

# SPECIFICATION

Part No. : **FXP832.03.0458D**

Product Name : FXP832 Freedom Wi-Fi 2.4GHz and 4.9-6GHz Dipole Antenna

Features : Flexible  
 Very High Efficiency  
 42mm\*7mm\*0.1mm  
 Ground-plane Independent  
 458mm (18 inches) RG174 Cable  
 RP-SMA(M) Straight Connector  
 RoHS Compliant



## 1. Introduction

FXP832 is a breakthrough, very high efficiency, small, dual-band dipole omni-directional antenna for 2.4/5 GHz bands. This antenna is designed for DSRC, V2V, WiFi, Bluetooth, Zigbee and other applications in these bands. It is designed in such a narrow rectangular form factor to cover most of the current applications on the market. Taoglas FXP series are conformal flexible antennas and can fit irregular housings.

With dimensions of 42\*7\*.01mm it comes with double-sided 3M tape for easy "peel and stick" mounting. This longer cable length version of the FXP832 is ideal for applications in embedded industrial and automotive environments.

Like all embedded omni-directional antennas, care should be taken to keep the antenna away from metal as much as possible, a minimum of 10mm is recommended.

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.

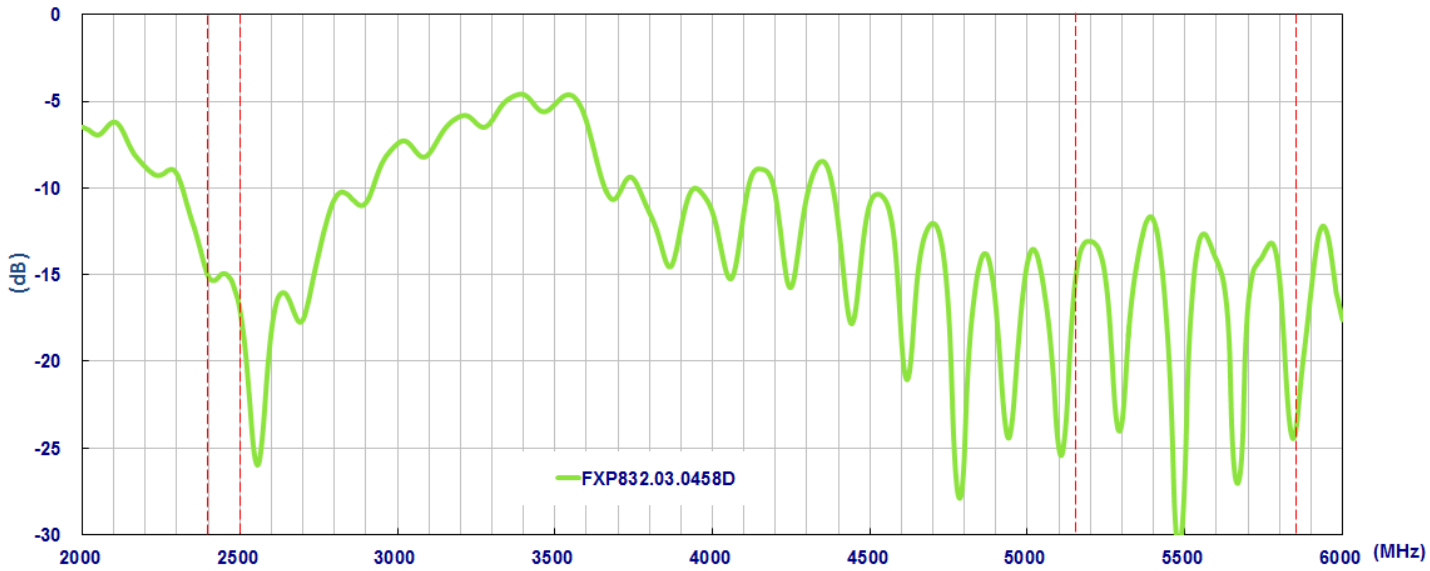
## 2. Specification

ELECTRICAL		
Frequency	2.4 ~ 2.5GHz	4.9 ~ 6.0GHz
Return Loss (dB)	<-10	<-10
Peak Gain (on plastic*)	3.66dBi	5.33dBi
Average Gain (on plastic)	-1.25dBi	-1.89dBi
Efficiency (on plastic)	74.9%	64.7%
Polarization	Linear	
Impedance	50 Ohms	
Radiation Pattern	Omni	
Input Power	2W max.	
MECHANICAL		
Dimensions	42mm x 7mm	
Antenna Body Material	Polymer	
Cable	Black 458mm (18 inches) RG174 Coaxial Cable	
Connector	RP-SMA(M) Straight	
Weight	7.5g	
ENVIRONMENTAL		
Temperature Range	-40°C to 85°C	
Humidity	Non-condensing 65°C 95% RH	

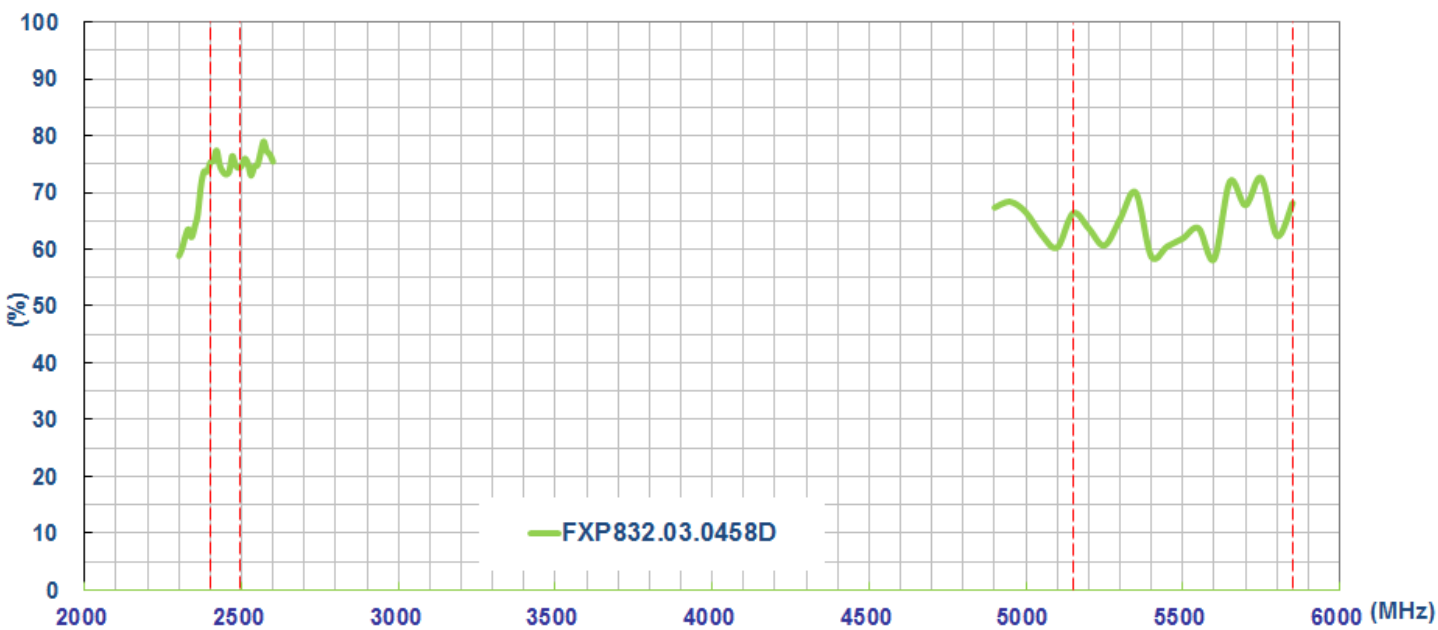
\* FXP832 is likely to be mounted on plastic in many applications so we provide the antenna measurement on a 2mm thickness ABS plastic.

### 3. Antenna Characteristics

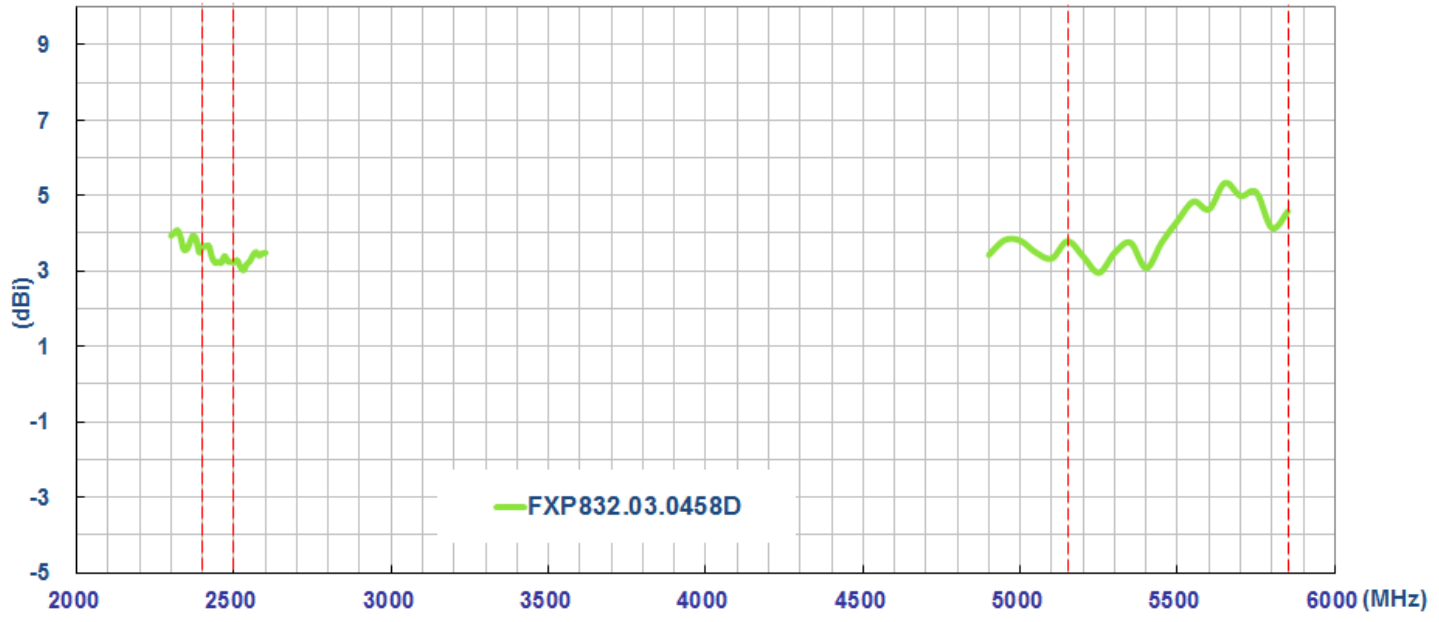
#### 3.1. Return Loss



#### 3.2. Antenna Efficiency

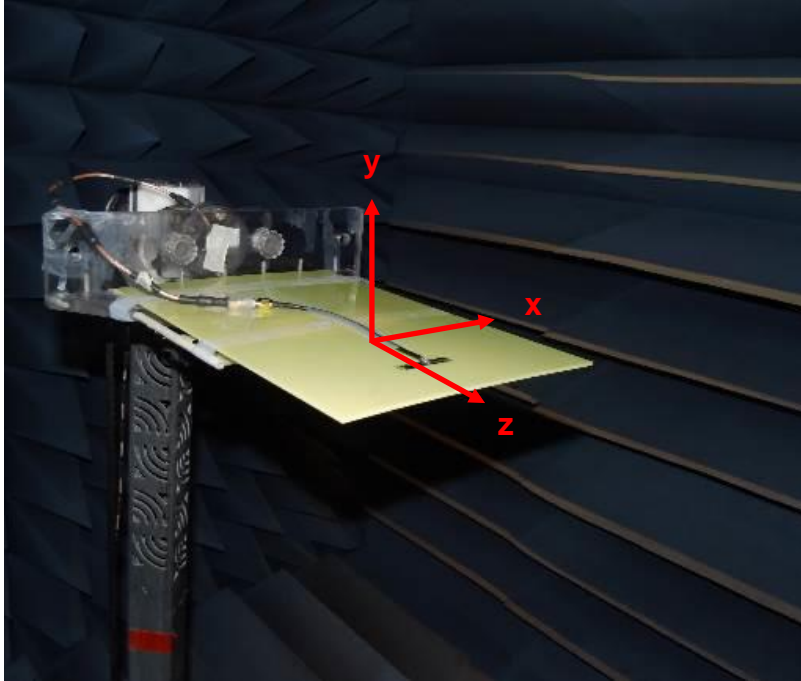


### 3.3. Antenna Peak Gain

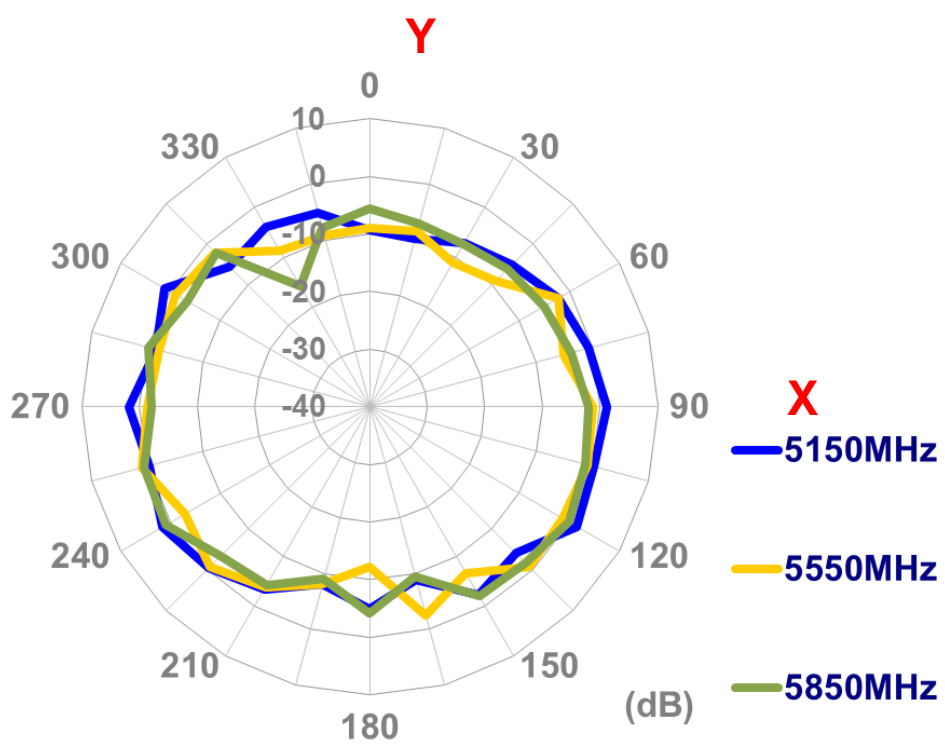
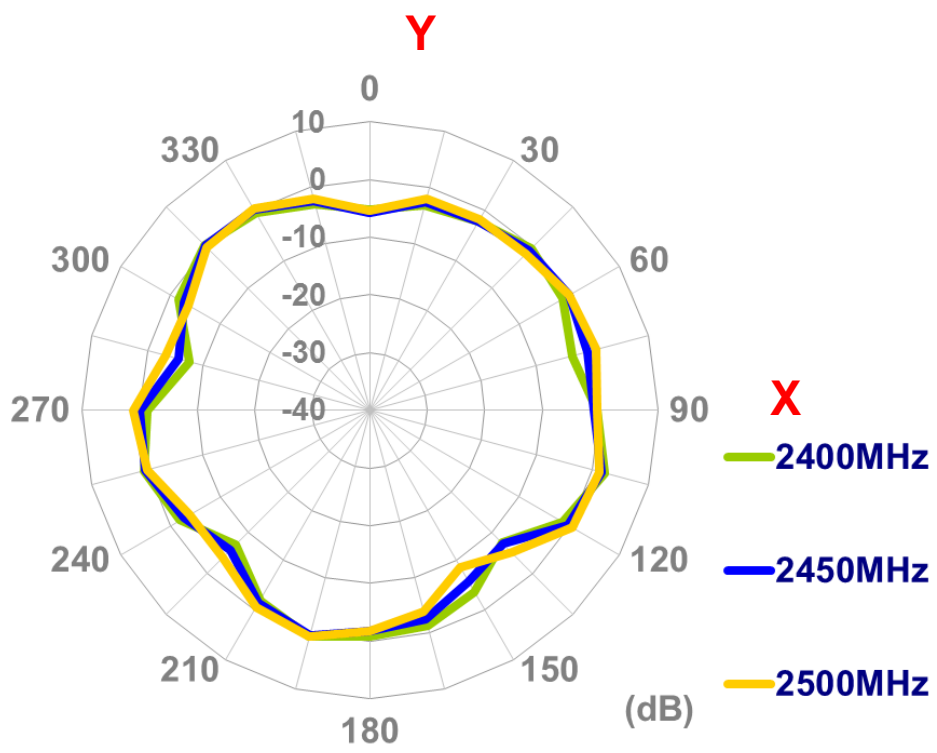


3.2

### 3.4. Radiation Pattern for FXP832 on 2mm ABS

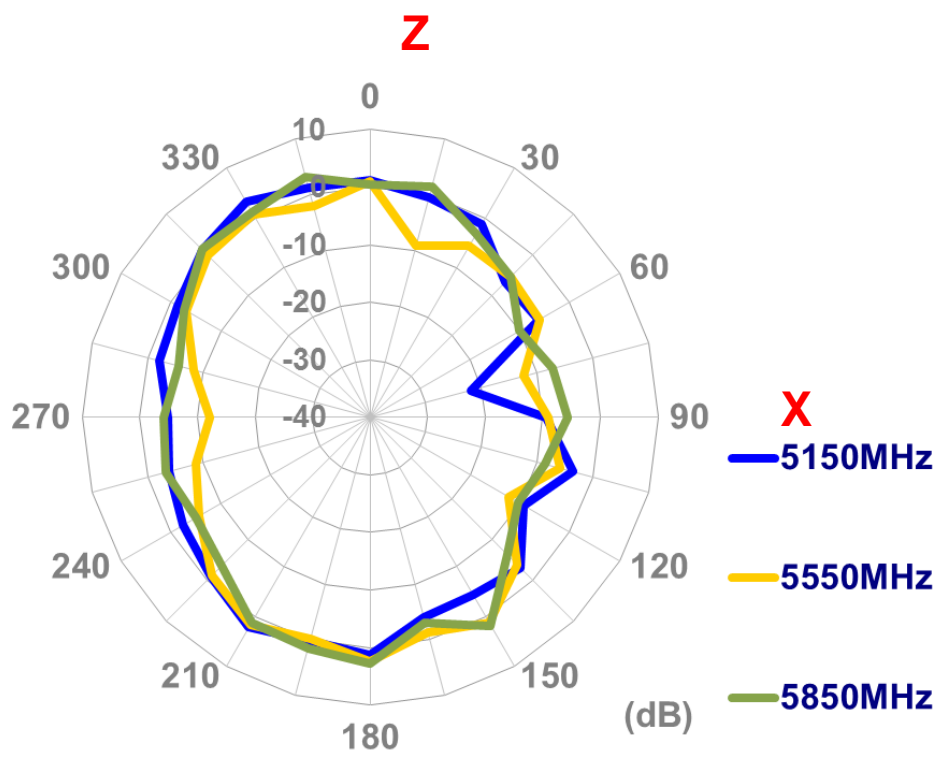
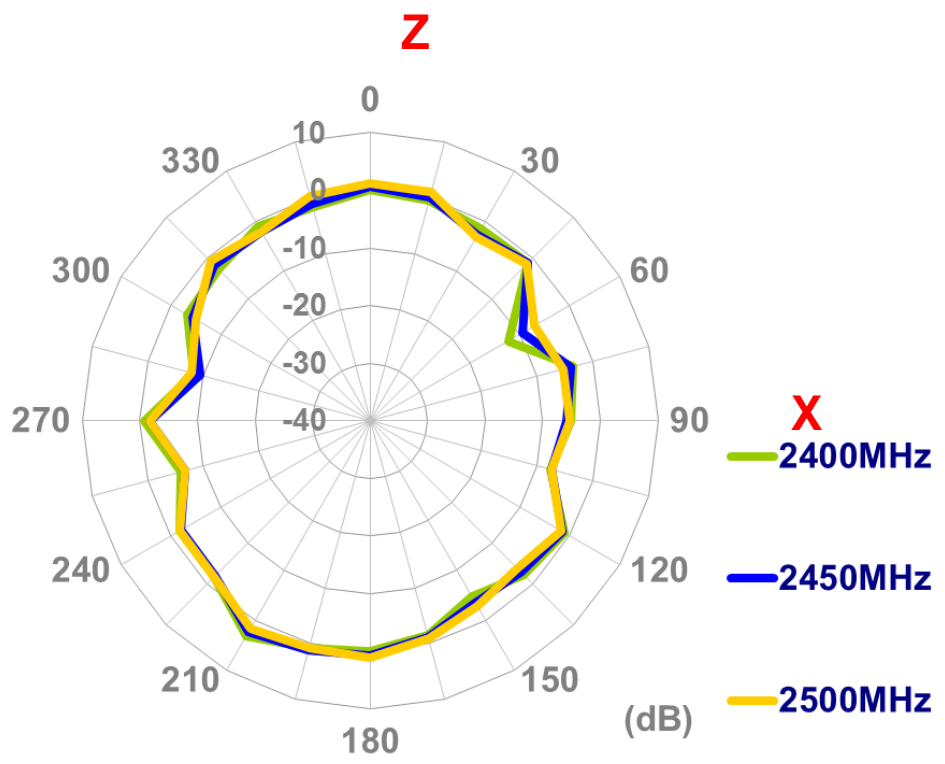


**XY-plane**

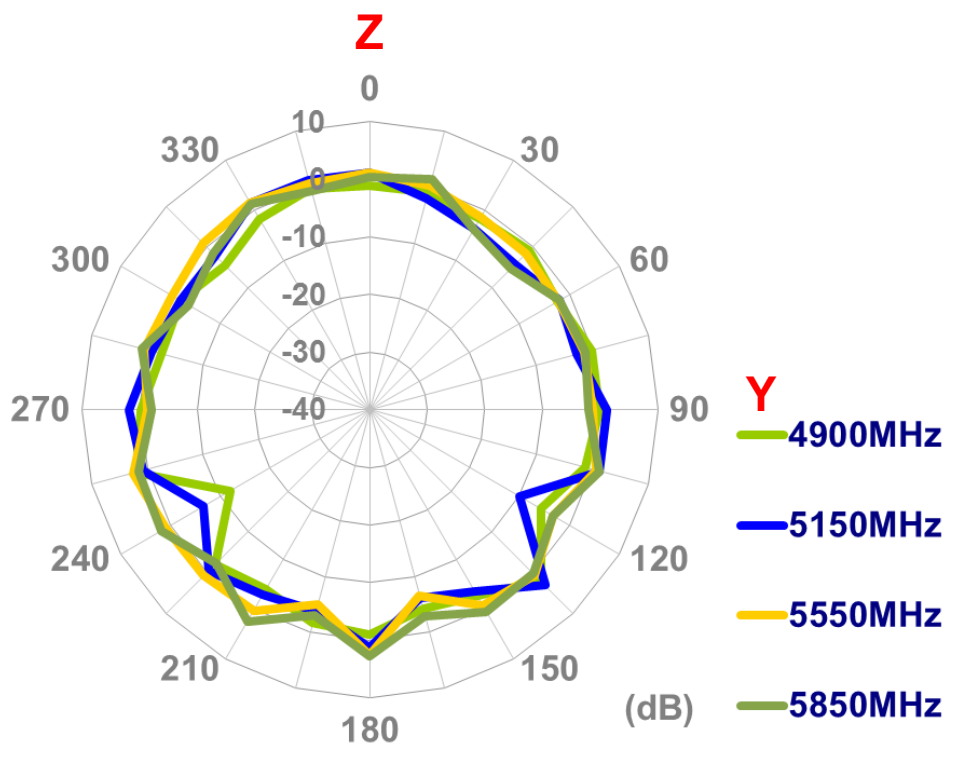
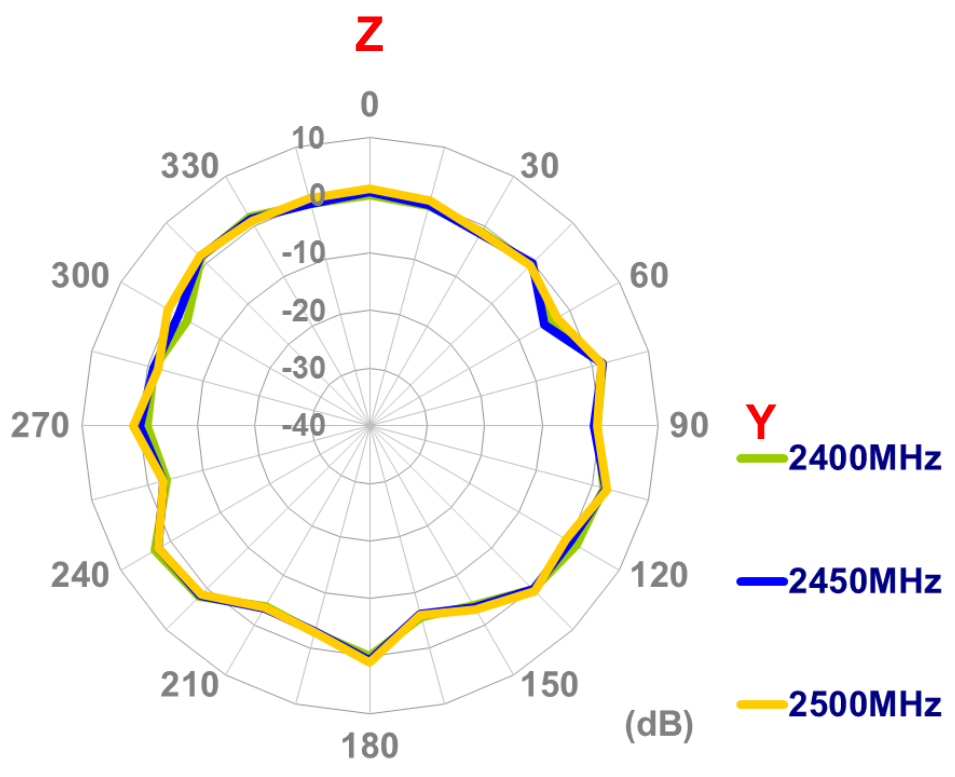




**XZ-plane**



**YZ-plane**



### 3.5. 3D Radiation Pattern for FXP832

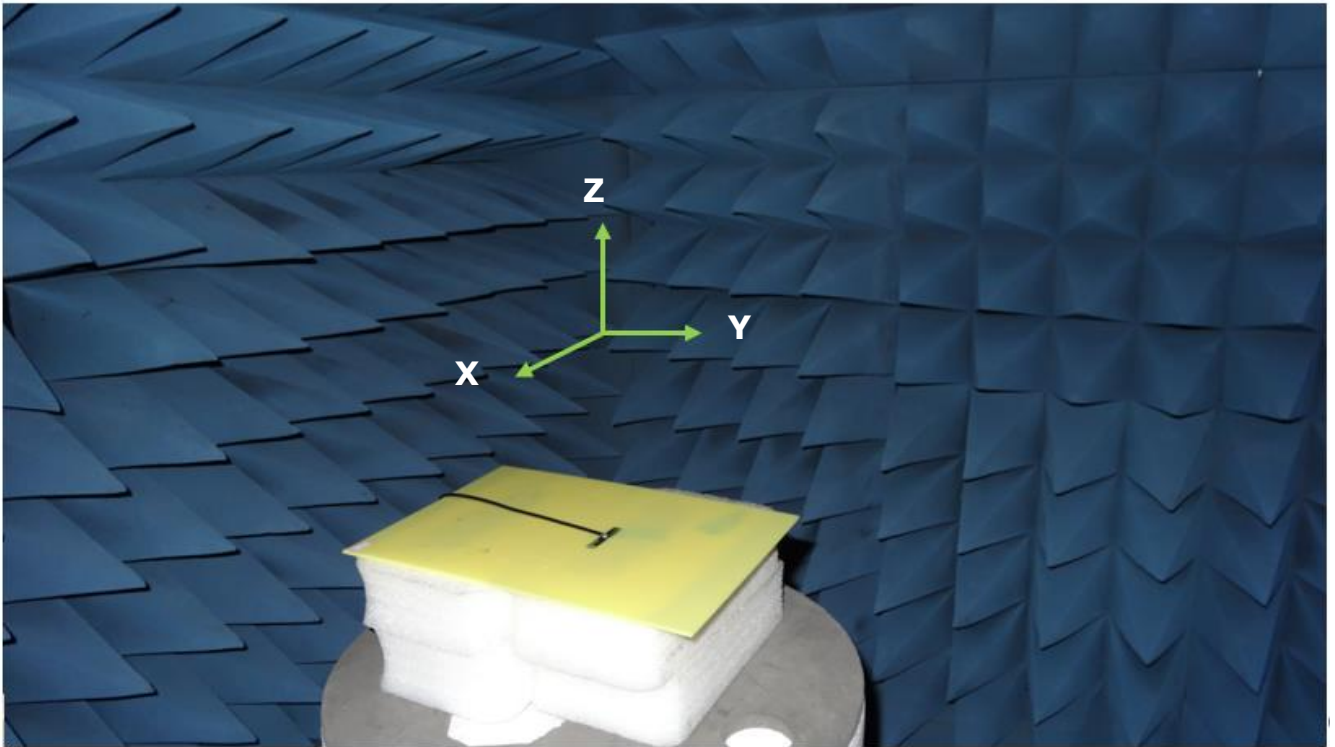


Figure 1. OTA setup

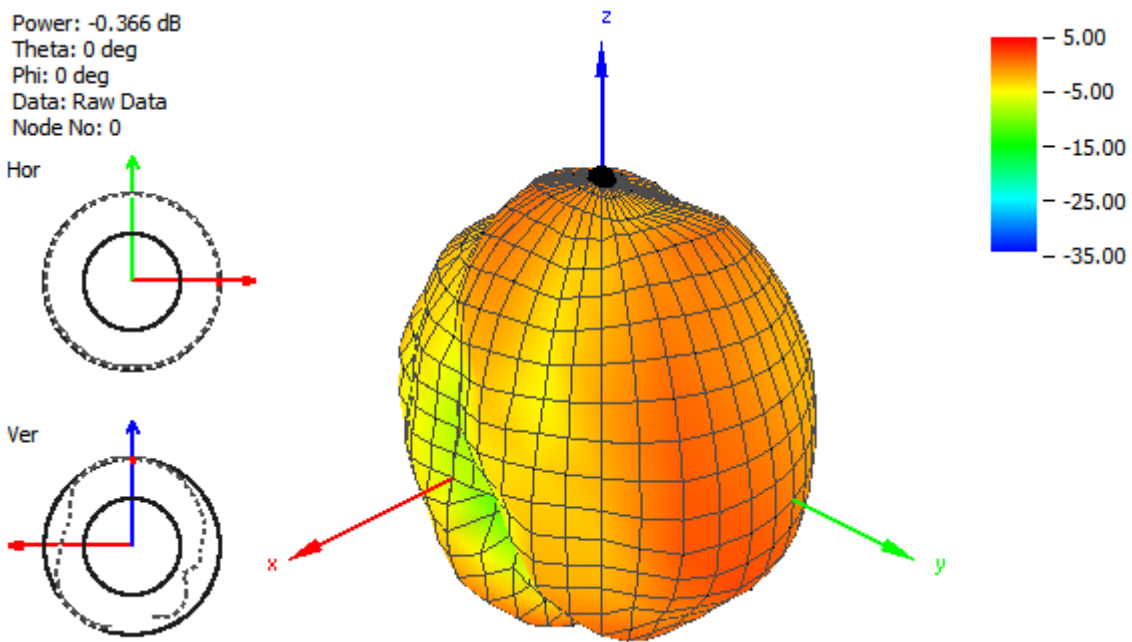


Fig 2. Radiation pattern at 2400 MHz

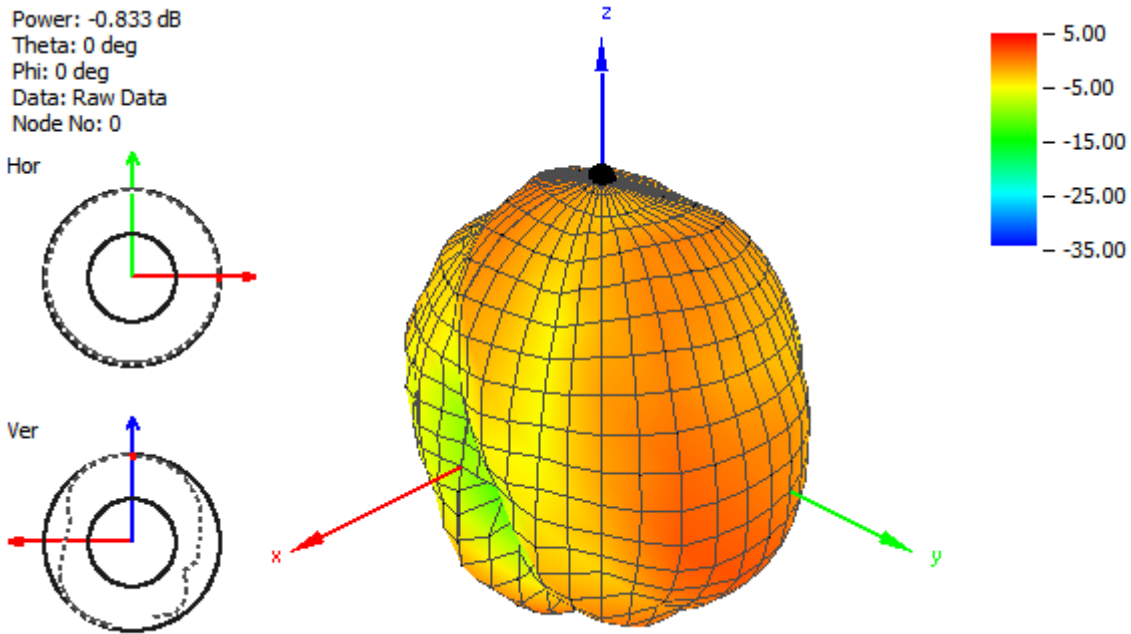


Fig 3. Radiation pattern at 2450 MHz

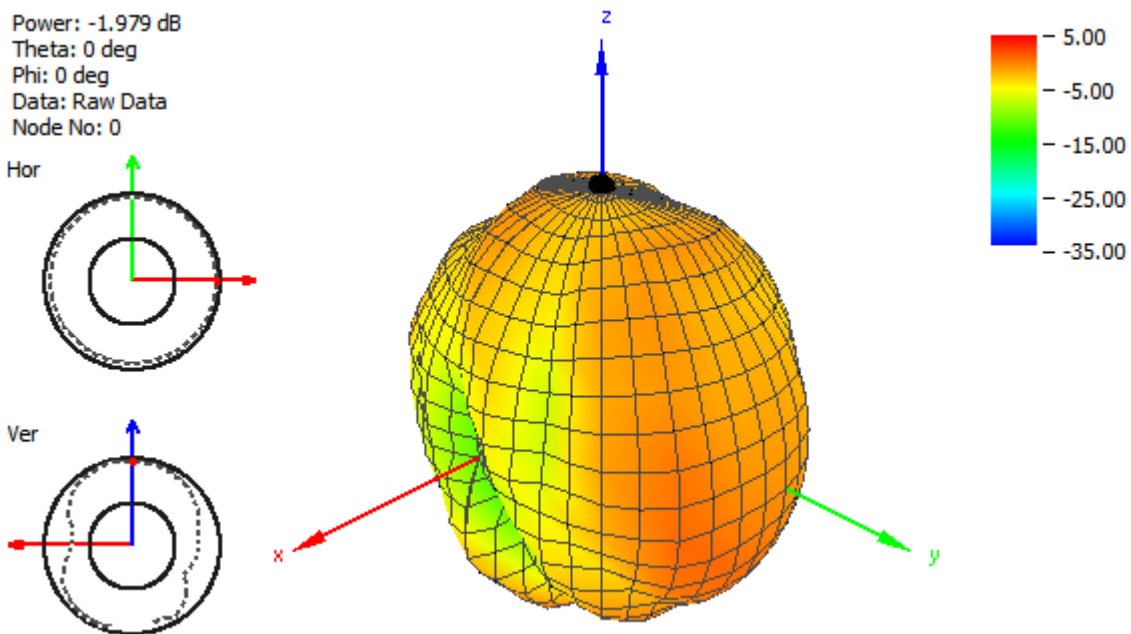


Fig 4. Radiation pattern at 2500MHz

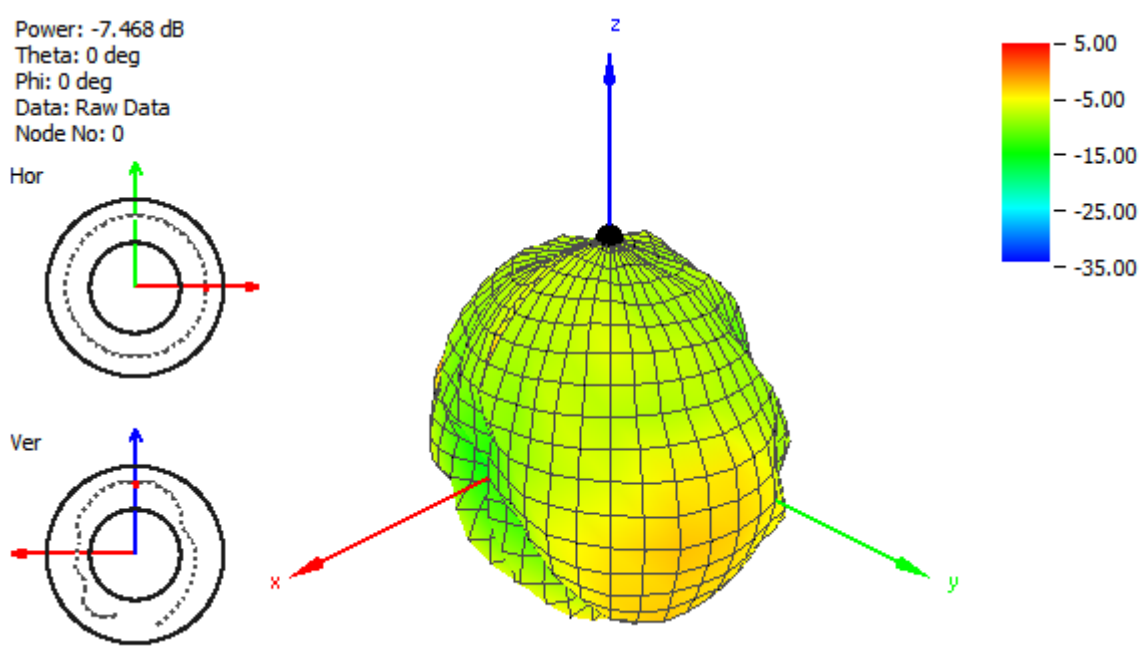


Fig 5. Radiation pattern at 4900 MHz

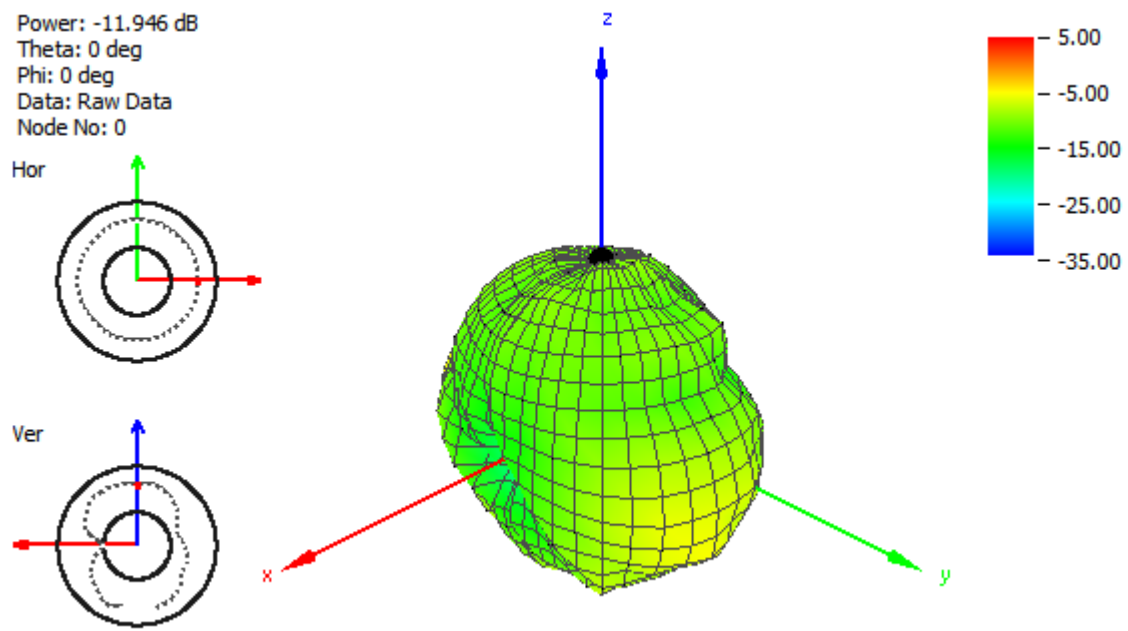


Fig 6. Radiation pattern at 5150 MHz



Power: -9.444 dB  
Theta: 0 deg  
Phi: 0 deg  
Data: Raw Data  
Node No: 0

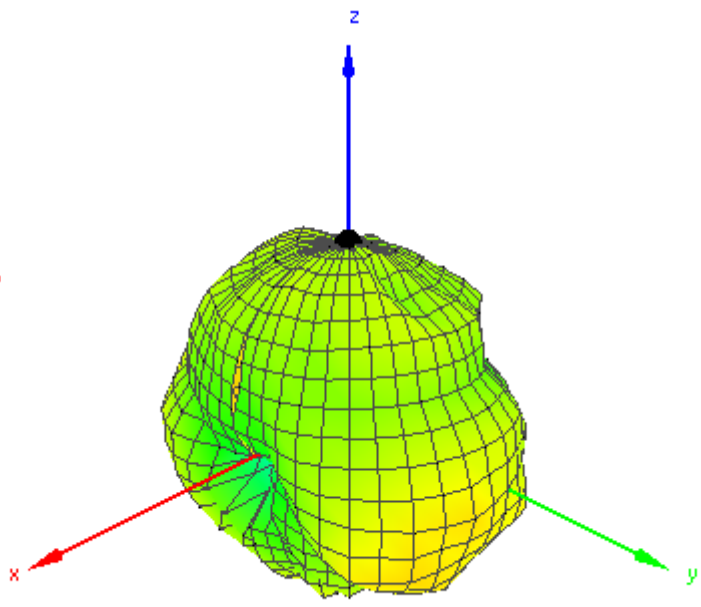
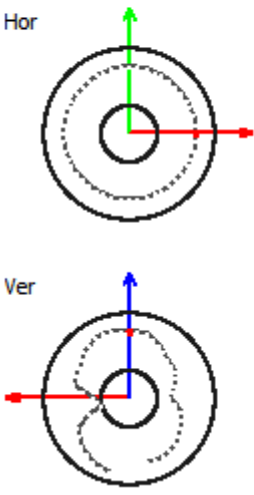


Fig 7. Radiation pattern at 5550 MHz

Power: -5.668 dB  
Theta: 0 deg  
Phi: 0 deg  
Data: Raw Data  
Node No: 0

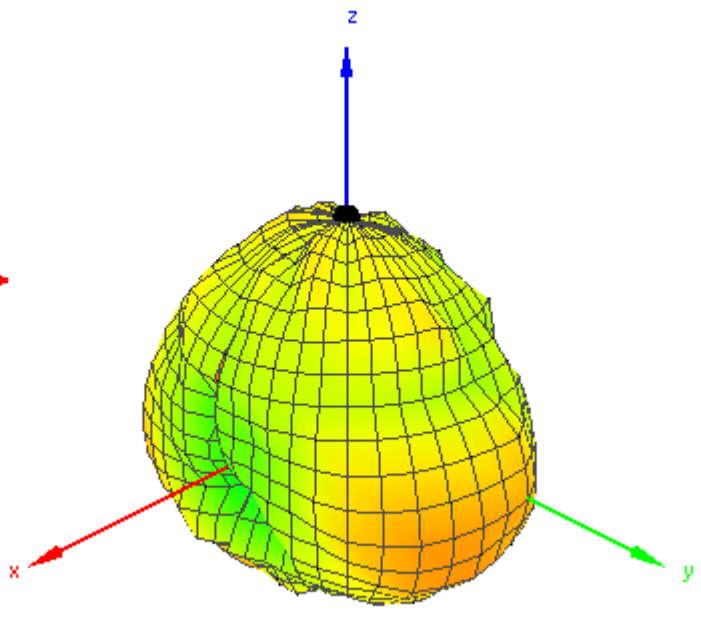
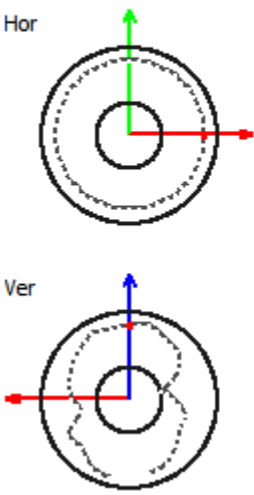
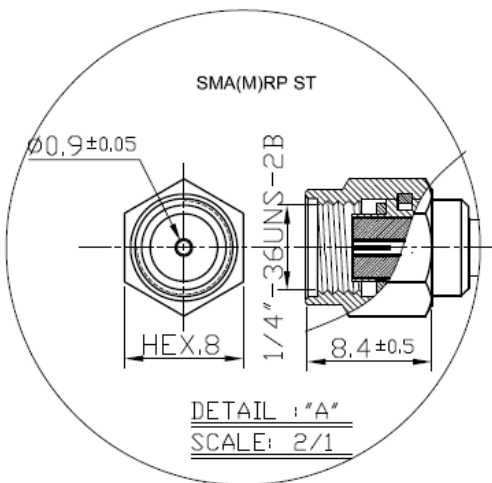
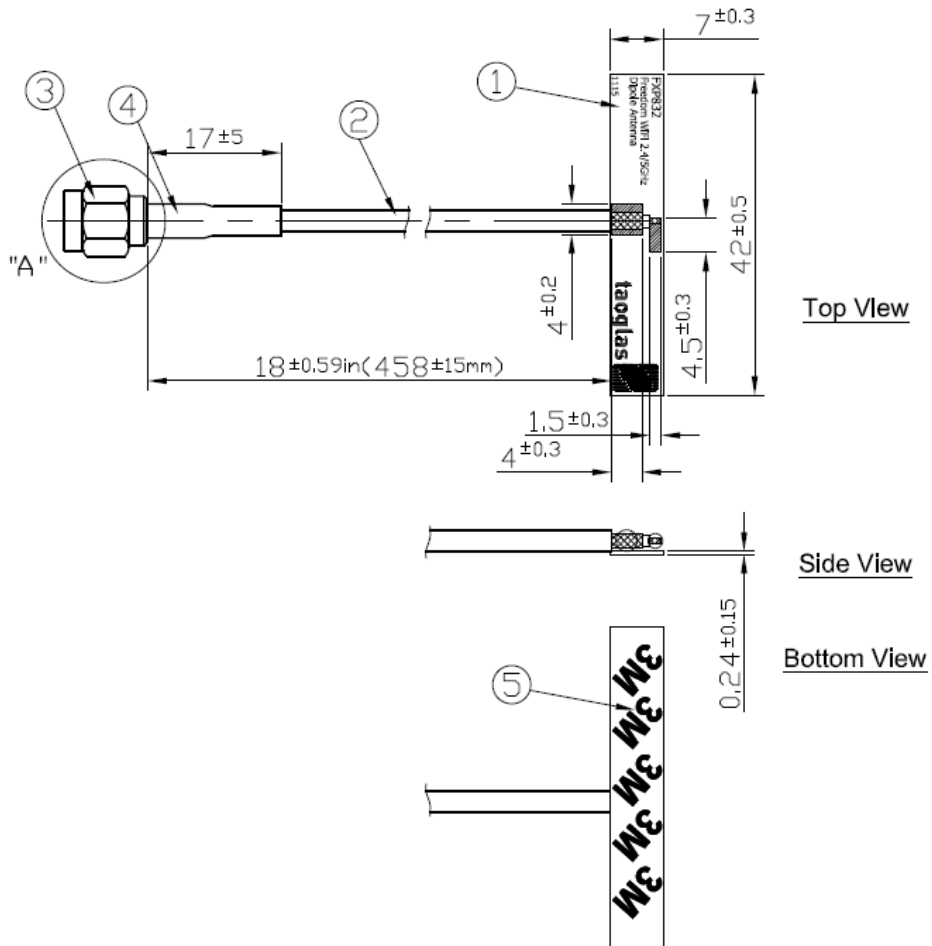


Fig 8. Radiation patterns at 5850MHz

# 4. Antenna Drawing



	Name	Material	Finish	QTY
①	FXP832 FPCB	FPCB 0.15t	Black	1
②	RG174 Coaxial Cable	PVC	Black	1
③	SMA(M)RP ST	Brass	Gold	1
④	Heat Shrink Tube	PE	Black	1
⑤	Double Side Adhesive	3M 467	Brown Liner	1

## 5. Packaging

