

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

For

MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router

Model : BEC MX-1000

Data Applies To : BEC MX-500

Trade Name : BEC

Issued for

Billion Electric Co., Ltd.

**8F., No.192, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei City 231,
Taiwan (R.O.C.)**

Issued by

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	09/23/2015	Initial Issue	All Page 108	Michelle Chiu

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1. TEST REPORT CERTIFICATION

Applicant : Billion Electric Co., Ltd.
Address : 8F., No.192, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
Equipment Under Test : MXConnect M2M Advanced In-Vehicle 4G LTE Wireless Router
Model : BEC MX-1000
Data Applies To : BEC MX-500
Trade Name : BEC
Tested Date : July 21 ~ September 21, 2015

APPLICABLE STANDARD	
Standard	Test Result
FCC Part 15 Subpart C AND ANSI C63.10:2013 & ANSI C63.4:2014	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router
Model Number	BEC MX-1000
Data Applies To	BEC MX-500
Identify Number	T150721S04
Received Date	July 21, 2015
Frequency Range	IEEE 802.11b/g, 802.11gn HT20 : 2412MHz ~ 2462MHz IEEE 802.11gn HT40 : 2422MHz ~ 2452MHz
Transmit Power	IEEE 802.11b : 20.95 dBm (0.1245 W) IEEE 802.11g : 23.87 dBm (0.2438 W) IEEE 802.11gn HT20 : 23.90 dBm (0.2455 W) IEEE 802.11gn HT40 : 23.28 dBm (0.2128 W)
Channel Spacing	IEEE 802.11b/g, 802.11gn HT20/HT40 : 5MHz
Channel Number	IEEE 802.11b/g, 802.11gn HT20 : 11 Channels IEEE 802.11gn HT40 : 7 Channels
Transmit Data Rate	IEEE 802.11b : up to 11 Mbps IEEE 802.11g : up to 54 Mbps IEEE 802.11gn (HT20,800ns GI) : up to 130 Mbps IEEE 802.11gn (HT20,400ns GI) : up to 144.4 Mbps IEEE 802.11gn (HT40,800ns GI) : up to 270 Mbps IEEE 802.11gn (HT40,400ns GI) : up to 300 Mbps
Type of Modulation	IEEE 802.11b : DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g : OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11gn HT20/40 : OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Type	Dipole Antenna × 2 : Antenna 1 / Chain 1, Antenna Gain : 3.55 dBi Antenna 2 / Chain 2, Antenna Gain : 3.55 dBi
Power Rating	10 ~ 56Vdc
Test Voltage	12Vdc
I/O Port	Mini USB Port × 2, USB Port × 2, SIM Card Port × 2, RJ-45 Port × 4, VGA Port × 1, Power Port × 1

The difference of the model :

Difference Item	BEC MX-1000	BEC MX-500
Model		
Product Name	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	MXConnect M2M Wireless Router
LTE / SIM	2	-
Wi-Fi 2.4Ghz	yes	yes
miniUSB	2	-
GPS	yes	yes
WIFI on/off Button	1	1
Reset Button	1	1
Giga LAN	4	4
Power	10-56VDC	10-56VDC

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: QI3BIL-MX1000 filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.
4. The models BEC MX-1000 was considered the main model for testing.

3. DESCRIPTION OF TEST MODES

The EUT is an 802.11n transceiver in MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router form factor.

For IEEE 802.11b/g mode (1TX / 1RX) : Ant. 1 / Chain 1 transmit/receive.

For IEEE 802.11gn HT20/HT40 mode (2TX / 2RX) :

Ant. 1 / Chain 1 & Ant. 2 / Chain 2 transmit/receive.

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 Operating (Full Function) / MC7354 (2G) + WW-DL060(LTE)
2	Normal Operating (Full Function) / MC7354 (3G) + WW-DL060(LTE)
3	Normal Operating (Full Function) / MC7354 (LTE) + WW-DL060(LTE)

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

Final Test Mode		
Emission	Radiated Emission	Mode 2
	Conducted Emission	Mode 2

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, 802.11g, 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) were chosen for full testing.

IEEE 802.11g mode : 6Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11gn HT20 mode : 6.5Mbps data rate (worst case) were 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) were chosen for full testing.

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and ANSI C63.4: 2014 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 ANSI C63.4: 2014 and CISPR 22. All receiving equipment conforms to CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-3, CISPR 16-1-4, 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
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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	Notebook PC	TOSHIBA	M840	9C104267C
3	Notebook PC	TOSHIBA	PORTEGE R30-A	1E101235H
4	USB2.0 Flash Disk	Kingston	-----	-----
5	USB2.0 Flash Disk	Kingston	-----	-----
6	Communication System	Agilent	8960	MY48360266
7	Communication System	Anritsu	MT8820C	6201465349

Power Adapter :

No.	Manufacturer	Model No.	Power Input	Power Output
1	EGB	PAW018A12UL	100-240Vac, 0.5A, 50/60Hz	12Vdc, 1.5A

No.	Signal Cable Description
1	Non-shielded RJ-45 cable, 12m × 1
2	Non-shielded RJ-45 cable 1m × 3
3	Shielded mini USB cable 1m × 2

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) Chain 1 Power set 14
IEEE 802.11b Channel Mid (2437MHz) Chain 1 Power set 17
IEEE 802.11b Channel High (2462MHz) Chain 1 Power set 16
IEEE 802.11g Channel Low (2412MHz) Chain 1 Power set 15
IEEE 802.11g Channel Mid (2437MHz) Chain 1 Power set 17
IEEE 802.11g Channel High (2462MHz) Chain 1 Power set 15
IEEE 802.11gn HT20 Channel Low (2412MHz) Chain 1/2 Power set 11/11
IEEE 802.11gn HT20 Channel Mid (2437MHz) Chain 1/2 Power set 11/14
IEEE 802.11gn HT20 Channel High (2462MHz) Chain 1/2 Power set 11/15
IEEE 802.11gn HT40 Channel Low (2422MHz) Chain 1/2 Power set 0B/0C
IEEE 802.11gn HT40 Channel Mid (2437MHz) Chain 1/2 Power set 10/13
IEEE 802.11gn HT40 Channel High (2452MHz) Chain 1/2 Power set 0B/0F

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. Notebook PC 1 link to EUT with WiFi 2.4G.
4. Notebook PC 2 link to EUT with WiFi 5G.
5. Notebook PC 3 link to EUT with LAN.
6. All Notebook PC ping 192.168.1.254(EUT IP).
7. Communication System link EUT with 2/3/4G.
8. 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) $\geq 3 \times$ 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
		Chain 1			
Low	2412	12.04		500	PASS
Middle	2437	12.06		500	PASS
High	2462	12.05		500	PASS

IEEE 802.11g Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)	Pass / Fail
		Chain 1			
Low	2412	16.46		500	PASS
Middle	2437	16.42		500	PASS
High	2462	16.44		500	PASS

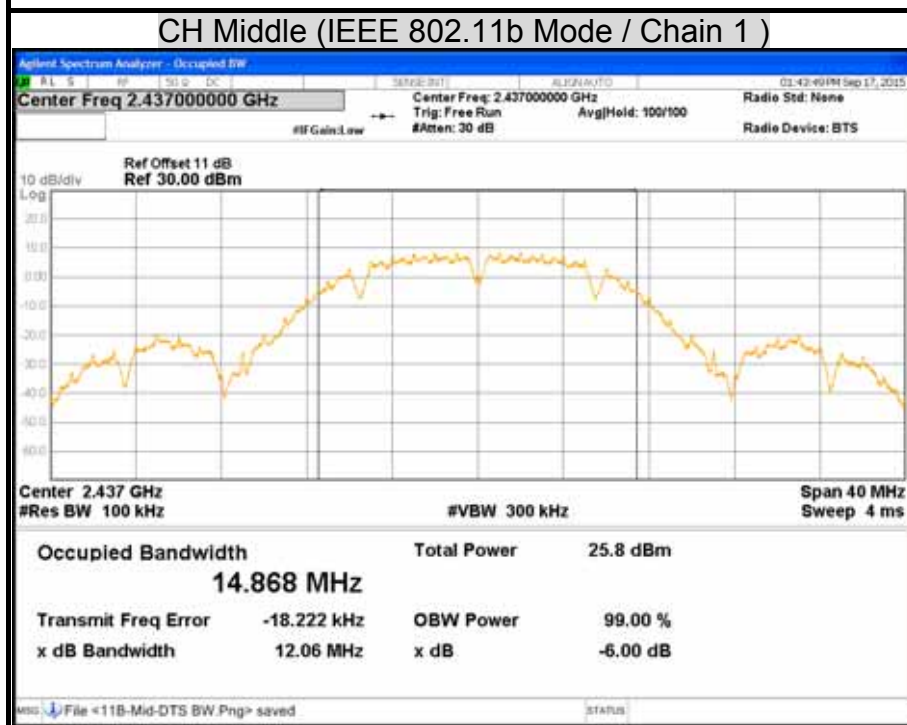
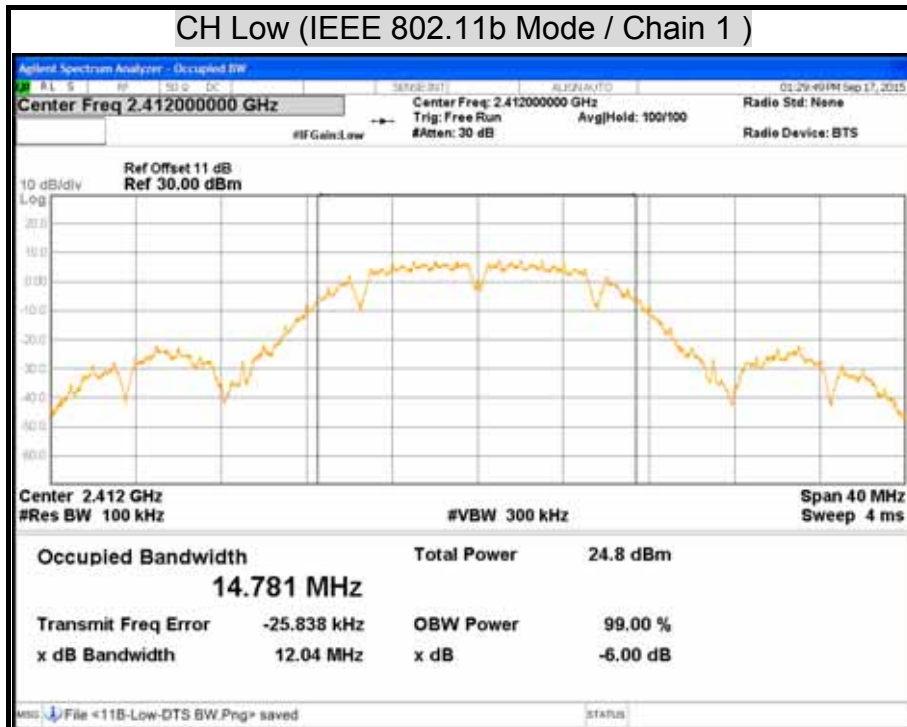
IEEE 802.11gn HT20 Mode (Two TX)

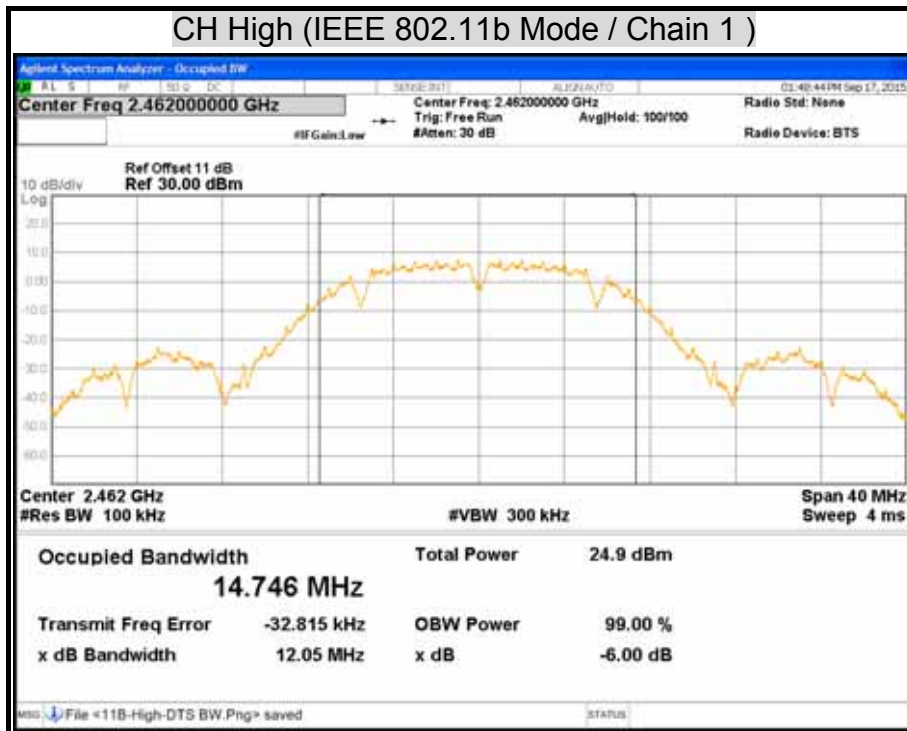
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)	Pass / Fail
		Chain 1	Chain 2		
Low	2412	17.59	17.59	500	PASS
Middle	2437	17.60	17.59	500	PASS
High	2462	17.58	17.58	500	PASS

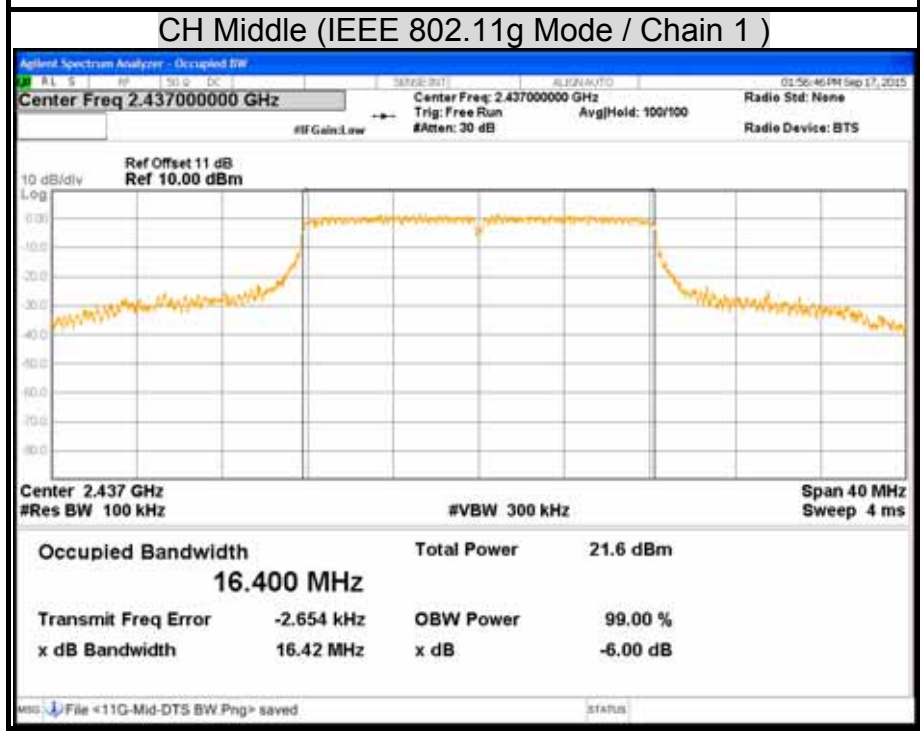
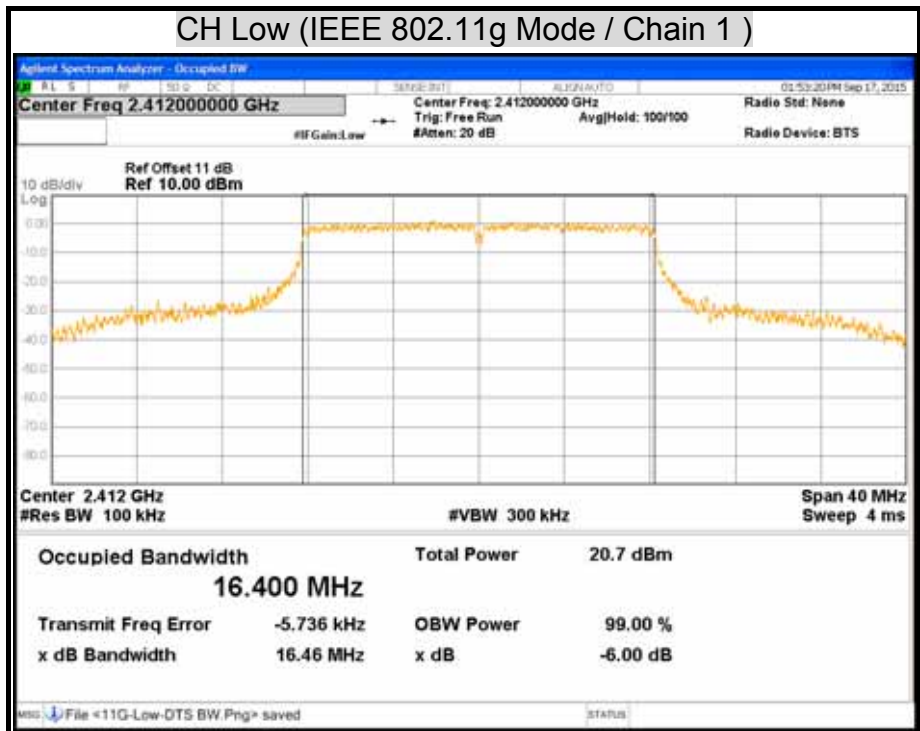
IEEE 802.11gn HT40 Mode (Two TX)

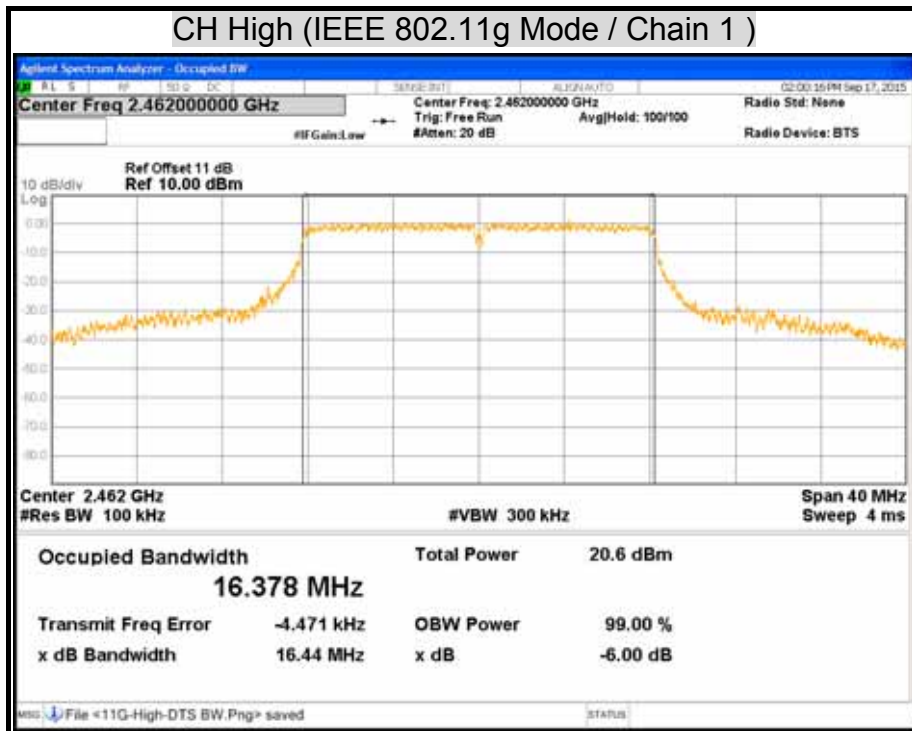
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)	Pass / Fail
		Chain 1	Chain 2		
Low	2422	36.35	36.37	500	PASS
Middle	2437	36.36	36.34	500	PASS
High	2452	36.35	36.34	500	PASS

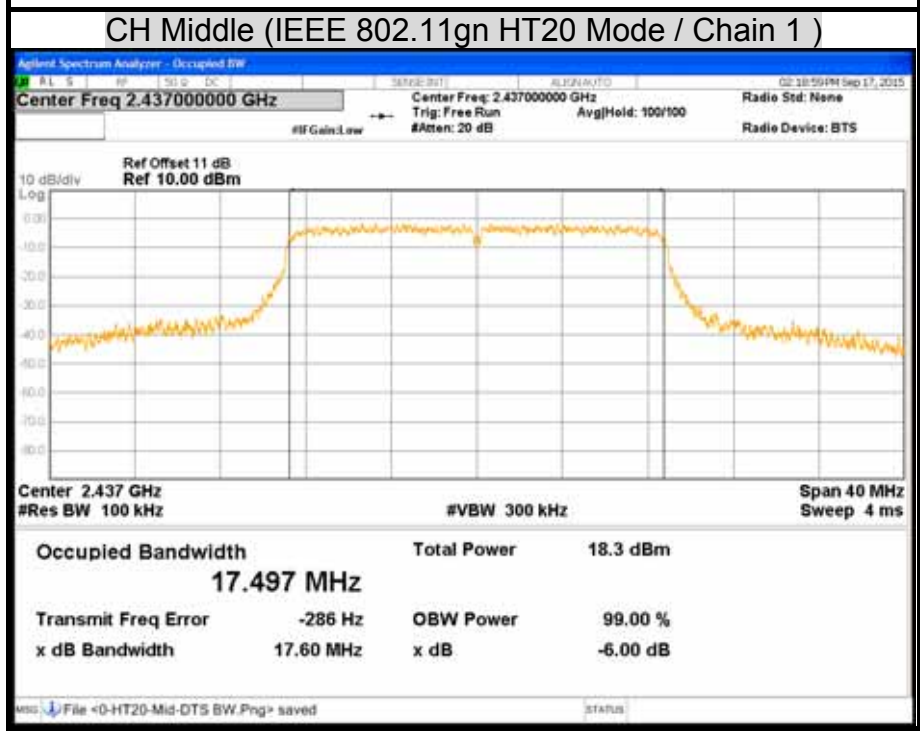
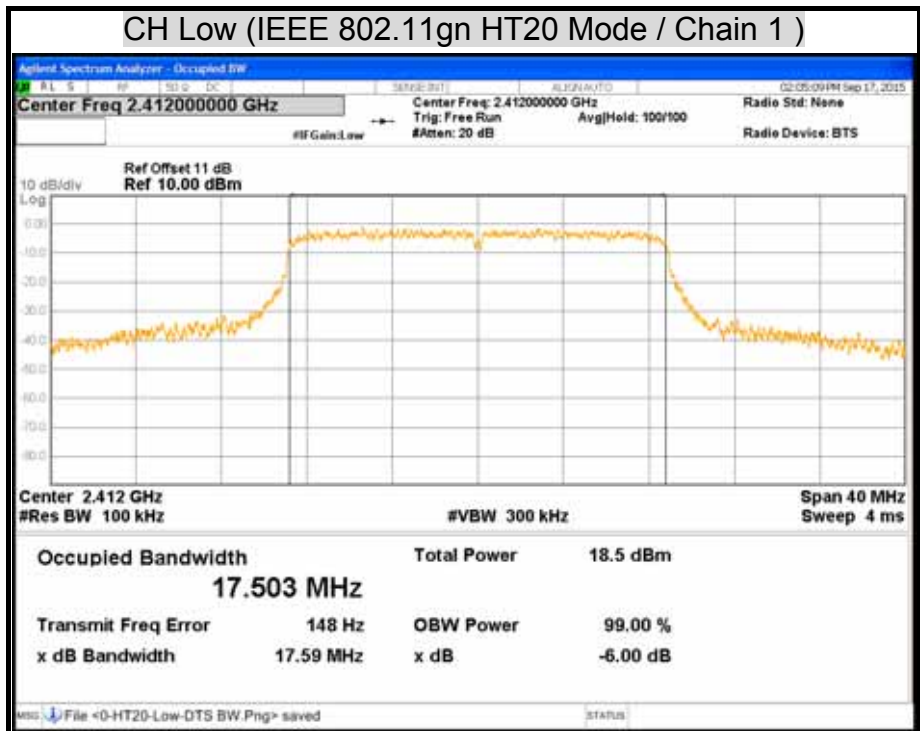
6dB BANDWIDTH

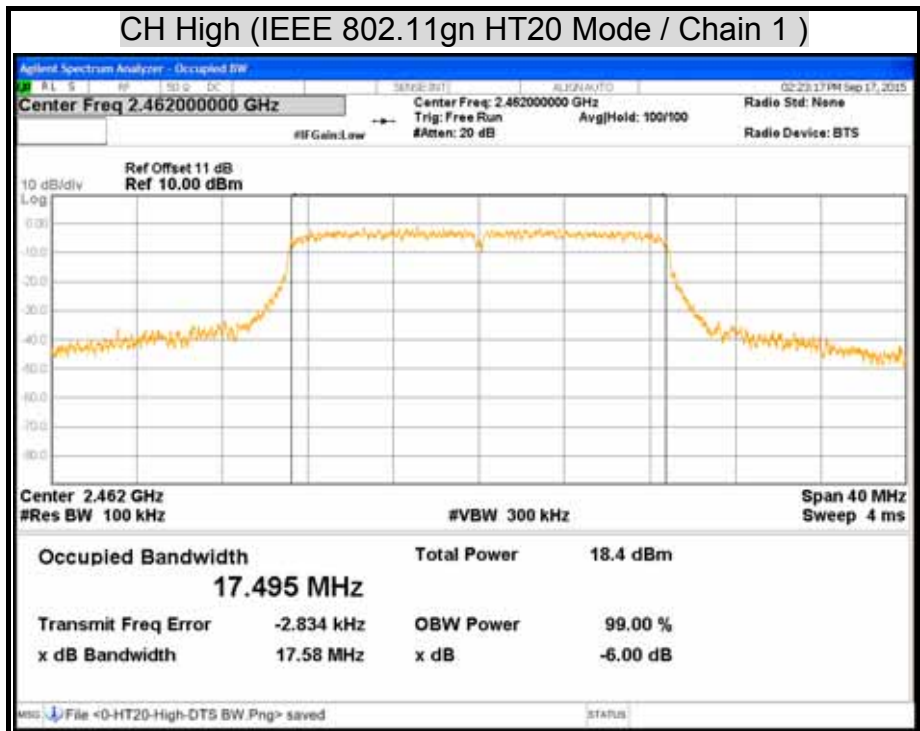


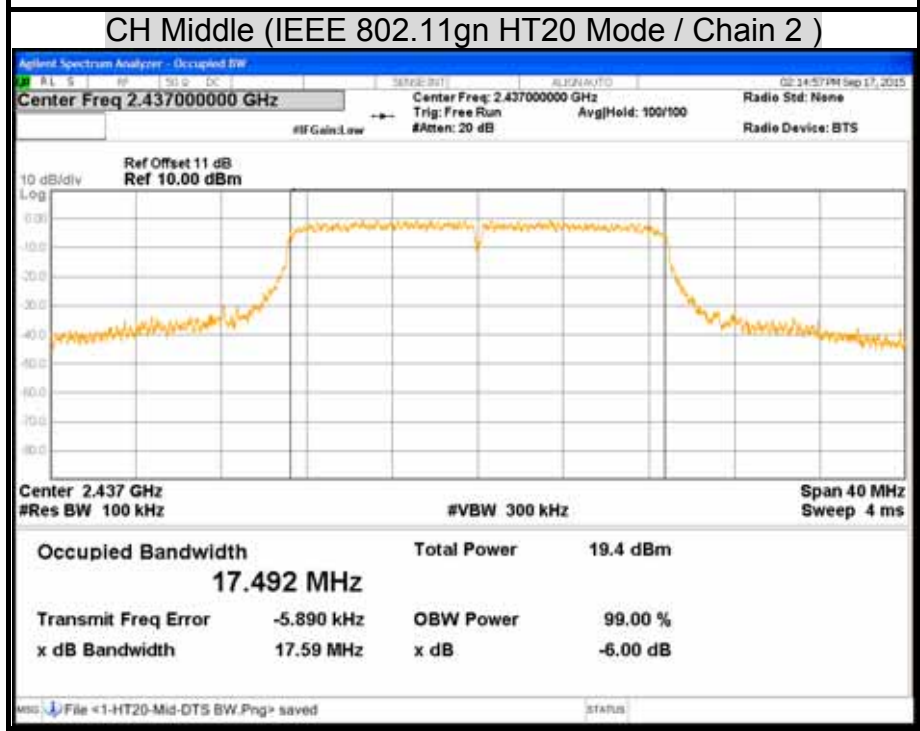
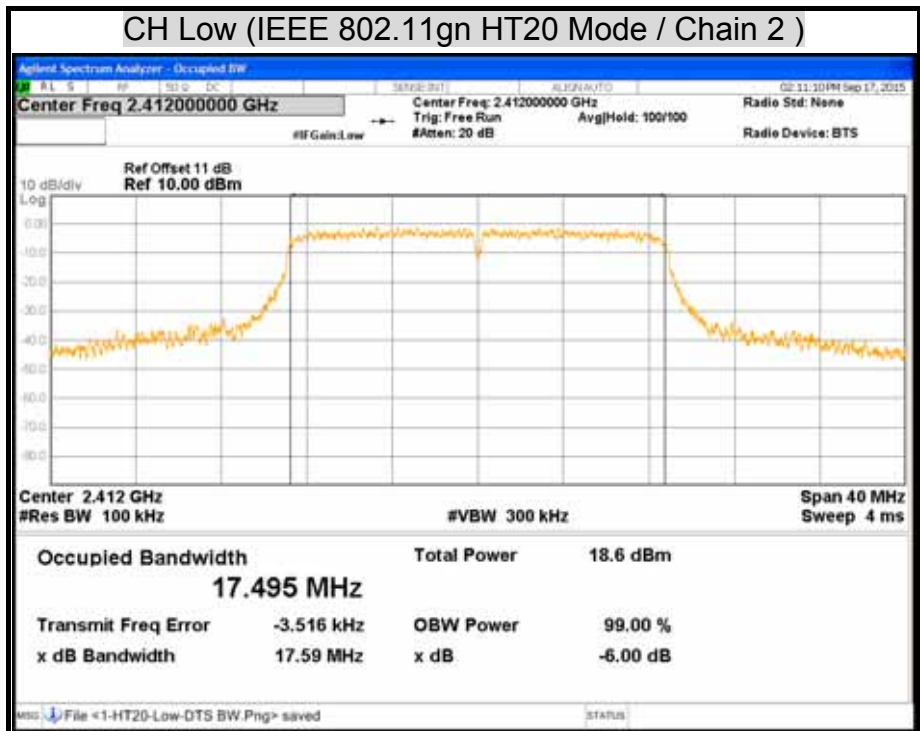


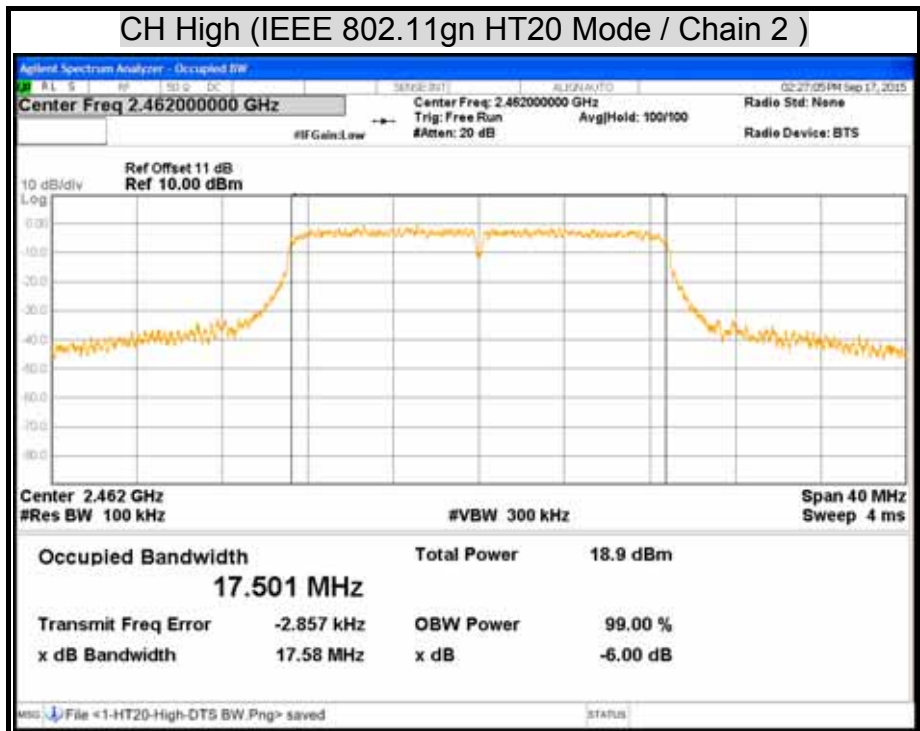


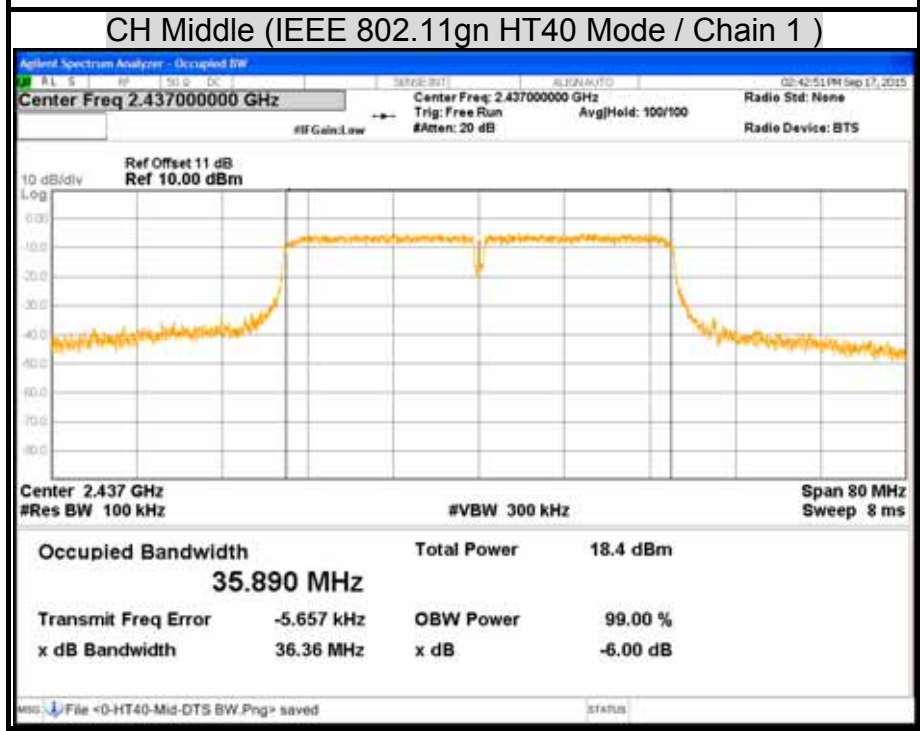
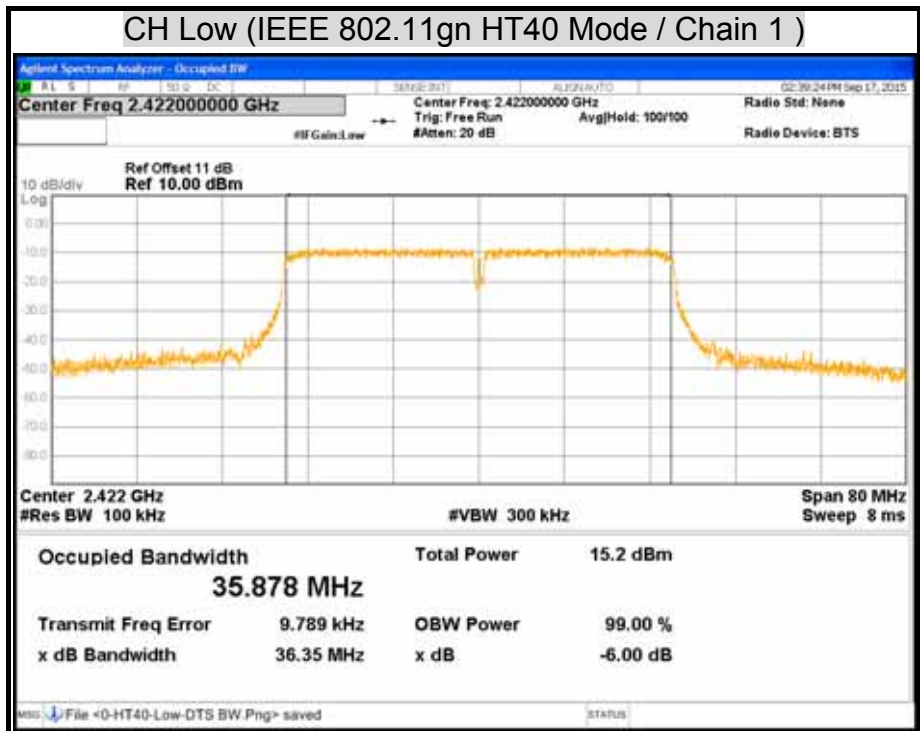


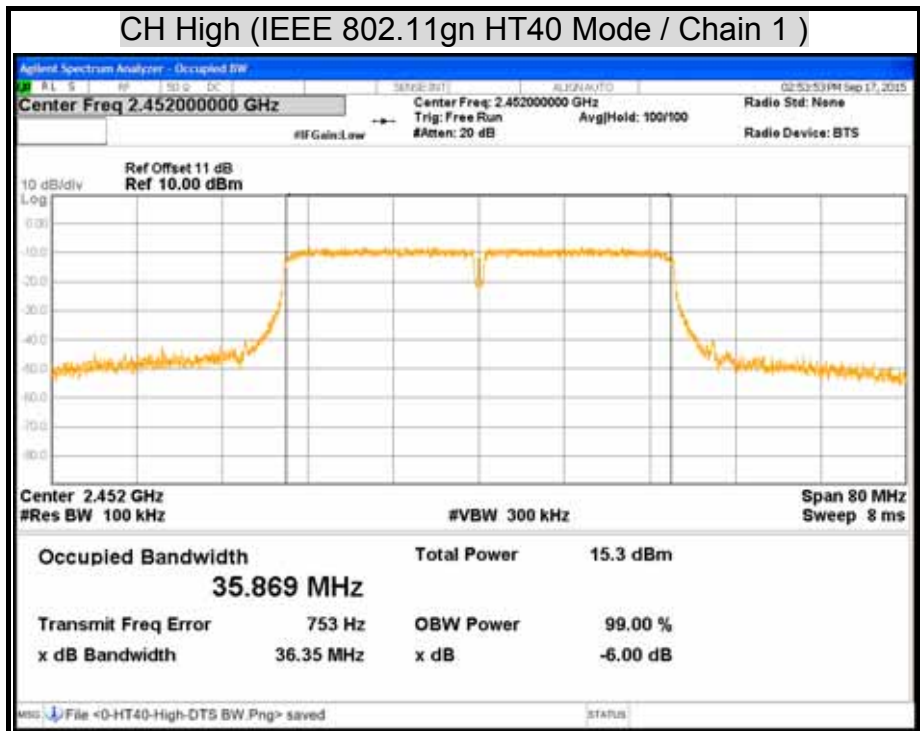


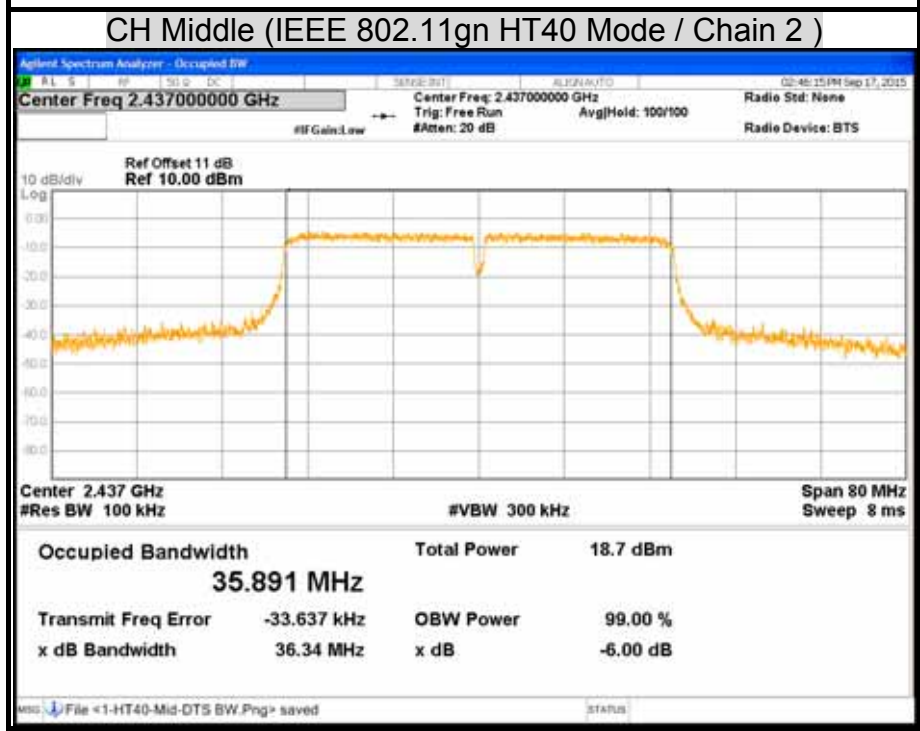
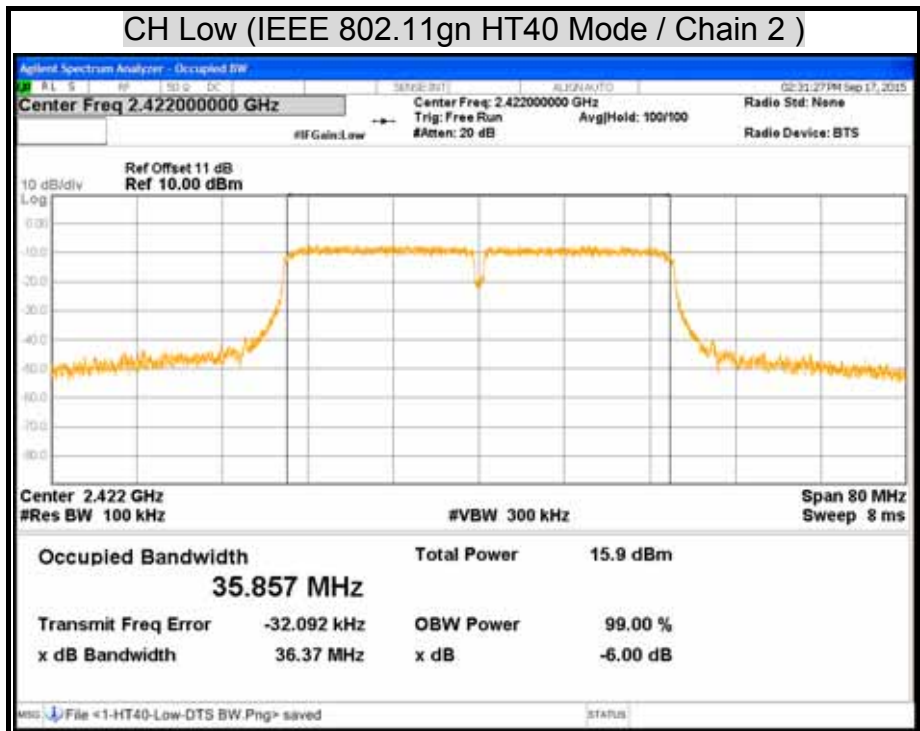


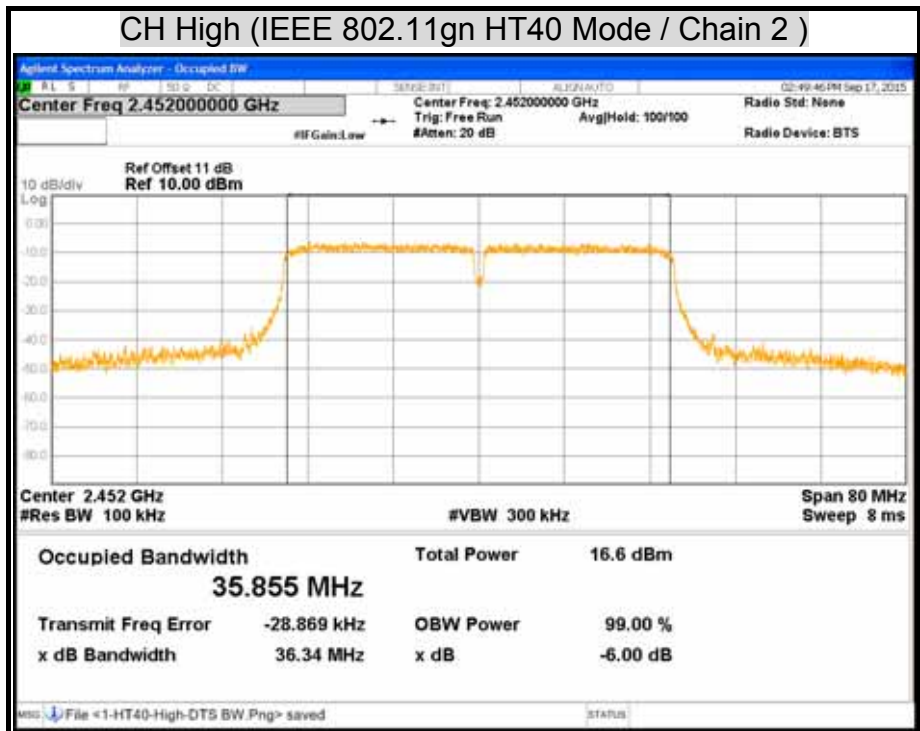












7.2 MAXIMUM PEAK OUTPUT POWER

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
		Chain 1		(dBm)	(W)	
		(dBm)	(W)			
Low	2412	20.25	0.1059	30	1	PASS
Middle	2437	20.95	0.1245	30	1	PASS
High	2462	20.49	0.1119	30	1	PASS

Remark:

1. At final test to get the worst-case emission at 1Mbps.
2. The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 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
		Chain 1		(dBm)	(W)	
		(dBm)	(W)			
Low	2412	22.79	0.1901	30	1	PASS
Middle	2437	23.87	0.2438	30	1	PASS
High	2462	22.62	0.1828	30	1	PASS

Remark:

1. At final test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11gn HT20 Mode (Two TX)

Channel	Channel Frequency (MHz)	Peak Power (dBm)		Peak Power Total		Peak Power Limit		Pass / Fail
		Chain 1	Chain 2	(dBm)	(W)	(dBm)	(W)	
Low	2412	20.11	20.52	23.33	0.2153	30	1	PASS
Middle	2437	20.16	21.21	23.73	0.2360	30	1	PASS
High	2462	20.73	21.05	23.90	0.2455	30	1	PASS

Remark:

1. At final test to get the worst-case emission at 6.5Mbps.
2. The cable assembly insertion loss of 11dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.
3. Array gain = 0 dB for $N_{ANT} \leq 4$, power limit do not reduce.
4. Total peak power = Chain 1 + Chain 2.

IEEE 802.11gn HT40 Mode (Two TX)

Channel	Channel Frequency (MHz)	Peak Power (dBm)		Peak Power Total		Peak Power Limit		Pass / Fail
		Chain 1	Chain 2	(dBm)	(W)	(dBm)	(W)	
Low	2422	17.14	18.16	20.69	0.1172	30	1	PASS
Middle	2437	20.13	20.40	23.28	0.2128	30	1	PASS
High	2452	18.43	19.41	21.96	0.1570	30	1	PASS

Remark:

1. At final test to get the worst-case emission at 13.5Mbps.
2. The cable assembly insertion loss of 11dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.
3. Array gain = 0 dB for $N_{ANT} \leq 4$, power limit do not reduce.
4. Total peak power = Chain 1 + Chain 2.

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)
		Chain 1
Low	2412	18.14
Middle	2437	18.95
High	2462	18.39

Remark:

1. At final test to get the worst-case emission at 1Mbps.
2. The cable assembly insertion loss of 11dB (including 10 dB pad and 1 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)	Average Power (dBm)
		Chain 1
Low	2412	14.78
Middle	2437	15.66
High	2462	14.86

Remark:

1. At final test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 11dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11gn HT20 Mode (Two TX)

Channel	Channel Frequency (MHz)	Average Power (dBm)	
		Chain 1	Chain 2
Low	2412	12.47	12.56
Middle	2437	12.57	13.16
High	2462	12.61	13.04

Remark:

1. At final test to get the worst-case emission at 6.5Mbps.
2. The cable assembly insertion loss of 11dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11gn HT40 Mode (Two TX)

Channel	Channel Frequency (MHz)	Average Power (dBm)	
		Chain 1	Chain 2
Low	2422	9.23	10.03
Middle	2437	12.37	12.48
High	2452	9.28	10.87

Remark:

1. At final test to get the worst-case emission at 13.5Mbps.
2. The cable assembly insertion loss of 11dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the power meter 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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
5. Set the VBW $\geq 3 \times \text{RBW}$.
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
		Chain 1		
Low	2412	-5.26	8	PASS
Middle	2437	-4.35	8	PASS
High	2462	-5.28	8	PASS

Remark:

1. At final test to get the worst-case emission at 1Mbps.
2. The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 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
		Chain 1		
Low	2412	-5.65	8	PASS
Middle	2437	-5.66	8	PASS
High	2462	-5.65	8	PASS

Remark:

1. At final test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11gn HT20 Mode (Two TX)

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)		PSD Total (dBm)	Minimum Limit (dBm)	Pass / Fail
		Chain 1	Chain 2			
Low	2412	-7.88	-8.33	-5.09	7.44	PASS
Middle	2437	-7.92	-7.35	-4.61	7.44	PASS
High	2462	-7.85	-7.01	-4.40	7.44	PASS

Remark:

1. At final test to get the worst-case emission at 6.5Mbps.
2. The cable assembly insertion loss of 11dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.
3. The maximum antenna gain is 6.56 dBi which is more than 6dBi, the limit should be 7.44 dBm.
4. Total power spectral density = Chain 1 + Chain 2

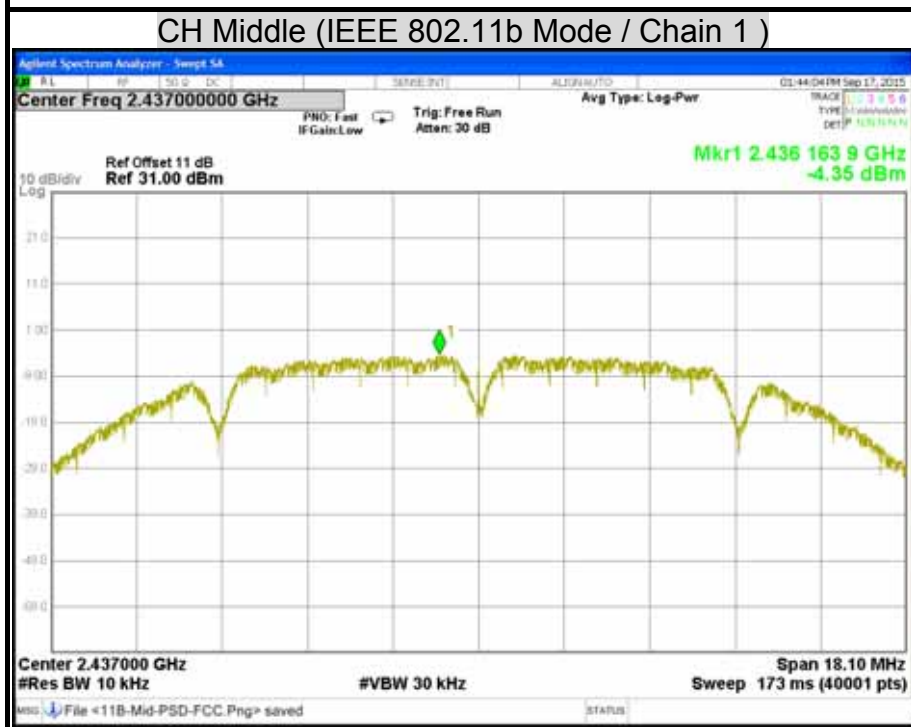
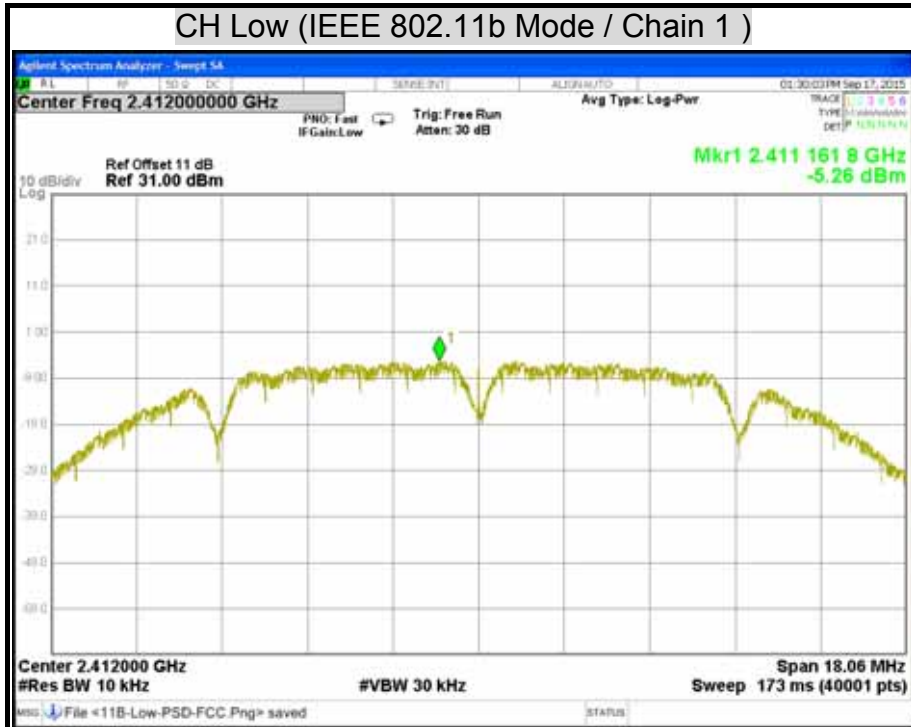
IEEE 802.11gn HT40 Mode (Two TX)

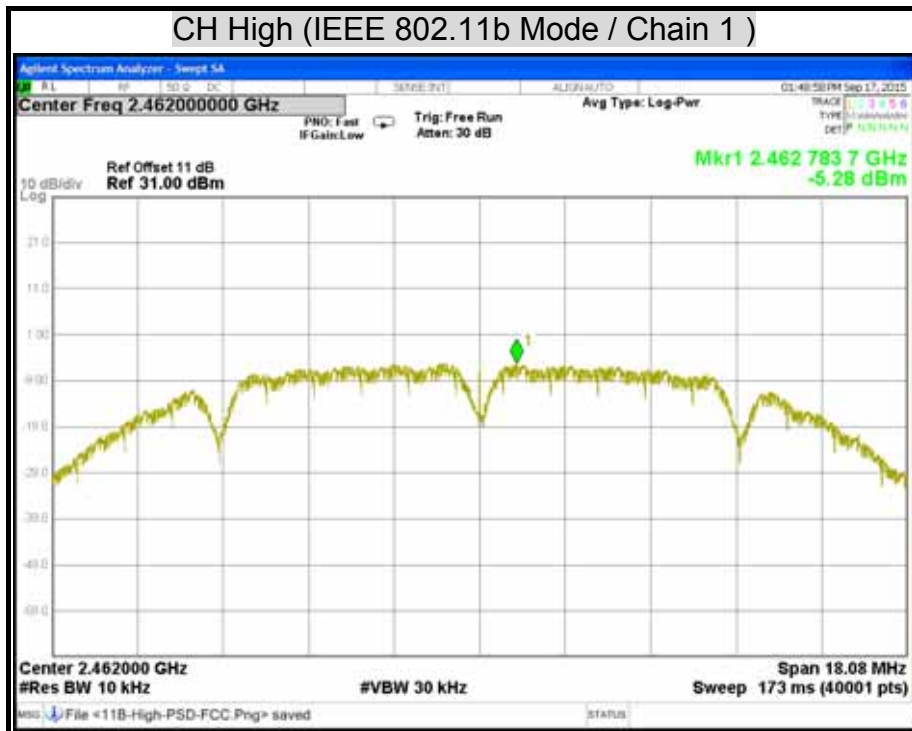
Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)		PSD Total (dBm)	Minimum Limit (dBm)	Pass / Fail
		Chain 1	Chain 2			
Low	2422	-12.70	-14.25	-10.40	7.44	PASS
Middle	2437	-8.27	-10.37	-6.18	7.44	PASS
High	2452	-12.24	-13.45	-9.79	7.44	PASS

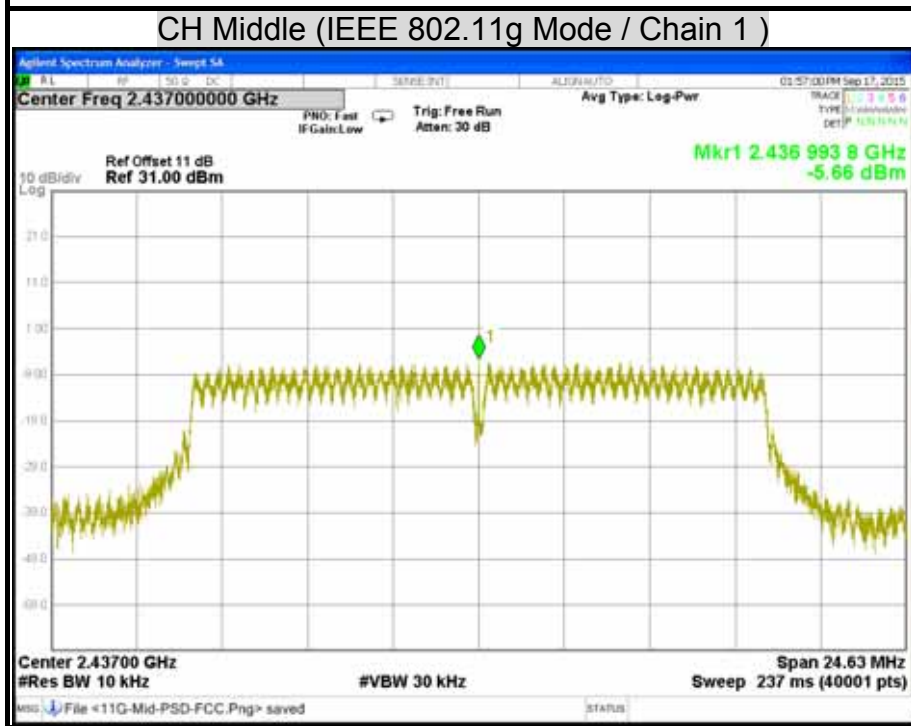
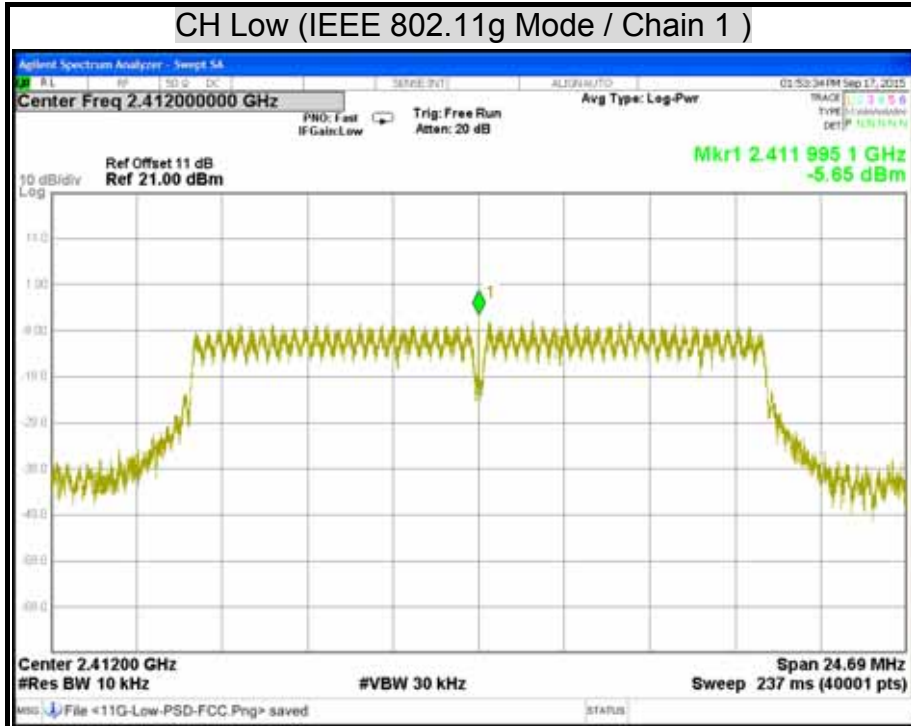
Remark:

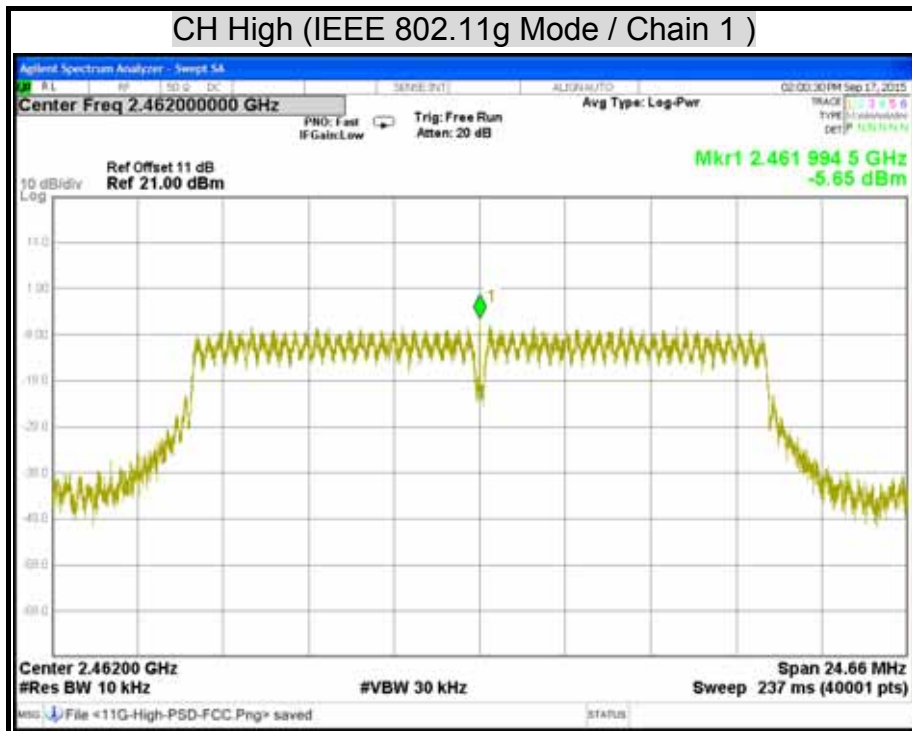
1. At final test to get the worst-case emission at 13.5Mbps.
2. The cable assembly insertion loss of 11dB (including 10 dB pad and 1 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.
3. The maximum antenna gain is 6.56 dBi which is more than 6dBi, the limit should be 7.44 dBm.
4. Total power spectral density = Chain 1 + Chain 2

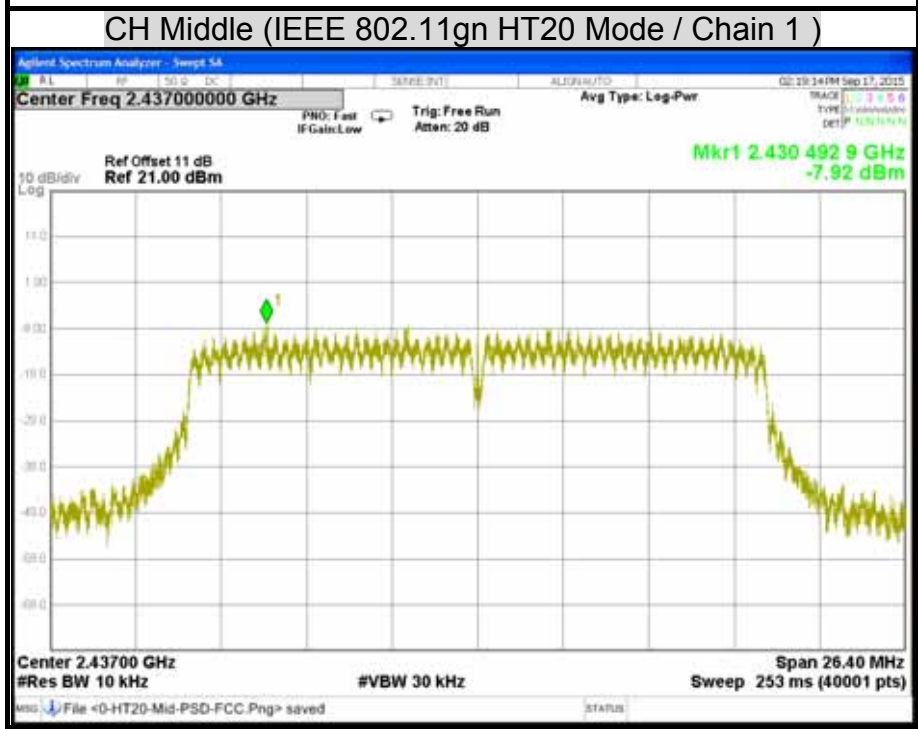
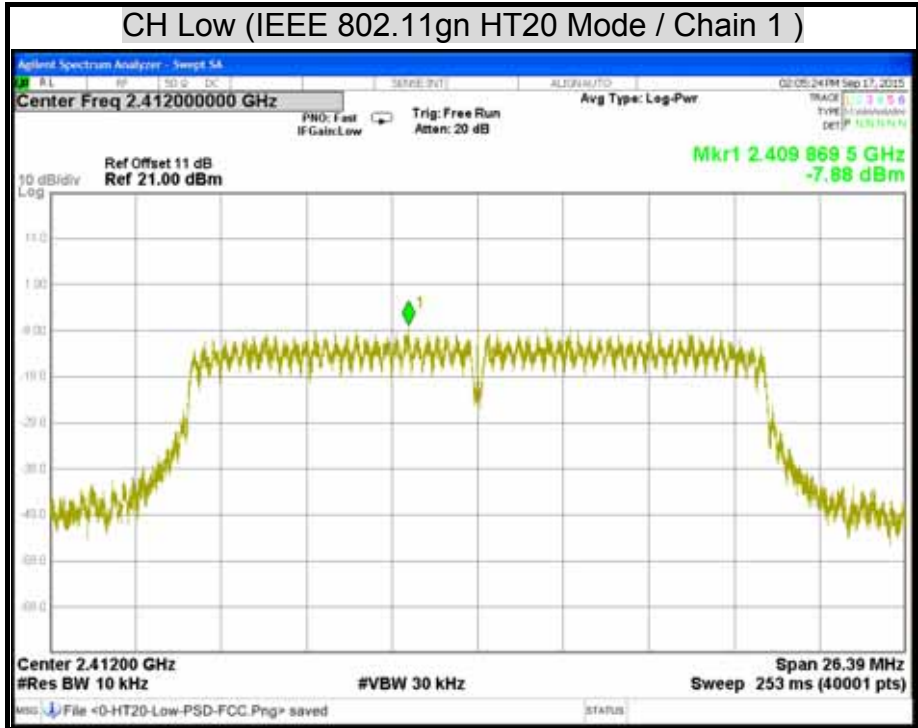
POWER SPECTRAL DENSITY

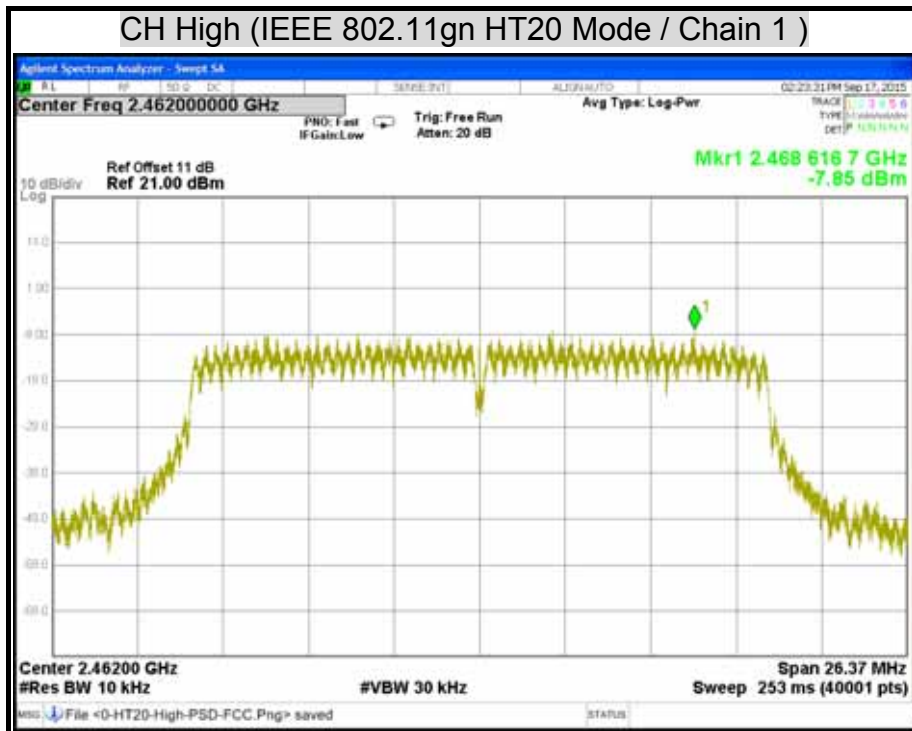


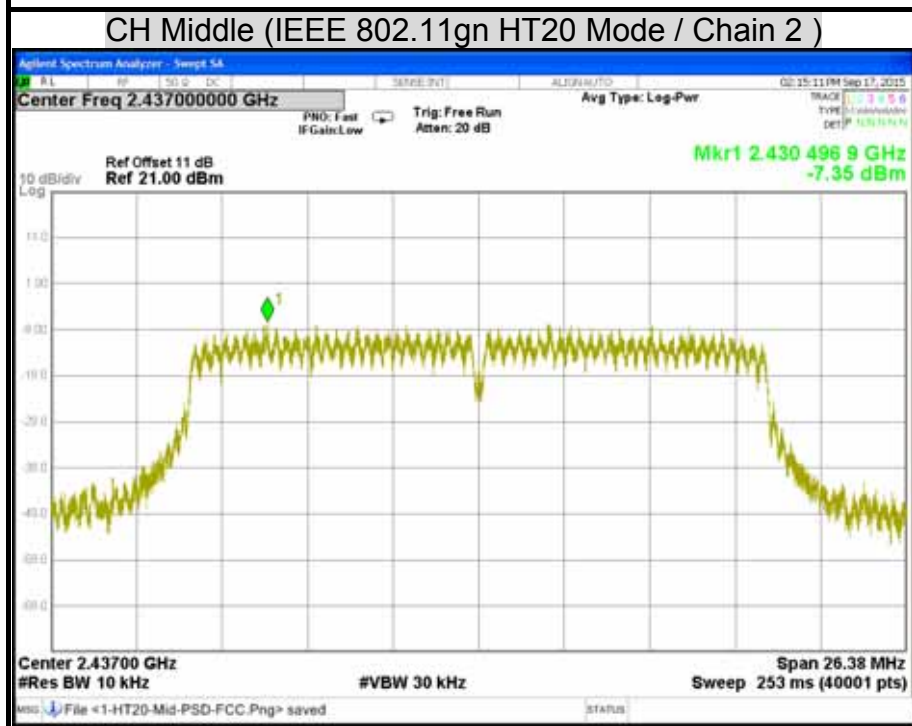
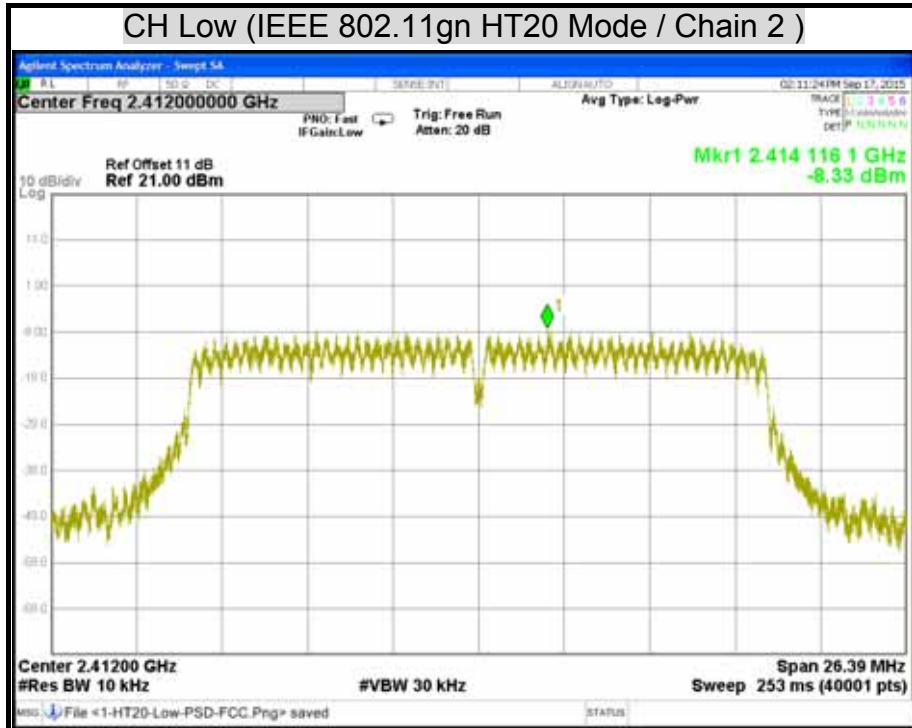


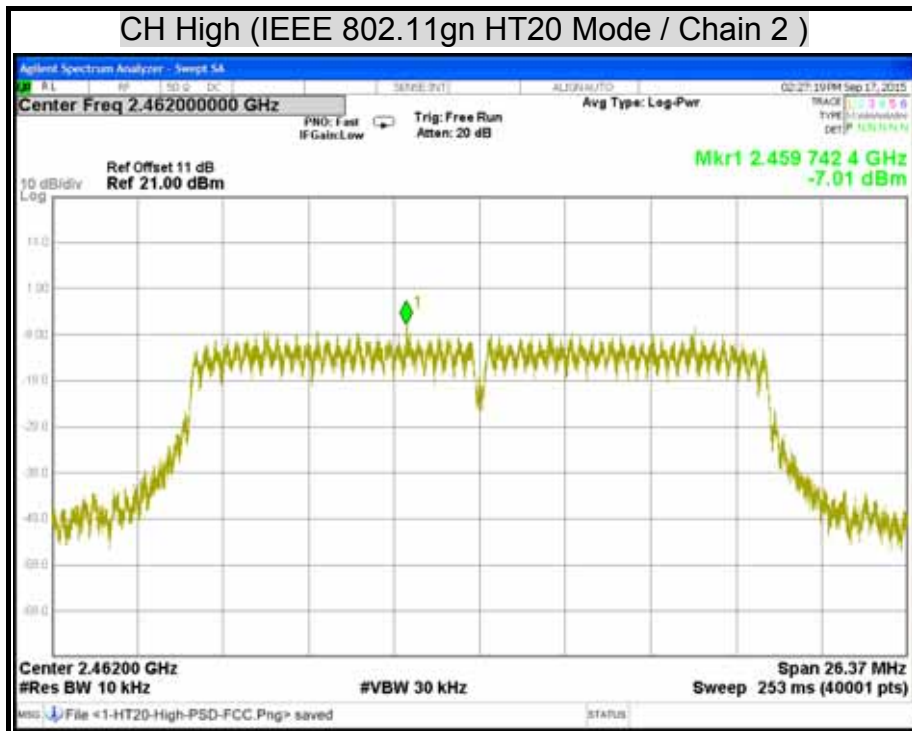


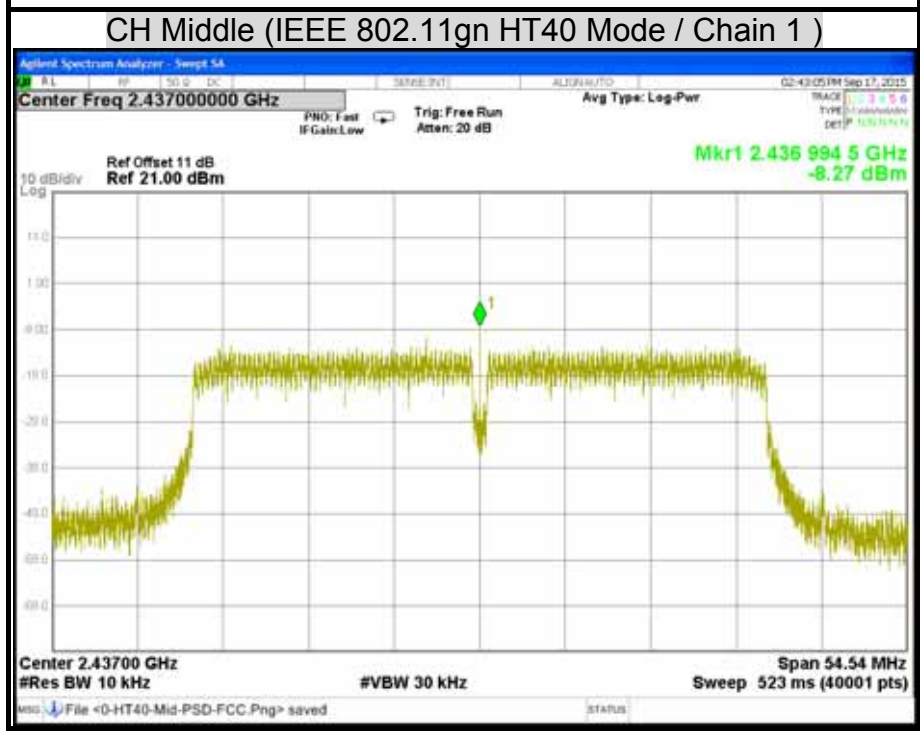
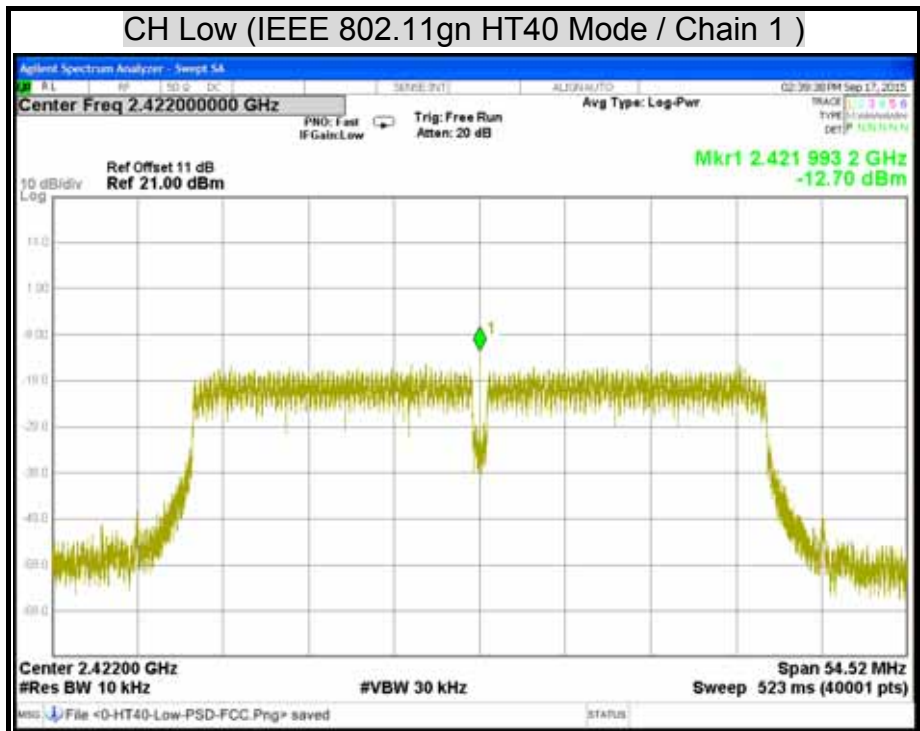


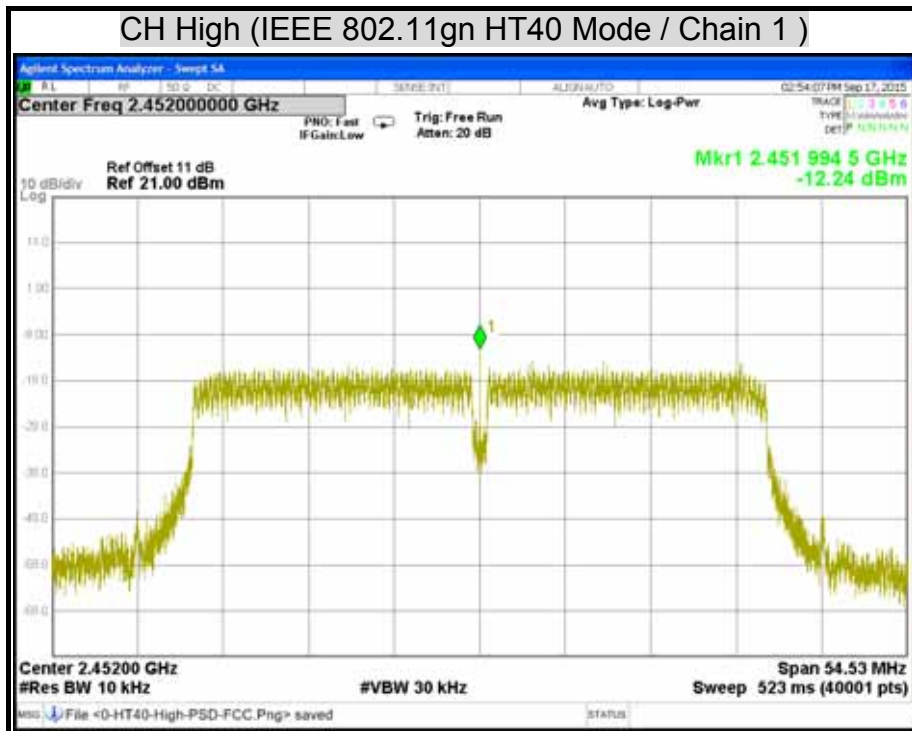


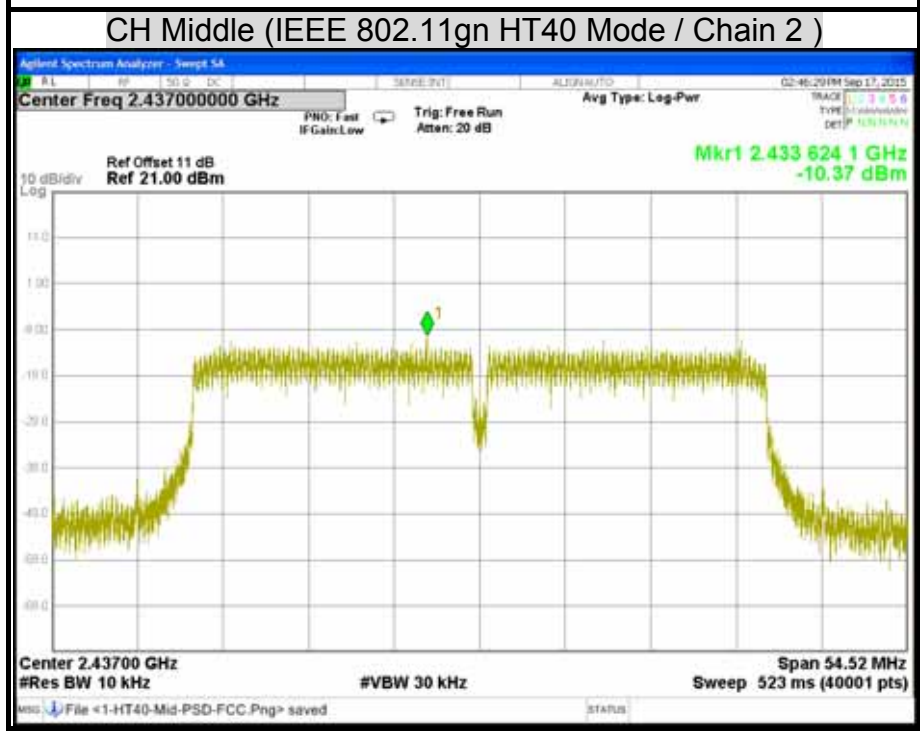
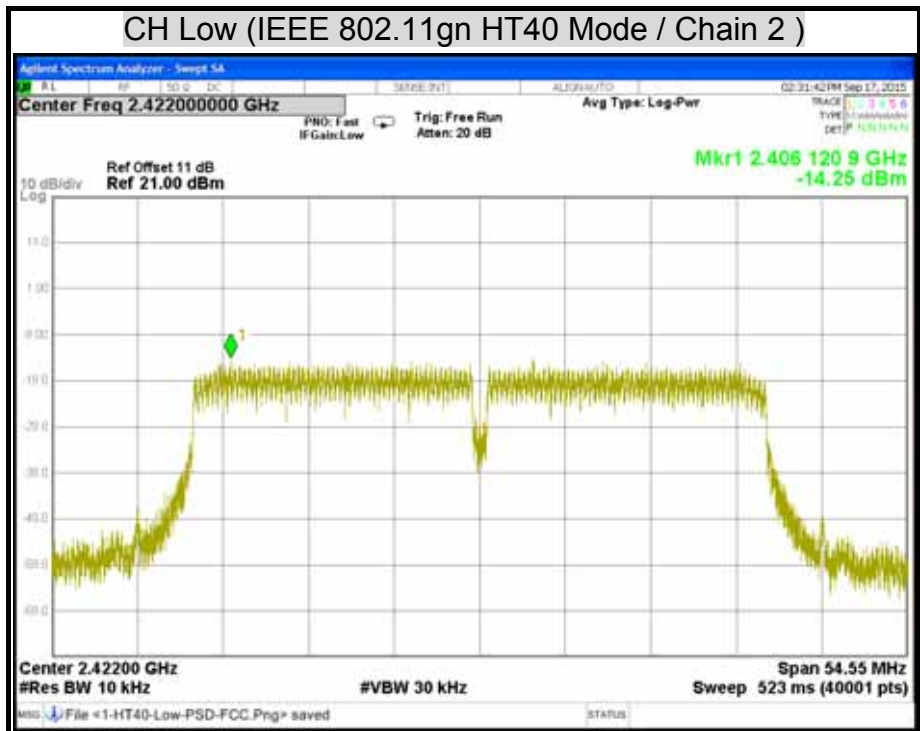


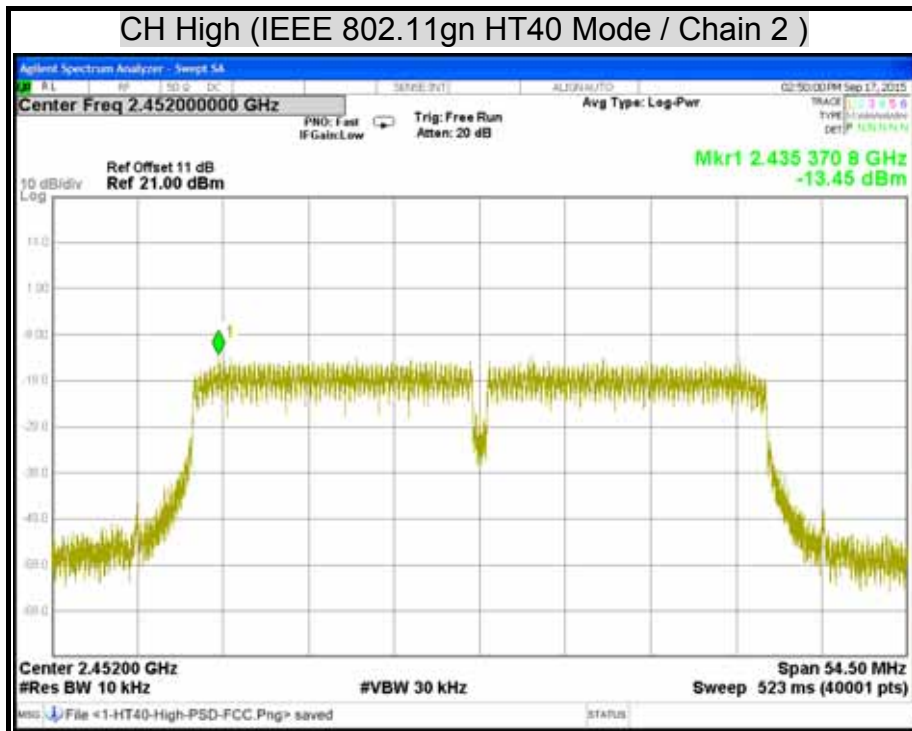












7.5 CONDUCTED SPURIOUS EMISSION

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



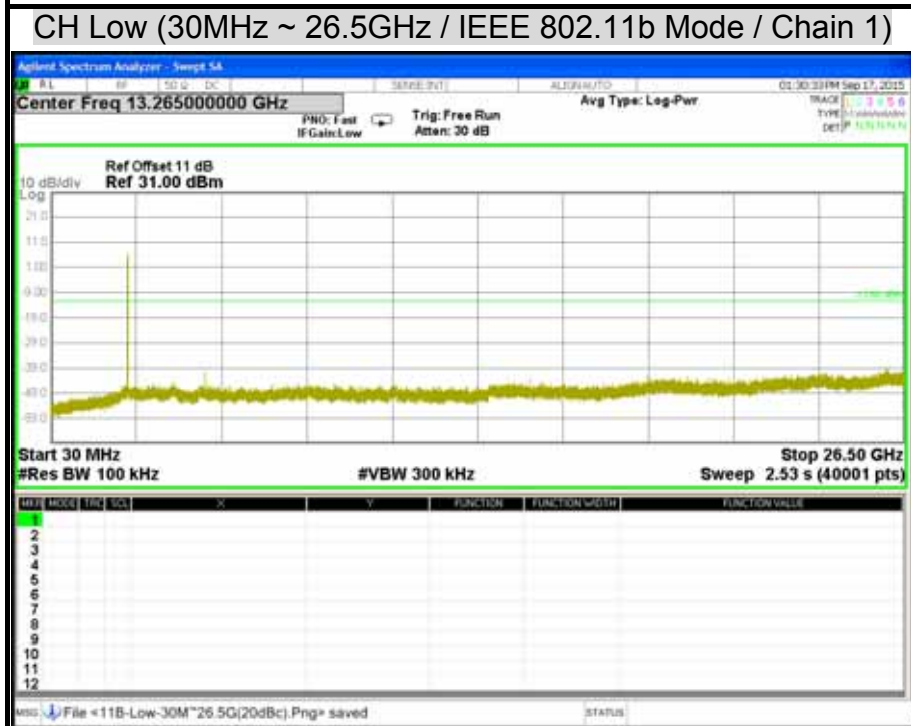
TEST PROCEDURE

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.

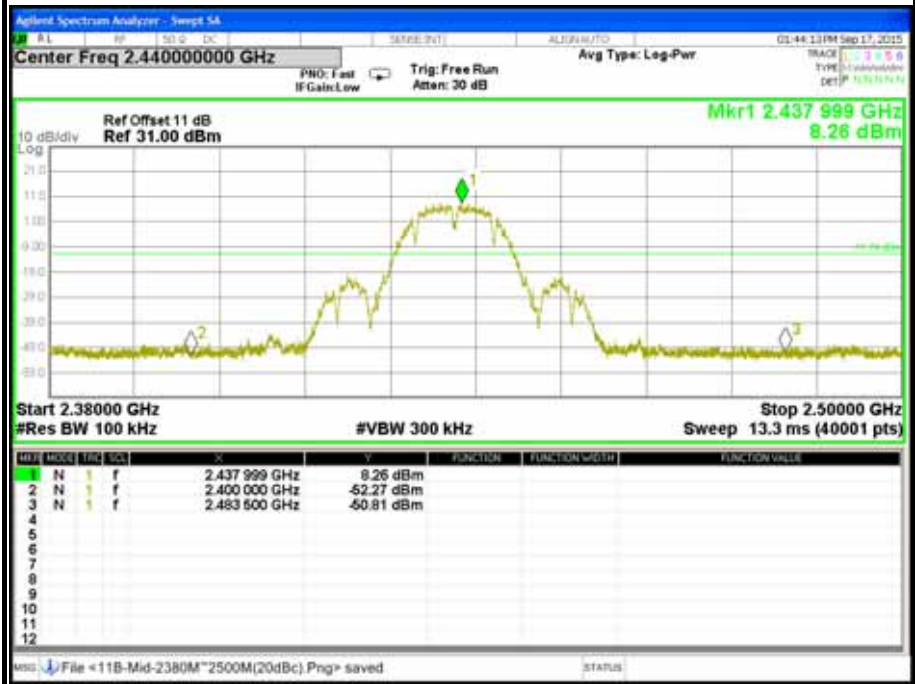
The spectrum from 30 MHz to 26.5 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

TEST RESULTS

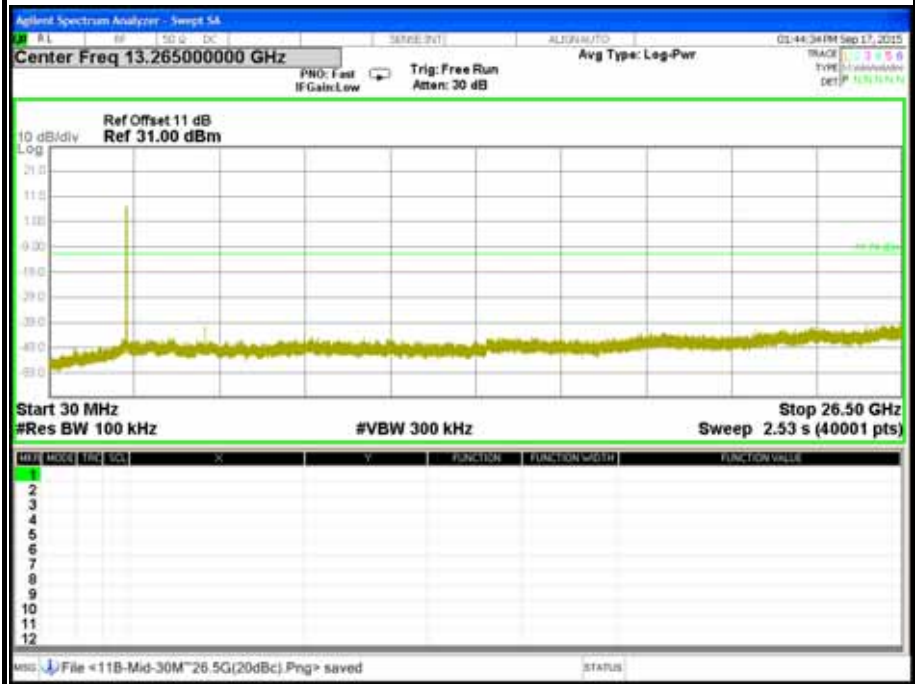
OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT



CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11b Mode / Chain 1)



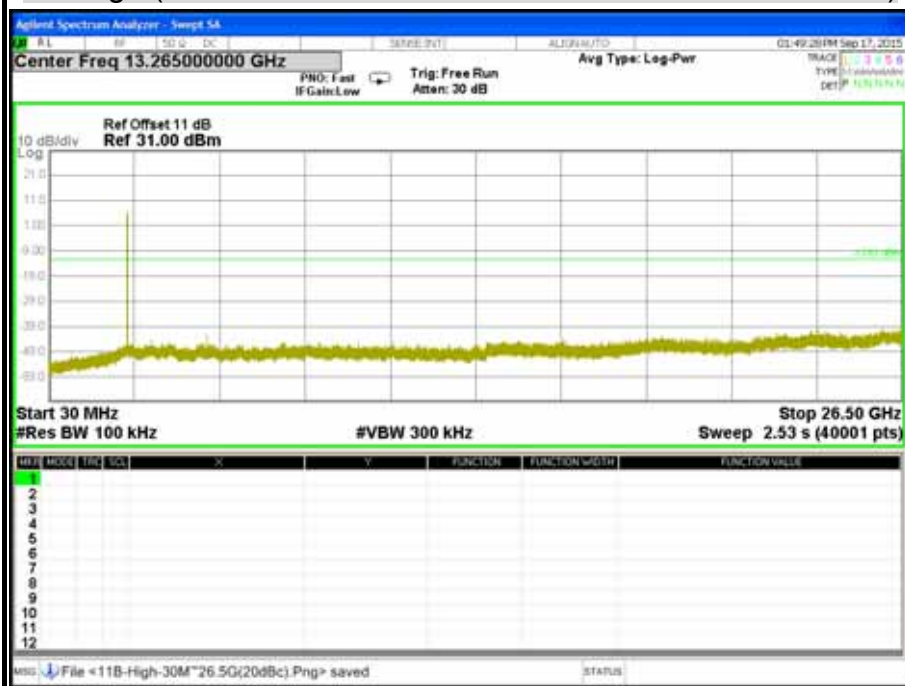
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11b Mode / Chain 1)

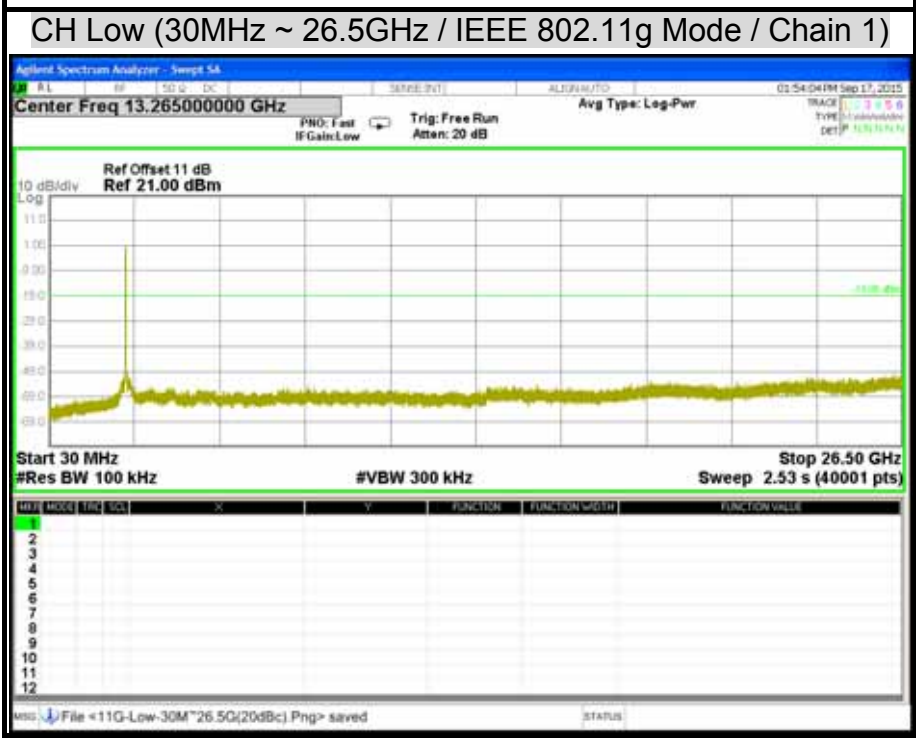
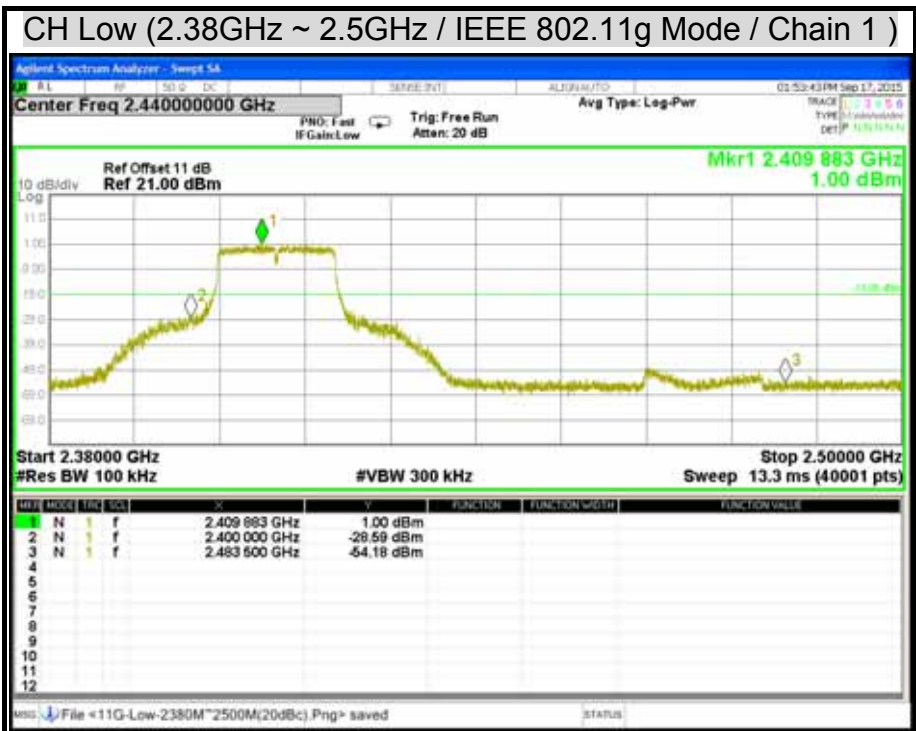


CH High (2.38GHz ~ 2.5GHz / IEEE 802.11b Mode / Chain 1)



CH High (30MHz ~ 26.5GHz / IEEE 802.11b Mode / Chain 1)

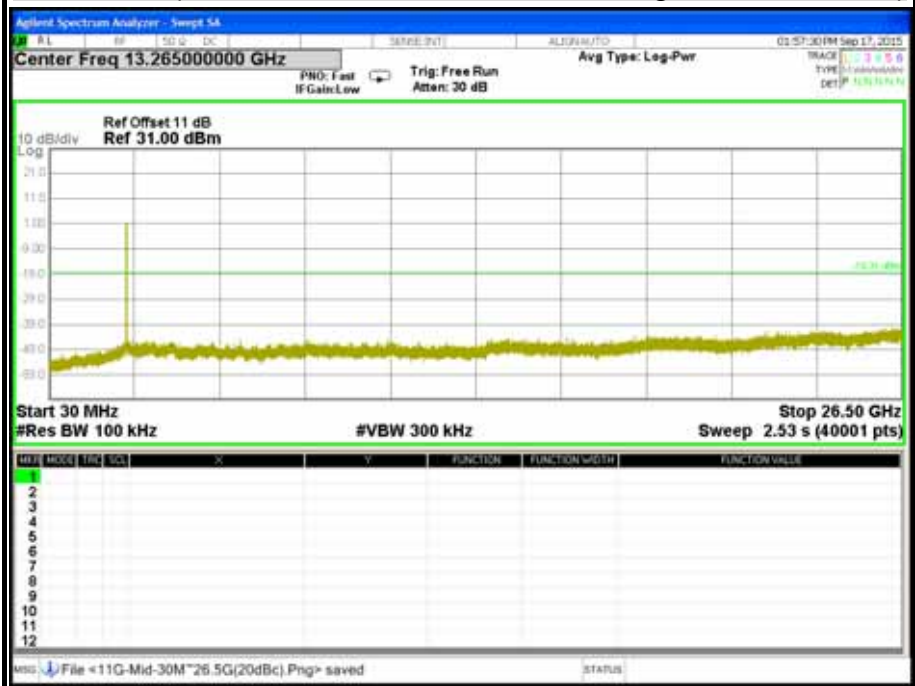




CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11g Mode / Chain 1)



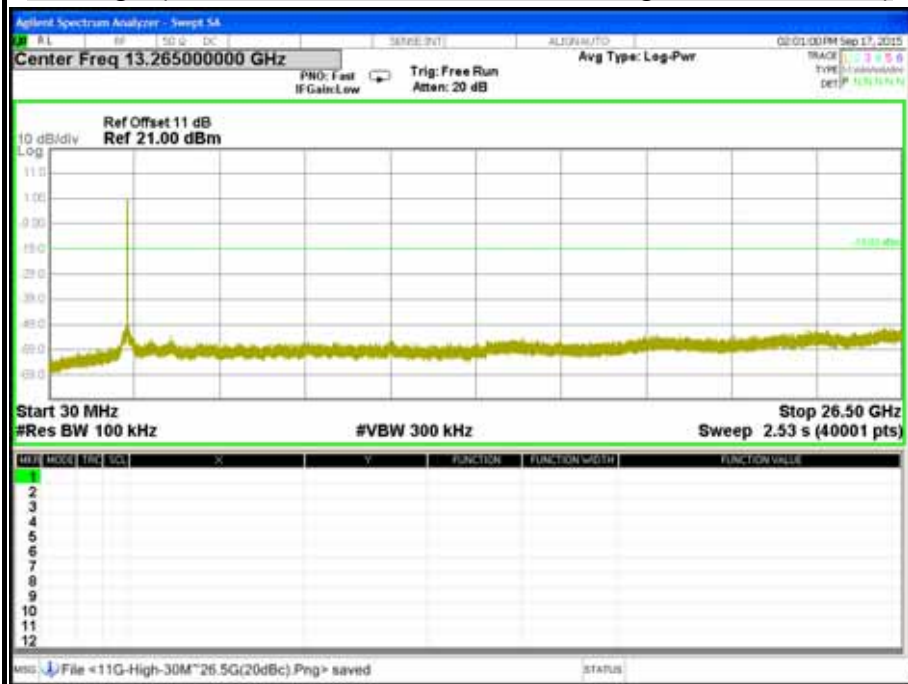
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11g Mode / Chain 1)



CH High (2.38GHz ~ 2.5GHz / IEEE 802.11g Mode / Chain 1)



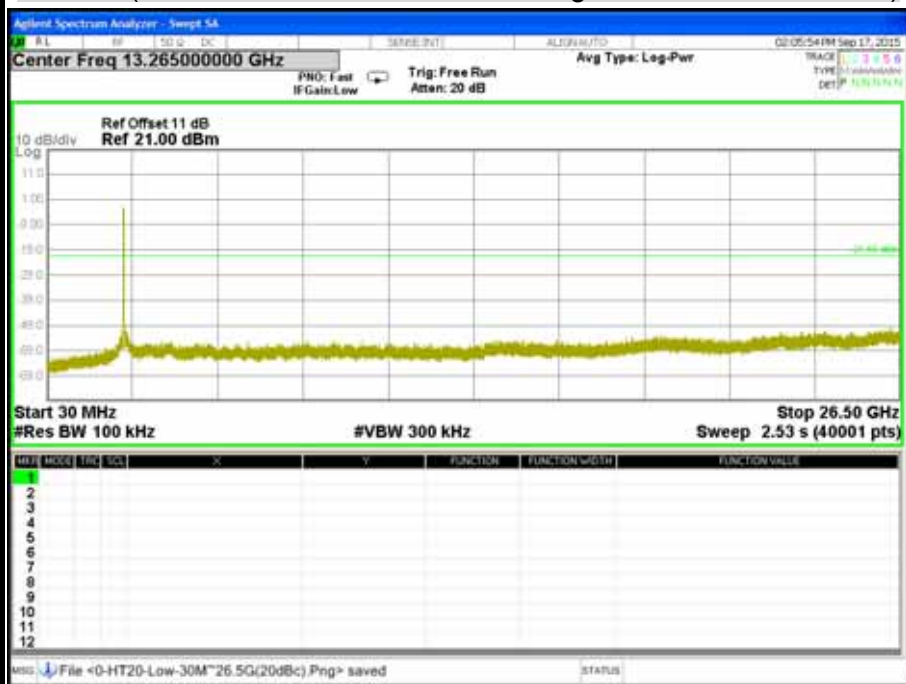
CH High (30MHz ~ 26.5GHz / IEEE 802.11g Mode / Chain 1)



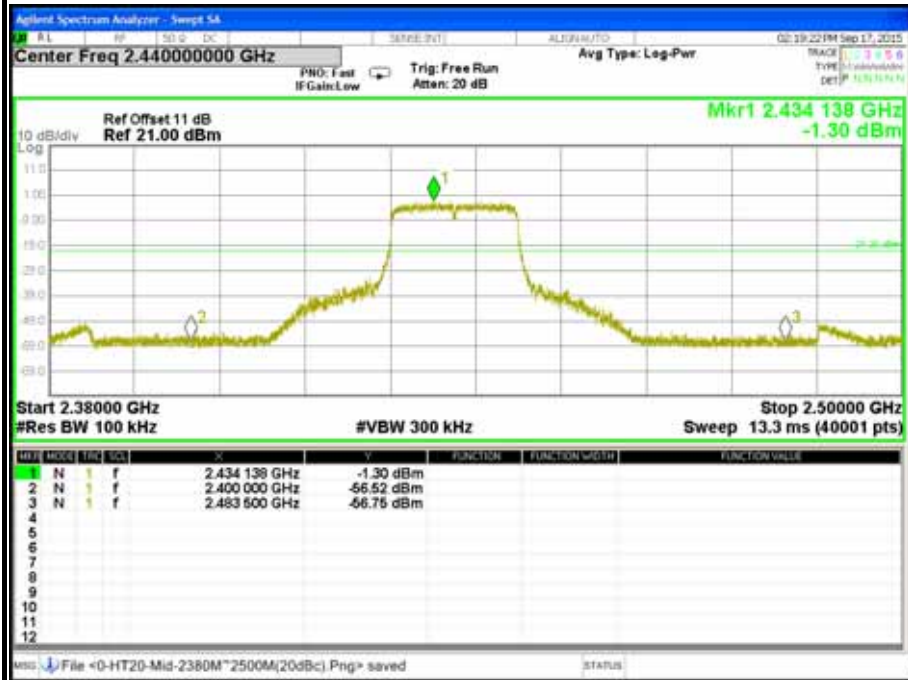
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 Mode / Chain 1)



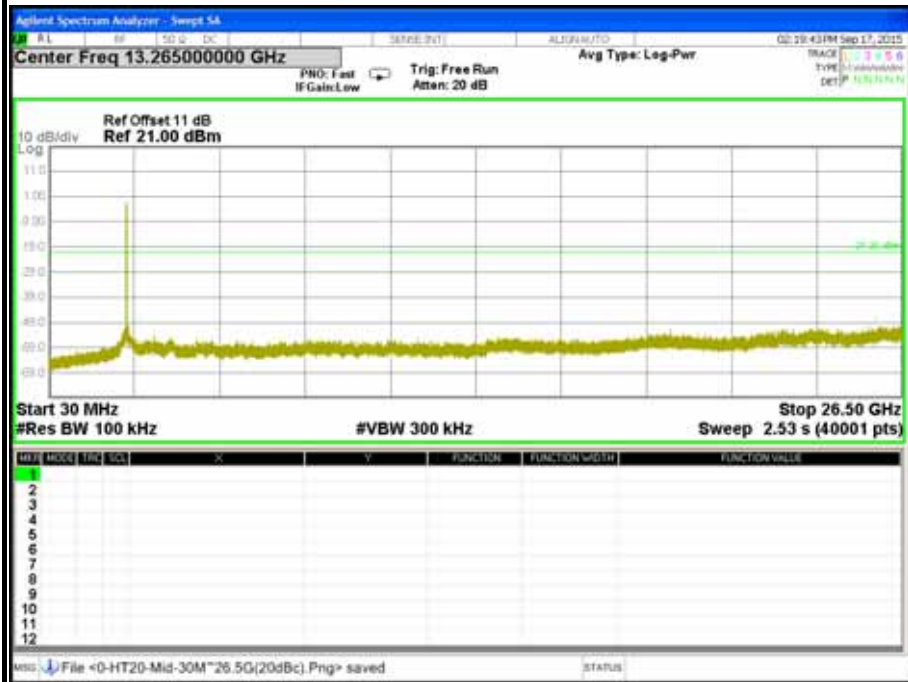
CH Low (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 Mode / Chain 1)



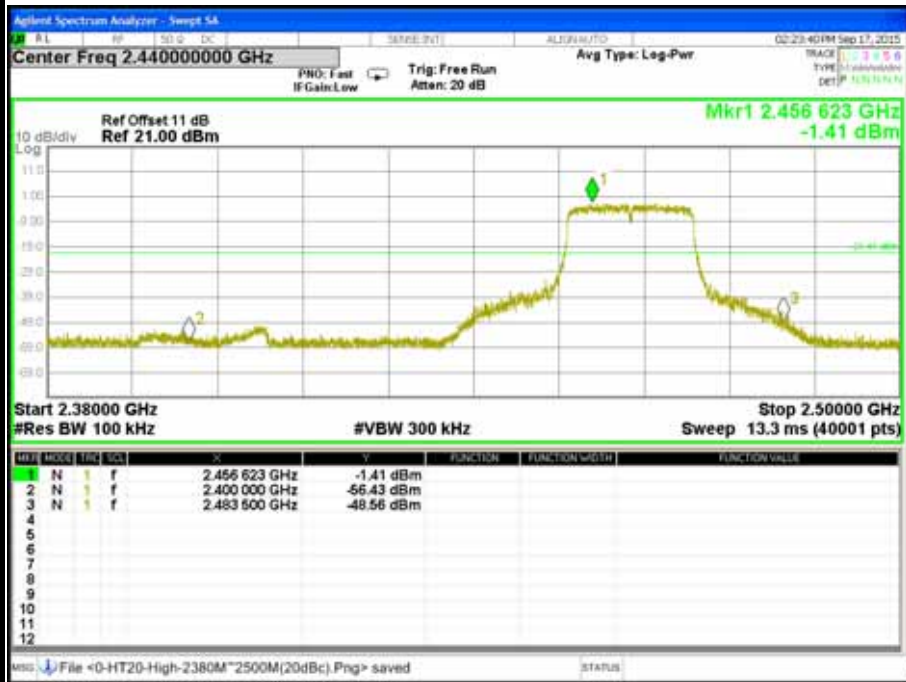
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 Mode / Chain 1)



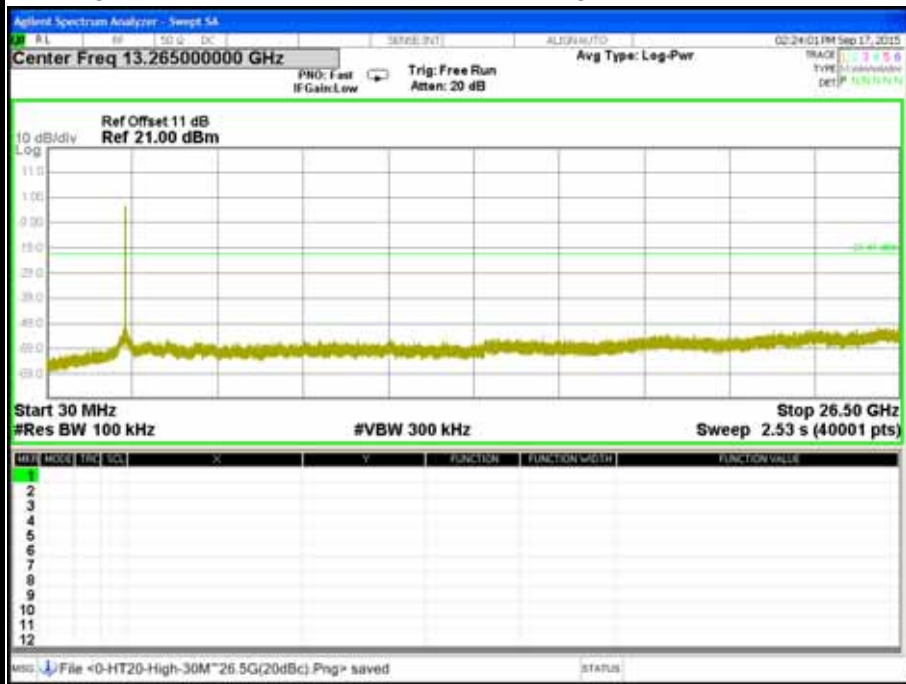
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 Mode/ Chain 1)

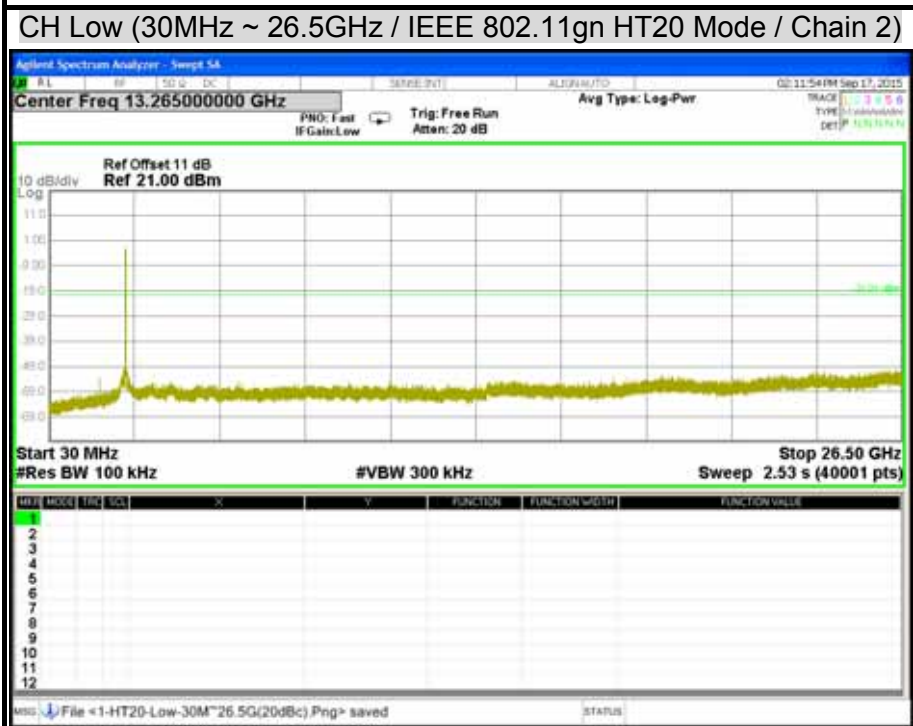
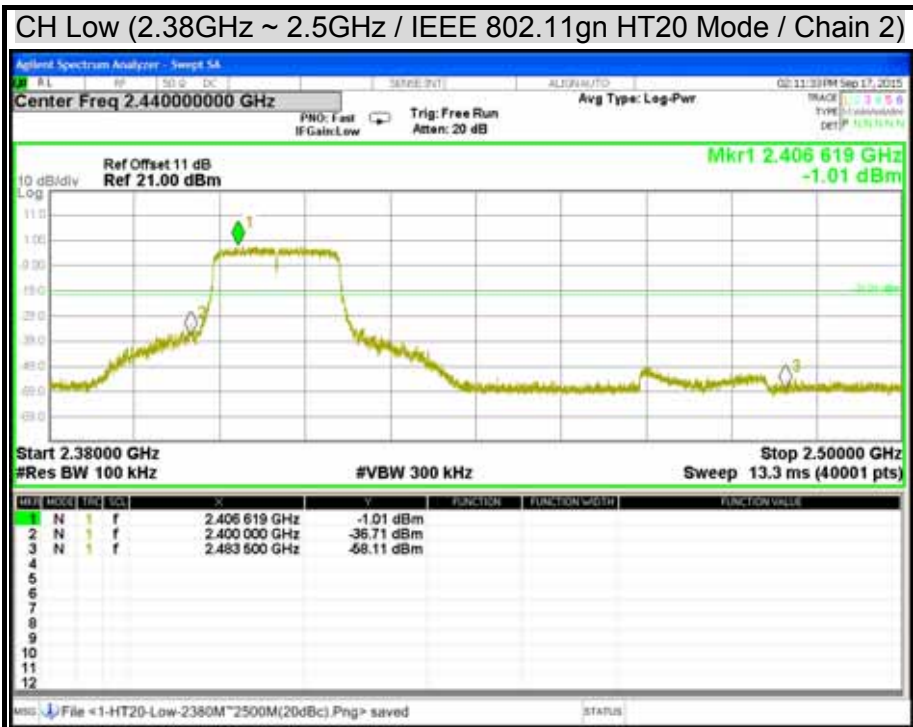


CH High (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 Mode / Chain 1)

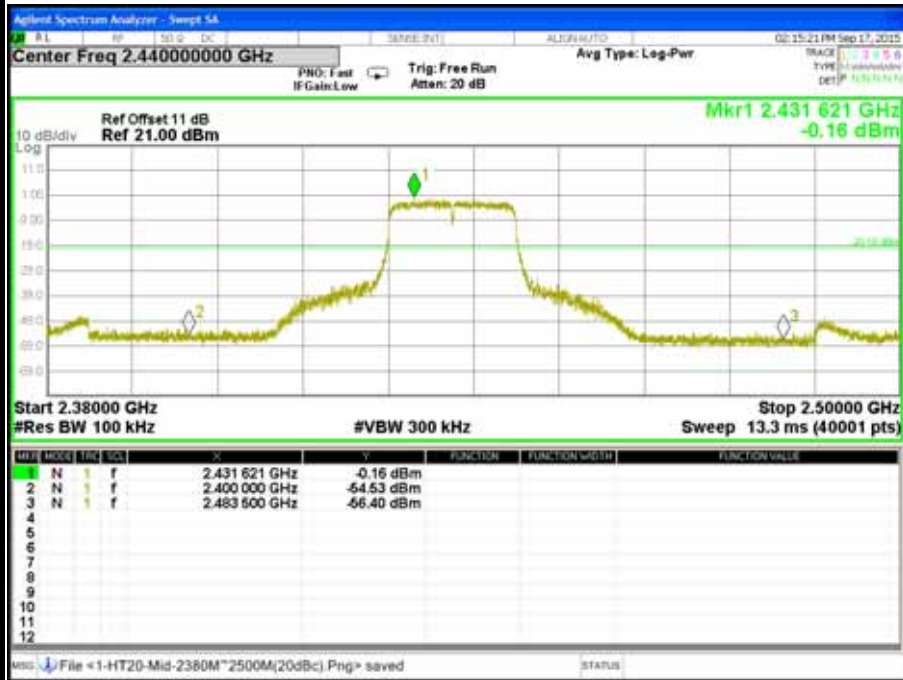


CH High (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 Mode / Chain 1)

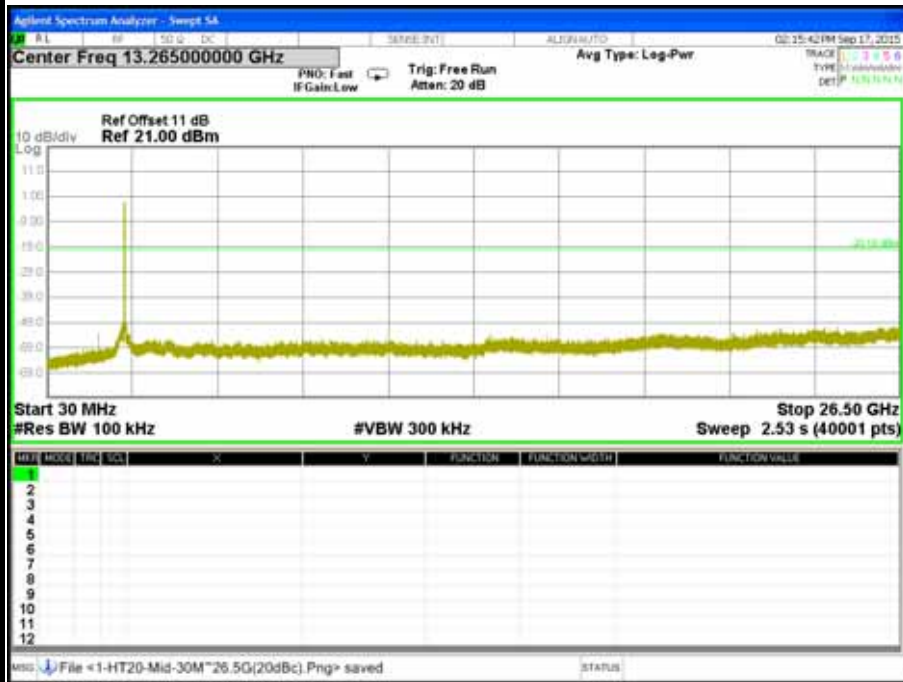




CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 Mode / Chain 2)



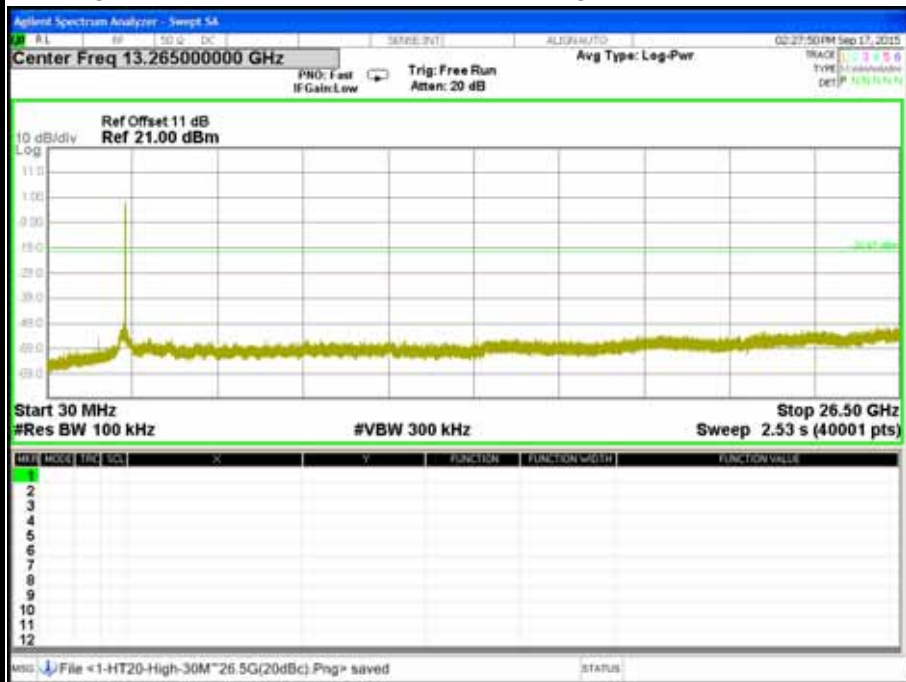
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 Mode/ Chain 2)



CH High (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 Mode / Chain 2)



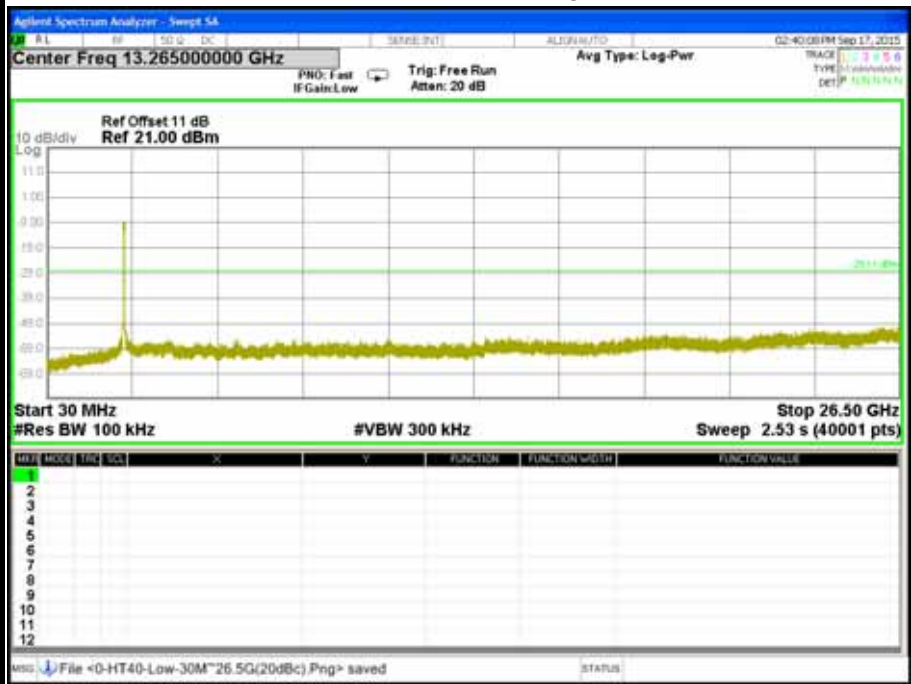
CH High (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 Mode / Chain 2)



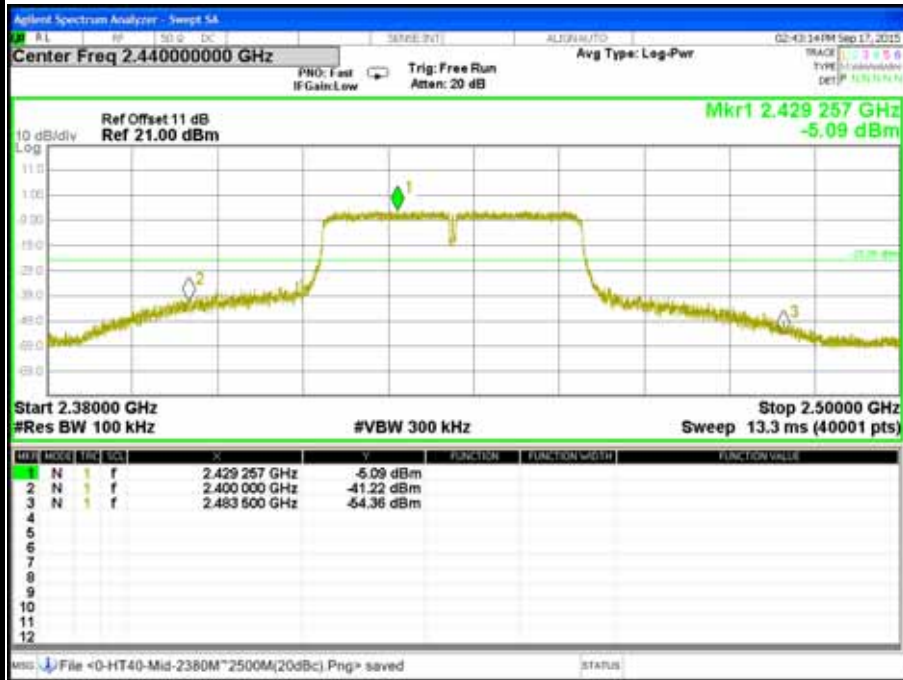
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 Mode / Chain 1)



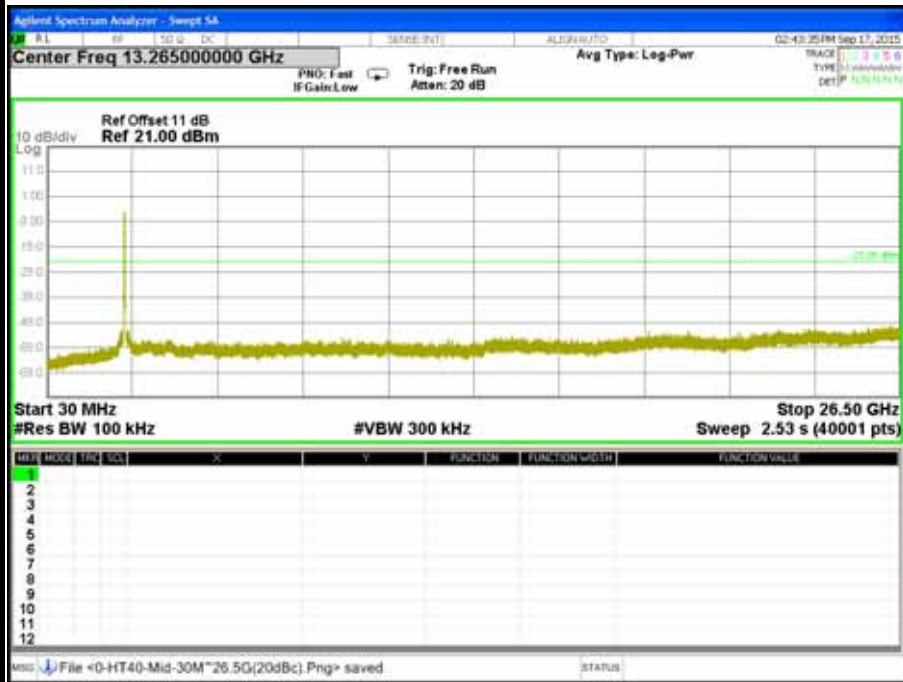
CH Low (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 Mode / Chain 1)



CH Middle (2.38MHz ~ 2.5GHz / IEEE 802.11gn HT40 Mode / Chain 1)



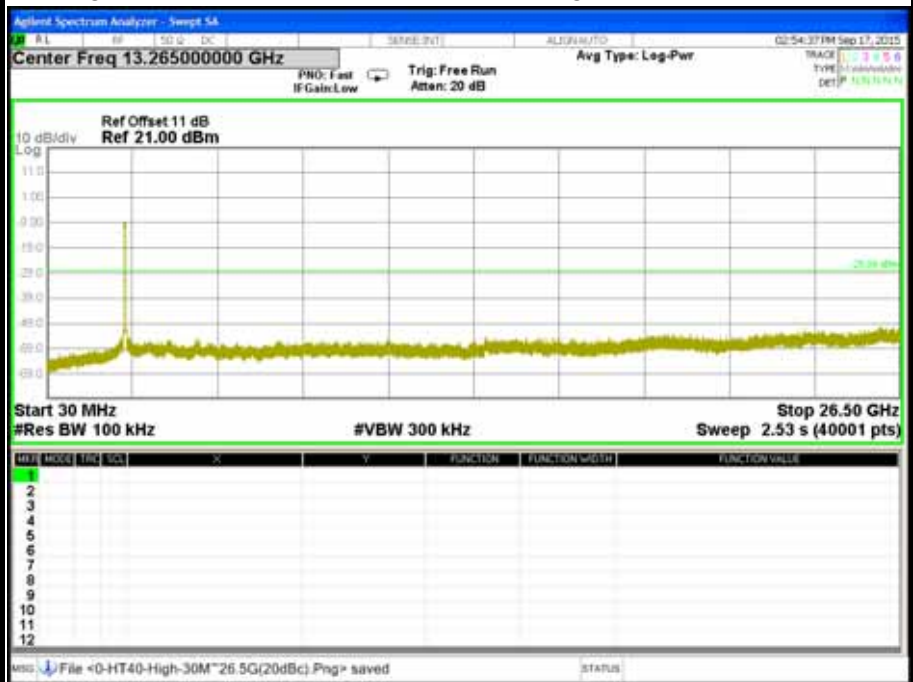
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 Mode / Chain 1)

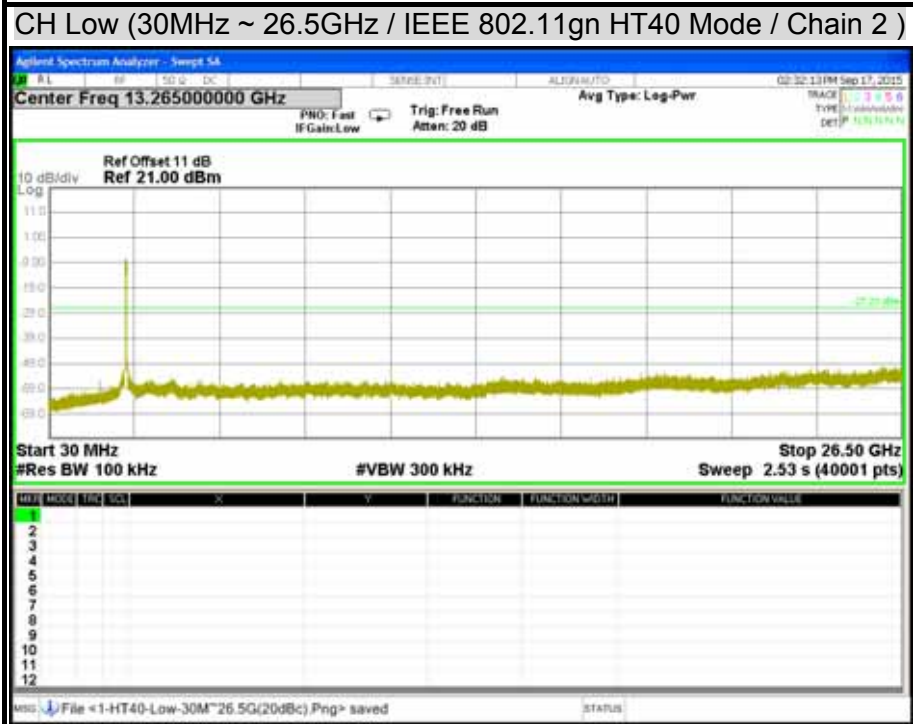
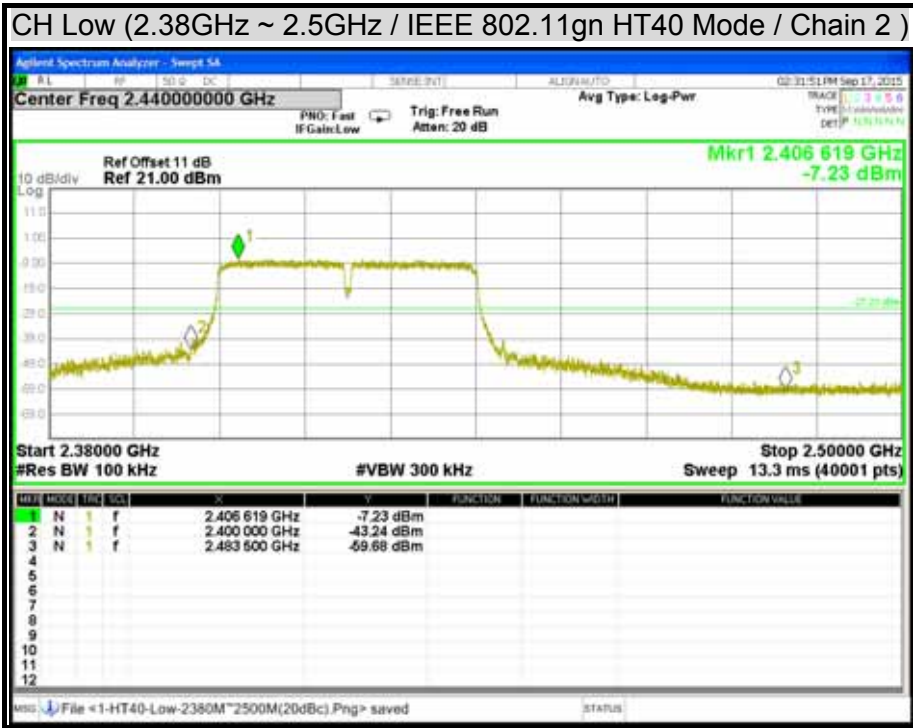


CH High (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 Mode / Chain 1)

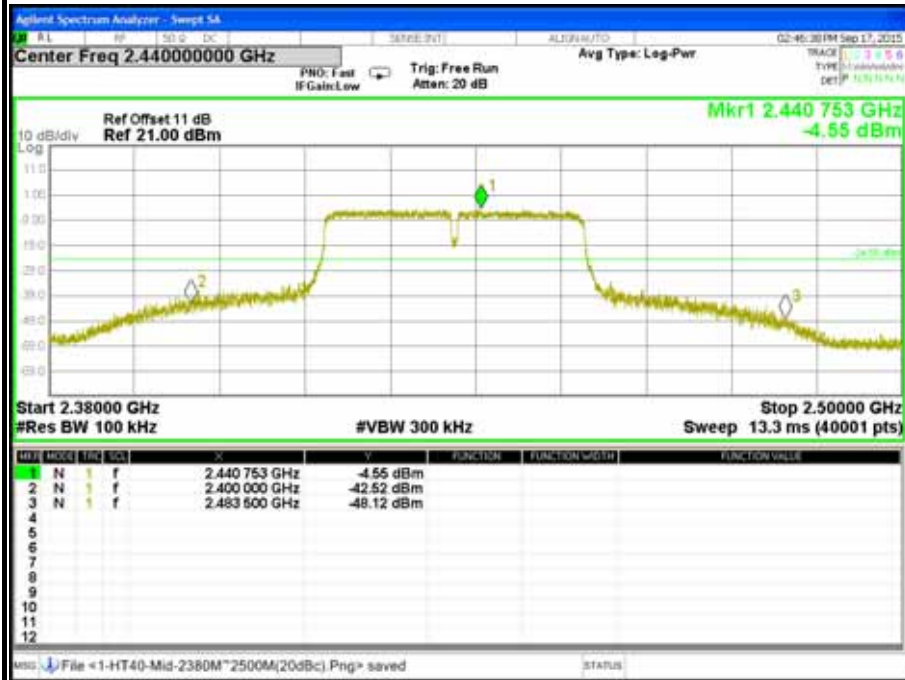


CH High (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 Mode / Chain 1)

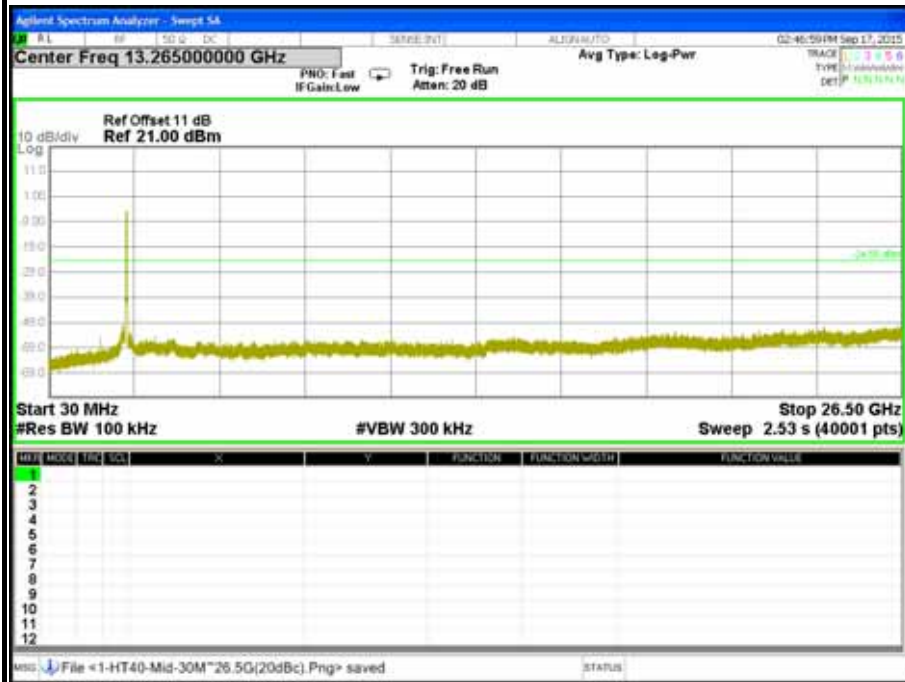




CH Middle (2.38MHz ~ 2.5GHz / IEEE 802.11gn HT40 Mode / Chain 2)



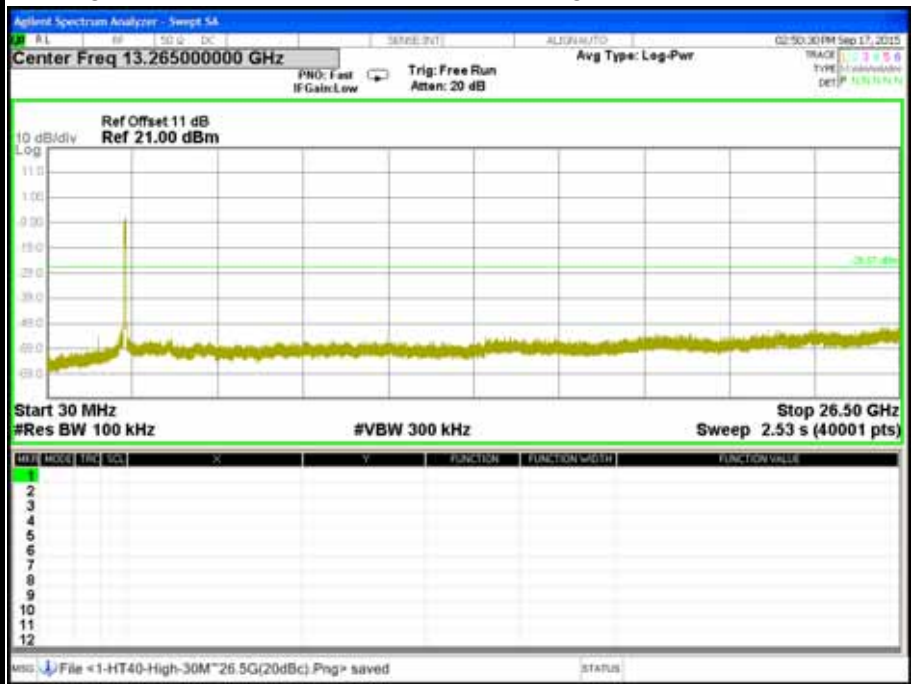
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 Mode / Chain 2)



CH High (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 Mode / Chain 2)



CH High (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 Mode / Chain 2)



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 in 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

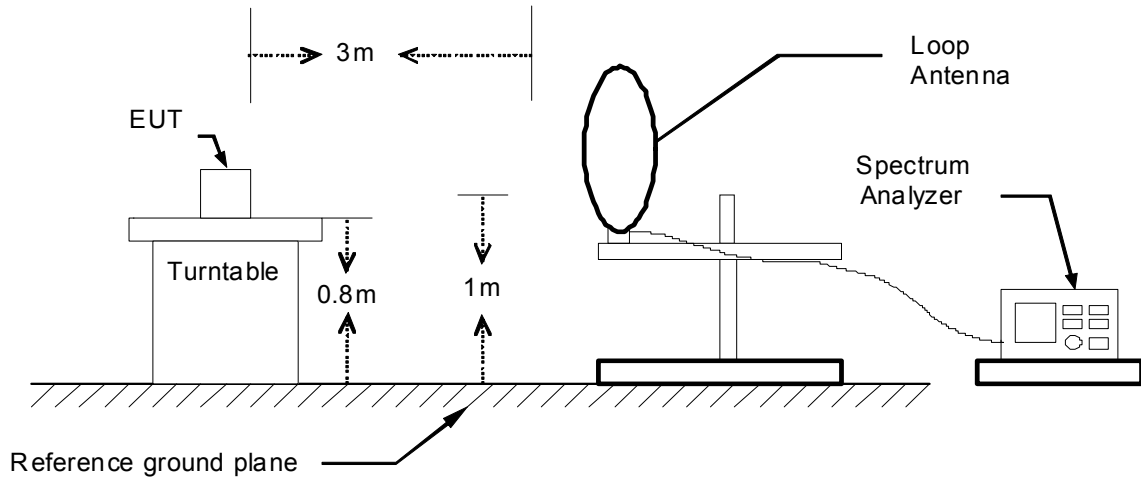
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY45280064	03/26/2016
EMI Test Receiver	Rohde & Schwarz	ESCI	101387	10/05/2015
Bi-log Antenna	TESEQ	CBL 6112D	35404	08/04/2016
Double-Ridged Waveguide Horn	ETS-LINDGREN	3117	00078732	07/14/2016
Horn Antenna	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.

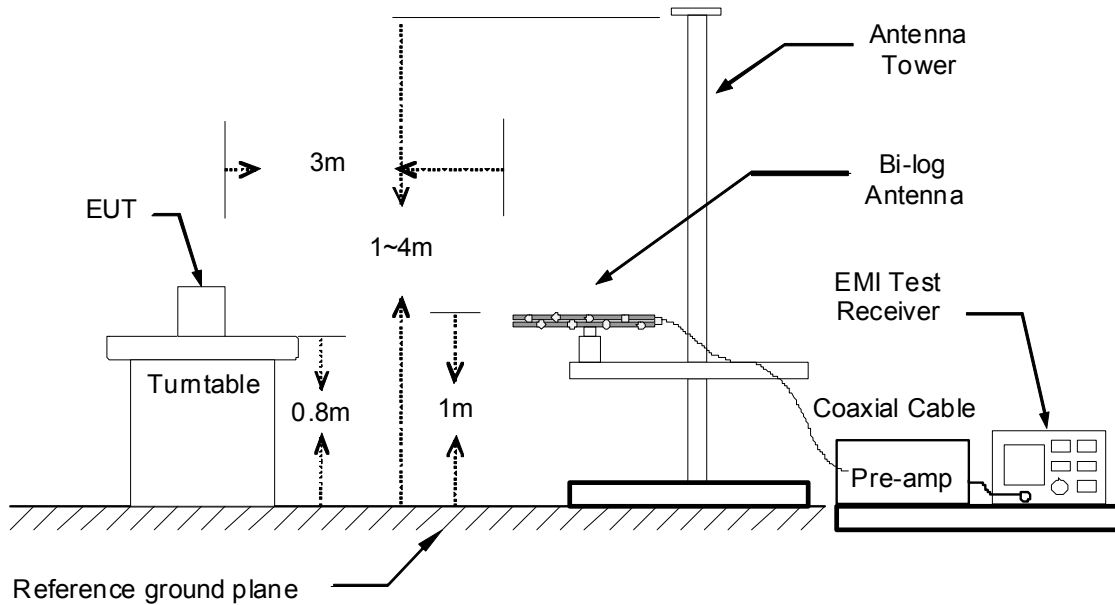
TEST SETUP

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

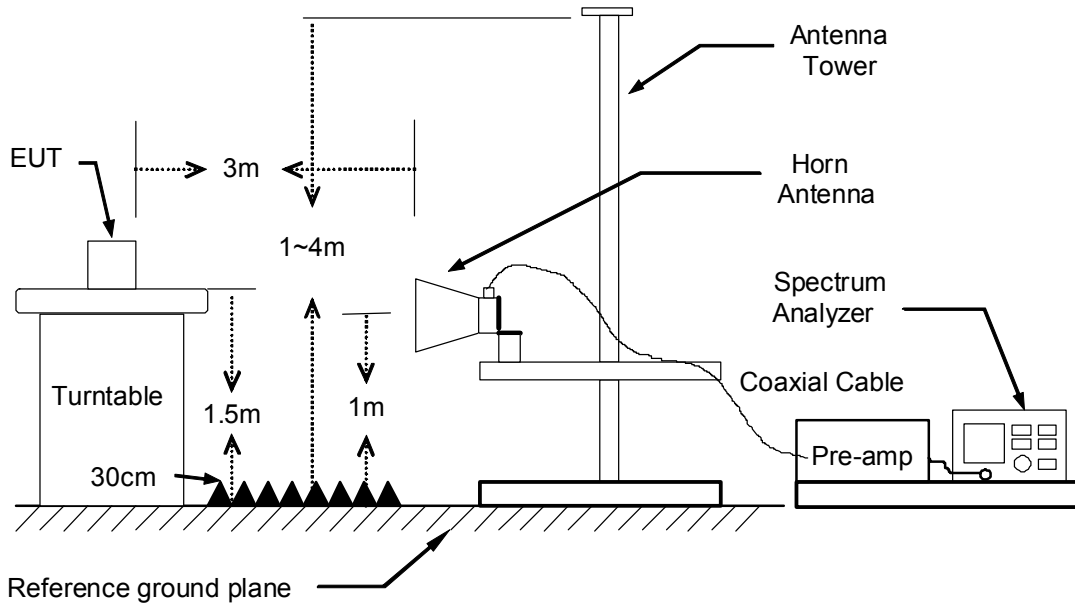
9kHz ~ 30MHz



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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Jey Li
Test Model	BEC MX-1000	Test Date	2015/09/14
Test Mode	Mode 2	Temp. & Humidity	24°C, 55%

966 Chamber_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
30.970	36.95	-11.78	25.17	40.00	-14.83	163	300	Peak
47.460	46.86	-21.37	25.49	40.00	-14.51	249	400	Peak
59.100	50.21	-24.47	25.74	40.00	-14.26	300	400	Peak
88.200	48.11	-22.38	25.73	43.50	-17.77	236	200	Peak
110.510	46.30	-19.15	27.15	43.50	-16.35	109	400	Peak
155.130	51.05	-19.90	31.15	43.50	-12.35	255	200	Peak

966 Chamber_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
30.000	48.02	-11.23	36.79	40.00	-3.21	291	100	Peak
42.610	55.62	-18.72	36.90	40.00	-3.10	7	100	Peak
58.130	52.70	-24.25	28.45	40.00	-11.55	70	100	Peak
80.440	54.38	-23.50	30.88	40.00	-9.12	11	100	Peak
112.450	49.07	-18.98	30.09	43.50	-13.41	88	100	Peak
142.520	48.59	-19.16	29.43	43.50	-14.07	188	100	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/11
Test Mode	IEEE 802.11b TX / CH Low	Temp. & Humidity	24°C, 55%

966 Chamber_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
1962.00	45.30	3.10	48.40	74.00	-25.60	208	100	Peak
2184.00	45.54	3.84	49.38	74.00	-24.62	0	100	Peak
2596.00	44.74	4.71	49.45	74.00	-24.55	177	200	Peak
4830.00	45.90	-0.22	45.68	74.00	-28.32	203	100	Peak
7710.00	44.07	2.93	47.00	74.00	-27.00	9	200	Peak
12090.00	42.70	8.10	50.80	74.00	-23.20	69	200	Peak

966 Chamber_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
2180.00	45.87	3.84	49.71	74.00	-24.29	351	200	Peak
2300.00	42.80	4.09	46.89	54.00	-7.11	29	200	Average
2300.00	50.01	4.09	54.10	74.00	-19.90	29	200	Peak
2490.00	43.50	4.50	48.00	54.00	-6.00	8	200	Average
2490.00	50.06	4.50	54.56	74.00	-19.44	8	200	Peak
4830.00	53.69	-0.22	53.47	54.00	-0.53	358	100	Average
4830.00	55.72	-0.22	55.50	74.00	-18.50	358	100	Peak
7800.00	43.62	2.98	46.60	74.00	-27.40	230	200	Peak
11325.00	42.25	7.04	49.29	74.00	-24.71	67	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/11
Test Mode	IEEE 802.11b TX / CH Middle	Temp. & Humidity	24°C, 55%

966 Chamber_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
2046.00	45.05	3.55	48.60	74.00	-25.40	125	100	Peak
2260.00	45.75	4.01	49.76	74.00	-24.24	39	100	Peak
2662.00	44.77	4.83	49.60	74.00	-24.40	93	100	Peak
4875.00	48.90	-0.06	48.84	74.00	-25.16	169	200	Peak
7005.00	43.97	2.59	46.56	74.00	-27.44	241	100	Peak
10800.00	42.70	6.41	49.11	74.00	-24.89	80	200	Peak

966 Chamber_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
2384.00	43.60	4.27	47.87	54.00	-6.13	0	200	Average
2384.00	50.53	4.27	54.80	74.00	-19.20	0	200	Peak
2484.00	43.50	4.49	47.99	54.00	-6.01	6	200	Average
2484.00	50.44	4.49	54.93	74.00	-19.07	6	200	Peak
2574.00	42.80	4.66	47.46	54.00	-6.54	0	200	Average
2574.00	49.82	4.66	54.48	74.00	-19.52	0	200	Peak
4875.00	53.00	-0.06	52.94	54.00	-1.06	134	200	Average
4875.00	55.07	-0.06	55.01	74.00	-18.99	134	200	Peak
8460.00	43.27	3.63	46.90	74.00	-27.10	145	200	Peak
11850.00	44.04	7.86	51.90	74.00	-22.10	108	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/11
Test Mode	IEEE 802.11b TX / CH High	Temp. & Humidity	24°C, 55%

966 Chamber_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
1952.00	44.95	3.00	47.95	74.00	-26.05	0	200	Peak
2262.00	45.41	4.01	49.42	74.00	-24.58	251	100	Peak
2648.00	44.93	4.81	49.74	74.00	-24.26	40	200	Peak
4920.00	48.23	0.10	48.33	74.00	-25.67	71	100	Peak
9330.00	43.12	4.17	47.29	74.00	-26.71	6	200	Peak
11955.00	43.43	8.05	51.48	74.00	-22.52	69	100	Peak

966 Chamber_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
2220.00	46.29	3.92	50.21	74.00	-23.79	40	200	Peak
2368.00	43.05	4.24	47.29	54.00	-6.71	0	200	Average
2368.00	50.83	4.24	55.07	74.00	-18.93	0	200	Peak
2518.00	42.70	4.55	47.25	54.00	-6.75	2	200	Average
2518.00	50.59	4.55	55.14	74.00	-18.86	2	200	Peak
4920.00	53.04	0.10	53.14	54.00	-0.86	137	200	Average
4920.00	55.22	0.10	55.32	74.00	-18.68	137	200	Peak
7650.00	43.99	2.90	46.89	74.00	-27.11	211	200	Peak
10020.00	44.17	4.96	49.13	74.00	-24.87	329	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11g TX / CH Low	Temp. & Humidity	24°C, 55%

966 Chamber_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
2068.00	45.26	3.60	48.86	74.00	-25.14	360	100	Peak
2228.00	45.08	3.94	49.02	74.00	-24.98	222	200	Peak
2580.00	45.61	4.68	50.29	74.00	-23.71	125	200	Peak
5130.00	43.44	0.48	43.92	74.00	-30.08	114	100	Peak
7770.00	43.83	2.97	46.80	74.00	-27.20	46	200	Peak
11340.00	42.50	7.06	49.56	74.00	-24.44	289	100	Peak

966 Chamber_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
2300.00	48.44	4.09	52.53	74.00	-21.47	48	200	Peak
2486.00	44.50	4.49	48.99	54.00	-5.01	0	200	Average
2486.00	52.07	4.49	56.56	74.00	-17.44	0	200	Peak
2546.00	43.10	4.61	47.71	54.00	-6.29	2	200	Average
2546.00	51.24	4.61	55.85	74.00	-18.15	2	200	Peak
4830.00	44.81	-0.22	44.59	74.00	-29.41	347	100	Peak
7035.00	43.79	2.61	46.40	74.00	-27.60	231	100	Peak
11265.00	42.74	6.99	49.73	74.00	-24.27	212	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11g TX / CH Middle	Temp. & Humidity	24°C, 55%

966 Chamber_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
2108.00	44.85	3.68	48.53	74.00	-25.47	36	200	Peak
2358.00	45.35	4.22	49.57	74.00	-24.43	209	100	Peak
2490.00	47.56	4.50	52.06	74.00	-21.94	36	200	Peak
4800.00	44.46	-0.33	44.13	74.00	-29.87	75	100	Peak
7770.00	44.33	2.97	47.30	74.00	-26.70	234	200	Peak
11355.00	42.58	7.07	49.65	74.00	-24.35	227	200	Peak

966 Chamber_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
2384.00	47.82	4.27	52.09	54.00	-1.91	0	200	Average
2384.00	54.47	4.27	58.74	74.00	-15.26	0	200	Peak
2492.00	48.90	4.50	53.40	54.00	-0.60	1	200	Average
2492.00	55.99	4.50	60.49	74.00	-13.51	1	200	Peak
2548.00	52.03	4.61	56.64	74.00	-17.36	6	200	Peak
4965.00	44.08	0.26	44.34	74.00	-29.66	219	200	Peak
7785.00	44.20	2.97	47.17	74.00	-26.83	331	200	Peak
11220.00	42.34	6.95	49.29	74.00	-24.71	123	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11g TX / CH High	Temp. & Humidity	24°C, 55%

966 Chamber_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
2044.00	45.02	3.54	48.56	74.00	-25.44	209	200	Peak
2254.00	45.15	3.99	49.14	74.00	-24.86	253	100	Peak
2600.00	45.55	4.71	50.26	74.00	-23.74	313	200	Peak
5415.00	43.68	0.70	44.38	74.00	-29.62	0	100	Peak
7710.00	44.26	2.93	47.19	74.00	-26.81	33	200	Peak
11910.00	42.70	7.97	50.67	74.00	-23.33	16	100	Peak

966 Chamber_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
2236.00	46.81	3.96	50.77	74.00	-23.23	16	100	Peak
2376.00	41.30	4.25	45.55	54.00	-8.45	10	200	Average
2376.00	50.61	4.25	54.86	74.00	-19.14	10	200	Peak
2518.00	45.50	4.55	50.05	54.00	-3.95	0	100	Average
2518.00	53.39	4.55	57.94	74.00	-16.06	0	100	Peak
4935.00	45.20	0.15	45.35	74.00	-28.65	174	200	Peak
7740.00	43.73	2.95	46.68	74.00	-27.32	39	100	Peak
11940.00	43.01	8.03	51.04	74.00	-22.96	208	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11gn HT20 TX / CH Low	Temp. & Humidity	24°C, 55%

966 Chamber_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
2122.00	45.66	3.71	49.37	74.00	-24.63	26	100	Peak
2236.00	47.23	3.96	51.19	74.00	-22.81	191	200	Peak
2528.00	45.54	4.57	50.11	74.00	-23.89	336	100	Peak
4935.00	43.70	0.15	43.85	74.00	-30.15	333	200	Peak
7755.00	43.76	2.96	46.72	74.00	-27.28	124	100	Peak
11880.00	44.06	7.91	51.97	74.00	-22.03	105	100	Peak

966 Chamber_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
2110.00	45.19	3.69	48.88	74.00	-25.12	1	200	Peak
2288.00	40.80	4.07	44.87	54.00	-9.13	332	100	Average
2288.00	50.58	4.07	54.65	74.00	-19.35	332	100	Peak
2534.00	40.20	4.59	44.79	54.00	-9.21	0	100	Average
2534.00	49.96	4.59	54.55	74.00	-19.45	0	100	Peak
4950.00	43.87	0.20	44.07	74.00	-29.93	234	100	Peak
7740.00	43.97	2.95	46.92	74.00	-27.08	360	200	Peak
12765.00	43.40	7.98	51.38	74.00	-22.62	195	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11gn HT20 TX / CH Middle	Temp. & Humidity	24°C, 55%

966 Chamber_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
2074.00	45.23	3.61	48.84	74.00	-25.16	26	100	Peak
2386.00	45.74	4.28	50.02	74.00	-23.98	198	200	Peak
2488.00	40.30	4.49	44.79	54.00	-9.21	44	200	Average
2488.00	48.87	4.49	53.36	74.00	-20.64	44	200	Peak
4890.00	44.82	-0.01	44.81	74.00	-29.19	83	100	Peak
7620.00	44.17	2.88	47.05	74.00	-26.95	227	100	Peak
12585.00	43.30	7.94	51.24	74.00	-22.76	41	200	Peak

966 Chamber_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
2152.00	45.66	3.78	49.44	74.00	-24.56	10	200	Peak
2384.00	48.98	4.27	53.25	54.00	-0.75	315	200	Average
2384.00	55.99	4.27	60.26	74.00	-13.74	315	200	Peak
2488.00	47.54	4.49	52.03	54.00	-1.97	33	200	Average
2488.00	55.47	4.49	59.96	74.00	-14.04	33	200	Peak
4875.00	47.56	-0.06	47.50	74.00	-26.50	138	200	Peak
7665.00	44.14	2.91	47.05	74.00	-26.95	282	200	Peak
12585.00	43.73	7.94	51.67	74.00	-22.33	153	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11gn HT20 TX / CH High	Temp. & Humidity	24°C, 55%

966 Chamber_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
2164.00	44.95	3.80	48.75	74.00	-25.25	56	200	Peak
2304.00	45.71	4.10	49.81	74.00	-24.19	6	200	Peak
2516.00	45.74	4.55	50.29	74.00	-23.71	50	100	Peak
5040.00	43.86	0.41	44.27	74.00	-29.73	26	200	Peak
7620.00	44.15	2.88	47.03	74.00	-26.97	141	100	Peak
11910.00	43.44	7.97	51.41	74.00	-22.59	217	200	Peak

966 Chamber_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
2148.00	45.54	3.77	49.31	74.00	-24.69	297	100	Peak
2338.00	46.20	4.17	50.37	54.00	-3.63	44	200	Average
2338.00	53.17	4.17	57.34	74.00	-16.66	44	200	Peak
2514.00	47.20	4.55	51.75	54.00	-2.25	342	200	Average
2514.00	56.12	4.55	60.67	74.00	-13.33	342	200	Peak
4935.00	44.75	0.15	44.90	74.00	-29.10	186	100	Peak
9330.00	43.91	4.17	48.08	74.00	-25.92	0	100	Peak
11955.00	43.82	8.05	51.87	74.00	-22.13	204	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11gn HT40 TX / CH Low	Temp. & Humidity	24°C, 55%

966 Chamber_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
1956.00	44.78	3.04	47.82	74.00	-26.18	105	100	Peak
2206.00	45.32	3.89	49.21	74.00	-24.79	322	100	Peak
2524.00	46.14	4.57	50.71	74.00	-23.29	45	100	Peak
5265.00	43.44	0.59	44.03	74.00	-29.97	55	100	Peak
7755.00	44.03	2.96	46.99	74.00	-27.01	353	100	Peak
11820.00	43.16	7.80	50.96	74.00	-23.04	226	200	Peak

966 Chamber_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
2030.00	45.04	3.51	48.55	74.00	-25.45	354	200	Peak
2296.00	42.30	4.08	46.38	54.00	-7.62	320	200	Average
2296.00	49.96	4.08	54.04	74.00	-19.96	320	200	Peak
2532.00	42.80	4.58	47.38	54.00	-6.62	358	200	Average
2532.00	52.29	4.58	56.87	74.00	-17.13	358	200	Peak
5325.00	44.32	0.63	44.95	74.00	-29.05	14	200	Peak
9255.00	43.38	4.17	47.55	74.00	-26.45	331	200	Peak
11880.00	43.93	7.91	51.84	74.00	-22.16	152	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11gn HT40 TX / CH Middle	Temp. & Humidity	24°C, 55%

966 Chamber_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
2068.00	44.29	3.60	47.89	74.00	-26.11	96	200	Peak
2276.00	46.70	4.04	50.74	74.00	-23.26	357	200	Peak
2484.00	47.79	4.49	52.28	74.00	-21.72	40	100	Peak
4995.00	43.99	0.36	44.35	74.00	-29.65	168	200	Peak
8460.00	43.91	3.63	47.54	74.00	-26.46	65	200	Peak
11985.00	42.86	8.11	50.97	74.00	-23.03	260	100	Peak

966 Chamber_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
1862.00	45.15	2.17	47.32	74.00	-26.68	224	100	Peak
2390.00	45.94	4.28	50.22	54.00	-3.78	201	200	Average
2390.00	57.80	4.28	62.08	74.00	-11.92	201	200	Peak
2484.00	46.24	4.49	50.73	54.00	-3.27	16	200	Average
2484.00	59.19	4.49	63.68	74.00	-10.32	16	200	Peak
5595.00	43.95	0.97	44.92	74.00	-29.08	185	200	Peak
9330.00	43.28	4.17	47.45	74.00	-26.55	198	100	Peak
11925.00	43.45	8.00	51.45	74.00	-22.55	17	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	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Rex Chiu
Test Model	BEC MX-1000	Test Date	2015/08/12
Test Mode	IEEE 802.11gn HT40 TX / CH High	Temp. & Humidity	24°C, 55%

966 Chamber_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
2012.00	44.40	3.48	47.88	74.00	-26.12	41	200	Peak
2254.00	45.86	3.99	49.85	74.00	-24.15	274	200	Peak
2614.00	46.13	4.74	50.87	74.00	-23.13	42	100	Peak
5025.00	44.18	0.40	44.58	74.00	-29.42	134	100	Peak
9375.00	44.58	4.16	48.74	74.00	-25.26	95	100	Peak
11805.00	43.44	7.77	51.21	74.00	-22.79	192	100	Peak

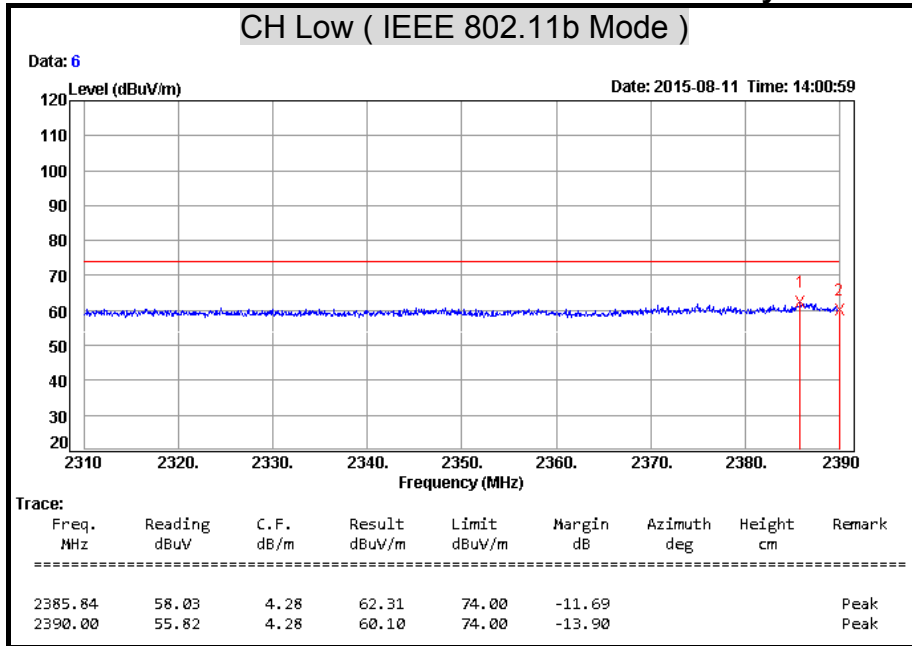
966 Chamber_C at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2172.00	45.74	3.82	49.56	74.00	-24.44	336	200	Peak
2350.00	43.50	4.20	47.70	54.00	-6.30	187	200	Average
2350.00	51.63	4.20	55.83	74.00	-18.17	187	200	Peak
2554.00	40.30	4.62	44.92	54.00	-9.08	332	200	Average
2554.00	50.54	4.62	55.16	74.00	-18.84	332	200	Peak
5115.00	43.79	0.47	44.26	74.00	-29.74	71	200	Peak
9360.00	43.74	4.16	47.90	74.00	-26.10	100	100	Peak
12735.00	43.52	7.98	51.50	74.00	-22.50	48	200	Peak

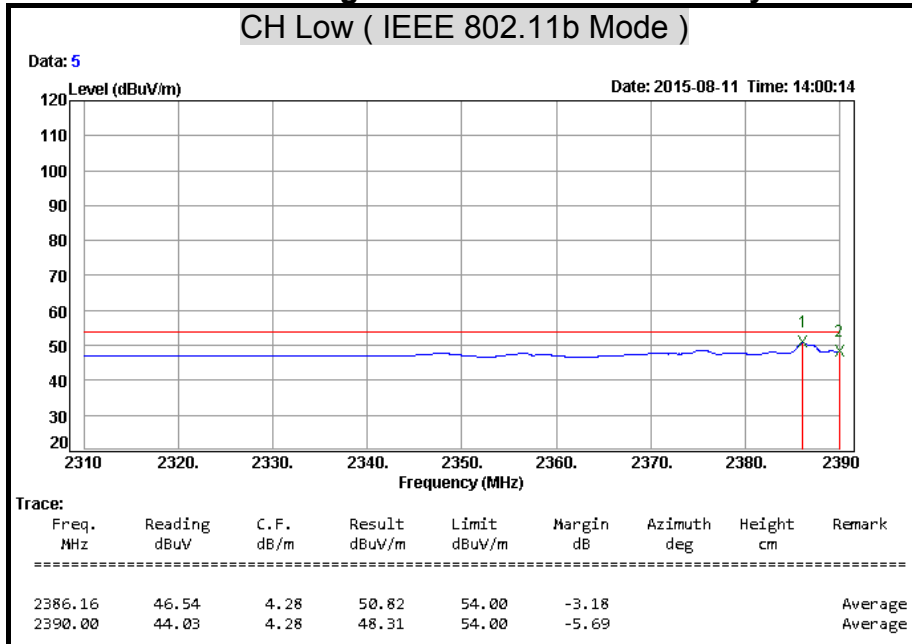
Remark:

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)

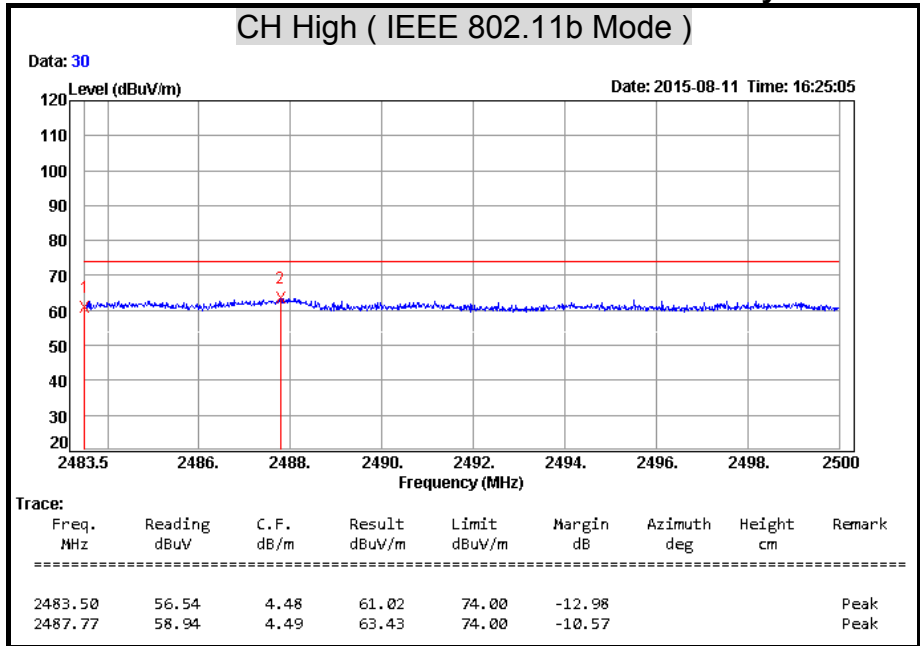
Detector Mode : Peak **Polarity : Vertical**



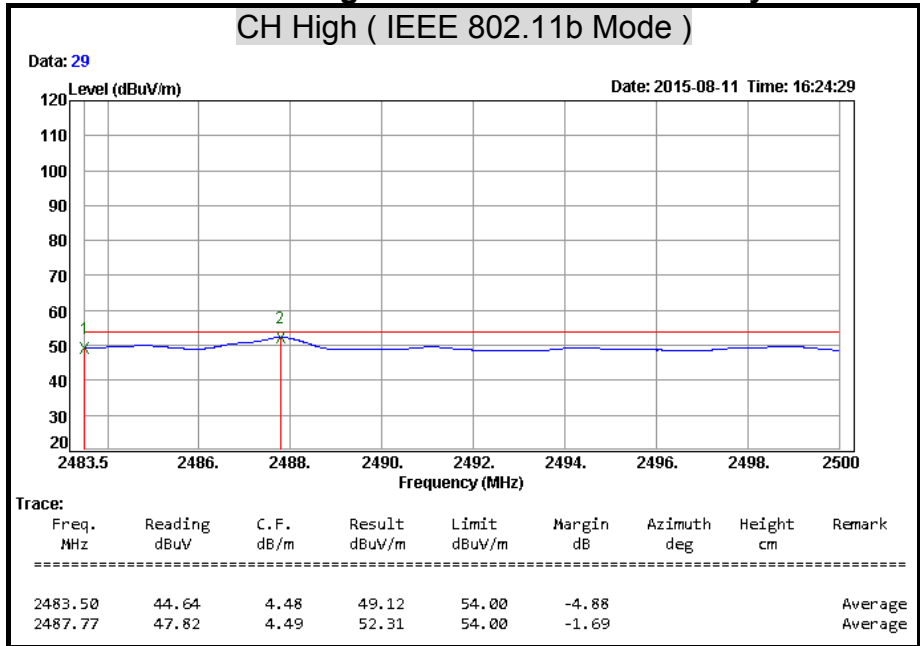
Detector Mode : Average **Polarity : Vertical**



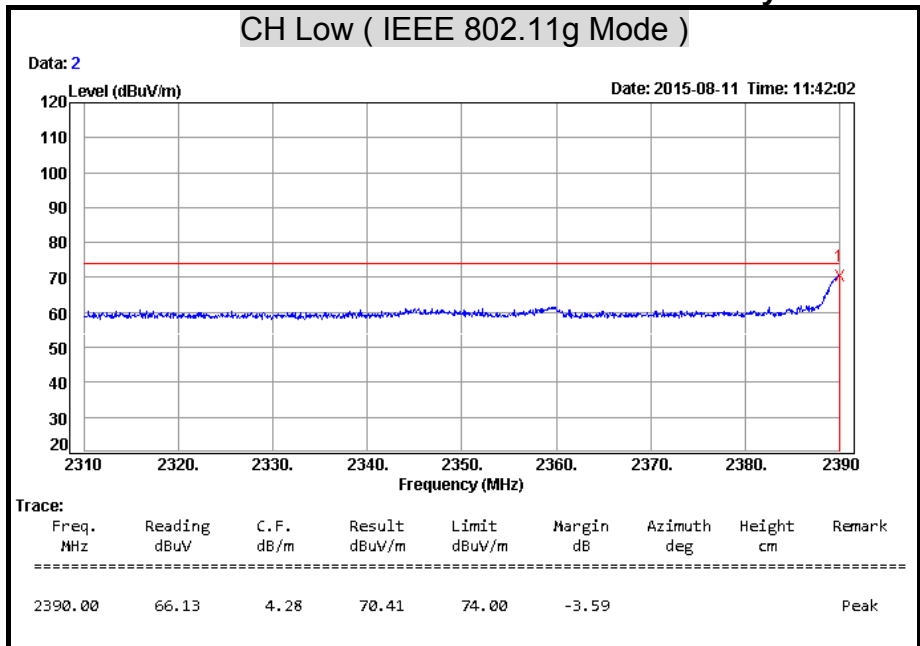
Detector Mode : Peak **Polarity : Vertical**



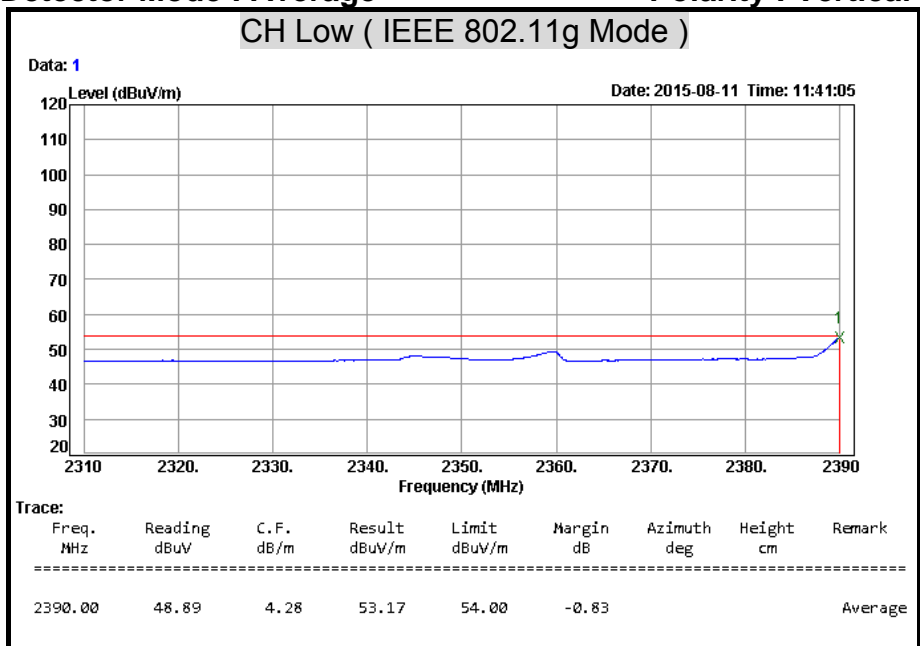
Detector Mode : Average **Polarity : Vertical**



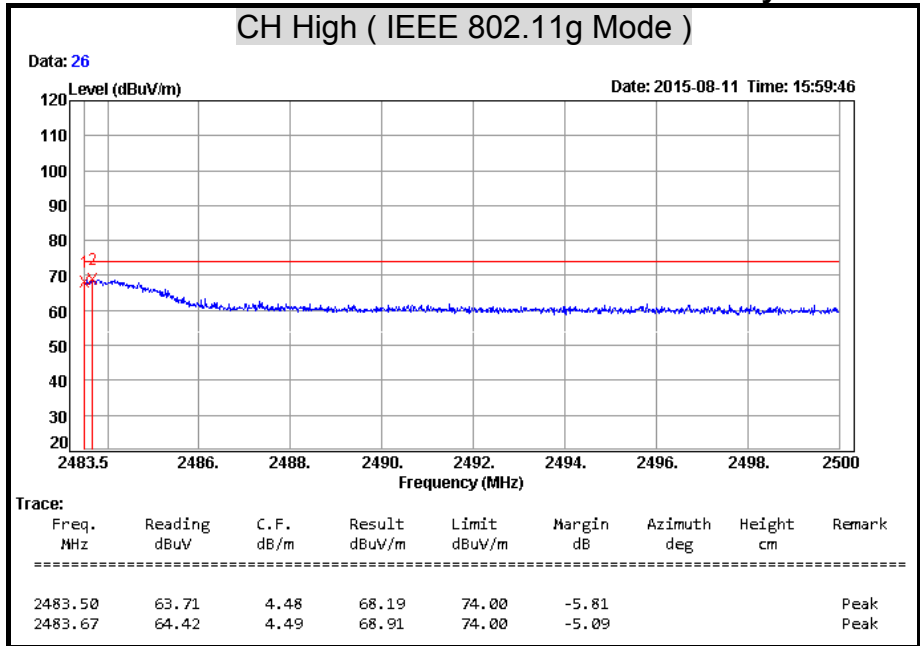
Detector Mode : Peak **Polarity : Vertical**



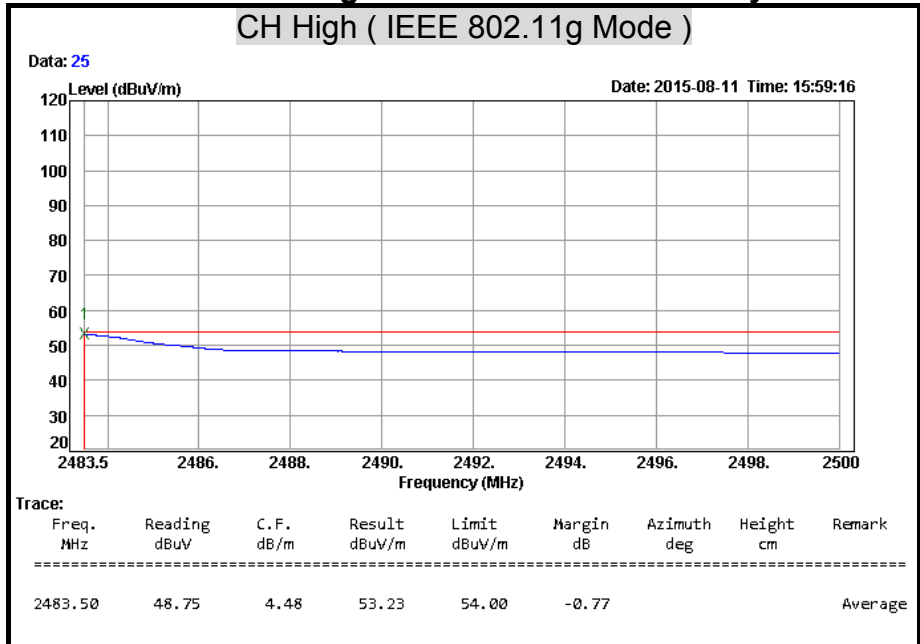
Detector Mode : Average **Polarity : Vertical**



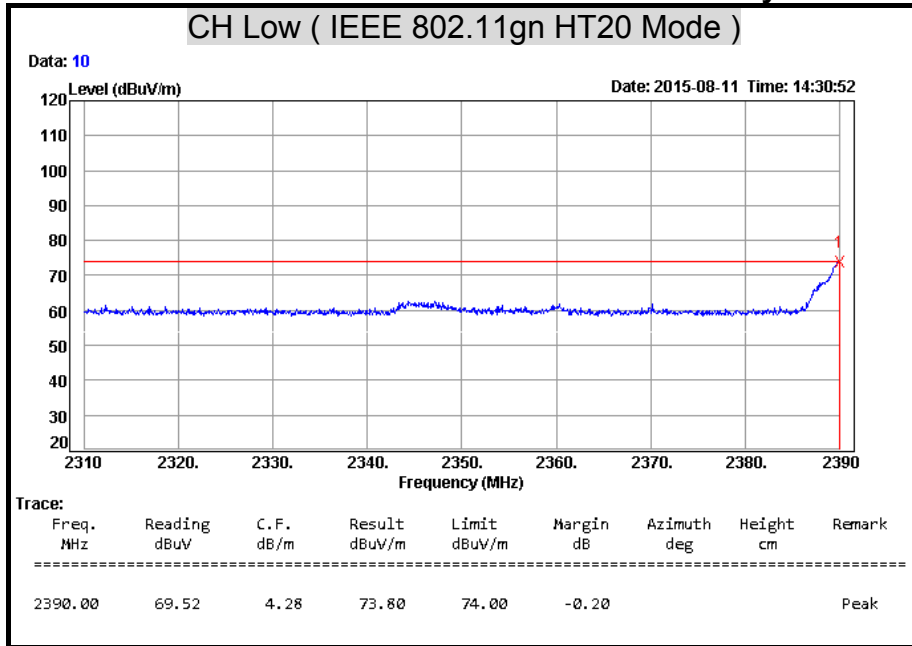
Detector Mode : Peak **Polarity : Vertical**



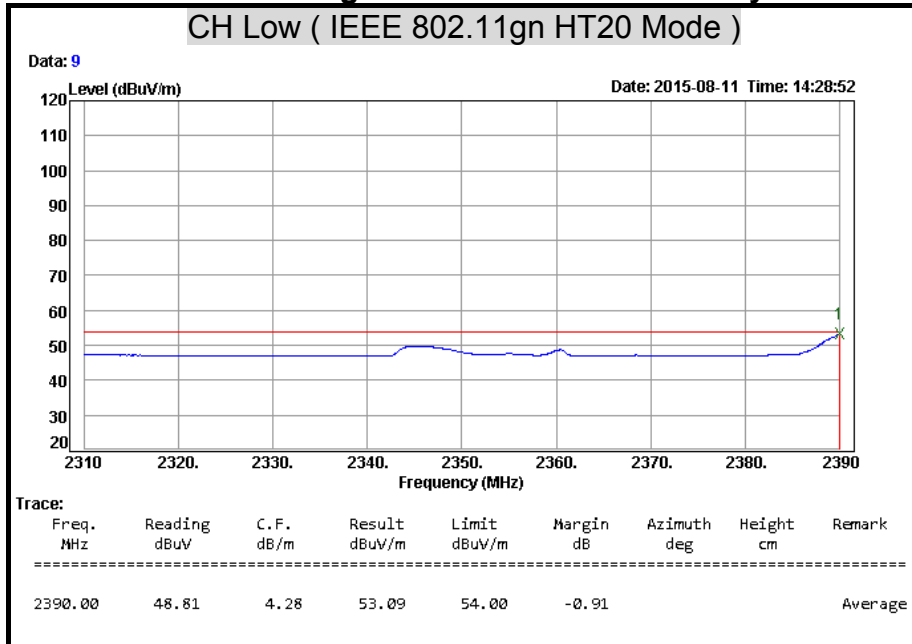
Detector Mode : Average **Polarity : Vertical**



Detector Mode : Peak **Polarity : Vertical**



Detector Mode : Average **Polarity : Vertical**



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 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.

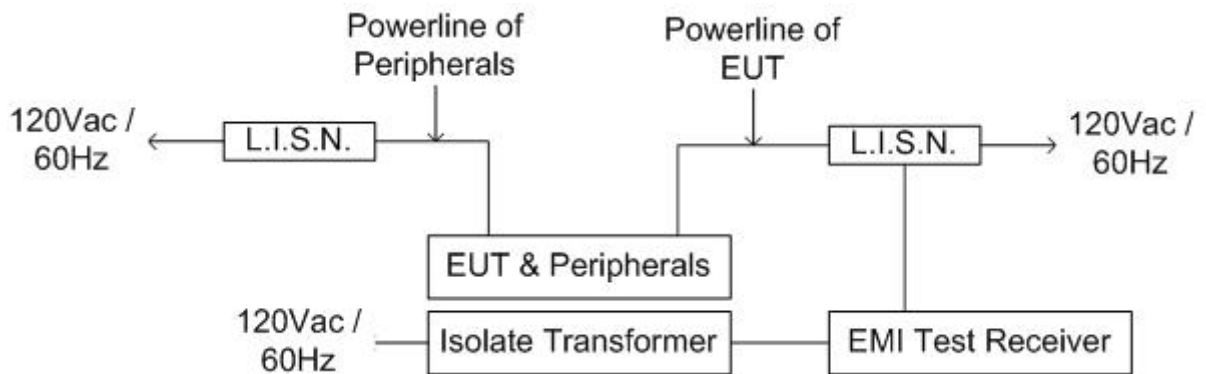
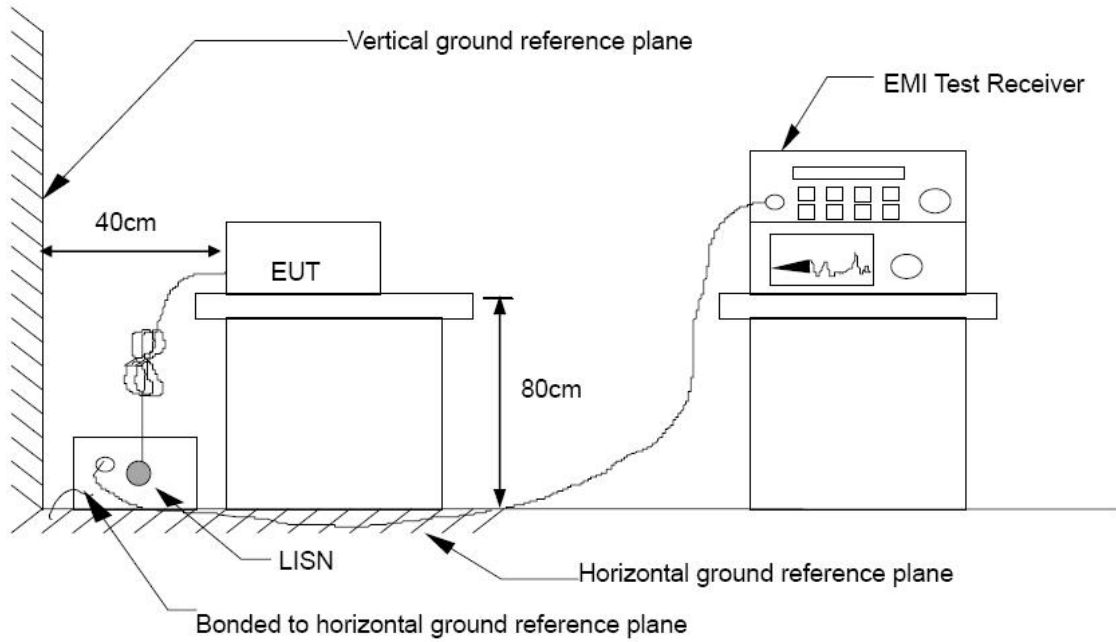
Frequency Range (MHz)	Conducted Limit (dB μ v)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5.00	56	46
5.00 - 30.0	60	50

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	11/02/2015
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 and ANSI C63.4:2014.

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

Since the EUT is powered by Battery Powered, this test item is not applicable.

APPENDIX I CO-LOCATION

Product Name	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Jey Li
Test Model	BEC MX-1000	Test Date	2015/09/14
Test Mode	2G (MC7354) + LTE (W-DL060) + WiFi	Temp. & Humidity	24°C, 55%

966 Chamber_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
1155.000	38.25	-1.07	37.18	74.00	-36.82	37	200	Peak
1475.000	38.73	-1.18	37.55	74.00	-36.45	140	100	Peak
1750.000	37.80	1.13	38.93	74.00	-35.07	274	200	Peak
1820.000	38.94	1.78	40.72	74.00	-33.28	20	200	Peak
2010.000	37.86	3.47	41.33	74.00	-32.67	123	100	Peak
4875.000	42.97	9.29	52.26	74.00	-21.74	67	200	Peak

966 Chamber_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
1150.000	38.45	-1.06	37.39	74.00	-36.61	221	200	Peak
1660.000	38.38	0.29	38.67	74.00	-35.33	1	200	Peak
1845.000	38.33	2.01	40.34	74.00	-33.66	170	100	Peak
2020.000	38.44	3.49	41.93	74.00	-32.07	71	100	Peak
4230.000	39.25	7.33	46.58	74.00	-27.42	327	200	Peak
4875.000	27.41	9.29	36.70	54.00	-17.30	210	200	Average
4875.000	47.15	9.29	56.44	74.00	-17.56	210	200	Peak

Remark:

1. Average test would be performed if the peak result were greater than the average limit.
2. 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.
3. Result = Reading + Correction Factor
 Margin = Result – Limit
 Remark Peak = Result(PK) – Limit(PK)
 Remark AVG = Result(AV) – Limit(AV)

Product Name	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Jey Li
Test Model	BEC MX-1000	Test Date	2015/09/14
Test Mode	3G (MC7354) + LTE (W-DL060) + WiFi	Temp. & Humidity	24°C, 55%

966 Chamber_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
1535.000	38.80	-0.87	37.93	74.00	-36.07	142	100	Peak
1615.000	48.90	-0.12	48.78	74.00	-25.22	145	100	Peak
1655.000	49.99	0.25	50.24	74.00	-23.76	139	200	Peak
1790.000	38.89	1.50	40.39	74.00	-33.61	305	200	Peak
1965.000	38.17	3.13	41.30	74.00	-32.70	21	100	Peak
4875.000	40.20	9.29	49.49	74.00	-24.51	130	100	Peak

966 Chamber_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
1155.000	38.32	-1.07	37.25	74.00	-36.75	209	200	Peak
1320.000	37.45	-1.13	36.32	74.00	-37.68	165	100	Peak
1610.000	46.22	-0.17	46.05	74.00	-27.95	289	100	Peak
1655.000	46.06	0.25	46.31	54.00	-7.69	186	100	Average
1655.000	55.17	0.25	55.42	74.00	-18.58	186	100	Peak
3660.000	39.28	6.53	45.81	74.00	-28.19	61	100	Peak
4875.000	40.28	9.29	49.57	74.00	-24.43	29	100	Peak

Remark:

- Average test would be performed if the peak result were greater than the average limit.
- 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.
- Result = Reading + Correction Factor
 Margin = Result - Limit
 Remark Peak = Result(PK) - Limit(PK)
 Remark AVG = Result(AV) - Limit(AV)

Product Name	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	Test By	Jey Li
Test Model	BEC MX-1000	Test Date	2015/09/14
Test Mode	LTE (MC7354) + LTE (W-DL060) + WiFi	Temp. & Humidity	24°C, 55%

966 Chamber_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
1160.000	38.54	-1.07	37.47	74.00	-36.53	280	200	Peak
1370.000	38.04	-1.14	36.90	74.00	-37.10	60	100	Peak
1535.000	38.80	-0.87	37.93	74.00	-36.07	142	100	Peak
1610.000	47.78	-0.17	47.61	74.00	-26.39	183	100	Peak
1650.000	49.80	0.20	50.00	74.00	-24.00	156	200	Peak
3075.000	37.79	5.62	43.41	74.00	-30.59	317	100	Peak

966 Chamber_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
1155.000	38.32	-1.07	37.25	74.00	-36.75	209	200	Peak
1365.000	38.12	-1.14	36.98	74.00	-37.02	353	100	Peak
1610.000	46.22	-0.17	46.05	74.00	-27.95	289	100	Peak
1655.000	52.33	0.25	52.58	74.00	-21.42	186	100	Peak
3100.000	38.78	5.67	44.45	74.00	-29.55	130	100	Peak
3425.000	37.39	6.26	43.65	74.00	-30.35	239	100	Peak

Remark:

- Average test would be performed if the peak result were greater than the average limit.
- 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.
- Result = Reading + Correction Factor
 Margin = Result – Limit
 Remark Peak = Result(PK) – Limit(PK)
 Remark AVG = Result(AV) – Limit(AV)