



# 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-WPC20-1XINB**

<b>Test Rule(s):</b>	<u>FCC Part 18</u>
<b>Product Description:</b>	<u>Wireless charger</u>
<b>Tested Model:</b>	<u>WPC20-1XINB</u>
<b>Report No.:</b>	<u>WTX20X05032393W-1</u>
<b>Sample Receipt Date:</b>	<u>May.29, 2020</u>
<b>Tested Date:</b>	<u>May.29, 2020 to Jun.15, 2020</u>
<b>Issued Date:</b>	<u>Jun.15, 2020</u>
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Waltek Testing Group (Shenzhen) Co., Ltd.



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## Report version

Version No.	Date of issue	Description
Rev.00	Jun.15, 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: SuiChuan CE LINK LIMITED  
 Address of factory: SuiChuan county industrial park east zone,  
 Ji'an city, Jiangxi province, China.

<b>General Description of EUT</b>	
Product Name:	Wireless charger
Trade Name:	CE-LINK
Model No.:	WPC20-1XINB
Adding Model(s):	/
Adapter	A481-1204000U Input: AC100-240V~50/60Hz, 1.5A; Output: DC12V, 4000mA
<b>Technical Characteristics of EUT</b>	
Frequency Range:	110~205kHz
Antenna Type:	Coil Antenna
Rated Voltage/ Current Output:	USBA/Type-C Output: 5.0V 3A or 9.0V 2A or 12V 1.5A USBA + Type-C Output: 15W total
Wireless Rated Power:	Wireless Output1: 5.0V 1A or 9.0V 1.1A    5W or 10W Wireless Output2: 5.0V 1A or 9.0V 1.1A    5W or 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

### Address of the test laboratory

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 DC12V/4A; Output 1:DC5V/1A And Output 2:DC5V1A
TM2	Wireless Charging	/	Input DC12V/4A; Output 1:DC9V/1.1A And Output 2:DC9V1.1A

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 ± 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

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<b>FCC RULES</b>	<b>DESCRIPTION OF TEST</b>	<b>RESULT</b>
§ 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

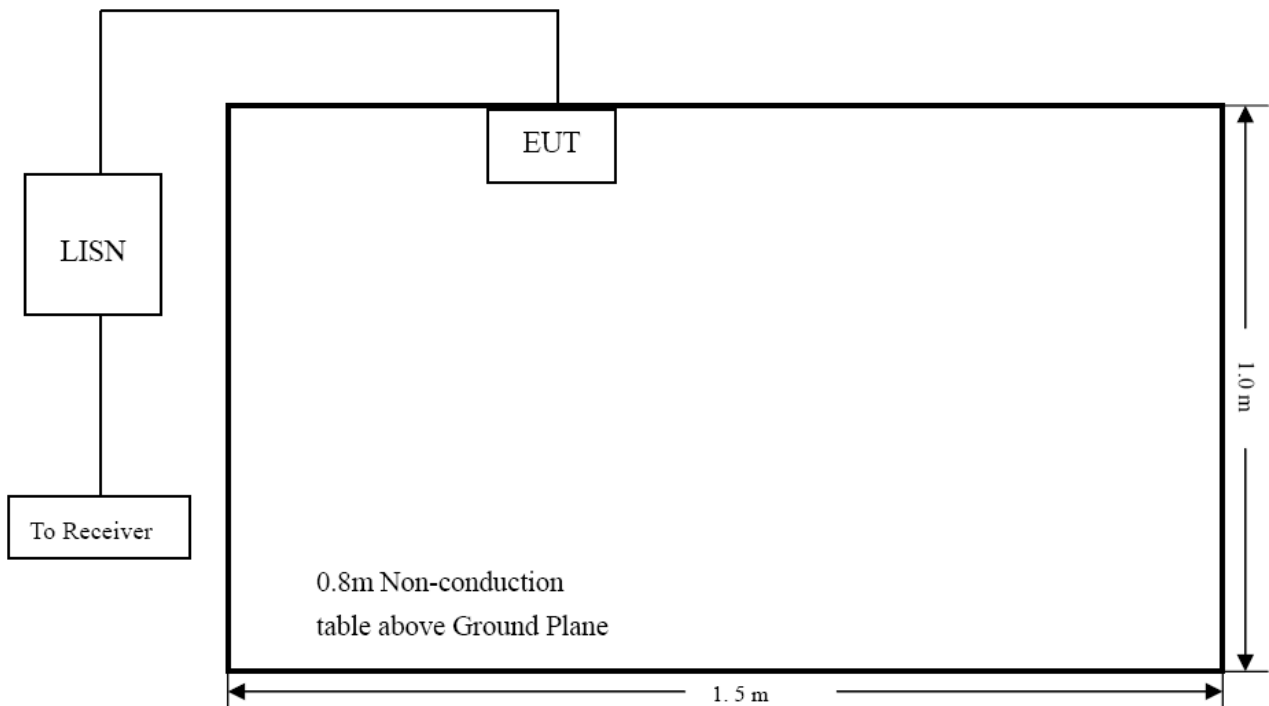
#### 3.2 Test Procedure

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

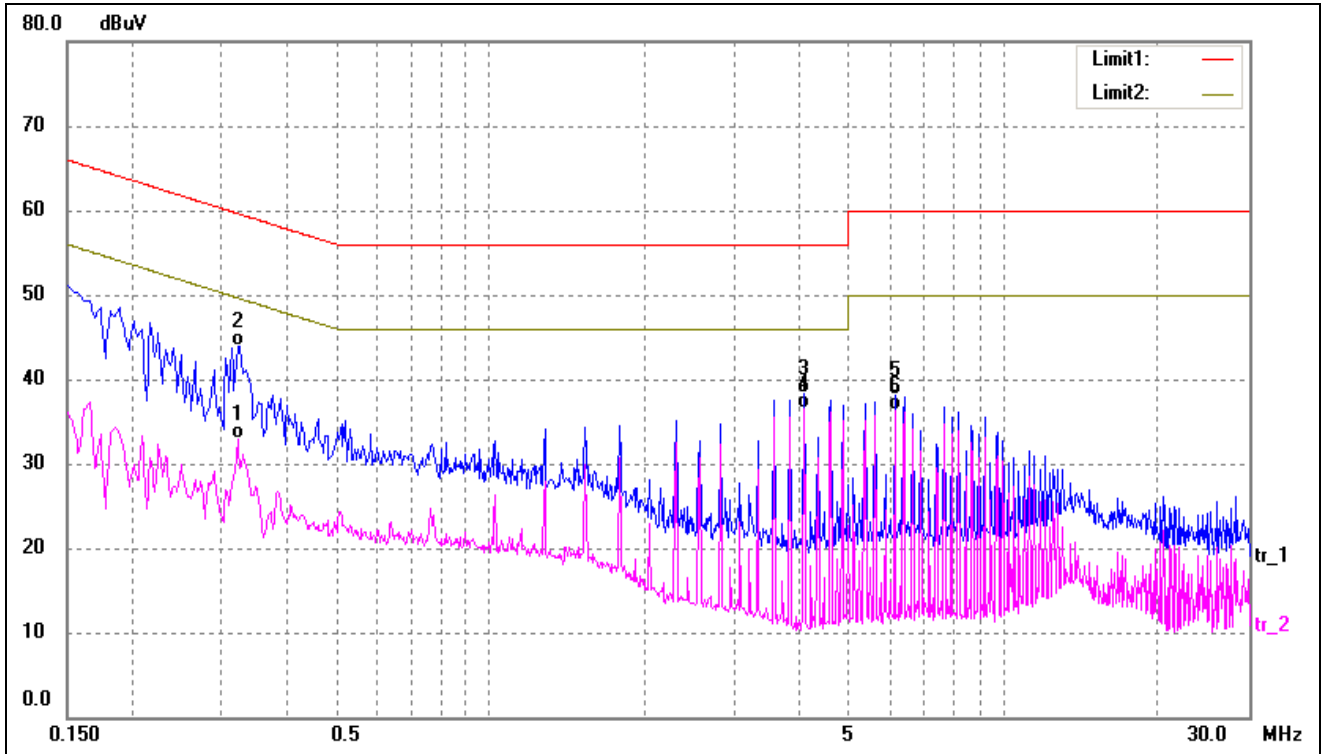
### 3.6 Summary of Test Results/Plots

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:

**-6.57dB at 4.0860 MHz in the Line, AVG detector, TM2 detector, 0.15-30MHz**



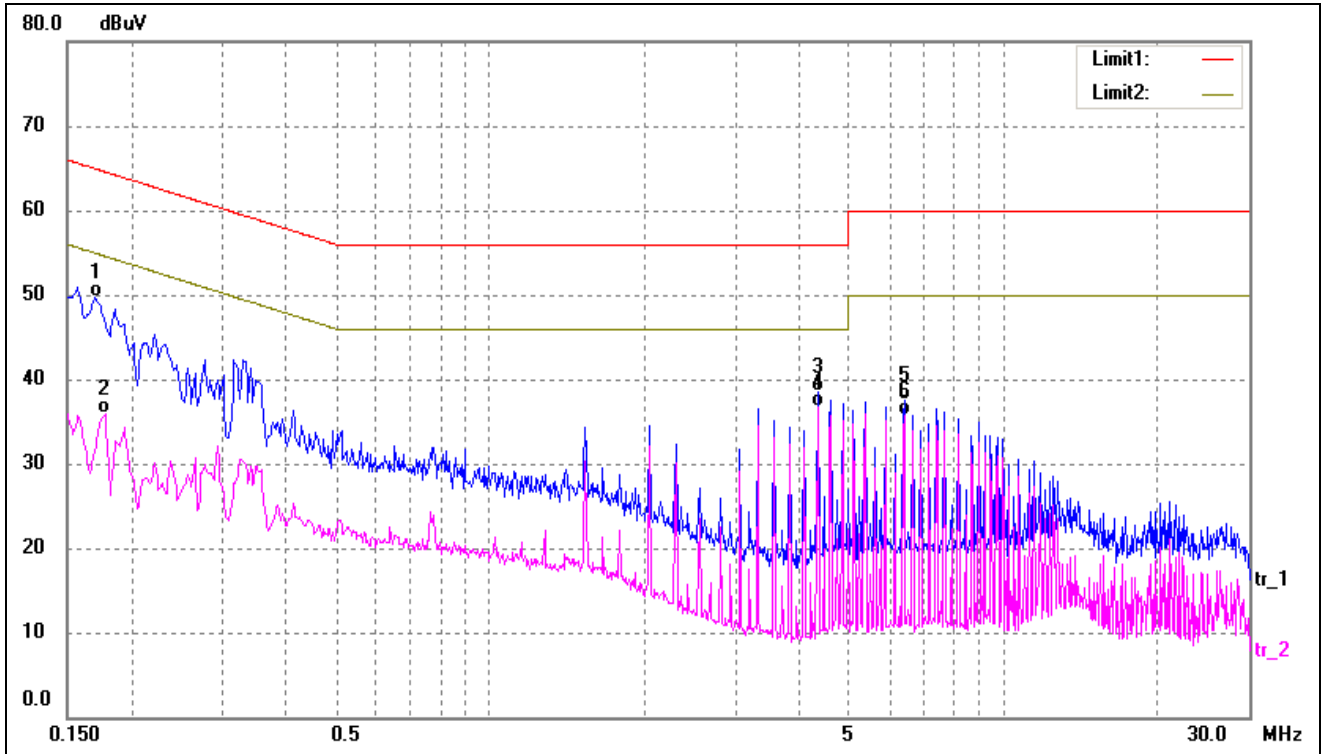
Test mode:	TM1	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3220	22.99	10.01	33.00	49.66	-16.66	AVG
2	0.3260	33.91	10.02	43.93	59.55	-15.62	QP
3	4.0860	28.06	10.31	38.37	56.00	-17.63	QP
4*	4.0860	26.20	10.31	36.51	46.00	-9.49	AVG
5	6.1300	27.72	10.46	38.18	60.00	-21.82	QP
6	6.1300	25.89	10.46	36.35	50.00	-13.65	AVG



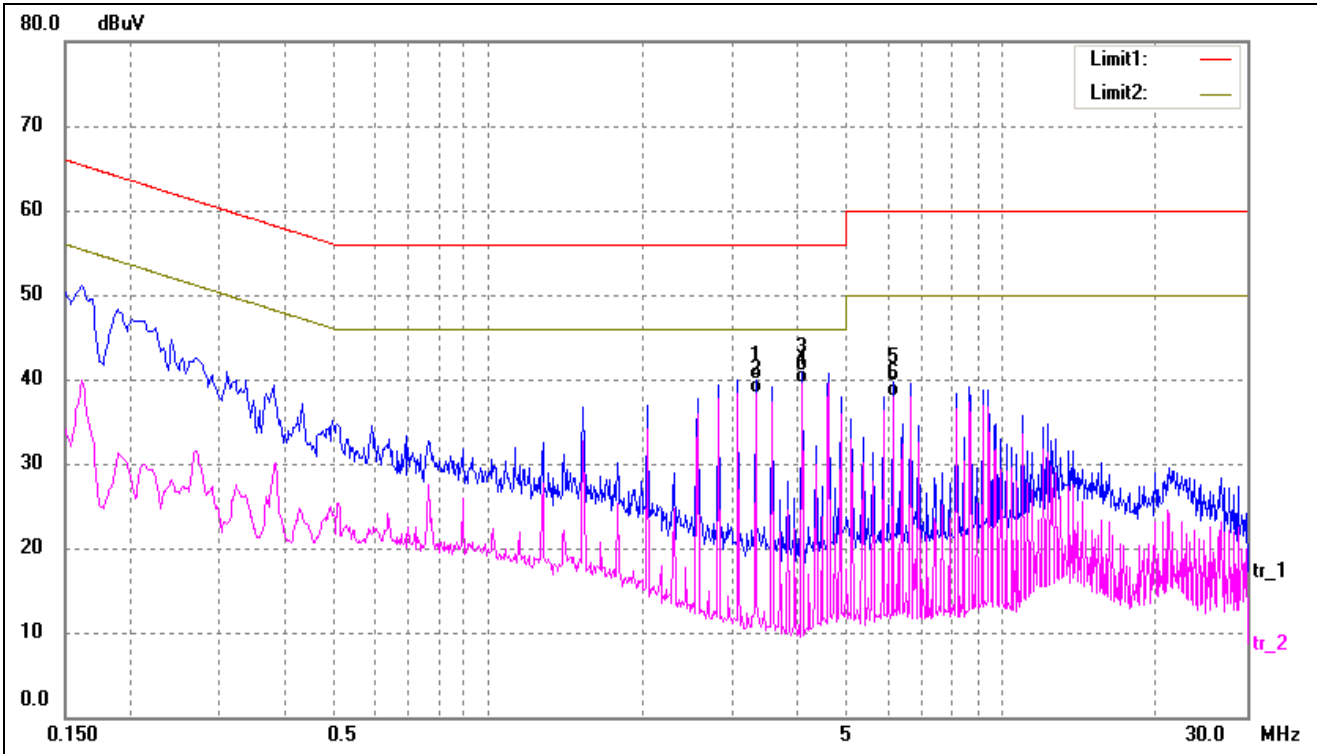
Test mode:	TM1	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1700	39.69	9.95	49.64	64.96	-15.32	QP
2	0.1780	25.90	9.96	35.86	54.58	-18.72	AVG
3	4.3420	28.27	10.33	38.60	56.00	-17.40	QP
4*	4.3420	26.47	10.33	36.80	46.00	-9.20	AVG
5	6.3860	26.98	10.48	37.46	60.00	-22.54	QP
6	6.3860	25.24	10.48	35.72	50.00	-14.28	AVG



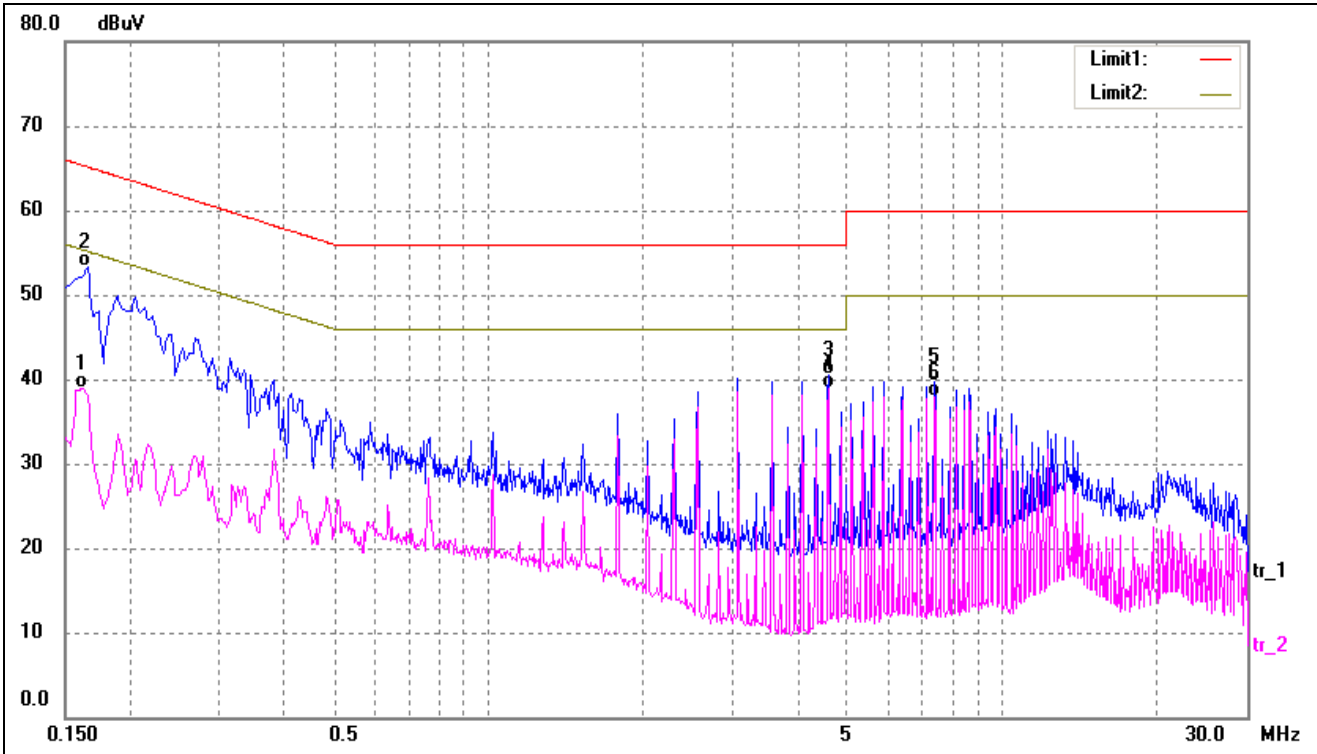
Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	3.3220	29.52	10.36	39.88	56.00	-16.12	QP
2	3.3220	28.04	10.36	38.40	46.00	-7.60	AVG
3	4.0860	30.63	10.31	40.94	56.00	-15.06	QP
4*	4.0860	29.12	10.31	39.43	46.00	-6.57	AVG
5	6.1300	29.18	10.46	39.64	60.00	-20.36	QP
6	6.1300	27.49	10.46	37.95	50.00	-12.05	AVG



Test mode:	TM2	Polarity:	Neutral
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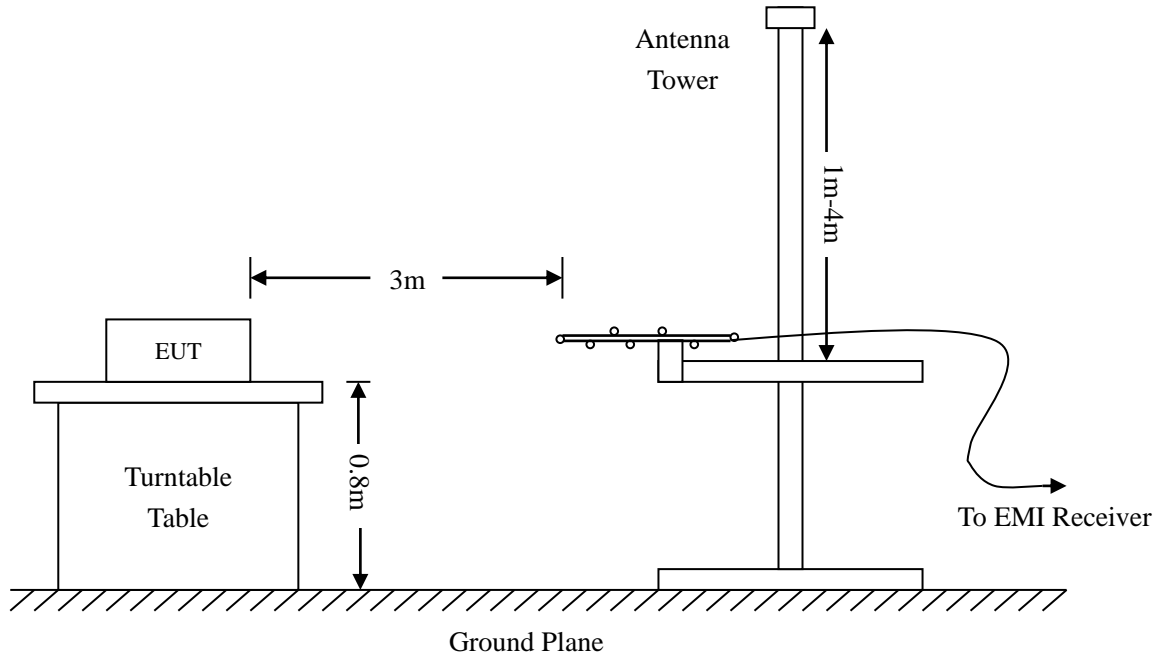
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1620	28.96	9.95	38.91	55.36	-16.45	AVG
2	0.1660	43.37	9.95	53.32	65.16	-11.84	QP
3	4.5980	30.14	10.35	40.49	56.00	-15.51	QP
4*	4.5980	28.56	10.35	38.91	46.00	-7.09	AVG
5	7.4060	29.10	10.52	39.62	60.00	-20.38	QP
6	7.4060	27.33	10.52	37.85	50.00	-12.15	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  
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:



Margin = Corr. Ampl. – FCC Part 18.305 Limit

#### 4.4 Environmental Conditions

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

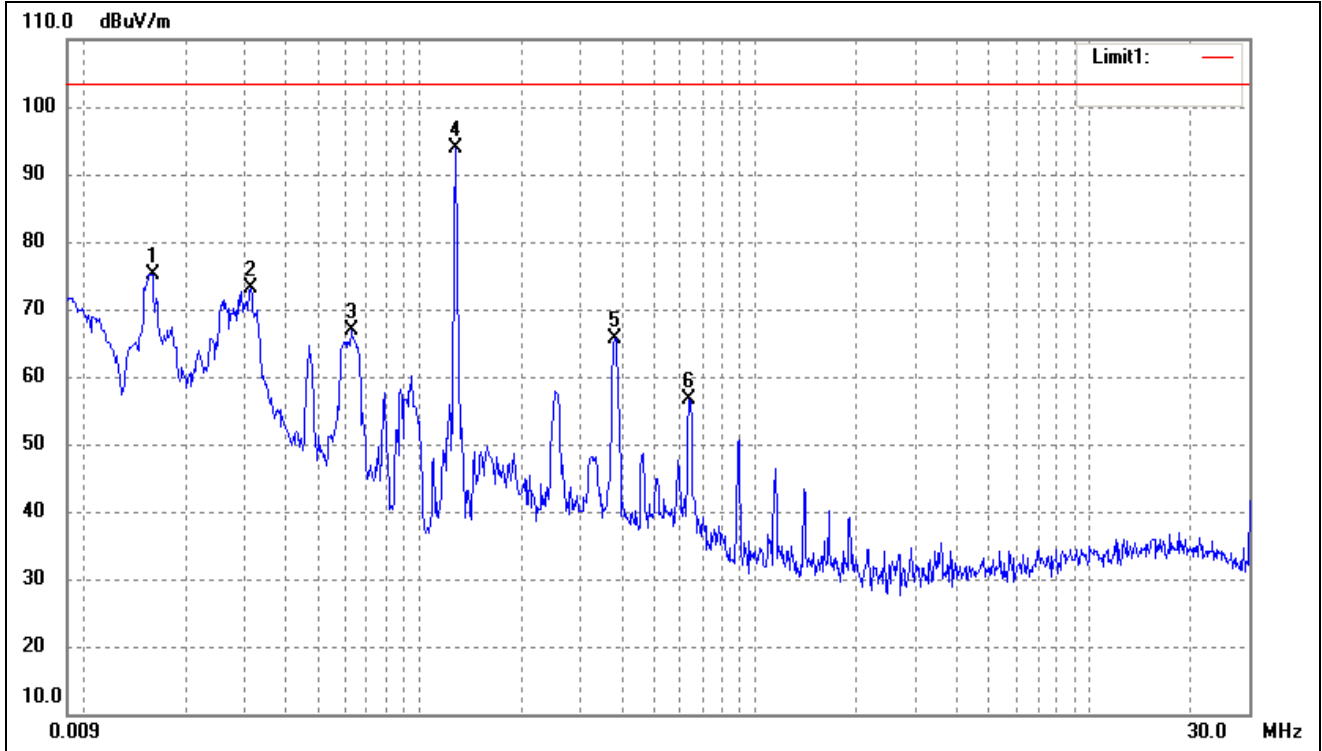
#### 4.5 Summary of Test Results/Plots





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

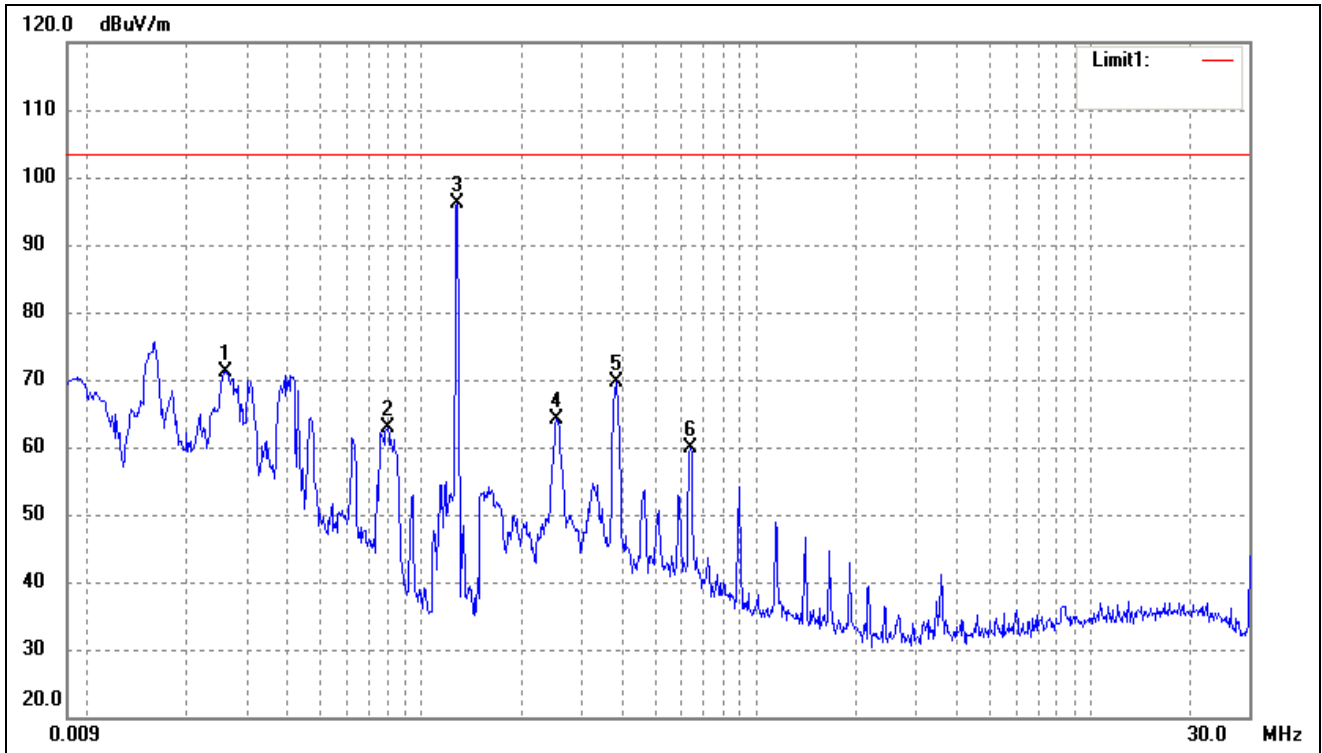
Test mode:	TM1	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	0.0161	81.79	-6.64	75.15	103.50	-28.35	-	-	peak
2	0.0313	79.25	-6.03	73.22	103.50	-30.28	-	-	peak
3	0.0625	71.90	-5.01	66.89	103.50	-36.61	-	-	peak
4	0.1278	99.07	-5.13	93.94	103.50	-9.56	-	-	peak
5	0.3811	73.46	-7.83	65.63	103.50	-37.87	-	-	peak
6	0.6372	63.61	-7.03	56.58	103.50	-46.92	-	-	peak



Test mode:	TM2	Polarity:	Horizontal
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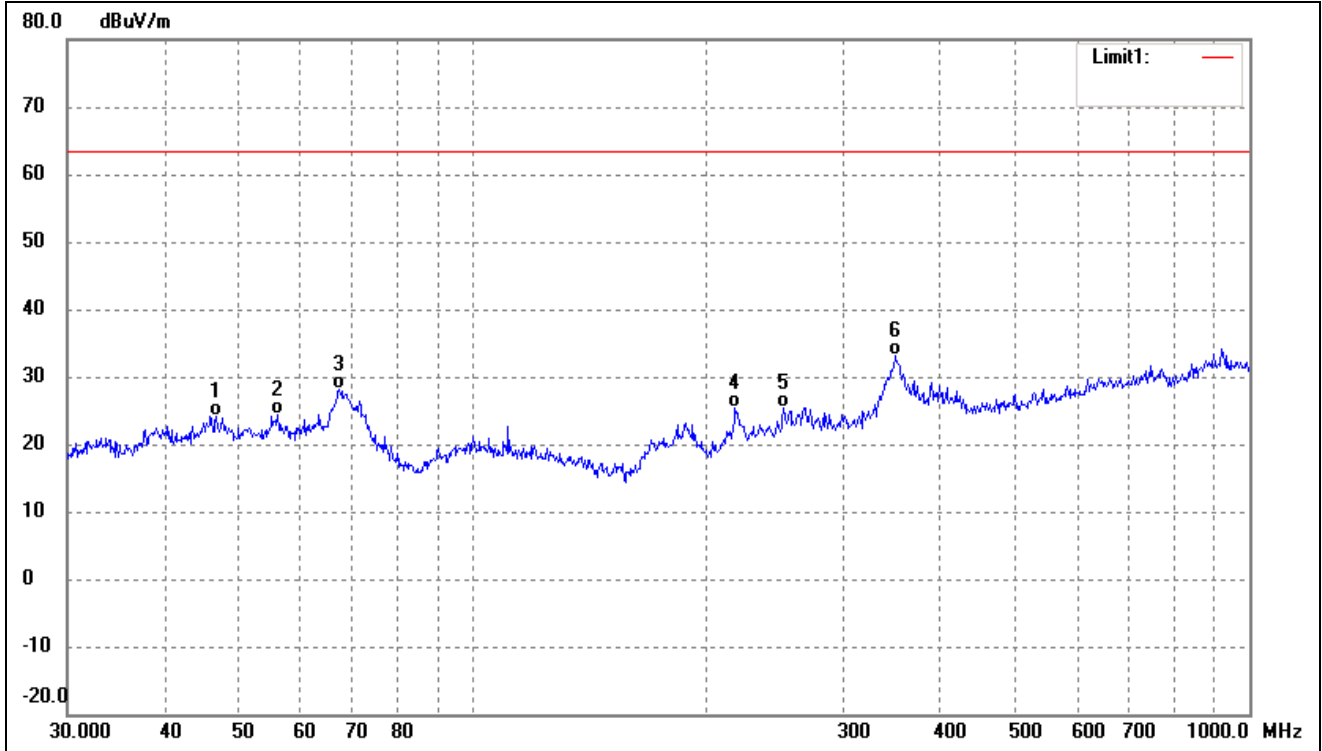


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	0.0262	77.64	-6.40	71.24	103.50	-32.26	-	-	peak
2	0.0792	68.05	-5.25	62.80	103.50	-40.70	-	-	peak
3	0.1285	101.38	-5.13	96.25	103.50	-7.25	-	-	peak
4	0.2548	71.63	-7.42	64.21	103.50	-39.29	-	-	peak
5	0.3832	77.37	-7.83	69.54	103.50	-33.96	-	-	peak
6	0.6372	67.00	-7.03	59.97	103.50	-43.53	-	-	peak



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

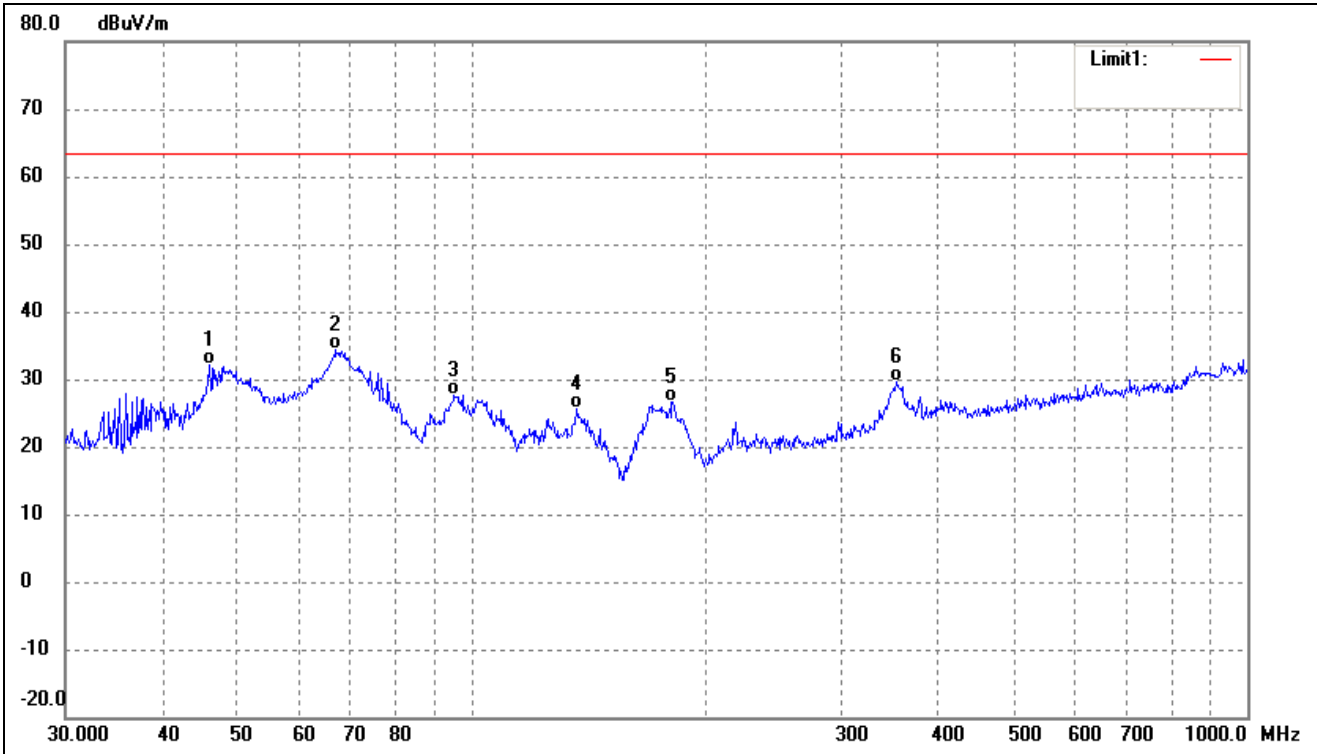
Test mode:	TM1	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	46.6664	35.79	-11.71	24.08	63.50	-39.42	-	-	QP
2	56.0007	37.24	-12.95	24.29	63.50	-39.21	-	-	QP
3	67.2022	42.42	-14.23	28.19	63.50	-35.31	-	-	QP
4	217.5443	37.53	-12.22	25.31	63.50	-38.19	-	-	QP
5	251.1804	36.37	-10.92	25.45	63.50	-38.05	-	-	QP
6	349.2500	40.48	-7.47	33.01	63.50	-30.49	-	-	QP



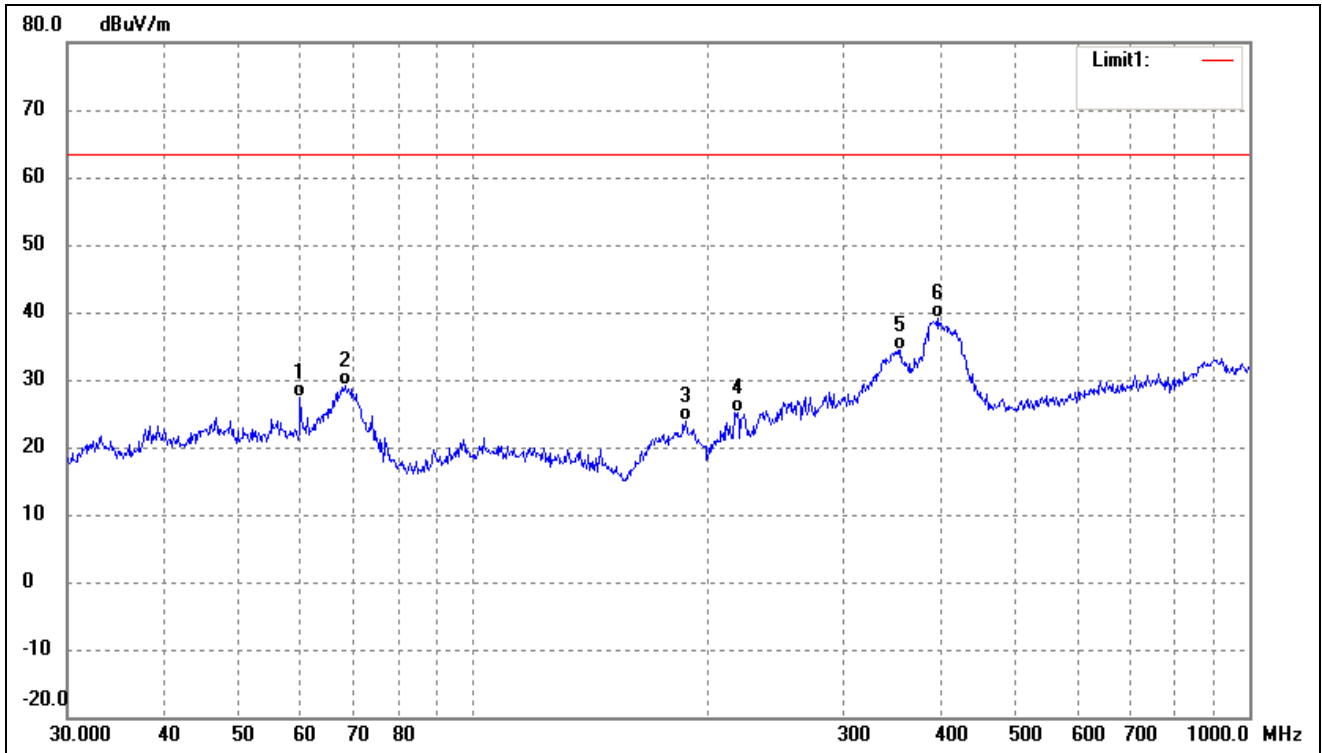
Test mode:	TM1	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	46.0164	43.95	-11.74	32.21	63.50	-31.29	-	-	QP
2	66.9669	48.61	-14.20	34.41	63.50	-29.09	-	-	QP
3	95.0930	41.75	-14.13	27.62	63.50	-35.88	-	-	QP
4	136.9392	42.13	-16.46	25.67	63.50	-37.83	-	-	QP
5	181.2834	40.84	-14.16	26.68	63.50	-36.82	-	-	QP
6	352.9434	36.95	-7.40	29.55	63.50	-33.95	-	-	QP



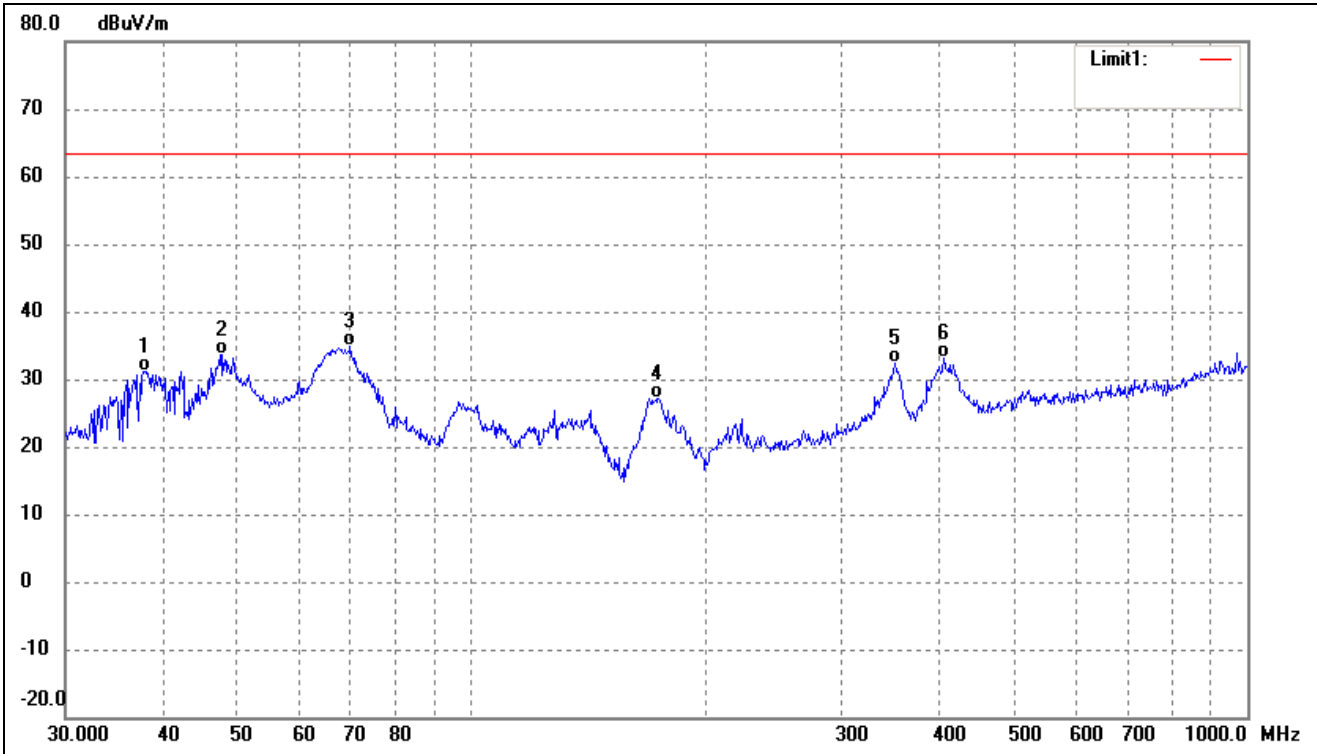
Test mode:	TM2	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	59.8588	40.46	-12.99	27.47	63.50	-36.03	-	-	QP
2	68.3908	43.56	-14.41	29.15	63.50	-34.35	-	-	QP
3	187.7530	37.19	-13.39	23.80	63.50	-39.70	-	-	QP
4	219.0753	37.37	-12.20	25.17	63.50	-38.33	-	-	QP
5	355.4273	41.82	-7.38	34.44	63.50	-29.06	-	-	QP
6	397.6334	45.73	-6.53	39.20	63.50	-24.30	-	-	QP



Test mode:	TM2	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	37.9450	44.01	-12.76	31.25	63.50	-32.25	-	-	QP
2	47.8260	45.38	-11.64	33.74	63.50	-29.76	-	-	QP
3	69.8450	49.48	-14.61	34.87	63.50	-28.63	-	-	QP
4	173.2051	41.89	-14.79	27.10	63.50	-36.40	-	-	QP
5	351.7079	39.72	-7.41	32.31	63.50	-31.19	-	-	QP
6	406.0880	39.52	-6.31	33.21	63.50	-30.29	-	-	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 \*\*\*\*\***