



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

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Report No.: SZEM151100681301
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FCC REPORT

Application No: SZEM1511006813CR
Applicant: Guangdong Cheerson Hobby Technology Co., Ltd.
Manufacturer: Guangdong Cheerson Hobby Technology Co., Ltd.
Factory: Guangdong Cheerson Hobby Technology Co., Ltd.
Product Name: WIFI camera
Model No.(EUT): C1
Add Model No.: C2, C3, C4, C5, CX-32C, CX-32W, CX-32W-TX, CX-32S, CX-33C, CX-33W, CX-33W-TX, CX-33S, CX-35C, CX-35W, CX-35W-TX, CX-35S
FCC ID: 2AD6LGC23090609
Standards: 47 CFR Part 15, Subpart C (2014)
Date of Receipt: 2015-11-09
Date of Test: 2015-11-17 to 2015-11-27
Date of Issue: 2015-12-03

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		2015-12-03		Original

Authorized for issue by:			
Tested By	 (Bill Chen) /Project Engineer	2015-11-27 Date	
Prepared By	 (Venus Wu) /Clerk	2015-12-03 Date	
Checked By	 (Eric Fu) /Reviewer	2015-12-03 Date	

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3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 2009	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2009	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(3)	ANSI C63.10 2009	PASS
6dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(2)	ANSI C63.10 2009	PASS
Power Spectral Density	47 CFR Part 15, Subpart C Section 15.247 (e)	ANSI C63.10 2009	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2009	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2009	PASS
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2009	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2009	PASS

Remark:

Model No.: C1, C2, C3, C4, C5, CX-32C, CX-32W, CX-32W-TX, CX-32S, CX-33C, CX-33W,

CX-33W-TX, CX-33S, CX-35C, CX-35W, CX-35W-TX, CX-35S

Only the model C1 was tested, since the circuitry design, PCB layout, electrical components used, internal wiring and functions were identical for all above models. Only different on model name.



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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:	WIFI camera
Model No.:	C1
Operation Frequency:	2447MHz
Channel Numbers:	1
Channel Separation:	1 Channel (The manufacturer declare that only one channel was used.)
Type of Modulation:	IEEE for 802.11b: DSSS
Sample Type:	Mobile production
Antenna gain:	2.5dBi
Antenna Type:	Copper tube
Power supply:	DC 3.7V 700mAh 2.6Wh rechargeable battery



5.3 Test Environment and Mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1015 mbar
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

5.4 Description of Support Units

The EUT has been tested independent unit.

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)**

The 3m Semi-anechoic chambers and the 10m Semi-anechoic chambers 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-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.Due date (yyyy-mm-dd)
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEL0303	2016-08-01
2	EMI Test Receiver (9k-3GHz)	Rohde & Schwarz	ESCI	SEL0175	2016-05-13
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	Coaxial cable	SGS	N/A	SEL0288	2016-05-13
5	Coaxial cable	SGS	N/A	SEL0275	2016-05-13
6	Coaxial cable	SGS	N/A	SEL0274	2016-05-13
7	BiConiLog Antenna (30M-1GHz)	Schwarzbeck	VULB9160	SEL0309	2018-10-17
8	Pre-amplifier	Sonoma Instrument Co	310N	SEL0298	2016-05-13
9	Loop Antenna	ETS-LINDGREN	6502	SEL0802	2016-08-14

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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	ETS-LINDGREN	N/A	SEL0017	2015-05-13	2016-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEL0312	2015-09-16	2016-09-16
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2014-11-15	2017-11-15
5	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2015-10-17	2016-10-17
6	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2014-11-24	2017-11-24
7	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2015-05-13	2016-05-13
8	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2015-10-17	2016-10-17
9	Coaxial cable	SGS	N/A	SEL0027	2015-05-13	2016-05-13
10	Coaxial cable	SGS	N/A	SEL0189	2015-05-13	2016-05-13
11	Coaxial cable	SGS	N/A	SEL0121	2015-05-13	2016-05-13
12	Coaxial cable	SGS	N/A	SEL0178	2015-05-13	2016-05-13
13	Band filter	Amindeon	82346	SEL0094	2015-05-13	2016-05-13
14	Barometer	Chang Chun	DYM3	SEL0088	2015-05-13	2016-05-13
15	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-09	2016-10-09
16	Humidity/ Temperature Indicator	Shanghai Qixiang	ZJ1-2B	SEL0103	2015-10-24	2016-10-24
17	Signal Generator (10M-27GHz)	Rohde & Schwarz	SMR27	SEL0067	2015-05-13	2016-05-13
18	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2015-05-13	2016-05-13

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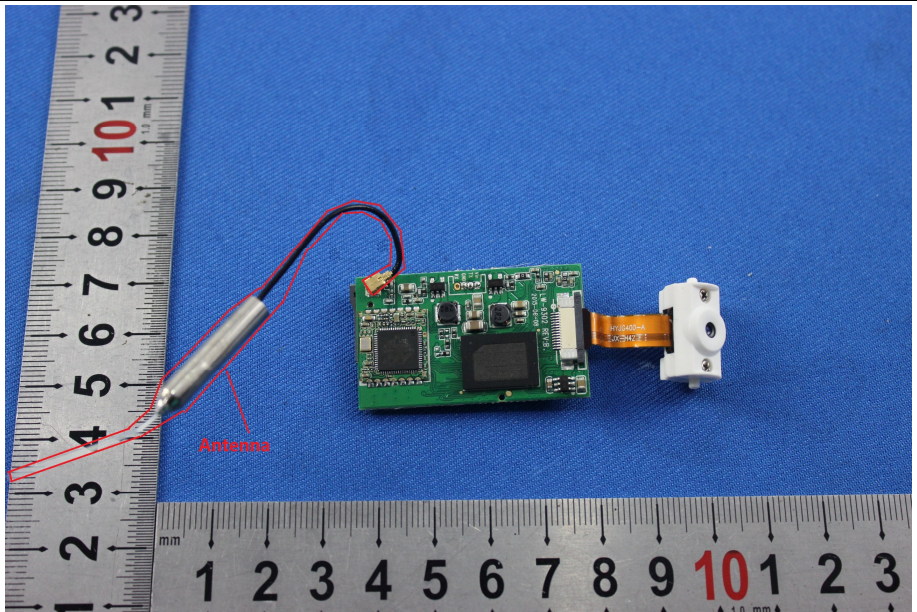
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RF connected test						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-09	2016-10-09
2	Humidity/ Temperature Indicator	HYGRO	ZJ1-2B	SEL0033	2015-10-24	2016-10-24
3	Spectrum Analyzer	Rohde & Schwarz	FSP	SEL0154	2015-10-17	2016-10-17
4	Coaxial cable	SGS	N/A	SEL0178	2015-05-13	2016-05-13
5	Coaxial cable	SGS	N/A	SEL0179	2015-05-13	2016-05-13
6	Barometer	ChangChun	DYM3	SEL0088	2015-05-13	2016-05-13
7	Signal Generator	Rohde & Schwarz	SML03	SEL0068	2015-04-25	2016-04-25
8	POWER METER	R & S	NRVS	SEL0144	2015-10-09	2016-10-09
9	Attenuator	Beijin feihang taida	TST-2-6dB	SEL0205	2015-04-25	2016-04-25

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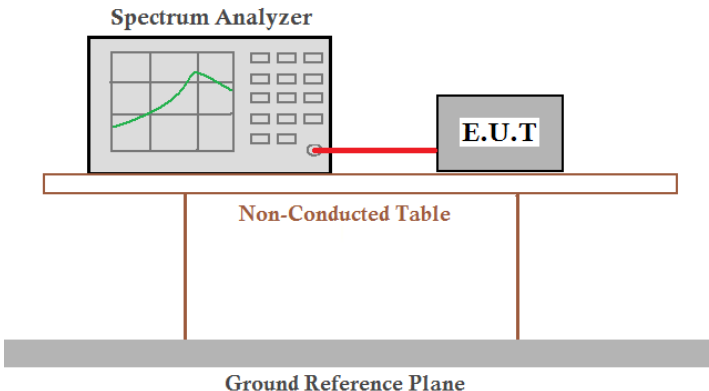
6 Test results and Measurement Data

6.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)
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. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
EUT Antenna:	
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.5dBi.	



6.2 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 2009
Test Setup:	 <i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.
Test Instruments:	Refer to section 5.10 for details
Test Mode:	Transmitting mode.
Limit:	30dBm
Test Results:	Pass





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Measurement Data

802.11b mode			
Test channel (Frequency)	Peak Output Power (dBm)	Limit (dBm)	Result
2447MHz	18.04	30.00	Pass

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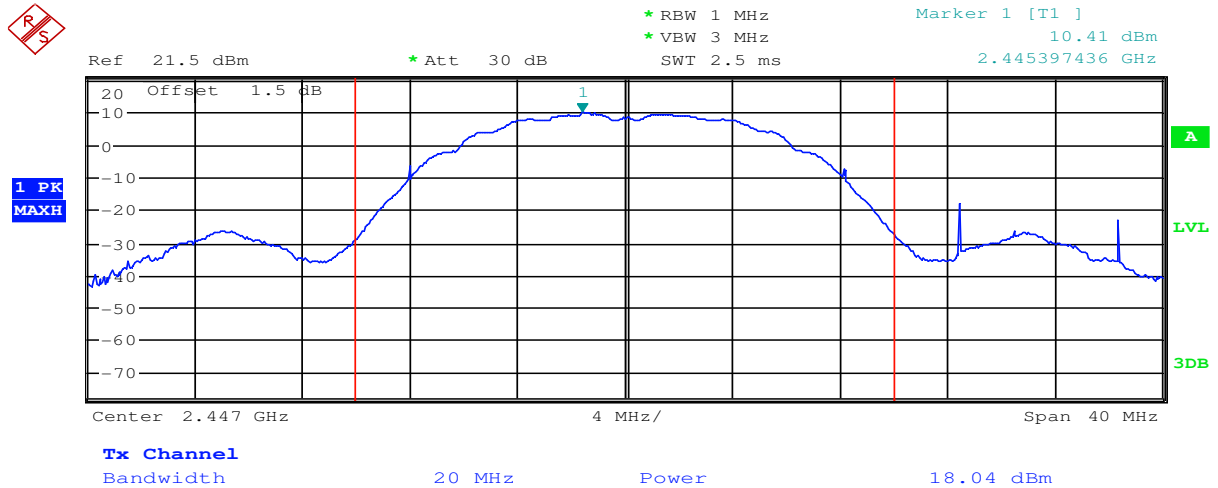
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Test plot as follows:

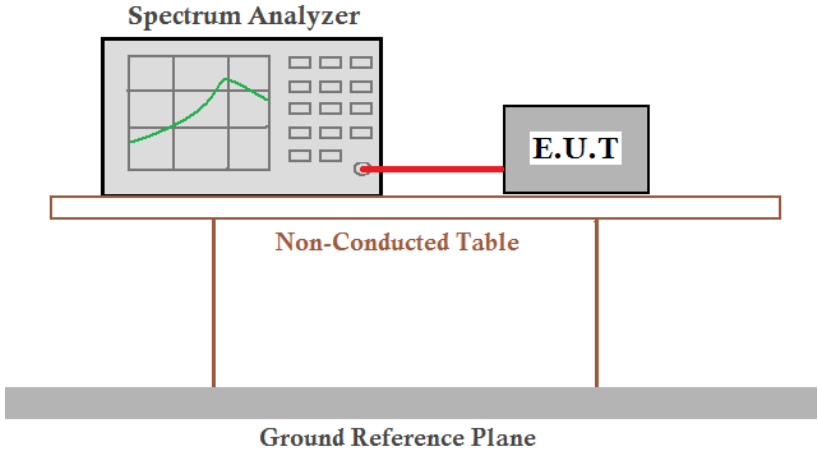
Test mode:	802.11b	Test channel (Frequency):	2447MHz
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6.3 6dB Occupy Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10 2009
Test Setup:	 The diagram illustrates the test setup. A Spectrum Analyzer, shown with a grid and a green curve, is connected to an E.U.T (Equipment Under Test) box by a red cable. Both the analyzer and the E.U.T are positioned on a 'Non-Conducted Table', which is depicted as a horizontal surface supported by two vertical legs. Below this table is a 'Ground Reference Plane', represented by a thick grey horizontal bar.
Instruments Used:	Refer to section 5.10 for details
Test Mode:	Transmitting mode.
Limit:	≥ 500 kHz
Test Results:	Pass



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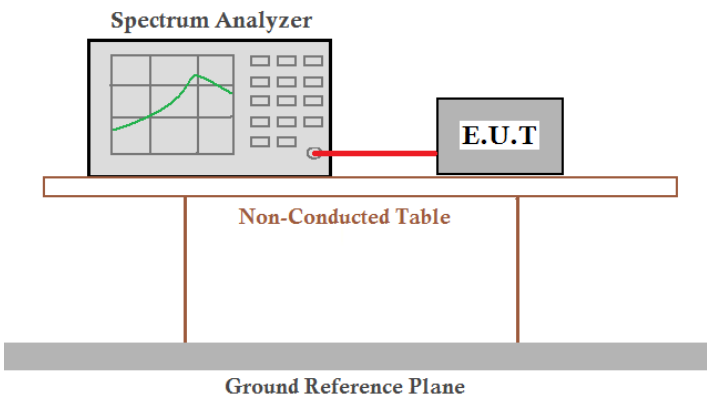
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Measurement Data

802.11b mode			
Test channel (Frequency):	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
2447MHz	10.192	≥500	Pass

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6.4 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 2009
Test Setup:	 <i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.
Test Instruments:	Refer to section 5.10 for details
Test Mode:	Transmitting mode.
Limit:	≤8.00dBm/3kHz
Test Results:	Pass



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Measurement Data

802.11b mode			
Test channel (Frequency):	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2447MHz	-10.84	≤8.00	Pass

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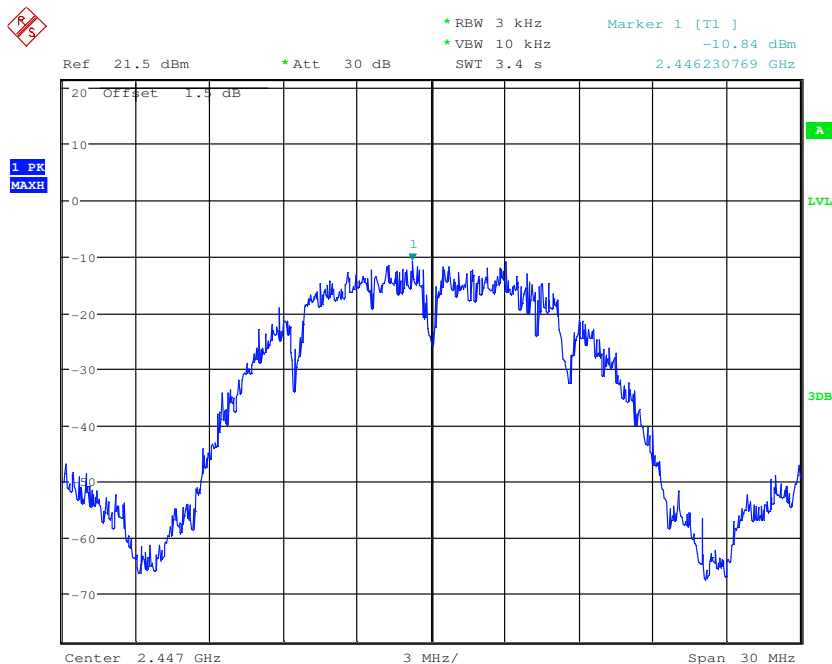
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Test plot as follows:

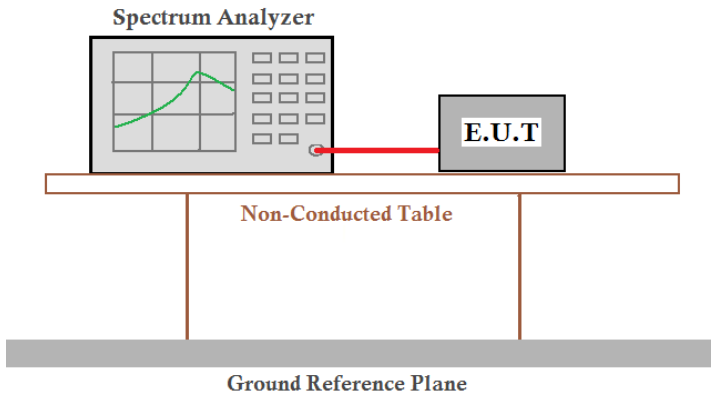
Test mode:	802.11b	Test channel:	Middle
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6.5 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10 2009
Test Setup:	 <i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.
Test Mode:	Transmitting mode.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



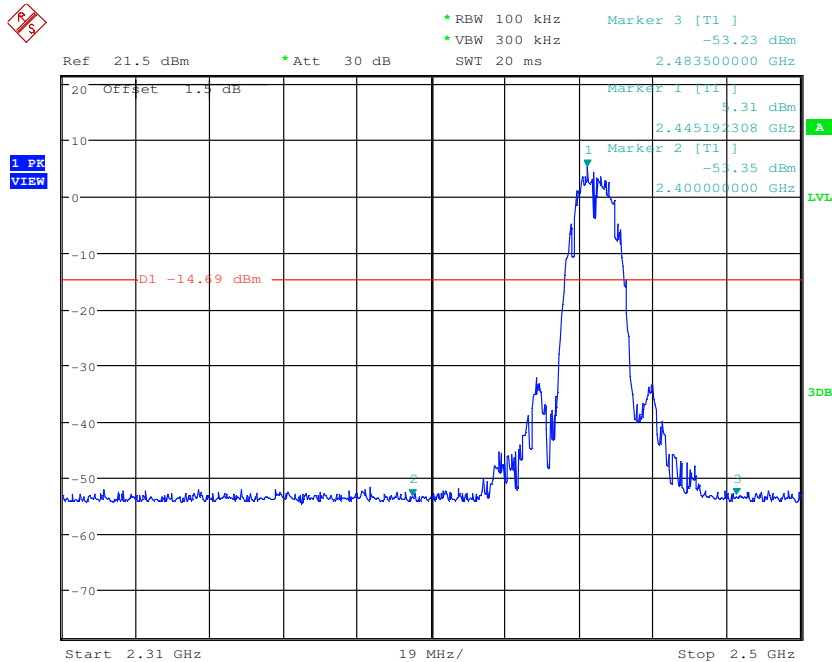
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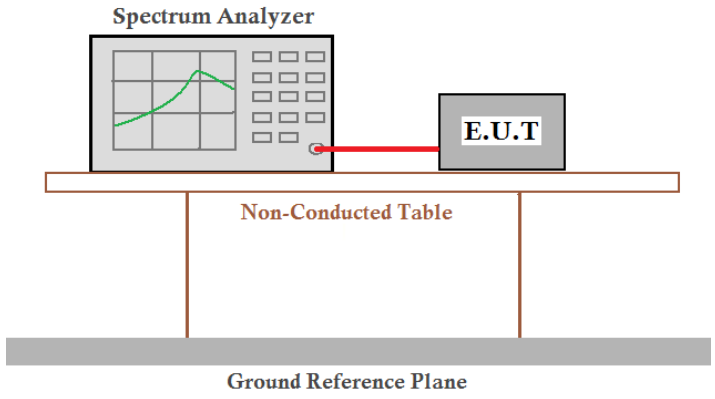
Test plot as follows:

Test mode:	802.11b	Test channel:	Highest
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6.6 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10 2009
Test Setup:	 <i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.
Test Mode:	Transmitting mode.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



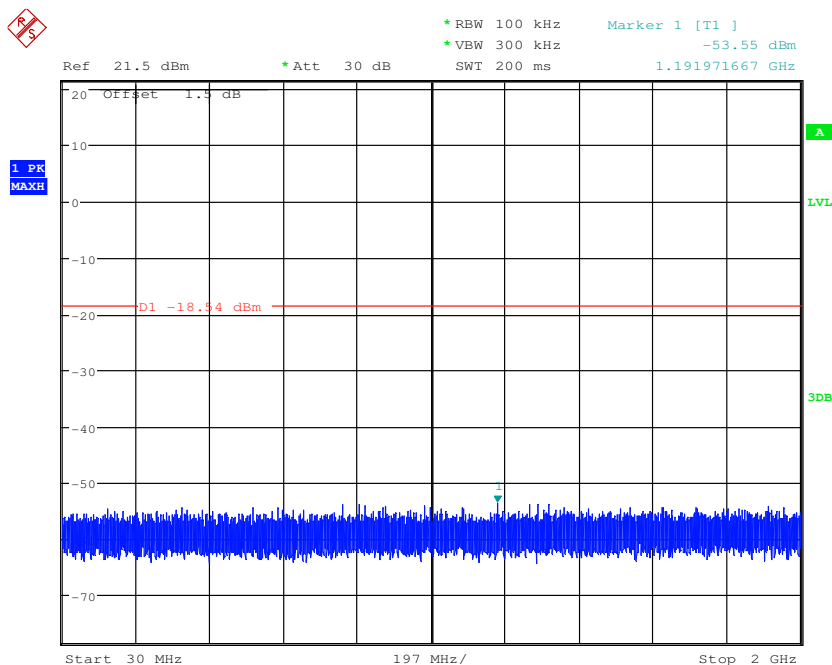
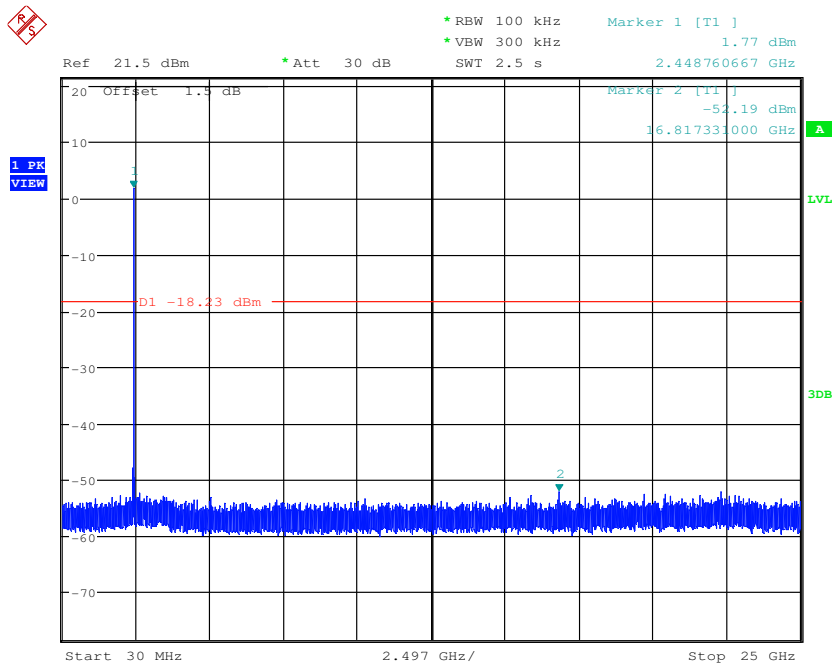
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Test plot as follows:

Test mode:	802.11b	Test channel:	Middle
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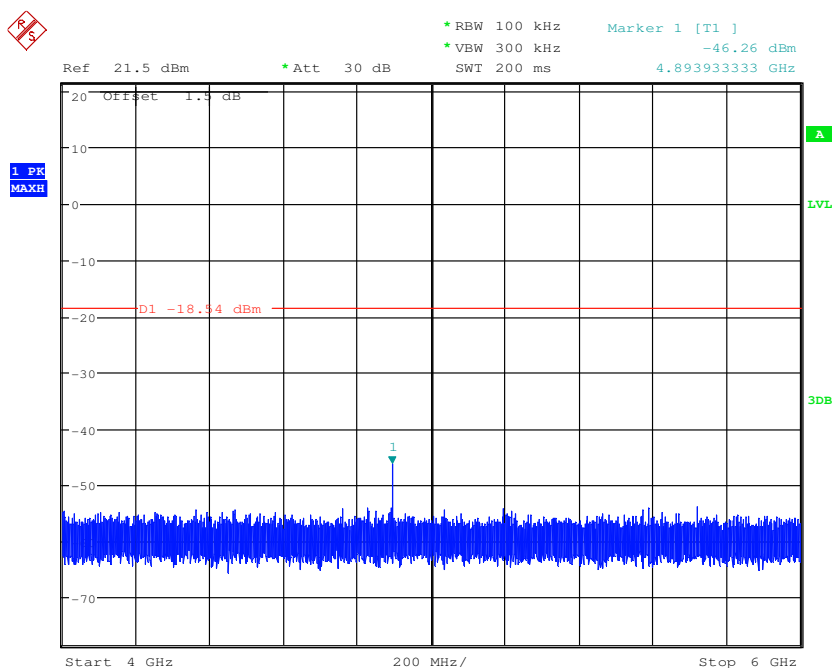
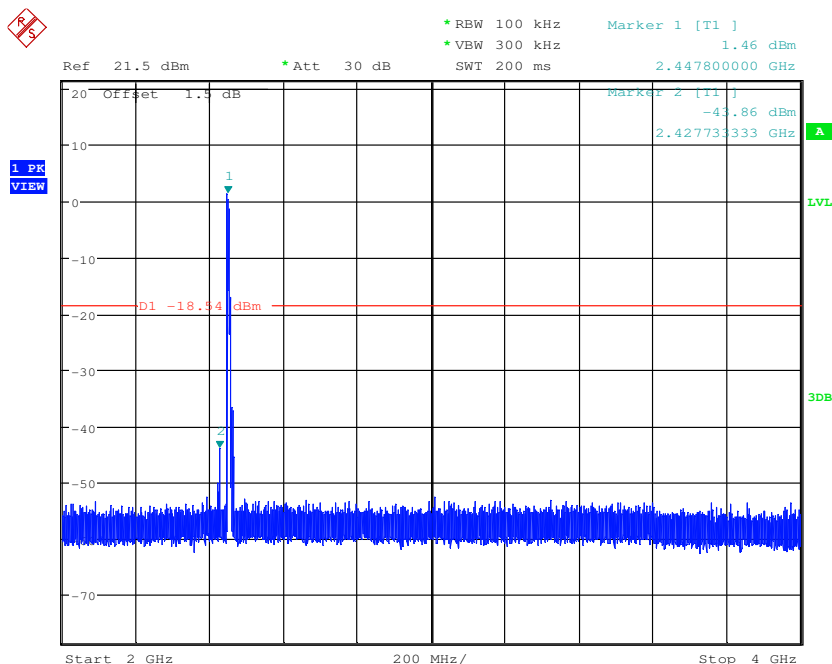
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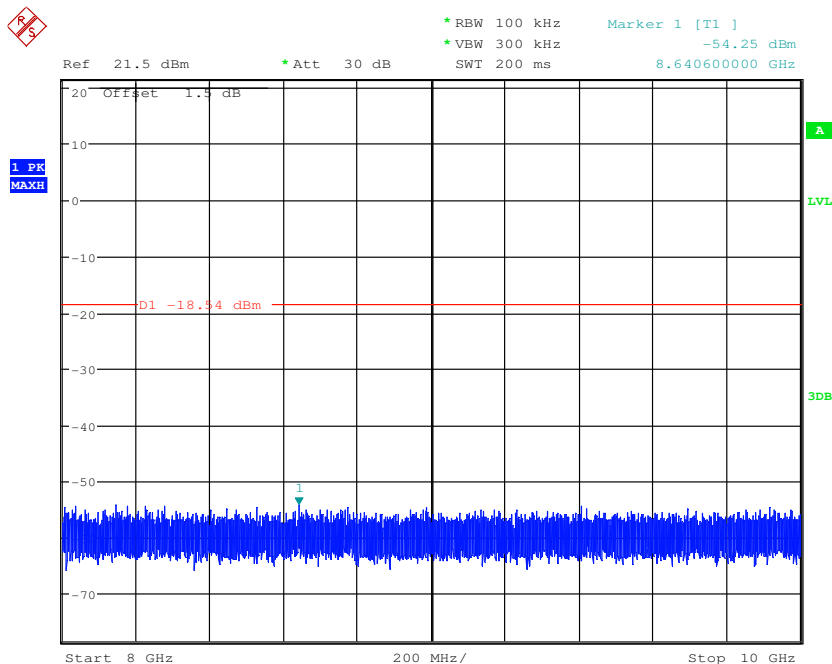
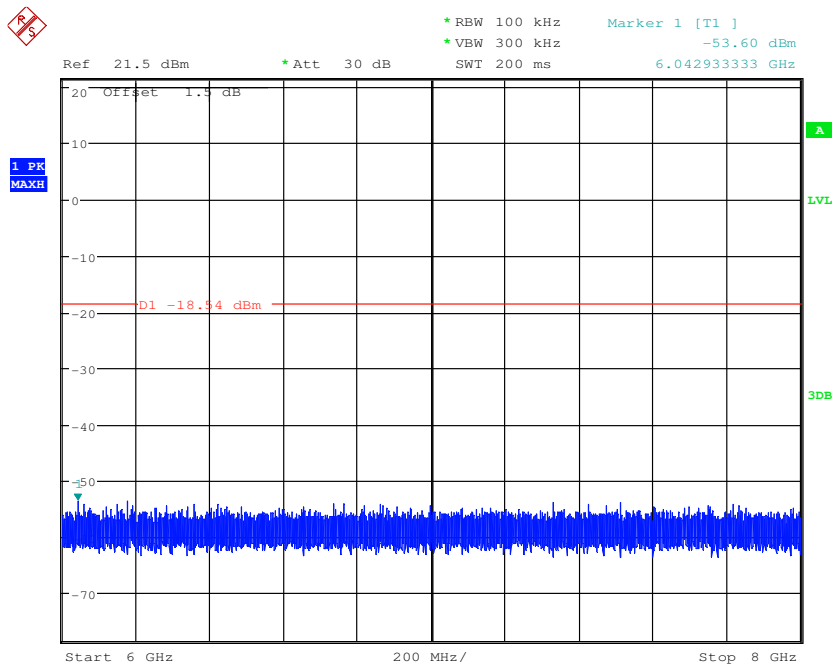
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Remark:

Pretest 9kHz to 25GHz, find the highest point when testing, so only the worst data were shown in the test report. Per FCC Part 15.33 (a) and 15.31 (o) ,The amplitude of spurious emissions from intentional

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radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

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6.7 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205				
Test Method:	ANSI C63.10 2009				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
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:	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.				

Test Setup:

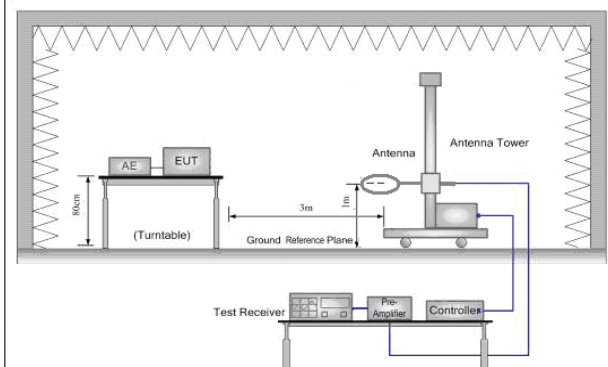


Figure 1. Below 30MHz

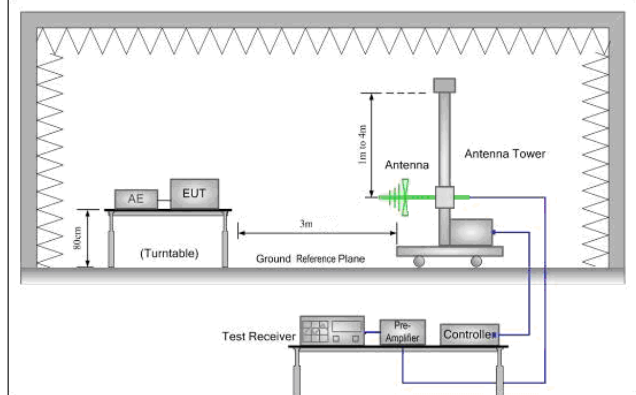


Figure 2. 30MHz to 1GHz

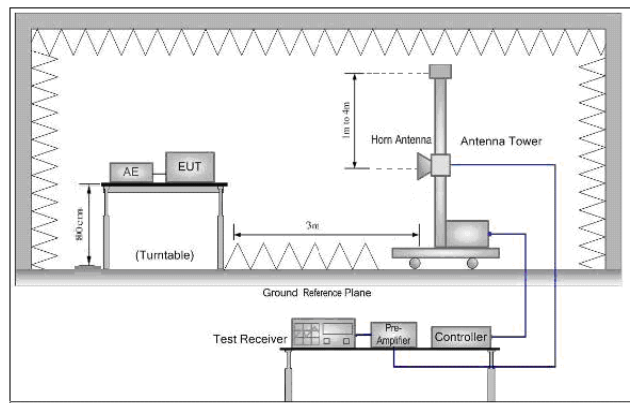


Figure 3. Above 1 GHz

Test Procedure:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average



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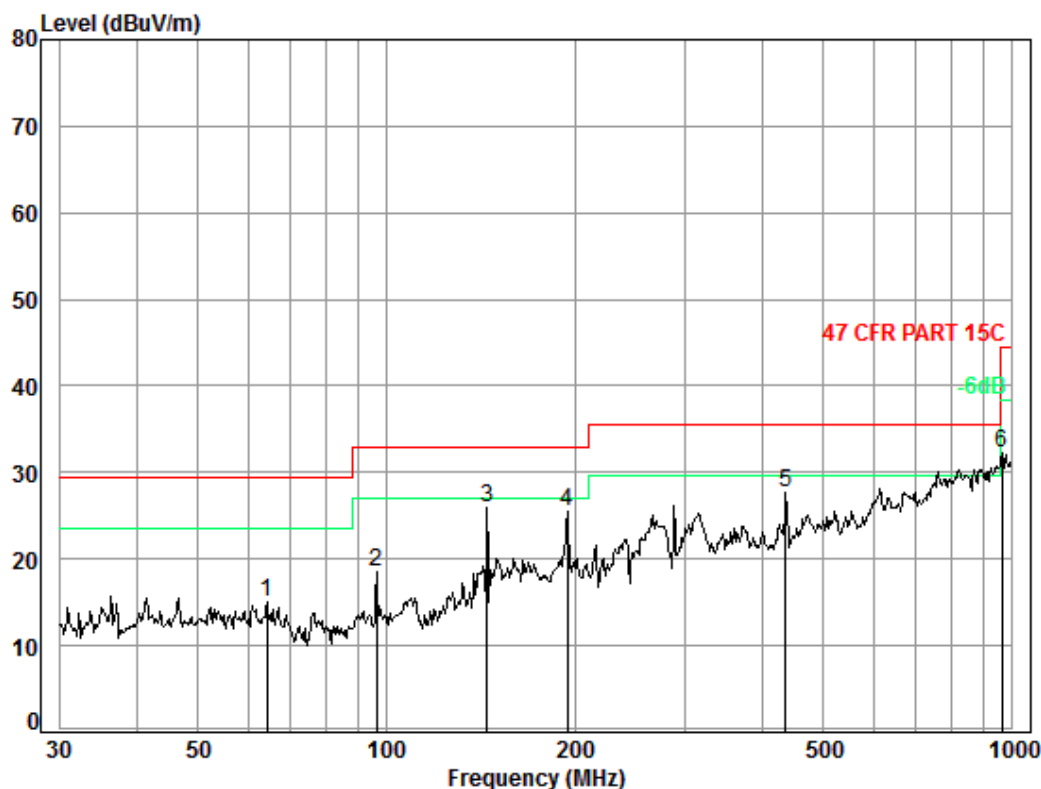
	method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel ,the middle channel ,the Highest channel h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode,And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete.
Test Mode:	Transmitting mode.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

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6.7.1 Radiated emission below 1GHz

30MHz~1GHz (QP)		
Test mode:	Transmitting	Vertical



Condition: 47 CFR PART 15C 10m Vertical

Job No. : 6813CR

Test Mode: TX

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dB
1	64.43	7.00	11.65	32.65	29.14	15.14	29.50	-14.36
2	96.44	7.20	9.16	32.65	34.90	18.61	33.00	-14.39
3 pp	144.84	7.43	12.90	32.62	38.31	26.02	33.00	-6.98
4	194.45	7.57	10.16	32.59	40.34	25.48	33.00	-7.52
5	434.07	8.39	16.25	32.55	35.51	27.60	35.60	-8.00
6	965.54	9.60	24.03	31.22	29.81	32.22	44.40	-12.18

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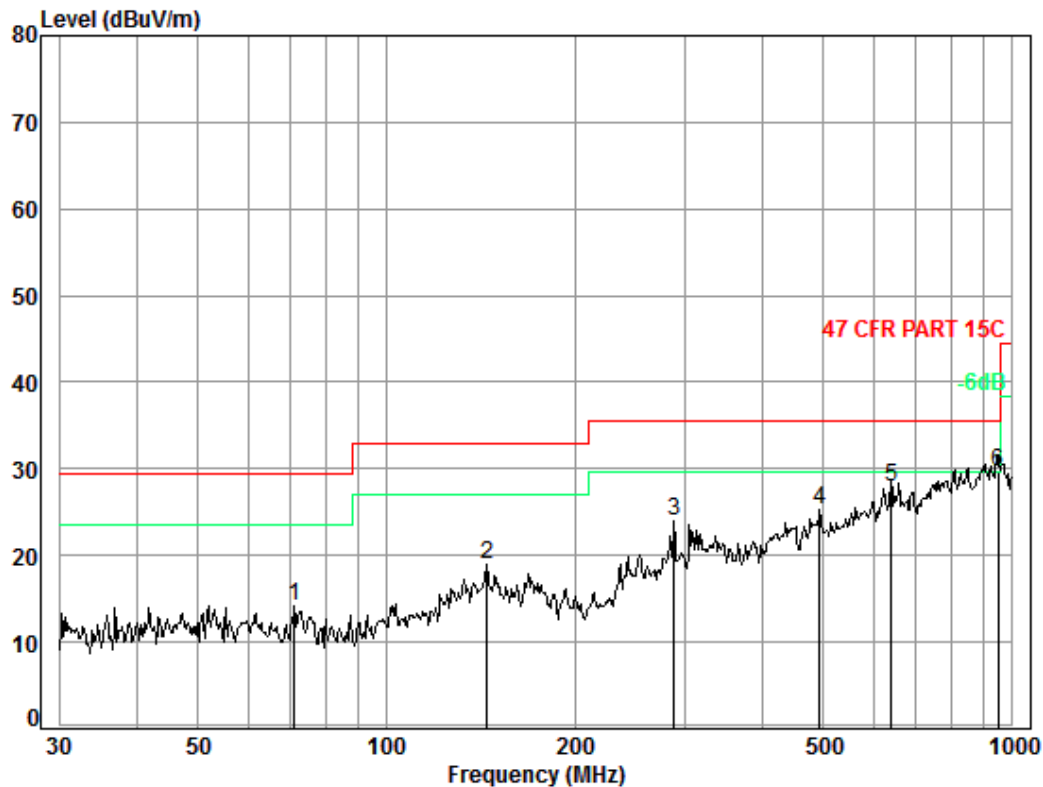


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Test mode:	Transmitting	Horizontal
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Condition: 47 CFR PART 15C 10m Horizontal

Job No. : 6813CR

Test Mode: TX

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dBuV/m
1	71.08	6.92	10.01	32.64	29.87	14.16	29.50	-15.34
2	144.84	7.43	12.90	32.62	31.20	18.91	33.00	-14.09
3	287.99	8.02	12.81	32.55	35.73	24.01	35.60	-11.59
4	492.47	8.56	17.27	32.59	32.01	25.25	35.60	-10.35
5	642.86	9.01	19.92	32.61	31.49	27.81	35.60	-7.79
6 pp	952.09	9.58	24.02	31.35	27.42	29.67	35.60	-5.93



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6.7.2 Transmitter emission above 1GHz

Test mode:		802.11b		Test channel:		Middle		Remark:		Peak	
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization			
3803.444	10.34	32.90	38.49	38.83	43.58	74	-30.42	Vertical			
4894.000	11.72	34.20	38.77	43.39	50.54	74	-23.46	Vertical			
6016.949	13.00	34.71	38.94	37.77	46.54	74	-27.46	Vertical			
7341.000	14.89	35.53	37.58	33.45	46.29	74	-27.71	Vertical			
9788.000	17.98	37.10	36.11	31.50	50.47	74	-23.53	Vertical			
12530.530	21.38	37.83	37.68	30.06	51.59	74	-22.41	Vertical			
3737.975	10.27	32.66	38.46	39.13	43.60	74	-30.40	Horizontal			
4894.000	11.72	34.20	38.77	39.57	46.72	74	-27.28	Horizontal			
6193.614	13.19	34.80	38.71	38.17	47.45	74	-26.55	Horizontal			
7341.000	14.89	35.53	37.58	33.77	46.61	74	-27.39	Horizontal			
9788.000	17.98	37.10	36.11	31.60	50.57	74	-23.43	Horizontal			
12566.850	21.40	37.87	37.72	30.22	51.77	74	-22.23	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.

6.8 Restricted bands around fundamental frequency

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

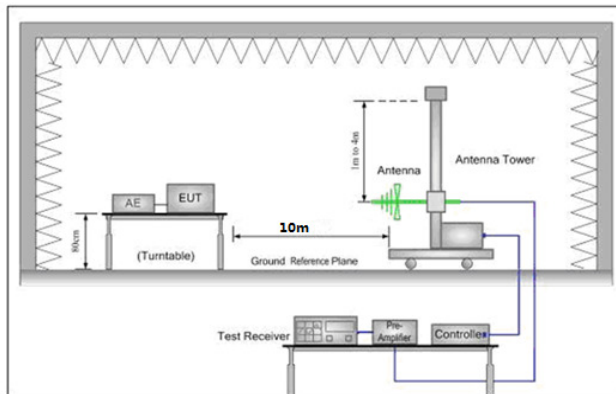


Figure 1. 30MHz to 1GHz

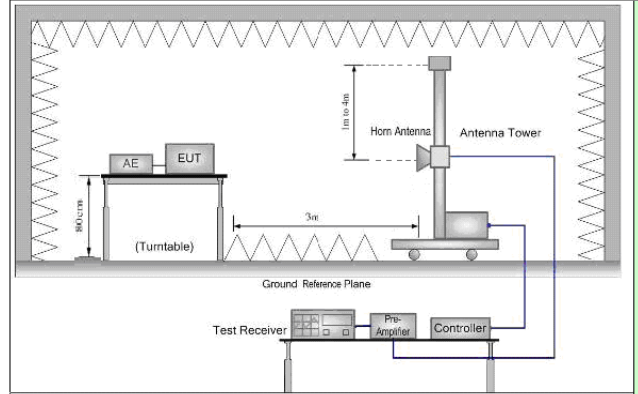


Figure 2. Above 1 GHz



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Test Procedure:	a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber for below 1GHz test and at a 3 meter anechoic chamber for above 1GHz test. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel g. Test the EUT in the lowest channel , the Highest channel h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete.
Test Mode:	Transmitting mode.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



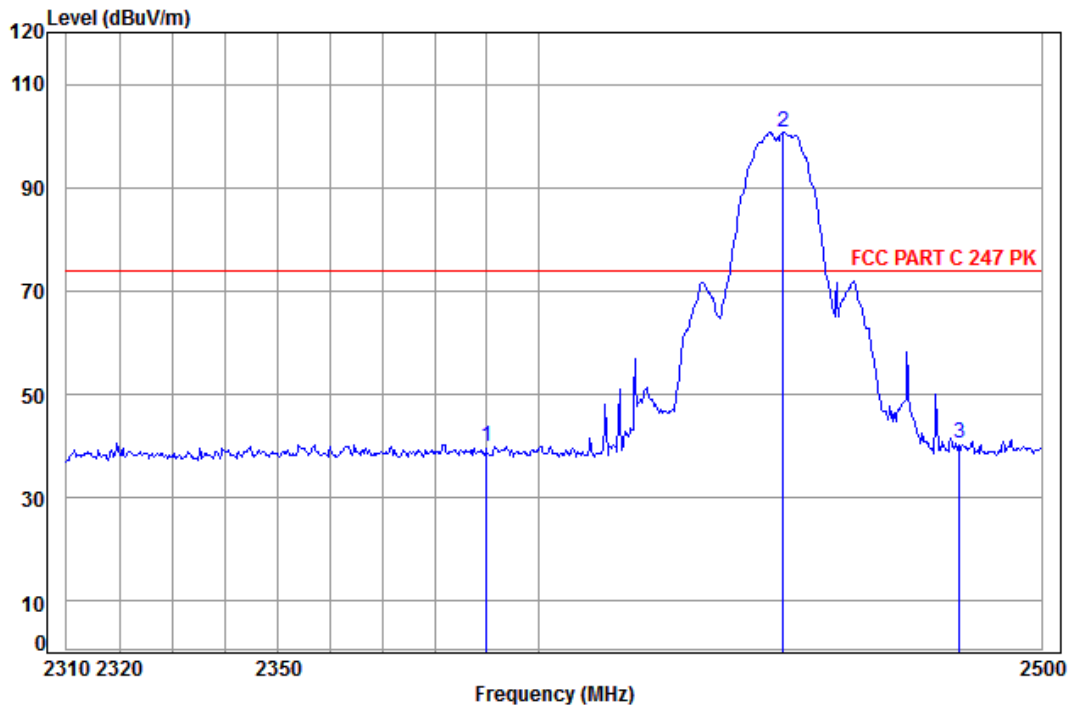
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Test plot as follows:

Worse case mode:		Test channel:	Remark:	Peak	Vertical
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Condition: FCC PART C 247 PK 3m Vertical

Job No: : 6813CR

Mode: : 2447 Band edge

		Cable	Ant	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	2390.00	7.40	28.57	38.11	42.01	39.87	74.00 -34.13
2 pp	2448.18	7.52	28.82	38.11	102.49	100.72	74.00 26.72
3 pk	2483.50	7.52	28.98	38.12	42.03	40.41	74.00 -33.59

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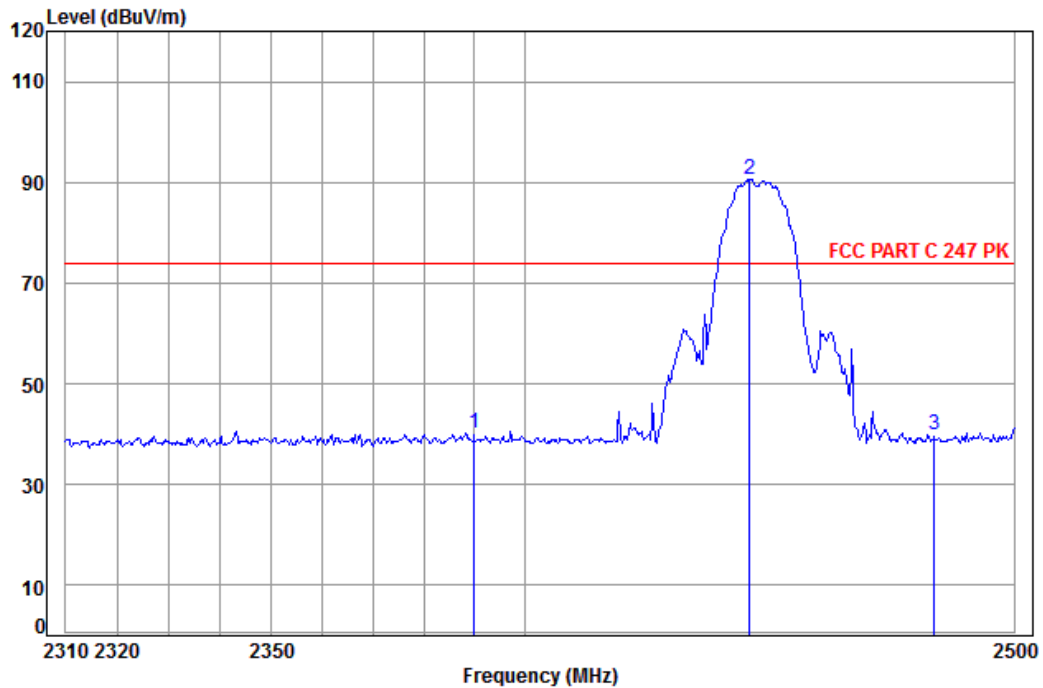


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Worse case mode:		Test channel:	Remark:	Peak	Horizontal
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Condition: FCC PART C 247 PK 3m Horizontal

Job No: : 6813CR

Mode: : 2447 Band edge

		Cable	Ant	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1 pk	2390.00	7.40	28.57	38.11	42.20	74.00	-33.94
2 pp	2445.47	7.51	28.81	38.11	92.49	74.00	16.70
3	2483.50	7.52	28.98	38.12	41.45	74.00	-34.17

Note:

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

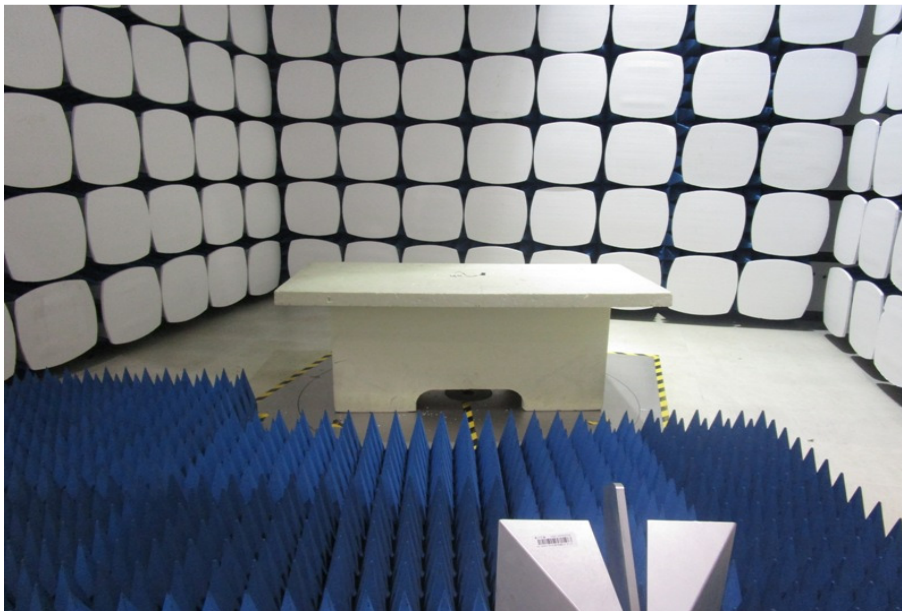
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

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7 Photographs - EUT Test Setup

Test model No.: C1

7.1 Radiated Spurious Emission



8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1511006813CR.