

# TEST REPORT

Reference No..... : WTX21X10111405W-1  
FCC ID ..... : A4X-WPC10-1LCNA  
Applicant ..... : CE LINK LIMITED  
Address..... : Building M,LiCheng Technology Industrial Zone,GongHe Village,Shajing  
Town,ShenZhen City,China  
Product Name ..... : Magnetic Wireless Charger  
Test Model. .... : WPC10-1LCNA  
Standards ..... : FCC Part 18  
Date of Receipt sample .... : Oct 19, 2021  
Date of Test..... : Oct 19, 2021 to Nov. 05, 2021  
Date of Issue ..... : Nov. 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:**

**Waltek Testing Group (Shenzhen) Co., Ltd.**

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,  
Block 70 Bao'an District, Shenzhen, Guangdong, China

Tel.: +86-755-33663308

Fax.: +86-755-33663309

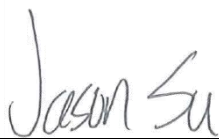
Tested by:

Reviewed By:

Approved & Authorized By:



Mike Shi / Project Engineer



Jason Su / RF Manager



Silin Chen / Manager

**TABLE OF CONTENTS**

<b>1. GENERAL INFORMATION</b> .....	<b>4</b>
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	4
1.2 TEST STANDARDS.....	5
1.3 TEST METHODOLOGY.....	5
1.4 TEST FACILITY.....	5
1.5 EUT SETUP AND OPERATION MODE.....	6
1.6 MEASUREMENT UNCERTAINTY.....	7
1.7 TEST EQUIPMENT LIST AND DETAILS.....	8
<b>2. SUMMARY OF TEST RESULTS</b> .....	<b>9</b>
<b>3. CONDUCTED EMISSIONS</b> .....	<b>10</b>
3.1 STANDARD APPLICABLE.....	10
3.2 TEST PROCEDURE.....	10
3.3 BASIC TEST SETUP BLOCK DIAGRAM.....	10
3.4 ENVIRONMENTAL CONDITIONS.....	10
3.5 TEST RECEIVER SETUP.....	11
3.6 SUMMARY OF TEST RESULTS/PLOTS.....	11
<b>4. RADIATED EMISSIONS</b> .....	<b>16</b>
4.1 TEST PROCEDURE.....	16
4.2 TEST RECEIVER SETUP.....	18
4.3 CORRECTED AMPLITUDE & MARGIN CALCULATION.....	18
4.4 ENVIRONMENTAL CONDITIONS.....	18
4.5 SUMMARY OF TEST RESULTS/PLOTS.....	18
<b>APPENDIX PHOTOGRAPHS</b> .....	<b>25</b>

**Report version**

Version No.	Date of issue	Description
Rev.00	Nov. 05, 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:	Magnetic Wireless Charger
Trade Name:	CE-LINK, powerlot
Model No.:	WPC10-1LCNA
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	/
Antenna Type:	Coil Antenna
Modulation Type:	ASK
Rated Voltage:	Input: DC5V/DC9V Output: DC5V/DC9V
Rated Current:	Input: 2A Output: 1A/1.1A
Rated Power:	Output: 5W/7.5W/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 DC5V/2A; Output:DC5V/1A
TM2	Wireless Charging	/	Input DC9V2A; Output DC9V1.1A

### EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB-C Cable	1.55	Shielded	Without Ferrite
wireless charging load	YBZ	YBZ wireless charging tester	/

### Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Adapter	4DKanKan	PN453C	/

### Special Cable List and Details

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

**1.6 Measurement Uncertainty**

<b>Measurement uncertainty</b>		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	9-150kHz $\pm 3.74$ dB
		0.15-30MHz $\pm 3.34$ dB
Radiated Emissions	Radiated	30-200MHz $\pm 4.52$ dB
		0.2-1GHz $\pm 5.56$ dB
		1-6GHz $\pm 3.84$ dB
		6-18GHz $\pm 3.92$ 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:

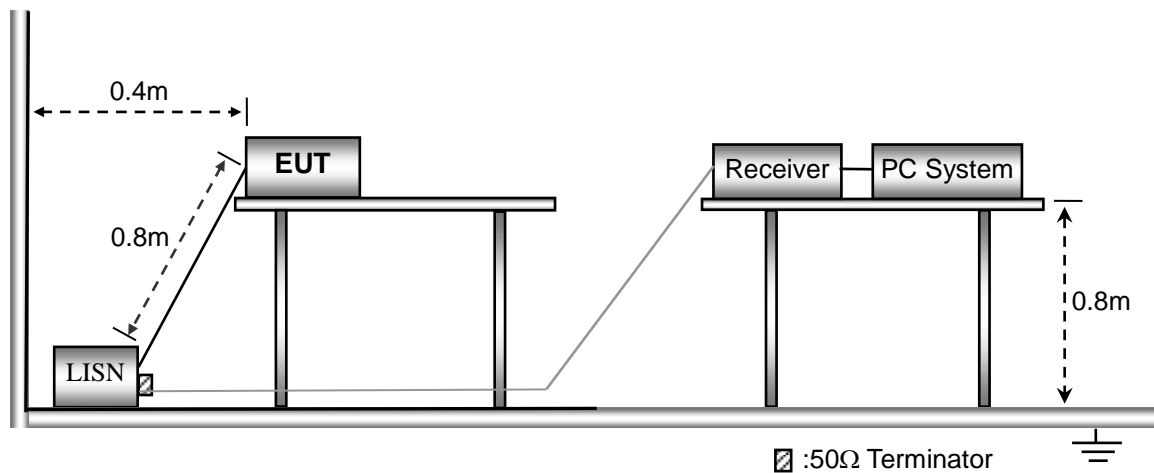
Frequency (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

#### 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

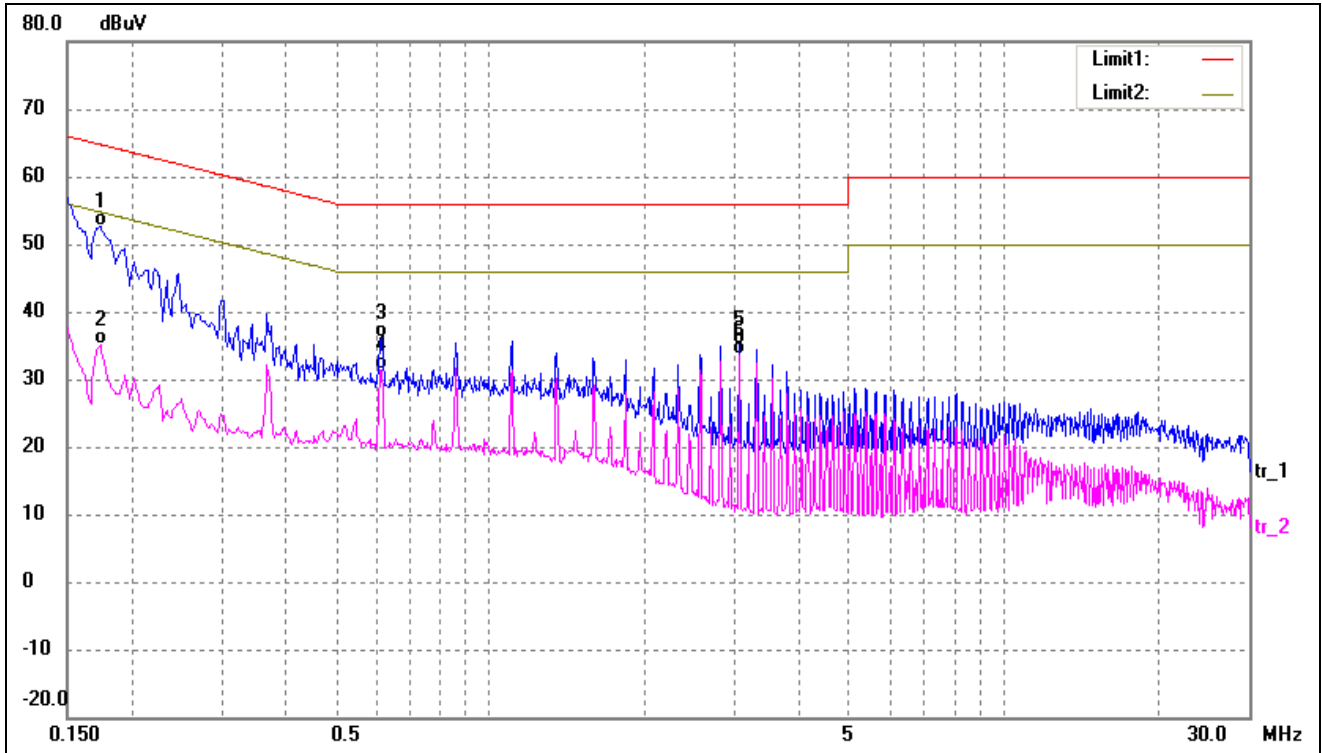
### 3.5 Test Receiver Setup

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

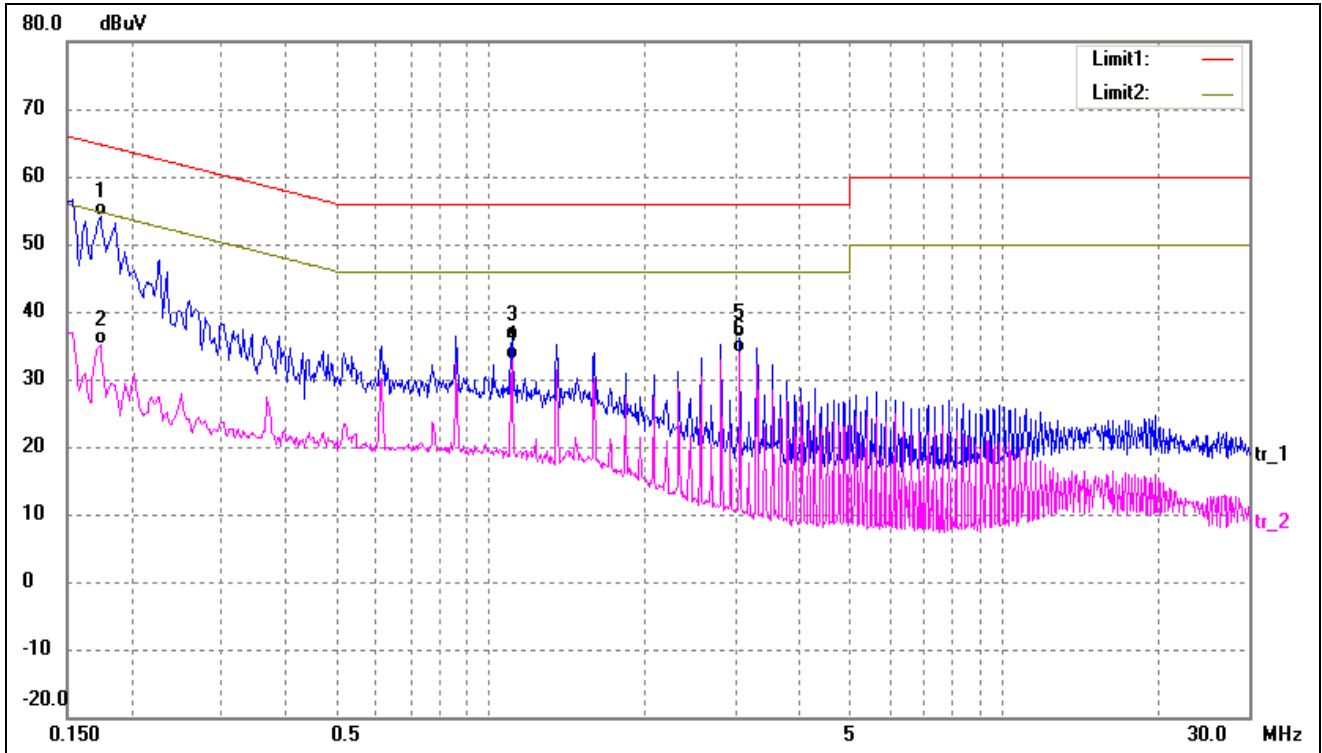
### 3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
------------	-----	-----------	------



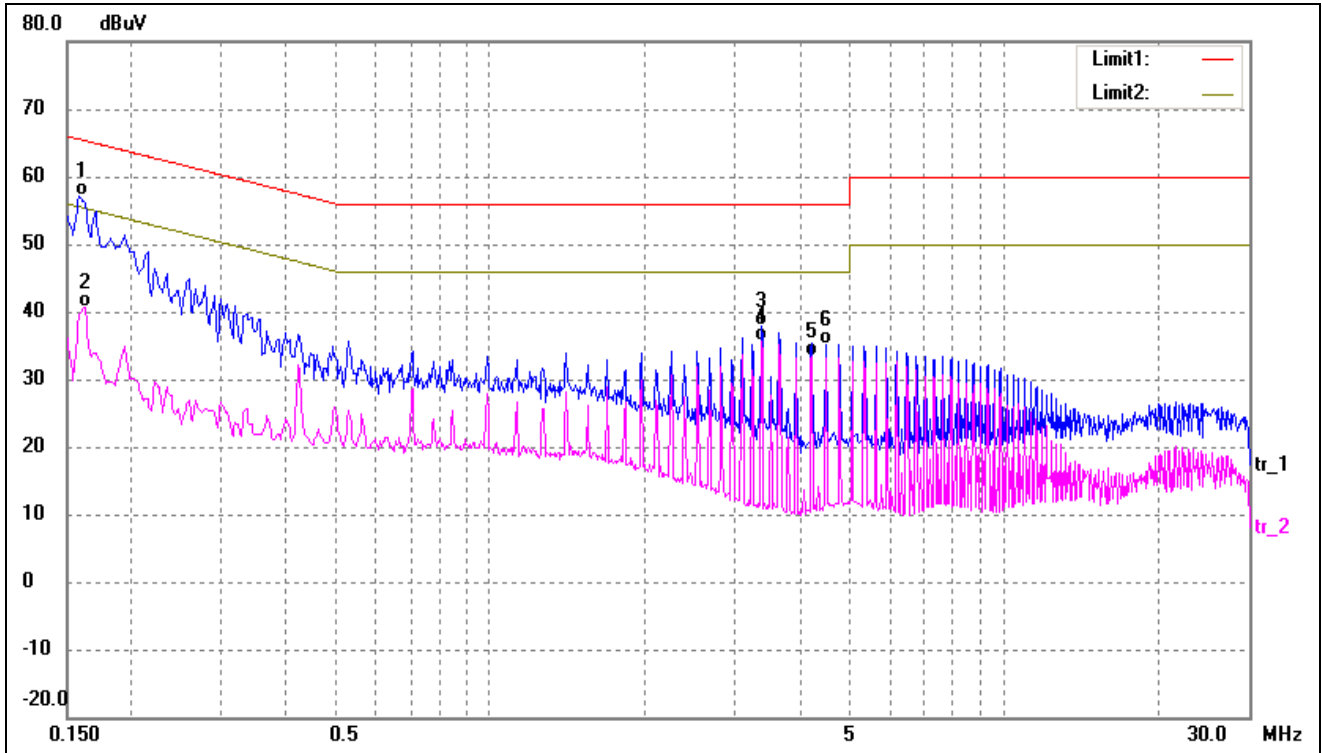
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1740	42.37	10.37	52.74	64.77	-12.03	QP
2	0.1740	24.85	10.37	35.22	54.77	-19.55	AVG
3	0.6140	25.76	10.33	36.09	56.00	-19.91	QP
4	0.6140	21.13	10.33	31.46	46.00	-14.54	AVG
5	3.0540	25.14	10.08	35.22	56.00	-20.78	QP
6	3.0540	23.43	10.08	33.51	46.00	-12.49	AVG

Test mode:	TM1	Polarity:	Neutral
------------	-----	-----------	---------



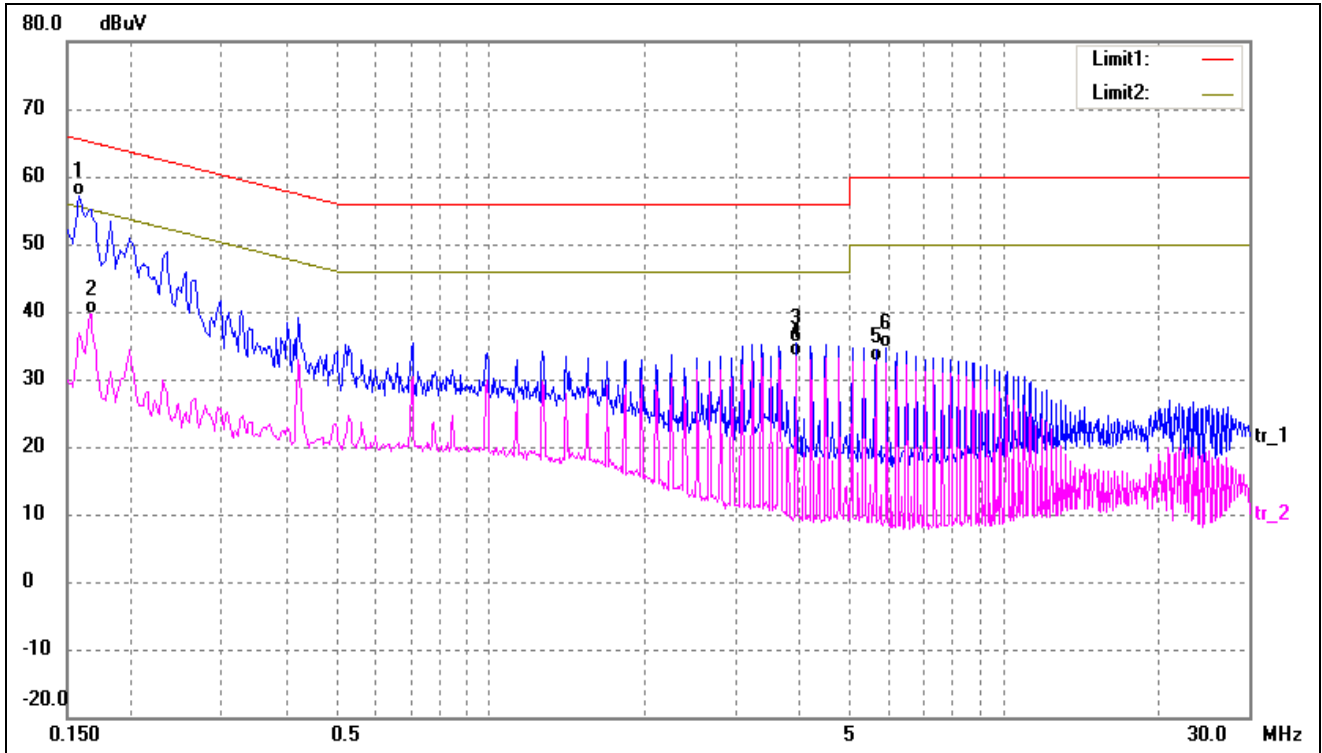
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1740	43.65	10.37	54.02	64.77	-10.75	QP
2	0.1740	24.69	10.37	35.06	54.77	-19.71	AVG
3	1.1020	25.46	10.52	35.98	56.00	-20.02	QP
4	1.1020	22.24	10.52	32.76	46.00	-13.24	AVG
5	3.0620	26.10	10.08	36.18	56.00	-19.82	QP
6	3.0620	23.89	10.08	33.97	46.00	-12.03	AVG

Test mode:	TM2	Polarity:	Line
------------	-----	-----------	------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1580	46.70	10.37	57.07	65.57	-8.50	QP
2	0.1620	30.35	10.37	40.72	55.36	-14.64	AVG
3	3.3780	27.87	10.07	37.94	56.00	-18.06	QP
4	3.3780	25.47	10.07	35.54	46.00	-10.46	AVG
5	4.2260	23.35	10.03	33.38	46.00	-12.62	AVG
6	4.5060	25.16	10.02	35.18	56.00	-20.82	QP

Test mode:	TM2	Polarity:	Neutral
------------	-----	-----------	---------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1580	46.85	10.37	57.22	65.57	-8.35	QP
2	0.1660	29.29	10.37	39.66	55.16	-15.50	AVG
3	3.9380	25.43	10.05	35.48	56.00	-20.52	QP
4	3.9380	23.25	10.05	33.30	46.00	-12.70	AVG
5	5.6300	22.74	9.99	32.73	50.00	-17.27	AVG
6	5.9100	24.66	9.97	34.63	60.00	-25.37	QP

## 4. Radiated Emissions

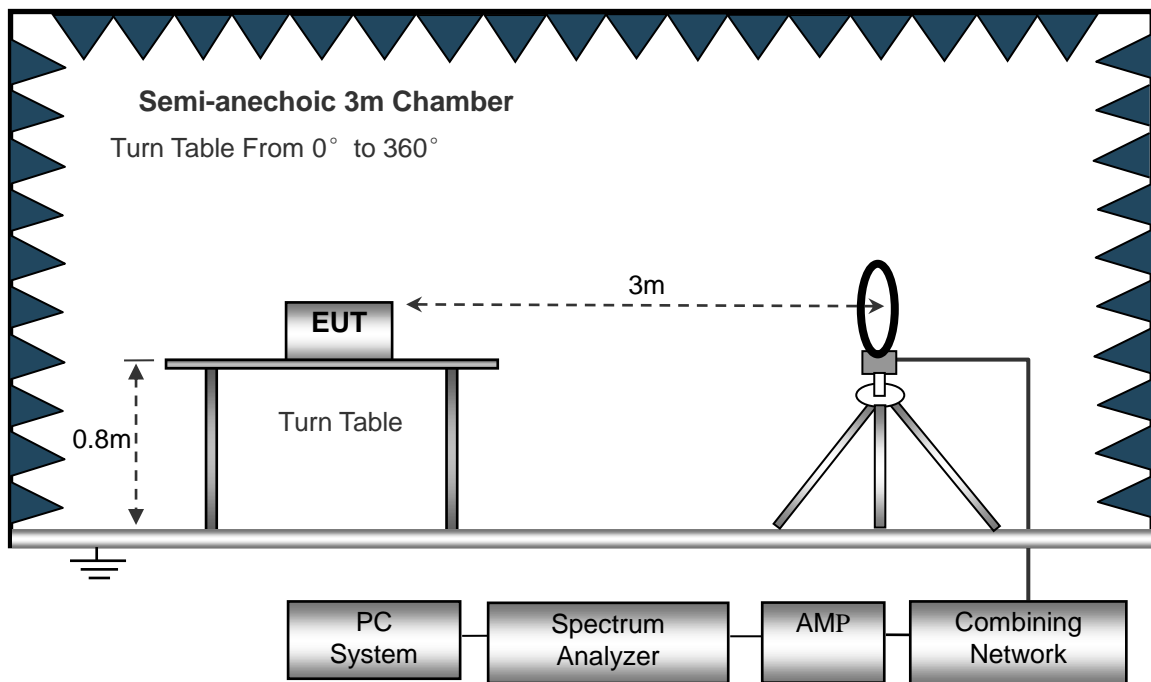
### 4.1 Test Procedure

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.

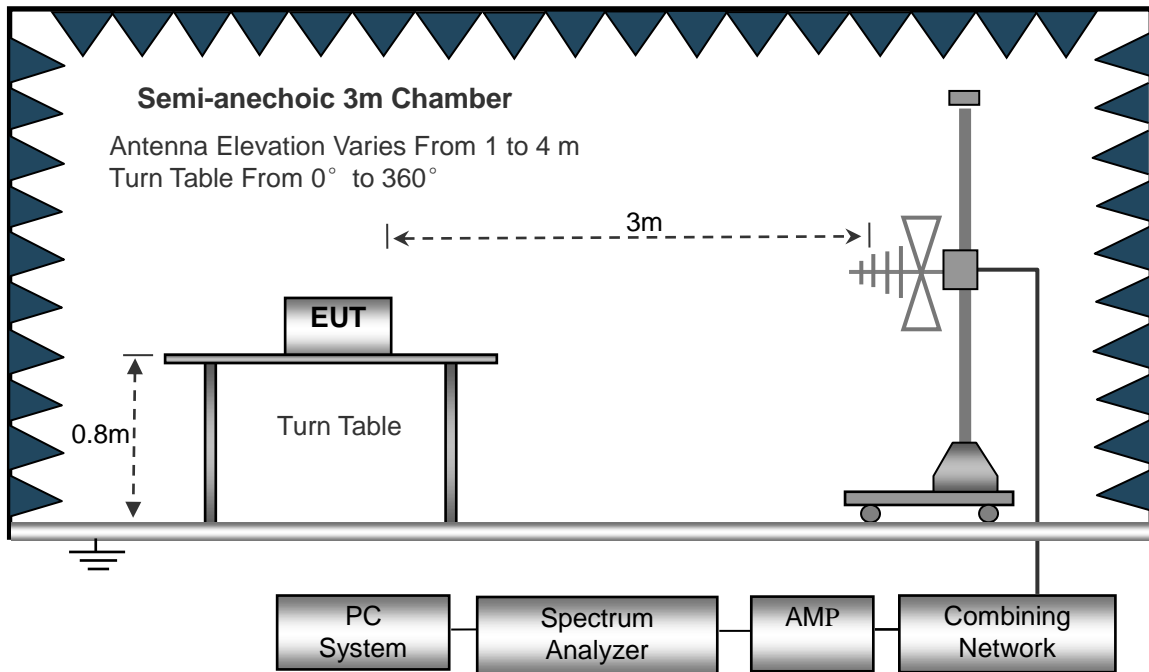
The spacing between the peripherals was 10 cm.

The test setup for emission measurement below 30MHz..

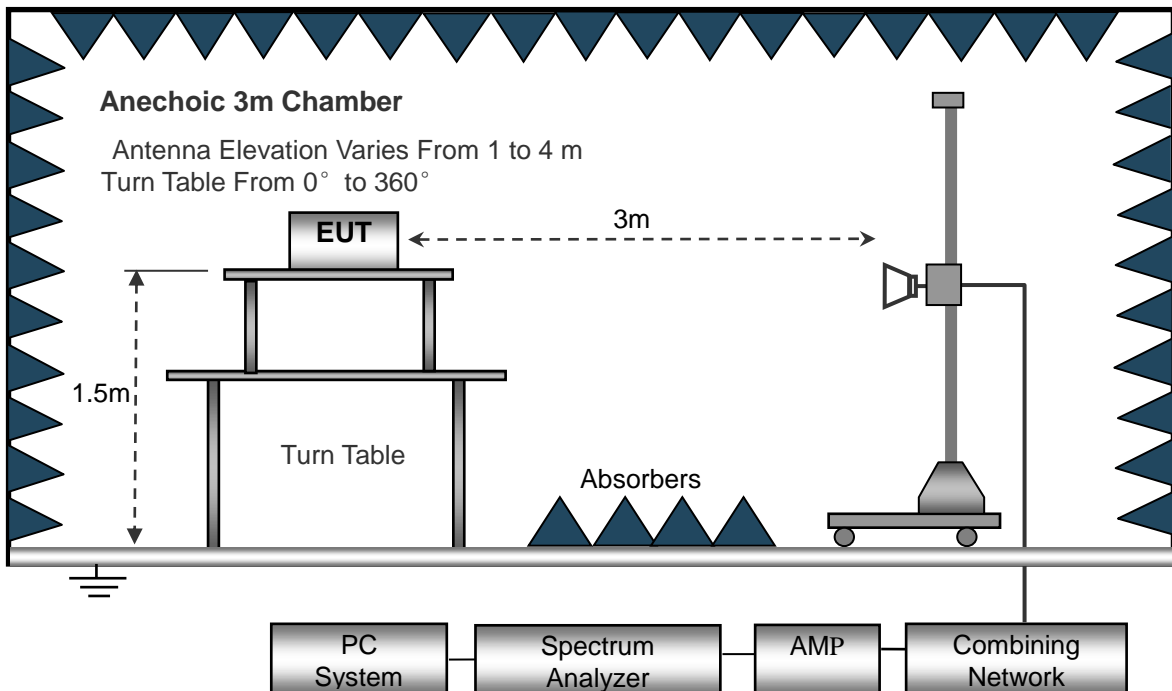




The test setup for emission measurement from 30 MHz to 1 GHz..



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

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

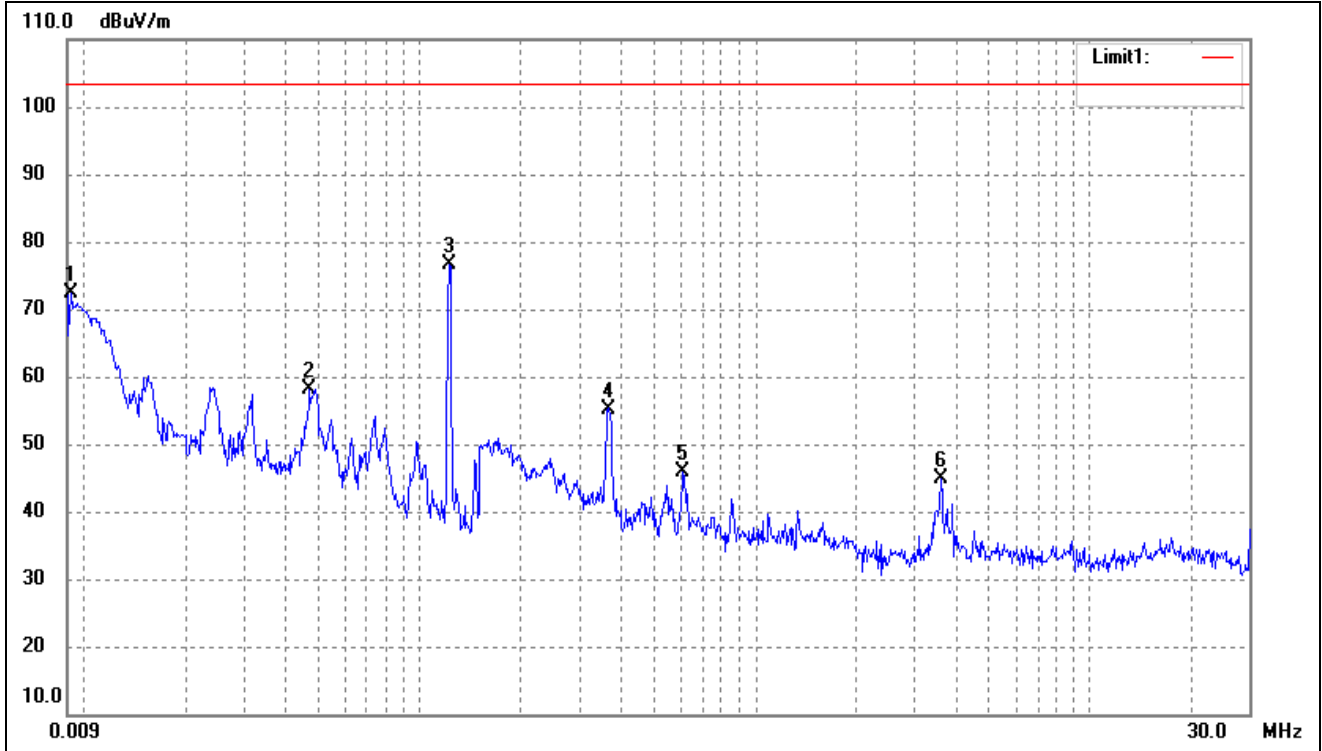
## 4.4 Environmental Conditions

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

## 4.5 Summary of Test Results/Plots

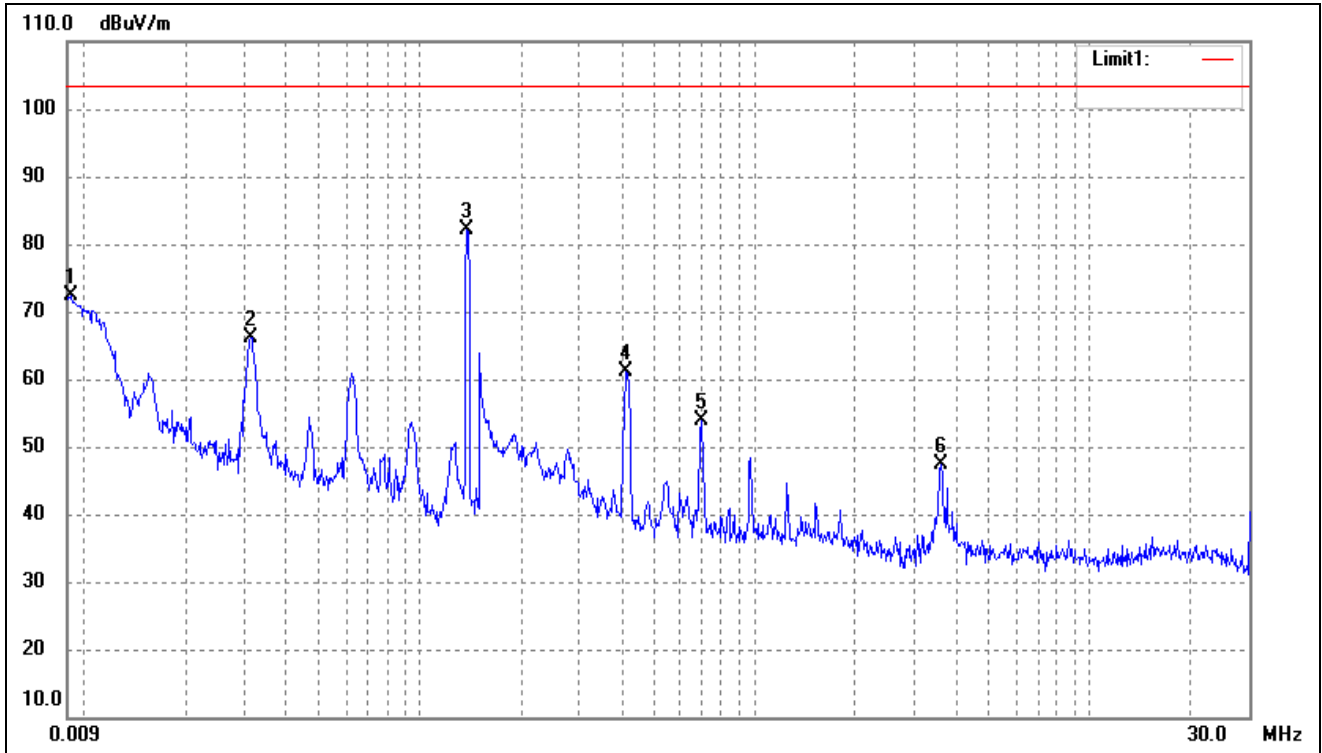
**Plot of Radiated Emissions Test Data (Below 30MHz)**

Test mode:	TM1	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	0.0091	77.34	-5.03	72.31	103.50	-31.19	-	-	peak
2	0.0472	62.12	-3.99	58.13	103.50	-45.37	-	-	peak
3	0.1225	81.05	-4.48	76.57	103.50	-26.93	-	-	peak
4	0.3653	60.01	-4.76	55.25	103.50	-48.25	-	-	peak
5	0.6108	49.67	-3.89	45.78	103.50	-57.72	-	-	peak
6	3.5843	47.77	-2.79	44.98	103.50	-58.52	-	-	peak

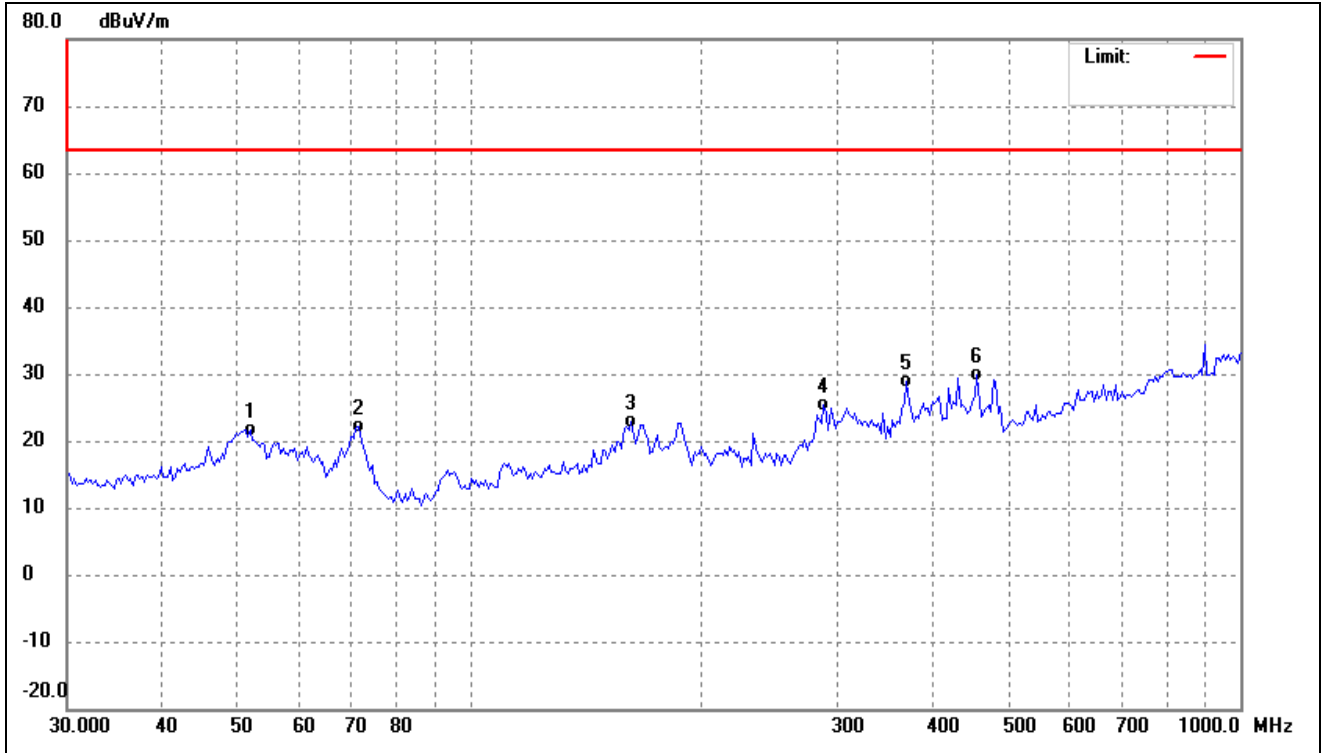
Test mode:	TM2	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	0.0091	77.38	-5.03	72.35	103.50	-31.15	-	-	peak
2	0.0314	71.06	-4.91	66.15	103.50	-37.35	-	-	peak
3	0.1386	86.36	-4.31	82.05	103.50	-21.45	-	-	peak
4	0.4148	65.86	-4.65	61.21	103.50	-42.29	-	-	peak
5	0.6899	57.31	-3.48	53.83	103.50	-49.67	-	-	peak
6	3.5843	50.13	-2.79	47.34	103.50	-56.16	-	-	peak

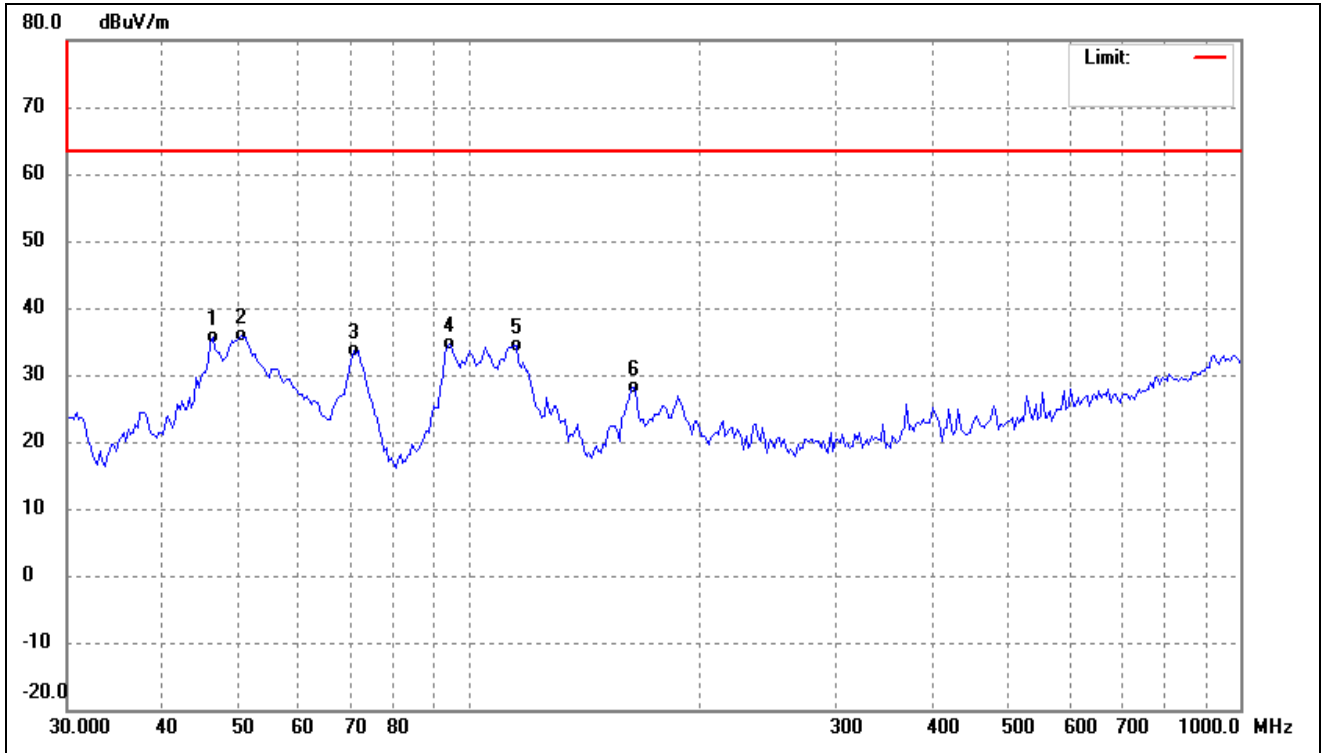
**Plot of Radiated Emissions Test Data ( Above 30MHz)**

Test mode:	TM1	Polarity:	Horizontal
------------	-----	-----------	------------



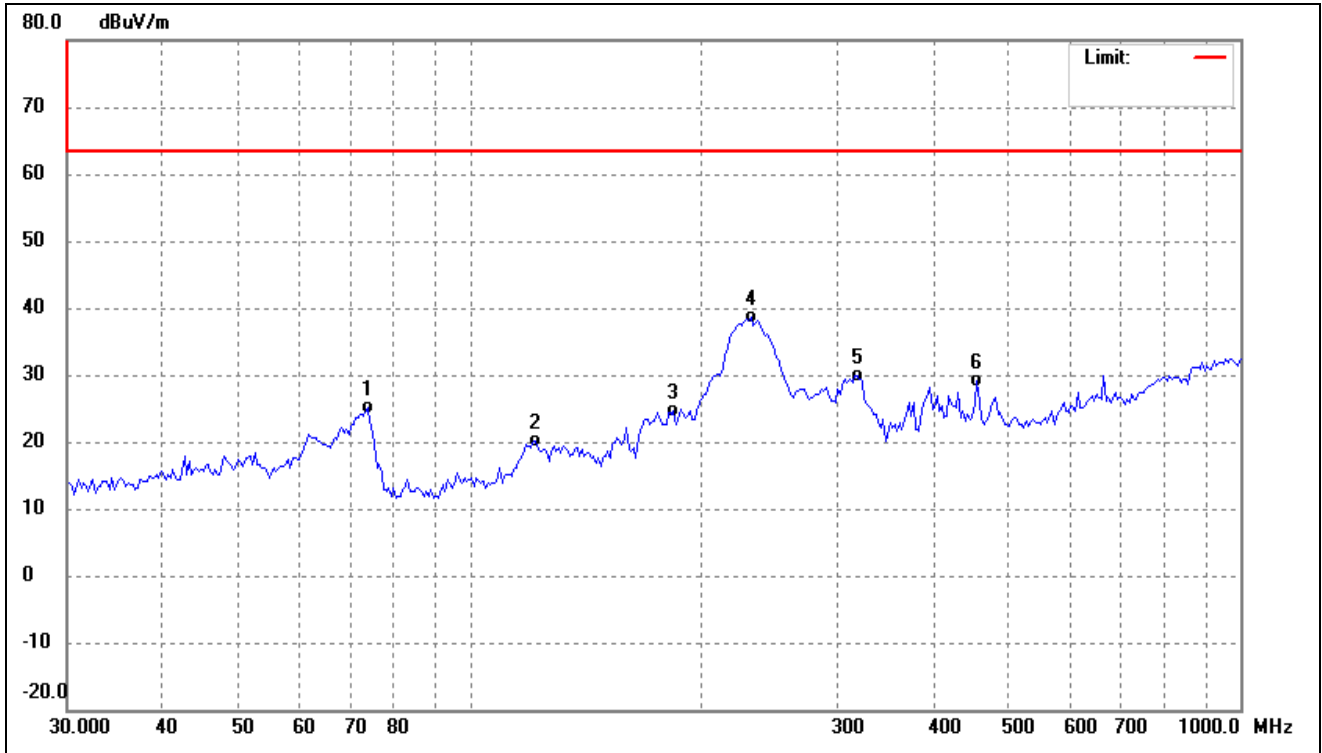
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	51.8999	35.40	-13.77	21.63	63.50	-41.87	-	-	QP
2	71.7054	38.64	-16.42	22.22	63.50	-41.28	-	-	QP
3	162.0197	36.71	-13.84	22.87	63.50	-40.63	-	-	QP
4	288.2840	38.84	-13.52	25.32	63.50	-38.18	-	-	QP
5	368.6682	40.82	-12.01	28.81	63.50	-34.69	-	-	QP
6	455.1888	40.65	-10.68	29.97	63.50	-33.53	-	-	QP

Test mode:	TM1	Polarity:	Vertical
------------	-----	-----------	----------



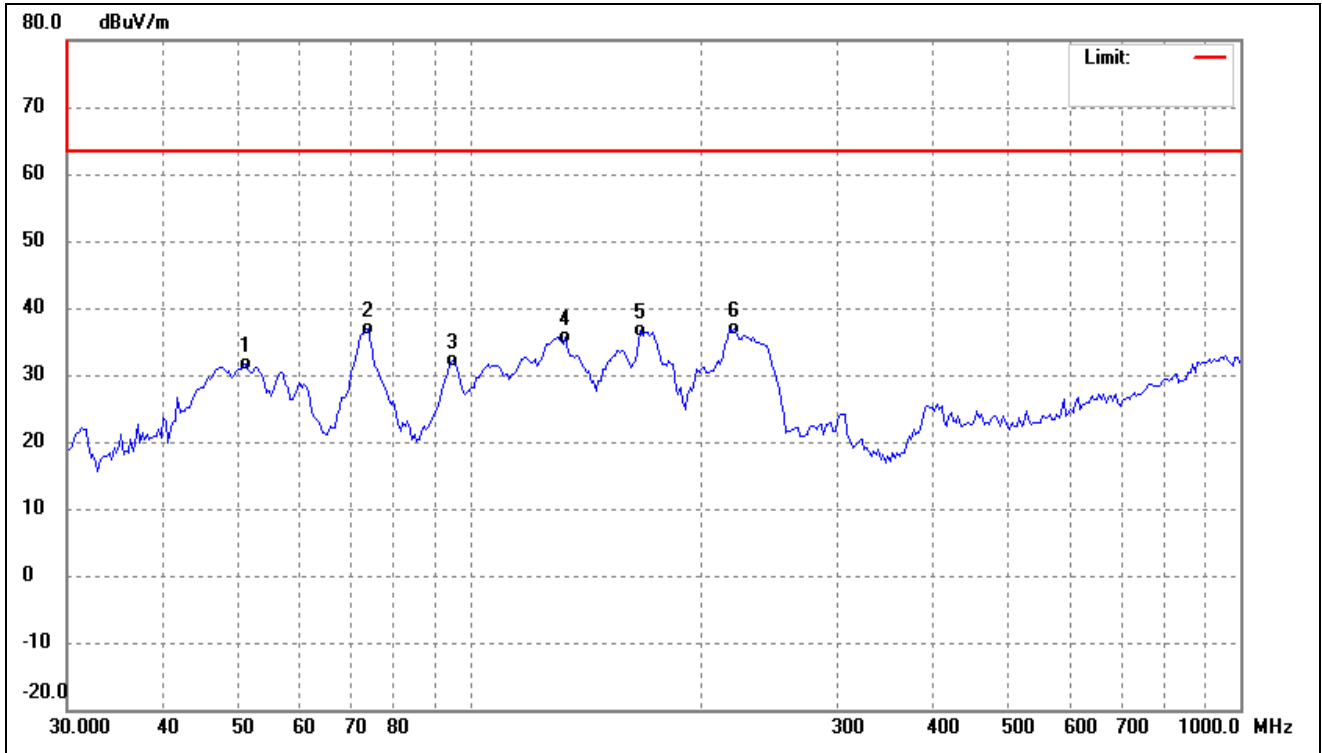
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	46.3806	49.32	-13.66	35.66	63.50	-27.84	-	-	QP
2	50.4614	49.46	-13.63	35.83	63.50	-27.67	-	-	QP
3	70.7047	49.97	-16.22	33.75	63.50	-29.75	-	-	QP
4	94.3137	52.62	-17.97	34.65	63.50	-28.85	-	-	QP
5	114.8224	50.70	-16.24	34.46	63.50	-29.04	-	-	QP
6	163.1623	42.04	-13.86	28.18	63.50	-35.32	-	-	QP

Test mode:	TM2	Polarity:	Horizontal
------------	-----	-----------	------------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	73.7496	42.02	-16.86	25.16	63.50	-38.34	-	-	QP
2	121.4623	35.73	-15.62	20.11	63.50	-43.39	-	-	QP
3	183.8660	40.44	-15.74	24.70	63.50	-38.80	-	-	QP
4	231.8531	54.98	-16.43	38.55	63.50	-24.95	-	-	QP
5	318.0875	42.73	-12.77	29.96	63.50	-33.54	-	-	QP
6	455.1888	39.80	-10.68	29.12	63.50	-34.38	-	-	QP

Test mode:	TM2	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	51.1756	45.38	-13.71	31.67	63.50	-31.83	-	-	QP
2	73.7496	53.74	-16.86	36.88	63.50	-26.62	-	-	QP
3	94.9788	49.95	-17.93	32.02	63.50	-31.48	-	-	QP
4	133.0809	50.58	-14.94	35.64	63.50	-27.86	-	-	QP
5	166.6385	50.45	-13.94	36.51	63.50	-26.99	-	-	QP
6	220.7241	53.89	-16.99	36.90	63.50	-26.60	-	-	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 \*\*\*\*\***