

SPECIFICATION

FXP73 Blue Diamond 2.4GHz Band Antenna

Part No.	:	FXP73.07.0100A
Product Name	:	FXP73 Blue Diamond 2.4GHz Multi Standard Antenna
Feature	:	2.5dBi Gain IPEX MHFI Connector (U.FL compatible) 100 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.

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	≤ 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	MHFI (U.FL Compatible)			
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.

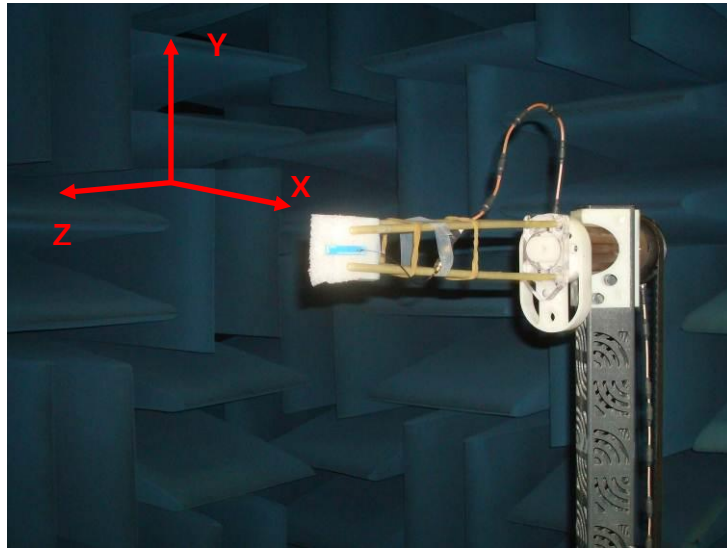


Figure 1. ETS System

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

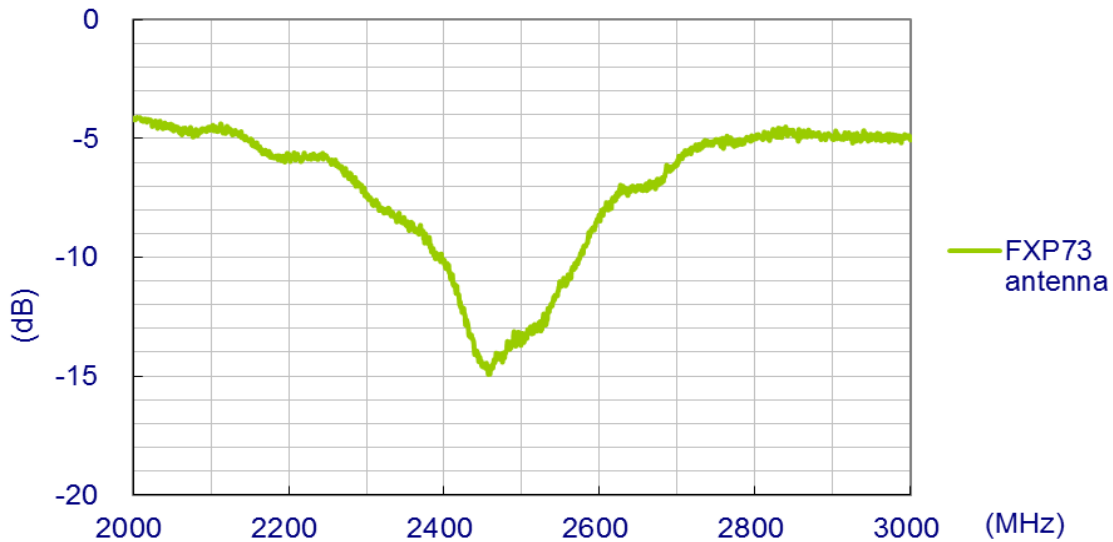


Figure 3. Return Loss for the FXP73 Antenna

4.2 Gain Data

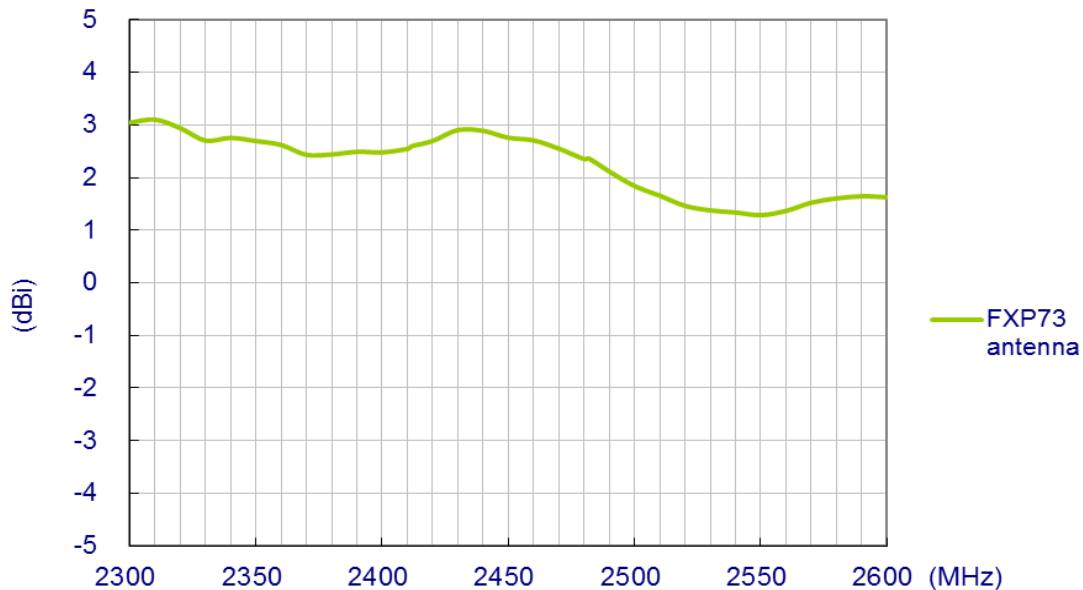


Figure 6. Gain for the FXP73 Antenna

4.3 Efficiency Data

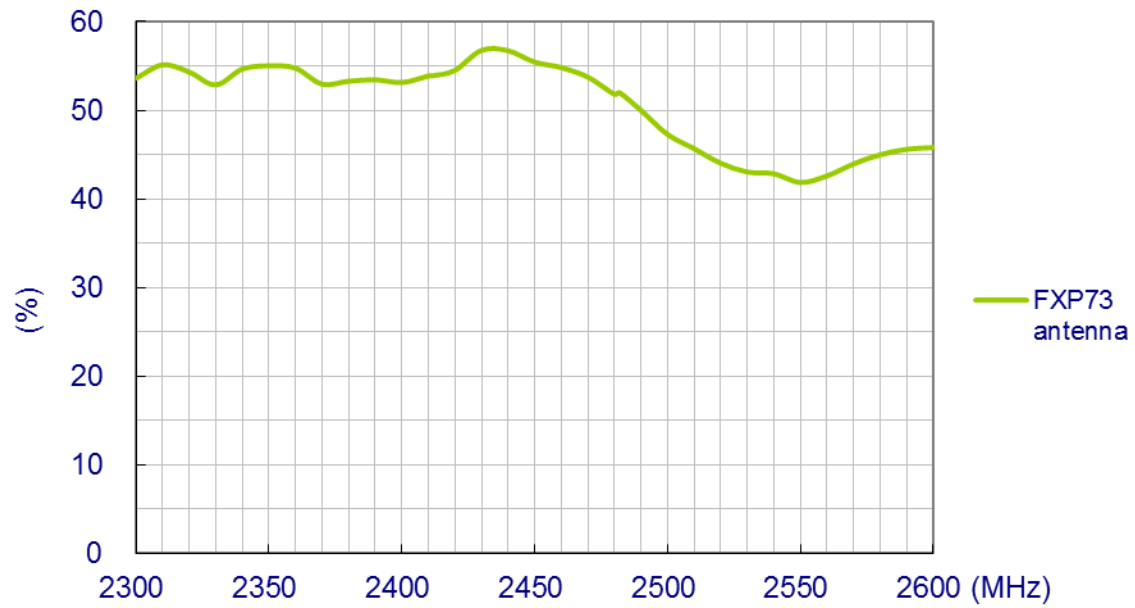


Figure 7. Efficiency for the FXP73 Antenna.

4.4. Radiation Pattern Data

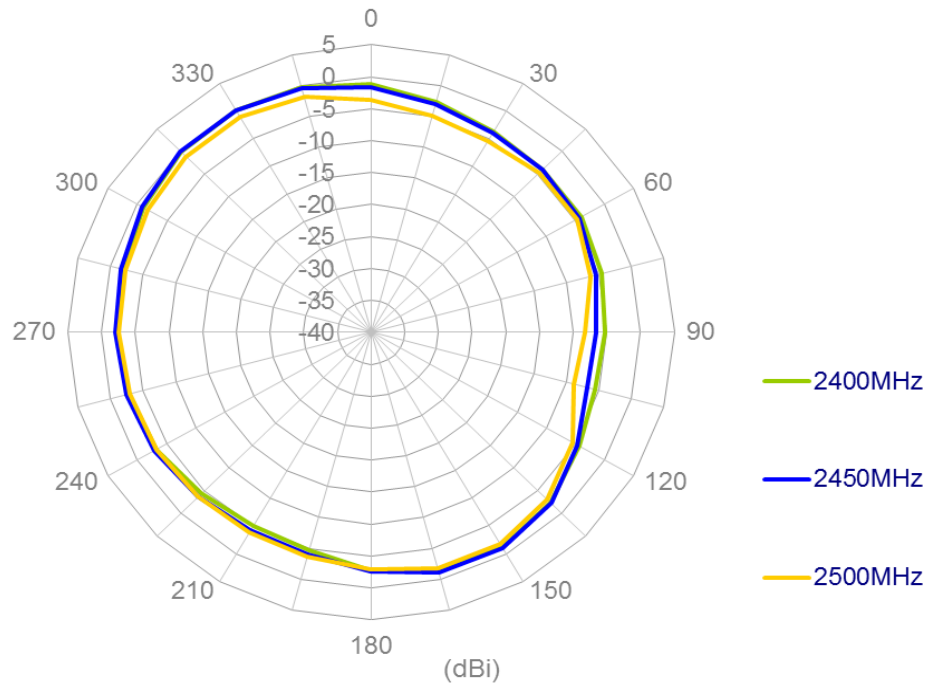


Figure 8. Radiation pattern XY Plane, Figure 1 as reference (dB)

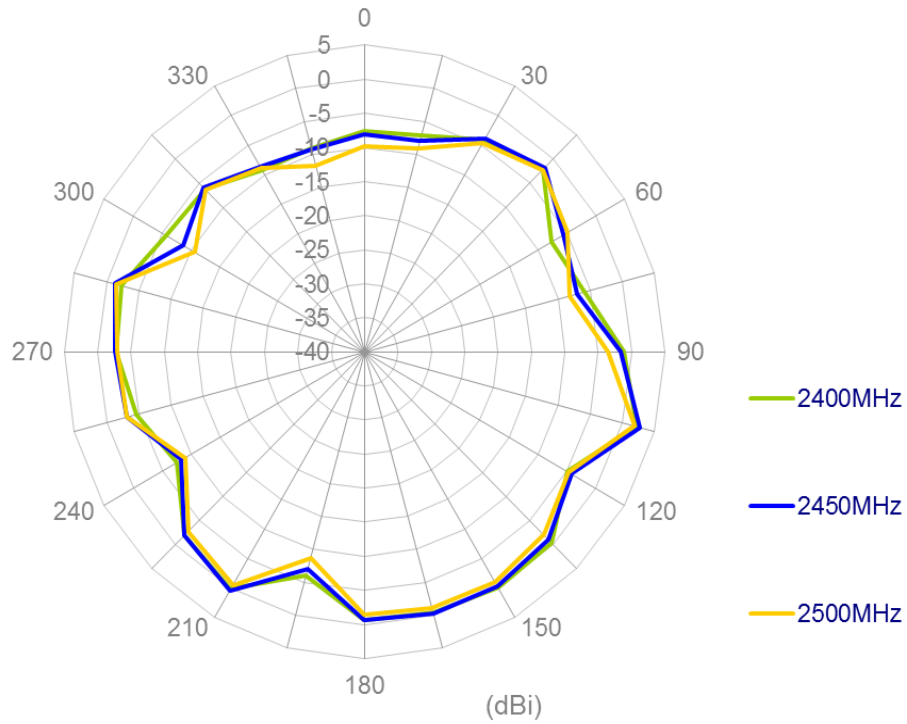


Figure 9. Radiation pattern XZ Plane, Figure 1 as reference (dB).

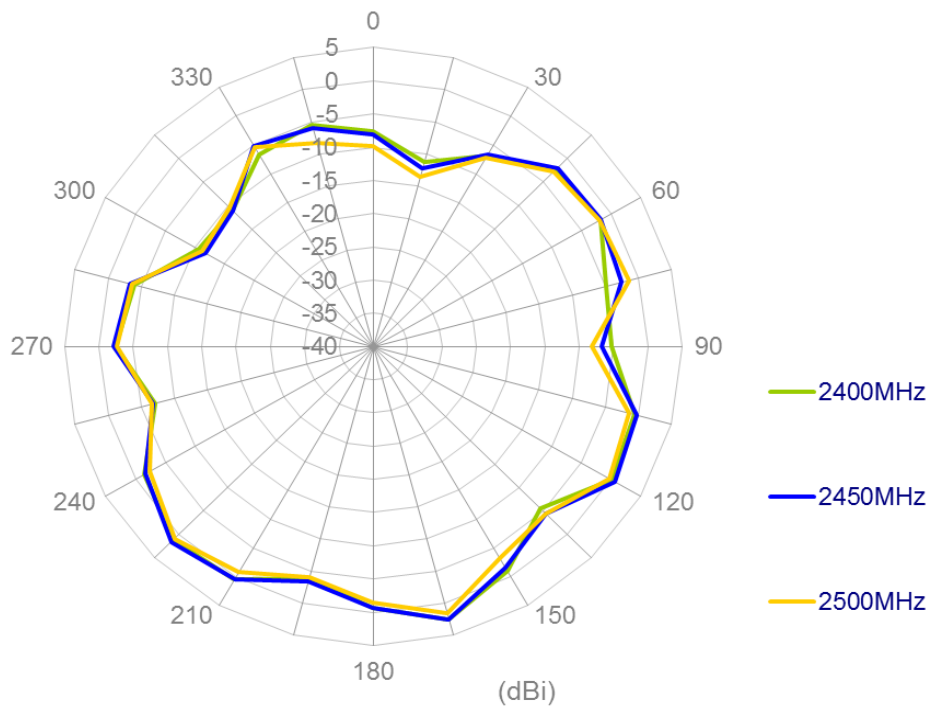
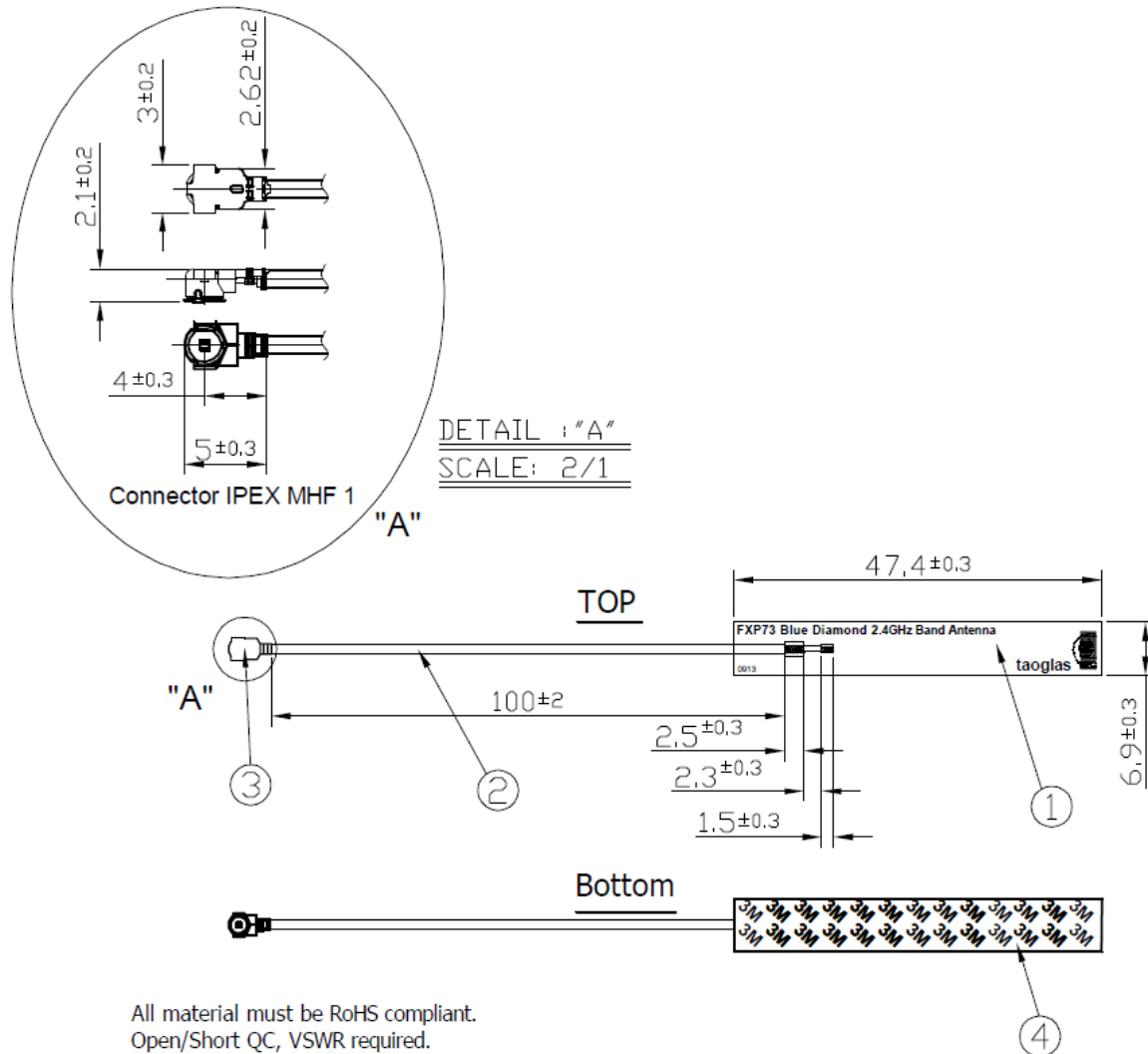


Figure 10. Radiation pattern YZ plane, Figure 1 as reference (dB).

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	IPEX MHF1		Brass	Gold	1
④	Double-Sided Adhesive		3M 467	Brown Liner	1

Figure 11. Mechanical Drawing for the FXP73 Antenna

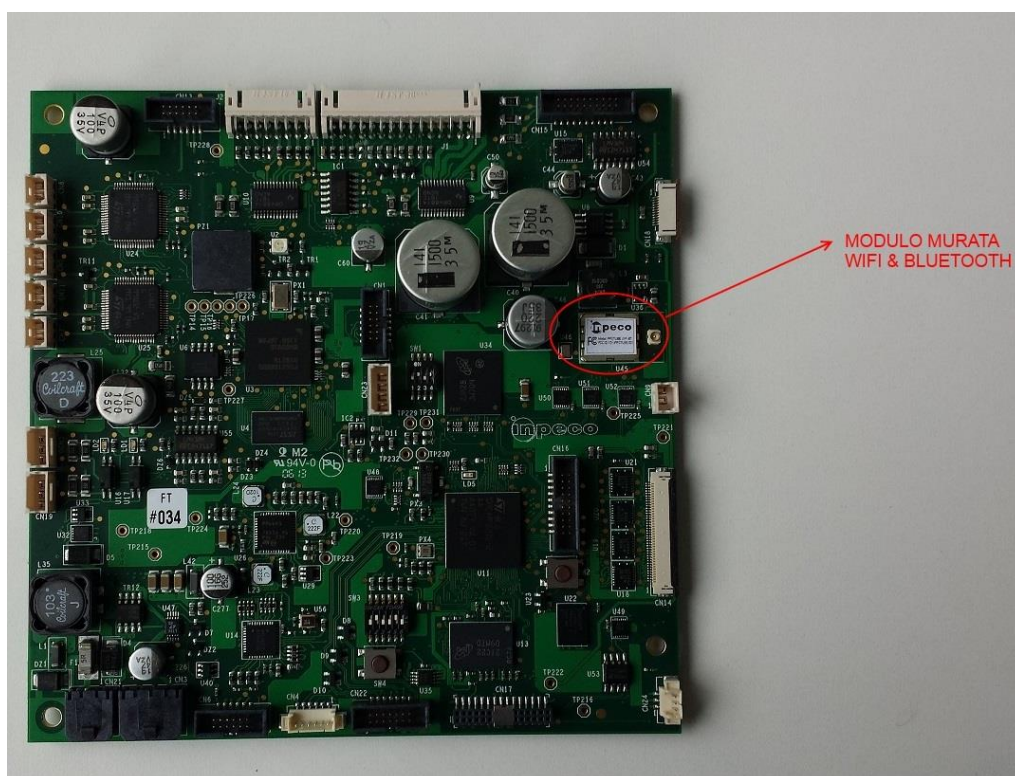
REVISION HISTORY			
VERSION	DATE	AUTHOR	DESCRIPTION
1	March 06 th , 2015	A. Clema	Document first release

Wifi, Bluetooth module & Antenna

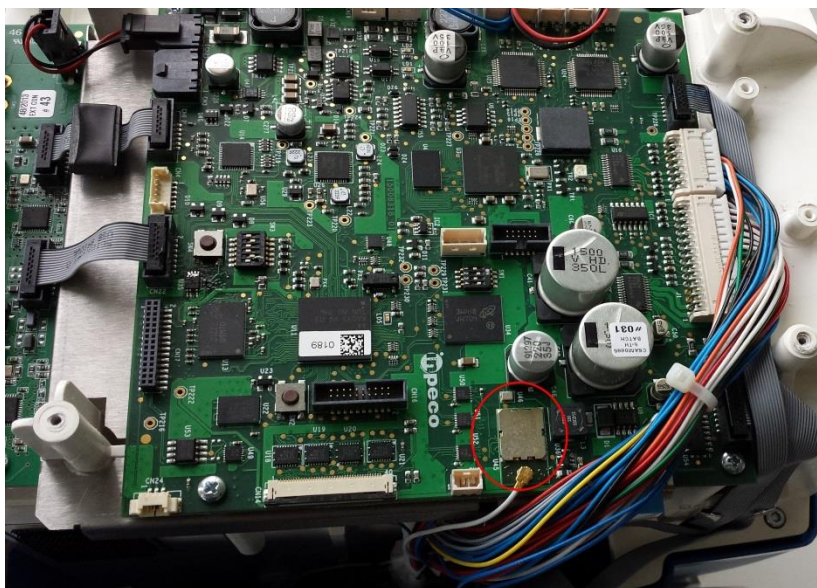
Product Description

The Protube device is equipped with a module Wifi & Bluetooth which allows communication between PC and Protube in wireless mode (through standard IEEE 802.11) for normally working (processing tubes) and with Bluetooth module, is enable the connection between Protube and another device equipped with a similar technology (for example barcode reader).

Inserted on PCB main board, this module guarantee a very precious communication also between LIS (Laboratory Information System) system and the printer.



(Figure 1) - Module wifi & bluetooth



(Figure 2) - Module with antenna

This module is very small and allows the insertion in very extremely small spaces reducing the production costs.

With an antenna, a power supply processor and an hardware interface the communication is guaranteed.

This module has the following characteristics:

Radio Frequency Output power	
+20.0dBm @ 11Mbps	W-LAN 2,4 - 2,4835GHz
+15.0dBm @ 54Mbps	
+14.5dBm @ 65Mbps	
+8.0dBm	Bluetooth <3.0 DSS only, FHSS 2,402 - 2,480GHz

The Bluetooth module classic version, has technologies DSS. This model comes with a speed of 24 Mbit/s. The frequency range is 2402 – 2480 MHz.

The Wlan module is compliant to IEEE 802.11 b, g, n.

The 802.11b and 802.11g use the frequency spectrum (ISM band) in the neighborhood of 2.4 GHz.

The 802.11n specification has the possibility to operate in the neighborhood of 2.4 GHz and at around 5 GHz.

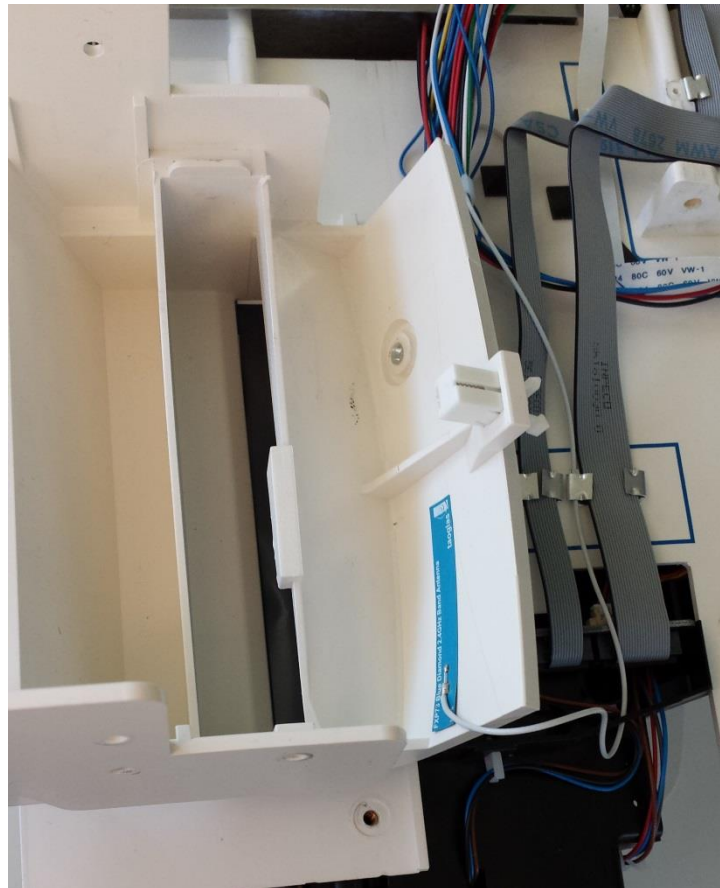
For this module all three types protocols are between 2400 – 2483,5 MHz.

The antenna FXP73 blue diamond works in Wifi and Bluetooth between these ranges:

2402 – 2480 MHz in Bluetooth

2412 – 2462 MHz in Wifi

This antenna connected as photo convert electrical signal in an electromagnetic signal and vice versa.



(Figure 3) - Antenna's position

This antenna is made with a flexible cable in polyimide and is mounted close to the device's housing to allow it to radiate outwards and receive signals without obstruction from internal components in the device.

Taoglas PCB antennas, in general, have a return loss about -10dB for the center of the bands.

Antenna efficiency is the ratio of the total power radiated by the antenna to the power accepted by the antenna. This model can be having high efficiency (>30% to 50%+).

The antenna of this device must not be co-located or used in conjunction with any other antenna or transmitter.

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