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Shenzhen Branch

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TEST REPORT

Application No.:	SZEM1604002795CR
Applicant:	Guangdong Cheerson Hobby Technology Co., Ltd.
Manufacturer:	Guangdong Cheerson Hobby Technology Co., Ltd.
Factory:	Guangdong Cheerson Hobby Technology Co., Ltd.
Product Name:	UFO
Model No.(EUT):	CX-91
Add Model No.:	CX-91A,CX-91B,CX-91C,CX-91D,CX-92,CX-93,CX-94,CX-95,CX-96,CX-97, CX-98,CX-22,CX-36,CX-37,CX-38,CX-39,CX-50,CX-51,CX-52,6048F,6048S, CX-20,CX-10,CX-10A,CX-10C,CX-10W,CX-10D,CX-10DS,CX-12,CX-33,CX-35.
FCC ID:	2AD6LGC03249101
Standards:	47 CFR Part 15, Subpart C (2015)
Date of Receipt:	2016-04-27
Date of Test:	2016-05-06 to 2016-05-18
Date of Issue:	2016-05-27
Test Result:	**PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

Jack Zhang
EMC Laboratory Manager

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf.
This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the SGS PRODUCT CERTIFICATION MARK.. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
This report may only be reproduced and distributed in full. If the product in this report was used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards

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2 Version

Revision Record				
Version	***Chapter***	***Date***	***Modifier***	***Remark***
00		*2016-05-18*		*Original*

Authorized for issue by:				
Tested By		Bill Chen **(Bill Chen) /Project Engineer**		2016-05-18 **Date**
Prepared By		Joyce Shi **(Joyce Shi) /Clerk**		2016-05-27 **Date**
Checked By		Eric Fu **(Eric Fu) /Reviewer**		2016-05-27 **Date**

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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

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4 Contents

Page

1 COVER PAGE 1
2 VERSION 2
3 TEST SUMMARY 3
4 CONTENTS 4
5 GENERAL INFORMATION 5
5.1 CLIENT INFORMATION 5
5.2 GENERAL DESCRIPTION OF EUT 5
5.3 TEST ENVIRONMENT AND MODE 7
5.4 DESCRIPTION OF SUPPORT UNITS 7
5.5 TEST LOCATION 7
5.6 TEST FACILITY 8
5.7 DEVIATION FROM STANDARDS 8
5.8 ABNORMALITIES FROM STANDARD CONDITIONS 8
5.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER 8
5.10 EQUIPMENT LIST 9
6 TEST RESULTS AND MEASUREMENT DATA 11
6.1 ANTENNA REQUIREMENT 11
6.2 SPURIOUS EMISSIONS 12
6.2.1 Duty Cycle 12
6.2.2 Spurious Emissions 14
6.3 RESTRICTED BANDS AROUND FUNDAMENTAL FREQUENCY 22
6.4 20DB BANDWIDTH 32
7 PHOTOGRAPHS 35
7.1 RADIATED EMISSION TEST SETUP 35
7.2 RADIATED SPURIOUS EMISSION TEST SETUP 35
7.3 EUT CONSTRUCTIONAL DETAILS 36

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5 General Information

5.1 Client Information

Applicant:	Guangdong Cheerson Hobby Technology Co., Ltd.
Address of Applicant:	Fengxin No.2 Road & Laimei Road Fengxin Industrial Zone Chenghai Shantou Guangdong province, China
Manufacturer:	Guangdong Cheerson Hobby Technology Co., Ltd.
Address of Manufacturer:	Fengxin No.2 Road & Laimei Road Fengxin Industrial Zone Chenghai Shantou Guangdong province, China
Factory:	Guangdong Cheerson Hobby Technology Co., Ltd.
Address of Factory:	Fengxin No.2 Road & Laimei Road Fengxin Industrial Zone Chenghai Shantou Guangdong province, China

5.2 General Description of EUT

Product Name:	UFO
Model No.:	CX-91
Frequency Range:	2.4GHz Wireless (2405MHz-2475MHz 5MHz steps)
Modulation Type	FSK
Antenna Type:	Integral
Antenna Gain:	0.5dBi
Power Supply:	Remote control: 6.0VDC (1.5V x 4 "AAA" Size Batteries) Unmanned aerial vehicle (uav) adapter： MODEL：JHEE1500800 PRI：100-240V 50/60Hz SEC：15V 800mA Unmanned aerial vehicle (uav) Battery:DC 11.1V 1600mAh 5.8GHz Receiver: Rechargeable battery DC 3.7V 2000mAh 7.4Wh (charge by USB)

Remark:

Model No.: CX-91, CX-91A,CX-91B,CX-91C,CX-91D,CX-92,CX-93,CX-94,CX-95,CX-96,CX-97,CX-98,CX-22,CX-36,CX-37,CX-38,CX-39,CX-50,CX-51,CX-52,6048F,6048S,CX-20,CX-10,CX-10A,CX-10C,CX-10W,CX-10D,CX-10DS,CX-12,CX-33,CX-35.

Only the model CX-91 was tested, since the circuit design, PCB layout, electrical components used, internal wiring and functions were identical for the above models, only different on model No..

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Operation Frequency each of channel			
Channel	Frequency	Channel	Frequency
1 CH	2405 MHz	9 CH	2445 MHz
2 CH	2410 MHz	10 CH	2450 MHz
3 CH	2415 MHz	11 CH	2455 MHz
4 CH	2420 MHz	12 CH	2460 MHz
5 CH	2425 MHz	13 CH	2465 MHz
6 CH	2430 MHz	14 CH	2470 MHz
7 CH	2435 MHz	15 CH	2475 MHz
8 CH	2440 MHz		

Using test software was control EUT work in continuous transmitter and receiver mode.and select test channel as below:

Channel	Frequency
The lowest channel (CH1)	2405MHz
The middle channel (CH8)	2440MHz
The highest channel (CH15)	2475MHz

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5.3 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	55 % RH
Atmospheric Pressure:	1015 mbar
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.

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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.

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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

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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

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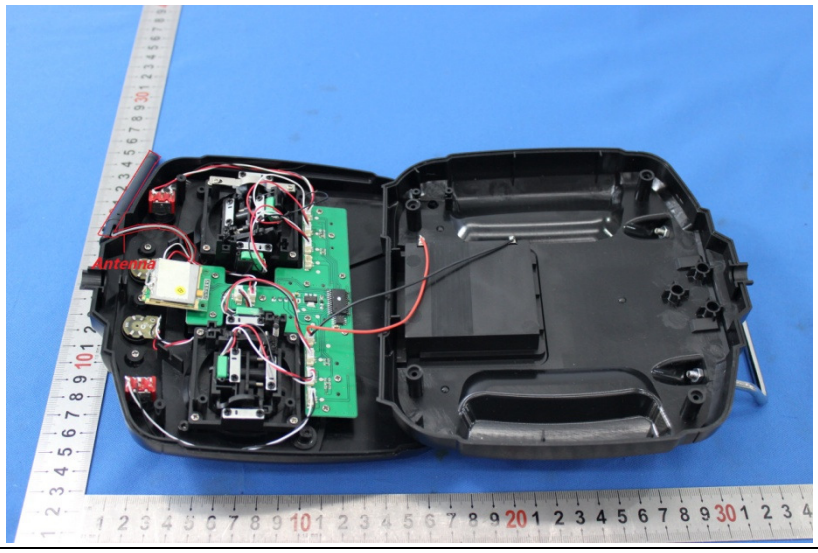
6 Test results and Measurement Data

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 0.5dBi.	

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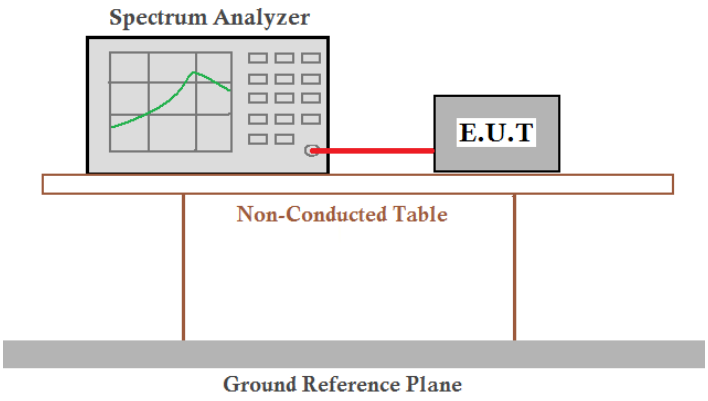
6.2 Spurious Emissions

6.2.1 Duty Cycle

Test Requirement:	47 CFR Part 15C Section 15.35 (c)
Test Method:	ANSI C63.10:2013 11.6
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Limit:	N/A
Test Mode:	Transmitting mode
Test Results:	Pass

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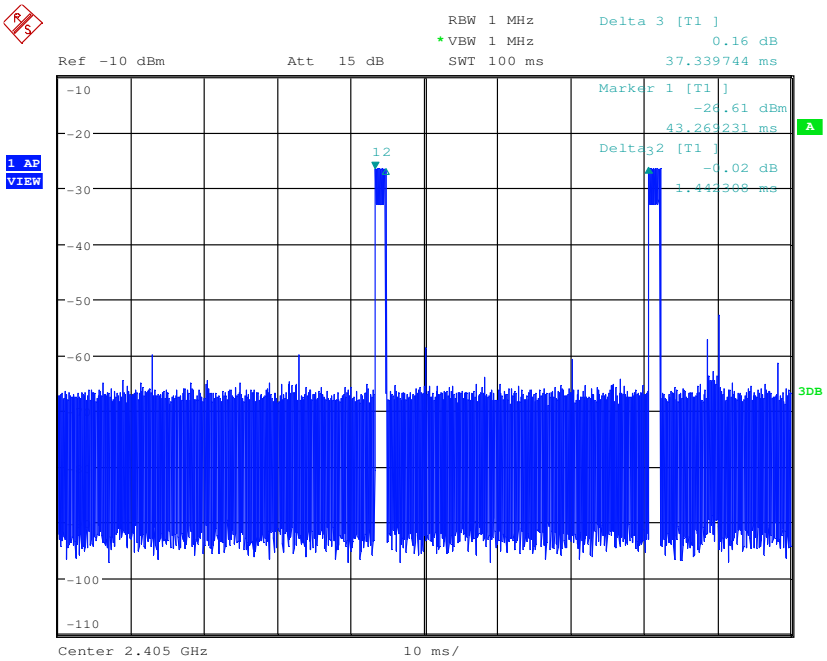
Test plot as follows:



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6.2.2 Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.249 and 15.209
Test Method:	ANSI C63.10: 2013 11.12
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

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Test Setup:	

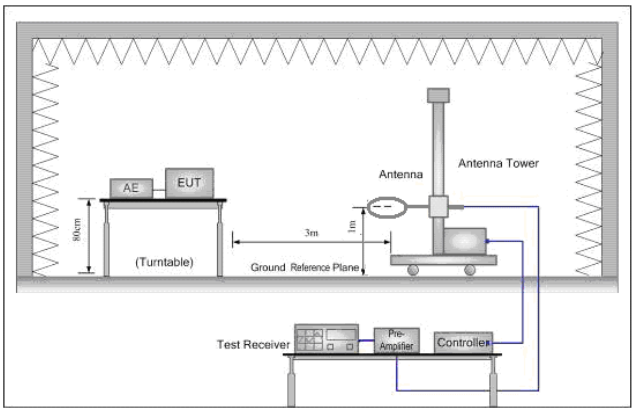

Figure 1. Below 30MHz

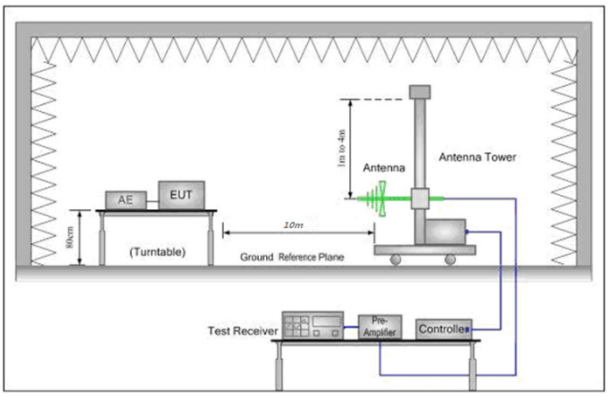

Figure 2. 30MHz to 1GHz

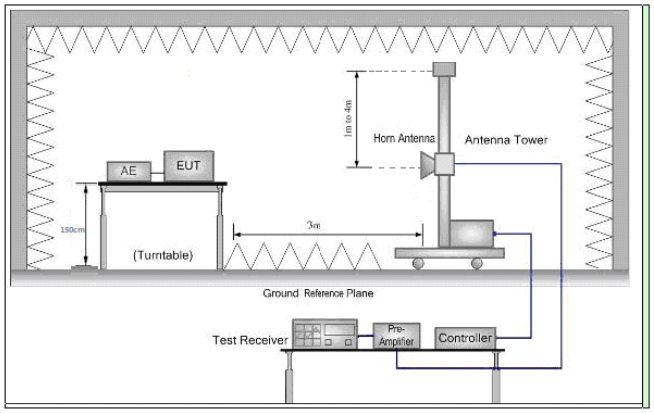

Figure 3. Above 1 GHz

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 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 (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

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	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
Exploratory Test Mode:	Transmitting mode,
Final Test Mode:	Pretest the EUT at Transmitting mode, found the Transmitting mode which it is worse case Only the worst case is recorded in the report.
Test Results:	Pass

Average value:	
Calculate Formula:	Average value=Peak value + PDCF
	PDCF=20 log(Duty cycle)
	Duty cycle= T on time / T period
Test data:	Ton time =1.44
	T period =37.34
	Average value=-28.26

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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	28.62	5.35	38.11	100.25	96.11	114	-17.89	Horizontal
2405	28.62	5.35	38.11	107.21	103.07	114	-10.93	Vertical
2440	28.79	5.38	38.11	102.05	98.11	114	-15.89	Horizontal
2440	28.79	5.38	38.11	107.79	103.85	114	-10.15	Vertical
2475	28.95	5.4	38.12	101.88	98.11	114	-15.89	Horizontal
2475	28.95	5.4	38.12	107.59	103.82	114	-10.18	Vertical

Average value:

Frequency (MHz)	PDCF	Peak Level (dBuV/m)	Average Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2405	-28.26	96.11	67.85	94.00	-26.15	Horizontal
2405		103.07	74.81	94.00	-19.19	Vertical
2440		98.11	69.85	94.00	-18.41	Horizontal
2440		103.85	75.59	94.00	-16.72	Vertical
2475		98.11	69.85	94.00	-24.15	Horizontal
2475		103.82	75.56	94.00	-18.44	Vertical

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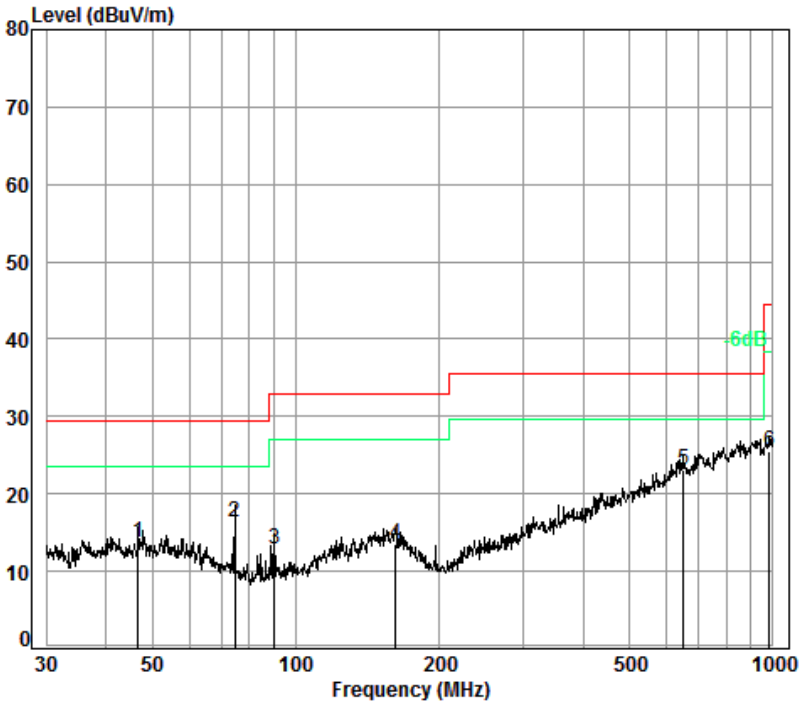
6.2.2.2 Spurious Emissions

30MHz~1GHz		
Test mode:	Transmitting mode	Vertical



Condition: 10m Vertical
Job No. : 2795CR
Test Mode: TX mode

	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	46.83	6.84	12.85	33.00	26.97	13.66	29.50	-15.84
2	74.66	7.00	9.33	32.88	32.97	16.42	29.50	-13.08
3	90.22	7.20	8.71	32.83	29.85	12.93	33.00	-20.07
4	162.04	7.50	13.19	32.73	25.57	13.53	33.00	-19.47
5 pp	649.66	9.02	19.53	32.60	27.15	23.10	35.60	-12.50
6	982.62	9.60	22.82	32.50	25.50	25.42	44.40	-18.98

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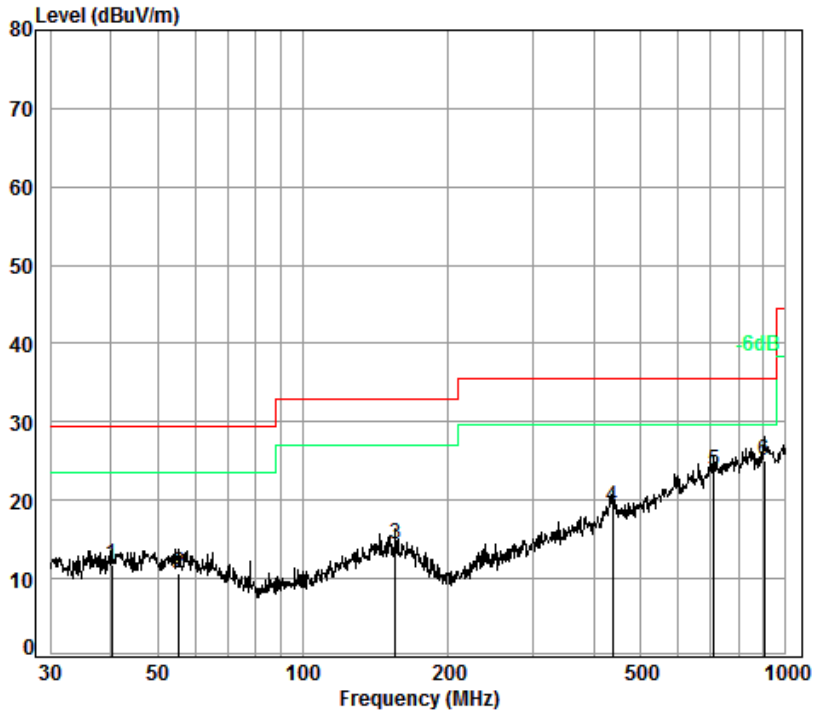
Test mode:	Transmitting mode	Horizontal



Condition: 10m Horizontal
Job No. : 2795CR
Test Mode: TX mode

	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	40.28	6.80	13.30	32.99	24.68	11.79	29.50	-17.71
2	55.41	7.00	12.34	32.97	24.41	10.78	29.50	-18.72
3	155.36	7.48	13.40	32.74	26.26	14.40	33.00	-18.60
4	438.66	8.40	15.90	32.60	27.46	19.16	35.60	-16.44
5	711.67	9.18	20.27	32.60	26.93	23.78	35.60	-11.82
6 pp	903.31	9.50	22.27	32.50	25.85	25.12	35.60	-10.48

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Above 1GHz					
Test mode:	Transmitting	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
3892.524	32.99	7.77	38.52	45.18	47.42	74	-26.58	Vertical
4810.000	34.11	8.88	38.75	49.48	53.72	74	-20.28	Vertical
6034.386	34.72	10.52	38.91	46.31	52.64	74	-21.36	Vertical
7215.000	35.59	10.68	37.63	40.02	48.66	74	-25.34	Vertical
9620.000	37.1	12.51	36.33	33.95	47.23	74	-26.77	Vertical
12639.790	37.92	14.55	37.79	38.65	53.33	74	-20.67	Vertical
3892.524	32.99	7.77	38.52	46.24	48.48	74	-25.52	Horizontal
4810.000	34.11	8.88	38.75	49.35	53.59	74	-20.41	Horizontal
6140.076	34.77	10.38	38.78	46.26	52.63	74	-21.37	Horizontal
7215.000	35.59	10.68	37.63	40.14	48.78	74	-25.22	Horizontal
9620.000	37.1	12.51	36.33	34.43	47.71	74	-26.29	Horizontal
12566.850	37.87	14.34	37.72	37.72	52.21	74	-21.79	Vertical

Test mode:	Transmitting	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
3814.467	32.91	7.75	38.49	45.47	47.64	74	-26.36	Vertical
4880.000	34.18	8.97	38.76	48.78	53.17	74	-20.83	Vertical
6069.413	34.74	10.47	38.87	46.40	52.74	74	-21.26	Vertical
7320.000	35.54	10.72	37.59	41.97	50.64	74	-23.36	Vertical
9760.000	37.10	12.58	36.14	36.58	50.12	74	-23.88	Vertical
12566.850	37.87	14.34	37.72	38.86	53.35	74	-20.65	Vertical
3652.432	32.31	7.69	38.43	46.21	47.78	74	-26.22	Horizontal
4880.000	34.18	8.97	38.76	49.02	53.41	74	-20.59	Horizontal
6104.642	34.75	10.42	38.82	46.99	53.34	74	-20.66	Horizontal
7320.000	35.54	10.72	37.59	40.99	49.66	74	-24.34	Horizontal
9760.000	37.10	12.58	36.14	39.12	52.66	74	-21.34	Horizontal
12676.420	37.94	14.65	37.82	37.86	52.63	74	-21.37	Horizontal

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Test mode:	Transmitting	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
3631.354	32.23	7.68	38.42	43.80	45.29	74	-28.71	Vertical
4950.000	34.22	9.03	38.77	49.43	53.91	74	-20.09	Vertical
6034.386	34.72	10.52	38.91	43.88	50.21	74	-23.79	Vertical
7425.000	35.51	10.75	37.56	38.10	46.80	74	-27.20	Vertical
9900.000	37.14	12.63	36.04	39.99	53.72	74	-20.28	Vertical
12603.270	37.90	14.44	37.75	38.59	53.18	74	-20.82	Vertical
3803.444	32.90	7.74	38.49	42.45	44.60	74	-29.40	Horizontal
4950.000	34.22	9.03	38.77	48.71	53.19	74	-20.81	Horizontal
6016.949	34.71	10.54	38.94	44.15	50.46	74	-23.54	Horizontal
7425.000	35.51	10.75	37.56	38.55	47.25	74	-26.75	Horizontal
9900.000	37.14	12.63	36.04	40.00	53.73	74	-20.27	Horizontal
12566.850	37.87	14.34	37.72	38.67	53.16	74	-20.84	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.

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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 11.12
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:

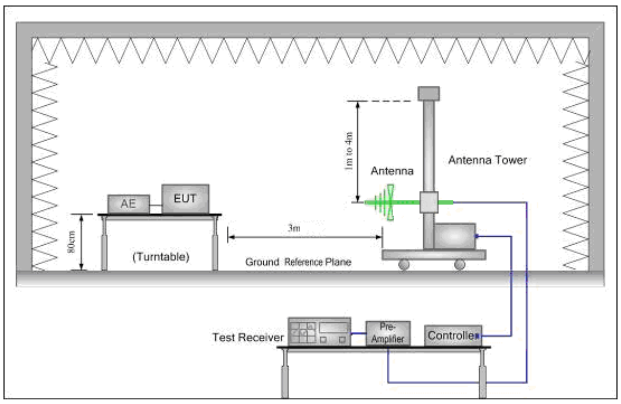

Figure 1. 30MHz to 1GHz

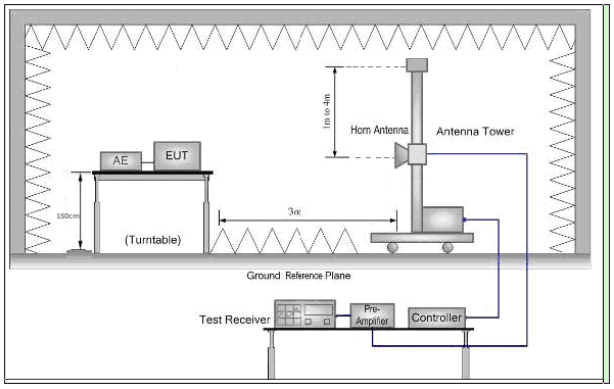

Figure 2. Above 1 GHz

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Test Procedure:	a. 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
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Pretest the EUT at Transmitting mode, found theTransmitting mode which it is worse case Only the worst case is recorded in the report.
Test Results:	Pass

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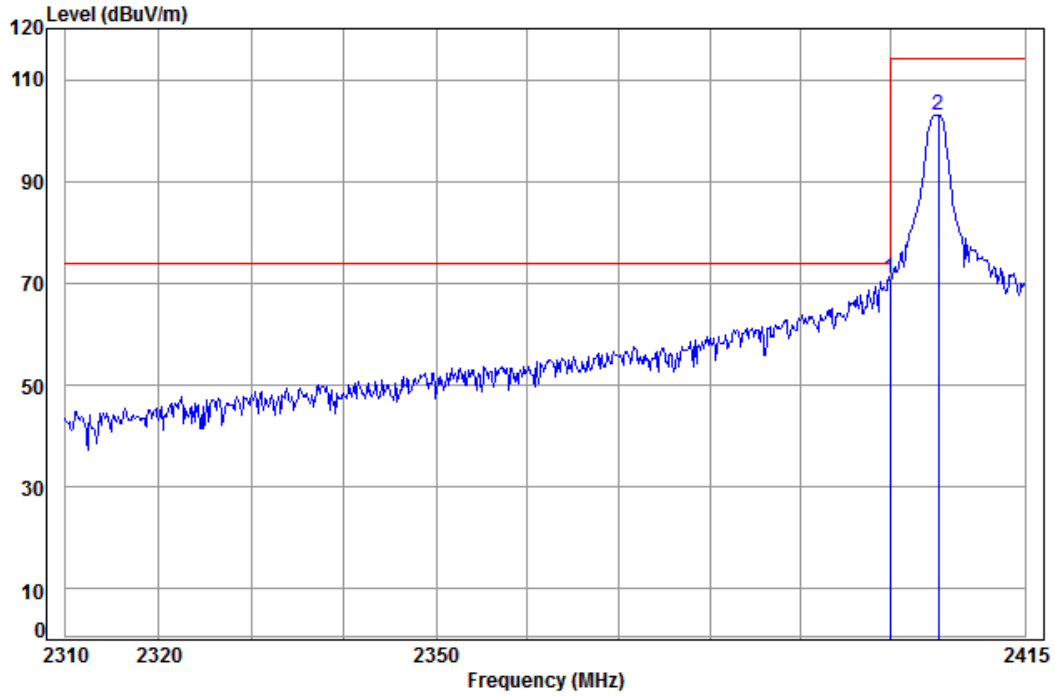
Band edge (Radiated Emission)						
Worse case mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Vertical



Condition: 3m Vertical
Job No: : 2795CR
Mode: : 2405 Band edge

	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	75.16	70.99	74.00	-3.01
2	2405.358	5.35	28.63	38.11	107.20	103.07	114.00	-10.93

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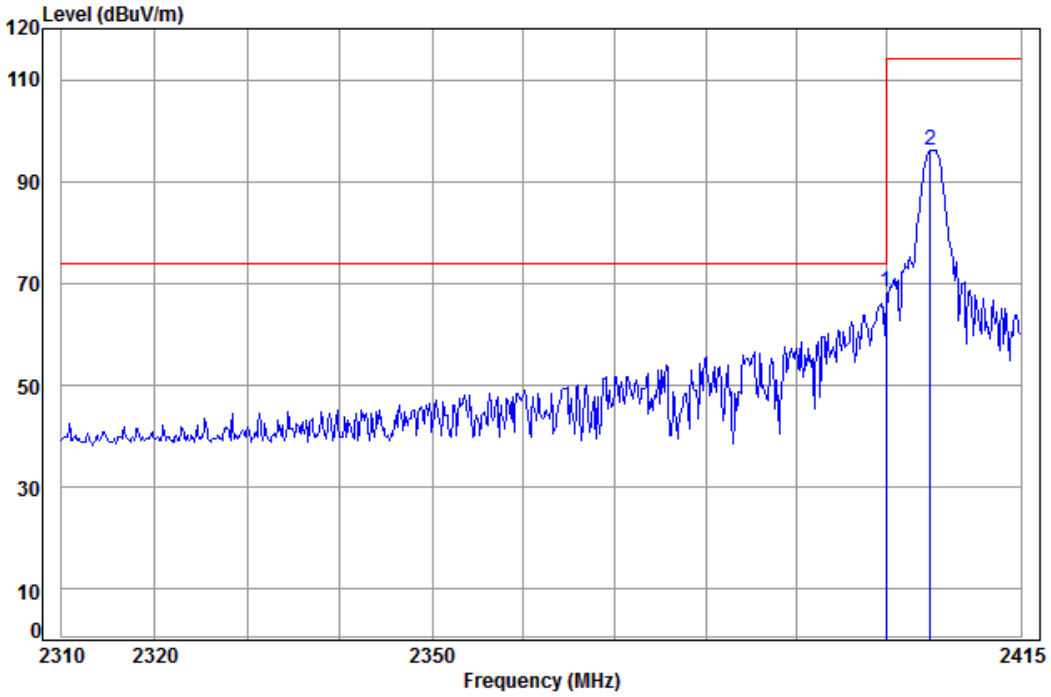
Worse case mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Horizontal



Condition: 3m HORIZONTAL
Job No: : 2795CR
Mode: : 2405 Band edge

	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	72.52	68.35	74.00	-5.65
2	2404.930	5.35	28.62	38.11	100.25	96.11	114.00	-17.89

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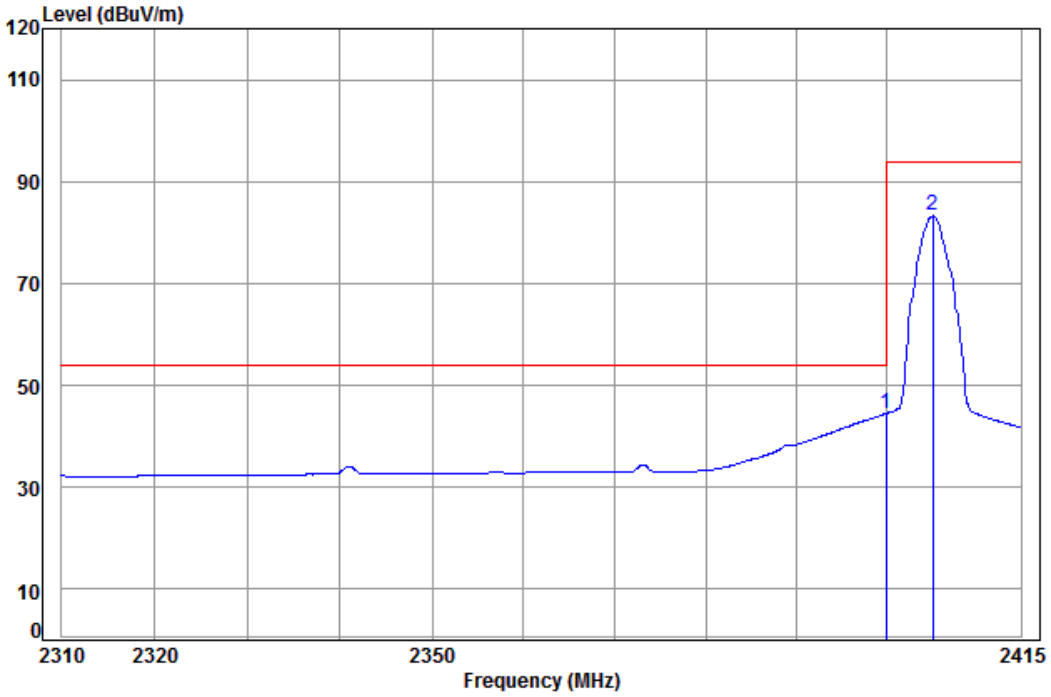
Worse case mode:	Transmitting	Test channel:	Lowest	Remark:	Average	Vertical



Condition: 3m Vertical
Job No: : 2795CR
Mode: : 2405 Band edge

	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	48.76	44.59	54.00	-9.41
2	2405.144	5.35	28.62	38.11	87.39	83.25	94.00	-10.75

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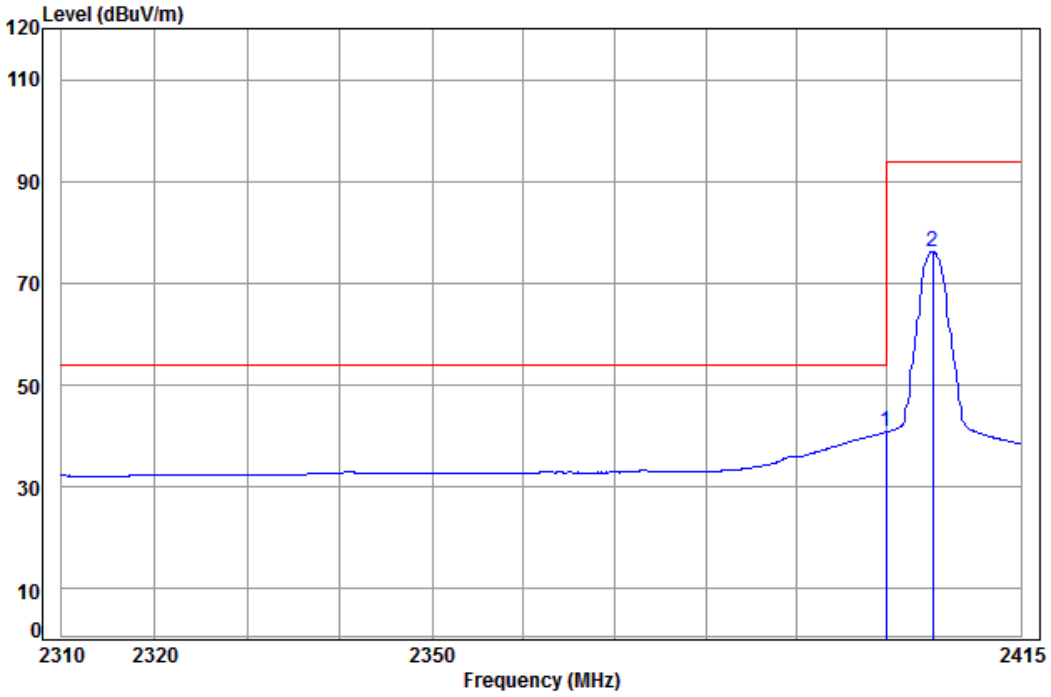
Worse case mode:	Transmitting	Test channel:	Middle	Remark:	Average	Horizontal



Condition: 3m HORIZONTAL
Job No: : 2795CR
Mode: : 2405 Band edge

	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	45.01	40.84	54.00	-13.16
2	2405.144	5.35	28.62	38.11	80.35	76.21	94.00	-17.79

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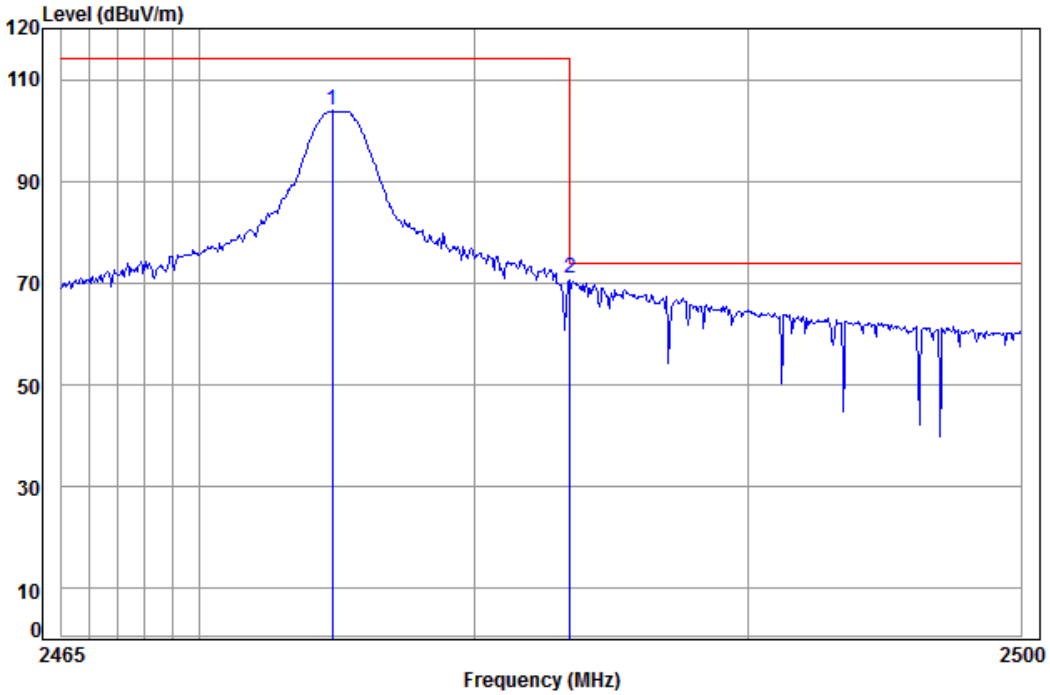
Worse case mode:	Transmitting	Test channel:	Highest	Remark:	Peak	Vertical



Condition: 3m Vertical
Job No: : 2795CR
Mode: : 2475 Band edge

	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	2474.82	5.40	28.95	38.12	107.59	103.82	114.00	-10.18
2 pp	2483.50	5.41	28.98	38.12	74.65	70.92	74.00	-3.08

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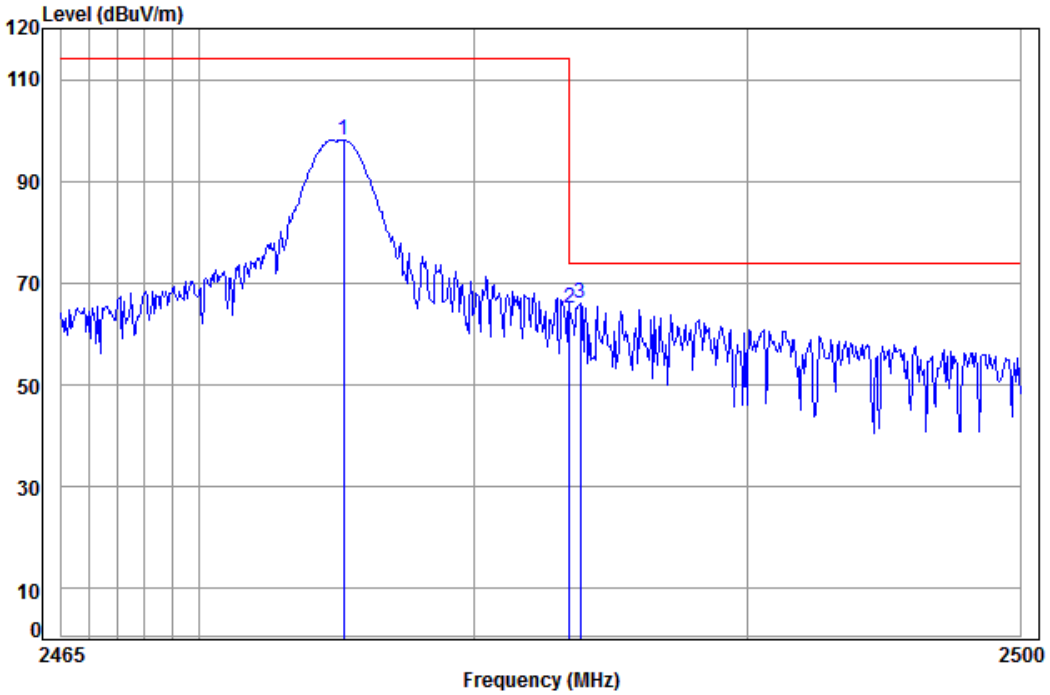
Worse case mode:	Transmitting	Test channel:	Highest	Remark:	Peak	Horizontal



Condition: 3m HORIZONTAL
Job No: : 2795CR
Mode: : 2475 Band edge

	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	2475.24	5.40	28.95	38.12	101.88	98.11	114.00	-15.89
2	2483.50	5.41	28.98	38.12	68.81	65.08	74.00	-8.92
3 pp	2483.87	5.41	28.99	38.12	69.77	66.05	74.00	-7.95

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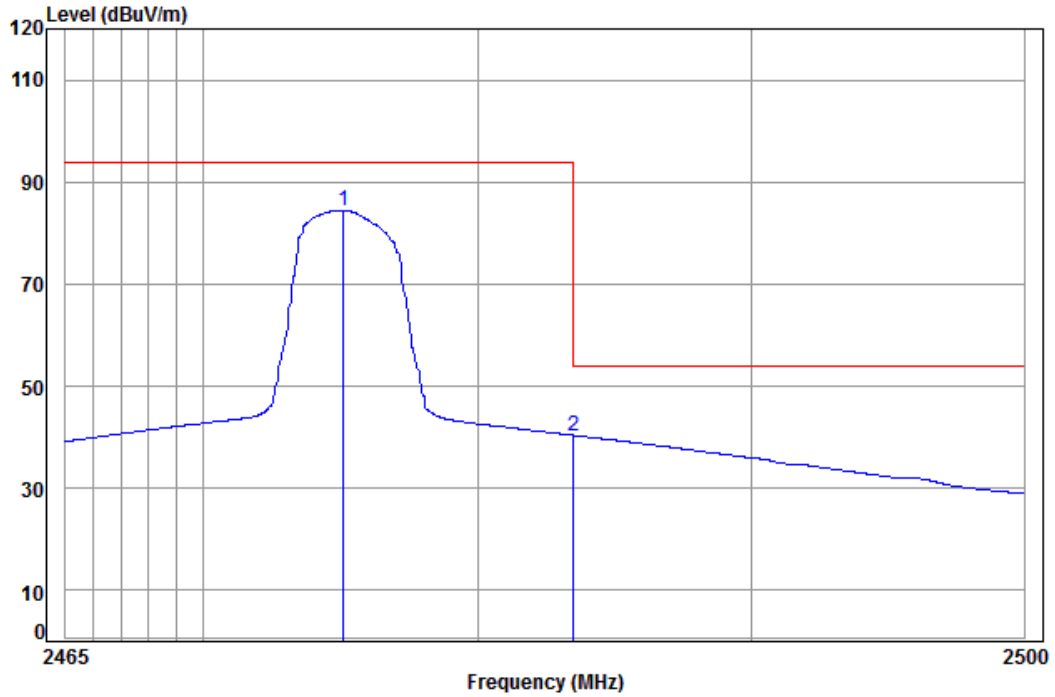
Worse case mode:	Transmitting	Test channel:	Highest	Remark:	Average	Vertical



Condition: 3m Vertical
Job No: : 2795CR
Mode: : 2475 Band edge

	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	2475.10	5.40	28.95	38.12	88.27	84.50	94.00	-9.50
2	2483.50	5.41	28.98	38.12	44.11	40.38	54.00	-13.62

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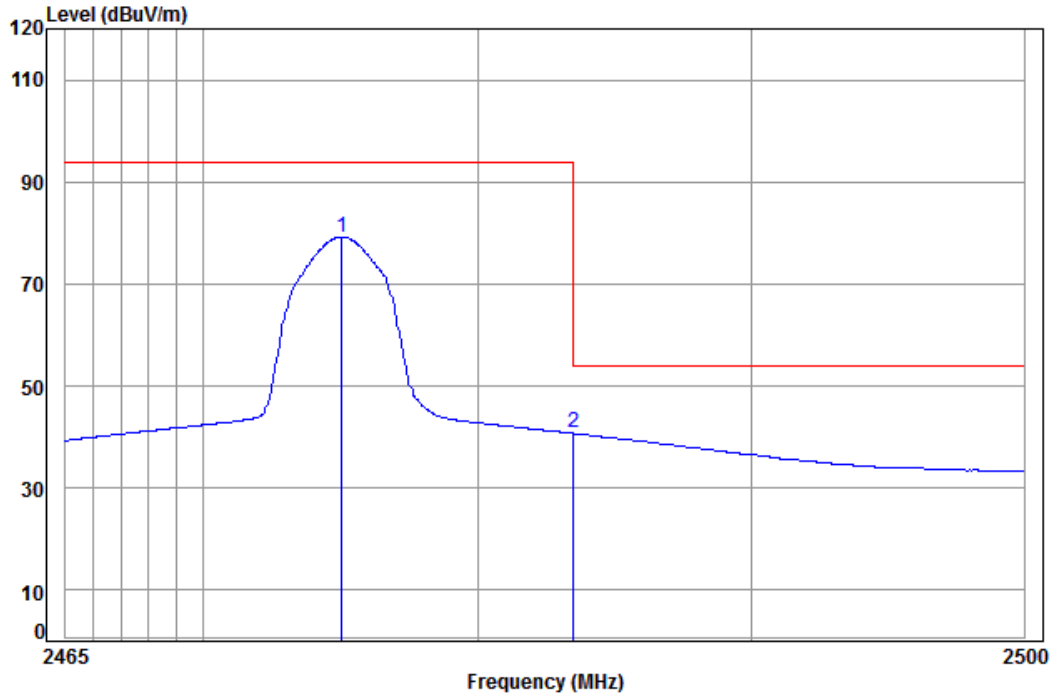
Worse case mode:	Transmitting	Test channel:	Highest	Remark:	Average	Horizontal



Condition: 3m HORIZONTAL
Job No: : 2795CR
Mode: : 2475 Band edge

	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	2475.03	5.40	28.95	38.12	83.00	79.23	94.00	-14.77
2 pp	2483.50	5.41	28.98	38.12	44.44	40.71	54.00	-13.29

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

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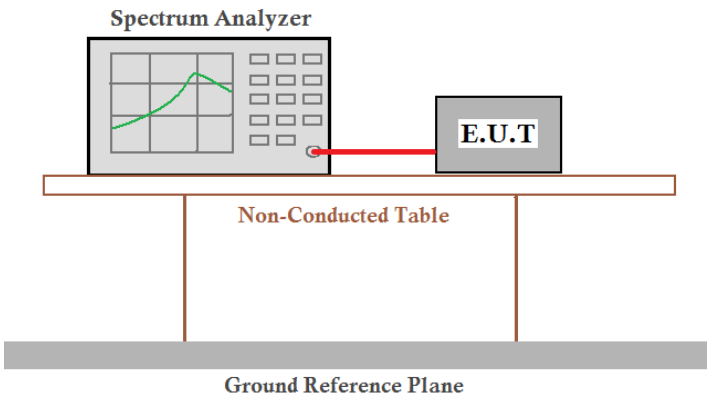
6.4 20dB Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.215
Test Method:	ANSI C63.10:2013 11.8
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	1.825	Pass
Middle	1.813	Pass
Highest	1.813	Pass

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Test plot as follows:

Test channel:	Lowest

Test channel:	Middle

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Test channel:	Highest

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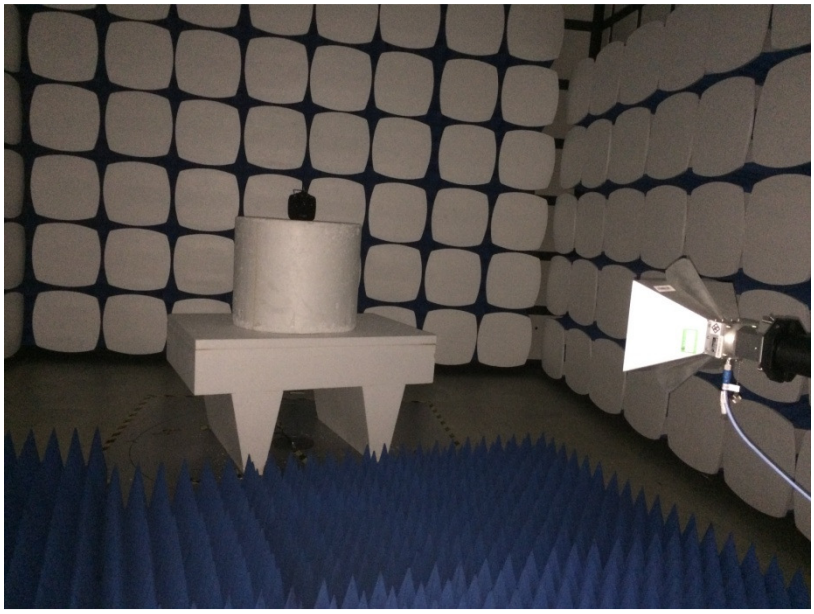
7 Photographs

Test Model No.: CX-91

7.1 Radiated Emission Test Setup

7.2 Radiated Spurious Emission Test Setup



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7.3 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1604002795CR.

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