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District, Shenzhen, Guangdong, China 518057

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FCC REPORT

Application No: SZEM1505002404CR

Applicant: Nexmed Technology Co., Ltd.

Manufacturer: Nexmed Technology Co., Ltd.

Factory: Nexmed Technology Co., Ltd.

Product Name: WIRELESS MONITORING CAMERA WITH INTEGATED WIFI

ROUTER

Model No.(EUT): BW-MiNi

Trade Mark.: Bewell connect FCC ID: 2AERCBW-MINI

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

Date of Receipt: 2015-05-11

Date of Test: 2015-06-04 to 2015-07-24

Date of Issue: 2015-07-30

Test Result: PASS *

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

Authorized Signature:



Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.



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2 Version

Revision Record							
Version Chapter Date Modifier Remark							
00		2015-07-30		Original			

Authorized for issue by:		
Tested By	Eric Fu	2015-07-24
	(Eric Fu) /Project Engineer	Date
Prepared By	Joyce Shi	2015-07-30
	(Joyce Shi) /Clerk	Date
Checked By	Owen Zhon	2015-07-30
	(Owen Zhou) /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:	Nexmed Technology Co., Ltd.		
Address of Applicant:	2 Floor of No.1 Building, Jia An Technological Industrial Park, 67 District, Bao An, 518101 Shenzhen China		
Manufacturer:	Nexmed Technology Co., Ltd.		
Address of Manufacturer:	2 Floor of No.1 Building, Jia An Technological Industrial Park, 67 District, Bao An, 518101 Shenzhen China		
Factory:	Nexmed Technology Co., Ltd.		
Address of Factory:	2 Floor of No.1 Building, Jia An Technological Industrial Park, 67 District, Bao An, 518101 Shenzhen China		

5.2 General Description of EUT

Product Name:	WIRELESS MONITORING CAMERA WITH INTEGATED WIFI ROUTER					
Model No.:	BW-MiNi					
Trade Mark:	Bewell Connect					
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)					
Test Software of EUT:	ATE_UI_v3_3_3_24 (manufacturer declare)					
Antenna Type:	Integral					
Antenna Gain:	0dBi					
EUT Power Supply	Power supply by USB 5V					



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Operation Frequency each of channel(802.11b/g/n HT20)										
Channel	Fr	equency	Channe	I Frequency	Channel	Fre	quency	Chan	nel	Frequency
1	24	412MHz	4	2427MHz	7	244	2442MHz			2457MHz
2	24	417MHz	5	2432MHz	8	244	47MHz			2462MHz
3	24	422MHz	6	2437MHz	9	245	2452MHz			
Operation F	requ	ency each	of channe	el(802.11n HT40)					
Channel Frequency			ency	Channel	Frequen	су	Chan	nel	F	requency
1		2422	ИНz	4	2437MF	lz	7			2452MHz
2		2427	ИНz	5	2442MF	lz				
3		2432	ИНz	6	2447MF	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):

1 01 002:1111 (111 10):					
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:	55 % RH					
Atmospheric Pressure:	1005 mbar					
Test mode:						
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all					
	kind of data rate.					

5.4 Description of Support Units

The EUT has been tested independent unit.

5.5 Test Location

All tests were performed at:

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

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.





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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-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)

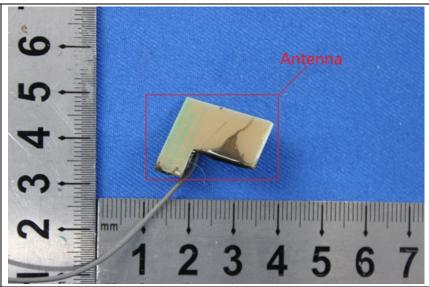
15.203 requirement:

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 0 dBi.



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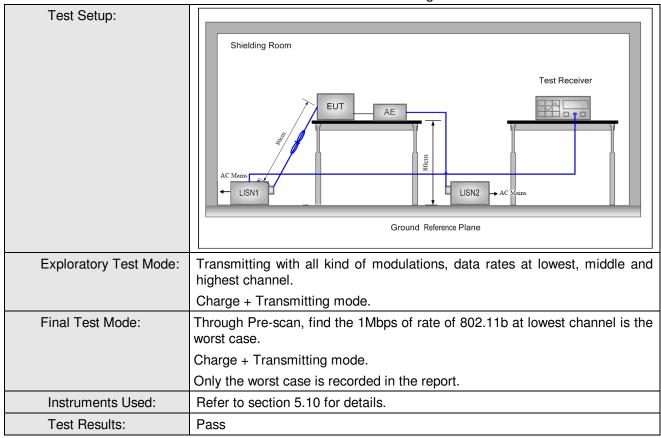
6.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207					
Test Method:	ANSI C63.10: 2009					
Test Frequency Range:	150kHz to 30MHz					
Limit:	Fraguenov rango (MUZ)	Limit (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.		•		
Test Procedure:	0.5-5 56 46					
	 In order to find the maximum equipment and all of the ir ANSI C63.10: 2009 on cor 	nterface cables must be	•	to		



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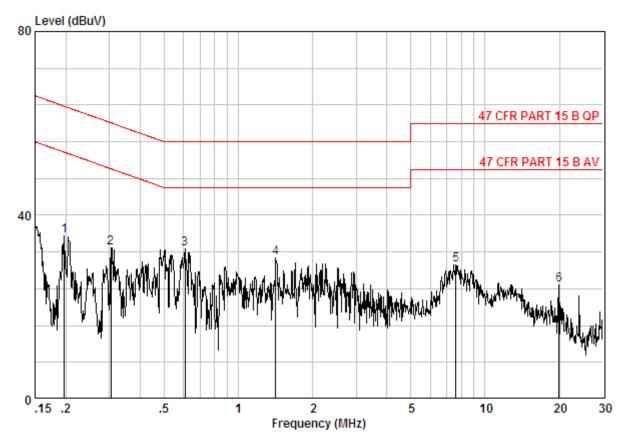
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Measurement Data

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 PART 15 B AV CE LINE

Job No. : 2404CR Test Mode : b

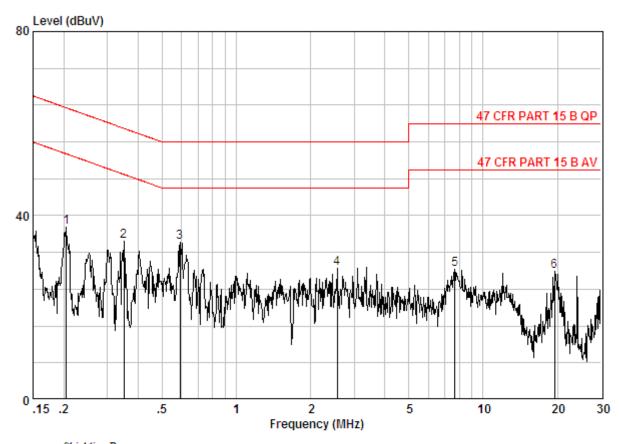
	Freq		LISN Factor					Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.19758	0.02	9.83	25.67	35.52	53.71	-18.19	Peak
2	0.30509	0.01	9.84	23.14	32.99	50.10	-17.11	Peak
3	0.60752	0.02	9.87	22.88	32.76	46.00	-13.24	Peak
4	1.418	0.02	9.92	20.84	30.78	46.00	-15.22	Peak
5	7.606	0.01	10.15	19.05	29.21	50.00	-20.79	Peak
6	19.950	0.02	10.30	14.63	24.95	50.00	-25.05	Peak



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Neutral Line:



Site : Shielding Room

Condition : 47 CFR PART 15 B AV CE NEUTRAL

Job No. : 2404CR Test Mode : b

	Freq		LISN Factor					Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20505	0.02	9.85	27.62	37.49	53.40	-15.92	Peak
2	0.35015	0.01	9.87	24.49	34.37	48.96	-14.59	Peak
3 @	0.59164	0.01	9.92	24.38	34.32	46.00	-11.68	Peak
4	2.567	0.02	10.12	18.34	28.48	46.00	-17.52	Peak
5	7.687	0.01	10.13	18.09	28.23	50.00	-21.77	Peak
6	19.428	0.02	10.37	17.45	27.84	50.00	-22.16	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 under all rate at lowest channel 1								
Mode		802	.11b					
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power (dBm)	16.47	16.38	16.36	15.9				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power (dBm)	17.84	17.74	17.70	17.68	17.66	17.63	17.59	17.55
Mode				802.11	n(HT20)			
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power (dBm)	17.08	17.01	16.98	16.97	16.92	16.88	16.84	16.80
Mode	802.11n(HT40)							
Data Rate	13.5Mbps	27Mbps	40.5Mbps	54Mbps	81Mbps	108Mbps	121.5Mbps	135Mbps
Power (dBm)	17.03	16.97	16.90	16.88	16.85	16.83	16.79	16.75

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

	802.11b mode						
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	16.47	30.00	Pass				
Middle	15.08	30.00	Pass				
Highest	15.11	30.00	Pass				
	802.11g mo	de					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	17.84	30.00	Pass				
Middle	16.56	30.00	Pass				
Highest	16.46	30.00	Pass				
	802.11n(HT20)	mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	17.08	30.00	Pass				
Middle	15.51	30.00	Pass				
Highest	15.42	30.00	Pass				
	802.11n(HT40)mode						
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	17.03	30.00	Pass				
Middle	16.13	30.00	Pass				
Highest	15.03	30.00	Pass				



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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



Test mode: 802.11b Test channel: Middle



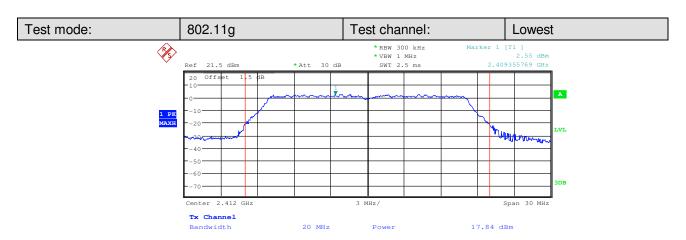






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Test mode: 802.11g Test channel: Middle





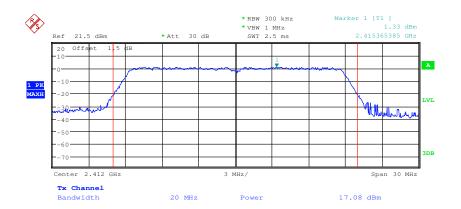




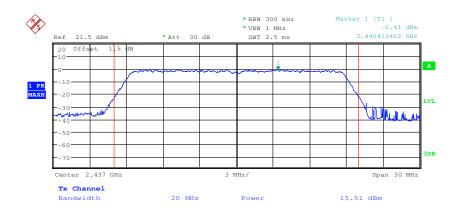
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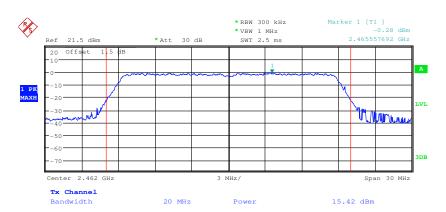
Test mode: 802.11n(HT20) Test channel: Lowest



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



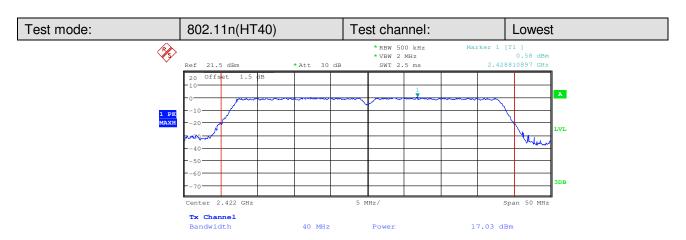




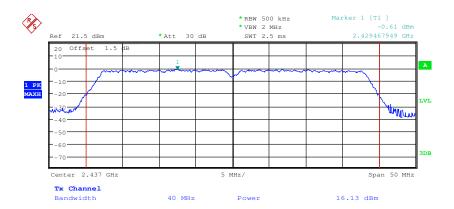


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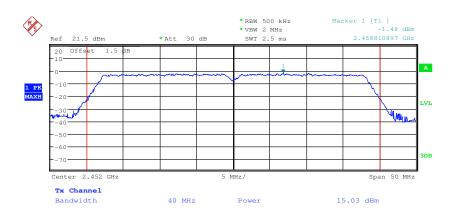
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Test mode: 802.11n(HT40) Test channel: Middle





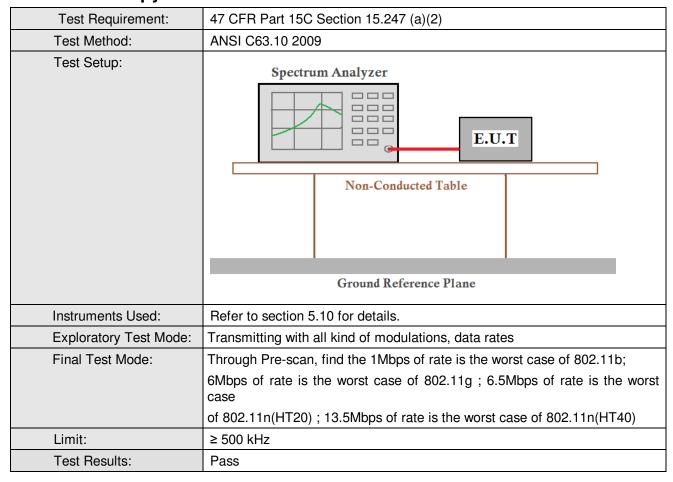




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6.4 6dB Occupy Bandwidth





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Measurement Data

	802.11b mode						
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result				
Lowest	10.29	≥500	Pass				
Middle	10.24	≥500	Pass				
Highest	10.24	≥500	Pass				
	802.11g mode						
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result				
Lowest	16.59	≥500	Pass				
Middle	16.63	≥500	Pass				
Highest	16.63	≥500	Pass				
	802.11n(HT20) mode						
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result				
Lowest	17.88	≥500	Pass				
Middle	17.93	≥500	Pass				
Highest	17.88	≥500	Pass				
	802.11n(HT40)mode						
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result				
Lowest	36.62	≥500	Pass				
Middle	36.86	≥500	Pass				
Highest	36.62	≥500	Pass				

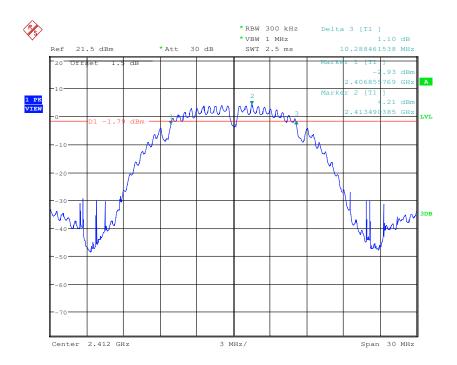


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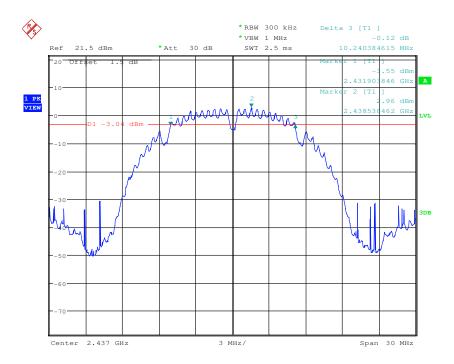
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



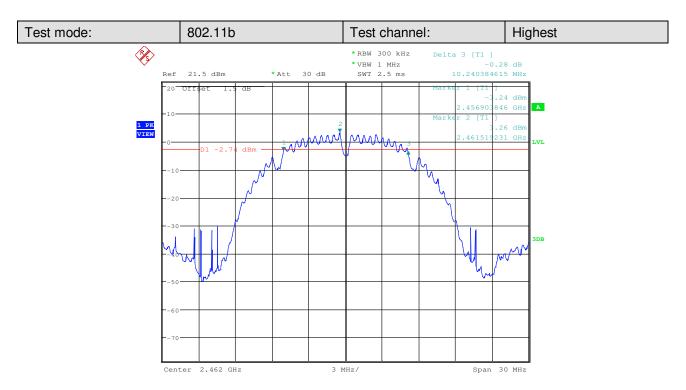
Test mode: 802.11b Test channel: Middle

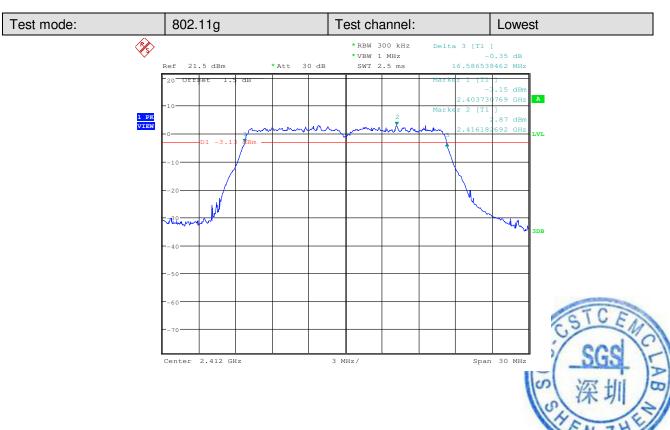




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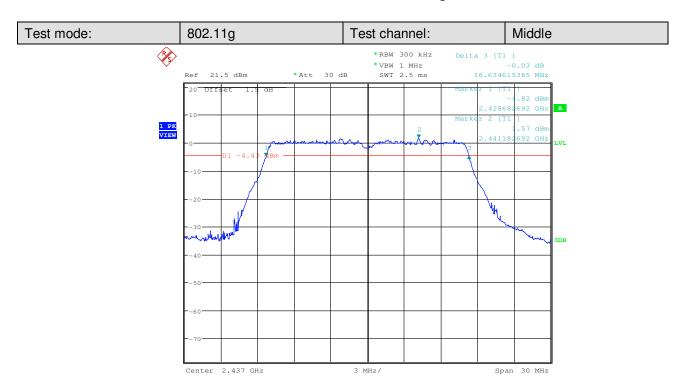


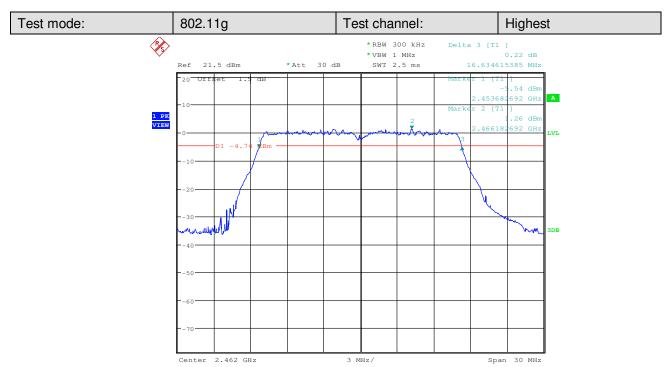




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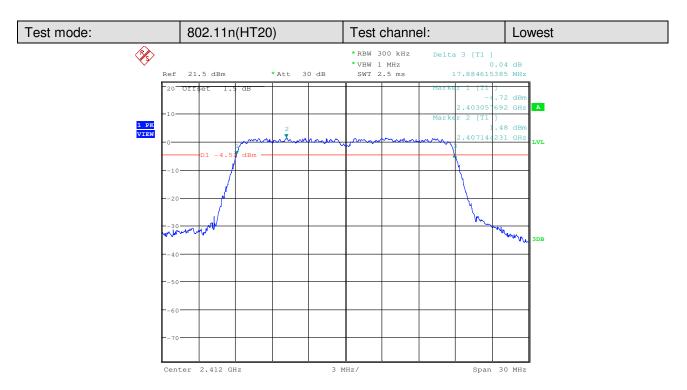


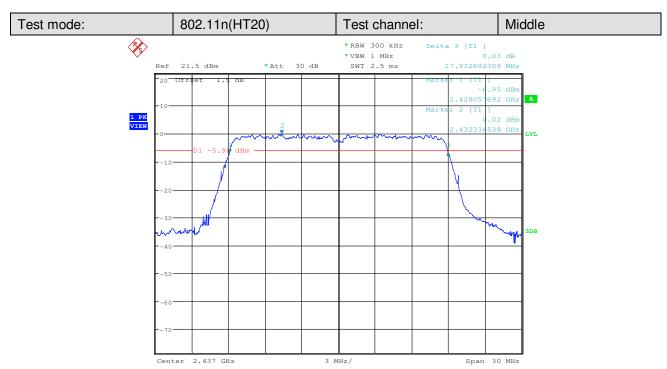




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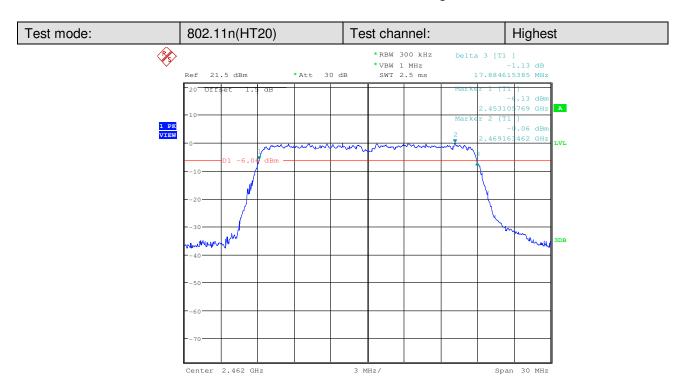


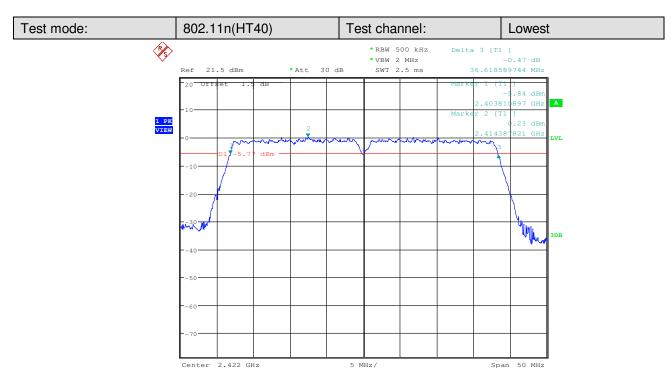




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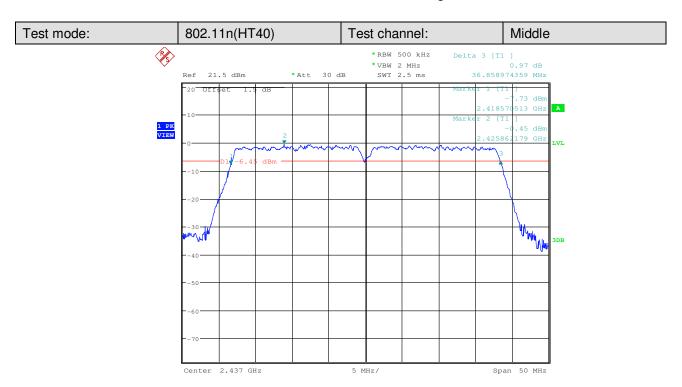




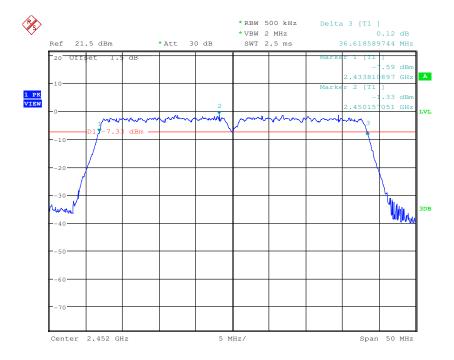


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6.5 Power Spectral Density

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

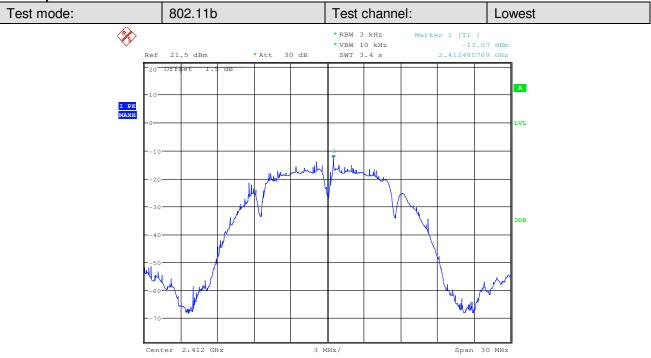
	802.11b mode						
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result				
Lowest	-13.07	≤8.00	Pass				
Middle	-13.31	≤8.00	Pass				
Highest	-12.53	≤8.00	Pass				
	802.11g mode						
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result				
Lowest	-16.66	≤8.00	Pass				
Middle	-16.64	≤8.00	Pass				
Highest	-17.93	≤8.00	Pass				
	802.11n(HT20) mode						
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result				
Lowest	-17.30	≤8.00	Pass				
Middle	-18.06	≤8.00	Pass				
Highest	-18.47	≤8.00	Pass				
	802.11n(HT40) mode						
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result				
Lowest	-20.46	≤8.00	Pass				
Middle	-22.33	≤8.00	Pass				
Highest	-18.18	≤8.00	Pass				

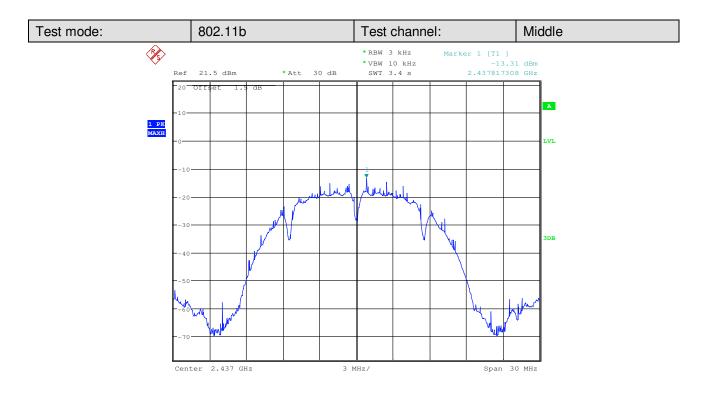


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Test plot as follows:

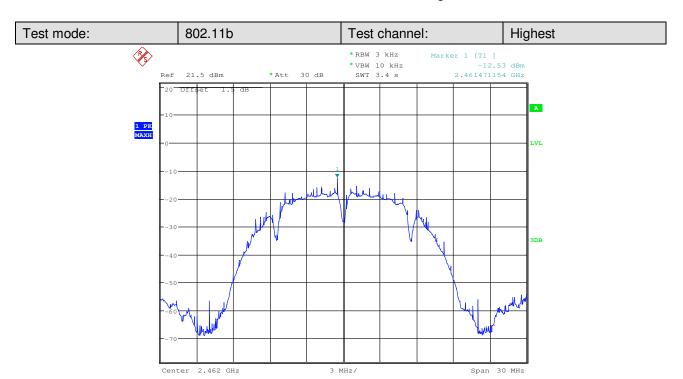


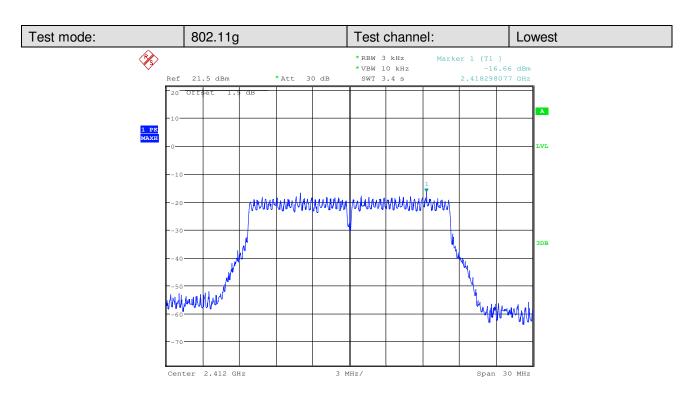




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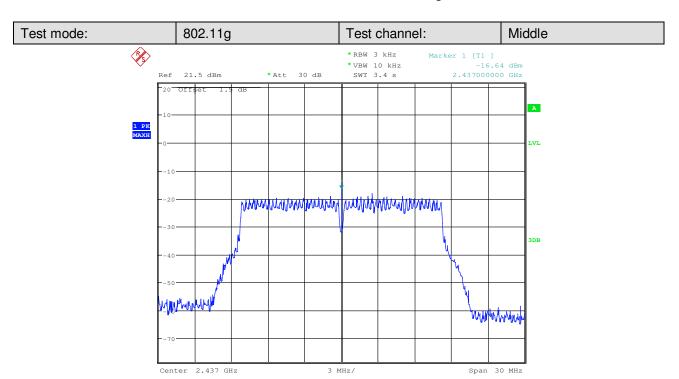


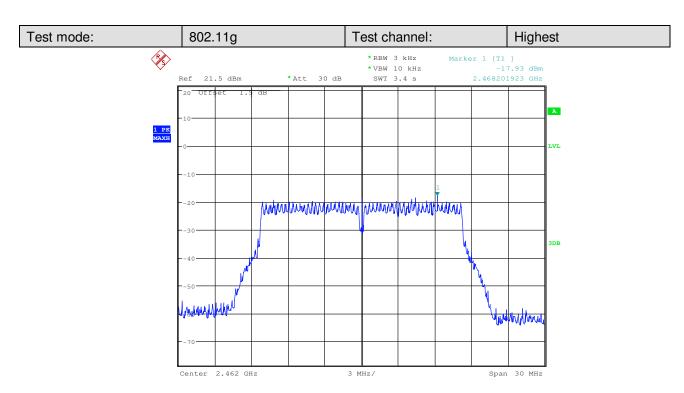




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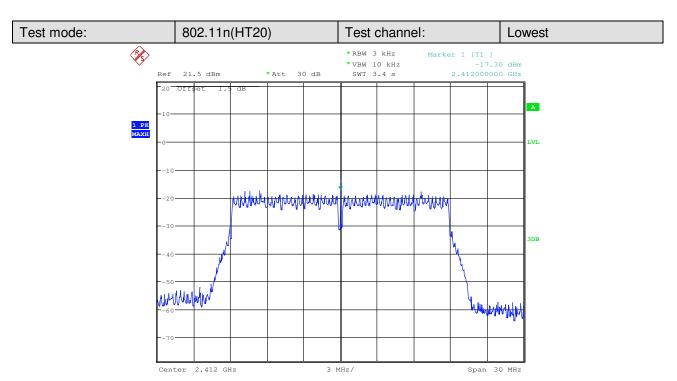


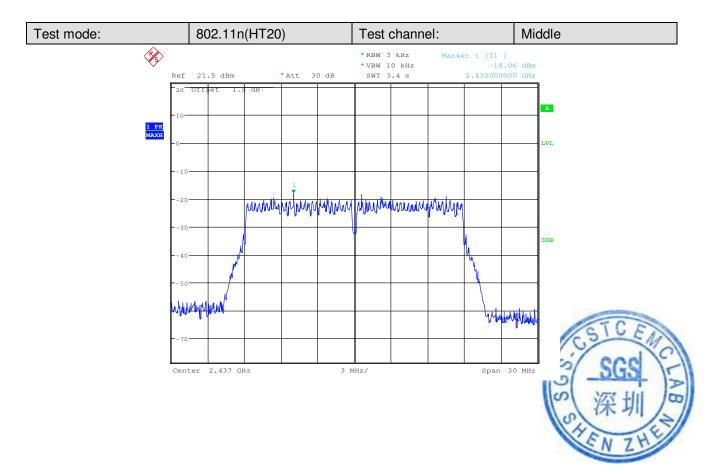




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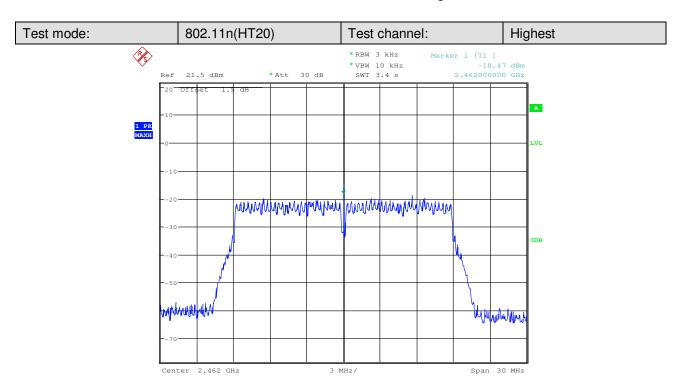


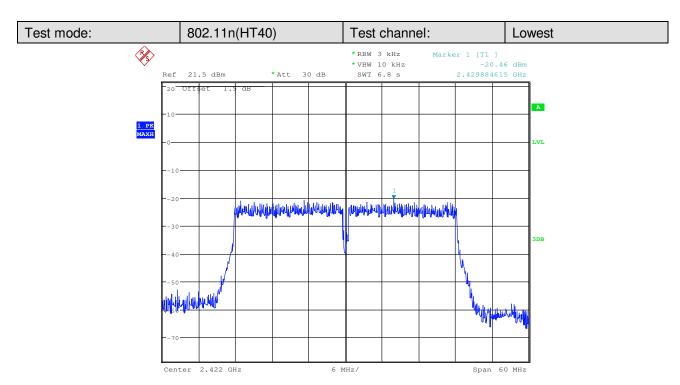




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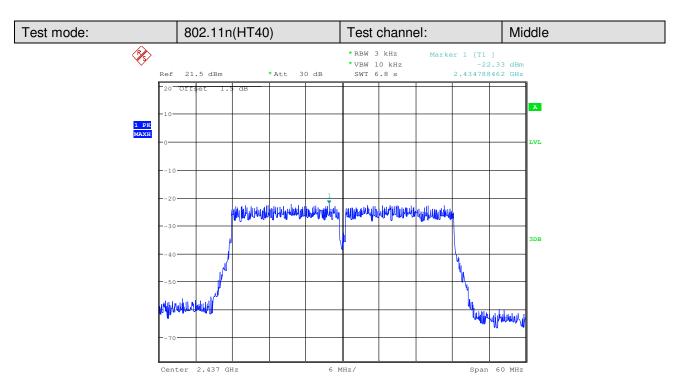


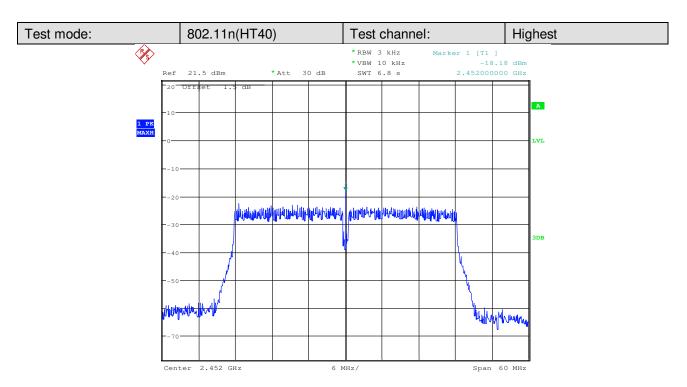




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6.6 Band-edge for RF Conducted Emissions

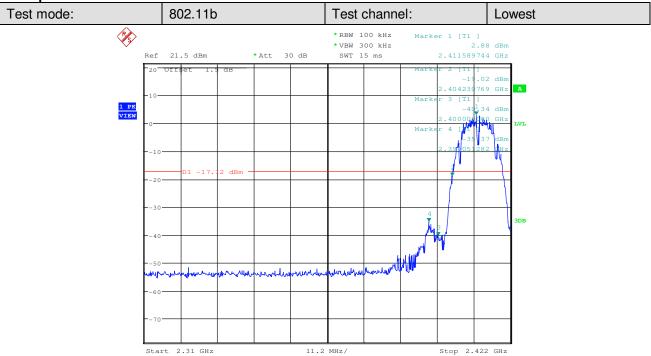
Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10 2009
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.
Exploratory Test Mode:	Transmitting with all kind of modulations,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

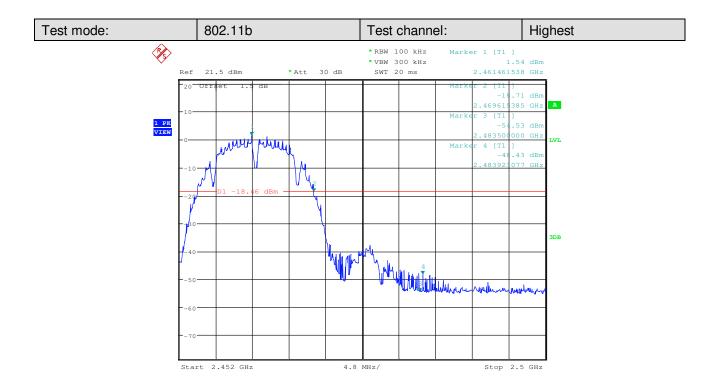


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Test plot as follows:

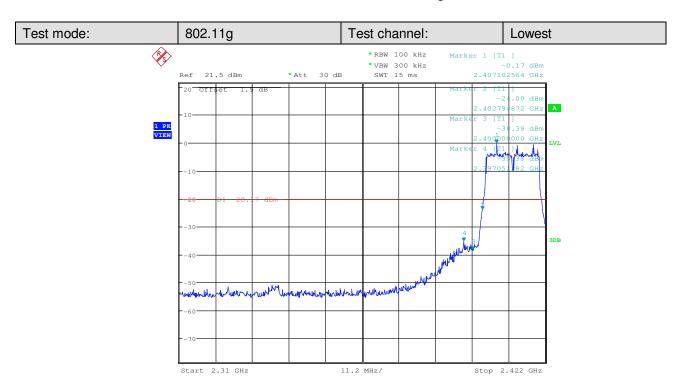


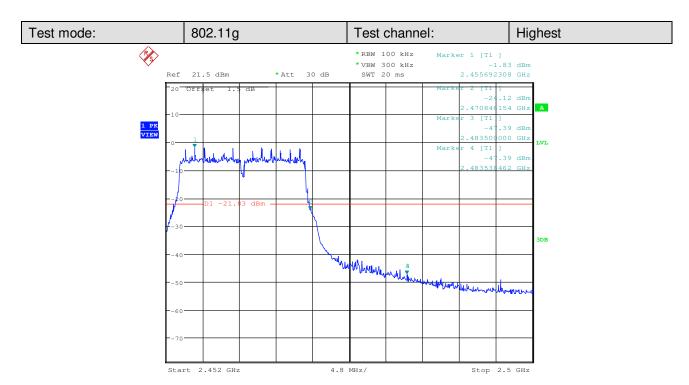




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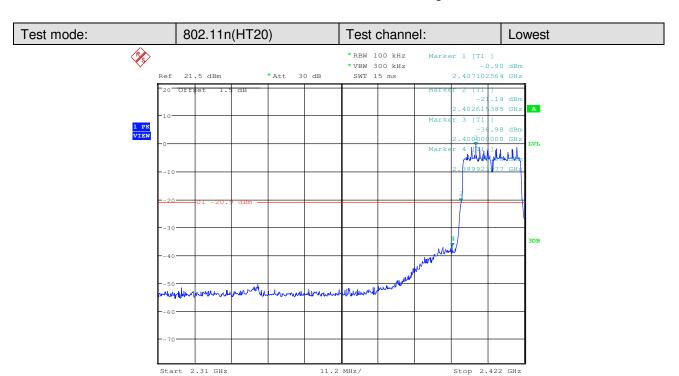


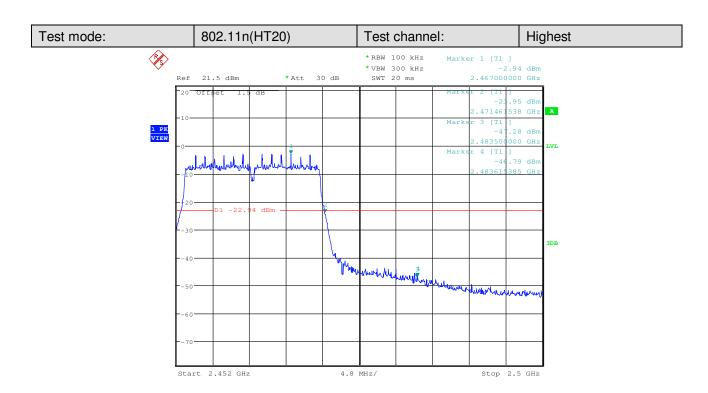




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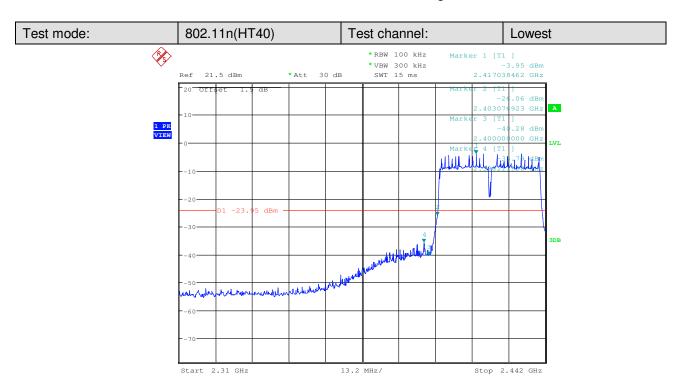


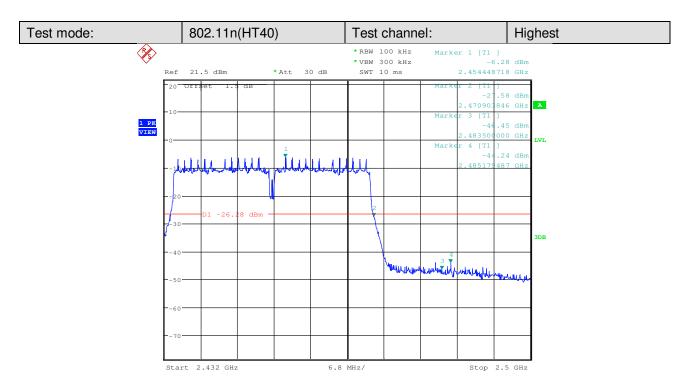




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6.7 RF Conducted Spurious Emissions

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

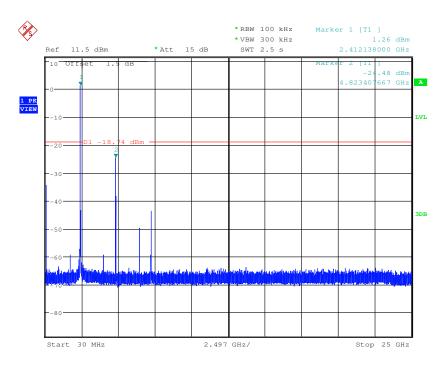


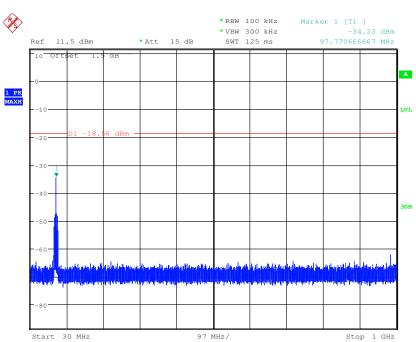
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest

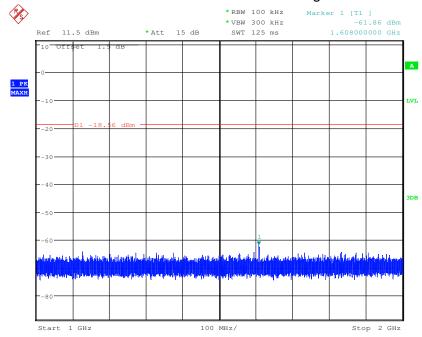


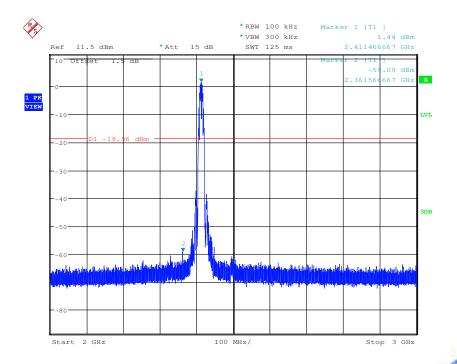


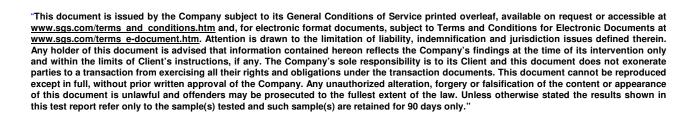


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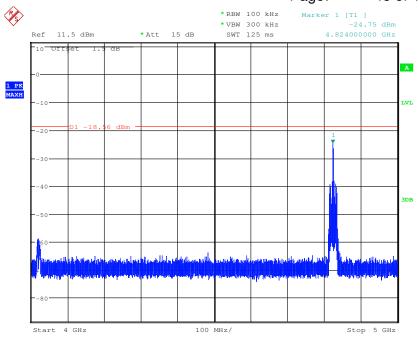


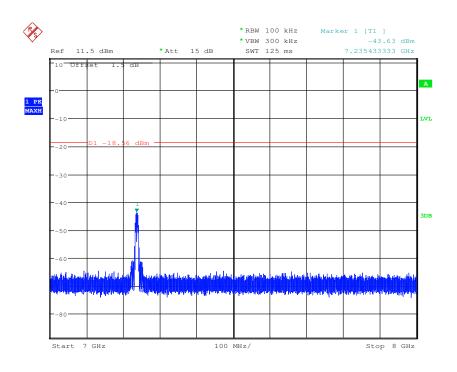




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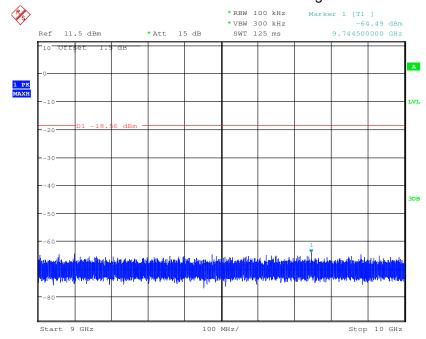






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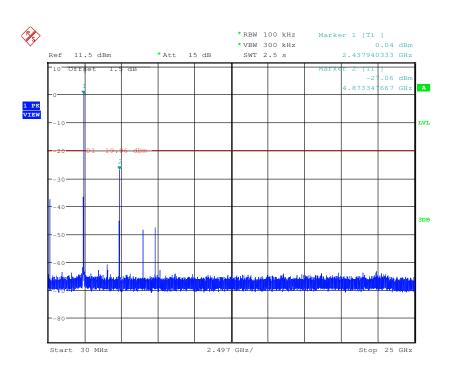


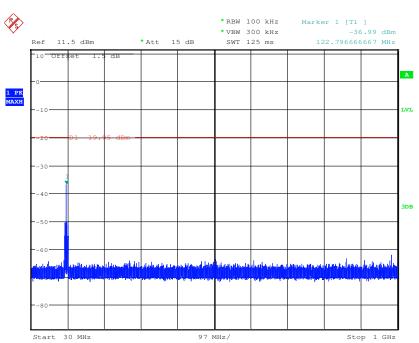


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Test mode: 802.11b Test channel: Middle

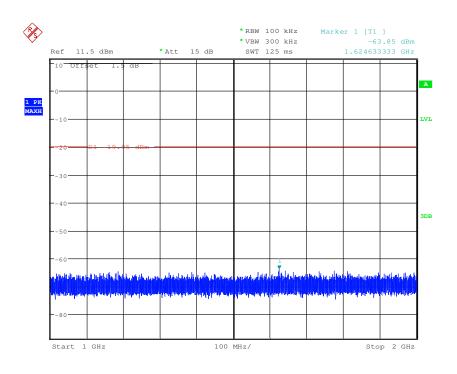


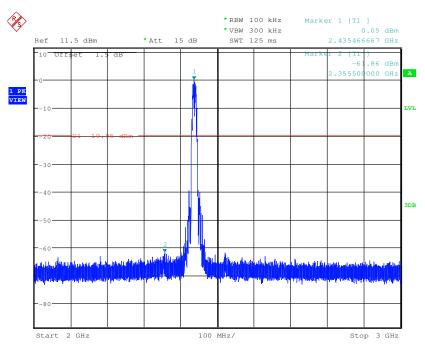




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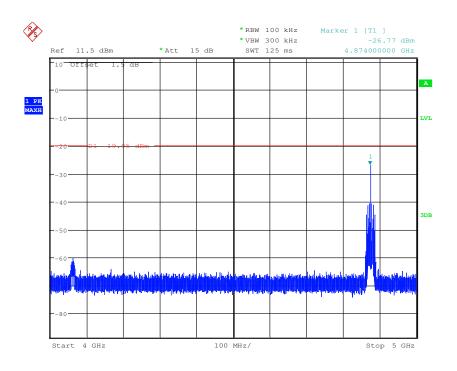


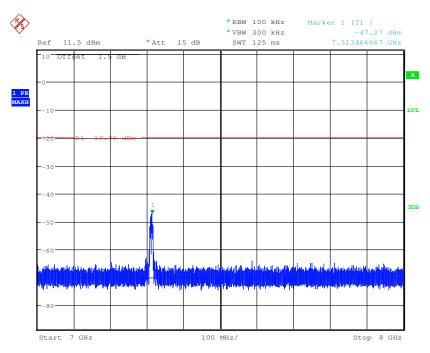




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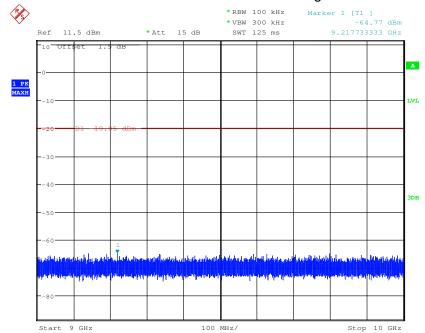






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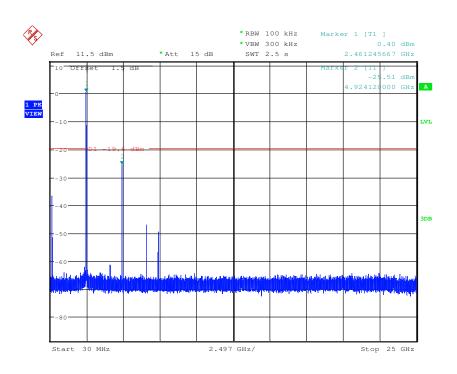


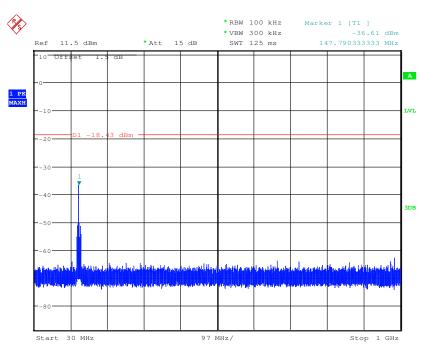


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Test mode: 802.11b Test channel: Highest

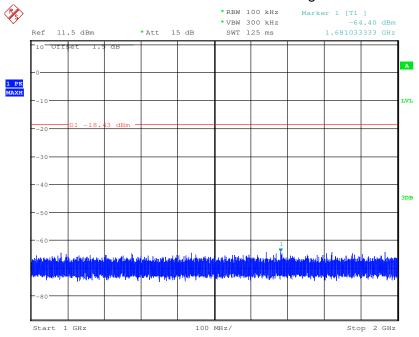


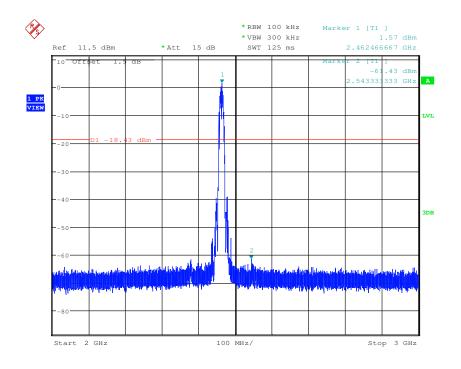




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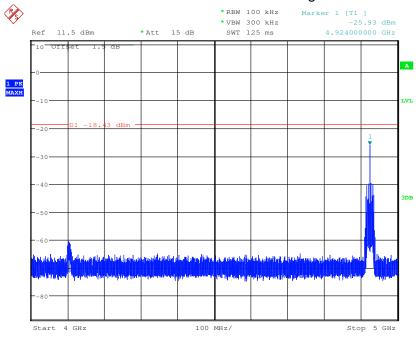


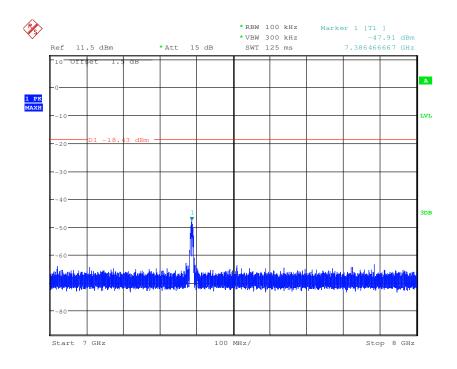




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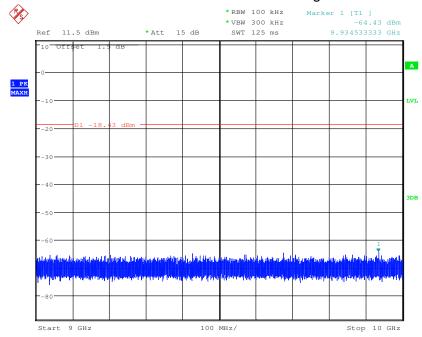






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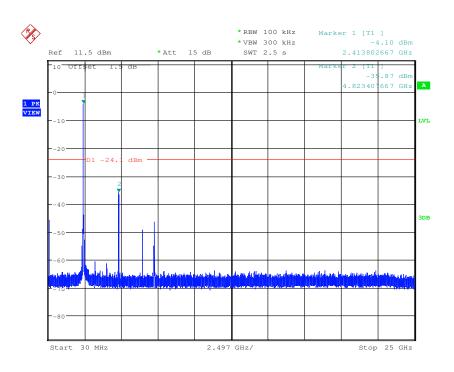


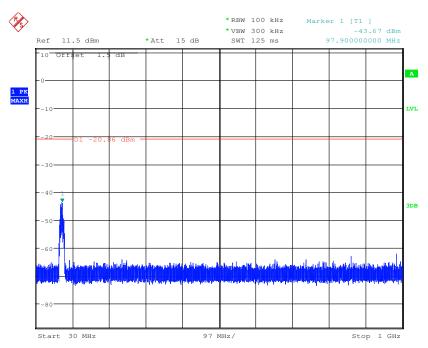


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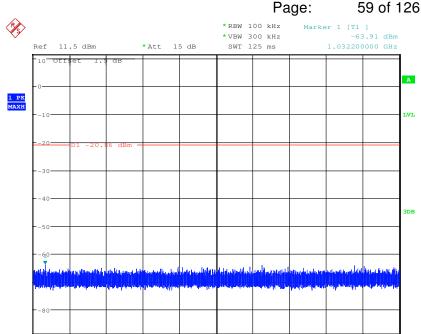






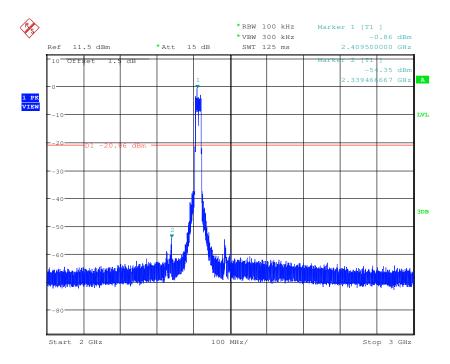
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Stop 2 GHz



100 MHz/

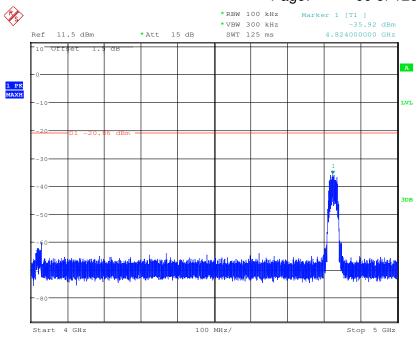
Start 1 GHz

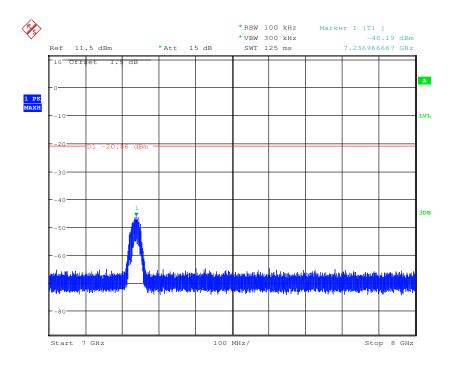




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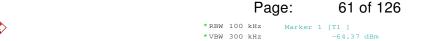
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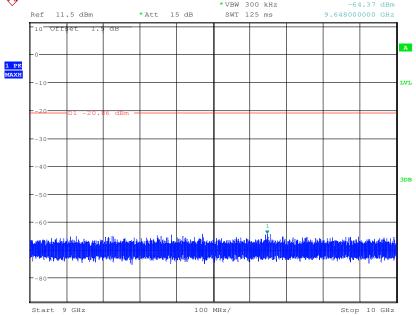






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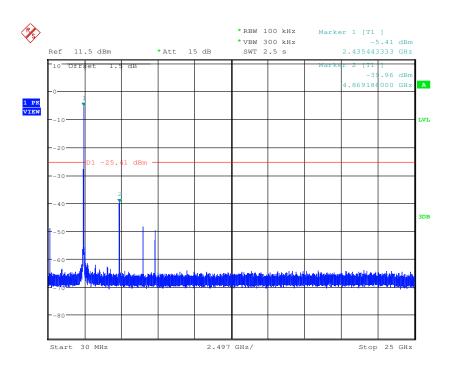


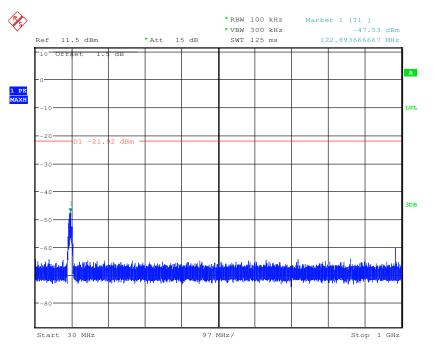


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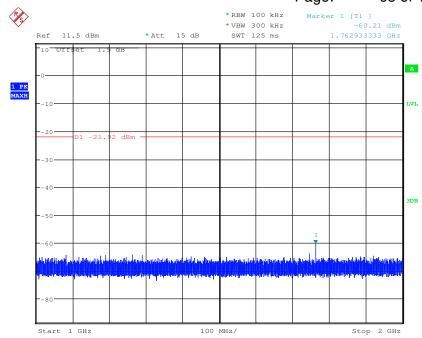


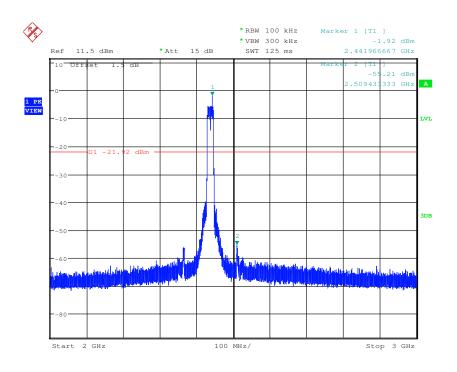




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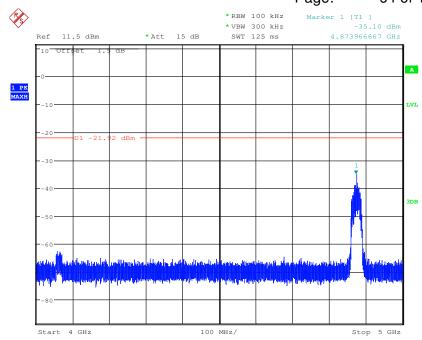


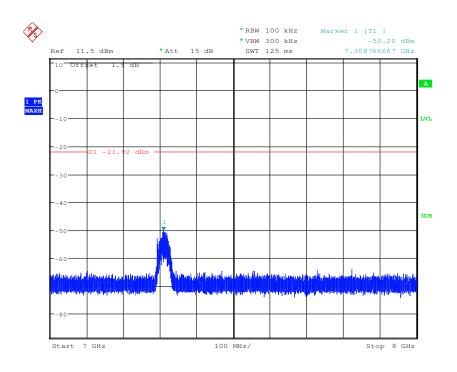




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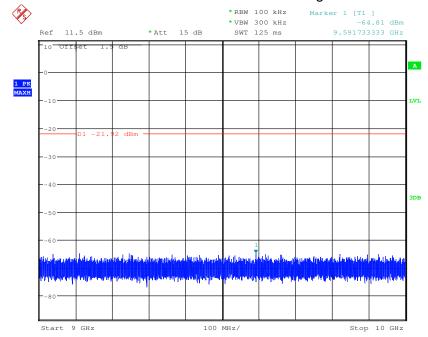






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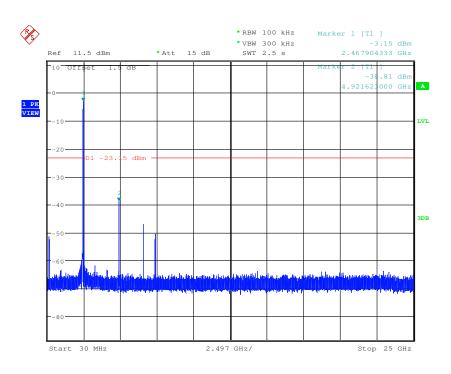


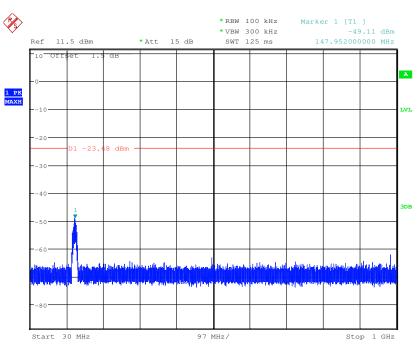


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Test mode: 802.11g Test channel: Highest

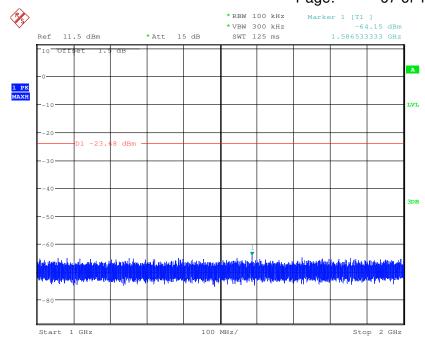


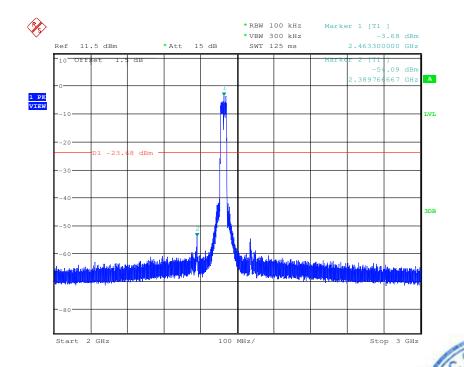




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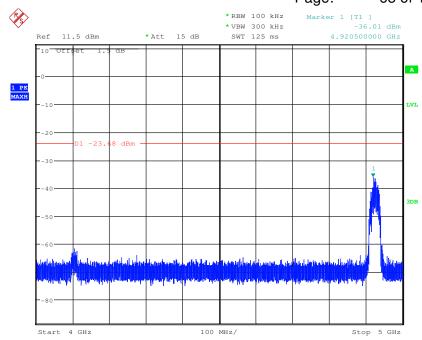


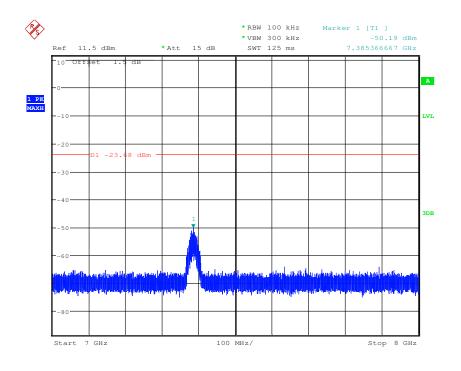




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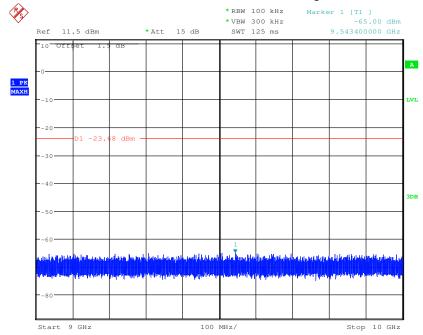






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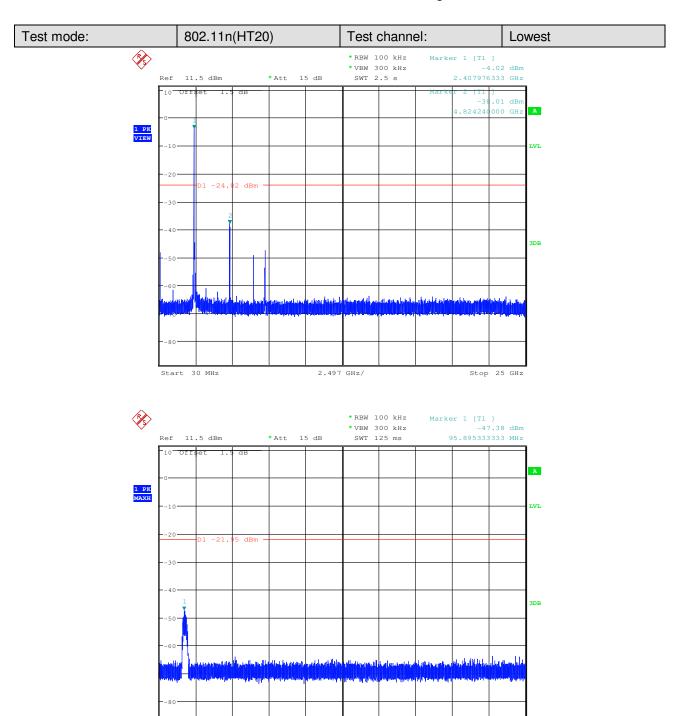




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Stop 1 GHz



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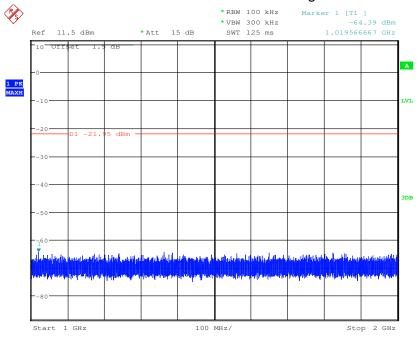
97 MHz/

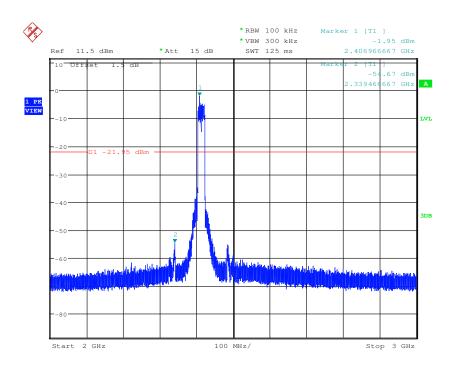
Start 30 MHz



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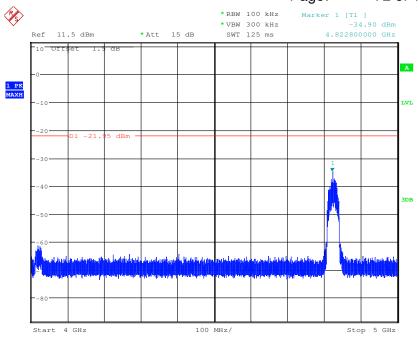


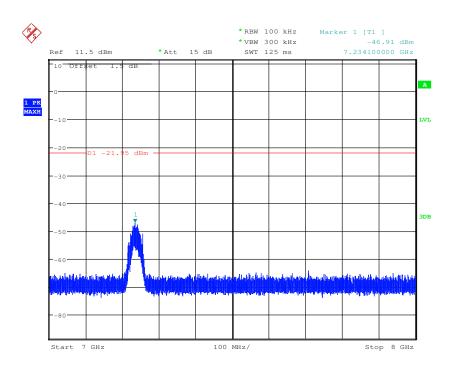




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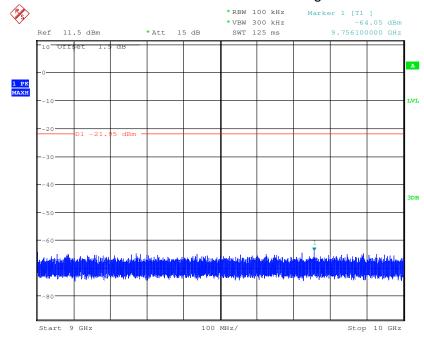






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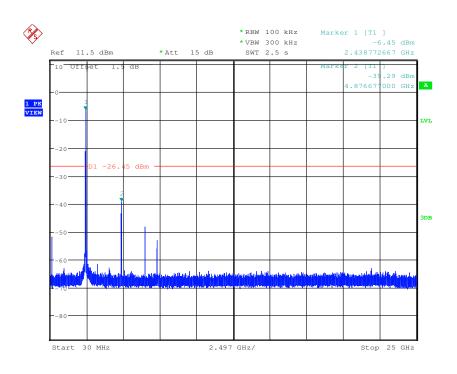


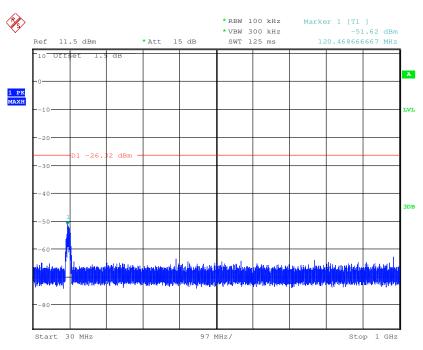


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Test mode: 802.11n(HT20) Test channel: Middle

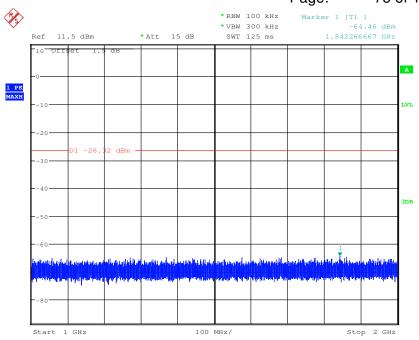


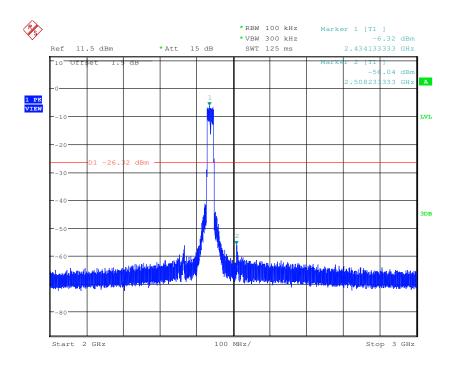




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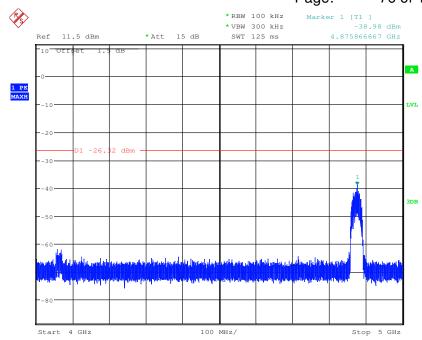


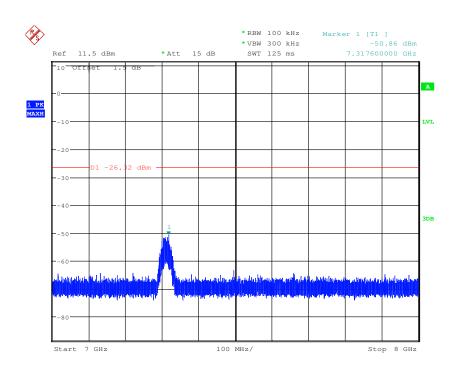




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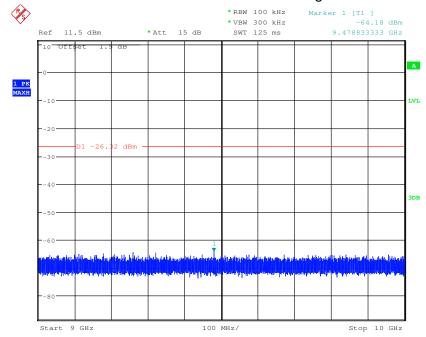






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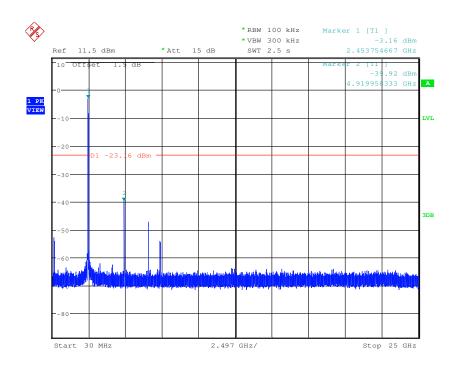


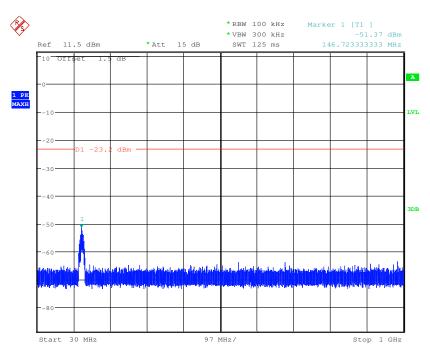


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Test mode: 802.11n(HT20) Test channel: Highest

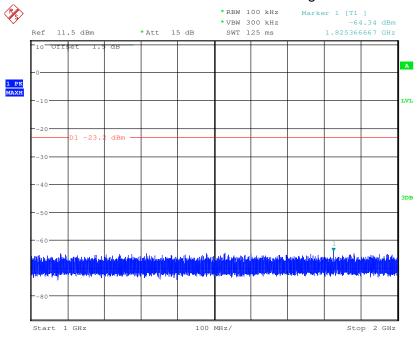


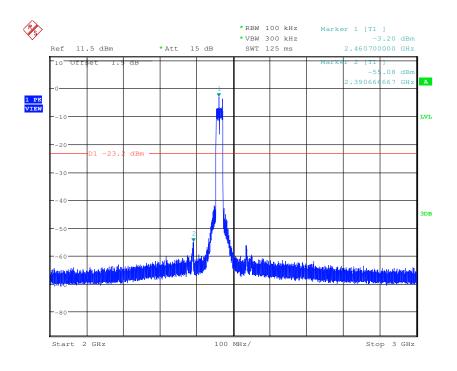




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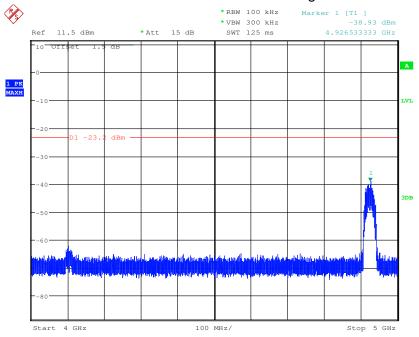


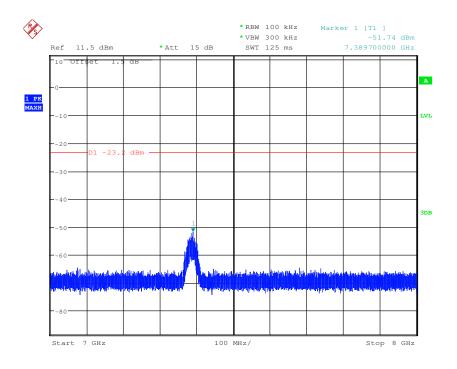




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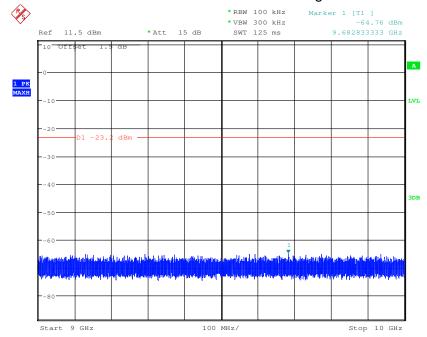






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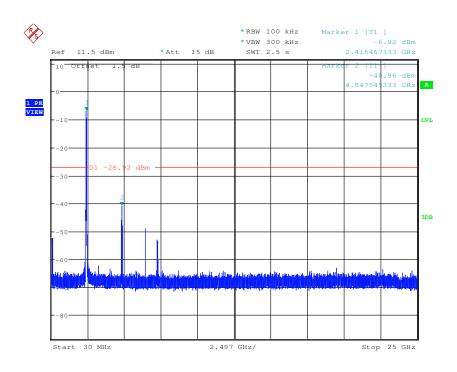


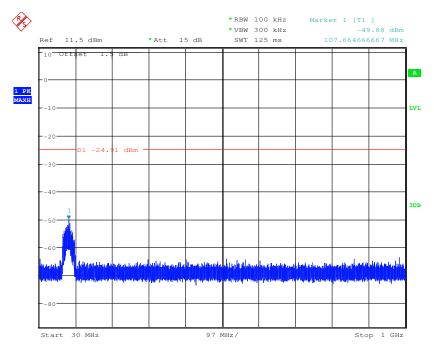


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Test mode: 802.11n(HT40) Test channel: Lowest

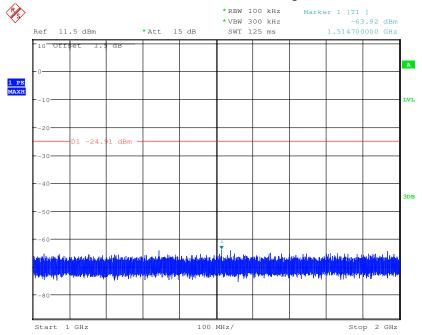


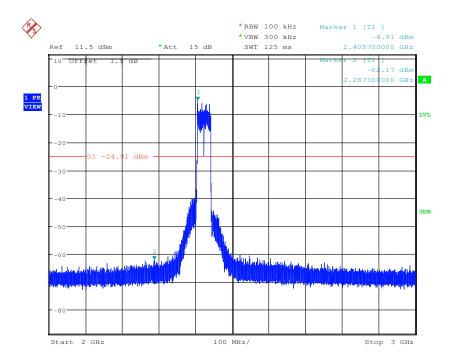




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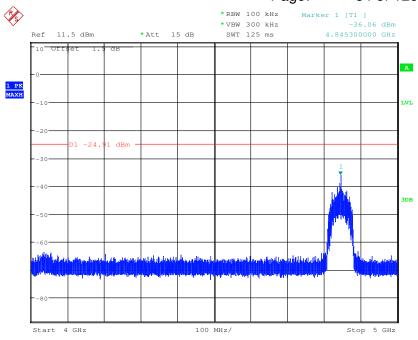


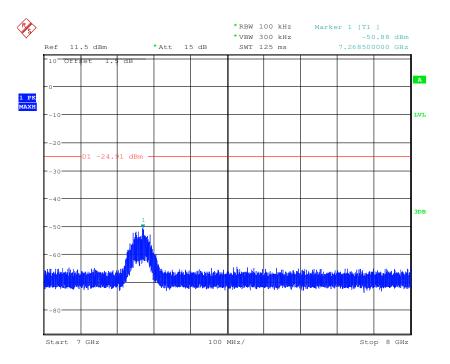




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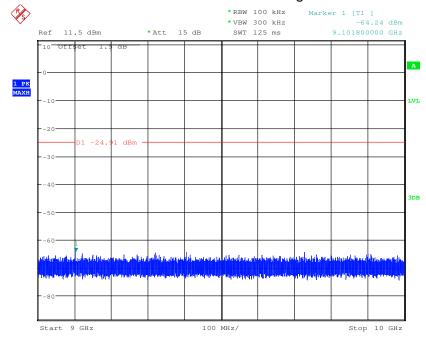






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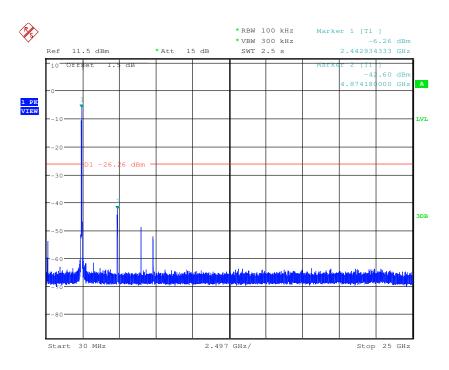


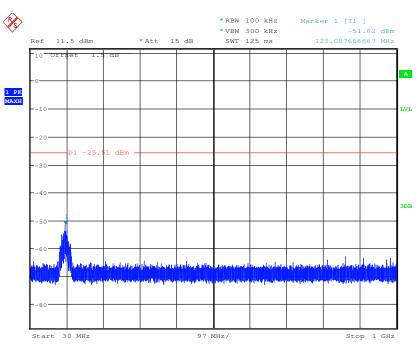


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Test mode: 802.11n(HT40) Test channel: Middle

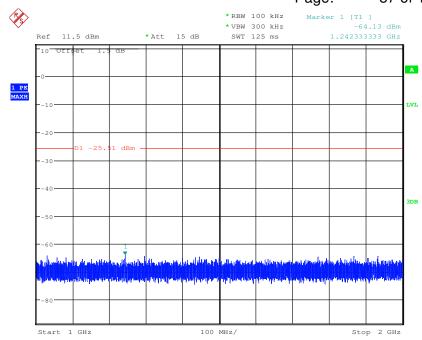


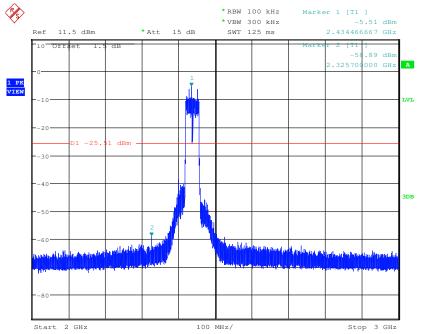




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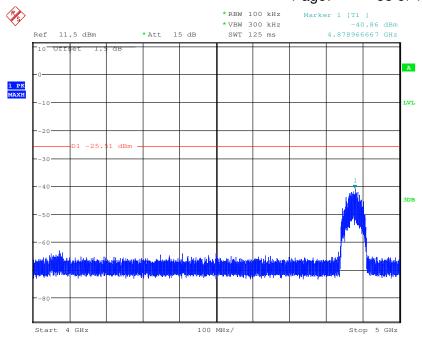


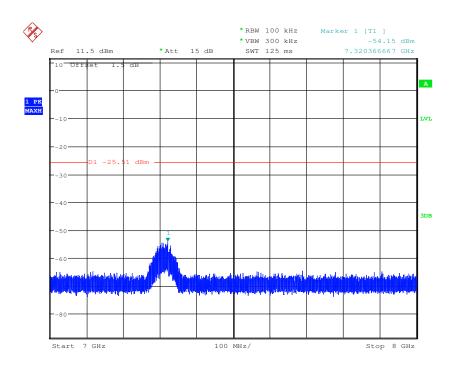




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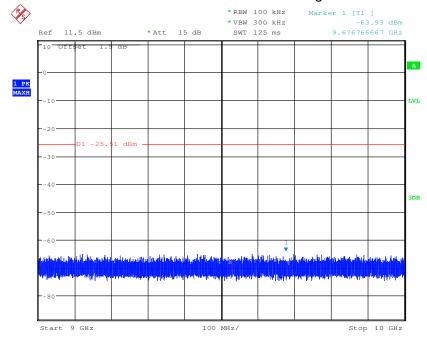






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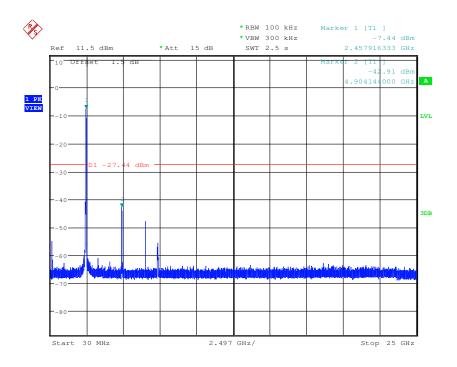


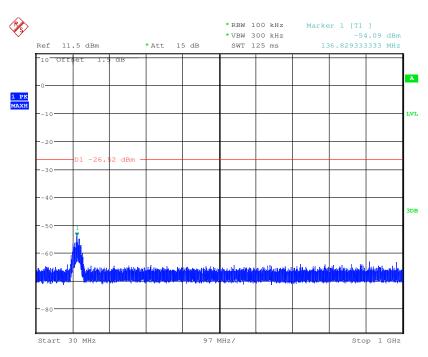


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Test mode: 802.11n(HT40) Test channel: Highest

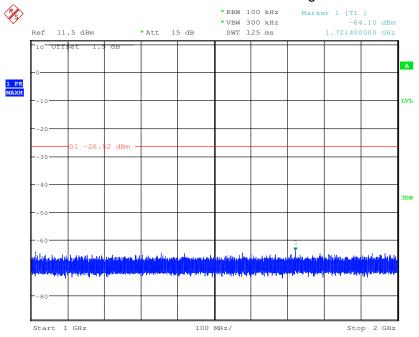


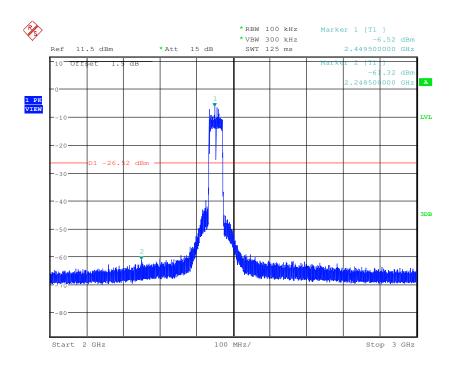




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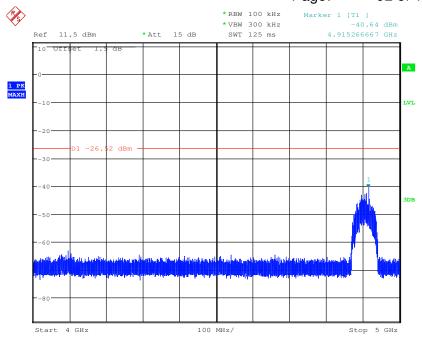


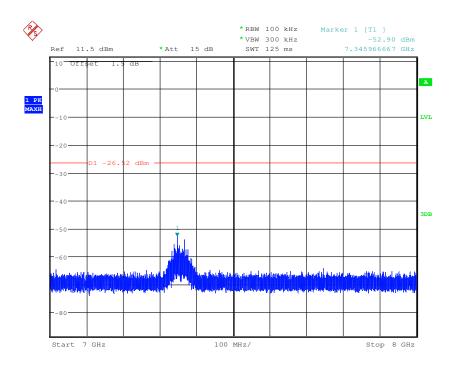




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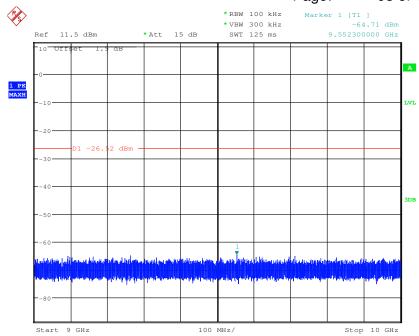








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Remark:

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

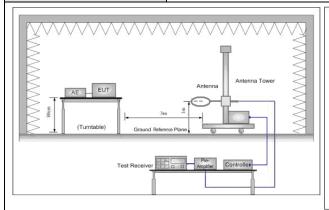
Test Requirement:	47 CFR Part 15C Sectio	n 15.209 and 15.20	05					
Test Method:	ANSI C63.10 2009							
Test Site:	Measurement Distance:	3m (Semi-Anecho	ic Chamber)					
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark			
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak			
	0.009MHz-0.090MHz	Average	10kHz	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 1GHz	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 rad	iated by the device	е.					



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Test Setup:



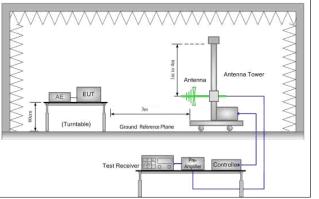


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

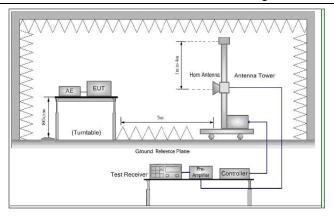


Figure 3. Above 1 GHz

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 margin would be re-tested one by one using peak, quasi-peak or average



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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.					
	of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40)					
	6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case					
	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b;					
Final Test Mode:	Pretest the EUT at Transmitting mode and Charge +Transmitting mode, found the Charge +Transmitting mode which it is worse case					
	Transmitting mode, 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					
	method as specified and then reported in a data sheet.					

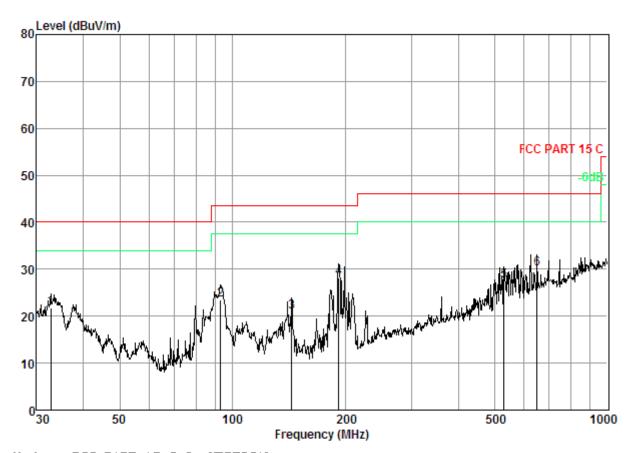


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6.8.1 Radiated emission below 1GHz

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



Condition: FCC PART 15 C 3m VERTICAL

Job No. : 2404CR

Test Mode: Charge+TX mode

	Freq	CableAntenna l Loss Factor l					Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	$\overline{\text{dBuV/m}}$	dB
1 2 3 4 5 6	32.75 92.79 143.83 191.75 530.10 649.66	0.69 1.40 1.80 2.10 3.87 4.42	17. 16 8. 88 8. 74 10. 12 18. 52 20. 40	25. 71 24. 96	29. 65 38. 80 35. 98 40. 89 31. 58 31. 54	21. 79 23. 56 20. 81 28. 15 27. 60 30. 10	43.50 43.50 43.50 46.00	-18.21 -19.94 -22.69 -15.35 -18.40 -15.90

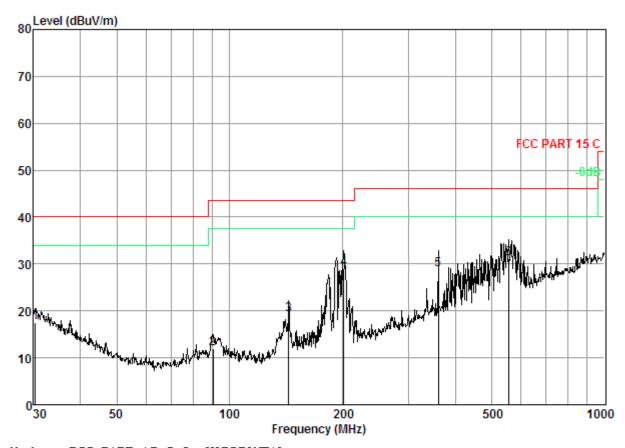




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Condition: FCC PART 15 C 3m HORIZONTAL

Job No. : 2404CR

Test Mode: Charge+TX mode

CDI	mode. Char	_						
		-CableA	Intenna	Preamp	Read		Limit	Over
	₽							T
	Freq	Loss	ractor	Factor	rever	rever	Line	Limit
	MHz	dB	dB/m	dB	-dBuV	dBuV/m	dBuV/m	dB
	11112	an an	(ID) III	and the same	abar	abar, m	abar, m	and the same
1	30.32	0.64	18.52	25.58	23.91	17.49	40.00	-22.51
2	90.22	1.35	8.81	24.91	26.70	11.95	43 50	-31.55
3	143.83	1.80	8.74	25.71	34.36	19.19	43.50	-24.31
4	201.39	2.17	10.27	24.92	41.41	28.93	43 50	-14.57
5	360.45	3.07	15.67	25. 29	35.31	28.76	46.00	-17.24
6	554.83	3.99	19.00	26.47	34 65	31.17	46 00	-14.83
~	004.00	0.00	10.00	20. 11	04.00	OI. II	40.00	14.00



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6.8.2 Transmitter emission above 1GHz

Test mode:	Test mode: 802.11b		Test cha	annel:	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
3579.190	6.92	32.98	38.78	45.89	47.01	74	-26.99	Vertical
4824.000	6.46	34.72	39.24	54.83	56.77	74	-17.23	Vertical
5964.939	8.03	36.23	39.19	47.41	52.48	74	-21.52	Vertical
7236.000	8.96	35.60	39.06	46.96	52.46	74	-21.54	Vertical
9648.000	9.97	37.45	37.91	42.46	51.97	74	-22.03	Vertical
11471.960	10.38	38.20	38.45	43.97	54.10	74	-19.90	Vertical
3563.687	6.93	32.96	38.77	46.45	47.57	74	-26.43	Horizontal
4822.063	6.46	34.72	39.24	58.99	60.93	74	-13.07	Horizontal
6025.661	8.07	36.27	39.18	47.25	52.41	74	-21.59	Horizontal
7236.000	9.29	35.45	39.04	47.62	53.32	74	-20.68	Horizontal
9648.000	9.99	36.93	38.06	44.27	53.13	74	-20.87	Horizontal
11521.870	10.40	38.24	38.48	44.19	54.35	74	-19.65	Horizontal

Test mode:	ode: 802.11b		Test ch	annel:	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)	Polarization
3579.190	6.92	32.98	38.78	26.21	27.33	54	-26.67	Vertical
4824.000	6.46	34.72	39.24	35.62	37.56	54	-16.44	Vertical
5964.939	8.03	36.23	39.19	28.61	33.68	54	-20.32	Vertical
7236.000	8.96	35.60	39.06	27.65	33.15	54	-20.85	Vertical
9648.000	9.97	37.45	37.91	23.52	33.03	54	-20.97	Vertical
11471.960	10.38	38.20	38.45	25.02	35.15	54	-18.85	Vertical
3563.687	6.93	32.96	38.77	27.50	28.62	54	-25.38	Horizontal
4822.063	6.46	34.72	39.24	41.00	42.94	54	-11.06	Horizontal
6025.661	8.07	36.27	39.18	28.26	33.42	54	-20.58	Horizontal
7236.000	9.29	35.45	39.04	28.41	34.11	54	-19.89	Horizontal
9648.000	9.99	36.93	38.06	25.61	34.47	54	-19.53	Horizontal
11521.870	10.40	38.24	38.48	25.12	35.28	54	-18.72	Horizontal



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Test mode: 802		2.11b	Test channe		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
3631.354	6.89	33.02	38.80	46.23	47.34	74	-26.66	Vertical
4874.000	6.57	34.77	39.26	53.63	55.71	74	-18.29	Vertical
6016.949	8.08	36.28	39.18	46.81	51.99	74	-22.01	Vertical
7311.000	9.06	35.52	39.06	47.38	52.90	74	-21.10	Vertical
9748.000	9.91	37.76	37.85	43.31	53.13	74	-20.87	Vertical
11455.380	10.38	38.19	38.45	43.21	53.33	74	-20.67	Vertical
3589.562	6.92	32.99	38.78	44.83	45.96	74	-28.04	Horizontal
4874.000	6.57	34.77	39.26	61.01	63.09	74	-10.91	Horizontal
5964.939	8.03	36.23	39.19	46.22	51.29	74	-22.71	Horizontal
7311.000	9.06	35.52	39.06	46.53	52.05	74	-21.95	Horizontal
9748.000	9.91	37.76	37.85	44.01	53.83	74	-20.17	Horizontal
11706.720	10.48	38.41	38.56	43.73	54.06	74	-19.94	Horizontal

Test mode:	802	.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 (dBμV/m)	Over Limit (dB)	Polarization
3631.354	6.89	33.02	38.80	26.88	27.99	54	-26.01	Vertical
4874.000	6.57	34.77	39.26	33.57	35.65	54	-18.35	Vertical
6016.949	8.08	36.28	39.18	27.85	33.03	54	-20.97	Vertical
7311.000	9.06	35.52	39.06	28.21	33.73	54	-20.27	Vertical
9748.000	9.91	37.76	37.85	24.12	33.94	54	-20.06	Vertical
11455.380	10.38	38.19	38.45	24.57	34.69	54	-19.31	Vertical
3589.562	6.92	32.99	38.78	25.12	26.25	54	-27.75	Horizontal
4874.000	6.57	34.77	39.26	39.51	41.59	54	-12.41	Horizontal
5964.939	8.03	36.23	39.19	27.12	32.19	54	-21.81	Horizontal
7311.000	9.06	35.52	39.06	26.98	32.50	54	-21.50	Horizontal
9748.000	9.91	37.76	37.85	25.01	34.83	54	-19.17	Horizontal
11706.720	10.48	38.41	38.56	24.23	34.56	54	-19.44	Horizontal



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Test mode:	Test mode: 802.1		Test ch	annel:	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
3641.878	6.89	33.03	38.80	45.63	46.75	74	-27.25	Vertical
4924.000	6.68	34.82	39.28	54.85	57.07	74	-16.93	Vertical
6025.661	8.07	36.27	39.18	46.44	51.60	74	-22.40	Vertical
7386.000	9.16	35.44	39.05	46.98	52.53	74	-21.47	Vertical
9848.000	9.85	38.06	37.79	42.58	52.70	74	-21.30	Vertical
11323.540	10.35	38.14	38.38	43.48	53.59	74	-20.41	Vertical
3497.281	6.98	32.89	38.74	46.15	47.28	74	-26.72	Horizontal
4924.000	6.68	34.82	39.28	63.01	65.23	74	-8.77	Horizontal
5973.576	8.04	36.25	39.19	45.92	51.02	74	-22.98	Horizontal
7573.387	9.33	35.47	39.03	47.17	52.94	74	-21.06	Horizontal
9504.893	10.05	37.13	38.00	43.33	52.51	74	-21.49	Horizontal
11791.720	10.52	38.49	38.60	43.10	53.51	74	-20.49	Horizontal

Test mode:	802	.11b	Test ch	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
3641.878	6.89	33.03	38.80	26.21	27.33	54	-26.67	Vertical
4924.000	6.68	34.82	39.28	35.27	37.49	54	-16.51	Vertical
6025.661	8.07	36.27	39.18	27.45	32.61	54	-21.39	Vertical
7386.000	9.16	35.44	39.05	28.56	34.11	54	-19.89	Vertical
9848.000	9.85	38.06	37.79	23.54	33.66	54	-20.34	Vertical
11323.540	10.35	38.14	38.38	25.00	35.11	54	-18.89	Vertical
3497.281	6.98	32.89	38.74	27.50	28.63	54	-25.37	Horizontal
4924.000	6.68	34.82	39.28	44.01	46.23	54	-7.77	Horizontal
5973.576	8.04	36.25	39.19	26.21	31.31	54	-22.69	Horizontal
7573.387	9.33	35.47	39.03	28.11	33.88	54	-20.12	Horizontal
9504.893	10.05	37.13	38.00	24.12	33.30	54	-20.70	Horizontal
11791.720	10.52	38.49	38.60	24.13	34.54	54	-19.46	Horizontal



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Test mode:	802	.11g	Test ch	annel:	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	
3610.398	6.90	33.01	38.79	48.79	49.91	74	-24.09	Vertical	
4824.000	6.46	34.72	39.24	54.86	56.80	74	-17.20	Vertical	
6095.816	8.06	36.19	39.17	48.14	53.22	74	-20.78	Vertical	
7236.000	8.96	35.60	39.06	45.68	51.18	74	-22.82	Vertical	
9648.000	9.97	37.45	37.91	43.28	52.79	74	-21.21	Vertical	
11622.330	10.44	38.32	38.52	43.56	53.80	74	-20.20	Vertical	
3447.042	7.07	32.83	38.72	48.39	49.57	74	-24.43	Horizontal	
4824.000	6.46	34.72	39.24	48.85	50.79	74	-23.21	Horizontal	
5564.720	7.39	35.31	39.23	50.27	53.74	74	-20.26	Horizontal	
7236.000	8.96	35.60	39.06	47.35	52.85	74	-21.15	Horizontal	
9648.000	9.97	37.45	37.91	43.60	53.11	74	-20.89	Horizontal	
11160.880	10.32	38.12	38.30	43.70	53.84	74	-20.16	Horizontal	

Test mode:	802	.11g	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
3553.389	6.94	32.95	38.77	47.83	48.95	74	-25.05	Vertical
4874.000	6.57	34.77	39.26	48.51	50.59	74	-23.41	Vertical
6060.637	8.07	36.23	39.18	46.65	51.77	74	-22.23	Vertical
7311.000	9.06	35.52	39.06	45.75	51.27	74	-22.73	Vertical
9748.000	9.91	37.76	37.85	42.50	52.32	74	-21.68	Vertical
11588.750	10.43	38.29	38.51	42.18	52.39	74	-21.61	Vertical
3599.965	6.91	33.00	38.79	48.05	49.17	74	-24.83	Horizontal
4874.000	6.57	34.77	39.26	49.05	51.13	74	-22.87	Horizontal
5982.226	8.05	36.27	39.19	47.38	52.51	74	-21.49	Horizontal
7311.000	9.06	35.52	39.06	46.65	52.17	74	-21.83	Horizontal
9748.000	9.91	37.76	37.85	42.66	52.48	74	-21.52	Horizontal
11096.470	10.30	38.11	38.27	43.08	53.22	74	-20.78	Horizontal



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Test mode:	802	.11g	Test ch	annel:	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
3568.847	6.93	32.97	38.77	46.81	47.94	74	-26.06	Vertical
4924.000	6.68	34.82	39.28	48.33	50.55	74	-23.45	Vertical
6043.124	8.07	36.25	39.18	47.94	53.08	74	-20.92	Vertical
7386.000	9.16	35.44	39.05	48.10	53.65	74	-20.35	Vertical
9848.000	9.85	38.06	37.79	43.81	53.93	74	-20.07	Vertical
11372.800	10.36	38.15	38.41	42.94	53.04	74	-20.96	Vertical
3422.194	7.12	32.81	38.71	47.93	49.15	74	-24.85	Horizontal
4924.000	6.68	34.82	39.28	48.90	51.12	74	-22.88	Horizontal
6025.661	8.07	36.27	39.18	47.12	52.28	74	-21.72	Horizontal
7386.000	9.16	35.44	39.05	48.16	53.71	74	-20.29	Horizontal
9848.000	9.85	38.06	37.79	41.29	51.41	74	-22.59	Horizontal
11706.720	10.48	38.41	38.56	43.09	53.42	74	-20.58	Horizontal

Test mode:	802	2.11n(HT20)	Test ch	annel:	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
3517.580	6.96	32.91	38.75	46.85	47.97	74	-26.03	Vertical
4824.000	6.46	34.72	39.24	46.93	48.87	74	-25.13	Vertical
5956.314	8.01	36.22	39.19	48.81	53.85	74	-20.15	Vertical
7236.000	8.96	35.60	39.06	47.41	52.91	74	-21.09	Vertical
9648.000	9.97	37.45	37.91	44.48	53.99	74	-20.01	Vertical
11555.260	10.41	38.27	38.49	42.17	52.36	74	-21.64	Vertical
3684.279	6.86	33.06	38.82	47.13	48.23	74	-25.77	Horizontal
4824.000	6.46	34.72	39.24	49.14	51.08	74	-22.92	Horizontal
5982.226	8.05	36.27	39.19	48.05	53.18	74	-20.82	Horizontal
7236.000	8.96	35.60	39.06	48.50	54.00	74	-20.00	Horizontal
9648.000	9.97	37.45	37.91	43.92	53.43	74	-20.57	Horizontal
11274.500	10.34	38.13	38.36	43.26	53.37	74	-20.63	Horizontal



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Test mode:	80	2.11n(HT20)	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
3584.372	6.92	32.98	38.78	47.68	48.80	74	-25.20	Vertical
4874.000	6.57	34.77	39.26	48.42	50.50	74	-23.50	Vertical
6025.661	8.07	36.27	39.18	47.85	53.01	74	-20.99	Vertical
7311.000	9.06	35.52	39.06	47.75	53.27	74	-20.73	Vertical
9748.000	9.91	37.76	37.85	42.72	52.54	74	-21.46	Vertical
11505.210	10.39	38.23	38.47	42.85	53.00	74	-21.00	Vertical
3620.861	6.90	33.02	38.79	48.25	49.38	74	-24.62	Horizontal
4874.000	6.57	34.77	39.26	48.19	50.27	74	-23.73	Horizontal
6043.124	8.07	36.25	39.18	47.39	52.53	74	-21.47	Horizontal
7311.000	9.06	35.52	39.06	48.02	53.54	74	-20.46	Horizontal
9748.000	9.91	37.76	37.85	43.06	52.88	74	-21.12	Horizontal
11911.760	10.57	38.61	38.66	42.73	53.25	74	-20.75	Horizontal

Test mode:	802	.11n(HT20)	Test cha	annel:	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
3482.133	7.00	32.87	38.73	48.16	49.30	74	-24.70	Vertical
4924.000	6.68	34.82	39.28	50.98	53.20	74	-20.80	Vertical
6016.949	8.08	36.28	39.18	48.47	53.65	74	-20.35	Vertical
7386.000	9.16	35.44	39.05	45.55	51.10	74	-22.90	Vertical
9848.000	9.85	38.06	37.79	42.81	52.93	74	-21.07	Vertical
11605.530	10.44	38.31	38.52	42.97	53.20	74	-20.80	Vertical
3574.015	6.93	32.97	38.77	47.83	48.96	74	-25.04	Horizontal
4924.000	6.68	34.82	39.28	48.32	50.54	74	-23.46	Horizontal
6025.661	8.07	36.27	39.18	47.58	52.74	74	-21.26	Horizontal
7386.000	9.16	35.44	39.05	46.63	52.18	74	-21.82	Horizontal
9848.000	9.85	38.06	37.79	42.86	52.98	74	-21.02	Horizontal
11209.430	10.33	38.12	38.33	43.31	53.43	74	-20.57	Horizontal



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Test mode:	80	2.11n(HT40)	Test ch	annel:	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
3417.246	7.13	32.80	38.70	49.25	50.48	74	-23.52	Vertical
4844.000	6.51	34.74	39.25	48.60	50.60	74	-23.40	Vertical
5982.226	8.05	36.27	39.19	47.59	52.72	74	-21.28	Vertical
7266.000	9.00	35.57	39.06	45.78	51.29	74	-22.71	Vertical
9688.000	9.94	37.57	37.88	43.16	52.79	74	-21.21	Vertical
11290.820	10.34	38.13	38.37	43.07	53.17	74	-20.83	Vertical
3447.042	7.07	32.83	38.72	48.39	49.57	74	-24.43	Horizontal
4844.000	6.51	34.74	39.25	48.86	50.86	74	-23.14	Horizontal
6016.949	8.08	36.28	39.18	47.26	52.44	74	-21.56	Horizontal
7266.000	9.00	35.57	39.06	46.34	51.85	74	-22.15	Horizontal
9688.000	9.94	37.57	37.88	42.48	52.11	74	-21.89	Horizontal
11160.880	10.32	38.12	38.30	42.70	52.84	74	-21.16	Horizontal

Test mode:	80	2.11n(HT40)	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
3387.708	7.18	32.75	38.69	48.52	49.76	74	-24.24	Vertical
4874.000	6.57	34.77	39.26	49.11	51.19	74	-22.81	Vertical
6087.002	8.06	36.20	39.17	47.70	52.79	74	-21.21	Vertical
7311.000	9.06	35.52	39.06	46.18	51.70	74	-22.30	Vertical
9748.000	9.91	37.76	37.85	42.51	52.33	74	-21.67	Vertical
11689.790	10.47	38.39	38.56	43.45	53.75	74	-20.25	Vertical
3457.032	7.05	32.84	38.72	48.84	50.01	74	-23.99	Horizontal
4874.000	6.57	34.77	39.26	48.79	50.87	74	-23.13	Horizontal
5930.516	7.97	36.17	39.19	47.80	52.75	74	-21.25	Horizontal
7311.000	9.06	35.52	39.06	46.65	52.17	74	-21.83	Horizontal
9748.000	9.91	37.76	37.85	42.21	52.03	74	-21.97	Horizontal
11656.010	10.46	38.36	38.54	42.91	53.19	74	-20.81	Horizontal



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Test mode:	802	2.11n(HT40)	Test ch	annel:	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
3610.398	6.90	33.01	38.79	48.61	49.73	74	-24.27	Vertical
4904.000	6.64	34.81	39.27	49.31	51.49	74	-22.51	Vertical
6034.386	8.07	36.26	39.18	46.97	52.12	74	-21.88	Vertical
7356.000	9.12	35.47	39.05	45.69	51.23	74	-22.77	Vertical
9808.000	9.88	37.94	37.81	42.47	52.48	74	-21.52	Vertical
11656.010	10.46	38.36	38.54	43.27	53.55	74	-20.45	Vertical
3477.098	7.01	32.87	38.73	48.42	49.57	74	-24.43	Horizontal
4904.000	6.64	34.81	39.27	48.94	51.12	74	-22.88	Horizontal
6016.949	8.08	36.28	39.18	48.37	53.55	74	-20.45	Horizontal
7356.000	9.12	35.47	39.05	47.19	52.73	74	-21.27	Horizontal
9808.000	9.88	37.94	37.81	43.49	53.50	74	-20.50	Horizontal
11290.820	10.34	38.13	38.37	43.15	53.25	74	-20.75	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.

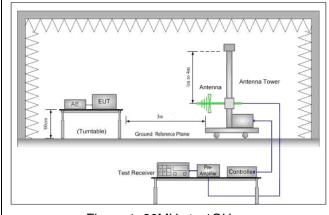


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6.9 Restricted bands around fundamental frequency

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



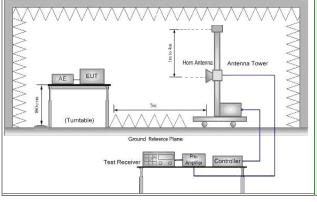


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz





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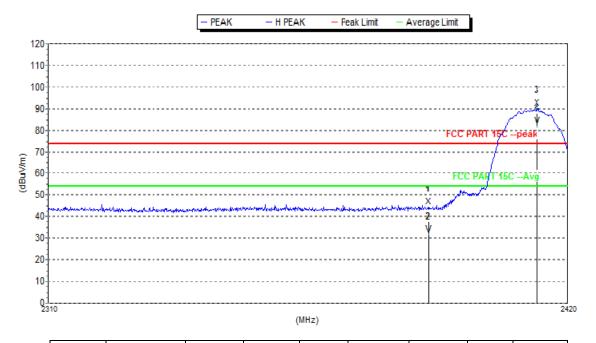
Test Procedure:	a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
	 The EUT was set 3 meters away from the interference-receiving antenna, which was 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, Charge + Transmitting mode.
Final Test Mode:	Pretest the EUT at Transmitting mode and Charge +Transmitting mode, found the 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:

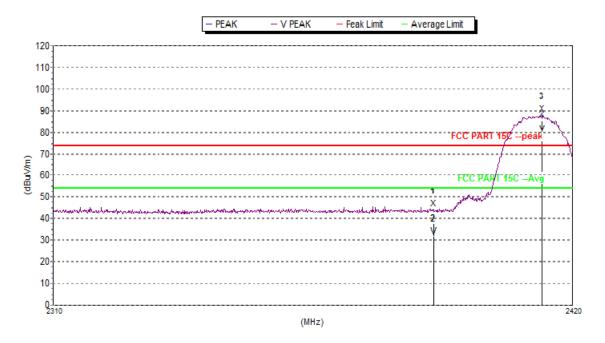


	Mk.	Freq.(MHz)	Level(dB uV/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Ī	Peak:								
	1	2390	44.7	74.0	29.3	32.5	0.0	-20.8	Н
	2 F	2413.510	90.2	74.0	-16.2	32.6	0.0	-21.2	Н
	Avg								
	1	2390	31.7	54.0	22.3	32.5	0.0	-20.8	Н
	2 F	2413.510	81.9	54.0	-27.9	32.6	0.0	-21.2	Н



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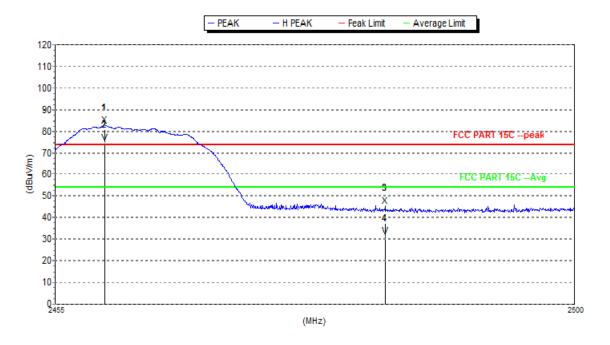


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dBu V/m)	Margin(dB)	Ant.F.(dB/ m)	Amp.G.(dB)	Cbl.L .(dB)	Pol.
Peak:								
1	2390	44.4	74.0	29.6	32.5	0.0	-20.8	V
2 F	2413.400	88.1	74.0	-14.1	32.6	0.0	-21.2	V
Avg								
1	2390	31.6	54.0	22.4	32.5	0.0	-20.8	V
2 F	2413.400	79.0	54.0	-25.0	32.6	0.0	-21.2	V



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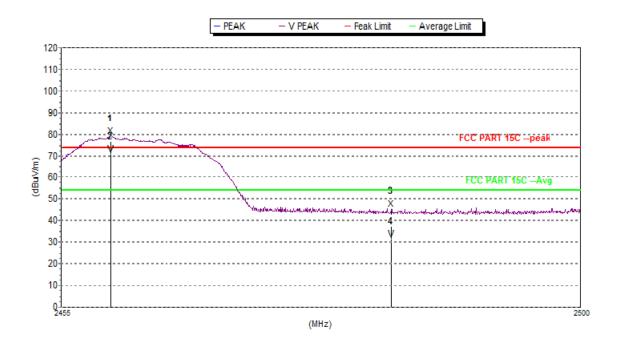


Mk.	Freq.(MH z)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1 F	2459.320	82.7	74.0	-8.7	32.5	0.0	-20.7	Н
2	2483.5	45.3	74.0	28.7	32.5	0.0	-20.5	Н
Avg								
1 F	2459.320	74.5	54.0	-20.5	32.5	0.0	-20.7	Н
2	2483.5	31.2	54.0	22.8	32.5	0.0	-20.5	Н



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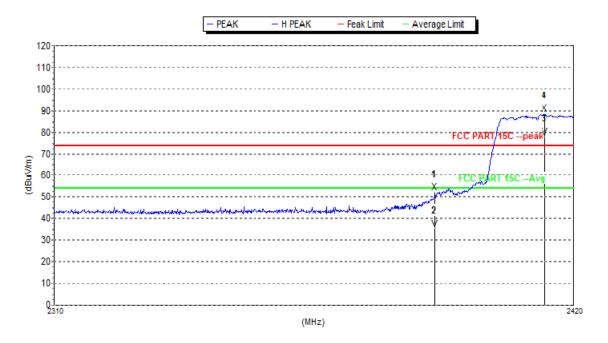


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(d B)	Cbl.L.(dB)	Pol.
Peak:								
1 F	2459.320	79.1	74.0	-5.1	32.5	0.0	-20.7	V
2	2483.5	45.2	74.0	28.8	32.5	0.0	-20.5	V
Avg								
1 F	2459.320	70.8	54.0	-16.8	32.5	0.0	-20.7	V
2	2483.5	31.4	54.0	22.6	32.5	0.0	-20.5	V



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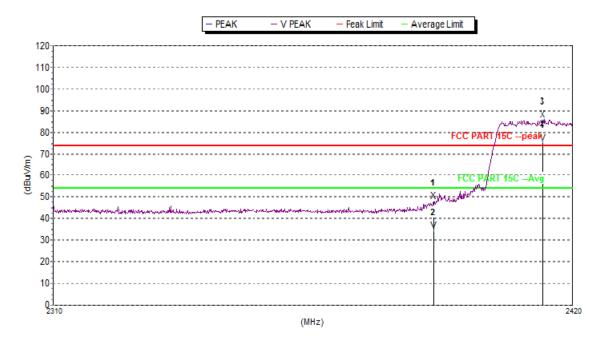


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	52.3	74.0	21.7	32.5	0.0	-20.8	Н
2 F	2413.730	88.5	74.0	-14.5	32.6	0.0	-21.2	Н
Avg								
1	2390	35.4	54.0	18.6	32.5	0.0	-20.8	Н
2 F	2413.730	77.7	54.0	-23.7	32.6	0.0	-21.2	Н



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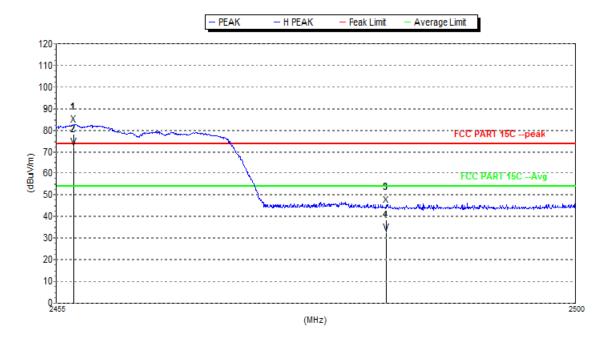


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	48.0	74.0	26.0	32.5	0.0	-20.8	V
2 F	2413.620	85.7	74.0	-11.7	32.6	0.0	-21.2	V
Avg								
1	2390	34.7	54.0	19.3	32.5	0.0	-20.8	V
2 F	2413.620	75.2	54.0	-21.2	32.6	0.0	-21.2	V



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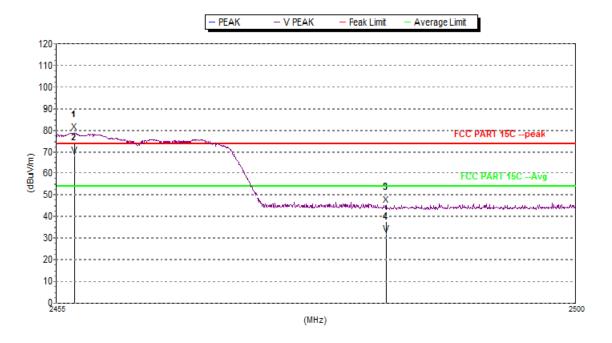


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1 F	2456.575	82.8	74.0	-8.8	32.5	0.0	-20.8	Н
2	2483.5	45.5	74.0	28.5	32.5	0.0	-20.8	Н
Avg								
1 F	2456.575	72.4	54.0	-18.4	32.5	0.0	-20.8	
2	2483.5	32.4	54.0	21.6	32.5	0.0	-20.5	Н



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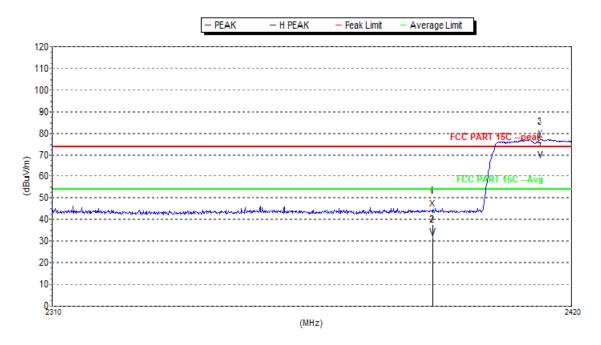


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1 F	2456.620	78.9	74.0	-4.9	32.5	0.0	-20.8	V
2	2483.5	45.3	74.0	28.7	32.5	0.0	-20.5	V
Avg								
1 F	2456.620	68.4	54.0	-14.4	32.5	0.0	-20.8	V
2	2483.5	31.7	54.0	22.3	32.5	0.0	-20.5	V



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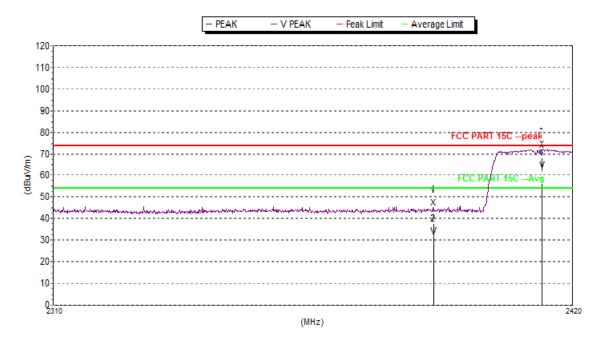
Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	45.0	74.0	29.0	32.5	0.0	-20.8	Н
2 F	2413.290	77.2	74.0	-3.2	32.6	0.0	-21.2	Н
Avg								
1	2390	31.8	54.0	22.2	32.5	0.0	-20.8	Н
2 F	2413.290	67.6	54.0	-13.6	32.6	0.0	-21.2	Н





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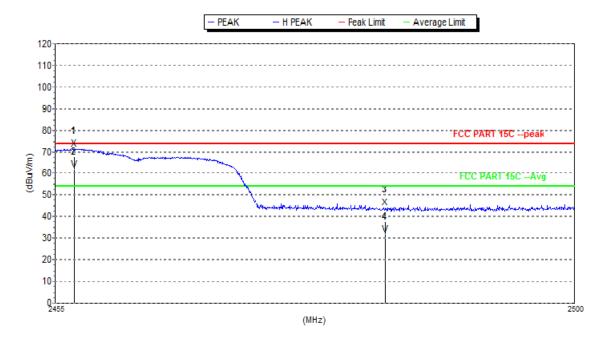


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	44.9	74.0	29.1	32.5	0.0	-20.8	V
2	2413.510	71.9	74.0	2.1	32.6	0.0	-21.2	V
Avg								
1	2390	31.6	54.0	22.4	32.5	0.0	-20.8	V
2 F	2413.510	62.1	54.0	-8.1	32.6	0.0	-21.2	V



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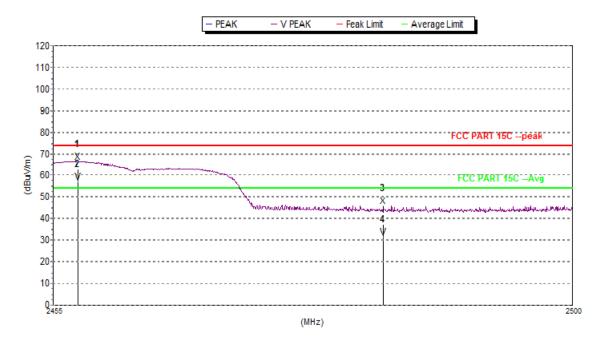


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2456.710	71.3	74.0	2.7	32.5	0.0	-20.8	Н
2	2483.5	44.1	74.0	29.9	32.5	0.0	-20.5	Н
Avg								
1 F	2456.710	61.8	54.0	-7.8	32.5	0.0	-20.8	Н
2	2483.5	31.8	54.0	22.2	32.5	0.0	-20.5	Н



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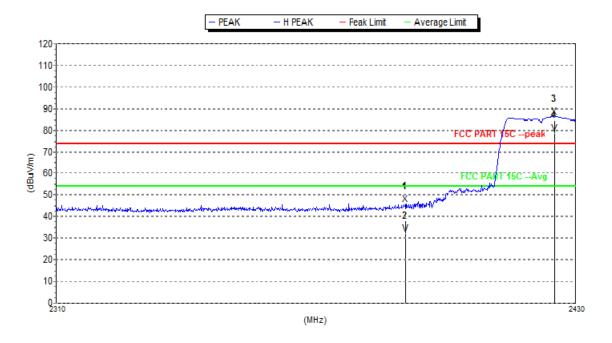


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2457.205	66.4	74.0	7.6	32.5	0.0	-20.8	V
2	2483.5	45.6	74.0	28.4	32.5	0.0	-20.5	V
Avg								
1 F	2457.205	56.8	54.0	-2.8	32.5	0.0	-20.8	V
2	2483.5	31.4	54.0	22.6	32.5	0.0	-20.5	V



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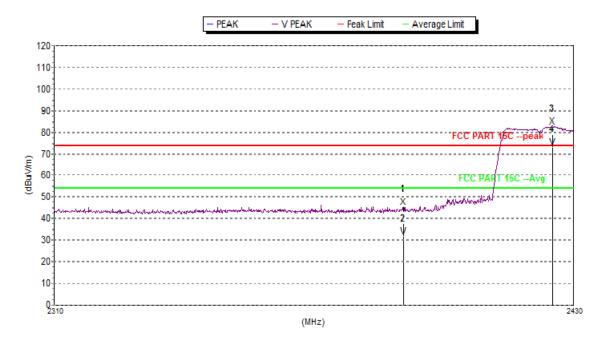


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	45.6	74.0	28.4	32.5	0.0	-20.8	Н
2 F	2425.200	86.4	74.0	-12.4	32.5	0.0	-21.4	Н
Avg								
1	2390	32.2	54.0	21.8	32.5	0.0	-20.8	Н
2 F	2425.200	78.7	54.0	-24.7	32.5	0.0	-21.4	Н



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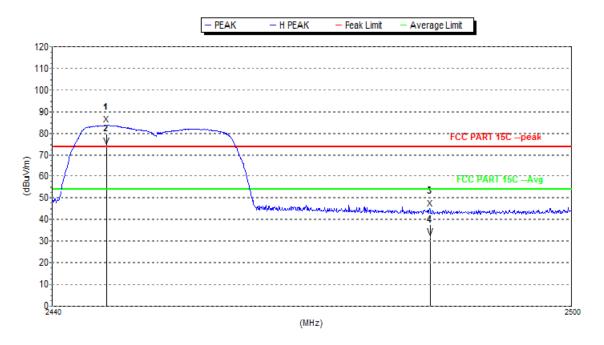


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1	2390	45.2	74.0	28.8	32.5	0.0	-20.8	V
2 F	2425.080	82.6	74.0	-8.6	32.5	0.0	-21.4	V
Avg								
1	2390	31.8	54.0	22.2	32.5	0.0	-20.8	V
2 F	2425.080	73.2	54.0	-19.2	32.5	0.0	-21.4	V



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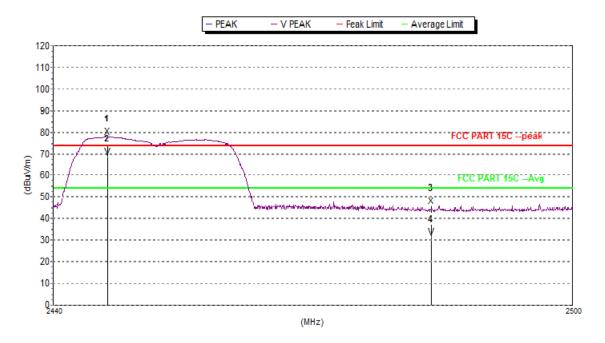


Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1 F	2446.300	83.8	74.0	-9.8	32.5	0.0	-21.0	Н
2	2483.5	45.1	74.0	28.9	32.5	0.0	-20.5	Н
Avg								
1 F	2446.300	73.8	54.0	-19.8	32.5	0.0	-21.0	Н
2	2483.5	31.8	54.0	22.2	32.5	0.0	-20.5	Н



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Mk.	Freq.(MHz)	Level(dBu V/m)	Limit(dB uV/m)	Margin (dB)	Ant.F.(dB /m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak:								
1 F	2446.300	78.0	74.0	-4.0	32.5	0.0	-21.0	V
2	2483.5	45.6	74.0	28.4	32.5	0.0	-20.5	V
Avg								
1 F	2446.300	68.6	54.0	-14.6	32.5	0.0	-21.0	V
2	2483.5	31.3	54.0	22.7	32.5	0.0	-20.5	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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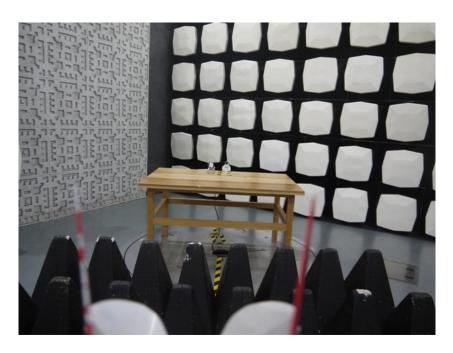
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7 Photographs - EUT Test Setup

Test model No.:BW-MiNi

7.1 Radiated Spurious Emission







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7.2 Conducted Emission



8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1505002404CR.