



FCC 47 CFR PART 15 SUBPART C

for

AV1000 2-Port Gigabit Wi-Fi Powerline Extender

Model: PW3

Brand: Tenda

Test Report Number:

C151123Z20-RP1

Issued Date: January 8, 2016

Issued for

**SHENZHEN TENDA TECHNOLOGY CO., LTD
6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road,
Nanshan District, Shenzhen, China. 518052**

Issued by:

Compliance Certification Services (Shenzhen) Inc.

No.10-1 Mingkeda Logistics park, No.18, Huanguan South Rd.,
Guan Lan Town, Baoan District, Shenzhen, China

TEL: 86-755-28055000

FAX: 86-755-28055221

E-Mail: service@ccssz.com



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TESTING CERT #2861.01

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 8, 2016	Initial Issue	ALL	Nancy Fu



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1 TEST CERTIFICATION

Product	AV1000 2-Port Gigabit Wi-Fi Powerline Extender
Model	PW3
Brand	Tenda
Tested	November 23, 2015~ January 8, 2016
Applicant	SHENZHEN TENDA TECHNOLOGY CO., LTD 6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052
Manufacturer	SHENZHEN TENDA TECHNOLOGY CO., LTD 6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052

APPLICABLE STANDARDS

Standard	Test Type	Standard	Test Type
15.207(a)	Power Line Conducted Emissions	15.247(d) 15.209(a)	● 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 (Shenzhen) 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 C63.10: 2013** 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:

Sunday Hu
Supervisor of EMC Dept.
Compliance Certification Services (Shenzhen) Inc.

Reviewed by:

Ruby Zhang
Supervisor of Report Dept.
Compliance Certification Services (Shenzhen) 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)	● 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	AV1000 2-Port Gigabit Wi-Fi Powerline Extender
Model Number	PW3
Brand	Tenda
Model Discrepancy	N/A
Identify Number	C151123Z20-RP1
Power Supply	AC100-240V, 50/60Hz, 0.1A
Transmit Power	IEEE 802.11b mode: 18.71dBm (Antenna 0) IEEE 802.11b mode: 17.46dBm (Antenna 1) IEEE 802.11g mode: 25.85dBm (Antenna 0) IEEE 802.11g mode: 25.22dBm (Antenna 1) IEEE 802.11n HT20 MHz mode: 26.97dBm(Combine with Antenna 0 and Antenna 1) IEEE 802.11n HT40 MHz mode: 25.73dBm(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 802.11n HT40: 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 3.0dBi 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: V7TPW3 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 Link(AC120V/60Hz) Mode 2: Normal Link(AC240V/50Hz)	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	Notebook	E335	R9-WN1EF	DoC	Thinkpad	N/A	N/A

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 C63.10, 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-10624)
Canada	INDUSTRY CANADA

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.ccssz.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 μ H/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 (dB μ V)	
	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
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	02/28/2015	02/27/2016
LISN(EUT)	ROHDE&SCHWARZ	ENV216	101543-WX	02/28/2015	02/27/2016
LISN	EMCO	3825/2	8901-1459	02/28/2015	02/27/2016
Temp. / Humidity Meter	VICTOR	HTC-1	N/A	02/28/2015	02/27/2016
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.

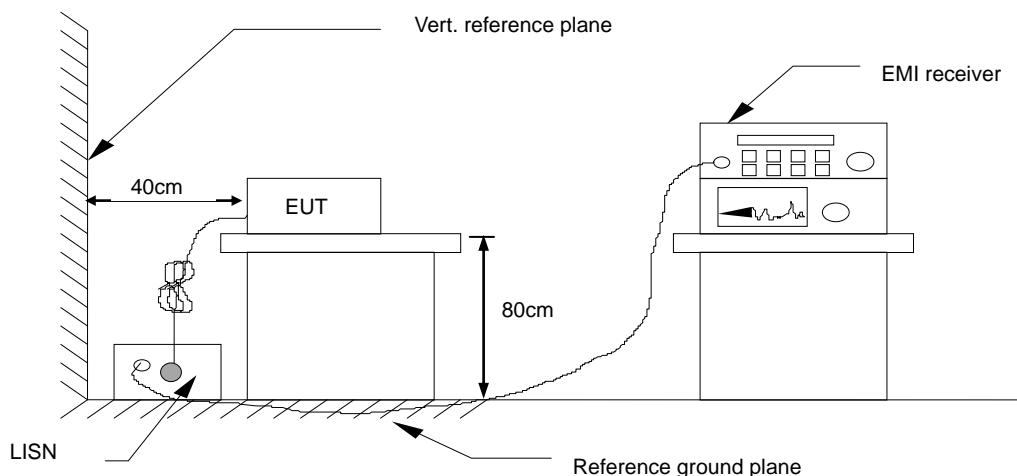


7.1.3. TEST PROCEDURES (please refer to measurement standard)

- 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)	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)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss

Result = Quasi-peak Reading/ Average Reading + Factor

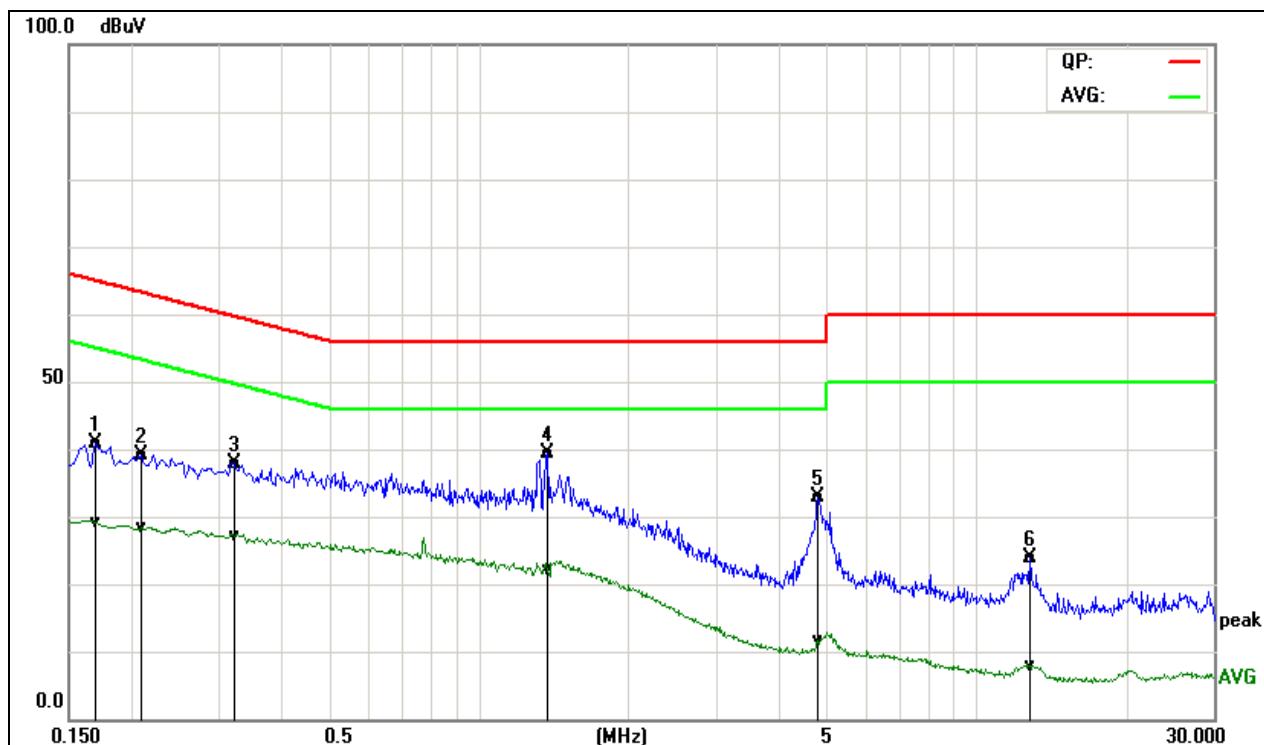
Limit = Limit stated in standard

Margin = Result (dBuV) – Limit (dBuV)



7.1.6. TEST RESULTS

Model No.	PW3	RBW,VBW	9 kHz
Environmental Conditions	22°C, 45% RH	Test Mode	Mode 1
Tested by	Candy Xia	Line	L1
Test Date	2015/12/02		

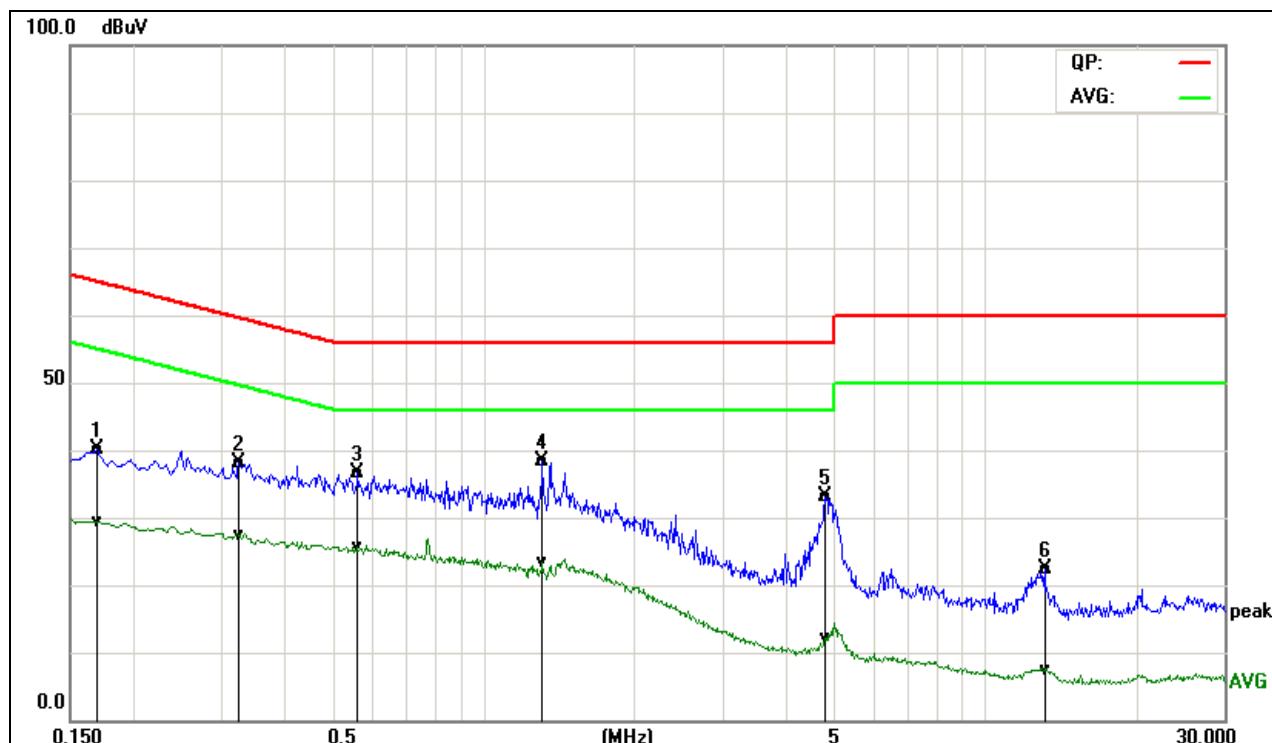


Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark
0.1700	31.31	19.56	9.62	40.93	29.18	64.96	54.96	-24.03	-25.78	Pass
0.2100	29.47	18.57	9.69	39.16	28.26	63.20	53.21	-24.04	-24.95	Pass
0.3220	28.26	17.40	9.69	37.95	27.09	59.65	49.66	-21.70	-22.57	Pass
1.3740	29.56	12.41	9.72	39.28	22.13	56.00	46.00	-16.72	-23.87	Pass
4.8220	23.13	1.90	9.69	32.82	11.59	56.00	46.00	-23.18	-34.41	Pass
12.7940	13.88	-1.98	9.89	23.77	7.91	60.00	50.00	-36.23	-42.09	Pass

REMARKS: L1 = Line One (Live Line)



Model No.	PW3	RBW,VBW	9 kHz
Environmental Conditions	22°C, 45% RH	Test Mode	Mode 1
Tested by	Candy Xia	Line	L2
Test Date	2015/12/02		



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
0.1700	30.32	19.71	9.78	40.10	29.49	64.96	54.96	-24.86	-25.47	Pass
0.3260	28.44	17.74	9.75	38.19	27.49	59.55	49.55	-21.36	-22.06	Pass
0.5620	26.88	15.85	9.68	36.56	25.53	56.00	46.00	-19.44	-20.47	Pass
1.3099	28.59	13.57	9.79	38.38	23.36	56.00	46.00	-17.62	-22.64	Pass
4.8180	23.40	2.30	9.78	33.18	12.08	56.00	46.00	-22.82	-33.92	Pass
13.1780	12.53	-2.30	9.77	22.30	7.47	60.00	50.00	-37.70	-42.53	Pass

REMARKS: L2 = Line Two (Neutral Line)



7.2. SPURIOUS EMISSIONS MEASUREMENT

7.2.1. CONDUCTED EMISSIONS MEASUREMENT

7.2.1.1. 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)).

7.2.1.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Due Calibration
Spectrum Analyzer	Agilent	E4446A	US44300399	02/28/2015	02/27/2016

7.2.1.3. 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 10MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

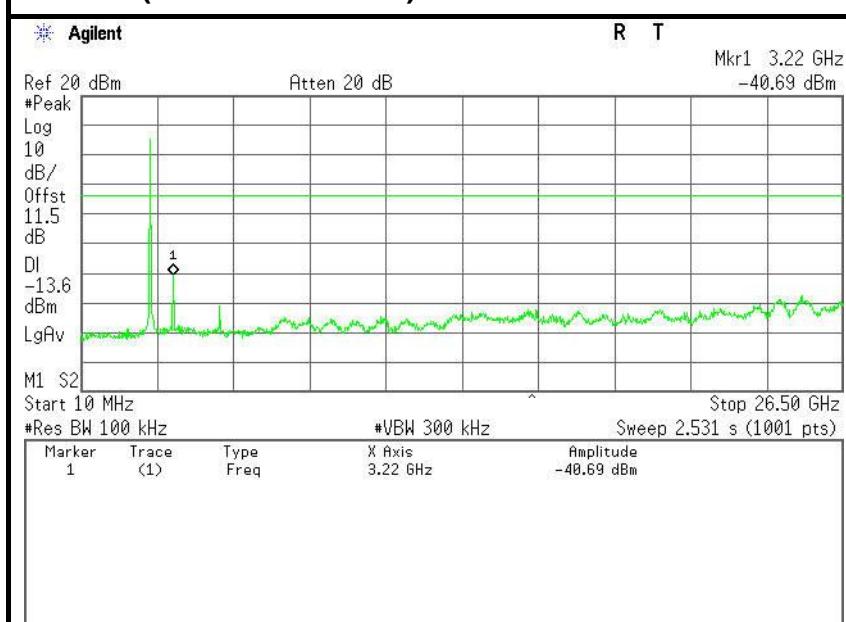


7.2.1.4. TEST RESULTS

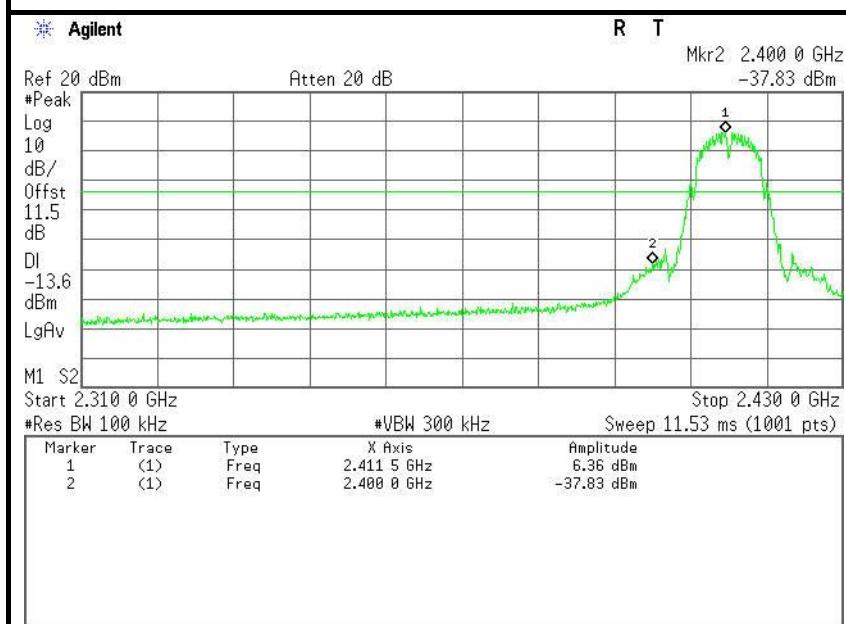
Test Plot

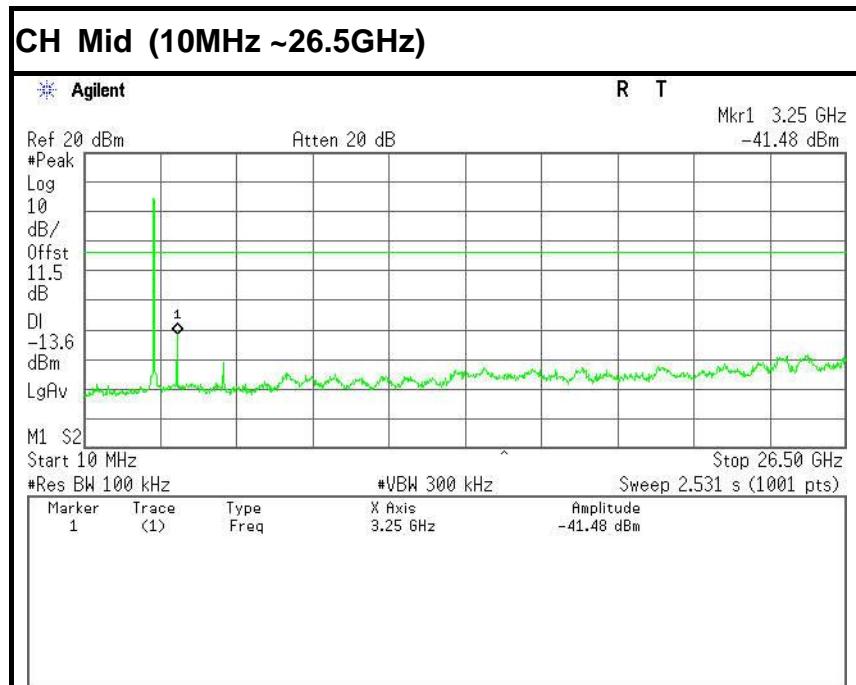
IEEE 802.11b mode (Antenna 0)

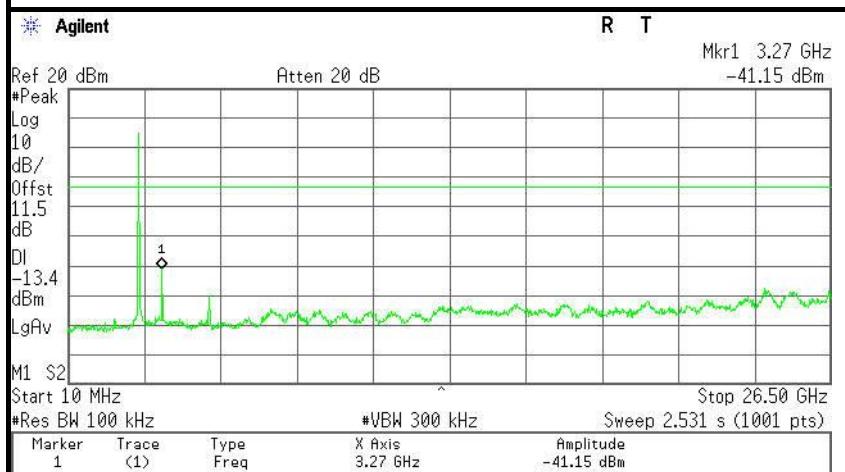
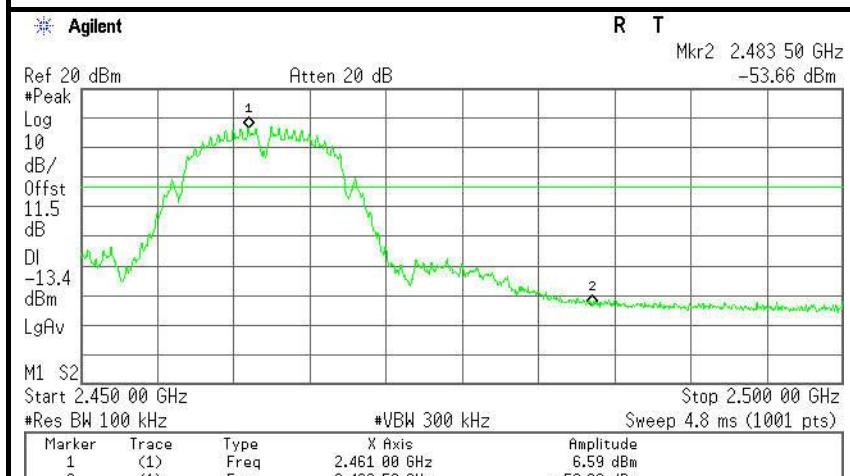
CH Low (10MHz ~26.5GHz)

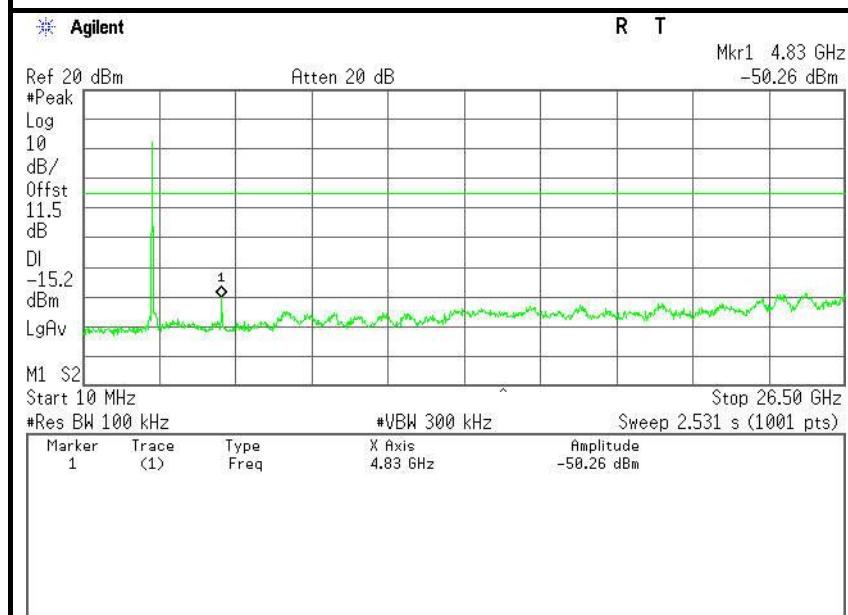
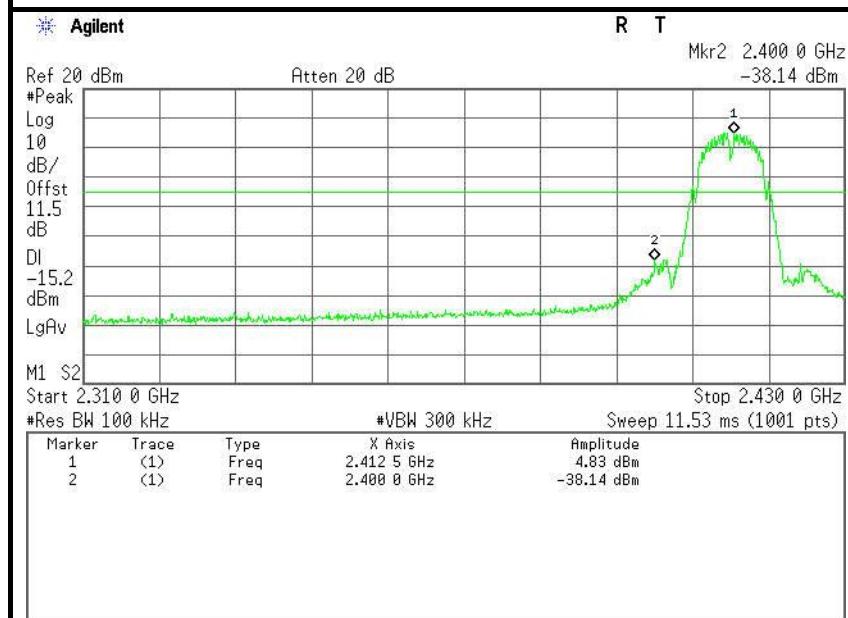


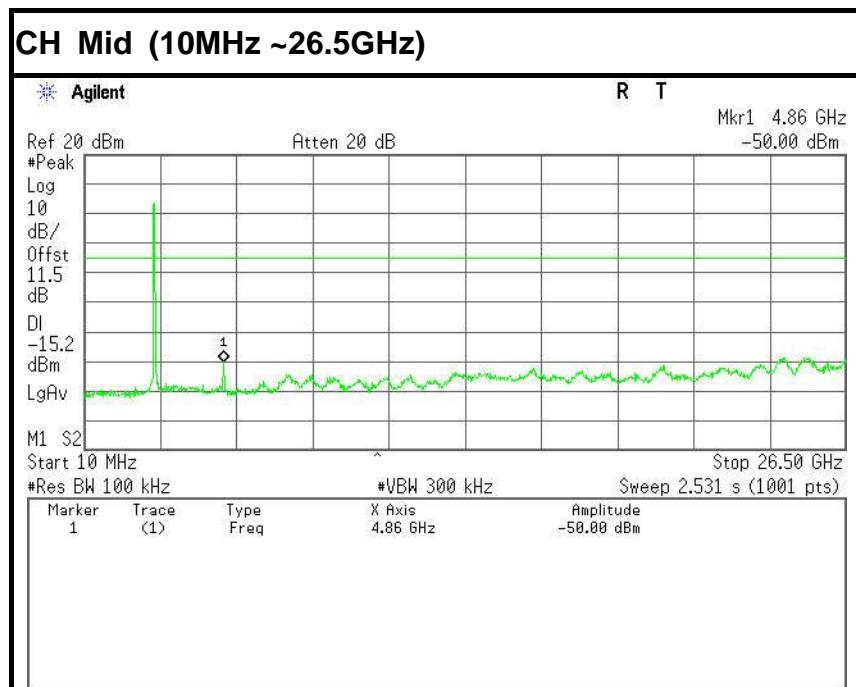
CH Low (2.31GHz ~2.43GHz)

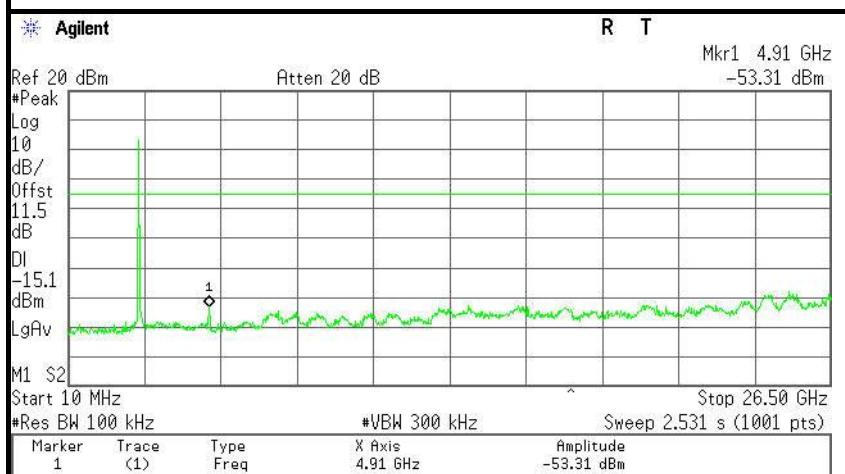
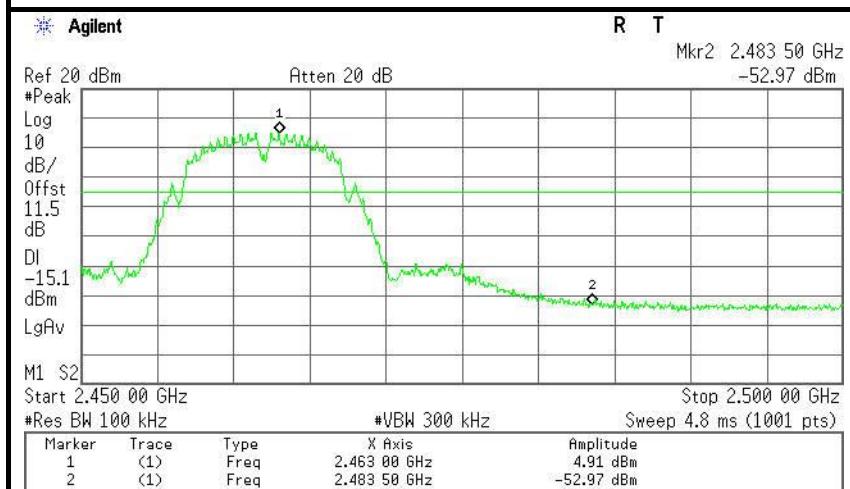


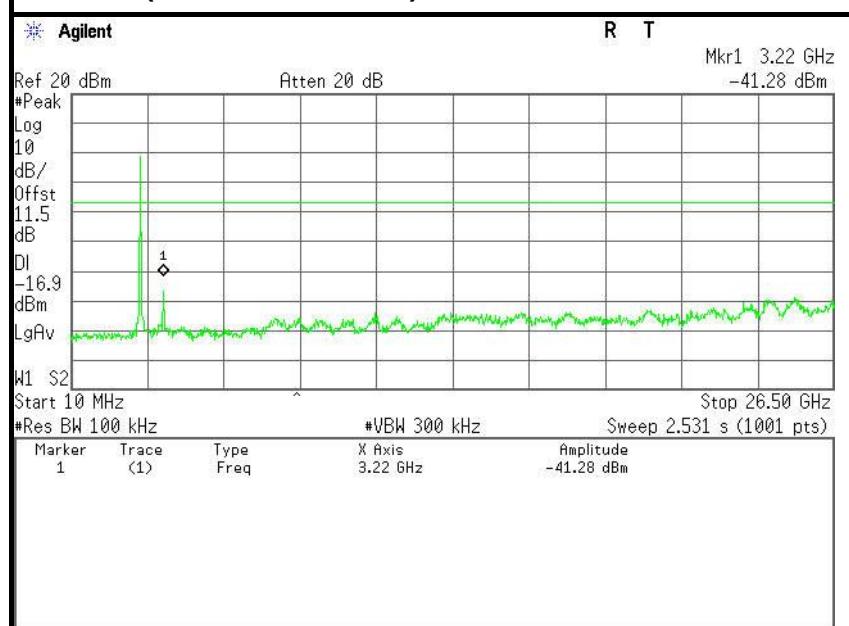
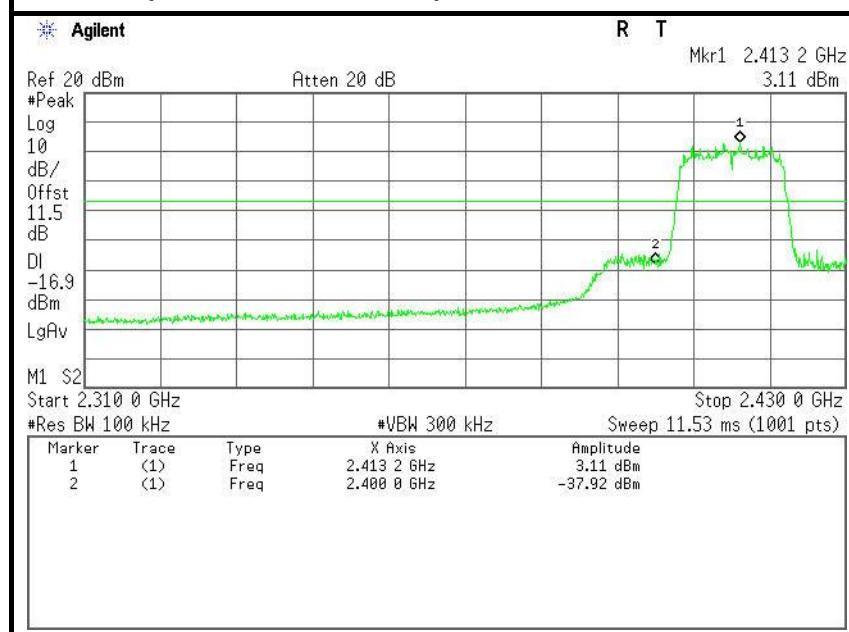


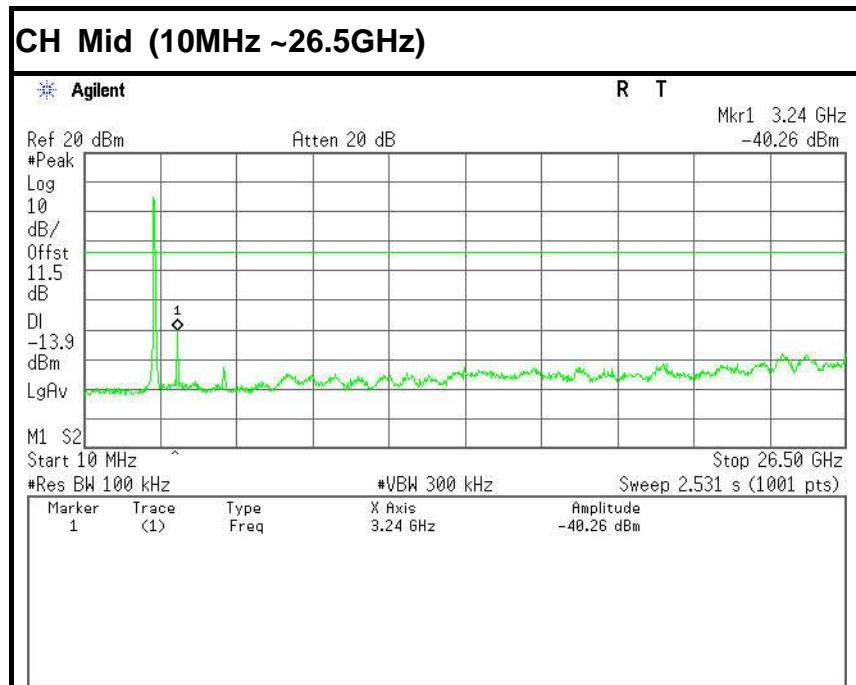
**CH High (10MHz ~26.5GHz)****CH High (2.45GHz ~2.5GHz)**

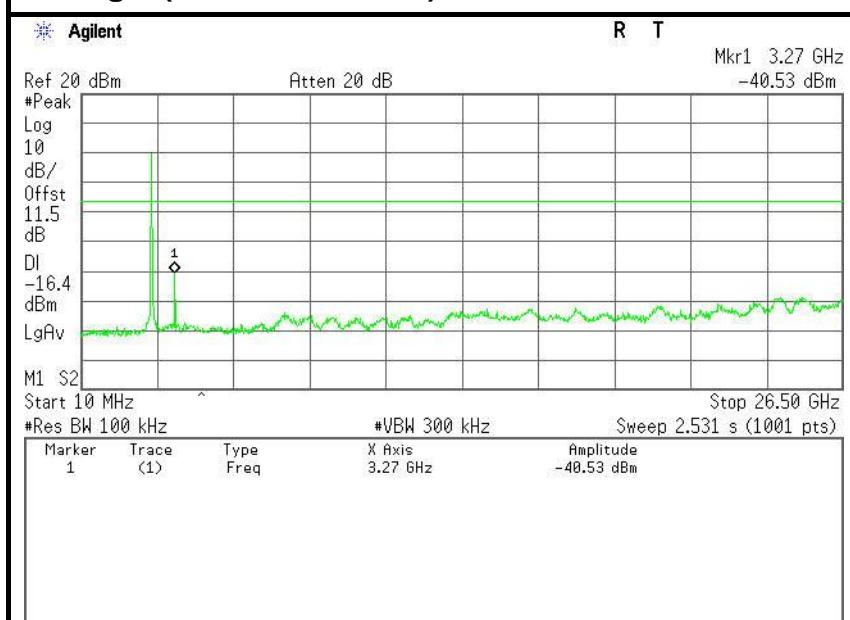
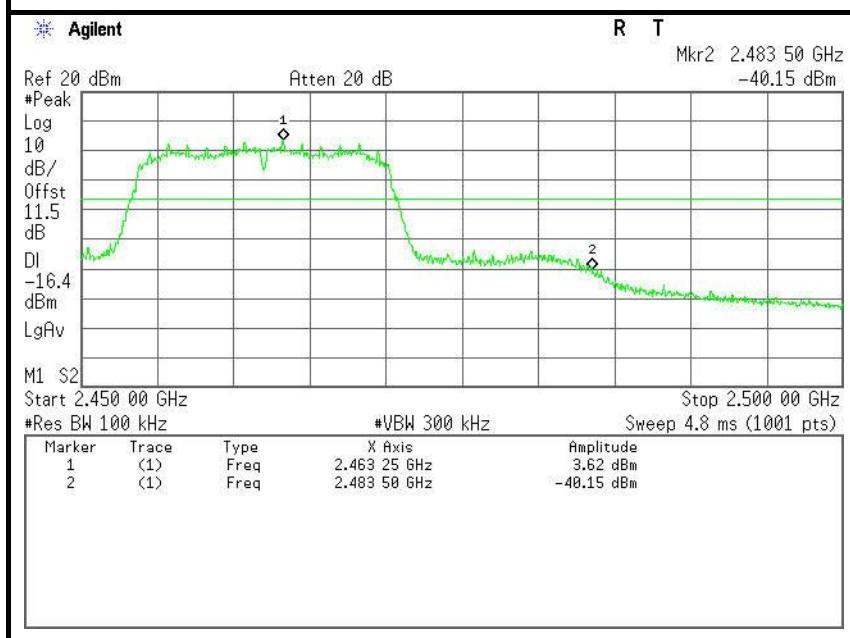
**IEEE 802.11b mode (Antenna 1)****CH Low (10MHz ~26.5GHz)****CH Low (2.31GHz ~2.43GHz)**

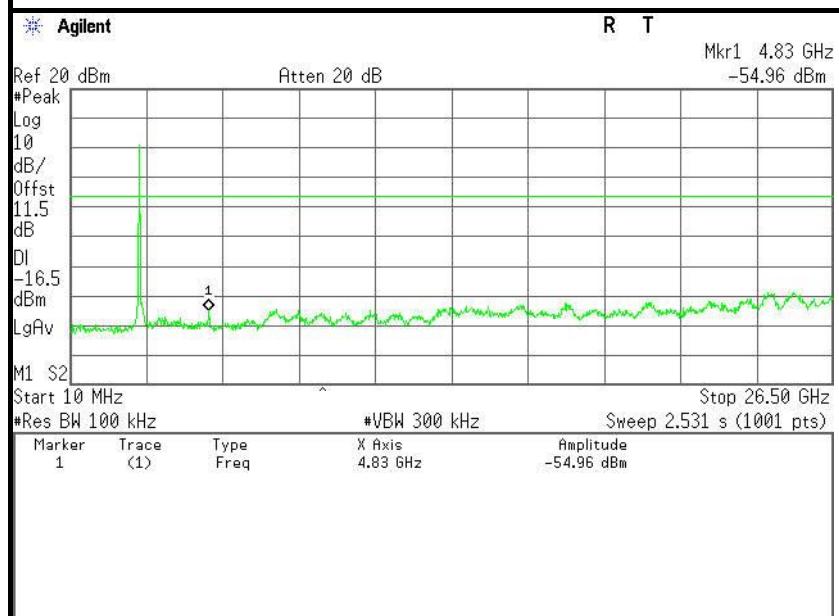
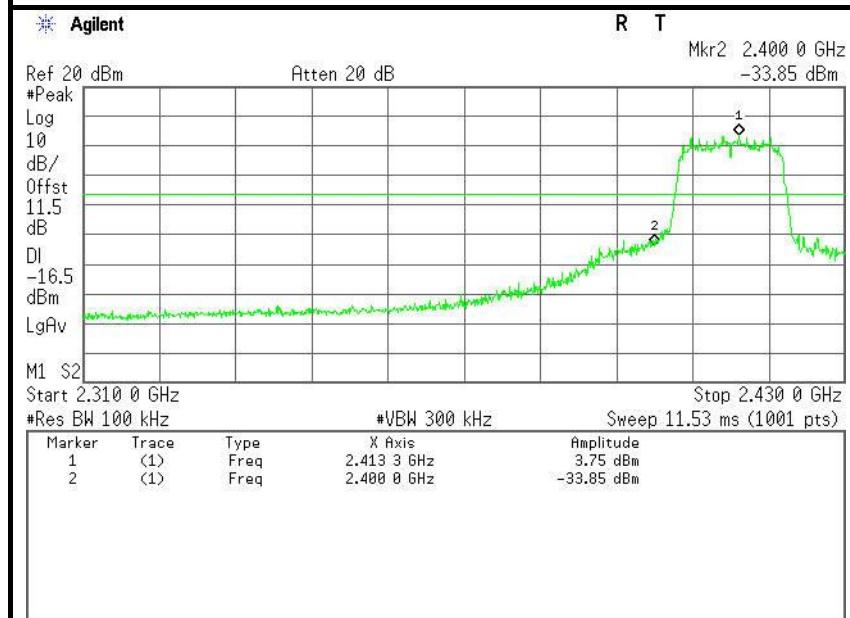


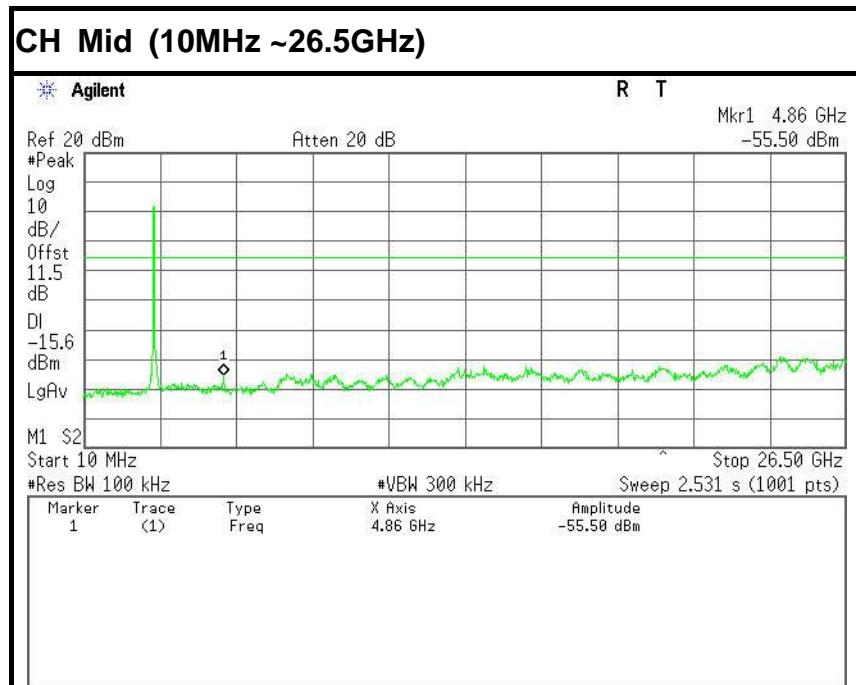
**CH High (10MHz ~26.5GHz)****CH High (2.45GHz ~2.5GHz)**

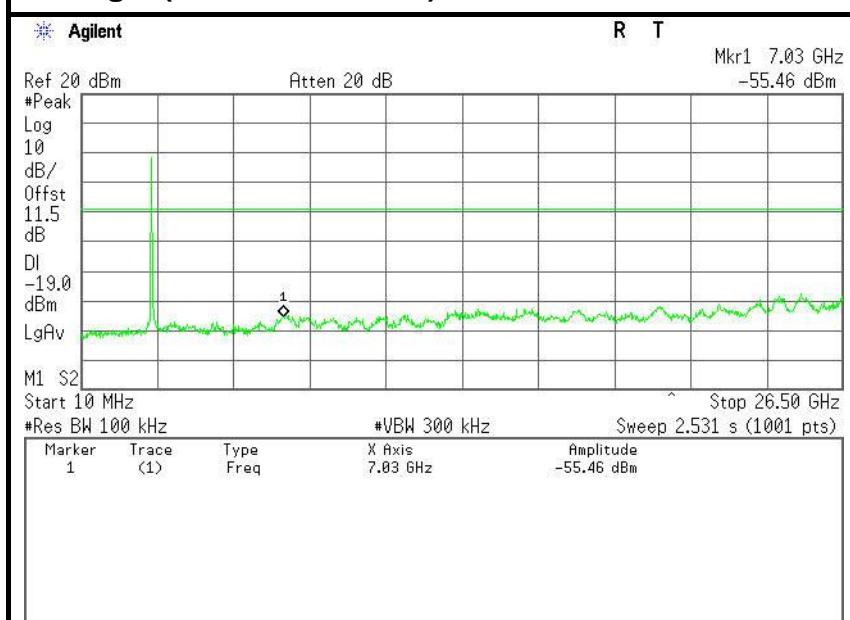
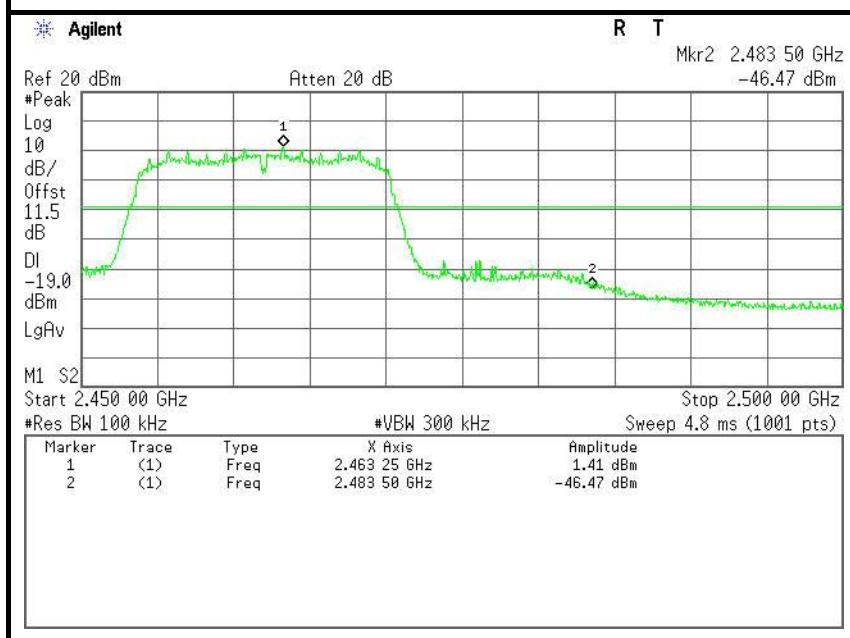
**IEEE 802.11g mode (Antenna 0)****CH Low (10MHz ~26.5GHz)****CH Low (2.31GHz ~2.43GHz)**

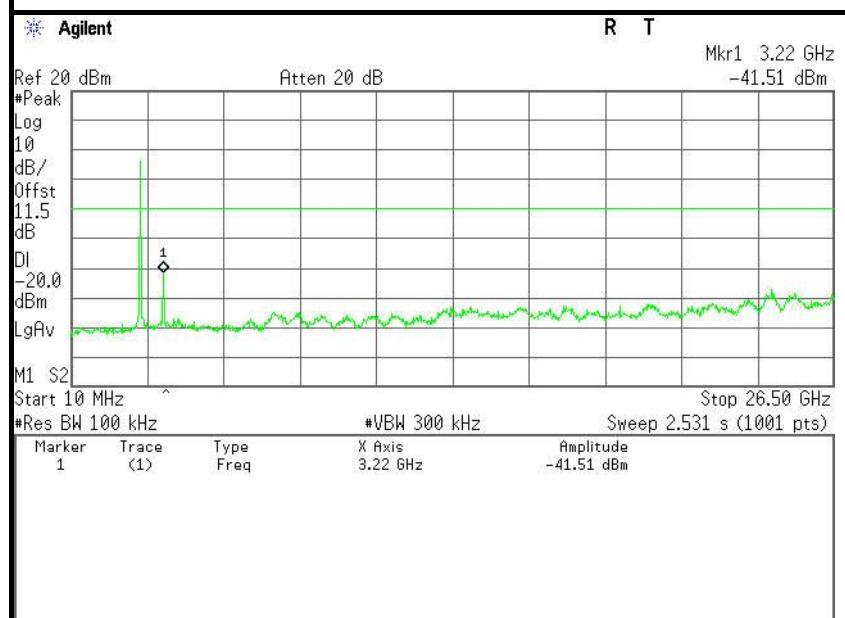
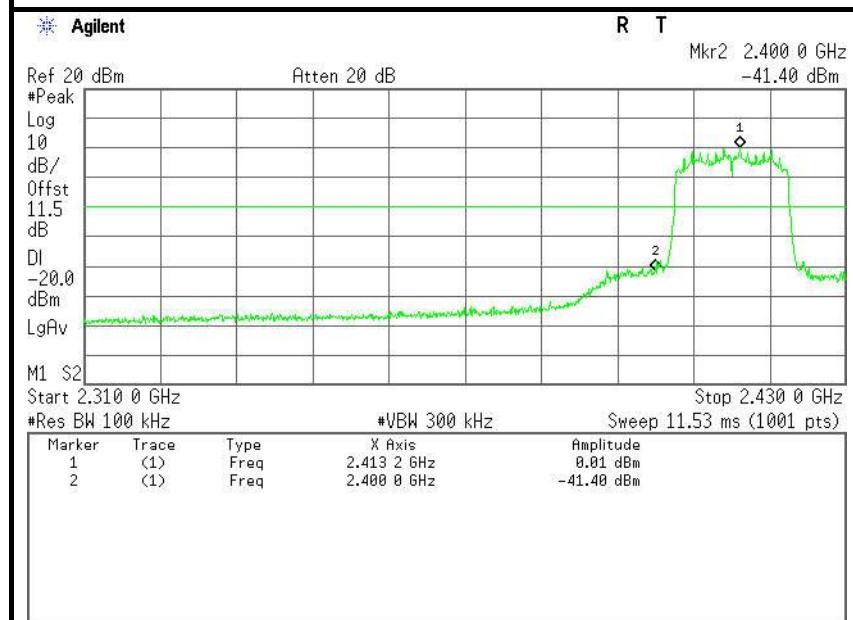


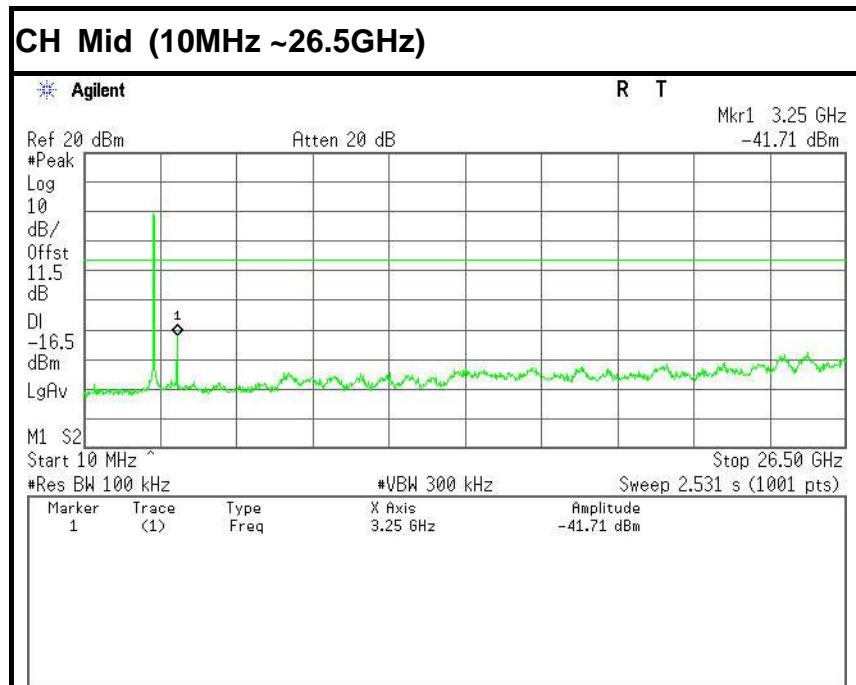
**CH High (10MHz ~26.5GHz)****CH High (2.45GHz ~2.5GHz)**

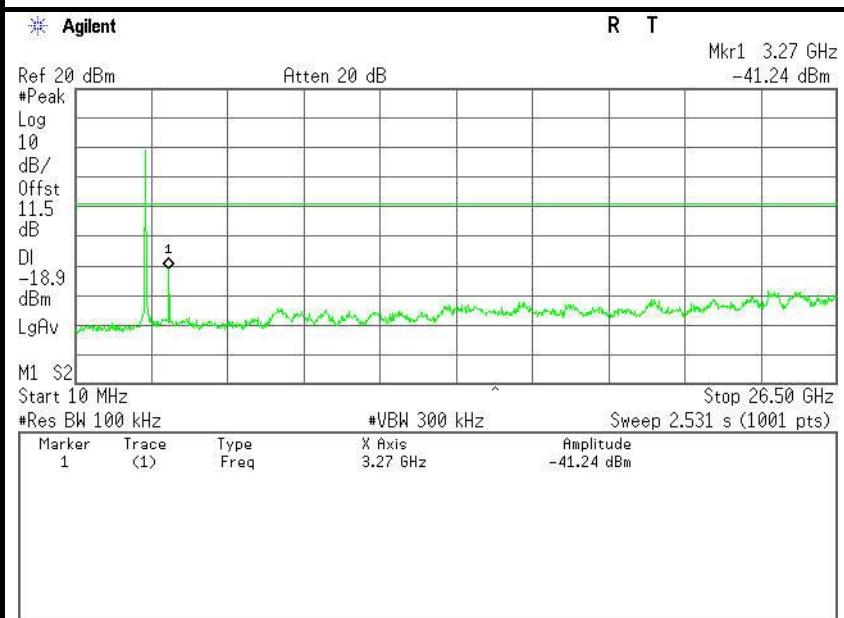
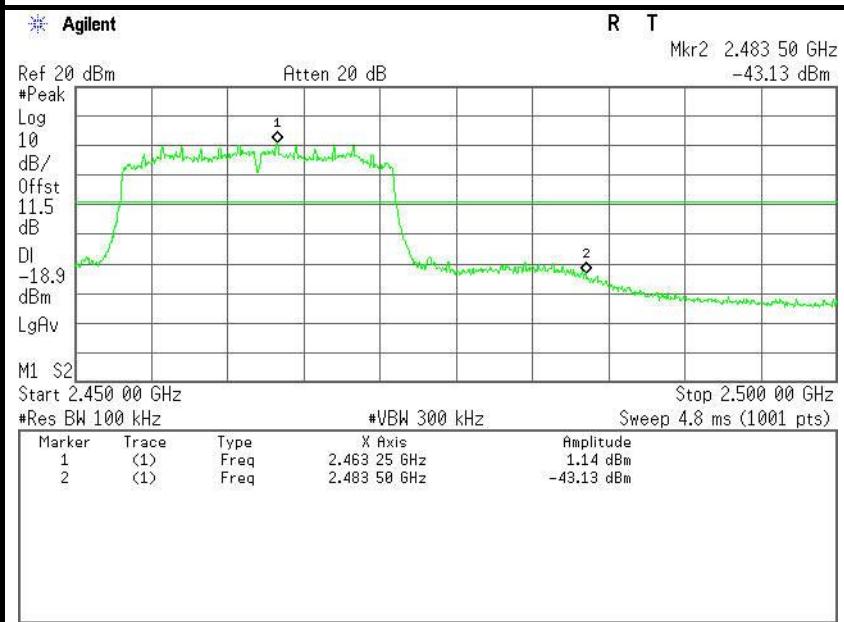
**IEEE 802.11g mode (Antenna 1)****CH Low (10MHz ~26.5GHz)****CH Low (2.31GHz ~2.43GHz)**

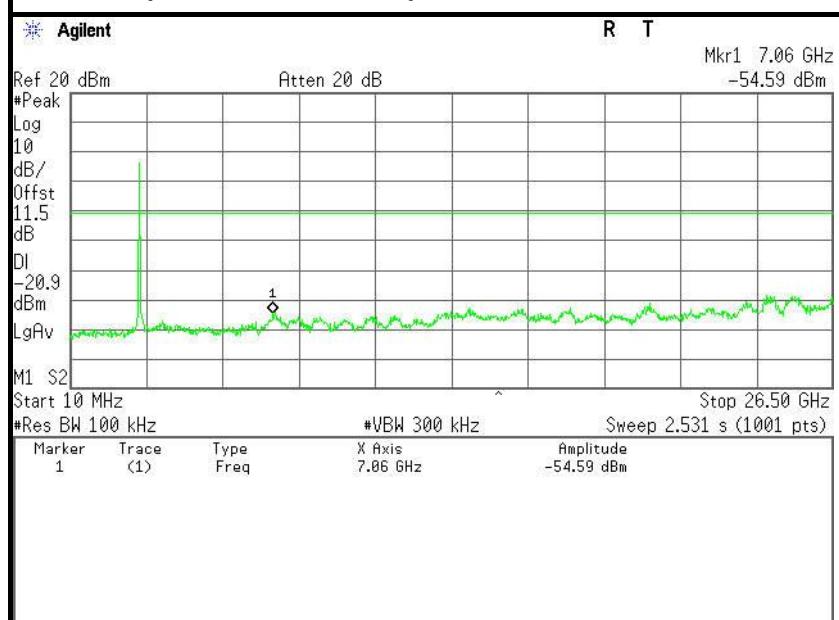
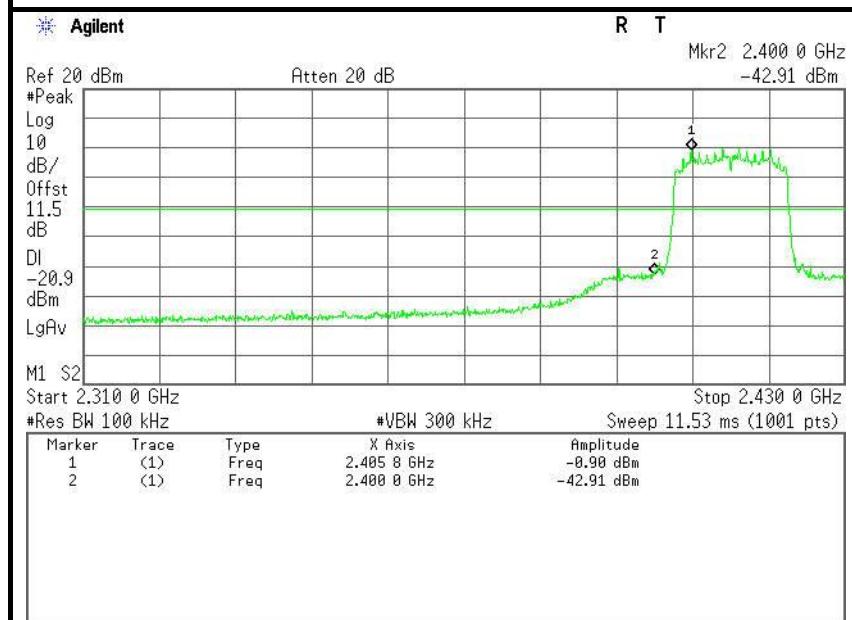


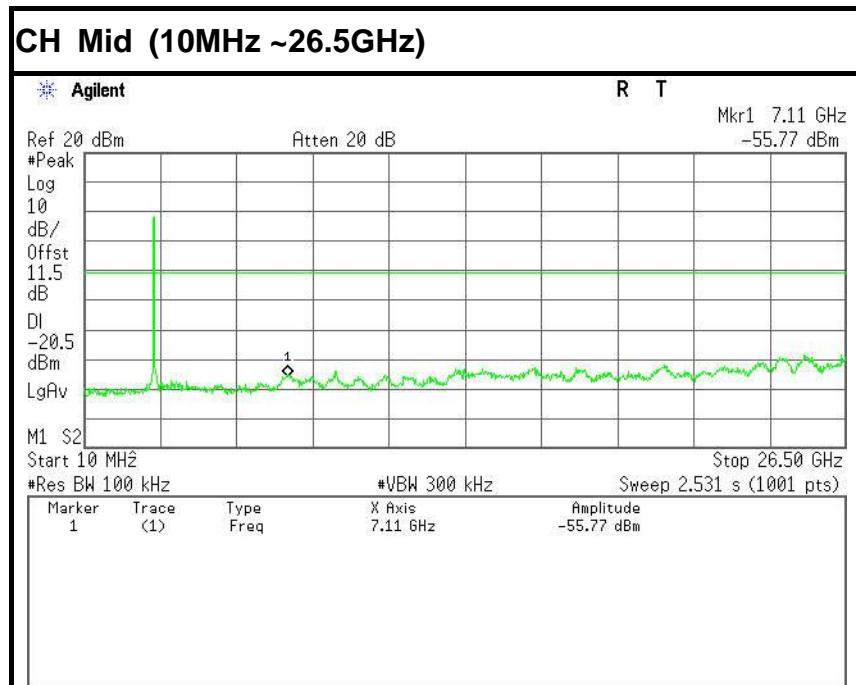
**CH High (10MHz ~26.5GHz)****CH High (2.45GHz ~2.5GHz)**

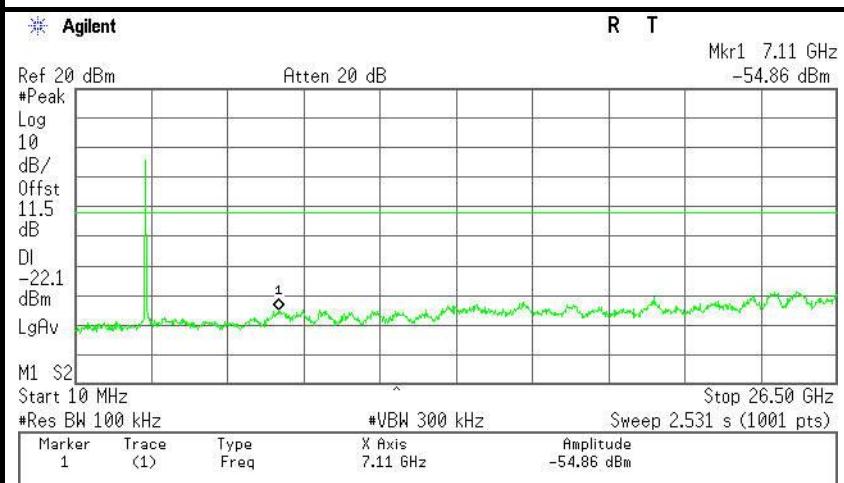
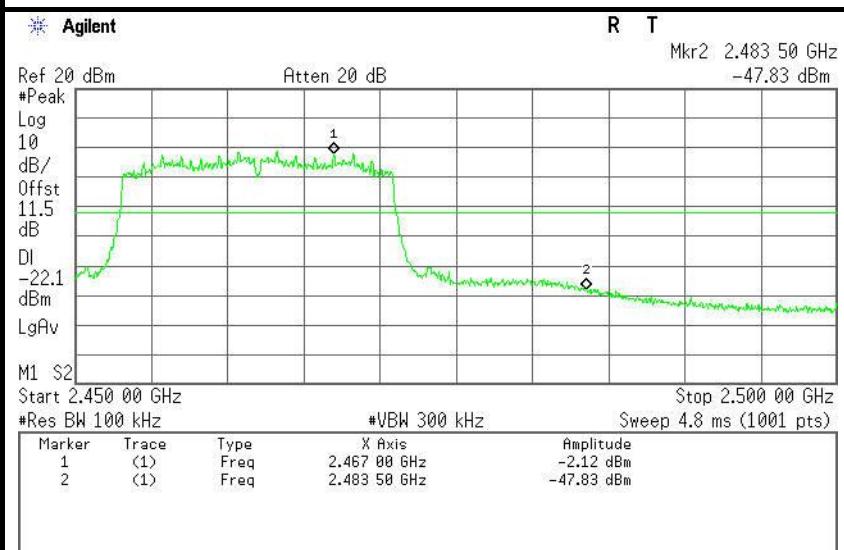
**IEEE 802.11n HT20 MHz mode (Antenna 0)****CH Low (10MHz ~26.5GHz)****CH Low (2.31GHz ~2.43GHz)**

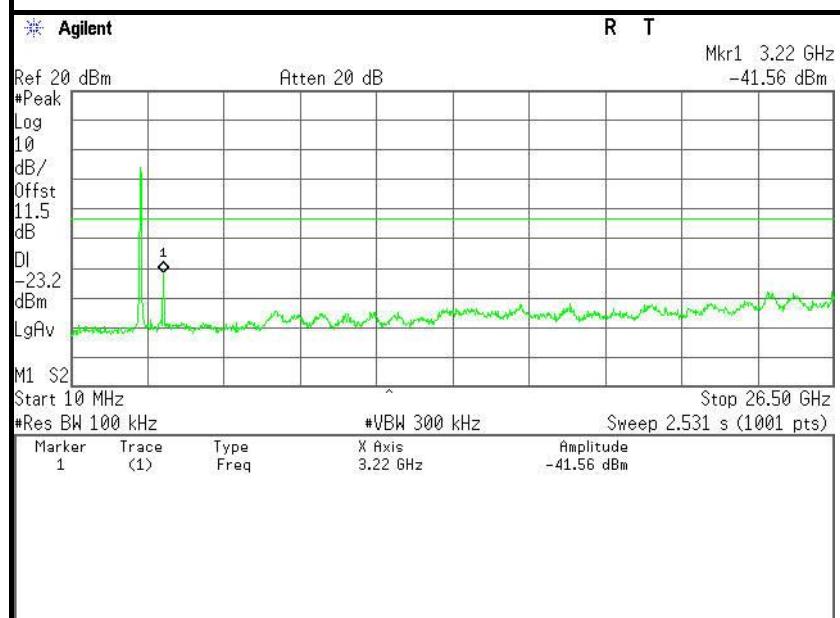
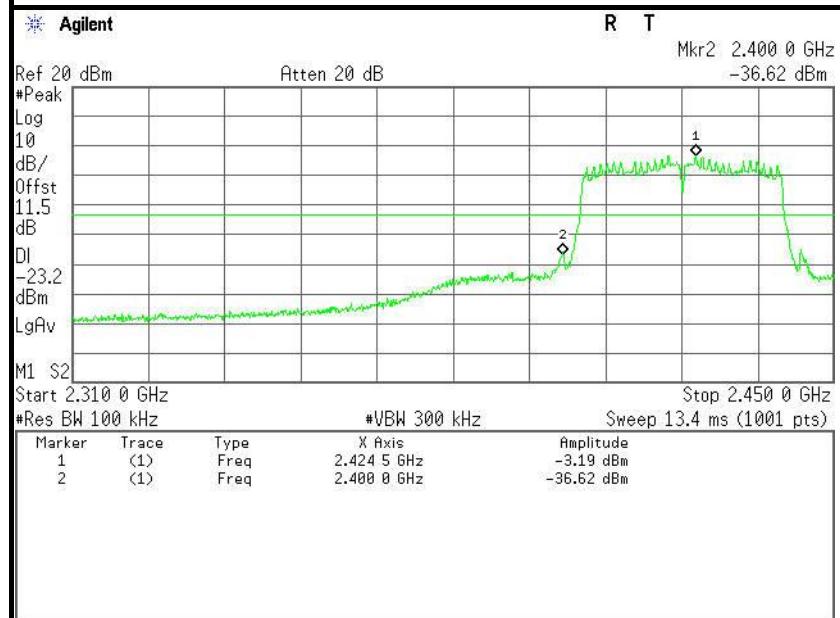


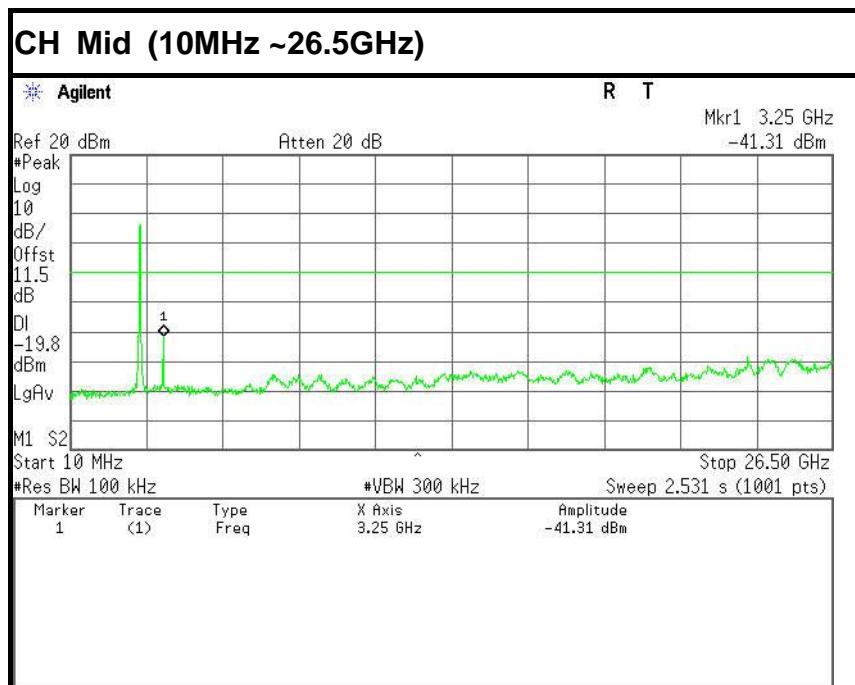
**CH High (10MHz ~26.5GHz)****CH High (2.45GHz ~2.5GHz)**

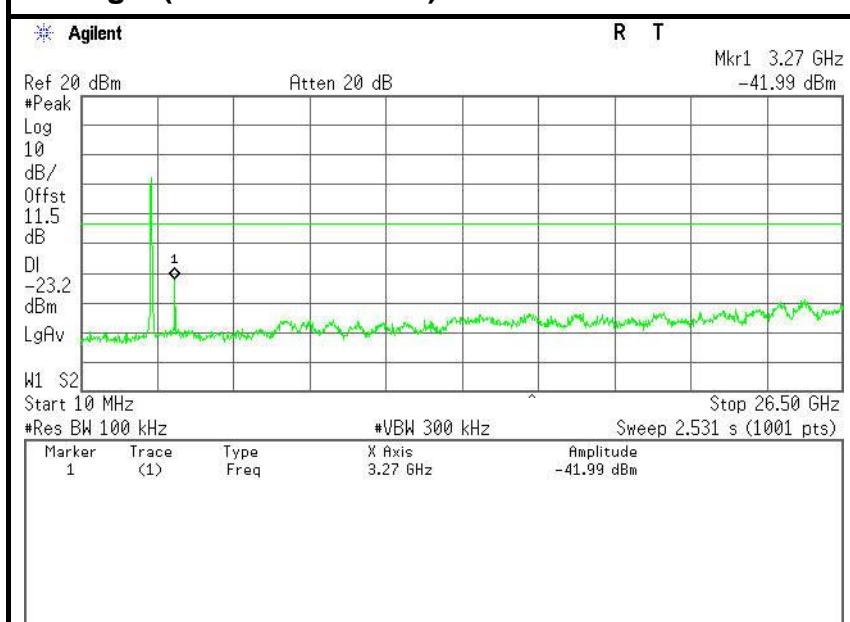
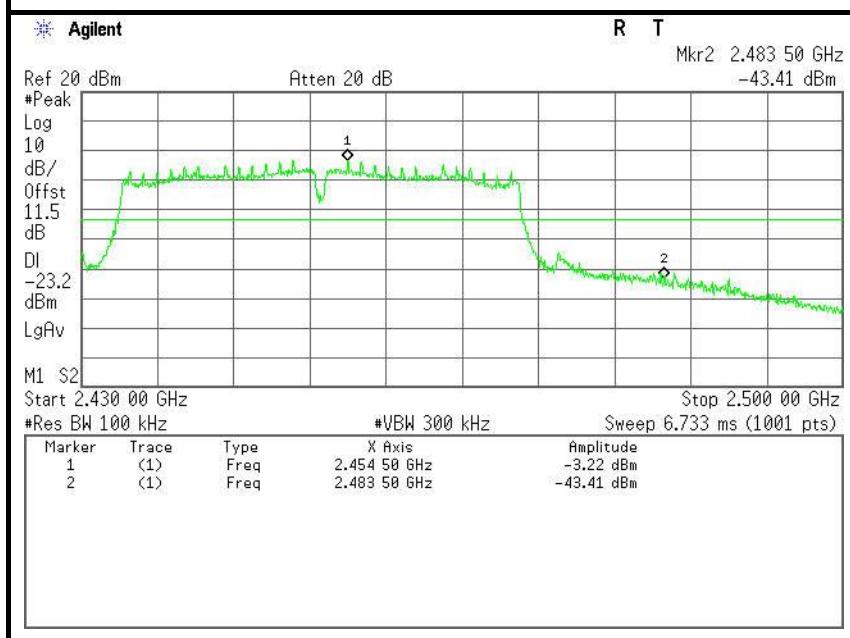
**IEEE 802.11n HT20 MHz mode (Antenna 1)****CH Low (10MHz ~26.5GHz)****CH Low (2.31GHz ~2.43GHz)**

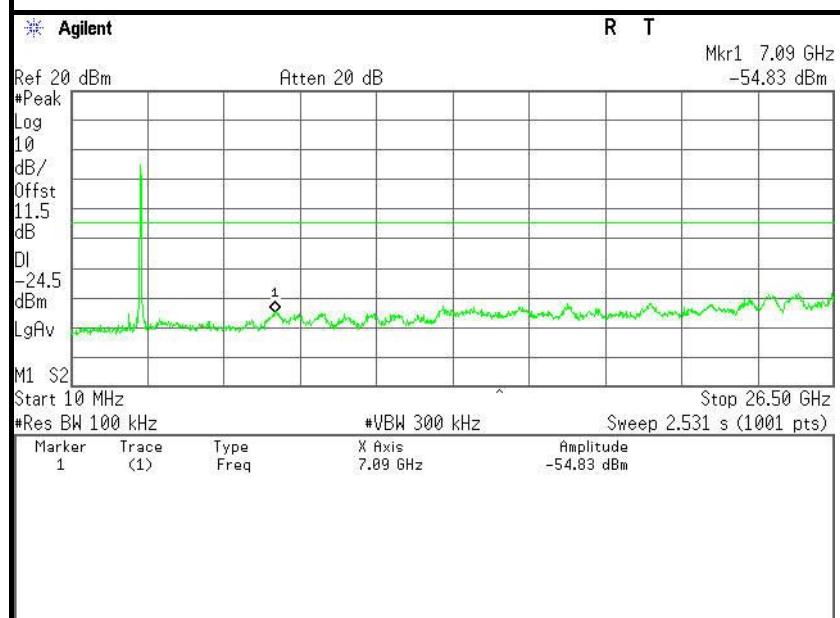
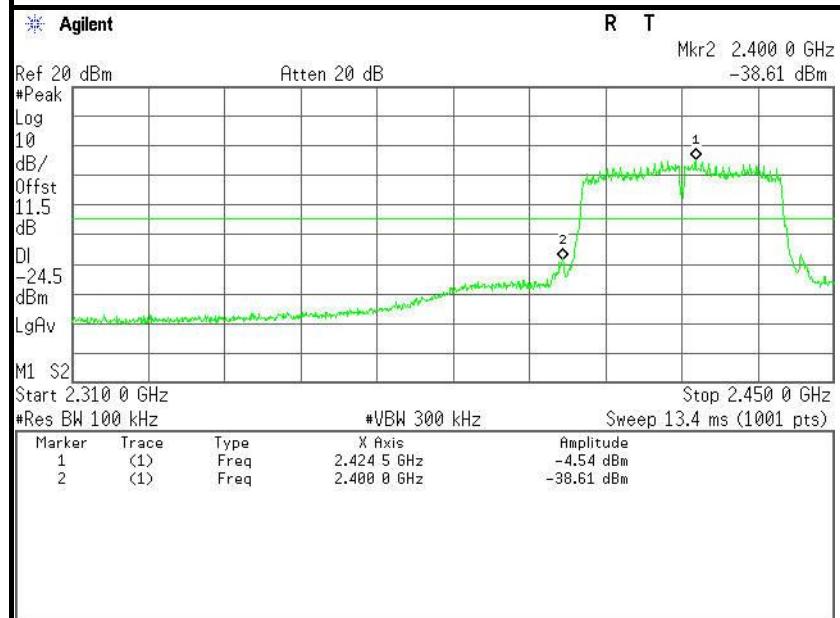


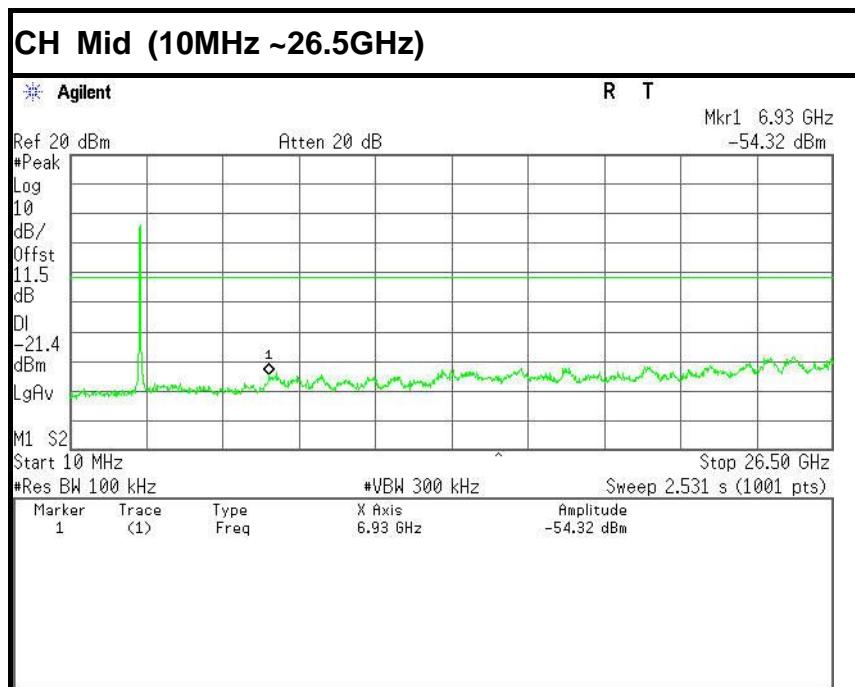
**CH High (10MHz ~26.5GHz)****CH High (2.45GHz ~2.5GHz)**

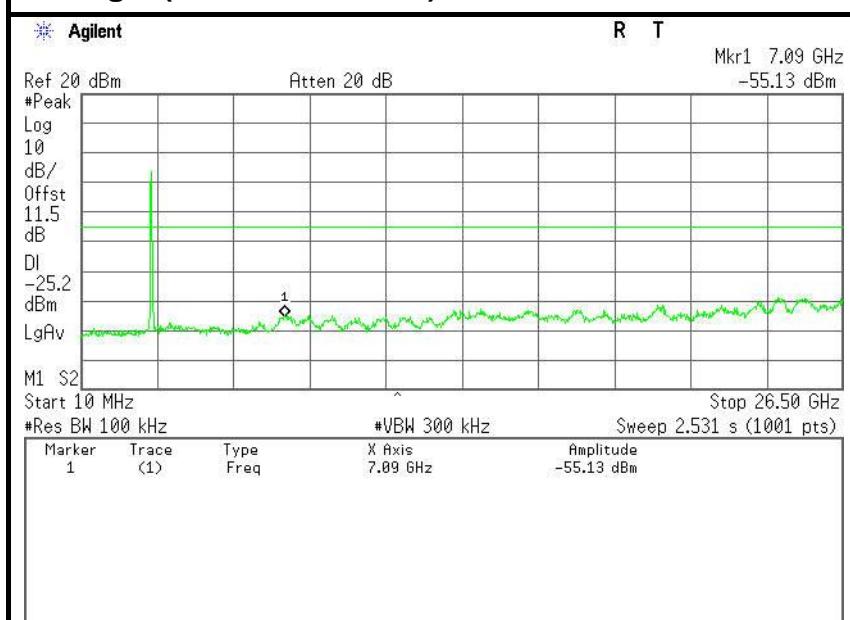
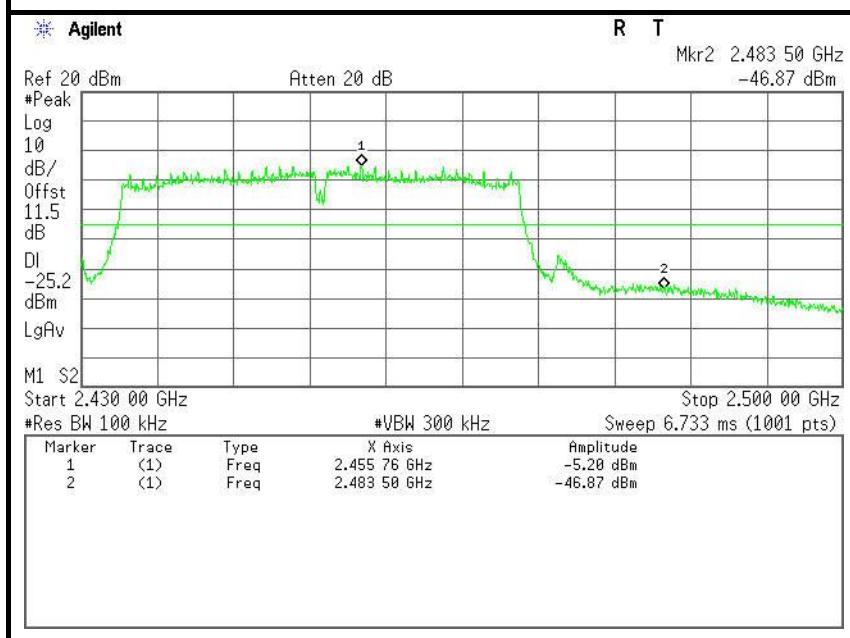
**IEEE 802.11n HT40 MHz mode (Antenna 0)****CH Low (10MHz ~26.5GHz)****CH Low (2.31GHz ~2.45GHz)**



**CH High (10MHz ~26.5GHz)****CH High (2.43GHz ~2.5GHz)**

**IEEE 802.11n HT40 MHz mode (Antenna 1)****CH Low (10MHz ~26.5GHz)****CH Low (2.31GHz ~2.45GHz)**



**CH High (10MHz ~26.5GHz)****CH High (2.43GHz ~2.5GHz)**



7.2.2. RADIATED EMISSIONS MEASUREMENT

7.2.2.1. 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 (μ V/m at 3-meter)	Field Strength (dB μ V/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 (dB μ V/m) = 20 log Emission level (μ V/m).



7.2.2.2. 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	02/28/2015	02/27/2016
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	02/28/2015	02/27/2016
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2015	03/18/2016
High Noise Amplifier	Agilent	8449B	3008A01838	02/28/2015	02/27/2016
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	02/28/2015	02/27/2016
Bilog Antenna	SCHAFFNER	CBL6143	5082	02/28/2015	02/27/2016
Horn Antenna	SCHWARZBECK	BBHA9120	D286	02/28/2015	02/27/2016
Loop Antenna	COM-POWER	AL-130	121044	09/25/2015	09/24/2016
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	02/28/2015	02/27/2016
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.



7.2.2.3. TEST PROCEDURE (please refer to measurement standard)

1. The EUT is placed on a turntable, which is 0.8m or 1.5m 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

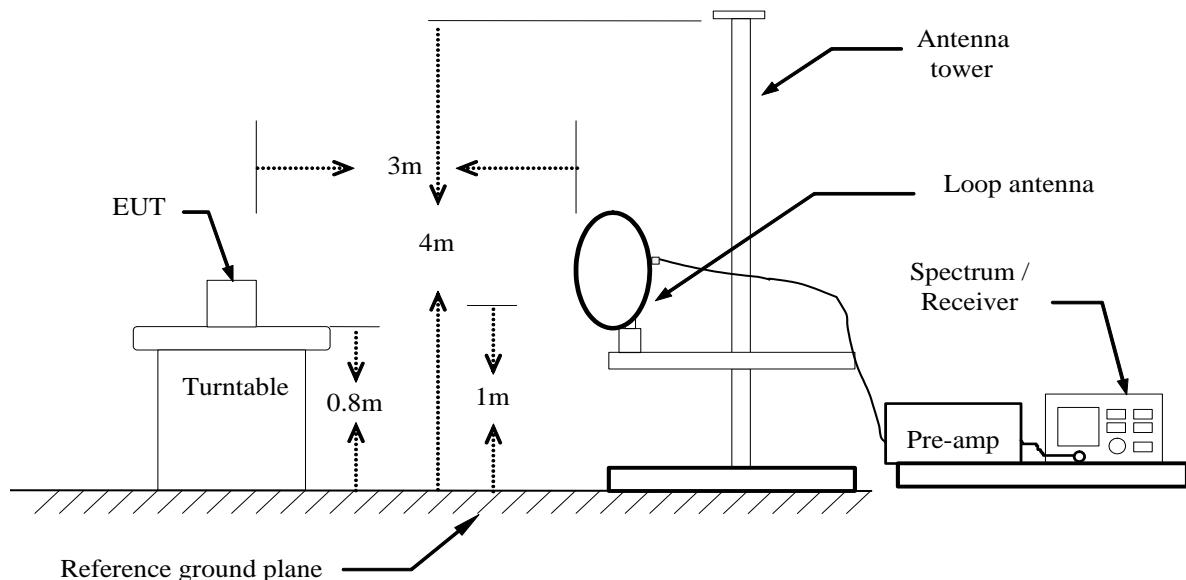
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO / Detector=Peak

7. Repeat above procedures until the measurements for all frequencies are complete.

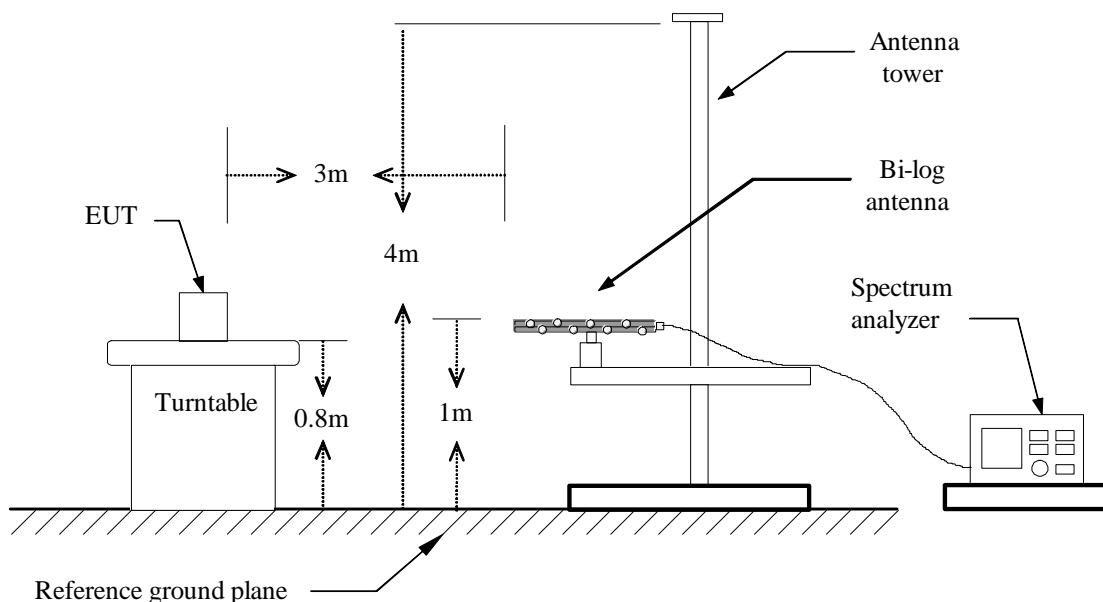


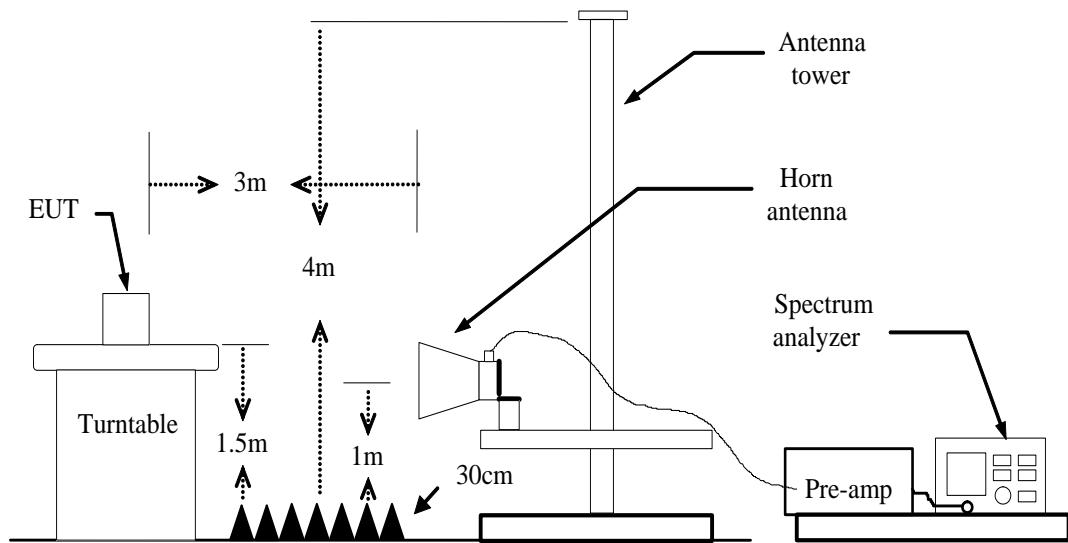
7.2.2.4. TEST SETUP

Below 30MHz



Below 1 GHz



Above 1 GHz

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



7.2.2.5. 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

$$\text{Margin (dB)} = \text{Result (dBuV/m)} - \text{Limits (dBuV/m)}$$

$$\text{Result (dBuV/m)} = \text{Reading (dBuV)} + \text{Correction Factor}$$



7.2.2.6. TEST RESULTS

Below 1 GHz

Test Mode: TX

Tested by: Jack Chen

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** November 28, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
61.0400	61.49	-24.15	37.34	40.00	-2.66	V	QP
90.1400	59.73	-24.72	35.01	43.50	-8.49	V	QP
155.1300	54.56	-22.16	32.40	43.50	-11.10	V	QP
359.8000	54.68	-17.41	37.27	46.00	-8.73	V	QP
403.4500	56.69	-15.92	40.77	46.00	-5.23	V	QP
641.1000	54.65	-12.48	42.17	46.00	-3.83	V	QP
50.3700	58.44	-21.21	37.23	40.00	-2.77	H	QP
77.5300	58.86	-26.44	32.42	40.00	-7.58	H	QP
90.1400	63.38	-24.72	38.66	43.50	-4.84	H	QP
113.4200	56.57	-21.59	34.98	43.50	-8.52	H	QP
326.8200	58.82	-18.57	40.25	46.00	-5.75	H	QP
341.3700	58.56	-18.08	40.48	46.00	-5.52	H	QP

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

Notes:

1. Radiated emissions measured in frequency range from 9kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
 2. 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.
 3. The IF bandwidth of Receiver between 30MHz to 1GHz was 120kHz.
 4. Frequency (MHz). = Emission frequency in MHz
 Reading ($\text{dB}\mu\text{V}/\text{m}$) = Receiver reading
 Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
 Limit ($\text{dB}\mu\text{V}/\text{m}$) = Limit stated in standard
 Margin (dB) = Measured ($\text{dB}\mu\text{V}/\text{m}$) – Limits ($\text{dB}\mu\text{V}/\text{m}$)
 Antenna Pol e(H/V) = Current carrying line of reading

**Above 1 GHz****Antenna 0****Test Mode:** TX / IEEE 802.11b(CH Low)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1747.000	56.30	-6.38	49.92	74.00	-24.08	V	peak
3232.000	48.67	-0.97	47.70	74.00	-26.30	V	peak
4825.000	50.57	4.41	54.98	74.00	-19.02	V	peak
4825.000	47.74	4.41	52.15	54.00	-1.85	V	AVG
6373.000	40.31	6.68	46.99	74.00	-27.01	V	peak
7768.000	39.54	9.20	48.74	74.00	-25.26	V	peak
9154.000	40.05	9.54	49.59	74.00	-24.41	V	peak
<hr/>							
3232.000	49.82	-0.97	48.85	74.00	-25.15	H	Peak
4825.000	42.78	4.41	47.19	74.00	-26.81	H	Peak
5824.000	40.74	6.01	46.75	74.00	-27.25	H	Peak
6157.000	40.76	6.33	47.09	74.00	-26.91	H	peak
6760.000	39.61	7.31	46.92	74.00	-27.08	H	peak
7552.000	40.02	8.78	48.80	74.00	-25.20	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).

**Test Mode:** TX / IEEE 802.11b (CH Mid)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3250.000	48.31	-0.94	47.37	74.00	-26.63	V	Peak
3889.000	44.05	1.12	45.17	74.00	-28.83	V	Peak
4870.000	49.30	4.56	53.86	74.00	-20.14	V	Peak
4870.000	46.94	4.56	51.50	54.00	-2.50	V	AVG
6868.000	40.15	7.49	47.64	74.00	-26.36	V	Peak
7597.000	39.97	8.86	48.83	74.00	-25.17	V	Peak
8479.000	39.69	9.39	49.08	74.00	-24.92	V	Peak
3250.000	48.74	-0.94	47.80	74.00	-26.20	H	Peak
4870.000	43.36	4.56	47.92	74.00	-26.08	H	Peak
5653.000	40.52	5.93	46.45	74.00	-27.55	H	Peak
6958.000	39.72	7.63	47.35	74.00	-26.65	H	Peak
7750.000	40.14	9.16	49.30	74.00	-24.70	H	Peak
8344.000	39.99	9.46	49.45	74.00	-24.55	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).

**Test Mode:** TX / IEEE 802.11b (CH High)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3286.000	49.58	-0.88	48.70	74.00	-25.30	V	Peak
3916.000	41.94	1.24	43.18	74.00	-30.82	V	Peak
4924.000	49.96	4.73	54.69	74.00	-19.31	V	Peak
4924.000	47.12	4.73	51.85	54.00	-2.15	V	AVG
5887.000	40.81	6.03	46.84	74.00	-27.16	V	Peak
6454.000	40.05	6.82	46.87	74.00	-27.13	V	Peak
7660.000	40.18	8.99	49.17	74.00	-24.83	V	Peak
3286.000	48.89	-0.88	48.01	74.00	-25.99	H	Peak
4924.000	42.79	4.73	47.52	74.00	-26.48	H	Peak
5437.000	40.81	5.76	46.57	74.00	-27.43	H	Peak
6463.000	39.90	6.83	46.73	74.00	-27.27	H	Peak
7750.000	40.51	9.16	49.67	74.00	-24.33	H	Peak
8443.000	39.61	9.41	49.02	74.00	-24.98	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).

**Antenna 1****Test Mode:** TX / IEEE 802.11b(CH Low)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3214.000	43.94	-1.00	42.94	74.00	-31.06	V	peak
4231.000	40.92	2.40	43.32	74.00	-30.68	V	peak
4825.000	50.49	4.41	54.90	74.00	-19.10	V	peak
4825.000	48.52	4.41	52.93	54.00	-1.07	V	AVG
6193.000	41.17	6.39	47.56	74.00	-26.44	V	peak
6931.000	40.53	7.59	48.12	74.00	-25.88	V	peak
8308.000	40.10	9.48	49.58	74.00	-24.42	V	peak
3421.000	43.18	-0.65	42.53	74.00	-31.47	H	Peak
4240.000	41.01	2.43	43.44	74.00	-30.56	H	Peak
4825.000	45.89	4.41	50.30	74.00	-23.70	H	Peak
5545.000	40.91	5.89	46.80	74.00	-27.20	H	peak
6967.000	39.79	7.65	47.44	74.00	-26.56	H	peak
7786.000	39.43	9.23	48.66	74.00	-25.34	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).

**Test Mode:** TX / IEEE 802.11b (CH Mid)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3349.000	43.86	-0.77	43.09	74.00	-30.91	V	Peak
4348.000	41.13	2.81	43.94	74.00	-30.06	V	Peak
4870.000	48.66	4.56	53.22	74.00	-20.78	V	Peak
4870.000	47.54	4.56	52.10	54.00	-1.90	V	AVG
5464.000	40.49	5.81	46.30	74.00	-27.70	V	Peak
6931.000	40.72	7.59	48.31	74.00	-25.69	V	Peak
7912.000	40.03	9.48	49.51	74.00	-24.49	V	Peak
3268.000	44.36	-0.91	43.45	74.00	-30.55	H	Peak
4870.000	44.10	4.56	48.66	74.00	-25.34	H	Peak
5824.000	40.20	6.01	46.21	74.00	-27.79	H	Peak
6706.000	40.13	7.22	47.35	74.00	-26.65	H	Peak
7750.000	39.36	9.16	48.52	74.00	-25.48	H	Peak
9505.000	39.70	10.55	50.25	74.00	-23.75	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).

**Test Mode:** TX / IEEE 802.11b (CH High)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3286.000	44.35	-0.88	43.47	74.00	-30.53	V	Peak
4546.000	41.30	3.50	44.80	74.00	-29.20	V	Peak
4924.000	47.89	4.73	52.62	74.00	-21.38	V	Peak
4924.000	46.89	4.73	51.62	54.00	-2.38	V	AVG
6148.000	40.45	6.32	46.77	74.00	-27.23	V	Peak
7210.000	39.65	8.11	47.76	74.00	-26.24	V	Peak
7750.000	40.17	9.16	49.33	74.00	-24.67	V	Peak
4924.000	44.61	4.73	49.34	74.00	-24.66	H	Peak
5833.000	40.80	6.01	46.81	74.00	-27.19	H	Peak
6256.000	40.65	6.49	47.14	74.00	-26.86	H	Peak
7012.000	40.74	7.72	48.46	74.00	-25.54	H	Peak
7795.000	39.38	9.25	48.63	74.00	-25.37	H	Peak
8362.000	41.34	9.45	50.79	74.00	-23.21	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****Test Mode:** TX / IEEE 802.11g(CH Low)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3214.000	52.46	-1.00	51.46	74.00	-22.54	V	Peak
3763.000	43.53	0.59	44.12	74.00	-29.88	V	Peak
4825.000	51.78	4.41	56.19	74.00	-17.81	V	Peak
4825.000	40.10	4.41	44.51	54.00	-9.49	V	AVG
5419.000	40.91	5.73	46.64	74.00	-27.36	V	Peak
6148.000	40.03	6.32	46.35	74.00	-27.65	V	Peak
7750.000	40.25	9.16	49.41	74.00	-24.59	V	Peak
3214.000	52.69	-1.00	51.69	74.00	-22.31	H	Peak
4825.000	43.64	4.41	48.05	74.00	-25.95	H	Peak
5833.000	40.69	6.01	46.70	74.00	-27.30	H	Peak
7282.000	40.22	8.25	48.47	74.00	-25.53	H	Peak
7570.000	40.60	8.81	49.41	74.00	-24.59	H	Peak
8299.000	40.45	9.49	49.94	74.00	-24.06	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).

**Test Mode:** TX / IEEE 802.11g (CH Mid)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3250.000	49.55	-0.94	48.61	74.00	-25.39	V	Peak
4870.000	50.03	4.56	54.59	74.00	-19.41	V	Peak
4870.000	40.30	4.56	44.86	54.00	-9.14	V	AVG
5743.000	40.95	5.97	46.92	74.00	-27.08	V	Peak
6886.000	40.01	7.52	47.53	74.00	-26.47	V	Peak
7741.000	39.71	9.14	48.85	74.00	-25.15	V	Peak
8254.000	39.92	9.51	49.43	74.00	-24.57	V	Peak
3250.000	51.80	-0.94	50.86	74.00	-23.14	H	Peak
4870.000	43.56	4.56	48.12	74.00	-25.88	H	Peak
5959.000	40.51	6.06	46.57	74.00	-27.43	H	Peak
6697.000	40.77	7.21	47.98	74.00	-26.02	H	Peak
7795.000	40.02	9.25	49.27	74.00	-24.73	H	Peak
8452.000	40.05	9.40	49.45	74.00	-24.55	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).

**Test Mode:** TX / IEEE 802.11g (CH High)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3286.000	53.03	-0.88	52.15	74.00	-21.85	V	Peak
4924.000	50.79	4.73	55.52	74.00	-18.48	V	Peak
4924.000	40.94	4.73	45.67	54.00	-8.33	V	AVG
5734.000	40.42	5.97	46.39	74.00	-27.61	V	Peak
6265.000	41.82	6.51	48.33	74.00	-25.67	V	Peak
6787.000	40.66	7.35	48.01	74.00	-25.99	V	Peak
7912.000	39.86	9.48	49.34	74.00	-24.66	V	Peak
3277.000	44.52	-0.89	43.63	74.00	-30.37	H	Peak
4924.000	47.74	4.73	52.47	74.00	-21.53	H	Peak
6283.000	40.54	6.54	47.08	74.00	-26.92	H	Peak
6922.000	40.75	7.57	48.32	74.00	-25.68	H	Peak
7678.000	40.45	9.02	49.47	74.00	-24.53	H	Peak
8866.000	40.22	9.17	49.39	74.00	-24.61	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****Test Mode:** TX / IEEE 802.11g(CH Low)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
4816.000	49.34	4.38	53.72	74.00	-20.28	V	Peak
4816.000	39.13	4.38	43.51	54.00	-10.49	V	AVG
5383.000	41.18	5.66	46.84	74.00	-27.16	V	Peak
6166.000	41.37	6.35	47.72	74.00	-26.28	V	Peak
7480.000	39.99	8.64	48.63	74.00	-25.37	V	Peak
7696.000	39.70	9.06	48.76	74.00	-25.24	V	Peak
8506.000	40.82	9.37	50.19	74.00	-23.81	V	Peak
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3898.000	42.64	1.16	43.80	74.00	-30.20	H	Peak
4816.000	45.52	4.38	49.90	74.00	-24.10	H	Peak
6058.000	40.71	6.17	46.88	74.00	-27.12	H	Peak
6850.000	40.83	7.46	48.29	74.00	-25.71	H	Peak
7750.000	39.50	9.16	48.66	74.00	-25.34	H	Peak
8695.000	39.67	9.27	48.94	74.00	-25.06	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).

**Test Mode:** TX / IEEE 802.11g (CH Mid)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3862.000	42.47	1.01	43.48	74.00	-30.52	V	Peak
4870.000	48.89	4.56	53.45	74.00	-20.55	V	Peak
4870.000	38.70	4.56	43.26	54.00	-10.74	V	AVG
5716.000	40.58	5.96	46.54	74.00	-27.46	V	Peak
6958.000	40.45	7.63	48.08	74.00	-25.92	V	Peak
7606.000	39.41	8.88	48.29	74.00	-25.71	V	Peak
8452.000	39.98	9.40	49.38	74.00	-24.62	V	Peak
3889.000	42.70	1.12	43.82	74.00	-30.18	H	Peak
4879.000	42.76	4.59	47.35	74.00	-26.65	H	Peak
5491.000	40.81	5.85	46.66	74.00	-27.34	H	Peak
6580.000	40.17	7.02	47.19	74.00	-26.81	H	Peak
7147.000	39.39	7.99	47.38	74.00	-26.62	H	Peak
7750.000	41.14	9.16	50.30	74.00	-23.70	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).

**Test Mode:** TX / IEEE 802.11g (CH High)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3898.000	42.06	1.16	43.22	74.00	-30.78	V	Peak
4627.000	40.30	3.76	44.06	74.00	-29.94	V	Peak
4924.000	47.26	4.73	51.99	74.00	-22.01	V	Peak
5806.000	40.26	6.00	46.26	74.00	-27.74	V	Peak
6913.000	40.29	7.56	47.85	74.00	-26.15	V	Peak
7723.000	40.11	9.11	49.22	74.00	-24.78	V	Peak
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4348.000	41.80	2.81	44.61	74.00	-29.39	H	Peak
4924.000	43.33	4.73	48.06	74.00	-25.94	H	Peak
6112.000	41.08	6.26	47.34	74.00	-26.66	H	Peak
7543.000	40.30	8.76	49.06	74.00	-24.94	H	Peak
8362.000	40.19	9.45	49.64	74.00	-24.36	H	Peak
8902.000	40.06	9.15	49.21	74.00	-24.79	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).

**Combine with Antenna 0 and Antenna 1****Test Mode:** TX / IEEE 802.11n HT20 MHz (CH Low)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3220.000	52.69	-0.99	51.70	74.00	-22.30	V	Peak
4825.000	50.35	4.41	54.76	74.00	-19.24	V	Peak
4825.000	39.71	4.41	44.12	54.00	-9.88	V	AVG
5785.000	41.01	5.99	47.00	74.00	-27.00	V	Peak
6325.000	40.34	6.61	46.95	74.00	-27.05	V	Peak
6910.000	40.98	7.55	48.53	74.00	-25.47	V	Peak
7630.000	40.61	8.93	49.54	74.00	-24.46	V	Peak
3220.000	52.60	-0.99	51.61	74.00	-22.39	H	Peak
4825.000	46.60	4.41	51.01	74.00	-22.99	H	Peak
5830.000	40.30	6.01	46.31	74.00	-27.69	H	Peak
6850.000	40.92	7.46	48.38	74.00	-25.62	H	Peak
7780.000	40.79	9.22	50.01	74.00	-23.99	H	Peak
9385.000	41.22	10.21	51.43	74.00	-22.57	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).

**Test Mode:** TX / IEEE 802.11n HT20 MHz (CH Mid)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3250.000	51.00	-0.94	50.06	74.00	-23.94	V	Peak
4870.000	50.86	4.56	55.42	74.00	-18.58	V	Peak
4870.000	40.89	4.56	45.45	54.00	-8.55	V	AVG
5395.000	40.65	5.68	46.33	74.00	-27.67	V	Peak
6325.000	40.82	6.61	47.43	74.00	-26.57	V	Peak
6910.000	39.97	7.55	47.52	74.00	-26.48	V	Peak
7660.000	40.33	8.99	49.32	74.00	-24.68	V	Peak
3250.000	52.55	-0.94	51.61	74.00	-22.39	H	Peak
4885.000	44.75	4.61	49.36	74.00	-24.64	H	Peak
4885.000	44.75	4.61	49.36	74.00	-24.64	H	Peak
6625.000	39.87	7.09	46.96	74.00	-27.04	H	Peak
7900.000	39.53	9.46	48.99	74.00	-25.01	H	Peak
8380.000	40.61	9.44	50.05	74.00	-23.95	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).



Test Mode: TX / EEE 802.11n HT20 MHz (CH High)

Tested by: Jack Chen

Ambient temperature: 24°C Relative humidity: 52% RH Date: December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3286.000	51.98	-0.88	51.10	74.00	-22.90	V	Peak
4924.000	50.93	4.73	55.66	74.00	-18.34	V	Peak
4924.000	40.09	4.73	44.82	54.00	-9.18	V	AVG
6148.000	40.95	6.32	47.27	74.00	-26.73	V	Peak
6517.000	40.70	6.92	47.62	74.00	-26.38	V	Peak
6985.000	40.60	7.68	48.28	74.00	-25.72	V	Peak
7768.000	40.53	9.20	49.73	74.00	-24.27	V	Peak
3286.000	52.15	-0.88	51.27	74.00	-22.73	H	Peak
4285.000	41.59	2.59	44.18	74.00	-29.82	H	Peak
4924.000	45.77	4.73	50.50	74.00	-23.50	H	Peak
5455.000	41.17	5.79	46.96	74.00	-27.04	H	Peak
6589.000	39.80	7.03	46.83	74.00	-27.17	H	Peak
7570.000	39.80	8.81	48.61	74.00	-25.39	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).

**Combine with Antenna 0 and Antenna 1****Test Mode:** TX/ IEEE 802.11n HT40 MHz (CH Low)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3232.000	49.64	-0.97	48.67	74.00	-25.33	V	Peak
4843.000	49.39	4.47	53.86	74.00	-20.14	V	Peak
4843.000	37.45	4.47	41.92	54.00	-12.08	V	AVG
5734.000	40.76	5.97	46.73	74.00	-27.27	V	Peak
5860.000	41.23	6.02	47.25	74.00	-26.75	V	Peak
6949.000	40.07	7.62	47.69	74.00	-26.31	V	Peak
7390.000	40.67	8.46	49.13	74.00	-24.87	V	Peak
3232.000	50.35	-0.97	49.38	74.00	-24.62	H	Peak
4843.000	44.29	4.47	48.76	74.00	-25.24	H	Peak
5662.000	40.90	5.94	46.84	74.00	-27.16	H	Peak
6346.000	40.95	6.64	47.59	74.00	-26.41	H	Peak
7543.000	40.50	8.76	49.26	74.00	-24.74	H	Peak
7723.000	40.61	9.11	49.72	74.00	-24.28	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).



Test Mode: TX / IEEE 802.11n HT40 MHz (CH Mid)

Tested by: Jack Chen

Ambient temperature: 24°C Relative humidity: 52% RH Date: December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3250.000	49.73	-0.94	48.79	74.00	-25.21	V	Peak
4861.000	48.13	4.53	52.66	74.00	-21.34	V	Peak
4861.000	36.29	4.53	40.82	54.00	-13.18	V	AVG
6535.000	39.89	6.95	46.84	74.00	-27.16	V	Peak
6940.000	41.11	7.60	48.71	74.00	-25.29	V	Peak
7453.000	39.80	8.58	48.38	74.00	-25.62	V	Peak
7912.000	40.38	9.48	49.86	74.00	-24.14	V	Peak
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4636.000	39.97	3.79	43.76	74.00	-30.24	H	Peak
5617.000	40.10	5.92	46.02	74.00	-27.98	H	Peak
6922.000	40.71	7.57	48.28	74.00	-25.72	H	Peak
7570.000	40.16	8.81	48.97	74.00	-25.03	H	Peak
8362.000	39.92	9.45	49.37	74.00	-24.63	H	Peak
9613.000	40.76	10.87	51.63	74.00	-22.37	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).

**Test Mode:** TX/ IEEE 802.11n HT40 MHz (CH High)**Tested by:** Jack Chen**Ambient temperature:** 24°C **Relative humidity:** 52% RH **Date:** December 23, 2015

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3268.000	51.01	-0.91	50.10	74.00	-23.90	V	Peak
3979.000	42.07	1.50	43.57	74.00	-30.43	V	Peak
4915.000	48.90	4.70	53.60	74.00	-20.40	V	Peak
4915.000	36.77	4.70	41.47	54.00	-12.53	V	AVG
6121.000	41.43	6.28	47.71	74.00	-26.29	V	Peak
7138.000	40.22	7.97	48.19	74.00	-25.81	V	Peak
7732.000	40.09	9.13	49.22	74.00	-24.78	V	Peak
3268.000	51.45	-0.91	50.54	74.00	-23.46	H	Peak
4906.000	43.69	4.67	48.36	74.00	-25.64	H	Peak
5275.000	40.63	5.47	46.10	74.00	-27.90	H	Peak
5815.000	40.60	6.00	46.60	74.00	-27.40	H	Peak
6085.000	40.88	6.22	47.10	74.00	-26.90	H	Peak
7606.000	40.76	8.88	49.64	74.00	-24.36	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).