



# 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-WPC15-1TJNB**

<b>Test Rule(s):</b>	<u>FCC Part 18</u>
<b>Product Description:</b>	<u>Wireless Charger</u>
<b>Tested Model:</b>	<u>WPC15-1TJNB</u>
<b>Report No.:</b>	<u>WTX20X05026945W-1</u>
<b>Sample Receipt Date:</b>	<u>May.13, 2020</u>
<b>Tested Date:</b>	<u>May.13, 2020 to Jun.09, 2020</u>
<b>Issued Date:</b>	<u>Jun.09, 2020</u>
<b>Tested By:</b>	<u>Jason Su / Engineer</u>
<b>Reviewed By:</b>	<u>Lion Cai / RF Manager</u>
<b>Approved &amp; Authorized By:</b>	<u>Silin Chen / Manager</u>
<b>Prepared By:</b>	

*Jason Su*

*Lion Cai*

*Silin Chen*

**Waltek Testing Group (Shenzhen) Co., Ltd.**

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 Website: www.semtest.com.cn

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.



**TABLE OF CONTENTS**

**1. GENERAL INFORMATION.....4**

- 1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....4
- 1.2 TEST STANDARDS.....5
- 1.3 TEST METHODOLOGY.....5
- 1.4 TEST FACILITY.....5
- 1.5 EUT SETUP AND OPERATION MODE.....6
- 1.6 MEASUREMENT UNCERTAINTY.....6
- 1.7 TEST EQUIPMENT LIST AND DETAILS.....7

**2. SUMMARY OF TEST RESULTS.....8**

**3. CONDUCTED EMISSIONS.....9**

- 3.1 STANDARD APPLICABLE.....9
- 3.2 TEST PROCEDURE.....9
- 3.3 BASIC TEST SETUP BLOCK DIAGRAM.....9
- 3.4 ENVIRONMENTAL CONDITIONS.....10
- 3.5 TEST RECEIVER SETUP.....10
- 3.6 SUMMARY OF TEST RESULTS/PLOTS.....10

**4. RADIATED EMISSIONS.....17**

- 4.1 TEST PROCEDURE.....17
- 4.2 TEST RECEIVER SETUP.....17
- 4.3 CORRECTED AMPLITUDE & MARGIN CALCULATION.....17
- 4.4 ENVIRONMENTAL CONDITIONS.....18
- 4.5 SUMMARY OF TEST RESULTS/PLOTS.....18



## Report version

Version No.	Date of issue	Description
Rev.00	Jun.09, 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

General Description of EUT	
Product Name:	Wireless Charger
Trade Name:	CE-LINK
Model No.:	WPC15-1TJNB
Adding Model(s):	B0872RLX6Z
Serial Number :	CE LINK_WPC15-1TJNB-20200600001
Firmware Version:	V1.0
Hardware Version:	V1.0
<p><i>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 WPC15-1TJNB, but the circuit and the electronic construction do not change, declared by the manufacturer.</i></p>	

Technical Characteristics of EUT	
Frequency Range:	110~150kHz
Antenna Type:	Coil Antenna
Rated Voltage:	DC5V / DC9V / DC12V
Rated Current:	1A / 1.1A / 1.25A
Rated Power:	5W / 10W / 15W

## 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	/	Input DC5V/2A; Output:DC5V/1A
TM2	Wireless Charging	/	Input DC9V/2A; Output:DC9V/1.1A
TM3	Wireless Charging	/	Input DC12V/1.5A; Output:DC12V/1.25A

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Power Port Speed	ANKER	A2025	/

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

---

<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

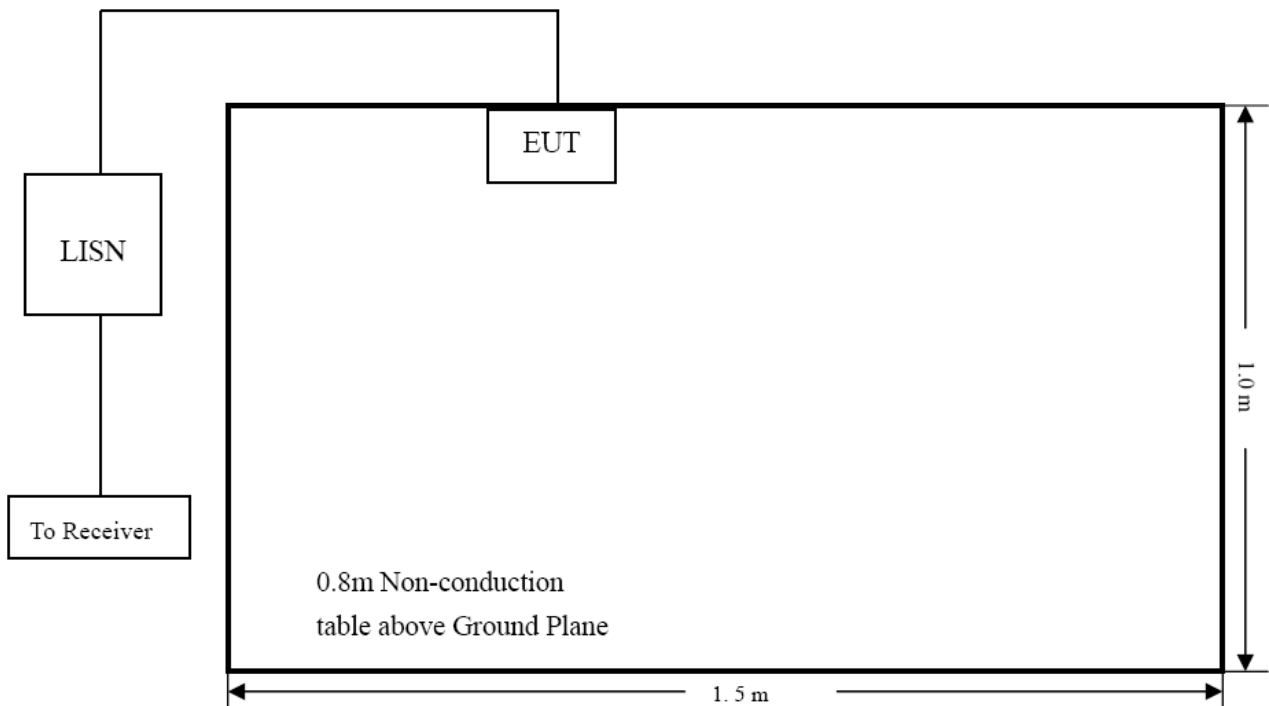
#### 3.2 Test Procedure

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

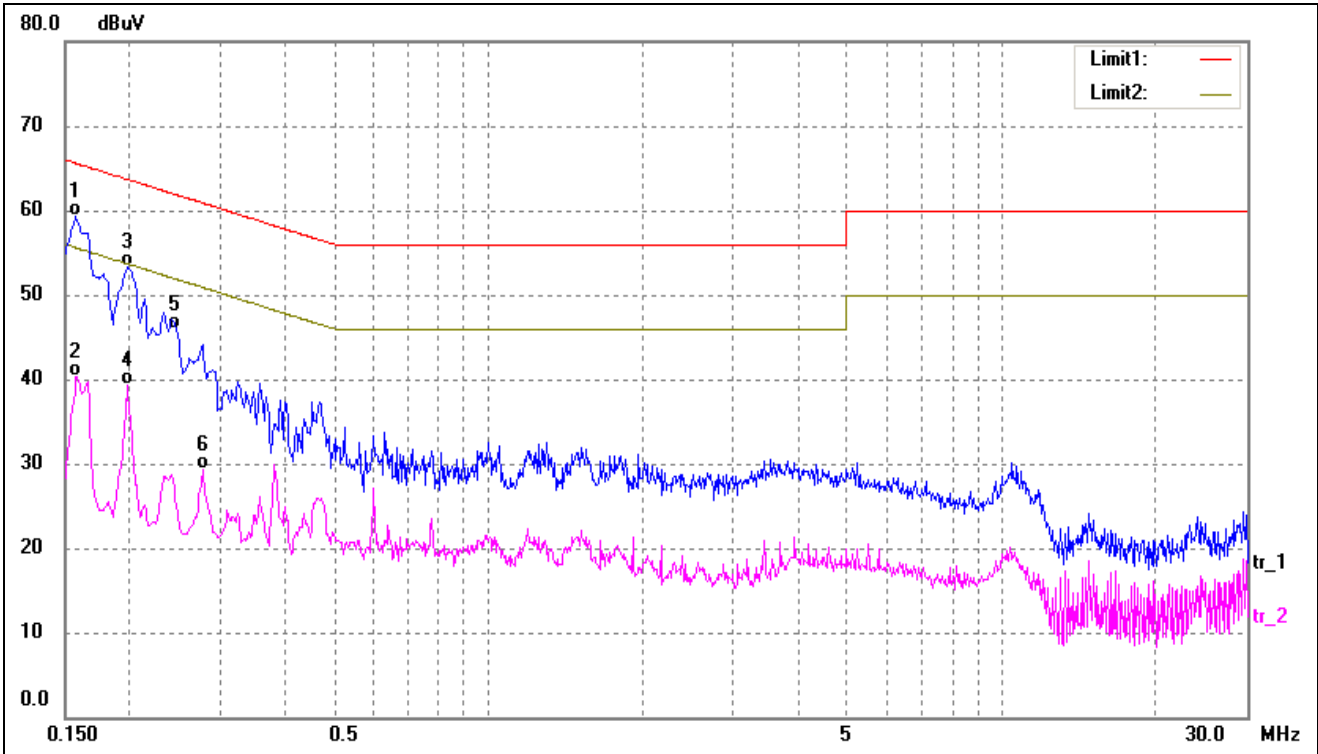
### 3.6 Summary of Test Results/Plots

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:

**-4.66 dB at 0.1780 MHz in the Line, QP detector, TM3 detector, 0.15-30MHz**



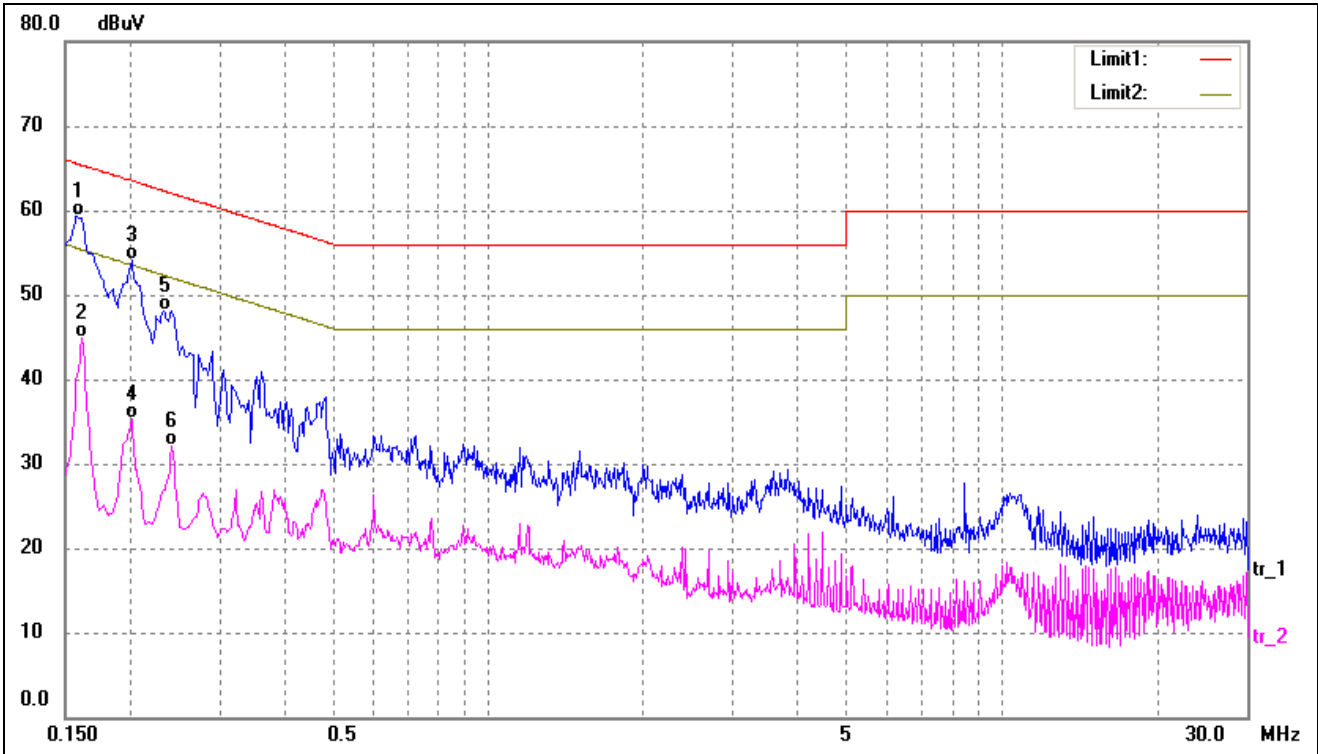
Test mode:	TM1	Polarity:	Line
------------	-----	-----------	------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1580	49.43	9.95	59.38	65.56	-6.18	QP
2	0.1580	30.35	9.95	40.30	55.56	-15.26	AVG
3	0.1980	43.40	9.97	53.37	63.69	-10.32	QP
4	0.1980	29.27	9.97	39.24	53.69	-14.45	AVG
5	0.2468	35.93	10.01	45.94	61.86	-15.92	QP
6	0.2779	19.20	10.01	29.21	50.88	-21.67	AVG



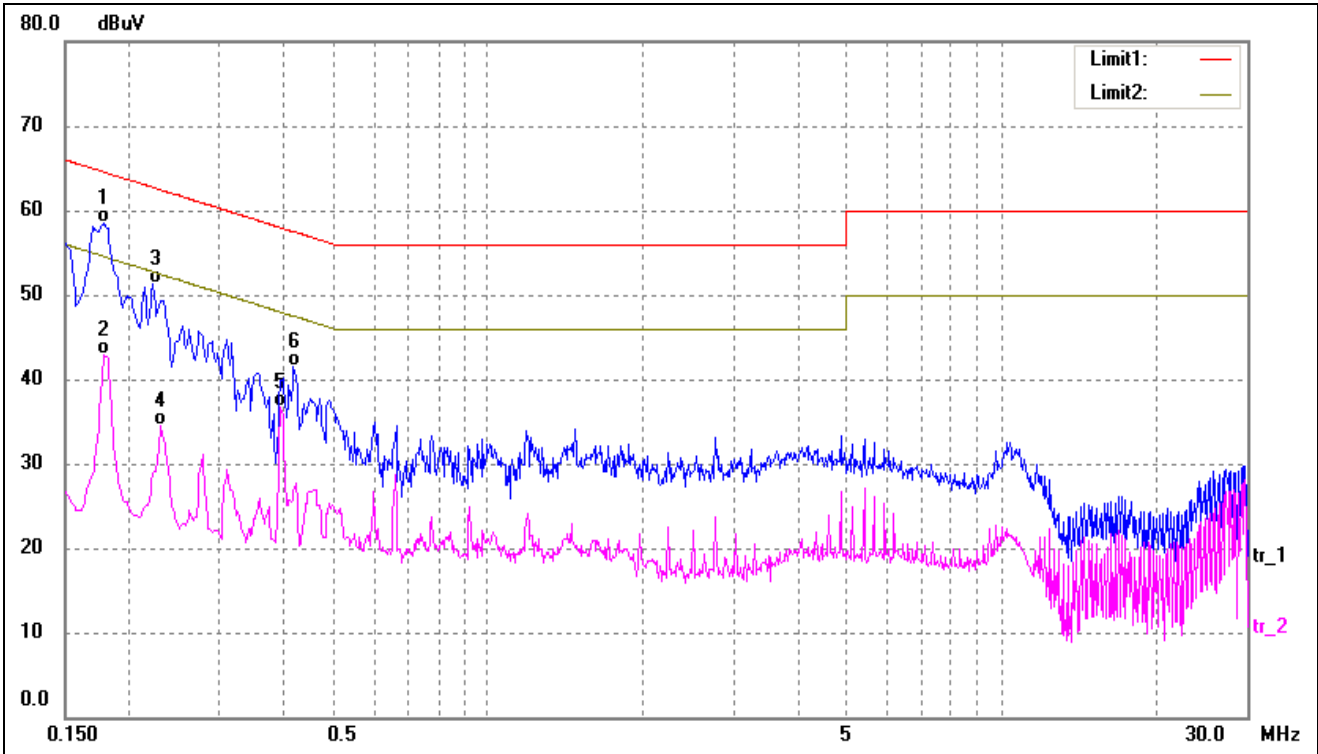
Test mode:	TM2	Polarity:	Neutral
------------	-----	-----------	---------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1580	49.31	9.95	59.26	65.56	-6.30	QP
2	0.1620	34.90	9.95	44.85	55.36	-10.51	AVG
3	0.2020	44.11	9.97	54.08	63.52	-9.44	QP
4	0.2020	25.39	9.97	35.36	53.52	-18.16	AVG
5	0.2340	38.18	10.00	48.18	62.30	-14.12	QP
6	0.2420	22.18	10.00	32.18	52.02	-19.84	AVG



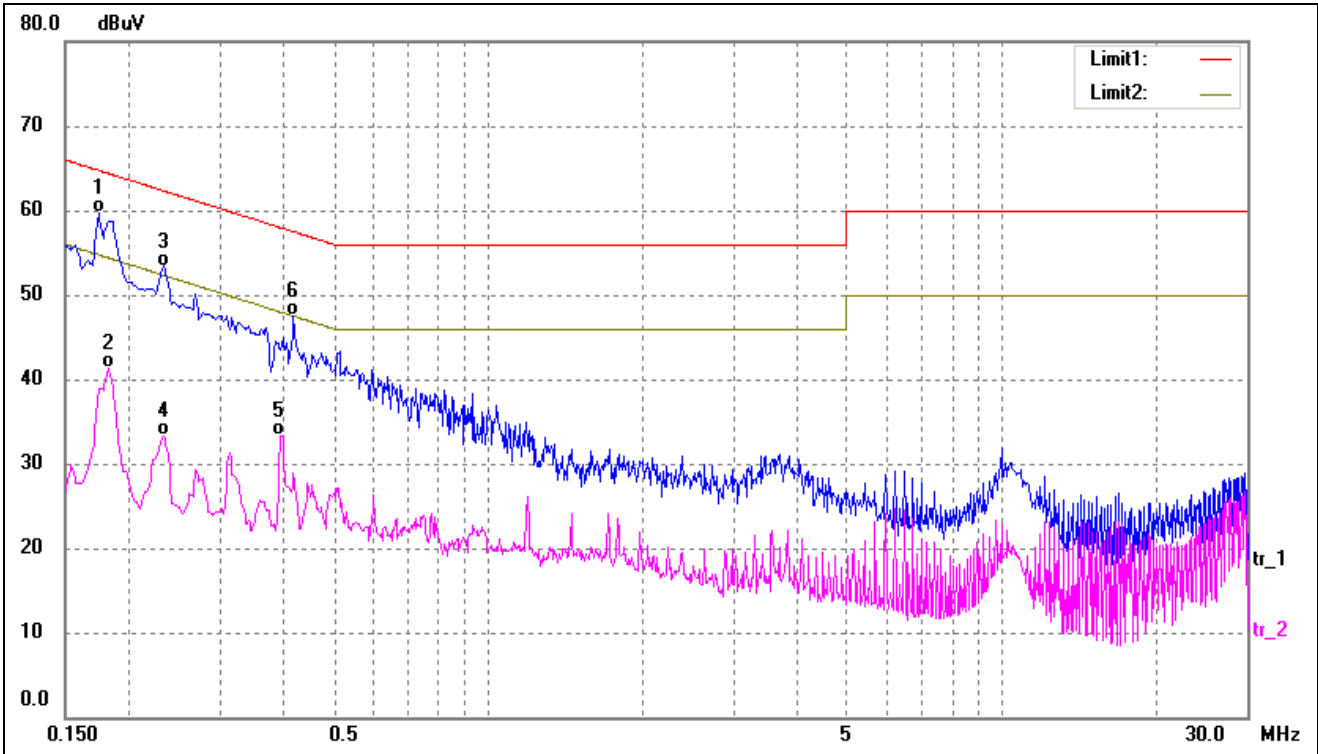
Test mode:	TM2	Polarity:	Line
------------	-----	-----------	------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1780	48.64	9.96	58.60	64.57	-5.97	QP
2	0.1780	32.92	9.96	42.88	54.57	-11.69	AVG
3	0.2220	41.36	9.99	51.35	62.74	-11.39	QP
4	0.2300	24.52	9.99	34.51	52.45	-17.94	AVG
5	0.3940	26.64	10.01	36.65	47.98	-11.33	AVG
6	0.4180	31.47	10.01	41.48	57.49	-16.01	QP



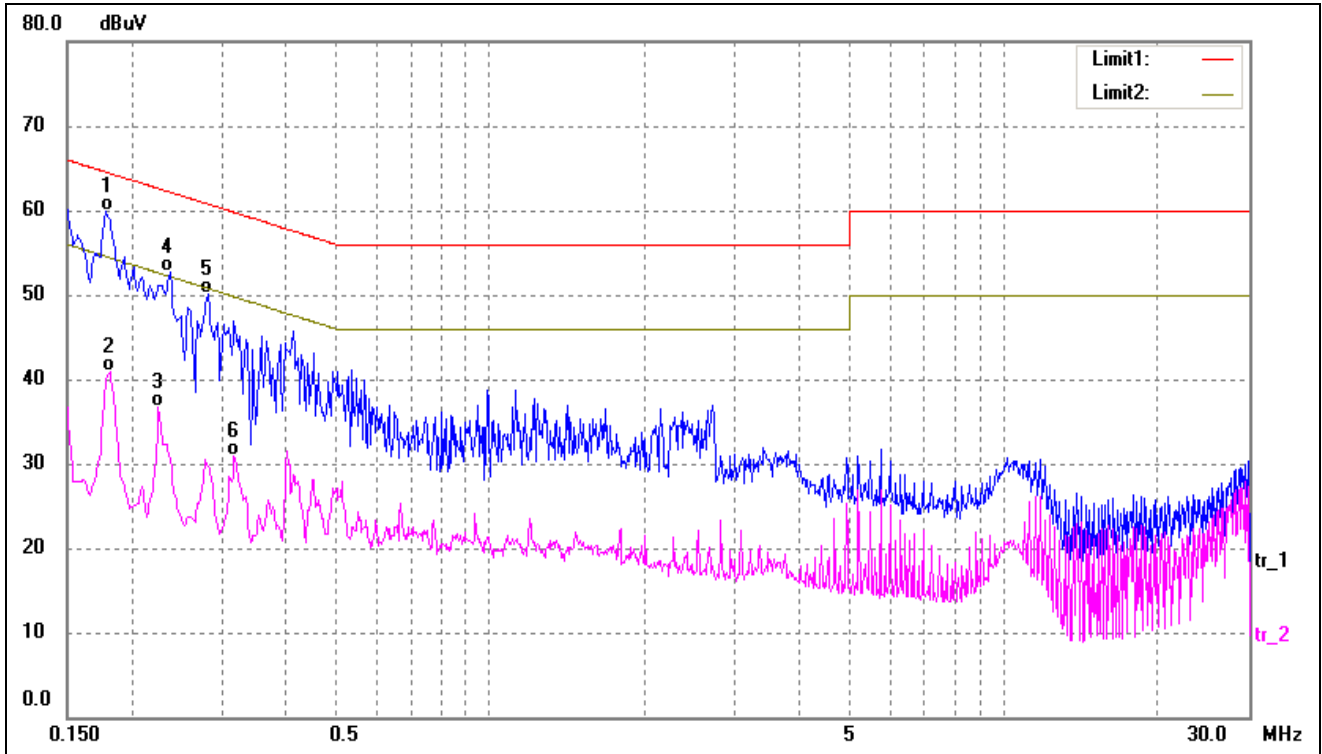
Test mode:	TM2	Polarity:	Neutral
------------	-----	-----------	---------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1740	49.79	9.95	59.74	64.77	-5.03	QP
2	0.1820	31.36	9.96	41.32	54.39	-13.07	AVG
3	0.2340	43.40	10.00	53.40	62.31	-8.91	QP
4	0.2340	23.22	10.00	33.22	52.31	-19.09	AVG
5	0.3940	23.35	10.01	33.36	47.98	-14.62	AVG
6	0.4180	37.55	10.01	47.56	57.49	-9.93	QP



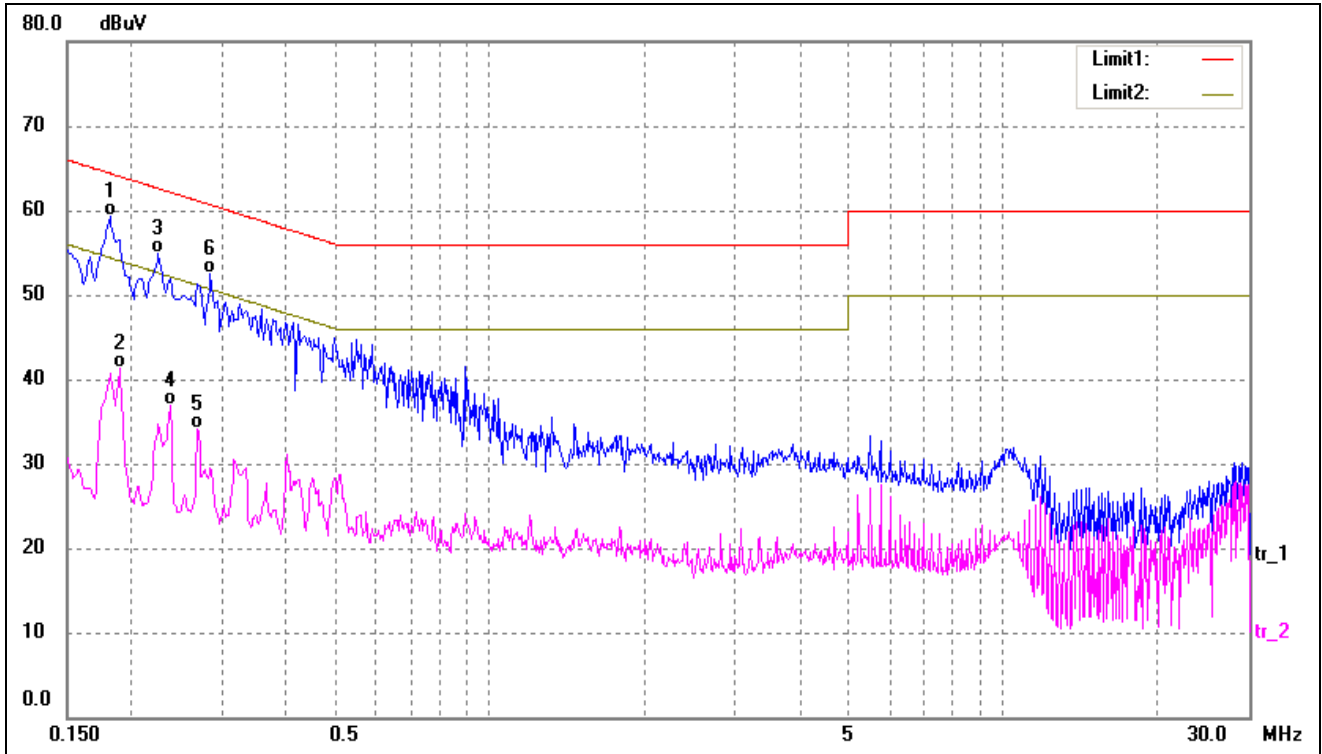
Test mode:	TM3	Polarity:	Line
------------	-----	-----------	------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1780	49.96	9.96	59.92	64.58	-4.66	QP
2	0.1820	31.00	9.96	40.96	54.39	-13.43	AVG
3	0.2260	26.63	9.99	36.62	52.60	-15.98	AVG
4	0.2380	42.73	10.00	52.73	62.17	-9.44	QP
5	0.2820	40.06	10.01	50.07	60.76	-10.69	QP
6	0.3180	20.88	10.01	30.89	49.76	-18.87	AVG



Test mode:	TM3	Polarity:	Neutral
------------	-----	-----------	---------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1820	49.32	9.96	59.28	64.39	-5.11	QP
2	0.1900	31.34	9.96	41.30	54.04	-12.74	AVG
3	0.2260	44.84	9.99	54.83	62.60	-7.77	QP
4	0.2380	26.88	10.00	36.88	52.17	-15.29	AVG
5	0.2700	24.07	10.02	34.09	51.12	-17.03	AVG
6	0.2860	42.43	10.01	52.44	60.64	-8.20	QP



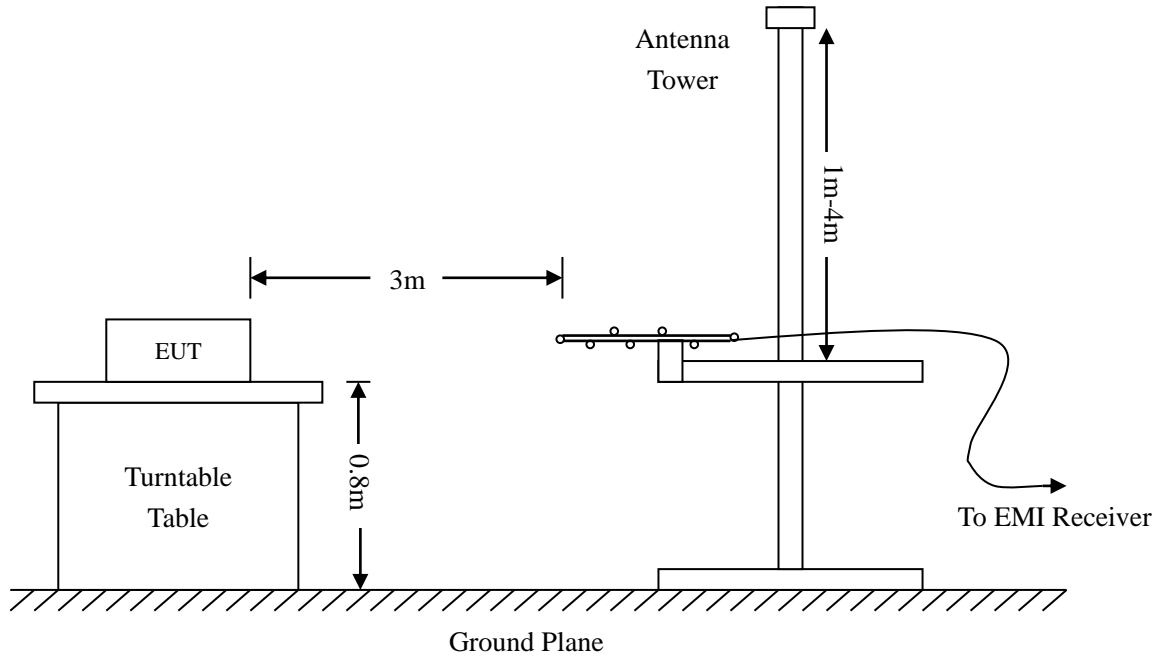
## 4. Radiated Emissions

### 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

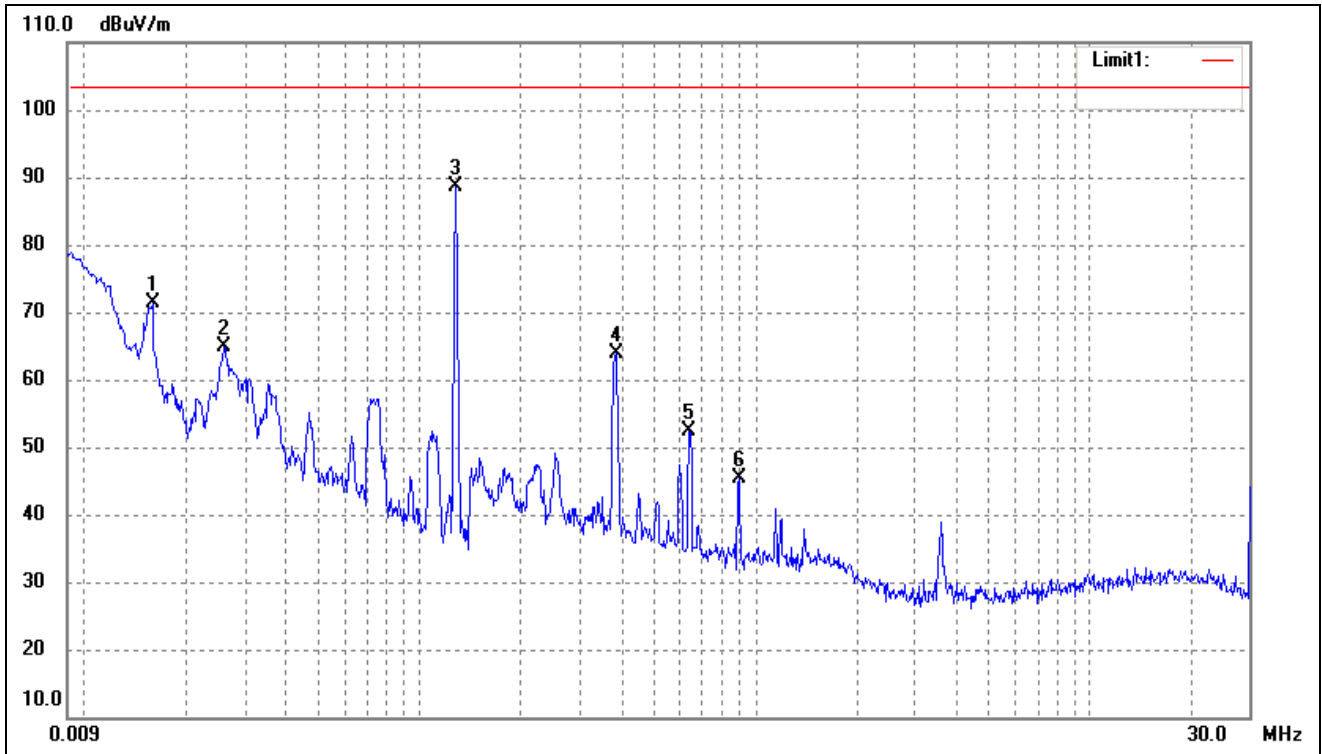
According to the data, the EUT complied with the FCC Part 18.305 rule, and had the worst margin of:

**-10.51 dB at 0.1228 MHz in the Vertical polarization, TM3 mode, 3Meters**



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

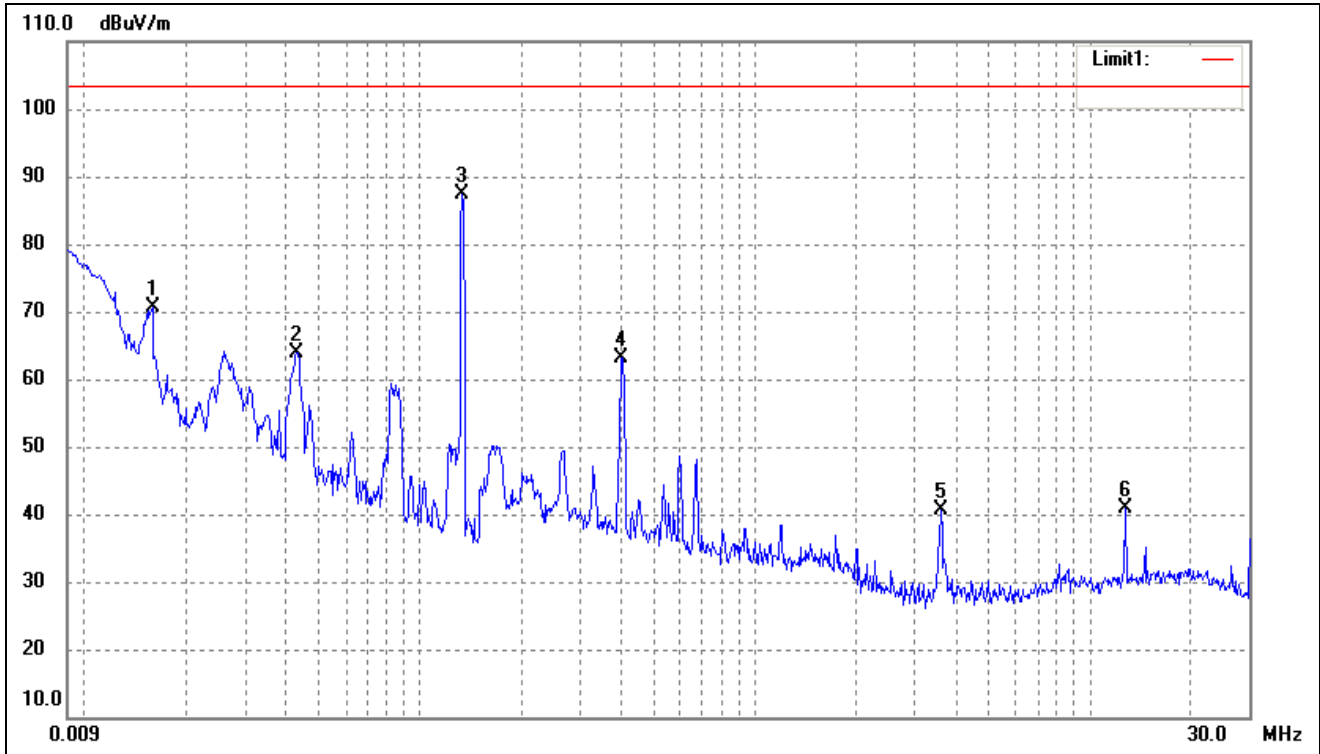
Test mode:	TM1	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Detector
1	0.0160	76.85	-5.44	71.41	103.50	-32.09	-	-	peak
2	0.0261	70.34	-5.35	64.99	103.50	-38.51	-	-	peak
3*	0.1281	93.46	-4.83	88.63	103.50	-14.87	-	-	peak
4	0.3832	70.06	-6.18	63.88	103.50	-39.62	-	-	peak
5	0.6372	59.38	-7.05	52.33	103.50	-51.17	-	-	peak
6	0.8944	45.45	0.00	45.45	103.50	-58.05	-	-	peak



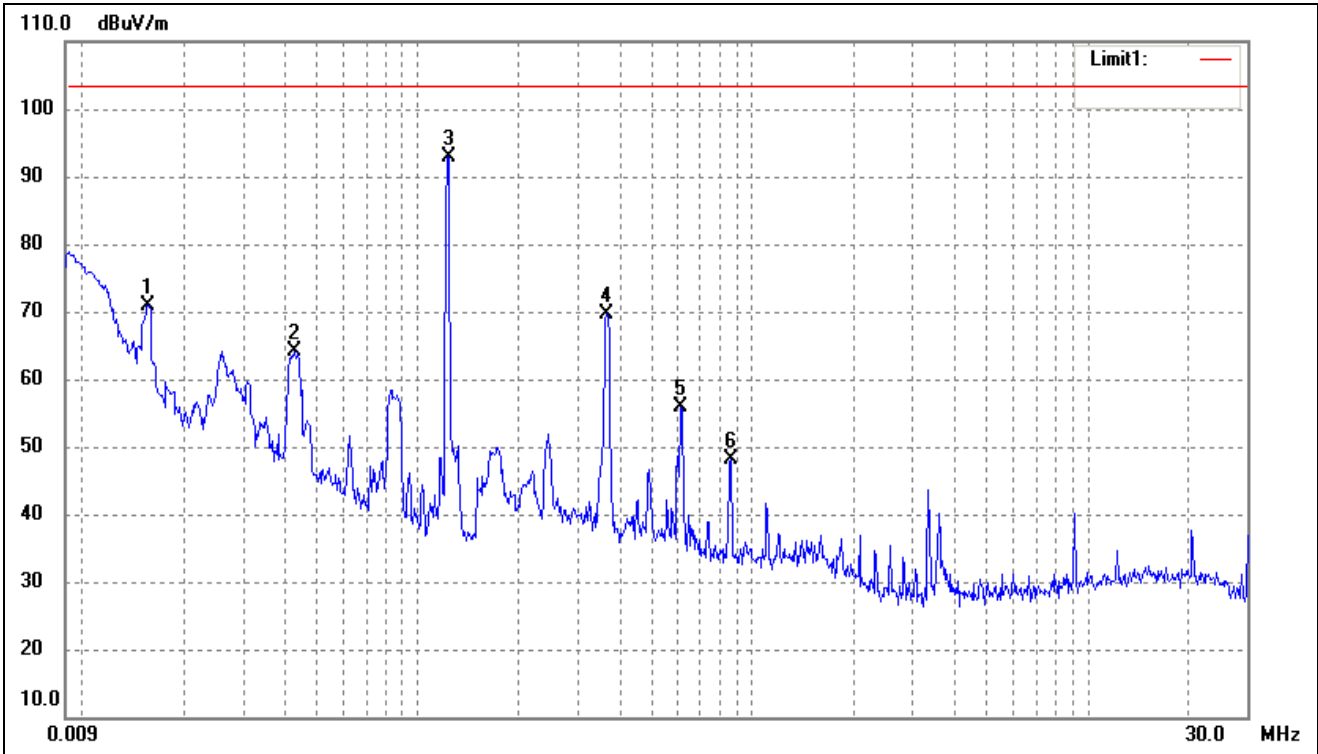
Test mode:	TM2	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Detector
1	0.0160	76.07	-5.44	70.63	103.50	-32.87	-	-	peak
2	0.0431	68.34	-4.40	63.94	103.50	-39.56	-	-	peak
3*	0.1337	92.26	-4.78	87.48	103.50	-16.02	-	-	peak
4	0.3997	69.52	-6.27	63.25	103.50	-40.25	-	-	peak
5	3.5843	48.31	-7.59	40.72	103.50	-62.78	-	-	peak
6	12.7161	45.40	-4.58	40.82	103.50	-62.68	-	-	peak



Test mode:	TM3	Polarity:	Vertical
------------	-----	-----------	----------

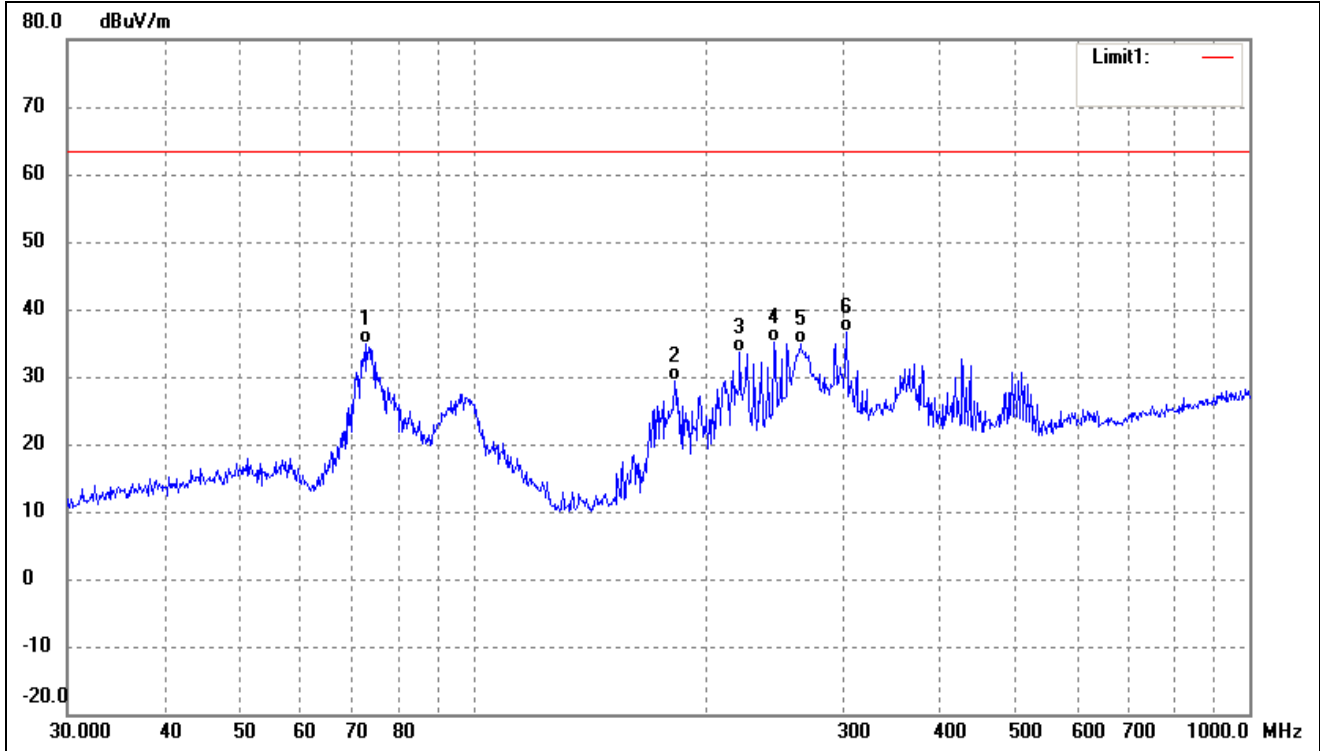


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Detector
1	0.0157	76.31	-5.42	70.89	103.50	-32.61	-	-	peak
2	0.0431	68.42	-4.40	64.02	103.50	-39.48	-	-	peak
3*	0.1228	97.86	-4.87	92.99	103.50	-10.51	-	-	peak
4	0.3653	75.80	-6.09	69.71	103.50	-33.79	-	-	peak
5	0.6108	62.87	-6.99	55.88	103.50	-47.62	-	-	peak
6	0.8573	48.19	0.00	48.19	103.50	-55.31	-	-	peak



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

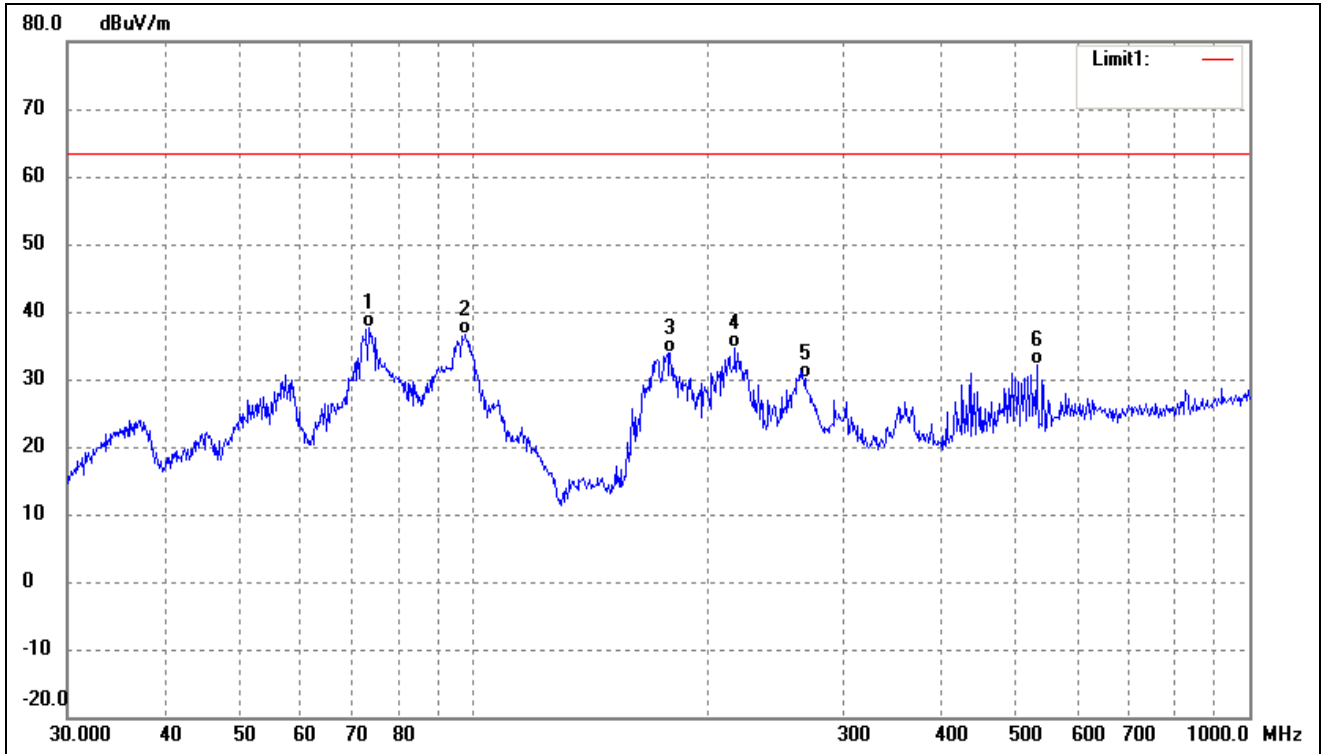
Test mode:	TM1	Polarity:	Horizontal
------------	-----	-----------	------------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	72.8466	50.02	-15.17	34.85	63.50	-28.65	-	-	QP
2	181.9202	43.76	-14.37	29.39	63.50	-34.11	-	-	QP
3	220.6171	46.08	-12.39	33.69	63.50	-29.81	-	-	QP
4	244.2321	46.54	-11.30	35.24	63.50	-28.26	-	-	QP
5	263.8190	45.63	-10.76	34.87	63.50	-28.63	-	-	QP
6	302.4812	45.79	-9.24	36.55	63.50	-26.95	-	-	QP



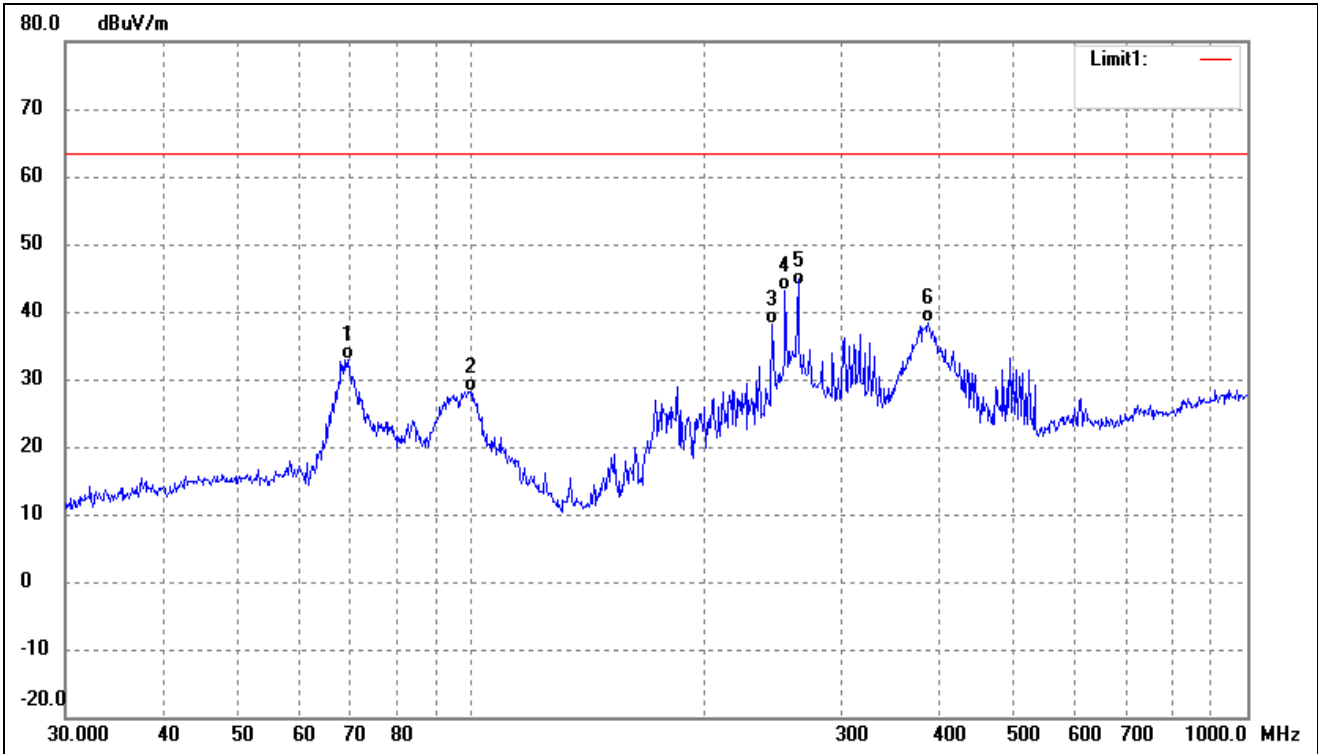
Test mode:	TM1	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	73.3593	52.69	-15.16	37.53	63.50	-25.97	-	-	QP
2	97.7980	50.23	-13.68	36.55	63.50	-26.95	-	-	QP
3	179.3863	48.57	-14.61	33.96	63.50	-29.54	-	-	QP
4	217.5443	47.17	-12.43	34.74	63.50	-28.76	-	-	QP
5	267.5455	40.81	-10.69	30.12	63.50	-33.38	-	-	QP
6	531.9635	37.99	-5.97	32.02	63.50	-31.48	-	-	QP



Test mode:	TM2	Polarity:	Horizontal
------------	-----	-----------	------------

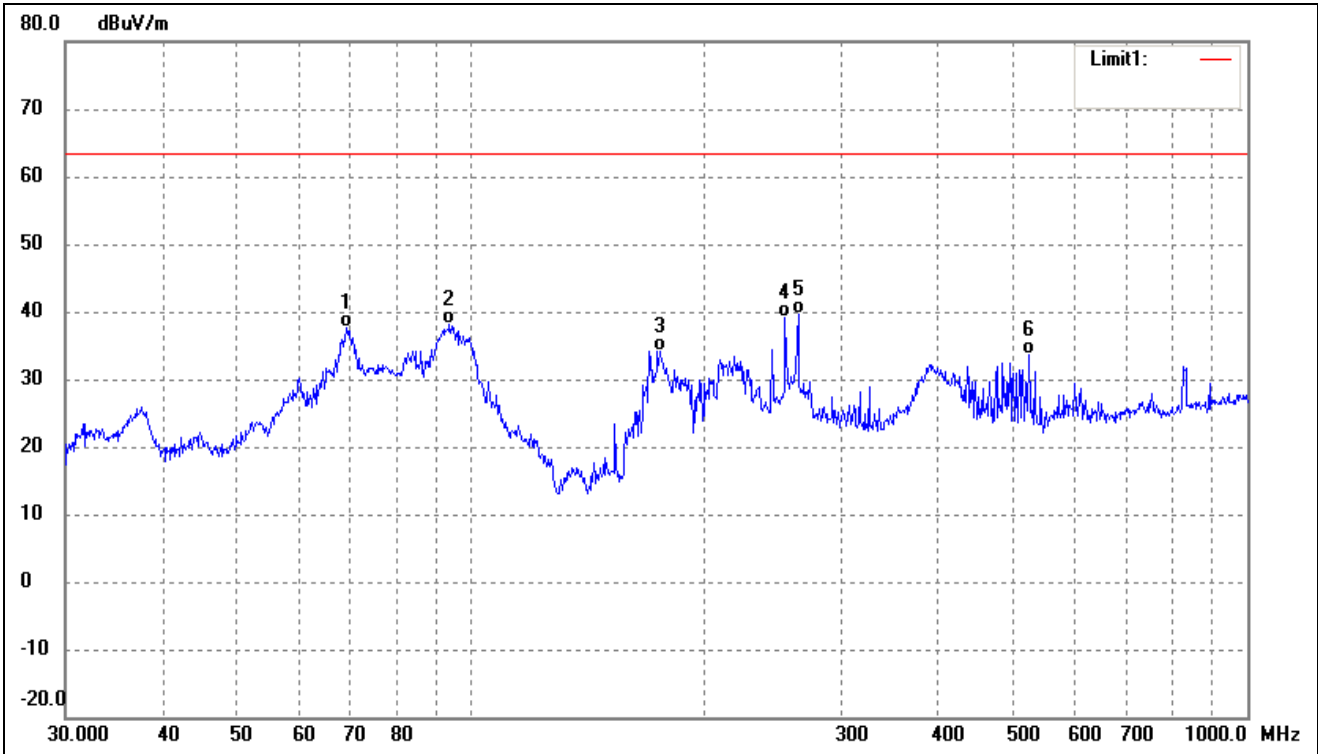


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	69.3568	47.86	-15.05	32.81	63.50	-30.69	-	-	QP
2	99.8777	41.39	-13.21	28.18	63.50	-35.32	-	-	QP
3	244.2321	49.46	-11.30	38.16	63.50	-25.34	-	-	QP
4	253.8367	54.01	-10.93	43.08	63.50	-20.42	-	-	QP
5	263.8190	54.56	-10.76	43.80	63.50	-19.70	-	-	QP
6	387.9920	46.03	-7.62	38.41	63.50	-25.09	-	-	QP





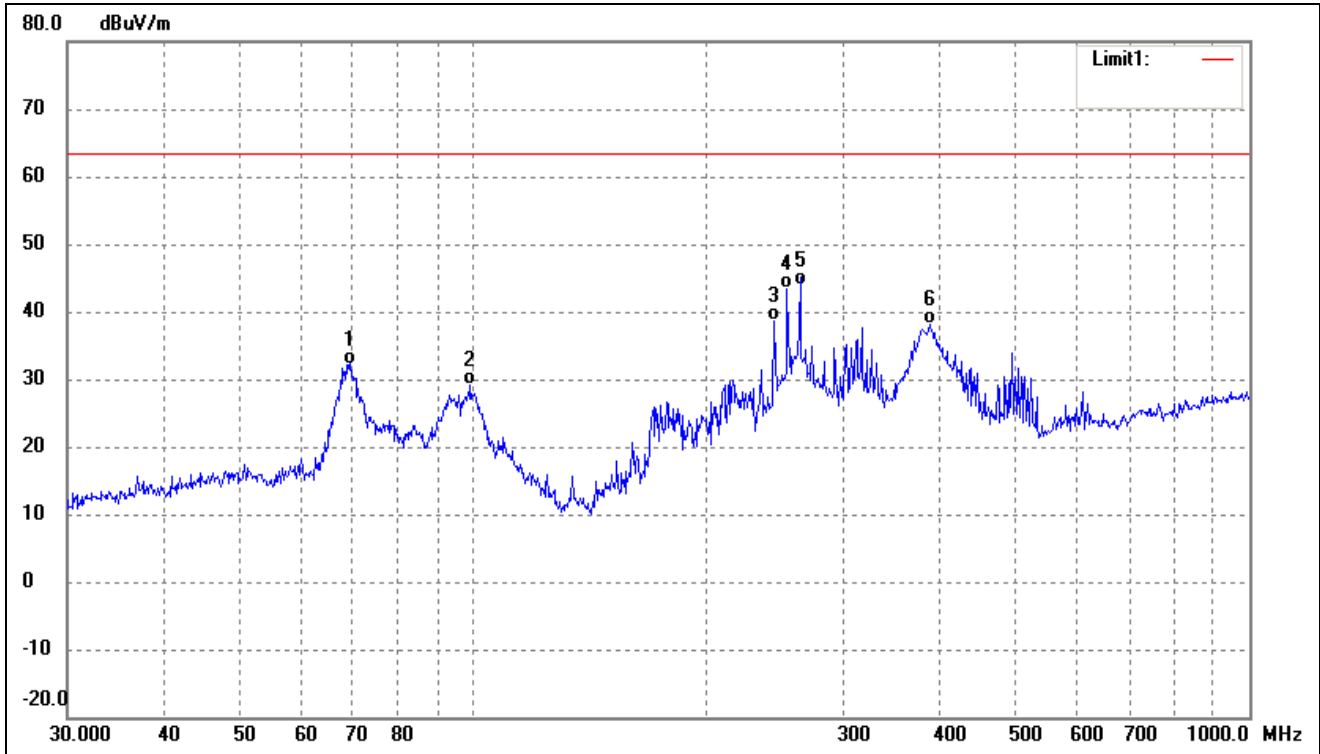
Test mode:	TM2	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	69.1140	52.71	-15.00	37.71	63.50	-25.79	-	-	QP
2	93.7685	52.66	-14.63	38.03	63.50	-25.47	-	-	QP
3	175.0368	48.90	-14.74	34.16	63.50	-29.34	-	-	QP
4	253.8367	50.00	-10.93	39.07	63.50	-24.43	-	-	QP
5	263.8190	50.36	-10.76	39.60	63.50	-23.90	-	-	QP
6	522.7180	39.67	-6.15	33.52	63.50	-29.98	-	-	QP



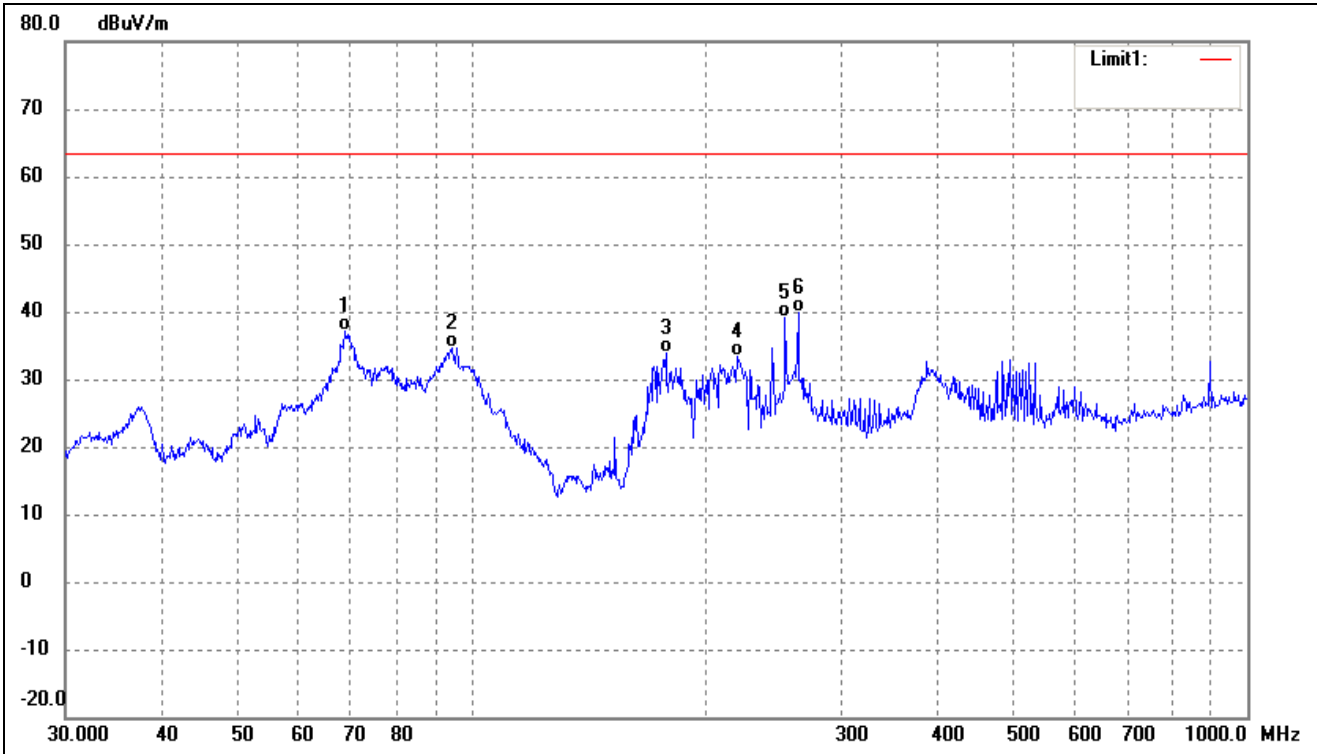
Test mode:	TM3	Polarity:	Horizontal
------------	-----	-----------	------------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	69.3568	47.30	-15.05	32.25	63.50	-31.25	-	-	QP
2	99.1797	42.49	-13.36	29.13	63.50	-34.37	-	-	QP
3	244.2321	50.01	-11.30	38.71	63.50	-24.79	-	-	QP
4	253.8367	54.40	-10.93	43.47	63.50	-20.03	-	-	QP
5	263.8190	54.76	-10.76	44.00	63.50	-19.50	-	-	QP
6	387.9920	45.76	-7.62	38.14	63.50	-25.36	-	-	QP



Test mode:	TM3	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	68.6310	51.91	-14.89	37.02	63.50	-26.48	-	-	QP
2	94.4283	49.04	-14.46	34.58	63.50	-28.92	-	-	QP
3	178.1327	48.55	-14.66	33.89	63.50	-29.61	-	-	QP
4	219.8449	45.69	-12.39	33.30	63.50	-30.20	-	-	QP
5	253.8367	50.11	-10.93	39.18	63.50	-24.32	-	-	QP
6	263.8190	50.67	-10.76	39.91	63.50	-23.59	-	-	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 \*\*\*\*\*