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

For

SiME Smart Q

Model: SiME Q1

Data Applies To: SiME Q1xxxxxx
(X="0-9,"A-Z","a-z","+","-","(",")","/","blank")

Trade Name: SiME

Issued for

ChipSip Technology Co., Ltd.

8F-1, No.186, Jian 1st Rd., Zhonghe District., New Taipei City 235, Taiwan (R.O.C.)

Issued by

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Issued Date: March 03, 2017

Testing Laboratory
0240

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	02/15/2017	Initial Issue	All Page 96	Dola Hsieh
01	03/03/2017	Add Measurement Uncertainty	P.9	Dola Hsieh

TABLE OF CONTENTS

TITLE PAGE NO.

1. TEST REPORT CERTIFICATION

Applicant	：	ChipSip Technology Co., Ltd.
Address	：	8F-1, No.186, Jian 1st Rd., Zhonghe District., New Taipei City 235, Taiwan (R.O.C.)
Equipment Under Test	：	SiME Smart Q
Model	：	SiME Q1
Data Applies To	：	SiME Q1xxxxxx (X="0-9,"A-Z","a-z","+","-","(",")","/","blank")
Trade Name	：	SiME
Tested Date	：	September 05, 2016 ~ January 23, 2017

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	SiME Smart Q
Model Number	SiME Q1
Data Applies To	SiME Q1xxxxxx (X="0-9,"A-Z","a-z","+","-","(",")","/","blank")
Identify Number	T160905D03
Received Date	September 05, 2016
Frequency Range	IEEE 802.11b/g, 802.11gn HT20 Mode: 2412MHz ~ 2462MHz IEEE 802.11gn HT40 Mode: 2422MHz ~ 2452MHz
Transmit Power	IEEE 802.11b Mode: 15.90 dBm (0.0389 W) IEEE 802.11g Mode: 25.10 dBm (0.3236 W) IEEE 802.11gn HT20 MCS0 Mode: 25.02 dBm (0.3177 W) IEEE 802.11gn HT40 MCS0 Mode: 24.62 dBm (0.2897 W)
Channel Spacing	5MHz
Channel Number	IEEE 802.11b/g, 802.11gn HT20 Mode: 11 Channels IEEE 802.11gn HT40 Mode: 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	PIFA Antenna ×1 , Antenna Gain: 1.24 dBi
Power Rating	5Vdc
Test Voltage	120Vac, 60Hz
DC Power Cable Type	Non-shielded cable, 1.5 m × 1 (Non-detachable)
I/O Port	SD/MMC Port × 1, USB Port × 4, SPDIF Port × 1, AV Port × 1, HDMI Port × 1, RJ-45 Port × 1, Power Port × 1
Signal Cable	Shielded HDMI cable, 1m × 1 (Detachable)
Support Equipment	Remote controller

Power Adapter:

No.	Manufacturer	Model No.	Power Input	Power Output
1	Powertron Electronics Corp.	PA1015-050HUB300	100-240Vac, 50-60Hz, 0.4A	5Vdc, 3.0A, 15W Max.

The difference of the series model

Model Name	Difference
SiME Q1	Market Segmentation (Product appearance color, Product appearance printing, Product packaging color box different)
SiME Q1xxxxxx (X="0-9,"A-Z","a-z","+","-","(",")","/","blank")	

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: O7N-SIME-Q1 filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*
4. *The model SiME Q1 was considered the main model for testing.*

3. DESCRIPTION OF TEST MODES

The EUT (SiME Smart Q) is an 802.11b/g/n transceiver.

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	TX 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 MCS0 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 MCS0 Mode: 13.5Mbps data rate (worst case) was chosen for full testing.

Remark : *The field strength of spurious emission was measured in the following position: EUT stand-up position(Y axis), lie-down position(X, Z axis). The worst emission was found in lie-down position(Z axis) and the worst case was recorded.*

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
6dB Bandwidth, Conducted	$+/- 2.6906*10^{-5}$
RF Output Power, Conducted	+/- 1.3860
Power Spectral Density, Conducted	+/- 2.5290
Conducted Spurious Emission	+/- 2.2727

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	TOSHIBA	PORTEGE R30-A	7F097011H
2	LED Monitor	SONY	KDL22EX420	3711349

SETUP DIAGRAM FOR TESTS

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

EUT OPERATING CONDITION

1. EUT & peripherals setup diagram is shown in appendix setup photos.
2. TX mode:
   ⇨ **Data Rate:** 1Mbps Bandwidth 20 (IEEE 802.11b Mode)
   6Mbps Bandwidth 20 (IEEE 802.11g Mode)
   6.5Mbps Bandwidth 20 (IEEE 802.11gn HT20 MCS0 Mode)
   13.5Mbps Bandwidth 40 (IEEE 802.11gn HT40 MCS0 Mode)
   ⇨ **Power control**

Mode	Channel	Frequency (MHz)	Power Set
IEEE 802.11b	Low	2412	42
	Middle	2437	39
	High	2462	39
IEEE 802.11g	Low	2412	62
	Middle	2437	63
	High	2462	62
IEEE 802.11gn HT20 MCS0	Low	2412	60
	Middle	2437	63
	High	2462	60
IEEE 802.11gn HT40 MCS0	Low	2422	56
	Middle	2437	63
	High	2452	60

3. All of the functions are under run.
4. Start test.

7. FCC PART 15.247 REQUIREMENTS

7.1 DUTY CYCLE CORRECTION FACTOR

Product Name	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/28
Test Mode	TX Mode	Temp. & Humidity	25°C, 50%

Mode	TX on (ms)	TX on + off (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
IEEE 802.11b	1.000	1.000	100.00%	0.00	0.010
IEEE 802.11g	1.000	1.000	100.00%	0.00	0.010
IEEE 802.11gn HT20	1.000	1.000	100.00%	0.00	0.010
IEEE 802.11gn HT40	1.000	1.000	100.00%	0.00	0.010

7.2 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	03/15/2017
Test S/W	N/A			

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

Product Name	SiME Smart Q	Test By	Waternil Guan
Test Model	SiME Q1	Test Date	2016/11/30
Test Mode	TX Mode	Temp. & Humidity	25°C, 50%

IEEE 802.11b Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Result
Low	2412	10.02	500	PASS
Middle	2437	10.07	500	PASS
High	2462	10.06	500	PASS

IEEE 802.11g Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Result
Low	2412	16.57	500	PASS
Middle	2437	16.55	500	PASS
High	2462	16.56	500	PASS

IEEE 802.11gn HT20 MCS0 Mode

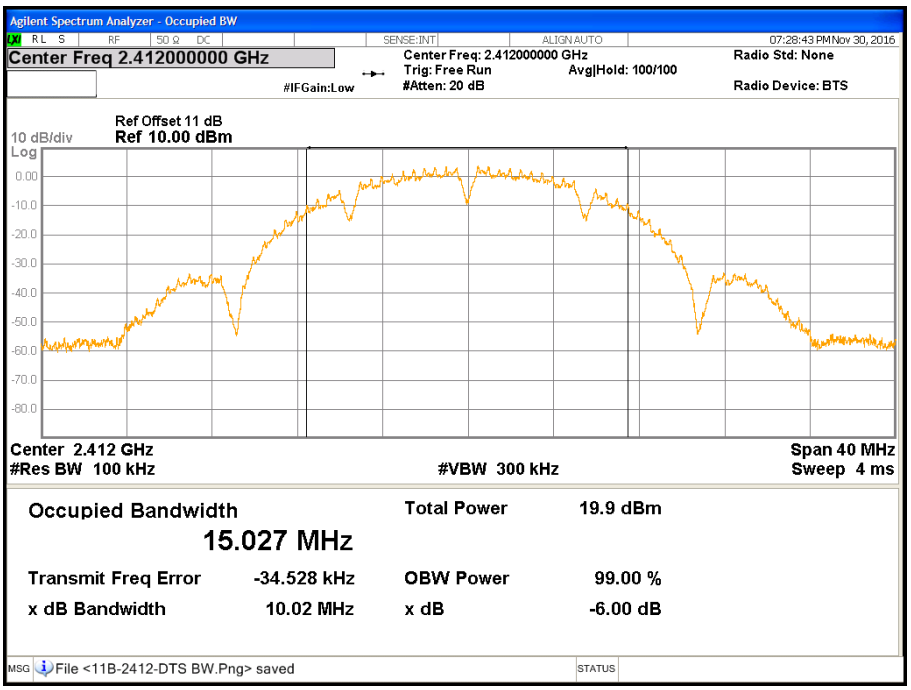
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Result
Low	2412	17.82	500	PASS
Middle	2437	17.80	500	PASS
High	2462	17.83	500	PASS

IEEE 802.11gn HT40 MCS0 Mode

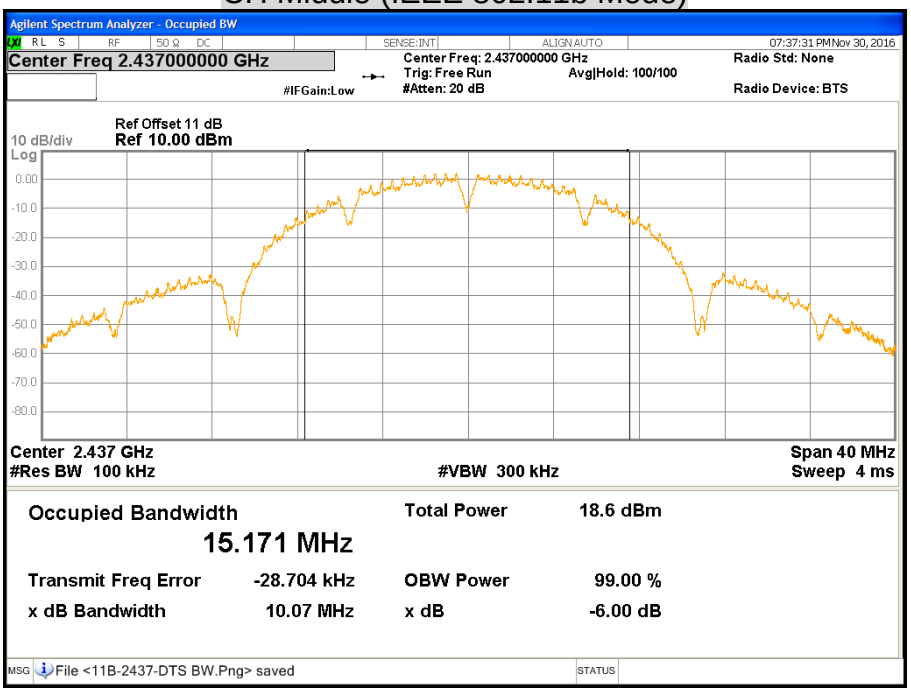
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Result
Low	2422	36.38	500	PASS
Middle	2437	36.37	500	PASS
High	2452	36.40	500	PASS

6dB BANDWIDTH

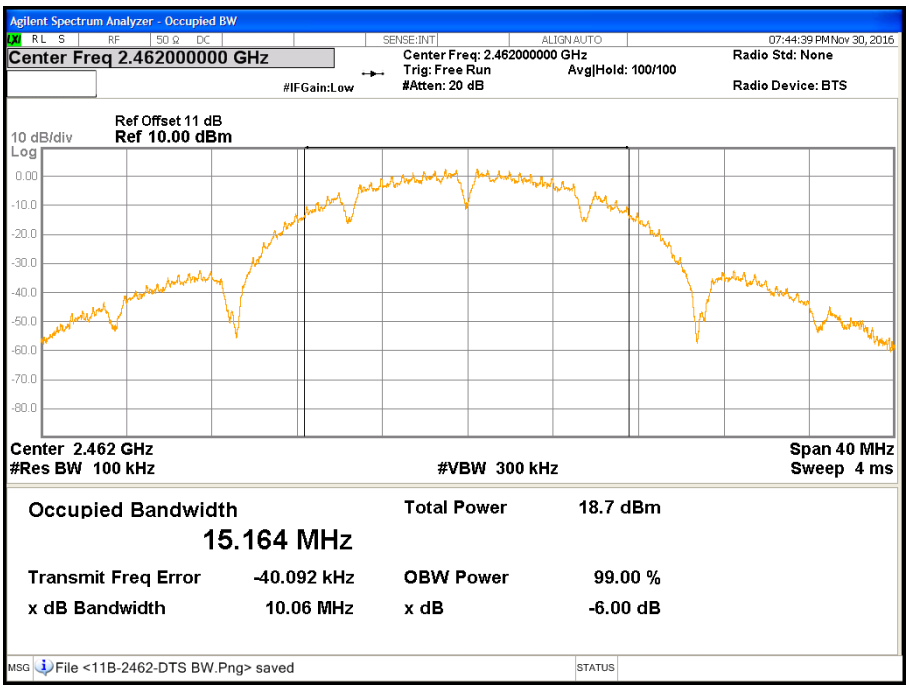
CH Low (IEEE 802.11b Mode)



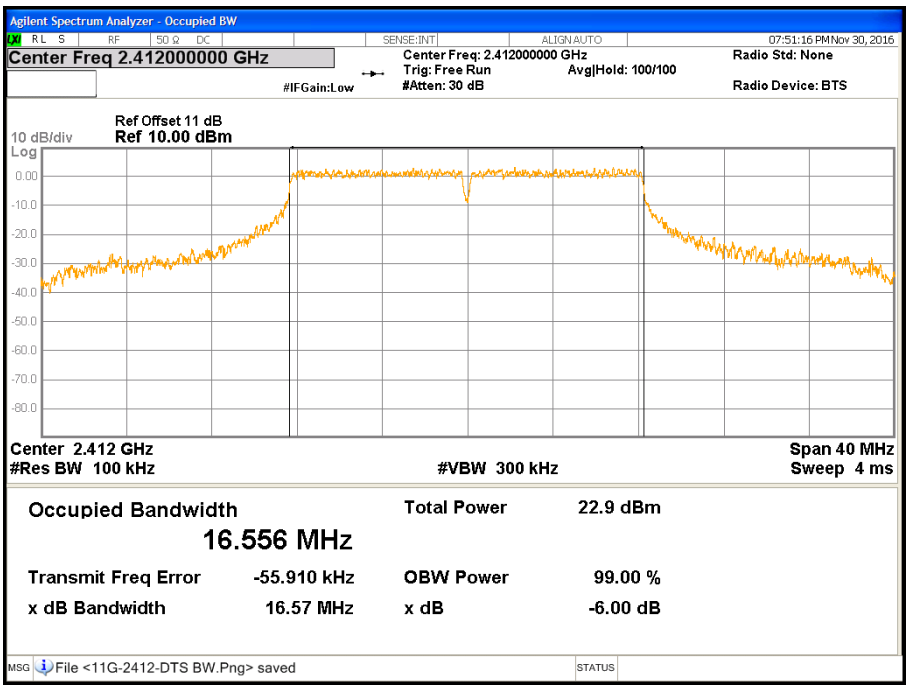
CH Middle (IEEE 802.11b Mode)



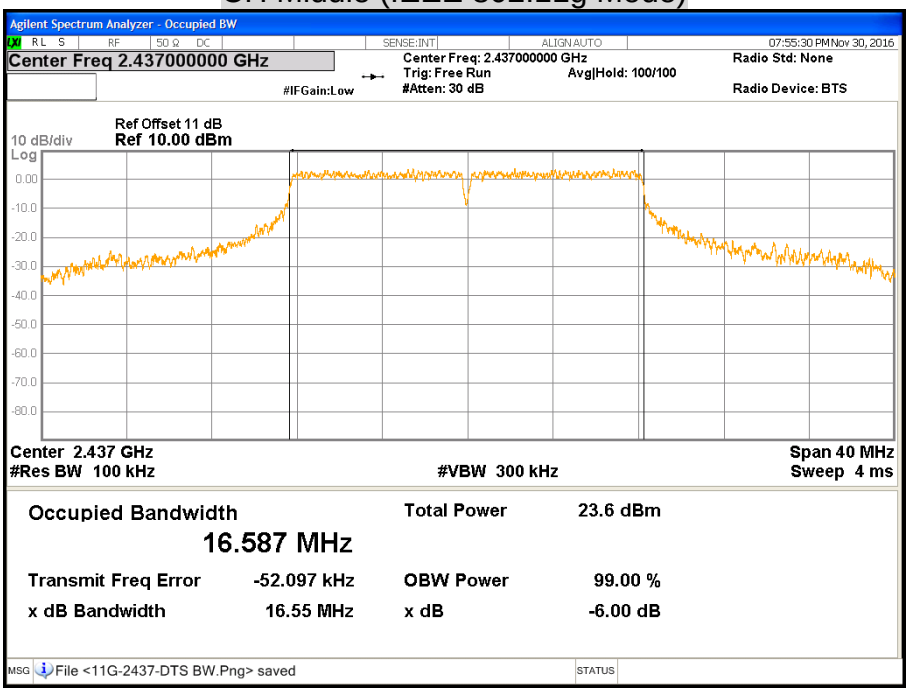
CH High (IEEE 802.11b Mode)



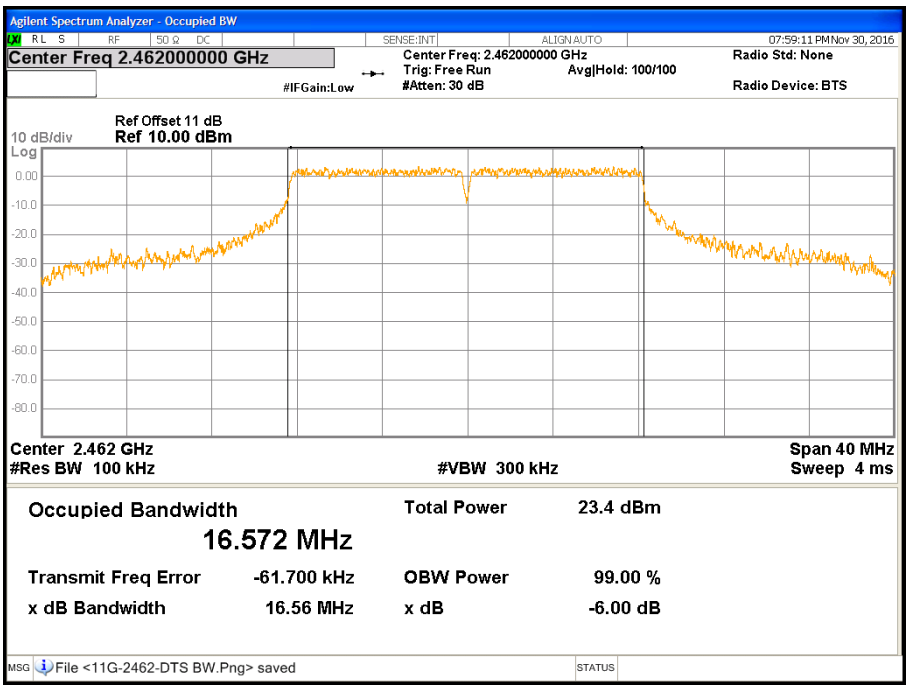
CH Low (IEEE 802.11g Mode)



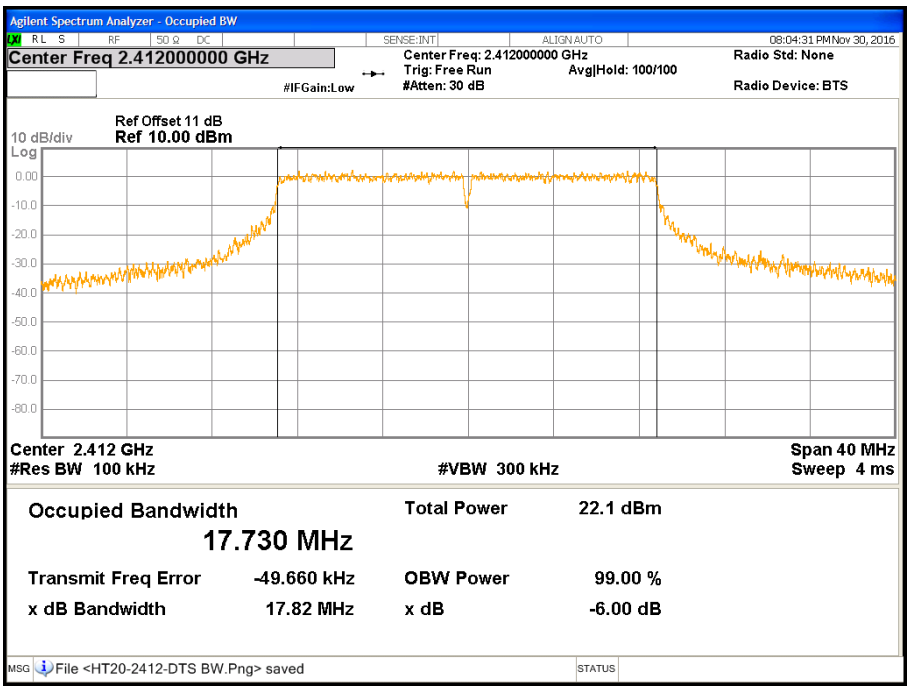
CH Middle (IEEE 802.11g Mode)



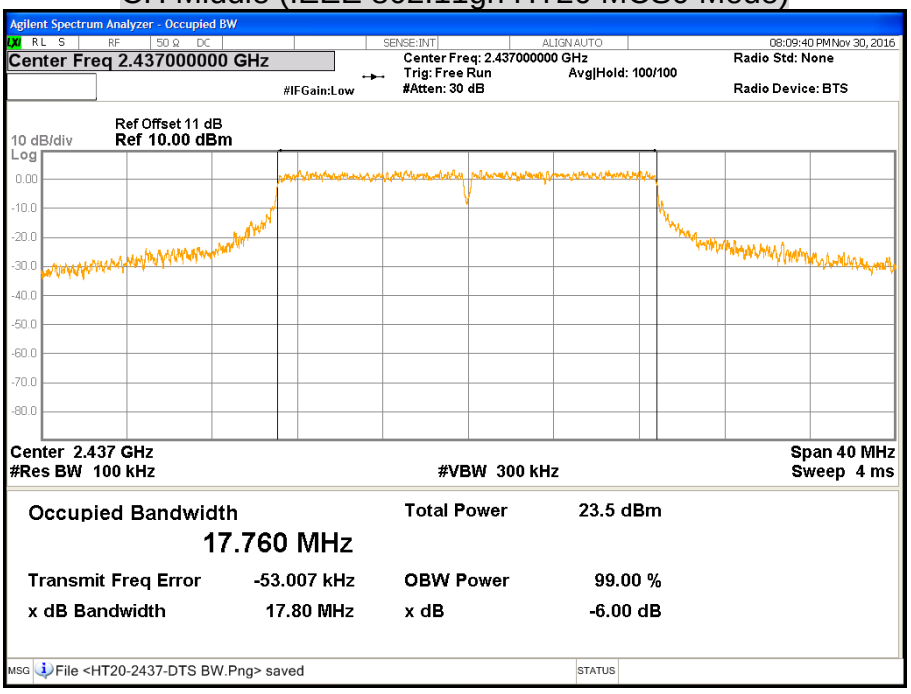
CH High (IEEE 802.11g Mode)



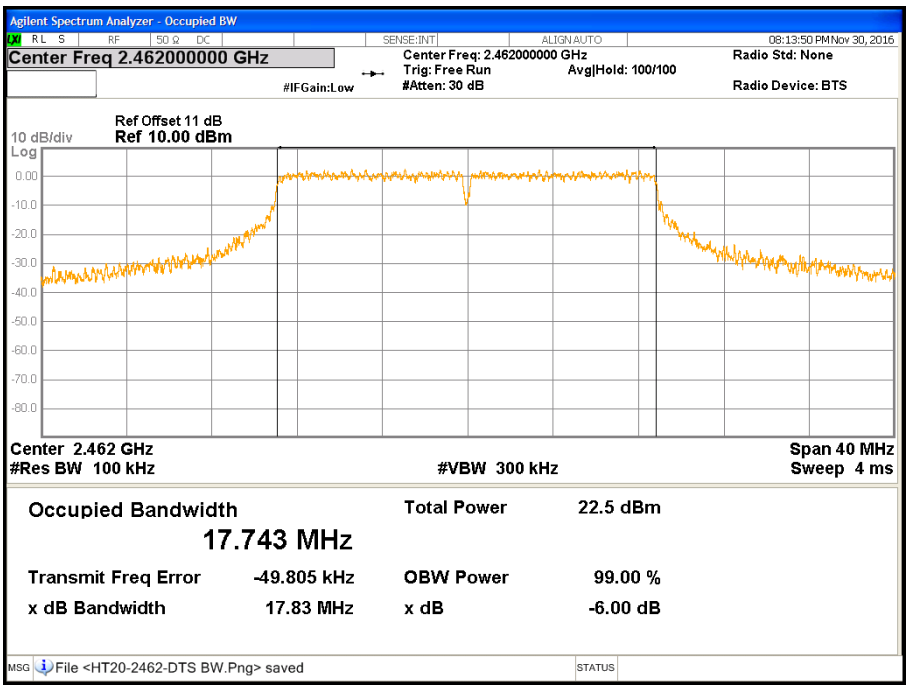
CH Low (IEEE 802.11gn HT20 MCS0 Mode)



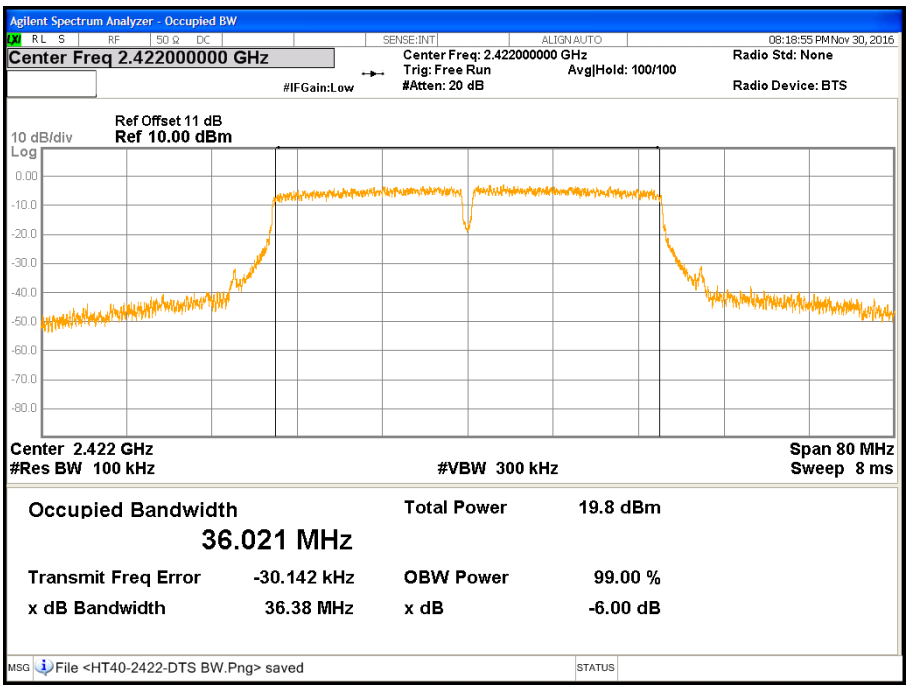
CH Middle (IEEE 802.11gn HT20 MCS0 Mode)



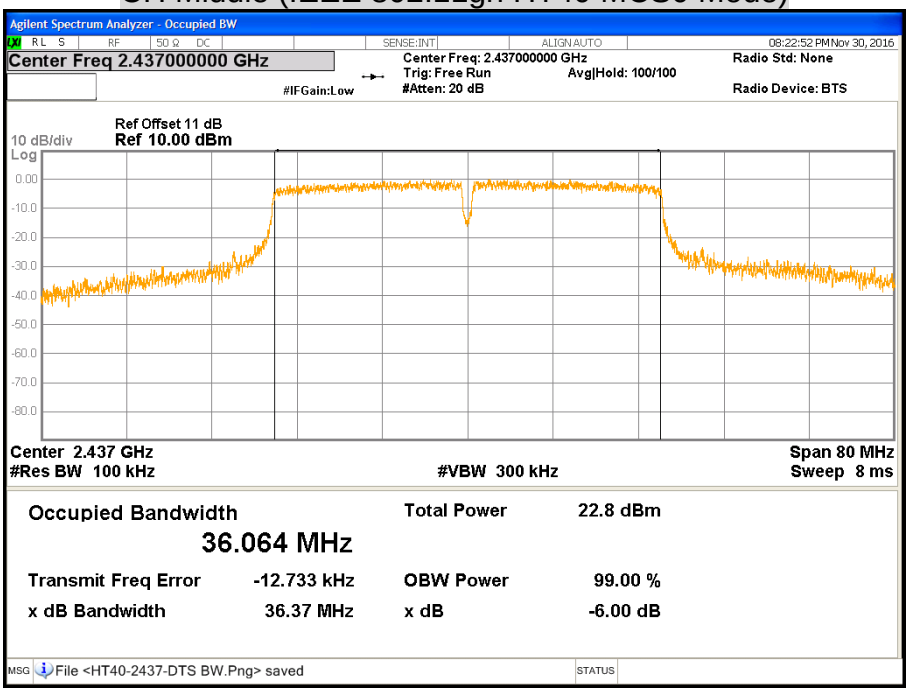
CH High (IEEE 802.11gn HT20 MCS0 Mode)



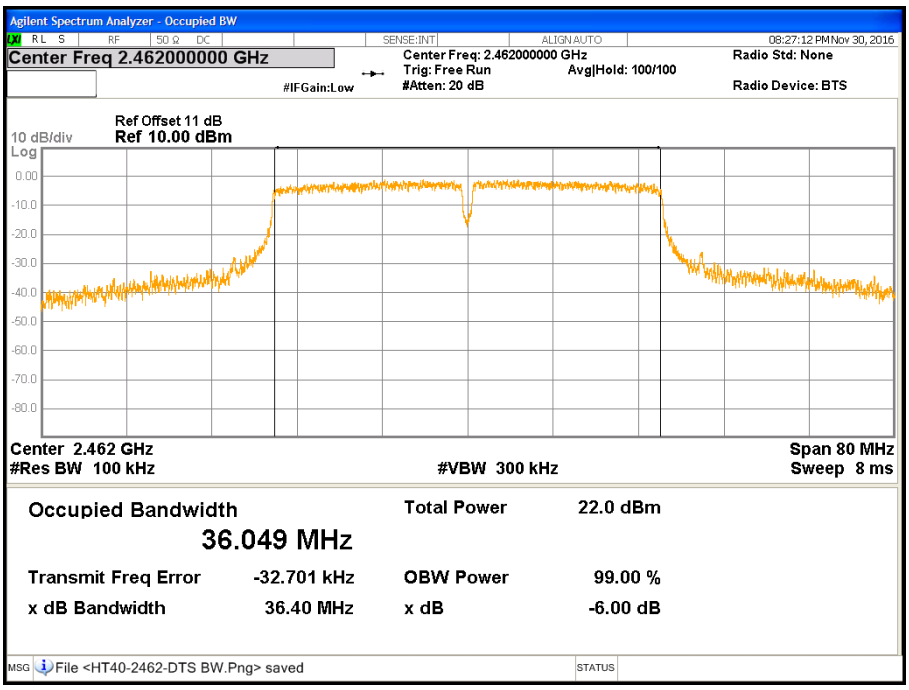
CH Low (IEEE 802.11gn HT40 MCS0 Mode)



CH Middle (IEEE 802.11gn HT40 MCS0 Mode)



CH High (IEEE 802.11gn HT40 MCS0 Mode)



7.3 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:
If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.
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 $N_{ANT} \geq 5$.
If antenna gains are not equal, the user may use either of the following methods to calculate directional gain, provided that each transmit antenna is driven by only one spatial stream:
Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain; or,

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Anritsu	ML2495A	1149001	12/05/2017
Power Sensor	Anritsu	MA2411B	1126148	12/05/2017
Test S/W	N/A			

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

Product Name	SiME Smart Q	Test By	Waternil Guan
Test Model	SiME Q1	Test Date	2016/11/30
Test Mode	TX Mode	Temp. & Humidity	24°C, 58%

IEEE 802.11b Mode

Channel	Channel Frequency (MHz)	Maximum Peak Output Power		Limit		Result
		(dBm)	(W)	(dBm)	(W)	
Low	2412	15.90	0.0389	30	1.000	PASS
Middle	2437	14.70	0.0295	30	1.000	PASS
High	2462	14.80	0.0302	30	1.000	PASS

Remark:

1. *At finial 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.*
3. *The maximum antenna gain is 1.24 dBi which is less than 6dBi, the limit should be 30 dBm.*

IEEE 802.11g Mode

Channel	Channel Frequency (MHz)	Maximum Peak Output Power		Limit		Result
		(dBm)	(W)	(dBm)	(W)	
Low	2412	24.73	0.2972	30	1.000	PASS
Middle	2437	25.10	0.3236	30	1.000	PASS
High	2462	25.06	0.3206	30	1.000	PASS

Remark:

1. *At finial 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.*
3. *The maximum antenna gain is 1.24 dBi which is less than 6dBi, the limit should be 30 dBm.*

IEEE 802.11gn HT20 MCS0 Mode

Channel	Channel Frequency (MHz)	Maximum Peak Output Power		Limit		Result
		(dBm)	(W)	(dBm)	(W)	
Low	2412	23.77	0.2382	30	1.000	PASS
Middle	2437	25.02	0.3177	30	1.000	PASS
High	2462	24.34	0.2716	30	1.000	PASS

Remark:

1. *At finial test to get the worst-case emission at 6.5Mbps.*
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.*
3. *The maximum antenna gain is 1.24 dBi which is less than 6dBi, the limit should be 30 dBm.*

IEEE 802.11gn HT40 MCS0 Mode

Channel	Channel Frequency (MHz)	Maximum Peak Output Power		Limit		Result
		(dBm)	(W)	(dBm)	(W)	
Low	2422	22.70	0.1862	30	1.000	PASS
Middle	2437	24.62	0.2897	30	1.000	PASS
High	2452	23.92	0.2466	30	1.000	PASS

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
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.*
3. *The maximum antenna gain is 1.24 dBi which is less than 6dBi, the limit should be 30 dBm.*

7.4 AVERAGE POWER

LIMITS

None: For reporting purposes only.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Anritsu	ML2495A	1149001	12/05/2017
Power Sensor	Anritsu	MA2411B	1126148	12/05/2017
Test S/W	N/A			

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

Product Name	SiME Smart Q	Test By	Waternil Guan
Test Model	SiME Q1	Test Date	2016/11/30
Test Mode	TX Mode	Temp. & Humidity	24°C, 58%

IEEE 802.11b Mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	13.78
Middle	2437	12.45
High	2462	12.69

Remark:

1. *At finial 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)	Average Power (dBm)
Low	2412	17.52
Middle	2437	18.30
High	2462	18.19

Remark:

1. *At finial 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 MCS0 Mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	16.74
Middle	2437	18.14
High	2462	17.47

Remark:

1. *At finial test to get the worst-case emission at 6.5Mbps.*
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 HT40 MCS0 Mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2422	14.45
Middle	2437	17.65
High	2452	16.53

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
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.*

7.5 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.

§ KDB 662911:

If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

If antenna gains are not equal, the user may use either of the following methods to calculate directional gain, provided that each transmit antenna is driven by only one spatial stream:

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain; or,

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EXA Signal Analyzer	Agilent	N9010A	MY52220817	03/15/2017
Test S/W	N/A			

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

Product Name	SiME Smart Q	Test By	Waternil Guan
Test Model	SiME Q1	Test Date	2016/11/30
Test Mode	TX Mode	Temp. & Humidity	24°C, 58%

IEEE 802.11b Mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)		Result
		Measured Value	Limit	
Low	2412	-6.76	8	PASS
Middle	2437	-8.06	8	PASS
High	2462	-7.90	8	PASS

Remark:

1. *At finial 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.*
3. *The maximum antenna gain is 1.24 dBi which is less than 6dBi, the limit should be 8 dBm.*

IEEE 802.11g Mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)		Result
		Measured Value	Limit	
Low	2412	-5.03	8	PASS
Middle	2437	-4.33	8	PASS
High	2462	-4.53	8	PASS

Remark:

1. *At finial 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.*
3. *The maximum antenna gain is 1.24 dBi which is less than 6dBi, the limit should be 8 dBm.*

IEEE 802.11gn HT20 MCS0 Mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)		Result
		Measured Value	Limit	
Low	2412	-5.30	8	PASS
Middle	2437	-3.57	8	PASS
High	2462	-4.40	8	PASS

Remark:

1. *At finial test to get the worst-case emission at 6.5Mbps.*
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.*
3. *The maximum antenna gain is 1.24 dBi which is less than 6dBi, the limit should be 8 dBm.*

IEEE 802.11gn HT40 MCS0 Mode

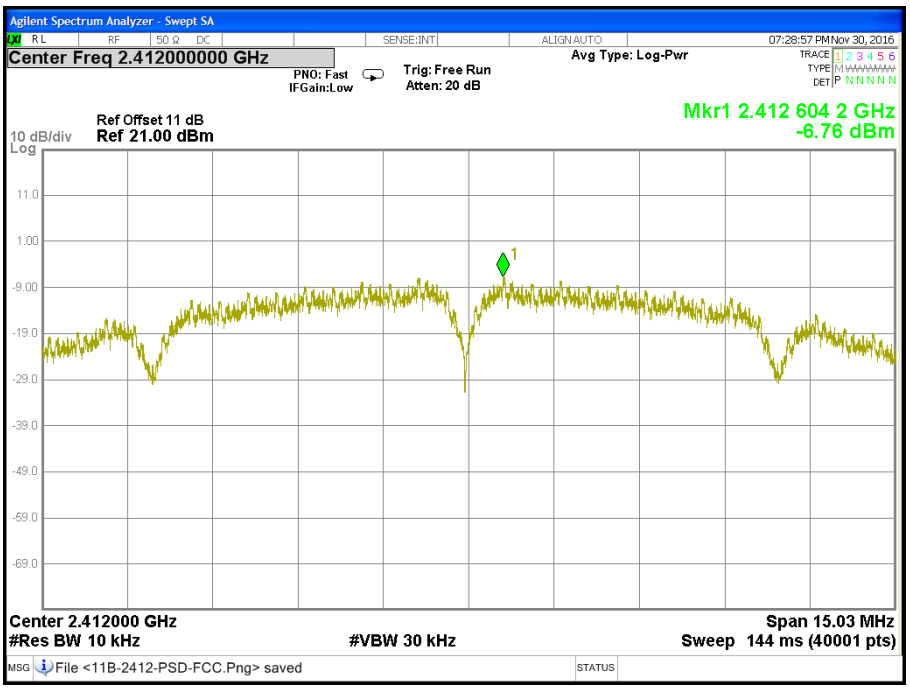
Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)		Result
		Measured Value	Limit	
Low	2422	-9.90	8	PASS
Middle	2437	-5.85	8	PASS
High	2452	-7.47	8	PASS

Remark:

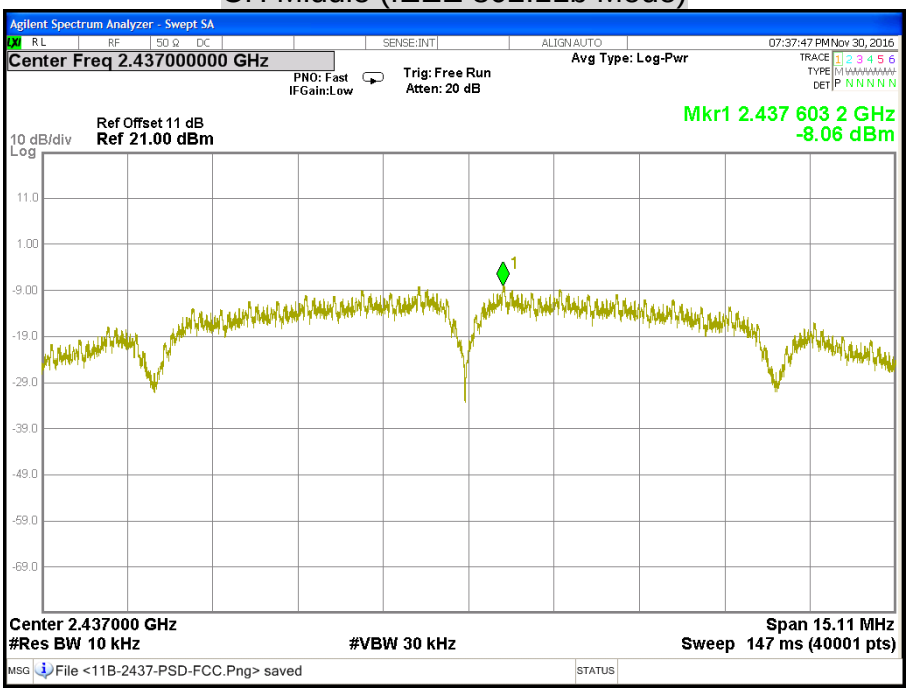
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The maximum antenna gain is 1.24 dBi which is less than 6dBi, the limit should be 8 dBm.*

POWER SPECTRAL DENSITY

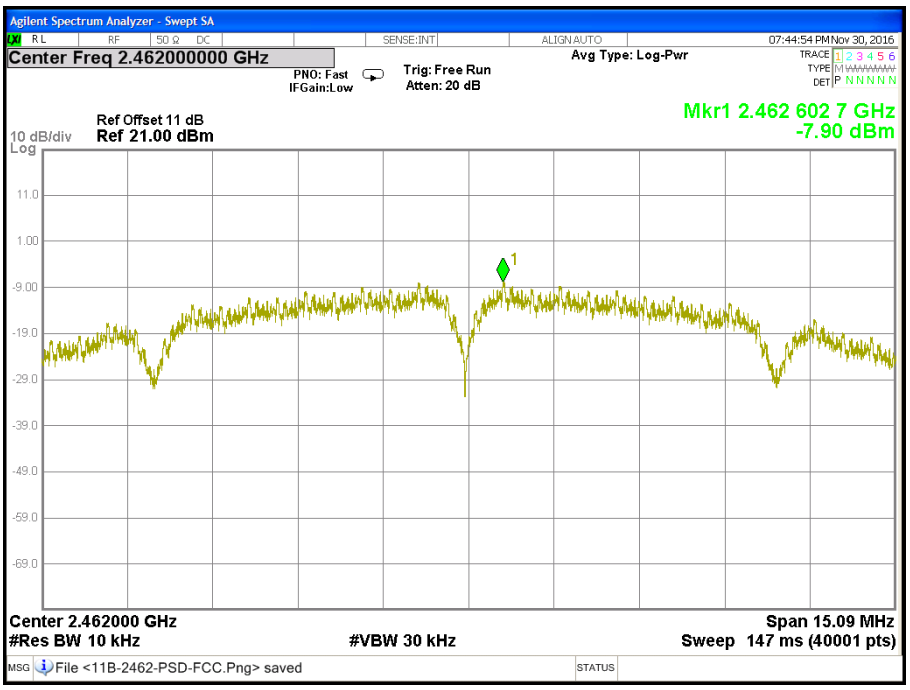
CH Low (IEEE 802.11b Mode)



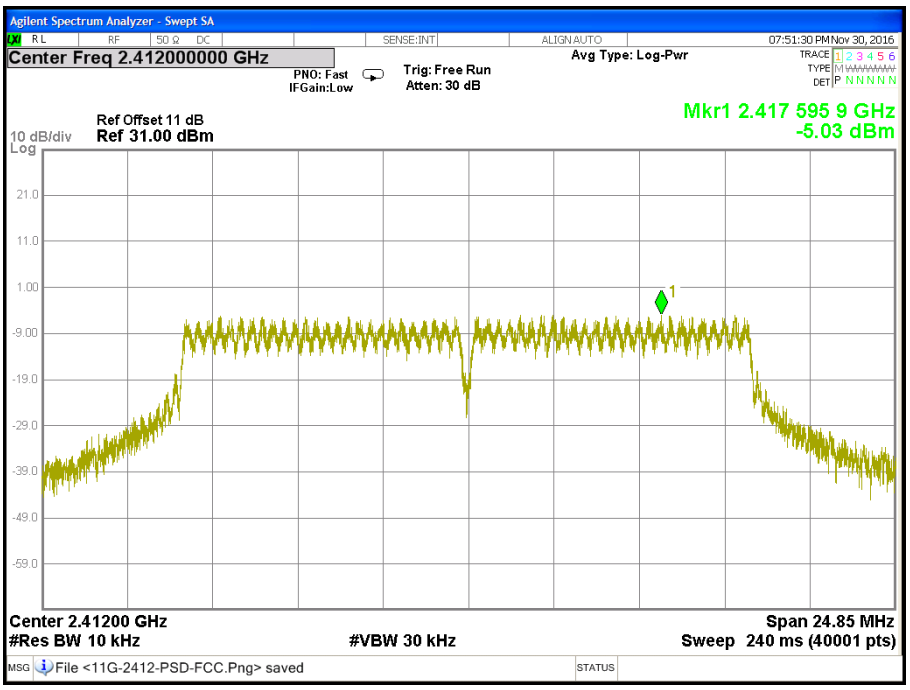
CH Middle (IEEE 802.11b Mode)



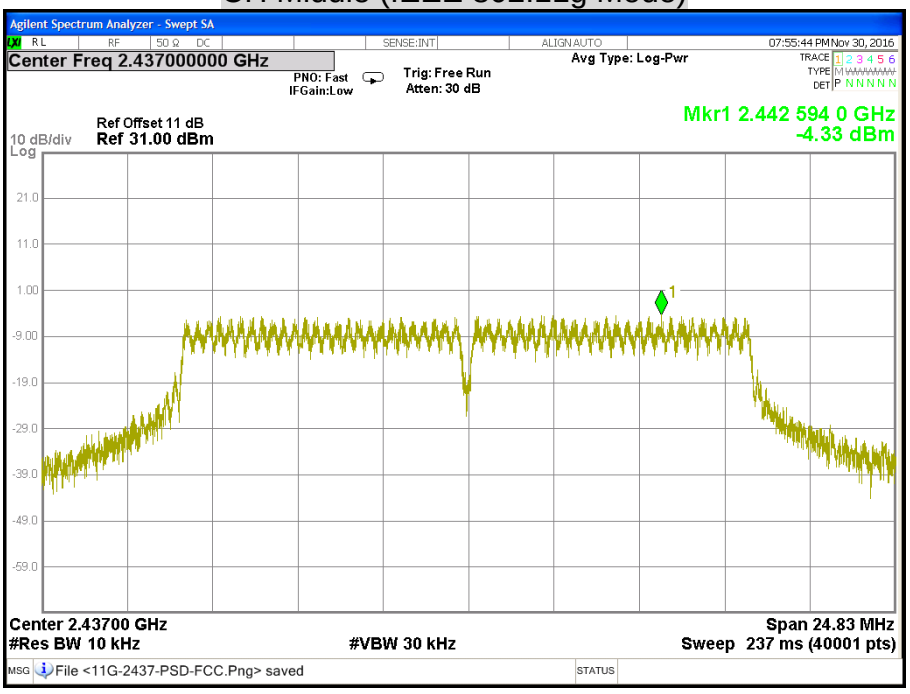
CH High (IEEE 802.11b Mode)



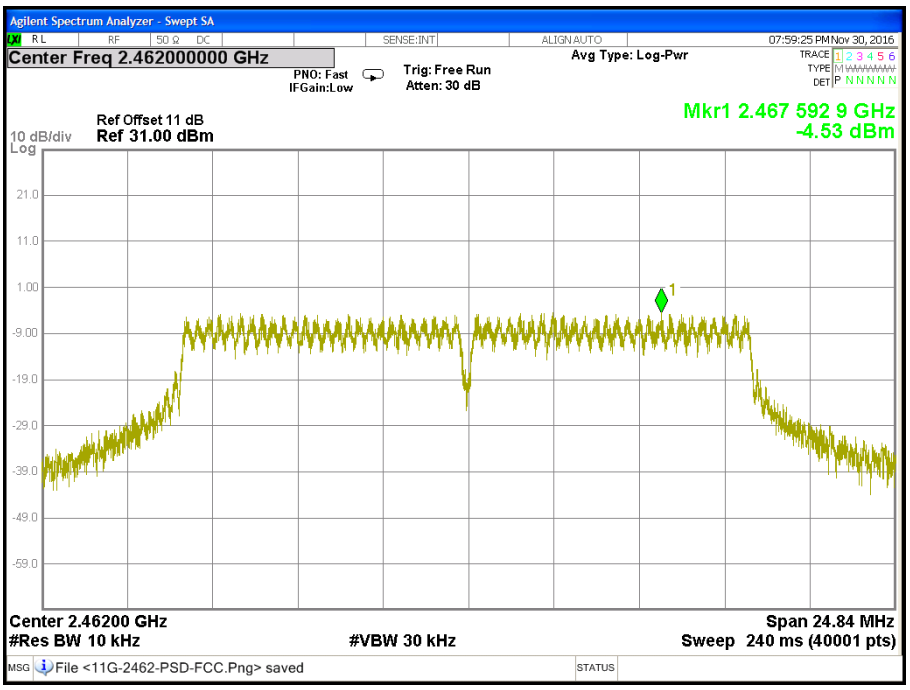
CH Low (IEEE 802.11g Mode)



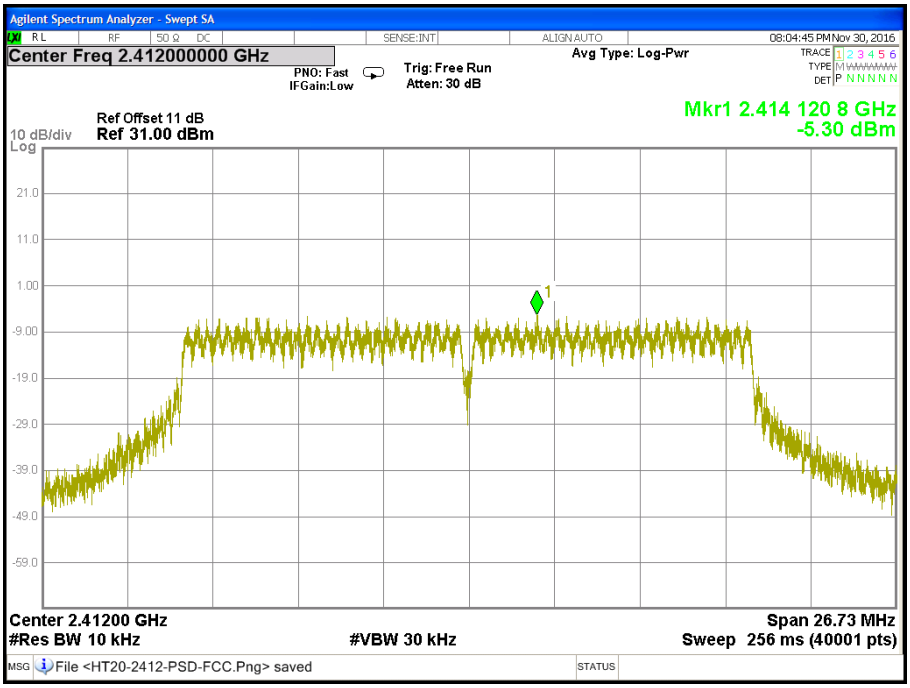
CH Middle (IEEE 802.11g Mode)



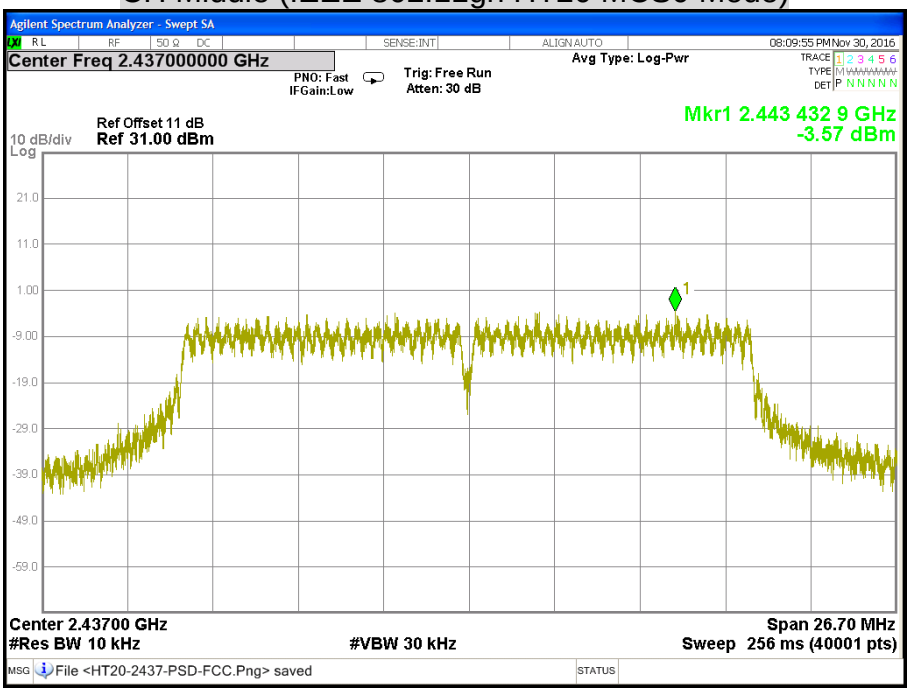
CH High (IEEE 802.11g Mode)



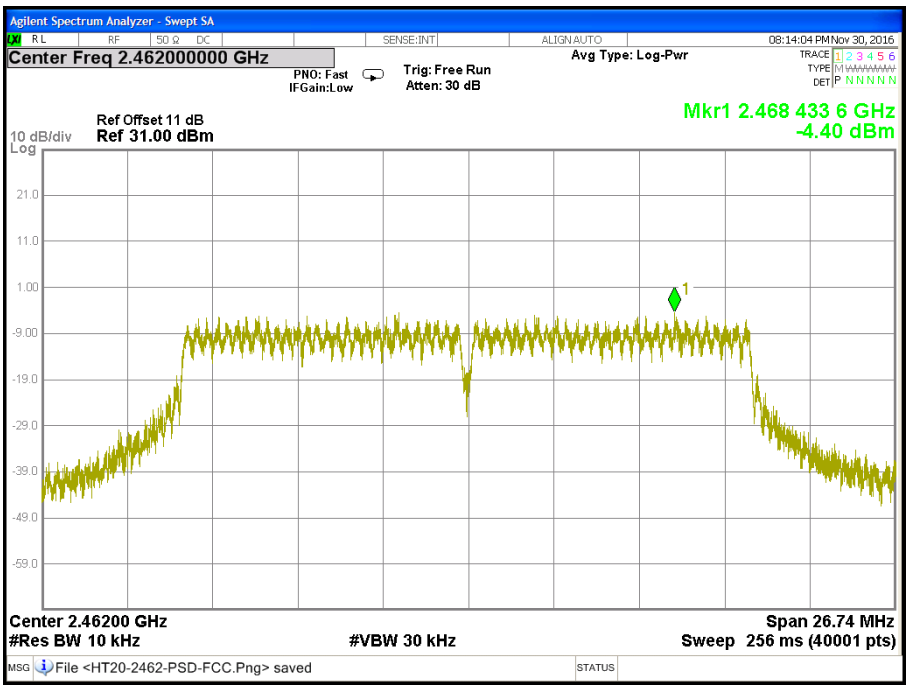
CH Low (IEEE 802.11gn HT20 MCS0 Mode)



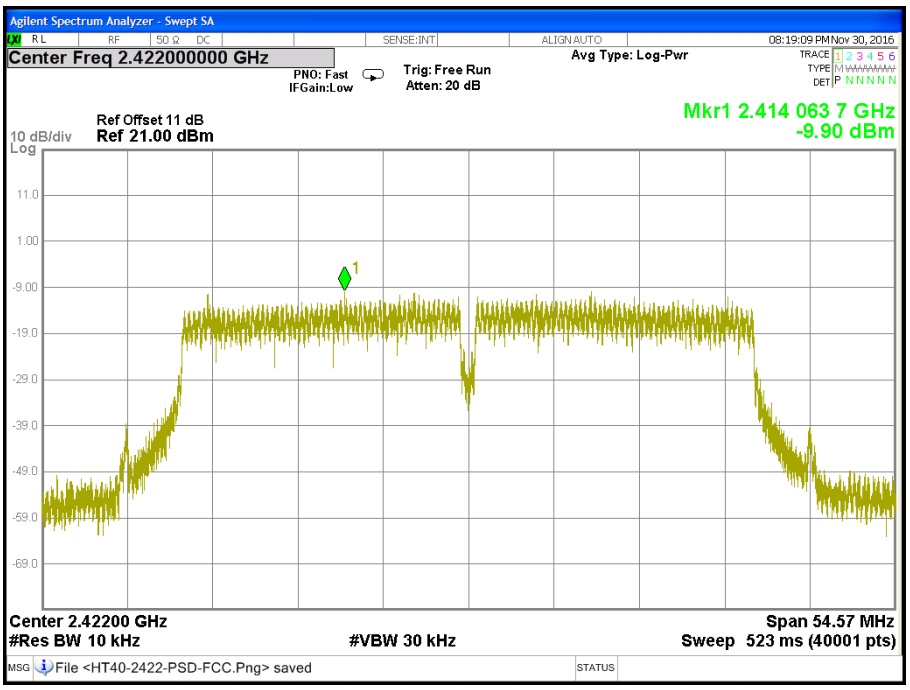
CH Middle (IEEE 802.11gn HT20 MCS0 Mode)



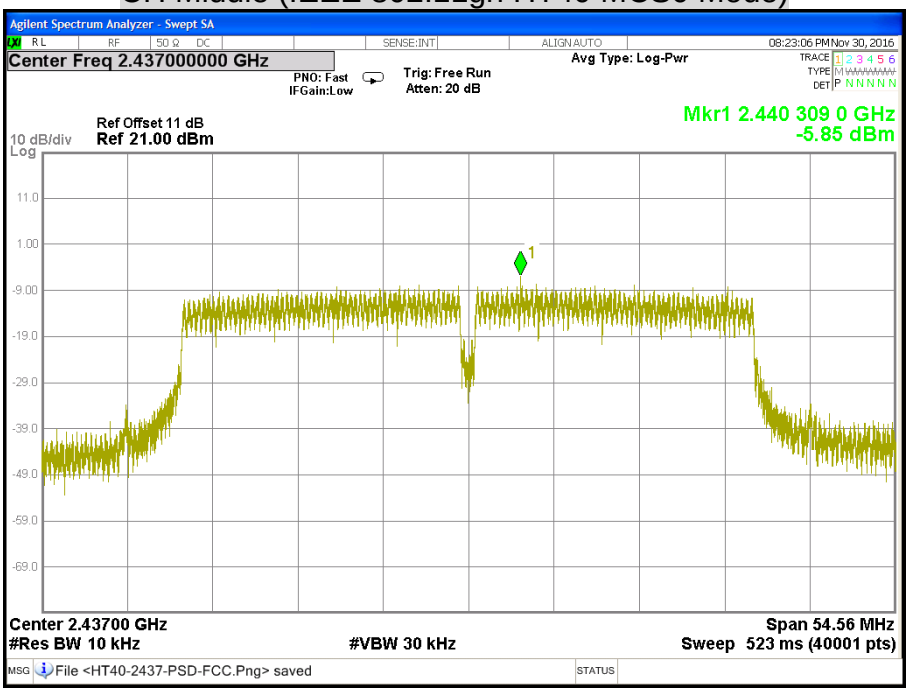
CH High (IEEE 802.11gn HT20 MCS0 Mode)



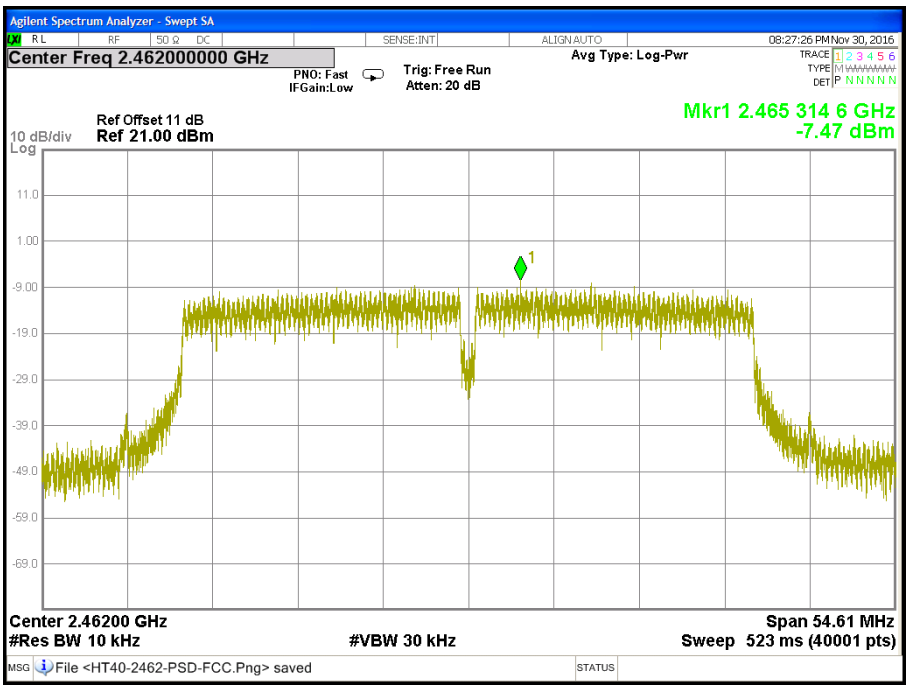
CH Low (IEEE 802.11gn HT40 MCS0 Mode)



CH Middle (IEEE 802.11gn HT40 MCS0 Mode)



CH High (IEEE 802.11gn HT40 MCS0 Mode)



7.6 CONDUCTED SPURIOUS EMISSION

LIMITS

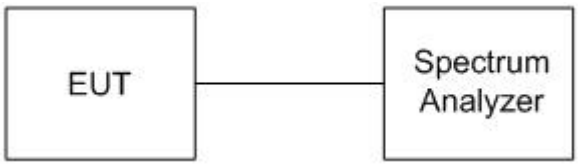
§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the and that contains the highest level 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	03/15/2017
Test S/W	N/A			

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

TEST SETUP



TEST PROCEDURE

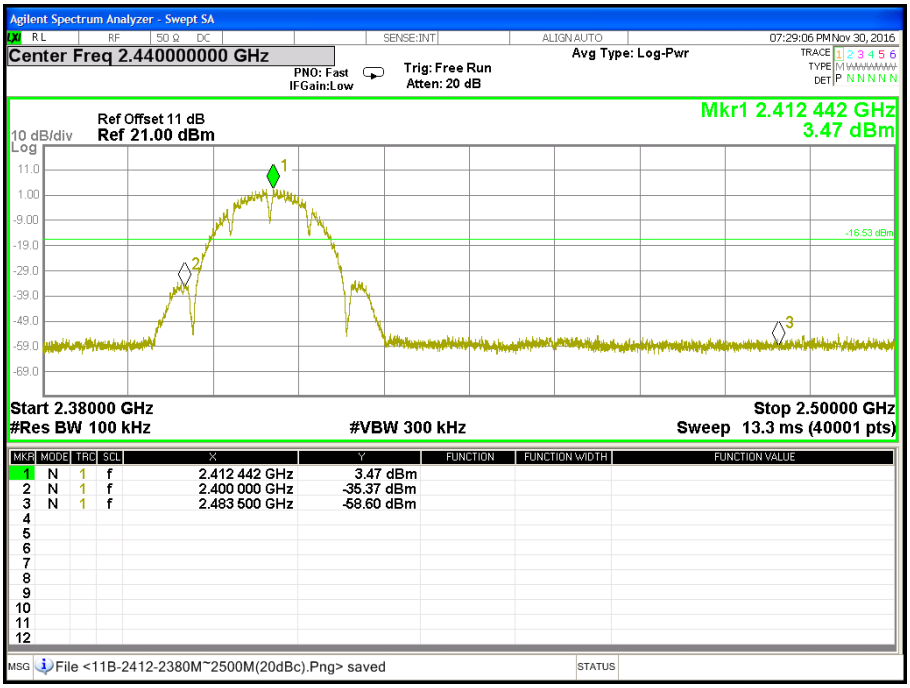
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.
The spectrum from 30 MHz to 26.5 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

TEST RESULTS

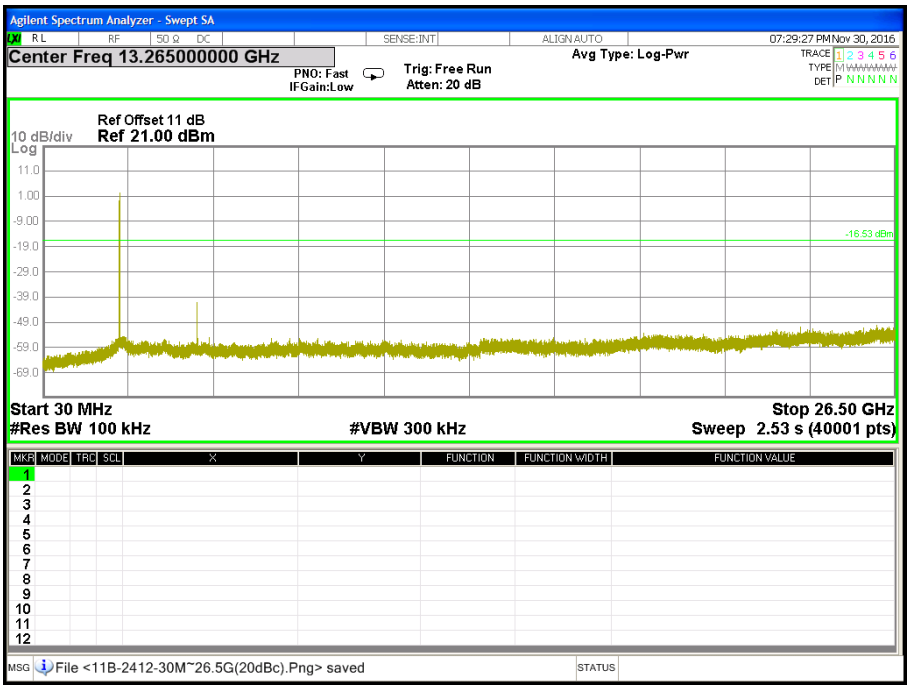
Product Name	SiME Smart Q	Test By	Waternil Guan
Test Model	SiME Q1	Test Date	2016/11/30
Test Mode	TX Mode	Temp. & Humidity	24°C, 58%

OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

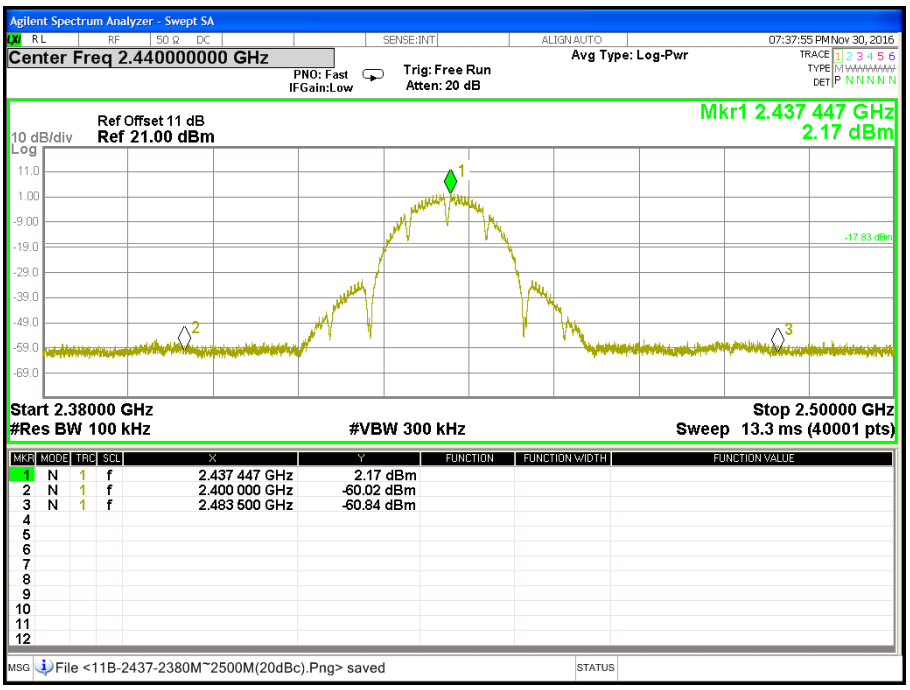
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11b Mode)



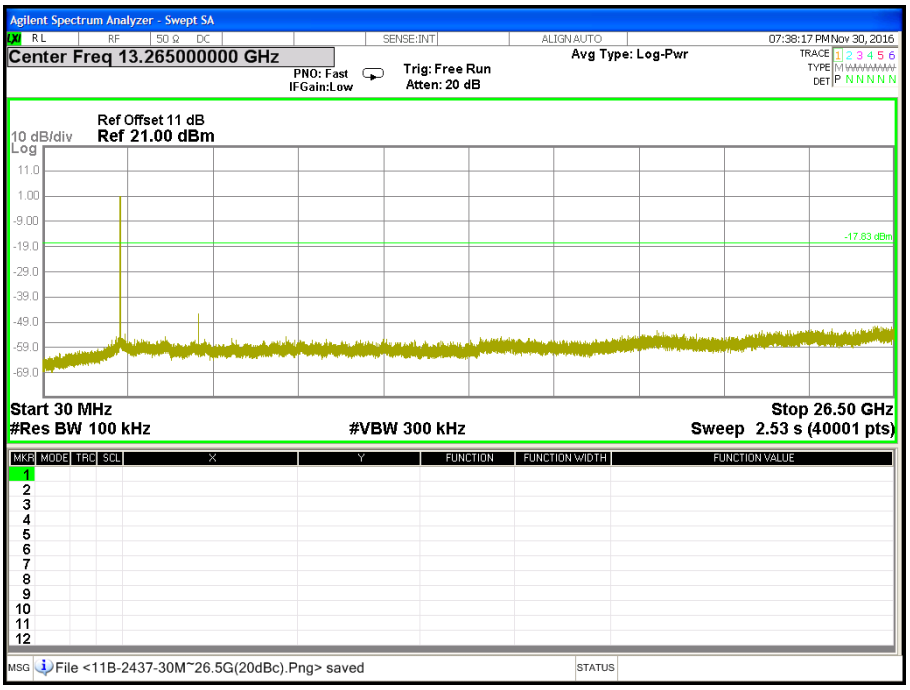
CH Low (30MHz ~ 26.5GHz / IEEE 802.11b Mode)



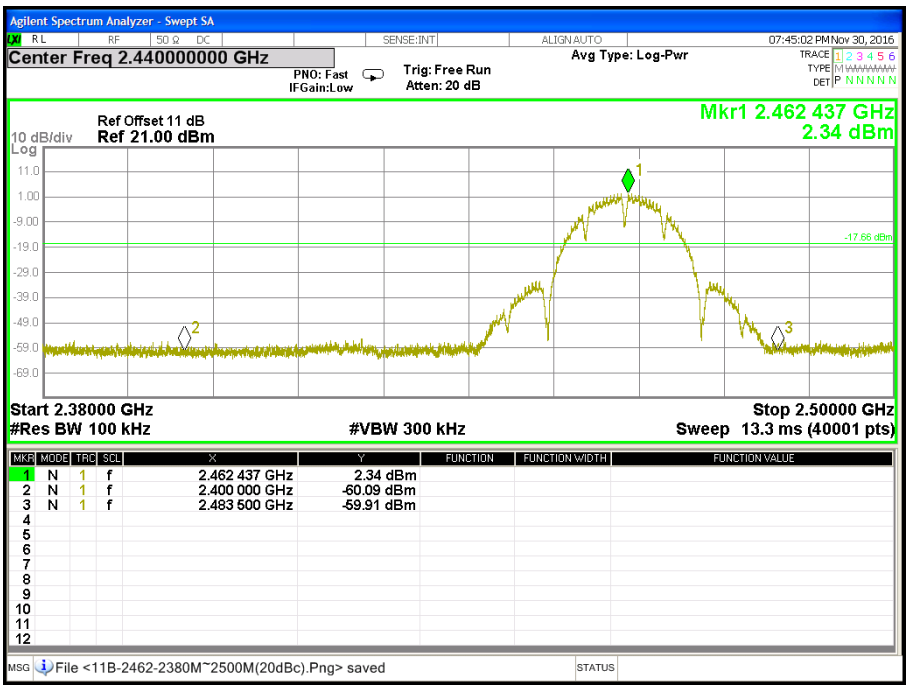
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11b Mode)



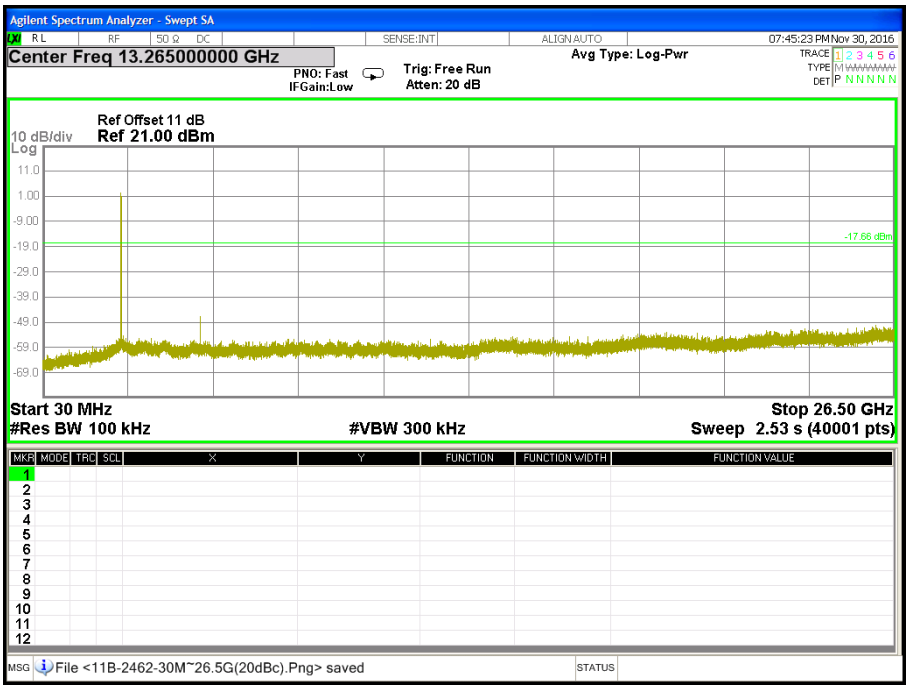
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11b Mode)



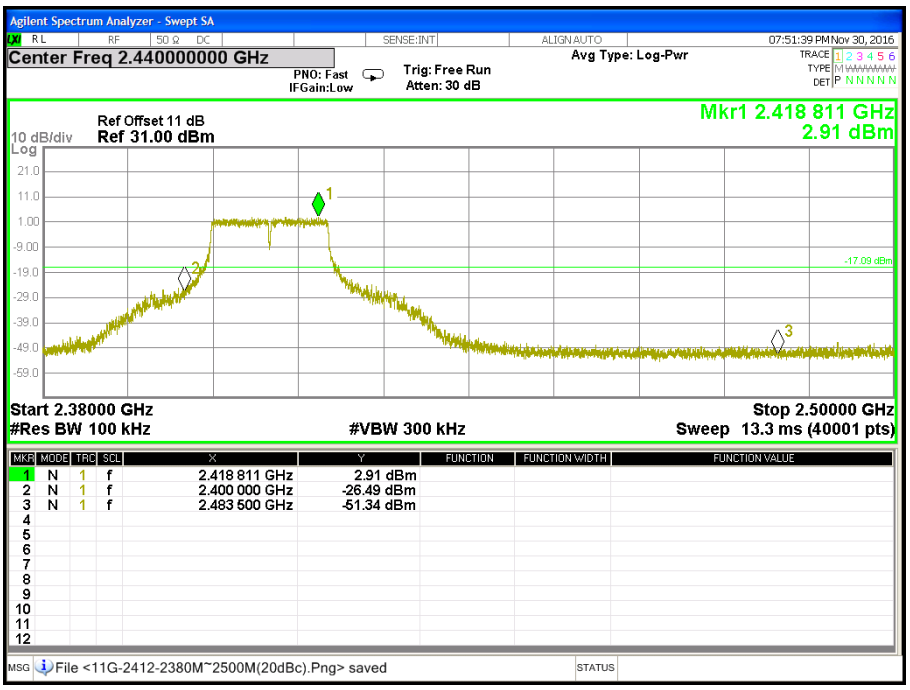
CH High (2.38GHz ~ 2.5GHz / IEEE 802.11b Mode)



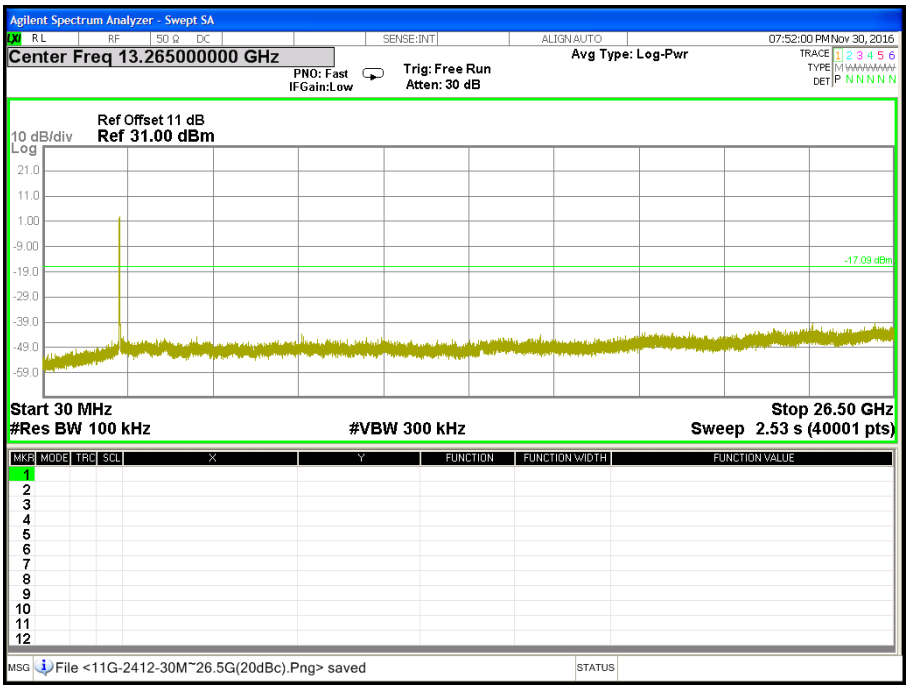
CH High (30MHz ~ 26.5GHz / IEEE 802.11b Mode)



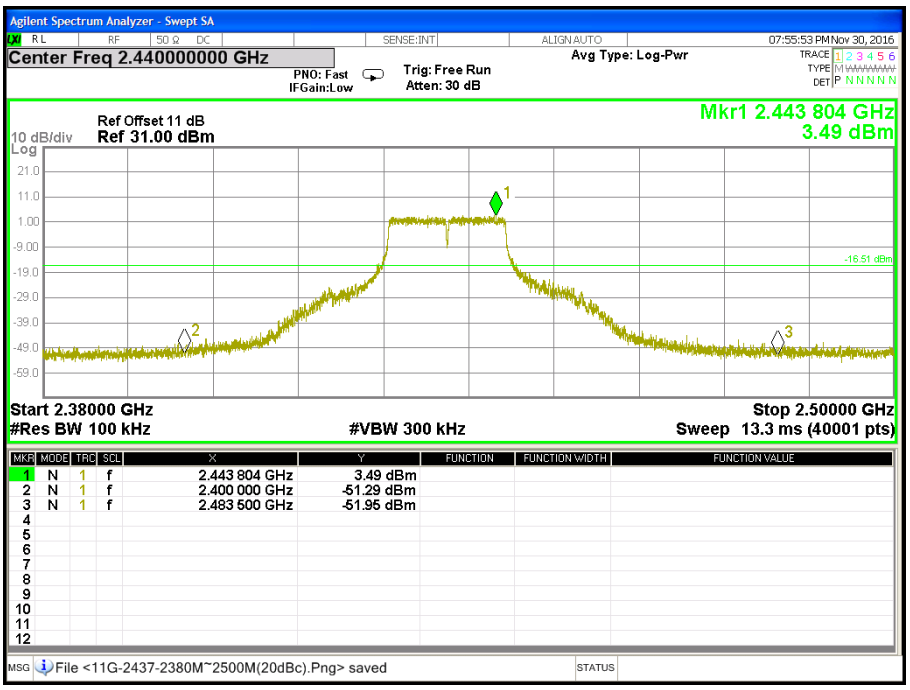
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11g Mode)



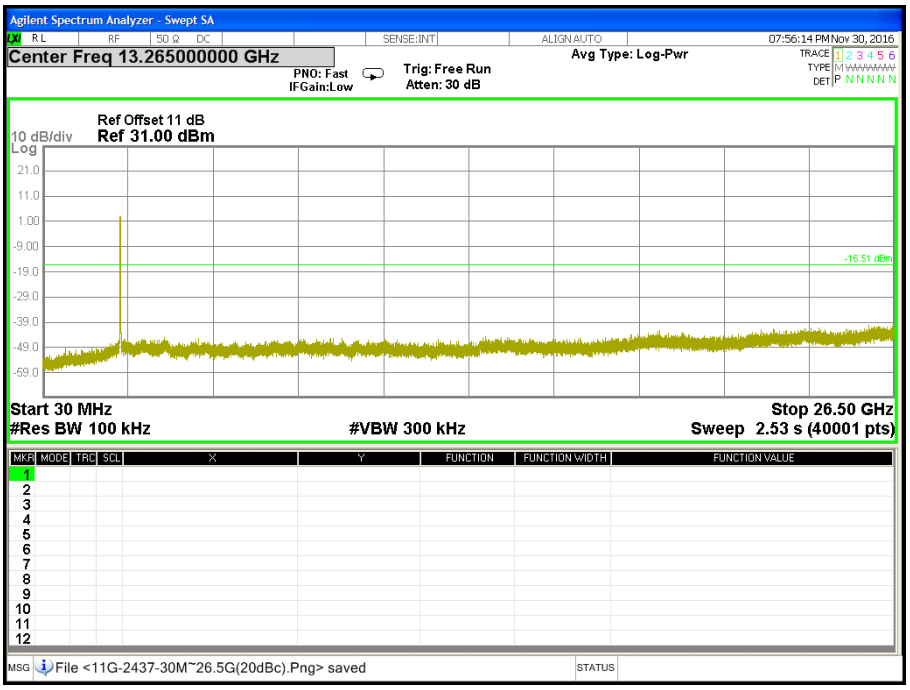
CH Low (30MHz ~ 26.5GHz / IEEE 802.11g Mode)



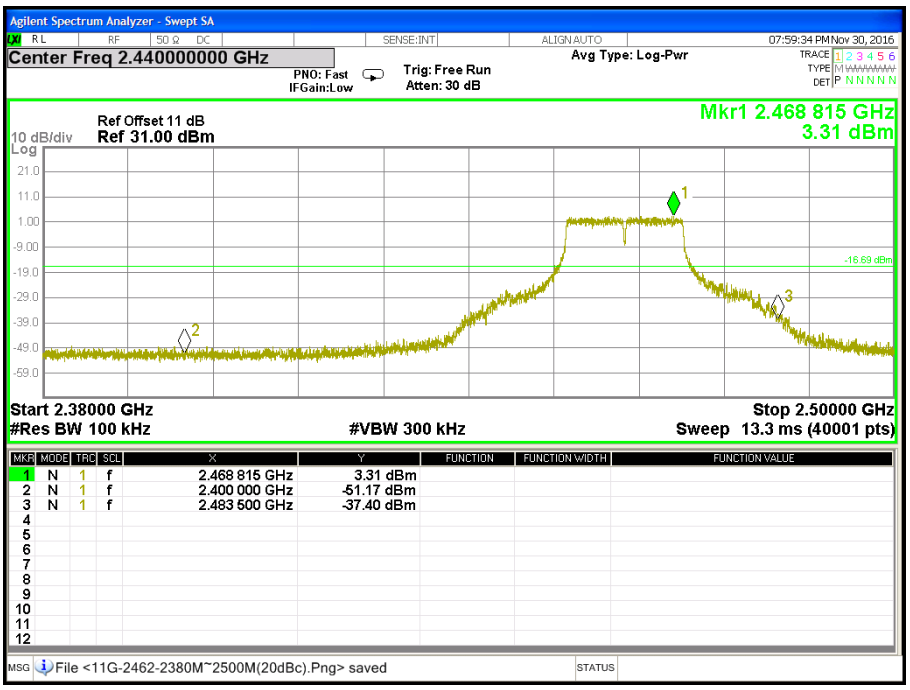
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11g Mode)



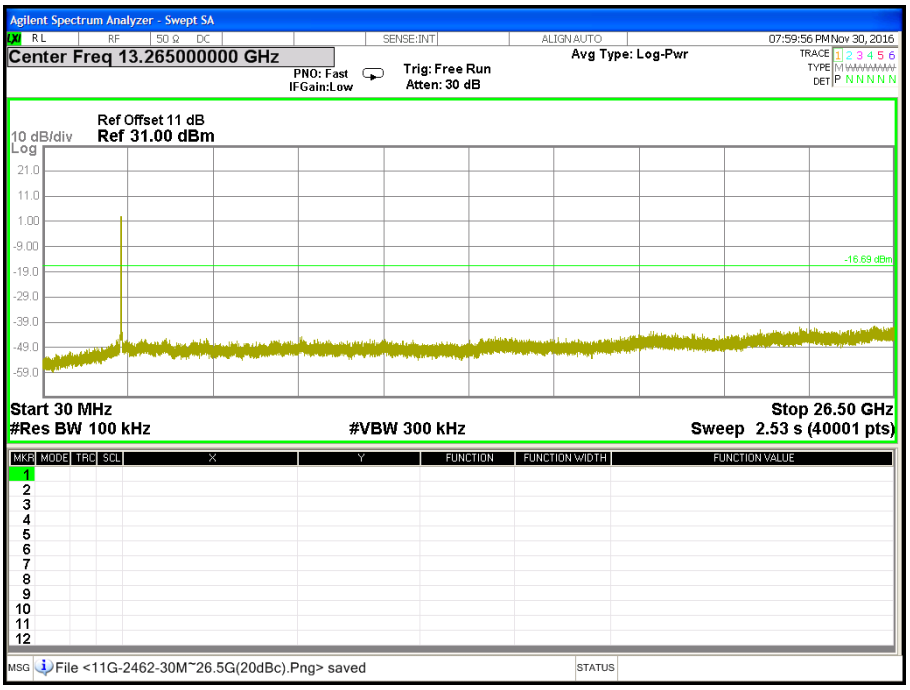
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11g Mode)



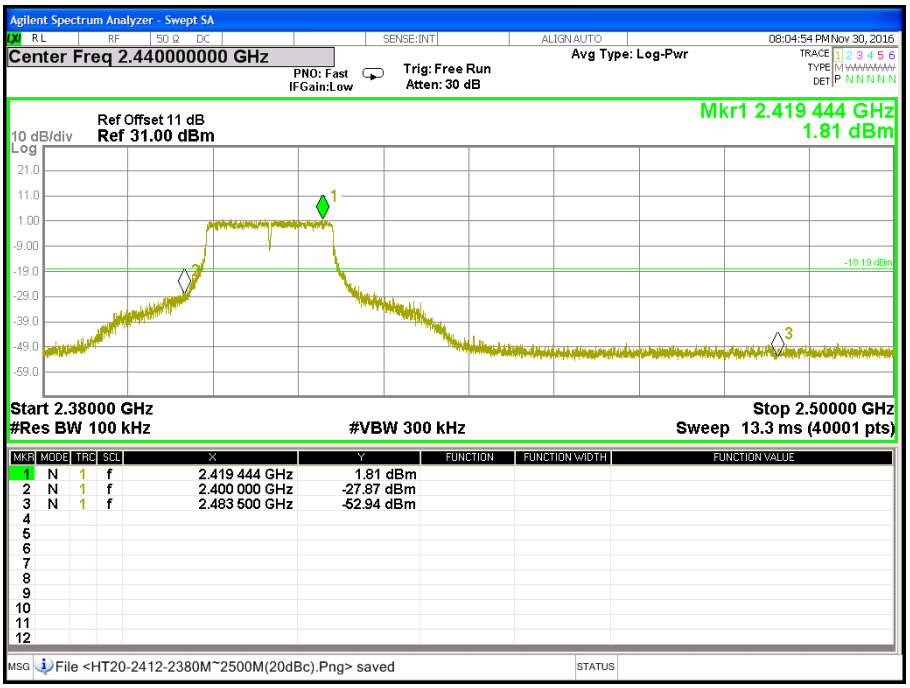
CH High (2.38GHz ~ 2.5GHz / IEEE 802.11g Mode)



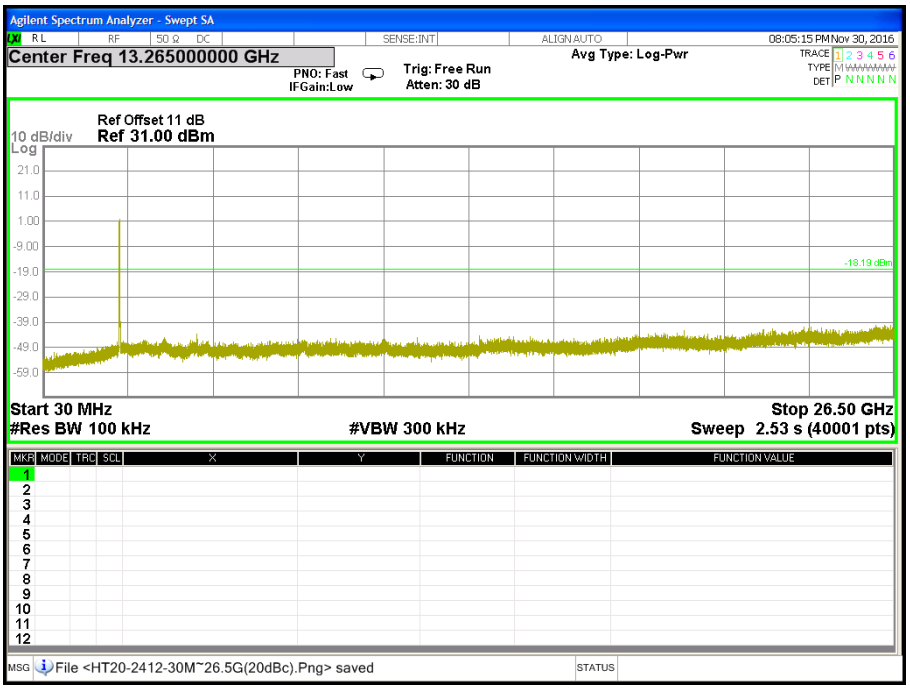
CH High (30MHz ~ 26.5GHz / IEEE 802.11g Mode)



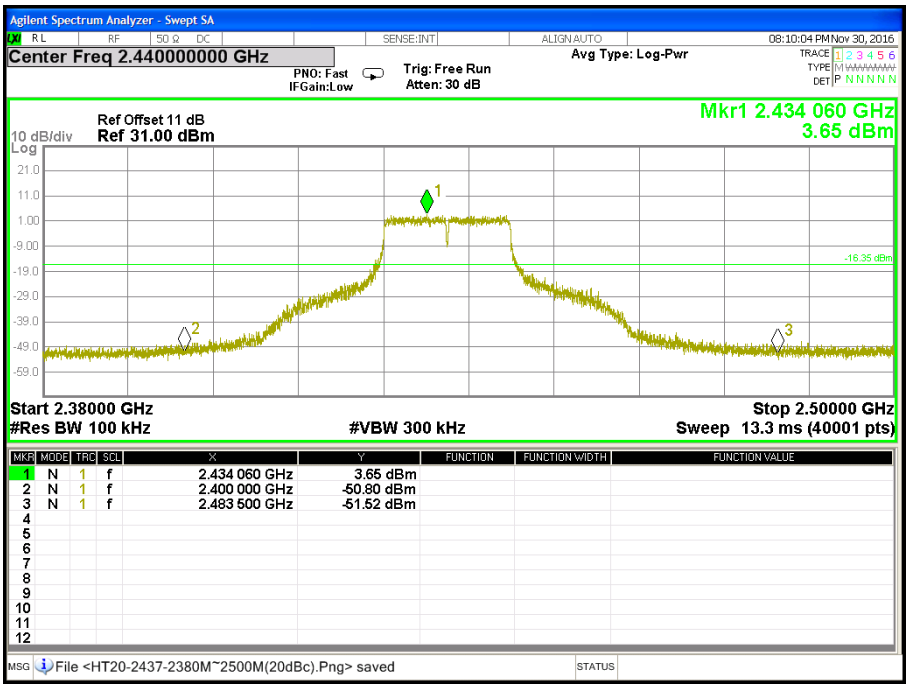
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 MCS0 Mode)



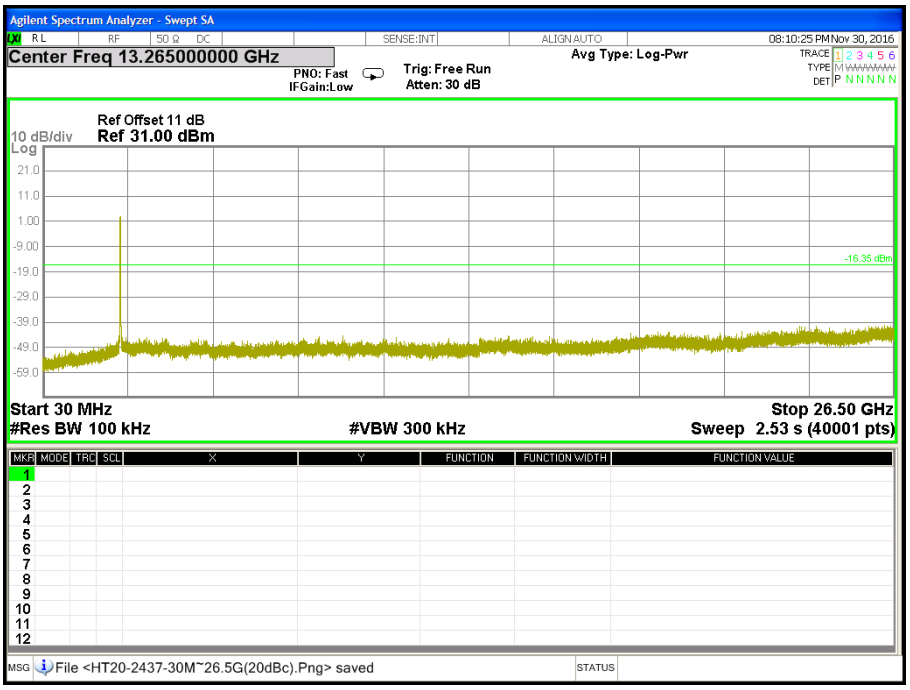
CH Low (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 MCS0 Mode)



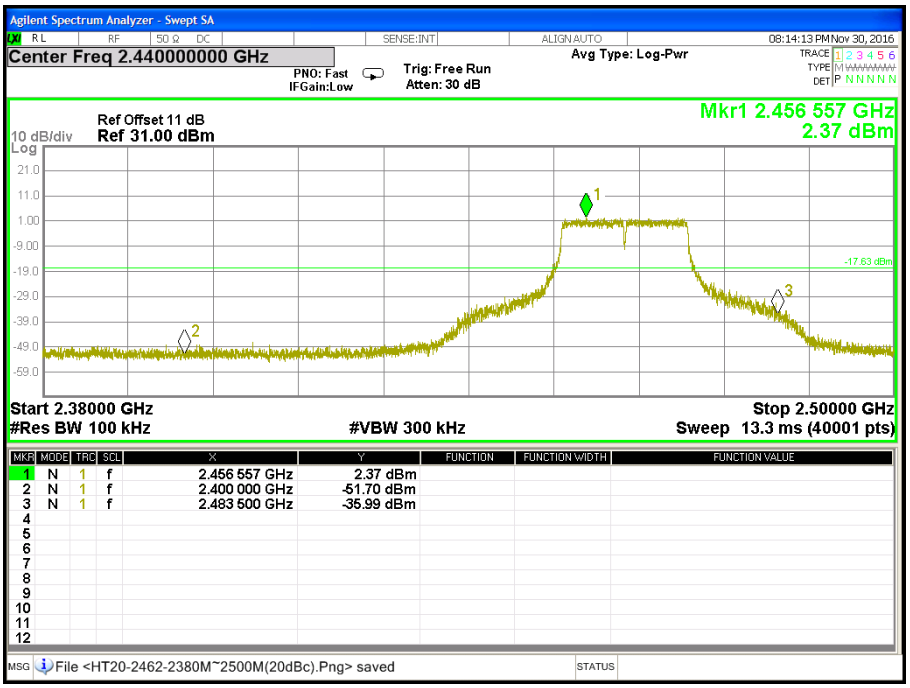
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 MCS0 Mode)



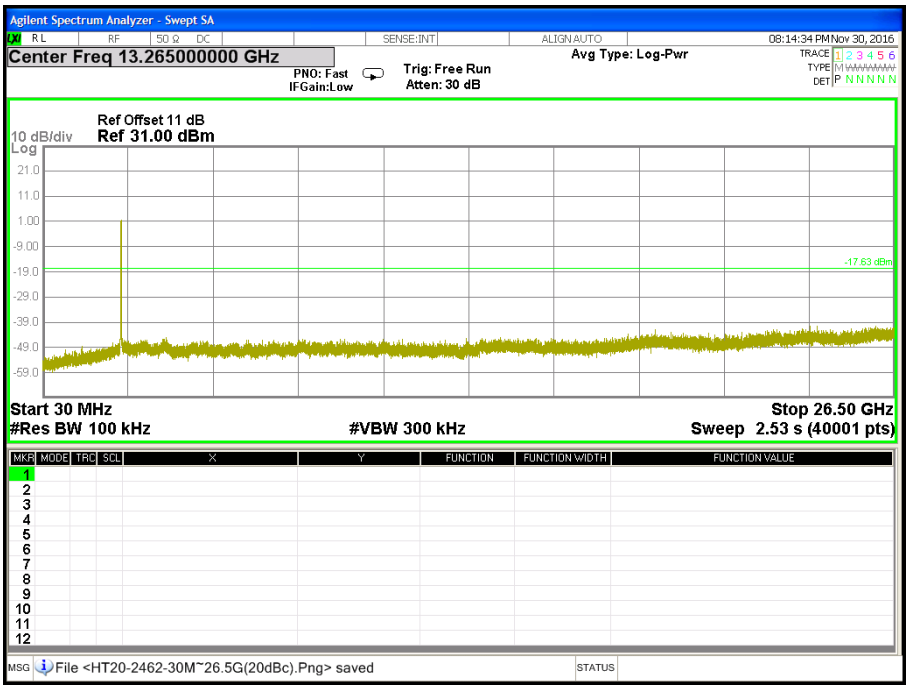
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 MCS0 Mode)



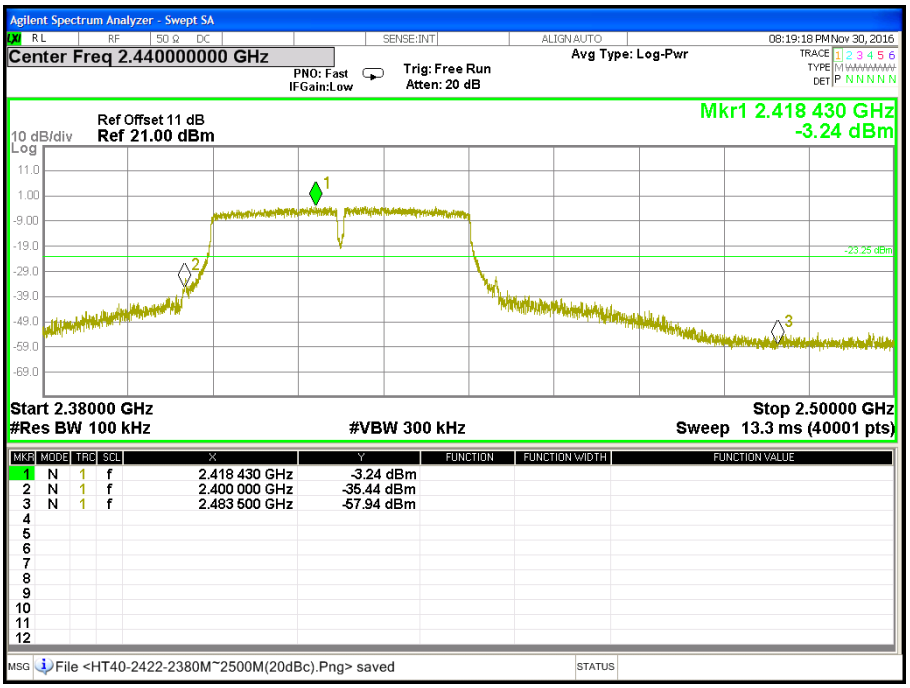
CH High (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT20 MCS0 Mode)



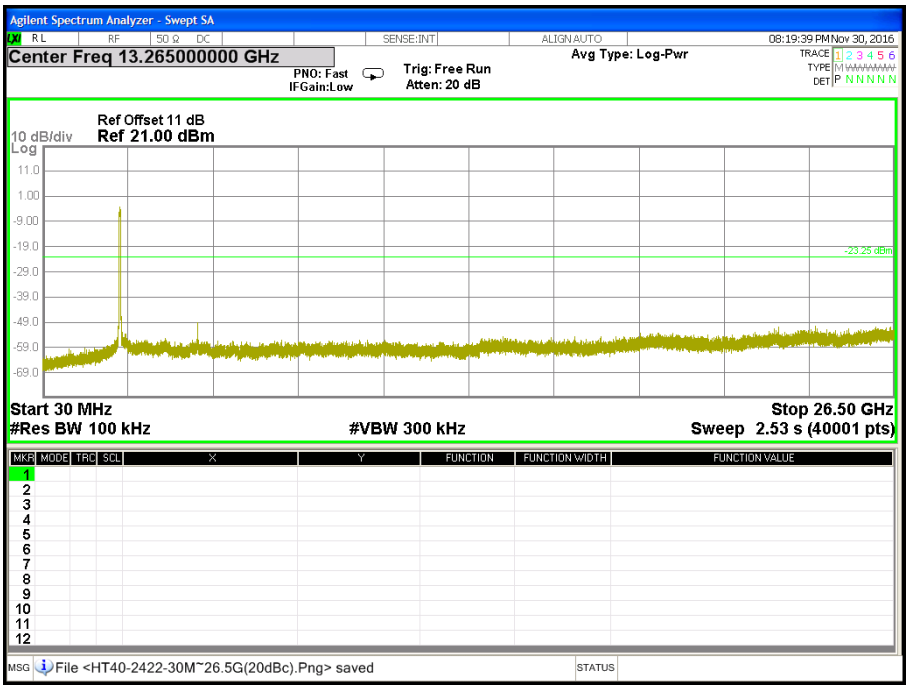
CH High (30MHz ~ 26.5GHz / IEEE 802.11gn HT20 MCS0 Mode)



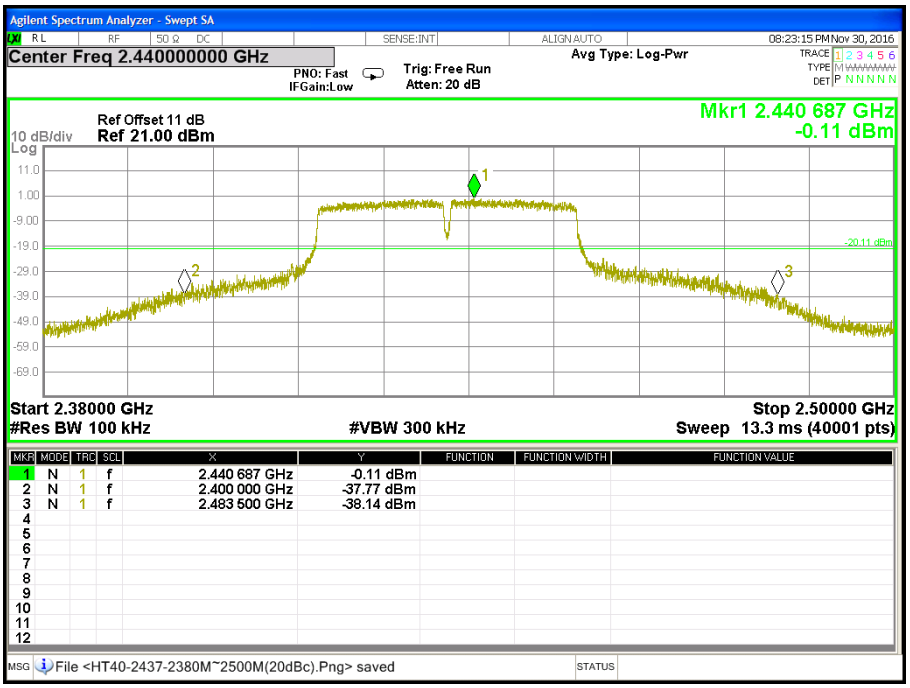
CH Low (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 MCS0 Mode)



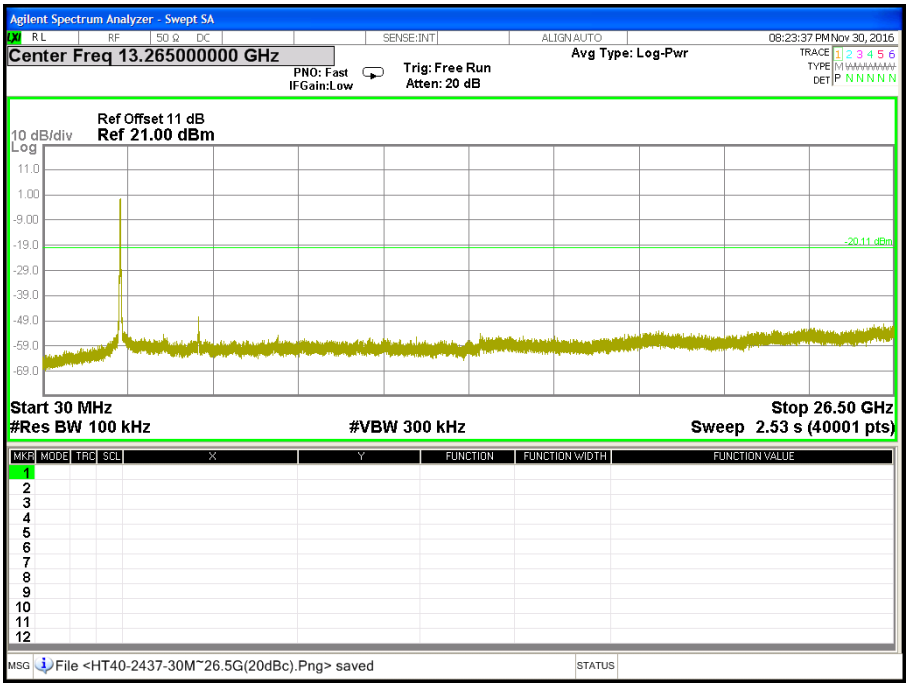
CH Low (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 MCS0 Mode)



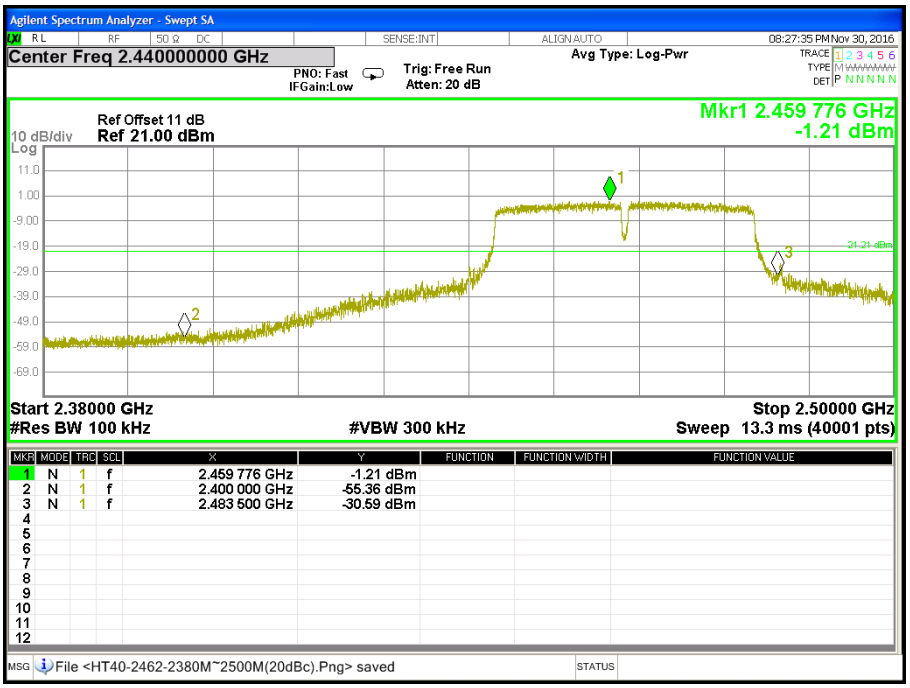
CH Middle (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 MCS0 Mode)



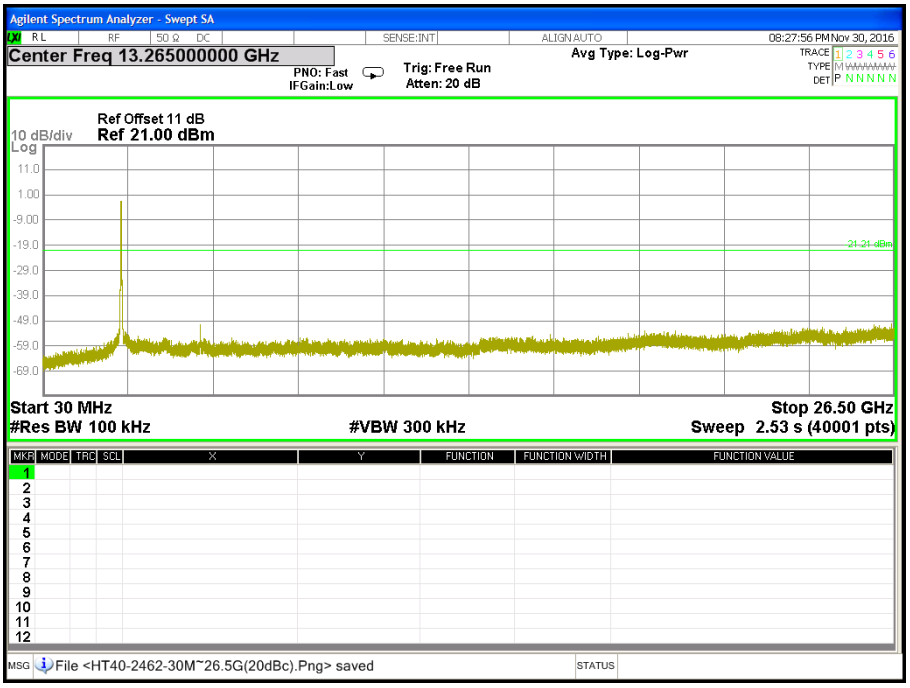
CH Middle (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 MCS0 Mode)



CH High (2.38GHz ~ 2.5GHz / IEEE 802.11gn HT40 MCS0 Mode)



CH High (30MHz ~ 26.5GHz / IEEE 802.11gn HT40 MCS0 Mode)



7.7 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

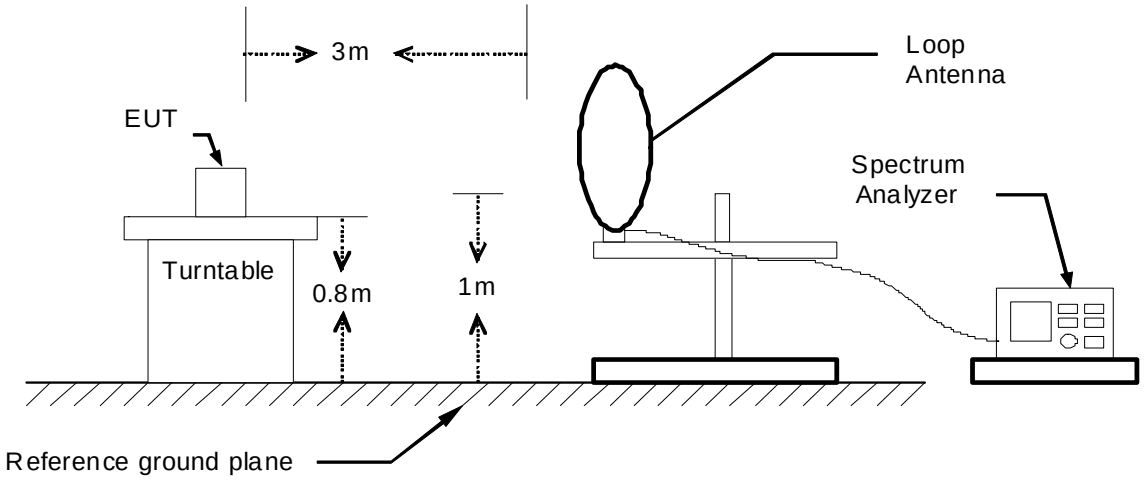
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY48250064	04/21/2017
EMI Test Receiver	Rohde & Schwarz	ESCI	101387	10/04/2017
Bi-log Antenna	TESEQ	CBL 6112D	35404	07/22/2017
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-285	04/17/2017
Double-Ridged Waveguide Horn	ETS-LINDGREN	3117	00078732	07/10/2017
Horn Antenna	COM-POWER	AH-840	03077	12/01/2017
Pre-Amplifier	EMCI	EMC001625	980243	04/11/2017
Pre-Amplifier	COM-POWER	PAM-118A	551043	04/11/2017
LOOP Antenna	COM-POWER	AL-130	121060	05/23/2017
Test S/W	E3.815206a			

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

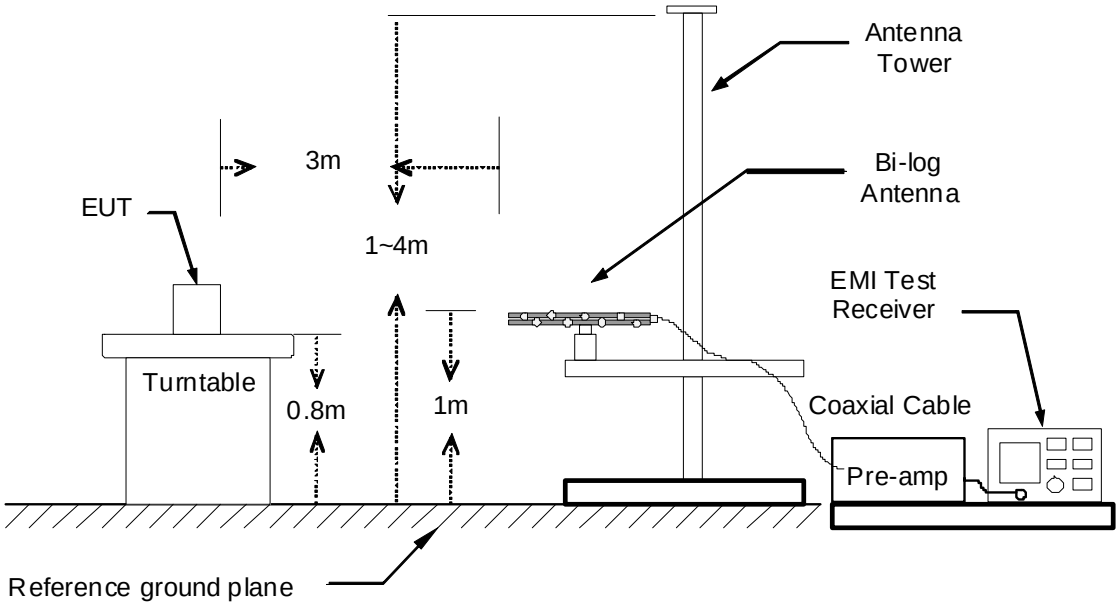
TEST SETUP

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

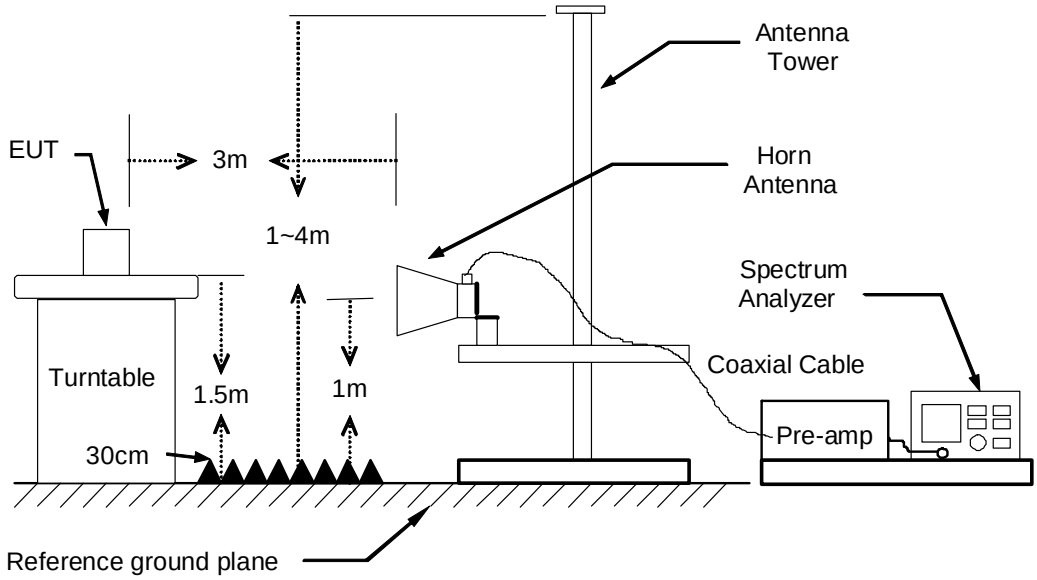
9kHz ~ 30MHz



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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/29
Test Mode	Mode 1	Temp. & Humidity	25°C, 50%

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
30.00	35.49	-7.43	28.06	40.00	-11.94	111	100	Peak
148.34	49.00	-15.15	33.85	43.50	-9.65	293	200	Peak
222.06	51.60	-16.03	35.57	46.00	-10.43	68	100	Peak
296.75	51.92	-11.89	40.03	46.00	-5.97	133	100	Peak
446.13	50.50	-8.10	42.40	46.00	-3.60	360	200	QP
786.60	41.59	-4.32	37.27	46.00	-8.73	334	100	Peak
817.64	41.52	-4.13	37.39	46.00	-8.61	292	100	Peak
870.02	41.26	-3.58	37.68	46.00	-8.32	329	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
30.00	41.21	-7.43	33.78	40.00	-6.22	124	100	Peak
55.22	51.00	-19.26	31.74	40.00	-8.26	214	100	Peak
125.06	47.32	-13.89	33.43	43.50	-10.07	266	100	Peak
240.49	50.65	-13.92	36.73	46.00	-9.27	177	200	Peak
314.21	48.04	-11.70	36.34	46.00	-9.66	193	200	Peak
445.16	49.31	-8.12	41.19	46.00	-4.81	40	100	Peak
594.54	45.57	-5.82	39.75	46.00	-6.25	268	100	Peak
870.02	39.65	-3.58	36.07	46.00	-9.93	81	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11b Mode / TX / CH Low	Temp. & Humidity	25°C, 50%

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
1870.00	50.82	-2.39	48.43	74.00	-25.57	326	200	Peak
2566.00	49.53	0.17	49.70	74.00	-24.30	328	200	Peak
3480.00	44.49	2.06	46.55	74.00	-27.45	315	200	Peak
4824.00	46.20	5.74	51.94	54.00	-2.06	328	200	Average
4824.00	48.25	5.74	53.99	74.00	-20.01	328	200	Peak
7020.00	43.19	2.80	45.99	74.00	-28.01	62	100	Peak
11160.00	42.23	7.16	49.39	74.00	-24.61	344	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
2088.00	53.33	-1.72	51.61	74.00	-22.39	357	100	Peak
2538.00	50.10	0.08	50.18	74.00	-23.82	256	100	Peak
3480.00	44.04	2.06	46.10	74.00	-27.90	24	100	Peak
4824.00	47.20	5.74	52.94	54.00	-1.06	241	200	Average
4824.00	48.22	5.74	53.96	74.00	-20.04	241	200	Peak
6960.00	44.31	2.81	47.12	74.00	-26.88	37	100	Peak
11148.00	41.70	7.16	48.86	74.00	-25.14	334	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11b Mode / TX / CH Middle	Temp. & Humidity	25°C, 50%

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
2390.00	50.14	-0.49	49.65	74.00	-24.35	277	100	Peak
2874.00	48.36	1.14	49.50	74.00	-24.50	241	100	Peak
3480.00	45.11	2.06	47.17	74.00	-26.83	341	100	Peak
4875.00	46.20	5.89	52.09	54.00	-1.91	349	256	Average
4875.00	46.89	5.89	52.78	74.00	-21.22	349	200	Peak
6960.00	43.70	2.81	46.51	74.00	-27.49	119	200	Peak
10968.00	42.72	6.97	49.69	74.00	-24.31	38	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
2334.00	49.49	-0.72	48.77	74.00	-25.23	360	100	Peak
2732.00	48.91	0.69	49.60	74.00	-24.40	287	200	Peak
3480.00	45.08	2.06	47.14	74.00	-26.86	148	100	Peak
4875.00	46.80	5.89	52.69	54.00	-1.31	241	200	Average
4875.00	47.33	5.89	53.22	74.00	-20.78	241	200	Peak
7032.00	43.94	2.81	46.75	74.00	-27.25	24	100	Peak
10020.00	43.82	5.15	48.97	74.00	-25.03	233	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11b Mode / TX / CH High	Temp. & Humidity	25°C, 50%

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
2340.00	50.72	-0.69	50.03	74.00	-23.97	23	200	Peak
2982.00	47.75	1.48	49.23	74.00	-24.77	16	200	Peak
3480.00	46.25	2.06	48.31	74.00	-25.69	326	200	Peak
4923.00	46.60	6.03	52.63	54.00	-1.37	334	207	Average
4923.00	47.03	6.03	53.06	74.00	-20.94	334	200	Peak
6996.00	43.54	2.79	46.33	74.00	-27.67	56	200	Peak
10068.00	43.25	5.23	48.48	74.00	-25.52	292	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
2380.00	48.73	-0.53	48.20	74.00	-25.80	343	200	Peak
2972.00	48.12	1.45	49.57	74.00	-24.43	330	100	Peak
3480.00	44.60	2.06	46.66	74.00	-27.34	33	100	Peak
4923.00	46.70	6.03	52.73	54.00	-1.27	241	195	Average
4923.00	47.24	6.03	53.27	74.00	-20.73	241	200	Peak
7032.00	43.40	2.81	46.21	74.00	-27.79	213	100	Peak
10812.00	42.80	6.66	49.46	74.00	-24.54	0	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11g Mode / TX / CH Low	Temp. & Humidity	25°C, 50%

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
2278.00	49.65	-0.95	48.70	74.00	-25.30	298	100	Peak
2536.00	49.77	0.07	49.84	74.00	-24.16	281	100	Peak
3480.00	43.80	2.06	45.86	74.00	-28.14	290	200	Peak
4824.00	40.20	5.74	45.94	54.00	-8.06	353	200	Average
4824.00	48.34	5.74	54.08	74.00	-19.92	353	200	Peak
6984.00	44.57	2.80	47.37	74.00	-26.63	117	100	Peak
10956.00	43.08	6.95	50.03	74.00	-23.97	150	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
2088.00	51.48	-1.72	49.76	74.00	-24.24	22	100	Peak
2784.00	48.87	0.86	49.73	74.00	-24.27	256	200	Peak
3480.00	44.60	2.06	46.66	74.00	-27.34	358	100	Peak
4827.00	36.70	5.75	42.45	54.00	-11.55	83	200	Average
4827.00	46.97	5.75	52.72	74.00	-21.28	83	200	Peak
7236.00	44.25	2.96	47.21	74.00	-26.79	243	100	Peak
10068.00	44.75	5.23	49.98	74.00	-24.02	151	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11g Mode / TX / CH Middle	Temp. & Humidity	25°C, 50%

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
2390.00	41.20	-0.49	40.71	54.00	-13.29	275	100	Average
2390.00	53.23	-0.49	52.74	74.00	-21.26	275	100	Peak
2484.00	50.09	-0.11	49.98	74.00	-24.02	192	100	Peak
3480.00	43.66	2.06	45.72	74.00	-28.28	290	200	Peak
4875.00	40.20	5.89	46.09	54.00	-7.91	349	200	Average
4875.00	47.59	5.89	53.48	74.00	-20.52	349	200	Peak
6996.00	43.89	2.79	46.68	74.00	-27.32	290	200	Peak
10140.00	43.38	5.36	48.74	74.00	-25.26	346	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	48.46	-0.49	47.97	74.00	-26.03	246	100	Peak
2600.00	49.73	0.28	50.01	74.00	-23.99	68	200	Peak
3480.00	43.02	2.06	45.08	74.00	-28.92	36	100	Peak
4875.00	40.30	5.89	46.19	54.00	-7.81	239	200	Average
4875.00	51.88	5.89	57.77	74.00	-16.23	239	200	Peak
6996.00	43.75	2.79	46.54	74.00	-27.46	184	100	Peak
10176.00	44.23	5.43	49.66	74.00	-24.34	159	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11g Mode / TX / CH High	Temp. & Humidity	25°C, 50%

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
2330.00	51.54	-0.73	50.81	74.00	-23.19	30	200	Peak
2956.00	48.73	1.40	50.13	74.00	-23.87	89	100	Peak
3480.00	43.21	2.06	45.27	74.00	-28.73	355	100	Peak
4917.00	41.00	6.01	47.01	54.00	-6.99	334	200	Average
4917.00	48.02	6.01	54.03	74.00	-19.97	334	200	Peak
7644.00	43.95	3.26	47.21	74.00	-26.79	359	100	Peak
10776.00	42.55	6.58	49.13	74.00	-24.87	9	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
2088.00	51.05	-1.72	49.33	74.00	-24.67	353	200	Peak
2968.00	48.69	1.44	50.13	74.00	-23.87	328	200	Peak
4176.00	40.98	3.83	44.81	74.00	-29.19	360	100	Peak
4923.00	42.10	6.03	48.13	54.00	-5.87	292	200	Average
4923.00	48.90	6.03	54.93	74.00	-19.07	292	200	Peak
7620.00	43.84	3.24	47.08	74.00	-26.92	1	100	Peak
10896.00	42.17	6.83	49.00	74.00	-25.00	184	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11gn HT20 MCS0 Mode / TX / CH Low	Temp. & Humidity	25°C, 50%

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
1872.00	54.73	-2.39	52.34	74.00	-21.66	330	200	Peak
2558.00	49.30	0.14	49.44	74.00	-24.56	360	200	Peak
3480.00	43.83	2.06	45.89	74.00	-28.11	360	200	Peak
4821.00	45.65	5.73	51.38	74.00	-22.62	317	100	Peak
6948.00	43.49	2.82	46.31	74.00	-27.69	142	100	Peak
10044.00	43.62	5.19	48.81	74.00	-25.19	344	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
2086.00	50.36	-1.73	48.63	74.00	-25.37	22	100	Peak
2742.00	48.52	0.72	49.24	74.00	-24.76	279	100	Peak
3480.00	44.61	2.06	46.67	74.00	-27.33	144	100	Peak
4824.00	45.30	5.74	51.04	74.00	-22.96	269	200	Peak
6948.00	44.10	2.82	46.92	74.00	-27.08	1	200	Peak
10116.00	43.23	5.32	48.55	74.00	-25.45	91	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11gn HT20 MCS0 Mode / TX / CH Middle	Temp. & Humidity	25°C, 50%

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
2390.00	38.90	-0.49	38.41	54.00	-15.59	279	200	Average
2390.00	53.90	-0.49	53.41	74.00	-20.59	279	200	Peak
2490.00	51.52	-0.08	51.44	74.00	-22.56	302	100	Peak
3480.00	43.35	2.06	45.41	74.00	-28.59	344	100	Peak
4878.00	39.80	5.90	45.70	54.00	-8.30	348	200	Average
4878.00	47.84	5.90	53.74	74.00	-20.26	348	200	Peak
6960.00	43.28	2.81	46.09	74.00	-27.91	150	200	Peak
10308.00	43.55	5.67	49.22	74.00	-24.78	144	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	49.29	-0.49	48.80	74.00	-25.20	250	100	Peak
2784.00	50.50	0.86	51.36	74.00	-22.64	253	200	Peak
3828.00	43.45	2.87	46.32	74.00	-27.68	203	100	Peak
4875.00	38.20	5.89	44.09	54.00	-9.91	237	200	Average
4875.00	47.22	5.89	53.11	74.00	-20.89	237	200	Peak
7092.00	43.32	2.86	46.18	74.00	-27.82	311	200	Peak
10248.00	43.39	5.56	48.95	74.00	-25.05	180	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11gn HT20 MCS0 Mode / TX / CH High	Temp. & Humidity	25°C, 50%

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
2332.00	50.98	-0.73	50.25	74.00	-23.75	17	200	Peak
2978.00	47.56	1.47	49.03	74.00	-24.97	172	200	Peak
3480.00	44.18	2.06	46.24	74.00	-27.76	325	100	Peak
4923.00	38.50	6.03	44.53	54.00	-9.47	195	100	Average
4923.00	47.30	6.03	53.33	74.00	-20.67	195	100	Peak
6900.00	43.62	2.85	46.47	74.00	-27.53	346	200	Peak
10164.00	43.63	5.41	49.04	74.00	-24.96	5	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
2088.00	52.14	-1.72	50.42	74.00	-23.58	338	200	Peak
2966.00	47.94	1.43	49.37	74.00	-24.63	144	100	Peak
3480.00	44.34	2.06	46.40	74.00	-27.60	277	200	Peak
4926.00	39.20	6.04	45.24	54.00	-8.76	239	200	Average
4926.00	47.66	6.04	53.70	74.00	-20.30	239	200	Peak
6960.00	43.74	2.81	46.55	74.00	-27.45	47	100	Peak
10068.00	44.19	5.23	49.42	74.00	-24.58	359	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11gn HT40 MCS0 Mode / TX / CH Low	Temp. & Humidity	25°C, 50%

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
1872.00	53.41	-2.39	51.02	74.00	-22.98	77	200	Peak
2566.00	49.83	0.17	50.00	74.00	-24.00	197	100	Peak
3480.00	45.86	2.06	47.92	74.00	-26.08	68	200	Peak
4845.00	41.71	5.80	47.51	74.00	-26.49	330	100	Peak
7020.00	43.61	2.80	46.41	74.00	-27.59	167	200	Peak
9252.00	43.13	4.49	47.62	74.00	-26.38	327	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
2088.00	38.90	-1.72	37.18	54.00	-16.82	359	100	Average
2088.00	55.97	-1.72	54.25	74.00	-19.75	359	100	Peak
2504.00	49.40	-0.03	49.37	74.00	-24.63	140	200	Peak
3480.00	41.89	2.06	43.95	74.00	-30.05	68	100	Peak
4845.00	41.66	5.80	47.46	74.00	-26.54	243	200	Peak
6876.00	43.77	2.87	46.64	74.00	-27.36	203	100	Peak
9336.00	43.47	4.57	48.04	74.00	-25.96	145	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11gn HT40 MCS0 Mode / TX / CH Middle	Temp. & Humidity	25°C, 50%

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
1872.00	41.80	-2.39	39.41	54.00	-14.59	278	200	Average
1872.00	55.84	-2.39	53.45	74.00	-20.55	278	200	Peak
2390.00	51.30	-0.49	50.81	54.00	-3.19	282	100	Average
2390.00	62.46	-0.49	61.97	74.00	-12.03	282	100	Peak
2484.00	48.20	-0.11	48.09	54.00	-5.91	185	100	Average
2484.00	59.59	-0.11	59.48	74.00	-14.52	185	100	Peak
3480.00	42.63	2.06	44.69	74.00	-29.31	336	200	Peak
4875.00	43.86	5.89	49.75	74.00	-24.25	327	200	Peak
6948.00	43.74	2.82	46.56	74.00	-27.44	338	200	Peak
10152.00	43.48	5.39	48.87	74.00	-25.13	359	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
2390.00	47.20	-0.49	46.71	54.00	-7.29	183	100	Average
2390.00	59.55	-0.49	59.06	74.00	-14.94	183	100	Peak
2484.00	46.70	-0.11	46.59	54.00	-7.41	357	100	Average
2484.00	58.17	-0.11	58.06	74.00	-15.94	357	100	Peak
3480.00	44.97	2.06	47.03	74.00	-26.97	16	100	Peak
4875.00	45.61	5.89	51.50	74.00	-22.50	82	200	Peak
7056.00	43.84	2.83	46.67	74.00	-27.33	43	100	Peak
9324.00	42.70	4.56	47.26	74.00	-26.74	77	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	SiME Smart Q	Test By	Rex Chiu
Test Model	SiME Q1	Test Date	2016/11/25
Test Mode	IEEE 802.11gn HT40 MCS0 Mode / TX / CH High	Temp. & Humidity	25°C, 50%

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
1874.00	52.46	-2.38	50.08	74.00	-23.92	291	200	Peak
2340.00	51.13	-0.69	50.44	74.00	-23.56	12	200	Peak
2954.00	48.44	1.39	49.83	74.00	-24.17	242	200	Peak
3480.00	44.45	2.06	46.51	74.00	-27.49	353	100	Peak
4905.00	45.08	5.98	51.06	74.00	-22.94	312	200	Peak
7008.00	44.31	2.80	47.11	74.00	-26.89	40	200	Peak
10128.00	44.07	5.34	49.41	74.00	-24.59	231	100	Peak

966Chamber_C at 3Meter / Vertical

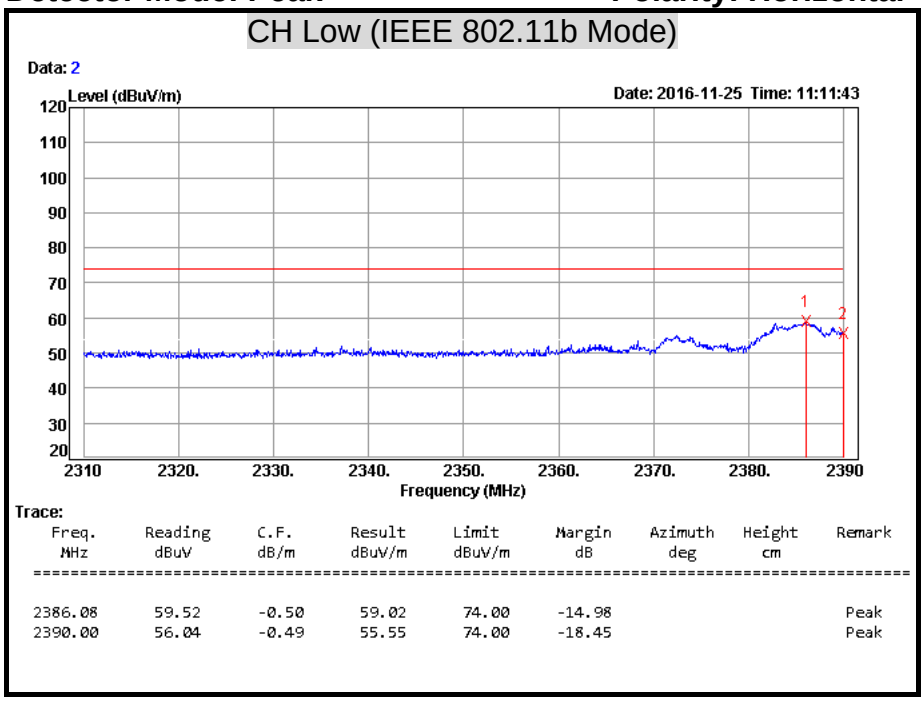
Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1872.00	53.06	-2.39	50.67	74.00	-23.33	26	100	Peak
2980.00	48.01	1.48	49.49	74.00	-24.51	342	200	Peak
3480.00	44.31	2.06	46.37	74.00	-27.63	251	100	Peak
4905.00	44.86	5.98	50.84	74.00	-23.16	281	200	Peak
6936.00	44.05	2.83	46.88	74.00	-27.12	206	200	Peak
10068.00	44.08	5.23	49.31	74.00	-24.69	70	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**

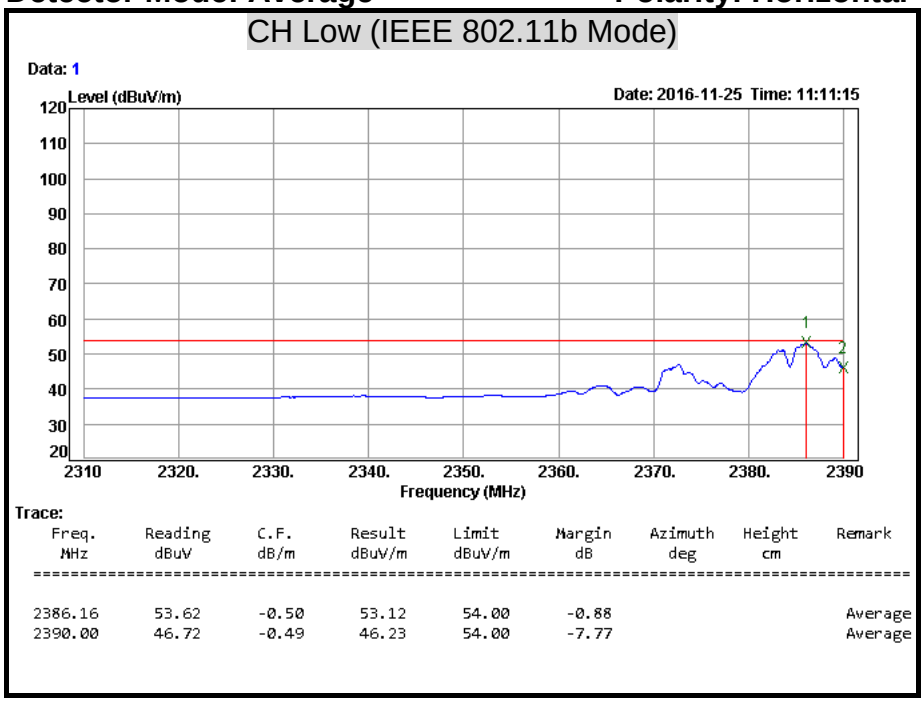


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2386.08	59.52	-0.50	59.02	74.00	-14.98			Peak
2390.00	56.04	-0.49	55.55	74.00	-18.45			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

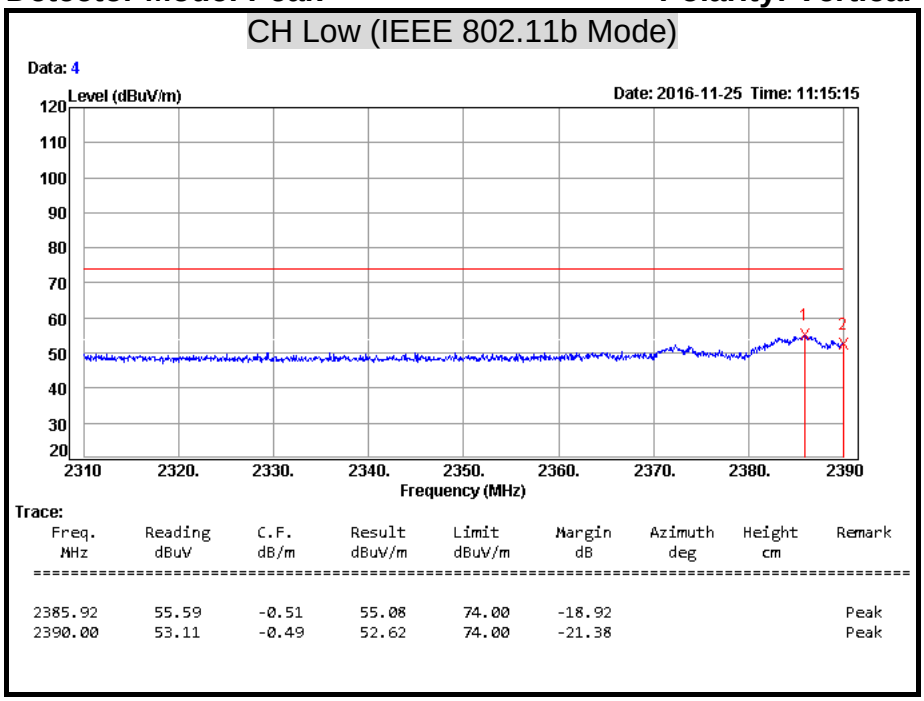


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2386.16	53.62	-0.50	53.12	54.00	-0.88			Average
2390.00	46.72	-0.49	46.23	54.00	-7.77			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Vertical**

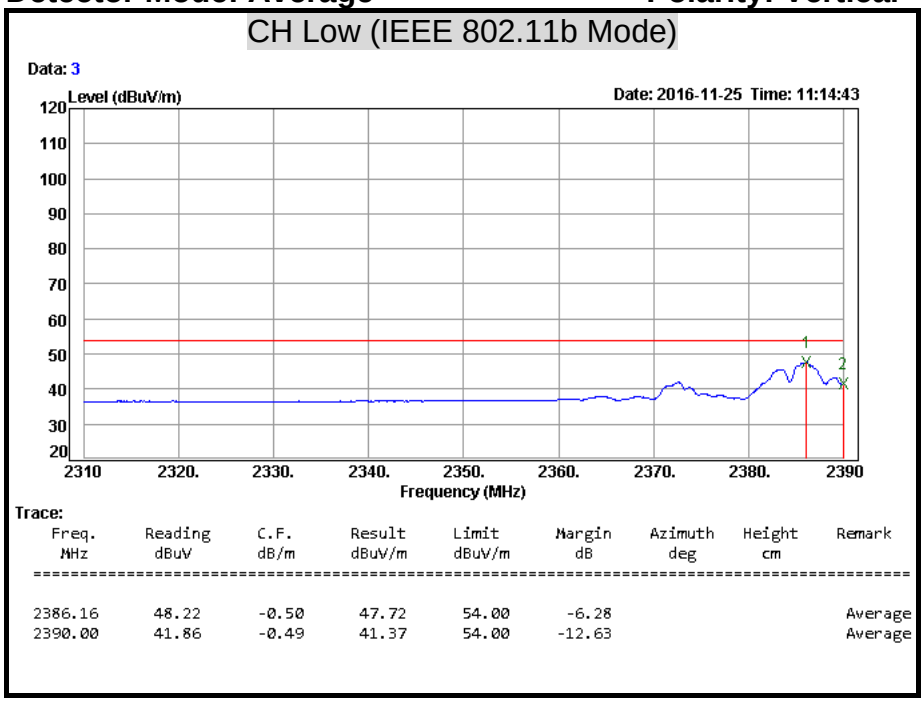


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2385.92	55.59	-0.51	55.08	74.00	-18.92			Peak
2390.00	53.11	-0.49	52.62	74.00	-21.38			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**



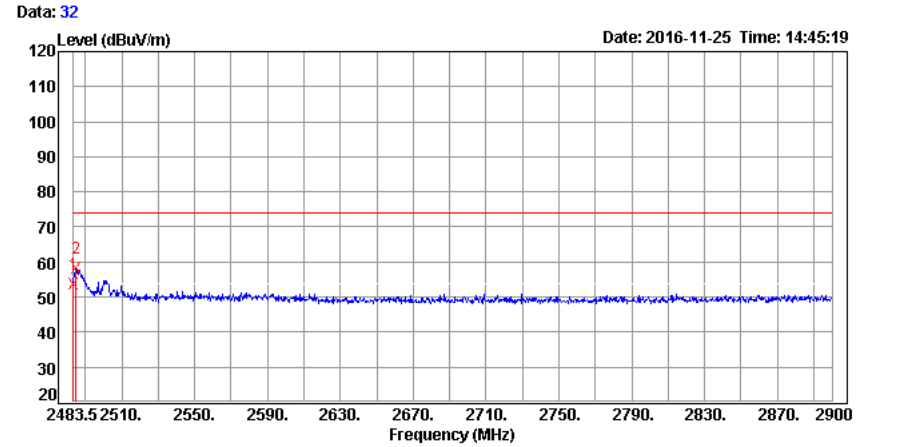
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2386.16	48.22	-0.50	47.72	54.00	-6.28			Average
2390.00	41.86	-0.49	41.37	54.00	-12.63			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11b Mode)



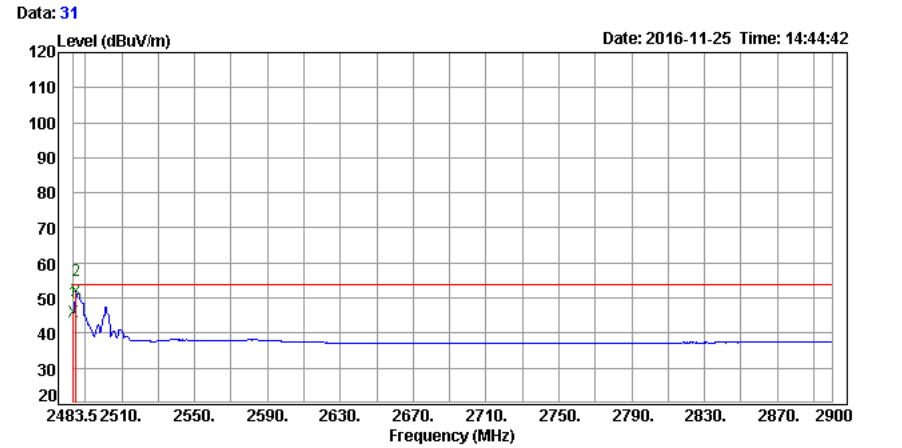
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	53.92	-0.11	53.81	74.00	-20.19			Peak
2484.75	58.25	-0.10	58.15	74.00	-15.85			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH High (IEEE 802.11b Mode)



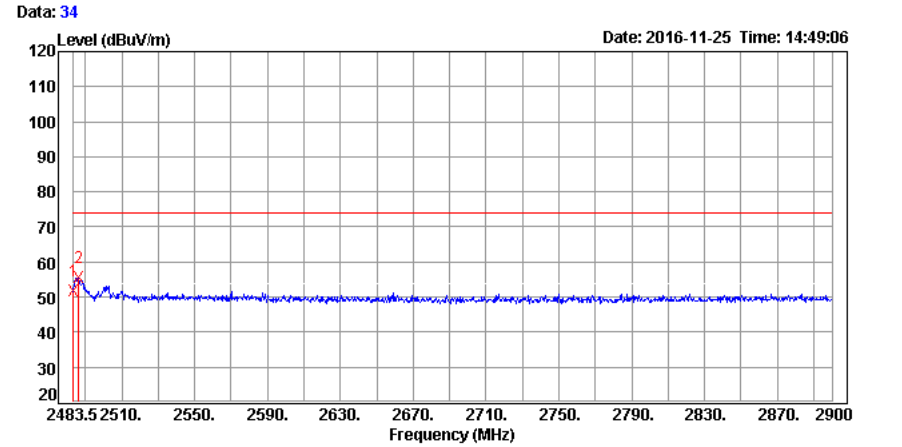
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	46.11	-0.11	46.00	54.00	-8.00			Average
2484.75	52.21	-0.10	52.11	54.00	-1.89			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11b Mode)



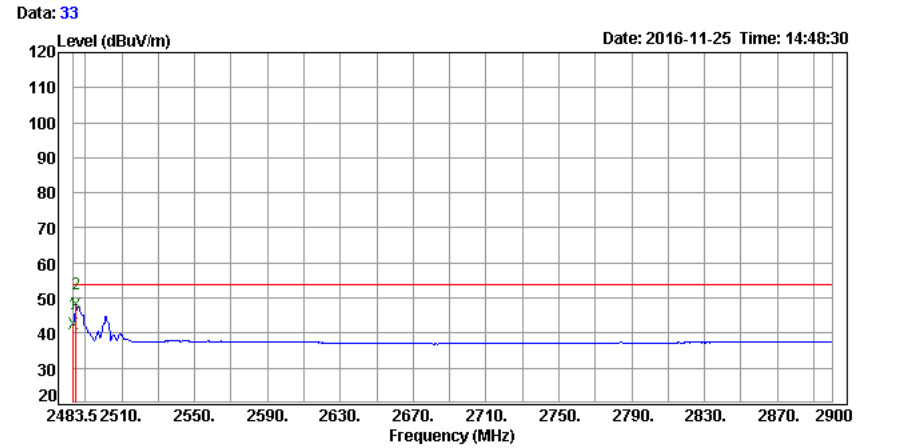
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	51.72	-0.11	51.61	74.00	-22.39			Peak
2486.42	55.54	-0.10	55.44	74.00	-18.56			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH High (IEEE 802.11b Mode)

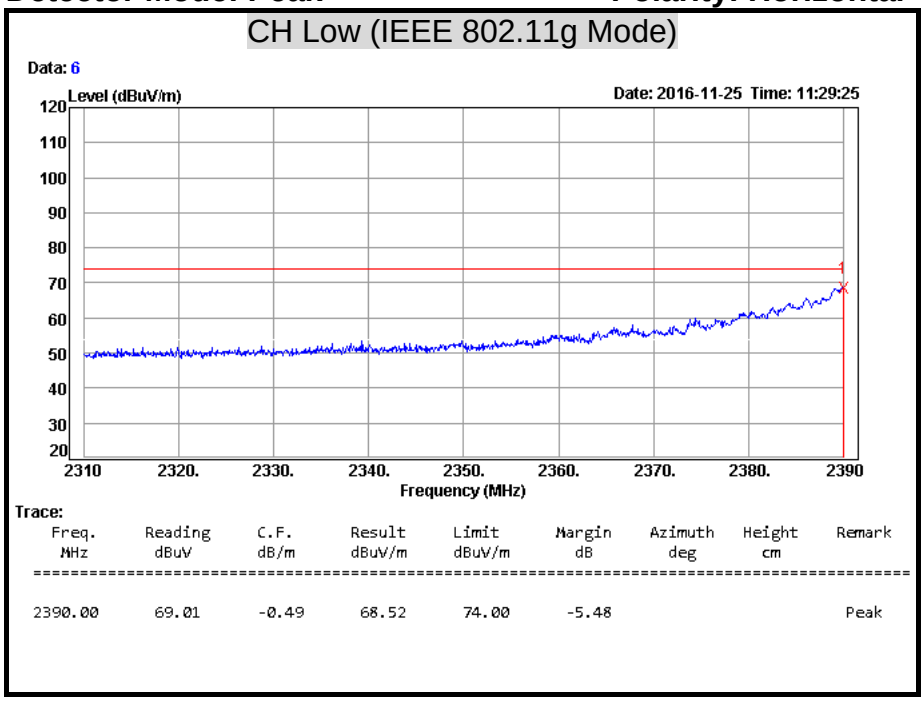


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	42.66	-0.11	42.55	54.00	-11.45			Average
2484.75	48.30	-0.10	48.20	54.00	-5.80			Average

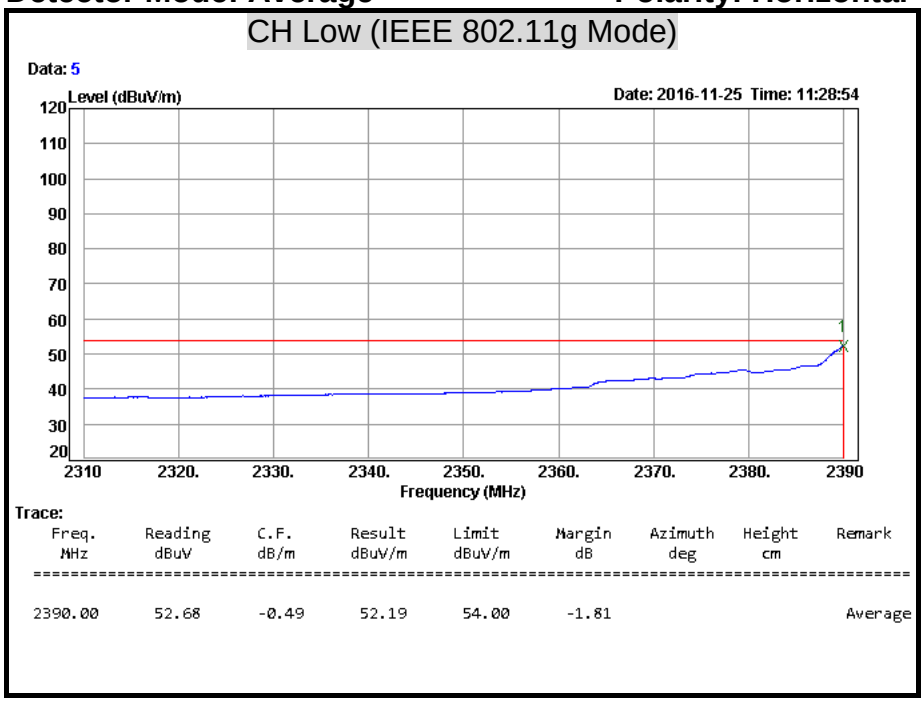
Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Horizontal**



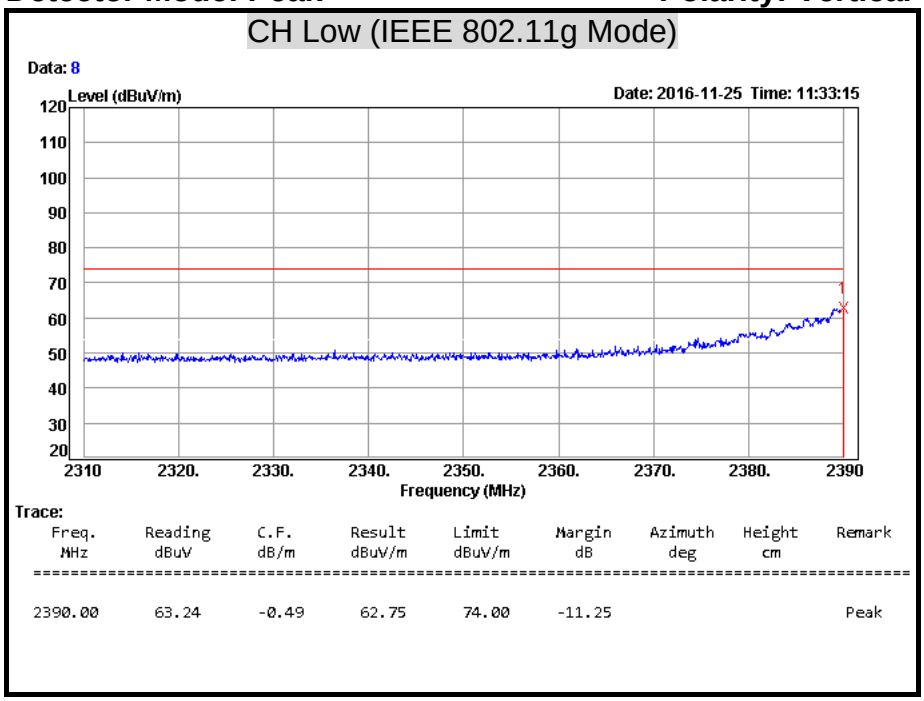
Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**



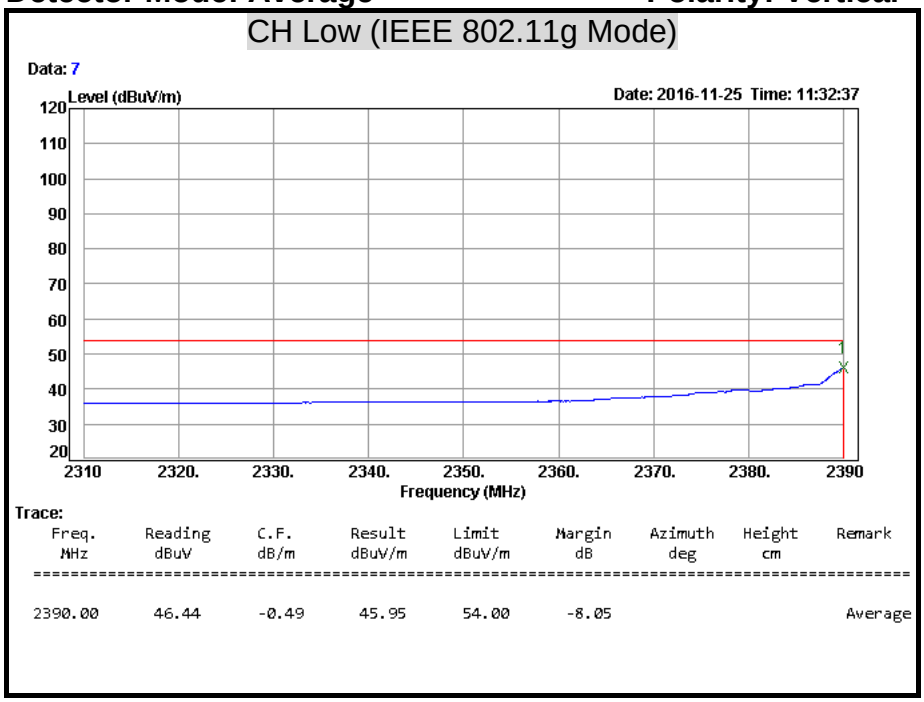
Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Vertical**



Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

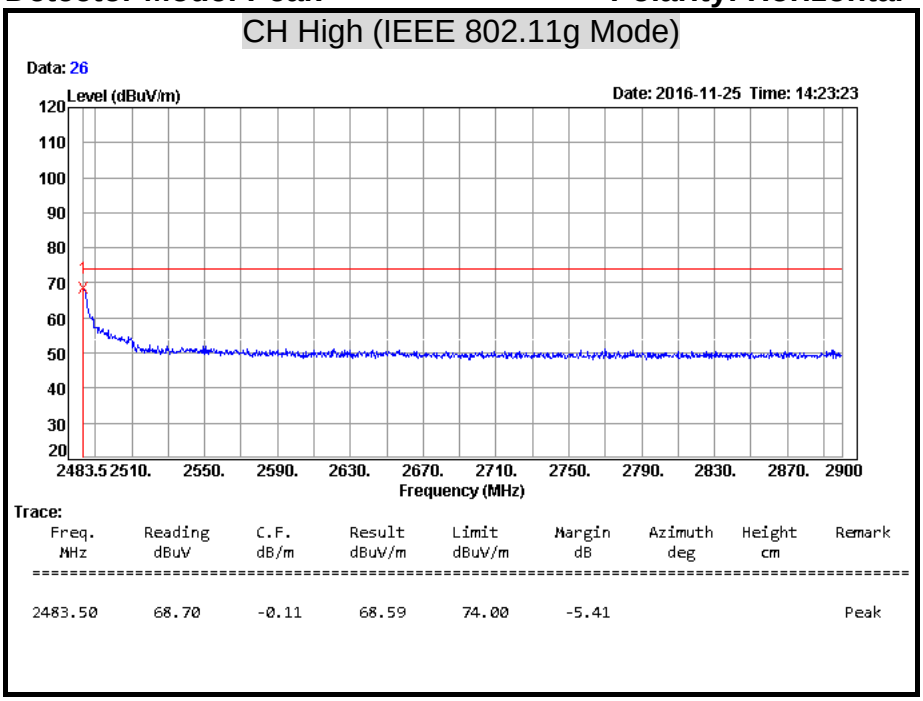
Detector Mode: Average **Polarity: Vertical**



Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11g Mode)



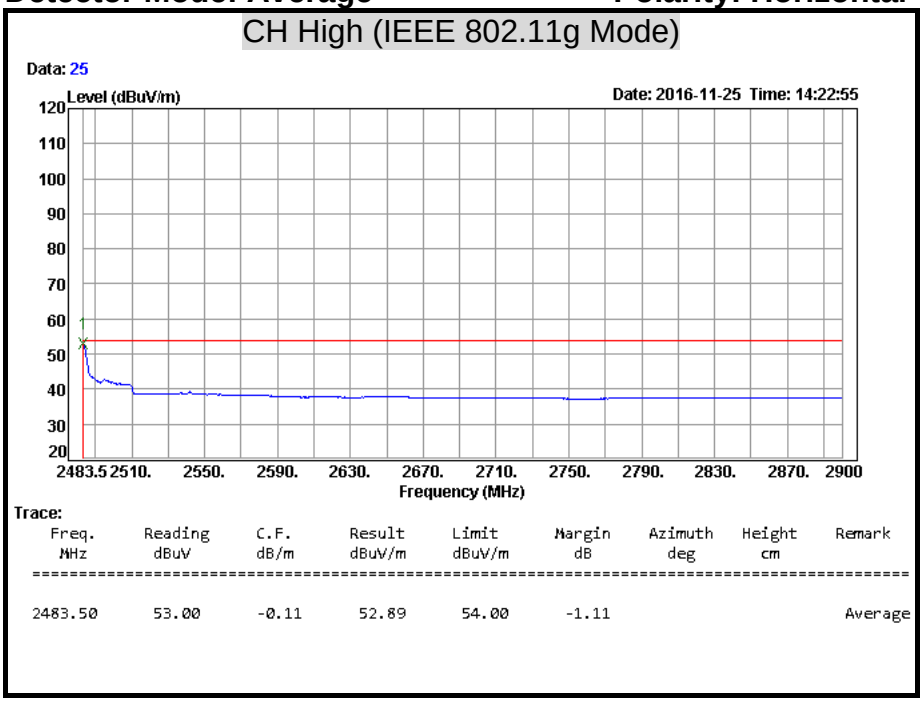
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	68.70	-0.11	68.59	74.00	-5.41			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH High (IEEE 802.11g Mode)



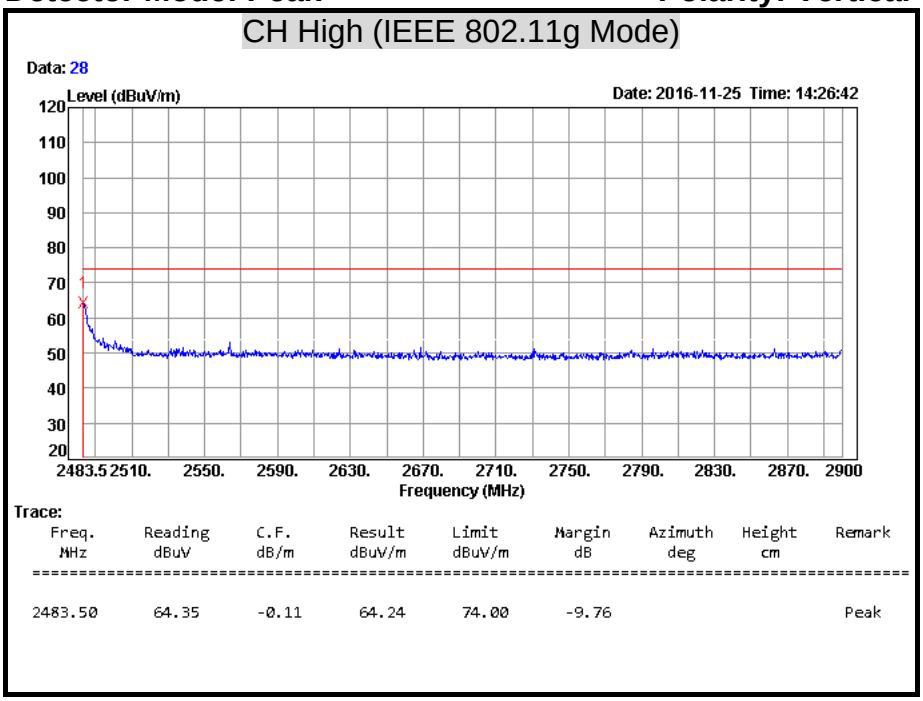
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	53.00	-0.11	52.89	54.00	-1.11			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11g Mode)



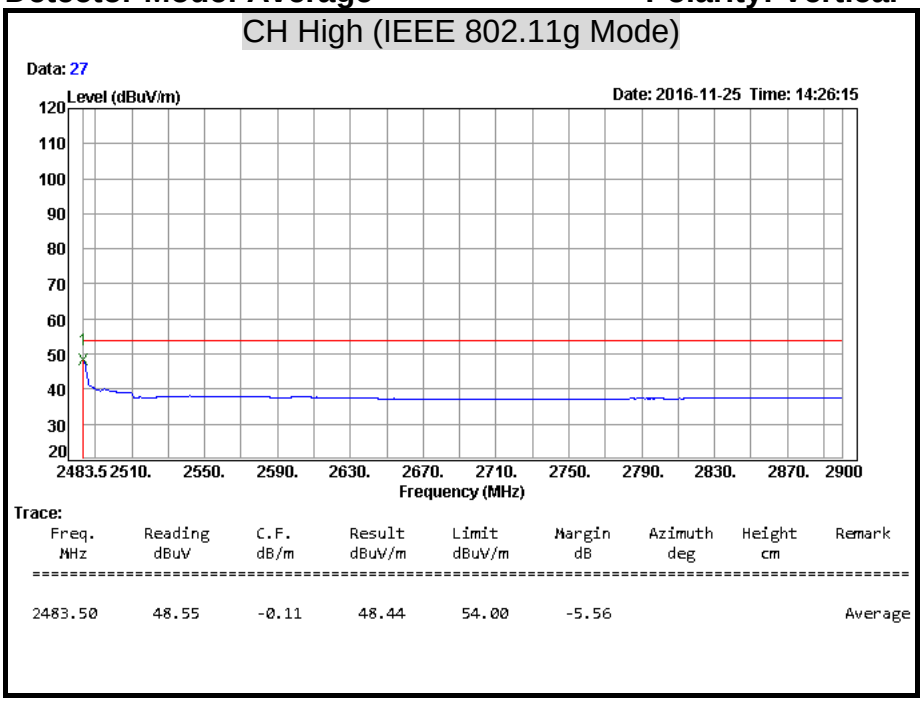
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	64.35	-0.11	64.24	74.00	-9.76			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH High (IEEE 802.11g Mode)



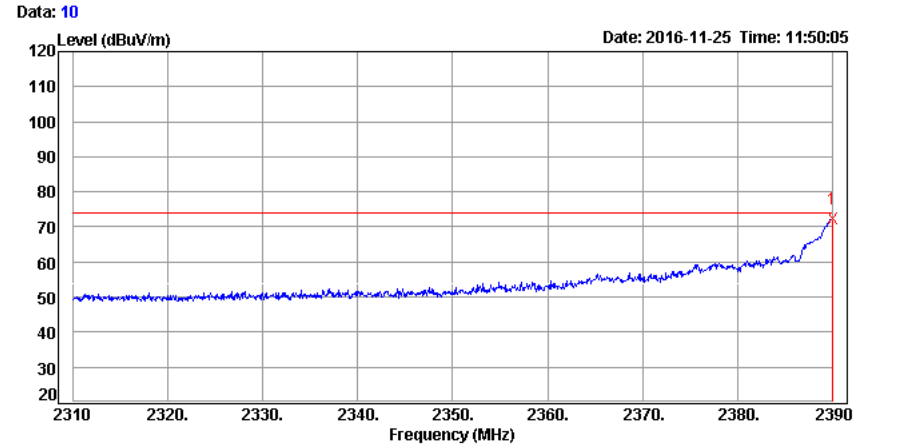
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	48.55	-0.11	48.44	54.00	-5.56			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11gn HT20 MCS0 Mode)



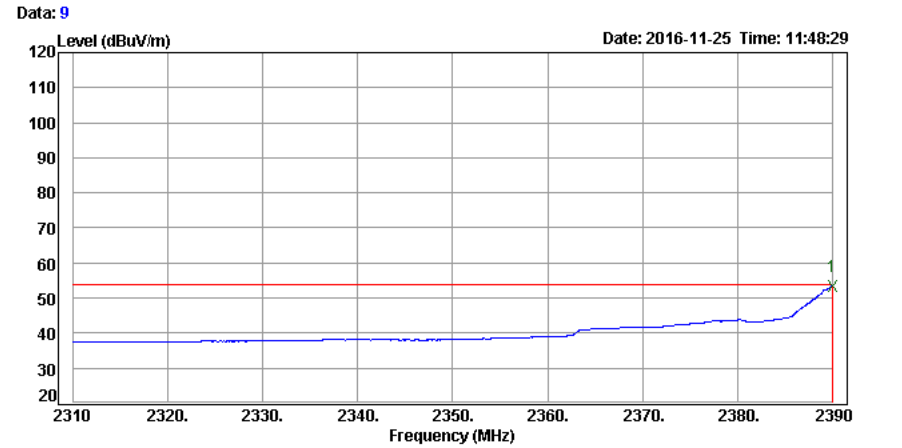
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	72.60	-0.49	72.11	74.00	-1.89			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11gn HT20 MCS0 Mode)

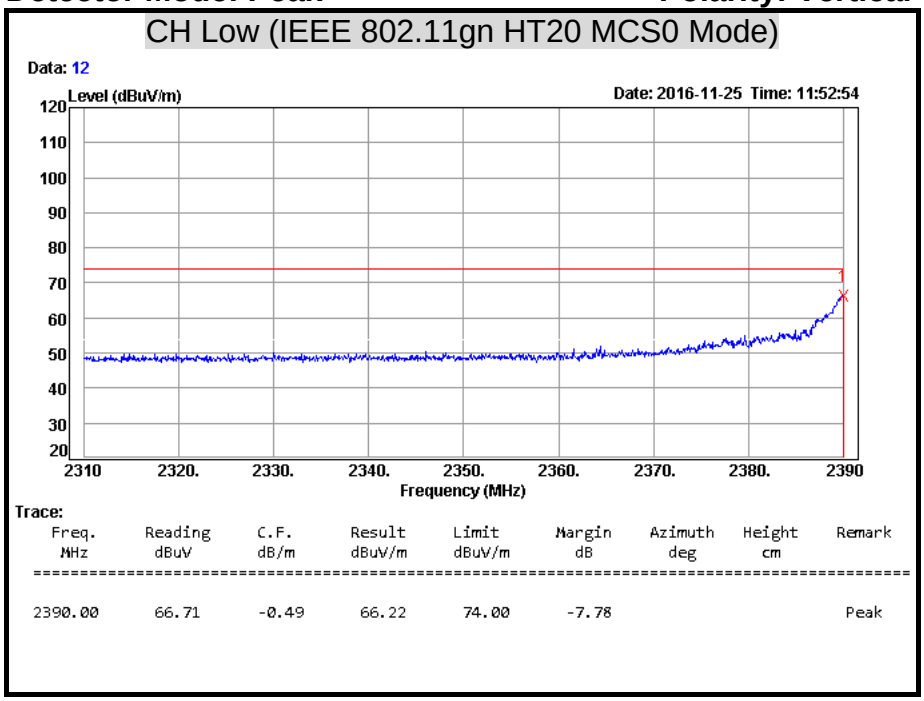


Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	53.90	-0.49	53.41	54.00	-0.59			Average

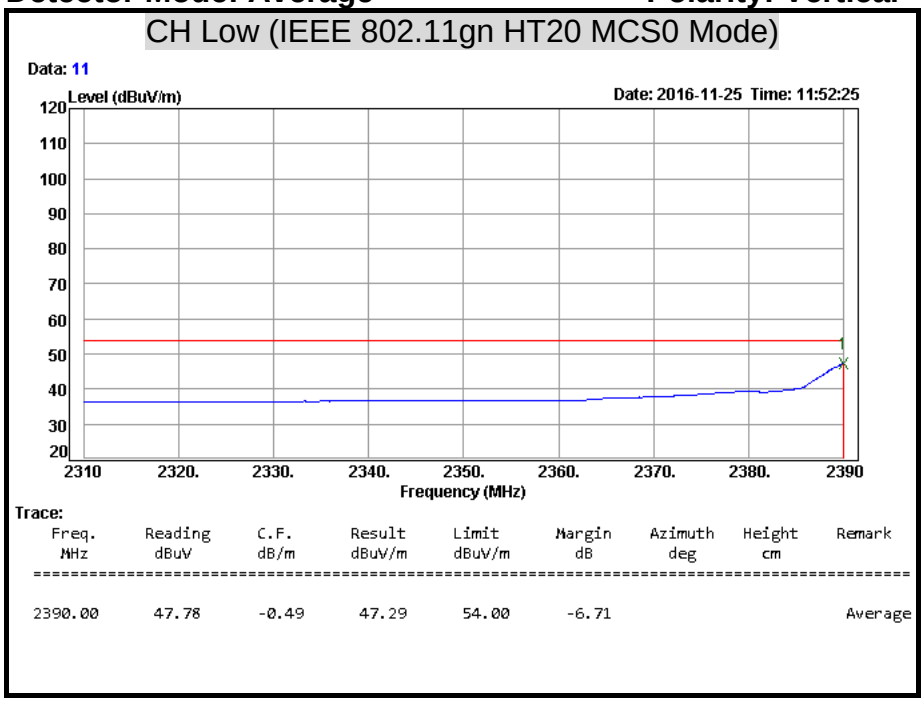
Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Vertical**



Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

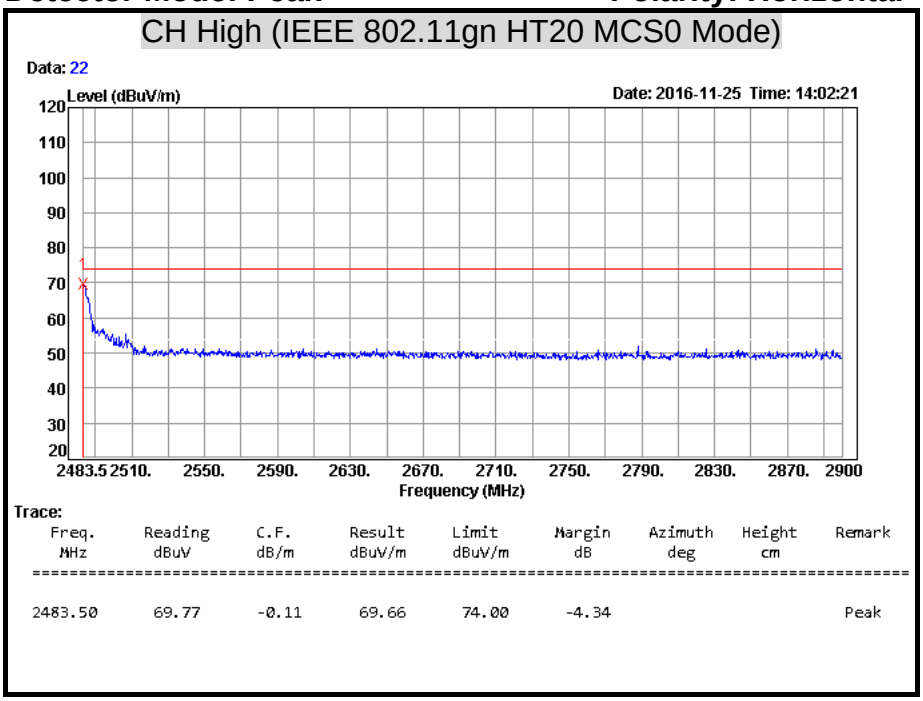
Detector Mode: Average **Polarity: Vertical**



Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11gn HT20 MCS0 Mode)



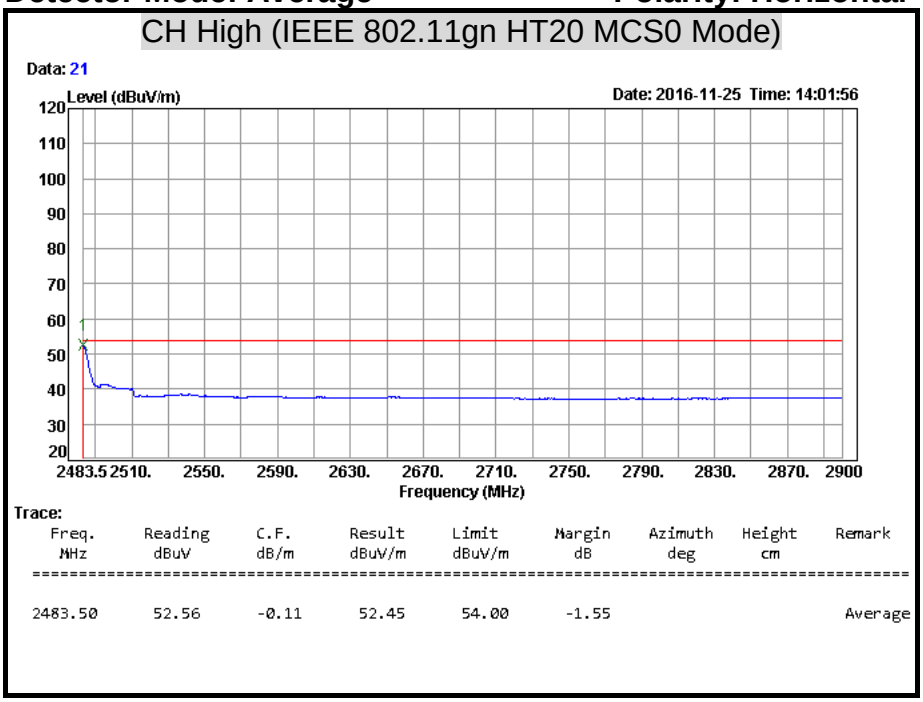
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	69.77	-0.11	69.66	74.00	-4.34			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH High (IEEE 802.11gn HT20 MCS0 Mode)



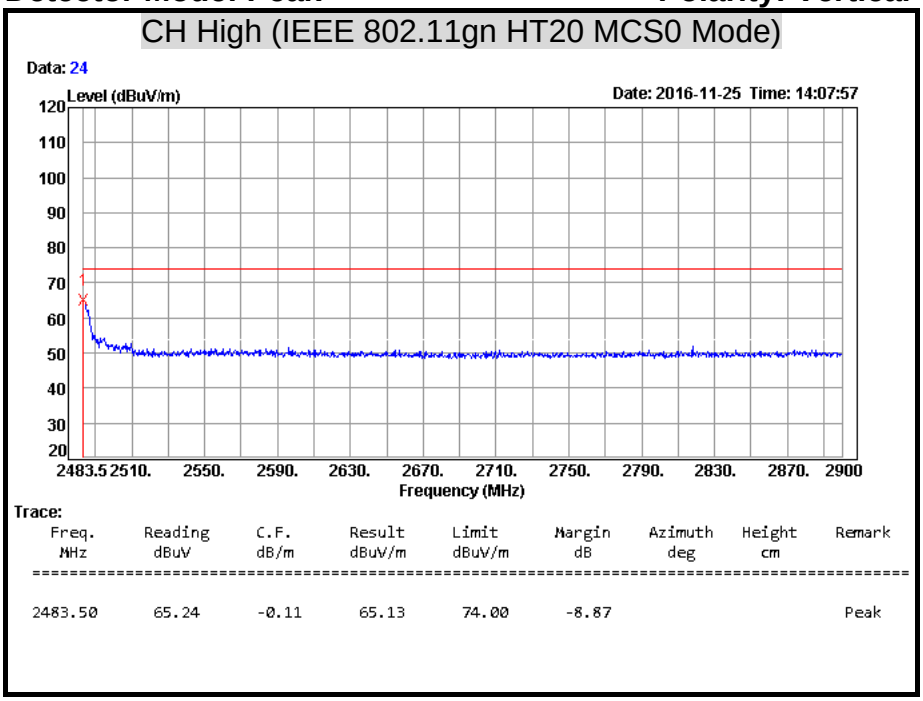
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	52.56	-0.11	52.45	54.00	-1.55			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11gn HT20 MCS0 Mode)



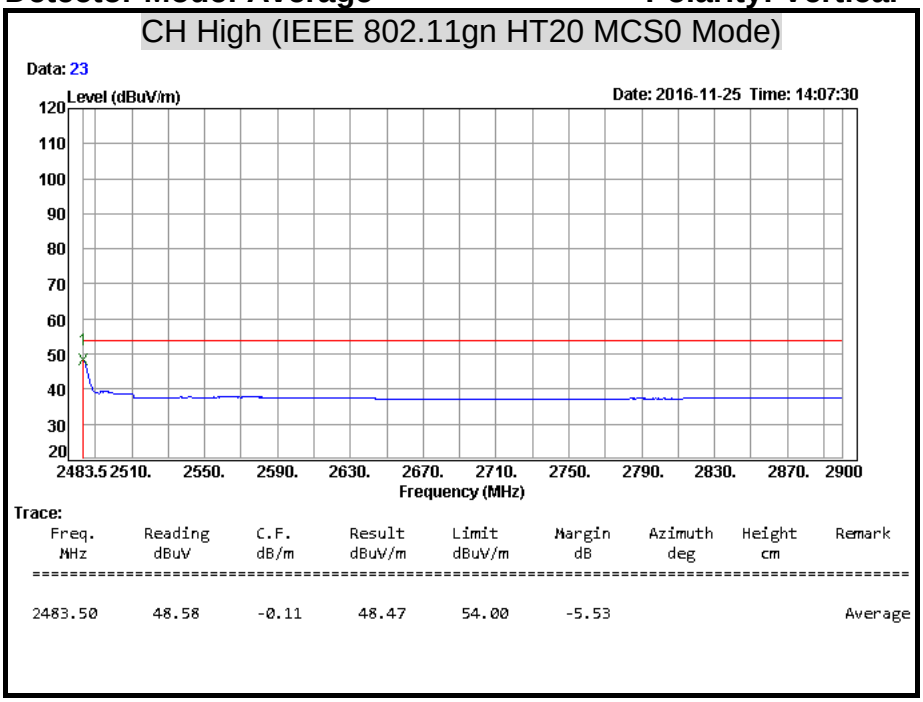
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	65.24	-0.11	65.13	74.00	-8.87			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH High (IEEE 802.11gn HT20 MCS0 Mode)



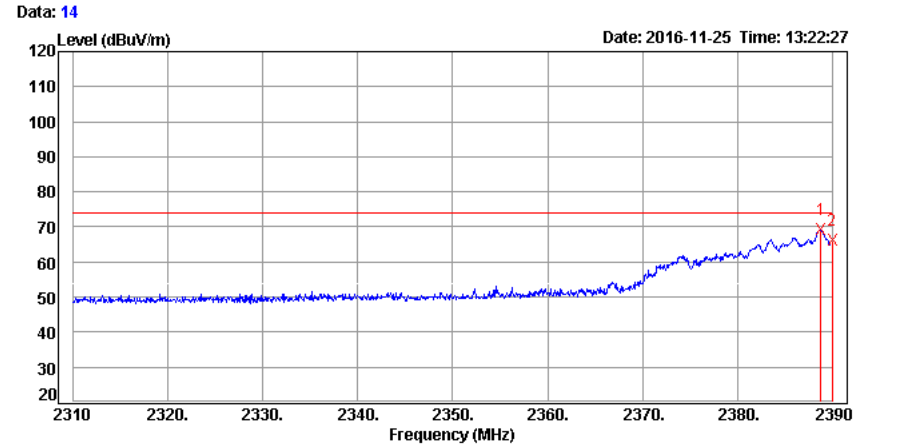
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	48.58	-0.11	48.47	54.00	-5.53			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11gn HT40 MCS0 Mode)



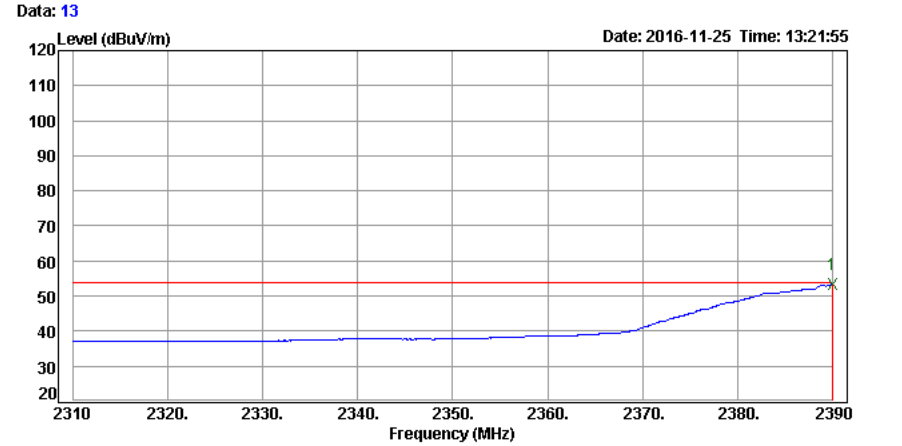
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2388.80	69.64	-0.49	69.15	74.00	-4.85			Peak
2390.00	66.58	-0.49	66.09	74.00	-7.91			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11gn HT40 MCS0 Mode)



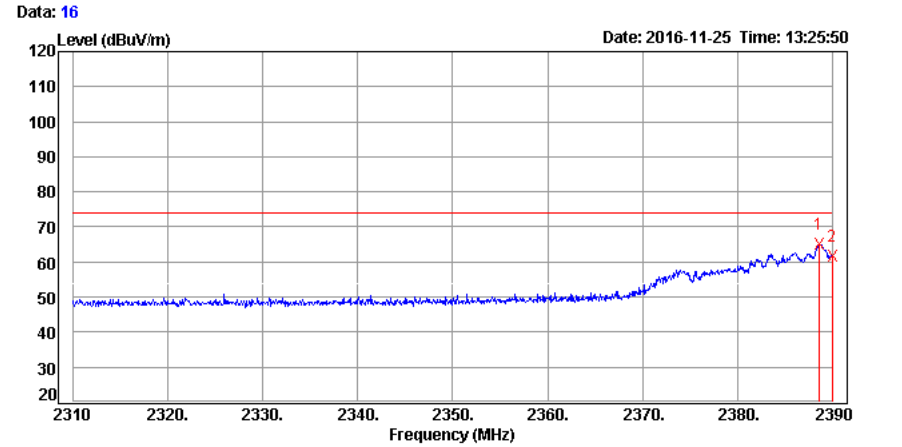
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	53.76	-0.49	53.27	54.00	-0.73			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11gn HT40 MCS0 Mode)



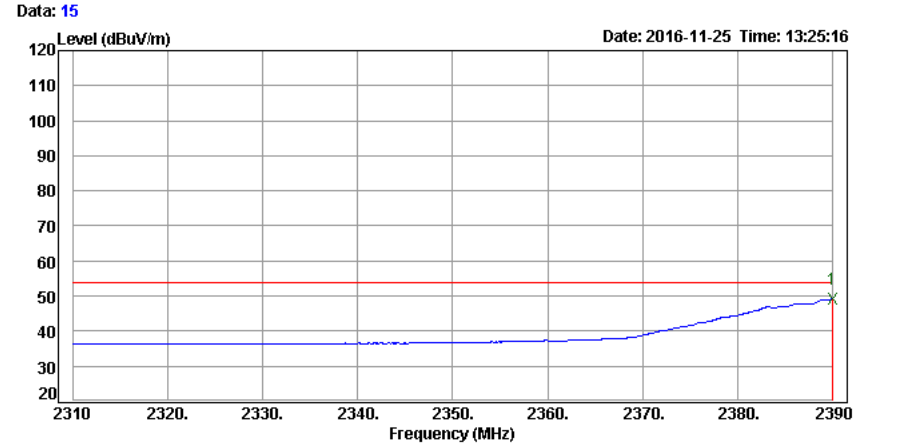
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2388.64	65.65	-0.49	65.16	74.00	-8.84			Peak
2390.00	62.21	-0.49	61.72	74.00	-12.28			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11gn HT40 MCS0 Mode)



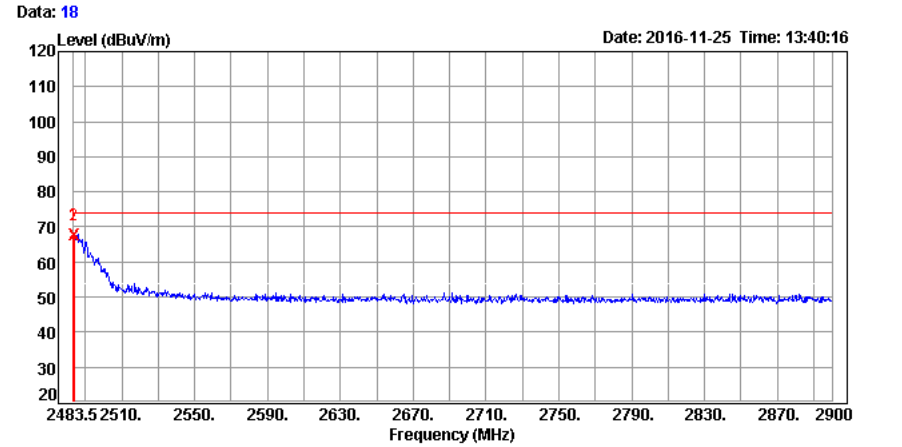
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2390.00	49.61	-0.49	49.12	54.00	-4.88			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11gn HT40 MCS0 Mode)



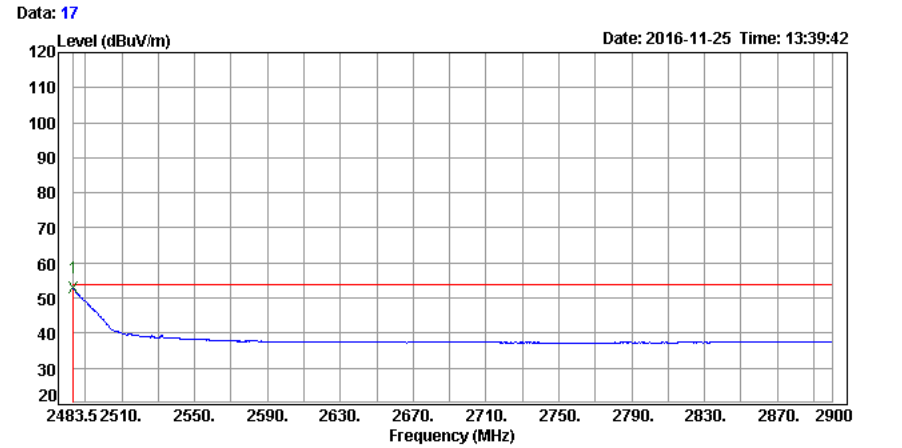
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	67.91	-0.11	67.80	74.00	-6.20			Peak
2483.92	68.00	-0.11	67.89	74.00	-6.11			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH High (IEEE 802.11gn HT40 MCS0 Mode)



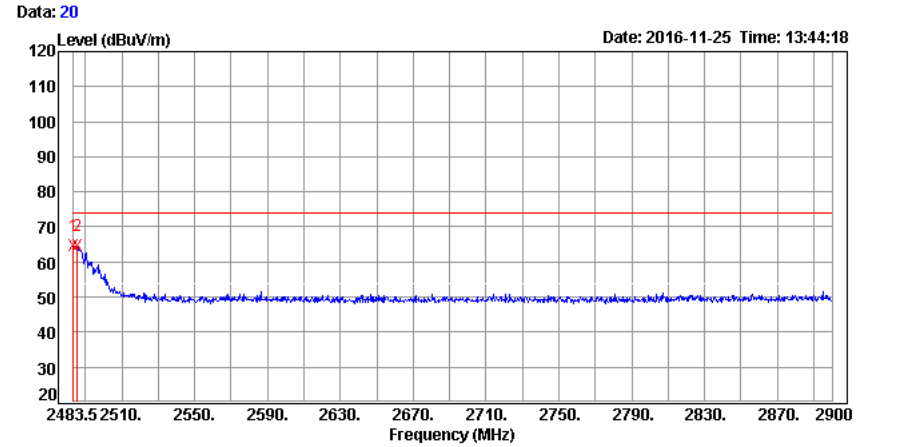
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	52.83	-0.11	52.72	54.00	-1.28			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11gn HT40 MCS0 Mode)



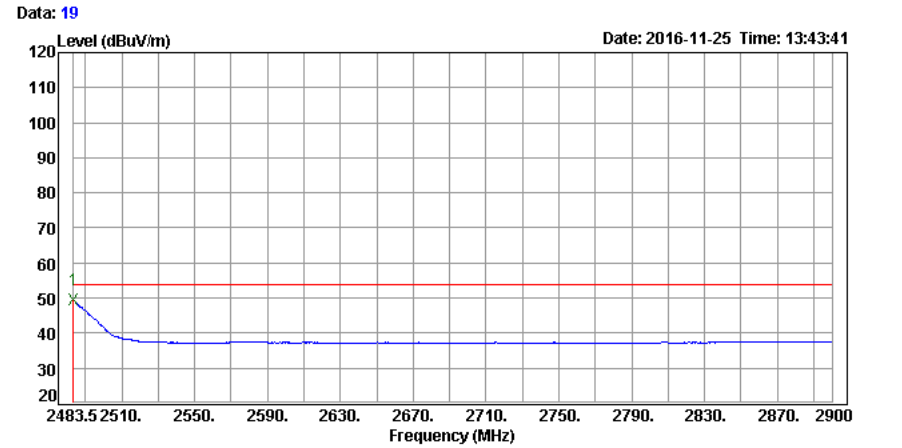
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2483.50	64.66	-0.11	64.55	74.00	-9.45			Peak
2485.58	64.91	-0.10	64.81	74.00	-9.19			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH High (IEEE 802.11gn HT40 MCS0 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	49.76	-0.11	49.65	54.00	-4.35			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

7.8 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.

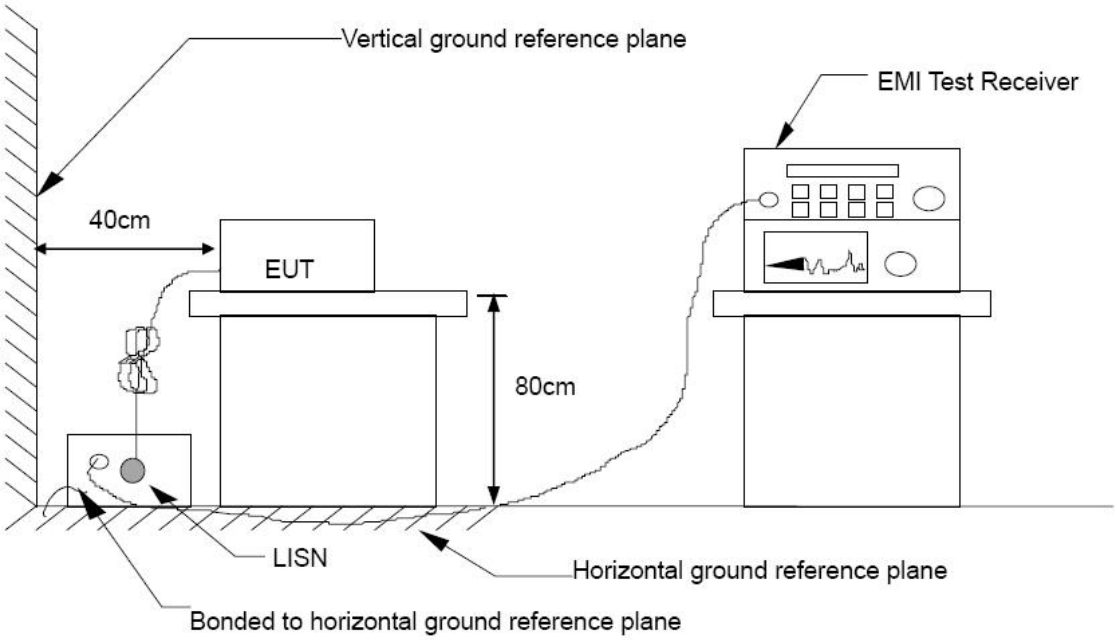
Frequency Range (MHz)	Conducted Limit (dBμv)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5.00	56	46
5.00 - 30.0	60	50

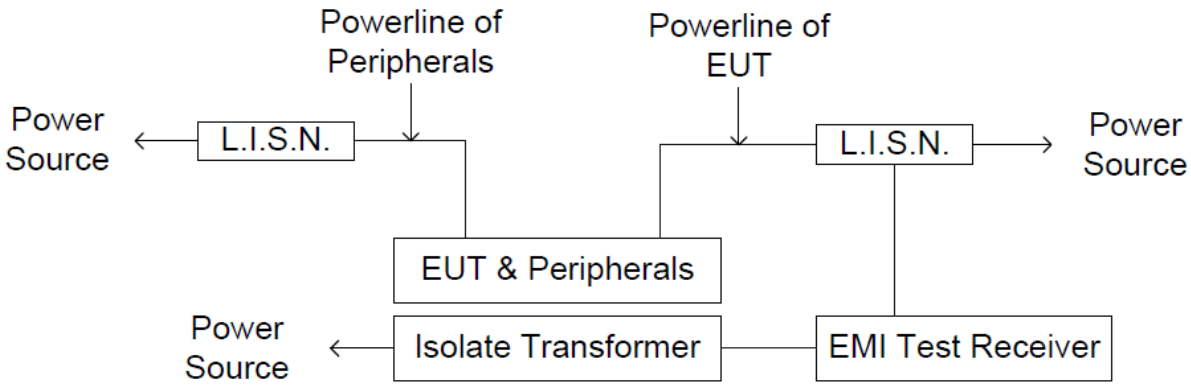
TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
L.I.S.N	Schwarzbeck	NSLK 8127	8127465	07/28/2017
L.I.S.N	Schwarzbeck	NSLK 8127	8127473	03/10/2017
EMI Test Receiver	Rohde & Schwarz	ESHS 30	838550/003	10/25/2017
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100111	06/27/2017
Test S/W	E3.815206a			

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

TEST SETUP





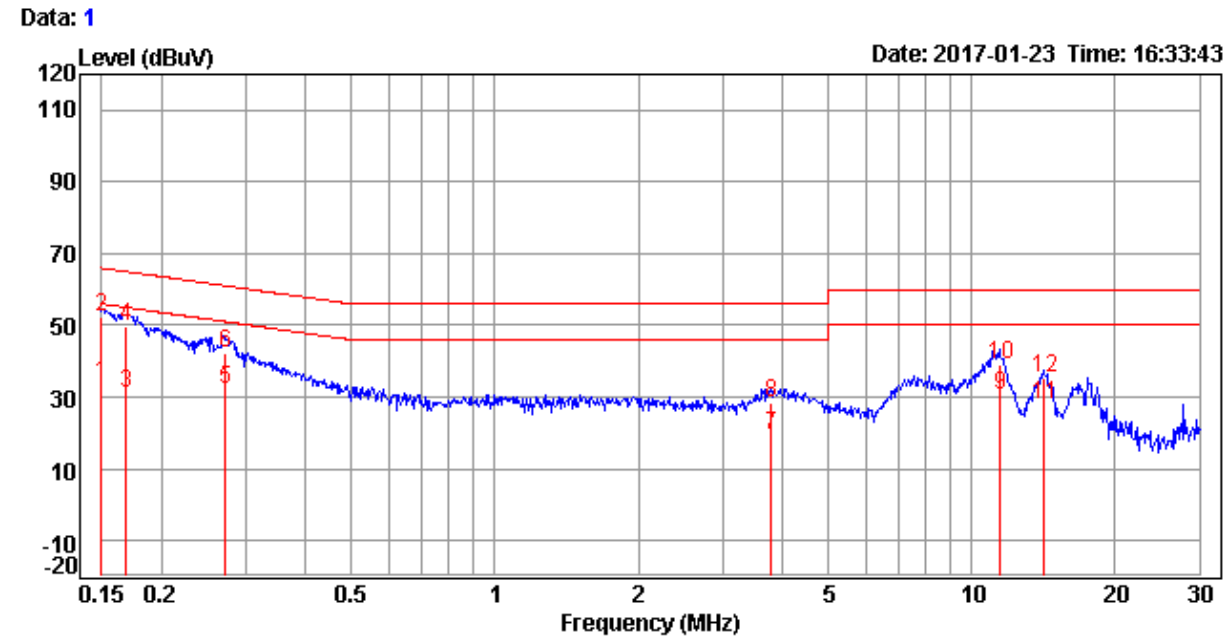
TEST PROCEDURE

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	SiME Smart Q	Test By	Gill Yeh
Test Model	SiME Q1	Test Date	2017/01/23
Test Mode	Mode 1	Temp. & Humidity	25°C, 52%

LINE



Trace:

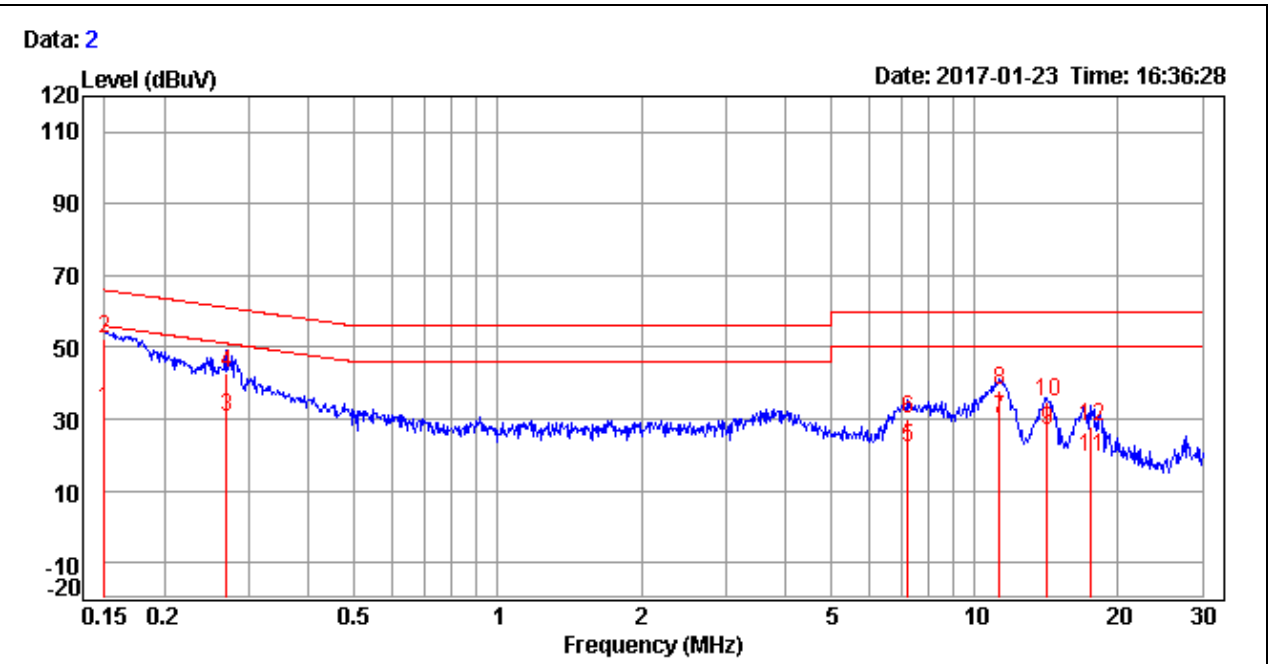
Freq. MHz	Reading dBuV Q.P.	Reading dBuV AV.	C.F. dB	Result dBuV Q.P.	Result dBuV AV.	Limit dBuV Q.P.	Limit dBuV AV.	Margin dB Q.P.	Margin dB AV.
0.150	42.60	23.65	10.00	52.60	33.65	66.00	56.00	-13.40	-22.35
0.168	39.95	21.04	9.99	49.94	31.03	65.08	55.08	-15.14	-24.05
0.271	32.46	22.50	9.92	42.38	32.42	61.07	51.07	-18.69	-18.65
3.799	18.22	9.32	10.16	28.38	19.48	56.00	46.00	-27.62	-26.52
11.438	28.40	20.13	10.49	38.89	30.62	60.00	50.00	-21.11	-19.38
14.138	24.82	17.49	10.61	35.43	28.10	60.00	50.00	-24.57	-21.90

Remark:

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

Product Name	SiME Smart Q	Test By	Gill Yeh
Test Model	SiME Q1	Test Date	2017/01/23
Test Mode	Mode 1	Temp. & Humidity	25°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.
0.150	42.48	22.67	9.99	52.47	32.66	66.00	56.00	-13.53	-23.34
0.269	32.82	20.38	9.93	42.75	30.31	61.16	51.16	-18.41	-20.85
7.252	19.85	11.98	10.27	30.12	22.25	60.00	50.00	-29.88	-27.75
11.257	27.87	19.60	10.40	38.27	30.00	60.00	50.00	-21.73	-20.00
14.138	24.10	16.32	10.48	34.58	26.80	60.00	50.00	-25.42	-23.20
17.568	17.39	8.58	10.57	27.96	19.15	60.00	50.00	-32.04	-30.85

Remark:

1. Correction Factor = Insertion loss + Cable loss

2. Emission level = Reading Value + Correction factor

Margin value = Emission level – Limit value