

Report No.: SZEM150600323702

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FCC REPORT

Application No: SZEM1506003237HR

Applicant: School Zone Publishing Company

Manufacturer: Truvo Tech (HK) Co., Ltd

Product Name: Tablet PC

Model No.(EUT): LST0804R

Trade Mark: Little Scholar

FCC ID: 2AEXL-LST0804R

Standards: 47 CFR Part 15, Subpart C (2014)

Date of Receipt: 2015-06-05

Date of Test: 2015-07-03 to 2015-07-08

Date of Issue: 2015-07-10

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						
01		2015-07-10		Original		

Authorized for issue by:		
	Eric Fu	2015-07-08
Tested By	(Eric Fu) /Project Engineer	Date
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Prepared By	(Hedy Wen) /Clerk	Date
	John Hong	
		2015-07-10
Checked By	(Jim Huang) /Reviewer	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



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5 General Information

5.1 Client Information

Applicant:	School Zone Publishing Company				
Address of Applicant: 1819 Industrial Drive, Grand Haven, MI 49417					
Manufacturer: Truvo Tech (HK) Co., Ltd					
Address of Manufacturer:	Room 1003, 10/F Witty Commercial Building 1A-1L Tung Choi Street, Mongkok, Kowloon, Hong Kong				

5.2 General Description of EUT

Product Name:	Tablet PC
Model No.:	LST0804R
Trade Mark:	Little Scholar
Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz
	IEEE 802.11n(HT40): 2422MHz to 2452MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n(HT20): 11 Channels
	IEEE 802.11n(HT40): 7 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS (CCK, DQPSK, DBPSK)
	IEEE for 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK)
	IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK, BPSK)
Sample Type:	Portable production
Test Power Grade:	45 (manufacturer declare)
Test Software of EUT:	WLAN TEST TOOL (manufacturer declare)
Antenna Type:	PIFA
Antenna Gain:	1.23dBi
EUT Power Supply:	Adapter
	MODEL: BSYB050200U W
	INPUT: AC 100-240V 50/60Hz 0.4A
	OUTPUT: DC 5.0V 2.0A
	Lithium-ion battery:3.7V 4500mAh (charge by USB)
Test Voltage:	AC 120V 60Hz



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	ü											
Operation Frequency each of channel(802.11b/g/n HT20)												
Channel	Fr	equency	Channe	Frequency	Channel	Fre	quency	Chani	nel	Frequency		
1	24	412MHz	4	2427MHz	7	244	12MHz	10		2457MHz		
2	24	417MHz	5	2432MHz	8	244	47MHz 11			2462MHz		
3	24	422MHz	6	2437MHz	9	245	2452MHz					
Operation F	-requ	iency each	of channe	el(802.11n HT40)							
Channel Freque		ency	Channel	Frequency Char		nel	F	requency				
1		2422	MHz	4	2437MH	2437MHz		z 7				2452MHz
2		2427	MHz	5	2442MHz			•				
3		2432	MHz	6	2447MH	lz						

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:

For 802.11b/g/n (HT20):

Channel	Frequency		
The Lowest channel	2412MHz		
The Middle channel	2437MHz		
The Highest channel	2462MHz		

For 802.11n (HT40)

Channel	Frequency		
The Lowest channel	2422MHz		
The Middle channel	2437MHz		
The Highest channel	2452MHz		



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5.3 Test Environment and Mode

Operating Environment:					
Temperature:	25.0 °C				
Humidity:	52 % RH				
Atmospheric Pressure:	1005 mbar				
Test mode:					
Transmitting mode:	Keep the EUT transmitting with all kind of modulation and all kind of data rate.				
AC Charge + Transmitting mode:	Keep the EUT charging and transmitting 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.





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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.

VCCI

The 10m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) 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 of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.

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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5.10Equipment List

	Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)		
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2016-05-13		
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2015-10-24		
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2016-05-13		
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN- T8-02	SEL0162	2015-08-30		
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN- T4-02	SEL0163	2015-08-30		
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN- T2-02	SEL0164	2015-08-30		
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2016-05-13		
8	Coaxial Cable	SGS	N/A	SEL0025	2016-05-13		
9	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24		
10	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24		
11	Barometer	Chang Chun	DYM3	SEL0088	2016-05-13		



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	RE in Chamber				
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2016-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEL0312	2015-09-16
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2015-10-24
5	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2015-10-24
6	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2015-10-24
7	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2016-05-13
8	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2015-10-24
9	Coaxial cable	SGS	N/A	SEL0027	2016-05-13
10	Coaxial cable	SGS	N/A	SEL0189	2016-05-13
11	Coaxial cable	SGS	N/A	SEL0121	2016-05-13
12	Coaxial cable	SGS	N/A	SEL0178	2016-05-13
13	Band filter	Amindeon	82346	SEL0094	2016-05-13
14	Barometer	Chang Chun	DYM3	SEL0088	2016-05-13
15	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24
16	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24
17	Signal Generator (10M-27GHz)	Rohde & Schwarz	SMR27	SEL0067	2016-05-13
18	Signal Generator	Rohde & Schwarz	SMY01	SEL0155	2015-10-24
19	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2016-05-13



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	RF connected test				
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24
2	Humidity/ Temperature Indicator	HYGRO	ZJ1-2B	SEL0033	2015-10-24
3	Spectrum Analyzer	Rohde & Schwarz	FSP	SEL0154	2015-10-24
4	Coaxial cable	SGS	N/A	SEL0178	2016-05-13
5	Coaxial cable	SGS	N/A	SEL0179	2016-05-13
6	Barometer	ChangChun	DYM3	SEL0088	2016-05-13
7	Signal Generator	Rohde & Schwarz	SML03	SEL0068	2016-04-25
8	Band filter	amideon	82346	SEL0094	2016-05-13
9	POWER METER	R&S	NRVS	SEL0144	2015-10-24
10	Attenuator	Beijin feihang taida	TST-2-6dB	SEL0205	2016-04-25
11	Power Divider(splitter)	Agilent Technologies	11636B	SEL0130	2015-10-24

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



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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)

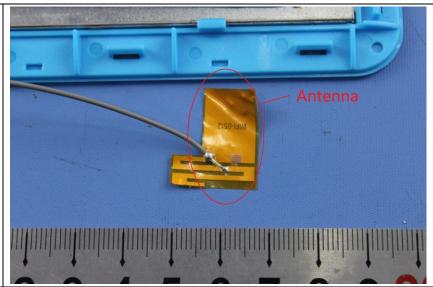
15.203 requirement:

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 1.23dBi.



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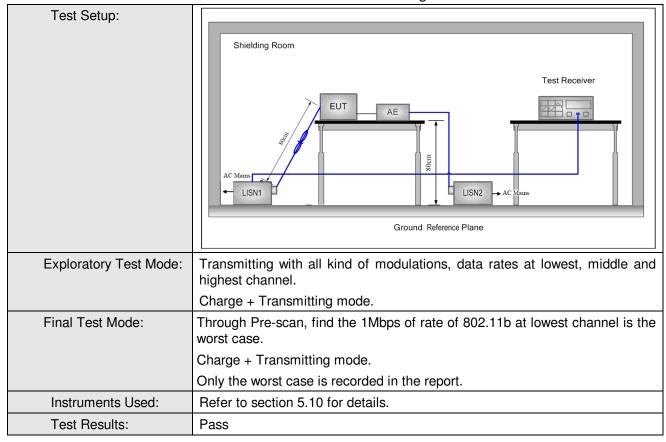
6.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207				
Test Method:	ANSI C63.10: 2009				
Test Frequency Range:	150kHz to 30MHz				
Limit:	Francisco (MIII-)	Limit (c	dBuV)		
	Frequency range (MHz)	Quasi-peak	Average		
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the logarithm	n of the frequency.		1	
Test Procedure:	The mains terminal disturb room.	· ·			
	2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu H + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.				
	The tabletop EUT was pla ground reference plane. was placed on the horizon	And for floor-standing	g arrangement, the l		
	4) The test was performed with a vertical ground reference plane. T of the EUT shall be 0.4 m from the vertical ground reference plane vertical ground reference plane was bonded to the horizontal reference plane. The LISN 1 was placed 0.8 m from the boundary unit under test and bonded to a ground reference plane for mounted on top of the ground reference plane. This distant between the closest points of the LISN 1 and the EUT. All other the EUT and associated equipment was at least 0.8 m from the LISN 1.				
	 In order to find the m equipment and all of the i ANSI C63.10: 2009 on cor 	nterface cables must b	e changed according		



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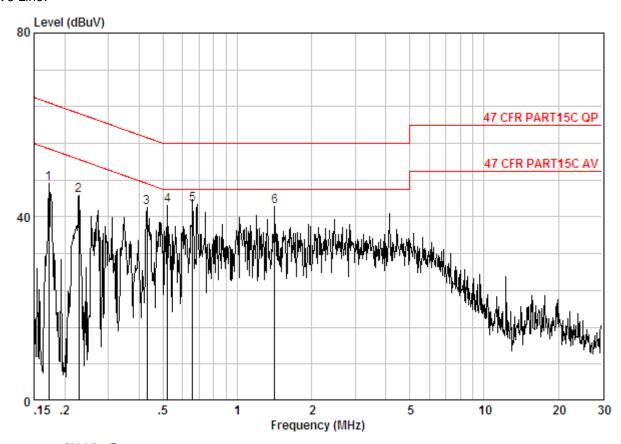
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Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:



Site : Shielding Room

Condition : 47 CFR PART15C AV CE LINE

Job No. : 3237HR

Test Mode : Charge+TX mode

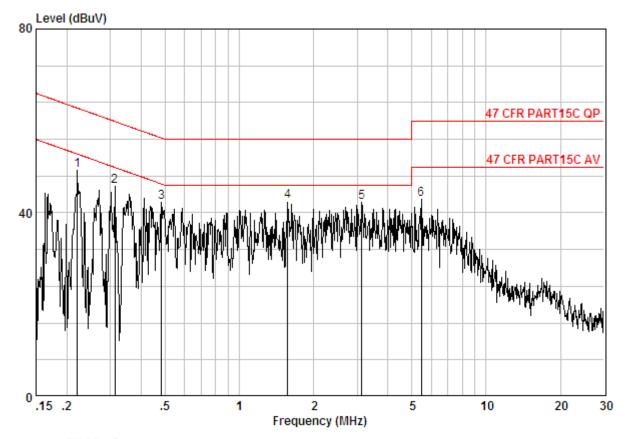
	Freq		LISN Factor					
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17215	0.02	0.00	47.25	47.27	54.86	-7.59	Peak
2	0.22797	0.02	0.00	44.69	44.71	52.52	-7.81	Peak
3	0.43052	0.01	0.00	41.98	41.99	47.24	-5.25	Peak
4	0.52099	0.01	0.00	42.41	42.42	46.00	-3.58	Peak
5 @	0.65778	0.02	0.00	42.69	42.71	46.00	-3.29	Peak
6	1.418	0.02	0.00	42.24	42.26	46.00	-3.74	Peak



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Neutral Line:



Site : Shielding Room

Condition : 47 CFR PART15C AV CE NEUTRAL

Job No. : 3237HR

Test Mode : Charge+TX mode

	Freq		LISN Factor					Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.22083	0.02	0.00	49.15	49.17	52.79	-3.62	Peak
2	0.31328	0.01	0.00	45.76	45.77	49.88	-4.11	Peak
3	0.48375	0.01	0.00	42.17	42.18	46.27	-4.09	Peak
4 @	1.568	0.02	0.00	42.42	42.44	46.00	-3.56	Peak
5	3.140	0.02	0.00	42.36	42.38	46.00	-3.62	Peak
6	5.476	0.01	0.00	42.94	42.95	50.00	-7.05	Peak

Notes:

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



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6.3 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)				
Test Method:	ANSI C63.10 2009				
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.				
Test Instruments:	Refer to section 5.10 for details.				
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.				
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).				
Limit:	30dBm				
Test Results:	Pass				





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Pre-scan und	re-scan under all rate at lowest channel 1							
Mode		802	.11b			_		
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power (dBm)	18.57	18.23	18.02	17.43				
Mode				802	2.11g			
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power (dBm)	18.80	18.68	18.62	18.47	18.45	18.50	18.42	17.58
Mode				802.11	n(HT20)			
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power (dBm)	18.50	18.33	18.12	18.00	17.87	17.65	17.66	17.01
Mode	802.11n(HT40)							
Data Rate	13.5Mbps	27Mbps	40.5Mbps	54Mbps	81Mbps	108Mbps	121.5Mbps	135Mbps
Power (dBm)	17.50	17.44	17.36	17.33	17.27	17.22	17.05	16.12

Through Pre-scan, 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).



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Measurement Data

Measurement Data	leasurement Data					
	802.11b mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result			
Lowest	18.57	30.00	Pass			
Middle	18.86	30.00	Pass			
Highest	18.87	30.00	Pass			
	802.11g mg	ode				
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result			
Lowest	18.80	30.00	Pass			
Middle	18.64	30.00	Pass			
Highest	18.76	30.00	Pass			
	802.11n(HT20)	mode				
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result			
Lowest	18.50	30.00	Pass			
Middle	18.52	30.00	Pass			
Highest	18.70	30.00	Pass			
	802.11n(HT40)mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result			
Lowest	17.50	30.00	Pass			
Middle	17.69	30.00	Pass			
Highest	18.02	30.00	Pass			



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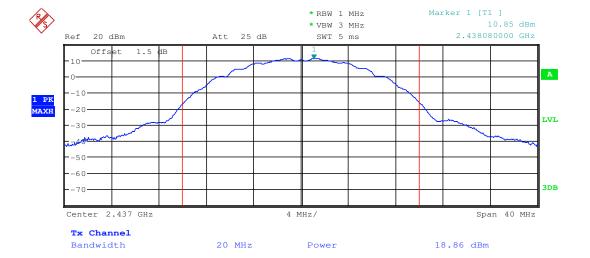
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



Test mode: 802.11b Test channel: Middle





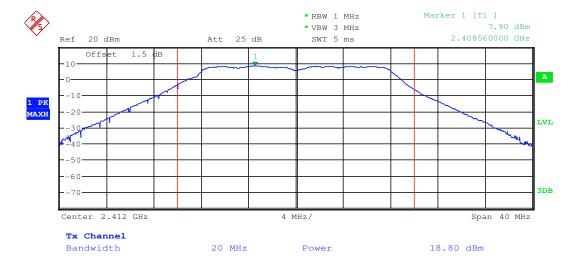
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Test mode: 802.11b Test channel: Highest



Test mode: 802.11g Test channel: Lowest





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Test mode: 802.11g Test channel: Middle



Test mode: 802.11g Test channel: Highest

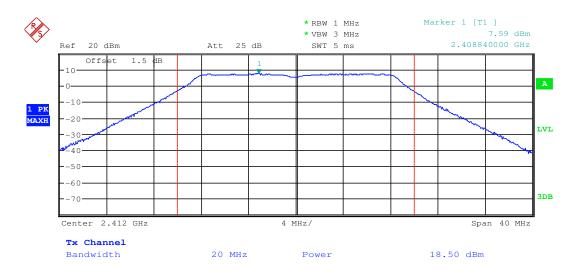




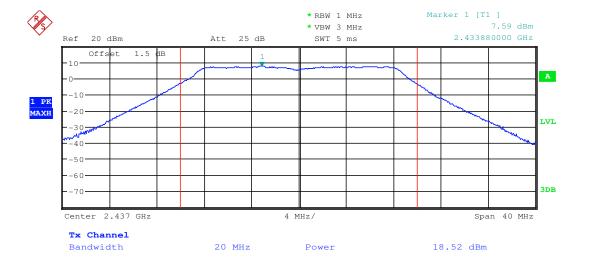
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Test mode: 802.11n(HT20) Test channel: Lowest



Test mode: 802.11n(HT20) Test channel: Middle

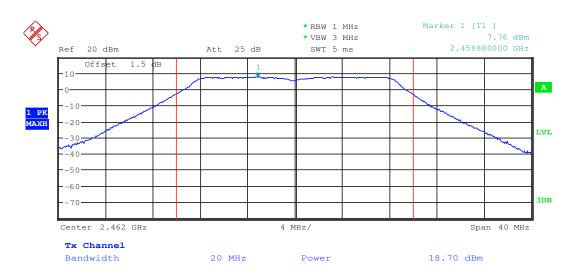




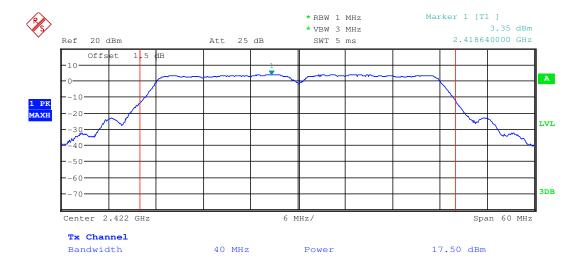
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Test mode: 802.11n(HT20) Test channel: Highest



Test mode: 802.11n(HT40) Test channel: Lowest

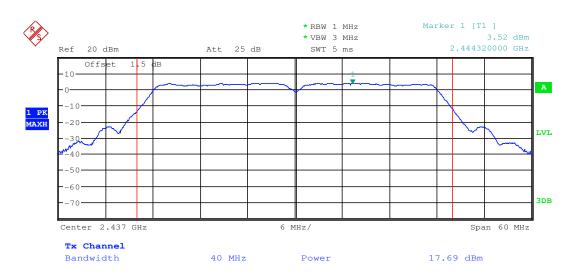




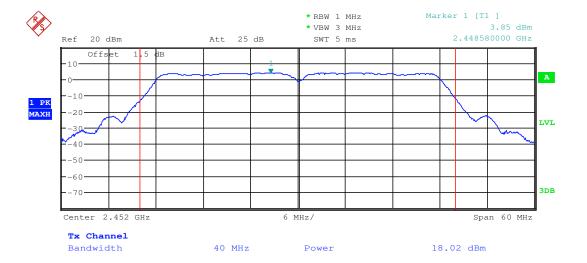
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Test mode: 802.11n(HT40) Test channel: Middle



Test mode: 802.11n(HT40) Test channel: Highest

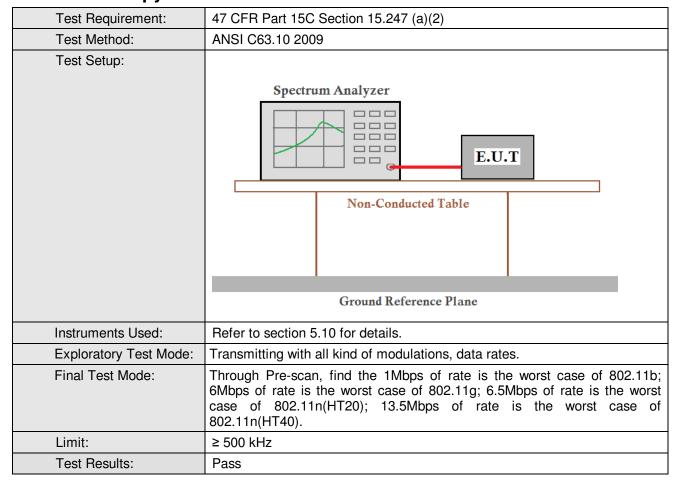




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6.4 6dB Occupy Bandwidth





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Measurement Data

	802.11b mode					
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result			
Lowest	10.14	≥500	Pass			
Middle	10.14	≥500	Pass			
Highest	10.14	≥500	Pass			
	802.11g mode					
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result			
Lowest	16.65	≥500	Pass			
Middle	16.65	≥500	Pass			
Highest	16.65	≥500	Pass			
	802.11n(HT20) mode					
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result			
Lowest	17.88	≥500	Pass			
Middle	17.88	≥500	Pass			
Highest	17.88	≥500	Pass			
	802.11n(HT40) mode					
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result			
Lowest	36.60	≥500	Pass			
Middle	36.60	≥500	Pass			
Highest	36.60	≥500	Pass			

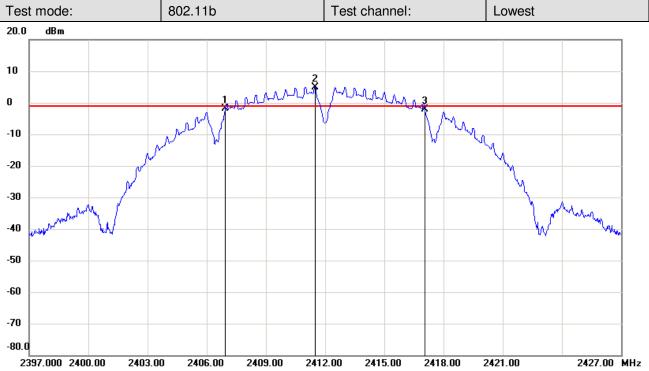




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Test plot as follows:



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2406.9300	-1.83	-1.03	-0.80
2	2411.4900	4.97	-1.03	6.00
3	2417.0700	-2.13	-1.03	-1.10

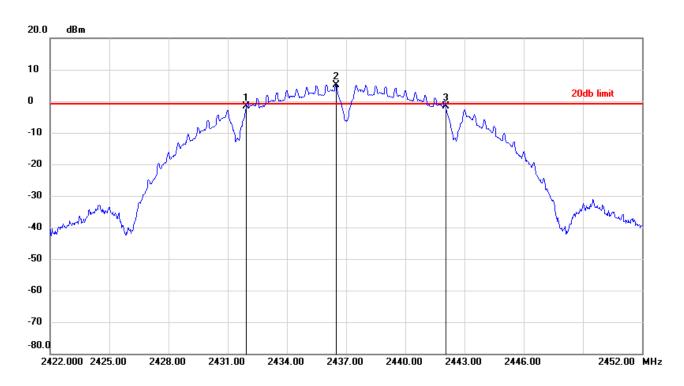
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	10.14	-0.3



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Test mode: 802.11b Test channel: Middle



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2431.9300	-1.67	-0.76	-0.91
2	2436.4900	5.24	-0.76	6.00
3	2442.0700	-1.66	-0.76	-0.90

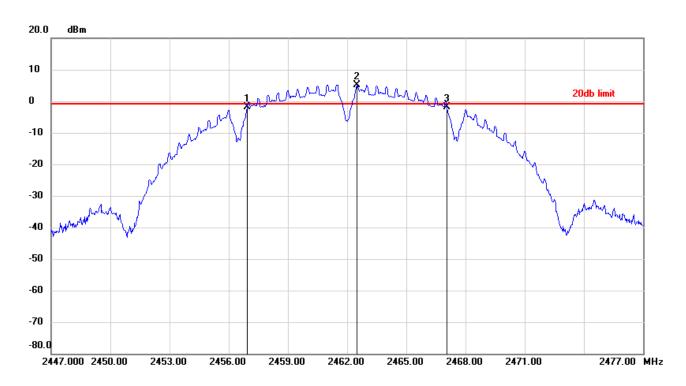
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	10.14	0.01



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Test mode: 802.11b Test channel: Highest



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2456.9300	-1.75	-0.78	-0.97
2	2462.5100	5.22	-0.78	6.00
3	2467.0700	-1.93	-0.78	-1.15

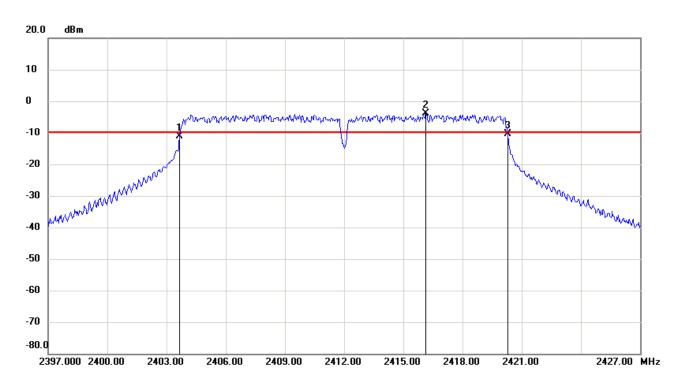
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	10.14	-0.18



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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.6600	-11.24	-9.82	-1.42
2	2416.1400	-3.82	-9.82	6.00
3	2420.3100	-10.36	-9.82	-0.54

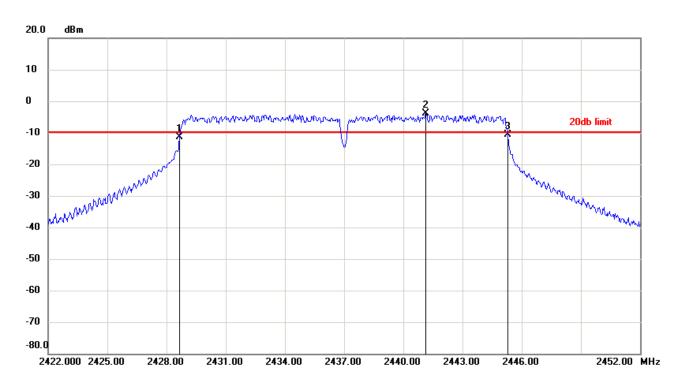
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	16.65	0.88



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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.6600	-11.36	-9.88	-1.48
2	2441.1400	-3.88	-9.88	6.00
3	2445.3100	-10.55	-9.88	-0.67

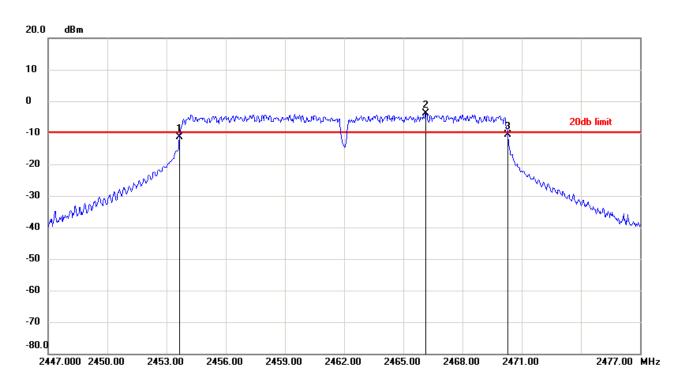
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	16.65	0.81



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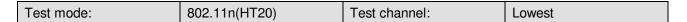
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.6600	-11.25	-9.82	-1.43
2	2466.1400	-3.82	-9.82	6.00
3	2470.3100	-10.54	-9.82	-0.72

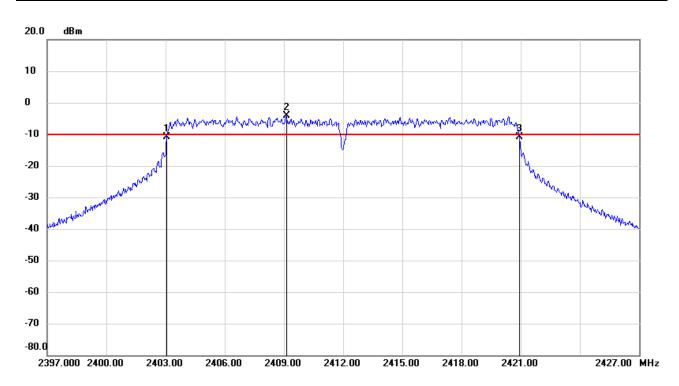
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	16.65	0.71



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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0600	-10.84	-10.04	-0.80
2	2409.1200	-4.04	-10.04	6.00
3	2420.9400	-10.88	-10.04	-0.84

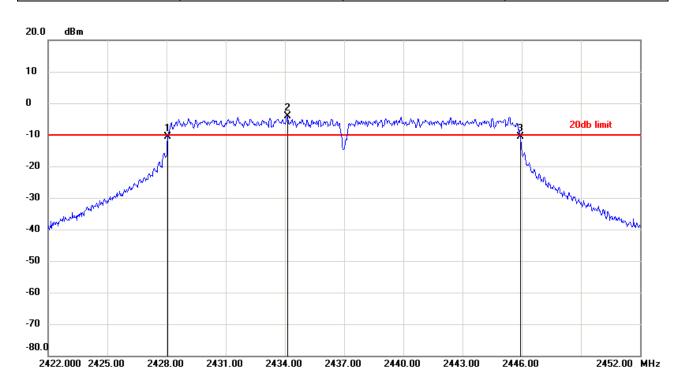
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	17.88	-0.04



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Test mode: 802.11n(HT20) Test channel: Middle



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.0600	-10.74	-10.05	-0.69
2	2434.1200	-4.05	-10.05	6.00
3	2445.9400	-10.65	-10.05	-0.60

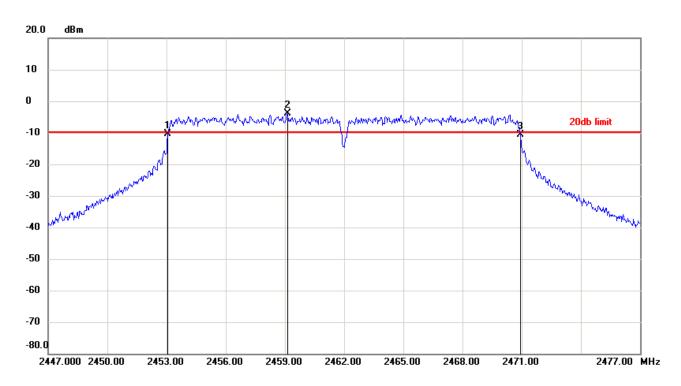
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	17.88	0.09



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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0600	-10.45	-9.92	-0.53
2	2459.1200	-3.92	-9.92	6.00
3	2470.9400	-10.56	-9.92	-0.64

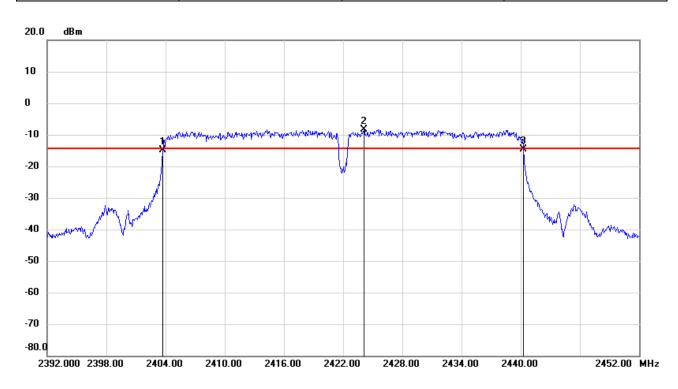
No.		> Frequency(MHz)	〉Level(dB)
1	mk3-mk1	17.88	-0.11



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Test mode: 802.11n(HT40) Test channel: Lowest



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.7000	-14.97	-14.28	-0.69
2	2424.1000	-8.28	-14.28	6.00
3	2440.3000	-14.64	-14.28	-0.36

No.		> Frequency(MHz)	› Level(dB)
1	mk3-mk1	36.6	0.33

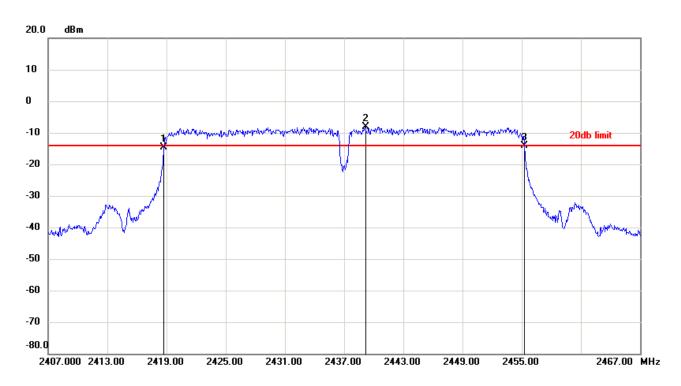




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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2418.7000	-14.56	-14.14	-0.42
2	2439.1600	-8.14	-14.14	6.00
3	2455.3000	-14.20	-14.14	-0.06

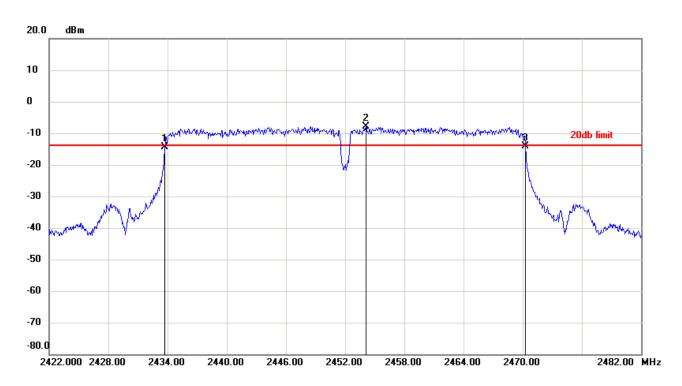
No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	36.6	0.36



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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2433.7000	-14.49	-13.86	-0.63
2	2454.1000	-7.86	-13.86	6.00
3	2470.3000	-14.01	-13.86	-0.15

No.		〉Frequency(MHz)	〉Level(dB)
1	mk3-mk1	36.6	0.48



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6.5 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)		
Test Method:	ANSI C63.10 2009		
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.		
Test Instruments:	Refer to section 5.10 for details.		
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.		
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).		
Limit:	≤8.00dBm/3kHz		
Test Results:	Pass		



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Measurement Data

Measurement Data						
802.11b mode						
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result			
Lowest	-14.96	≥8.00	Pass			
Middle	-14.89	≥8.00	Pass			
Highest	-14.84	≤8.00	Pass			
	802.11g mode					
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result			
Lowest	-18.62	≤8.00	Pass			
Middle	-18.47	≤8.00	Pass			
Highest	-18.39	≤8.00	Pass			
	802.11n (HT20) mode					
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result			
Lowest	-18.09	≤8.00	Pass			
Middle	-17.83	≤8.00	Pass			
Highest	-17.99	≤8.00	Pass			
	802.11n(HT40) mode					
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result			
Lowest	-20.80	≤8.00	Pass			
Middle	-19.73	≤8.00	Pass			
Highest	st -19.93 ≤8.00 Pass		Pass			

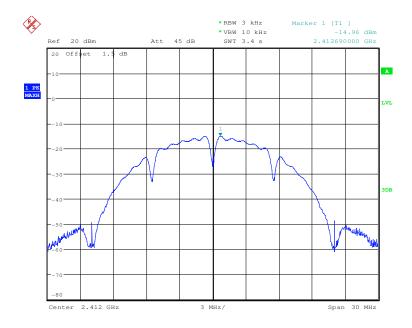


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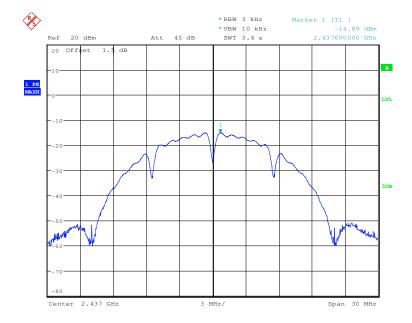
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



Test mode: 802.11b Test channel: Middle

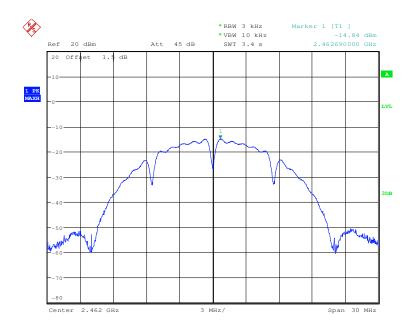




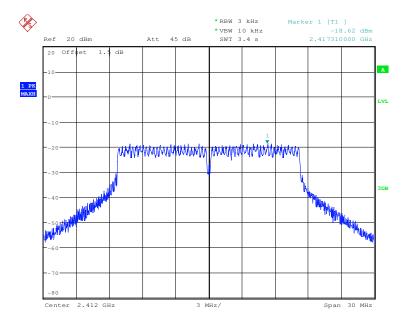
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Test mode: 802.11b Test channel: Highest





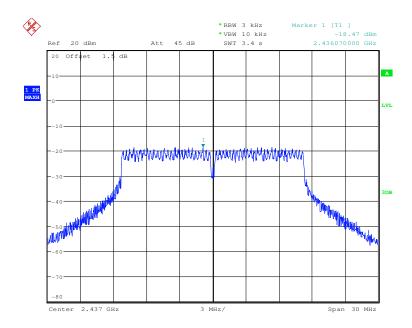




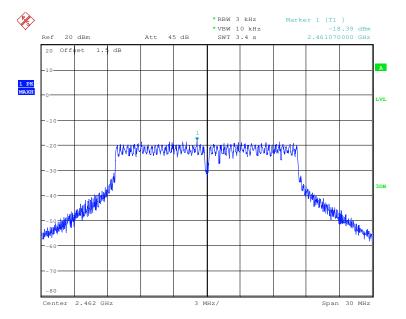
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Test mode: 802.11g Test channel: Middle





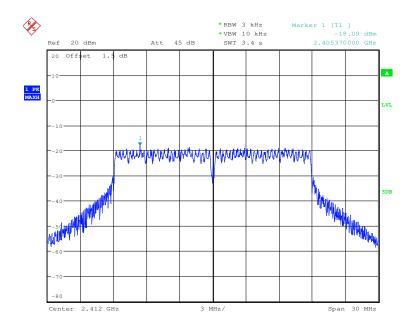




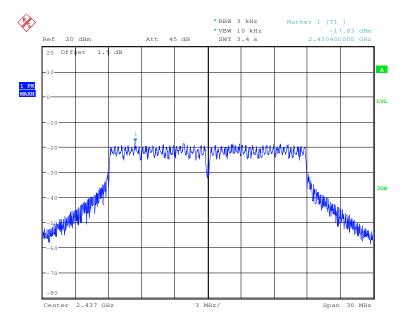
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Test mode: 802.11n (HT20) Test channel: Lowest





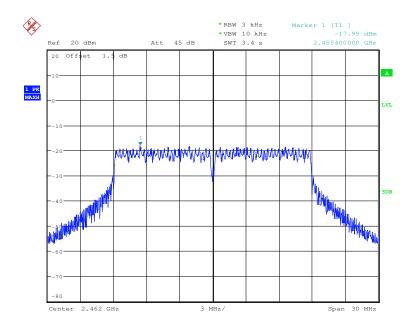




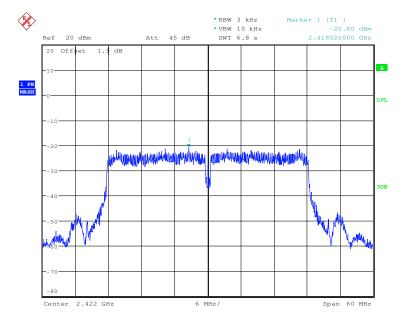
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Test mode: 802.11n (HT20) Test channel: Highest





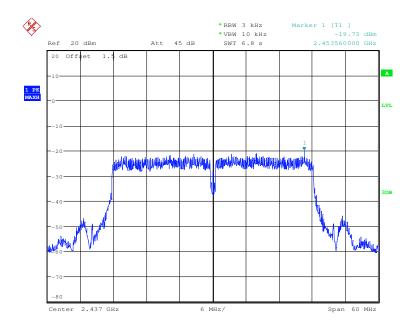




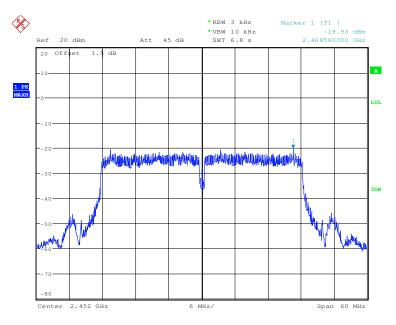
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Test mode: 802.11n (HT40) Test channel: Middle



Test mode: 802.11n (HT40) Test channel: Highest







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6.6 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)		
Test Method:	ANSI C63.10 2009		
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.		
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.		
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).		
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		

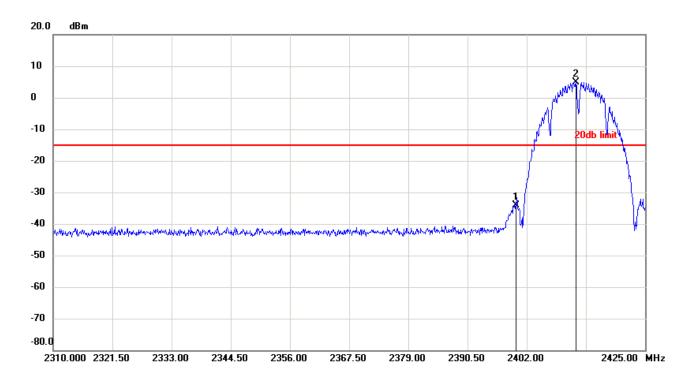


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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



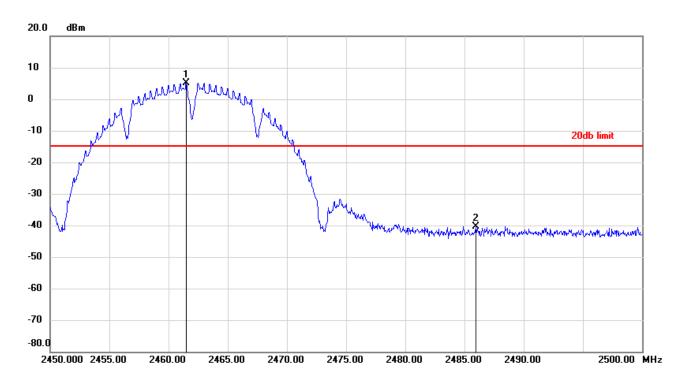
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.9300	-34.06	-15.00	-19.06
2	2411.5450	5.00	-15.00	20.00



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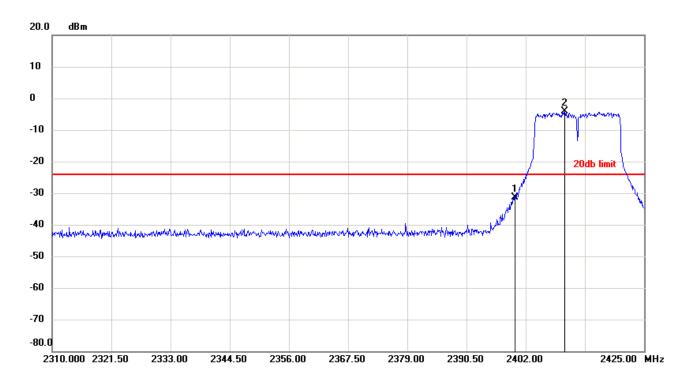
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2461.5000	5.13	-14.87	20.00
2	2485.9500	-40.45	-14.87	-25.58



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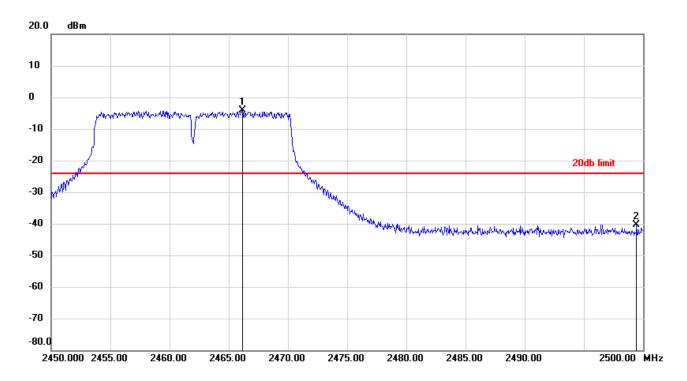
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.9300	-31.31	-24.19	-7.12
2	2409.5900	-4.19	-24.19	20.00



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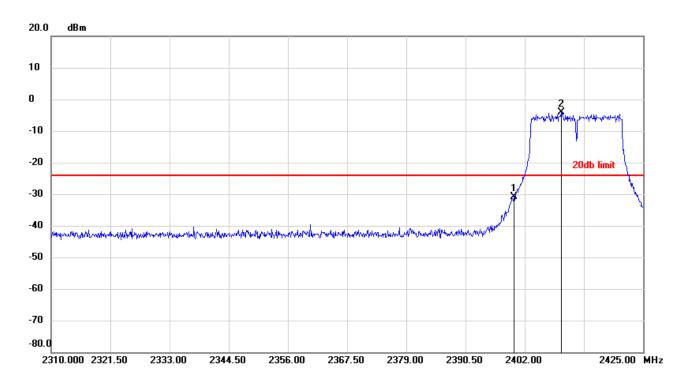
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2466.1500	-4.01	-24.01	20.00
2	2499.4500	-40.33	-24.01	-16.32



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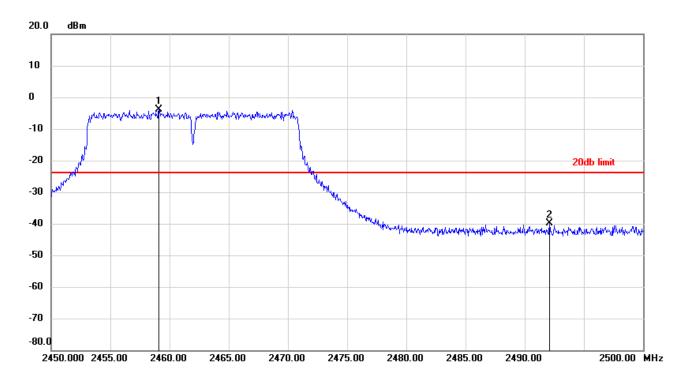
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.9300	-30.90	-24.12	-6.78
2	2409.1300	-4.12	-24.12	20.00



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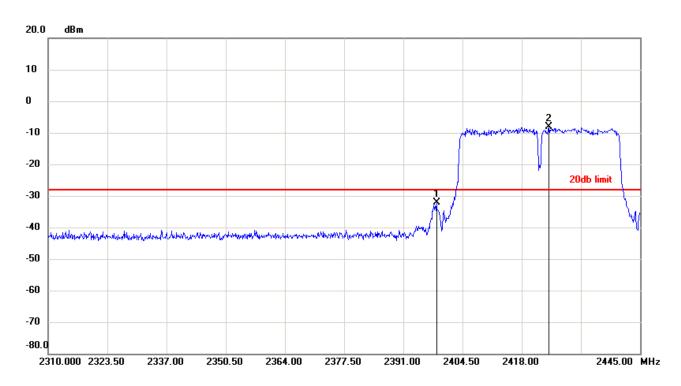
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2459.1000	-3.80	-23.80	20.00
2	2492.1000	-39.75	-23.80	-15.95



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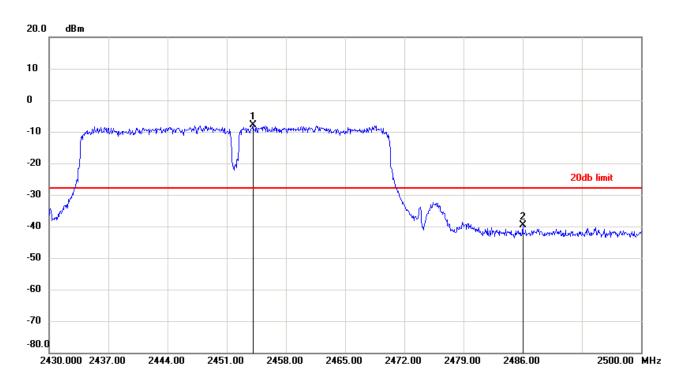
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2398.5600	-32.15	-28.16	-3.99
2	2424.2100	-8.16	-28.16	20.00



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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2454.0800	-7.92	-27.92	20.00
2	2486.0000	-39.66	-27.92	-11.74



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6.7 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)		
Test Method:	ANSI C63.10 2009		
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.		
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.		
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).		
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		



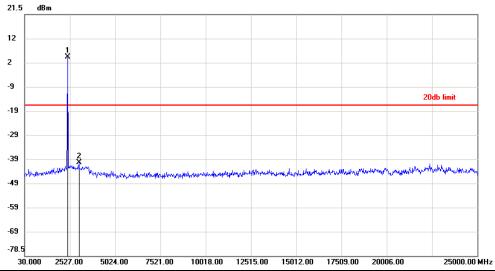


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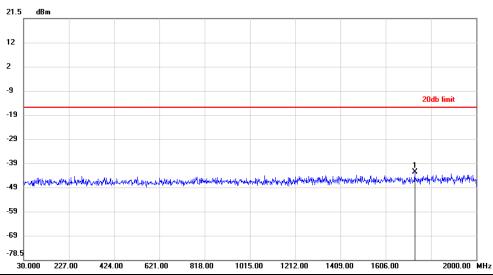
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Test plot as follows:

Test mode:	802.11b	Test channel:	Lowest



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2409.6410	4.00	-16.00	20.00
2	3035.5557	-39.95	-16.00	-23.95

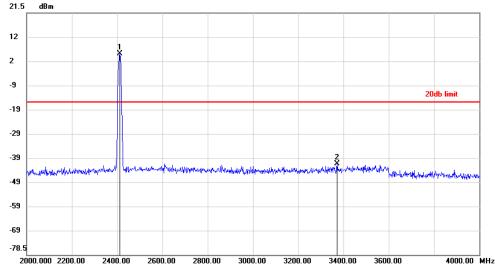


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1733.0650	-42.17	-15.36	-26.81

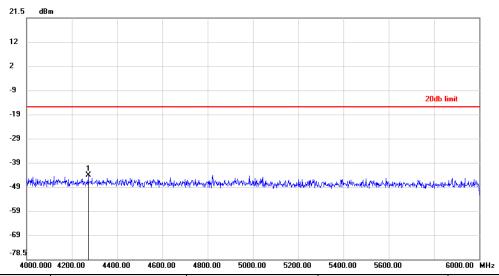


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2412.9333	4.64	-15.36	20.00
2	3372.9333	-40.80	-15.36	-25.44

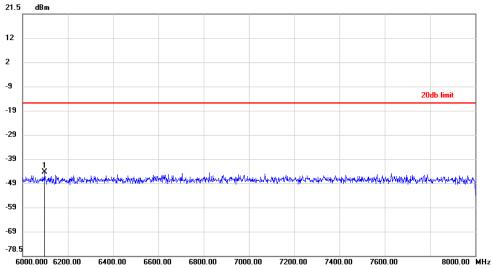


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4273.0667	-43.59	-15.36	-28.23

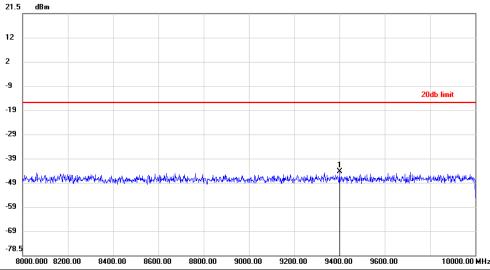


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	6098.4000	-43.87	-15.36	-28.51



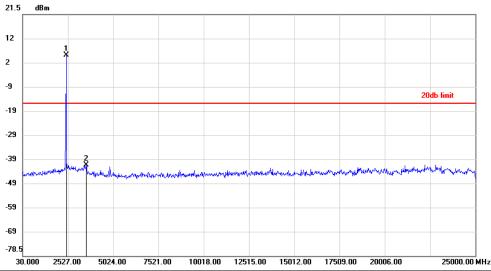
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	9400.1333	-43.95	-15.36	-28.59



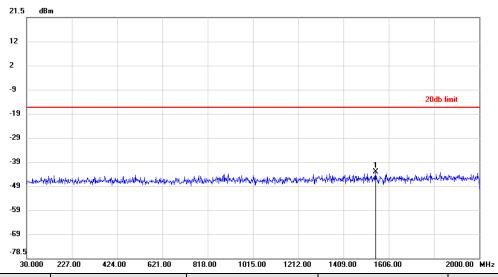
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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2437.9403	4.51	-15.49	20.00
2	3555.7640	-40.85	-15.49	-25.36

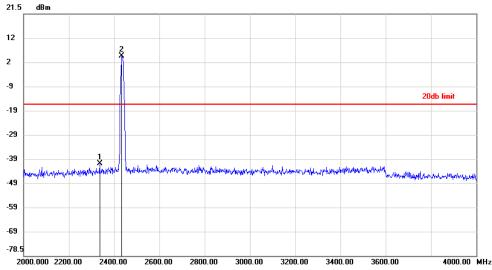


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1550.5773	-42.51	-15.96	-26.55

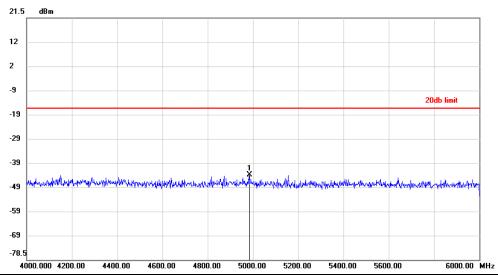


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2337.0000	-40.49	-15.96	-24.53
2	2434.9333	4.04	-15.96	20.00

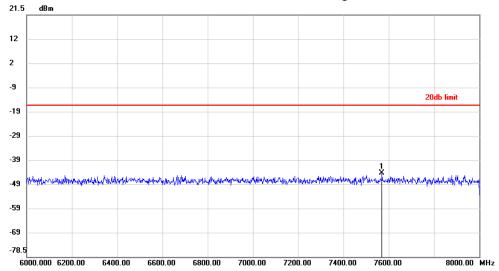


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4982.4667	-43.45	-15.96	-27.49

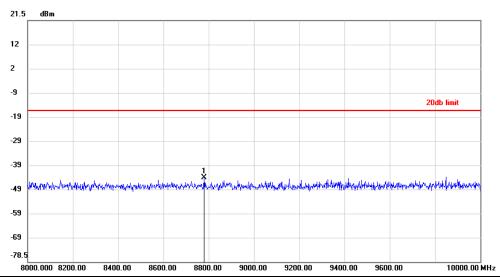


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	7570.1333	-43.81	-15.96	-27.85



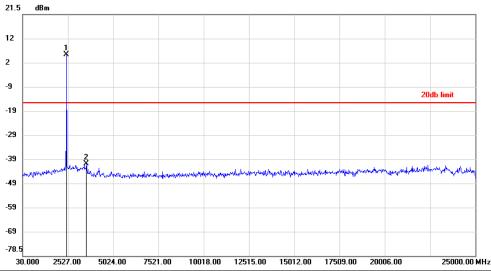
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	8781.8000	-43.52	-15.96	-27.56



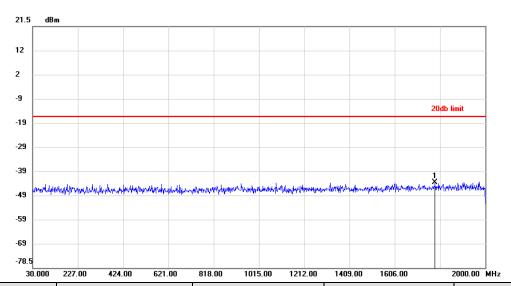
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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2460.4133	4.79	-15.21	20.00
2	3554.0993	-40.37	-15.21	-25.16

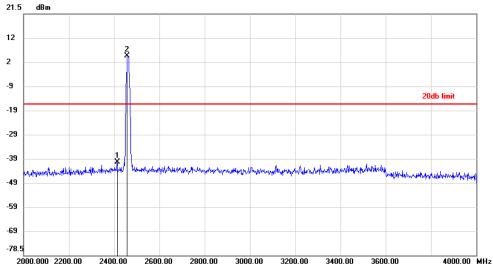


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1782.3150	-43.13	-15.86	-27.27

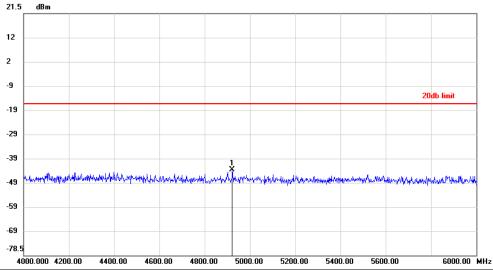


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2412.4667	-39.81	-15.86	-23.95
2	2459.9333	4.14	-15.86	20.00

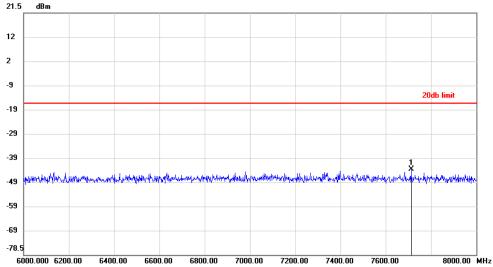


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4923.9333	-43.13	-15.86	-27.27

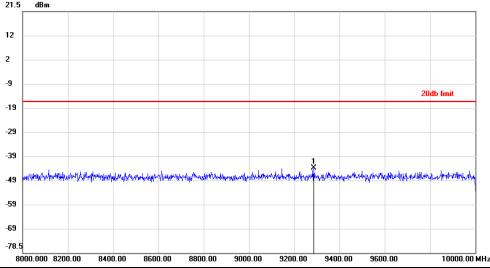


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	7712.3333	-43.13	-15.86	-27.27



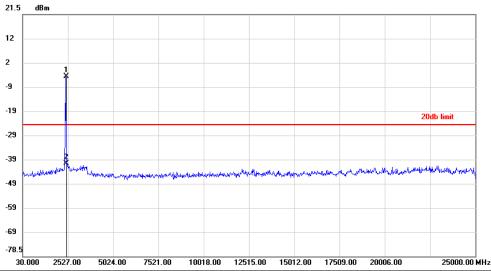
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	9287.0000	-43.38	-15.86	-27.52



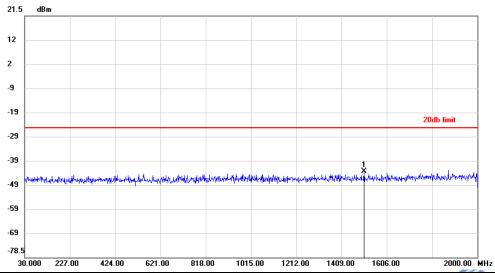
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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2408.8087	-4.21	-24.21	20.00
2	2469.5690	-40.13	-24.21	-15.92

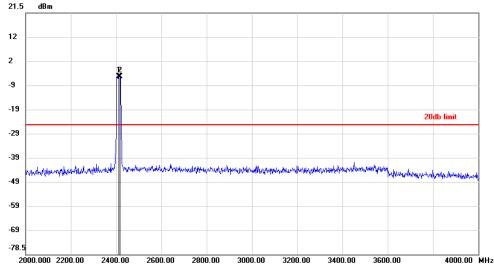


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1507.5000	-42.89	-24.87	S 58.02

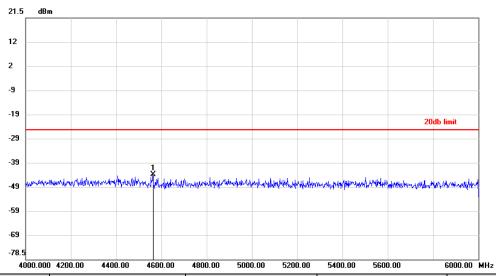


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2410.6667	-4.92	-24.87	19.95
2	2416.0667	-4.87	-24.87	20.00

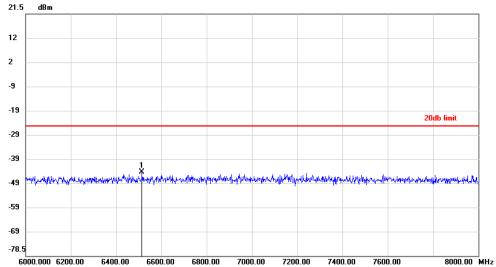


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4563.8667	-43.32	-24.87	-18.45

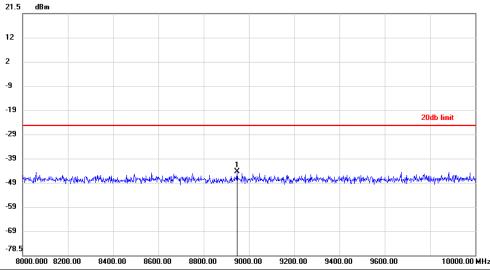


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	6515.7333	-43.99	-24.87	-19.12



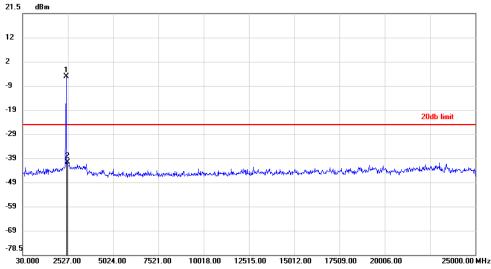
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	8948.9333	-43.81	-24.87	-18.94



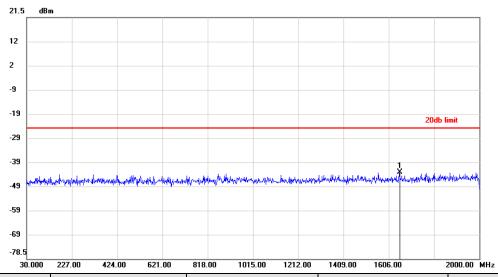
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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2438.7727	-4.67	-24.67	20.00
2	2498.7007	-40.00	-24.67	-15.33

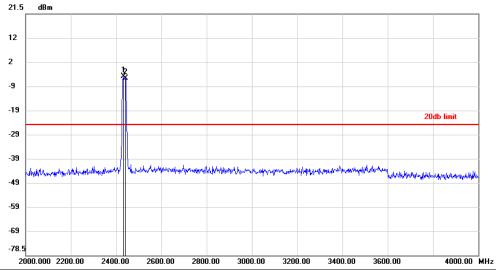


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1653.1487	-42.67	-24.45	-18.22

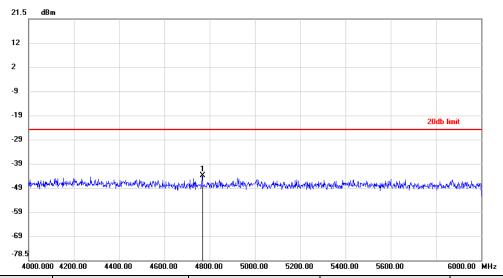


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2434.4000	-4.45	-24.45	20.00
2	2441.0667	-5.06	-24.45	19.39

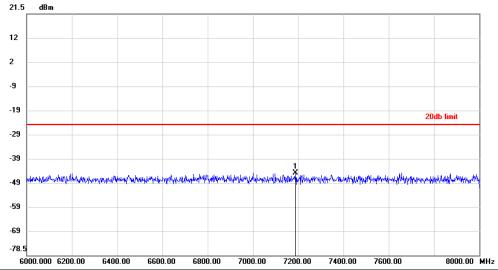


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4766.8667	-43.44	-24.45	-18.99

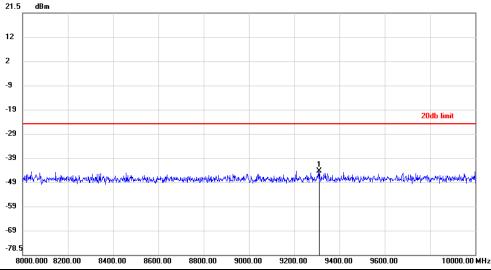


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	7189.4000	-44.25	-24.45	-19.80



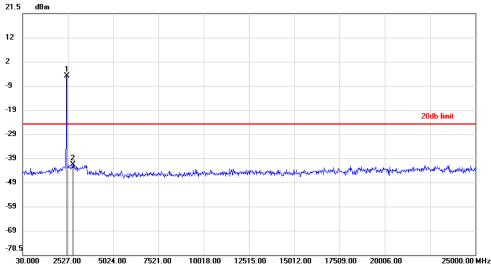
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	9309.6667	-43.82	-24.45	-19.37



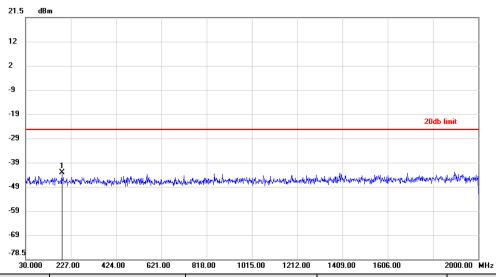
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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2463.7427	-4.30	-24.30	20.00
2	2816.6520	-41.11	-24.30	-16.81

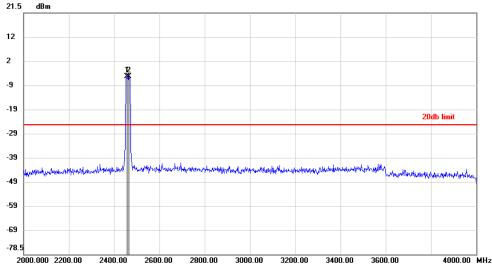


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	187.8627	-42.71	-24.84	-17.87

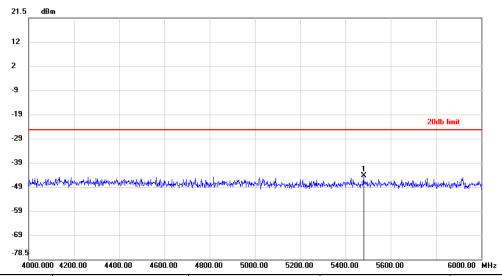


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2457.2000	-4.84	-24.84	20.00
2	2464.2000	-4.86	-24.84	19.98

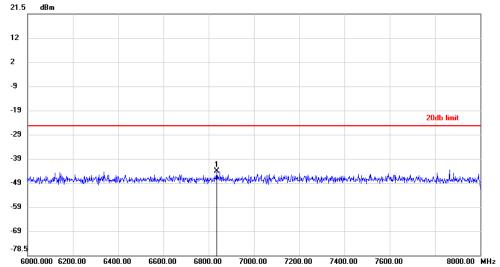


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5481.6667	-43.80	-24.84	-18.96

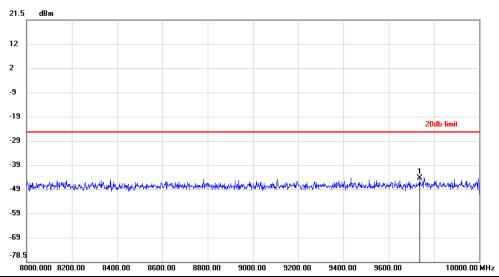


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	6836.7333	-43.63	-24.84	-18.79



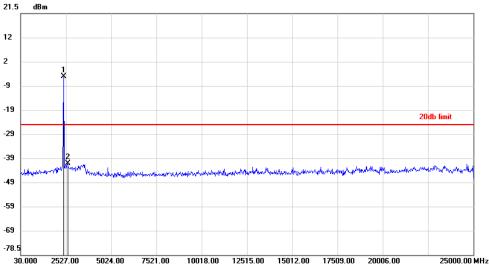
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	9737.1333	-43.79	-24.84	-18.95



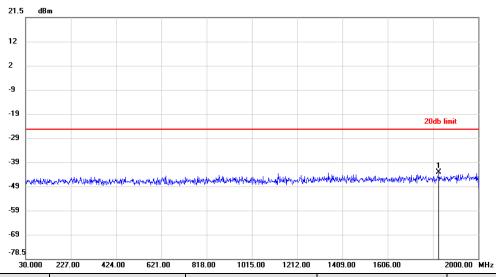
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Test mode: 802.11n (HT20) Test channel: Lowest



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2419.6290	-4.63	-24.63	20.00
2	2606.0717	-40.60	-24.63	-15.97

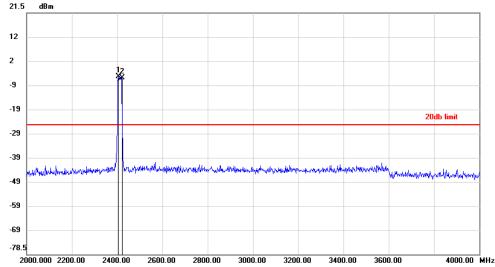


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1830.3173	-42.58	-24.91	-17.67

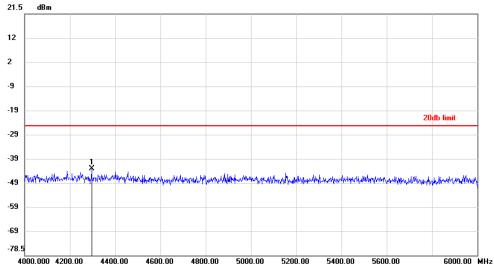


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2407.2000	-4.91	-24.91	20.00
2	2420.0667	-5.35	-24.91	19.56



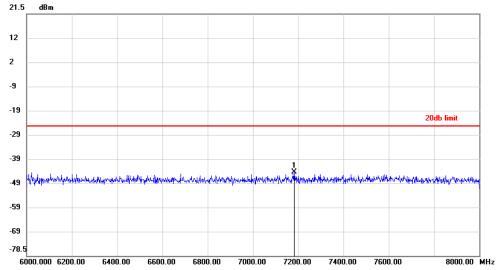
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4297.1333	-42.52	-24.91	-17.61



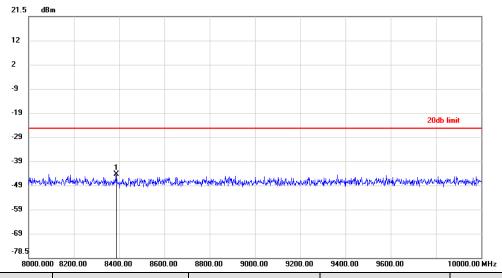


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	7183.3333	-43.87	-24.91	-18.96



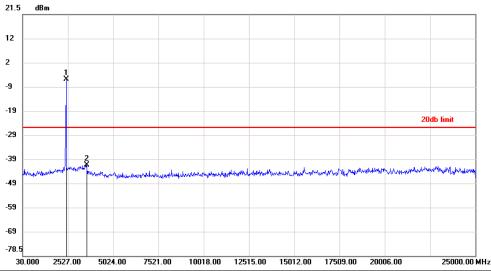
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	8387.8667	-43.92	-24.91	-19.01



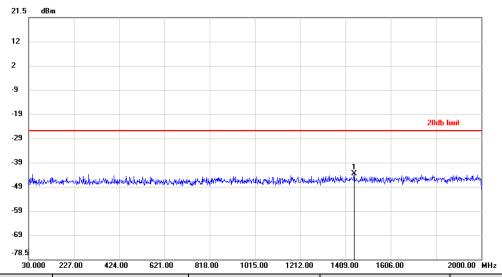
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Test mode: 802.11n (HT20) Test channel: Middle



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2433.7787	-5.34	-25.34	20.00
2	3552.4347	-40.96	-25.34	-15.62

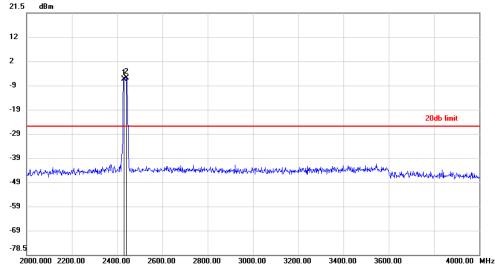


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1448.3343	-43.14	-25.42	-17.72

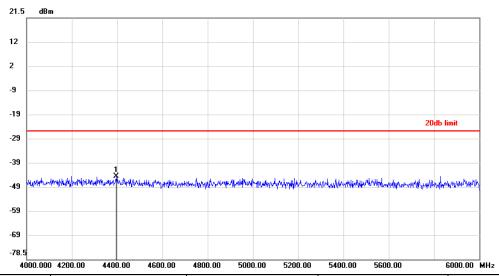


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2429.6667	-5.82	-25.42	19.60
2	2442.3333	-5.42	-25.42	20.00

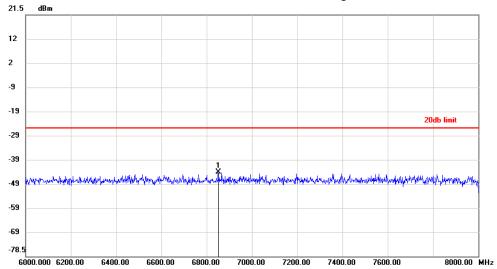


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4396.6000	-44.09	-25.42	-18.67

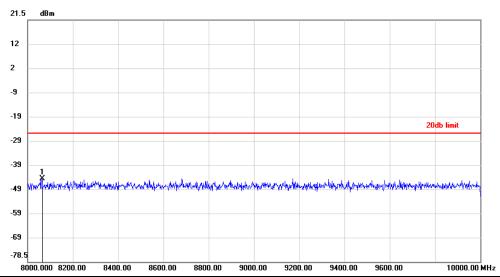


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	6850.2667	-43.65	-25.42	-18.23



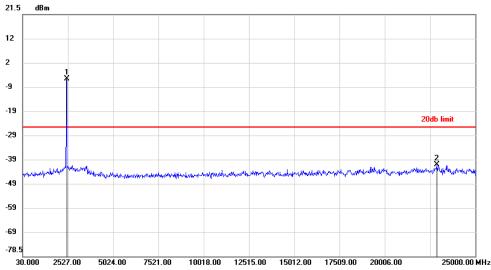
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	8063.2667	-44.00	-25.42	-18.58



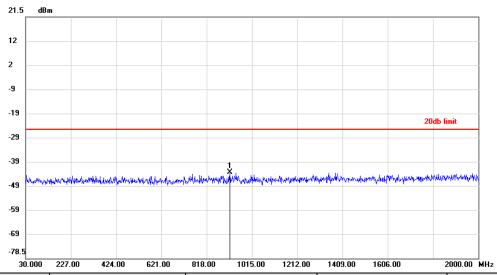
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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2468.7367	-5.21	-25.21	20.00
2	22878.3823	-40.71	-25.21	-15.50

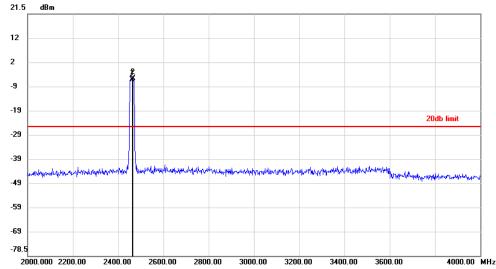


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	919.7833	-42.81	-25.23	-17.58

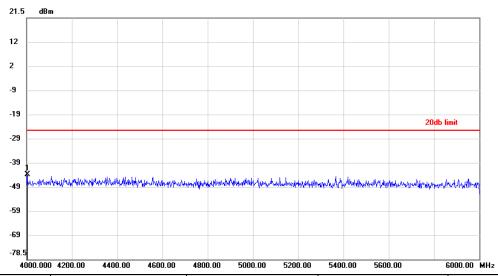


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2460.0667	-5.51	-25.23	19.72
2	2465.7333	-5.23	-25.23	20.00

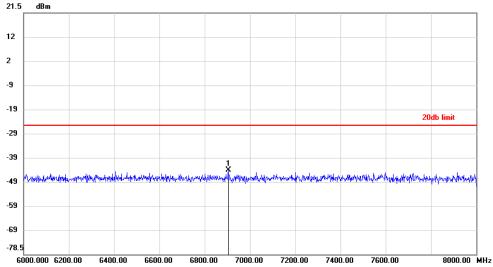


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4002.0667	-43.25	-25.23	-18.02

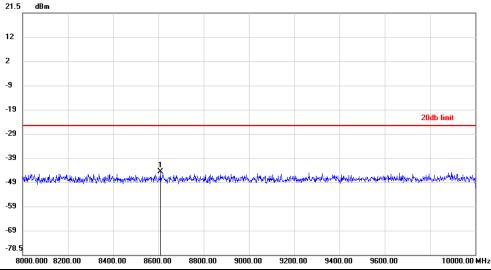


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	6904.3333	-43.57	-25.23	-18.34



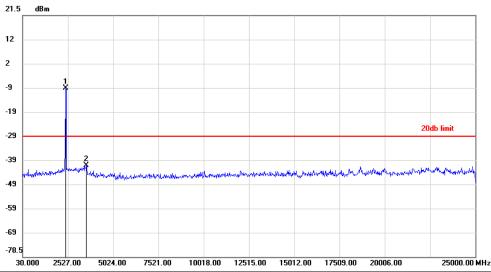
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	8609.2000	-44.06	-25.23	-18.83



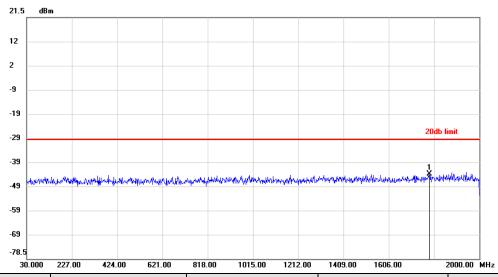
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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2417.9643	-8.55	-28.55	20.00
2	3565.7520	-40.56	-28.55	-12.01

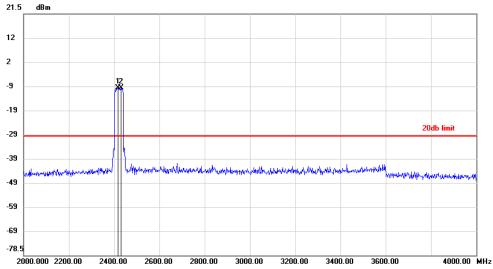


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1781.9867	-43.38	-29.05	-14.33

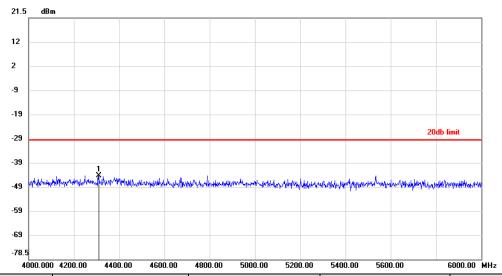


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2417.8000	-9.18	-29.05	19.87
2	2431.5333	-9.05	-29.05	20.00

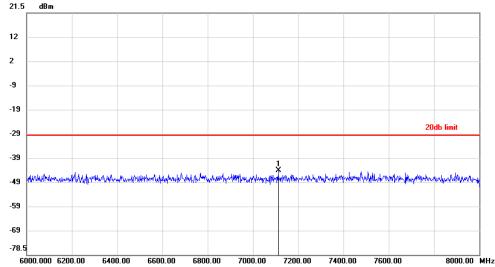


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4308.0667	-43.77	-29.05	-14.72

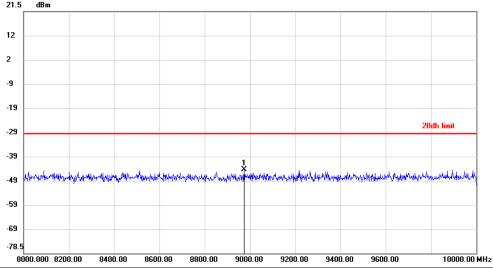


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	7112.0667	-43.58	-29.05	-14.53



	No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
Ī	1	8975.5333	-43.79	-29.05	-14.74

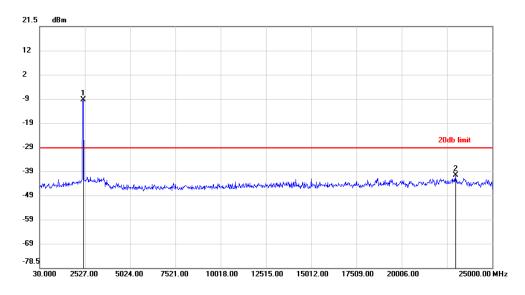




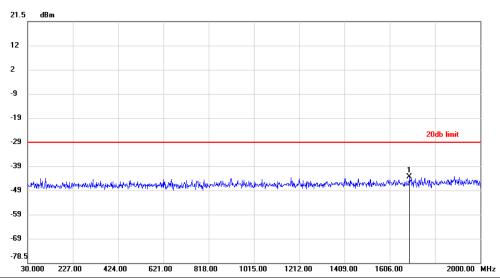
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Test mode: 802.11n (HT40) Test channel: Middle



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2446.2637	-8.90	-28.90	20.00
2	22987.4180	-40.10	-28.90	-11.20

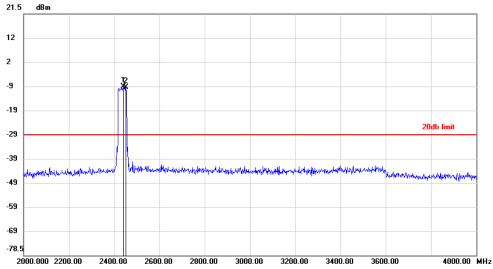


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	1692.0233	-42.83	-28.60	-14.23

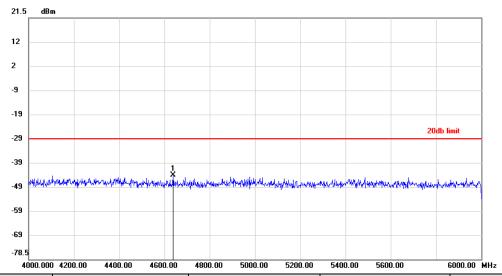


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2440.0667	-8.60	-28.60	20.00
2	2452.8000	-8.92	-28.60	19.68

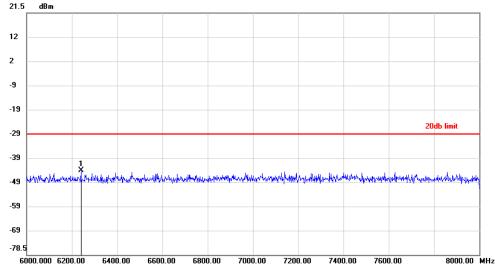


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	4639.1333	-43.62	-28.60	-15.02

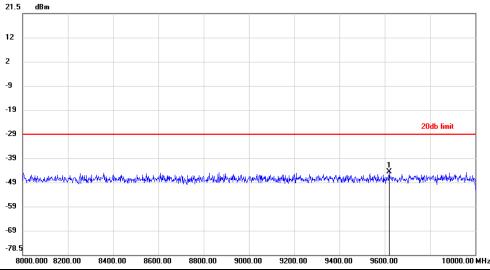


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	6241.0667	-43.65	-28.60	-15.05



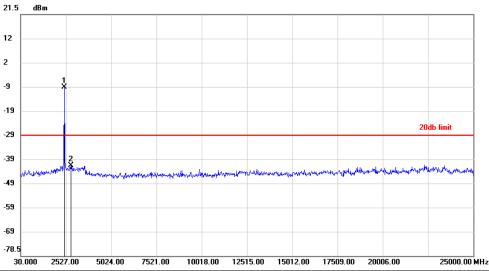
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	9621.5333	-44.00	-28.60	-15.40



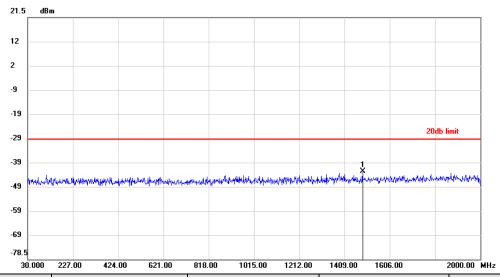
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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)	
1	2455.4193	-8.51	-28.51	20.00	
2	2811.6580	-41.16	-28.51	-12.65	

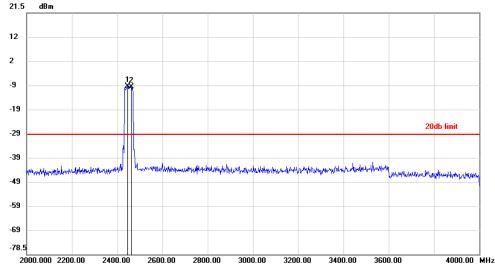


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)	
1	1489.1790	-42.06	-28.87	-13.19	

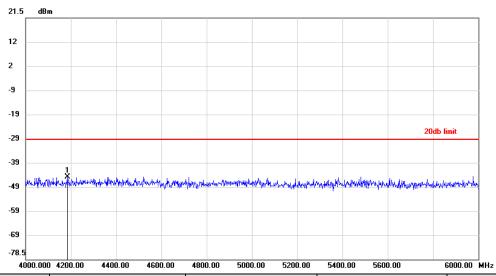


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)	
1	2447.8000	-8.87	-28.87	20.00	
2	2460.0667	-9.02	-28.87	19.85	

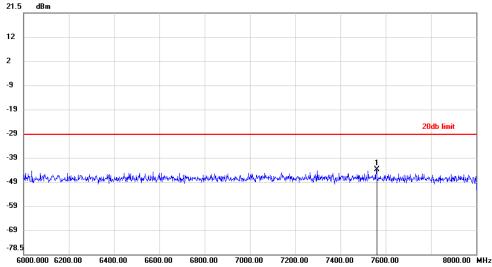


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)	
1	4184.0000	-44.34	-28.87	-15.47	

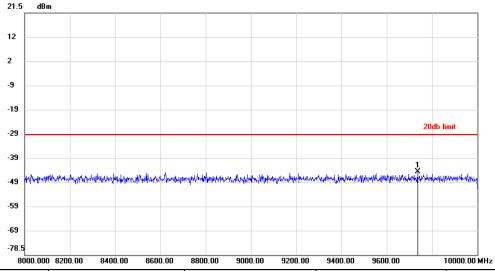


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No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)	
1	7558.4667	-43.39	-28.87	-14.52	



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)	
1	9737.7333	-44.15	-28.87	-15.28	

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 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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6.8 Radiated Spurious Emissions

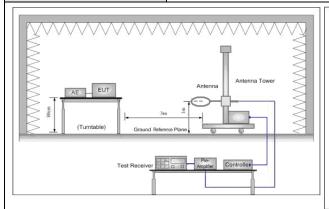
Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205							
Test Method:	ANSI C63.10 2009							
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)							
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark			
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak			
	0.009MHz-0.090MHz	Average	10kHz	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			
	Above IGHZ	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.							



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Test Setup:



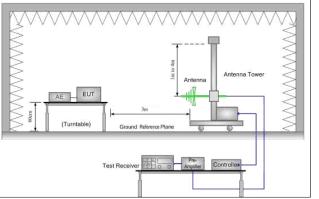


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

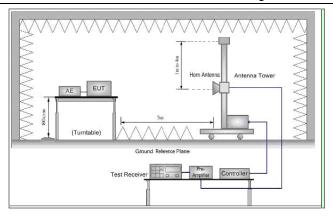


Figure 3. Above 1 GHz

Test Procedure:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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(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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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



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Test Results:	Pass
Instruments Used:	Refer to section 5.10 for details.
	Only the worst case is recorded in the report.
	For below 1GHz, through Pre-scan, find the 1Mbps of rate of 802.11b at lowest channel is the worst case.
	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).
Final Test Mode:	Pretest the EUT at Transmitting mode and AC Charge +Transmitting mode, found the AC Charge +Transmitting mode which it is worse case.
	Transmitting mode, AC Charge + Transmitting mode.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.
	i. Repeat above procedures until all frequencies measured was complete.
	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.
	g. Test the EUT in the lowest channel ,the middle channel ,the Highest channel
	margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

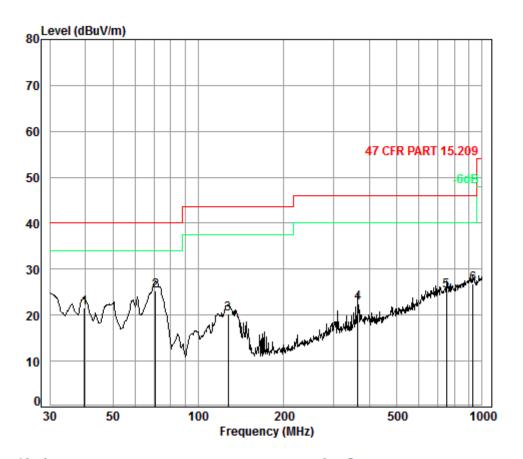


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6.8.1 Radiated emission below 1GHz

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



Condition: 47 CFR PART 15.209 3m Vertical

Job No. : 3237HR

Test Mode: AC Charge+Tx

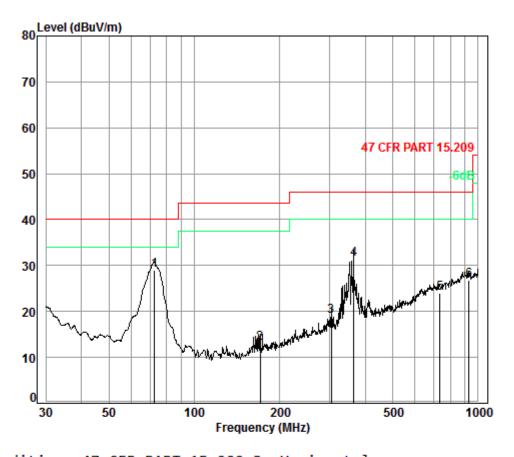
		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	aB/m	dB	aBuv	aBuv/m	aBuv/m	dB
1	39.71	0.60	13.26	27.32	35.13	21.67	40.00	-18.33
2	70.83	0.82	6.97	27.25	44.84	25.38	40.00	-14.62
3	127.22	1.27	7.76	27.03	38.23	20.23	43.50	-23.27
4	364.26	2.10	15.10	26.89	32.32	22.63	46.00	-23.37
5	747.48	3.05	21.69	27.35	27.98	25.37	46.00	-20.63
6	929.01	3.63	23.30	26.64	26.57	26.86	46.00	-19.14



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Test mode: AC Charge + Transmitting mode Horizontal



Condition: 47 CFR PART 15.209 3m Horizontal

Job No. : 3237HR

Test Mode: AC Charge+Tx

nouc. Ac	Ciliai 8	CIIX					
	Cable	Ant	Preamp	Read		Limit	0ver
Freq	Loss	Factor	Factor	Level	Level	Line	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
72.59	0.88	7.11	27.24	48.17	28.92	40.00	-11.08
170.79	1.35	9.53	26.81	28.98	13.05	43.50	-30.45
303.54	1.91	14.03	26.42	29.46	18.98	46.00	-27.02
364.26	2.10	15.10	26.89	41.15	31.46	46.00	-14.54
734.49	3.01	21.64	27.37	26.69	23.97	46.00	-22.03
929.01	3.63	23.30	26.64	26.43	26.72	46.00	-19.28
	72.59 170.79 303.54 364.26 734.49	Cable Loss MHz dB 72.59 0.88 170.79 1.35 303.54 1.91 364.26 2.10 734.49 3.01	MHz dB dB/m 72.59 0.88 7.11 170.79 1.35 9.53 303.54 1.91 14.03 364.26 2.10 15.10 734.49 3.01 21.64	Cable Ant Preamp Freq Loss Factor Factor MHz dB dB/m dB 72.59 0.88 7.11 27.24 170.79 1.35 9.53 26.81 303.54 1.91 14.03 26.42 364.26 2.10 15.10 26.89 734.49 3.01 21.64 27.37	Cable Ant Preamp Read Loss Factor Factor Level MHz dB dB/m dB dBuV 72.59 0.88 7.11 27.24 48.17 170.79 1.35 9.53 26.81 28.98 303.54 1.91 14.03 26.42 29.46 364.26 2.10 15.10 26.89 41.15 734.49 3.01 21.64 27.37 26.69	Cable Ant Preamp Read Level Level MHz dB dB/m dB dBuV dBuV/m 72.59 0.88 7.11 27.24 48.17 28.92 170.79 1.35 9.53 26.81 28.98 13.05 303.54 1.91 14.03 26.42 29.46 18.98 364.26 2.10 15.10 26.89 41.15 31.46 734.49 3.01 21.64 27.37 26.69 23.97	Cable Ant Preamp Read Limit Freq Loss Factor Factor Level Level Line MHz dB dB/m dB dBuV dBuV/m dBuV/m 72.59 0.88 7.11 27.24 48.17 28.92 40.00 170.79 1.35 9.53 26.81 28.98 13.05 43.50 303.54 1.91 14.03 26.42 29.46 18.98 46.00 364.26 2.10 15.10 26.89 41.15 31.46 46.00 734.49 3.01 21.64 27.37 26.69 23.97 46.00



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6.8.2 Transmitter emission above 1GHz

Test mode:	80	2.11b	Test cha	ınnel:	Lowest 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	
3720.000	-31.10	32.80	0.00	41.00	42.70	74	-31.3	0 Vertical	
4824.000	-30.40	34.40	0.00	52.50	56.50	74	-17.5	0 Vertical	
5955.000	-29.00	34.70	0.00	40.20	45.90	74	-28.1	0 Vertical	
7236.000	-27.90	35.80	0.00	39.20	47.10	74	-26.9	0 Vertical	
9648.000	-30.40	34.40	0.00	45.30	49.30	74	-24.7	0 Vertical	
12345.000	-22.70	37.90	0.00	34.60	49.80	74	-24.2	0 Vertical	
3720.000	-31.10	32.80	0.00	41.10	42.80	74	-31.2	0 Horizontal	
4824.000	-30.40	34.40	0.00	47.90	51.90	74	-22.1	0 Horizontal	
6000.000	-28.80	34.90	0.00	40.10	46.20	74	-27.8	0 Horizontal	
7236.000	-27.90	35.80	0.00	39.30	47.20	74	-26.8	0 Horizontal	
9648.000	-25.00	37.20	0.00	44.30	56.50	74	-17.5	0 Horizontal	
12630.000	-23.00	38.10	0.00	34.90	50.00	74	-24.0	0 Horizontal	

Test mode:	Test mode: 802.11b		Test cha	ınnel:	Lowest	Remark:		Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)		
4824.000	-30.40	34.40	0.00	49.10	53.10	54	-0.90	Vertical	
9648.000	-25.10	37.20	0.00	40.70	52.80	54	-1.20	Horizontal	



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Test mode:	802	.11b	Test ch	annel:	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
3795.000	-31.20	33.10	0.00	40.70	42.60	74	-31.40	Vertical
4874.000	-30.40	34.50	0.00	52.30	56.40	74	-17.60	Vertical
5970.000	-28.90	34.80	0.00	40.50	46.40	74	-27.60	Vertical
7311.000	-27.90	35.70	0.00	38.50	46.30	74	-27.70	Vertical
9748.000	-25.00	37.30	0.00	38.50	50.80	74	-23.20	Vertical
12555.000	-22.90	38.00	0.00	34.30	49.40	74	-24.60	Vertical
3810.000	-31.20	33.10	0.00	40.20	42.10	74	-31.90	Horizontal
4874.000	-30.40	34.50	0.00	45.70	49.80	74	-24.20	Horizontal
5985.000	-28.90	34.80	0.00	39.90	45.80	74	-28.20	Horizontal
7311.000	-27.90	35.70	0.00	38.00	45.80	74	-28.20	Horizontal
9748.000	-25.00	37.30	0.00	45.40	57.70	74	-16.30	Horizontal
12510.000	-23.00	38.00	0.00	35.00	50.00	74	-24.00	Horizontal

Test mode: 802.11b		2.11b	Test ch	annel:	Middle		Remark:		Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)		Limit 3μV/m)	l Limit		Polarization
4874.000	-30.40	34.50	0.00	48.70	52.80		54	-1.20		Vertical
9748.000	-25.00	37.30	0.00	40.90	53.20		54	-0.80		Horizontal



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Test mode:	80	2.11b	Test cha	ınnel:	Highest	Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3825.000	-31.20	33.20	0.00	40.50	42.50	74	-31.50	Vertical
4924.000	-30.30	34.60	0.00	50.20	54.50	74	-19.50	Vertical
5955.000	-29.00	34.70	0.00	40.10	45.80	74	-28.20	Vertical
7386.000	-27.90	35.70	0.00	38.40	46.20	74	-27.80	Vertical
9848.000	-24.20	37.30	0.00	37.10	50.20	74	-23.80	Vertical
12570.000	-22.90	38.00	0.00	34.10	49.20	74	-24.80	Vertical
3810.000	-31.20	33.10	0.00	40.80	42.70	74	-31.30	Horizontal
4924.000	-30.30	34.60	0.00	45.30	49.60	74	-24.40	Horizontal
6000.000	-28.80	34.90	0.00	39.90	46.00	74	-28.00	Horizontal
7386.000	-27.90	35.70	0.00	38.60	46.40	74	-27.60	Horizontal
9848.000	-24.20	37.30	0.00	45.50	58.60	74	-15.40	Horizontal
12615.000	-22.90	38.10	0.00	34.60	49.80	74	-24.20	Horizontal

Test mode:	Test mode: 802.11b		Test cha	annel:	Highest	Remark:		Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBμV/m)	Limit (dBµV/m)	Over Limit (dB)	Polarization	
4924.000	-30.30	34.60	0.00	46.40	50.70	54	-3.30	Vertical	
9848.000	-24.20	37.30	0.00	40.70	53.80	54	-0.20	Horizontal	



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Test mode:	8	802.	11g	Test cha	ınnel:	L	owest	Remark:		Pe	eak
Frequency (MHz)	Cab Los (dB	s	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV		Level (dBuV/m)	Limit Line (dBuV/m)	Ove Lim (dB	it	Polarization
3900.000	-31.3	30	33.30	0.00	40.30		42.30	74	-31.7	70	Vertical
4824.000	-30.4	40	34.40	0.00	44.70		48.70	74	-25.3	30	Vertical
6045.000	-29.0	00	35.00	0.00	40.20		46.20	74	-27.8	30	Vertical
7236.000	-27.9	90	35.80	0.00	38.80		46.70	74	-27.3	30	Vertical
9648.000	-25.1	10	37.20	0.00	36.70		48.80	74	-25.2	20	Vertical
12525.000	-23.0	00	38.00	0.00	35.00		50.00	74	-24.0	00	Vertical
3900.000	-31.3	30	33.30	0.00	40.50		42.50	74	-31.5	50	Horizontal
4824.000	-30.4	40	34.40	0.00	41.10		45.10	74	-28.9	90	Horizontal
5790.000	-29.1	10	34.30	0.00	42.50		47.70	74	-26.3	30	Horizontal
7236.000	-27.9	90	35.80	0.00	37.90		45.80	74	-28.2	20	Horizontal
9648.000	-25.0	00	37.20	0.00	43.60		55.80	74	-18.2	20	Horizontal
12270.000	-22.6	60	37.90	0.00	34.50		49.80	74	-24.2	20	Horizontal

Test mode:	Test mode: 802.11g		Test cha	ınnel: I	_owest	Remark:		Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Polarization	
9648.000	-25.10	37.20	0.00	39.50	51.60	54	-2.40	Horizontal	



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Test mode:	802.	.11g	Test cha	ınnel:	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
3840.000	-31.20	33.30	0.00	41.10	43.20	74	-30.80	Vertical
4874.000	-30.40	34.50	0.00	43.90	48.00	74	-26.00	Vertical
5985.000	-28.90	34.80	0.00	39.70	45.60	74	-28.40	Vertical
7311.000	-27.90	35.70	0.00	39.20	47.00	74	-27.00	Vertical
9748.000	-25.00	37.30	0.00	36.80	49.10	74	-24.90	Vertical
12615.000	-22.90	38.10	0.00	34.50	49.70	74	-24.30	Vertical
3825.000	-31.20	33.20	0.00	40.60	42.60	74	-31.40	Horizontal
4874.000	-30.40	34.50	0.00	40.60	44.70	74	-29.30	Horizontal
5955.000	-29.00	34.70	0.00	40.00	45.70	74	-28.30	Horizontal
7311.000	-27.90	35.70	0.00	38.40	46.20	74	-27.80	Horizontal
9748.000	-25.00	37.30	0.00	44.10	56.40	74	-17.60	Horizontal
12630.000	-23.00	38.10	0.00	34.30	49.40	74	-24.60	Horizontal

Test mode:	Test mode: 802.11g		Test channel:		Middle	Remark:		Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBμV/m)	Limit (dBµV/m)	Ove Limi (dB)	t Polarization	
9748.000	-25.00	37.30	0.00	40.50	52.80	54	-1.20) Horizontal	



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Test mode:	802	.11g	Test cha	nnel:	Highest	Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	
3825.000	-31.20	33.20	0.00	40.30	42.30	74	-31.70) Vertical
4924.000	-30.30	34.60	0.00	42.80	47.10	74	-26.90) Vertical
6045.000	-29.00	35.00	0.00	40.30	46.30	74	-27.70) Vertical
7386.000	-27.90	35.70	0.00	38.60	46.40	74	-27.60) Vertical
9848.000	-24.20	37.30	0.00	37.50	50.60	74	-23.40) Vertical
12630.000	-23.00	38.10	0.00	34.50	49.60	74	-24.40) Vertical
3855.000	-31.20	33.30	0.00	40.90	43.00	74	-31.00) Horizontal
4924.000	-30.30	34.60	0.00	39.80	44.10	74	-29.90) Horizontal
5970.000	-28.90	34.80	0.00	39.40	45.30	74	-28.70) Horizontal
7386.000	-27.90	35.70	0.00	39.30	47.10	74	-26.90) Horizontal
9848.000	-24.20	37.30	0.00	44.70	57.80	74	-16.20) Horizontal
12645.000	-23.10	38.10	0.00	35.30	50.30	74	-23.70) Horizontal

Test mode:	Test mode: 802.11g		Test channel:		Highest	Remark:		Average	
Frequency (MHz)	Cable loss (dB)	factors	Preamp factor (dB)	Readin Level (dBµV)	Emission Level (dBμV/m)	Limit (dBµV/m)	Ove Limi (dB)	t Polarization	
9848.000	-24.20	0 37.30	0.00	40.40	53.50	54	-0.50) Horizontal	



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Test mode:		802.	11n(HT20)	Test cha	ınnel:	Lo	owest	Remark:		Pe	eak
Frequency (MHz)	Lo	ble ss B)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV		Level (dBuV/m)	Limit Line (dBuV/m)	Ove Lim (dE	iit	Polarization
3780.000	-31	.10	33.00	0.00	40.60		42.50	74	-31.	50	Vertical
4824.000	-30	.40	34.40	0.00	44.90		48.90	74	-25.	10	Vertical
6000.000	-28	.80	34.90	0.00	39.50		45.60	74	-28.	40	Vertical
7236.000	-27	'.90	35.80	0.00	37.80		45.70	74	-28.	30	Vertical
9648.000	-25	5.10	37.20	0.00	37.30		49.40	74	-24.	60	Vertical
12660.000	-23	3.20	38.10	0.00	34.60		49.50	74	-24.	50	Vertical
3810.000	-31	.20	33.10	0.00	40.30		42.20	74	-31.	80	Horizontal
4824.000	-30	.40	34.40	0.00	41.30		45.30	74	-28.	70	Horizontal
6090.000	-29	.20	35.00	0.00	40.30		46.10	74	-27.	90	Horizontal
7236.000	-27	'.90	35.80	0.00	38.60		46.50	74	-27.	50	Horizontal
9648.000	-25	.00	37.20	0.00	43.70		55.90	74	-18.	10	Horizontal
12645.000	-23	3.10	38.10	0.00	34.90		49.90	74	-24.	10	Horizontal

Test mode: 802.11n(2.11n(HT20)	Test channel:		Lowest	Remark:		Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)		
9648.000	-25.10	37.20	0.00	39.90	52.00	54	-2.00	Horizontal	



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Test mode: 802.		2.11n(HT20)	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)		
3885.000	-31.30	33.30	0.00	40.30	42.30	74	-31.70) Vertical	
4874.000	-30.40	34.50	0.00	44.10	48.20	74	-25.80) Vertical	
6000.000	-28.80	34.90	0.00	39.70	45.80	74	-28.20) Vertical	
7311.000	-27.90	35.70	0.00	38.40	46.20	74	-27.80) Vertical	
9748.000	-25.00	37.30	0.00	36.90	49.20	74	-24.80) Vertical	
12600.000	-22.80	38.10	0.00	35.20	50.50	74	-23.50) Vertical	
3825.000	-31.20	33.20	0.00	39.90	41.90	74	-32.10) Horizontal	
4874.000	-30.40	34.50	0.00	40.40	44.50	74	-29.50) Horizontal	
5940.000	-29.00	34.70	0.00	39.90	45.60	74	-28.40) Horizontal	
7311.000	-27.90	35.70	0.00	38.50	46.30	74	-27.70) Horizontal	
9748.000	-25.00	37.30	0.00	44.30	56.60	74	-17.40) Horizontal	
12705.000	-23.50	38.10	0.00	35.00	49.60	74	-24.40) Horizontal	

Test mode:	Test mode: 802.11n(Test channel:		Middle	Remark:		Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Polarization	
9748.000	-25.00	37.30	0.00	40.70	53.00	54	-1.00	Horizontal	



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Test mode:	802	.11n(HT20)	Test cha	ınnel:	Highest	Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	
3810.000	-31.20	33.10	0.00	40.20	42.10	74	-31.90) Vertical
4924.000	-30.30	34.60	0.00	42.00	46.30	74	-27.70) Vertical
6090.000	-29.20	35.00	0.00	39.40	45.20	74	-28.80) Vertical
7386.000	-27.90	35.70	0.00	38.70	46.50	74	-27.50) Vertical
9848.000	-24.20	37.30	0.00	37.60	50.70	74	-23.30) Vertical
12000.000	-23.10	37.80	0.00	35.40	50.10	74	-23.90) Vertical
3780.000	-31.10	33.00	0.00	40.20	42.10	74	-31.90) Horizontal
4924.000	-30.30	34.60	0.00	40.70	45.00	74	-29.00) Horizontal
6030.000	-28.90	35.00	0.00	39.80	45.90	74	-28.10) Horizontal
7386.000	-27.90	35.70	0.00	38.10	45.90	74	-28.10) Horizontal
9848.000	-24.20	37.30	0.00	44.40	57.50	74	-16.50) Horizontal
12705.000	-23.50	38.10	0.00	35.00	49.60	74	-24.40) Horizontal

Test mode: 8		802.	11n(HT20)	Test channel:		Highest		Remark:		Average	
Frequency (MHz)	Cal los (dl		Antenna factors (dB/m)	Preamp factor (dB)	Readin Level (dBµV	Ŭ	Emission Level (dBµV/m)	Limit (dBμV/m)	Ove Lim (dB	it	Polarization
9848.000	-24.	.20	37.30	0.00	40.00		53.10	54	-0.9	0	Horizontal





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Test mode: 802.		11n(HT40)	Test channel:		Lowest		Remark	Remark:		Peak	
Frequency (MHz)	Lo	ble ss B)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)		Level (dBuV/m)	Limit Line (dBuV/m)	ı ımıt		Polarization
3825.000	-31	.20	33.20	0.00	40.10		42.10	74	-31.	90	Vertical
4844.000	-30	.40	34.40	0.00	43.10		47.10	74	26.9	90	Vertical
6000.000	-28	.80	34.90	0.00	39.30		45.40	74	-28.	60	Vertical
7266.000	-27	'.90	35.70	0.00	38.10		45.90	74	-28.	10	Vertical
9688.000	-25	.00	37.20	0.00	36.80		49.00	74	-25.	00	Vertical
12300.000	-22	2.50	37.90	0.00	34.20		49.60	74	-24.	40	Vertical
3870.000	-31	.30	33.30	0.00	40.60		42.60	74	-31.	40	Horizontal
4844.000	-30	.40	34.40	0.00	40.20		44.20	74	-29.	80	Horizontal
5970.000	-28	.90	34.80	0.00	39.80		45.70	74	-28.	30	Horizontal
7266.000	-27	'.90	35.70	0.00	38.10		45.90	74	-28.	10	Horizontal
9688.000	-25	.00	37.20	0.00	43.40		55.60	74	-18.	40	Horizontal
12585.000	-22	.80	38.10	0.00	34.50		49.80	74	-24.	20	Horizontal

Test mode:	Test mode: 802.11n(11n(HT40)	Test channel:		Lowest		Remark:		Average	
Frequency (MHz)	Cabl loss (dB	s	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)		Emission Level (dBµV/m)	Limit (dBμV/m)	Ove Limi (dB	it	Polarization
9688.000	-25.0	00	37.20	0.00	39.80		52.00	54	-2.0	0	Horizontal



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Test mode:		802.	11n(HT40)	Test cha	nnel:	М	liddle	Remark:		Pe	eak
Frequency (MHz)	Lo	ble ss B)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV		Level (dBuV/m)	Limit Line (dBuV/m)	Ove Lim (dB	it	Polarization
3915.000	-31	.20	33.20	0.00	40.10		42.10	74	-31.9	90	Vertical
4874.000	-30	.40	34.50	0.00	42.10		46.20	74	-27.8	30	Vertical
5835.000	-29	.30	34.40	0.00	40.90		46.00	74	-28.0	00	Vertical
7311.000	-27	.90	35.70	0.00	38.90		46.70	74	-27.3	30	Vertical
9748.000	-25	.00	37.30	0.00	37.40		49.70	74	-24.3	30	Vertical
12645.000	-23	.10	38.10	0.00	34.70		49.70	74	-24.3	30	Vertical
3960.000	-31	.10	33.10	0.00	40.20		42.20	74	-31.8	30	Horizontal
4874.000	-30	.40	34.50	0.00	40.50		44.60	74	-29.4	10	Horizontal
6030.000	-28	.90	35.00	0.00	39.50		45.60	74	-28.4	10	Horizontal
7311.000	-27	.90	35.70	0.00	38.90		46.70	74	-27.3	30	Horizontal
9748.000	-25	.00	37.30	0.00	45.00		57.30	74	-16.7	70	Horizontal
12630.000	-23	.00	38.10	0.00	34.40		49.50	74	-24.5	50	Horizontal

Test mode:	8	302.11n(HT	40)	Test cha	nnel:	Middle	Remark:		Αv	verage
Frequency (MHz)	Cabl loss (dB)	s factor	S	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Ove Limi (dB)	t	Polarization
9748.000	-25.0	00 37.30)	0.00	40.70	53.00	54	-1.00)	Horizontal



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Test mode:	802	.11n(HT40)	Test cha	ınnel:	Highest	Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	
3825.000	-31.20	33.20	0.00	40.70	42.70	74	-31.30) Vertical
4904.000	-30.30	34.60	0.00	41.50	45.80	74	-28.20) Vertical
5940.000	-29.00	34.70	0.00	39.70	45.40	74	-28.60) Vertical
7356.000	-27.90	35.60	0.00	38.30	46.00	74	-28.00) Vertical
9808.000	-24.50	37.30	0.00	38.50	51.30	74	-22.70) Vertical
12645.000	-23.10	38.10	0.00	34.60	49.60	74	-24.40) Vertical
3900.000	-31.30	33.30	0.00	40.30	42.30	74	-31.70) Horizontal
4904.000	-30.30	34.60	0.00	39.90	44.20	74	-29.80) Horizontal
6000.000	-28.80	34.90	0.00	40.50	46.60	74	-27.40) Horizontal
7356.000	-27.90	35.60	0.00	38.70	46.40	74	-27.60) Horizontal
9808.000	-24.50	37.30	0.00	45.70	58.50	74	-15.50) Horizontal
12645.000	-23.10	38.10	0.00	35.10	50.10	74	-23.90) Horizontal

Test mode:	802	.11n(HT40)	Test cha	annel:	Highest	Remark:	A	Average
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBμV/m)	Limit (dBµV/m)	Over Limit (dB)	Polarization
9808.000	-24.50	37.30	0.00	40.70	53.50	54	-0.50	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 above measurements were shown in the report.

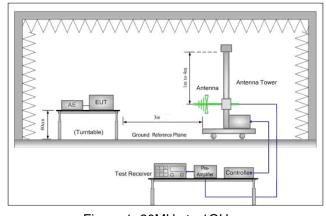


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6.9 Restricted bands around fundamental frequency

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



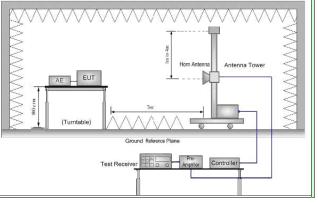


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz



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Test Procedure:	a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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.
	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.
	 Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.
	Transmitting mode, AC Charge + Transmitting mode.
Final Test Mode:	Pretest the EUT at Transmitting mode and AC Charge +Transmitting mode, found the AC Charge +Transmitting mode which it is worse case.
	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).
	Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass

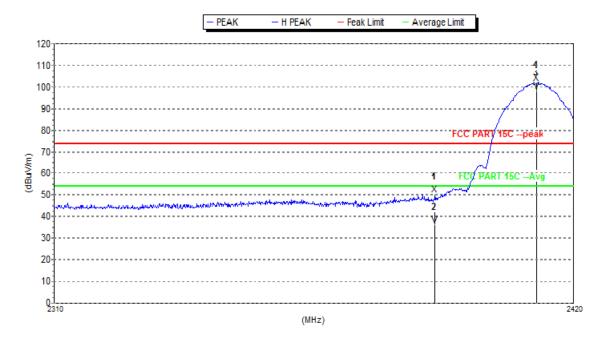


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Test plot as follows:

802.11b:

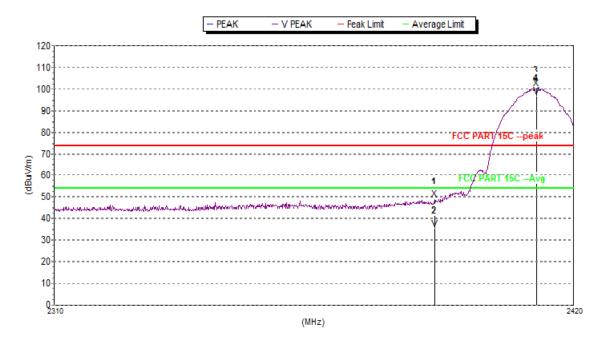


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	50.1	74.0	23.9	32.5	0.0	-20.8	Н
4	2411.860	101.8	74.0	-27.8	32.6	0.0	-21.2	Н
Avg								
2	2390	36.2	54.0	17.8	32.5	0.0	-20.8	
3	2411.860	98.4	54.0	-44.4	32.6	0.0	-21.2	Н



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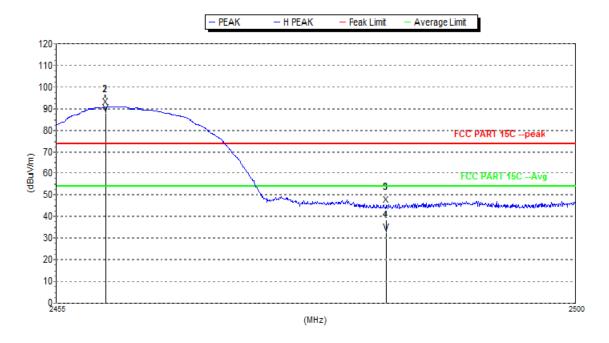


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	48.9	74.0	25.1	32.5	0.0	-20.8	٧
4	2411.970	100.2	74.0	-26.2	32.6	0.0	-21.2	٧
Avg								
2	2390	35.5	54.0	18.5	32.5	0.0	-20.8	٧
3	2411.970	96.7	54.0	-42.7	32.6	0.0	-21.2	٧



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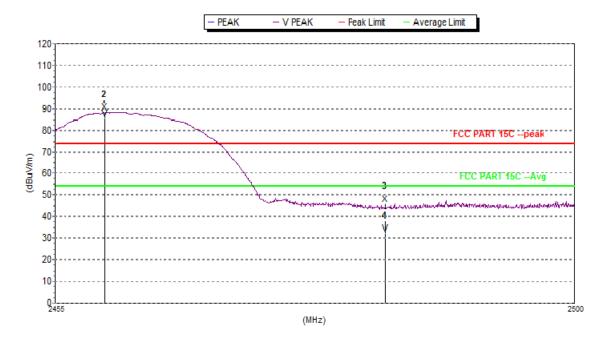


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2459.320	90.8	74.0	-16.8	32.5	0.0	-20.7	Н
3	2483.5	45.4	74.0	28.6	32.5	0.0	-20.5	Н
Avg								
2	2459.320	88.0	54.0	-34.0	32.5	0.0	-20.7	Н
4	2483.5	32.4	54.0	21.6	32.5	0.0	-20.5	Н



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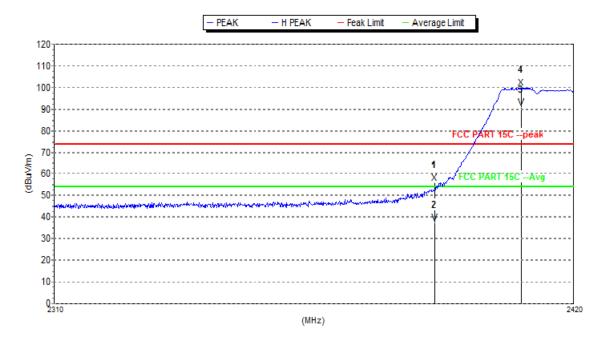
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2459.320	88.3	74.0	-14.3	32.5	0.0	-20.7	٧
3	2483.5	45.6	74.0	28.4	32.5	0.0	-20.7	٧
Avg								
2	2459.320	85.5	54.0	-31.5	32.5	0.0	-20.7	
4	2483.5	32.0	54.0	22.0	32.5	0.0	-20.5	٧



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802.11g:



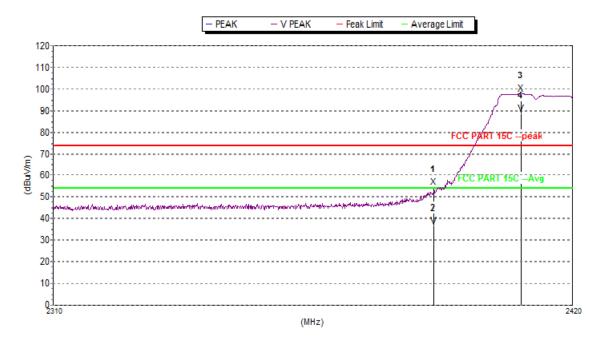
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	55.7	74.0	18.3	32.5	0.0	-19.3	Н
2	2408.670	99.8	74.0	-25.8	32.6	0.0	-19.3	Н
Avg								
4	2390	37.5	54.0	16.5	32.5	0.0	-19.3	
3	2408.670	90.6	54.0	-36.6	32.6	0.0	-19.3	Н





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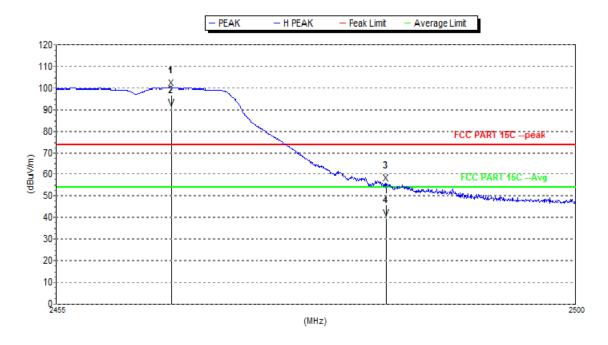


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	54.6	74.0	19.4	32.5	0.0	-19.3	٧
2	2408.890	98.0	74.0	-24.0	32.5	0.0	-19.3	٧
Avg								
3	2390	36.5	54.0	17.5	32.5	0.0	-19.3	
4	2408.890	88.7	54.0	-34.7	32.6	0.0	-19.3	٧



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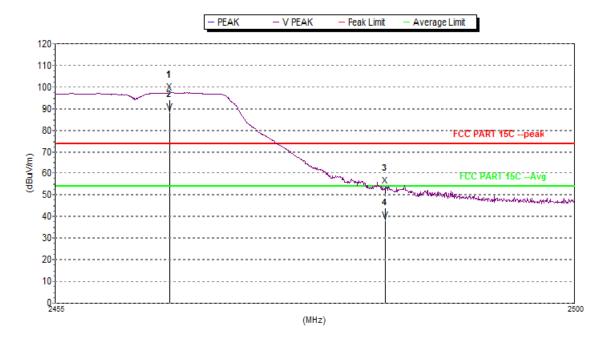


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2464.990	100.1	74.0	-26.1	32.5	0.0	-19.2	Н
3	2483.5	55.8	74.0	18.2	32.5	0.0	-19.2	Н
Avg								
2	2464.990	90.9	54.0	-36.9	32.5	0.0	-19.2	
4	2483.5	39.8	54.0	14.2	32.5	0.0	-19.1	Н



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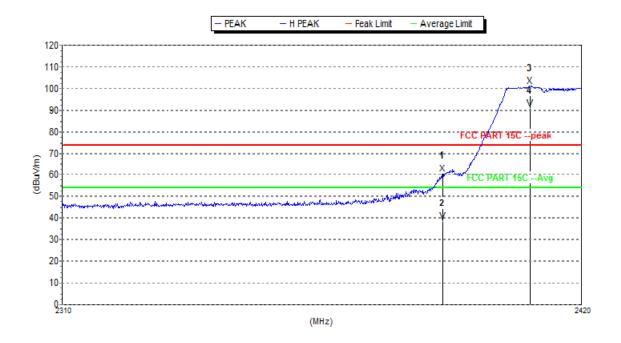
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2464.900	97.5	74.0	-23.5	32.5	0.0	-19.2	٧
3	2483.5	54.1	74.0	19.9	32.5	0.0	-19.2	٧
Avg								
2	2464.900	88.4	54.0	-34.4	32.5	0.0	-19.2	
4	2483.5	38.1	54.0	15.9	32.5	0.0	-19.1	٧



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802.11n(HT20):

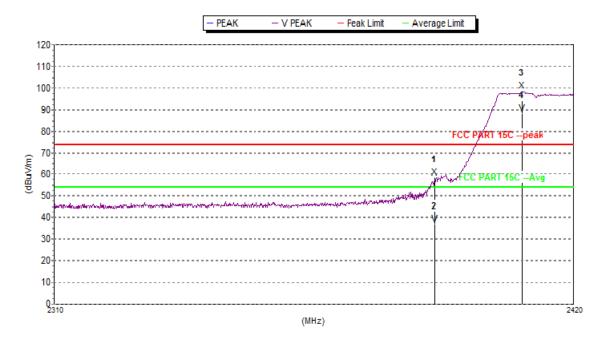


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	60.8	74.0	13.2	32.5	0.0	-19.3	Н
3	2408.890	101.3	74.0	-27.3	32.6	0.0	-19.3	Н
Avg								
2	2390	38.5	54.0	15.5	32.5	0.0	-19.3	Н
4	2408.890	90.8	54.0	-36.8	32.6	0.0	-19.3	Н



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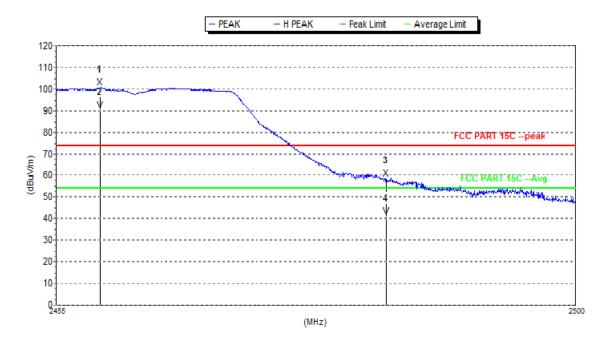


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	58.5	74.0	15.5	32.5	0.0	-19.3	٧
3	2408.780	98.7	74.0	-24.7	32.5	0.0	-19.3	٧
Avg								
1	2390	37.0	54.0	17.0	32.5	0.0	-19.3	
4	2408.780	88.4	54.0	-34.4	32.6	0.0	-19.3	٧



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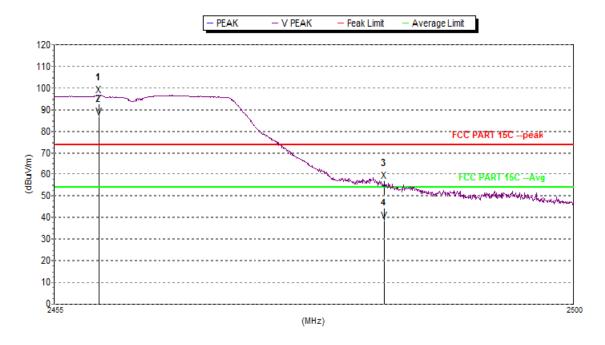


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2458.825	100.6	74.0	-26.6	32.5	0.0	-19.2	Н
3	2483.5	58.6	74.0	15.4	32.5	0.0	-19.1	Н
Avg								
2	2458.825	90.3	54.0	-36.3	32.5	0.0	-19.2	
4	2483.5	41.1	54.0	12.9	32.5	0.0	-19.1	Н



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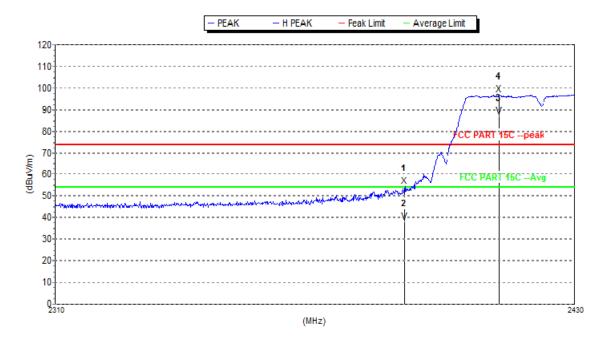
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2458.915	96.9	74.0	-22.9	32.5	0.0	-19.2	٧
3	2483.5	56.9	74.0	17.1	32.5	0.0	-19.2	٧
Avg								
2	2458.915	86.6	54.0	-32.6	32.5	0.0	-19.2	
4	2483.5	38.7	54.0	15.3	32.5	0.0	-19.1	٧



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802.11n(HT40):

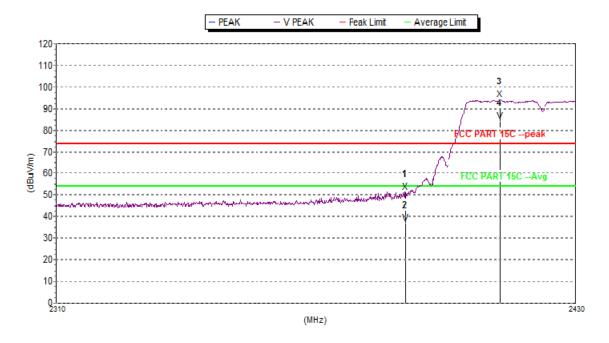


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	54.6	74.0	19.4	32.5	0.0	-19.3	Н
4	2412.240	97.0	74.0	-23.0	32.6	0.0	-19.3	Н
Avg								
2	2390	38.2	54.0	15.8	32.5	0.0	-19.3	
3	2412.240	87.0	54.0	-33.0	32.6	0.0	-19.3	Н



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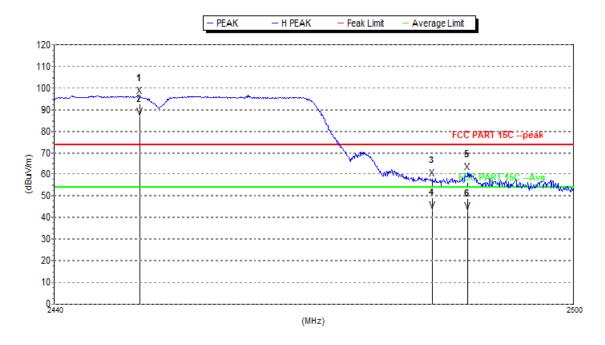


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	51.4	74.0	22.6	32.5	0.0	-19.3	٧
3	2412.120	94.4	74.0	-20.4	32.5	0.0	-19.3	٧
Avg								
1	2390	36.9	54.0	17.1	32.5	0.0	-19.3	
4	2412.120	84.3	54.0	-30.3	32.6	0.0	-19.3	٧



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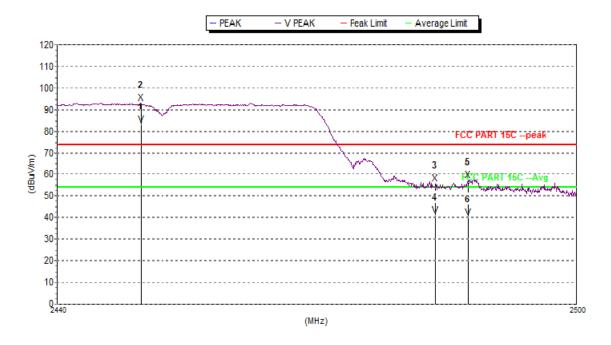
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2449.780	96.5	74.0	-22.5	32.5	0.0	-19.2	Н
3	2483.5	58.1	74.0	15.9	32.5	0.0	-19.1	Н
5	2487.700	60.9	74.0	13.1	32.5	0.0	-19.0	Н
Avg								
2	2449.780	86.5	54.0	-32.5	32.5	0.0	-19.2	
4	2483.5	43.5	54.0	10.5	32.5	0.0	-19.1	Н
6	2487.700	42.8	54.0	11.2	32.5	0.0	-19.0	Н





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Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
2	2449.600	93.1	74.0	-19.1	32.5	0.0	-19.2	٧
3	2483.5	55.8	74.0	18.2	32.5	0.0	-19.1	٧
5	2487.400	57.5	74.0	16.5	32.5	0.0	-19.0	٧
Avg								
1	2449.600	83.0	54.0	-29.0	32.5	0.0	-19.2	
4	2483.5	40.9	54.0	13.1	32.5	0.0	-19.1	٧
6	2487.400	40.2	54.0	13.8	32.5	0.0	-19.0	V

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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7 Photographs - EUT Test Setup

Test model No.: LST0804R

7.1 Conducted Emission



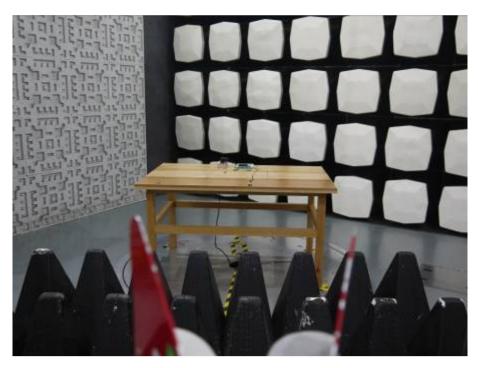
7.2 Radiated Spurious Emission





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8 Photographs - EUT Constructional Details

Test model No.: LST0804R

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1506003237HR.