



TEST REPORT

For

NAMTSO TECHNOLOGY CO., LTD.

Industrial Single Board Computer

Test Model: A10-3588

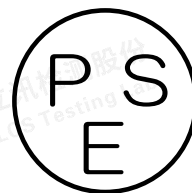
Additional Model No.: Please Refer to Page 8

Prepared for : NAMTSO TECHNOLOGY CO., LTD.
Address : 2702 QIANCHENG CENTER, HAICHENG ROAD,
XIXIANG STREET, BAO'AN DISTRICT, SHENZHEN

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : March 21, 2024
Number of tested samples : 1
Serial number : Prototype
Date of Test : March 21, 2024 to April 3, 2024
Date of Report : April 10, 2024



**TEST REPORT****Report No.** : LCSA04024006E**Date of Issue** : April 10, 2024**Testing Laboratory Name** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Address** : Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China**Testing Location/ Procedure** : Full application of Harmonised standards ☒
Partial application of Harmonised standards ☐
Other standard testing method ☐**Applicant's Name** : NAMTSO TECHNOLOGY CO., LTD.**Address** : 2702 QIANCHENG CENTER, HAICHENG ROAD, XIXIANG STREET, BAO'AN DISTRICT, SHENZHEN**Test Specification****Standard** : J55032 (H29)**Test Report Form No** : LCSEMC-1.0**TRF Originator** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Master TRF** : Dated 2011-03**Shenzhen LCS Compliance Testing Laboratory Ltd. All rights reserved.**

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Test Item Description : Industrial Single Board Computer**Trade Mark** : NAMTSO**Test Model** : A10-3588**Result** : Positive**Compiled by:**

Brody Xiong / File Administrator

Supervised by:

Baron Wen / Technique principal

Approved by:

Gavin Liang / Manager



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TEST REPORT

Test Report No.:	LCSA04024006E	April 10, 2024 Date of issue
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Test Model.....	: A10-3588
EUT.....	: Industrial Single Board Computer
Applicant.....	: NAMTSO TECHNOLOGY CO., LTD.
Address.....	: 2702 QIANCHENG CENTER, HAICHENG ROAD, XIXIANG STREET, BAO'AN DISTRICT, SHENZHEN
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: SHENZHEN WESION TECHNOLOGY CO., LTD.
Address.....	: 2701 QIANCHENG CENTER, HAICHENG ROAD,XIXIANG STREET,BAO'AN DISTRICT,SHENZHEN
Telephone.....	: /
Fax.....	: /
Factory.....	: SHENZHEN WESION TECHNOLOGY CO., LTD.
Address.....	: 2701 QIANCHENG CENTER, HAICHENG ROAD,XIXIANG STREET,BAO'AN DISTRICT,SHENZHEN
Telephone.....	: /
Fax.....	: /

Test Result	Positive
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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Revision History

Report Version	Issue Date	Revision Content	Revised By
000	April 10, 2024	Initial Issue	/





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1. SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Limits	Result
Conducted emissions from AC mains power ports (150kHz-30MHz)	J55032 (H29)	Class B	Pass
Radiated emissions (30MHz-1GHz)	J55032 (H29)	Class B	Pass
Radiated emissions (above 1GHz)	J55032 (H29)	Class B	Pass





1.2 Description of Test Modes

No	Title	Description
TM1	Working	Record





2. GENERAL INFORMATION

2.1 Description of Device (EUT)

EUT	: Industrial Single Board Computer
Test Model	: A10-3588
Additional Model No.	: A10-3588 Active Cooling Kit
Power Supply	: Input: 12V 3A or 20V 3A Output: 5V 1A
Highest Internal Frequency	: >1GHz
Classification of Equipment	: Class B

2.2 Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Xiaomi Communication Technology Co., LTD	Power adapter	MDY-13-EF	VA62309A903141 J	/

2.3 Description of Test Facility

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

2.4 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emission (150kHz to 30MHz)	± 2.35 dB
Radiated Emission (30MHz to 1000MHz)	± 3.48 dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	





3. MEASURING DEVICES AND TEST EQUIPMENT

Conducted emissions from AC mains power ports (150kHz-30MHz)

Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
EMI Test Software	Farad	EZ	/	/	/
Artificial Mains	R&S	ENV216	101288	2023-06-09	2024-06-08
Pulse Limiter	R&S	ESH3-Z2	102750-NB	2023-08-15	2024-08-14
EMI Test Receiver	R&S	ESR3	102312	2024-03-02	2025-03-01

Radiated emissions (30MHz-1GHz)

Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
EMI Test Software	Farad	EZ	/	/	/
EMI Test Software	AUDIX	E3	/	/	/
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
EMI Test Receiver	R&S	ESR3	102311	2023-08-15	2024-08-14
Broadband Preamplifier	/	BP-01M18G	P190501	2023-06-09	2024-06-08
EMI Test Receiver	R&S	ESCI7	101173	2023-10-25	2024-10-24
By-log Antenna	SchwarzZBECK	VULB9163	01428	2023-09-05	2024-09-04

Radiated emissions (above 1GHz)

Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
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4. EMISSION TEST RESULTS (EMI)

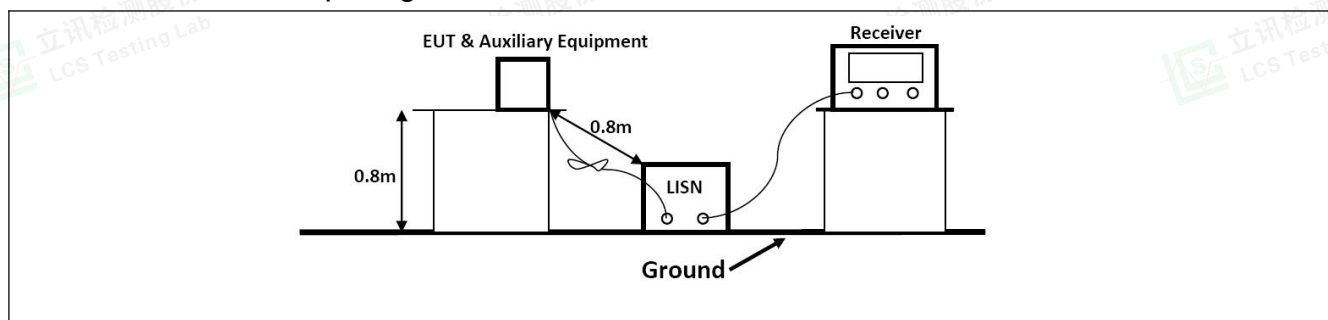
4.1 Conducted emissions from AC mains power ports (150kHz-30MHz)

Test Requirement:	Class B		
Test Limit:	Frequency Range	Limit (Quasi-Peak)	Limit (Average)
	0.15MHz to 0.5MHz	66dB(μV) to 56dB(μV)	56dB(μV) to 46dB(μV)
	0.5MHz to 5MHz	56dB(μV)	46dB(μV)
	5MHz to 30MHz	60dB(μV)	50dB(μV)
	Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz	
Test Method:	CISPR 16-2-1		
Procedure:	An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected. Remark: Level= Read Level+ Cable Loss+ LISN Factor		

4.1.1 E.U.T. Operation:

Operating Environment:			
Temperature:	24.4 °C	Humidity:	53 %
Pre test mode:	TM1		
Final test mode:	TM1		

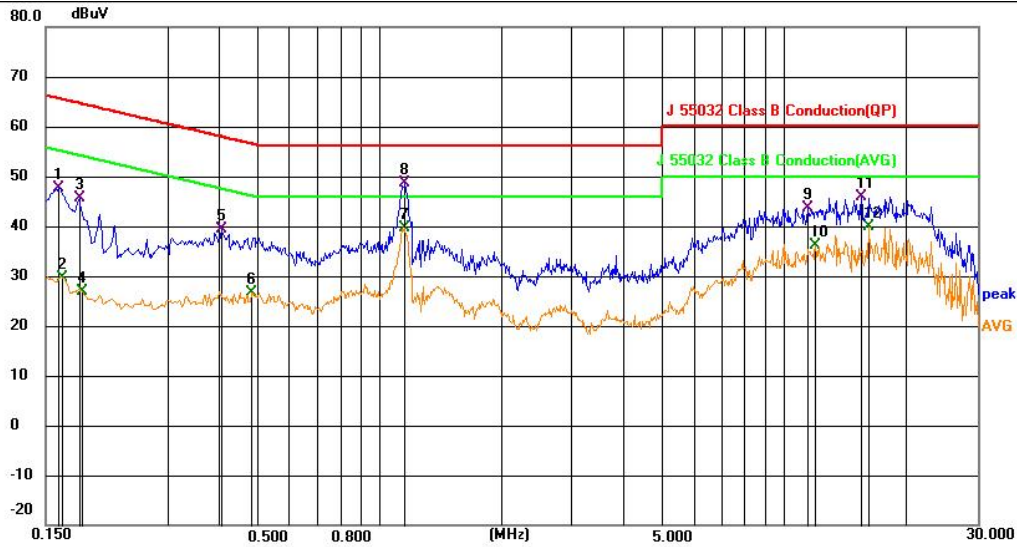
4.1.2 Test Setup Diagram:





4.1.3 Test Data:

TM1 / Line: Line

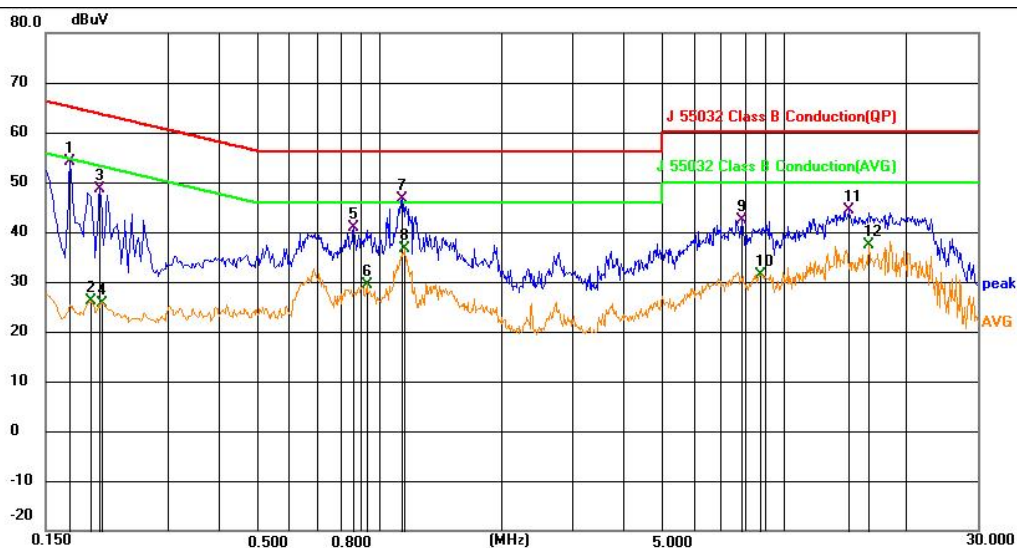


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1615	28.00	19.63	47.63	65.39	-17.76	QP	
2		0.1650	10.01	19.63	29.64	55.21	-25.57	AVG	
3		0.1816	25.99	19.63	45.62	64.41	-18.79	QP	
4		0.1844	7.22	19.63	26.85	54.29	-27.44	AVG	
5		0.4066	19.82	19.63	39.45	57.72	-18.27	QP	
6		0.4828	7.08	19.64	26.72	46.29	-19.57	AVG	
7	*	1.1490	19.87	19.65	39.52	46.00	-6.48	AVG	
8		1.1532	28.90	19.65	48.55	56.00	-7.45	QP	
9		11.4586	23.74	19.85	43.59	60.00	-16.41	QP	
10		11.9489	16.24	19.84	36.08	50.00	-13.92	AVG	
11		15.5038	26.09	19.90	45.99	60.00	-14.01	QP	
12		16.2240	19.85	19.93	39.78	50.00	-10.22	AVG	





TM1 / Line: Neutral



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1726	34.39	19.63	54.02	64.83	-10.81	QP	
2	0.1949	6.49	19.63	26.12	53.83	-27.71	AVG	
3	0.2041	29.08	19.63	48.71	63.44	-14.73	QP	
4	0.2071	6.03	19.63	25.66	53.32	-27.66	AVG	
5	0.8655	21.32	19.64	40.96	56.00	-15.04	QP	
6	0.9330	9.85	19.65	29.50	46.00	-16.50	AVG	
7 *	1.1400	27.08	19.65	46.73	56.00	-9.27	QP	
8	1.1572	17.02	19.65	36.67	46.00	-9.33	AVG	
9	7.8901	22.57	19.84	42.41	60.00	-17.59	QP	
10	8.7405	11.58	19.84	31.42	50.00	-18.58	AVG	
11	14.5137	24.43	19.86	44.29	60.00	-15.71	QP	
12	16.2240	17.56	19.93	37.49	50.00	-12.51	AVG	



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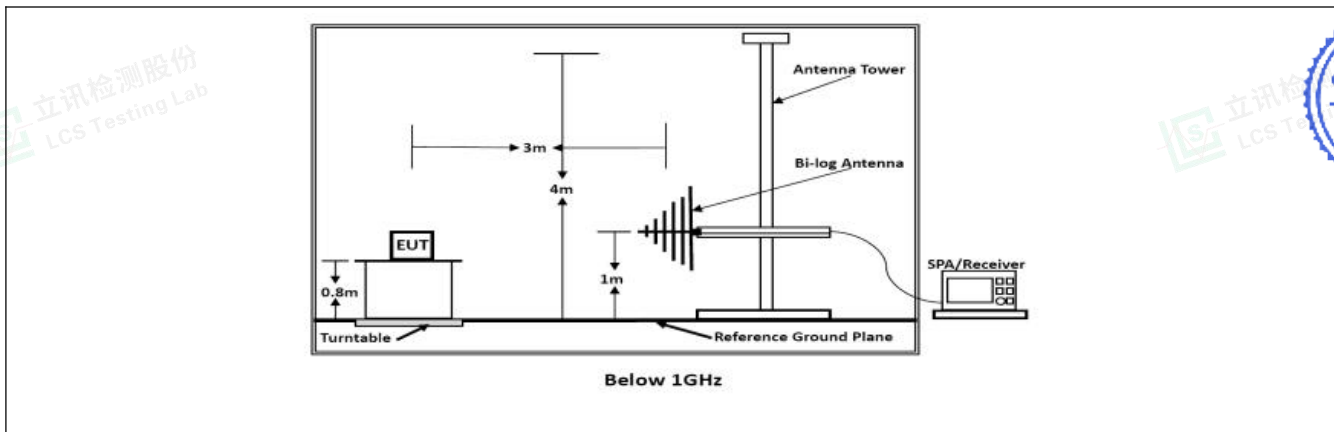
4.2 Radiated emissions (30MHz-1GHz)

Test Requirement:	Class B		
Test Limit:	Frequency (MHz)	Limit [dB(uV/m) at 10m]	Limit [dB(uV/m) at 3m]
	30 to 230	30	40
	230 to 1000	37	47
	Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz		
Test Method:	CISPR 16-2-3		
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor		

4.2.1 E.U.T. Operation:

Operating Environment:			
Temperature:	22.3 °C	Humidity:	53 %
Pre test mode:	TM1		
Final test mode:	TM1		

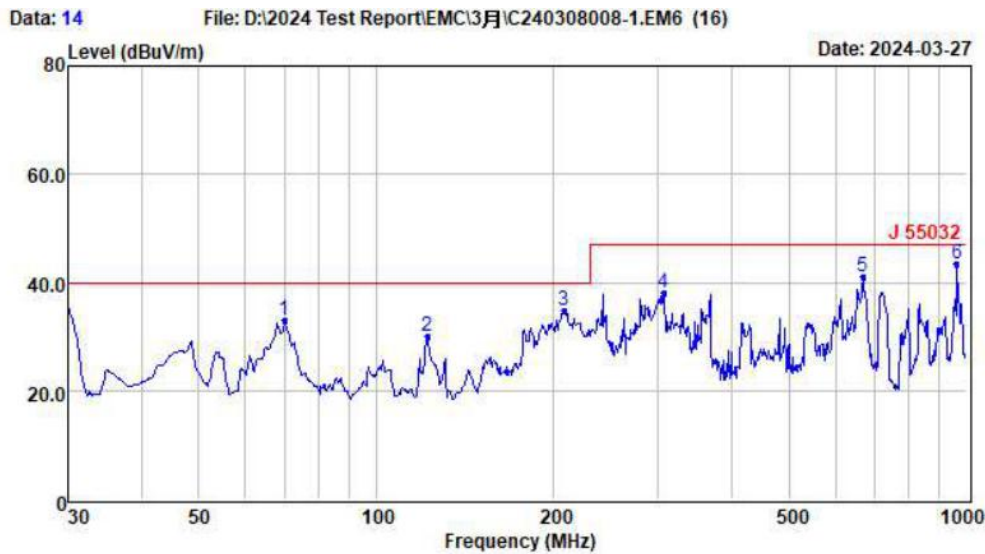
4.2.2 Test Setup Diagram:





4.2.3 Test Data:

TM1 / Polarization: Horizontal



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	69.84	22.06	0.70	10.23	32.99	40.00	-7.01	QP
2	121.98	18.78	0.91	10.36	30.05	40.00	-9.95	QP
3	207.85	22.50	1.21	11.16	34.87	40.00	-5.13	QP
4	306.75	23.13	1.32	13.64	38.09	47.00	-8.91	QP
5	668.14	20.62	1.71	18.64	40.97	47.00	-6.03	QP
6	965.54	19.56	2.17	21.56	43.29	47.00	-3.71	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported



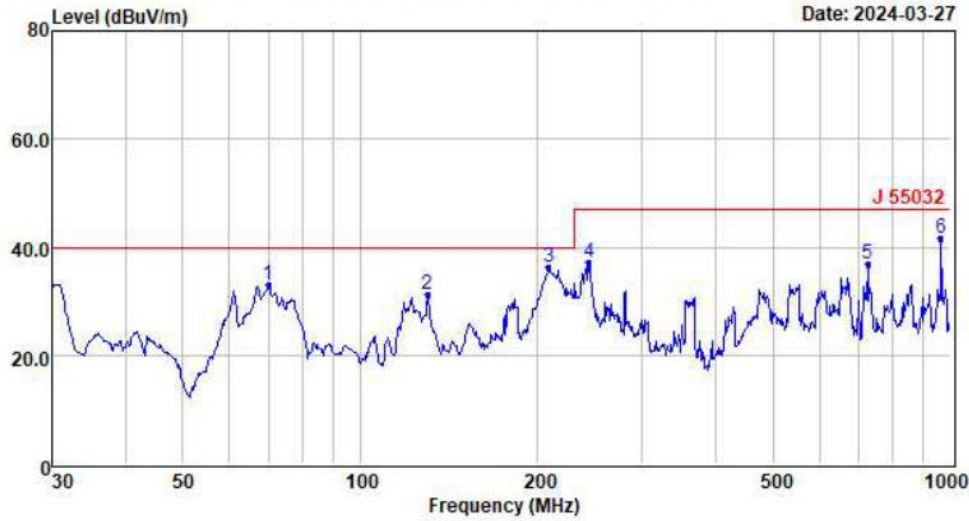


TM1 / Polarization: Vertical

Data: 13

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Date: 2024-03-27



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	69.84	21.98	0.70	10.23	32.91	40.00	-7.09	QP
2	129.92	20.76	0.95	9.41	31.12	40.00	-8.88	QP
3	208.58	23.91	1.21	11.19	36.31	40.00	-3.69	QP
4	244.23	23.71	1.26	12.29	37.26	47.00	-9.74	QP
5	724.26	15.96	1.85	19.19	37.00	47.00	-10.00	QP
6	965.54	17.87	2.17	21.56	41.60	47.00	-5.40	QP

Note: 1. All readings are Quasi-peak values.

2. Measured= Reading + Antenna Factor + Cable Loss

3. The emission that are 20db below the official limit are not reported



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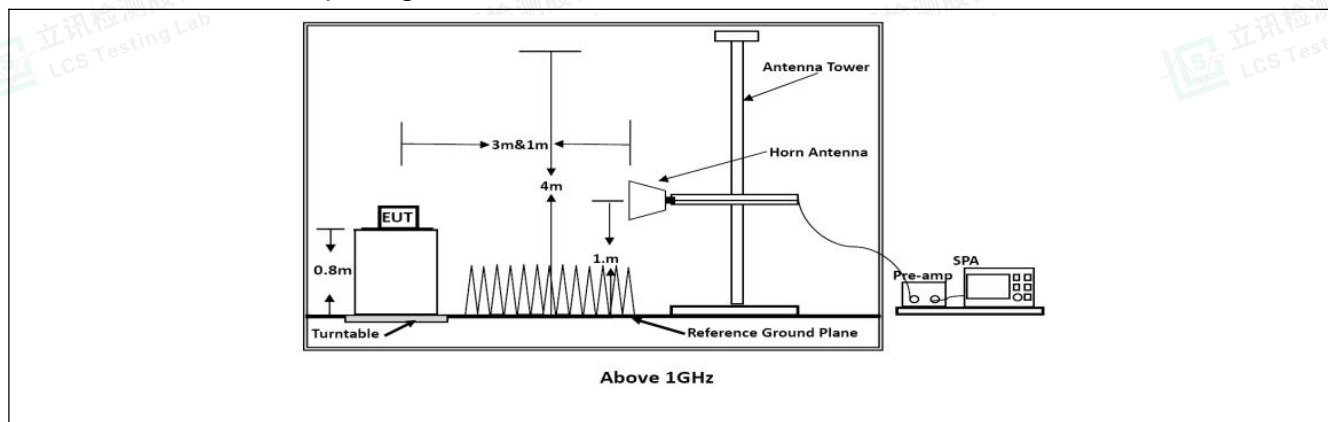
4.3 Radiated emissions (above 1GHz)

Test Requirement:	Class B		
Test Limit:	Frequency range(MHz)	Radiated emissions limit(dB μ V/m)	
		Peak	Average
	1000-3000	70	50
	3000-6000	74	54
	Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz		
Test Method:	CISPR 16-2-3		
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor		

4.3.1 E.U.T. Operation:

Operating Environment:			
Temperature:	23.8 °C	Humidity:	52.1 %
Pre test mode:	TM1		
Final test mode:	TM1		

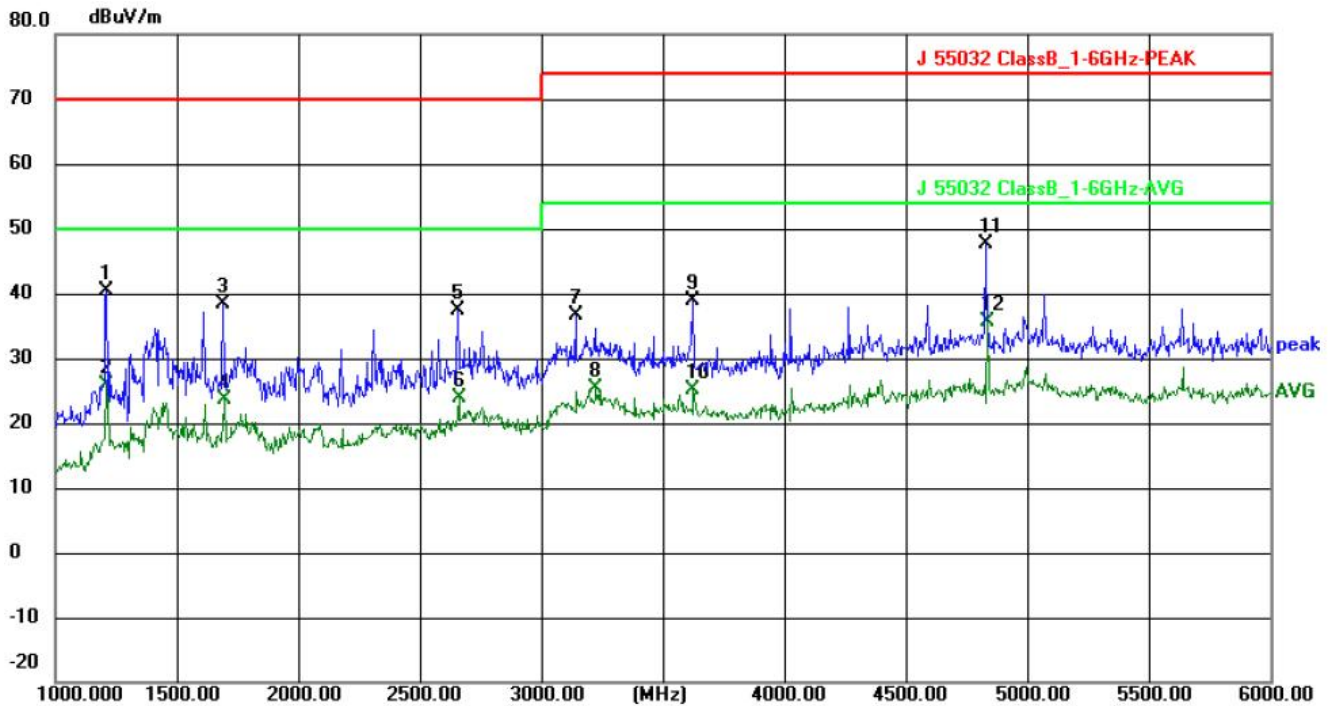
4.3.2 Test Setup Diagram:





4.3.3 Test Data:

TM1 / Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1210.000	55.60	-15.21	40.39	70.00	-29.61	peak	P	
2	1210.000	41.10	-15.21	25.89	50.00	-24.11	AVG	P	
3	1690.000	52.67	-14.40	38.27	70.00	-31.73	peak	P	
4	1695.000	38.01	-14.39	23.62	50.00	-26.38	AVG	P	
5	2655.000	48.22	-10.81	37.41	70.00	-32.59	peak	P	
6	2660.000	34.60	-10.79	23.81	50.00	-26.19	AVG	P	
7	3140.000	46.04	-9.53	36.51	74.00	-37.49	peak	P	
8	3225.000	34.93	-9.52	25.41	54.00	-28.59	AVG	P	
9	3625.000	48.19	-9.19	39.00	74.00	-35.00	peak	P	
10	3625.000	34.23	-9.19	25.04	54.00	-28.96	AVG	P	
11	4830.000	52.64	-4.96	47.68	74.00	-26.32	peak	P	
12	4835.000	40.51	-4.94	35.57	54.00	-18.43	AVG	P	



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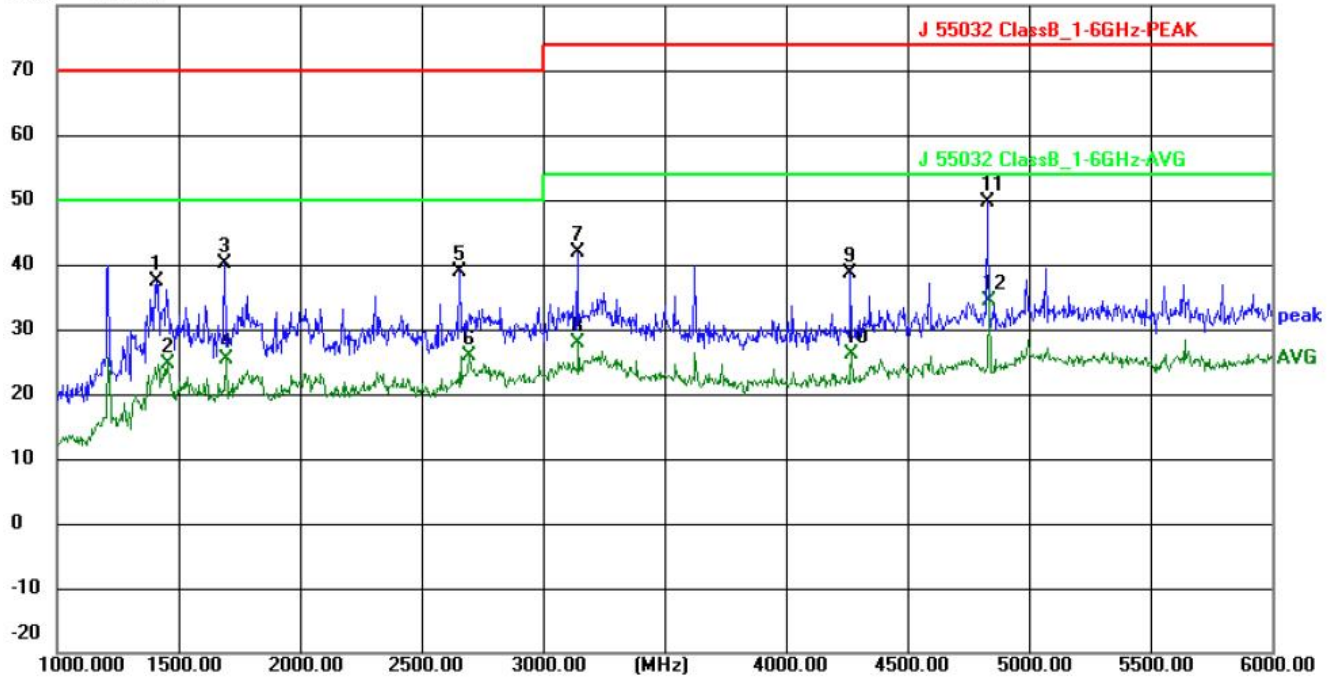
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TM1 / Polarization: Vertical

80.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1410.000	52.57	-15.23	37.34	70.00	-32.66	peak	P	
2	1455.000	39.67	-15.08	24.59	50.00	-25.41	AVG	P	
3	1690.000	54.50	-14.40	40.10	70.00	-29.90	peak	P	
4	1695.000	39.72	-14.39	25.33	50.00	-24.67	AVG	P	
5	2655.000	49.79	-10.81	38.98	70.00	-31.02	peak	P	
6	2695.000	36.60	-10.66	25.94	50.00	-24.06	AVG	P	
7	3140.000	51.40	-9.53	41.87	74.00	-32.13	peak	P	
8	3145.000	37.31	-9.54	27.77	54.00	-26.23	AVG	P	
9	4265.000	46.08	-7.50	38.58	74.00	-35.42	peak	P	
10	4270.000	33.65	-7.48	26.17	54.00	-27.83	AVG	P	
11	4830.000	54.55	-4.96	49.59	74.00	-24.41	peak	P	
12	4835.000	39.21	-4.94	34.27	54.00	-19.73	AVG	P	



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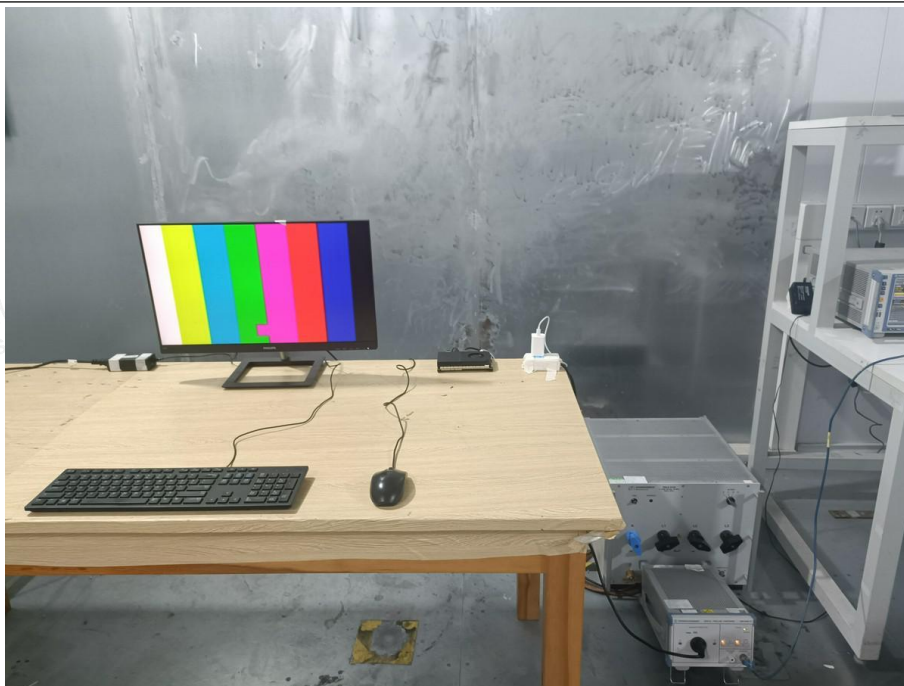
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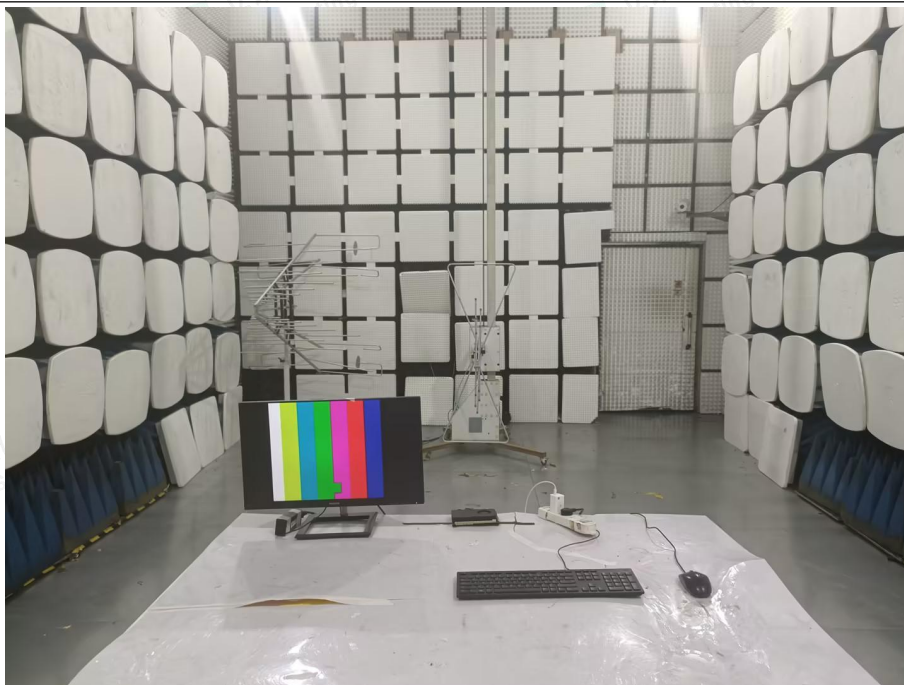


5. TEST SETUP PHOTOS

Conducted emissions from AC mains power ports (150kHz-30MHz)



Radiated emissions (30MHz-1GHz)



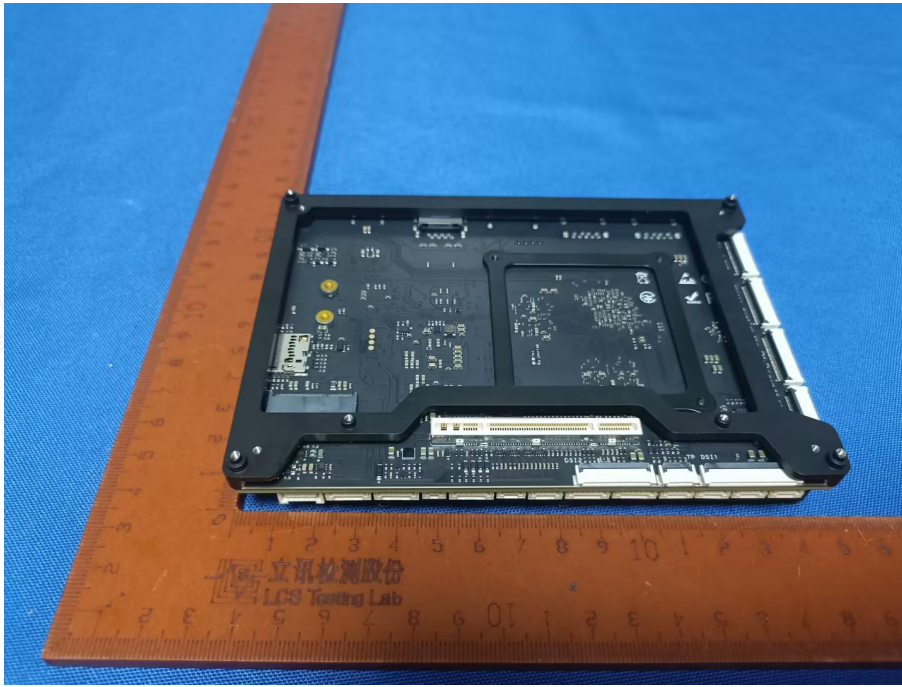
Radiated emissions (above 1GHz)





6. EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)

External







--- End of Report ---

