

# TEST REPORT

Reference No..... : WTH22X10198829W001  
FCC ID ..... : 2AOAF-38001  
Applicant ..... : Tylt Inc  
Address..... : 685 Cochran St. Suite 200 Simi Valley CA93065 United States  
Manufacturer ..... : Dongguan HANK Electronics.,LTD  
Address..... : 118 Shaxin Road,Tangxia Towm,Dongguan City,Guangdong Province,China  
Product Name ..... : Magnetic Wireless Charging Pad  
Model No..... : QIWCMS15BK-CQ, 4465R  
Standards ..... : FCC Part 18  
Date of Receipt sample .... : 2022-07-11  
Date of Test..... : 2022-07-11 to 2022-07-15  
Date of Issue ..... : 2022-10-08  
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.

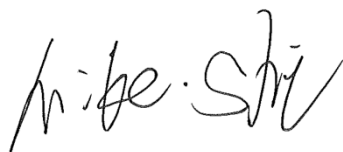
**Prepared By:**

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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	2022-07-15	Original report WTH22X07140326W001
Rev.01	2022-10-08	Refer the old report WTH22X07140326W001, updated the change the name and address of the applicant &Manufacturer, but the circuit and the electronic construction do not change, declared by the manufacturer. So the test data from the original report.
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## 1. GENERAL INFORMATION

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### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Factory: Dongguan HANK Electronics.,LTD  
 Address of factory: 118 Shaxin Road,Tangxia Towm,Dongguan City,Guangdong Province,China

General Description of EUT	
Product Name:	Magnetic Wireless Charging Pad
Trade Name:	/
Model No.:	QIWCMS15BK-CQ, 4465R
<i>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 QIWCMS15BK-CQ, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

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

## 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 maintained 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 2A, DC9V 2A, DC12V1.67A
TM2	Wireless Charging	10W output	DC5V 2A, DC9V 2A, DC12V1.67A
TM3	Wireless Charging	15W output	DC5V 2A, DC9V 2A, DC12V1.67A

### 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
AC Adapter	/	A138A120150U-CN 2	/

### Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Type-C Cable	1.0	Shielded	Without Ferrite

**1.6 Measurement Uncertainty**

<b>Measurement uncertainty</b>		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	9-150kHz $\pm 3.74$ dB
		0.15-30MHz $\pm 3.34$ dB
Radiated Emissions	Radiated	30-200MHz $\pm 4.52$ dB
		0.2-1GHz $\pm 5.56$ dB
		1-6GHz $\pm 3.84$ dB
		6-18GHz $\pm 3.92$ dB

**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

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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:

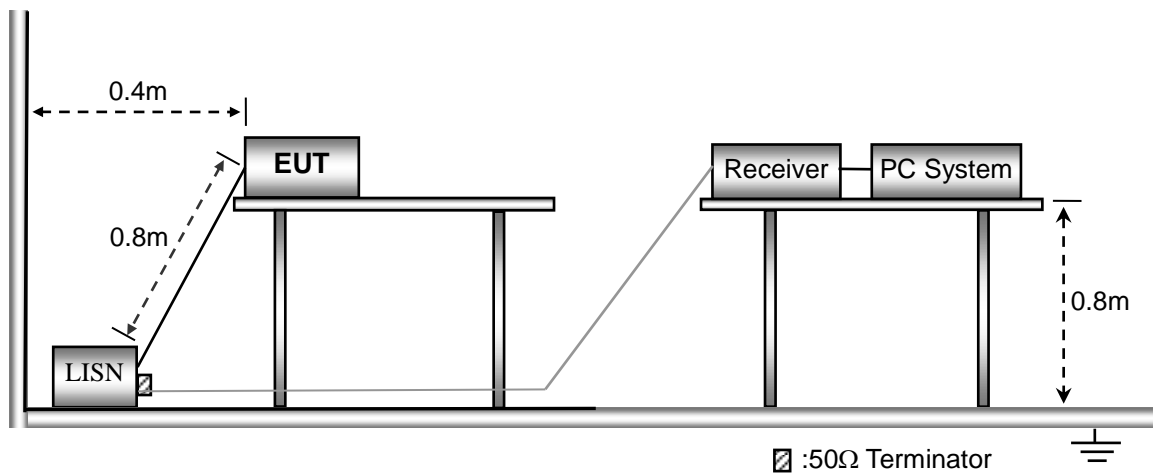
Frequency (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

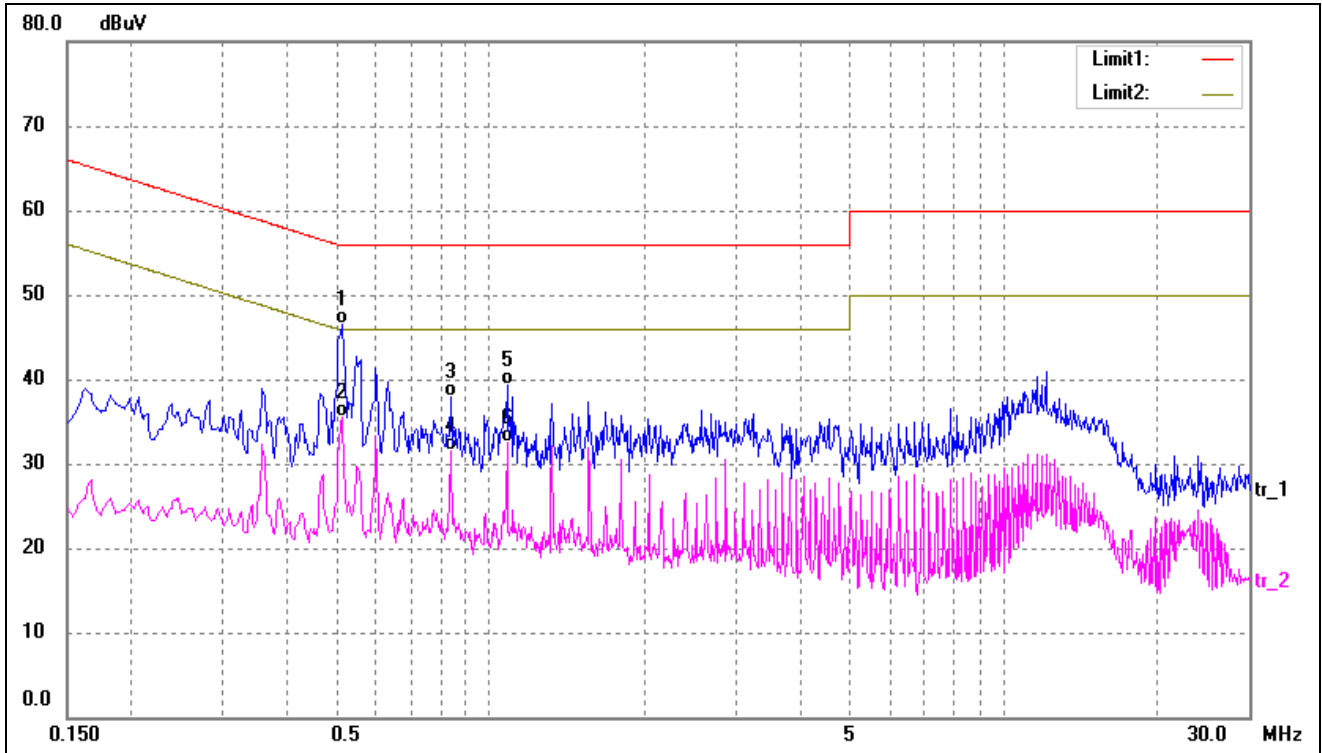
### 3.5 Test Receiver Setup

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

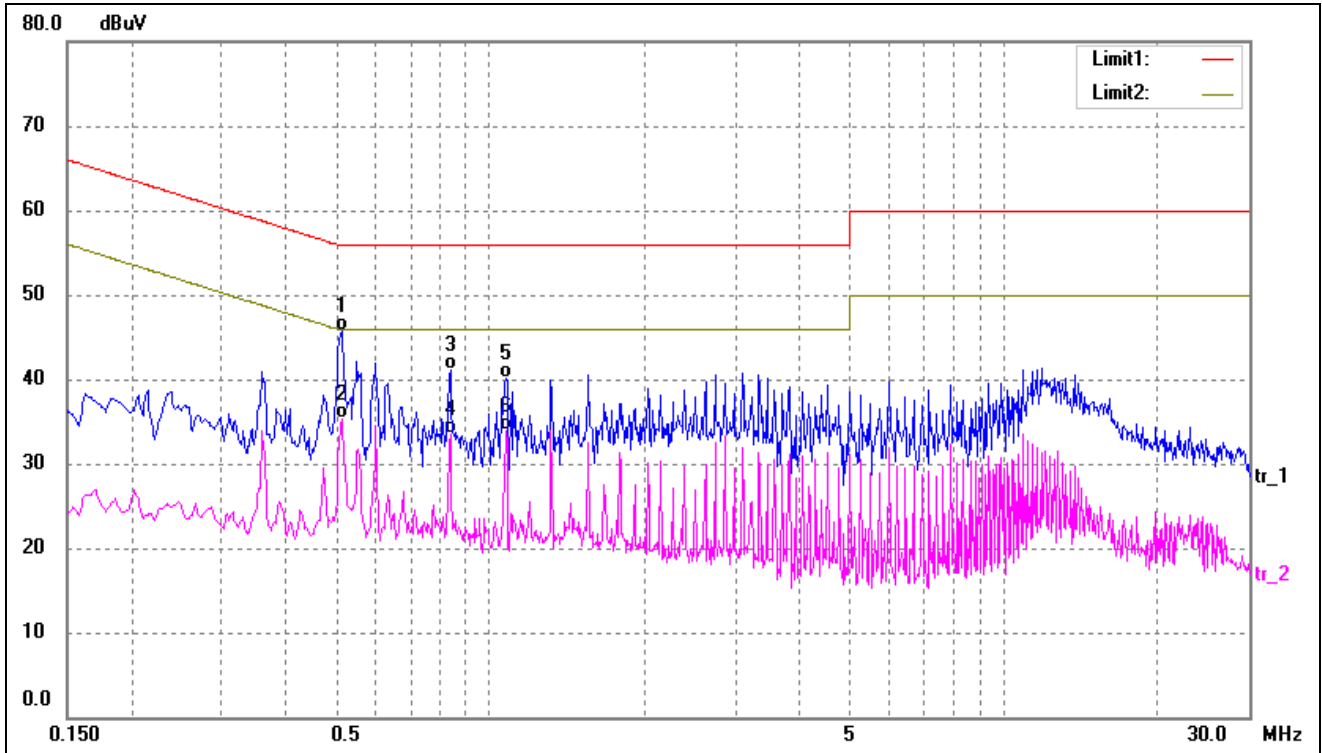
### 3.6 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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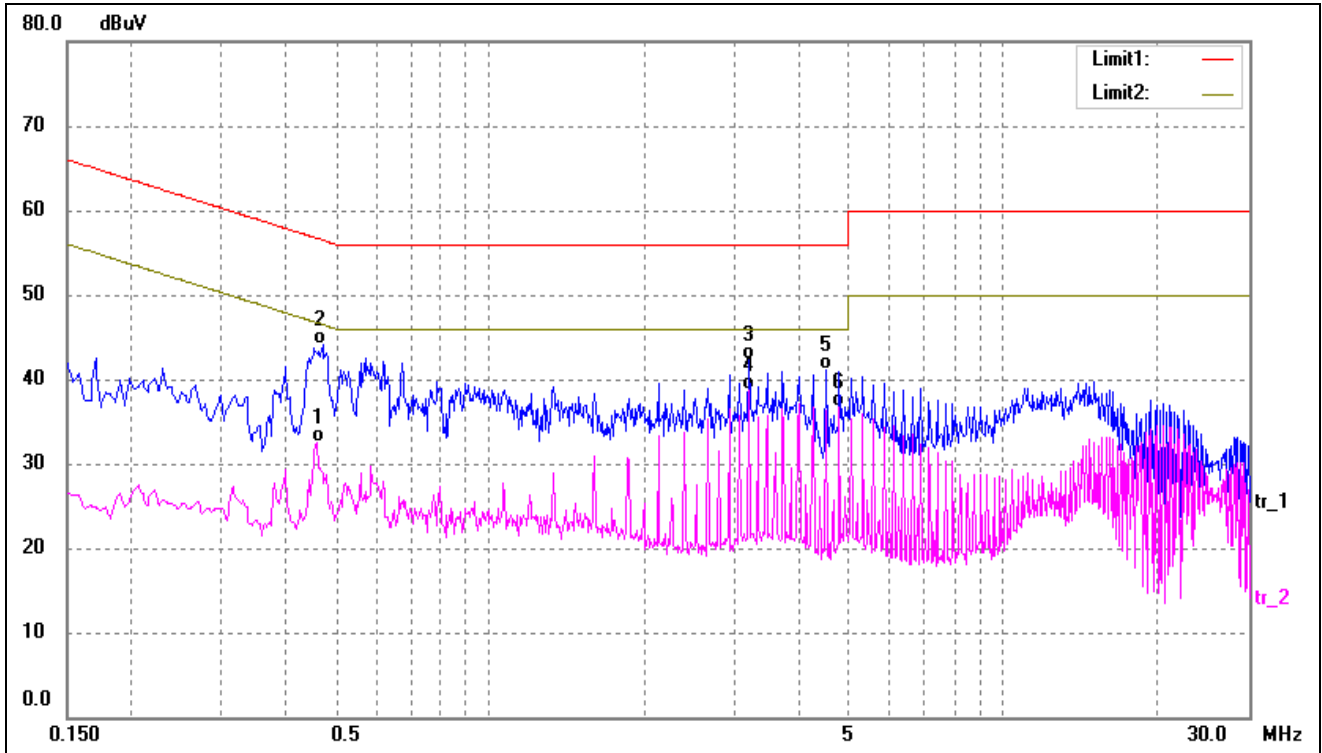
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.5140	36.29	10.22	46.51	56.00	-9.49	QP
2	0.5140	25.27	10.22	35.49	46.00	-10.51	AVG
3	0.8380	27.81	10.16	37.97	56.00	-18.03	QP
4	0.8380	21.39	10.16	31.55	46.00	-14.45	AVG
5	1.0780	29.10	10.15	39.25	56.00	-16.75	QP
6	1.0780	22.38	10.15	32.53	46.00	-13.47	AVG

Test mode:	TM1	Polarity:	Neutral
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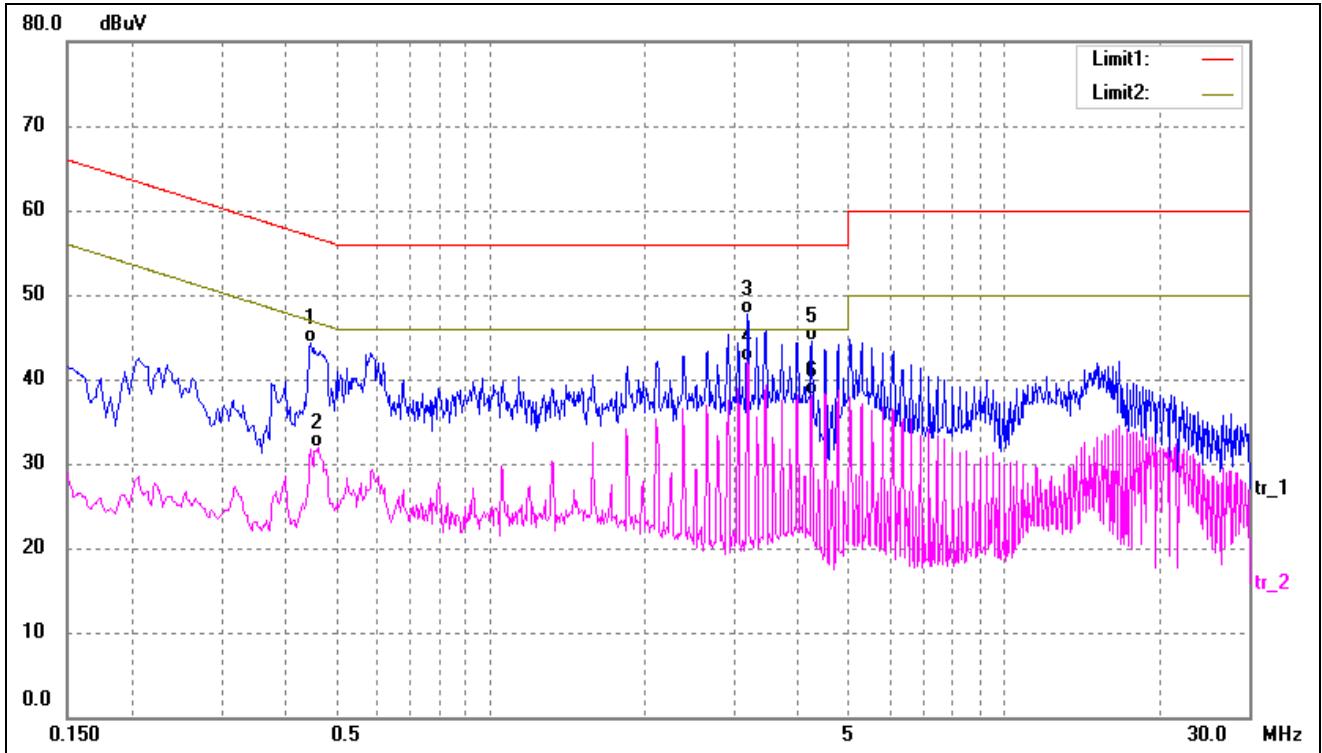
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.5140	35.47	10.22	45.69	56.00	-10.31	QP
2	0.5140	25.14	10.22	35.36	46.00	-10.64	AVG
3	0.8380	31.03	10.16	41.19	56.00	-14.81	QP
4	0.8380	23.31	10.16	33.47	46.00	-12.53	AVG
5	1.0740	30.01	10.15	40.16	56.00	-15.84	QP
6	1.0740	23.75	10.15	33.90	46.00	-12.10	AVG

Test mode:	TM2	Polarity:	Line
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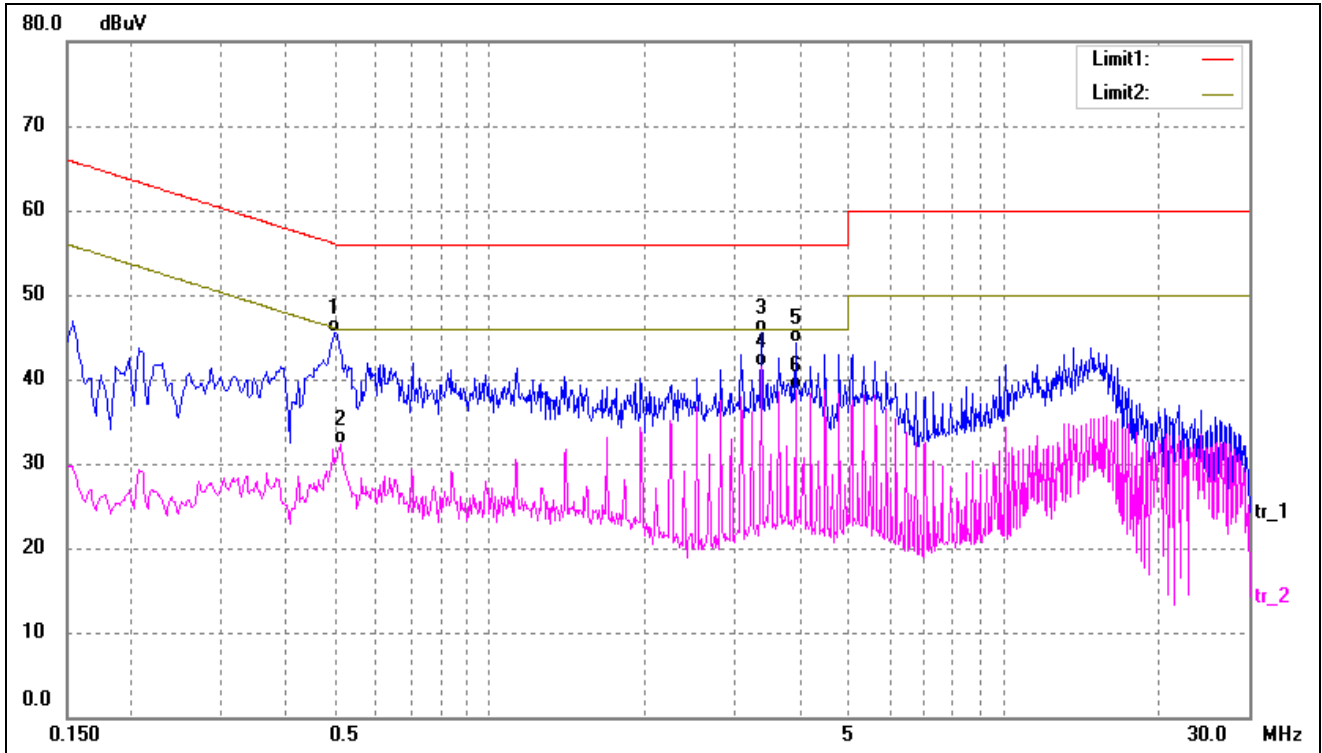
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4580	22.30	10.23	32.53	46.73	-14.20	AVG
2	0.4700	33.89	10.23	44.12	56.51	-12.39	QP
3	3.1900	31.96	10.28	42.24	56.00	-13.76	QP
4*	3.1900	28.45	10.28	38.73	46.00	-7.27	AVG
5	4.5180	30.74	10.32	41.06	56.00	-14.94	QP
6	4.7819	26.36	10.32	36.68	46.00	-9.32	AVG

Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4460	34.01	10.23	44.24	56.95	-12.71	QP
2	0.4620	21.76	10.23	31.99	46.66	-14.67	AVG
3	3.1660	37.51	10.28	47.79	56.00	-8.21	QP
4*	3.1660	31.77	10.28	42.05	46.00	-3.95	AVG
5	4.2340	34.12	10.31	44.43	56.00	-11.57	QP
6	4.2340	27.80	10.31	38.11	46.00	-7.89	AVG

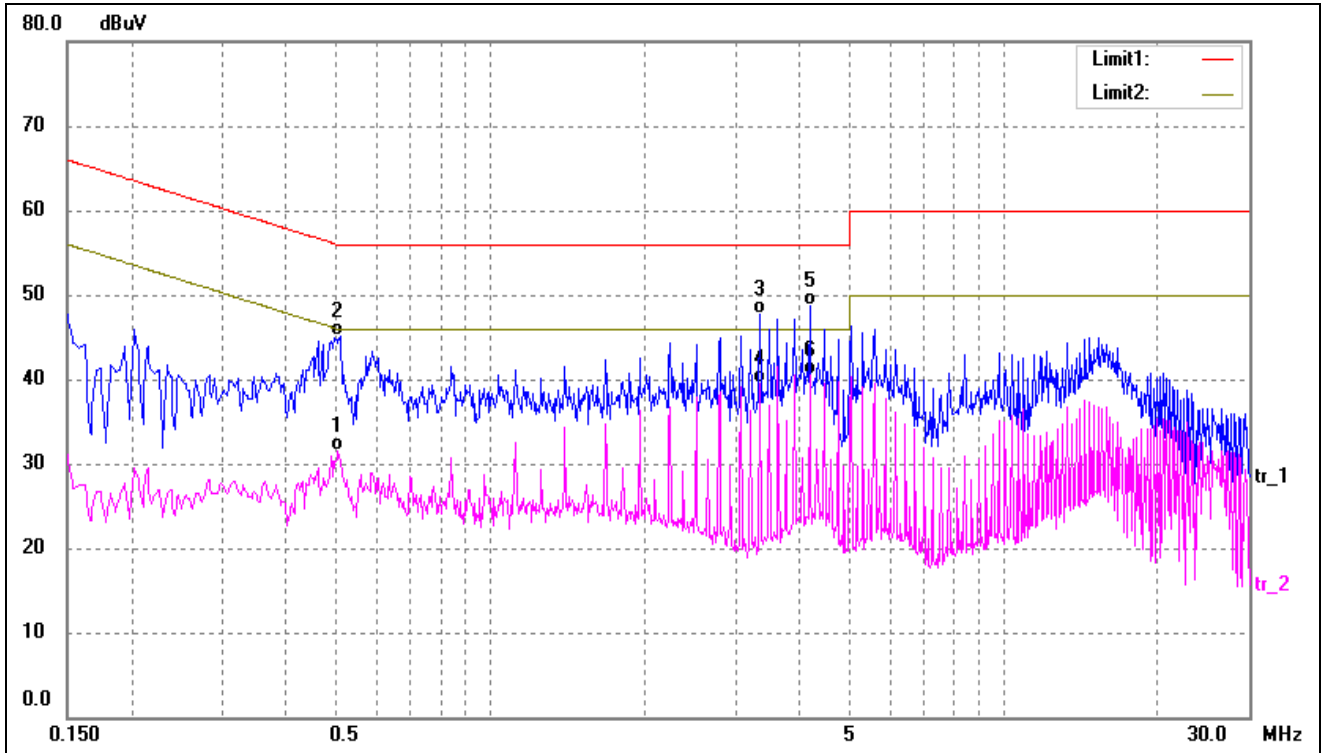
Test mode:	TM3	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4980	35.37	10.22	45.59	56.03	-10.44	QP
2	0.5100	22.13	10.22	32.35	46.00	-13.65	AVG
3	3.3700	35.24	10.29	45.53	56.00	-10.47	QP
4*	3.3700	31.15	10.29	41.44	46.00	-4.56	AVG
5	3.9340	33.92	10.30	44.22	56.00	-11.78	QP
6	3.9340	28.35	10.30	38.65	46.00	-7.35	AVG



Test mode:	TM3	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.5060	21.25	10.22	31.47	46.00	-14.53	AVG
2	0.5100	34.97	10.22	45.19	56.00	-10.81	QP
3	3.3540	37.39	10.29	47.68	56.00	-8.32	QP
4	3.3540	29.18	10.29	39.47	46.00	-6.53	AVG
5	4.1940	38.40	10.31	48.71	56.00	-7.29	QP
6*	4.1940	30.15	10.31	40.46	46.00	-5.54	AVG

## 4. Radiated Emissions

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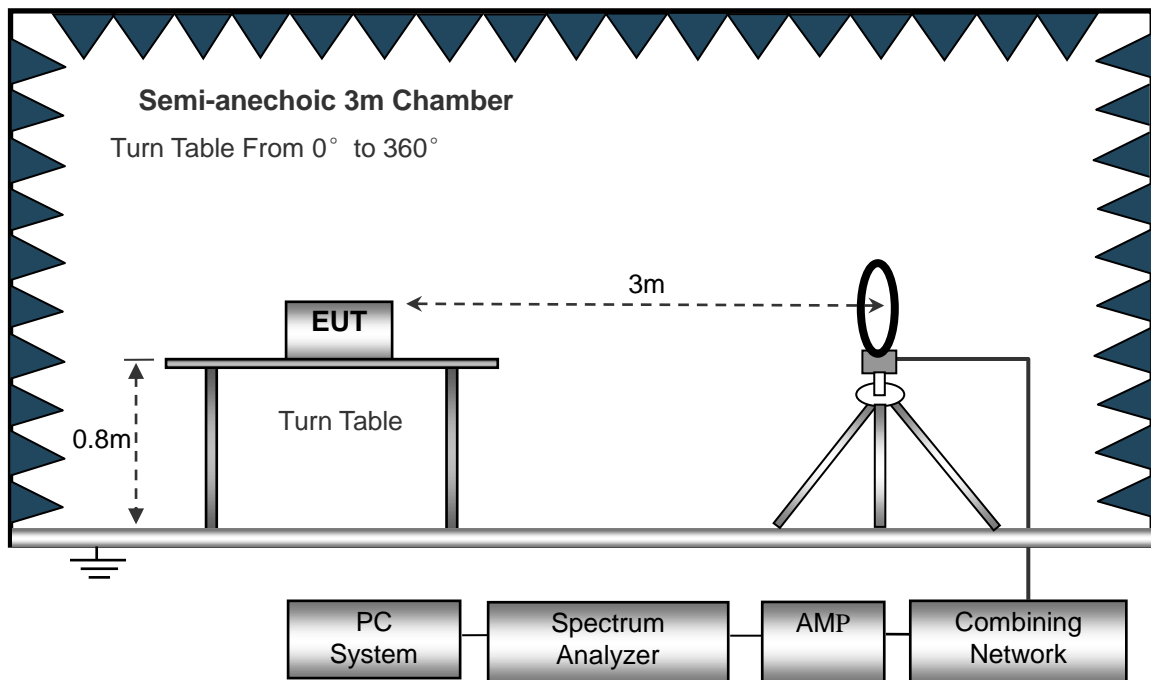
### 4.1 Test Procedure

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.

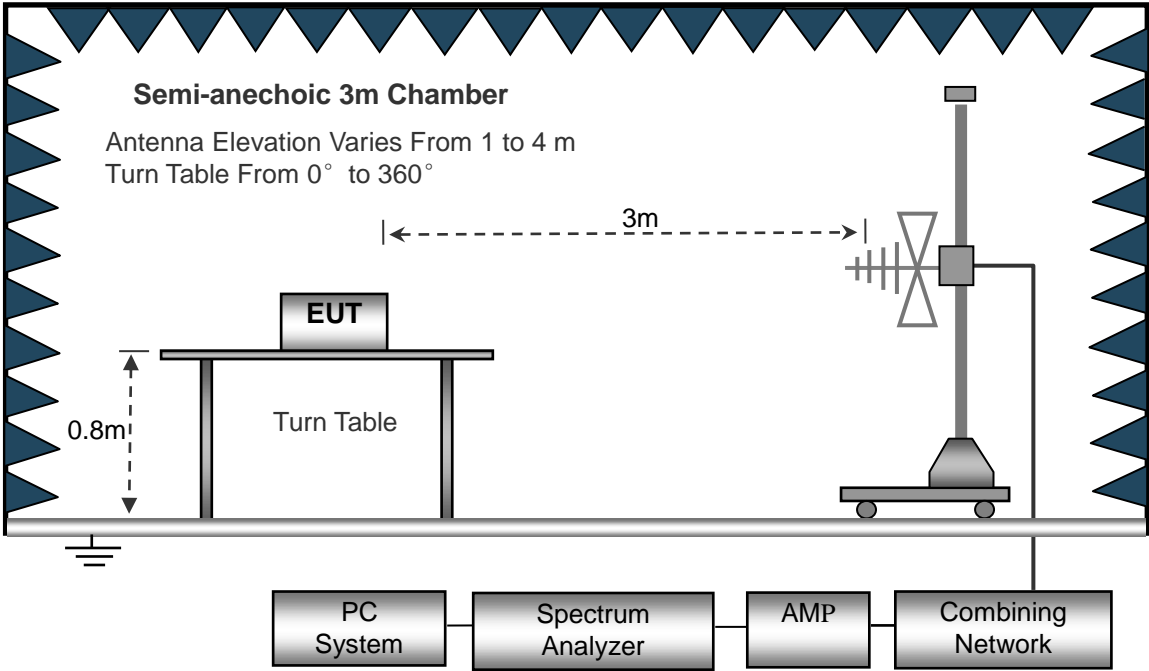
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

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	Frequency :30MHz-1GHz
RBW=10KHz,	RBW=120KHz,
VBW =30KHz	VBW=300KHz
Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold
Detector function = peak	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:

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

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB $\mu$ V means the emission is 6dB $\mu$ V below the maximum limit for Any non-ISM frequency device. The equation for margin calculation is as follows:

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

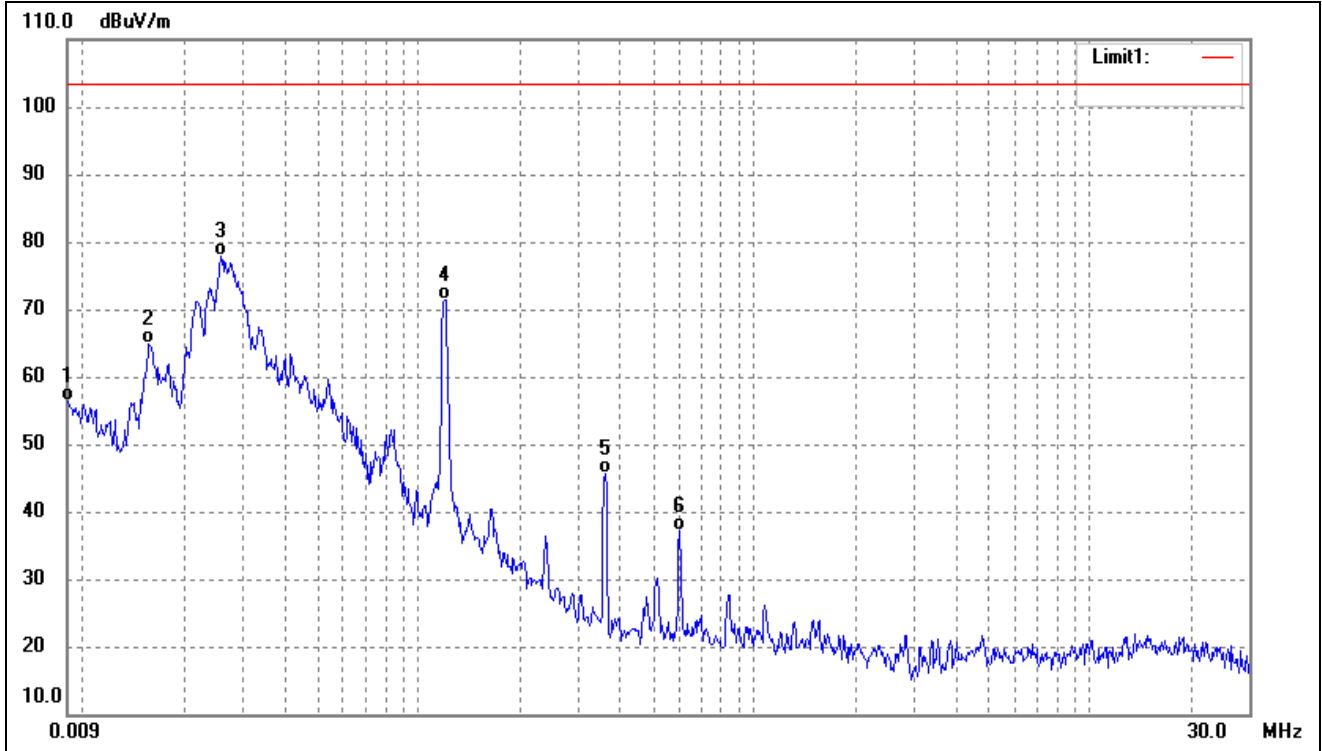
#### 4.4 Environmental Conditions

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

#### 4.5 Summary of Test Results/Plots

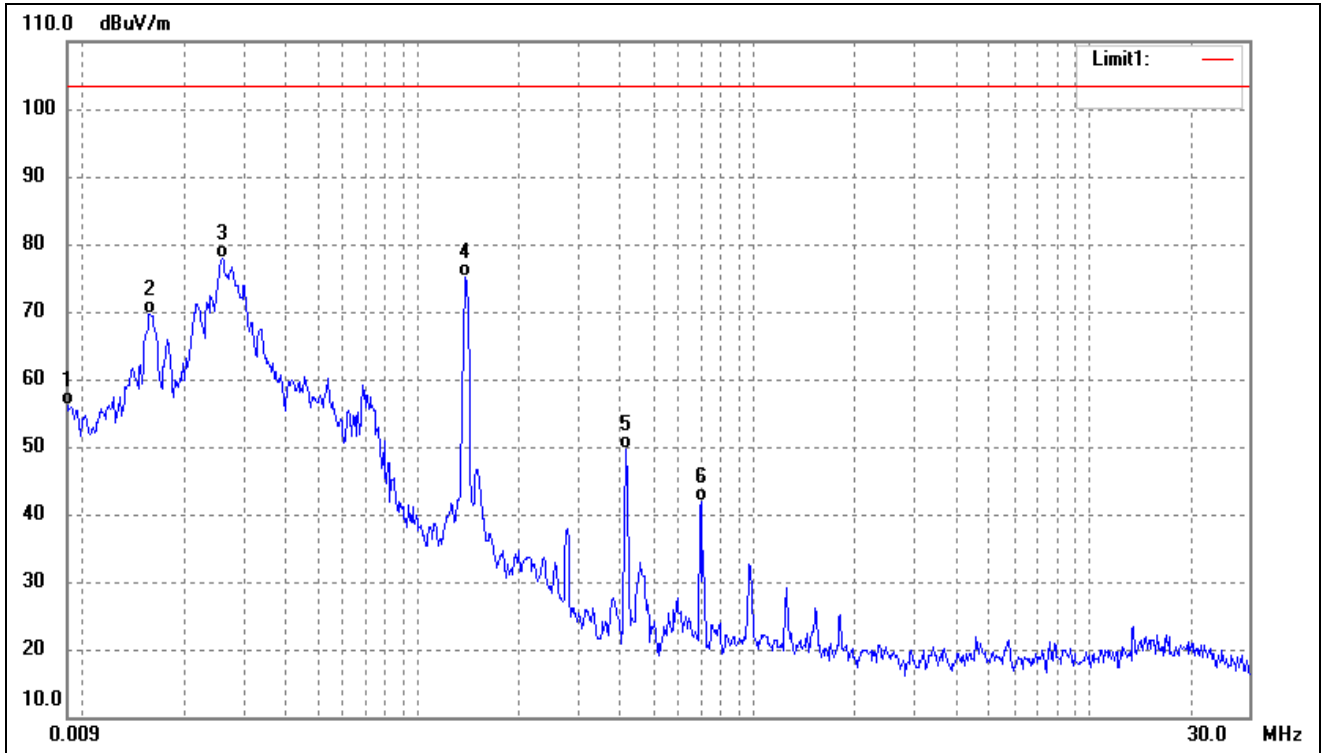
**Plot of Radiated Emissions Test Data (Below 30MHz)**

Test mode:	TM1	Polarity:	Vertical
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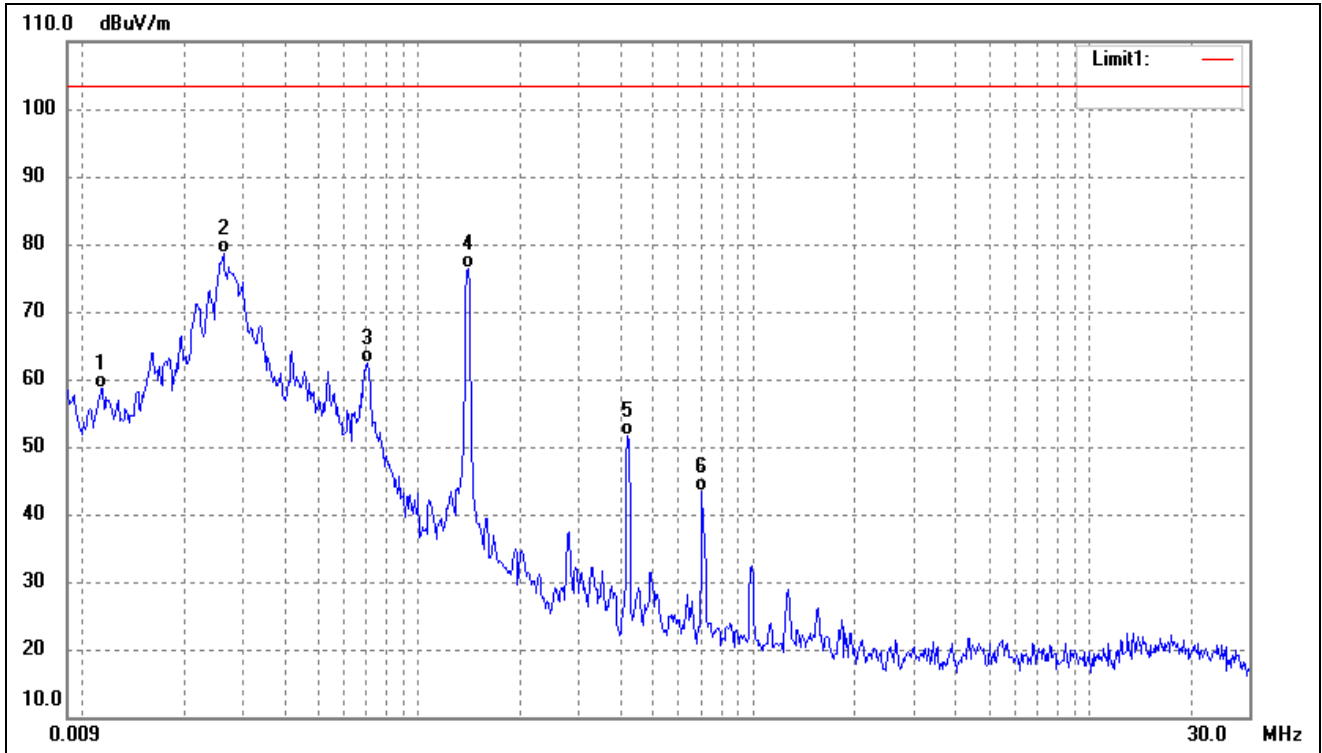
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	0.0091	62.81	-6.47	56.34	103.50	-47.16	-	-	QP
2	0.0158	71.81	-7.02	64.79	103.50	-38.71	-	-	QP
3	0.0258	84.68	-6.73	77.95	103.50	-25.55	-	-	QP
4	0.1197	77.98	-6.50	71.48	103.50	-32.02	-	-	QP
5	0.3607	53.46	-7.75	45.71	103.50	-57.79	-	-	QP
6	0.6012	44.14	-7.08	37.06	103.50	-66.44	-	-	QP

Test mode:	TM2	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	0.0091	62.49	-6.47	56.02	103.50	-47.48	-	-	QP
2	0.0159	76.74	-7.02	69.72	103.50	-33.78	-	-	QP
3	0.0259	84.49	-6.73	77.76	103.50	-25.74	-	-	QP
4	0.1385	81.44	-6.39	75.05	103.50	-28.45	-	-	QP
5	0.4173	57.19	-7.66	49.53	103.50	-53.97	-	-	QP
6	0.6957	48.56	-6.65	41.91	103.50	-61.59	-	-	QP

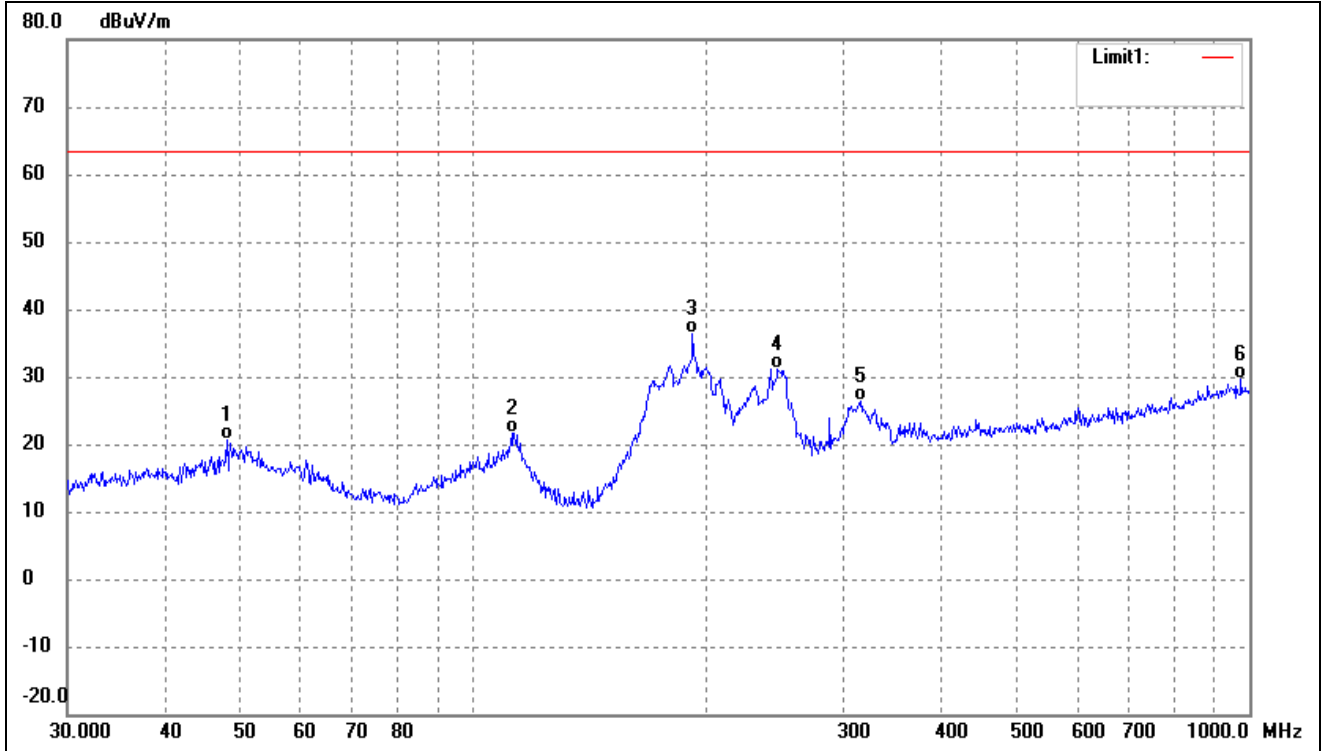
Test mode:	TM3	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	0.0114	65.54	-7.01	58.53	103.50	-44.97	-	-	QP
2	0.0263	85.23	-6.70	78.53	103.50	-24.97	-	-	QP
3	0.0704	68.65	-6.24	62.41	103.50	-41.09	-	-	QP
4	0.1408	82.65	-6.38	76.27	103.50	-27.23	-	-	QP
5	0.4208	59.38	-7.66	51.72	103.50	-51.78	-	-	QP
6	0.7015	49.99	-6.62	43.37	103.50	-60.13	-	-	QP

**Plot of Radiated Emissions Test Data ( Above 30MHz)**

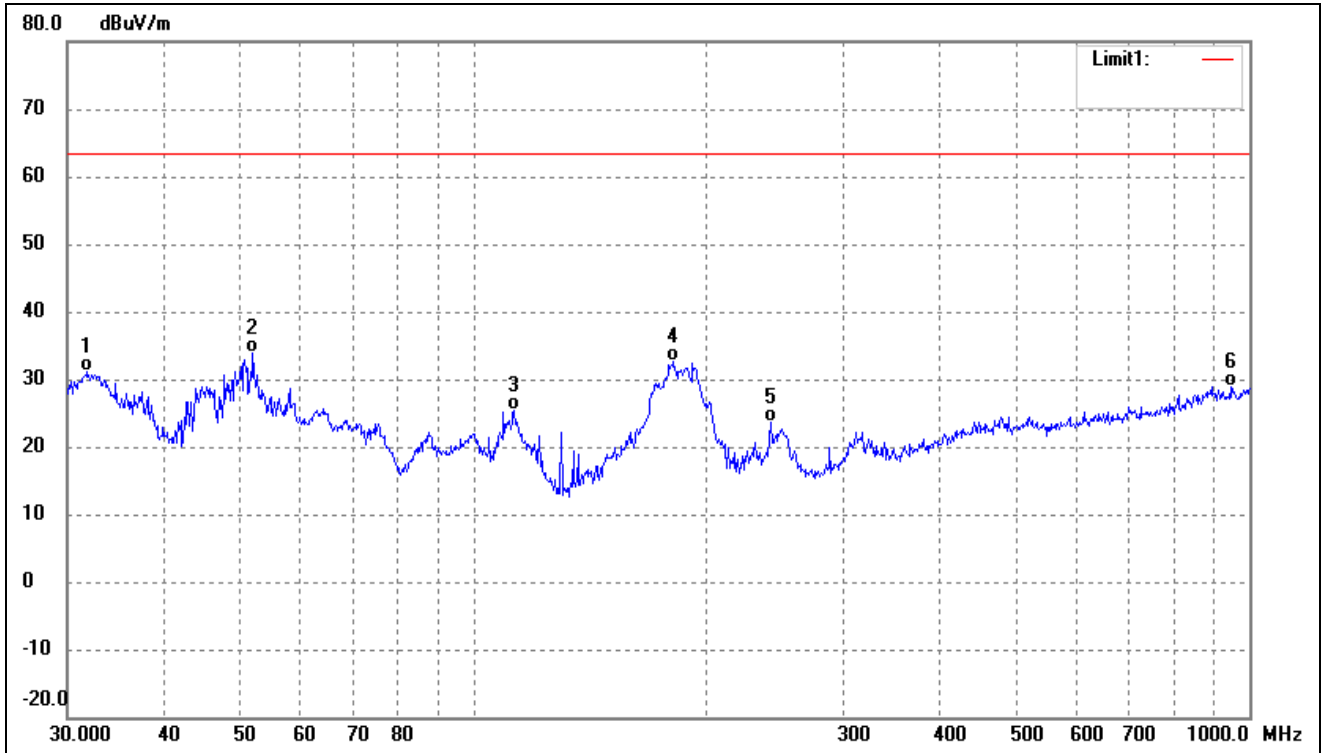
Test mode:	TM1	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	48.1626	31.49	-10.89	20.60	63.50	-42.90	-	-	QP
2	112.1305	34.62	-12.89	21.73	63.50	-41.77	-	-	QP
3	191.7450	49.04	-12.74	36.30	63.50	-27.20	-	-	QP
4	246.8149	42.10	-11.00	31.10	63.50	-32.40	-	-	QP
5	315.4808	35.34	-8.89	26.45	63.50	-37.05	-	-	QP
6	975.7529	28.41	1.17	29.58	63.50	-33.92	-	-	QP

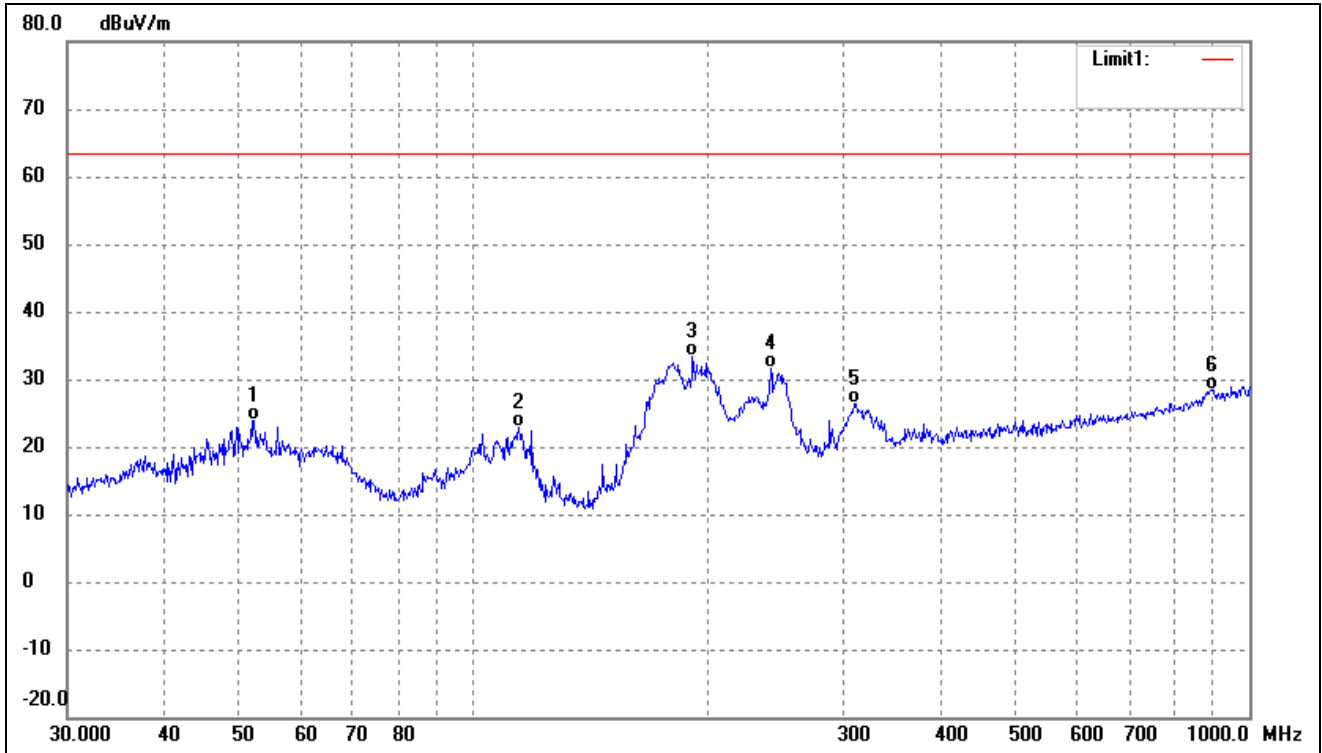


Test mode:	TM1	Polarity:	Vertical
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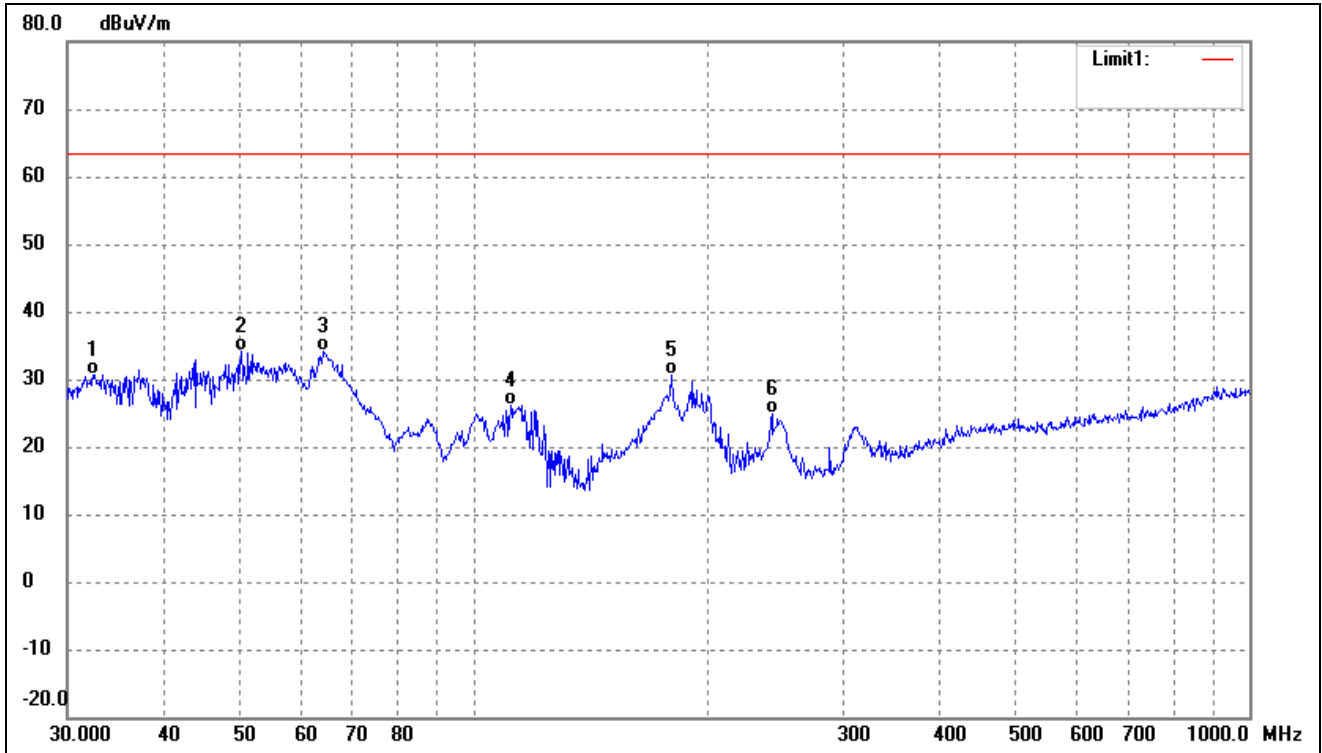
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	31.8427	43.53	-12.35	31.18	63.50	-32.32	-	-	QP
2	52.0251	45.20	-11.27	33.93	63.50	-29.57	-	-	QP
3	112.9196	38.44	-12.99	25.45	63.50	-38.05	-	-	QP
4	181.2834	46.53	-13.86	32.67	63.50	-30.83	-	-	QP
5	241.6763	34.77	-11.15	23.62	63.50	-39.88	-	-	QP
6	945.4399	28.11	0.88	28.99	63.50	-34.51	-	-	QP

Test mode:	TM2	Polarity:	Horizontal
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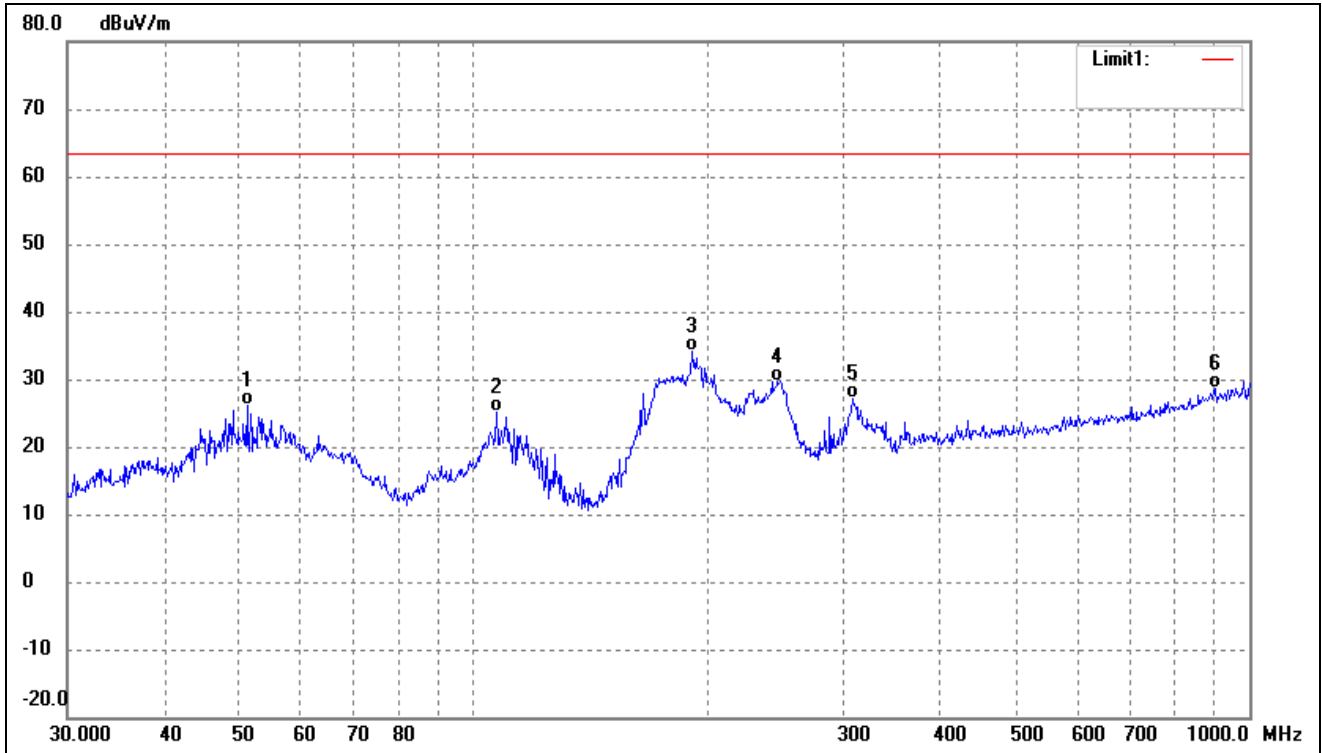
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	52.2079	35.20	-11.31	23.89	63.50	-39.61	-	-	QP
2	114.5146	36.13	-13.20	22.93	63.50	-40.57	-	-	QP
3	191.7450	46.10	-12.74	33.36	63.50	-30.14	-	-	QP
4	241.6763	42.81	-11.15	31.66	63.50	-31.84	-	-	QP
5	309.9977	35.35	-9.05	26.30	63.50	-37.20	-	-	QP
6	896.9965	28.02	0.42	28.44	63.50	-35.06	-	-	QP

Test mode:	TM2	Polarity:	Vertical
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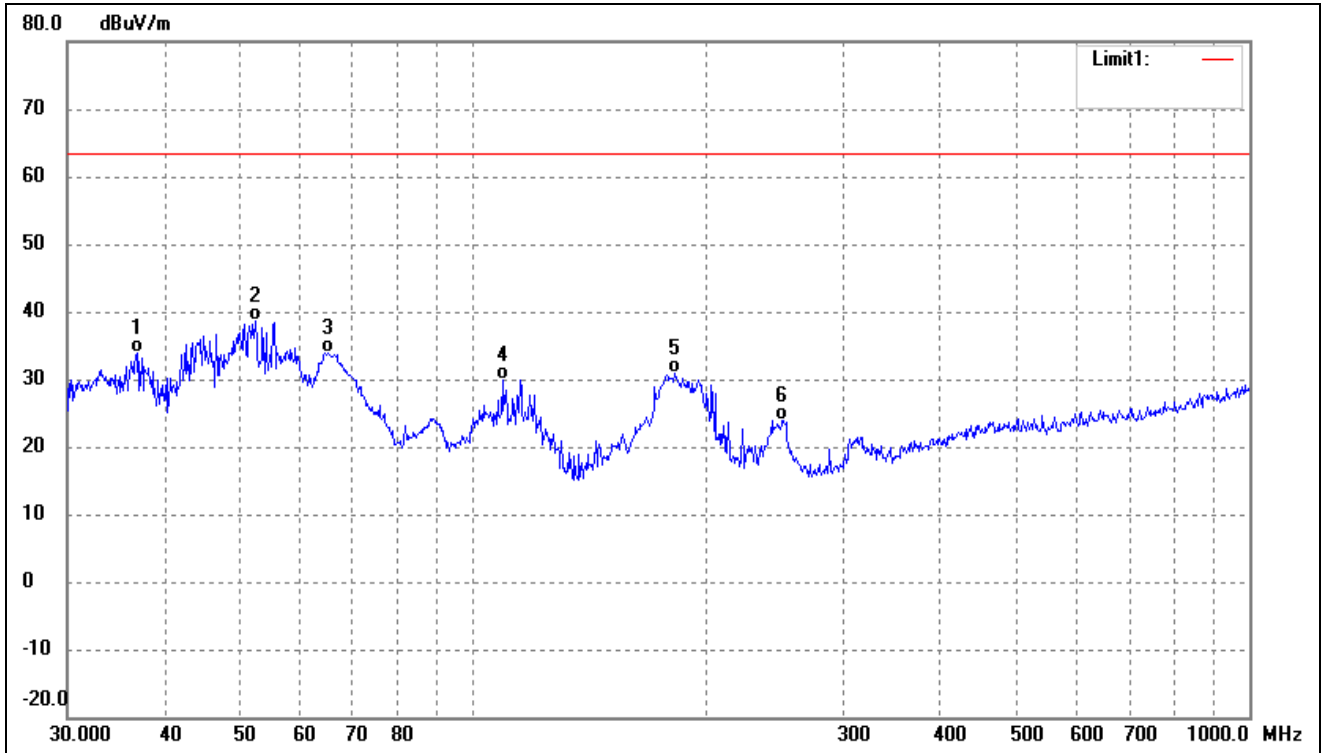
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	32.4059	42.97	-12.25	30.72	63.50	-32.78	-	-	QP
2	50.2325	45.13	-10.93	34.20	63.50	-29.30	-	-	QP
3	63.9828	47.85	-13.74	34.11	63.50	-29.39	-	-	QP
4	111.7380	39.08	-12.83	26.25	63.50	-37.25	-	-	QP
5	180.0165	44.71	-14.02	30.69	63.50	-32.81	-	-	QP
6	242.5253	36.04	-11.12	24.92	63.50	-38.58	-	-	QP

Test mode:	TM3	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	51.1208	37.18	-11.10	26.08	63.50	-37.42	-	-	QP
2	107.1337	37.51	-12.46	25.05	63.50	-38.45	-	-	QP
3	191.7450	46.76	-12.74	34.02	63.50	-29.48	-	-	QP
4	246.8148	40.59	-11.00	29.59	63.50	-33.91	-	-	QP
5	307.8312	36.26	-9.11	27.15	63.50	-36.35	-	-	QP
6	903.3093	28.07	0.52	28.59	63.50	-34.91	-	-	QP

Test mode:	TM3	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	36.8953	45.24	-11.46	33.78	63.50	-29.72	-	-	QP
2	52.3913	50.04	-11.34	38.70	63.50	-24.80	-	-	QP
3	64.8865	47.87	-13.94	33.93	63.50	-29.57	-	-	QP
4	109.0286	42.41	-12.55	29.86	63.50	-33.64	-	-	QP
5	181.9202	44.57	-13.79	30.78	63.50	-32.72	-	-	QP
6	250.3012	34.87	-10.88	23.99	63.50	-39.51	-	-	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**

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**Please refer to “ANNEX”**

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