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Report No.: SZEM160900765102

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FCC REPORT

Application No. : SZEM1609007651CR

Applicant: Physical Enterprises Inc.

Manufacturer: MITAC COMPUTER (KUNSHAN) CO., LTD

Factory: MITAC COMPUTER (KUNSHAN) CO., LTD

Product Name: Mio SLICE

Model No.(EUT): 60P

Trade Mark: mio

FCC ID: QVY60P

Standards: 47 CFR Part 15, Subpart C (2015)

Date of Receipt: 2016-09-07

Date of Test: 2016-09-13 to 2016-11-15

Date of Issue: 2016-11-15

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.

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2016-11-15		<i>Original</i>

Authorized for issue by:			
Tested By	 <hr/> (Peter Geng) /Project Engineer		2016-11-15
Checked By	 <hr/> (Eric Fu) /Reviewer		2016-11-15
		Date	
		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 (2013)	PASS
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.249 (a)	ANSI C63.10 (2013)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.249 (a)/15.209	ANSI C63.10 (2013)	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.249(a)/15.205	ANSI C63.10 (2013)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215 (c)	ANSI C63.10 (2013)	PASS

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5 General Information

5.1 Client Information

Applicant:	Physical Enterprises Inc.
Address of Applicant:	302-2930 Arbutus ST., Vancouver, BC, Canada, V6J 3Y9
Manufacturer:	MITAC COMPUTER (KUNSHAN) CO., LTD
Address of Manufacturer:	No.269, 2 nd Avenue, District A, Comprehensive Free Trade Zone, Kunshan, Jiangsu, P.R.C
Factory:	MITAC COMPUTER (KUNSHAN) CO., LTD
Address of Factory:	No.269, 2 nd Avenue, District A, Comprehensive Free Trade Zone, Kunshan, Jiangsu, P.R.C

5.2 General Description of EUT

Name:	Mio SLICE
Model No.:	60P
Trade Mark:	mio
Frequency Range:	2457MHz
Modulation Type:	GFSK
Sample Type:	Portable production
Antenna Type:	FPC antenna
Antenna Gain:	-3.5dBi
Power Supply:	DC 3.7V, charged from USB port by AC 120V/60Hz

5.3 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	53% RH
Atmospheric Pressure:	1005mbar
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 with associated equipment below.

Description	Manufacturer	Model No.
Adapter	Apple	A1357 W010A051

5.5 Test Location

All tests were performed at:

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

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.

- A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- VCCI**

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.: 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 and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

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. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2016-05-13	2017-05-13
2	LISN	Rohde & Schwarz	ENV216	SEM007-01	2016-10-09	2017-10-09
3	LISN	ETS-LINDGREN	3816/2	SEM007-02	2016-04-25	2017-04-25
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	2016-09-28	2017-09-28
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	2016-09-28	2017-09-28
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	2016-09-28	2017-09-28
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2016-04-25	2017-04-25
8	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2016-10-09	2017-10-09

RF connected test						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
2	Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2016-10-09	2017-10-09
3	Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2016-04-25	2017-04-25
4	Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2016-10-09	2017-10-09

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2016-05-13	2017-05-13
2	EMI Test Receiver (9k-3GHz)	Rohde & Schwarz	ESCI	SEM004-01	2016-04-25	2017-04-25
3	Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-29
4	Pre-amplifier	Sonoma Instrument Co	310N	SEM005-03	2016-07-06	2017-07-06
5	Loop Antenna	ETS-Lindgren	6502	SEM003-08	2015-08-14	2018-08-14



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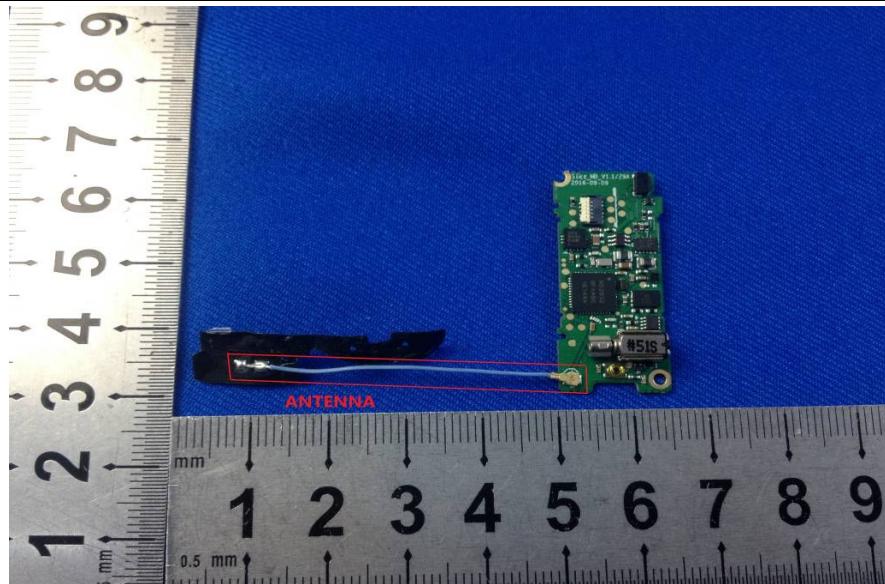
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RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2016-05-13	2017-05-13
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEM004-04	2016-04-25	2017-04-25
3	BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2014-11-15	2017-11-15
4	Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2016-10-09	2017-10-09
5	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
6	Horn Antenna (18-26GHz)	ETS-Lindgren	3160	SEM003-12	2014-11-24	2017-11-24
7	Horn Antenna(26GHz-40GHz)	A.H.Systems, inc.	SAS-573	SEM003-13	2015-02-12	2018-02-12
8	Low Noise Amplifier	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2016-10-09	2017-10-09
9	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A

6 Test results and Measurement Data

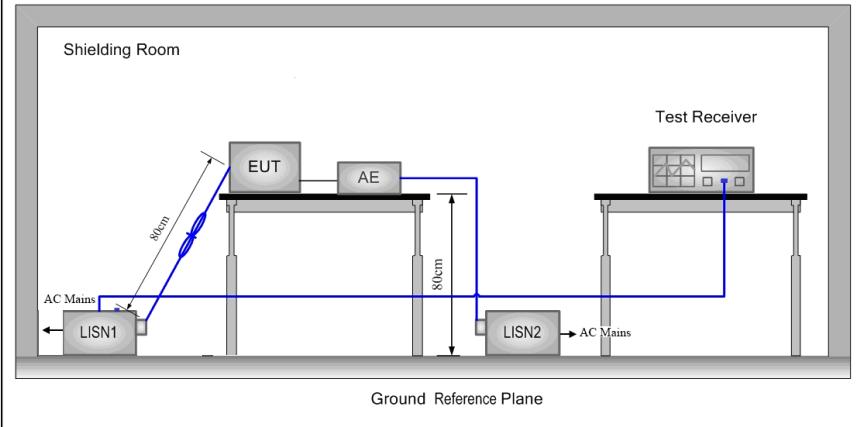
6.1 Antenna Requirement

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 designed so that a broken antenna can be replaced by the user. The best case gain of the antenna is -3.5dBi.

6.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207											
Test Method:	ANSI C63.10: 2013											
Test Frequency Range:	150kHz to 30MHz											
Limit:	<table border="1"> <thead> <tr> <th data-bbox="620 557 917 601">Frequency range (MHz)</th><th data-bbox="1097 557 1414 601">Limit (dBuV)</th></tr> <tr> <th data-bbox="1002 601 1160 646">Quasi-peak</th><th data-bbox="1271 601 1383 646">Average</th></tr> </thead> <tbody> <tr> <td data-bbox="716 646 811 691">0.15-0.5</td><td data-bbox="1017 646 1113 691">66 to 56*</td></tr> <tr> <td data-bbox="716 691 811 736">0.5-5</td><td data-bbox="1017 691 1065 736">56</td></tr> <tr> <td data-bbox="716 736 811 781">5-30</td><td data-bbox="1017 736 1065 781">60</td></tr> </tbody> </table>		Frequency range (MHz)	Limit (dBuV)	Quasi-peak	Average	0.15-0.5	66 to 56*	0.5-5	56	5-30	60
Frequency range (MHz)	Limit (dBuV)											
Quasi-peak	Average											
0.15-0.5	66 to 56*											
0.5-5	56											
5-30	60											
	* Decreases with the logarithm of the frequency.											
Test Procedure:	<ol style="list-style-type: none"> 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 $50\Omega/50\mu\text{H} + 5\Omega$ 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: 2013 on conducted measurement. 											

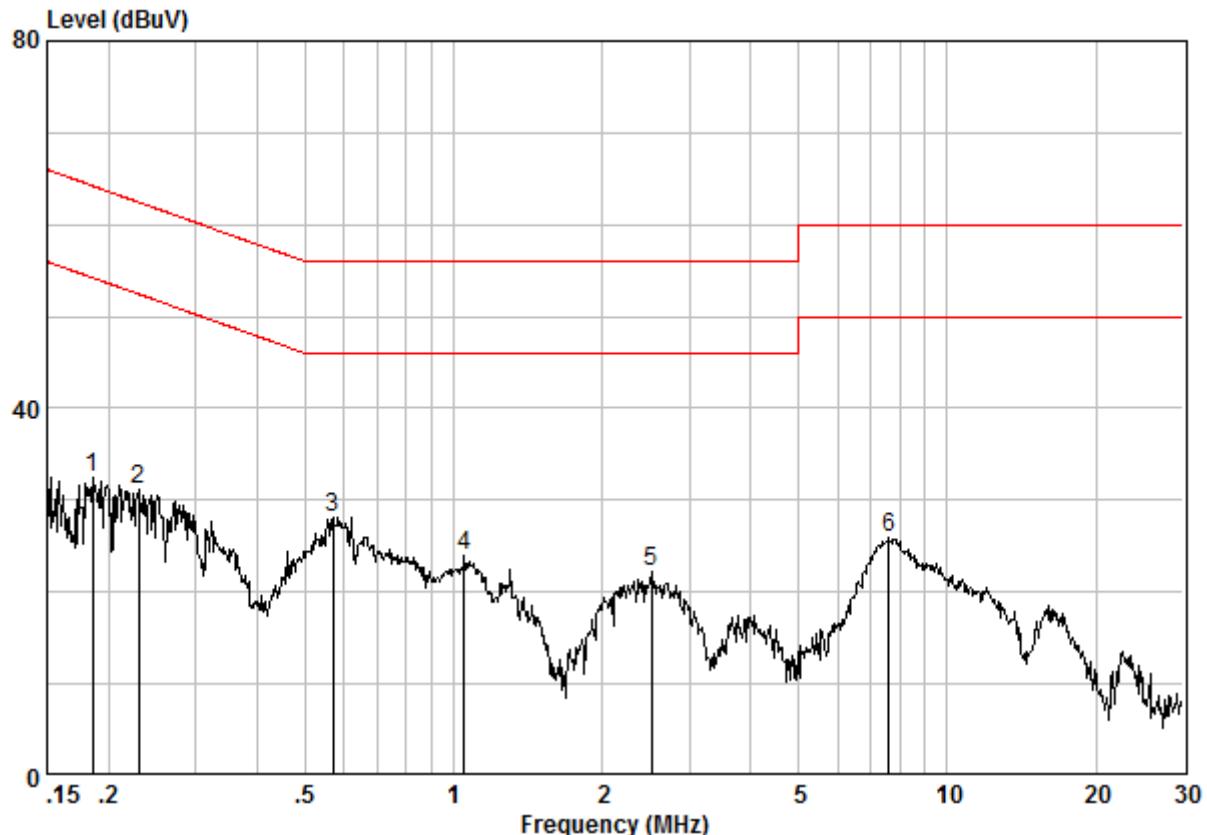
Test Setup:	
Test Mode:	charge + ANT mode
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

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

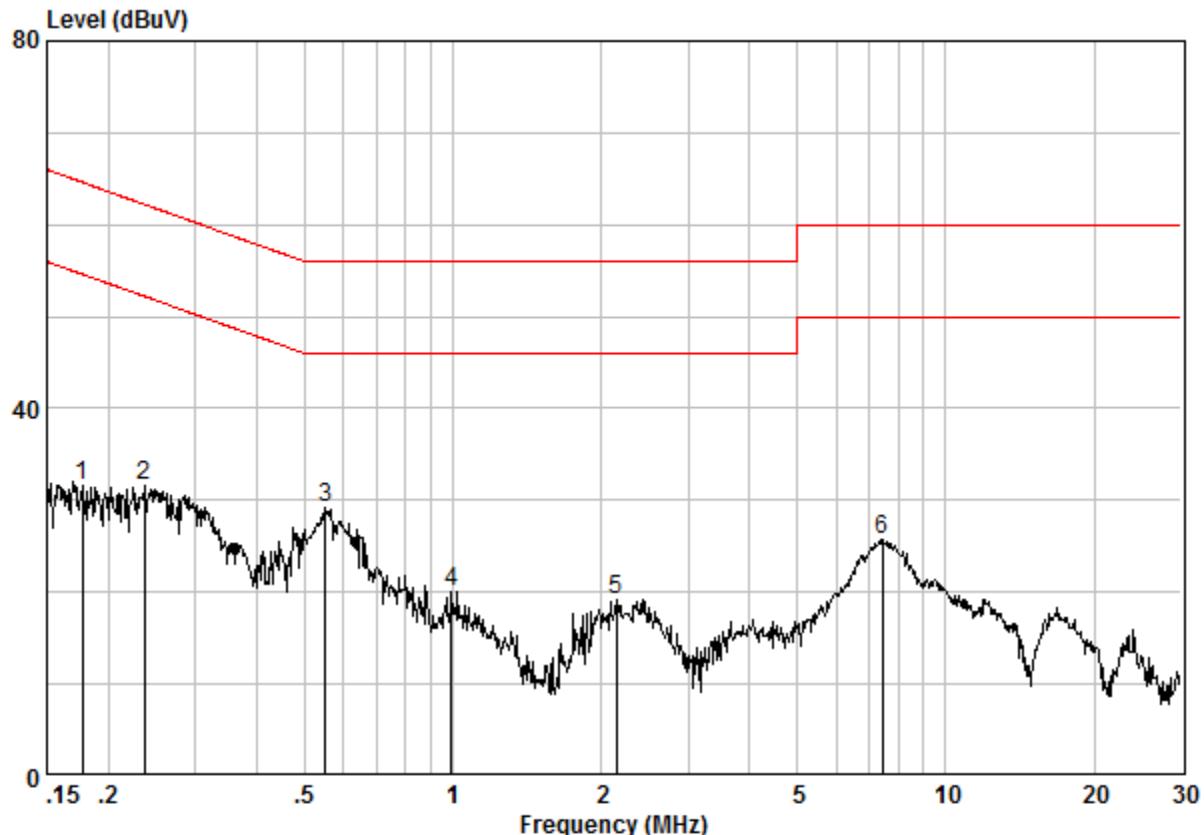
Condition : CE LINE

Job No. : 7651CR

Test Mode : Charge+ANT

	Cable Freq	LISN Loss	Read Level	Limit		Over Line	Over Limit	Remark
				MHz	dB	dBuV	dBuV	
1	0.18541	0.02	9.60	22.89	32.51	54.24	-21.73	Peak
2	0.23040	0.02	9.60	21.45	31.07	52.44	-21.37	Peak
3	0.57010	0.02	9.60	18.57	28.20	46.00	-17.80	Peak
4	1.049	0.03	9.62	14.30	23.95	46.00	-22.05	Peak
5	2.513	0.03	9.62	12.59	22.24	46.00	-23.76	Peak
6	7.606	0.09	9.69	16.08	25.86	50.00	-24.14	Peak

Neutral Line:



Site : Shielding Room

Condition : CE NEUTRAL

Job No. : 7651CR

Test Mode : Charge+ANT

	Cable	LISN	Read	Limit	Over	Over		
	Freq	Loss	Factor				Remark	
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17678	0.02	9.61	21.89	31.52	54.64	-23.12	Peak
2	0.23658	0.02	9.61	21.87	31.50	52.22	-20.71	Peak
3	0.55226	0.02	9.63	19.49	29.14	46.00	-16.86	Peak
4	0.99440	0.03	9.65	10.46	20.14	46.00	-25.86	Peak
5	2.144	0.03	9.66	9.43	19.12	46.00	-26.88	Peak
6	7.446	0.09	9.75	15.84	25.68	50.00	-24.32	Peak

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 15.249 and 15.209																																																					
Test Method:	ANSI C63.10: 2013																																																					
Test Site:	Below 1GHz: Measurement Distance: 10m (Semi-Anechoic Chamber) Above 1GHz: Measurement Distance: 3m (Full-Anechoic Chamber)																																																					
Receiver Setup:	<table border="1"> <thead> <tr> <th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr> </thead> <tbody> <tr> <td>0.009MHz-0.090MHz</td><td>Peak</td><td>10kHz</td><td>30kHz</td><td>Peak</td></tr> <tr> <td>0.009MHz-0.090MHz</td><td>Average</td><td>10kHz</td><td>30kHz</td><td>Average</td></tr> <tr> <td>0.090MHz-0.110MHz</td><td>Quasi-peak</td><td>10kHz</td><td>30kHz</td><td>Quasi-peak</td></tr> <tr> <td>0.110MHz-0.490MHz</td><td>Peak</td><td>10kHz</td><td>30kHz</td><td>Peak</td></tr> <tr> <td>0.110MHz-0.490MHz</td><td>Average</td><td>10kHz</td><td>30kHz</td><td>Average</td></tr> <tr> <td>0.490MHz -30MHz</td><td>Quasi-peak</td><td>10kHz</td><td>30kHz</td><td>Quasi-peak</td></tr> <tr> <td>30MHz-1GHz</td><td>Quasi-peak</td><td>100 kHz</td><td>300kHz</td><td>Quasi-peak</td></tr> <tr> <td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr> <tr> <td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</td></tr> </tbody> </table>					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
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																																																		
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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	29.9	29.5	Quasi-peak	10																																																	
	88MHz-216MHz	44.7	33	Quasi-peak	10																																																	
	216MHz-960MHz	60.3	35.5	Quasi-peak	10																																																	
	960MHz-1GHz	100	43.5	Quasi-peak	10																																																	
	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:	<ol style="list-style-type: none"> For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 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 or 10 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



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	<p>Specified Bandwidth with Maximum Hold Mode.</p> <p>g. 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.</p> <p>h. Test the EUT in the lowest channel, the middle channel, the Highest channel</p> <p>i. 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.</p> <p>j. Repeat above procedures until all frequencies measured was complete.</p>
Exploratory Test Mode:	Transmitting mode, Charge+ANT mode
Final Test Mode:	Pretest the EUT at Transmitting mode and Charge+ANT mode, found the Charge+ANT 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 Field Strength Of The Fundamental Signal

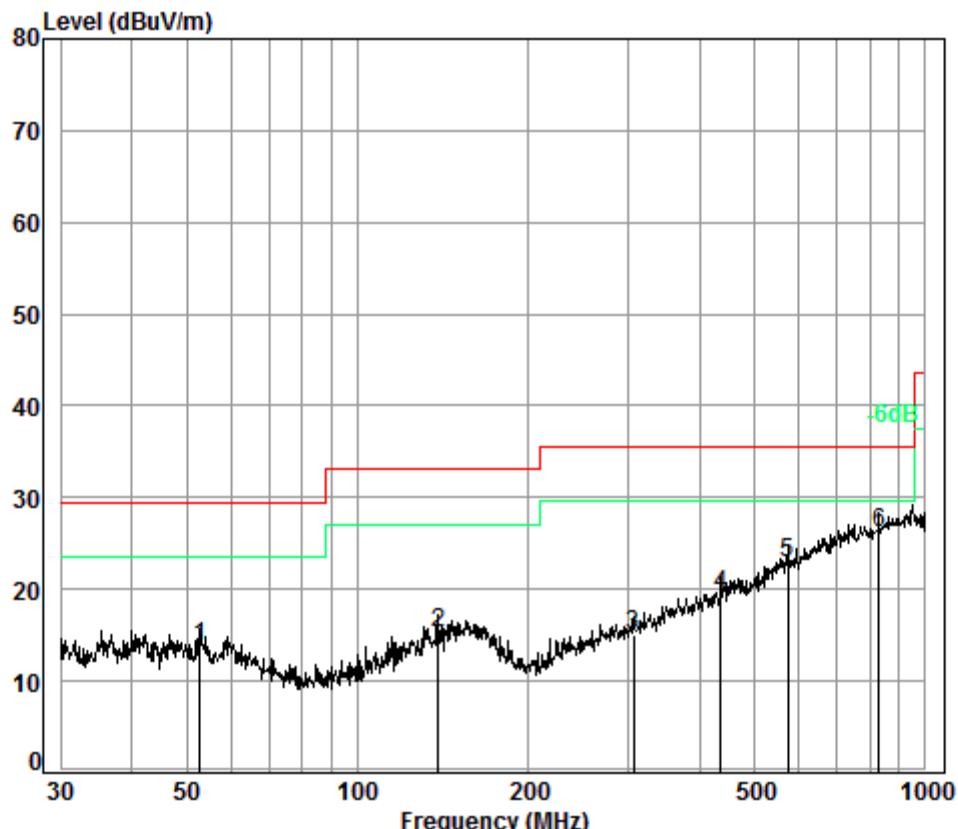
Peak value:

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
2457.291	5.39	29.28	38.15	100.88	97.40	114.00	-16.60	Horizontal
2457.291	5.39	29.28	38.15	98.10	94.62	114.00	-19.38	Vertical

6.3.2 Spurious Emissions
30MHz~1GHz

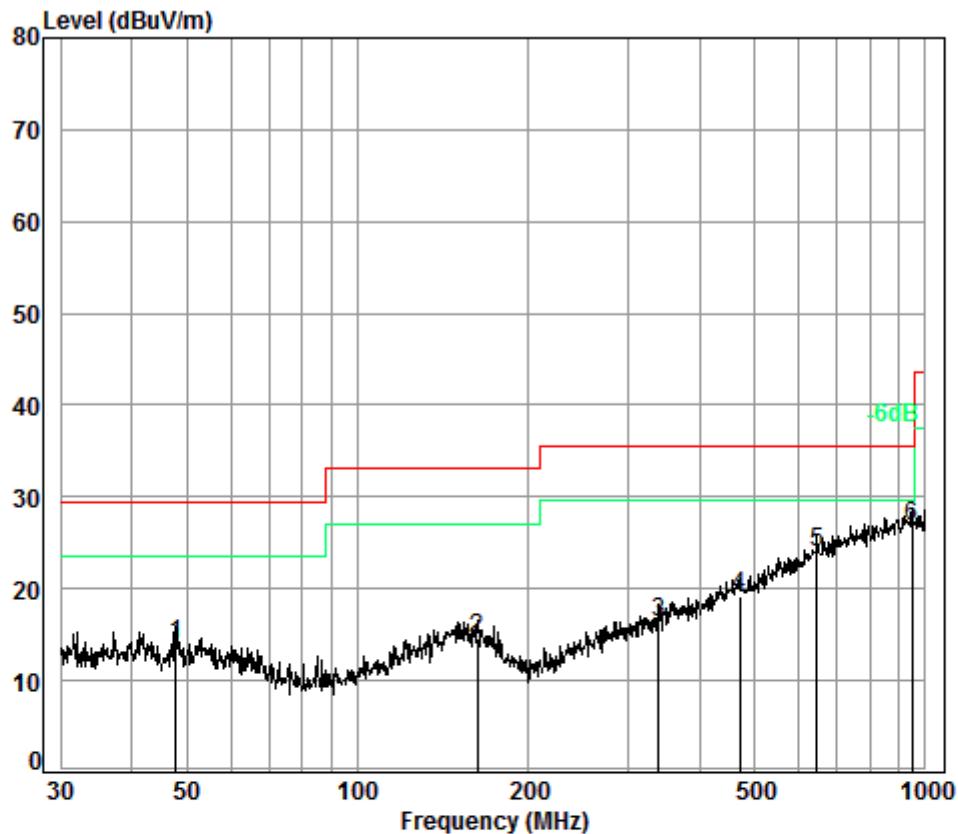
Test mode:	charge+ANT	Polarization:	Horizontal
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QP value:


Condition: 10m HORIZONTAL
Job No. : 7651CR
Test Mode: Charge+ANT

Freq	Cable	Ant	Preamp	Read	Limit	Over		
	Loss	Factor	Factor	Level				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	52.76	6.96	12.55	32.98	27.09	13.62	29.50	-15.88
2	138.87	7.39	12.68	32.75	27.97	15.29	33.10	-17.81
3	306.75	8.07	12.86	32.60	26.75	15.08	35.60	-20.52
4	437.12	8.39	15.86	32.60	27.76	19.41	35.60	-16.19
5	572.61	8.83	18.14	32.60	28.52	22.89	35.60	-12.71
6 pp	827.49	9.30	21.43	32.57	28.10	26.26	35.60	-9.34

Test mode:	charge+ANT	Polarization:	Vertical
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Condition: 10m VERTICAL

Job No. : 7651CR

Test Mode: Charge+ANT

Freq	Cable	Ant	Preamp	Read	Limit	Over		
	Loss	Factor	Factor	Level	Level	Line	Limit	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	47.99	6.86	12.83	33.00	27.18	13.87	29.50	-15.63
2	162.61	7.50	13.13	32.73	26.72	14.62	33.10	-18.48
3	339.59	8.20	13.65	32.60	27.09	16.34	35.60	-19.26
4	470.52	8.48	16.40	32.60	26.87	19.15	35.60	-16.45
5	645.12	9.01	19.48	32.60	28.15	24.04	35.60	-11.56
6 pp	948.76	9.57	22.72	32.50	27.07	26.86	35.60	-8.74



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Below 1GHz

The test was performed at a 10m test site. According to below formulate and the test data at 10m test distance,

$$L_3 / L_{10} = D_{10} / D_3$$

Note:

L_3 : Level @ 3m distance. Unit: uV/m;

L_{10} : Level @ 10m distance. Unit: uV/m;

D_3 : 3m distance. Unit: m

D_{10} : 10m distance. Unit: m

The level at 3m test distance is below:

Frequency (MHz)	Level @ 10m (dBuV/m)	Level @ 10m (uV/m)	Level @ 3m (uV/m)	Level @ 3m (dBuV/m)	Limit @ 3m (dBuV/m)	Margin (dB)	Ant. Polarization
47.99	13.87	4.94	16.46	24.33	40.00	-15.67	V
162.61	14.62	5.38	17.94	25.08	43.50	-18.42	V
339.59	16.34	6.56	21.87	26.80	46.00	-19.20	V
470.52	19.15	9.07	30.23	29.61	46.00	-16.39	V
645.12	24.04	15.92	53.07	34.50	46.00	-11.50	V
948.76	26.86	22.03	73.43	37.32	46.00	-8.68	V
52.76	13.62	4.80	15.99	24.08	40.00	-15.92	H
138.87	15.29	5.81	19.38	25.75	43.50	-17.75	H
306.75	15.08	5.68	18.92	25.54	46.00	-20.46	H
437.12	19.41	9.34	31.14	29.87	46.00	-16.13	H
572.61	22.89	13.95	46.49	33.35	46.00	-12.65	H
827.49	26.26	20.56	68.53	36.72	46.00	-9.28	H



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Above 1GHz								
Test mode:	Transmitting		Test channel:	2457MHz		Remark:	Peak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3711.030	32.81	7.71	38.57	44.81	46.76	74	-27.24	Vertical
4914.000	34.35	9.02	39.07	43.87	48.17	74	-25.83	Vertical
6078.201	34.76	10.46	38.95	44.39	50.66	74	-23.34	Vertical
7371.000	36.35	10.74	38.01	41.97	51.05	74	-22.95	Vertical
9828.000	37.57	12.62	36.88	39.31	52.62	74	-21.38	Vertical
12386.320	38.83	14.24	38.70	39.21	53.58	74	-20.42	Horizontal
3842.163	33.18	7.76	38.63	45.31	47.62	74	-26.38	Horizontal
4914.000	34.35	9.02	39.07	43.77	48.07	74	-25.93	Horizontal
6193.614	34.86	10.31	38.88	44.03	50.32	74	-23.68	Horizontal
7371.000	36.35	10.74	38.01	43.28	52.36	74	-21.64	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.

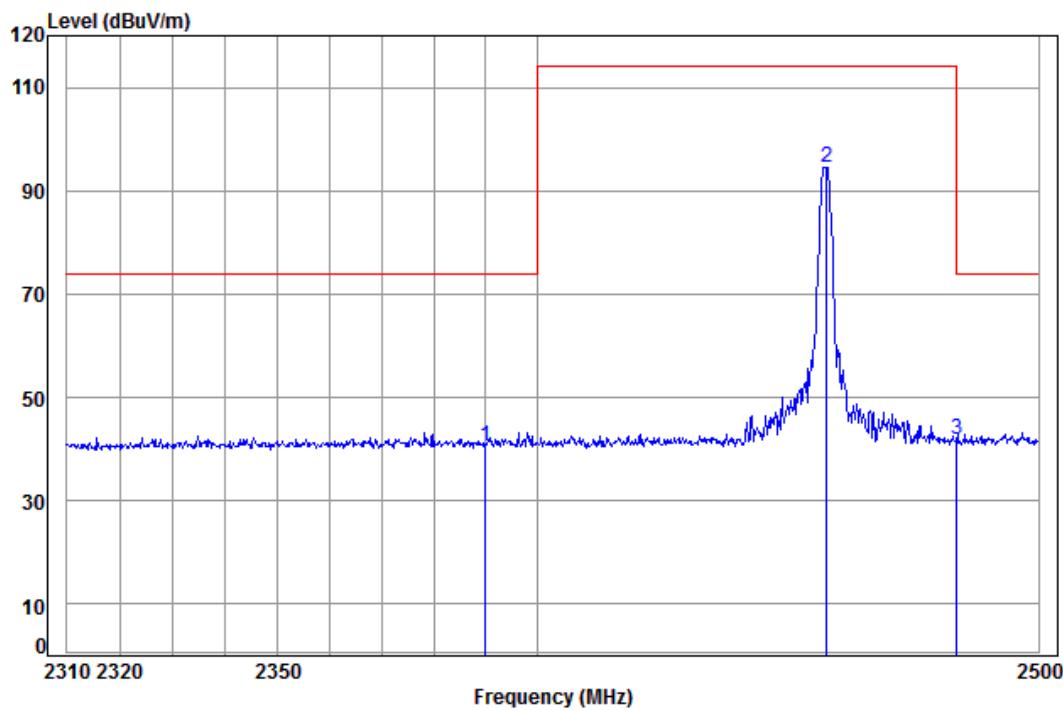
6.4 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205	
Test Method:	ANSI C63.10: 2013	
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	

Test Procedure:	<ul style="list-style-type: none">a. For below 1GHz, 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. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 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.c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.d. 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.e. 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.f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.g. 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 channelh. Test the EUT in the lowest channel , the Highest channeli. 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.j. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting mode, Charge+ANT mode
Final Test Mode:	Pretest the EUT at Transmitting mode and Charge+ANT mode, found the Charge+ANT 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

Test plot as follows:

Test mode:	GFSK	Remark:	Peak	Vertical
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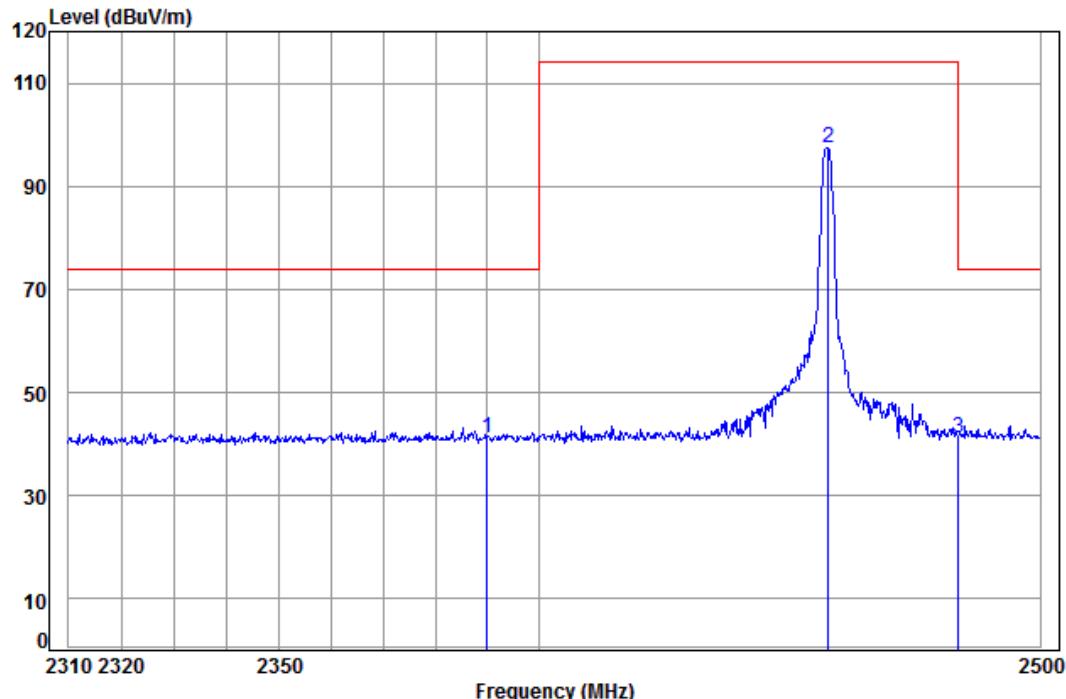
Condition: 3m Vertical

Job No: : 7651CR

Mode: : 2457 Bandedge

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	5.34	29.08	38.14	44.36	40.64	74.00	-33.36
2 pp	2457.291	5.39	29.28	38.15	98.10	94.62	114.00	-19.38
3	2483.500	5.41	29.35	38.15	45.29	41.90	74.00	-32.10

Test mode:	GFSK	Remark:	Peak	Horizontal
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Condition: 3m Horizontal

Job No: : 7651CR

Mode: : 2457 Bandedge

	Cable Freq	Ant Loss	Preamp Factor	Read Level	Limit Level	Line Level	Over Limit	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	5.34	29.08	38.14	44.95	41.23	74.00	-32.77
2 pp	2457.291	5.39	29.28	38.15	100.88	97.40	114.00	-16.60
3	2483.500	5.41	29.35	38.15	44.72	41.33	74.00	-32.67

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

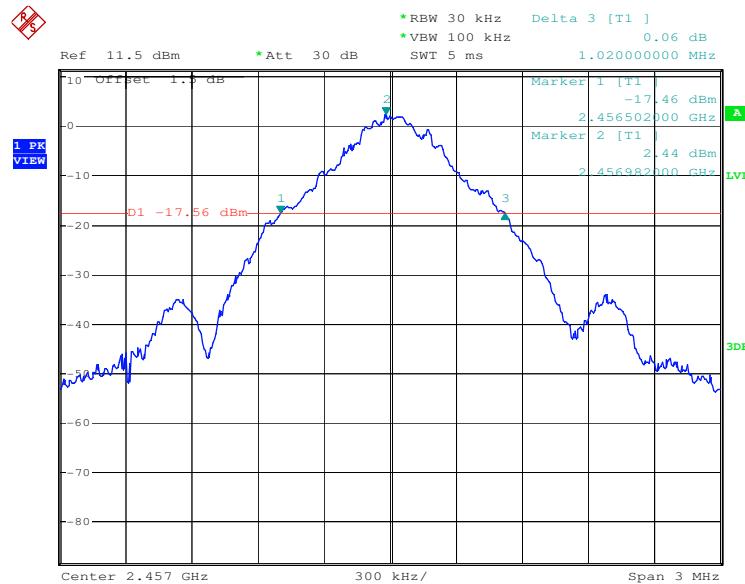
6.5 20dB Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.215	
Test Method:	ANSI C63.10:2013	
Test Setup:		
Limit:	N/A	
Exploratory Test Mode:	Transmitter mode	
Final Test Mode:	Transmitter mode	
Instruments Used:	Refer to section 5.10 for details	
Test Results:	Pass	

Measurement Data

Test Channel	20dB bandwidth (MHz)	Results
2457MHz	1.020	Pass

Test plot as follows:



7 Photographs - EUT Test Setup (Test model No.:60P)

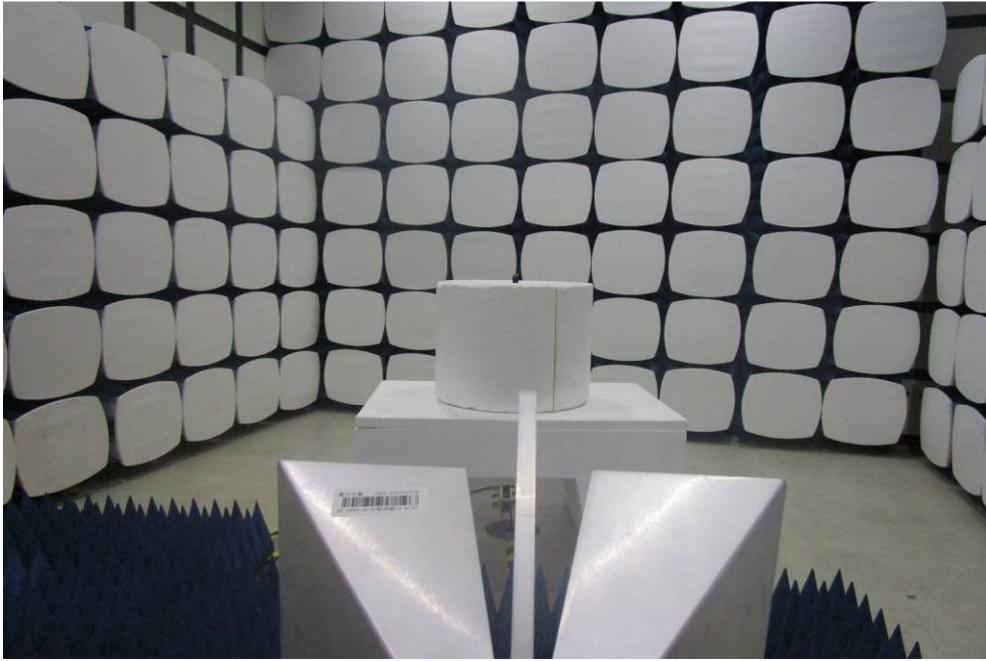
7.1 Conducted Emission



7.2 Radiated Emission



7.3 Radiated Spurious Emission



8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1609007651CR.