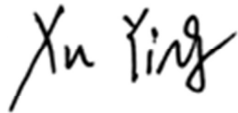


OTA TEST REPORT

Applicant Espressif System (Shanghai)
Product Co.,Ltd ESP32-S3
Model ESP-ANT B
Report No. Y2102A0260-T3V2
Issue Date February 19, 2025



Prepared by: Xu Ying



Approved by: Xu Kai

1. General Description of Equipment under Test

1.1. Applicant and Manufacturer Information

Applicant Name	Espressif System (Shanghai) Co.,Ltd
Applicant address	Suite 204 Block 2, 690 Bibo Road, Zhang Jiang Hi-Tech Park, Shanghai, China
Manufacturer Name	Espressif System (Shanghai) Co.,Ltd
Manufacturer address	Suite 204 Block 2, 690 Bibo Road, Zhang Jiang Hi-Tech Park, Shanghai, China

1.2. General information

EUT Description	
Product Name:	ESP32-S3
Model	ESP-ANT B
HW Version:	/
SW Version:	/
Antenna Type:	PCB Antenna
Antenna Size:	6*16*0.8 mm
Antenna Manufacturer:	Espressif System (Shanghai) Co.,Ltd
Test Frequency:	2402MHz ~ 2502MHz

2. Test Conditions

2.1. Test Configuration

Great-Circle-Cut method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test (EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 5m.

2.2. Test Measurement

Spherical coordinate system

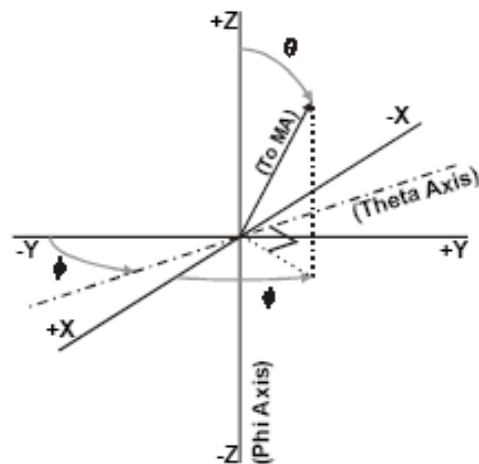
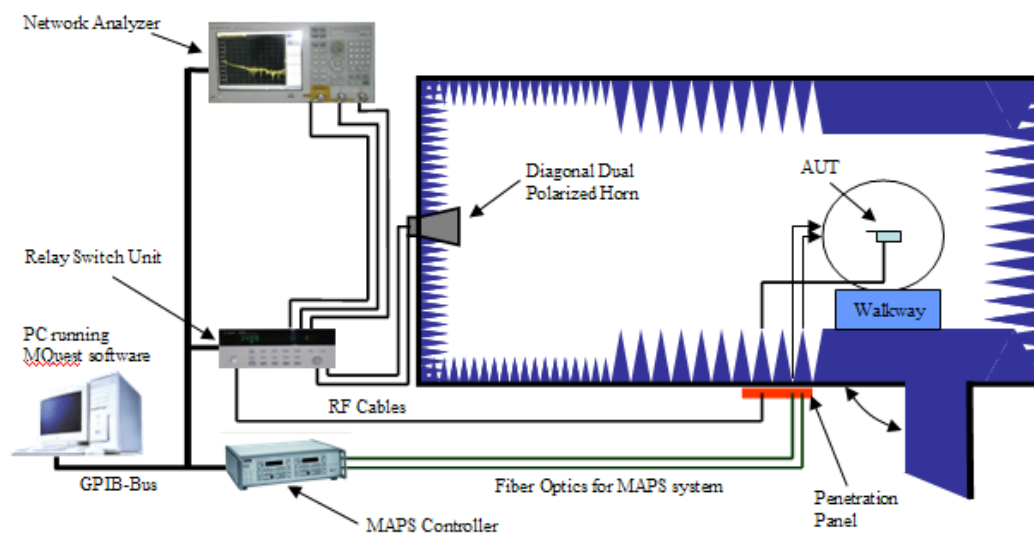


Figure 1 Test coordinate system

Note: Theta is from 0~180 degree. Phi is from 0~360. Rotate the EUT and record the Data, the step of rotation is 15 degree.

Test Setup



3. Test Results

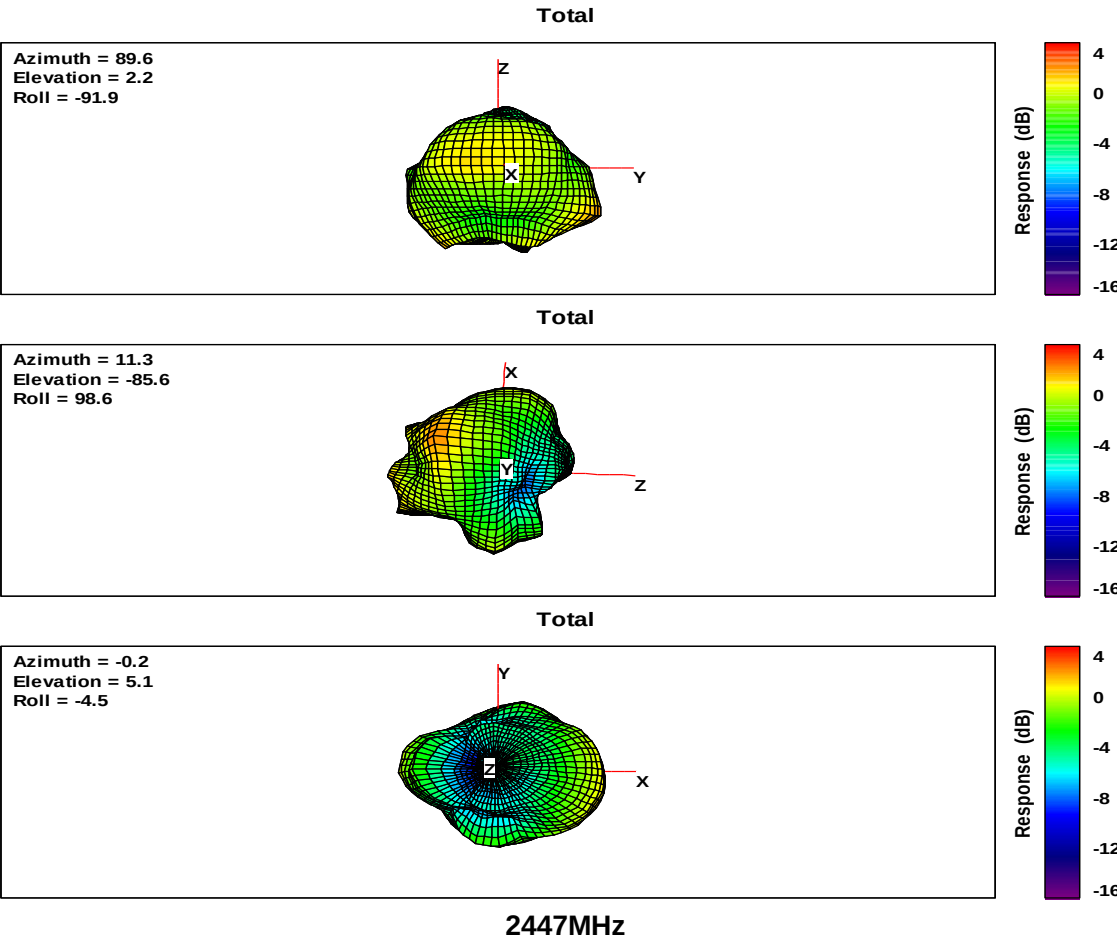
3.1. Gain and Efficiency

Model	Test State	Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	Directivity (dBi)	Note
ESP-ANT B	Free Space	2402	-1.98	63.44	2.73	4.70	15°
		2407	-1.76	66.66	2.73	4.50	
		2412	-1.70	67.68	3.16	4.85	
		2417	-1.60	69.11	2.92	4.53	
		2422	-1.61	68.95	2.79	4.41	
		2427	-1.77	66.48	2.29	4.06	
		2432	-1.83	65.54	2.54	4.37	
		2437	-1.73	67.21	2.46	4.19	
		2442	-1.77	66.46	2.56	4.34	
		2447	-1.79	66.25	2.69	4.48	
		2452	-1.75	66.81	2.95	4.70	
		2457	-1.76	66.73	2.96	4.71	
		2462	-1.68	67.91	2.99	4.67	
		2467	-1.95	63.90	3.17	5.11	
		2472	-2.07	62.14	3.08	5.14	
		2477	-1.87	65.00	3.18	5.05	
		2482	-1.94	63.96	3.26	5.20	
		2487	-1.98	63.35	3.37	5.35	
		2492	-1.82	65.80	3.35	5.17	
		2497	-1.72	67.34	3.17	4.88	
		2502	-1.75	66.79	3.18	4.94	

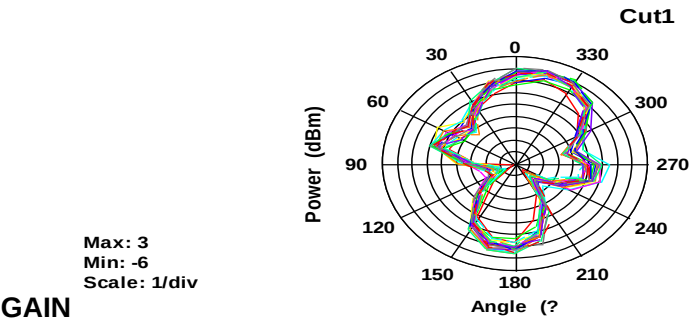
4. Equipment List

Type of Equipment	Manufacture	Model Number	S/N	Calibration Date	Expiration Time
Network Analyzer	Key sight	E5071B	MY42404014	2020-05-17	2021-05-16
Switch Control System	ETS	7006/7001	00059957/MY 42001152	N/A	N/A
Dual polarized horn antenna	ETS	3164-04	00062743	2020-04-14	2021-04-13
Software	ETS-lindgren	EMQ-100 Pattern Measurement software	1.09	N/A	N/A

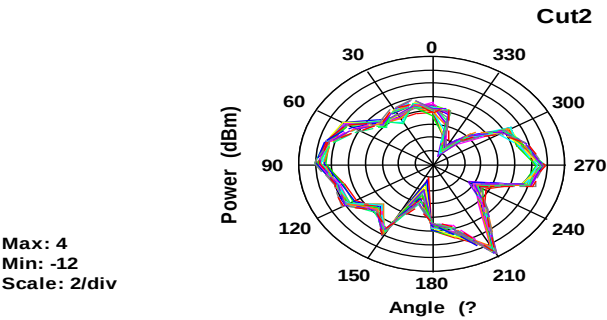
ANNEX A: 3-D Pattern Plots



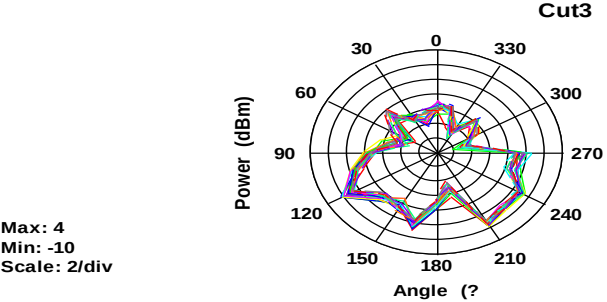
ANNEX B: 2-D Pattern Plots



2402 MHz	2452 MHz	2502 MHz
2407 MHz	2457 MHz	
2412 MHz	2462 MHz	
2417 MHz	2467 MHz	
2422 MHz	2472 MHz	
2427 MHz	2477 MHz	
2432 MHz	2482 MHz	
2437 MHz	2487 MHz	
2442 MHz	2492 MHz	
2447 MHz	2497 MHz	



2402 MHz	2452 MHz	2502 MHz
2407 MHz	2457 MHz	
2412 MHz	2462 MHz	
2417 MHz	2467 MHz	
2422 MHz	2472 MHz	
2427 MHz	2477 MHz	
2432 MHz	2482 MHz	
2437 MHz	2487 MHz	
2442 MHz	2492 MHz	
2447 MHz	2497 MHz	

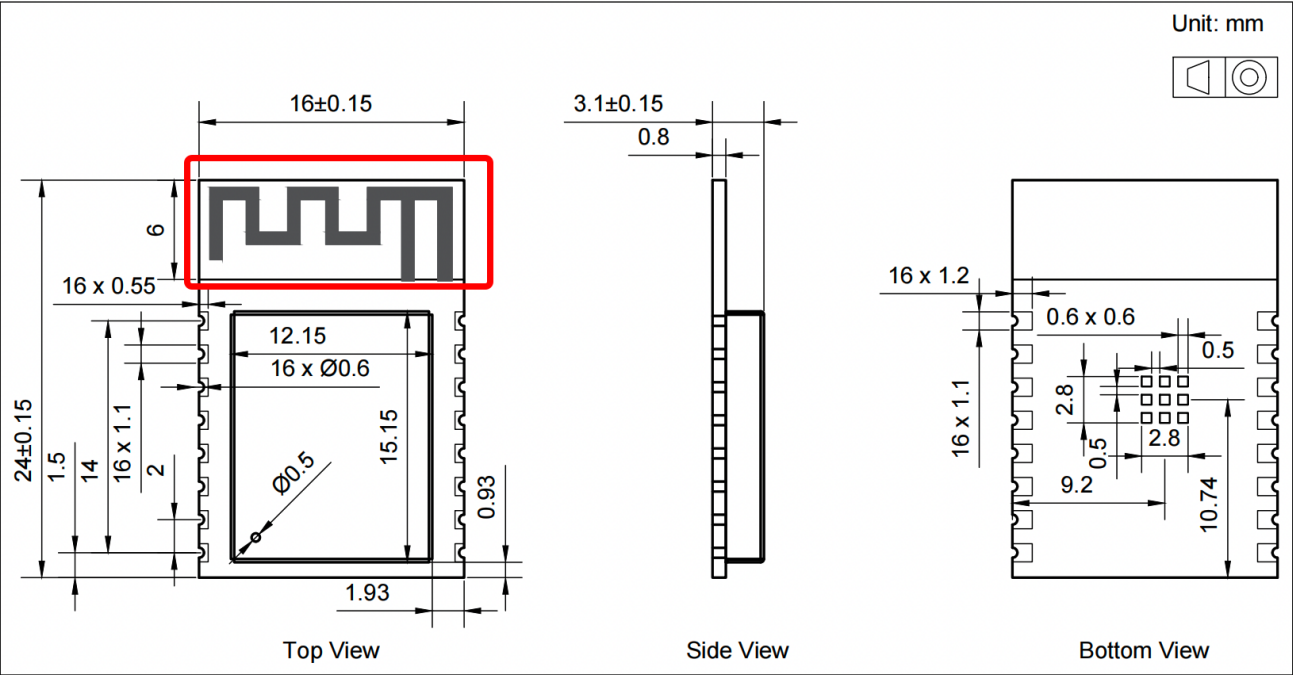


2402 MHz	2452 MHz	2502 MHz
2407 MHz	2457 MHz	
2412 MHz	2462 MHz	
2417 MHz	2467 MHz	
2422 MHz	2472 MHz	
2427 MHz	2477 MHz	
2432 MHz	2482 MHz	
2437 MHz	2487 MHz	
2442 MHz	2492 MHz	
2447 MHz	2497 MHz	

2402MHz - 2502 MHz

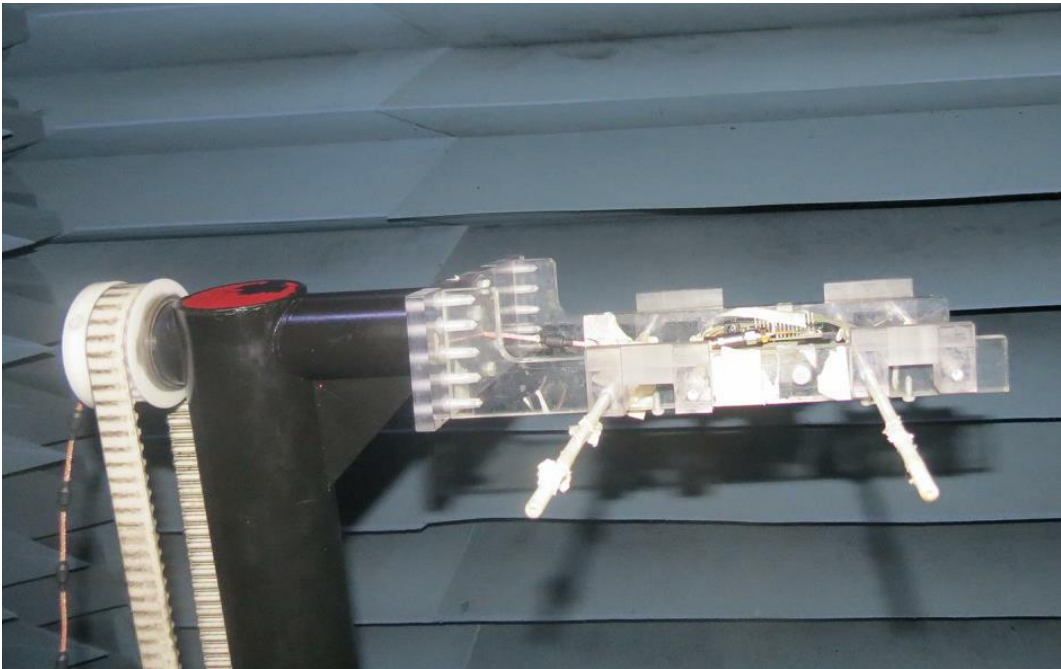
ANNEX C: The EUT Antenna plots and Test Configuration

C.1 Antenna plots



Picture 2 Antenna plots

C.2 Test Configuration



Picture 3 Test Setup