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-WPC20-2XCNB

Test Rule(s):	FCC Part 18
Product Description:	Wireless Charging Dual Pad 10W
Tested Model:	WPC20-2XCNB
Report No.:	WTX20X05026949W-1
Sample Receipt Date:	May.13, 2020
Tested Date:	May.13, 2020 to Jun.09, 2020
Issued Date:	Jun.10, 2020
Tested By:	Jason Su / 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.10, 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

General Description of EUT	
Product Name:	Wireless Charging Dual Pad 10W
Trade Name:	CE-LINK
Model No.:	WPC20-2XCNB
Adding Model(s):	B0872QFB34
Power Adapter:	2ABL030F Input: AC100-240V~50/60Hz; Output: DC12.0V, 2.5A
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 WPC20-2XCNB, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	112~205kHz
Antenna Type:	Coil Antenna
Rated Voltage:	DC5V / DC9V
Rated Current:	1A / 1.1A
Rated Power:	5W / 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 maintain ed 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/2.5A; Output 1:DC5V/1A And Output 2:DC5V1A
TM2	Wireless Charging	/	Input DC12V/2.5A; 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
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

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

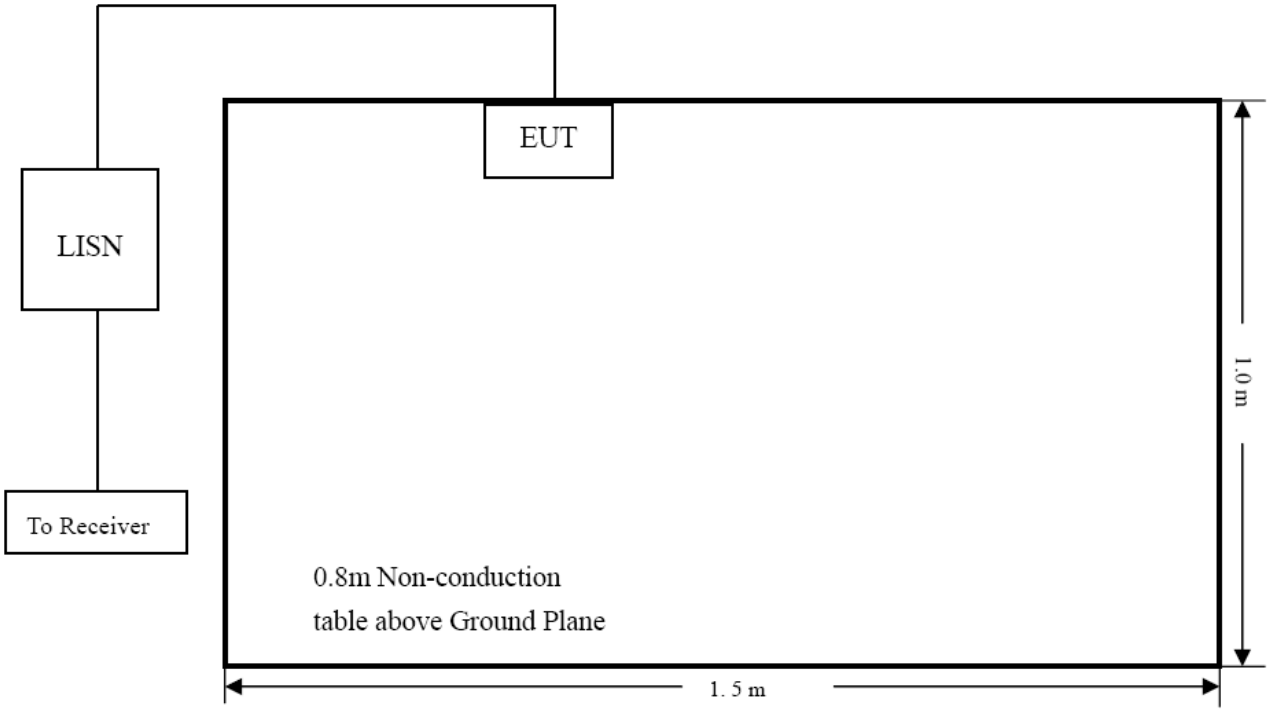
According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

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:

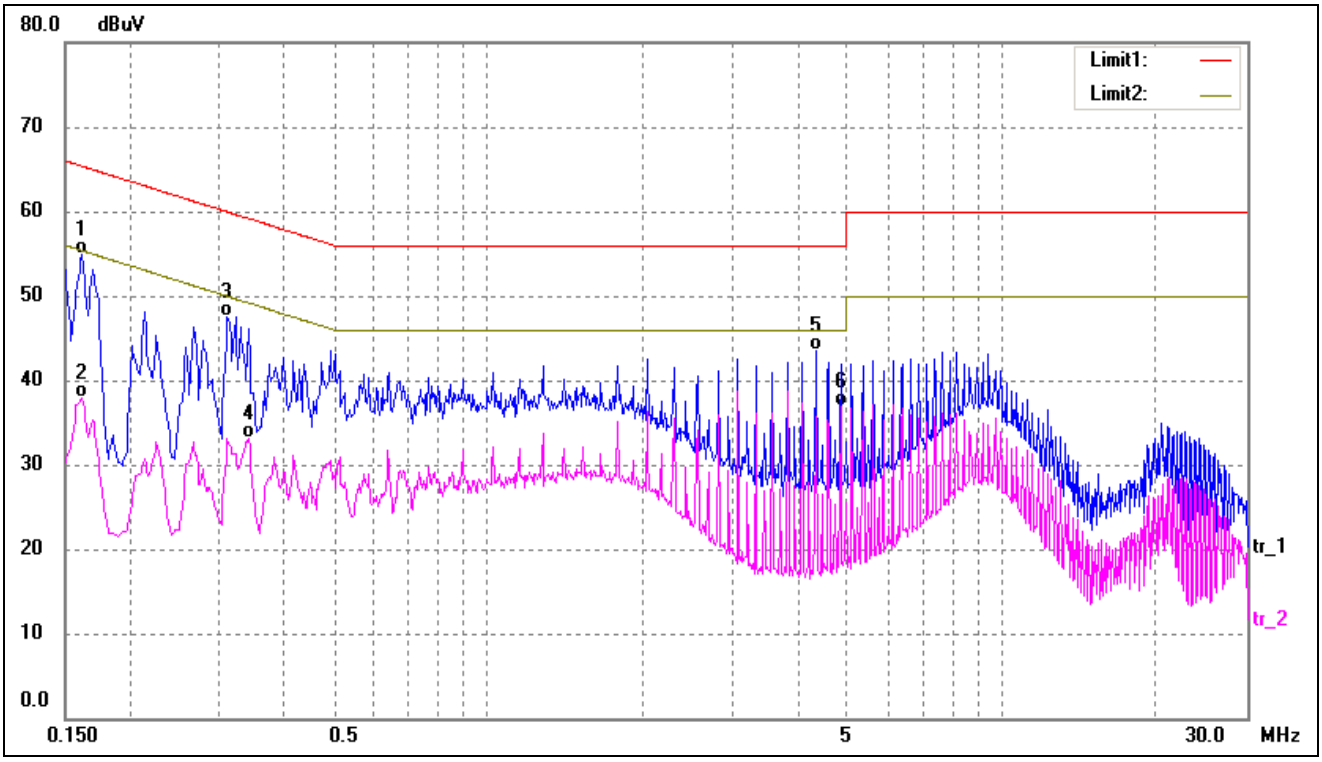
Start Frequency ..... 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed ..... Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 9 kHz
Quasi-Peak Adapter Mode ..... Normal

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:

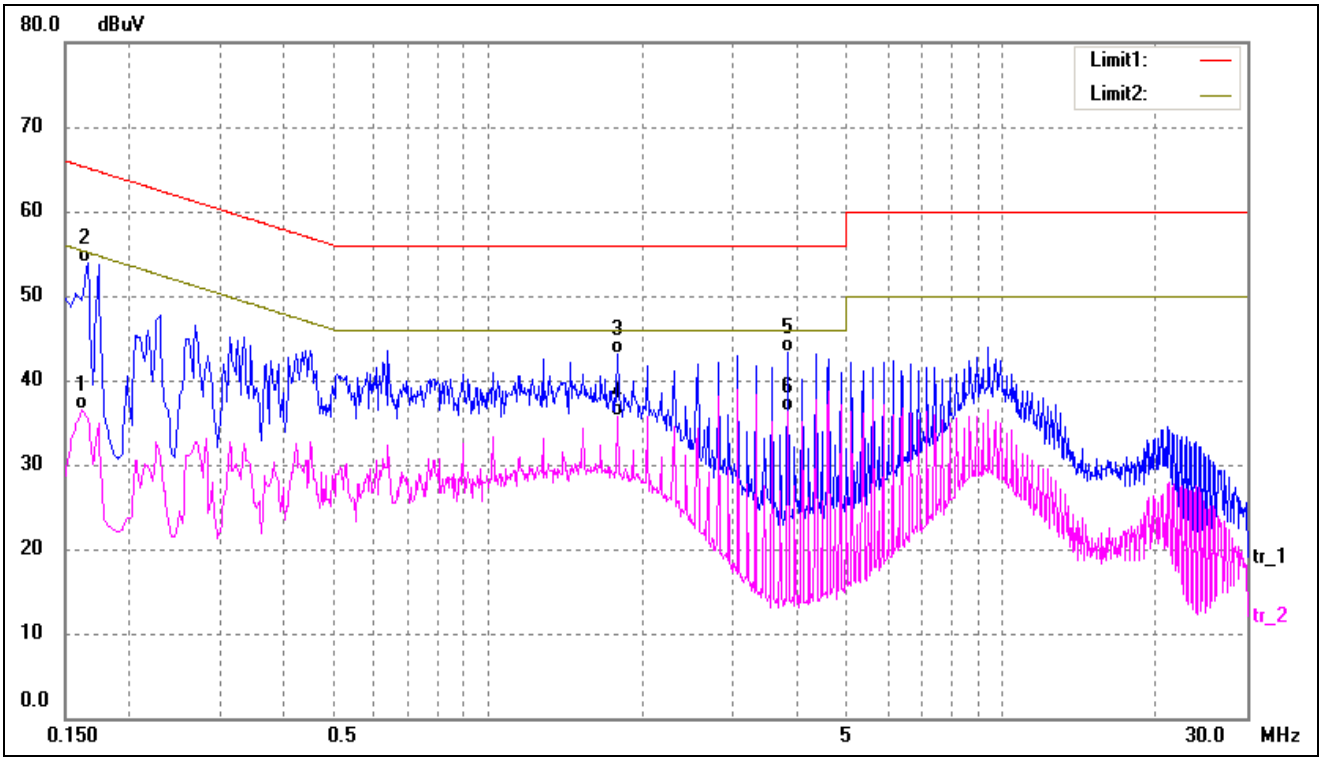
-5.97 dB at **0.1820 MHz** in the **Neutral**, **QP** detector, **TM2** detector, **0.15-30MHz**

Test mode:	TM1	Polarity:	Line



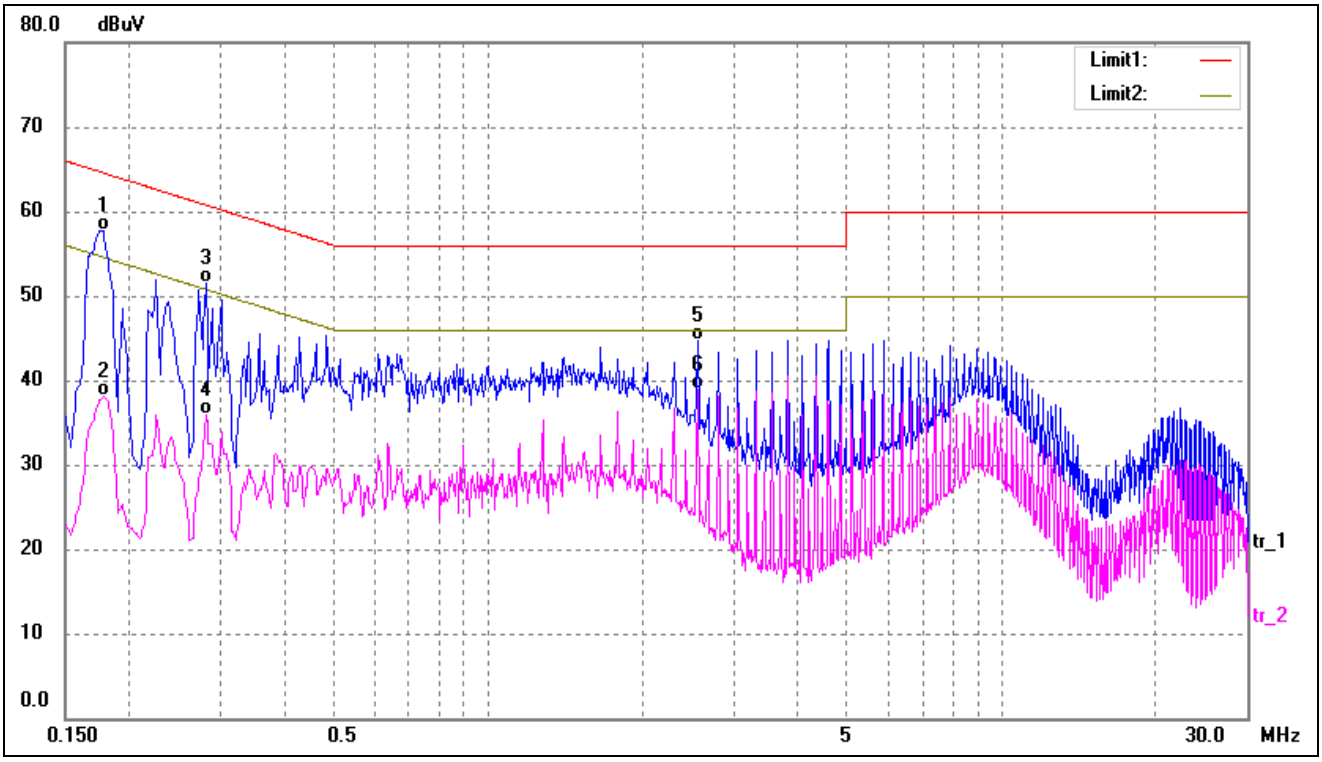
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1620	44.93	9.95	54.88	65.36	-10.48	QP
2	0.1620	28.01	9.95	37.96	55.36	-17.40	AVG
3	0.3100	37.54	10.01	47.55	59.97	-12.42	QP
4	0.3420	22.99	10.02	33.01	49.15	-16.14	AVG
5	4.3420	33.09	10.33	43.42	56.00	-12.58	QP
6*	4.8500	26.46	10.37	36.83	46.00	-9.17	AVG

Test mode:	TM2	Polarity:	Neutral



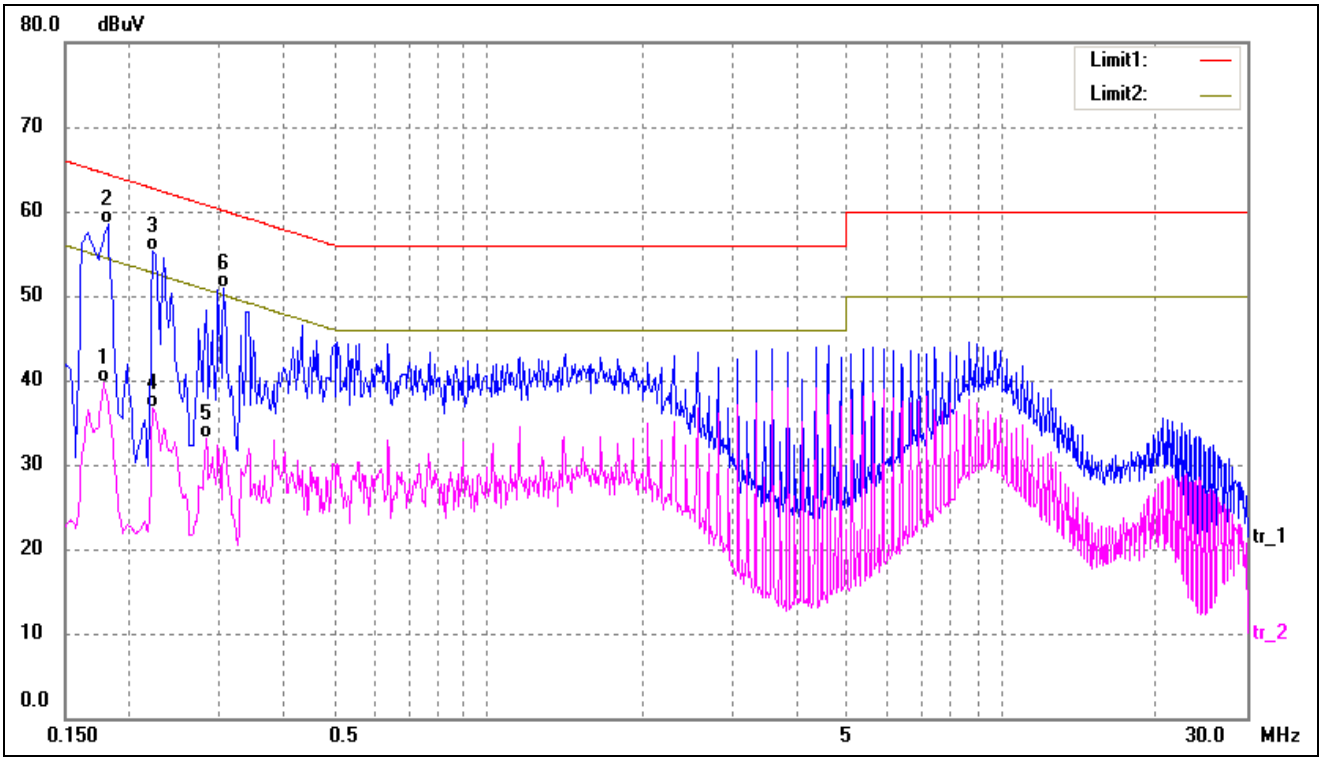
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1620	26.49	9.95	36.44	55.36	-18.92	AVG
2	0.1660	44.03	9.95	53.98	65.16	-11.18	QP
3	1.7860	32.77	10.37	43.14	56.00	-12.86	QP
4	1.7860	25.40	10.37	35.77	46.00	-10.23	AVG
5	3.8340	33.08	10.31	43.39	56.00	-12.61	QP
6*	3.8340	26.05	10.31	36.36	46.00	-9.64	AVG

Test mode:	TM2	Polarity:	Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1780	47.81	9.96	57.77	64.58	-6.81	QP
2	0.1780	28.15	9.96	38.11	54.58	-16.47	AVG
3	0.2820	41.54	10.01	51.55	60.76	-9.21	QP
4	0.2820	25.90	10.01	35.91	50.76	-14.85	AVG
5	2.5540	34.32	10.37	44.69	56.00	-11.31	QP
6	2.5540	28.48	10.37	38.85	46.00	-7.15	AVG

Test mode:	TM2	Polarity:	Neutral

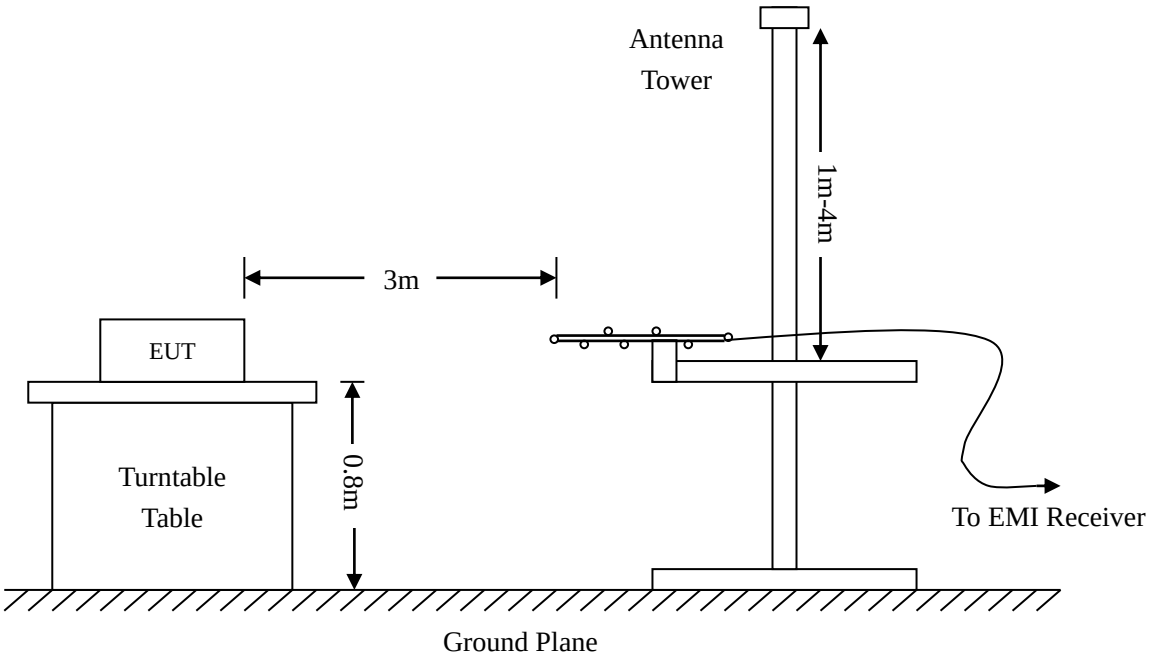


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1780	29.72	9.96	39.68	54.58	-14.90	AVG
2*	0.1820	48.46	9.96	58.42	64.39	-5.97	QP
3	0.2220	45.40	9.99	55.39	62.74	-7.35	QP
4	0.2220	26.80	9.99	36.79	52.74	-15.95	AVG
5	0.2820	23.12	10.01	33.13	50.76	-17.63	AVG
6	0.3060	40.94	10.01	50.95	60.08	-9.13	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	Frequency :30MHz-1GHz
RBW=10KHz,	RBW=120KHz,
VBW =30KHz	VBW=300KHz
Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP

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

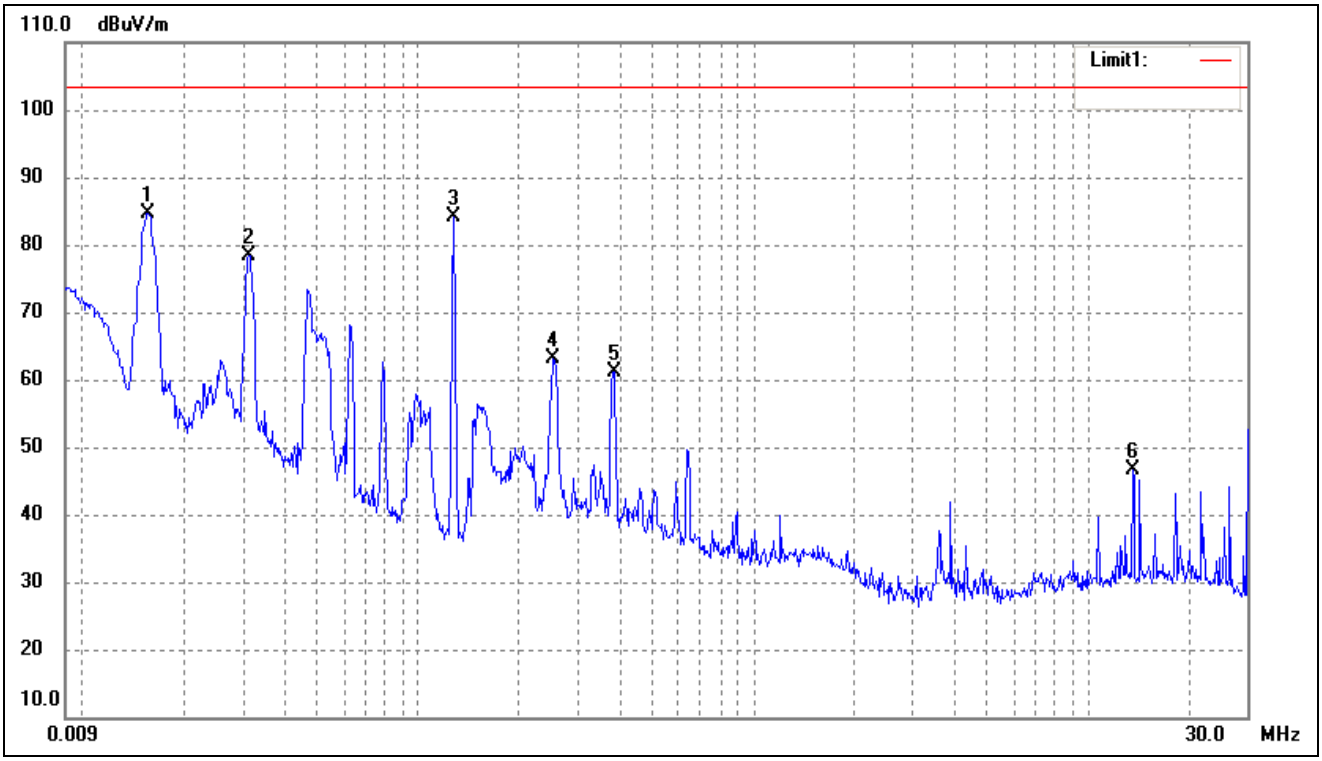
4.5 Summary of Test Results/Plots

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

-17.44dB at **0.1278 MHz** in the **Vertical** polarization, **TM2** mode, **3Meters**

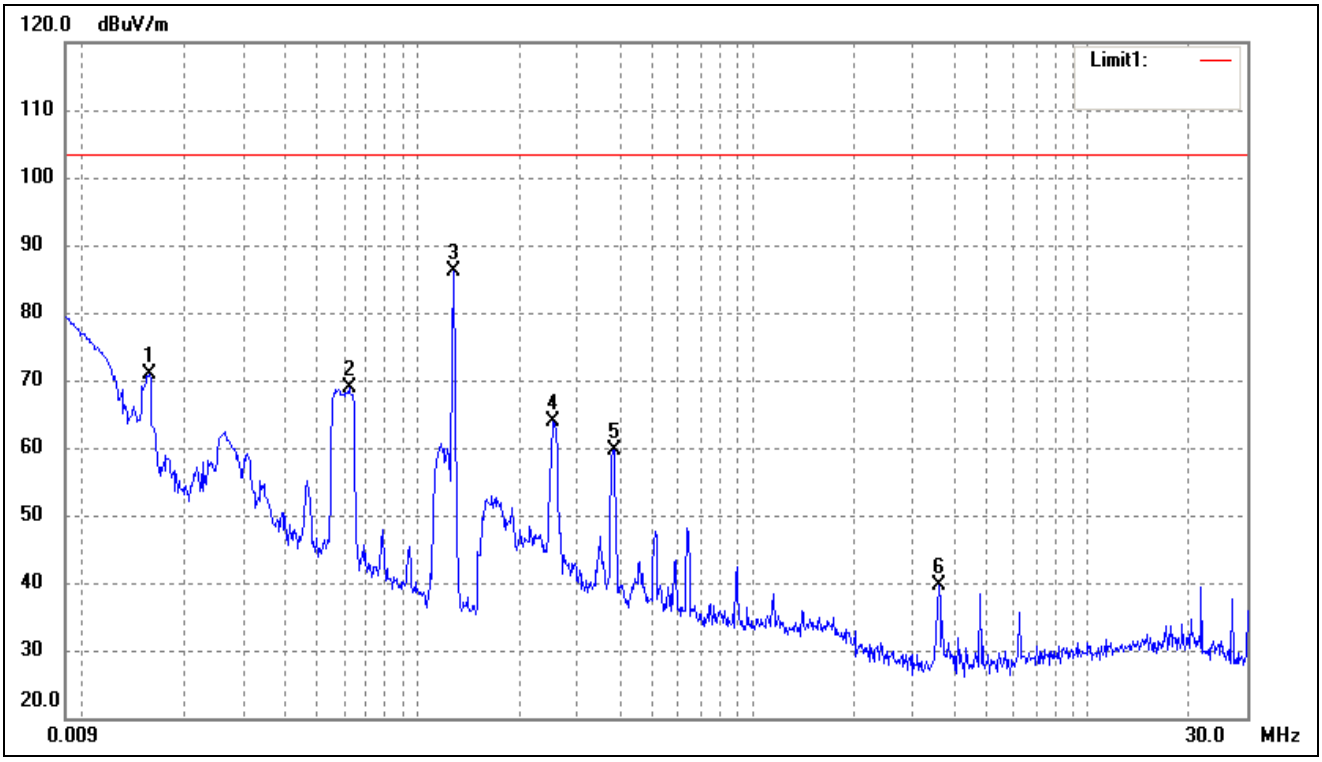
Plot of Radiated Emissions Test Data (Below 30MHz)

Test mode:	TM1	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1*	0.0157	90.08	-5.42	84.66	103.50	-18.84	-	-	peak
2	0.0314	83.50	-5.04	78.46	103.50	-25.04	-	-	peak
3	0.1278	88.87	-4.83	84.04	103.50	-19.46	-	-	peak
4	0.2548	68.73	-5.72	63.01	103.50	-40.49	-	-	peak
5	0.3832	67.22	-6.18	61.04	103.50	-42.46	-	-	peak
6	13.6228	46.55	0.00	46.55	103.50	-56.95	-	-	peak

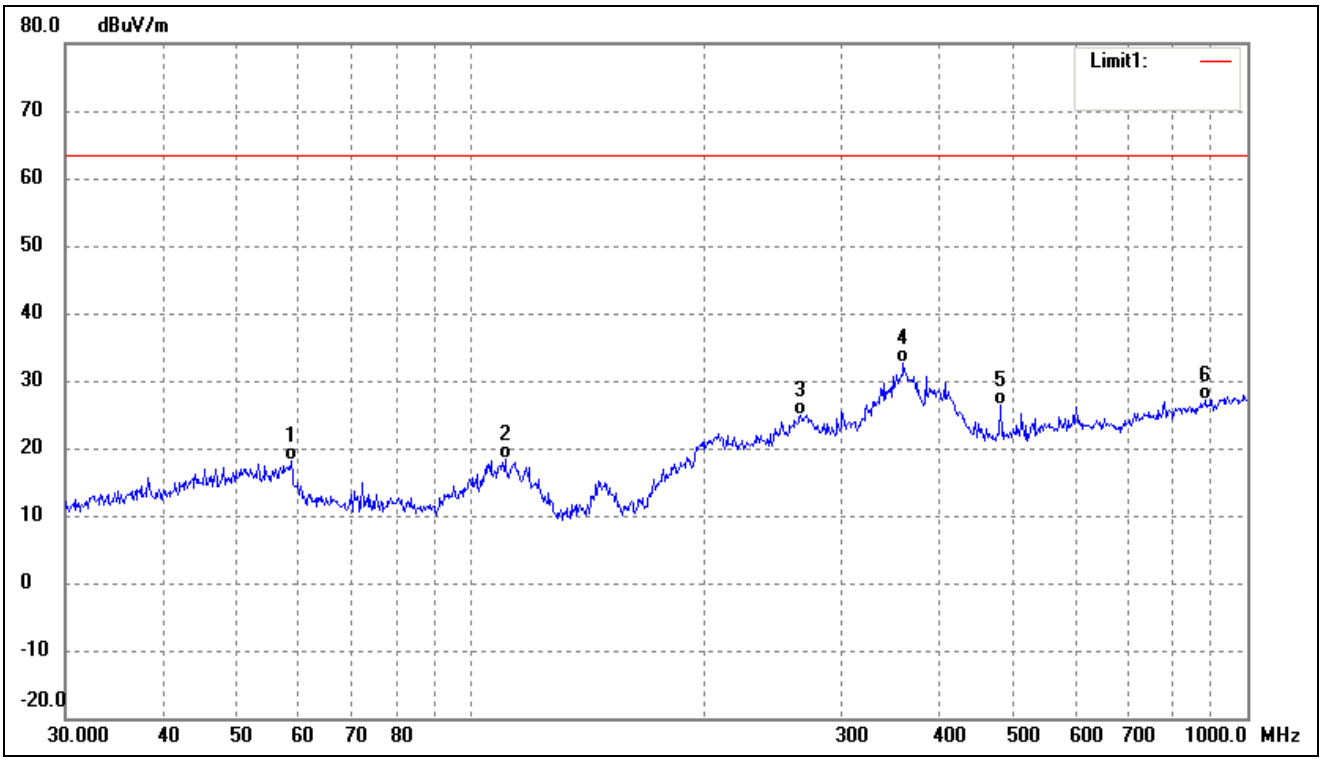
Test mode:	TM2	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0158	76.20	-5.43	70.77	103.50	-32.73	-	-	peak
2	0.0624	73.26	-4.48	68.78	103.50	-34.72	-	-	peak
3*	0.1278	90.89	-4.83	86.06	103.50	-17.44	-	-	peak
4	0.2548	69.48	-5.72	63.76	103.50	-39.74	-	-	peak
5	0.3832	65.93	-6.18	59.75	103.50	-43.75	-	-	peak
6	3.5843	39.65	0.00	39.65	103.50	-63.85	-	-	peak

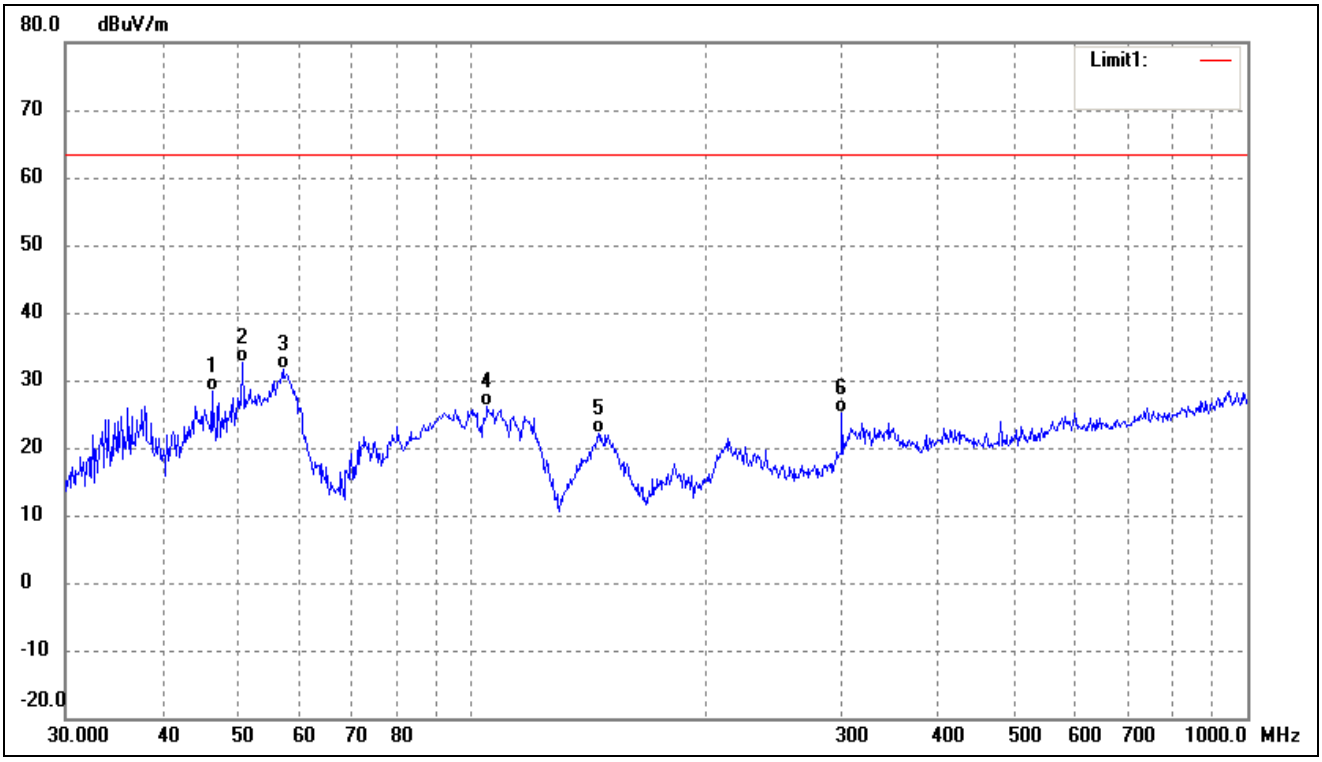
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal



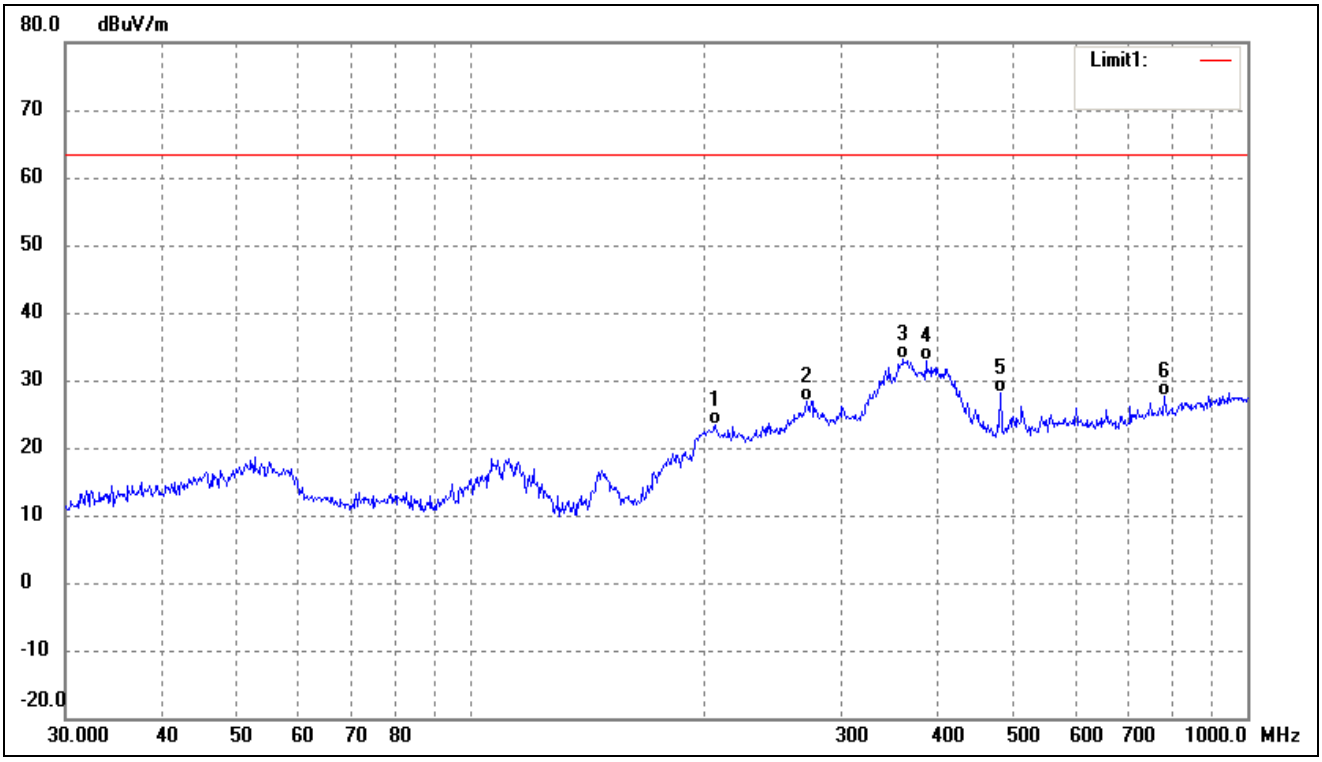
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	58.6126	31.21	-13.00	18.21	63.50	-45.29	-	-	QP
2	110.5687	31.39	-13.08	18.31	63.50	-45.19	-	-	QP
3	265.6757	35.62	-10.71	24.91	63.50	-38.59	-	-	QP
4	360.4476	40.38	-7.86	32.52	63.50	-30.98	-	-	QP
5	480.5276	32.81	-6.45	26.36	63.50	-37.14	-	-	QP
6	884.5029	27.97	-0.83	27.14	63.50	-36.36	-	-	QP

Test mode:	TM1	Polarity:	Vertical



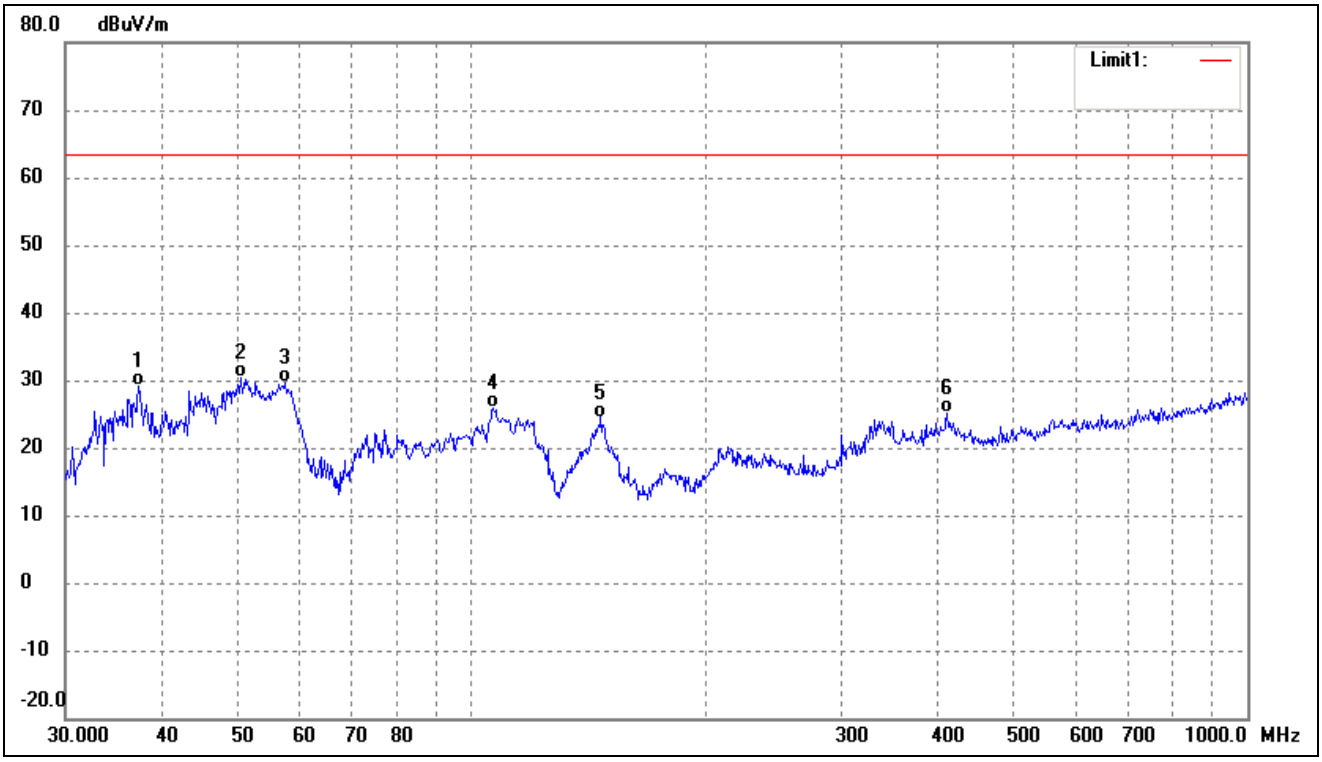
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	46.3402	39.65	-11.25	28.40	63.50	-35.10	-	-	QP
2	50.7637	43.78	-11.17	32.61	63.50	-30.89	-	-	QP
3	57.1914	44.34	-12.66	31.68	63.50	-31.82	-	-	QP
4	104.9033	39.22	-13.09	26.13	63.50	-37.37	-	-	QP
5	145.8611	38.00	-15.76	22.24	63.50	-41.26	-	-	QP
6	300.3672	34.41	-9.23	25.18	63.50	-38.32	-	-	QP

Test mode:	TM2	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	206.3976	36.03	-12.60	23.43	63.50	-40.07	-	-	QP
2	270.3748	37.43	-10.64	26.79	63.50	-36.71	-	-	QP
3	360.4476	40.89	-7.86	33.03	63.50	-30.47	-	-	QP
4	385.2805	40.58	-7.60	32.98	63.50	-30.52	-	-	QP
5	480.5276	34.58	-6.45	28.13	63.50	-35.37	-	-	QP
6	782.3453	29.98	-2.34	27.64	63.50	-35.86	-	-	QP

Test mode:	TM2	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	37.2855	42.16	-12.96	29.20	63.50	-34.30	-	-	QP
2	50.4089	41.36	-11.08	30.28	63.50	-33.22	-	-	QP
3	57.5939	42.34	-12.77	29.57	63.50	-33.93	-	-	QP
4	106.7587	38.90	-13.07	25.83	63.50	-37.67	-	-	QP
5	146.8877	40.31	-15.81	24.50	63.50	-39.00	-	-	QP
6	410.3825	32.11	-7.01	25.10	63.50	-38.40	-	-	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 *******