

TEST REPORT

Reference No..... : WTX20X10072657W-1
FCC ID : A4X-C2UMSA01-WR
Applicant : CE LINK LIMITED
Address..... : Building M,LiCheng Technology Industrial Zone,GongHe Village,Shajing
Town,ShenZhen City,China
Product Name : Type-C to USB-AX2/SD/TF/3.5mm Audio/Type-C PD Charging Adapter with
Wireless Charging
Test Model. : WL-UTC-C2UMSA01-WR
Standards : FCC Part 18
Date of Receipt sample : Oct.09, 2020
Date of Test..... : Oct.09, 2020 to Oct.28, 2020
Date of Issue : Oct.28, 2020
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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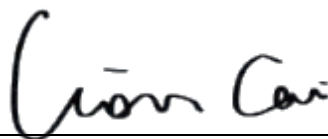
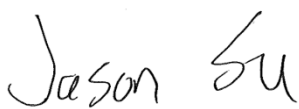
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Tested by:

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Report version

Version No.	Date of issue	Description
Rev.00	Oct.28, 2020	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: CE LINK LIMITED
 Address of manufacturer: Building M,LiCheng Technology Industrial Zone,
 GongHe Village,ShaJing Town,ShenZhen City,China

Factory#1: ANFU CE LINK LIMITED
 Address of factory: Anfu County Industrial Zone, Ji'an city, Jiangxi
 Province, P.R. China.

Factory#2: CE LINK VIETNAM LIMITED
 Address of factory: Lo FJ-25, Song Khe-Noi Hoang Industrial Zone, Noi
 Hoang Village, Yen Dung Town, Bac Giang
 Province, Vietnam.

General Description of EUT	
Product Name:	Type-C to USB-AX2/SD/TF/3.5mm Audio/Type-C PD Charging Adapter with Wireless Charging
Trade Name:	CE-LINK
Model No.:	WL-UTC-C2UMSA01-WR
Adding Model(s):	/
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	115~205kHz
Antenna Type:	Coil Antenna
Rated Voltage:	DC5V / DC9V
Rated Current:	1A / 1.1A
Rated Power:	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 DC5V2A; Output:DC5V/1A
TM2	Wireless Charging	/	Input DC20V1.5A; Output:DC9V/1.1A

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Type-C Cable	0.2	Shielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
USB-C Power Adapter	/	A1540	/
Macbook	Apple	A1534	/
TF Card	KINGSTON	64GB	/
SD Card	KINGSTON	64GB	/
USB flash disk	KINGSTON	64GB	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Type-C Cable	2.0	Unshielded	Without Ferrite
Earphone Cable	1.2	Unshielded	Without Ferrite

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	Agilent	E4407B	MY41440400	2020-04-28	2021-04-27
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2020-04-28	2021-04-27
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2020-04-28	2021-04-27
Amplifier	Agilent	8447F	3113A06717	2020-04-28	2021-04-27
Amplifier	C&D	PAP-1G18	2002	2020-04-28	2021-04-27
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2020-04-28	2021-04-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2020-04-28	2021-04-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2020-04-28	2021-04-27

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

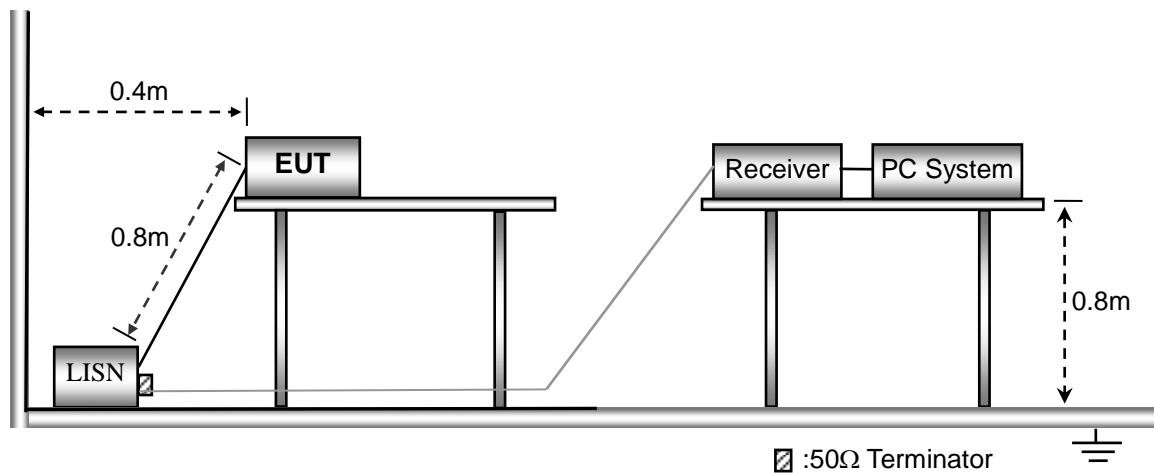
3.2 Test Procedure

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:	22.5° C
Relative Humidity:	54%
ATM Pressure:	1016 mbar

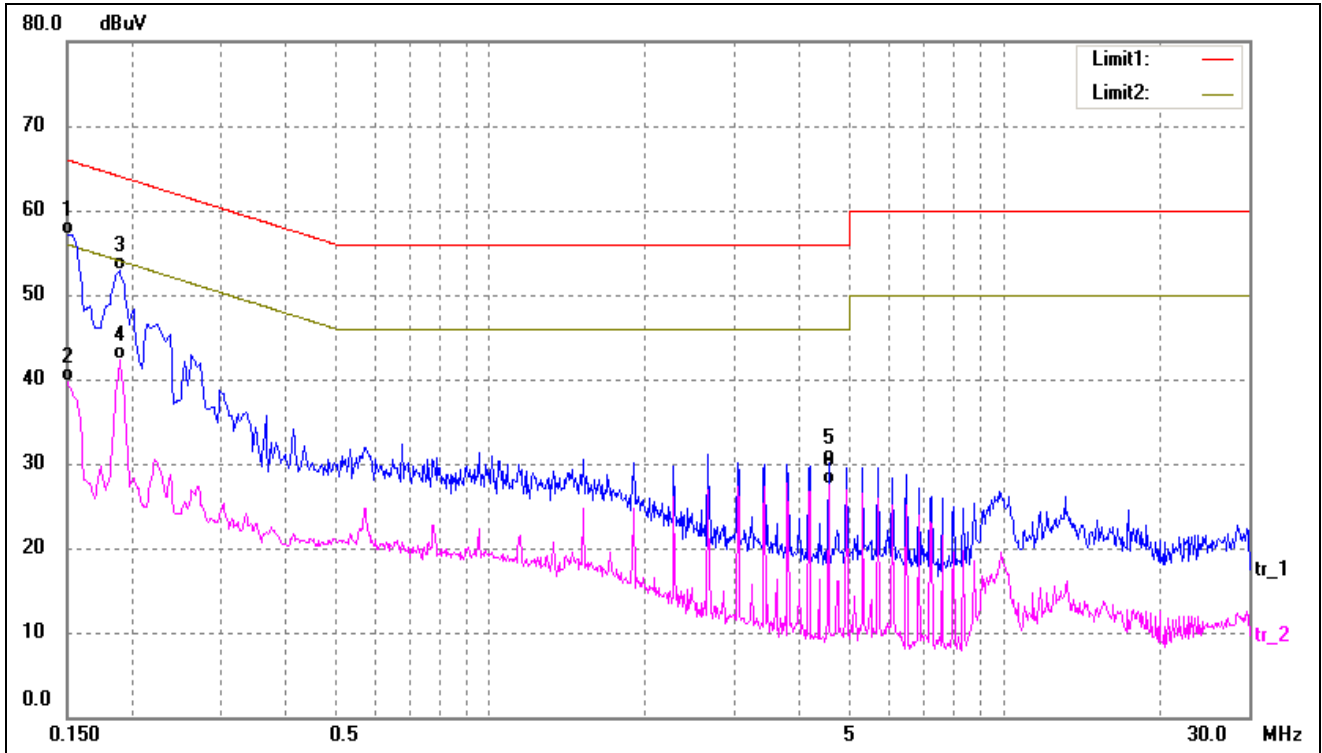
3.5 Test Receiver Setup

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

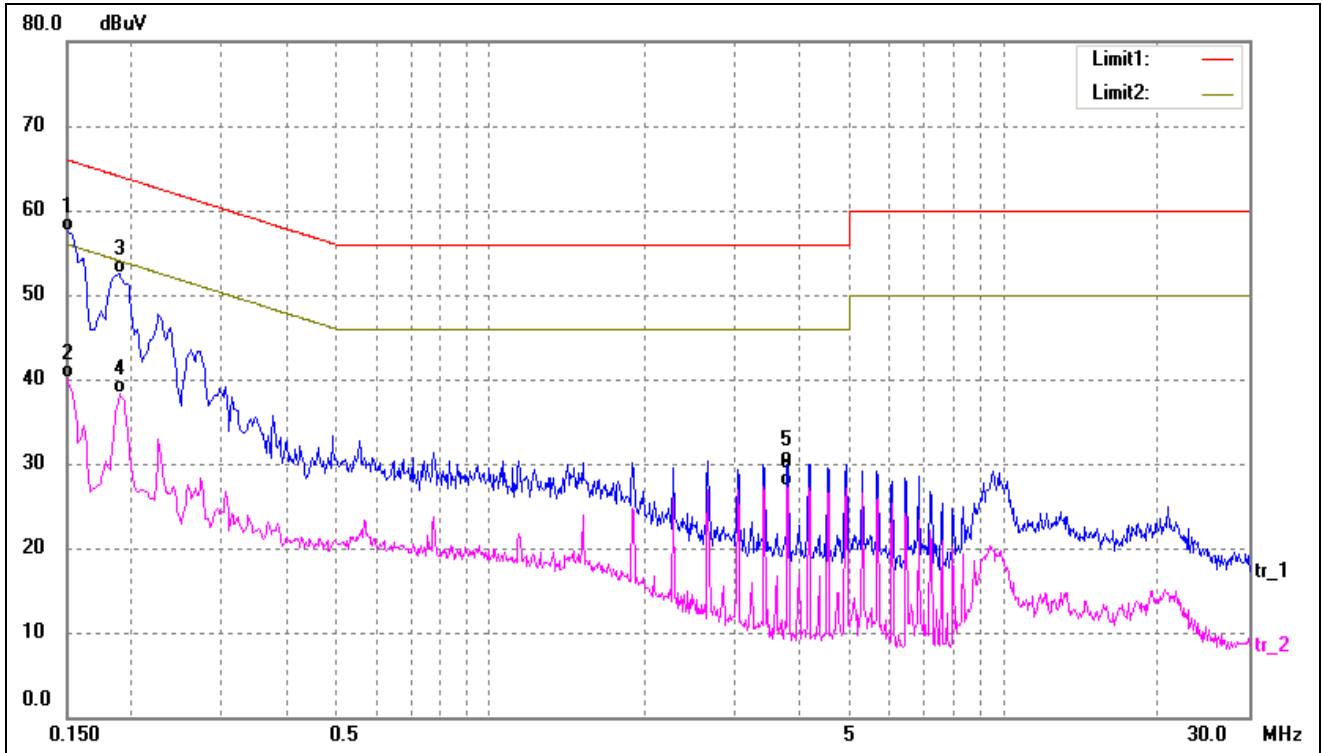
3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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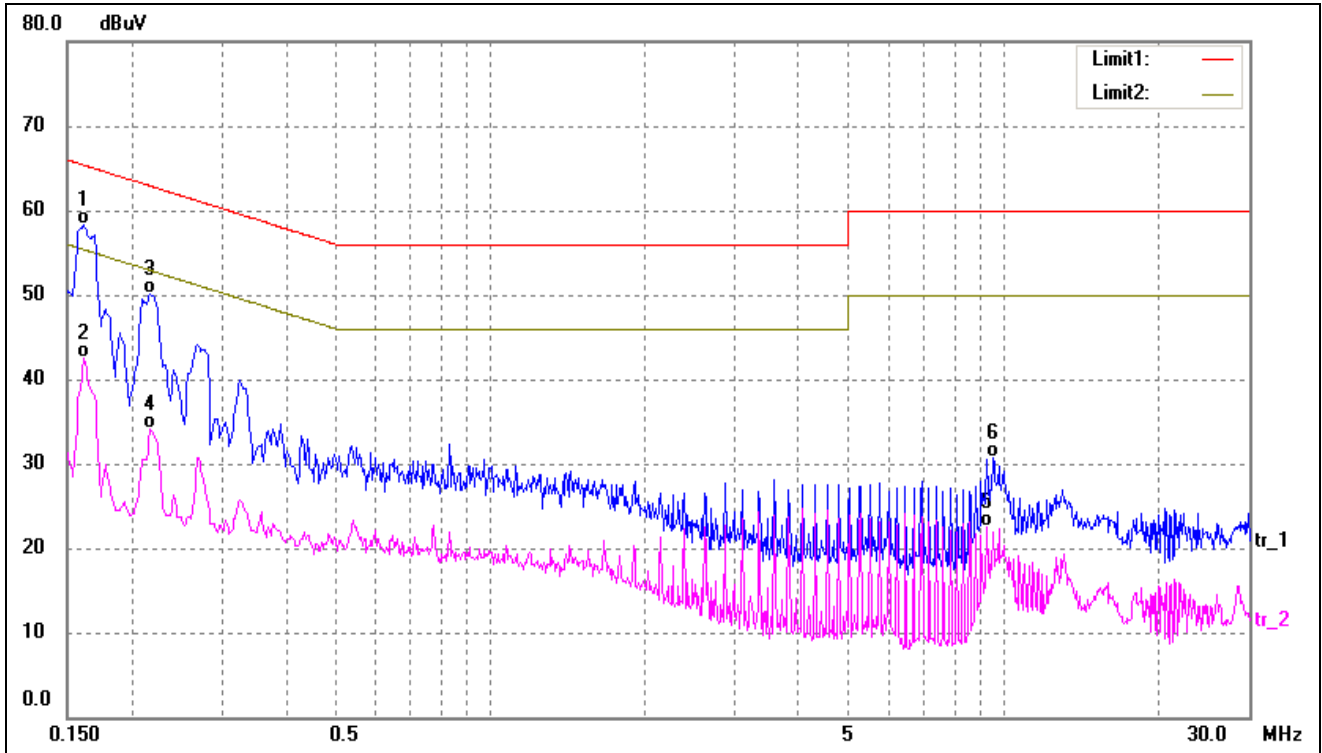
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1524	46.86	10.26	57.12	65.87	-8.75	QP
2	0.1524	29.49	10.26	39.75	55.87	-16.12	AVG
3	0.1900	42.67	10.26	52.93	64.04	-11.11	QP
4	0.1900	32.05	10.26	42.31	54.04	-11.73	AVG
5	4.5580	19.84	10.23	30.07	56.00	-25.93	QP
6	4.5580	17.35	10.23	27.58	46.00	-18.42	AVG

Test mode:	TM1	Polarity:	Neutral
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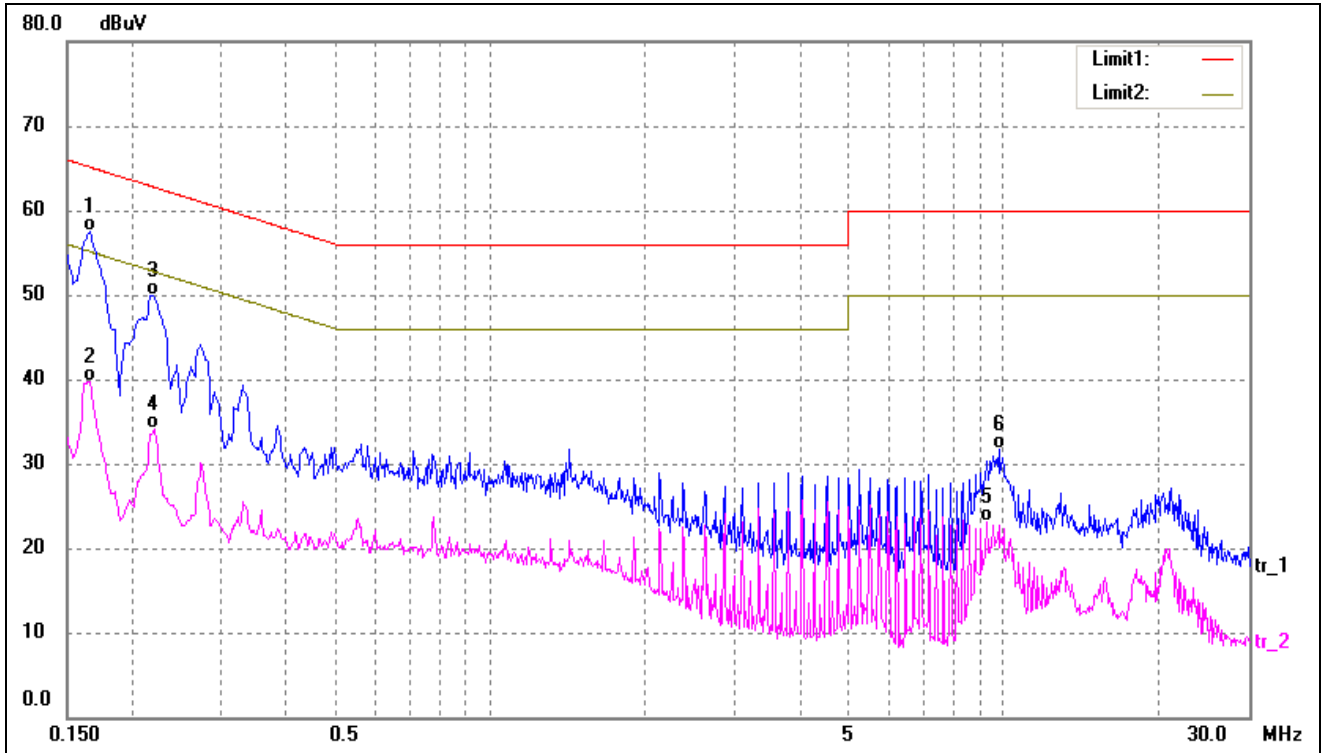
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1500	47.33	10.25	57.58	66.00	-8.42	QP
2	0.1500	29.77	10.25	40.02	56.00	-15.98	AVG
3	0.1900	42.17	10.26	52.43	64.04	-11.61	QP
4	0.1900	27.98	10.26	38.24	54.04	-15.80	AVG
5	3.7860	19.67	10.24	29.91	56.00	-26.09	QP
6	3.7860	17.08	10.24	27.32	46.00	-18.68	AVG

Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1620	48.04	10.26	58.30	65.36	-7.06	QP
2	0.1620	32.17	10.26	42.43	55.36	-12.93	AVG
3	0.2180	39.81	10.26	50.07	62.89	-12.82	QP
4	0.2180	23.82	10.26	34.08	52.89	-18.81	AVG
5	9.2980	12.18	10.28	22.46	50.00	-27.54	AVG
6	9.5380	20.51	10.28	30.79	60.00	-29.21	QP

Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1660	47.30	10.26	57.56	65.16	-7.60	QP
2	0.1660	29.53	10.26	39.79	55.16	-15.37	AVG
3	0.2180	39.63	10.26	49.89	62.89	-13.00	QP
4	0.2220	23.75	10.26	34.01	52.74	-18.73	AVG
5	9.2940	12.82	10.28	23.10	50.00	-26.90	AVG
6	9.7700	21.34	10.28	31.62	60.00	-28.38	QP

4. Radiated Emissions

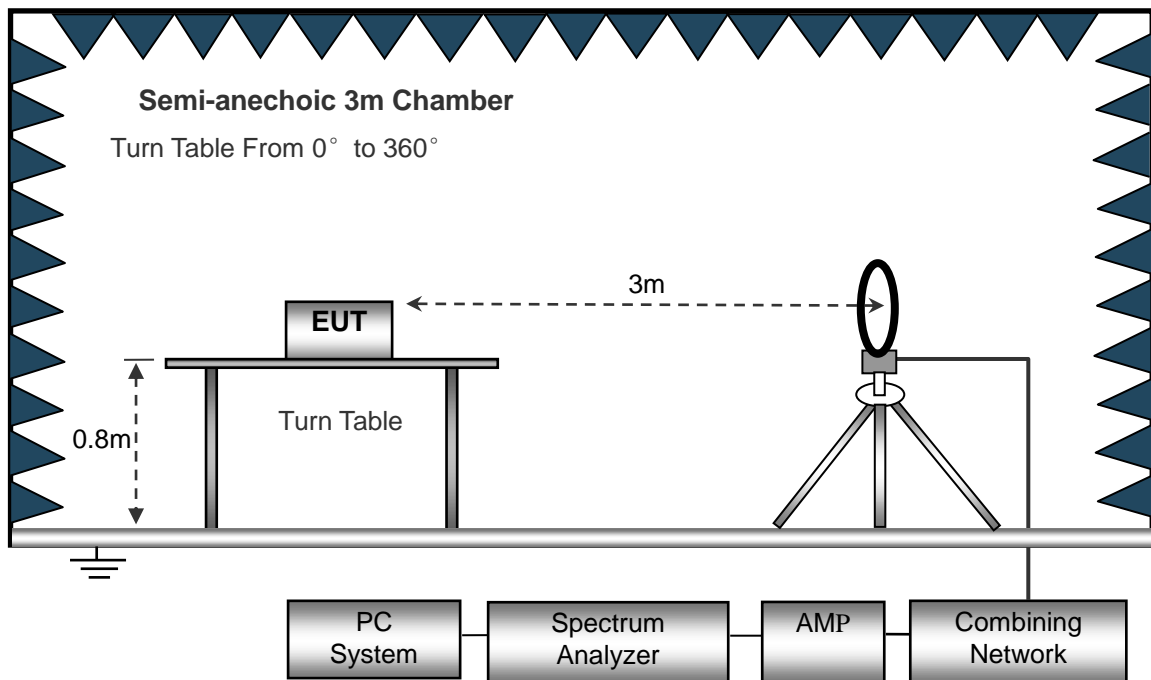
4.1 Test Procedure

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.

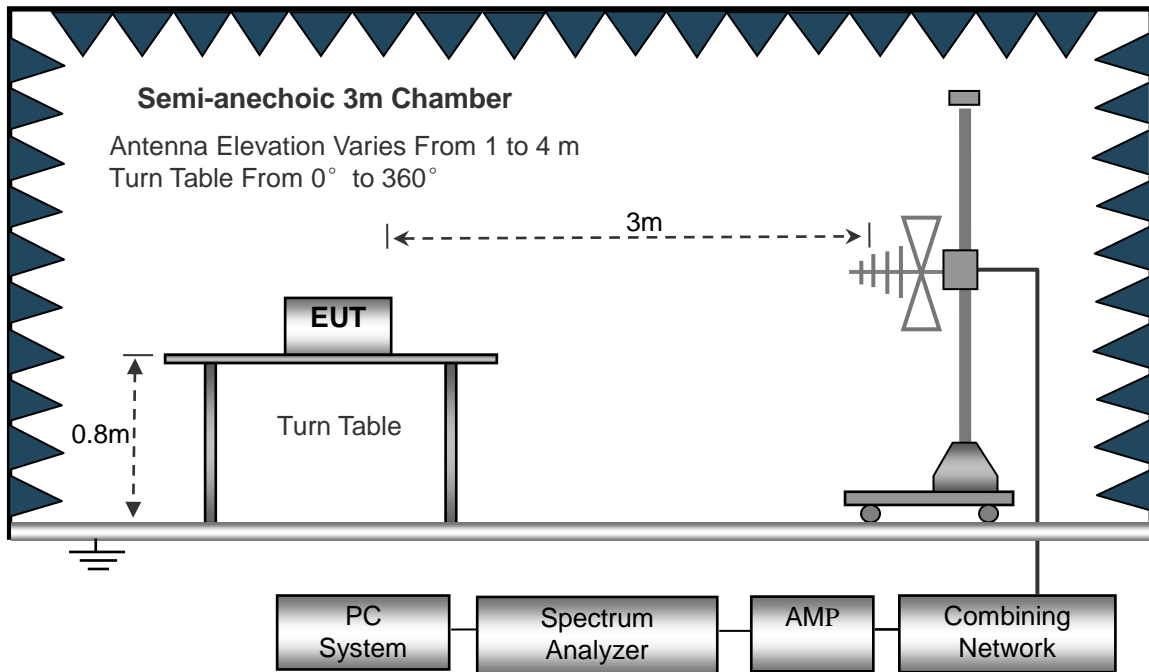
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

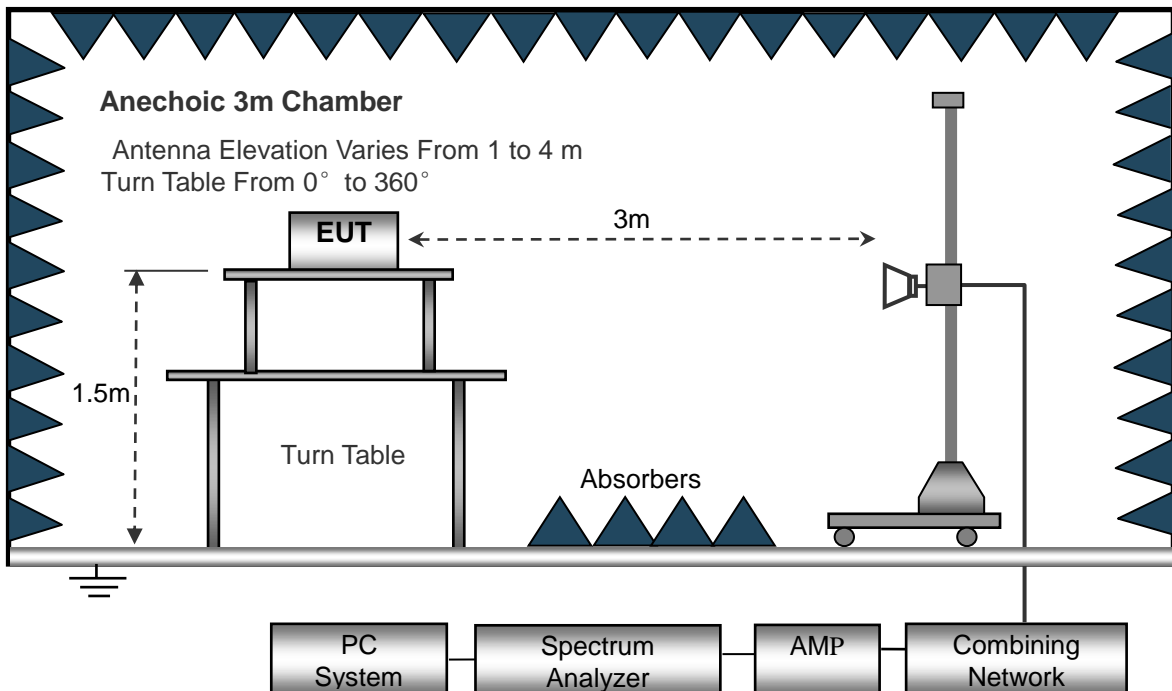
The test setup for emission measurement below 30MHz..



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 -6dB μ V means the emission is 6dB μ V below the maximum limit for Any non-ISM frequency device. The equation for margin calculation is as follows:

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

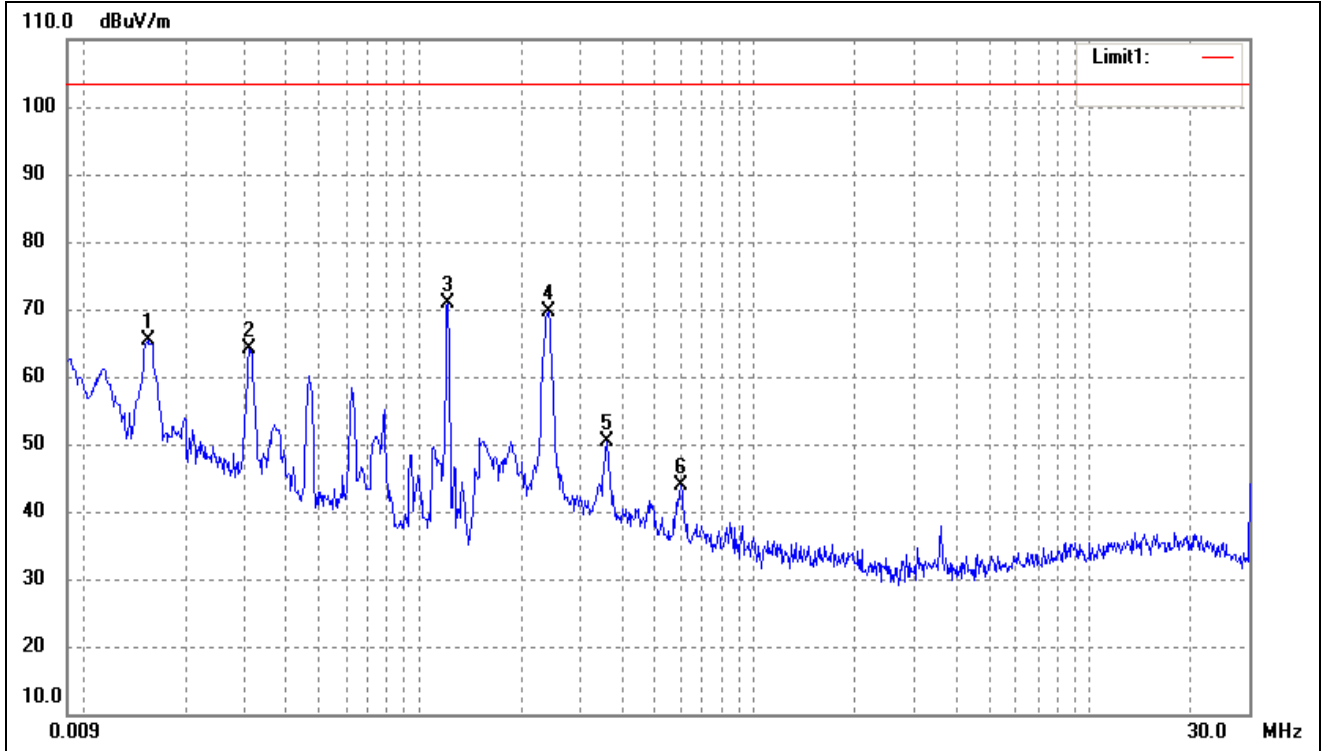
4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

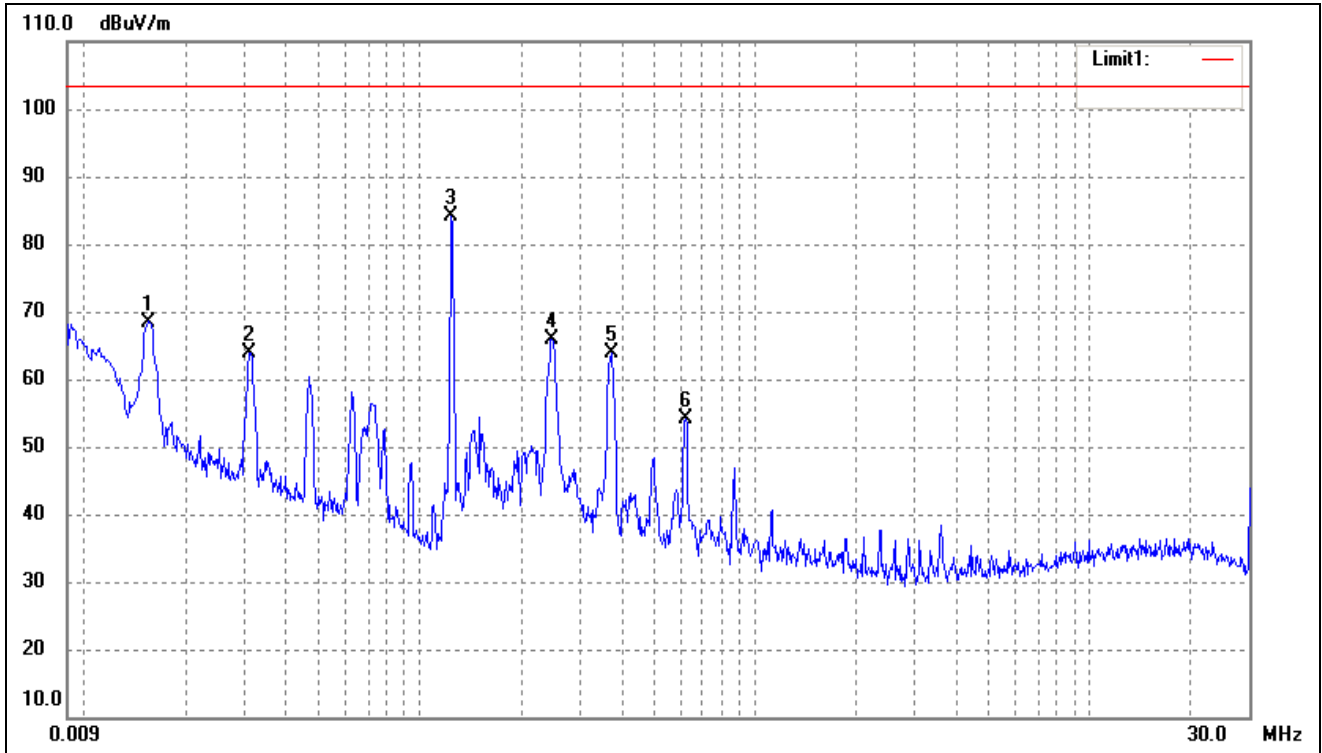
Plot of Radiated Emissions Test Data (Below 30MHz)

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	0.0154	72.05	-6.60	65.45	103.50	-38.05	-	-	peak
2	0.0312	70.14	-6.05	64.09	103.50	-39.41	-	-	peak
3	0.1208	75.88	-5.11	70.77	103.50	-32.73	-	-	peak
4	0.2416	76.82	-7.19	69.63	103.50	-33.87	-	-	peak
5	0.3615	58.22	-7.87	50.35	103.50	-53.15	-	-	peak
6	0.6011	51.03	-7.20	43.83	103.50	-59.67	-	-	peak

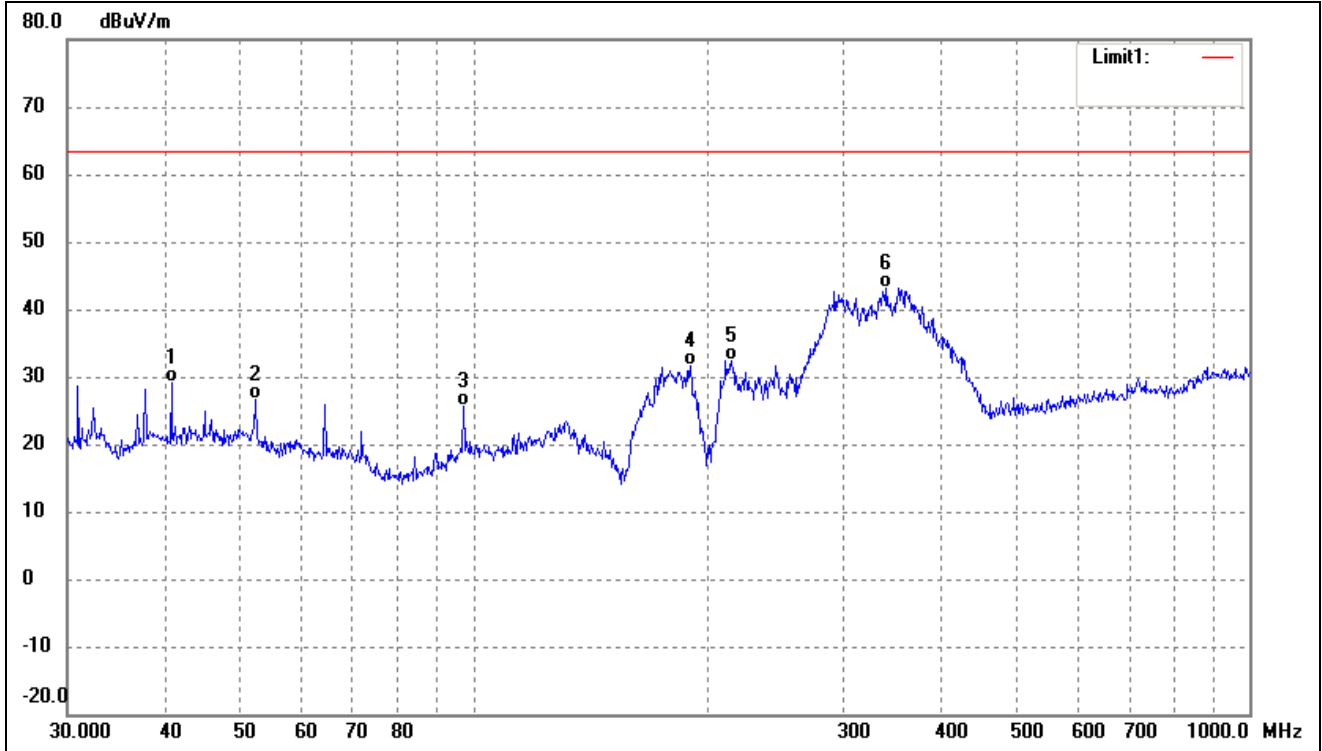
Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0155	75.11	-6.61	68.50	103.50	-35.00	-	-	peak
2	0.0312	69.92	-6.05	63.87	103.50	-39.63	-	-	peak
3	0.1242	89.25	-5.12	84.13	103.50	-19.37	-	-	peak
4	0.2481	73.22	-7.33	65.89	103.50	-37.61	-	-	peak
5	0.3731	71.70	-7.85	63.85	103.50	-39.65	-	-	peak
6	0.6205	61.14	-7.11	54.03	103.50	-49.47	-	-	peak

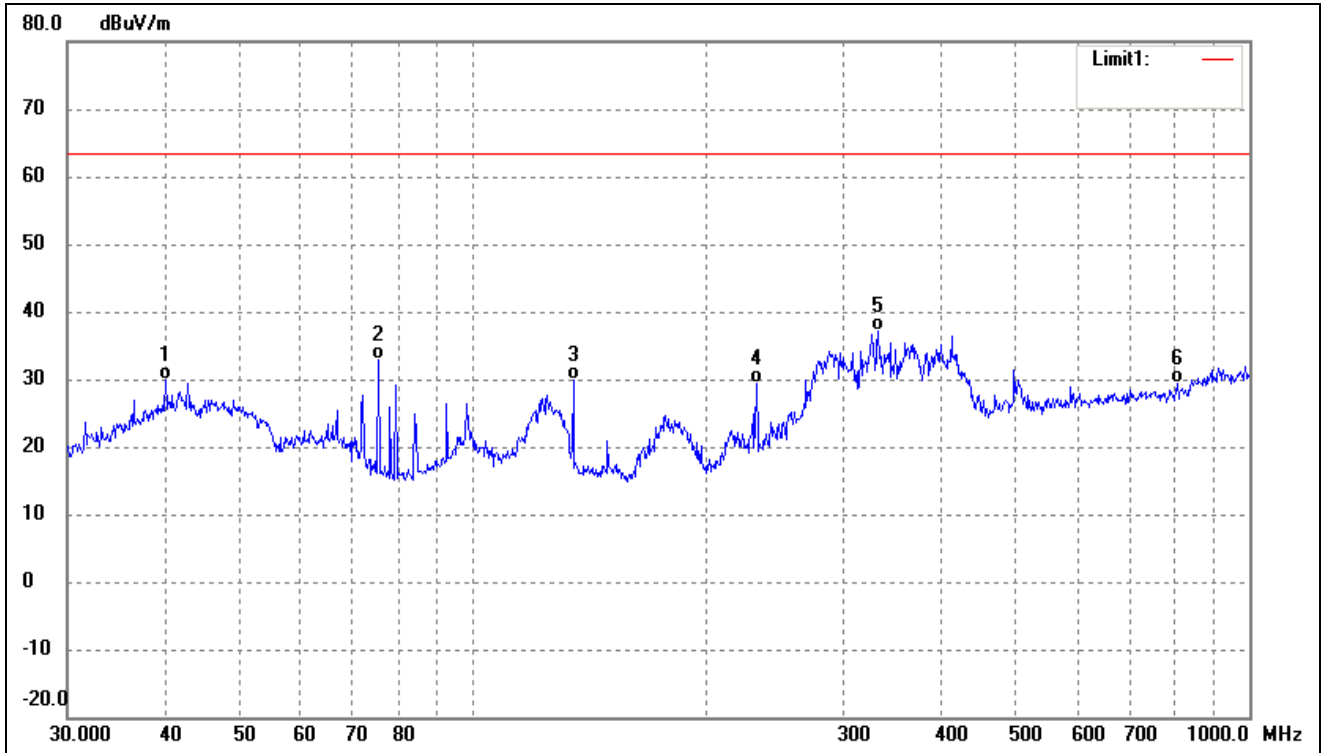
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal
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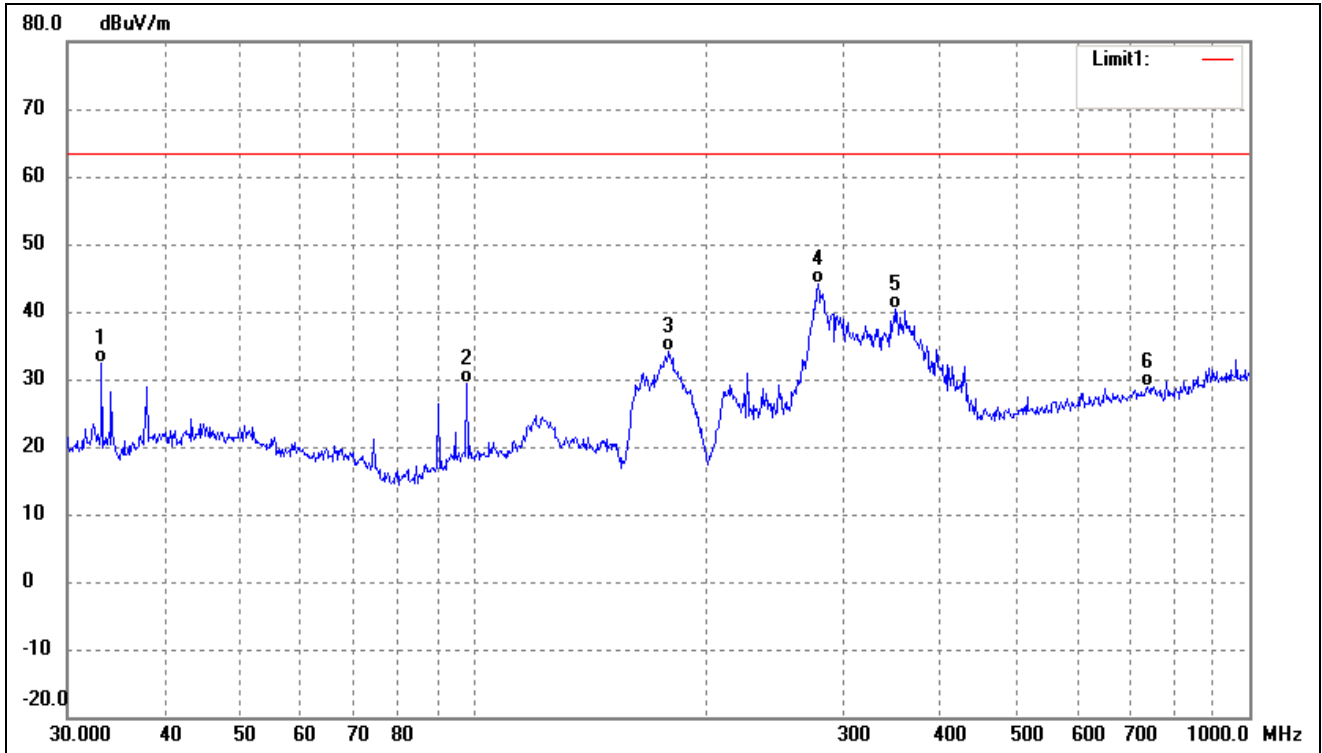
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	40.8446	41.17	-11.96	29.21	63.50	-34.29	-	-	QP
2	52.3912	38.89	-12.20	26.69	63.50	-36.81	-	-	QP
3	97.1148	39.41	-13.80	25.61	63.50	-37.89	-	-	QP
4	190.4050	44.80	-13.09	31.71	63.50	-31.79	-	-	QP
5	215.2678	44.72	-12.24	32.48	63.50	-31.02	-	-	QP
6	340.7817	51.24	-8.00	43.24	63.50	-20.26	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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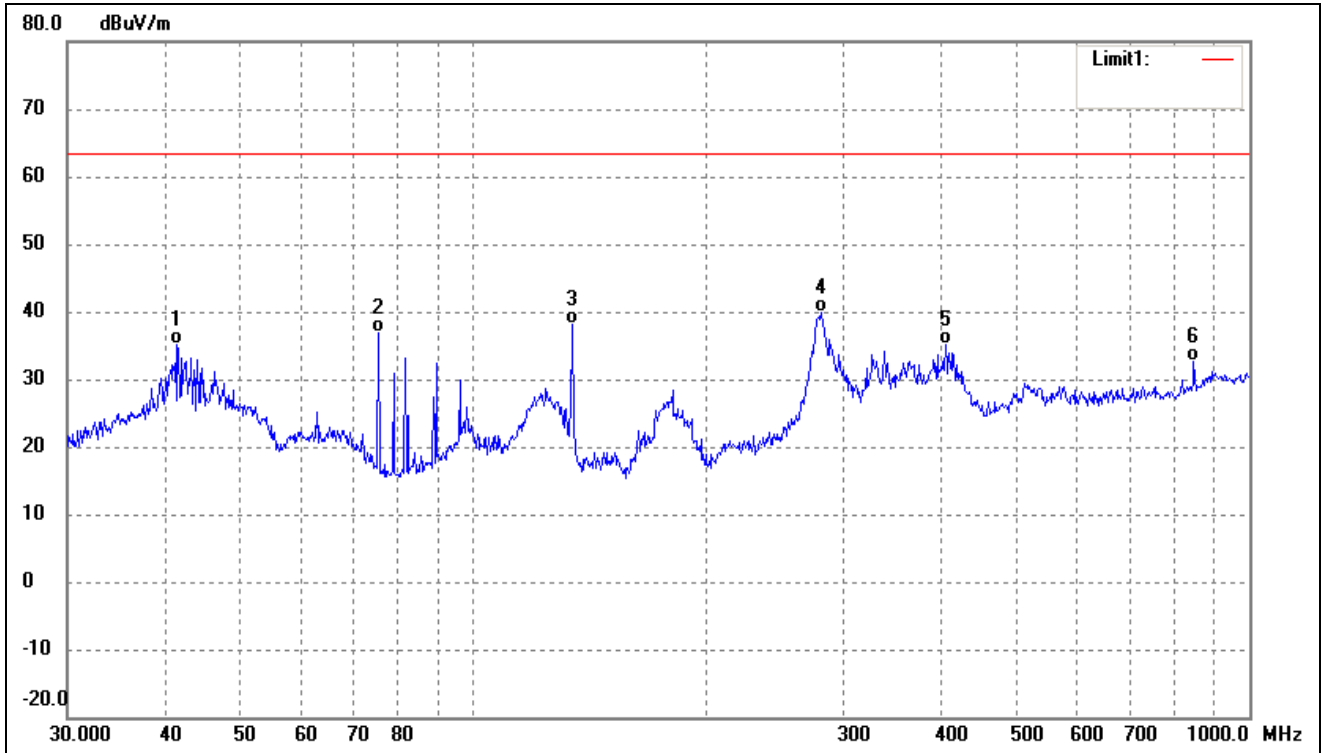
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	40.1347	41.81	-11.98	29.83	63.50	-33.67	-	-	QP
2	75.4464	48.96	-16.11	32.85	63.50	-30.65	-	-	QP
3	134.5592	46.62	-16.65	29.97	63.50	-33.53	-	-	QP
4	231.7179	41.08	-11.81	29.27	63.50	-34.23	-	-	QP
5	332.5187	45.51	-8.50	37.01	63.50	-26.49	-	-	QP
6	807.4291	30.25	-0.90	29.35	63.50	-34.15	-	-	QP

Test mode:	TM2	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	33.2112	46.45	-13.97	32.48	63.50	-31.02	-	-	QP
2	98.1419	42.92	-13.62	29.30	63.50	-34.20	-	-	QP
3	178.7584	48.50	-14.40	34.10	63.50	-29.40	-	-	QP
4	278.0668	54.55	-10.53	44.02	63.50	-19.48	-	-	QP
5	349.2500	47.75	-7.47	40.28	63.50	-23.22	-	-	QP
6	739.6604	30.08	-1.17	28.91	63.50	-34.59	-	-	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	41.5670	47.06	-11.93	35.13	63.50	-28.37	-	-	QP
2	75.4464	53.02	-16.11	36.91	63.50	-26.59	-	-	QP
3	134.0882	54.77	-16.67	38.10	63.50	-25.40	-	-	QP
4	281.0075	50.27	-10.32	39.95	63.50	-23.55	-	-	QP
5	406.0880	41.41	-6.31	35.10	63.50	-28.40	-	-	QP
6	848.0563	32.29	0.30	32.59	63.50	-30.91	-	-	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 *******