



FCC 47 CFR PART 15 SUBPART C

for

ADSL2+ 4-PORT 802.11N WiFi Router

Model: 6519-W1-XXYYYY

("XX"= NA, EU, UK, etc. Which indicates the used adapter with different plug, the first "Y"=a dash "-" or blank, the second to fourth "Y"=0~9, or A~Z, or blank which identifies different marketing areas.)

Brand: ZHONE

Test Report Number:

C140902Z01-RP1

Issued Date: September 9, 2014

Issued for

Zhone Technologies, Inc.

7195 Oakport Street Oakland, CA 94621 USA

Issued by:

Compliance Certification Services (Shenzhen) Inc.

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Revision History

Rev.	Issue No.	Revisions	Effect Page	Revised By
00	C131128Z01-RP1	Initial Issue	ALL	Sinphy Xie
01	C140902Z01-RP1	Update	ALL	Nancy Fu

- Note:** This report is updated base on the original report C130524Z02-RP1.
- 1.The applicant company changed the company name, the address, the brand, the model name, in addition, model of MSP-C1000IC12.0-12W-US adapter is deleted, and added two new adapters based on DA2010 model in Initial report (C130524Z02-RP1), the model's ports is the same as DA2210, Besides, there are appearance and antenna gain difference between the new model and the Initial model. After reassessment, all the items was re-tested.
 2. The other information, please refer to the Report No.: C130524Z02-RP1 and this report.

Rev.01: (C140902Z01-RP1)

1. This report updated the product name, the model name(the model is the same as the Initial model SR320n), the brand name, the applicant and the manufacturer; deleted two adapters (S12A02-120A100-P4 & RD1201000-C55-2MG); the EUT screen printing was changed, please see the external photos for detail.
2. The other information, please refer to the Report No.: C131128Z01-RP1 and this report.



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1 TEST CERTIFICATION

Product	ADSL2+ 4-PORT 802.11N WiFi Router
Model	6519-W1-XXYYYY (“XX”= NA, EU, UK, etc. Which indicates the used adapter with different plug, the first “Y”=a dash “-” or blank, the second to fourth “Y”=0~9, or A~Z, or blank which identifies different marketing areas.)
Brand	ZHONE
Tested	November 28~December 23, 2013
Applicant	Zhone Technologies, Inc. 7195 Oakport Street Oakland, CA 94621 USA
Manufacturer	Zhone Technologies, Inc. 7195 Oakport Street Oakland, CA 94621 USA

APPLICABLE STANDARDS			
Standard	Test Type	Standard	Test Type
15.207(a)	Power Line Conducted Emissions	15.247(d) 15.209(a)	<ul style="list-style-type: none"> ● Spurious Emissions ● Conducted Measurement ● Radiated Emissions
15.247(a)(2)	6dB Bandwidth Measurement	15.247(b)(3) 15.247(b)(4)	Peak Power Measurement
15.247(d)	Band Edges Measurement	15.247(e)	Peak Power Spectral Density

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in **ANSI C63.4: 2009** and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by:

Reviewed by:

Sunday Hu
Supervisor of EMC Dept.
Compliance Certification Service Inc.

Ruby Zhang
Supervisor of Report Dept.
Compliance Certification Service Inc.



2 TEST RESULT SUMMARY

APPLICABLE STANDARDS			
Standard	Test Type	Result	Remark
15.247(a)(2)	6dB Bandwidth Measurement	Pass	Meet the requirement of limit.
15.247(b)(3) 15.247(b)(4)	Peak Power Measurement	Pass	Meet the requirement of limit.
15.247(d)	Band Edges Measurement	Pass	Meet the requirement of limit.
15.247(e)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.247(d) 15.209(a)	<ul style="list-style-type: none">● Spurious Emissions● Conducted Measurement● Radiated Emissions	Pass	Meet the requirement of limit.
15.207(a)	Power line Conducted Emissions	Pass	Meet the requirement of limit.

Note: 1. The statements of test result on the above are decided by the request of test standard only; the measurement uncertainties are not factored into this compliance determination.

2. The information of measurement uncertainty is available upon the customer's request.



3 EUT DESCRIPTION

Product	ADSL2+ 4-PORT 802.11N WiFi Router
Model Number	6519-W1-XXYYYY
Brand	ZHONE
Model Discrepancy	"XX"= NA, EU, UK, etc. Which indicates the used adapter with different plug, the first "Y"=a dash "-" or blank, the second to fourth "Y"=0~9, or A~Z, or blank which identifies different marketing areas.
Serial Number	C140902Z01-RP1
Received Date	November 28, 2013 & September 2, 2014
Power Supply	DC12V powered by the adapter
Adapter Manufacturer/ Model Name	Shenzhen Gongjin Electronics Co., Ltd./ S12B22-120A100-04 I/P: 100-240Vac, 50/60Hz, max 0.5A O/P: 12Vdc, 1A, DC Output Cable: Unshielded,1.30m
Transmit Power	IEEE 802.11b mode: 17.88dBm IEEE 802.11g mode: 23.60dBm(Antenna 0) IEEE 802.11g mode: 23.06dBm(Antenna 1) IEEE 802.11n HT20 MHz mode: 24.59101dBm(Combine with Antenna 0 and Antenna 1) IEEE 802.11n HT40 MHz mode: 24.15808dBm(Combine with Antenna 0 and Antenna 1)
Modulation Technique	IEEE 802.11b mode: DSSS(CCK,QPSK, BPSK) IEEE 802.11g mode: OFDM (BPSK/QPSK/16QAM/64QAM) IEEE 802.11n HT20 MHz mode: OFDM (BPSK/QPSK/16QAM/64QAM) IEEE 802.11n HT40 MHz mode: OFDM (BPSK/QPSK/16QAM/64QAM)
Transmit Data Rate	IEEE 802.11b: 11Mbps(CCK) with fall back rates of 5.5/2/1Mbps IEEE 802.11g: 54Mbps with fall back rates of 48/36/24/18/12/9 /6Mbps IEEE 802.11n HT20:130Mbps with fall back rates of 130/117/104/78/52/39/26/13Mbps IEEE 802.11nHT40:270Mbps with fall back rates of 270/243/216/162/108/81/54/27Mbps
Number of Channels	IEEE 802.11b mode: 11 Channels IEEE 802.11g mode: 11 Channels IEEE 802.11n HT20 MHz mode: 11 Channels IEEE 802.11n HT40 MHz mode:7 Channels
Antenna Specification	PCB Antenna with 1.0dBi gain (Max)
Channels Spacing	IEEE 802.11b/g ,802.11n HT20/HT40 : 5MHz
Temperature Range	0°C ~ +40°C

Note: 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

2. This submittal(s) (test report) is intended for FCC ID: **PJZ6519W1** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



4 TEST METHODOLOGY

4.1. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Test Item	Test mode	Worse mode
Conducted Emission	Mode 1: Normal	Mode 1
Radiated Emission	Mode 1: TX	Mode 1

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only, and power line conducted emission below 30MHz, which worst case was in normal link mode.

IEEE802.11b mode: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High(2462MHz) with 1Mbps data rate were chosen for full testing.

IEEE802.11g mode: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT20 MHz mode: Channel Low (2412MHz), Channel Mid(2437MHz) and Channel High (2462MHz) with 13Mbps data rate were chosen for full testing.

IEEE 802.11n HT40 MHz mode: Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with 27Mbps data rate were chosen for full testing.



5 SETUP OF EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model No.	Serial No.	FCC ID	Brand	Data Cable	Power Cord
1	Notebook1#	B475	WB04861612	N/A	LENOVO	Shielded, 18.00m	Unshielded, 1.80m
2	Notebook2#	992F2VG	62P7043	N/A	IBM	Shielded, 18.00m	UnShielded 1.80m
3	Ipod	A1285	YM908BYU3QX	N/A	iPod	Shielded, 1.80m	Unshielded, 1.50m
4	DSL Source	IES1000	S110203018444	N/A	ZYXEL	Shielded, 22.00m	Unshielded 1.80m

Note:

Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2. CONFIGURATION OF SYSTEM UNDER TEST

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.



6 FACILITIES AND ACCREDITATIONS

6.1. FACILITIES

All measurement facilities used to collect the measurement data are located at **No.10-1 Mingkeda Logistics park, No.18, Huanguan South Rd., Guan Lan Town, Baoan District, Shenzhen, China**

The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

USA	A2LA
China	CNAS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

USA	FCC
Japan	VCCI(C-3478, R-3135, T-652, G-624)
Canada	INDUSTRY CANADA
Taiwan	BSMI
Norway	Nemko

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.ccsrf.com>

6.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Parameter	Uncertainty
Radiated Emission, 30 to 200 MHz Test Site : 966(2)	+/-3.6880dB
Radiated Emission, 200 to 1000 MHz Test Site : 966(2)	+/-3.6695dB
Radiated Emission, 1 to 8 GHz	+/-5.1782dB
Radiated Emission, 8 to 18 GHz	+/-5.2173dB
Conducted Emissions	+/-3.6836dB
Band Width	178kHz
Peak Output Power MU	+/-1.906dB
Band Edge MU	+/-0.182dB
Channel Separation MU	416.178Hz
Duty Cycle MU	0.054ms
Frequency Stability MU	226Hz

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

The measured result is above (below) the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance (non-compliance) is more probable than non-compliance) with the specification limit.



7 FCC PART 15.247 REQUIREMENTS

7.1. POWER LINE CONDUCTED EMISSIONS MEASUREMENT

7.1.1. LIMITS OF CONDUCTED EMISSIONS MEASUREMENT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

NOTE:

- (1) The lower limit shall apply at the transition frequencies.
- (2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

7.1.2. TEST INSTRUMENTS

Conducted Emission Test Site					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
ESCI EMI TEST RECEIVER.ESCI	ROHDE&SCHWARZ	ESCI	100783	03/09/2013	03/08/2014
LISN(EUT)	ROHDE&SCHWARZ	ENV216	101543-WX	09/20/2013	09/20/2014
LISN	EMCO	3825/2	8901-1459	03/09/2013	03/08/2014
Temp. / Humidity Meter	VICTOR	HTC-1	N/A	03/04/2013	03/03/2014
Test S/W	FARAD	EZ-EMC/ CCS-3A1-CE			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R = No Calibration Request.

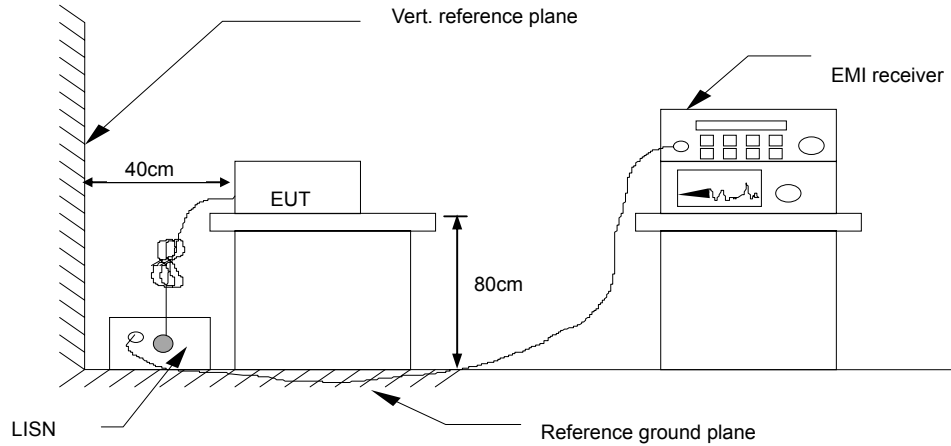


7.1.3. TEST PROCEDURES (please refer to measurement standard)

- The EUT and Support equipment, if needed, was placed on a non-conducted table, which is 0.8m above the ground plane and 0.4m away from the conducted wall.
- The test equipment EUT installed received AC main power, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane. All support equipment power received from a second LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The frequency range from 150 kHz to 30 MHz was searched. The test data of the worst-case condition(s) was recorded. Emission levels under limit 20dB were not recorded.



7.1.4. TEST SETUP



For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

7.1.5. DATA SAMPLE

Frequency (MHz)	LISN Factor (dB)	Cable Loss (dB)	Meter Reading (dBuV)	Measured Level (dBuV)	Limits (dBuV)	Over Limits (dBuV)	Detector	Line (L1/L2)
X.XX	8.93	0.07	25.96	34.96	60.00	-25.04	QP	L1

- Freq. = Emission frequency in MHz
- LISN Factor = Insertion loss of LISN and Pulse Limiter
- Cable Loss = Insertion loss of Cable (LISN to EMI Tester Receiver)
- Meter Reading = Uncorrected Analyzer/Receiver reading
- Measured Level = Read Level + Factor
- Limit = Limit stated in standard
- Over Limit = Reading in reference to limit
- Peak = Peak Reading
- QP = Quasi-peak Reading
- AV = Average Reading

Calculation Formula

1. Measured Level (dBuV) = LISN Factor (dB) + Cable Loss (dB)+ Meter Reading (dBuV)
2. Over Limit (dBuV) = Measured Level (dBuV) – Limits (dBuV)



7.1.6. TEST RESULTS

Model No.	6519-W1-NA	RBW,VBW	9 kHz
Environmental Conditions	26°C, 60% RH	Test Mode	Mode 1
Tested by	Sun Guo	Line	L1

(The chart below shows the highest readings taken from the final data.)

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1500	44.08	28.38	9.58	53.66	37.96	65.99	56.00	-12.33	-18.04	Pass
0.1780	39.32	24.86	9.65	48.97	34.51	64.57	54.58	-15.60	-20.07	Pass
0.2100	35.31	22.26	9.69	45.00	31.95	63.20	53.21	-18.20	-21.26	Pass
0.4380	29.88	21.33	9.68	39.56	31.01	57.10	47.10	-17.54	-16.09	Pass
2.6180	26.77	18.18	9.72	36.49	27.90	56.00	46.00	-19.51	-18.10	Pass
7.2300	30.77	20.81	9.79	40.56	30.60	60.00	50.00	-19.44	-19.40	Pass

NOTE: L1 = Line One (Live Line)

Model No.	6519-W1-NA	RBW,VBW	9 kHz
Environmental Conditions	26°C, 60% RH	Test Mode	Mode 1
Tested by	Sun Guo	Line	L2

(The chart below shows the highest readings taken from the final data.)

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1500	44.08	28.38	9.58	53.66	37.96	65.99	56.00	-12.33	-18.04	Pass
0.1780	39.32	24.86	9.65	48.97	34.51	64.57	54.58	-15.60	-20.07	Pass
0.2100	35.31	22.26	9.69	45.00	31.95	63.20	53.21	-18.20	-21.26	Pass
0.4380	29.88	21.33	9.68	39.56	31.01	57.10	47.10	-17.54	-16.09	Pass
2.6180	26.77	18.18	9.72	36.49	27.90	56.00	46.00	-19.51	-18.10	Pass
7.2300	30.77	20.81	9.79	40.56	30.60	60.00	50.00	-19.44	-19.40	Pass

NOTE: L2 = Line Two (Neutral Line).



7.2. SPURIOUS EMISSIONS MEASUREMENT

7.2.1. LIMITS OF CONDUCTED EMISSIONS MEASUREMENT

§15.247(d) specifies that in any 100 kHz bandwidth outside of the authorized frequency band, the power shall be attenuated according to the following conditions:

If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to 15.247(b)(3) requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to 15.247(b)(3) requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

7.2.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Due Calibration
Spectrum Analyzer	Agilent	E4446A	US44300399	03/09/2013	03/08/2014

7.2.3. TEST PROCEDURE (please refer to measurement standard)

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

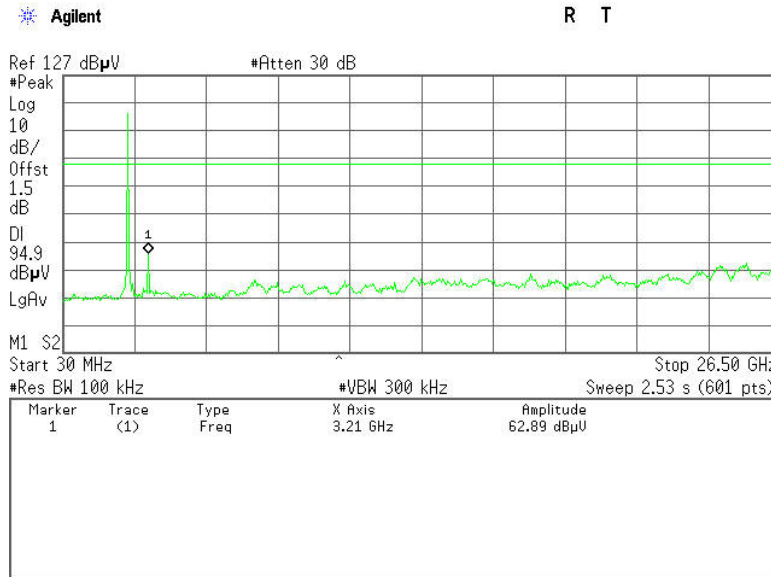


7.2.4. TEST RESULTS

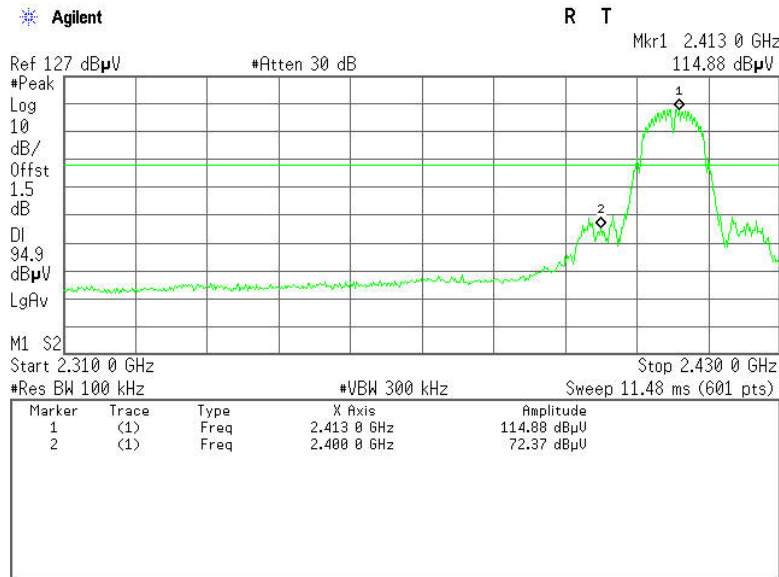
Test Plot
Antenna 0

IEEE 802.11b mode

CH Low (30MHz ~26.5GHz)

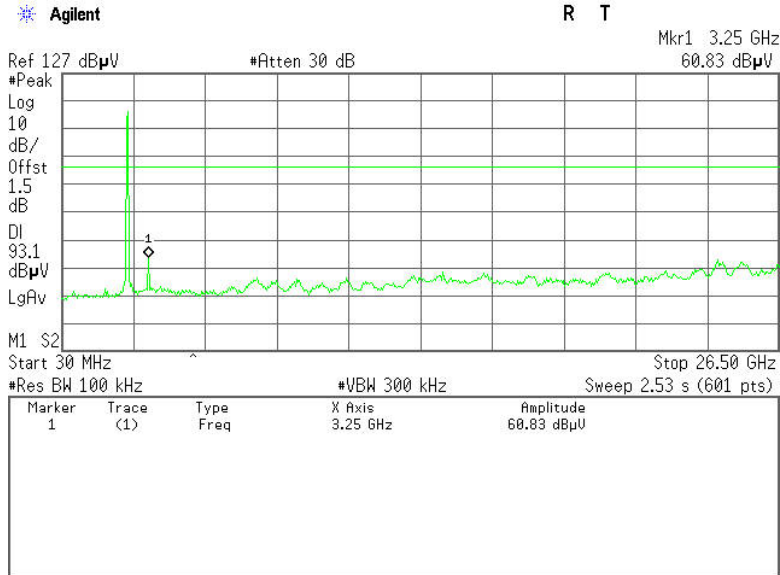


CH Low (2.31GHz ~2.43GHz)

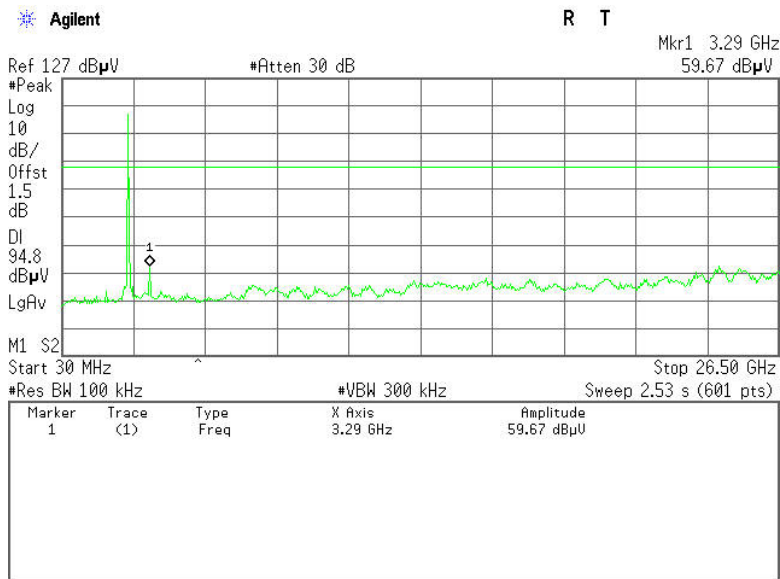




CH Mid (30MHz ~26.5GHz)

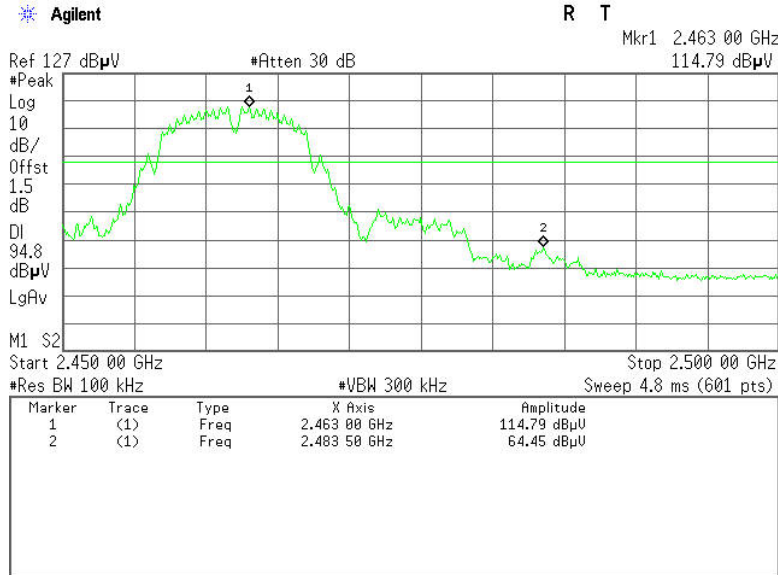


CH High (30MHz ~26.5GHz)





CH High(2.45GHz ~2.5GHz)

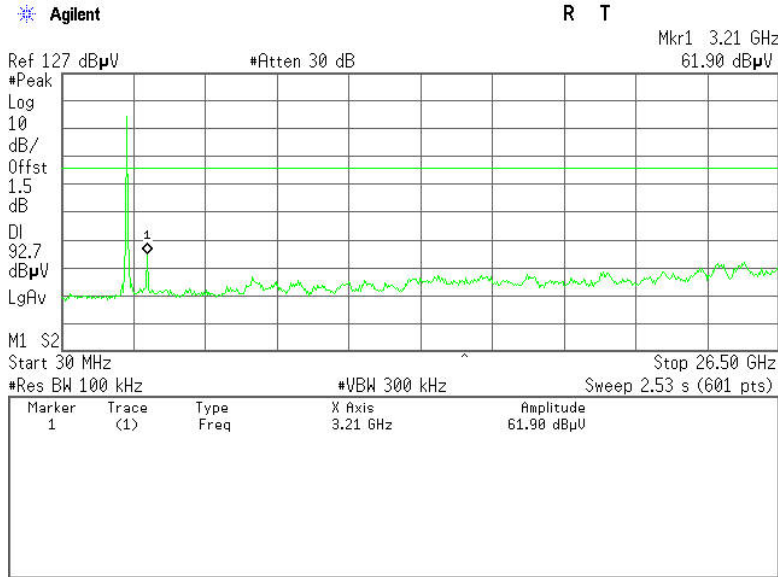




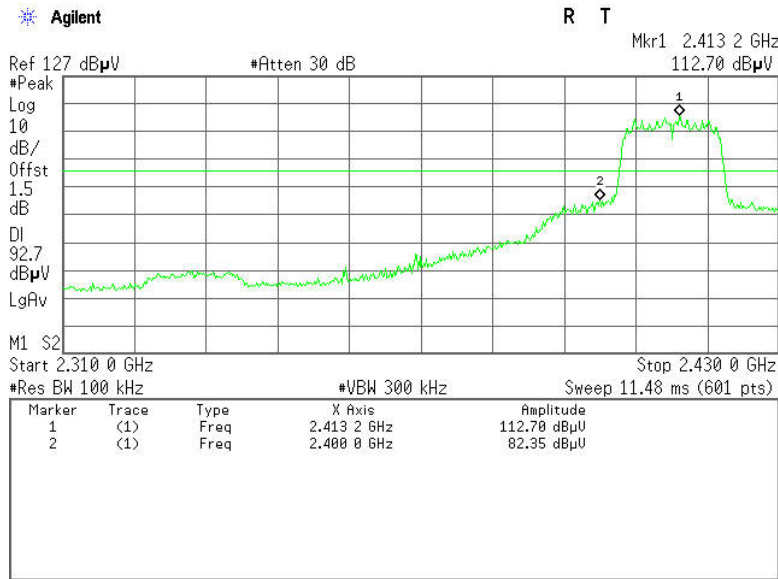
Antenna 0

IEEE 802.11g mode

CH Low (30MHz ~26.5GHz)

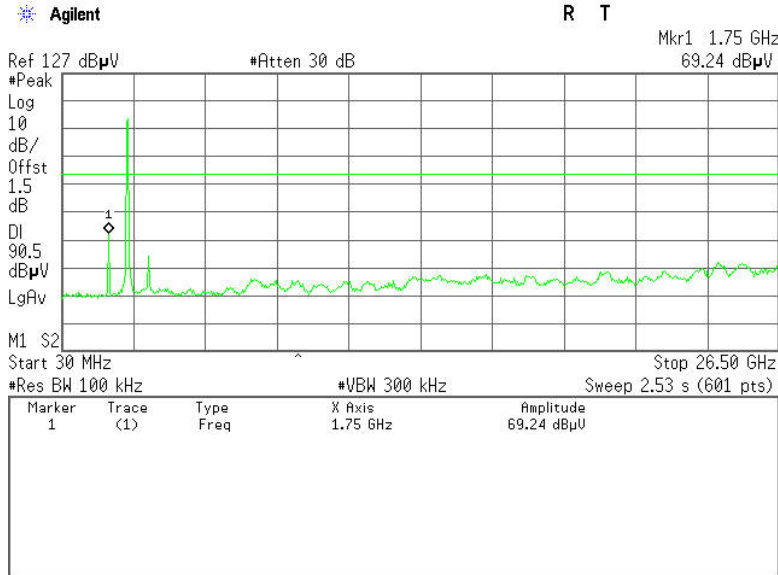


CH Low (2.31GHz ~2.43GHz)

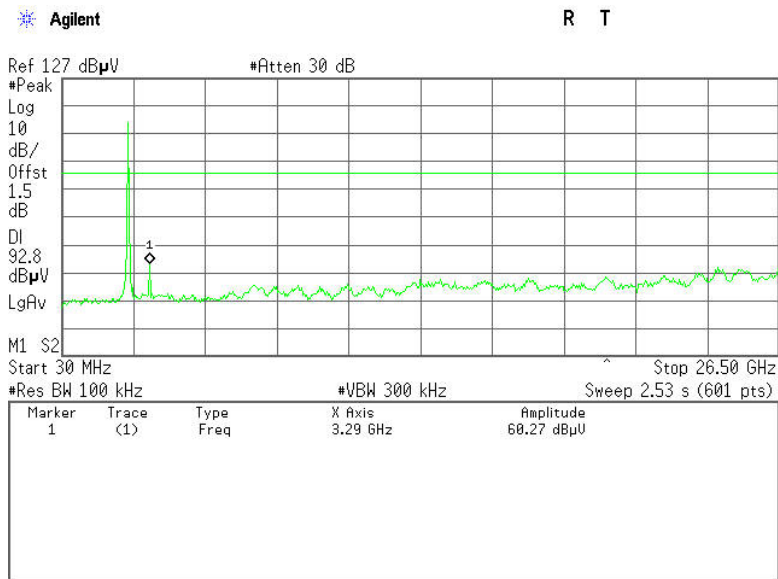




CH Mid (30MHz ~26.5GHz)

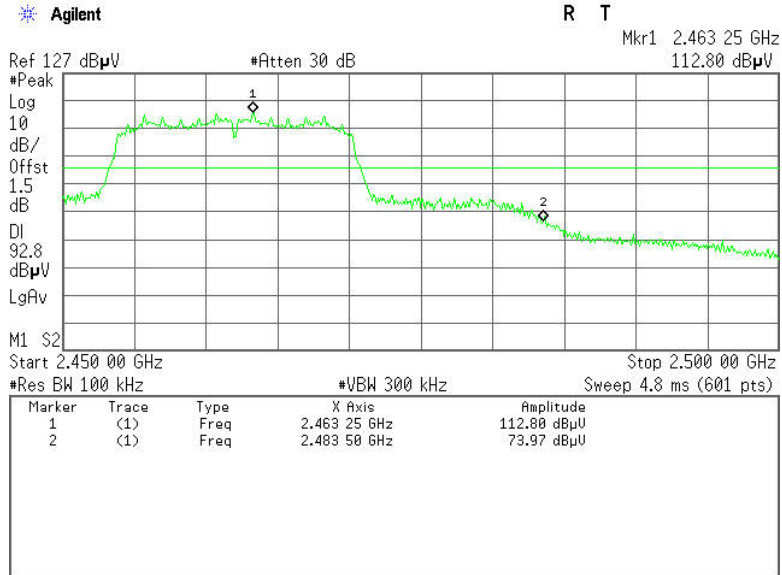


CH High (30MHz ~26.5GHz)





CH High(2.45GHz ~2.5GHz)

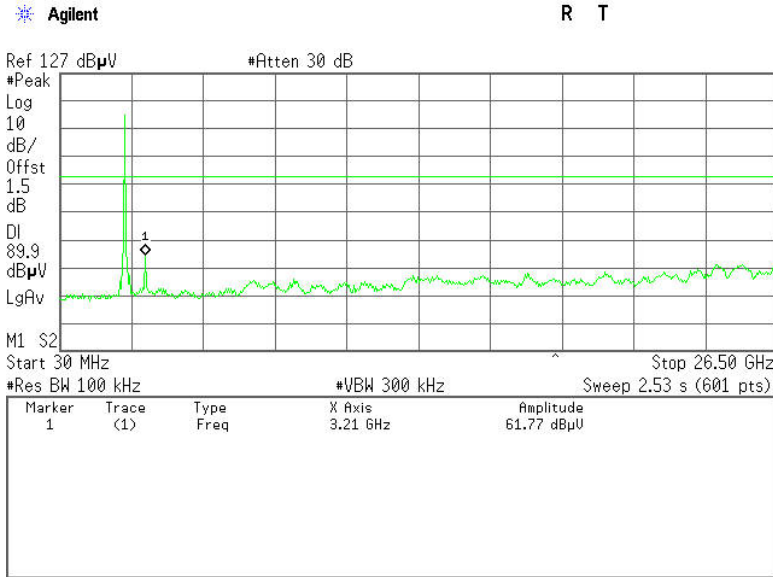




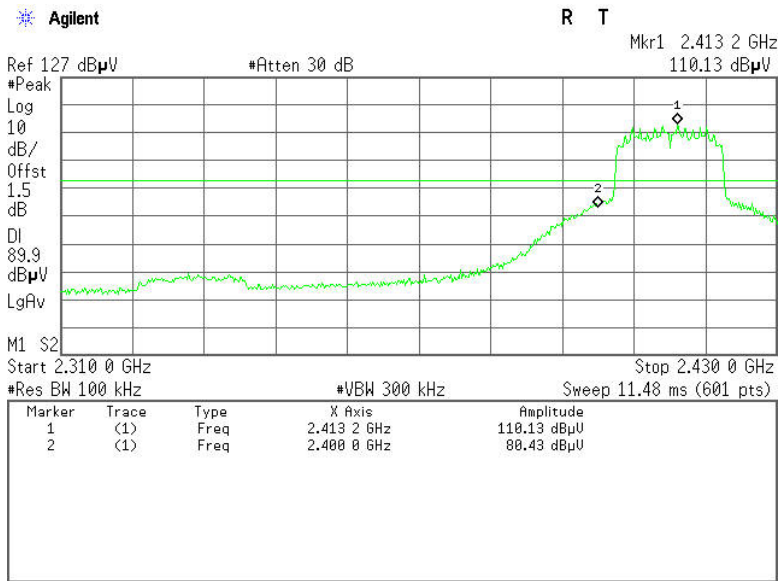
Antenna 0

IEEE 802.11n HT20 MHz mode

CH Low (30MHz ~26.5GHz)

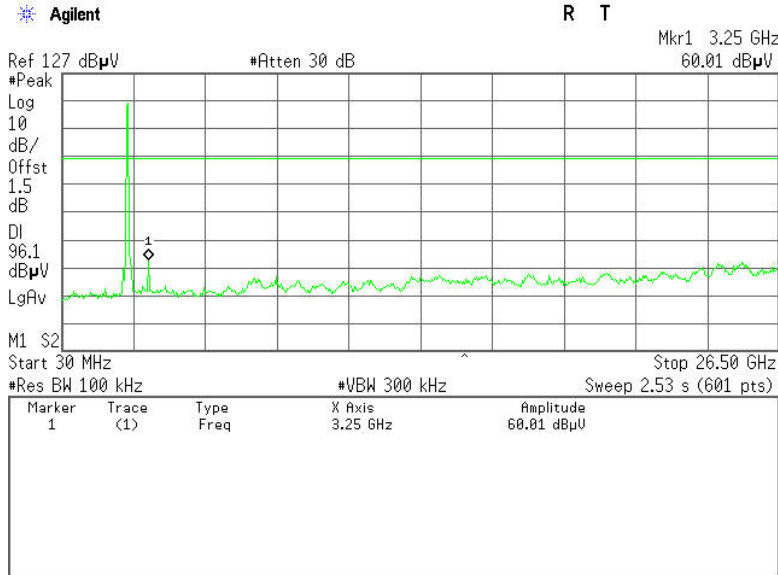


CH Low (2.31GHz ~2.43GHz)

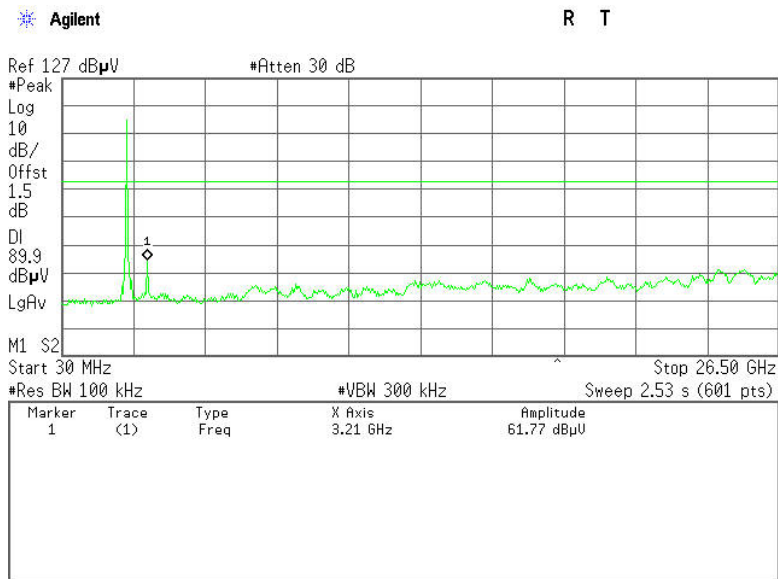




CH Mid (30MHz ~26.5GHz)

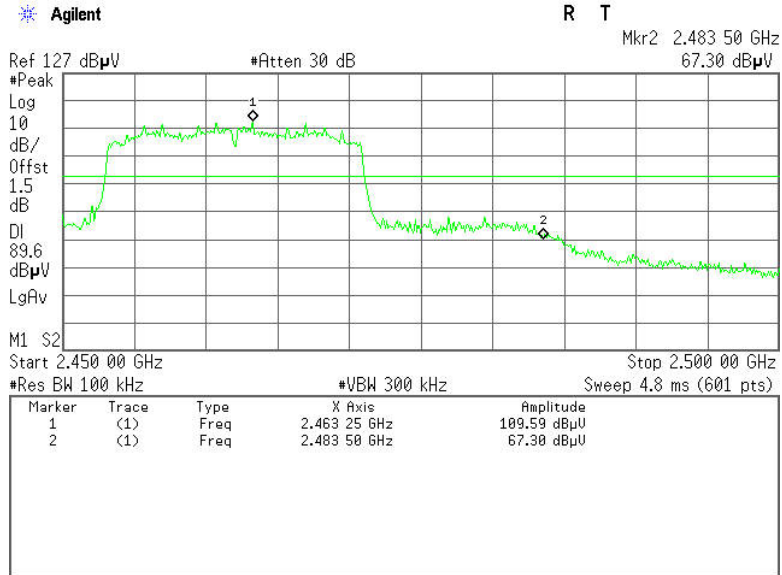


CH High (30MHz ~26.47GHz)





CH High(2.45GHz ~2.5GHz)

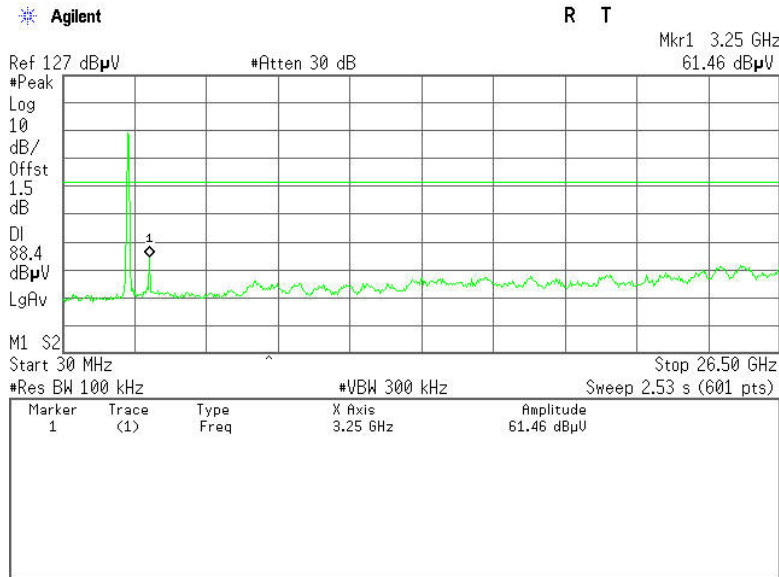




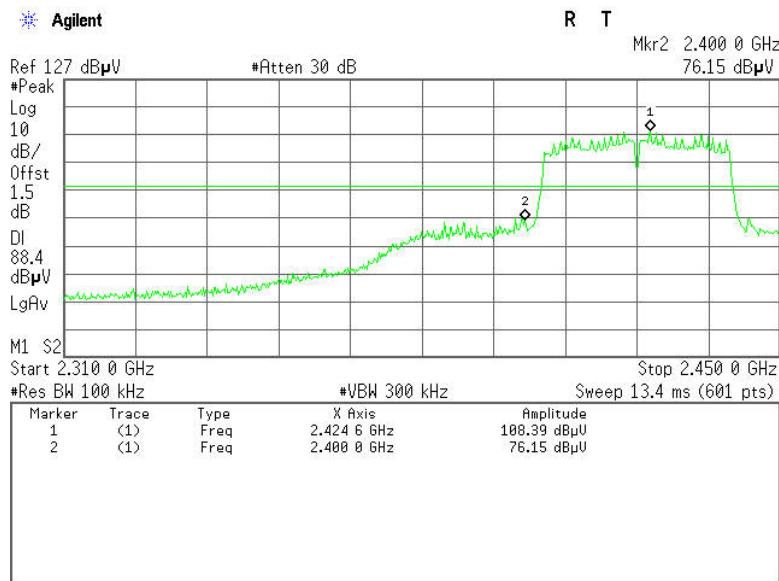
Antenna 0

IEEE 802.11n HT40 MHz mode

CH Low (30MHz ~26.5GHz)

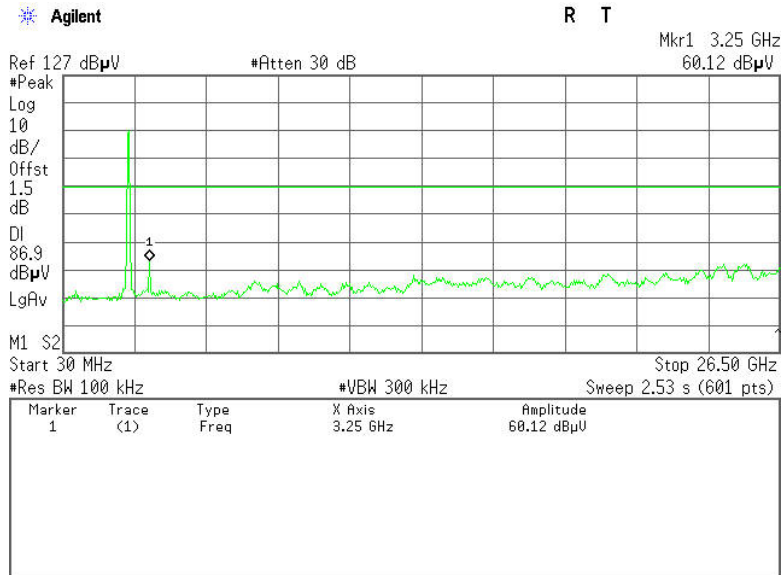


CH Low (2.31GHz ~2.45GHz)

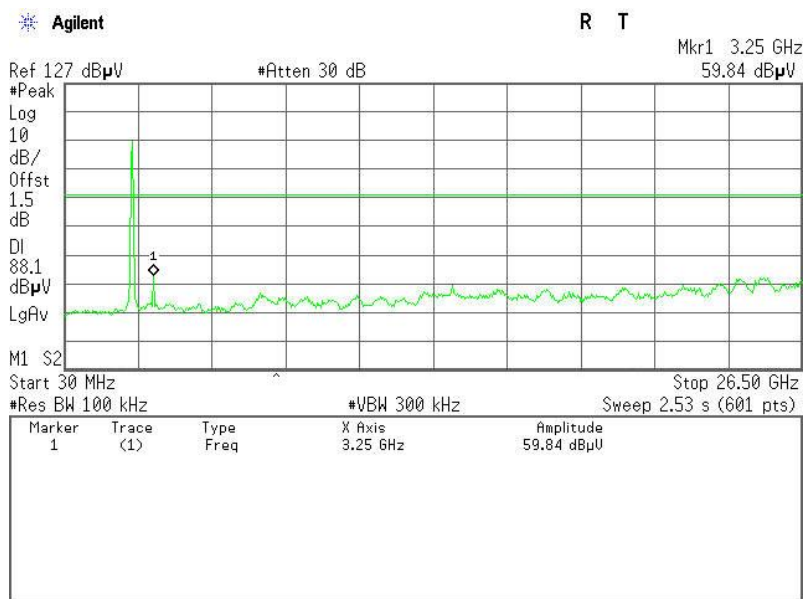




CH Mid (30MHz ~26.5GHz)

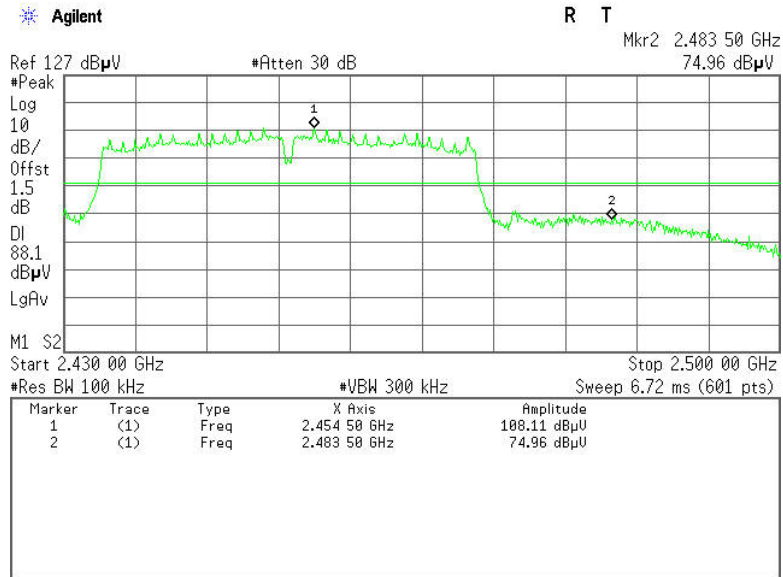


CH High (30MHz ~26.5GHz)





CH High(2.43GHz ~2.5GHz)

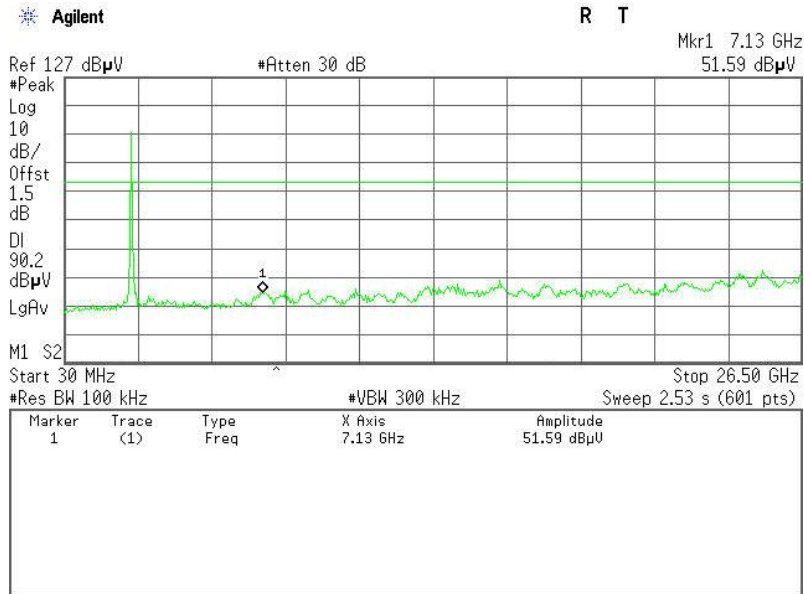




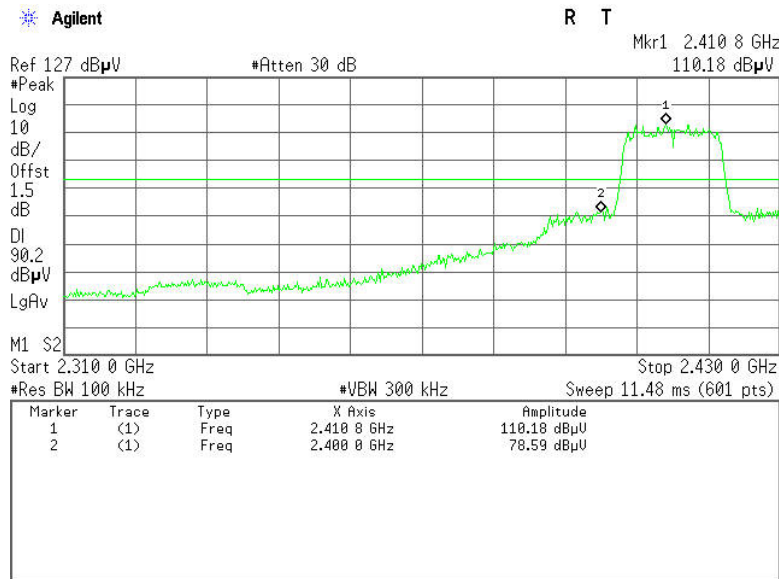
Antenna 1

IEEE 802.11g mode

CH Low (30MHz ~26.5GHz)

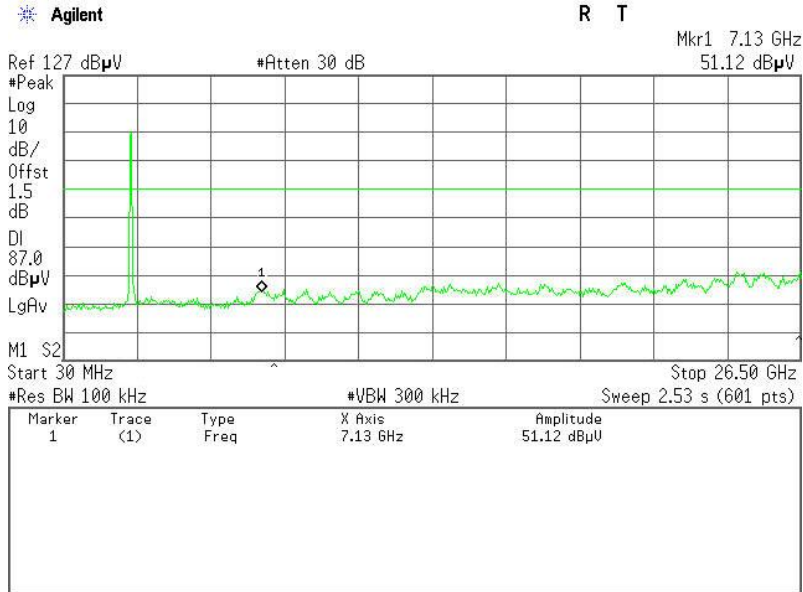


CH Low (2.31GHz ~2.43GHz)

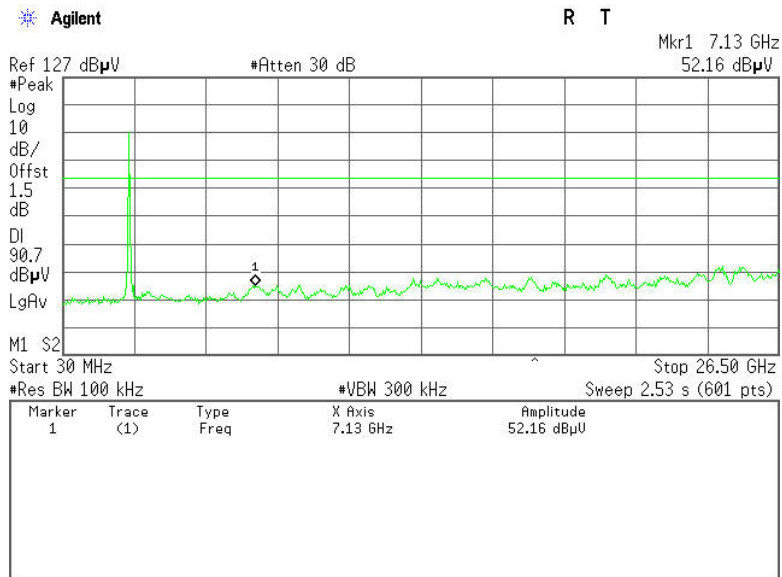




CH Mid (30MHz ~26.5GHz)

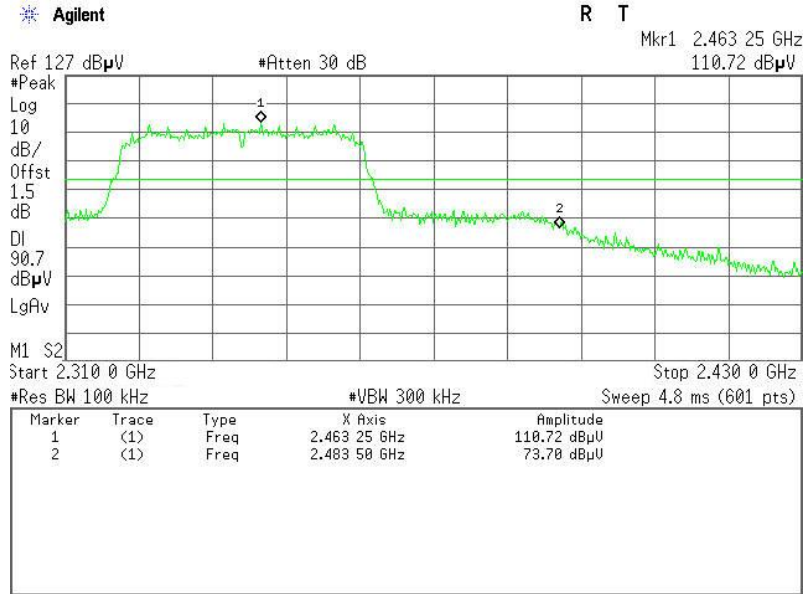


CH High (30MHz ~26.5GHz)





CH High(2.31GHz ~2.43GHz)

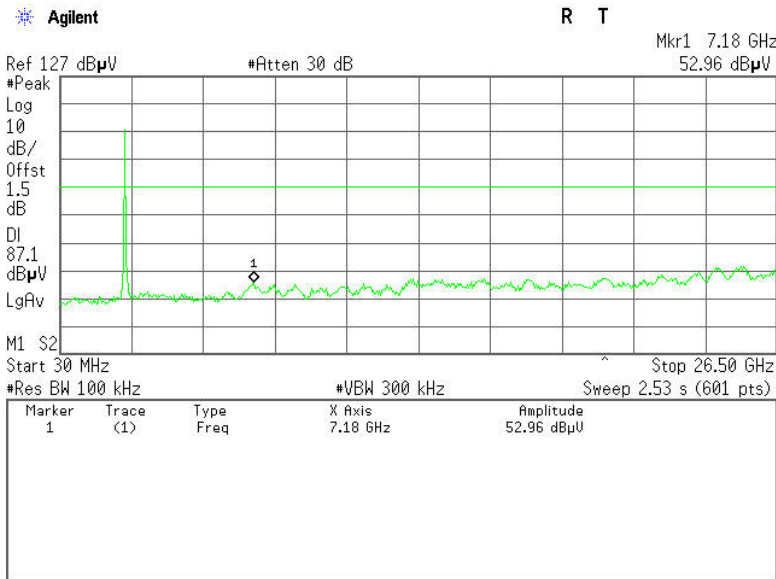




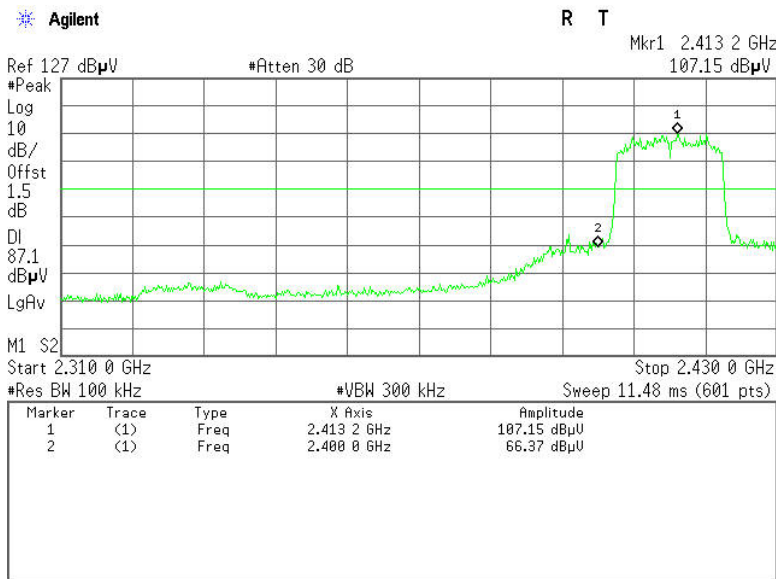
Antenna 1

IEEE 802.11n HT20 MHz mode

CH Low (30MHz ~26.5GHz)

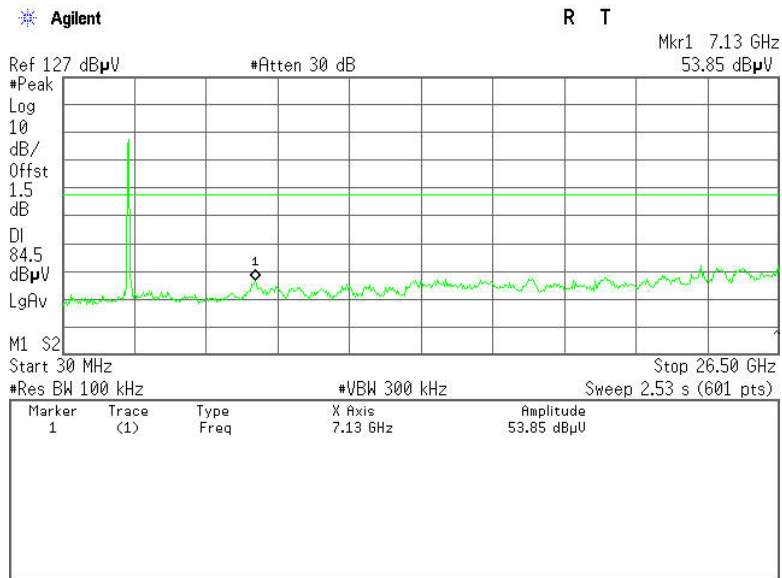


CH Low (2.31GHz ~2.43GHz)

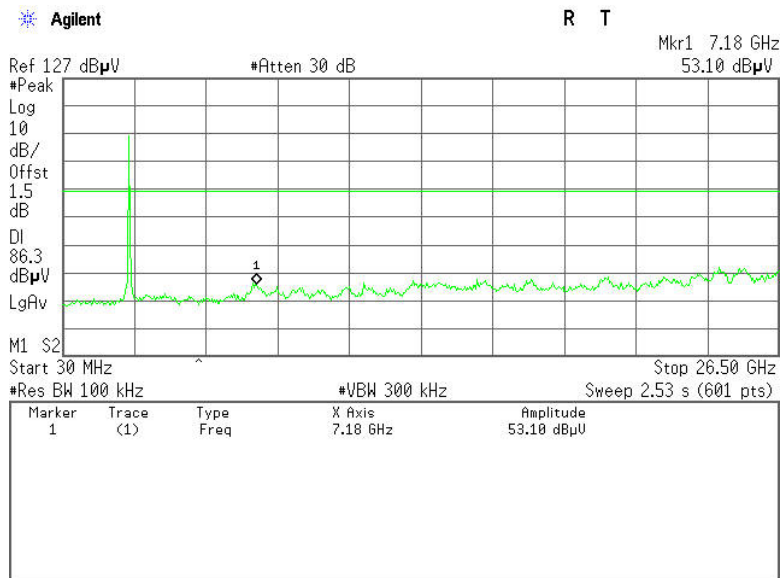




CH Mid (30MHz ~26.5GHz)

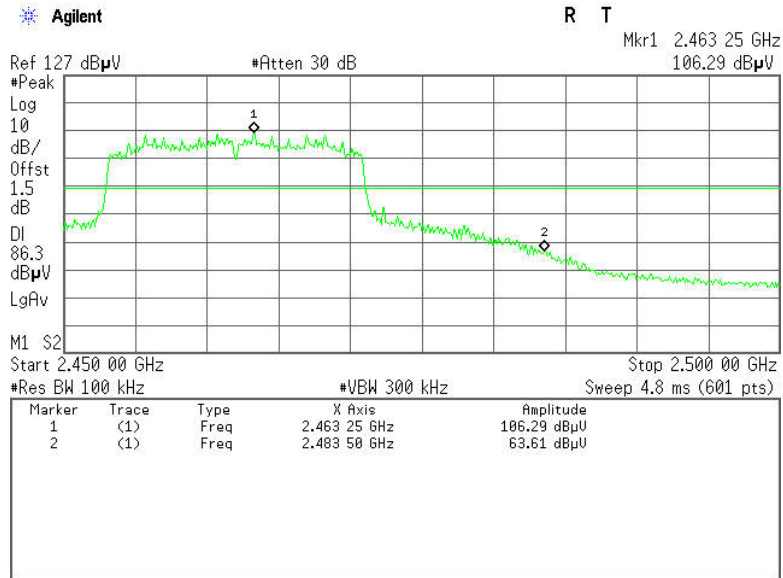


CH High (30MHz ~26.5GHz)





CH High (2.45GHz ~2.5GHz)

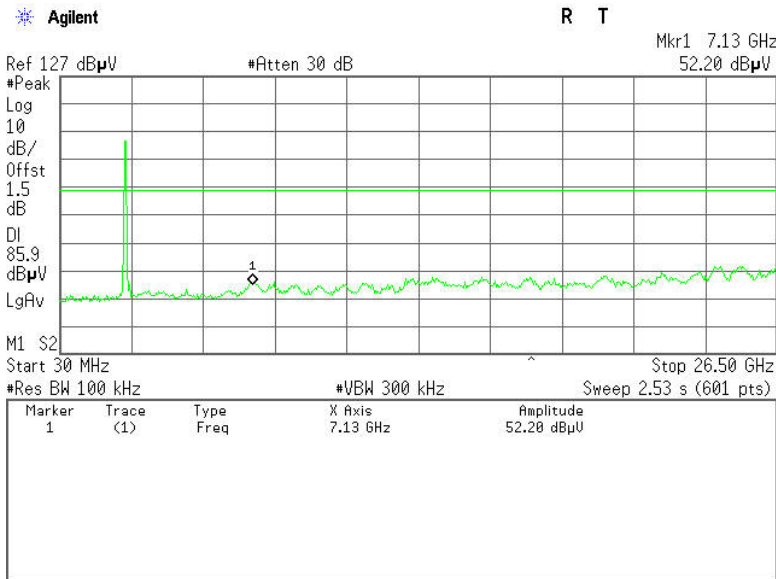




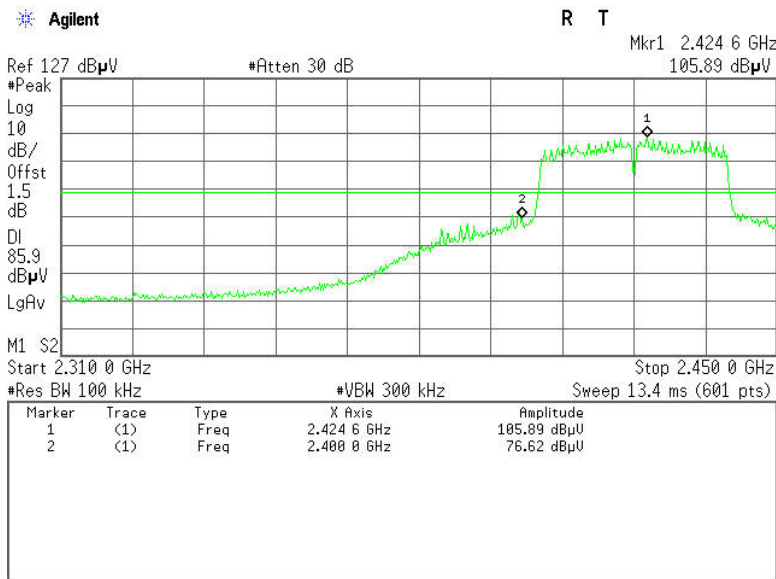
Antenna 1

IEEE 802.11n HT40 MHz mode

CH Low (30MHz ~26.5GHz)

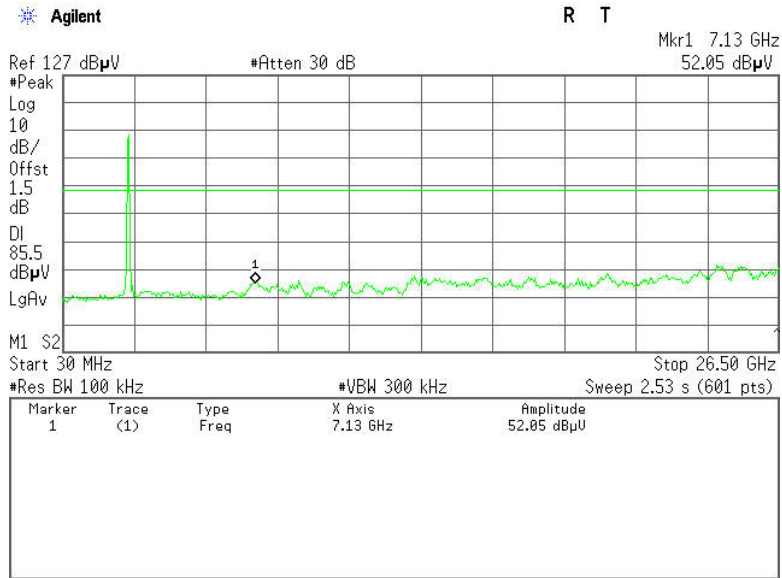


CH Low (2.31GHz ~2.45GHz)

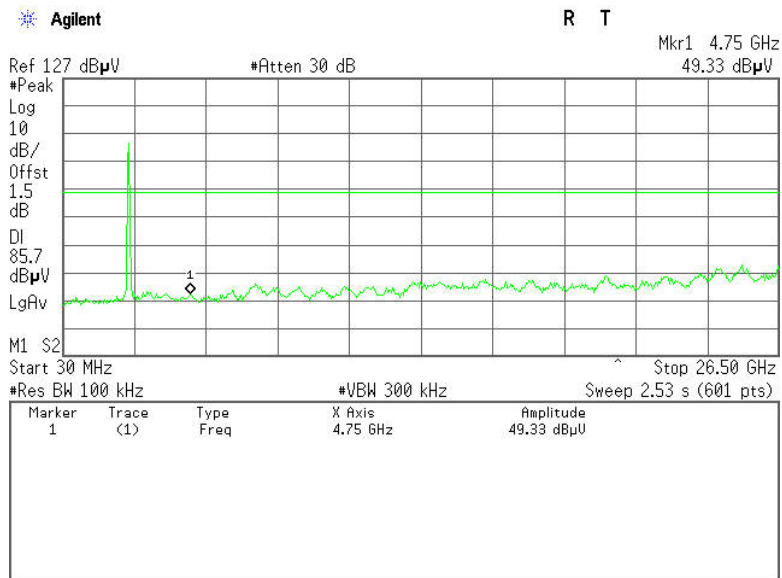




CH Mid (30MHz ~26.5GHz)

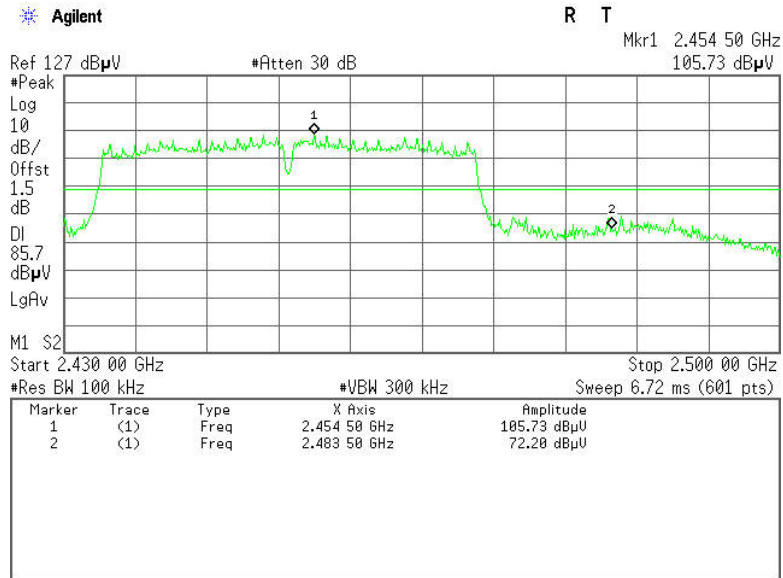


CH High (30MHz ~26.5GHz)





CH High (2.43GHz ~2.5GHz)





7.2.4.1. LIMITS OF RADIATED EMISSIONS MEASUREMENT

According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
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

Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

1. In the emission table above, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

NOTE:(1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).



7.2.4.2. TEST INSTRUMENTS

Radiated Emission Test Site 966(2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	03/09/2013	03/08/2014
ESCI EMI TEST RECEIVER.ESCI	ROHDE&SCHWARZ	ESCI	100783	03/09/2013	03/08/2014
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2013	03/18/2014
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2013	03/18/2014
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	06/21/2013	06/21/2014
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/02/2013	03/01/2014
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/02/2013	03/01/2014
Loop Antenna	A. R. A	PLA-1030/B	1029	03/23/2013	03/23/2014
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	03/04/2013	03/03/2014
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The FCC Site Registration number is 101879.

3. N.C.R = No Calibration Required.



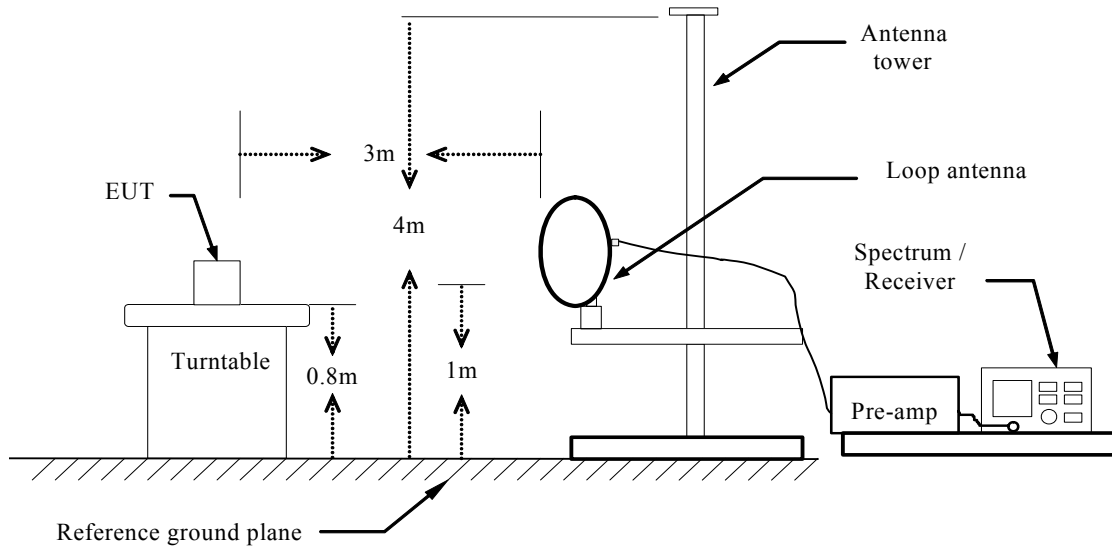
7.2.4.3. TEST PROCEDURE (please refer to measurement standard)

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:
 - Below 1GHz:
 - RBW=100kHz / VBW=300kHz / Sweep=AUTO
 - Above 1GHz:
 - (a) PEAK: RBW=1MHz,VBW=3MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

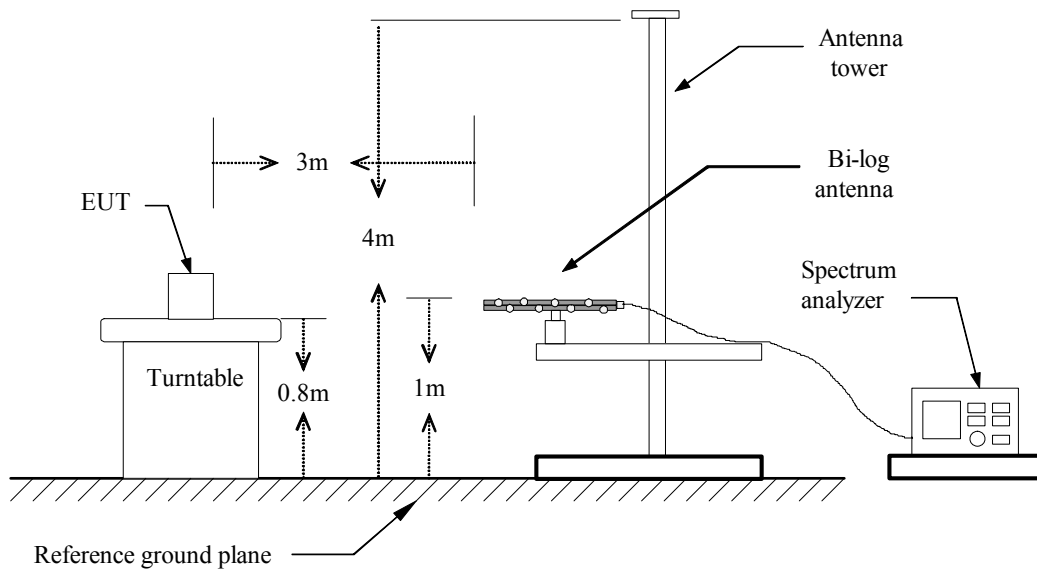


7.2.4.4. TEST SETUP

Below 30MHz

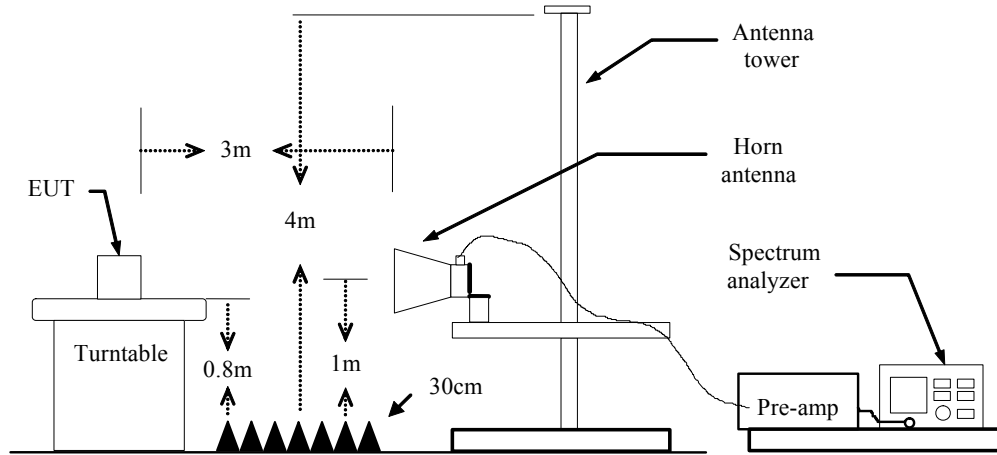


Below 1 GHz





Above 1 GHz



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



7.2.4.5. DATA SAMPLE

Below 1GHz

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXX.XXXX	36.37	-12.20	24.17	40.00	-15.83	V	QP

- Frequency (MHz) = Emission frequency in MHz
- Reading (dBuV) = Uncorrected Analyzer / Receiver reading
- Correct Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
- Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
- Limit (dBuV/m) = Limit stated in standard
- Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
- Q.P. = Quasi-peak Reading

Above 1GHz

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXXX.XXXX	62.09	-11.42	50.67	74.00	-23.33	V	Peak
XXXX.XXXX	49.78	-11.42	38.36	54.00	-15.64	V	AVG

- Frequency (MHz) = Emission frequency in MHz
- Reading (dBuV) = Uncorrected Analyzer / Receiver reading
- Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
- Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
- Limit (dBuV/m) = Limit stated in standard
- Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
- Peak = Peak Reading
- AVG = Average Reading

Calculation Formula

Margin (dB) = Result (dBuV/m) – Limits (dBuV/m)
 Result (dBuV/m) = Reading (dBuV) + Correction Factor



7.2.4.6. TEST RESULTS

Below 1 GHz

Test Mode: TX

Test Date: December 19, 2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
44.5500	47.50	-15.19	32.31	40.00	-7.69	V	QP
249.8667	60.22	-17.77	42.45	46.00	-3.55	V	QP
418.0000	47.63	-15.23	32.40	46.00	-13.60	V	QP
500.4500	50.45	-14.06	36.39	46.00	-9.61	V	QP
511.7667	51.83	-14.66	37.17	46.00	-8.83	V	QP
639.4833	43.59	-12.81	30.78	46.00	-15.22	V	QP
249.8667	59.95	-17.77	42.18	46.00	-3.82	H	QP
414.7667	50.53	-15.23	35.30	46.00	-10.70	H	QP
500.4500	51.45	-14.06	37.39	46.00	-8.61	H	QP
639.4833	41.95	-12.81	29.14	46.00	-16.86	H	QP
666.9667	37.63	-11.37	26.26	46.00	-19.74	H	QP
833.4833	39.65	-10.29	29.36	46.00	-16.64	H	QP

**Remark: No emission found between lowest internal used/generated frequency to 30MHz.

Notes:

- Radiated emissions measured in frequency range from 9kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
- Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- The IF bandwidth of Receiver between 30MHz to 1GHz was 120kHz.
- | | |
|------------------------|--|
| Frequency (MHz). | = Emission frequency in MHz |
| Reading (dBuV/m) | = Receiver reading |
| Correction Factor (dB) | = Antenna factor + Cable loss – Amplifier gain |
| Limit (dBuV/m) | = Limit stated in standard |
| Margin (dB) | = Measured (dBuV/m) – Limits (dBuV/m) |
| Antenna Pol e(H/V) | = Current carrying line of reading |



Above 1 GHz

Antenna 0

Operation Mode: TX / IEEE 802.11b/ CH Low

Test Date: December 19, 2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3220.0000	53.52	-4.08	49.44	74.00	-24.56	V	peak
3730.0000	45.41	-2.67	42.74	74.00	-31.26	V	peak
3895.0000	45.39	-2.51	42.88	74.00	-31.12	V	peak
4825.0000	48.25	0.52	48.77	74.00	-25.23	V	peak
5380.0000	44.93	1.52	46.45	74.00	-27.55	V	peak
6355.0000	43.63	4.13	47.76	74.00	-26.24	V	peak
1285.0000	48.65	-8.35	40.30	74.00	-33.70	H	Peak
3220.0000	49.63	-4.08	45.55	74.00	-28.45	H	Peak
4495.0000	45.49	-0.65	44.84	74.00	-29.16	H	Peak
4825.0000	46.77	0.52	47.29	74.00	-26.71	H	Peak
5800.0000	44.04	2.78	46.82	74.00	-27.18	H	Peak
6160.0000	44.62	3.56	48.18	74.00	-25.82	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11b/ CH Mid

Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1315.0000	48.34	-8.21	40.13	74.00	-33.87	V	Peak
2515.0000	48.95	-6.13	42.82	74.00	-31.18	V	Peak
3250.0000	49.65	-4.07	45.58	74.00	-28.42	V	Peak
3655.0000	45.38	-2.87	42.51	74.00	-31.49	V	Peak
4390.0000	44.98	-0.86	44.12	74.00	-29.88	V	Peak
4870.0000	45.31	0.73	46.04	74.00	-27.96	V	Peak
1390.0000	47.83	-7.88	39.95	74.00	-34.05	H	Peak
3250.0000	46.32	-4.07	42.25	74.00	-31.75	H	Peak
3805.0000	45.71	-2.49	43.22	74.00	-30.78	H	Peak
4465.0000	45.93	-0.70	45.23	74.00	-28.77	H	Peak
5065.0000	44.81	1.39	46.20	74.00	-27.80	H	Peak
6250.0000	44.52	3.83	48.35	74.00	-25.65	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11b / CH High

Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1240.0000	49.78	-8.55	41.23	74.00	-32.77	V	Peak
3295.0000	51.60	-4.05	47.55	74.00	-26.45	V	Peak
4375.0000	44.95	-0.91	44.04	74.00	-29.96	V	Peak
4750.0000	45.60	0.19	45.79	74.00	-28.21	V	Peak
4945.0000	46.24	1.07	47.31	74.00	-26.69	V	Peak
5815.0000	44.47	2.80	47.27	74.00	-26.73	V	Peak
1345.0000	48.70	-8.08	40.62	74.00	-33.38	H	Peak
2860.0000	47.67	-4.80	42.87	74.00	-31.13	H	Peak
3295.0000	48.31	-4.05	44.26	74.00	-29.74	H	Peak
4300.0000	45.34	-1.20	44.14	74.00	-29.86	H	Peak
4945.0000	48.78	1.07	49.85	74.00	-24.15	H	Peak
6190.0000	44.62	3.65	48.27	74.00	-25.73	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Antenna 0

Operation Mode: TX / IEEE 802.11g / CH Low

Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3220.0000	54.89	-4.08	50.81	74.00	-23.19	V	Peak
4060.0000	45.17	-2.24	42.93	74.00	-31.07	V	Peak
4825.0000	46.41	0.52	46.93	74.00	-27.07	V	Peak
5185.0000	44.41	1.53	45.94	74.00	-28.06	V	Peak
5560.0000	44.08	1.85	45.93	74.00	-28.07	V	Peak
5755.0000	44.06	2.59	46.65	74.00	-27.35	V	Peak
1150.0000	49.50	-9.13	40.37	74.00	-33.63	H	Peak
2560.0000	48.37	-5.98	42.39	74.00	-31.61	H	Peak
3220.0000	49.51	-4.08	45.43	74.00	-28.57	H	Peak
4135.0000	45.95	-1.89	44.06	74.00	-29.94	H	Peak
4825.0000	45.56	0.52	46.08	74.00	-27.92	H	Peak
5230.0000	44.65	1.55	46.20	74.00	-27.80	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11g / CH Mid

Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1285.0000	48.72	-8.35	40.37	74.00	-33.63	V	Peak
2815.0000	48.37	-4.98	43.39	74.00	-30.61	V	Peak
3250.0000	50.83	-4.07	46.76	74.00	-27.24	V	Peak
4135.0000	44.99	-1.89	43.10	74.00	-30.90	V	Peak
4870.0000	48.82	0.73	49.55	74.00	-24.45	V	Peak
5320.0000	44.46	1.53	45.99	74.00	-28.01	V	Peak
1330.0000	48.39	-8.14	40.25	74.00	-33.75	H	Peak
3250.0000	46.93	-4.07	42.86	74.00	-31.14	H	Peak
3745.0000	45.54	-2.63	42.91	74.00	-31.09	H	Peak
4360.0000	45.42	-0.97	44.45	74.00	-29.55	H	Peak
4705.0000	45.28	0.00	45.28	74.00	-28.72	H	Peak
5020.0000	44.27	1.34	45.61	74.00	-28.39	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11g / CH High

Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3295.0000	52.47	-4.05	48.42	74.00	-25.58	V	Peak
4195.0000	44.60	-1.60	43.00	74.00	-31.00	V	Peak
4405.0000	44.99	-0.81	44.18	74.00	-29.82	V	Peak
4930.0000	45.36	1.00	46.36	74.00	-27.64	V	Peak
5365.0000	44.60	1.53	46.13	74.00	-27.87	V	Peak
6130.0000	44.90	3.48	48.38	74.00	-25.62	V	Peak
3295.0000	47.84	-4.05	43.79	74.00	-30.21	H	Peak
3715.0000	46.06	-2.71	43.35	74.00	-30.65	H	Peak
4345.0000	44.57	-1.03	43.54	74.00	-30.46	H	Peak
4930.0000	44.35	1.00	45.35	74.00	-28.65	H	Peak
5305.0000	44.84	1.53	46.37	74.00	-27.63	H	Peak
5920.0000	43.61	2.97	46.58	74.00	-27.42	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Antenna 1

Operation Mode: TX / IEEE 802.11g / CH Low

Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1165.0000	50.86	-9.01	41.85	74.00	-32.15	V	Peak
3220.0000	49.89	-4.08	45.81	74.00	-28.19	V	Peak
3760.0000	45.09	-2.59	42.50	74.00	-31.50	V	Peak
4195.0000	47.16	-1.60	45.56	74.00	-28.44	V	Peak
4825.0000	53.23	0.52	53.75	74.00	-20.25	V	Peak
4825.0000	42.37	0.52	42.89	74.00	-11.11	V	AVG
5380.0000	44.65	1.52	46.17	74.00	-27.83	V	Peak
1435.0000	47.86	-7.98	39.88	74.00	-34.12	H	Peak
3265.0000	47.06	-4.06	43.00	74.00	-31.00	H	Peak
3775.0000	45.56	-2.55	43.01	74.00	-30.99	H	Peak
4390.0000	44.63	-0.86	43.77	74.00	-30.23	H	Peak
4825.0000	46.13	0.52	46.65	74.00	-27.35	H	Peak
5500.0000	44.29	1.73	46.02	74.00	-27.98	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11g / CH Mid

Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1435.0000	48.51	-7.98	40.53	74.00	-33.47	V	Peak
2440.0000	49.29	-6.39	42.90	74.00	-31.10	V	Peak
3250.0000	47.98	-4.07	43.91	74.00	-30.09	V	Peak
3865.0000	45.86	-2.50	43.36	74.00	-30.64	V	Peak
4870.0000	51.51	0.73	52.24	74.00	-21.76	V	Peak
4870.0000	39.90	0.73	40.63	74.00	-13.37	V	AVG
5350.0000	44.19	1.53	45.72	74.00	-28.28	V	Peak
1150.0000	50.67	-9.13	41.54	74.00	-32.46	H	Peak
3325.0000	46.47	-4.03	42.44	74.00	-31.56	H	Peak
3550.0000	46.11	-3.26	42.85	74.00	-31.15	H	Peak
4060.0000	45.73	-2.24	43.49	74.00	-30.51	H	Peak
4870.0000	48.82	0.73	49.55	74.00	-24.45	H	Peak
5350.0000	44.62	1.53	46.15	74.00	-27.85	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11g / CH High

Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1300.0000	48.51	-8.28	40.23	74.00	-33.77	V	Peak
3295.0000	47.67	-4.05	43.62	74.00	-30.38	V	Peak
3745.0000	44.82	-2.63	42.19	74.00	-31.81	V	Peak
4330.0000	44.19	-1.09	43.10	74.00	-30.90	V	Peak
4945.0000	49.24	1.07	50.31	74.00	-23.69	V	Peak
6145.0000	44.19	3.52	47.71	74.00	-26.29	V	Peak
1330.0000	48.70	-8.14	40.56	74.00	-33.44	H	Peak
3340.0000	46.67	-4.03	42.64	74.00	-31.36	H	Peak
3820.0000	45.97	-2.49	43.48	74.00	-30.52	H	Peak
4540.0000	44.62	-0.57	44.05	74.00	-29.95	H	Peak
4945.0000	45.24	1.07	46.31	74.00	-27.69	H	Peak
5215.0000	45.69	1.55	47.24	74.00	-26.76	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Antenna 0+ Antenna 1

Operation Mode: TX / IEEE 802.11n HT20 MHz/ CH Low **Test Date:** December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBUV)	Correction Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3220.0000	52.71	-4.08	48.63	74.00	-25.37	V	Peak
3850.0000	45.04	-2.50	42.54	74.00	-31.46	V	Peak
4240.0000	45.14	-1.43	43.71	74.00	-30.29	V	Peak
4825.0000	52.83	0.52	53.35	74.00	-20.65	V	Peak
4825.0000	40.87	0.52	41.39	54.00	-12.61	V	AVG
5560.0000	44.12	1.85	45.97	74.00	-28.03	V	Peak
6565.0000	44.62	4.72	49.34	74.00	-24.66	V	Peak
3220.0000	48.14	-4.08	44.06	74.00	-29.94	H	Peak
4480.0000	44.99	-0.68	44.31	74.00	-29.69	H	Peak
4825.0000	46.96	0.52	47.48	74.00	-26.52	H	Peak
5335.0000	44.53	1.53	46.06	74.00	-27.94	H	Peak
5875.0000	44.24	2.90	47.14	74.00	-26.86	H	Peak
6295.0000	43.33	3.97	47.30	74.00	-26.70	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBUV/m) – Average limit (dBUV/m).



Operation Mode: TX / IEEE 802.11n HT20 MHz/ CH Mid Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1210.0000	48.95	-8.69	40.26	74.00	-33.74	V	Peak
3250.0000	50.89	-4.07	46.82	74.00	-27.18	V	Peak
3730.0000	44.98	-2.67	42.31	74.00	-31.69	V	Peak
4675.0000	45.72	-0.13	45.59	74.00	-28.41	V	Peak
4870.0000	45.66	0.73	46.39	74.00	-27.61	V	Peak
5275.0000	45.07	1.54	46.61	74.00	-27.39	V	Peak
1240.0000	48.62	-8.55	40.07	74.00	-33.93	H	Peak
2815.0000	47.27	-4.98	42.29	74.00	-31.71	H	Peak
3250.0000	47.10	-4.07	43.03	74.00	-30.97	H	Peak
3715.0000	45.38	-2.71	42.67	74.00	-31.33	H	Peak
4345.0000	45.19	-1.03	44.16	74.00	-29.84	H	Peak
5005.0000	44.84	1.33	46.17	74.00	-27.83	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11n HT20 MHz/ CH High Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBUV)	Correction Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3295.0000	51.08	-4.05	47.03	74.00	-26.97	V	Peak
4270.0000	45.40	-1.31	44.09	74.00	-29.91	V	Peak
4930.0000	46.26	1.00	47.26	74.00	-26.74	V	Peak
5170.0000	44.49	1.52	46.01	74.00	-27.99	V	Peak
5755.0000	43.83	2.59	46.42	74.00	-27.58	V	Peak
6340.0000	44.46	4.09	48.55	74.00	-25.45	V	Peak
1315.0000	48.27	-8.21	40.06	74.00	-33.94	H	Peak
2530.0000	48.97	-6.08	42.89	74.00	-31.11	H	Peak
3295.0000	49.06	-4.05	45.01	74.00	-28.99	H	Peak
4180.0000	45.77	-1.67	44.10	74.00	-29.90	H	Peak
4945.0000	44.01	1.07	45.08	74.00	-28.92	H	Peak
5515.0000	44.30	1.76	46.06	74.00	-27.94	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBUV/m) – Average limit (dBUV/m).



Antenna 0+Antenna 1

Operation Mode: TX / IEEE 802.11n HT40 MHz/ CH Low **Test Date:** December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1360.0000	48.78	-8.01	40.77	74.00	-33.23	V	Peak
3235.0000	52.60	-4.07	48.53	74.00	-25.47	V	Peak
3610.0000	45.65	-2.98	42.67	74.00	-31.33	V	Peak
4240.0000	44.87	-1.43	43.44	74.00	-30.56	V	Peak
4930.0000	45.20	1.00	46.20	74.00	-27.80	V	Peak
5905.0000	44.78	2.94	47.72	74.00	-26.28	V	Peak
1315.0000	48.41	-8.21	40.20	74.00	-33.80	H	Peak
3235.0000	47.83	-4.07	43.76	74.00	-30.24	H	Peak
3730.0000	45.60	-2.67	42.93	74.00	-31.07	H	Peak
4300.0000	45.33	-1.20	44.13	74.00	-29.87	H	Peak
4840.0000	45.46	0.59	46.05	74.00	-27.95	H	Peak
5185.0000	44.65	1.53	46.18	74.00	-27.82	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11n HT40 MHz/ CH Mid Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1315.0000	49.39	-8.21	41.18	74.00	-32.82	V	Peak
2815.0000	47.63	-4.98	42.65	74.00	-31.35	V	Peak
3250.0000	49.90	-4.07	45.83	74.00	-28.17	V	Peak
3880.0000	45.68	-2.51	43.17	74.00	-30.83	V	Peak
4840.0000	44.56	0.59	45.15	74.00	-28.85	V	Peak
5095.0000	44.95	1.43	46.38	74.00	-27.62	V	Peak
3250.0000	46.57	-4.07	42.50	74.00	-31.50	H	Peak
3760.0000	45.64	-2.59	43.05	74.00	-30.95	H	Peak
4435.0000	45.01	-0.76	44.25	74.00	-29.75	H	Peak
5005.0000	44.58	1.33	45.91	74.00	-28.09	H	Peak
5605.0000	44.32	1.95	46.27	74.00	-27.73	H	Peak
5830.0000	43.47	2.83	46.30	74.00	-27.70	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11n HT40 MHz/ CH High Test Date: December 19,2013

Temperature: 24°C

Tested by: Sun Guo

Humidity: 52% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3265.0000	50.25	-4.06	46.19	74.00	-27.81	V	Peak
4000.0000	45.99	-2.53	43.46	74.00	-30.54	V	Peak
4285.0000	44.73	-1.26	43.47	74.00	-30.53	V	Peak
4915.0000	44.61	0.93	45.54	74.00	-28.46	V	Peak
5350.0000	44.42	1.53	45.95	74.00	-28.05	V	Peak
6310.0000	43.79	4.01	47.80	74.00	-26.20	V	Peak
3265.0000	47.35	-4.06	43.29	74.00	-30.71	H	Peak
3805.0000	45.02	-2.49	42.53	74.00	-31.47	H	Peak
4285.0000	45.37	-1.26	44.11	74.00	-29.89	H	Peak
5005.0000	44.69	1.33	46.02	74.00	-27.98	H	Peak
5770.0000	43.75	2.65	46.40	74.00	-27.60	H	Peak
6235.0000	44.09	3.79	47.88	74.00	-26.12	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



7.3. 6dB BANDWIDTH MEASUREMENT

7.3.1. LIMITS

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

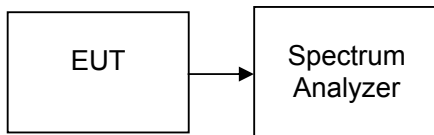
7.3.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	03/09/2013	03/08/2014

7.3.3. TEST PROCEDURES (please refer to measurement standard)

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 1-5 % of the emission bandwidth (EBW), VBW = $\geq 3 \times$ RBW, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

7.3.4. TEST SETUP





7.3.5. TEST RESULTS

No non-compliance noted

Test Data

Antenna 0

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2412	8560	>500	PASS
Mid	2437	8125		PASS
High	2462	8124		PASS

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2412	15084	>500	PASS
Mid	2437	15103		PASS
High	2462	15117		PASS

Antenna 0

Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2412	15149	>500	PASS
Mid	2437	15132		PASS
High	2462	14504		PASS

Antenna 0

Test mode: IEEE 802.11n HT40 MHz

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2422	35349	>500	PASS
Mid	2437	35244		PASS
High	2452	35200		PASS



Antenna 1

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2412	15144	>500	PASS
Mid	2437	15125		PASS
High	2462	15132		PASS

Antenna 1

Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2412	16086	>500	PASS
Mid	2437	15721		PASS
High	2462	15723		PASS

Antenna 1

Test mode: IEEE 802.11n HT40 MHz

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2422	35186	>500	PASS
Mid	2437	35788		PASS
High	2452	35806		PASS

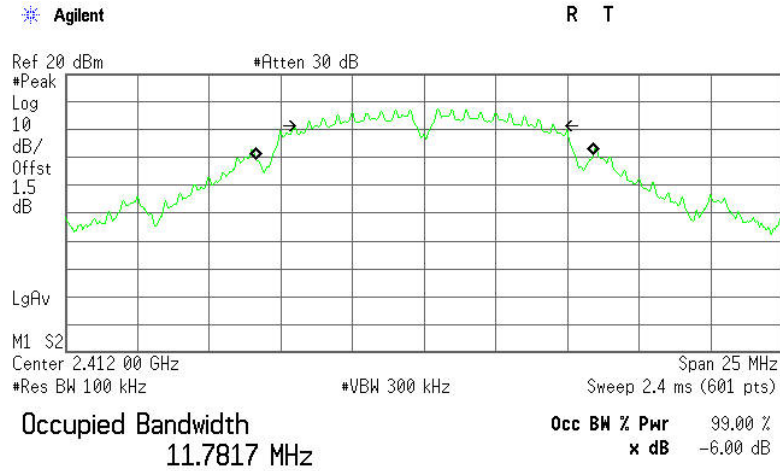


Test Plot

Antenna 0

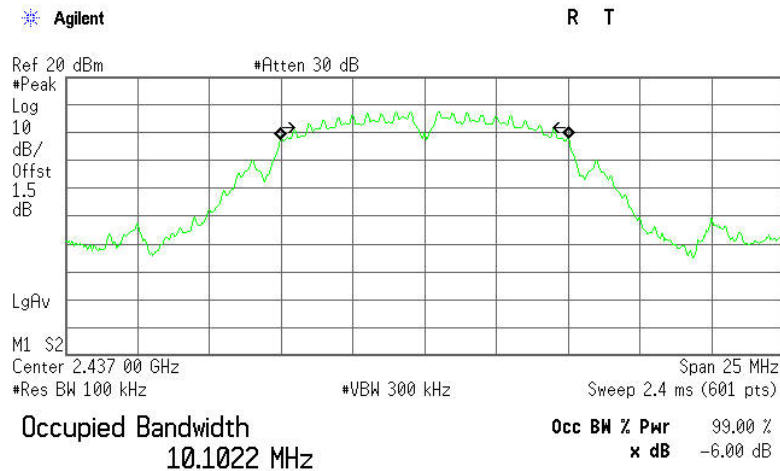
IEEE 802.11b mode

6dB Bandwidth (CH Low)



Transmit Freq Error 15.276 kHz
 x dB Bandwidth 8.560 MHz

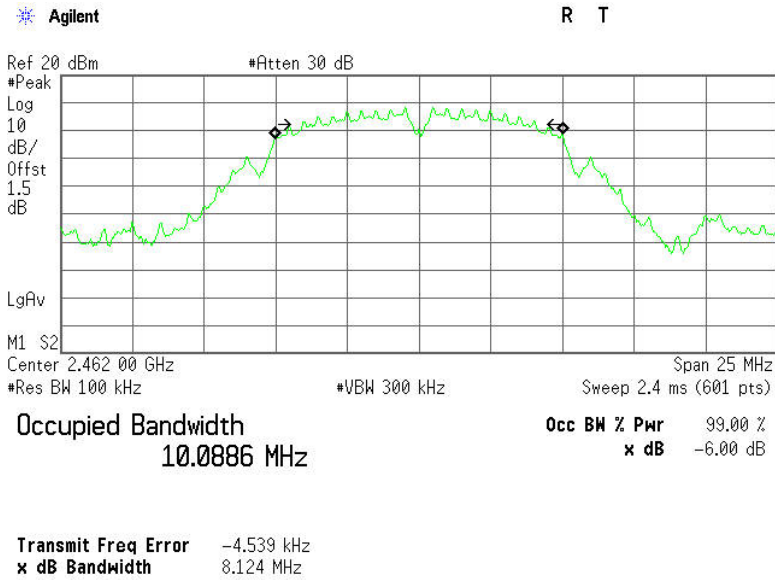
6dB Bandwidth (CH Mid)



Transmit Freq Error -6.298 kHz
 x dB Bandwidth 8.125 MHz



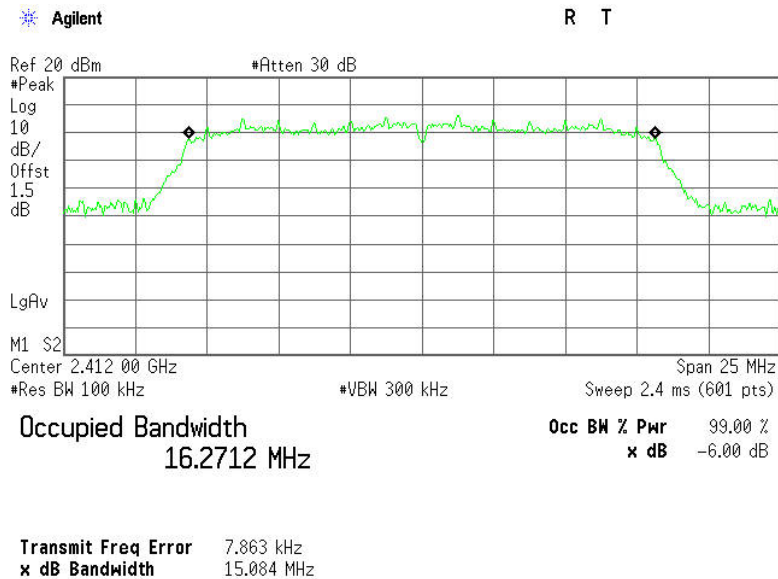
6dB Bandwidth (CH High)



Antenna 0

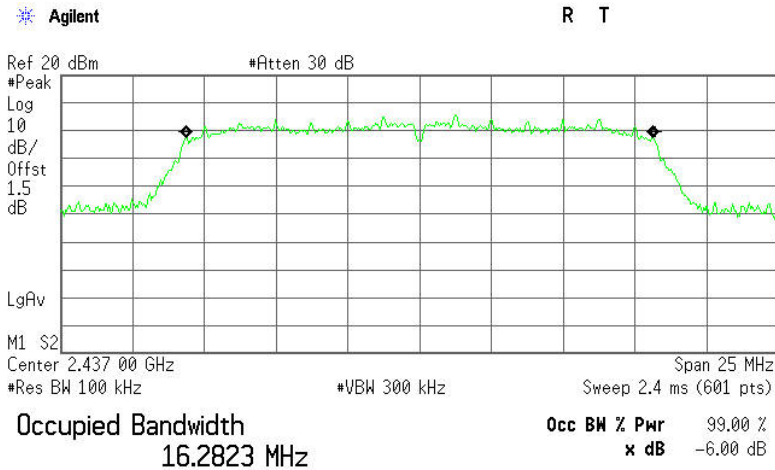
IEEE 802.11g mode

6dB Bandwidth (CH Low)



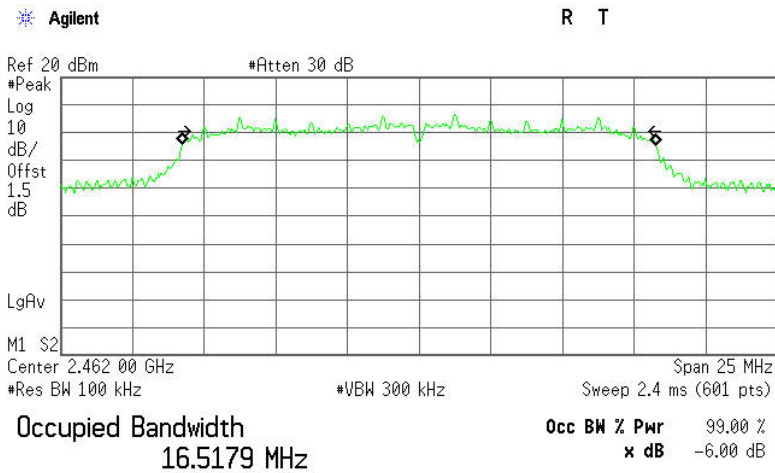


6dB Bandwidth (CH Mid)



Transmit Freq Error 422.372 Hz
x dB Bandwidth 15.103 MHz

6dB Bandwidth (CH High)



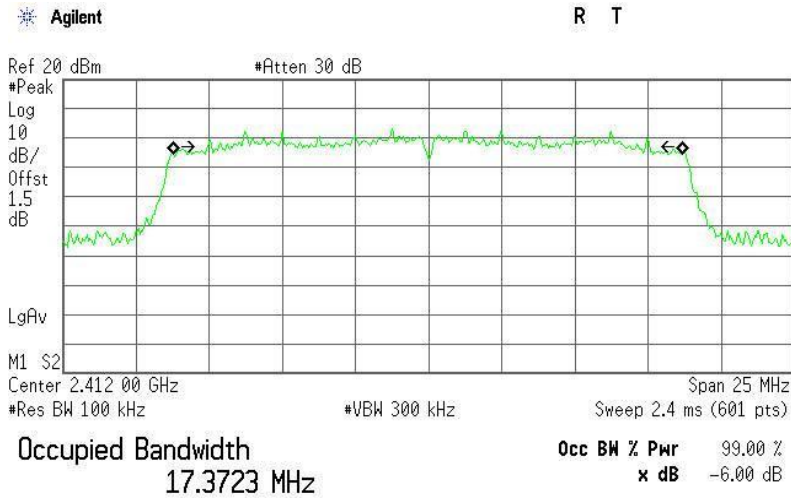
Transmit Freq Error -1.711 kHz
x dB Bandwidth 15.117 MHz



Antenna 0

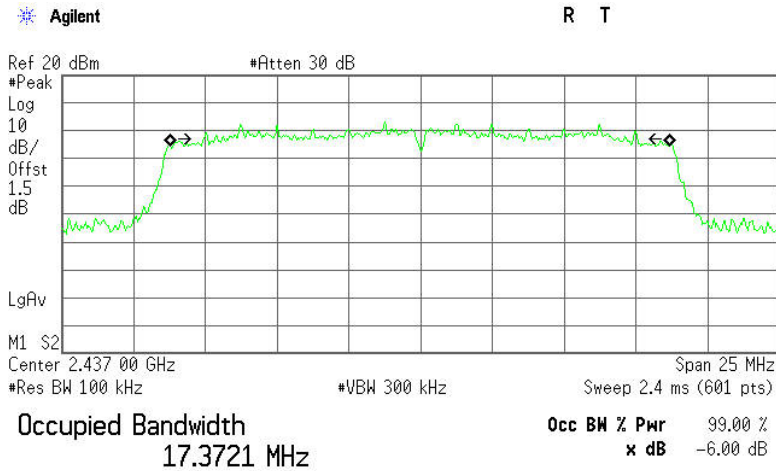
IEEE 802.11n HT20 MHz mode

6dB Bandwidth (CH Low)



Transmit Freq Error -12.020 kHz
x dB Bandwidth 15.149 MHz

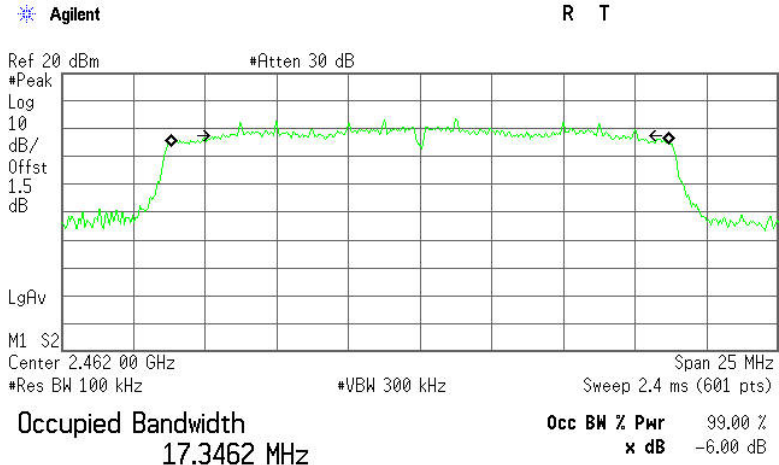
6dB Bandwidth (CH Mid)



Transmit Freq Error -12.054 kHz
x dB Bandwidth 15.132 MHz



6dB Bandwidth (CH High)

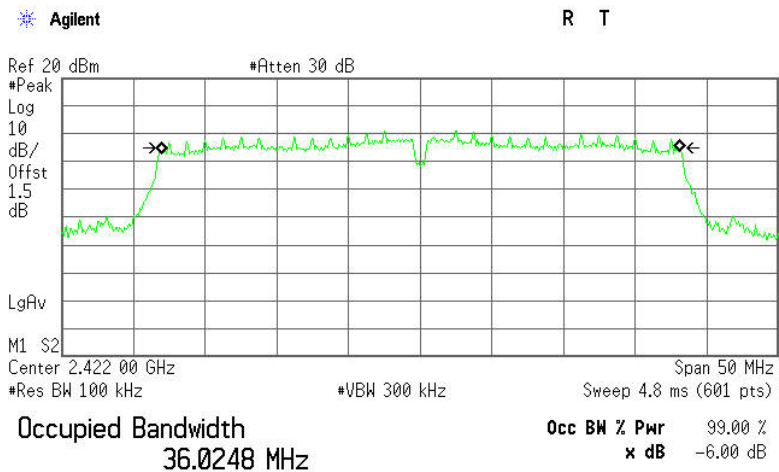


Transmit Freq Error -5.465 kHz
x dB Bandwidth 14.504 MHz

Antenna 0

IEEE 802.11n HT40 MHz mode

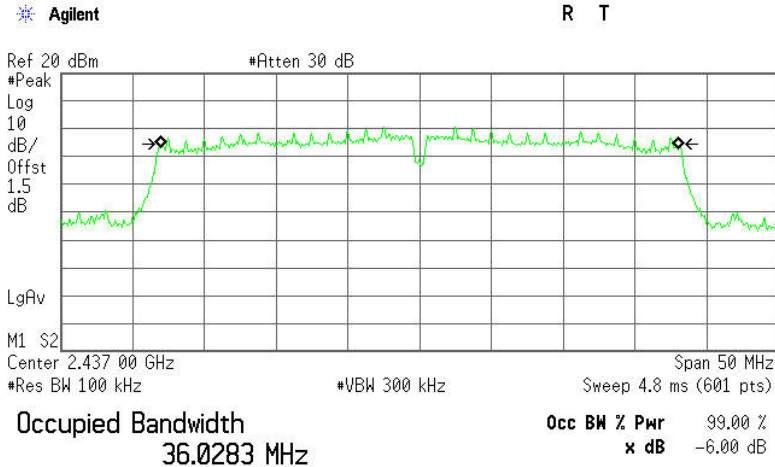
6dB Bandwidth (CH Low)



Transmit Freq Error 33.870 kHz
x dB Bandwidth 35.349 MHz

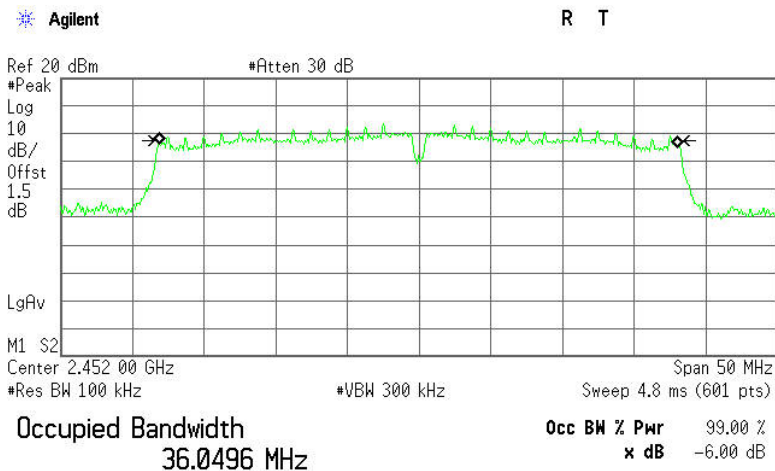


6dB Bandwidth (CH Mid)



Transmit Freq Error -2.334 kHz
x dB Bandwidth 35.244 MHz

6dB Bandwidth (CH High)



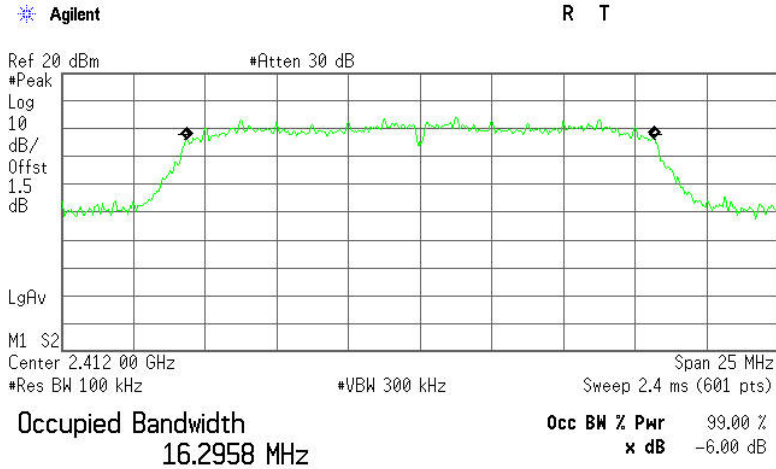
Transmit Freq Error -28.142 kHz
x dB Bandwidth 35.200 MHz



Antenna 1

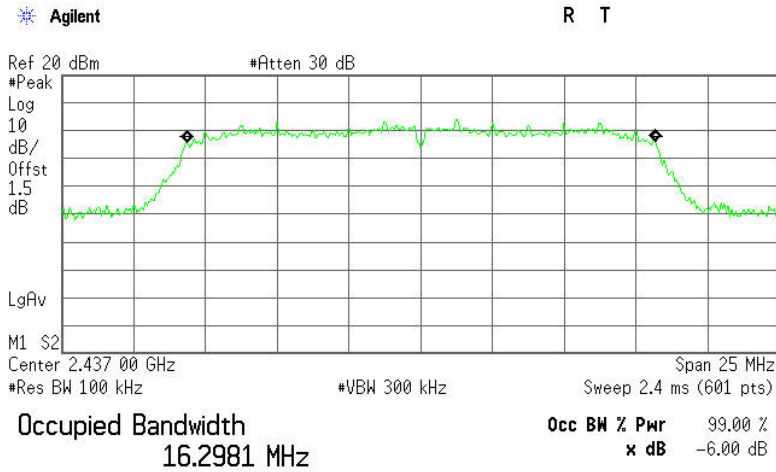
IEEE 802.11g mode

6dB Bandwidth (CH Low)



Transmit Freq Error 16.117 kHz
x dB Bandwidth 15.144 MHz

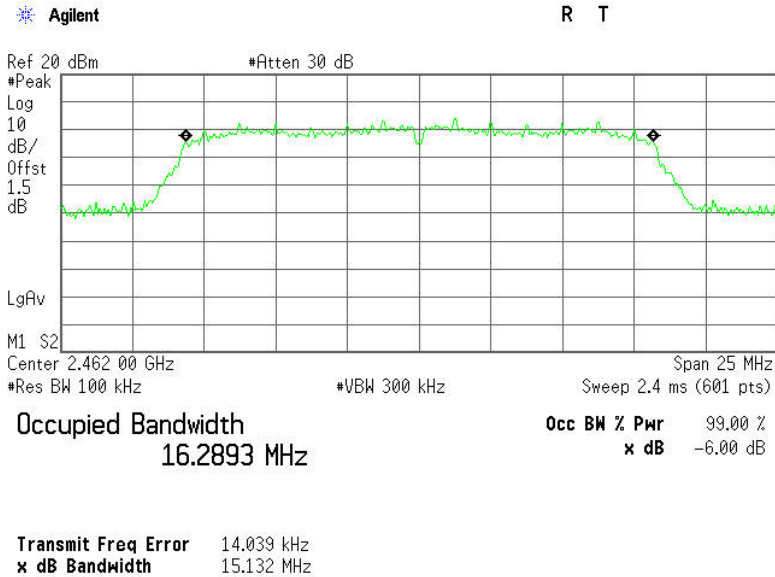
6dB Bandwidth (CH Mid)



Transmit Freq Error 8.448 kHz
x dB Bandwidth 15.125 MHz



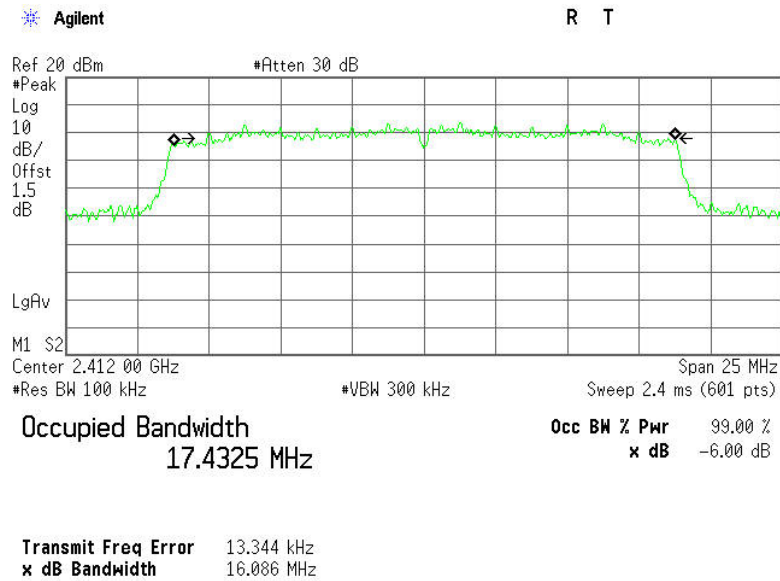
6dB Bandwidth (CH High)



Antenna 1

IEEE 802.11n HT20 MHz mode

6dB Bandwidth (CH Low)

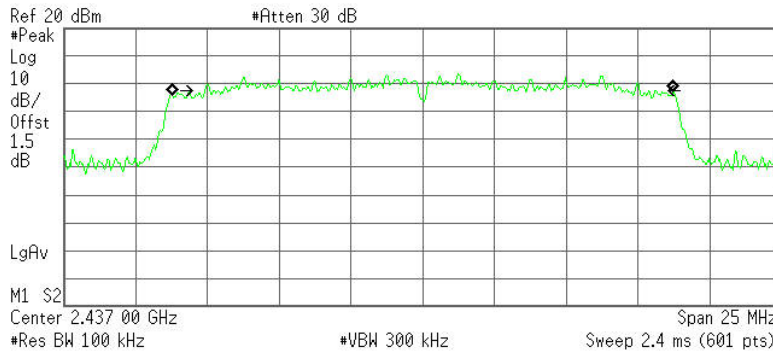




6dB Bandwidth (CH Mid)

Agilent

R T



Occupied Bandwidth
17.4248 MHz

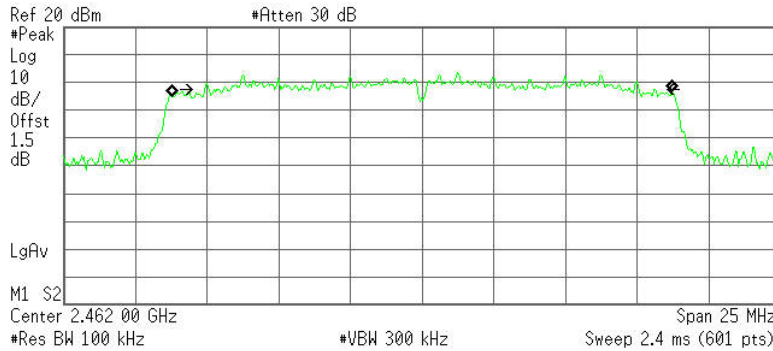
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 4.273 kHz
x dB Bandwidth 15.721 MHz

6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth
17.4280 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

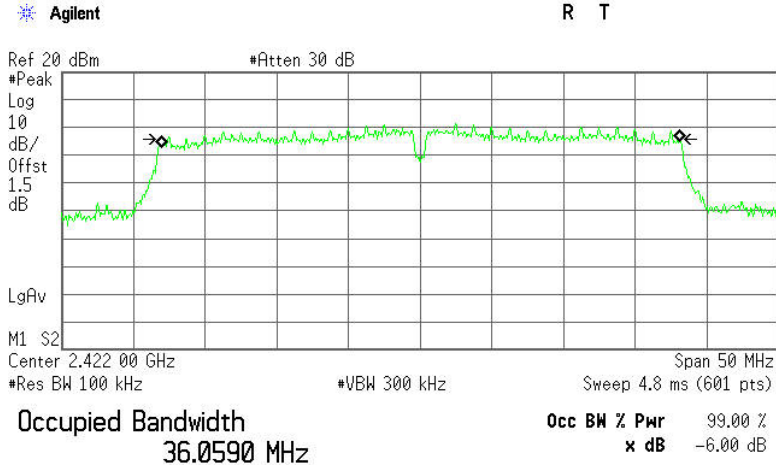
Transmit Freq Error 767.614 Hz
x dB Bandwidth 15.723 MHz



Antenna 1

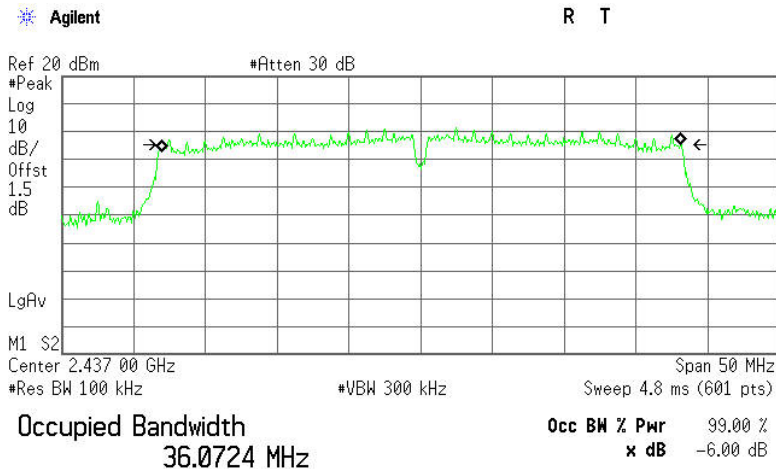
IEEE 802.11n HT40 MHz mode

6dB Bandwidth (CH Low)



Transmit Freq Error 36.811 kHz
 x dB Bandwidth 35.186 MHz

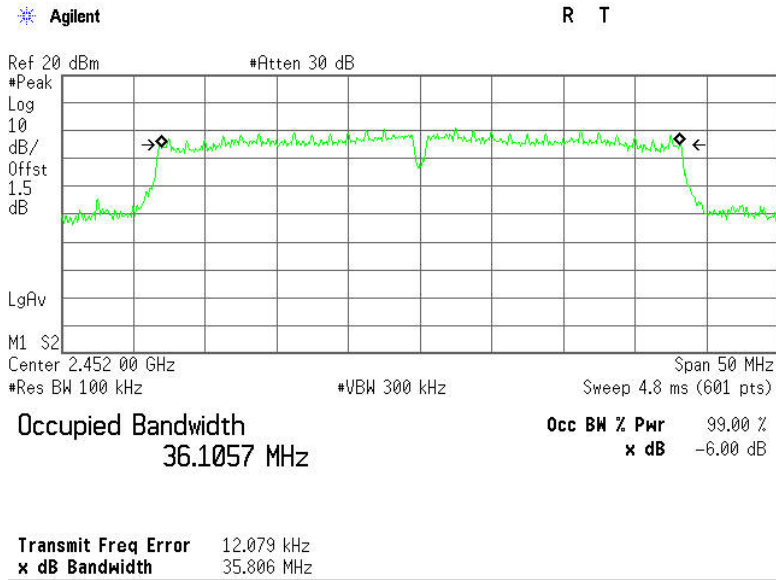
6dB Bandwidth (CH Mid)



Transmit Freq Error 30.335 kHz
 x dB Bandwidth 35.788 MHz



6dB Bandwidth (CH High)





7.4. PEAK OUTPUT POWER

7.4.1. LIMITS

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.4.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	03/09/2013	03/08/2014
Power Meter	Anritsu	ML2495A	1204003	03/09/2013	03/08/2014
Power Sensor	Anritsu	MA2411B	1126150	03/09/2013	03/08/2014

7.4.3. TEST PROCEDURES (please refer to measurement standard)

9.1.1 RBW \geq DTS bandwidth

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

- a) Set the RBW \geq DTS bandwidth.
- b) Set VBW \geq 3 RBW.
- c) Set span \geq 3 x RBW
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.



9.1.2 Integrated band power method

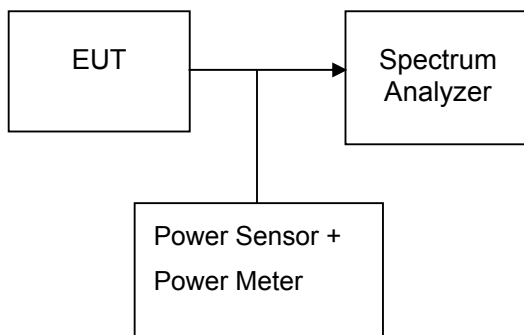
This procedure may be used when the maximum available RBW of the measurement instrument is less than the *DTS bandwidth*.

- a) Set the RBW = 1 MHz.
- b) Set the VBW ≥ 3 RBW
- c) Set the span $\geq 1.5 \times$ DTS bandwidth.
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector). If the instrument does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS bandwidth.

9.1.3 PKPM1 Peak power meter method

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

7.4.4. TEST SETUP





7.4.5. TEST RESULTS

No non-compliance noted

Test Data

Antenna 0

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	17.59	0.05741	1	PASS
Mid	2437	17.52	0.05649		PASS
High	2462	17.88	0.06138		PASS

Antenna 0

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	23.60	0.22909	1	PASS
Mid	2437	23.03	0.20091		PASS
High	2462	22.75	0.18836		PASS

Antenna 1

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	21.67	0.14689	1	PASS
Mid	2437	23.06	0.20230		PASS
High	2462	21.16	0.13062		PASS

Antenna 0+ Antenna 1

Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency (MHz)	Output Power (dBm)			Output Power (W)	Limit (W)	Result
		Chain 0	Chain 1	Total			
Low	2412	21.80	18.24	23.38530	0.21804	1	PASS
Mid	2437	19.82	22.83	24.59101	0.28781		PASS
High	2462	17.89	17.02	20.48705	0.11187		PASS



Antenna 0 + Antenna 1

Test mode: IEEE 802.11n HT40 MHz

Channel	Frequency (MHz)	Output Power (dBm)			Output Power	Limit (W)	Result
		Chain 0	Chain 1	Total			
Low	2422	20.53	19.00	22.84233	0.19241	1	PASS
Mid	2437	21.80	20.38	24.15808	0.26050		PASS
High	2452	18.25	14.80	19.86924	0.09703		PASS

Note : Combine Power Calculation :

$$\text{Total Power(dBm)} = \log (10^{(\text{chain 0 power}/10)} + 10^{(\text{chain 1 power}/10)}) * 10$$