FCC Part 18
Measurement and Test Report

For

CE LINK LIMITED

Building M,LiCheng Technology Industrial Zone,GongHe Village,ShaJing Town,ShenZhen City,China

FCC ID: A4X-TM0008P

Test Rule(s):	FCC Part 18
Product Description:	Vertical wireless charger
Tested Model:	WPC10-2MJOC
Report No.:	WTX20X05032391W-1
Sample Receipt Date:	May.29, 2020
Tested Date:	May.29, 2020 to Jun.11, 2020
Issued Date:	Jun.11, 2020
Tested By:	Mike Shi / Engineer
Reviewed By:	Lion Cai / RF Manager
Approved & Authorized By:	Silin Chen / Manager

Prepared By:

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Report version

Version No.	Date of issue	Description
Rev.00	Jun.11, 2020	Original
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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:	SuiChuan CE LINK LIMITED
Address of factory	SuiChuan county industrial park east zone, Ji'an city, Jiangxi province, China.

General Description of EUT	
Product Name:	Vertical wireless charger
Trade Name:	CE-LINK
Model No.:	WPC10-2MJOC
Adding Model(s):	TM0008P
Adapter	Model:W0920U-1U05F Input: AC100-240V, 50/60Hz, 0.45A, Max Output: DC3.6V~6V,3A; 6V~9V,2A; 9V~12V,1.5A
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model WPC10-2MJOC, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	110~205kHz
Antenna Type:	Coil Antenna
Rated Voltage:	DC5V 2A/9V 2A/12V 1.5A
Rated Current:	
Rated Power:	5W/7.5W/10W (Wireless output)

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

FCC – Registration No.: 125990
Waltek Testing Group (Shenzhen) Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). 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	Max output power 10W	AC120V 60Hz for adapter

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.2	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 ±3.74dB
		0.15-30MHz ±3.34dB
Radiated Emissions	Radiated	30-200MHz ±4.52dB
		0.2-1GHz ±5.56dB
		1-6GHz ±3.84dB
		6-18GHz ±3.92dB

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

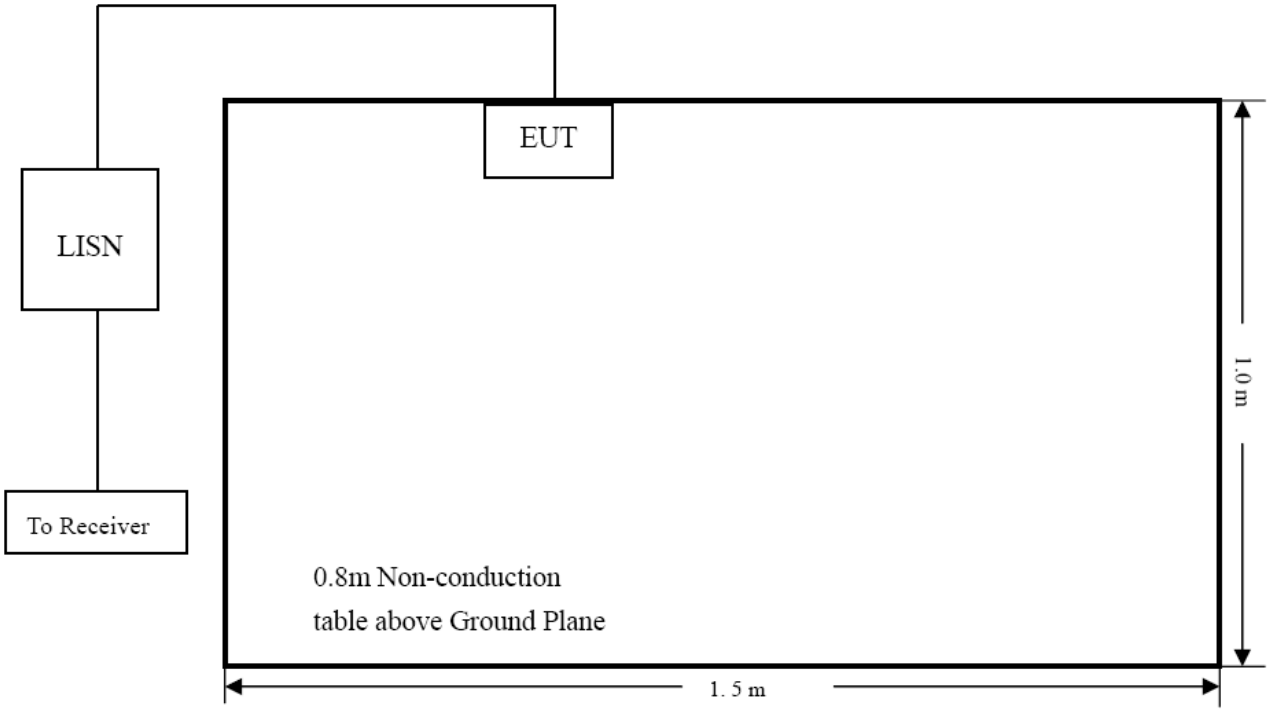
According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

Frequency (MHz)	Conducted limit (dBμV)	
	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:

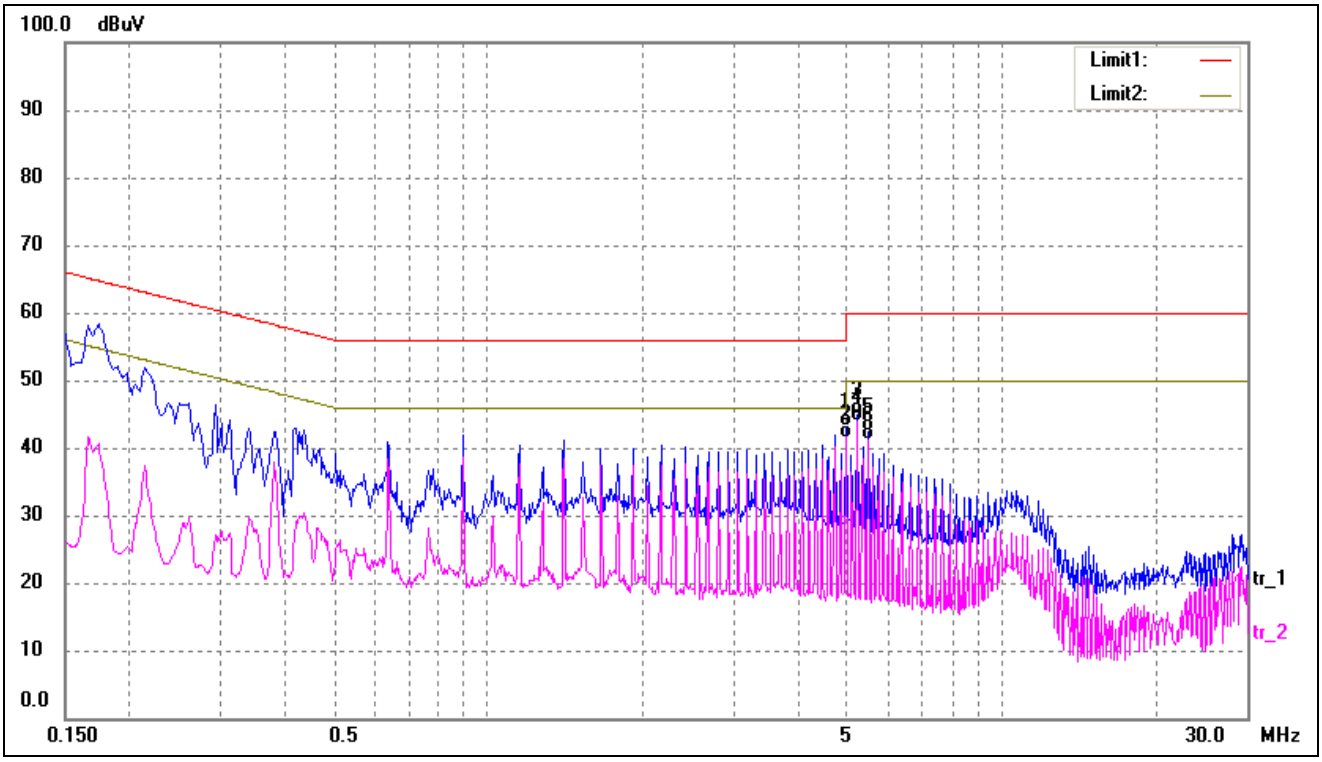
Start Frequency ..... 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed ..... Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 9 kHz
Quasi-Peak Adapter Mode ..... Normal

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:

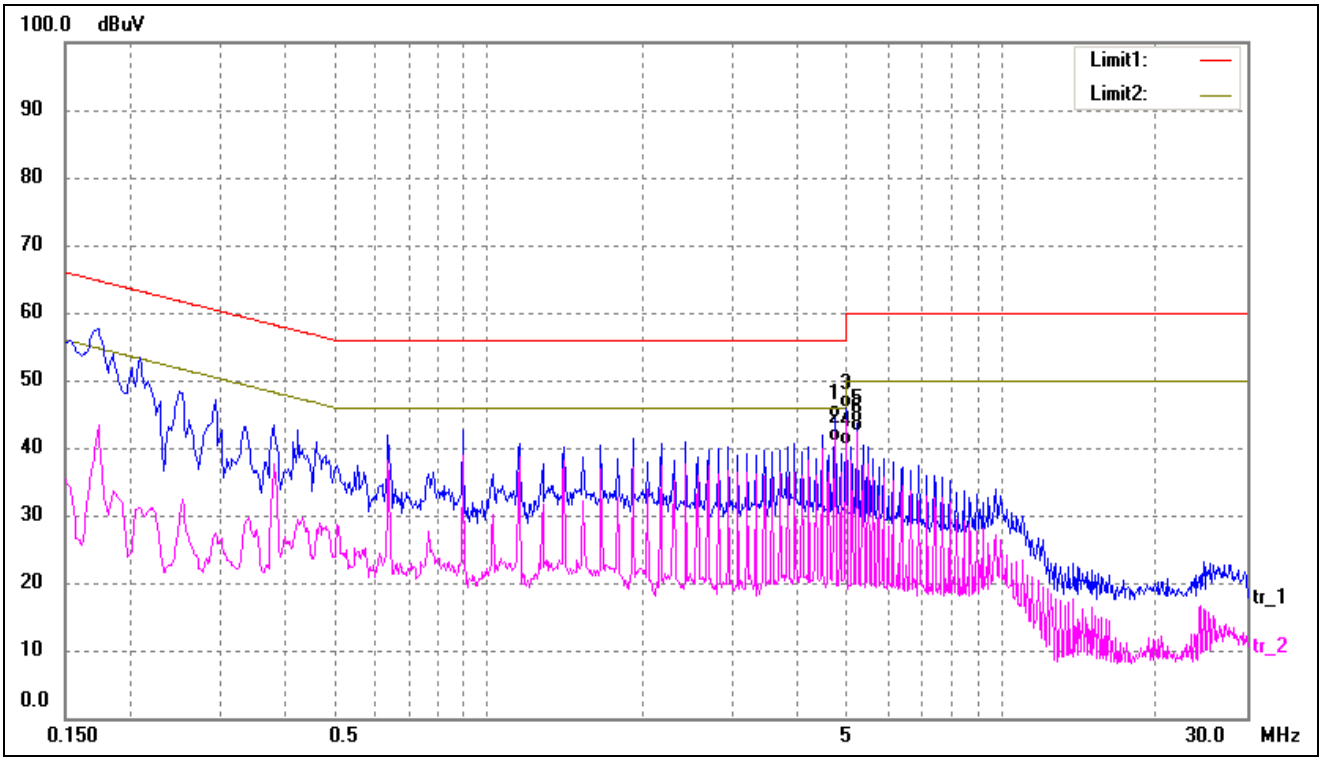
-4.69dB at **4.9820 MHz** in the **Line**, **AVG** detector, **TM1** detector, **0.15-30MHz**

Test mode:	TM1	Polarity:	Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	4.9820	32.70	10.38	43.08	56.00	-12.92	QP
2*	4.9820	30.93	10.38	41.31	46.00	-4.69	AVG
3	5.2340	34.44	10.40	44.84	60.00	-15.16	QP
4	5.2340	33.45	10.40	43.85	50.00	-6.15	AVG
5	5.4899	32.07	10.41	42.48	60.00	-17.52	QP
6	5.4899	30.83	10.41	41.24	50.00	-8.76	AVG

Test mode:	TM1	Polarity:	Neutral

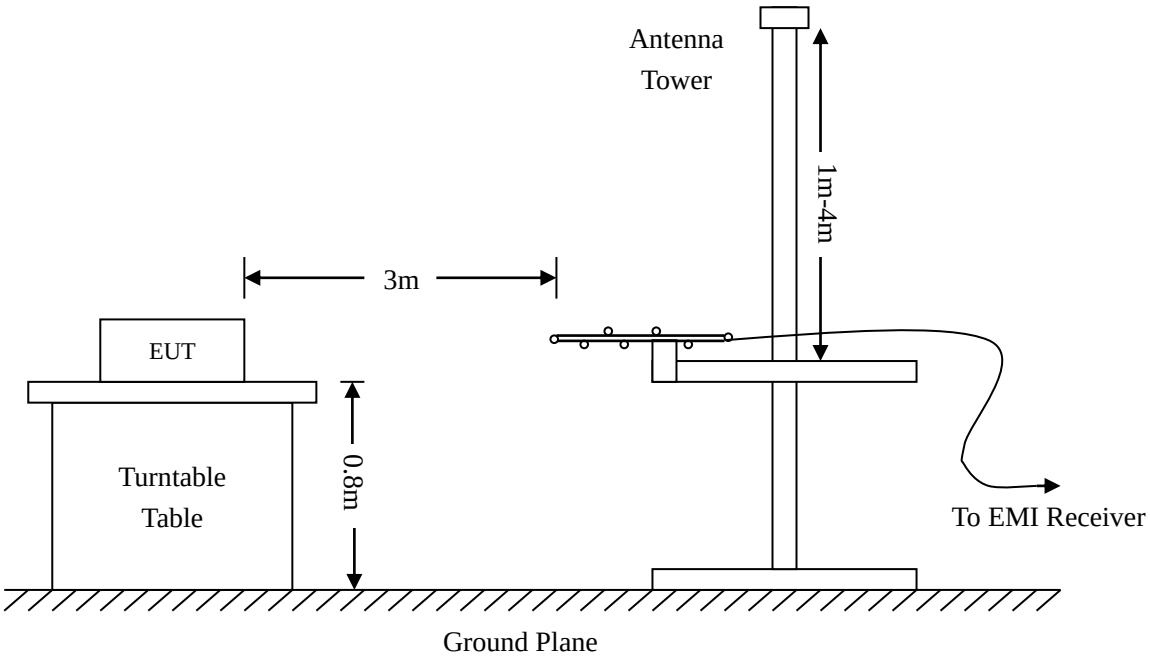


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	4.7260	33.90	10.36	44.26	56.00	-11.74	QP
2*	4.7260	30.52	10.36	40.88	46.00	-5.12	AVG
3	4.9820	35.53	10.38	45.91	56.00	-10.09	QP
4	4.9820	29.93	10.38	40.31	46.00	-5.69	AVG
5	5.2340	33.29	10.40	43.69	60.00	-16.31	QP
6	5.2340	32.10	10.40	42.50	50.00	-7.50	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.



4.2 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	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:

Corr. Ampl. = Indicated Reading – Corr. Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Any non-ISM frequency device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 18.305 Limit

4.4 Environmental Conditions

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

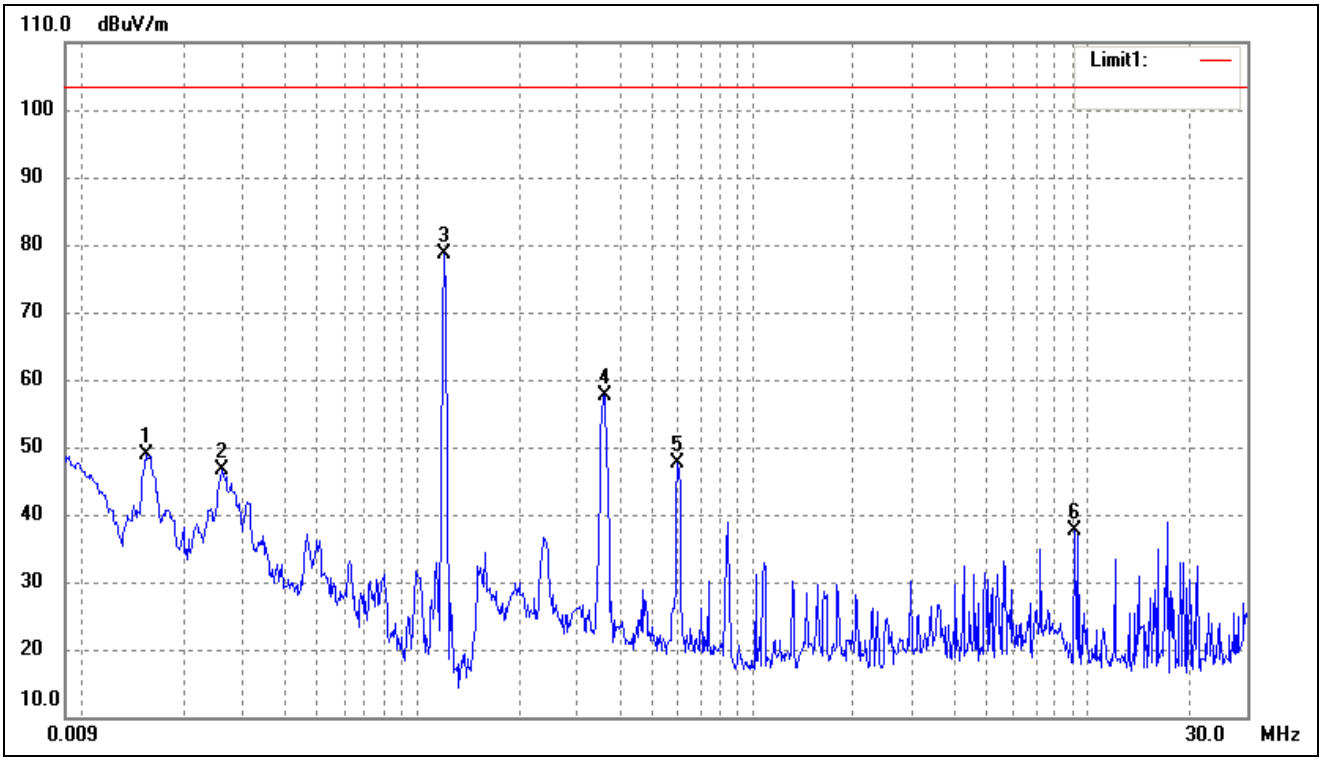
4.5 Summary of Test Results/Plots

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

-15.40 dB at **45.6948 MHz** in the **Vertical** polarization, **TM1** mode, **3Meters**

Plot of Radiated Emissions Test Data (Below 30MHz)

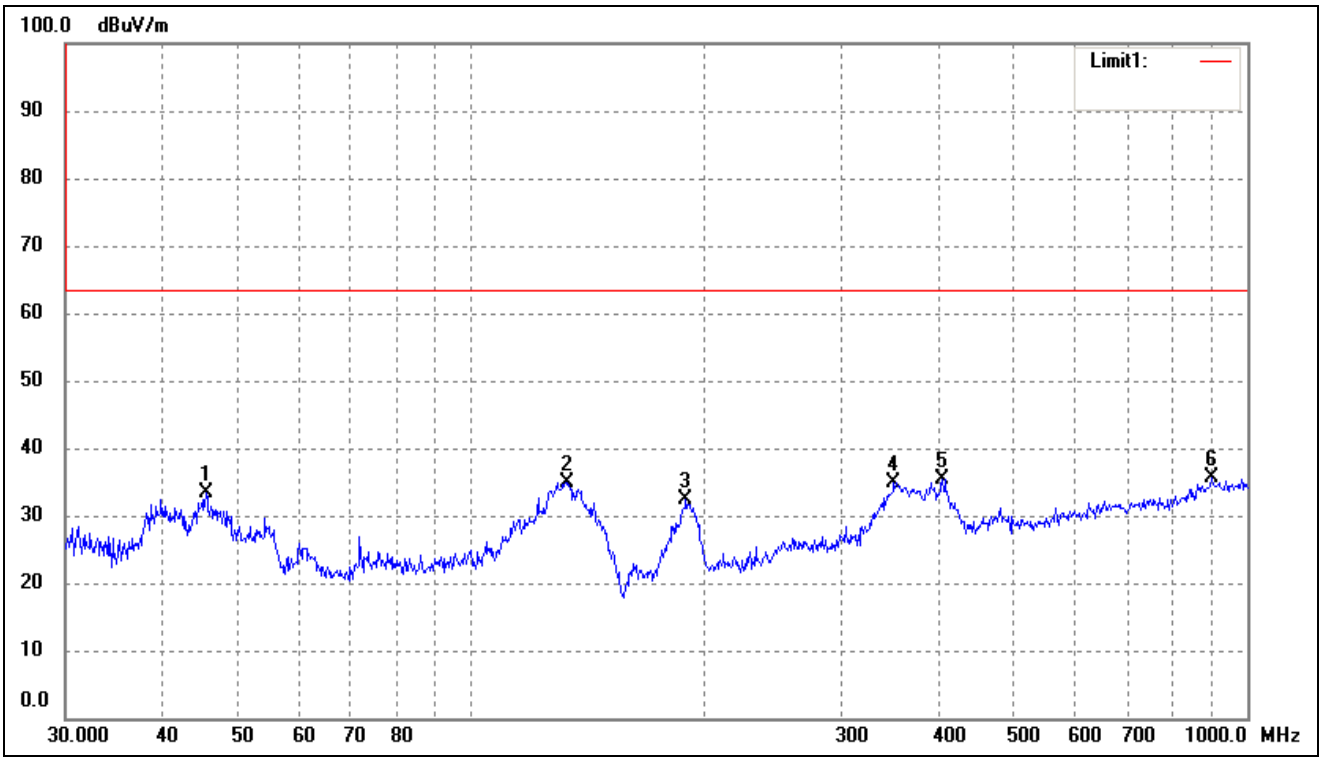
Test mode:	TM1	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0155	76.32	-27.49	48.83	103.50	-54.67	-	-	peak
2	0.0260	73.86	-27.35	46.51	103.50	-56.99	-	-	peak
3	0.1198	105.18	-26.61	78.57	103.50	-24.93	-	-	peak
4	0.3596	86.49	-28.90	57.59	103.50	-45.91	-	-	peak
5	0.5979	76.40	-28.84	47.56	103.50	-55.94	-	-	peak
6	9.1073	63.41	-25.82	37.59	103.50	-65.91	-	-	peak

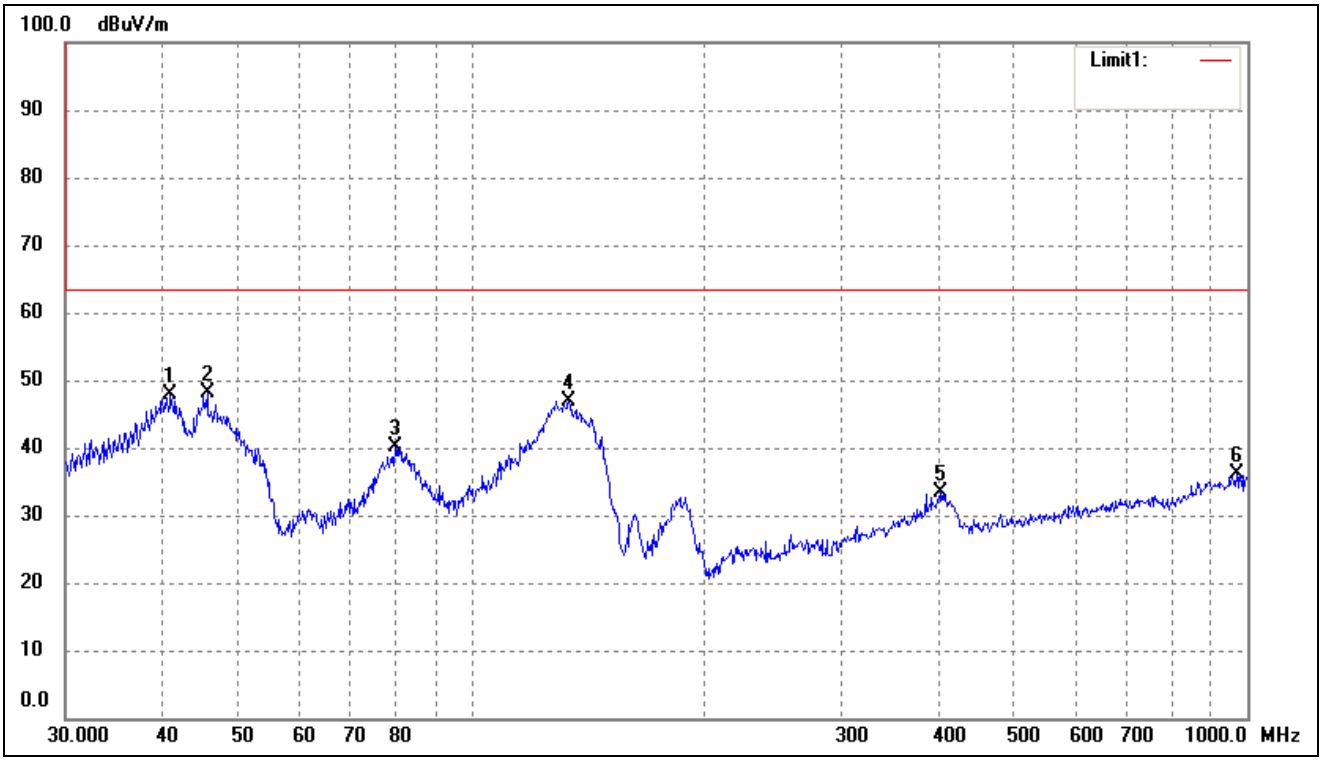
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	45.5348	45.18	-11.77	33.41	63.50	-30.09	-	-	peak
2	133.1511	51.68	-16.73	34.95	63.50	-28.55	-	-	peak
3	189.0743	45.67	-13.22	32.45	63.50	-31.05	-	-	peak
4	350.4768	42.41	-7.43	34.98	63.50	-28.52	-	-	peak
5	404.6665	41.78	-6.36	35.42	63.50	-28.08	-	-	peak
6	900.1474	34.09	1.55	35.64	63.50	-27.86	-	-	peak

Test mode:	TM1	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	40.9881	59.73	-11.95	47.78	63.50	-15.72	-	-	peak
2	45.6948	59.86	-11.76	48.10	63.50	-15.40	-	-	peak
3	79.8003	56.89	-16.77	40.12	63.50	-23.38	-	-	peak
4	133.6188	63.61	-16.70	46.91	63.50	-16.59	-	-	peak
5	403.2500	39.89	-6.39	33.50	63.50	-30.00	-	-	peak
6	968.9338	34.60	1.45	36.05	63.50	-27.45	-	-	peak

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 *******