

TEST REPORT

Reference No..... : WTX21X03014176W-1
FCC ID : 2AY3MW01
Applicant : Shenzhen Qianwen Electronics Co., Ltd.
Address..... : Room 208, Building Songhua 2F,Xiangnan 4th Road,Minzhi Street, Longhua
District,ShenZhen, China
Product Name : NewQ Magnetic Wireless Charger
Test Model. : W01
Standards : FCC Part 15C
Date of Receipt sample : Mar.01, 2021
Date of Test..... : Mar.01, 2021 to Mar.19, 2021
Date of Issue : Mar.19, 2021
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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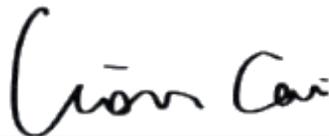
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Report version

Version No.	Date of issue	Description
Rev.00	Mar.19, 2021	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Shenzhen Qianwen Electronics Co., Ltd.
 Address of applicant: Room 208, Building Songhua 2F, Xiangnan 4th Road, Minzhi Street, Longhua District, ShenZhen, China

Manufacturer: Shenzhen Qianwen Electronics Co., Ltd.
 Address of manufacturer: Room 208, Building Songhua 2F, Xiangnan 4th Road, Minzhi Street, Longhua District, ShenZhen, China

General Description of EUT	
Product Name:	NewQ Magnetic Wireless Charger
Trade Name:	
Model No.:	W01
Adding Model:	/
Battery Capacity	/
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
WPT	
Frequency Range:	112-145kHz
Modulation Type	ASK
Antenna Type:	Coil Antenna
Antenna Gain:	0dBi
Rated Voltage:	DC5V / DC9V
Rated Current:	2.4A / 2A
Rated Power:	5W / 7.5W

1.2 Test Standards

The following report is prepared on behalf of the Shenzhen Qianwen Electronics Co., Ltd. in accordance with Part 15.207, 15.209, RSS-Gen Issue 4 and RSS-216 Issue 2 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.207, 15.209 and RSS-Gen Issue 4 and RSS-216 Issue 2 rules.

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, 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

Address of the test laboratory

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

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	/	Input DC5V/2.4A; Output:5W
TM2	Wireless Charging	/	Input DC9V/2A; Output:7.5W

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Cable	1.5	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Power Adapter	Xiaomi	MDY-08-ES	/

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	$\pm 2.88\text{dB}$
Transmitter Spurious Emissions	Radiated	$\pm 5.1\text{dB}$

1.7 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2020-04-28	2021-04-27
Spectrum Analyzer	Rohde & Schwarz	FSP	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
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
Loop Antenna	ETS-LINDGREN	6502	00071730	2019-05-05	2021-05-04
Receiver	R&S	ESCI	100435	2020-04-28	2021-04-27
Spectrum Analyzer	R&S	FSP40	100416	2020-04-28	2021-04-27

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§ 15.207(a) Conducted Emission	Compliant
§ 15.209(a) Radiated Emission	Compliant
§ 15.215 20dB Emission Bandwidth	Compliant

N/A: not applicable

3. RF Exposure

3.1 Standard Applicable

According to § 1.1307 and § 2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the RF Exposure Report.

4. Antenna Requirement

4.1 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.

4.2 Evaluation Information

This product has a Coil antenna, fulfill the requirement of this section.

5. Conducted Emissions

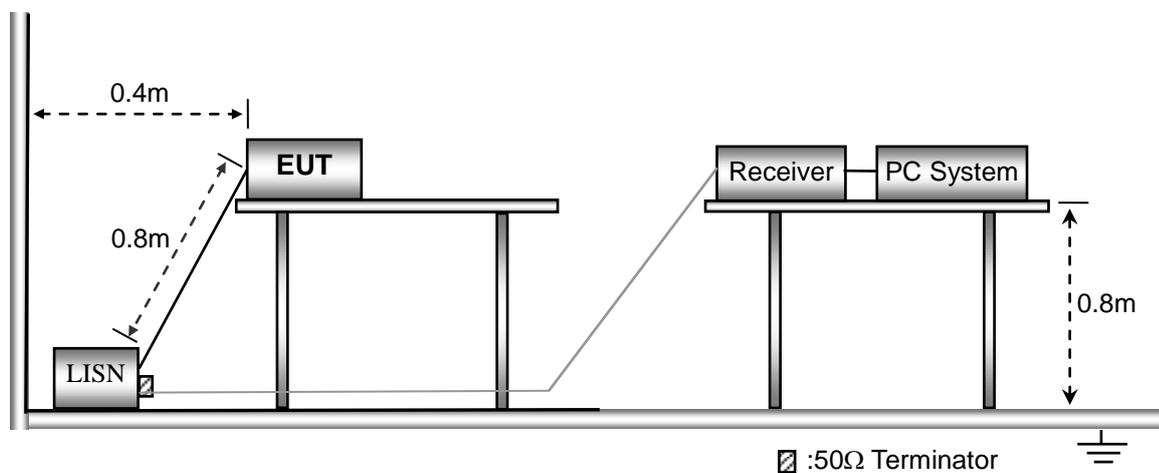
5.1 Test Procedure

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.

5.2 Basic Test Setup Block Diagram



5.3 Environmental Conditions

Temperature:	24.5°C
Relative Humidity:	55%
ATM Pressure:	1012 mbar

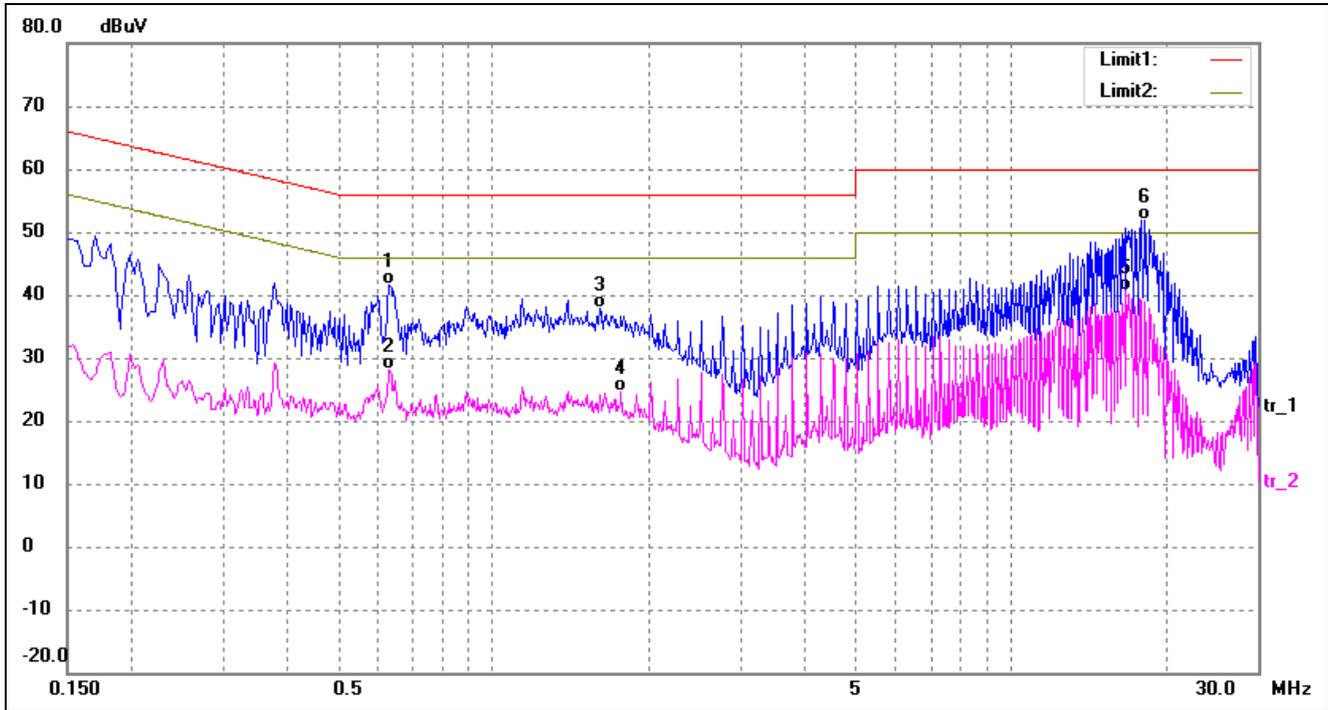
5.4 Test Receiver Setup

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

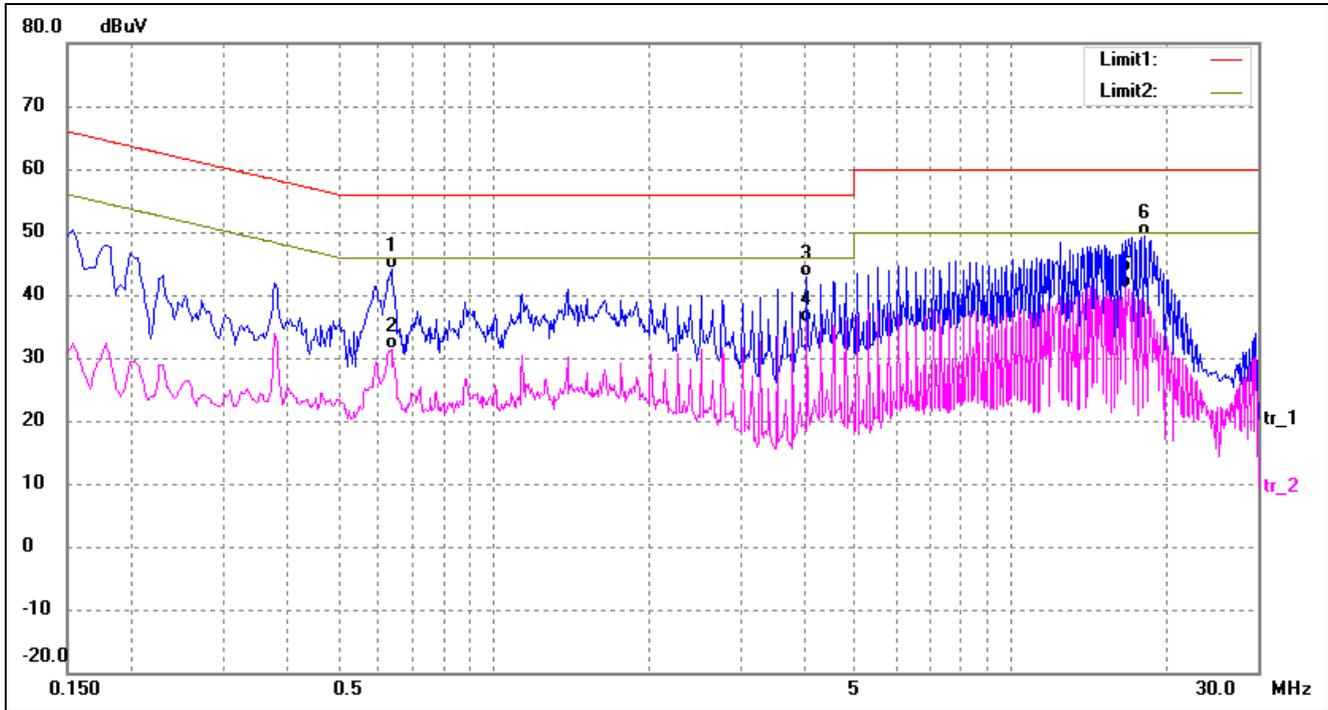
5.5 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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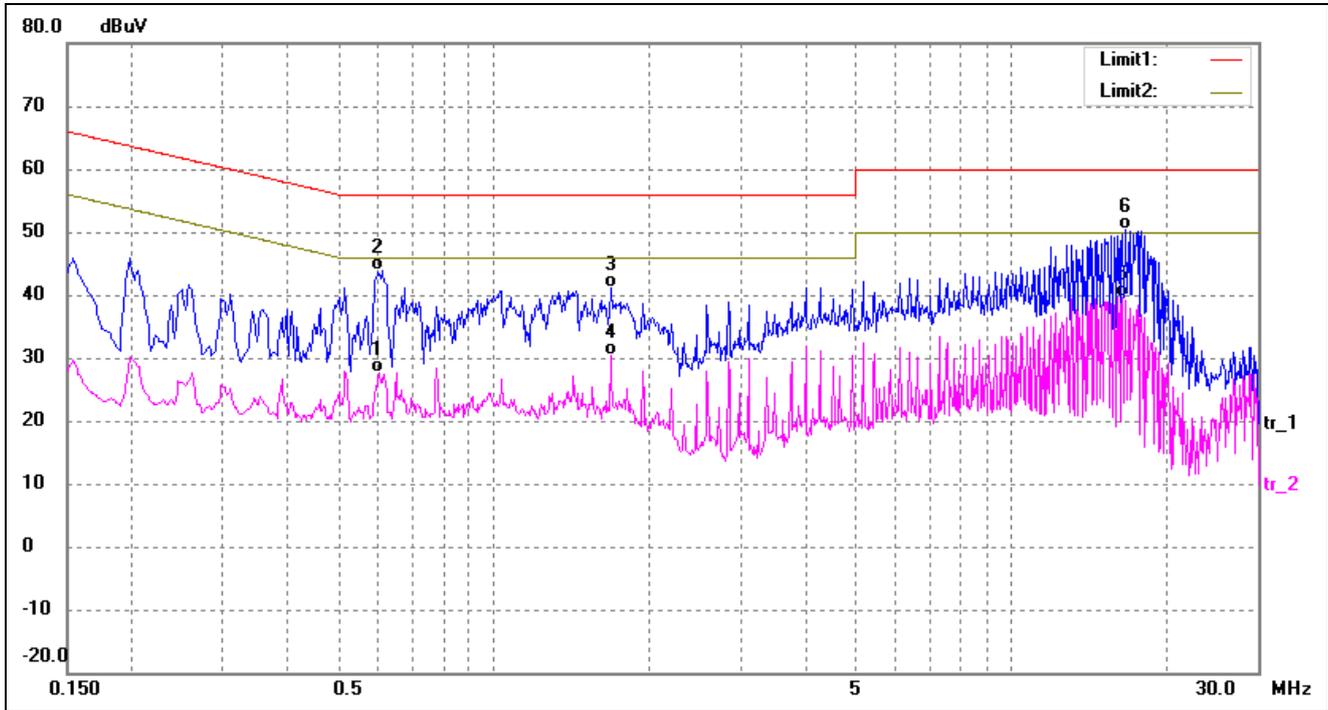
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6300	31.40	10.19	41.59	56.00	-14.41	QP
2	0.6300	17.88	10.19	28.07	46.00	-17.93	AVG
3	1.6060	27.71	10.24	37.95	56.00	-18.05	QP
4	1.7660	14.42	10.26	24.68	46.00	-21.32	AVG
5	16.6740	30.11	10.59	40.70	50.00	-9.30	AVG
6*	18.1900	41.38	10.58	51.96	60.00	-8.04	QP

Test mode:	TM1	Polarity:	Neutral
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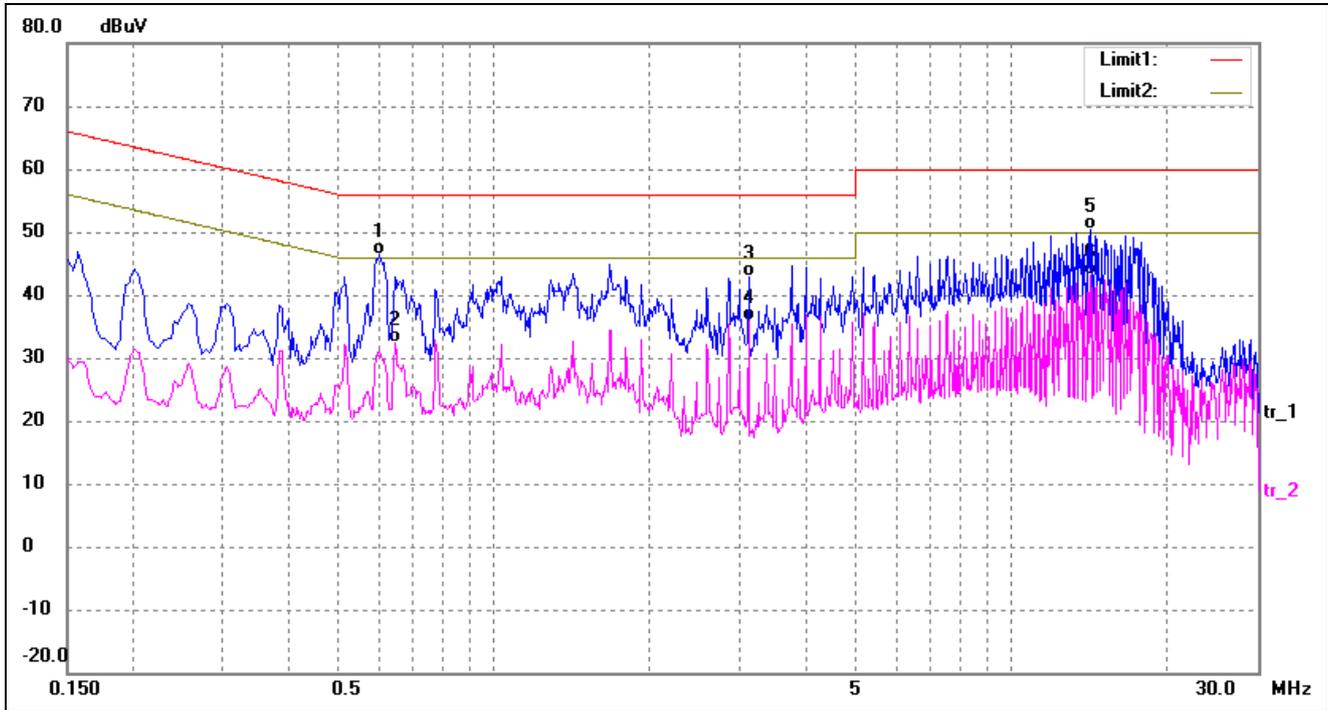
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6340	34.00	10.19	44.19	56.00	-11.81	QP
2	0.6340	21.10	10.19	31.29	46.00	-14.71	AVG
3	4.0419	32.63	10.24	42.87	56.00	-13.13	QP
4	4.0419	25.45	10.24	35.69	46.00	-10.31	AVG
5*	16.6739	30.43	10.59	41.02	50.00	-8.98	AVG
6	18.1899	38.85	10.58	49.43	60.00	-10.57	QP

Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6020	17.35	10.21	27.56	46.00	-18.44	AVG
2	0.6100	33.71	10.20	43.91	56.00	-12.09	QP
3	1.6860	30.96	10.26	41.22	56.00	-14.78	QP
4	1.6860	20.14	10.26	30.40	46.00	-15.60	AVG
5	16.4780	28.99	10.59	39.58	50.00	-10.42	AVG
6*	16.7380	39.89	10.59	50.48	60.00	-9.52	QP

Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6020	36.21	10.21	46.42	56.00	-9.58	QP
2	0.6460	22.09	10.19	32.28	46.00	-13.72	AVG
3	3.1140	32.64	10.26	42.90	56.00	-13.10	QP
4	3.1140	25.70	10.26	35.96	46.00	-10.04	AVG
5	14.2700	39.85	10.53	50.38	60.00	-9.62	QP
6*	14.2700	32.52	10.53	43.05	50.00	-6.95	AVG

6. Radiated Emission

6.1 Standard Applicable

According to §15.209(a), Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

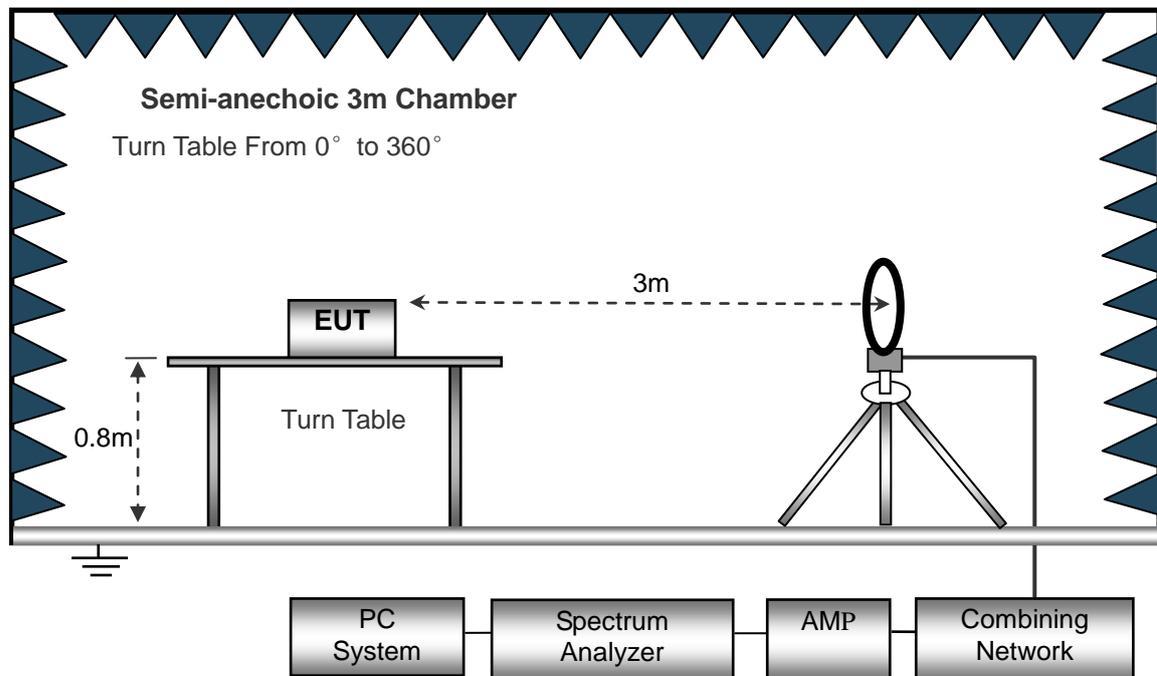
The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

6.2 Test Procedure

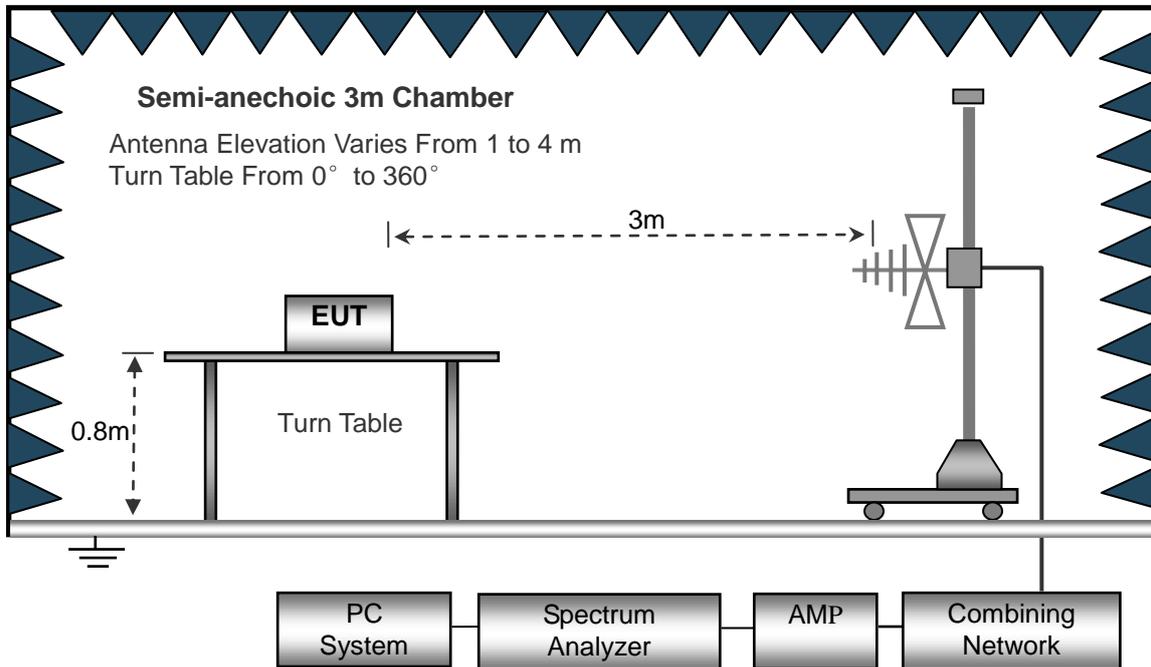
The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.209 Limit.

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.

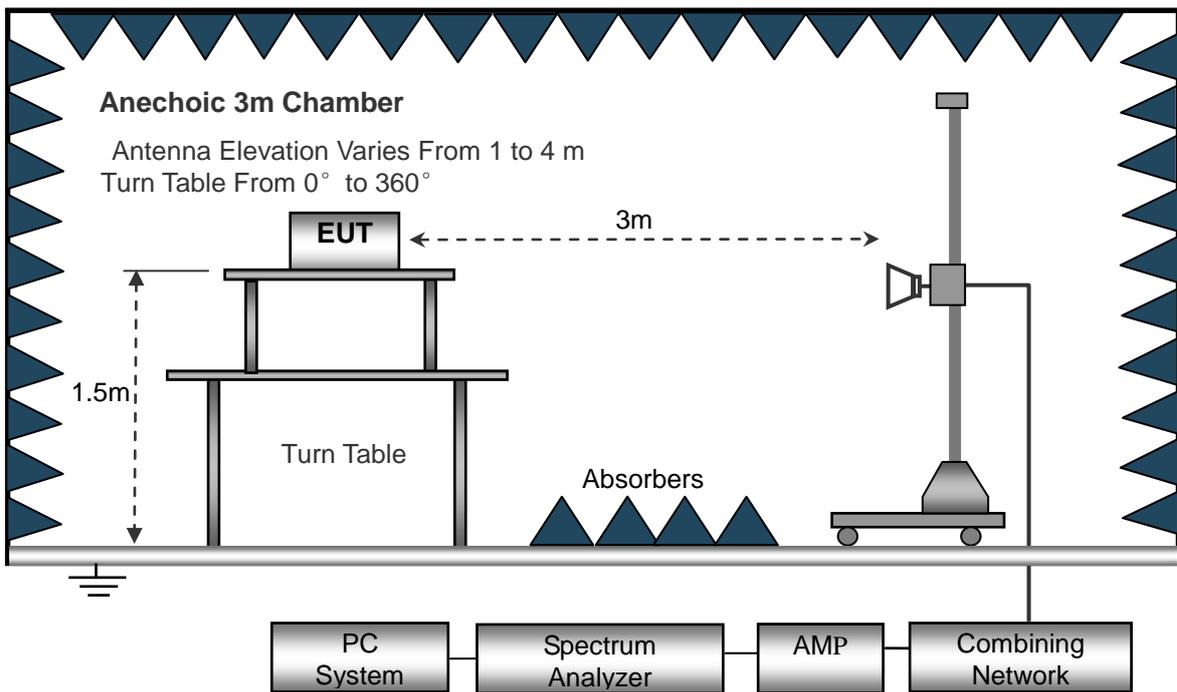
The test setup for emission measurement below 30MHz..



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



The test setup for emission measurement above 1 GHz..



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

6.3 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

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. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

6.4 Environmental Conditions

Temperature:	24.5°C
Relative Humidity:	55%
ATM Pressure:	1012 mbar

6. Reference Measurement at open field site

The measurement was performed with set-up consisting of a single turn loop antenna with a diameter of 0.15 m, fed by a signal generator. The loop dimension was chosen to simulate the EUT as far as possible. The signal generator was set to a fixed output level with an unmodulated 10 kHz and 14 kHz sinusoidal signal.

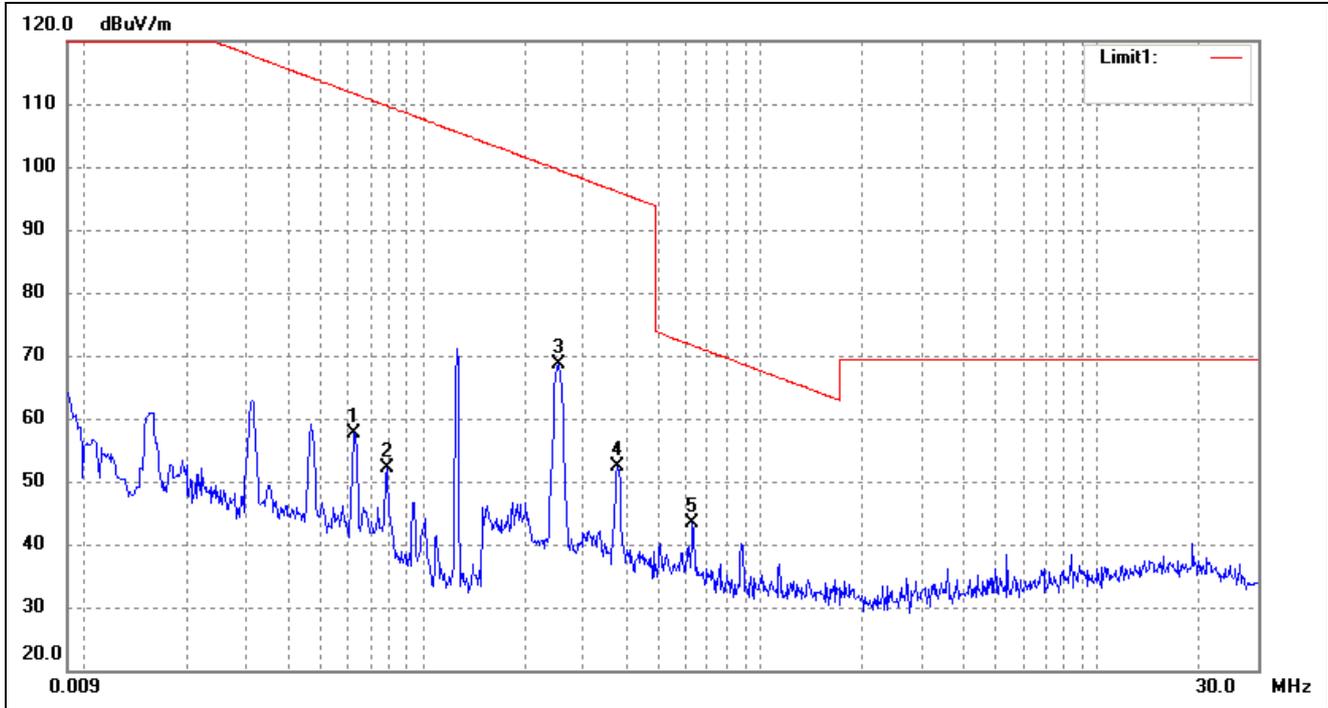
The radiated H fieldstrength at 10 kHz and 14 kHz generated by this set-up was measured with the same test setup as used in the SAC in 3 m distance first, and then repeated at the open field site in 3 m and 10 m distance

6.5 Summary of Test Results/Plots

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

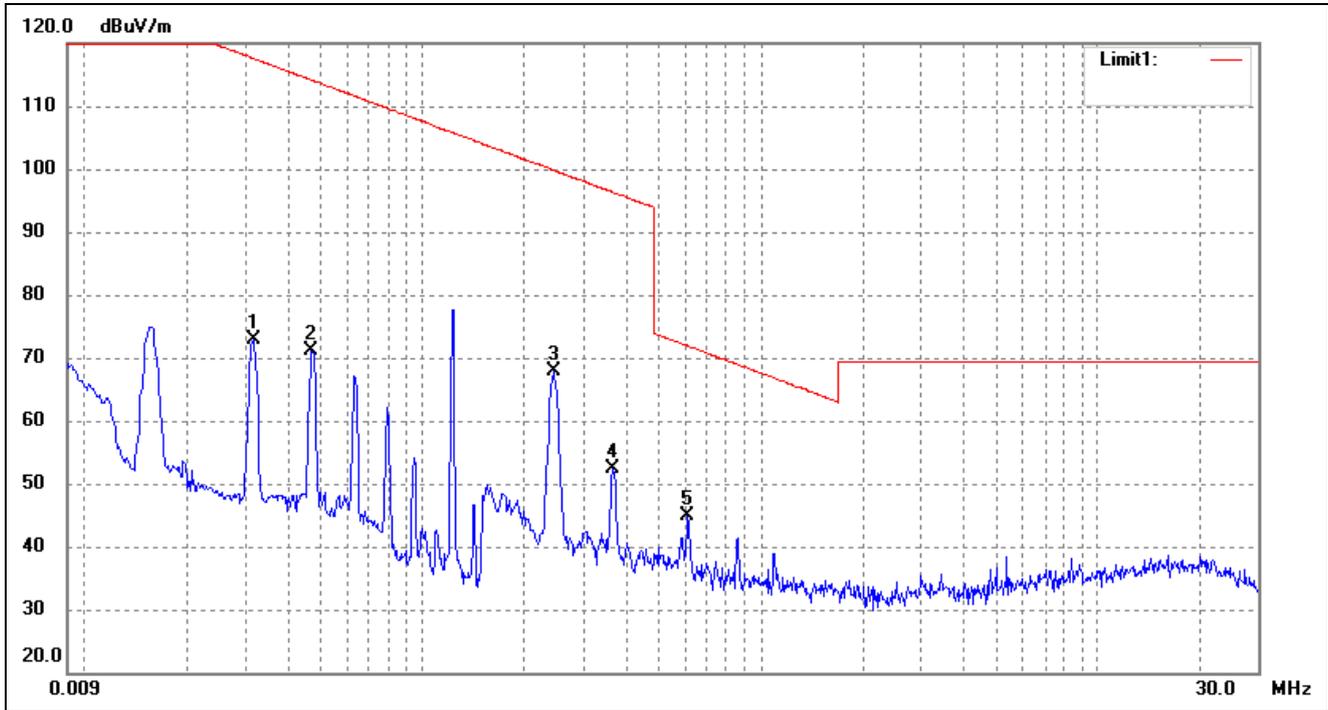
Radiated Emissions Test Data (Below 30MHz)(Worst case EUT X axis)

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	0.0627	62.75	-5.02	57.73	111.65	-53.92	-	-	peak
2	0.0783	57.41	-5.26	52.15	109.72	-57.57	-	-	peak
3	0.2521	76.01	-7.40	68.61	99.57	-30.96	-	-	peak
4	0.3771	60.23	-7.84	52.39	96.07	-43.68	-	-	peak
5	0.6305	50.41	-7.07	43.34	71.62	-28.28	-	-	peak

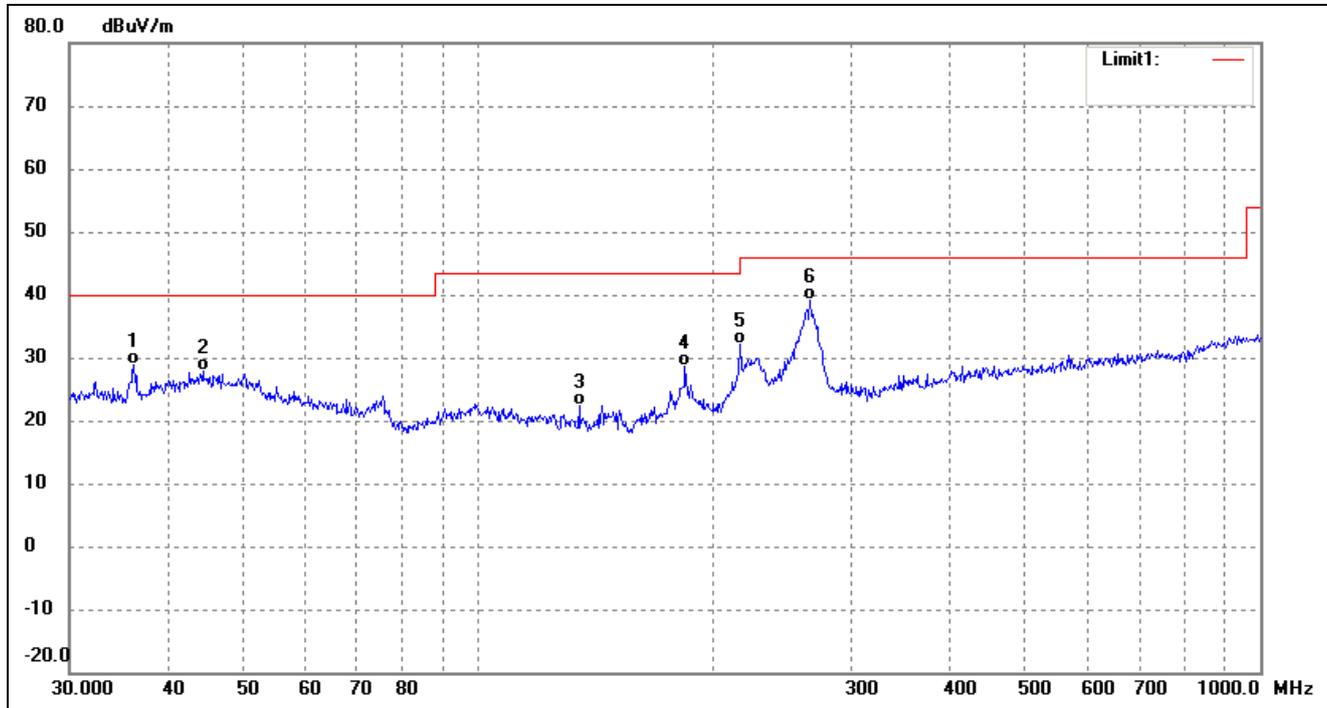
Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0316	78.83	-6.01	72.82	117.60	-44.78	-	-	peak
2	0.0472	76.04	-4.93	71.11	114.11	-43.00	-	-	peak
3	0.2442	75.04	-7.26	67.78	99.85	-32.07	-	-	peak
4	0.3653	60.17	-7.86	52.31	96.35	-44.04	-	-	peak
5	0.6108	51.94	-7.15	44.79	71.89	-27.10	-	-	peak

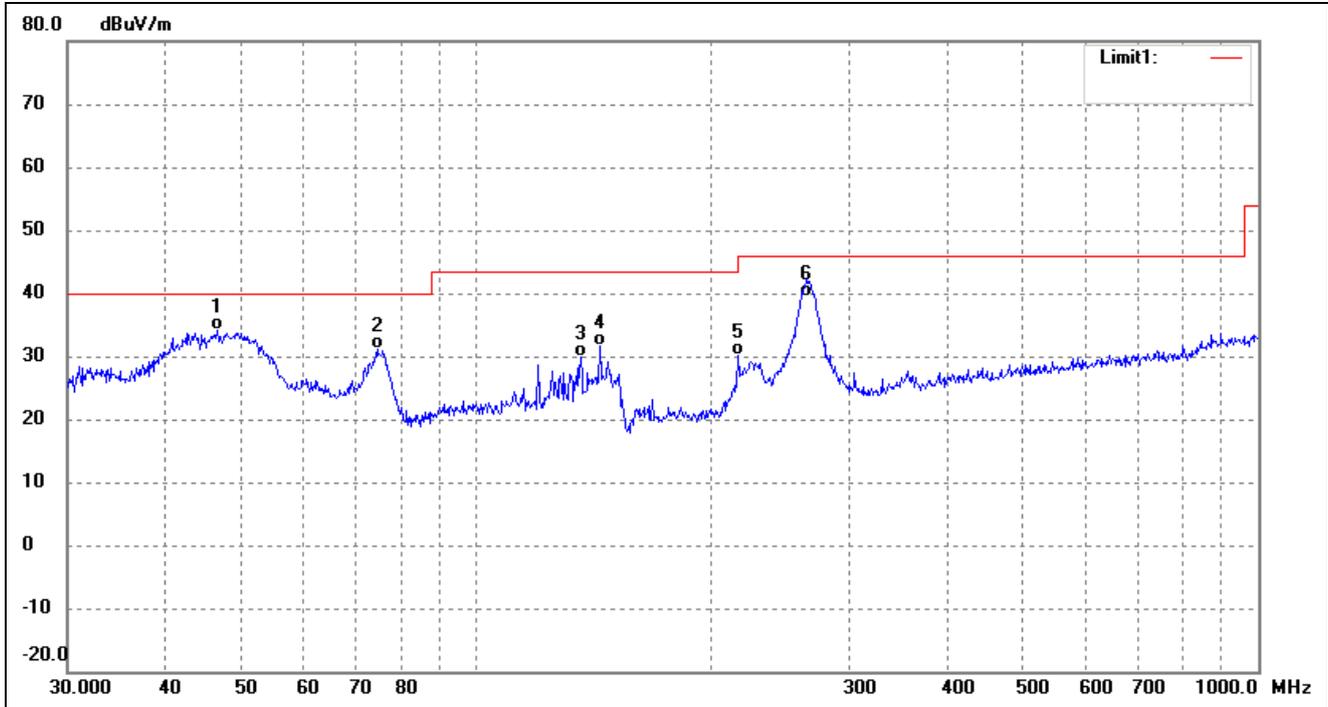
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal
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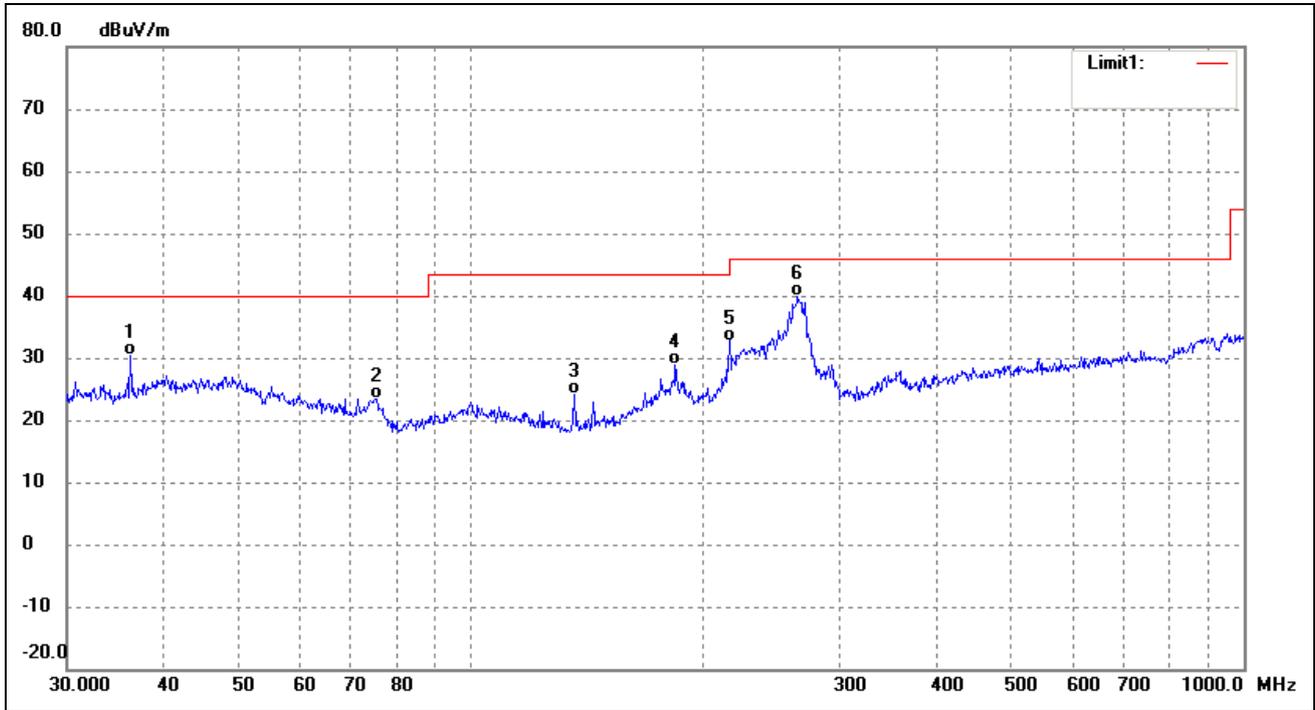
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	36.2541	42.31	-13.40	28.91	40.00	-11.09	-	-	QP
2	44.4308	39.77	-11.82	27.95	40.00	-12.05	-	-	QP
3	134.5592	39.00	-16.65	22.35	43.50	-21.15	-	-	QP
4	183.8440	42.47	-13.86	28.61	43.50	-14.89	-	-	QP
5	216.0240	44.28	-12.24	32.04	46.00	-13.96	-	-	QP
6	265.6757	49.90	-10.80	39.10	46.00	-6.90	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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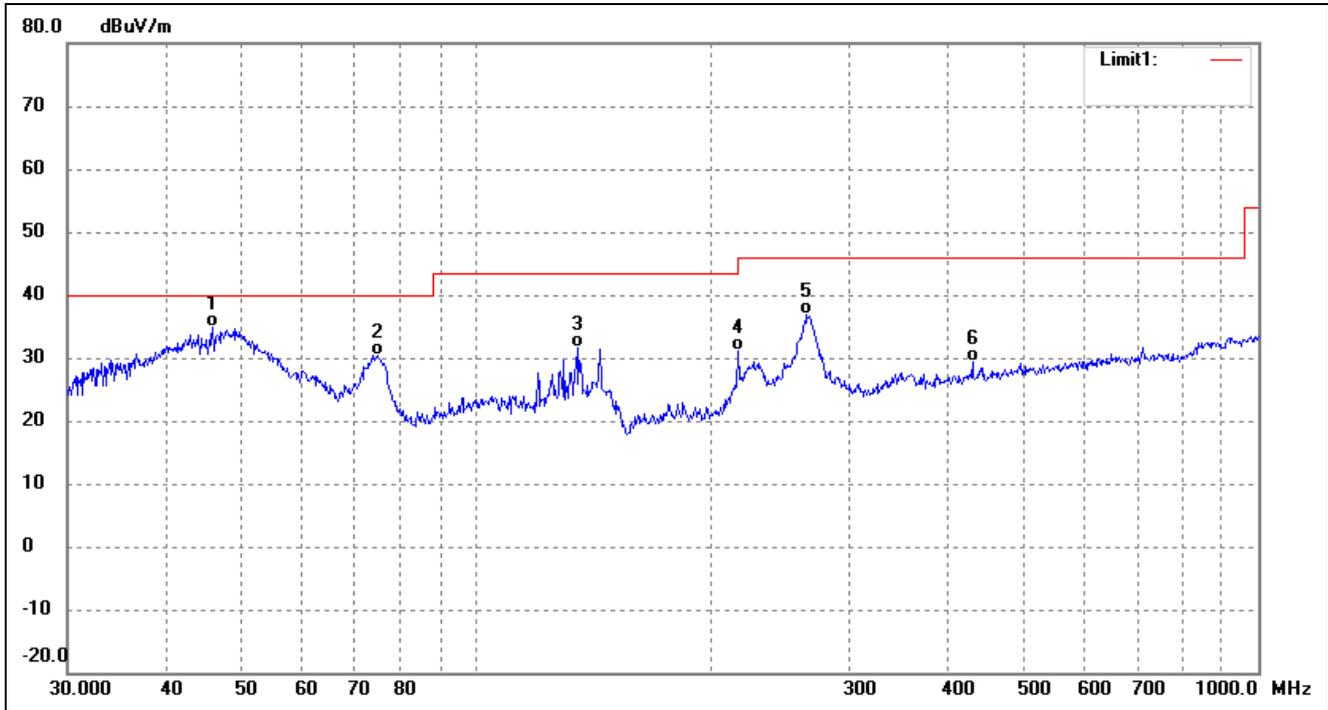
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	46.6664	45.80	-11.71	34.09	40.00	-5.91	-	-	QP
2	74.6569	47.18	-15.94	31.24	40.00	-8.76	-	-	QP
3	135.9822	46.34	-16.54	29.80	43.50	-13.70	-	-	QP
4	143.8295	47.52	-15.94	31.58	43.50	-11.92	-	-	QP
5	216.0240	42.30	-12.24	30.06	46.00	-15.94	-	-	QP
6	264.7457	50.12	-10.82	39.30	46.00	-6.70	-	-	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	36.2541	43.74	-13.40	30.34	40.00	-9.66	-	-	QP
2	75.4464	39.53	-16.11	23.42	40.00	-16.58	-	-	QP
3	135.9822	40.70	-16.54	24.16	43.50	-19.34	-	-	QP
4	183.8440	42.80	-13.86	28.94	43.50	-14.56	-	-	QP
5	216.0240	44.99	-12.24	32.75	46.00	-13.25	-	-	QP
6	264.7457	50.62	-10.82	39.80	46.00	-6.20	-	-	QP

Test mode:	TM2	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	46.0164	46.57	-11.74	34.83	40.00	-5.17	-	-	QP
2	74.6569	46.25	-15.94	30.31	40.00	-9.69	-	-	QP
3	134.5592	48.21	-16.65	31.56	43.50	-11.94	-	-	QP
4	216.0240	43.40	-12.24	31.16	46.00	-14.84	-	-	QP
5	264.7457	47.61	-10.82	36.79	46.00	-9.21	-	-	QP
6	431.0316	35.09	-5.81	29.28	46.00	-16.72	-	-	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.

7. 20dB Emission bandwidth.

7.1 Standard Applicable

According to 15.215,20dB emission bandwidth.

7.2 Test Procedure

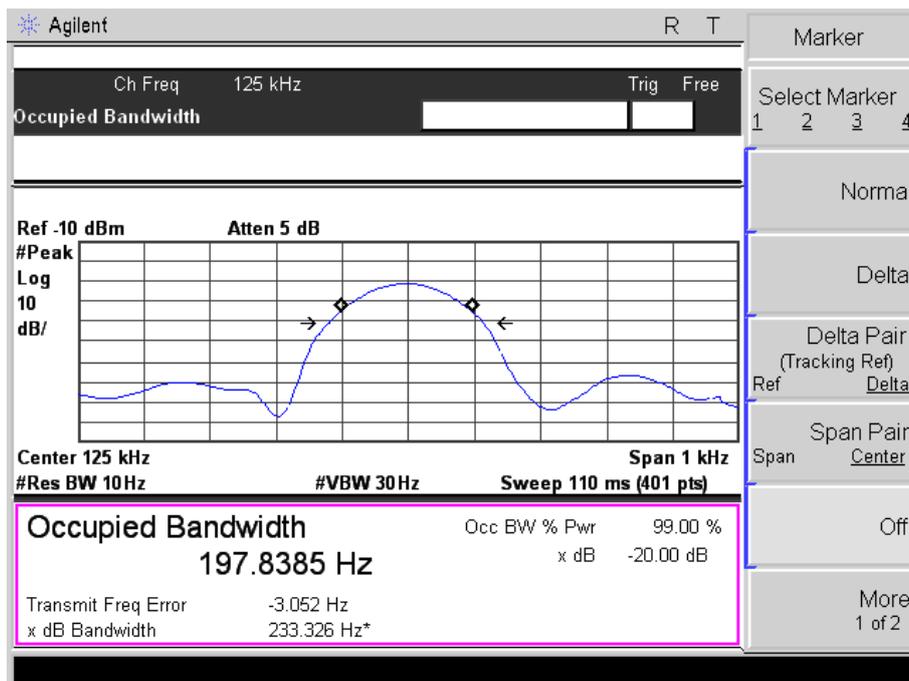
- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

7.3 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

7.4 Summary of Test Results/Plots

Test Channel(kHz)	20dB Emission Bandwidth(Hz)
127.5	197.8385



APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

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