

TEST REPORT

Reference No..... : WTX21X06061698W-1
FCC ID : 2A2G7-V-UVP-102
Applicant : ANSTON AERIAL MEDIA CORP
Address..... : 4054 148th Ave NE Redmond, WA 98052, USA
Product Name : UV-C Sterilizer with Wireless Charging
Test Model. : V-UVP-102
Standards : FCC Part 18
Date of Receipt sample : Jun. 24, 2021
Date of Test..... : Jun. 24, 2021 to Jul. 05, 2021
Date of Issue : Jul. 05, 2021
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:

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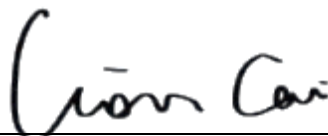
Tested by:

Reviewed By:

Approved & Authorized By:



Jason Su / Project Engineer



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Silin Chen / Manager

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Report version

Version No.	Date of issue	Description
Rev.00	Jul. 05, 2021	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: ANSTON AERIAL MEDIA CORP
Address of applicant: 4054 148th Ave NE Redmond, WA 98052, USA

Manufacturer: Shenzhen Ouli Technology Co., Ltd
Address of manufacturer: 2-3F Building D Yucai Industrial Area, No.40
Qiaotang Road, Qiaotou Village Fuyong, Baoan
District, Shenzhen, Guangdong Province, China

General Description of EUT	
Product Name:	UV-C Sterilizer with Wireless Charging
Trade Name:	alnec
Model No.:	V-UVP-102
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	110~205kHz
Power adapter:	SAW30A-120-2500U Input: AC100-240V 50/60Hz 0.8A Output: DC12V 2500mA
Antenna Type:	Coil Antenna
Rated Voltage:	Input: DC12V; Wireless Charging Output: DC5V/9V
Rated Current:	Input: 2.5A; Wireless Charging Output: 1A/1.1A
Rated Power:	Wireless Charging Output: 5W / 10W

1.2 Test Standards

The tests were performed according to following standards:

FCC Part 18 Subpart C: Industrial, Scientific, and medical medical equipment.

ANSI C63.4-2014: American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101)

FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark	Power Supply Mode
TM1	Wireless Charging	/	Input DC12V2.5A; Output: 5W
TM2	Wireless Charging	/	Input DC12V2.5A; Output: 10W

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Cable	1.5	Shielded	With Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	9-150kHz ± 3.74 dB
		0.15-30MHz ± 3.34 dB
Radiated Emissions	Radiated	30-200MHz ± 4.52 dB
		0.2-1GHz ± 5.56 dB
		1-6GHz ± 3.84 dB
		6-18GHz ± 3.92 dB

1.7 Test Equipment List and Details

Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2021-03-30	2022-03-29
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2021-04-12	2022-04-11
Amplifier	Agilent	8447F	3113A06717	2021-04-12	2022-04-11
Amplifier	C&D	PAP-1G18	2002	2021-04-12	2022-04-11
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2021-03-20	2023-03-19
Horn Antenna	ETS	3117	00086197	2021-03-19	2023-03-18
Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2023-03-19
Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2021-04-09	2023-04-08
Amplifier	Agilent	8447D	2944A10179	2021-04-12	2022-04-11
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2021-04-15	2022-04-14

Software List			
Description	Manufacturer	Model	Version
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission)*	Farad	EZ-EMC	RA-03A1

*Remark: indicates software version used in the compliance certification testing

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 18.307 (b)	Conducted Emission	Compliant
§ 18.305 (b)	Radiated Emission	Compliant

3. Conducted Emissions

3.1 Standard Applicable

According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

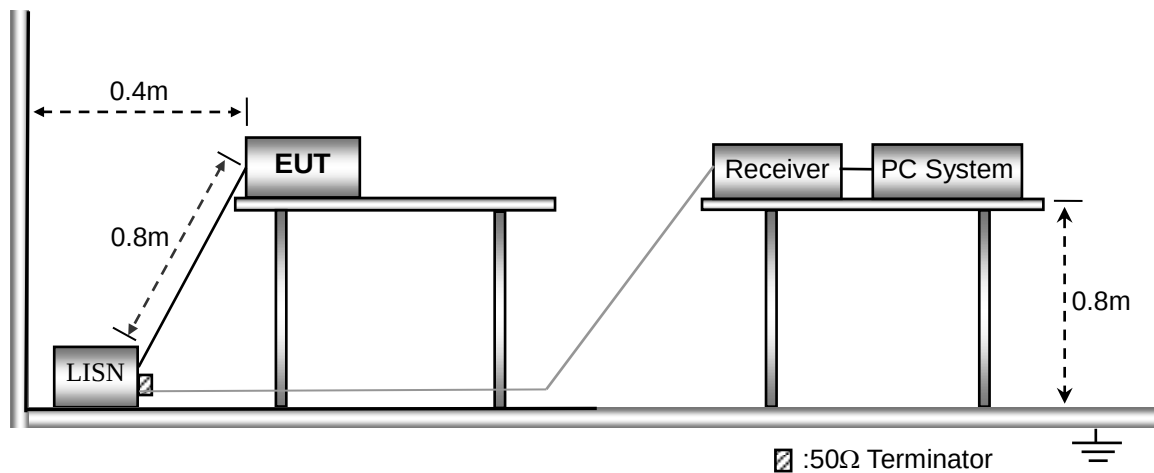
Frequency (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

3.2 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.307 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

3.3 Basic Test Setup Block Diagram



3.4 Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	54%
ATM Pressure:	1016 mbar

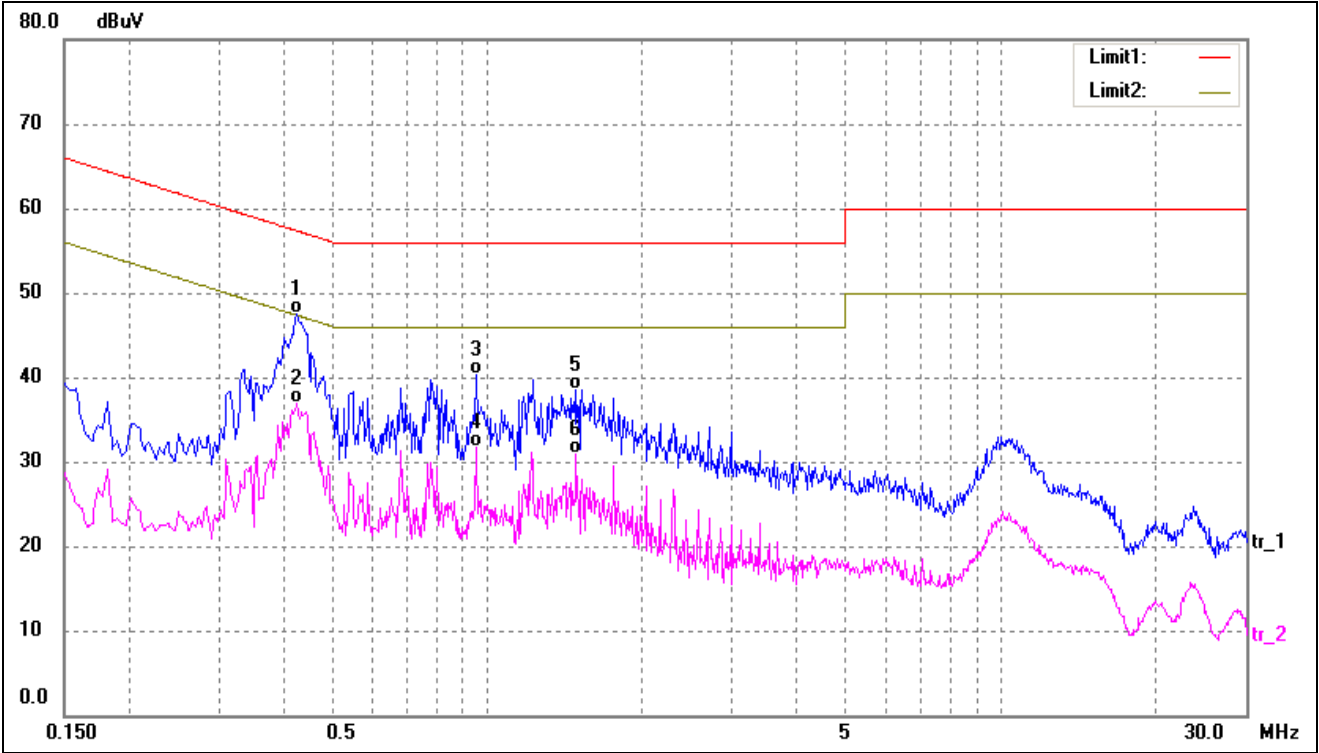
3.5 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency	150 kHz
Stop Frequency.....	30 MHz
Sweep Speed	Auto
IF Bandwidth.....	10 kHz
Quasi-Peak Adapter Bandwidth	9 kHz
Quasi-Peak Adapter Mode.....	Normal

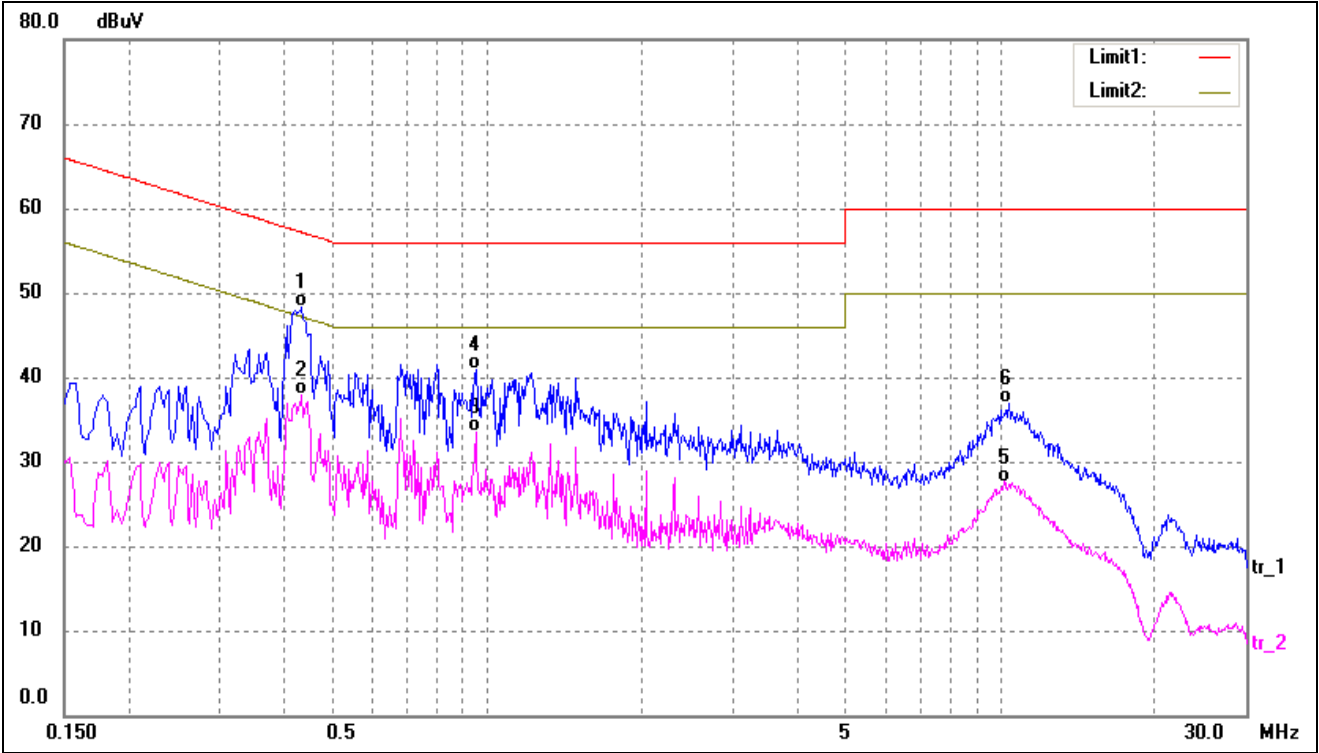
3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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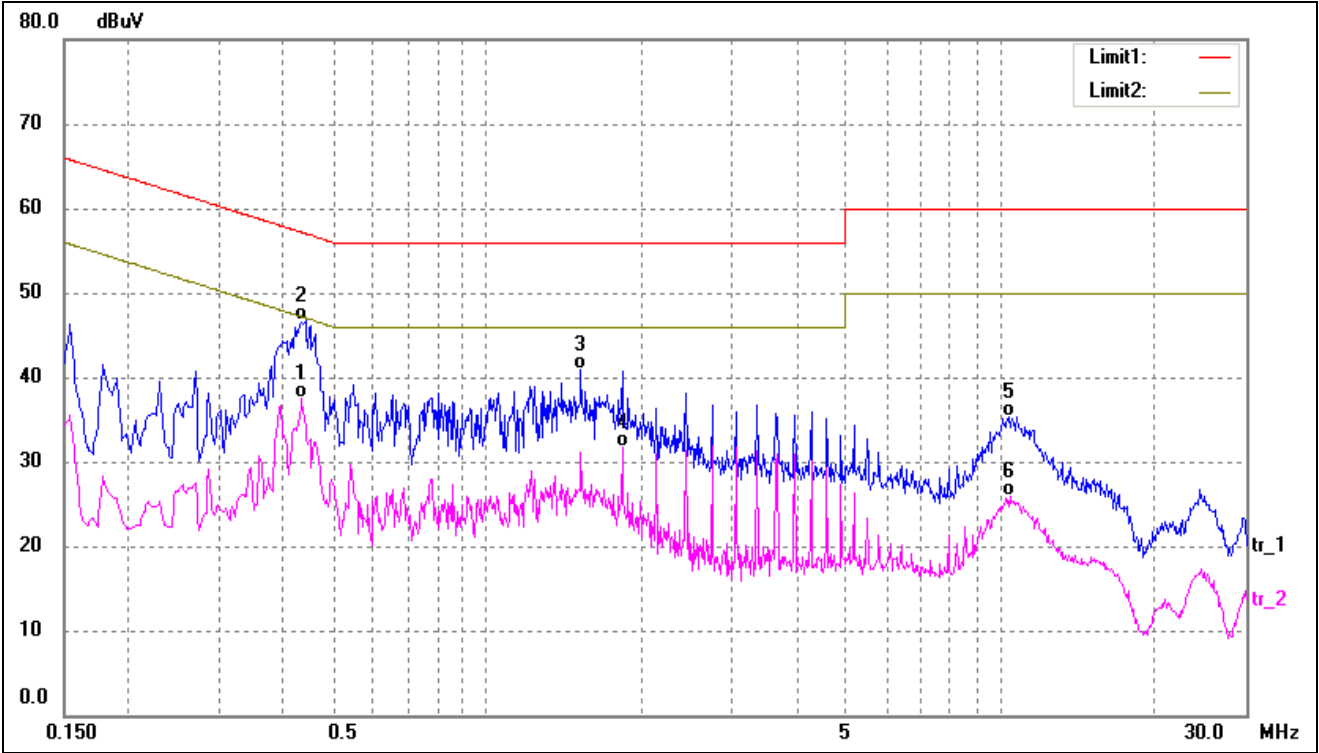
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.4260	37.32	10.22	47.54	57.33	-9.79	QP
2	0.4260	26.75	10.22	36.97	47.33	-10.36	AVG
3	0.9500	30.03	10.21	40.24	56.00	-15.76	QP
4	0.9500	21.41	10.21	31.62	46.00	-14.38	AVG
5	1.4940	28.31	10.23	38.54	56.00	-17.46	QP
6	1.4940	20.63	10.23	30.86	46.00	-15.14	AVG

Test mode:	TM1	Polarity:	Neutral
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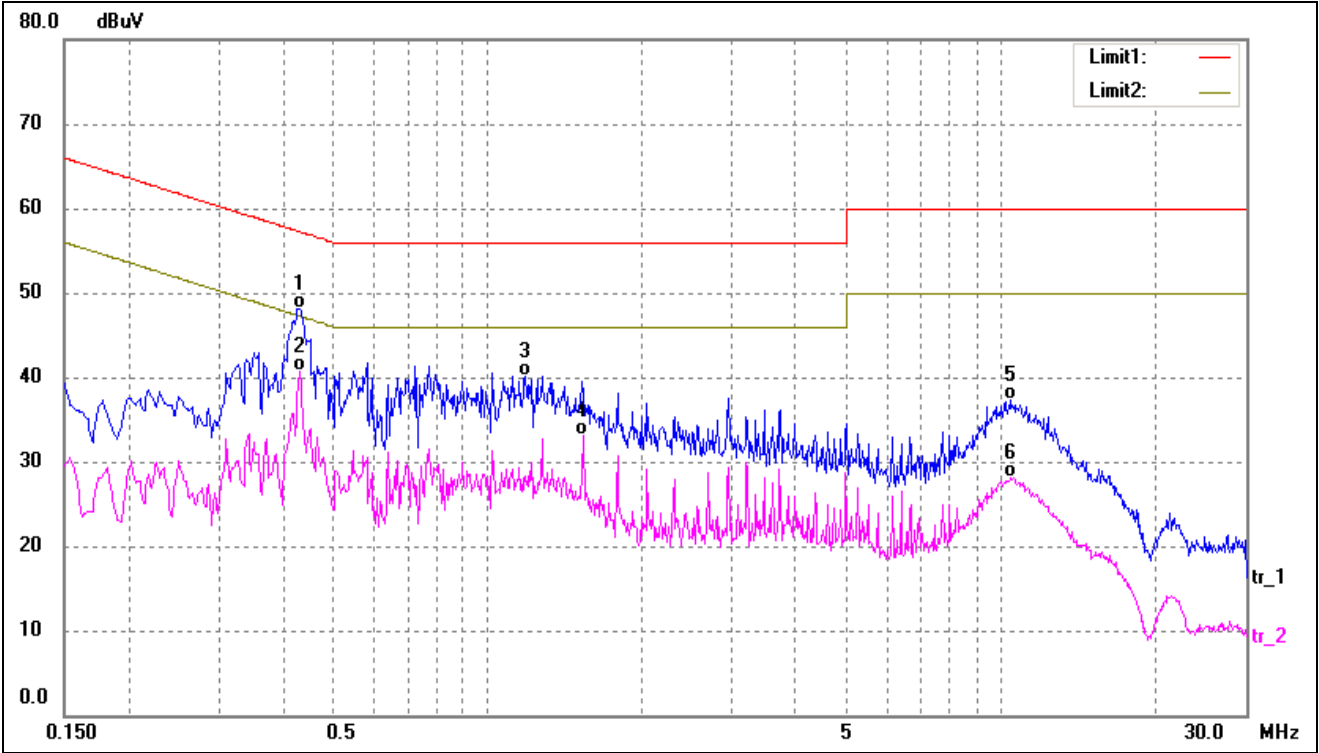
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.4340	38.04	10.22	48.26	57.18	-8.92	QP
2	0.4340	27.76	10.22	37.98	47.18	-9.20	AVG
3	0.9500	23.28	10.21	33.49	46.00	-12.51	AVG
4	0.9540	30.70	10.21	40.91	56.00	-15.09	QP
5	10.1540	17.31	10.29	27.60	50.00	-22.40	AVG
6	10.3540	26.68	10.30	36.98	60.00	-23.02	QP

Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.4340	27.19	10.22	37.41	47.18	-9.77	AVG
2	0.4420	36.51	10.22	46.73	57.02	-10.29	QP
3	1.5260	30.63	10.23	40.86	56.00	-15.14	QP
4	1.8300	21.41	10.27	31.68	46.00	-14.32	AVG
5	10.3740	25.08	10.30	35.38	60.00	-24.62	QP
6	10.4260	15.54	10.30	25.84	50.00	-24.16	AVG

Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4300	37.93	10.22	48.15	57.25	-9.10	QP
2*	0.4300	30.50	10.22	40.72	47.25	-6.53	AVG
3	1.1900	29.89	10.22	40.11	56.00	-15.89	QP
4	1.5380	22.79	10.24	33.03	46.00	-12.97	AVG
5	10.4620	27.08	10.30	37.38	60.00	-22.62	QP
6	10.4620	17.73	10.30	28.03	50.00	-21.97	AVG

4. Radiated Emissions

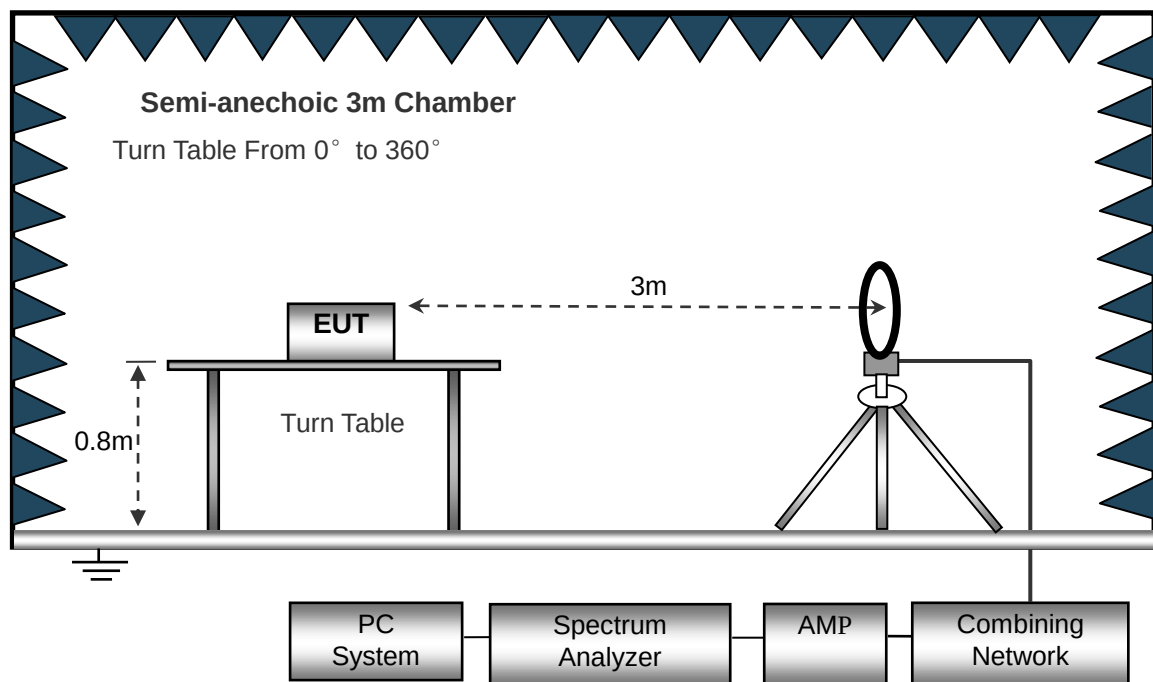
4.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.305 Limit.

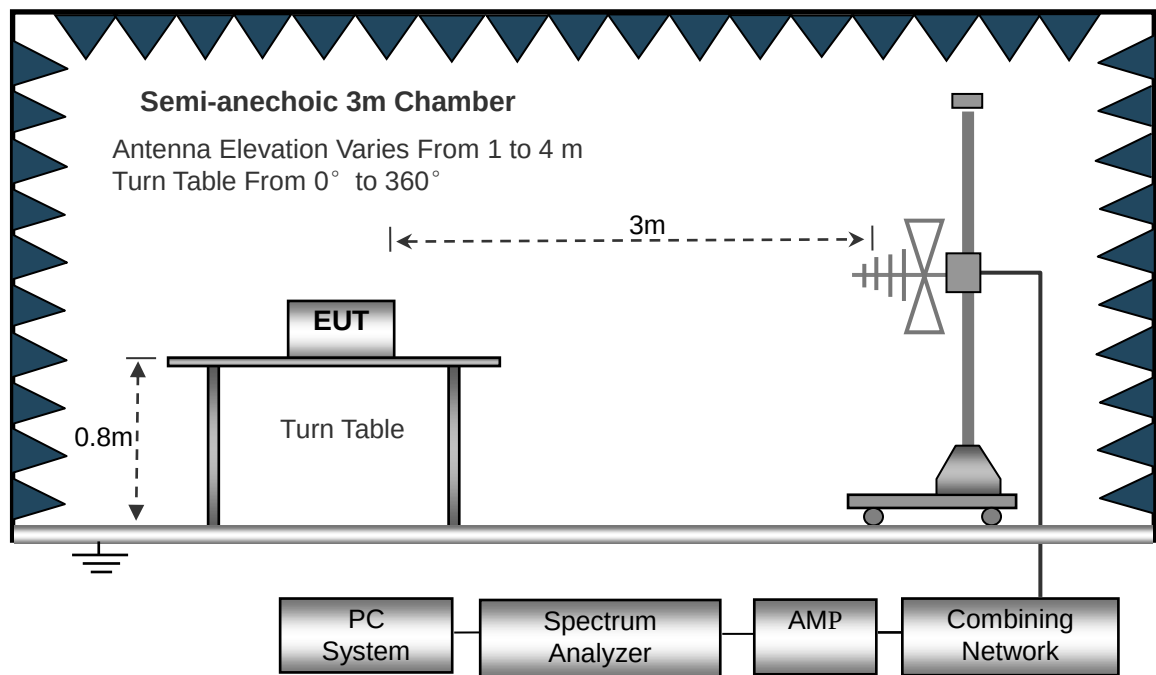
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

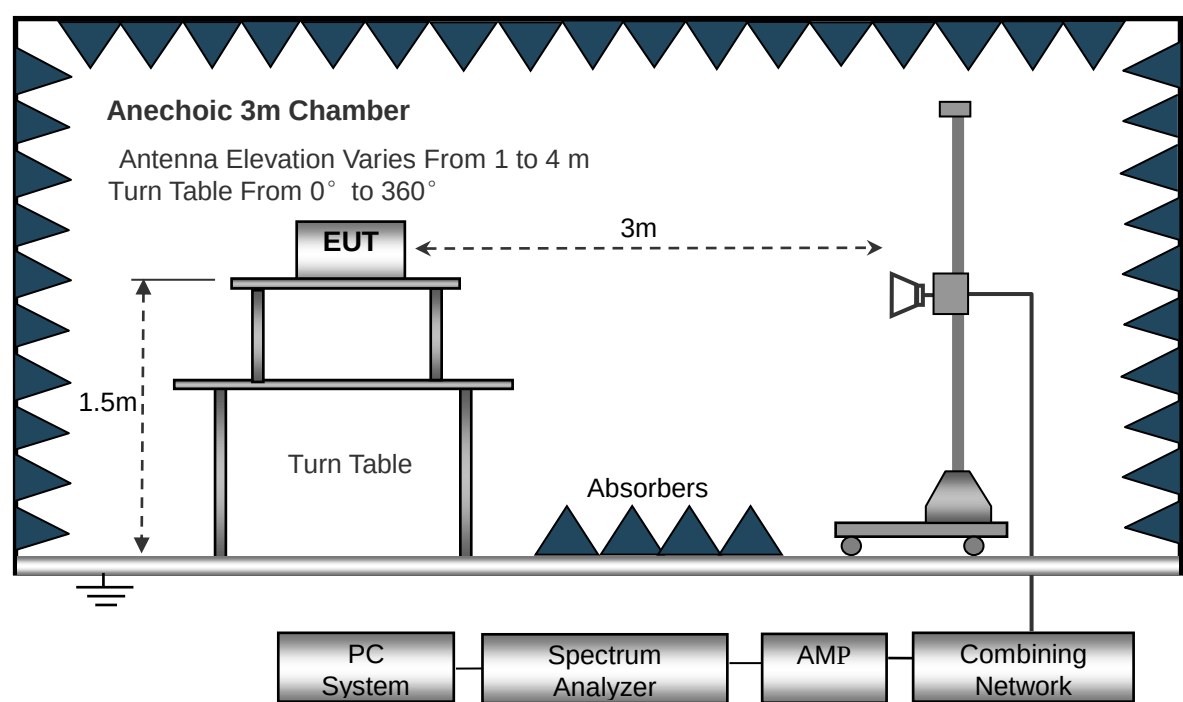
The test setup for emission measurement below 30MHz..



The test setup for emission measurement from 30 MHz to 1 GHz..



The test setup for emission measurement above 1 GHz..



4.2 Test Receiver Setup

Frequency :9kHz-30MHz

RBW=10KHz,

VBW =30KHz

Sweep time= Auto

Trace = max hold

Detector function = peak

Frequency :30MHz-1GHz

RBW=120KHz,

VBW=300KHz

Sweep time= Auto

Trace = max hold

Detector function = peak, QP

Frequency :Above 1GHz

RBW=1MHz,

VBW=3MHz(Peak), 10Hz(AV)

Sweep time= Auto

Trace = max hold

Detector function = peak, AV

4.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Any non-ISM frequency device. The equation for margin calculation is as follows:

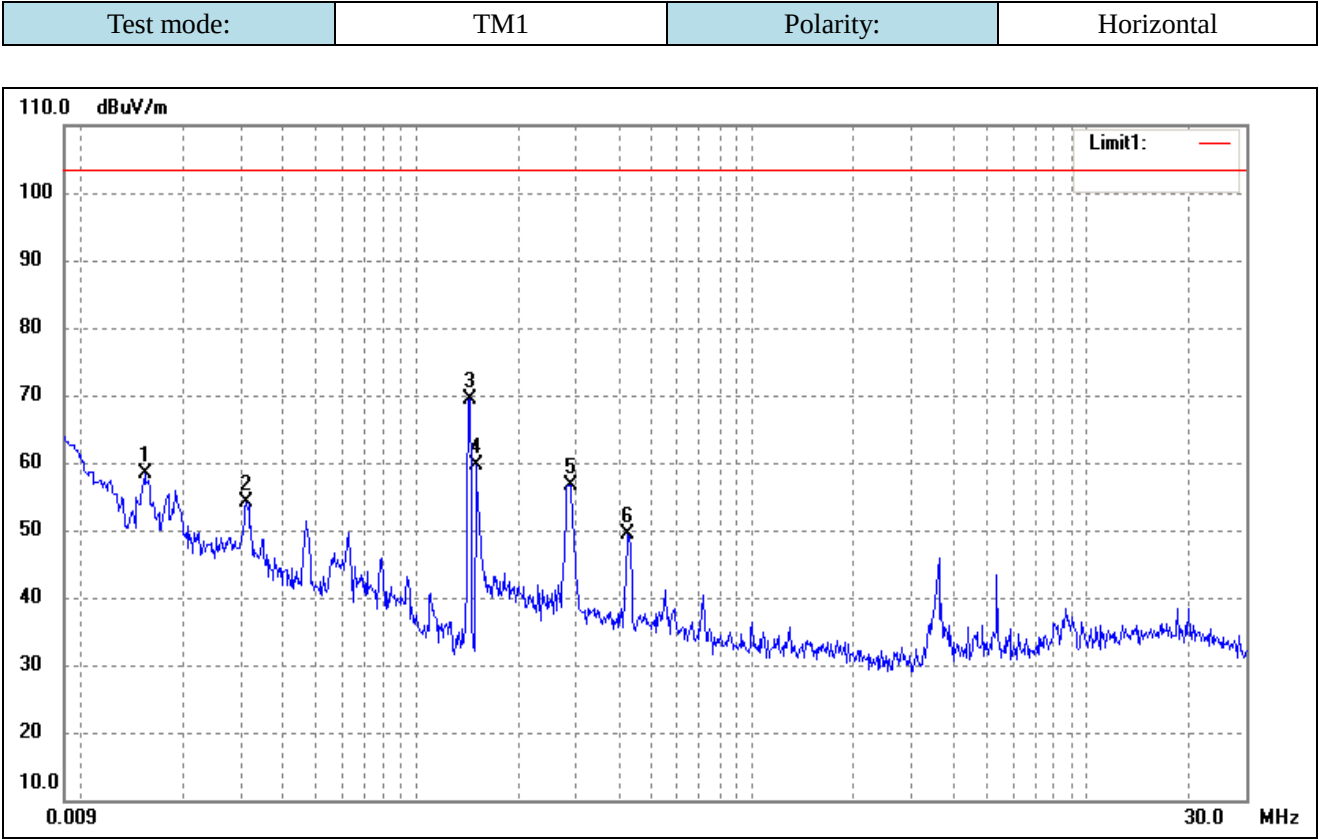
$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 18.305 Limit}$$

4.4 Environmental Conditions

Temperature:	22 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

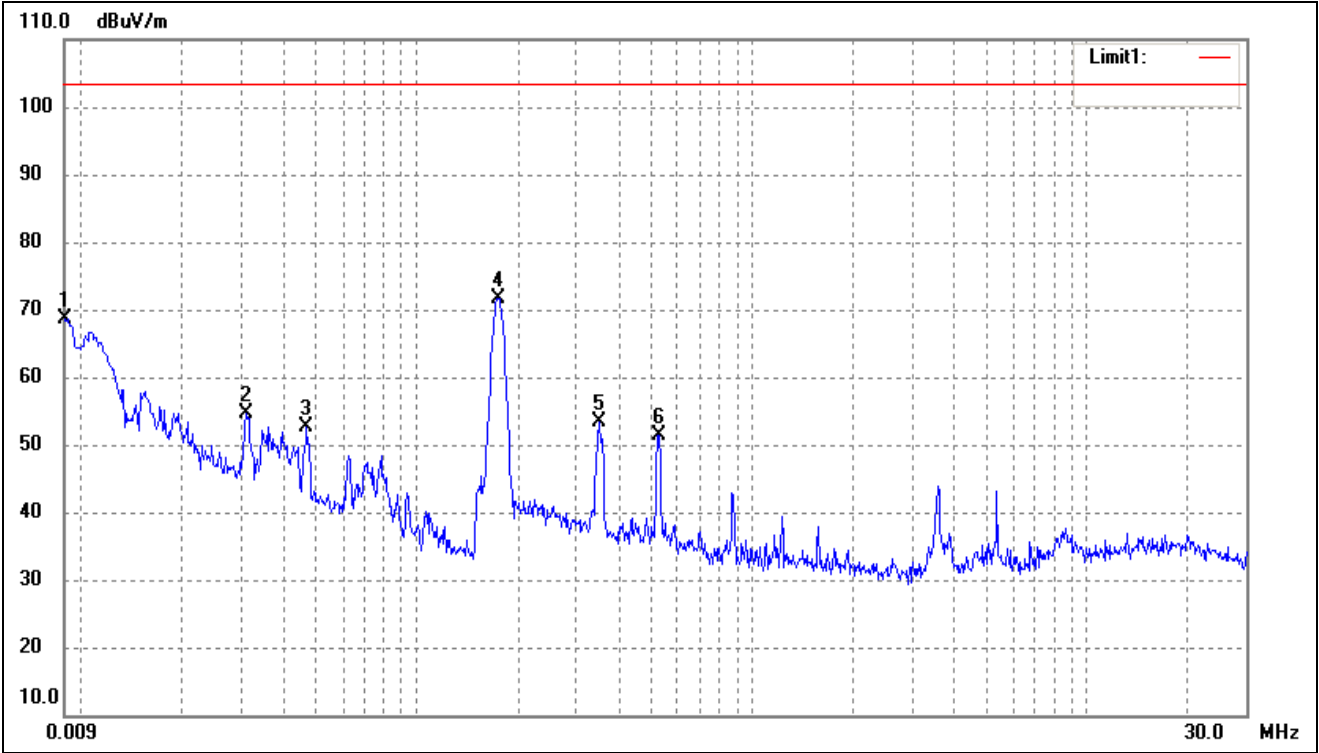
4.5 Summary of Test Results/Plots

Plot of Radiated Emissions Test Data (Below 30MHz)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	0.0155	64.90	-6.61	58.29	103.50	-45.21	-	-	peak
2	0.0309	60.10	-6.06	54.04	103.50	-49.46	-	-	peak
3	0.1434	74.62	-5.18	69.44	103.50	-34.06	-	-	peak
4	0.1500	64.90	-5.20	59.70	103.50	-43.80	-	-	peak
5	0.2863	64.43	-7.80	56.63	103.50	-46.87	-	-	peak
6	0.4260	57.06	-7.77	49.29	103.50	-54.21	-	-	peak

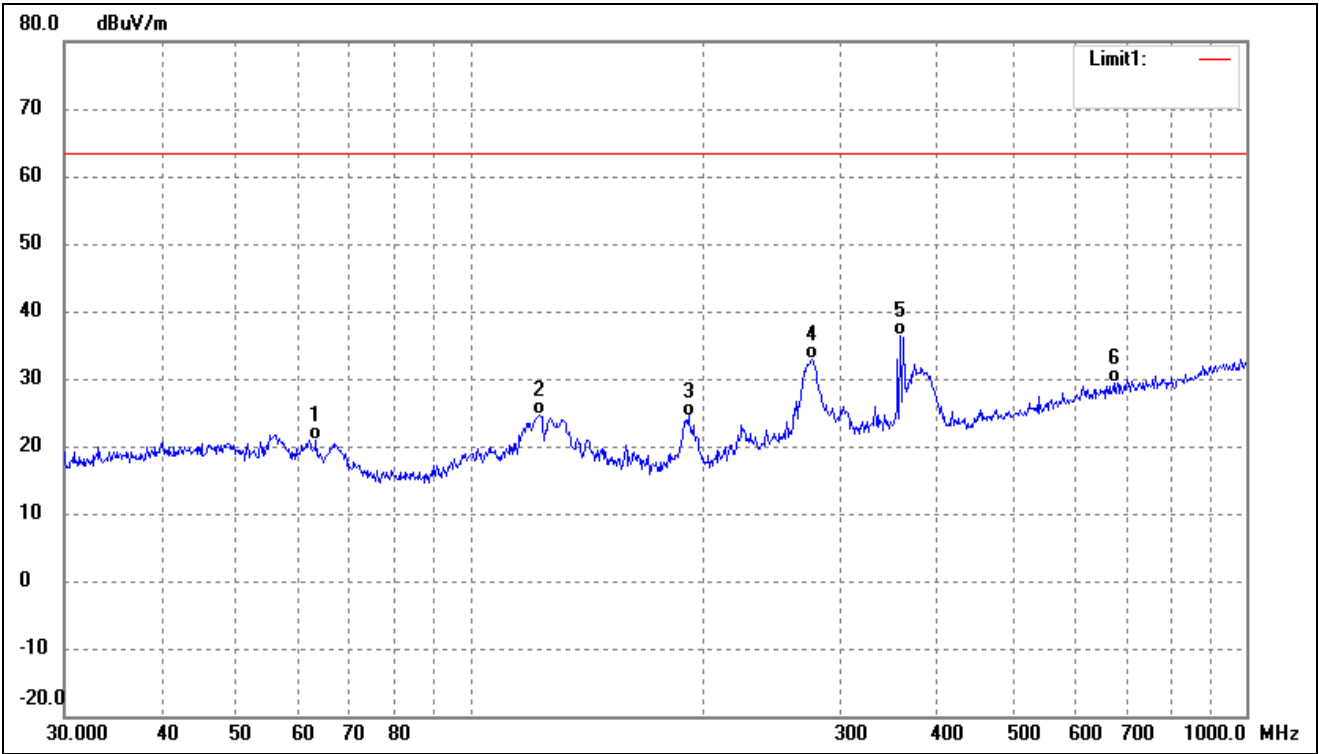
Test mode:	TM2	Polarity:	Horizontal
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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	0.0090	74.81	-6.29	68.52	103.50	-34.98	-	-	peak
2	0.0312	60.57	-6.05	54.52	103.50	-48.98	-	-	peak
3	0.0469	57.53	-4.95	52.58	103.50	-50.92	-	-	peak
4	0.1749	77.35	-5.73	71.62	103.50	-31.88	-	-	peak
5	0.3502	61.25	-7.88	53.37	103.50	-50.13	-	-	peak
6	0.5265	58.98	-7.54	51.44	103.50	-52.06	-	-	peak

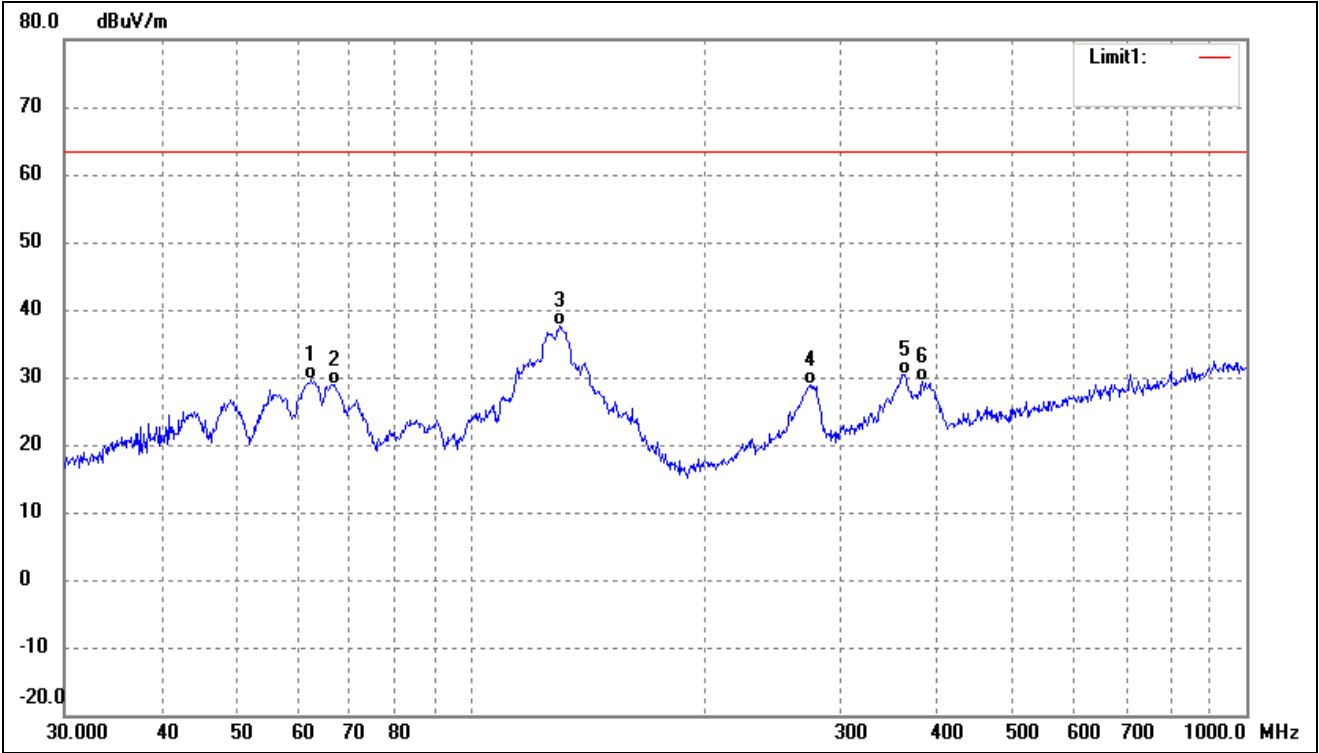
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal
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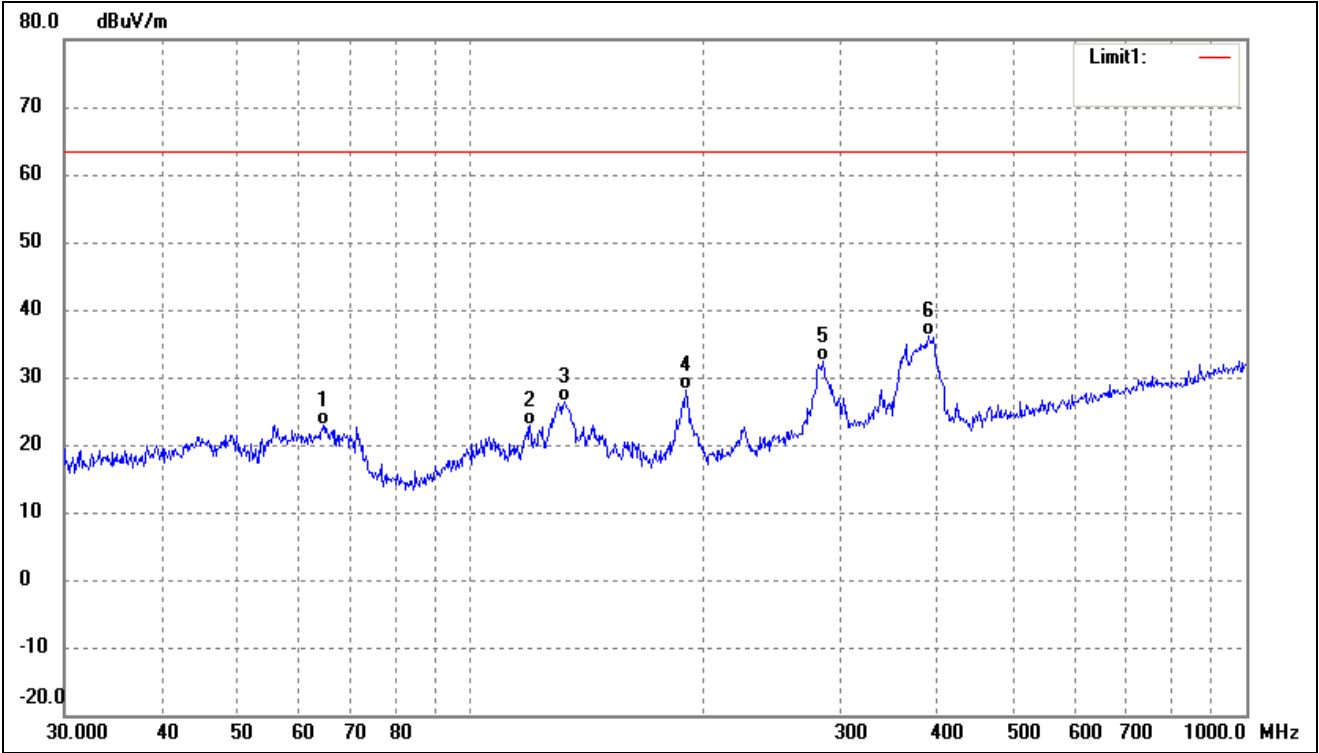
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	63.3132	31.23	-10.32	20.91	63.50	-42.59	-	-	QP
2	122.8340	34.45	-9.86	24.59	63.50	-38.91	-	-	QP
3	191.0738	33.76	-9.26	24.50	63.50	-39.00	-	-	QP
4	275.1570	38.96	-6.12	32.84	63.50	-30.66	-	-	QP
5	357.9287	41.07	-4.59	36.48	63.50	-27.02	-	-	QP
6	675.2080	29.04	0.26	29.30	63.50	-34.20	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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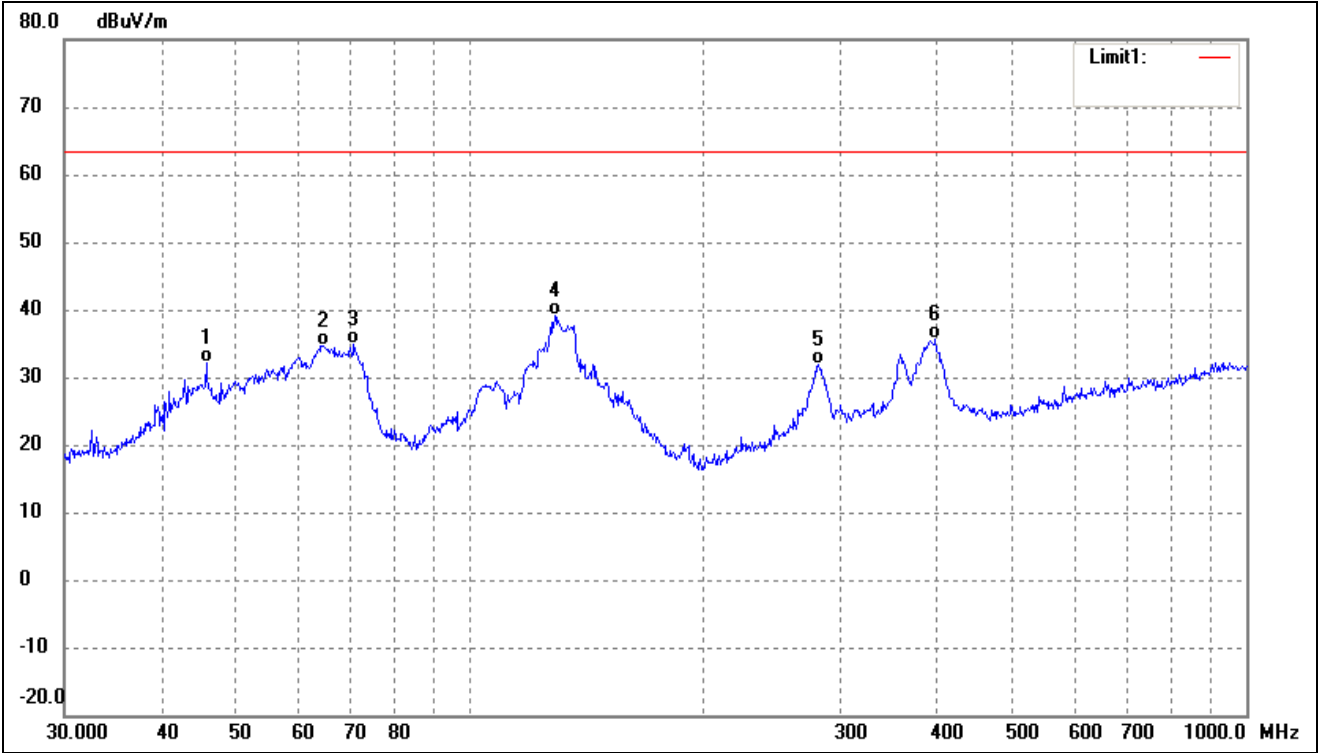
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	62.4314	39.65	-10.14	29.51	63.50	-33.99	-	-	QP
2	66.7325	39.95	-10.98	28.97	63.50	-34.53	-	-	QP
3	130.3789	48.69	-11.16	37.53	63.50	-25.97	-	-	QP
4	274.1939	35.05	-6.13	28.92	63.50	-34.58	-	-	QP
5	362.9845	35.01	-4.51	30.50	63.50	-33.00	-	-	QP
6	382.5879	33.51	-4.17	29.34	63.50	-34.16	-	-	QP

Test mode:	TM2	Polarity:	Horizontal
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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	64.6594	33.55	-10.58	22.97	63.50	-40.53	-	-	QP
2	119.4361	32.08	-9.32	22.76	63.50	-40.74	-	-	QP
3	132.2206	37.78	-11.30	26.48	63.50	-37.02	-	-	QP
4	189.7385	37.34	-9.33	28.01	63.50	-35.49	-	-	QP
5	284.9767	38.34	-5.93	32.41	63.50	-31.09	-	-	QP
6	389.3549	40.30	-4.05	36.25	63.50	-27.25	-	-	QP

Test mode:	TM2	Polarity:	Vertical
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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	45.6948	40.18	-7.94	32.24	63.50	-31.26	-	-	QP
2	64.6594	45.33	-10.58	34.75	63.50	-28.75	-	-	QP
3	70.8315	46.44	-11.68	34.76	63.50	-28.74	-	-	QP
4	128.5630	49.90	-10.88	39.02	63.50	-24.48	-	-	QP
5	281.0075	37.96	-6.00	31.96	63.50	-31.54	-	-	QP
6	397.6334	39.56	-3.92	35.64	63.50	-27.86	-	-	QP

Remark: ‘-’Means’ the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

******* END OF REPORT *******