



TEST REPORT

Reference No...... : WTD21D08078438E
Applicant..... : OpenEmbed M&C
Address..... : Room 607, Bldg 2, Minle industry park, Meiban Blvd, LongHua District, Shenzhen, China
Manufacturer : OpenEmbed M&C
Address..... : Room 607, Bldg 2, Minle industry park, Meiban Blvd, LongHua District, Shenzhen, China
Product..... : Edgebox
Model(s)..... : EdgeBox-RPI4
Standards..... : FCC PART15 SUBPART B:2019
Date of Receipt sample : 2021-08-03
Date of Test : 2021-08-03 to 2021-08-18
Date of Issue..... : 2021-08-19
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Testing Group Co., Ltd.

Address: No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China

Tel: +86-769-2267 6998

Fax: +86-769-2267 6828

Compiled by:

Approved by:

Reeves Wu

Ford Wang

Reeves Wu / Project Engineer

Daniel Liu / Designated Reviewer



1 Contents

	Page
COVER PAGE	1
1 CONTENTS	2
2 REVISION HISTORY	3
3 GENERAL INFORMATION	4
3.1 GENERAL DESCRIPTION OF E.U.T.	4
3.2 DETAILS OF E.U.T.	4
3.3 SUBCONTRACTED	4
3.4 ABNORMALITIES FROM STANDARD CONDITIONS	4
4 TEST SUMMARY	5
5 EQUIPMENT USED DURING TEST	6
5.1 EQUIPMENT LIST	6
5.2 DESCRIPTION OF SUPPORT UNITS	6
5.3 MEASUREMENT UNCERTAINTY	6
5.4 TEST EQUIPMENT CALIBRATION	6
5.5 TEST MODE	7
6 EMISSION TEST RESULTS	8
6.1 RADIATION EMISSION, 30MHZ TO 1000MHZ	8
6.2 RADIATION EMISSION, ABOVE 1000MHZ	11
7 PHOTOGRAPHS – TEST SETUP	14
7.1 PHOTOGRAPH – RADIATED EMISSION TEST SETUP FOR 30MHZ-1000MHZ	14
7.2 PHOTOGRAPH – RADIATED EMISSION TEST SETUP FOR ABOVE 1GHZ	14
8 PHOTOGRAPHS – CONSTRUCTIONAL DETAILS	15



2 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD21D08078438E	2021-08-03	2021-08-03 to 2021-08-18	2021-08-19	original	-	Valid

WALTEK



3 General Information

3.1 General Description of E.U.T.

Product : Edgebox

Model(s) : EdgeBox-RPI4

Remark : The product does not contain wireless functions.

3.2 Details of E.U.T.

Ratings : DC 10.8V-36V

3.3 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

Yes No

If Yes, list the related test items and lab information:

Test Lab: N/A

Lab address: N/A

Test items: N/A

3.4 Abnormalities from Standard Conditions

None.

WALTEK



4 Test Summary

Test Item	Test Requirement	Test Result
AC Power Line Conducted Emission (150kHz to 30MHz)	FCC PART 15, SUBPART B	N/A
Disturbance voltage at the antenna terminals (30MHz to 2150MHz)	FCC PART 15, SUBPART B	N/A
Radiated Emission (30MHz to 1GHz)	FCC PART 15, SUBPART B	Pass
Radiated Emission (Above 1GHz)	FCC PART 15, SUBPART B	Pass

Remark:

Pass Test item meets the requirement

Fail Test item does not meet the requirement

N/A Test case does not apply to the test object

WALTEK



5 Equipment Used during Test

5.1 Equipment List

3m Semi-anechoic Chamber for Radiation (Below 1GHz) TDK						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	2021-04-26	2022-04-25
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2020-10-31	2021-10-30
3	Amplifier	ANRITSU	MH648A	M43381	2021-04-26	2022-04-25
4	Cable	HUBER+SUHNER	CBL2	525178	2021-04-26	2022-04-25
3m Fully Anechoic Room for Radiation (Above 1GHz)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	FSP	100091	2021-04-26	2022-04-25
2	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2021-04-30	2022-04-29
3	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2021-07-26	2022-07-25
4	Coaxial Cable (above 1GHz)	ZT26-NJ-NJ-8M/FA	1GHz-18GHz	NA	2021-04-26	2022-04-25

5.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
laptop	Lenovo	ThinkCentre 6713	1701A53L4BC115
laptop	Dell	Vostro 3400	

5.3 Measurement Uncertainty

Parameter	Uncertainty (Note 1)
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Radiated Emission(30MHz~1GHz)	□5.03dB
Radiated Emission(1GHz~18GHz)	□5.47dB

Note 1: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., LTD.

Waltek Testing Group Co., Ltd.

<http://www.waltek.com.cn>



address is No.163, Pingyun Rd. West of Huangpu Ave, Tianhe District, Guangzhou, Guangdong, China.

5.5 Test Mode

Test Item	Test Mode	Test Voltage
Radiated Emissions (30MHz-1GHz)	Working mode	DC 24V
Radiated Emissions (Above 1GHz)	Working mode	DC 24V
“*” shows the worst case mode which were recorded in this report.		

WALTEK



6 Emission Test Results

6.1 Radiation Emission, 30MHz to 1000MHz

Test Requirement.....	: FCC PART 15, SUBPART B
Test Method.....	: ANSI C63.4
Test Result	: Pass
Frequency Range	: 30MHz to 1000MHz
Class.....	: Class A
Limit.....	:

Frequency (MHz)	Distance (Meter)	Limit (dB μ V/m)
		Quasi-peak
30 to 88	3	49.5
88 to 216	3	54
216 to 960	3	56.9
960 to 1000	3	60

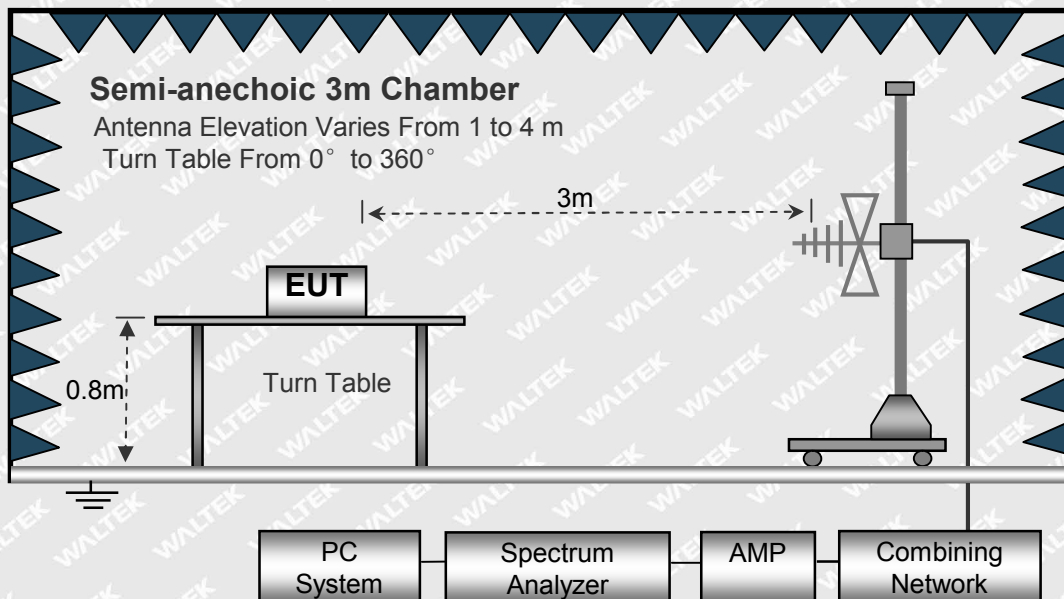
6.1.1 E.U.T. Operation

Operating Environment:

Temperature.....	: 22.5 \square C
Humidity.....	: 52.6%RH
Atmospheric Pressure.....	: 101.8kPa
EUT Operation.....	: Refer to section 5.5.

6.1.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.



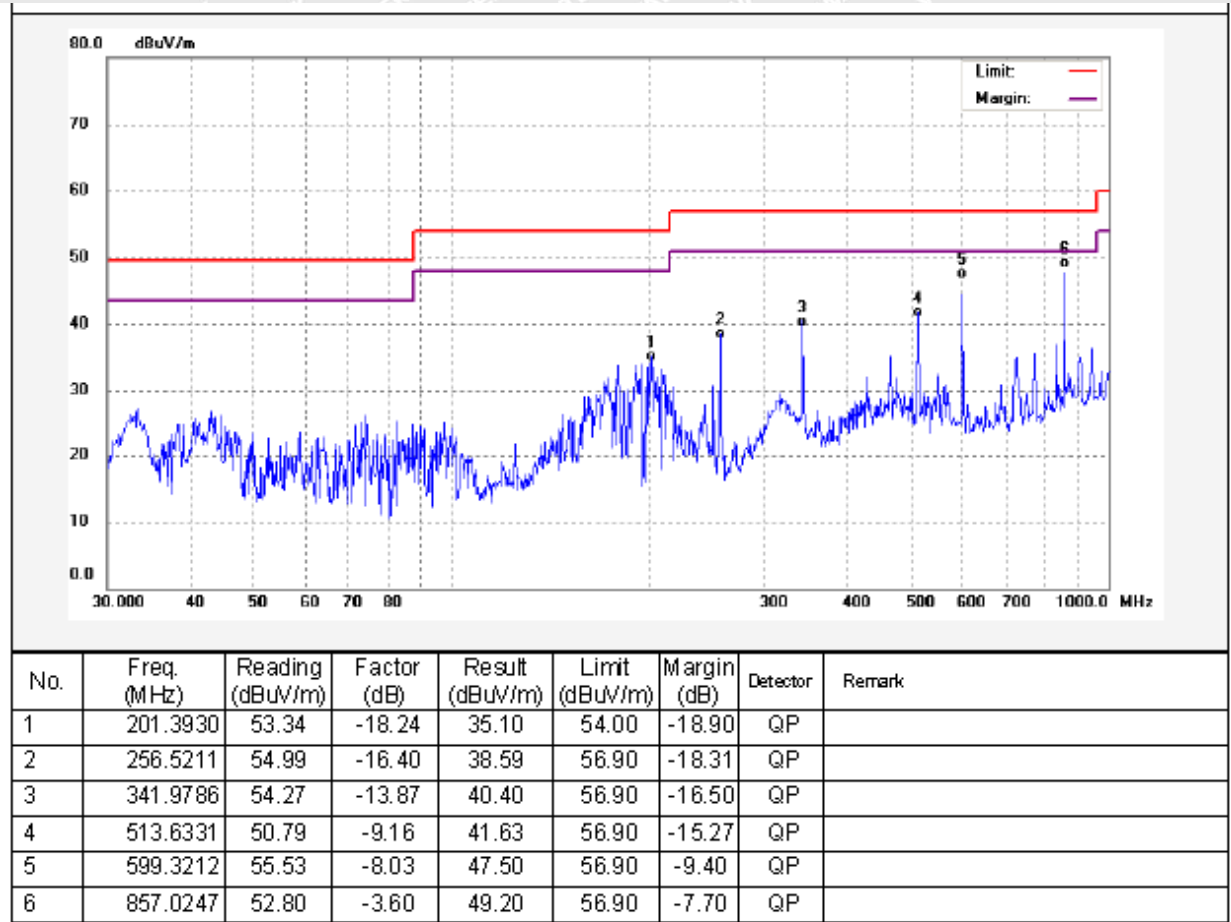


6.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Quasi-peak measurements were performed if peak emissions were within 6dB of the Quasi-peak limit line.

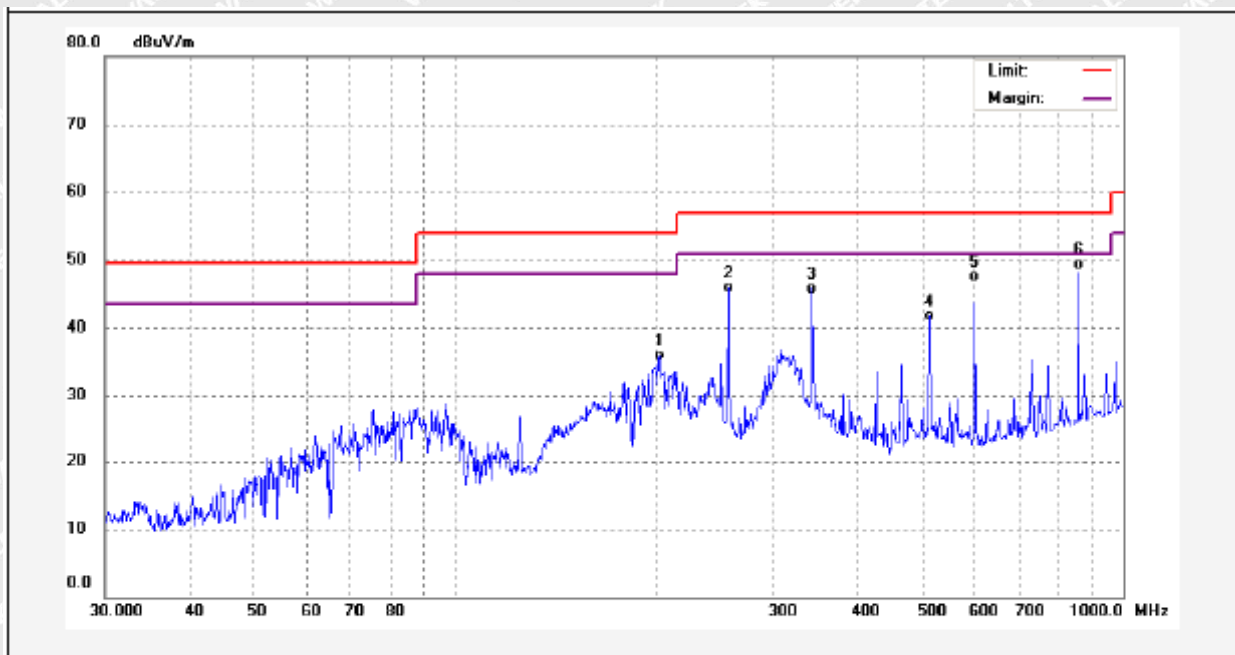
6.1.4 Radiated Emission Test Data, 30MHz to 1000MHz

Antenna Polarization: Vertical





Antenna Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	202.1005	54.14	-18.24	35.90	54.00	-18.10	QP	
2	256.5211	62.28	-16.40	45.88	56.90	-11.02	QP	
3	341.9786	59.67	-13.87	45.80	56.90	-11.10	QP	
4	513.6331	50.82	-9.16	41.66	56.90	-15.24	QP	
5	599.3212	55.63	-8.03	47.60	56.90	-9.30	QP	
6	857.0247	53.00	-3.60	49.40	56.90	-7.50	QP	



6.2 Radiation Emission, Above 1000MHz

Test Requirement.....	: FCC PART 15, SUBPART B
Test Method.....	: ANSI C63.4
Test Result	: Pass
Frequency Range	: Above 1GHz
Class.....	: Class A
Limit.	:

Frequency Range (MHz)	Distance (Meter)	Average Limit dB(uV/m)	Peak Limit (dBuV/m)
Above 1GHz	3	59	79

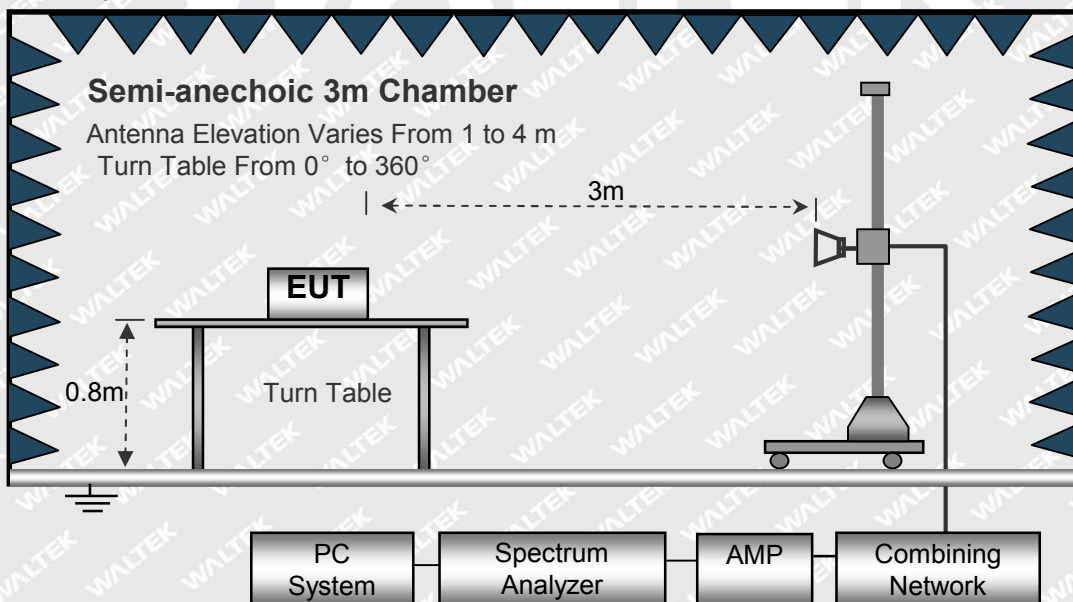
6.2.1 E.U.T. Operation

Operating Environment:

Temperature.....	: 22.5°C
Humidity.....	: 52.6%RH
Atmospheric Pressure	: 101.8kPa
EUT Operation.....	: Refer to section 5.5.

6.2.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.



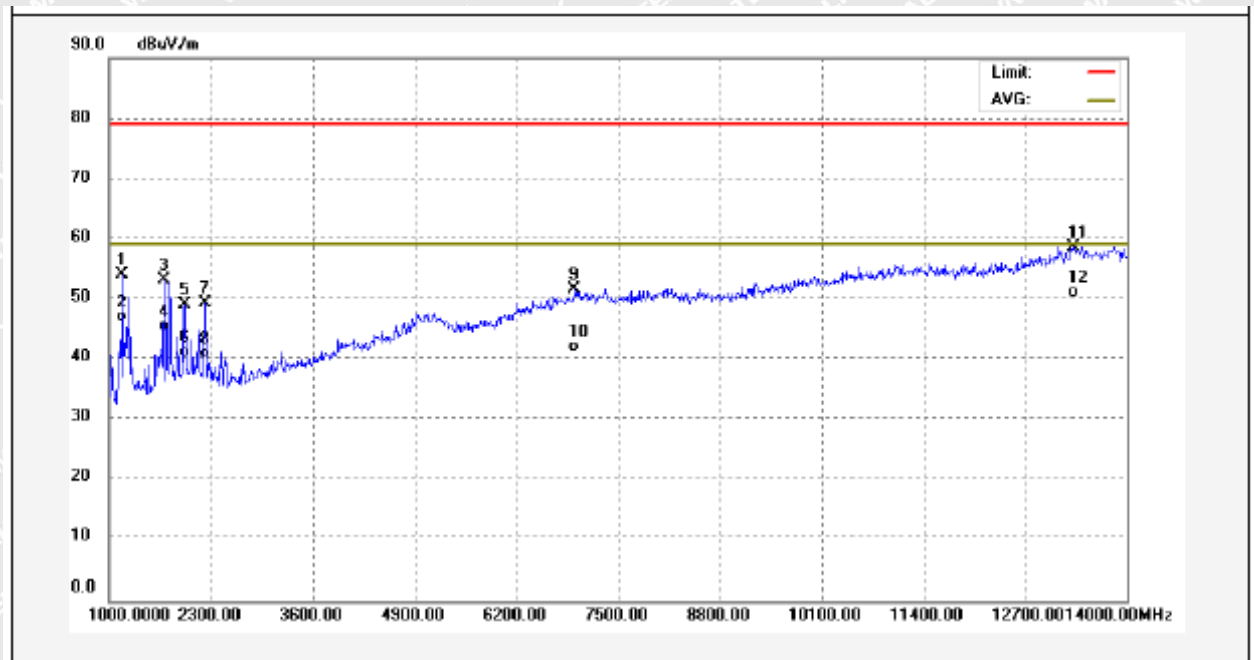
6.2.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Average measurements were performed if peak emissions were within 6dB of the average limit line



6.2.4 Radiated Emission test data, Above 1000MHz

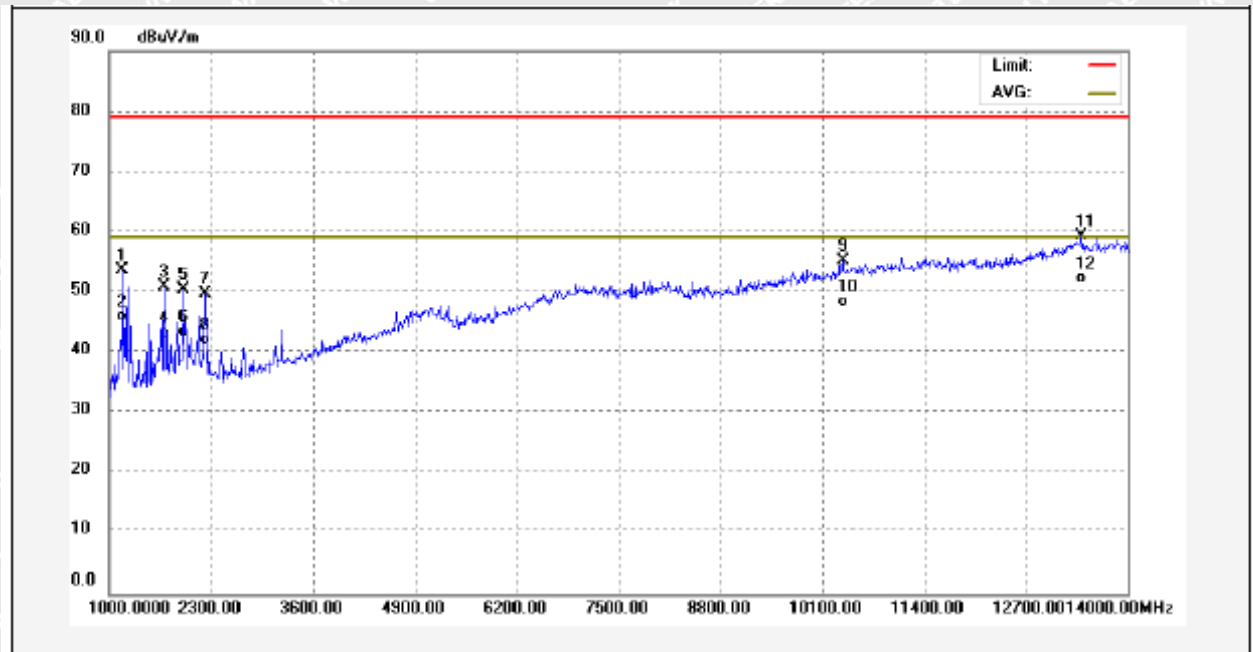
Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1169.000	69.73	-15.55	54.18	79.00	-24.82	peak	
2	1169.000	62.65	-15.55	47.10	59.00	-11.90	AVG	
3	1702.000	65.47	-12.37	53.10	79.00	-25.90	peak	
4	1702.000	57.98	-12.37	45.61	59.00	-13.39	AVG	
5	1962.000	59.77	-10.62	49.15	79.00	-29.85	peak	
6	1962.000	51.92	-10.62	41.30	59.00	-17.70	AVG	
7	2222.000	60.47	-11.18	49.29	79.00	-29.71	peak	
8	2222.000	52.32	-11.18	41.14	59.00	-17.86	AVG	
9	6941.000	49.24	2.36	51.60	79.00	-27.40	peak	
10	6941.000	39.74	2.36	42.10	59.00	-16.90	AVG	
11	13311.000	49.55	9.12	58.67	79.00	-20.33	peak	
12	13311.000	42.13	9.12	51.25	59.00	-7.75	AVG	



Antenna Polarization: Horizontal

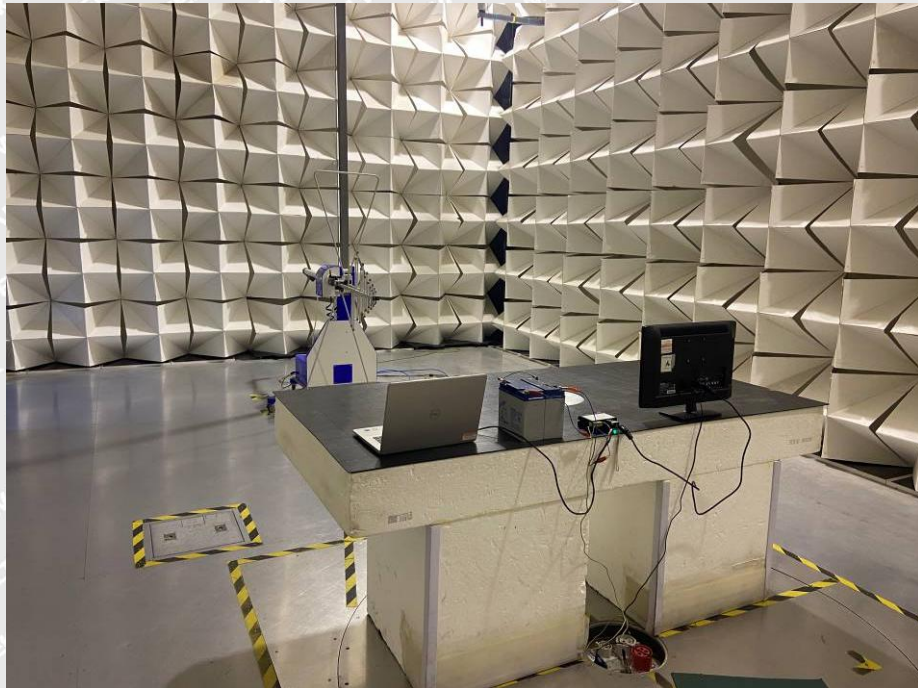


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1169.000	66.90	-13.31	53.59	79.00	-25.41	peak	
2	1169.000	59.43	-13.31	46.12	59.00	-12.88	AVG	
3	1702.000	61.26	-10.39	50.87	79.00	-28.13	peak	
4	1702.000	53.60	-10.39	43.21	59.00	-15.79	AVG	
5	1936.000	59.44	-8.97	50.47	79.00	-28.53	peak	
6	1936.000	52.55	-8.97	43.58	59.00	-15.42	AVG	
7	2222.000	58.08	-8.27	49.81	79.00	-29.19	peak	
8	2222.000	50.47	-8.27	42.20	59.00	-16.80	AVG	
9	10360.000	49.68	5.47	55.15	79.00	-23.85	peak	
10	10360.000	42.94	5.47	48.41	59.00	-10.59	AVG	
11	13402.000	49.91	9.39	59.30	79.00	-19.70	peak	
12	13402.000	42.91	9.39	52.30	59.00	-6.70	AVG	

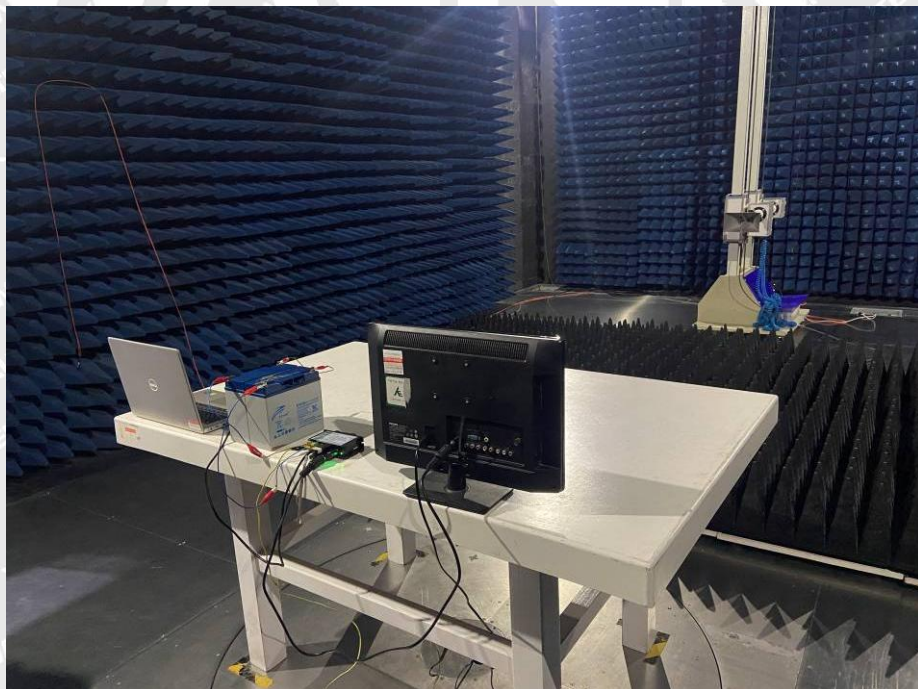


7 Photographs – Test Setup

7.1 Photograph – Radiated Emission Test Setup For 30MHz-1000MHz



7.2 Photograph – Radiated Emission Test Setup For Above 1GHz





8 Photographs – Constructional Details







====End of Report====