

TEST REPORT

Reference No..... : WTX24X01025651W001
FCC ID..... : A4X-MPP15-1TNNA
Applicant..... : CE LINK LIMITED
Address..... : 22 Dongkang Road, Dalingshan Town, Dongguan City, Guangdong
Province, China.
Manufacturer..... : DONGGUAN CE LINK LIMITED
Address..... : 22 Dongkang Road, Dalingshan Town, Dongguan City, Guangdong
Province, China.
Product Name..... : QI2 Wireless Charger
Model No..... : MPP15-1TNNA
Standards..... : FCC Part 18
Date of Receipt sample.... : 2024-01-31
Date of Test..... : 2024-02-27 to 2024-03-21
Date of Issue..... : 2024-03-21
Test Report Form No. : WTX_Part 18W
Test Result..... : **Pass**

Remarks:

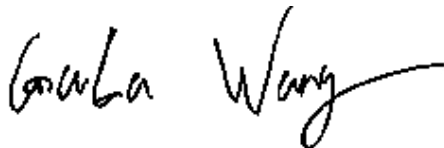
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

Prepared By:

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Jason Su

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Report version

Version No.	Date of issue	Description
Rev.00	2024-03-21	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:	QI2 Wireless Charger
Trade Name:	CE-LINK
Model No.:	MPP15-1TNNA
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@5W 127.85-359.99kHz@15W
Modulation Type:	ASK
Antenna Type:	Coil Antenna
Rated Voltage:	Input: DC5V/9V
Rated Current:	Input: 3A/2.2A
Rated Power:	Output: 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 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 (5W)
TM2	Wireless Charging	Connect to the Adapter	AC120V 60Hz for adapter, Wireless Charging (15W)

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Adapter	Iotie	CHCRIO160	/
Wireless Charging Load	NuVolta	NUI 6X8 EVM MPP V2.1 231124	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.6	Shielded	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	2024-02-24	2025-02-23
EMI Test Receiver	Rohde & Schwarz	ESPI	101259	2024-02-24	2025-02-23
Amplifier	HP	8447F	2805A0347 5	2024-02-24	2025-02-23
Amplifier	C&D	PAP-1G18	2002	2024-02-27	2025-02-26
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2024-02-24	2025-02-23
Horn Antenna	ETS	3117	00086197	2024-02-26	2025-02-25
Loop Antenna	Schwarz beck	FMZB 1516	9773	2024-02-26	2025-02-25
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2024-02-24	2025-02-23
Amplifier	Agilent	8447D	2944A1045 7	2024-02-24	2025-02-23
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2024-02-24	2025-02-23

Software List			
Description	Manufacturer	Model	Version
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission Room 1#)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission Room 2#)*	SKET	EMC-I	V2.0

*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:

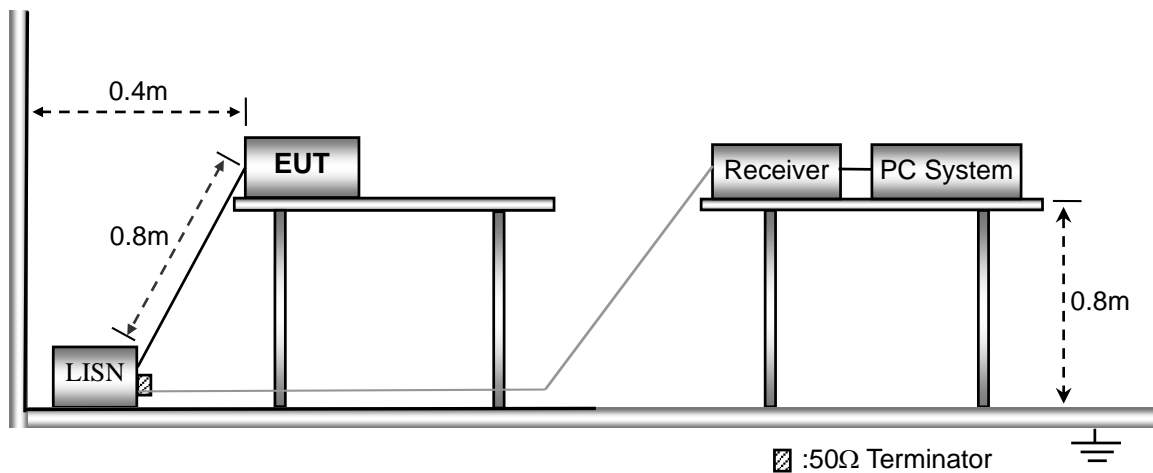
Frequency (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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:	25° C
Relative Humidity:	45%
ATM Pressure:	1016 mbar

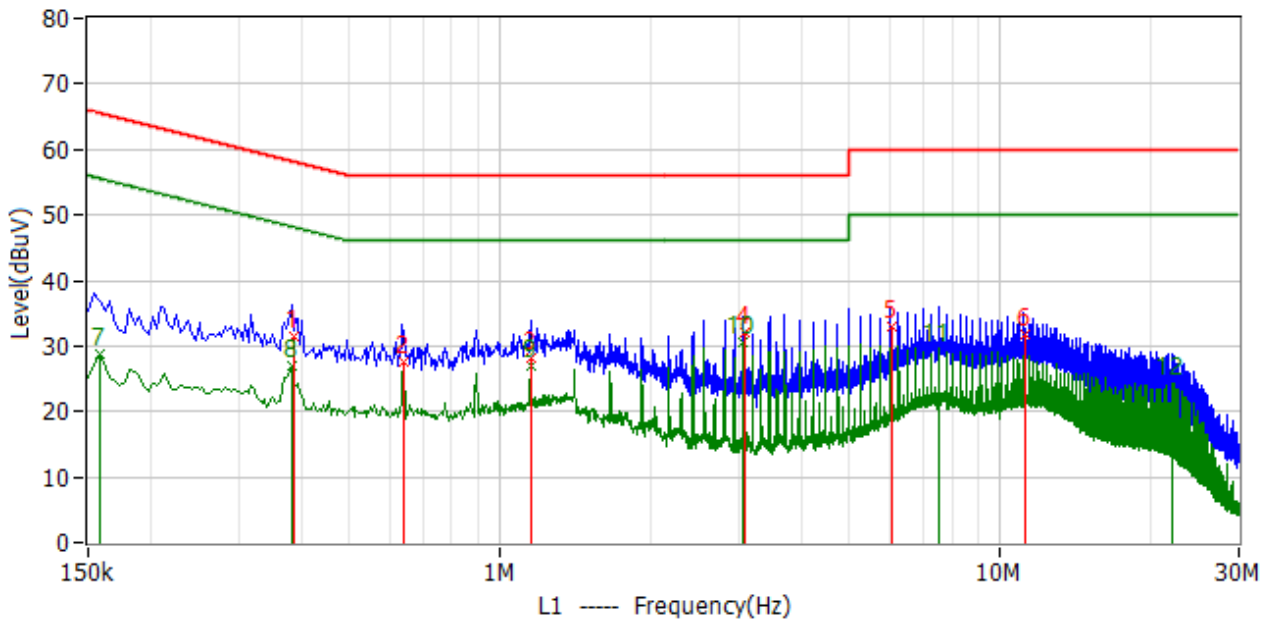
3.5 Test Receiver Setup

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

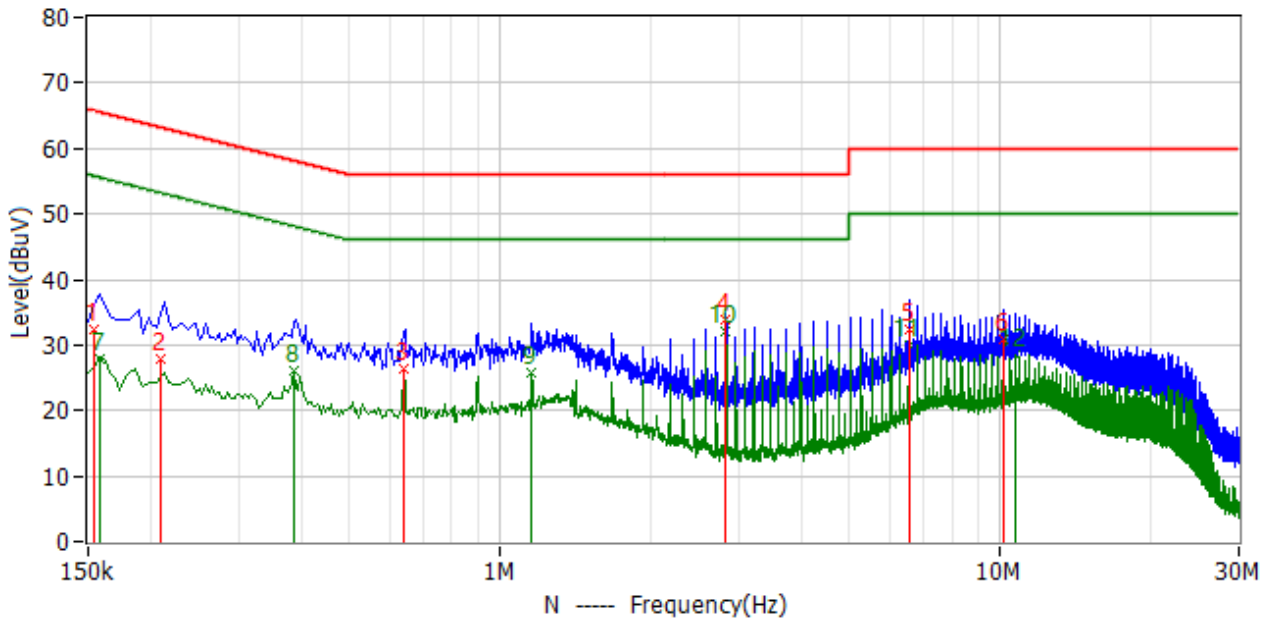
3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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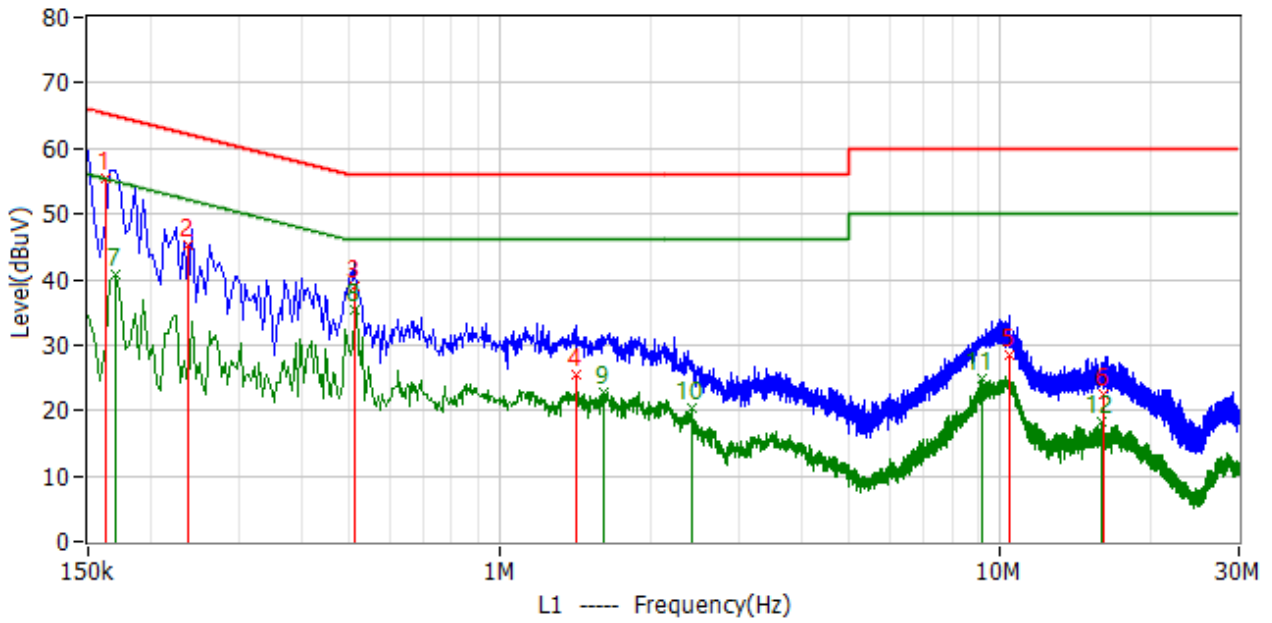
No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Delta dB	Detector
1	386.000kHz	21.6	9.9	31.5	58.1	-26.6	QP
2	642.000kHz	18.0	9.7	27.7	56.0	-28.3	QP
3	1.158MHz	18.4	9.8	28.2	56.0	-27.8	QP
4	3.086MHz	22.1	9.9	32.0	56.0	-24.0	QP
5	6.046MHz	23.2	9.8	33.0	60.0	-27.0	QP
6	11.194MHz	21.9	9.8	31.7	60.0	-28.3	QP
7*	158.000kHz	18.8	9.9	28.7	55.6	-26.9	AV
8*	382.000kHz	17.0	9.9	26.9	48.2	-21.4	AV
9*	1.150MHz	17.1	9.8	26.9	46.0	-19.1	AV
10*	3.070MHz	20.7	9.9	30.6	46.0	-15.4	AV
11*	7.542MHz	19.8	9.7	29.5	50.0	-20.5	AV
12*	21.990MHz	14.3	10.0	24.3	50.0	-25.7	AV

Test mode:	TM1	Polarity:	Neutral
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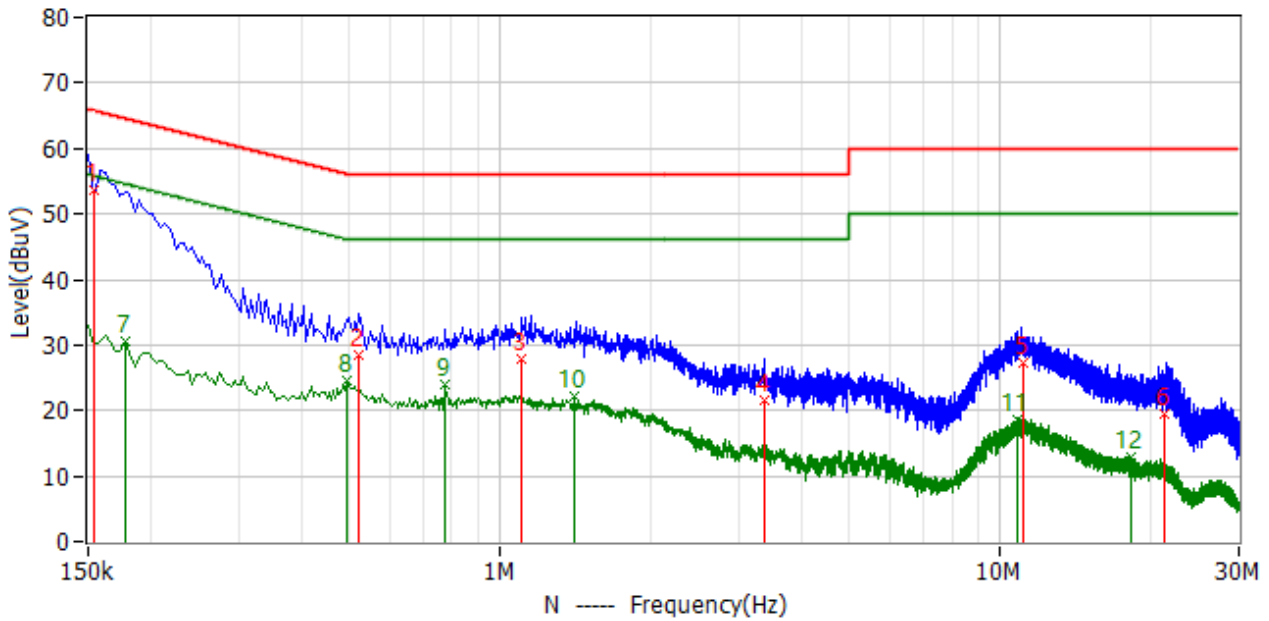
No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Delta dB	Detector
1	154.000kHz	22.8	9.7	32.5	65.8	-33.3	QP
2	210.000kHz	18.3	9.7	28.0	63.2	-35.2	QP
3	642.000kHz	16.8	9.7	26.5	56.0	-29.5	QP
4	2.830MHz	24.1	9.8	33.9	56.0	-22.1	QP
5	6.562MHz	22.7	9.8	32.5	60.0	-27.5	QP
6	10.166MHz	21.0	9.9	30.9	60.0	-29.1	QP
7*	158.000kHz	18.3	9.7	28.0	55.6	-27.5	AV
8*	386.000kHz	16.1	9.9	26.0	48.1	-22.1	AV
9*	1.158MHz	16.0	9.7	25.7	46.0	-20.3	AV
10*	2.830MHz	22.3	9.8	32.1	46.0	-13.9	AV
11*	6.562MHz	20.2	9.8	30.0	50.0	-20.0	AV
12*	10.678MHz	18.8	9.8	28.6	50.0	-21.4	AV

Test mode:	TM2	Polarity:	Line
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No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Delta dB	Detector
1	162.000kHz	45.5	9.9	55.4	65.4	-10.0	QP
2	238.000kHz	35.4	9.8	45.2	62.2	-17.0	QP
3	510.000kHz	29.3	9.7	39.0	56.0	-17.0	QP
4	1.426MHz	15.8	9.8	25.6	56.0	-30.4	QP
5	10.470MHz	18.8	9.8	28.6	60.0	-31.4	QP
6	16.138MHz	12.6	9.8	22.4	60.0	-37.6	QP
7*	170.000kHz	30.9	9.8	40.7	55.0	-14.2	AV
8*	514.000kHz	25.7	9.7	35.4	46.0	-10.6	AV
9*	1.614MHz	13.0	9.8	22.8	46.0	-23.2	AV
10*	2.422MHz	10.4	9.9	20.3	46.0	-25.7	AV
11*	9.194MHz	15.2	9.8	25.0	50.0	-25.0	AV
12*	15.914MHz	8.5	9.8	18.3	50.0	-31.7	AV

Test mode:	TM2	Polarity:	Neutral
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No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Delta dB	Detector
1	154.000kHz	44.0	9.7	53.7	65.8	-12.1	QP
2	522.000kHz	18.8	9.6	28.4	56.0	-27.6	QP
3	1.102MHz	18.2	9.7	27.9	56.0	-28.1	QP
4	3.374MHz	11.7	9.8	21.5	56.0	-34.5	QP
5	11.090MHz	17.4	9.8	27.2	60.0	-32.8	QP
6	21.366MHz	9.5	10.0	19.5	60.0	-40.5	QP
7*	178.000kHz	20.9	9.7	30.6	54.6	-24.0	AV
8*	494.000kHz	15.0	9.6	24.6	46.1	-21.5	AV
9*	778.000kHz	14.3	9.7	24.0	46.0	-22.0	AV
10*	1.410MHz	12.4	9.7	22.1	46.0	-23.9	AV
11*	10.774MHz	8.9	9.8	18.7	50.0	-31.3	AV
12*	18.182MHz	3.2	9.8	13.0	50.0	-37.0	AV

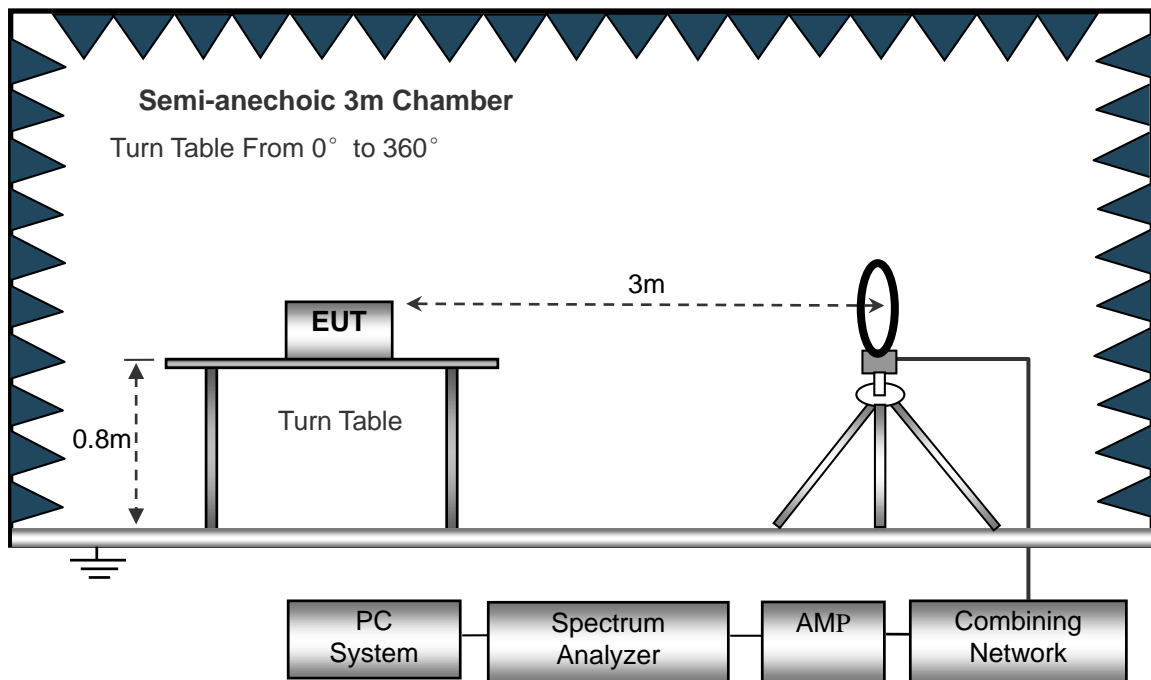
4. Radiated Emissions

4.1 Test Procedure

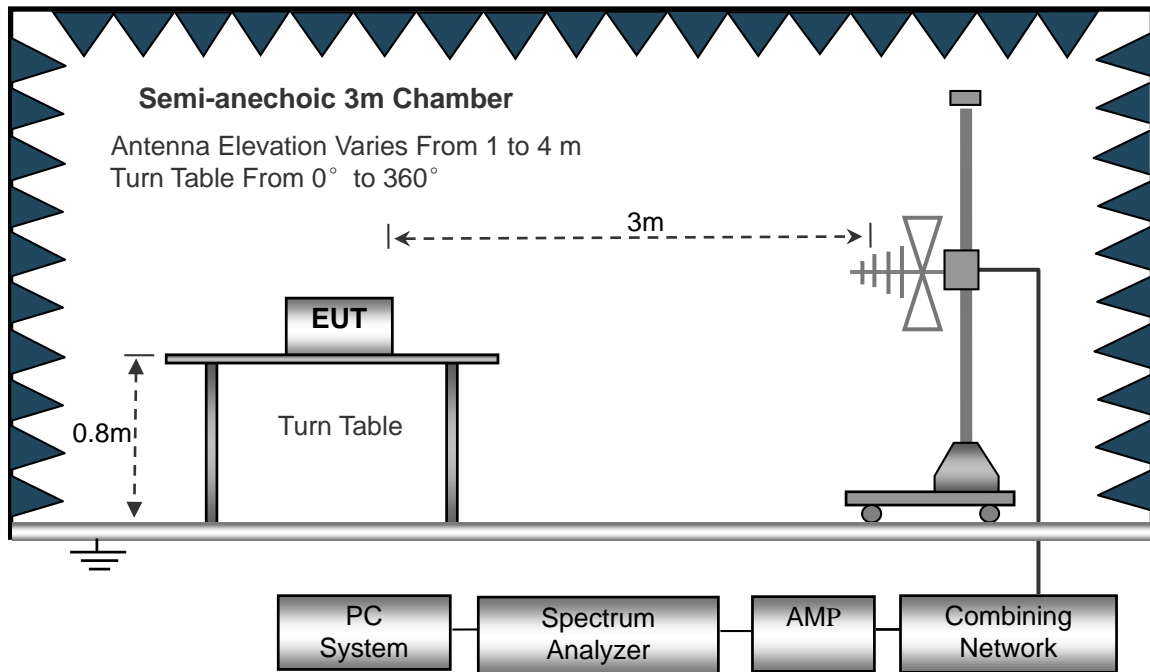
The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.305 Limit.

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:

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

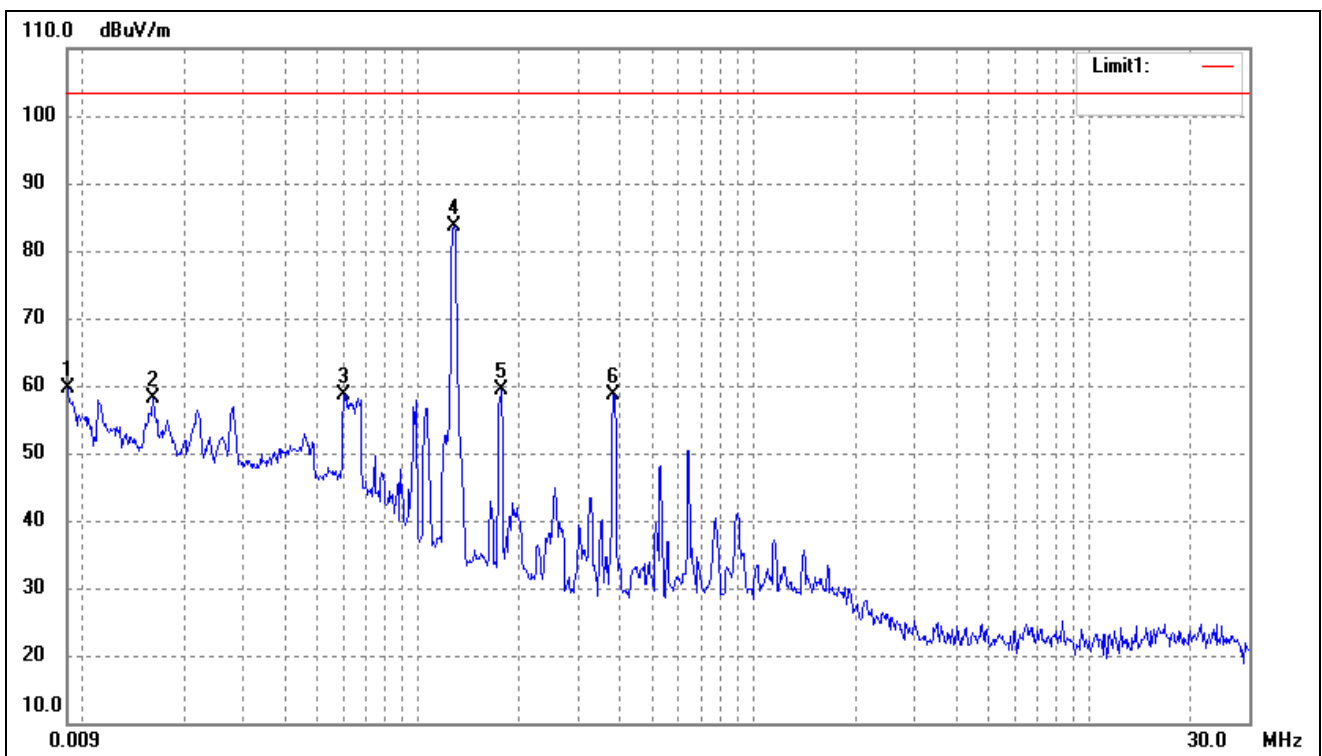
4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

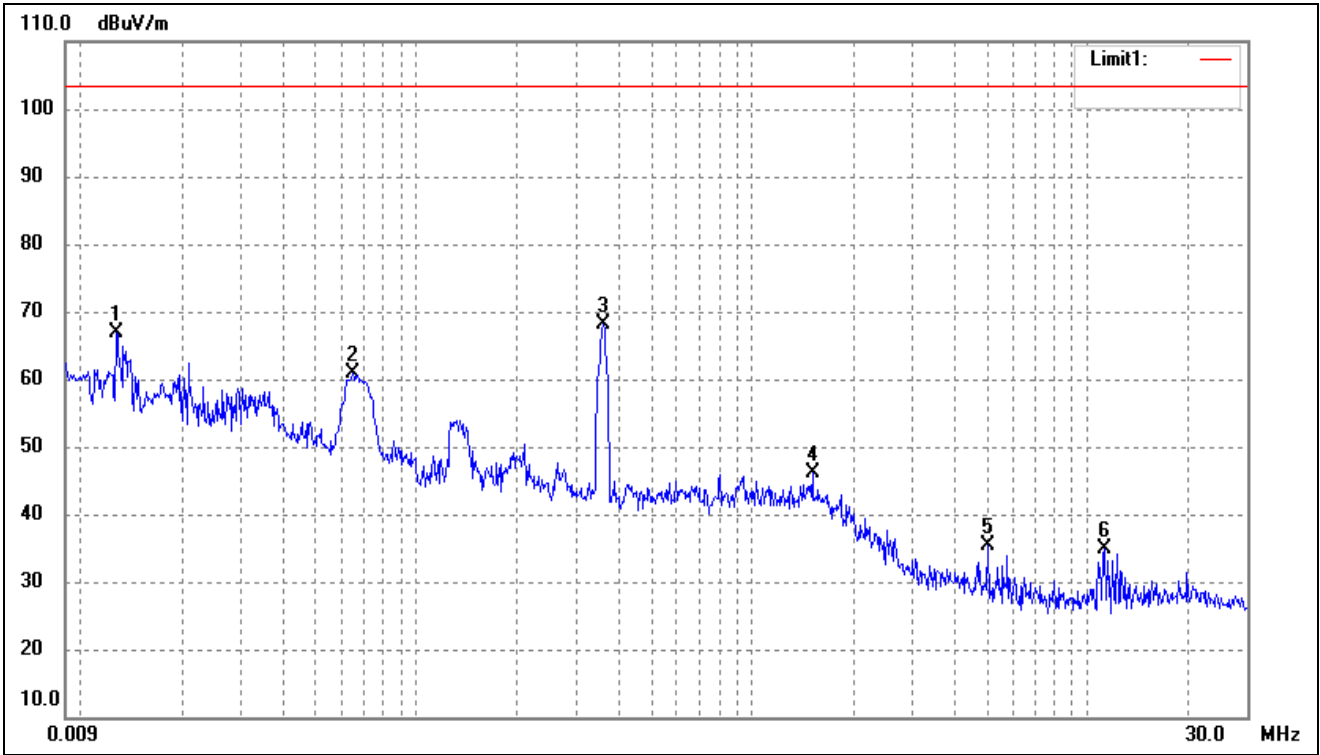
Plot of Radiated Emissions Test Data (Below 30MHz)

Test mode:	TM1	Polarity:	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	0.0090	64.64	-4.90	59.74	103.50	-43.76	-	-	peak
2	0.0161	63.65	-5.58	58.07	103.50	-45.43	-	-	peak
3	0.0601	62.81	-4.16	58.65	103.50	-44.85	-	-	peak
4	0.1277	88.08	-4.42	83.66	103.50	-19.84	-	-	peak
5	0.1767	63.73	-4.40	59.33	103.50	-44.17	-	-	peak
6	0.3818	63.44	-4.72	58.72	103.50	-44.78	-	-	peak

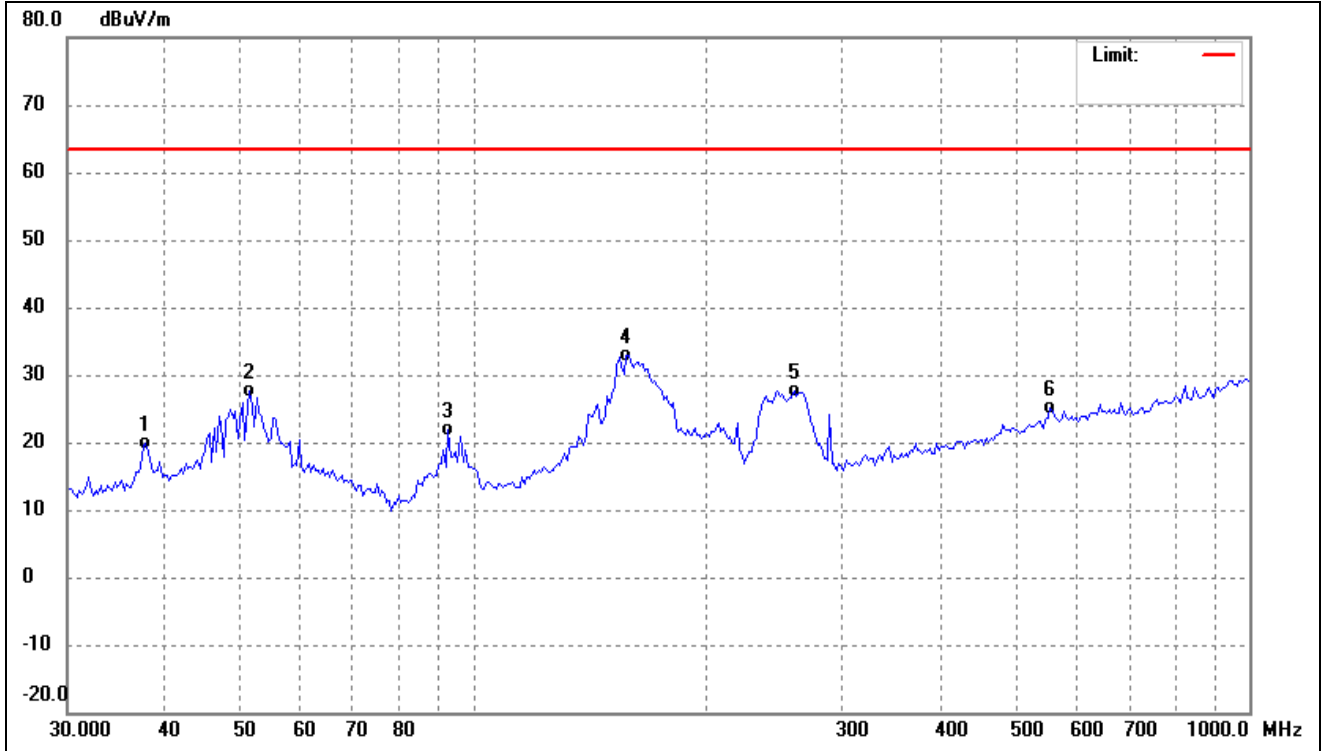
Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0128	73.96	-7.02	66.94	103.50	-36.56	-	-	peak
2	0.0646	66.99	-6.02	60.97	103.50	-42.53	-	-	peak
3	0.3607	75.87	-7.75	68.12	103.50	-35.38	-	-	peak
4	1.5160	52.21	-6.12	46.09	103.50	-57.41	-	-	peak
5	5.0359	40.90	-5.51	35.39	103.50	-68.11	-	-	peak
6	11.2422	40.15	-5.38	34.77	103.50	-68.73	-	-	peak

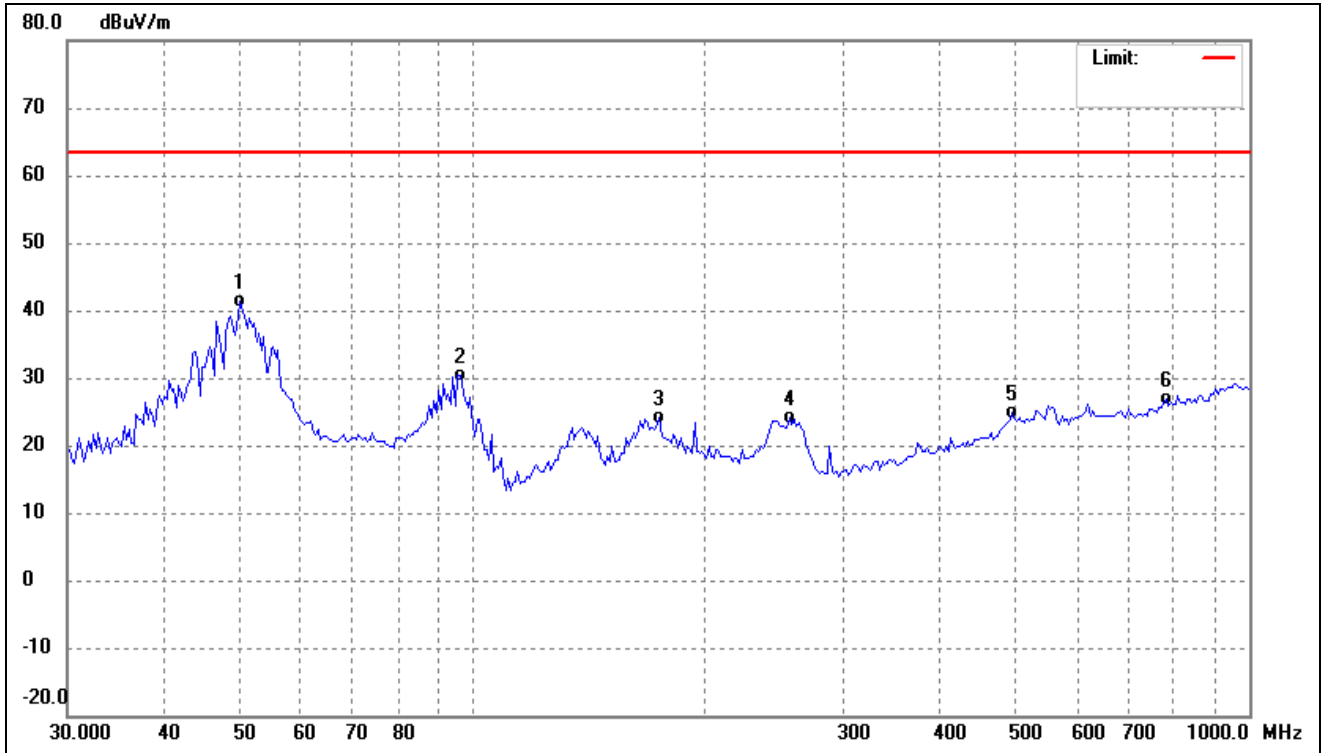
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal
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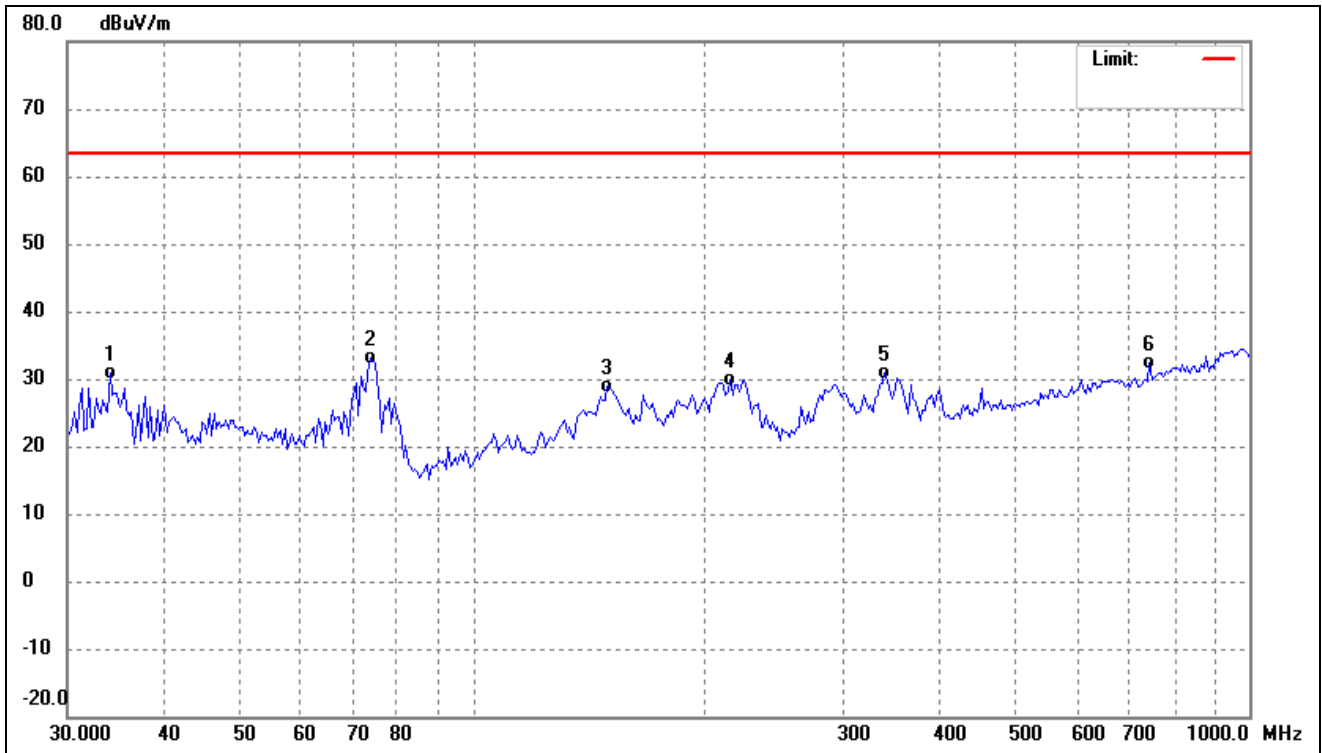
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	37.8297	32.70	-12.94	19.76	63.50	-43.74	-	-	QP
2	51.5365	39.99	-12.24	27.75	63.50	-35.75	-	-	QP
3	92.9974	38.91	-16.93	21.98	63.50	-41.52	-	-	QP
4	157.5290	45.60	-12.61	32.99	63.50	-30.51	-	-	QP
5	259.4434	41.35	-13.79	27.56	63.50	-35.94	-	-	QP
6	554.1708	31.82	-6.75	25.07	63.50	-38.43	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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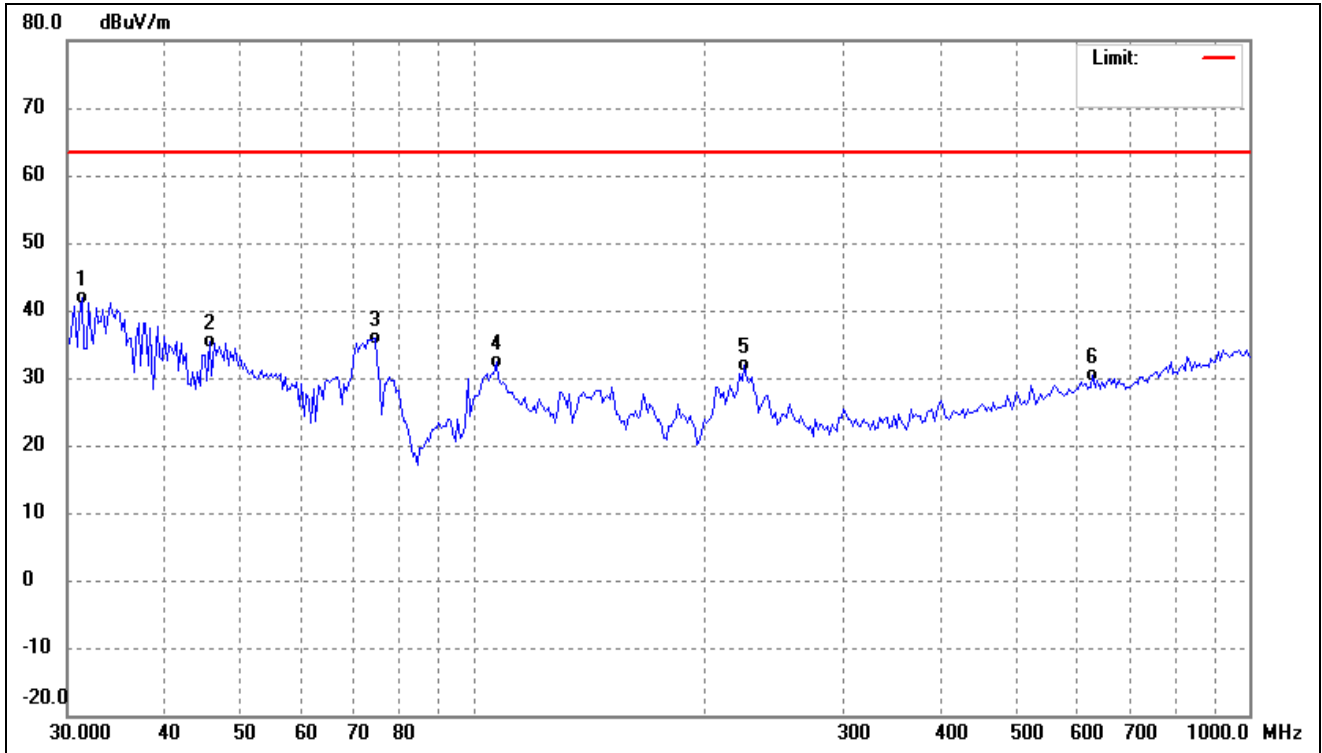
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	50.1080	53.50	-12.09	41.41	63.50	-22.09	-	-	QP
2	96.3230	47.16	-16.72	30.44	63.50	-33.06	-	-	QP
3	173.8147	37.52	-13.42	24.10	63.50	-39.40	-	-	QP
4	255.8226	38.08	-13.96	24.12	63.50	-39.38	-	-	QP
5	495.2379	32.89	-7.97	24.92	63.50	-38.58	-	-	QP
6	781.9606	30.68	-3.87	26.81	63.50	-36.69	-	-	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	34.0451	40.50	-9.67	30.83	63.50	-32.67	-	-	QP
2	73.7496	44.60	-11.59	33.01	63.50	-30.49	-	-	QP
3	148.9175	37.46	-8.68	28.78	63.50	-34.72	-	-	QP
4	214.6063	41.99	-12.13	29.86	63.50	-33.64	-	-	QP
5	338.8546	38.07	-7.31	30.76	63.50	-32.74	-	-	QP
6	744.4265	32.65	-0.27	32.38	63.50	-31.12	-	-	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	31.2919	51.80	-10.02	41.78	63.50	-21.72	-	-	QP
2	45.7333	43.70	-8.41	35.29	63.50	-28.21	-	-	QP
3	74.7934	47.62	-11.82	35.80	63.50	-27.70	-	-	QP
4	107.0306	44.18	-11.85	32.33	63.50	-31.17	-	-	QP
5	223.8482	43.71	-11.89	31.82	63.50	-31.68	-	-	QP
6	628.8936	31.73	-1.38	30.35	63.50	-33.15	-	-	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 ****