

SPECIFICATION

FXP73 Blue Diamond 2.4GHz Band Antenna

Part No. : **FXP73.09.0100A**

Product Name : FXP73 Blue Diamond 2.4GHz
Multi Standard Antenna

Feature : 2.5dBi Gain
MMCX(M)RA Connector
10 mm Cable
47*7*0.1 mm
RoHS Compliant



1. OVERVIEW

The FXP73 Blue Diamond 2.4GHz Antenna works on WiFi, ZigBee, Bluetooth and ISM band at 2.4 GHz. This antenna has been designed with a specific solution to cover the current market applications that require rectangular form-factor, with easy installation through a cable connection.

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.

2. ANTENNA CHARACTERISTICS

Communication System	Bluetooth	Wi-Fi	Zigbee	2.4GHz ISM
	2401-2480	2412-2462	2410-2480	2400-2483.5
Efficiency	50%			
Gain	2.5dBi			
Free Space Peak Gain	3.0dBi			
Return Loss	-10dB			
Impedance	50 Ohms			
VSWR	$\leq 2:1$			
Polarization	Linear			
Power Handled	5 W			
Operation Temperature	-40 °C ~ +85 °C			
Storage Temperature	-40 °C ~ +85 °C			
Dimensions	47*7*0.1 mm			
Weight	1.2 g			
Connector	MMCX(M)RA)			
Cable Standard	Mini-Coax 1.13 mm			
Cable Length and color	100mm, White			
RoHS Compliant	Yes			
Adhesive	3M 467			

3. TEST SET UP

A ETS 3D Scan System with Anechoic Chamber.

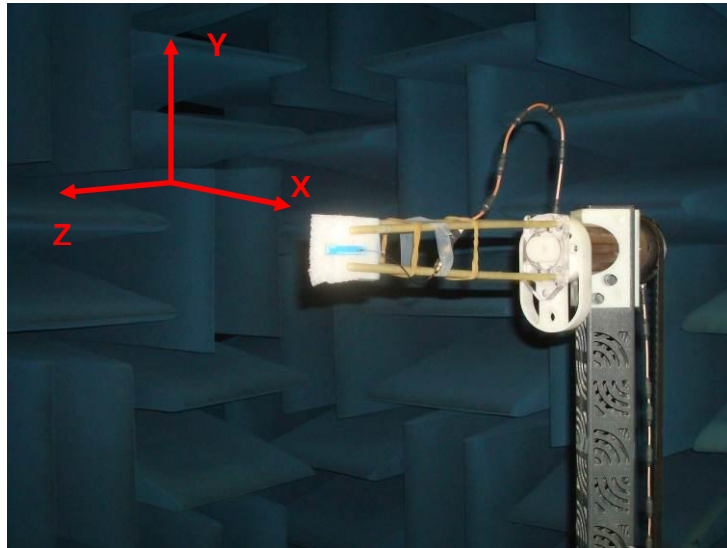


Figure 1. ETS System

Agilent 8753ES Vector Network Analyzer.



Figure 2. Network Analyzer

4. 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 ETS 3D Scan System.

4.1 Return Loss Data

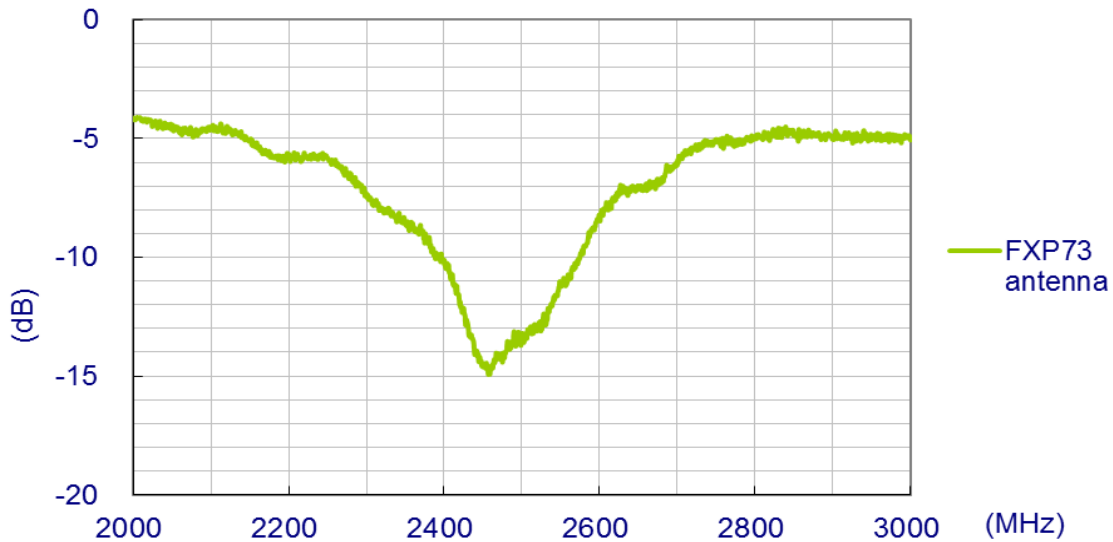


Figure 3. Return Loss for the FXP73 Antenna

4.2 Gain Data

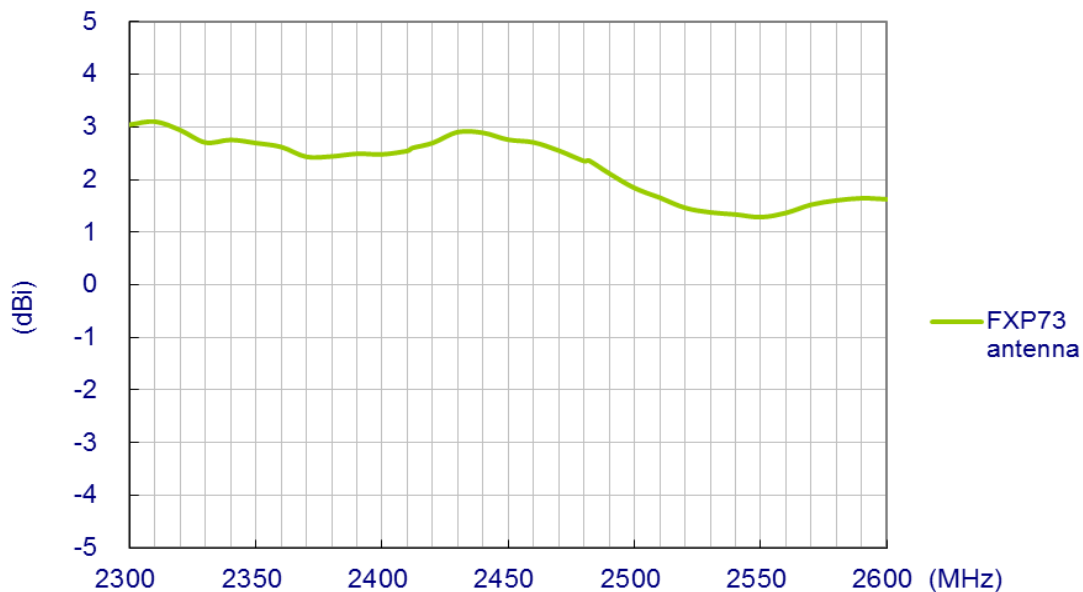


Figure 6. Gain for the FXP73 Antenna

4.3 Efficiency Data

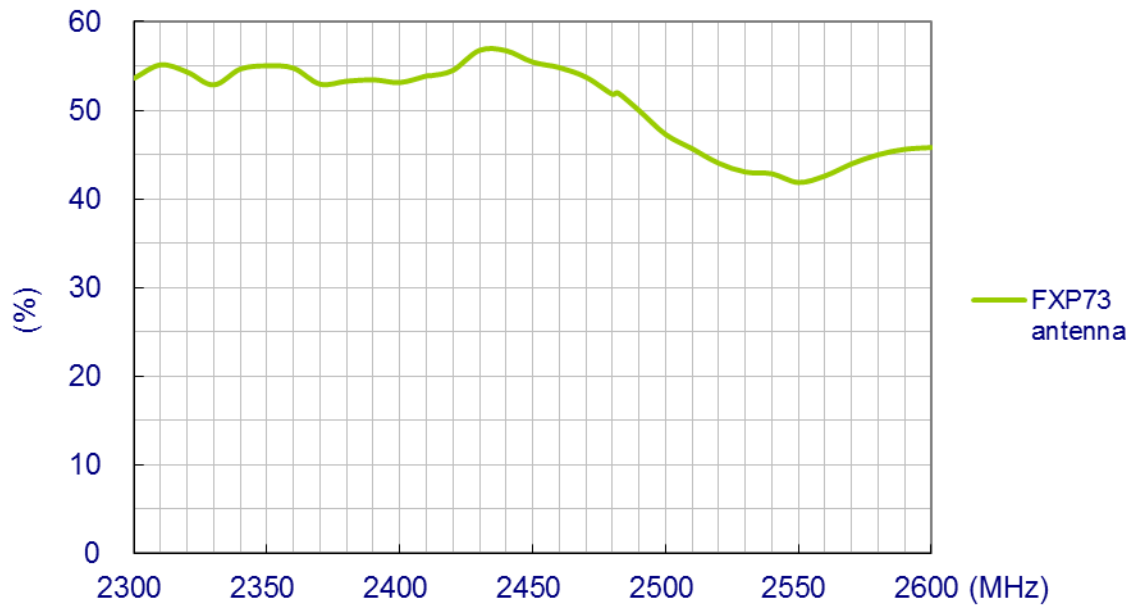


Figure 7. Efficiency for the FXP73 Antenna.

4.4. Radiation Pattern Data

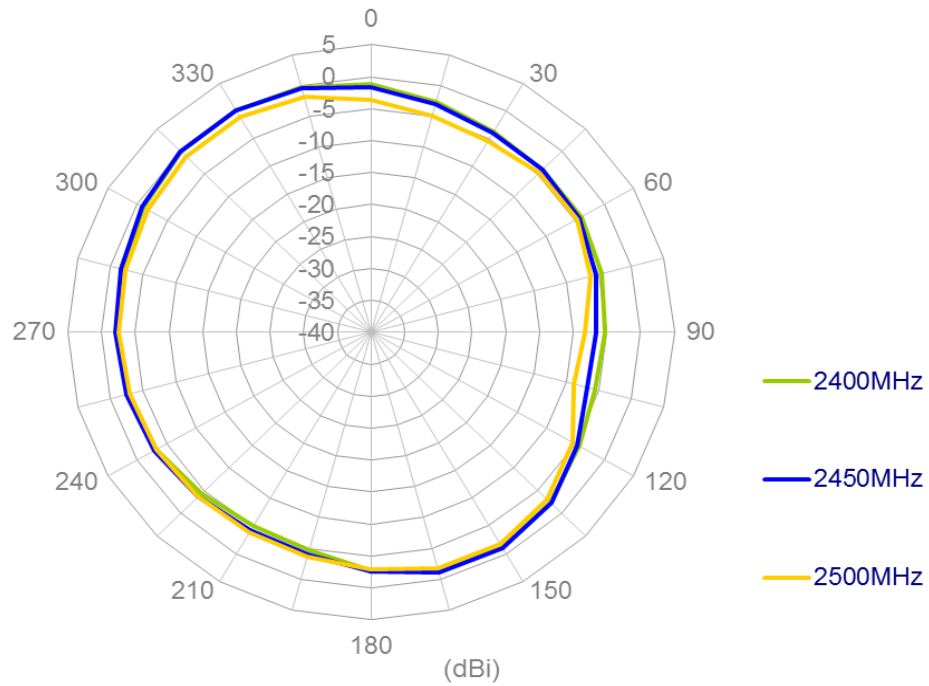


Figure 8. Radiation pattern XY Plane, Figure 1 as reference (dB)

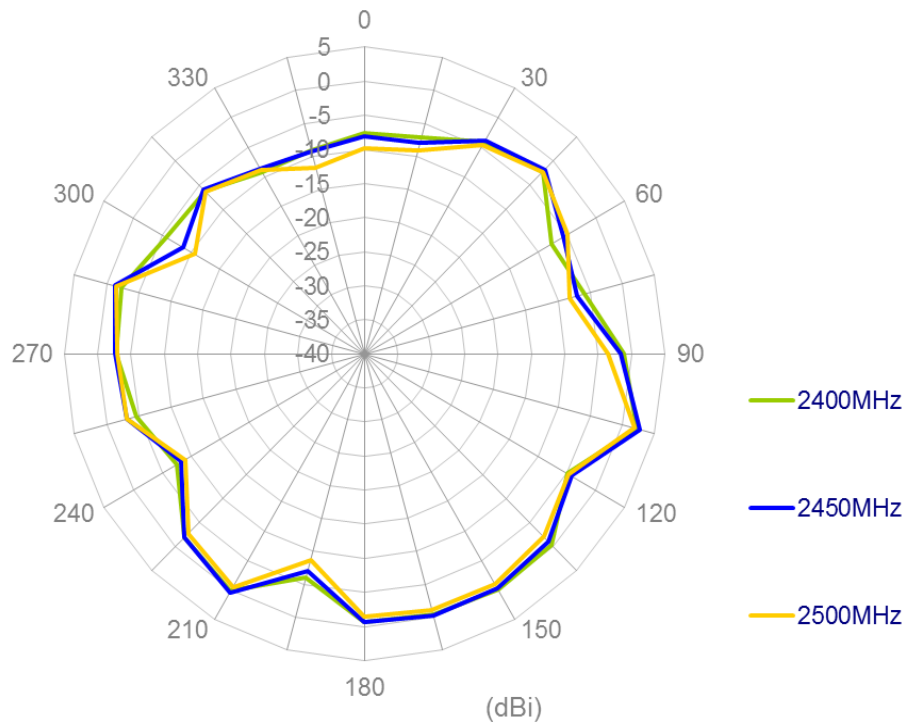


Figure 9. Radiation pattern XZ Plane, Figure 1 as reference (dB).

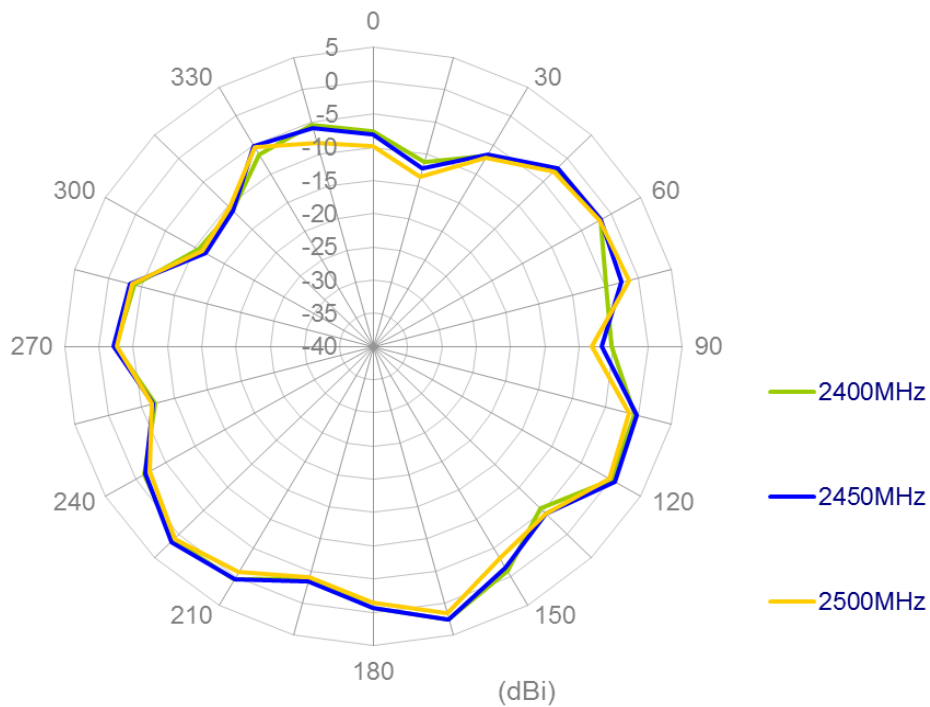
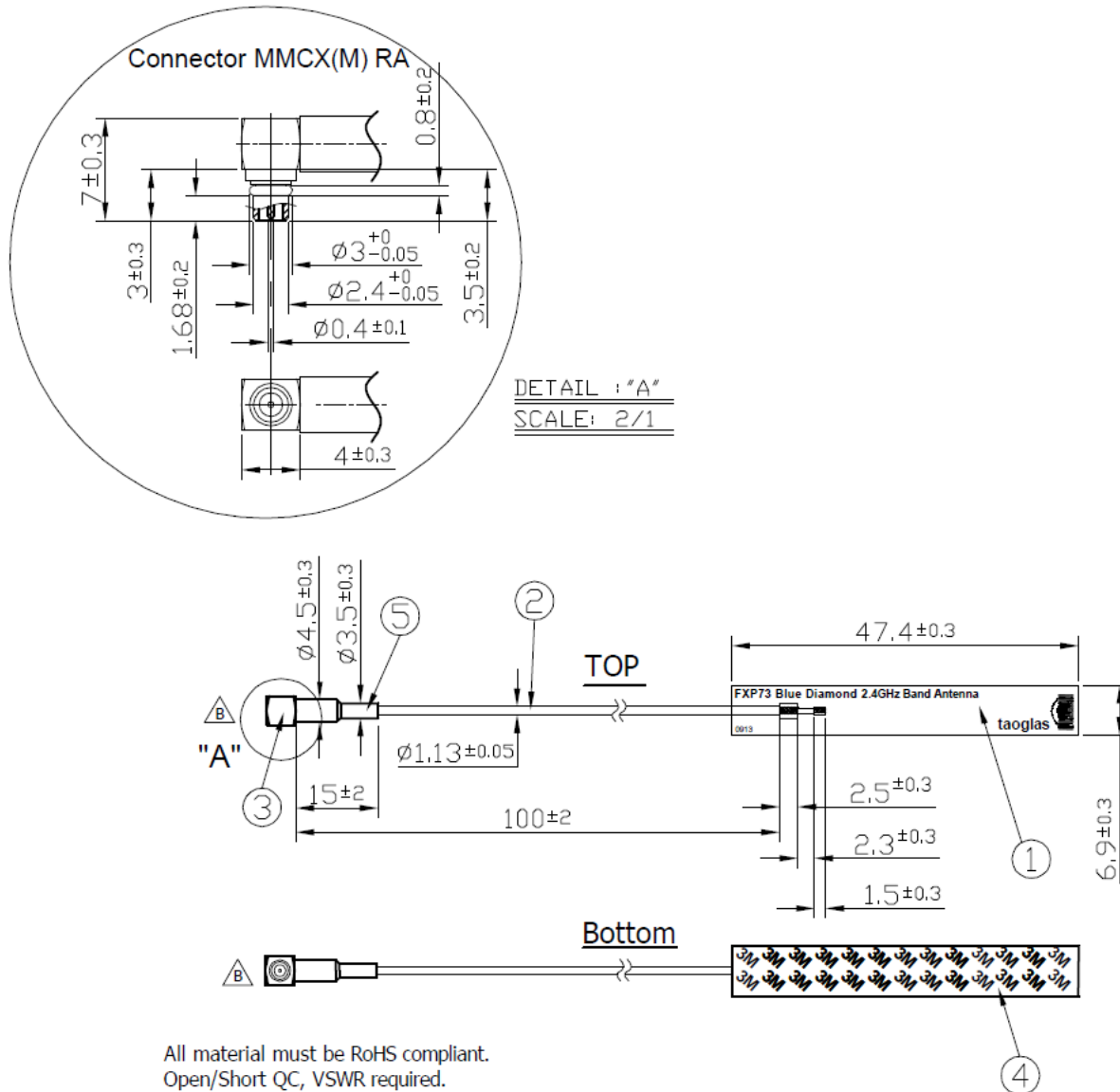


Figure 10. Radiation pattern YZ plane, Figure 1 as reference (dB).

5. MECHANICAL DRAWING



	Name	Part No.	Material	Finish	QTY
①	FXP73 PCB		FPCB 0.1t	Blue	1
②	1.13 Mini-Coaxial Cable		FEP	White	1
③	MMCX(M) RA		Brass	Gold	1
④	Double-Sided Adhesive		3M 467	Brown Liner	1
⑤	Heat Shrink Tube		PE	Black	1

Figure 11. Mechanical Drawing for the FXP73 Antenna