

TEST REPORT

Reference No..... : WTX20X08060564W-1
FCC ID : A4X-WPC20-5XJNA
Applicant : CE LINK LIMITED
Address : Building M,LiCheng Technology Industrial Zone,GongHe Village,Shajing
Town,ShenZhen City,China
Product Name : Wireless charger
Test Model. : WPC20-5XJNA
Standards : FCC Part 18
Date of Receipt sample : Aug.27, 2020
Date of Test..... : Aug.27, 2020 to Sept.07, 2020
Date of Issue : Sept.07, 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:

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



Lion Cai / RF Manager



Silin Chen / Manager

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Report version

Version No.	Date of issue	Description
Rev.00	Sept.07, 2020	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: CE LINK LIMITED
 Address of manufacturer: Building M,LiCheng Technology Industrial Zone,
 GongHe Village,ShaJing Town,ShenZhen City,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 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:	Wireless charger
Trade Name:	CE-LINK
Model No.:	WPC20-5XJNA
Adding Model(s):	/
Power Adapter:	Model:A361-0903500U Input: AC100-240V,50/60Hz, 1.5A Output: DC9V, 3.5A
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	110~205kHz
Modulation Type:	ASK
Antenna Type:	Coil Antenna
Input:	DC9V,3.5A
Wireless output:	Output1:10W Output2:10W

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 $\pm 3.74\text{dB}$
		0.15-30MHz $\pm 3.34\text{dB}$
Radiated Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$
		6-18GHz $\pm 3.92\text{dB}$

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

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:

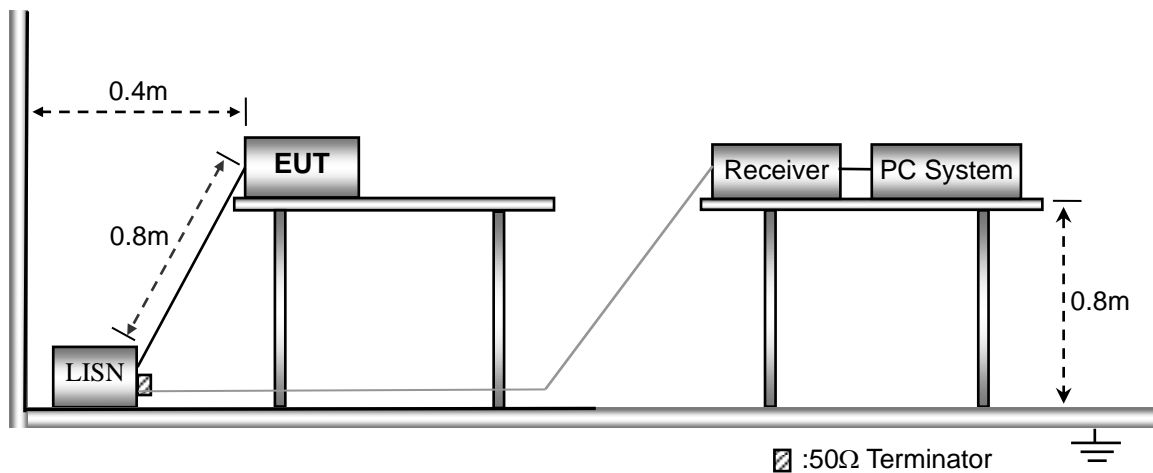
Frequency (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

3.5 Test Receiver Setup

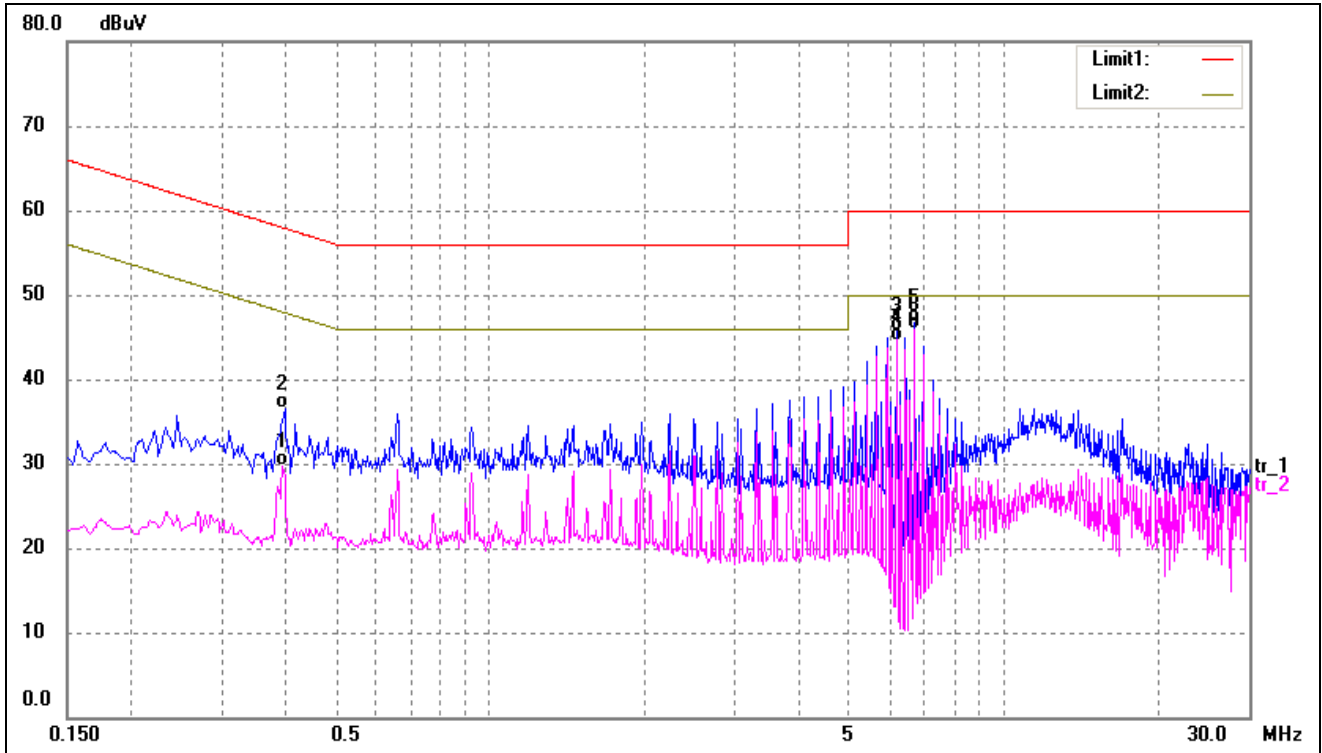
During the conducted emission test, the test receiver was set with the following configurations:

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

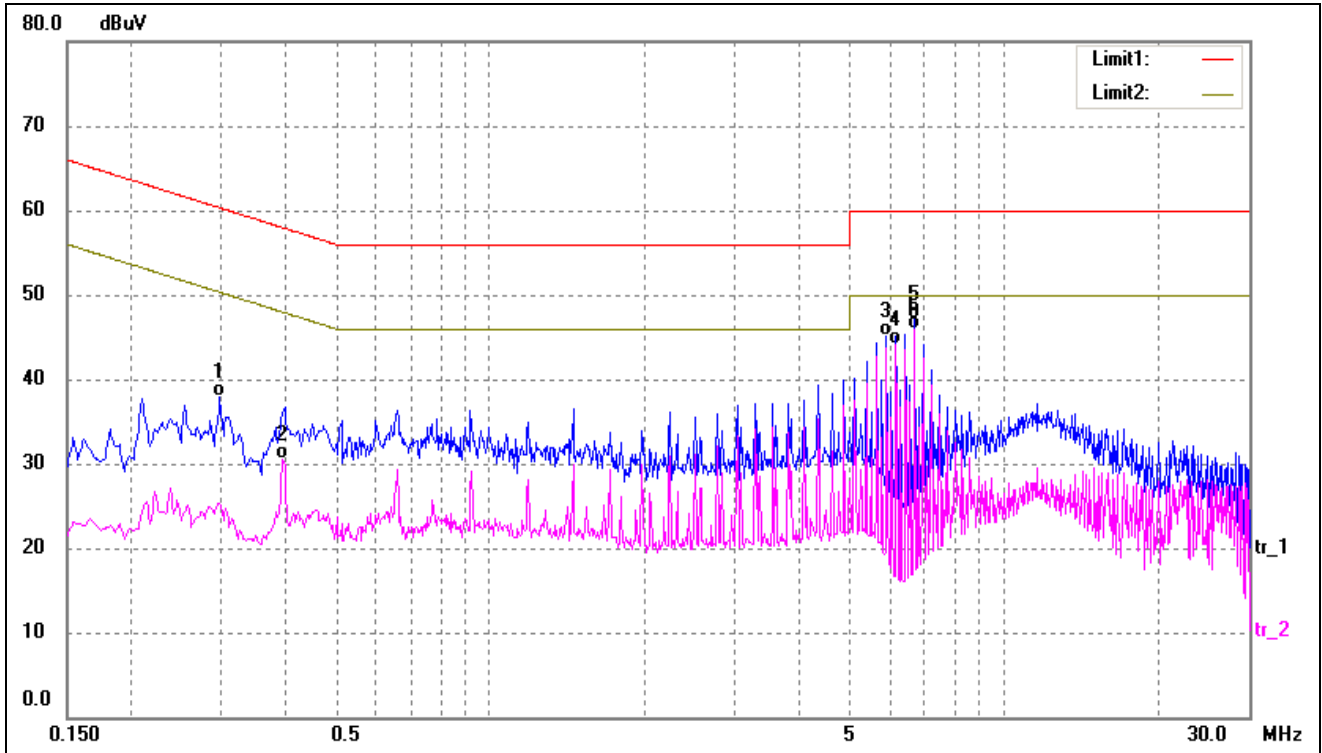
According to the data in this section, the EUT complied with the FCC Part 18C Conducted margin for Any non-ISM frequency device, with the *worst* margin reading of:

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	0.3940	19.52	10.23	29.75	47.98	-18.23	AVG
2	0.3980	26.20	10.23	36.43	57.90	-21.47	QP
3	6.1940	35.40	10.24	45.64	60.00	-14.36	QP
4	6.1940	34.36	10.24	44.60	50.00	-5.40	AVG
5	6.7220	36.54	10.25	46.79	60.00	-13.21	QP
6*	6.7220	35.66	10.25	45.91	50.00	-4.09	AVG

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	0.2980	27.57	10.24	37.81	60.30	-22.49	QP
2	0.3940	20.29	10.23	30.52	47.98	-17.46	AVG
3	5.9220	34.93	10.23	45.16	60.00	-14.84	QP
4	6.1860	33.78	10.24	44.02	50.00	-5.98	AVG
5	6.7220	36.87	10.25	47.12	60.00	-12.88	QP
6*	6.7220	35.67	10.25	45.92	50.00	-4.08	AVG

4. Radiated Emissions

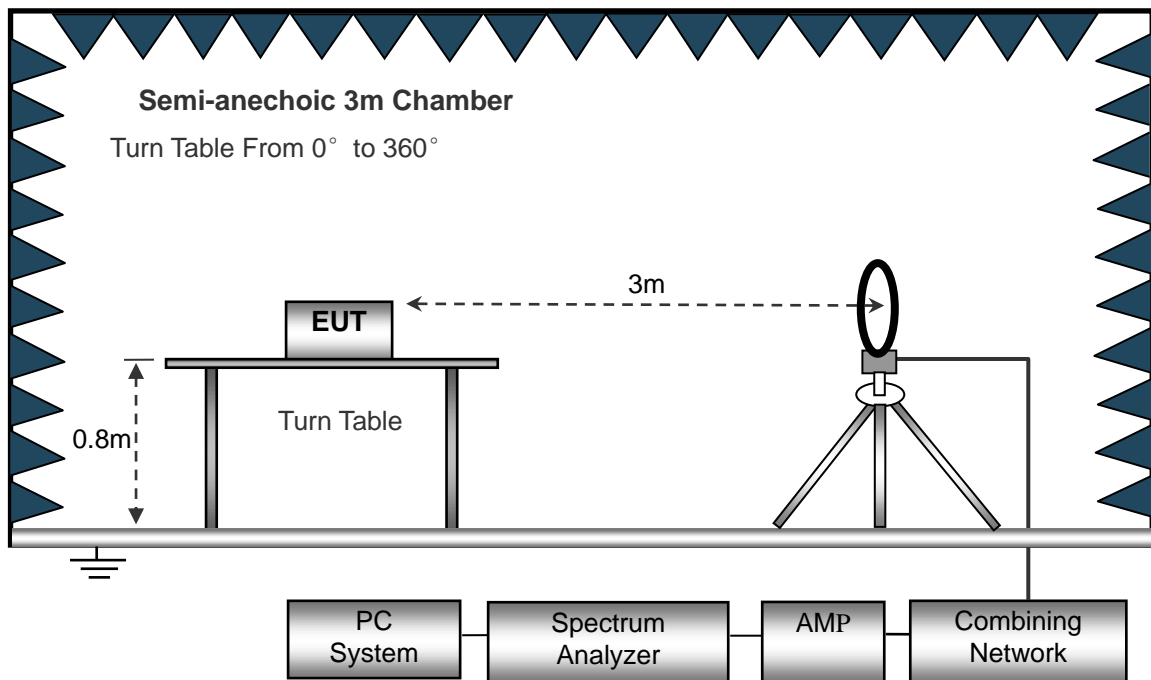
4.1 Test Procedure

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.

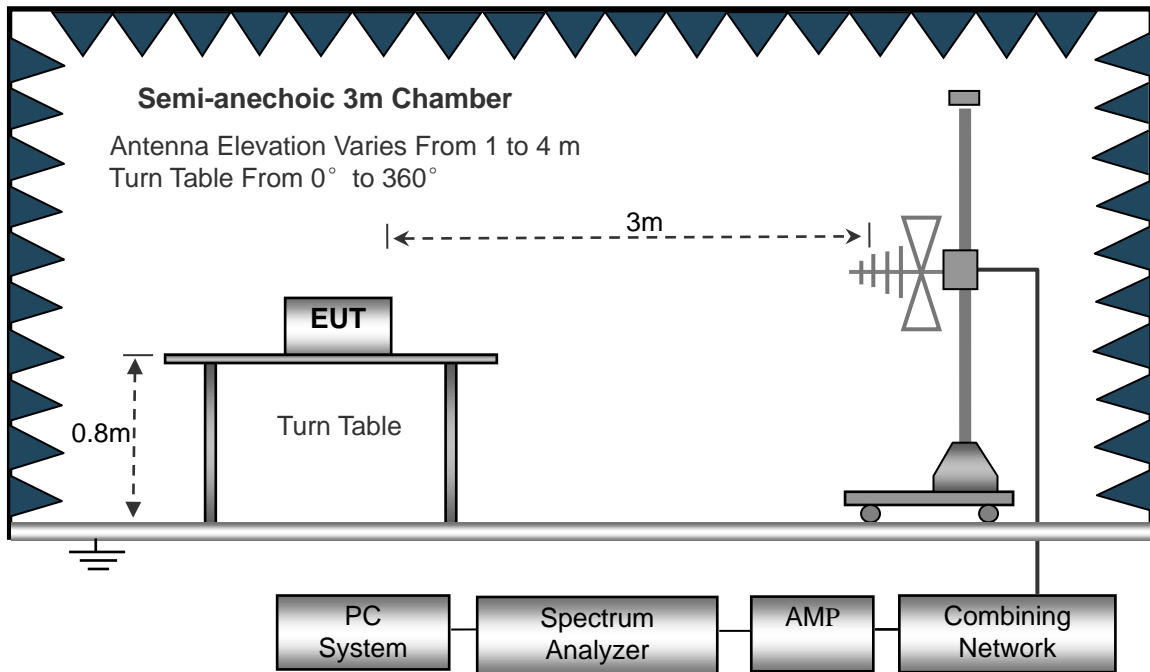
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

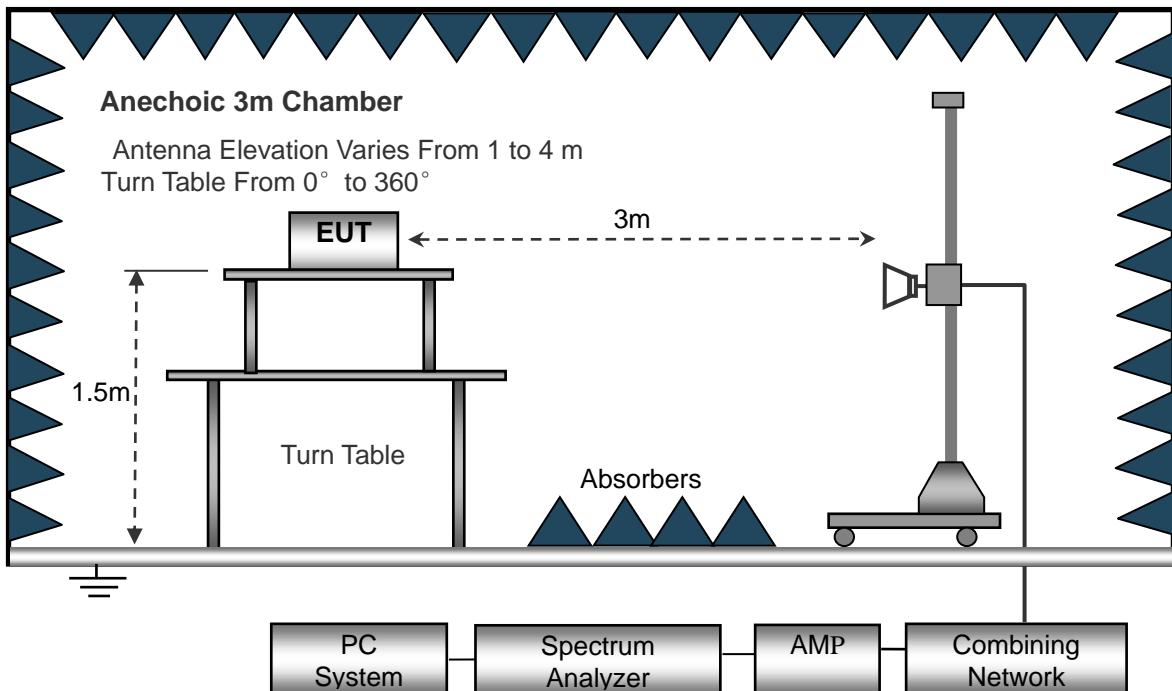
The test setup for emission measurement below 30MHz..



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



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 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

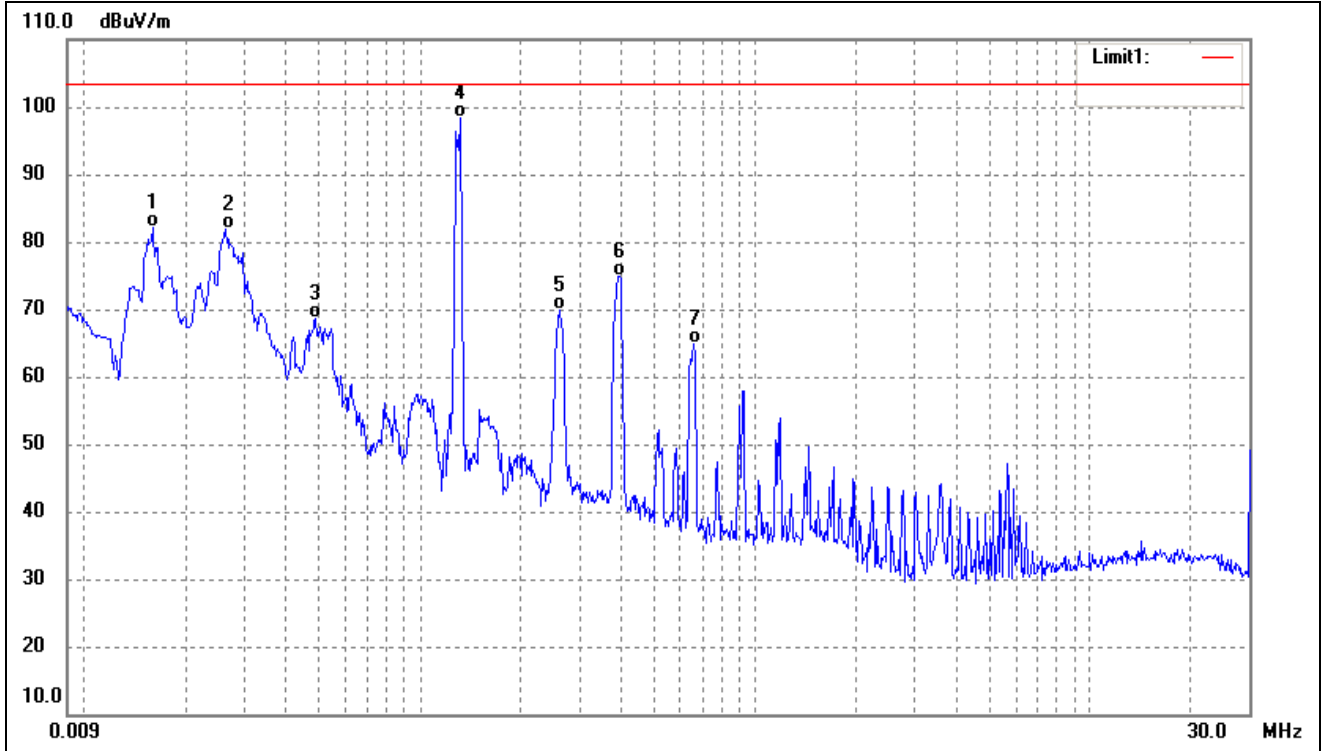
Temperature:	22 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

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)

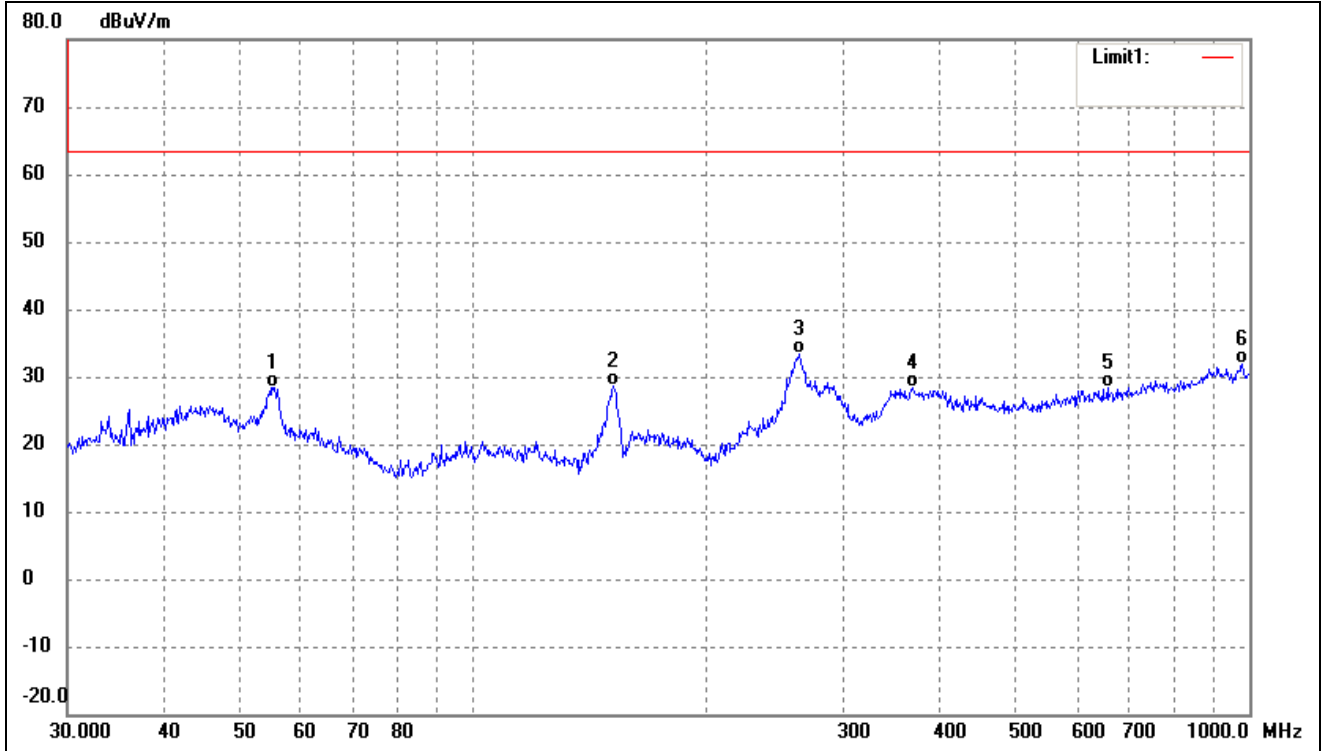
Test mode:	TM1	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0161	88.75	-6.64	82.11	103.50	-21.39	-	-	QP
2	0.0263	88.23	-6.39	81.84	103.50	-21.66	-	-	QP
3	0.0488	73.39	-4.81	68.58	103.50	-34.92	-	-	QP
4	0.1318	103.48	-5.14	98.34	103.50	-5.16	-	-	QP
5	0.2603	77.34	-7.49	69.85	103.50	-33.65	-	-	QP
6	0.3914	82.72	-7.82	74.90	103.50	-28.60	-	-	QP
7	0.6578	71.84	-6.94	64.90	103.50	-38.60	-	-	QP

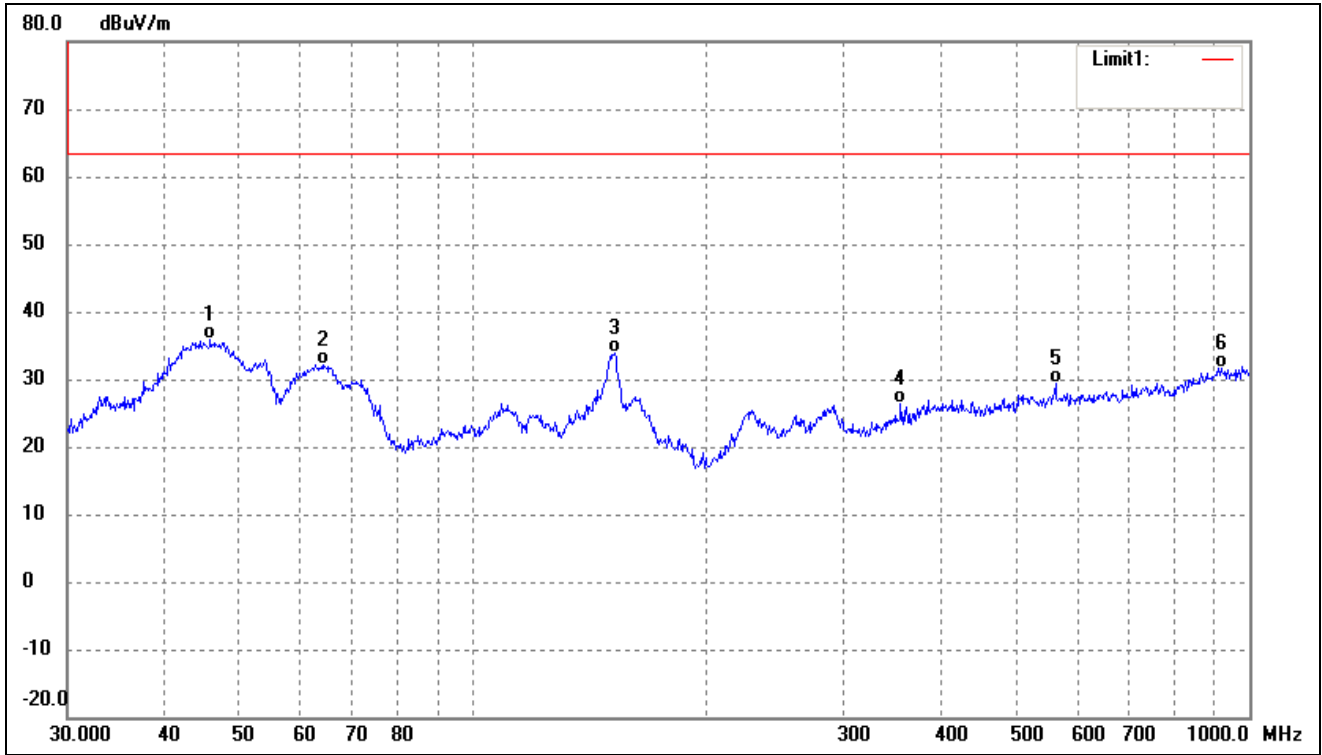
Plot of Radiated Emissions Test Data (Above 30MHz)

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	55.2207	41.23	-12.95	28.28	63.50	-35.22	-	-	QP
2	151.5972	44.19	-15.45	28.74	63.50	-34.76	-	-	QP
3	262.8955	44.30	-10.82	33.48	63.50	-30.02	-	-	QP
4	368.1116	35.71	-7.26	28.45	63.50	-35.05	-	-	QP
5	656.5300	30.67	-2.24	28.43	63.50	-35.07	-	-	QP
6	979.1804	30.44	1.55	31.99	63.50	-31.51	-	-	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	45.8553	47.65	-11.75	35.90	63.50	-27.60	-	-	QP
2	63.9828	45.89	-13.74	32.15	63.50	-31.35	-	-	QP
3	152.1297	49.36	-15.46	33.90	63.50	-29.60	-	-	QP
4	355.4273	33.69	-7.38	26.31	63.50	-37.19	-	-	QP
5	562.6624	32.65	-3.17	29.48	63.50	-34.02	-	-	QP
6	919.2866	29.92	1.78	31.70	63.50	-31.80	-	-	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 *****