ANTENNA DATA SHEET

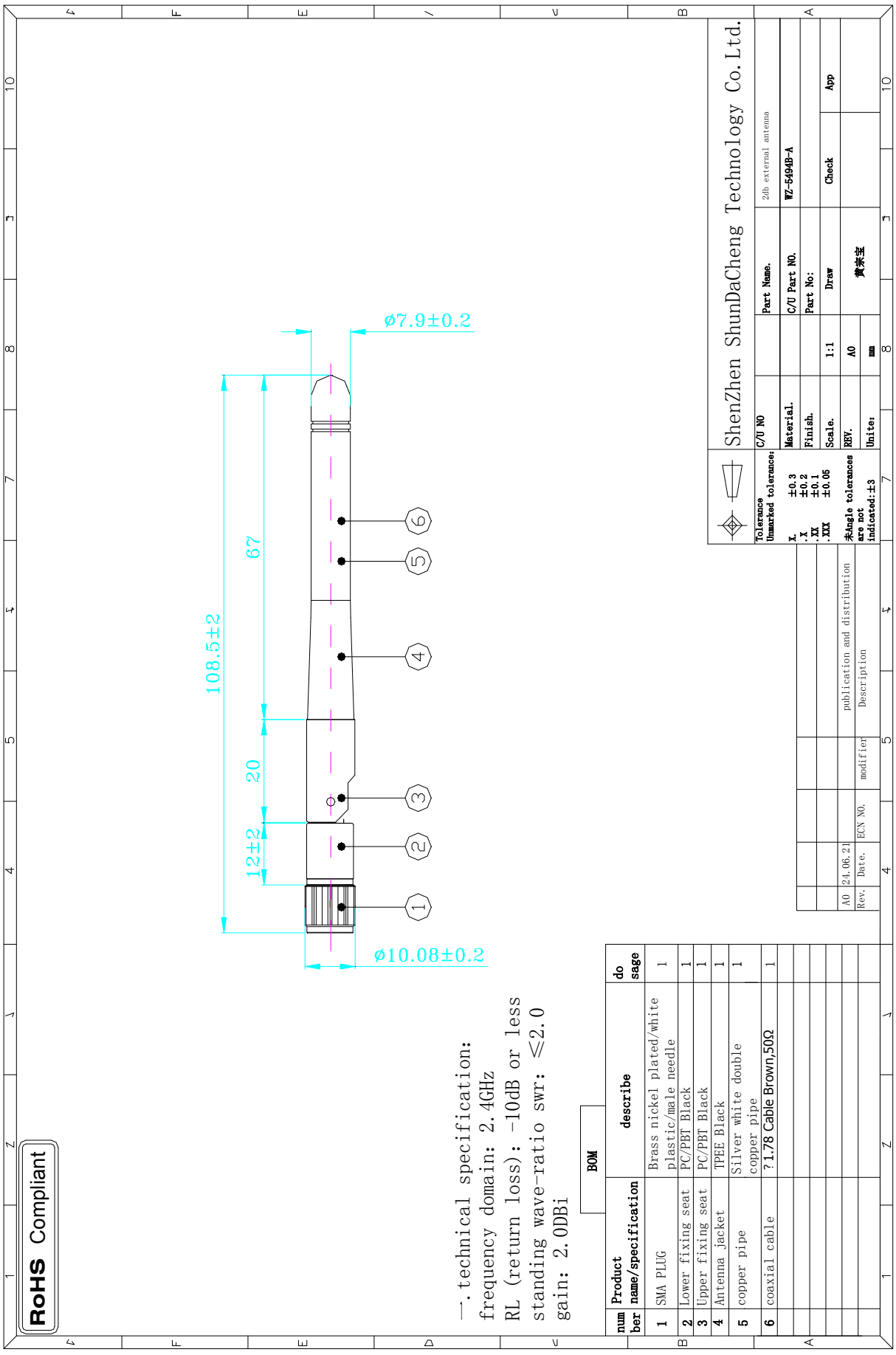
Customer Name	Particle Daoben (Zhengzhou) Technology Co., Ltd.		
Customer Project Name	External antenna	SDC Project Name	External antenna
Customer P/N		SDC P/N	WZ-5494B-A
Band	WIFI 2.4G		
Peak Gain	2.81dBi		
Designer Information			
RF Engineer	Yong-hui Yang	R&D Diretor	FuXueRong
ME Engineer	Huang Zongbao		

Approval				Customer Approval	
	Prepared By	Checked By	Approval By	Checked By	Approval By
Signature	Huang Zongbao	Yong-hui Yang	FuXueRong		
Date	2025.03.20	2025.03.20	2025.03.20		

Change Log				
Version	Change Description	Person in Charge	Approval By	Date

Catalogue

Drawing or Product Image



SHUN DA CHENG TECHNOLOGY CO., LTD

Sample Dimensions Test Report

Test Date	2025.03.20	Sample Qty.	3	Inspector	Xu Yanfang
Dimension No.	Standard	Sample 1	Sample 2	Sample 3	Pass/NG
①length	108.5±2mm	108.5	108.5	108.5	Pass
② DIMDIAMETER	10.08±0.2mm	10.08	10.1	10.08	Pass
Conclusion					PASS
Inspector & Date	Xu Yanfang 2025.03.20		Approval &D ate		

I. Pattern Measurement :

(a) **Instruments** : anechoic chamber, network analyzer, standard gain antenna.

(b) **chamber description** :

(1) The anechoic chamber is a far-field measurement system with size of 3.25M*2.84M*6.4M. The quiet zone region is 44cm*44cm*44cm at frequency range of 2.4GHz in the center of the rotator.

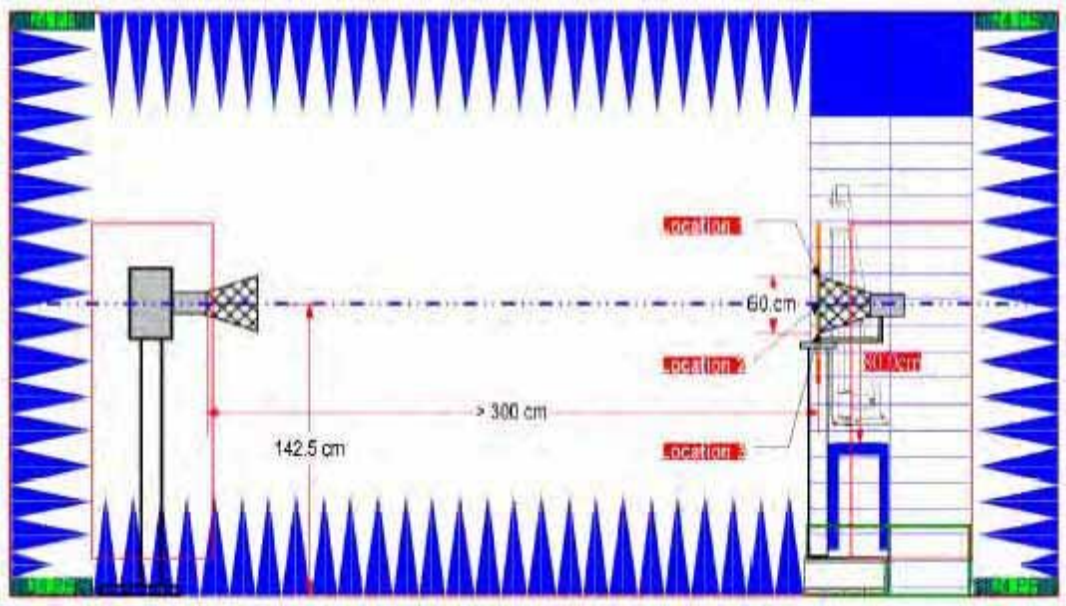


Fig.1. The interior components of the anechoic

(2) Fig. 1. shows the interior components of the anechoic chamber. The antenna standard antenna as probe and antenna under test is 3M. The antenna under test is fixed on a step rotator. We can control the rotating angle for accurate or rough measurement.

(3) While we measure the radiation patterns by rotating AUT with 360 degrees and repeat again by replacing the AUT with the standard gain antenna under test, we compare both data and using a formula to obtain the

$$G_{AUT} = G_{stand} + P_{AUT} - P_{stand}$$

G_{AUT} : Gain of AUT

G_{stand} : Gain of Standard Gain Antenna

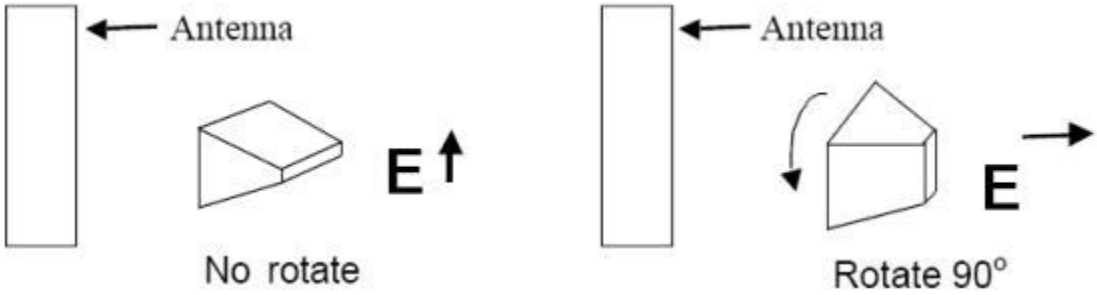
P_{AUT} : Measured Power of AUT

P_{stand} : Measured Power of Standard Gain Antenna

(4) Gain of AUT. The standard gain antenna is a gain horn(SG-430 1.7GHz ~ 2.6GHz).

(5) The planes defined in the Fig. 4 which we want to measure are H(X-Y) and E(X-Z) planes. The vertical or horizontal polarization's power is measured by rotating the antenna probe to 0 degree or to 90 degree shown in Fig. 3, respectively. While we combine both vertical and horizontal power, we obtain total power.

(6) From the total power in three basic planes(H, and E), we can analyze the performance of the antenna is good or not.



(a) Antenna Probe at 0 degree as a horizontal polarization.

(b) Antenna Probe at 90 degree as a vertical polarization.

Fig. 3. The definition of vertical and horizontal polarization.

(c) Plane definition :

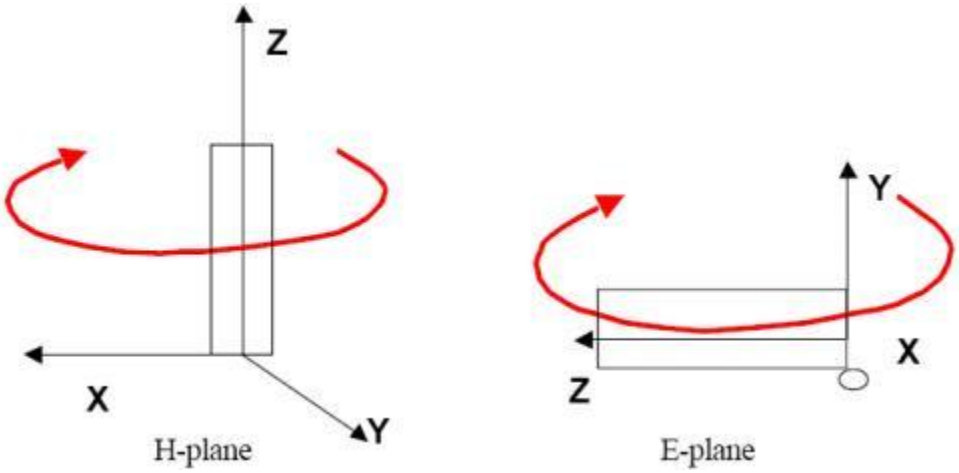
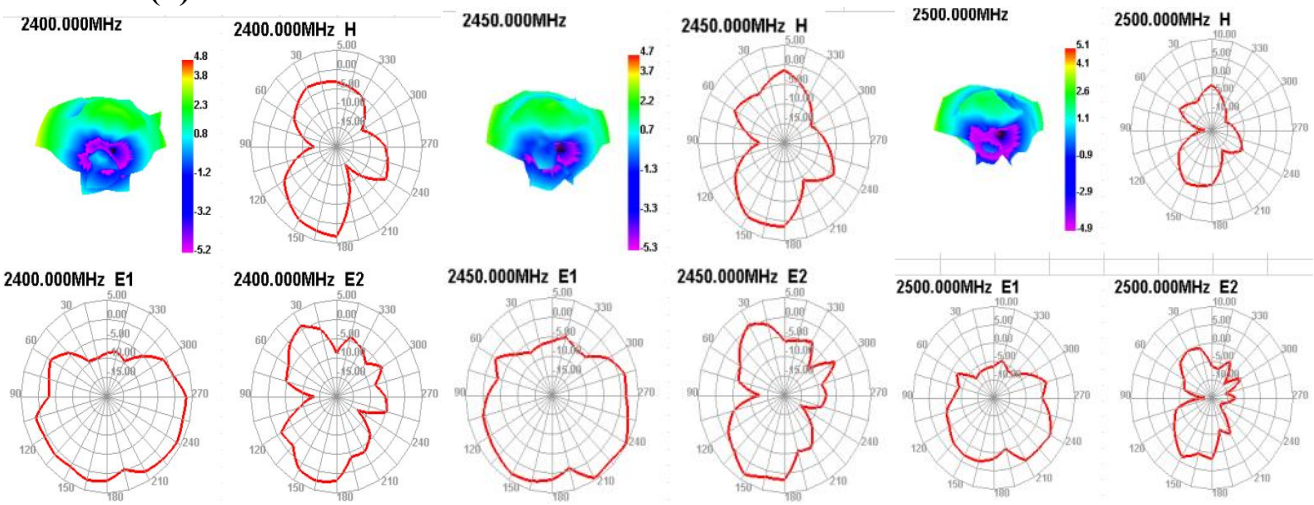


Fig. 4. The plane definition :H-Planes and E-Planes.

II. Gain and Radiation Pattern :

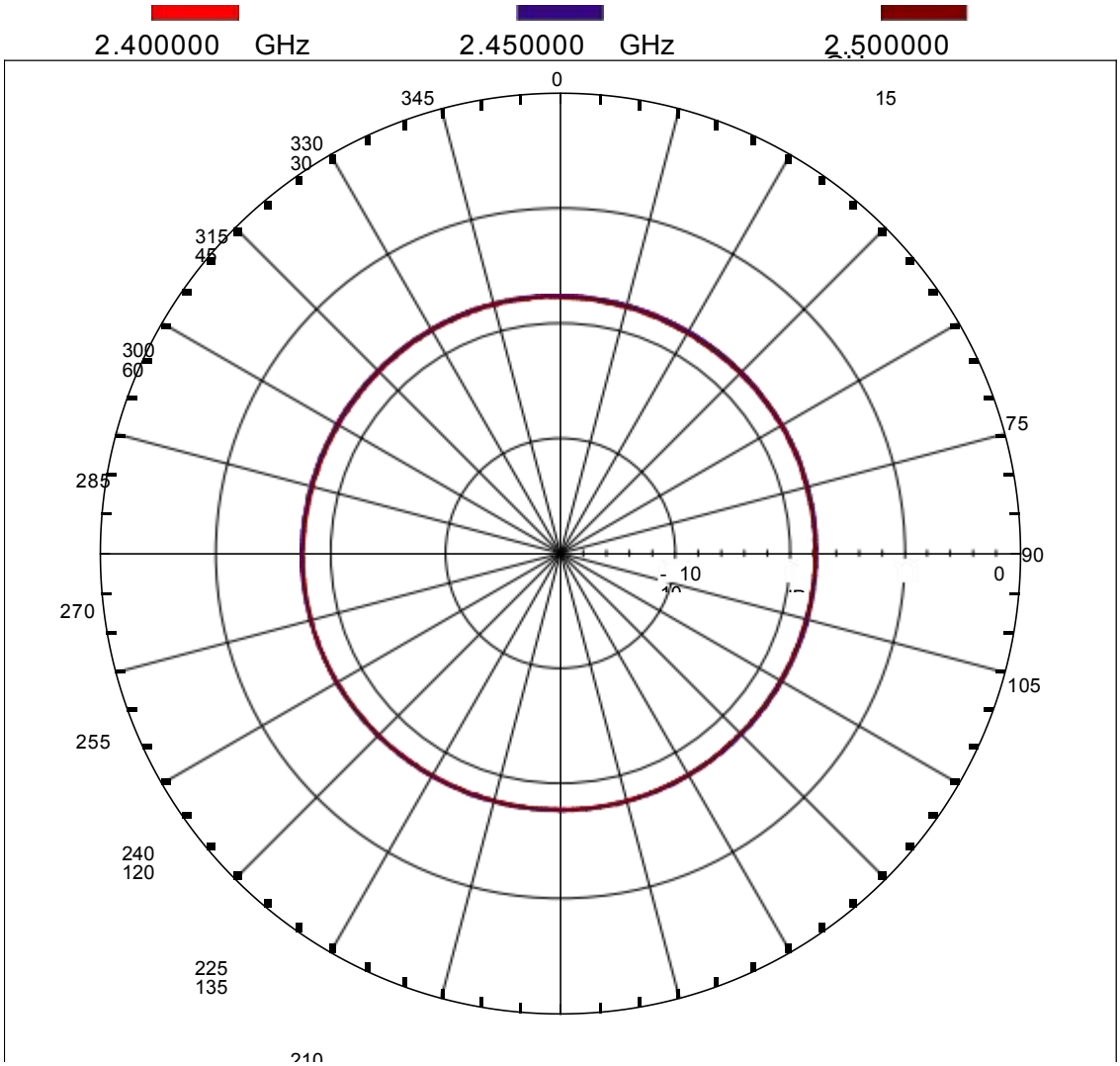
(a) H-PALNE :

(1) Gain



(2) Radiation Pattern

Far- field amplitude of 2 . 4 GHz SMA Antenna H- Plane. nsi



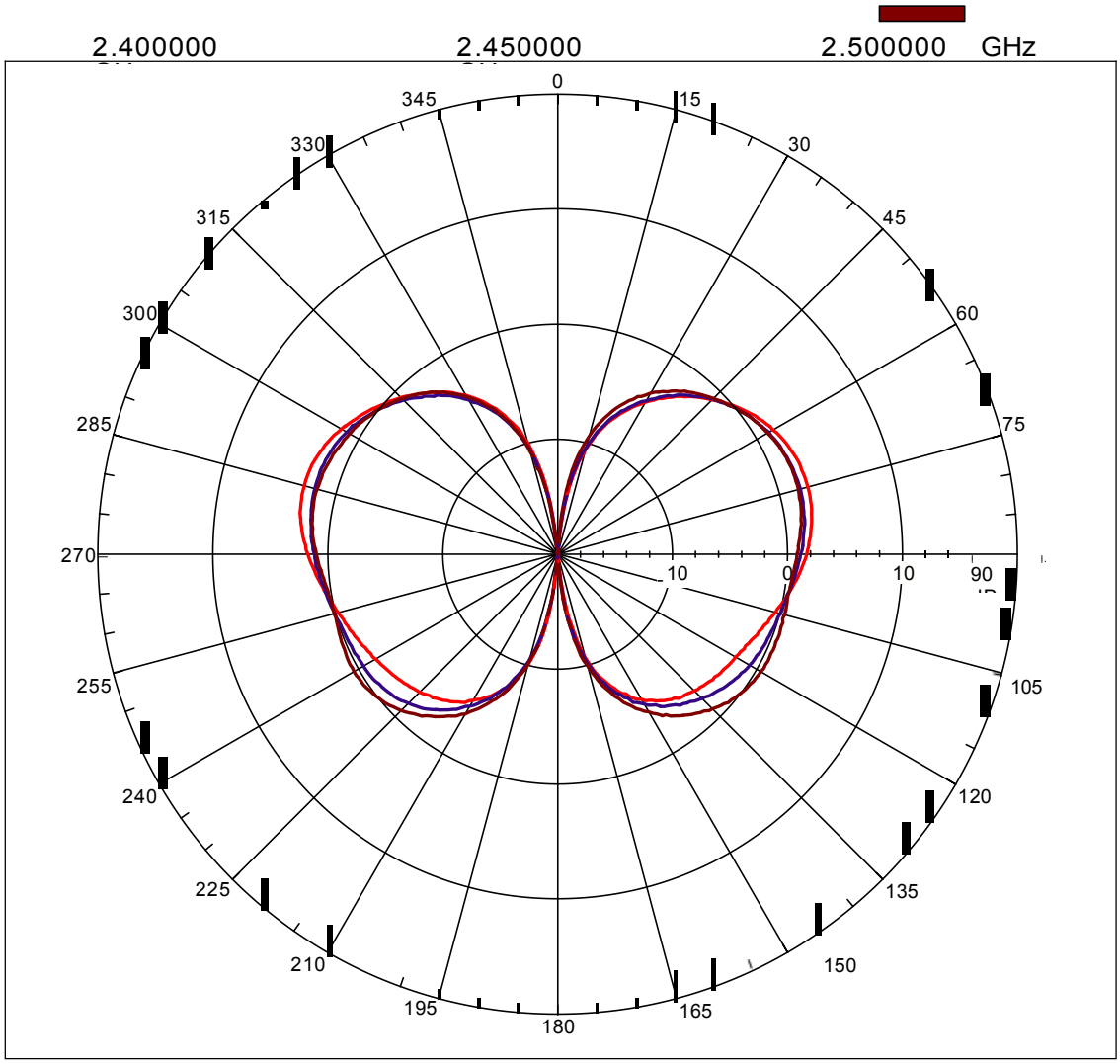
(b) E-Plane

(1) Gain

Frequency / Gain(dBi)	2.4GHz	2.45GHz	2.5GHz
Peak Gain	2.81	1.85	1.70
Avg Gain	-2.53	-2.52	-2.23

(2) Radiation Pattern

Far- field amplitude of 2 . 4 / 5 . 8 GHz SMA Antenna E- Plane. nsi



Reliability Test Report

Test Date	2025.03.20	Sample Qty.	3	Inspector	Xu Yanfang	
Test Item	**Requirement**	**testing equipment**	**Sample 1**	**Sample 2**	**Sample 3**	**PASS/NG**
High temperature storage	The test was carried out after 24H exposure at +85℃ and 2H recovery	Constant temperature and humidity box	OK	OK	OK	Pass
Low temperature storage	The test was carried out after 24H exposure at -40℃ and 2H recovery	Constant temperature and humidity box	OK	OK	OK	Pass
High temperature work	At +60℃ for 24H	Constant temperature and humidity box	OK	OK	OK	Pass
Work in low temperature	At -20℃ under the condition of power work for 24H	Constant temperature and humidity box	OK	OK	OK	Pass
Salt spray test	The pH value was 6.5 ~ 7.2, and the temperature of the experimental chamber was (35±2)℃ ☐24H ☑48H	Salt spray testing machine	OK	OK	OK	Pass
Connector riveting and drawing force	1.13Wire diameter ⩾ 10N 0.81Wire diameter ⩾ 8N RG174 ⩾60N RG178 ⩾50N	Push pull meter	⩾10N	⩾10N	⩾10N	Pass
Conclusion						Pass
Inspector & Date	Xu Yanfang 2025.03.20		Approval &Date			