TEST REPORT

Reference No.	:	WTX22X09180691W001
FCC ID	:	2ABY9GRAVITY-C2
Applicant	:	Adam Elements International Co., LTD.
Address	:	10F.-3, No.54, Songjiang Rd., Zhongshan Dist., Taipei City , Taiwan
Manufacturer	:	Amaztec Co.,Ltd
Address	:	17/F of Building C6, Hengfeng Industrial Park, Zhoushi Road, Bao'an District, Shenzhen, Guangdong, China, 518126
Product Name	:	Magnetic Wireless Charging Power Bank
Model No.	:	GRAVITY C2
Standards	:	FCC Part 18
Date of Receipt sample	:	2022-09-05
Date of Test	:	2022-09-05 to 2022-09-20
Date of Issue	:	2022-09-20
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.

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Tested by:

Mike Shi

Approved by:

Silin Chen

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Report version

Version No.	Date of issue	Description
Rev.00	2022-09-20	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	Magnetic Wireless Charging Power Bank
Trade Name:	/
Model No.:	GRAVITY C2
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	110~205KHz
Modulation Type:	ASK
Antenna Type:	Coil Antenna
Antenna Gain	0dBi
Input:	DC5V 3A, DC9V 2A,DC12V1.67A
Wireless output：	5W,7.5W,10W,15W
Power adapter:	/
Capacity:	10000mAh

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	5W output	DC5V 3A, DC9V 2A,DC12V1.67A
TM2	Wireless charging	10W output	DC5V 3A, DC9V 2A,DC12V1.67A
TM3	Wireless charging	15W output	DC5V 3A, DC9V 2A,DC12V1.67A
TM4	charging	Connect to adapter, AC120V/60Hz for adapter	AC120V/60Hz

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Wireless Charging Load	YBZ	YBZ wireless charging tester	/
Adapter	HUAWEI	HW-100200C00	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Type-C Cable	0.55	Unshielded	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

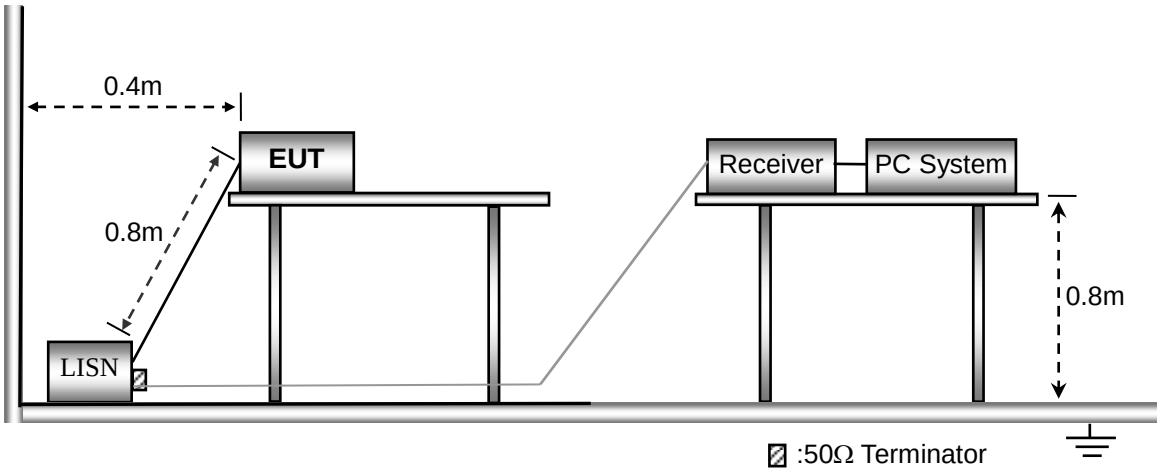
According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

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:	26° C
Relative Humidity:	60%
ATM Pressure:	1016 mbar

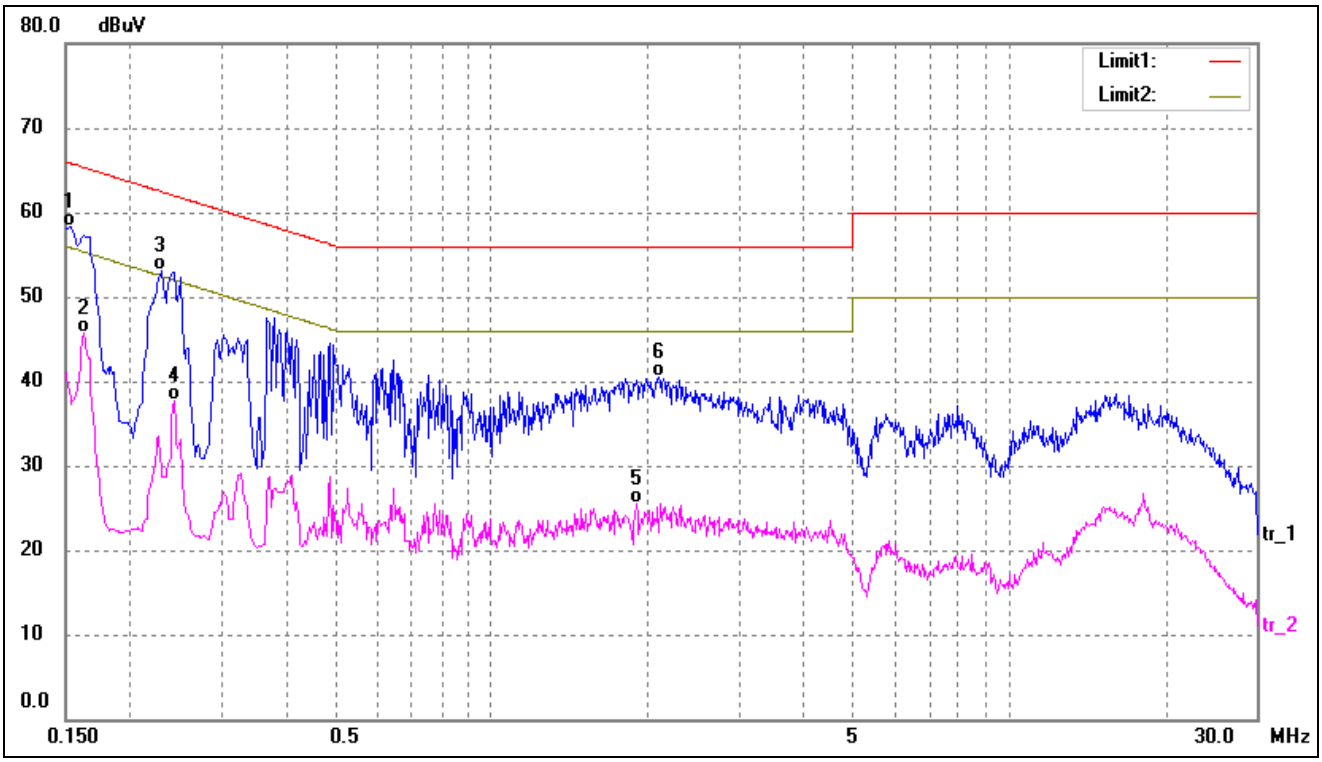
3.5 Test Receiver Setup

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

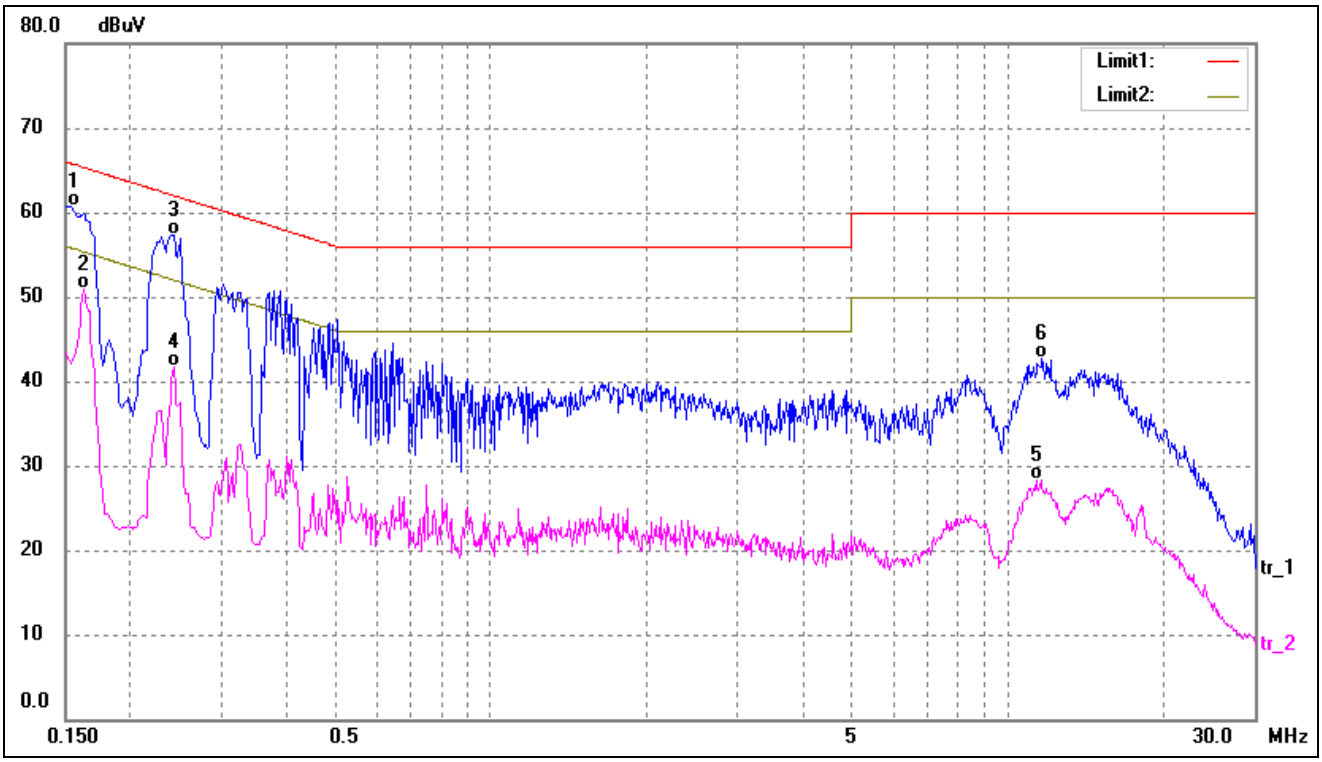
3.6 Summary of Test Results/Plots

Test mode:	TM4	Polarity:	L



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1*	0.1540	47.99	10.32	58.31	65.78	-7.47	QP
2	0.1620	35.48	10.31	45.79	55.36	-9.57	AVG
3	0.2300	42.78	10.28	53.06	62.45	-9.39	QP
4	0.2420	27.53	10.27	37.80	52.03	-14.23	AVG
5	1.9020	15.22	10.24	25.46	46.00	-20.54	AVG
6	2.1020	30.17	10.25	40.42	56.00	-15.58	QP

Test mode:	TM4	Polarity:	N



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1540	50.44	10.32	60.76	65.78	-5.02	QP
2*	0.1620	40.54	10.31	50.85	55.36	-4.51	AVG
3	0.2420	47.06	10.27	57.33	62.03	-4.70	QP
4	0.2420	31.35	10.27	41.62	52.03	-10.41	AVG
5	11.3300	17.89	10.32	28.21	50.00	-21.79	AVG
6	11.6500	32.39	10.32	42.71	60.00	-17.29	QP

4. Radiated Emissions

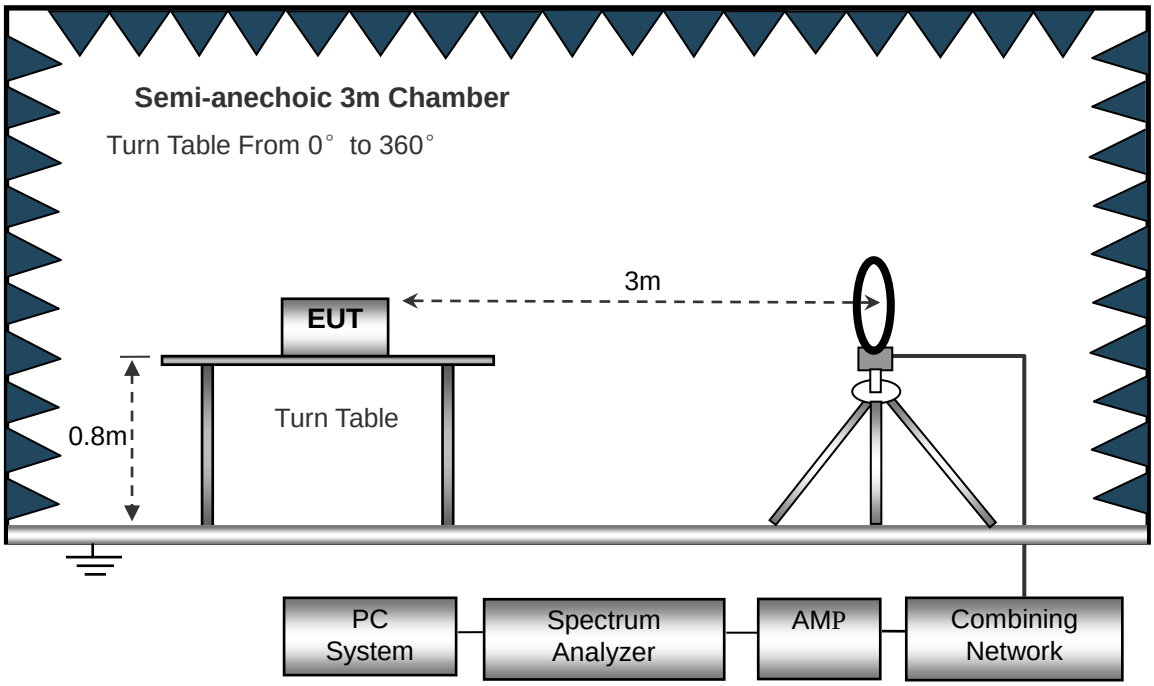
4.1 Test Procedure

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.

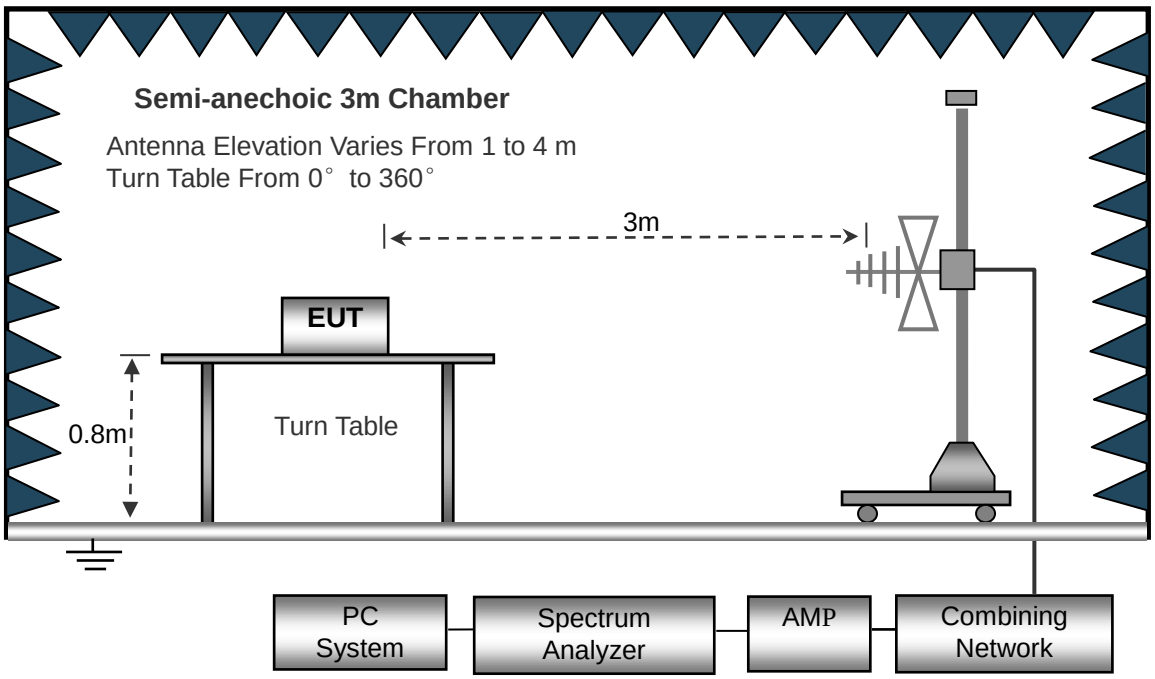
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

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..



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

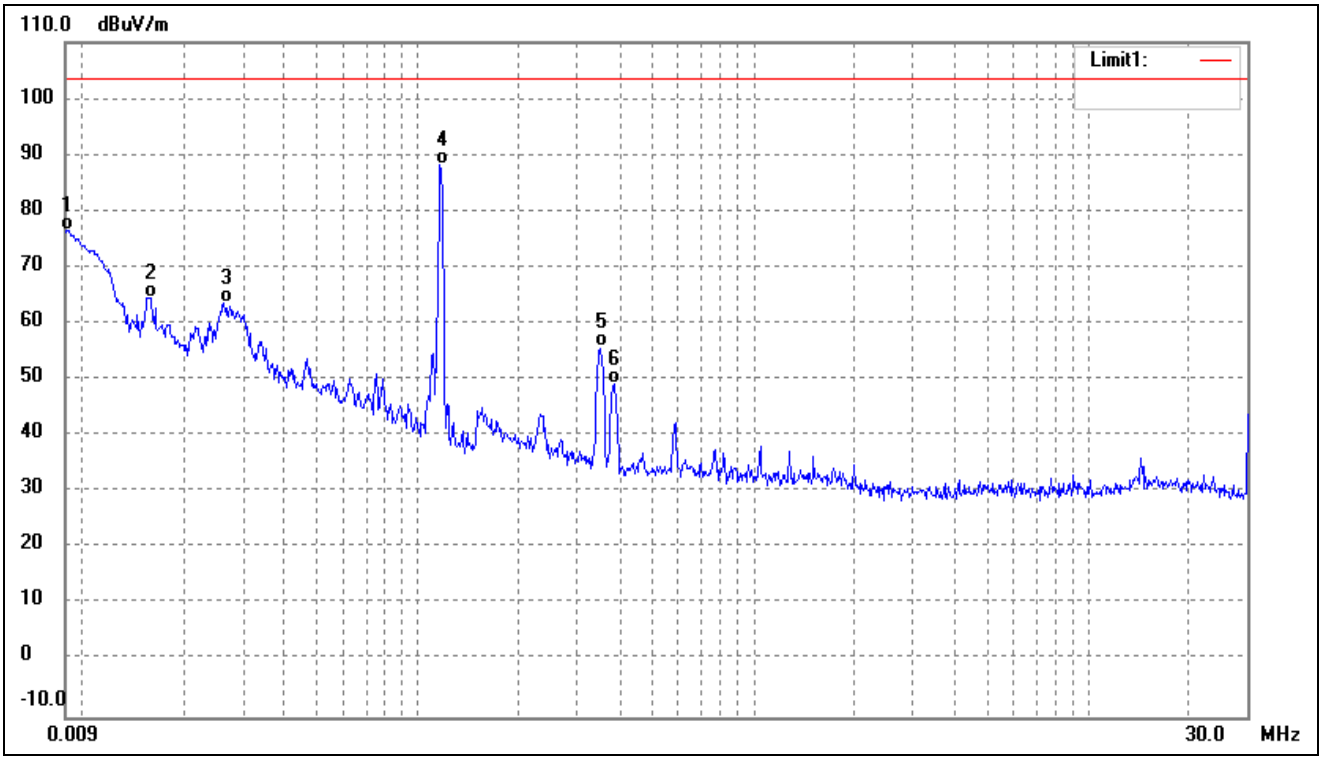
4.4 Environmental Conditions

Temperature:	22 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

4.5 Summary of Test Results/Plots

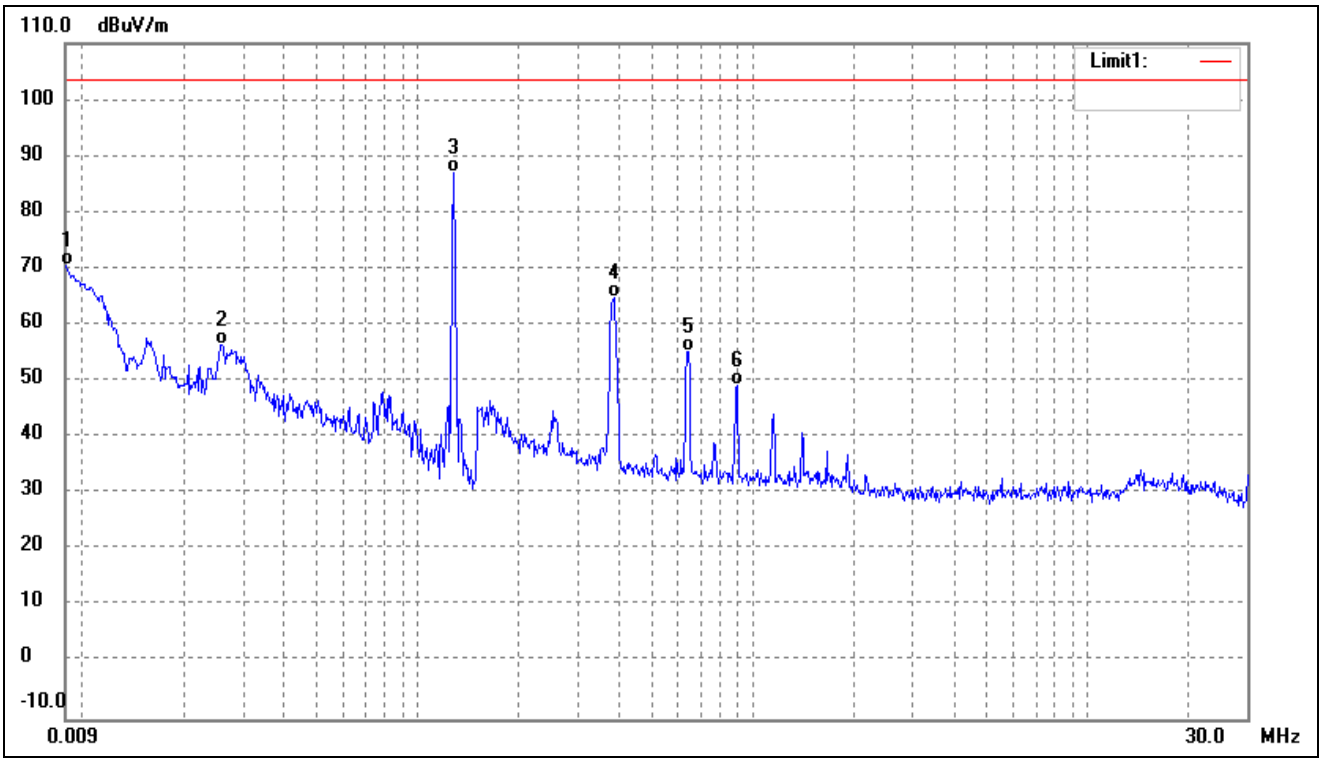
Plot of Radiated Emissions Test Data (Below 30MHz)

Test mode:	TM1	Polarity:	Vertical



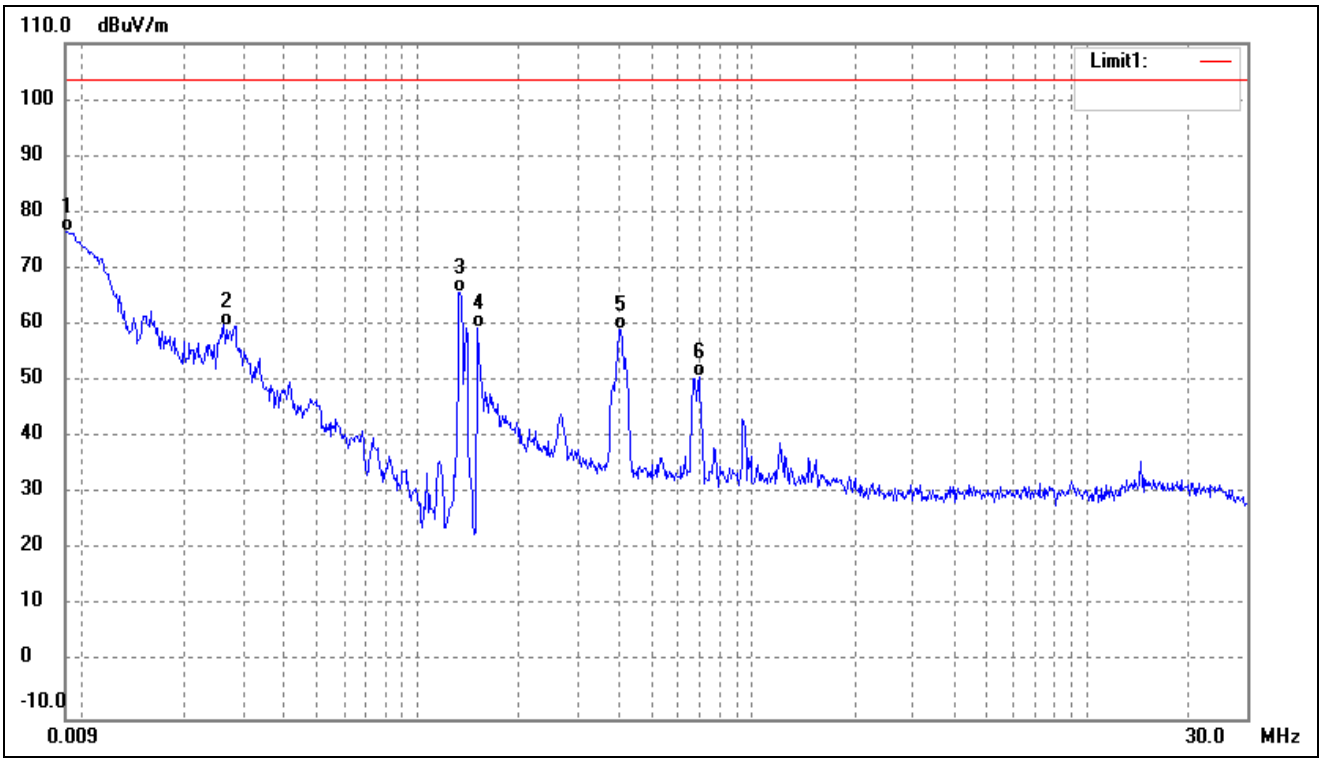
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0088	76.50	0.00	76.50	103.50	-27.00	-	-	QP
2	0.0160	64.56	0.00	64.56	103.50	-38.94	-	-	QP
3	0.0263	63.75	0.00	63.75	103.50	-39.75	-	-	QP
4	0.1168	88.32	0.00	88.32	103.50	-15.18	-	-	QP
5	0.3502	55.70	0.00	55.70	103.50	-47.80	-	-	QP
6	0.3850	49.39	0.00	49.39	103.50	-54.11	-	-	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	0.0090	70.42	0.00	70.42	103.50	-33.08	-	-	QP
2	0.0259	56.55	0.00	56.55	103.50	-46.95	-	-	QP
3	0.1276	86.95	0.00	86.95	103.50	-16.55	-	-	QP
4	0.3831	64.76	0.00	64.76	103.50	-38.74	-	-	QP
5	0.6371	55.29	0.00	55.29	103.50	-48.21	-	-	QP
6	0.8943	49.32	0.00	49.32	103.50	-54.18	-	-	QP

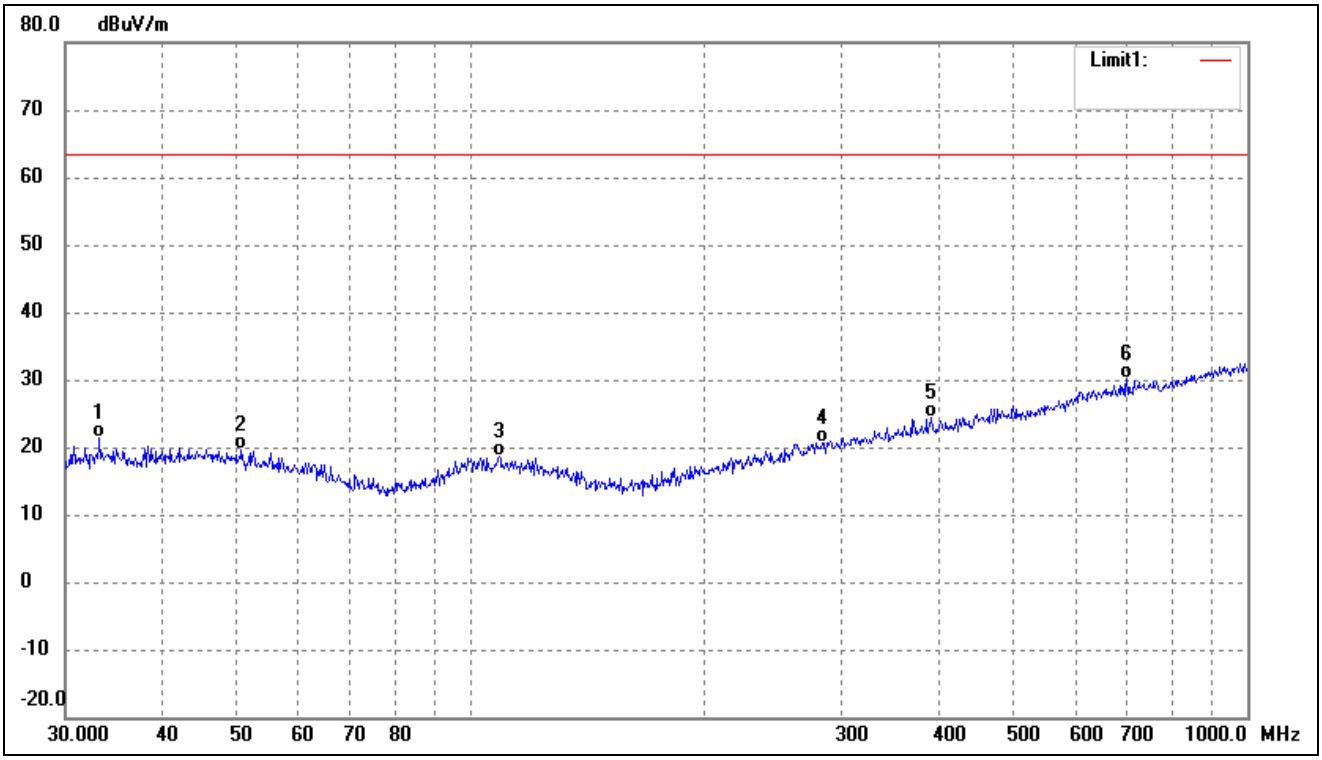
Test mode:	TM3	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0088	76.56	0.00	76.56	103.50	-26.94	-	-	QP
2	0.0263	59.90	0.00	59.90	103.50	-43.60	-	-	QP
3	0.1327	65.88	0.00	65.88	103.50	-37.62	-	-	QP
4	0.1516	59.31	0.00	59.31	103.50	-44.19	-	-	QP
5	0.3996	59.30	0.00	59.30	103.50	-44.20	-	-	QP
6	0.6897	50.75	0.00	50.75	103.50	-52.75	-	-	QP

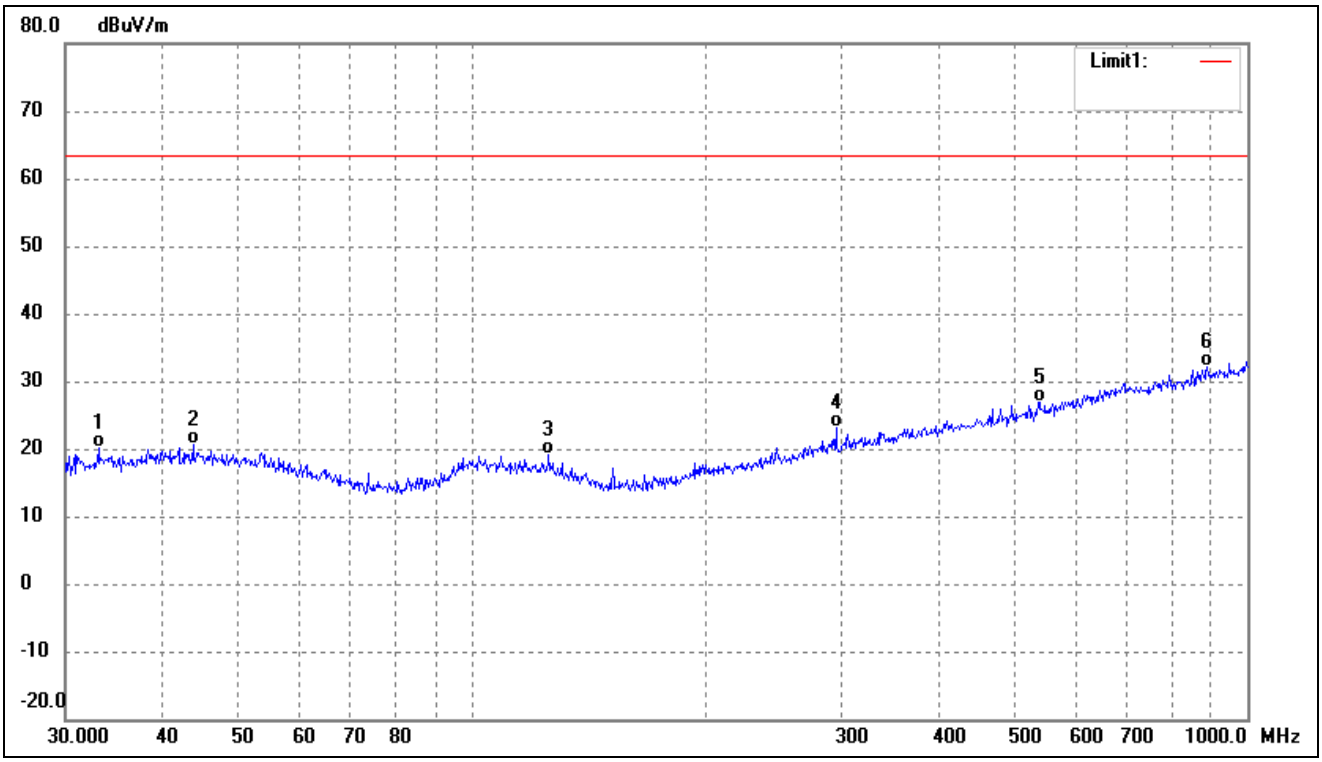
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal



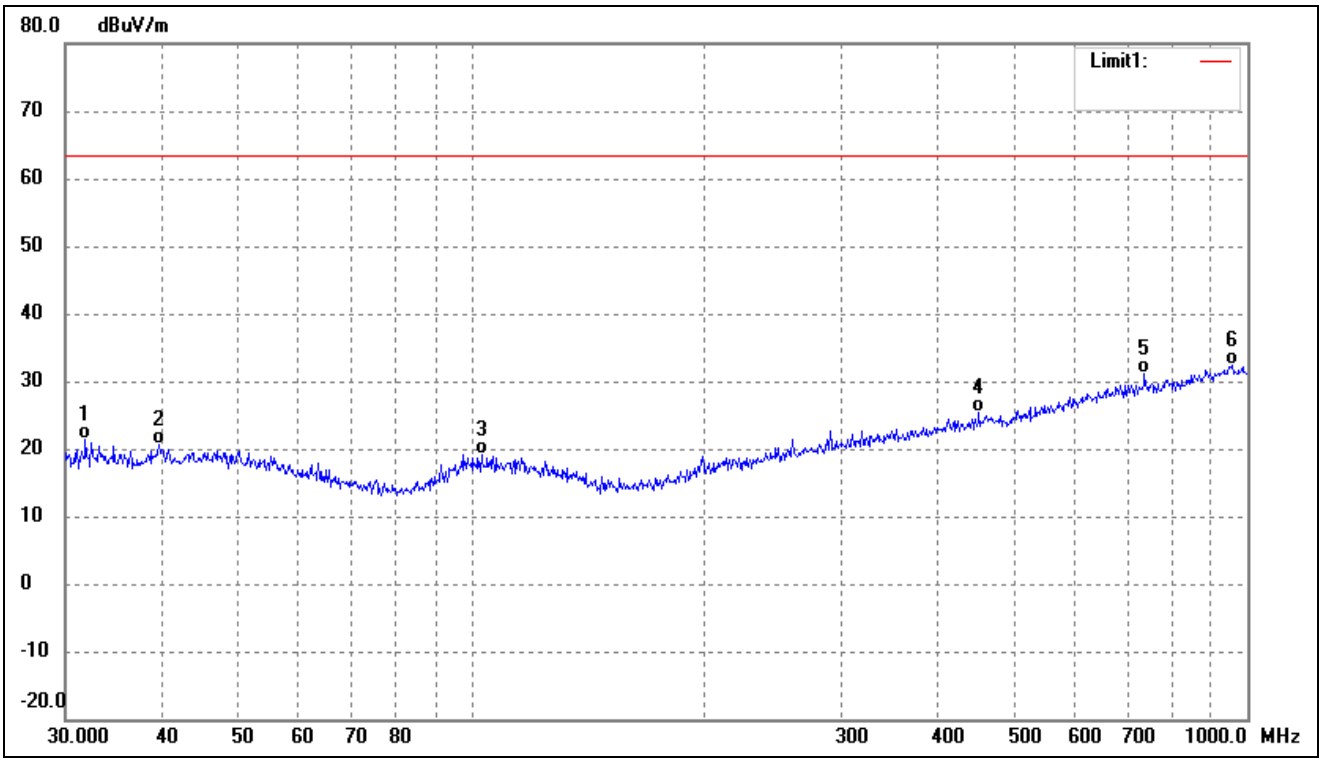
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	33.2111	30.71	-9.29	21.42	63.50	-42.08	-	-	QP
2	50.5859	27.66	-8.06	19.60	63.50	-43.90	-	-	QP
3	108.6470	27.43	-8.68	18.75	63.50	-44.75	-	-	QP
4	283.9791	26.51	-5.90	20.61	63.50	-42.89	-	-	QP
5	392.0951	28.19	-3.77	24.42	63.50	-39.08	-	-	QP
6	699.3046	28.99	1.12	30.11	63.50	-33.39	-	-	QP

Test mode:	TM1	Polarity:	Vertical



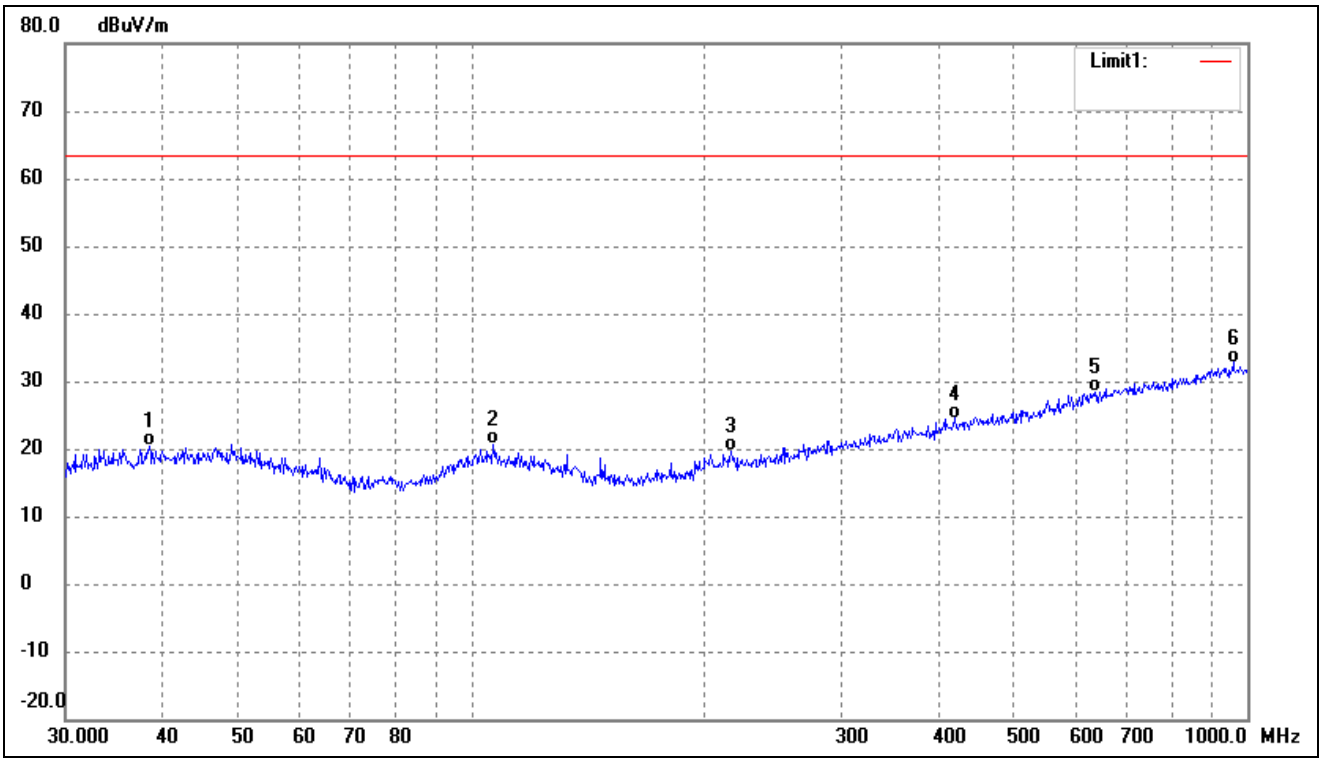
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	33.0949	29.39	-9.31	20.08	63.50	-43.42	-	-	QP
2	43.8119	28.42	-7.84	20.58	63.50	-42.92	-	-	QP
3	125.8863	29.43	-10.39	19.04	63.50	-44.46	-	-	QP
4	295.1469	28.61	-5.52	23.09	63.50	-40.41	-	-	QP
5	539.4774	28.52	-1.59	26.93	63.50	-36.57	-	-	QP
6	887.6099	28.41	3.68	32.09	63.50	-31.41	-	-	QP

Test mode:	TM2	Polarity:	Horizontal



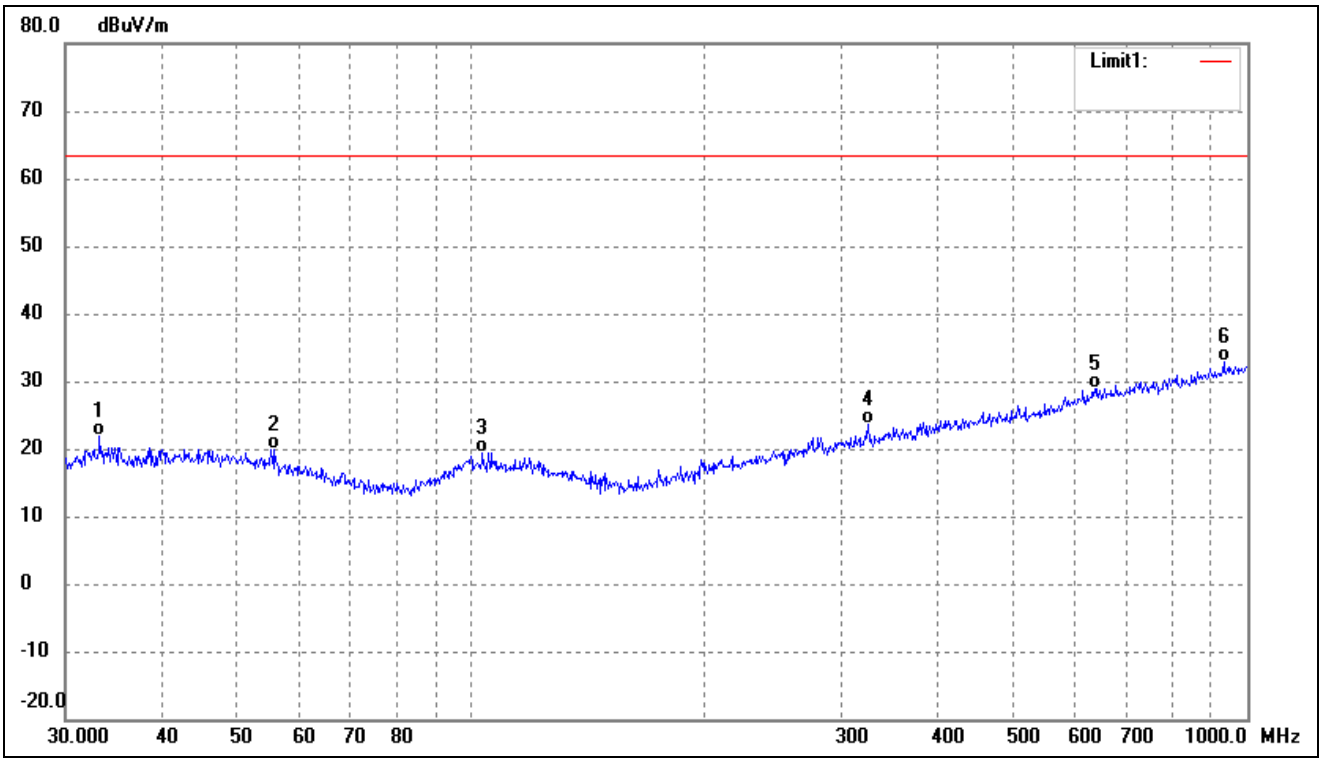
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	31.8427	30.93	-9.58	21.35	63.50	-42.15	-	-	QP
2	39.5756	28.53	-7.87	20.66	63.50	-42.84	-	-	QP
3	103.0799	27.68	-8.64	19.04	63.50	-44.46	-	-	QP
4	451.1349	28.42	-2.97	25.45	63.50	-38.05	-	-	QP
5	737.0714	29.50	1.52	31.02	63.50	-32.48	-	-	QP
6	955.4380	28.05	4.30	32.35	63.50	-31.15	-	-	QP

Test mode:	TM2	Polarity:	Vertical



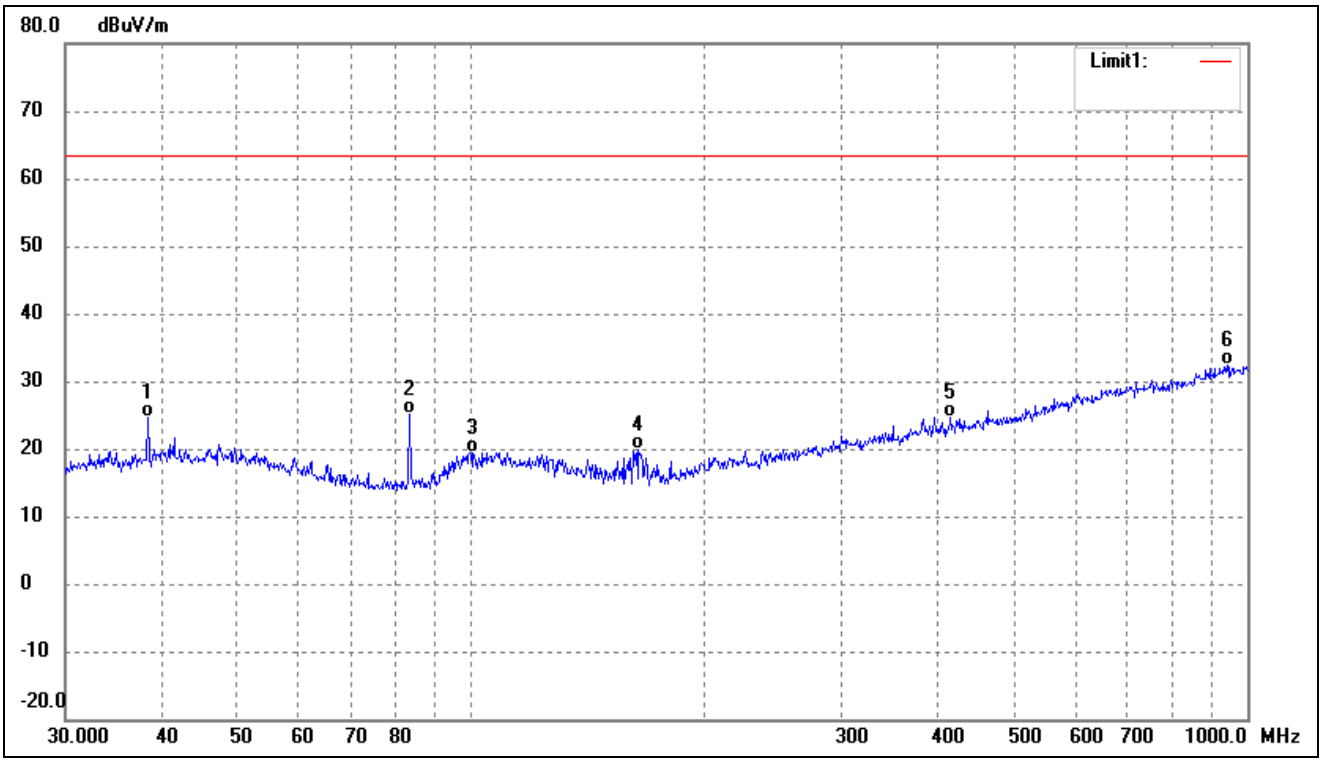
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	38.4808	28.56	-8.11	20.45	63.50	-43.05	-	-	QP
2	106.7587	29.22	-8.68	20.54	63.50	-42.96	-	-	QP
3	216.0240	28.02	-8.29	19.73	63.50	-43.77	-	-	QP
4	419.1080	27.88	-3.38	24.50	63.50	-39.00	-	-	QP
5	636.1340	28.11	0.21	28.32	63.50	-35.18	-	-	QP
6	958.7943	28.44	4.31	32.75	63.50	-30.75	-	-	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	33.2111	31.09	-9.29	21.80	63.50	-41.70	-	-	QP
2	55.8046	28.86	-8.96	19.90	63.50	-43.60	-	-	QP
3	103.4419	28.05	-8.65	19.40	63.50	-44.10	-	-	QP
4	324.4560	28.56	-4.92	23.64	63.50	-39.86	-	-	QP
5	636.1340	28.69	0.21	28.90	63.50	-34.60	-	-	QP
6	932.2714	28.73	4.13	32.86	63.50	-30.64	-	-	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	38.3462	32.70	-8.14	24.56	63.50	-38.94	-	-	QP
2	83.2297	37.26	-12.18	25.08	63.50	-38.42	-	-	QP
3	100.5806	28.09	-8.63	19.46	63.50	-44.04	-	-	QP
4	164.3301	31.30	-11.39	19.91	63.50	-43.59	-	-	QP
5	414.7223	28.09	-3.45	24.64	63.50	-38.86	-	-	QP
6	942.1304	28.08	4.20	32.28	63.50	-31.22	-	-	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 *******