

ANTENNA PASSIVE TEST REPORT

Application No. ZEWM22090011700A
Applicant Shenzhen Yongxiangshun Electronic Technology Co., Ltd
Manufacturer Shenzhen Yongxiangshun Electronic Technology Co., Ltd
Product Name Bluetooth module
Model No. FSC-BT691
Standards ANSI/IEEE Std 149-2008
Date Initial Sample(s) Received 2022.09.27
Testing Start Date 2022.10.08
Testing Finish Date 2022.10.08
Report Issue Date 2022.10.13

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

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Reviewed By

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Approved by



Revision Version

Report No.	Version	Date	Memo
ZEWM2209001170OA01	00	2022.10.13	Initial creation of report



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1 General Information

1.1 Testing Laboratory

Test Lab	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057
Contact	Simon Ling
Tel.	+86 (0) 755 2601 2053
Fax	+86 (0) 755 2671 0594
E-mail	Simon.Ling@sgs.com

1.2 Details of Applicant

Applicant's Name	Shenzhen Yongxiangshun Electronic Technology Co., Ltd
Applicant's Address	shangiukeng Industrial Zone, 36 Blocks 201, Genzhuyuan Community, Matian Street, Guangming District, Shenzhen
Contact	Amy Hu
Tel.	0755-23228769
Fax	0755-23228759
E-mail	Amy@apacehk.com

1.3 Details of Manufacturer

Applicant's Name	Shenzhen Yongxiangshun Electronic Technology Co., Ltd
Applicant's Address	shangiukeng Industrial Zone, 36 Blocks 201, Genzhuyuan Community, Matian Street, Guangming District, Shenzhen
Contact	Amy Hu
Tel.	0755-23228769
Fax	0755-23228759
E-mail	Amy@apacehk.com



1.4 General Description of EUT

Device Description:	Bluetooth module
Device Manufacturer:	Shenzhen Yongxiangshun Electronic Technology Co., Ltd
Device Model:	FSC-BT691
Hardware Version:	N/A
Software Version:	N/A

1.5 Test Procedure

Testing is performed according to the **ANSI/IEEE Std 149-2008**.



1.6 Test Specification

Identity	Document Title
ANSI/IEEE Std 149-2008	IEEE Standard Test Procedures for Antennas

1.7 Laboratory Environment

Temperature	Min. =19°C , Max. = 25°C	
Relative humidity	Min. =40% , Max. =72%	
Shield effect	0.7-6GHz	> 100dB
Ground resistance	<0.5Ω	



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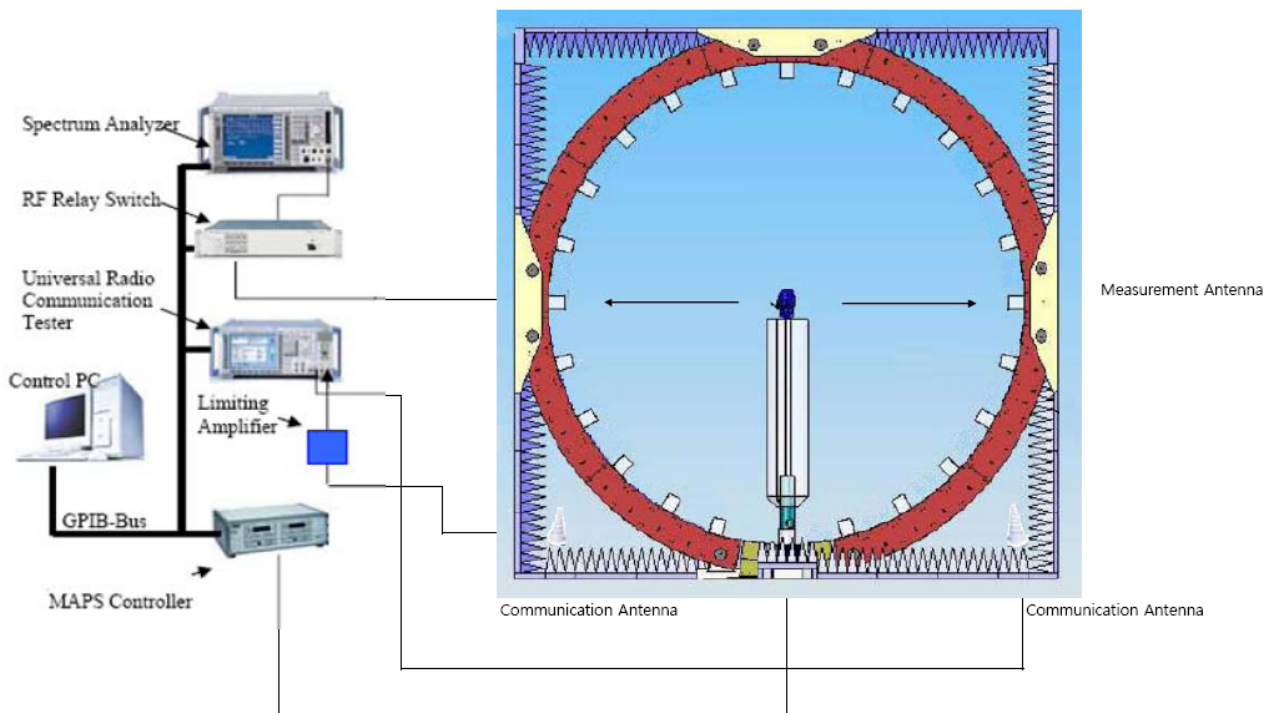
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2 OTA Measurements System Configuration

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



F-1. OTA Measurement System Configuration



3 Test Equipment List

Type of Equipment	Model Number	Manufacture	Calibration Date	Valid Period
Network Analyzer	E5071C S/N MY46523591	Keysight	2022/4/11	2023/4/10
Quad-Ridge Horn Antenna 700 MHz-10 GHz	EMCO 3164-08 S/N 161915	ETS-Lindgren L.P.	N/A	N/A
MAPS Controller	EMCENTER S/N 160485	ETS-Lindgren L.P.	N/A	N/A



4 Measurement Uncertainty

Item	2400-2500 MHz (dB)
Gain	0.88
Efficiency	0.88
Measurement Uncertainty (95% CONFIDENCE INTERVAL) K=2	



5 Test Results

Free Space			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2350	-12.22	6.00	-4.90
2355	-12.17	6.07	-4.84
2360	-12.10	6.16	-4.80
2365	-12.38	5.78	-5.11
2370	-12.61	5.48	-5.23
2375	-12.82	5.22	-5.50
2380	-12.82	5.23	-5.45
2385	-12.80	5.24	-5.45
2390	-12.81	5.23	-5.57
2395	-12.87	5.16	-5.69
2400	-13.14	4.86	-5.87
2402	-13.20	4.78	-5.96
2405	-13.26	4.72	-6.02
2410	-13.35	4.62	-6.10
2415	-13.39	4.58	-6.13
2420	-13.47	4.50	-6.15
2425	-13.56	4.41	-6.27
2430	-13.68	4.28	-6.39
2435	-13.70	4.26	-6.28
2440	-13.60	4.37	-6.28
2441	-13.59	4.37	-6.25
2445	-13.59	4.37	-6.22
2450	-13.64	4.32	-6.33
2455	-13.78	4.18	-6.37
2460	-13.98	4.00	-6.54
2465	-14.05	3.94	-6.69
2470	-14.31	3.70	-6.95
2475	-14.24	3.77	-6.84
2480	-14.29	3.72	-7.02
2482	-14.22	3.79	-6.96
2485	-14.10	3.89	-6.84
2490	-14.13	3.86	-6.90
2495	-14.11	3.88	-6.83
2500	-14.29	3.72	-6.98

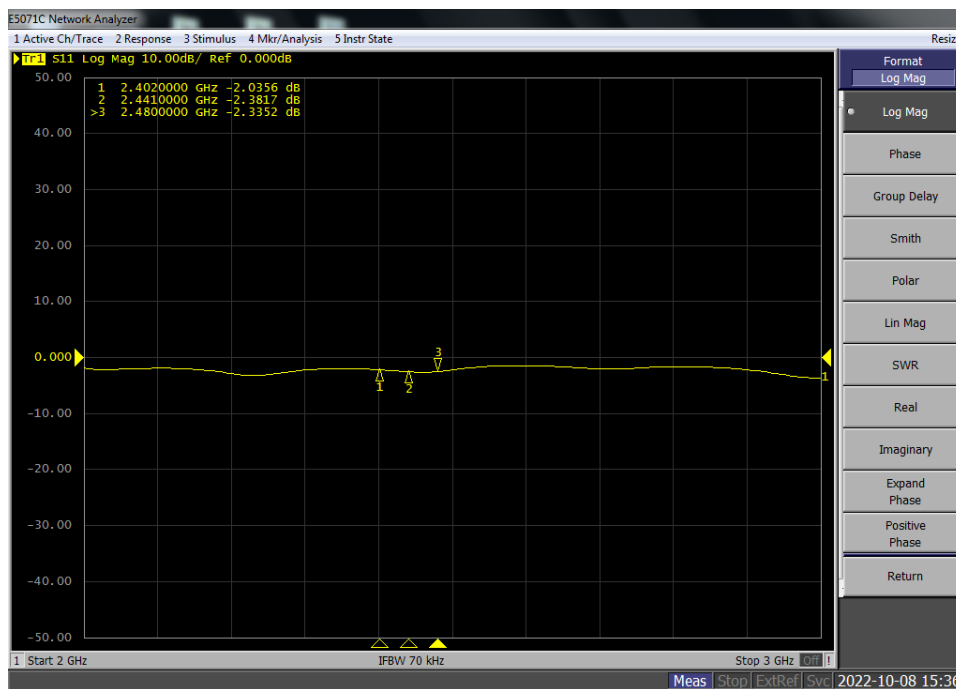


2505	-14.40	3.63	-7.05
2510	-14.44	3.60	-7.02
2515	-14.66	3.42	-7.23
2520	-14.70	3.39	-7.20
2525	-14.91	3.23	-7.49
2530	-14.91	3.23	-7.46
2535	-14.99	3.17	-7.65
2540	-14.98	3.18	-7.57
2545	-14.89	3.25	-7.52
2550	-15.00	3.16	-7.63
2555	-14.99	3.17	-7.57
2560	-15.14	3.06	-7.76
2565	-15.16	3.05	-7.69
2570	-15.21	3.02	-7.80
2575	-15.27	2.97	-7.84
2580	-15.16	3.05	-7.66

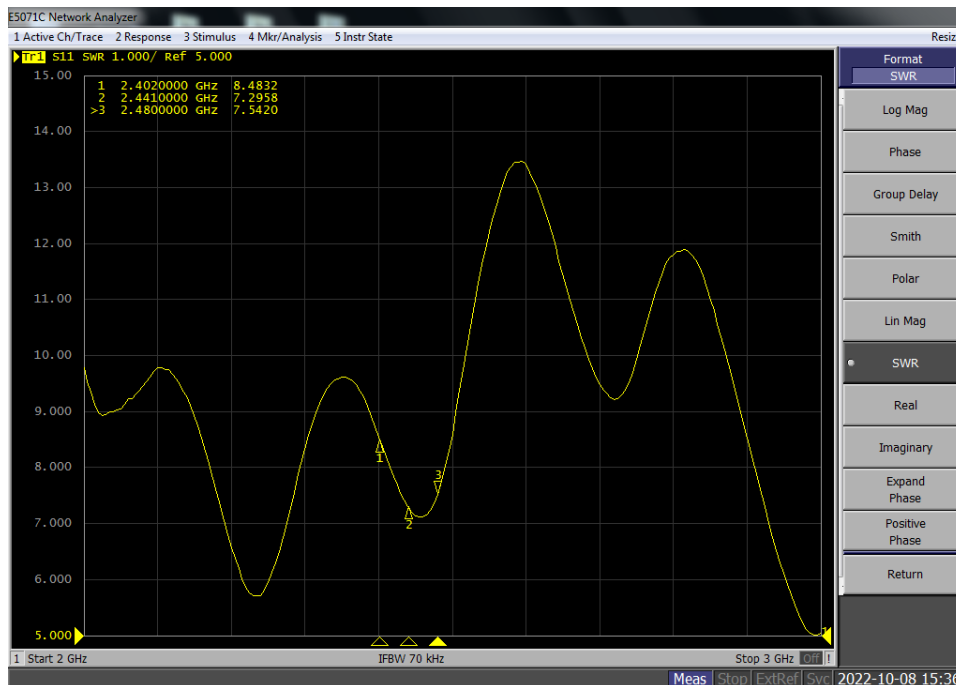


6 Pattern Plots

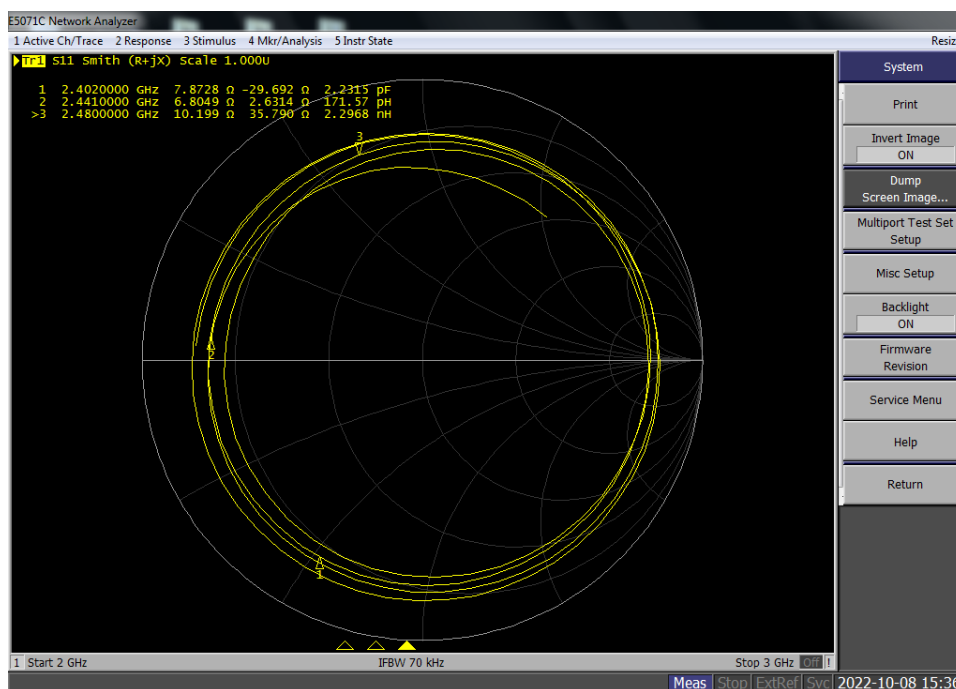
6.1 Return Loss



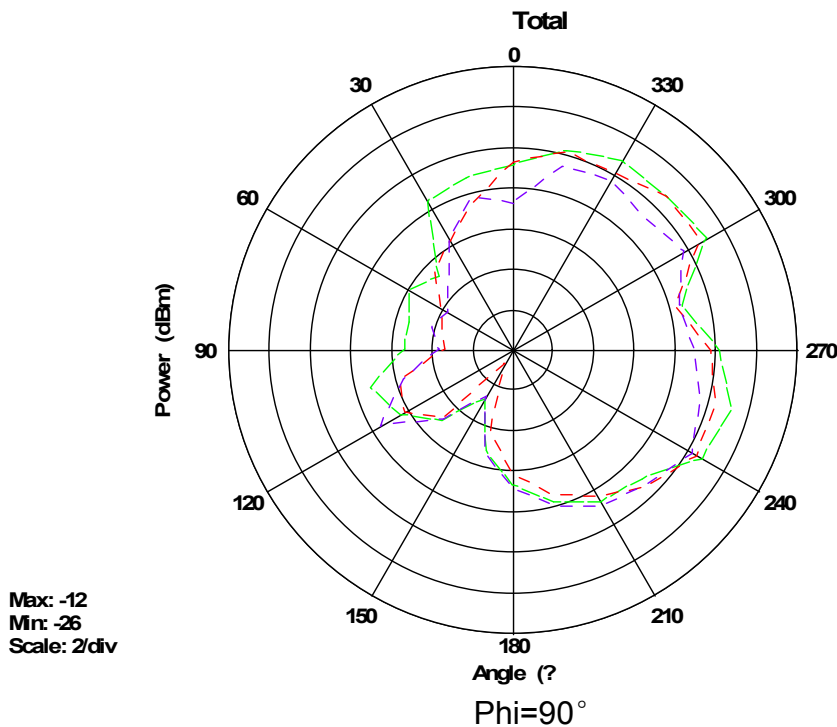
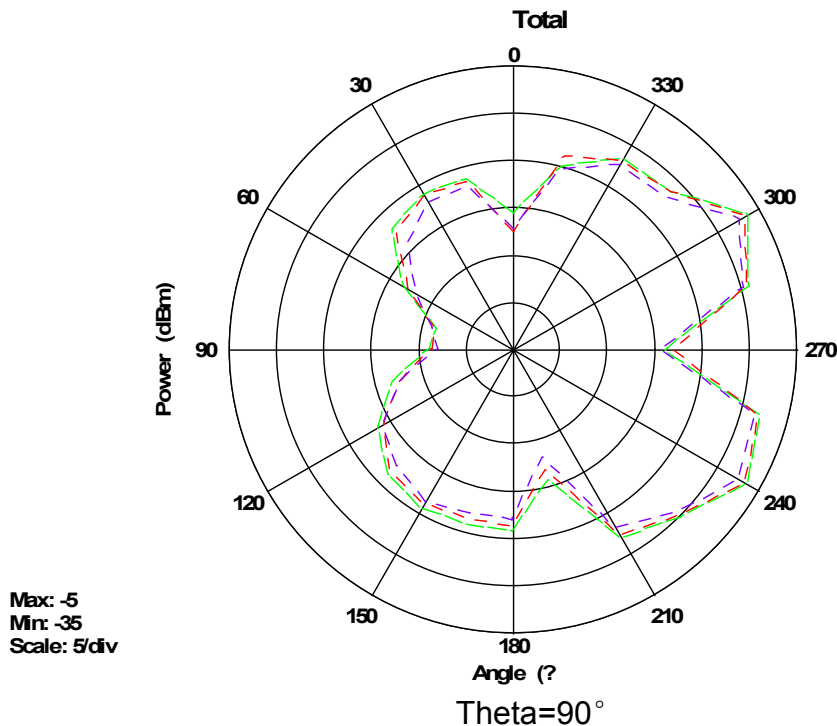
6.2 VSWR



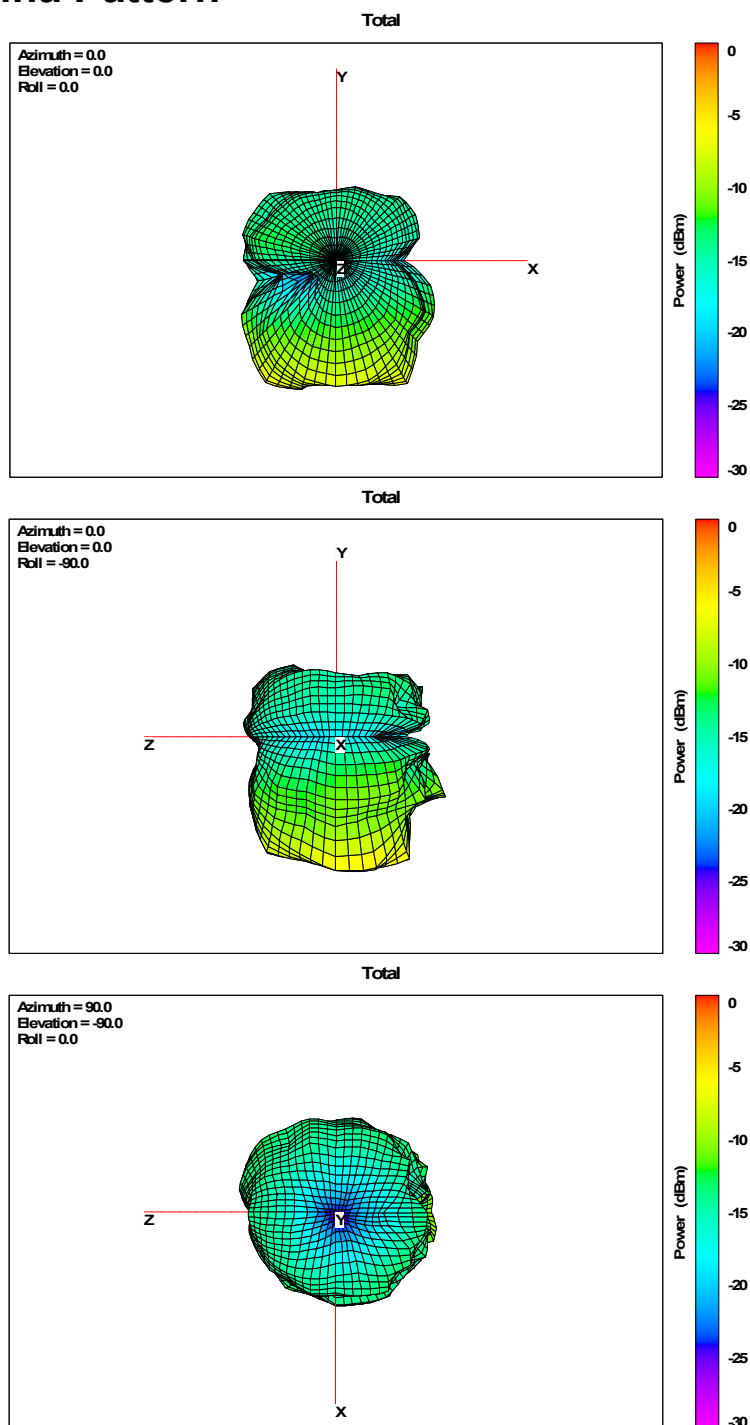
6.3 Stimulus



7 2-D Antenna Pattern



8 3-D Antenna Pattern



9 The EUT and Test Configuration

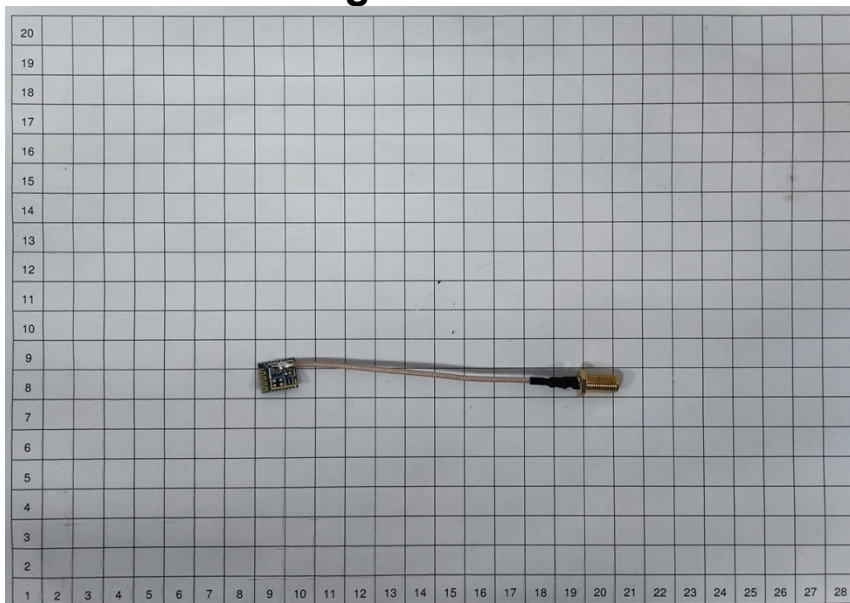
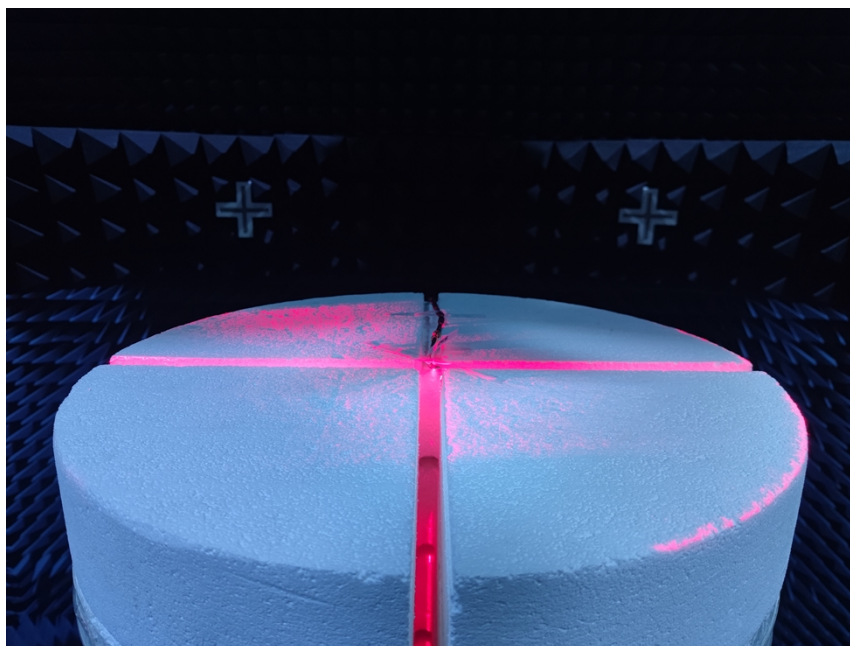


Photo of EUT



Free Space View

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