

# TEST REPORT

Reference No..... : WTX20X08060455W-1  
FCC ID ..... : A4X-WL-UTC-C2UFHV  
Applicant ..... : CE LINK LIMITED  
Address..... : Building M,LiCheng Technology Industrial Zone,GongHe Village,Shajing  
Town,ShenZhen City,China  
Product Name ..... : Type-C to HDMI/VGA/USB-AX2/Type-CData or PD Charging Adapter with  
Wireless Charging  
Test Model. .... : WL-UTC-C2UFHV-WR  
Standards ..... : FCC Part 18  
Date of Receipt sample .... : Aug.27, 2020  
Date of Test..... : Aug.27, 2020 to Sept.16, 2020  
Date of Issue ..... : Sept.17, 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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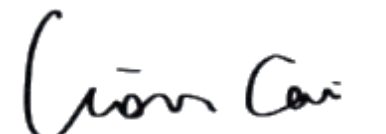
Tested by:

Reviewed By:

Approved & Authorized By:



Mike Shi / Project Engineer



Lion Cai / RF Manager



Silin Chen / Manager

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**Report version**

Version No.	Date of issue	Description
Rev.00	Sept.17, 2020	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: 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 HDMI/VGA/USB-AX2/Type-CData or PD Charging Adapter with Wireless Charging
Trade Name:	CE-LINK
Model No.:	WL-UTC-C2UFHV-WR
Adding Model(s):	/
Power Adapter:	/
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	115-205kHz
Modulation Type:	ASK
Antenna Type:	Coil Antenna
Input:	DC5-20V
Wireless output:	Output: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	Transmitting	AC120V 60Hz for adapter

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Cable	1.5	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

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	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

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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

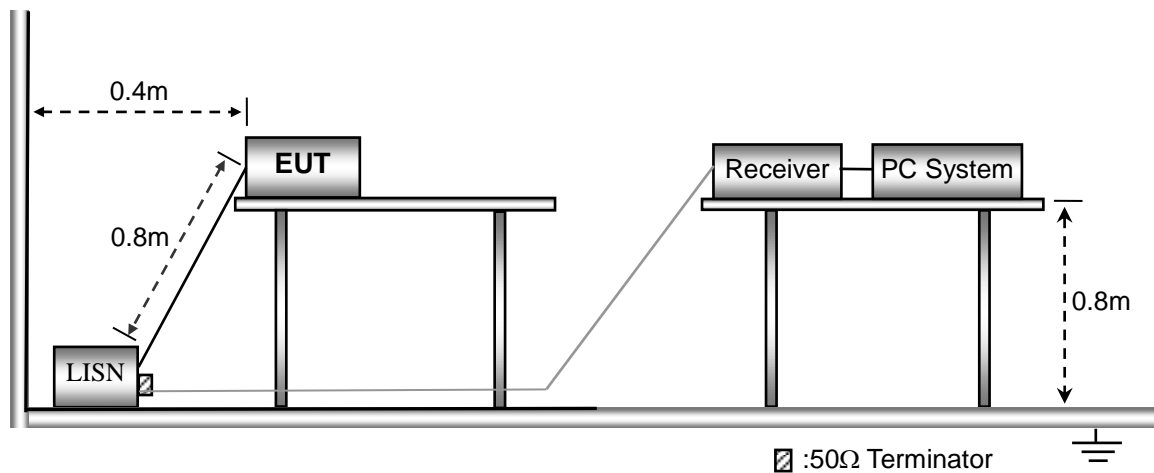
#### 3.2 Test Procedure

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:	26° C
Relative Humidity:	60%
ATM Pressure:	1016 mbar

### 3.5 Test Receiver Setup

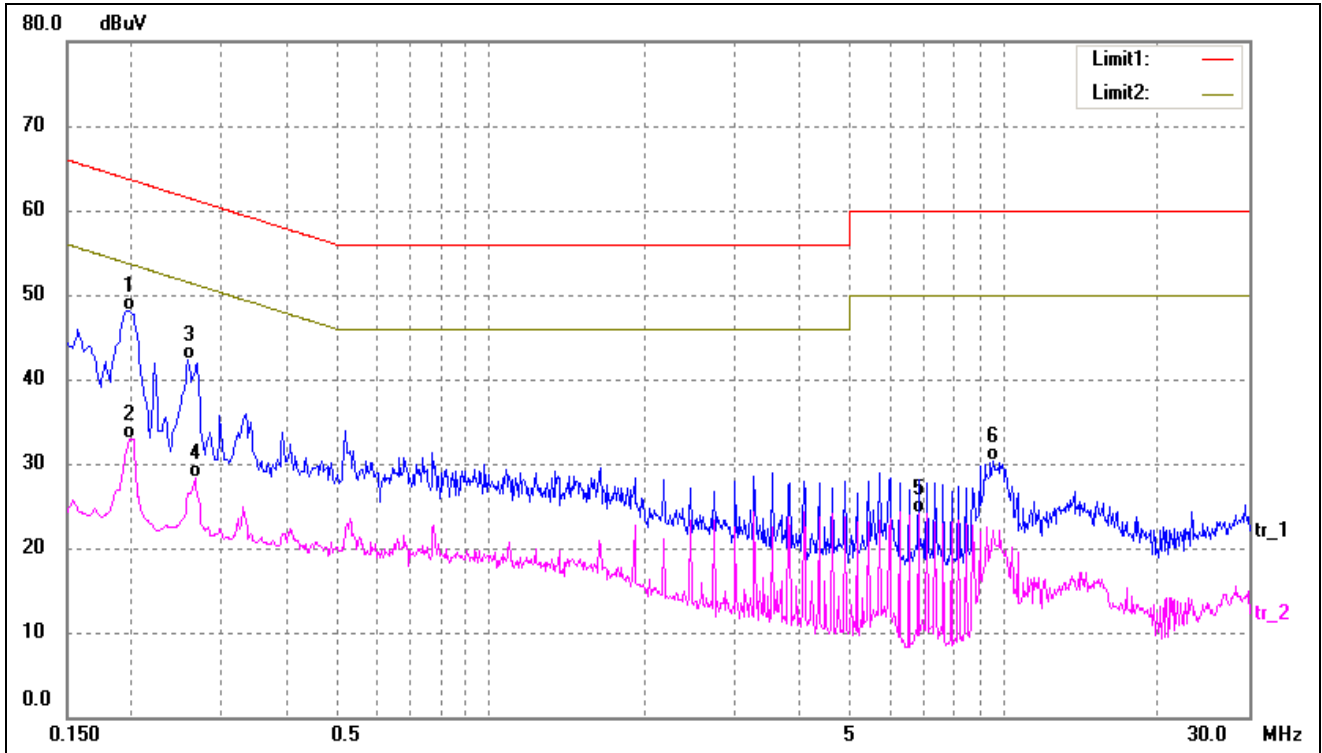
During the conducted emission test, the test receiver was set with the following configurations:

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

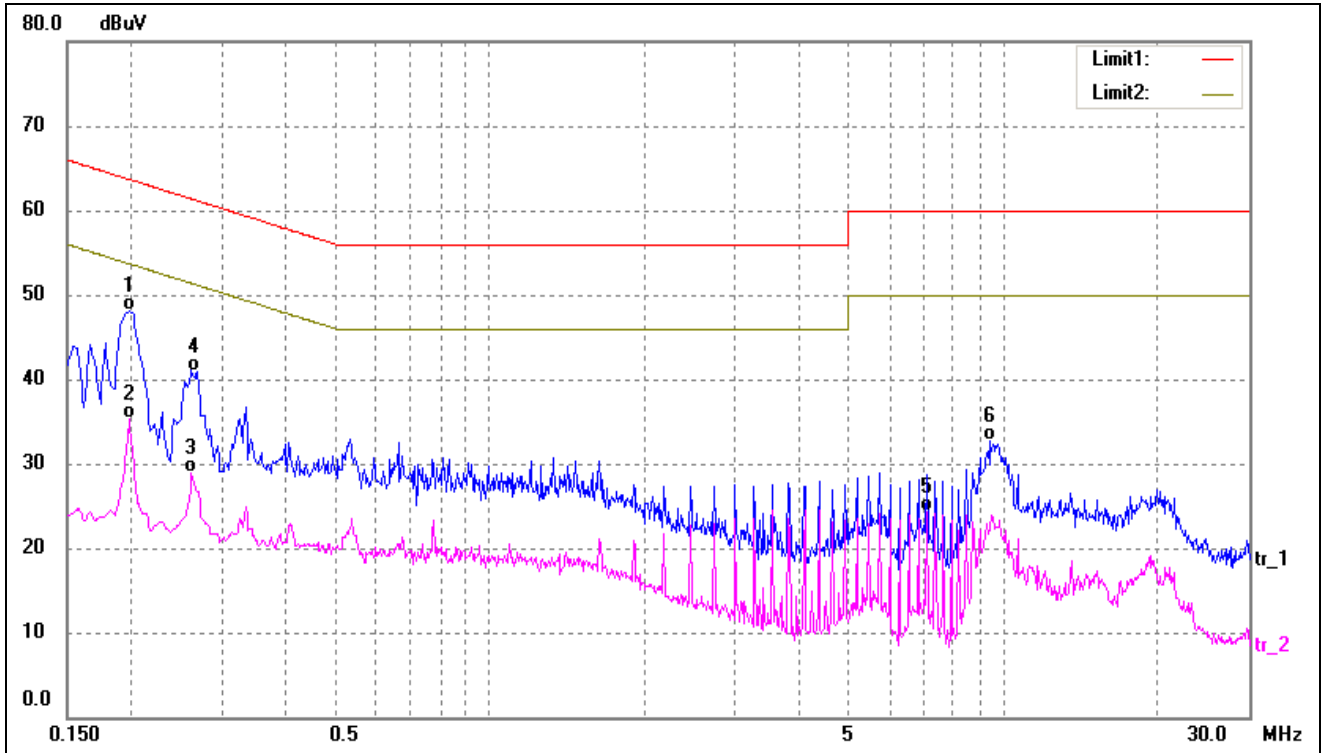
According to the data in this section, the EUT complied with the FCC Part 18C Conducted margin for Any non-ISM frequency device, with the *worst* margin reading of:

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*	0.1980	37.90	10.27	48.17	63.69	-15.52	QP
2	0.1980	22.58	10.27	32.85	53.69	-20.84	AVG
3	0.2580	32.11	10.26	42.37	61.50	-19.13	QP
4	0.2660	18.13	10.25	28.38	51.24	-22.86	AVG
5	6.8180	13.84	10.25	24.09	50.00	-25.91	AVG
6	9.5380	19.95	10.28	30.23	60.00	-29.77	QP

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*	0.1980	37.89	10.27	48.16	63.69	-15.53	QP
2	0.1980	25.00	10.27	35.27	53.69	-18.42	AVG
3	0.2620	18.60	10.26	28.86	51.37	-22.51	AVG
4	0.2700	30.66	10.25	40.91	61.12	-20.21	QP
5	7.0860	13.96	10.25	24.21	50.00	-25.79	AVG
6	9.4060	22.37	10.28	32.65	60.00	-27.35	QP

## 4. Radiated Emissions

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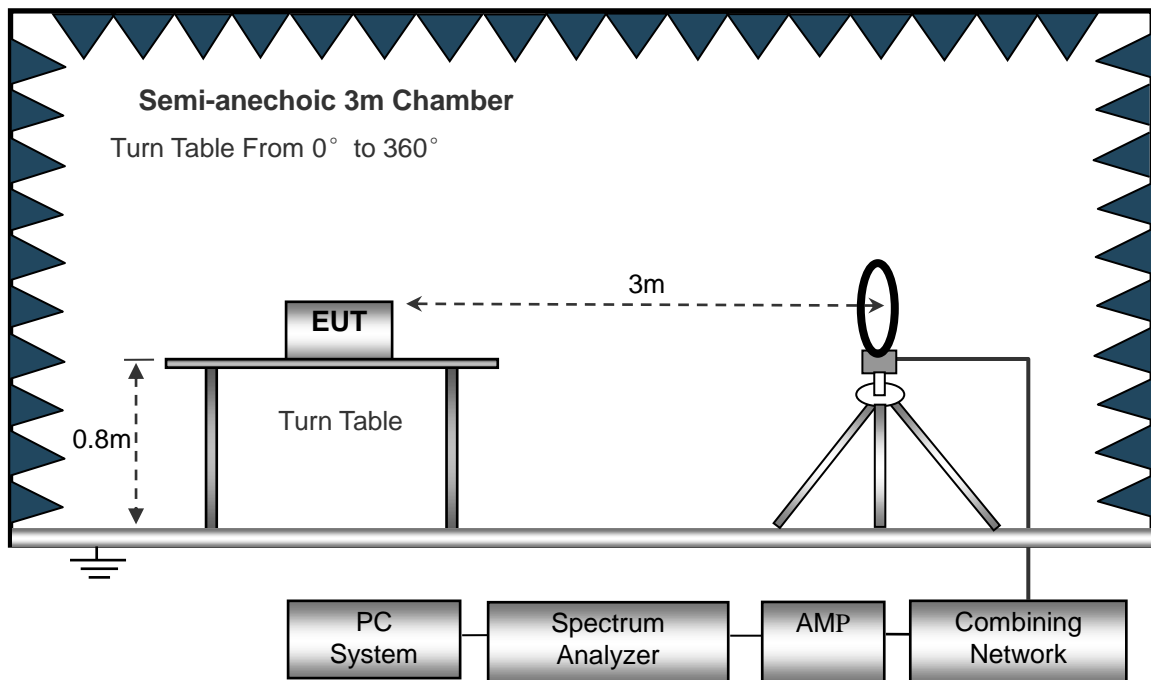
### 4.1 Test Procedure

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.

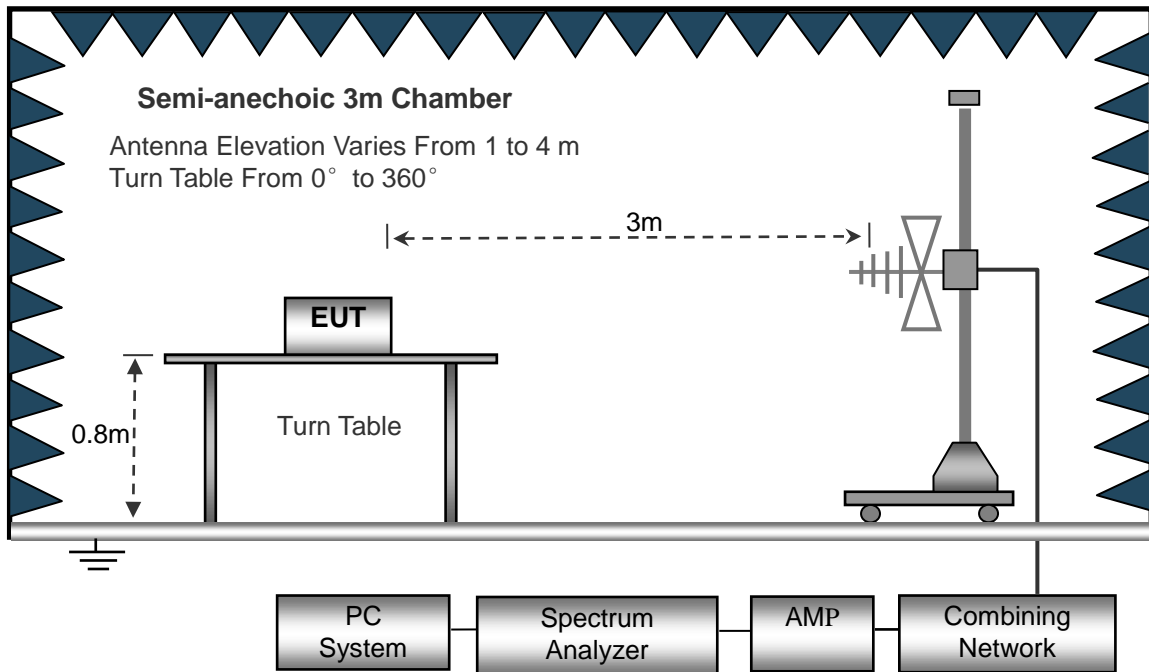
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

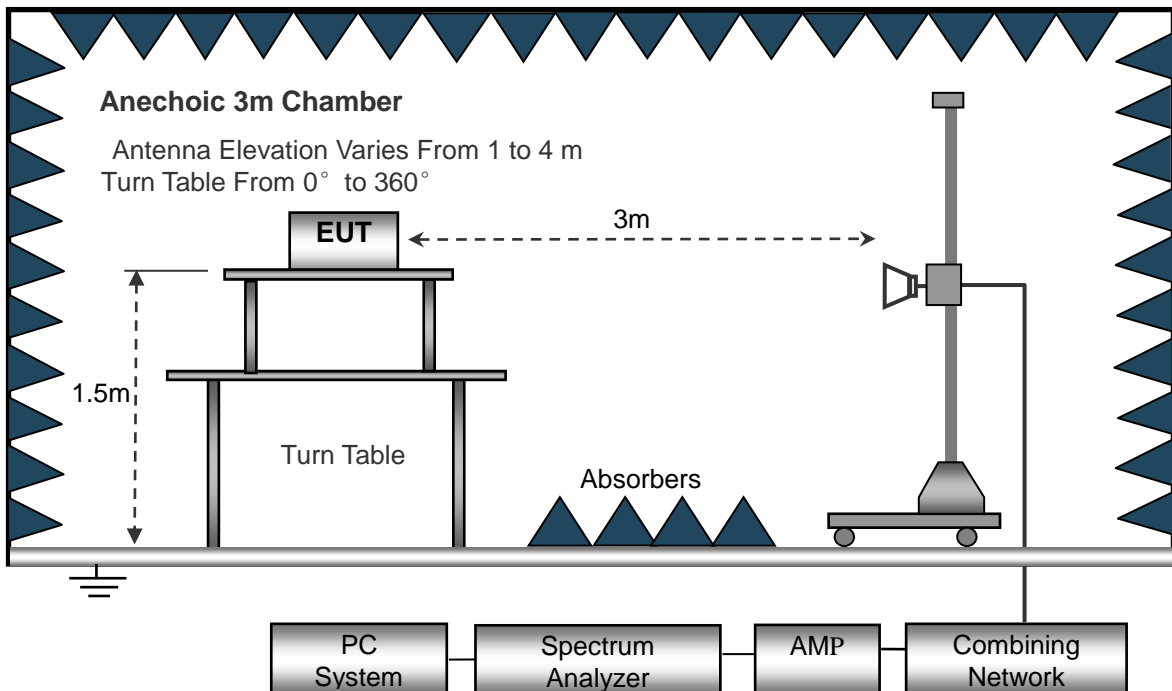
The test setup for emission measurement below 30MHz..



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

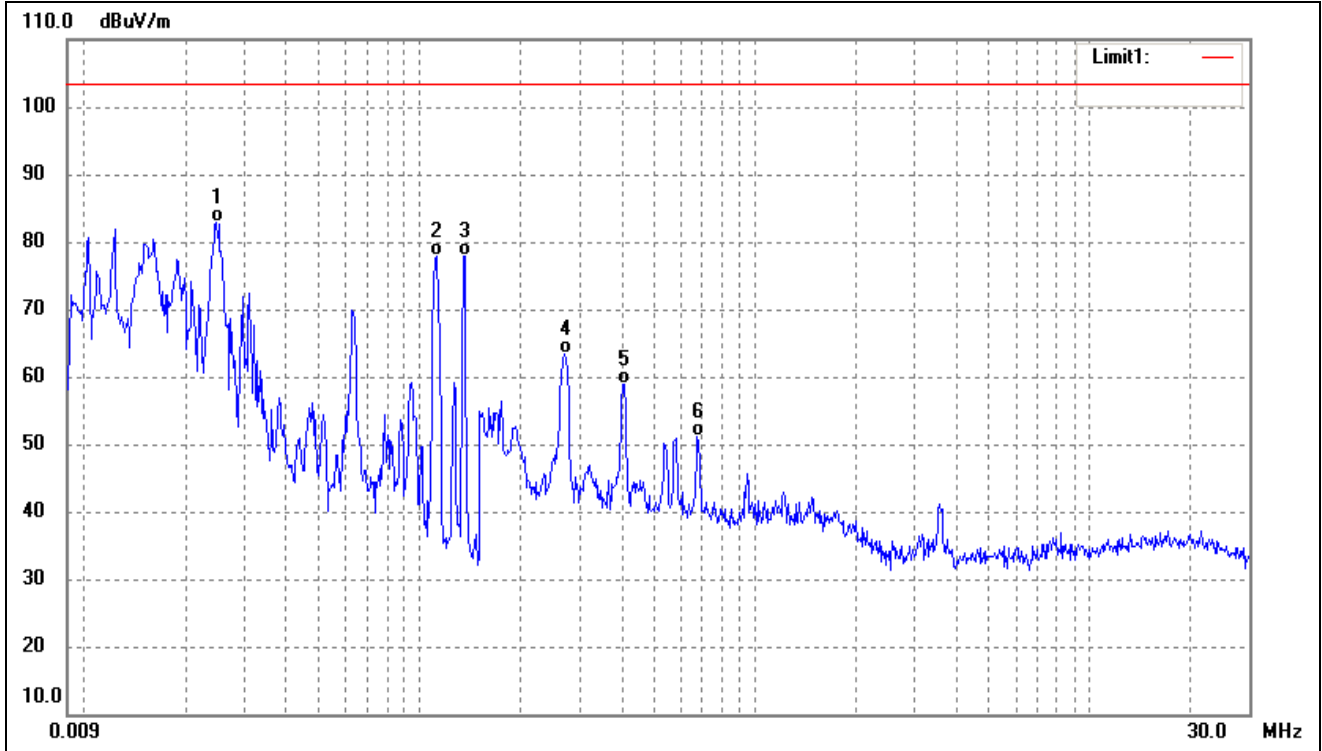
Temperature:	22 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

## 4.5 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 18.305 rule, and had the worst margin of:

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

Test mode:	TM1	Polarity:	Vertical
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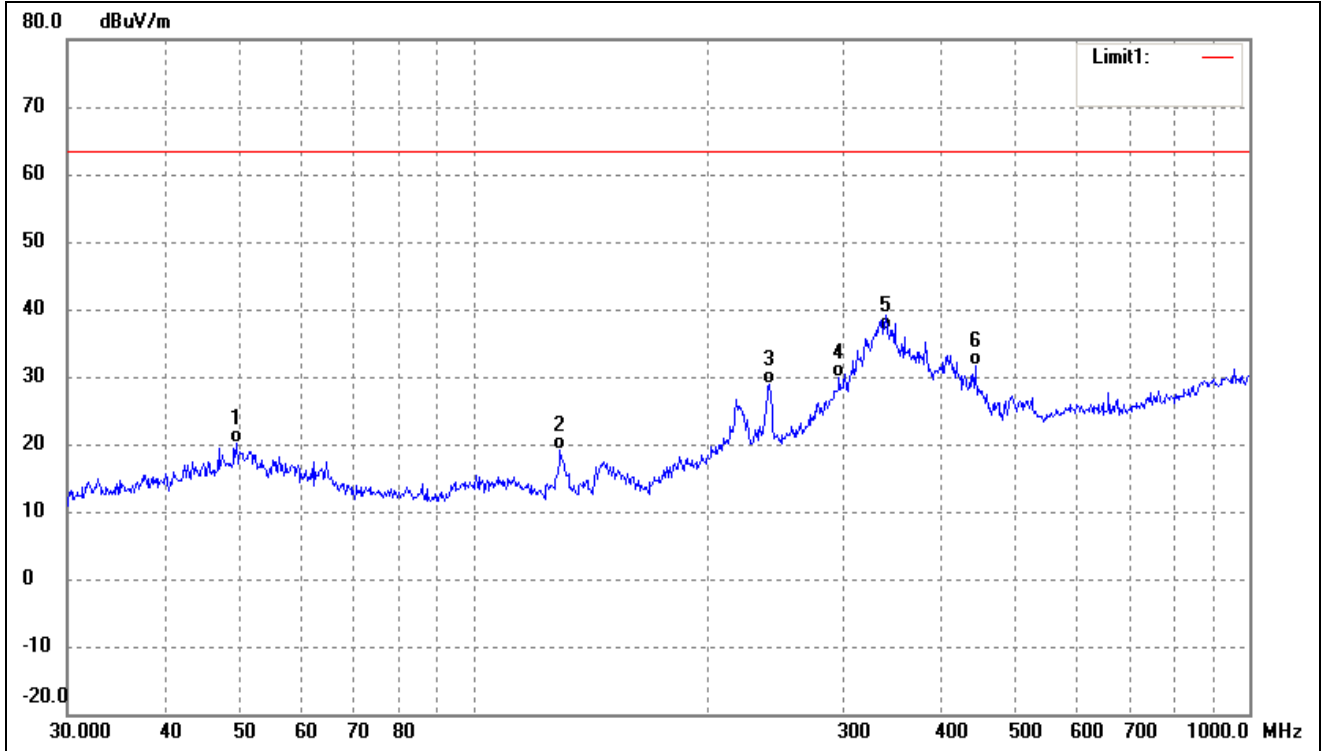


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	0.0247	89.35	-6.50	82.85	103.50	-20.65	-	-	QP
2	0.1119	82.97	-5.09	77.88	103.50	-25.62	-	-	QP
3	0.1356	83.09	-5.15	77.94	103.50	-25.56	-	-	QP
4	0.2701	71.06	-7.61	63.45	103.50	-40.05	-	-	QP
5	0.4019	66.69	-7.81	58.88	103.50	-44.62	-	-	QP
6	0.6753	57.99	-6.86	51.13	103.50	-52.37	-	-	QP



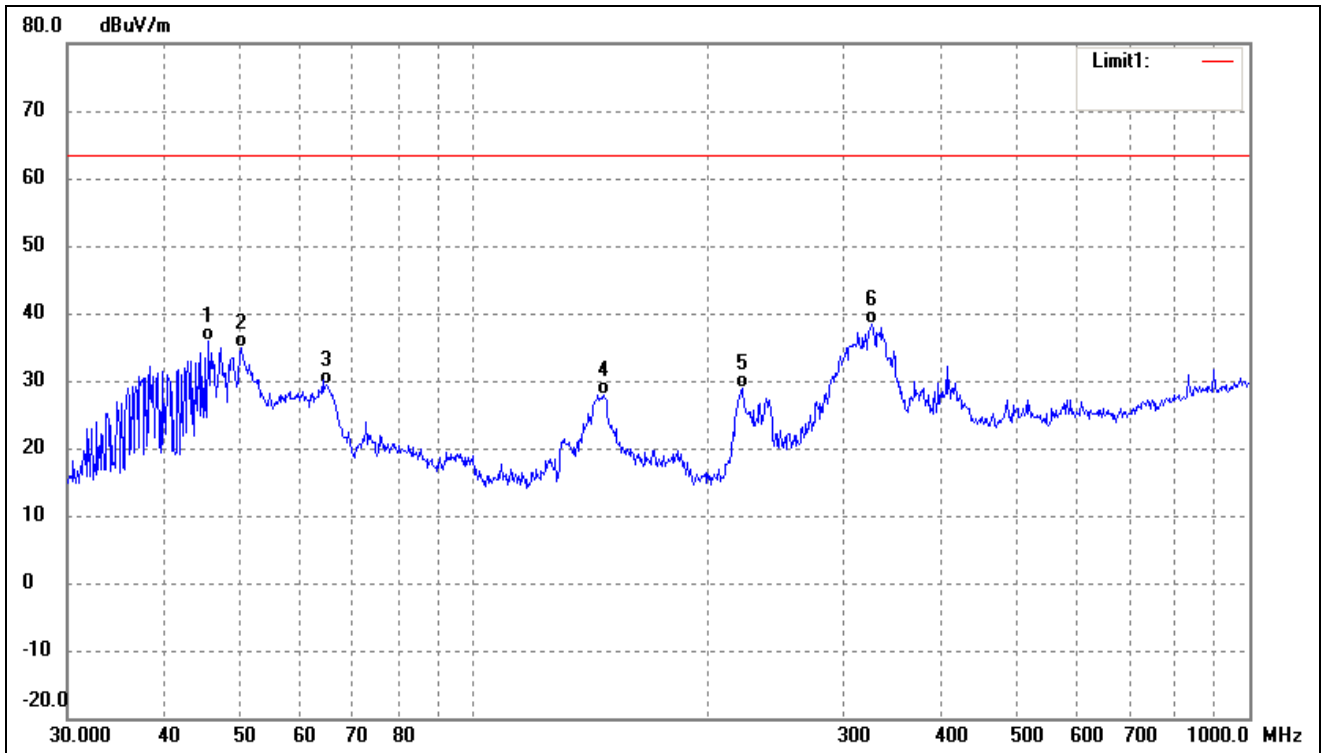
**Plot of Radiated Emissions Test Data ( Above 30MHz)**

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	49.5328	30.42	-10.23	20.19	63.50	-43.31	-	-	QP
2	129.4677	34.94	-15.71	19.23	63.50	-44.27	-	-	QP
3	240.8304	38.77	-9.83	28.94	63.50	-34.56	-	-	QP
4	296.1836	37.34	-7.45	29.89	63.50	-33.61	-	-	QP
5	339.5888	43.68	-6.71	36.97	63.50	-26.53	-	-	QP
6	443.2943	36.20	-4.46	31.74	63.50	-31.76	-	-	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	45.5348	46.36	-10.53	35.83	63.50	-27.67	-	-	QP
2	50.2324	45.17	-10.24	34.93	63.50	-28.57	-	-	QP
3	64.6594	42.45	-12.97	29.48	63.50	-34.02	-	-	QP
4	147.4036	42.64	-14.75	27.89	63.50	-35.61	-	-	QP
5	222.1698	39.65	-10.82	28.83	63.50	-34.67	-	-	QP
6	326.7395	45.71	-7.33	38.38	63.50	-25.12	-	-	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.

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