

FCC Part 15C Measurement and Test Report

For

JnB Innovation

30 rue du Rempart Saint Etienne, Toulouse, Cliquez ici, France

FCC ID: 2ARWMCD1

FCC Rule(s): FCC Part 15.207&15.209

Product Description: Catspad Feeder

Tested Model: CD1

Report No.: STR18098215I

Sample Receipt Date: 2018-09-18

Tested Date: 2018-09-19 to 2018-10-24

Issued Date: 2018-10-24

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Mike Shi

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Silin Chen

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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: JnB Innovation
Address of applicant: 30 rue du Rempart Saint Etienne, Toulouse, Cliquez ici, France

Manufacturer: JnB Innovation
Address of manufacturer: 30 rue du Rempart Saint Etienne, Toulouse, Cliquez ici, France

General Description of EUT	
Product Name:	Catspad Feeder
Trade Name:	Catspad
Model No.:	CD1
Adding Model(s):	/
Rated Voltage:	Battery: DC9.6V
Power Adapter Model:	MODEL No: TDX-1401500 INPUT:AC100-240~ 50/60Hz 0.6A OUTPUT:DC14V,1.5A
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	133.83kHz
Antenna Type:	Integral Antenna
Antenna Gain:	2.0dBi

1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.207: Conducted limits.

FCC Rules Part 15.209: Radiated emission limits; general requirements.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

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 C63.10-2013, The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

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. 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	Normal working	/	/

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
DC CABLE	1.1	Unshielded	Without Core
AC CABLE	1.1	Unshielded	With Core

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 $\pm 3.74\text{dB}$
		0.15-30MHz $\pm 3.34\text{dB}$
Radiated Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$
		6-18GHz $\pm 3.92\text{dB}$

1.7 Test Equipment List and Details

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

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.203 Antenna Requirement	Compliant
§15.207 (a) Conducted Emission	Compliant
§15.209 Radiated Emission	Compliant

N/A: not applicable

3. Antenna Requirement

3.1 Standard Applicable

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

3.2 Test Result

This product has an integral antenna, fulfill the requirement of this section.

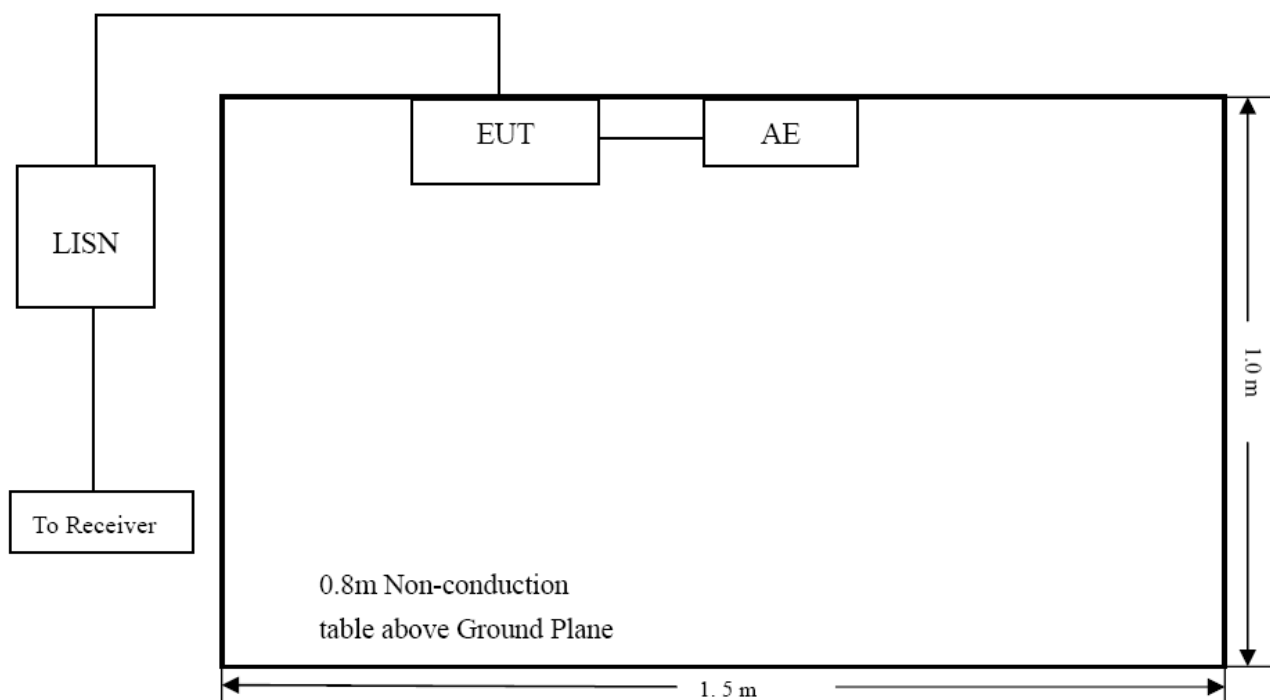
4. Conducted Emissions

4.1 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 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 Basic Test Setup Block Diagram

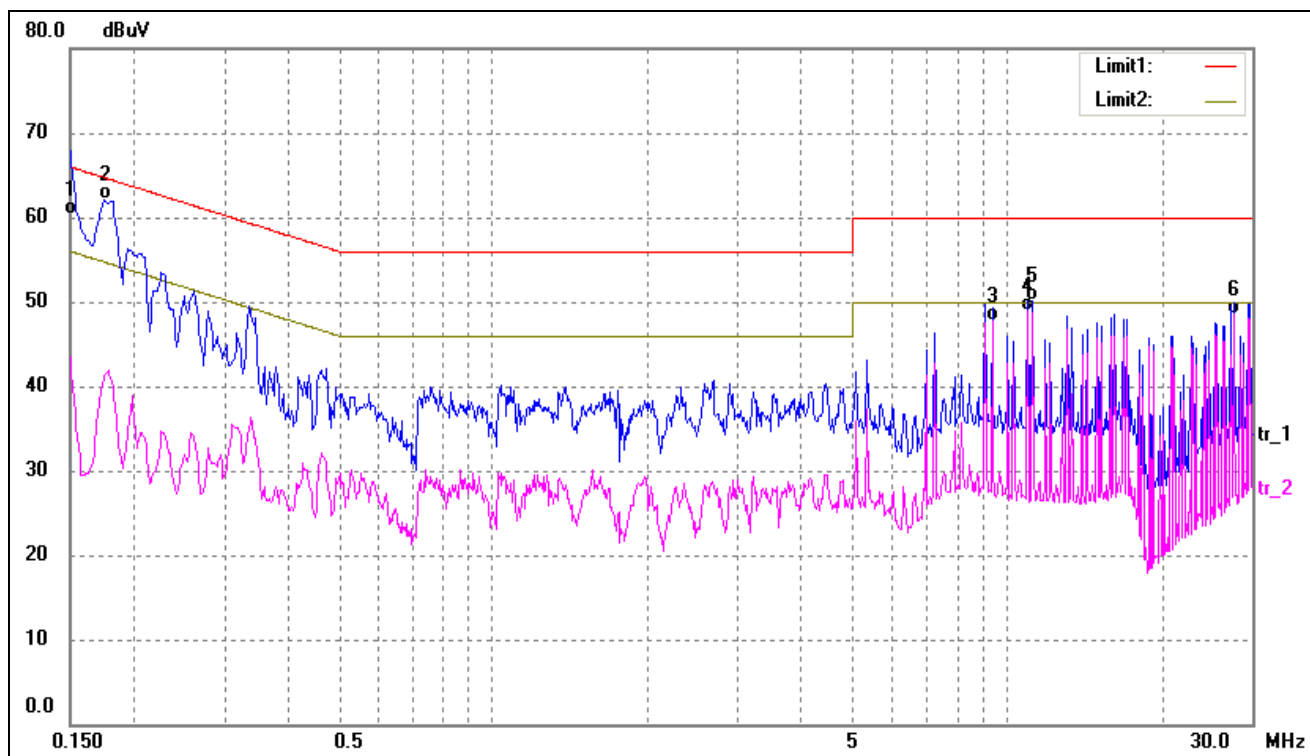


4.3 Environmental Conditions

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

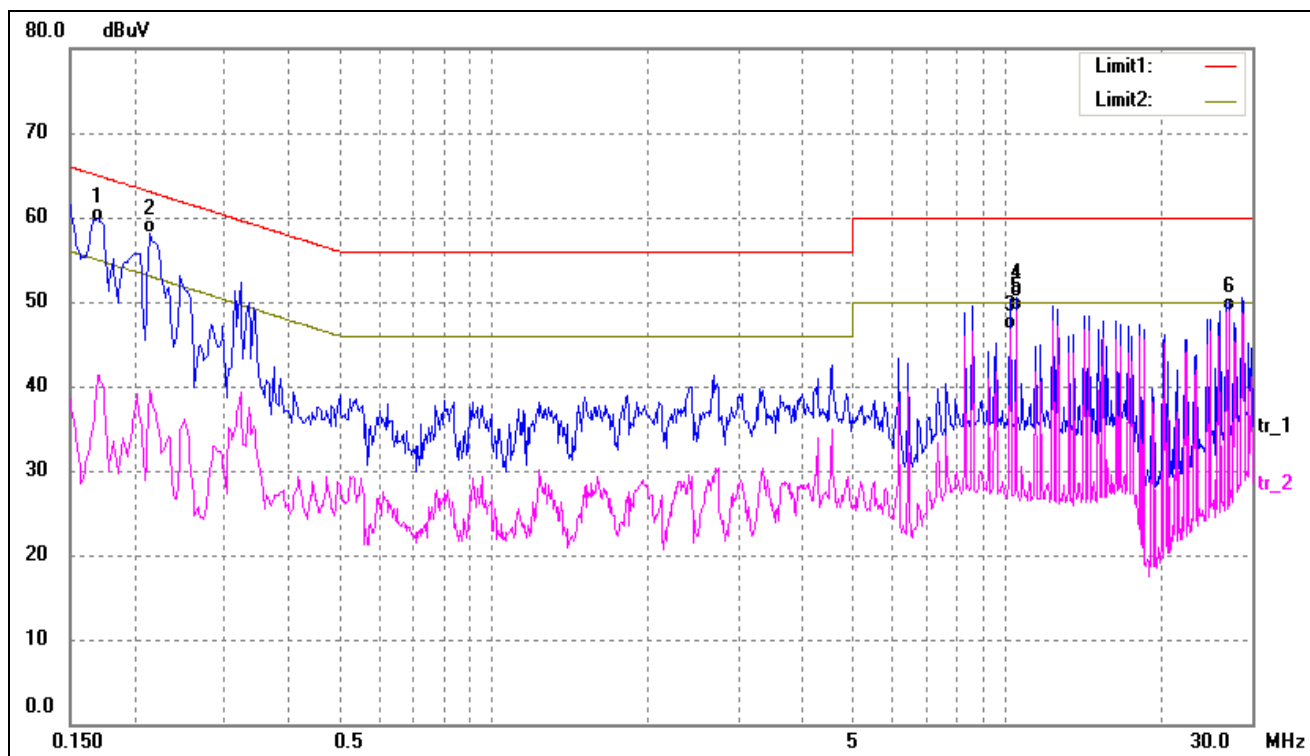
4.4 Summary of Test Results/Plots

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	0.1500	50.21	10.10	60.31	66.00	-5.69	QP
2	0.1740	51.98	10.11	62.09	64.77	-2.68	QP
3	9.3700	36.78	10.93	47.71	50.00	-2.29	AVG
4*	10.9740	37.88	10.96	48.84	50.00	-1.16	AVG
5	11.2420	39.19	10.97	50.16	60.00	-9.84	QP
6	27.5700	37.32	11.25	48.57	50.00	-1.43	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	0.1711	49.47	10.11	59.58	64.90	-5.32	QP
2	0.2140	47.95	10.13	58.08	63.04	-4.96	QP
3	10.1699	35.79	10.95	46.74	50.00	-3.26	AVG
4	10.4379	39.61	10.96	50.57	60.00	-9.43	QP
5	10.4379	37.95	10.96	48.91	50.00	-1.09	AVG
6*	27.0340	37.70	11.24	48.94	50.00	-1.06	AVG

5. RADIATED EMISSION

5.1 Standard Applicable

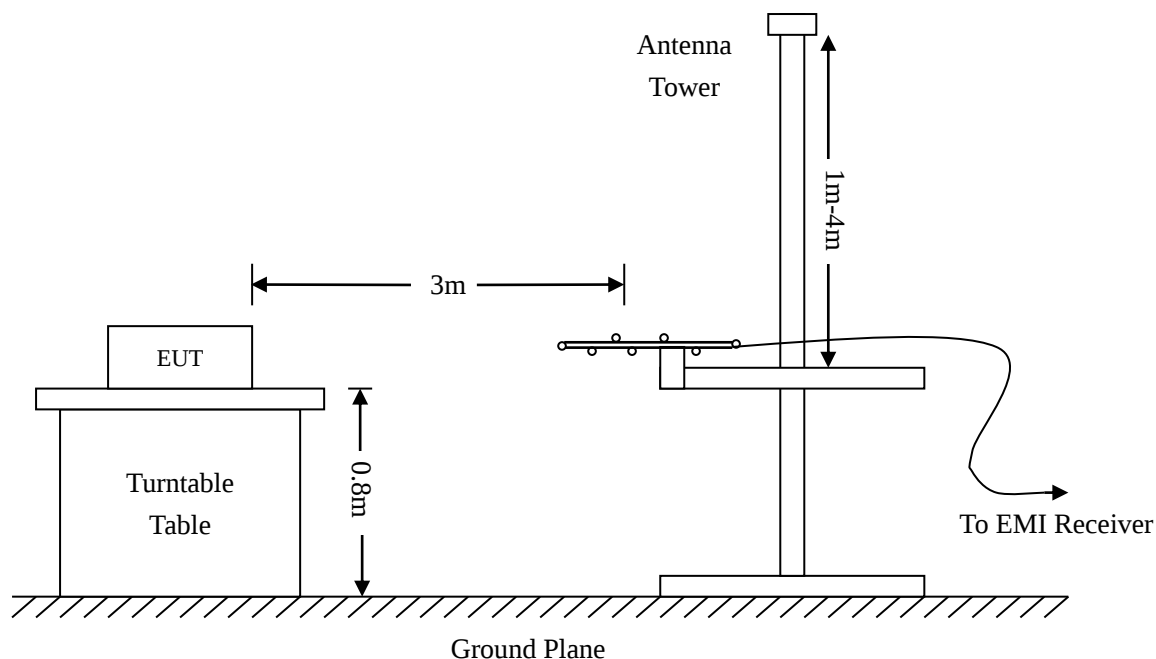
According to 15.209(a) Radiated emission limits; general requirements.

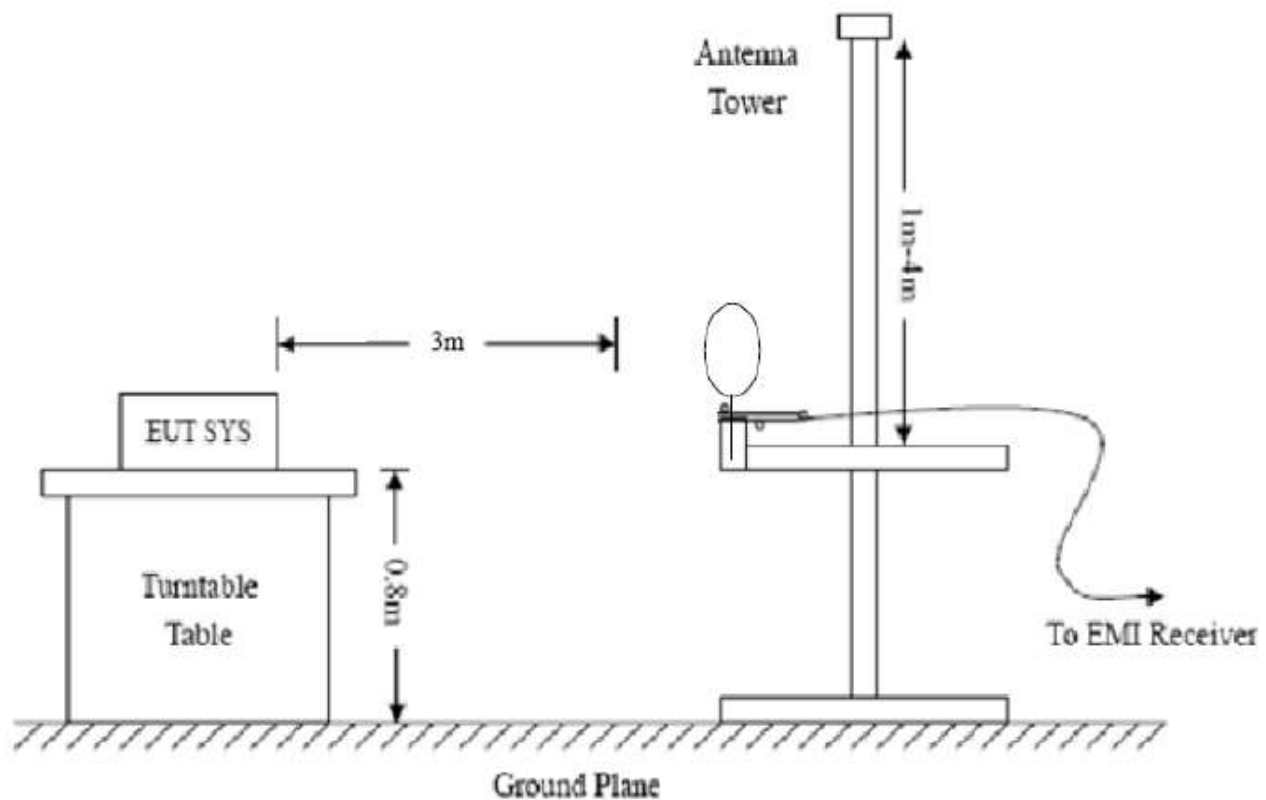
Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

5.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.209 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.





5.3 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

5.4 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 μ V means the emission is 6dB μ V below the maximum limit for a Class B device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.209(a) Limit}$$

5.5 Environmental Conditions

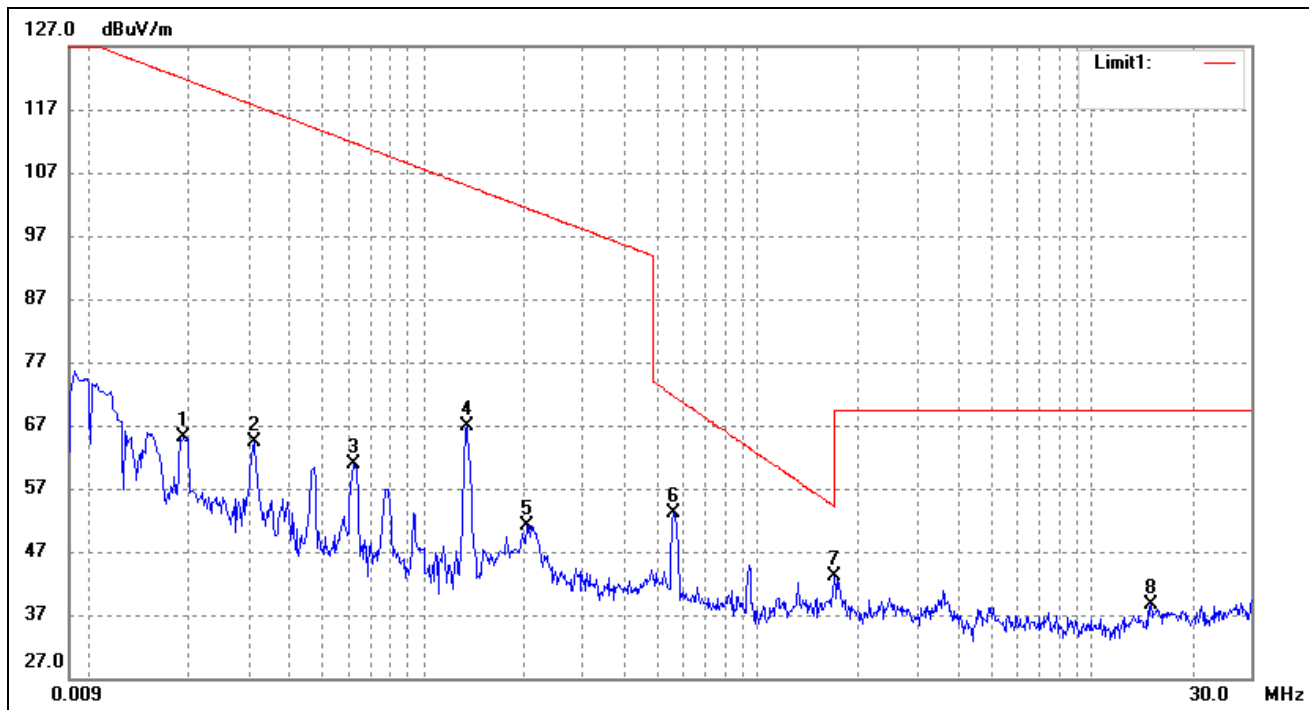
Temperature:	24 °C
Relative Humidity:	56 %
ATM Pressure:	1011 mbar

5.6 Summary of Test Results/Plots

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

➤ Below 30MHz

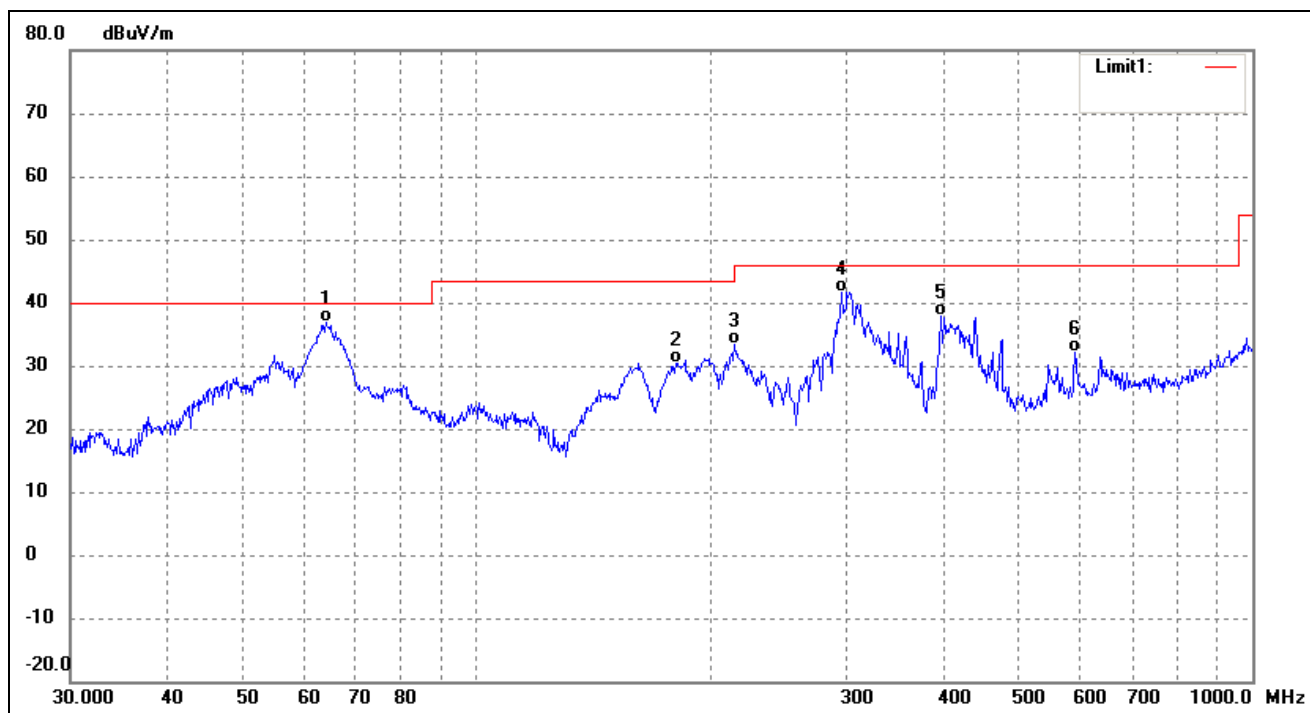
Test mode:	TM1	Polarity:	Z-
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No.	Frequency (MHz)	Reading (dBuA)	Correct dB	Result (dBuA)	Limit (dBuA)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0194	72.24	-7.08	65.16	121.83	-56.67	43	100	QP
2	0.0313	71.43	-7.09	64.34	117.68	-53.34	52	100	QP
3	0.0623	68.46	-7.57	60.89	111.70	-50.81	78	100	QP
4	0.1348	72.41	-5.53	66.88	105.00	-38.12	125	100	QP
5	0.2049	57.02	-5.80	51.22	101.37	-50.15	36	100	QP
6	0.5611	62.02	-8.83	53.19	71.66	-18.47	253	100	QP
7	1.6980	53.19	-10.06	43.13	54.16	-11.03	173	100	QP
8	14.9068	48.95	-10.37	38.58	69.50	-30.92	245	100	QP

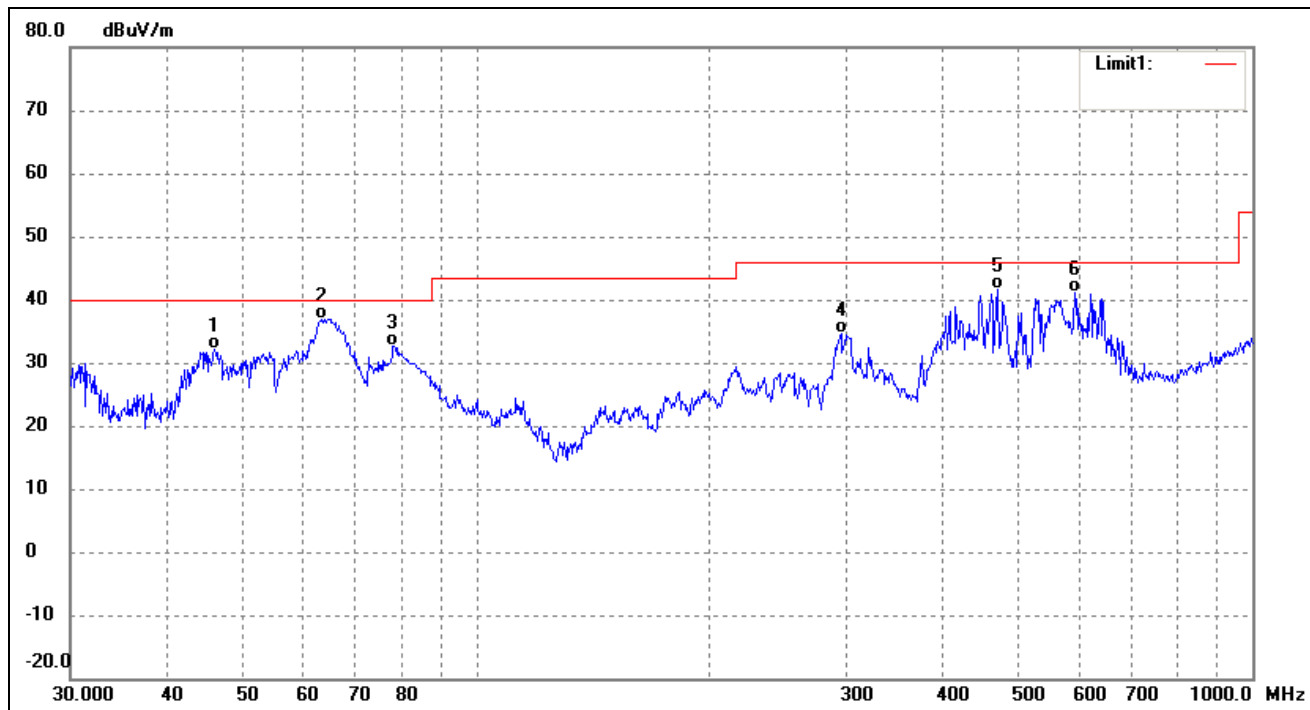
➤ 30MHz-1GHz

➤ 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	63.9828	52.01	-15.10	36.91	40.00	-3.09	338	100	QP
2	180.6488	44.53	-14.22	30.31	43.50	-13.19	98	100	QP
3	215.2678	45.17	-11.80	33.37	43.50	-10.13	133	100	QP
4	295.1469	49.25	-7.51	41.74	46.00	-4.26	103	100	QP
5	397.6334	44.30	-6.54	37.76	46.00	-8.24	176	100	QP
6	590.9737	36.16	-3.99	32.17	46.00	-13.83	119	100	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	45.03	-12.91	32.12	40.00	-7.88	257	100	QP
2	63.0916	51.97	-14.99	36.98	40.00	-3.02	246	100	QP
3	78.1389	51.41	-18.75	32.66	40.00	-7.34	95	100	QP
4	295.1469	42.14	-7.51	34.63	46.00	-11.37	281	100	QP
5	468.8762	47.96	-6.23	41.73	46.00	-4.27	68	100	QP
6	590.9737	45.02	-3.99	41.03	46.00	-4.97	177	100	QP

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