TEST REPORT

Reference No.	:	WTX21X07075928W-1
FCC ID	:	2AMRO-MGSFIO101
Applicant	:	iottie.Inc
Address	:	20W 37th 6th floor 10018 New York
Product Name	:	Velox Magnetic Wireless Air Vent car mount
Test Model	:	MGSFIO101
Standards	:	FCC Part 15C
Date of Receipt sample	:	Jul. 28, 2021
Date of Test	:	Jul. 28, 2021 to Aug. 20, 2021
Date of Issue	:	Aug. 20, 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:

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Report version

Version No.	Date of issue	Description
Rev.00	Aug. 20, 2021	Original
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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	iottie.Inc
Address of applicant:	20W 37th 6th floor 10018 New York
Manufacturer:	Shenzhen Elecjar Technology Co., Ltd
Address of manufacturer:	5/F East , Building 1,Jinyuda Industrial Park Shajing Street,Baoan District,Shenzhen

General Description of EUT	
Product Name:	Velox Magnetic Wireless Air Vent car mount
Trade Name:	/
Model No.:	MGSFIO101
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
Power adapter	/
Antenna Type:	Coil Antenna
Modulation Type:	FSK
Rated Voltage:	Input: DC5V/9V
Rated Current:	Input:2A/1.67A
Rated Power:	Output: 5W/7.5W

1.2 Test Standards

The following report is prepared on behalf of the iottie.Inc 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	Output 5W	Input: DC5V/9V
TM2	Wireless Charging	Output 7.5W	Input: DC5V/9V

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB-C Cable	1.22	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Wireless charging load	/	YBZ	/
Battery	JIADE	DC12-A	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

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

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§ 15.207(a) Conducted Emission	N/A
§ 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

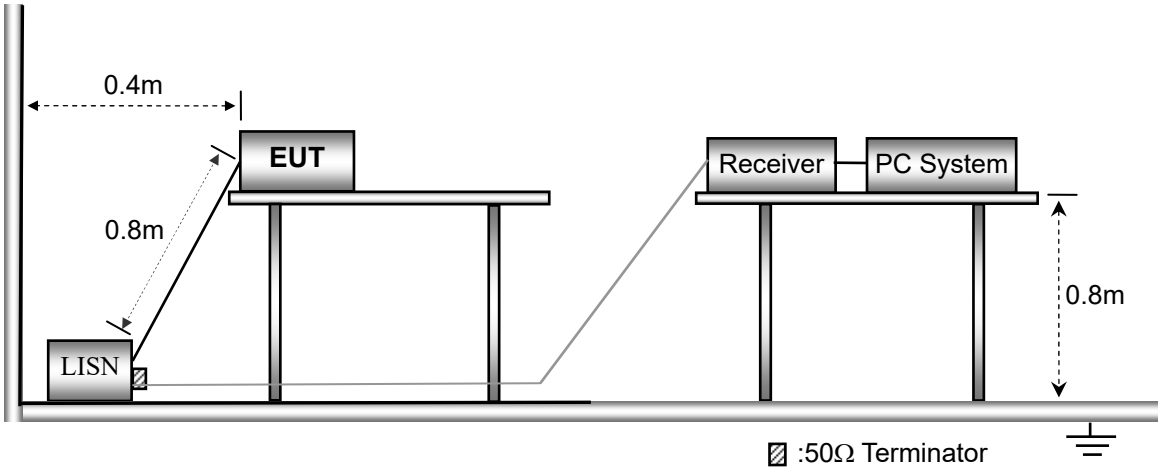
This product has a Coil antenna, fulfill the requirement of this section.

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:	25 °C
Relative Humidity:	52%
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

Not applicable

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:.

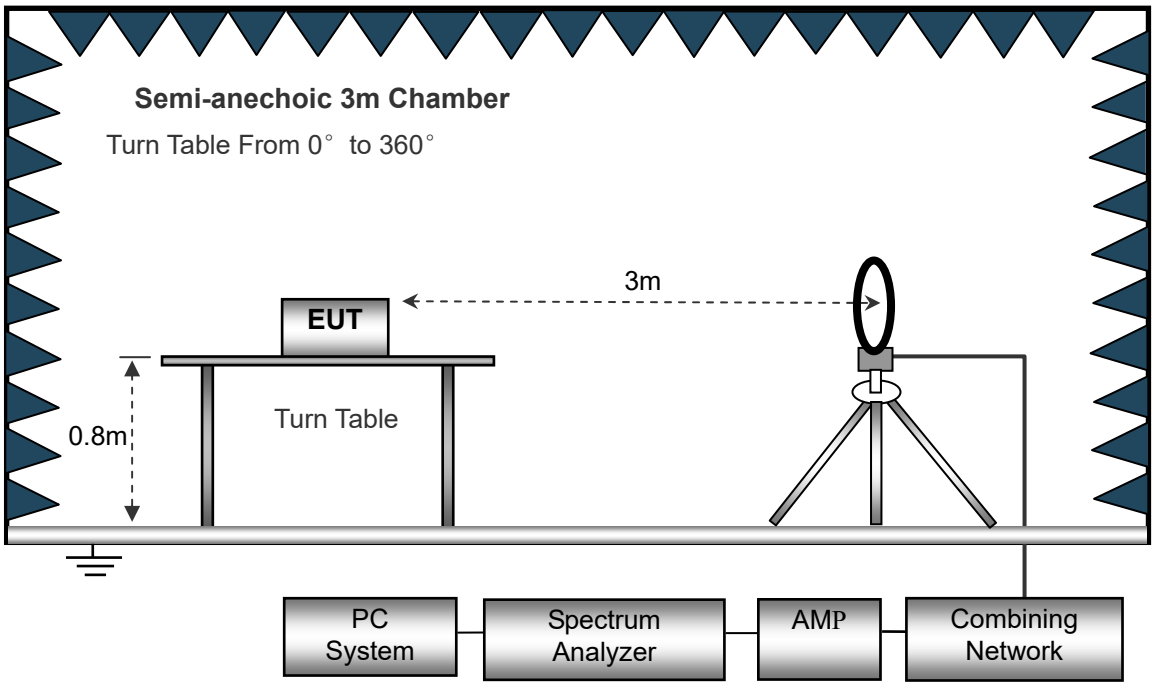
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

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.

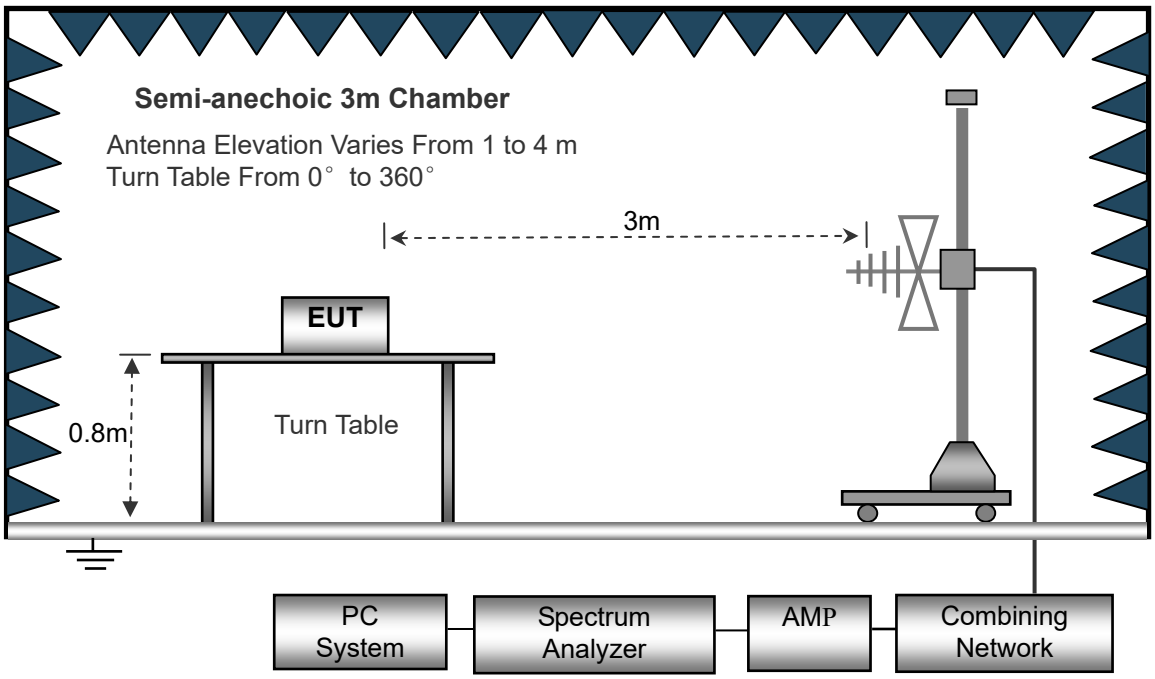
6.2 Test Procedure

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.

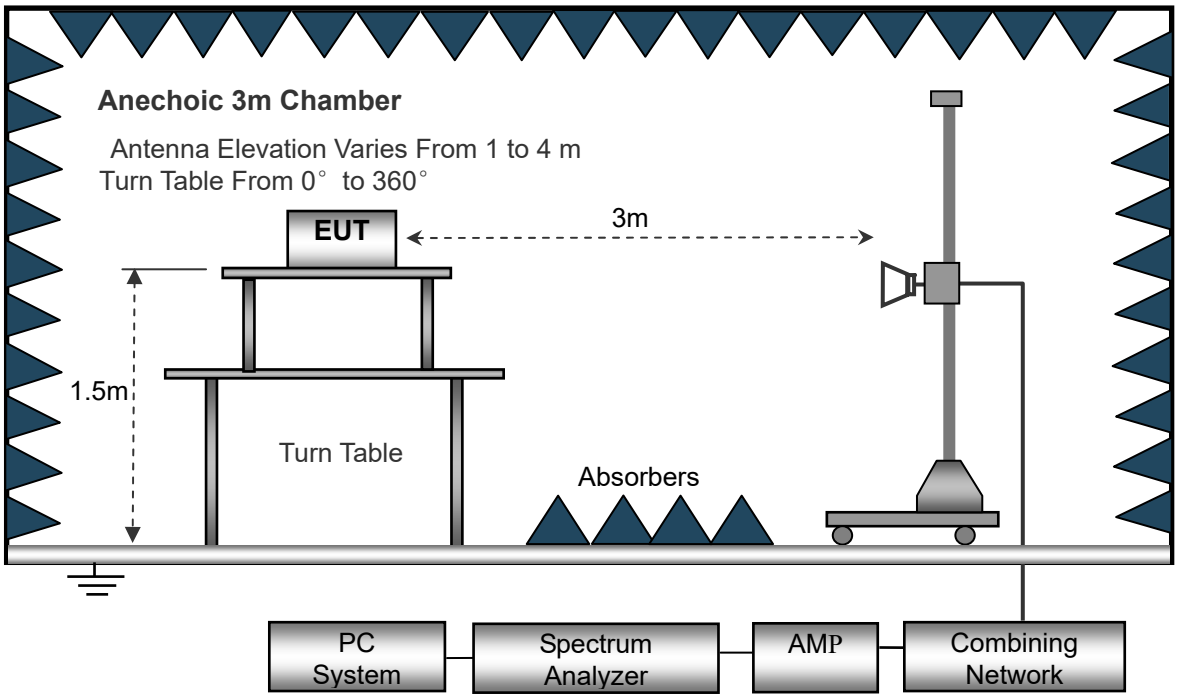
The test setup for emission measurement below 30MHz..



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



The test setup for emission measurement above 1 GHz..



Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	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:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

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. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – 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

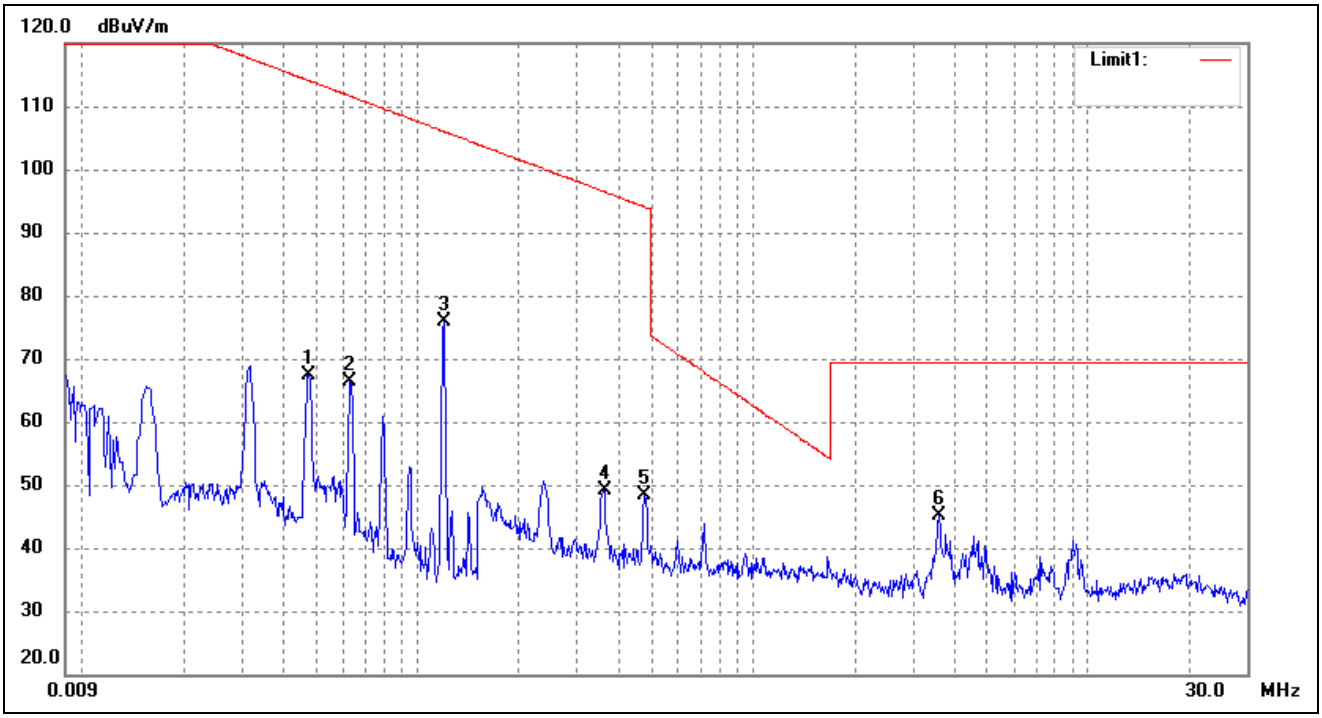
The measurement was performed with set-up consisting of a single turn loop antenna with a diameter of 0.15 m, feeded by a signal generator. The loop dimension was chosen to simulate the EUT as far as possible. The signal generator was set to a fixed output level with an unmodulated 10 kHz and 14 kHz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

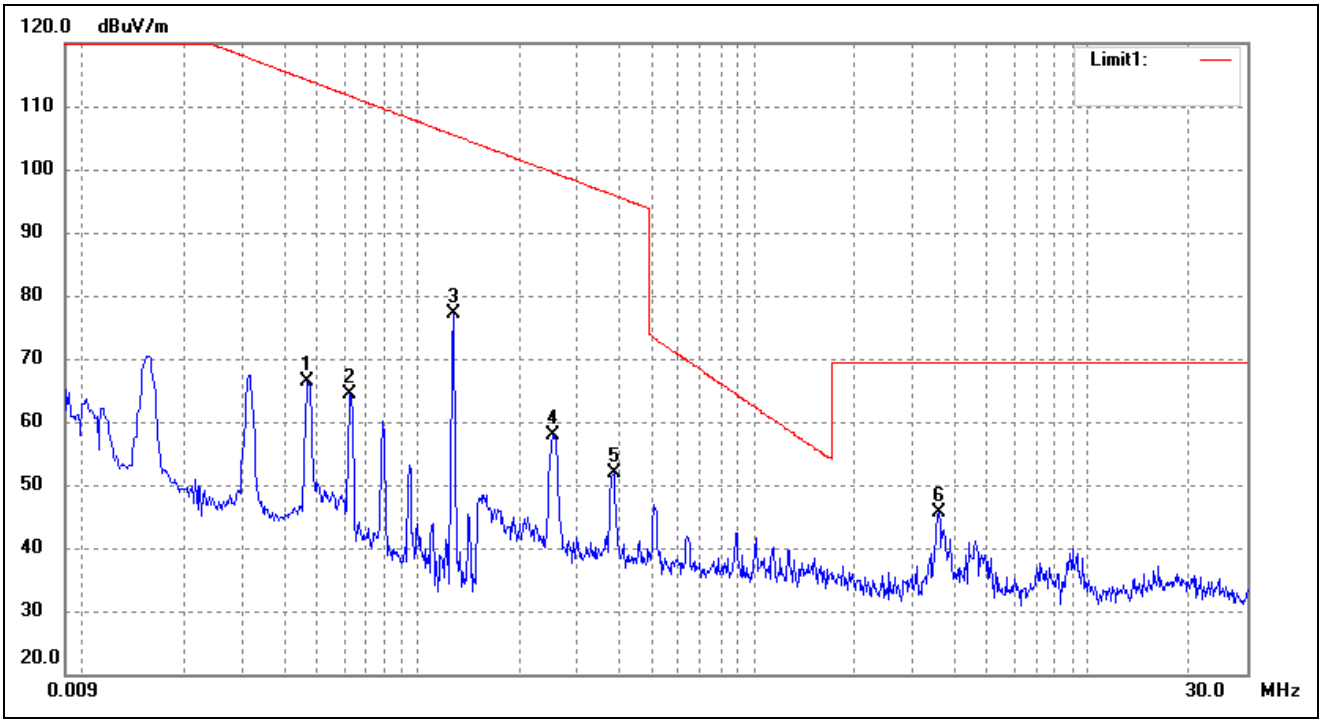
Radiated Emissions Test Data (Below 30MHz)(Worst case EUT X axis)

Test mode:	TM1	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0472	71.49	-3.99	67.50	114.11	-46.61	-	-	peak
2	0.0629	70.70	-4.27	66.43	111.62	-45.19	-	-	peak
3	0.1194	80.48	-4.52	75.96	106.06	-30.10	-	-	peak
4	0.3596	53.99	-4.78	49.21	96.49	-47.28	-	-	peak
5	0.4761	52.80	-4.53	48.27	94.05	-45.78	-	-	peak
6	3.5843	47.96	-2.79	45.17	69.50	-24.33	-	-	peak

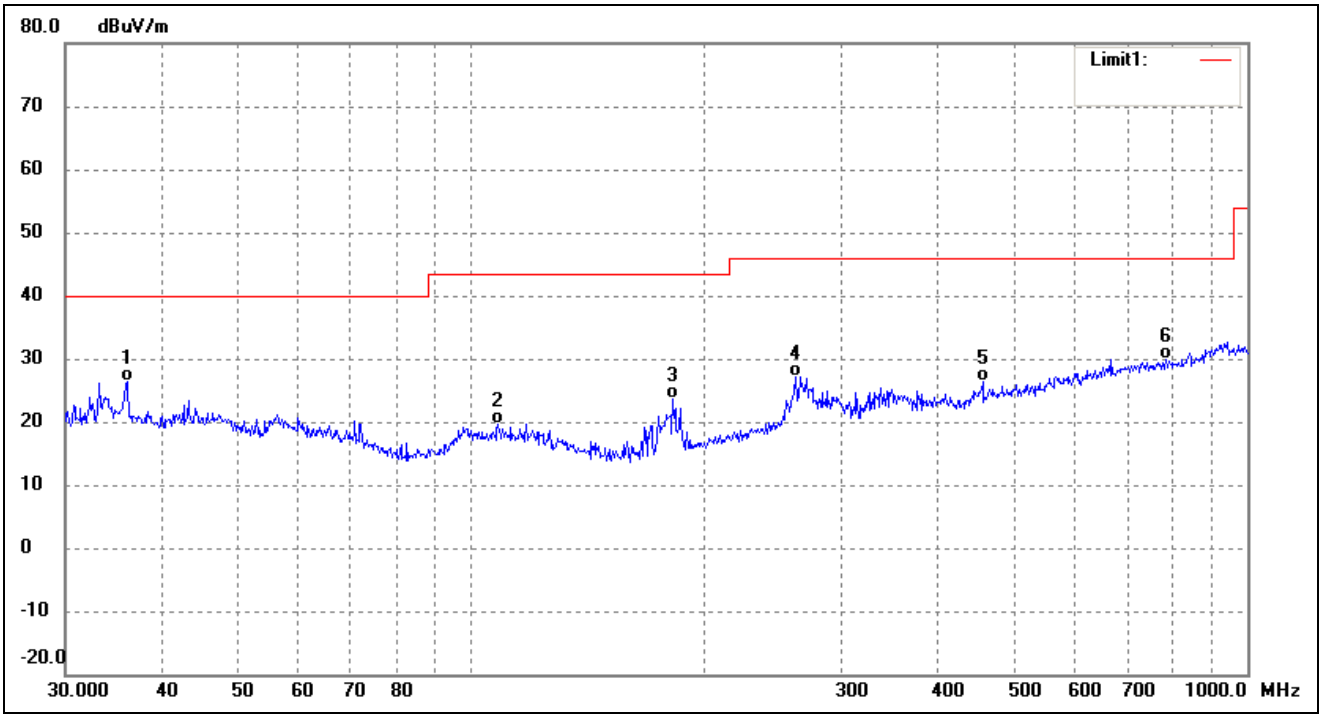
Test mode:	TM2	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	0.0471	70.30	-3.99	66.31	114.13	-47.82	-	-	peak
2	0.0629	68.61	-4.27	64.34	111.62	-47.28	-	-	peak
3	0.1274	81.57	-4.43	77.14	105.49	-28.35	-	-	peak
4	0.2535	62.76	-4.99	57.77	99.52	-41.75	-	-	peak
5	0.3832	56.48	-4.72	51.76	95.93	-44.17	-	-	peak
6	3.5843	48.39	-2.79	45.60	69.50	-23.90	-	-	peak

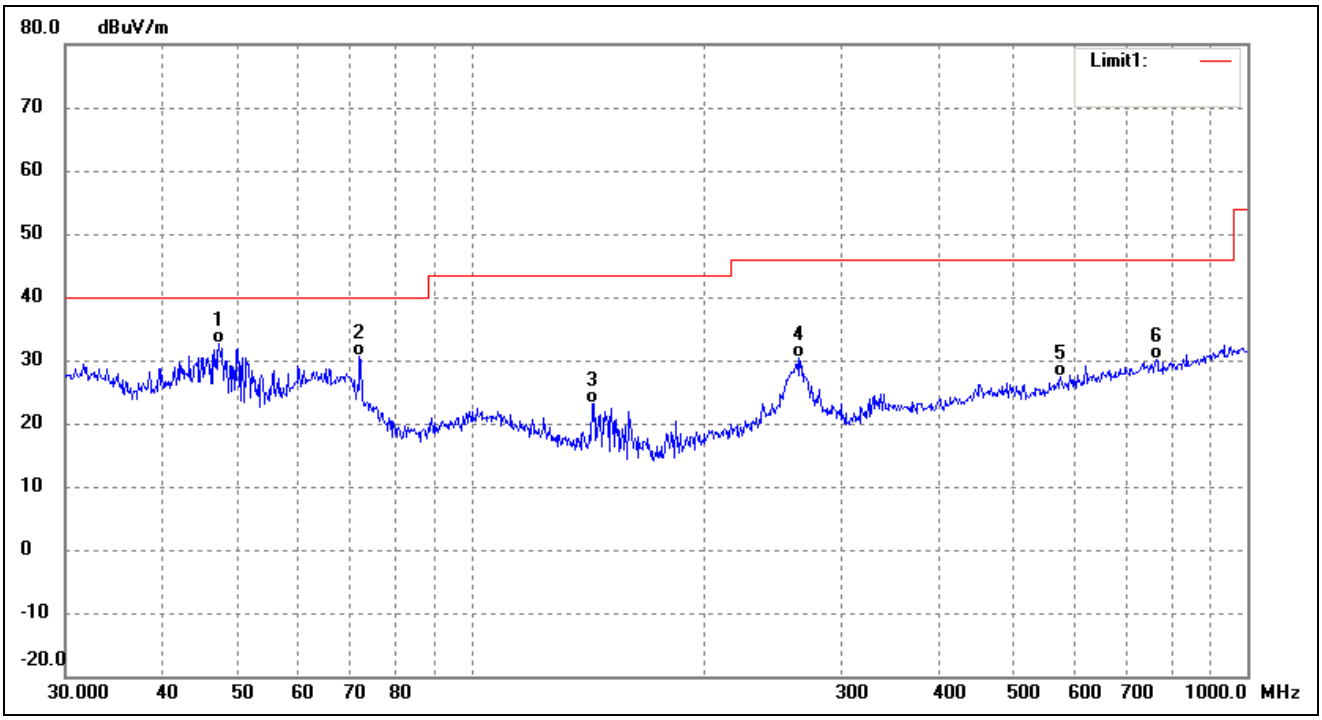
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal



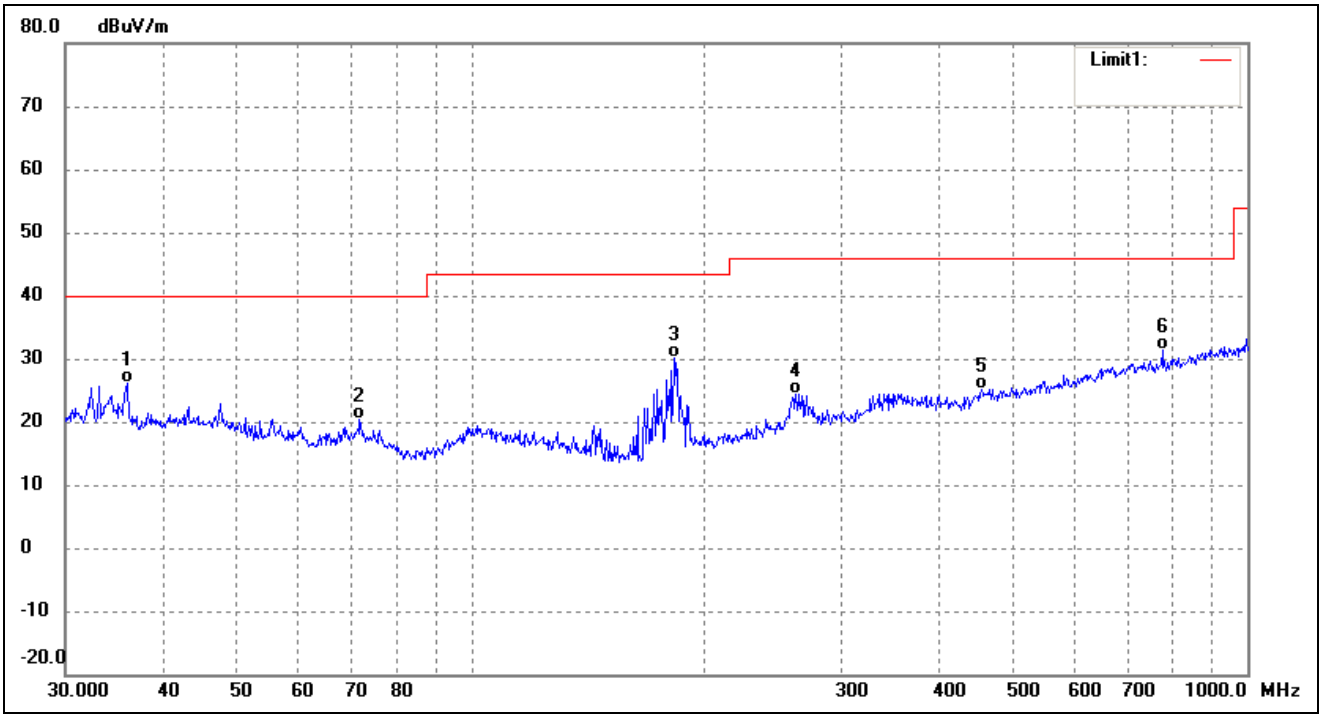
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	36.0007	35.23	-8.77	26.46	40.00	-13.54	-	-	QP
2	108.2667	28.35	-8.69	19.66	43.50	-23.84	-	-	QP
3	181.9202	33.88	-10.36	23.52	43.50	-19.98	-	-	QP
4	261.9753	33.50	-6.38	27.12	46.00	-18.88	-	-	QP
5	455.9057	29.57	-3.18	26.39	46.00	-19.61	-	-	QP
6	785.0934	28.41	1.53	29.94	46.00	-16.06	-	-	QP

Test mode:	TM1	Polarity:	Vertical



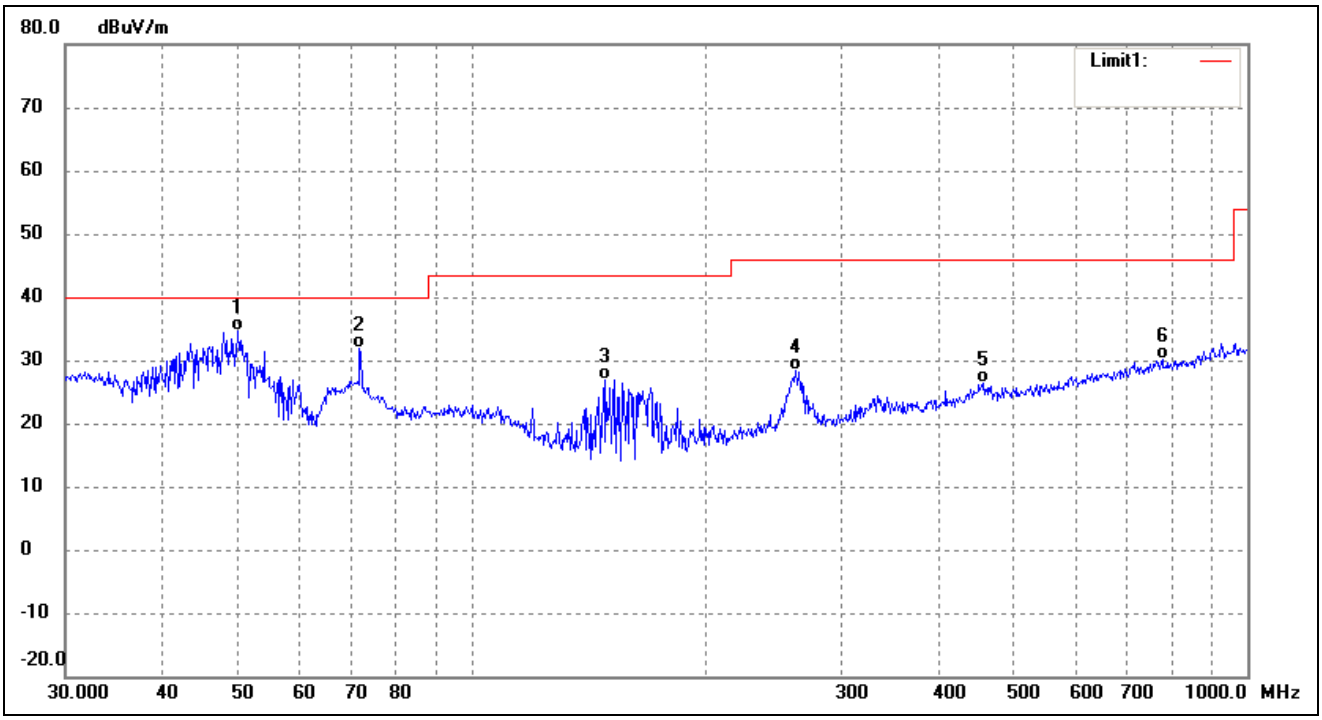
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	47.3255	40.67	-7.97	32.70	40.00	-7.30	-	-	QP
2	71.8320	42.29	-11.76	30.53	40.00	-9.47	-	-	QP
3	143.3260	35.14	-11.99	23.15	43.50	-20.35	-	-	QP
4	263.8190	36.75	-6.35	30.40	46.00	-15.60	-	-	QP
5	574.6258	28.62	-1.33	27.29	46.00	-18.71	-	-	QP
6	763.3757	28.81	1.29	30.10	46.00	-15.90	-	-	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	36.0007	34.91	-8.77	26.14	40.00	-13.86	-	-	QP
2	71.8319	32.18	-11.76	20.42	40.00	-19.58	-	-	QP
3	182.5592	40.29	-10.27	30.02	43.50	-13.48	-	-	QP
4	261.9753	30.68	-6.38	24.30	46.00	-21.70	-	-	QP
5	454.3100	28.42	-3.19	25.23	46.00	-20.77	-	-	QP
6	776.8777	29.88	1.44	31.32	46.00	-14.68	-	-	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	50.0566	42.61	-8.01	34.60	40.00	-5.40	-	-	QP
2	71.8320	43.76	-11.76	32.00	40.00	-8.00	-	-	QP
3	148.4410	39.06	-12.13	26.93	43.50	-16.57	-	-	QP
4	261.9753	34.69	-6.38	28.31	46.00	-17.69	-	-	QP
5	457.5072	29.59	-3.16	26.43	46.00	-19.57	-	-	QP
6	776.8777	28.59	1.44	30.03	46.00	-15.97	-	-	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

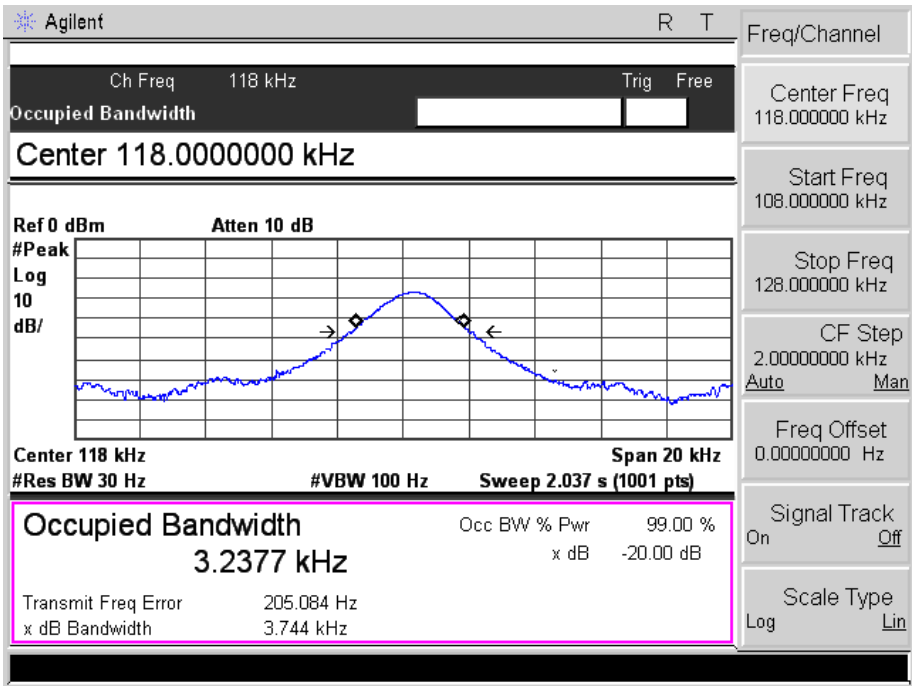
• The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
• The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
• The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied 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(kHz)
118	3.744



APPENDIX PHOTOGRAPHS

Please refer to "ANNEX"

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