



## SGS-CSTC Standards Technical Services Ltd.

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**FEDERAL COMMUNICATIONS COMMISSION**

Registration number: 282399

Report No.: GLEMO08120368001-1

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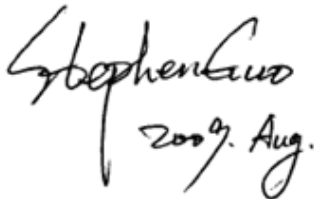
FCCID: WYNWINCHANCE-101

# TEST REPORT

<b>Application No.:</b>	GLEMO08120368001-1
<b>Applicant:</b>	Winchance Solar (Fujian) Technology Co.,Ltd
<b>Address of Applicant:</b>	Jiangnan New High-tech Electronic Information Industrial Park, Quanzhou, Fujian, China
<b>Equipment under Test (EUT)</b>	
Name:	Solar Outdoor Wireless Speaker
Model No.:	MU101
FCC ID:	WYNWINCHANCE-101
Function:	Wireless audio transmitter
<b>Standards:</b>	FCC PART 15:2008, SUBPART C
<b>Date of test:</b>	23 July to 31 July 2009
<b>Date of Issue:</b>	21 August 2009
<b>Test Result :</b>	<b>PASS *</b>

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 3 of this report for further details.

Authorized Signature:



Stephen Guo  
Lab Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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## 2 Version

Version No.	Date	Description
01	21 August 2009	Original

**Prepared By:** Celia Xiang **Date** 2009-08-21

**Project Engineer**

**Check By:** Gavin Wu **Date** 2009-08-21

**Reviewer**



### 3 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Field Strength of Fundamental	FCC PART 15 : 2008	Section 15.249 (a)	PASS
Field Strength of Unwanted Emissions	FCC PART 15 : 2008	Section 15.249 (a) Section 15.249 (d)	PASS
Occupied Bandwidth	FCC PART 15 : 2008	Section 15.215(c)	PASS
Band Edges	FCC PART 15 : 2008	Section 15.249 (d)	PASS
Conducted Emission	FCC PART 15 : 2008	Section 15.207	PASS

Remark:

Tx: In this whole report Tx (or tx) means Transmitter.

RF: In this whole report RF means Radiated Frequency.



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## **5 General Information**

### **5.1 Client Information**

Applicant's Name: Winchance Solar (Fujian) Technology Co.,Ltd  
Applicant Address: Jiangnan New High-tech Electronic Information Industrial Park, Quanzhou, Fujian, China  
Manufacturer's Name: Quanzhou Winchance Technology Electronic Co., Ltd  
Manufacturer's Address: Jiangnan New High-tech Electronic Information Industrial Park, Quanzhou, Fujian, China  
Factory's Name: Quanzhou Winchance Technology Electronic Co., Ltd  
Factory's Address: Jiangnan New High-tech Electronic Information Industrial Park, Quanzhou, Fujian, China

### **5.2 General Description of E.U.T.**

Product Name: Solar Outdoor Wireless Speaker  
Model: MU101  
Power Supply: AC:100-240V 50Hz/60Hz 0.5A  
DC 3V (1X"CR2025" button cell) for remote controller  
Adaptor: Model: BI13-090144-CdU  
Input:AC 100-240V 50/60Hz 0.5A  
Output: DC 9V 1.44A;  
Power Cord: 2 x 1.8m unscreened cable

### **5.3 Description of EUT operation**

Type of Modulation FSK  
Channel Frequency 925.8MHz, 926.6MHz, 927.4MHz  
Antenna Type Integrate Antenna

### **5.4 Standards Applicable for Testing**

The standard used was FCC PART 15, SUBPART C (2008) section 15.249.

### **5.5 Test Location**

All tests were performed at:  
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663  
Tel: +86 20 82155555 Fax: +86 20 82075059  
No tests were sub-contracted.



## **5.6 Other Information Requested by the Customer**

None.

## **5.7 Test Facility**

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **FCC – Registration No.: 282399**

SGS-CSTC Standards Technical Services 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. Registration 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorized test laboratory for the DoC process.



## 6 Equipments Used during Test

RE in Chamber						
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	N/A	N/A
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	28-01-2009	28-01-2010
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	10036	14-07-2009	14-07-2010
N/A	EMI Test Software	Audix	E3	N/A	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	04-12-2008	04-12-2009
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	08-10-2008	08-10-2009
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	08-10-2008	08-10-2009
EMC0517	Horn Antenna	Rohde & Schwarz	HF906	100095	09-09-2008	09-09-2009
EMC0040	Spectrum Analyzer	Rohde & Schwarz	FSP30	100324	05-12-2008	05-12-2009
EMC0520	0.1-1300 MHz Pre-Amplifier	HP	8447D OPT 010	2944A06252	11-03-2009	11-03-2010
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	11-03-2009	11-03-2010
EMC0075	310N Amplifier	Sonama	310N	272683	10-09-2008	10-09-2009
EMC0523	Active Loop Antenna	EMCO	6502	00042963	08-10-2009	08-10-2010
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	02-06-2009	02-06-2010

Conducted Emission						
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m <sup>3</sup>	N/A	N/A	N/A
EMC0102	LISN	Schaffner Chase	MNZ050D/1	1421	14-12-2008	14-12-2009
EMC0118	Two-line v-netwok	Rohde & Schwarz	ENV216	3560.6550.02	18-07-2009	18-07-2010
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	14-12-2008	14-12-2009
EMC0107	Coaxial Cable	SGS	2m	N/A	26-11-2008	26-11-2009
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A	N/A
EMC0120	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	20550	21-02-2009	21-02-2010
EMC0121	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	20549	21-02-2009	21-02-2010
EMC0122	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	20548	21-02-2009	21-02-2010

General used equipment						
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0006	DMM	Fluke	73	70681569	23-12-2008	23-12-2009
EMC0007	DMM	Fluke	73	70671122	23-12-2008	23-12-2009



## 7 Test Result

### 7.1 E.U.T. Operation

Input voltage: 120Vac 60Hz

Operating Environment:

Temperature: 26°C

Humidity: 56% RH

Atmospheric Pressure: 1005mbar

Test frequencies: According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

The program used to control the EUT for staying in continuous transmitting mode supplied by manufacturer .

Channel lowest (925.8MHz) and highest (927.4MHz) are chosen for testing.

Test the EUT in transmitting mode.





## 7.2 Test Procedure & Measurement Data

### 7.2.1 Field Strength of Fundamental& Field Strength of Unwanted Emissions

Test Requirement: FCC Part15 C Section 15.249(a) & (d)  
Test Method: Based on FCC Part15 C Section 15.249 & ANSI C63.4:2003  
Measurement Distance: 3m (Semi-Anechoic Chamber)  
Frequency range: 30 MHz – 10GHz for transmitting mode.  
Test instrumentation resolution bandwidth  
120 kHz (30 MHz - 1000 MHz), 1 MHz (1000 MHz – 10GHz)  
Operation: Receive antenna scan height 1 - 4 m, polarization Vertical/ Horizontal, a turntable rotate through 360° in the horizontal plane and it is used to support the test sample at 0.8m above the ground plane.

Requirements:

FCC Part 15.249(a)

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBuV/m @ 3m)	Field Strength of Harmonics (dBuV/m @ 3m)
902 to 928	94.0	54.0
2400 to 2483.5	94.0	54.0
5725 to 5875	94.0	54.0
24000 to 24250	108.0	68.0

FCC Part 15.249(d)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

#### Remark:

The fundamental frequency rang is in the frequency band of the EUT is 902MHz ~ 928MHz.

The limit for Quasi-Peak field strength dBuV/m for the fundamental frequency = 94.0 dBuV/m.

No fundamental is allowed in the restricted bands.

The limit for average field strength dBuV/m for the harmonics = 54.0 dBuV/m.

The limit for peak field strength dBuV/m for the harmonics = 74.0 dBuV/m.

Emission radiated outside of the specified frequency bands,except for harmonics,shall be attenuated by at least 50dB below the level of the fundamental or 54.0 dBuV/m in 15.209. Here the limit for the other emission is 54.0 dBuV/m.

### Test Procedure:

#### 1) 9K to 30MHz emissions:

For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.4:2003 section 8.2.1. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

#### 2) 30MHz to 1GHz emissions:

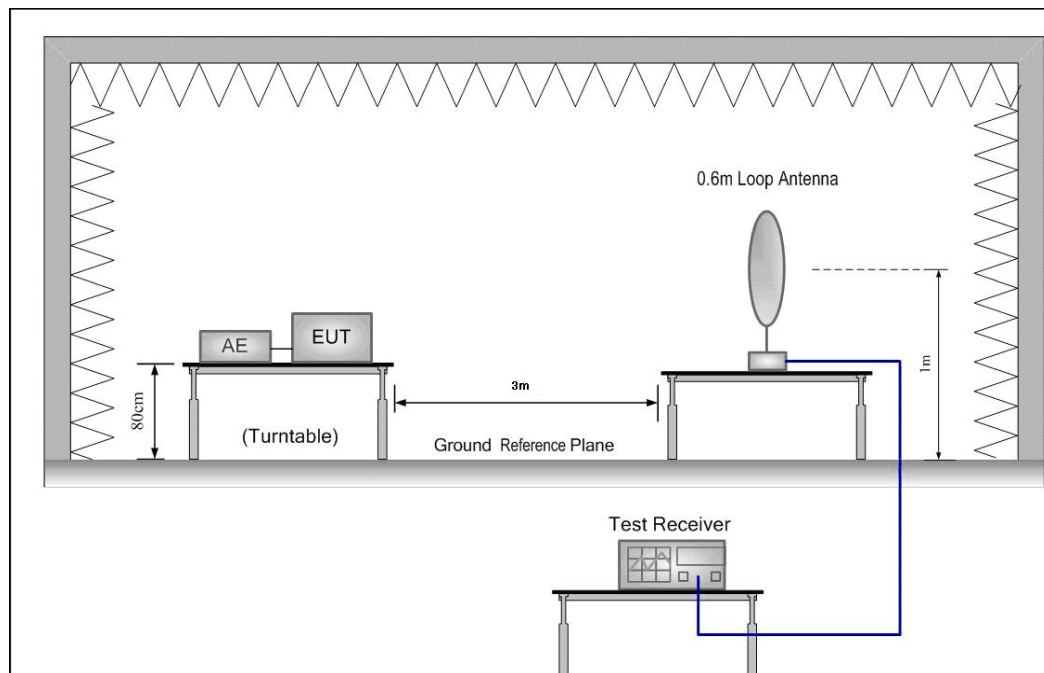
For testing performed with the bi-log type antenna, testing was performed in accordance to ANSI C63.4:2003. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

#### 3) 1GHz to 40GHz emissions:

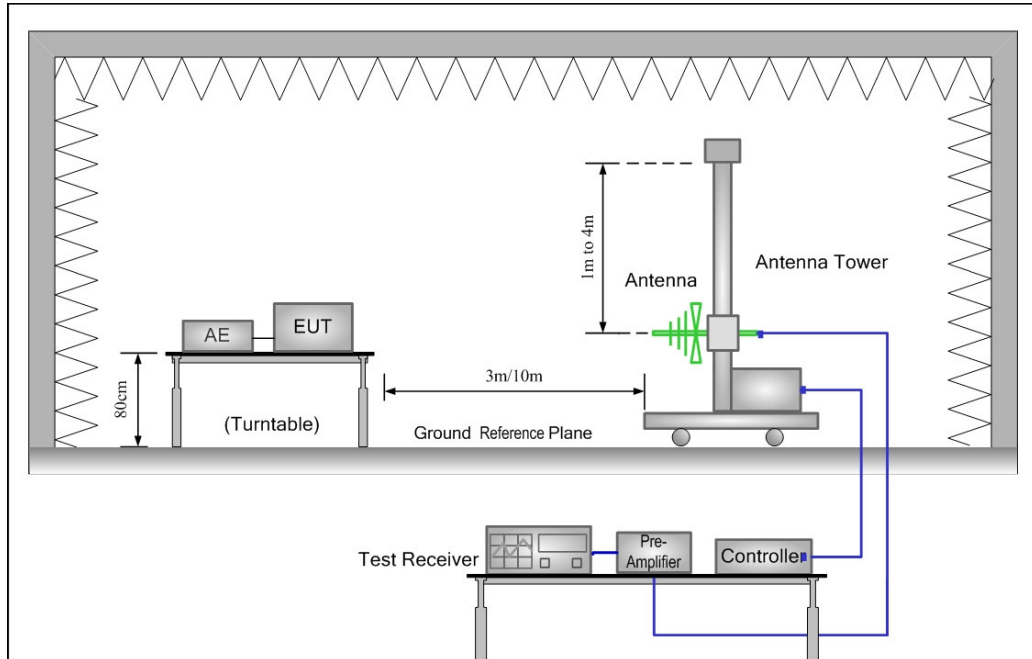
For testing performed with the horn antenna, testing was performed in accordance to ANSI C63.4:2003. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

### Test Configuration:

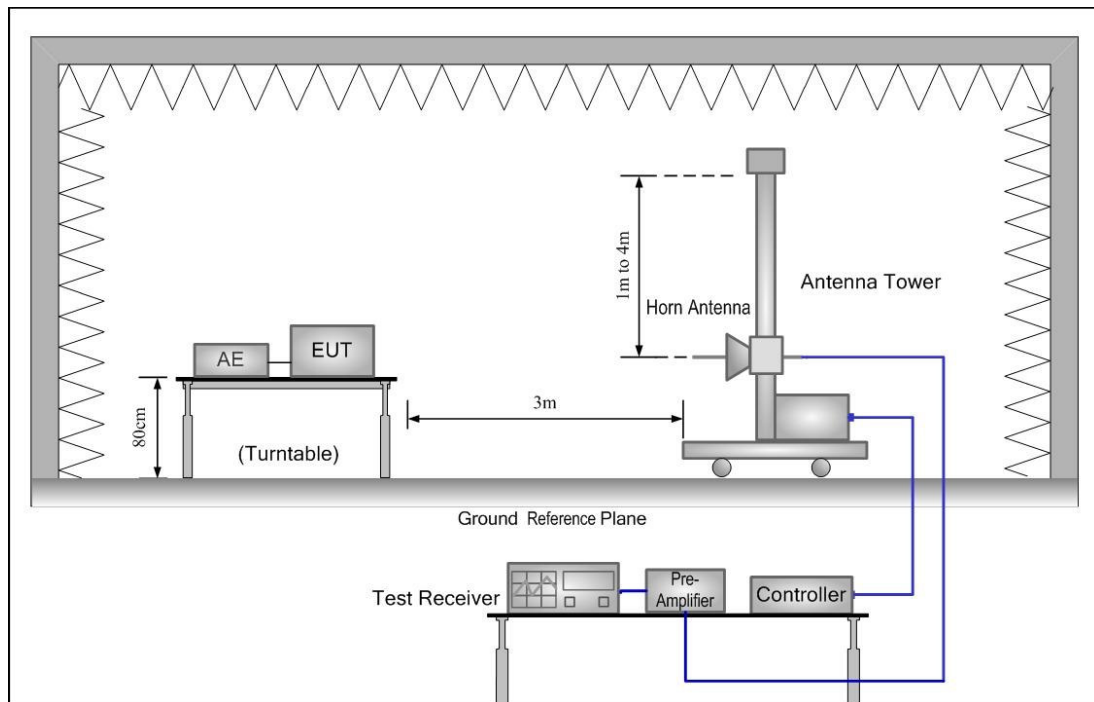
#### 1) 9K to 30MHz emissions:



2) 30MHz to 1GHz emissions:



3) 1GHz to 40GHz emissions:





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The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier . The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Peramlifer Factor

### The following test results were performed on the Host:

1. Test in Channel lowest (925.8MHz), keep in continuously transmitting status.

(a) Antenna polarization: Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
925.8	83.65	20.54	2.7	24.96	81.93	94.00	-12.07	QP
1851.6	53.70	26.91	3.83	37.20	47.23	74.0	-26.77	Peak
1851.6	51.35	26.91	3.83	37.20	44.89	54.0	-9.11	Average
462.62	49.53	16.45	1.90	25.30	42.58	46.0	-3.42	QP

(b) Antenna polarization: Vertical

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
925.8	81.67	20.54	2.7	24.96	79.95	94.00	-14.05	QP
1851.6	53.37	26.91	3.83	37.20	46.91	74.0	-27.09	Peak
1851.6	51.82	26.91	3.83	37.20	45.36	54.0	-8.64	Average
462.62	49.95	16.45	1.90	25.30	43.0	46.0	-3.0	QP



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2. Test in Channel highest (927.4MHz), keep in continuously transmitting status.

(a) Antenna polarization: Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
927.4	83.78	20.56	2.7	24.98	82.06	94.00	-11.94	QP
1854.8	52.52	26.84	3.83	37.27	45.92	74.0	-28.08	Peak
1854.8	51.73	26.84	3.83	37.27	45.13	54.0	-8.87	Average
463.28	49.17	16.48	1.90	25.28	42.27	46.0	-3.73	QP

(b) Antenna polarization: Vertical

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
927.4	83.37	20.56	2.7	24.98	81.65	94.00	-12.35	QP
1854.8	52.42	26.84	3.83	37.27	45.82	74.0	-28.18	Peak
1854.8	51.50	26.84	3.83	37.27	44.9	54.0	-9.1	Average
463.28	49.25	16.48	1.90	25.28	42.35	46.0	-3.65	QP

Remark:

- 1). According to 15.249 (e) As shown in Section 15.35(b), for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
- 2) Sweep from 30MHz to 10GHz, find the max radiated emissions and record it, when the emissions are too weak to be detected, it will not be reported.

**TEST RESULTS: The unit does meet the FCC requirements.**



## 7.2.2 Occupied Bandwidth & Band Edge

Test Requirement: FCC Part 15 C Section 15.249

Test Method: ANSI C63.4:2003 and FCC Part 2.1049

Operation within the band 902-928MHz

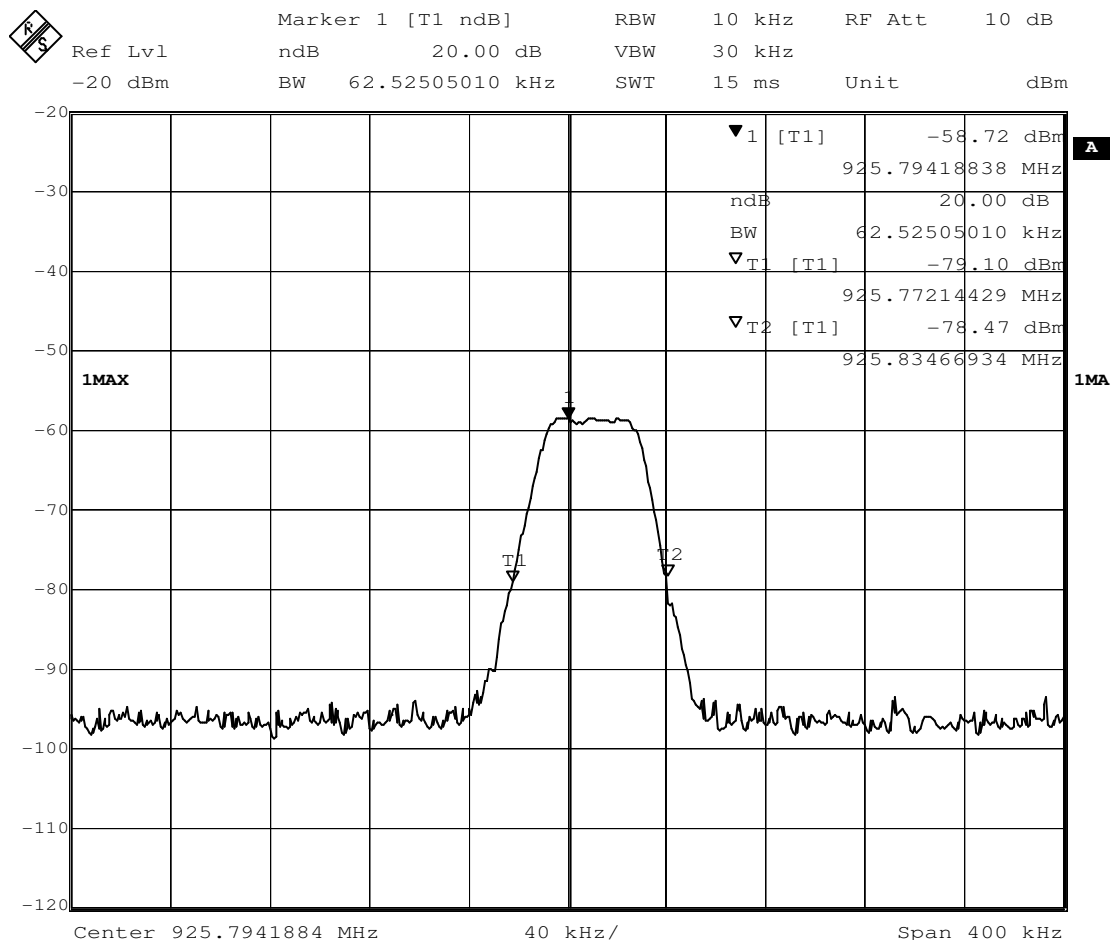
Requirements: 15.249 (d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Method of measurement: A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken.

**For Controller:**

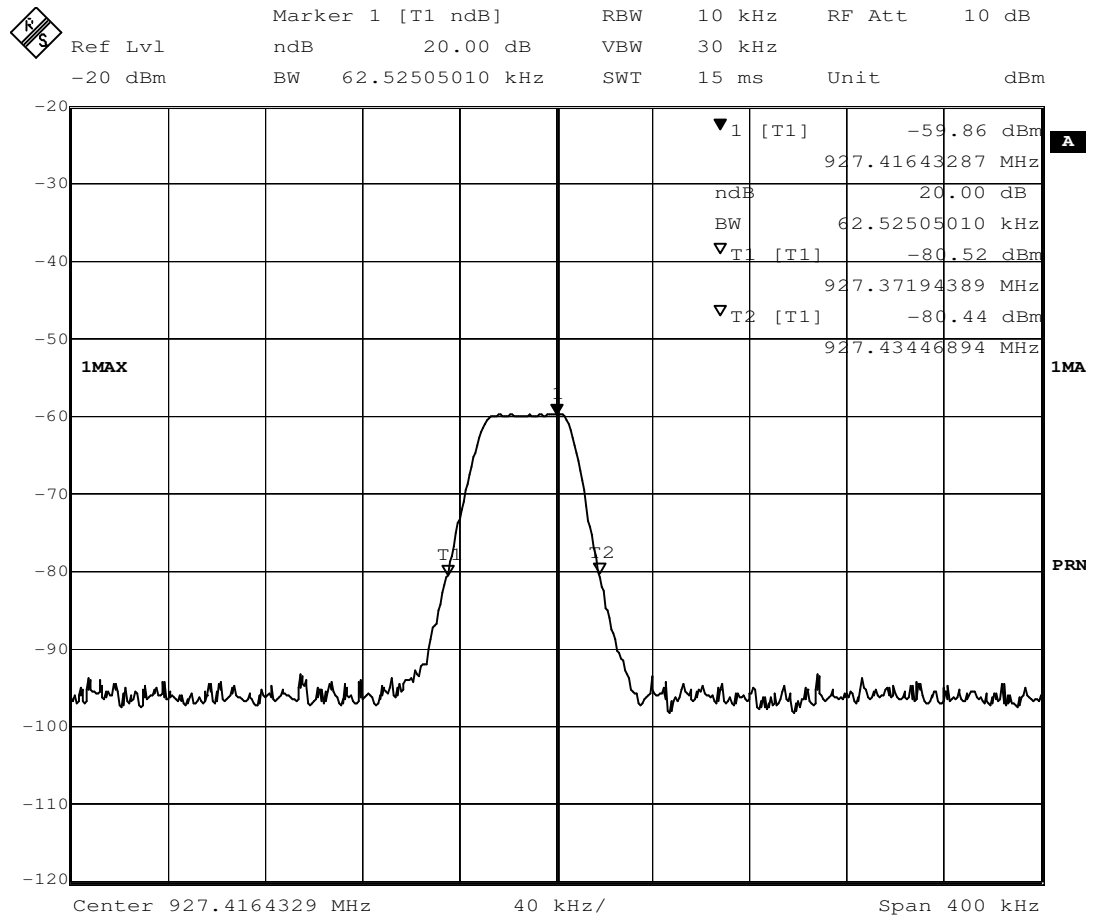
**The occupied bandwidth as below:**

Lowest Channel:925.8MHz:





Highest Channel: 927.4MHz



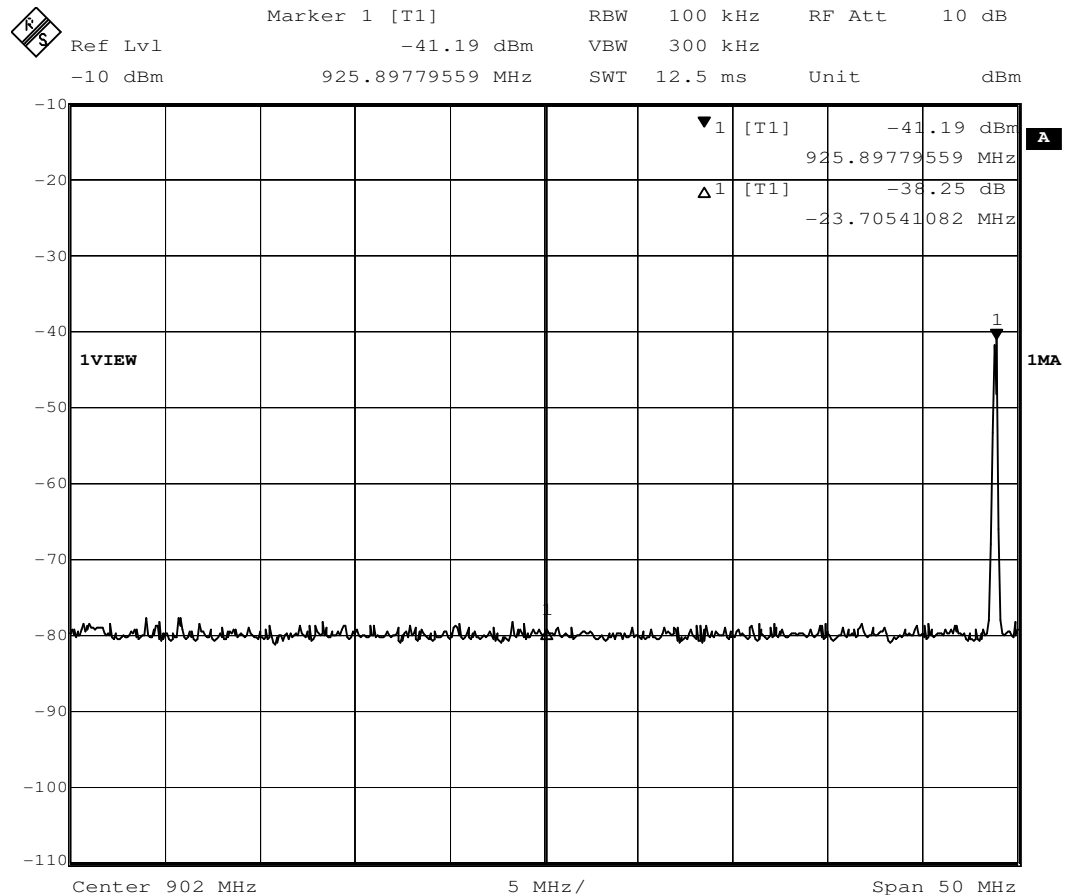
The low frequency is 925.77214429MHz, The high frequency is 927.43446894MHz,  
Within the band 902MHz to 928MHz.



The Band Edge Emission as below:

Lowest Band Edge 902MHz

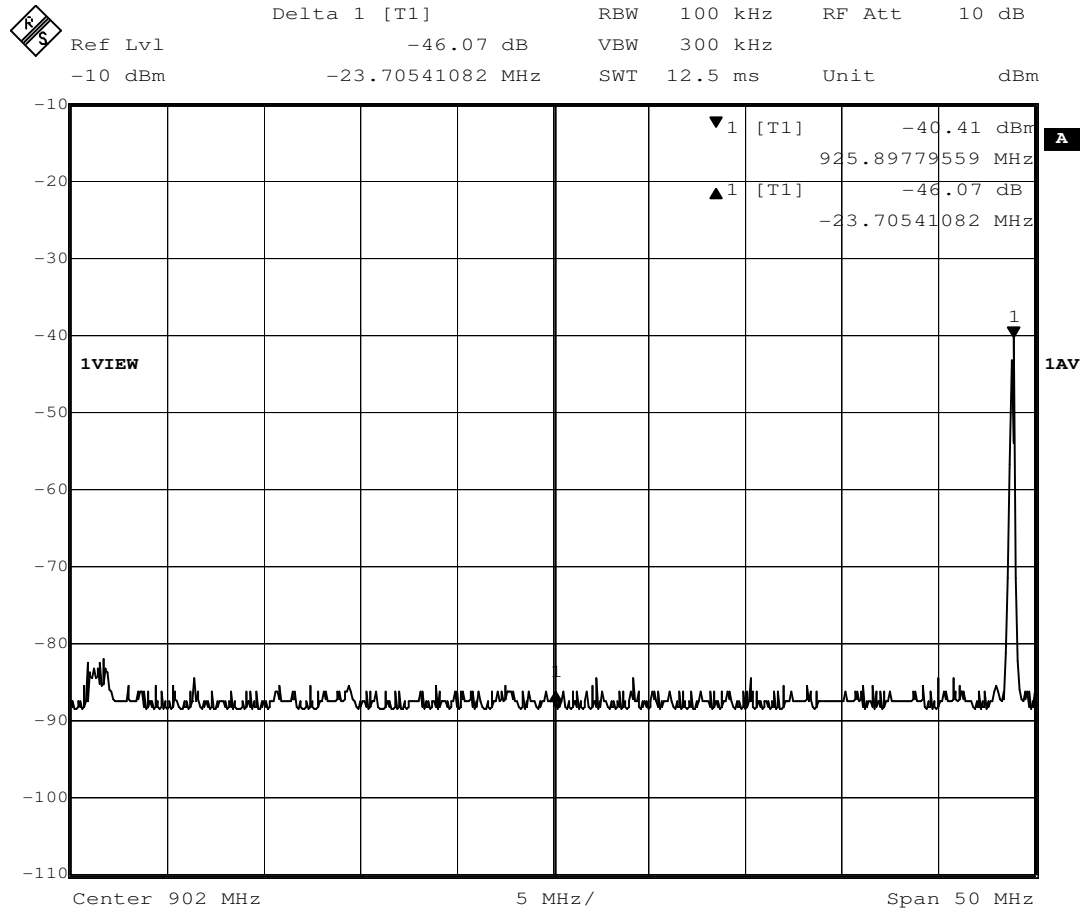
Detector mode:Peak







Detector mode: Average



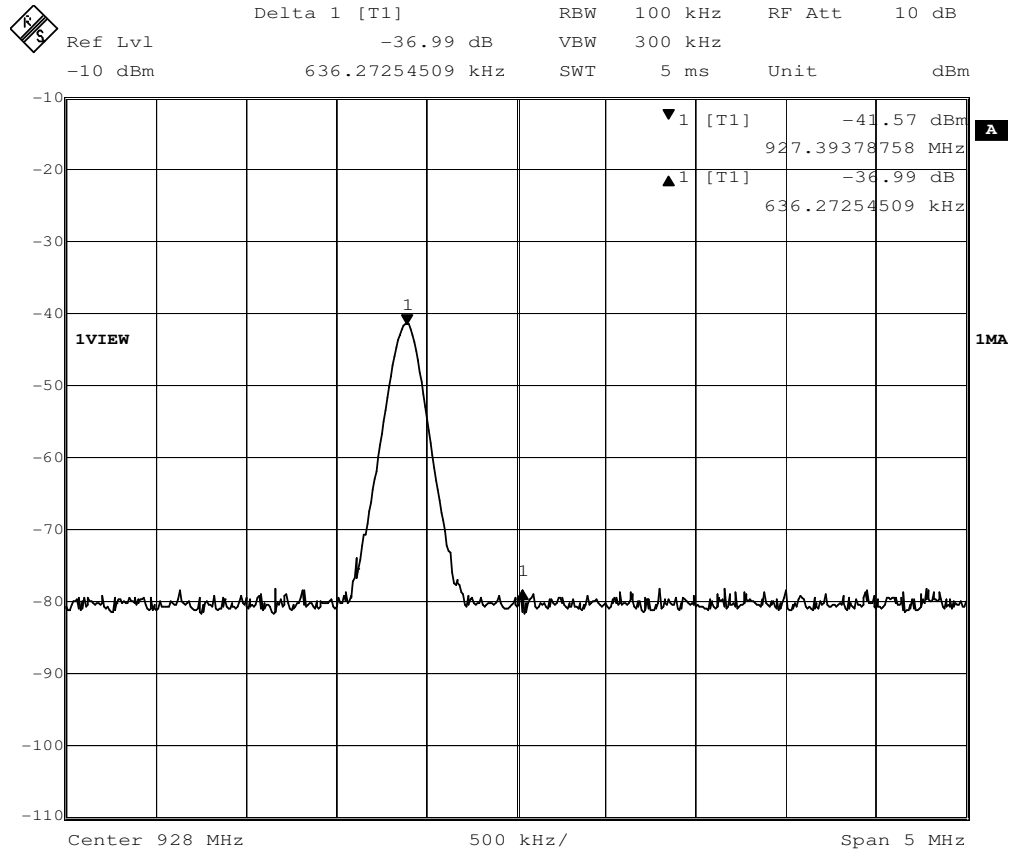
For 902MHz bandedge checked with 925.8MHz frequency operated, the delta shown at the plots are -38.25dB for peak detector mode and -46.07dB for Average detector mode.

With the peak value 82.37BuV/m and average value at 80.95dBuV/m for the fundamental, the spurious emission level at 902MHz were 44.12dBuV/m for peak and 34.88dBuV/m for average.



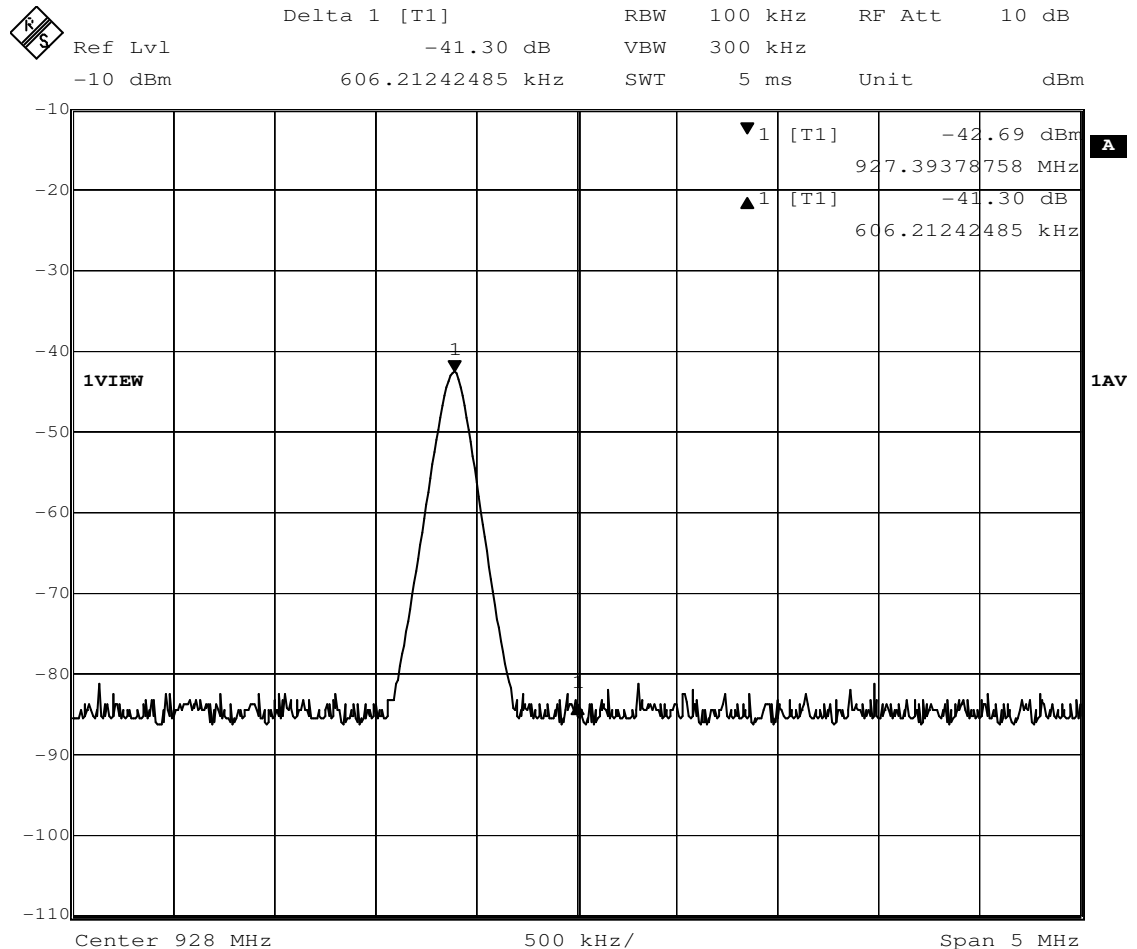
Highest Band Edge 928MHz

Detector mode:Peak





Detector mode: Average



For 928MHz bandedge checked with 927.4MHz frequency operated, the delta shown at the plots are -36.99dB for peak detector mode and -41.30dB for Average detector mode.

With the peak value 82.84dBuV/m and average value at 81.56dBuV/m for the fundamental, the spurious emission level at 928MHz were 45.85dBuV/m for peak and 40.26 dBuV/m for average.

The test result for the Emissions radiated outside of the specified frequency bands, please refer to the section 7.2.1 of this report.

**The results: The unit does meet the FCC requirements.**

### 7.2.3 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement: FCC Part15.207  
 Test Method: ANSI C63.4:2003  
 Frequency Range: 150KHz to 30MHz  
 Detector: Peak for pre-scan (9kHz Resolution Bandwidth)  
 Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

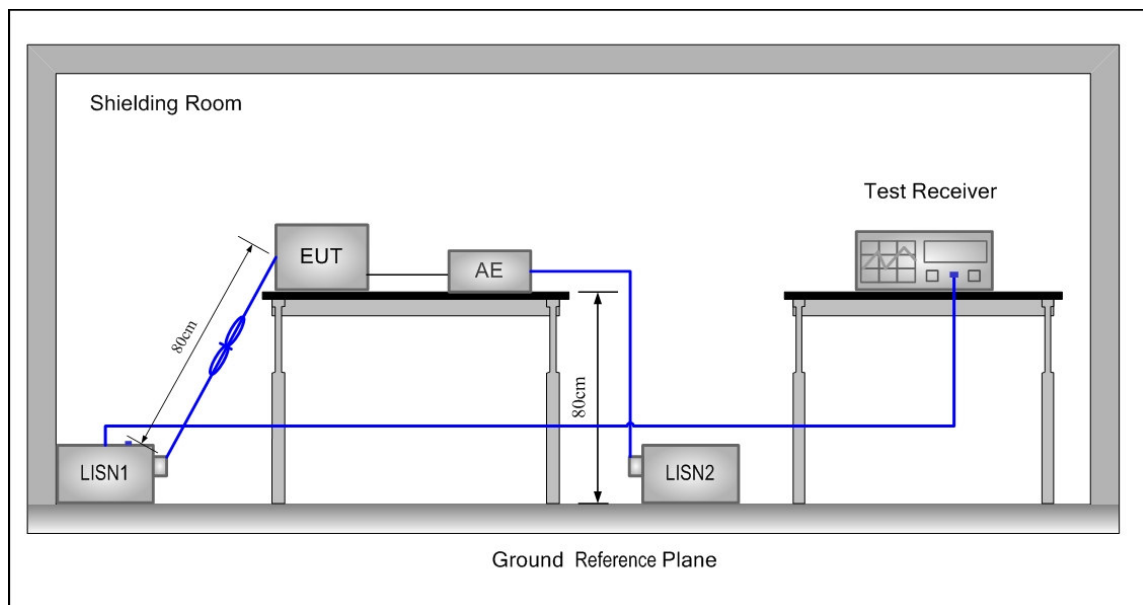
#### 7.2.3.1 E.U.T. Operation

Operating Environment:

Temperature: 20.0 °C Humidity: 50 % RH Atmospheric Pressure: 1005 mbar

EUT Operation: Test the EUT in transmitting mode.

#### 7.2.3.2 Plan View of Test Setup



#### 7.2.3.3 Measurement Data

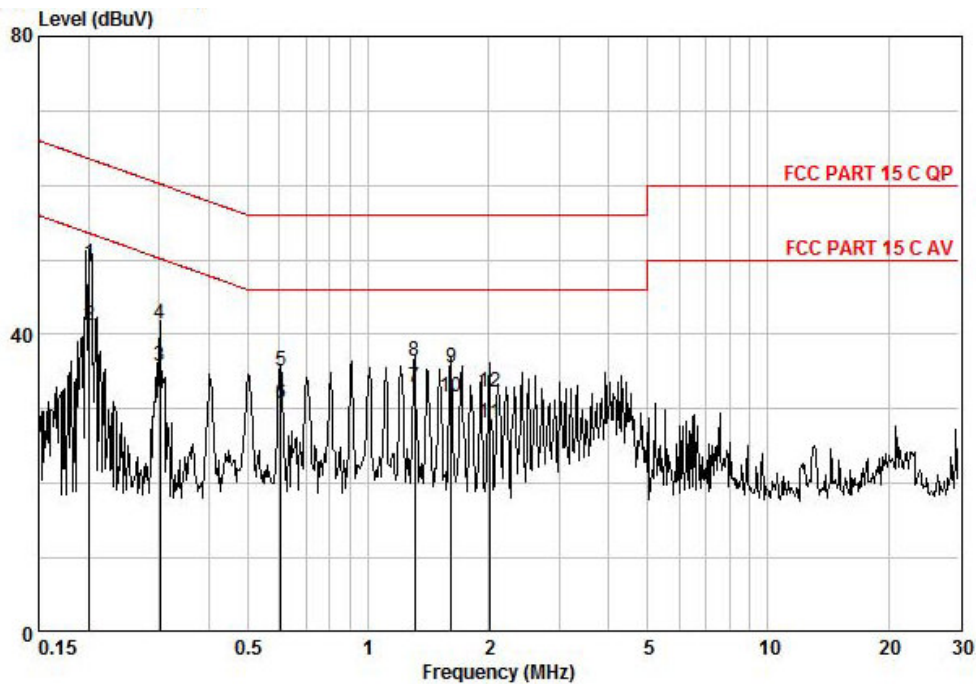
An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



Live Line:

Peak Scan:



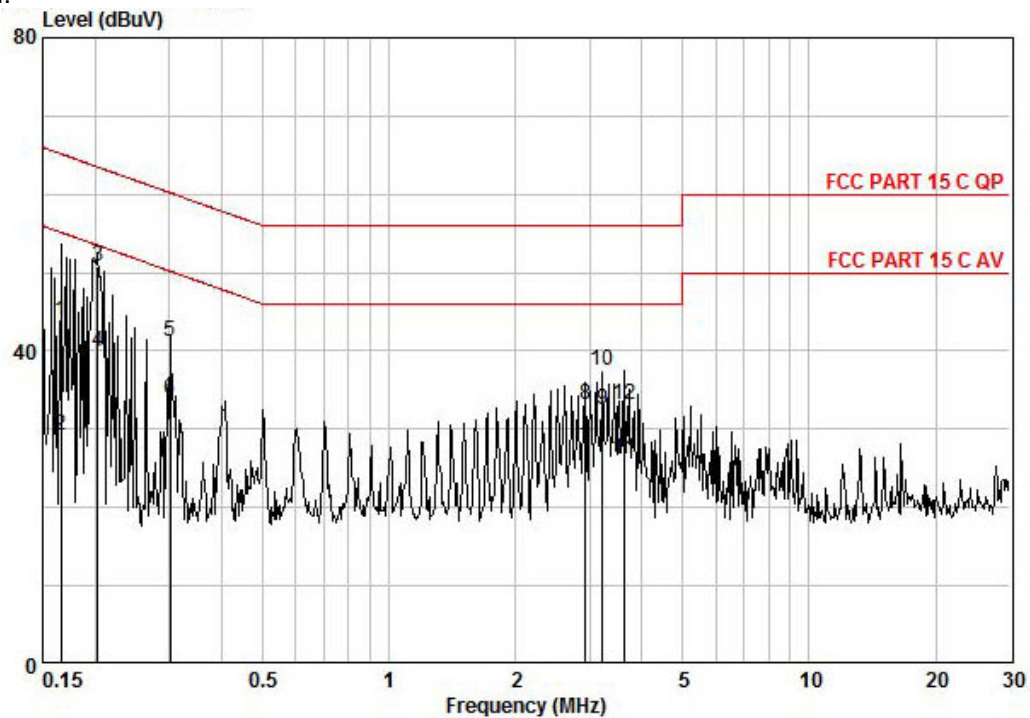
Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.201	39.82	0.13	9.58	49.53	63.58	-14.05	QP
0.201	31.55	0.13	9.58	41.26	53.58	-12.32	AVERAGE
0.302	26.05	0.17	9.58	35.81	50.19	-14.38	AVERAGE
0.302	31.76	0.17	9.58	41.52	60.19	-18.67	QP
0.604	25.28	0.25	9.58	35.11	56.00	-20.89	QP
0.604	20.93	0.25	9.58	30.76	46.00	-15.24	AVERAGE
1.310	23.07	0.26	9.60	32.93	46.00	-13.07	AVERAGE
1.310	26.62	0.26	9.60	36.48	56.00	-19.52	QP
1.610	25.60	0.24	9.60	35.44	56.00	-20.56	QP
1.610	21.75	0.24	9.60	31.59	46.00	-14.41	AVERAGE
2.012	18.23	0.21	9.61	28.05	46.00	-17.95	AVERAGE
2.012	22.54	0.21	9.61	32.36	56.00	-23.64	QP



Neutral Line

Peak Scan:



Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.166	34.12	0.11	9.58	43.81	65.16	-21.35	QP
0.166	19.41	0.11	9.58	29.10	55.16	-26.06	AVERAGE
0.203	41.04	0.13	9.59	50.76	63.49	-12.73	QP
0.203	30.17	0.13	9.59	39.89	53.49	-13.60	AVERAGE
0.302	31.36	0.17	9.59	41.12	60.19	-19.07	QP
0.302	24.08	0.17	9.59	33.84	50.19	-16.35	AVERAGE
2.931	17.76	0.16	9.61	27.53	46.00	-18.47	AVERAGE
2.931	23.32	0.16	9.61	33.09	56.00	-22.91	QP
3.224	22.67	0.15	9.62	32.43	46.00	-13.57	AVERAGE
3.224	27.80	0.15	9.62	37.56	56.00	-18.44	QP
3.623	16.31	0.13	9.62	26.06	46.00	-19.94	AVERAGE
3.623	23.30	0.13	9.62	33.05	56.00	-22.95	QP