

TEST REPORT

Reference No..... : WTX21X04027734W-1
FCC ID : 2AXY5-T8
Applicant : Shenzhen Yifeng Intelligent Technology Co., Ltd.
Address : 10th Floor, Building 2, Chaxi, Zone B, Huafeng First Science Park,
Hangcheng Street, Gushu, Baoan District, Shenzhen
Product Name : Wireless Charging
Test Model. : T8
Standards : FCC Part 15C
Date of Receipt sample : Apr. 01, 2021
Date of Test..... : Apr. 01, 2021 to May. 31, 2021
Date of Issue : May. 31, 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.

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

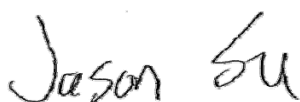
Tel.: +86-755-33663308

Fax.: +86-755-33663309

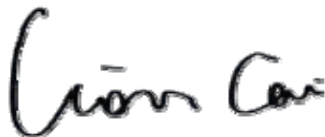
Tested by:

Reviewed By:

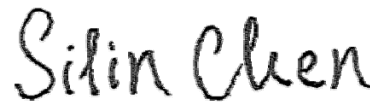
Approved & Authorized By:



Jason Su / Project Engineer



Lion Cai / RF Manager



Silin Chen / Manager

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	6
1.7 TEST EQUIPMENT LIST AND DETAILS	7
2. SUMMARY OF TEST RESULTS	8
3. RF EXPOSURE	9
3.1 STANDARD APPLICABLE.....	9
3.2 TEST RESULT.....	9
4. ANTENNA REQUIREMENT	10
4.1 STANDARD APPLICABLE.....	10
4.2 EVALUATION INFORMATION	10
5. CONDUCTED EMISSIONS	11
5.1 TEST PROCEDURE.....	11
5.2 BASIC TEST SETUP BLOCK DIAGRAM.....	11
5.3 ENVIRONMENTAL CONDITIONS	11
5.4 TEST RECEIVER SETUP	11
5.5 SUMMARY OF TEST RESULTS/PLOTS	11
6. FIELD STRENGTH OF SPURIOUS EMISSIONS	16
6.1 STANDARD APPLICABLE.....	16
6.2 TEST PROCEDURE.....	16
6.3 CORRECTED AMPLITUDE & MARGIN CALCULATION.....	18
6.4 ENVIRONMENTAL CONDITIONS	18
6. REFERENCE MEASUREMENT AT OPEN FIELD SITE	18
6.5 SUMMARY OF TEST RESULTS/PLOTS	18
7. 20DB EMISSION BANDWIDTH.	25
7.1 STANDARD APPLICABLE.....	25
7.2 TEST PROCEDURE.....	25
7.3 ENVIRONMENTAL CONDITIONS	25
7.4 SUMMARY OF TEST RESULTS/PLOTS	25
APPENDIX PHOTOGRAPHS.....	27

Report version

Version No.	Date of issue	Description
Rev.00	May. 31, 2021	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Shenzhen Yifeng Intelligent Technology Co., Ltd.
Address of applicant: 10th Floor, Building 2, Chaxi, Zone B, Huafeng First Science Park, Hangcheng Street, Gushu, Baoan District, Shenzhen

Manufacturer: Shenzhen Yifeng Intelligent Technology Co., Ltd.
Address of manufacturer: 10th Floor, Building 2, Chaxi, Zone B, Huafeng First Science Park, Hangcheng Street, Gushu, Baoan District, Shenzhen

General Description of EUT	
Product Name:	Wireless Charging
Trade Name:	/
Model No.:	T8
Adding Model:	/
Battery Capacity	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	112-205kHz; 326kHz
Modulation Type	ASK
Antenna Type:	Coil Antenna
Rated Voltage:	Adapter DC9V
Rated Current:	/
Rated Power:	Top:3W; Back:5W; Front:5W/10W
Note: Top for watch; Back for earphone; Front for mobile phone.	

1.2 Test Standards

The following report is prepared on behalf of the Shenzhen Yifeng Intelligent Technology 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.

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

FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). 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	Top Wireless Output:3W; Back Wireless Output:5W; Front Wireless Output:5W	AC120V;Adapter DC9V
TM2	Wireless charging	Top Wireless Output:3W; Back Wireless Output:5W; Front Wireless Output:10W	AC120V;Adapter DC9V
Note: 1. Each wireless charging has been tested in individual and combined modes, and only the worst mode is shown in the report. 2. Top for watch; Back for earphone; Front for mobile phone.			

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	Xiaomi	MDY-08-ES	/
Wireless charging load	/	sk4559-8988	/

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 No.	Cal Date	Due Date
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2021-03-30	2022-03-29
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2021-04-12	2022-04-11
Amplifier	Agilent	8447F	3113A06717	2021-04-12	2022-04-11
Amplifier	C&D	PAP-1G18	2002	2021-04-12	2022-04-11
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	2021-04-12	2022-04-11
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2021-04-15	2022-04-14

Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
Spectrum Analyzer	Rohde & Schwarz	FSP30	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
Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-333	2019-05-05	2021-05-04
Amplifier	Agilent	8447D	2944A10179	2019-4-29	2020-4-28
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	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 an Coil antenna, fulfill the requirement of this section.

5. Conducted Emissions

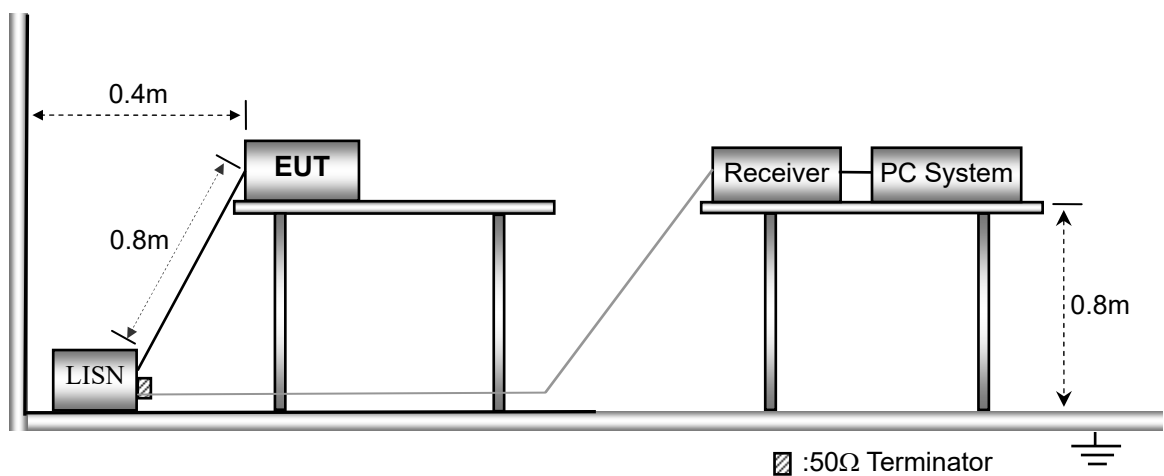
5.1 Test Procedure

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

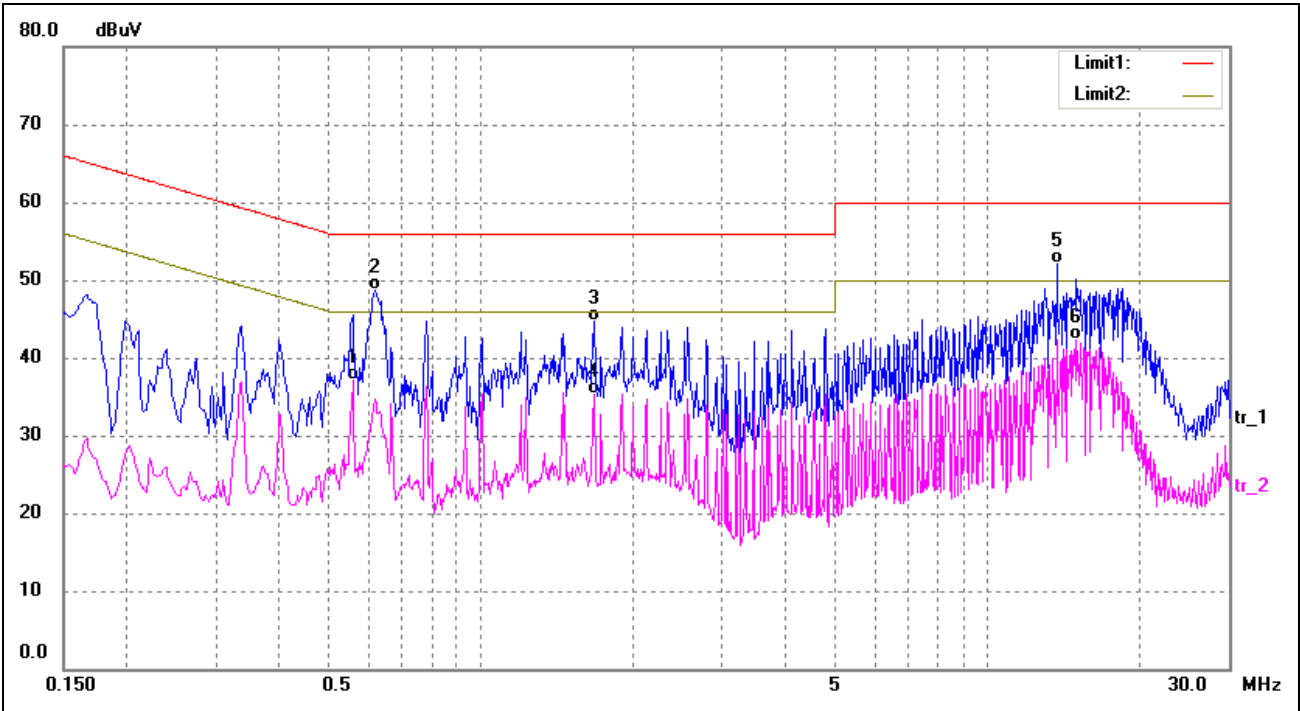
IF Bandwidth..... 10 kHz

Quasi-Peak Adapter Bandwidth 9 kHz

Quasi-Peak Adapter Mode Normal

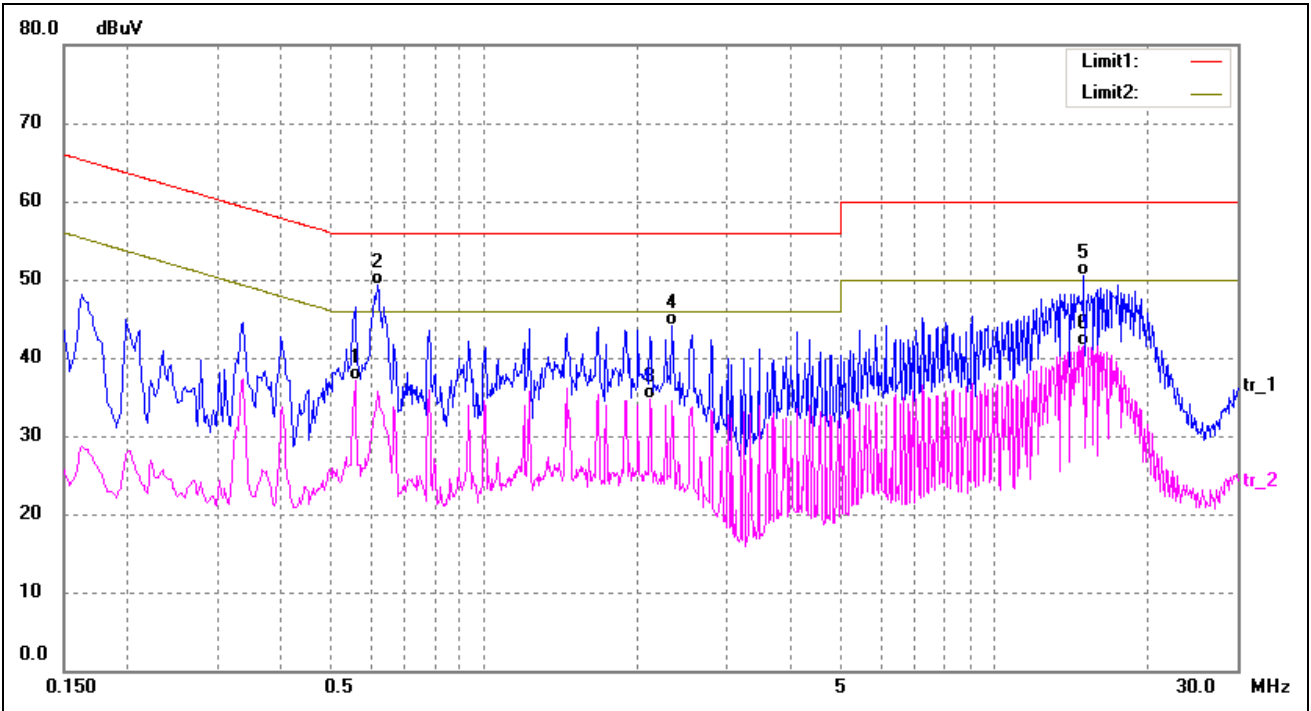
5.5 Summary of Test Results/Plots

Test mode:	TM1	Polarity:	Line
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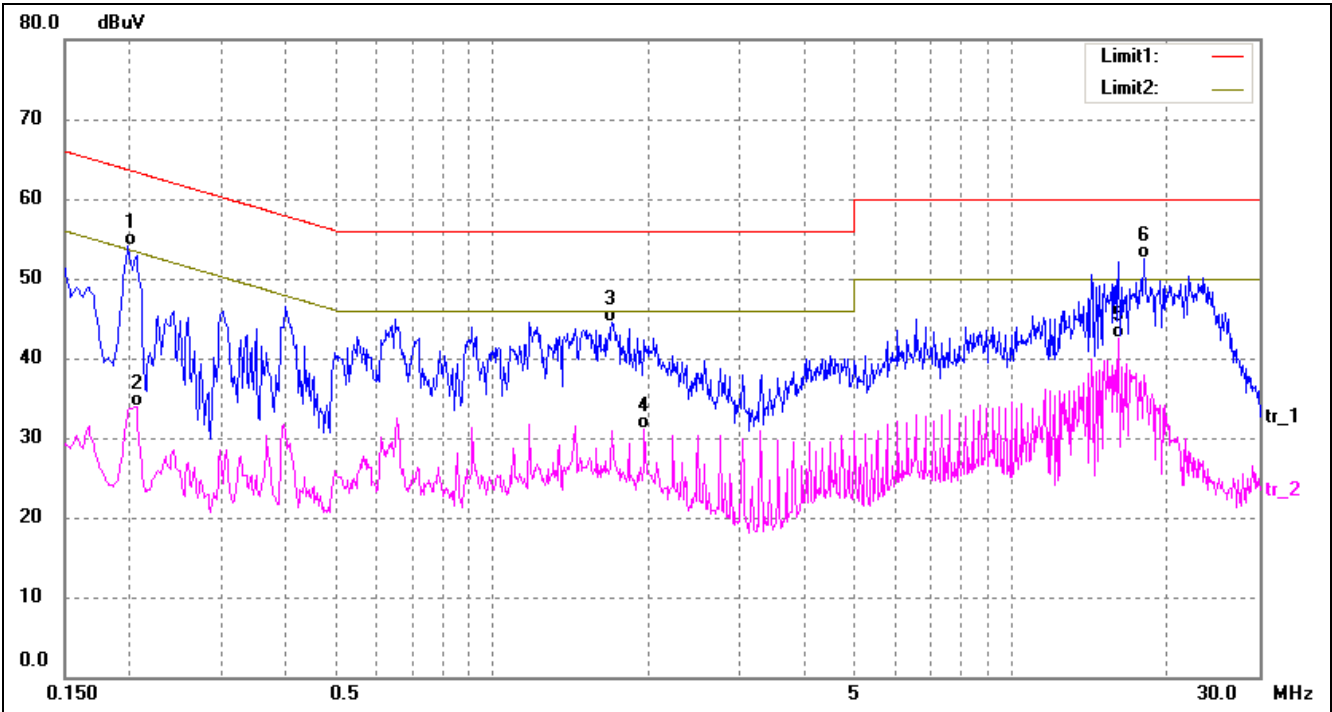
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.5580	26.82	10.21	37.03	46.00	-8.97	AVG
2*	0.6180	38.45	10.20	48.65	56.00	-7.35	QP
3	1.6740	34.53	10.25	44.78	56.00	-11.22	QP
4	1.6740	25.12	10.25	35.37	46.00	-10.63	AVG
5	13.7260	41.68	10.51	52.19	60.00	-7.81	QP
6	15.0620	31.64	10.58	42.22	50.00	-7.78	AVG

Test mode:	TM1	Polarity:	Neutral
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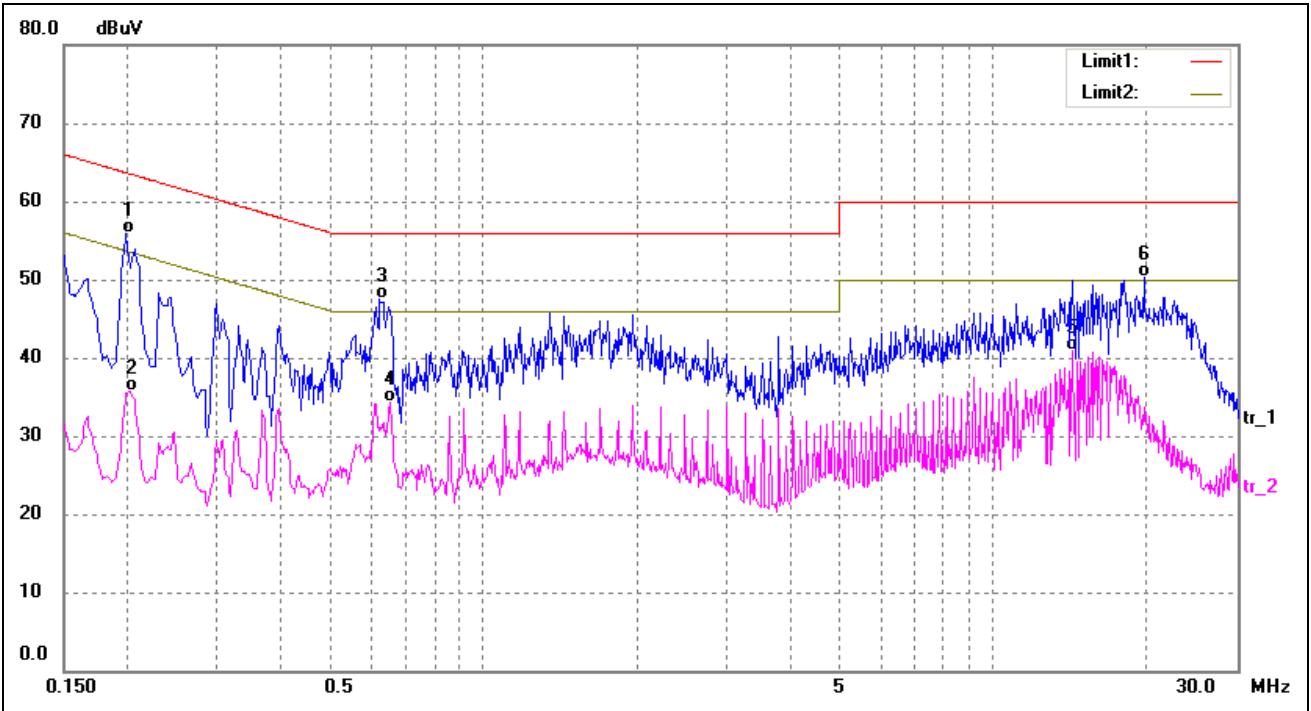
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.5580	26.84	10.21	37.05	46.00	-8.95	AVG
2*	0.6180	39.12	10.20	49.32	56.00	-6.68	QP
3	2.1180	24.42	10.29	34.71	46.00	-11.29	AVG
4	2.3420	33.89	10.29	44.18	56.00	-11.82	QP
5	15.0580	39.90	10.58	50.48	60.00	-9.52	QP
6	15.0580	30.98	10.58	41.56	50.00	-8.44	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	0.1980	43.77	10.27	54.04	63.69	-9.65	QP
2	0.2060	23.57	10.27	33.84	53.37	-19.53	AVG
3	1.7060	34.32	10.26	44.58	56.00	-11.42	QP
4	1.9660	20.72	10.29	31.01	46.00	-14.99	AVG
5*	16.1220	32.00	10.58	42.58	50.00	-7.42	AVG
6	17.9540	41.94	10.58	52.52	60.00	-7.48	QP

Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1980	45.58	10.27	55.85	63.69	-7.84	QP
2	0.2020	25.40	10.27	35.67	53.53	-17.86	AVG
3	0.6260	37.23	10.19	47.42	56.00	-8.58	QP
4	0.6540	24.02	10.19	34.21	46.00	-11.79	AVG
5	14.2820	30.38	10.53	40.91	50.00	-9.09	AVG
6	19.6500	39.62	10.59	50.21	60.00	-9.79	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

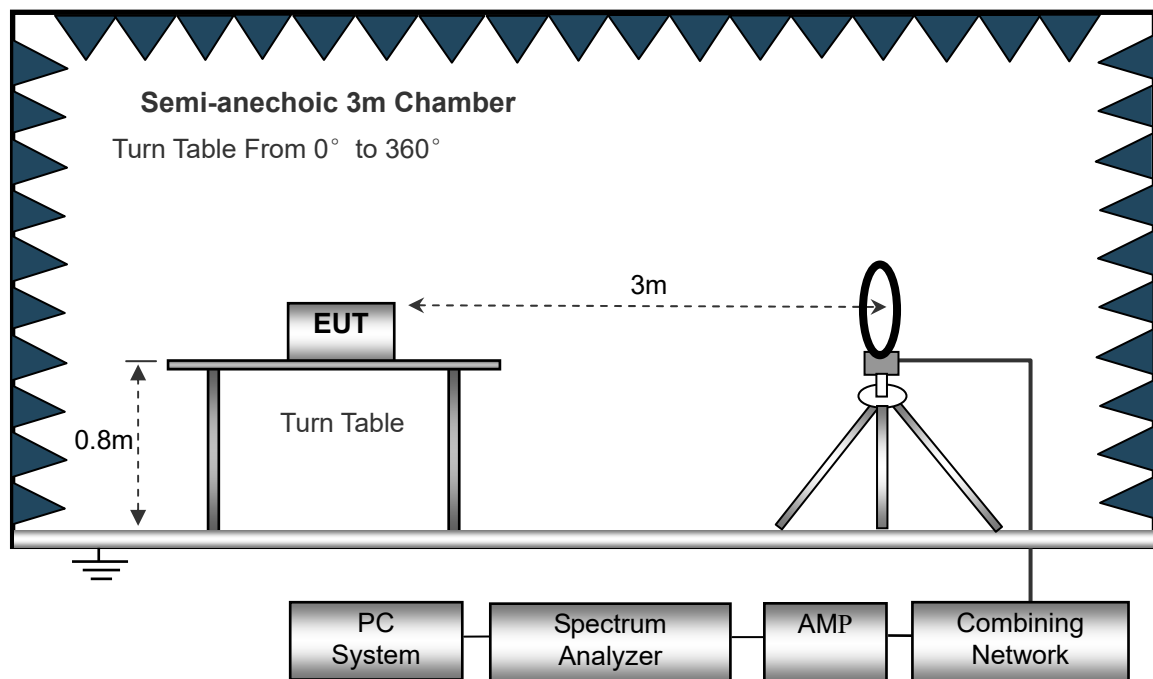
The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

6.2 Test Procedure

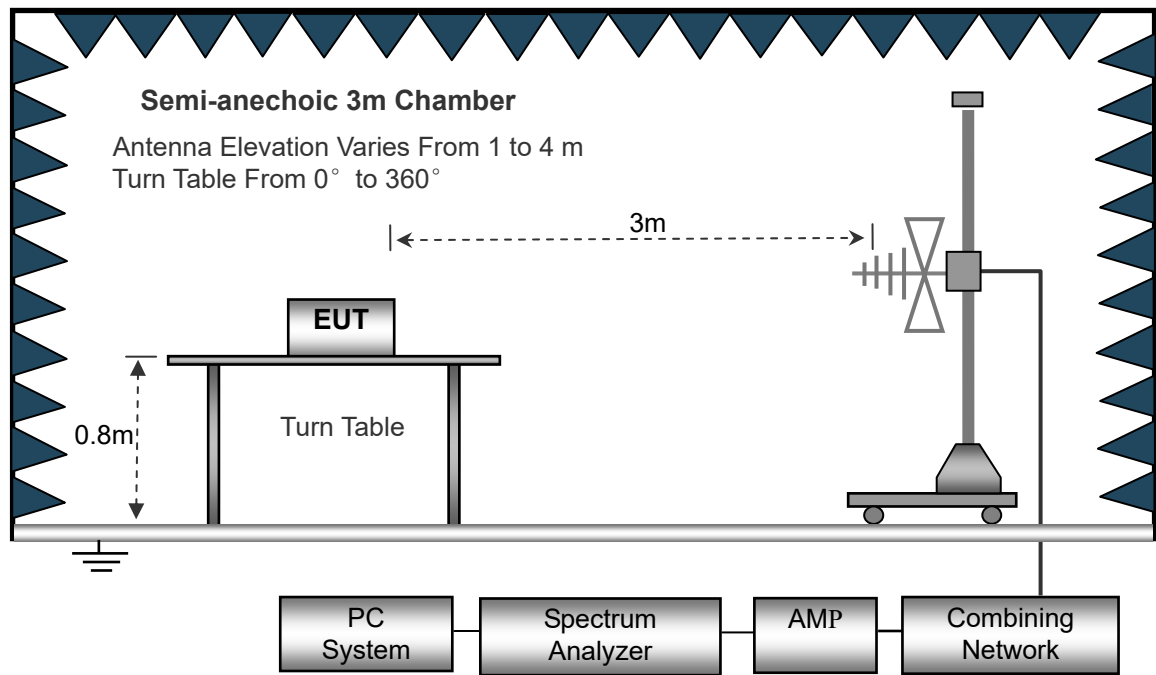
The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.209 Limit.

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.

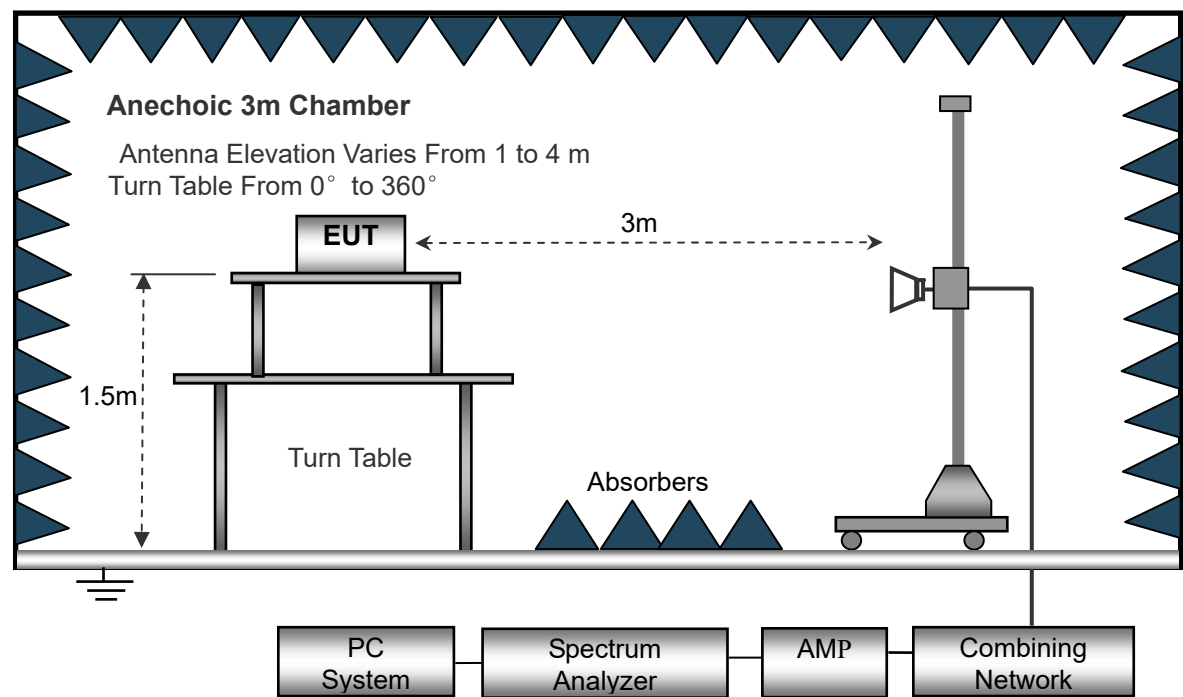
The test setup for emission measurement below 30MHz..



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



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:	23.5 °C
Relative Humidity:	54%
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.

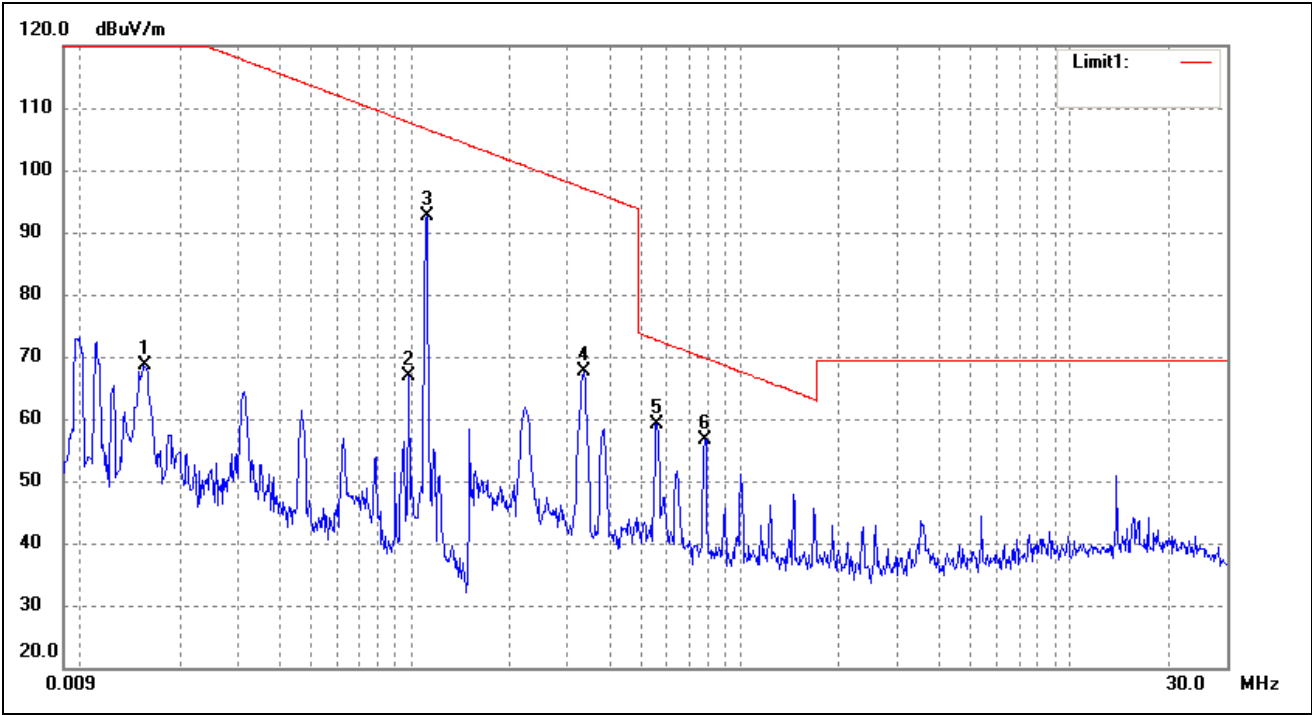
The radiated H fieldstrength at 10 kHz and 14 kHz generated by this set-up was measured with the same test setup as used in the SAC in 3 m distance first, and then repeated at the open field site in 3 m and 10 m distance

6.5 Summary of Test Results/Plots

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

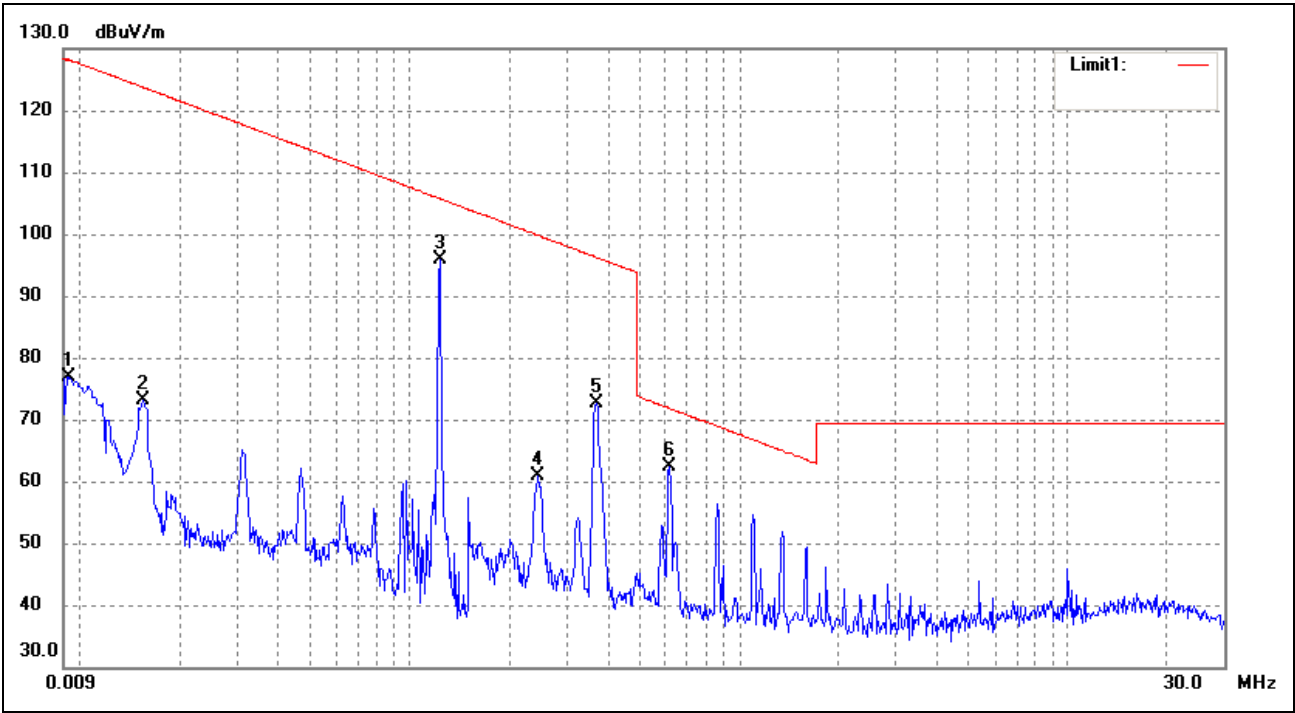
Radiated Emissions Test Data (Below 30MHz)(Worst case EUT X axis)

Test mode:	TM1	Polarity:	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	0.0157	72.64	-4.08	68.56	123.67	-55.11	-	-	peak
2	0.0989	70.12	-3.26	66.86	107.69	-40.83	-	-	peak
3	0.1116	95.83	-3.27	92.56	106.64	-14.08	-	-	peak
4	0.3338	70.99	-3.42	67.57	97.13	-29.56	-	-	peak
5	0.5581	61.89	-2.84	59.05	72.67	-13.62	-	-	peak
6	0.7793	58.53	-1.86	56.67	69.78	-13.11	-	-	peak

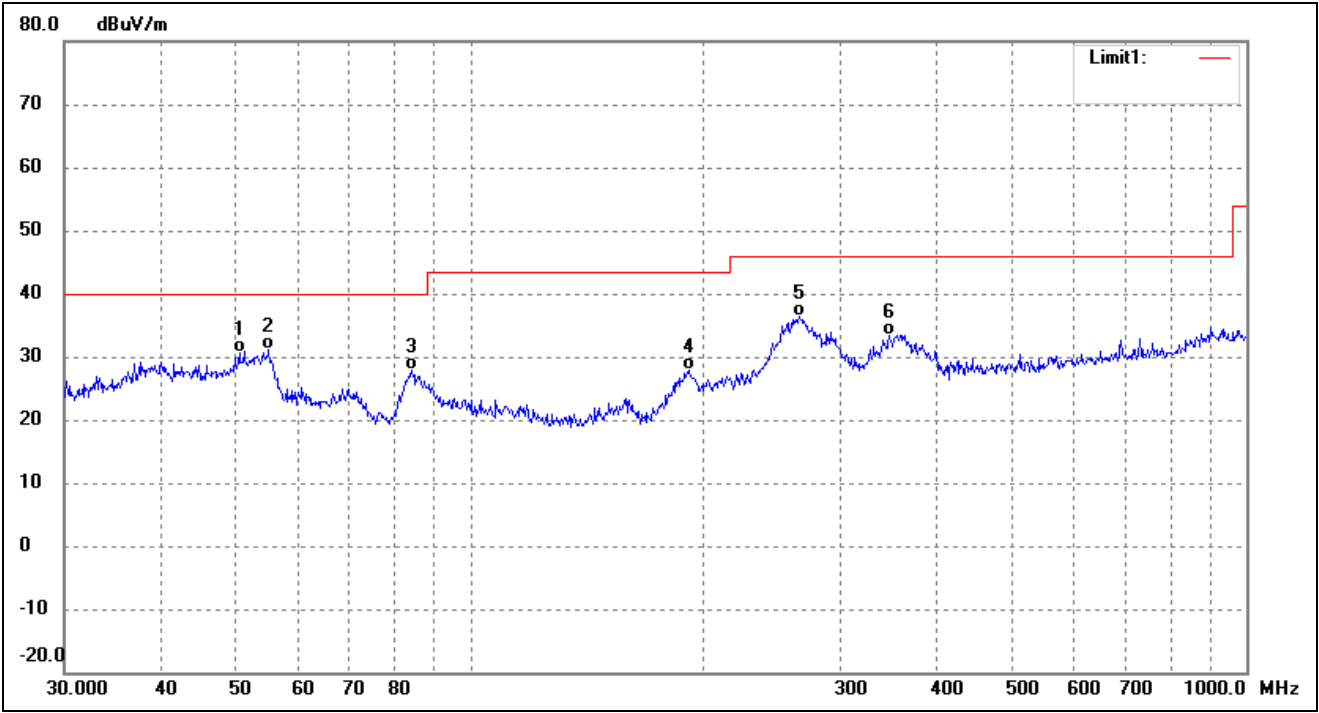
Test mode:	TM2	Polarity:	Horizontal
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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	0.0092	80.68	-3.70	76.98	128.31	-51.33	-	-	peak
2	0.0156	77.28	-4.07	73.21	123.72	-50.51	-	-	peak
3	0.1232	98.84	-3.01	95.83	105.79	-9.96	-	-	peak
4	0.2455	64.36	-3.54	60.82	99.80	-38.98	-	-	peak
5	0.3692	75.93	-3.37	72.56	96.26	-23.70	-	-	peak
6	0.6140	65.05	-2.57	62.48	71.85	-9.37	-	-	peak

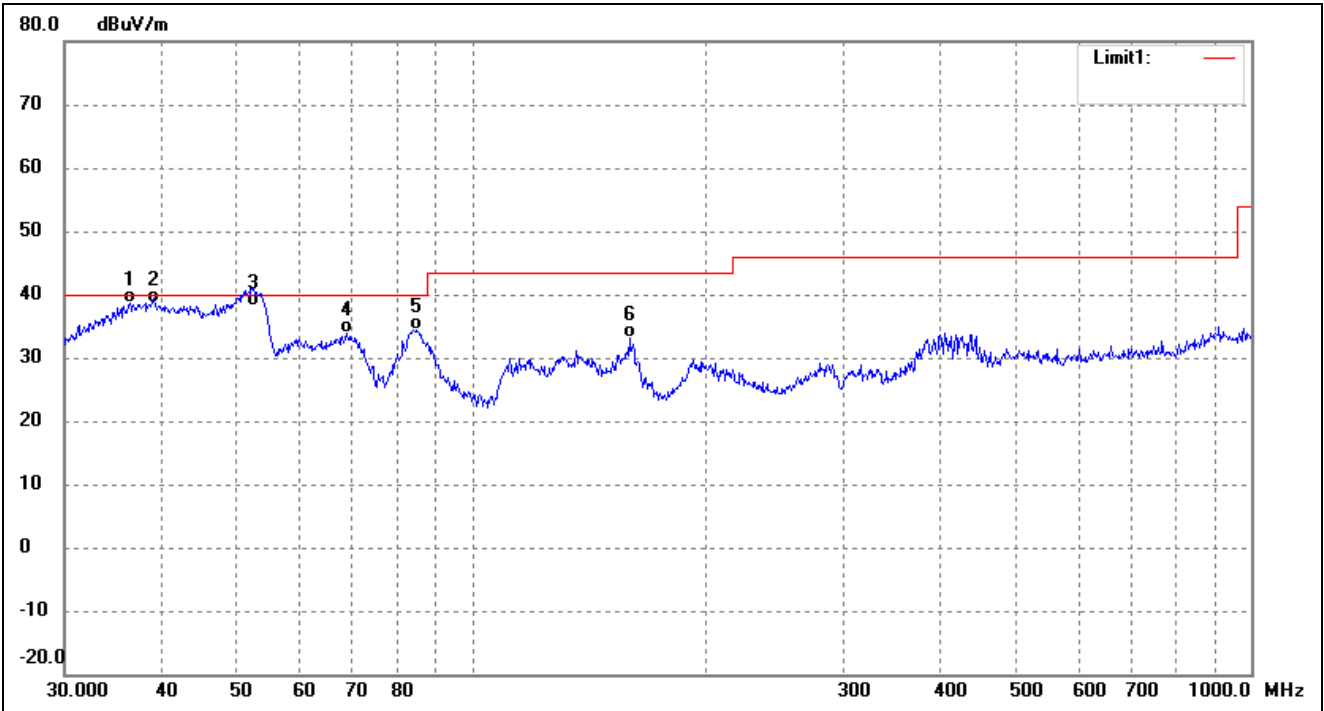
Plot of Radiated Emissions Test Data (30MHz to 1GHz)

Test mode:	TM1	Polarity:	Horizontal
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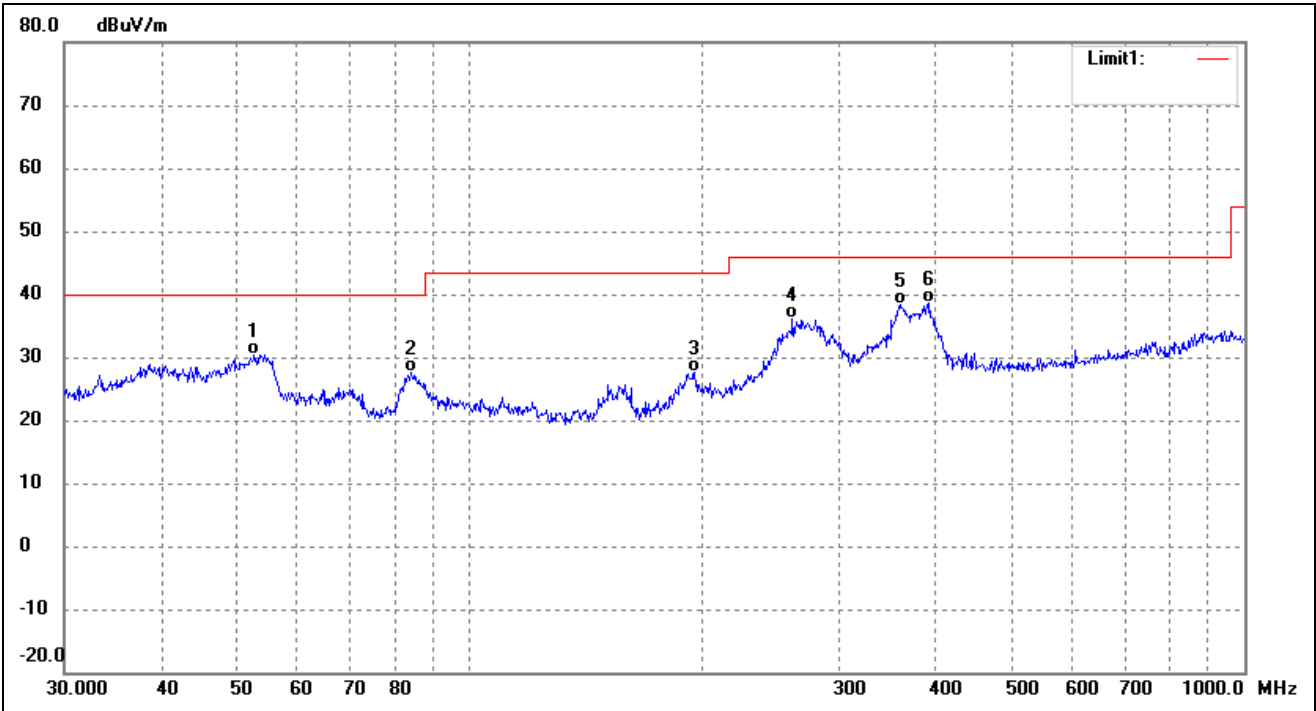
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	50.4089	42.17	-11.65	30.52	40.00	-9.48	-	-	QP
2	55.0274	44.14	-12.94	31.20	40.00	-8.80	-	-	QP
3	84.1100	44.04	-16.17	27.87	40.00	-12.13	-	-	QP
4	191.7450	40.90	-12.99	27.91	43.50	-15.59	-	-	QP
5	265.6757	47.11	-10.80	36.31	46.00	-9.69	-	-	QP
6	346.8092	41.07	-7.63	33.44	46.00	-12.56	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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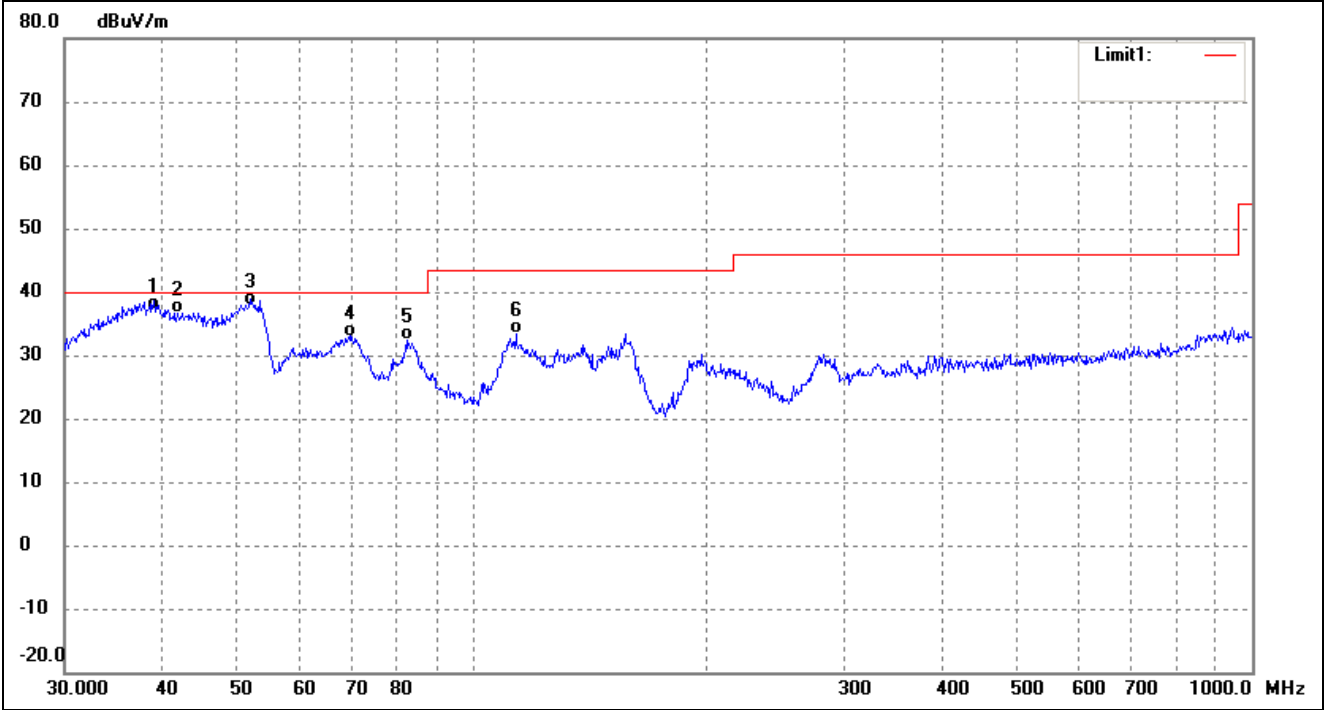
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	36.3814	51.86	-13.35	38.51	40.00	-1.49	-	-	QP
2	39.0245	50.90	-12.35	38.55	40.00	-1.45	-	-	QP
3	52.3913	50.30	-12.20	38.10	40.00	-1.90	-	-	QP
4	69.1141	48.32	-14.51	33.81	40.00	-6.19	-	-	QP
5	84.9995	50.39	-16.04	34.35	40.00	-5.65	-	-	QP
6	159.2251	48.54	-15.53	33.01	43.50	-10.49	-	-	QP

Test mode:	TM2	Polarity:	Horizontal
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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	52.7600	42.78	-12.31	30.47	40.00	-9.53	-	-	QP
2	84.1100	43.88	-16.17	27.71	40.00	-12.29	-	-	QP
3	195.1365	40.42	-12.75	27.67	43.50	-15.83	-	-	QP
4	261.0583	46.98	-10.83	36.15	46.00	-9.85	-	-	QP
5	359.1860	45.73	-7.34	38.39	46.00	-7.61	-	-	QP
6	392.0951	45.28	-6.69	38.59	46.00	-7.41	-	-	QP

Test mode:	TM2	Polarity:	Vertical
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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	39.0245	49.60	-12.35	37.25	40.00	-2.75	-	-	QP
2	41.8596	48.54	-11.92	36.62	40.00	-3.38	-	-	QP
3	51.8430	49.90	-12.04	37.86	40.00	-2.14	-	-	QP
4	69.6005	47.58	-14.58	33.00	40.00	-7.00	-	-	QP
5	82.3589	48.88	-16.45	32.43	40.00	-7.57	-	-	QP
6	113.7143	47.03	-13.68	33.35	43.50	-10.15	-	-	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

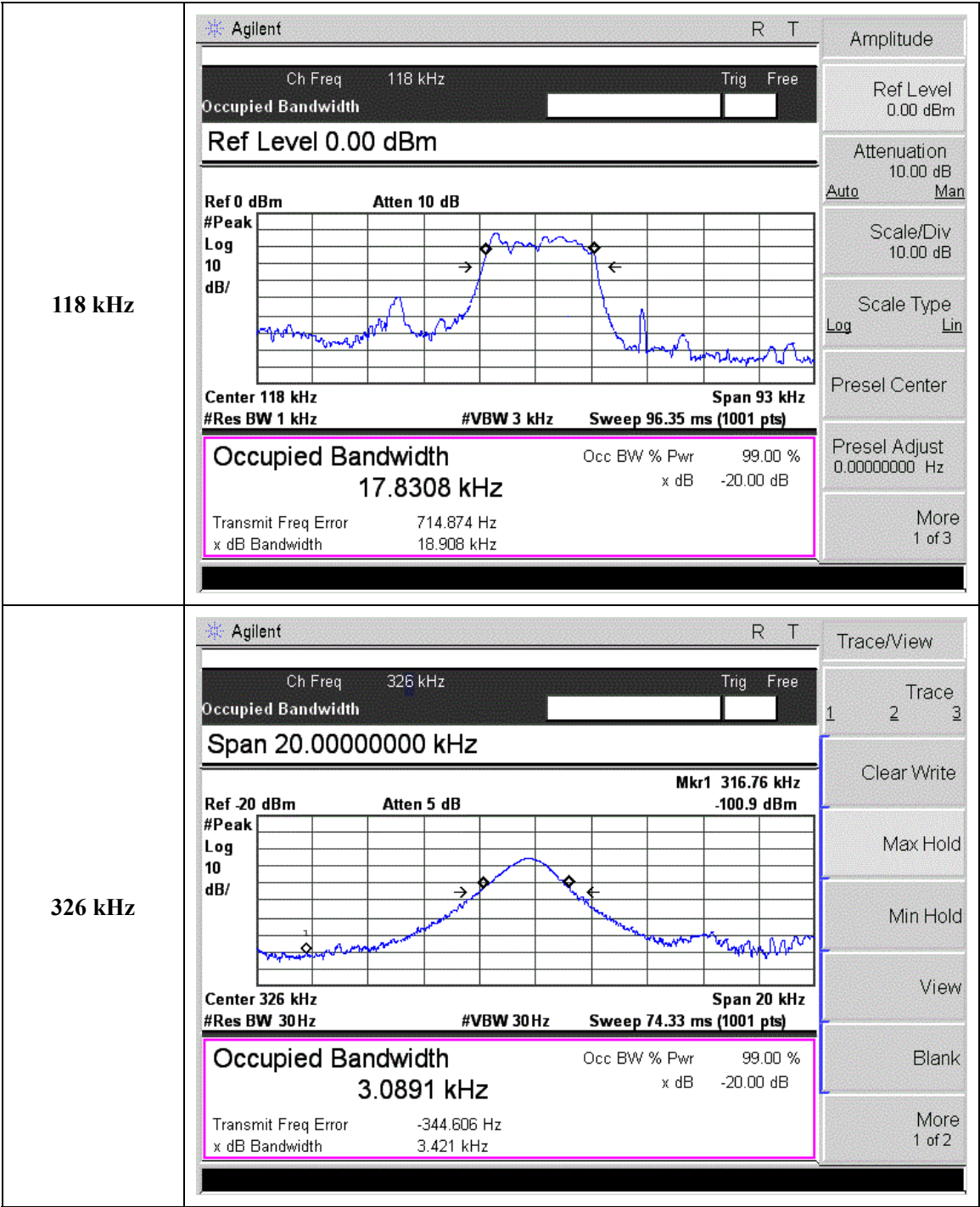
- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied 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)	20 dB Bandwidth(KHz)
118	18.908
325	3.421



APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

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