EMC Test Report

Project Number: **3953917**

Report Number: **3953917EMC03** **Revision Level:** **0**

Client: **Continental Automotive Systems, Inc.**

Equipment Under Test: **Wireless Modem Module with WiFi**

Model: **FANW**

FCC ID: **LHJ-FANW**

IC ID: **2807E-FANW**

Applicable Standards: **FCC Part 15 Subpart C, § 15.247**

RSS-247, Issue 1, May 2015

RSS-GEN, Issue 4, November 2014

ANSI C63.10: 2013

Report issued on: **02 May 2016**

Test Result: **Compliant**

Tested by: _____
Fendy Liauw, Engineering Technician

Reviewed by: _____
Jeremy Pickens, Senior EMC Engineer

Remarks:
This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1 Summary of Test Results

Test Description	Test Specification		Test Result
Bandwidth	15.247(d)	RSS-247 S5.2 (1) RSS-GEN S6.6	Compliant
Transmitter Output Power	15.247(b)(3)	RSS-247 S5.4 (4)	Compliant
Power Spectral Density	15.247(e)	RSS-247 S5.2 (2)	Compliant
Conducted Spurious Emissions / Band edge	15.247(d)	RSS-247 S5.5	Compliant
Radiated Spurious Emissions / Restricted Bands	15.35(b),15.209	RSS-GEN S6.13 RSS-GEN S8.10	Compliant
AC Powerline Conducted Emission	15.107, 15.207	RSS-GEN S8.8	N/A(1)

(1) Not Applicable – The host device for the module is battery-powered and has no facility for connection to the AC mains.

1.1 *Modifications Required for Compliance*

None

2 General Information

2.1 *Client Information*

Name:	Continental Automotive System, Inc.
Address:	21440 West Lake Cook Road
City, State, Zip, Country:	Deer Park, IL 60010, USA

2.1 *Test Laboratory*

Name:	SGS North America, Inc.
Address:	620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country:	Suwanee, GA 30024, USA
Accrediting Body:	A2LA
Type of lab:	Testing Laboratory
Certificate Number:	3212.01

2.2 *General Information of EUT*

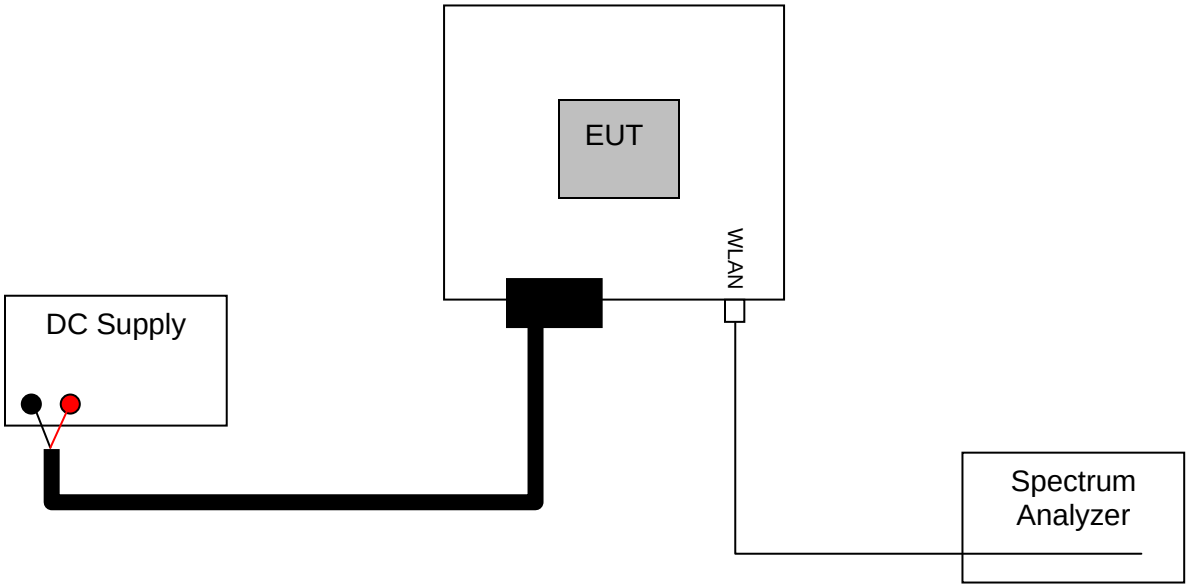
Type of Product:	Wireless Modem Module w/ WiFi
Model Number:	FANW
Serial Number:	CM082715B000193
FCC ID:	LHJ-FANW
IC ID:	2807E-FANW
IMEI Number:	004401810201935
Firmware Version:	10.01
Frequency Range:	2400-2483.5MHz
Data Modes:	802.11b, 802.11g, 802.11n (HT20), 802.11n (HT40),
Antenna:	Not specified – professional installation only
Rated Voltage:	10.2 – 13.8Vdc
Test Voltage:	12Vdc
Sample Received Date:	29 March 2016
Dates of testing:	12 – 20 April 2016

2.3 *Operating Modes and Conditions*

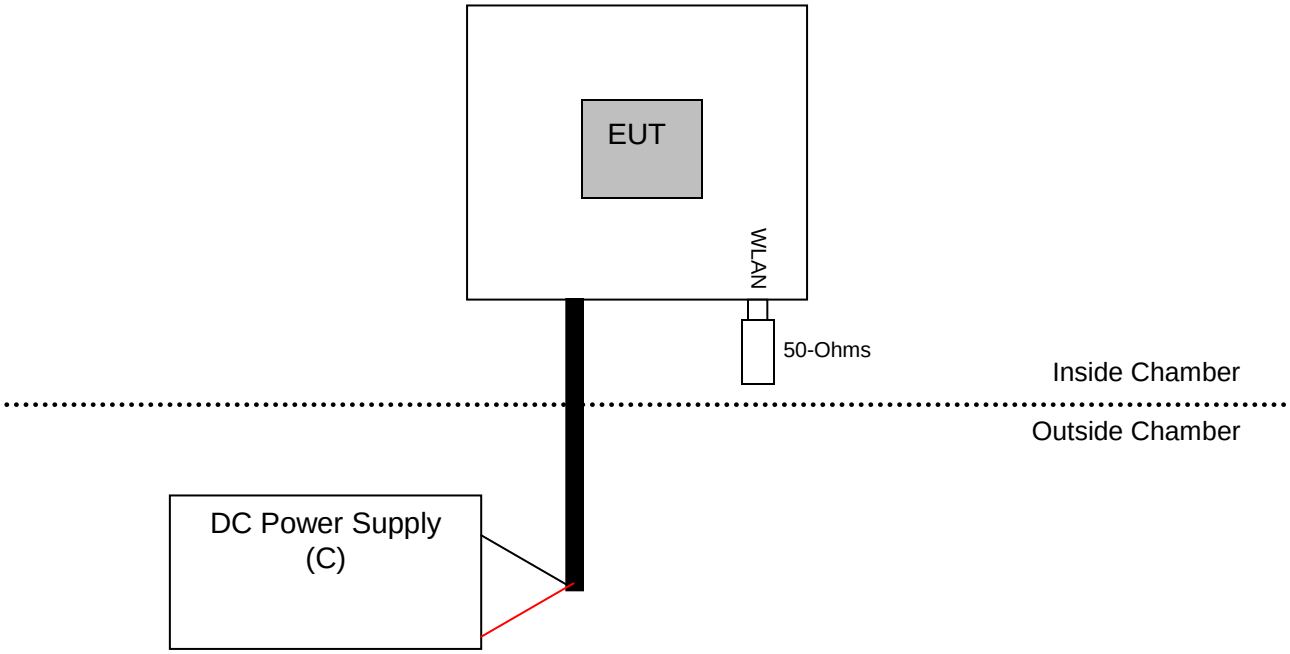
For spurious emissions measurements, only the worst-case mode with respect to peak power was investigated: 802.11b, 1Mbps. Investigations covered the low, middle, and high channels in the 2400-2483.5MHz band.

Continuous traffic was generated using QRCT test commands. Where the duty cycle measured below 99% and an RMS detector was employed, corrections of 10*LOG(1/D) were applied according to KDB publication 558074 D01 DTS Meas Guidance v03r05.

2.4 *EUT Connection Block Diagram – Conducted Measurements*



2.5 *EUT Connection Block Diagram – Radiated Measurements*



2.6 *System Configurations*

Device reference	Manufacturer	Description	Model Number	Serial Number
A	Continental Automotive	WLAN/Cellular Module	FANW	CM082715B000193
B	Extech	DC Power Supply	382280	12010471

3 Bandwidth

3.1 *Test Result*

Test Description	Test Specification		Test Result
6 dB bandwidth / 99% OBW	15.247(d)	RSS-247 S5.2 (1) RSS-GEN S6.6	Compliant

3.2 *Test Method*

The procedures from ANSI C63.10: 2013 clause 11.8 and 558074 D01 DTS Meas Guidance v03r05 were used to determine the 6 dB bandwidth and 99% OBW.

3.3 *Test Site*

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions
Temperature: 22.8 °C
Relative Humidity: 35.0 %

3.4 *Test Equipment*

Test Date: 18-Apr-2016 Tester: JOP

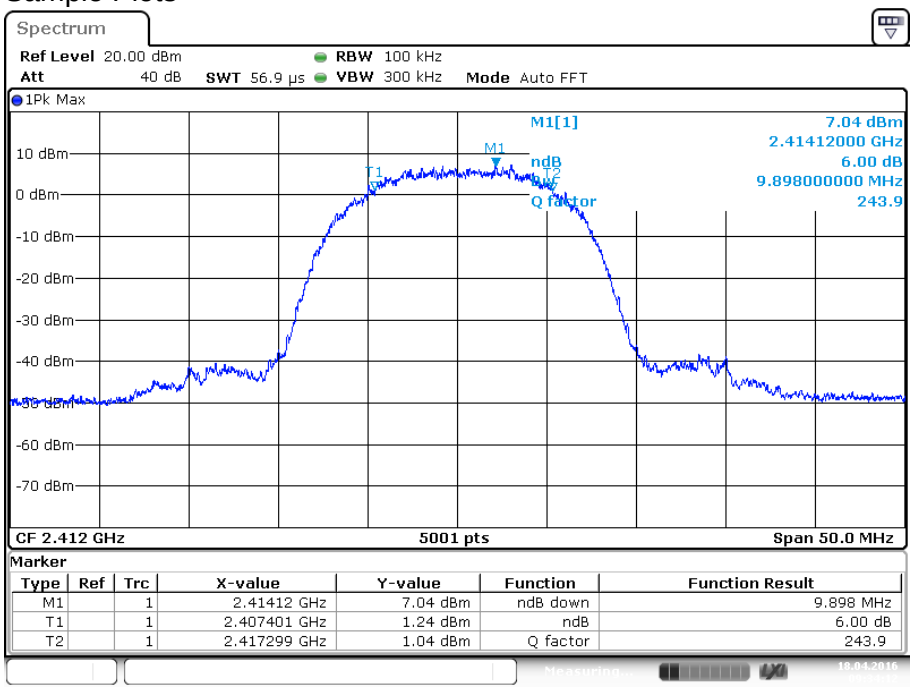
Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	B085749	8-Oct-2017
COAXIAL CABLE	SUCOFLEX 102	ROHDE & SCHWARZ	B079823	4-Aug-2016

Note: The calibration period equipment is 1 year except for the FSV30 which is on a 2-year cycle.

3.5 *Test Data*

Protocol	Channel	Data Rate	6dB Bandwidth (MHz)	Occupied Bandwidth (99%) (MHz)
802.11b	1	11 Mbps	9.898	13.647
802.11b	6	11 Mbps	9.238	13.937
802.11b	11	11 Mbps	9.218	13.767
802.11g	1	54 Mbps	16.31	16.426
802.11g	6	54 Mbps	16.328	16.487
802.11g	11	54 Mbps	16.425	16.397
802.11n	1	MCS7	17.729	17.656
802.11n	6	MCS7	17.719	17.726
802.11n	11	MCS7	17.68	17.656

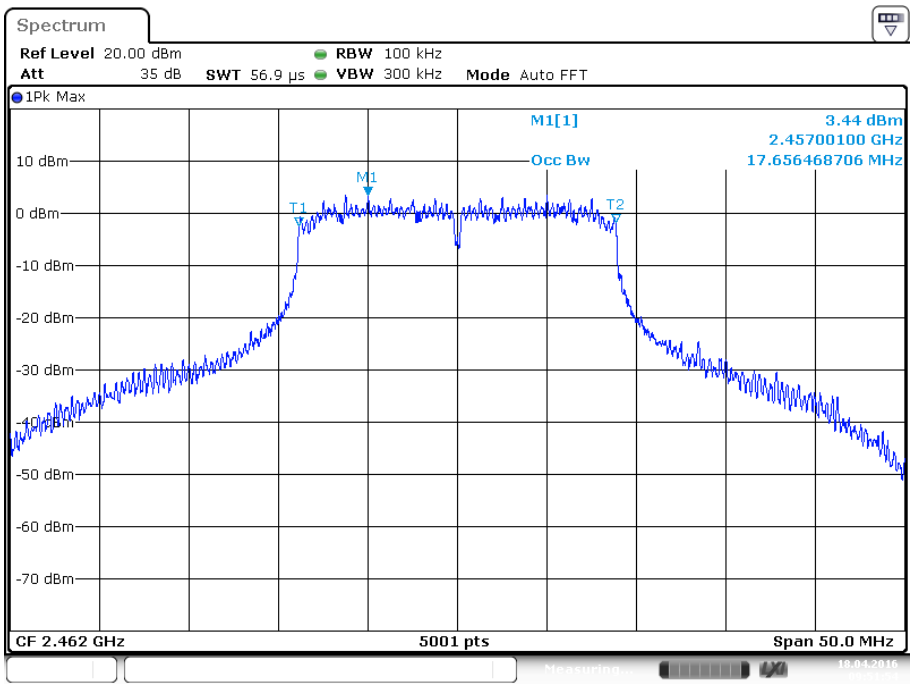
Sample Plots



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41412 GHz	7.04 dBm	ndB down	9.898 MHz
T1		1	2.407401 GHz	1.24 dBm	ndB	6.00 dB
T2		1	2.417299 GHz	1.04 dBm	Q factor	243.9

Date: 18.APR.2016 09:34:13



Date: 18.APR.2016 09:51:55

4 Output Power

4.1 *Test Result*

Test Description	Test Specification		Test Result
Peak Output Power	15.247(b) (3)	RSS-247 S5.4 (4)	Compliant

4.2 *Test Method*

Fundamental power measurements were recorded using the procedures from ANSI C63.10: 2013 clause 11.9 and KDB 558074 D01 Measurement Guidance v03r05.

Limit
(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. For using antennas with greater than 6dBi of gain, the limit is reduced in dB by the amount the gain exceeds 6dBi (e.g. for a 7.4dBi antenna, the limit is reduced from 30dBm to 28.6dBm)

4.3 *Test Site*

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions
Temperature: 22.8 °C
Relative Humidity: 33.3 %

4.4 *Test Equipment*

Test Date: 18-Apr-2016 Tester: JOP

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	B085749	8-Oct-2017
COAXIAL CABLE	SUCOFLEX 102	ROHDE & SCHWARZ	B079823	4-Aug-2016

Note: The calibration period equipment is 1 year except for the FSV30 which is on a 2-year cycle.

4.5 *Test Data – 802.11b*

Mode	RateMbps	Channel	Target dBm	Measured dBm
802.11b	1	1	18	17.42
		6	18	18.14
		11	18	18.11
	2	1	18	17.41
		6	18	18.13
		11	18	18.08
	5.5	1	18	17.46
		6	18	18.26
		11	18	18.17
	11	1	18	17.44
		6	18	18.22
		11	18	18.16

4.6 *Test Data – 802.11g*

Mode	RateMbps	Channel	Target dBm	Measured dBm
802.11g	6	1	15	15.43
		6	15	15.9
		11	15	15.91
	9	1	15	15.44
		6	15	15.92
		11	15	15.9
	12	1	15	15.42
		6	15	15.91
		11	15	15.87
	18	1	15	15.45
		6	15	15.93
		11	15	15.9
	24	1	15	15.31
		6	15	15.77
		11	15	15.79
	36	1	15	15.32
		6	15	15.82
		11	15	15.78
	48	1	15	15.34
		6	15	15.84
		11	15	15.79
	54	1	15	15.32
		6	15	15.81
		11	15	15.77

4.7 *Test Data – 802.11n*

Mode	RateMbps	Channel	Target dBm	Measured dBm
802.11n	MCS0	1	15	15.41
		6	15	15.87
		11	15	15.76
	MCS1	1	15	15.32
		6	15	15.77
		11	15	15.69
	MCS2	1	15	15.42
		6	15	15.91
		11	15	15.81
	MCS3	1	15	14.83
		6	15	15.87
		11	15	15.82
	MCS4	1	15	14.78
		6	15	15.82
		11	15	15.77
	MCS5	1	15	14.76
		6	15	15.79
		11	15	15.78
	MCS6	1	15	14.78
		6	15	15.78
		11	15	15.78
	MCS7	1	15	14.71
		6	15	15.77
		11	15	15.74

5 Power Spectral Density

5.1 *Test Result*

Test Description	Test Specification		Test Result
Power Spectral Density	15.247(e)	RSS-247 S5.2 (2)	Compliant

5.2 *Test Method*

Fundamental power measurements were recorded using the procedures from ANSI C63.10: 2013 clause 11.10 and KDB 558074 D01 Measurement Guidance v03r05. The lowest data rate for each modulation was determined to be the worst-case.

Limit
The limit is 8 dBm.

5.3 *Test Site*

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions
Temperature: 22.8 °C
Relative Humidity: 33.3 %

5.4 *Test Equipment*

Test Date: 18-Apr-2016 Tester: JOP

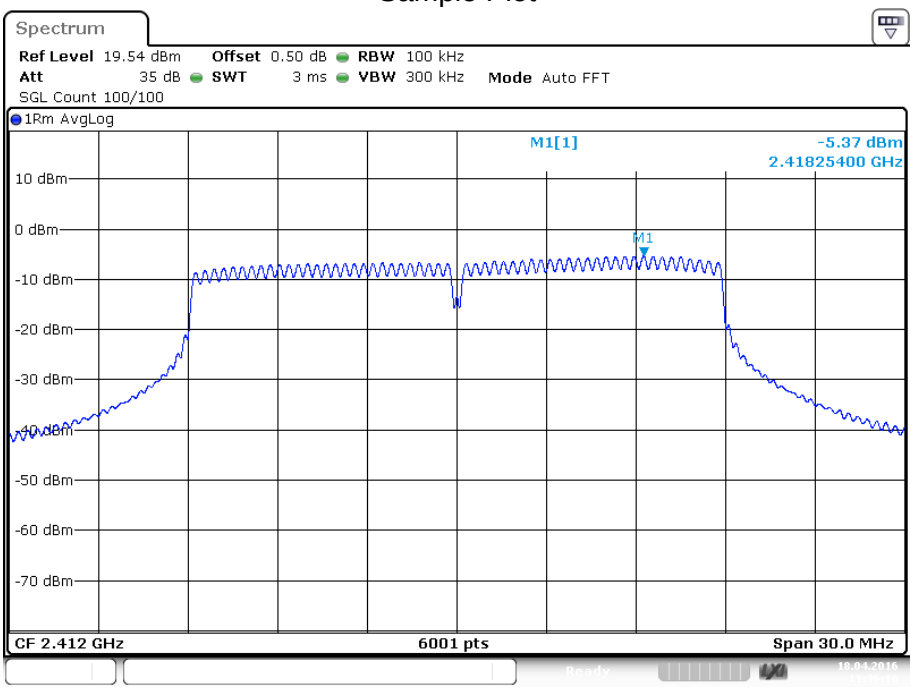
Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	B085749	8-Oct-2017
COAXIAL CABLE	SUCOFLEX 102	ROHDE & SCHWARZ	B079823	4-Aug-2016

Note: The calibration period equipment is 1 year except for the FSV30 which is on a 2-year cycle.

5.5 *Test Data*

Protocol	Channel	Data Rate	DC (%)	DC Corr (dB)	PSD (dBm)	Limit (dBm)	Margin (dB)
802.11b	1	1 Mbps	99.8	0	-1.28	8	-9.28
802.11b	6	1 Mbps	99.8	0	-0.82	8	-8.82
802.11b	11	1 Mbps	99.8	0	-1	8	-9
802.11g	1	6 Mbps	98.5	0	-5.06	8	-13.06
802.11g	6	6 Mbps	98.5	0	-5.24	8	-13.24
802.11g	11	6 Mbps	98.5	0	-5.48	8	-13.48
802.11n	1	MCS0	98.8	0	-5.37	8	-13.37
802.11n	6	MCS0	98.8	0	-5.55	8	-13.55
802.11n	11	MCS0	98.8	0	-5.73	8	-13.73

Sample Plot



Date: 18.APR.2016 11:36:16

6 Conducted Spurious Emissions

6.1 *Test Result*

Test Description	Test Specification		Test Result
Conducted Spurious Emissions	15.247(d)	RSS-247 S5.5	Compliant

6.2 *Test Method*

Spurious emissions in non-restricted frequency bands were recorded using the methods defined in ANSI C63.10: 2013 clause 11.11 and KDB 558074 D01 Measurement Guidance v03r05.

Lowest, middle, and highest channels were investigated. Only the worst-case (lowest data rate) for each modulation was reported.

Because the maximum conducted (average) output power was used to determine compliance with the output power limits, the limit is 30 dB below the maximum in-band peak PSD level in 100 kHz.

6.3 *Test Site*

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions
Temperature: 22.8 °C
Relative Humidity: 31.9 %

6.4 *Test Equipment*

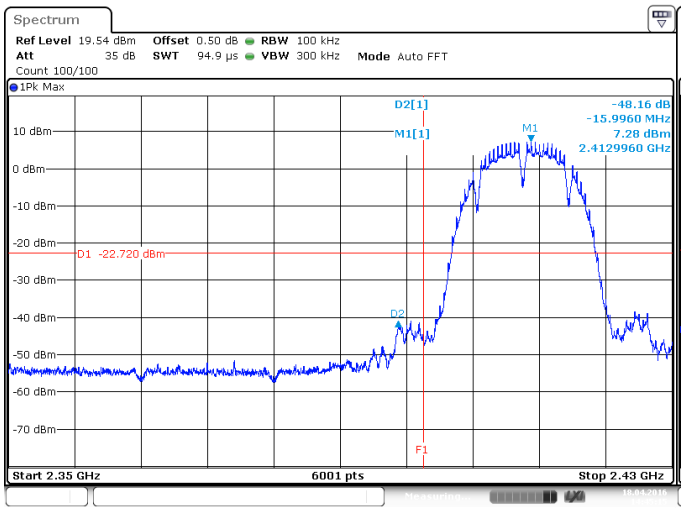
Test Date: 18-Apr-2016 Tester: JOP

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	B085749	8-Oct-2017
COAXIAL CABLE	SUCOFLEX 102	ROHDE & SCHWARZ	B079823	4-Aug-2016

Note: The calibration period equipment is 1 year except for the FSV30 which is on a 2-year cycle.

6.5 *Test Data – DTS Bandedge*

802.11b
Lower band edge / Upper band edge
Channel 1 / Channel 11
1Mbit/s



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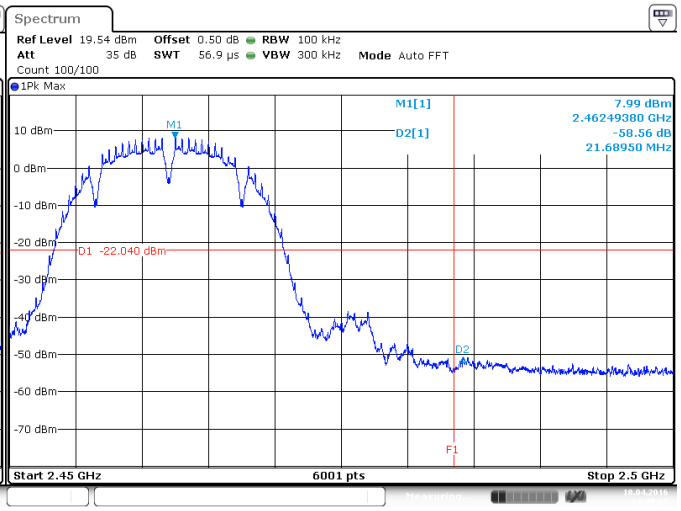
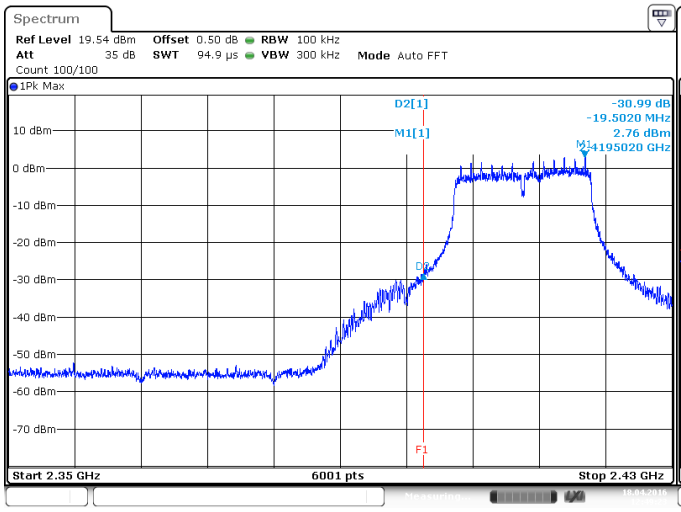


Date: 18.APR.2016 14:49:05

802.11g
Lower band edge / Upper band edge
Channel 1 / Channel 11
6Mbit/s



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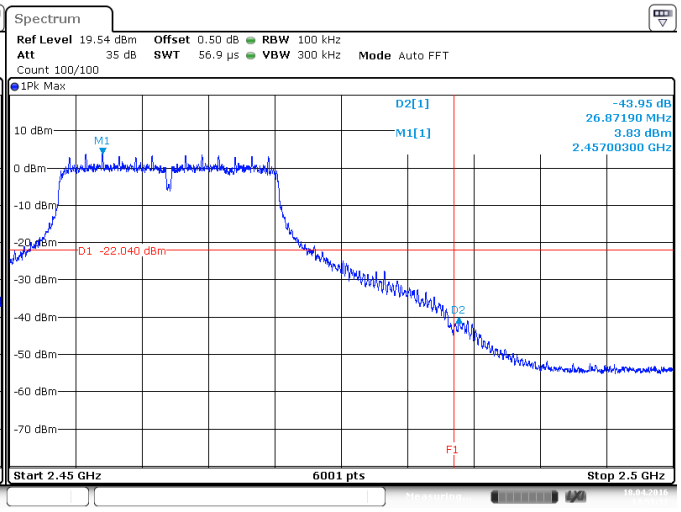
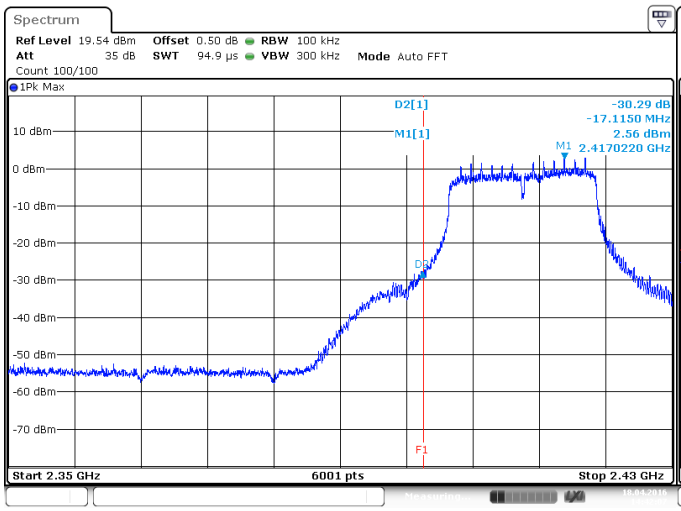


Date: 18.APR.2016 14:51:31

802.11n
Lower band edge / Upper band edge
Channel 1 / Channel 11
MCS0



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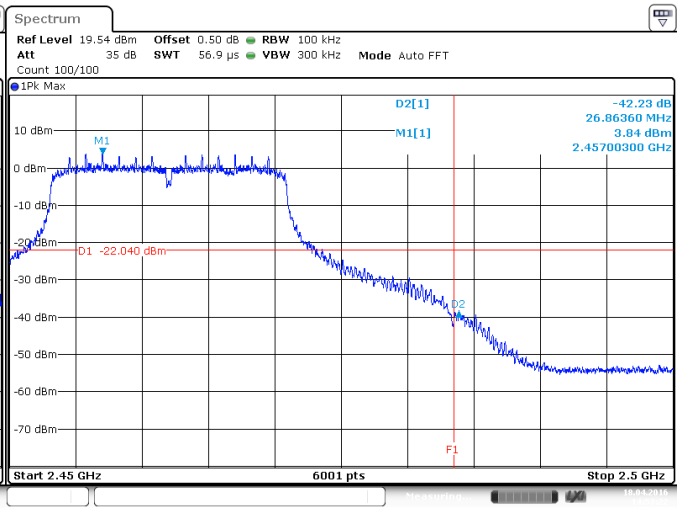
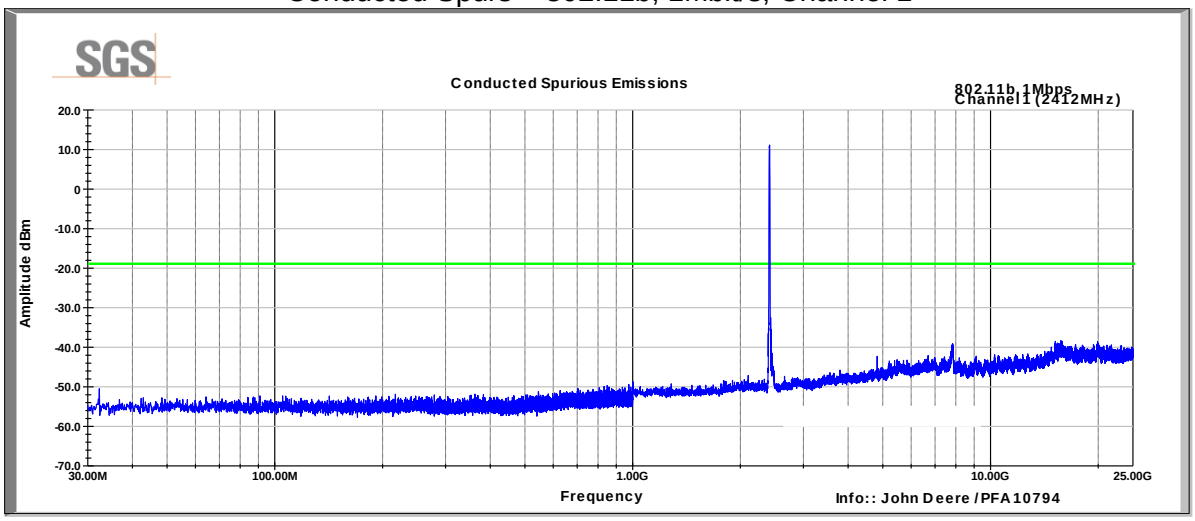


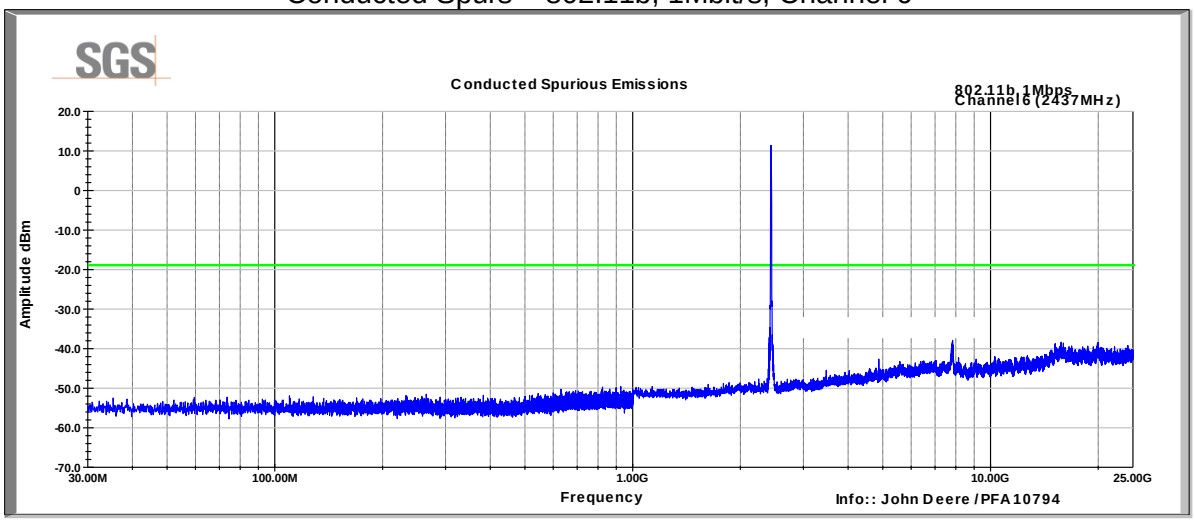
Date: 18.APR.2016 14:53:22

6.6 *Test Data – Conducted Spurious Emissions*

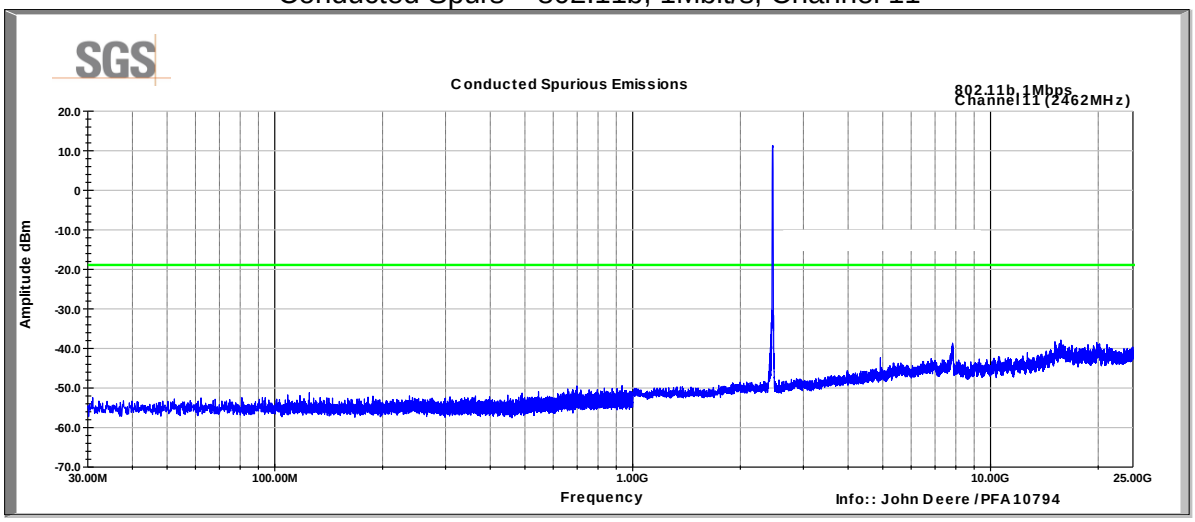
Conducted Spurs – 802.11b, 1Mbit/s, Channel 1



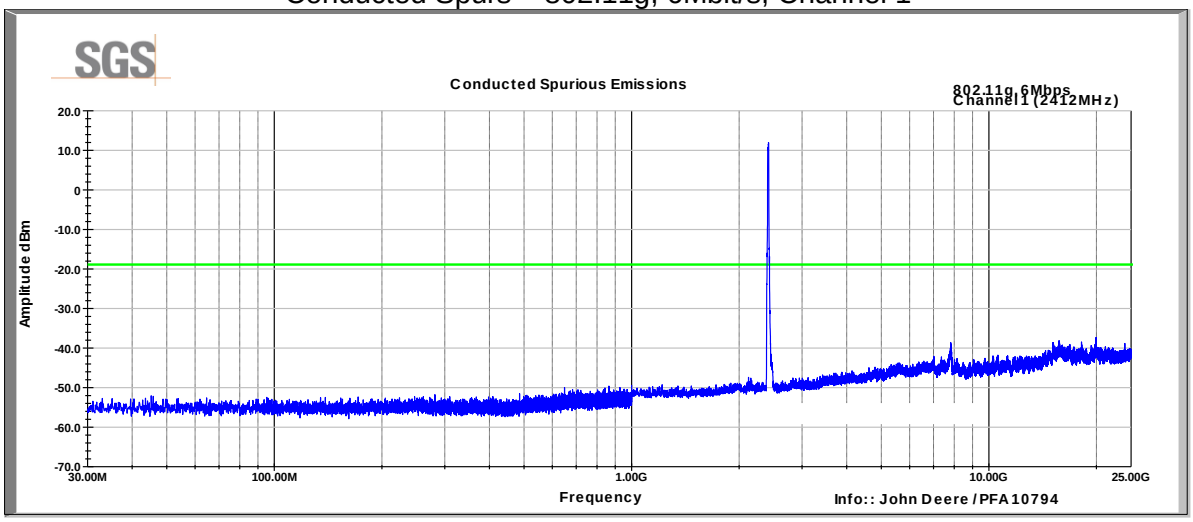
Conducted Spurs – 802.11b, 1Mbit/s, Channel 6



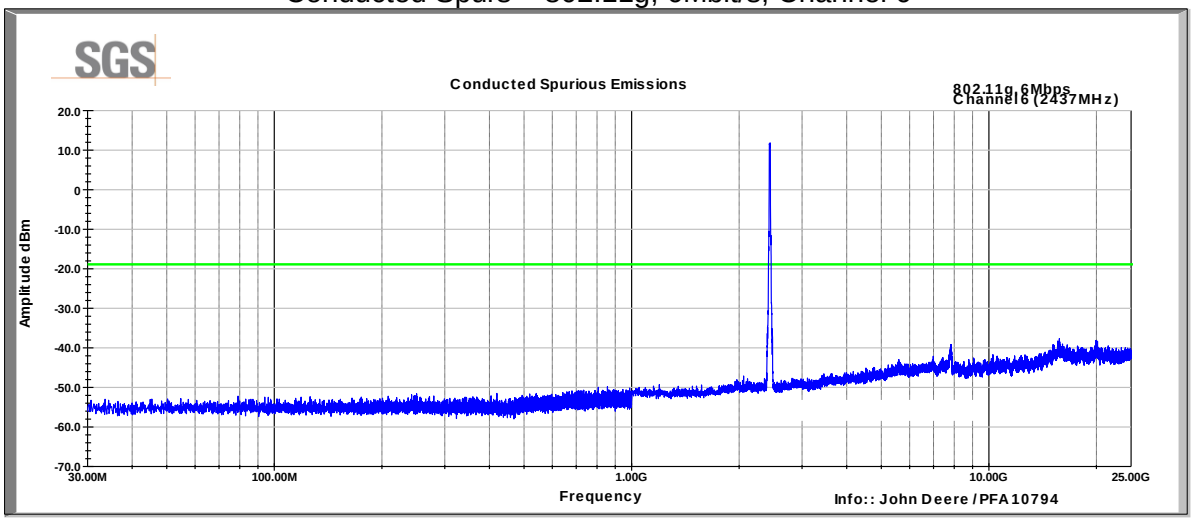
Conducted Spurs – 802.11b, 1Mbit/s, Channel 11



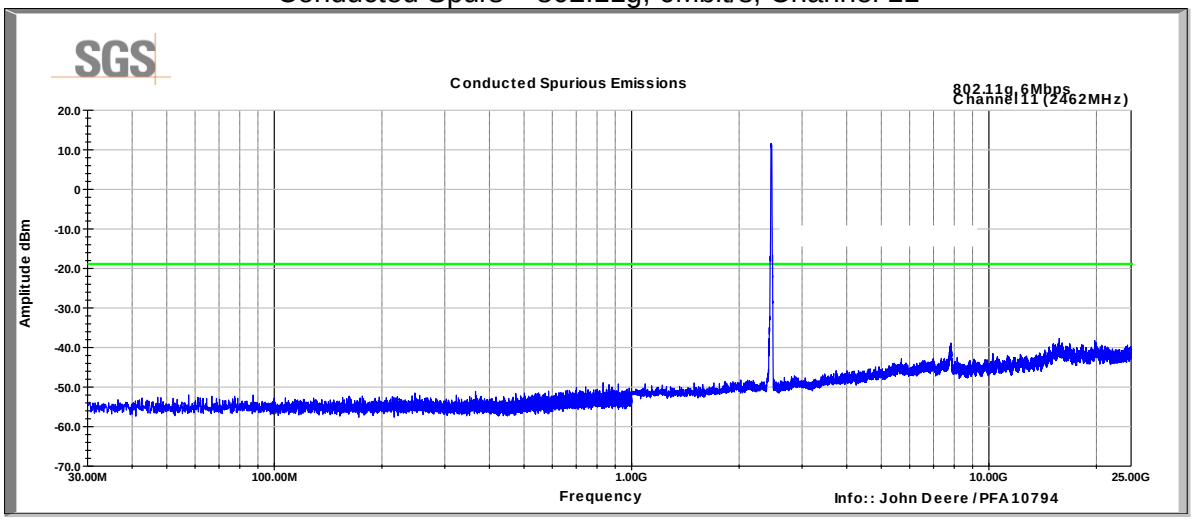
Conducted Spurs – 802.11g, 6Mbit/s, Channel 1



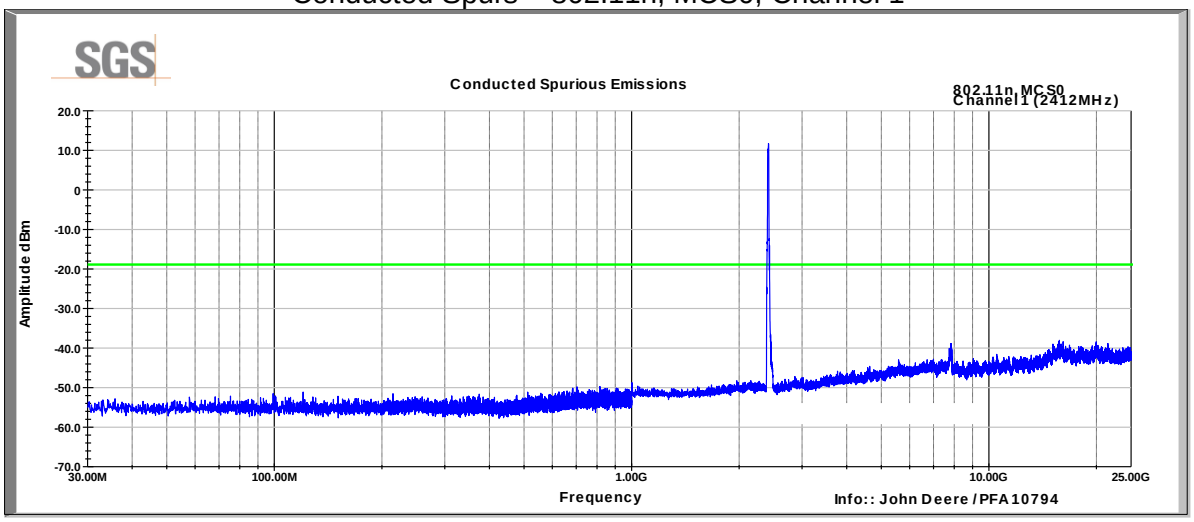
Conducted Spurs – 802.11g, 6Mbit/s, Channel 6



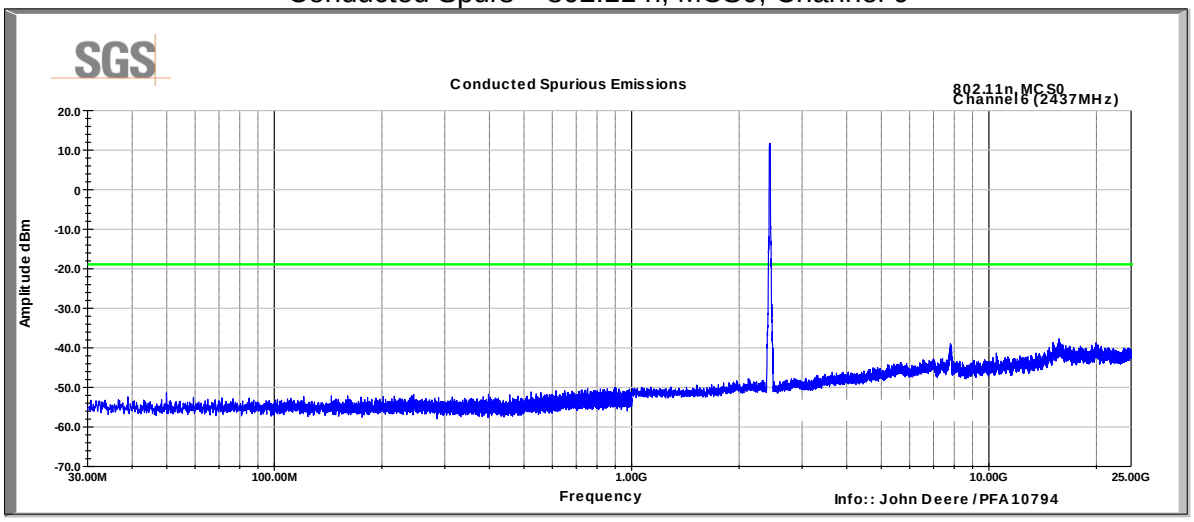
Conducted Spurs – 802.11g, 6Mbit/s, Channel 11



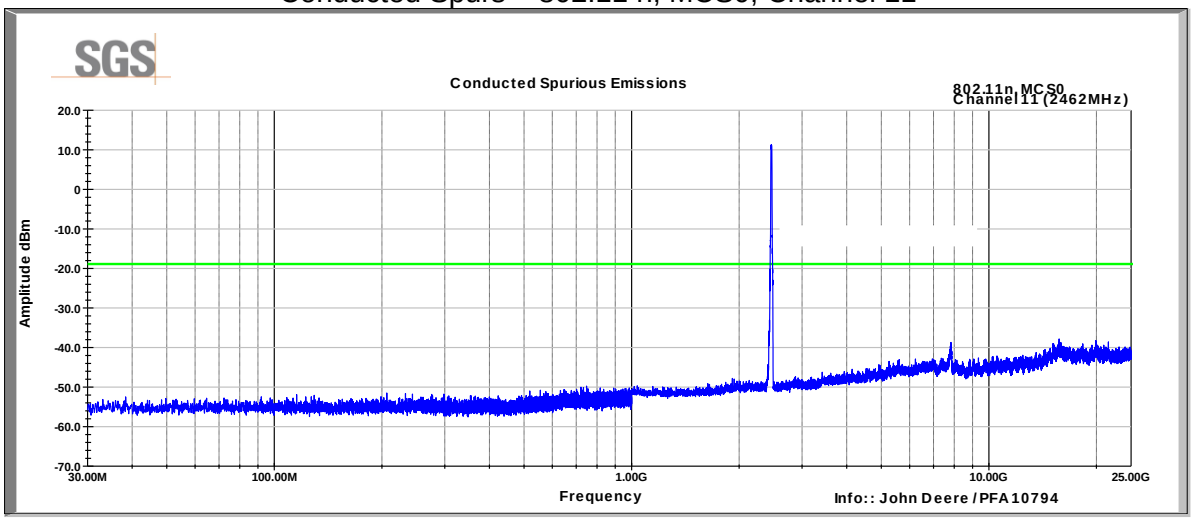
Conducted Spurs – 802.11n, MCS0, Channel 1



Conducted Spurs – 802.11 n, MCS0, Channel 6



Conducted Spurs – 802.11 n, MCS0, Channel 11



7 Field Strength of Spurious Radiation

7.1 *Test Result*

Test Description	Test Specification		Test Result
Spurious Emissions	15.247 (d) and 15.209	RSS-247 S5.5	Compliant

7.2 *Test Method*

Cabinet radiation emission measurements were performed with the antenna port terminated with a 50-Ohm load. The measurement methods defined in ANSI C63.4: 2014 were used.

Lowest, middle, and highest channels were investigated. Only the worst-case (802.11b, 1Mbps) was reported except at the restricted band edges where all three modulations were measured.

Test distance:

30 to 1000 MHz - The EUT to measurement antenna distance was 3 meters
1 to 18 GHz - The EUT to measurement antenna distance was 1.6 meters
18 to 26 GHz - The EUT to measurement antenna distance was 1.6 meter

Limits within restricted bands of operation:

Frequency	Limits(1)		Peak Limits dBuV/m
	Microvolts/m	dBuV/m	
30 - 88 MHz	100	40 (2)	--
88 - 216 MHz	150	43.5 (2)	--
216 - 960 MHz	200	46 (2)	--
960 - 1000 MHz	500	54 (2)	--
1 - 40 GHz	500	54 (3)	74

(1) These limits are applicable to emissions outside of the intentional transmit frequency band.
(2) Quasi-peak limit
(3) Average limit

7.3 *Test Site*

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.9 °C
Relative Humidity: 53.5 %

7.4 *Test Equipment*

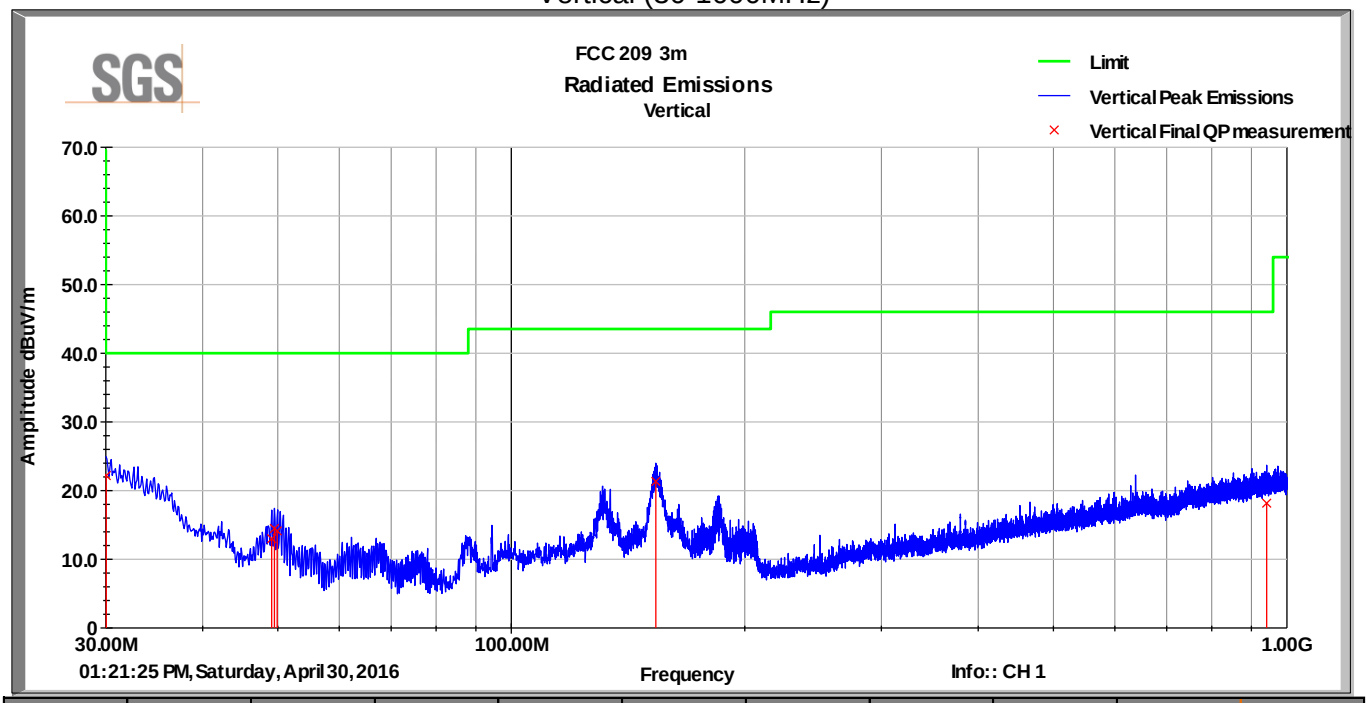
Test Date: 20 April 2016 Tester: FL

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
EMI TEST RECEIVER	ESU8	ROHDE & SCHWARZ	B085759	9-Jul-2016
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	B079629	4-Aug-2016
ANTENNA, BILOG	JB6	SUNOL	B079689	11-Sep-2016
DRG HORN (MEDIUM)	3117	ETS-LINDGREN	B079699	26-Apr-2017
SMALL HORN	LB-180400-20-C_KF	A-INFO	15007	11-Mar-2016
RF CABLE	NFS-290-78.7-NFS	FLORIDA RF LABS	B095019	4-Aug-2016
RF CABLE	NMS-290-236.2-NMS	FLORIDA RF LABS	B095020	4-Aug-2016
17 FT N TYPE COAX CABLE	HS 84133232	HUBER&SUHNER	B079661	3-Aug-2016
RF CABLE	SF106	HUBER&SUHNER	B085903	3-Aug-2016
COAXIAL CABLE	SUCOFLEX 102	HUBER&SUHNER	B079822	4-Aug-2016
COAXIAL CABLE	SUCOFLEX 102	HUBER&SUHNER	B079824	4-Aug-2016
PREAMPLIFIER	TS-PR18	ROHDE & SCHWARZ	B094463	16-Feb-2017
FIXED GAIN AMPLIFIER	NSP1840-HG	MITEQ	B087572	15-Oct-2016

Note: The calibration period equipment is 1 year.

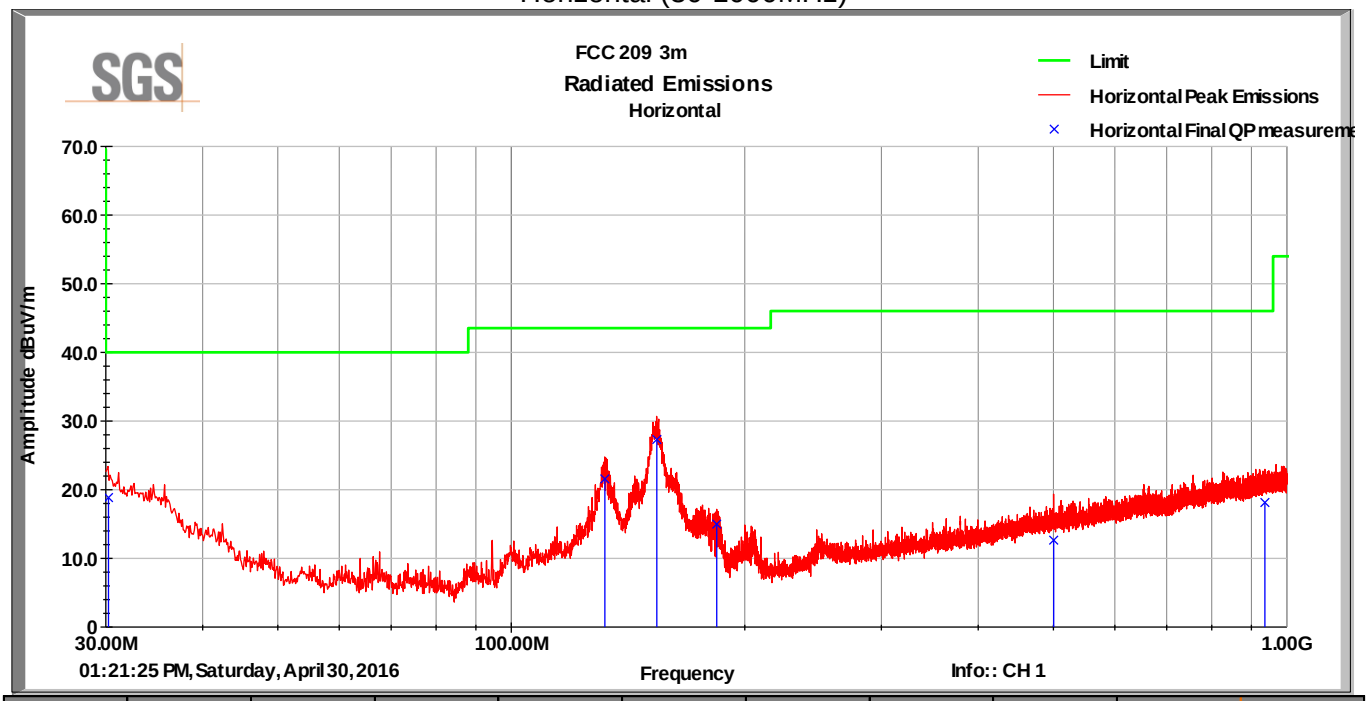
7.5 *Test Data – Cabinet Radiation*

2.4 GHz CH 1, 1Mbps
Vertical (30-1000MHz)



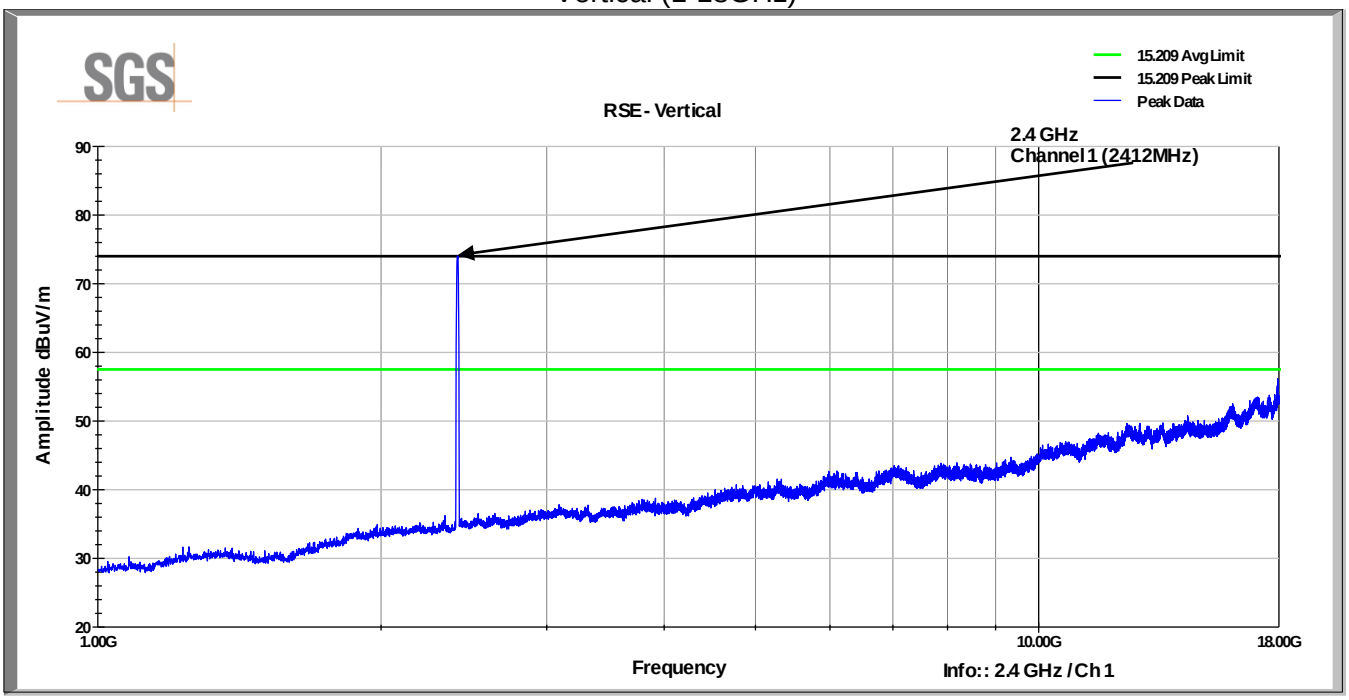
Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.04	31.6	V	119.0	194.0	22.2	0.3	32.0	22.2	40.0	-17.8
49.09	36.1	V	109.0	120.0	9.1	0.5	32.7	13.0	40.0	-27.0
49.50	37.7	V	258.0	111.0	9.0	0.5	32.7	14.5	40.0	-25.5
49.91	37.5	V	287.0	111.0	8.8	0.5	32.7	14.1	40.0	-25.9
153.57	40.9	V	190.0	174.0	13.1	0.8	33.6	21.3	43.5	-22.2
941.85	25.5	V	254.0	100.0	23.6	2.1	33.1	18.2	46.0	-27.9
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

2.4 GHz CH1, 1Mbps
Horizontal (30-1000MHz)

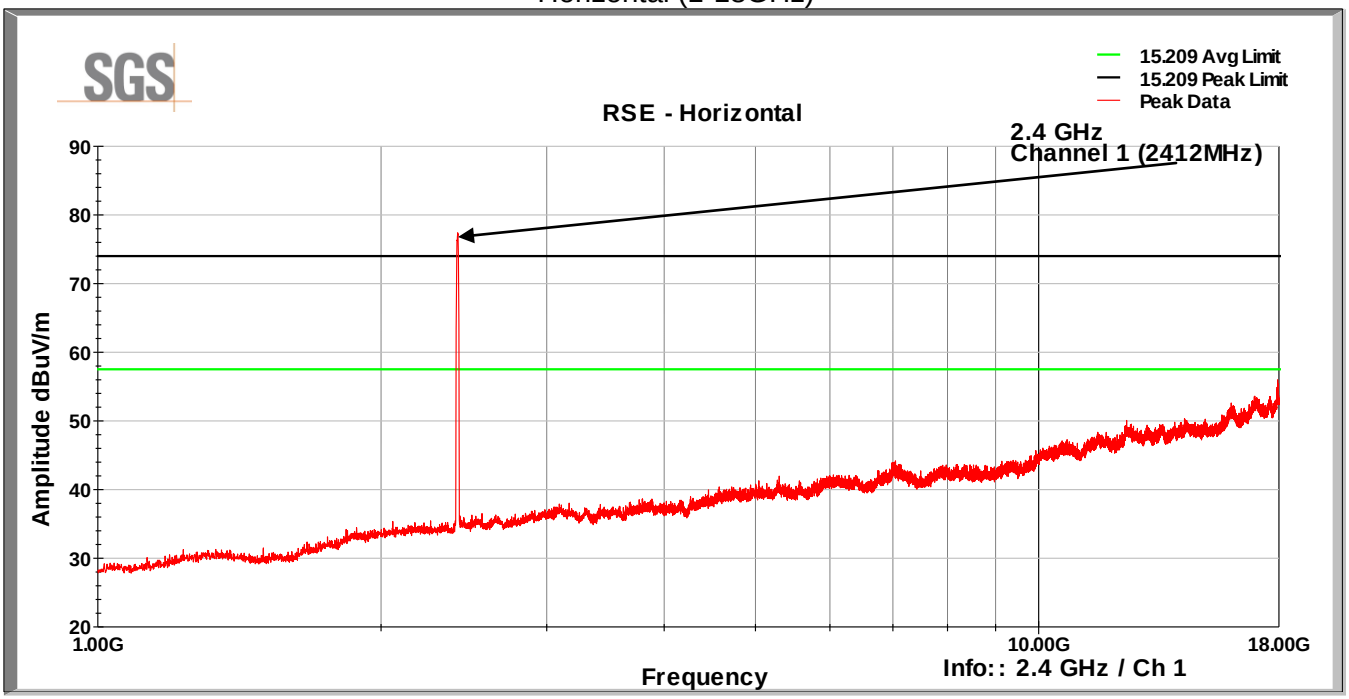


Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.24	28.5	H	26.0	325.0	22.0	0.3	32.0	18.8	40.0	-21.2
132.03	40.6	H	85.0	213.0	13.8	0.8	33.6	21.6	43.5	-22.0
154.07	46.9	H	233.0	241.0	13.1	0.8	33.6	27.3	43.5	-16.2
184.02	36.2	H	77.0	204.0	11.4	0.9	33.5	15.0	43.5	-28.6
500.46	25.8	H	60.0	374.0	18.5	1.5	33.2	12.6	46.0	-33.4
936.97	25.7	H	200.0	194.0	23.5	2.1	33.1	18.1	46.0	-27.9
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

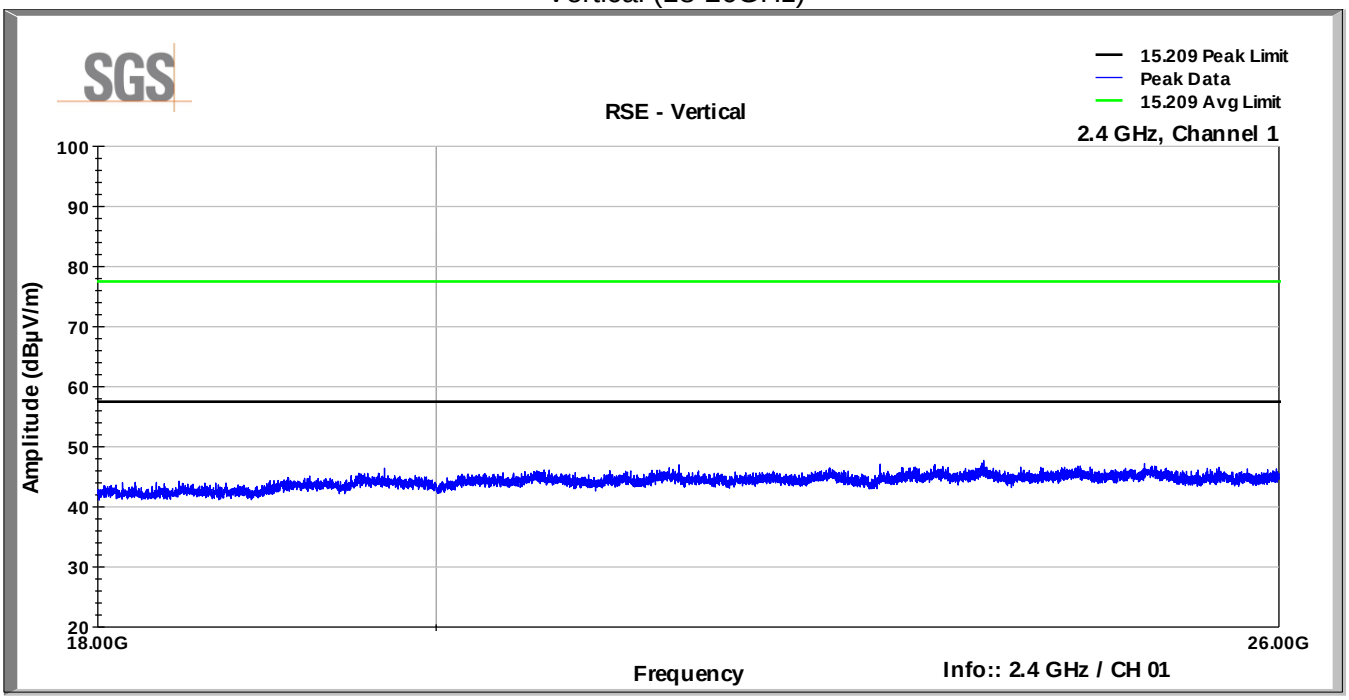
2.4 GHz CH 1, 1Mbps
Vertical (1-18GHz)



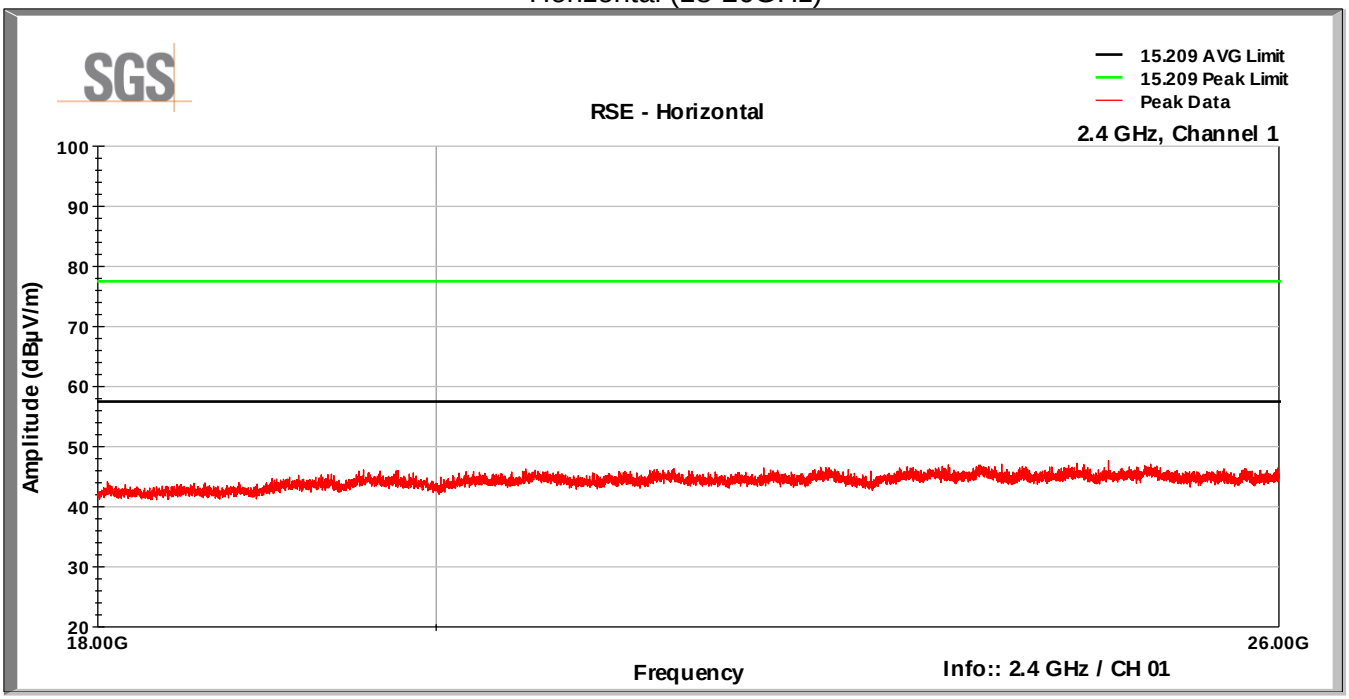
2.4 GHz CH1, 1Mbps
Horizontal (1-18GHz)



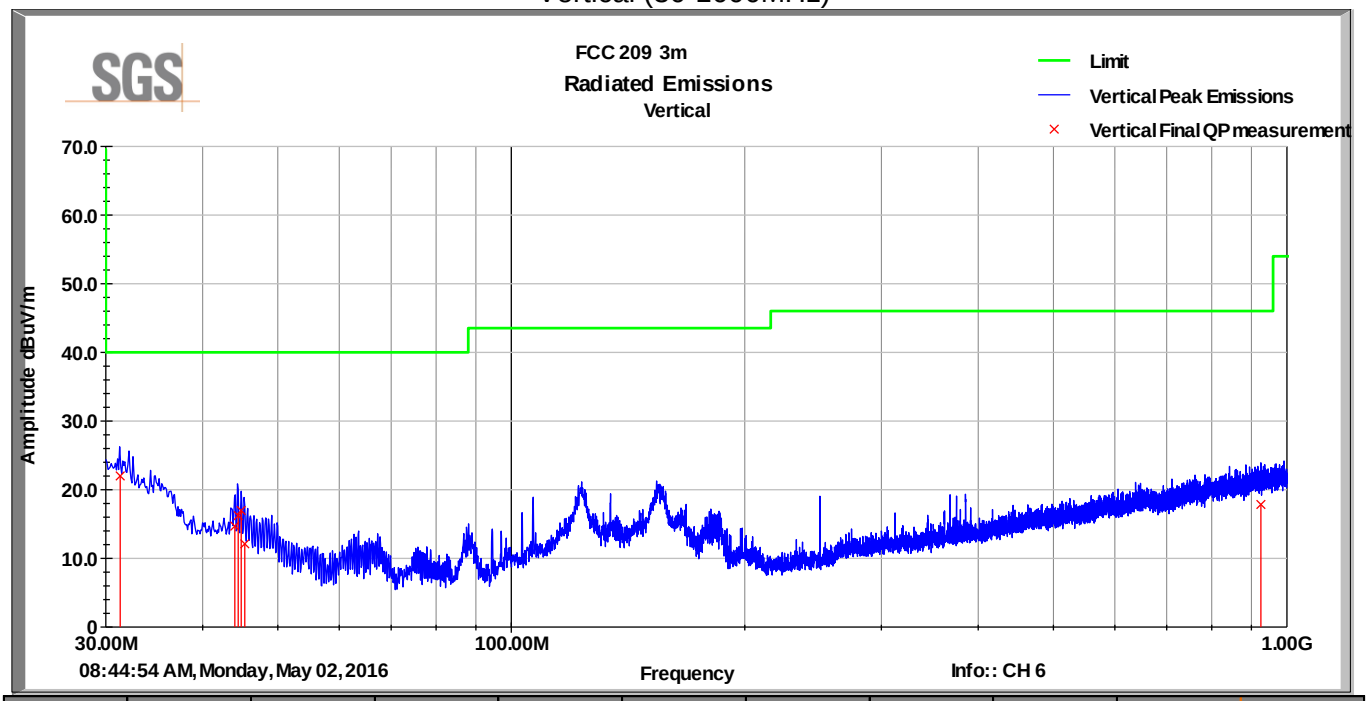
2.4 GHz CH 1, 1Mbps
Vertical (18-26GHz)



2.4 GHz CH 1, 1Mbps
Horizontal (18-26GHz)

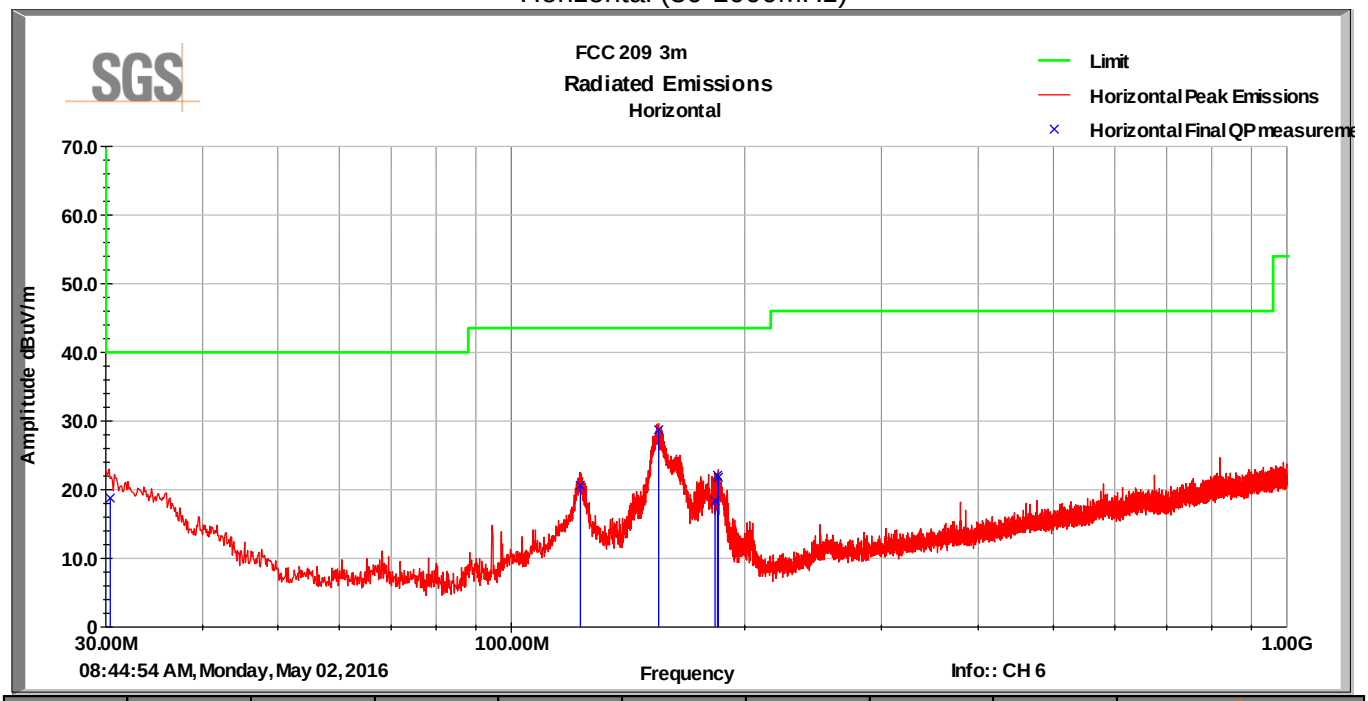


2.4 GHz CH 6, 1Mbps
Vertical (30-1000MHz)



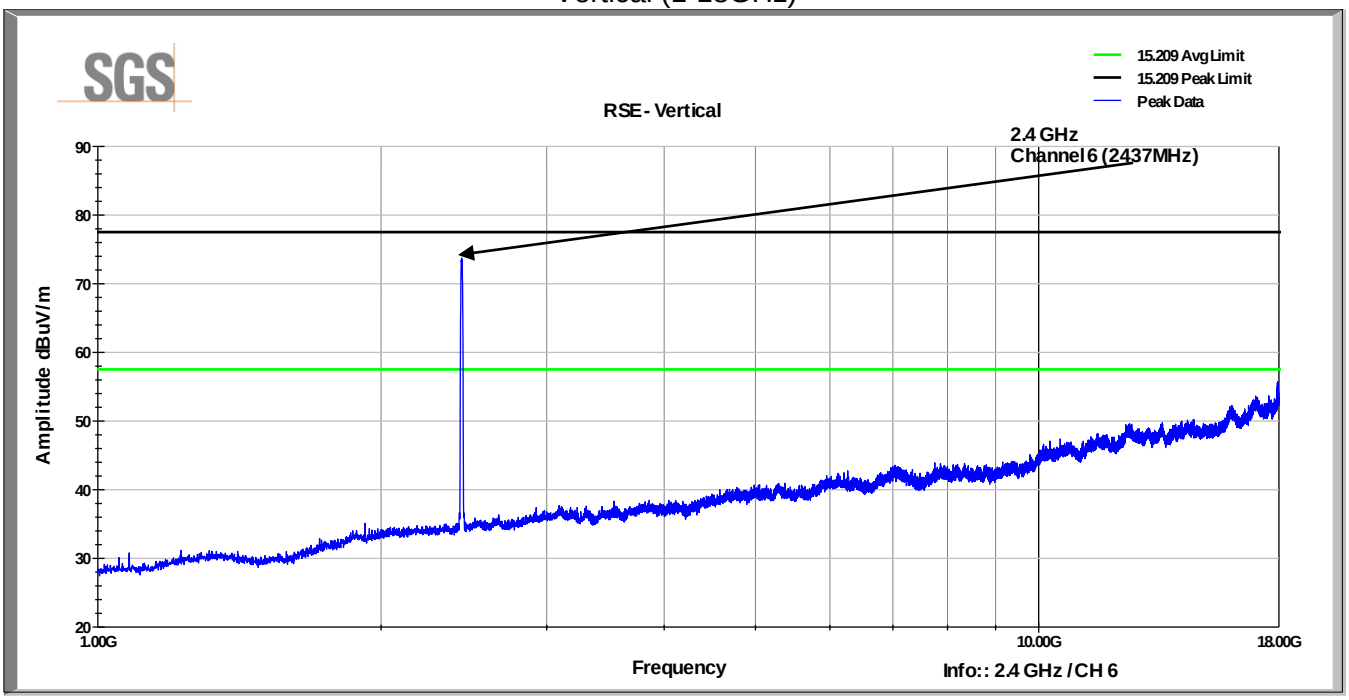
Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
31.31	32.5	V	58.0	119.0	21.2	0.3	32.0	22.0	40.0	-18.0
44.01	35.0	V	320.0	100.0	11.7	0.4	32.5	14.7	40.0	-25.3
44.45	36.8	V	3.0	129.0	11.4	0.4	32.5	16.2	40.0	-23.8
44.85	37.8	V	264.0	103.0	11.2	0.4	32.5	17.0	40.0	-23.0
45.33	33.3	V	226.0	110.0	10.9	0.4	32.5	12.1	40.0	-27.9
925.76	25.7	V	43.0	174.0	23.2	2.1	33.1	17.8	46.0	-28.2
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

2.4 GHz CH 6, 1Mbps
Horizontal (30-1000MHz)

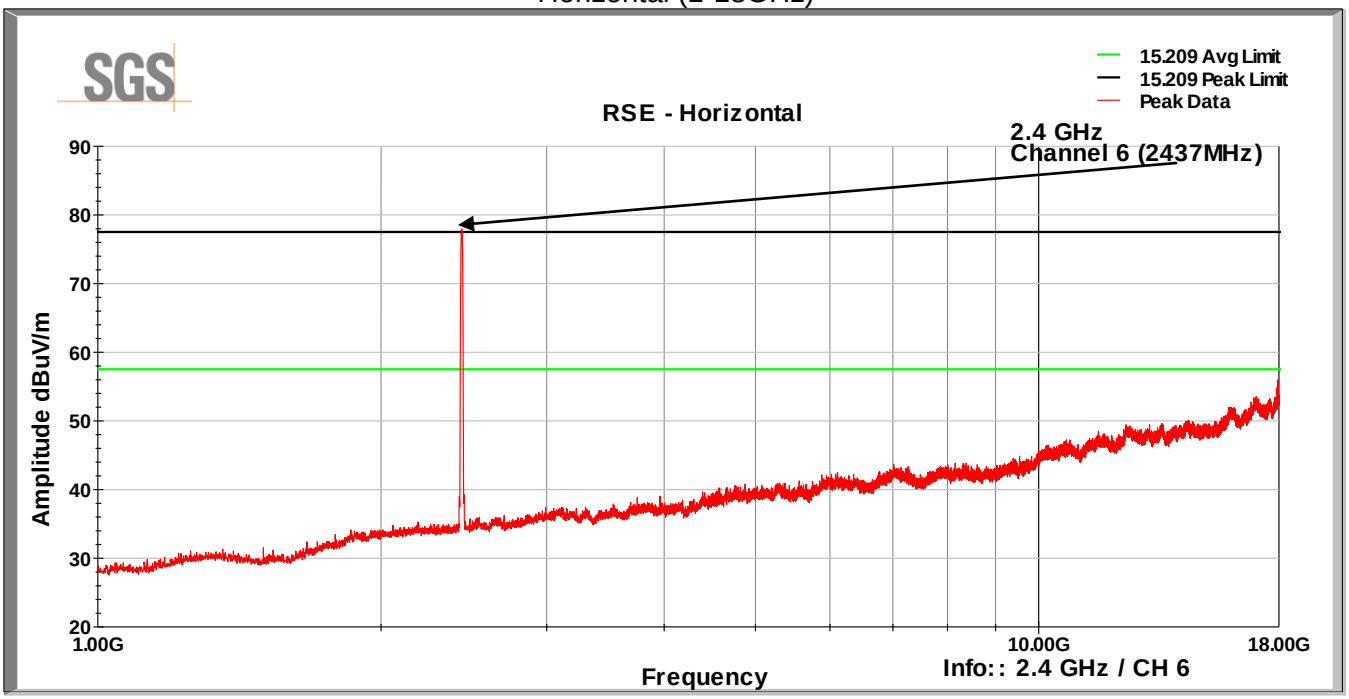


Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.40	28.5	H	295.0	100.0	21.9	0.3	32.0	18.8	40.0	-21.2
122.76	39.5	H	267.0	296.0	13.9	0.7	33.6	20.6	43.5	-22.9
154.88	48.3	H	82.0	195.0	13.1	0.8	33.6	28.7	43.5	-14.8
183.11	39.6	H	127.0	157.0	11.4	0.9	33.5	18.4	43.5	-25.2
184.47	43.3	H	288.0	194.0	11.4	0.9	33.5	22.1	43.5	-21.4
184.93	43.0	H	286.0	185.0	11.4	0.9	33.5	21.8	43.5	-21.7
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

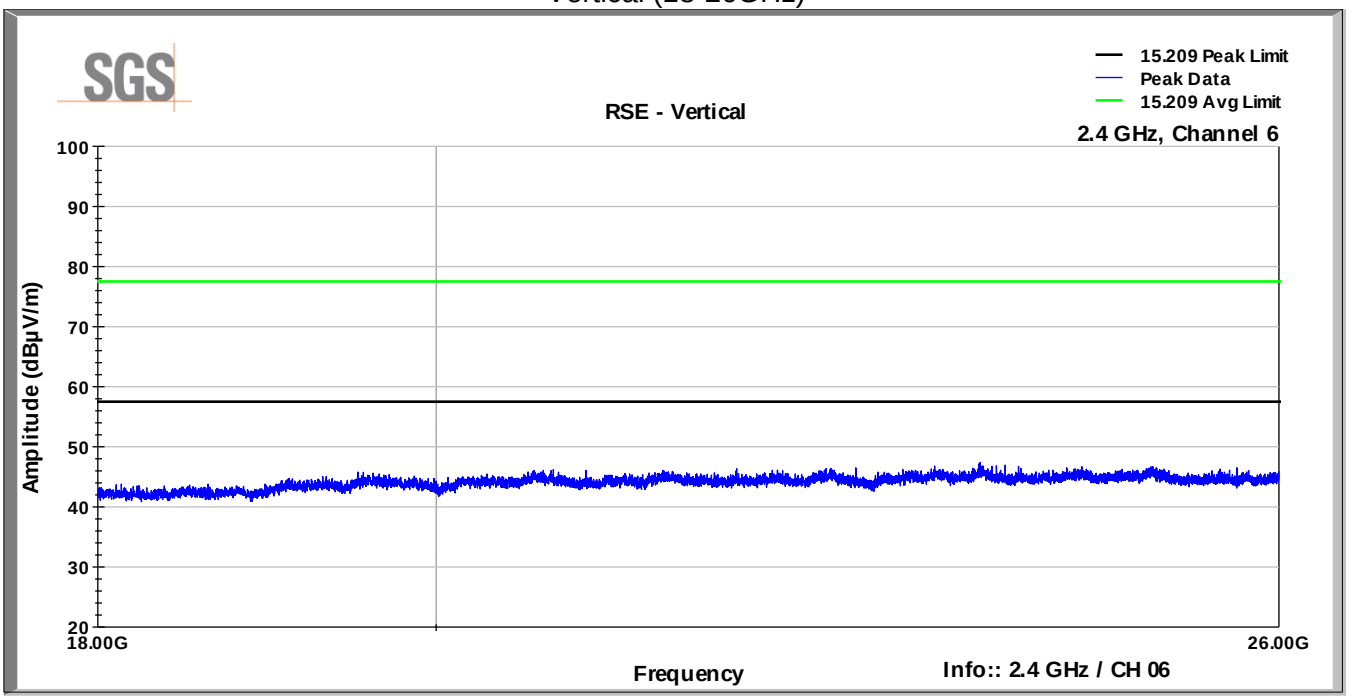
2.4 GHz CH 6, 1Mbps
Vertical (1-18GHz)



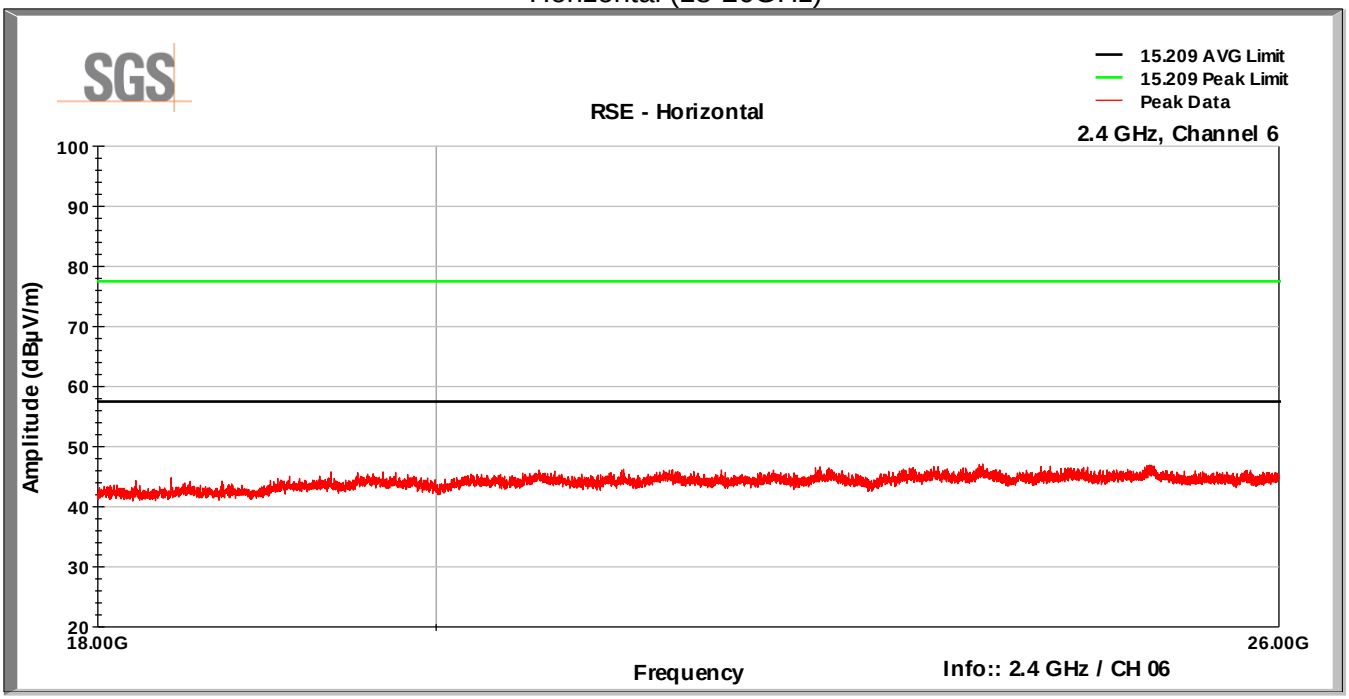
2.4 GHz CH 6, 1Mbps
Horizontal (1-18GHz)



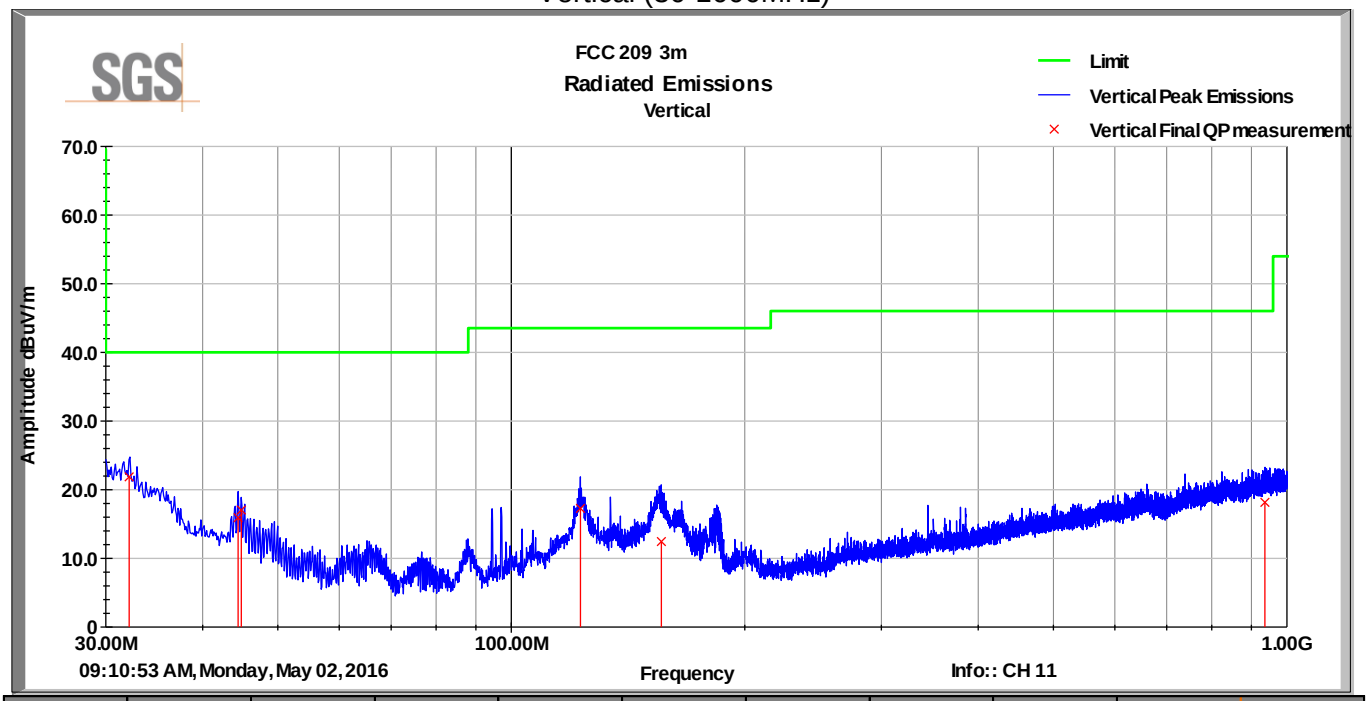
2.4 GHz CH 6, 1Mbps
Vertical (18-26GHz)



2.4 GHz CH 6, 1Mbps
Horizontal (18-26GHz)

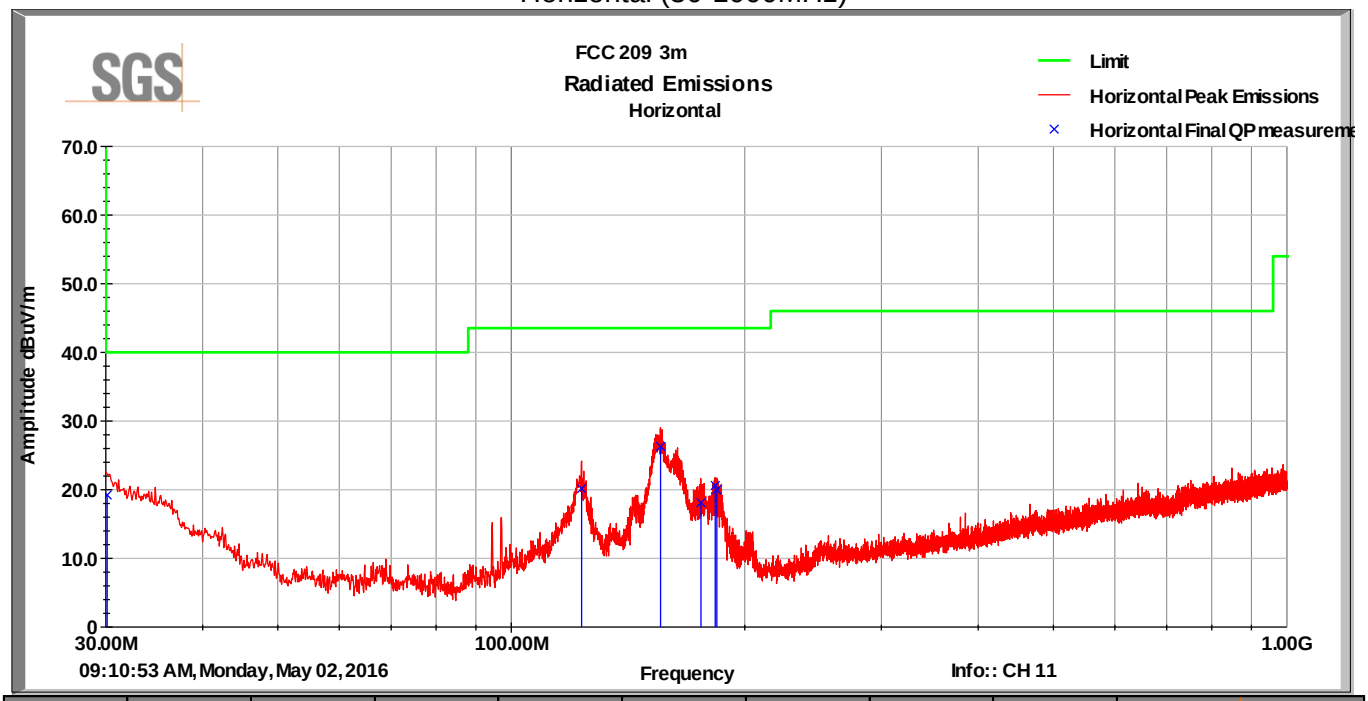


2.4 GHz CH 11, 1Mbps
Vertical (30-1000MHz)



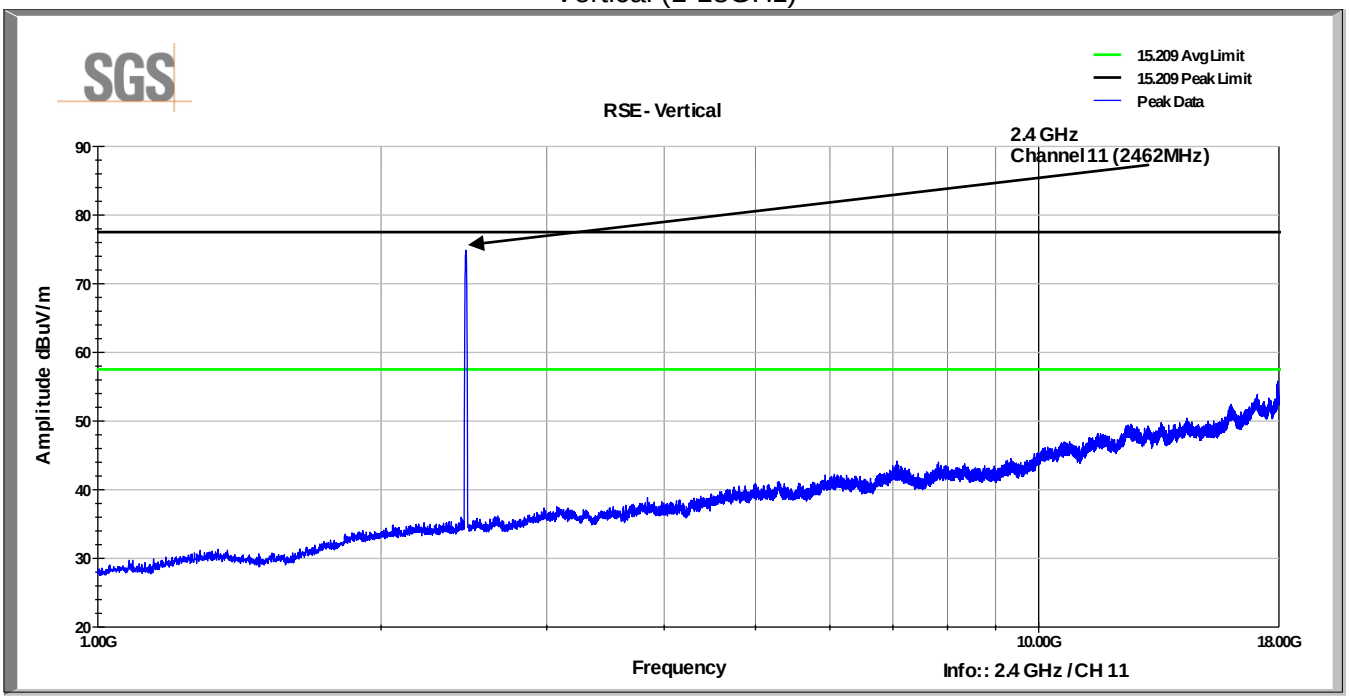
Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
32.16	33.1	V	99.0	100.0	20.5	0.4	32.0	21.9	40.0	-18.1
44.43	36.5	V	20.0	100.0	11.4	0.4	32.5	15.9	40.0	-24.1
44.86	37.9	V	282.0	100.0	11.2	0.4	32.5	17.0	40.0	-23.0
122.79	36.2	V	127.0	100.0	13.9	0.7	33.6	17.3	43.5	-26.3
156.13	31.9	V	175.0	100.0	13.2	0.8	33.6	12.4	43.5	-31.1
937.07	25.7	V	41.0	100.0	23.5	2.1	33.1	18.1	46.0	-27.9
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

2.4 GHz CH 11, 1Mbps
Horizontal (30-1000MHz)

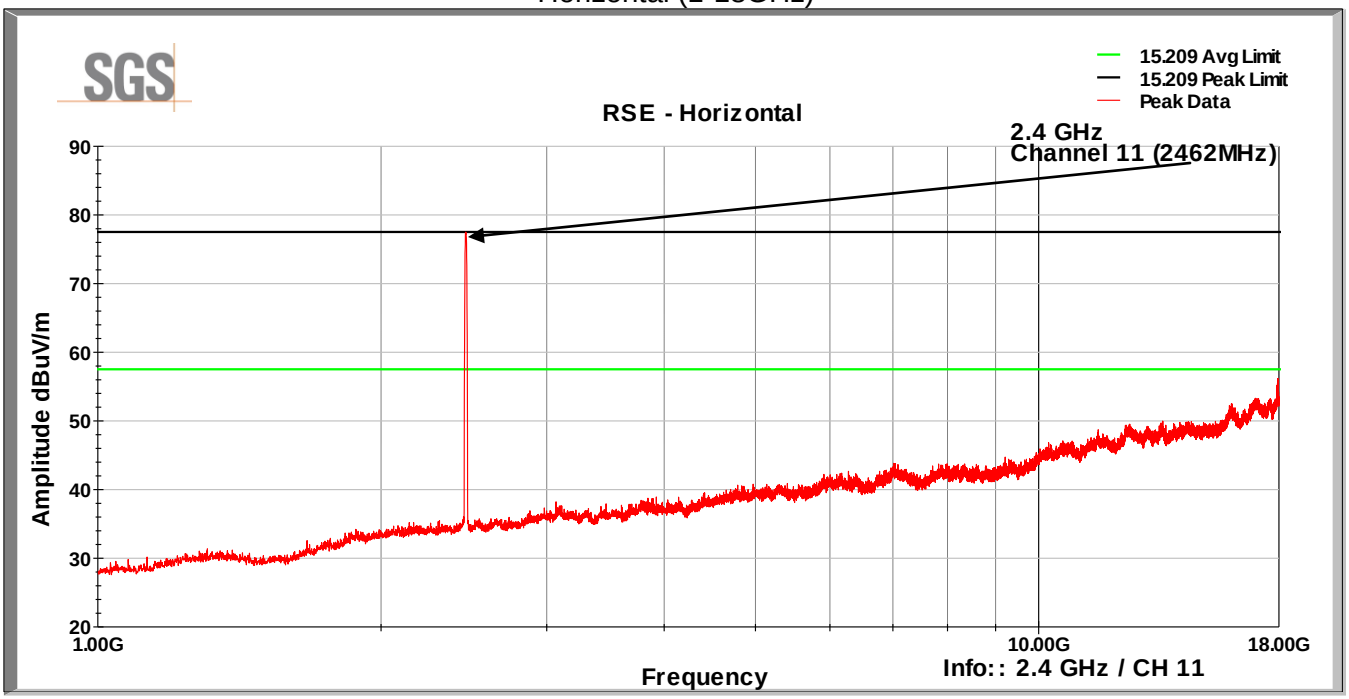


Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.12	28.7	H	128.0	304.0	22.1	0.3	32.0	19.2	40.0	-20.8
123.21	39.1	H	88.0	256.0	13.9	0.7	33.6	20.2	43.5	-23.4
155.73	45.8	H	51.0	250.0	13.2	0.8	33.6	26.3	43.5	-17.2
175.60	39.0	H	135.0	185.0	11.7	0.9	33.5	18.1	43.5	-25.4
183.24	41.8	H	113.0	164.0	11.4	0.9	33.5	20.6	43.5	-22.9
184.08	41.2	H	142.0	185.0	11.4	0.9	33.5	20.0	43.5	-23.5
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

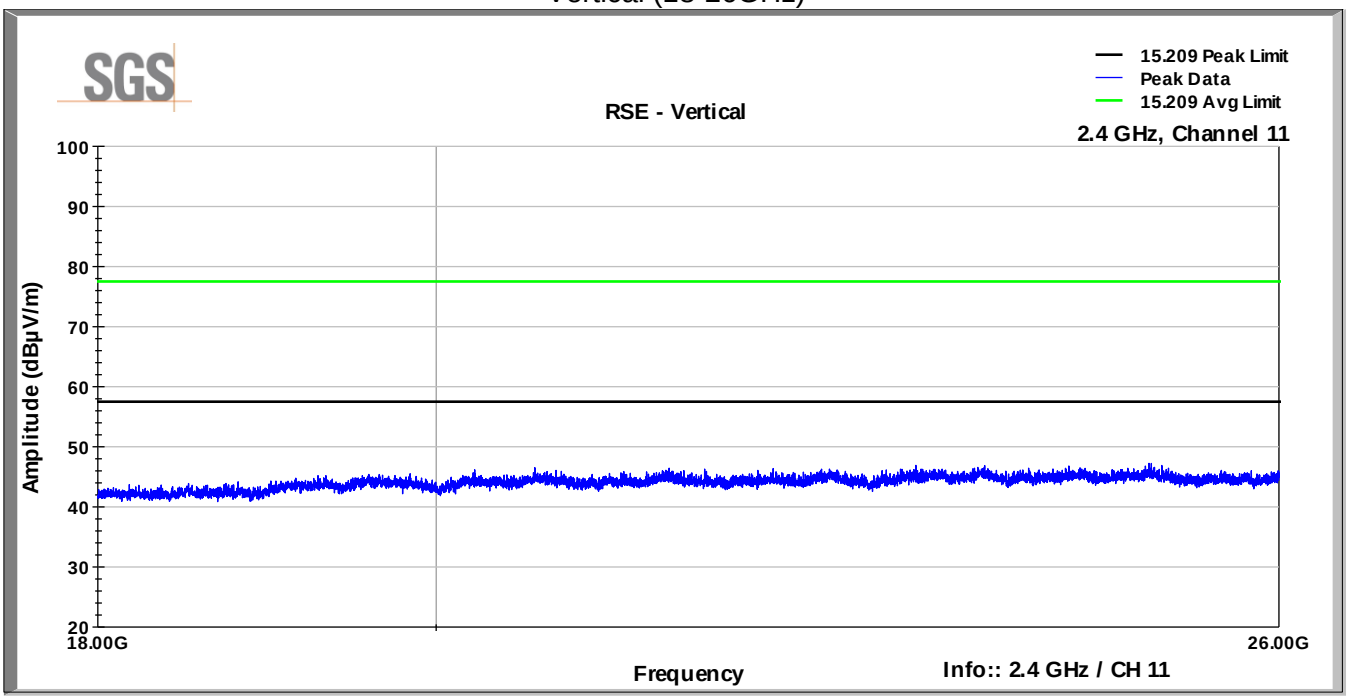
2.4 GHz CH 11, 1Mbps
Vertical (1-18GHz)



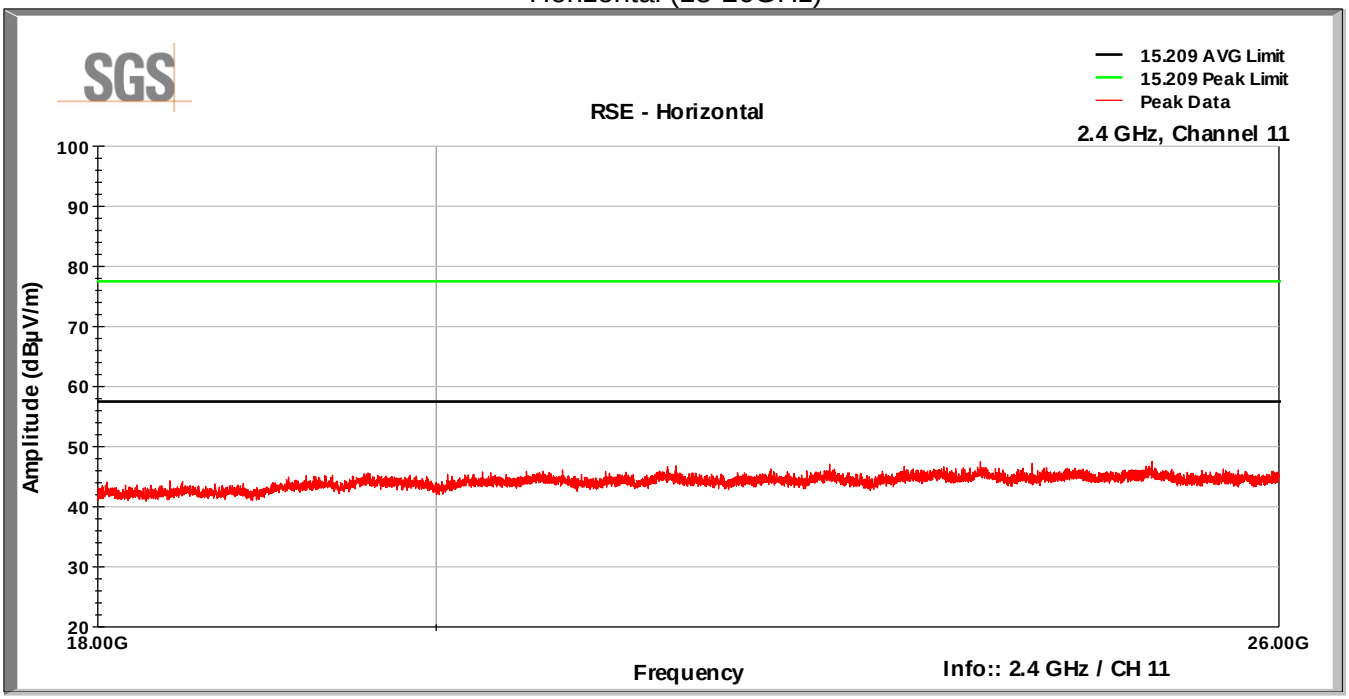
2.4 GHz CH 11, 1Mbps
Horizontal (1-18GHz)



2.4 GHz CH 11, 1Mbps
Vertical (18-26GHz)



2.4 GHz CH 11, 1Mbps
Horizontal (18-26GHz)



8 Radiated Emissions at Band Edge / Restricted Band

8.1 *Test Result*

Test Description	Test Specification	Test Result
Field strength of spurious radiation	15.247 (d) and 15.209	Compliant

8.2 *Test Method*

Because the device is not marketed with an antenna, peak and average field strength measurements were performed at the restricted band edges of 2390MHz and 2483.5MHz and the maximum antenna gain that would meet the limits was calculated. Measurements were made using the conducted methods defined in Sections 12 and 13 of FCC publication D01 DTS Meas Guidance v03r05. Additionally, a swept conducted test was performed using the maximum antenna gain derived from the band edge measurements to show compliance in all of the restricted bands.

Offset Calculations:
Offset calculations so that conducted measurements on the spectrum analyzer in dBuV represent field strength measurements in dBuV/m.

Offset = -20Log(D) + 104.8 - 107 + CL + DC + AG
Offset3m = -9.8 + CL + DC + AG

D = 3mDistance
CL = 0.5 dB Cable Loss
DC = 0 Duty Cycle Correction Factor (Duty Cycle > 98%)
AG = 2 dB Antenna Gain (Lowest value that can be used per the KDB)

Offset = -9.2 dB

8.3 *Test Site*

3m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions
Temperature: 24.1 °C
Relative Humidity: 42.6 %

8.4 *Test Equipment*

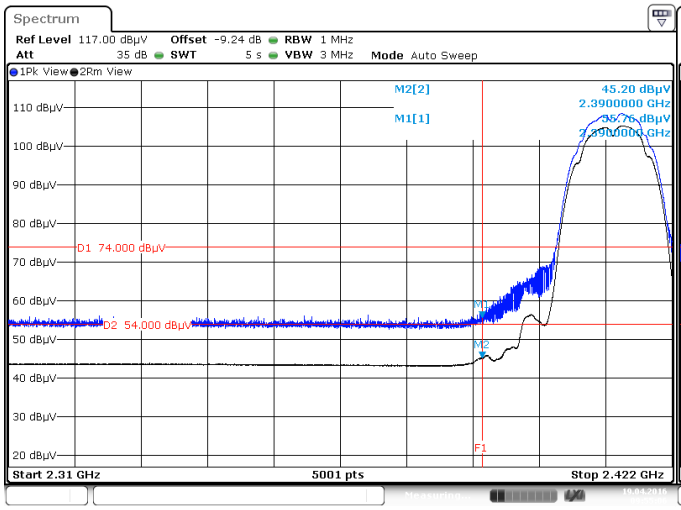
Test Date: 18-Apr-2016 Tester: JOP

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	B085749	8-Oct-2017
COAXIAL CABLE	SUCOFLEX 102	ROHDE & SCHWARZ	B079823	4-Aug-2016

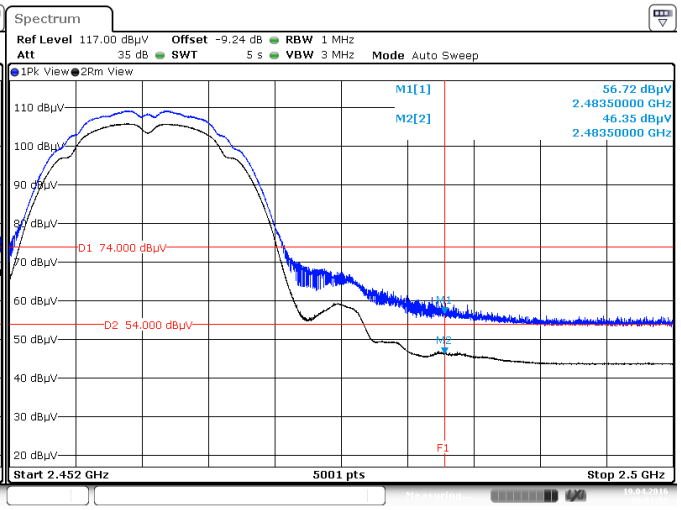
Note: The calibration period equipment is 1 year except for the FSV30 which is on a 2-year cycle.

8.5 *Test Data – Restricted Band Edge (Conducted)*

802.11b
Lower band edge / Upper band edge
Channel 1 (18dBm Target) / Channel 11 (18dBm Target)
1Mbit/s

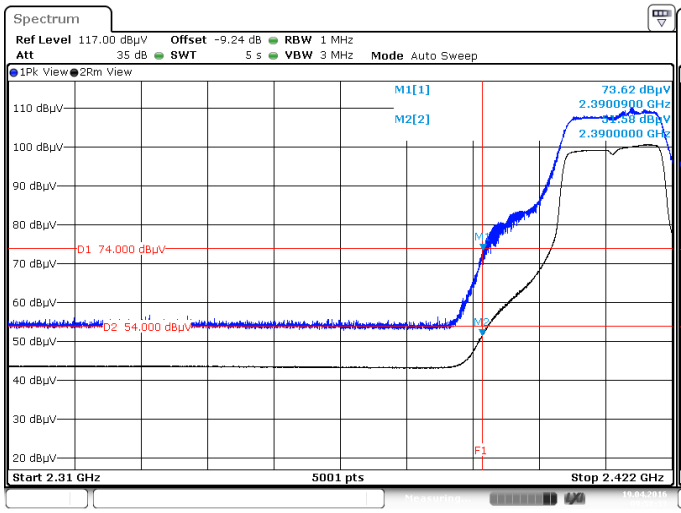


Date: 19.APR.2016 09:55:06

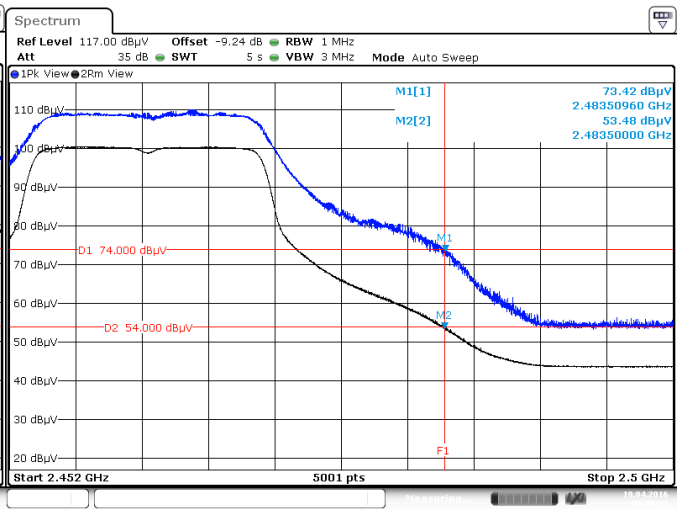


Date: 19.APR.2016 09:51:55

802.11g
Lower band edge / Upper band edge
Channel 1 (14.5dBm Target) / Channel 11 (14.5dBm Target)
6Mbit/s

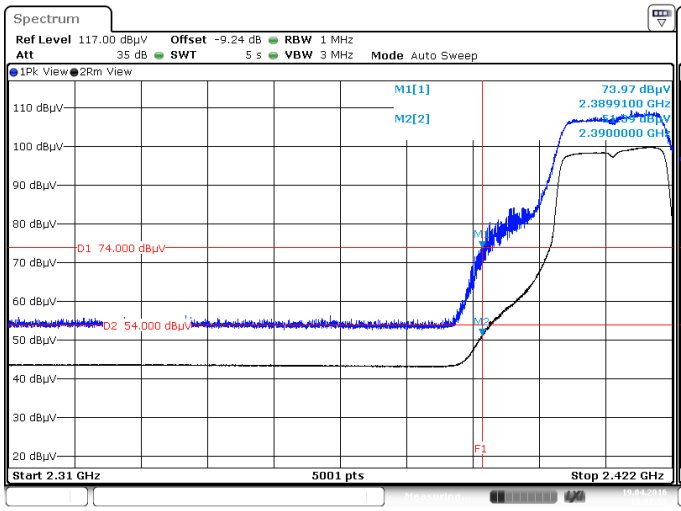


Date: 19.APR.2016 09:58:34

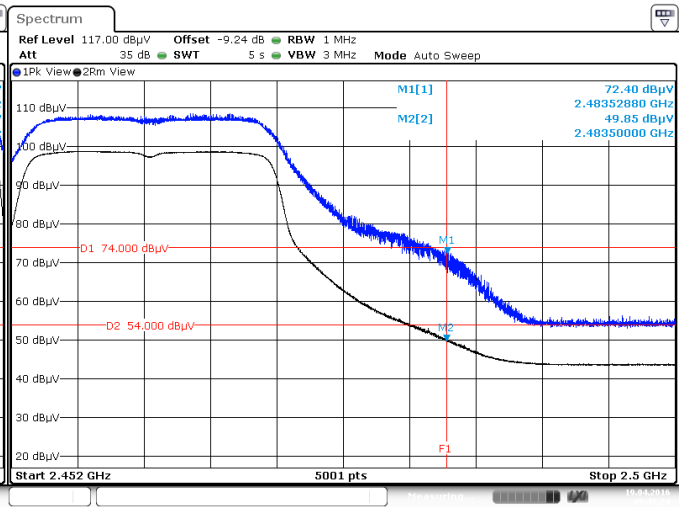


Date: 19.APR.2016 09:40:28

802.11n
Lower band edge / Upper band edge
Channel 1 (14dBm Target) / Channel 11 (13dBm Target)
MCS0



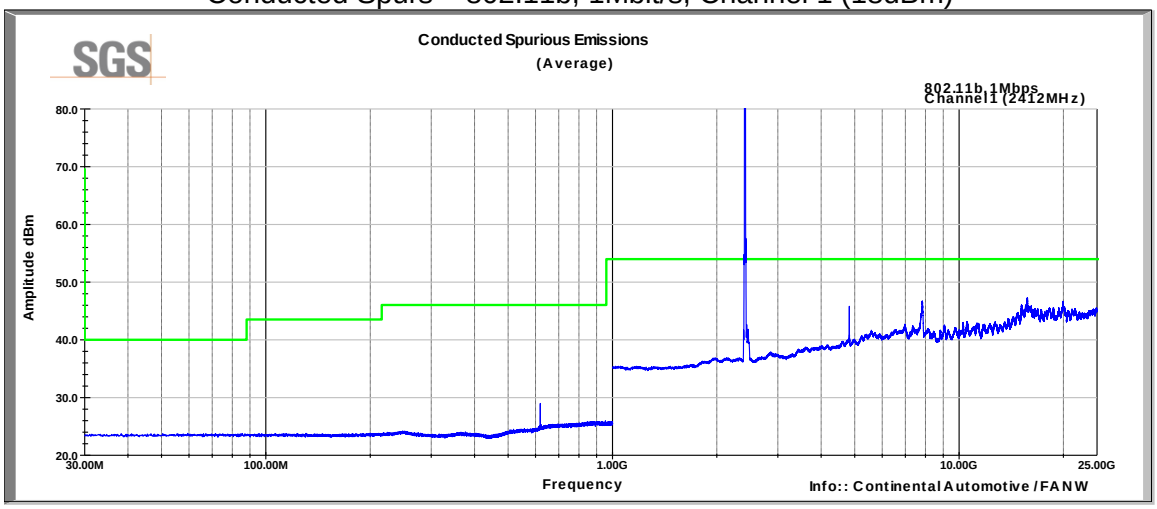
Date: 19.APR.2016 10:02:59



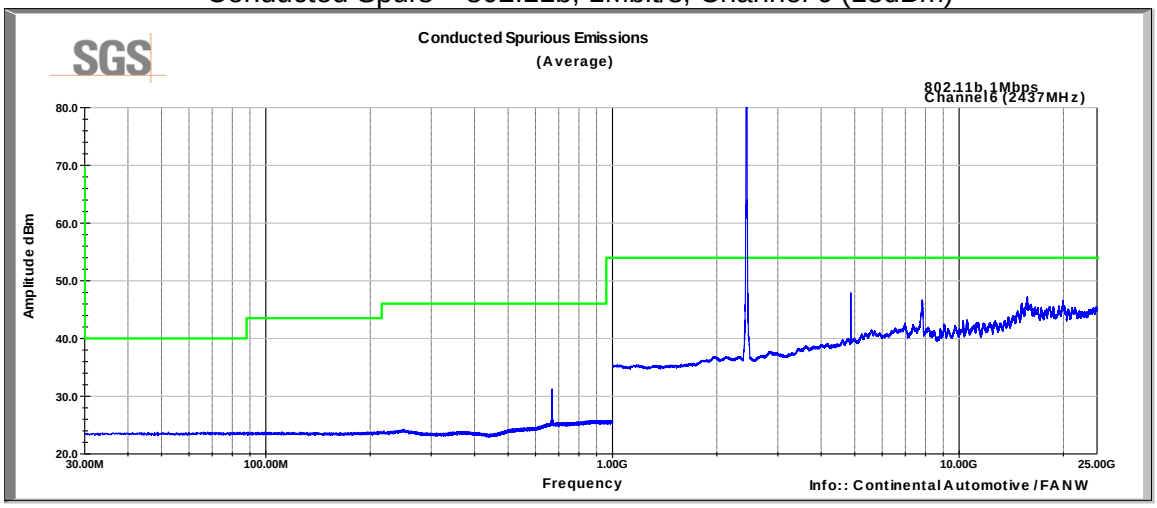
Date: 19.APR.2016 09:47:25

8.6 *Test Data – Restricted Bands (Conducted)*

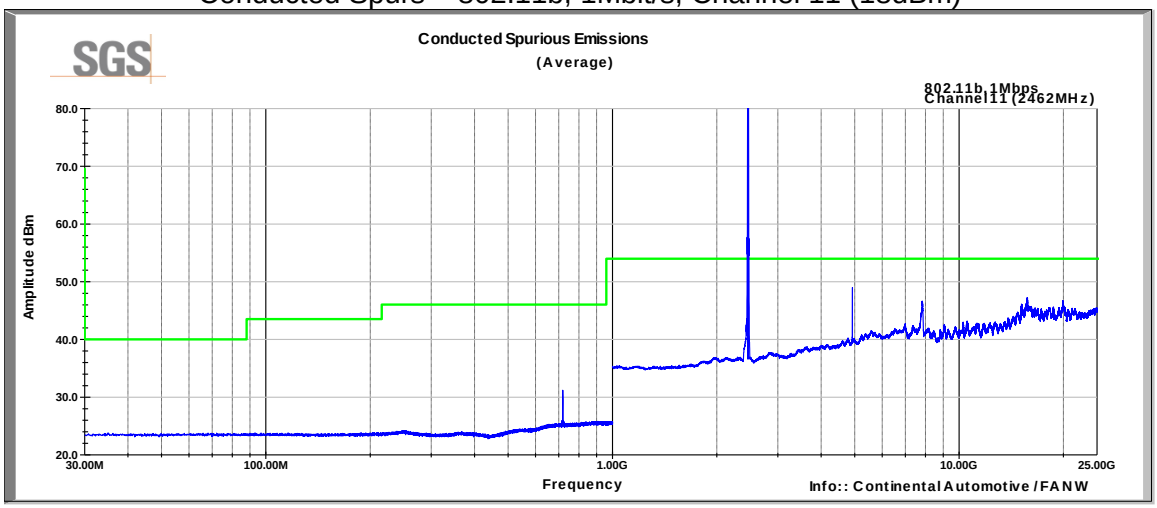
Conducted Spurs – 802.11b, 1Mbit/s, Channel 1 (18dBm)



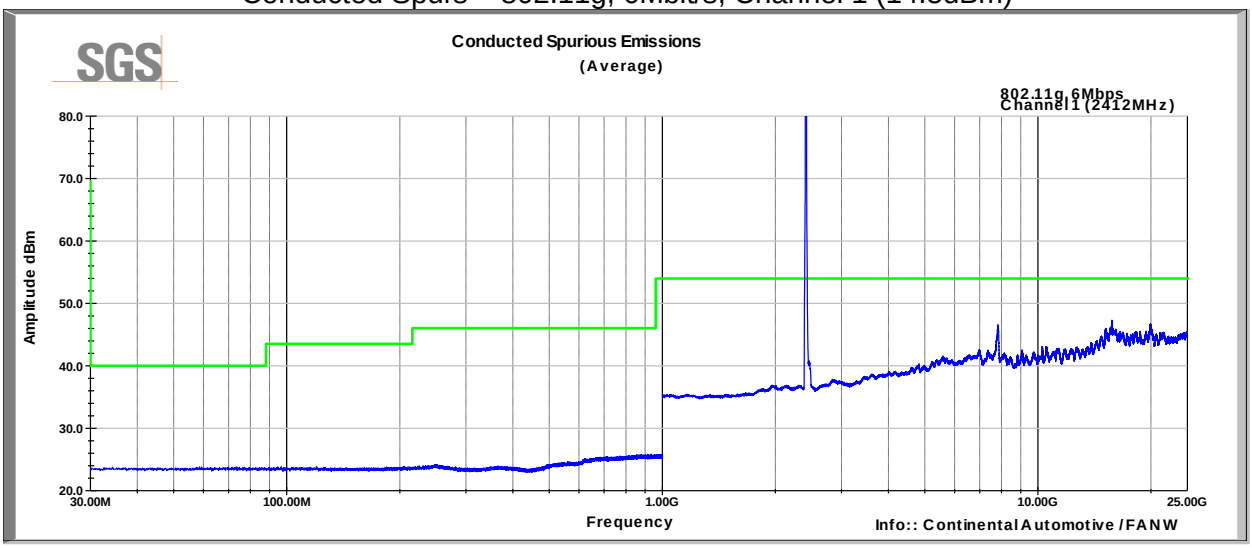
Conducted Spurs – 802.11b, 1Mbit/s, Channel 6 (18dBm)



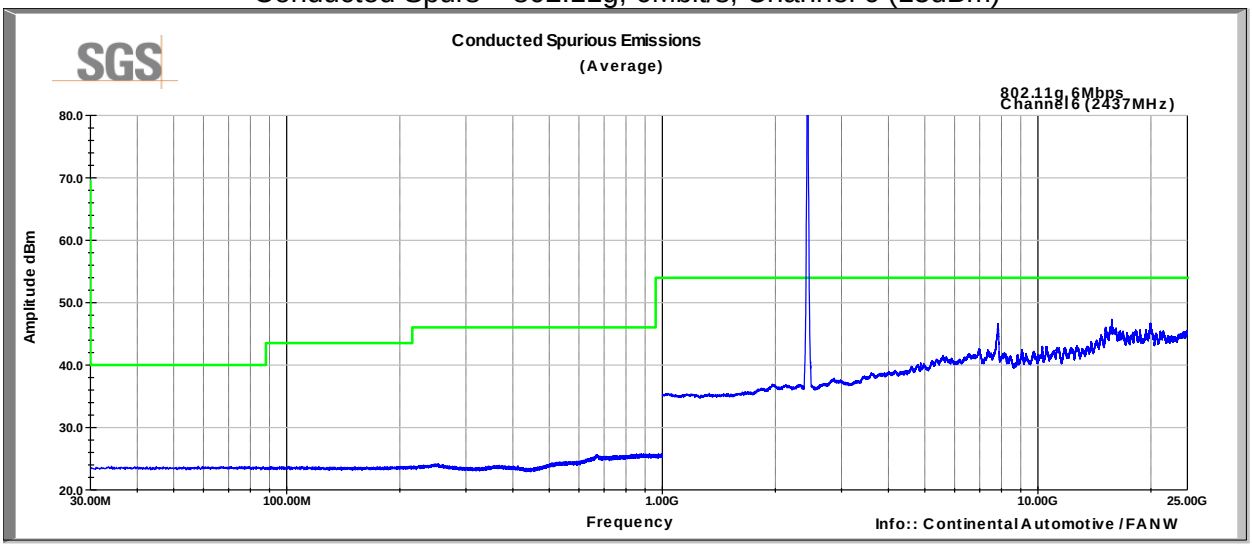
Conducted Spurs – 802.11b, 1Mbit/s, Channel 11 (18dBm)



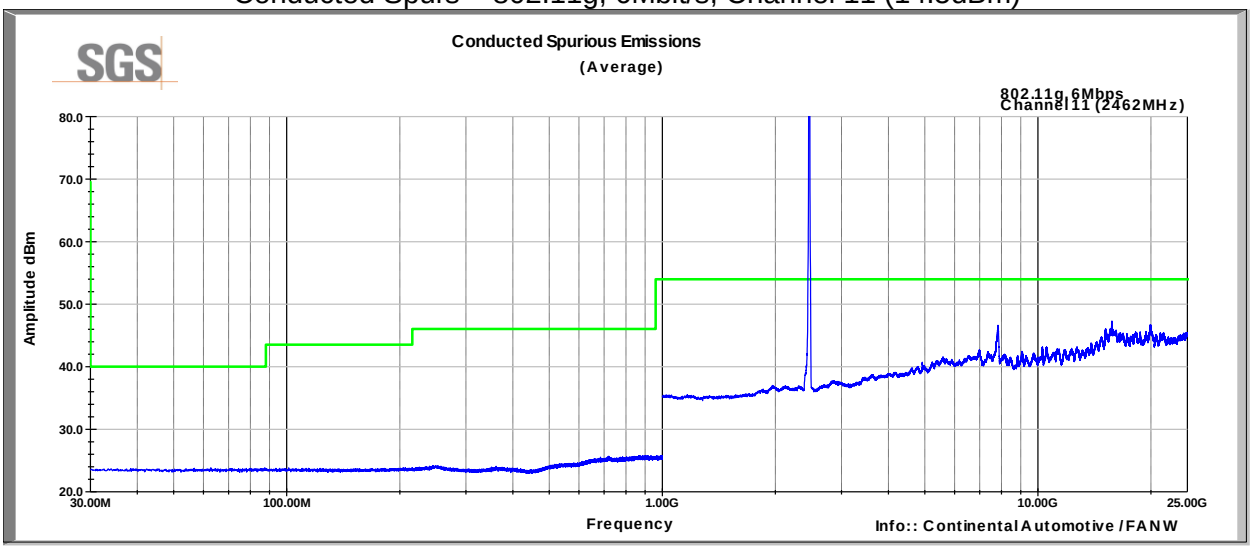
Conducted Spurs – 802.11g, 6Mbit/s, Channel 1 (14.5dBm)



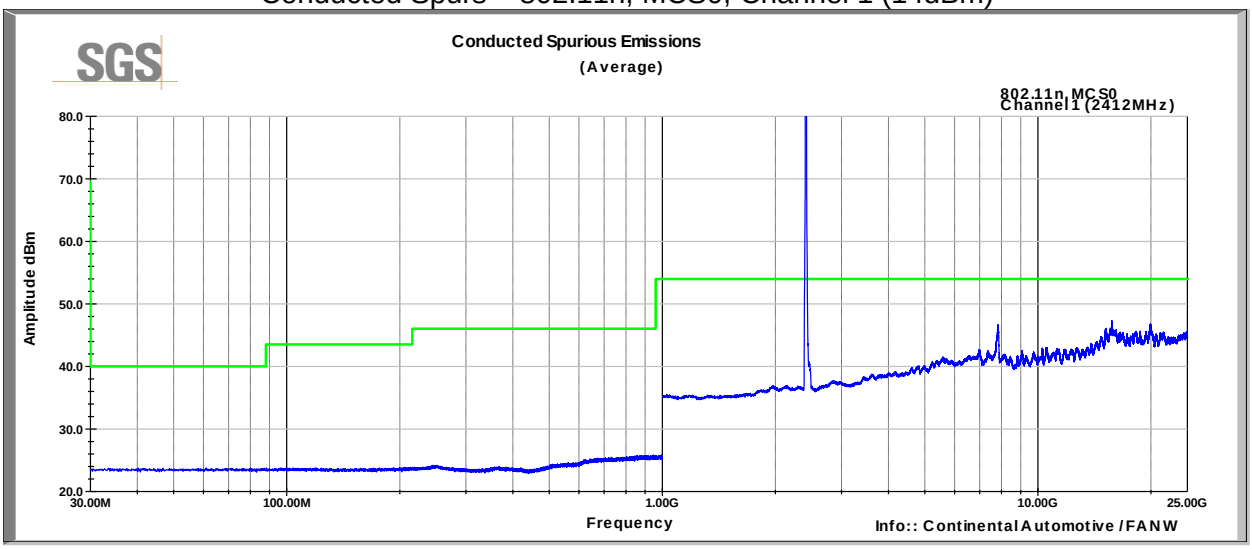
Conducted Spurs – 802.11g, 6Mbit/s, Channel 6 (15dBm)



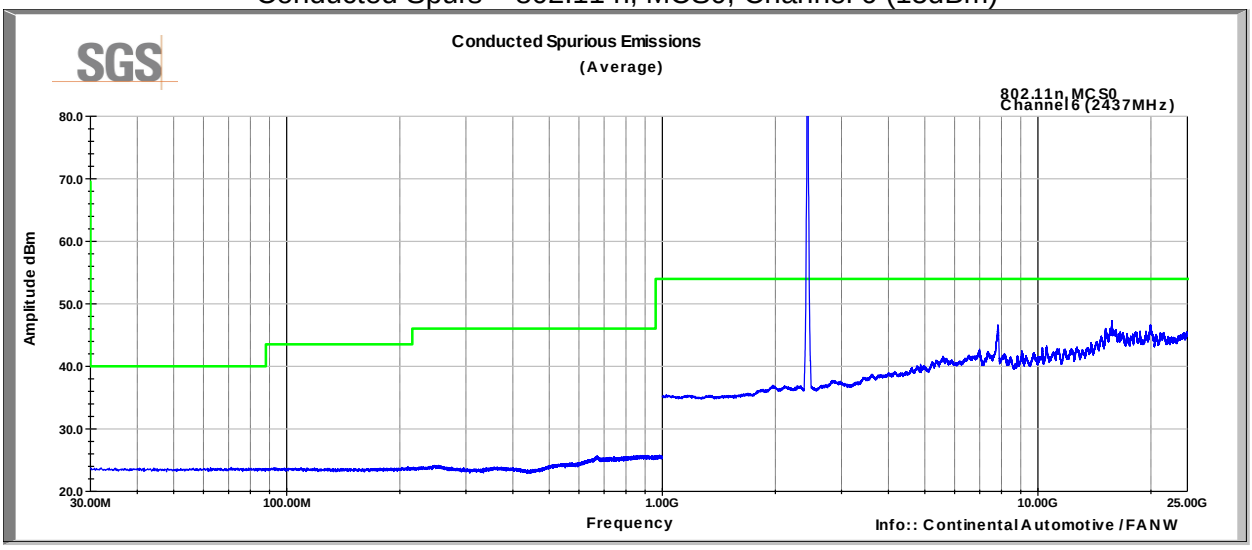
Conducted Spurs – 802.11g, 6Mbit/s, Channel 11 (14.5dBm)



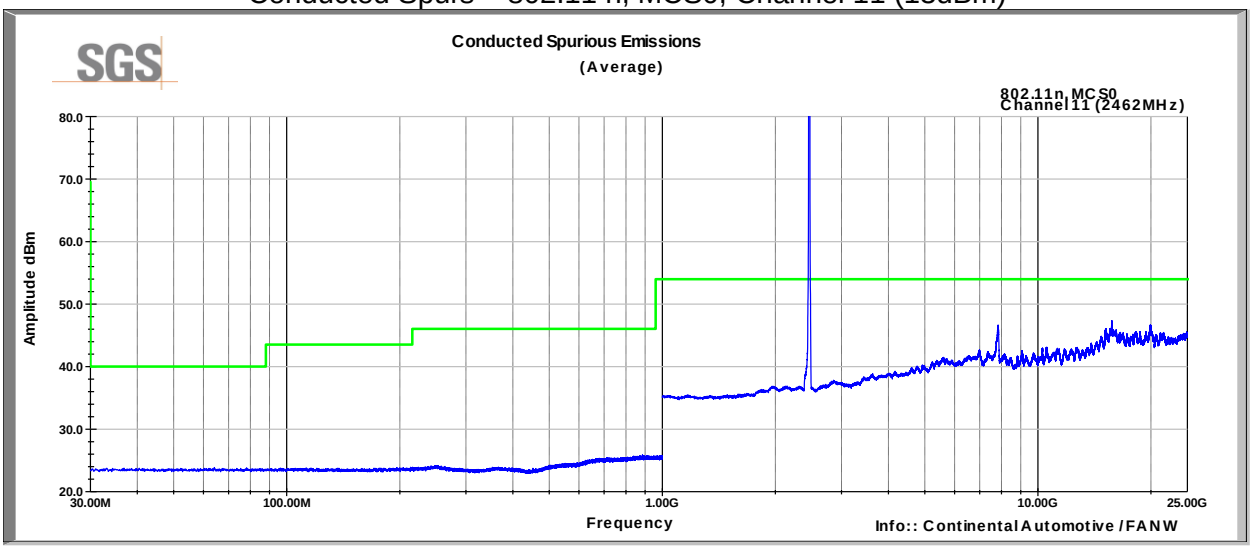
Conducted Spurs – 802.11n, MCS0, Channel 1 (14dBm)



Conducted Spurs – 802.11 n, MCS0, Channel 6 (15dBm)



Conducted Spurs – 802.11 n, MCS0, Channel 11 (13dBm)



9 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	02 May 2016