TEST REPORT

Reference No.	:	WTX22X07156174W001
FCC ID	:	2A8HV-W4
Applicant	:	Dongguan Haopin Technology Co., Ltd.
Address	:	5 / F, Building 6, Kusai Kejiyuan, Fumin South Road, Dongguan City, China
Manufacturer	:	Dongguan Haopin Technology Co., Ltd.
Address	:	5 / F, Building 6, Kusai Kejiyuan, Fumin South Road, Dongguan City, China
Product Name	:	Wireless Charging Car Mount for MagSafe
Model No.	:	W4
Standards	:	FCC Part 18
Date of Receipt sample	:	2022-07-29
Date of Test	:	2022-07-29 to 2022-08-18
Date of Issue	:	2022-08-18
Test Report Form No.	:	WTX_Part 18W
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 approver.

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,
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Tested by:

Jack Huang

Jack Huang

Approved by:

Silin Chen

Silin Chen

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Report version

Version No.	Date of issue	Description
Rev.00	2022-08-18	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	Wireless Charging Car Mount for MagSafe
Trade Name:	Galvanox
Model No.:	W4
Adding Model(s):	W3
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 W4, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	110~205KHz
Power adapter	FSK
Antenna Type:	Coil Antenna
Antenna Gain:	0 dBi
Rated Voltage:	Input: 5V, 9V, 12V
Rated Current:	Input: 2A, 2A, 1.67A
Rated Power:	Output: 5W/7.5W/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 and FCC MP-5:1986, 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	Output 5W	Input: 5V, 9V, 12V
TM2	Wireless Charging	Output 10W	Input: 5V, 9V, 12V
TM3	Wireless Charging	Output 15W	Input: 5V, 9V, 12V

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB-C Cable	1.00	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Adapter	KOSP	CE200A0120V	/
wireless charging tester	YBZ	YBZ wireless charging tester	/

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	Rohde & Schwarz	FSP	836079/035	2022-03-22	2023-03-21
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2022-03-22	2023-03-21
Amplifier	Agilent	8447F	3113A06717	2022-01-07	2023-01-06
Amplifier	C&D	PAP-1G18	2002	2022-03-22	2023-03-21
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2021-03-20	2023-03-19
Horn Antenna	ETS	3117	00086197	2021-03-19	2023-03-18
Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2023-03-19
Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2021-04-09	2023-04-08
Amplifier	Agilent	8447D	2944A10179	2022-03-22	2023-03-21
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2022-03-25	2023-03-24

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

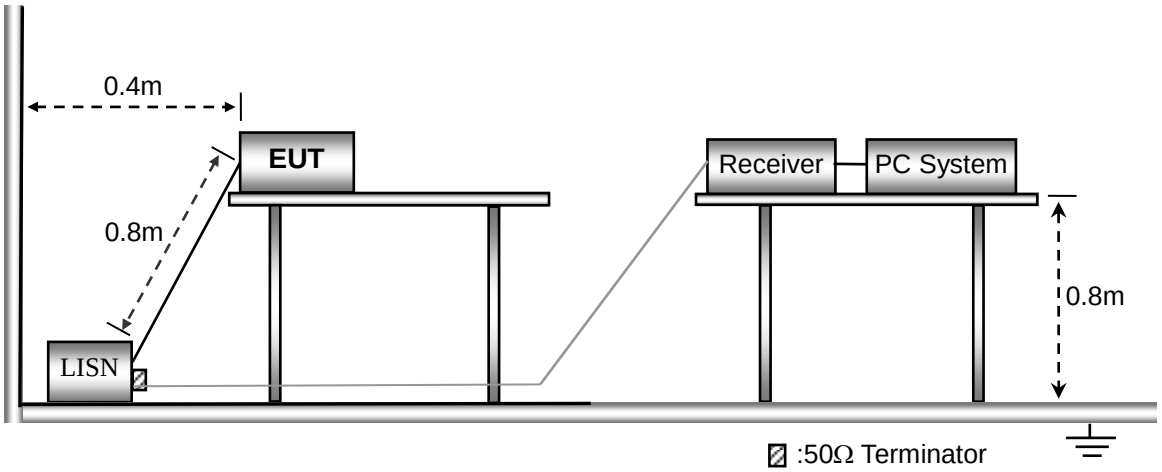
According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

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:	23.5° C
Relative Humidity:	54%
ATM Pressure:	1016 mbar

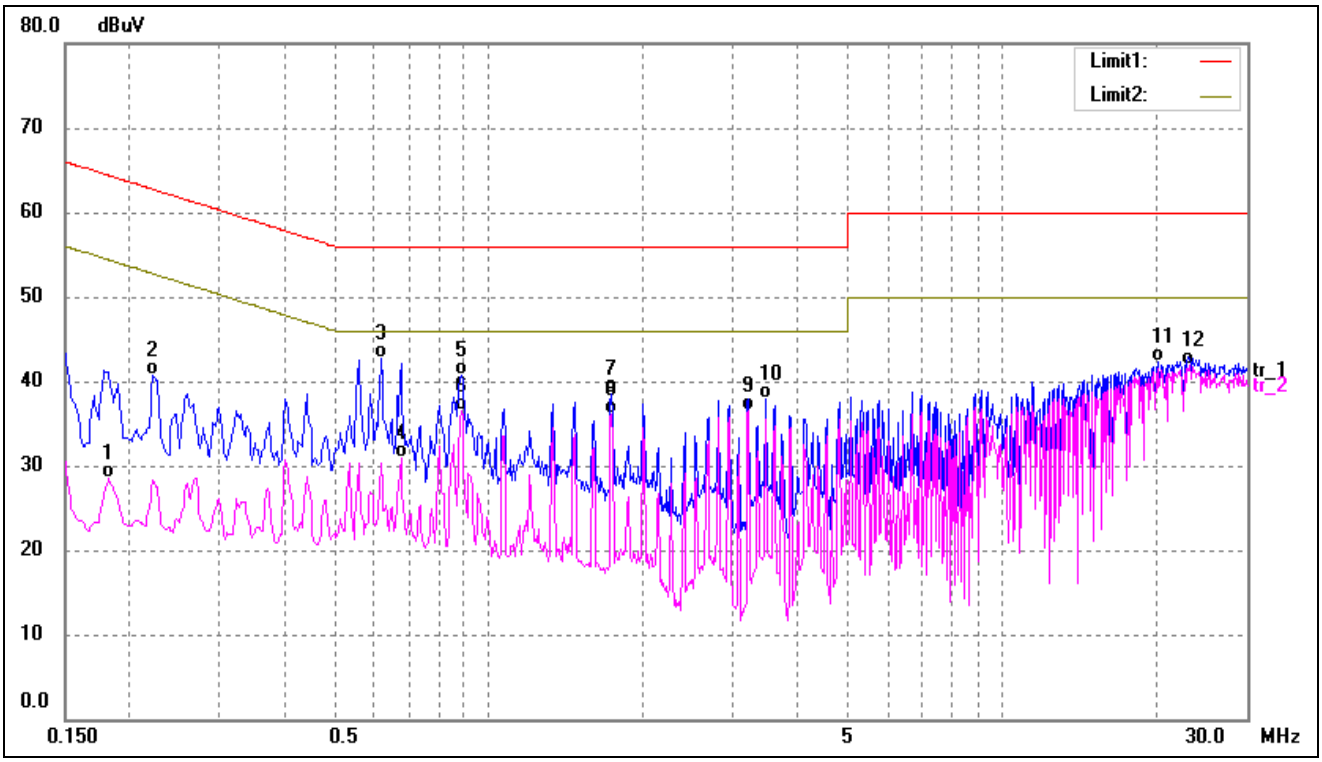
3.5 Test Receiver Setup

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

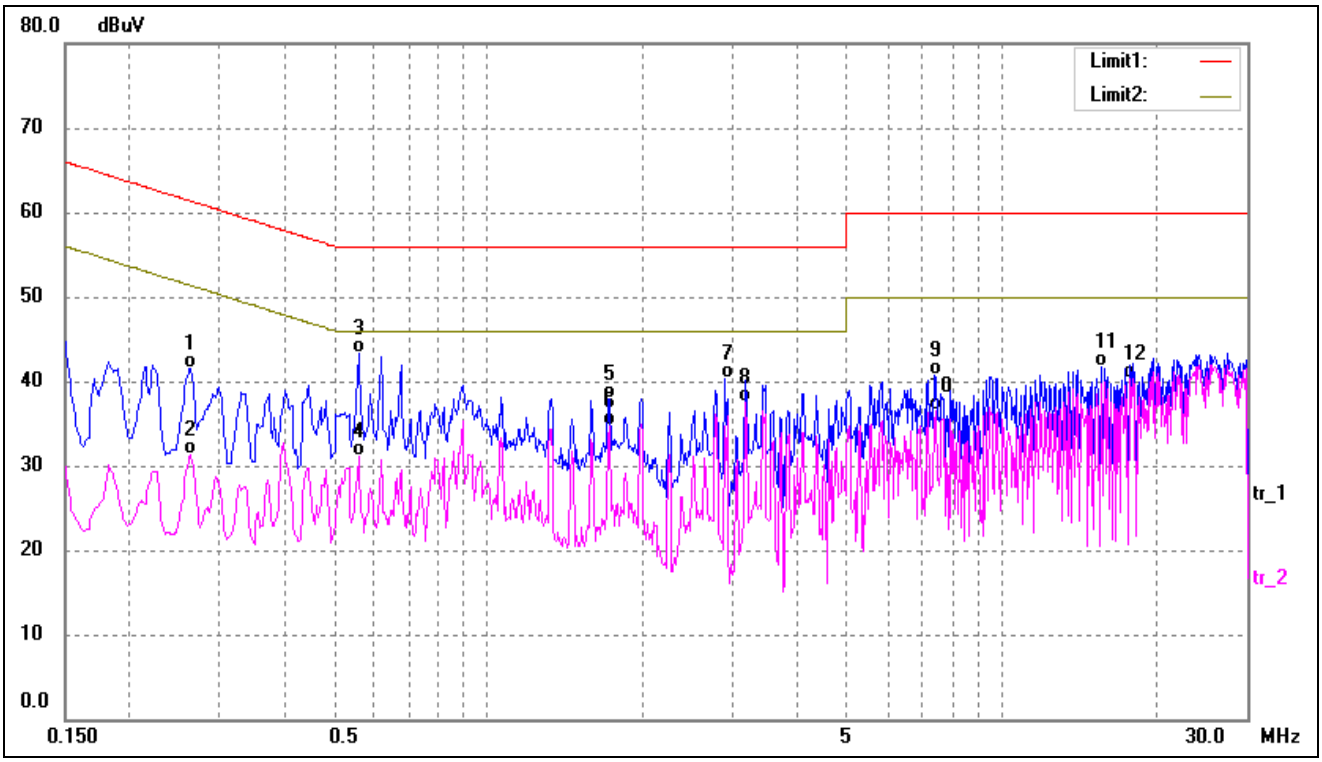
3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line



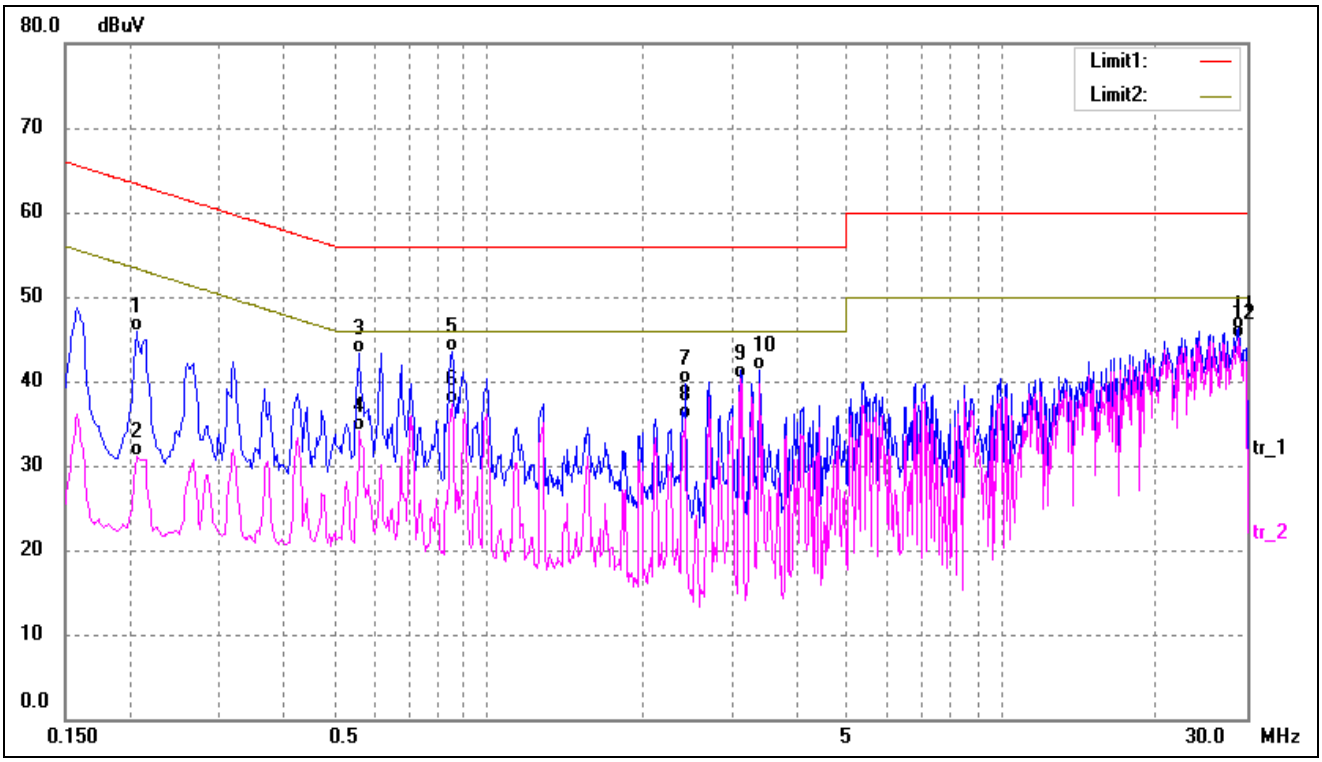
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1819	18.10	10.31	28.41	54.39	-25.98	AVG
2	0.2220	30.34	10.28	40.62	62.74	-22.12	QP
3	0.6180	32.46	10.20	42.66	56.00	-13.34	QP
4	0.6780	20.78	10.20	30.98	46.00	-15.02	AVG
5	0.8860	30.45	10.16	40.61	56.00	-15.39	QP
6	0.8860	26.43	10.16	36.59	46.00	-9.41	AVG
7	1.7420	28.33	10.22	38.55	56.00	-17.45	QP
8	1.7420	25.84	10.22	36.06	46.00	-9.94	AVG
9	3.2180	26.20	10.28	36.48	46.00	-9.52	AVG
10	3.4660	27.66	10.29	37.95	56.00	-18.05	QP
11	20.1100	31.91	10.37	42.28	60.00	-17.72	QP
12*	23.2500	31.55	10.38	41.93	50.00	-8.07	AVG

Test mode:	TM1	Polarity:	Neutral



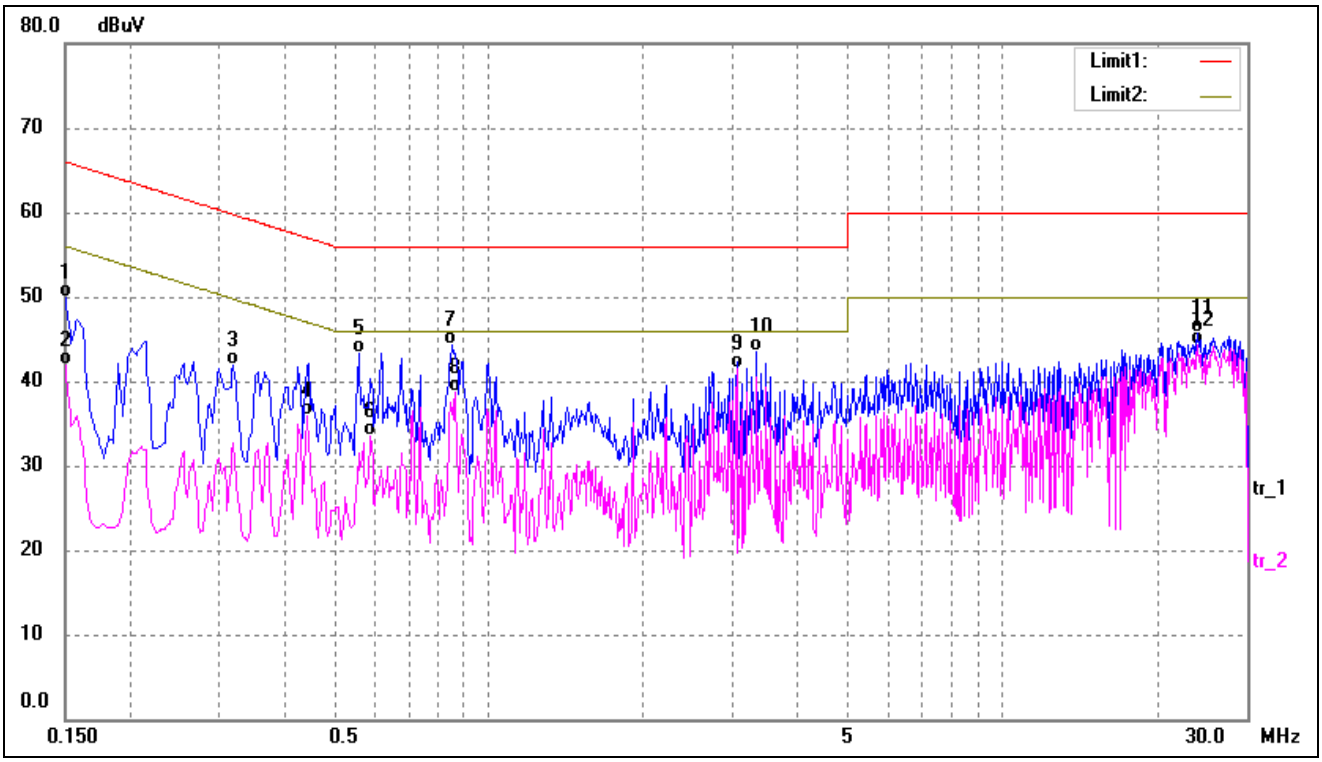
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.2620	31.29	10.26	41.55	61.36	-19.81	QP
2	0.2620	20.97	10.26	31.23	51.36	-20.13	AVG
3	0.5580	33.10	10.21	43.31	56.00	-12.69	QP
4	0.5580	20.96	10.21	31.17	46.00	-14.83	AVG
5	1.7180	27.76	10.22	37.98	56.00	-18.02	QP
6	1.7300	24.57	10.22	34.79	46.00	-11.21	AVG
7	2.8980	30.06	10.27	40.33	56.00	-15.67	QP
8*	3.1619	27.30	10.28	37.58	46.00	-8.42	AVG
9	7.3900	30.30	10.34	40.64	60.00	-19.36	QP
10	7.4500	26.21	10.34	36.55	50.00	-13.45	AVG
11	15.5820	31.37	10.25	41.62	60.00	-18.38	QP
12	17.6900	29.96	10.31	40.27	50.00	-9.73	AVG

Test mode:	TM2	Polarity:	Line



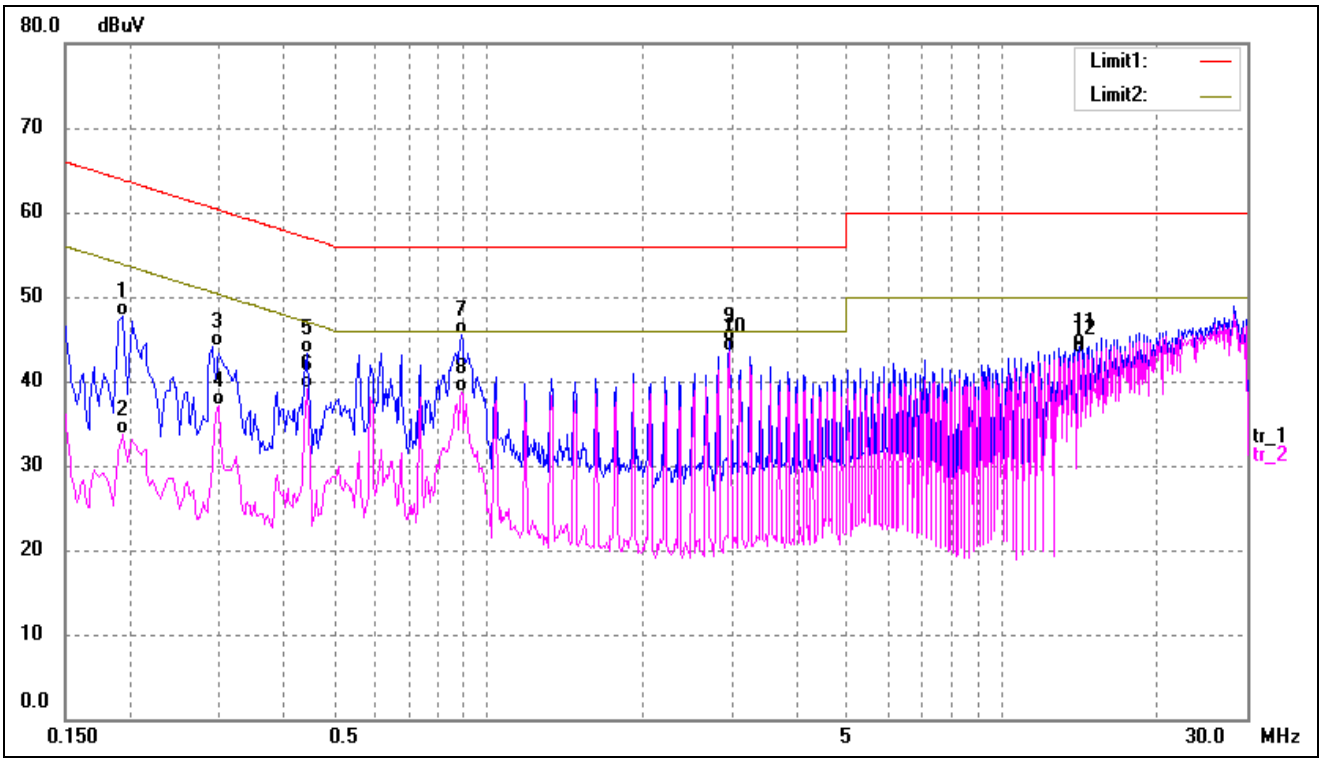
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.2060	35.59	10.29	45.88	63.36	-17.48	QP
2	0.2060	20.88	10.29	31.17	53.36	-22.19	AVG
3	0.5620	33.07	10.21	43.28	56.00	-12.72	QP
4	0.5620	23.80	10.21	34.01	46.00	-11.99	AVG
5	0.8500	33.29	10.16	43.45	56.00	-12.55	QP
6	0.8500	27.09	10.16	37.25	46.00	-8.75	AVG
7	2.4219	29.38	10.26	39.64	56.00	-16.36	QP
8	2.4219	25.17	10.26	35.43	46.00	-10.57	AVG
9	3.1020	30.02	10.28	40.30	46.00	-5.70	AVG
10	3.3700	31.05	10.29	41.34	56.00	-14.66	QP
11	28.9100	35.79	10.41	46.20	60.00	-13.80	QP
12*	28.9100	34.65	10.41	45.06	50.00	-4.94	AVG

Test mode:	TM2	Polarity:	Neutral



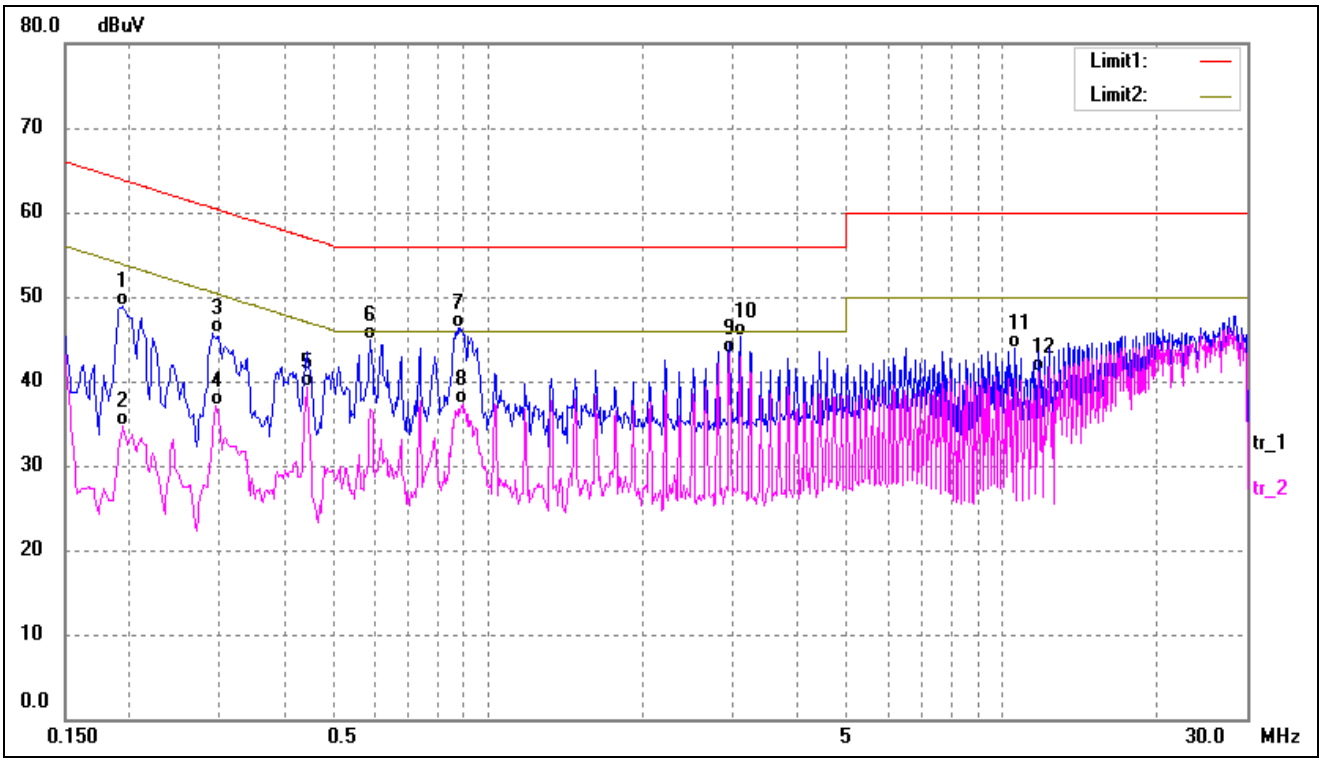
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	39.67	10.32	49.99	65.99	-16.00	QP
2	0.1500	31.56	10.32	41.88	55.99	-14.11	AVG
3	0.3180	31.76	10.24	42.00	59.76	-17.76	QP
4	0.4420	25.70	10.23	35.93	47.02	-11.09	AVG
5	0.5580	33.17	10.21	43.38	56.00	-12.62	QP
6	0.5899	23.35	10.21	33.56	46.00	-12.44	AVG
7	0.8500	34.11	10.16	44.27	56.00	-11.73	QP
8	0.8620	28.62	10.16	38.78	46.00	-7.22	AVG
9*	3.0420	31.14	10.28	41.42	46.00	-4.58	AVG
10	3.3300	33.14	10.29	43.43	56.00	-12.57	QP
11	24.1140	35.39	10.38	45.77	60.00	-14.23	QP
12	24.1140	33.95	10.38	44.33	50.00	-5.67	AVG

Test mode:	TM3	Polarity:	Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1940	37.36	10.30	47.66	63.86	-16.20	QP
2	0.1940	23.33	10.30	33.63	53.86	-20.23	AVG
3	0.2900	33.77	10.25	44.02	60.52	-16.50	QP
4	0.2980	26.89	10.24	37.13	50.30	-13.17	AVG
5	0.4420	33.13	10.23	43.36	57.02	-13.66	QP
6	0.4420	28.93	10.23	39.16	47.02	-7.86	AVG
7	0.8860	35.30	10.16	45.46	56.00	-10.54	QP
8	0.8860	28.47	10.16	38.63	46.00	-7.37	AVG
9	2.9500	34.33	10.28	44.61	56.00	-11.39	QP
10*	2.9500	33.20	10.28	43.48	46.00	-2.52	AVG
11	14.1540	33.81	10.26	44.07	60.00	-15.93	QP
12	14.1540	32.95	10.26	43.21	50.00	-6.79	AVG

Test mode:	TM3	Polarity:	Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1940	38.66	10.30	48.96	63.86	-14.90	QP
2	0.1940	24.50	10.30	34.80	53.86	-19.06	AVG
3	0.2900	35.47	10.25	45.72	60.52	-14.80	QP
4	0.2940	26.85	10.24	37.09	50.41	-13.32	AVG
5	0.4420	28.98	10.23	39.21	47.02	-7.81	AVG
6	0.5899	34.71	10.21	44.92	56.00	-11.08	QP
7	0.8740	36.08	10.16	46.24	56.00	-9.76	QP
8	0.8940	27.23	10.15	37.38	46.00	-8.62	AVG
9*	2.9539	33.11	10.28	43.39	46.00	-2.61	AVG
10	3.0940	35.04	10.28	45.32	56.00	-10.68	QP
11	10.6020	33.47	10.34	43.81	60.00	-16.19	QP
12	11.7780	30.81	10.31	41.12	50.00	-8.88	AVG

4. Radiated Emissions

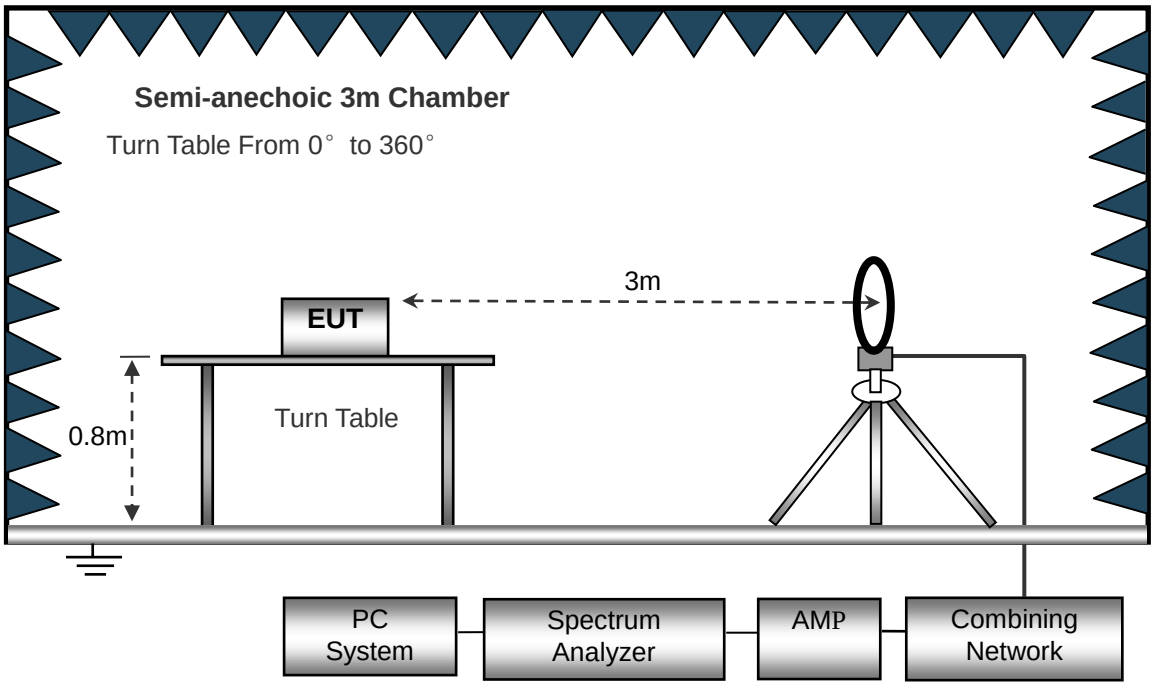
4.1 Test Procedure

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.

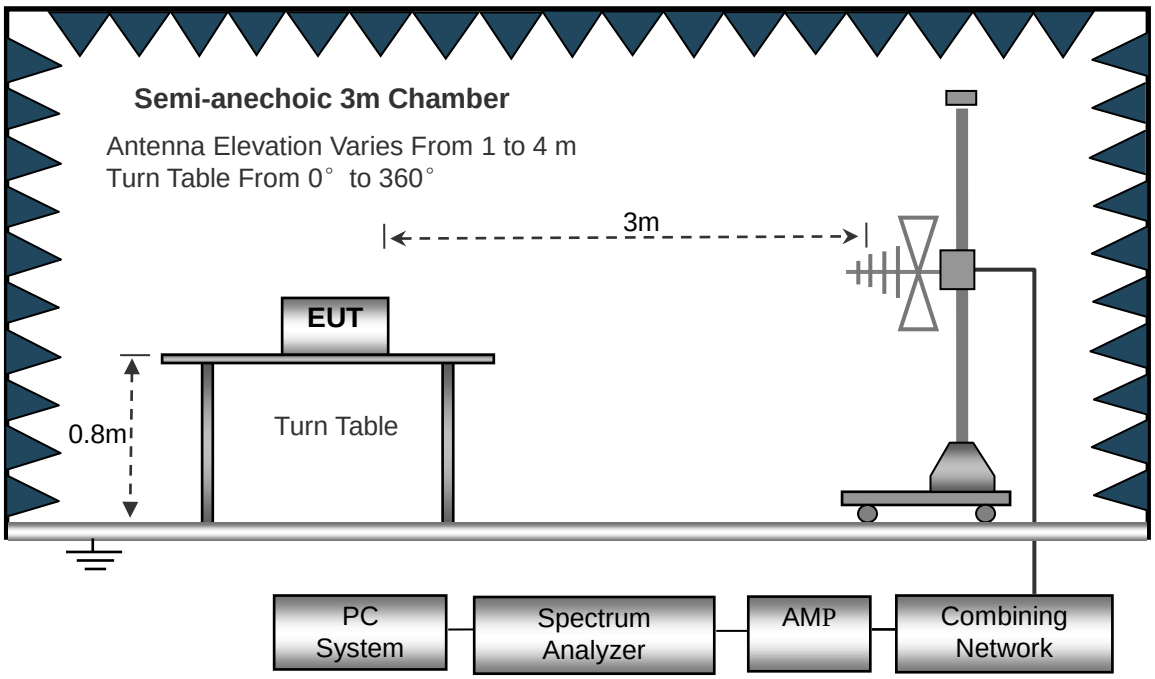
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The test setup for emission measurement below 30MHz..



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



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

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

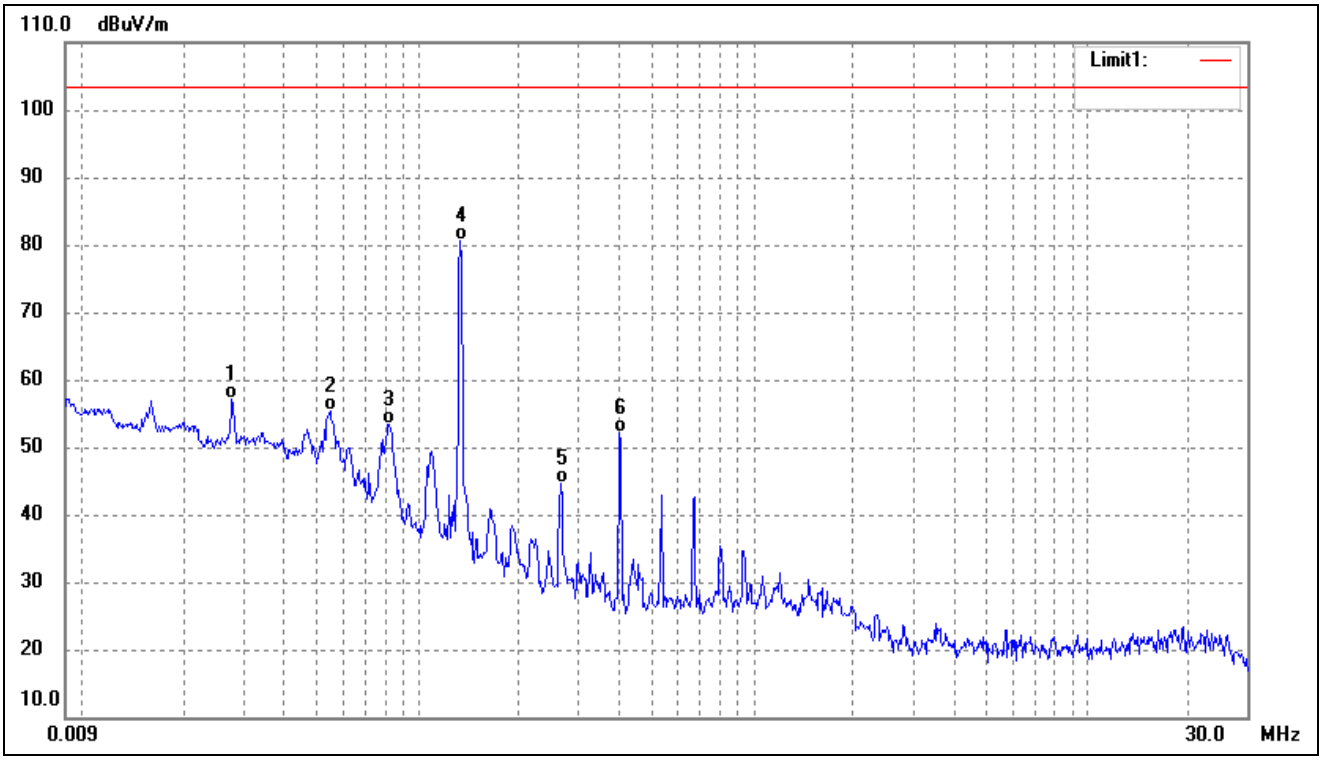
4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

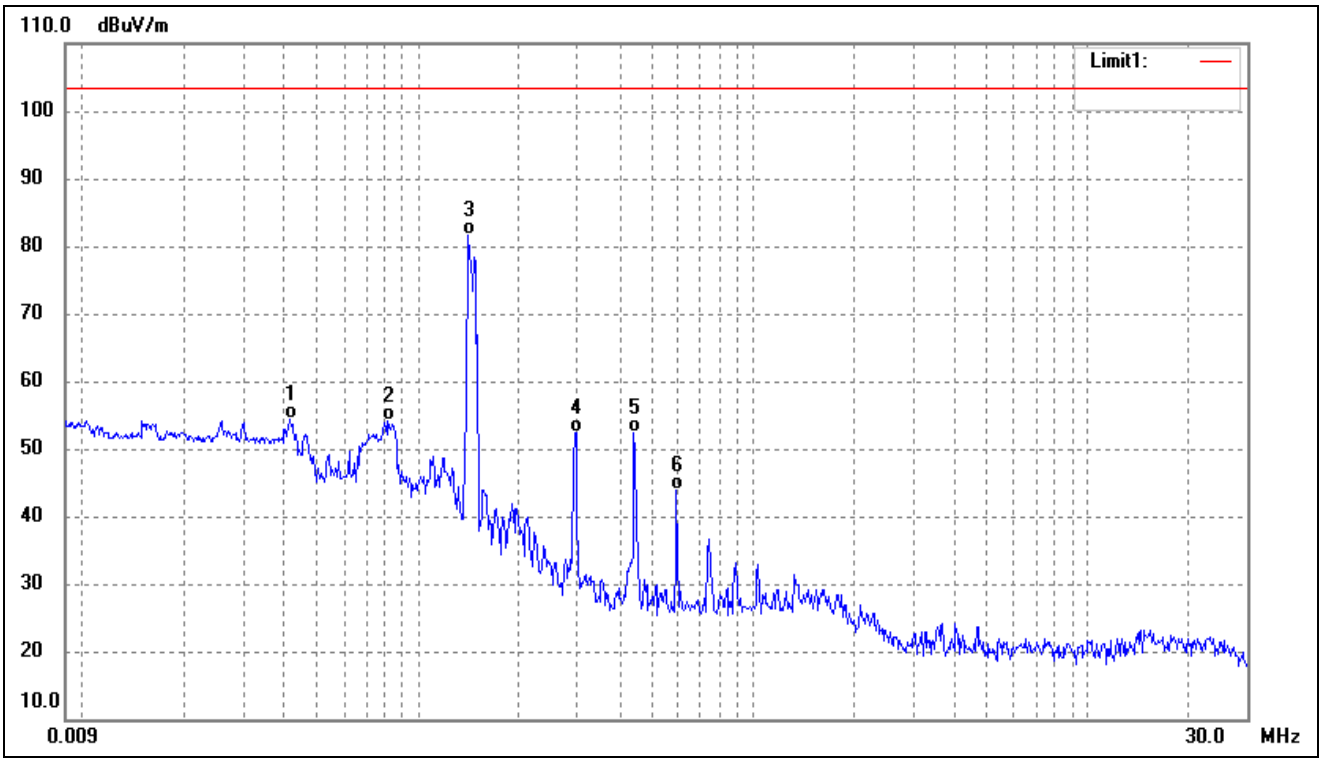
Plot of Radiated Emissions Test Data (Below 30MHz)

Test mode:	TM1	Polarity:	Vertical



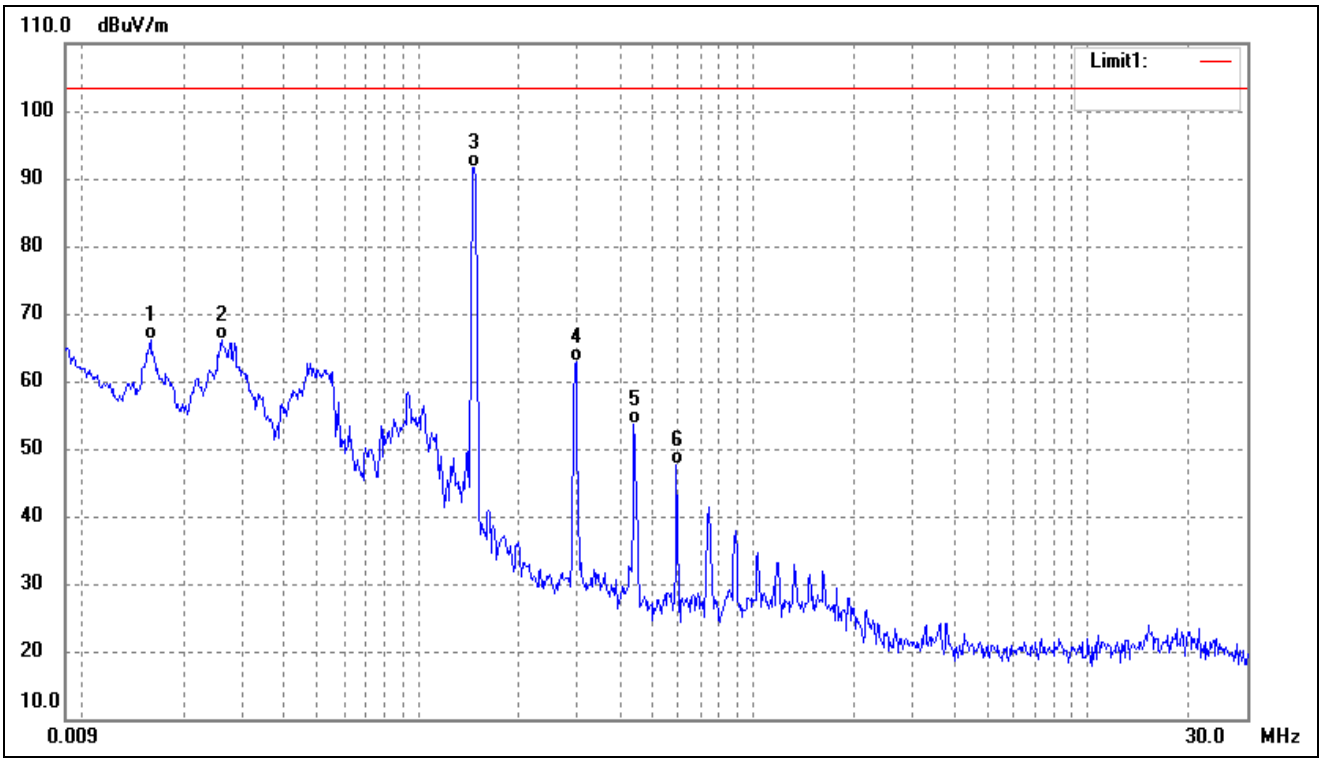
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0280	63.73	-6.62	57.11	103.50	-46.39	-	-	QP
2	0.0548	60.99	-5.62	55.37	103.50	-48.13	-	-	QP
3	0.0816	59.31	-5.89	53.42	103.50	-50.08	-	-	QP
4	0.1337	86.98	-6.42	80.56	103.50	-22.94	-	-	QP
5	0.2671	51.78	-7.06	44.72	103.50	-58.78	-	-	QP
6	0.3996	59.78	-7.69	52.09	103.50	-51.41	-	-	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	0.0415	60.95	-6.67	54.28	103.50	-49.22	-	-	QP
2	0.0806	60.62	-6.56	54.06	103.50	-49.44	-	-	QP
3	0.1413	87.93	-6.38	81.55	103.50	-21.95	-	-	QP
4	0.2953	60.30	-7.82	52.48	103.50	-51.02	-	-	QP
5	0.4420	60.02	-7.63	52.39	103.50	-51.11	-	-	QP
6	0.5916	51.08	-7.13	43.95	103.50	-59.55	-	-	QP

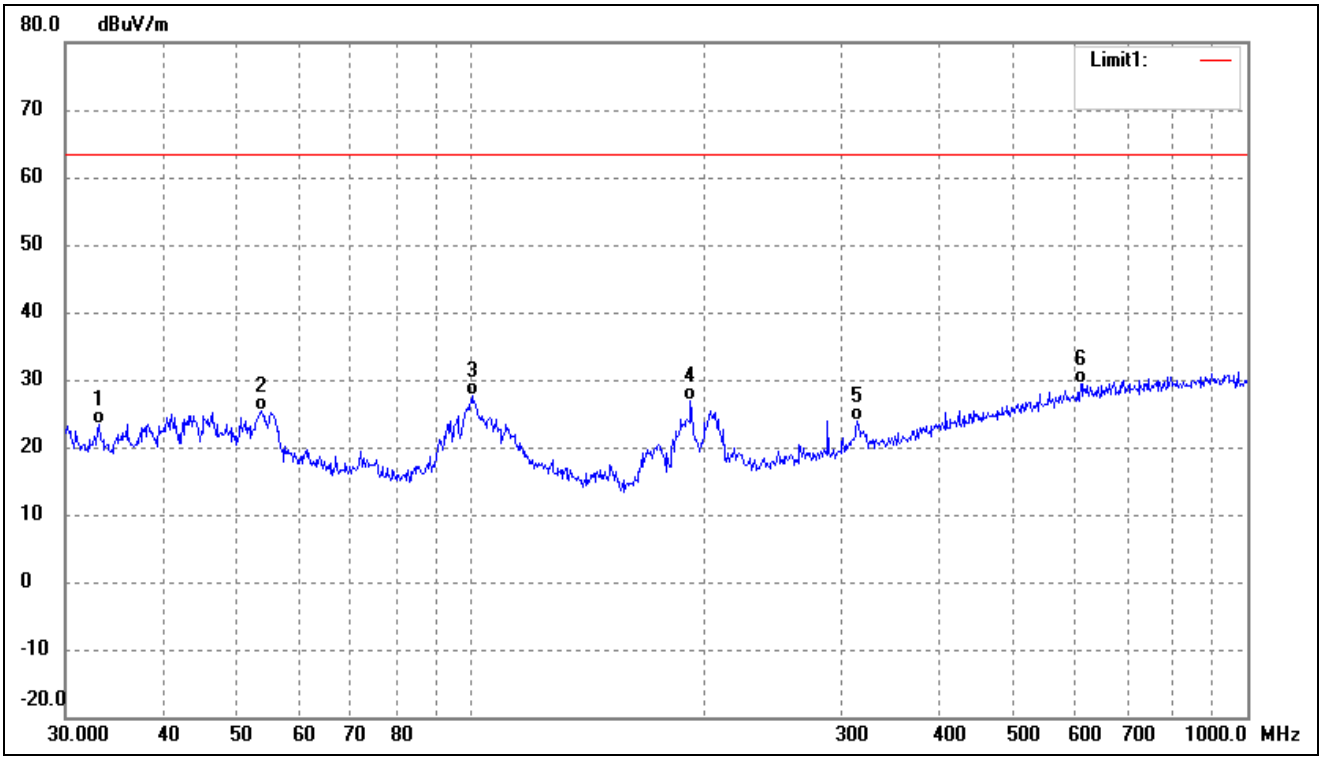
Test mode:	TM3	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0160	73.05	-7.02	66.03	103.50	-37.47	-	-	QP
2	0.0258	72.76	-6.68	66.08	103.50	-37.42	-	-	QP
3	0.1457	98.08	-6.35	91.73	103.50	-11.77	-	-	QP
4	0.2955	70.62	-7.82	62.80	103.50	-40.70	-	-	QP
5	0.4421	61.30	-7.63	53.67	103.50	-49.83	-	-	QP
6	0.5916	54.84	-7.13	47.71	103.50	-55.79	-	-	QP

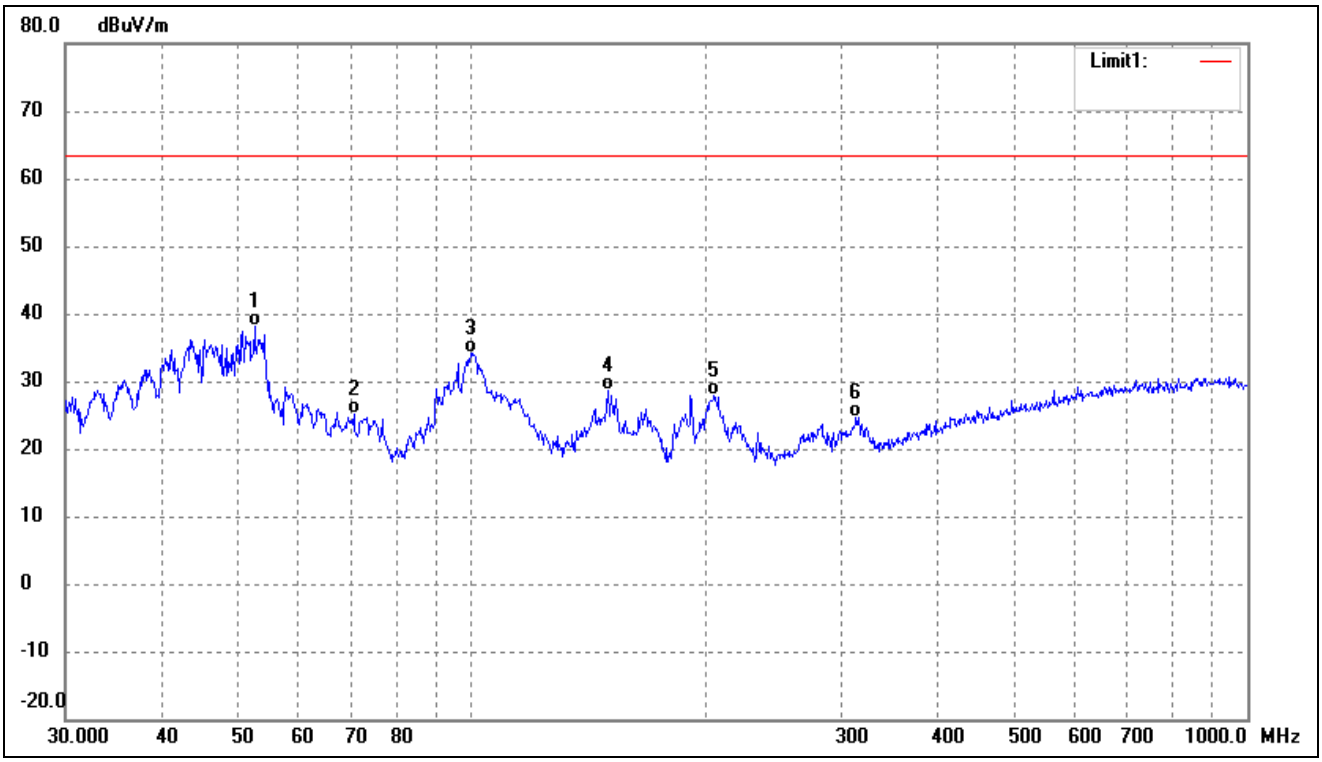
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal



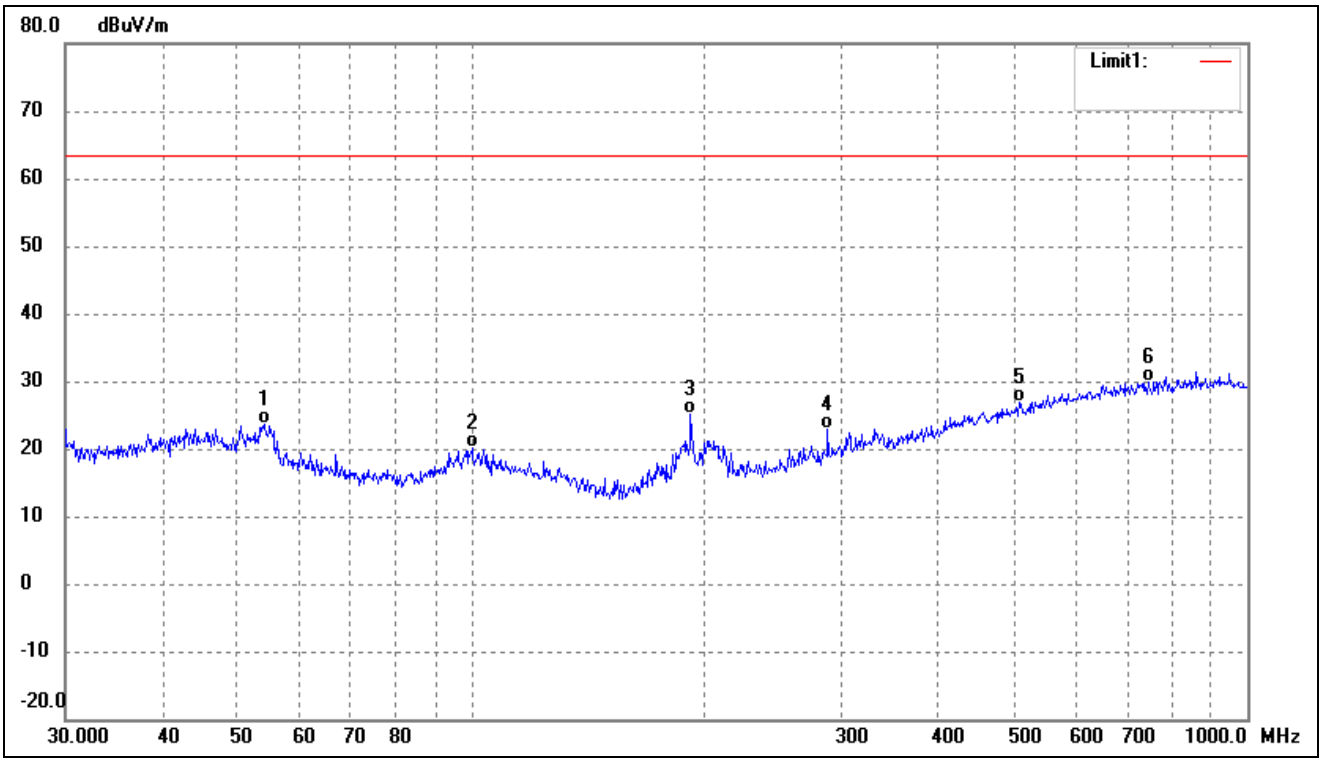
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	33.0950	32.12	-8.69	23.43	63.50	-40.07	-	-	QP
2	53.6932	32.90	-7.49	25.41	63.50	-38.09	-	-	QP
3	100.5806	36.32	-8.73	27.59	63.50	-35.91	-	-	QP
4	191.7450	36.94	-9.98	26.96	63.50	-36.54	-	-	QP
5	314.3765	30.47	-6.51	23.96	63.50	-39.54	-	-	QP
6	609.9217	29.02	0.48	29.50	63.50	-34.00	-	-	QP

Test mode:	TM1	Polarity:	Vertical



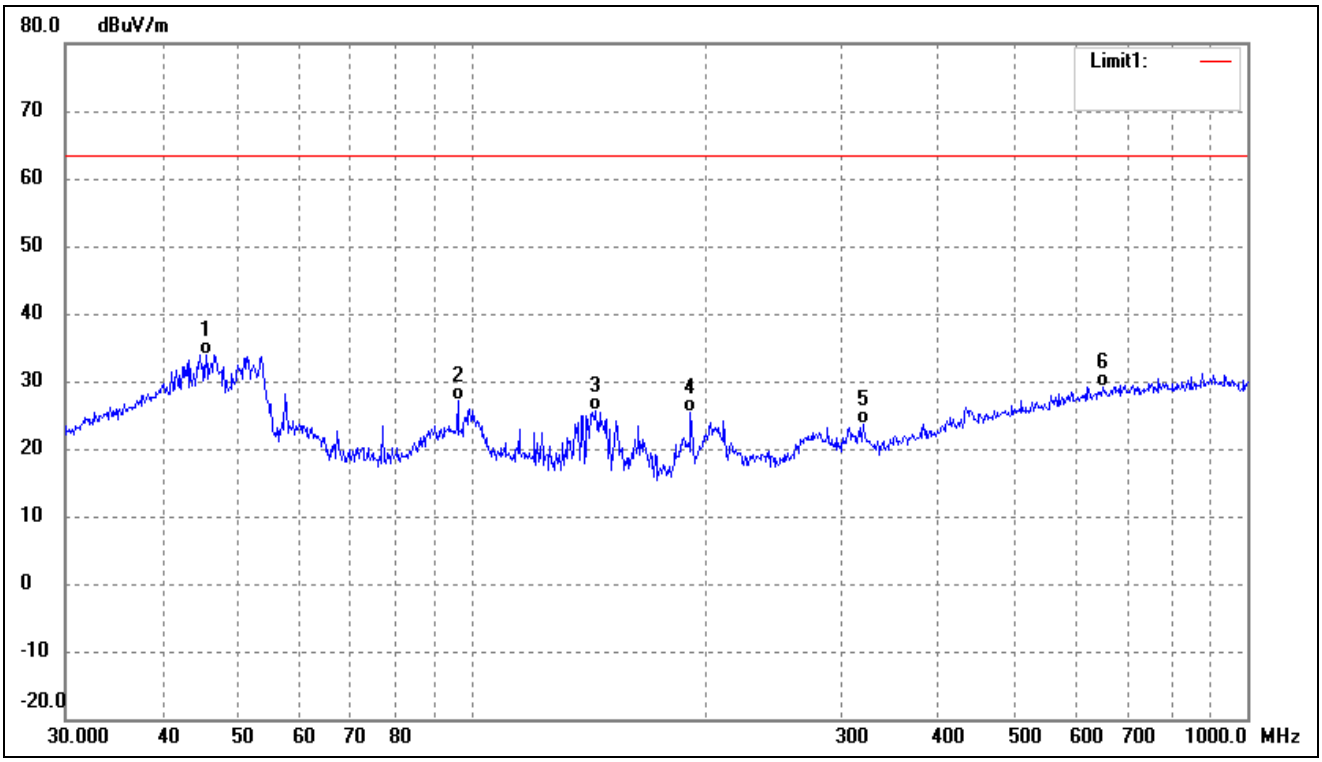
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	52.5753	45.47	-7.33	38.14	63.50	-25.36	-	-	QP
2	70.5836	35.23	-10.20	25.03	63.50	-38.47	-	-	QP
3	99.8777	42.90	-8.75	34.15	63.50	-29.35	-	-	QP
4	150.0108	41.22	-12.61	28.61	63.50	-34.89	-	-	QP
5	205.6751	37.44	-9.54	27.90	63.50	-35.60	-	-	QP
6	313.2760	31.20	-6.54	24.66	63.50	-38.84	-	-	QP

Test mode:	TM2	Polarity:	Horizontal



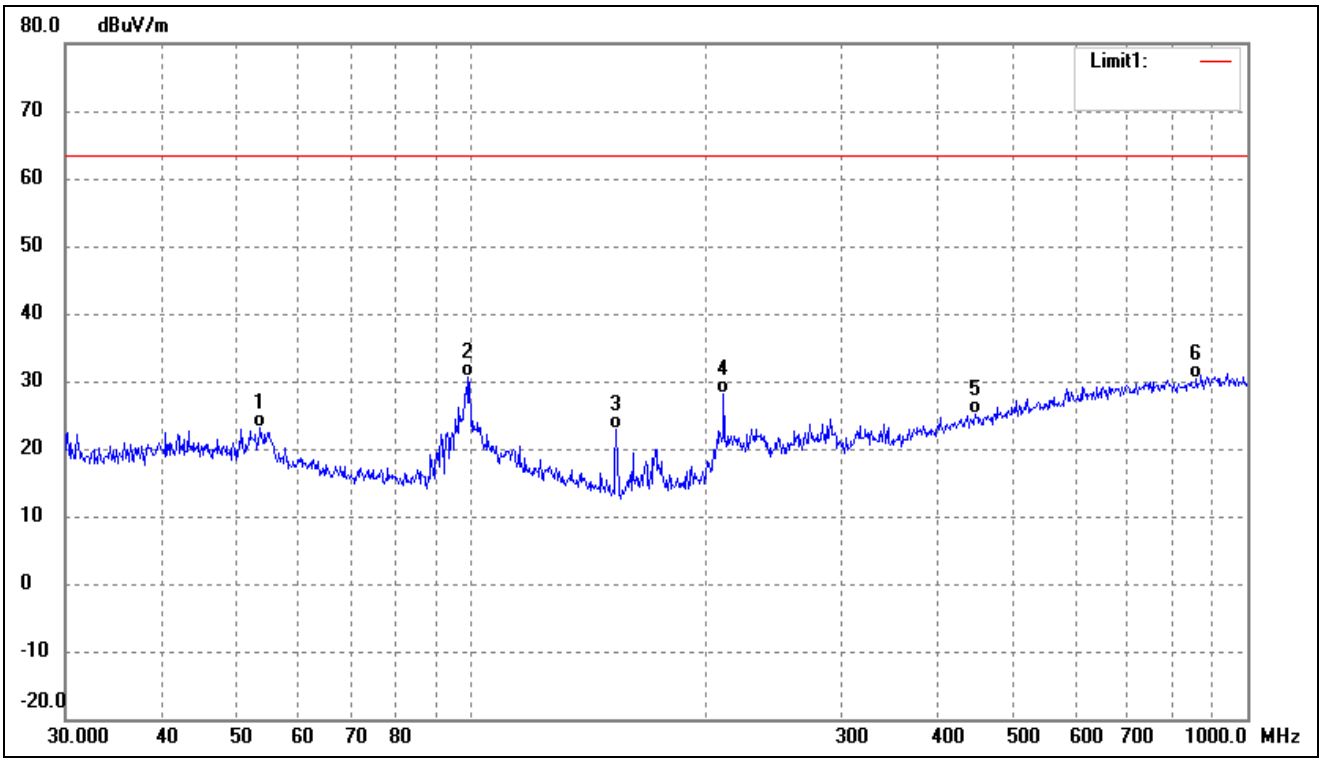
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	54.2610	31.32	-7.59	23.73	63.50	-39.77	-	-	QP
2	100.2286	28.89	-8.73	20.16	63.50	-43.34	-	-	QP
3	191.7450	35.21	-9.98	25.23	63.50	-38.27	-	-	QP
4	287.9904	30.21	-7.28	22.93	63.50	-40.57	-	-	QP
5	508.2582	27.95	-1.16	26.79	63.50	-36.71	-	-	QP
6	744.8661	28.06	1.72	29.78	63.50	-33.72	-	-	QP

Test mode:	TM2	Polarity:	Vertical



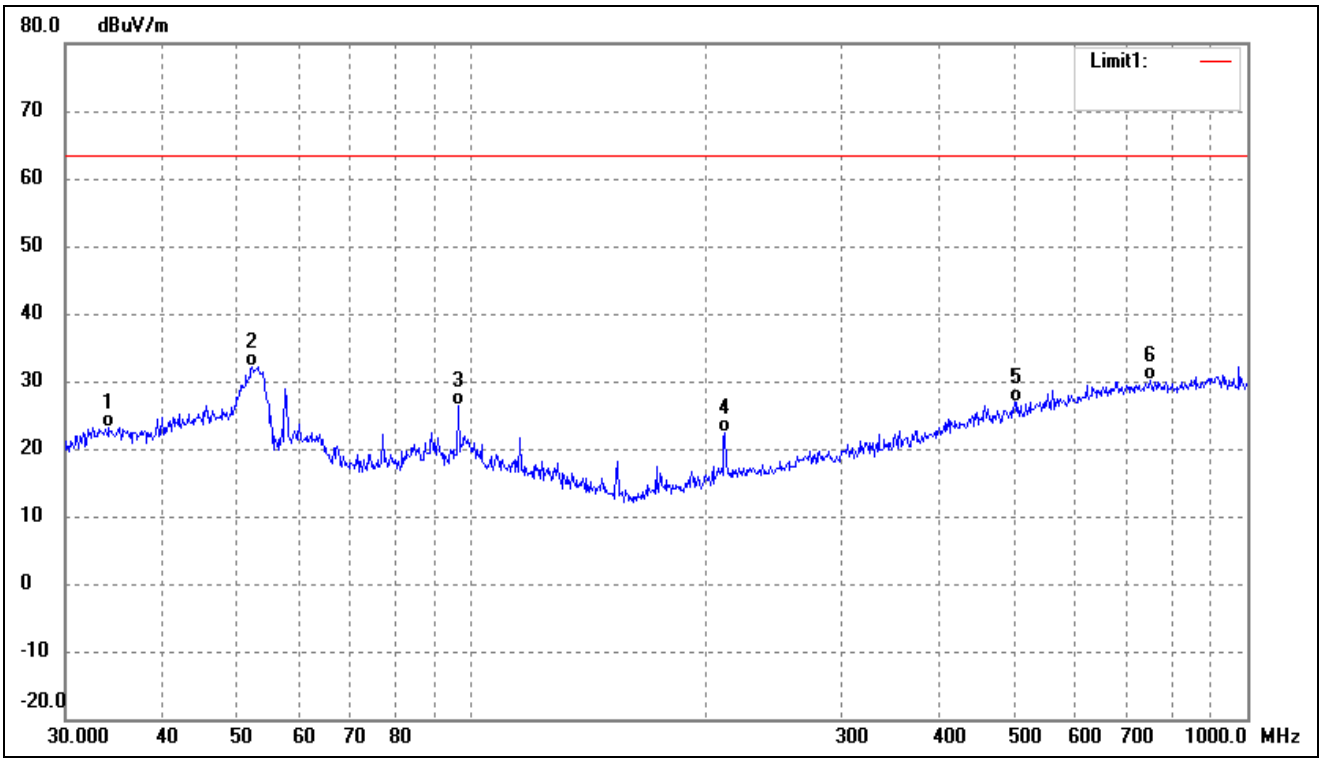
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	45.5348	40.93	-6.98	33.95	63.50	-29.55	-	-	QP
2	96.0986	36.68	-9.45	27.23	63.50	-36.27	-	-	QP
3	144.3348	38.00	-12.41	25.59	63.50	-37.91	-	-	QP
4	191.7450	35.37	-9.98	25.39	63.50	-38.11	-	-	QP
5	319.9370	29.87	-6.34	23.53	63.50	-39.97	-	-	QP
6	651.9417	28.25	0.94	29.19	63.50	-34.31	-	-	QP

Test mode:	TM3	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	53.5052	30.66	-7.47	23.19	63.50	-40.31	-	-	QP
2	99.1797	39.57	-8.88	30.69	63.50	-32.81	-	-	QP
3	153.7385	35.35	-12.44	22.91	63.50	-40.59	-	-	QP
4	211.5265	37.63	-9.38	28.25	63.50	-35.25	-	-	QP
5	446.4141	27.80	-2.65	25.15	63.50	-38.35	-	-	QP
6	860.0352	27.94	2.45	30.39	63.50	-33.11	-	-	QP

Test mode:	TM3	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	34.1561	31.58	-8.44	23.14	63.50	-40.36	-	-	QP
2	52.2079	39.43	-7.29	32.14	63.50	-31.36	-	-	QP
3	96.0986	35.71	-9.45	26.26	63.50	-37.24	-	-	QP
4	212.2695	31.71	-9.37	22.34	63.50	-41.16	-	-	QP
5	504.7062	28.10	-1.22	26.88	63.50	-36.62	-	-	QP
6	750.1083	28.39	1.76	30.15	63.50	-33.35	-	-	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 *******