

TEST REPORT

Reference No...... : WTN22X12256062W001
FCC ID : 2BBU5-ZG-JJM1215A
Applicant : Guangdong Zhangong Electric Technology Co., Ltd.
Address..... : 7th Floor,Building29,Zhifugarden,ShundeDistrict, FoshanCity,
GuangdongProvince, China
Manufacturer : The same as Applicant
Address..... : The same as Applicant
Product Name : Furniture socket
Model No...... : ZG-JJM/12/15A
Standards : FCC Part 15C
Date of Receipt sample : 2022-12-20
Date of Test..... : 2022-12-20 to 2023-05-23
Date of Issue : 2023-05-23
Test Report Form No. : WTX_Part 15CW
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.

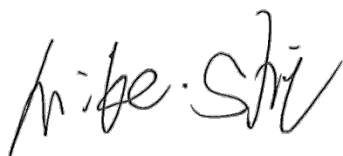
Prepared By:

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

Tel.: +86-755-33663308 Fax.: +86-755-33663309 Email: sem@waltek.com.cn

Tested by:



Mike Shi

Approved by:



Silin Chen

ABLE OF CONTENTS

1. GENERAL INFORMATION.....	4
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	4
1.2 TEST STANDARDS.....	5
1.3 TEST METHODOLOGY.....	5
1.4 TEST FACILITY	5
1.5 EUT SETUP AND OPERATION MODE	6
1.6 MEASUREMENT UNCERTAINTY	7
1.7 TEST EQUIPMENT LIST AND DETAILS	8
2. SUMMARY OF TEST RESULTS	12
3. RF EXPOSURE	13
3.1 STANDARD APPLICABLE.....	13
3.2 TEST RESULT.....	13
4. ANTENNA REQUIREMENT	14
4.1 STANDARD APPLICABLE.....	14
4.2 EVALUATION INFORMATION.....	14
5. CONDUCTED EMISSIONS	15
5.1 TEST PROCEDURE.....	15
5.2 BASIC TEST SETUP BLOCK DIAGRAM.....	15
5.3 ENVIRONMENTAL CONDITIONS	15
5.4 TEST RECEIVER SETUP	16
5.5 SUMMARY OF TEST RESULTS/PLOTS	16
6. FIELD STRENGTH OF SPURIOUS EMISSIONS	22
6.1 STANDARD APPLICABLE.....	22
6.2 TEST PROCEDURE.....	22
6.3 CORRECTED AMPLITUDE & MARGIN CALCULATION.....	23
6.4 ENVIRONMENTAL CONDITIONS	24
6. REFERENCE MEASUREMENT AT OPEN FIELD SITE	24
6.5 SUMMARY OF TEST RESULTS/PLOTS	24
7. 20DB EMISSION BANDWIDTH.	34
7.1 STANDARD APPLICABLE.....	34
7.2 TEST PROCEDURE.....	34
7.3 ENVIRONMENTAL CONDITIONS	34
7.4 SUMMARY OF TEST RESULTS/PLOTS	34
APPENDIX PHOTOGRAPHS.....	36

Report version

Version No.	Date of issue	Description
Rev.00	2023-05-23	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	Furniture socket
Trade Name:	/
Model No.:	ZG-JJM/12/15A
Adding Model:	ZG-PDU00/10A/15A, ZG-PDUG1/10A/15A, ZG-PDUG1/10A/15A, ZG-PDUC3/10A/15A, ZG-PDUC9/10A/15A, ZG-PDUA/10A/15A, ZG-PDUY/10A/15A, ZG-PDUM/12A/15A, ZG-JJ/12A/15A, ZG-HG/12A/15A, ZG-ZJ/12A/15A, ZG-SJ/12A/15A, ZG-DQ/12A/15A, ZG-PC/12A/15A, ZG-PDU JO0/12A/15A
Battery Capacity	/
<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 ZG-JJM/12/15A, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	112-205kHz
Modulation Type:	ASK
Antenna Type:	Coil Antenna
Wireless output:	15W(MAX)

1.2 Test Standards

FCC Part 15 Subpart C: Intentional Radiators.

FCC Rules Part 15.207: Conducted limits.

FCC Rules Part 15.209: Radiated emission limits; general requirements.

FCC Rules Part 15.215: Additional provisions to the general radiated emission limitations.

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 and the CAB identifier is CN0057.

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	Wireless output(5W)	AC120V 60Hz
TM2	Wireless charging	Wireless output(7.5W)	AC120V 60Hz
TM3	Wireless charging	Wireless output(15W)	AC120V 60Hz

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
AC CABLE	1.9	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Wireless charging tester	/	YBZ	/

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

2022

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
SEMT-1075	Communication Tester	Rohde & Schwarz	CMW500	148650	2022-03-22	2023-03-21
SEMT-1063	GSM Tester	Rohde & Schwarz	CMU200	114403	2022-03-22	2023-03-21
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2022-03-25	2023-03-24
SEMT-1079	Spectrum Analyzer	Agilent	N9020A	US47140102	2022-03-22	2023-03-21
SMET-1313	Spectrum Analyzer	Agilent	N9020A	MY54320548	2022-03-22	2023-03-21
SEMT-1080	Signal Generator	Agilent	83752A	3610A01453	2022-03-22	2023-03-21
SEMT-1081	Vector Signal Generator	Agilent	N5182A	MY47070202	2022-03-22	2023-03-21
SEMT-1028	Power Divider	Weinschel	1506A	PM204	2022-03-22	2023-03-21
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	/	/
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	/	/
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	/	/
SEMT-C004	Cable	Zheng DI	2M0RFC	/	/	/
SEMT-C005	Cable	Zheng DI	1M0RFC	/	/	/
SEMT-C006	Cable	Zheng DI	1M0RFC	/	/	/
☒ Chamber A: Below 1GHz						
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2022-03-22	2023-03-21
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2022-03-22	2023-03-21
SEMT-1008	Amplifier	HP	8447F	2805A03475	2022-12-30	2023-12-29
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2023-03-19
SEMT-1068	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2021-03-20	2023-03-19
☒ Chamber A: Above 1GHz						
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2022-03-22	2023-03-21
SEMT-1007	EMI Test	Rohde &	ESVB	825471/00	2022-03-22	2023-03-21

	Receiver	Schwarz		5		
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2022-03-22	2023-03-21
SEMT-1042	Horn Antenna	ETS	3117	00086197	2021-03-19	2023-03-18
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA917 0582	2021-04-27	2023-04-26
SEMT-1216	Pre-amplifier	Schwarzbeck	BBV 9721	9721-031	2022-03-25	2023-03-24
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2022-03-22	2023-03-21
☐ Chamber B:Below 1GHz						
SEMT-1068	Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2021-04-09	2023-04-08
SEMT-1067	Amplifier	Agilent	8447D	2944A101 79	2022-03-22	2023-03-21
SEMT-1066	EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2022-03-22	2023-03-21
☐ Chamber C:Below 1GHz						
SEMT-1319	EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2022-12-30	2023-12-29
SEMT-1343	Trilog Broadband Antenna	Schwarz beck	VULB 9168	1194	2021-05-28	2023-05-27
SEMT-1333	Amplifier	HP	8447F	2944A038 69	2022-03-22	2023-03-21
☒ Conducted Room 1#						
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2022-03-21	2023-03-20
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2022-03-25	2023-03-24
SEMT-1003	AC LISN	Schwarz beck	NSLK8126	8126-224	2022-03-22	2023-03-21
☐ Conducted Room 2#						
SEMT-1334	EMI Test Receiver	Rohde & Schwarz	ESPI	101259	2022-03-22	2023-03-21
SEMT-1336	LISN	Rohde & Schwarz	ENV 216	100097	2022-03-22	2023-03-21

2023

Fixed asset Number	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
WTXE1004A 1-001	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2023-02-25	2024-02-24
☒ Chamber A: Below 1GHz						
WTXE1005 A1003	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/0 35	2023-02-25	2024-02-2 4
WTXE1007 A1001	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/0 05	2023-02-25	2024-02-2 4
WTXE1007 A1001	Amplifier	HP	8447F	2805A034 75	2023-02-25	2024-02-2 4
WTXE1010 A1007	Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2024-03-1 9
WTXE1010 A1006	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2023-03-20	2026-03-1 9
☒ Chamber A: Above 1GHz						
WTXE1005 A1003	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/0 35	2023-02-25	2024-02-2 4
WTXE1007 A1001	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/0 05	2023-02-25	2024-02-2 4
WTXE1065 A1001	Amplifier	C&D	PAP-1G18	14918	2023-02-25	2024-02-2 4
WTXE1010 A1005	Horn Antenna	ETS	3117	00086197	2021-03-19	2024-03-1 8
WTXE1010 A1010	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2021-03-19	2024-03-1 8
WTXE1003 A1001	Pre-amplifier	Schwarzbeck	BBV 9721	9721-031	2023-02-25	2024-02-2 4
☐ Chamber B:Below 1GHz						
WTXE1010 A1006	Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2021-04-09	2024-04-0 8
WTXE1038 A1001	Amplifier	Agilent	8447D	2944A101 79	2023-02-25	2024-02-2 4
WTXE1001 A1002	EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2023-02-25	2024-02-2 4
☐ Chamber C:Below 1GHz						
WTXE1093 A1001	EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2023-02-25	2024-02-2 4
WTXE1010 A1013-1	Trilog Broadband	Schwarz beck	VULB 9168	1194	2021-05-28	2024-05-2 7

	Antenna					
WTXE1007 A1002	Amplifier	HP	8447F	2944A038 69	2023-02-25	2024-02-2 4
☐ Chamber C: Above 1GHz						
WTXE1093 A1001	EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2023-02-25	2024-02-2 4
WTXE1103 A1005	Horn Antenna	POAM	RTF-11A	LP228060 221	2023-03-10	2026-03-0 9
WTXE1103 A1006	Amplifier	Tonscend	TAP01018050	AP22E80 6235	2023-02-25	2024-02-2 4
☒ Conducted Room 1#						
WTXE1001 A1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2023-02-25	2024-02-2 4
WTXE1002 A1001	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2023-02-25	2024-02-2 4
WTXE1003 A1001	AC LISN	Schwarz beck	NSLK8126	8126-224	2023-02-25	2024-02-2 4
☐ Conducted Room 2#						
WTXE1001 A1004	EMI Test Receiver	Rohde & Schwarz	ESPI	101259	2023-02-25	2024-02-2 4
WTXE1003 A1003	LISN	Rohde & Schwarz	ENV 216	100097	2023-02-25	2024-02-2 4

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.

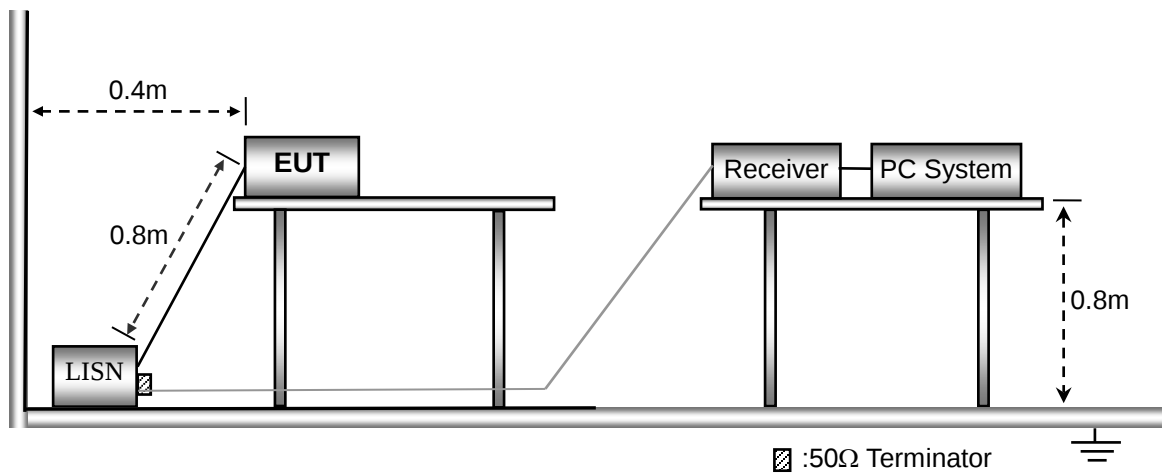
5. Conducted Emissions

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:	23.5 °C
Relative Humidity:	54%
ATM Pressure:	1012 mbar

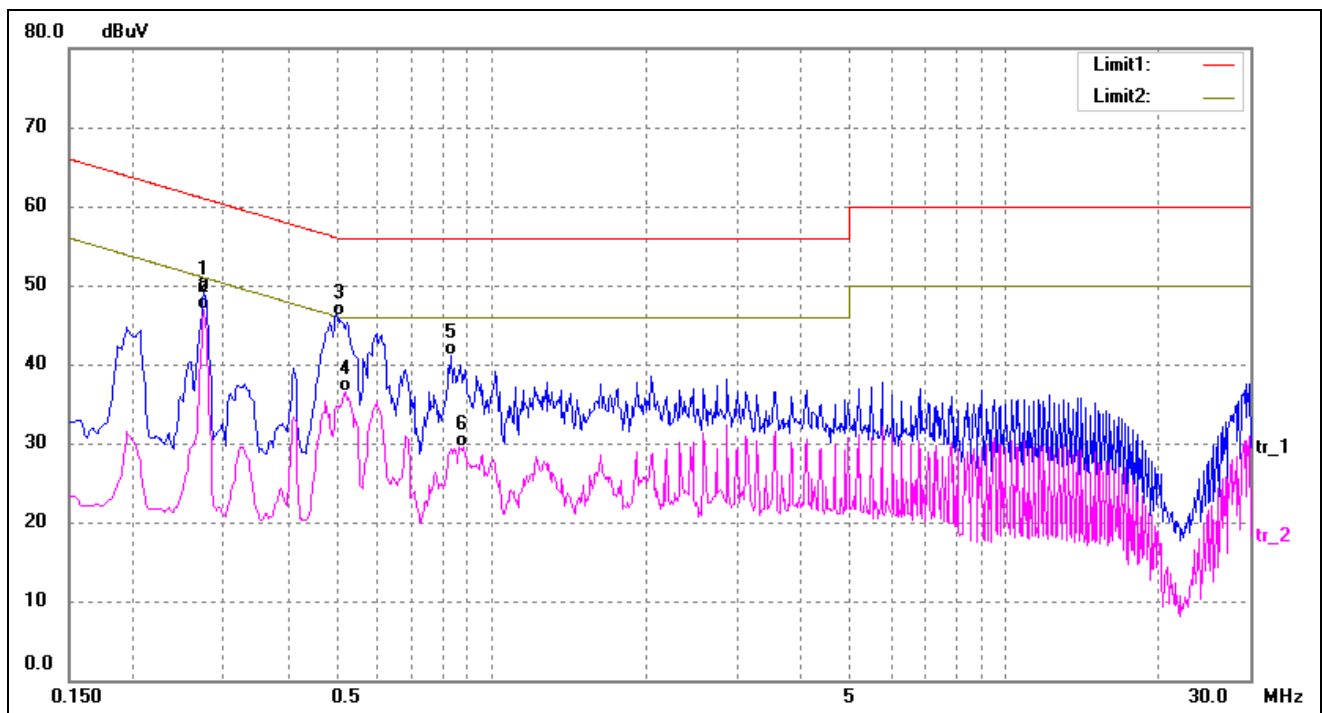
5.4 Test Receiver Setup

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

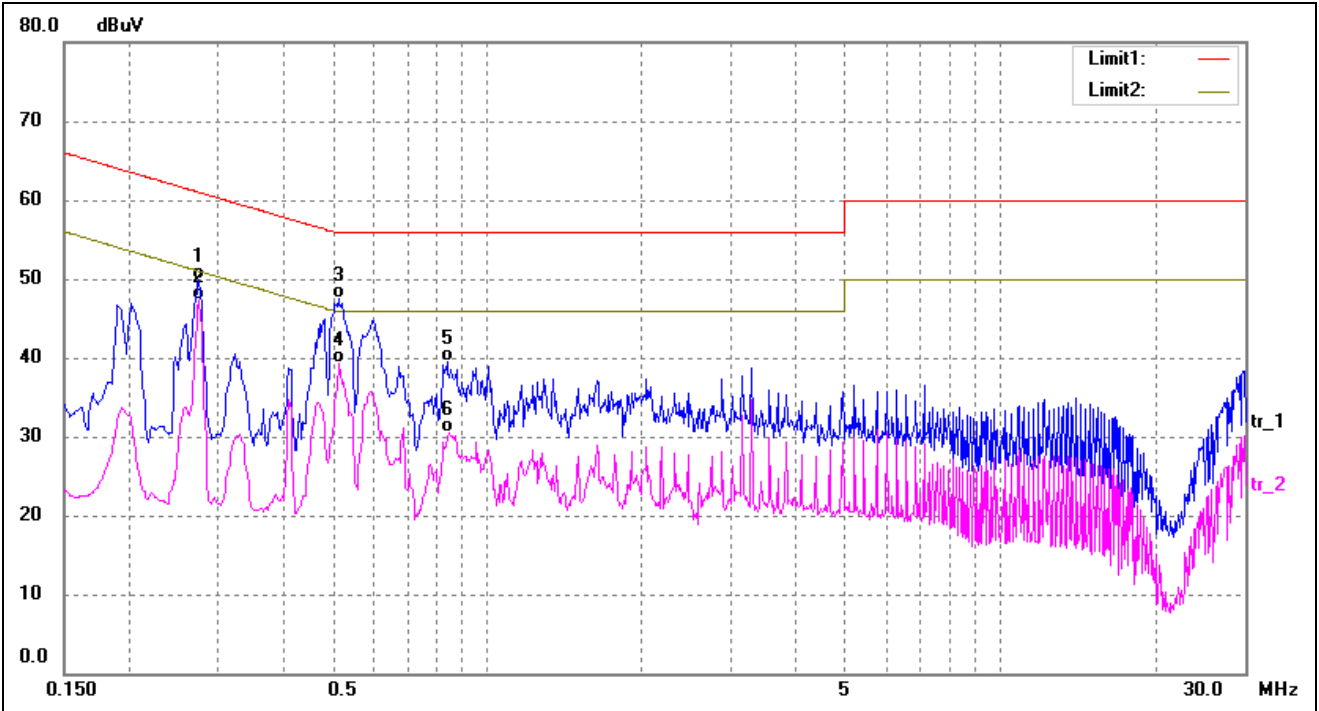
5.5 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
------------	-----	-----------	------



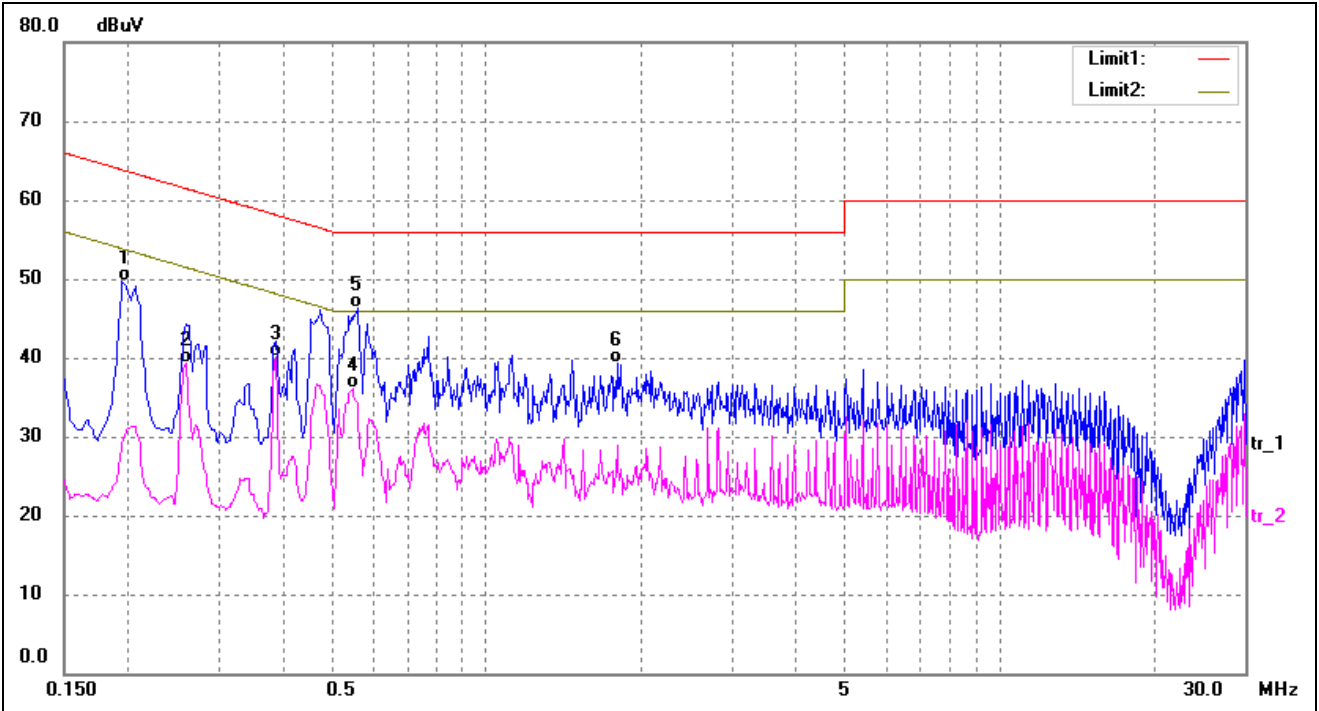
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2740	38.78	10.33	49.11	61.00	-11.89	QP
2*	0.2740	36.53	10.33	46.86	51.00	-4.14	AVG
3	0.4980	35.97	10.23	46.20	56.03	-9.83	QP
4	0.5180	26.23	10.23	36.46	46.00	-9.54	AVG
5	0.8340	30.95	10.17	41.12	56.00	-14.88	QP
6	0.8820	19.32	10.16	29.48	46.00	-16.52	AVG

Test mode:	TM1	Polarity:	Neutral
------------	-----	-----------	---------



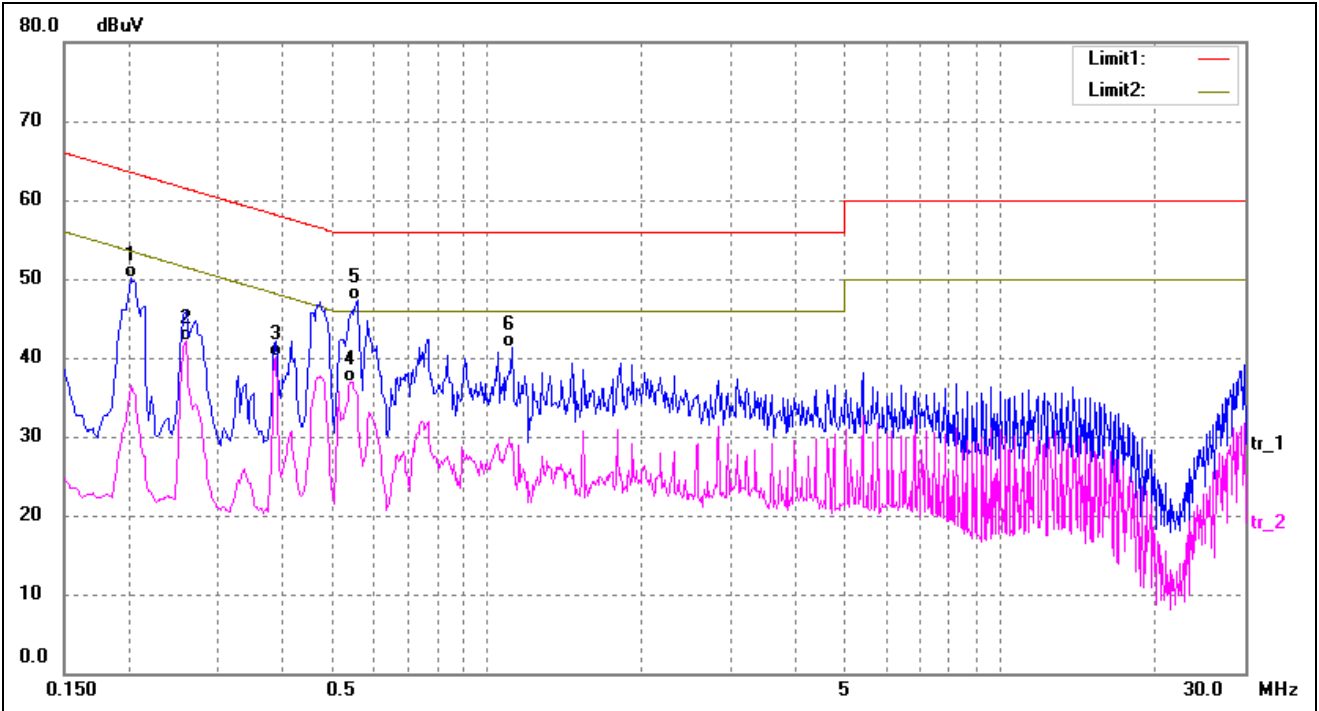
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2740	39.61	10.33	49.94	61.00	-11.06	QP
2*	0.2740	36.99	10.33	47.32	51.00	-3.68	AVG
3	0.5140	37.21	10.23	47.44	56.00	-8.56	QP
4	0.5140	29.06	10.23	39.29	46.00	-6.71	AVG
5	0.8380	29.34	10.17	39.51	56.00	-16.49	QP
6	0.8460	20.27	10.17	30.44	46.00	-15.56	AVG

Test mode:	TM2	Polarity:	Line
------------	-----	-----------	------



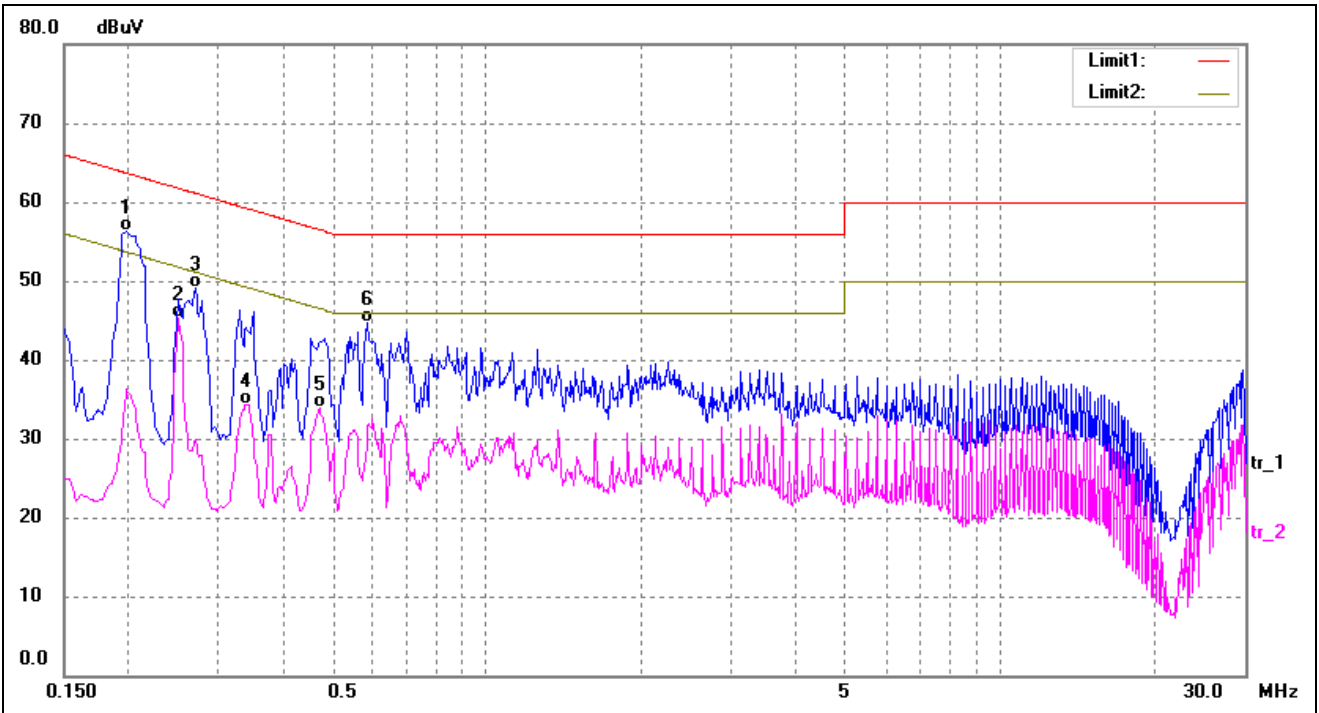
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1940	39.22	10.39	49.61	63.86	-14.25	QP
2	0.2580	28.96	10.34	39.30	51.50	-12.20	AVG
3*	0.3860	29.79	10.27	40.06	48.15	-8.09	AVG
4	0.5460	25.90	10.22	36.12	46.00	-9.88	AVG
5	0.5620	36.12	10.22	46.34	56.00	-9.66	QP
6	1.7980	28.99	10.29	39.28	56.00	-16.72	QP

Test mode:	TM2	Polarity:	Neutral
------------	-----	-----------	---------



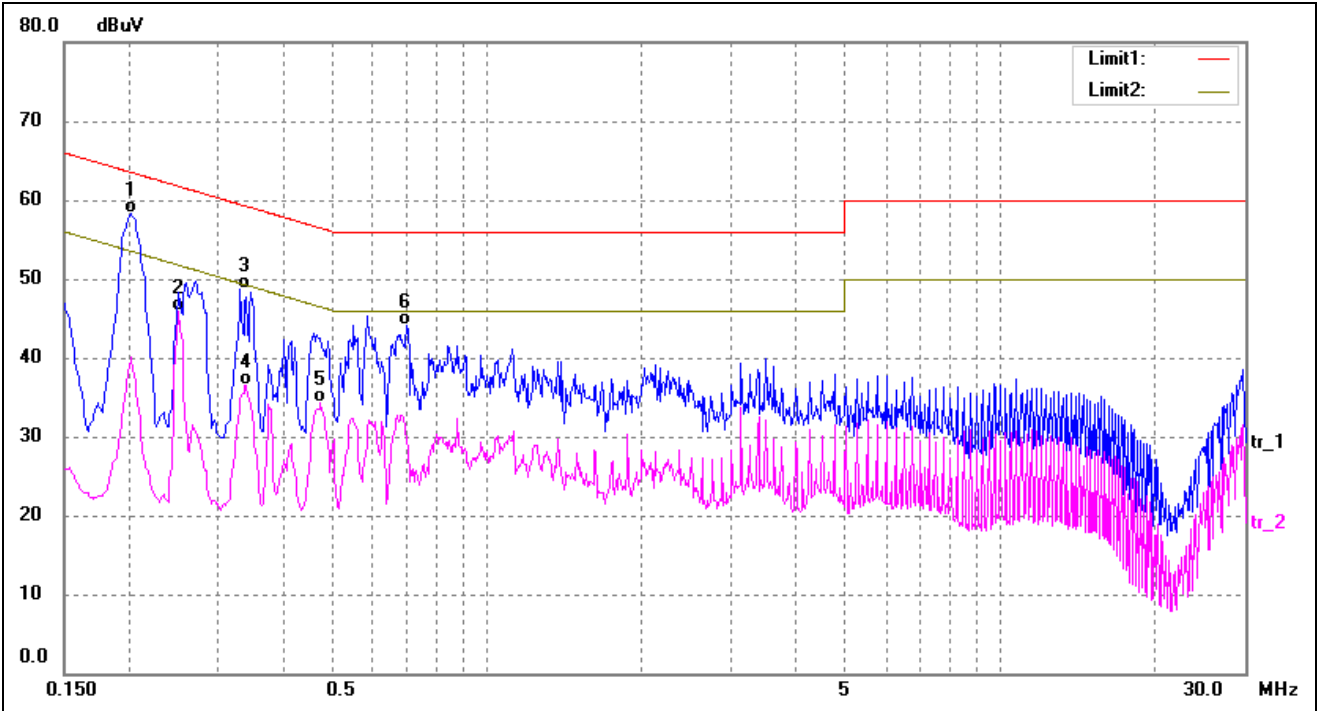
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2020	39.65	10.39	50.04	63.53	-13.49	QP
2	0.2580	31.86	10.34	42.20	51.50	-9.30	AVG
3*	0.3860	29.88	10.27	40.15	48.15	-8.00	AVG
4	0.5420	26.65	10.23	36.88	46.00	-9.12	AVG
5	0.5580	37.16	10.22	47.38	56.00	-8.62	QP
6	1.1180	31.13	10.16	41.29	56.00	-14.71	QP

Test mode:	TM3	Polarity:	Line
------------	-----	-----------	------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1980	45.90	10.39	56.29	63.69	-7.40	QP
2*	0.2500	35.04	10.34	45.38	51.76	-6.38	AVG
3	0.2700	38.87	10.33	49.20	61.12	-11.92	QP
4	0.3380	24.08	10.28	34.36	49.25	-14.89	AVG
5	0.4700	23.57	10.25	33.82	46.51	-12.69	AVG
6	0.5860	34.53	10.22	44.75	56.00	-11.25	QP

Test mode:	TM3	Polarity:	Neutral
------------	-----	-----------	---------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.2020	47.98	10.39	58.37	63.53	-5.16	QP
2	0.2500	35.55	10.34	45.89	51.76	-5.87	AVG
3	0.3300	38.43	10.29	48.72	59.45	-10.73	QP
4	0.3380	26.31	10.28	36.59	49.25	-12.66	AVG
5	0.4740	23.96	10.25	34.21	46.44	-12.23	AVG
6	0.6980	33.96	10.19	44.15	56.00	-11.85	QP

6. Field Strength of Spurious Emissions

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

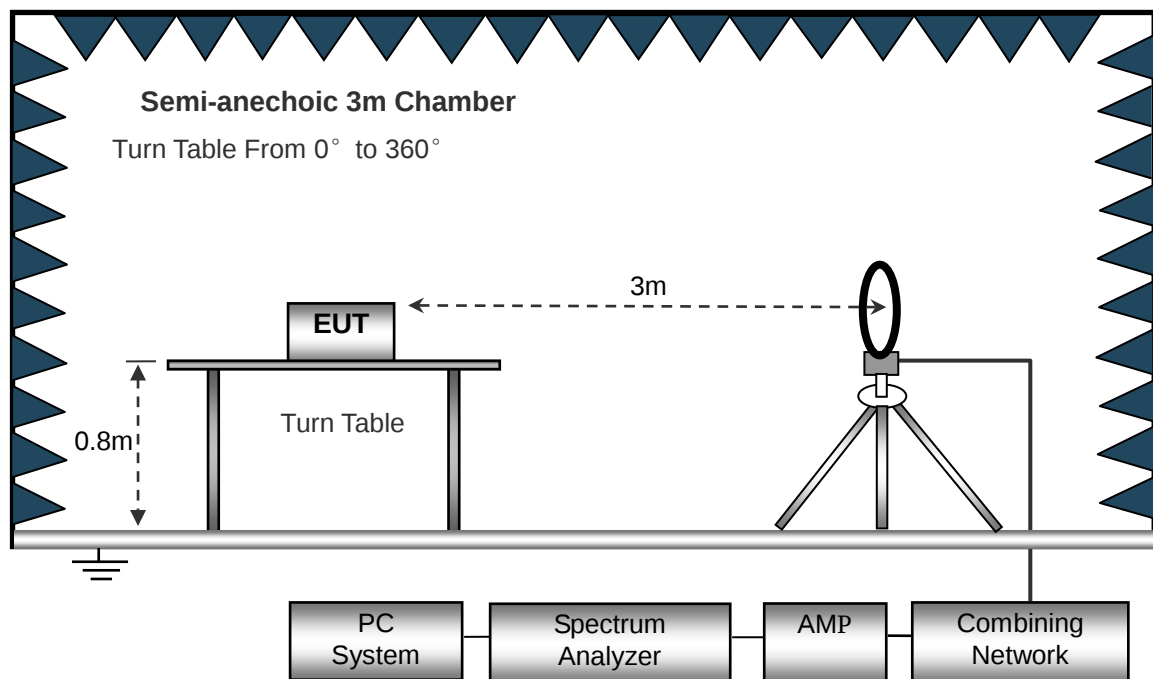
The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

6.2 Test Procedure

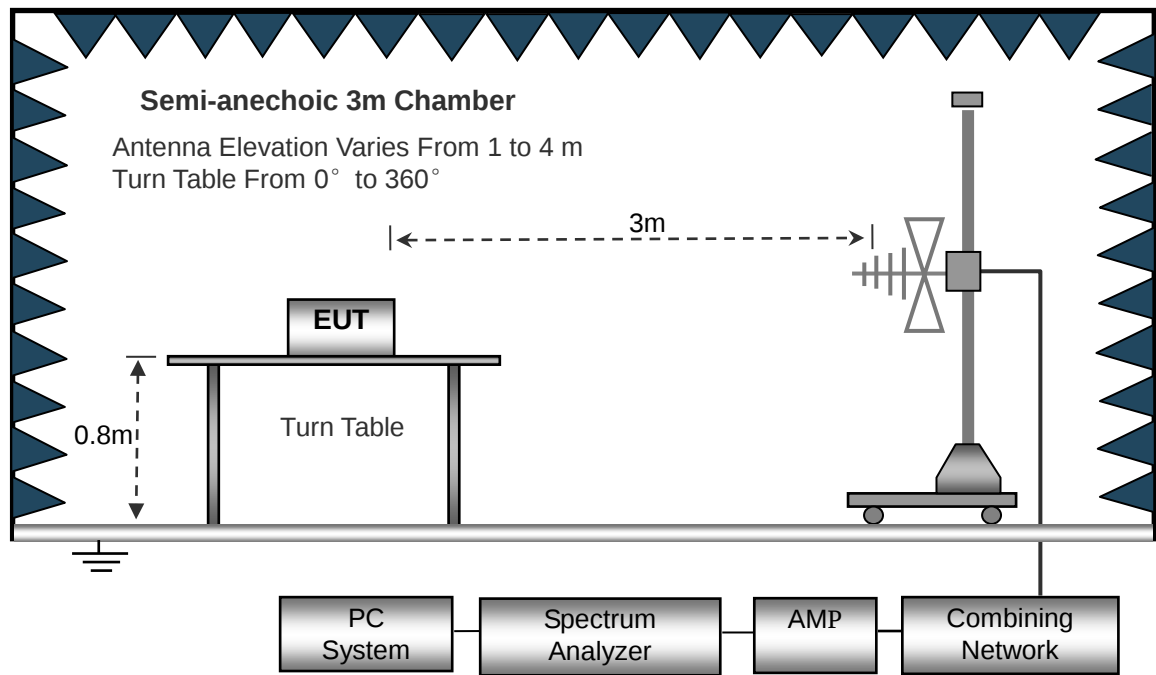
The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.209 Limit.

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..



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

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:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

6. Reference Measurement at open field site

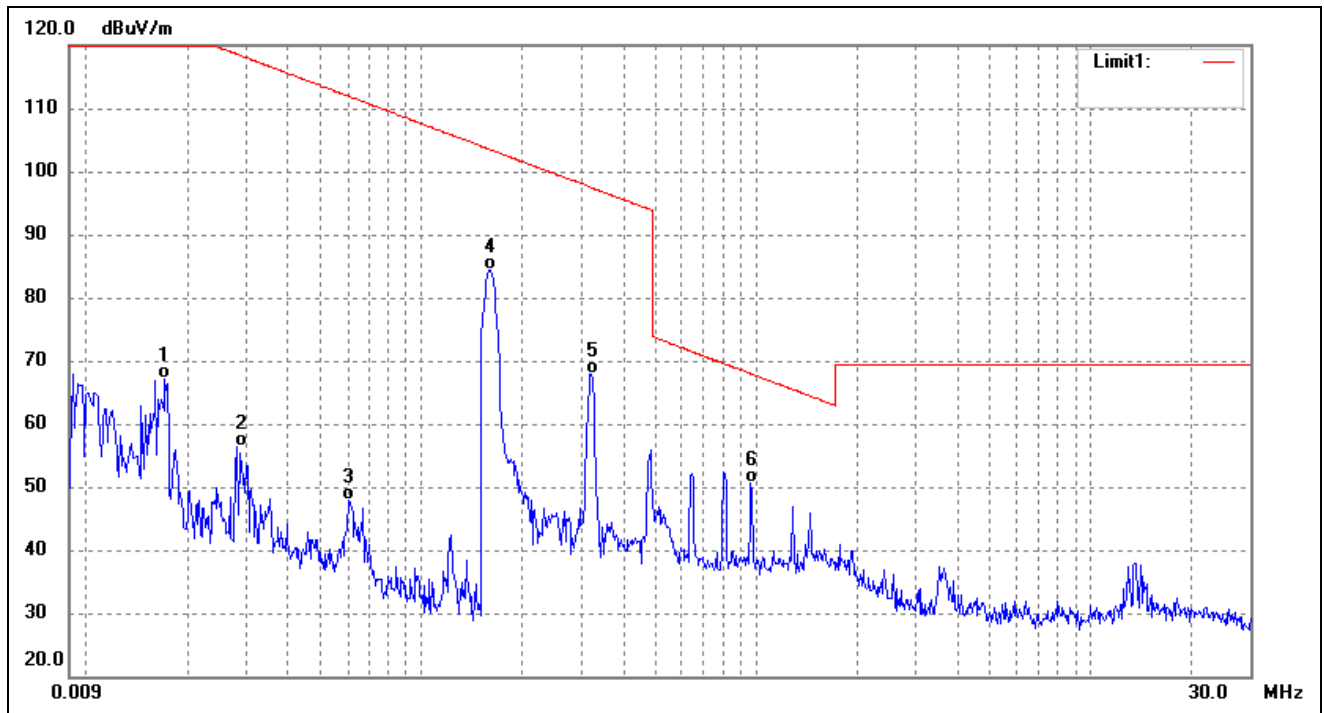
The measurement was performed with set-up consisting of a single turn loop antenna with a diameter of 0.15 m, fed by a signal generator. The loop dimension was chosen to simulate the EUT as far as possible. The signal generator was set to a fixed output level with an unmodulated 10 kHz and 14 kHz sinusoidal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

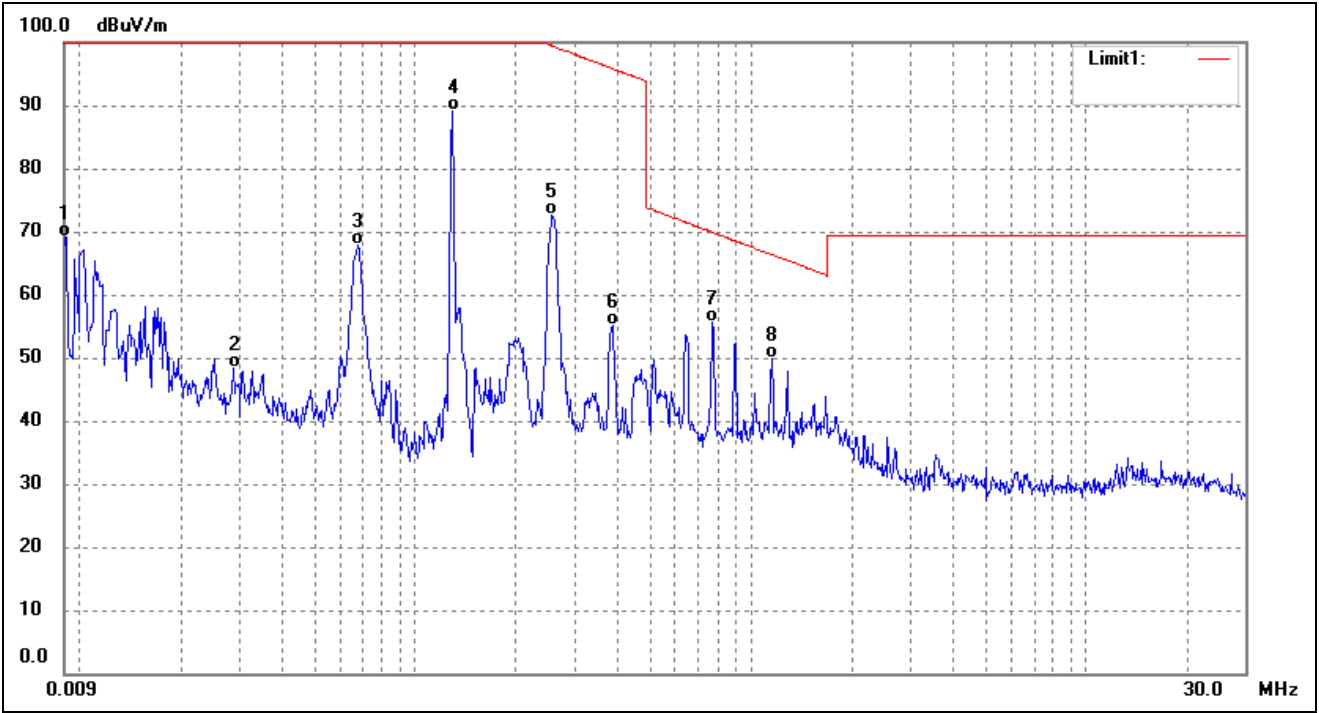
Radiated Emissions Test Data (Below 30MHz)(Worst case EUT X axis)

Test mode:	TM1	Polarity:	X
------------	-----	-----------	---



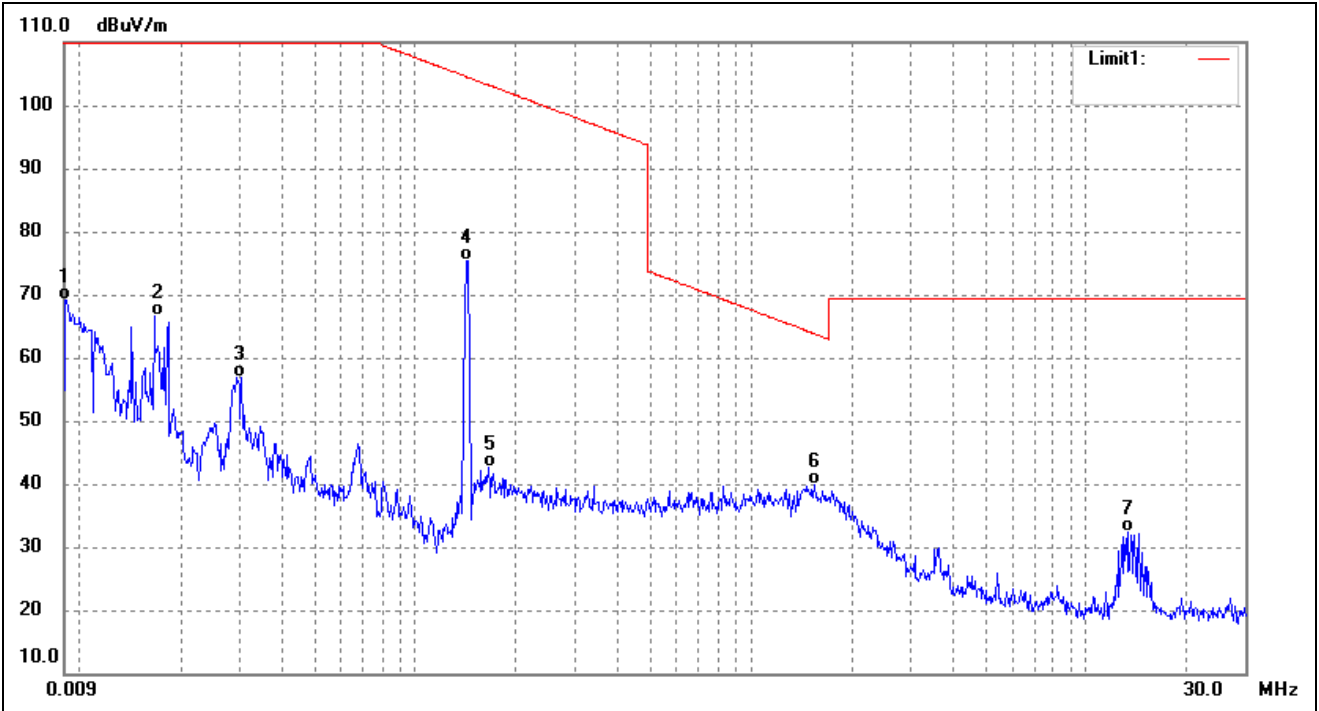
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	0.0171	74.16	-7.03	67.13	122.93	-55.80	-	-	QP
2	0.0283	62.95	-6.60	56.35	118.55	-62.20	-	-	QP
3	0.0608	53.83	-5.86	47.97	111.92	-63.95	-	-	QP
4	0.1590	90.81	-6.45	84.36	103.57	-19.21	-	-	QP
5	0.3217	75.74	-7.80	67.94	97.45	-29.51	-	-	QP
6	0.9633	56.99	-6.27	50.72	67.95	-17.23	-	-	QP

Test mode:	TM2	Polarity:	X
------------	-----	-----------	---



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	0.0091	69.06	0.00	69.06	128.40	-59.34	-	-	QP
2	0.0287	48.44	0.00	48.44	118.43	-69.99	-	-	QP
3	0.0673	67.87	0.00	67.87	111.03	-43.16	-	-	QP
4	0.1289	89.14	0.00	89.14	105.39	-16.25	-	-	QP
5	0.2562	72.64	0.00	72.64	99.43	-26.79	-	-	QP
6	0.3852	55.16	0.00	55.16	95.89	-40.73	-	-	QP
7	0.7711	55.72	0.00	55.72	69.87	-14.15	-	-	QP
8	1.1534	49.98	0.00	49.98	66.39	-16.41	-	-	QP

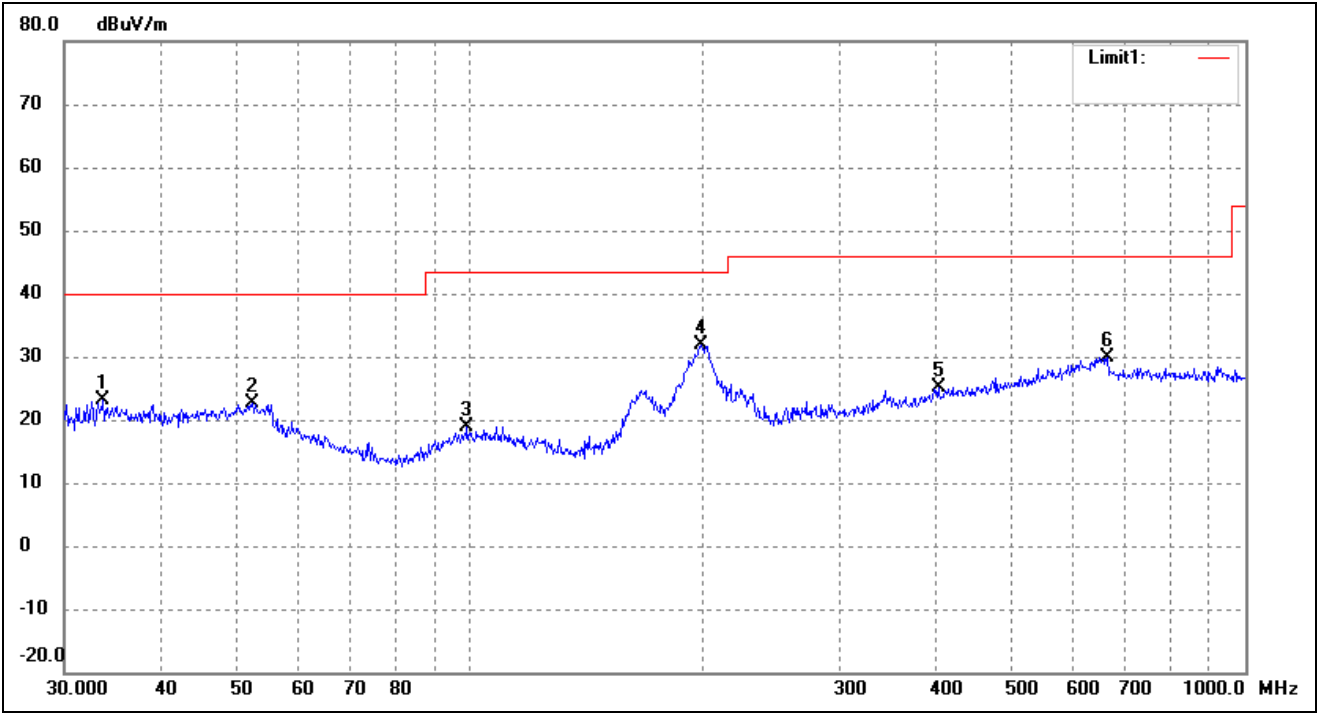
Test mode:	TM3	Polarity:	X
------------	-----	-----------	---



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	0.0091	69.14	0.00	69.14	128.40	-59.26	-	-	QP
2	0.0165	66.67	0.00	66.67	123.24	-56.57	-	-	QP
3	0.0302	56.99	0.00	56.99	117.99	-61.00	-	-	QP
4	0.1418	75.40	0.00	75.40	104.56	-29.16	-	-	QP
5	0.1650	42.59	0.00	42.59	103.25	-60.66	-	-	QP
6	1.5436	39.79	0.00	39.79	63.86	-24.07	-	-	QP
7	13.4080	32.41	0.00	32.41	69.50	-37.09	-	-	QP

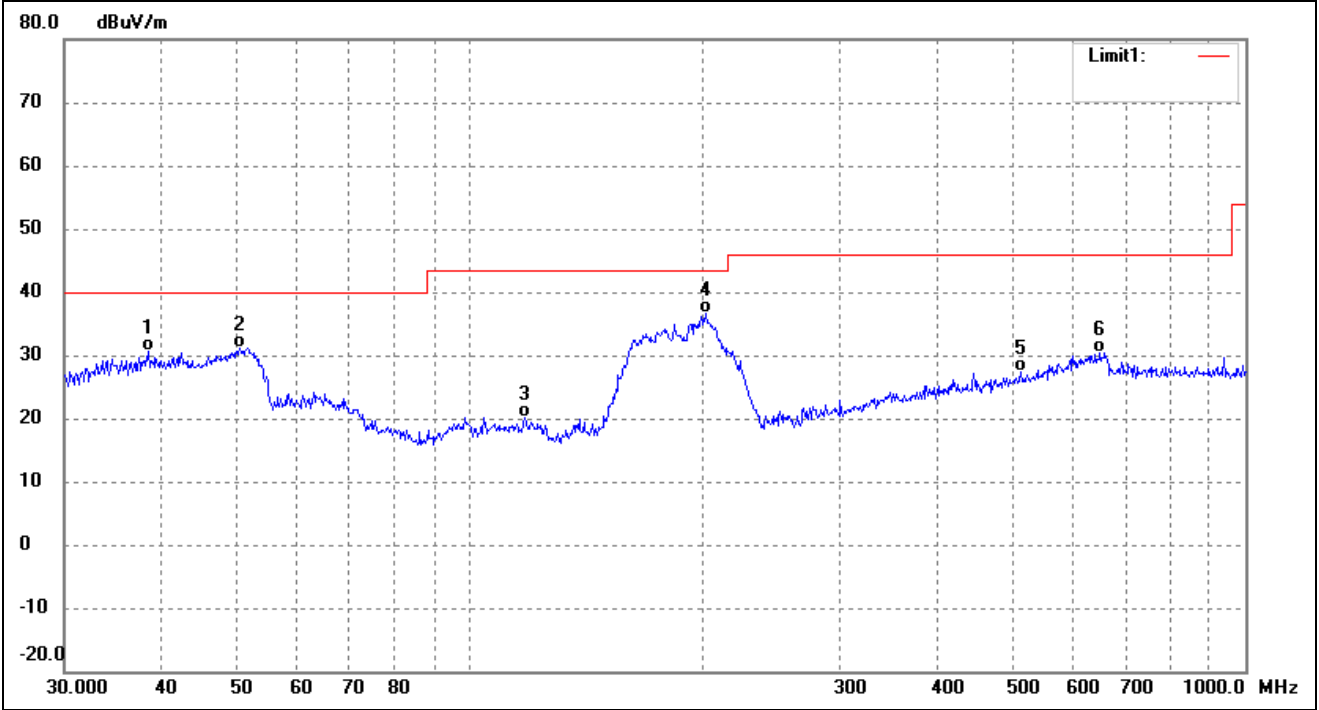
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal
------------	-----	-----------	------------



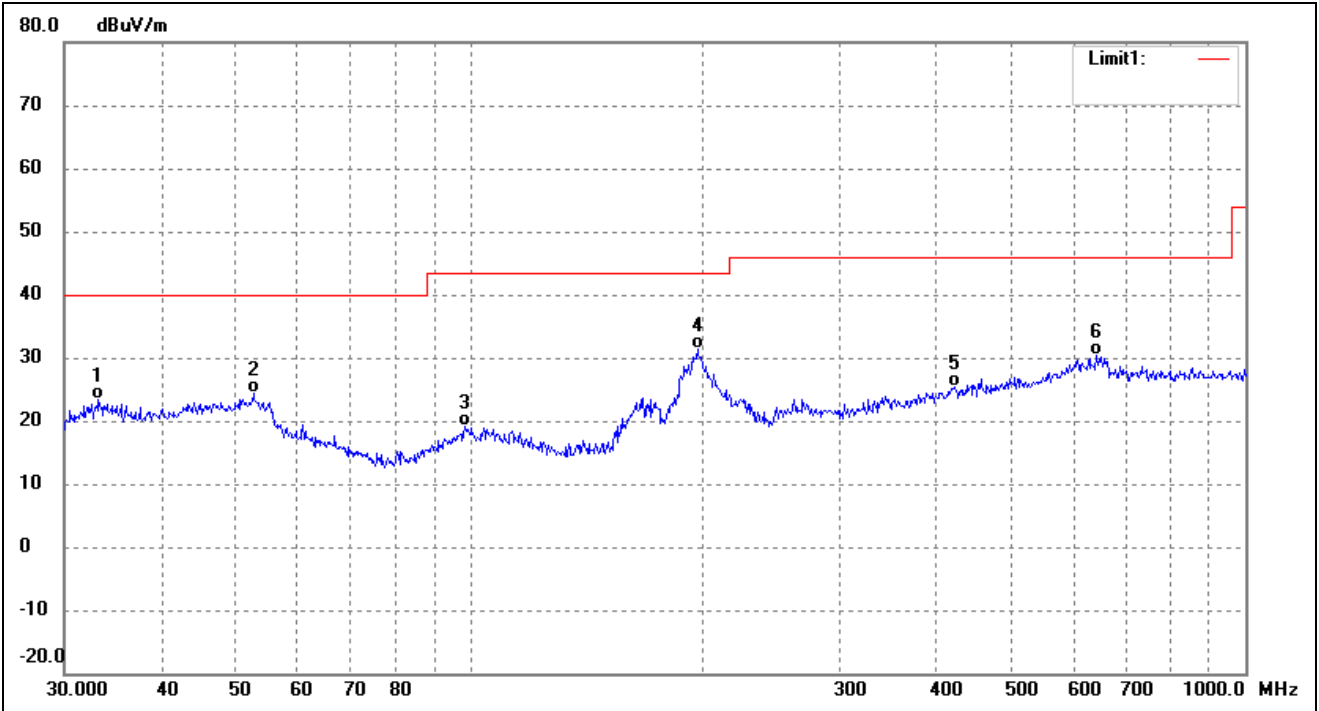
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	33.6803	32.99	-9.98	23.01	40.00	-16.99	-	-	QP
2	52.3913	30.07	-7.41	22.66	40.00	-17.34	-	-	QP
3	99.1797	27.70	-8.71	18.99	43.50	-24.51	-	-	QP
4	198.5880	39.88	-8.05	31.83	43.50	-11.67	-	-	QP
5	401.8385	27.71	-2.48	25.23	46.00	-20.77	-	-	QP
6	663.4729	27.76	2.10	29.86	46.00	-16.14	-	-	QP

Test mode:	TM1	Polarity:	Vertical
------------	-----	-----------	----------



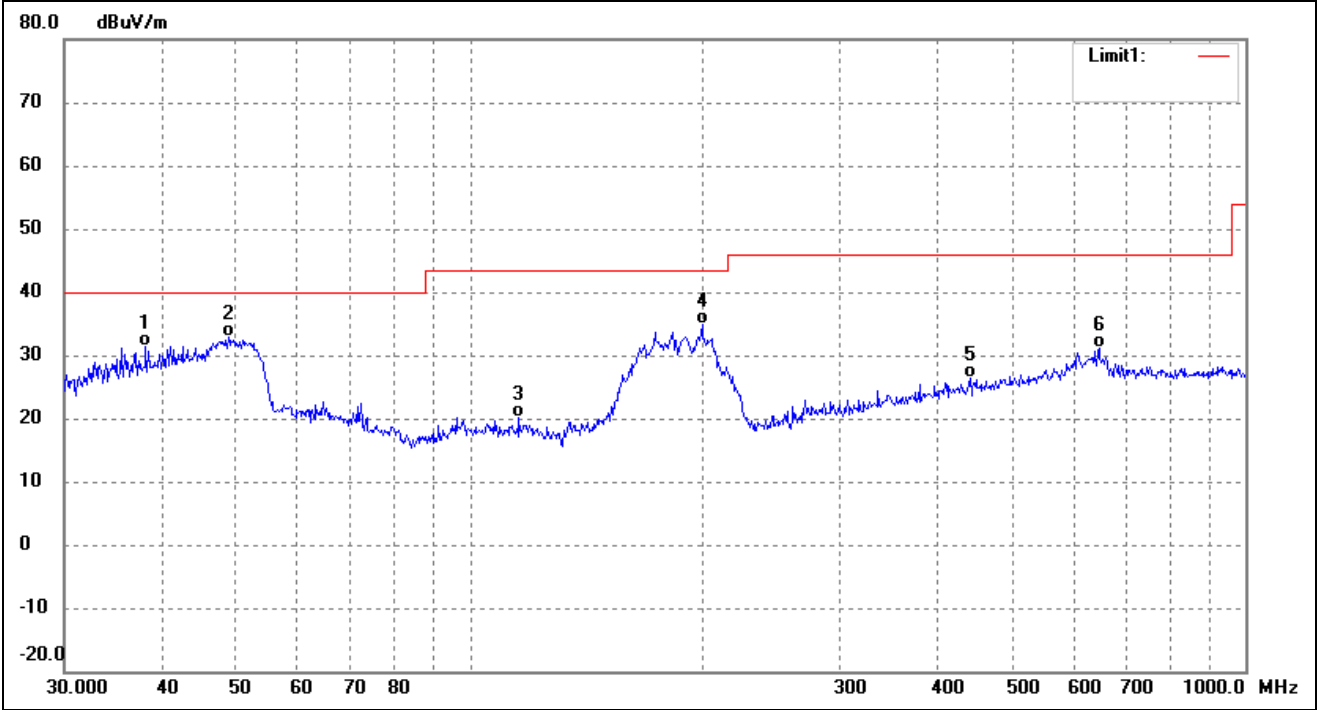
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(□)	(cm)	
1	38.4809	39.46	-8.87	30.59	40.00	-9.41	-	-	QP
2	50.4089	38.49	-7.35	31.14	40.00	-8.86	-	-	QP
3	117.7725	29.93	-9.79	20.14	43.50	-23.36	-	-	QP
4	201.3930	44.53	-8.00	36.53	43.50	-6.97	-	-	QP
5	513.6331	28.44	-1.03	27.41	46.00	-18.59	-	-	QP
6	649.6597	28.46	2.00	30.46	46.00	-15.54	-	-	QP

Test mode:	TM2	Polarity:	Horizontal
------------	-----	-----------	------------



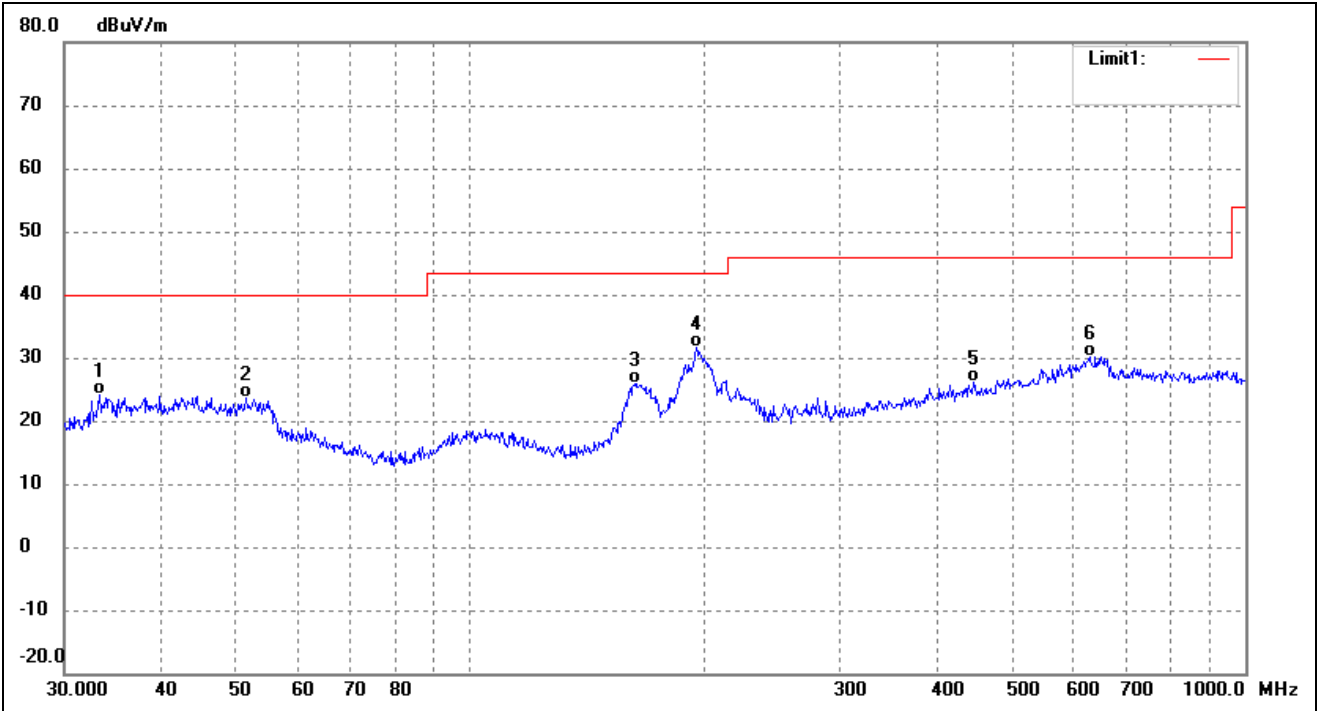
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	33.2112	33.55	-10.11	23.44	40.00	-16.56	-	-	QP
2	52.5753	31.70	-7.42	24.28	40.00	-15.72	-	-	QP
3	98.4866	27.88	-8.81	19.07	43.50	-24.43	-	-	QP
4	196.5098	39.49	-8.13	31.36	43.50	-12.14	-	-	QP
5	422.0577	27.58	-2.16	25.42	46.00	-20.58	-	-	QP
6	642.8613	28.42	1.86	30.28	46.00	-15.72	-	-	QP

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



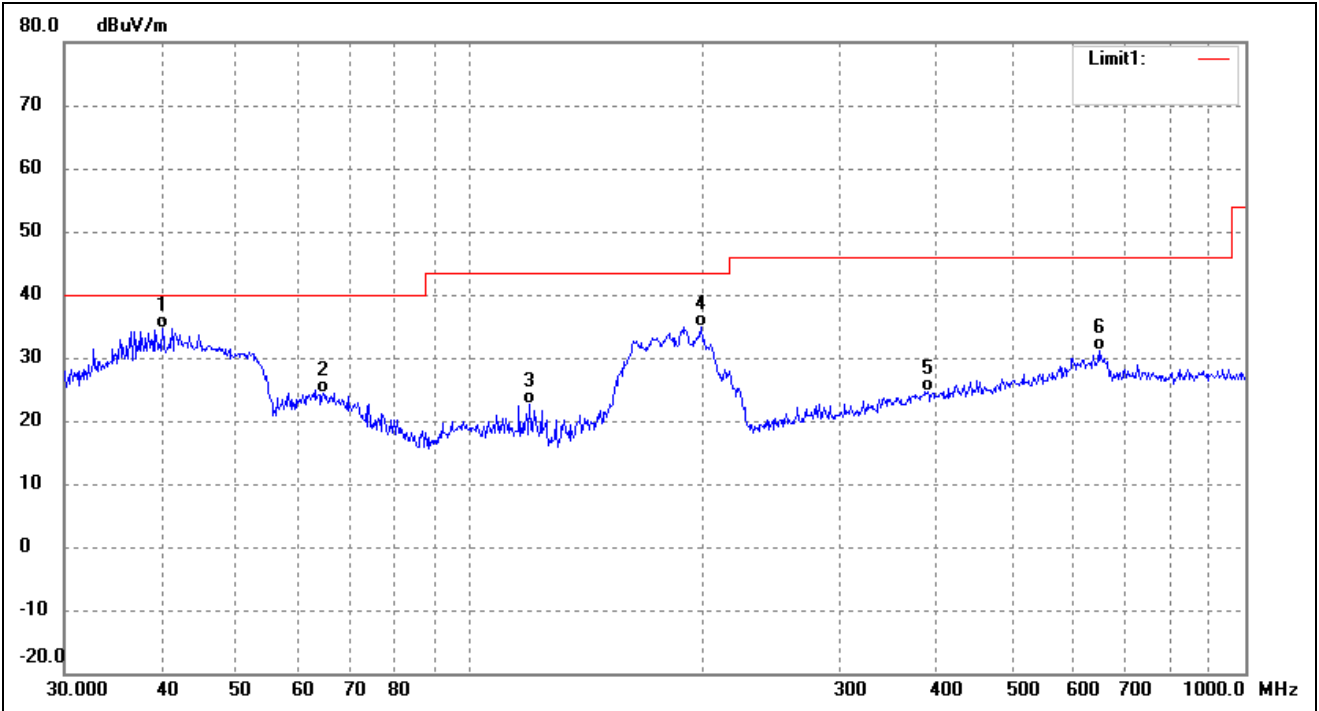
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	38.2120	40.20	-8.93	31.27	40.00	-8.73	-	-	QP
2	48.8429	40.19	-7.38	32.81	40.00	-7.19	-	-	QP
3	115.7256	29.70	-9.49	20.21	43.50	-23.29	-	-	QP
4	199.2855	42.96	-8.03	34.93	43.50	-8.57	-	-	QP
5	441.7426	28.56	-2.08	26.48	46.00	-19.52	-	-	QP
6	647.3856	29.05	1.99	31.04	46.00	-14.96	-	-	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	33.3279	34.13	-10.08	24.05	40.00	-15.95	-	-	QP
2	51.4807	31.10	-7.37	23.73	40.00	-16.27	-	-	QP
3	163.1818	36.92	-11.01	25.91	43.50	-17.59	-	-	QP
4	195.8220	39.85	-8.16	31.69	43.50	-11.81	-	-	QP
5	446.4141	28.18	-2.07	26.11	46.00	-19.89	-	-	QP
6	629.4772	28.58	1.53	30.11	46.00	-15.89	-	-	QP

Test mode:	TM3	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	40.1347	43.27	-8.57	34.70	40.00	-5.30	-	-	QP
2	64.6594	34.12	-9.72	24.40	40.00	-15.60	-	-	QP
3	119.4361	32.65	-10.04	22.61	43.50	-20.89	-	-	QP
4	198.5880	42.84	-8.05	34.79	43.50	-8.71	-	-	QP
5	389.3549	27.55	-2.83	24.72	46.00	-21.28	-	-	QP
6	647.3856	29.21	1.99	31.20	46.00	-14.80	-	-	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

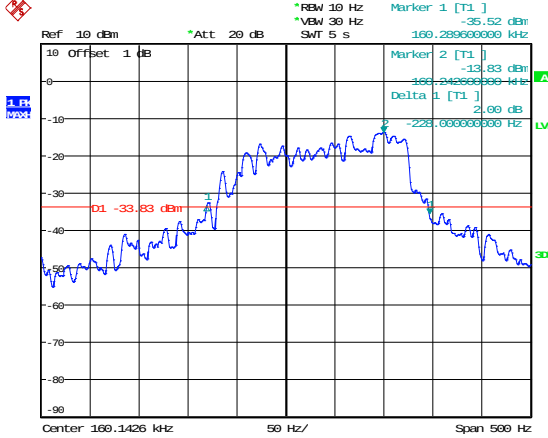
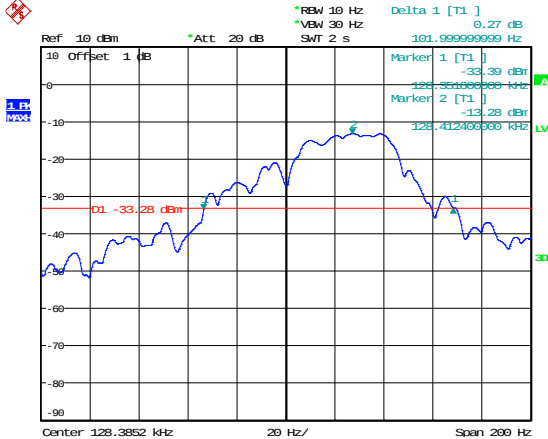
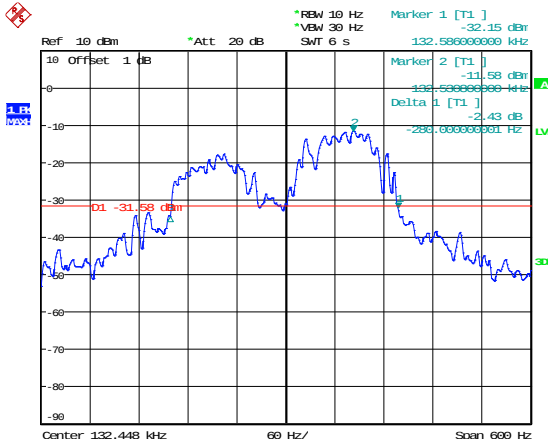
- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied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

7.3 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	56%
ATM Pressure:	1018 mbar

7.4 Summary of Test Results/Plots

Test mode	Test Channel (kHz)	20dB Bandwidth (Hz)
TM1	160.14	220.00
TM2	128.39	102.00
TM3	132.45	200.00

TM1	 Ref: 10 dBm, Offset: 1 dB, Att: 20 dB, RBW: 10 Hz, VBW: 30 Hz, SWT: 5 s Marker 1 [T1]: -35.52 dBm, 169.289500000 kHz Marker 2 [T2]: -13.83 dBm, 169.242500000 kHz Delta 1 [T1]: 2.00 dB, -228.000000000 Hz Center: 169.1426 kHz, 50 Hz/, Span: 500 Hz Date: 19.MAY.2023 15:35:29
TM2	 Ref: 10 dBm, Offset: 1 dB, Att: 20 dB, RBW: 10 Hz, VBW: 30 Hz, SWT: 2 s Delta 1 [T1]: 0.27 dB, 101.999999999 Hz Marker 1 [T1]: -33.39 dBm, 128.550000000 kHz Marker 2 [T1]: -13.28 dBm, 128.412000000 kHz Center: 128.3852 kHz, 20 Hz/, Span: 200 Hz Date: 19.MAY.2023 15:39:57
TM3	 Ref: 10 dBm, Offset: 1 dB, Att: 20 dB, RBW: 10 Hz, VBW: 30 Hz, SWT: 6 s Marker 1 [T1]: -32.15 dBm, 132.580000000 kHz Marker 2 [T1]: -11.58 dBm, 132.550000000 kHz Delta 1 [T1]: 2.43 dB, -288.000000000 Hz Center: 132.448 kHz, 60 Hz/, Span: 600 Hz Date: 19.MAY.2023 15:44:44

APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

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