Report No: CCIS12110022801

FCC REPORT

Applicant:	OGEMRAY TECHNOLOGY (HK) CO.,LIMITED
Address of Applicant:	FLAT/RM 1202 12/F TUNG CHUN COMM CENTRE 438-444 SHANGHA ST KL
Equipment Under Test (EUT)	
Product Name:	USB Wireless Module
Model No.:	GWF-3M08
FCC ID:	QR4WF5370M08
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247:2011
Date of sample receipt:	02 Nov., 2012
Date of Test:	04 Nov. to 06 Nov., 2012
Date of report issued:	08 Nov., 2012
Test Result :	PASS *

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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2 Version

Version No.	Date	Description
00	08 Nov., 2012	*Original*

Prepared By: ***Date:*** 08 Nov., 2012

Project Engineer

Check By: ***Date:*** 08 Nov., 2012

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	OGEMRAY TECHNOLOGY (HK) CO.,LIMITED
Address of Applicant:	FLAT/RM 1202 12/F TUNG CHUN COMM CENTRE 438-444 SHANGHA ST KL
Manufacturer:	OGEMRAY TECHNOLOGY (HK) CO.,LIMITED
Address of Manufacturer:	FLAT/RM 1202 12/F TUNG CHUN COMM CENTRE 438-444 SHANGHA ST KL
Factory:	OGEMRAY TECHNOLOGY (HK) CO.,LIMITED
Address of Factory:	FLAT/RM 1202 12/F TUNG CHUN COMM CENTRE 438-444 SHANGHA ST KL

5.2 General Description of E.U.T.

Product Name:	USB Wireless Module
Model No.:	GWF-3M08
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))
Channel numbers:	11 for 802.11b/802.11g/802.11n(H20) 7 for 802.11n(H40)
Channel separation:	5MHz
Modulation technology: (IEEE 802.11b)	CCK/BPSK/QPSK
Modulation technology: (IEEE 802.11g/802.11n)	64QAM/16QAM/BPSK/QPSK
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps
Data speed (IEEE 802.11n):	Up to 150Mbps
Antenna Type:	PCB Antenna
Antenna gain:	-3 dBi
Power supply:	DC 5V or 3.3V

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

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:

802.11b/802.11g/802.11n (H20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

802.11n (H40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Operation mode	Keep the EUT in transmitting with modulation.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(H20)	6.5Mbps
802.11n(H40)	13.5Mbps

Final Test Mode:

According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup” 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20) and 13.5 Mbps for 802.11n(H40).

5.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC —Registration No.:** 817957

China Certification & Inspection 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 out files. Registration 817957, February 27, 2012

- **Industry Canada (IC)**

The 3m Semi-anechoic chamber of China Certification & Inspection Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

5.4 Test Location

All tests were performed at:

China Certification & Inspection Services Co., Ltd.
Address: 1st Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China
Tel: 0755-23118282
Fax: 0755-23116366

5.5 Other Information Requested by the Customer

None.

5.6 Test Instruments list

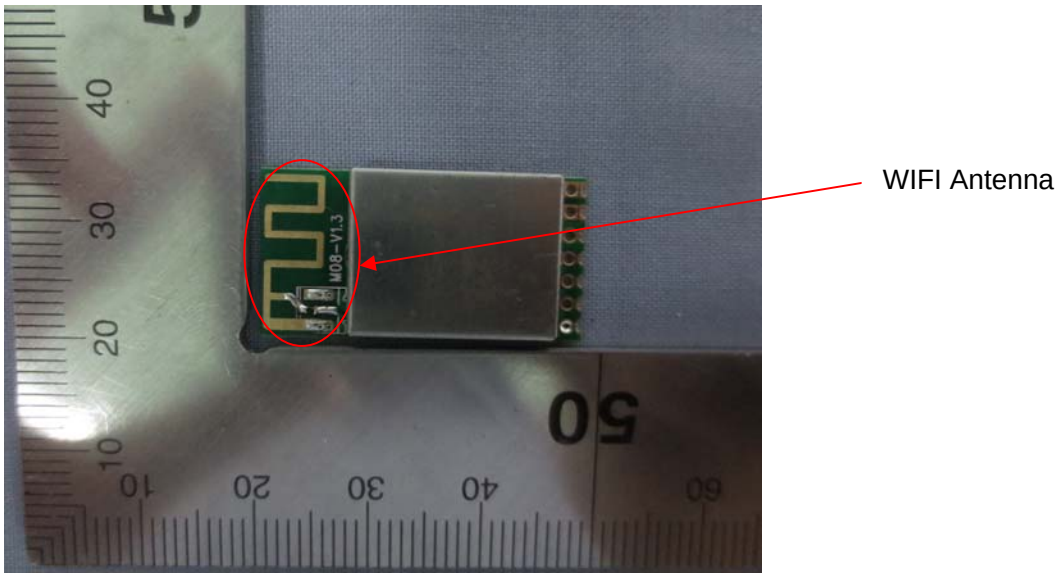
Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	June 09 2012	June 08 2013
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	CCIS0002	N/A	N/A
3	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	June 04 2012	June 03 2013
4	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 30 2012	May 29 2013
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
6	Coaxial Cable	CCIS	N/A	CCIS0016	Apr. 01 2012	Mar. 31 2013
7	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2012	Mar. 31 2013
8	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2012	Mar. 31 2013
9	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2012	Mar. 31 2013
10	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2012	Mar. 31 2013
11	Amplifier(10kHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2012	Mar. 31 2013
12	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2012	June 08 2013
13	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Apr. 01 2012	Mar. 31 2013
14	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2012	Mar. 29 2013
15	Printer	HP	HP LaserJet P1007	N/A	N/A	N/A
16	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A
17	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	May. 29 2012	May. 28 2013
18	Loop antenna	Laplace instrument	RF300	EMC0701	Aug. 12 2012	Aug. 11 2013
19	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	May 25 2012	May 24 2013

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal. Due date (dd-mm-yy)**
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	June 09 2012	June 08 2013
2	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2012	Mar. 31 2013
3	LISN	CHASE	MN2050D	CCIS0074	Apr 01 2012	Mar. 31 2013
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2012	Mar. 31 2013
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

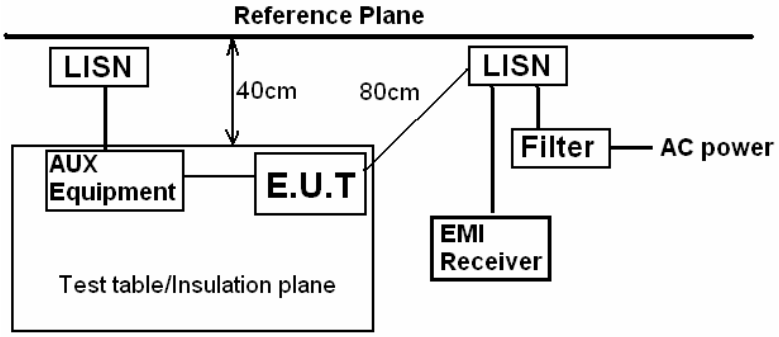
6 Test results and Measurement Data

6.1 Antenna requirement:

Standard requirement:	FCC Part15 C 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(c) (1)(i) requirement:* *(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.*	
E.U.T Antenna:	
The antenna port is a PCB antenna; the best case gain of the antenna is -3 dBi*.*	

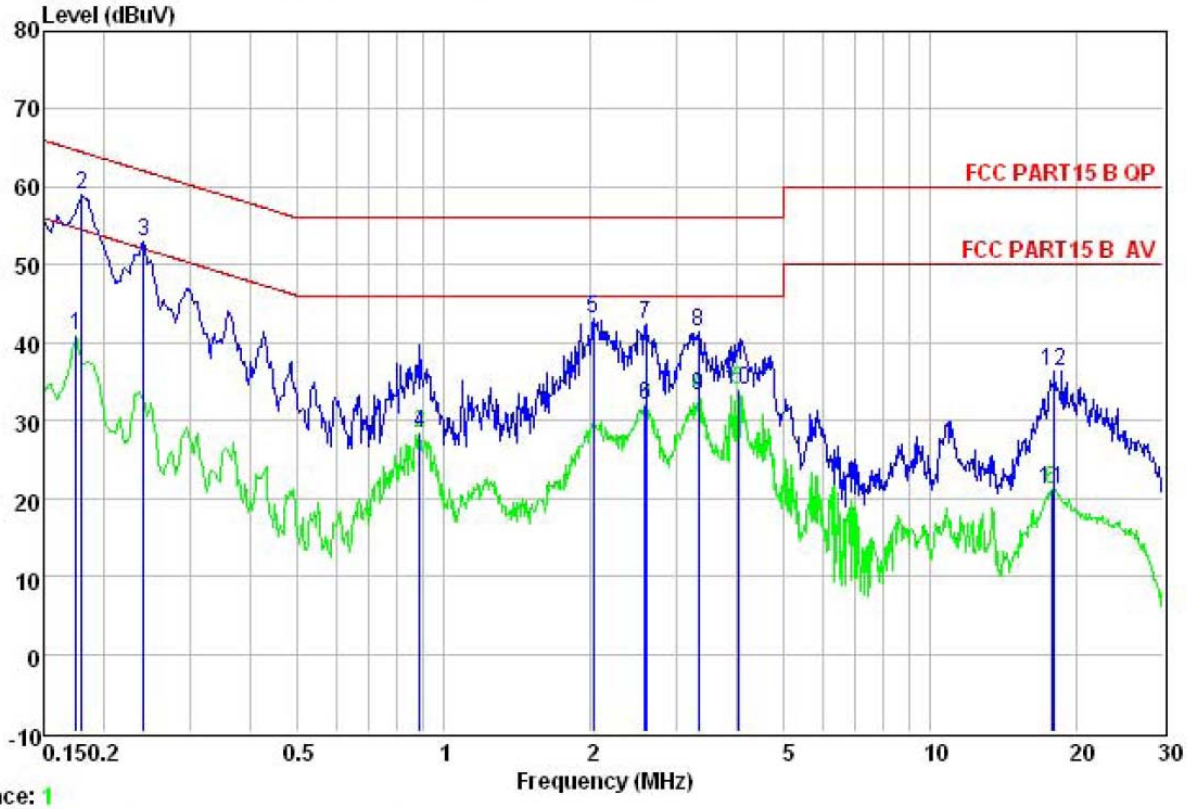


6.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.4: 2003
Test Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9kHz, VBW=30kHz
Limit:	Frequency range (MHz) / Limit (dBuV): 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 of the frequency.
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Line:

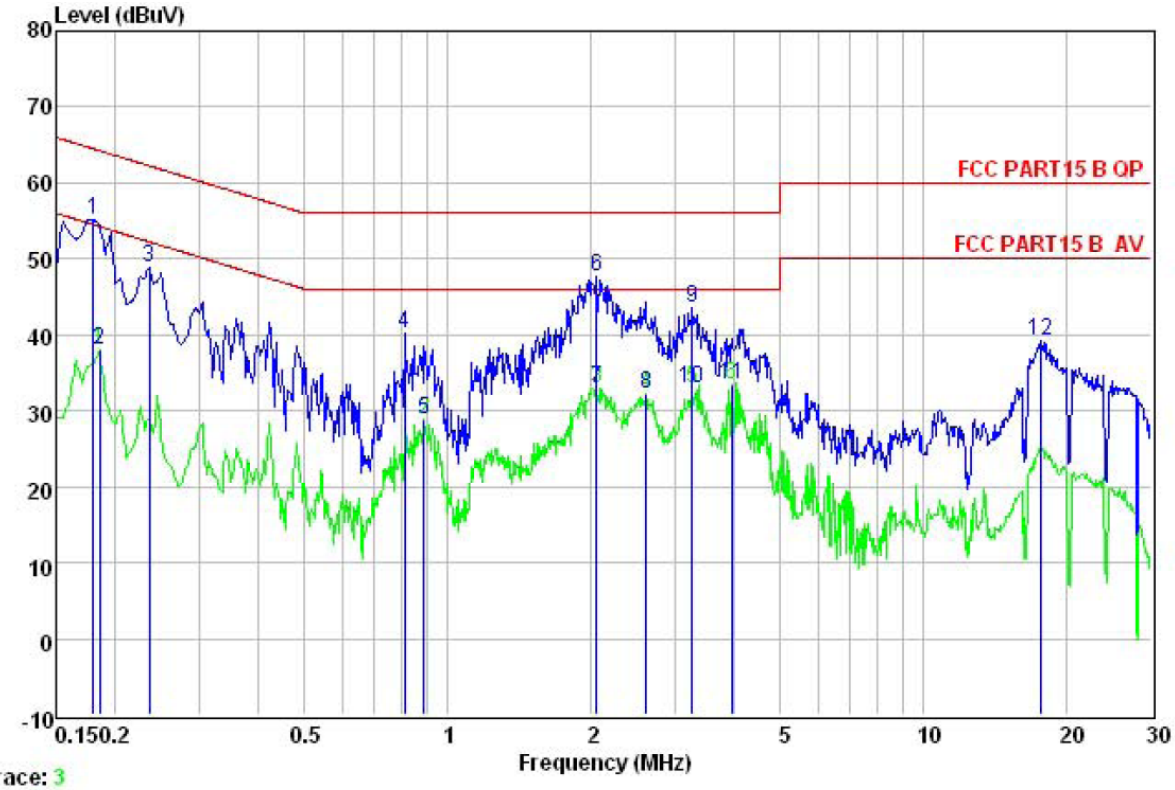


Trace: 1

Site : CCIS Conducted Test Site
Condition : FCC PART15 B QP LISN LINE
Job NO. : 228RF
Test Mode : wifi mode
Test engieer: Joe

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.175	30.02	10.23	0.77	41.02	54.72	-13.70	Average
2	0.180	47.90	10.22	0.77	58.89	64.50	-5.61	QP
3	0.240	41.97	10.23	0.75	52.95	62.08	-9.13	QP
4	0.890	17.36	10.20	0.84	28.40	46.00	-17.60	Average
5	2.023	31.91	10.28	0.96	43.15	56.00	-12.85	QP
6	2.581	20.69	10.28	0.94	31.91	46.00	-14.09	Average
7	2.594	31.04	10.28	0.94	42.26	56.00	-13.74	QP
8	3.328	30.28	10.29	0.90	41.47	56.00	-14.53	QP
9	3.328	21.94	10.29	0.90	33.13	46.00	-12.87	Average
10	4.006	22.78	10.29	0.89	33.96	46.00	-12.04	Average
11	17.755	9.94	10.29	0.92	21.15	50.00	-28.85	Average
12	17.944	25.20	10.29	0.92	36.41	60.00	-23.59	QP

Neutral:



Trace: 3

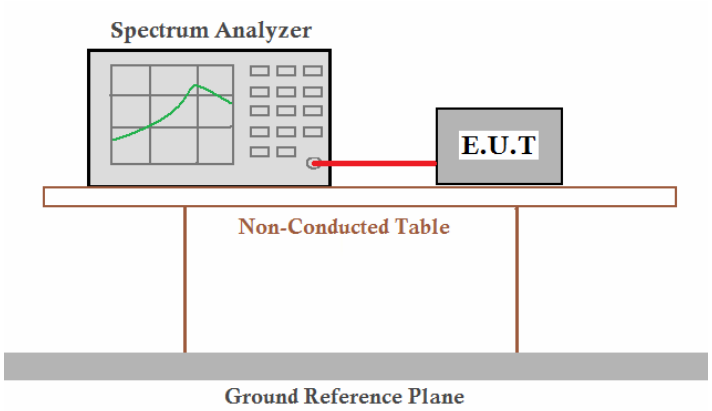
Site : CCIS Conducted Test Site
Condition : FCC PART15 B QP LISN NEUTRAL
Job NO. : 228RF
Test Mode : wifi mode
Test engieer: Joe

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.180	44.26	10.24	0.77	55.27	64.50	-9.23	QP
2	0.185	26.97	10.24	0.77	37.98	54.24	-16.26	Average
3	0.235	37.98	10.23	0.75	48.96	62.26	-13.30	QP
4	0.809	29.12	10.18	0.81	40.11	56.00	-15.89	QP
5	0.890	17.90	10.19	0.84	28.93	46.00	-17.07	Average
6	2.055	36.33	10.27	0.96	47.56	56.00	-8.44	QP
7	2.055	21.84	10.27	0.96	33.07	46.00	-12.93	Average
8	2.608	21.08	10.27	0.94	32.29	46.00	-13.71	Average
9	3.258	32.40	10.28	0.90	43.58	56.00	-12.42	QP
10	3.258	21.69	10.28	0.90	32.87	46.00	-13.13	Average
11	3.943	22.33	10.28	0.89	33.50	46.00	-12.50	Average
12	17.661	27.93	10.29	0.92	39.14	60.00	-20.86	QP

Notes:

1. An initial pre-scan was performed on the live and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss

6.3 Conducted Peak Output Power

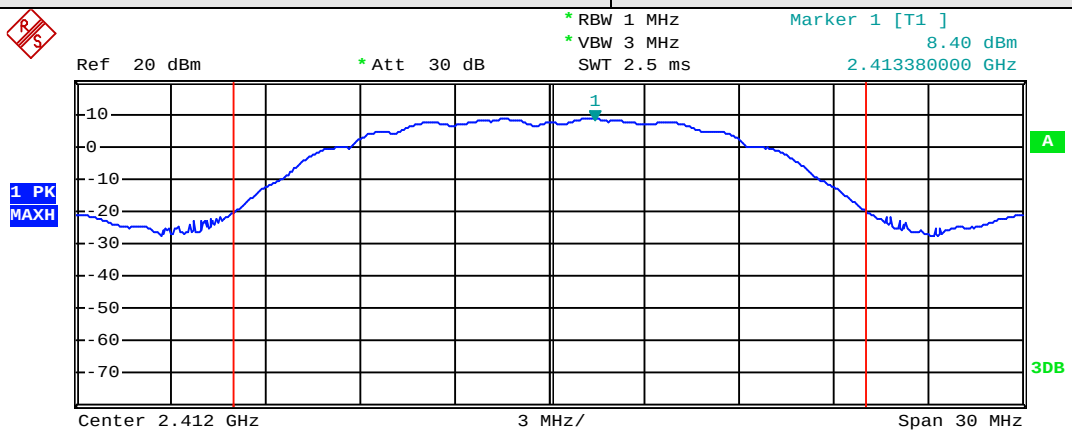
Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Test CH	Average Output Power (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	17.11	14.63	12.54	12.46	30.00	Pass
Middle	17.38	14.76	12.48	12.32		
Highest	17.43	14.83	12.58	12.38		

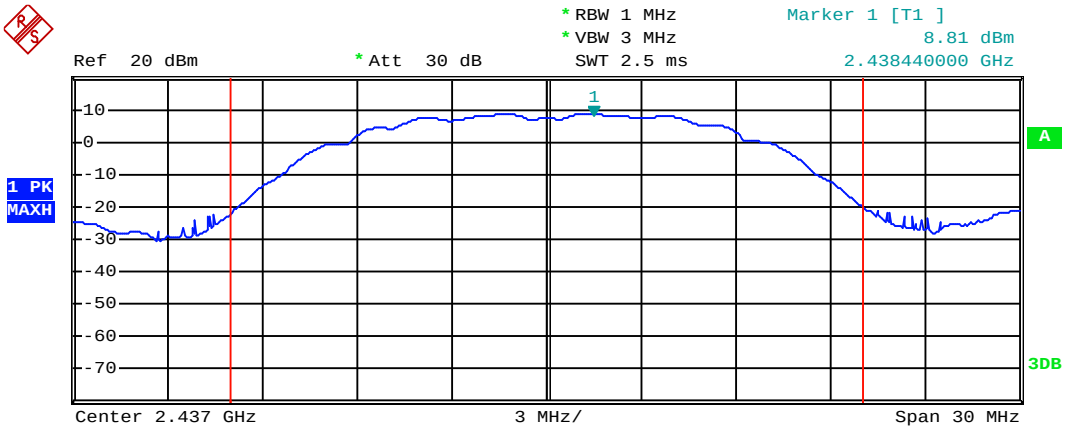
Test plot as follows:

Test mode:	802.11b



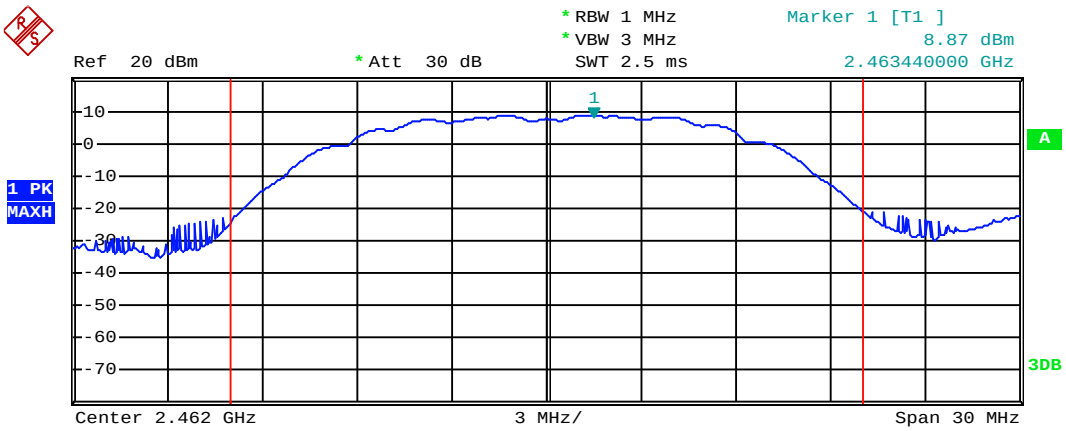
Tx Channel
Bandwidth 20 MHz Power 17.11 dBm

Lowest channel



Tx Channel
Bandwidth 20 MHz Power 17.38 dBm

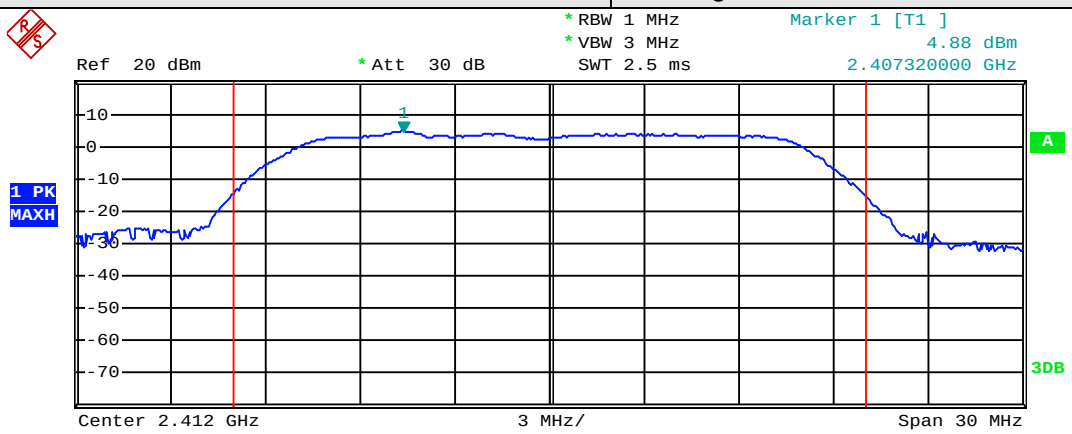
Middle channel



Tx Channel
Bandwidth 20 MHz Power 17.43 dBm

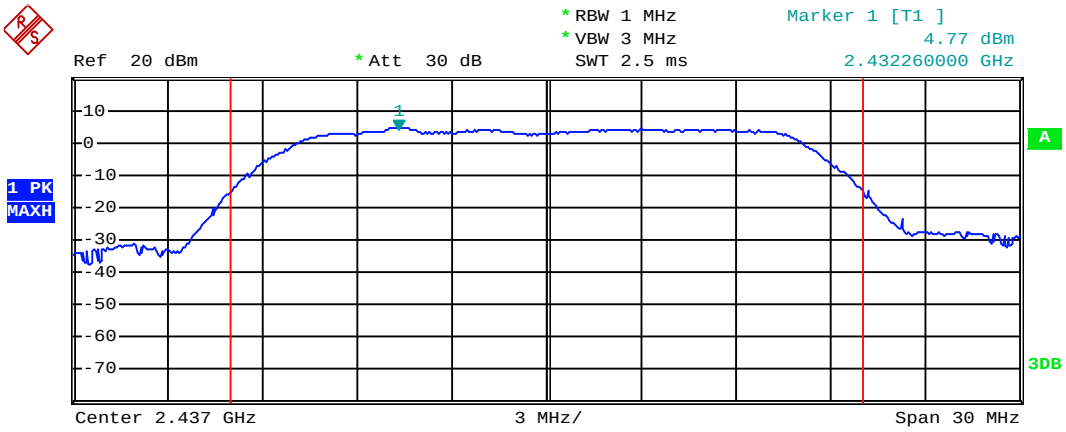
Highest channel

Test mode:	802.11g



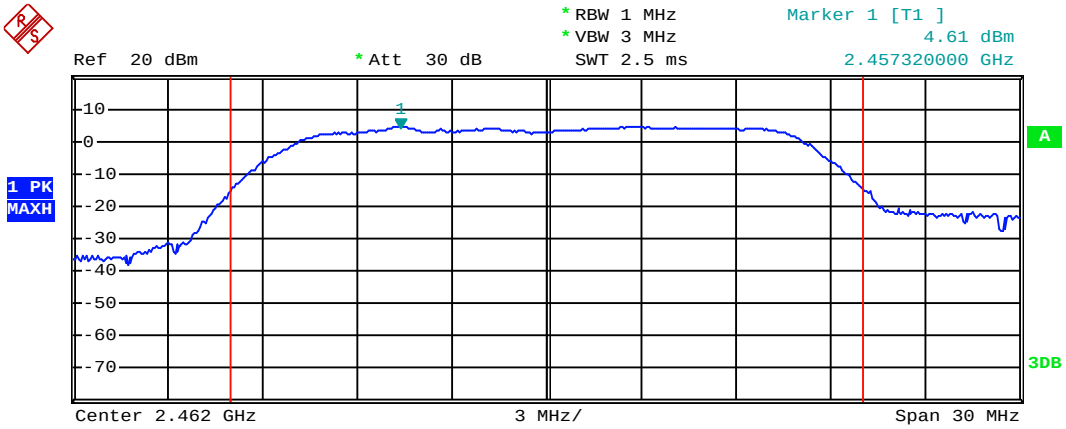
Tx Channel
Bandwidth 20 MHz Power 14.63 dBm

Lowest channel



Tx Channel
Bandwidth 20 MHz Power 14.76 dBm

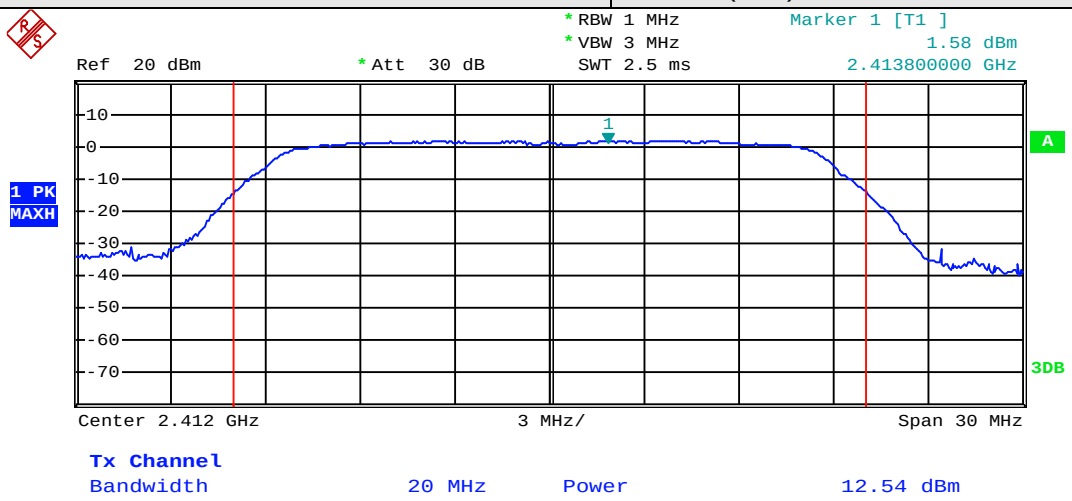
Middle channel



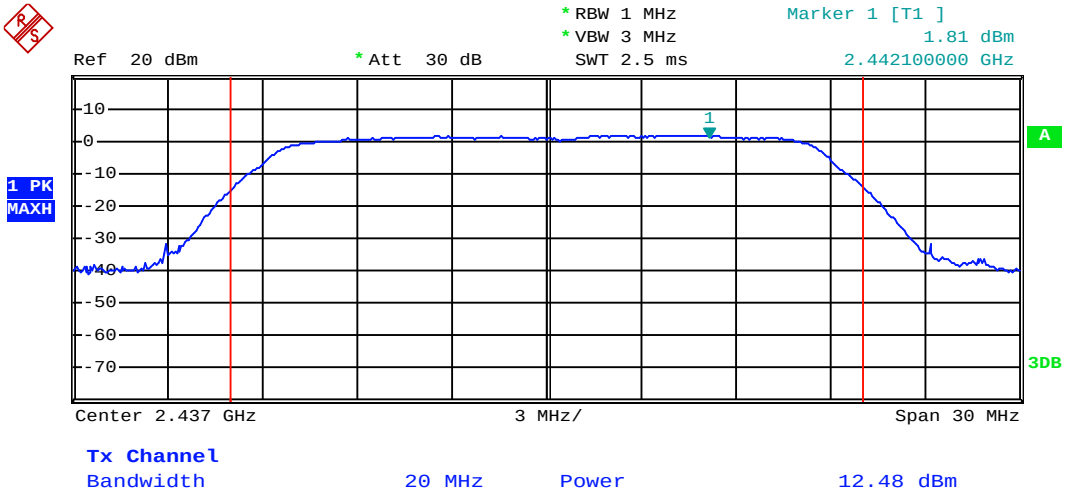
Tx Channel
Bandwidth 20 MHz Power 14.83 dBm

Highest channel

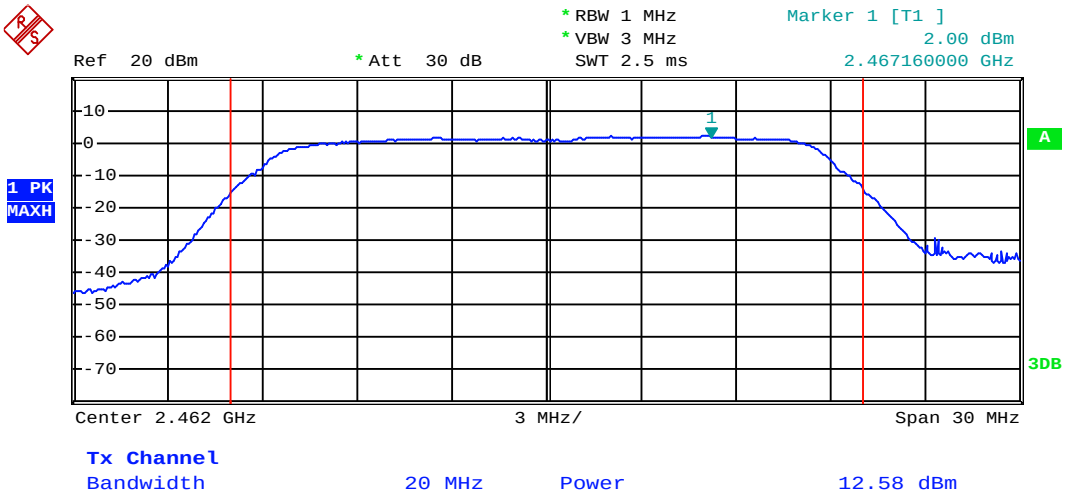
Test mode:	802.11n(H20)



Lowest channel

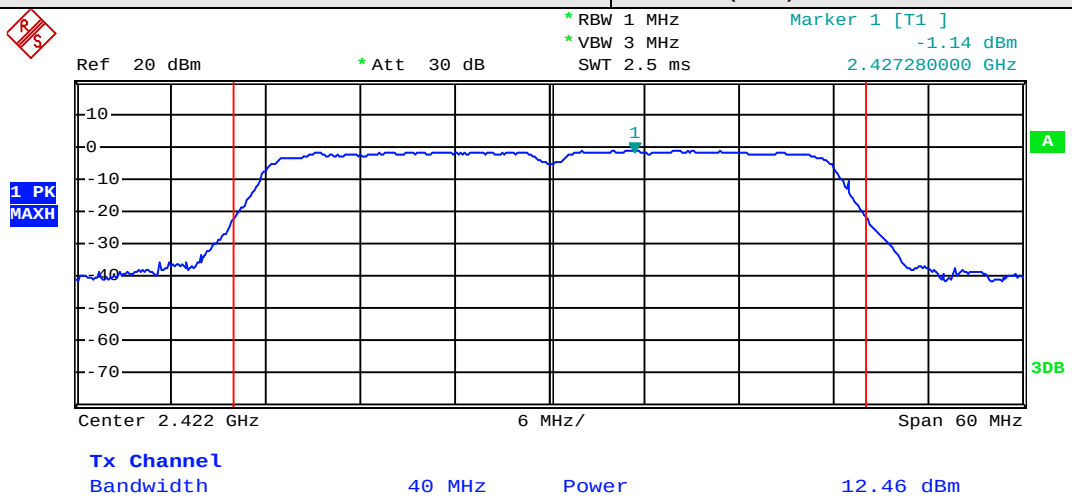


Middle channel

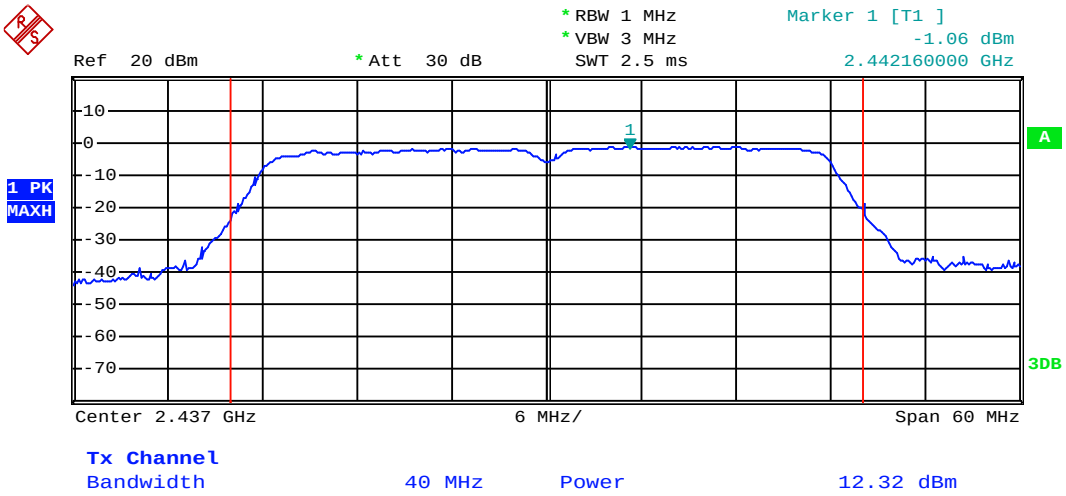


Highest channel

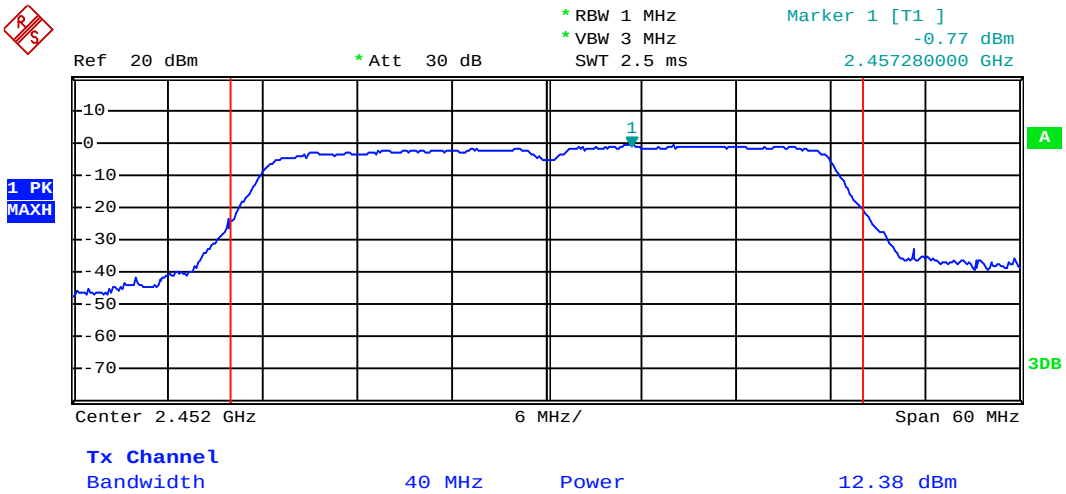
Test mode:	802.11n(H40)



Lowest channel

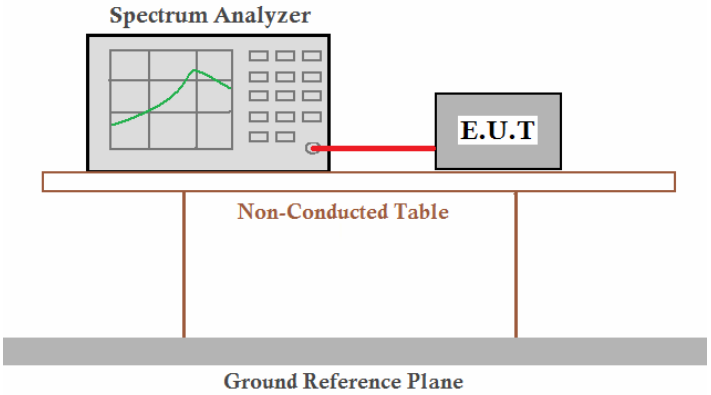


Middle channel



Highest channel

6.4 6dB Occupy Bandwidth

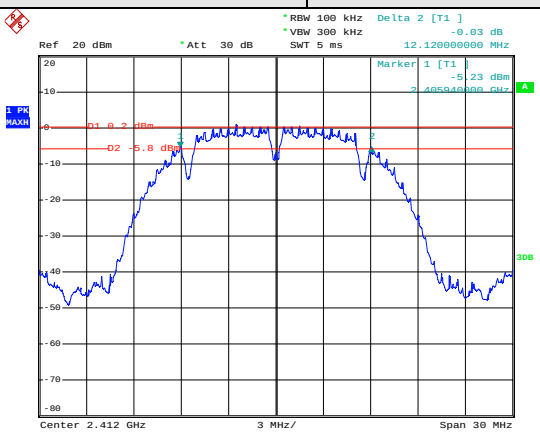
Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	>500kHz
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

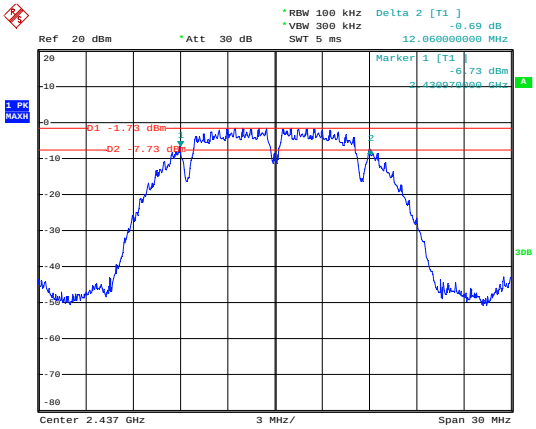
Test CH	6dB Occupy Bandwidth (MHz)				Limit(kHz)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	12.12	16.32	17.04	35.40	>500	Pass
Middle	12.06	16.32	17.04	35.40		
Highest	12.12	16.26	17.04	35.40		

Test plot as follows:

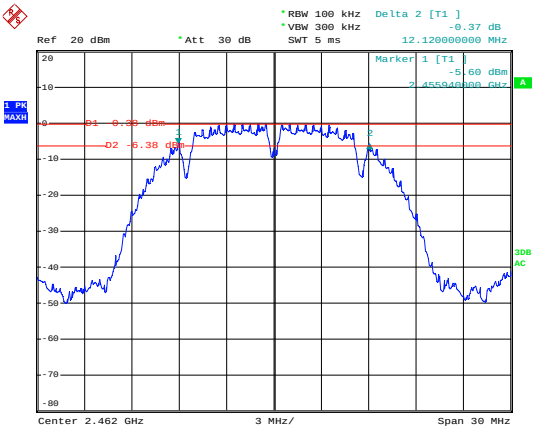
Test mode:	802.11b



Lowest channel

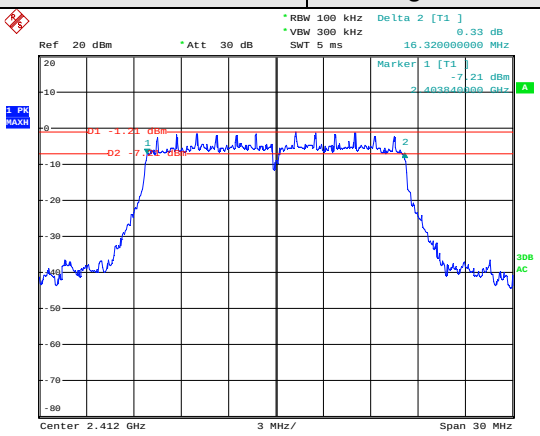


Middle channel

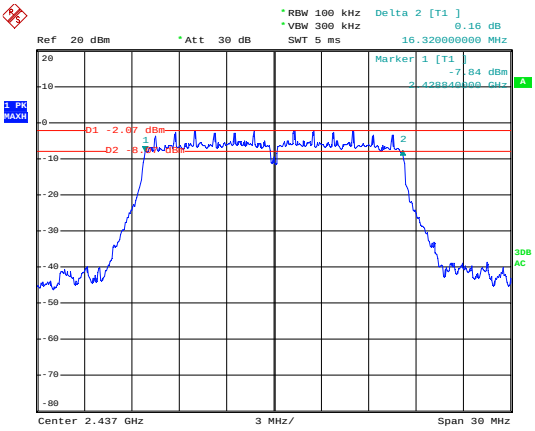


Highest channel

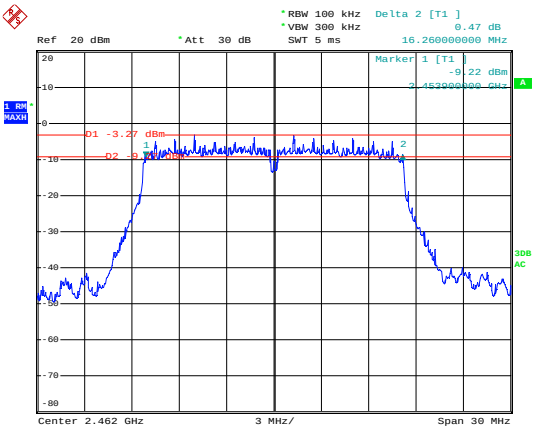
Test mode:	802.11g



Lowest channel

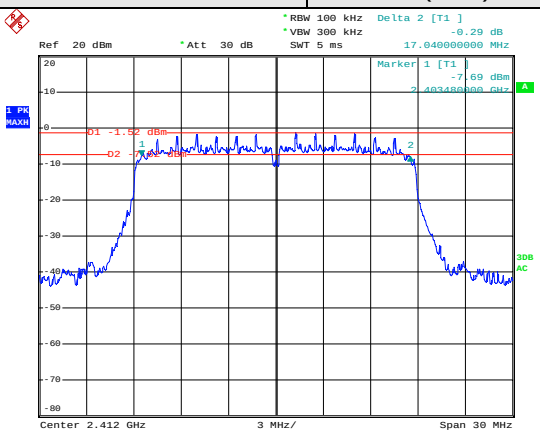


Middle channel

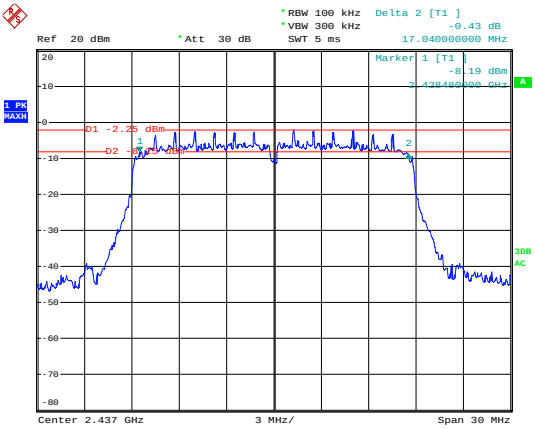


Highest channel

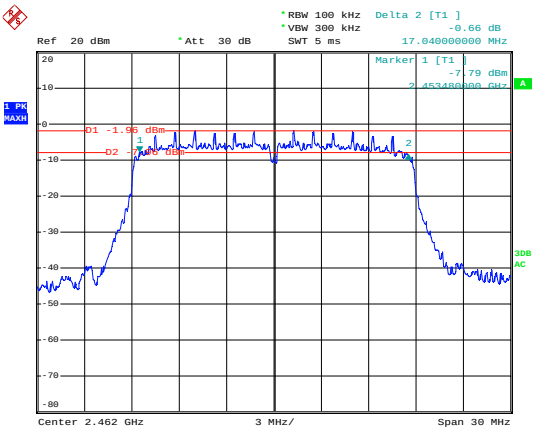
Test mode:	802.11n(H20)



Lowest channel

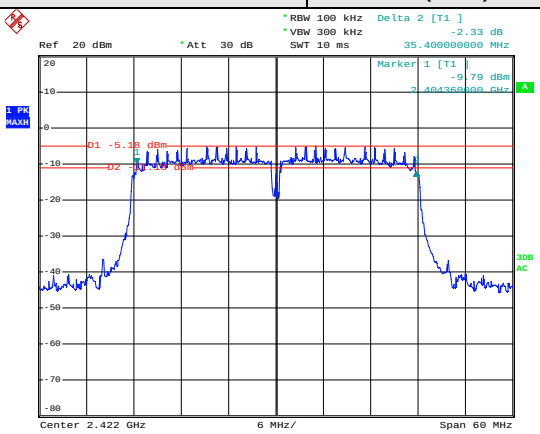


Middle channel

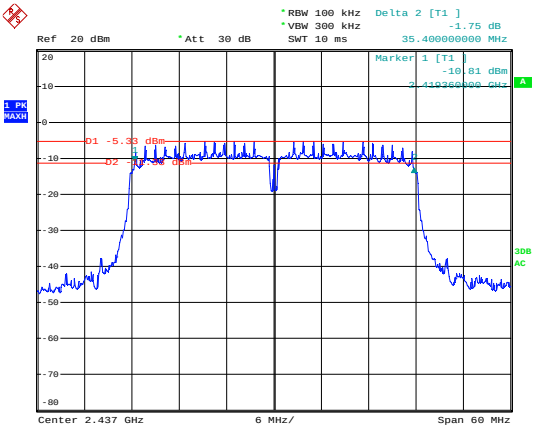


Highest channel

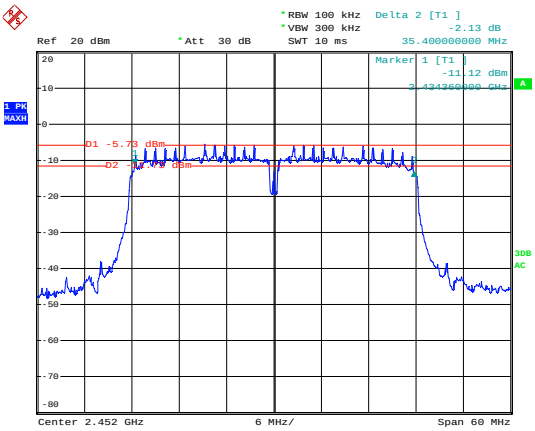
Test mode:	802.11n(H40)



Lowest channel

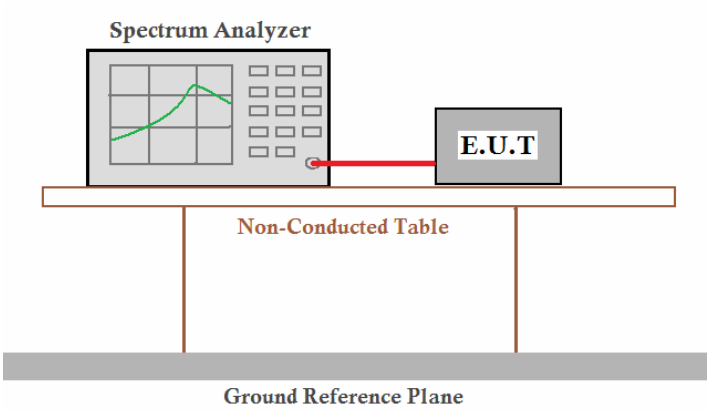


Middle channel



Highest channel

6.5 Power Spectral Density

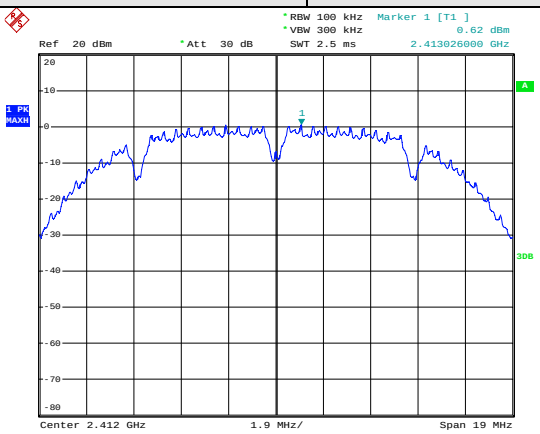
Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	8dBm
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

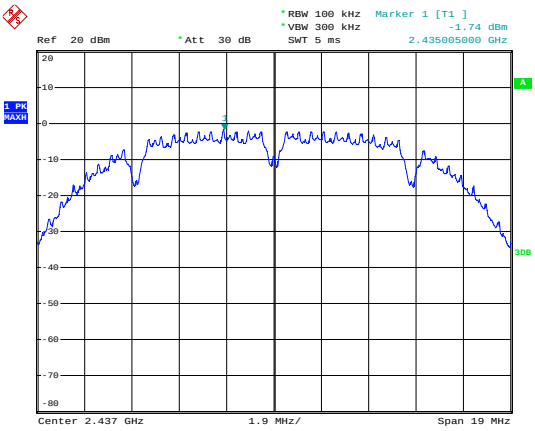
Test CH	Power Spectral Density (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	0.62	-1.13	-1.82	-4.98	8.00	Pass
Middle	-1.74	-1.82	-2.52	-5.49		
Highest	0.28	-2.01	-2.07	-5.72		

Test plot as follows:

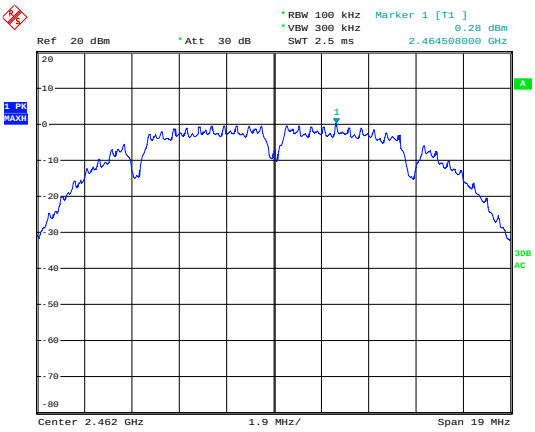
Test mode:	802.11b



Lowest channel

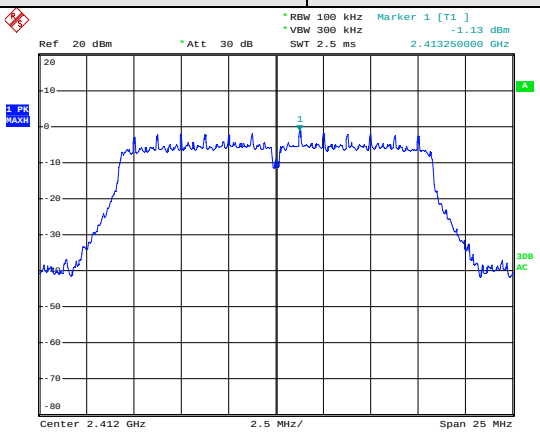


Middle channel

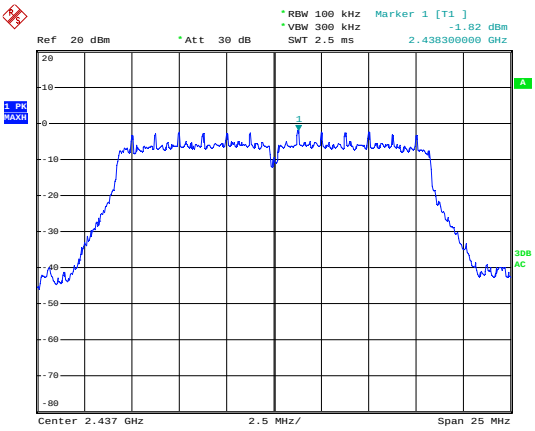


Highest channel

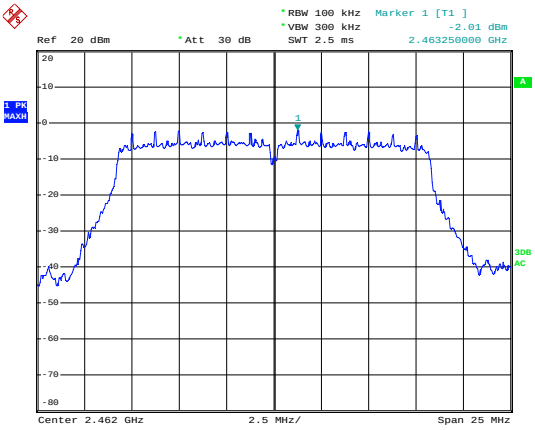
Test mode:	802.11g



Lowest channel

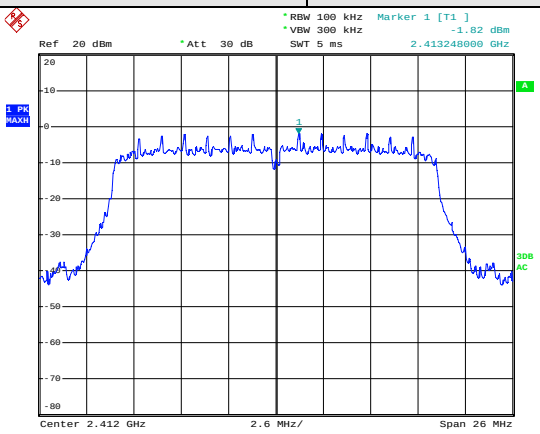


Middle channel

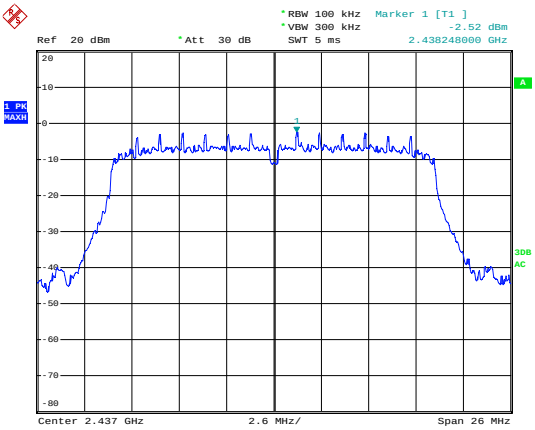


Highest channel

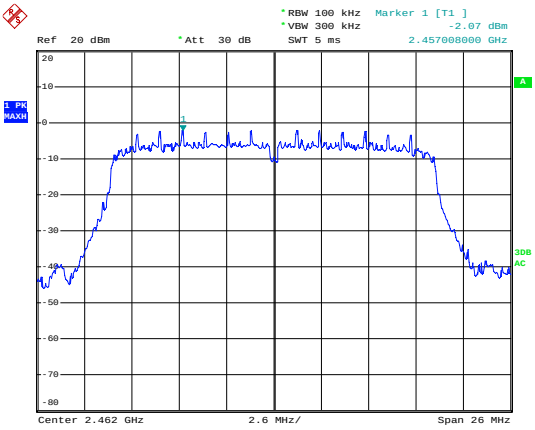
Test mode:	802.11n(H20)



Lowest channel

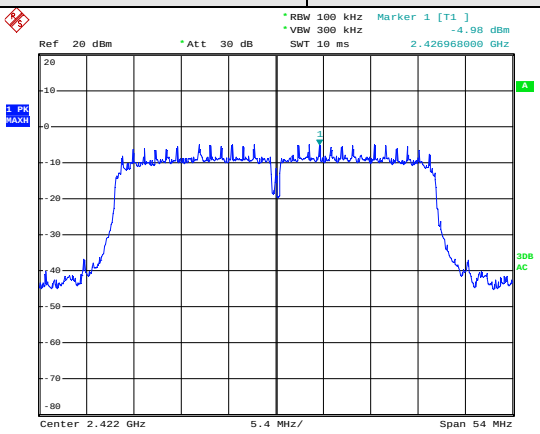


Middle channel

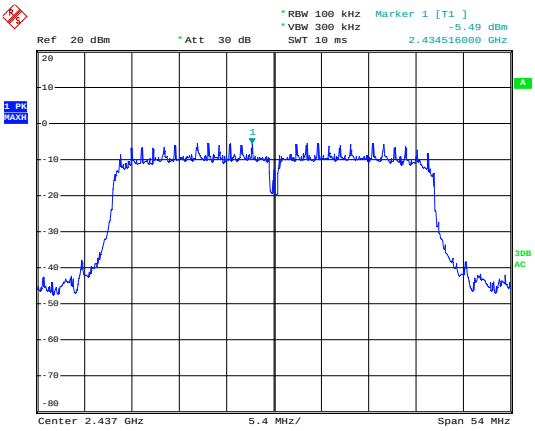


Highest channel

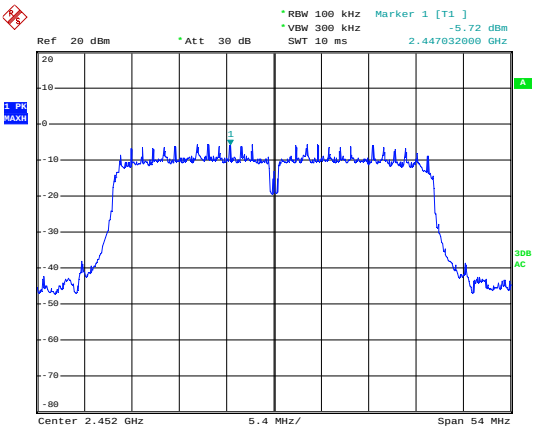
Test mode:	802.11n(H40)



Lowest channel



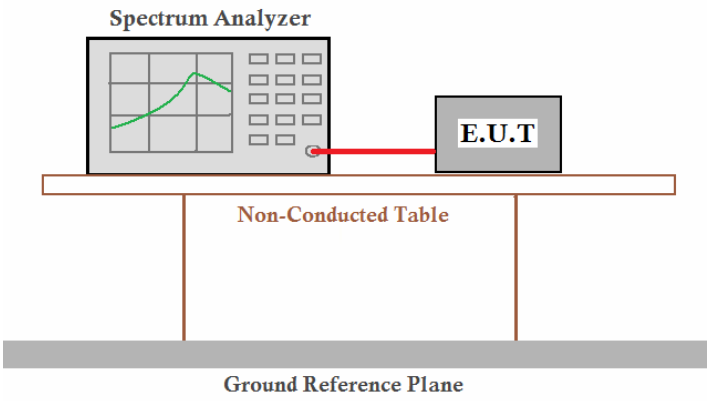
Middle channel



Highest channel

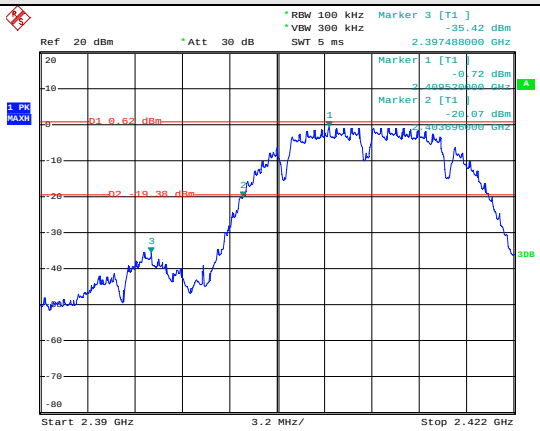
6.6 Band Edge

6.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074
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 30 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.
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Test plot as follows:

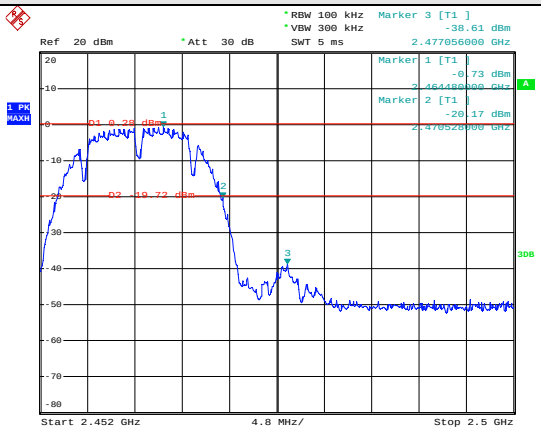
Test mode:	802.11b



7470110-2M-0

Date: 6.NOV.2012 04:23:06

Lowest channel

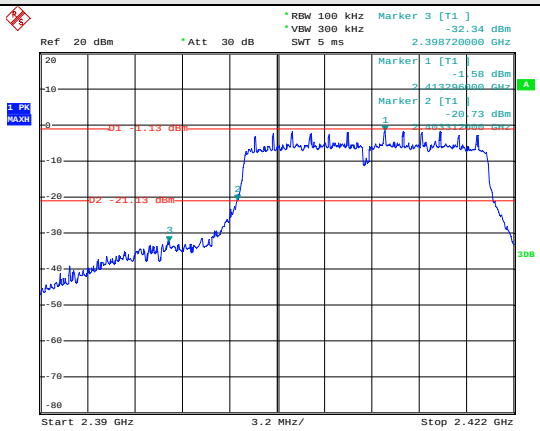


7470110-2M-0

Date: 6.NOV.2012 04:26:57

Highest channel

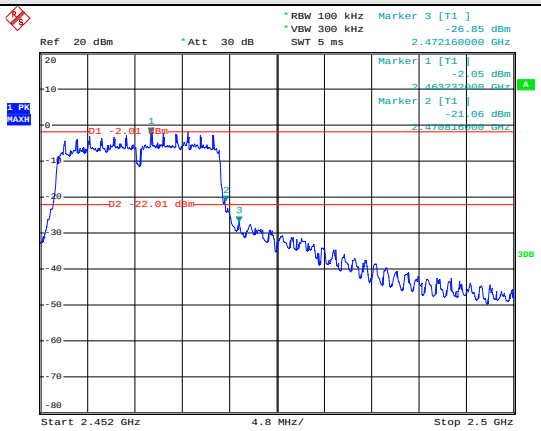
Test mode:	802.11g



7470110-2M-0

Date: 6.NOV.2012 04:30:59

Lowest channel

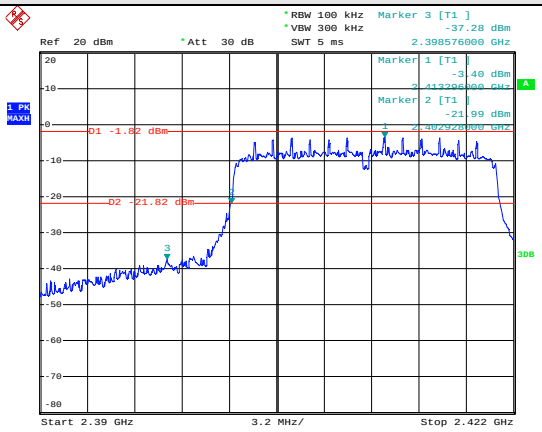


7470110-2M-0

Date: 6.NOV.2012 04:35:19

Highest channel

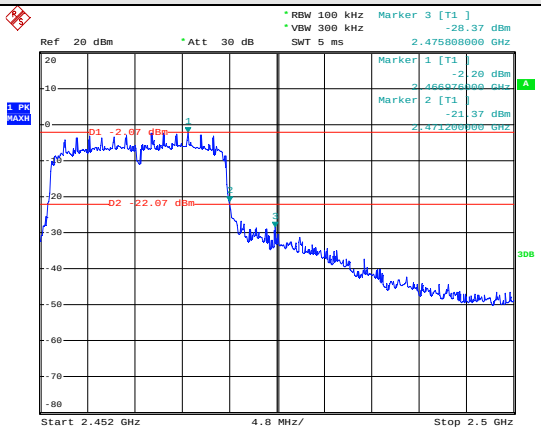
Test mode:	802.11n(H20)



7470110-2M-0

Date: 6.NOV.2012 04:37:14

Lowest channel

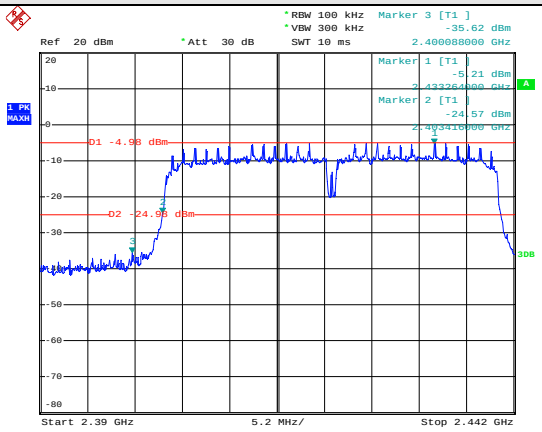


7470110-2M-0

Date: 6.NOV.2012 04:41:22

Highest channel

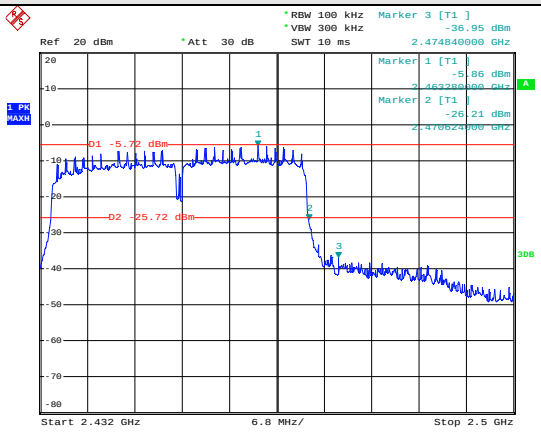
Test mode:	802.11n(H40)



7470110-2M-0

Date: 6.NOV.2012 04:46:39

Lowest channel



7470110-2M-0

Date: 6.NOV.2012 04:50:55

Highest channel

6.6.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.4: 2003
Test Frequency Range:	2.3GHz to 2.5GHz
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Remark
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

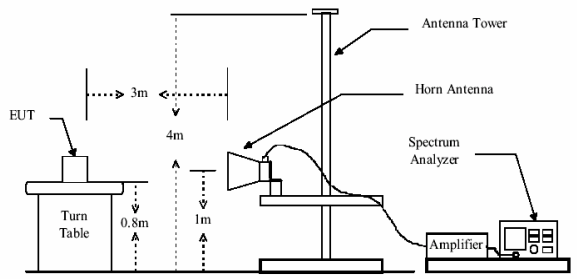
Limit:

Frequency	Limit (dBuV/m @3m)	Remark
Above 1GHz	54.00	Average Value
	74.00	Peak Value

Test Procedure:

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. 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.
4. 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 rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:



Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

802.11b

Test channel:	Lowest			Level:		Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	58.31	27.58	3.81	34.83	54.87	74.00	-19.13	Horizontal
2400.00	48.32	27.58	3.83	34.83	44.90	74.00	-29.10	Horizontal
2390.00	52.36	27.58	3.81	34.83	48.92	74.00	-25.08	Vertical
2400.00	49.35	27.58	3.83	34.83	45.93	74.00	-28.07	Vertical

Test channel:	Lowest			Level:		Average		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarizatio n
2390.00	49.52	27.58	3.81	34.83	46.08	54.00	-7.92	Horizontal
2400.00	36.58	27.58	3.83	34.83	33.16	54.00	-20.84	Horizontal
2390.00	46.32	27.58	3.81	34.83	42.88	54.00	-11.12	Vertical
2400.00	38.32	27.58	3.83	34.83	34.90	54.00	-19.10	Vertical

Test channel:	Highest			Level:		Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	60.32	27.52	3.89	34.86	56.87	74.00	-17.13	Horizontal
2500.00	48.35	27.55	3.90	34.87	44.93	74.00	-29.07	Horizontal
2483.50	58.35	27.52	3.89	34.86	54.90	74.00	-19.10	Vertical
2500.00	49.68	27.55	3.90	34.87	46.26	74.00	-27.74	Vertical

Test channel:	Highest			Level:		Average		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	49.35	27.52	3.89	34.86	45.90	54.00	-8.10	Horizontal
2500.00	39.14	27.55	3.90	34.87	35.72	54.00	-18.28	Horizontal
2483.50	49.19	27.52	3.89	34.86	45.74	54.00	-8.26	Vertical
2500.00	35.26	27.55	3.90	34.87	31.84	54.00	-22.16	Vertical

802.11g

Test channel:		Lowest		Level:		Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	58.32	27.58	3.81	34.83	54.88	74.00	-19.12	Horizontal
2400.00	46.32	27.58	3.83	34.83	42.90	74.00	-31.10	Horizontal
2390.00	61.32	27.58	3.81	34.83	57.88	74.00	-16.12	Vertical
2400.00	49.30	27.58	3.83	34.83	45.88	74.00	-28.12	Vertical

Test channel:		Lowest		Level:		Average		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	49.26	27.58	3.81	34.83	45.82	54.00	-8.18	Horizontal
2400.00	38.15	27.58	3.83	34.83	34.73	54.00	-19.27	Horizontal
2390.00	53.26	27.58	3.81	34.83	49.82	54.00	-4.18	Vertical
2400.00	41.32	27.58	3.83	34.83	37.90	54.00	-16.10	Vertical

Test channel:		Highest		Level:		Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	59.16	27.52	3.89	34.86	55.71	74.00	-18.29	Horizontal
2500.00	50.32	27.55	3.90	34.87	46.90	74.00	-27.10	Horizontal
2483.50	59.16	27.52	3.89	34.86	55.71	74.00	-18.29	Vertical
2500.00	51.32	27.55	3.90	34.87	47.90	74.00	-26.10	Vertical

Test channel:		Highest		Level:		Average		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	49.04	27.52	3.89	34.86	45.59	54.00	-8.41	Horizontal
2500.00	37.19	27.55	3.90	34.87	33.77	54.00	-20.23	Horizontal
2483.50	47.39	27.52	3.89	34.86	43.94	54.00	-10.06	Vertical
2500.00	40.32	27.55	3.90	34.87	36.90	54.00	-17.10	Vertical

802.11n (H20)

Test channel:	Lowest			Level:		Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	62.03	27.58	3.81	34.83	58.59	74.00	-15.41	Horizontal
2400.00	50.35	27.58	3.83	34.83	46.93	74.00	-27.07	Horizontal
2390.00	63.15	27.58	3.81	34.83	59.71	74.00	-14.29	Vertical
2400.00	59.26	27.58	3.83	34.83	55.84	74.00	-18.16	Vertical

Test channel:	Lowest			Level:		Average		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	53.26	27.58	3.81	34.83	49.82	54.00	-4.18	Horizontal
2400.00	49.32	27.58	3.83	34.83	45.90	54.00	-8.10	Horizontal
2390.00	45.35	27.58	3.81	34.83	41.91	54.00	-12.09	Vertical
2400.00	43.26	27.58	3.83	34.83	39.84	54.00	-14.16	Vertical

Test channel:	Highest			Level:		Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	53.26	27.52	3.89	34.86	49.81	74.00	-24.19	Horizontal
2500.00	49.27	27.55	3.90	34.87	45.85	74.00	-28.15	Horizontal
2483.50	67.32	27.52	3.89	34.86	63.87	74.00	-10.13	Vertical
2500.00	56.35	27.55	3.90	34.87	52.93	74.00	-21.07	Vertical

Test channel:	Highest			Level:		Average		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	48.35	27.52	3.89	34.86	44.90	54.00	-9.10	Horizontal
2500.00	40.39	27.55	3.90	34.87	36.97	54.00	-17.03	Horizontal
2483.50	49.32	27.52	3.89	34.86	45.87	54.00	-8.13	Vertical
2500.00	43.26	27.55	3.90	34.87	39.84	54.00	-14.16	Vertical

802.11n (H40)

Test channel:	Lowest			Level:			Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	64.35	27.58	3.81	34.83	60.91	74.00	-13.09	Horizontal
2400.00	53.26	27.58	3.83	34.83	49.84	74.00	-24.16	Horizontal
2390.00	61.32	27.58	3.81	34.83	57.88	74.00	-16.12	Vertical
2400.00	59.35	27.58	3.83	34.83	55.93	74.00	-18.07	Vertical

Test channel:	Lowest			Level:			Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	53.21	27.58	3.81	34.83	49.77	54.00	-4.23	Horizontal
2400.00	49.37	27.58	3.83	34.83	45.95	54.00	-8.05	Horizontal
2390.00	50.36	27.58	3.81	34.83	46.92	54.00	-7.08	Vertical
2400.00	46.35	27.58	3.83	34.83	42.93	54.00	-11.07	Vertical

Test channel:	Highest			Level:			Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	60.10	27.52	3.89	34.86	56.65	74.00	-17.35	Horizontal
2500.00	53.26	27.55	3.90	34.87	49.84	74.00	-24.16	Horizontal
2483.50	62.32	27.52	3.89	34.86	58.87	74.00	-15.13	Vertical
2500.00	51.36	27.55	3.90	34.87	47.94	74.00	-26.06	Vertical

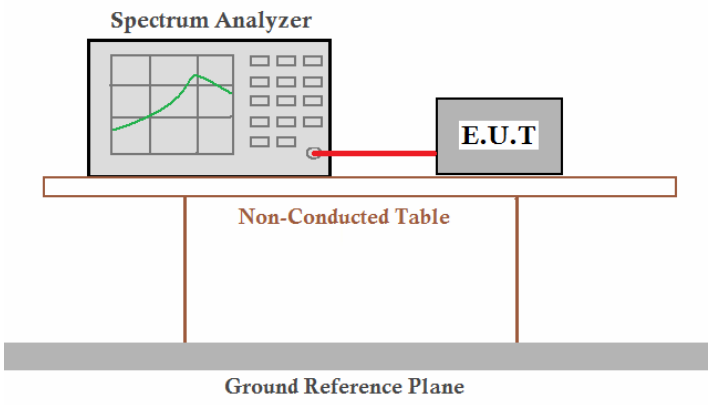
Test channel:	Highest			Level:			Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	50.32	27.52	3.89	34.86	46.87	54.00	-7.13	Horizontal
2500.00	49.75	27.55	3.90	34.87	46.33	54.00	-7.67	Horizontal
2483.50	50.26	27.52	3.89	34.86	46.81	54.00	-7.19	Vertical
2500.00	49.35	27.55	3.90	34.87	45.93	54.00	-8.07	Vertical

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

6.7 Spurious Emission

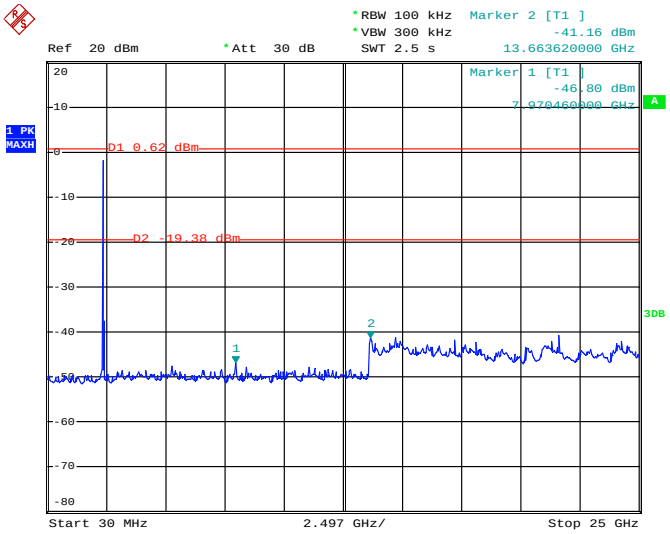
6.7.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074
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.
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Test plot as follows:

Test mode:	802.11b

Lowest channel

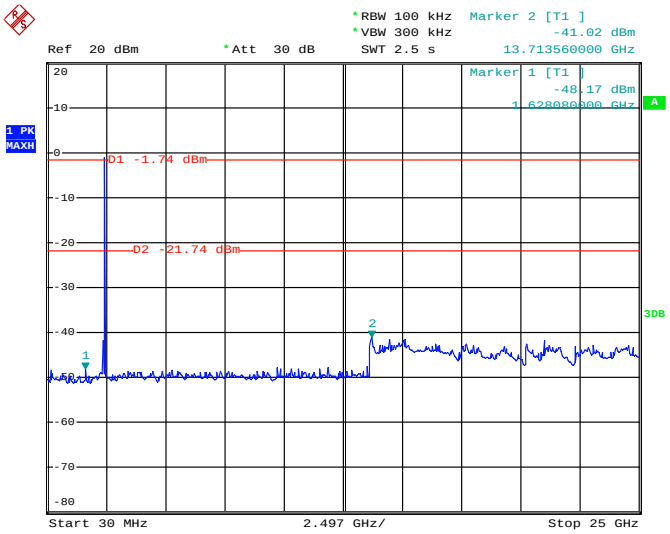


7470110-2M-0

Date: 6.NOV.2012 04:23:28

30MHz~25GHz

Middle channel

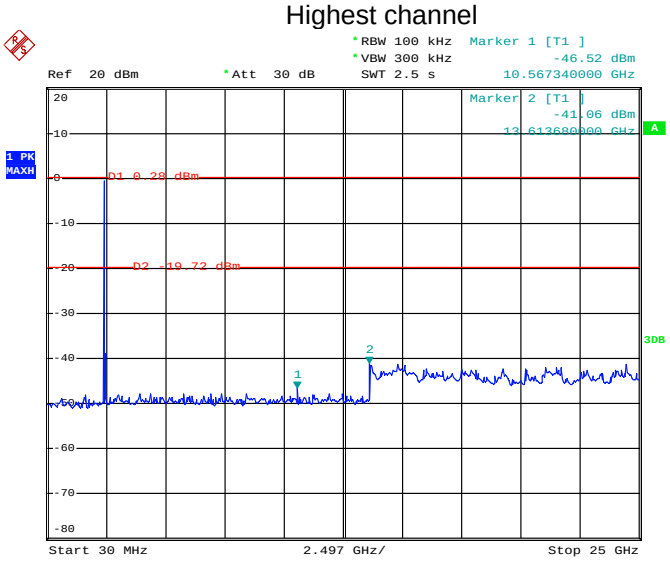


7470110-2M-0

Date: 6.NOV.2012 04:25:16

30MHz~25GHz

Highest channel



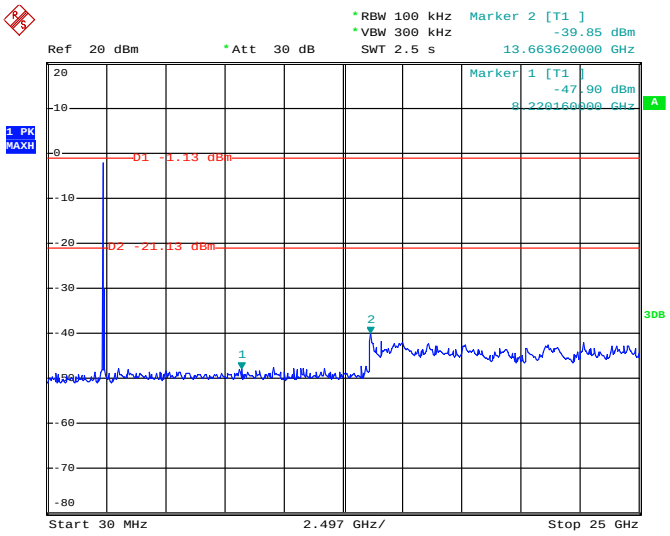
7470110-2M-0

Date: 6.NOV.2012 04:27:35

30MHz~25GHz

Test mode:	802.11g

Lowest channel

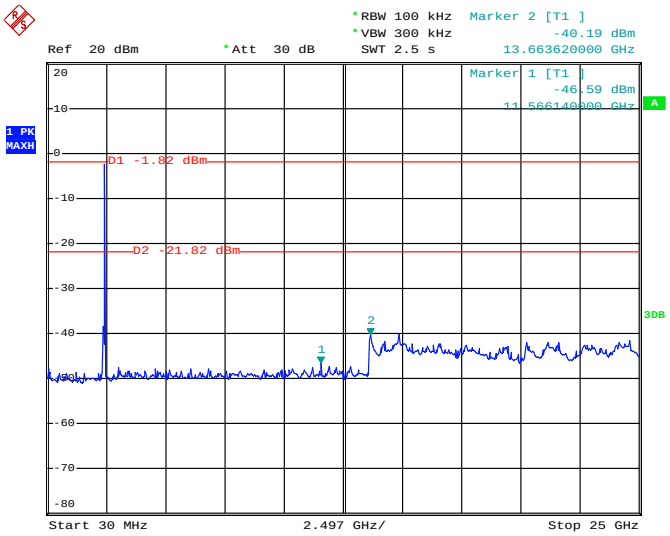


7470110-2M-0

Date: 6.NOV.2012 04:31:30

30MHz~25GHz

Middle channel

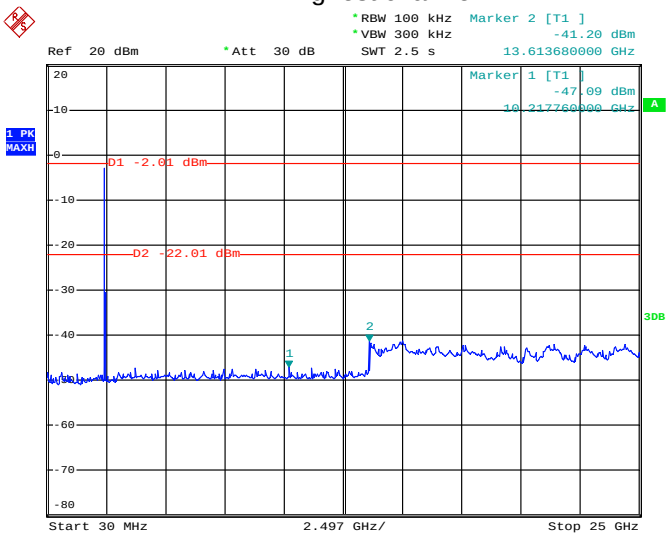


7470110-2M-0

Date: 6.NOV.2012 04:33:06

30MHz~25GHz

Highest channel



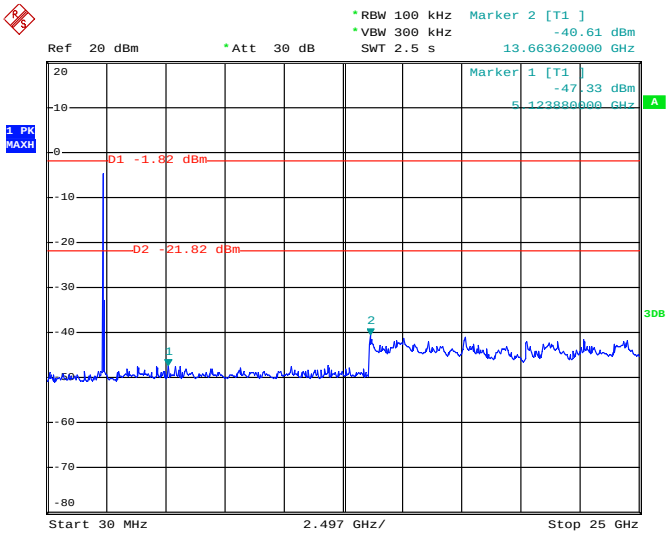
7470110-2M-0

Date: 6.NOV.2012 05:07:14

30MHz~25GHz

Test mode:	802.11n(H20)

Lowest channel

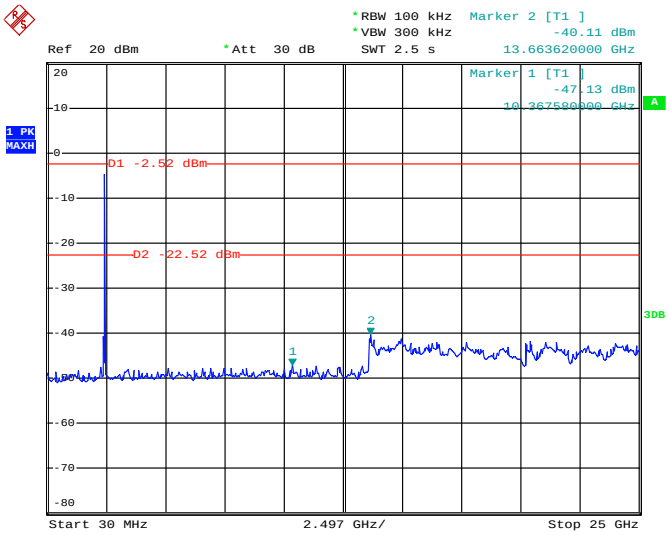


7470110-2M-0

Date: 6.NOV.2012 04:37:49

30MHz~25GHz

Middle channel

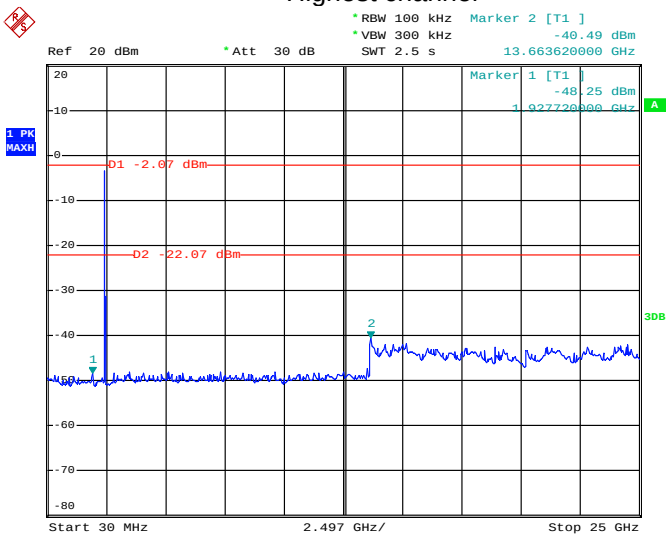


7470110-2M-0

Date: 6.NOV.2012 04:39:18

30MHz~25GHz

Highest channel



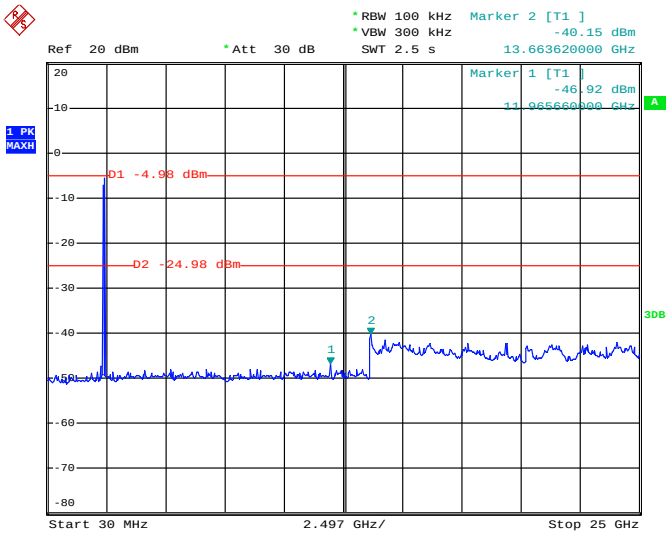
7470110-2M-0

Date: 6.NOV.2012 04:41:51

30MHz~25GHz

Test mode:	802.11n(H40)

Lowest channel

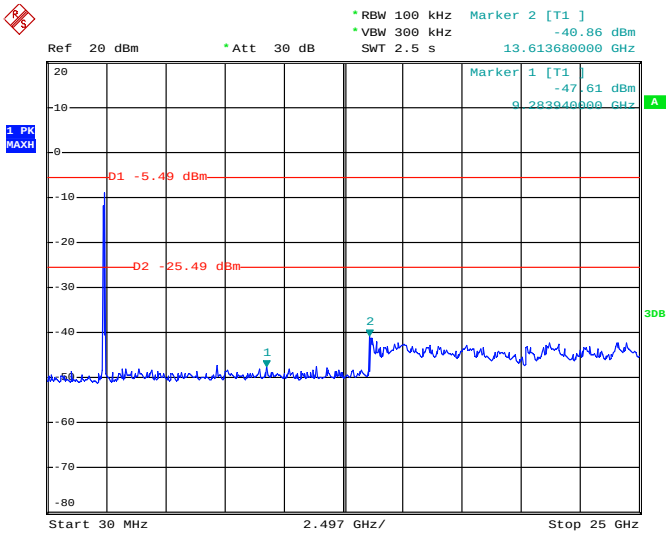


7470110-2M-0

Date: 6.NOV.2012 04:47:09

30MHz~25GHz

Middle channel

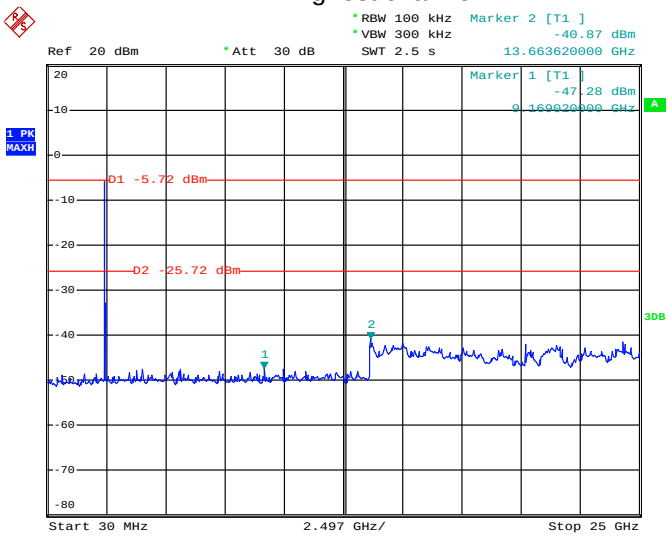


7470110-2M-0

Date: 6.NOV.2012 04:48:59

30MHz~25GHz

Highest channel



7470110-2M-0

Date: 6.NOV.2012 04:51:20

30MHz~25GHz

6.7.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.4:2003
Test Frequency Range:	30MHz to 25GHz
Test site:	Measurement Distance: 3m
Receiver setup:	

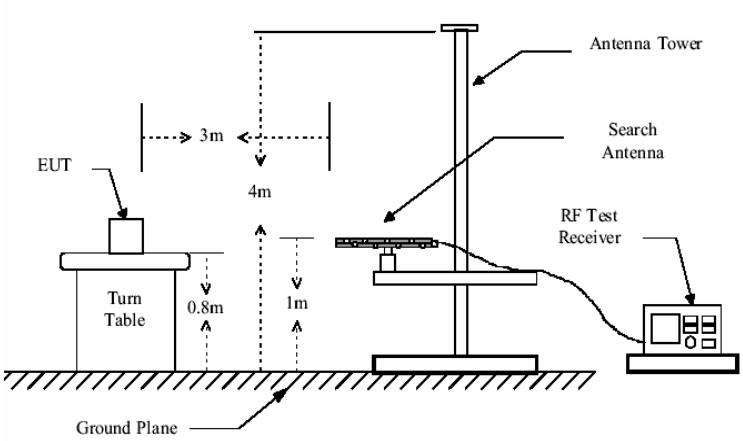
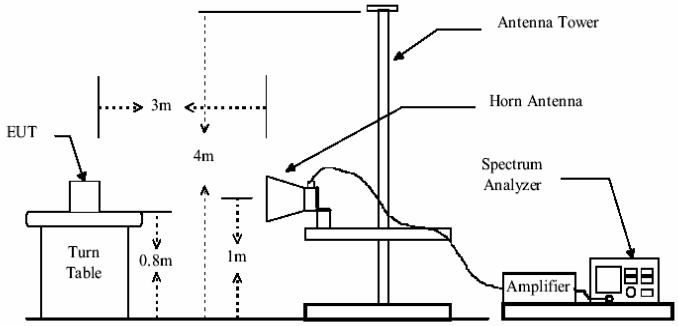
Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test Procedure:

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. 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.
4. 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 rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:	Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Below 1GHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
282.00	43.03	12.70	2.89	29.49	29.13	46.00	-16.87	Vertical
360.45	51.95	14.43	3.10	29.73	39.75	46.00	-6.25	Vertical
497.68	42.02	16.52	3.60	30.52	31.62	46.00	-14.38	Vertical
599.32	43.15	18.45	3.94	30.55	34.99	46.00	-11.01	Vertical
699.31	42.34	18.80	4.17	30.60	34.71	46.00	-11.29	Vertical
801.79	42.36	20.06	4.34	30.40	36.36	46.00	-9.64	Vertical
119.86	44.08	10.48	2.17	29.70	27.03	43.50	-16.47	Horizontal
239.99	52.79	12.09	2.82	29.64	38.06	46.00	-7.94	Horizontal
360.45	53.13	14.43	3.10	29.73	40.93	46.00	-5.07	Horizontal
480.53	49.50	16.07	3.46	30.52	38.51	46.00	-7.49	Horizontal
601.43	45.79	18.46	3.94	30.55	37.64	46.00	-8.36	Horizontal
721.73	48.81	19.10	4.26	30.55	41.62	46.00	-4.38	Horizontal

Above 1GHz

Test mode:	802.11b		Test channel:	Lowest		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	39.67	31.79	5.34	24.07	52.73	74.00	-21.27	Vertical
7236.00	29.57	36.19	6.88	26.44	46.20	74.00	-27.80	Vertical
9648.00	28.64	38.07	8.96	25.36	50.31	74.00	-23.69	Vertical
12060.00	26.06	39.05	10.35	25.15	50.31	74.00	-23.69	Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	45.35	31.79	5.34	24.07	58.41	74.00	-15.59	Horizontal
7236.00	31.26	36.19	6.88	26.44	47.89	74.00	-26.11	Horizontal
9648.00	31.08	38.07	8.96	25.36	52.75	74.00	-21.25	Horizontal
12060.00	29.25	39.05	10.35	25.15	53.50	74.00	-20.50	Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Test mode:	802.11b		Test channel:	Lowest		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	21.62	31.79	5.34	24.07	34.68	54.00	-19.32	Vertical
7236.00	14.80	36.19	6.88	26.44	31.43	54.00	-22.57	Vertical
9648.00	14.25	38.07	8.96	25.36	35.92	54.00	-18.08	Vertical
12060.00	12.74	39.05	10.35	25.15	36.99	54.00	-17.01	Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	23.23	31.79	5.34	24.07	36.29	54.00	-17.71	Horizontal
7236.00	16.26	36.19	6.88	26.44	32.89	54.00	-21.11	Horizontal
9648.00	15.56	38.07	8.96	25.36	37.23	54.00	-16.77	Horizontal
12060.00	13.90	39.05	10.35	25.15	38.15	54.00	-15.85	Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11b		Test channel:	Middle		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	39.36	31.85	5.40	24.01	52.60	74.00	-21.40	Vertical
7311.00	27.26	36.37	6.90	26.58	43.95	74.00	-30.05	Vertical
9688.00	27.17	38.13	8.98	25.34	48.94	74.00	-25.06	Vertical
12185.00	23.98	38.92	10.38	25.04	48.24	74.00	-25.76	Vertical
14682.00	*					74.00		Vertical
17179.00	*					74.00		Vertical
4874.00	41.50	31.85	5.40	24.01	54.74	74.00	-19.26	Horizontal
7311.00	29.29	36.37	6.90	26.58	45.98	74.00	-28.02	Horizontal
9688.00	29.09	38.13	8.98	25.34	50.86	74.00	-23.14	Horizontal
12185.00	25.79	38.92	10.38	25.04	50.05	74.00	-23.95	Horizontal
14682.00	*					74.00		Horizontal
17179.00	*					74.00		Horizontal

Test mode:	802.11b		Test channel:	Middle		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	21.74	31.85	5.40	24.01	34.98	54.00	-19.02	Vertical
7311.00	15.36	36.37	6.90	26.58	32.05	54.00	-21.95	Vertical
9688.00	11.14	38.13	8.98	25.34	32.91	54.00	-21.09	Vertical
12185.00	11.11	38.92	10.38	25.04	35.37	54.00	-18.63	Vertical
14682.00	*					54.00		Vertical
17179.00	*					54.00		Vertical
4874.00	23.78	31.85	5.40	24.01	37.02	54.00	-16.98	Horizontal
7311.00	16.19	36.37	6.90	26.58	32.88	54.00	-21.12	Horizontal
9688.00	12.86	38.13	8.98	25.34	34.63	54.00	-19.37	Horizontal
12185.00	12.67	38.92	10.38	25.04	36.93	54.00	-17.07	Horizontal
14682.00	*					54.00		Horizontal
17179.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11b		Test channel:	Highest		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	38.77	31.89	5.46	23.96	52.16	74.00	-21.84	Vertical
7386.00	31.81	36.49	6.93	26.79	48.44	74.00	-25.56	Vertical
9848.00	28.68	38.24	9.05	25.30	50.67	74.00	-23.33	Vertical
12310.00	28.40	38.83	10.41	24.90	52.74	74.00	-21.26	Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	40.81	31.89	5.46	23.96	54.20	74.00	-19.80	Horizontal
7386.00	33.76	36.49	6.93	26.79	50.39	74.00	-23.61	Horizontal
9848.00	30.54	38.24	9.05	25.30	52.53	74.00	-21.47	Horizontal
12310.00	30.17	38.83	10.41	24.90	54.51	74.00	-19.49	Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

Test mode:	802.11b		Test channel:	Highest		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	23.01	31.89	5.46	23.96	36.40	54.00	-17.60	Vertical
7386.00	17.15	36.49	6.93	26.79	33.78	54.00	-20.22	Vertical
9848.00	19.12	38.24	9.05	25.30	41.11	54.00	-12.89	Vertical
12310.00	15.61	38.83	10.41	24.90	39.95	54.00	-14.05	Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	24.97	31.89	5.46	23.96	38.36	54.00	-15.64	Horizontal
7386.00	18.94	36.49	6.93	26.79	35.57	54.00	-18.43	Horizontal
9848.00	20.74	38.24	9.05	25.30	42.73	54.00	-11.27	Horizontal
12310.00	17.06	38.83	10.41	24.90	41.40	54.00	-12.60	Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11g		Test channel:	Lowest		Remark:		Peak
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	37.63	31.79	5.34	24.07	50.69	74.00	-23.31	Vertical
7236.00	32.52	36.19	6.88	26.44	49.15	74.00	-24.85	Vertical
9648.00	29.86	38.07	8.96	25.36	51.53	74.00	-22.47	Vertical
12060.00	28.45	39.05	10.35	25.15	52.70	74.00	-21.30	Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	38.04	31.79	5.34	24.07	51.10	74.00	-22.90	Horizontal
7236.00	31.88	36.19	6.88	26.44	48.51	74.00	-25.49	Horizontal
9648.00	30.96	38.07	8.96	25.36	52.63	74.00	-21.37	Horizontal
12060.00	29.29	39.05	10.35	25.15	53.54	74.00	-20.46	Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Test mode:	802.11g		Test channel:	Lowest		Remark:		Average
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	24.33	31.79	5.34	24.07	37.39	54.00	-16.61	Vertical
7236.00	19.79	36.19	6.88	26.44	36.42	54.00	-17.58	Vertical
9648.00	16.18	38.07	8.96	25.36	37.85	54.00	-16.15	Vertical
12060.00	15.02	39.05	10.35	25.15	39.27	54.00	-14.73	Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	25.94	31.79	5.34	24.07	39.00	54.00	-15.00	Horizontal
7236.00	21.25	36.19	6.88	26.44	37.88	54.00	-16.12	Horizontal
9648.00	17.49	38.07	8.96	25.36	39.16	54.00	-14.84	Horizontal
12060.00	16.18	39.05	10.35	25.15	40.43	54.00	-13.57	Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11g		Test channel:	Middle		Remark:		Peak
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	34.04	31.85	5.40	24.01	47.28	74.00	-26.72	Vertical
7311.00	27.35	36.37	6.90	26.58	44.04	74.00	-29.96	Vertical
9688.00	24.29	38.13	8.98	25.34	46.06	74.00	-27.94	Vertical
12185.00	24.13	38.92	10.38	25.04	48.39	74.00	-25.61	Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4874.00	36.17	31.85	5.40	24.01	49.41	74.00	-24.59	Horizontal
7311.00	28.68	36.37	6.90	26.58	45.37	74.00	-28.63	Horizontal
9688.00	24.43	38.13	8.98	25.34	46.20	74.00	-27.80	Horizontal
12185.00	24.08	38.92	10.38	25.04	48.34	74.00	-25.66	Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Test mode:	802.11g		Test channel:	Middle		Remark:		Average
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	20.35	31.85	5.40	24.01	33.59	54.00	-20.41	Vertical
7311.00	17.06	36.37	6.90	26.58	33.75	54.00	-20.25	Vertical
9688.00	13.11	38.13	8.98	25.34	34.88	54.00	-19.12	Vertical
12185.00	10.88	38.92	10.38	25.04	35.14	54.00	-18.86	Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4874.00	22.39	31.85	5.40	24.01	35.63	54.00	-18.37	Horizontal
7311.00	18.94	36.37	6.90	26.58	35.63	54.00	-18.37	Horizontal
9688.00	14.83	38.13	8.98	25.34	36.60	54.00	-17.40	Horizontal
12185.00	12.44	38.92	10.38	25.04	36.70	54.00	-17.30	Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11g		Test channel:	Highest		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	37.12	31.89	5.46	23.96	50.51	74.00	-23.49	Vertical
7386.00	32.67	36.49	6.93	26.79	49.30	74.00	-24.70	Vertical
9848.00	30.84	38.24	9.05	25.30	52.83	74.00	-21.17	Vertical
12310.00	28.17	38.83	10.41	24.90	52.51	74.00	-21.49	Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	39.84	31.89	5.46	23.96	53.23	74.00	-20.77	Horizontal
7386.00	32.85	36.49	6.93	26.79	49.48	74.00	-24.52	Horizontal
9848.00	30.74	38.24	9.05	25.30	52.73	74.00	-21.27	Horizontal
12310.00	27.81	38.83	10.41	24.90	52.15	74.00	-21.85	Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

Test mode:	802.11g		Test channel:	Highest		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	22.22	31.89	5.46	23.96	35.61	54.00	-18.39	Vertical
7386.00	19.98	36.49	6.93	26.79	36.61	54.00	-17.39	Vertical
9848.00	17.44	38.24	9.05	25.30	39.43	54.00	-14.57	Vertical
12310.00	16.00	38.83	10.41	24.90	40.34	54.00	-13.66	Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	24.18	31.89	5.46	23.96	37.57	54.00	-16.43	Horizontal
7386.00	21.77	36.49	6.93	26.79	38.40	54.00	-15.60	Horizontal
9848.00	19.06	38.24	9.05	25.30	41.05	54.00	-12.95	Horizontal
12310.00	17.45	38.83	10.41	24.90	41.79	54.00	-12.21	Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11n(H20)		Test channel:	Lowest		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	35.40	31.79	5.34	24.07	48.46	74.00	-25.54	Vertical
7236.00	30.82	36.19	6.88	26.44	47.45	74.00	-26.55	Vertical
9648.00	30.13	38.07	8.96	25.36	51.80	74.00	-22.20	Vertical
12060.00	28.69	39.05	10.35	25.15	52.94	74.00	-21.06	Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	37.01	31.79	5.34	24.07	50.07	74.00	-23.93	Horizontal
7236.00	32.28	36.19	6.88	26.44	48.91	74.00	-25.09	Horizontal
9648.00	31.44	38.07	8.96	25.36	53.11	74.00	-20.89	Horizontal
12060.00	29.85	39.05	10.35	25.15	54.10	74.00	-19.90	Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Test mode:	802.11n(H20)		Test channel:	Lowest		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	24.26	31.79	5.34	24.07	37.32	54.00	-16.68	Vertical
7236.00	22.02	36.19	6.88	26.44	38.65	54.00	-15.35	Vertical
9648.00	18.67	38.07	8.96	25.36	40.34	54.00	-13.66	Vertical
12060.00	16.03	39.05	10.35	25.15	40.28	54.00	-13.72	Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	25.87	31.79	5.34	24.07	38.93	54.00	-15.07	Horizontal
7236.00	23.48	36.19	6.88	26.44	40.11	54.00	-13.89	Horizontal
9648.00	19.98	38.07	8.96	25.36	41.65	54.00	-12.35	Horizontal
12060.00	17.19	39.05	10.35	25.15	41.44	54.00	-12.56	Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11n(H20)		Test channel:	Middle		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	33.18	31.85	5.40	24.01	46.42	74.00	-27.58	Vertical
7311.00	26.96	36.37	6.90	26.58	43.65	74.00	-30.35	Vertical
9688.00	23.52	38.13	8.98	25.34	45.29	74.00	-28.71	Vertical
12185.00	22.41	38.92	10.38	25.04	46.67	74.00	-27.33	Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4874.00	35.22	31.85	5.40	24.01	48.46	74.00	-25.54	Horizontal
7311.00	28.84	36.37	6.90	26.58	45.53	74.00	-28.47	Horizontal
9688.00	25.24	38.13	8.98	25.34	47.01	74.00	-26.99	Horizontal
12185.00	23.97	38.92	10.38	25.04	48.23	74.00	-25.77	Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Test mode:	802.11n(H20)		Test channel:	Middle		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	20.65	31.85	5.40	24.01	33.89	54.00	-20.11	Vertical
7311.00	18.84	36.37	6.90	26.58	35.53	54.00	-18.47	Vertical
9688.00	15.37	38.13	8.98	25.34	37.14	54.00	-16.86	Vertical
12185.00	10.89	38.92	10.38	25.04	35.15	54.00	-18.85	Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4874.00	22.69	31.85	5.40	24.01	35.93	54.00	-18.07	Horizontal
7311.00	20.72	36.37	6.90	26.58	37.41	54.00	-16.59	Horizontal
9688.00	17.09	38.13	8.98	25.34	38.86	54.00	-15.14	Horizontal
12185.00	13.95	38.92	10.38	25.04	38.21	54.00	-15.79	Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11n(H20)		Test channel:	Highest		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	35.05	31.89	5.46	23.96	48.44	74.00	-25.56	Vertical
7386.00	30.87	36.49	6.93	26.79	47.50	74.00	-26.50	Vertical
9848.00	29.02	38.24	9.05	25.30	51.01	74.00	-22.99	Vertical
12310.00	26.41	38.83	10.41	24.90	50.75	74.00	-23.25	Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	37.21	31.89	5.46	23.96	50.60	74.00	-23.40	Horizontal
7386.00	32.76	36.49	6.93	26.79	49.39	74.00	-24.61	Horizontal
9848.00	30.74	38.24	9.05	25.30	52.73	74.00	-21.27	Horizontal
12310.00	27.96	38.83	10.41	24.90	52.30	74.00	-21.70	Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

Test mode:	802.11n(H20)		Test channel:	Highest		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	24.39	31.89	5.46	23.96	37.78	54.00	-16.22	Vertical
7386.00	22.09	36.49	6.93	26.79	38.72	54.00	-15.28	Vertical
9848.00	19.16	38.24	9.05	25.30	41.15	54.00	-12.85	Vertical
12310.00	18.24	38.83	10.41	24.90	42.58	54.00	-11.42	Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	26.45	31.89	5.46	23.96	39.84	54.00	-14.16	Horizontal
7386.00	23.98	36.49	6.93	26.79	40.61	54.00	-13.39	Horizontal
9848.00	20.88	38.24	9.05	25.30	42.87	54.00	-11.13	Horizontal
12310.00	19.79	38.83	10.41	24.90	44.13	54.00	-9.87	Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11n(H40)		Test channel:	Lowest		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4844.00	40.82	31.79	5.34	24.07	53.88	74.00	-20.12	Vertical
7266.00	39.32	36.19	6.88	26.44	55.95	74.00	-18.05	Vertical
9688.00	34.33	38.07	8.96	25.36	56.00	74.00	-18.00	Vertical
12110.00	33.49	39.05	10.35	25.15	57.74	74.00	-16.26	Vertical
14532.00	*					74.00		Vertical
16954.00	*					74.00		Vertical
4844.00	42.41	31.79	5.34	24.07	55.47	74.00	-18.53	Horizontal
7266.00	40.78	36.19	6.88	26.44	57.41	74.00	-16.59	Horizontal
9688.00	35.64	38.07	8.96	25.36	57.31	74.00	-16.69	Horizontal
12110.00	34.65	39.05	10.35	25.15	58.90	74.00	-15.10	Horizontal
14532.00	*					74.00		Horizontal
16954.00	*					74.00		Horizontal

Test mode:	802.11n(H40)		Test channel:	Lowest		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4844.00	29.66	31.79	5.34	24.07	42.72	54.00	-11.28	Vertical
7266.00	30.52	36.19	6.88	26.44	47.15	54.00	-6.85	Vertical
9688.00	22.87	38.07	8.96	25.36	44.54	54.00	-9.46	Vertical
12110.00	20.83	39.05	10.35	25.15	45.08	54.00	-8.92	Vertical
14532.00	*					54.00		Vertical
16954.00	*					54.00		Vertical
4844.00	31.27	31.79	5.34	24.07	44.33	54.00	-9.67	Horizontal
7266.00	31.98	36.19	6.88	26.44	48.61	54.00	-5.39	Horizontal
9688.00	24.18	38.07	8.96	25.36	45.85	54.00	-8.15	Horizontal
12110.00	21.99	39.05	10.35	25.15	46.24	54.00	-7.76	Horizontal
14532.00	*					54.00		Horizontal
16954.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11n(H40)		Test channel:	Middle		Remark:		Peak
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	41.08	31.85	5.4	24.01	54.32	74.00	-19.68	Vertical
7311.00	37.76	36.37	6.9	26.58	54.45	74.00	-19.55	Vertical
9688.00	30.22	38.13	8.98	25.34	51.99	74.00	-22.01	Vertical
12185.00	30.81	38.92	10.38	25.04	55.07	74.00	-18.93	Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4874.00	43.12	31.85	5.4	24.01	56.36	74.00	-17.64	Horizontal
7311.00	39.64	36.37	6.9	26.58	56.33	74.00	-17.67	Horizontal
9688.00	31.94	38.13	8.98	25.34	53.71	74.00	-20.29	Horizontal
12185.00	32.37	38.92	10.38	25.04	56.63	74.00	-17.37	Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Test mode:	802.11n(H40)		Test channel:	Middle		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	24.35	31.85	5.40	24.01	37.59	54.00	-16.41	Vertical
7311.00	23.24	36.37	6.90	26.58	39.93	54.00	-14.07	Vertical
9688.00	19.27	38.13	8.98	25.34	41.04	54.00	-12.96	Vertical
12185.00	16.09	38.92	10.38	25.04	40.35	54.00	-13.65	Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4874.00	26.39	31.85	5.40	24.01	39.63	54.00	-14.37	Horizontal
7311.00	25.12	36.37	6.90	26.58	41.81	54.00	-12.19	Horizontal
9688.00	20.99	38.13	8.98	25.34	42.76	54.00	-11.24	Horizontal
12185.00	19.15	38.92	10.38	25.04	43.41	54.00	-10.59	Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test mode:	802.11n(H40)		Test channel:	Highest		Remark:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4904.00	36.25	31.89	5.46	23.96	49.64	74.00	-24.36	Vertical
7356.00	32.97	36.49	6.93	26.79	49.60	74.00	-24.40	Vertical
9808.00	30.42	38.24	9.05	25.30	52.41	74.00	-21.59	Vertical
12260.00	28.01	38.83	10.41	24.90	52.35	74.00	-21.65	Vertical
14712.00	*					74.00		Vertical
17164.00	*					74.00		Vertical
4904.00	38.41	31.89	5.46	23.96	51.80	74.00	-22.20	Horizontal
7356.00	34.86	36.49	6.93	26.79	51.49	74.00	-22.51	Horizontal
9808.00	32.14	38.24	9.05	25.30	54.13	74.00	-19.87	Horizontal
12260.00	29.56	38.83	10.41	24.90	53.90	74.00	-20.10	Horizontal
14712.00	*					74.00		Horizontal
17164.00	*					74.00		Horizontal

Test mode:	802.11n(H40)		Test channel:	Highest		Remark:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4904.00	32.26	31.89	5.46	23.96	45.65	54.00	-8.35	Vertical
7356.00	26.35	36.49	6.93	26.79	42.98	54.00	-11.02	Vertical
9808.00	20.56	38.24	9.05	25.30	42.55	54.00	-11.45	Vertical
12260.00	12.32	38.83	10.41	24.90	36.66	54.00	-17.34	Vertical
14712.00						54.00		Vertical
17164.00						54.00		Vertical
4904.00	27.65	31.89	5.46	23.96	41.04	54.00	-12.96	Horizontal
7356.00	26.08	36.49	6.93	26.79	42.71	54.00	-11.29	Horizontal
9808.00	22.28	38.24	9.05	25.30	44.27	54.00	-9.73	Horizontal
12260.00	20.32	38.83	10.41	24.90	44.66	54.00	-9.34	Horizontal
14712.00	*					54.00		Horizontal
17164.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*