TAOGLAS

Datasheet

Freedom

Part No:
FXP840.07.0055B

Description:

FXP840 Freedom Series super small Wi-Fi 2.4/5.8/7.125GHz flexible monopole antenna with Wi-Fi 6 capabilities

Features:

Wi-Fi (Including Wi-Fi 6) 2.4-2.5, 4.9-5.8, 5.9-7.125 GHz
Flexible and Tiny - Ultra Low Profile
Adheres directly inside of product plastic or glass housing
Form factor and cable routing convenient for integration
I-PEX MHF I Connector (U.FL compatible)
55mm Ø 0.81mm mini-coaxial cable
Dimensions: 14*5*0.1mm
RoHS & Reach Compliant

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Ireland ISO 9001: 2015 Certified

Taiwan ISO 9001: 2015 Certified

1. Introduction

The patent pending FXP840 is a super small monopole ultra-low profile antenna for 2.4/4.9-5.8/5.8-7.125 GHz. This antenna is designed for C-V2X, DSRC, V2V, Wi-Fi(including Wi-Fi 6), Bluetooth, ZigBee and other applications in these bands.

This Taoglas patent pending antenna is unique in the market because it is made from poly-flexible material, has a tiny form factor (14mm*5.0mm*0.1mm) and has double-sided 3M tape for easy “peel and stick” mounting.

The cable routes conveniently directly out of the bottom of the antenna, reducing the volume the antenna takes up in the device to an absolute minimum compared to other designs. The FXP840 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.

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 please contact your regional Taoglas customer support team.

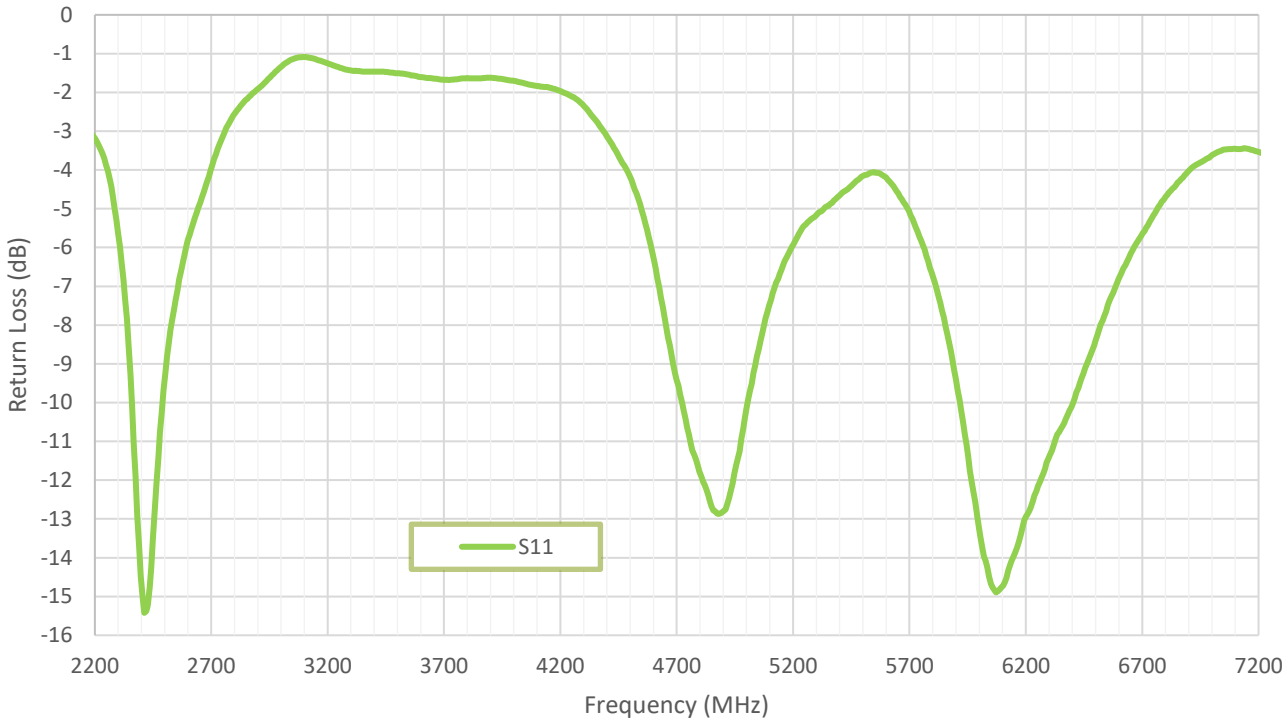
2. Specifications

Wi-Fi Electrical								
Band	**Frequency (MHz)**	**Efficiency (%)**	**Average Gain (dB)**	**Peak Gain (dBi)**	**Impedance**	**Polarization**	**Radiation Pattern**	**Max Input Power**
2.4GHz Wi-Fi	2400~2500	53.7	-2.7	3.6	50 Ω	Linear	Omni-Directional	2W
5.8GHz Wi-Fi	5150~5850	34.1	-4.8	1.3				
7.1GHz Wi-Fi 6	5925~7125	59.1	-2.3	2.7				

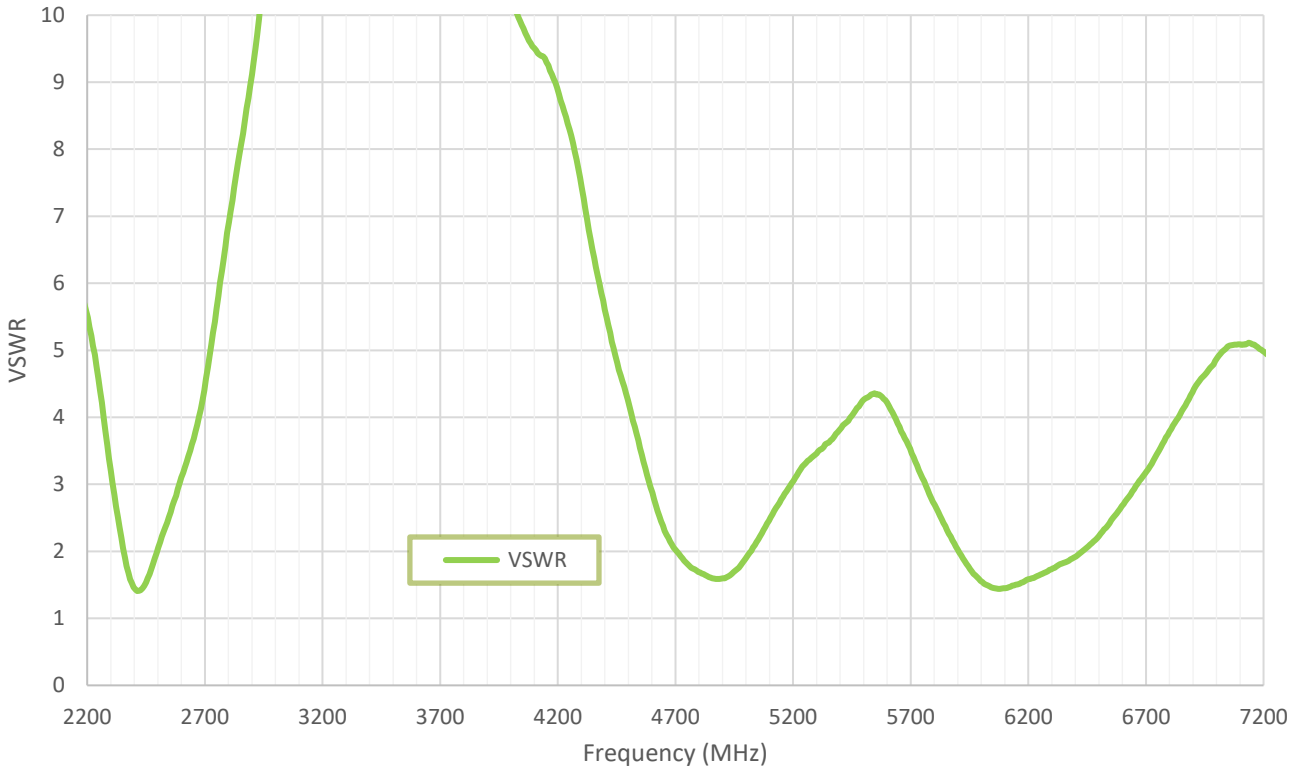
Mechanical	
Dimenions	14 x 5 x 0.1 mm
Material	Polymer
Connector	I-PEX MHF I (U.FL Compatible)
Cable	55mm of Ø0.81mm
Weight	1g
Environmental	
Operation Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Humidity	Non-condensing 65°C 95% RH
RoHS Compliant	Yes
REACH Compliant	Yes

3. Antenna Characteristics

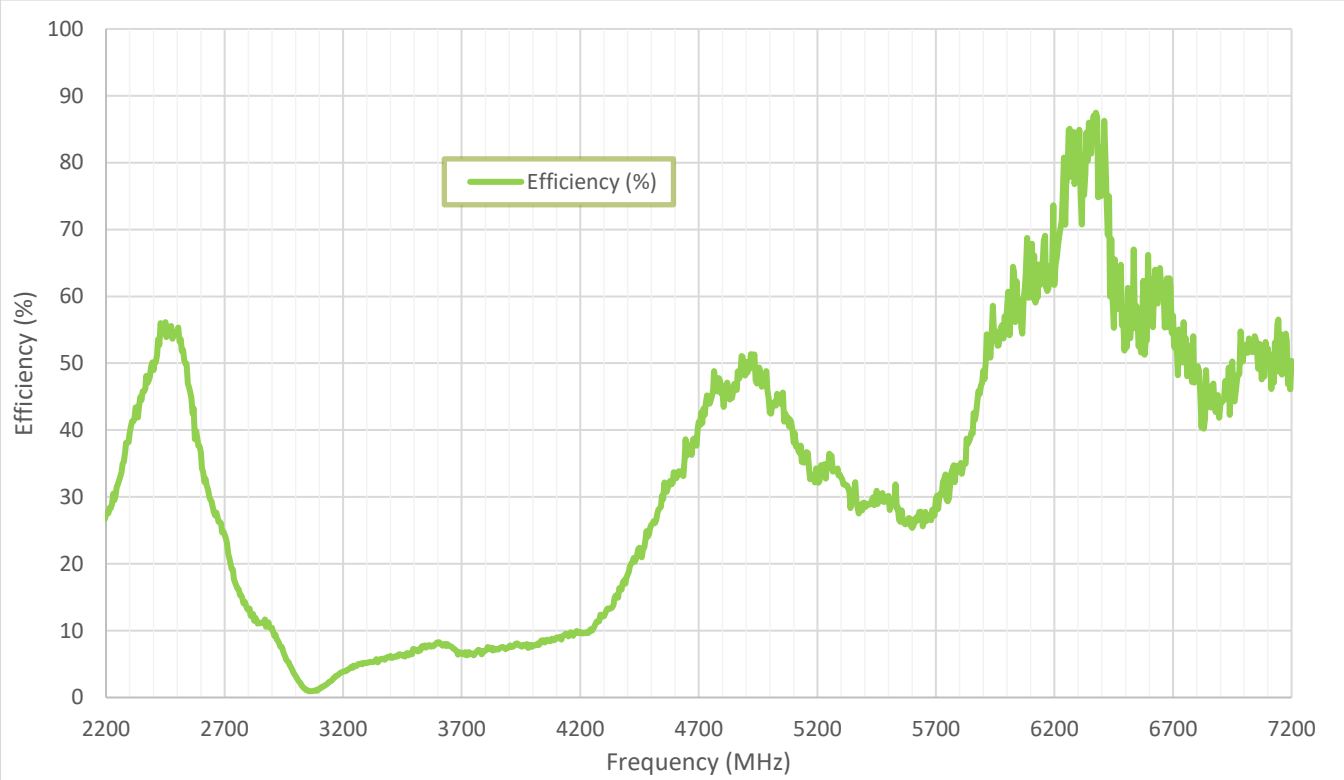
3.1 Return Loss



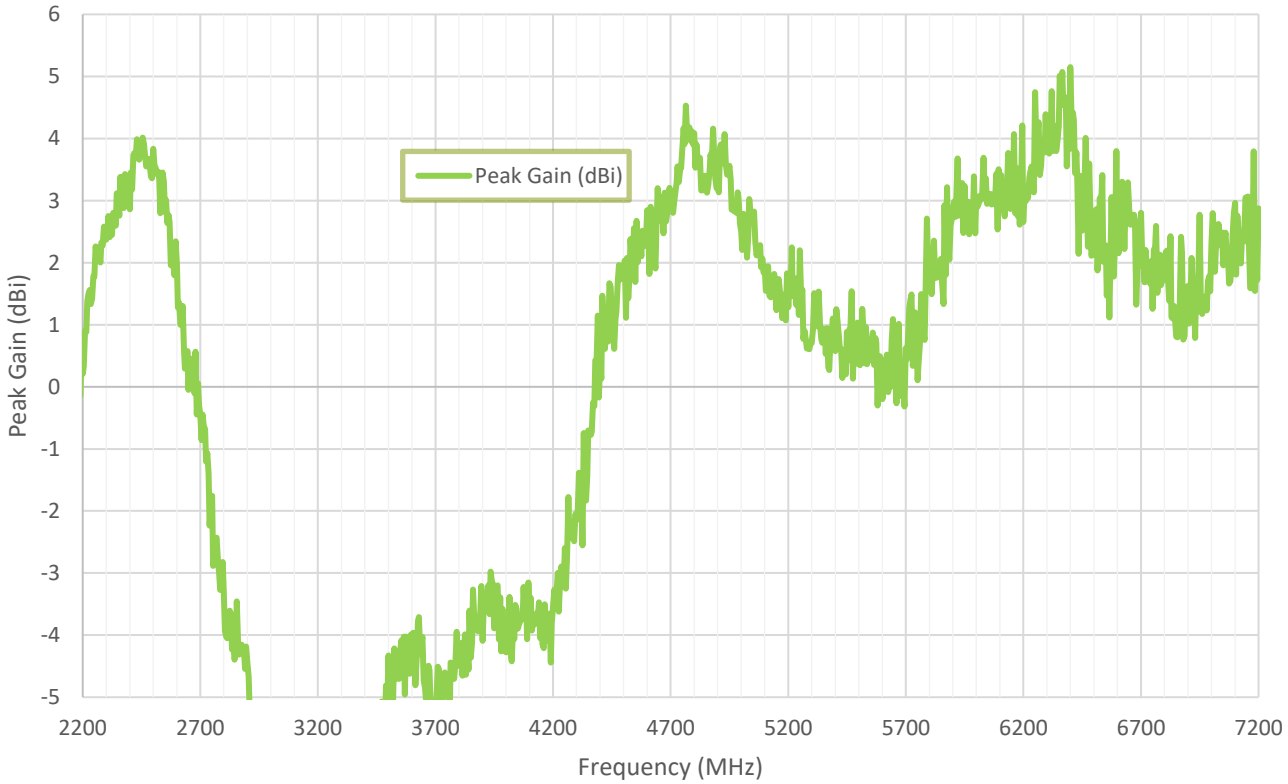
3.2 VSWR



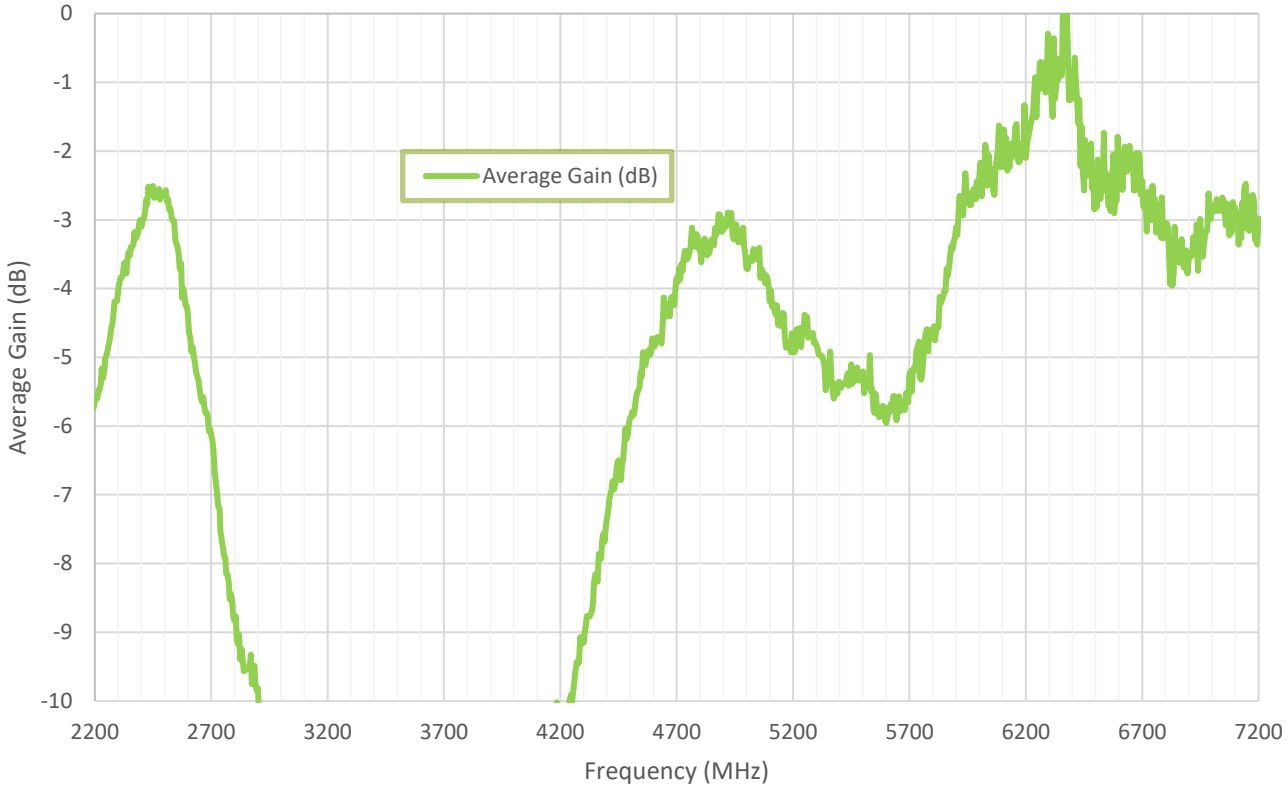
3.3 Efficiency



3.4 Peak Gain

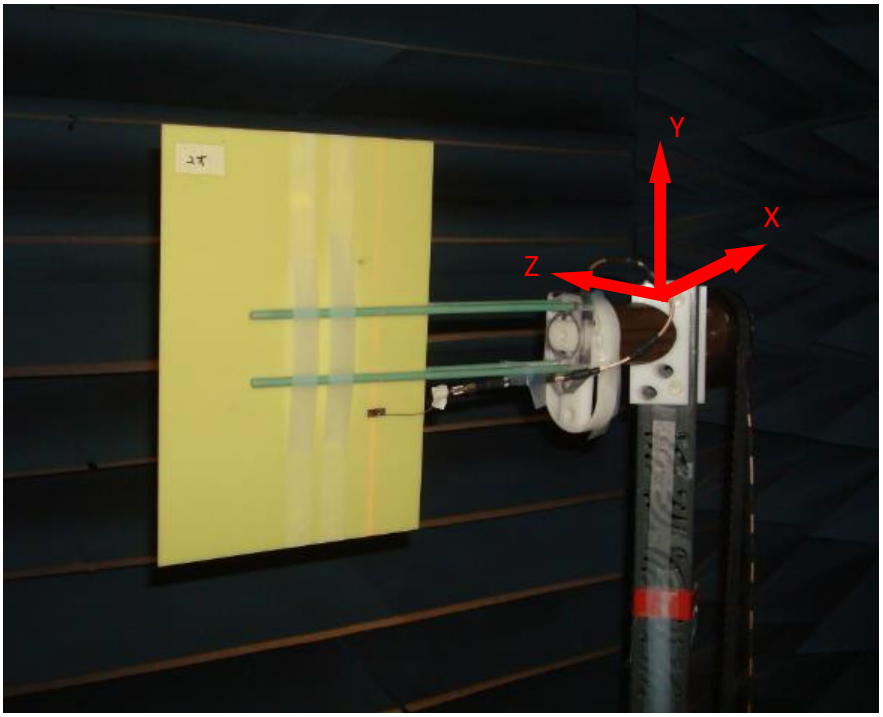


3.5 Average Gain



4. Radiation Patterns

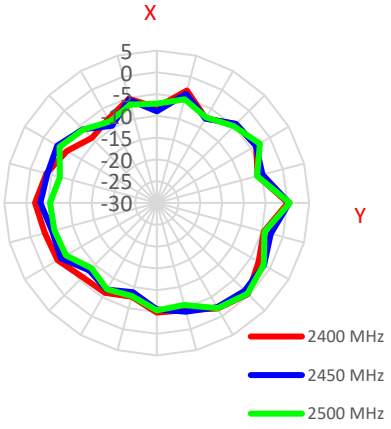
4.1 Test Setup – 2mm ABS

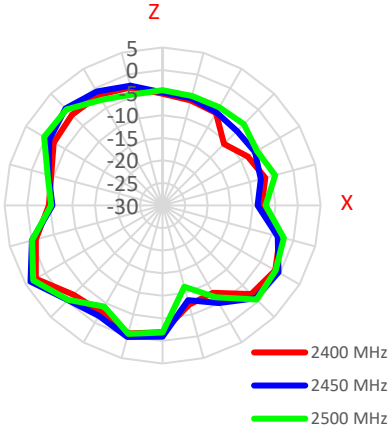


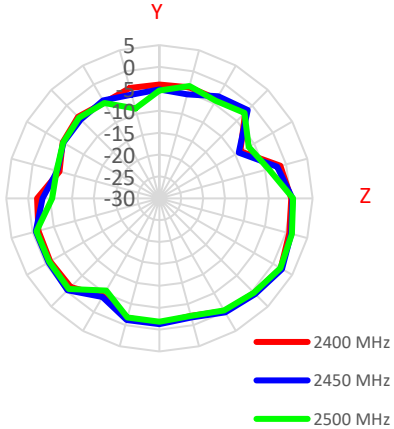
4.2 2D Radiation Patterns

2400-2500MHz

XY Plane	XZ Plane	YZ Plane

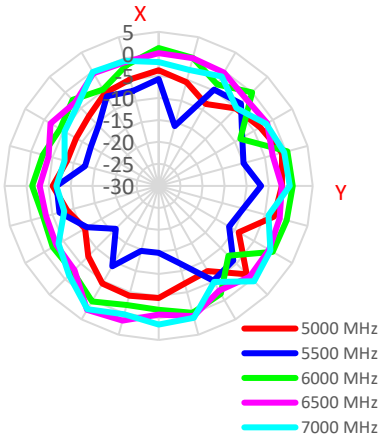


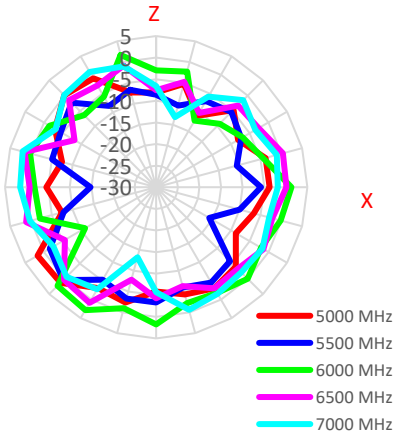


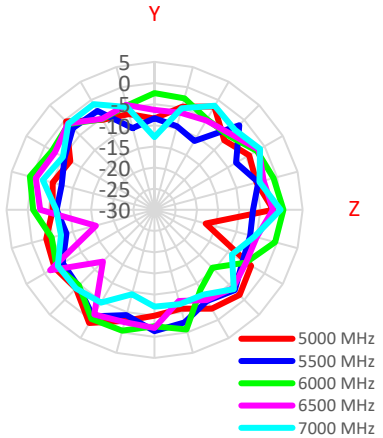


5000-7000MHz

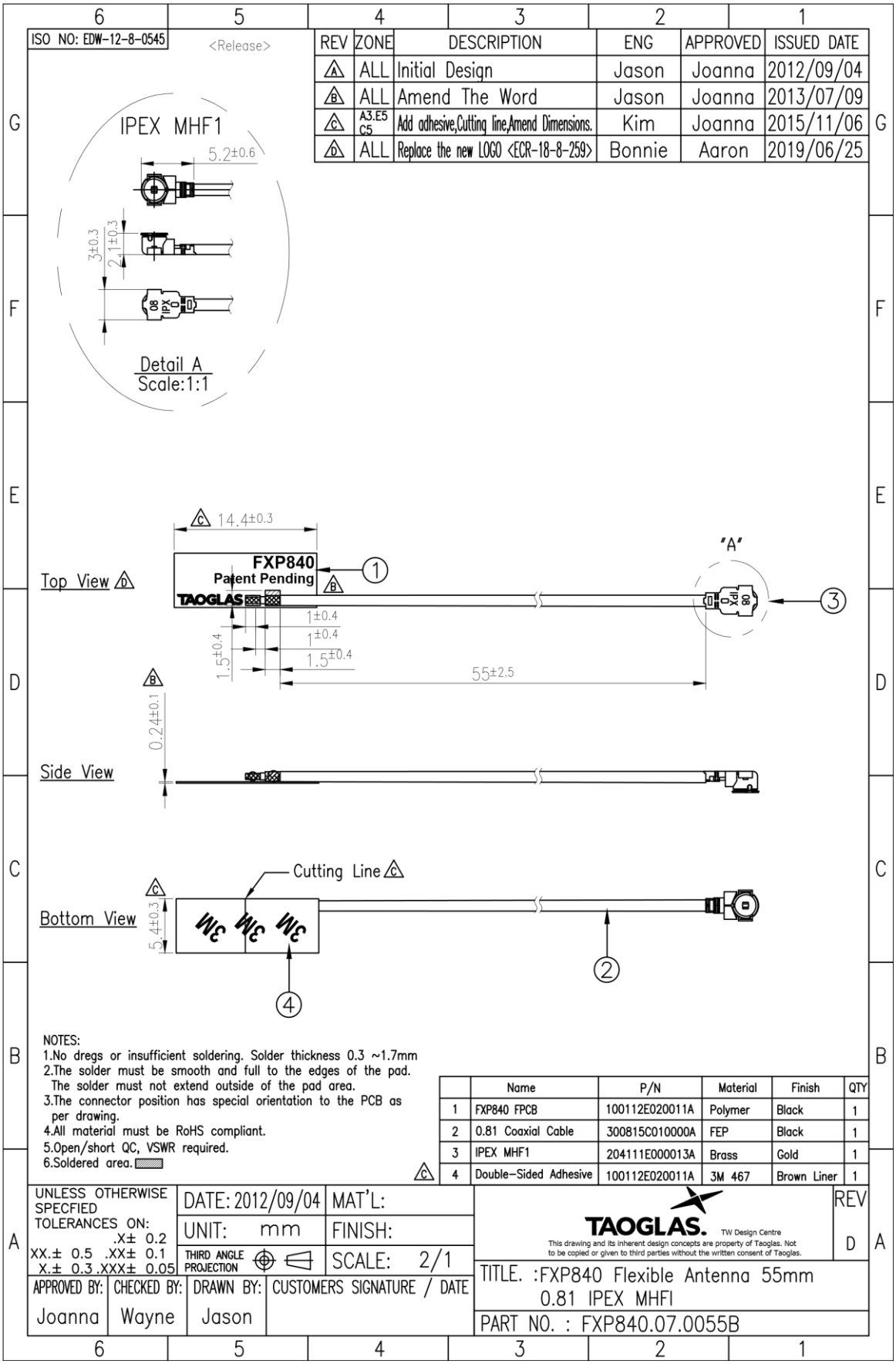
XY Plane	XZ Plane	YZ Plane





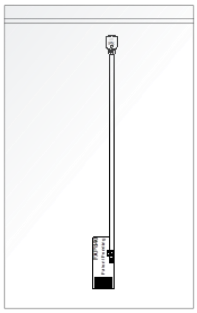


5. Mechanical Drawing (Units: mm)

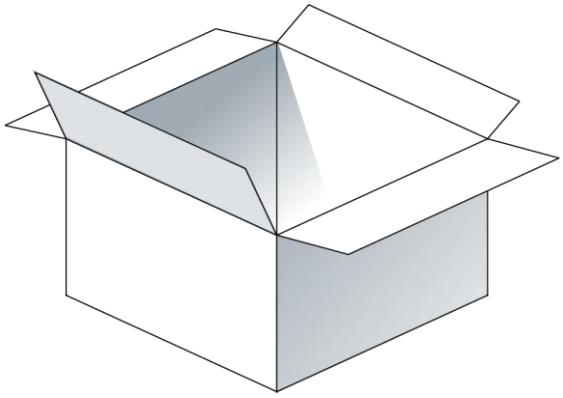


6. Packaging

1pcs FXP840.07.0055B per PE Bag
Weight - 1g



2000pcs FXP840.07.0055B per carton
Dimensions - 230*160*175mm
Weight - 6.8Kg



Changelog for the datasheet

SPE-12-8-115 - FXP840.07.0055B

Revision: J (Current Version)	
Date:	2020-09-04
Changes:	Updated Wi-Fi 6 info
Changes Made by:	Jack Conroy

Previous Revisions

Revision: I	
Date:	2017-03-08
Changes:	ECR-18-8-259
Changes Made by:	Russell Meyler

Revision: D	
Date:	2012-11-19
Changes:	Packaging Details Updated
Changes Made by:	Aine Doyle

Revision: H	
Date:	2018-06-27
Changes:	Updated Peak Gain
Changes Made by:	Jack Conroy

Revision: C	
Date:	2012-10-02
Changes:	Updated Drawing
Changes Made by:	Aine Doyle

Revision: G	
Date:	2018-06-27
Changes:	Updated Peak Gain
Changes Made by:	Carol Faughnan

Revision: B	
Date:	2012-09-27
Changes:	Packaging Details Updated
Changes Made by:	Aine Doyle

Revision: F	
Date:	2017-05-07
Changes:	PCN-17-8-081
Changes Made by:	Aine Doyle

Revision: A (Original First Release)	
Date:	2012-09-13
Notes:	
Author:	Technical Writer

Revision: E	
Date:	2017-03-08
Changes:	Added Note on Intro
Changes Made by:	Aine Doyle

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