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Report No.: GZEM150500203301
Page: 1 of 36
FCC ID: 2AAFMRDA0004

FCC REPORT

The following sample(s) was/were submitted and identified on behalf of the client as:

Application No. : GZEM1505002033CR (Ref. SZEM1504002241CR)
Applicant: Corsair Memory, Inc.
Manufacturer: Shenzhen Horn Audio Co., Ltd
Factory: Shenzhen Horn Audio Co., Ltd
Product Name: USB dongle
Model No.(EUT): RDA0004
Trade Mark: Corsair
FCC ID: 2AAFMRDA0004
Standards: 47 CFR Part 15, Subpart C (2014)
Date of Receipt: 2015-05-08
Date of Test: 2015-05-14 to 2015-05-22
Date of Issue: 2015-05-27

Test Result:	PASS *
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* In the configuration tested, the EUT complied with the standards specified above.



Jerry Chan
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

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2015-05-27		Original

Authorized for issue by:			
Tested By			2015-05-14 to 2015-05-22
	(Little Xiang) /Project Engineer		Date
Prepared By			2015-05-27
	(June Chen) /Clerk		Date
Checked By			2015-05-27
	(Jerry Chan) /Reviewer		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 15.249 (a)	ANSI C63.10 (2009)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.249 (a)/15.209	ANSI C63.10 (2009)	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.249(a)/15.205	ANSI C63.10 (2009)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215 (c)	ANSI C63.10 (2009)	PASS

Model No.: RDA0004

RDA0004 is identical on circuitry design, PCB layout, electrical components used, internal wiring and functions, which we chose to be tested by SGS and only different on color.



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5 General Information

5.1 Client Information

Applicant:	Corsair Memory, Inc.
Address of Applicant:	47100 Bayside Pkwy, Fremont, CA 94538, USA
Manufacturer:	Shenzhen Horn Audio Co., Ltd
Address of Manufacturer:	No.6, 4 th Guihua Rd, Pingshan, Longgang, Shenzhen
Factory:	Shenzhen Horn Audio Co., Ltd
Address of Factory:	No.6, 4 th Guihua Rd, Pingshan, Longgang, Shenzhen

5.2 General Description of EUT

Product Name:	USB dongle
Model No.:	RDA0004
Trade Mark:	Corsair
Carrier Frequency	2425.35MHz-2477.35MHz
Modulation Type:	$\pi/4$ DQPSK
Channel Number:	27 (declared by the client)
Channel Spacing:	2MHz (declared by the client)
EUT Function:	USB dongle
Sample Type:	Portable production
Test Power Grade:	Default setting (manufacturer declare)
Test Software of EUT:	VMI Dev Software (manufacturer declare)
Antenna Type:	Integral
Antenna Gain:	2dBi
Power Supply:	Supply by PC USB port
USB Cable:	150cm unshielded
Test Voltage:	AC 120V 60Hz



Operation Frequency each of channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1 CH	2.42535GHz	10 CH	2.44335GHz	19 CH	2.46135GHz
2 CH	2.42735GHz	11 CH	2.44535GHz	20 CH	2.46335GHz
3 CH	2.42935GHz	12 CH	2.44735GHz	21 CH	2.46535GHz
4 CH	2.43135GHz	13 CH	2.44935GHz	22 CH	2.46735GHz
5 CH	2.43335GHz	14 CH	2.45135GHz	23 CH	2.46935GHz
6 CH	2.43535GHz	15 CH	2.45335GHz	24 CH	2.47135GHz
7 CH	2.43735GHz	16 CH	2.45535GHz	25 CH	2.47335GHz
8 CH	2.43935GHz	17 CH	2.45735GHz	26 CH	2.47535GHz
9 CH	2.44135GHz	18 CH	2.45935GHz	27 CH	2.47735GHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, 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)	2425.35MHz
The Middle channel(CH14)	2451.35MHz
The Highest channel(CH27)	2477.35MHz



5.3 Test Environment and Mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

5.4 Description of Support Units

The EUT has been tested independently.

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch 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 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 accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

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.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **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.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co. Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01:2006-10 and Rules of procedure IECEE 02:2006-10, and the relevant IECEE CB-Scheme Operational documents.



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

RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2014-12-5	2015-12-5
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2015-03-02	2016-03-02
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2015-04-07	2016-04-07
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2014-04-19	2016-04-19
EMC2025	Trilog Broadband Antenna 30-1000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3372	2014-07-14	2017-07-14
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2013-08-31	2016-08-31
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2014-05-04	2017-05-04
EMC2026	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	9120D-841	2013-08-31	2016-08-31
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2015-03-02	2016-03-02
EMC2065	Amplifier	HP	8447F	N/A	2014-08-25	2015-08-25
EMC0075	310N Amplifier	Sonoma	310N	272683	2015-03-02	2016-03-02
EMC0523	Active Loop Antenna	EMCO	6502	42963	2014-03-03	2016-03-03
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9170	9170-375	2014-05-26	2017-05-26
EMC2079	High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	009	2015-03-02	2016-03-02
EMC2069	2.4GHz filter	Micro-Tronics	BRM50702	149	2015-03-02	2016-03-02
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2014-05-03	2016-05-03

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2014-09-15	2015-09-15
EMC0007	DMM	Fluke	73	70671122	2014-09-15	2015-09-15



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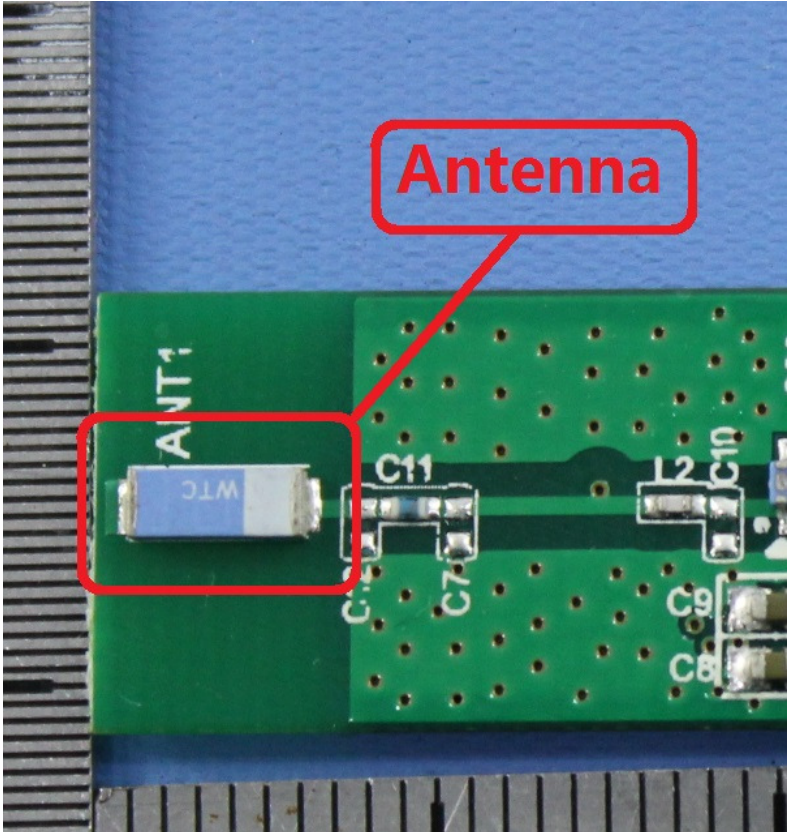
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Conducted Emission						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m ³	N/A	N/A	N/A
EMC0118	Two-line v-netwok	R&S	ENV216	100359	2015-03-02	2016-03-02
EMC0102	LISN	SCHAFFNER CHASE	MN2050D/1	1421	2014-09-14	2015-09-14
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2015-03-02	2016-03-02
EMC0107	Coaxial Cable	SGS	2m	N/A	2014-07-25	2016-07-25
EMC0106	Voltage Probe	SGS	N/A	N/A	2014-04-19	2016-04-19
EMC0120	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	20550	2014-08-30	2015-08-30
EMC0121	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	20549	2014-08-30	2015-08-30
EMC0122	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	20548	2014-08-30	2015-08-30
EMC2047	CDN	Elektronik- Feinmechanik	L-801:AF2	2793	2012-09-23	2015-09-23
EMC2048	CDN	Elektronik- Feinmechanik	L-801:M2/M3	2738	2012-09-23	2015-09-23
EMC2062	6dB Attenuator	HP	8491A	24487	2014-04-19	2016-04-19
EMC167	Conical metal housing	SGS-EMC	N/A	N/A	2014-02-16	2016-02-16

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

6 Test results and Measurement Data

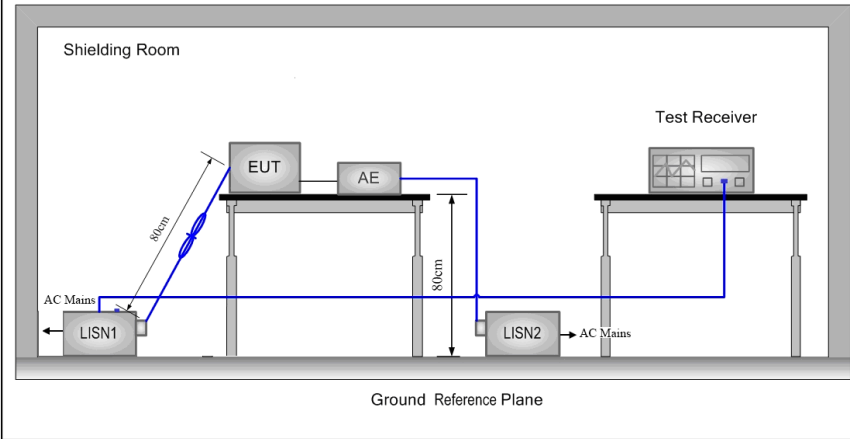
6.1 Antenna Requirement

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 2dBi.	



6.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2009		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	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.		

Test Setup:	
Test Mode:	Transmitting mode Through pre-scan, the worst case is the lowest channel. Only the worst case was shown in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

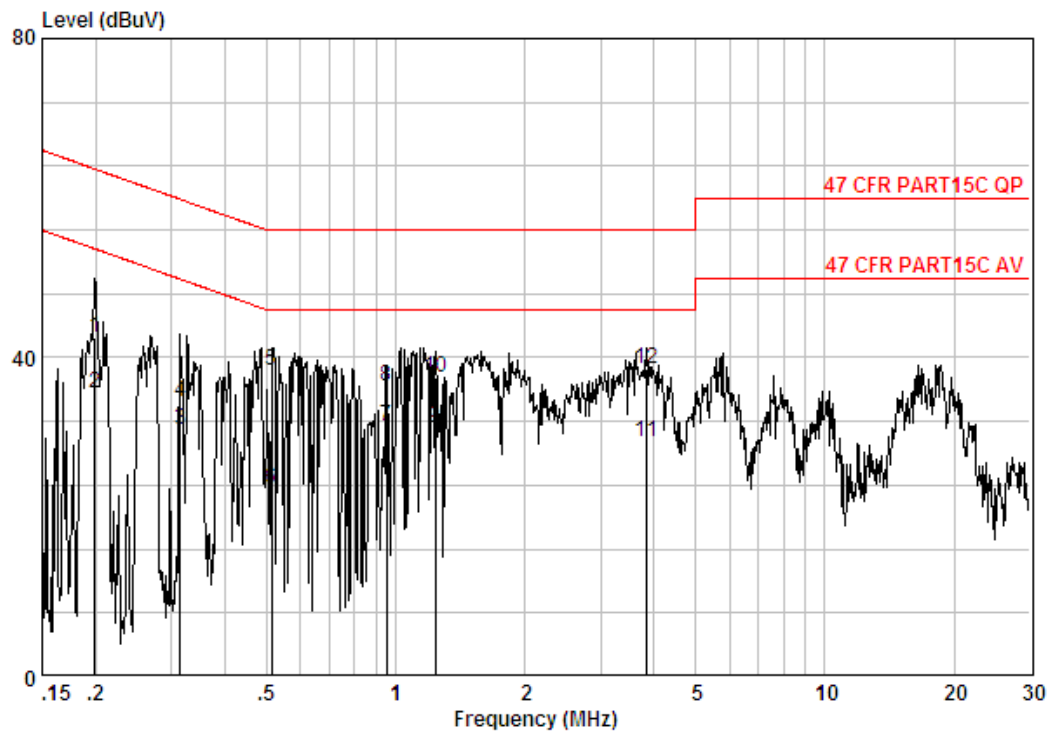


Measurement Data

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:

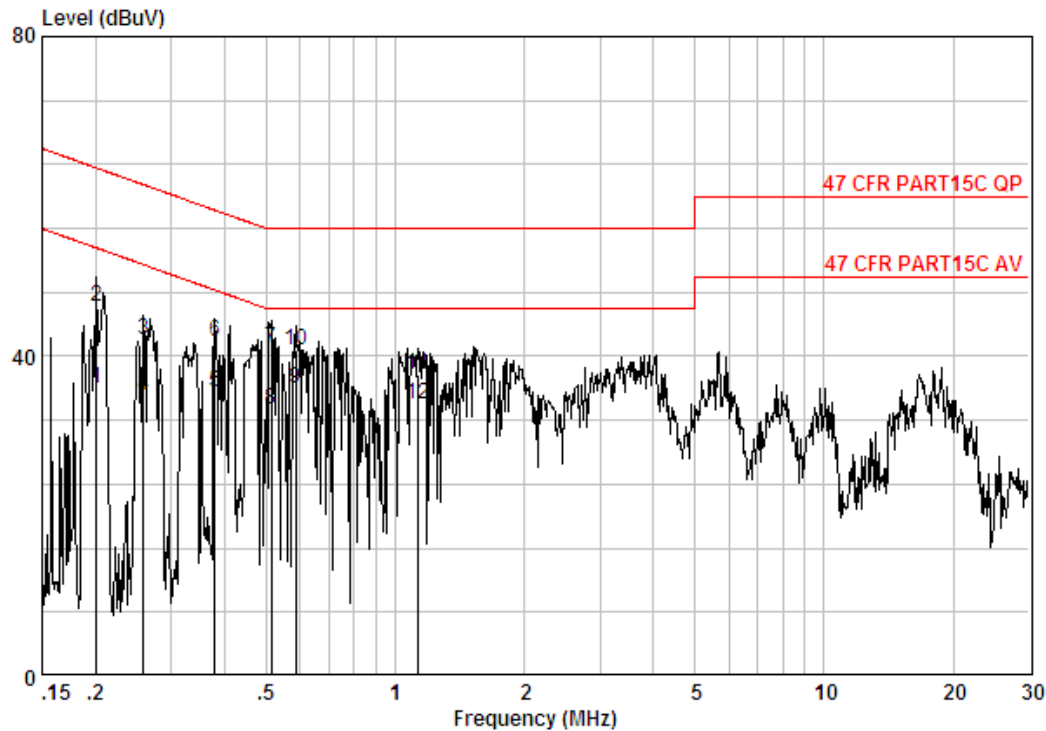


Site : Shielding Room
Condition : 47 CFR PART15C QP CE LINE
Job No. : 2241CR

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.19863	0.10	0.06	42.34	42.50	63.67	-21.17	QP
2	0.19863	0.10	0.06	35.34	35.50	53.67	-18.17	Average
3	0.31495	0.10	-0.02	30.85	30.93	59.84	-28.91	QP
4	0.31495	0.10	-0.02	34.38	34.45	49.84	-15.39	Average
5	0.51278	0.10	0.00	38.16	38.26	56.00	-17.74	QP
6	0.51278	0.10	0.00	23.36	23.46	46.00	-22.54	Average
7	0.95313	0.10	0.02	31.32	31.44	46.00	-14.56	Average
8	0.95313	0.10	0.02	36.23	36.35	56.00	-19.65	QP
9	1.236	0.10	0.04	30.93	31.07	46.00	-14.93	Average
10	1.236	0.10	0.04	37.32	37.46	56.00	-18.54	QP
11	3.840	0.10	0.11	29.32	29.53	46.00	-16.47	Average
12	3.840	0.10	0.11	38.32	38.53	56.00	-17.47	QP



Neutral Line:



Site : Shielding Room
Condition : 47 CFR PART15C QP CE NEUTRAL
Job No. : 2241CR

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20075	0.10	0.06	35.84	36.00	53.58	-17.58	Average
2	0.20075	0.10	0.06	45.98	46.14	63.58	-17.44	QP
3	0.25888	0.10	0.01	41.92	42.03	61.47	-19.43	QP
4	0.25888	0.10	0.01	35.06	35.17	51.47	-16.29	Average
5	0.37912	0.10	-0.03	35.53	35.60	48.30	-12.70	Average
6	0.37912	0.10	-0.03	41.88	41.95	58.30	-16.35	QP
7	0.51278	0.10	0.00	40.84	40.94	56.00	-15.06	QP
8	0.51278	0.10	0.00	33.34	33.43	46.00	-12.57	Average
9	0.58540	0.10	0.01	35.81	35.92	46.00	-10.08	Average
10	0.58540	0.10	0.01	40.67	40.78	56.00	-15.22	QP
11	1.129	0.10	0.03	37.58	37.71	56.00	-18.29	QP
12	1.129	0.10	0.03	33.83	33.96	46.00	-12.04	Average

Notes:

- The following Quasi-Peak and Average measurements were performed on the EUT:
- Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



6.3 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.249 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
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
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
	Above 1GHz	500	54.0	Average	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	
	2400MHz-2483.5MHz	94.0		Average Value	
		114.0		Peak Value	

Test Setup:

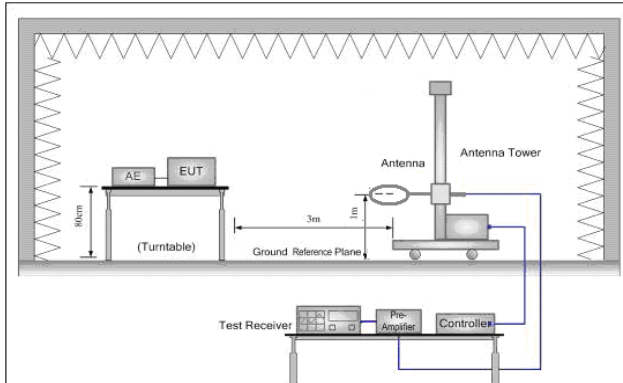


Figure 1. Below 30MHz

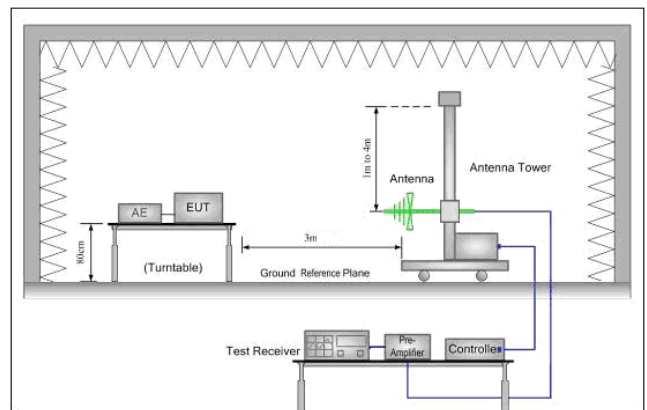


Figure 2. 30MHz to 1GHz

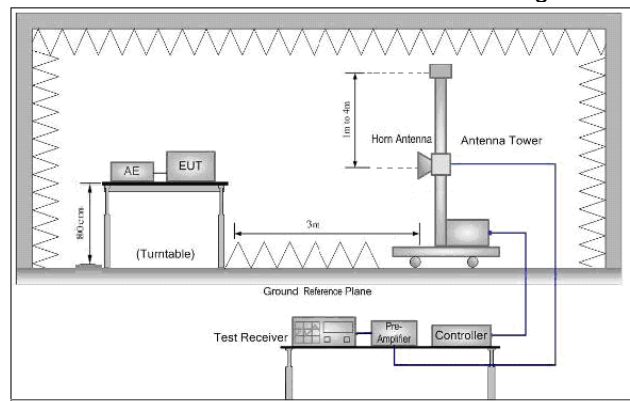


Figure 3. Above 1 GHz

Test Procedure:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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



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	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.
Test Mode:	Transmitting mode For below 1GHz part, through pre-scan, the worst case is the lowest channel. Only the worst case was shown 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)	Preamplifier Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
2425.35	4.95	32.42	38.46	94.25	93.16	114.00	-20.84
2451.35	4.98	32.43	38.46	93.29	92.24	114.00	-21.76
2477.35	5.02	32.44	38.47	92.53	91.52	114.00	-22.48

Average value:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
2425.35	4.95	32.42	38.46	79.41	78.32	94.00	-15.68
2451.35	4.98	32.43	38.46	85.19	85.14	94.00	-8.86
2477.35	5.02	32.44	38.47	85.89	84.88	94.00	-9.12

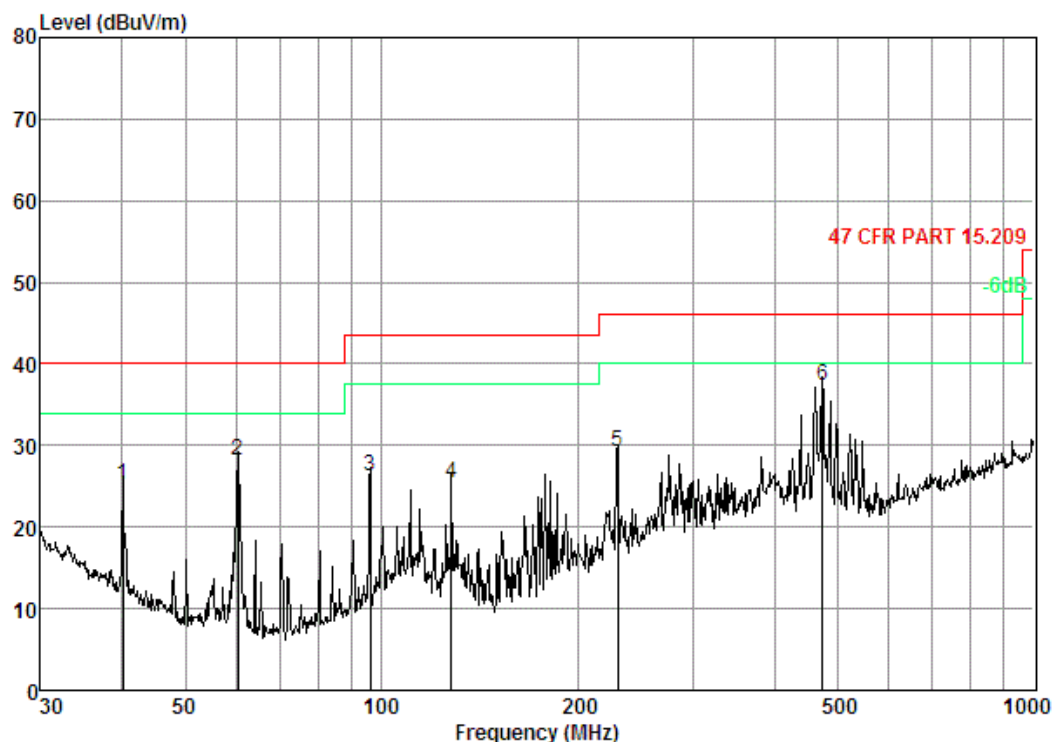


6.3.1.2 Spurious Emissions

30MHz~1GHz

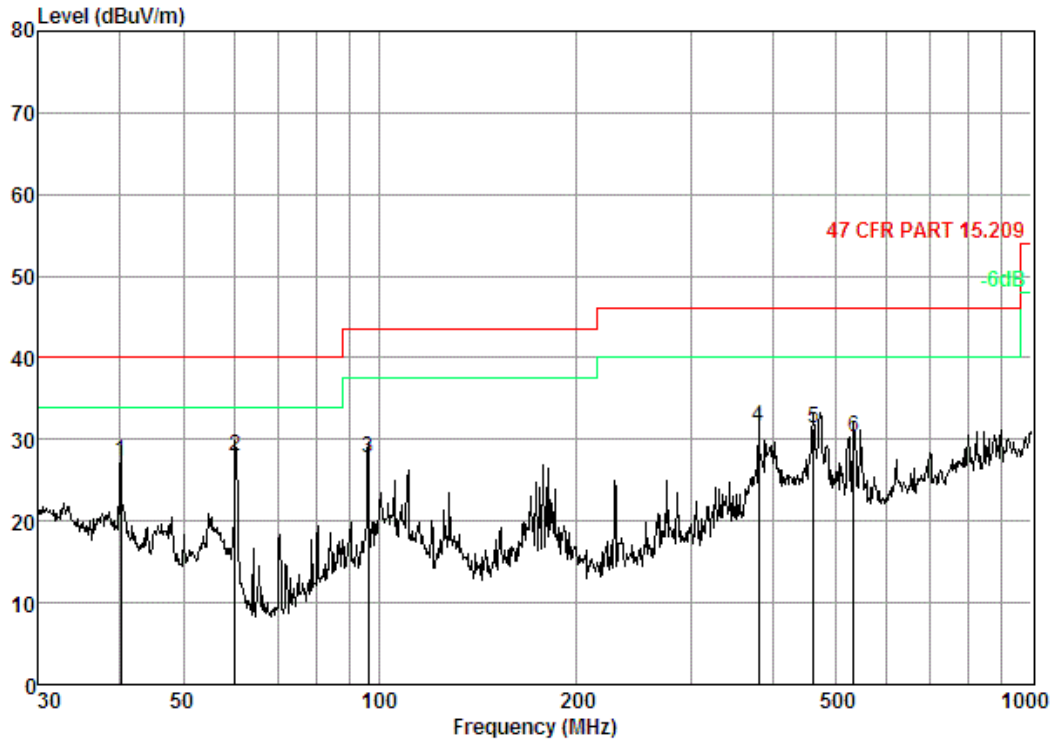
Test mode: Transmitting

QP value:



Condition: 47 CFR PART 15.209 3m 3142C HORIZONTAL
Job No. : 2241CR

	Freq	Cable Loss	Antenna Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	40.13	0.80	13.04	25.79	37.11	25.16	40.00	-14.84
2	60.28	1.05	7.19	25.67	45.56	28.13	40.00	-11.87
3	96.10	1.42	8.98	25.38	41.21	26.23	43.50	-17.27
4	128.11	1.65	7.94	25.13	40.94	25.40	43.50	-18.10
5	230.10	2.34	11.56	24.76	40.02	29.16	46.00	-16.84
6	473.83	3.57	17.66	25.79	41.87	37.31	46.00	-8.69



Condition: 47 CFR PART 15.209 3m 3142C VERTICAL
Job No. : 2241CR

	Freq	CableAntenna		Preamp	Read	Level	Limit	Over
		Loss	Factor	Factor	Level		Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	40.13	0.80	13.04	25.79	39.22	27.27	40.00	-12.73
2	60.07	1.05	7.20	25.67	45.27	27.85	40.00	-12.15
3	96.10	1.42	8.98	25.38	42.62	27.64	43.50	-15.86
4	381.25	3.18	16.02	25.25	37.69	31.64	46.00	-14.36
5	462.35	3.67	17.30	25.87	36.19	31.29	46.00	-14.71
6	533.83	3.87	18.61	26.49	34.25	30.24	46.00	-15.76



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Above 1GHz								
Test mode:		Transmitting		Test channel:		Lowest		Remark:
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
3700.260	5.78	33.08	38.83	46.32	46.35	74	-27.65	Vertical
4850.700	5.61	34.75	39.25	52.79	53.90	74	-20.10	Vertical
6125.242	7.42	36.16	39.17	46.94	51.35	74	-22.65	Vertical
7276.050	8.36	35.56	39.06	46.64	51.50	74	-22.50	Vertical
9701.400	9.21	37.62	37.88	43.78	52.73	74	-21.27	Vertical
11341.140	9.94	38.14	38.39	44.21	53.90	74	-20.10	Vertical
3634.910	5.82	33.03	38.80	47.11	47.16	74	-26.84	Horizontal
4850.700	5.61	34.75	39.25	46.13	47.24	74	-26.76	Horizontal
5971.290	7.45	36.24	39.19	46.60	51.10	74	-22.90	Horizontal
7276.050	8.36	35.56	39.06	46.59	51.45	74	-22.55	Horizontal
9701.400	9.21	37.62	37.88	43.95	52.90	74	-21.10	Horizontal
11574.460	10.10	38.28	38.50	43.12	53.00	74	-21.00	Horizontal

Test mode:		Transmitting		Test channel:		Middle		Remark:
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
3681.469	5.79	33.06	38.82	46.40	46.43	74	-27.57	Vertical
4902.700	5.75	34.80	39.27	48.06	49.34	74	-24.66	Vertical
6001.768	7.51	36.30	39.18	46.87	51.50	74	-22.50	Vertical
7354.050	8.44	35.47	39.05	46.74	51.60	74	-22.40	Vertical
9805.400	9.15	37.94	37.81	42.93	52.21	74	-21.79	Vertical
11027.980	9.66	38.10	38.24	43.55	53.07	74	-20.93	Vertical
3795.660	5.72	33.15	38.87	47.57	47.57	74	-26.43	Horizontal
4902.700	5.75	34.80	39.27	47.74	49.02	74	-24.98	Horizontal
6140.854	7.41	36.14	39.17	48.02	52.40	74	-21.60	Horizontal
7354.050	8.44	35.47	39.05	47.26	52.12	74	-21.88	Horizontal
9805.400	9.15	37.94	37.81	44.70	53.98	74	-20.02	Horizontal
11399.030	9.98	38.15	38.42	44.27	53.98	74	-20.02	Horizontal



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Test mode:		Transmitting		Test channel:		Highest		Remark:	Peak
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	
3480.968	5.90	32.87	38.73	46.74	46.78	74	-27.22	Vertical	
4954.700	5.88	34.86	39.29	46.59	48.04	74	-25.96	Vertical	
6001.768	7.51	36.30	39.18	48.00	52.63	74	-21.37	Vertical	
7432.050	8.53	35.43	39.05	46.84	51.75	74	-22.25	Vertical	
9909.400	9.10	38.24	37.75	43.18	52.77	74	-21.23	Vertical	
11112.520	9.74	38.11	38.28	43.00	52.57	74	-21.43	Vertical	
3588.939	5.85	32.99	38.78	46.40	46.46	74	-27.54	Horizontal	
4954.700	5.88	34.86	39.29	48.64	50.09	74	-23.91	Horizontal	
5880.782	7.24	36.07	39.20	47.66	51.77	74	-22.23	Horizontal	
7432.050	8.53	35.43	39.05	48.30	53.21	74	-20.79	Horizontal	
9909.400	9.10	38.24	37.75	42.83	52.42	74	-21.58	Horizontal	
11283.550	9.89	38.13	38.36	43.43	53.09	74	-20.91	Horizontal	

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 25GHz, The disturbance above 13GHz and 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.
- 3) As shown in this section, for frequencies above 1GHz, the 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. So, only the peak measurements were shown in the report.

6.4 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205		
Test Method:	ANSI C63.10: 2009		
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)		
Limit(band edge):	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.		
	Frequency	Limit (dBuV/m @3m)	Remark
	30MHz-88MHz	40.0	Quasi-peak Value
	88MHz-216MHz	43.5	Quasi-peak Value
	216MHz-960MHz	46.0	Quasi-peak Value
	960MHz-1GHz	54.0	Quasi-peak Value
	Above 1GHz	54.0	Average Value
		74.0	Peak Value
Test Setup:			

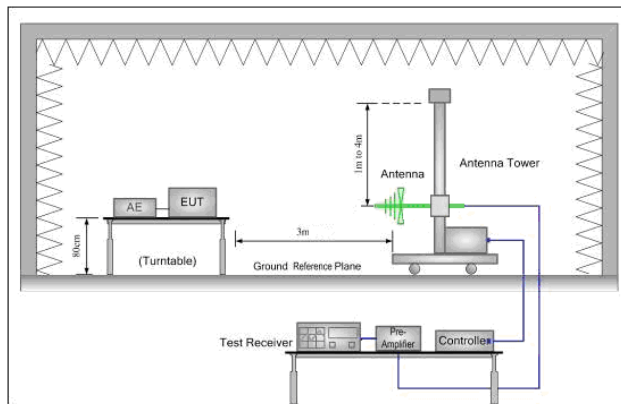


Figure 1. 30MHz to 1GHz

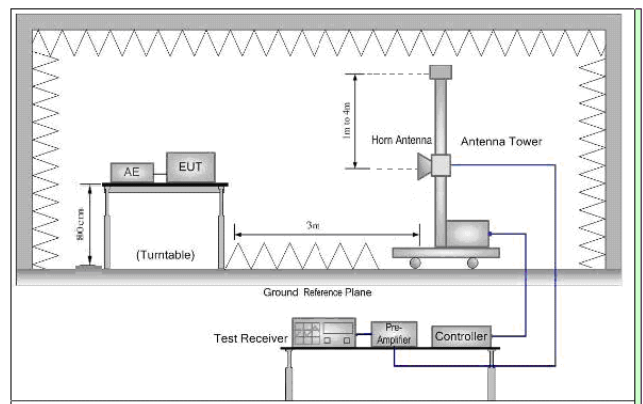


Figure 2. Above 1 GHz



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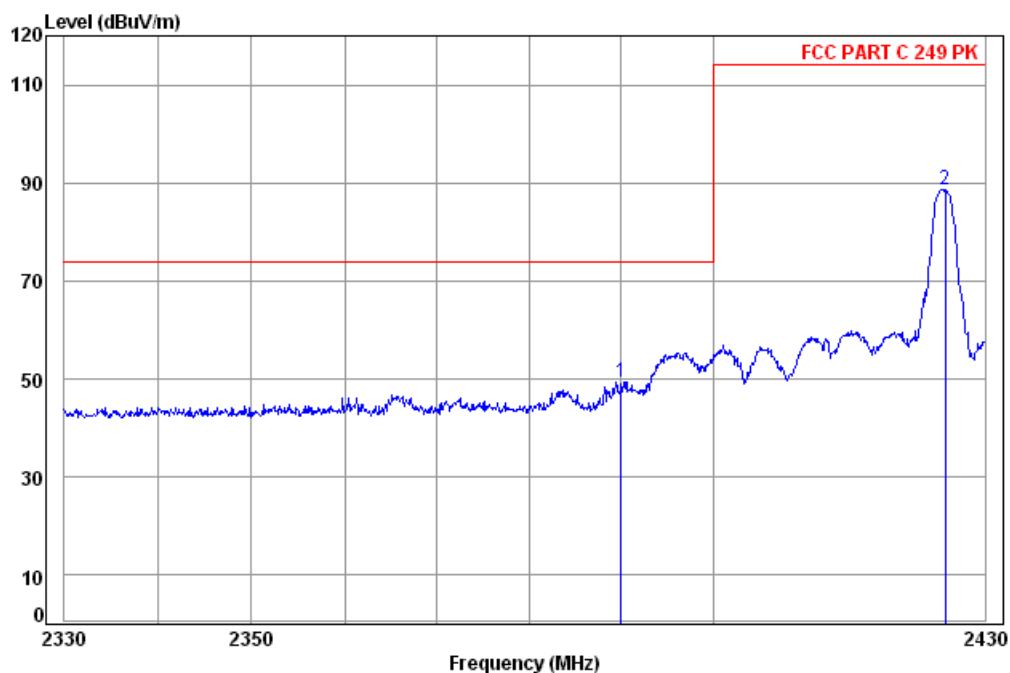
Test Procedure:	a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was 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 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. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel g. Test the EUT in the lowest 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.
Test Mode:	Transmitting mode
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



Test plot as follows:

Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Vertical
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Data: 22



Site : chamber

Condition: FCC PART C 249 PK 3m Vertical

Job No: : 2241CR

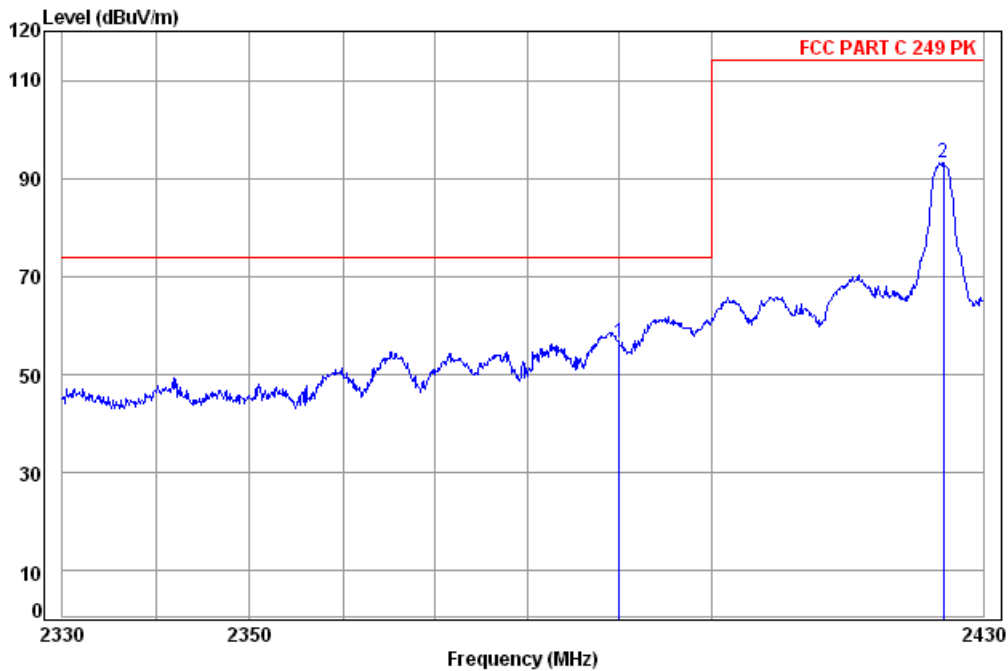
Mode: : 2425.35 Band edge

		Cable	Ant	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1 pp	2390.00	4.90	32.35	38.46	50.66	49.45	74.00 -24.55
2	2425.61	4.95	32.42	38.46	89.79	88.70	114.00 -25.30



Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Horizontal
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Data: 24



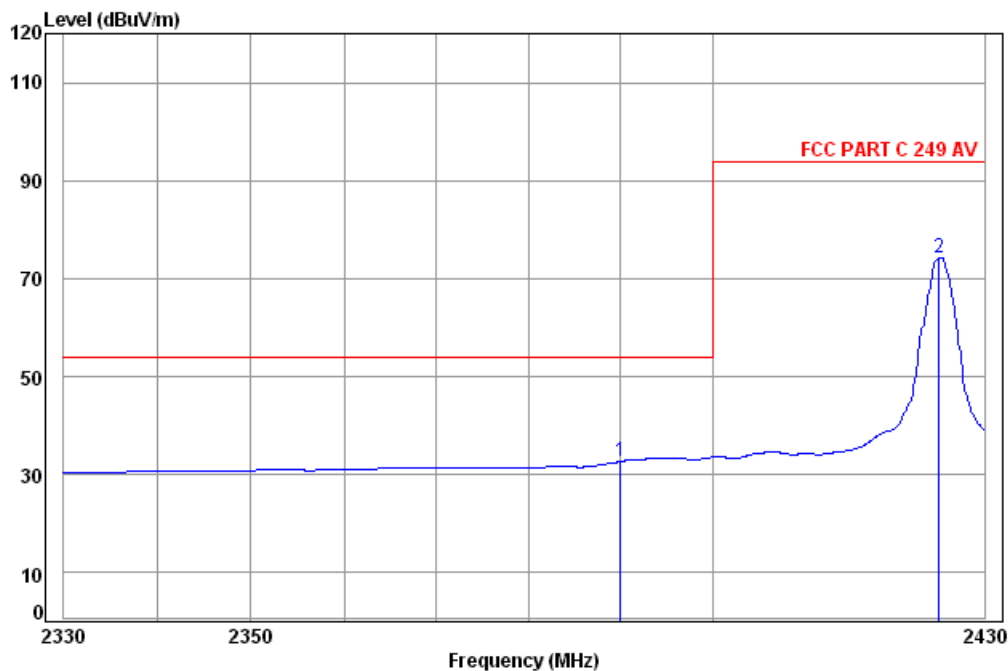
Site : chamber
Condition: FCC PART C 249 PK 3m Horizontal
Job No: : 2241CR
Mode: : 2425.35 Band edge

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2390.00	4.90	32.35	38.46	57.63	56.42	74.00	-17.58
2	2425.61	4.95	32.42	38.46	94.25	93.16	114.00	-20.84



Test mode:	Transmitting	Test channel:	Lowest	Remark:	Average	Vertical
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Data: 23



Site : chamber

Condition: FCC PART C 249 AV 3m Vertical

Job No: : 2241CR

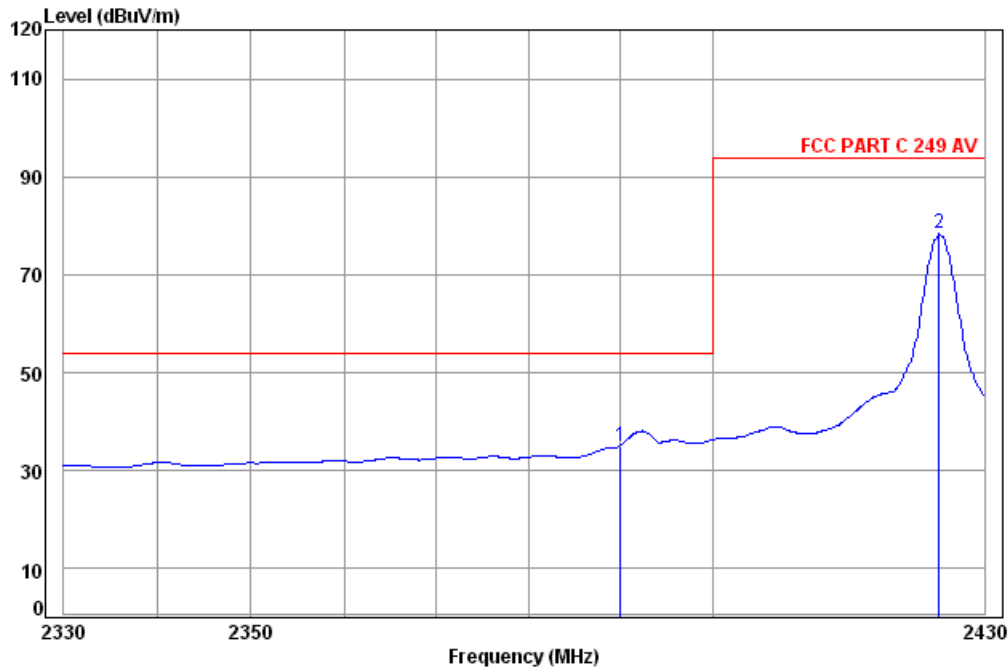
Mode: : 2425.35 Band edge

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.00	4.90	32.35	38.46	33.90	32.69	54.00	-21.31
2 pp	2425.00	4.95	32.42	38.46	75.47	74.38	94.00	-19.62



Test mode:	Transmitting	Test channel:	Lowest	Remark:	Average	Horizontal
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Data: 25



Site : chamber
Condition: FCC PART C 249 AV 3m Horizontal
Job No: : 2241CR
Mode: : 2425.35 Band edge

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.00	4.90	32.35	38.46	36.28	35.07	54.00	-18.93
2 pp	2425.00	4.95	32.42	38.46	79.41	78.32	94.00	-15.68



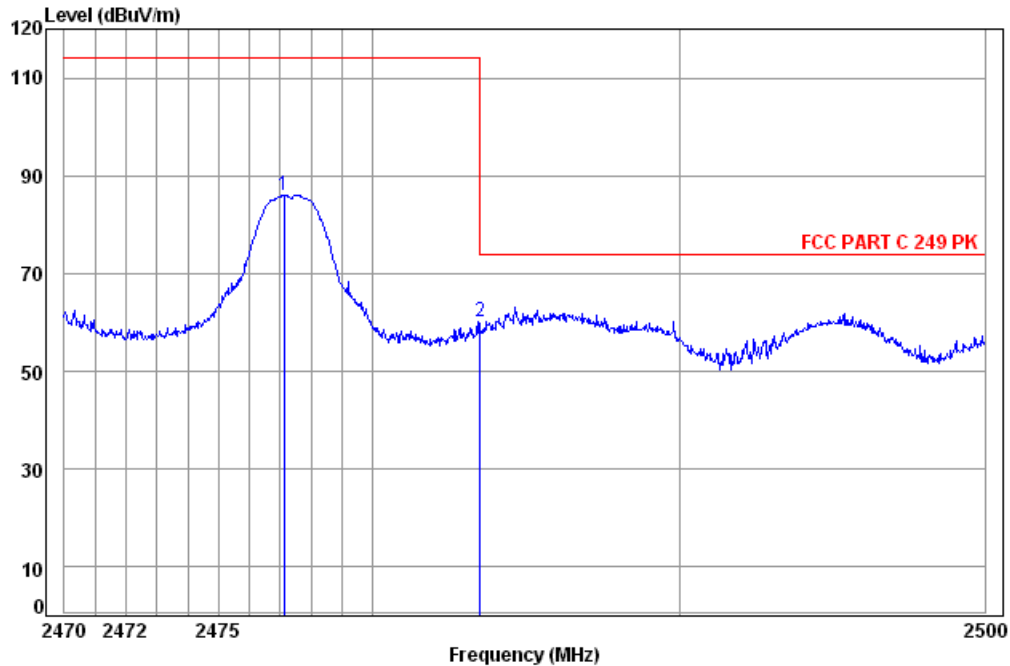
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Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak	Vertical
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Data: 18



Site : chamber
Condition: FCC PART C 249 PK 3m Vertical
Job No: : 2241CR
Mode: : 2477.35 Band edge

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2477.14	5.02	32.44	38.47	87.14	86.13	114.00	-27.87
2 pp	2483.50	5.03	32.44	38.47	61.00	60.00	74.00	-14.00



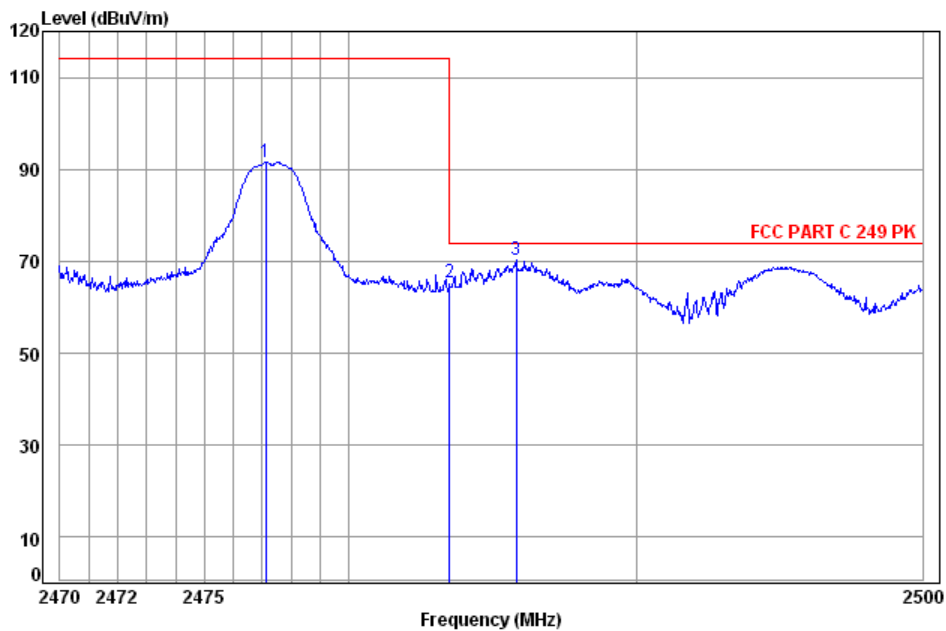
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Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak	Horizontal
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Data: 20



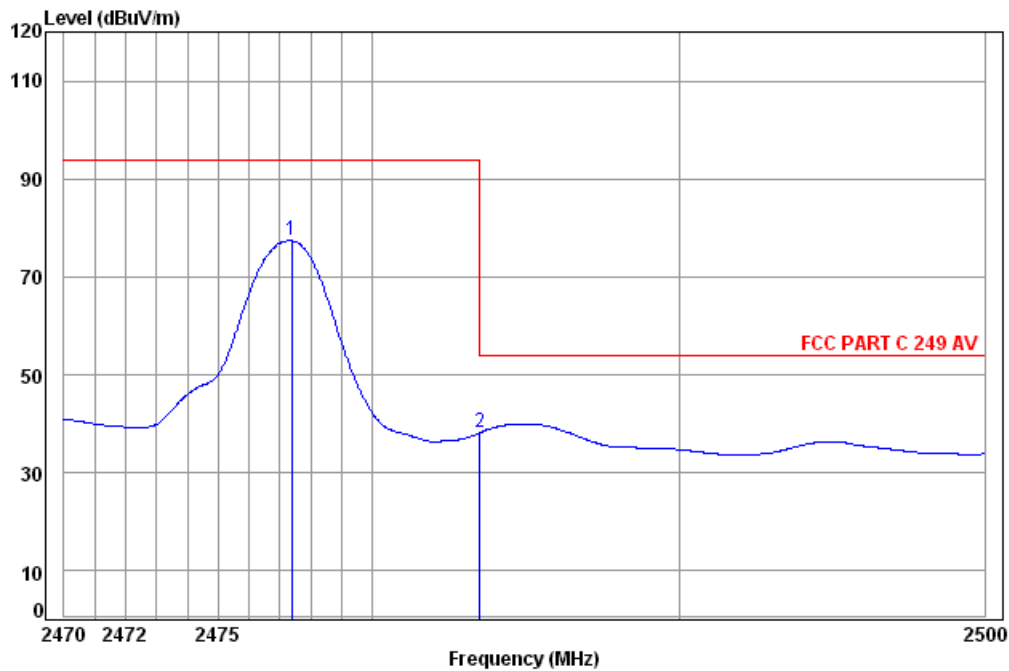
Site : chamber
Condition: FCC PART C 249 PK 3m Horizontal
Job No: : 2241CR
Mode: : 2477.35 Band edge

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2477.14	5.02	32.44	38.47	92.53	91.52	114.00	-22.48
2	2483.50	5.03	32.44	38.47	66.41	65.41	74.00	-8.59
3 pp	2485.83	5.03	32.44	38.47	71.25	70.25	74.00	-3.75



Test mode:	Transmitting	Test channel:	Highest	Remark:	Average	Vertical
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Data: 19



Site : chamber

Condition: FCC PART C 249 AV 3m Vertical

Job No: : 2241CR

Mode: : 2477.35 Band edge

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2477.38	5.02	32.44	38.47	78.39	77.38	94.00	-16.62
2 pp	2483.50	5.03	32.44	38.47	39.29	38.29	54.00	-15.71



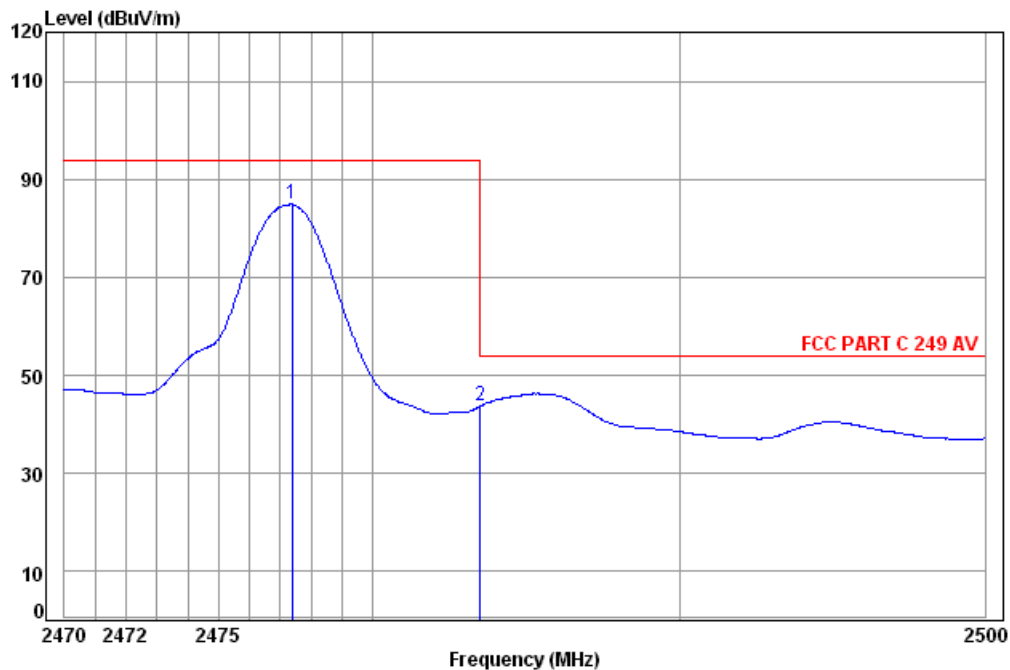
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Test mode:	Transmitting	Test channel:	Highest	Remark:	Average	Horizontal
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Data: 21



Site : chamber
Condition: FCC PART C 249 AV 3m Horizontal
Job No: : 2241CR
Mode: : 2477.35 Band edge

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	Limit
1 pp	2477.38	5.02	32.44	38.47	85.89	84.88	94.00 -9.12
2	2483.50	5.03	32.44	38.47	44.70	43.70	54.00 -10.30

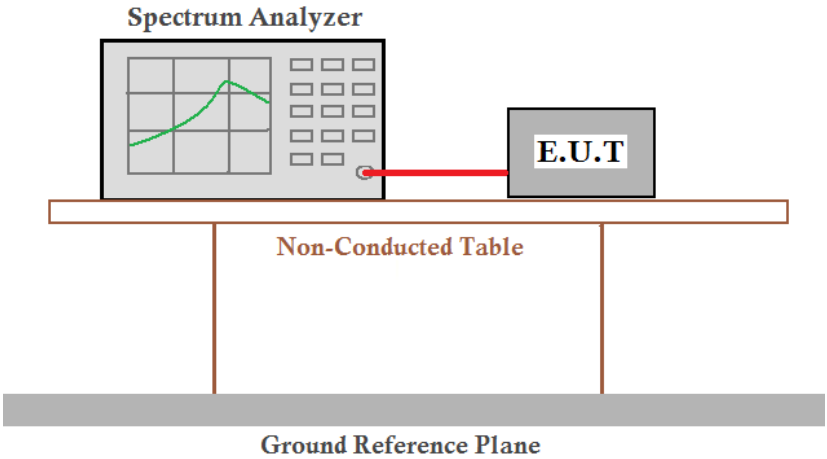
Note:

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

6.5 20dB Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.215
Test Method:	ANSI C63.10:2009
Test Setup:	
Limit:	N/A
Test Mode:	Transmitting mode
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

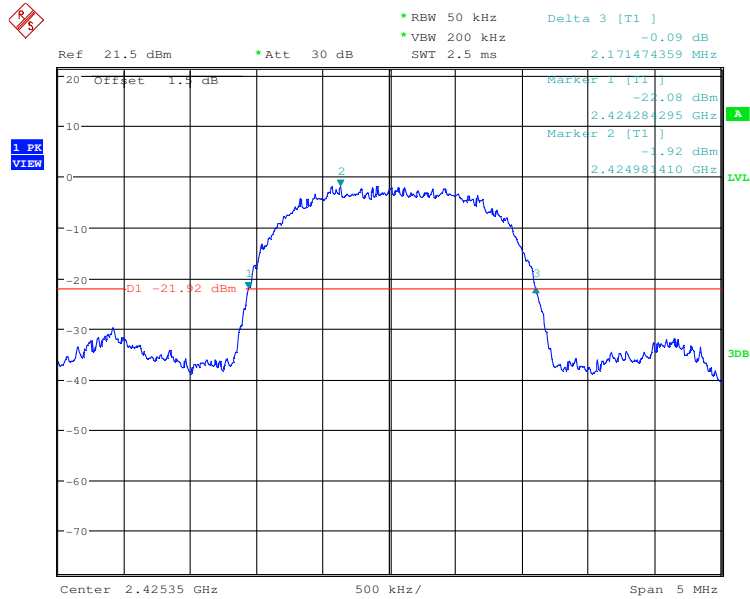
Measurement Data

Test Channel	20dB bandwidth (MHz)	Results
Lowest	2.171	Pass
Middle	2.179	Pass
Highest	2.188	Pass

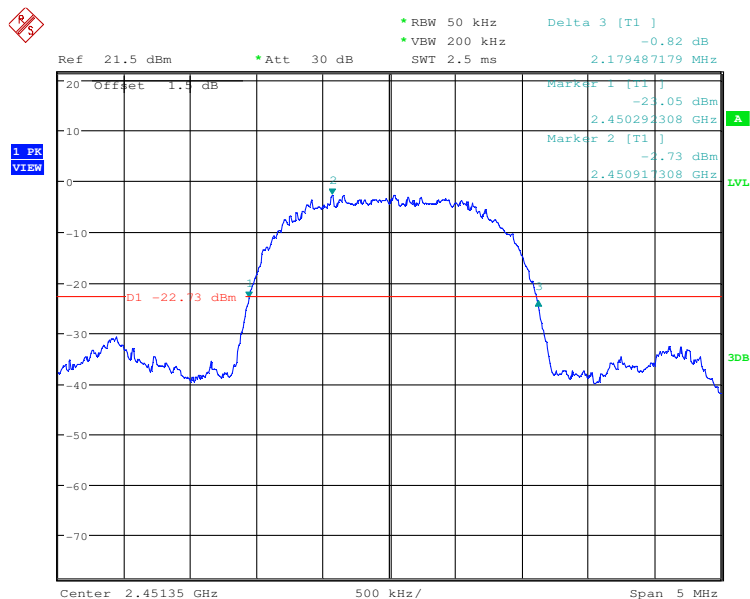


Test plot as follows:

Test channel:	Lowest
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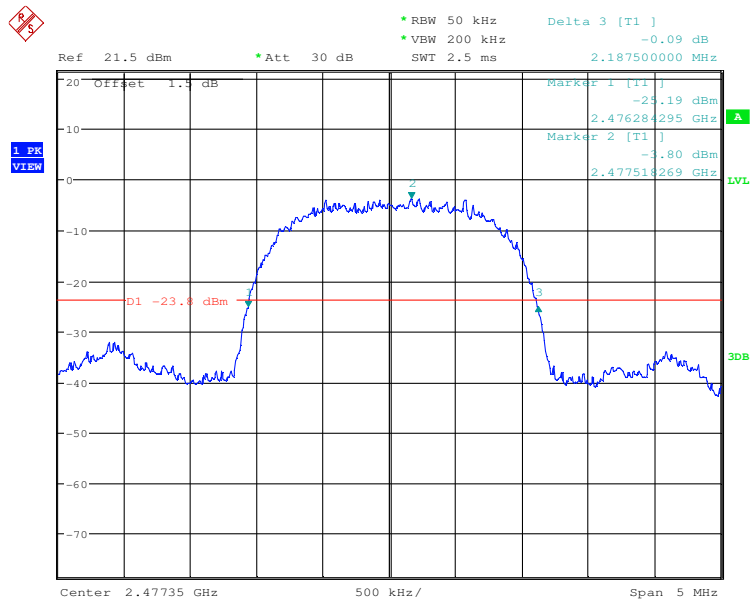
Test channel:	Middle
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Test channel:

Highest



--Report End--