FCC 47 CFR PART 15 SUBPART C AND ANSI C63.10:2013 TEST REPORT

For

iSmart CAM ; Can Cam

Model: TTD-VMi120S, TTD-VMi120S-xxx
("xxx"=001-999 or blank for indicate different customer serial number)

Data Applies To: HC-8301, HC-8301A, HC-8301B, HC-8301C, HC-8301D

Trade Name: Tranwo ; Smart Bridge

Issued for

Tranwo Technology Corp

No.236, Sec. 3, Huanbei Rd., Jubei City, Hsinchu County, 30265 Taiwan

Issued by

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	11/19/2015	Initial Issue	All Page 93	Vera Hsu

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TITLE PAGE NO.

1. TEST REPORT CERTIFICATION

Applicant	：	Tranwo Technology Corp
Address	：	No.236, Sec. 3, Huanbei Rd., Jubei City, Hsinchu County, 30265 Taiwan
Equipment Under Test	：	iSmart CAM ; Can Cam
Model	：	TTD-VMi120S, TTD-VMi120S-xxx ("xxx"=001-999 or blank for indicate different customer serial number)
Data Applies To	：	HC-8301, HC-8301A, HC-8301B, HC-8301C, HC-8301D
Trade Name	：	Tranwo ; Smart Bridge
Tested Date	：	September 10 ~ November 19, 2015

APPLICABLE STANDARD	
Standard	**Test Result**
FCC Part 15 Subpart C AND ANSI C63.10:2013	PASS

WE HEREBY CERTIFY THAT: The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Sb. Lu
Sr. Engineer

Reviewed by:

Gundam Lin
Sr. Engineer

2. EUT DESCRIPTION

Product Name	iSmart CAM ; Can Cam
Model Number	TTD-VMi120S, TTD-VMi120S-xxx ("xxx"=001-999 or blank for indicate different customer serial number)
Data Applies To	HC-8301, HC-8301A, HC-8301B, HC-8301C, HC-8301D
Identify Number	T150910S01
Received Date	September 10, 2015
Frequency Range	IEEE 802.11b/g, 802.11gn HT20: 2412MHz ~ 2462MHz IEEE 802.11gn HT40: 2422MHz ~ 2452MHz
Transmit Power	IEEE 802.11b mode: 20.57 dBm (0.1140 W) IEEE 802.11g mode: 22.04 dBm (0.1600 W) IEEE 802.11gn HT20 mode: 22.10 dBm (0.1622 W) IEEE 802.11gn HT40 mode: 21.32 dBm (0.1355 W)
Channel Spacing	5MHz
Channel Number	IEEE 802.11b/g, 802.11gn HT20: 11 Channels IEEE 802.11gn HT40: 7 Channels
Transmit Data Rate	IEEE 802.11b mode: up to 11 Mbps IEEE 802.11g mode: up to 54 Mbps IEEE 802.11gn HT20 mode (800ns GI): up to 65.00 Mbps IEEE 802.11gn HT20 mode (400ns GI): up to 72.20 Mbps IEEE 802.11gn HT40 mode (800ns GI): up to 135.0 Mbps IEEE 802.11gn HT40 mode (400ns GI): up to 150.00 Mbps
Type of Modulation	IEEE 802.11b mode: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g mode: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11gn HT20/40 mode: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Type	Dipole Antenna, Antenna Gain: -0.83dBi
Power Rating	5.9Vdc
Test Voltage	120Vac, 60Hz
DC Power Cable Type	Non-shielded cable, 2m (Non-detachable)
I/O Port	Micro SD Port × 1, Power Port × 1

Power Adapter:

No.	Manufacturer	Model No.	Power Input	Power Output
1	Zzu	ZZU1001-197059-2A	100-240Vac, 0.5A Max, 47-63Hz	5.9Vdc, 1.97A

The difference of the series model

Product Name	Trade Name	Model Name	Difference
iSmart CAM	Tranwo	TTD-VMi120S	All these models are similar except for model identification and market segmentation.
		TTD-VMi120S-xxx ("xxx"=001-999 or blank for indicate different customer serial number)	
Can Cam	Smart Bridge	HC-8301	
		HC-8301A	
		HC-8301B	
		HC-8301C	
		HC-8301D	

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *For more details, please refer to the User's manual of the EUT.*
3. *This submittal(s) (test report) is intended for FCC ID: O6LIPCAM120S filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*
4. *The model TTD-VMi120S was considered the main model for testing.*

3. DESCRIPTION OF TEST MODES

The EUT is a 802.11b/g/n transceiver in iSmart CAM ; Can Cam.
IEEE 802.11b/g, 802.11gn HT20/HT40 mode: 1TX / 1RX

Conducted Emission / Radiated Emission Test (Below 1 GHz)

1. The following test modes were scanned during the preliminary test:

No.	Pre-Test mode
1	Normal Mode

2. After the preliminary scan, the following test mode was found to produce the highest emission level.

Final Test mode		
Emission	Radiated Emission	Mode 1
	Conducted Emission	

Remark: *Then, the above highest emission mode of the configuration of the EUT and cable was chosen for all final test items.*

Conducted / Radiated Emission Test (Above 1 GHz)

IEEE 802.11b/g, 802.11gn HT20 mode:

The EUT had been tested under operating condition.

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 1Mbps data rate (worst case) was chosen for full testing.
IEEE 802.11g mode: 6Mbps data rate (worst case) was chosen for full testing.
IEEE 802.11gn HT20 mode: 6.5Mbps data rate (worst case) was chosen for full testing.

IEEE 802.11gn HT40 mode:

The EUT had been tested under operating condition.

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2422
Middle	2437
High	2452

IEEE 802.11gn HT40 mode: 13.5Mbps data rate (worst case) was chosen for full testing.

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10:2013 and FCC CFR 47, 15.207, 15.209 and 15.247.

5. FACILITIES AND ACCREDITATION

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.989-1, Wenshan Rd., Shangshan Village,
Qionglin Township, Hsinchu County 30741, Taiwan (R.O.C.)

The sites are constructed in conformance with the requirements of ANSI C63.10:2013 and CISPR 22. All receiving equipment conforms to CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-3, CISPR 16-1-4 and CISPR 16-1-5.

5.2 ACCREDITATIONS

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

Taiwan	TAF

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

Canada	INDUSTRY CANADA
Japan	VCCI
Taiwan	BSMI
USA	FCC MRA

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

Remark: *FCC Designation Number TW1027.*

5.3 MEASUREMENT UNCERTAINTY

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4-2.

PARAMETER	UNCERTAINTY
Semi Anechoic Chamber (966 Chamber_C) / Radiated Emission, 30 to 1000 MHz	+/- 3.97
Semi Anechoic Chamber (966 Chamber_C) / Radiated Emission, 1 to 18GHz	+/- 3.58
Semi Anechoic Chamber (966 Chamber_C) / Radiated Emission, 18 to 26 GHz	+/- 3.59
Semi Anechoic Chamber (966 Chamber_C) / Radiated Emission, 26 to 40 GHz	+/- 3.81
Conducted Emission (Mains Terminals), 9kHz to 30MHz	+/- 2.48

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

Consistent with industry standard (e.g. CISPR 22, clause 11, Measurement Uncertainty) determining compliance with the limits shall be base on the results of the compliance measurement. Consequently the measure emissions being less than the maximum allowed emission result in this be a compliant test or passing test.

The acceptable measurement uncertainty value without requiring revision of the compliance statement is base on conducted and radiated emissions being less than U_{CISPR} which is 3.6dB and 5.2dB respectively. CCS values (called U_{Lab} in CISPR 16-4-2) is less than U_{CISPR} as shown in the table above. Therefore, MU need not be considered for compliance.

6. SETUP OF EQUIPMENT UNDER TEST

SUPPORT EQUIPMENT

No.	Product	Manufacturer	Model No.	Serial No.
1	Notebook PC	HP	ProBook 4421s	CNF03242PJ
2	Mobile Phones	APPLE	iPHONE 6S+	C39QGVDJGRWF
3	Door Open Sensor for IP Cam	TRANWO	DWM-001	---
4	Temp & Humidity sensor for IP Cam	TRANWO	THS-001	---
5	PIR Sensor for IP Cam	TRANWO	PIR-001	---
6	Micro SD	Transcend	MMAGR02GUECA-MB	---

No.	Signal Cable Description
1	Shielded USB cable, 1.8m × 1

SETUP DIAGRAM FOR TESTS

EUT & peripherals setup diagram is shown in appendix setup photos.

EUT OPERATING CONDITION

RF Mode:

1. EUT & peripherals setup diagram is shown in appendix setup photos.
2. TX mode:
   - ⇨ **TX Data Rate:** 1Mbps Bandwidth 20 (IEEE 802.11b mode)
     6Mbps Bandwidth 20 (IEEE 802.11g mode)
     6.5Mbps Bandwidth 20 (IEEE 802.11gn HT20 mode)
     13.5Mbps Bandwidth 40 (IEEE 802.11gn HT40 mode)
   - ⇨ **Power control**

     IEEE 802.11b Channel Low (2412MHz) Power set 52
     IEEE 802.11b Channel Mid (2437MHz) Power set 51
     IEEE 802.11b Channel High (2462MHz) Power set 50
     IEEE 802.11g Channel Low (2412MHz) Power set 56
     IEEE 802.11g Channel Mid (2437MHz) Power set 63
     IEEE 802.11g Channel High (2462MHz) Power set 52
     IEEE 802.11gn HT20 Channel Low (2412MHz) Power set 53
     IEEE 802.11gn HT20 Channel Mid (2437MHz) Power set 63
     IEEE 802.11gn HT20 Channel High (2462MHz) Power set 51
     IEEE 802.11gn HT40 Channel Low (2422MHz) Power set 53
     IEEE 802.11gn HT40 Channel Mid (2437MHz) Power set 58
     IEEE 802.11gn HT40 Channel High (2452MHz) Power set 52
3. All of the functions are under run.
4. Start test.

Normal Mode:

1. EUT & peripherals setup diagram is shown in appendix setup photos.
2. Turn on the power of all equipments.
3. Mobile phones, Door open sensor for IP Cam, Temp & Humidity sensor for IP Cam, PIR sensor for IP Cam, link EUT.
4. Phone control EUT use APP iSmart-CAM.
5. All of the functions are under run.
6. Start test.

7. FCC PART 15.247 REQUIREMENTS

7.1 6dB BANDWIDTH

LIMITS

§ 15.247(a) (2) For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EXA Signal Analyzer	Agilent	N9010A	MY52220817	03/19/2016

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

1. The transmitter output was connected to a spectrum analyzer.
2. Set RBW = 100 kHz.
3. Set the video bandwidth (VBW) ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

TEST RESULTS

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	9.548	500	PASS
Middle	2437	9.602	500	PASS
High	2462	9.566	500	PASS

IEEE 802.11gmode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	16.560	500	PASS
Middle	2437	16.500	500	PASS
High	2462	16.560	500	PASS

IEEE 802.11gn HT20 mode

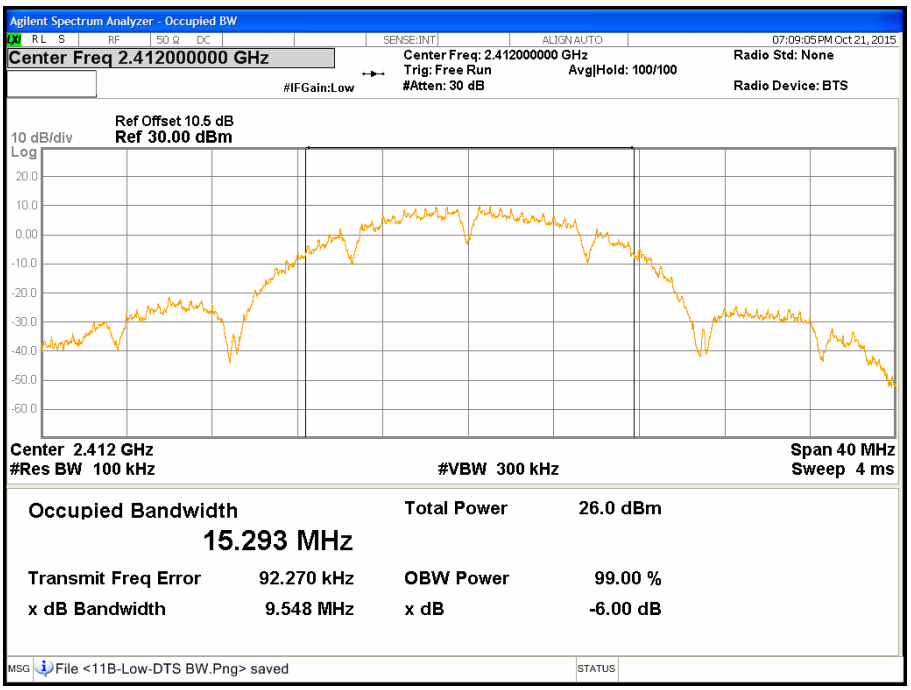
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	17.830	500	PASS
Middle	2437	17.810	500	PASS
High	2462	17.810	500	PASS

IEEE 802.11gn HT40 mode

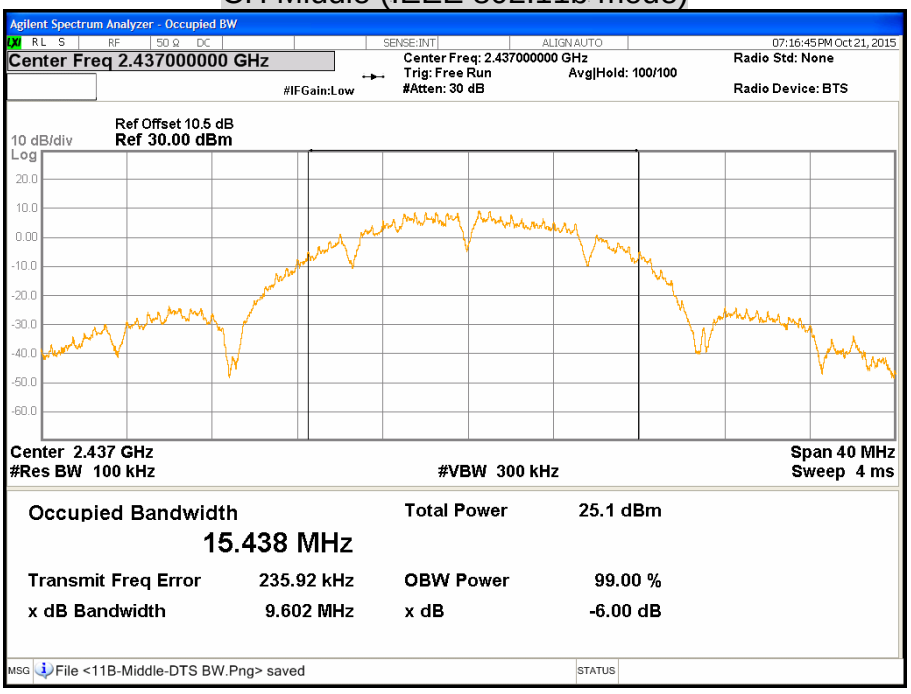
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2422	36.440	500	PASS
Middle	2437	36.460	500	PASS
High	2452	36.490	500	PASS

6dB BANDWIDTH

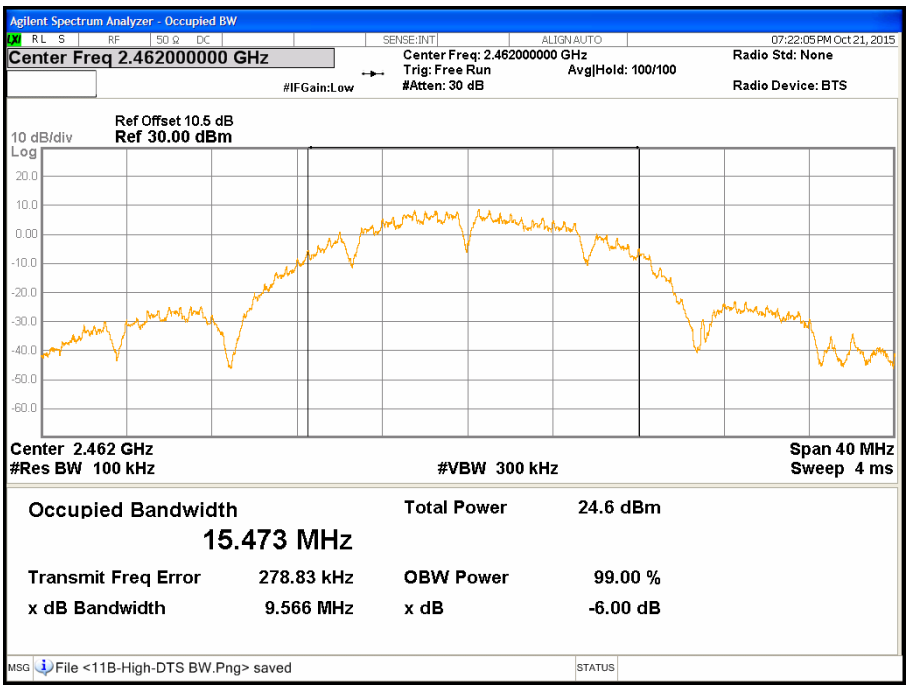
CH Low (IEEE 802.11b mode)



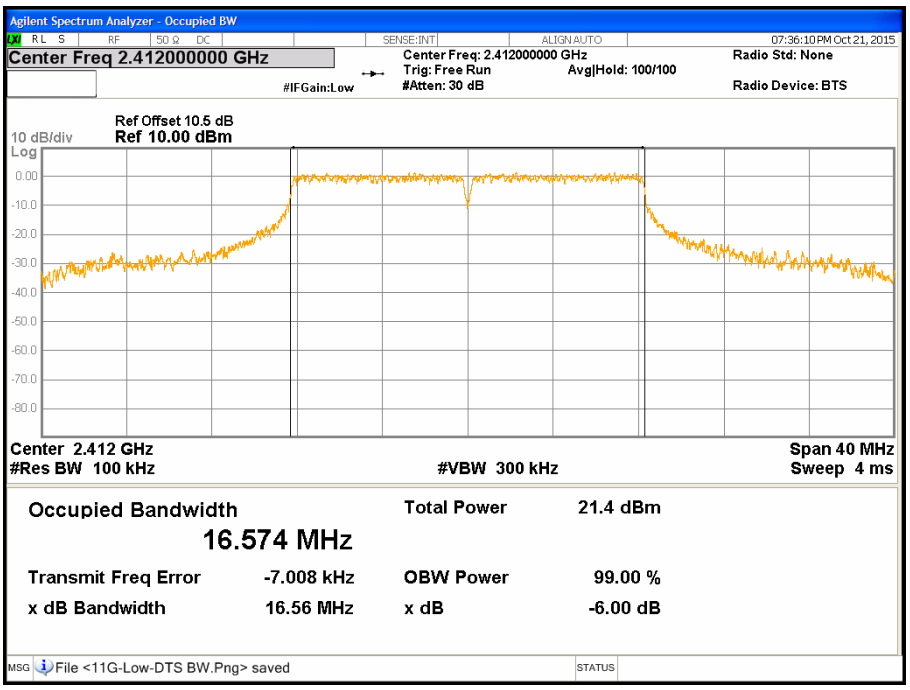
CH Middle (IEEE 802.11b mode)



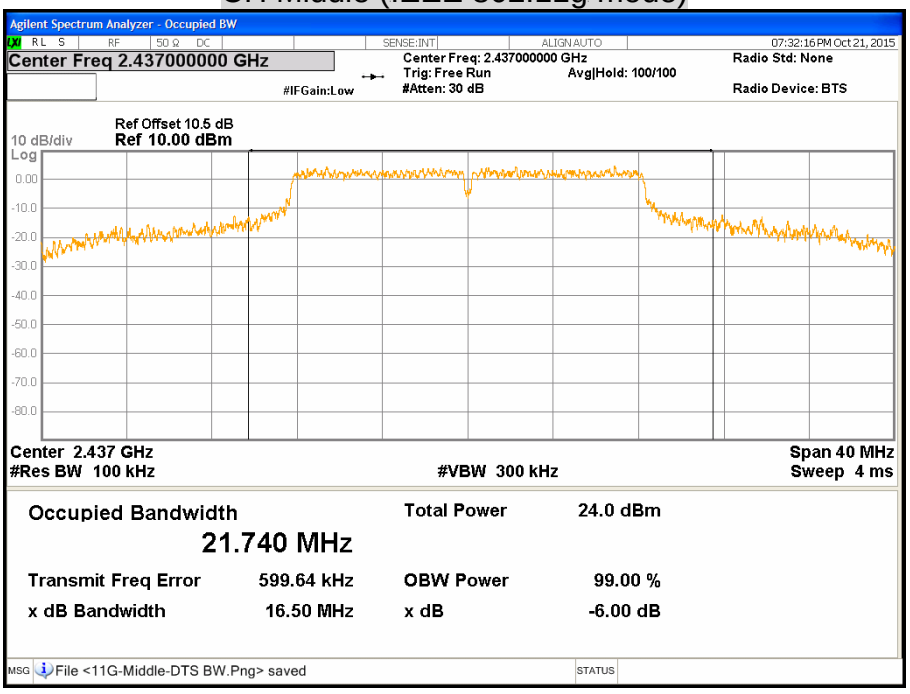
CH High (IEEE 802.11b mode)



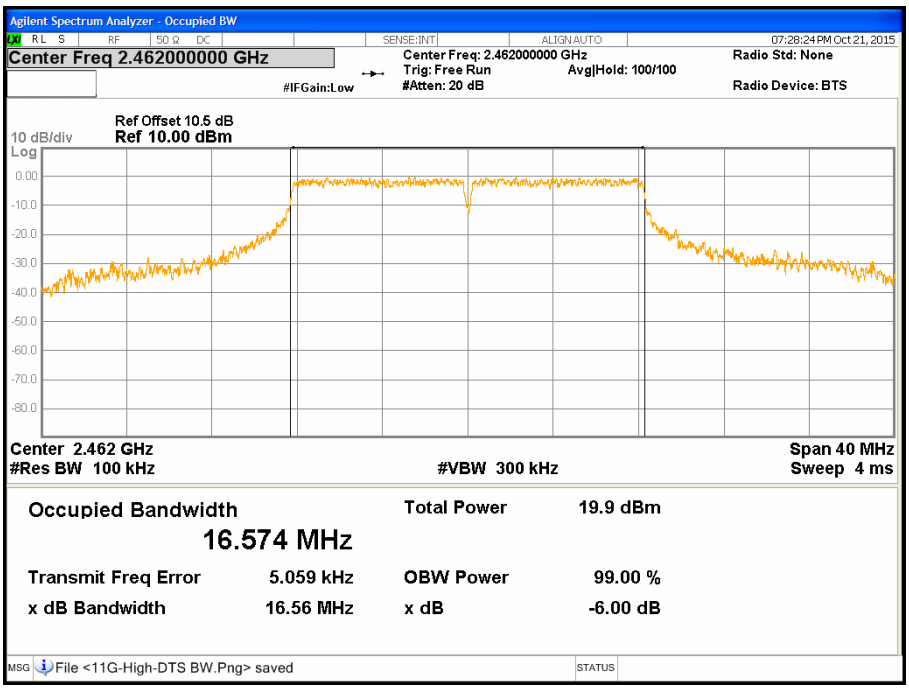
CH Low (IEEE 802.11g mode)



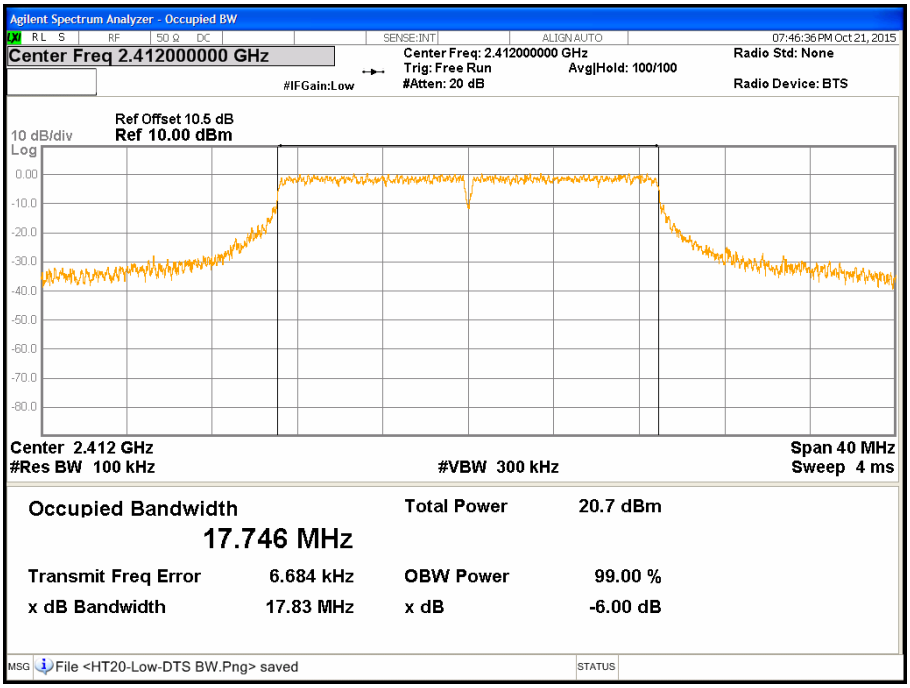
CH Middle (IEEE 802.11g mode)



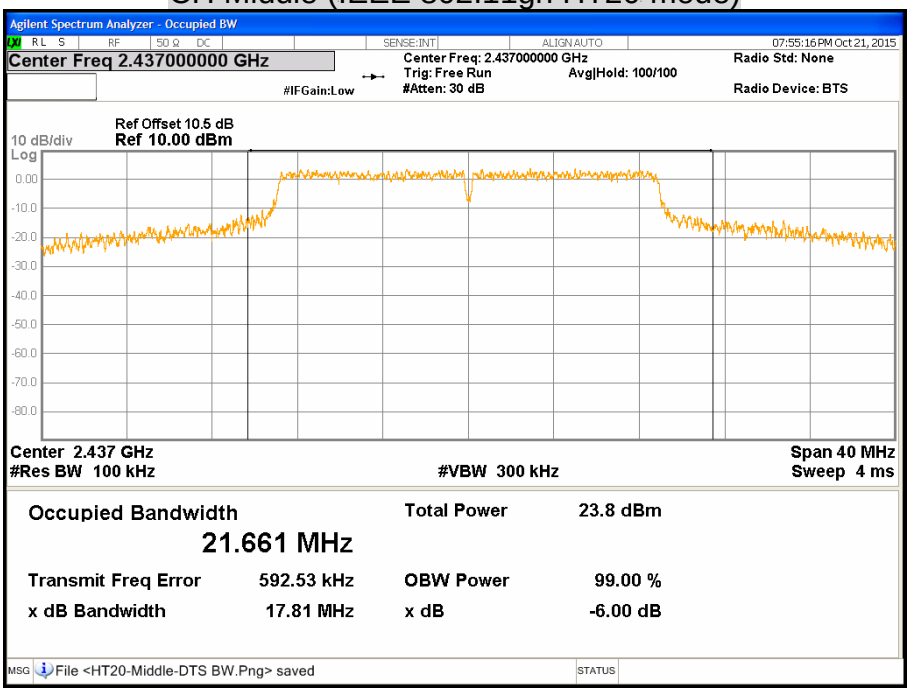
CH High (IEEE 802.11g mode)



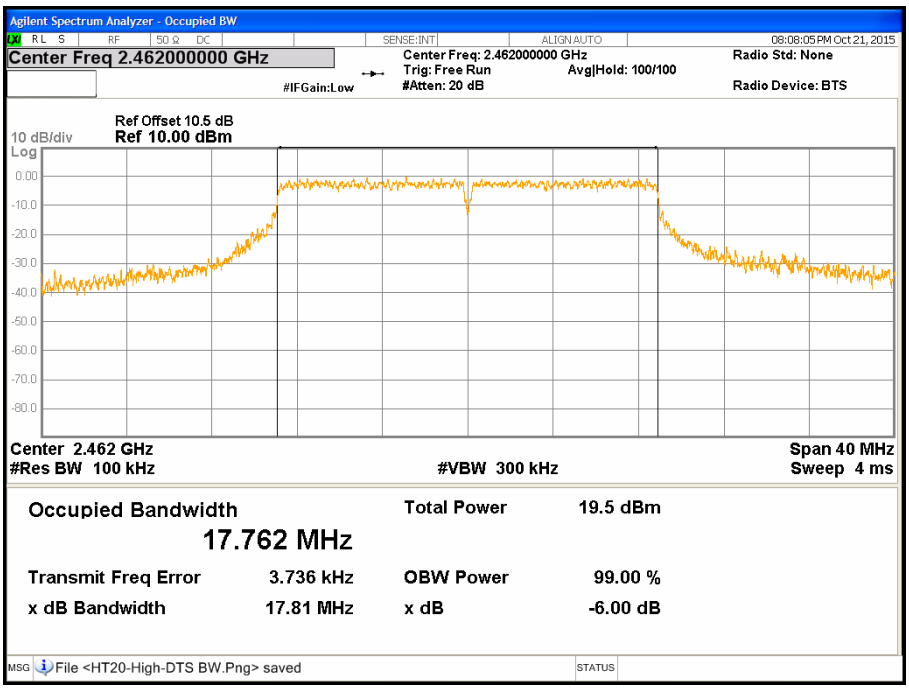
CH Low (IEEE 802.11gn HT20 mode)



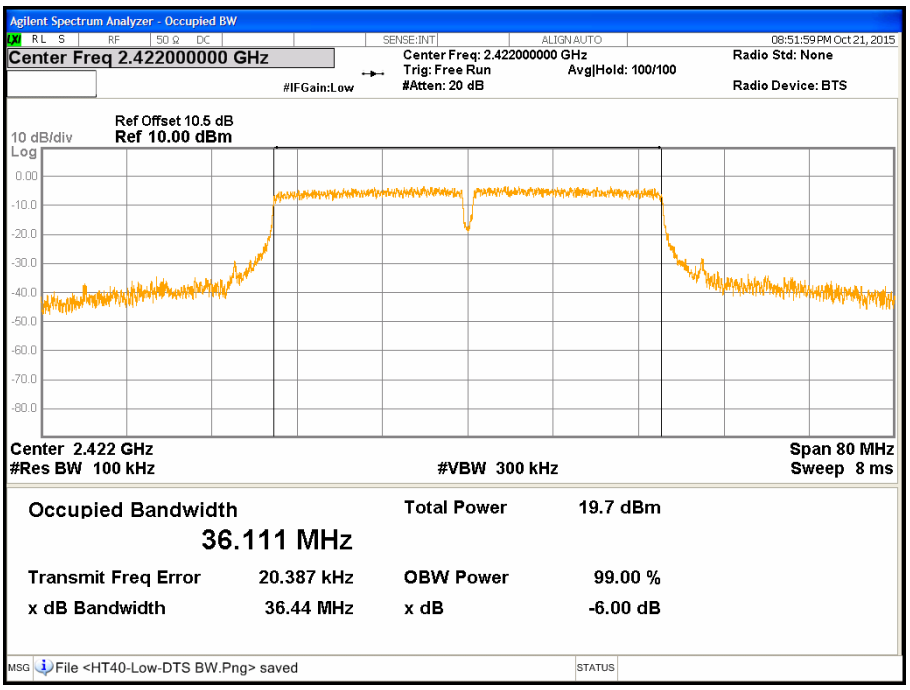
CH Middle (IEEE 802.11gn HT20 mode)



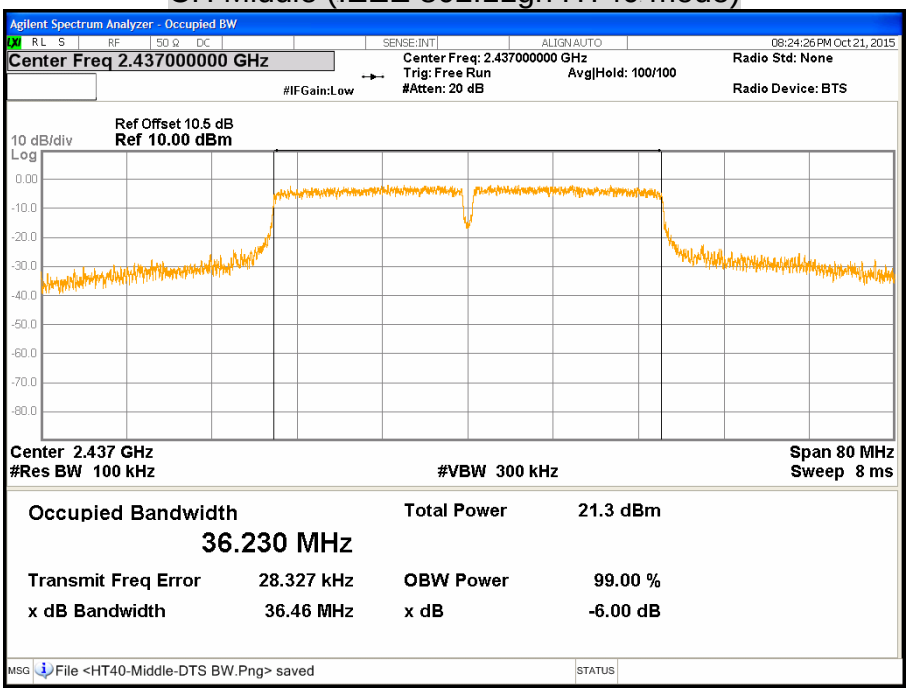
CH High (IEEE 802.11gn HT20 mode)



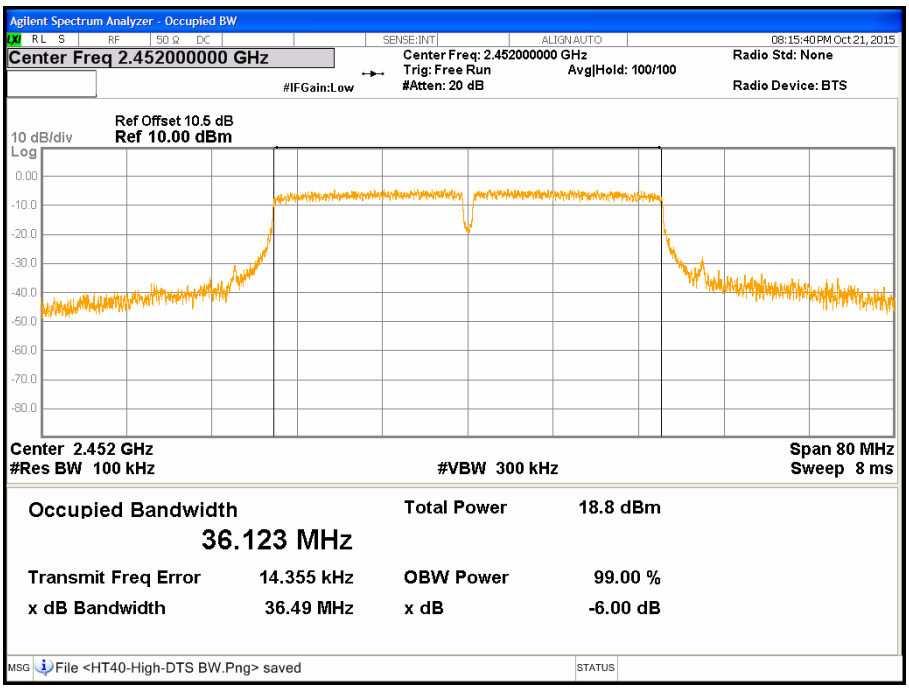
CH Low (IEEE 802.11gn HT40 mode)



CH Middle (IEEE 802.11gn HT40 mode)



CH High (IEEE 802.11gn HT40 mode)



7.2 MAXIMUM PEAK OUTPUT POWER

LIMITS

§ 15.247(b) The maximum peak output power of the intentional radiator shall not exceed the following:
§ 15.247(b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 watt.
§ 15.247(b) (4) Except as shown in paragraphs (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (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.

§ KDB 662911: For power measurements on IEEE 802.11 devices
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Anritsu	ML2495A	1149001	12/11/2015
Power Sensor	Anritsu	MA2411B	1126148	12/11/2015

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

The transmitter output is connected to the power meter. The power meter is set to the peak power detection.

TEST RESULTS

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	Peak Power		Peak Power Limit		Pass / Fail
		(dBm)	(W)	(dBm)	(W)	
Low	2412	20.57	0.1140	30.00	1.0000	PASS
Middle	2437	20.08	0.1019	30.00	1.0000	PASS
High	2462	19.43	0.0877	30.00	1.0000	PASS

Remark:

1. *At finial test to get the worst-case emission at 1Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	Peak Power		Peak Power Limit		Pass / Fail
		(dBm)	(W)	(dBm)	(W)	
Low	2412	21.93	0.1560	30.00	1.0000	PASS
Middle	2437	22.04	0.1600	30.00	1.0000	PASS
High	2462	20.71	0.1178	30.00	1.0000	PASS

Remark:

1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*

IEEE 802.11gn HT20 mode

Channel	Channel Frequency (MHz)	Peak Power		Peak Power Limit		Pass / Fail
		(dBm)	(W)	(dBm)	(W)	
Low	2412	21.48	0.1406	30.00	1.0000	PASS
Middle	2437	22.10	0.1622	30.00	1.0000	PASS
High	2462	20.34	0.1081	30.00	1.0000	PASS

Remark:

1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*

IEEE 802.11gn HT40 mode

Channel	Channel Frequency (MHz)	Peak Power		Peak Power Limit		Pass / Fail
		(dBm)	(W)	(dBm)	(W)	
Low	2422	20.92	0.1236	30.00	1.0000	PASS
Middle	2437	21.32	0.1355	30.00	1.0000	PASS
High	2452	19.97	0.0993	30.00	1.0000	PASS

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*

7.3 AVERAGE POWER

LIMITS

None: For reporting purposes only.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Anritsu	ML2495A	1149001	12/11/2015
Power Sensor	Anritsu	MA2411B	1126148	12/11/2015

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

The transmitter output is connected to the power meter. The power meter is set to the average power detection.

TEST RESULTS

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	18.72
Middle	2437	18.27
High	2462	17.65

Remark:
1. *At finial test to get the worst-case emission at 1Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	15.18
Middle	2437	17.89
High	2462	13.89

Remark:
1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*

IEEE 802.11gn HT20 mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	14.18
Middle	2437	17.87
High	2462	13.34

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*

IEEE 802.11gn HT40 mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2422	13.14
Middle	2437	15.35
High	2452	12.71

Remark:
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*

7.4 POWER SPECTRAL DENSITY

LIMITS

§ 15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EXA Signal Analyzer	Agilent	N9010A	MY52220817	03/19/2016

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set analyzer center frequency to DTS channel center frequency.
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
5. Set the VBW ≥ 3 x RBW.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level within the RBW.
11. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST RESULTS

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Low	2412	-0.64	8	PASS
Middle	2437	-1.55	8	PASS
High	2462	-2.21	8	PASS

Remark:

1. *At finial test to get the worst-case emission at 1Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Low	2412	-6.53	8	PASS
Middle	2437	-3.87	8	PASS
High	2462	-8.11	8	PASS

Remark:

1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*

IEEE 802.11gn HT20 mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Low	2412	-6.32	8	PASS
Middle	2437	-2.94	8	PASS
High	2462	-7.27	8	PASS

Remark:

1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*

IEEE 802.11gn HT40 mode

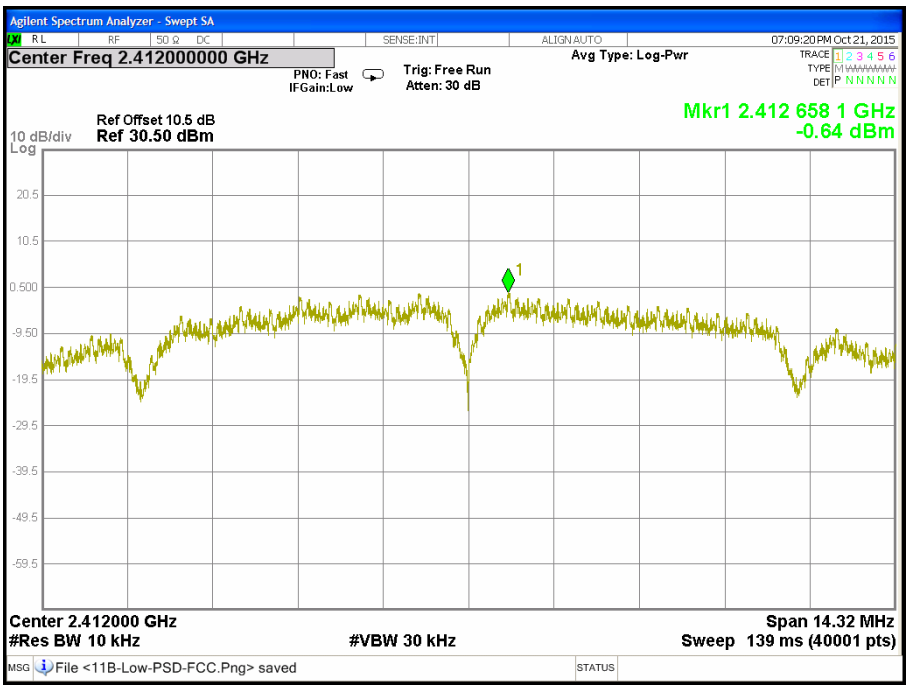
Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Low	2422	-10.04	8	PASS
Middle	2437	-8.38	8	PASS
High	2452	-10.95	8	PASS

Remark:

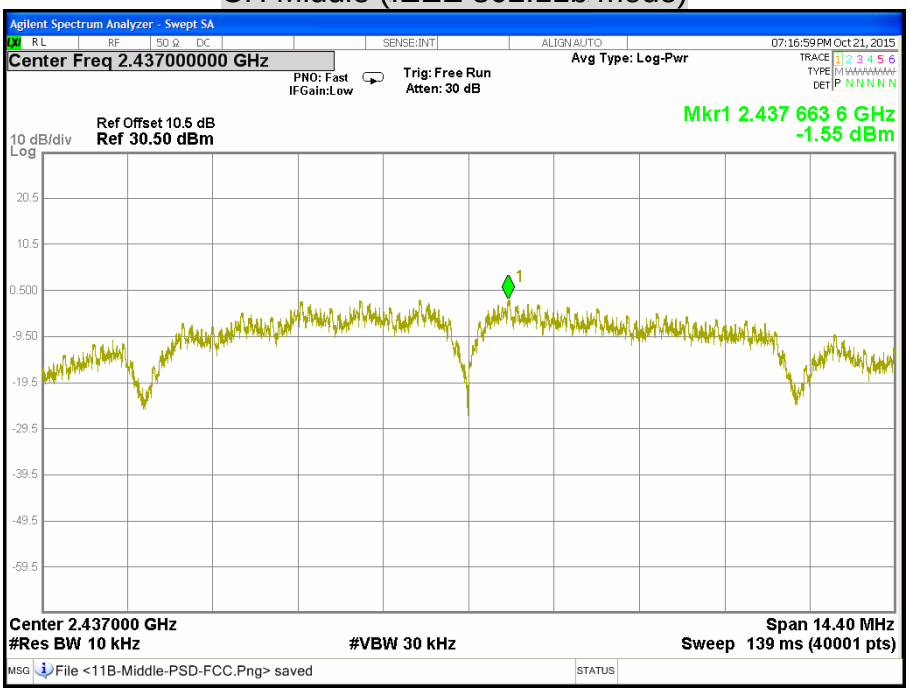
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*

POWER SPECTRAL DENSITY

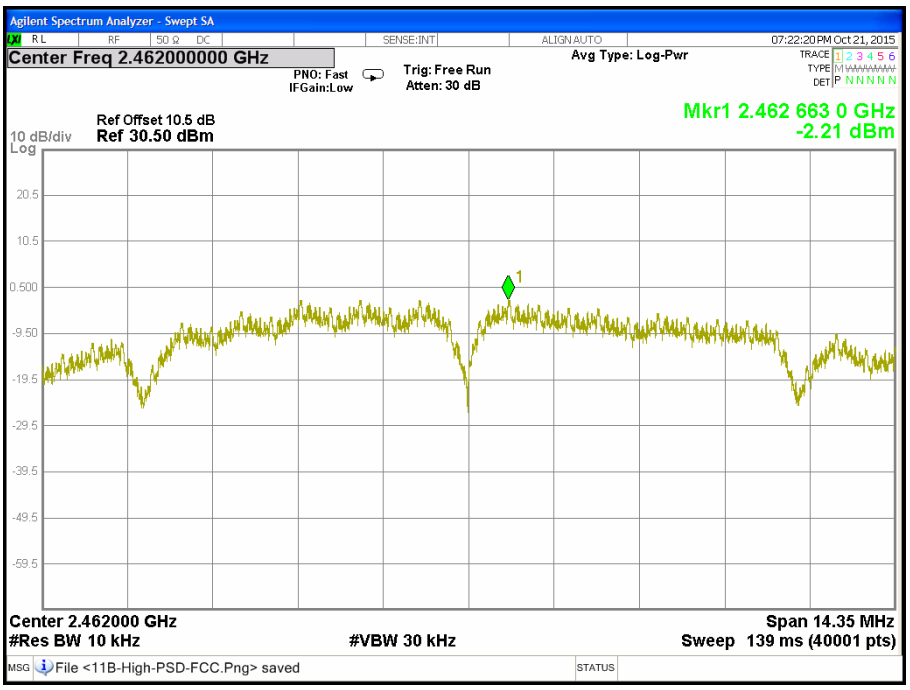
CH Low (IEEE 802.11b mode)



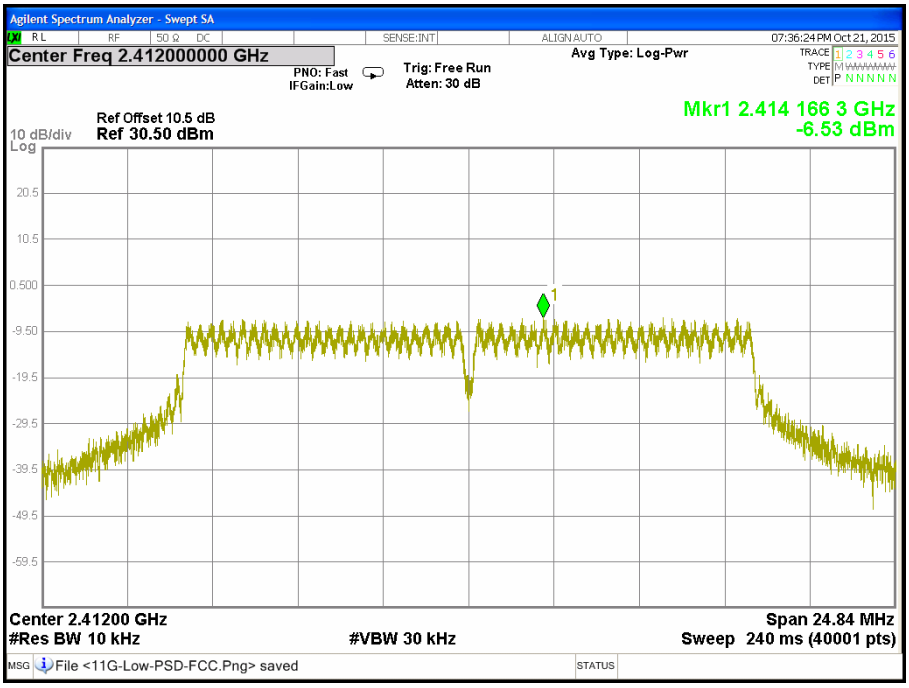
CH Middle (IEEE 802.11b mode)



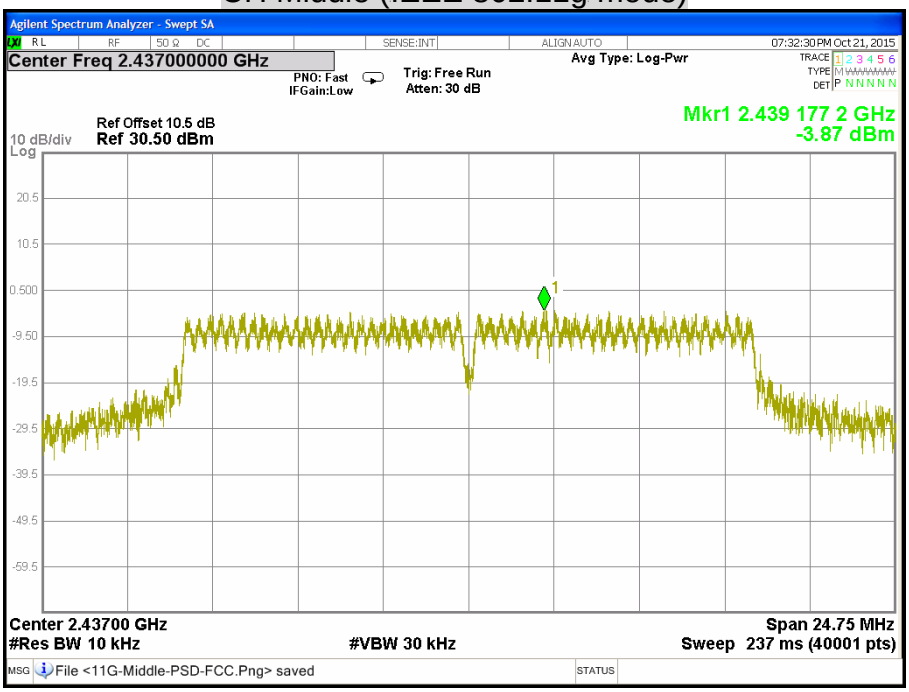
CH High (IEEE 802.11b mode)



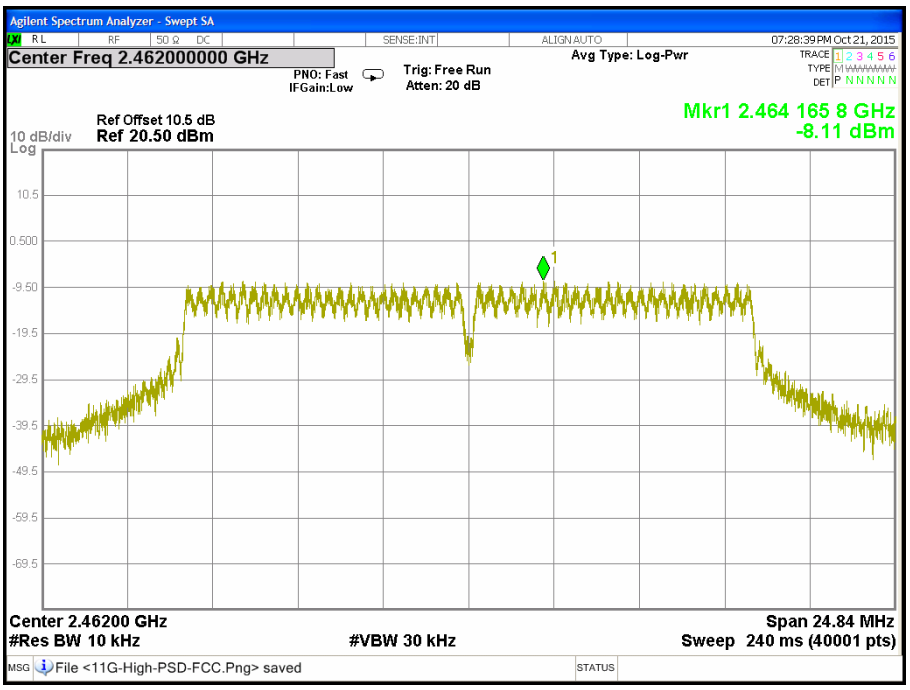
CH Low (IEEE 802.11g mode)



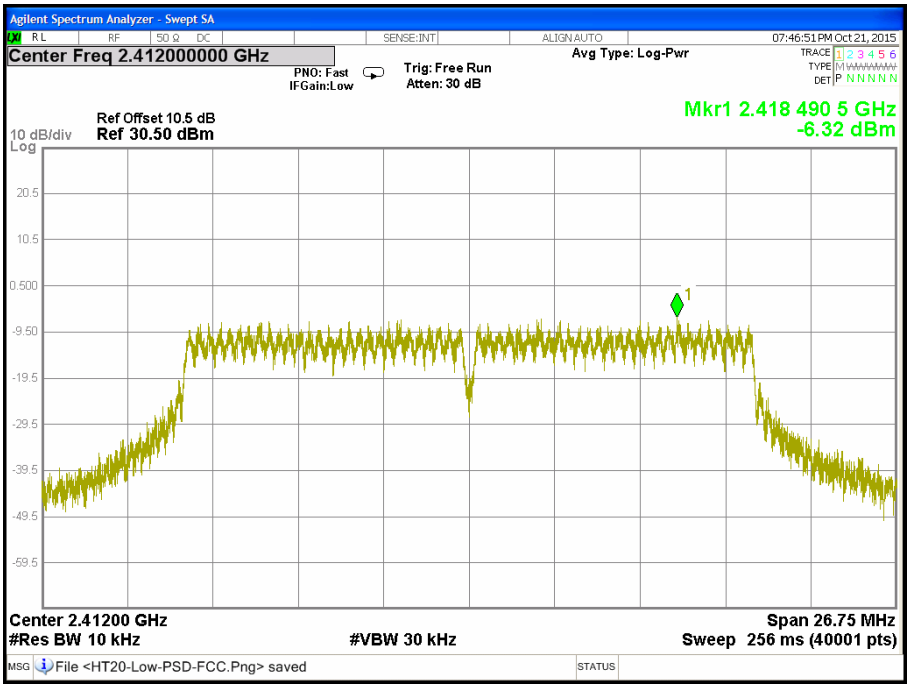
CH Middle (IEEE 802.11g mode)



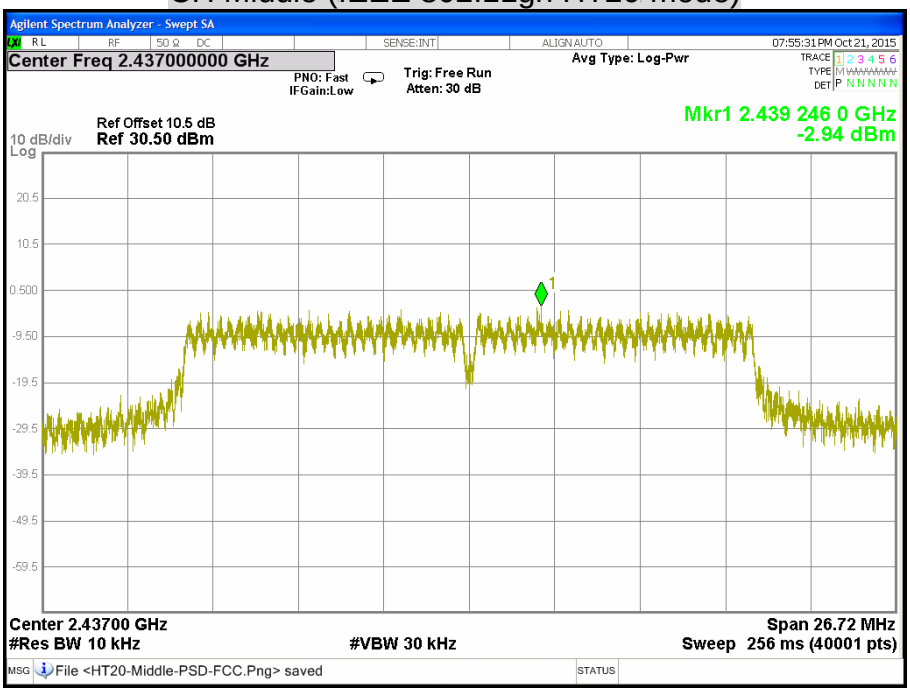
CH High (IEEE 802.11g mode)



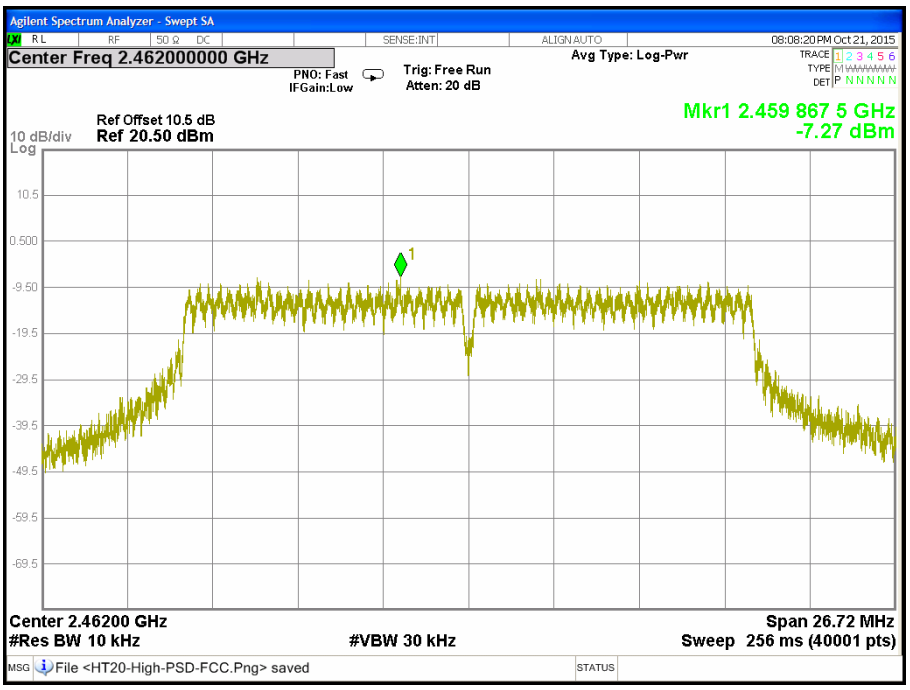
CH Low (IEEE 802.11gn HT20 mode)



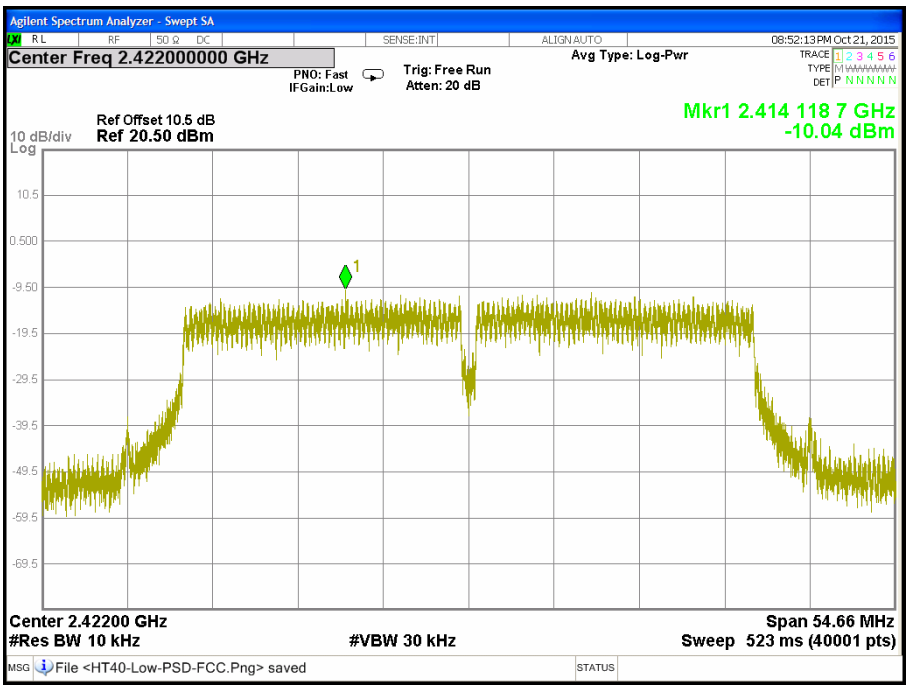
CH Middle (IEEE 802.11gn HT20 mode)



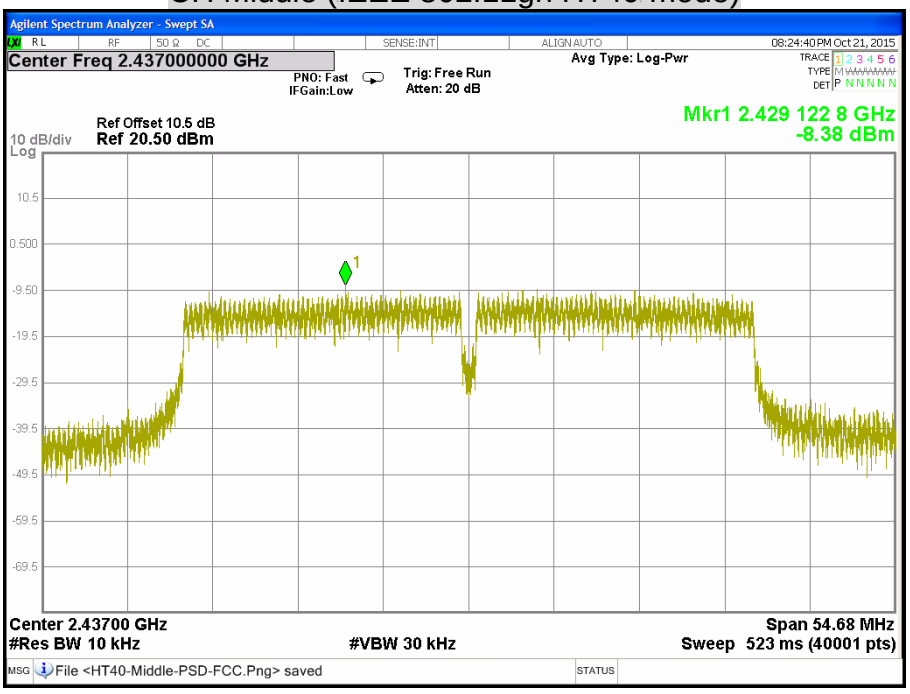
CH High (IEEE 802.11gn HT20 mode)



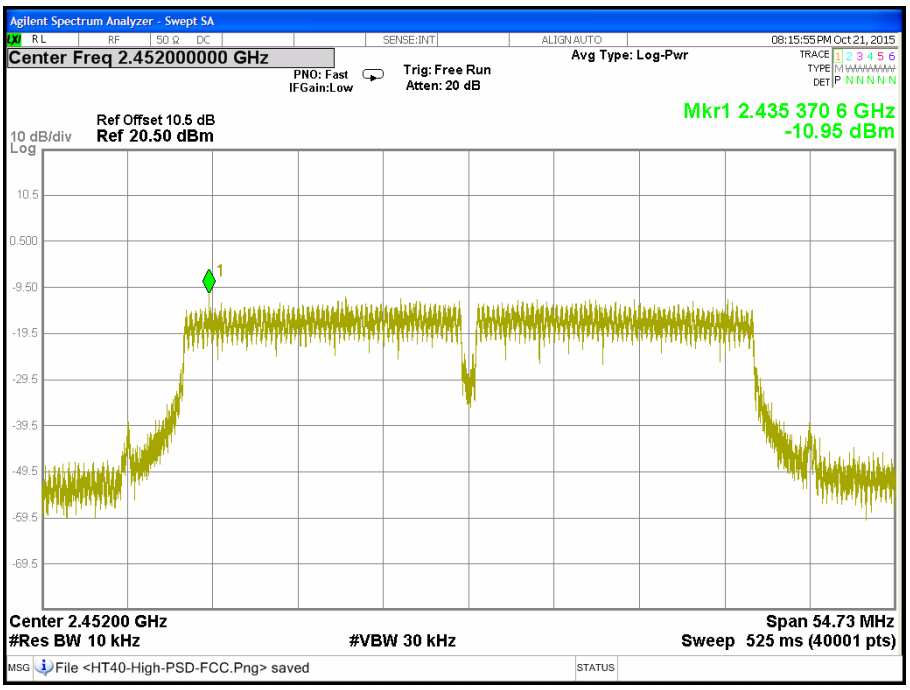
CH Low (IEEE 802.11gn HT40 mode)



CH Middle (IEEE 802.11gn HT40 mode)



CH High (IEEE 802.11gn HT40 mode)



7.5 CONDUCTED SPURIOUS EMISSION

LIMITS

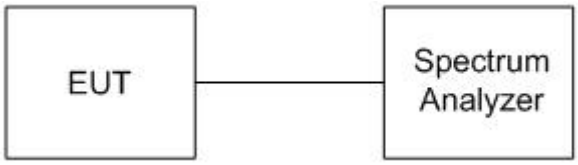
§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the and that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. 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 § 15.205(c)).

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EXA Signal Analyzer	Agilent	N9010A	MY52220817	03/19/2016

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



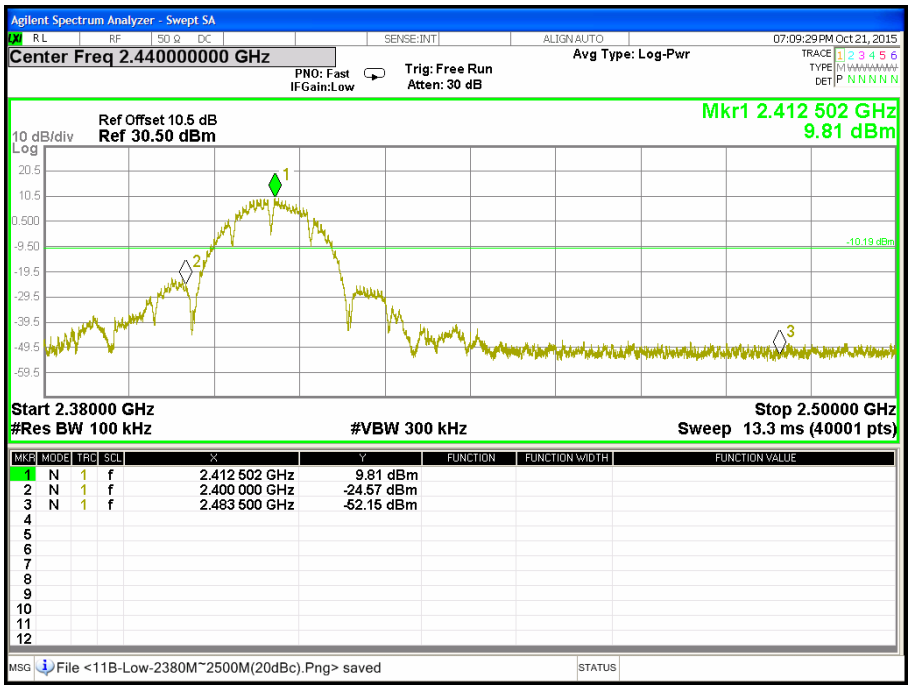
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.
The spectrum from 30 MHz to 26.5 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

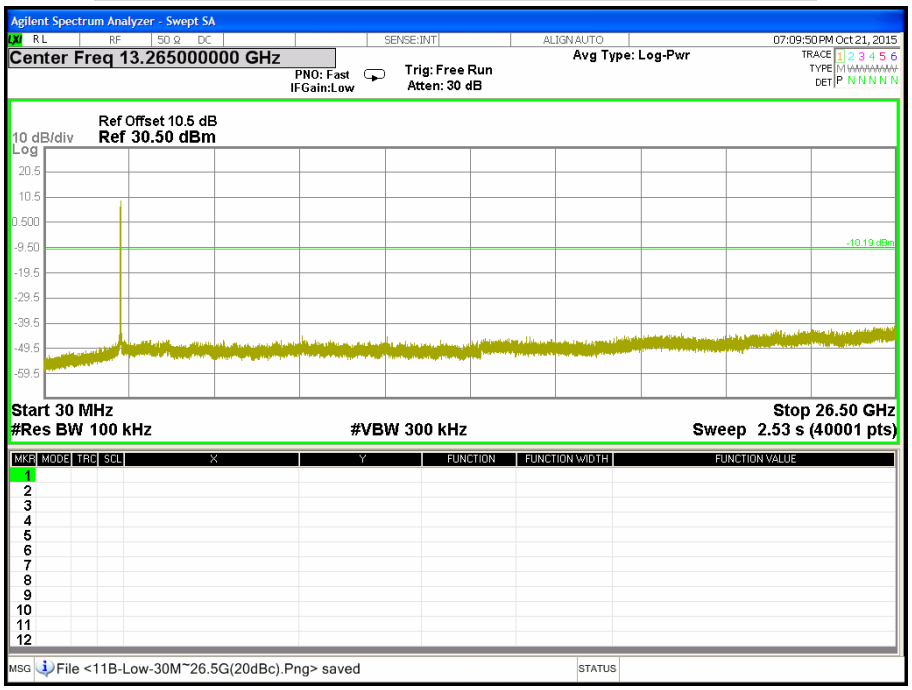
TEST RESULTS

OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

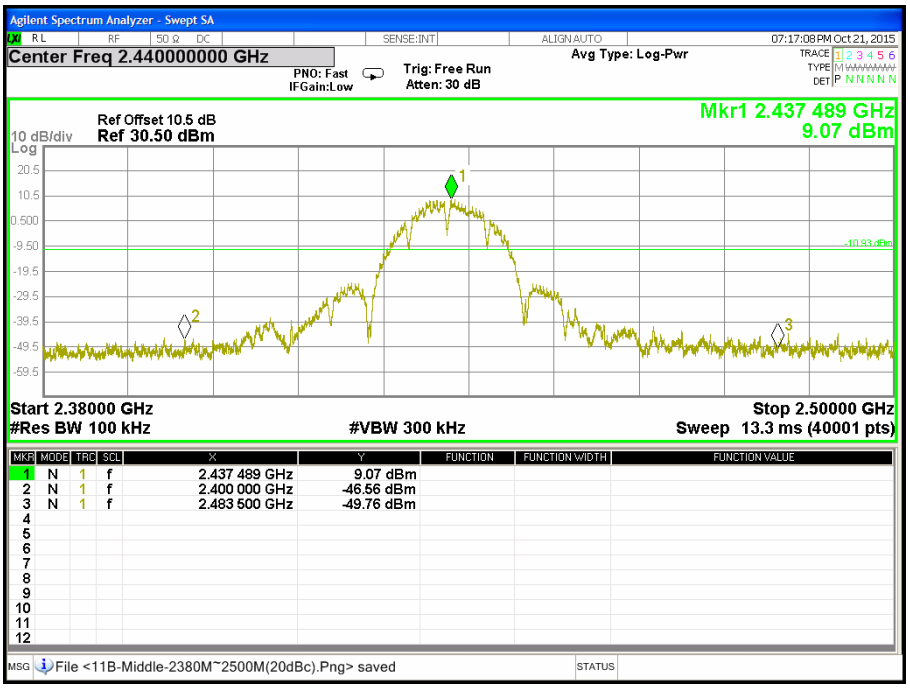
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11b mode)



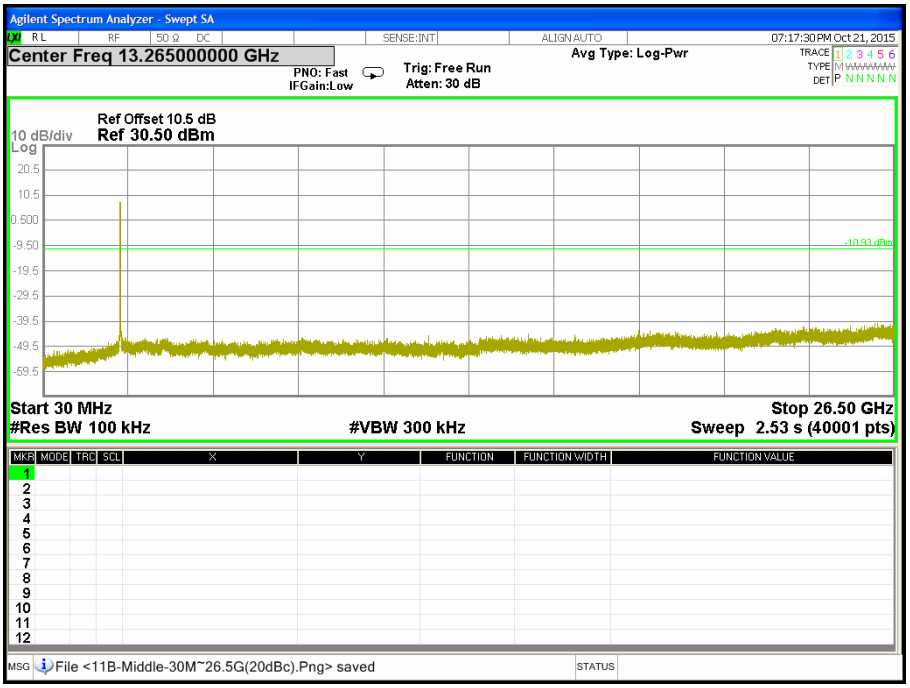
CH Low (30MHz ~ 26.5GHz / IEEE 802.11b mode)



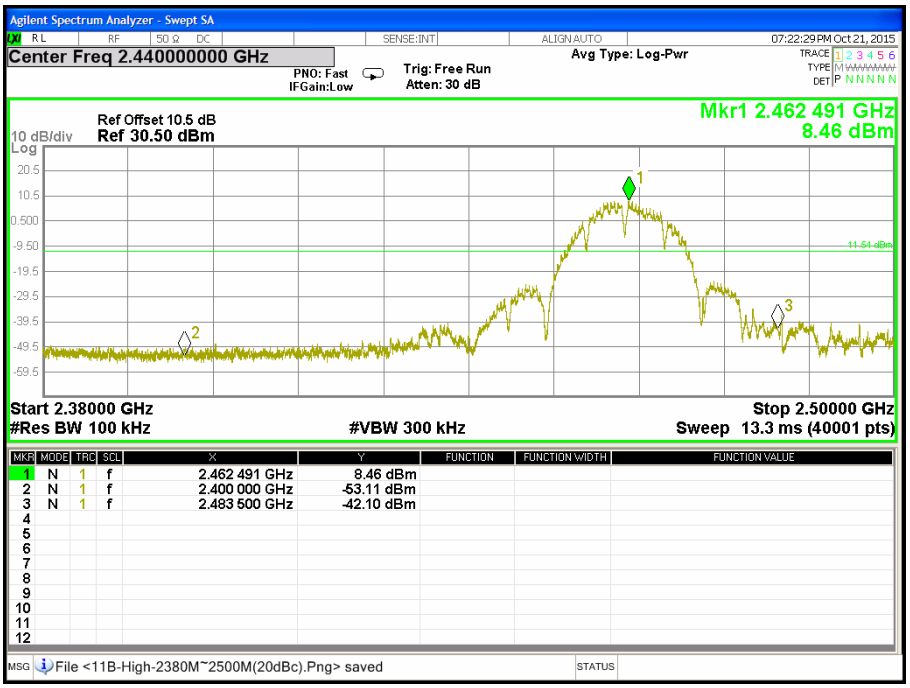
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11b mode)



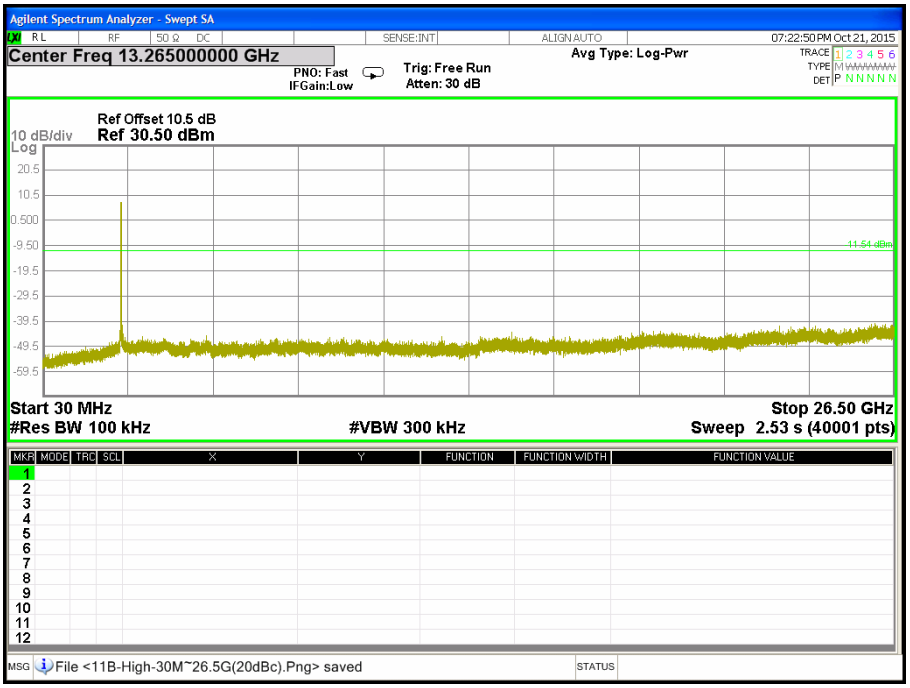
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11b mode)



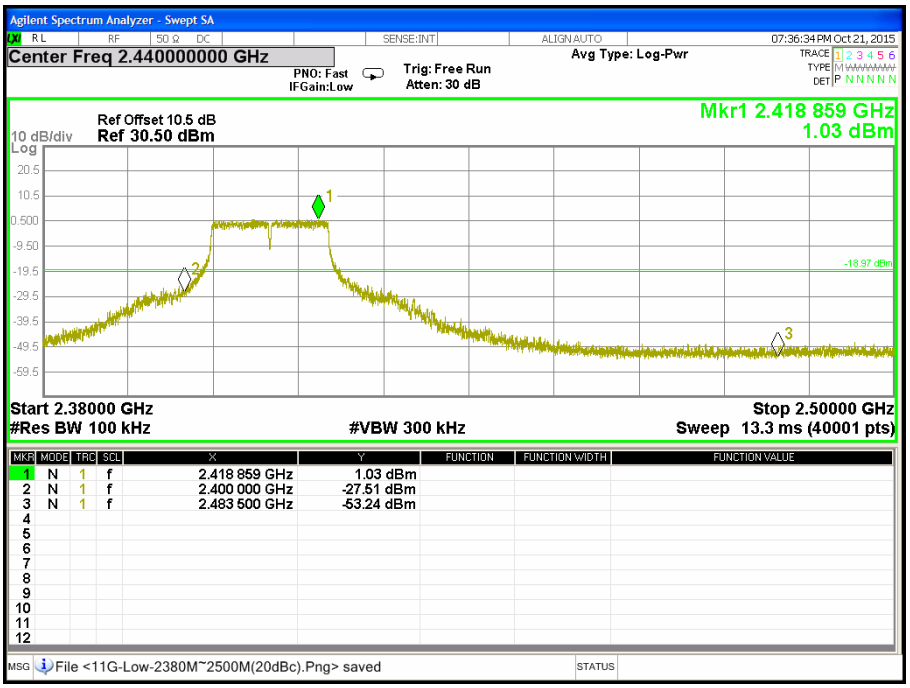
CH High (2.38GHz ~ 2.5GHz / IEEE 802.11b mode)



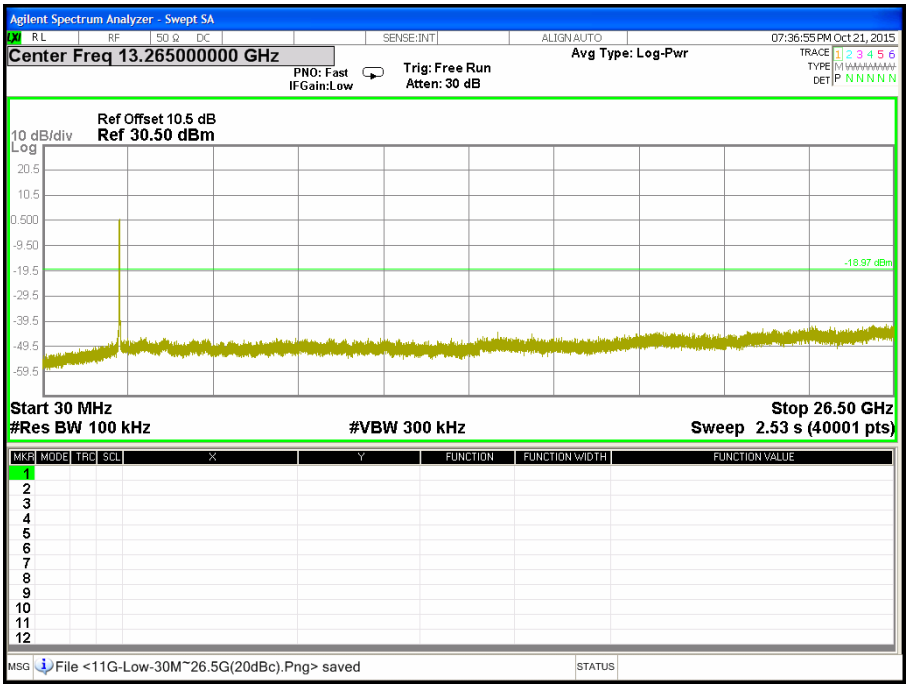
CH High (30MHz ~ 26.5GHz / IEEE 802.11b mode)



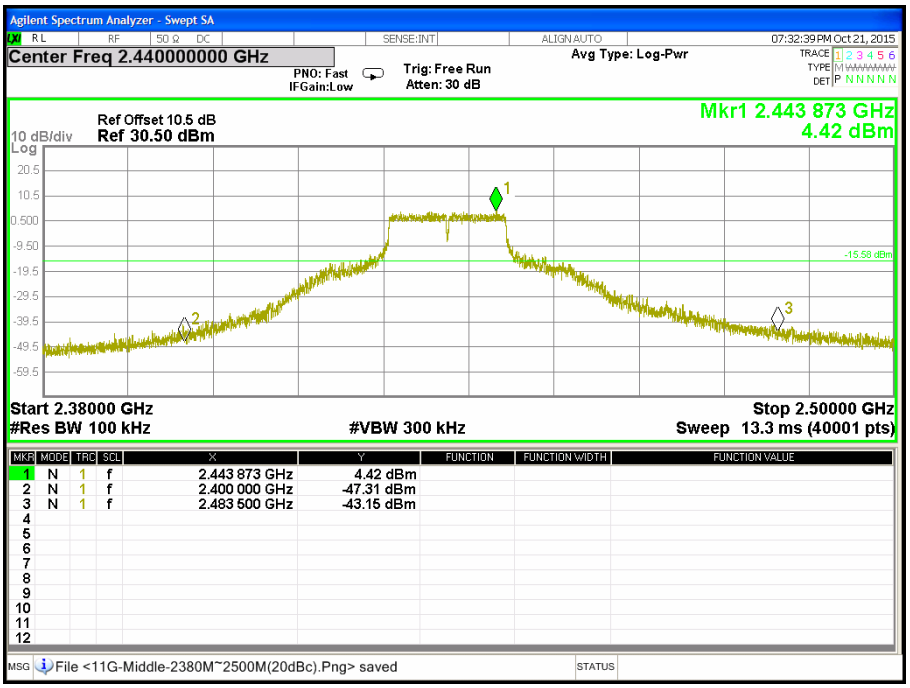
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11g mode)



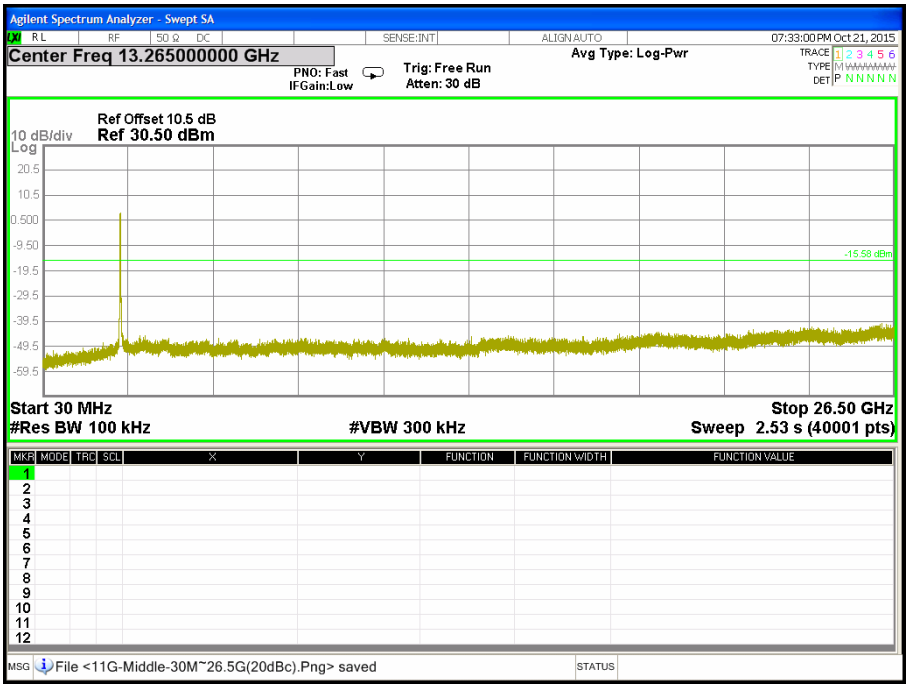
CH Low (30MHz ~ 26.5GHz / IEEE 802.11g mode)



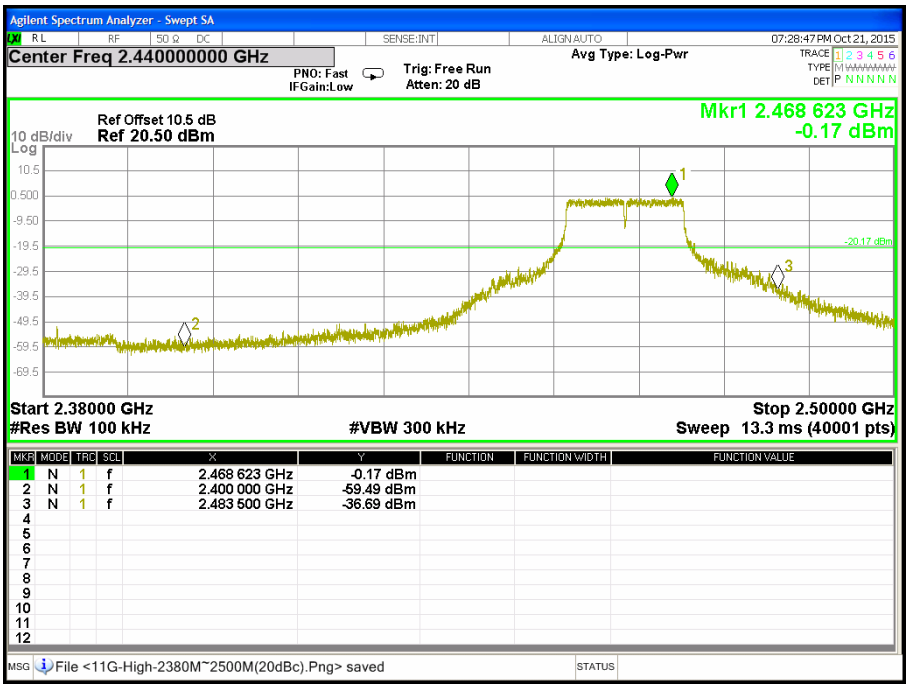
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11g mode)



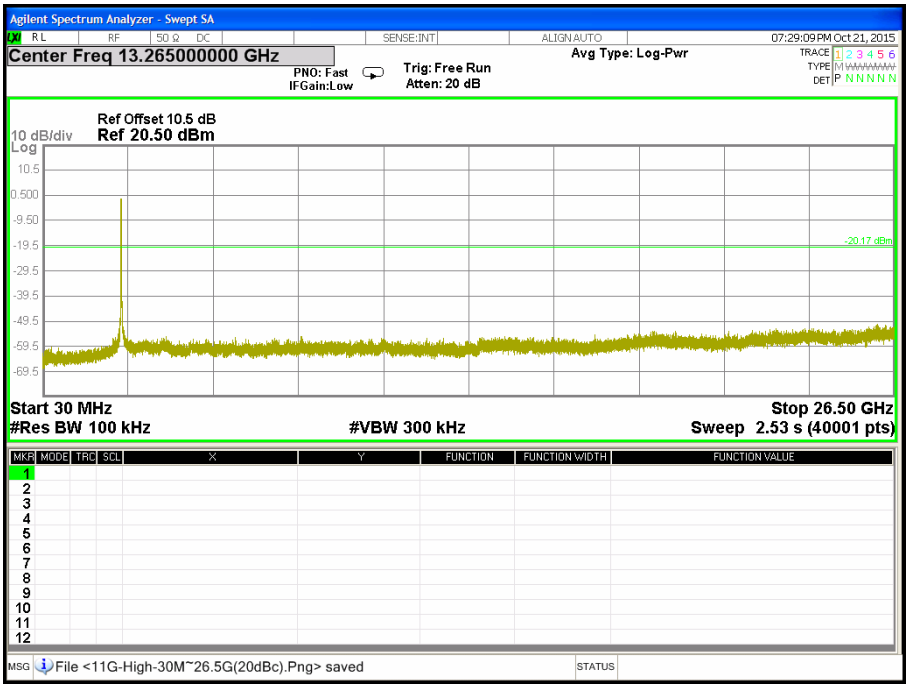
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11g mode)



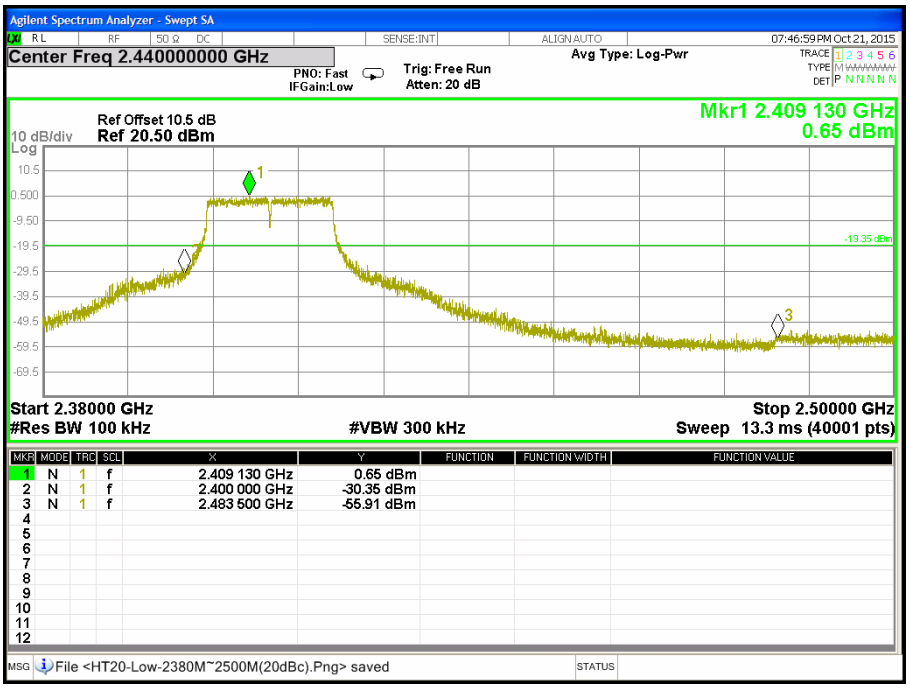
CH High (2.38GHz ~ 2.5GHz / IEEE 802.11g mode)



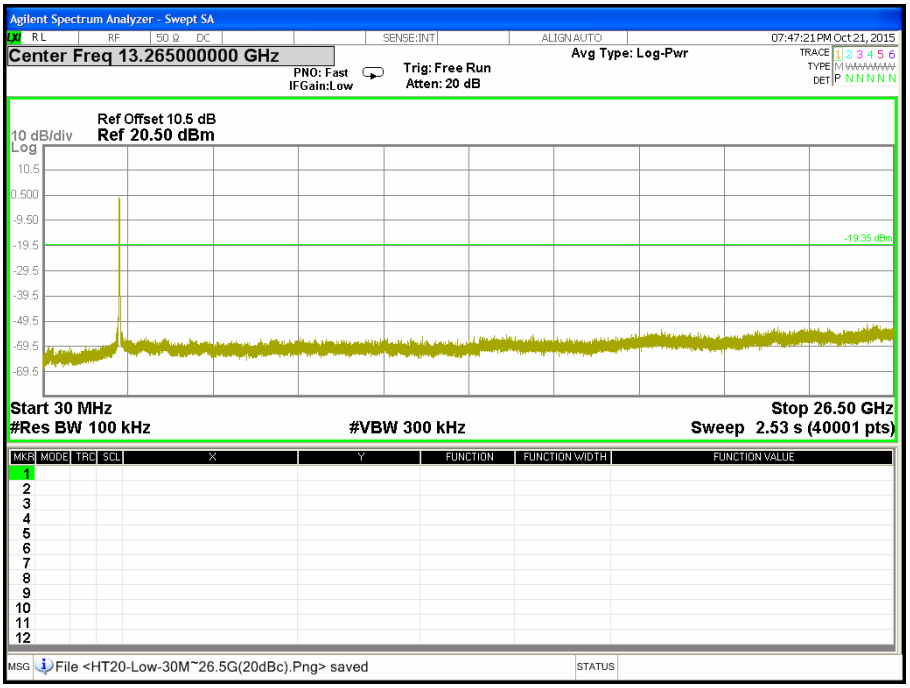
CH High (30MHz ~ 26.5GHz / IEEE 802.11g mode)



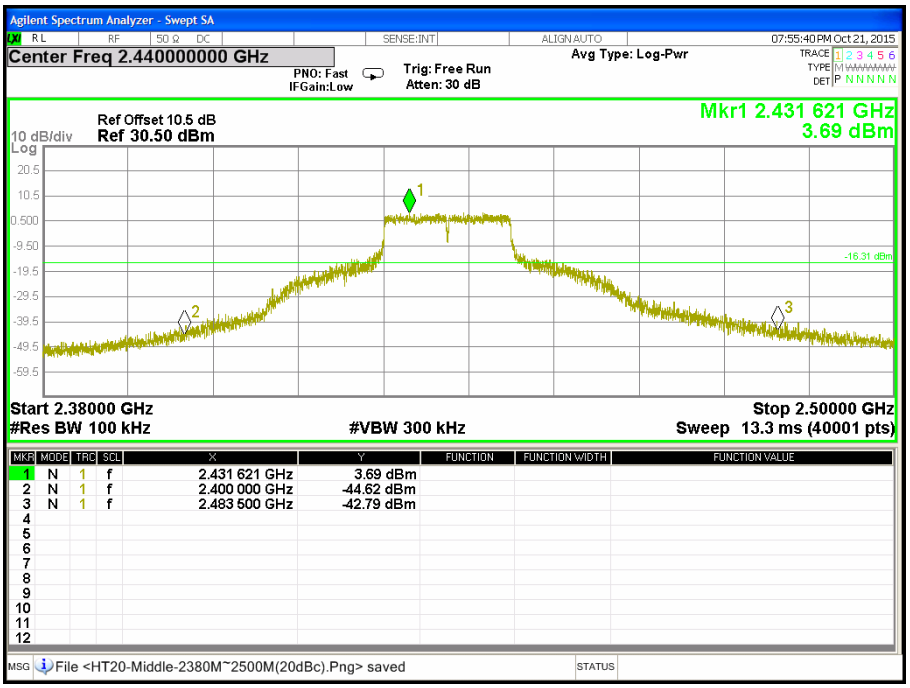
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 mode)



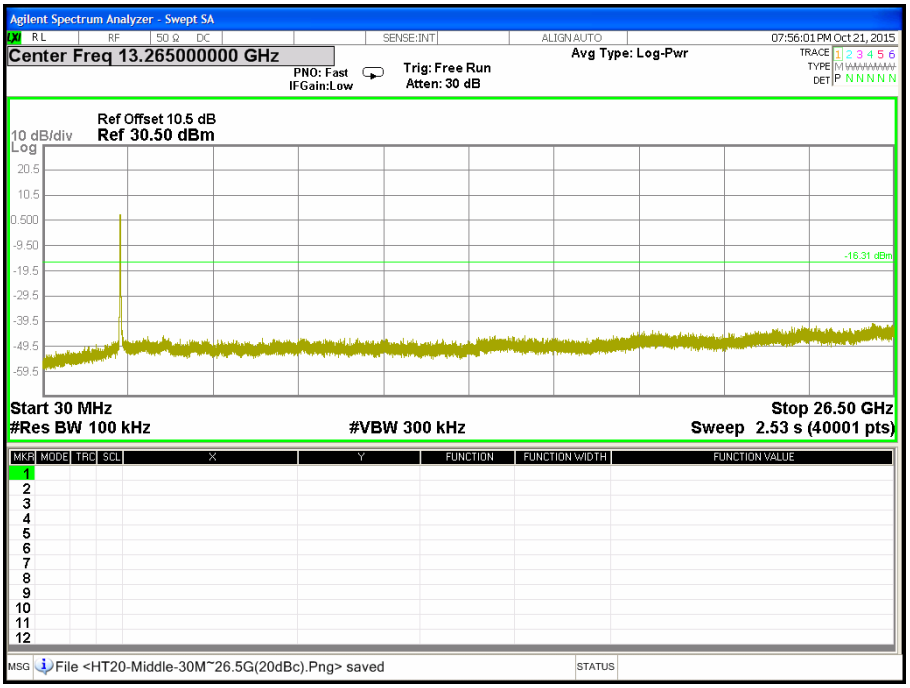
CH Low (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 mode)



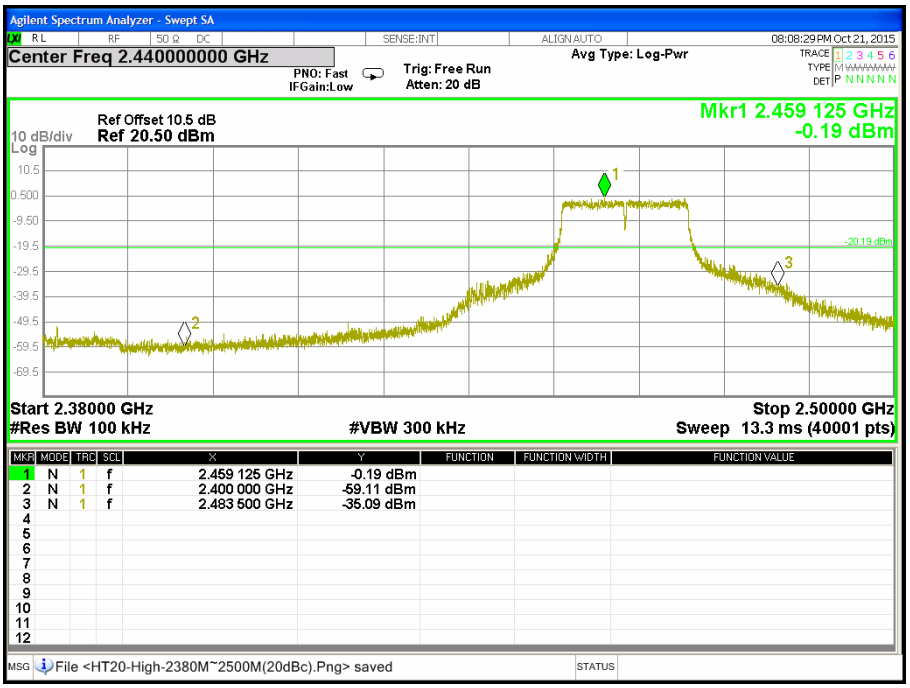
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 mode)



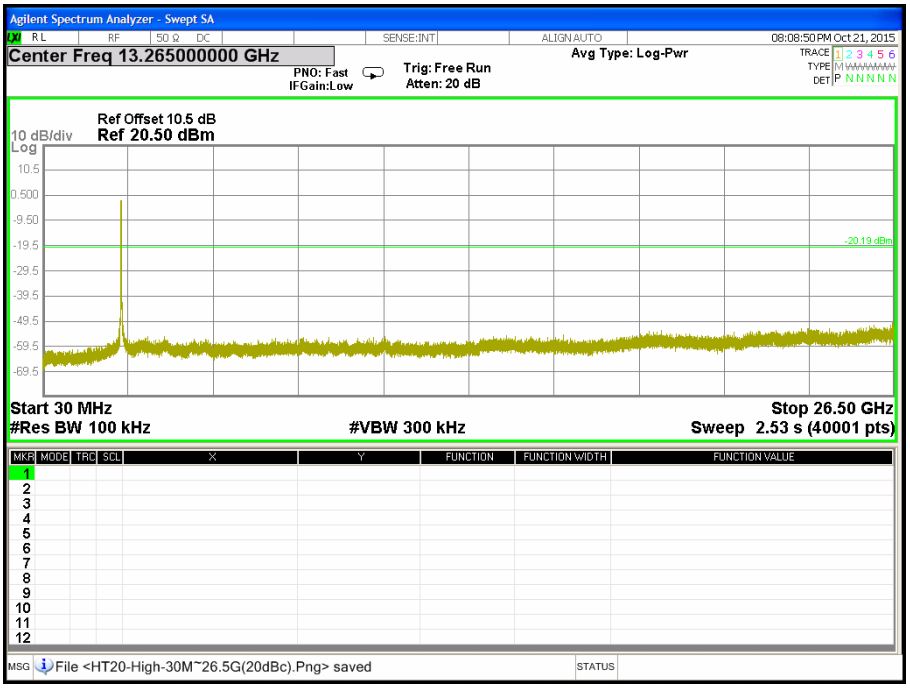
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 mode)



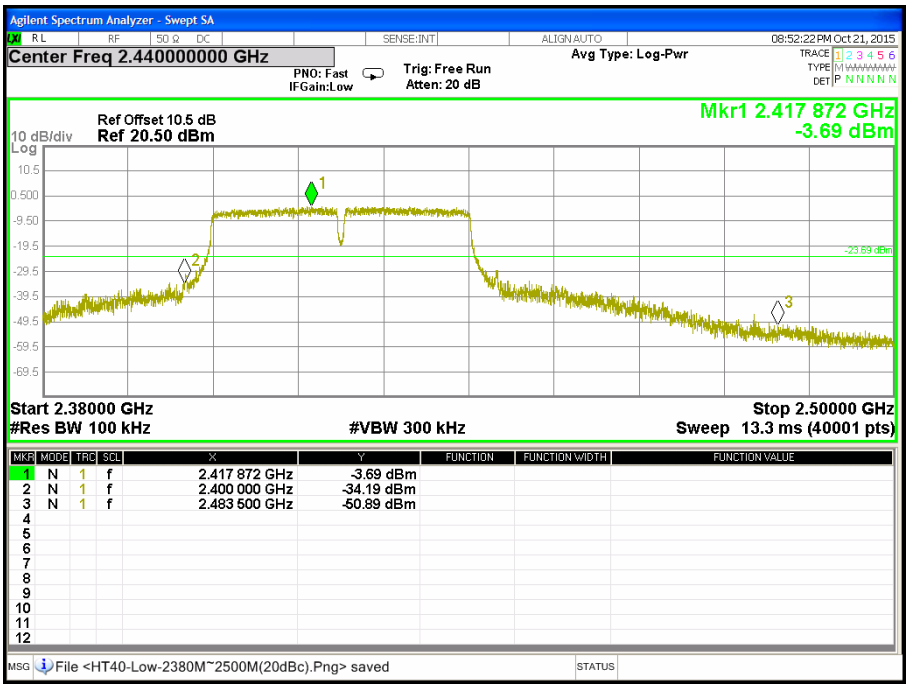
CH High (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 mode)



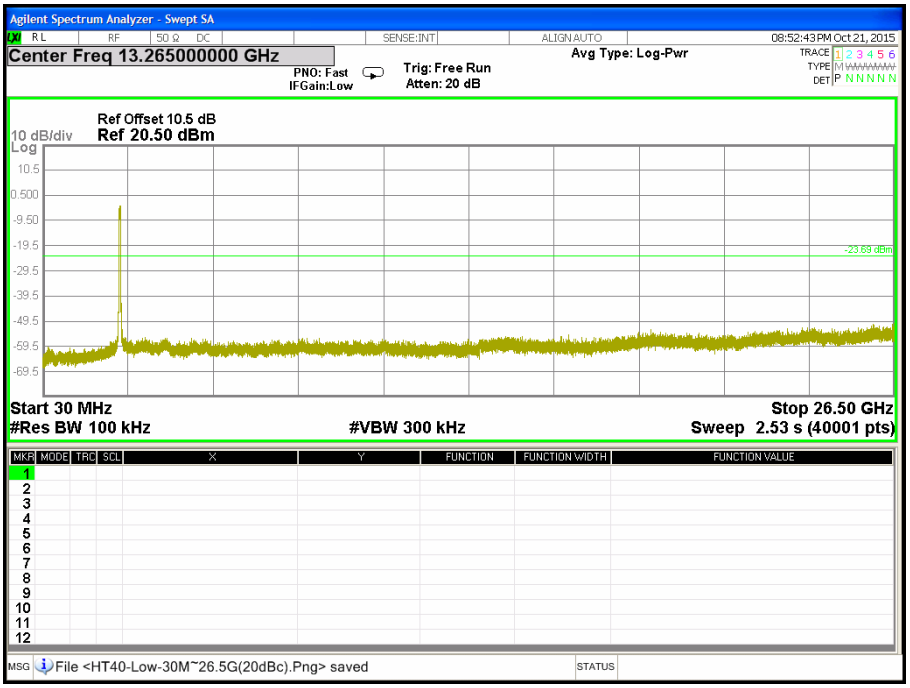
CH High (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 mode)



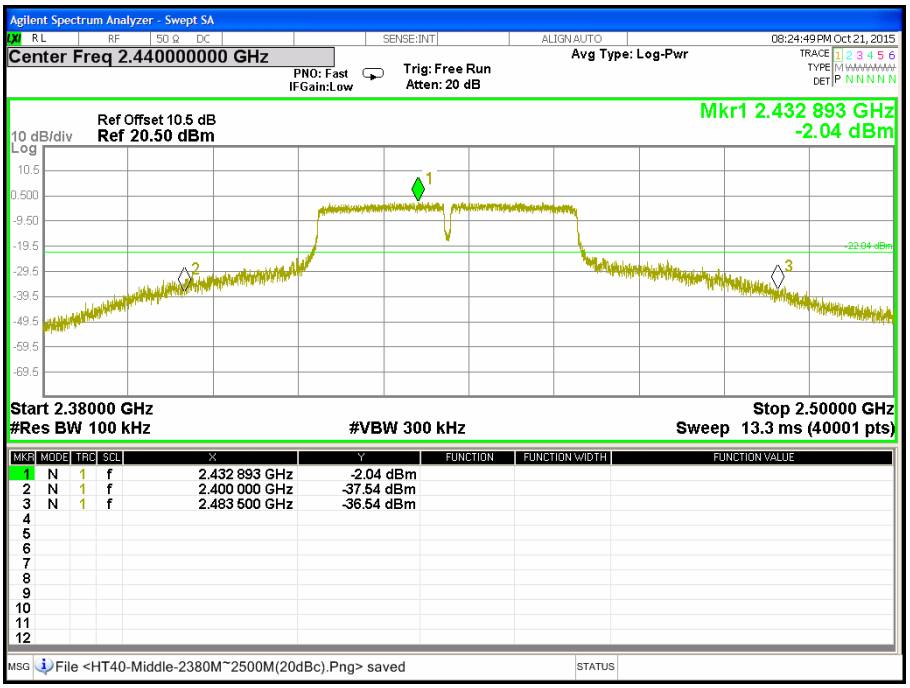
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 mode)



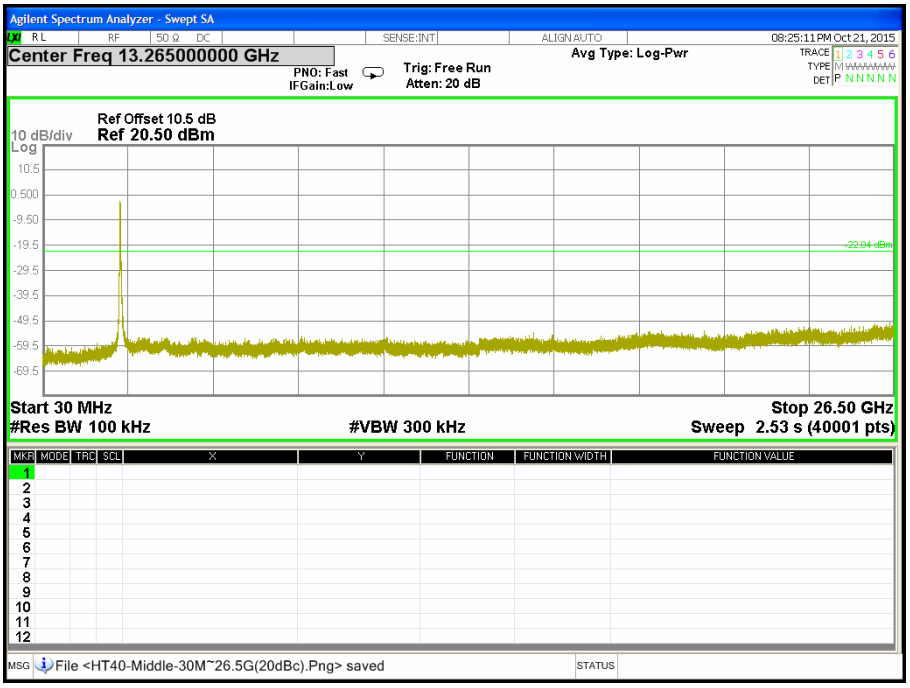
CH Low (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 mode)



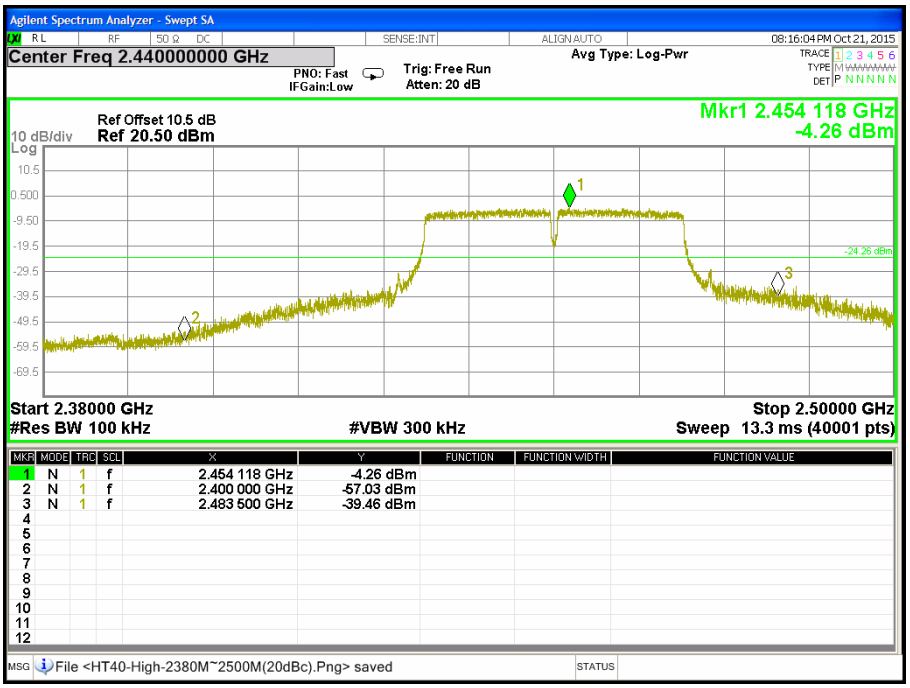
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 mode)



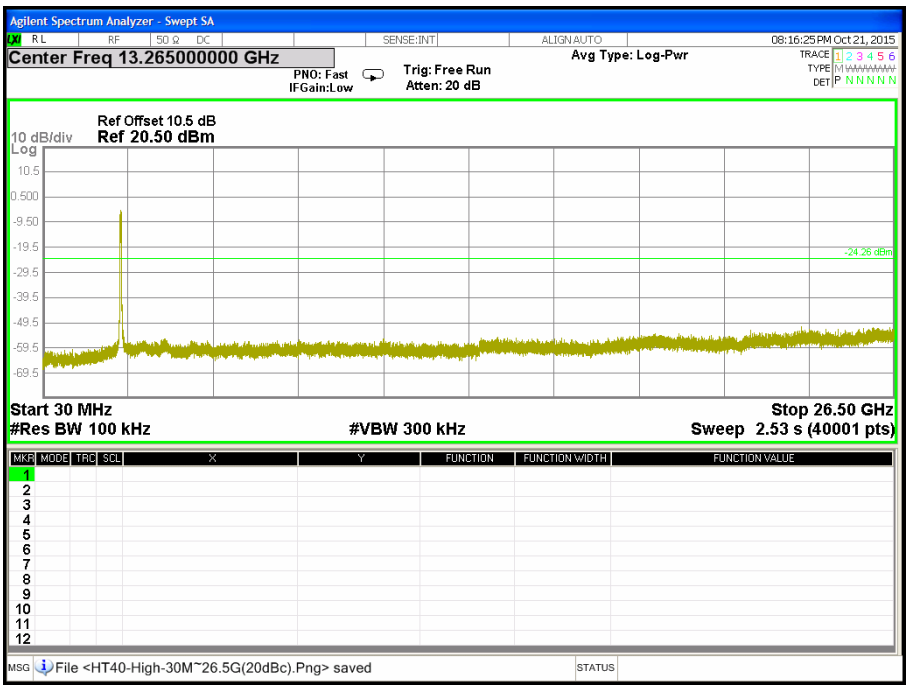
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 mode)



CH High (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 mode)



CH High (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 mode)



7.6 RADIATED EMISSION

LIMITS

(1) According to § 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 -1710	10.6 -12.7
6.26775 - 6.26825	108 -121.94	1718.8 - 1722.2	13.25 -13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 – 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 -16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3338	36.43 - 36.5
12.57675 - 12.57725	322 -335.4	3600 - 4400	([2])
13.36 - 13.41			

Remark:
1. [1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
2. [2] Above 38.6

(2) According to § 15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown is Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

(3) 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 (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

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.*

(4) According to § 15.209 (b) In the emission table above, the tighter limit applies at the band edges.

TEST EQUIPMENT

Radiated Emission / 966Chamber_C

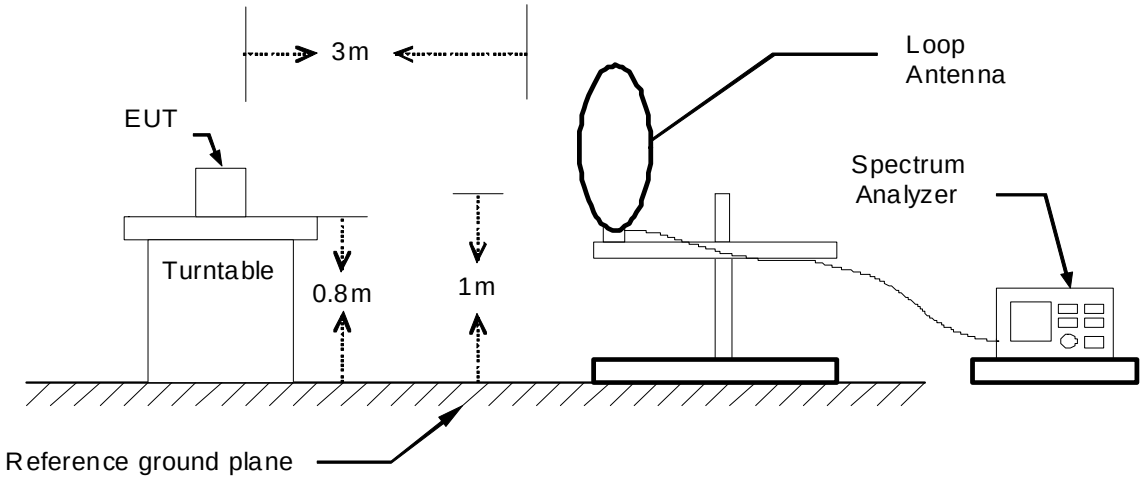
Name of Equipment	Manufacture	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY45280064	03/26/2016
EMI Test Receiver	Rohde & Schwarz	ESCI	101387	10/06/2016
Bi-log Antenna	TESEQ	CBL6112D	35404	08/04/2016
Double-Ridged Waveguide Horn	ETS-LINDGREN	3117	00078732	07/14/2016
Horn Antenna	COM-POWER	AH-840	03077	12/17/2015
Pre-Amplifier	EMCI	EMC001625	980243	04/12/2016
Pre-Amplifier	COM-POWER	PAM-118A	551043	04/12/2016
LOOP Antenna	COM-POWER	AL-130	121060	05/24/2016

Remark: *Each piece of equipment is scheduled for calibration once a year.*

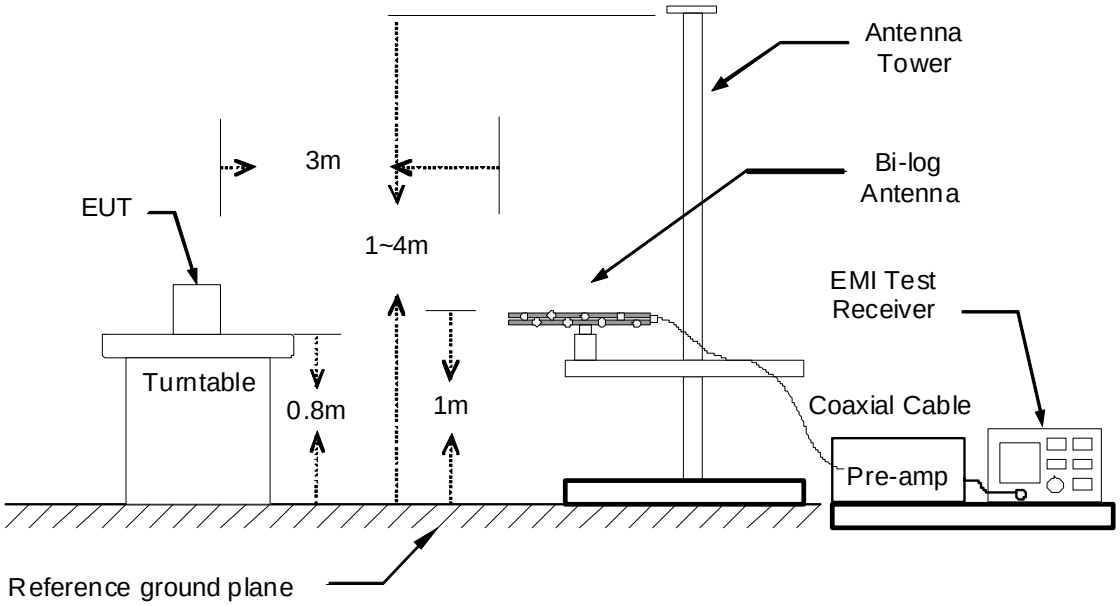
TEST SETUP

The diagram below shows the test setup that is utilized to make the measurements for emission below 1GHz.

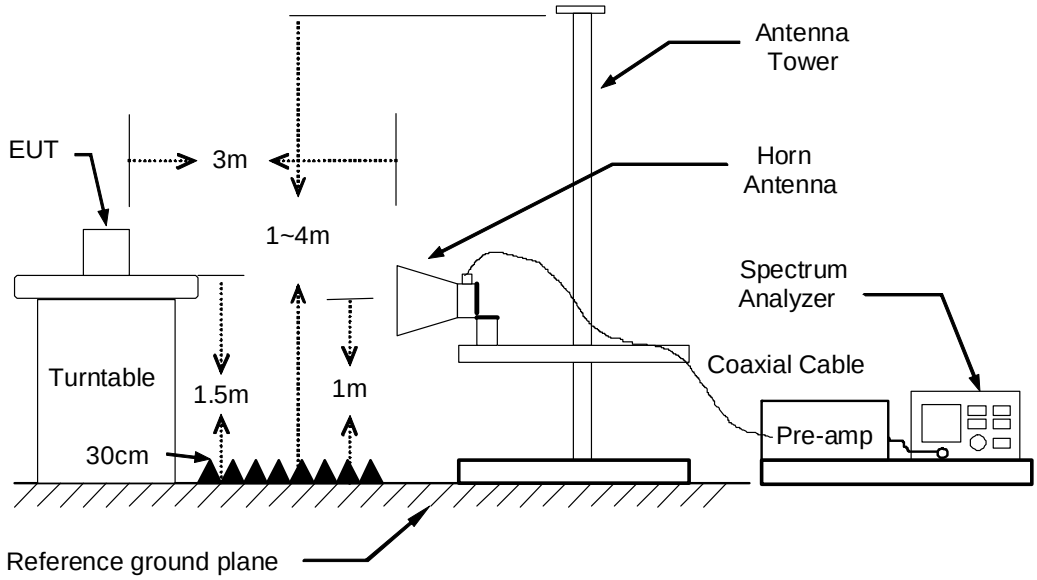
9kHz ~ 30MHz



30MHz ~ 1GHz



The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz.



TEST PROCEDURE

1. The EUT was placed on the top of a rotating table 0.8 and 1.5 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
2. While measuring the radiated emission below 1GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. While measuring the radiated emission above 1GHz, the EUT was set 3 meters away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Remark：

1. *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.*
2. *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1GHz.*
3. *The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.*

TEST RESULTS

Below 1 GHz (9kHz ~ 30MHz)

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

Below 1 GHz (30MHz ~ 1GHz)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/14
Test mode	Mode 1	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
240.49	53.35	-18.37	34.98	46.00	-11.02	153	200	Peak
263.77	49.11	-16.51	32.60	46.00	-13.40	40	200	Peak
480.08	55.45	-12.21	43.24	46.00	-2.76	360	100	Peak
527.61	53.30	-11.40	41.90	46.00	-4.10	147	100	Peak
576.11	51.61	-10.74	40.87	46.00	-5.13	156	100	Peak
660.50	45.45	-9.86	35.59	46.00	-10.41	185	200	Peak
792.42	44.12	-8.66	35.46	46.00	-10.54	176	100	Peak
960.23	58.19	-7.08	51.11	54.00	-2.89	89	100	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
240.49	53.18	-18.37	34.81	46.00	-11.19	222	100	Peak
329.73	50.43	-15.41	35.02	46.00	-10.98	175	100	Peak
402.48	52.05	-13.42	38.63	46.00	-7.37	230	100	Peak
461.65	56.40	-12.49	43.91	46.00	-2.09	256	200	Peak
480.08	55.76	-12.21	43.55	46.00	-2.45	68	200	Peak
527.61	54.44	-11.40	43.04	46.00	-2.96	109	200	Peak
792.42	49.00	-8.66	40.34	46.00	-5.66	135	100	Peak
960.23	44.97	-7.08	37.89	54.00	-16.11	191	200	Peak

Remark:

1. *Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.*
2. *Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) – PreAmp.Gain (dB)*
3. *Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)*
4. *Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).*

Above 1 GHz

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11b TX / CH Low	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1196.00	42.65	-1.08	41.57	74.00	-32.43	132	200	Peak
1320.00	48.32	-1.13	47.19	74.00	-26.81	92	100	Peak
2612.00	40.32	4.74	45.06	74.00	-28.94	36	200	Peak
4200.00	44.75	-1.92	42.83	74.00	-31.17	208	100	Peak
4830.00	48.96	-0.22	48.74	74.00	-25.26	23	100	Peak
7740.00	44.37	2.95	47.32	74.00	-26.68	128	100	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1196.00	44.63	-1.08	43.55	74.00	-30.45	124	100	Peak
1320.00	43.94	-1.13	42.81	74.00	-31.19	145	100	Peak
2672.00	41.44	4.85	46.29	74.00	-27.71	31	100	Peak
4500.00	46.92	-1.39	45.53	74.00	-28.47	20	100	Peak
4830.00	49.47	-0.22	49.25	74.00	-24.75	118	100	Peak
7230.00	44.88	2.70	47.58	74.00	-26.42	43	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11b TX / CH Middle	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	48.54	-1.13	47.41	74.00	-26.59	96	200	Peak
2390.00	39.57	4.28	43.85	74.00	-30.15	176	200	Peak
2483.50	38.17	4.48	42.65	74.00	-31.35	82	200	Peak
4875.00	49.29	-0.06	49.23	74.00	-24.77	218	100	Peak
5100.00	44.49	0.46	44.95	74.00	-29.05	23	200	Peak
6030.00	43.46	1.87	45.33	74.00	-28.67	80	200	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1198.00	43.63	-1.08	42.55	74.00	-31.45	125	100	Peak
2390.00	41.88	4.28	46.16	74.00	-27.84	81	200	Peak
2483.50	41.50	4.48	45.98	74.00	-28.02	142	100	Peak
4485.00	46.75	-1.42	45.33	74.00	-28.67	107	100	Peak
4875.00	50.15	-0.06	50.09	74.00	-23.91	182	100	Peak
7305.00	44.43	2.73	47.16	74.00	-26.84	284	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11b TX / CH High	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	48.93	-1.13	47.80	74.00	-26.20	75	100	Peak
2394.00	41.92	4.29	46.21	74.00	-27.79	124	100	Peak
2666.00	40.64	4.84	45.48	74.00	-28.52	55	200	Peak
4920.00	50.13	0.10	50.23	74.00	-23.77	228	100	Peak
7380.00	43.64	2.76	46.40	74.00	-27.60	273	100	Peak
7740.00	44.93	2.95	47.88	74.00	-26.12	299	200	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1196.00	44.61	-1.08	43.53	74.00	-30.47	116	100	Peak
2390.00	42.83	4.28	47.11	74.00	-26.89	209	200	Peak
2660.00	43.20	4.83	48.03	74.00	-25.97	32	100	Peak
4485.00	47.12	-1.42	45.70	74.00	-28.30	97	100	Peak
4920.00	51.98	0.10	52.08	74.00	-21.92	1	100	Peak
7380.00	46.38	2.76	49.14	74.00	-24.86	78	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11g TX / CH Low	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	46.37	-1.13	45.24	74.00	-28.76	110	200	Peak
1848.00	42.39	2.04	44.43	74.00	-29.57	97	200	Peak
2472.00	40.58	4.46	45.04	74.00	-28.96	216	100	Peak
3900.00	45.32	-2.52	42.80	74.00	-31.20	265	100	Peak
4830.00	45.66	-0.22	45.44	74.00	-28.56	215	100	Peak
5325.00	44.66	0.63	45.29	74.00	-28.71	85	100	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1198.00	43.21	-1.08	42.13	74.00	-31.87	105	100	Peak
2488.00	45.83	4.49	50.32	74.00	-23.68	140	200	Peak
2664.00	42.26	4.84	47.10	74.00	-26.90	15	100	Peak
3585.00	47.69	-3.29	44.40	74.00	-29.60	105	100	Peak
4500.00	47.07	-1.39	45.68	74.00	-28.32	96	100	Peak
4830.00	45.05	-0.22	44.83	74.00	-29.17	183	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11g TX / CH Middle	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	48.24	-1.13	47.11	74.00	-26.89	88	100	Peak
2390.00	40.86	4.28	45.14	74.00	-28.86	343	200	Peak
2483.50	46.01	4.48	50.49	74.00	-23.51	16	100	Peak
4875.00	50.65	-0.06	50.59	74.00	-23.41	228	100	Peak
7320.00	48.62	2.74	51.36	74.00	-22.64	266	100	Peak
9270.00	43.93	4.17	48.10	74.00	-25.90	299	200	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	40.17	4.28	44.45	54.00	-9.55	201	100	Average
2390.00	55.20	4.28	59.48	74.00	-14.52	201	100	Peak
2483.50	42.17	4.48	46.65	54.00	-7.35	77	200	Average
2483.50	58.80	4.48	63.28	74.00	-10.72	77	200	Peak
2670.00	41.48	4.85	46.33	74.00	-27.67	23	100	Peak
4875.00	50.82	-0.06	50.76	74.00	-23.24	112	100	Peak
7305.00	39.78	2.73	42.51	54.00	-11.49	72	100	Average
7305.00	53.22	2.73	55.95	74.00	-18.05	72	100	Peak
9270.00	44.20	4.17	48.37	74.00	-25.63	352	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11g TX / CH High	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	49.00	-1.13	47.87	74.00	-26.13	95	200	Peak
2390.00	40.43	4.28	44.71	74.00	-29.29	10	200	Peak
2546.00	39.96	4.61	44.57	74.00	-29.43	146	100	Peak
3915.00	44.98	-2.48	42.50	74.00	-31.50	54	100	Peak
4965.00	44.07	0.26	44.33	74.00	-29.67	333	100	Peak
5355.00	43.89	0.66	44.55	74.00	-29.45	64	200	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	42.30	4.28	46.58	74.00	-27.42	177	200	Peak
2582.00	42.03	4.68	46.71	74.00	-27.29	118	100	Peak
2660.00	41.81	4.83	46.64	74.00	-27.36	18	100	Peak
4500.00	46.02	-1.39	44.63	74.00	-29.37	20	100	Peak
4950.00	43.35	0.20	43.55	74.00	-30.45	100	200	Peak
5145.00	43.73	0.49	44.22	74.00	-29.78	346	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11gn HT20 TX / CH Low	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	47.52	-1.13	46.39	74.00	-27.61	95	200	Peak
1848.00	42.65	2.04	44.69	74.00	-29.31	262	200	Peak
2206.00	40.97	3.89	44.86	74.00	-29.14	171	100	Peak
4815.00	42.63	-0.27	42.36	74.00	-31.64	143	200	Peak
6315.00	42.93	2.40	45.33	74.00	-28.67	261	100	Peak
7770.00	43.43	2.97	46.40	74.00	-27.60	94	200	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1198.00	43.20	-1.08	42.12	74.00	-31.88	131	100	Peak
1320.00	44.18	-1.13	43.05	74.00	-30.95	94	100	Peak
2662.00	41.62	4.83	46.45	74.00	-27.55	19	100	Peak
4485.00	46.52	-1.42	45.10	74.00	-28.90	111	100	Peak
4815.00	42.90	-0.27	42.63	74.00	-31.37	95	200	Peak
7710.00	43.87	2.93	46.80	74.00	-27.20	4	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11gn HT20 TX / CH Middle	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	48.03	-1.13	46.90	74.00	-27.10	130	100	Peak
2390.00	41.22	4.28	45.50	74.00	-28.50	202	100	Peak
2483.50	46.49	4.48	50.97	74.00	-23.03	30	100	Peak
4875.00	47.78	-0.06	47.72	74.00	-26.28	152	200	Peak
7320.00	47.68	2.74	50.42	74.00	-23.58	153	100	Peak
9360.00	43.40	4.16	47.56	74.00	-26.44	69	100	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	43.92	-1.13	42.79	74.00	-31.21	301	100	Peak
2390.00	40.14	4.28	44.42	54.00	-9.58	209	200	Average
2390.00	54.00	4.28	58.28	74.00	-15.72	209	200	Peak
2483.50	44.04	4.48	48.52	54.00	-5.48	98	200	Average
2483.50	61.57	4.48	66.05	74.00	-7.95	98	200	Peak
4875.00	51.07	-0.06	51.01	74.00	-22.99	359	100	Peak
7305.00	38.26	2.73	40.99	54.00	-13.01	60	100	Average
7305.00	54.35	2.73	57.08	74.00	-16.92	60	100	Peak
10155.00	44.09	5.22	49.31	74.00	-24.69	319	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11gn HT20 TX / CH High	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	48.90	-1.13	47.77	74.00	-26.23	337	200	Peak
1848.00	41.07	2.04	43.11	74.00	-30.89	41	200	Peak
2394.00	41.51	4.29	45.80	74.00	-28.20	129	100	Peak
4800.00	43.95	-0.33	43.62	74.00	-30.38	356	100	Peak
4920.00	43.14	0.10	43.24	74.00	-30.76	59	100	Peak
7740.00	44.03	2.95	46.98	74.00	-27.02	114	200	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1196.00	43.08	-1.08	42.00	74.00	-32.00	86	100	Peak
1320.00	42.94	-1.13	41.81	74.00	-32.19	142	100	Peak
2382.00	43.84	4.27	48.11	74.00	-25.89	218	100	Peak
4485.00	47.59	-1.42	46.17	74.00	-27.83	16	100	Peak
4920.00	44.20	0.10	44.30	74.00	-29.70	172	100	Peak
8550.00	43.38	3.73	47.11	74.00	-26.89	205	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11gn HT40 TX / CH Low	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	48.27	-1.13	47.14	74.00	-26.86	358	100	Peak
1848.00	41.05	2.04	43.09	74.00	-30.91	252	200	Peak
2618.00	39.84	4.75	44.59	74.00	-29.41	155	100	Peak
4500.00	45.67	-1.39	44.28	74.00	-29.72	151	200	Peak
4800.00	42.83	-0.33	42.50	74.00	-31.50	110	200	Peak
6915.00	44.80	2.62	47.42	74.00	-26.58	246	100	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1198.00	44.57	-1.08	43.49	74.00	-30.51	124	100	Peak
1328.00	43.34	-1.13	42.21	74.00	-31.79	98	100	Peak
2492.00	45.33	4.50	49.83	74.00	-24.17	68	200	Peak
4500.00	46.35	-1.39	44.96	74.00	-29.04	140	100	Peak
4845.00	42.67	-0.17	42.50	74.00	-31.50	0	100	Peak
9675.00	42.89	4.42	47.31	74.00	-26.69	120	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11gn HT40 TX / CH Middle	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	48.88	-1.13	47.75	74.00	-26.25	109	200	Peak
2390.00	46.84	4.28	51.12	74.00	-22.88	206	200	Peak
2483.50	47.20	4.48	51.68	74.00	-22.32	207	100	Peak
4875.00	45.73	-0.06	45.67	74.00	-28.33	243	100	Peak
6450.00	43.03	2.66	45.69	74.00	-28.31	10	200	Peak
7290.00	43.58	2.72	46.30	74.00	-27.70	273	100	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1198.00	45.34	-1.08	44.26	74.00	-29.74	114	100	Peak
2390.00	45.80	4.28	50.08	54.00	-3.92	114	200	Average
2390.00	62.59	4.28	66.87	74.00	-7.13	114	200	Peak
2483.50	48.13	4.48	52.61	54.00	-1.39	170	200	Average
2483.50	63.87	4.48	68.35	74.00	-5.65	170	200	Peak
4500.00	47.15	-1.39	45.76	74.00	-28.24	96	100	Peak
4875.00	49.25	-0.06	49.19	74.00	-24.81	181	100	Peak
7305.00	47.87	2.73	50.60	74.00	-23.40	60	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	iSmart CAM	Test By	Waternil Guan
Test Model	TTD-VMi120S	Test Date	2015/10/13
Test mode	IEEE 802.11gn HT40 TX / CH High	Temp. & Humidity	25°C, 57%

966Chamber_C at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1198.00	41.87	-1.08	40.79	74.00	-33.21	135	100	Peak
1312.00	46.56	-1.12	45.44	74.00	-28.56	94	200	Peak
2390.00	37.86	4.28	42.14	74.00	-31.86	282	200	Peak
4875.00	42.30	-0.06	42.24	74.00	-31.76	127	100	Peak
6555.00	42.61	2.73	45.34	74.00	-28.66	155	200	Peak
7770.00	44.55	2.97	47.52	74.00	-26.48	175	200	Peak

966Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1320.00	45.51	-1.13	44.38	74.00	-29.62	145	100	Peak
2138.00	41.35	3.75	45.10	74.00	-28.90	113	100	Peak
2390.00	40.87	4.28	45.15	74.00	-28.85	115	200	Peak
4500.00	47.29	-1.39	45.90	74.00	-28.10	92	100	Peak
4875.00	43.01	-0.06	42.95	74.00	-31.05	199	200	Peak
5610.00	43.50	1.00	44.50	74.00	-29.50	49	100	Peak

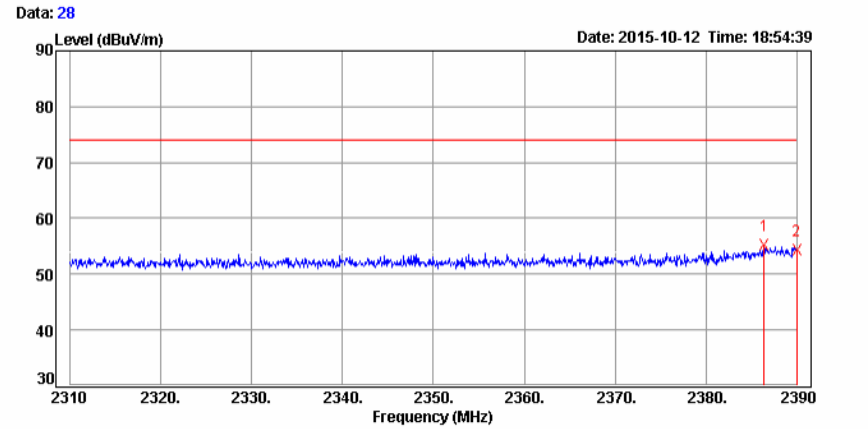
Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *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.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Restricted Band Edges

Detector mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11b mode)

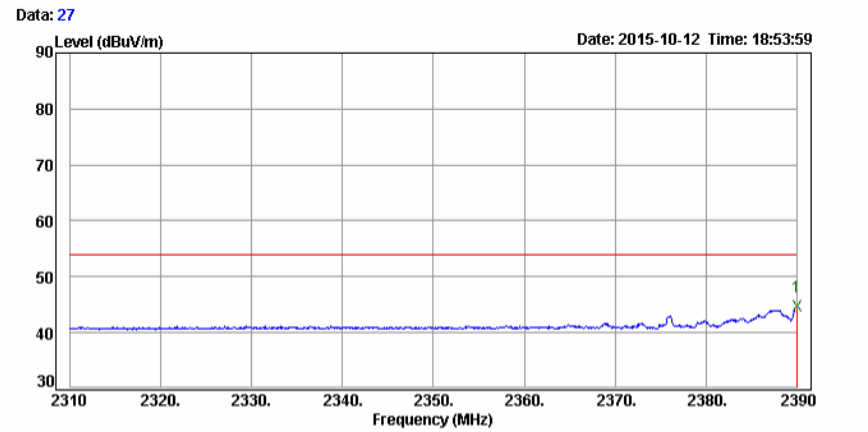


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2386.40	51.02	4.28	55.30	74.00	-18.70			Peak
2390.00	50.02	4.28	54.30	74.00	-19.70			Peak

Detector mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11b mode)

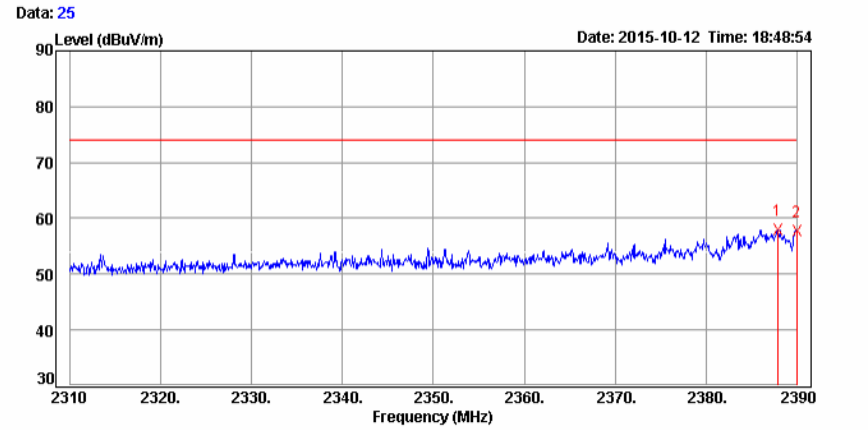


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	40.39	4.28	44.67	54.00	-9.33			Average

Detector mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11b mode)

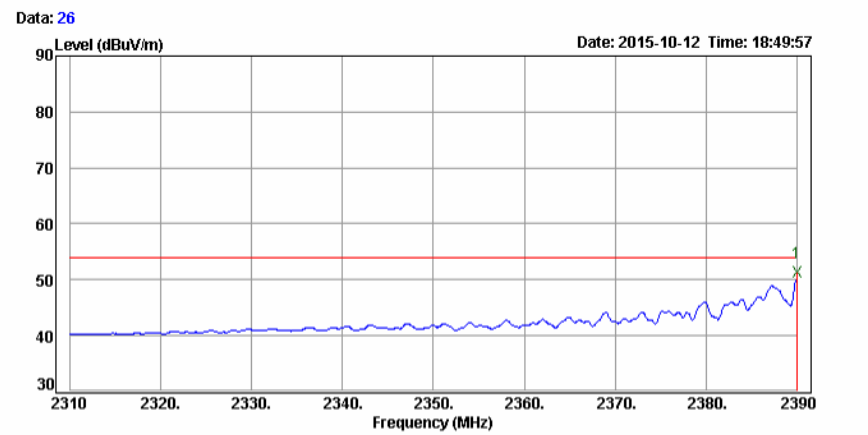


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2387.92	53.63	4.28	57.91	74.00	-16.09			Peak
2390.00	53.46	4.28	57.74	74.00	-16.26			Peak

Detector mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11b mode)

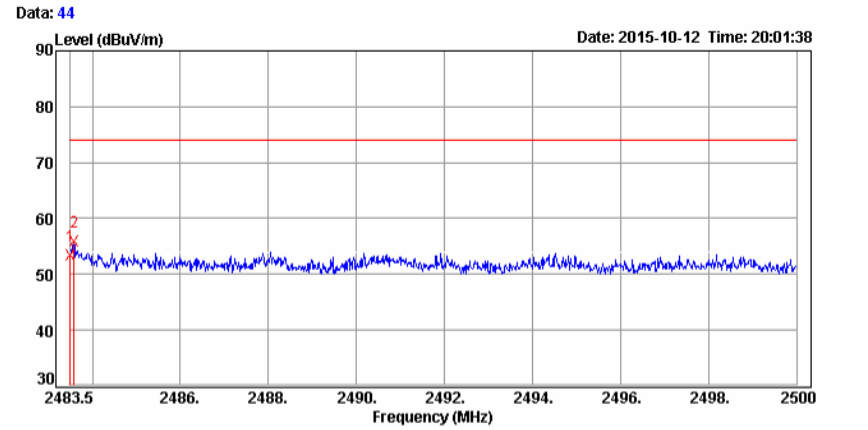


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	47.10	4.28	51.38	54.00	-2.62			Average

Detector mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11b mode)

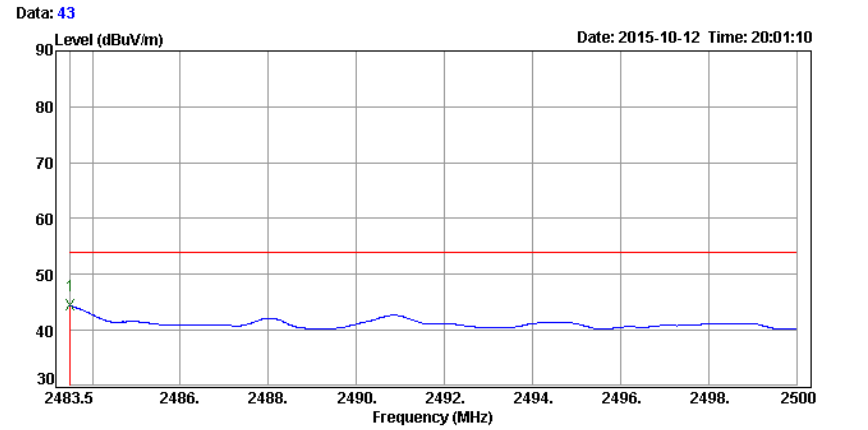


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	48.98	4.48	53.46	74.00	-20.54			Peak
2483.58	51.53	4.48	56.01	74.00	-17.99			Peak

Detector mode: Average **Polarity: Horizontal**

CH High (IEEE 802.11b mode)

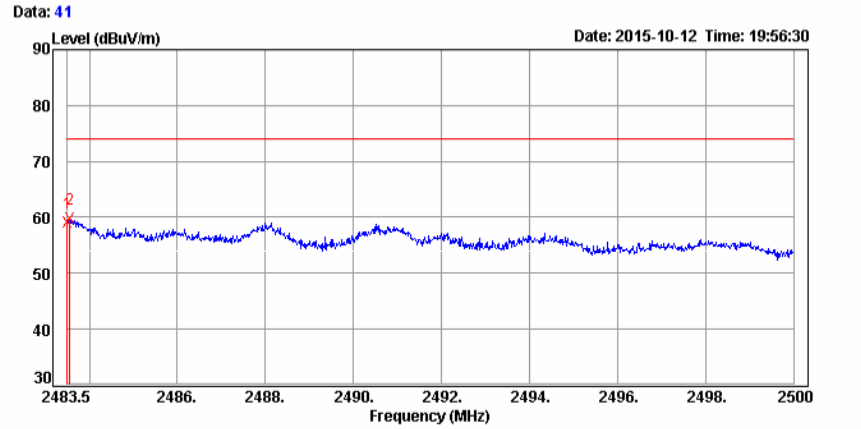


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	39.89	4.48	44.37	54.00	-9.63			Average

Detector mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11b mode)

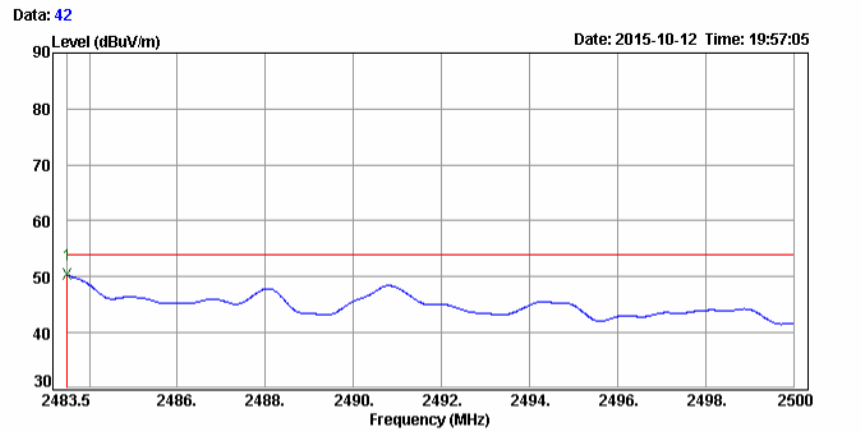


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	54.66	4.48	59.14	74.00	-14.86			Peak
2483.55	55.35	4.48	59.83	74.00	-14.17			Peak

Detector mode: Average **Polarity: Vertical**

CH High (IEEE 802.11b mode)

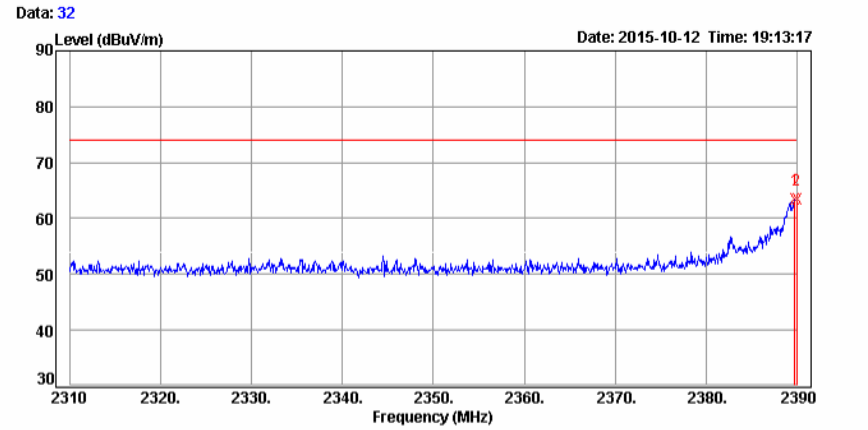


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	45.83	4.48	50.31	54.00	-3.69			Average

Detector mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11g mode)

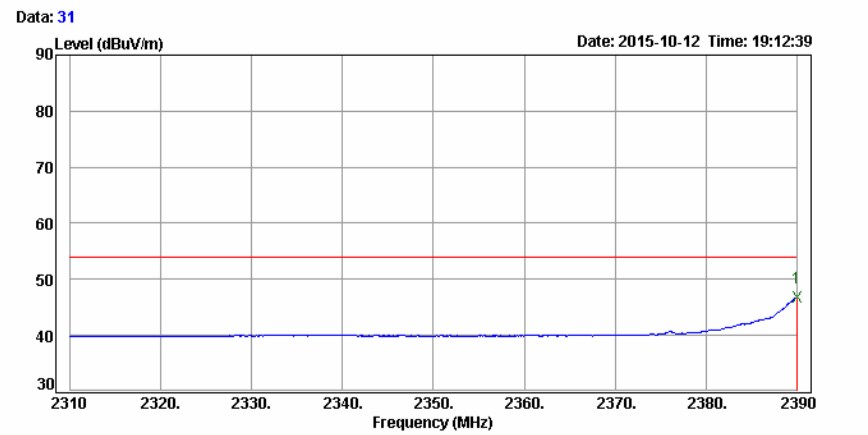


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2389.84	59.13	4.28	63.41	74.00	-10.59			Peak
2390.00	59.12	4.28	63.40	74.00	-10.60			Peak

Detector mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11g mode)

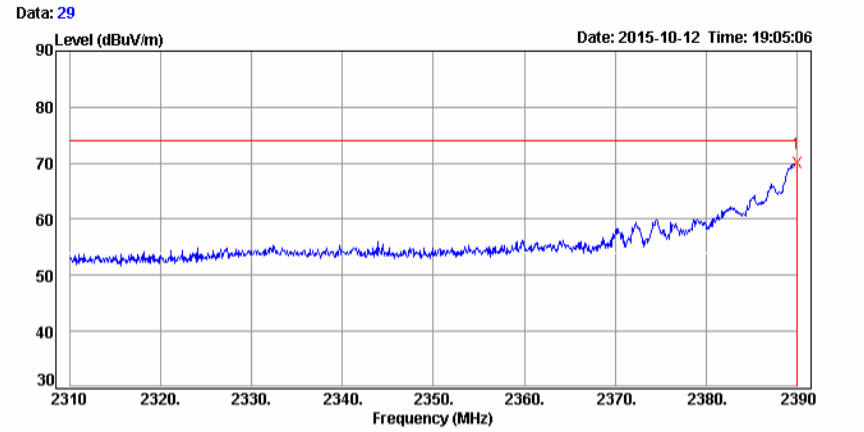


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	42.42	4.28	46.70	54.00	-7.30			Average

Detector mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11g mode)

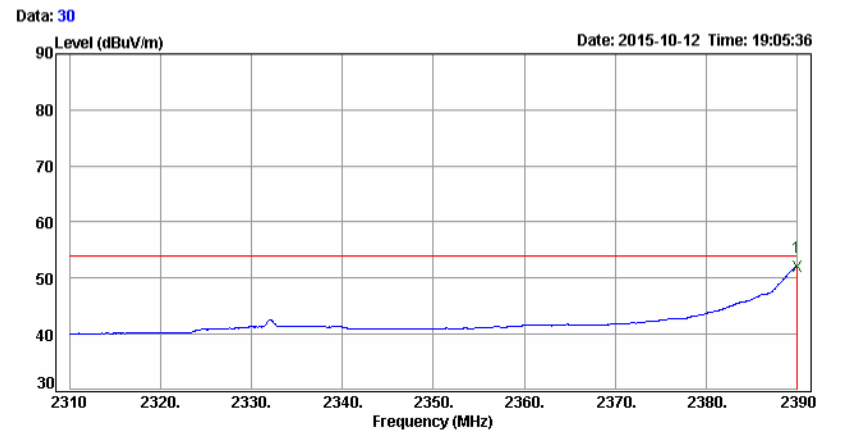


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	65.73	4.28	70.01	74.00	-3.99			Peak

Detector mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11g mode)

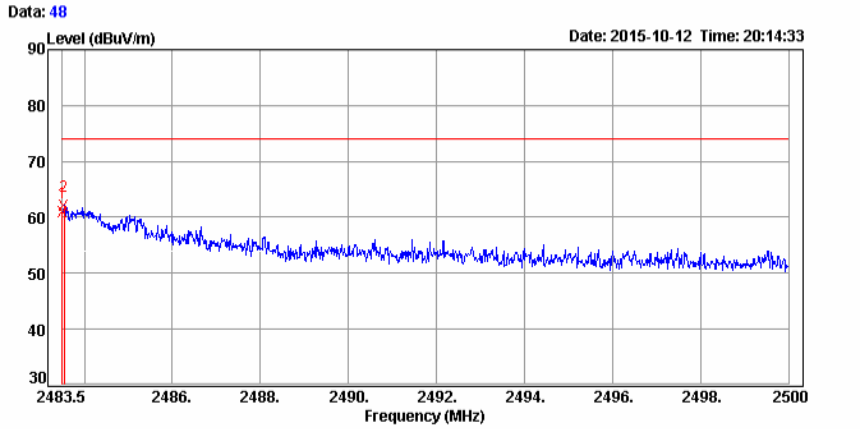


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	47.85	4.28	52.13	54.00	-1.87			Average

Detector mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11g mode)

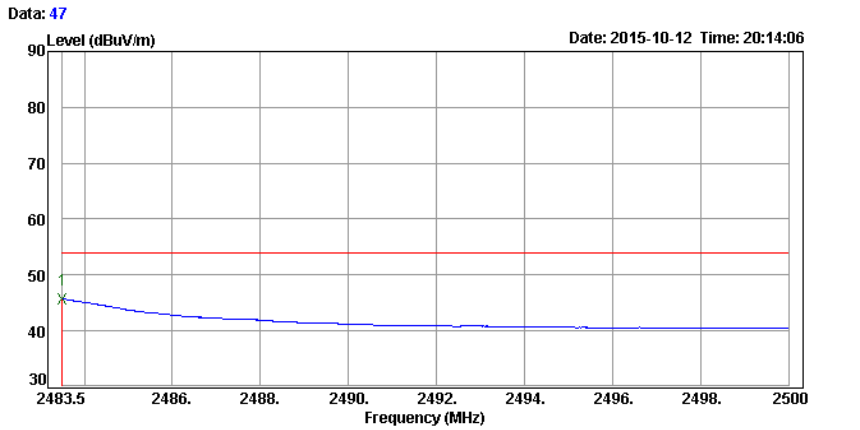


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	56.53	4.48	61.01	74.00	-12.99			Peak
2483.53	57.62	4.48	62.10	74.00	-11.90			Peak

Detector mode: Average **Polarity: Horizontal**

CH High (IEEE 802.11g mode)

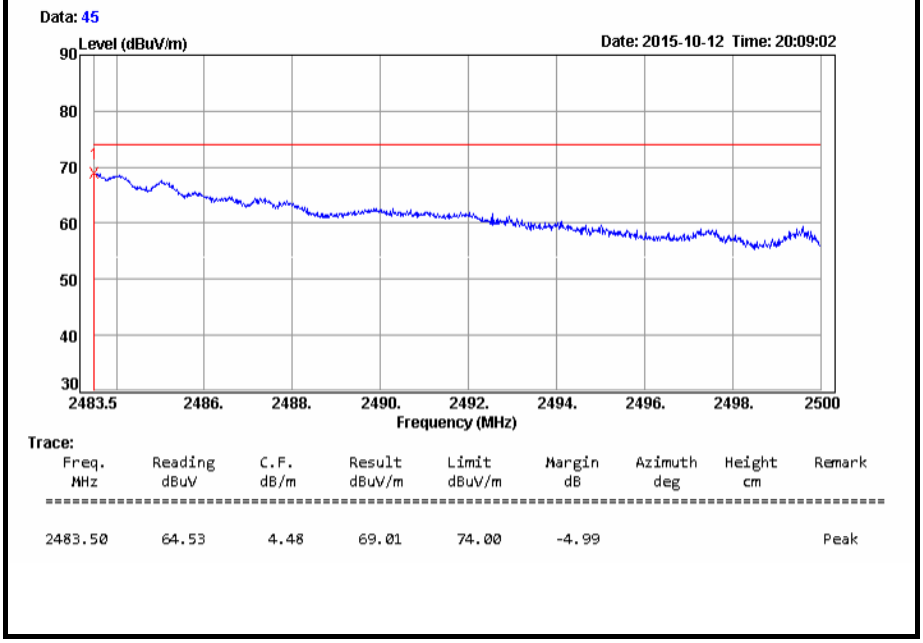


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	41.24	4.48	45.72	54.00	-8.28			Average

Detector mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11g mode)

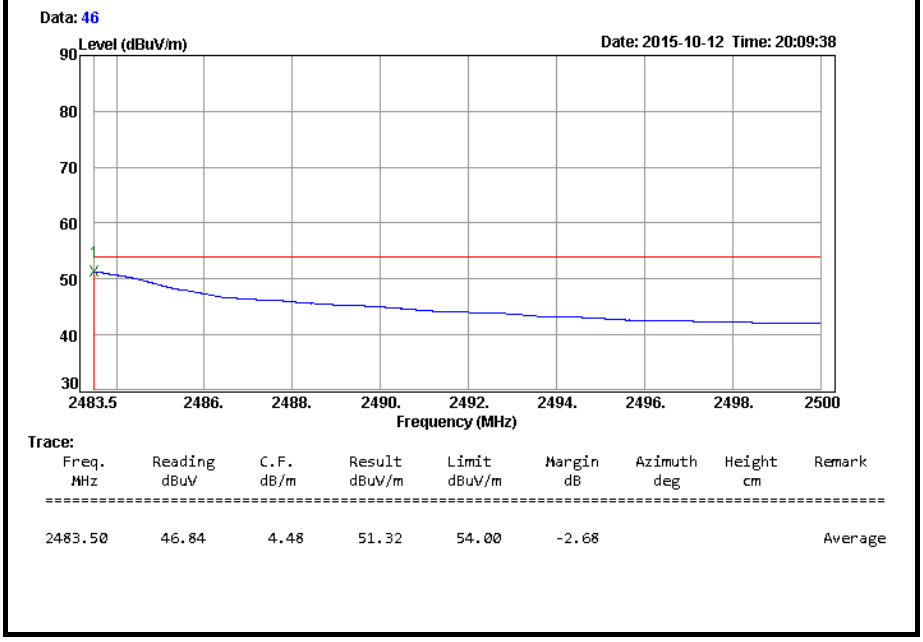


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	64.53	4.48	69.01	74.00	-4.99			Peak

Detector mode: Average **Polarity: Vertical**

CH High (IEEE 802.11g mode)

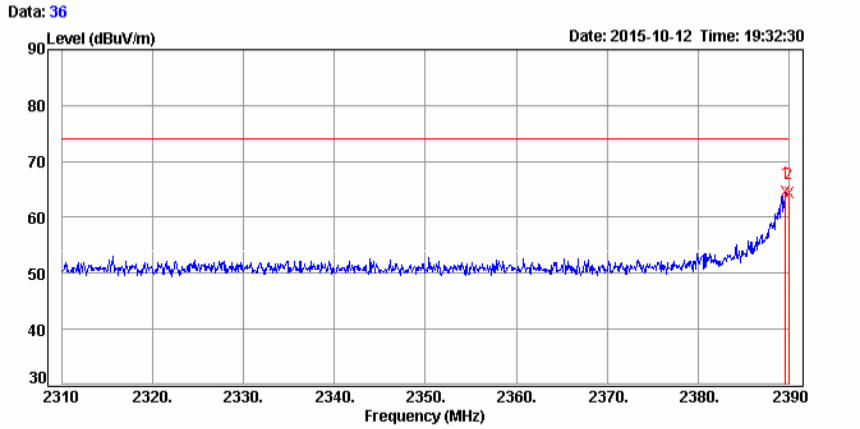


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	46.84	4.48	51.32	54.00	-2.68			Average

Detector mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11gn HT20 mode)

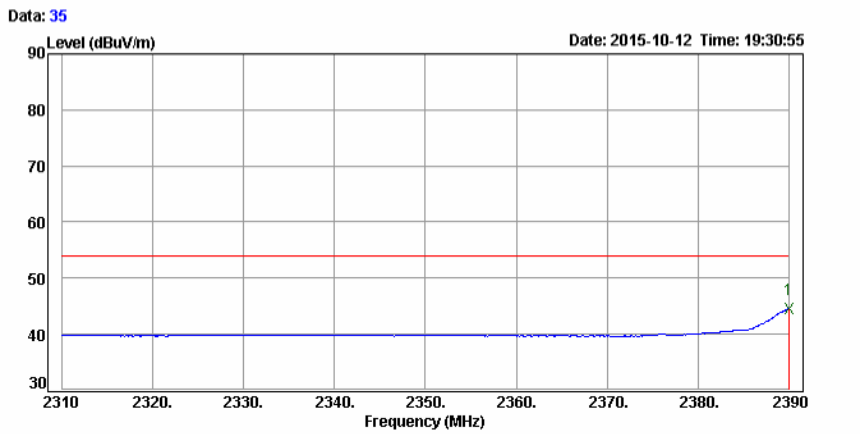


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2389.68	60.28	4.28	64.56	74.00	-9.44			Peak
2390.00	59.96	4.28	64.24	74.00	-9.76			Peak

Detector mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11gn HT20 mode)

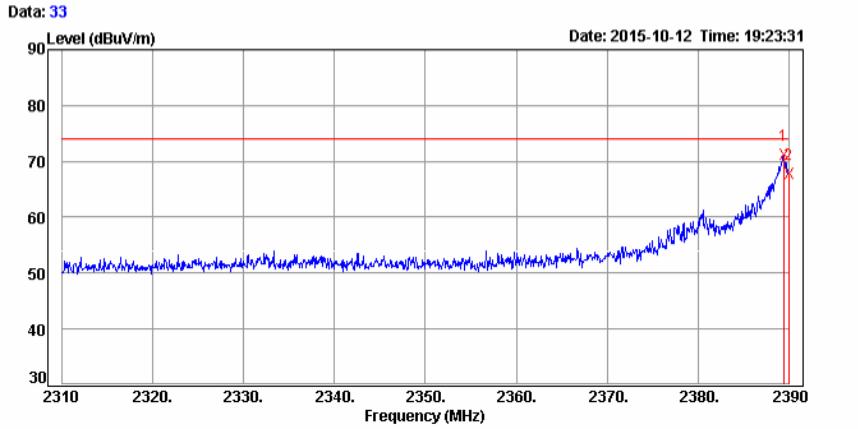


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	40.23	4.28	44.51	54.00	-9.49			Average

Detector mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11gn HT20 mode)

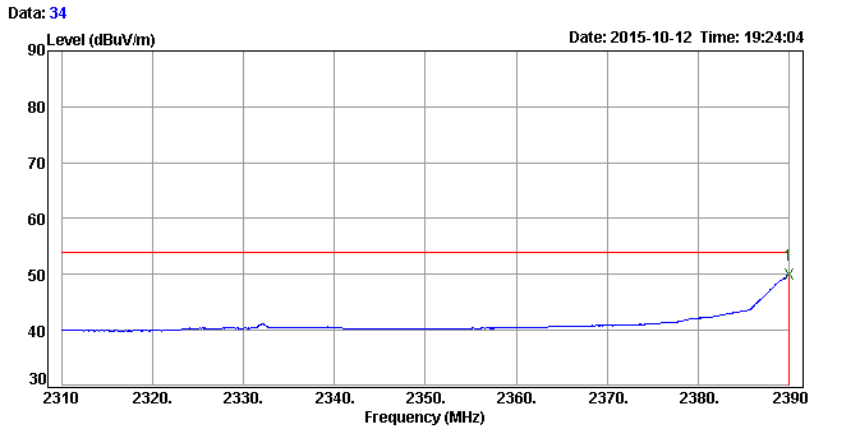


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2389.44	66.79	4.28	71.07	74.00	-2.93			Peak
2390.00	63.44	4.28	67.72	74.00	-6.28			Peak

Detector mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11gn HT20 mode)

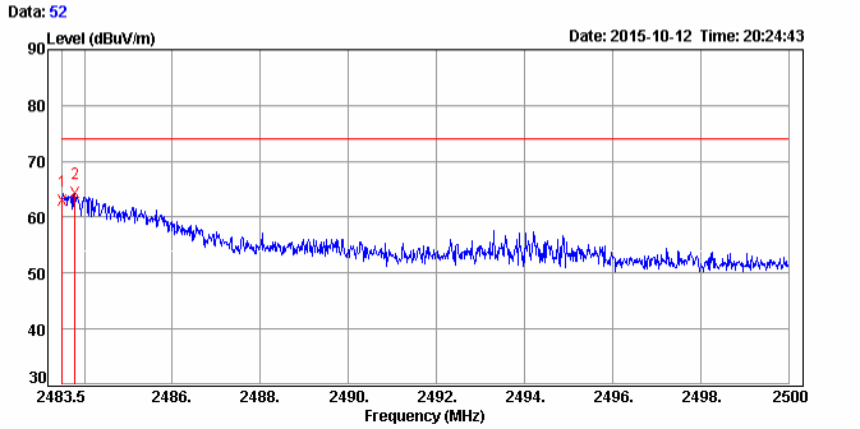


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	45.58	4.28	49.86	54.00	-4.14			Average

Detector mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11gn HT20 mode)

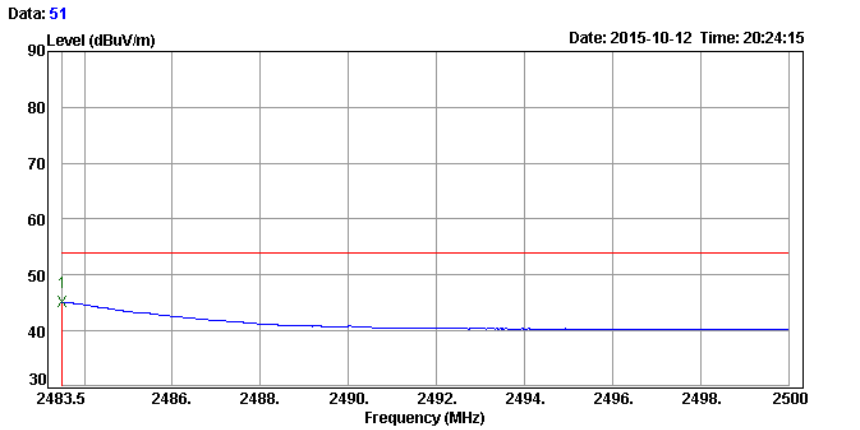


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	58.60	4.48	63.08	74.00	-10.92			Peak
2483.78	59.78	4.49	64.27	74.00	-9.73			Peak

Detector mode: Average **Polarity: Horizontal**

CH High (IEEE 802.11gn HT20 mode)

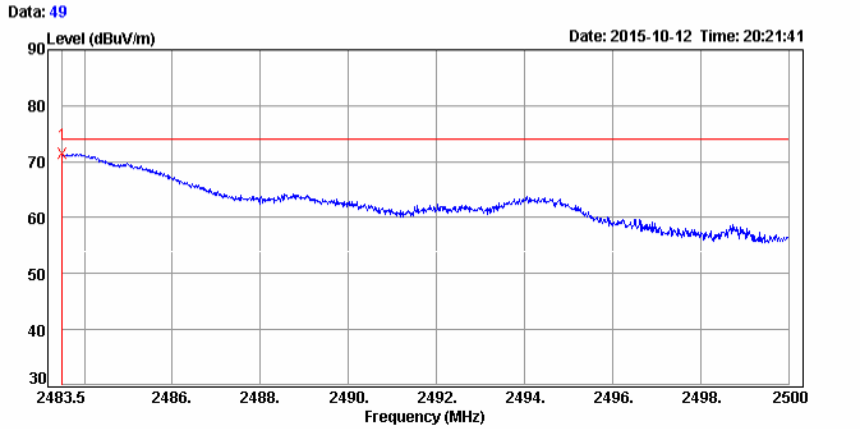


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	40.59	4.48	45.07	54.00	-8.93			Average

Detector mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11gn HT20 mode)

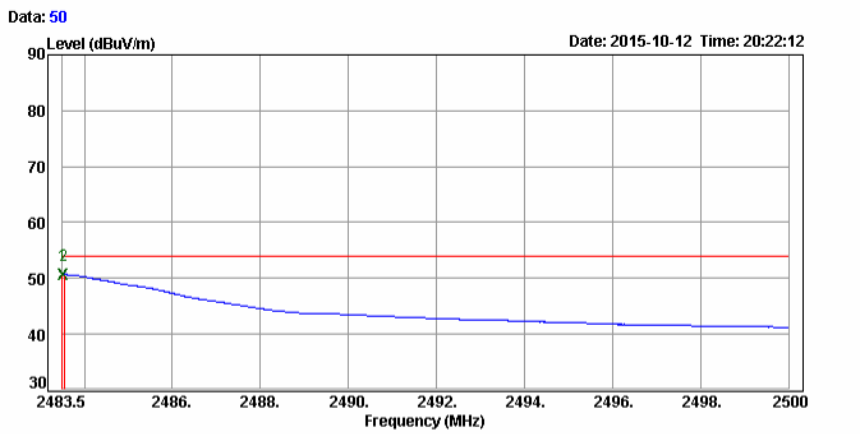


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	67.02	4.48	71.50	74.00	-2.50			Peak

Detector mode: Average **Polarity: Vertical**

CH High (IEEE 802.11gn HT20 mode)

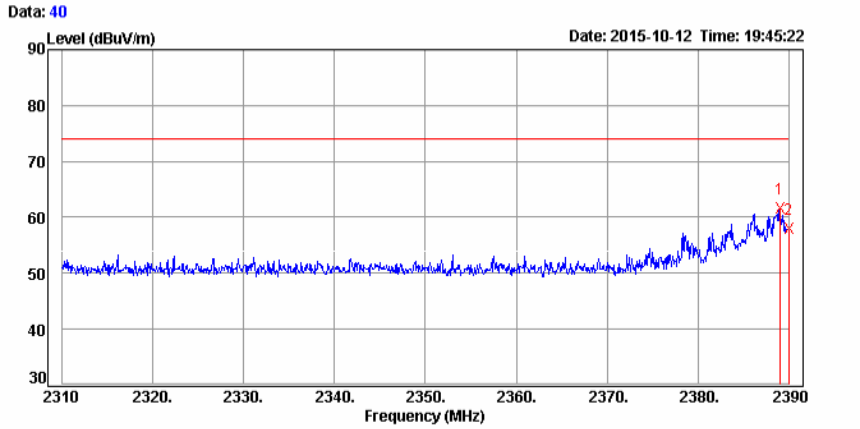


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	46.19	4.48	50.67	54.00	-3.33			Average
2483.53	46.19	4.48	50.67	54.00	-3.33			Average

Detector mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11gn HT40 mode)

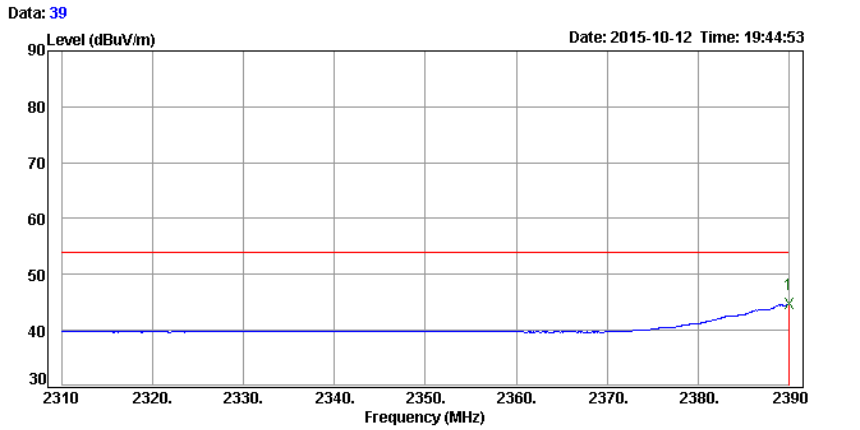


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2389.04	57.38	4.28	61.66	74.00	-12.34			Peak
2390.00	53.66	4.28	57.94	74.00	-16.06			Peak

Detector mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11gn HT40 mode)

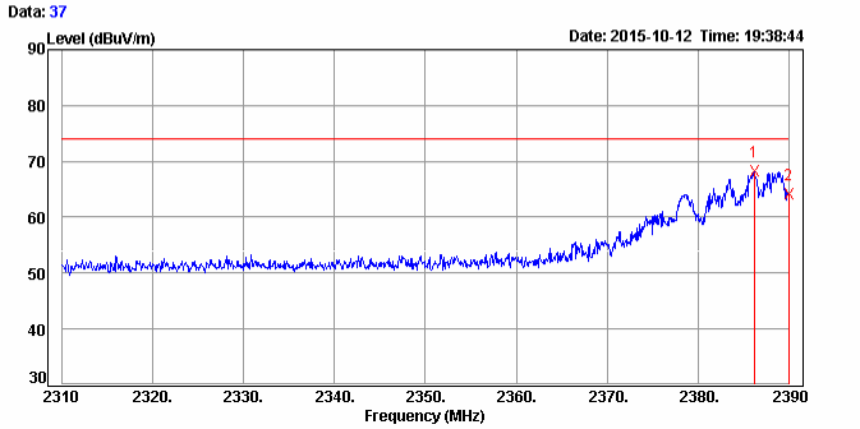


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	40.36	4.28	44.64	54.00	-9.36			Average

Detector mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11gn HT40 mode)

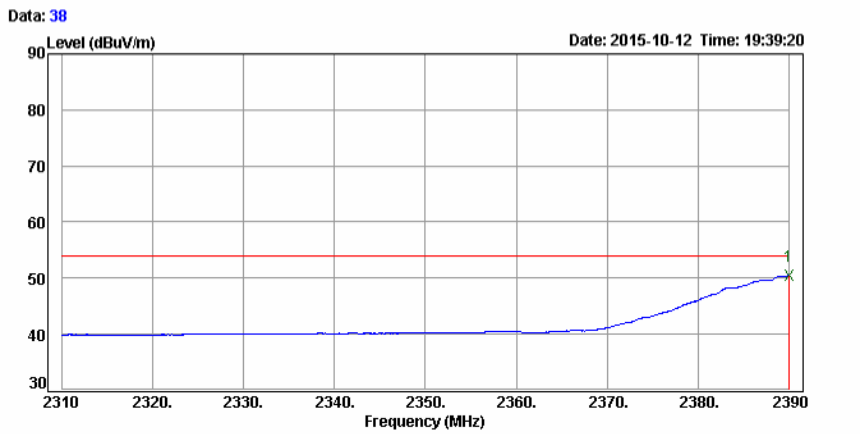


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2386.24	63.85	4.28	68.13	74.00	-5.87			Peak
2390.00	59.84	4.28	64.12	74.00	-9.88			Peak

Detector mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11gn HT40 mode)

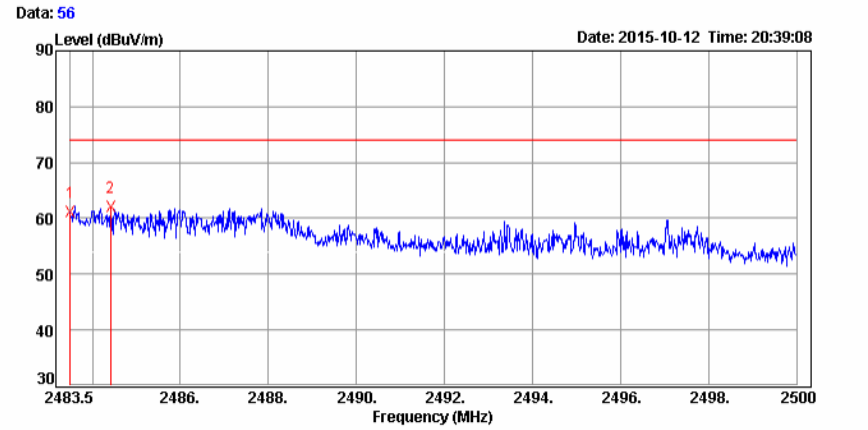


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	46.15	4.28	50.43	54.00	-3.57			Average

Detector mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11gn HT40 mode)

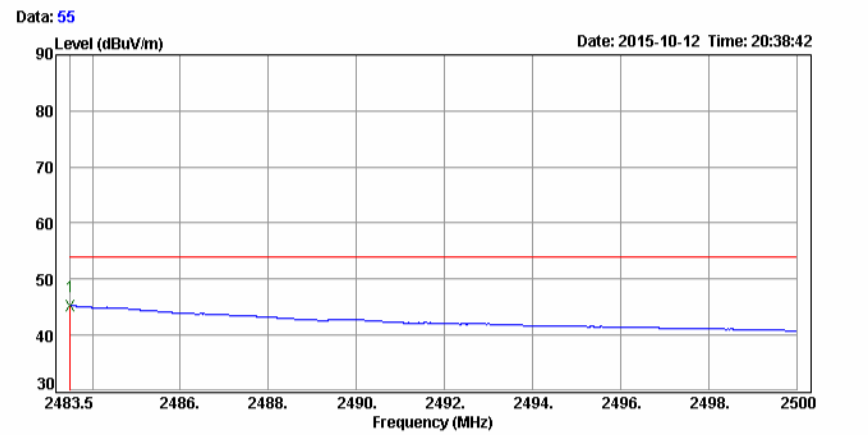


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	56.66	4.48	61.14	74.00	-12.86			Peak
2484.41	57.65	4.49	62.14	74.00	-11.86			Peak

Detector mode: Average **Polarity: Horizontal**

CH High (IEEE 802.11gn HT40 mode)

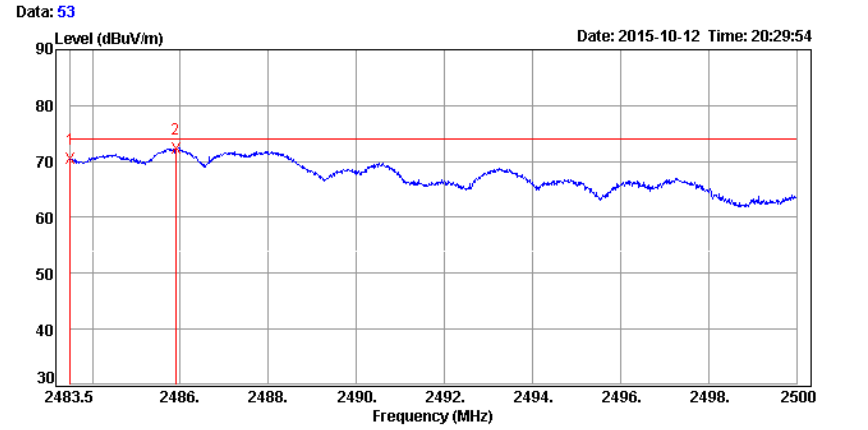


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	40.75	4.48	45.23	54.00	-8.77			Average

Detector mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11gn HT40 mode)

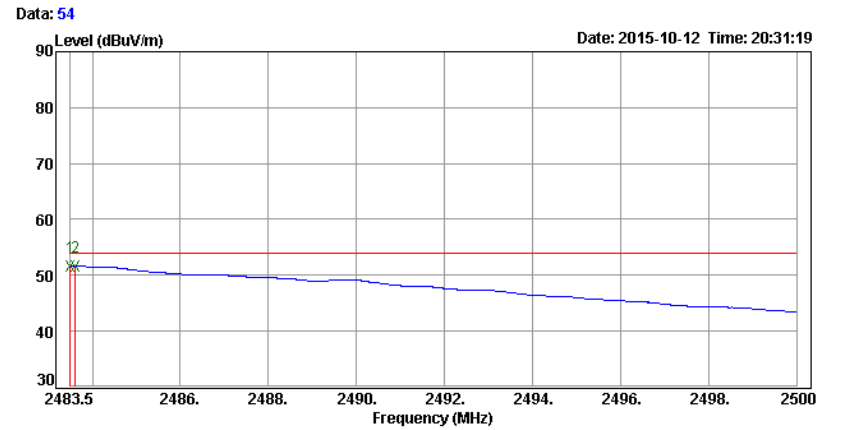


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	66.01	4.48	70.49	74.00	-3.51			Peak
2485.89	67.90	4.49	72.39	74.00	-1.61			Peak

Detector mode: Average **Polarity: Vertical**

CH High (IEEE 802.11gn HT40 mode)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	47.17	4.48	51.65	54.00	-2.35			Average
2483.62	47.18	4.48	51.66	54.00	-2.34			Average

7.7 CONDUCTED EMISSION

LIMITS

§ 15.207 (a) Except as shown in paragraph (b) and (c) 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.

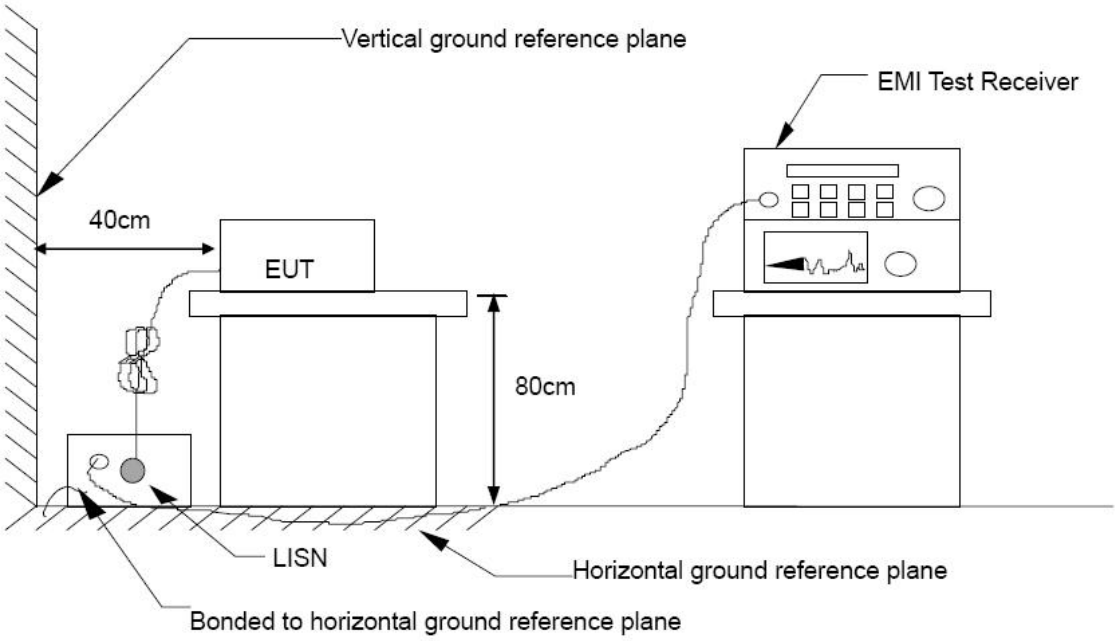
Frequency Range (MHz)	Conducted Limit (dBμv)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5.00	56	46
5.00 - 30.0	60	50

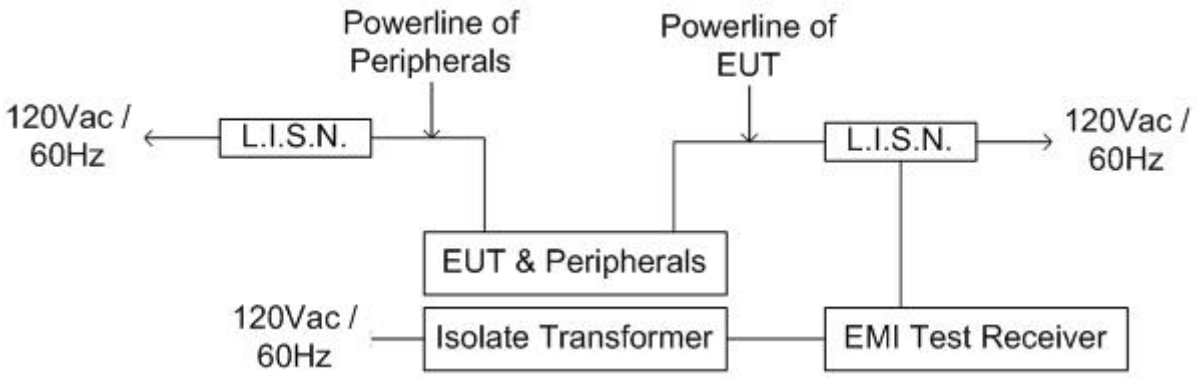
TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
L.I.S.N	Schwarzbeck	NSLK 8127	8127465	08/05/2016
L.I.S.N	Schwarzbeck	NSLK 8127	8127473	03/09/2016
EMI Test Receiver	Rohde & Schwarz	ESHS 30	838550/003	10/31/2016
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100111	06/28/2016

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP





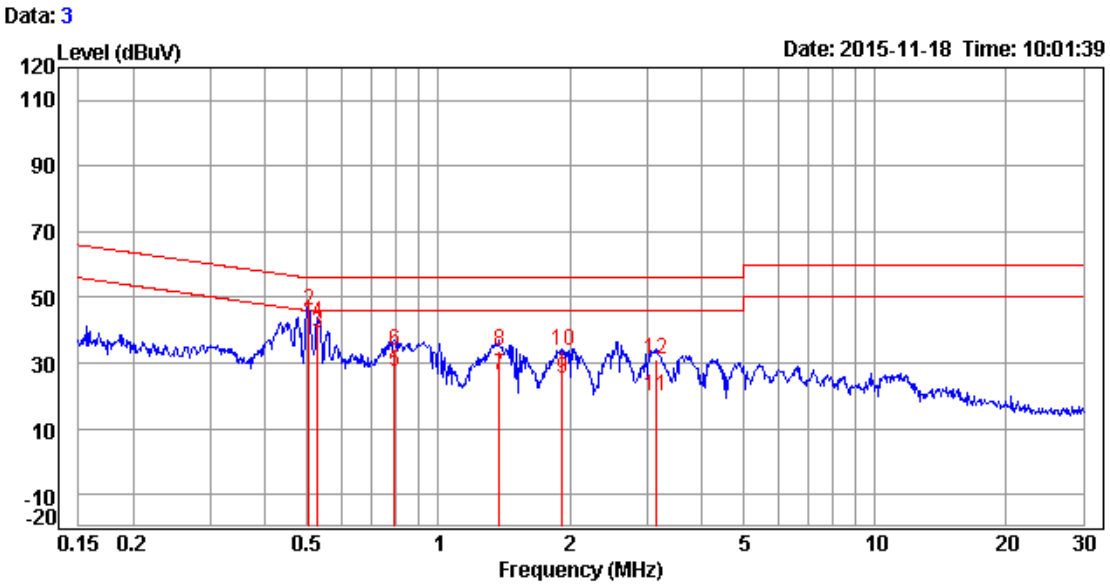
TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.10:2013.
The test procedure is performed in a 4m × 3m × 2.4m (L×W×H) shielded room.
The EUT along with its peripherals were placed on a 1.0m (W) × 1.5m (L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
The EUT was located so that the distance between the boundary of the EUT and the closest surface of the LISN is 0.8 m. Where a mains flexible cord was provided by the manufacturer shall be 1 m long, or if in excess of 1 m, the excess cable was folded back and forth as far as possible so as to form a bundle not exceeding 0.4 m in length.

TEST RESULTS

Product Name	iSmart CAM	Test By	Ted Wu
Test Model	TTD-VMi120S	Test Date	2015/11/18
Test mode	Mode 1	Temp. & Humidity	22°C, 52%

LINE



Trace:

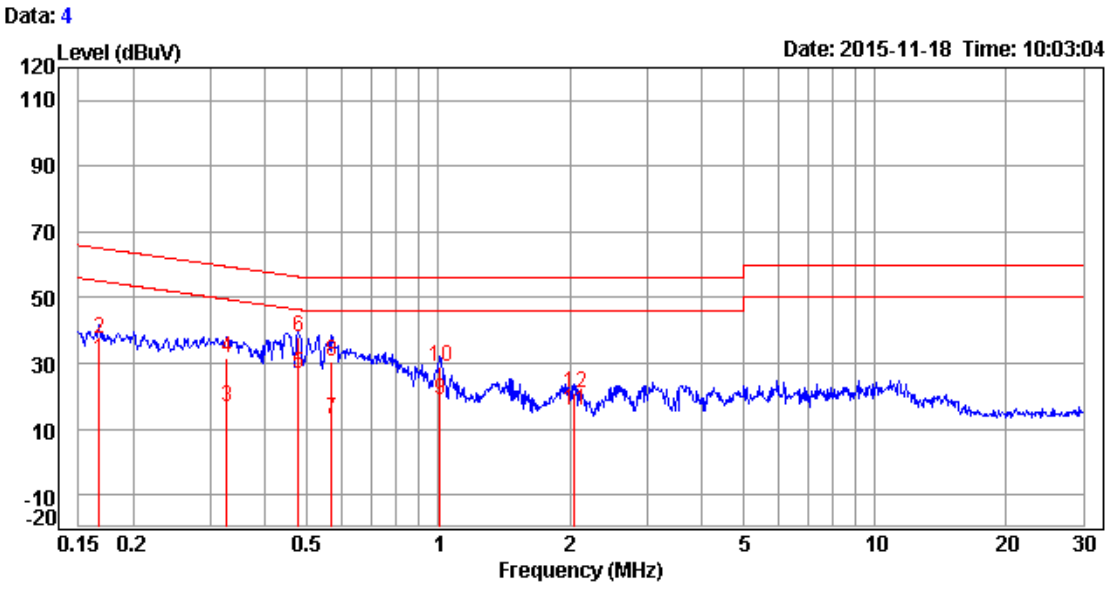
Freq. MHz	Reading dBuV Q.P.	Reading dBuV AV.	C.F. dB	Result dBuV Q.P.	Result dBuV AV.	Limit dBuV Q.P.	Limit dBuV AV.	Margin dB Q.P.	Margin dB AV.
0.502	36.13	32.08	10.00	46.13	42.08	56.00	46.00	-9.87	-3.92
0.529	32.07	29.25	10.00	42.07	39.25	56.00	46.00	-13.93	-6.75
0.792	23.63	17.62	10.01	33.64	27.63	56.00	46.00	-22.36	-18.37
1.374	23.60	16.49	10.04	33.64	26.53	56.00	46.00	-22.36	-19.47
1.918	23.54	15.42	10.07	33.61	25.49	56.00	46.00	-22.39	-20.51
3.140	21.12	9.98	10.12	31.24	20.10	56.00	46.00	-24.76	-25.90

Remark:

1. *Correction Factor = Insertion loss + Cable loss*
2. *Result level = Reading Value + Correction factor*
3. *Margin value = Result level – Limit value*

Product Name	iSmart CAM	Test By	Ted Wu
Test Model	TTD-VMi120S	Test Date	2015/11/18
Test Mode	Mode 1	Temp. & Humidity	22°C, 52%

NEUTRAL



Trace:

Freq. MHz	Reading dBuV Q.P.	Reading dBuV AV.	C.F. dB	Result dBuV Q.P.	Result dBuV AV.	Limit dBuV Q.P.	Limit dBuV AV.	Margin dB Q.P.	Margin dB AV.
0.167	27.29	21.09	9.99	37.28	31.08	65.12	55.12	-27.84	-24.04
0.327	21.87	6.73	10.01	31.88	16.74	59.53	49.53	-27.65	-32.79
0.479	27.80	16.61	10.01	37.81	26.62	56.36	46.36	-18.55	-19.74
0.570	20.75	3.25	10.02	30.77	13.27	56.00	46.00	-25.23	-32.73
1.005	18.86	8.65	10.04	28.90	18.69	56.00	46.00	-27.10	-27.31
2.044	11.06	5.36	10.09	21.15	15.45	56.00	46.00	-34.85	-30.55

Remark:

1. *Correction Factor = Insertion loss + Cable loss*
2. *Result level = Reading Value + Correction factor*
3. *Margin value = Result level – Limit value*