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

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FCC REPORT

Application No. :	SZEM1605003846CR
Applicant:	Asian Express Holdings Limited
Manufacturer:	Asian Express Holdings Limited
Product Name:	Atom 1.0 Micro Drone
Model No.(EUT):	PL-1390
Add Model No.	PL-1391, PL-1392, PL-1393, PL-1394, PL-1395, PL-1396, PL-1397, PL-1398, PL-1399
FCC ID:	VLEPL1390-R
Standards:	47 CFR Part 15, Subpart C (2015)
Date of Receipt:	2016-05-26
Date of Test:	2016-05-27 to 2016-05-31
Date of Issue:	2016-06-17
Test Result:	**PASS ***

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

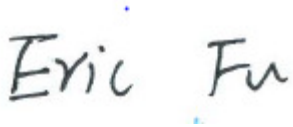
Authorized Signature:

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		*2016-06-17*		*Original*

Authorized for issue by:				
Tested By		 **(Bill Chen) /Project Engineer**		2016-05-31 **Date**
Prepared By		 **(Iris Zhou) /Clerk**		2016-06-17 **Date**
Checked By		 **(Eric Fu) /Reviewer**		2016-06-17 **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 (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

4 Contents

5 General Information

5.1 Client Information

Applicant:	Asian Express Holdings Limited
Address of Applicant:	RM1702, Sino Centre, 582-592 Nathan Road, Kowloon, Hong Kong.
Manufacturer:	Asian Express Holdings Limited
Address of Manufacturer:	RM1702, Sino Centre, 582-592 Nathan Road, Kowloon, Hong Kong.

5.2 General Description of EUT

Name:	Atom 1.0 Micro Drone
Model No.:	PL-1390
Frequency Range:	2405-2475MHz
Modulation Type:	GFSK
Channel Separation	1MHz
Number of Channels:	71
EUT Function:	2.4G SRD
Antenna Type:	Integral
Antenna Gain:	0dBi
Power Supply:	Rechargeable battery: DC 3.7V 100mA 0.4Wh (charge by USB)

Remark:

Model No.: PL-1390, PL-1391, PL-1392, PL-1393, PL-1394, PL-1395, PL-1396, PL-1397, PL-1398, PL-1399
Only the model PL-1390 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for all above models, only different on model name and color.

Operation Frequency each of channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1CH	2405 MHz	25CH	2429 MHz	49CH	2453 MHz
2CH	2406 MHz	26CH	2430 MHz	50CH	2454 MHz
3CH	2407 MHz	27CH	2431 MHz	51CH	2455 MHz
4CH	2408 MHz	28CH	2432 MHz	52CH	2456 MHz
5CH	2409 MHz	29CH	2433 MHz	53CH	2457 MHz
6CH	2410 MHz	30CH	2434 MHz	54CH	2458 MHz
7CH	2411 MHz	31CH	2435 MHz	55CH	2459 MHz
8CH	2412 MHz	32CH	2436 MHz	56CH	2460 MHz
9CH	2413 MHz	33CH	2437 MHz	57CH	2461 MHz
10CH	2414 MHz	34CH	2438 MHz	58CH	2462 MHz
11CH	2415 MHz	35CH	2439 MHz	59CH	2463 MHz
12CH	2416 MHz	36CH	2440 MHz	60CH	2464 MHz
13CH	2417 MHz	37CH	2441 MHz	61CH	2465 MHz
14CH	2418 MHz	38CH	2442 MHz	62CH	2466 MHz
15CH	2419 MHz	39CH	2443 MHz	63CH	2467 MHz
16CH	2420 MHz	40CH	2444 MHz	64CH	2468 MHz
17CH	2421 MHz	41CH	2445 MHz	65CH	2469 MHz
18CH	2422 MHz	42CH	2446 MHz	66CH	2470 MHz
19CH	2423 MHz	43CH	2447 MHz	67CH	2471 MHz
20CH	2424 MHz	44CH	2448 MHz	68CH	2472 MHz
21CH	2425 MHz	45CH	2449 MHz	69CH	2473 MHz
22CH	2426 MHz	46CH	2450 MHz	70CH	2474 MHz
23CH	2427 MHz	47CH	2451 MHz	71CH	2475 MHz
24CH	2428 MHz	48CH	2452 MHz		

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)	2405MHz
The middle channel (CH41)	2445MHz
The highest channel (CH71)	2475MHz

5.3 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	50 %
Atmospheric Pressure:	1010mbar
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with modulation.

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., 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.

• **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

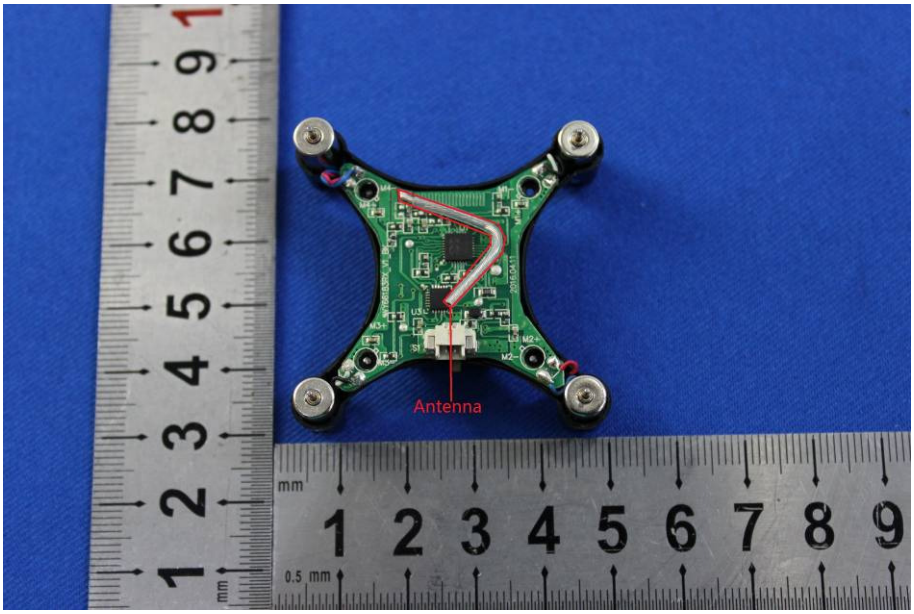
RE in Chamber						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2015-08-01	2016-08-01
2	EMI Test Receiver (9k-3GHz)	Rohde & Schwarz	ESCI	SEM004-01	2016-04-25	2017-04-25
3	Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-17	2016-01-26	2017-01-26
4	Pre-amplifier	Sonoma Instrument Co	310N	SEM005-03	2016-04-25	2017-04-25
5	Loop Antenna	ETS-Lindgren	6502	SEM003-08	2015-08-14	2016-08-14

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	2015-10-09	2016-10-09
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	Low Noise Amplifier	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2015-10-09	2016-10-09
8	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A

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	2015-10-09	2016-10-09
2	Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2015-10-17	2016-10-17
3	Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2016-04-25	2017-04-25
4	Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2015-10-09	2016-10-09

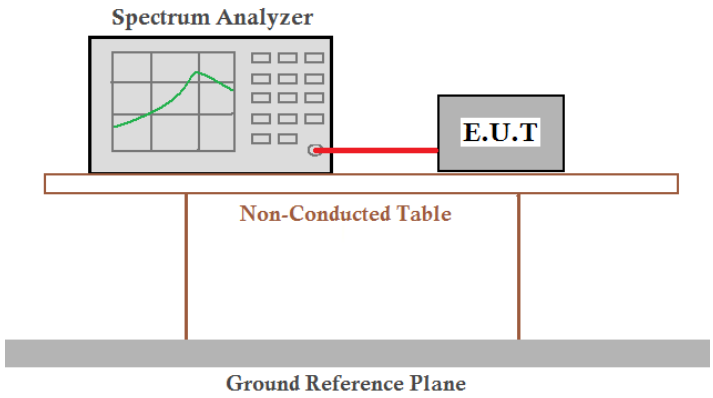
6 Test results and Measurement Data

6.1 Antenna Requirement

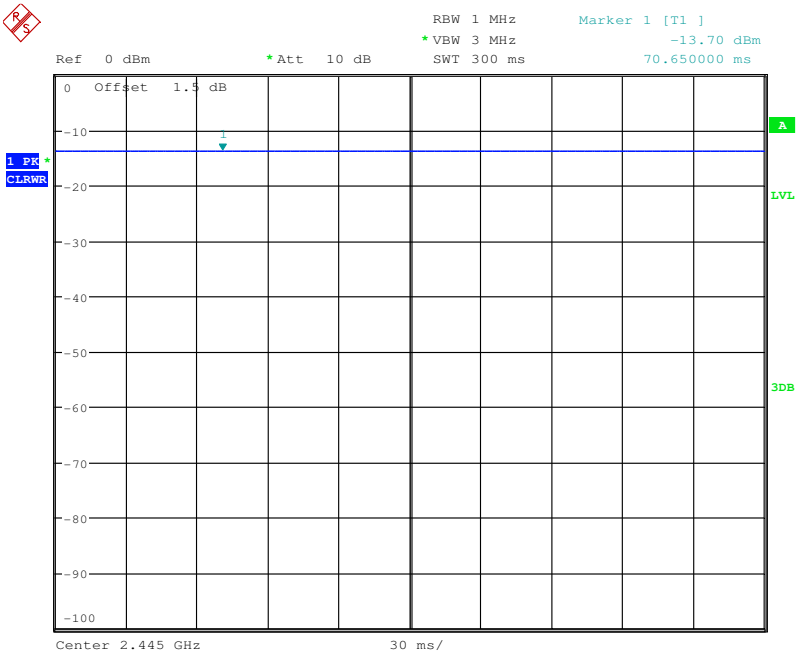
Standard requirement:	47 CFR Part 15C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique 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 Spurious Emissions

6.2.1 Duty Cycle

Test Requirement:	47 CFR Part 15C Section 15.35 (c)
Test Method:	ANSI C63.10:2013
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Limit:	N/A
Test Mode:	Transmitting mode
Test Results:	Pass

Duty cycle numbers



6.2.2 Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.249 and 15.209
Test Method:	ANSI C63.10: 2013
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber) Measurement Distance: 10m (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	29.9	40.0	Quasi-peak	10
88MHz-216MHz	44.7	43.5	Quasi-peak	10
216MHz-960MHz	60.3	46.0	Quasi-peak	10
960MHz-1GHz	100	54.0	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:	

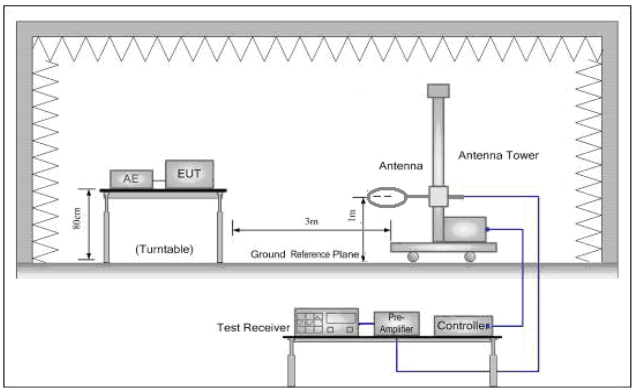


Figure 1. Below 30MHz

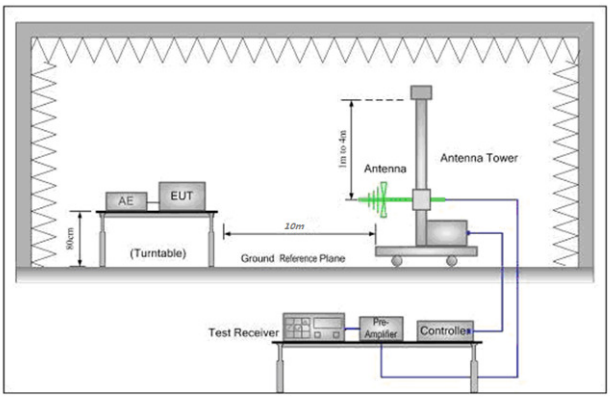


Figure 2. 30MHz to 1GHz

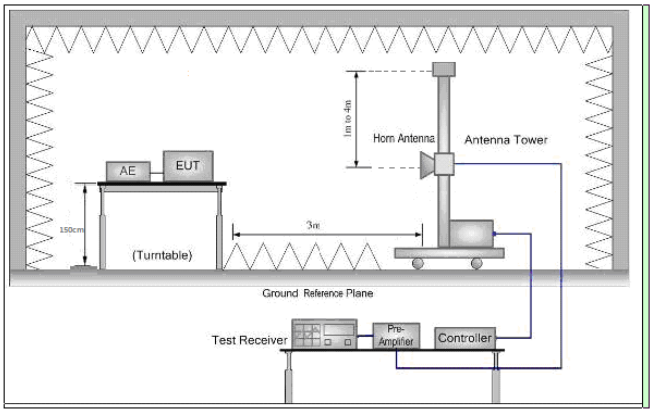


Figure 3. Above 1 GHz

Test Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 and 10 meter semi-anechoic camber. 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 camber. The table was rotated 360 degrees to determine the position of the highest radiation c. 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. 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 (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. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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. h. Test the EUT in the lowest channel, the middle channel, the Highest channel 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. j. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 5.10 for details
Test Mode:	Transmitting mode
Test Results:	Pass

Measurement Data

6.2.2.1 Field Strength Of The Fundamental Signal

Peak value:

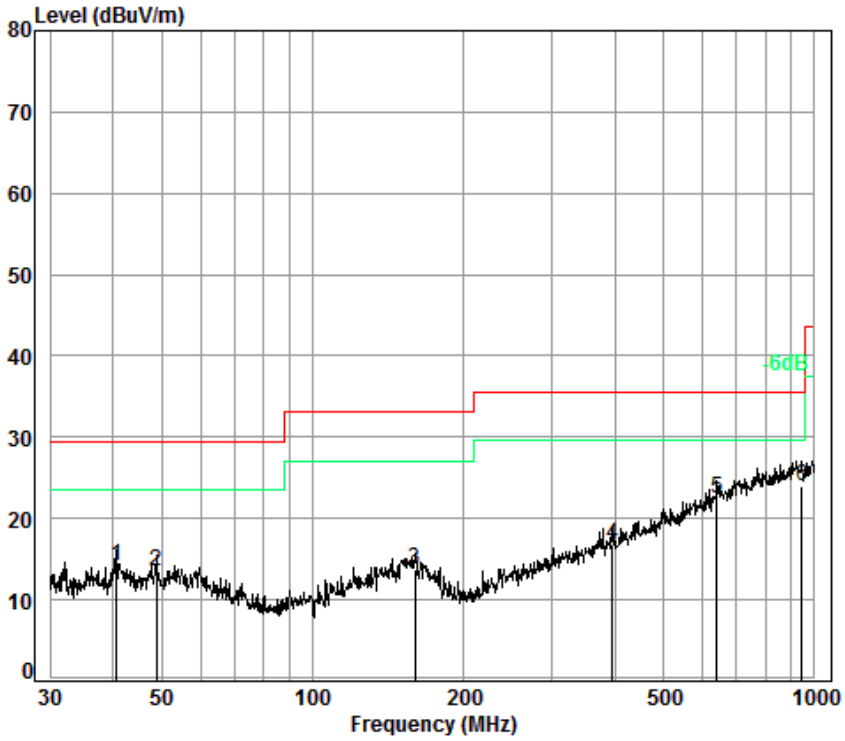
Frequency (MHz)	Antenna Factor (dB/m)	Cable loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2405.020	28.62	5.35	38.11	78.47	74.33	114.00	-39.67	Horizontal
2405.020	28.62	5.35	38.11	72.78	68.64	114.00	-45.36	Vertical
2445.038	28.81	5.38	38.11	77.51	73.59	114.00	-40.41	Horizontal
2445.038	28.81	5.38	38.11	69.54	65.62	114.00	-48.38	Vertical
2475.069	28.95	5.40	38.12	75.24	71.47	114.00	-42.53	Horizontal
2475.015	28.95	5.40	38.12	69.83	66.06	114.00	-47.94	Vertical

Remark:

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.

6.2.2.2 Spurious Emissions

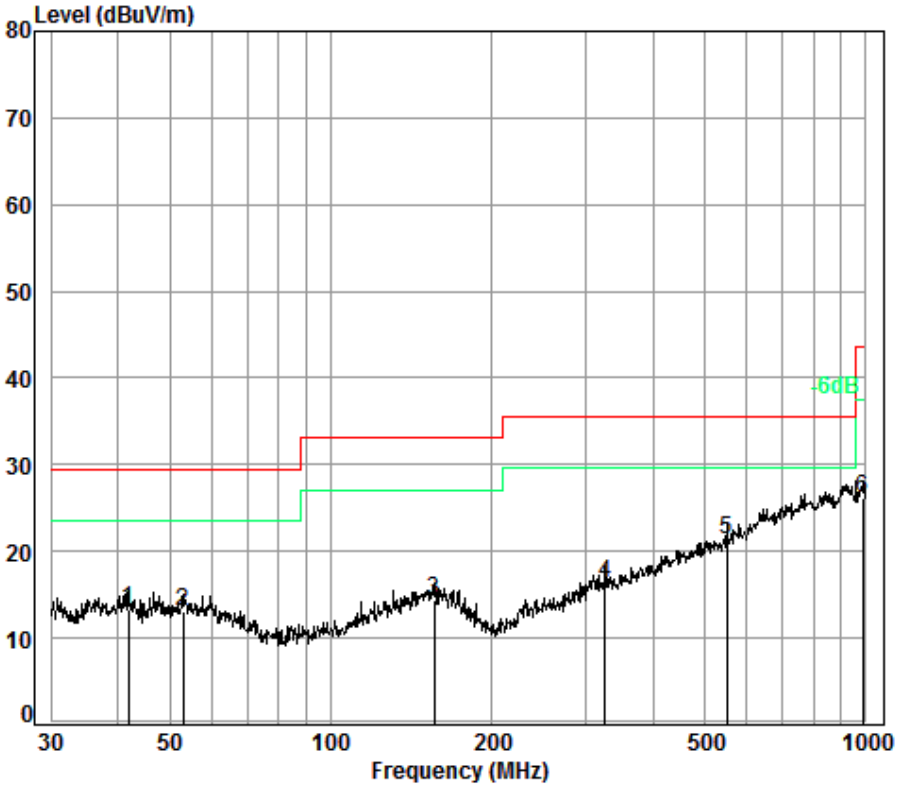
Radiated emission below 1GHz			
Test mode:	Transmitter mode	Polarization:	Vertical



Condition: 10m VERTICAL
Job No. : 3846CR
Test Mode: TX mode
: Airplane

	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	40.70	6.80	13.26	32.99	27.01	14.08	29.50	-15.42
2	48.84	6.88	12.81	33.00	26.80	13.49	29.50	-16.01
3	159.78	7.50	13.39	32.73	25.55	13.71	33.10	-19.39
4	396.24	8.30	14.79	32.60	26.39	16.88	35.60	-18.72
5	638.37	9.00	19.39	32.60	26.75	22.54	35.60	-13.06
6 pp	942.13	9.56	22.68	32.50	24.23	23.97	35.60	-11.63

Test mode:	Transmitter mode	Polarization:	Horizontal



Condition: 10m HORIZONTAL
Job No. : 3846CR
Test Mode: TX mode
: Airplane

	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	41.86	6.80	13.16	32.99	26.41	13.38	29.50	-16.12
2	52.95	6.96	12.54	32.98	26.47	12.99	29.50	-16.51
3	155.91	7.48	13.40	32.74	26.32	14.46	33.10	-18.64
4	325.60	8.13	13.38	32.60	27.38	16.29	35.60	-19.31
5 pp	550.95	8.78	17.75	32.60	27.35	21.28	35.60	-14.32
6	986.07	9.60	22.83	32.50	26.29	26.22	43.50	-17.28

Transmitter emission above 1GHz								
Test mode:	Transmitter		Test channel:	Lowest		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
3694.956	32.49	7.70	38.44	44.91	46.66	74.00	-27.34	Vertical
4810.000	34.11	8.88	38.75	42.94	47.18	74.00	-26.82	Vertical
6034.386	34.72	10.52	38.91	44.91	51.24	74.00	-22.76	Vertical
7215.000	35.59	10.68	37.63	39.49	48.13	74.00	-25.87	Vertical
9620.000	37.10	12.51	36.33	33.55	46.83	74.00	-27.17	Vertical
12713.160	37.96	14.75	37.86	37.88	52.73	74.00	-21.27	Vertical
3206.470	31.80	7.56	38.24	44.98	46.10	74.00	-27.90	Horizontal
4810.000	34.11	8.88	38.75	44.84	49.08	74.00	-24.92	Horizontal
6933.595	35.30	10.51	37.81	44.30	52.30	74.00	-21.70	Horizontal
7215.000	35.59	10.68	37.63	40.59	49.23	74.00	-24.77	Horizontal
9620.000	37.10	12.51	36.33	35.06	48.34	74.00	-25.66	Horizontal
12566.850	37.87	14.34	37.72	37.77	52.26	74.00	-21.74	Horizontal

Test mode:	Transmitter		Test channel:	Middle		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
3781.495	32.83	7.73	38.48	45.75	47.83	74.00	-26.17	Vertical
4890.000	34.19	8.99	38.77	43.62	48.03	74.00	-25.97	Vertical
6087.002	34.74	10.45	38.85	46.08	52.42	74.00	-21.58	Vertical
7335.000	35.53	10.73	37.58	40.85	49.53	74.00	-24.47	Vertical
9780.000	37.10	12.59	36.12	37.83	51.40	74.00	-22.60	Vertical
12639.790	37.92	14.55	37.79	38.47	53.15	74.00	-20.85	Vertical
3770.567	32.78	7.73	38.47	44.72	46.76	74.00	-27.24	Horizontal
4890.000	34.19	8.99	38.77	42.79	47.20	74.00	-26.80	Horizontal
6933.595	35.30	10.51	37.81	43.77	51.77	74.00	-22.23	Horizontal
7335.000	35.53	10.73	37.58	39.41	48.09	74.00	-25.91	Horizontal
9780.000	37.10	12.59	36.12	37.29	50.86	74.00	-23.14	Horizontal
11757.650	37.50	14.30	36.94	37.40	52.26	74.00	-21.74	Horizontal

Test mode:	Transmitter		Test channel:	Highest		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
3558.534	32.04	7.65	38.39	45.17	46.47	74.00	-27.53	Vertical
4950.000	34.25	9.07	38.78	44.66	49.20	74.00	-24.80	Vertical
6913.559	35.27	10.49	37.83	43.20	51.13	74.00	-22.87	Vertical
7425.000	35.56	10.76	37.54	38.48	47.26	74.00	-26.74	Vertical
9900.000	37.20	12.66	35.96	38.49	52.39	74.00	-21.61	Vertical
11757.650	37.50	14.30	36.94	37.41	52.27	74.00	-21.73	Vertical
3537.998	32.01	7.64	38.38	45.22	46.49	74.00	-27.51	Horizontal
4950.000	34.25	9.07	38.78	45.23	49.77	74.00	-24.23	Horizontal
6619.878	35.19	10.10	38.18	43.42	50.53	74.00	-23.47	Horizontal
7425.000	35.56	10.76	37.54	36.75	45.53	74.00	-28.47	Horizontal
9900.000	37.20	12.66	35.96	38.16	52.06	74.00	-21.94	Horizontal
12603.270	37.90	14.44	37.75	37.88	52.47	74.00	-21.53	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 3GHz, 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.

6.3 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:

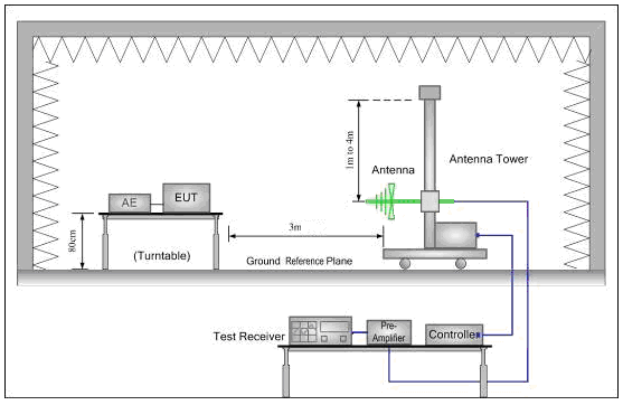


Figure 1. 30MHz to 1GHz

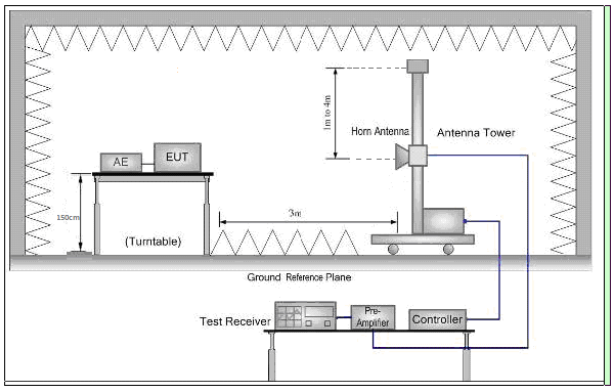
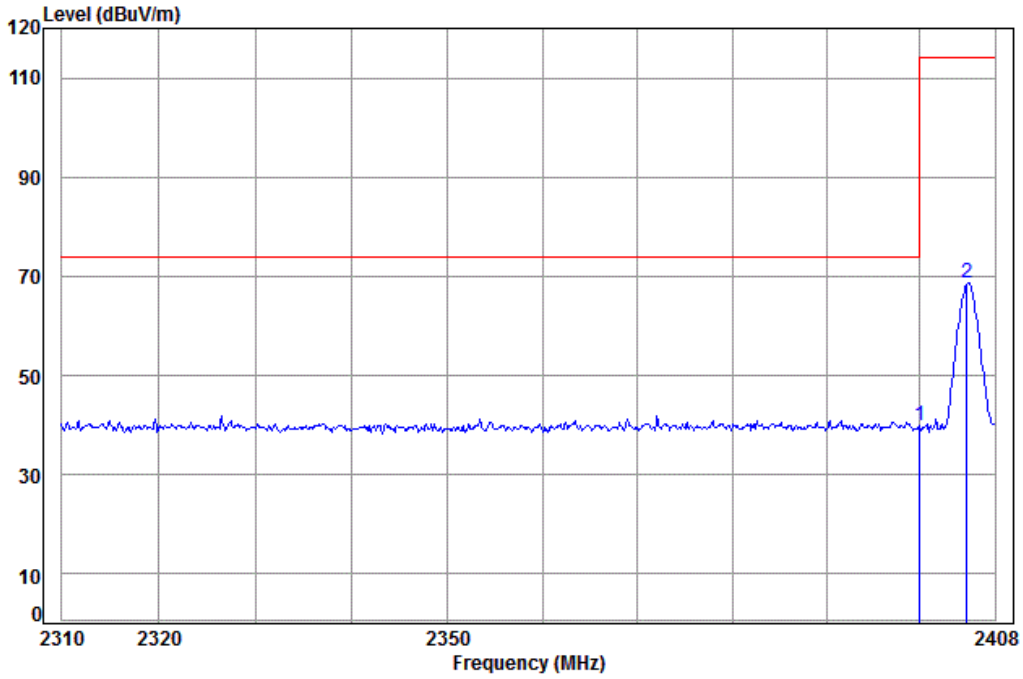


Figure 2. Above 1 GHz

Test Procedure:	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 camber. 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 camber. 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 channel h. Test the EUT in the lowest channel , the Highest channel 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.. j. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 5.10 for details
Test Mode:	Transmitting mode
Test Results:	Pass

Band edge (Radiated Emission)

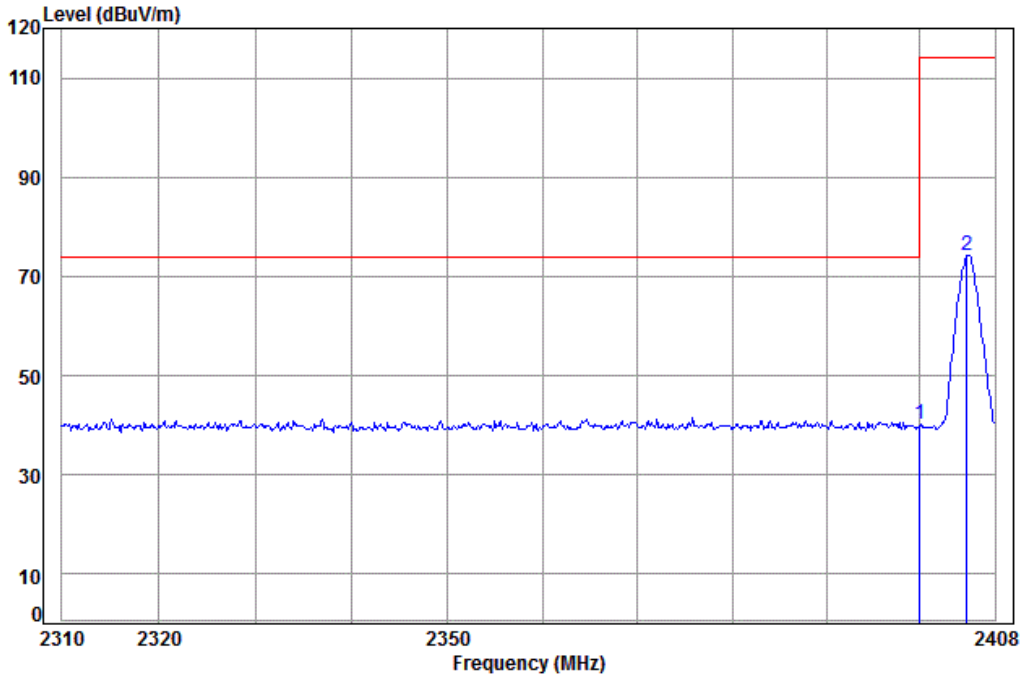
Test mode:		Test channel:	Lowest	Remark:	Vertical



Condition: 3m VERTICAL
Job No: : 3846CR
Mode: : 2405 Band edge
: Airplane

	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 pp	2400.000	5.34	28.60	38.11	44.15	39.98	74.00	-34.02
2	2405.020	5.35	28.62	38.11	72.78	68.64	114.00	-45.36

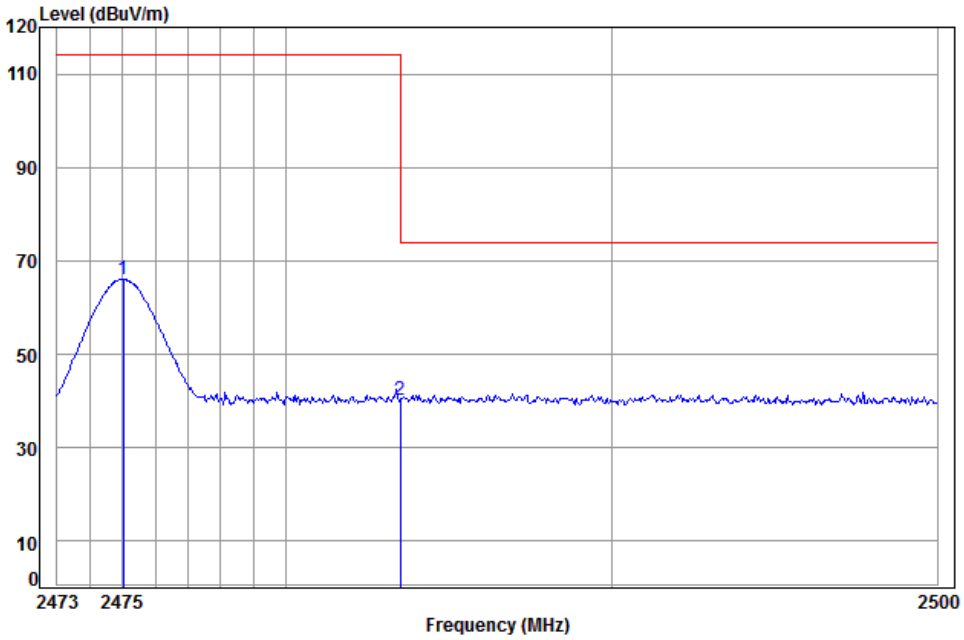
Test mode:		Test channel:	Lowest	Remark:	Horizontal



Condition: 3m HORIZONTAL
Job No: : 3846CR
Mode: : 2405 Band edge
: Airplane

	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 pp	2400.000	5.34	28.60	38.11	44.26	40.09	74.00	-33.91
2	2405.020	5.35	28.62	38.11	78.47	74.33	114.00	-39.67

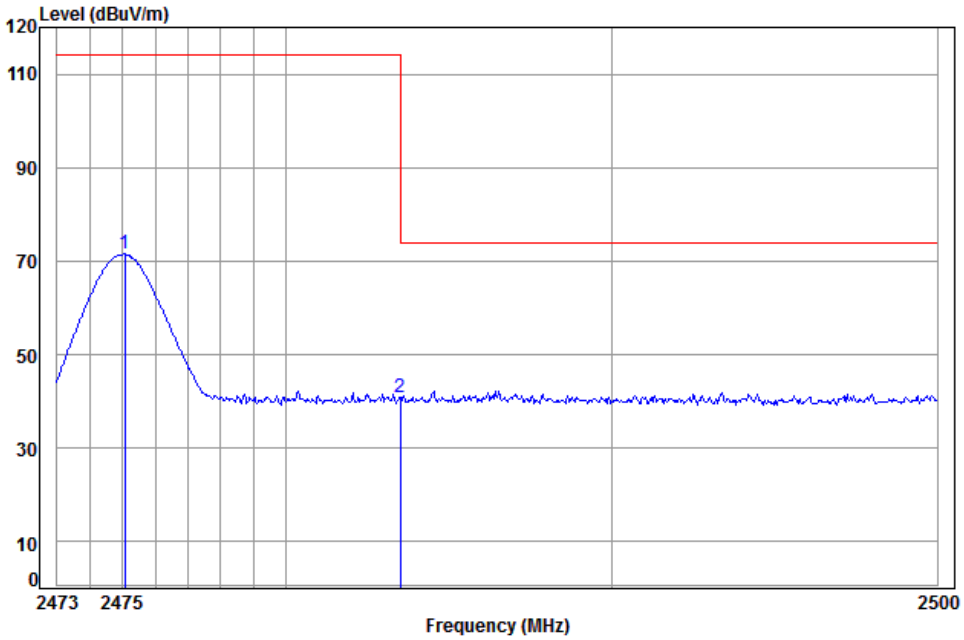
Test mode:		Test channel:	Highest	Remark:	Vertical



Condition: 3m VERTICAL
Job No: : 3846CR
Mode: : 2475 Band edge
: Airplane

	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	2475.02	5.40	28.95	38.12	69.83	66.06	114.00	-47.94
2 pp	2483.50	5.41	28.98	38.12	44.05	40.32	74.00	-33.68

Test mode:		Test channel:	Highest	Remark:	Horizontal

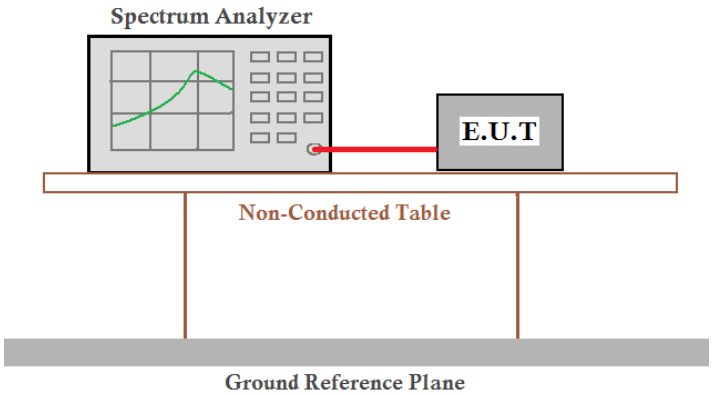


Condition: 3m HORIZONTAL
Job No: : 3846CR
Mode: : 2475 Band edge
: Airplane

	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	2475.07	5.40	28.95	38.12	75.24	71.47	114.00	-42.53
2 pp	2483.50	5.41	28.98	38.12	44.70	40.97	74.00	-33.03

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

6.4 20dB Bandwidth

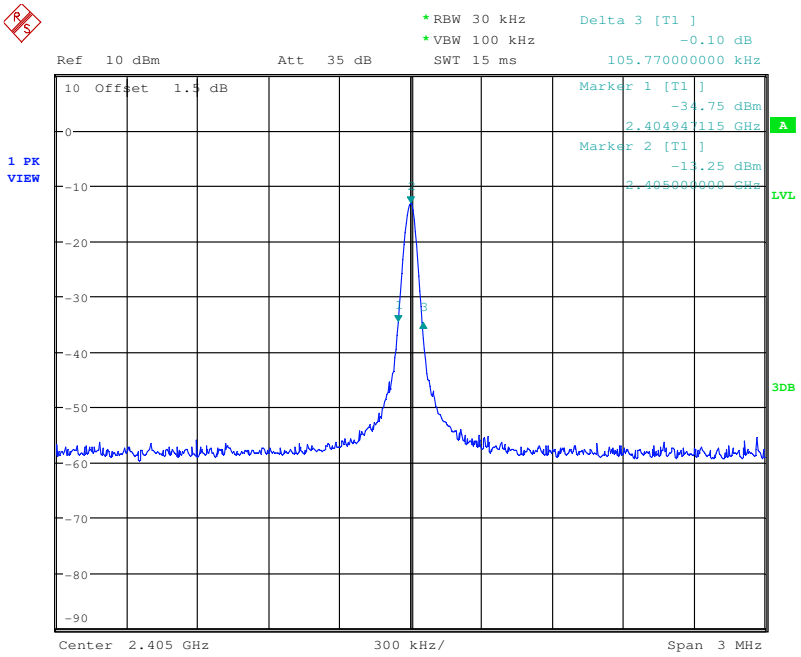
Test Requirement:	47 CFR Part 15C Section 15.215
Test Method:	ANSI C63.10:2013
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Test mode:	Transmitting mode
Limit:	N/A
Test Results:	Pass

Measurement Data

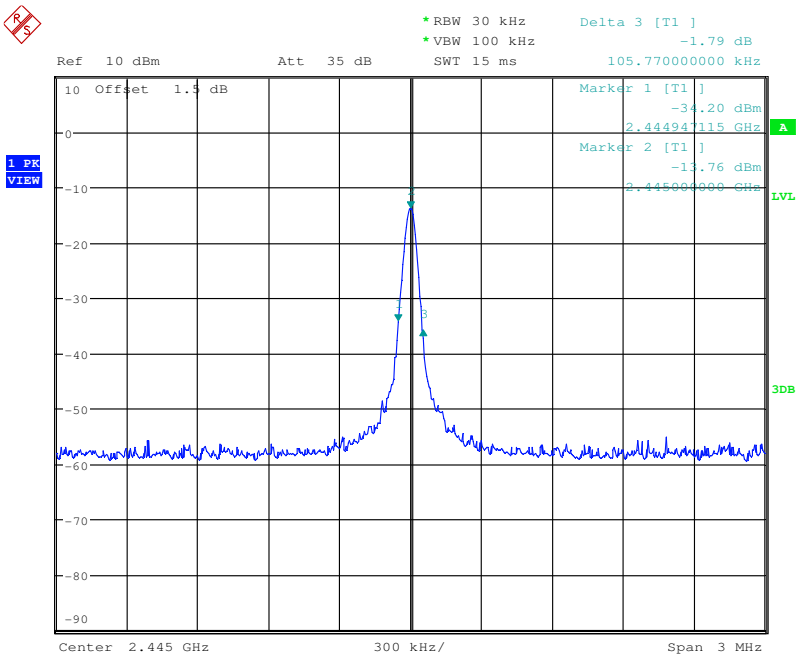
Test channel	20dB bandwidth (MHz)	Results
Lowest	0.105	Pass
Middle	0.105	Pass
Highest	0.105	Pass

Test plot as follows:

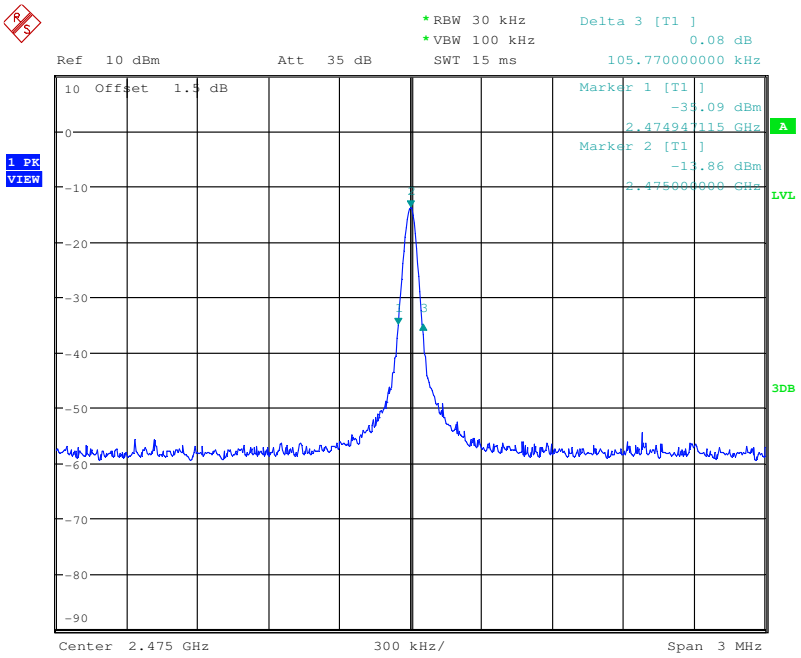
Test channel:	Lowest



Test channel:	Middle



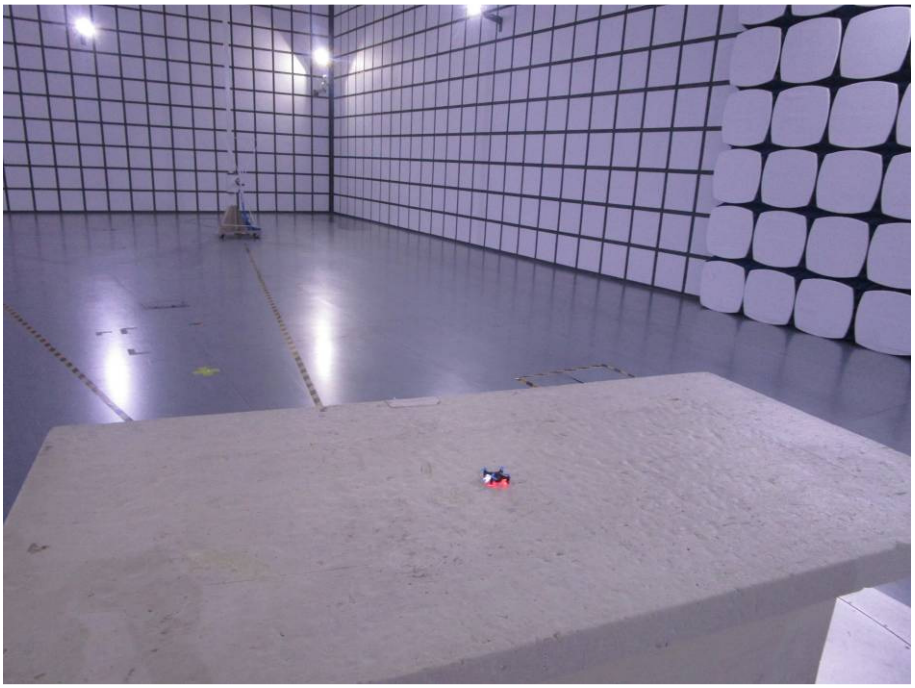
Test channel:	Highest

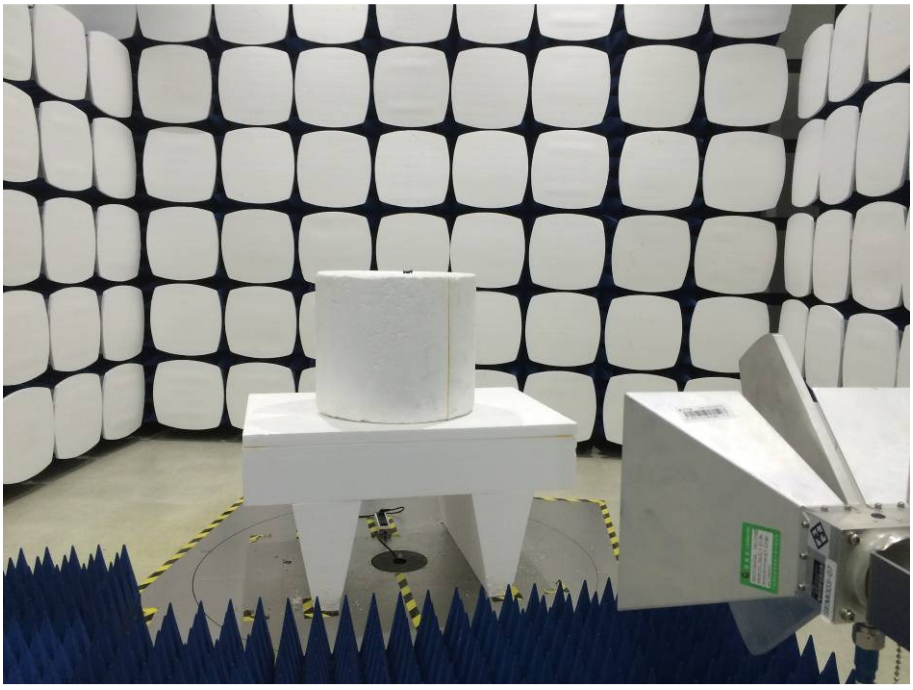


7 Photographs

Test model No.: PL-1390

7.1 Radiated Emission Test Setup





7.2 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1605003846CR.