

FCC Part 18 Measurement and Test Report

For

Eggtronic Engineering srl

Via Giorgio Campagna 8 41126, Modena, Italy

FCC ID: 2ANP7TX020VT10M001

Test Rule(s):	<u>FCC Part 18</u>
Product Description:	<u>Wireless Charging Valet Tray</u>
Tested Model:	<u>WVT10</u>
Report No.:	<u>STR18088174I</u>
Sample Receipt Date:	<u>2018-07-27</u>
Tested Date:	<u>2018-07-30 to 2018-08-22</u>
Issued Date:	<u>2018-08-22</u>
Tested By:	<u>Mike Shi / Engineer</u> <i>Mike Shi</i>
Reviewed By:	<u>Silin Chen / EMC Manager</u> <i>Silin Chen</i>
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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 Shenzhen SEM Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Eggtronic Engineering srl
Address of applicant: Via Giorgio Campagna 8 41126, Modena, Italy

Manufacturer: Eggtronic Engineering srl
Address of manufacturer: Via Giorgio Campagna 8 41126, Modena, Italy

General Description of EUT	
Product Name:	Wireless Charging Valet Tray
Trade Name:	Eggtronic
Model No.:	WVT10
Adding Model(s):	/
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	Power Port:DC9V/3A
Rated Current:	<1.1A (Wireless output)
Rated Power:	< 10W (Wireless output)
Power Adapter Model:	MODEL:A241-0953000D INPUT:100-240~ 50/60Hz 08A OUTPUT:9.5V,3000mA
Frequency Range:	110-205kHz
Modulation Type:	ASK
Antenna Type:	Coil Antenna

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.

FCC MP5-1986: FCC METHODS OF MEASUREMENTS OF NOISE EMISSIONS FROM INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT

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/ FCC MP5, 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

Shenzhen SEM Test Technology 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 Shenzhen SEM.Test Technology 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 + USB Port Full load	Power On	AC120V 60Hz for adapter

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	9-150kHz ± 3.74 dB
		0.15-30MHz ± 3.34 dB
Radiated Emissions	Radiated	30-200MHz ± 4.52 dB
		0.2-1GHz ± 5.56 dB
		1-6GHz ± 3.84 dB
		6-18GHz ± 3.92 dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2018-05-22	2019-05-21
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2018-05-22	2019-05-21
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2018-05-22	2019-05-21
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2018-05-22	2019-05-21
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2018-05-22	2019-05-21
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2017-06-08	2020-06-07
SEMT-1042	Horn Antenna	ETS	3117	00086197	2017-06-08	2020-06-07
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2017-06-08	2020-06-07
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2018-05-22	2019-05-21
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2018-05-22	2019-05-21
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2018-05-22	2019-05-21

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 18.307 (c)	Conducted Emission	Compliant
§ 18.305 (c)	Radiated Emission	Compliant

3. Conducted Emissions

3.1 Standard Applicable

According to FCC 18.307(c), 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:

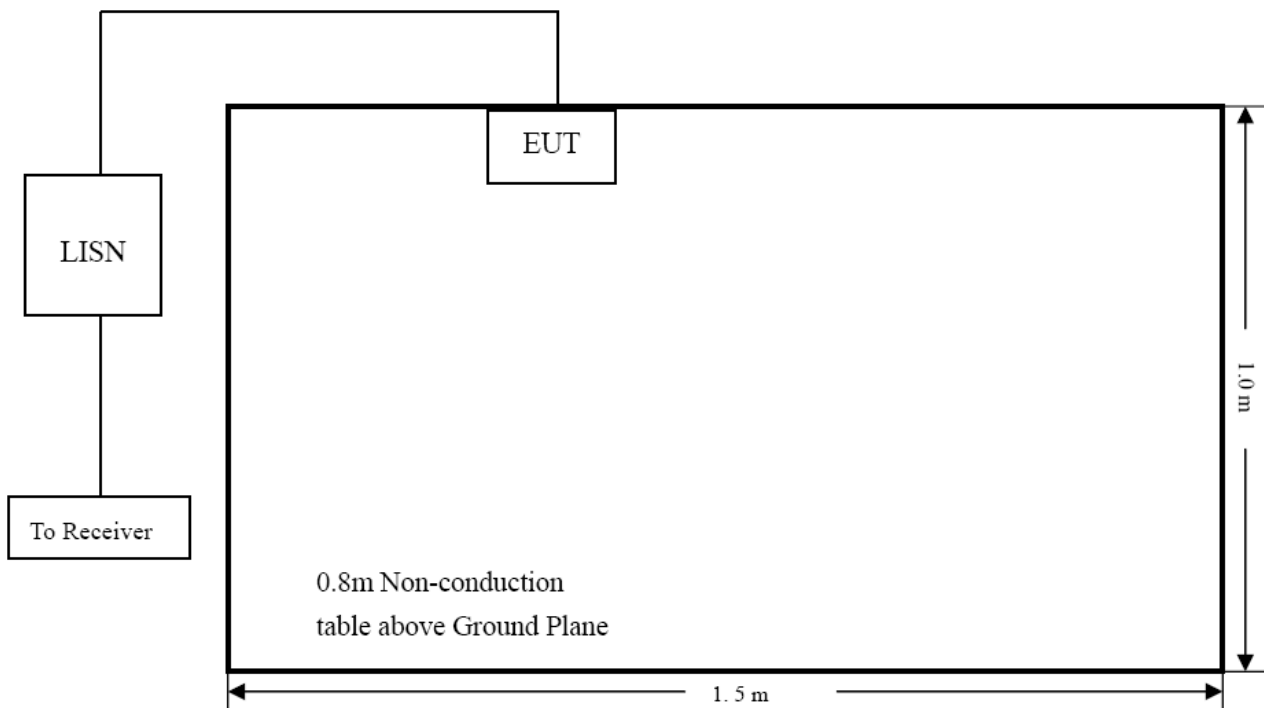
Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

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:	25° C
Relative Humidity:	54%
ATM Pressure:	1016 mbar

3.5 Test Receiver Setup

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

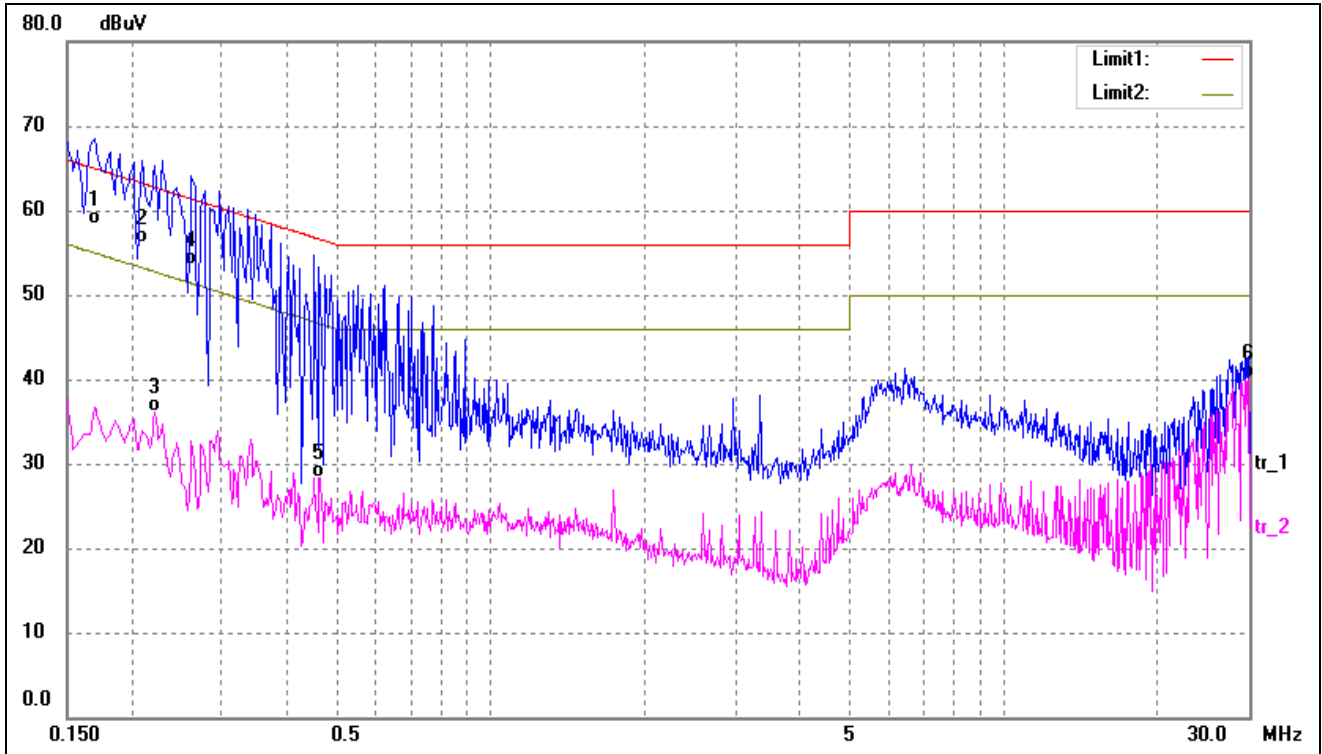
Start Frequency 450 kHz
Stop Frequency..... 30 MHz
Sweep Speed Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth 9 kHz
Quasi-Peak Adapter Mode Normal

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 a RF lighting device, with the *worst* margin reading of:

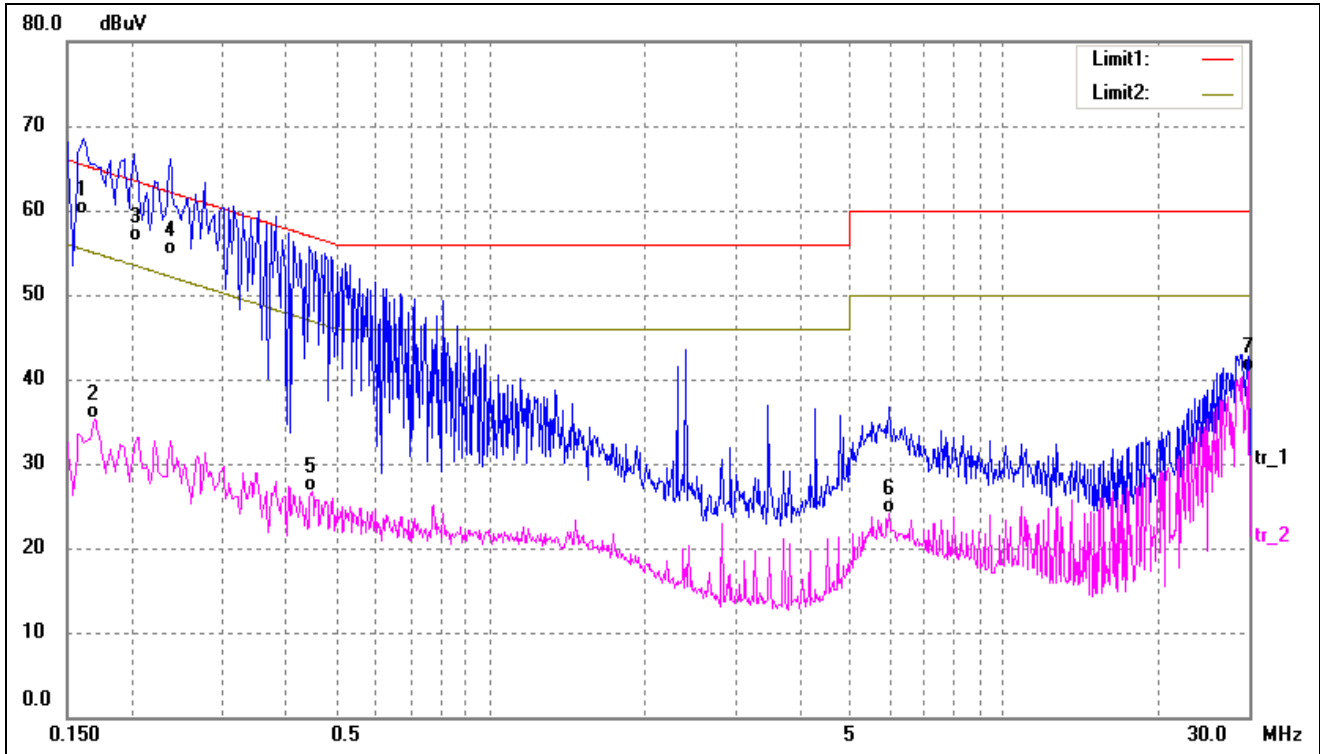
-5.76 dB at 0.1620 MHz in the **Netrual, QP** detector, 0.15-30MHz

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*	0.1700	48.25	10.11	58.36	64.96	-6.60	QP
2	0.2100	45.95	10.13	56.08	63.20	-7.12	QP
3	0.2220	25.92	10.14	36.06	52.74	-16.68	AVG
4	0.2620	43.36	10.16	53.52	61.36	-7.84	QP
5	0.4660	18.12	10.28	28.40	46.58	-18.18	AVG
6	29.9660	28.91	11.26	40.17	50.00	-9.83	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*	0.1620	49.50	10.10	59.60	65.36	-5.76	QP
2	0.1700	25.18	10.11	35.29	54.96	-19.67	AVG
3	0.2020	46.26	10.12	56.38	63.52	-7.14	QP
4	0.2380	44.65	10.15	54.80	62.16	-7.36	QP
5	0.4500	16.50	10.27	26.77	46.87	-20.10	AVG
6	5.9899	13.34	10.80	24.14	50.00	-25.86	AVG
7	29.9660	29.62	11.26	40.88	50.00	-9.12	AVG

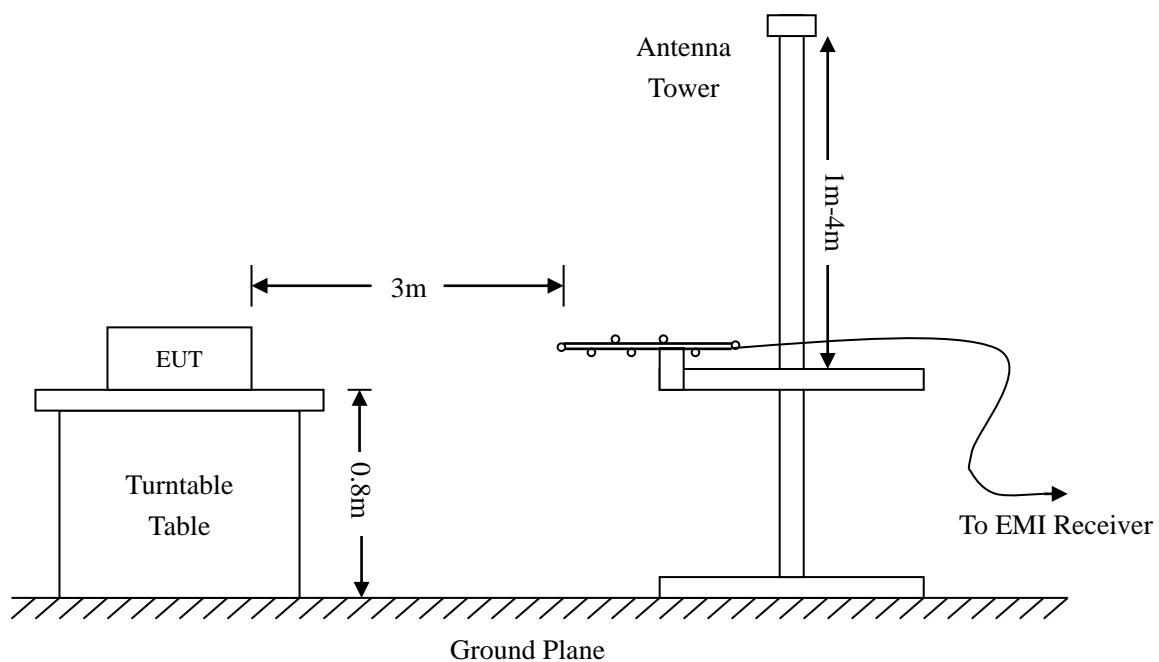
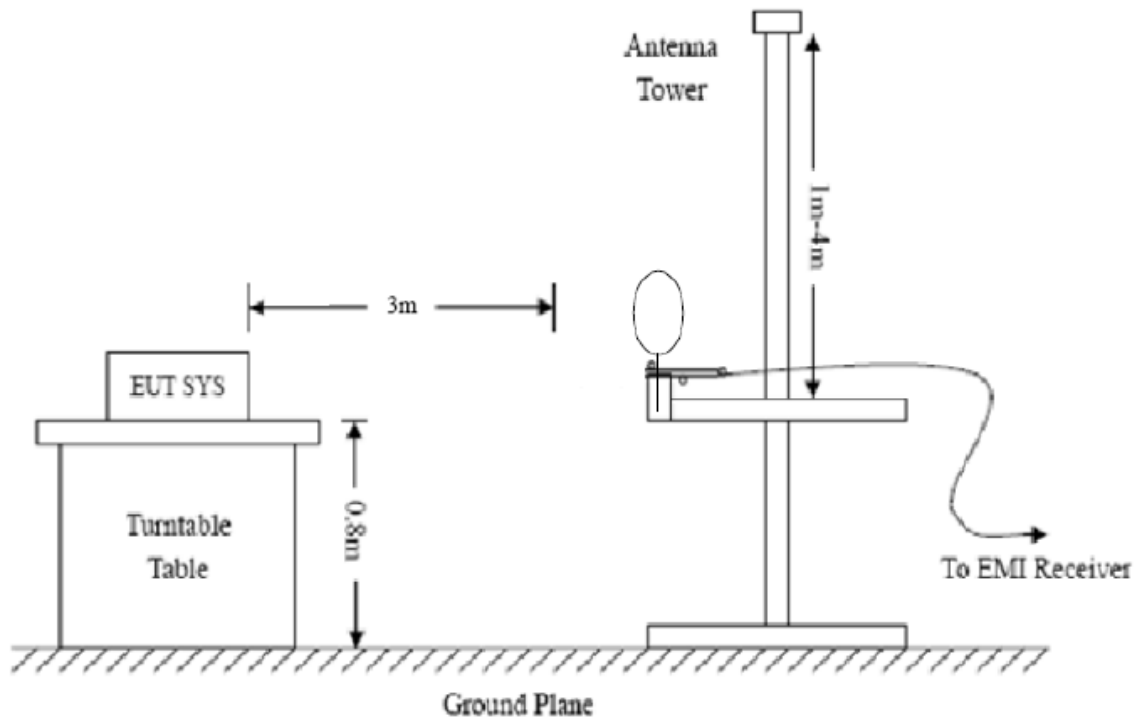
4. Radiated Emissions

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

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

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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a RF lighting device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 18.305 Limit}$$

$$\text{Emission level dB}\mu\text{V/m for } 0.009\sim 30\text{MHz} = 20\log(15) + 40\log(300/3) \text{ dB}\mu\text{V/m};$$

4.4 Environmental Conditions

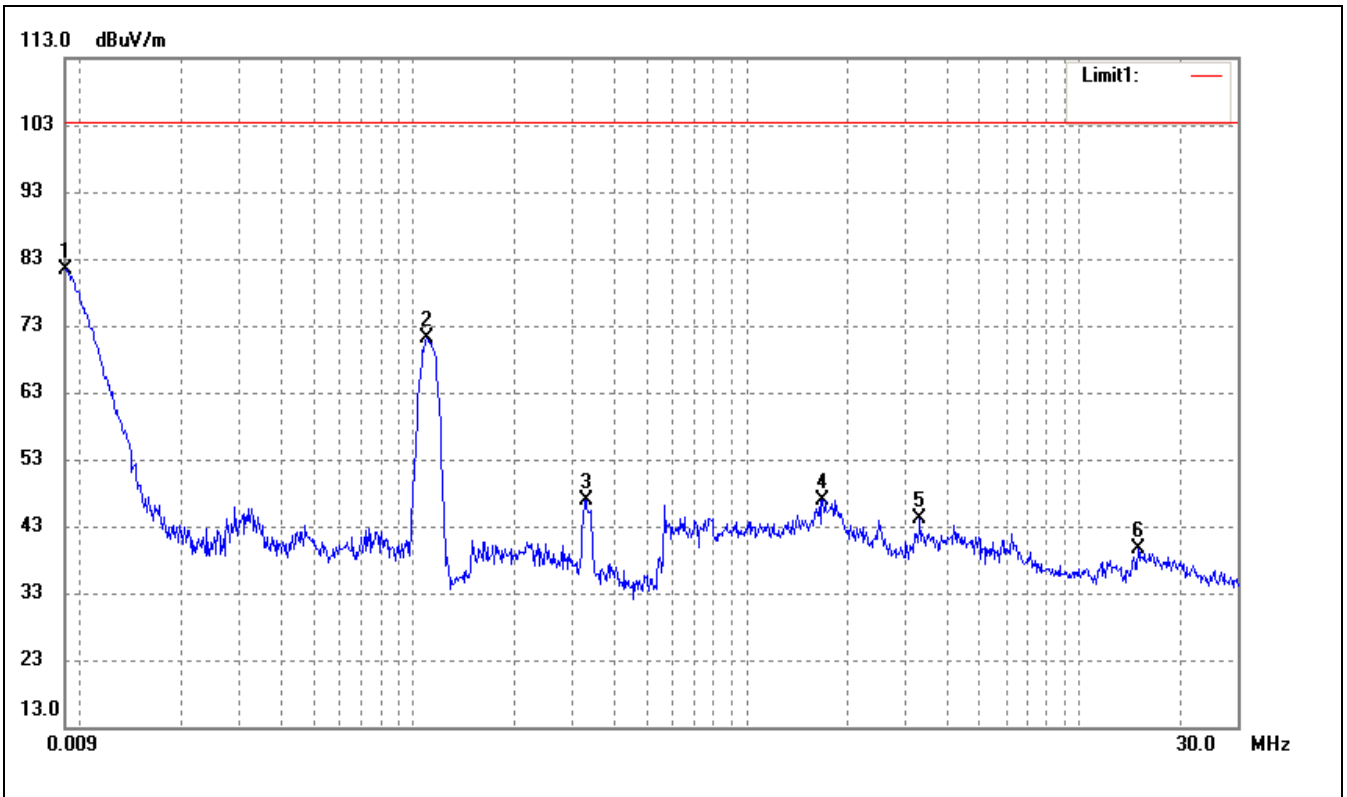
Temperature:	24 °C
Relative Humidity:	56 %
ATM Pressure:	1011 mbar

4.5 Summary of Test Results/Plots

Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

➤ Below 30MHz

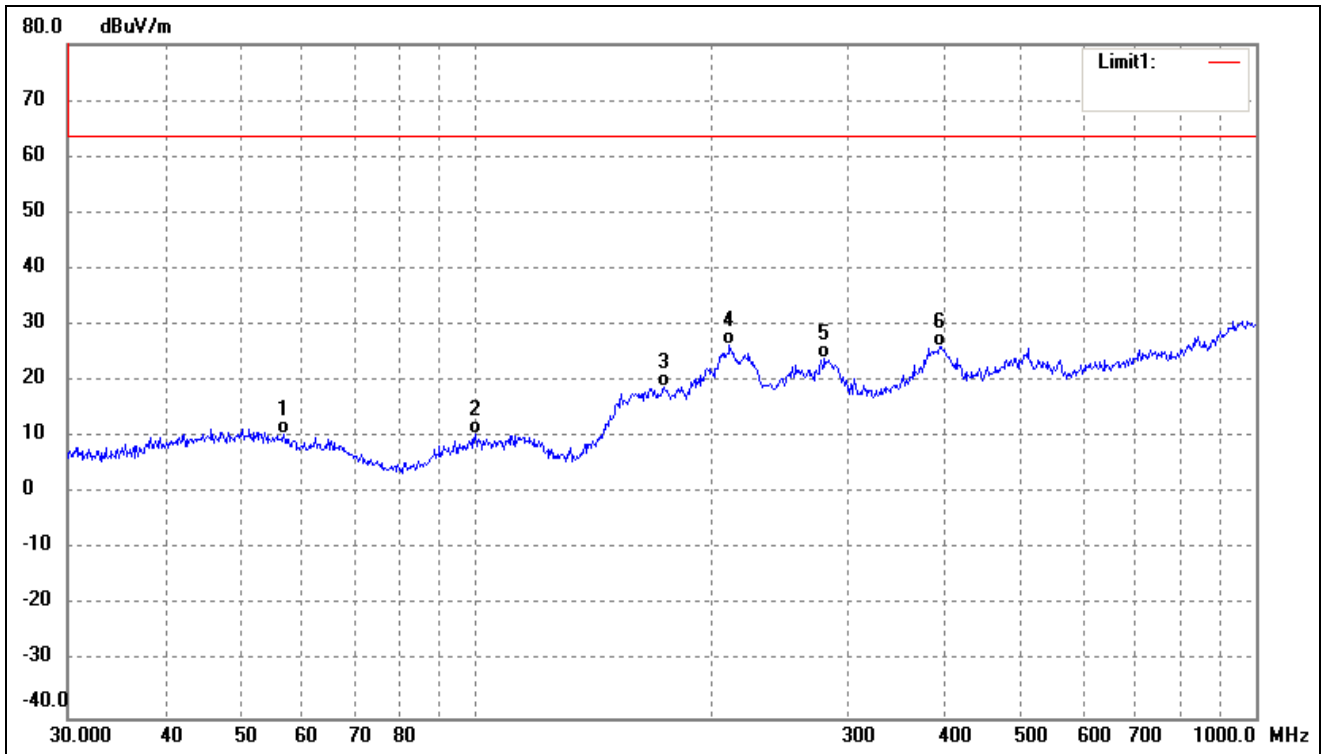
Test Mode	TM1	Polarity:	X
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No.	Frequency (MHz)	Reading (dBuA)	Correct (dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0089	90.9	-9.51	81.39	103.5	-22.11	319	100	AVG
2	0.1097	80.85	-9.66	71.19	103.5	-32.31	153	100	AVG
3	0.3286	56.69	-9.72	46.97	103.5	-56.53	110	100	AVG
4	1.6891	56.86	-9.88	46.98	103.5	-56.52	148	100	AVG
5	3.3105	54.12	-10.06	44.06	103.5	-59.44	243	100	AVG
6	14.9860	49.78	-10.24	39.54	103.5	-63.96	315	100	AVG

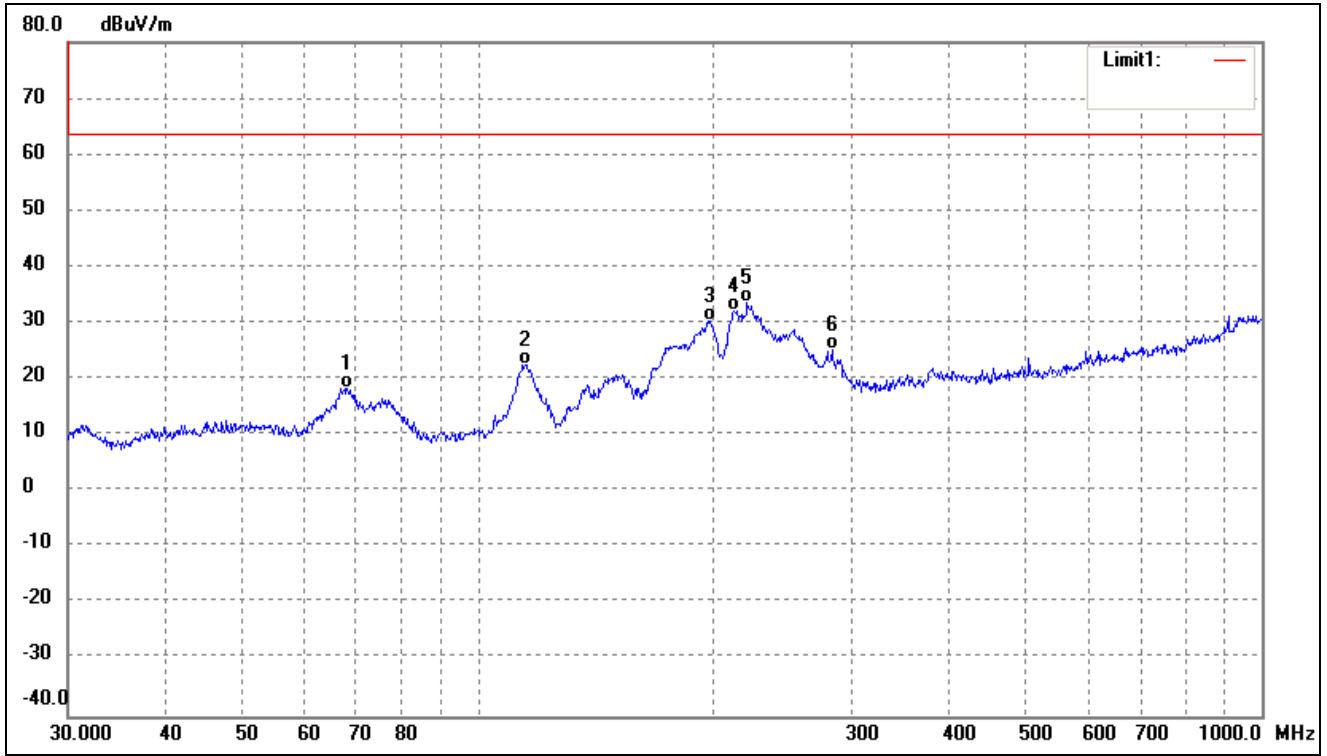
➤ Above 30MHz

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	56.7917	24.46	-13.76	10.70	63.5	-52.80	132	100	peak
2	99.8777	24.96	-14.48	10.48	63.5	-53.02	276	100	peak
3	174.4241	33.81	-14.88	18.93	63.5	-44.57	89	100	peak
4	211.5265	38.37	-12.06	26.31	63.5	-37.19	134	100	peak
5	280.0237	32.34	-8.31	24.03	63.5	-39.47	232	100	peak
6	393.4723	32.85	-6.69	26.16	63.5	-37.34	343	100	peak

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	68.1514	34.75	-16.45	18.30	63.5	-45.20	225	100	QP
2	114.9169	37.43	-14.77	22.66	63.5	-40.84	95	100	QP
3	197.8928	42.69	-12.35	30.34	63.5	-33.16	210	100	QP
4	212.2695	44.27	-12.01	32.26	63.5	-31.24	110	100	QP
5	220.6171	44.87	-11.30	33.57	63.5	-29.93	343	100	QP
6	282.9852	33.52	-8.27	25.25	63.5	-38.25	113	100	QP

***** END OF REPORT *****