

Specification

Part No.	:	WLP.2450.50.6.A.08
Product Name	:	3.5dBi Embedded 2.4GHz Wi-Fi Circularly Polarized Omnidirectional 50mm Single Feed Patch with SMA(M)
Features	:	2450MHz Antenna High Efficiency >65% 3.5dBi @ 2.4GHz Low Loss Substrate RH Circularly Polarized Dimensions: 50*50*6.4mm (Without Connector) Screw mount with SMA(F) ST Connector ROHS Compliant



1. Introduction

This Taoglas WLP.2450 patch antenna is a circularly polarized 2.4GHz Antenna manufactured from advanced composite dielectric

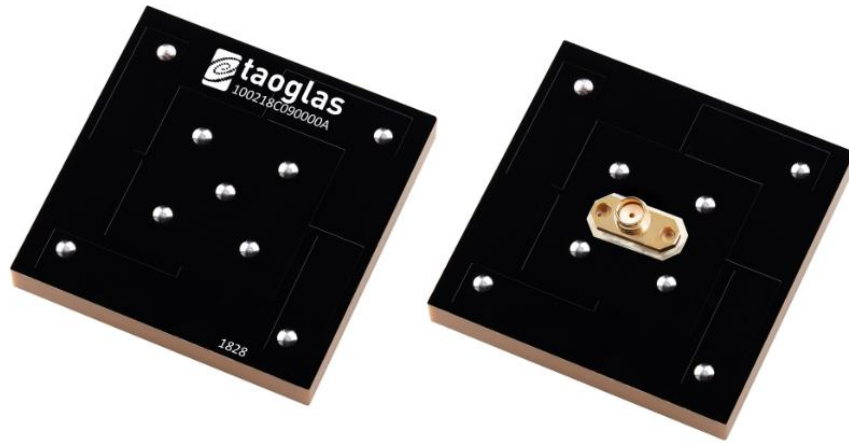
for ISM, Wi-Fi, Bluetooth and Zigbee is based on smart XtremeGain™ technology. It is mounted via pin and double-sided adhesive and has been selected as optimal solution for the 50*50mm ground plane. This passive patch offers typical gain response from 2.5 dBi and a higher gain can be achieved, depending on the Ground Plane, the space available and clearance afforded. The WLP.25's high gain performance is a perfect solution for metering and remote monitoring applications; it can deliver longer range than smaller chip antennas.

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.

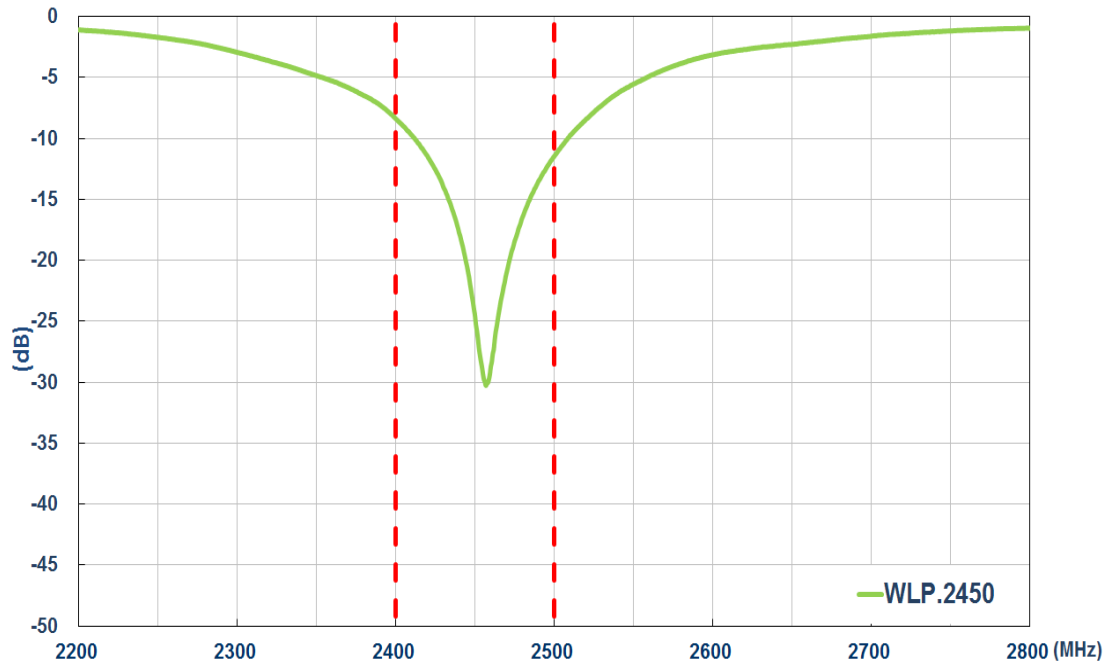


2. Specification

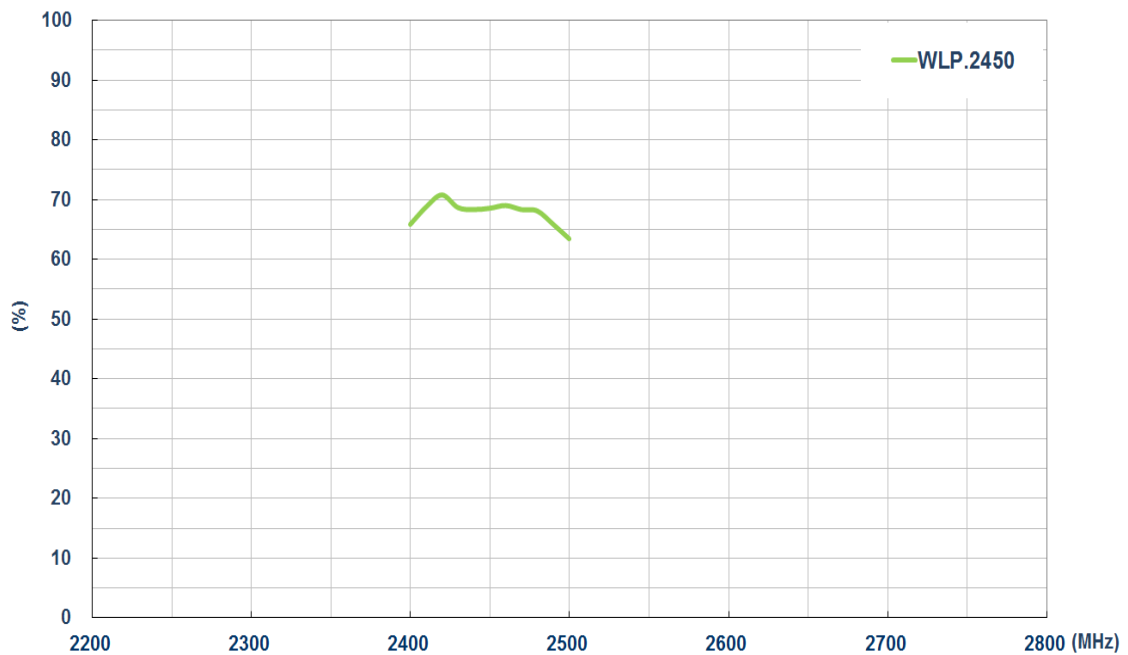
2.4GHz Wi-Fi Antenna			
Frequency (MHz)	2400	2450	2500
Efficiency (%)			
	65.9	68.6	63.5
Average Gain (dB)			
	-1.81	-1.64	-1.97
Peak Gain (dBi)			
	3.17	3.46	2.98
MECHANICAL			
Dimensions	Height = 6.4 mm & Diameter = 50mm		
Connector	SMA(F)		
Weight	28.8g		
ENVIRONMENTAL			
Temperature Range	-40°C to +85°C		
Thermal Shock	100 cycles -40°C to +85°C		
Humidity	Non-condensing 65°C 95% RH		

3. Antenna Characteristics

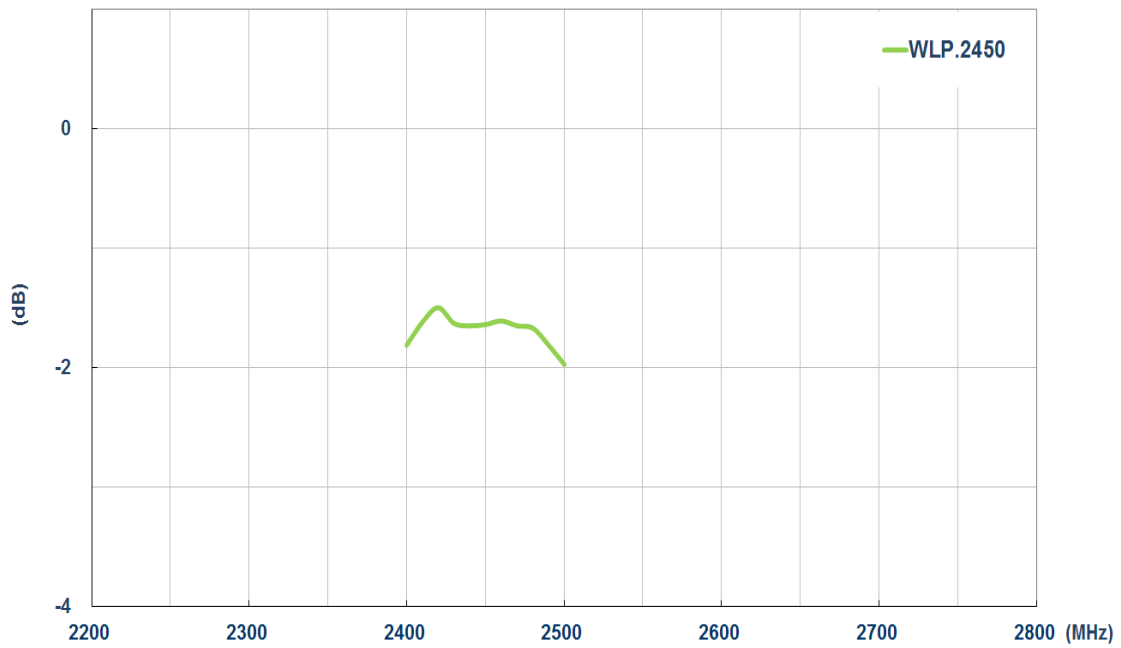
3.1 Return Loss



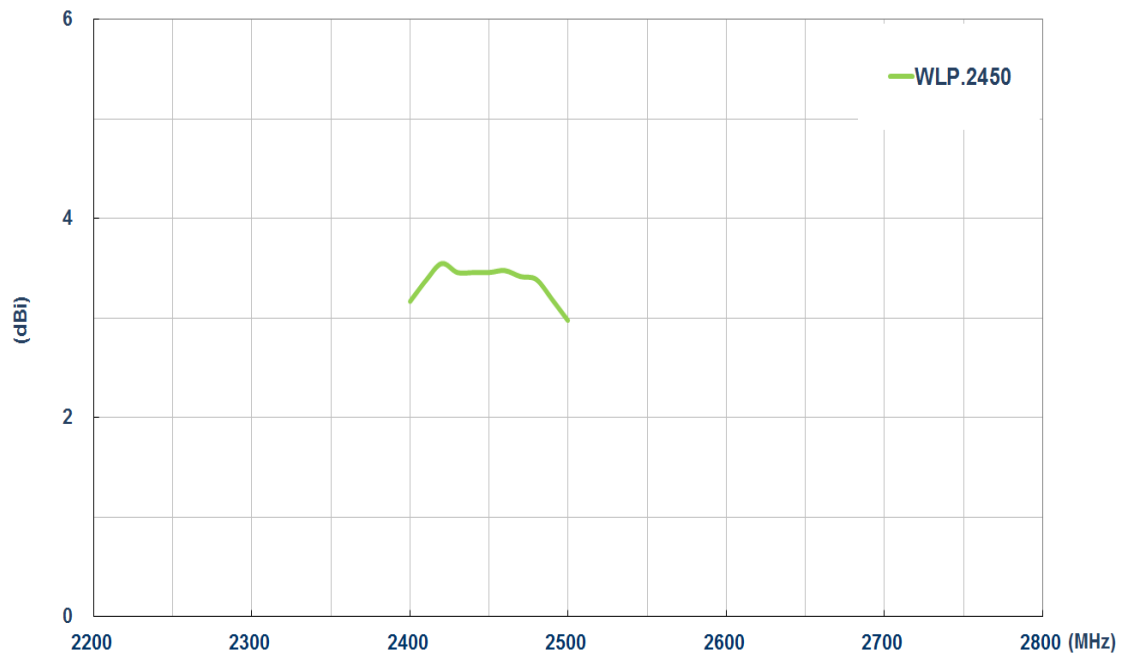
3.2 Efficiency



3.3 Average Gain



3.4 Peak Gain



4. Antenna Radiation Patterns

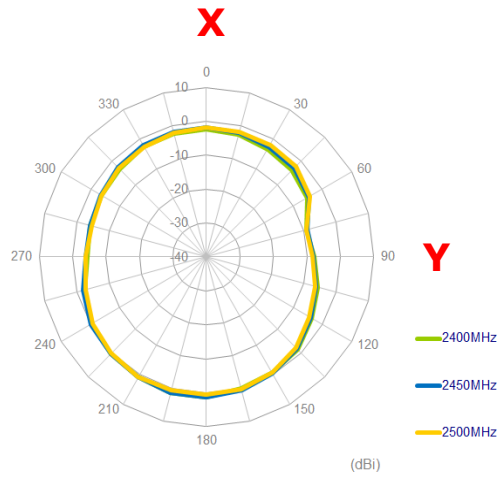
4.1 Antenna Setup (Antenna Test Setup in Anechoic Chamber)



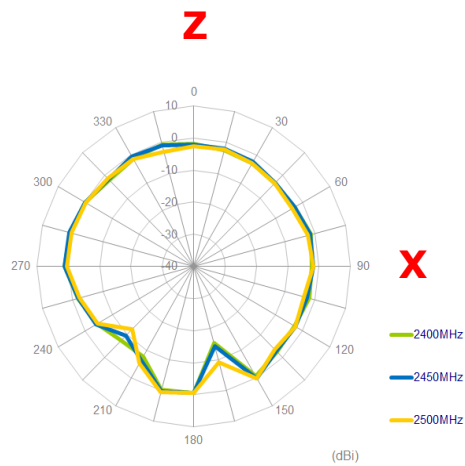
4.2 2D Radiation Patterns

4.2.1 Wi-Fi

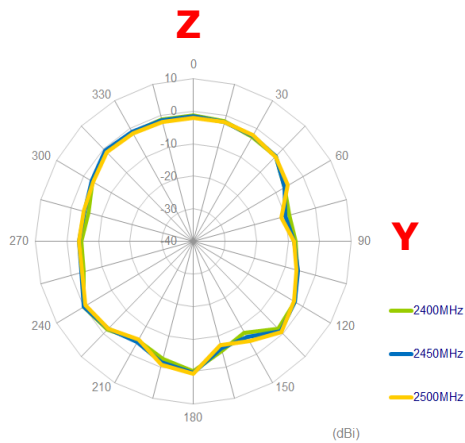
XY Plane



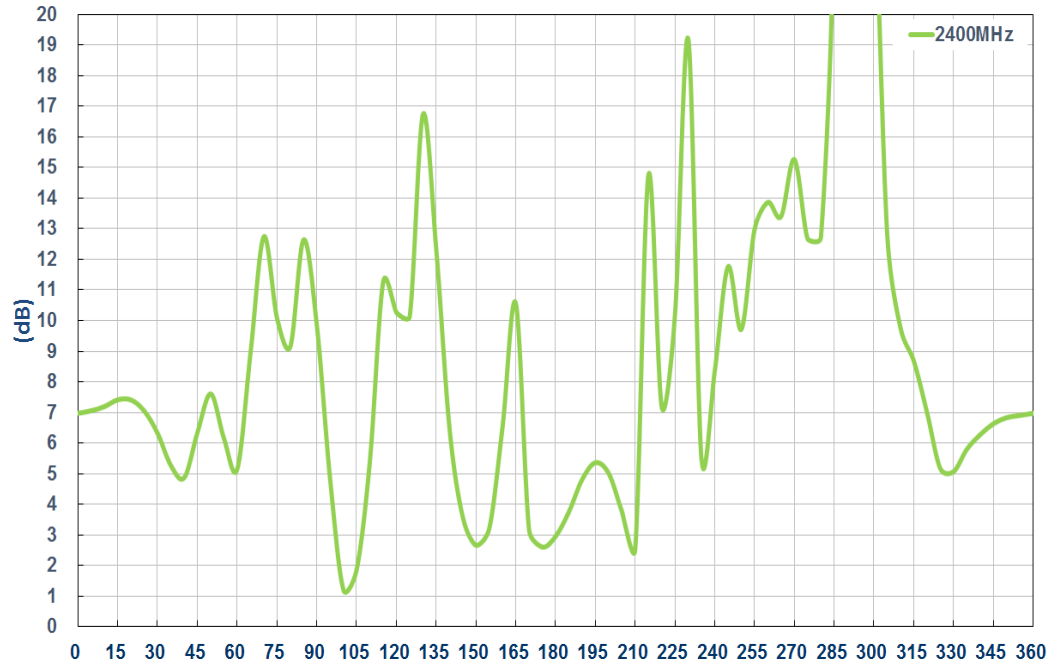
XZ Plane



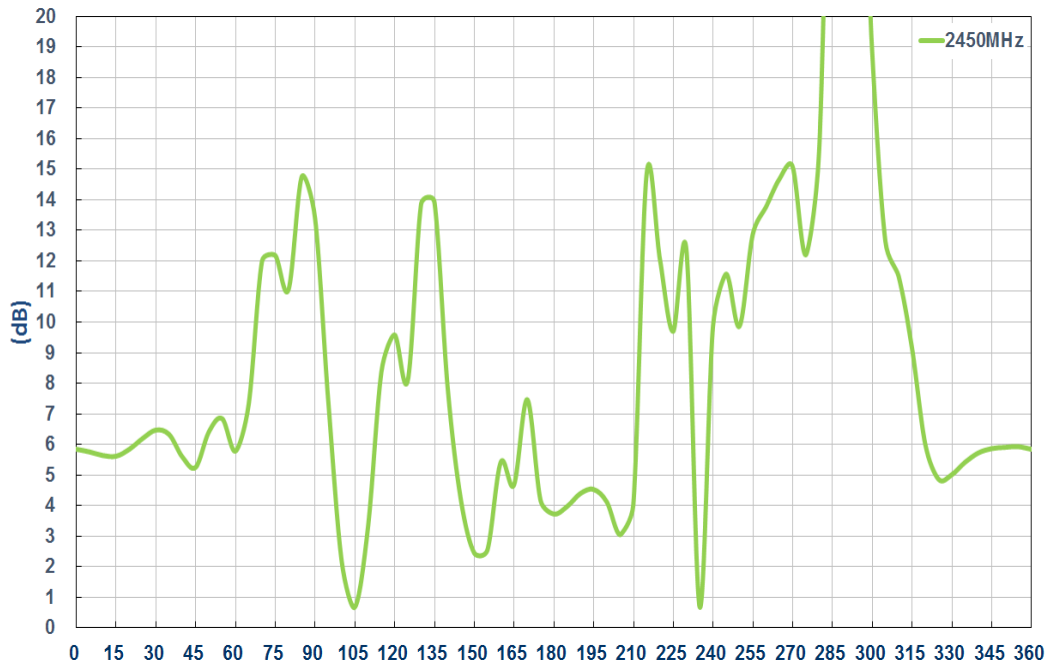
YZ Plane



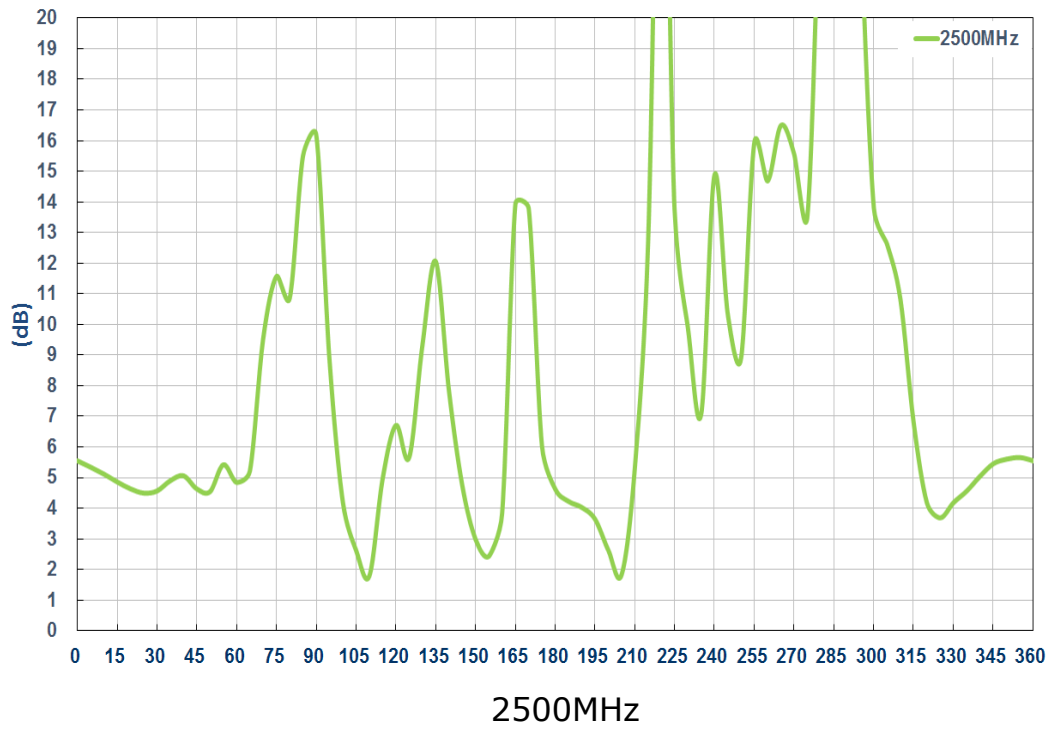
4.3 Axial Ratio



2400MHz

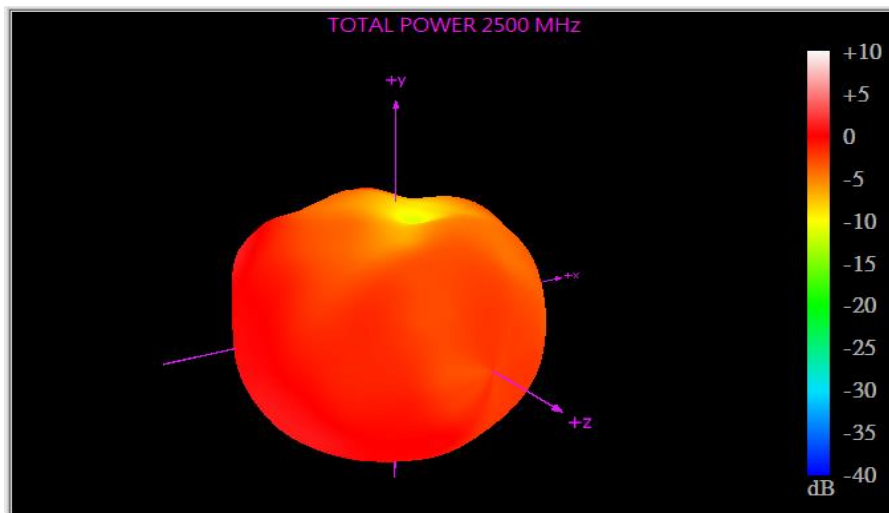
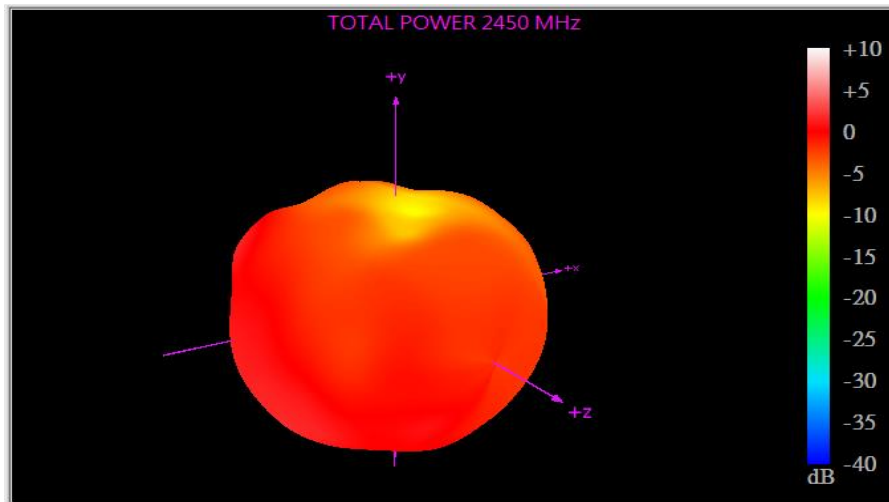


2450MHz

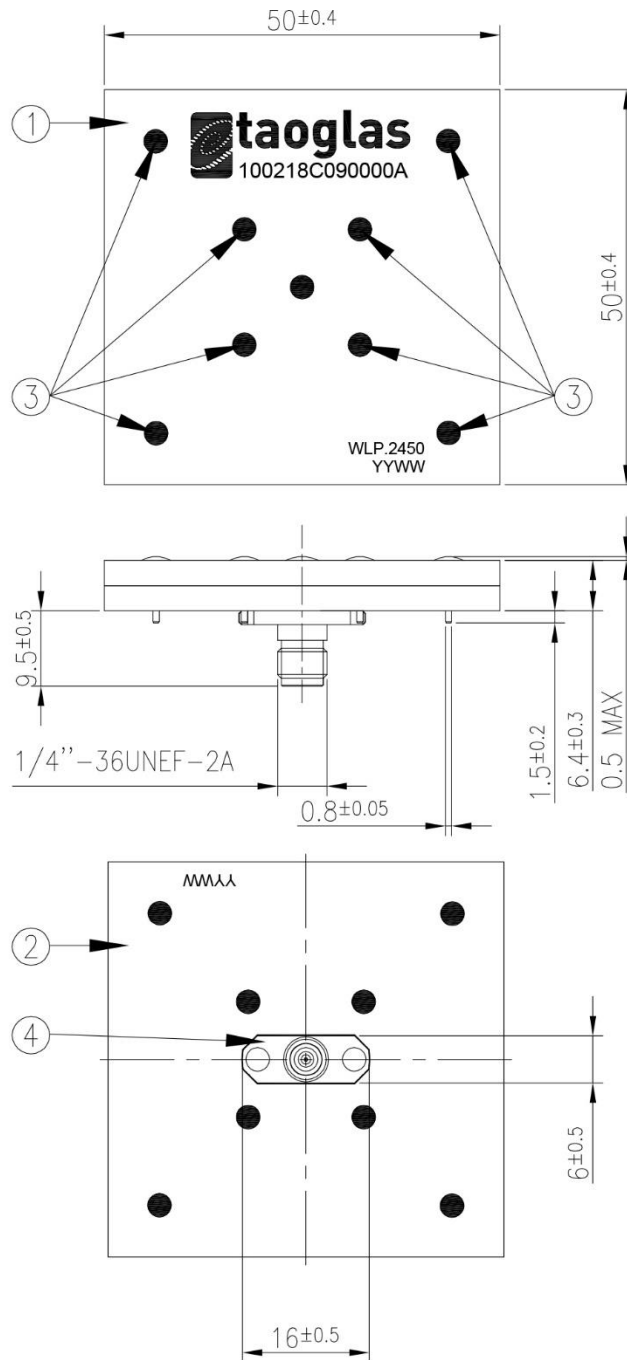


4.4 3D Radiation Patterns





5. Mechanical Drawing (Unit: mm)

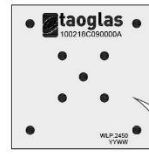


	Name	Material	Finish	QTY
1	WLP.2450 Top Layer (50x50x3mm)	Non-Ansi grade	Black	1
2	WLP.2450 Middle Layer (50x50x3mm)	Non-Ansi grade	Black	1
3	WLP.2450_PIN ($\phi 1.3 \times L 8.1$ mm)	Brass	Ni Plated	8
4	SMA(F) ST For PCB	Brass	Au Plated	1

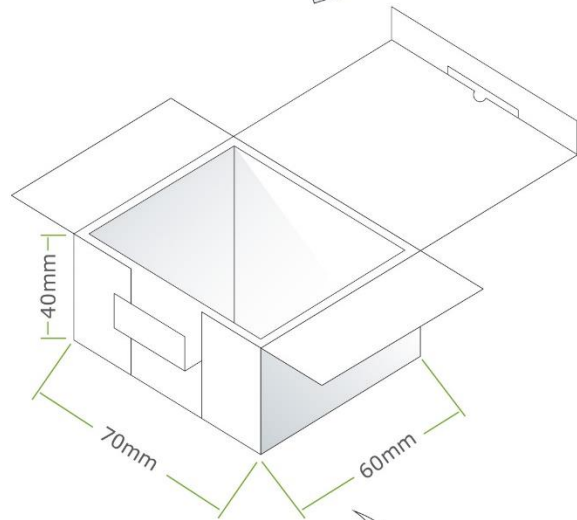
6. Packaging

Per Box: 1 piece

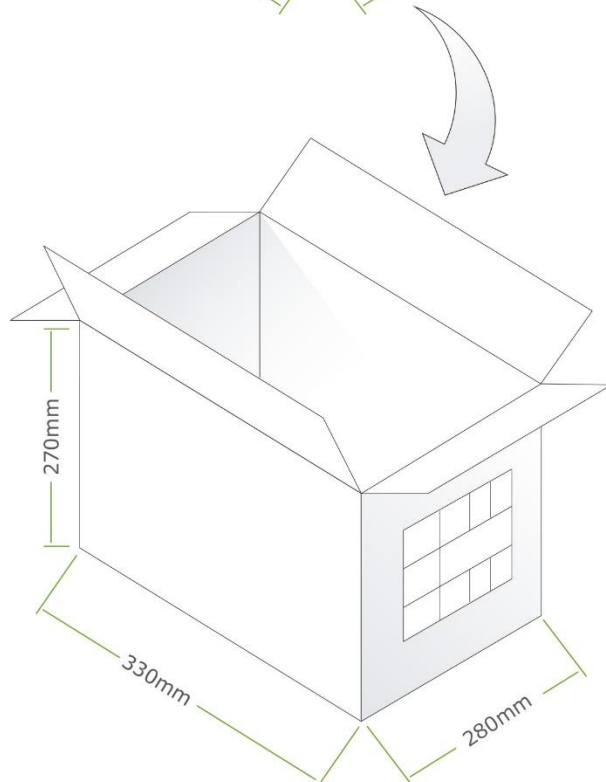
Per Outer Carton(Outside Box) = 100 pieces



1pc WLP.2450.50.6.A.08 per Box
 Box Dimensions - 70*60*40mm
 Weight - 28.8g



100pc WLP.2450.50.6.A.08 per Box
 Box Dimensions - 330*280*270mm
 Weight - 3.5Kg



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