

## Specification

Part No.	:	<b>DCP.5900.25.4.A.30</b>
Description	:	7dBi 5.9GHz 25mm C-V2X / DSRC / V2V / V2X / V2I PTFE HF Patch Antenna
Features	:	5.9GHz C-V2X Ceramic Patch Antenna 5850MHz to 5925MHz *Tuned on 70*70mm ground plane Peak Gain: 4.64dBi Efficiency: 60% Dimensions: 25*25*4mm Manufactured in an IATF16949 Approved Facility RoHS & REACH Compliant



## 1. Introduction

The DCP.5900 is a 25\*25\*4mm embedded PTFE HF patch C-V2X (& DSRC) antenna. It is a high performance compact 7dBi directional antenna designed to operate at 5850-5925MHz for DSRC systems. The antenna has been designed to be circularly polarized to enable a more stable system signal strength on moving vehicles where orientation is constantly changing.

The DCP.5900 PTFE patch antenna is mounted via pin and double-sided adhesive. The double-sided adhesive on the bottom of the patch helps to keep it in place while undergoing mounting. This antenna has been tuned for a center position on a 70\*70mm ground and features efficiency of up to 78% with an axial ratio of approximately 2dB.

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

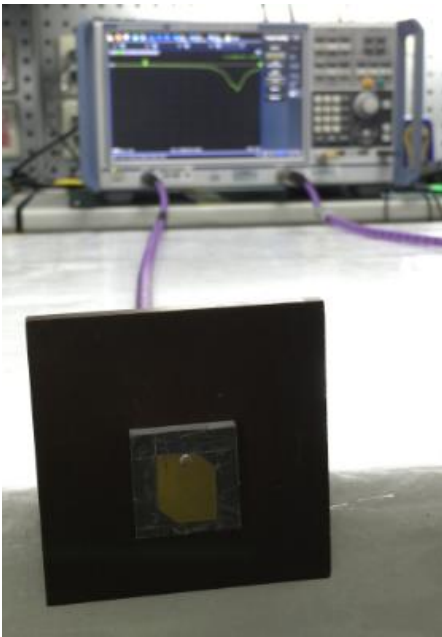
## 2. Specification

<b>ELECTRICAL</b>		
Operation Frequency	5850MHz	5925MHz
Efficiency (%)	78.48	76.36
Peak Gain (dBi)	7.57	7.53
Average Gain (dB)	-1.05	-1.17
Axial Ratio (dB)	2.24	2.11
Return Loss	-22	-17
Antenna Polarization	RHCP	
Impedance	50Ω	
<b>MECHANICAL</b>		
PTFE HF Patch Dimension	25*25*4mm	
Pin Diameter	0.8mm	
Pin Length	3.0mm	
Weight	6.12g	
<b>ENVIRONMENTAL</b>		
Operation Temperature	-40°C to 85°C	
Storage Temperature	-40°C to 85°C	

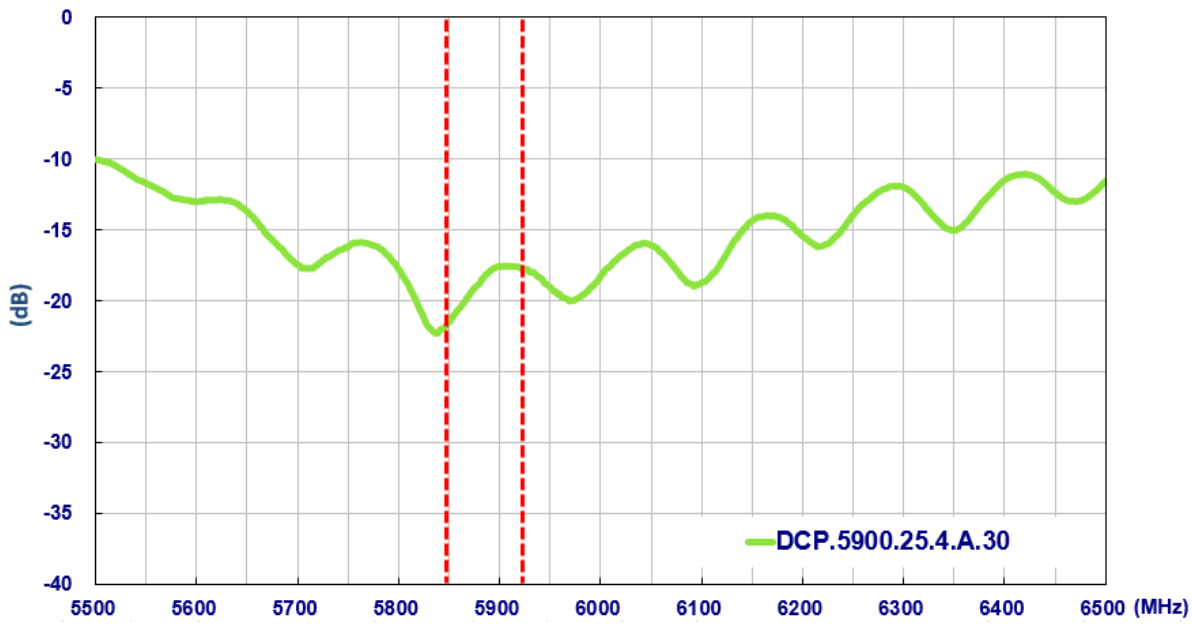
\*All tests done on a 70\*70mm ground plane.

### 3. Antenna Characteristics

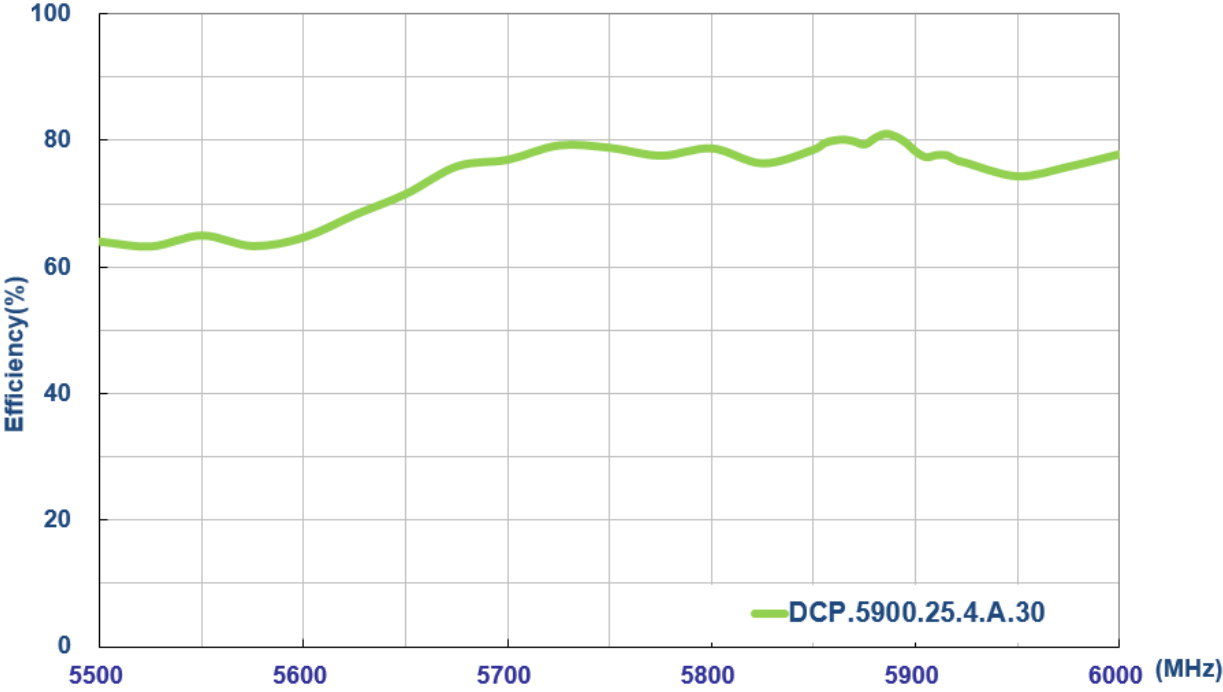
#### 3.1 Test Setup



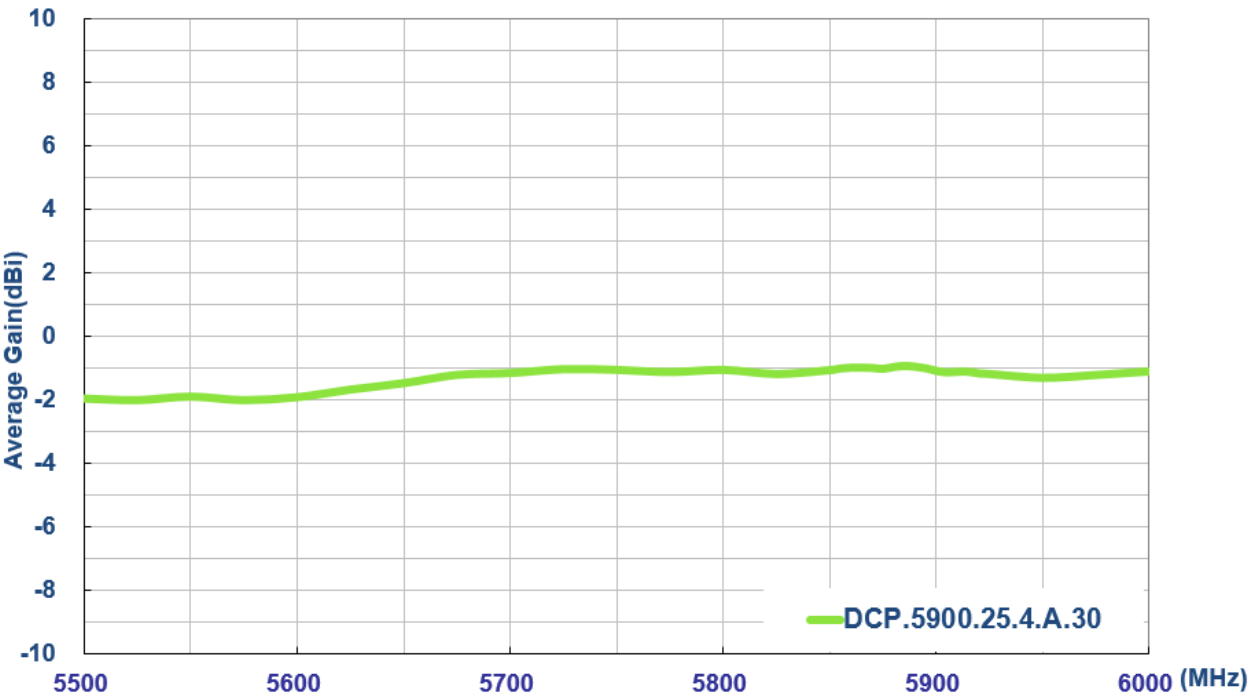
#### 3.2 Return Loss



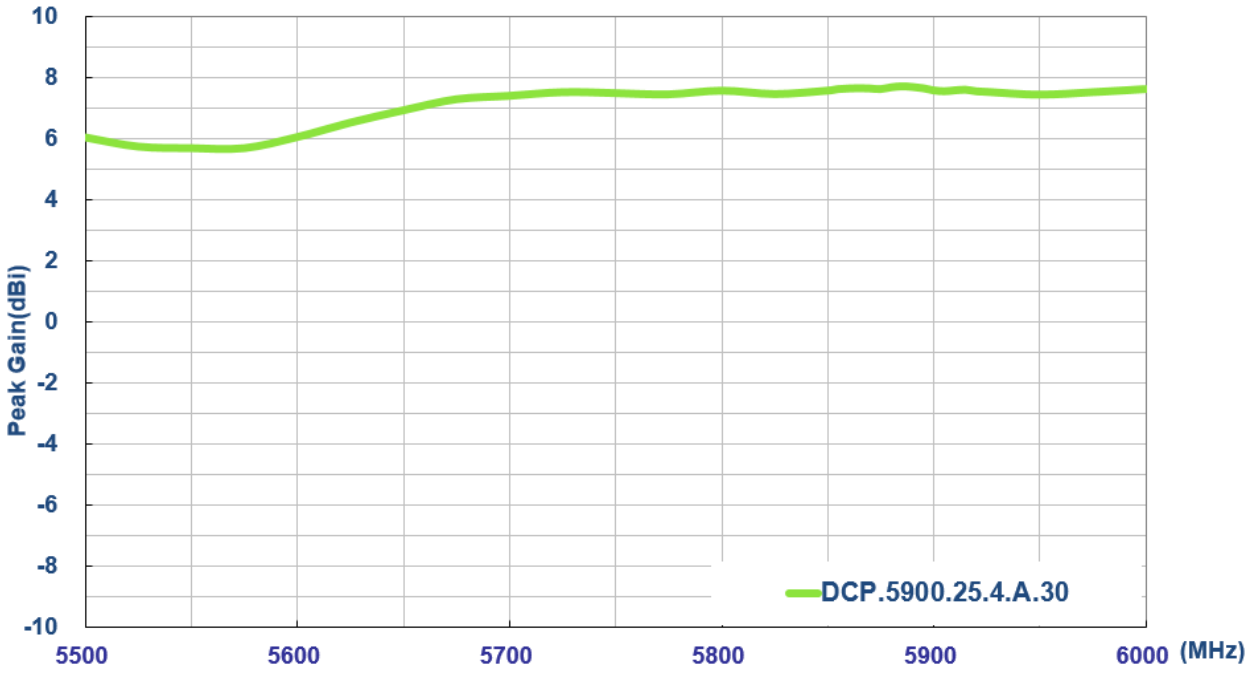
### 3.3 Efficiency



### 3.4 Average Gain

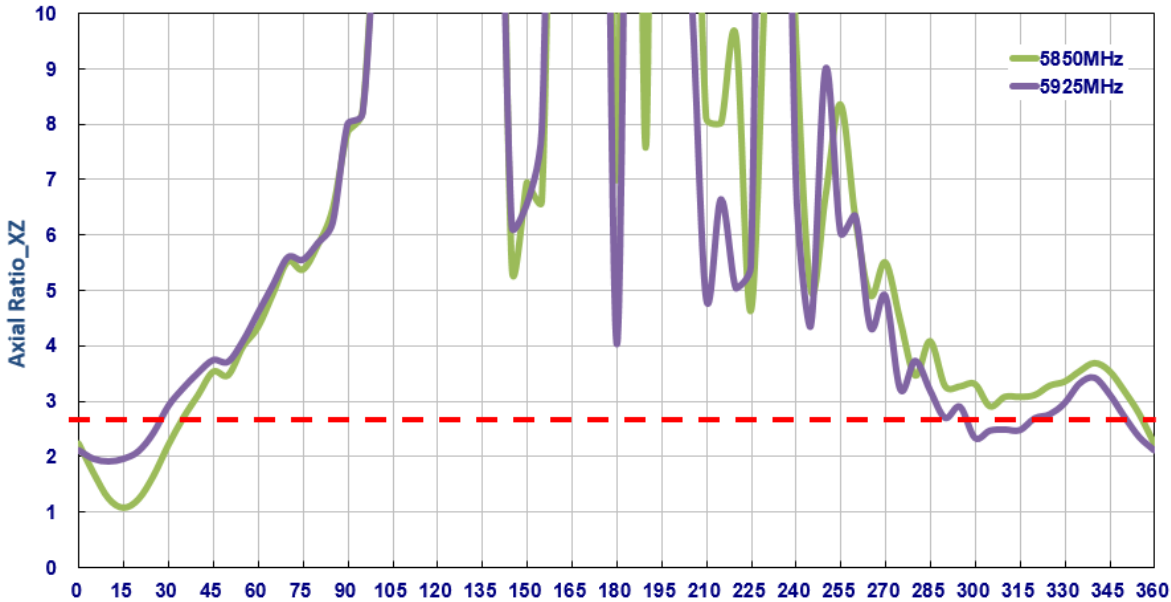


### 3.5 Peak Gain

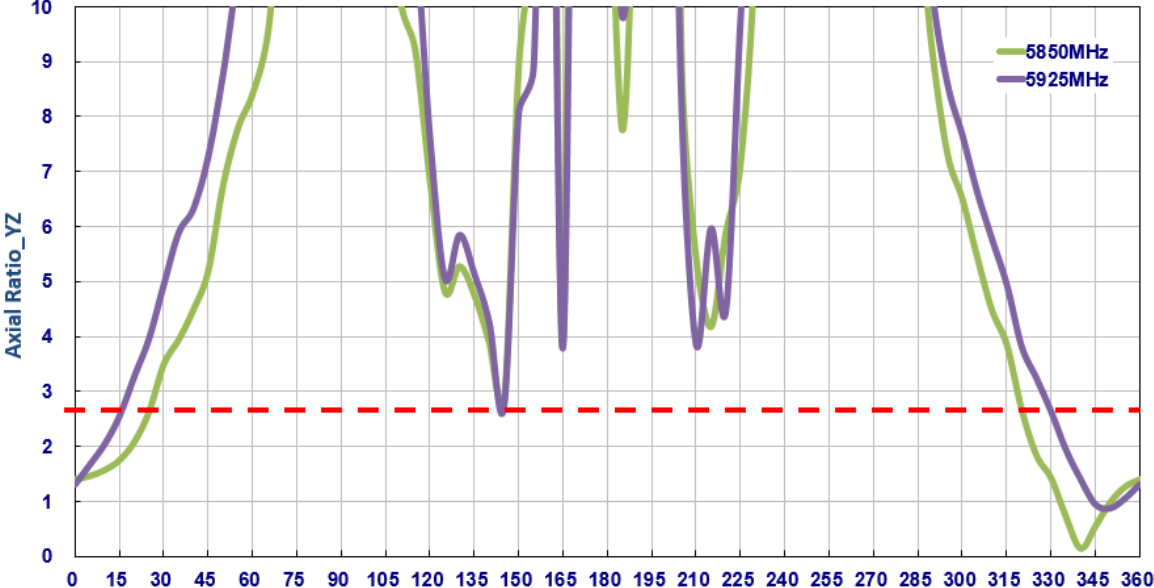


### 3.6 Axial Ratio

#### 3.6.1 XZ Plane



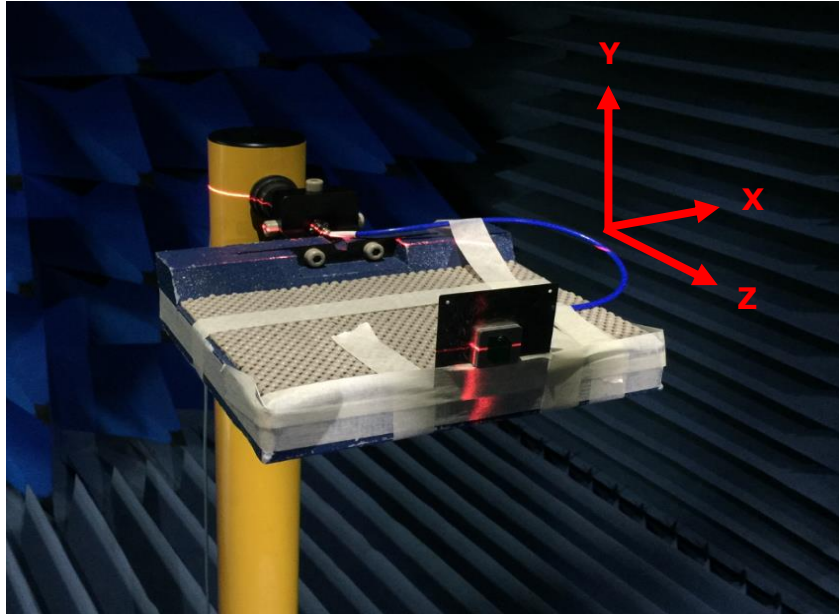
3.6.2 YZ Plane



Axial Ratio	5850MHz	5925MHz
XZ	2.24dB	2.11dB
YZ	1.40dB	1.31dB

## 4. Antenna Radiation Pattern

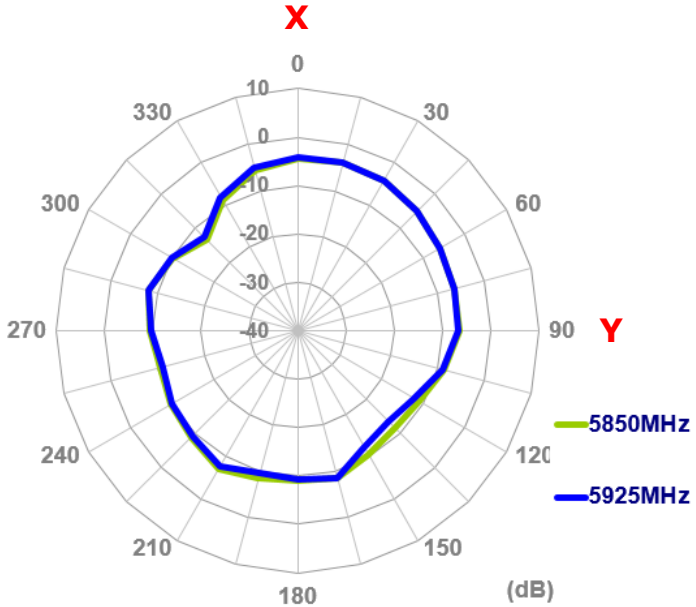
### 4.1 Measurement Setup



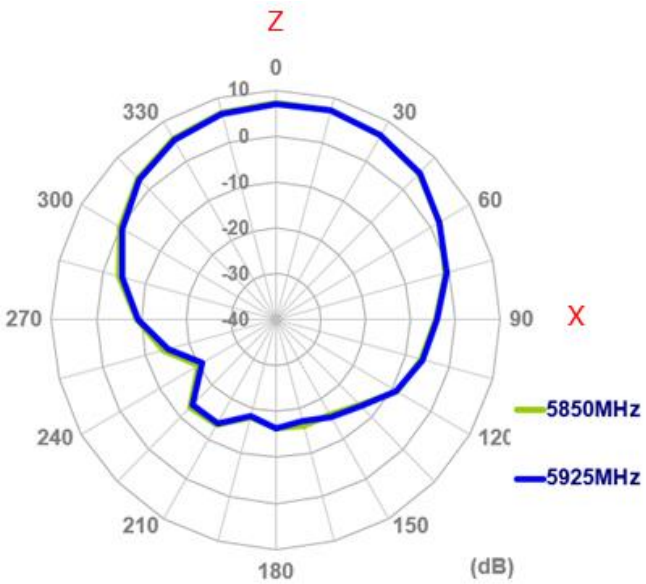


**4.2 2D Radiation Pattern**

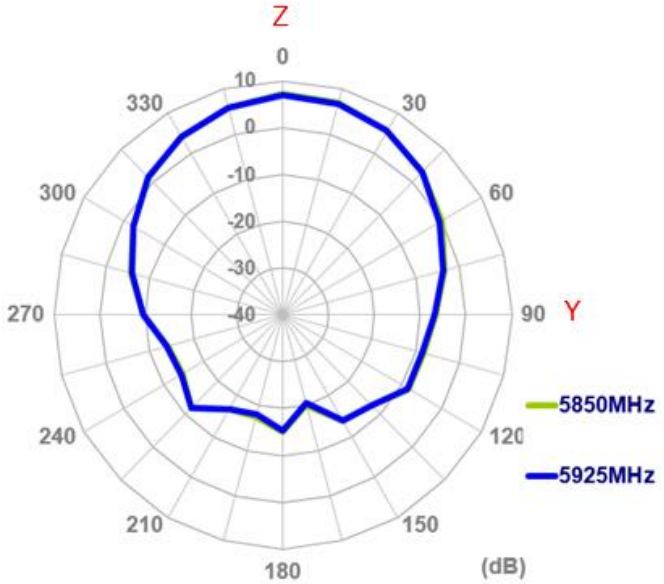
XY Plane



XZ Plane

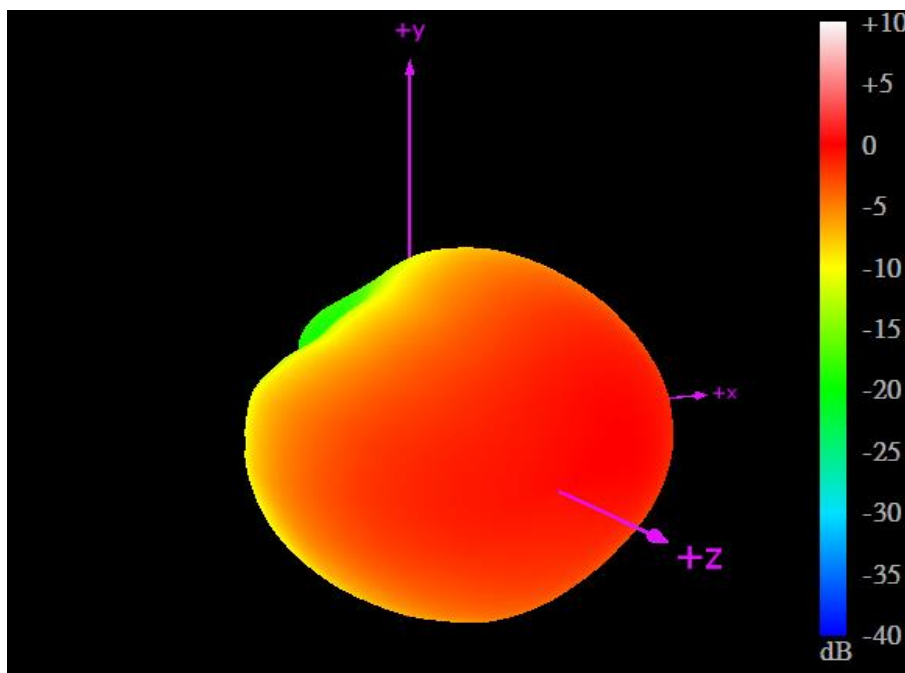


YZ Plane

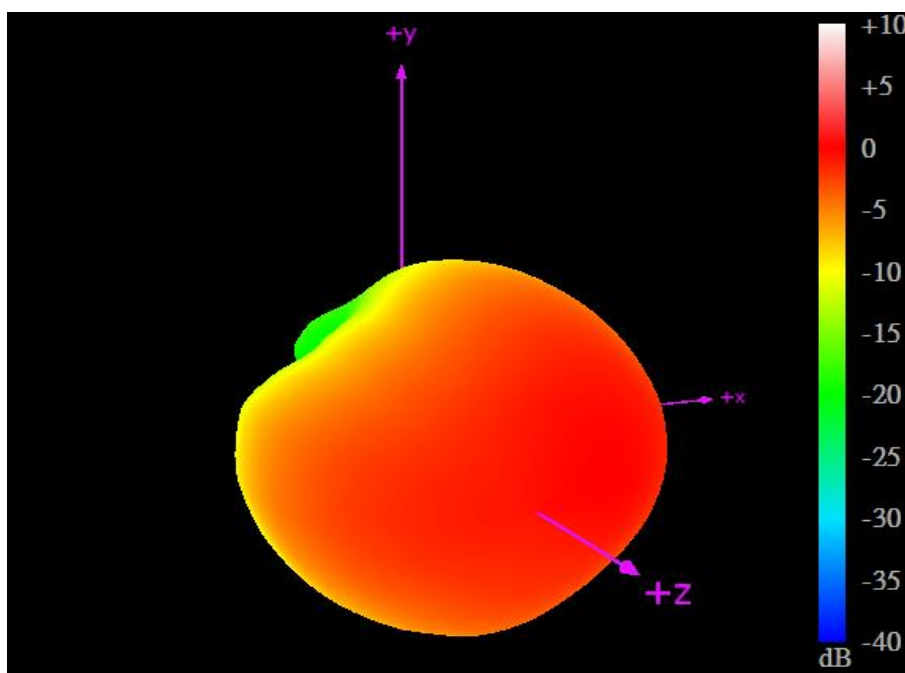




## 4.3 3D Radiation Patterns



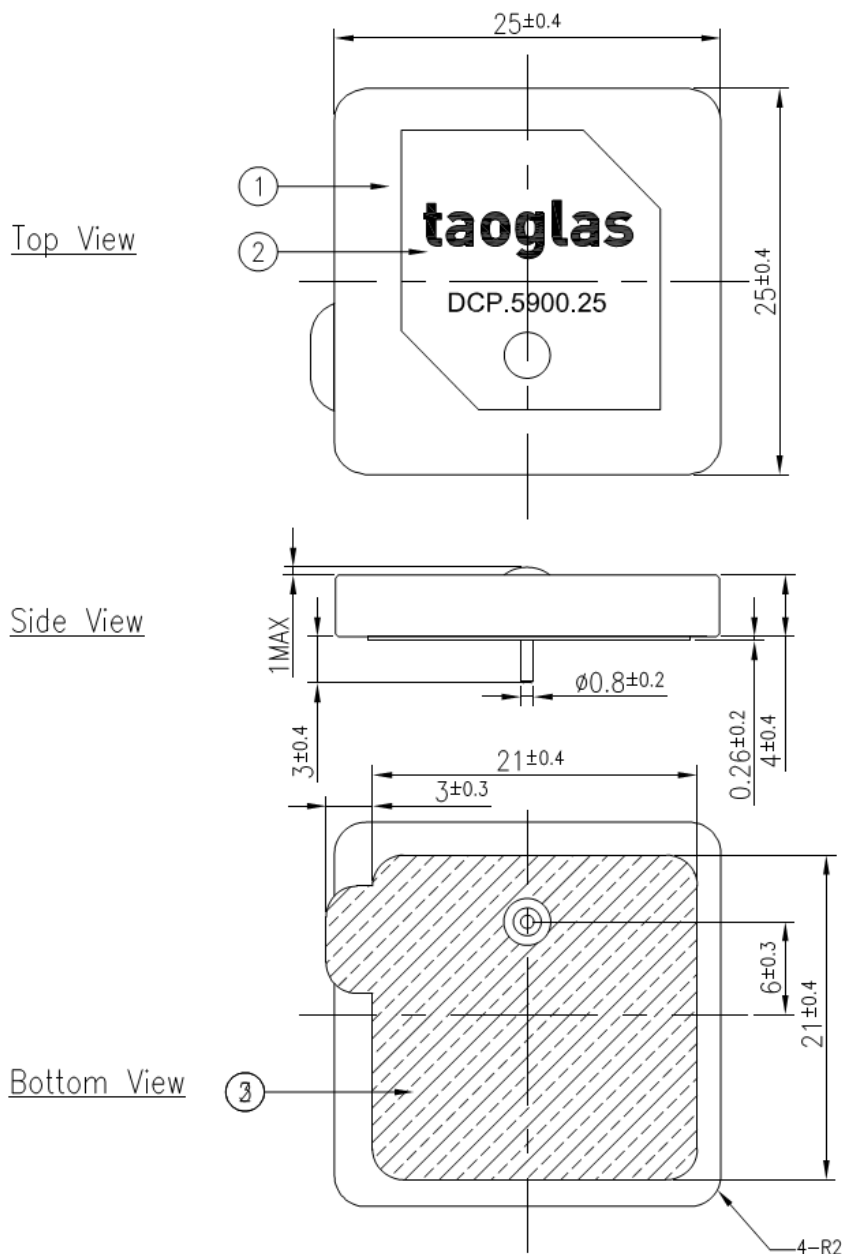
5850MHz



5925MHz



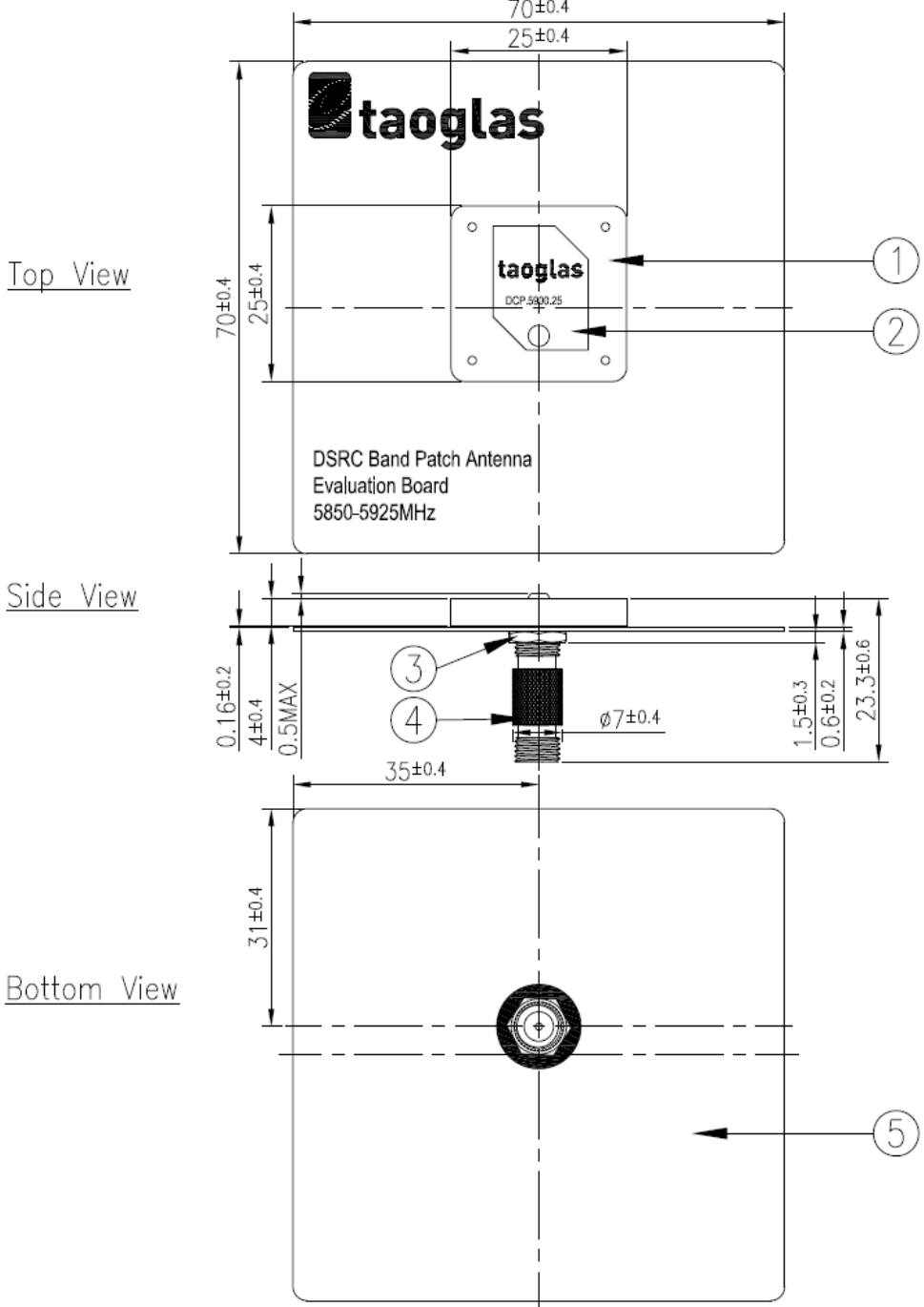
## 5. Mechanical Drawing (Unit: mm)



NOTE:  
1. Double sided adhesive area.

	Name	Material	Finish	QTY
1	DCP.5900 Patch 25x25x4	PTFE	Gray	1
2	DCP.5900 PCB	Copper	Green	1
3	Double sided Adhesive	NITTO 5000NS	White Liner	1

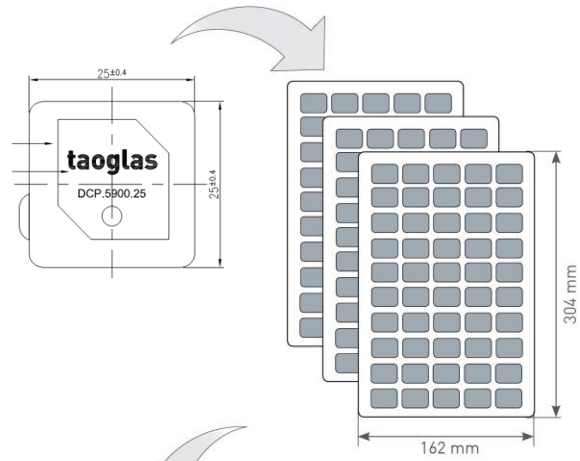
### 6. Test Jig and Dimensions



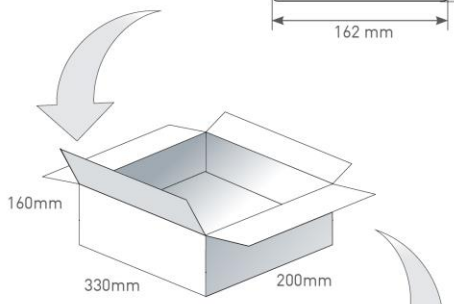
Notes:  
1.Sn Plated 

	Name	Material	Finish	QTY
1	DCP.5900 Patch 25x25x4	PTFE	Gray	1
2	PCB	Composite 0.8t	Black	1
3	SMA(F)ST	Brass	Au Plated	1

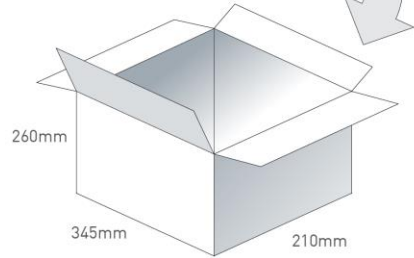
# 7. Packaging



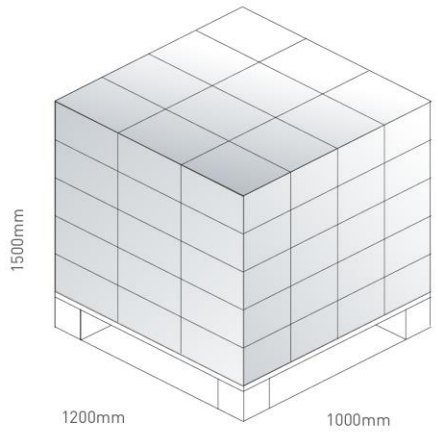
50 pcs DCP.5900.25.4.A.30 per tray  
 Tray Dimensions - 304\*162mm  
 Weight - 365g



500 pcs DCP.5900.25.4.A.30 per Inner Carton  
 Inner Carton Dimensions - 330\*200\*160mm  
 Weight - 3.85kg



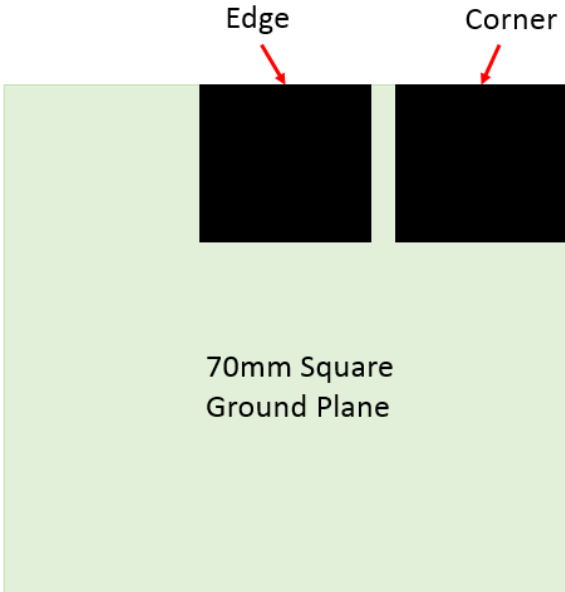
1000 pcs DCP.5900.25.4.A.30 per Carton  
 Carton Dimensions - 345\*210\*260mm  
 Weight - 8.2kg



Pallet Dimensions 1200\*1000\*1500mm  
 60Cartons per Pallet  
 12 Cartons per layer  
 5 Layers

## 8. Application Note

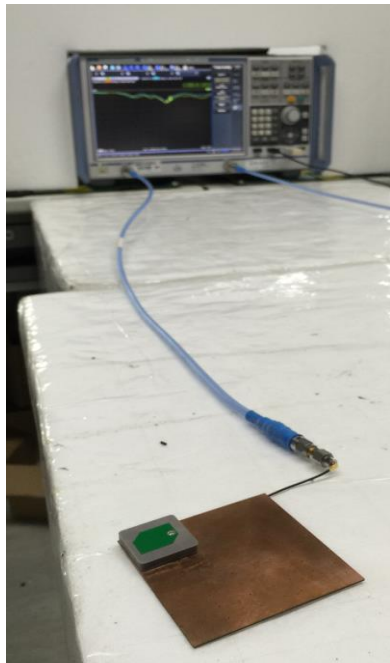
The DCP.5900 C-V2X patch antenna is designed for 70\*70mm ground plane center. The data below shows results if the antenna isn't placed at the center of ground plane.



DCP.5900 on the edge

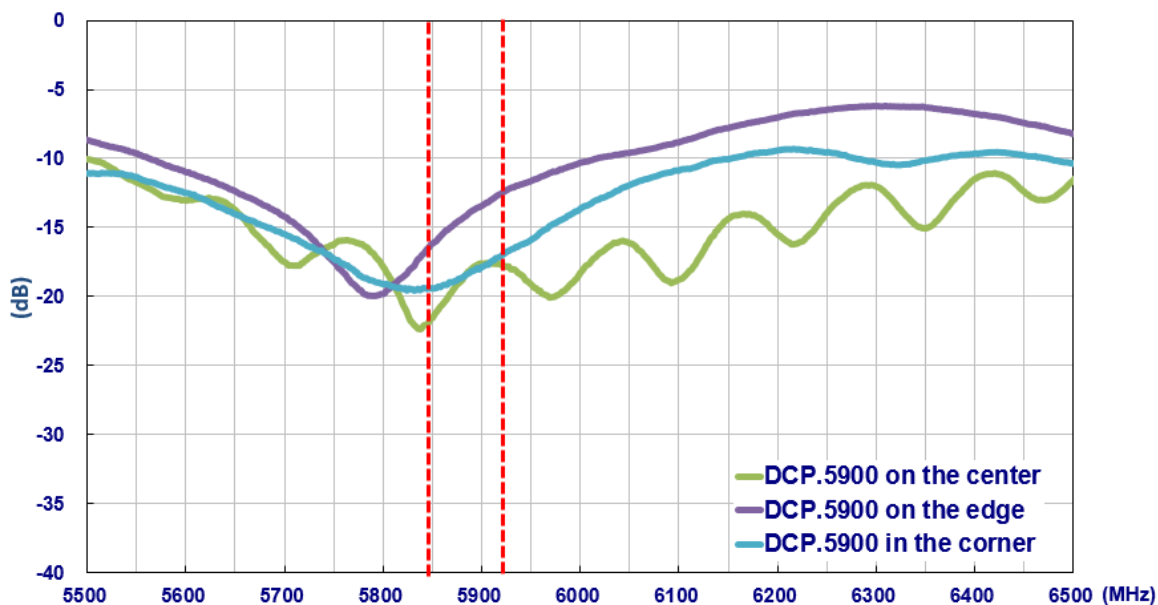


DCP.5900 in the corner

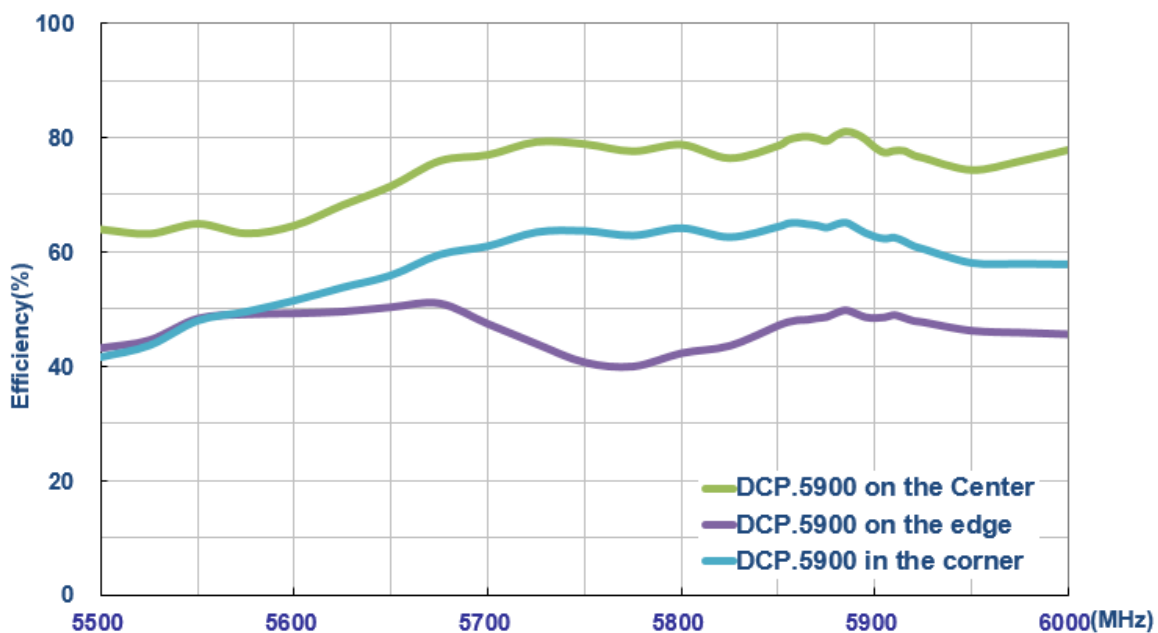




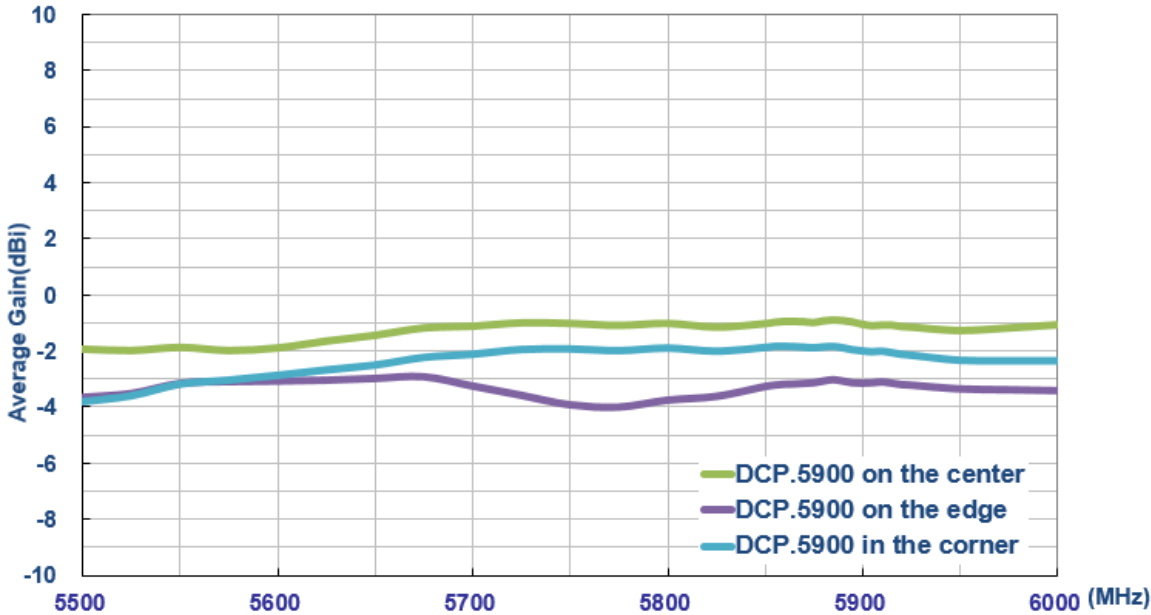
## 7.1 Return Loss



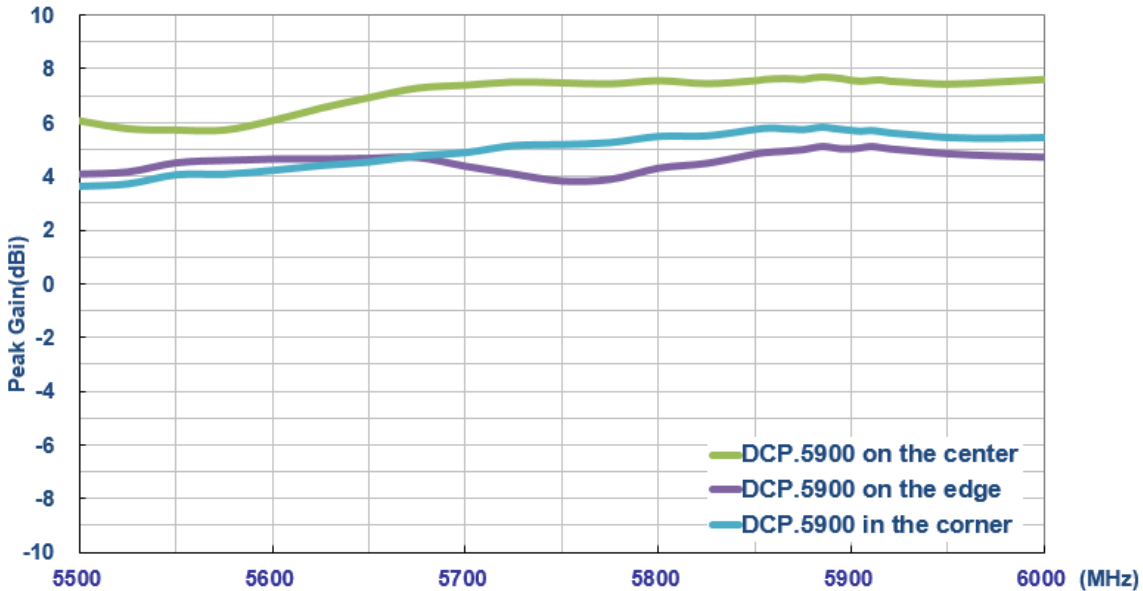
## 7.2 Efficiency



### 7.3 Average Gain



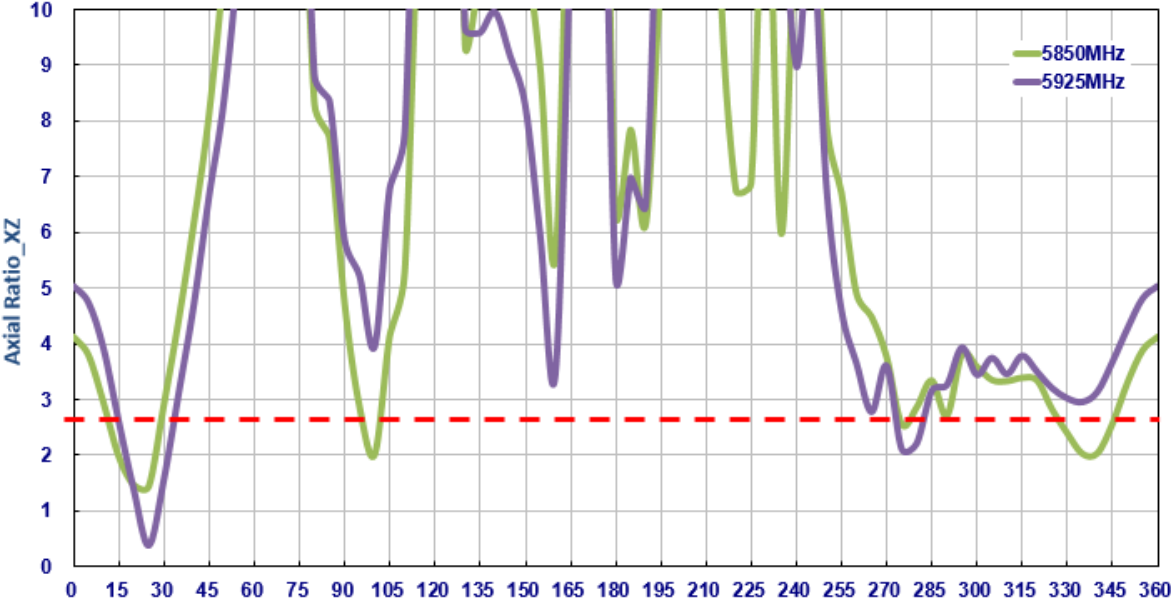
### 7.4 Peak Gain



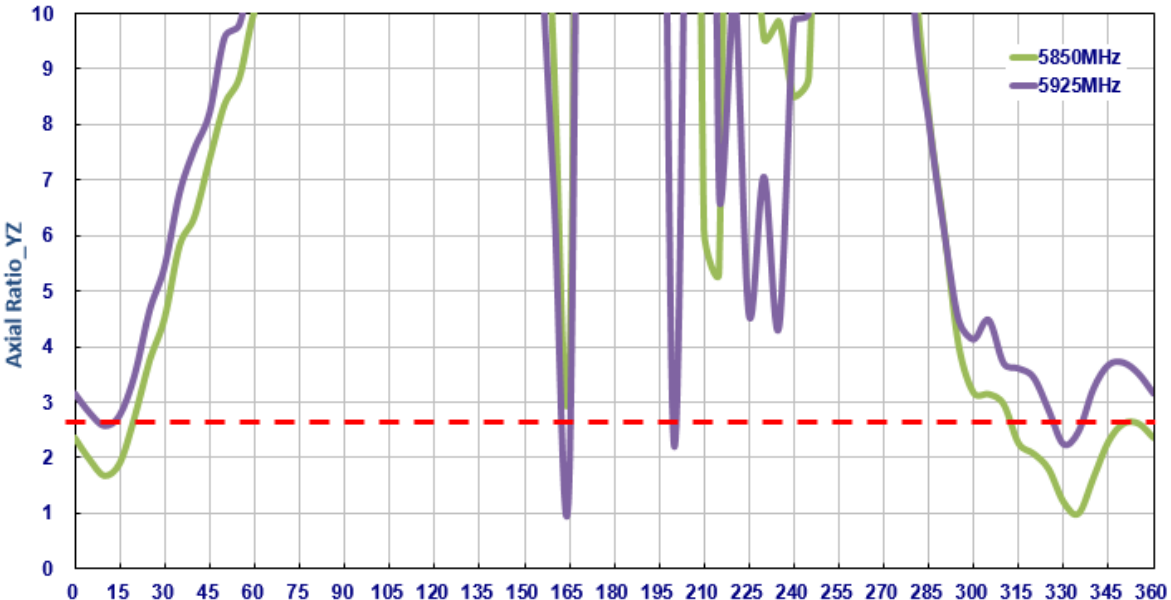


**7.5 Axial Ratio**

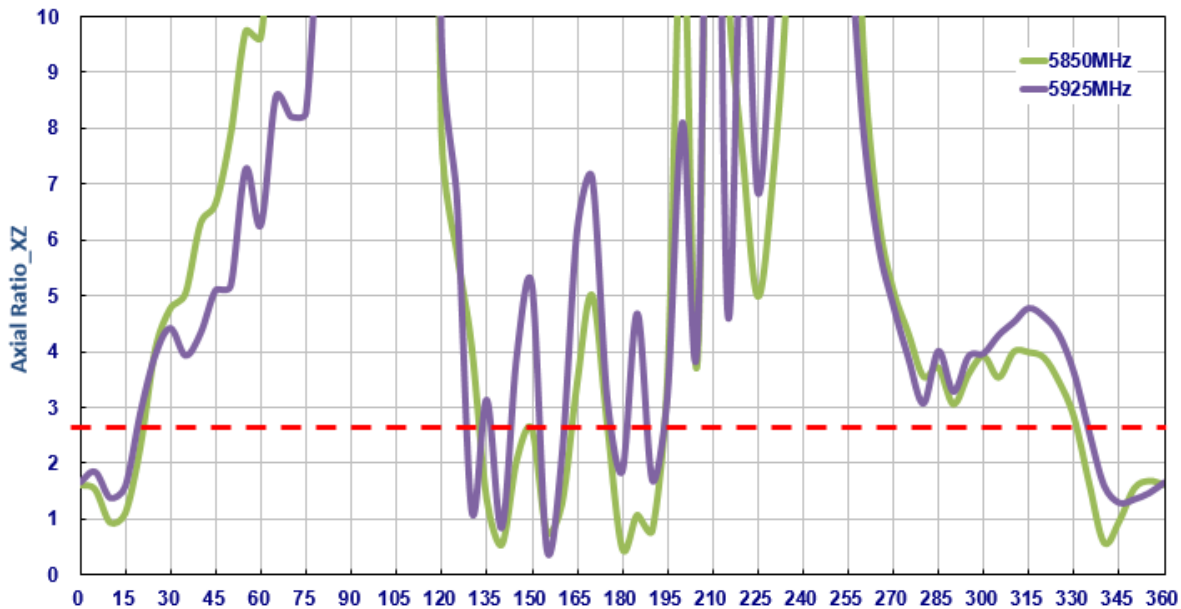
7.5.1 DCP.5900 on the edge - XZ Plane



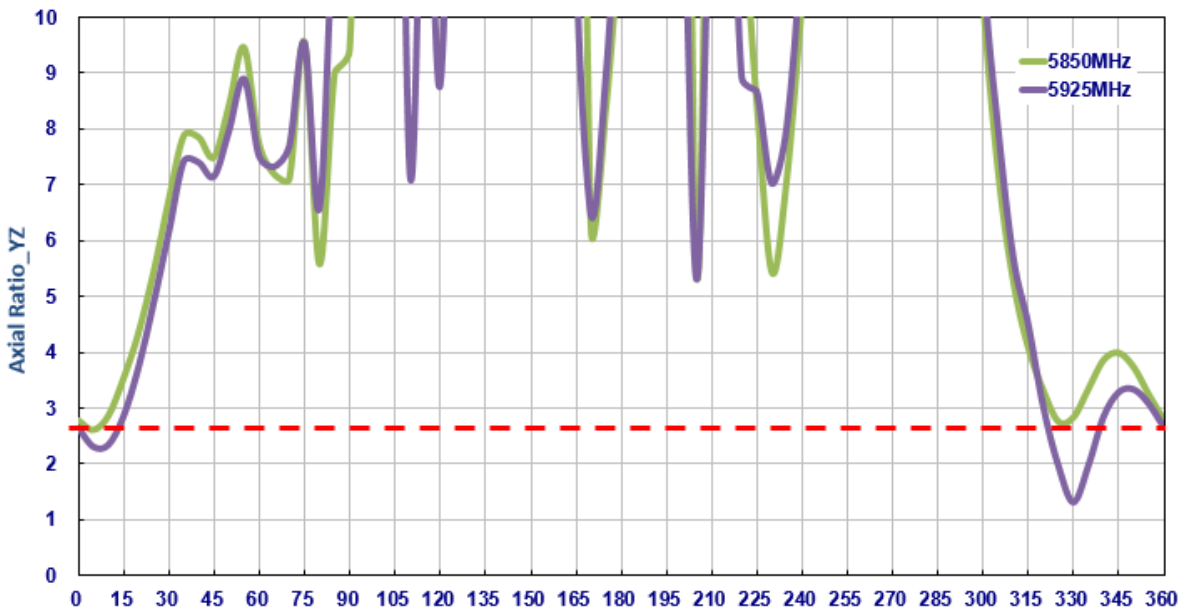
7.5.2 DCP.5900 on the edge - YZ Plane



7.5.3 DCP.5900 in the corner - XZ Plane



7.5.4 DCP.5900 in the corner - YZ Plane



Axial Ratio	On the edge		In the corner	
	5850MHz	5925MHz	5850MHz	5925MHz
XZ	4.12dB	5.03dB	1.61dB	1.66dB
YZ	2.35dB	3.15dB	2.77dB	2.65dB

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