



TEST REPORT

Prepared for	GOLDSHELL PTE. LTD.
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Test lab	Dongguan UB Electronics Co., Ltd
Address	Xinzheng Industrial Park, No. 57 Liuxian 2nd Road, Baoan District, Shenzhen, China
sample name	GS WATCH
Model	GS WATCH
Antenna	FPC Antenna
Date of Test	August 29 2023 ~ August 31, 2023





Date Of Issue	August 31, 2023
Applicant's Name	GOLDSHELL PTE. LTD.
Address	1 Jalan Kilang Timor, #06-01 Pacific Tech Center, Singapore 159303
Manufacturer	GOLDSHELL PTE. LTD.
Address	1 Jalan Kilang Timor, #06-01 Pacific Tech Center, Singapore 159303
Standard	IEEE149-1979 IEEE Standard Test Procedures for Antennas





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1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT	GS WATCH
Test Model	GS WATCH
Additional Model No. /	
Antenna Type	FPC Antenna
Dimensions	25.5mm*6.67mm
Remark: For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.	

1.2 Technical Information

Frequency Range	2400-2500MHz
Test Frequency	2400-2500MHz

1.3 Test Condition

Environment Parameter	Ambient Pressure (KPa)	Temperature (℃)	Voltage	Relative Humidity (%)
Normal Temperature, NO RM AL Voltage	100.13	23.2	/	58

1.4 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

Item	Uncertainty
Gain	± 0.72dB
Efficiency	± 0.72dB





2. GAIN AND EFFICIENCY

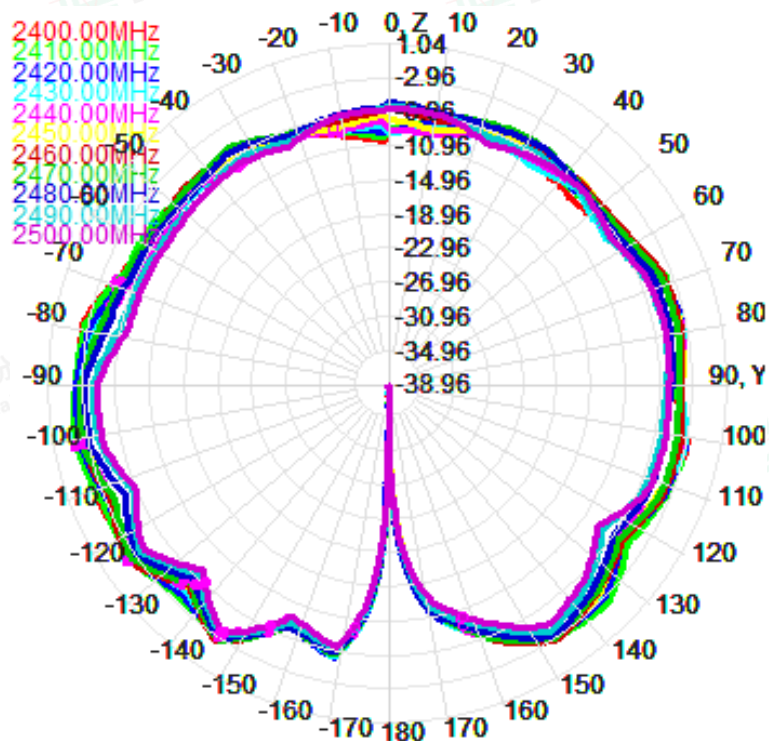
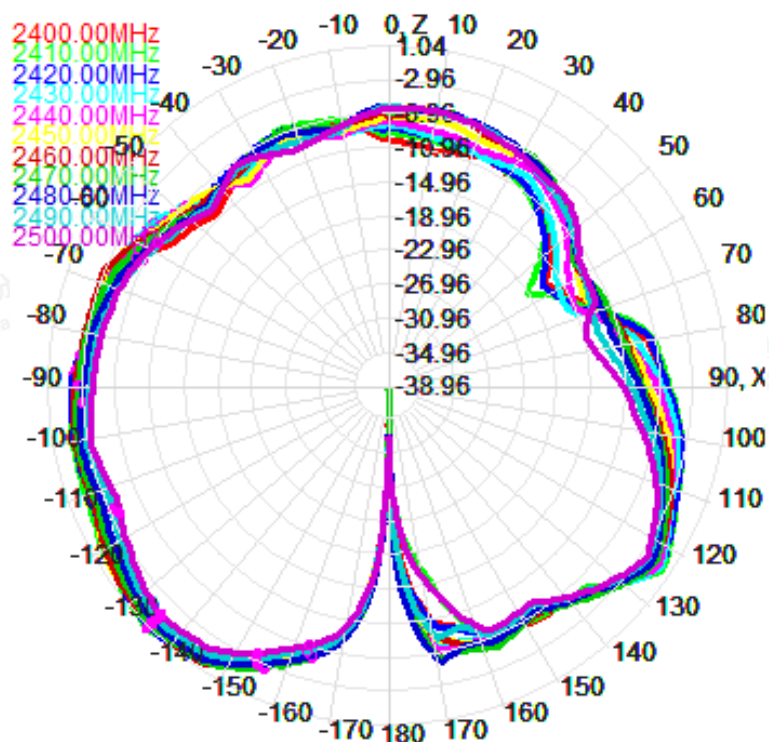
2.1 Test Results

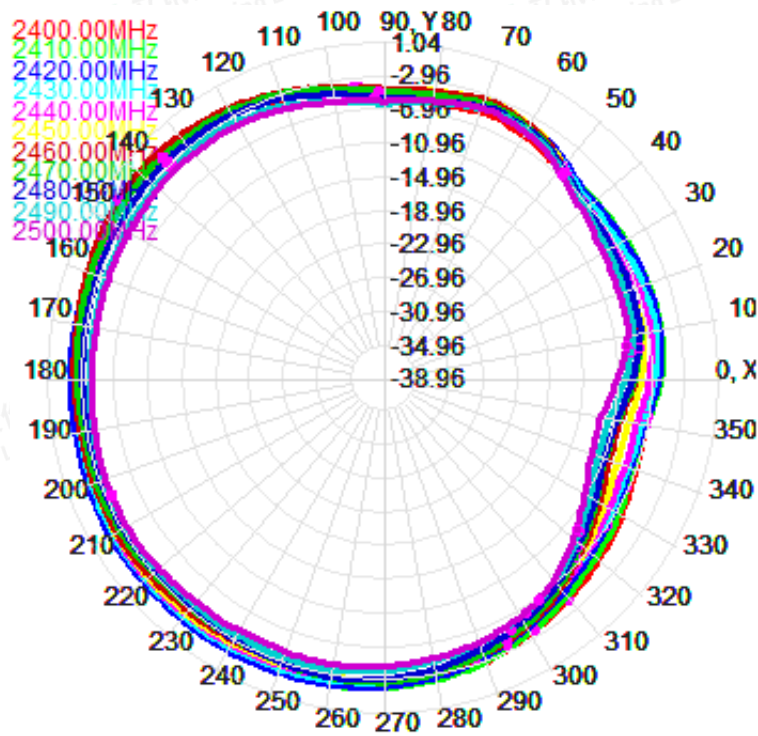
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	0.75	1.04	0.85	0.51	0.26	0.32	0.43	0.48	0.14	-0.49	-1.09
Efficiency (%)	37.16	39.91	40.37	40.56	40.28	40.06	39.36	37.11	34.07	30.68	28.27





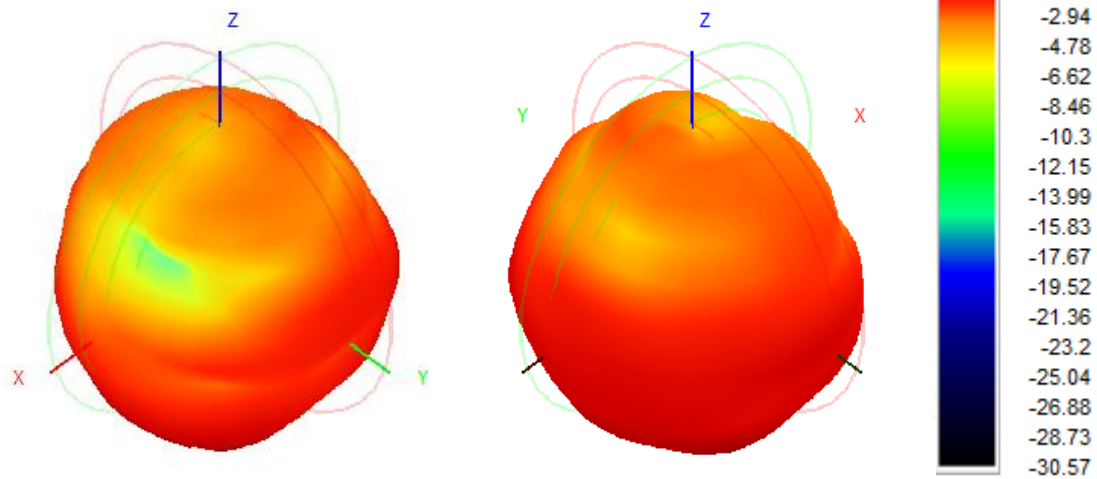
2.2 Direction map

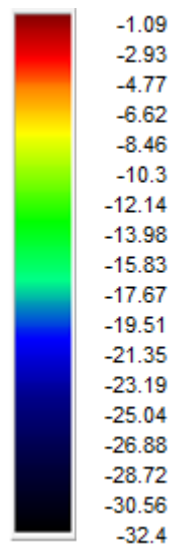
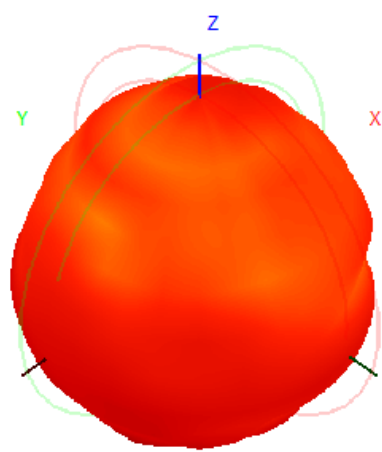
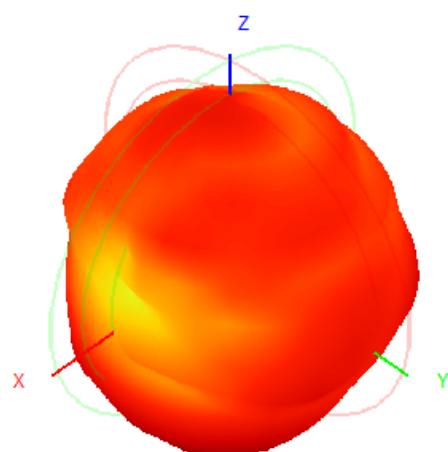
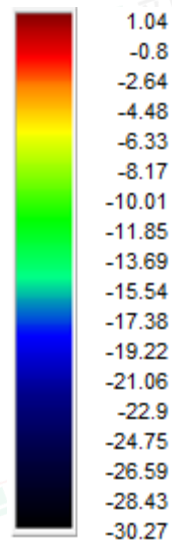
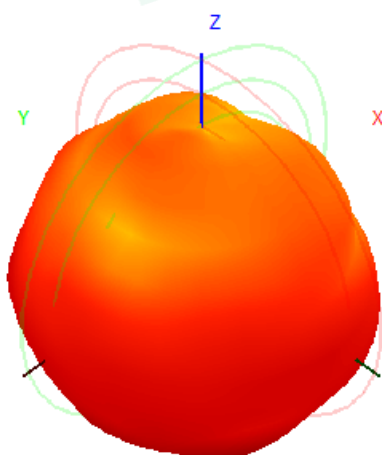
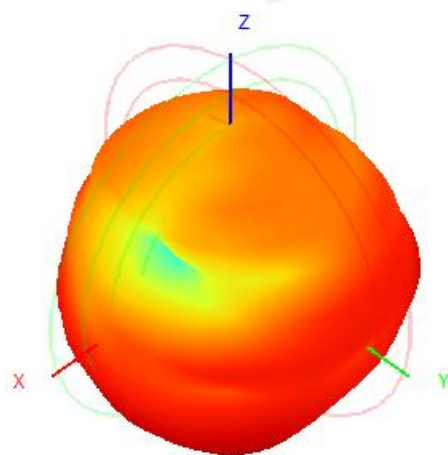




2.3 3D Patterns

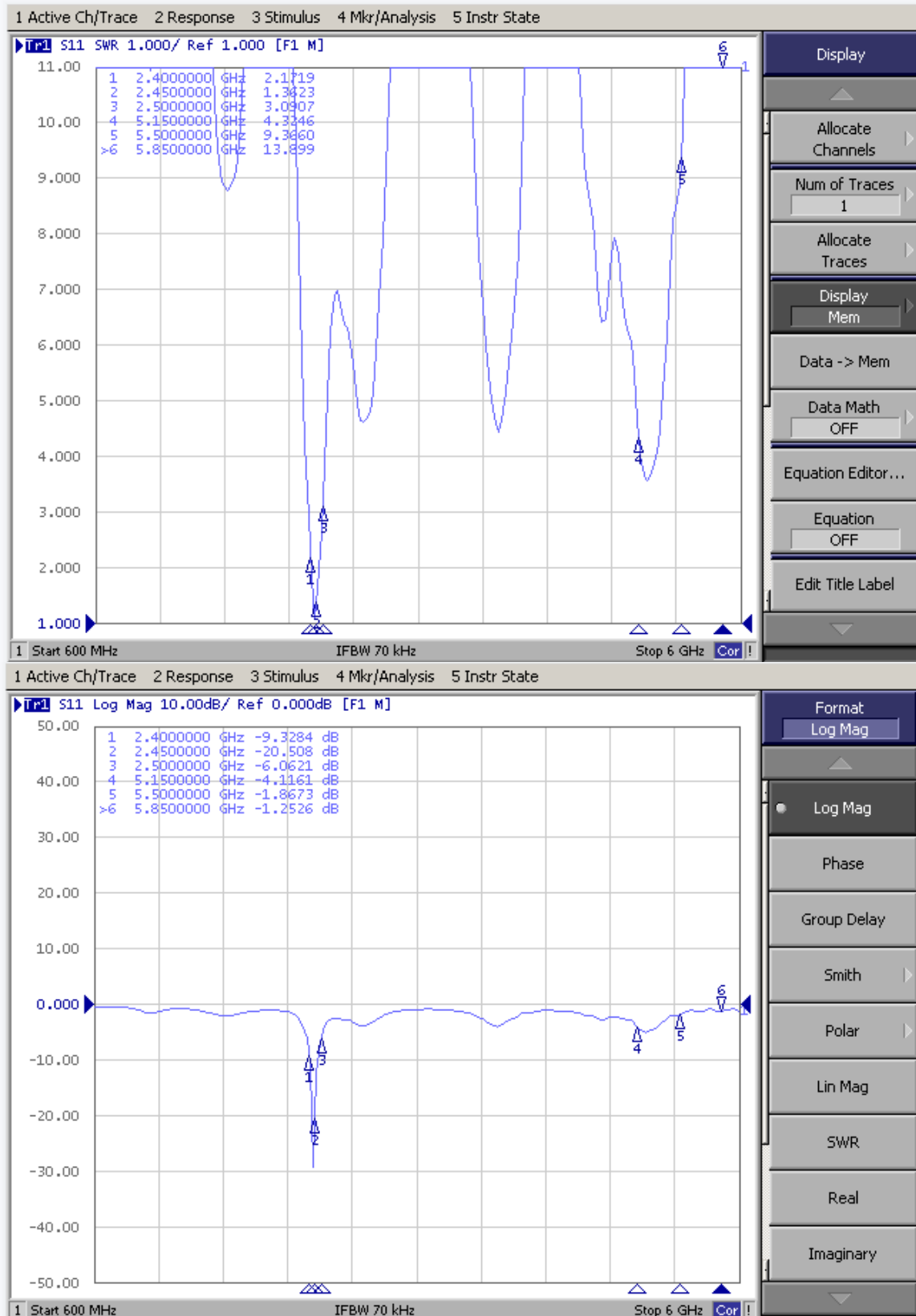
2400-2500MHz

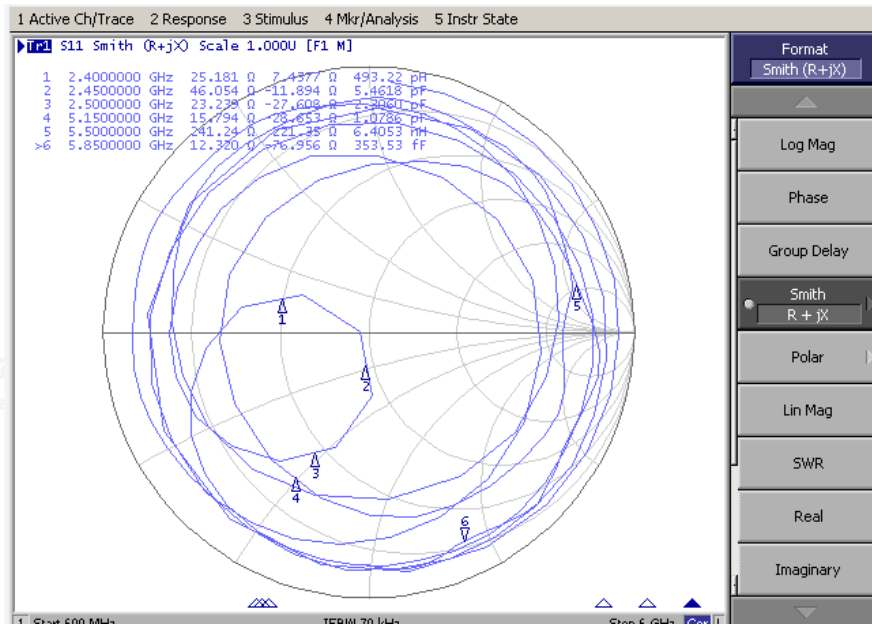






2.4 VSWR



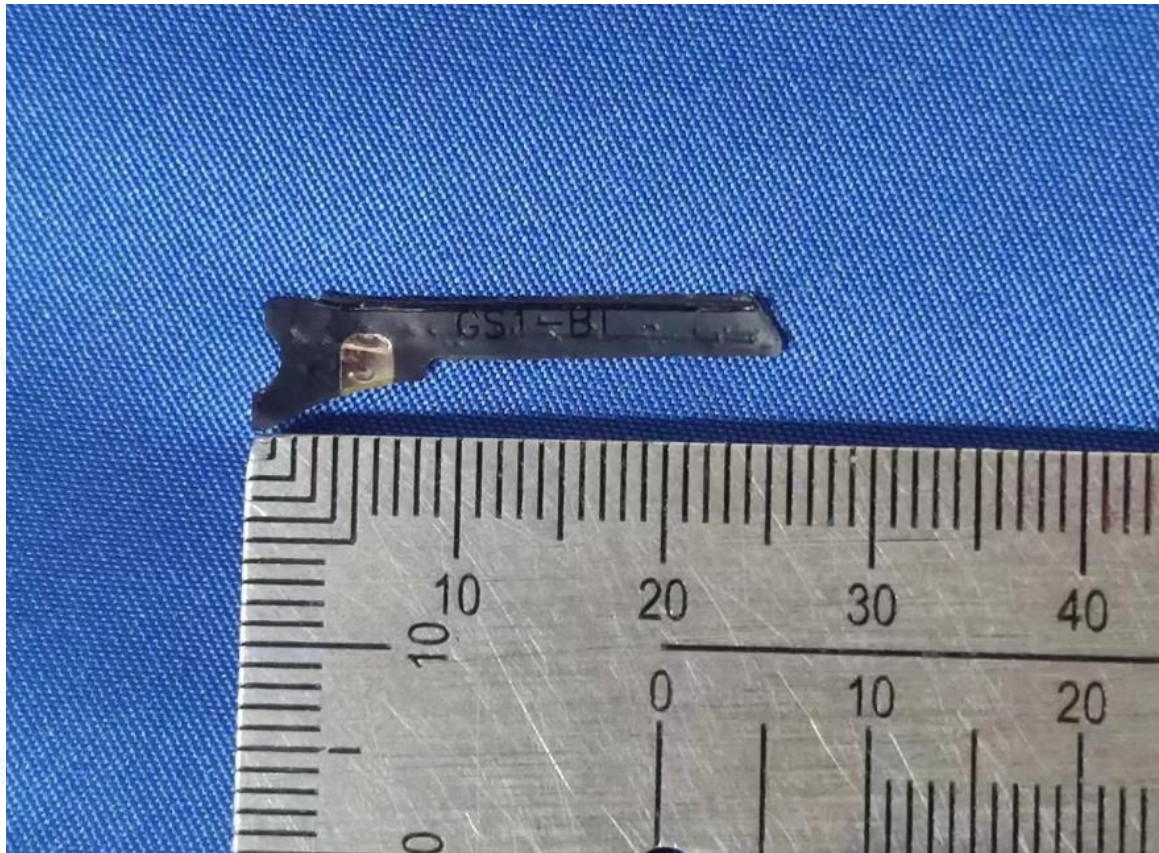


Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-4.30	-3.99	-3.94	-3.92	-3.95	-3.97	-4.05	-4.30	-4.68	-5.13	-5.49
Gain (dBi)	0.75	1.04	0.85	0.51	0.26	0.32	0.43	0.48	0.14	-0.49	-1.09
Efficiency (%)	37.16	39.91	40.37	40.56	40.28	40.06	39.36	37.11	34.07	30.68	28.27
Directivity (dB)	5.05	5.03	4.79	4.43	4.21	4.29	4.48	4.79	4.82	4.64	4.40
Peak Gain Position (Theta)	135.00	135.00	135.00	135.00	135.00	135.00	146.00	135.00	135.00	135.00	135.00
Peak Gain Position (Phi)	180.00	180.00	180.00	180.00	180.00	180.00	191.00	180.00	180.00	180.00	180.00
Efficiency ThetaPol (%)	31.89	33.88	34.00	33.90	33.41	32.57	31.18	28.47	25.56	22.74	20.55
Efficiency PhiPol (%)	5.27	6.03	6.37	6.66	6.87	7.49	8.18	8.65	8.51	7.94	7.72
Upper Hem. Efficiency (%)	11.60	12.65	13.31	13.16	13.24	13.63	13.62	13.07	12.20	11.03	10.51
Lower Hem. Efficiency (%)	25.56	27.26	27.06	27.40	27.04	26.43	25.73	24.05	21.87	19.65	17.76





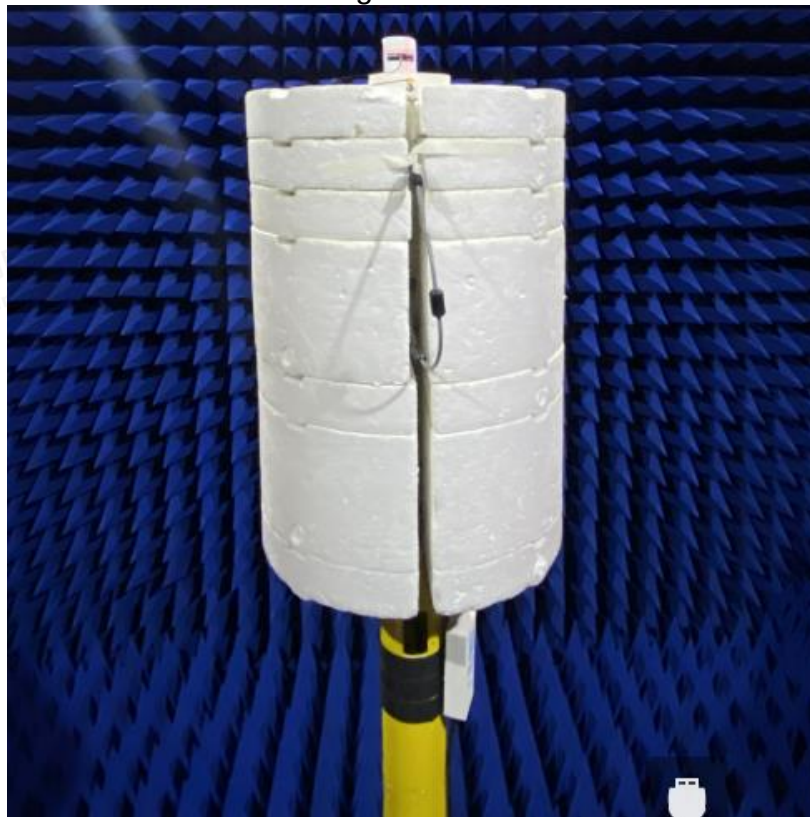
3. PHOTOGRAPH OF EUT



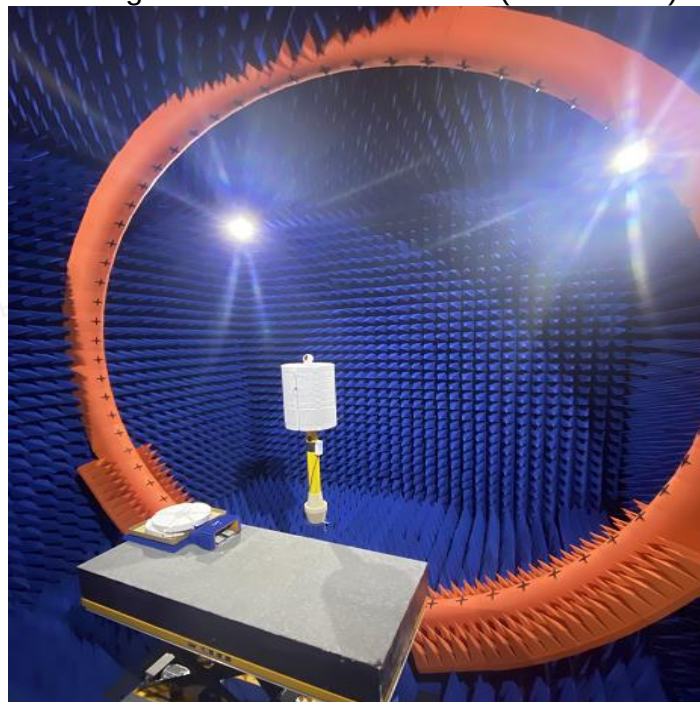


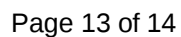
4. PHOTOGRAPH OF TEST SET UP

Testing environment



Testing 3D microwave darkroom(6m*6m*6m)





5. TEST PRINCIPLE





6. TEST EQUIPMENT

Test Equipment	Type/Mode	Equipment No.	Manufacturer	Cal Date	Due Date
OTA test system	RayZone-5000	RFI-LAB-RF-D00	GTS	2023.3.22	2025.3.21
Network Analyzer	E5071C	RFI-LAB-RF-D01	KEYSIGHT	2023.5.13	2024.5.12

-----THE END OF REPORT-----

