

TEST REPORT

Reference No...... : WTX22X10199748W001
FCC ID : 2AV4C-U280M00510BK
Applicant : Eaton Corporation
Address : 10000 Woodward Avenue, Woodridge IL 60517, USA
Manufacturer : DONGGUAN CE LINK LIMITED
Address : 22 Dongkang Road, Dalingshan Town, Dongguan City, Guangdong
Province, China.
Product Name : Magnetic Wireless Charging Pad, 10 Watts
Model No...... : U280M-005-10-BK
Standards : FCC Part 18
Date of Receipt sample : 2022-10-08
Date of Test..... : 2022-10-08 to 2022-11-08
Date of Issue : 2022-11-08
Test Report Form No. : WTX_Part 18W
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 approver.

Prepared By:

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Report version

Version No.	Date of issue	Description
Rev.00	2022-11-08	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

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:	Magnetic Wireless Charging Pad, 10 Watts
Trade Name:	Tripp Lite
Model No.:	U280M-005-10-BK
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:	110~205kHz
Power adapter:	ASK
Antenna Type:	Coil Antenna
Rated Voltage:	Input: DC5V, 9V Output:DC5V,9V
Rated Current:	Input: 2A Output:1A,1.1A
Rated Power:	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 and FCC MP-5:1986, 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	Connect to the adapter;	AC120V/60Hz for adapter; Wireless charging: output 5W
TM2	Wireless Charging	Connect to the adapter;	AC120V/60Hz for adapter; Wireless charging: output 10W

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Adapter	Xiaomi	MDY-11-EX	/
Smart phone	Apple	IPhone 12 Pro Max	/
Wireless charging tester	YBZ	YBZ wireless charging tester	/

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	2022-03-22	2023-03-21
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2022-03-22	2023-03-21
Amplifier	Agilent	8447F	3113A0671 7	2022-01-07	2023-01-06
Amplifier	C&D	PAP-1G18	2002	2022-03-22	2023-03-21
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	2944A1017 9	2022-03-22	2023-03-21
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2022-03-25	2023-03-24

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:

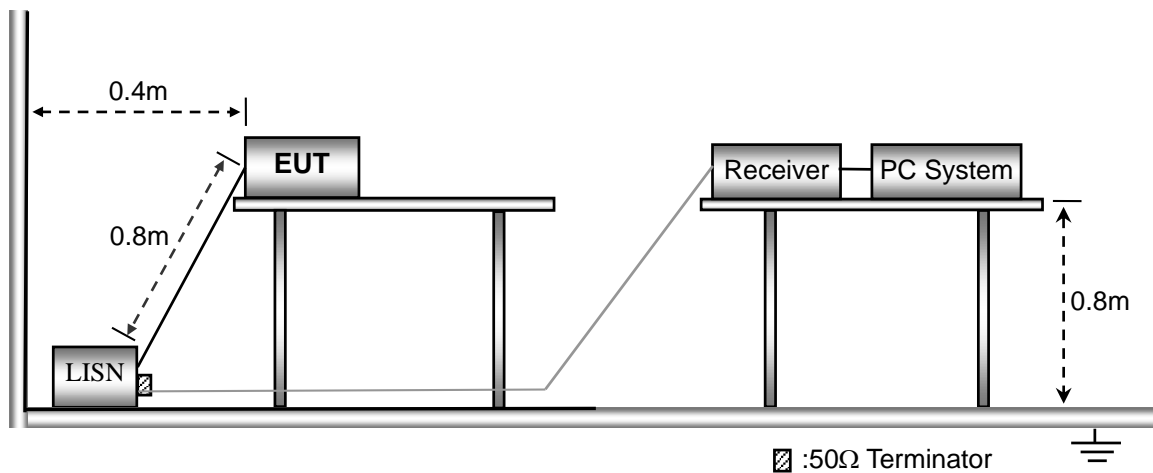
Frequency (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

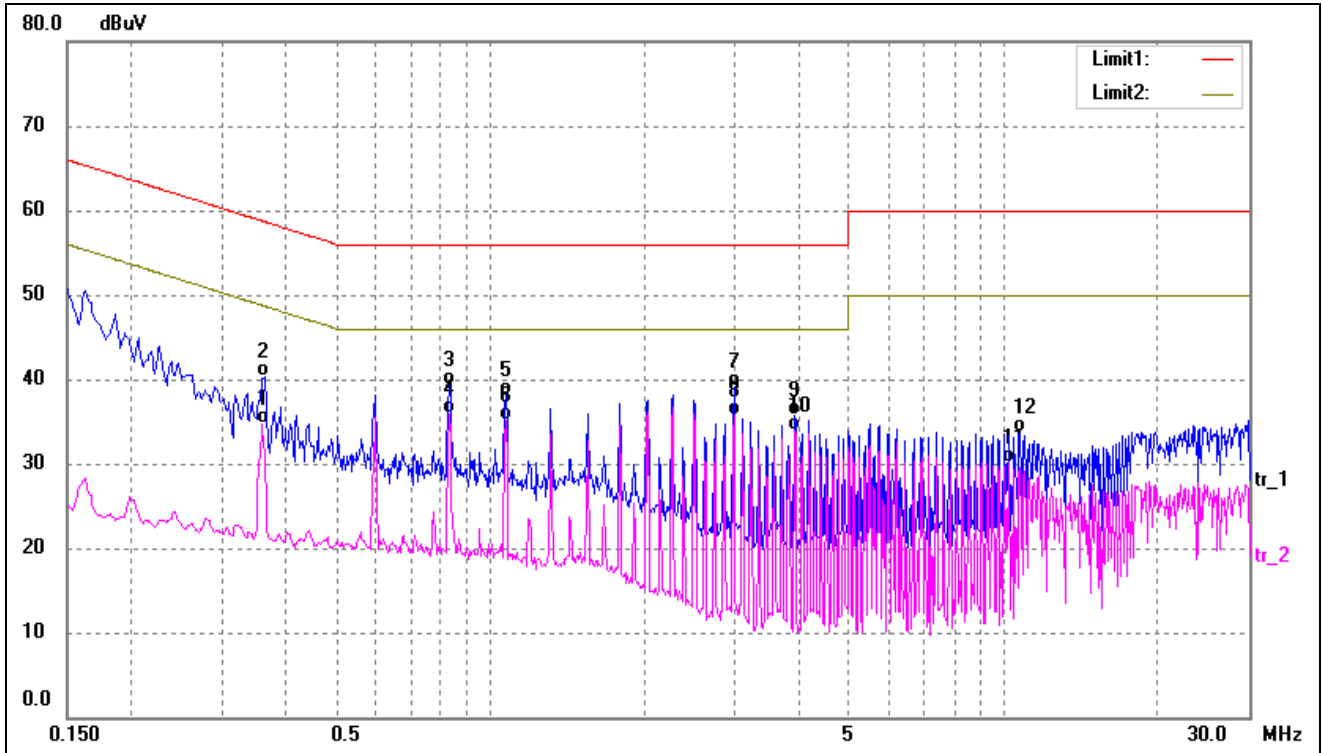
3.5 Test Receiver Setup

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

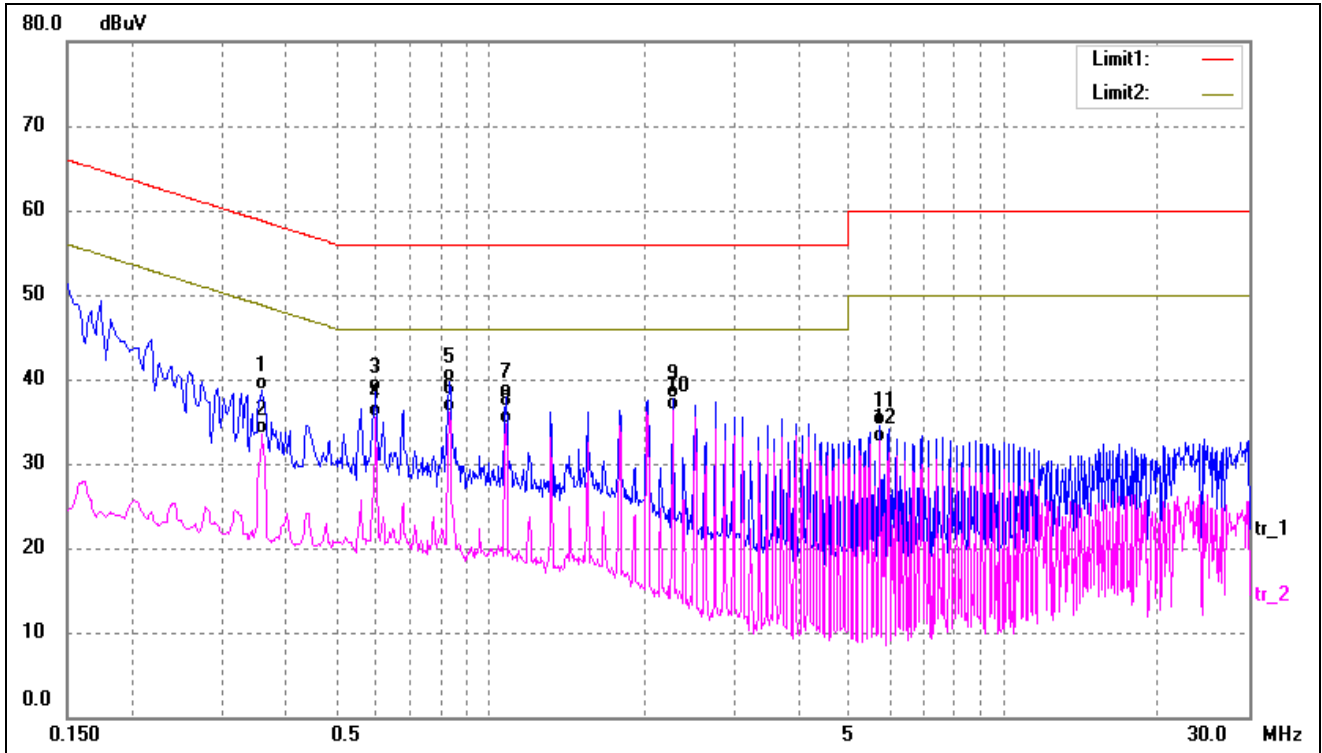
3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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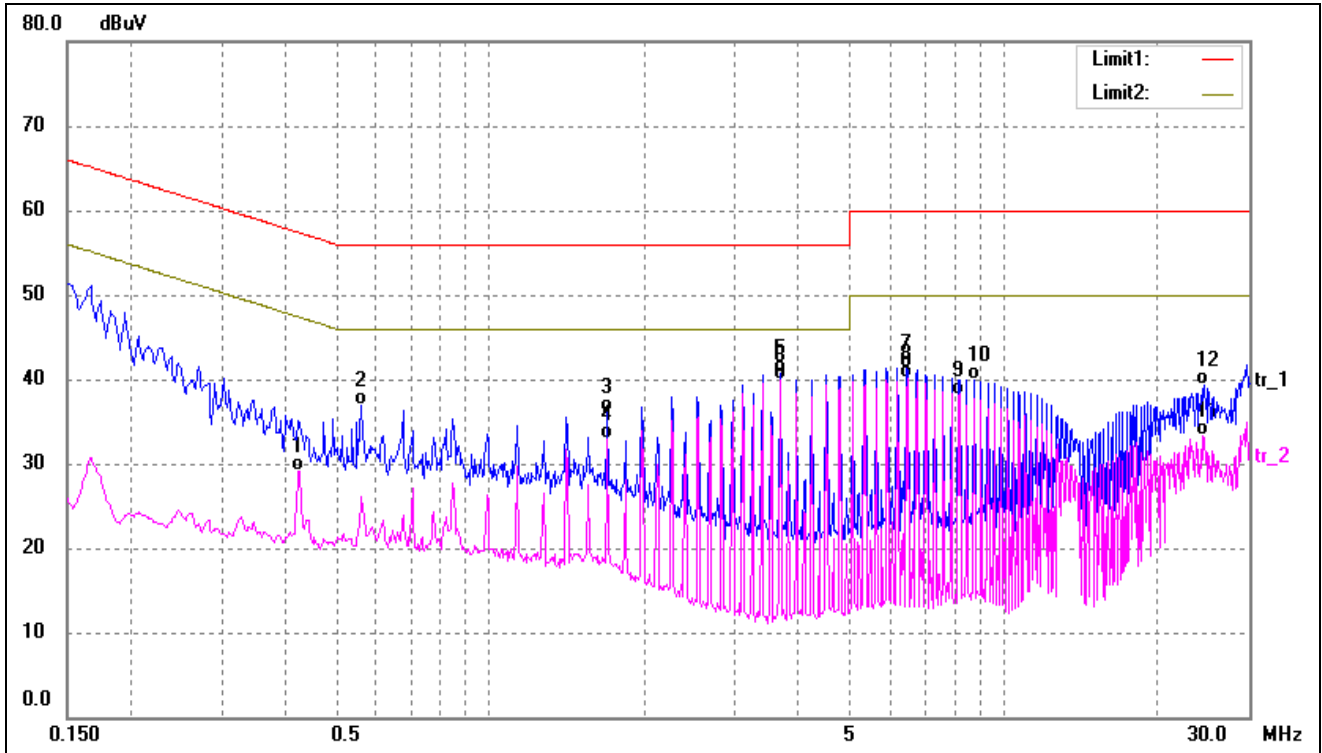
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3580	24.46	10.23	34.69	48.77	-14.08	AVG
2	0.3620	29.98	10.23	40.21	58.68	-18.47	QP
3	0.8340	29.21	10.16	39.37	56.00	-16.63	QP
4*	0.8340	25.78	10.16	35.94	46.00	-10.06	AVG
5	1.0740	27.88	10.15	38.03	56.00	-17.97	QP
6	1.0740	24.86	10.15	35.01	46.00	-10.99	AVG
7	2.9780	28.78	10.28	39.06	56.00	-16.94	QP
8	2.9780	25.51	10.28	35.79	46.00	-10.21	AVG
9	3.9220	25.39	10.30	35.69	56.00	-20.31	QP
10	3.9220	23.68	10.30	33.98	46.00	-12.02	AVG
11	10.2660	19.75	10.34	30.09	50.00	-19.91	AVG
12	10.7420	23.45	10.34	33.79	60.00	-26.21	QP

Test mode:	TM1	Polarity:	Neutral
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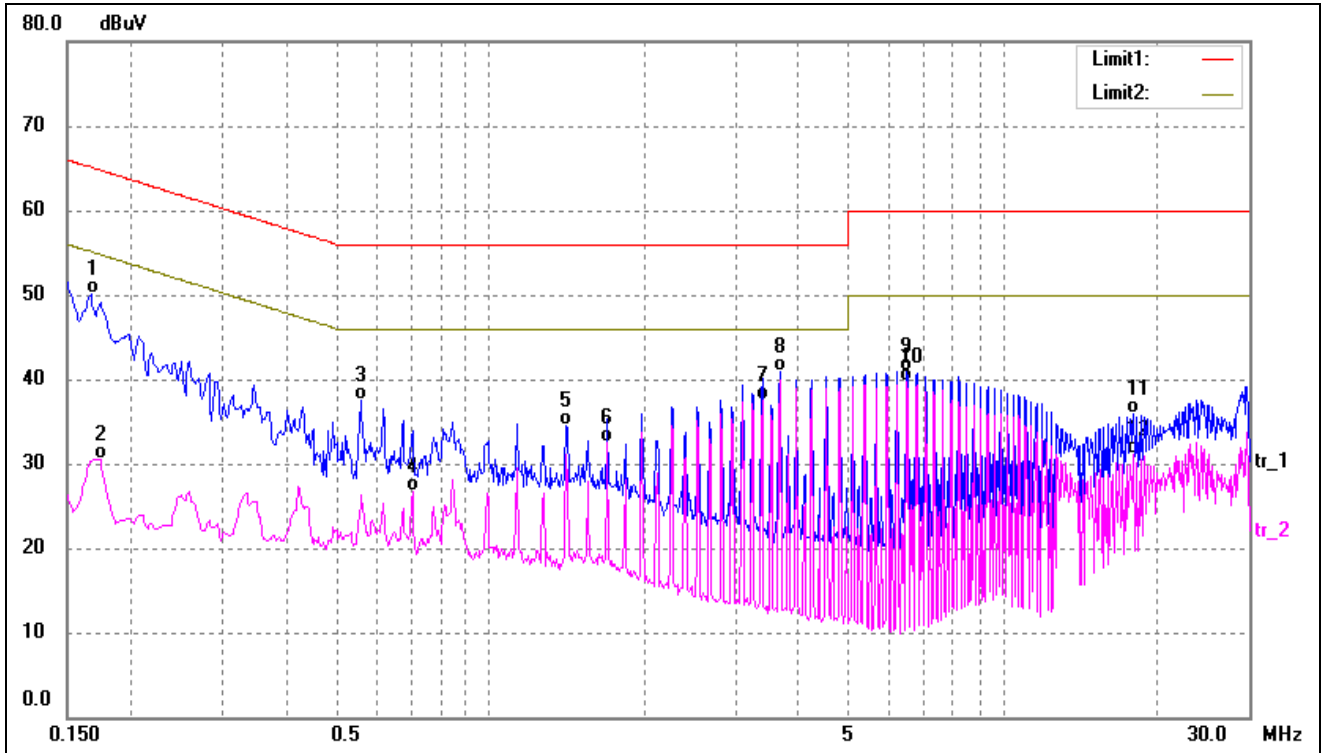
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3580	28.54	10.23	38.77	58.77	-20.00	QP
2	0.3580	23.36	10.23	33.59	48.77	-15.18	AVG
3	0.5980	28.37	10.21	38.58	56.00	-17.42	QP
4	0.5980	25.25	10.21	35.46	46.00	-10.54	AVG
5	0.8340	29.51	10.16	39.67	56.00	-16.33	QP
6	0.8340	25.94	10.16	36.10	46.00	-9.90	AVG
7	1.0740	27.71	10.15	37.86	56.00	-18.14	QP
8	1.0740	24.61	10.15	34.76	46.00	-11.24	AVG
9	2.2700	27.51	10.26	37.77	56.00	-18.23	QP
10*	2.2700	26.10	10.26	36.36	46.00	-9.64	AVG
11	5.7300	24.22	10.33	34.55	60.00	-25.45	QP
12	5.7300	22.27	10.33	32.60	50.00	-17.40	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	0.4220	18.96	10.22	29.18	47.41	-18.23	AVG
2	0.5620	26.74	10.21	36.95	56.00	-19.05	QP
3	1.6940	25.86	10.22	36.08	56.00	-19.92	QP
4	1.6940	22.67	10.22	32.89	46.00	-13.11	AVG
5	3.6700	30.50	10.29	40.79	56.00	-15.21	QP
6*	3.6700	29.69	10.29	39.98	46.00	-6.02	AVG
7	6.4860	31.00	10.34	41.34	60.00	-18.66	QP
8	6.4899	29.67	10.34	40.01	50.00	-9.99	AVG
9	8.1940	27.86	10.34	38.20	50.00	-11.80	AVG
10	8.7540	29.66	10.34	40.00	60.00	-20.00	QP
11	24.2780	22.95	10.38	33.33	50.00	-16.67	AVG
12	24.5500	28.94	10.38	39.32	60.00	-20.68	QP

Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1660	39.72	10.31	50.03	65.15	-15.12	QP
2	0.1740	20.26	10.30	30.56	54.76	-24.20	AVG
3	0.5580	27.32	10.21	37.53	56.00	-18.47	QP
4	0.7060	16.45	10.19	26.64	46.00	-19.36	AVG
5	1.4100	24.35	10.18	34.53	56.00	-21.47	QP
6	1.6900	22.29	10.22	32.51	46.00	-13.49	AVG
7*	3.3820	27.26	10.29	37.55	46.00	-8.45	AVG
8	3.6700	30.60	10.29	40.89	56.00	-15.11	QP
9	6.4820	30.61	10.34	40.95	60.00	-19.05	QP
10	6.4820	29.46	10.34	39.80	50.00	-10.20	AVG
11	17.9180	25.64	10.32	35.96	60.00	-24.04	QP
12	17.9180	20.83	10.32	31.15	50.00	-18.85	AVG

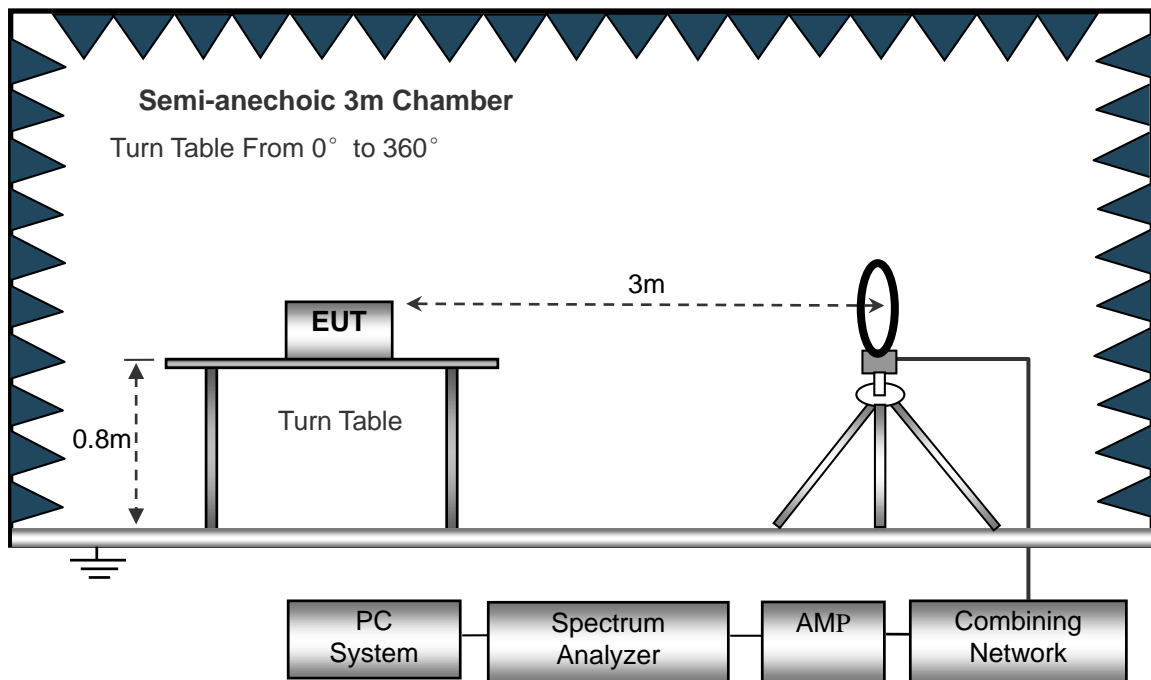
4. Radiated Emissions

4.1 Test Procedure

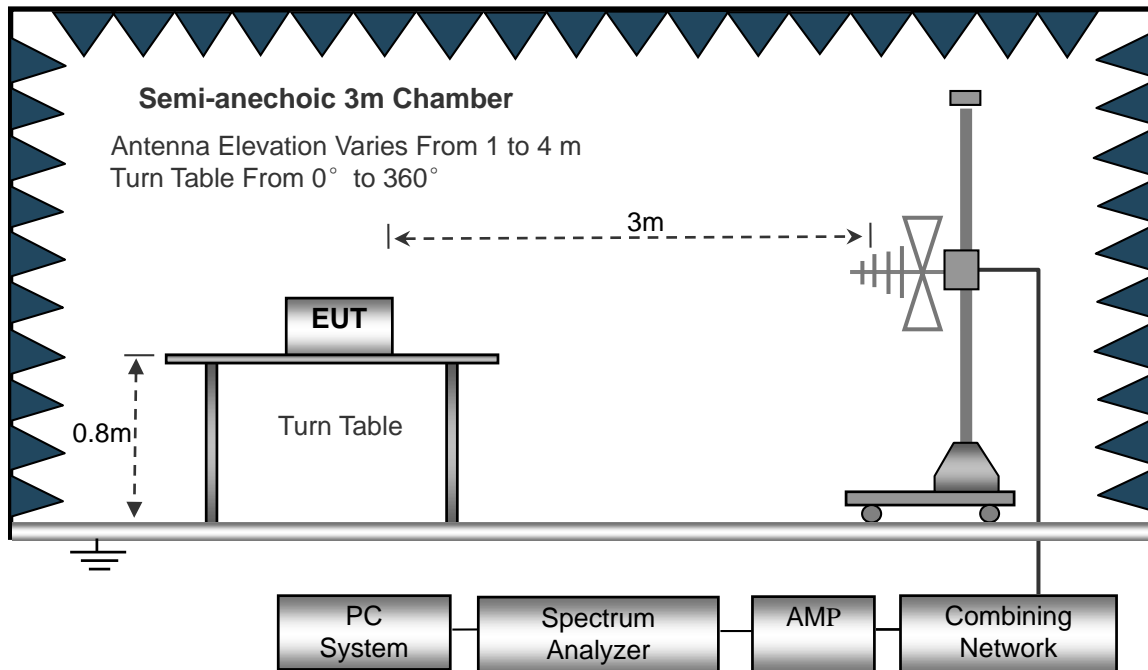
The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.305 Limit.

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..



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

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:

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

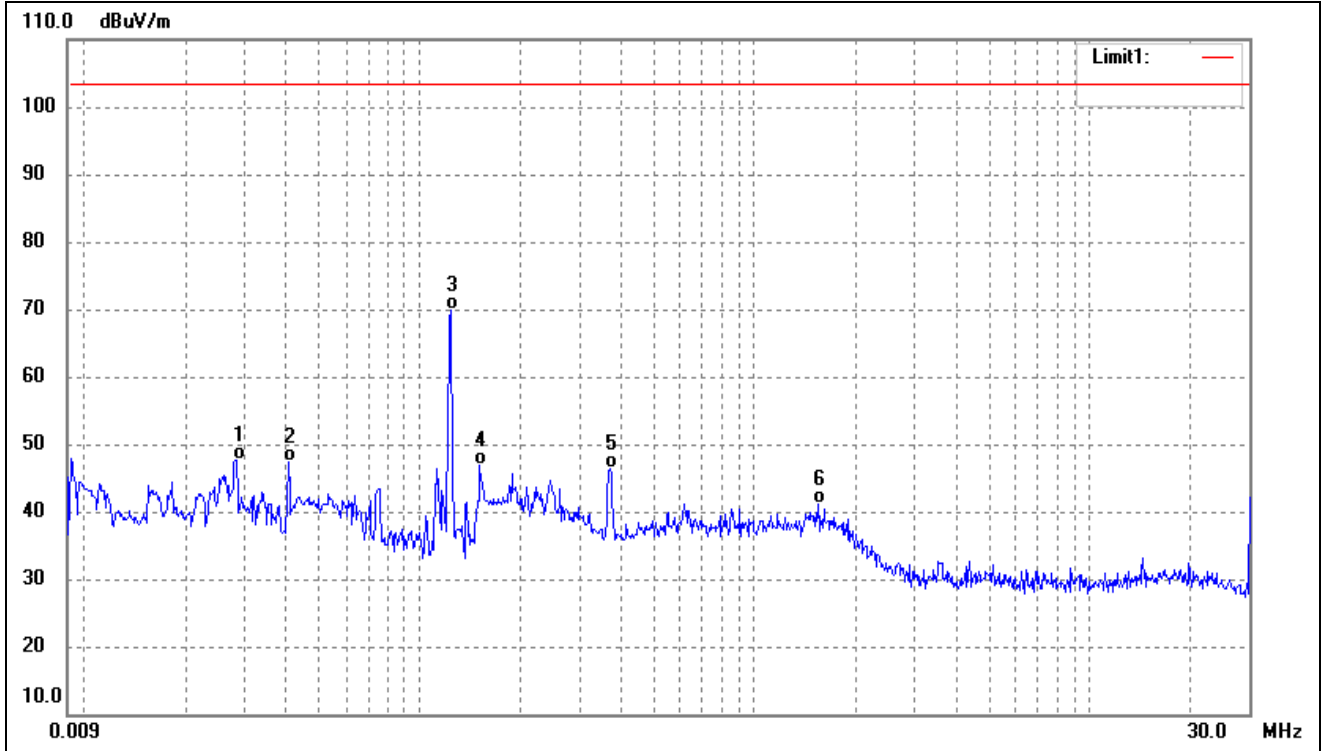
4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

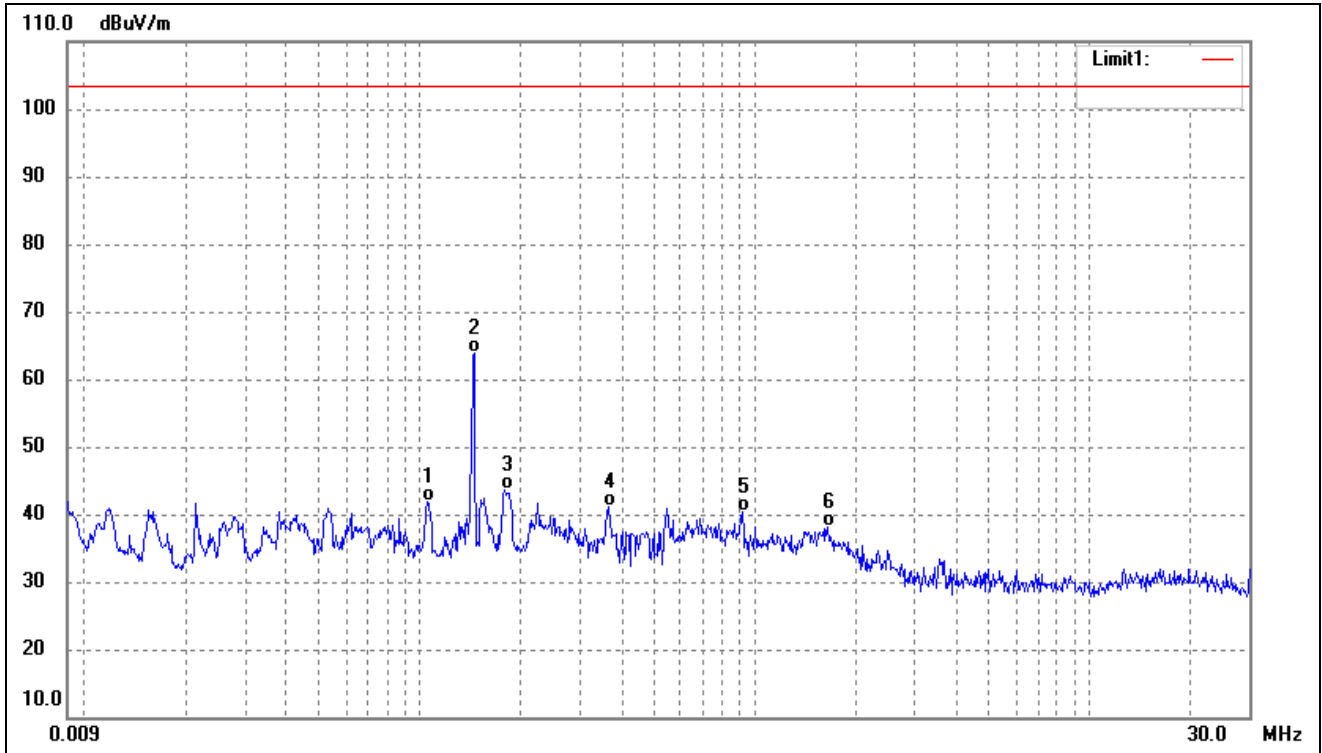
Plot of Radiated Emissions Test Data (Below 30MHz)

Test mode:	TM1	Polarity:	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	0.0284	54.26	-6.59	47.67	103.50	-55.83	-	-	QP
2	0.0405	53.24	-5.95	47.29	103.50	-56.21	-	-	QP
3	0.1232	76.35	-6.48	69.87	103.50	-33.63	-	-	QP
4	0.1499	53.50	-6.62	46.88	103.50	-56.62	-	-	QP
5	0.3689	54.00	-7.74	46.26	103.50	-57.24	-	-	QP
6	1.5355	47.18	-6.11	41.07	103.50	-62.43	-	-	QP

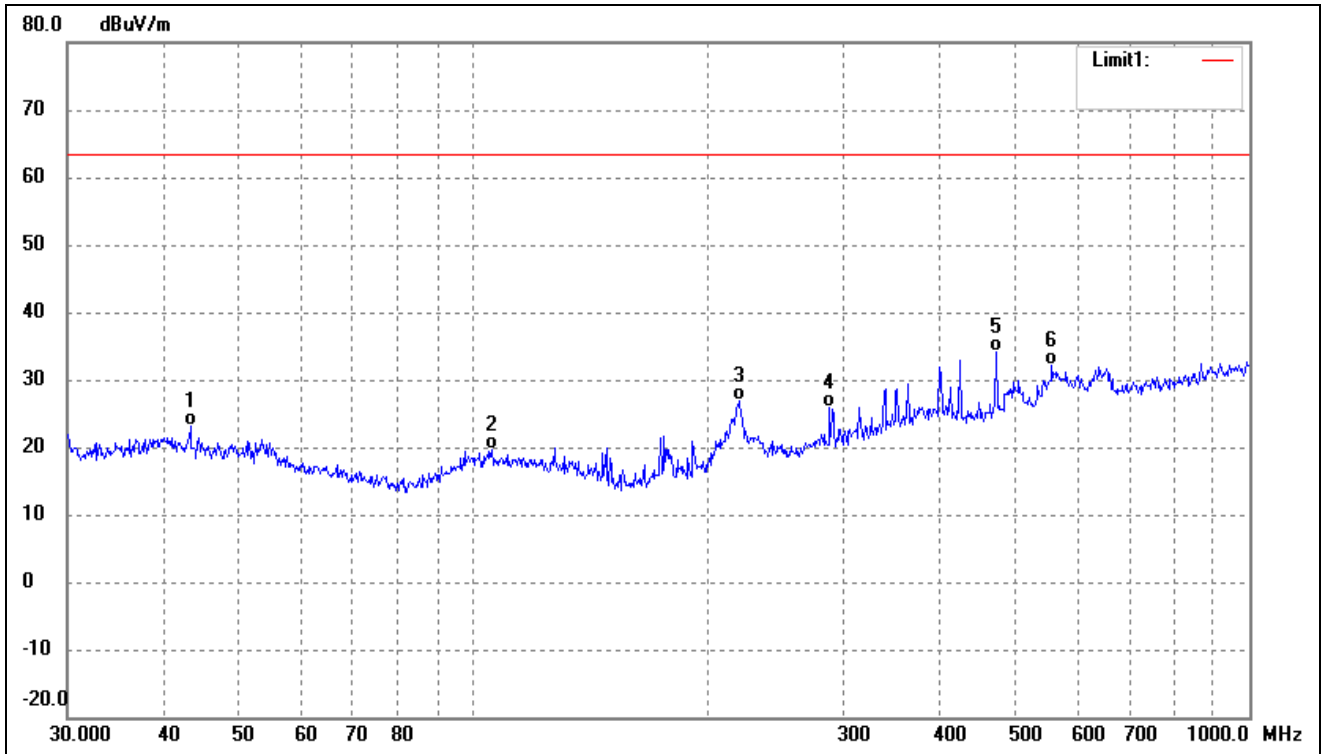
Test mode:	TM2	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.1048	48.41	-6.48	41.93	103.50	-61.57	-	-	QP
2	0.1446	70.16	-6.36	63.80	103.50	-39.70	-	-	QP
3	0.1796	50.26	-6.74	43.52	103.50	-59.98	-	-	QP
4	0.3653	47.66	-6.65	41.01	103.50	-62.49	-	-	QP
5	0.9133	46.61	-6.29	40.32	103.50	-63.18	-	-	QP
6	1.6450	44.29	-6.08	38.21	103.50	-65.29	-	-	QP

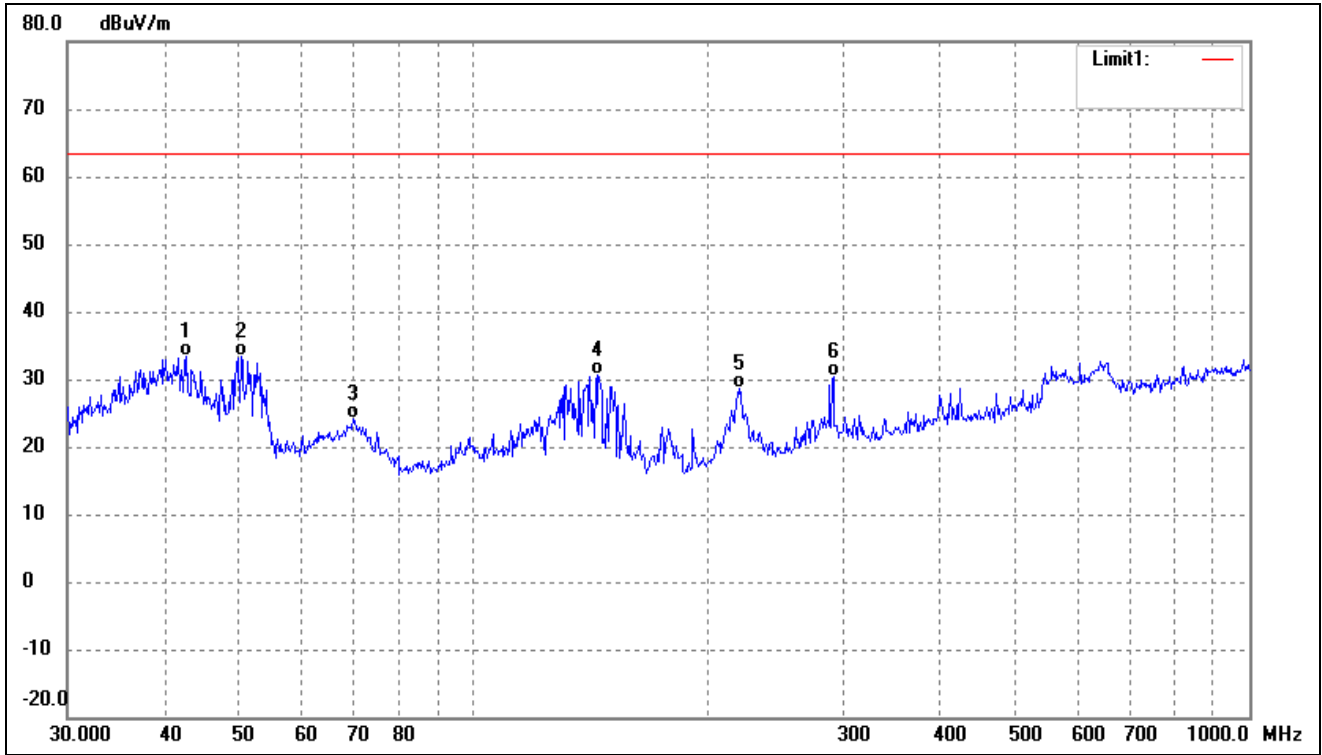
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal
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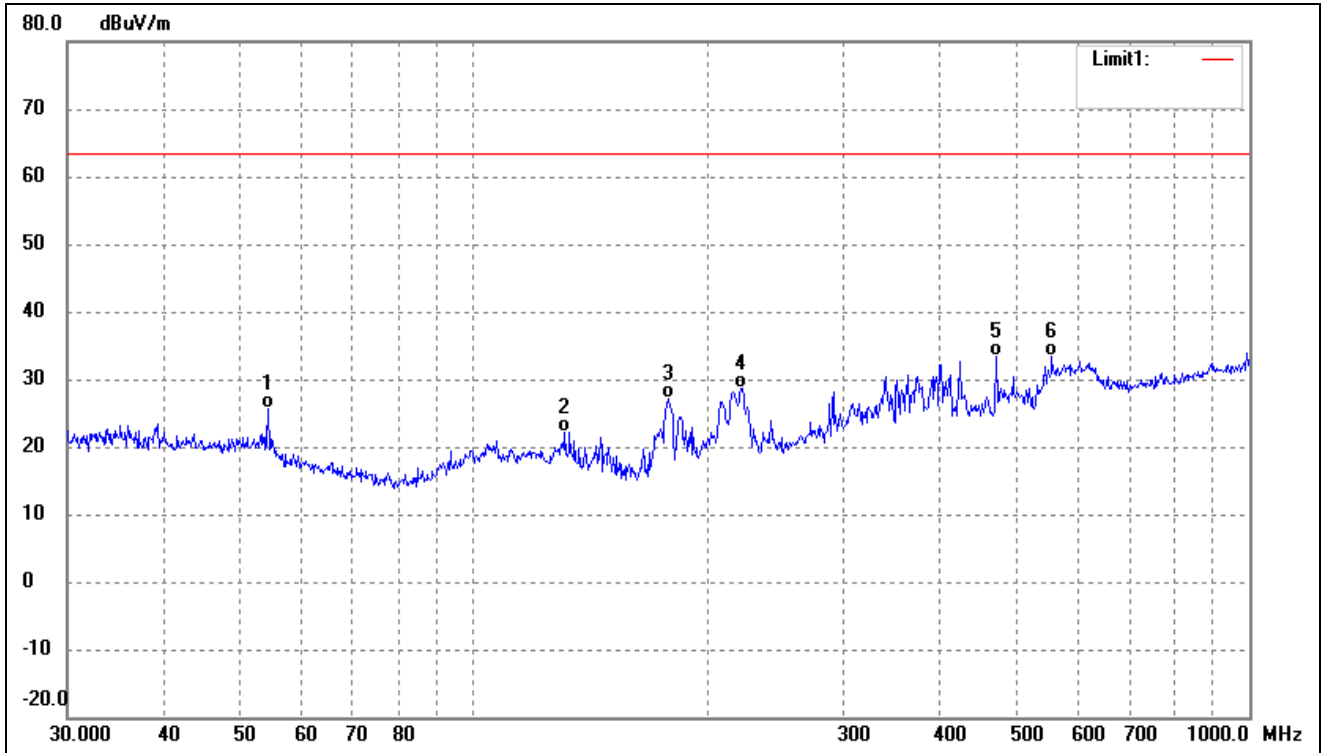
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	43.2017	30.40	-7.18	23.22	63.50	-40.28	-	-	QP
2	105.6415	27.79	-8.10	19.69	63.50	-43.81	-	-	QP
3	220.6171	34.67	-7.72	26.95	63.50	-36.55	-	-	QP
4	287.9904	31.37	-5.42	25.95	63.50	-37.55	-	-	QP
5	472.1760	36.73	-2.52	34.21	63.50	-29.29	-	-	QP
6	556.7744	33.11	-0.98	32.13	63.50	-31.37	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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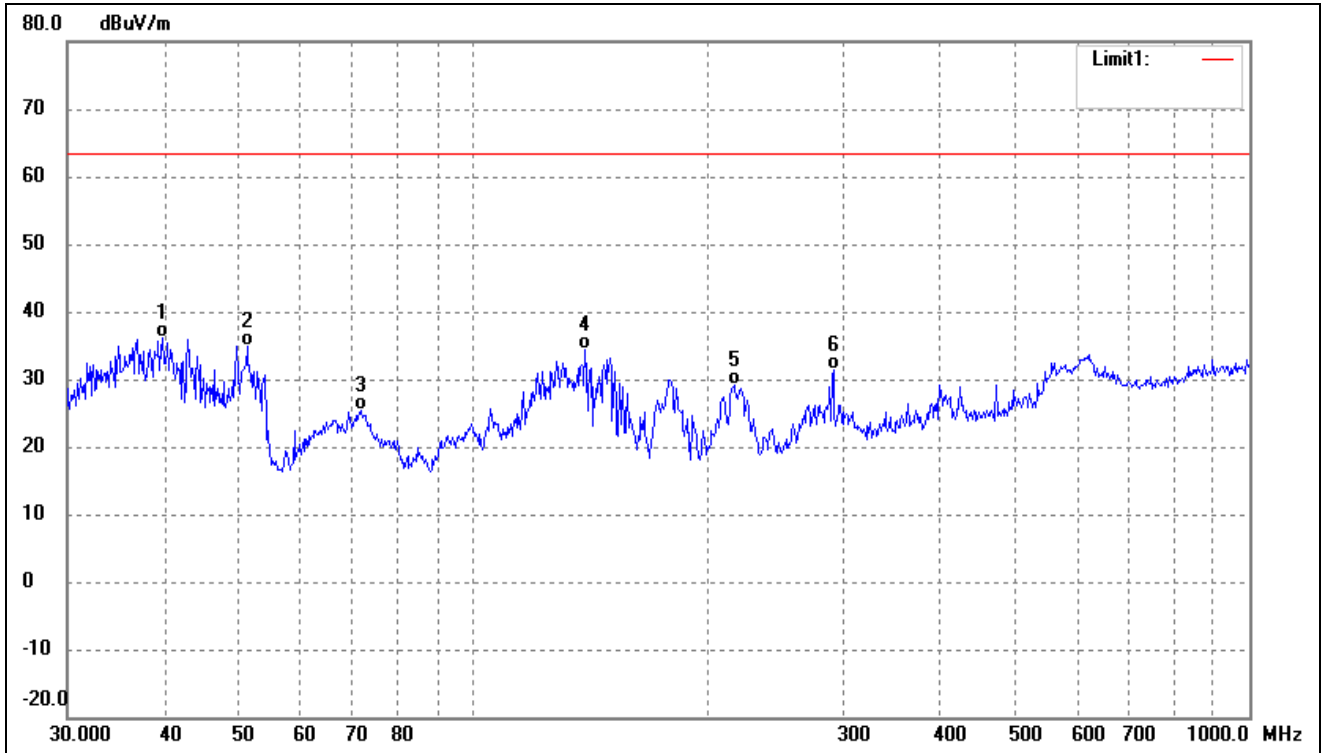
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	42.7496	40.59	-7.17	33.42	63.50	-30.08	-	-	QP
2	50.2324	40.80	-7.36	33.44	63.50	-30.06	-	-	QP
3	70.0903	35.22	-11.09	24.13	63.50	-39.37	-	-	QP
4	144.8418	42.09	-11.52	30.57	63.50	-32.93	-	-	QP
5	220.6171	36.35	-7.72	28.63	63.50	-34.87	-	-	QP
6	291.0360	35.70	-5.32	30.38	63.50	-33.12	-	-	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	54.4516	33.76	-8.09	25.67	63.50	-37.83	-	-	QP
2	131.2965	32.85	-10.70	22.15	63.50	-41.35	-	-	QP
3	178.1327	37.33	-10.23	27.10	63.50	-36.40	-	-	QP
4	221.3921	36.22	-7.68	28.54	63.50	-34.96	-	-	QP
5	472.1760	35.97	-2.52	33.45	63.50	-30.05	-	-	QP
6	556.7744	34.35	-0.98	33.37	63.50	-30.13	-	-	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	39.8542	43.29	-7.14	36.15	63.50	-27.35	-	-	QP
2	51.1209	42.35	-7.51	34.84	63.50	-28.66	-	-	QP
3	71.8320	36.54	-11.24	25.30	63.50	-38.20	-	-	QP
4	139.3613	45.74	-11.33	34.41	63.50	-29.09	-	-	QP
5	216.7828	36.94	-7.85	29.09	63.50	-34.41	-	-	QP
6	291.0360	36.69	-5.32	31.37	63.50	-32.13	-	-	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 ****