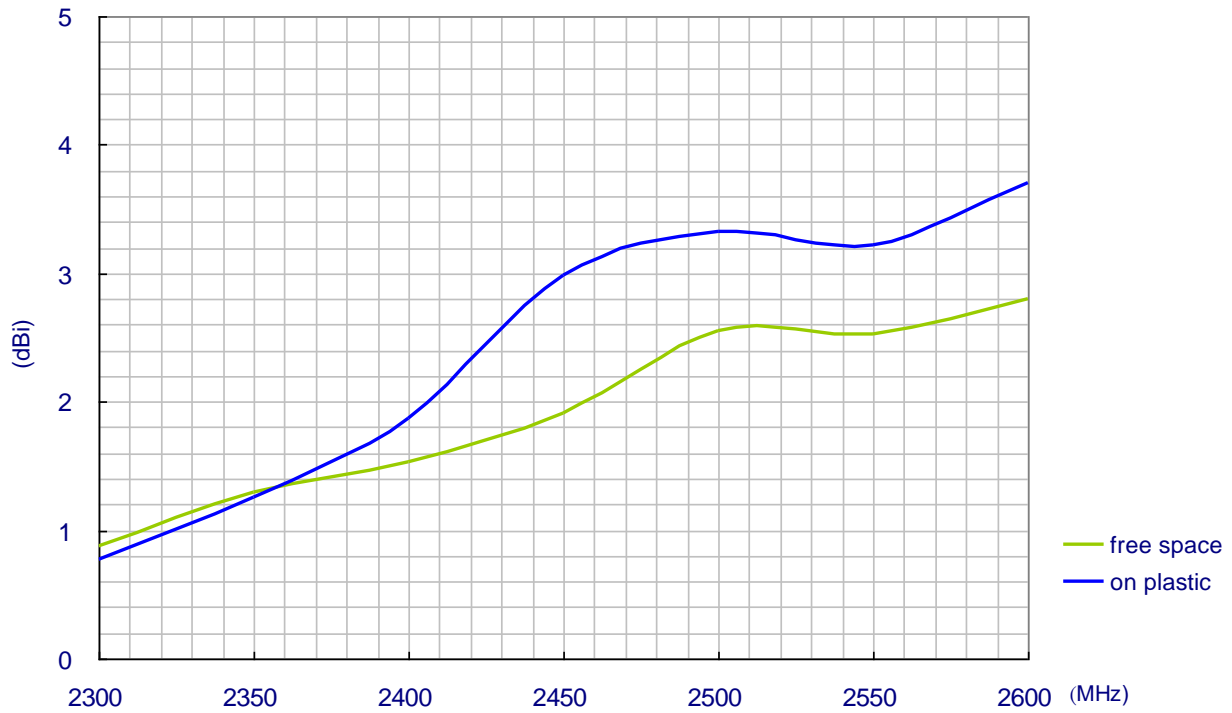
### 3.5 Average Gain

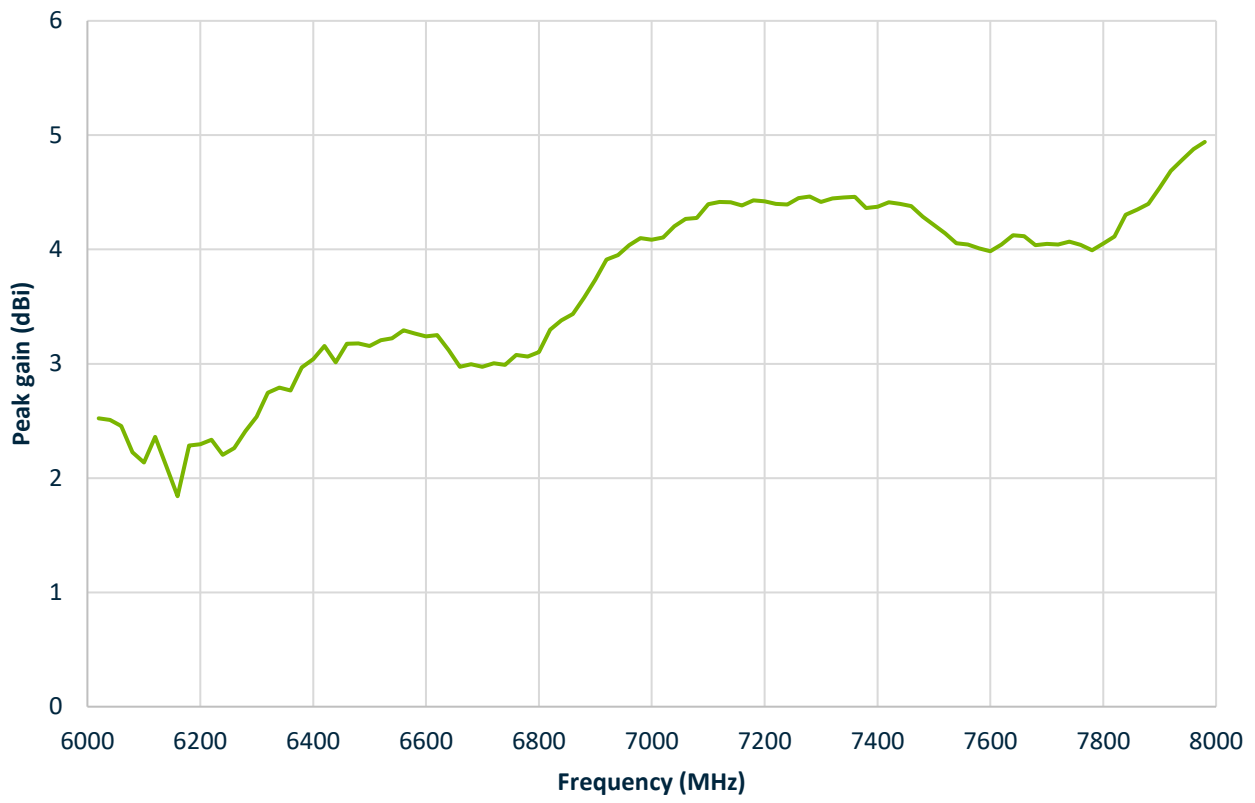






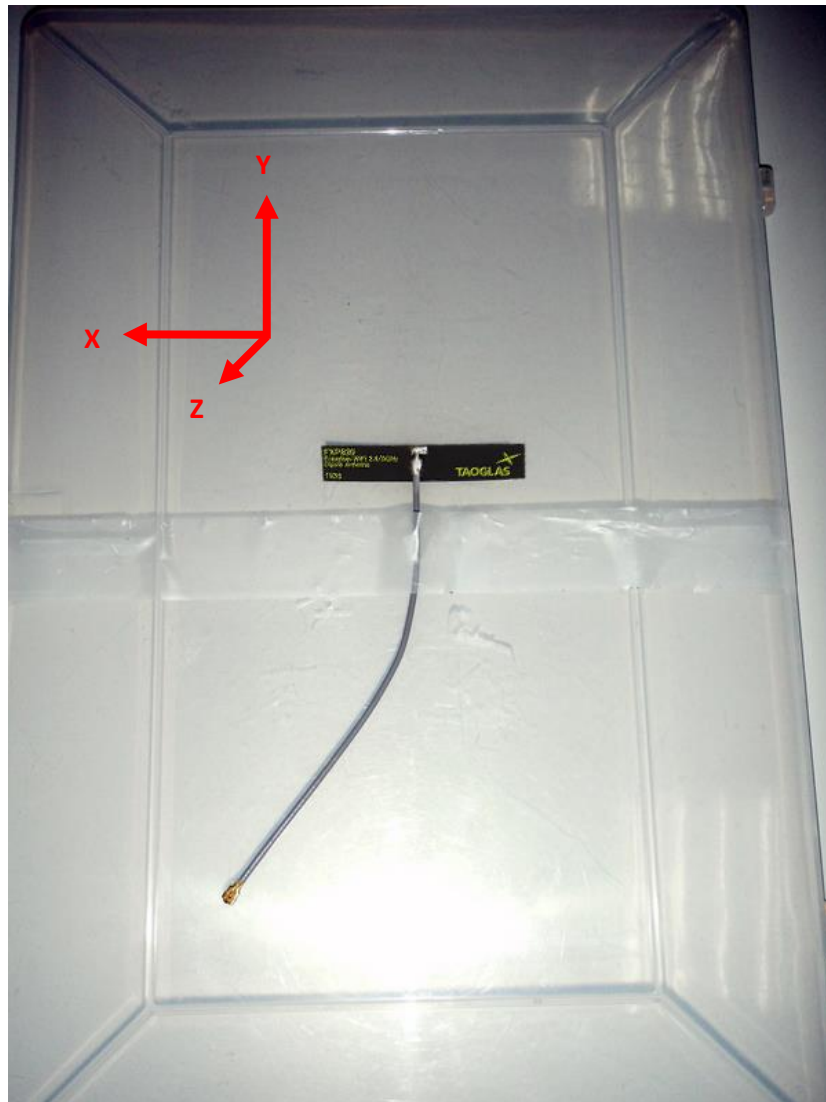
### 3.5 Peak Gain





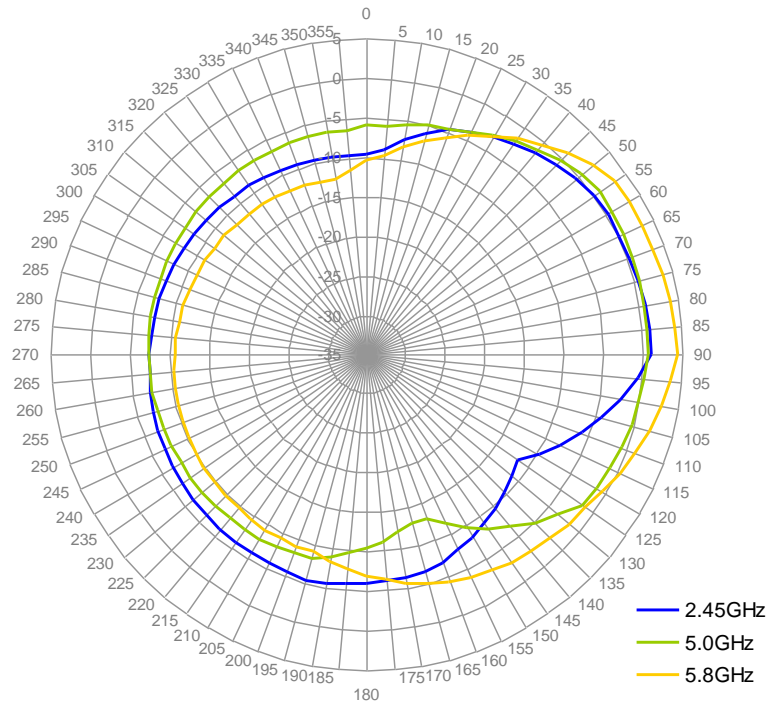
## 4. Radiation Patterns

### 4.1 Test Setup

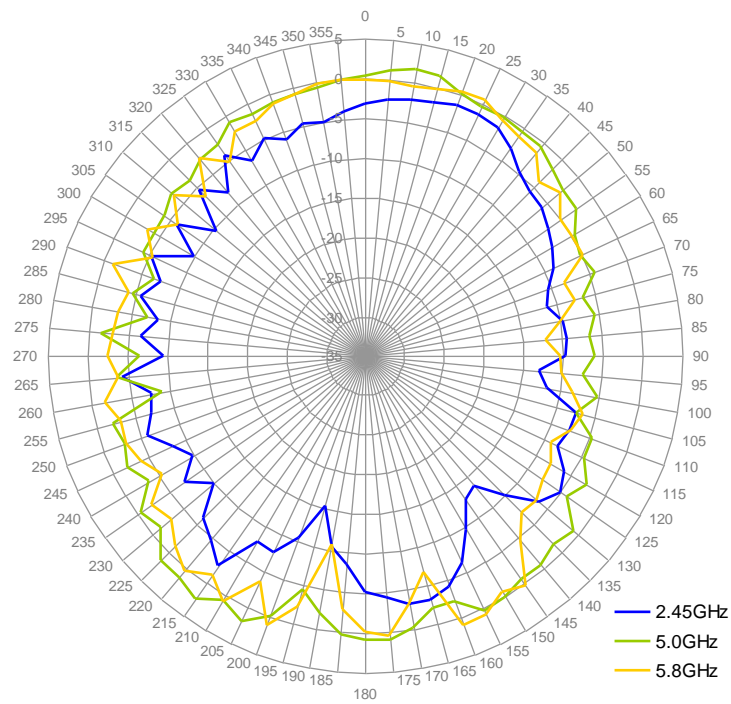


4.2 2D Radiations Patterns on Plastic

XY Plane

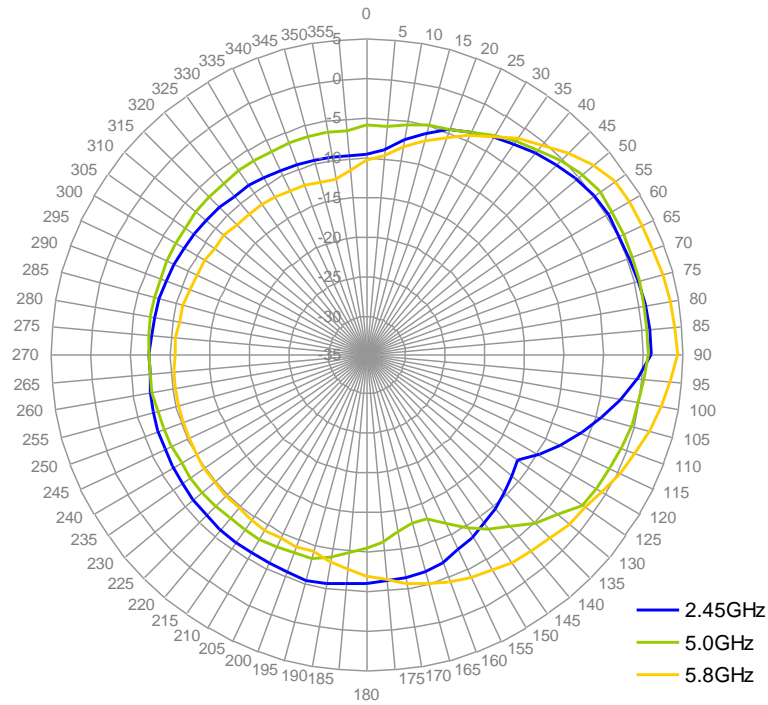


XZ Plane

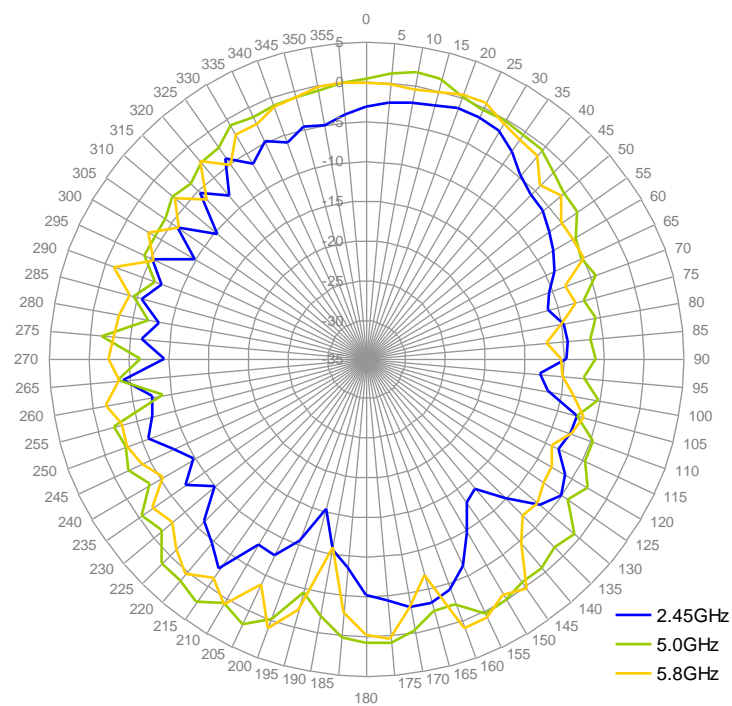


### 4.3 2D Radiations Patterns in Free Space

#### XY Plane



#### XZ Plane



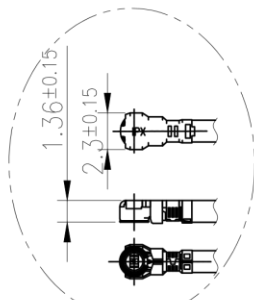
# 5. Mechanical Drawing (Units: mm)

ISO NO.: EDW-23-8-0981

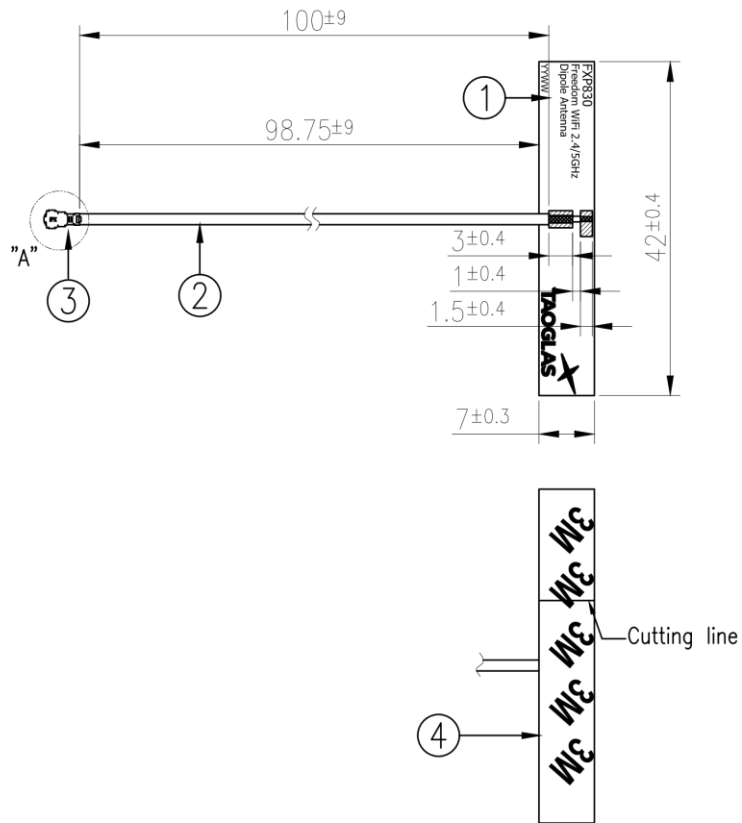
STATE: RELEASE

- NOTES:
1. No dregs or insufficient soldering. Solder thickness 0.3~1.7mm.
  2. The solder must be smooth and full to the edges of the pad.
  3. The solder must not extend outside of the pad area.
  4. The connector position has special orientation to the PCB as per drawing.
  5. All material must be RoHS compliant.
  6. Open/short QC, VSWR required.
  7. Soldered area.

REV.	DESCRIPTION	ENG.	APPROVED	DATE
001	INITIAL DESIGN	Karry	Aaron	2023/07/24



Detail A  
Scale:2:1

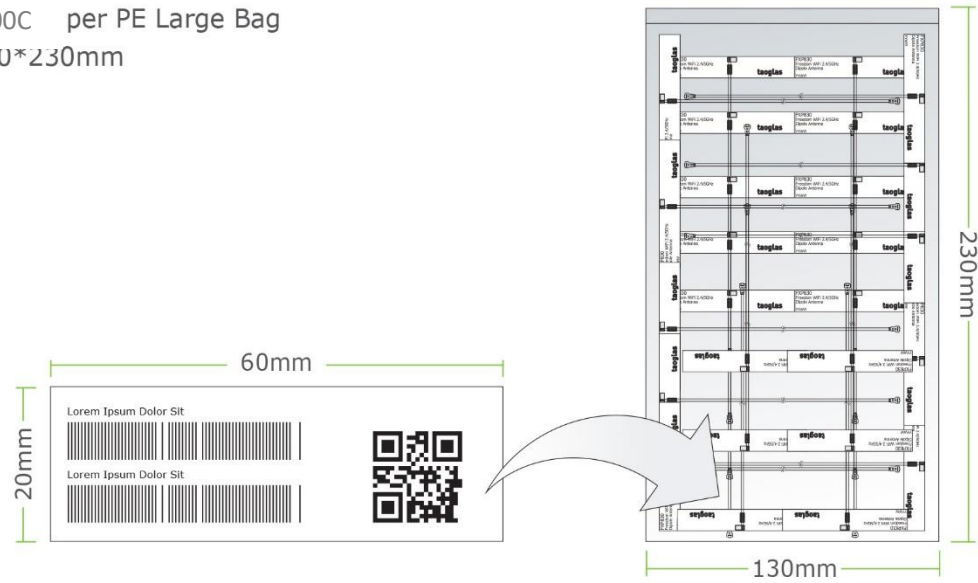


	Name	Material	Finish	QTY
1	FXP830 PCB	Polymer 0.24t	Black	1
2	1.37 Coaxial Cable	FEP	Black	1
3	IPEX MHF4L	Copper Alloy	Au/Ni Plated	1
4	Double-Sided Adhesive	3M 467	Brown Liner	1

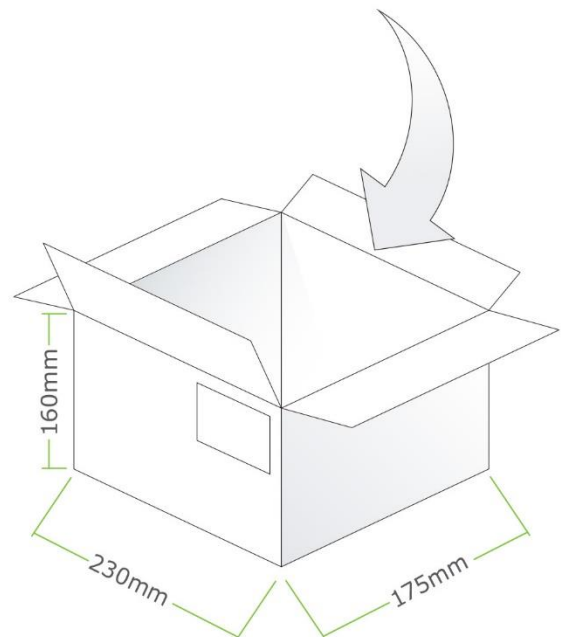
APPROVED BY: Aaron	 <small>TW Design Centre</small> <small>This drawing is Taoglas Confidential Information and its inherent design concepts are property of Taoglas. This is not to be copied or shared with third parties without the prior written consent of Taoglas.</small>
CHECK BY: Aaron	
DRAWN BY: Karry	
DATE: 2023/07/24	TITLE : 2.4/4.9-7.2GHz Flex PCB Antenna 100mm 1.37 IPEX MHF4L(HSC)
UNLESS OTHERWISE SPECIFIED TOLERANCES ON:	PART NO. : FXP830.54.0100C
THIRD ANGLE PROJECTION	UNIT: mm SCALE: 1.25:1 PAGES: 1/1 REV: D01

## 6. Packaging

100pcs FXP830.54.0100C per PE Large Bag  
 Bag Dimensions - 130\*230mm  
 Weight - 72g



2,000 pcs FXP830.54.0100C per carton  
 Carton - 230\*175\*160mm  
 Weight - 1.6Kg



Changelog for the datasheet

**SPE-23-8-345 – FXP830.54.0100C**

<b>Revision: A (Original First Release)</b>	
Date:	2023-12-05
Notes:	
Author:	Jack Conroy

**Previous Revisions**




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**Previous Revisions (Continued)**




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