SGS-CSTC Standards Technical Services Ltd.

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057

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FCC REPORT

Application No. :	SZEM1504002109CR
Applicant:	Audio Resource Group, Inc
Manufacturer:	Shenzhen Alors Technology Co., Ltd.
Factory:	Shenzhen Alors Technology Co., Ltd.
Product Name:	72MHz audio transmitter
Model No.(EUT):	ARG-TX72M
Add Model No.:	RAW-TX72M, ARG-TX72M-X, RAW-TX72M-X, ARG-TX72M-XX, RAW-TX72M-XX, ARG-TX72M-XXX, RAW-TX72M-XXX
Trade Mark:	ARG
FCC ID:	2ACGI-TX72M
Standards:	47 CFR Part 15, Subpart C (2014)
Date of Receipt:	2015-04-28
Date of Test:	2015-05-06 to 2015-05-07
Date of Issue:	2015-05-15
Test Result:	**PASS ***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Jack Zhang
EMC Laboratory 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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
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.

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2015-05-15		Original

Authorized for issue by:				
Tested By		Eric Fu **(Eric Fu) /Project Engineer**		2015-05-07 **Date**
Prepared By		Hedy Wen. **(Hedy Wen) /Clerk**		2015-05-15 **Date**
Checked By		John Huang **(Jim Huang) /Reviewer**		2015-05-15 **Date**

3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 (2009)	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 (2009)	PASS
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.237 (c)	ANSI C63.10 (2009)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.237 (c)/15.209	ANSI C63.10 (2009)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.237 (b)	ANSI C63.10 (2009)	PASS

Remark:

Model No.: ARG-TX72M, RAW-TX72M, ARG-TX72M-X, RAW-TX72M-X, ARG-TX72M-XX, RAW-TX72M-XX, ARG-TX72M-XXX, RAW-TX72M-XXX

Only the model ARG-TX72M was tested, since the circuitry design, PCB layout, electrical components used, internal wiring and functions were identical for all above models. Only different on model number.

4 Contents

5 General Information

5.1 Client Information

Applicant:	Audio Resource Group, Inc
Address of Applicant:	405 Main Ave W, Suite 4G, West Fargo, ND58078, USA
Manufacturer:	Shenzhen Alors Technology Co., Ltd.
Address of Manufacturer:	South of 4th Floor, BLDG23, LianChuang Sci&Tech Park, Bulan Road, LongGang District, Shenzhen
Factory:	Shenzhen Alors Technology Co., Ltd.
Address of Factory:	South of 4th Floor, BLDG23, LianChuang Sci&Tech Park, Bulan Road, LongGang District, Shenzhen

5.2 General Description of EUT

Product Name:	72MHz audio transmitter
Model No.:	ARG-TX72M
Trade Mark:	ARG
Operating Frequency:	72.0-73.0; 74.6-74.8 and 75.2-76.0 MHz
Modulation Type:	FM
Number of Channels:	9 Channels from 72.1 to 72.9MHz 1 Channel from 74.6 to 74.8MHz 7 Channels from 75.3 to 75.9 MHz
Sample Type:	Portable production
Antenna Type:	Integral
Antenna Gain:	0dBi
Power Supply:	Lithium-ion battery: DC 3.7V 600mAh USB Charge

Operation Frequency each of channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1	72.1MHz	7	75.9MHz	13	72.8MHz
2	72.5MHz	8	72.2MHz	14	75.4MHz
3	72.9MHz	9	72.3MHz	15	75.5MHz
4	75.7MHz	10	72.4MHz	16	75.6MHz
5	74.7MHz	11	72.6MHz	17	75.8MHz
6	75.3MHz	12	72.7MHz		

Note:

The Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel(CH1)	72.1MHz
The Middle channel(CH5)	74.7MHz
The Highest channel(CH7)	75.9MHz

5.3 Test Environment and Mode

	Operating Environment:	
	Temperature:	24.0 °C
	Humidity:	52 % RH
	Atmospheric Pressure:	1010 mbar
	Test mode:	
A	Transmitting mode:	The EUT transmitted the continuous modulation test signal at the specific channel(s).
B	AC Charge + Transmitting mode:	The EUT transmitted the continuous modulation test signal at the specific channel(s) and AC charge it.

5.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
USB Cable(unshielded 100cm)	Supply by lab	None
AC adapter(Output DC 5V 1A)	Supply by lab	None
Earphone	Supply by lab	None

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

5.6 Test Facility

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

- **CNAS (No. CNAS L2929)**

  CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **VCCI**

  The 10m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

  SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen 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 No.: 556682.

- **Industry Canada (IC)**

  Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

5.10 Equipment List

Conducted Emission					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Due date (yyyy-mm-dd)**
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2016-05-13
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2015-10-24
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2016-05-13
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	SEL0162	2015-08-30
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	SEL0163	2015-08-30
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	SEL0164	2015-08-30
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2016-05-13
8	Coaxial Cable	SGS	N/A	SEL0025	2016-05-13
9	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24
10	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24
11	Barometer	Chang Chun	DYM3	SEL0088	2016-05-13

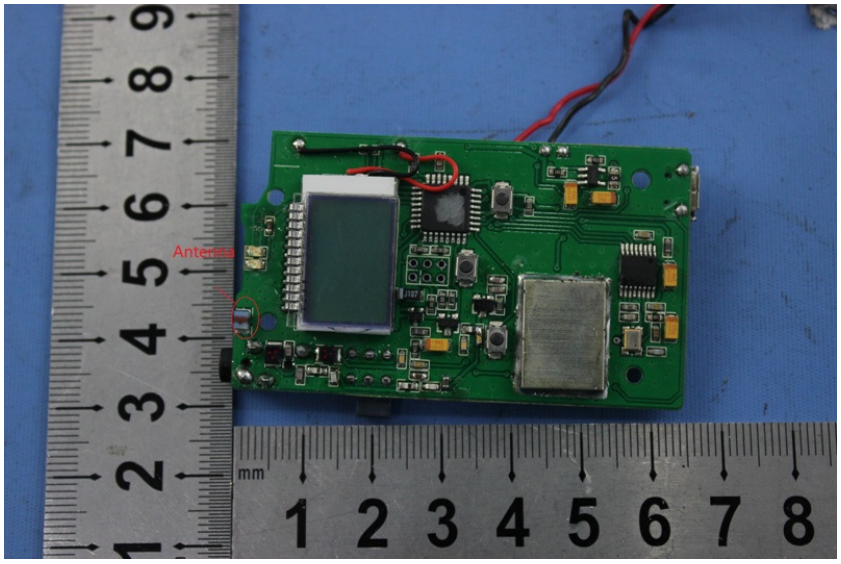
RE in Chamber					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Due date (yyyy-mm-dd)**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2016-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEL0312	2015-09-16
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2015-10-24
5	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2015-10-24
6	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2015-10-24
7	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2016-05-13
8	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2015-10-24
9	Coaxial cable	SGS	N/A	SEL0027	2016-05-29
10	Coaxial cable	SGS	N/A	SEL0189	2016-05-29
11	Coaxial cable	SGS	N/A	SEL0121	2016-05-29
12	Coaxial cable	SGS	N/A	SEL0178	2016-05-29
13	Band filter	Amindeon	82346	SEL0094	2016-05-13
14	Barometer	Chang Chun	DYM3	SEL0088	2016-05-13
15	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24
16	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24
17	Signal Generator (10M-27GHz)	Rohde & Schwarz	SMR27	SEL0067	2016-05-13
18	Signal Generator	Rohde & Schwarz	SMY01	SEL0155	2015-10-24
19	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2016-05-13

RF connected test					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Due date (yyyy-mm-dd)**
1	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24
2	Humidity/ Temperature Indicator	HYGRO	ZJ1-2B	SEL0033	2015-10-24
3	Spectrum Analyzer	Rohde & Schwarz	FSP	SEL0154	2015-10-24
4	Coaxial cable	SGS	N/A	SEL0178	2016-05-13
5	Coaxial cable	SGS	N/A	SEL0179	2016-05-13
6	Barometer	ChangChun	DYM3	SEL0088	2016-05-13
7	Signal Generator	Rohde & Schwarz	SML03	SEL0068	2016-04-25
8	Band filter	amideon	82346	SEL0094	2016-05-13
9	POWER METER	R & S	NRVS	SEL0144	2015-10-24
10	Attenuator	Beijin feihang taida	TST-2-6dB	SEL0205	2016-04-25
11	Power Divider(splitter)	Agilent Technologies	11636B	SEL0130	2015-10-24

Note: The calibration interval is one year, all the instruments are valid.

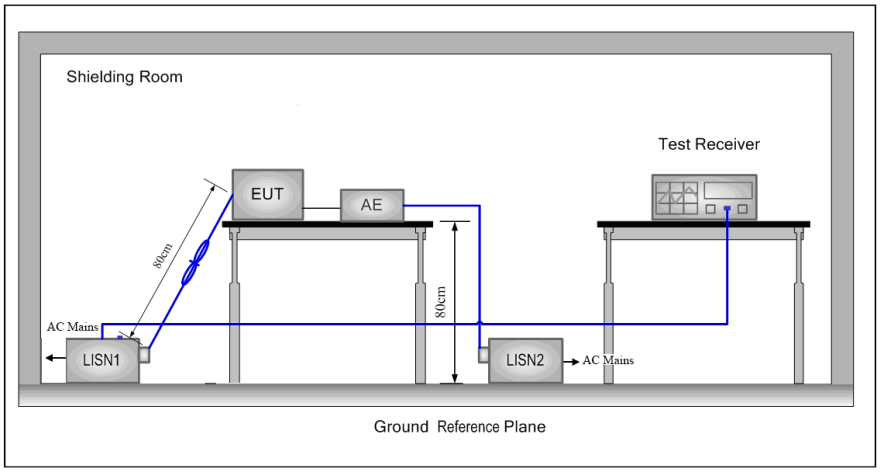
6 Test results and Measurement Data

6.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203
15.203 requirement: 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
EUT Antenna:	
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.	

6.2 Conducted Emissions

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2009</td></tr>
<tr><td>Test Frequency Range:</td><td>150kHz to 30MHz</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr>
<tr><th>Quasi-peak</th><th>Average</th></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test Procedure:</td><td>1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.</td></tr>
</table>

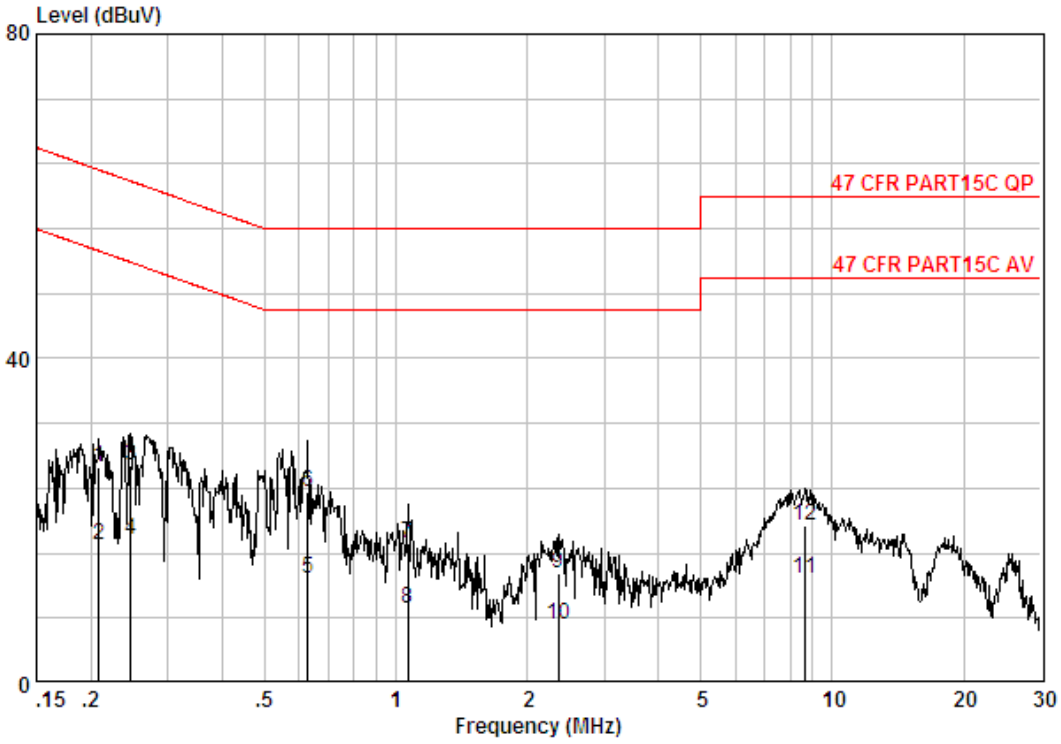
Test Setup:	
Test Mode:	AC Charge + Transmitting mode.
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass

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.

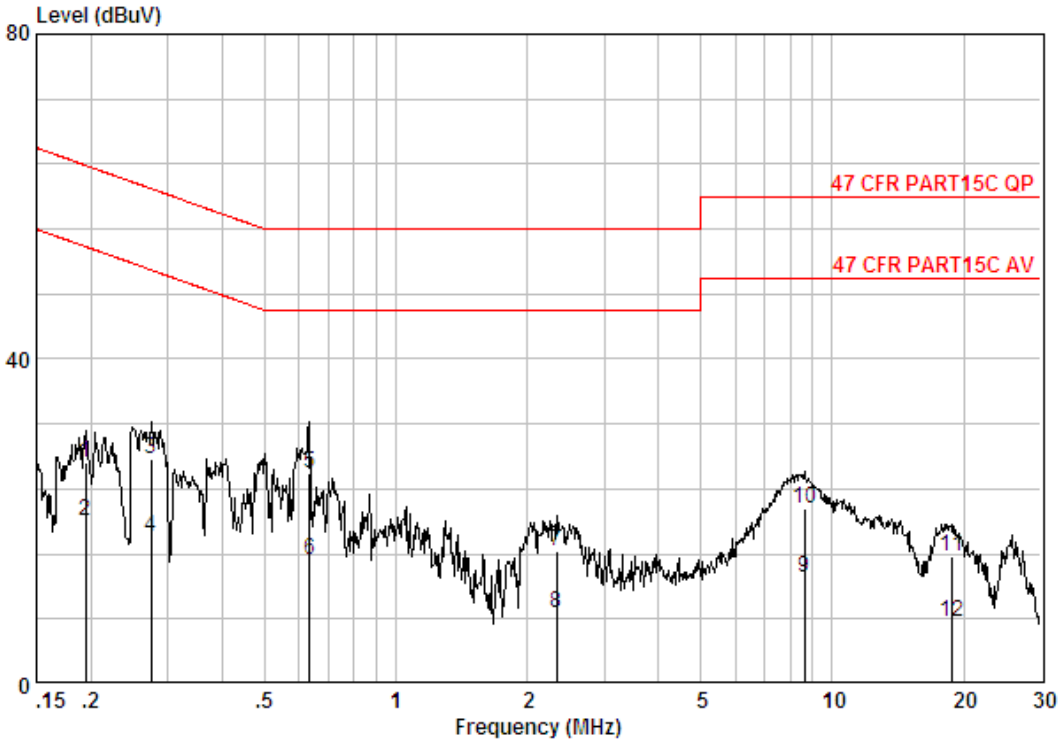
Live Line:



Site : Shielding Room
Condition : 47 CFR PART15C QP CE LINE
Job No. : 2109CR
Test Mode : B

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20833	0.02	9.70	16.92	26.64	63.27	-36.63	QP
2	0.20833	0.02	9.70	7.28	17.00	53.27	-36.28	Average
3	0.24682	0.02	9.70	17.08	26.80	61.86	-35.07	QP
4	0.24682	0.02	9.70	7.93	17.65	51.86	-34.22	Average
5	0.62715	0.02	9.80	2.98	12.79	46.00	-33.21	Average
6	0.62715	0.02	9.80	13.71	23.53	56.00	-32.47	QP
7	1.065	0.02	9.80	7.47	17.29	56.00	-38.71	QP
8	1.065	0.02	9.80	-0.72	9.10	46.00	-36.90	Average
9	2.358	0.02	9.82	3.66	13.50	56.00	-42.50	QP
10	2.358	0.02	9.82	-2.61	7.23	46.00	-38.77	Average
11	8.683	0.01	9.90	2.99	12.90	50.00	-37.10	Average
12	8.683	0.01	9.90	9.53	19.44	60.00	-40.56	QP

Neutral Line:



Site : Shielding Room
Condition : 47 CFR PART15C QP CE NEUTRAL
Job No. : 2109CR
Test Mode : B

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.19447	0.02	9.70	17.53	27.25	63.84	-36.59	QP
2	0.19447	0.02	9.70	10.42	20.14	53.84	-33.71	Average
3	0.27442	0.01	9.70	17.91	27.62	60.98	-33.36	QP
4	0.27442	0.01	9.70	8.46	18.17	50.98	-32.81	Average
5 @	0.63383	0.02	9.80	16.16	25.98	56.00	-30.02	QP
6	0.63383	0.02	9.80	5.36	15.17	46.00	-30.83	Average
7	2.334	0.02	9.82	6.49	16.33	56.00	-39.67	QP
8	2.334	0.02	9.82	-1.16	8.68	46.00	-37.32	Average
9	8.637	0.01	10.00	3.05	13.06	50.00	-36.94	Average
10	8.637	0.01	10.00	11.53	21.54	60.00	-38.46	QP
11	18.721	0.02	10.08	5.64	15.74	60.00	-44.26	QP
12	18.721	0.02	10.08	-2.42	7.67	50.00	-42.33	Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

6.3 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.237 (c) and 15.209
Test Method:	ANSI C63.10: 2009
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak

Limit:
(Spurious Emissions)

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Limit:
(Field strength of the fundamental signal)

Frequency	Limit (dBuV/m @3m)	Remark
72.0MHz-73.0MHz	83.5	Average Value
74.6MHz-74.8MHz 75.2MHz-76.0MHz	118.1	Peak Value

Test Setup:	

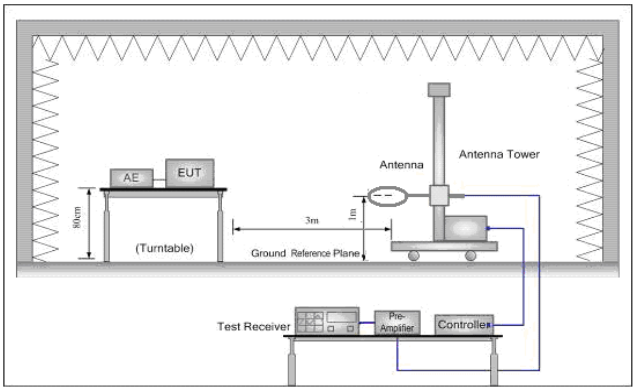


Figure 1. Below 30MHz

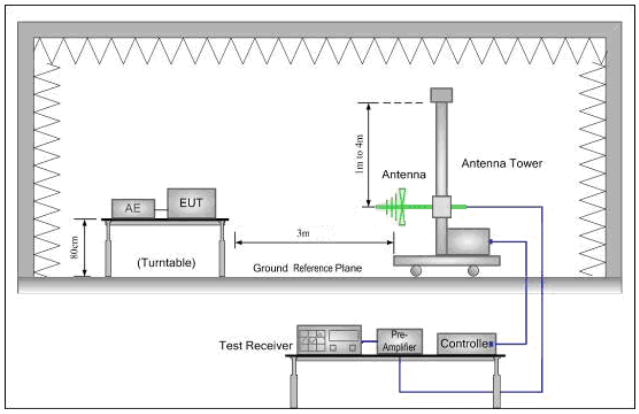


Figure 2. 30MHz to 1GHz

Test Procedure:	a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel,the middle channel,the Highest channel h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode,And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete.

Exploratory Test Mode:	Transmitting mode, AC Charge +Transmitting mode.
Final Test Mode:	Pretest the EUT at Transmitting mode and AC Charge +Transmitting mode, found the AC Charge + Transmitting mode which it is worse case. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass

Measurement Data

6.3.1.1 Field Strength Of The Fundamental Signal

Peak value:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
72.100	0.86	7.07	0	79.57	87.50	118.1	-30.60	Horizontal
72.100	0.86	7.07	0	84.89	92.82	118.1	-25.28	Vertical
74.700	0.94	7.28	0	80.64	88.86	118.1	-29.24	Horizontal
74.700	0.94	7.28	0	84.48	92.70	118.1	-25.40	Vertical
75.900	0.98	7.37	0	76.02	84.37	118.1	-33.73	Horizontal
75.900	0.98	7.37	0	81.10	89.45	118.1	-28.65	Vertical

Average value:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
72.100	0.86	7.07	0	57.89	65.82	98.1	-32.28	Horizontal
72.100	0.86	7.07	0	62.78	70.71	98.1	-27.39	Vertical
74.700	0.94	7.28	0	57.89	66.11	98.1	-31.99	Horizontal
74.700	0.94	7.28	0	62.82	71.04	98.1	-27.06	Vertical
75.900	0.98	7.37	0	54.89	63.24	98.1	-34.86	Horizontal
75.900	0.98	7.37	0	60.02	68.37	98.1	-29.73	Vertical

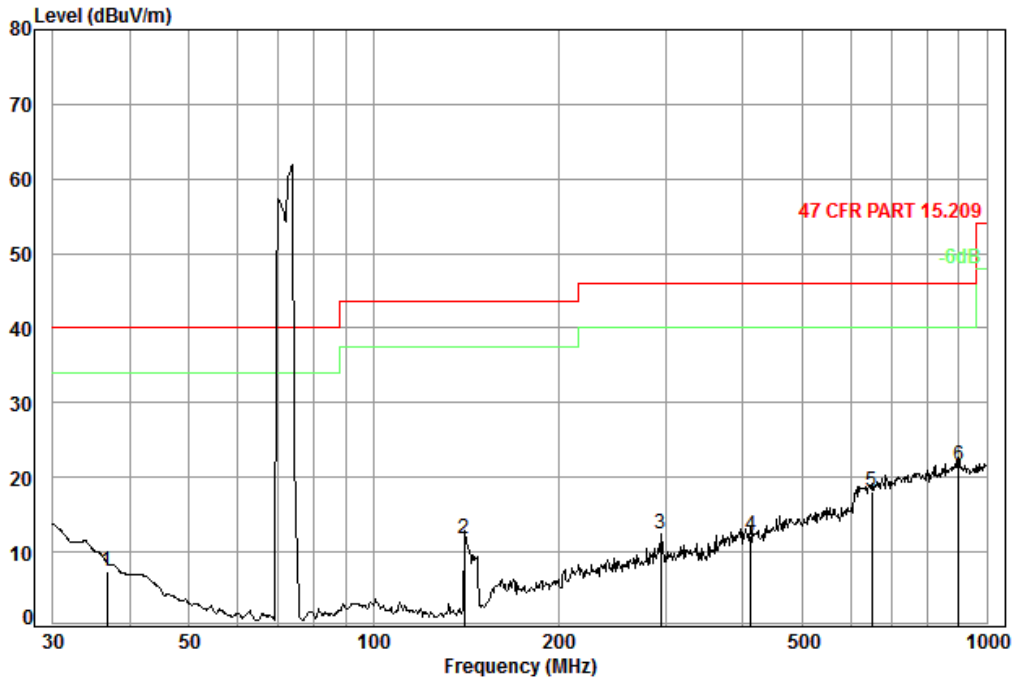
6.3.1.2 Spurious Emissions

30MHz~1GHz	
Test mode:	AC Charge +Transmitting mode

QP value:

Lowest Channel

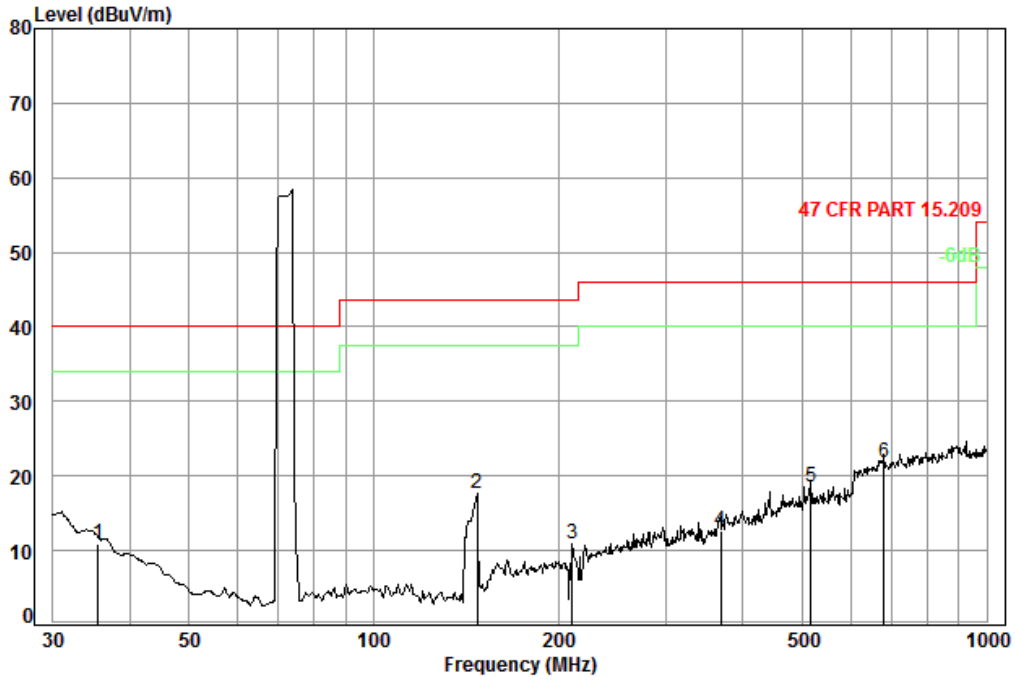
Vertical:



Condition: 47 CFR PART 15.209 3m Vertical
Job No. : 2109CR
Test mode: TX 72.1MHz

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	36.77	0.60	14.91	27.33	19.24	7.42	40.00	-32.58
2	140.34	1.30	8.13	26.95	29.35	11.83	43.50	-31.67
3	294.11	1.87	13.64	26.42	23.26	12.35	46.00	-33.65
4	411.82	2.25	16.35	27.21	20.87	12.26	46.00	-33.74
5	649.66	2.80	20.60	27.47	22.21	18.14	46.00	-27.86
6	900.15	3.60	23.20	26.78	21.65	21.67	46.00	-24.33

Horizontal:

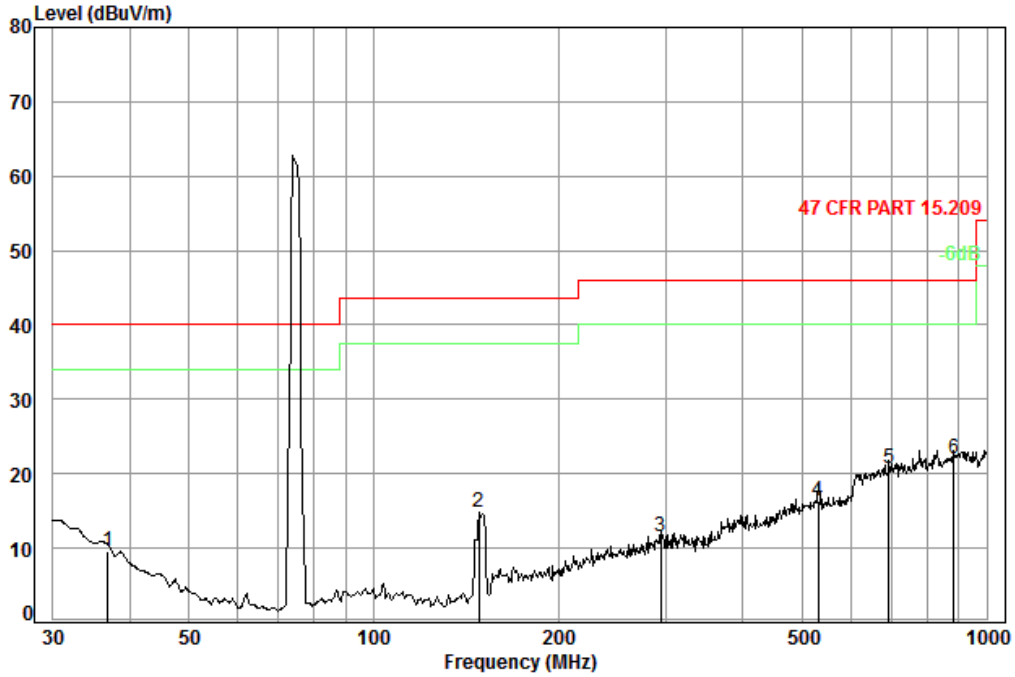


Condition: 47 CFR PART 15.209 3m Horizontal
Job No. : 2109CR
Test mode: TX 72.1MHz

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	35.50	0.60	15.62	27.34	21.98	10.86	40.00	-29.14
2	147.40	1.31	8.77	26.92	34.41	17.57	43.50	-25.93
3	210.79	1.46	10.76	26.66	25.38	10.94	43.50	-32.56
4	368.11	2.11	15.42	26.93	21.97	12.57	46.00	-33.43
5	517.25	2.62	18.28	27.67	25.23	18.46	46.00	-27.54
6	679.96	2.86	21.44	27.43	24.94	21.81	46.00	-24.19

Middle Channel

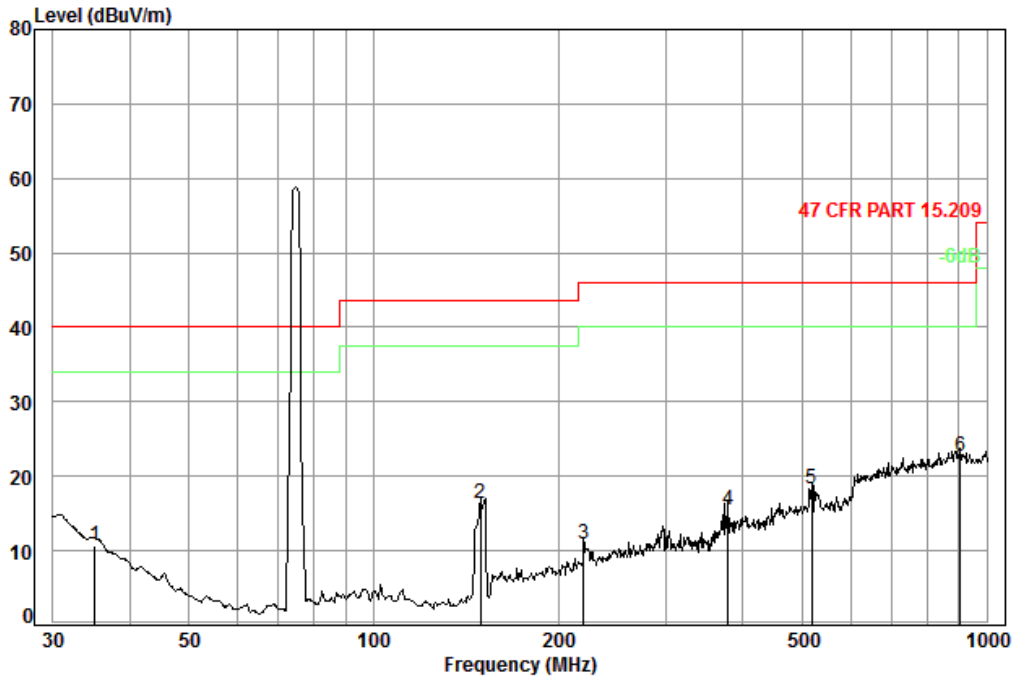
Vertical:



Condition: 47 CFR PART 15.209 3m Vertical
Job No. : 2109CR
Test mode: TX 74.7MHz

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	36.90	0.60	14.84	27.33	21.40	9.51	40.00	-30.49
2	148.44	1.31	8.86	26.91	31.51	14.77	43.50	-28.73
3	294.11	1.87	13.64	26.42	22.38	11.47	46.00	-34.53
4	531.96	2.63	18.61	27.65	22.85	16.44	46.00	-29.56
5	691.99	2.89	21.54	27.42	23.78	20.79	46.00	-25.21
6	884.50	3.54	23.08	26.85	22.31	22.08	46.00	-23.92

Horizontal:

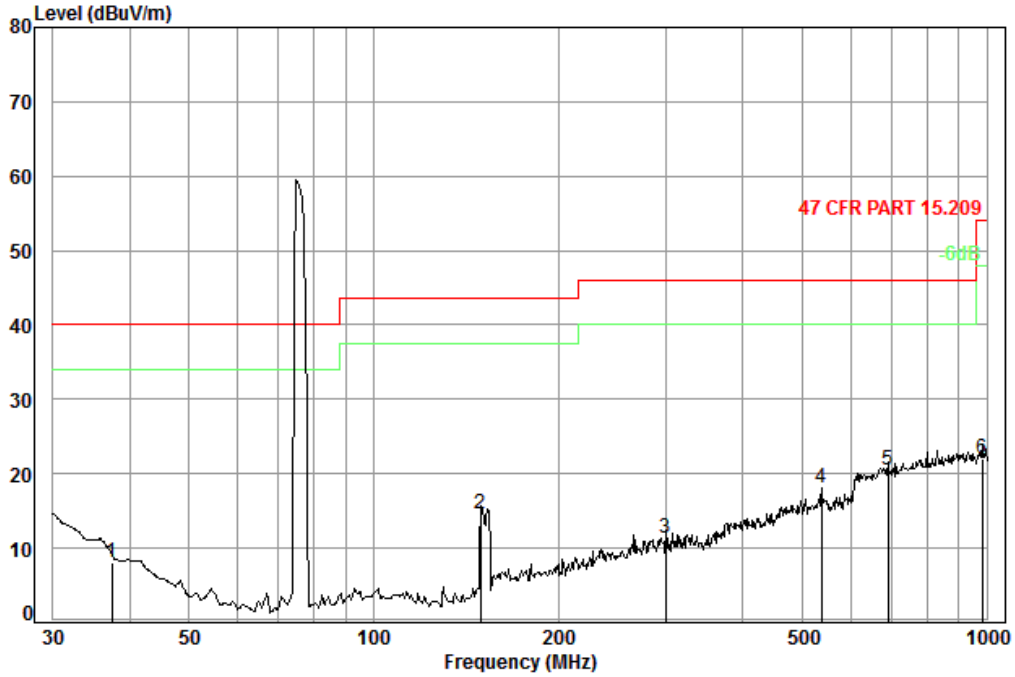


Condition: 47 CFR PART 15.209 3m Horizontal
Job No. : 2109CR
Test mode: TX 74.7MHz

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	35.13	0.60	15.83	27.34	21.58	10.67	40.00	-29.33
2	149.49	1.32	8.95	26.91	32.89	16.25	43.50	-27.25
3	219.84	1.52	11.23	26.63	24.75	10.87	46.00	-35.13
4	378.58	2.14	16.04	26.99	24.30	15.49	46.00	-30.51
5	519.06	2.62	18.33	27.67	24.93	18.21	46.00	-27.79
6	906.48	3.61	23.23	26.75	22.67	22.76	46.00	-23.24

Highest Channel

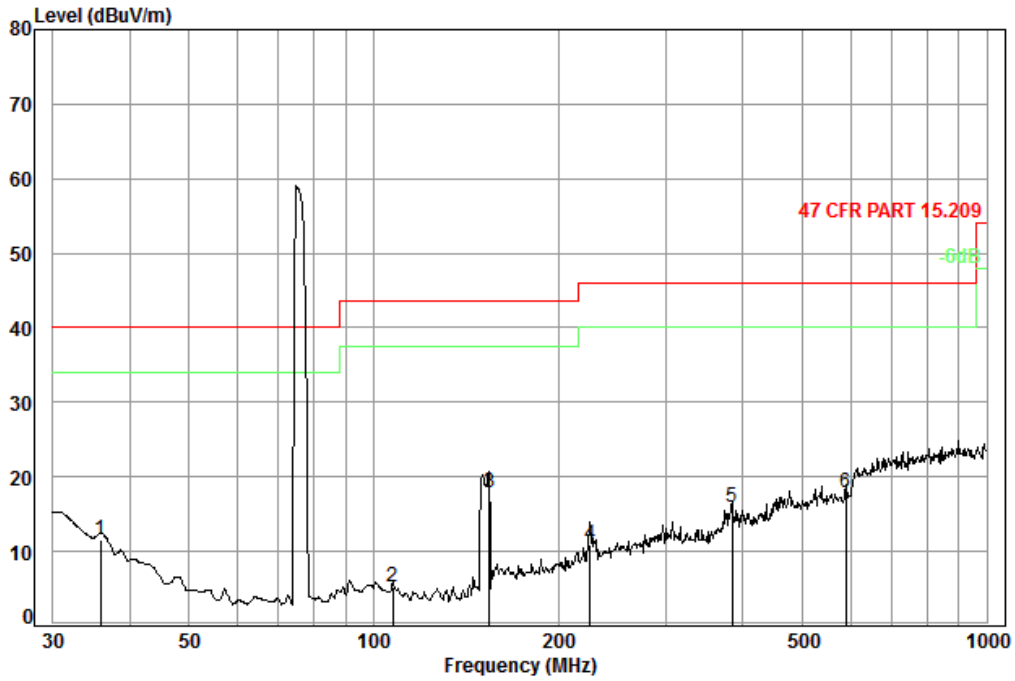
Vertical:



Condition: 47 CFR PART 15.209 3m Vertical
Job No. : 2109CR
Test mode: TX 75.9MHz

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	37.42	0.60	14.55	27.33	20.33	8.15	40.00	-31.85
2	149.49	1.32	8.95	26.91	31.32	14.68	43.50	-28.82
3	299.32	1.90	13.87	26.41	21.99	11.35	46.00	-34.65
4	537.59	2.64	18.70	27.63	24.41	18.12	46.00	-27.88
5	689.56	2.88	21.52	27.43	23.58	20.55	46.00	-25.45
6	982.62	3.68	23.60	26.40	21.20	22.08	54.00	-31.92

Horizontal:



Condition: 47 CFR PART 15.209 3m Horizontal
Job No. : 2109CR
Test mode: TX 75.9MHz

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	35.87	0.60	15.41	27.33	22.95	11.63	40.00	-28.37
2	107.51	1.22	8.72	27.15	22.36	5.15	43.50	-38.35
3	154.28	1.33	9.26	26.89	34.10	17.80	43.50	-25.70
4	225.31	1.55	11.51	26.61	24.48	10.93	46.00	-35.07
5	383.93	2.16	16.11	27.03	24.56	15.80	46.00	-30.20
6	588.91	2.69	19.49	27.56	23.33	17.95	46.00	-28.05

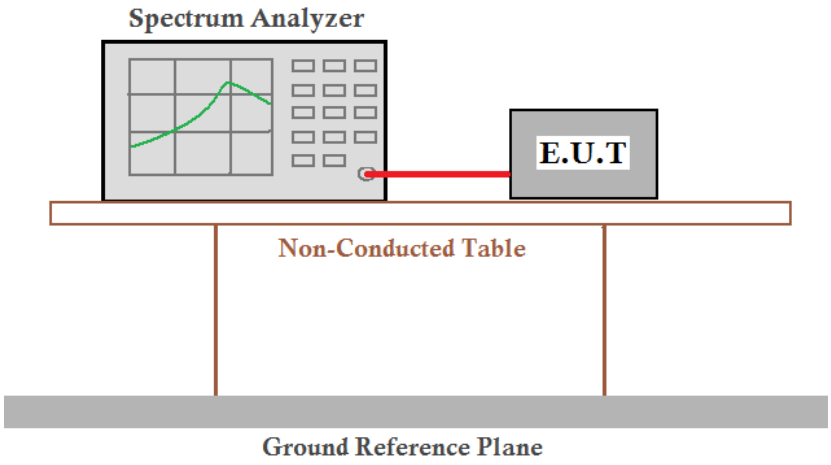
Remark:

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

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

2) Scan from 9kHz to 1GHz,The disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported .

6.4 20dB Bandwidth

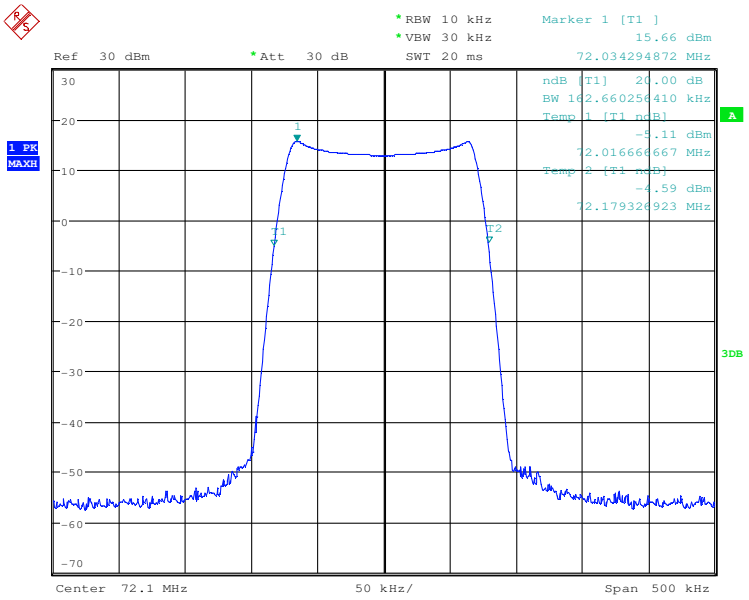
Test Requirement:	47 CFR Part 15C Section 15.237 (b)
Test Method:	ANSI C63.10:2009
Test Setup:	
Limit:	200kHz
Exploratory Test Mode:	Transmitting with mode
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass

Measurement Data

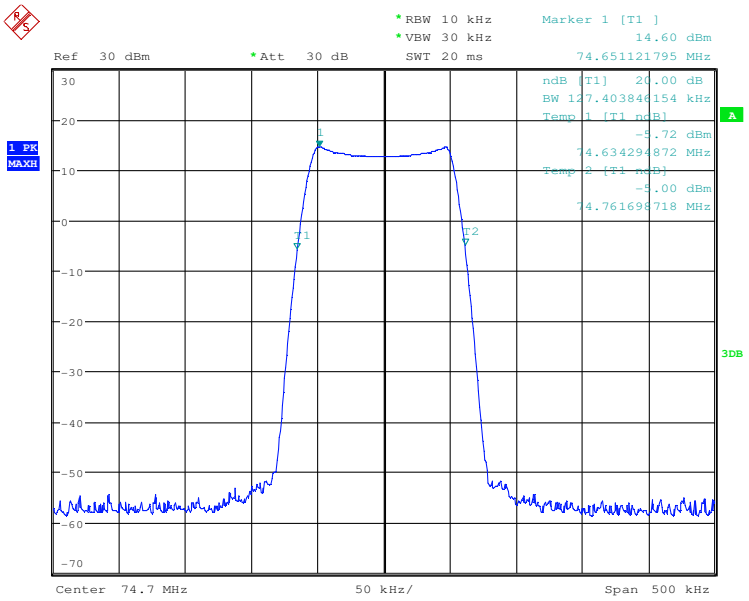
Test Channel	20dB bandwidth (MHz)	Results
Lowest	0.163	Pass
Middle	0.127	Pass
Highest	0.116	Pass

Test plot as follows:

Test channel:	Lowest



Test channel:	Middle



Test channel:	Highest