

## Specification

- Part No.** : **DCP.5900.12.4.A.02**
- Description** : 6dBi 5.9GHz 12mm  
DSRC/C-V2X Ceramic Patch Antenna
- Features** : 5.9GHz C-V2X Ceramic Patch Antenna  
5850MHz to 5925MHz  
Peak Gain: 5.89dBi  
Efficiency: >75%  
Dimensions: 12\*12\*4mm  
Manufactured in an IATF16949 Approved Facility  
**RoHS & REACH Compliant**



## 1. Introduction

The DCP.5900 is a world-leading C-V2X (& DSRC) Antenna with up to 75% efficiency. It is a 12\*12\*4 mm embedded ceramic DSRC Patch antenna. It is a high performance compact 6dBi directional antenna designed to operate at 5850 MHz to 5925 MHz for C-V2X systems. It is mounted via pin and double-sided adhesive and has been tuned for a center position on a 70mm \*70mm ground plane.

The polarization has been designed to be circularly polarized to enable a more stable system signal strength on moving vehicles. For further optimization to customer-specific device environments where positioning is off-center or a different ground-plane size, a custom-tuned patch antenna can be supplied, subject to NRE and MOQ.

C-V2X is the communications medium of choice for active safety V2V/V2X (Vehicle-to-Vehicle and Vehicle-to-Other) systems. Primarily allocated for vehicle safety applications, C-V2X supports high-speed, low-latency, short-range, V2V/V2X wireless communications.

For further optimization to customer-specific device environments and for support to integrate and test this antennas performance in your device, contact your regional Taoglas Customer Services Team

## 2. Specification

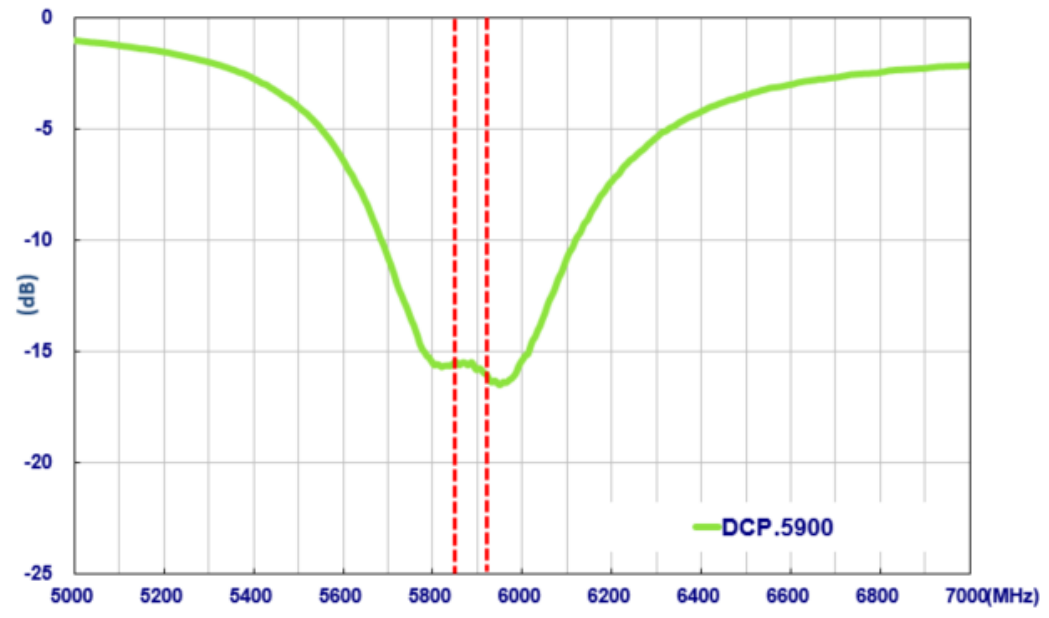
ELECTRICAL		
Operation Frequency	5850 MHz	5925 MHz
Efficiency	75.25%	75.19%
Peak Gain	5.32 dBi	5.89 dBi
Average Gain	-1.24	-1.24
Gain at Zenith	4.5 dBi typ	4.5 dBi typ
VSWR	1.8 max	
Antenna Polarization	RHCP	
Impedance	50 ohms	
MECHANICAL		
Ceramic Dimension	12 x 12 x 4 mm	
Pin Diameter	0.85 mm	
Pin Length	1.7mm	
Weight	2.1 g	
ENVIRONMENTAL		
Operation Temperature	-40°C to 105°C	
Humidity	Non-condensing 65°C 95% RH	

\*All tests done on a 70mm\*70mm ground plane.

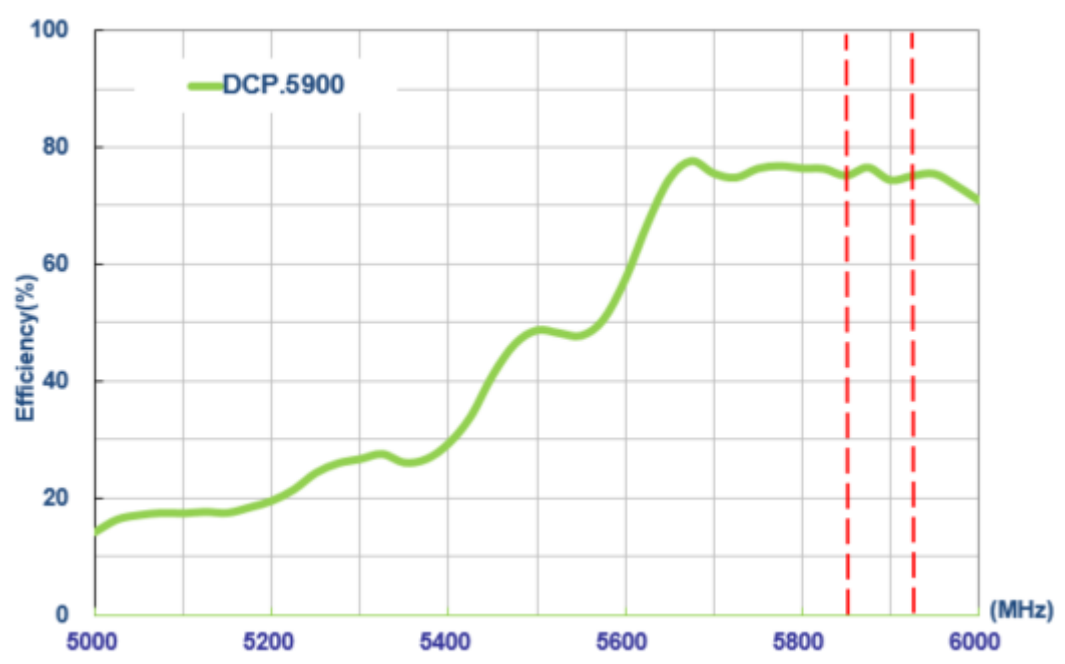


## 3. Antenna Characteristics

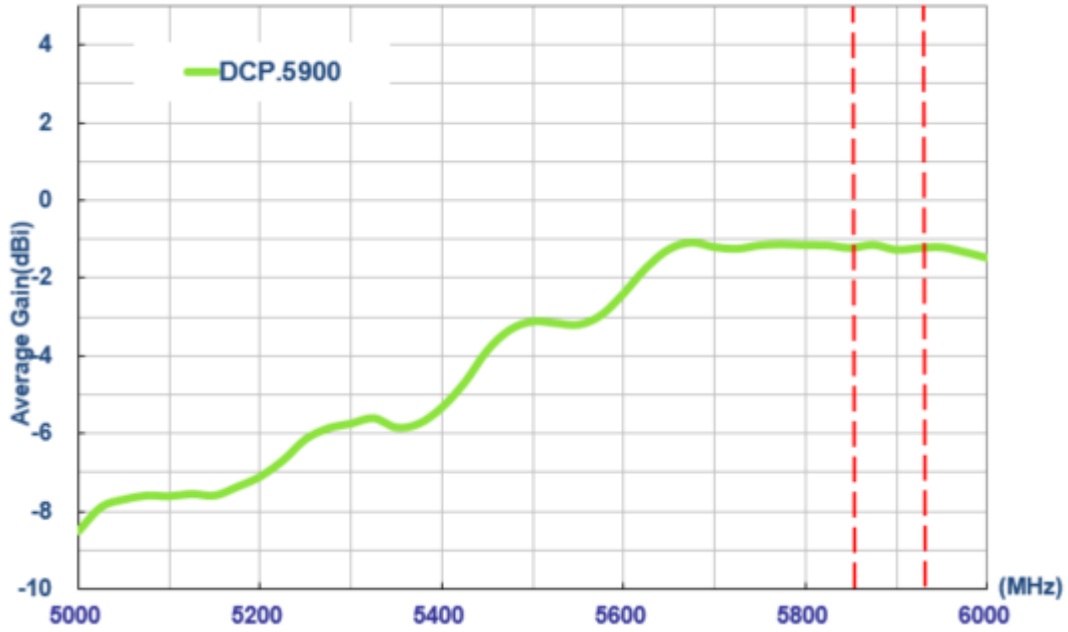
### 3.1 Return Loss



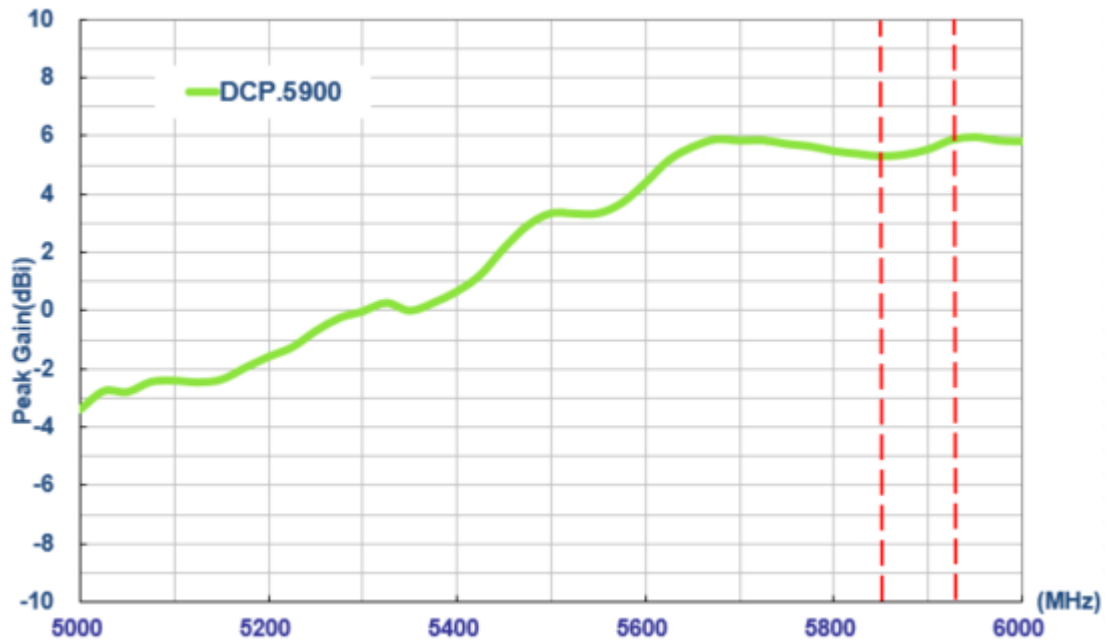
### 3.2 Efficiency



### 3.3 Average Gain

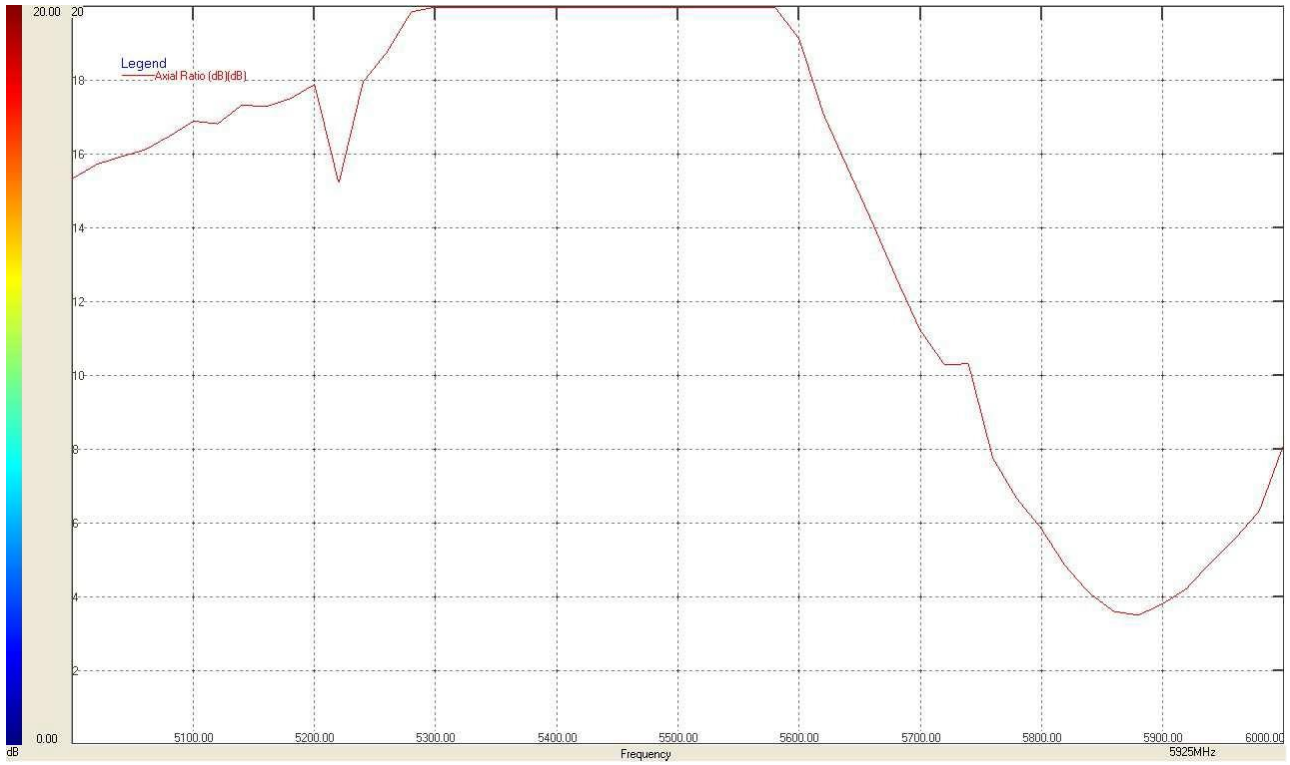


### 3.4 Peak Gain



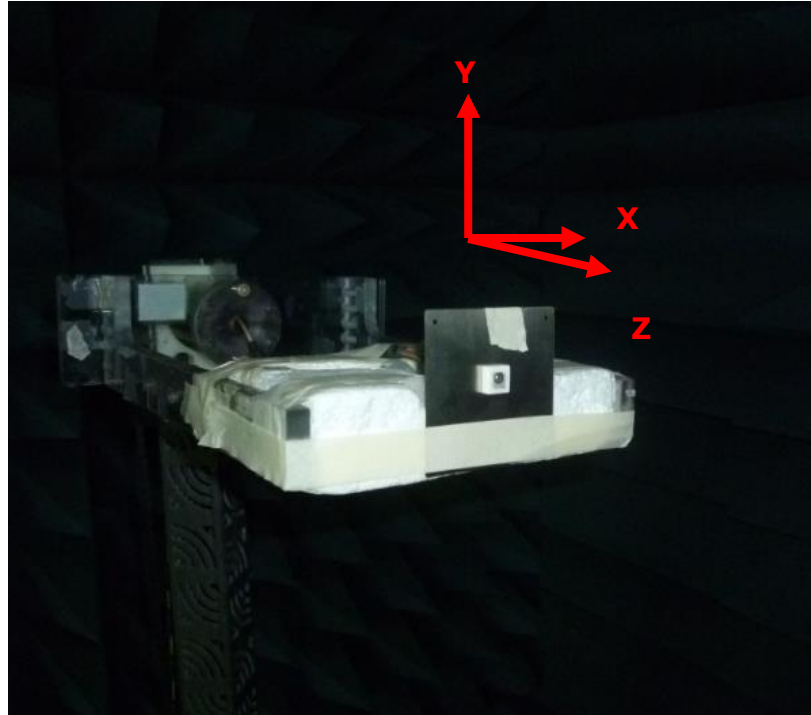


## 3.5 Axial Ratio

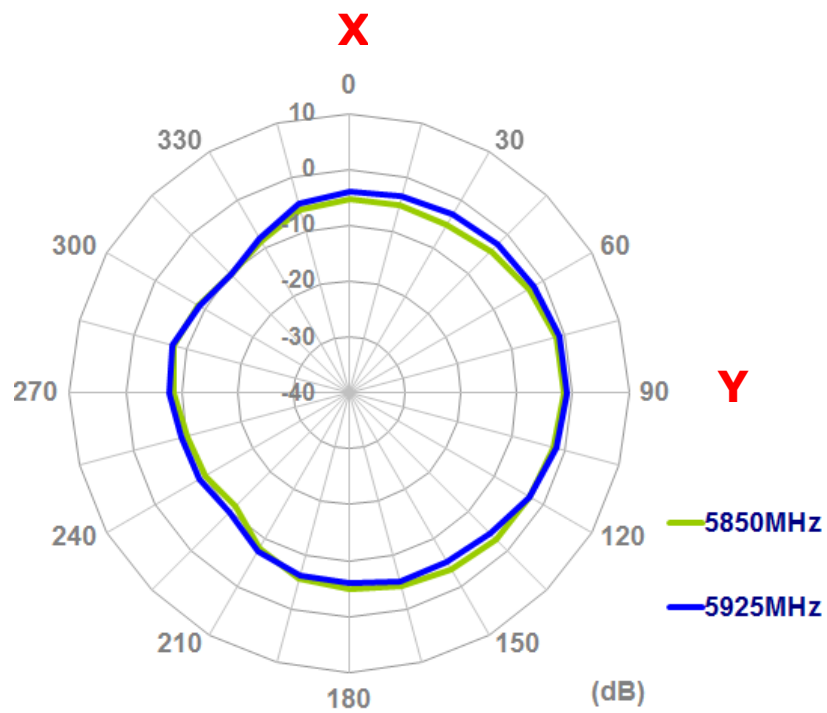


## 4. Antenna Radiation Pattern

### 4.1 Measurement Setup

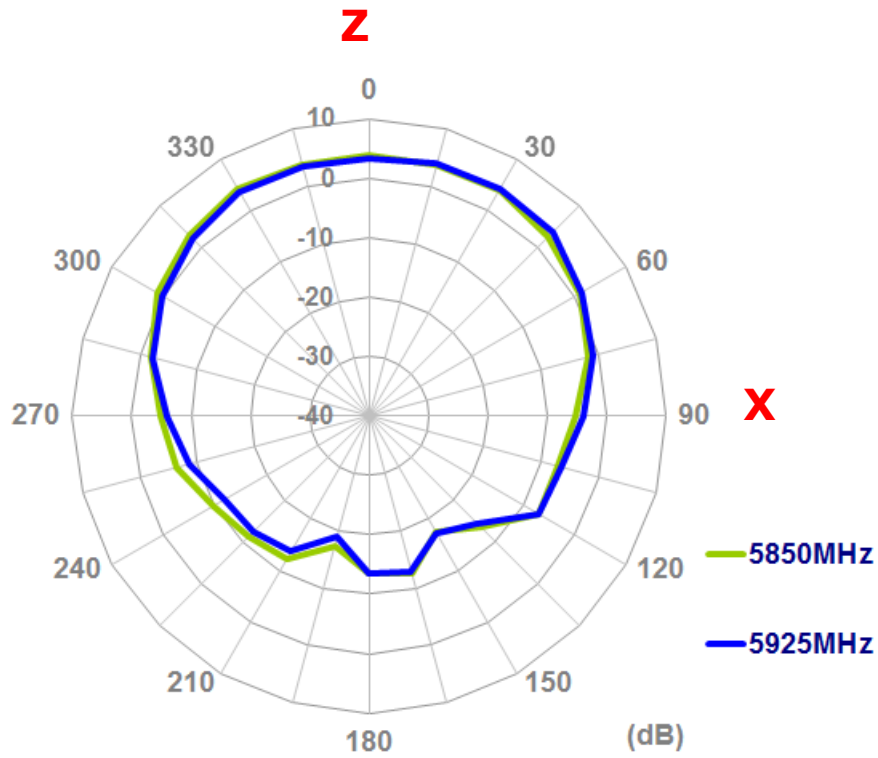


### 4.2 XY Plane

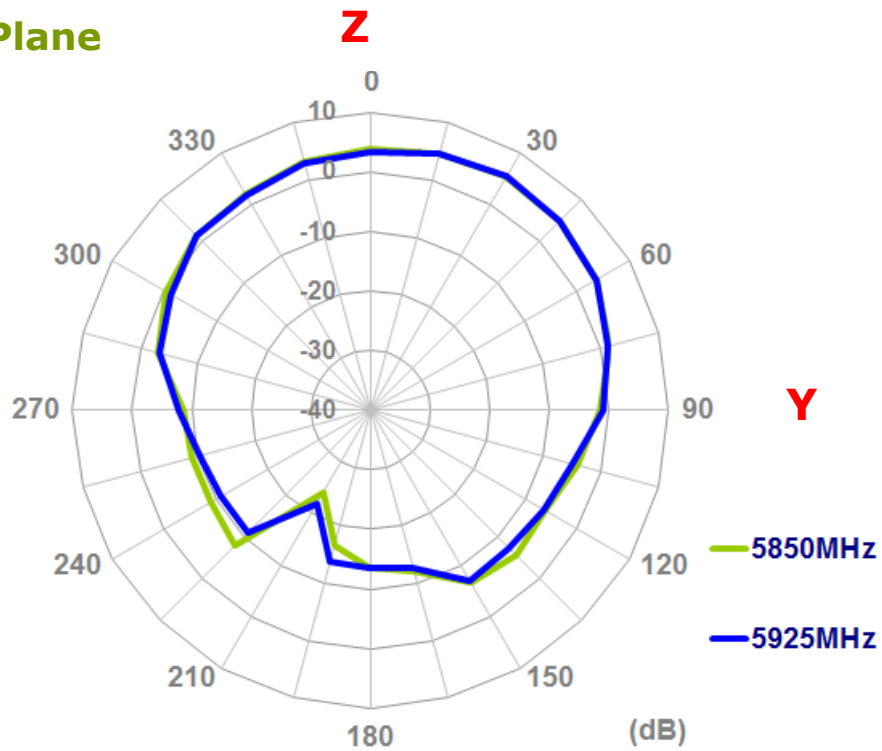




## 4.3 XZ Plane



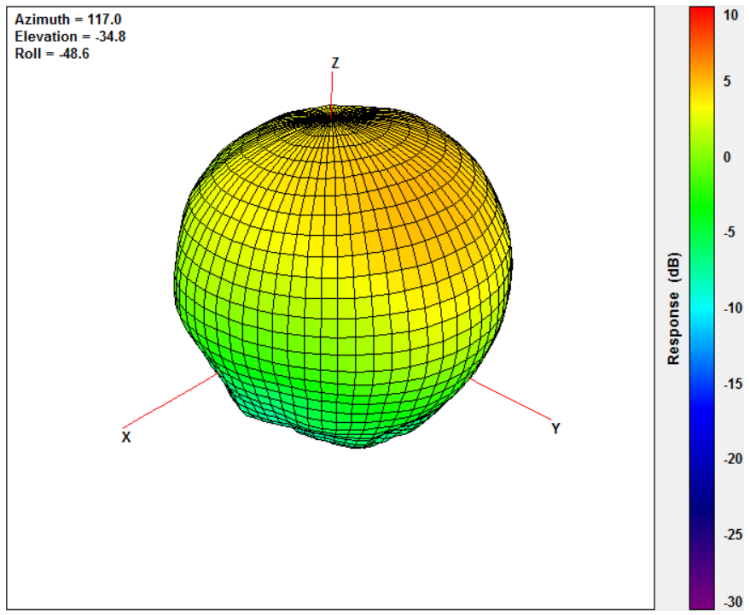
## 4.4 YZ Plane



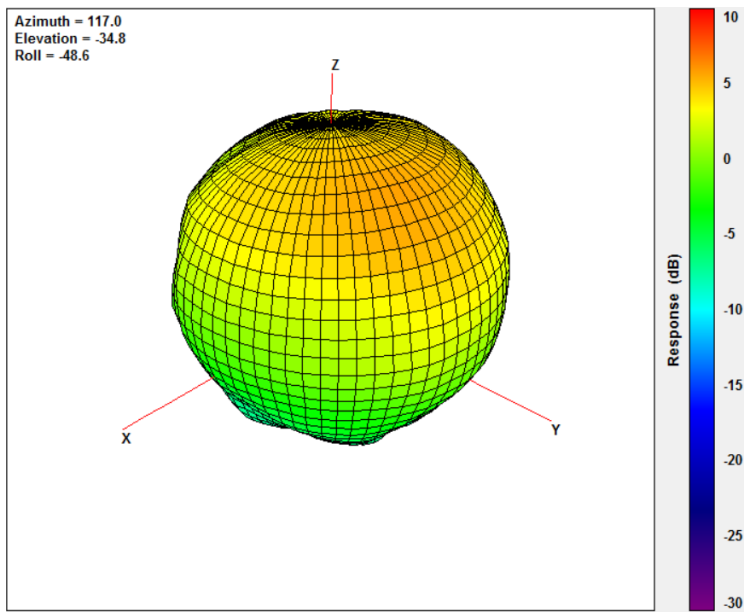




## 4.5 3D Radiation Patterns (5850MHz)

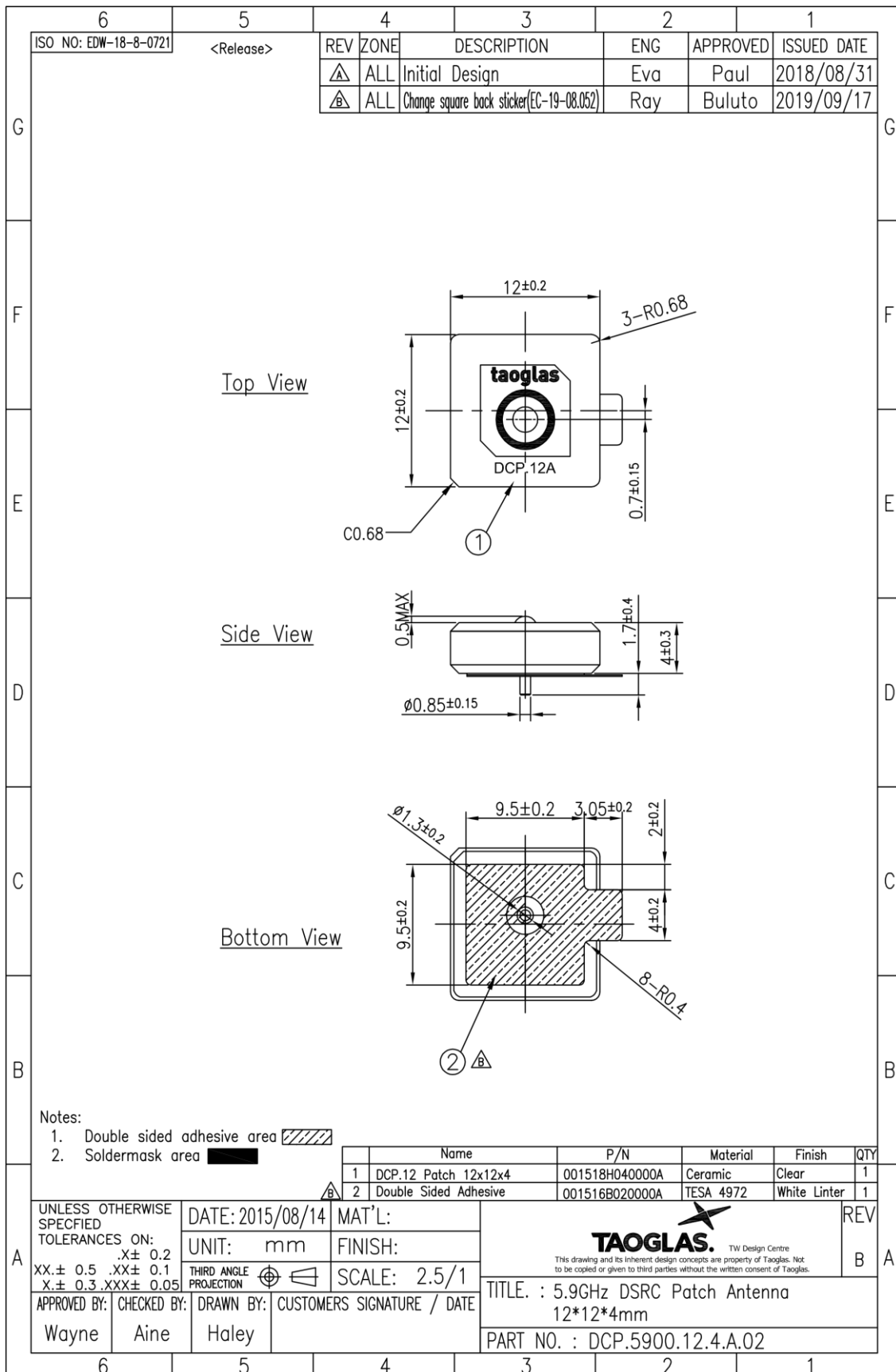


## 4.6 3D Radiation Patterns (5925MHz)



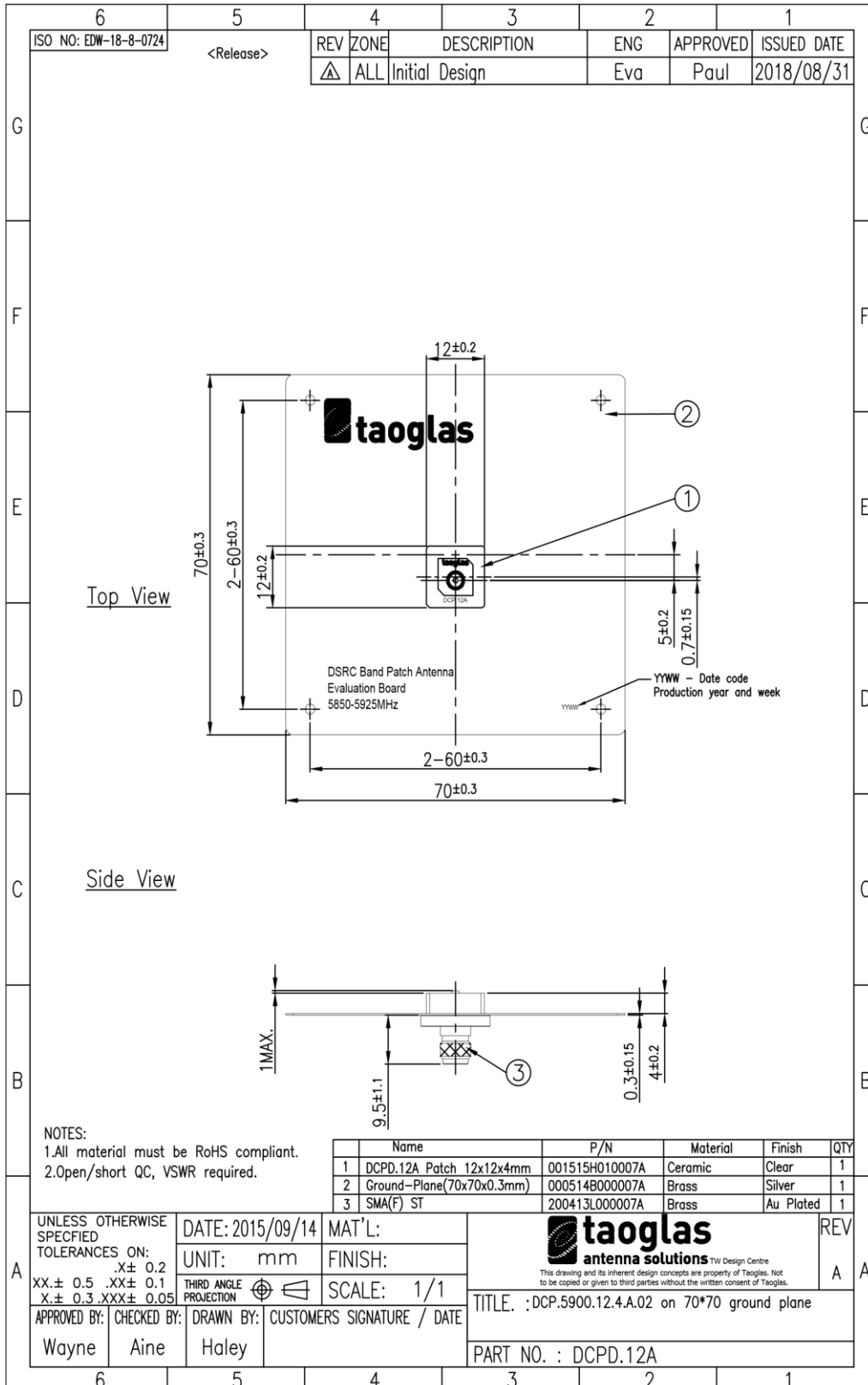


## 5. Mechanical Drawing

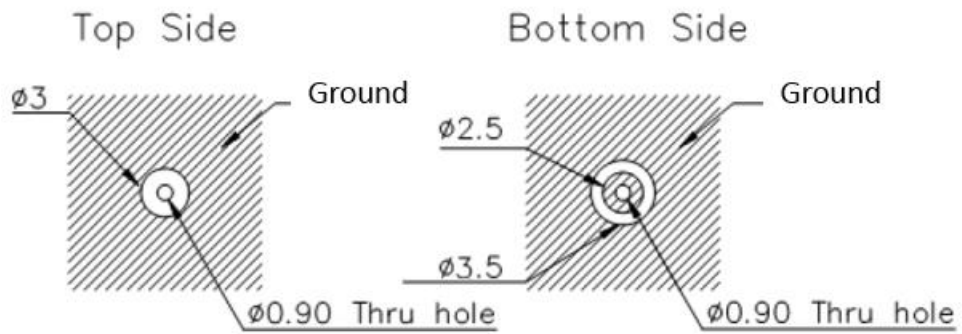




## 6.DCPD.12A EVB



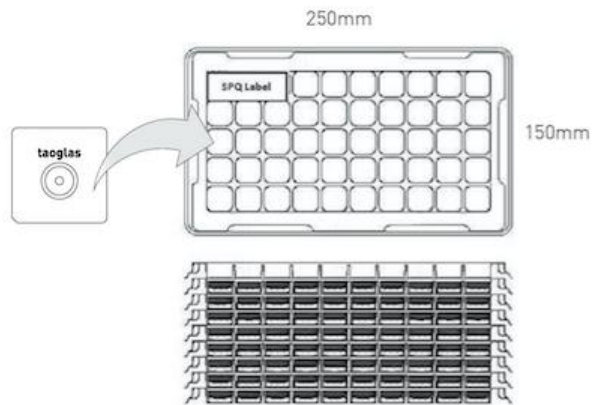
## 7. PCB Footprint Recommendation



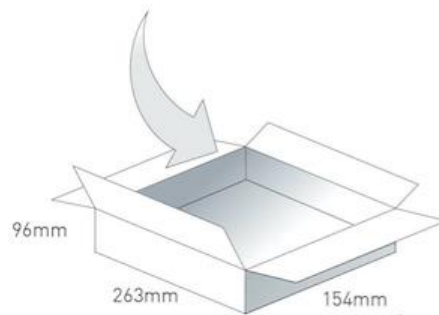
TOP:  $\pm 0.20$   
UNIT: mm

## 8. Packaging

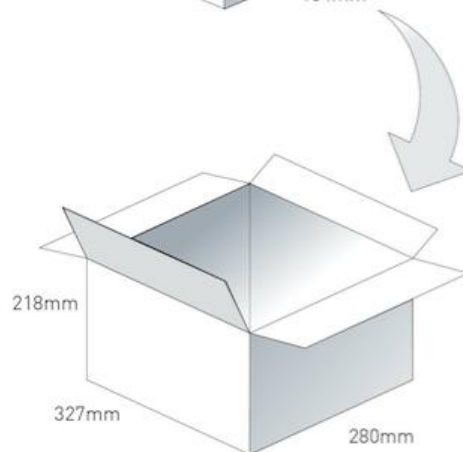
50 pcs DCP.5900.12.4.A.02 per tray  
 Tray Dimensions - 250\*150\*80mm  
 Total Weight - 150g



8 trays / 400 pcs per box  
 Box Dimensions - 263\*154\*96  
 Weight - 1.4Kg

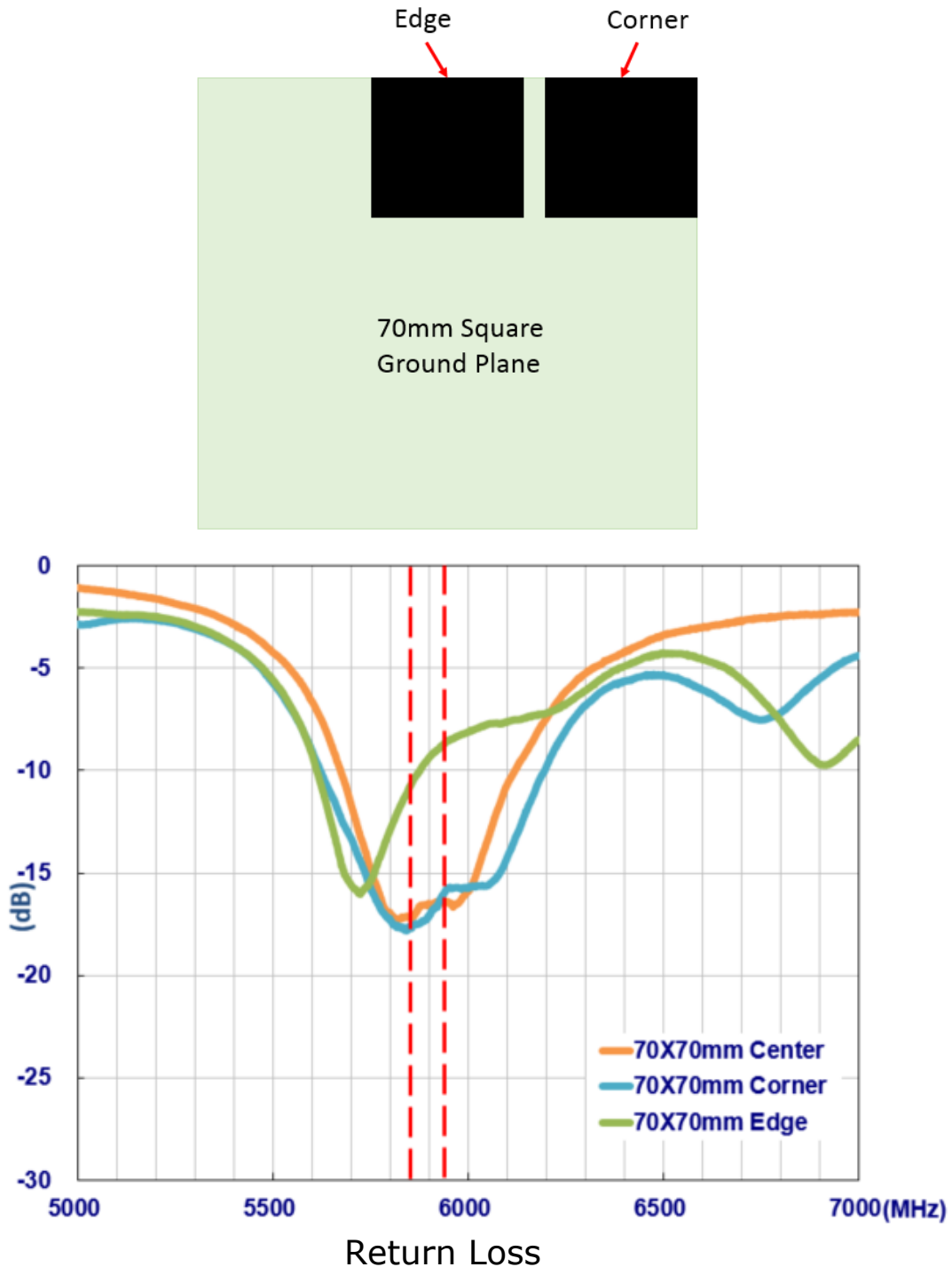


4 boxes / 1600 pcs per carton  
 Carton Dimensions - 327\*280\*218mm  
 Weight - 6.4Kg

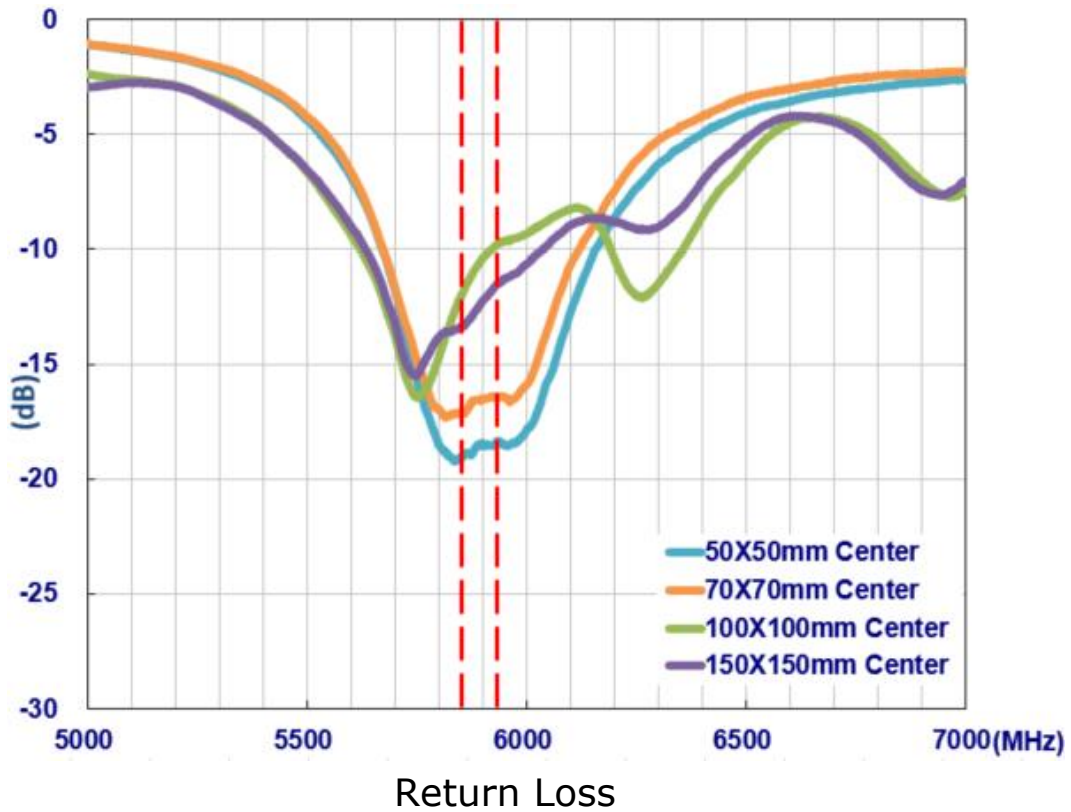


## 9. Application Note

The DCP.5900 C-V2X patch antenna is designed for 70mm\*70mm ground plane center. Taoglas provides the experimental reference below if the antenna isn't placed at the center of ground plane. Please refer to the return loss data shown in the graph below.



Antenna performance on different ground plane sizes is shown below. (The antenna location is at the center of ground plane)



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