

SPECIFICATION

Patent Granted

FXP74 Black Diamond 2.4GHz Band Antenna

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

Product Name : FXP74 Black Diamond 2.4GHz Antenna

Feature

4dBi Peak Gain
Flexible, Ultra Low Profile
I-PEX MHF[®] I Connector (U.FL compatible)
100mm 1.13 Mini-Coaxial Cable
47*7*0.1 mm
CE Certified

RoHS & Reach Compliant

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CE



1.Introduction

The FXP74 Black Diamond is a small ultra-low profile antenna for 2.4GHz band that includes Bluetooth[®], Zigbee[®] and Wi-Fi[®] single band application. The FXP74 has a peak gain of 4dBi at 2.4GHz and efficiencies of above 50%.

This Taoglas patent granted 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 FXP74 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 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. Specification

Communication System	Bluetooth	luetooth Wi-Fi		2.4GHz ISM						
	2401-	2412-	2410-							
e yotern	2480	2462	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	I-PEX MHF [®] I (U.FL Compatible)									
Cable Standard	Mini-Coax 1.13 mm									
Cable Length and										
color	100mm, Black									
Adhesive tape	3M 467									
ENVIRONMENTAL										
Operation										
lemperature	-40 °C ~ +85 °C									
Storage	-40.00 + + 85.00									
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

Х 0 5 330 30 0 -10 -15 300 60 -20 -25 -30 -35 Y 270 40 90 2400MHz 240 120 2450MHz 210 150 -2500MHz 180 (dBi)

XZ-plane



XY-plane



YZ-plane





5.Antenna Drawing

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			À	Cutting Line						
	NOTES:			7 4 7						
	2.The solder must be smooth and full to the edges of the pad.									
	The solder must not extend outside of the pad area.									
B	5.The connector pos per drawing.	sition has special ori	entation to the	PCB as	^					В
	4.All material must	be RoHS compliant.	Name		<u></u> P/N		Material	Finish	IOTY	
	5.0pen/short QC, V	SWR required.	1 FXP74 FP0	CB	100112F000	033A Pol	ymer	Black	1	1
			2 1.13 Coax	ial Cable	300215C020	000A FE	5	Black	1	
]		3 IPEX MHFI		204111D000	013A Bro	18S	Gold	1	
	UNLESS OTHERWISE	DATE: 2012 /08 /	+ Double-Sic 16 ΜΛΤ'Ι ·	aed Adnesive		UJJA JM	407	brown Li	REV	
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XX ± 0.5 XX ± 0.1 THIRD ANGLE Image: Scale: 2/1 X ± 0.3 XXX ± 0.05 PROJECTION SCALE: 2/1 TITLE 2.4GHz Flex PCB Antenno						or radyids.				
	APPROVED BY: CHECKED BY: DRAWN BY: CUSTOMERS SIGNATURE / DATE 100mm 1.13 Ipex MHFI(U.FL)									
	Joanna Wayne	e Gabriel		PA	RT NO. : F)	(P74.07.0	D100A			
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6. Packaging

100pcs FXP74.07.0100A per PE Bag Dimensions: 150*100mm Weight: 1.02Kg



1000pcs per Large Bag Carton Dimensions: 250*200mm Weight: 10.2Kg



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)





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