



RADIO TEST REPORT

Applicant : NEXCOM International Co., LTD.

Address : 9F, No. 920, Chung-Cheng Rd.,
Zhonghe Dist., New Taipei City 235, Taiwan

Equipment : NMCB101C Wi-Fi module

Model No. : NMCB101C

Trade Name : NEXCOM

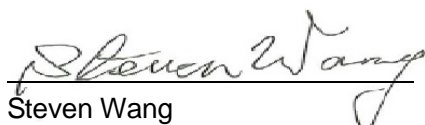
FCC ID : YHI-NIO50

I HEREBY CERTIFY THAT :

The sample was received on Dec. 17, 2015 and the testing was carried out on Jan. 19, 2016 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Tested by:


 Steven Wang
 Manager


 Spree Yei
 Engineer

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory



CerpPASS Technology(SuZhou) Co., Ltd.





Contents

1. Summary of Test Procedure and Test Results.....	5
1.1 Applicable Standards	5
2. Test Configuration of Equipment under Test.....	6
2.1 Feature of Equipment under Test.....	6
2.2 Carrier Frequency of Channels.....	6
2.3 Test Mode and Test Software.....	7
2.4 Description of Test System.....	7
2.5 General Information of Test.....	8
3. Test Equipment and Ancillaries Used for Tests.....	9
4. Antenna Requirements.....	10
4.1 Standard Applicable	10
4.2 Antenna Construction and Directional Gain.....	10
5. Test of AC Power Line Conducted Emission	11
6. Test of Radiated Spurious Emission.....	12
6.1 Test Limit	12
6.2 Test Procedures	12
6.3 Typical Test Setup	13
6.4 Test Result and Data (9KHz ~ 30MHz)	14
6.5 Test Result and Data (30MHz ~ 1GHz).....	14
6.6 Test Result and Data (1GHz~25GHz).....	16
6.7 Restricted Bands of Operation	22
6.8 Restrict Band Emission Measurement Data	23
6.9 Test Photographs (30MHz~1GHz).....	25
6.10 Test Photographs (1GHz~25GHz)	26
7. Test of Conducted Spurious Emission	27
7.1 Test Limit	27
7.2 Test Procedure	27
7.3 Test Setup Layout	27
7.4 Test Result and Data.....	27
8. Occupied Bandwidth Measurement Data	30
8.1 Test Limit	30
8.2 Test Procedures	30
8.3 Test Setup Layout	30
8.4 Test Result and Data.....	31
9. Maximum Peak and Average Output Power.....	34
9.1 Test Limit	34
9.2 Test Procedures	34
9.3 Test Setup Layout	34
9.4 Test Result and Data.....	34
10. Power Spectral Density	35
10.1 Test Limit	35



10.2	Test Procedures	35
10.3	Test Setup Layout	35
10.4	Test Result and Data	36



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

ANSI C63.4: 2009

FCC Rules and Regulations Part 15 Subpart C §15.247

KDB558074

FCC Rule	Description of Test	Result
15.203	Antenna Requirement	Pass
15.207	AC Power Line Conducted Emission	---
15.209 15.205	Spurious Emission(Radiated)	Pass
15.247(d)	Spurious Emission(Conducted)	Pass
15.247(a)(2)	Occupied Bandwidth	Pass
15.247(b)	Maximum Peak Output Power	Pass
15.247(e)	Power Spectral Density	Pass



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Frequency Range	802.11b/g/n: 2412-2462MHz
Type of Modulation	OFDM, DSSS
Channel of Bandwidth	802.11b/g/n: 5MHz
Data Rate	802.11b/g/n: up to 65Mbps
Type of Antenna	Dipole Antenna *1
Antenna Gain	4.82 dBi

2.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT 20 (2412MHz~2462MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	*11	2462
*06	2437	---	---

Note: Channels remarked * are selected to perform test.



2.3 Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b. The complete test system included Notebook and EUT for RF test.
- c. An executive program, "CMD" under WIN 7 was executed to transmit and receive data via WLAN.
- d. Pre-Scanned RF Power:

802.11b mode								
Data Rate	1M	2M	5.5M	11M	---	---	---	---
Avg. Power Output(dBm)	15.42	15.24	15.18	14.33	---	---	---	---
Peak. Power Output(dBm)	18.33	18.21	18.42	18.57	---	---	---	---

802.11g mode								
Data Rate	6M	9M	12M	18M	24M	36M	48M	54M
Avg. Power Output(dBm)	13.24	13.2	13.15	12.87	12.44	12.63	12.58	12.44
Peak. Power Output(dBm)	22.43	22.51	22.58	22.57	22.38	22.49	22.54	22.61

802.11n HT20 mode								
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	11.94	11.88	11.77	11.91	11.85	11.61	11.52	11.23
Peak. Power Output(dBm)	21.87	21.55	21.71	21.88	22.00	21.68	21.96	22.01

*The highest powers were chosen for the full test.

- e. Test modes:
 - Mode 1: 802.11b (11Mbps)
 - Mode 2: 802.11g (54Mbps)
 - Mode 3: 802.11n HT20 (65Mbps)
- Test Mode 1 generates the worst case; it was reported as final result.

2.4 Description of Test System

Device	Manufacturer	Model No.	Description
Notebook	DELL	LatitudeE5450/5450,BTX	Power Cable, Unshielding, 1.8m



2.5 General Information of Test

<input checked="" type="checkbox"/>	Test Site	CerpPASS Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582
	FCC	TW1079, TW1061,390316, 228391, 641184
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-3428, R-4218 for Radiated emission test G-812, G-813 for radiated disturbance above 1GHz
<input type="checkbox"/>	Test Site	CerpPASS Technology (Suzhou) Co.,Ltd Address: No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China Tel: +86-512-6917-5888 Fax: +86-512-6917-5666
	FCC	916572, 331395
	IC	7290A-1, 7290A-2
	VCCI	T-343 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test G-227 for radiated disturbance above 1GHz
Frequency Range Investigated:		Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 25,000MHz
Test Distance:		The test distance of radiated emission from antenna to EUT is 3 M.



3. Test Equipment and Ancillaries Used for Tests

Instrument	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Bilog Antenna	Schwarzbeck	VULB9168	275	2015/9/3	2016/9/2
Active Loop Antenna	EMCO	6507	40855	2015/3/12	2016/3/11
Horn Antenna	EMCO	3115	31601	2015/9/2	2016/9/1
Horn Antenna	EMCO	3116	31974	2015/9/7	2016/9/6
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200207	2015/3/14	2016/3/13
Preamplifier	QuieTek	AP-0100A	CHM090607 5	2015/9/17	2016/9/16
Preamplifier	Agilent	8449B	3008A01954	2015/3/5	2016/3/4
Preamplifier	MITEQ	AMF-7D-0010 100-30-10P	1860212	2015/3/9	2016/3/8
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2015/9/4	2016/9/3
Signal Generator	KEYSIGHT	83640A	2927A00107	2015/9/1	2016/8/31
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2015/3/13	2016/3/12
MXG-B RF Vector Signal Generator	KEYSIGHT	N5182B	MY53051383	2015/3/12	2016/3/11
BLUETOOTH TESTER	R&S	CBT	101133	2015/3/12	2016/3/11
Attenuator	KEYSIGHT	8491B	MY39250705	2015/9/2	2016/9/1
Rotary Attenuator	Agilent	8494B	MY42154466	2015/3/9	2016/3/8
Rotary Attenuator	Agilent	8495B	MY42146680	2015/3/9	2016/3/8
Temp & Humi chamber	T-MACHINE	TMJ-9712	T-12-040111	2015/09/08	2016/09/07
Series Power Meter	Anritsu	ML2495A	1224005	2015/3/5	2016/3/4
Power Sensor	Anritsu	MA2411B	1207295	2015/3/5	2016/3/4
USB Average Power Sensor	Theda	4PS6A	TW5451013~ 16	2014/11/8	2016/11/7



4. Antenna Requirements

4.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2 Antenna Construction and Directional Gain

No.	Antenna Type	Antenna Gain
A	Dipole antenna	4.82 dBi



5. Test of AC Power Line Conducted Emission

The EUT is powered from Notebook; this test item is not applicable.



6. Test of Radiated Spurious Emission

6.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

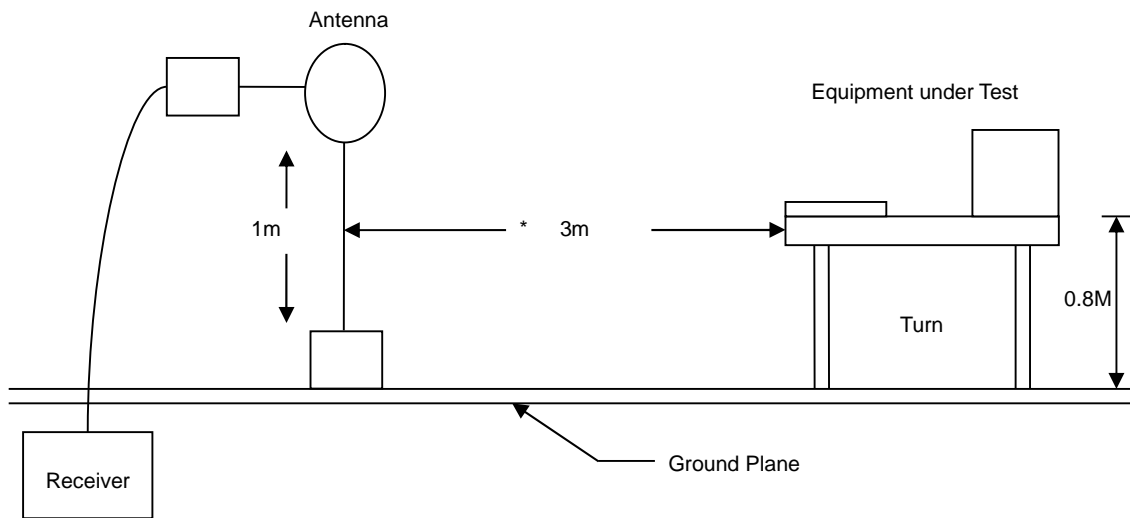
6.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

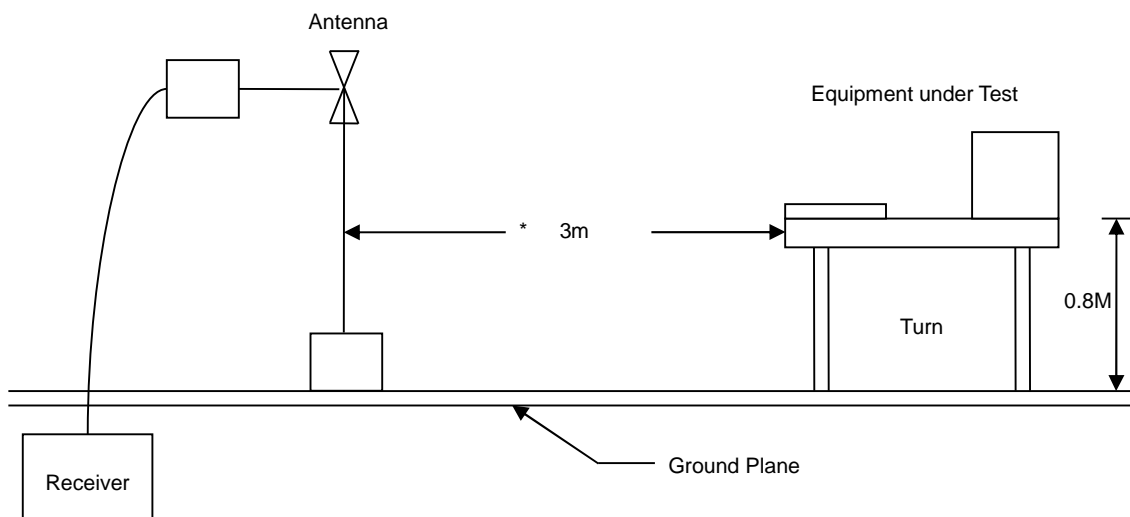


6.3 Typical Test Setup

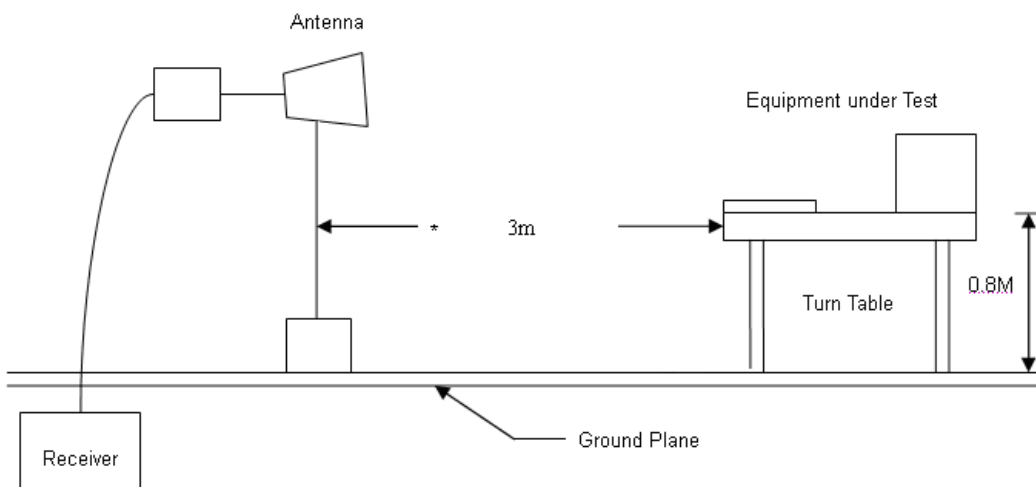
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup





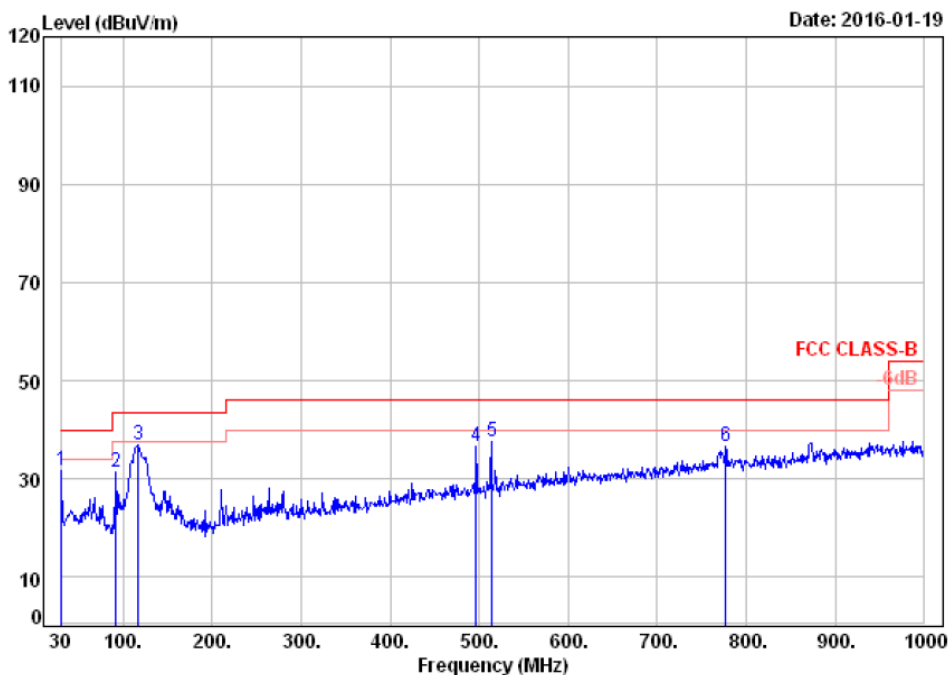
6.4 Test Result and Data (9KHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

6.5 Test Result and Data (30MHz ~ 1GHz)

6.5.1 Test Result and Data of Transmitter

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1	Temperature	: 24 °C
Test Date	: Jan. 19, 2016	Humidity	: 58 %
Memo	: CH 01	Atmospheric Pressure	: 1014 hpa

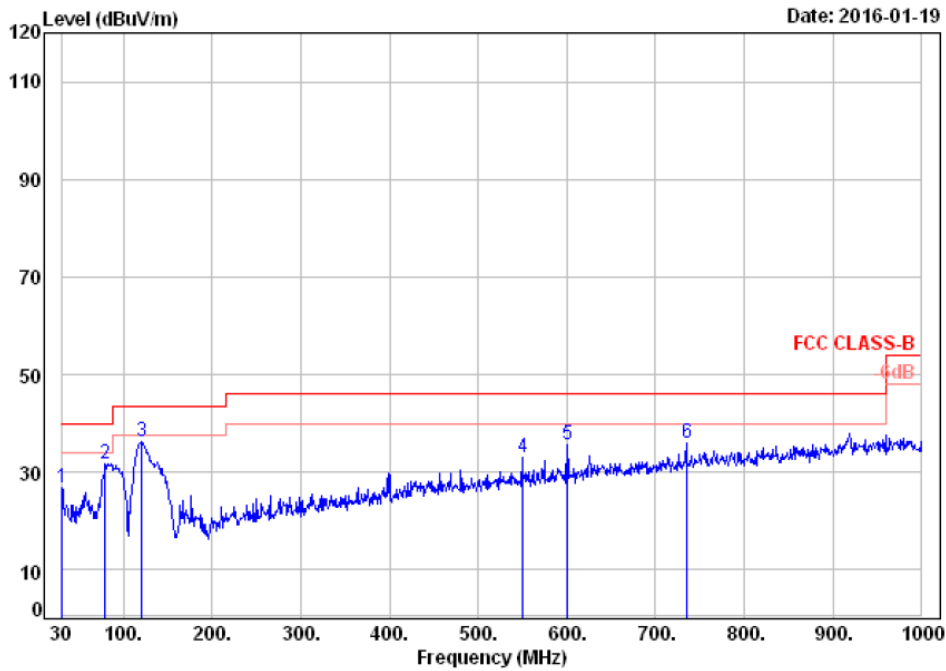


No.	Frequency (MHz)	Factor (dB)	Reading (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)
1	30.00	-16.46	48.20	31.74	40.00	-8.26	Peak	100	0
2	92.08	-21.18	52.42	31.24	43.50	-12.26	Peak	100	0
3	116.33	-18.16	55.12	36.96	43.50	-6.54	Peak	100	0
4	496.57	-8.87	45.63	36.76	46.00	-9.24	Peak	100	0
5	514.03	-8.56	46.09	37.53	46.00	-8.47	Peak	100	0
6	776.90	-3.95	40.41	36.46	46.00	-9.54	Peak	100	0

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1	Temperature	: 24 °C
Test Date	: Jan. 19, 2016	Humidity	: 58 %
Memo	: CH 01	Atmospheric Pressure	: 1014 hpa



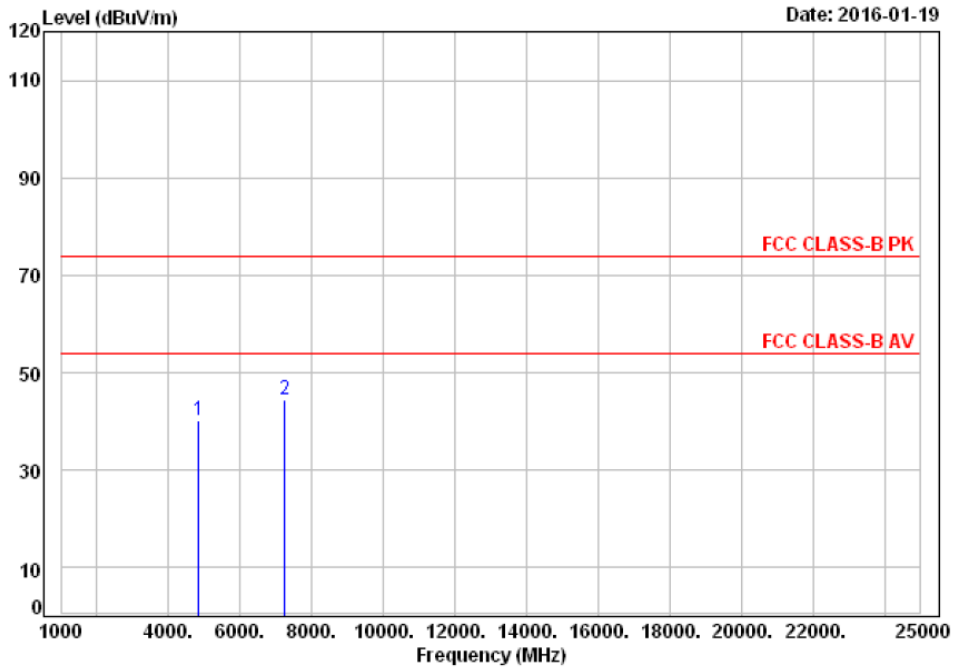
No.	Frequency (MHz)	Factor (dB)	Reading (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)
1	30.00	-16.46	43.25	26.79	40.00	-13.21	Peak	100	0
2	79.47	-19.58	51.44	31.86	40.00	-8.14	Peak	100	0
3	121.18	-17.72	53.89	36.17	43.50	-7.33	Peak	100	0
4	549.92	-8.01	40.94	32.93	46.00	-13.07	Peak	100	0
5	600.36	-6.79	42.43	35.64	46.00	-10.36	Peak	100	0
6	735.19	-4.54	40.51	35.97	46.00	-10.03	Peak	100	0

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



6.6 Test Result and Data (1GHz~25GHz)

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1	Temperature	: 24 °C
Test Date	: Jan. 19, 2016	Humidity	: 58 %
Memo	: CH 01	Atmospheric Pressure	: 1014 hpa

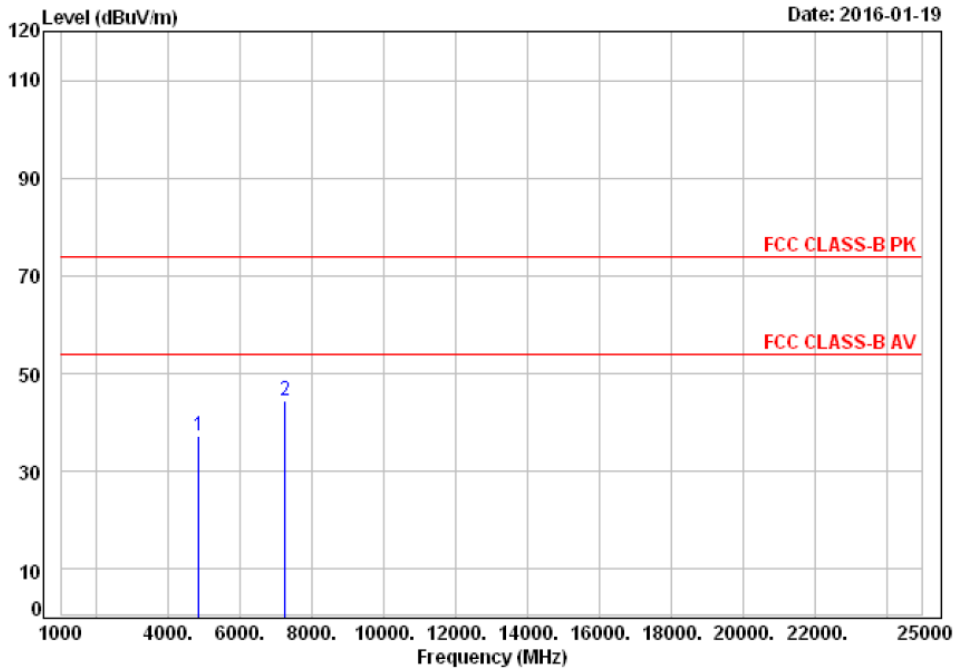


No.	Frequency (MHz)	Factor (dB)	Reading (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)
1	4824.00	-21.58	61.71	40.13	74.00	-33.87	Peak	100	0
2	7236.00	-16.74	61.20	44.46	74.00	-29.54	Peak	100	0

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1	Temperature	: 24 °C
Test Date	: Jan. 19, 2016	Humidity	: 58 %
Memo	: CH 01	Atmospheric Pressure	: 1014 hpa

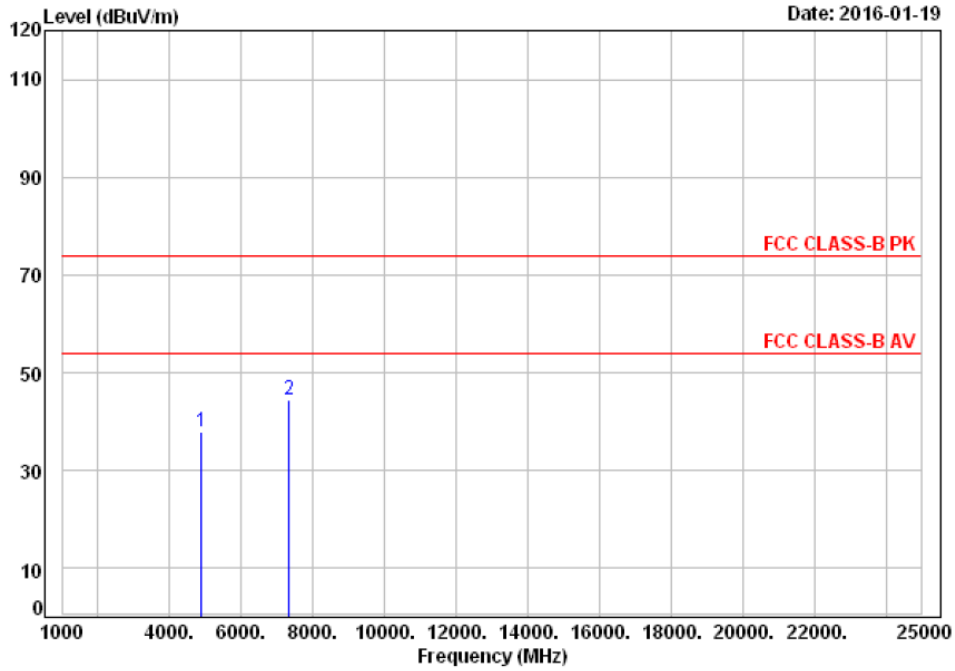


No.	Frequency (MHz)	Factor (dB)	Reading (dBm)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)
1	4824.00	-21.58	58.86	37.28	74.00	-36.72	Peak	100	0
2	7236.00	-16.74	61.05	44.31	74.00	-29.69	Peak	100	0

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1	Temperature	: 24 °C
Test Date	: Jan. 19, 2016	Humidity	: 58 %
Memo	: CH 06	Atmospheric Pressure	: 1014 hpa

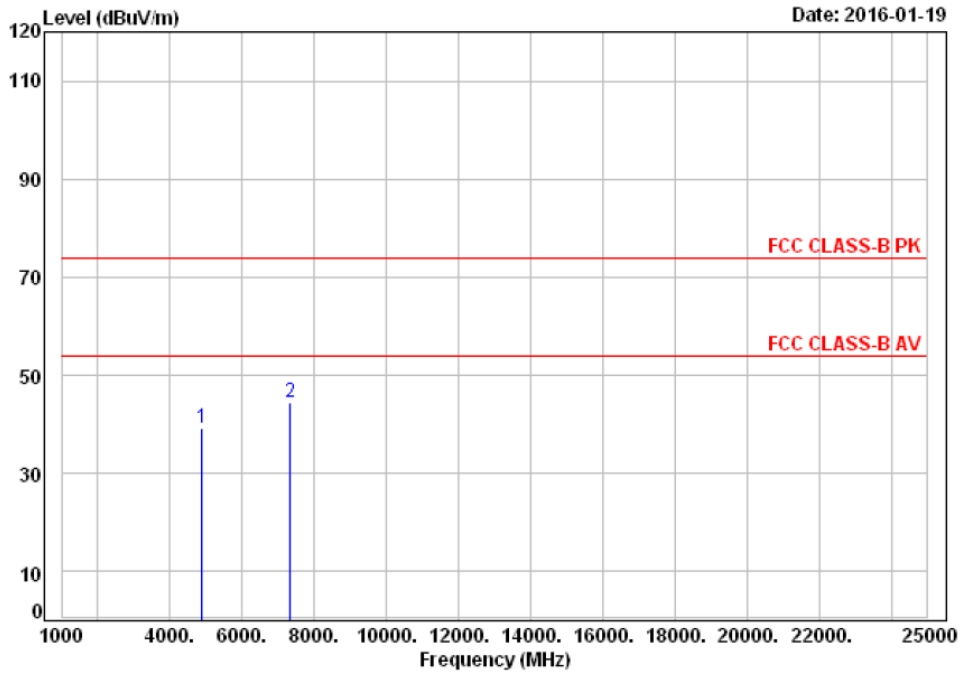


No.	Frequency (MHz)	Factor (dB)	Reading (dBm)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)
1	4874.00	-21.47	59.34	37.87	74.00	-36.13	Peak	100	0
2	7311.00	-16.43	60.82	44.39	74.00	-29.61	Peak	100	0

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1	Temperature	: 24 °C
Test Date	: Jan. 19, 2016	Humidity	: 58 %
Memo	: CH 06	Atmospheric Pressure	: 1014 hpa

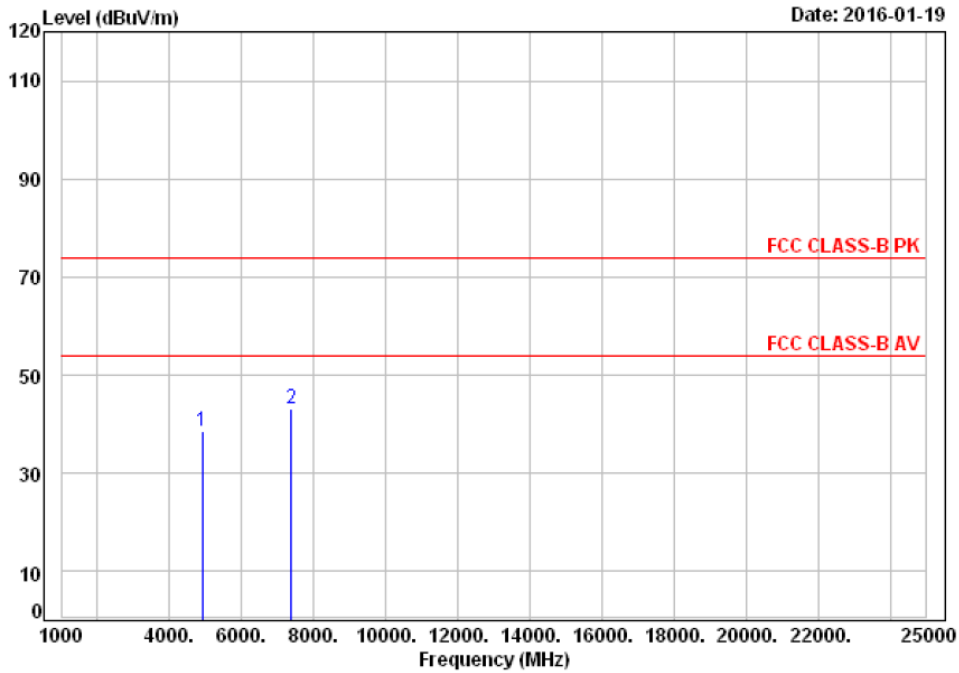


No.	Frequency (MHz)	Factor (dB)	Reading (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)
1	4874.00	-21.47	60.82	39.35	74.00	-34.65	Peak	100	0
2	7311.00	-16.43	60.92	44.49	74.00	-29.51	Peak	100	0

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1	Temperature	: 24 °C
Test Date	: Jan. 19, 2016	Humidity	: 58 %
Memo	: CH 11	Atmospheric Pressure	: 1014 hpa

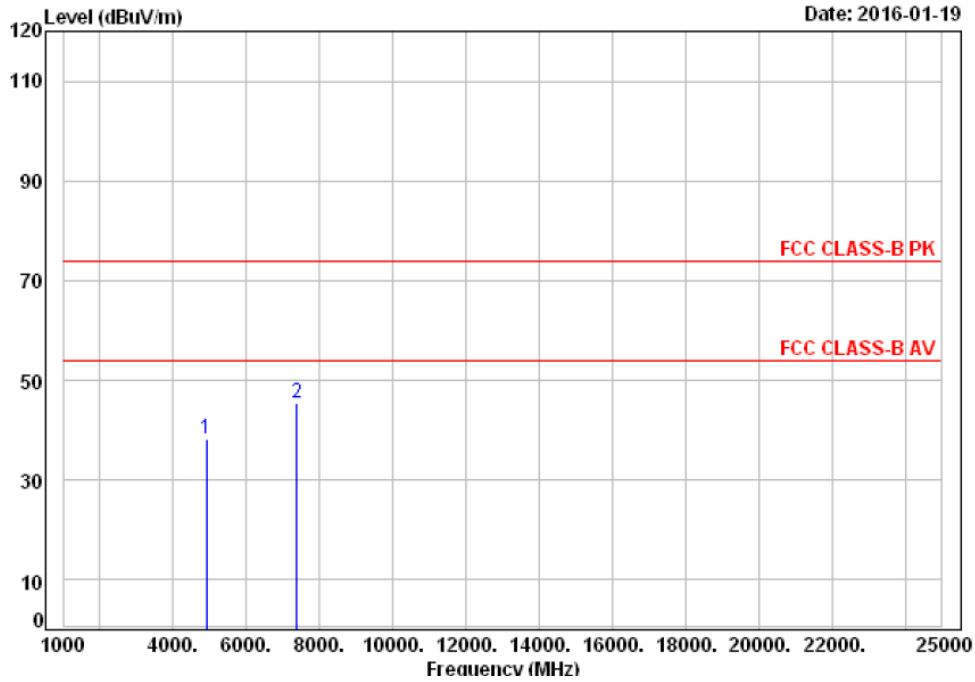


No.	Frequency (MHz)	Factor (dB)	Reading (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)
1	4904.00	-21.41	60.03	38.62	74.00	-35.38	Peak	100	0
2	7356.00	-16.23	59.42	43.19	74.00	-30.81	Peak	100	0

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1	Temperature	: 24 °C
Test Date	: Jan. 19, 2016	Humidity	: 58 %
Memo	: CH 11	Atmospheric Pressure	: 1014 hpa



No.	Frequency (MHz)	Factor (dB)	Reading (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)
1	4904.00	-21.41	59.53	38.12	74.00	-35.88	Peak	100	0
2	7356.00	-16.23	61.74	45.51	74.00	-28.49	Peak	100	0

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor.



6.7 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

**6.8 Restrict Band Emission Measurement Data**

Test Date: Dec. 16, 2015

Temperature: 22 °C

Atmospheric pressure: 1008 hPa

Humidity: 52 %

Modulation Standard: IEEE 802.11b

Duty cycle: 0.7981

AVG Compensate = $10\log(1/\text{duty cycle}) = 0.97$

Channel 1						Fundamental Frequency: 2412 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2390.00	V	53.48	-0.98	52.50	Peak	74	54	-21.50	0	2.00
---	V	---	---	---	Ave	74	54	---	---	---
2390.00	H	50.98	-0.98	50.00	Peak	74	54	-24.00	0	1.00
---	H	---	---	---	Ave	74	54	---	---	---
Channel 11						Fundamental Frequency: 2462 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2486.89	V	53.74	-0.60	53.14	Peak	74	54	-20.86	0	2.00
---	V	---	---	---	Ave	74	54	---	---	---
2485.02	H	48.72	-0.61	48.11	Peak	74	54	-25.89	0	1.00
---	H	---	---	---	Ave	74	54	---	---	---

Modulation Standard: IEEE 802.11g

Duty cycle: 0.8348

AVG Compensate = $10\log(1/\text{duty cycle}) = 0.78$

Channel 1						Fundamental Frequency: 2412 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2389.05	V	65.11	-0.99	64.12	Peak	74	54	-9.88	119	1.14
2389.05	V	45.86	-0.21	48.65	Ave	74	54	-5.35	119	1.14
2389.66	H	59.68	-0.98	58.70	Peak	74	54	-15.30	217	1.00
2389.66	H	43.18	-0.20	42.98	Ave	74	54	-11.02	217	1.00
Channel 11						Fundamental Frequency: 2462 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2483.54	V	65.91	-0.61	65.30	Peak	74	54	-8.70	130	1.05
2483.54	V	48.11	0.17	48.28	Ave	74	54	-5.72	130	1.05
2483.50	H	54.96	-0.61	54.35	Peak	74	54	-19.65	217	1.05
2483.50	H	40.41	0.17	41.19	Ave	74	54	-13.42	217	1.05



Modulation Standard: IEEE 802.11n HT20

Duty cycle: 0.8221

AVG Compensate = 10Log(1/duty cycle)= 0.85

Channel 1						Fundamental Frequency: 2412 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2383.95	V	61.07	-1.00	60.07	Peak	74	54	-13.93	120	1.02
2383.95	V	44.58	-0.15	44.43	Ave	74	54	-9.57	120	1.02
2390.00	H	55.23	-0.98	54.25	Peak	74	54	-19.75	248	1.20
2390.00	H	41.48	-0.13	41.35	Ave	74	54	-12.65	248	1.20
Channel 11						Fundamental Frequency: 2462 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2484.38	V	61.09	-0.61	60.48	Peak	74	54	-13.52	128	1.00
2484.38	V	45.84	0.24	46.08	Ave	74	54	-7.92	128	1.00
2485.67	H	53.87	-0.61	53.26	Peak	74	54	-20.74	0	1.00
---	H	---	---	---	Ave	74	54	---	---	---

Notes:

1. Result = Meter Reading + Factor
2. Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz (detector peak mode) for Peak detection at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz (detector sample mode) for Average detection at frequency above 1GHz.



7. Test of Conducted Spurious Emission

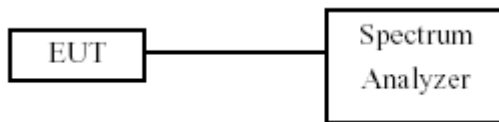
7.1 Test Limit

Below -20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

7.2 Test Procedure

- a. The transmitter output was connected to the spectrum analyzer via a low lose cable.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- c. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
- d. The band edges was measured and recorded.

7.3 Test Setup Layout



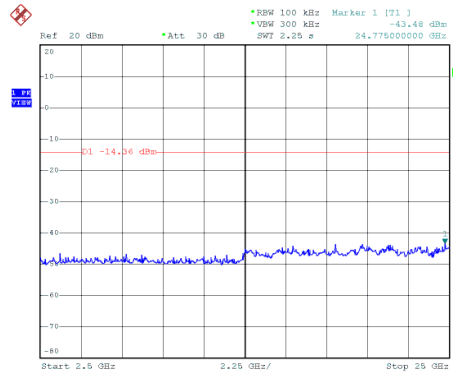
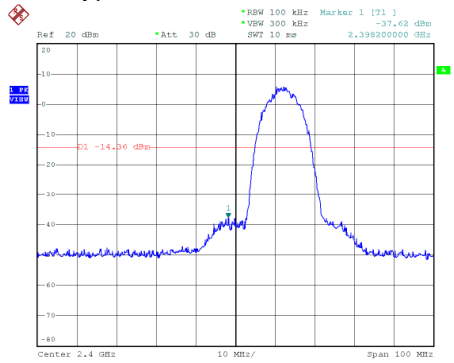
7.4 Test Result and Data

Test Date	: Dec. 21, 2015	Temperature	: 20°C
Atmospheric pressure	: 1052 hPa	Humidity	: 51%
Test Result	: PASS		

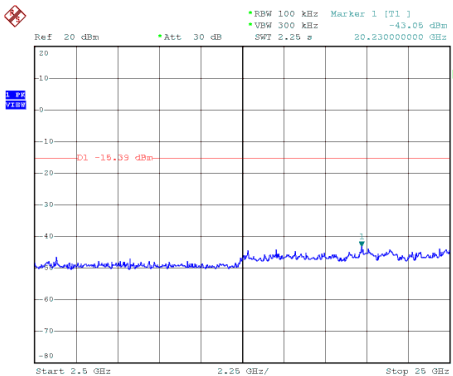
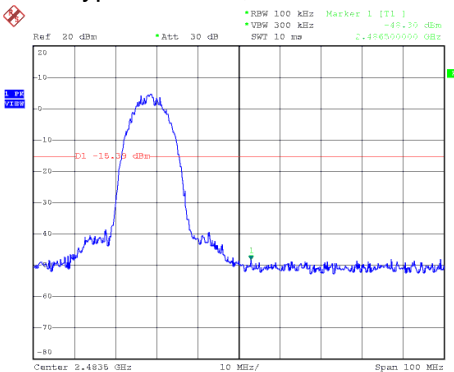
Note: Test plots refers to the following pages.



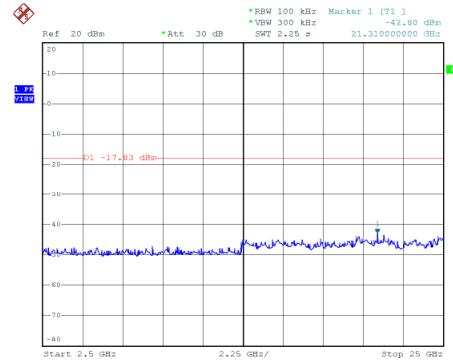
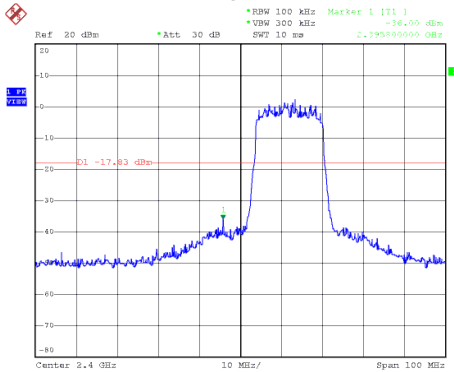
Modulation Type: 802.11b, CH01



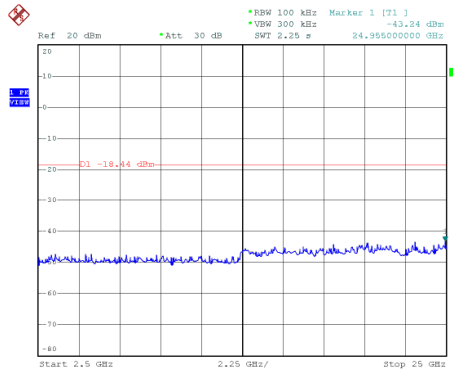
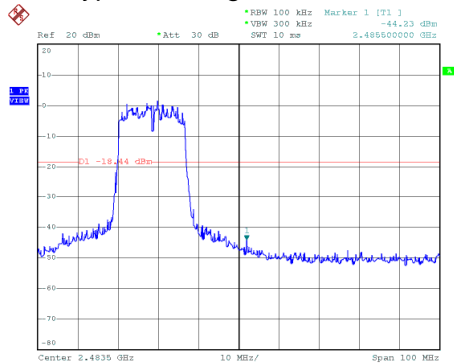
Modulation Type: 802.11b, CH11



Modulation Type: 802.11g, CH01

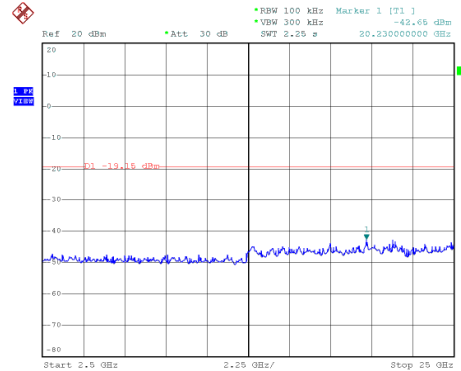
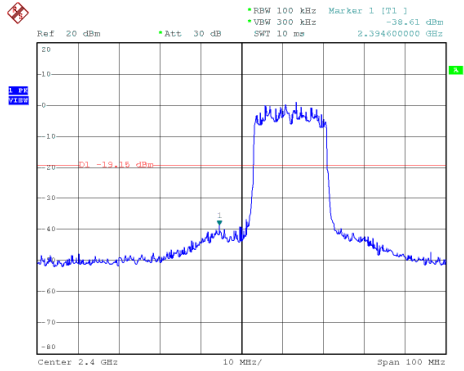


Modulation Type: 802.11g, CH11

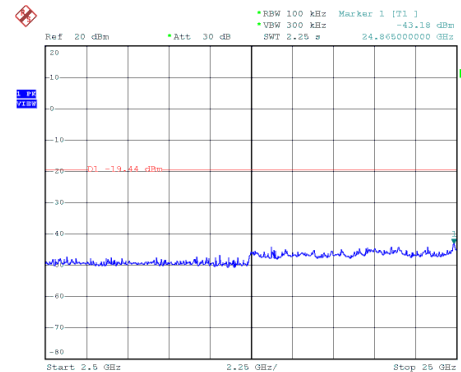
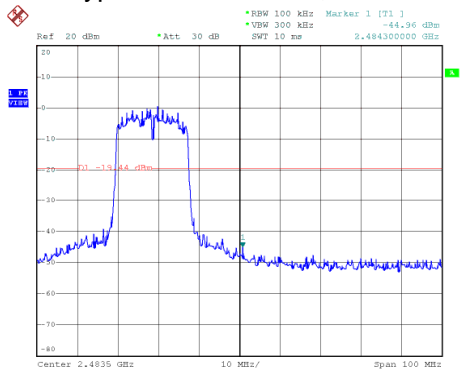




Modulation Type: 802.11n HT20, CH01



Modulation Type: 802.11n HT20, CH11





8. Occupied Bandwidth Measurement Data

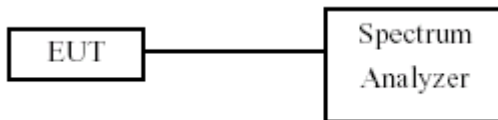
8.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

8.2 Test Procedures

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW of spectrum analyzer to 1~5% of the emission bandwidth and VBW \geq 3x RBW.
- c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
- d. The 6dB Bandwidth was measured and recorded.

8.3 Test Setup Layout





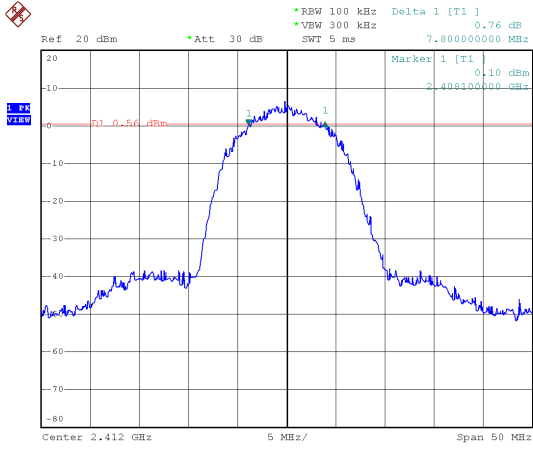
8.4 Test Result and Data

Test Date : Dec. 21, 2015 Temperature : 20°C
Atmospheric pressure : 1052 hPa Humidity : 51 %

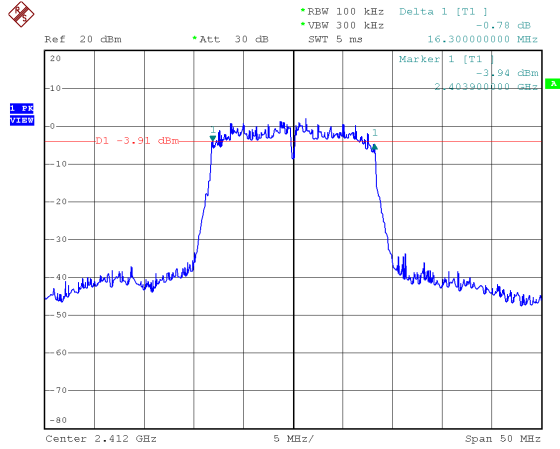
Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)
IEEE 802.11b (11Mbps)	01	2412	7.80
	06	2437	7.40
	11	2462	7.50
IEEE 802.11g (54Mbps)	01	2412	16.30
	06	2437	16.20
	11	2462	16.30
IEEE 802.11n HT20 (65Mbps)	01	2412	17.70
	06	2437	17.60
	11	2462	17.60



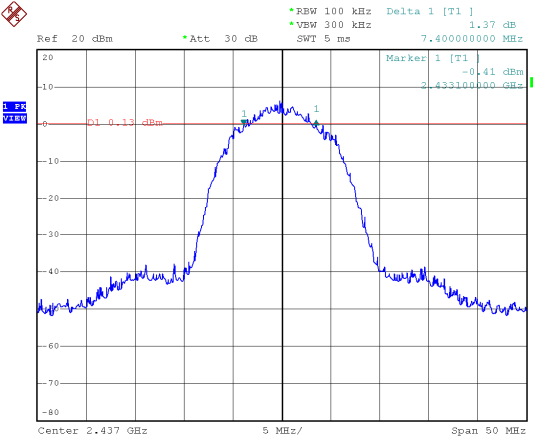
Modulation Type: 802.11b
CH01



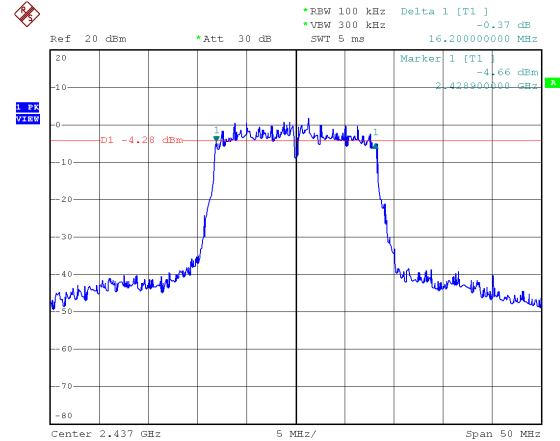
Modulation Type: 802.11g
CH01



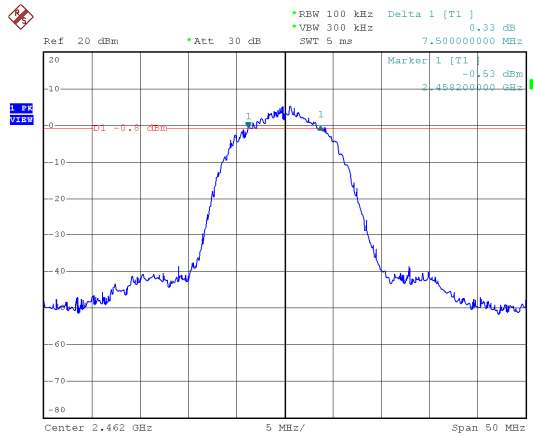
CH06



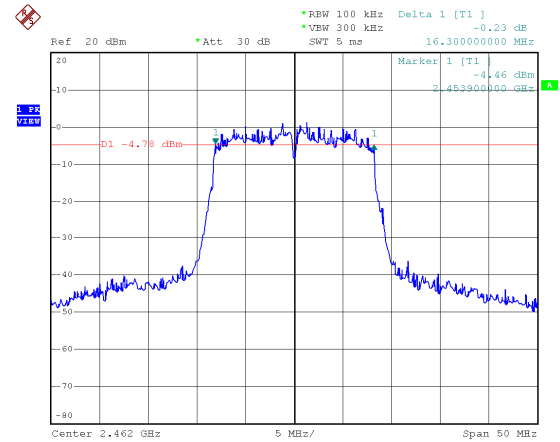
CH06



CH11

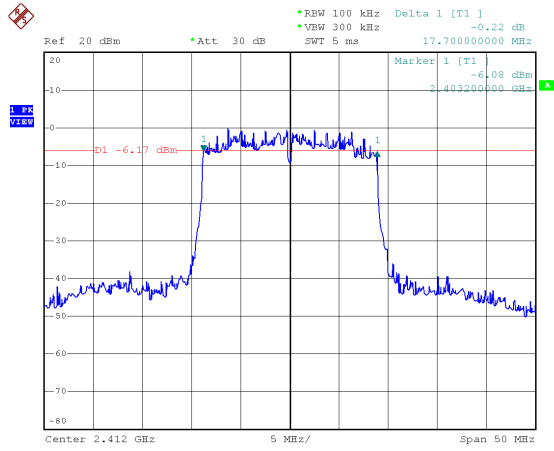


CH11

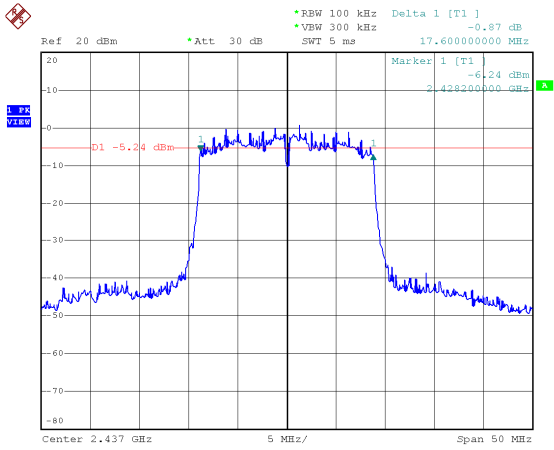




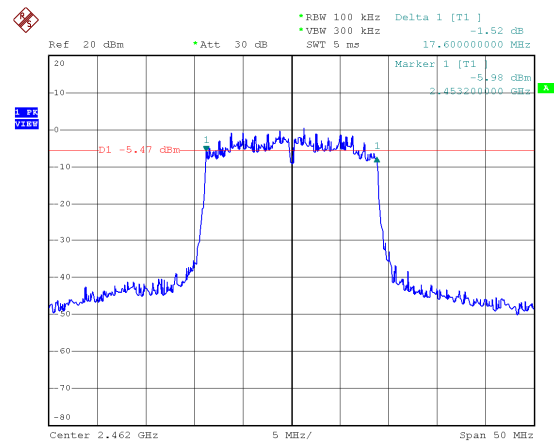
Modulation Type: 802.11n HT20
CH01



CH06



CH11





9. Maximum Peak and Average Output Power

9.1 Test Limit

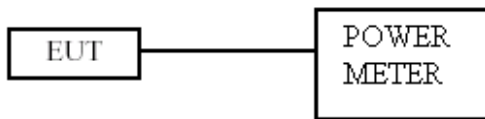
The Maximum Peak Output Power Measurement is 30dBm.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

9.2 Test Procedures

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

9.3 Test Setup Layout



9.4 Test Result and Data

Test Date : Dec. 21, 2015 Temperature : 20°C
 Atmospheric pressure : 1052 hPa Humidity : 51%

Modulation Type	Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Output (mW)
IEEE 802.11b (11Mbps)	01	2412	18.57	71.94
	06	2437	18.14	65.16
	11	2462	17.86	61.09
IEEE 802.11g (54Mbps)	01	2412	22.61	182.39
	06	2437	22.24	167.49
	11	2462	21.97	157.40
IEEE 802.11n HT20 (65Mbps)	01	2412	22.01	158.85
	06	2437	21.63	145.55
	11	2462	21.32	135.52



10. Power Spectral Density

10.1 Test Limit

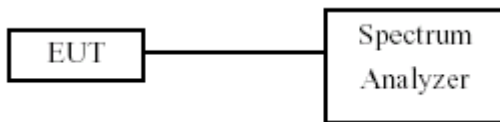
The Maximum of Power Spectral Density Measurement is 8dBm.

If transmitting antennas of directional gain greater than 6 dBi are used, the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

10.2 Test Procedures

- a. The transmitter output was connected to spectrum analyzer.
- b. The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=auto couple.
- c. The power spectral density was measured and recorded.

10.3 Test Setup Layout





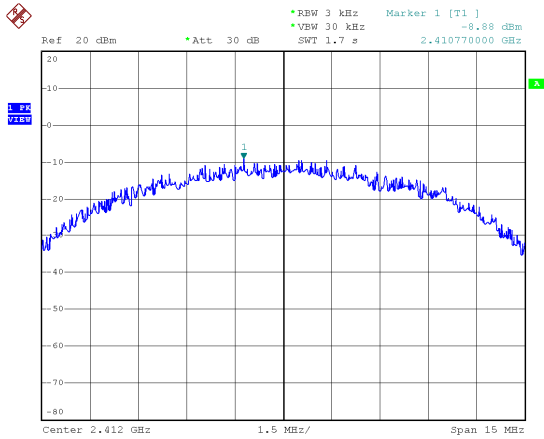
10.4 Test Result and Data

Test Date : Dec. 21, 2015 Temperature : 20°C
Atmospheric pressure : 1052 hPa Humidity : 51%

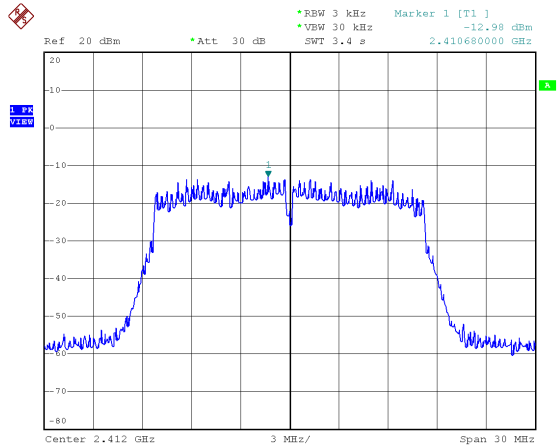
Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3 kHz Bandwidth (dBm)
IEEE 802.11b (11Mbps)	01	2412	-8.88
	06	2437	-8.29
	11	2462	-8.05
IEEE 802.11g (54Mbps)	01	2412	-12.98
	06	2437	-13.32
	11	2462	-13.32
IEEE 802.11n HT20 (65Mbps)	01	2412	-14.50
	06	2437	-14.55
	11	2462	-14.10



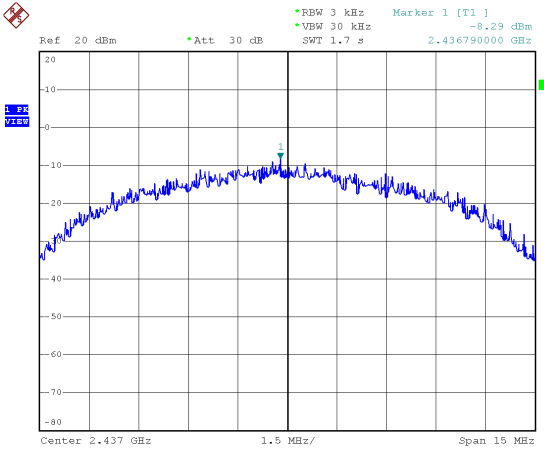
Modulation Type: 802.11b
CH01



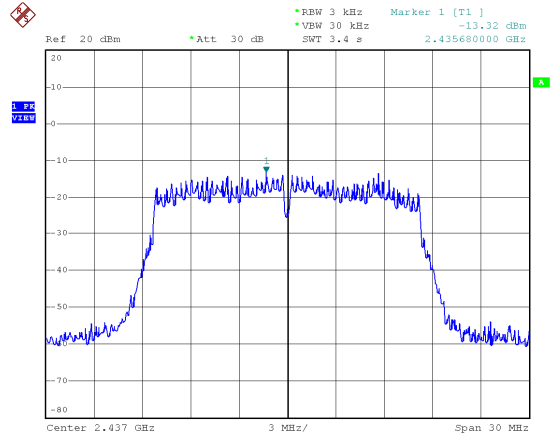
Modulation Type: 802.11g
CH01



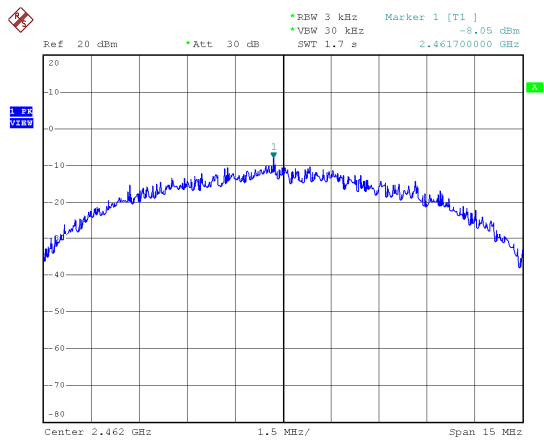
CH06



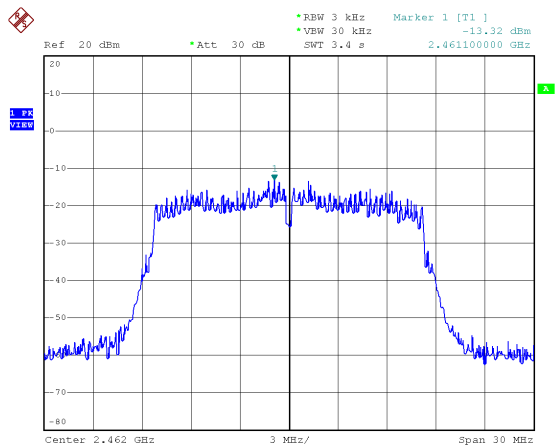
CH06



CH11

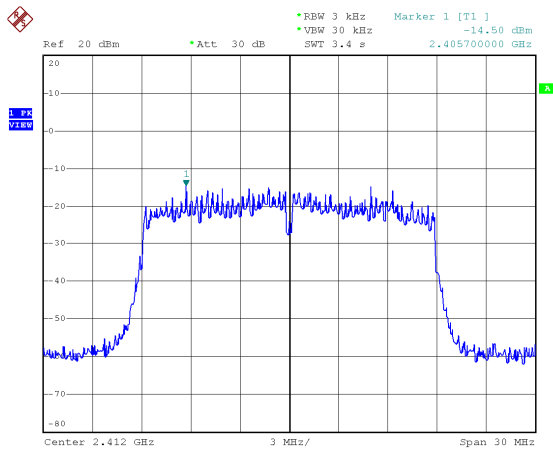


CH11

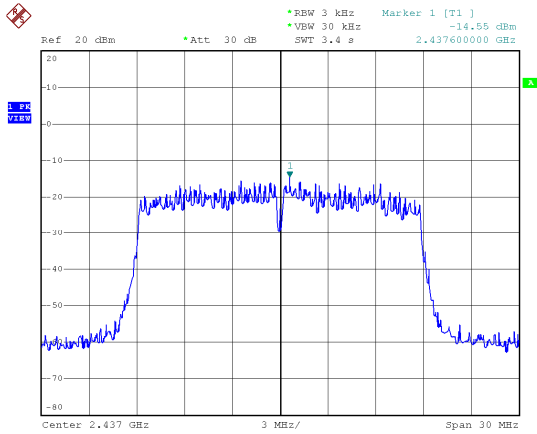




Modulation Type: 802.11n HT20
CH01



CH06



CH11

