TEST REPORT

Reference No......	:	WTN20X09063487W-1
FCC ID.....	:	2AZET-SPUA131
Applicant	:	Ningbo LGDD Electrical Fittings Co.,Ltd
Address	:	No.188 Changxing Road,Jiangbei District Ningbo China 315033
Product Name	:	Smart Pop up Socket
Test Model.	:	SPU.A131
Standards	:	FCC Part 18
Date of Receipt sample	:	Sept.07, 2020
Date of Test.....	:	Sept.07, 2020 to Nov.11, 2020
Date of Issue	:	Nov.11, 2020
Test Result.....	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Report version

Version No.	Date of issue	Description
Rev.00	Nov.11, 2020	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Ningbo LGDD Electrical Fittings Co.,Ltd
Address of applicant:	No.188 Changxing Road,Jiangbei District Ningbo China 315033
Manufacturer:	Ningbo LGDD Electrical Fittings Co.,Ltd
Address of manufacturer:	No.188 Changxing Road,Jiangbei District Ningbo China 315033

General Description of EUT	
Product Name:	Smart Pop up Socket
Trade Name:	LGDD, MOCKEIT
Model No.:	SPU.A131
Adding Model(s):	SPU.XXX1(The first X means color. ie A=black, B=chrome The second X means mounting surface shape. ie 1=round, 2=square The third * means the number of socket. 2=two sockets, 3=three sockets)
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 SPU.A131, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	110~205kHz
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 AC120V; Output:DC5V/1A
TM2	Wireless Charging	/	Input AC120V; Output:DC9V/1.1A

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Cable	1.98	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

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

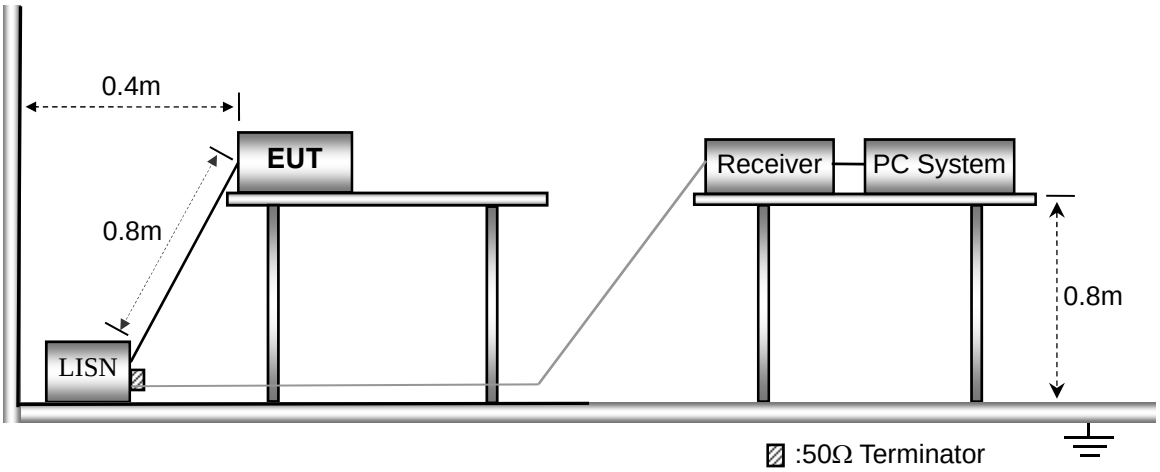
According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

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:	22.5° C
Relative Humidity:	54%
ATM Pressure:	1016 mbar

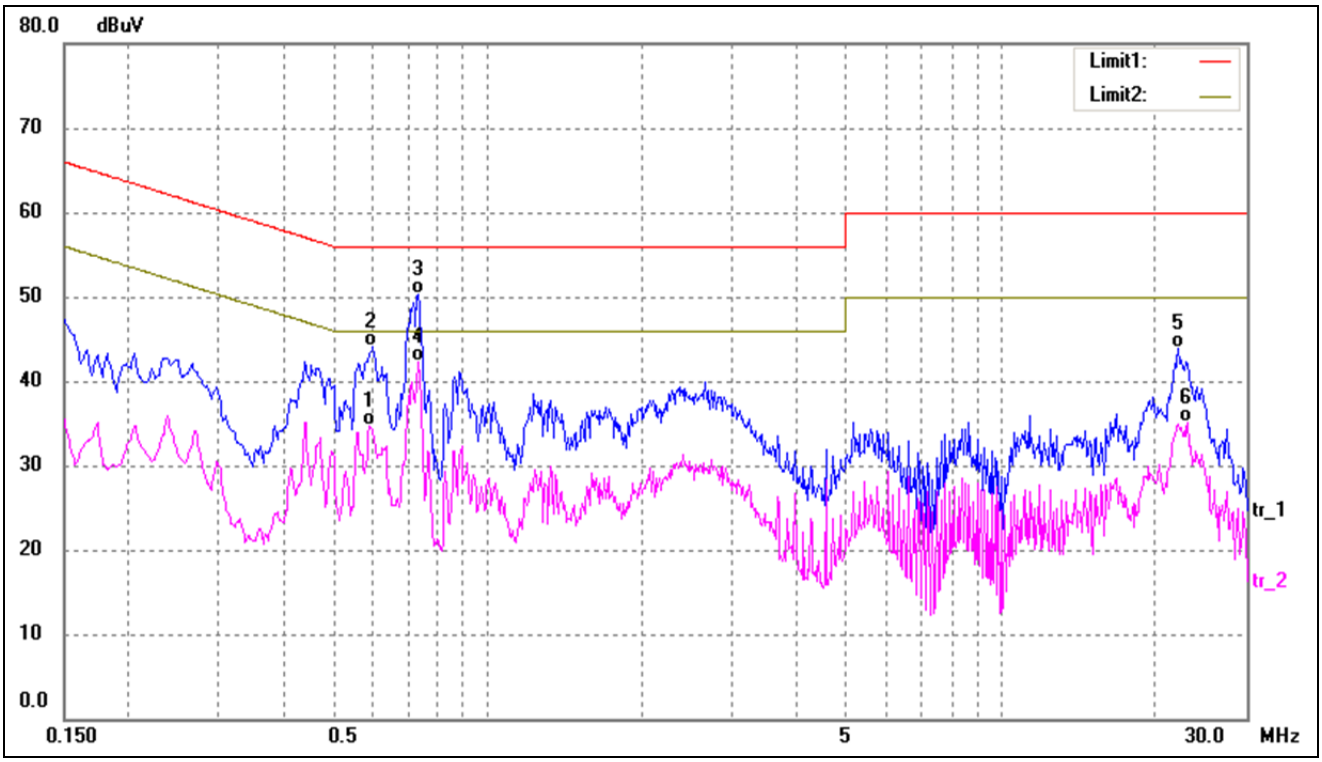
3.5 Test Receiver Setup

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

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

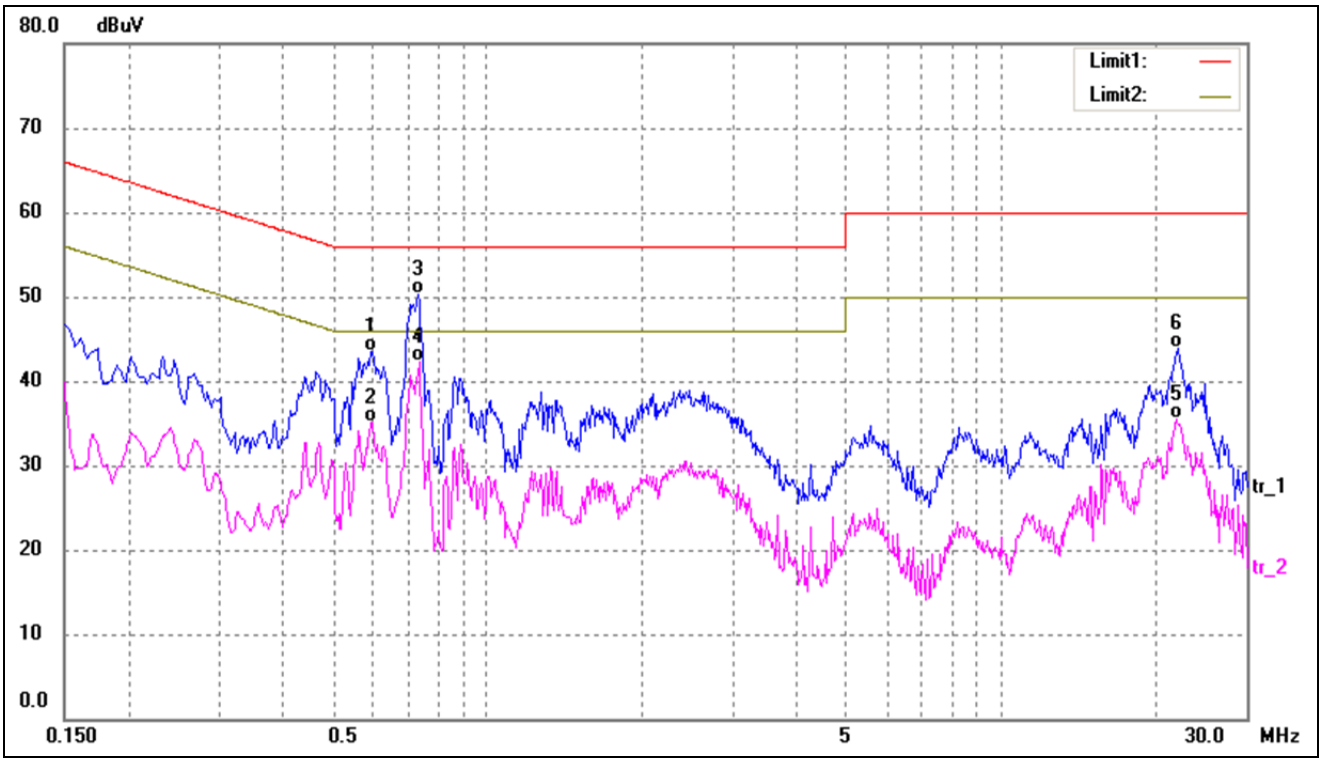
3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line



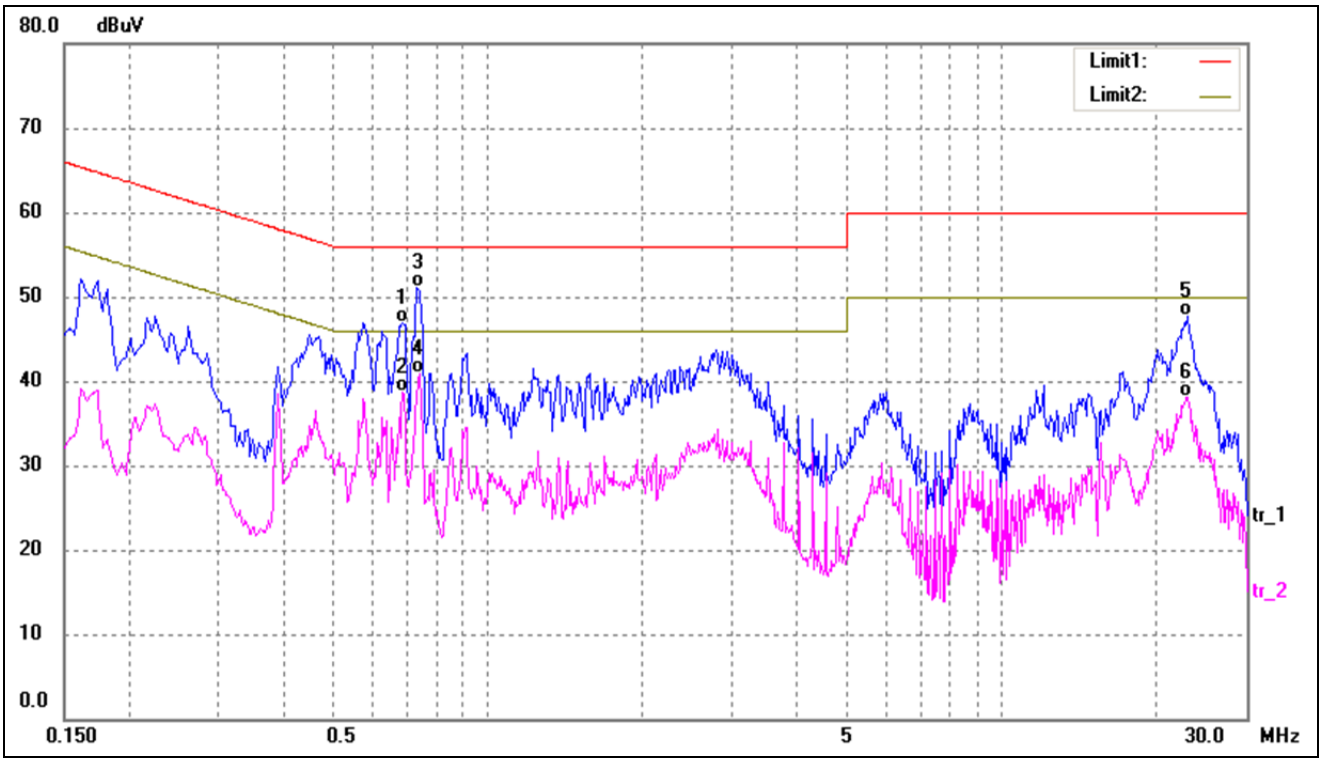
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5899	24.54	10.21	34.75	46.00	-11.25	AVG
2	0.5980	33.91	10.21	44.12	56.00	-11.88	QP
3	0.7340	40.18	10.18	50.36	56.00	-5.64	QP
4*	0.7340	32.15	10.18	42.33	46.00	-3.67	AVG
5	22.1299	33.37	10.59	43.96	60.00	-16.04	QP
6	23.0980	24.50	10.59	35.09	50.00	-14.91	AVG

Test mode:	TM1	Polarity:	Neutral



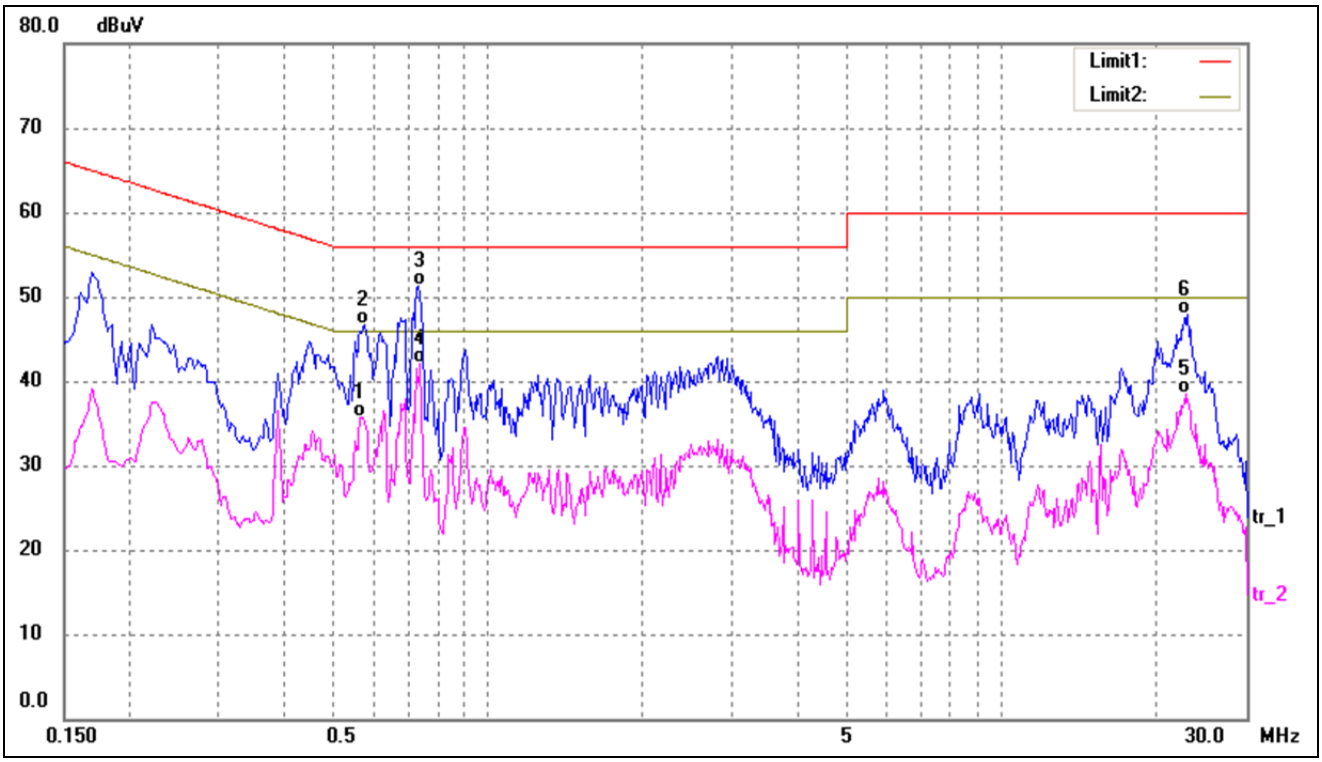
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5940	33.35	10.21	43.56	56.00	-12.44	QP
2	0.5940	24.95	10.21	35.16	46.00	-10.84	AVG
3	0.7340	40.09	10.18	50.27	56.00	-5.73	QP
4*	0.7380	32.12	10.18	42.30	46.00	-3.70	AVG
5	21.9420	24.99	10.60	35.59	50.00	-14.41	AVG
6	22.1020	33.35	10.59	43.94	60.00	-16.06	QP

Test mode:	TM2	Polarity:	Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.6860	36.73	10.17	46.90	56.00	-9.10	QP
2	0.6860	28.60	10.17	38.77	46.00	-7.23	AVG
3*	0.7300	40.95	10.18	51.13	56.00	-4.87	QP
4	0.7380	30.65	10.18	40.83	46.00	-5.17	AVG
5	23.0380	37.03	10.59	47.62	60.00	-12.38	QP
6	23.0380	27.61	10.59	38.20	50.00	-11.80	AVG

Test mode:	TM2	Polarity:	Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5660	25.49	10.21	35.70	46.00	-10.30	AVG
2	0.5780	36.56	10.21	46.77	56.00	-9.23	QP
3	0.7340	41.15	10.18	51.33	56.00	-4.67	QP
4*	0.7420	31.88	10.18	42.06	46.00	-3.94	AVG
5	22.8940	27.87	10.60	38.47	50.00	-11.53	AVG
6	23.0220	37.32	10.60	47.92	60.00	-12.08	QP

4. Radiated Emissions

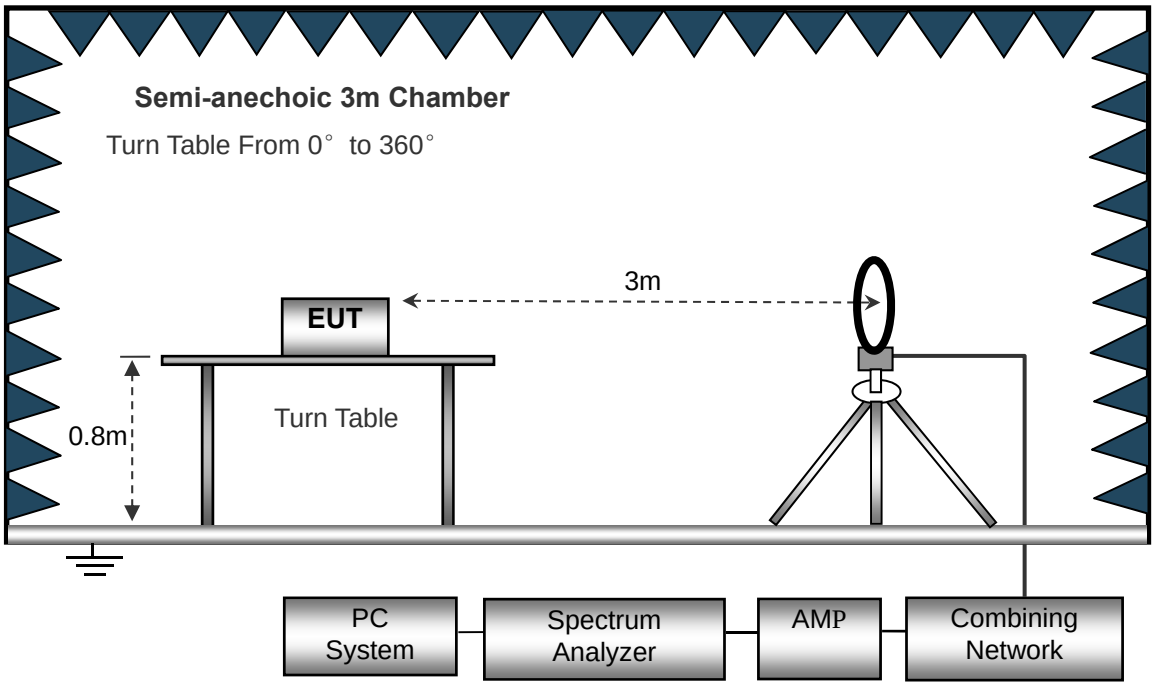
4.1 Test Procedure

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.

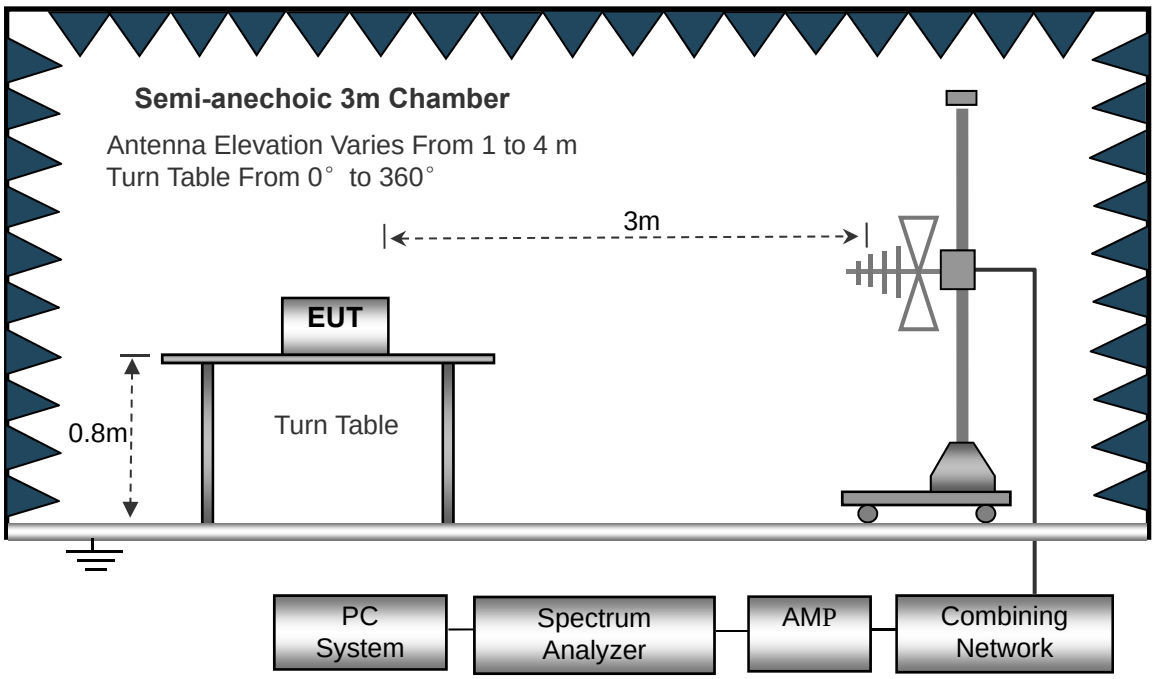
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

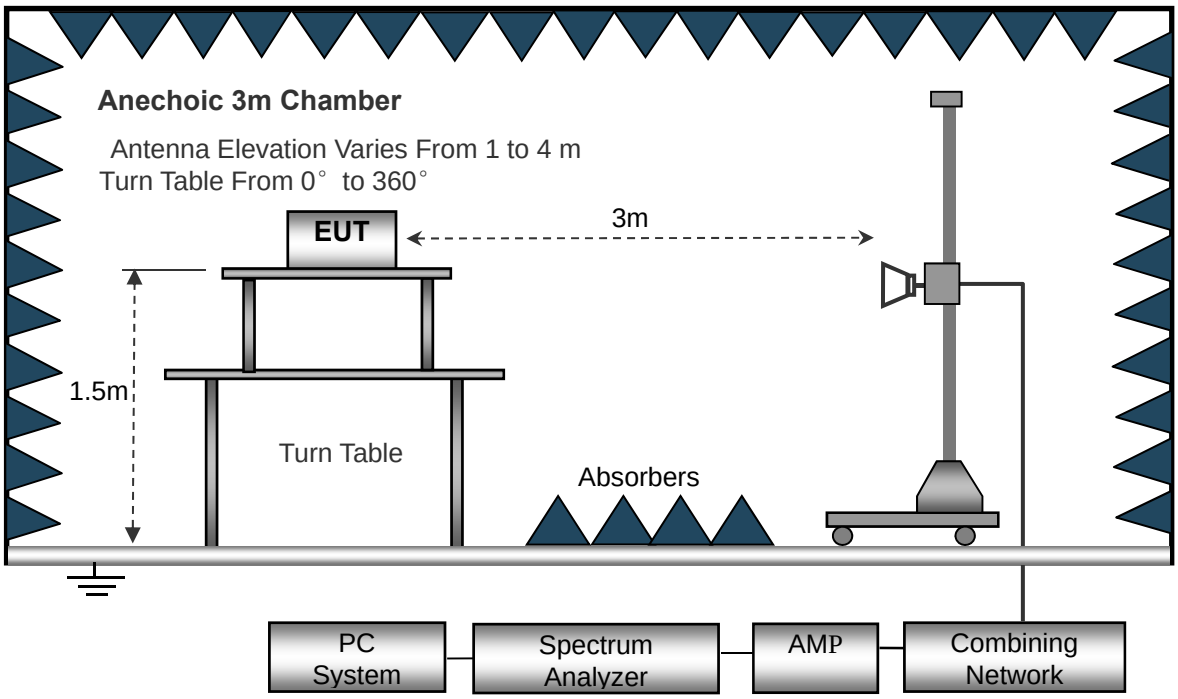
The test setup for emission measurement below 30MHz..



The test setup for emission measurement from 30 MHz to 1 GHz..



The test setup for emission measurement above 1 GHz..



4.2 Test Receiver Setup

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:

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

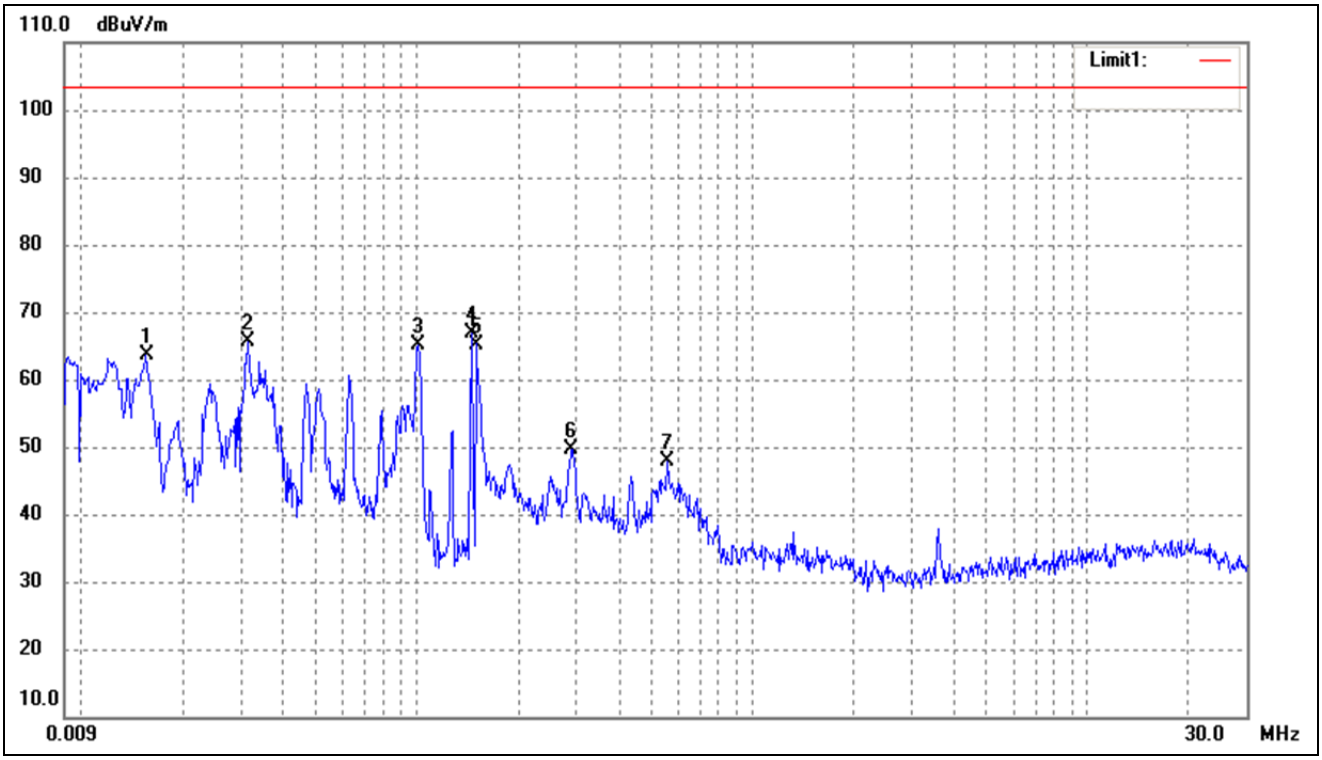
4.4 Environmental Conditions

Temperature:	22.5° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

4.5 Summary of Test Results/Plots

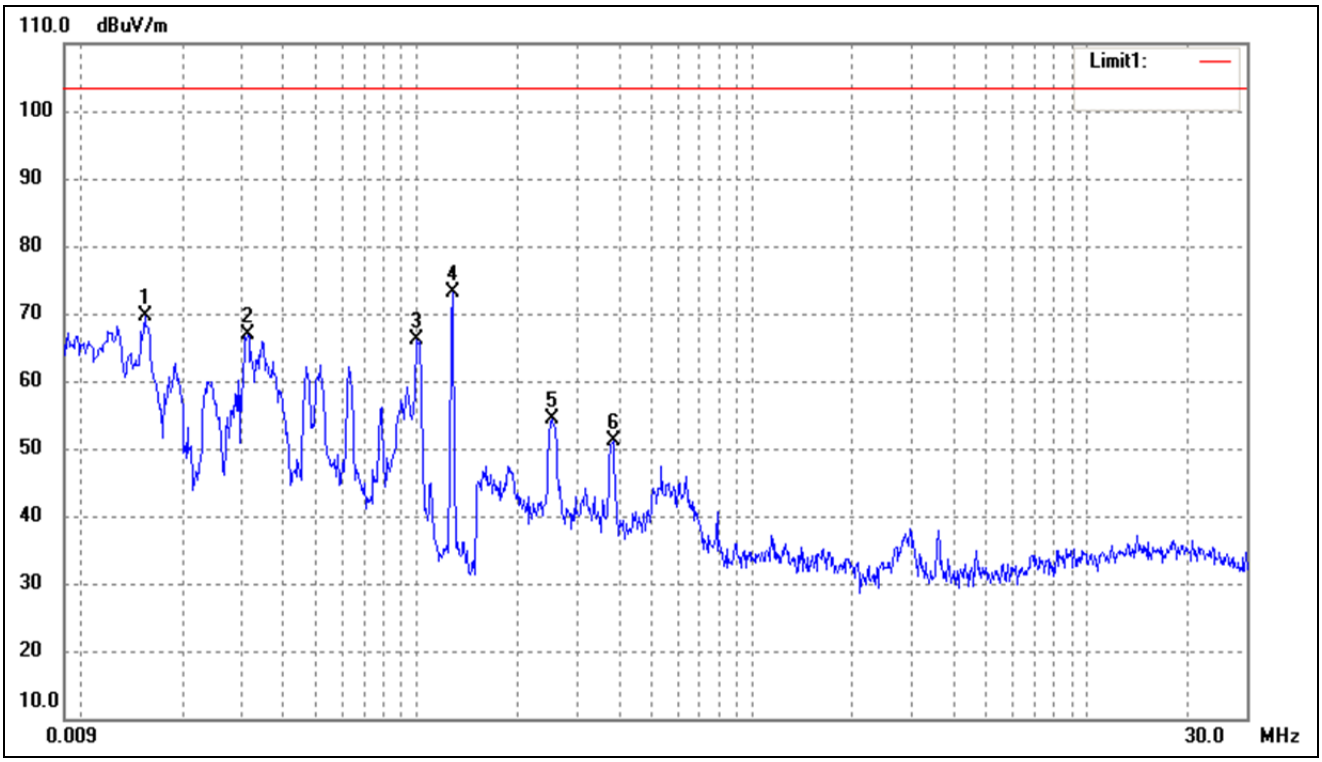
Plot of Radiated Emissions Test Data (Below 30MHz)

Test mode:	TM1	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0157	70.16	-6.62	63.54	103.50	-39.96	-	-	peak
2	0.0313	71.63	-6.03	65.60	103.50	-37.90	-	-	peak
3	0.1006	70.28	-5.06	65.22	103.50	-38.28	-	-	peak
4	0.1454	72.11	-5.19	66.92	103.50	-36.58	-	-	peak
5	0.1500	70.45	-5.20	65.25	103.50	-38.25	-	-	peak
6	0.2878	57.41	-7.81	49.60	103.50	-53.90	-	-	peak
7	0.5581	55.15	-7.39	47.76	103.50	-55.74	-	-	peak

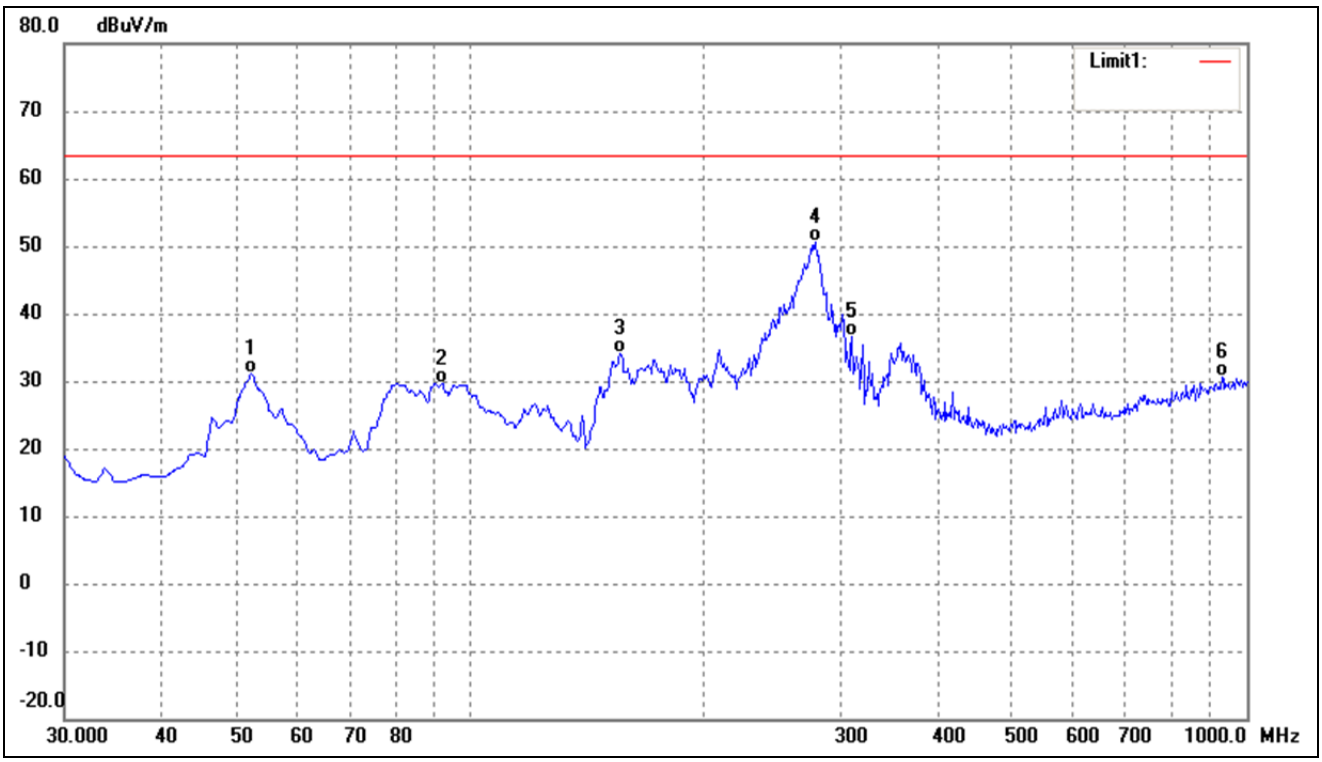
Test mode:	TM2	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0155	76.13	-6.61	69.52	103.50	-33.98	-	-	peak
2	0.0314	72.93	-6.02	66.91	103.50	-36.59	-	-	peak
3	0.1000	71.26	-5.06	66.20	103.50	-37.30	-	-	peak
4	0.1278	78.24	-5.13	73.11	103.50	-30.39	-	-	peak
5	0.2521	61.74	-7.40	54.34	103.50	-49.16	-	-	peak
6	0.3832	58.86	-7.83	51.03	103.50	-52.47	-	-	peak

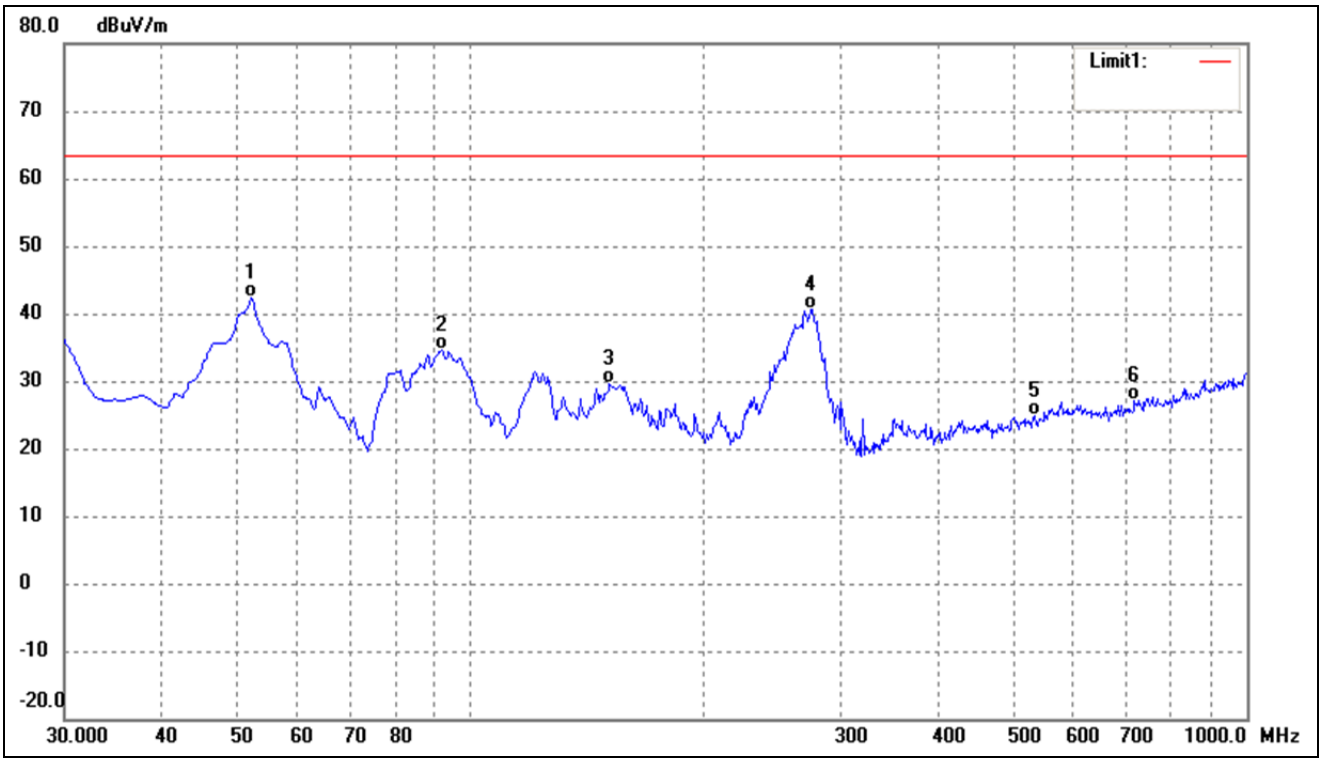
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal



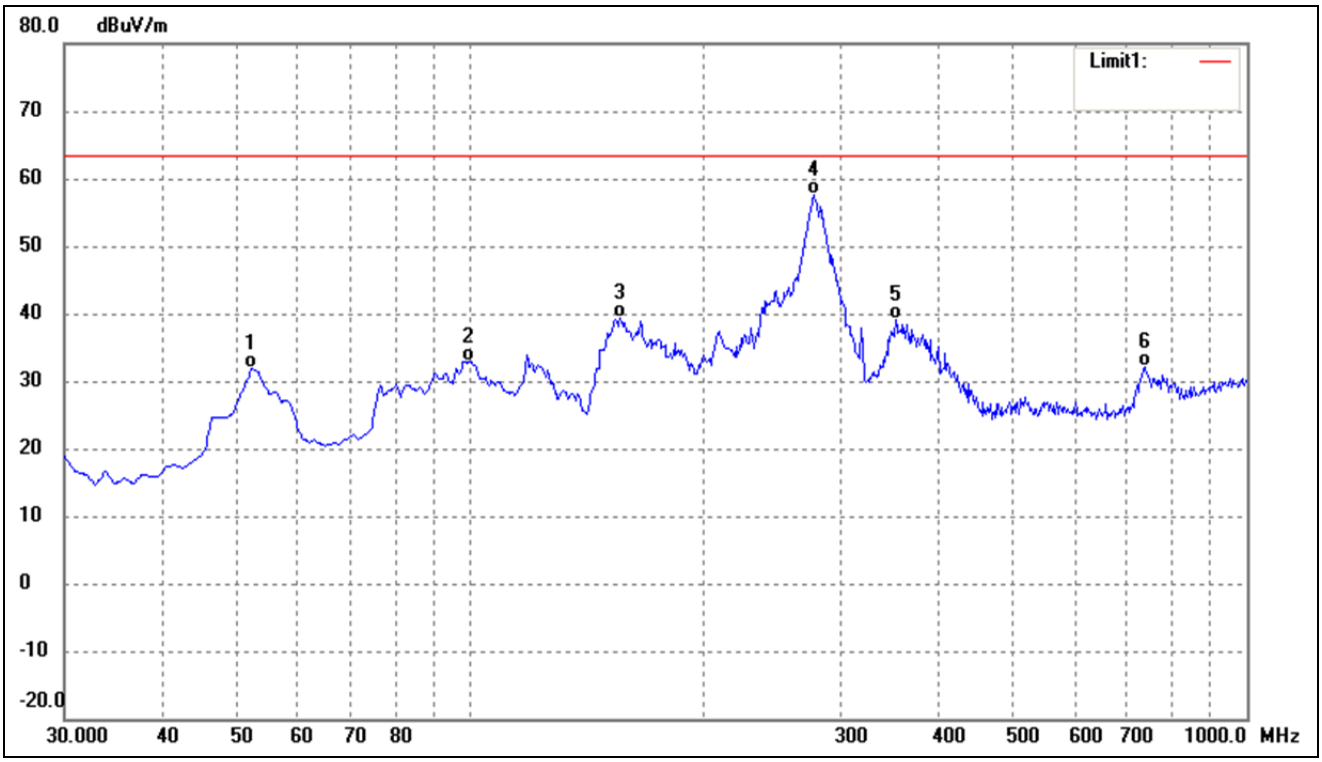
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	52.3100	41.83	-10.68	31.15	63.50	-32.35	-	-	QP
2	92.0800	43.74	-14.07	29.67	63.50	-33.83	-	-	QP
3	156.1000	48.63	-14.52	34.11	63.50	-29.39	-	-	QP
4	278.3200	59.19	-8.51	50.68	63.50	-12.82	-	-	QP
5	310.3299	43.88	-7.30	36.58	63.50	-26.92	-	-	QP
6	932.1000	28.50	2.16	30.66	63.50	-32.84	-	-	QP

Test mode:	TM1	Polarity:	Vertical



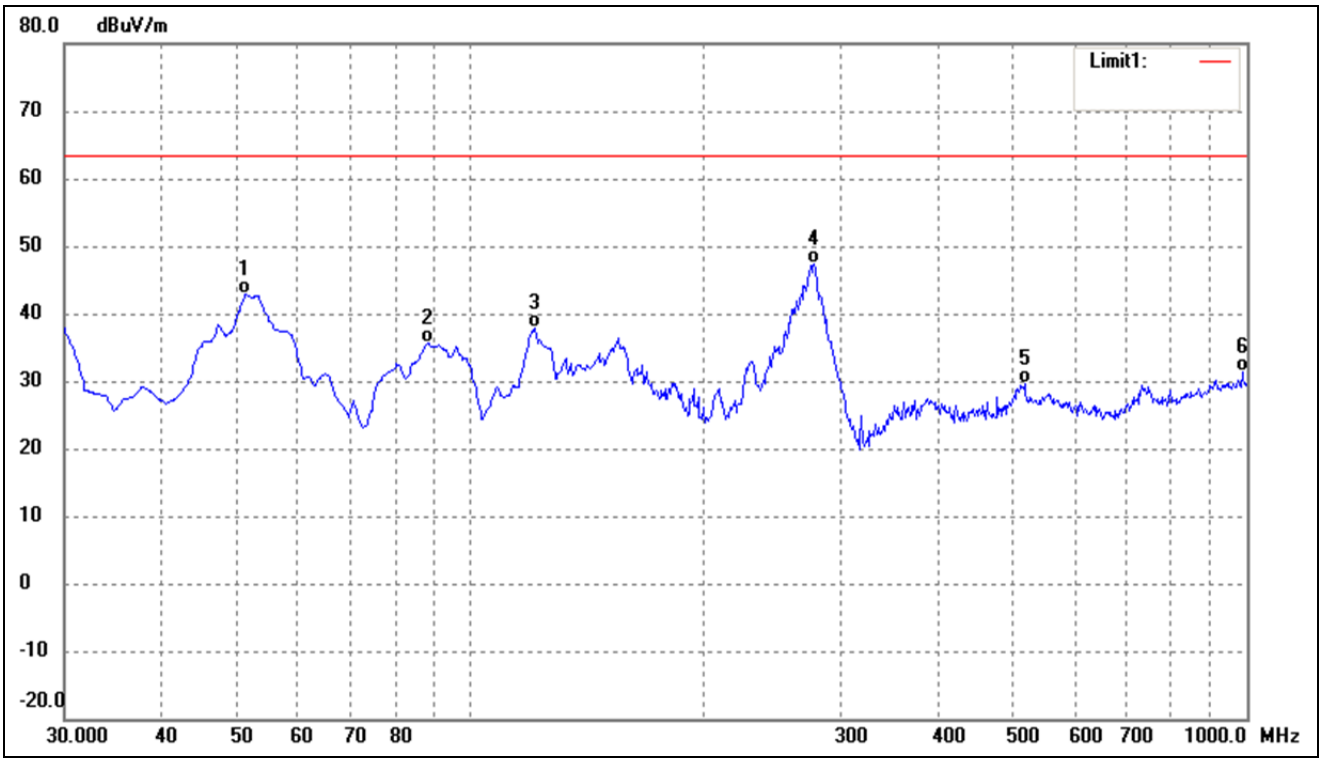
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	52.3100	53.04	-10.68	42.36	63.50	-21.14	-	-	QP
2	92.0800	48.63	-14.07	34.56	63.50	-28.94	-	-	QP
3	151.2500	44.43	-14.78	29.65	63.50	-33.85	-	-	QP
4	274.4400	49.30	-8.72	40.58	63.50	-22.92	-	-	QP
5	535.3700	29.07	-4.17	24.90	63.50	-38.60	-	-	QP
6	716.7600	28.60	-1.51	27.09	63.50	-36.41	-	-	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	52.3100	42.51	-10.68	31.83	63.50	-31.67	-	-	QP
2	99.8399	45.33	-12.42	32.91	63.50	-30.59	-	-	QP
3	156.1000	53.84	-14.52	39.32	63.50	-24.18	-	-	QP
4	277.3500	66.31	-8.57	57.74	63.50	-5.76	-	-	QP
5	353.0100	45.31	-6.08	39.23	63.50	-24.27	-	-	QP
6	740.0400	33.18	-1.01	32.17	63.50	-31.33	-	-	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	51.3400	53.35	-10.47	42.88	63.50	-20.62	-	-	QP
2	88.2000	50.05	-14.50	35.55	63.50	-27.95	-	-	QP
3	121.1800	51.31	-13.54	37.77	63.50	-25.73	-	-	QP
4	277.3500	55.91	-8.57	47.34	63.50	-16.16	-	-	QP
5	518.8800	34.06	-4.45	29.61	63.50	-33.89	-	-	QP
6	987.3900	28.41	2.91	31.32	63.50	-32.18	-	-	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.

APPENDIX PHOTOGRAPHS

Please refer to "ANNEX"

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