

# TEST REPORT

Reference No..... : WTX21X09093924W-1  
FCC ID ..... : A4X-WPC05-1MJNB  
Applicant ..... : CE LINK LIMITED  
Address..... : Building M,LiCheng Technology Industrial Zone,GongHe Village,ShaJing  
Town,ShenZhen City,China  
Product Name ..... : Watch magnetic Wireless Charger  
Test Model. .... : WPC05-1MJNB  
Standards ..... : FCC Part 18  
Date of Receipt sample .... : Sept. 06, 2021  
Date of Test..... : Sept. 06, 2021 to Sept. 16, 2021  
Date of Issue ..... : Sept. 16, 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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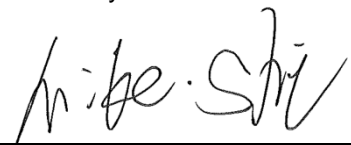
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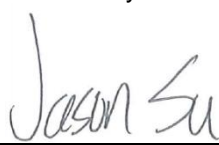
Tested by:

Reviewed By:

Approved & Authorized By:



Mike Shi / Project Engineer



Jason Su / RF Manager



Silin Chen / Manager

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**Report version**

Version No.	Date of issue	Description
Rev.00	Sept. 16, 2021	Original
/	/	/

## 1. GENERAL INFORMATION

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### 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 name1:	SuiChuan CE LINK LIMITED
Factory address1:	SuiChuan county industrial park east zone, Ji'an city ,Jiangxi province, China.
Factory name2:	CE LINK VIET NAM COMPANY LIMITED.
Factory address2:	Lot. CNSG04&CNSG06 Van Trung Industrial Zone, Viet Yen district, Bac Giang Province, Vietnam

General Description of EUT	
Product Name:	Watch magnetic Wireless Charger
Trade Name:	CE-LINK, powerlot
Model No.:	WPC05-1MJNB
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:	326KHz+/-14KHz
Power adapter	/
Antenna Type:	Coil Antenna
Antenna Gain:	0dBi
Rated Voltage:	Input: DC5V
Rated Current:	Input :1A, Output: 0.5A
Rated Power:	Output: 2.5W

## 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	Wireless Output:2.5W	Input DC5V

### EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.27	Unshielded	Without Core

### Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Watch	Apple	A2093	/
Adapter	/	PD20U-1TNB	/

### 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 $\pm 3.74$ 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

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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

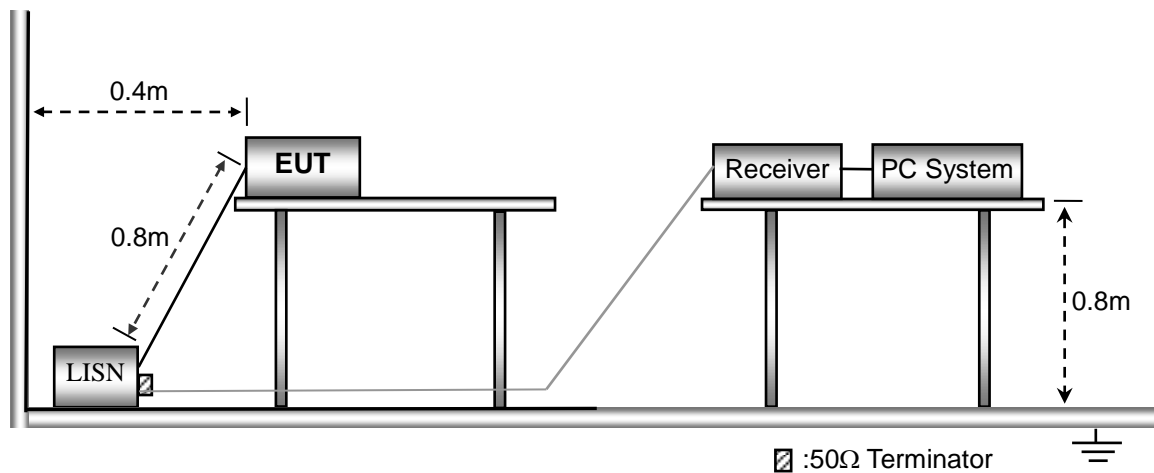
#### 3.2 Test Procedure

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

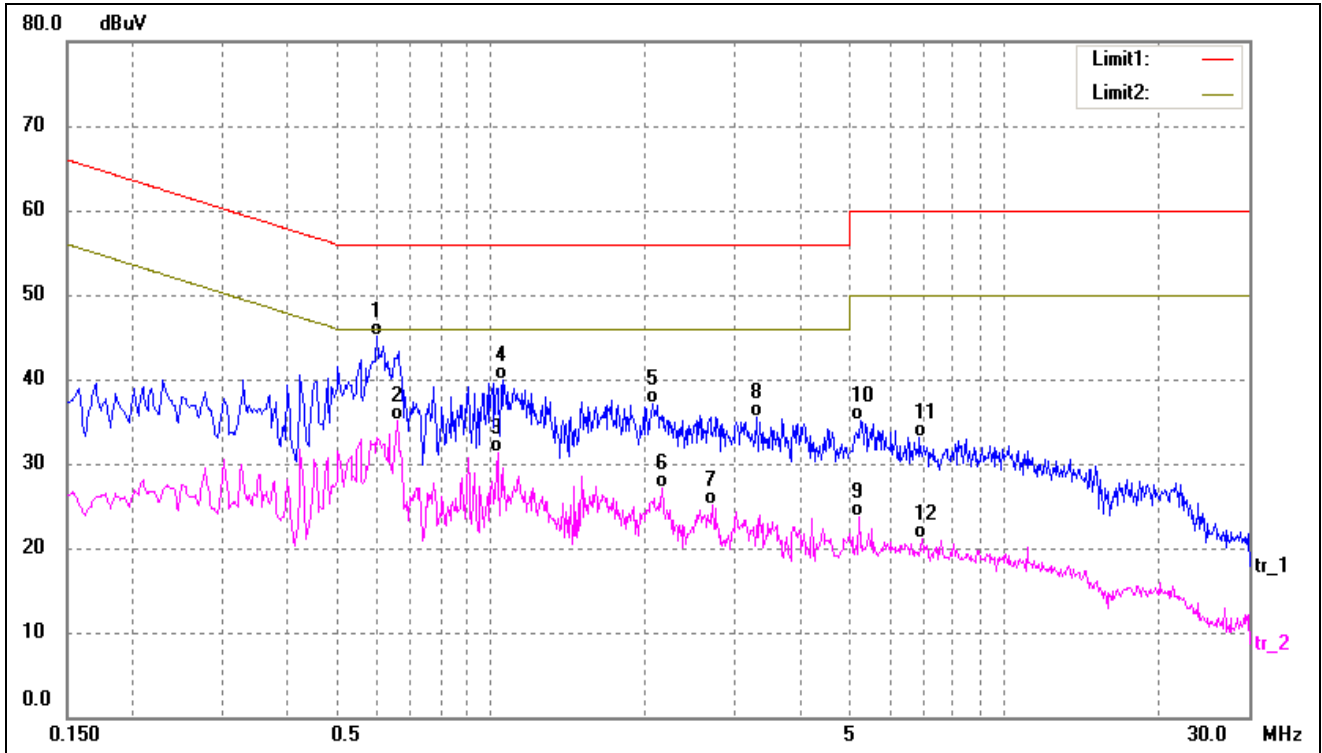
### 3.5 Test Receiver Setup

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

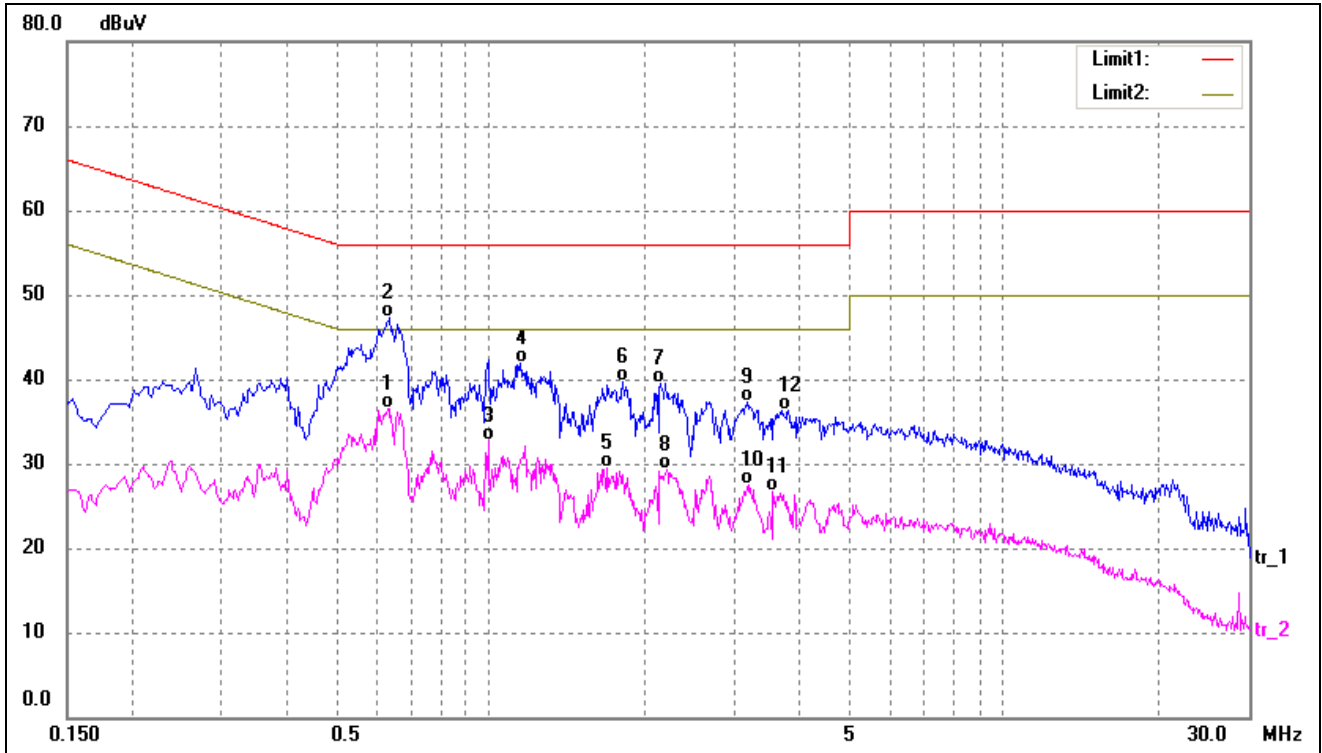
### 3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.6020	34.92	10.21	45.13	56.00	-10.87	QP
2	0.6580	24.85	10.19	35.04	46.00	-10.96	AVG
3	1.0340	21.09	10.20	31.29	46.00	-14.71	AVG
4	1.0620	29.76	10.21	39.97	56.00	-16.03	QP
5	2.0660	26.89	10.29	37.18	56.00	-18.82	QP
6	2.1620	16.83	10.29	27.12	46.00	-18.88	AVG
7	2.7140	14.86	10.28	25.14	46.00	-20.86	AVG
8	3.3100	25.25	10.26	35.51	56.00	-20.49	QP
9	5.2220	13.43	10.22	23.65	50.00	-26.35	AVG
10	5.2740	24.81	10.22	35.03	60.00	-24.97	QP
11	6.8580	22.91	10.25	33.16	60.00	-26.84	QP
12	6.9380	10.79	10.25	21.04	50.00	-28.96	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	0.6300	26.31	10.19	36.50	46.00	-9.50	AVG
2*	0.6380	37.11	10.19	47.30	56.00	-8.70	QP
3	0.9900	22.47	10.20	32.67	46.00	-13.33	AVG
4	1.1460	31.71	10.21	41.92	56.00	-14.08	QP
5	1.6940	19.17	10.26	29.43	46.00	-16.57	AVG
6	1.8180	29.43	10.26	39.69	56.00	-16.31	QP
7	2.1460	29.20	10.29	39.49	56.00	-16.51	QP
8	2.2060	18.92	10.29	29.21	46.00	-16.79	AVG
9	3.1620	27.00	10.26	37.26	56.00	-18.74	QP
10	3.1820	17.14	10.27	27.41	46.00	-18.59	AVG
11	3.5580	16.44	10.26	26.70	46.00	-19.30	AVG
12	3.8020	26.14	10.24	36.38	56.00	-19.62	QP

## 4. Radiated Emissions

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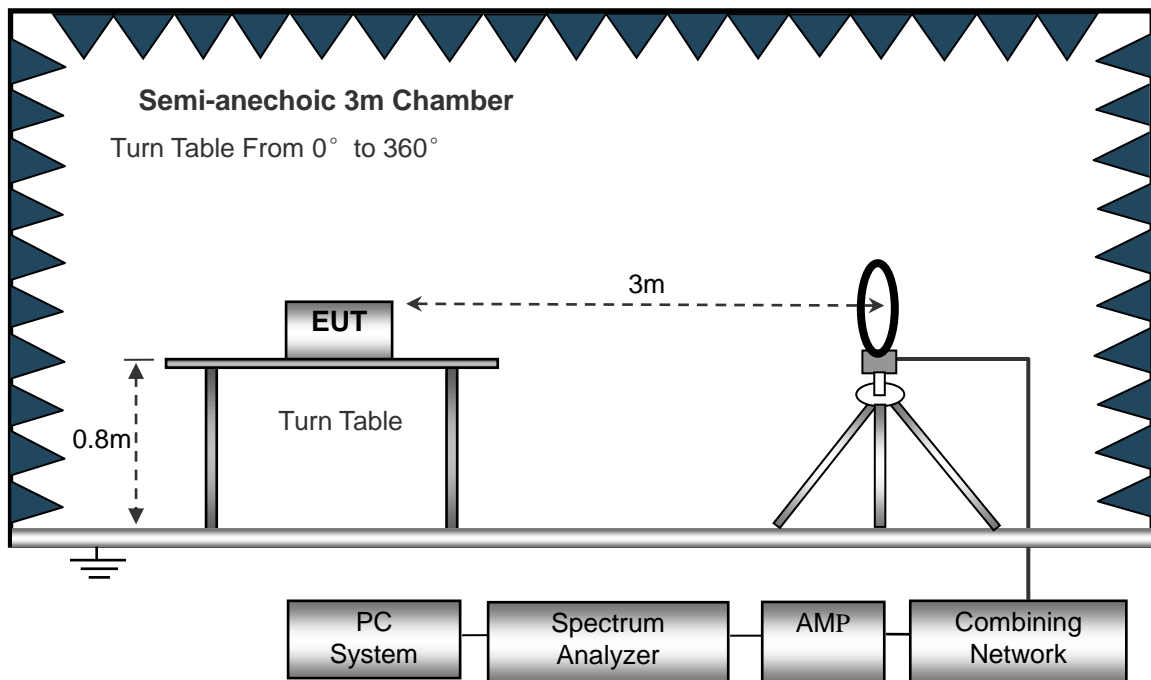
### 4.1 Test Procedure

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.

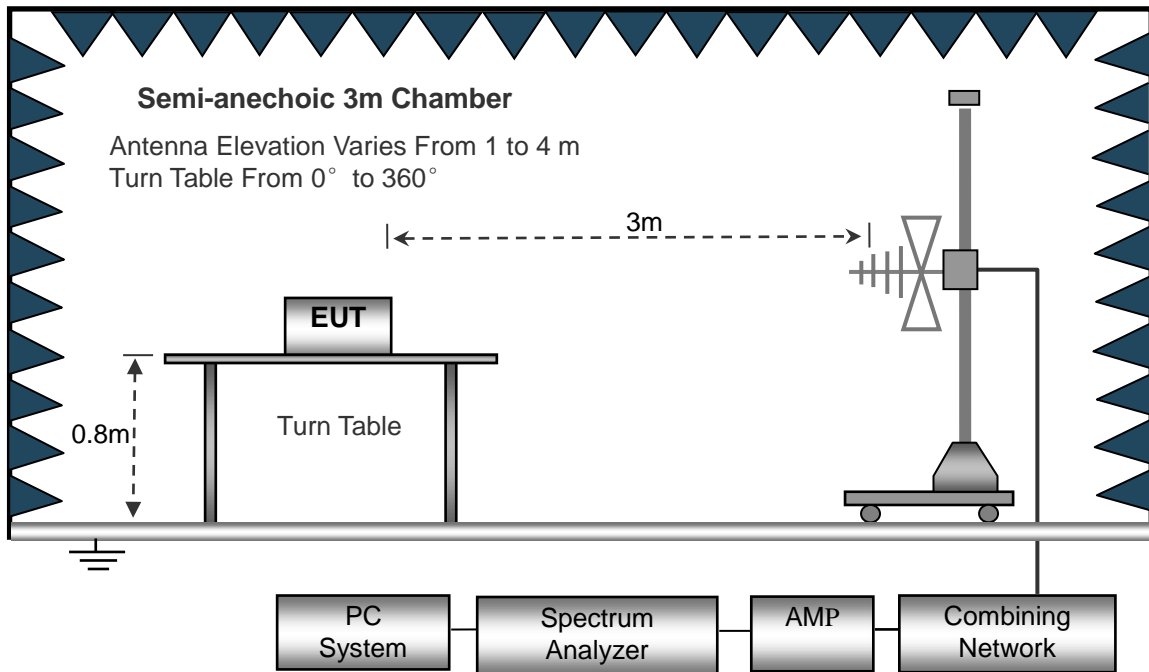
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

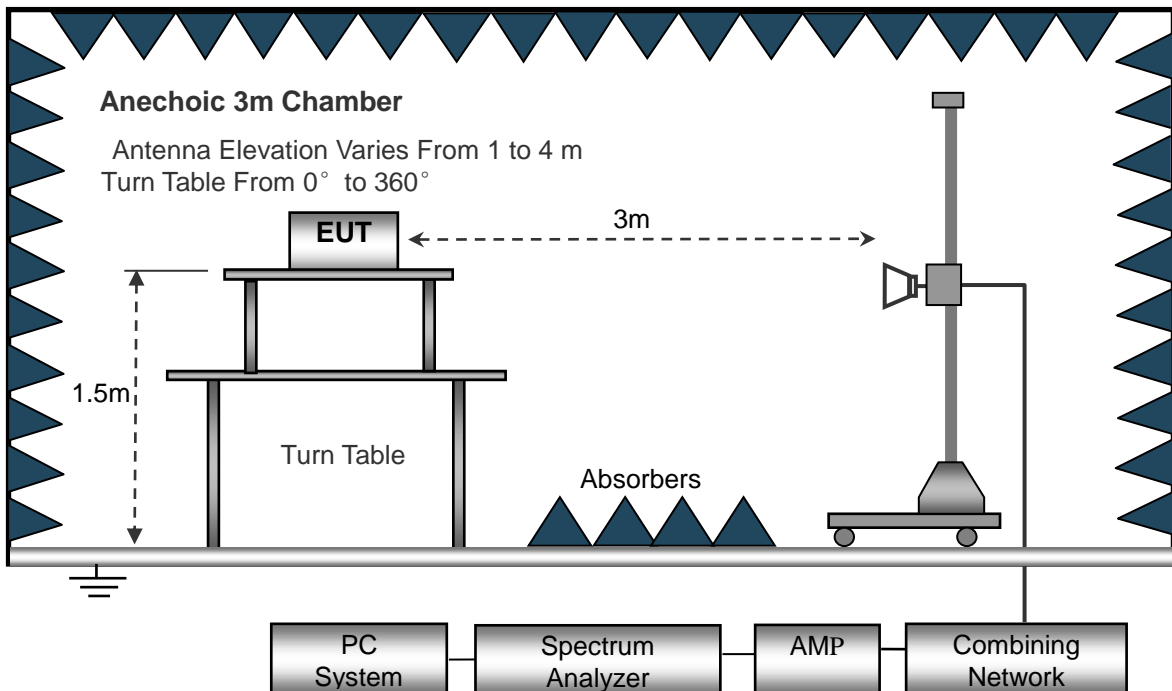
The test setup for emission measurement below 30MHz..



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

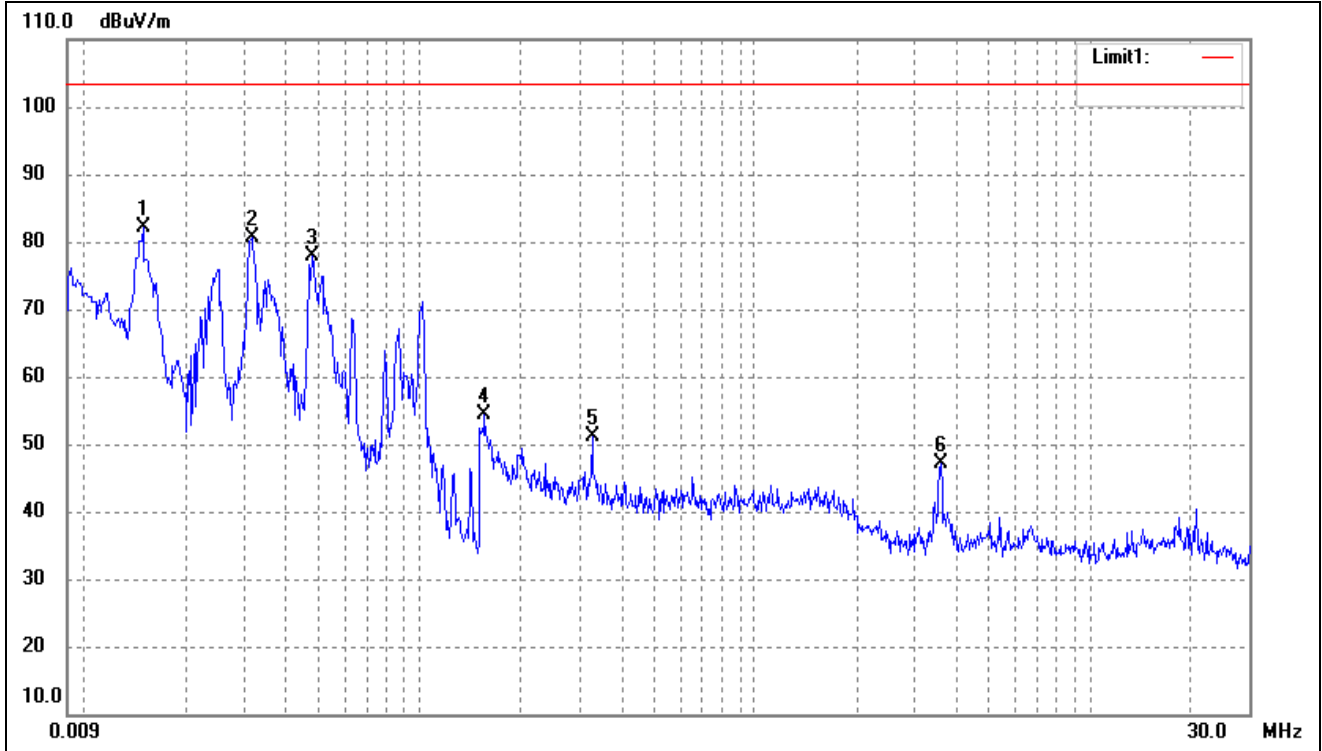
Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

## 4.5 Summary of Test Results/Plots



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

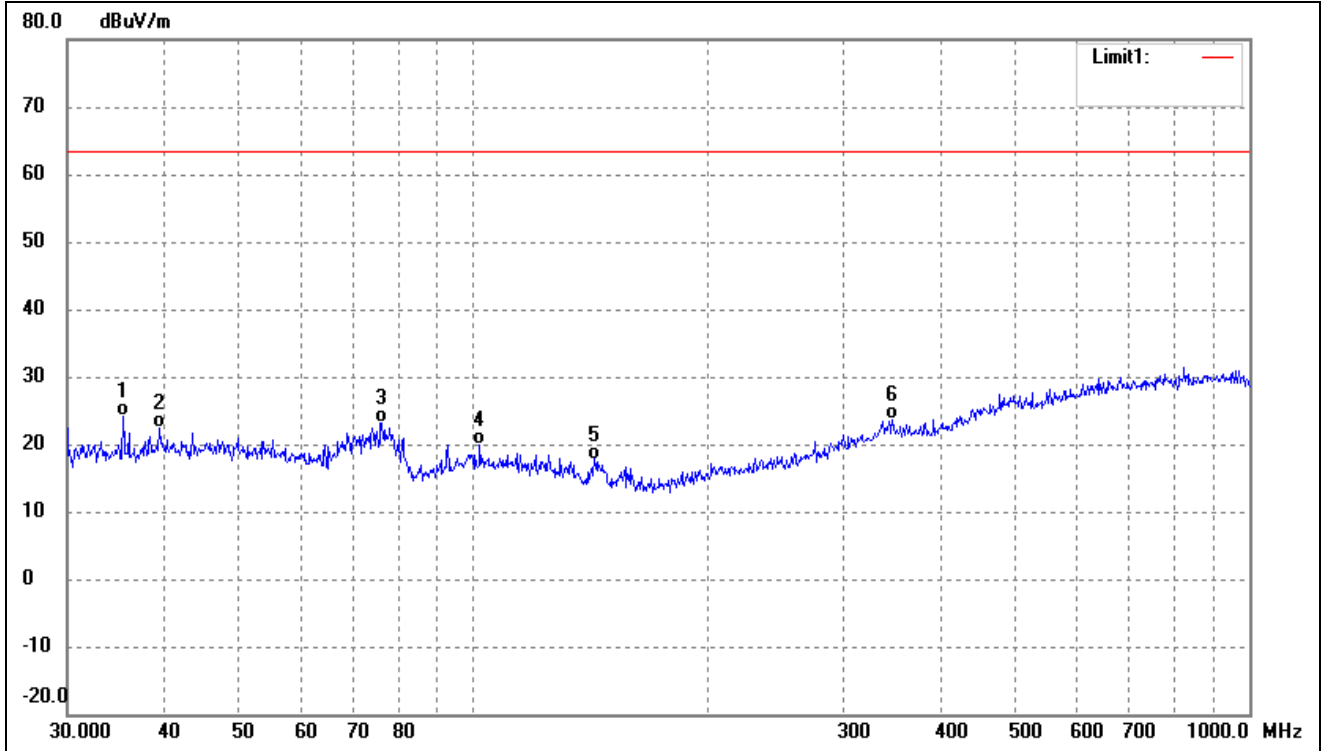
Test mode:	TM1	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	0.0149	87.67	-5.59	82.08	103.50	-21.42	-	-	peak
2	0.0314	85.46	-4.91	80.55	103.50	-22.95	-	-	peak
3	0.0475	81.79	-3.97	77.82	103.50	-25.68	-	-	peak
4	0.1556	58.65	-4.23	54.42	103.50	-49.08	-	-	peak
5	0.3268	55.98	-4.84	51.14	103.50	-52.36	-	-	peak
6	3.5843	49.83	-2.79	47.04	103.50	-56.46	-	-	peak

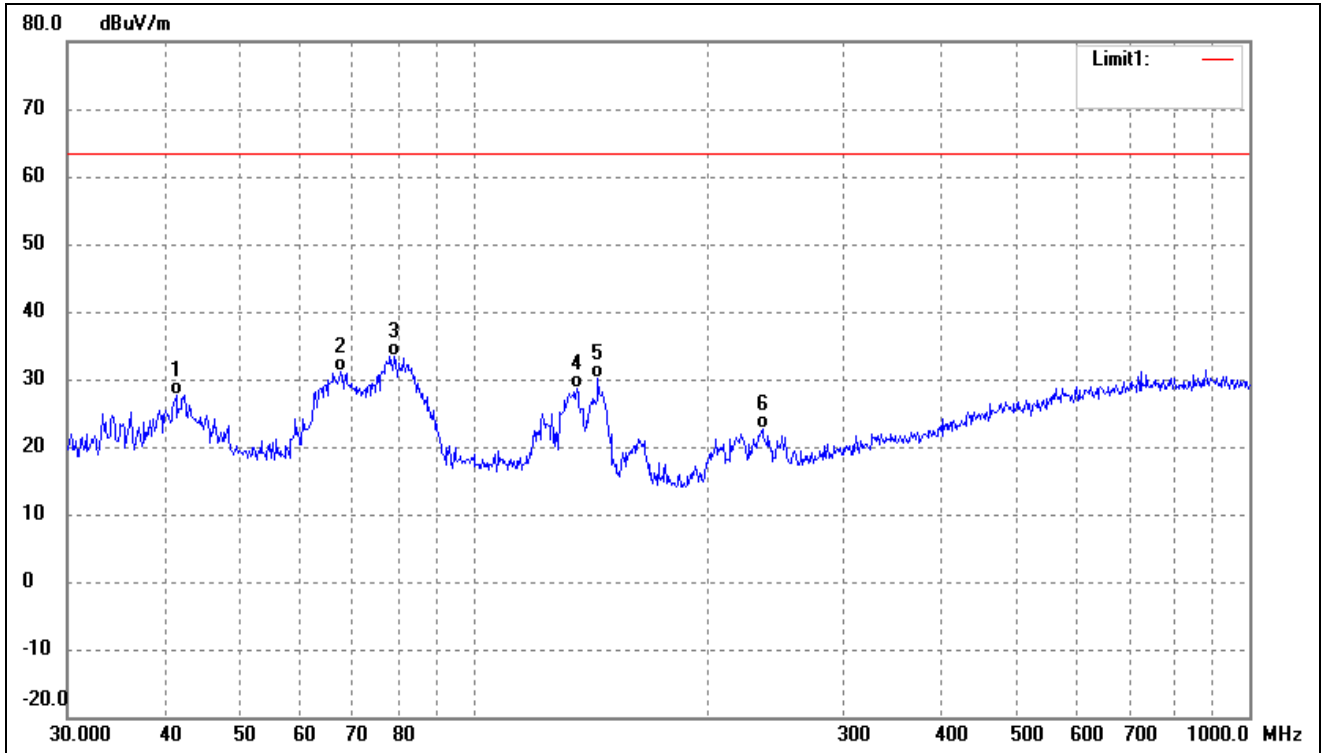
**Plot of Radiated Emissions Test Data ( Above 30MHz)**

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	35.3750	32.25	-8.13	24.12	63.50	-39.38	-	-	QP
2	39.4372	29.44	-7.14	22.30	63.50	-41.20	-	-	QP
3	76.2442	33.66	-10.52	23.14	63.50	-40.36	-	-	QP
4	102.0014	28.60	-8.76	19.84	63.50	-43.66	-	-	QP
5	143.3261	30.13	-12.38	17.75	63.50	-45.75	-	-	QP
6	346.8092	29.04	-5.50	23.54	63.50	-39.96	-	-	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	41.4215	34.65	-6.99	27.66	63.50	-35.84	-	-	QP
2	67.4382	40.74	-9.72	31.02	63.50	-32.48	-	-	QP
3	79.2426	44.11	-10.69	33.42	63.50	-30.08	-	-	QP
4	135.9822	40.53	-11.94	28.59	63.50	-34.91	-	-	QP
5	144.8418	42.55	-12.43	30.12	63.50	-33.38	-	-	QP
6	235.8164	31.36	-8.71	22.65	63.50	-40.85	-	-	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**

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**Please refer to “ANNEX”**

**\*\*\*\*\* END OF REPORT \*\*\*\*\***