

TEST REPORT

Reference No..... : WTX21X11131595W-1
FCC ID : A4X-WPC15-1LXNB
Applicant : CE LINK LIMITED
Address : Building M,LiCheng Technology Industrial Zone,GongHe Village,ShaJing
Town,ShenZhen City,China
Product Name : Magsafe Wireless Charger
Test Model. : WPC15-1LXNB
Standards : FCC Part 18
Date of Receipt sample : Nov. 29, 2021
Date of Test..... : Nov. 29, 2021 to Dec. 22, 2021
Date of Issue : Dec. 22, 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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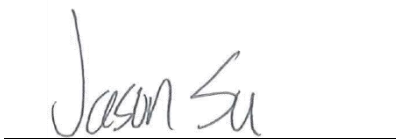
Tested by:

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Approved & Authorized By:



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Report version

Version No.	Date of issue	Description
Rev.00	Dec. 22, 2021	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: CE LINK LIMITED
Address of applicant: Building M, LiCheng Technology Industrial Zone,
GongHe Village, ShaJing Town, ShenZhen City, China

Manufacturer: ANFU CE LINK LIMITED
Address of manufacturer: Anfu County Industrial Zone, Ji'an city, Jiangxi
Province, P.R. China

Factory#1: SuiChuan CE LINK LIMITED
Address of factory: SuiChuan county industrial park east zone, Ji'an city
Jiangxi province, China.

Factory#2: CE LINK VIET NAM COMPANY LIMITED.
Address of factory: Lot CNSG04&CNSG06 Van Trung Industrial Zone,
Viet Yen district, Bac Giang Province, Vietnam

General Description of EUT	
Product Name:	Magsafe Wireless Charger
Trade Name:	CE-LINK, powerlot
Model No.:	WPC15-1LXNB
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	127.7kHz±6Hz
Power adapter	/
Antenna Type:	Coil Antenna
Antenna Gain:	0dBi
Modulation Type:	ASK
Rated Voltage:	Input: DC5V/DC9V
Rated Current:	Input: 2A/2.2A
Rated Power:	Output: 5W/7.5W/15W

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 DC5V2A;; Output 5W
TM2	Wireless Charging	/	Input DC9V2.2A; Output 15W

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB-C Cable	1.55	Shielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Wireless Charging Load	YBZ	YBZ wireless charging tester	/
Adapter	4DKanKan	PN453C	/

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 $\pm 3.74\text{dB}$
		0.15-30MHz $\pm 3.34\text{dB}$
Radiated Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$
		6-18GHz $\pm 3.92\text{dB}$

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:

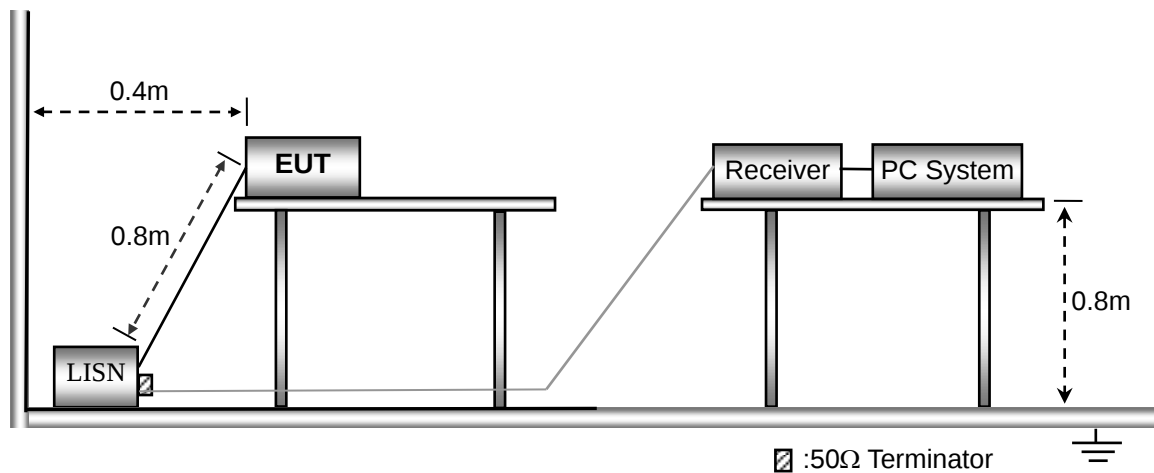
Frequency (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

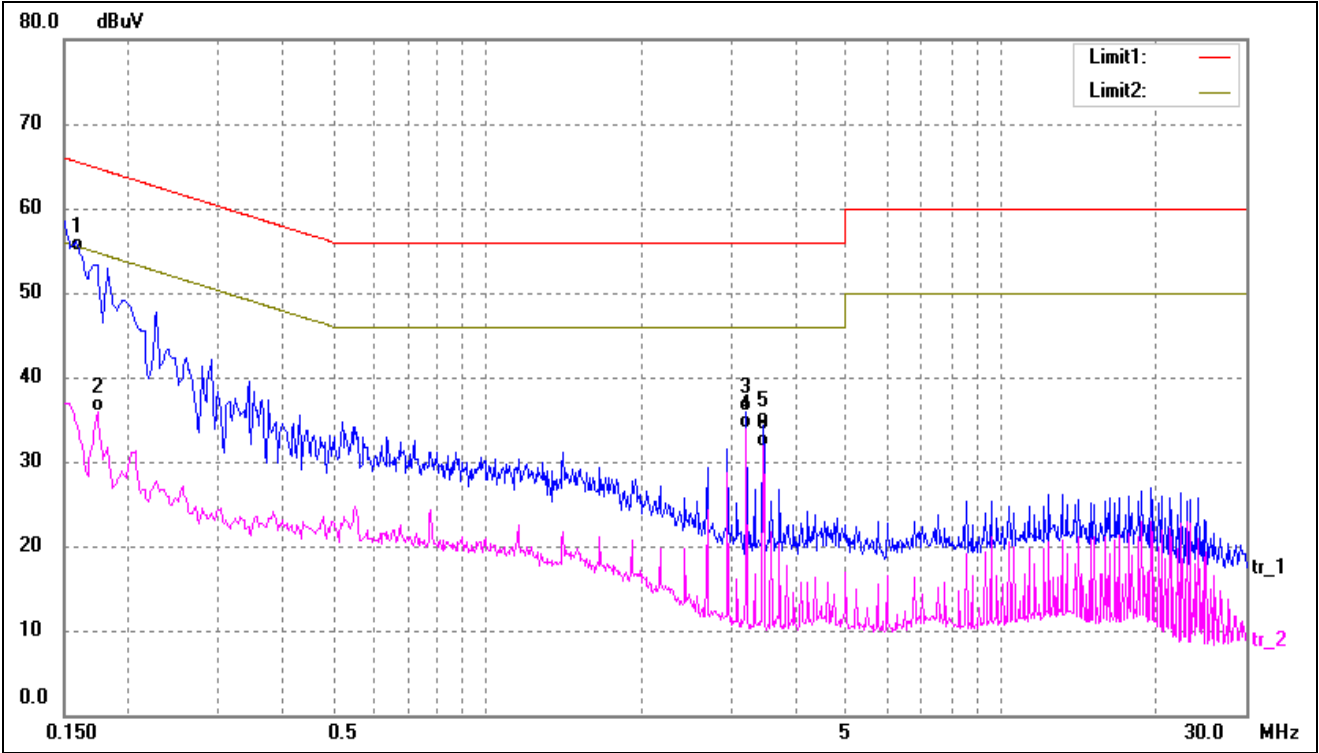
3.5 Test Receiver Setup

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

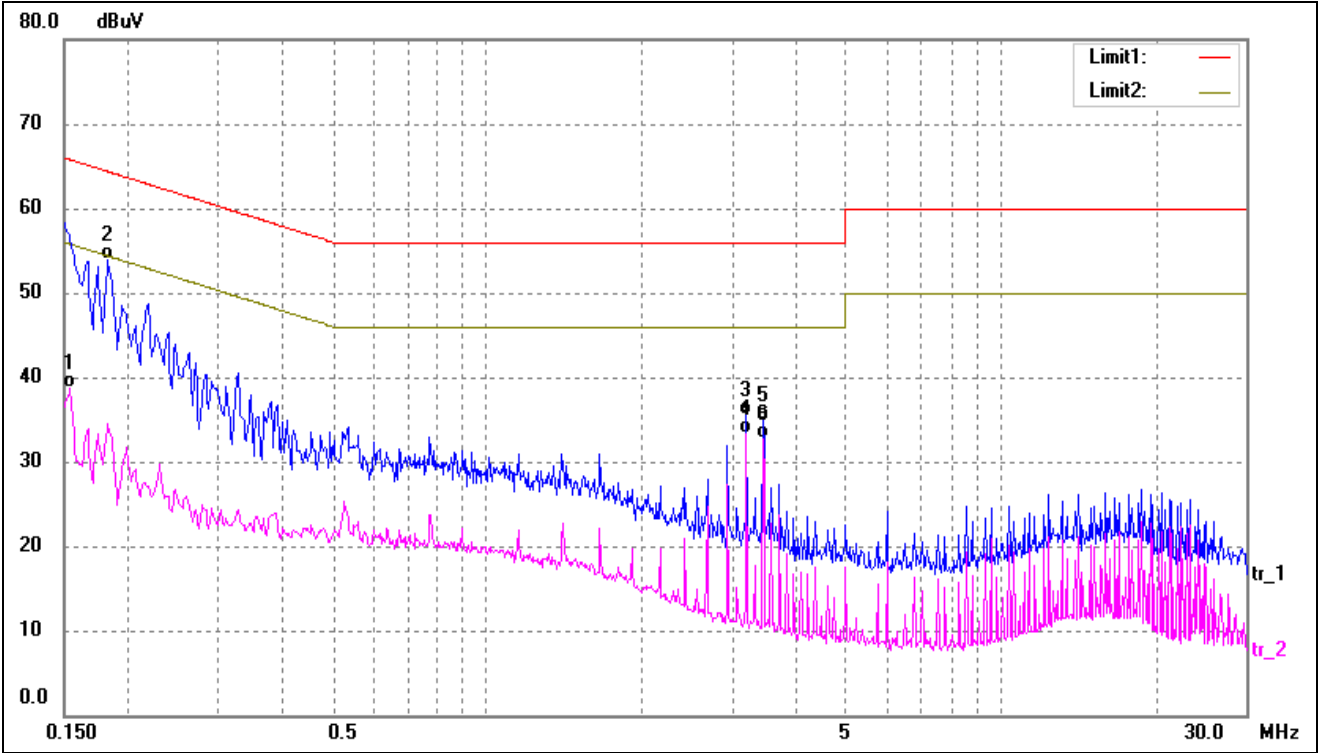
3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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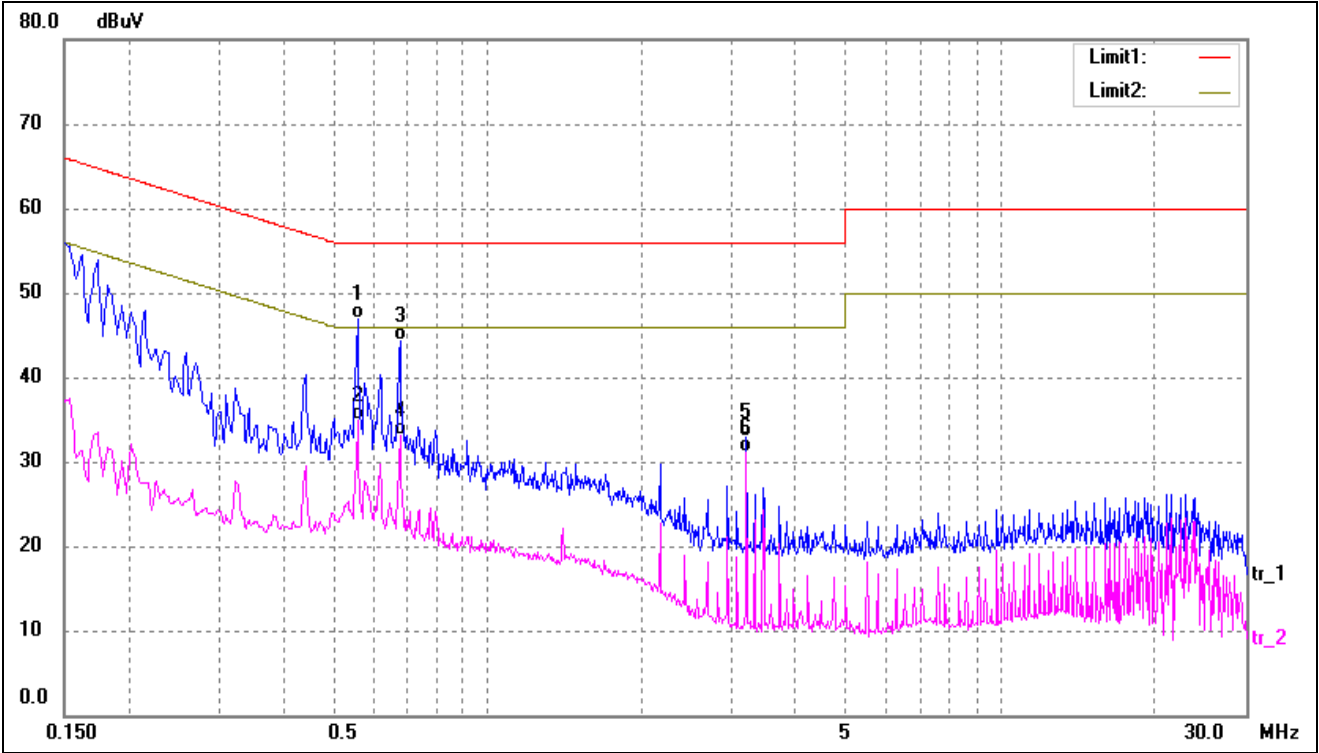
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1607	44.51	10.37	54.88	65.43	-10.55	QP
2	0.1740	25.52	10.37	35.89	54.77	-18.88	AVG
3	3.1940	25.79	10.08	35.87	56.00	-20.13	QP
4	3.1940	23.80	10.08	33.88	46.00	-12.12	AVG
5	3.4500	24.24	10.07	34.31	56.00	-21.69	QP
6	3.4500	21.73	10.07	31.80	46.00	-14.20	AVG

Test mode:	TM1	Polarity:	Neutral
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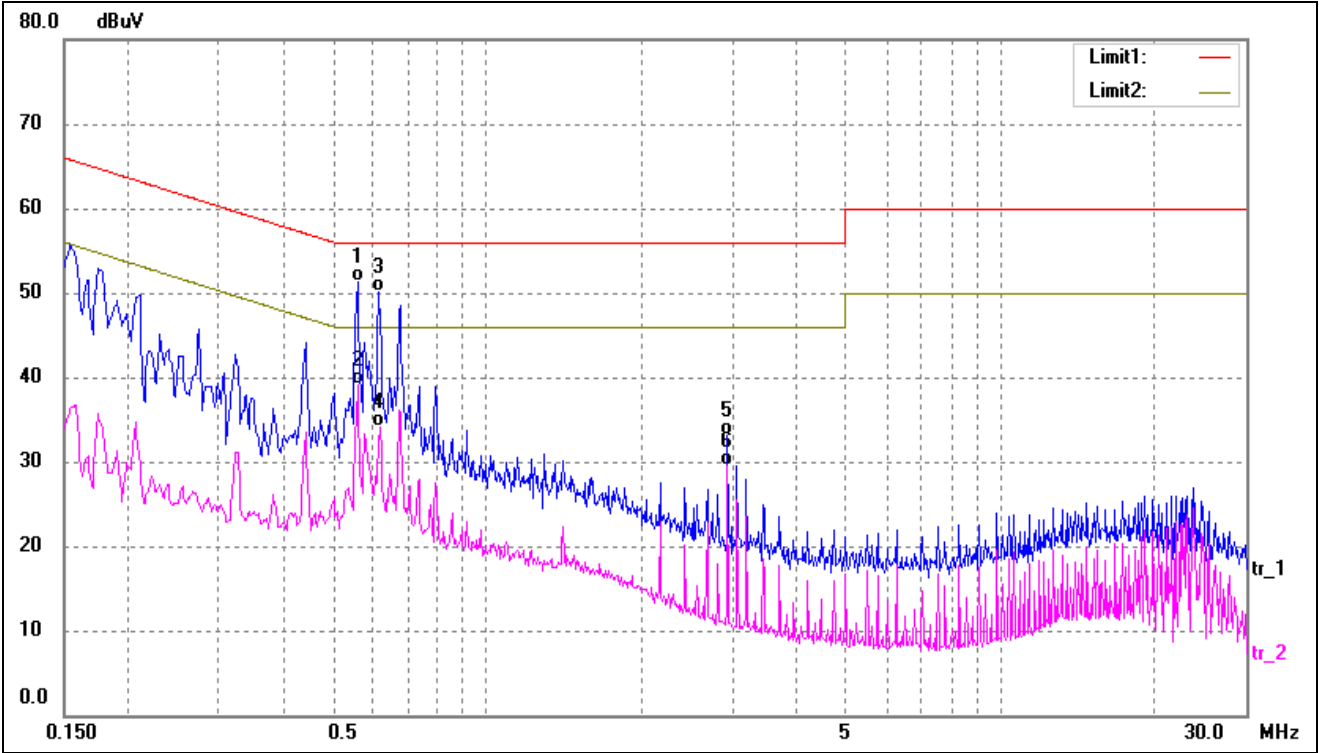
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1540	28.25	10.37	38.62	55.78	-17.16	AVG
2*	0.1820	43.56	10.37	53.93	64.39	-10.46	QP
3	3.1940	25.34	10.08	35.42	56.00	-20.58	QP
4	3.1940	23.25	10.08	33.33	46.00	-12.67	AVG
5	3.4500	24.77	10.07	34.84	56.00	-21.16	QP
6	3.4500	22.57	10.07	32.64	46.00	-13.36	AVG

Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.5580	36.61	10.29	46.90	56.00	-9.10	QP
2	0.5580	24.62	10.29	34.91	46.00	-11.09	AVG
3	0.6780	33.93	10.37	44.30	56.00	-11.70	QP
4	0.6780	22.70	10.37	33.07	46.00	-12.93	AVG
5	3.1940	22.80	10.08	32.88	56.00	-23.12	QP
6	3.1940	21.05	10.08	31.13	46.00	-14.87	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*	0.5580	41.09	10.29	51.38	56.00	-4.62	QP
2	0.5580	28.73	10.29	39.02	46.00	-6.98	AVG
3	0.6140	39.76	10.33	50.09	56.00	-5.91	QP
4	0.6180	23.83	10.33	34.16	46.00	-11.84	AVG
5	2.9380	22.96	10.09	33.05	56.00	-22.95	QP
6	2.9380	19.32	10.09	29.41	46.00	-16.59	AVG

4. Radiated Emissions

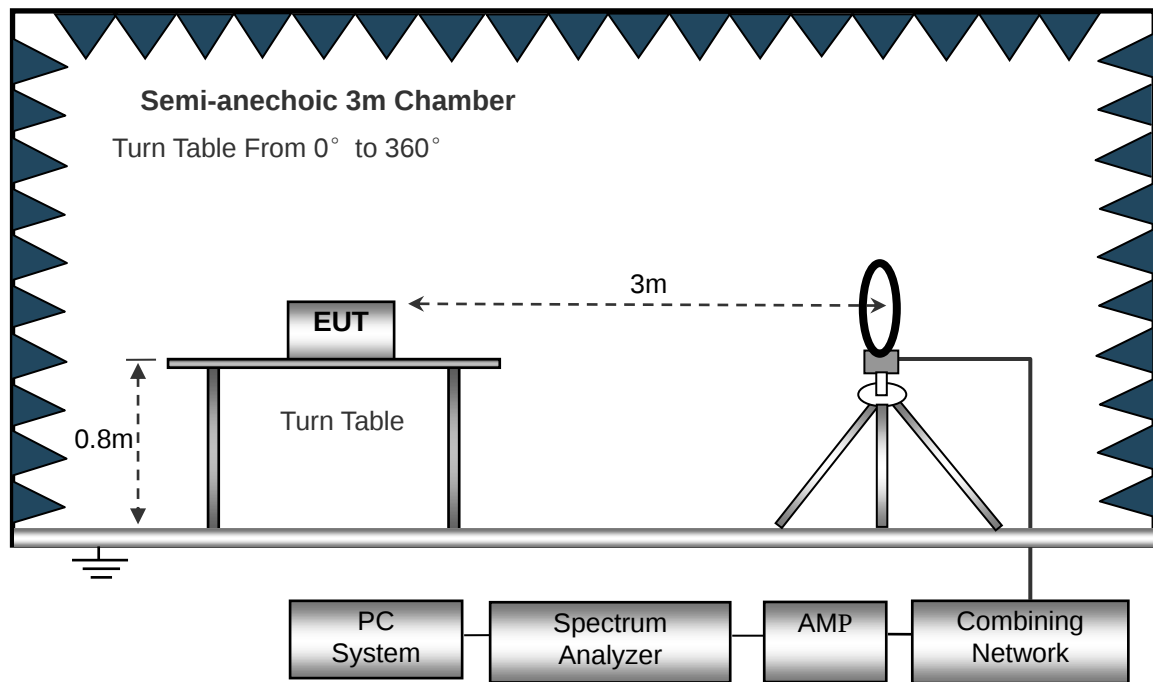
4.1 Test Procedure

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.

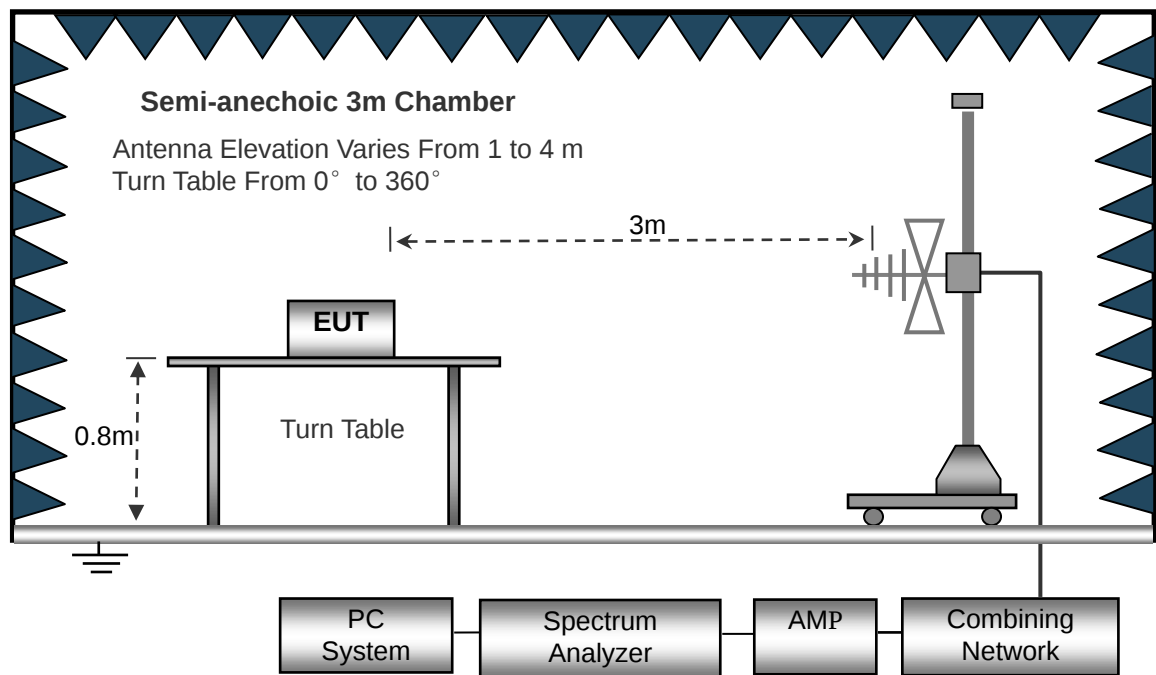
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

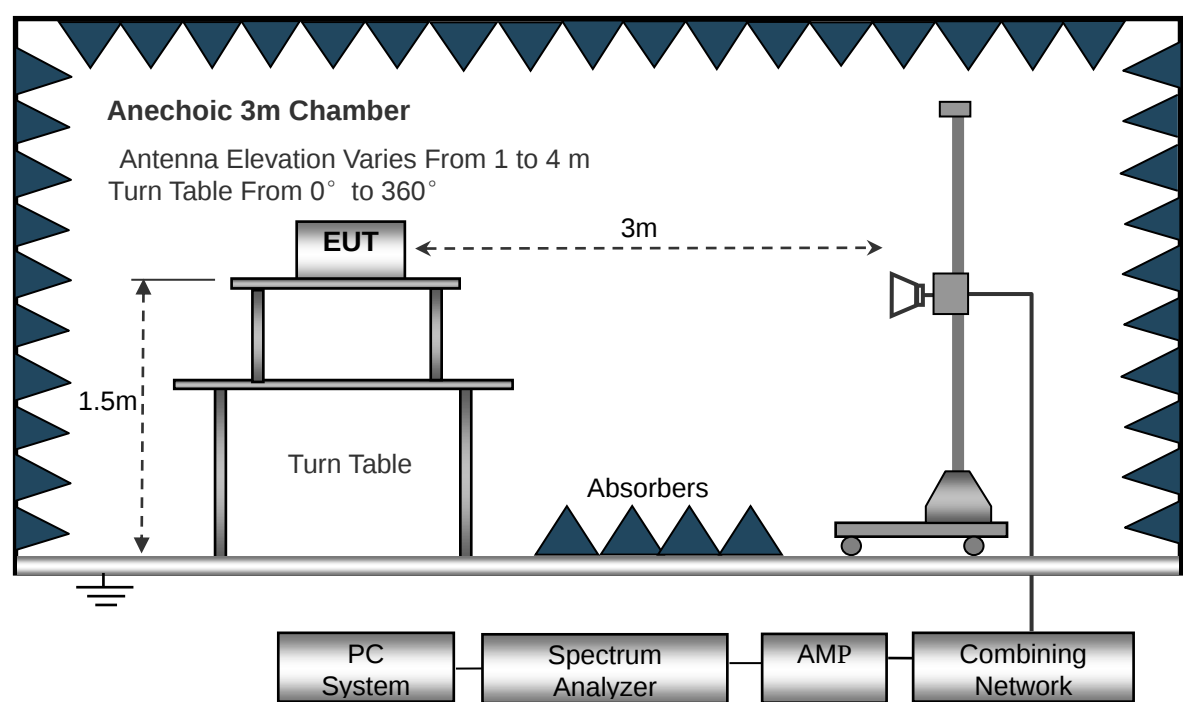
The test setup for emission measurement below 30MHz..



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:

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

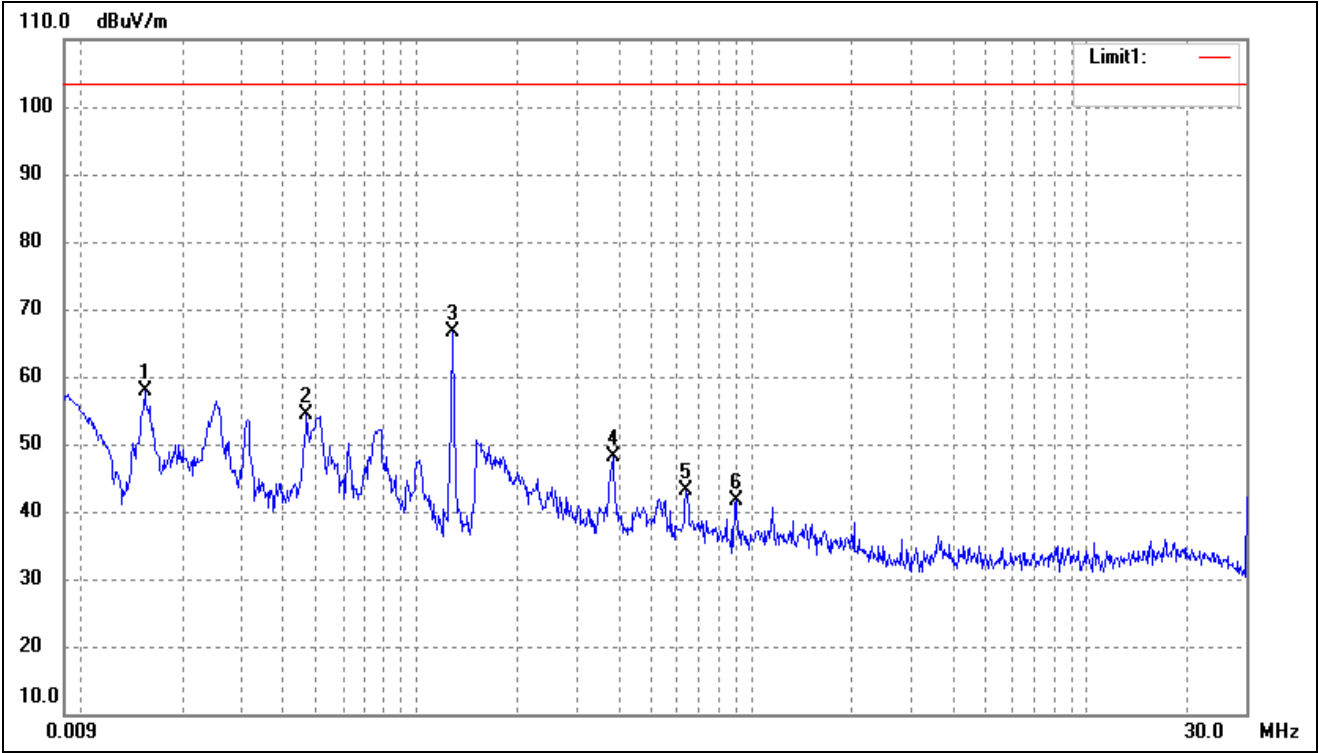
4.4 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

4.5 Summary of Test Results/Plots

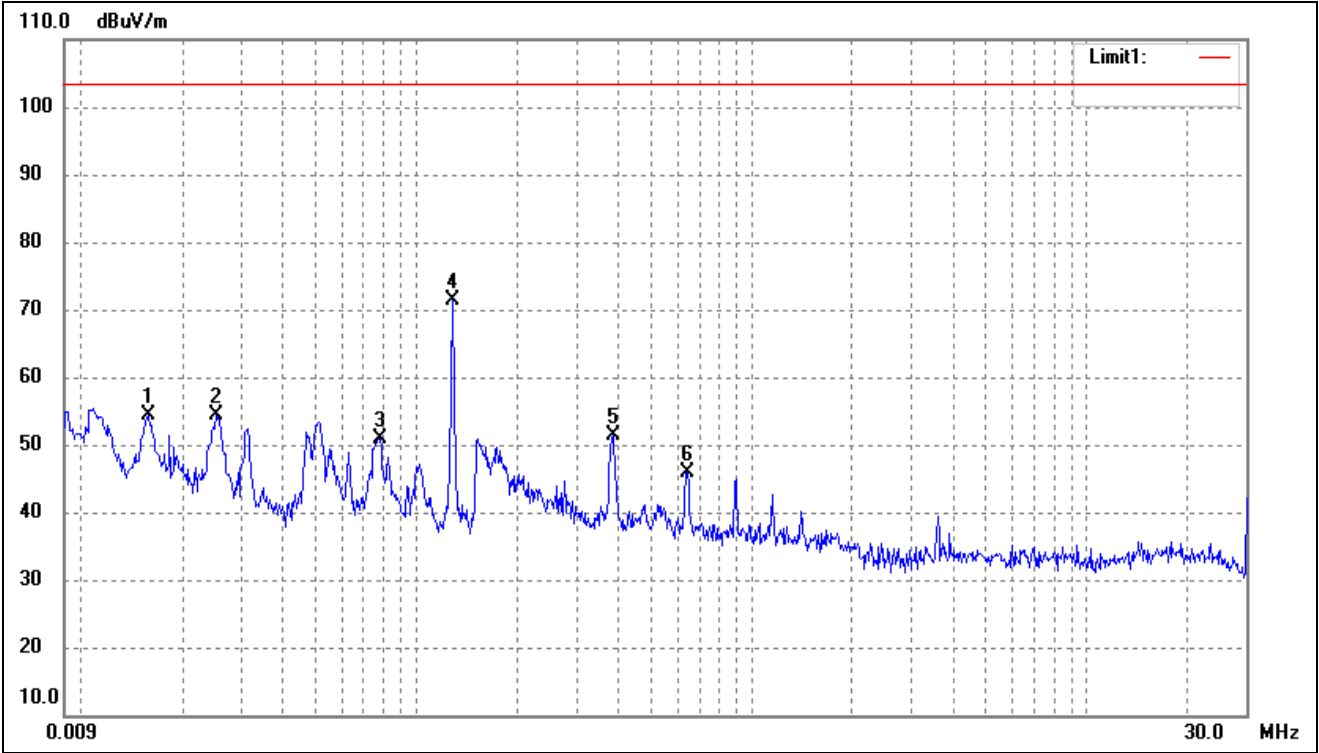
Plot of Radiated Emissions Test Data (Below 30MHz)

Test mode:	TM1	Polarity:	Vertical
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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	0.0156	63.46	-5.58	57.88	103.50	-45.62	-	-	peak
2	0.0471	58.40	-3.99	54.41	103.50	-49.09	-	-	peak
3	0.1278	71.00	-4.42	66.58	103.50	-36.92	-	-	peak
4	0.3832	52.96	-4.72	48.24	103.50	-55.26	-	-	peak
5	0.6372	46.81	-3.76	43.05	103.50	-60.45	-	-	peak
6	0.8944	44.67	-2.99	41.68	103.50	-61.82	-	-	peak

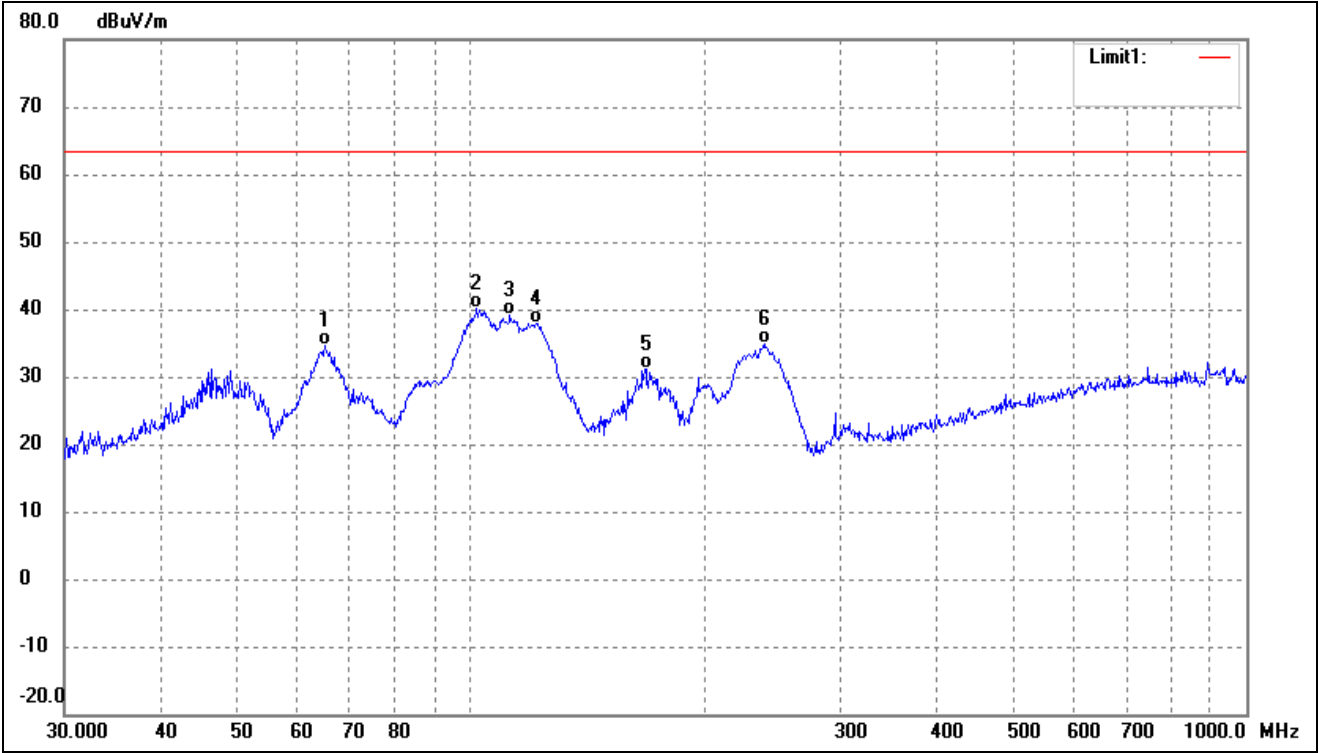
Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0158	59.99	-5.58	54.41	103.50	-49.09	-	-	peak
2	0.0253	59.63	-5.27	54.36	103.50	-49.14	-	-	peak
3	0.0774	55.48	-4.67	50.81	103.50	-52.69	-	-	peak
4	0.1281	75.91	-4.42	71.49	103.50	-32.01	-	-	peak
5	0.3852	56.07	-4.72	51.35	103.50	-52.15	-	-	peak
6	0.6406	49.68	-3.74	45.94	103.50	-57.56	-	-	peak

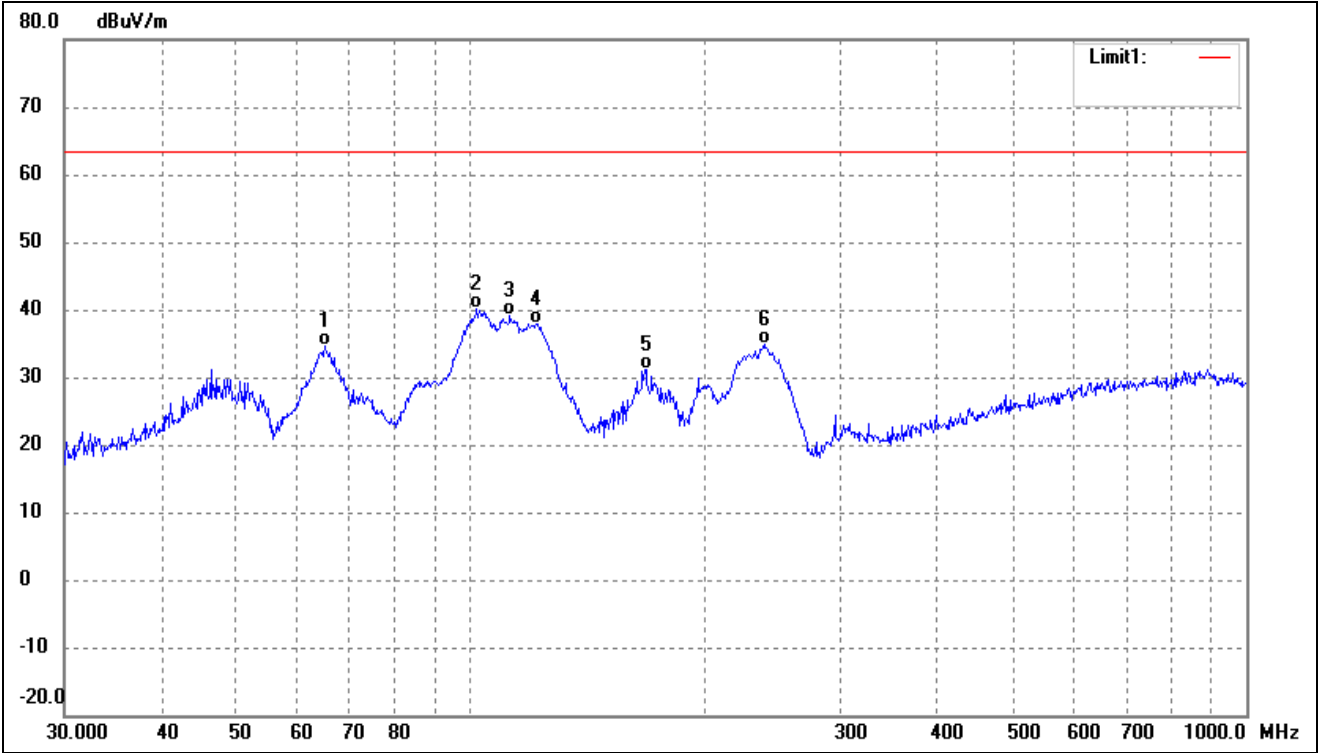
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal
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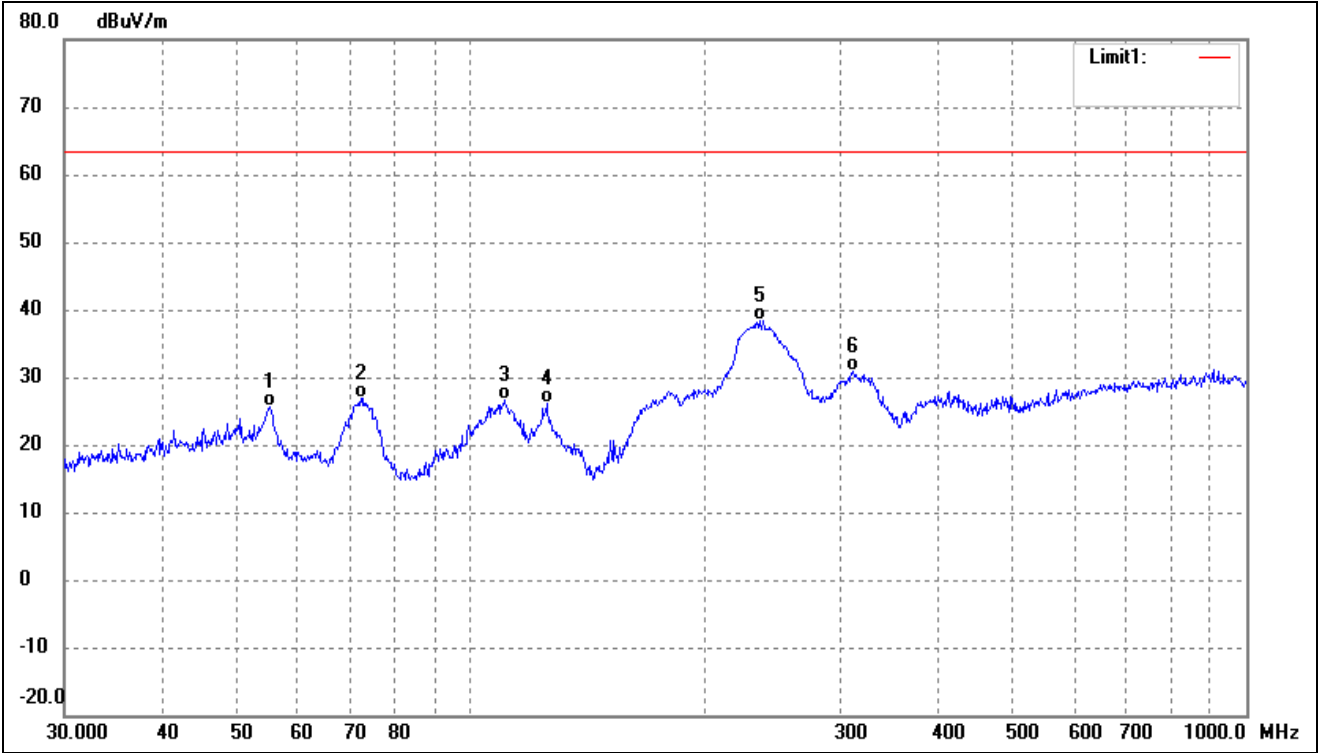
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	64.8865	43.97	-9.28	34.69	63.50	-28.81	-	-	QP
2	102.0014	48.80	-8.76	40.04	63.50	-23.46	-	-	QP
3	112.5244	48.24	-9.05	39.19	63.50	-24.31	-	-	QP
4	121.5486	47.76	-9.88	37.88	63.50	-25.62	-	-	QP
5	168.4138	42.93	-11.79	31.14	63.50	-32.36	-	-	QP
6	239.1473	43.40	-8.62	34.78	63.50	-28.72	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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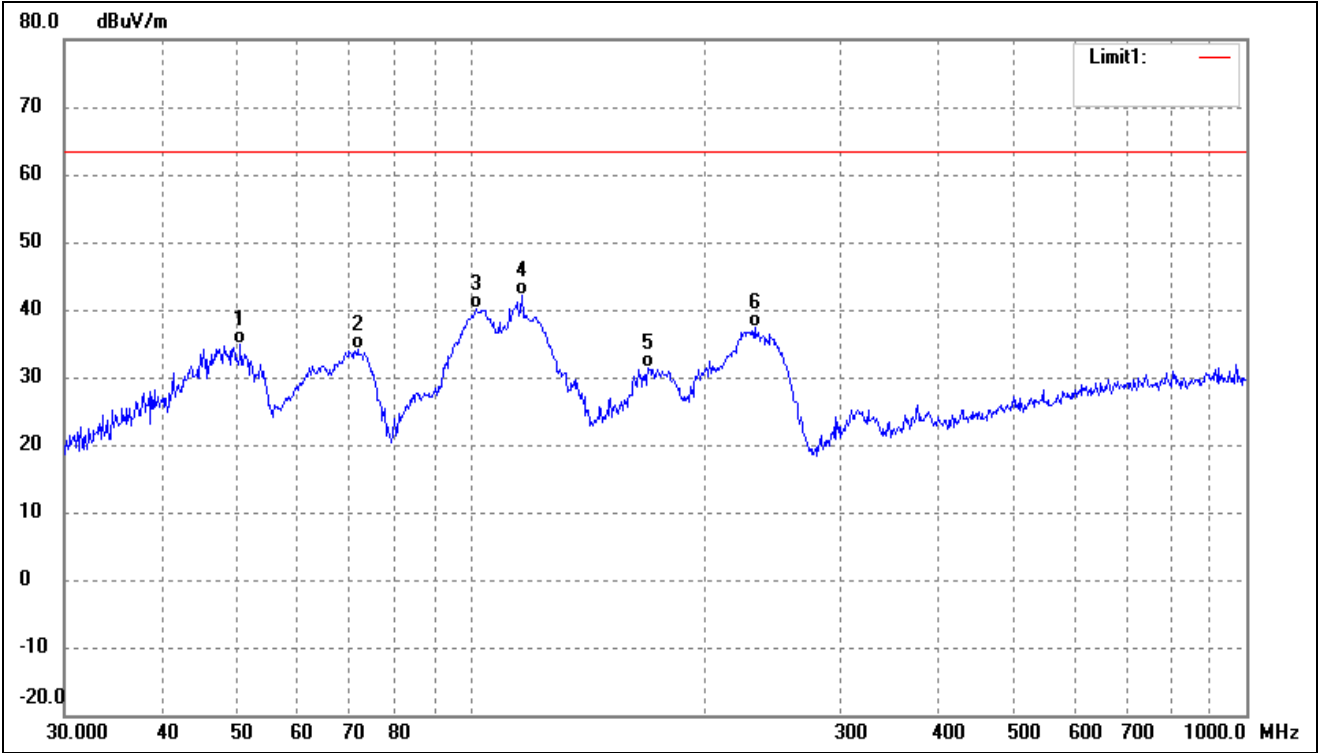
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	64.8865	43.97	-9.28	34.69	63.50	-28.81	-	-	QP
2	102.0014	48.80	-8.76	40.04	63.50	-23.46	-	-	QP
3	112.5244	48.24	-9.05	39.19	63.50	-24.31	-	-	QP
4	121.5486	47.76	-9.88	37.88	63.50	-25.62	-	-	QP
5	168.4138	42.93	-11.79	31.14	63.50	-32.36	-	-	QP
6	239.1473	43.40	-8.62	34.78	63.50	-28.72	-	-	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	55.2207	33.45	-7.73	25.72	63.50	-37.78	-	-	QP
2	72.3376	37.16	-10.30	26.86	63.50	-36.64	-	-	QP
3	110.5687	35.64	-8.91	26.73	63.50	-36.77	-	-	QP
4	125.4457	36.64	-10.59	26.05	63.50	-37.45	-	-	QP
5	235.8164	47.05	-8.71	38.34	63.50	-25.16	-	-	QP
6	311.0867	37.48	-6.61	30.87	63.50	-32.63	-	-	QP

Test mode:	TM2	Polarity:	Vertical
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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	50.5860	41.95	-7.05	34.90	63.50	-28.60	-	-	QP
2	71.5806	44.29	-10.26	34.03	63.50	-29.47	-	-	QP
3	101.6443	48.90	-8.75	40.15	63.50	-23.35	-	-	QP
4	116.5401	51.48	-9.34	42.14	63.50	-21.36	-	-	QP
5	169.5990	43.08	-11.74	31.34	63.50	-32.16	-	-	QP
6	232.5318	46.26	-8.80	37.46	63.50	-26.04	-	-	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 *******