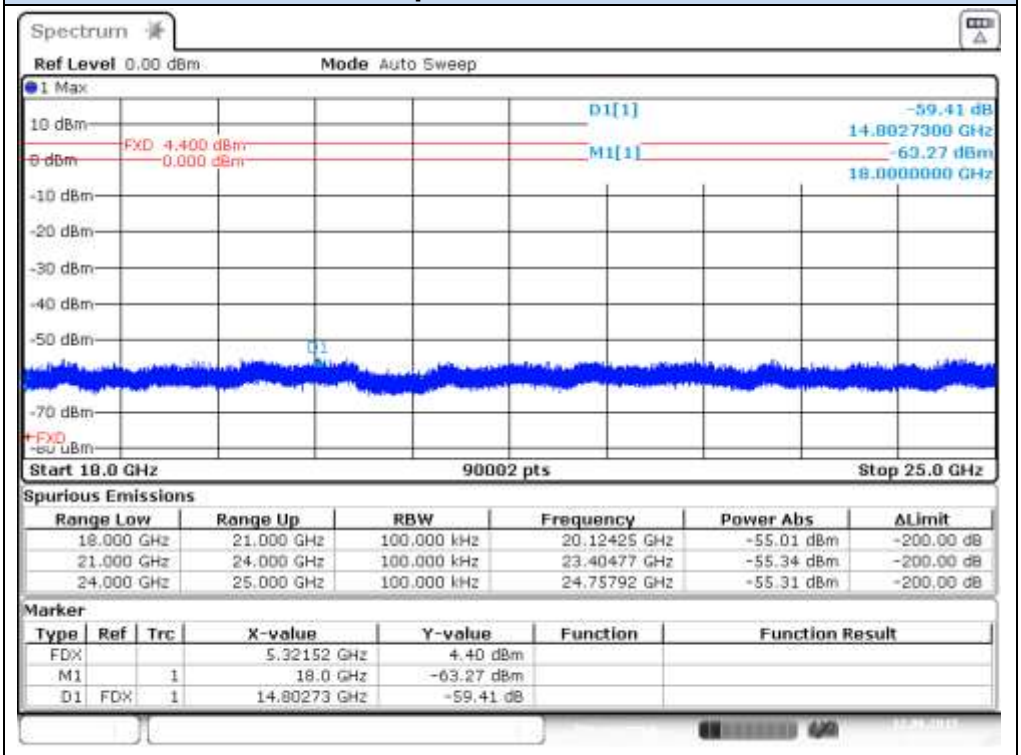
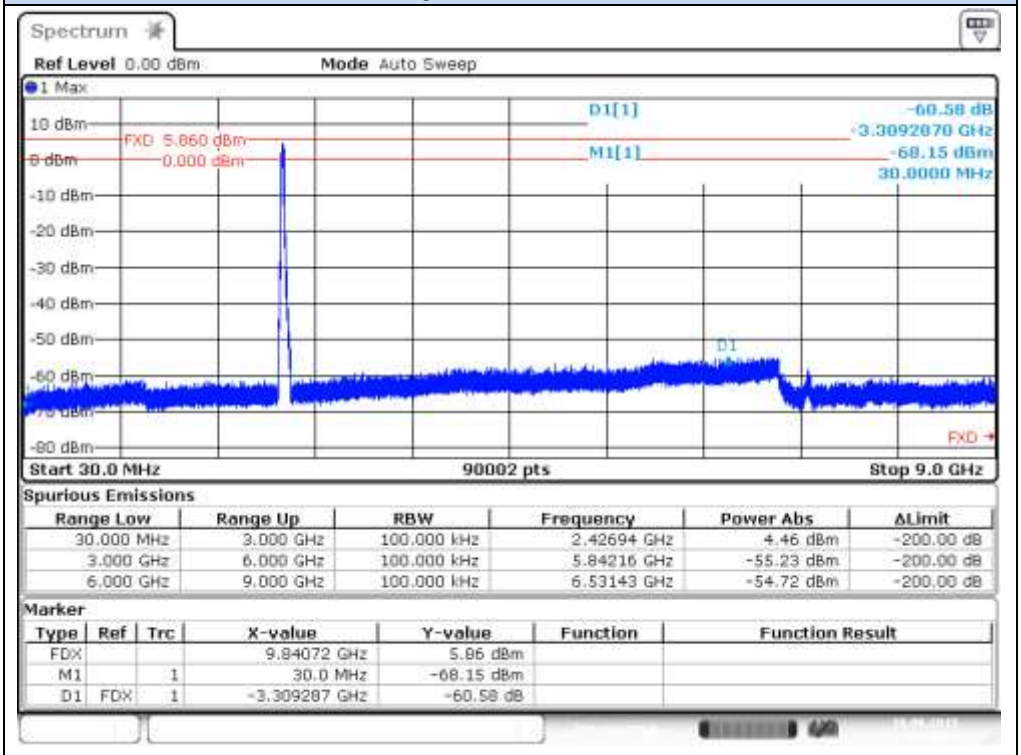
Cond Spur, 18GHz – 25GHz



802.11n40, HT8 (MIMO) – Chain B, CH3F

Cond Spur, 30MHz – 9GHz



Spurious Emissions

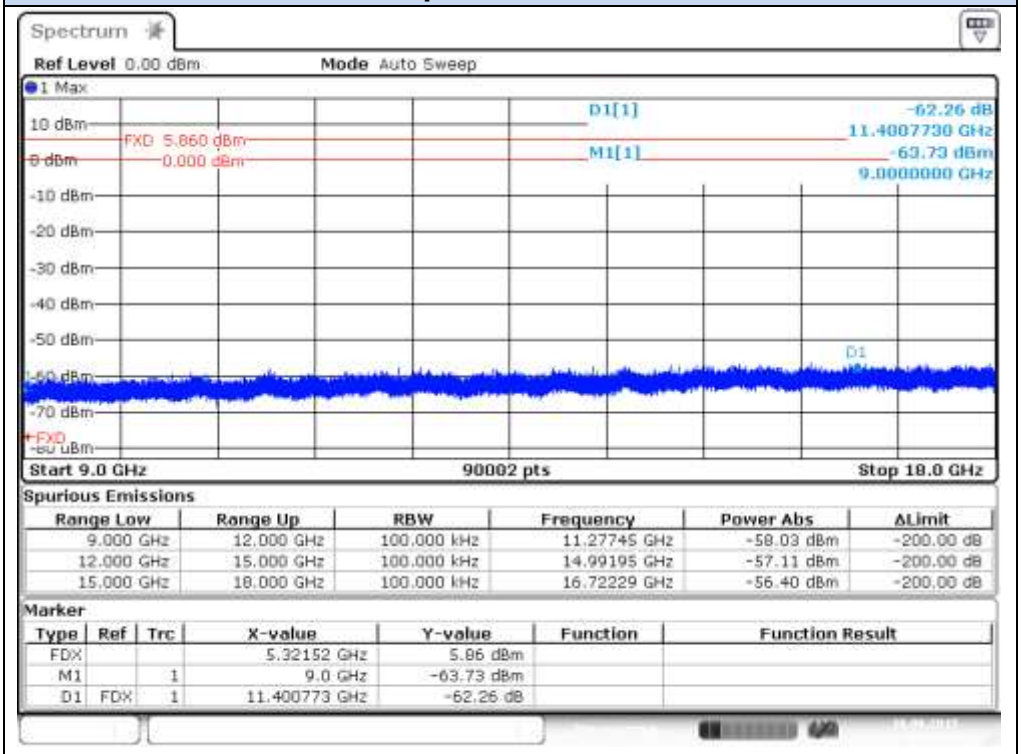
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.42694 GHz	4.46 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.84216 GHz	-55.23 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.53143 GHz	-54.72 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			9.84072 GHz	5.86 dBm		
M1		1	30.0 MHz	-68.15 dBm		
D1	FDX	1	-3.309287 GHz	-60.58 dB		

Date: 16.JUN.2015 18:20:02

Cond Spur, 9GHz – 18GHz



Spurious Emissions

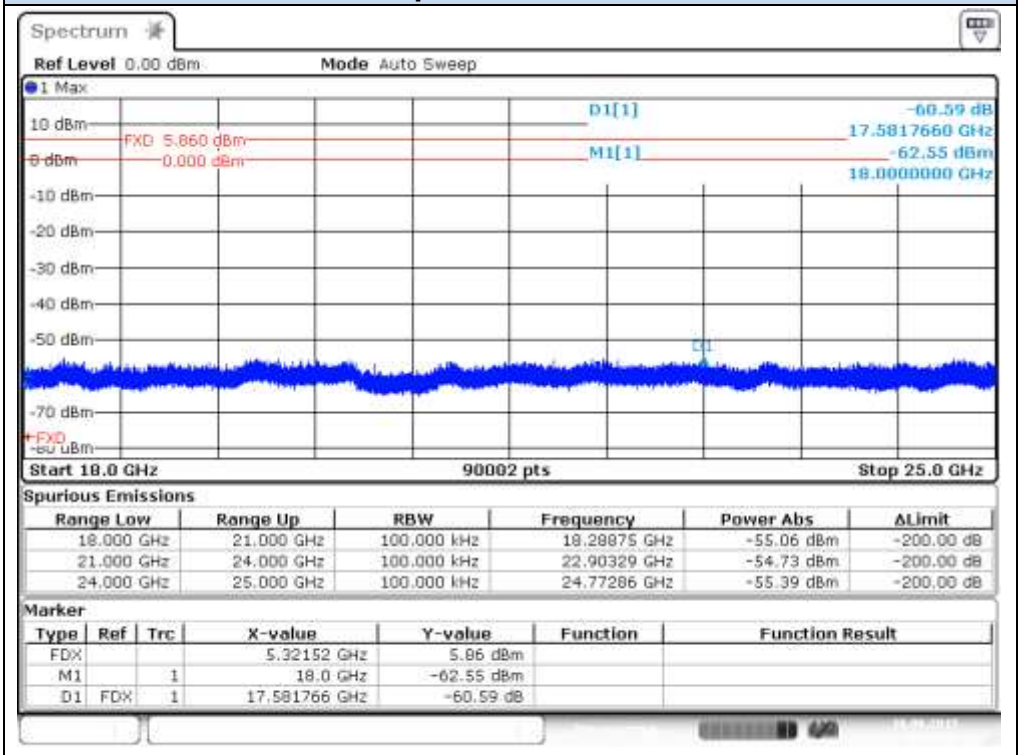
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.27745 GHz	-58.03 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.99195 GHz	-57.11 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	16.72229 GHz	-56.40 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			5.32152 GHz	5.86 dBm		
M1		1	9.0 GHz	-63.73 dBm		
D1	FDX	1	11.400773 GHz	-62.26 dB		

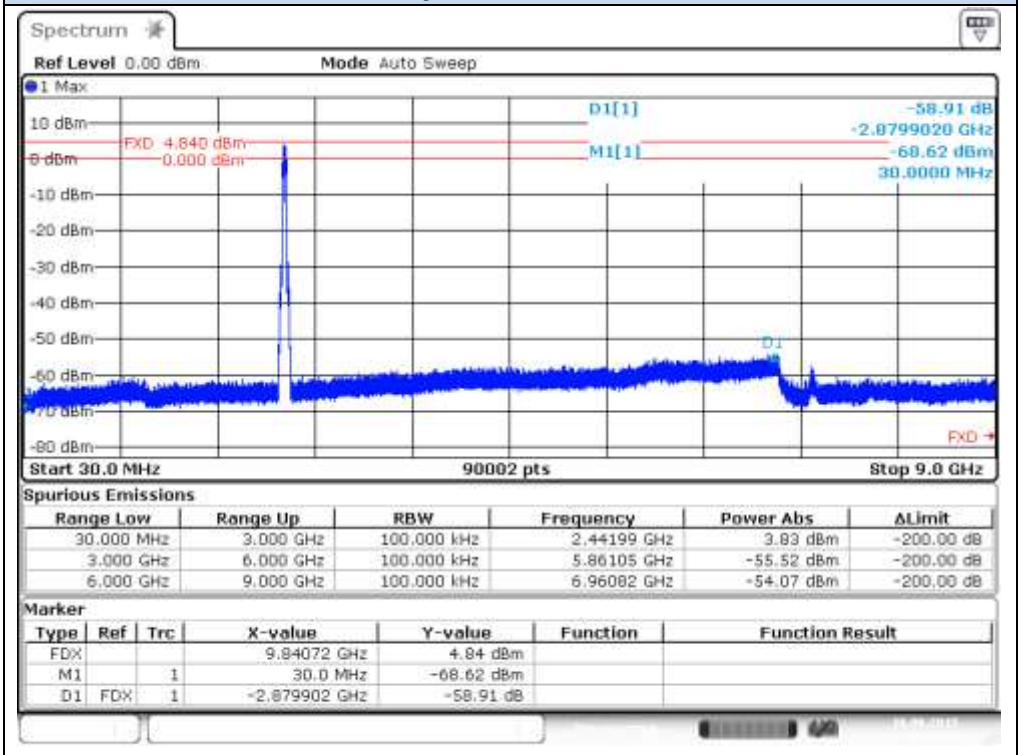
Date: 16.JUN.2015 18:22:10

Cond Spur, 18GHz – 25GHz



802.11n40, HT8 (MIMO) – Chain B, CH6F

Cond Spur, 30MHz – 9GHz



Spurious Emissions

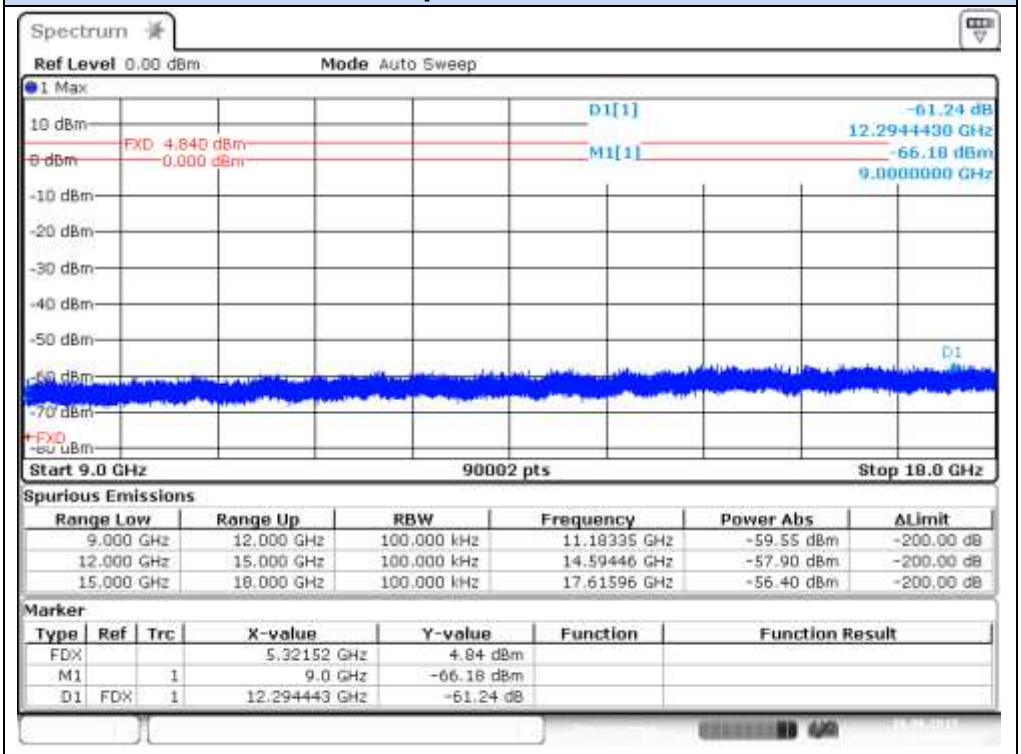
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.44199 GHz	3.83 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.86105 GHz	-55.52 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.96082 GHz	-54.07 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			9.84072 GHz	4.84 dBm		
M1		1	30.0 MHz	-68.62 dBm		
D1	FDX	1	-2.879902 GHz	-58.91 dB		

Date: 16.JUN.2015 18:25:09

Cond Spur, 9GHz – 18GHz



Spurious Emissions

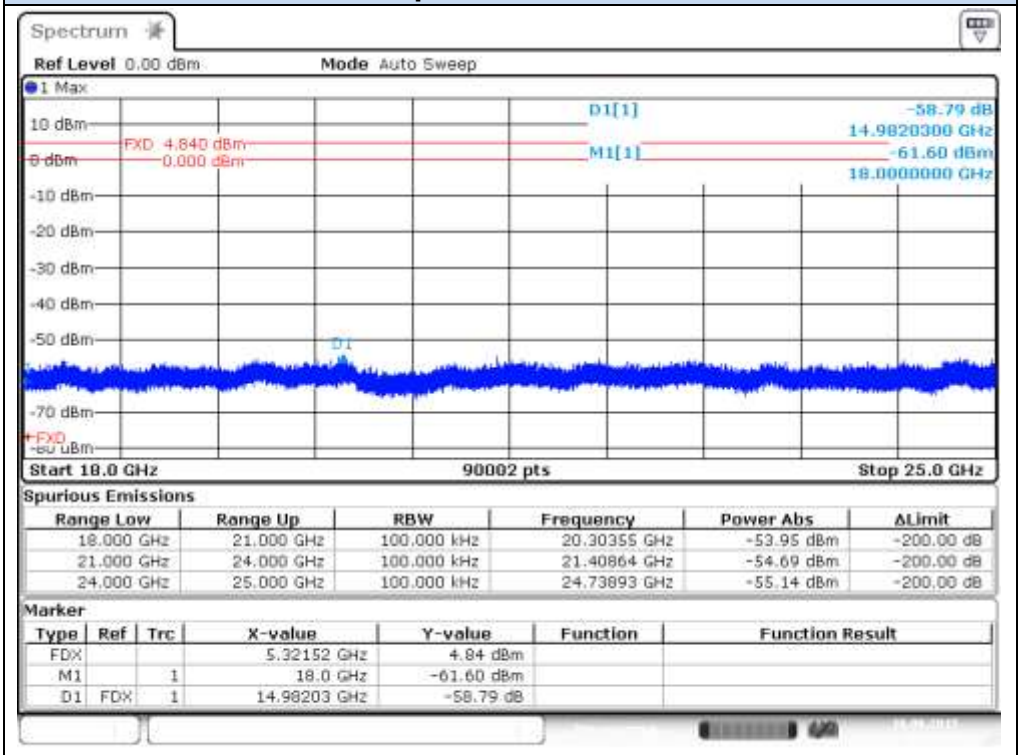
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.18335 GHz	-59.55 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.59446 GHz	-57.90 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.61596 GHz	-56.40 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			5.32152 GHz	4.84 dBm		
M1		1	9.0 GHz	-66.18 dBm		
D1	FDX	1	12.294443 GHz	-61.24 dB		

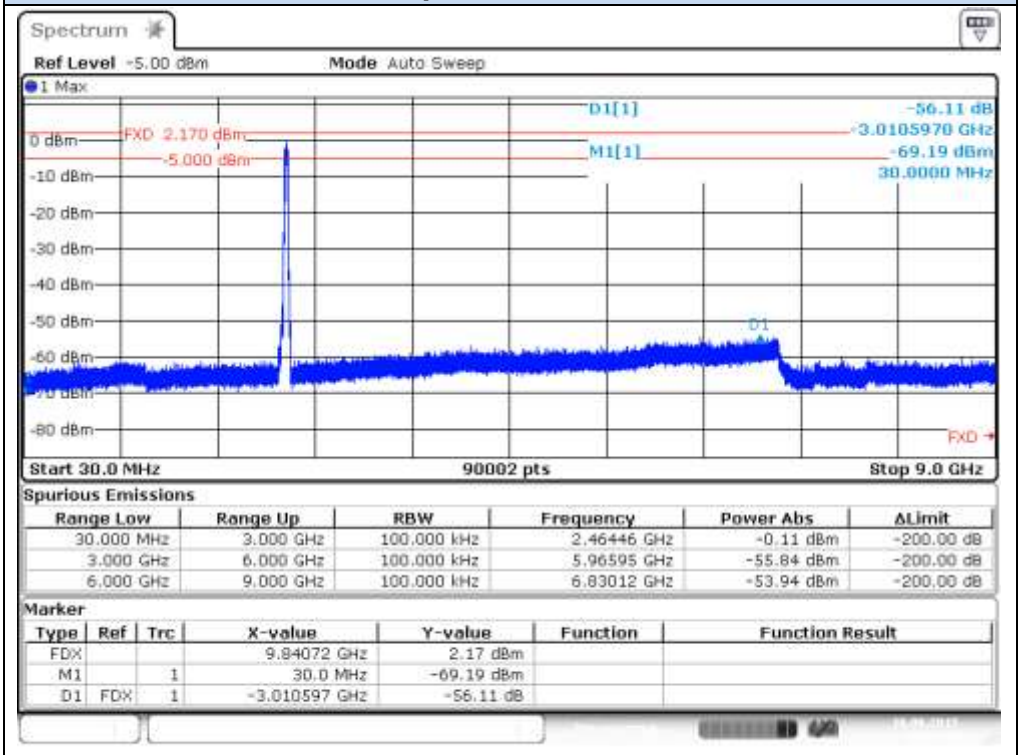
Date: 16.JUN.2015 18:25:53

Cond Spur, 18GHz – 25GHz



802.11n40, HT8 (MIMO) – Chain B, CH9F

Cond Spur, 30MHz – 9GHz



Spurious Emissions

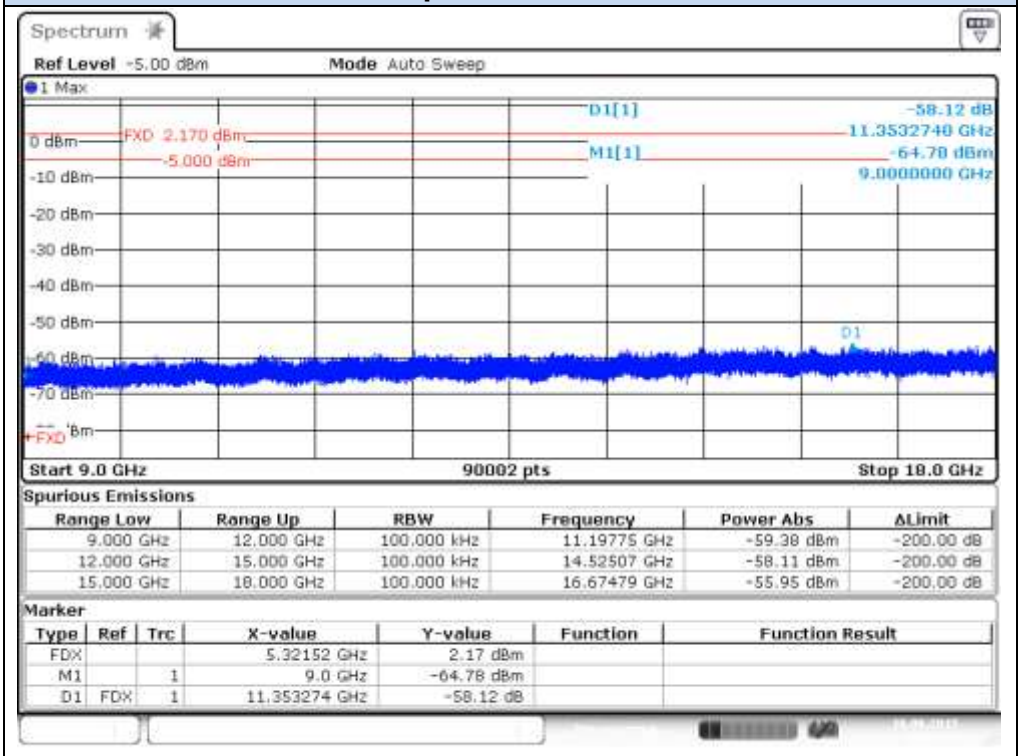
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.46446 GHz	-0.11 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.96595 GHz	-55.84 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.83012 GHz	-53.94 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			9.84072 GHz	2.17 dBm		
M1		1	30.0 MHz	-69.19 dBm		
D1	FDX	1	-3.010597 GHz	-56.11 dB		

Date: 16.JUN.2015 18:53:49

Cond Spur, 9GHz – 18GHz



Spurious Emissions

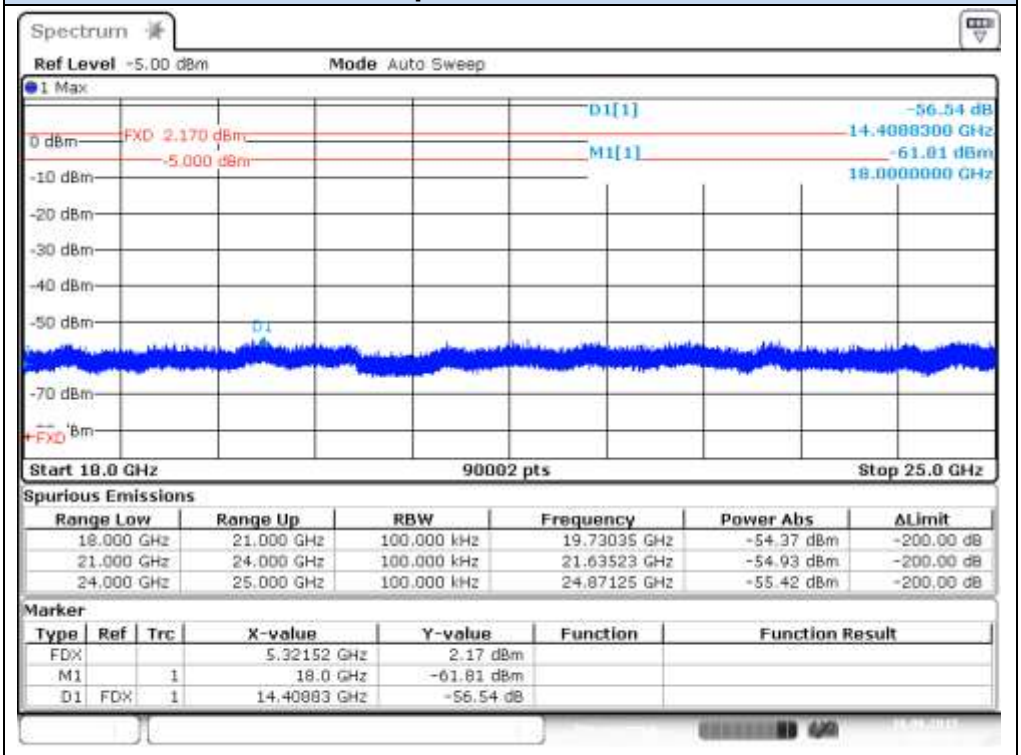
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.19775 GHz	-59.38 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.52507 GHz	-58.11 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	16.67479 GHz	-55.95 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			5.32152 GHz	2.17 dBm		
M1		1	9.0 GHz	-64.78 dBm		
D1	FDX	1	11.353274 GHz	-58.12 dB		

Date: 16.JUN.2015 18:54:27

Cond Spur, 18GHz – 25GHz



B.4 Power Spectral Density

Test limits:

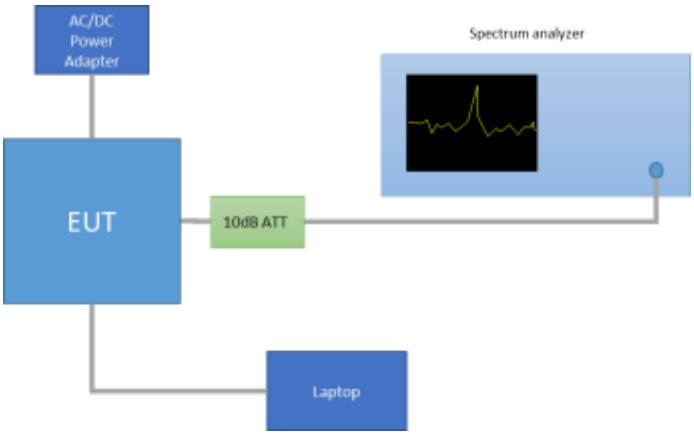
FCC part	RSS part	Limits
15.247 (e)	RSS-247 Clause 5.2 (2)	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test procedure:

The peak power spectral density level in the fundamental emission was measured using the method of trace averaging with EUT transmitting at full power throughout each sweep according to point 10.2 of Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 558074 D01 DTS Meas Guidance v03r02 dated 2014/06/05. This method was used for 802.11b, 802.11g, 802.11n20 an 802.11n40 modes. The peak power spectral density level was used as reference from the marker-delta method measurement of the out of band emissions.

For MIMO mode, the *Measure and add 10 log(N_{ANT}) dB*, (where N_{ANT} is the number of outputs) technique was used according to the Guidance for Emission Testing of Transmitters with Multiple Outputs in the Same Band 662911 D01 Multiple Transmitter Output v02r01 dated 2013/10/31.
With this technique, spectrum measurements are performed at each output of the device, and the quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit.
Number of outputs = 2.

The setup below was used to measure the power spectral density. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables:

PSD RMS

SISO modes						PSD RMS [dBm]	
Mode	**Rate**	**Meas. Duty Cycle [%]**	**CH**	**Frequency [MHz]**	**Antenna**	**Measured Conducted**	**Duty cycle Compensated**
802.11b	1Mbps	98.7	1	2412	SISO CHAIN A	3.1	3.2
					SISO CHAIN B	1.7	1.7
			6	2437	SISO CHAIN A	3.5	3.6
					SISO CHAIN B	2.3	2.4
			11	2462	SISO CHAIN A	0.3	0.3
					SISO CHAIN B	-2.0	-2.0
			12	2467	SISO CHAIN A	-3.4	-3.4
					SISO CHAIN B	-5.3	-5.2
			13	2472	SISO CHAIN A	-9.7	-9.6
					SISO CHAIN B	-10.1	-10.1
802.11g	6Mbps	98.7	1	2412	SISO CHAIN A	-1.8	-1.7
					SISO CHAIN B	-4.0	-3.9
			6	2437	SISO CHAIN A	1.2	1.3
					SISO CHAIN B	0.5	0.6
			11	2462	SISO CHAIN A	-1.4	-1.3
					SISO CHAIN B	-2.4	-2.3
			12	2467	SISO CHAIN A	-9.1	-9.1
					SISO CHAIN B	-9.7	-9.6
			13	2472	SISO CHAIN A	-24.4	-24.3
					SISO CHAIN B	-24.4	-24.3
802.11n20	HT0	97.5	1	2412	SISO CHAIN A	-3.3	-3.2
					SISO CHAIN B	-4.7	-4.6
			6	2437	SISO CHAIN A	1.7	1.8
					SISO CHAIN B	0.3	0.5
			11	2462	SISO CHAIN A	-1.8	-1.7
					SISO CHAIN B	-2.4	-2.3
			12	2467	SISO CHAIN A	-10.4	-10.3
					SISO CHAIN B	-12.2	-12.1
			13	2472	SISO CHAIN A	-24.9	-24.8
					SISO CHAIN B	-24.7	-24.6

SISO modes						PSD RMS [dBm]	
Mode	**Rate**	**Meas. Duty Cycle [%]**	**CH**	**Frequency [MHz]**	**Antenna**	**Measured Conducted**	**Duty cycle Compensated**
802.11n40	HT0	96.7	3F	2422	SISO CHAIN A	-6.7	-6.6
					SISO CHAIN B	-7.7	-7.5
			6F	2437	SISO CHAIN A	-1.7	-1.5
					SISO CHAIN B	-2.7	-2.5
			9F	2452	SISO CHAIN A	-6.6	-6.4
					SISO CHAIN B	-9.2	-9.1
			10F	2457	SISO CHAIN A	-15.4	-15.1
					SISO CHAIN B	-16.1	-15.8
			11F	2462	SISO CHAIN A	-27.5	-27.2
					SISO CHAIN B	-27.9	-27.6

MIMO modes						PSD RMS [dBm]		
Mode	**Rate**	**Meas. Duty Cycle [%]**	**CH**	**Freq. [MHz]**	**Antenna**	**Measured Conducted**	**Duty cycle Compensated**	**MIMO Compensated +10·log(N_{ant})**
802.11n20	HT8	97	1	2412	CHAIN A	-4.4	-4.3	-1.3
					CHAIN B	-4.3	-4.1	-1.1
			6	2437	CHAIN A	-1.0	-0.9	2.1
					CHAIN B	-2.2	-2.1	0.9
			11	2462	CHAIN A	-1.9	-1.8	1.2
					CHAIN B	-5.0	-4.9	-1.9
		98.7	12	2467	CHAIN A	-11.5	-11.4	-8.4
					CHAIN B	-12.4	-12.3	-9.3
			13	2472	CHAIN A	-26.1	-26.0	-23.0
					CHAIN B	-25.1	-25.0	-22.0
802.11n40	HT8	96.7	3F	2422	CHAIN A	-10.3	-10.1	-7.1
					CHAIN B	-10.1	-9.9	-6.9
			6F	2437	CHAIN A	-5.2	-5.1	-2.1
					CHAIN B	-6.2	-6.0	-3.0
			9F	2452	CHAIN A	-7.6	-7.4	-4.4
					CHAIN B	-9.0	-8.9	-5.9
		92.9	10F	2457	CHAIN A	-15.7	-15.4	-12.4
					CHAIN B	-16.5	-16.2	-13.2
			11F	2462	CHAIN A	-26.9	-26.6	-23.3
					CHAIN B	-28.7	-28.4	-25.4

PSD Peak

Note: these PSD_{Peak} values are shown just as a reference for the compliance of the Out-of-band Measurements. thus the RBW used for these measurements was 100kHz.

In any case. the corresponding PSD Peak value at 3kHz can be derived from these results by using the RBW correction:

$$PSD_{Peak}@3kHz = PSD_{Peak}@100kHz - 10log\left(\frac{100kHz}{3kHz}\right)$$

For the maximum PSD_{Peak} value found (12.52dBm). the corresponding PSD_{Peak} at 3kHz is -2.71dBm.

SISO modes

Mode	Rate	Measured Duty Cycle [%]	Channel	Frequency [MHz]	Antenna	PSD Peak [dBm]
802.11b	1Mbps	98.7	1	2412	SISO CHAIN A	12.5
					SISO CHAIN B	11.0
			6	2437	SISO CHAIN A	12.7
					SISO CHAIN B	11.6
			11	2462	SISO CHAIN A	9.5
					SISO CHAIN B	7.5
			12	2467	SISO CHAIN A	5.9
					SISO CHAIN B	4.2
			13	2472	SISO CHAIN A	-0.4
					SISO CHAIN B	-0.7
802.11g	6Mbps	98.7	1	2412	SISO CHAIN A	7.9
					SISO CHAIN B	5.8
			6	2437	SISO CHAIN A	10.9
					SISO CHAIN B	10.2
			11	2462	SISO CHAIN A	8.0
					SISO CHAIN B	7.0
			12	2467	SISO CHAIN A	0.2
					SISO CHAIN B	-0.1
			13	2472	SISO CHAIN A	-14.9
					SISO CHAIN B	-14.6
802.11n20	HT0	97.5	1	2412	SISO CHAIN A	6.7
					SISO CHAIN B	5.3
			6	2437	SISO CHAIN A	11.6
					SISO CHAIN B	10.4
			11	2462	SISO CHAIN A	7.8
					SISO CHAIN B	7.0
			12	2467	SISO CHAIN A	-0.8
					SISO CHAIN B	-2.4
			13	2472	SISO CHAIN A	-15.9
					SISO CHAIN B	-14.2

SISO modes

Mode	Rate	Measured Duty Cycle [%]	Channel	Frequency [MHz]	Antenna	PSD Peak [dBm]
802.11n40	HT0	96.7	3F	2422	SISO CHAIN A	3.8
					SISO CHAIN B	2.9
			6F	2437	SISO CHAIN A	9.2
					SISO CHAIN B	7.8
			9F	2452	SISO CHAIN A	4.6
					SISO CHAIN B	1.7
			10F	2457	SISO CHAIN A	-4.7
					SISO CHAIN B	-5.6
			11F	2462	SISO CHAIN A	-16.6
					SISO CHAIN B	-17.2

MIMO modes

Mode	Rate	Meas. Duty Cycle [%]	CH	Freq. [MHz]	Antenna	PSD Peak [dBm]	
						Measured Conducted	MIMO Compensated $+10\cdot\log(N_{ant})$
802.11n20	HT8	97.0	1	2412	CHAIN A	5.8	8.8
					CHAIN B	6.2	9.21
			6	2437	CHAIN A	8.8	11.8
					CHAIN B	8.3	11.3
			11	2462	CHAIN A	8.2	11.2
					CHAIN B	5.8	8.8
			12	2467	CHAIN A	-1.7	1.3
					CHAIN B	-1.9	1.1
			13	2472	CHAIN A	-16.0	-13
					CHAIN B	-14.5	-11.5
802.11n40	HT8	96.7	3F	2422	CHAIN A	0.7	3.7
					CHAIN B	0.6	3.6
			6F	2437	CHAIN A	5.9	8.9
					CHAIN B	4.8	7.8
			9F	2452	CHAIN A	3.8	6.8
					CHAIN B	2.0	5.0
			10F	2457	CHAIN A	-4.8	-1.8
					CHAIN B	-5.4	-2.4
			11F	2462	CHAIN A	-16.4	-13.4
					CHAIN B	-17.8	-14.8

Results screenshot:

802.11b, 1Mbps

PSD RMS, Chain A – CH1

PSD RMS, Chain B - CH1

PSD RMS, Chain A – CH6

Date: 3.JUN.2015 14:29:12

PSD RMS, Chain B – CH6

Date: 16.JUN.2015 11:18:19

PSD RMS, Chain A - CH11

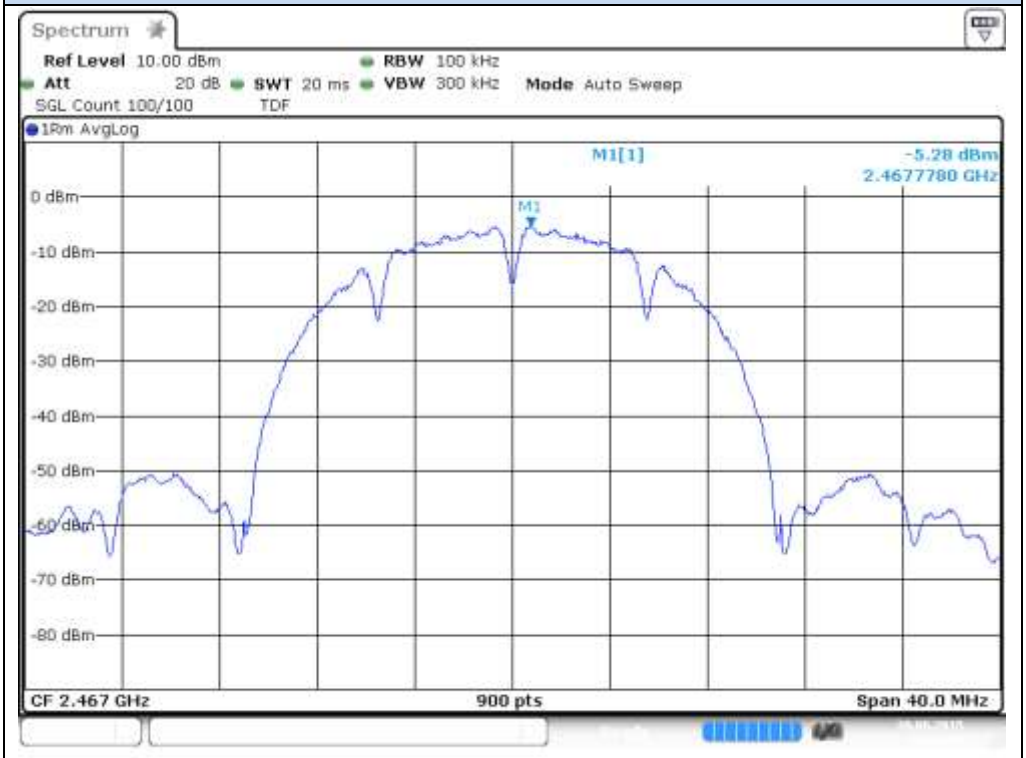
Date: 29.JUN.2015 17:19:56

PSD RMS, Chain B - CH11

Date: 29.JUN.2015 18:23:57

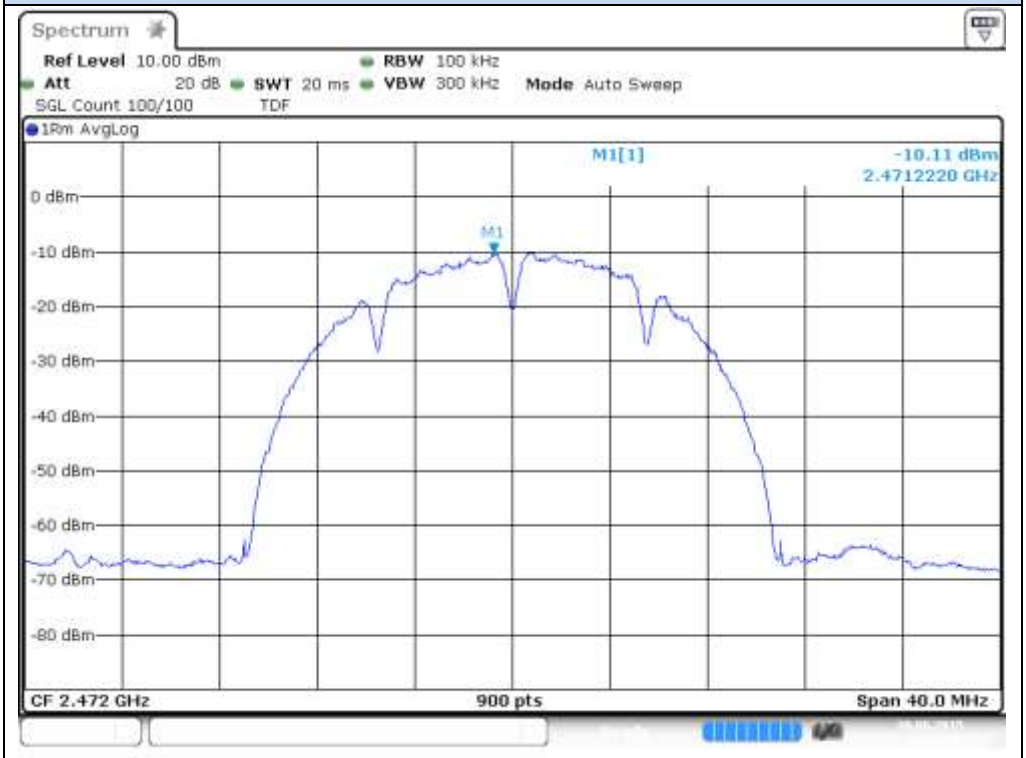
PSD RMS, Chain A - CH12

PSD RMS, Chain B - CH12



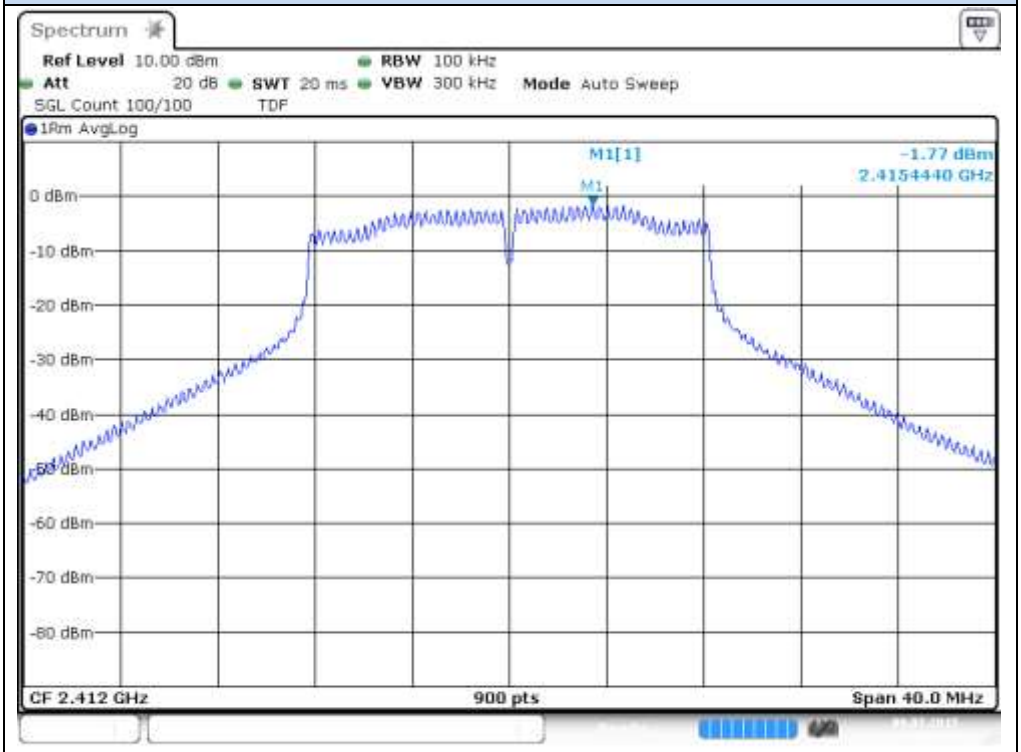
PSD RMS, Chain A - CH13

PSD RMS, Chain B - CH13

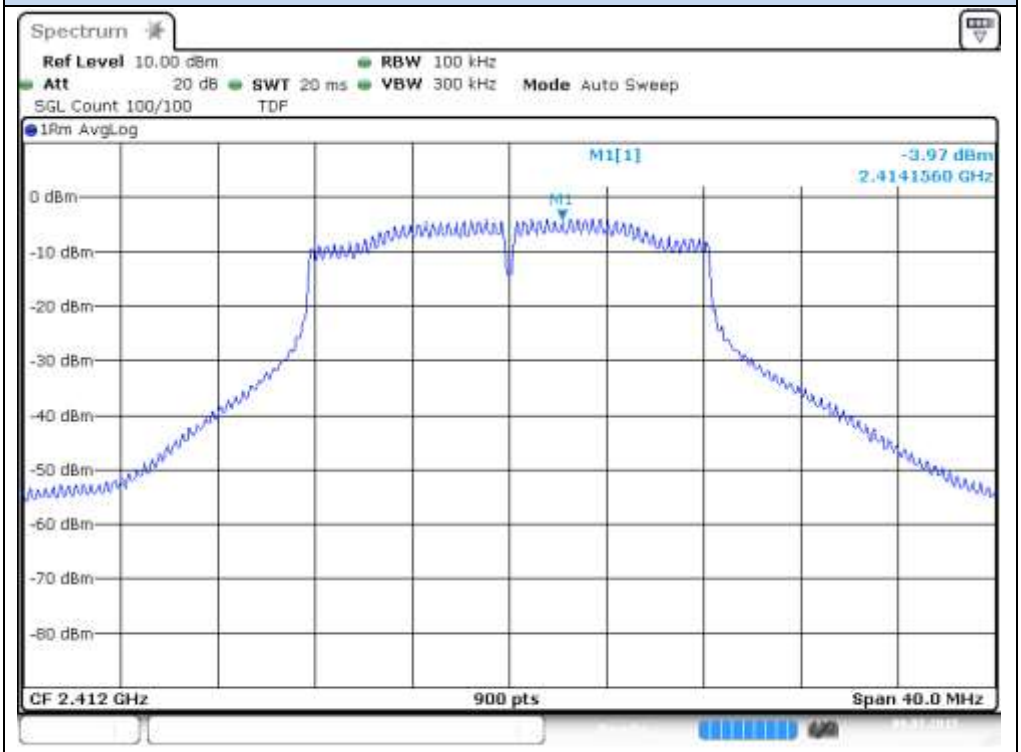


802.11g, 6Mbps

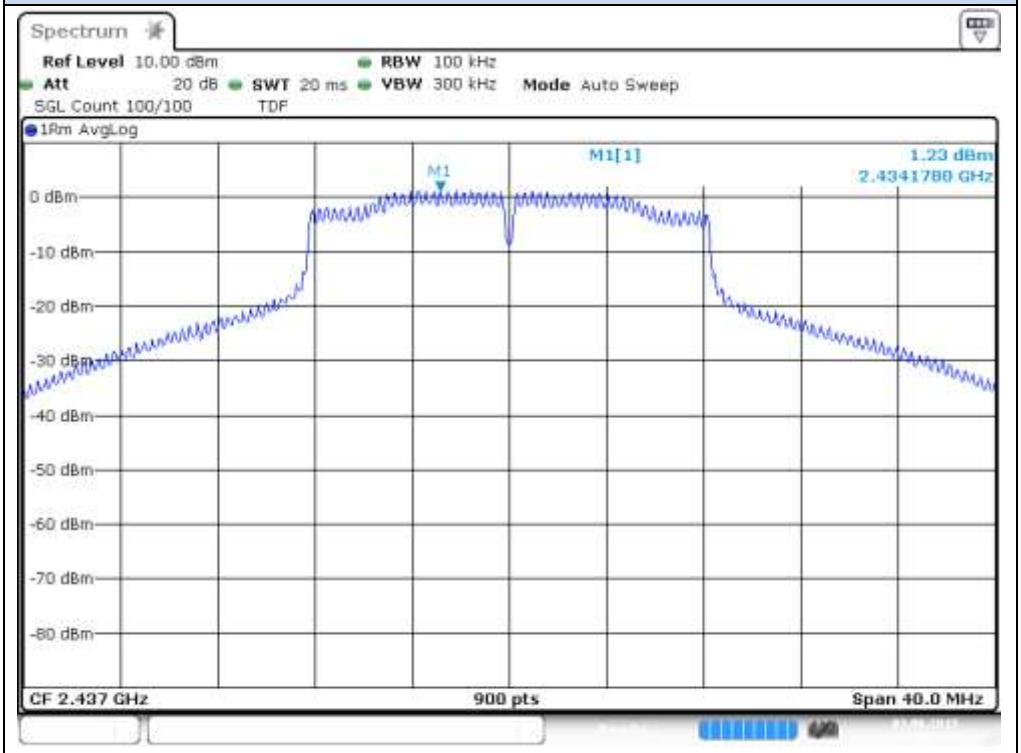
PSD RMS, Chain A – CH1



PSD RMS, Chain B - CH1

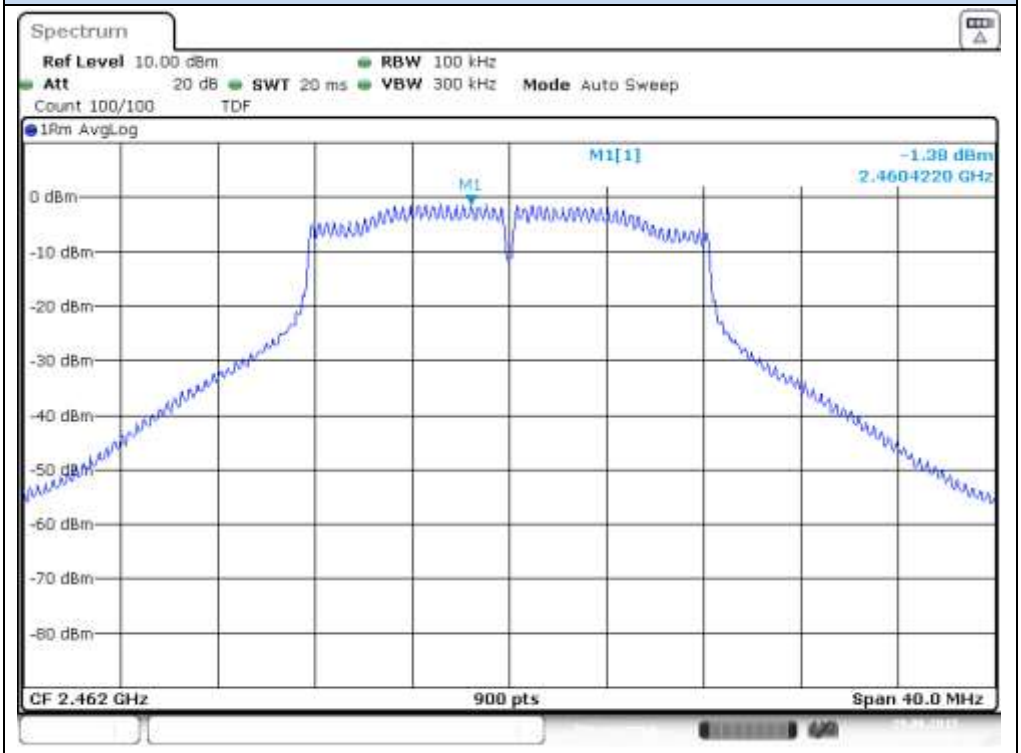


PSD RMS, Chain A – CH6



PSD RMS, Chain B – CH6

PSD RMS, Chain A - CH11

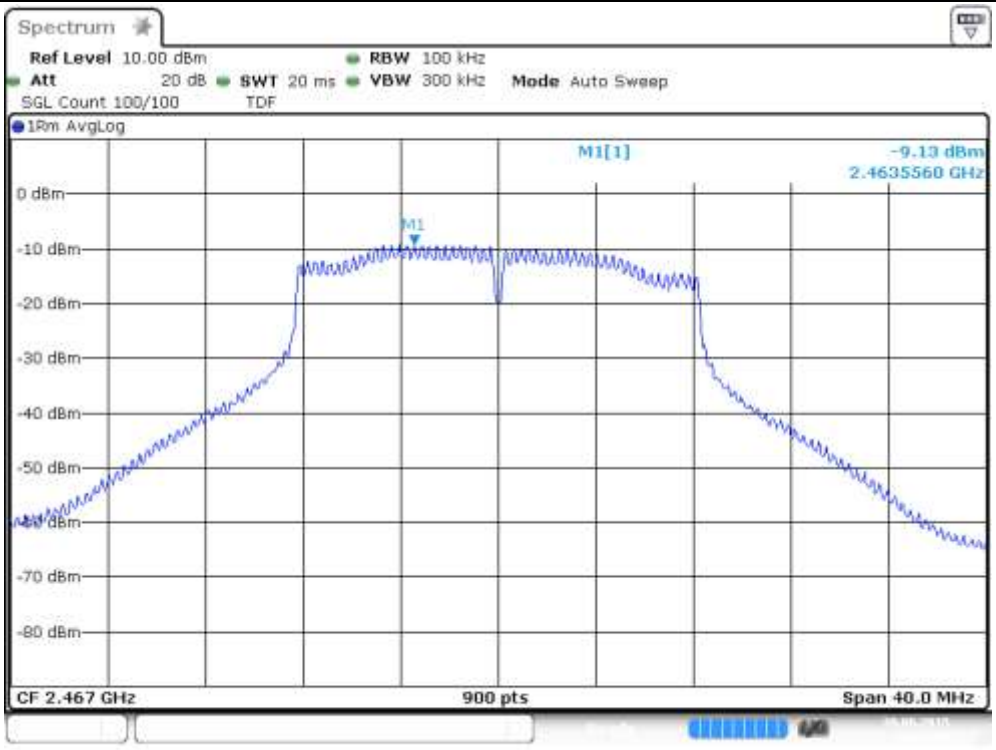


Date: 29.JUN.2015 17:37:47

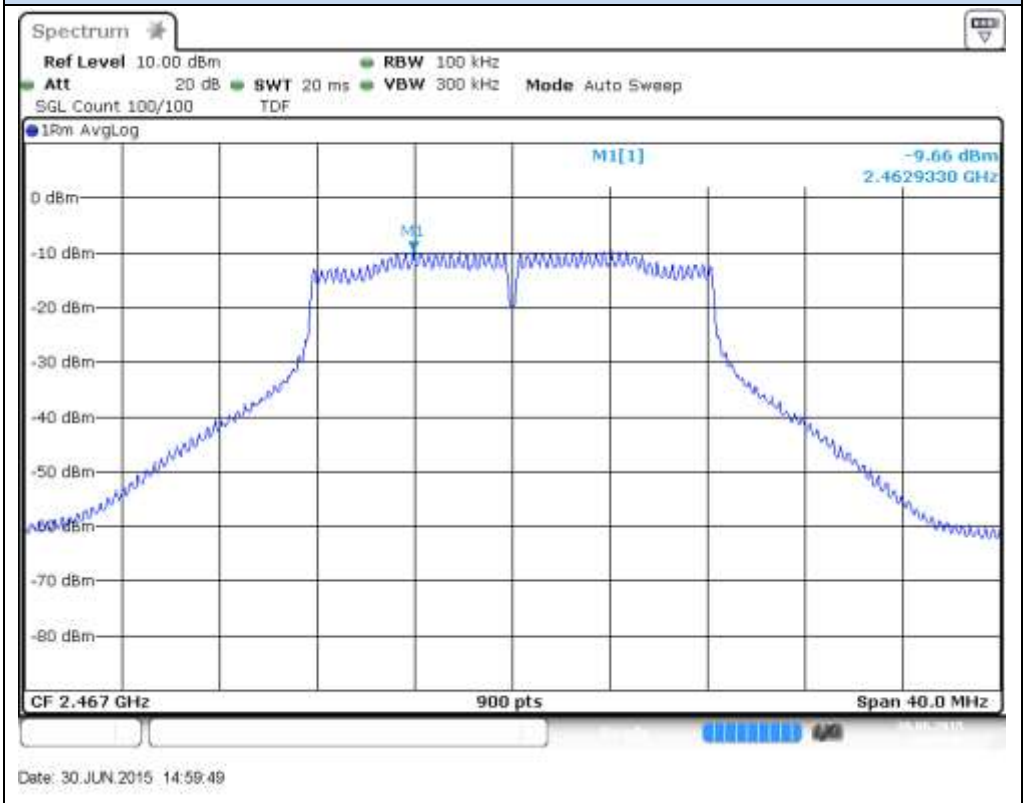
PSD RMS, Chain B - CH11

Date: 29.JUN.2015 18:39:43

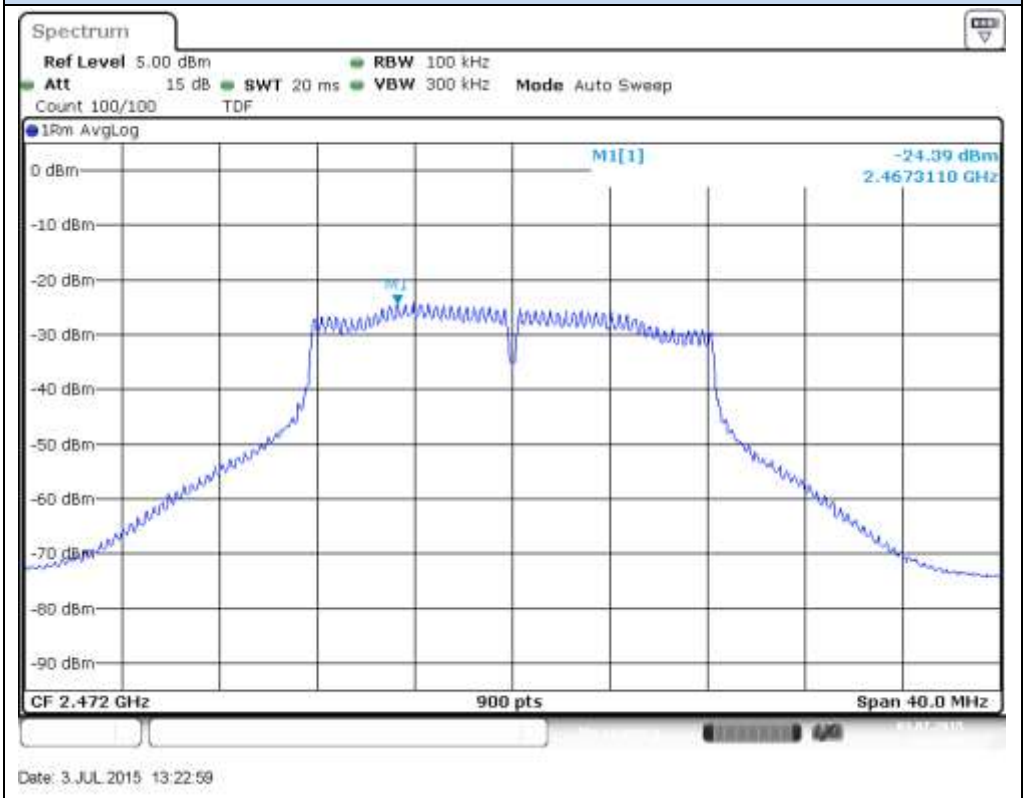
PSD RMS, Chain A - CH12



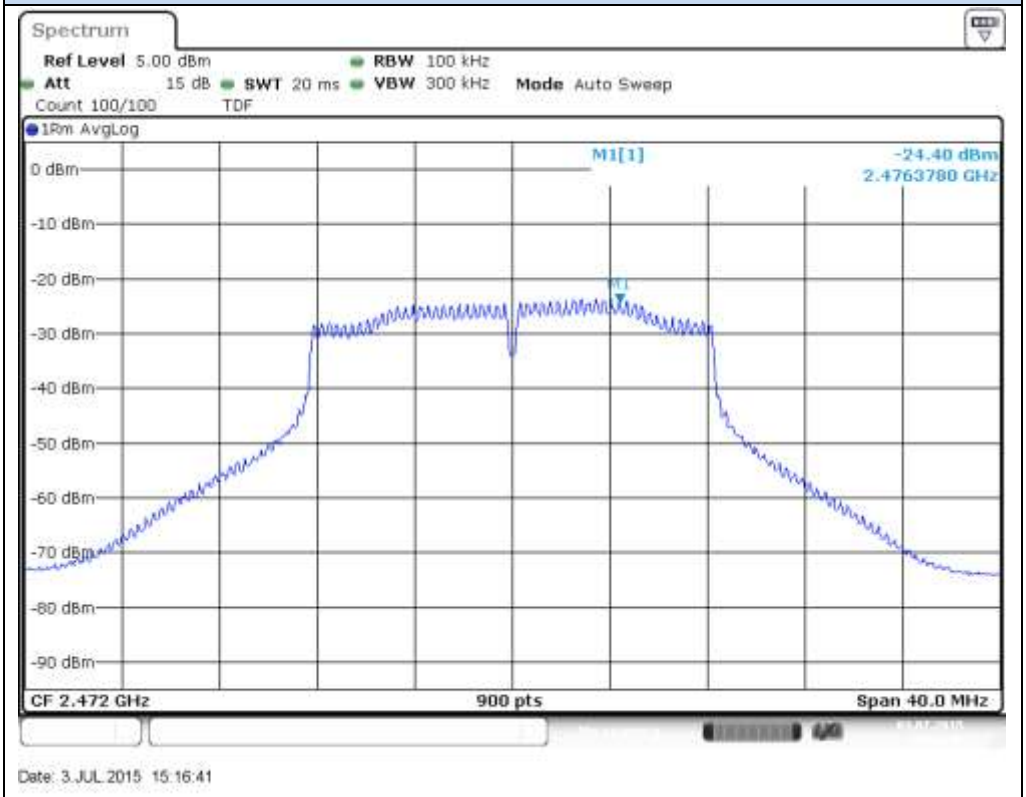
PSD RMS, Chain B - CH12



PSD RMS, Chain A - CH13

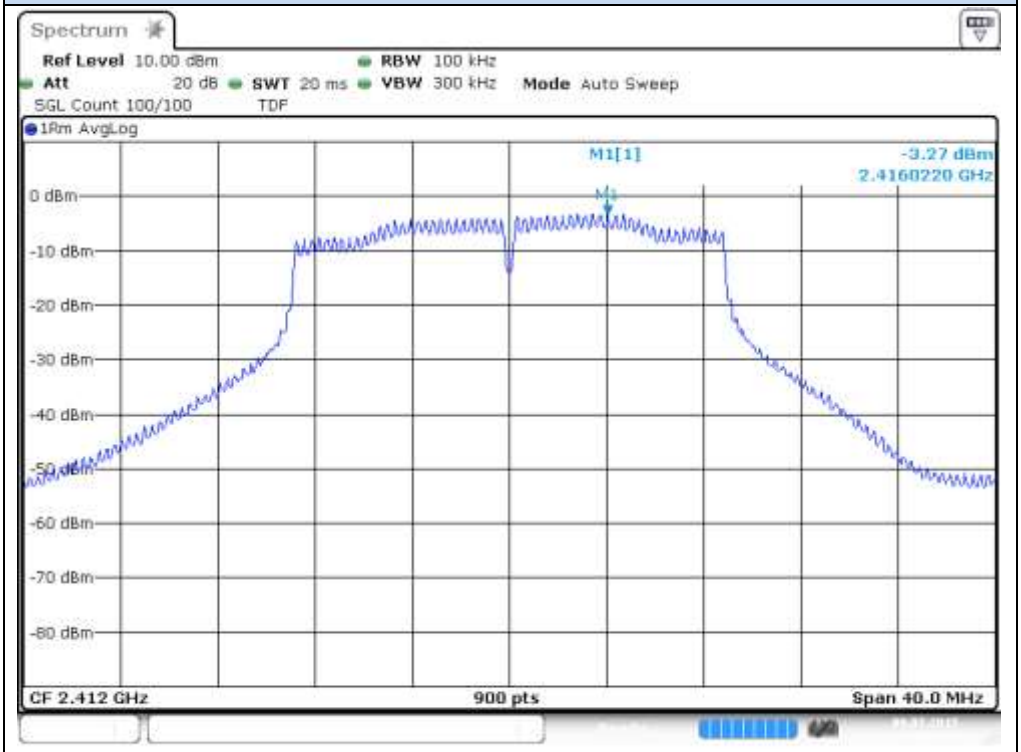


PSD RMS, Chain B - CH13



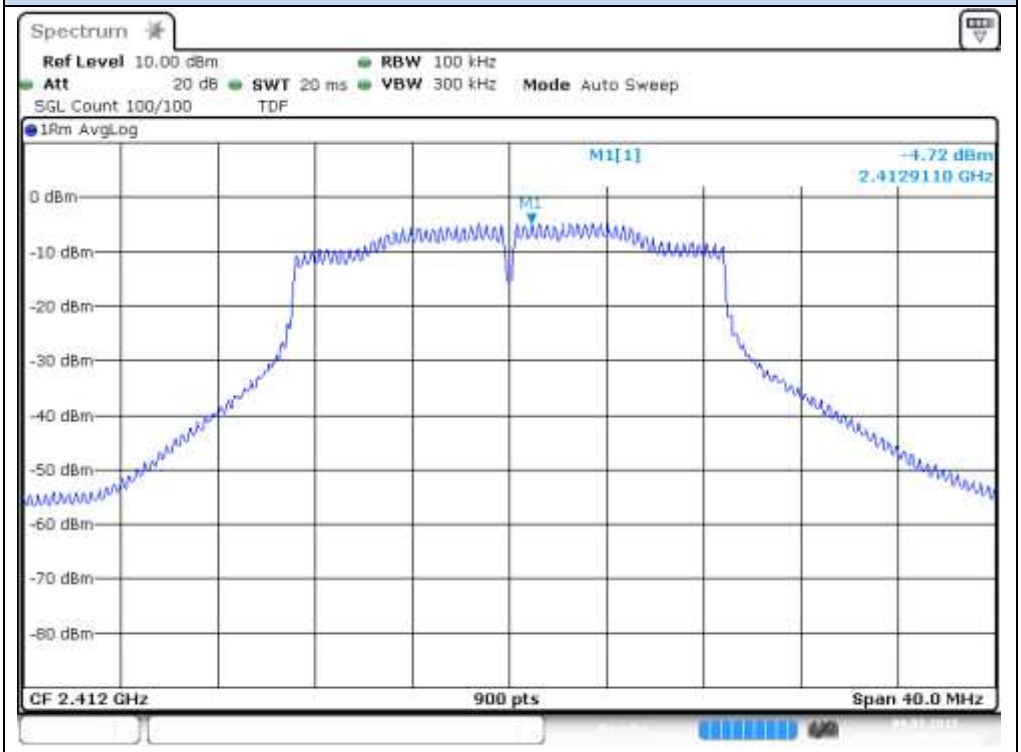
802.11n20, HT0 (SISO)

PSD RMS, Chain A - CH1



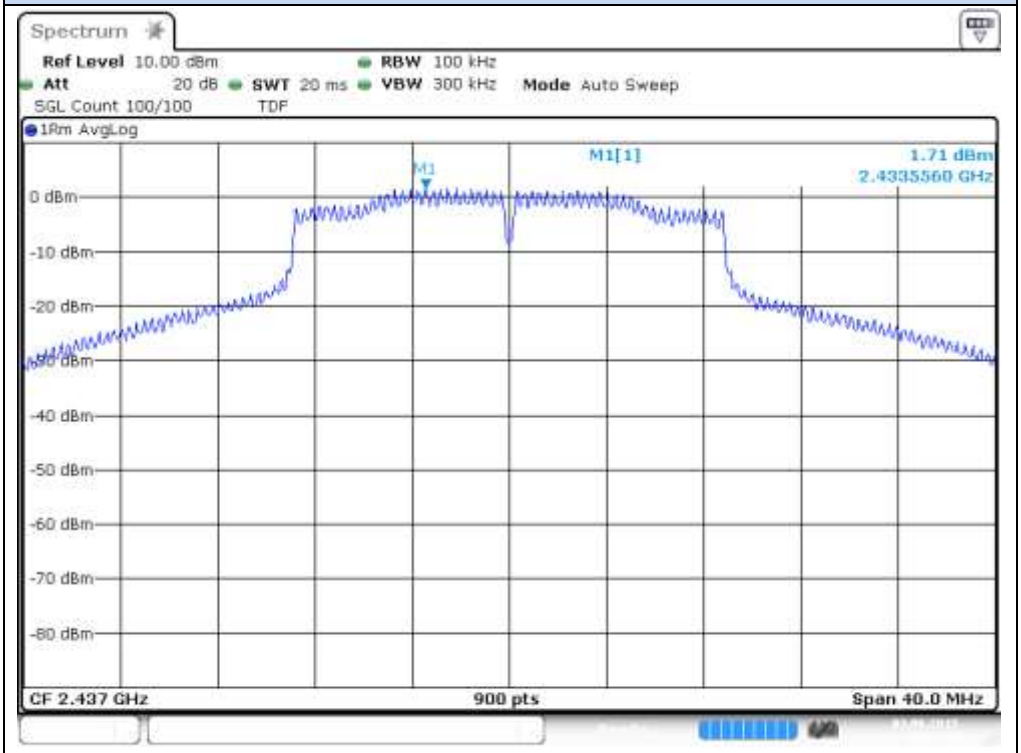
Date: 9.JUL.2015 14:58:29

PSD RMS, Chain B - CH1



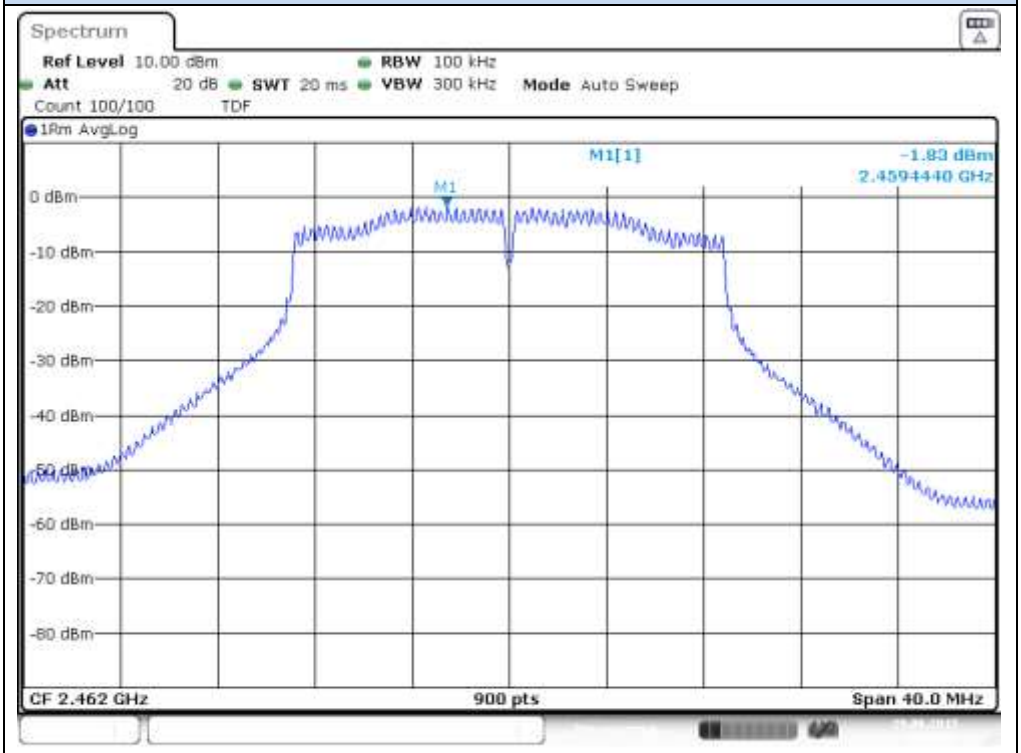
Date: 9.JUL.2015 14:26:49

PSD RMS, Chain A - CH6



PSD RMS, Chain B - CH6

PSD RMS, Chain A - CH11

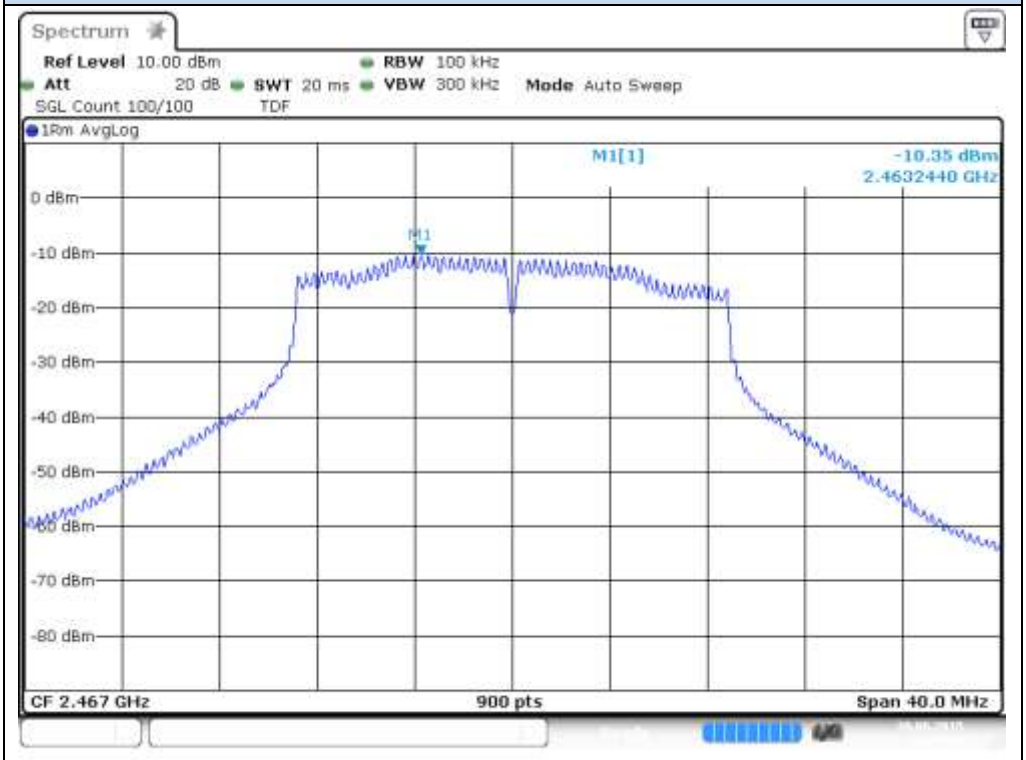


Date: 29.JUN.2015 18:06:07

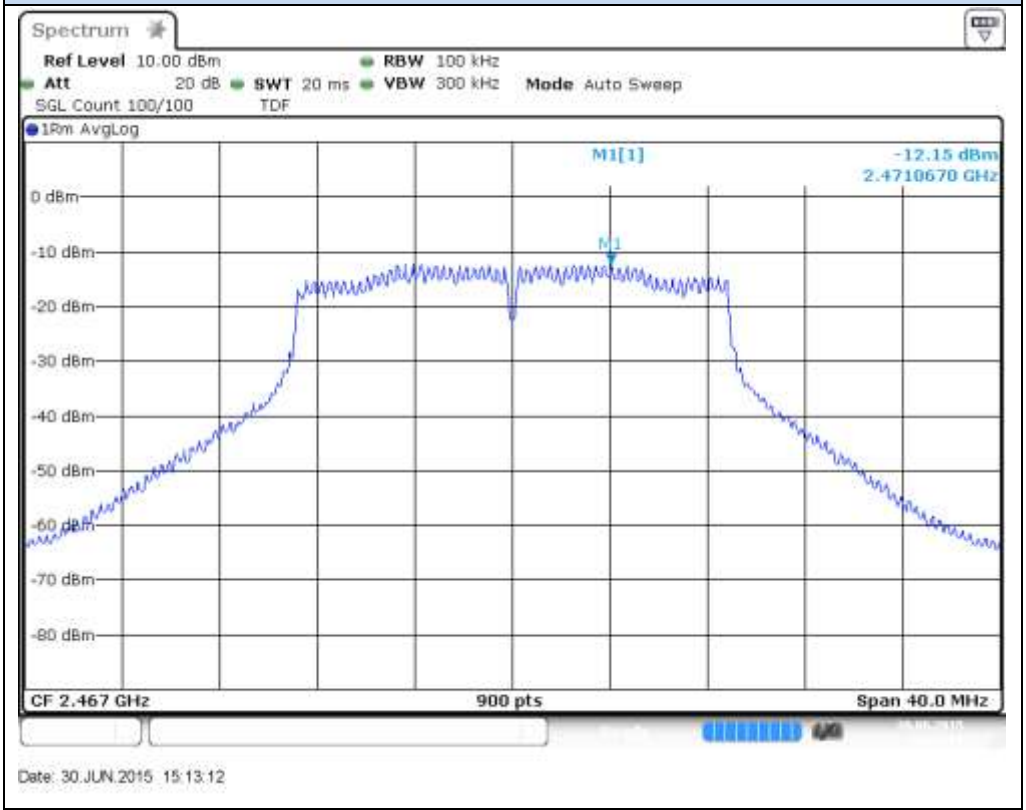
PSD RMS, Chain B - CH11

Date: 29.JUN.2015 18:45:59

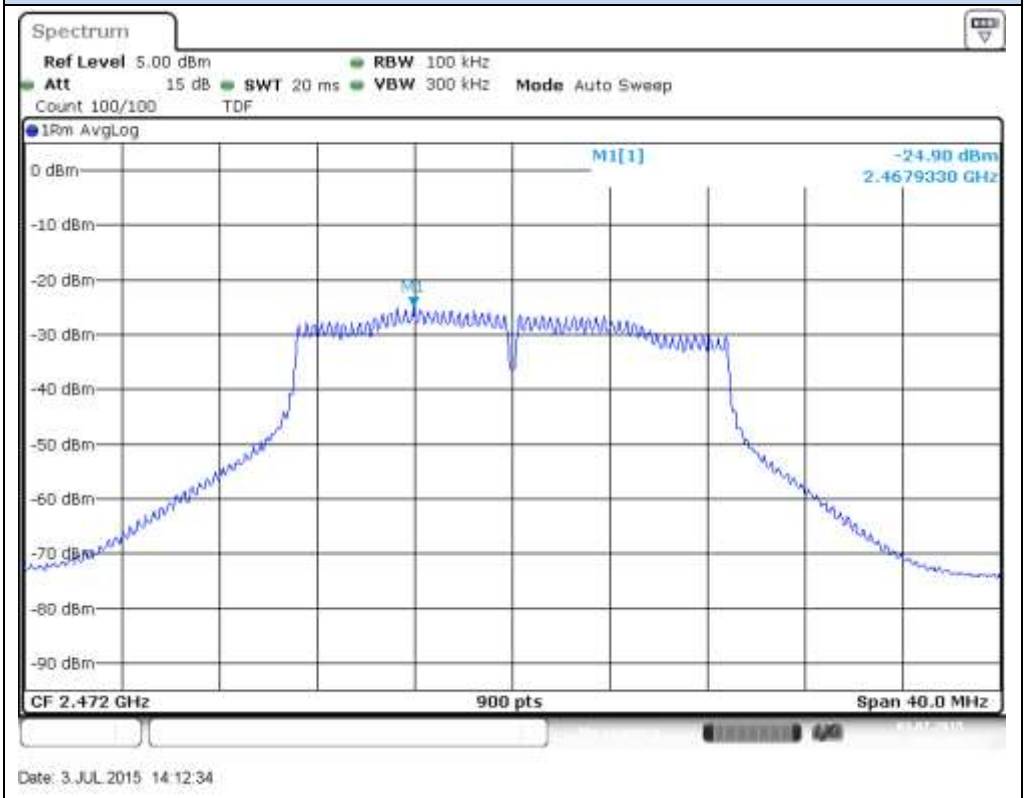
PSD RMS, Chain A - CH12



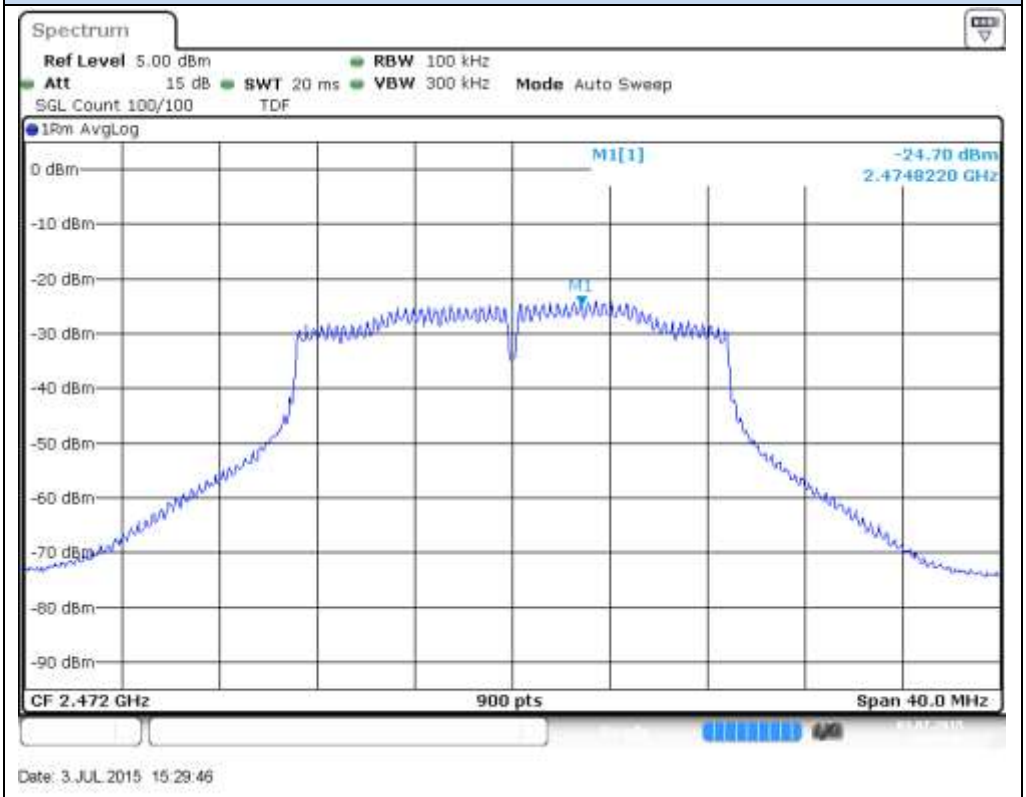
PSD RMS, Chain B - CH12



PSD RMS, Chain A - CH13

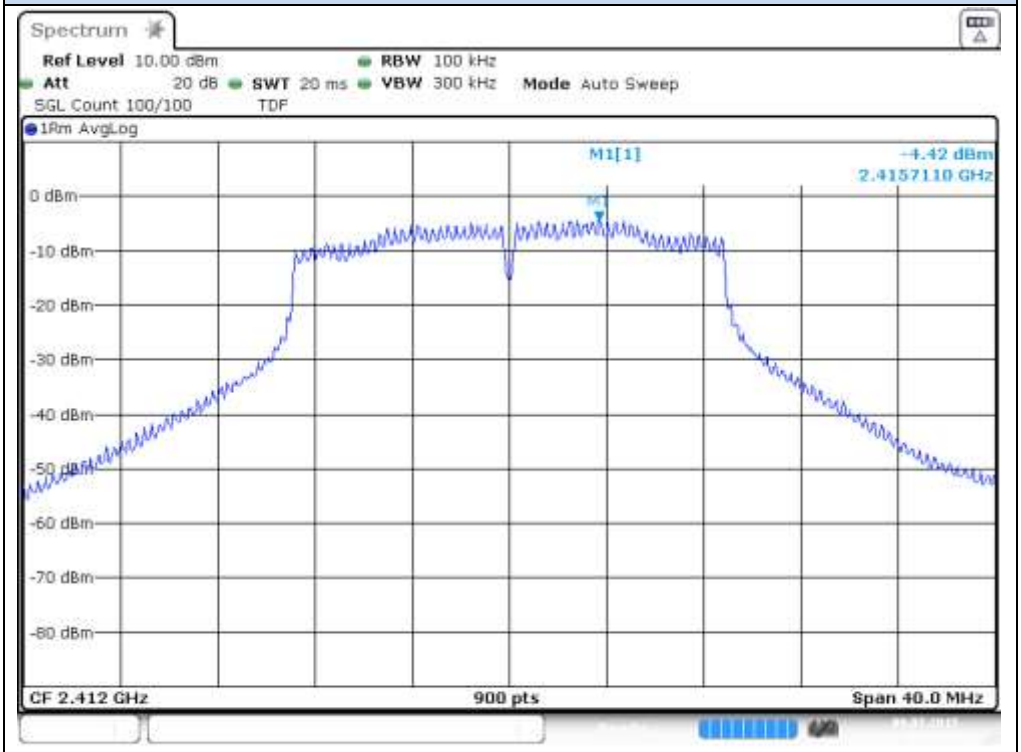


PSD RMS, Chain B - CH13



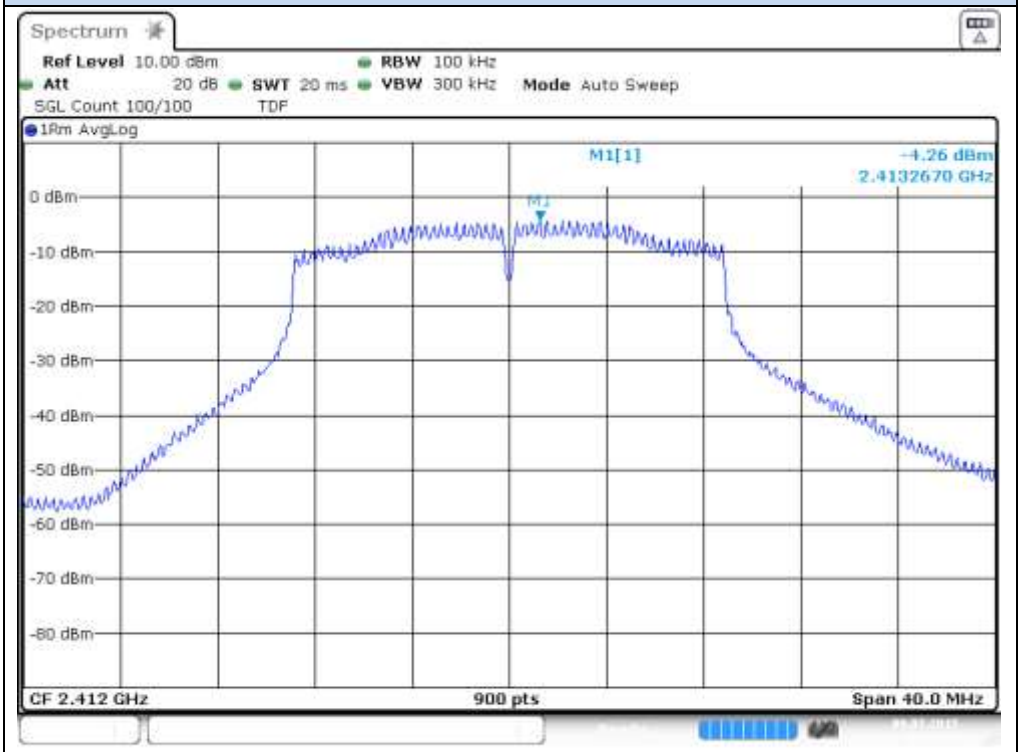
802.11n20, HT8 (MIMO)

PSD RMS, Chain A - CH1



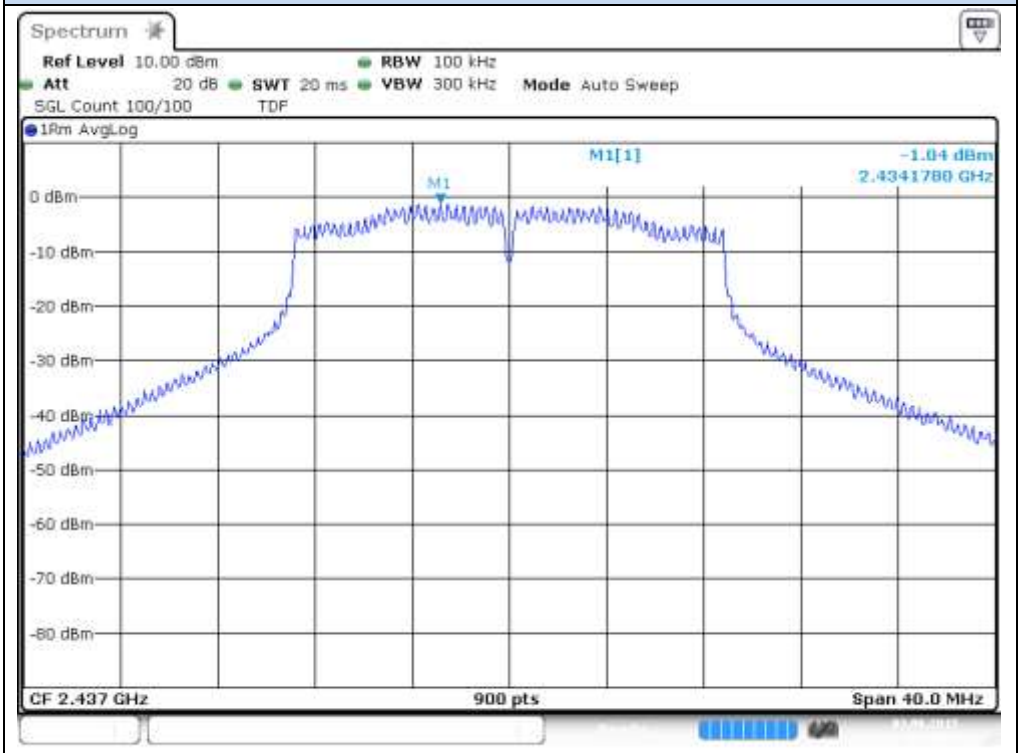
Date: 9.JUL.2015 16:36:58

PSD RMS, Chain B - CH1



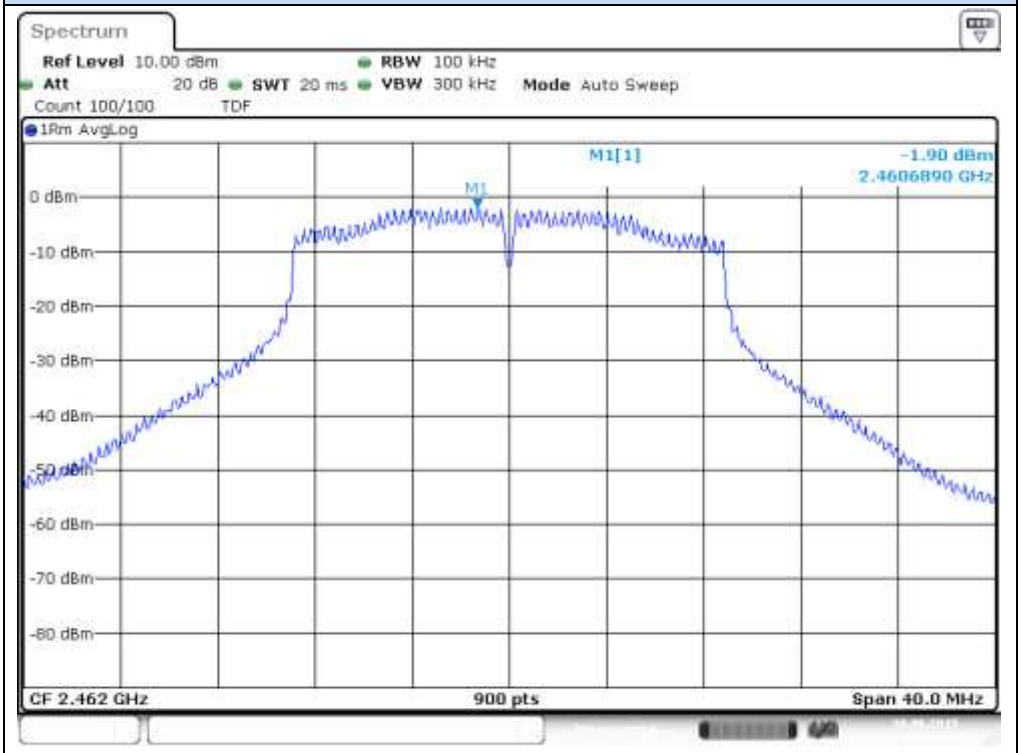
Date: 9.JUL.2015 16:47:03

PSD RMS, Chain A – CH6



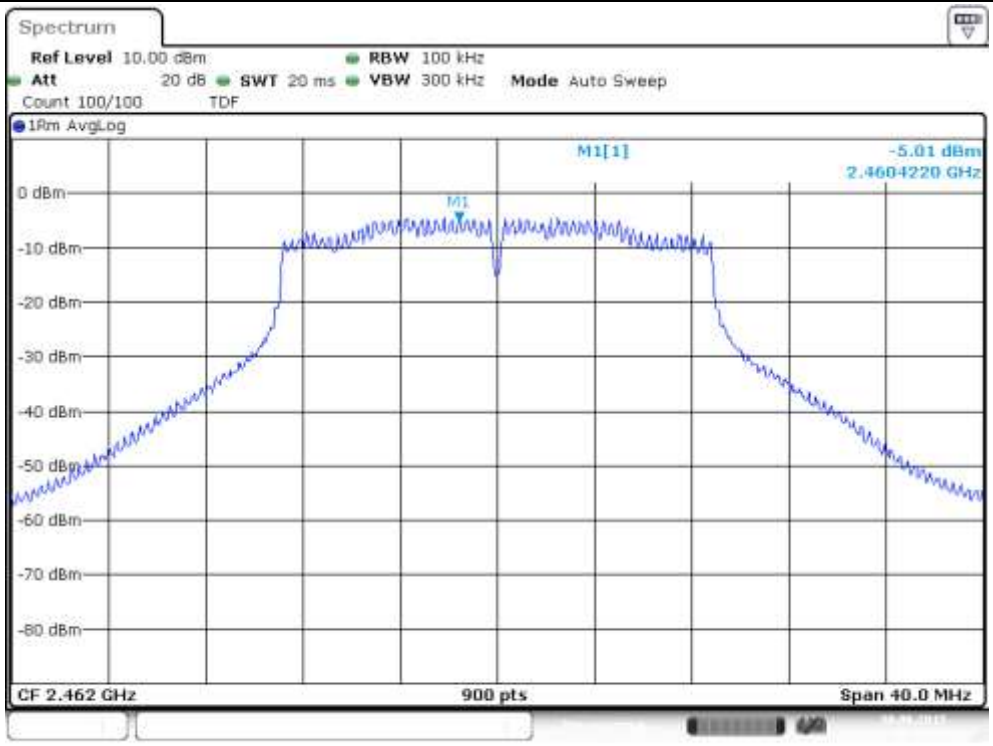
PSD RMS, Chain B – CH6

PSD RMS, Chain A - CH11



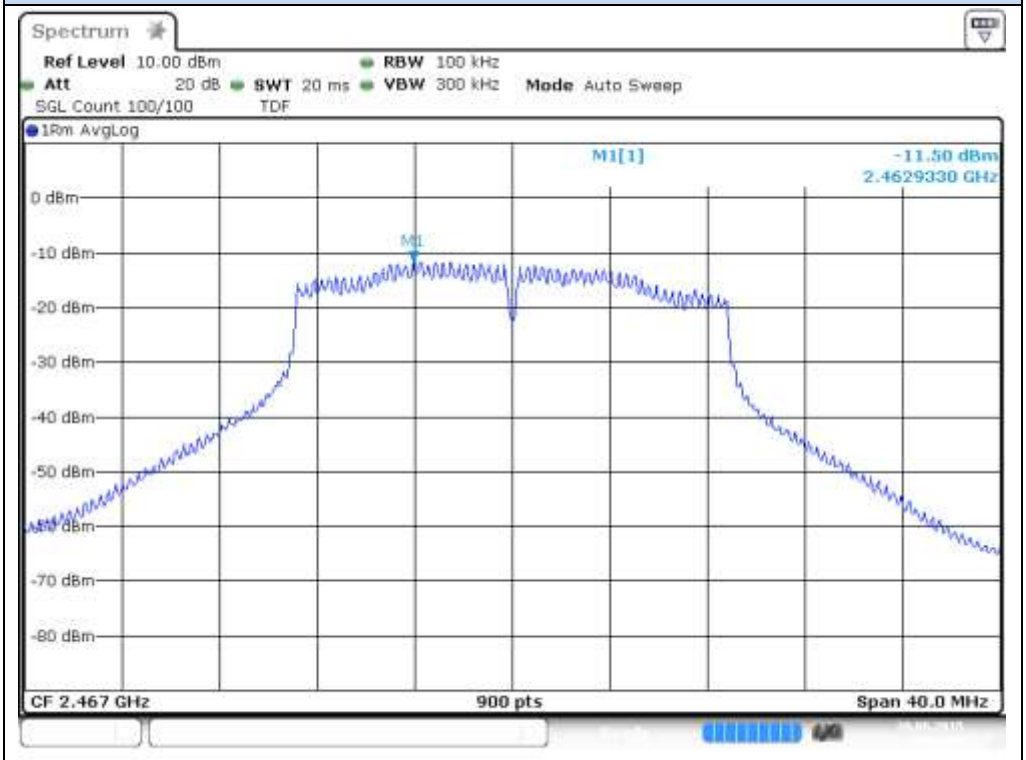
Date: 30.JUN.2015 10:32:29

PSD RMS, Chain B - CH11

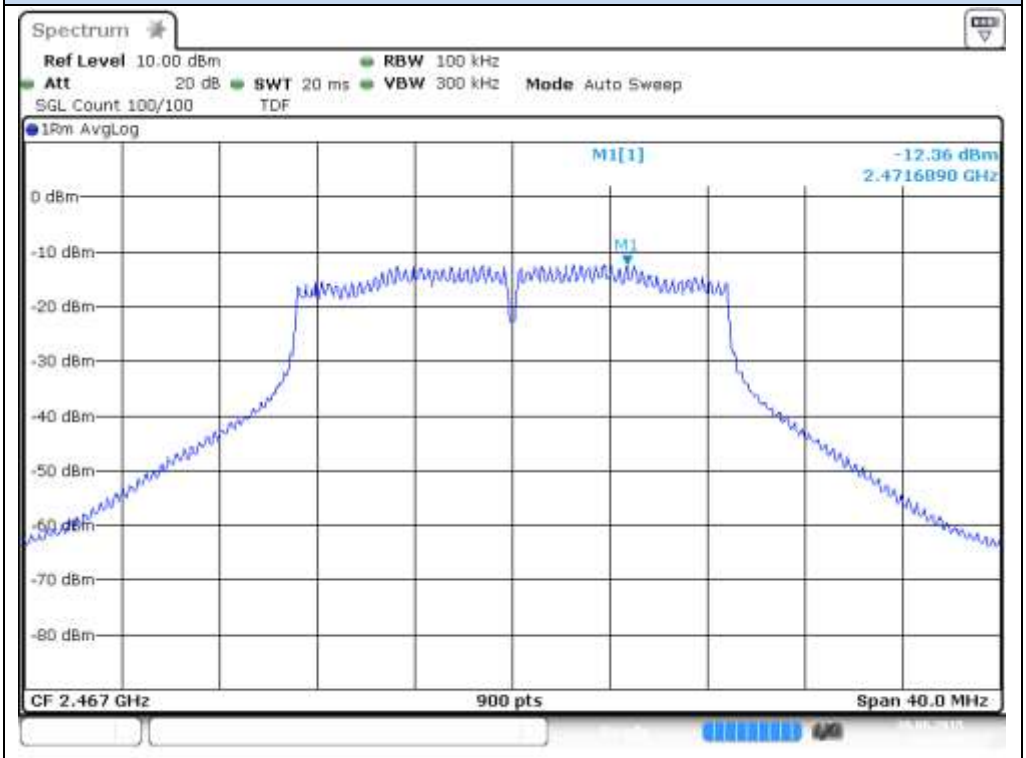


Date: 30.JUN.2015 10:48:24

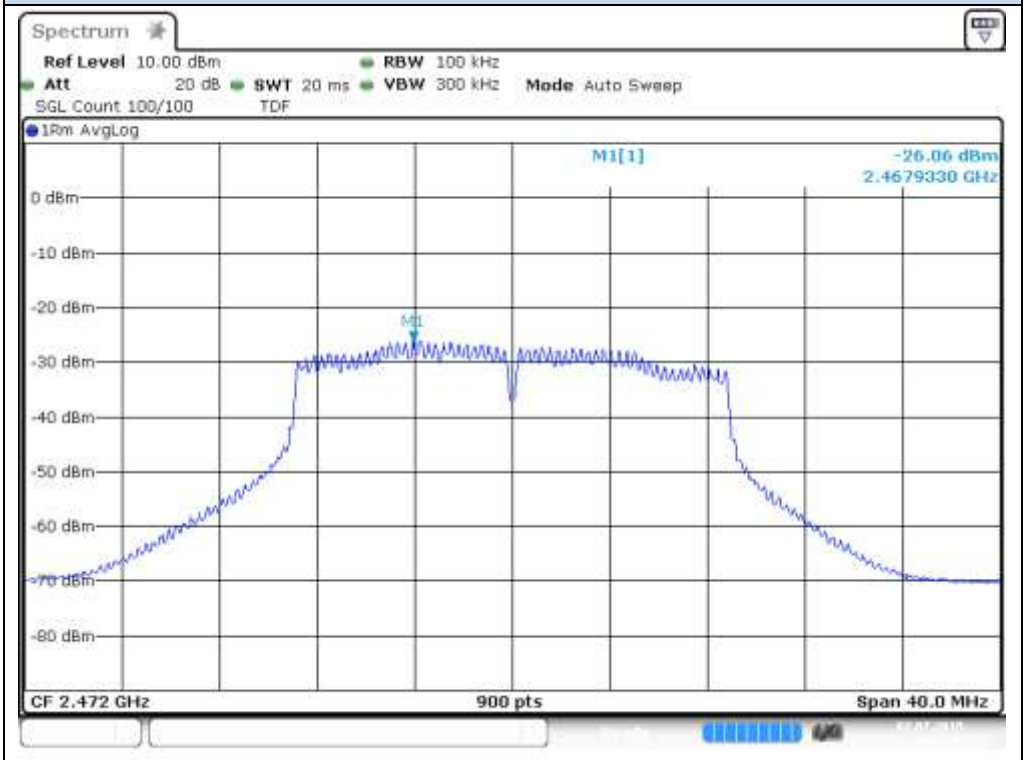
PSD RMS, Chain A - CH12



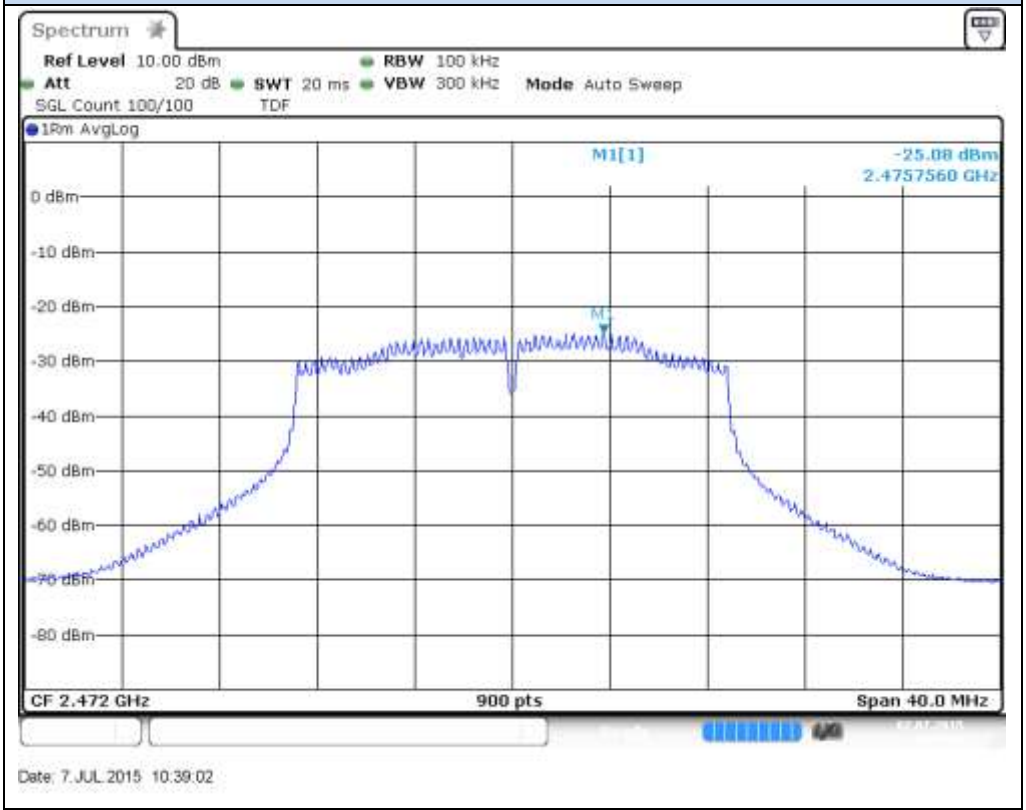
PSD RMS, Chain B - CH12



PSD RMS, Chain A - CH13

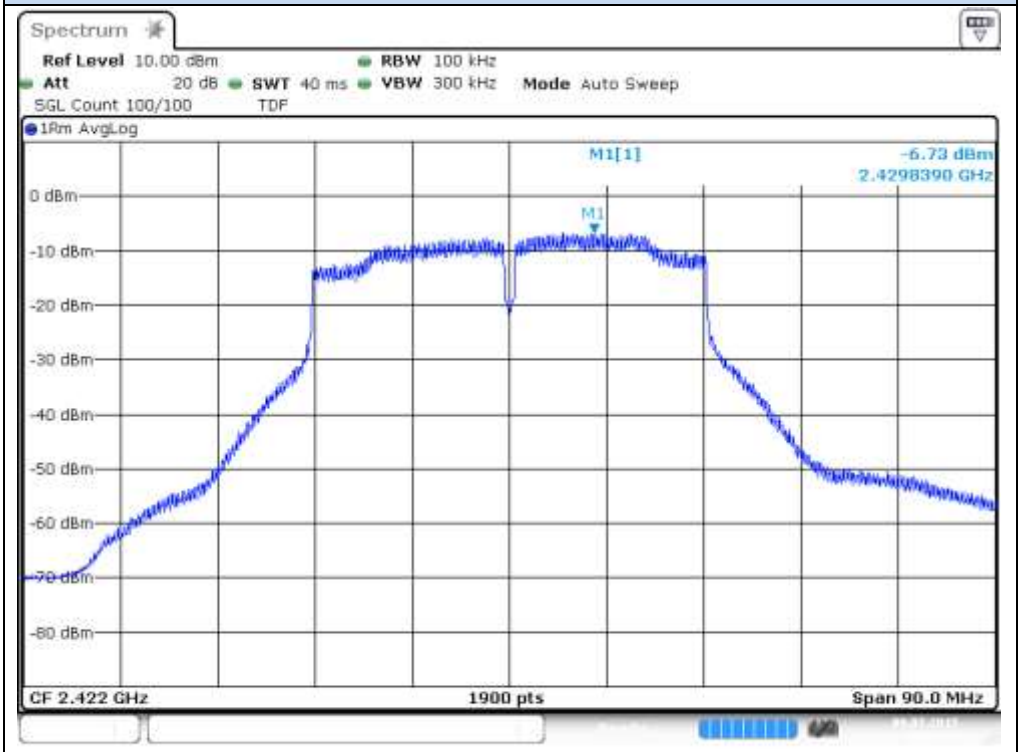


PSD RMS, Chain B - CH13



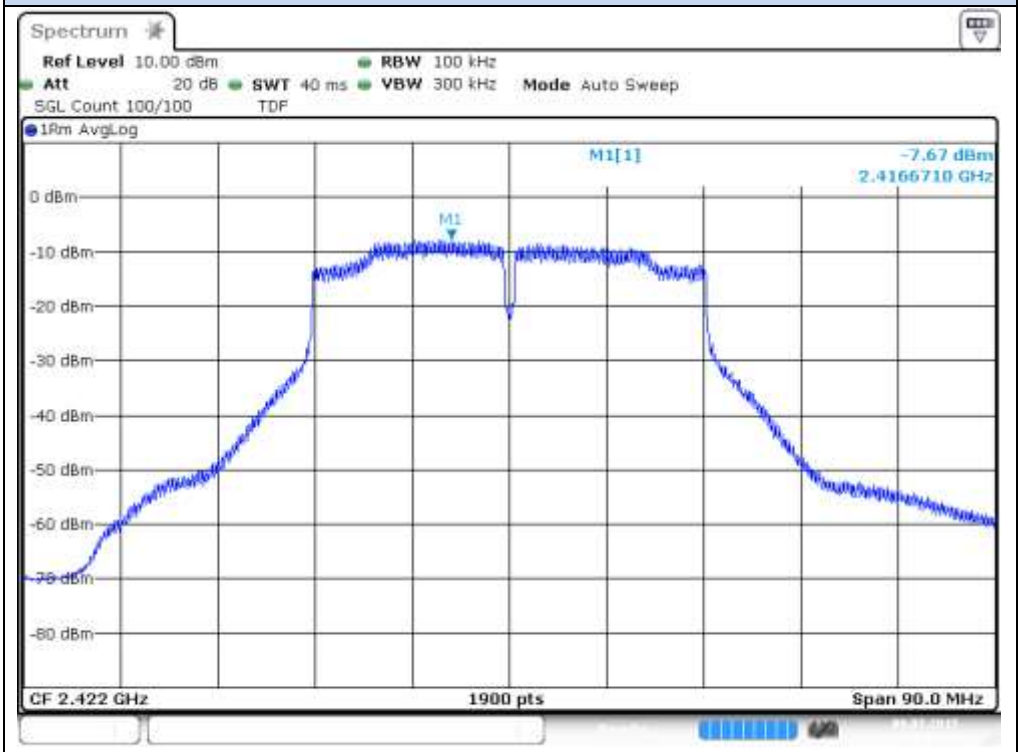
802.11n40, HT0 (SISO)

PSD RMS, Chain A – CH3F



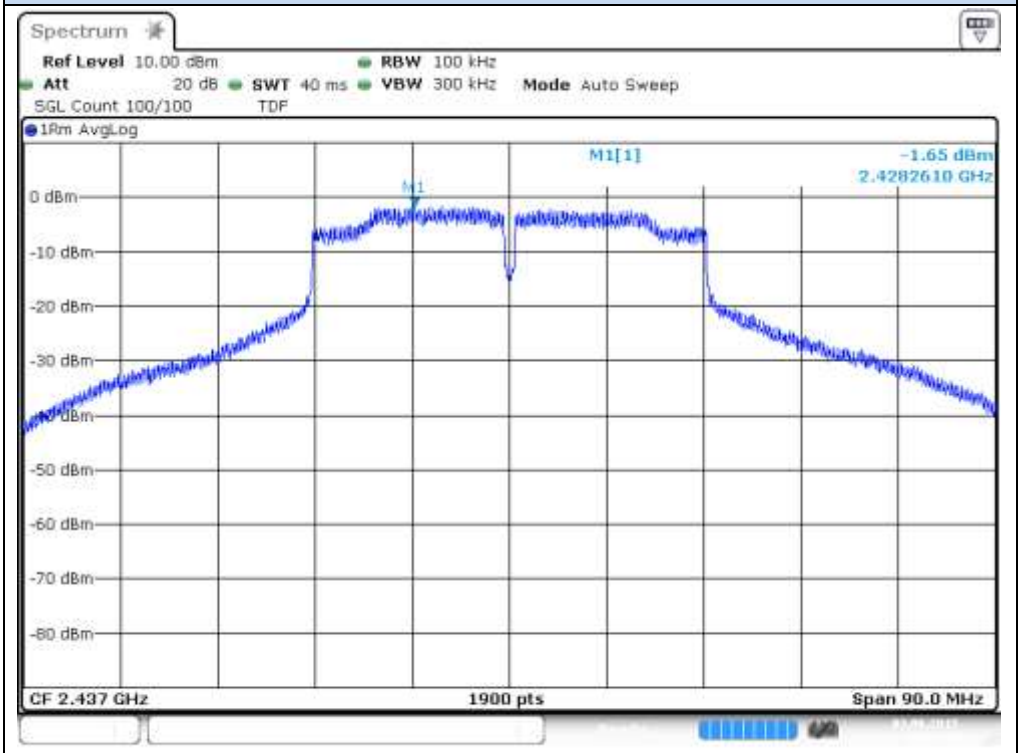
Date: 9.JUL.2015 15:02:13

PSD RMS, Chain B – CH3F



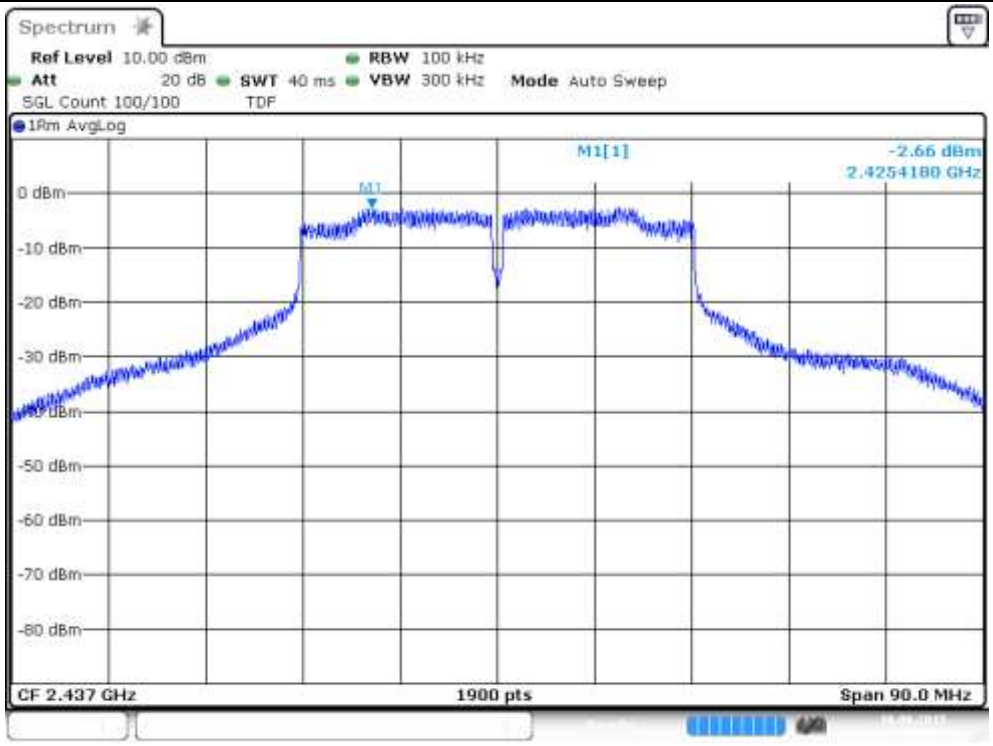
Date: 9.JUL.2015 14:46:43

PSD RMS, Chain A – CH6F



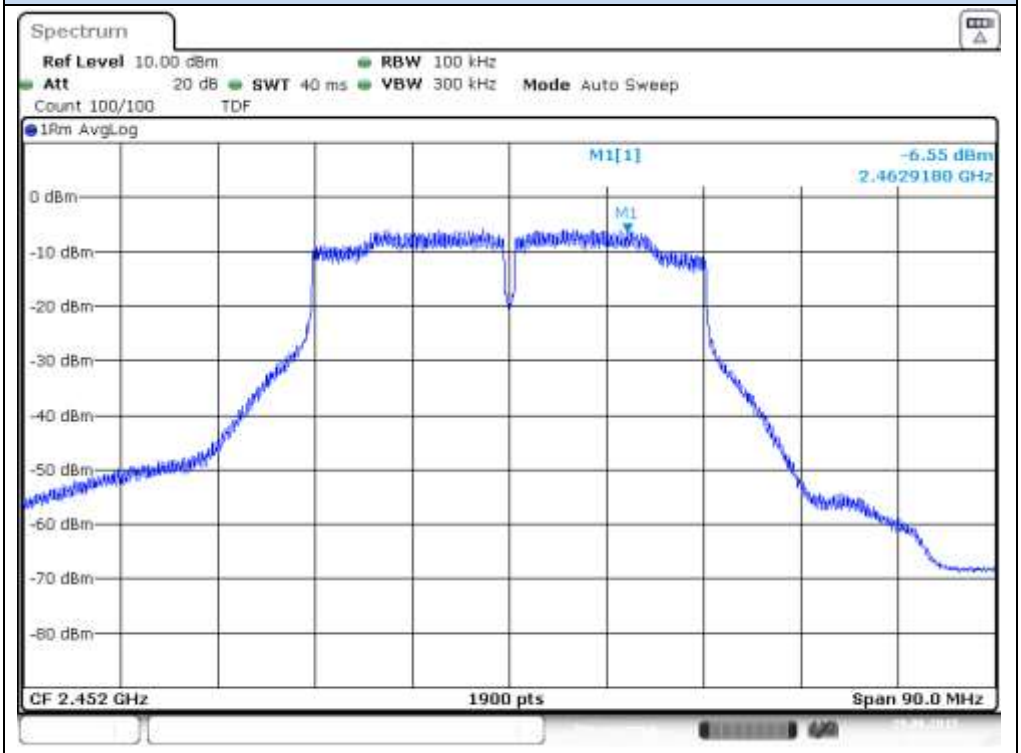
Date: 3.JUN.2015 15:58:50

PSD RMS, Chain B – CH6F



Date: 16.JUN.2015 11:54:03

PSD RMS, Chain A – CH9F

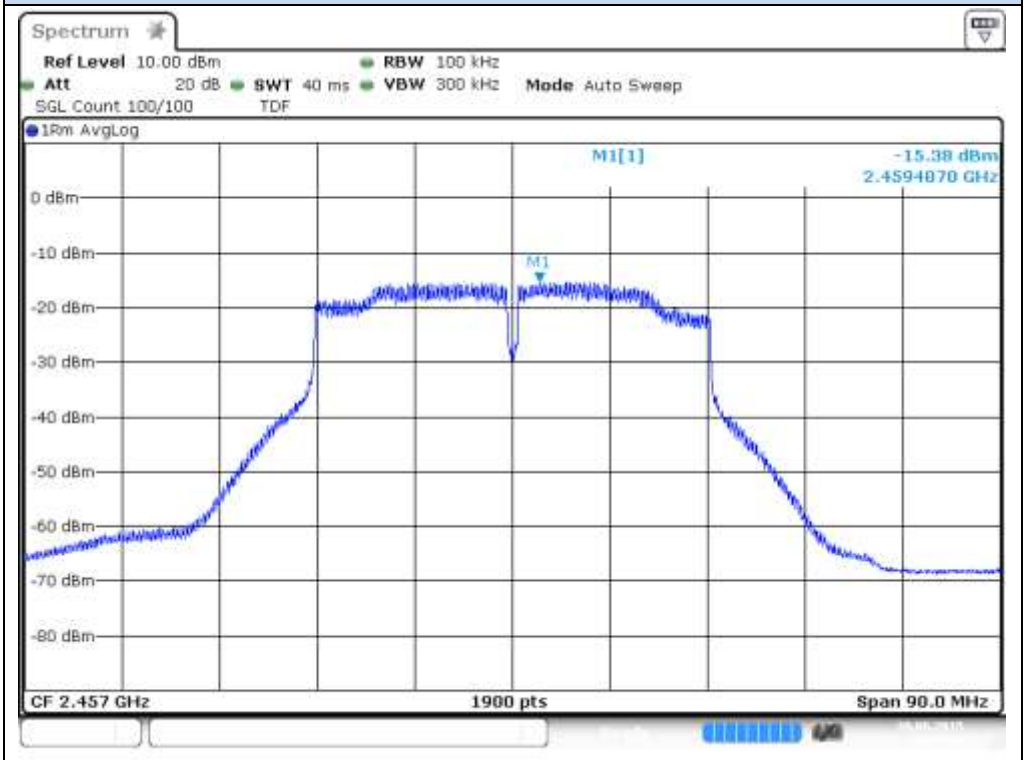


Date: 29.JUN.2015 18:15:41

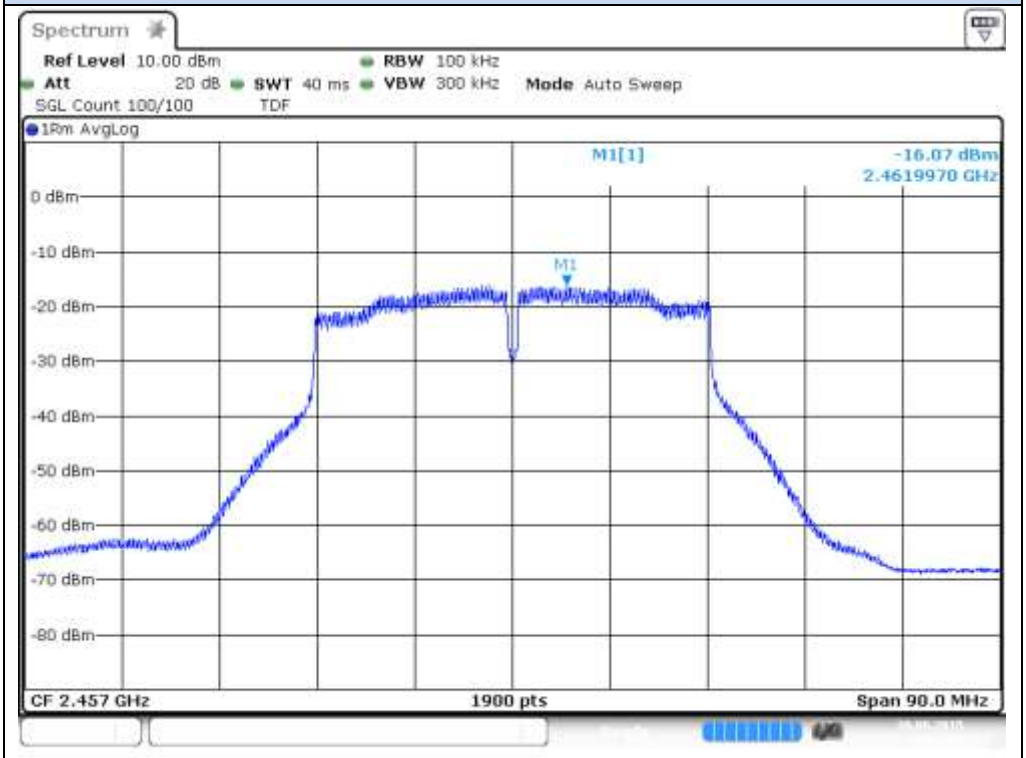
PSD RMS, Chain B – CH9F

Date: 29.JUN.2015 18:54:04

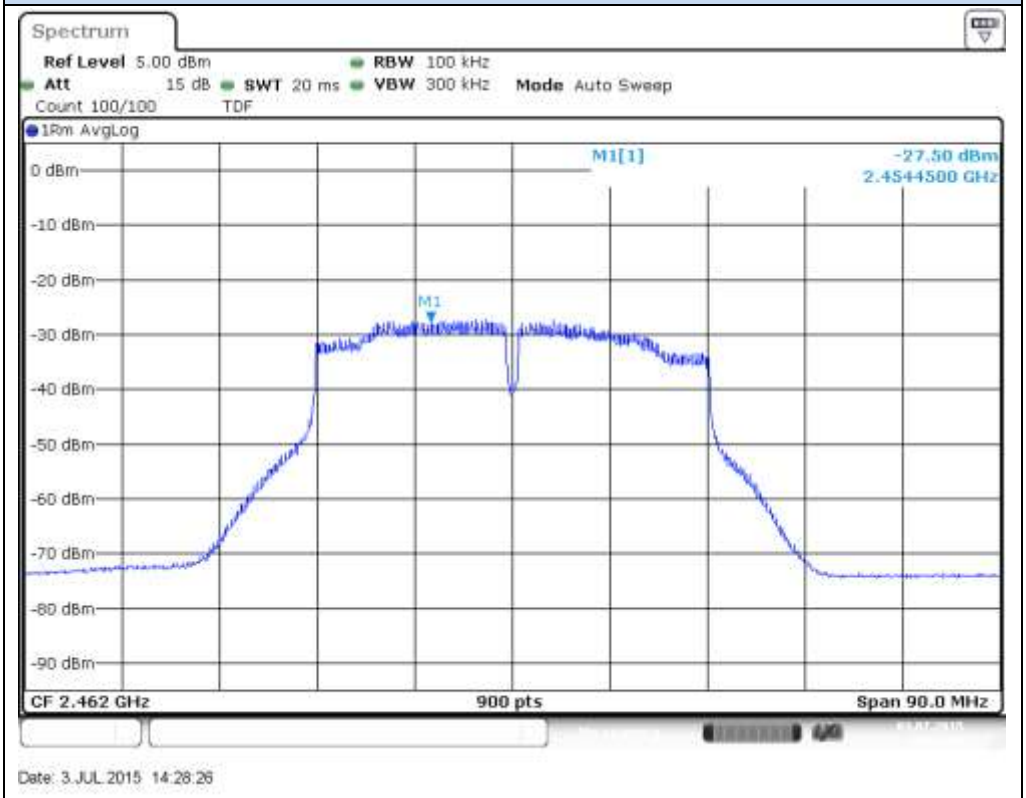
PSD RMS, Chain A - CH10F



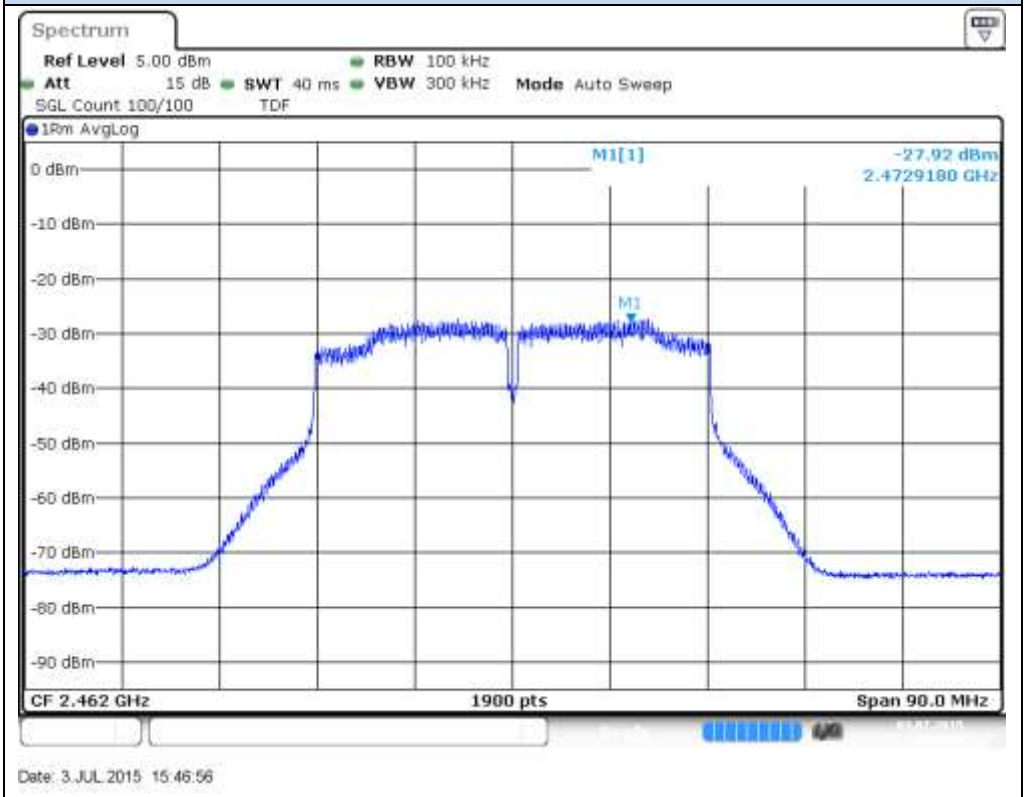
PSD RMS, Chain B - CH10F



PSD RMS, Chain A - CH11F

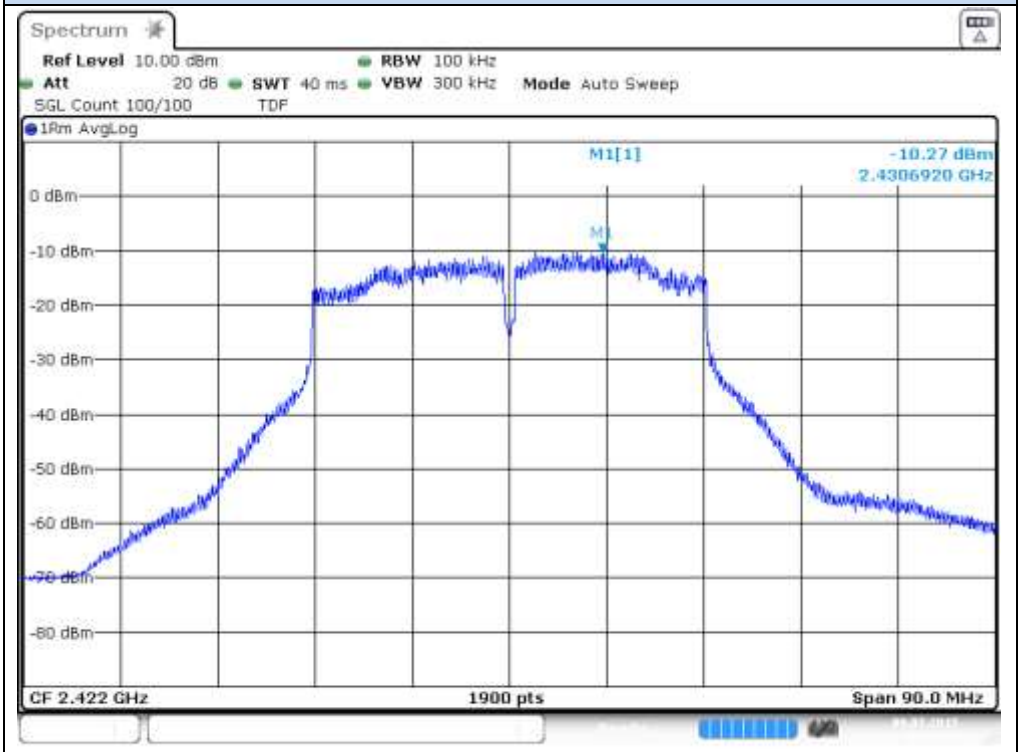


PSD RMS, Chain B - CH11F



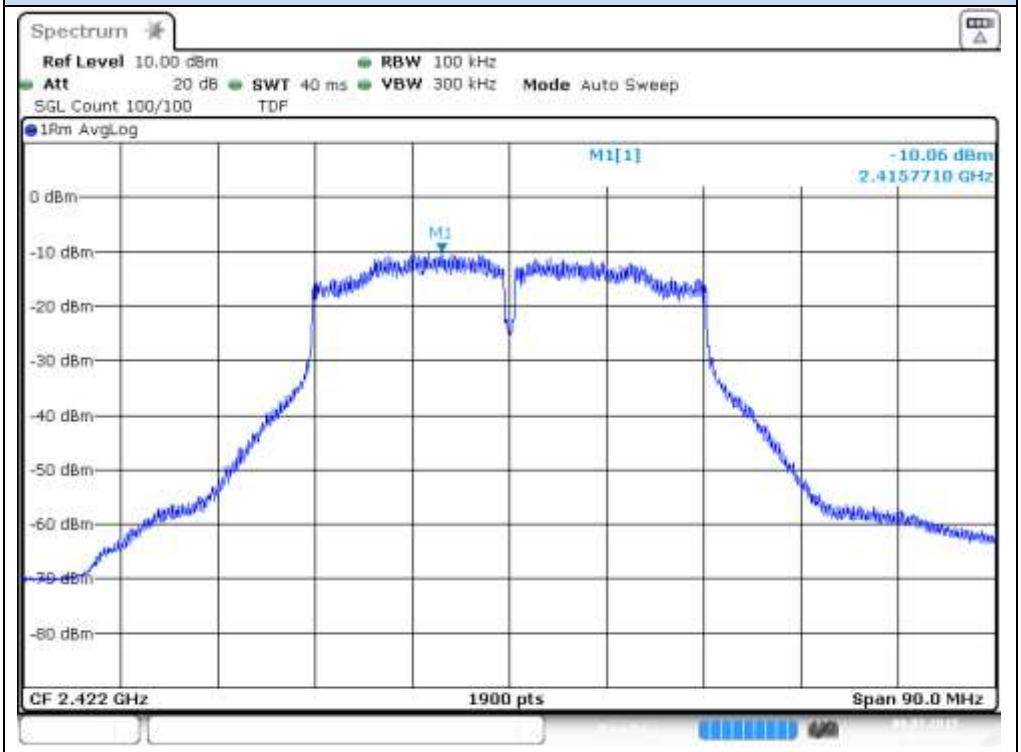
802.11n40. HT8 (MIMO)

PSD RMS, Chain A – CH3F



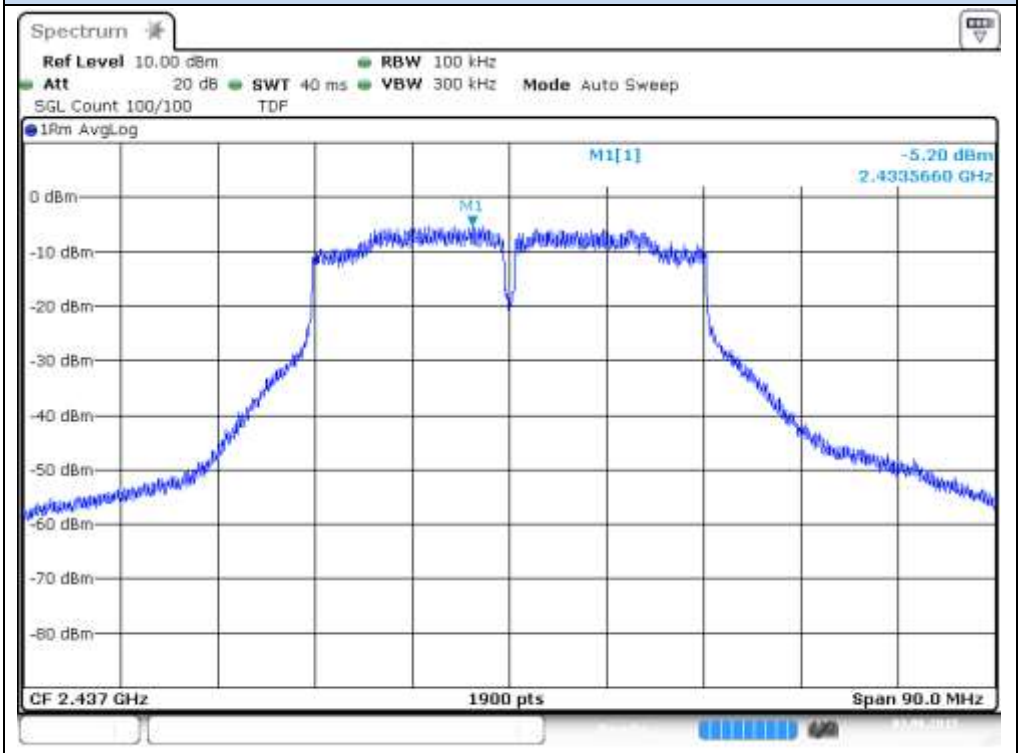
Date: 9.JUL.2015 16:41:52

PSD RMS, Chain B – CH3F

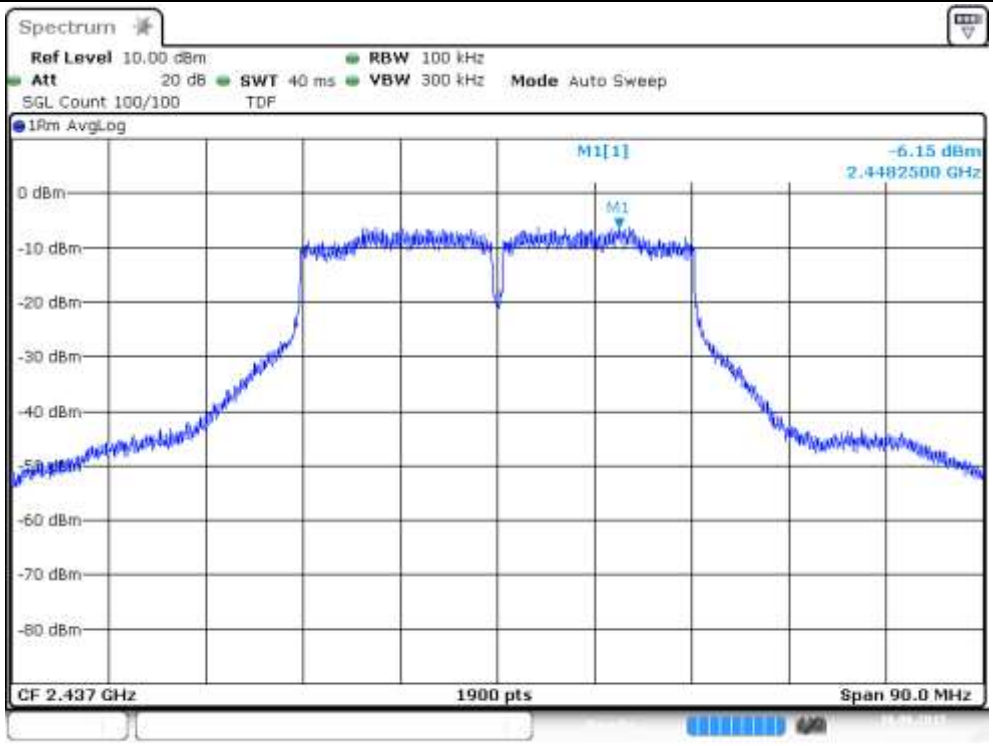


Date: 9.JUL.2015 16:51:54

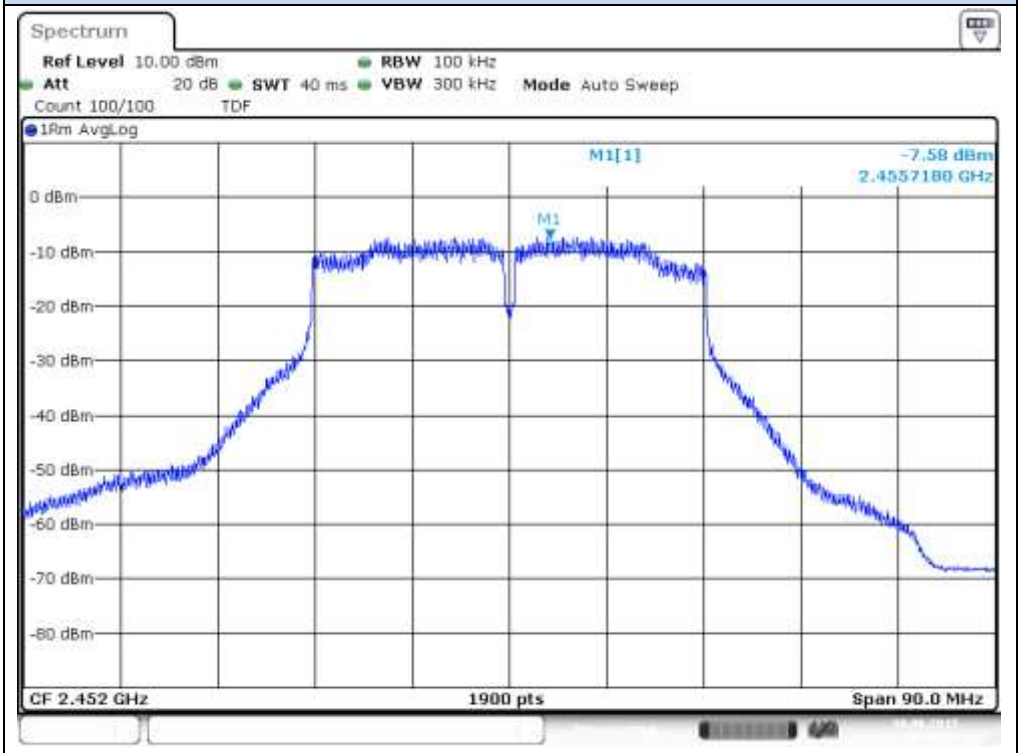
PSD RMS, Chain A – CH6F



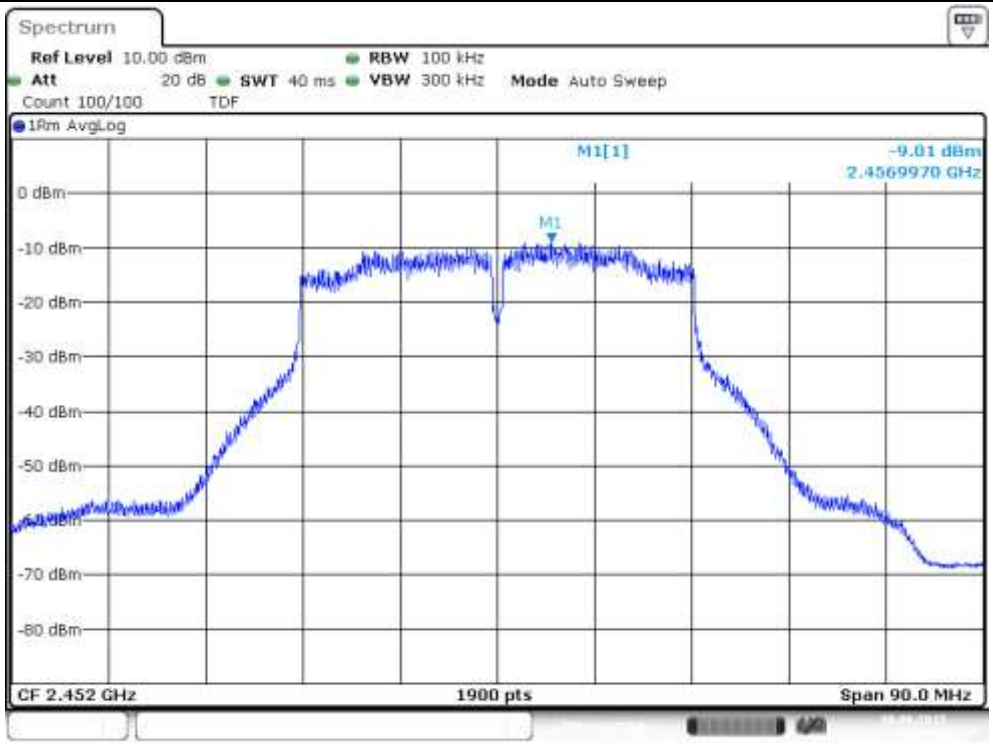
PSD RMS, Chain B – CH6F



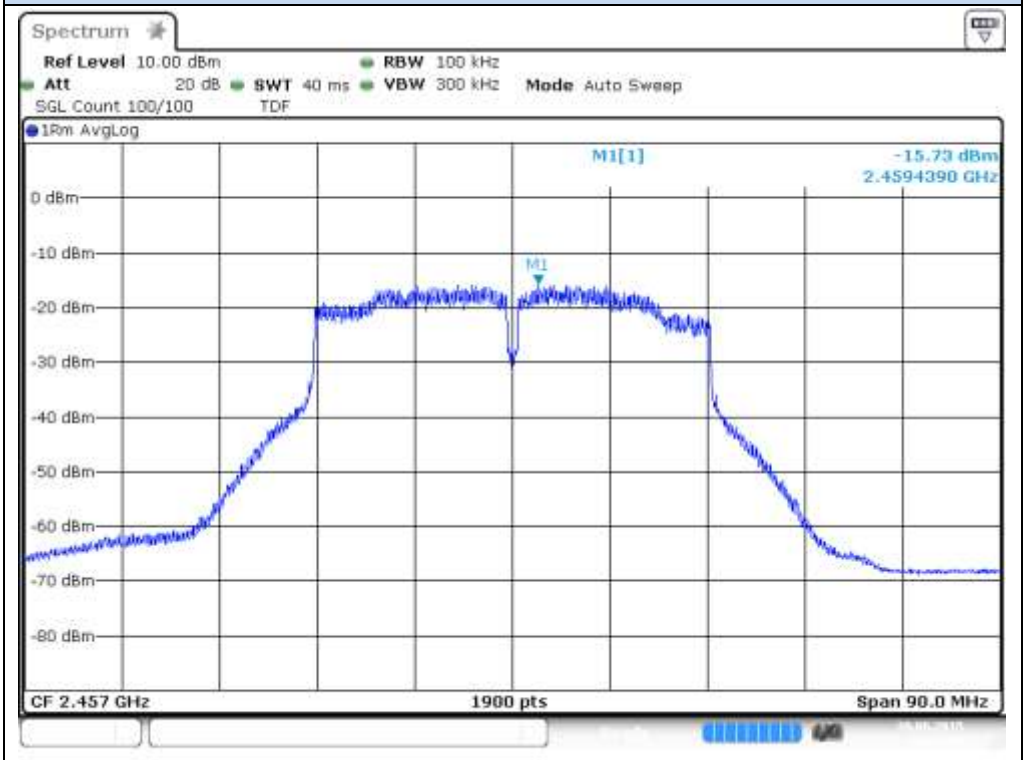
PSD RMS, Chain A – CH9F



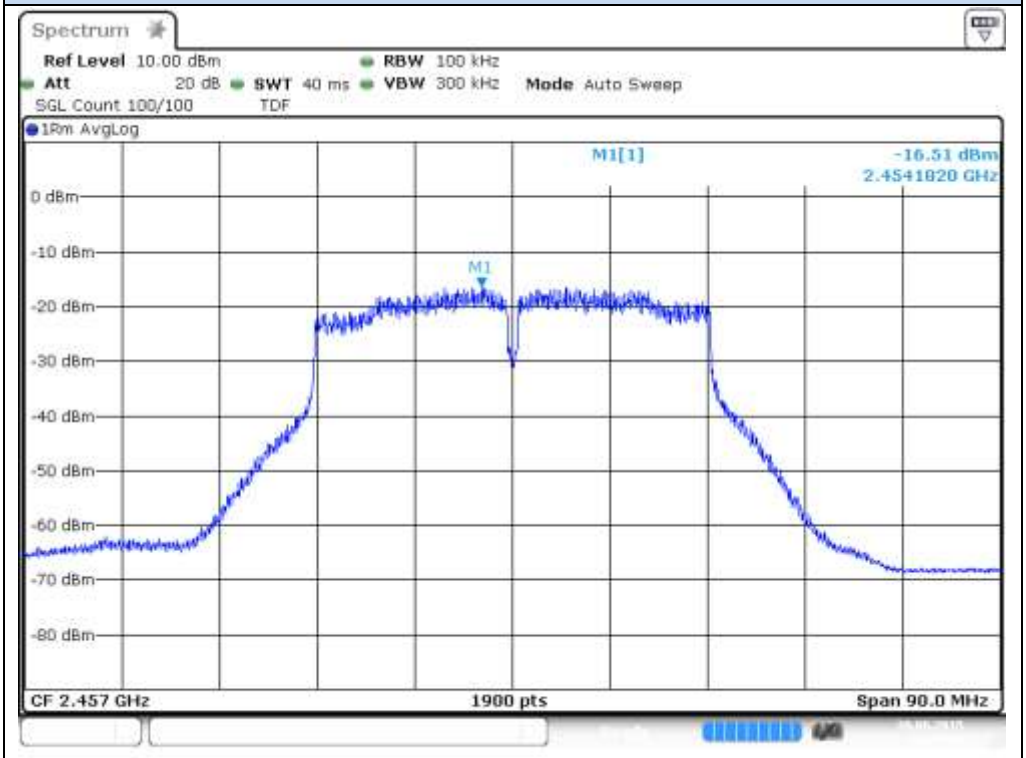
PSD RMS, Chain B – CH9F



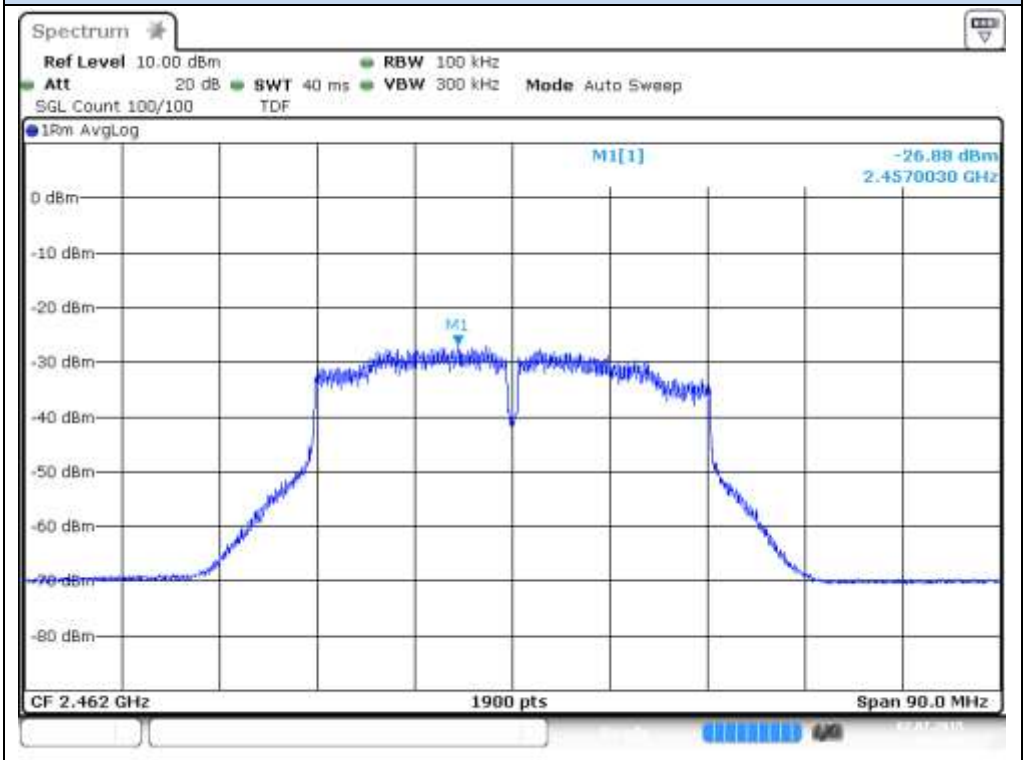
PSD RMS, Chain A - CH10F



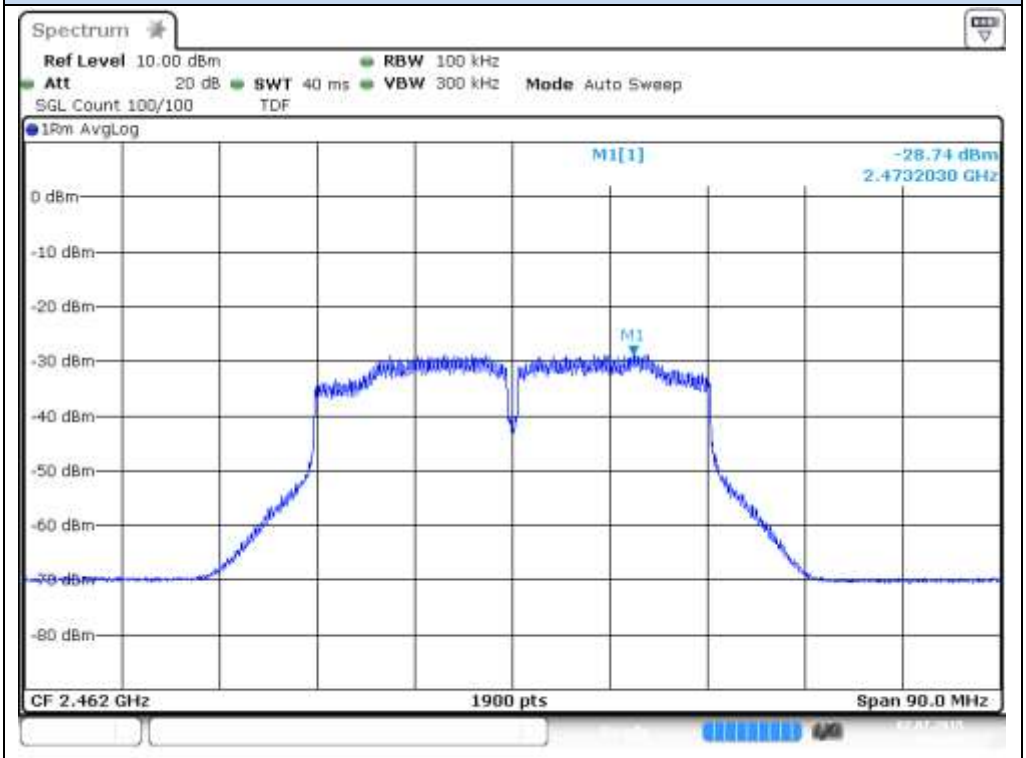
PSD RMS, Chain B - CH10F



PSD RMS, Chain A - CH11F



PSD RMS, Chain B - CH11F



B.5 Radiated spurious emission

Standard references:

<table>
<tr><th>FCC part</th><th>RSS part</th><th>Limits</th></tr>
<tr><td>15.247 (d)</td><td>RSS-247
Clause 5.5</td><td>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):

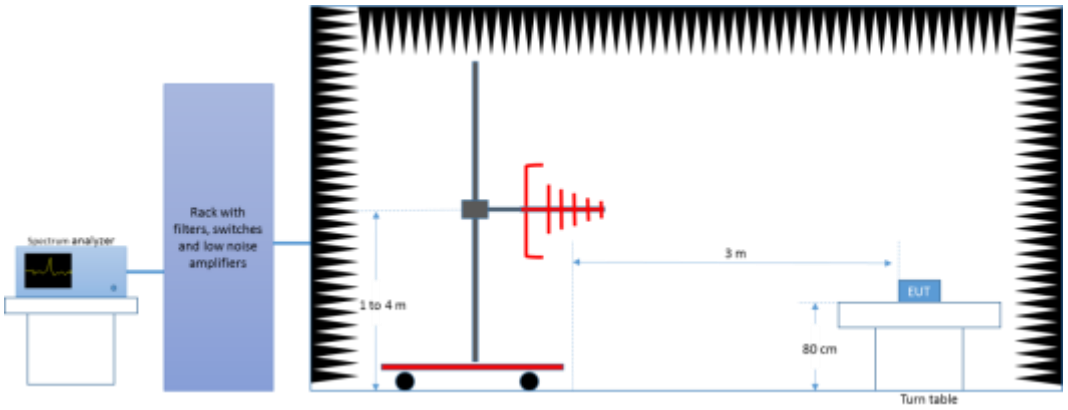
<table>
<tr><th>Freq Range (MHz)</th><th>Field Stregth (µV/m)</th><th>Field Stregth (dBµV/m)</th><th>Meas. Distance (m)</th></tr>
<tr><td>0.009-0.490</td><td>2400/f(kHz)</td><td>-</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/f(kHz)</td><td>-</td><td>300</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>-</td><td>30</td></tr>
<tr><td>30-88</td><td>100</td><td>40</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>43.5</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>46</td><td>3</td></tr>
<tr><td>960-25000</td><td>500</td><td>54</td><td>3</td></tr>
</table>

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz. 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
For average radiated emission measurements above 1000 MHz. there is also a limit specified when measuring with peak detector function corresponding to 20 dB above the indicated values in the table.</td></tr>
</table>

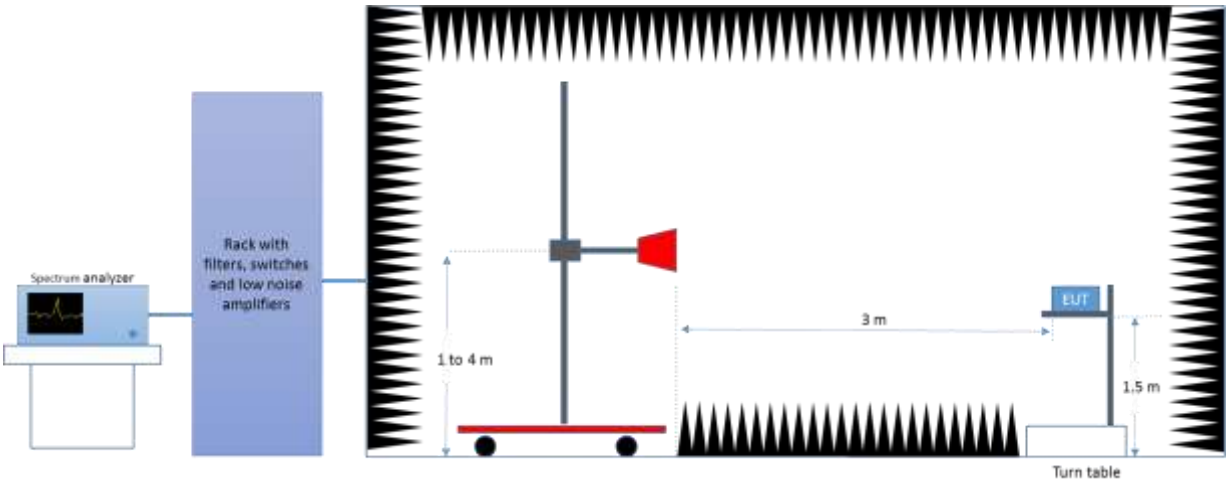
Test procedure:

The setups below were used to measure the radiated spurious emissions.
Depending of the frequency range and bands being tested, different antennas and filters were used.
The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360º and for both Vertical and Horizontal polarizations.
The radiated spurious emissions were measured on the worst case configuration selected from the chapter *B.2 Maximum Output Power and antenna gain* and using the lowest, middle and highest channels.

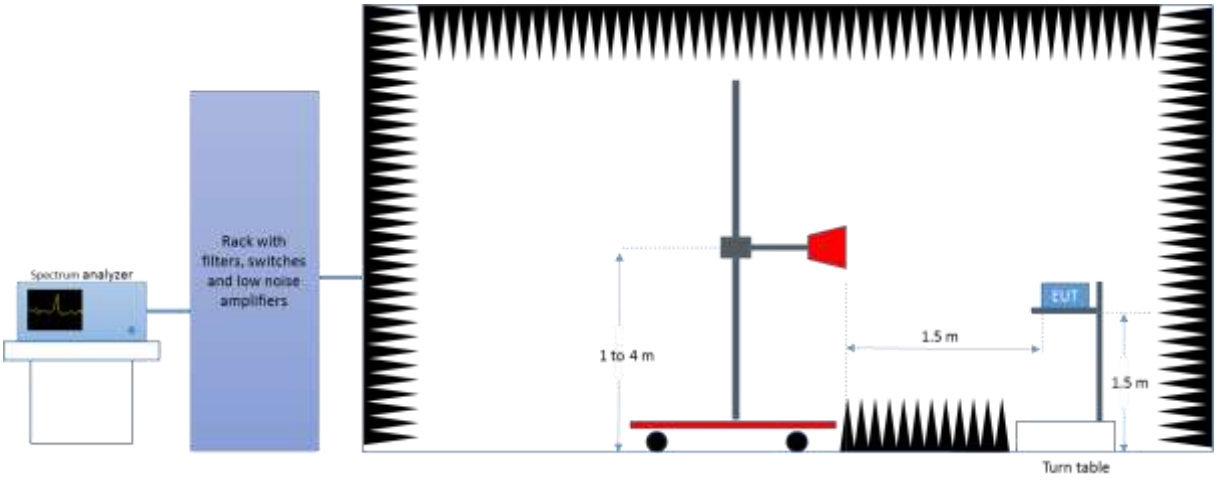
Radiated Setup < 1GHz



Radiated Setup 1GHz - 18GHz



Radiated Setup > 18GHz



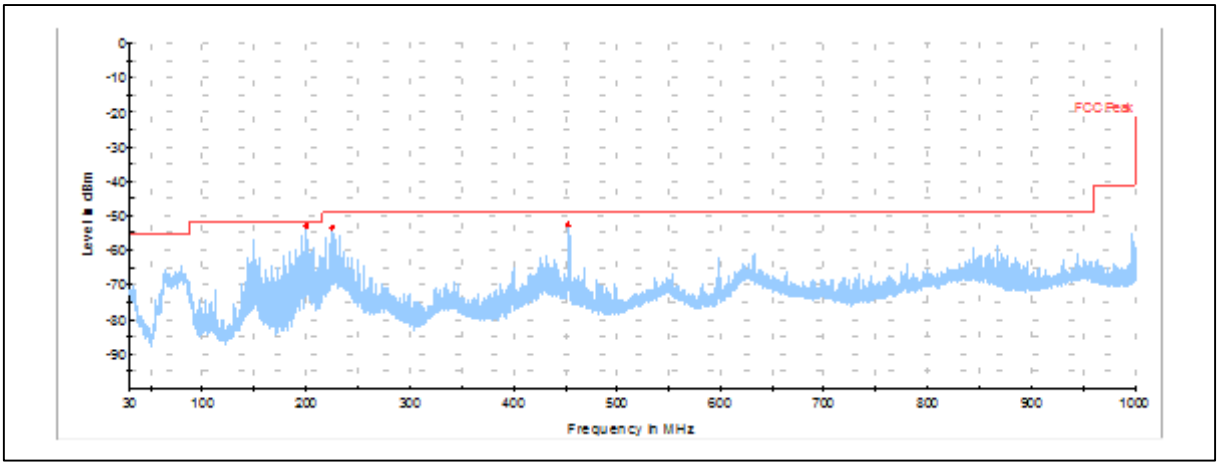
The following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dBµV/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

§15.209(a)			Converted values	
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
30-88	3	500	53.98	-41.2
88-216	3	200	46.02	-49.2
216-960	3	150	43.52	-51.7
960-25000	3	100	40.00	-55.2

Test Results:

Radiated Spurious – 30MHz to 1GHz

All modes



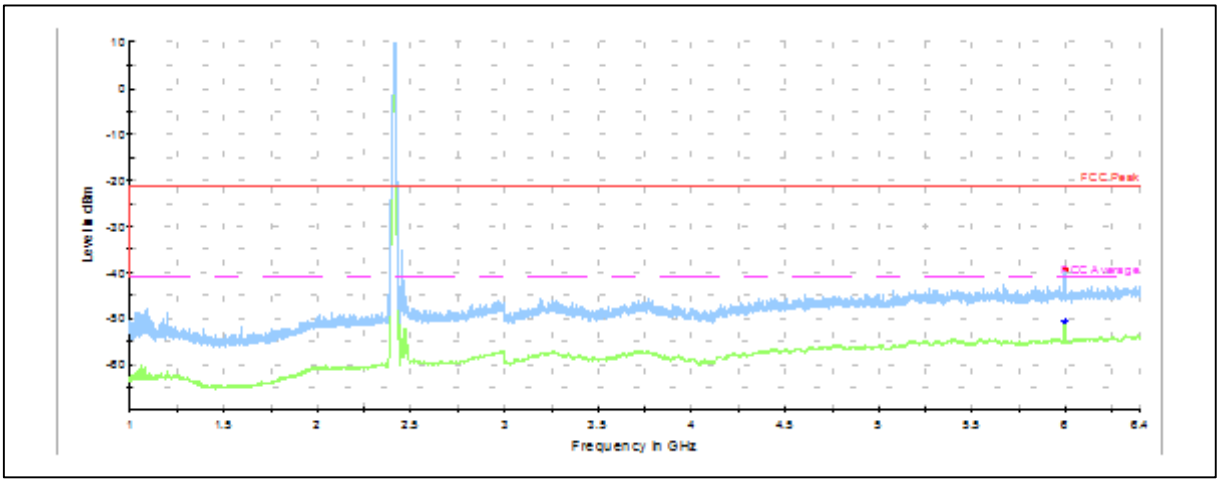
Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	Limit	Margin
MHz	dBm	dBm	dB
199.9	-52.9	-51.7	1.2
225.6	-53.3	-49.2	4.1
452.7	-52.8	-49.2	3.6

Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.
Note 2: No spurious signals were found in all modulations and channels tested.
Note 3: This plot is valid for both SISO and MIMO modes.

Radiated Spurious – 1 GHz to 6.4GHz
802.11b, 1Mbps, Chain A

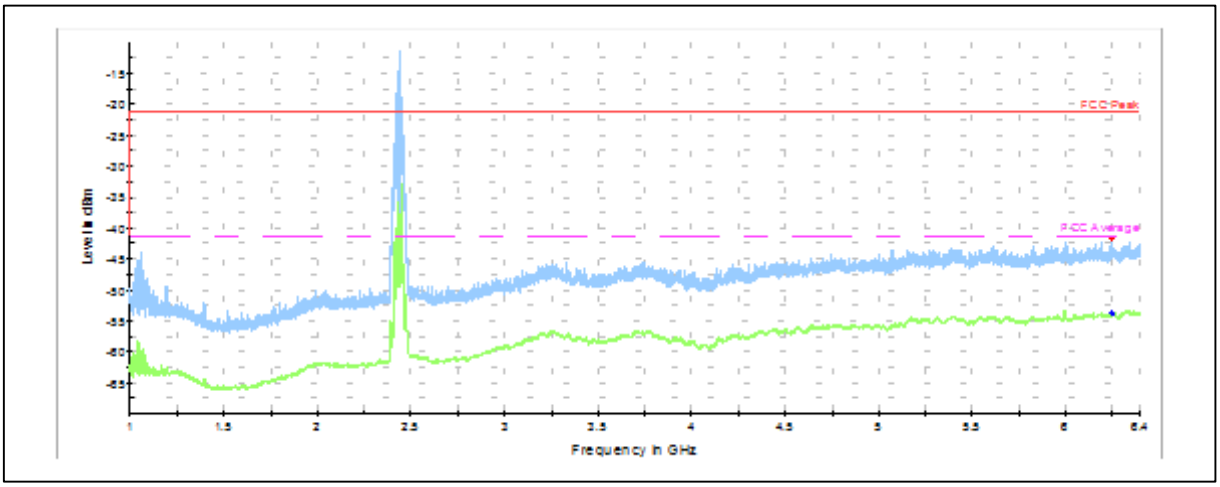
CH1



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
5996.5	---	-50.6	-41.2	9.4
5998.0	-39.5	---	-21.2	18.3

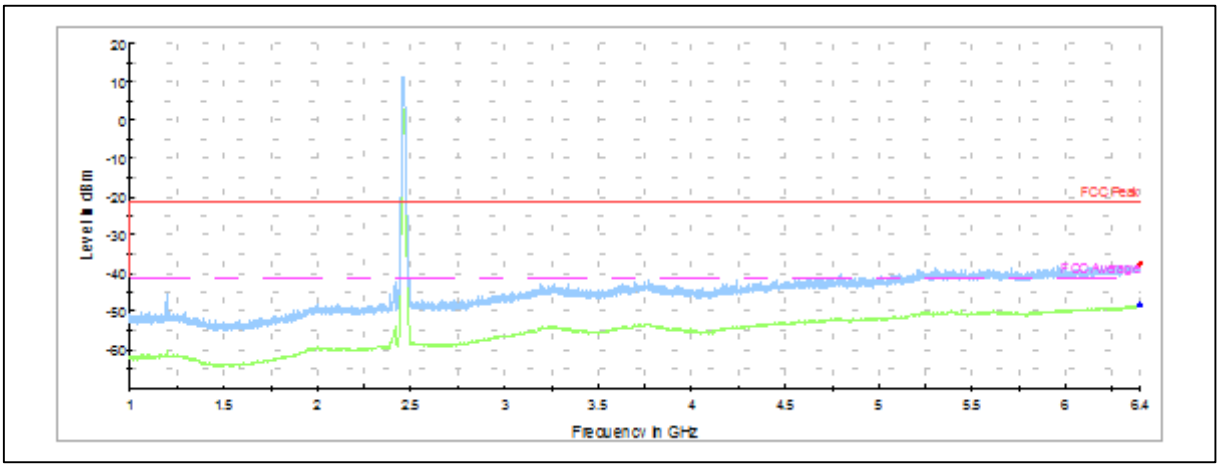
CH6



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6249.5	---	-53.7	-41.20	12.5
6250.0	-41.5	---	-21.20	20.3

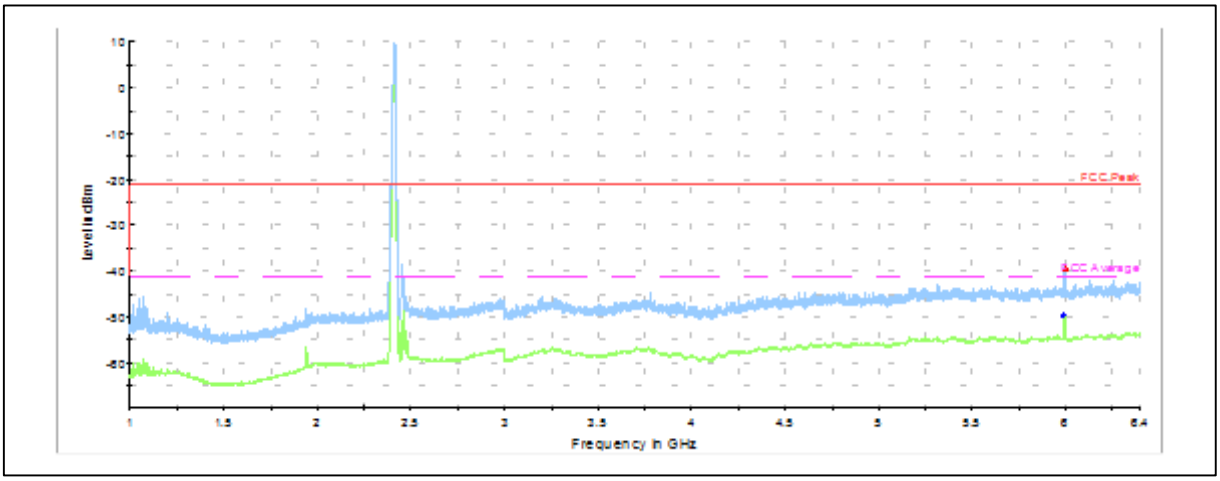
CH11



Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6395.0	---	-48.3	-41.2	7.1
6398.0	-37.4	---	-21.2	16.2

Radiated Spurious – 1 GHz to 6.4GHz
802.11b, 1Mbps, Chain B

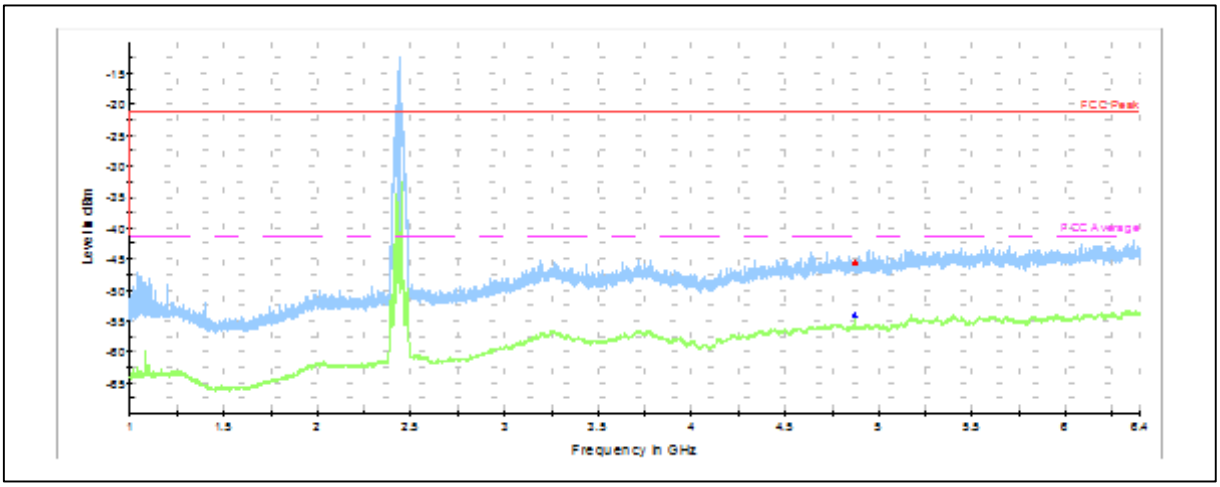
CH1



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
5988.5	---	-49.7	-41.2	8.5
5999.0	-39.6	---	-21.2	18.4

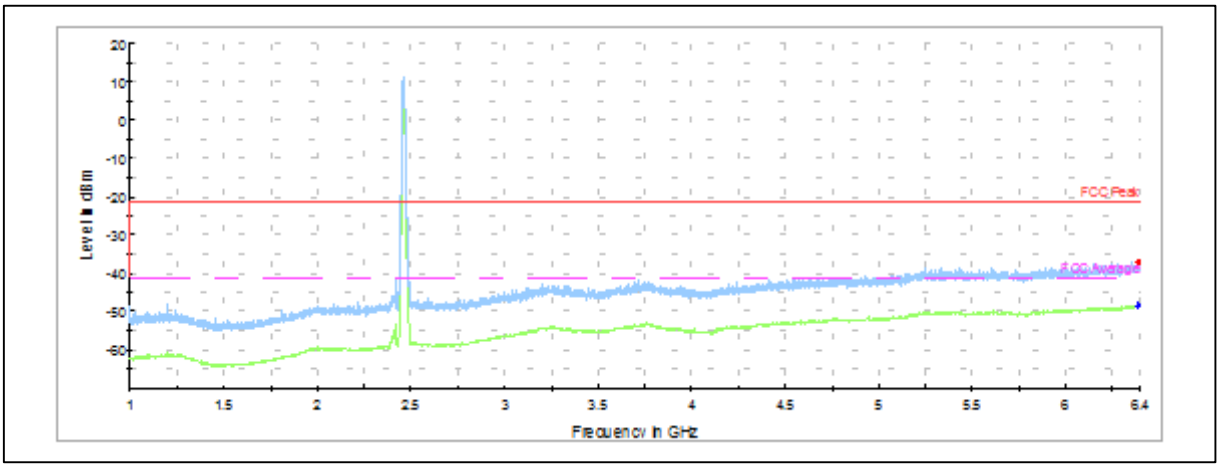
CH6



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
4874.0	---	-54.2	-41.2	13.0
4874.5	-45.7	---	-21.2	24.5

CH11

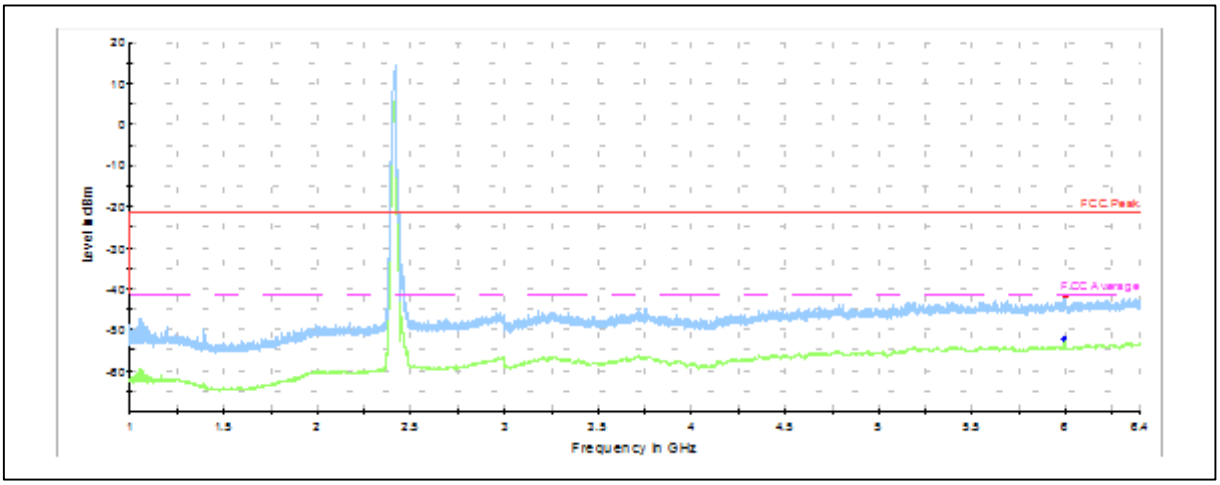


Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6388.0	---	-48.4	-41.2	7.2
6390.5	-37.0	---	-21.2	15.8

Radiated Spurious – 1 GHz to 6.4GHz
802.11g, 6Mbps, Chain A

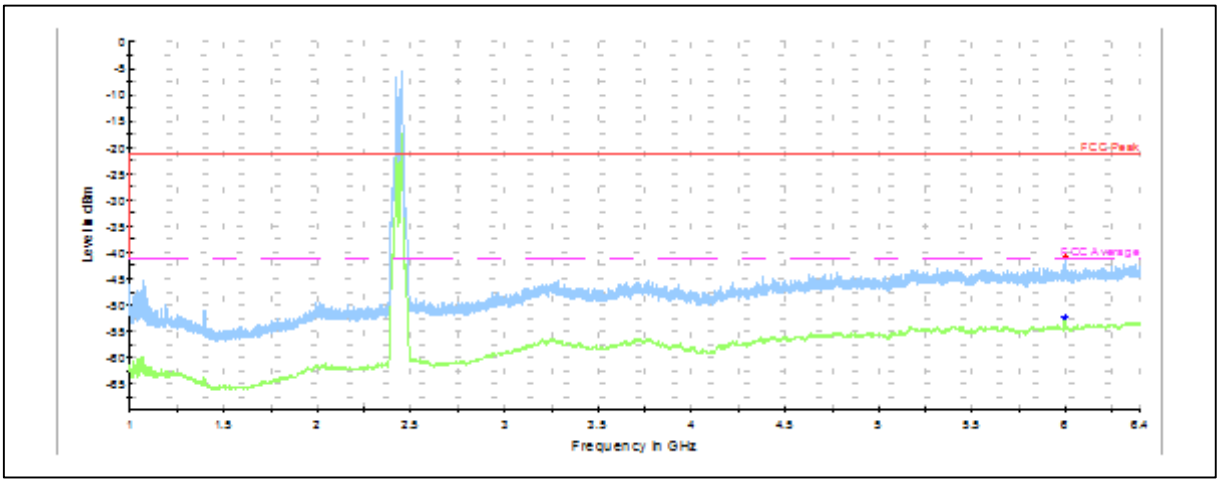
CH1



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
5990.5	---	-52.2	-41.2	11.0
5996.5	-41.7	---	-21.2	20.5

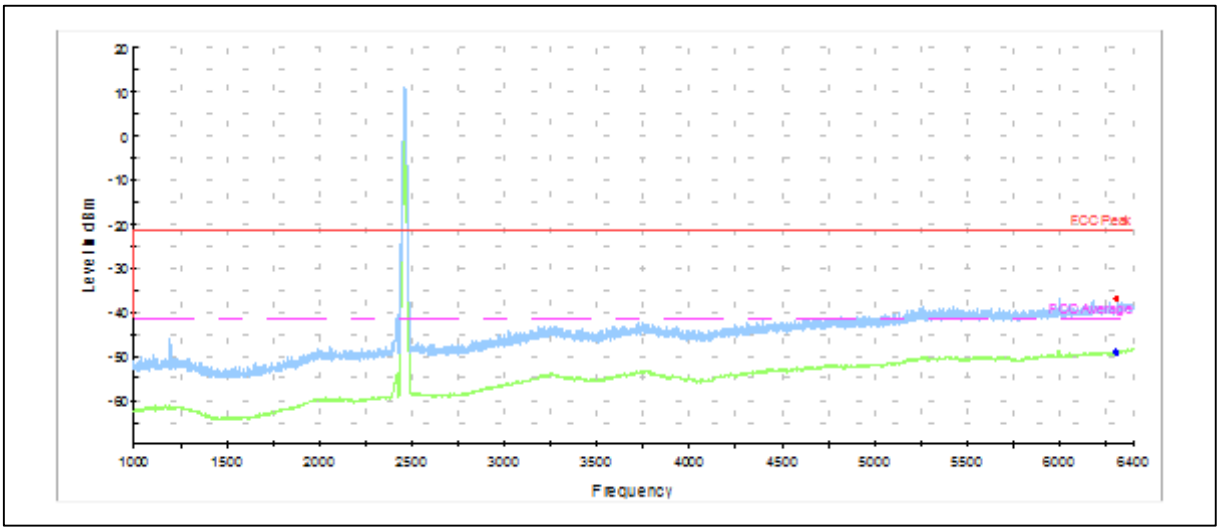
CH6



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
5996.5	---	-50.6	-41.2	9.4
5998.0	-39.5	---	-21.2	18.3

CH11

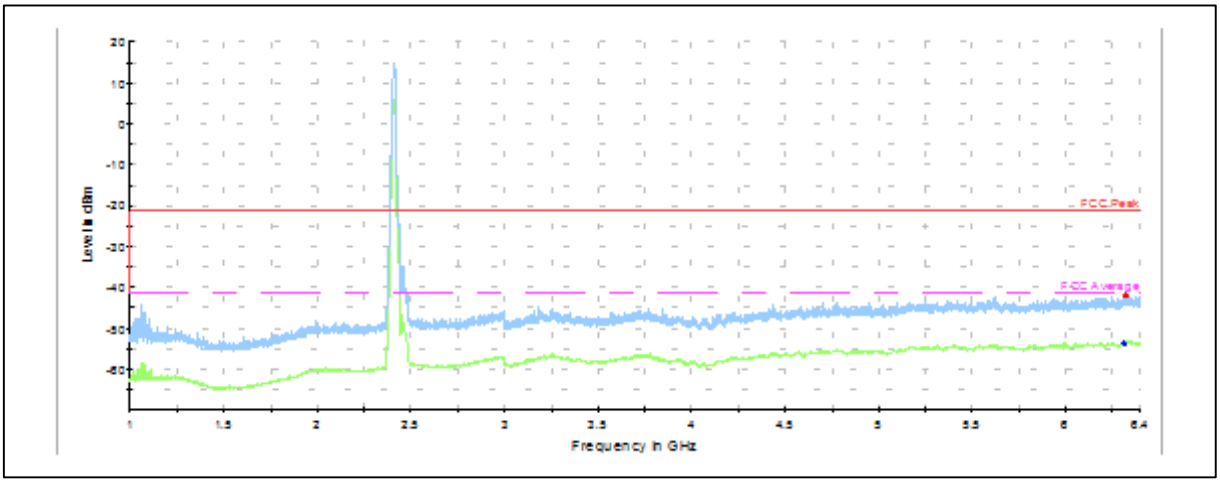


Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6303.5	---	-49.2	-41.2	8.0
6311.5	-36.8	---	-21.2	15.6

Radiated Spurious – 1 GHz to 6.4GHz
802.11g, 6Mbps, Chain B

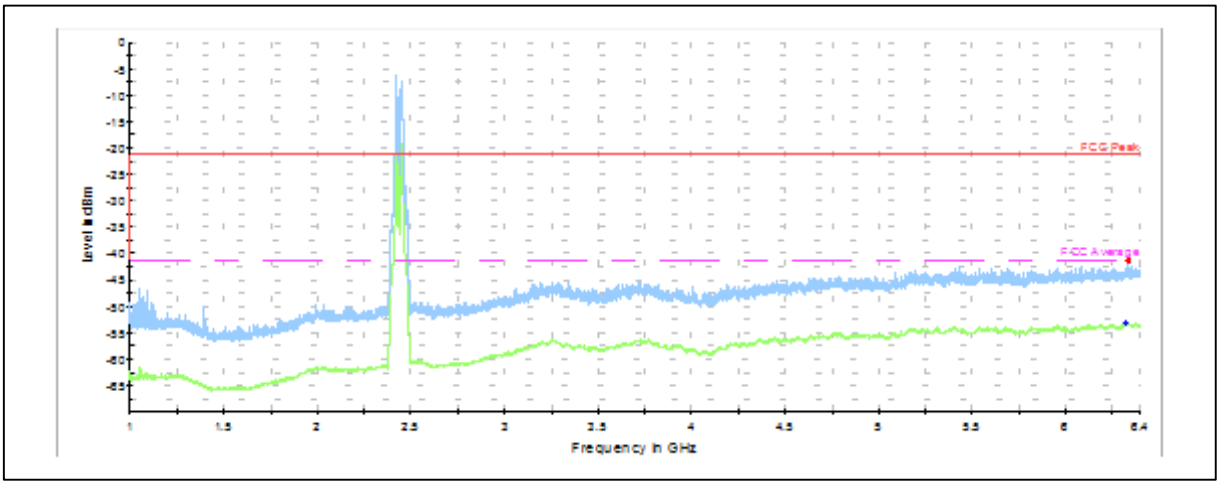
CH1



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6311.0	---	-53.6	-41.2	12.4
6321.0	-42.1	---	-21.2	20.9

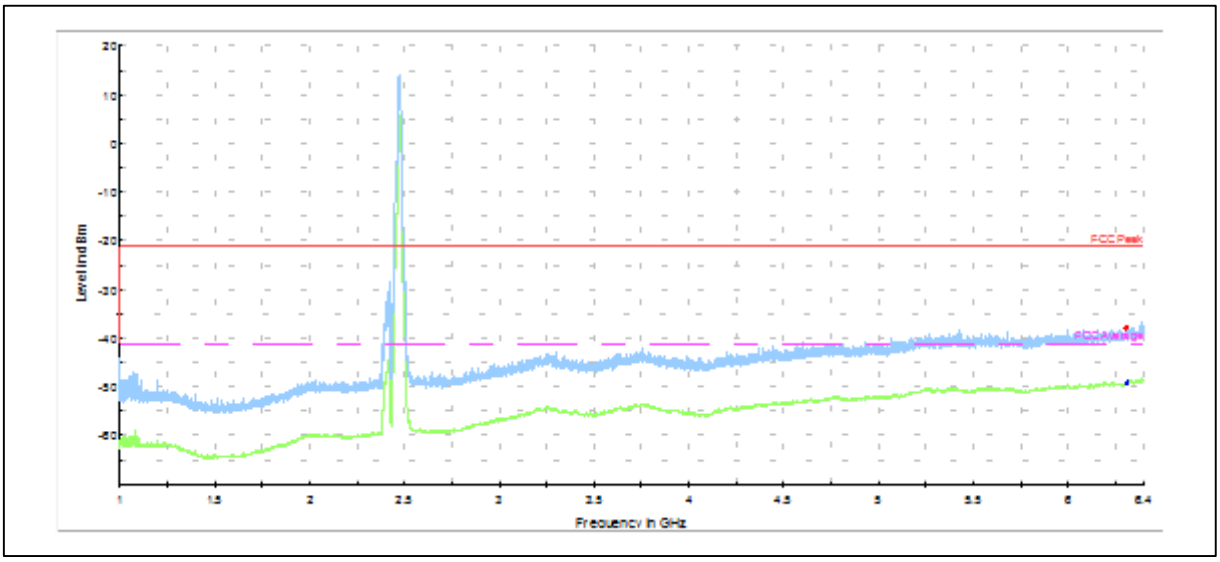
CH6



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6322.5	---	-53.1	-41.2	11.9
6334.5	-41.3	---	-21.2	20.1

CH11

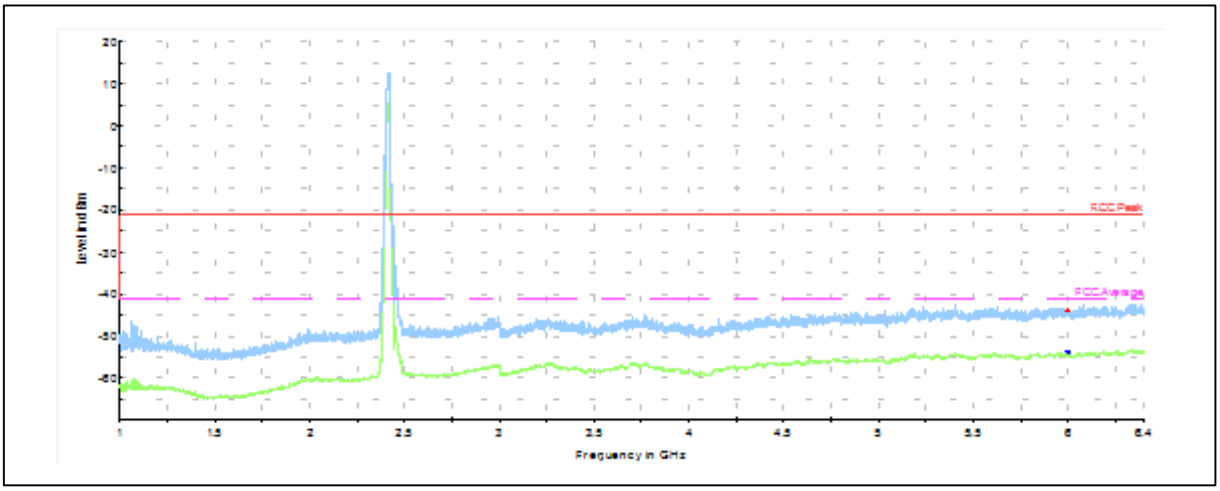


Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6311.0	---	-49.1	-41.2	7.9
6309.0	-37.8	---	-21.2	16.6

Radiated Spurious – 1 GHz to 6.4GHz
802.11n20, HT0 (SISO), Chain A

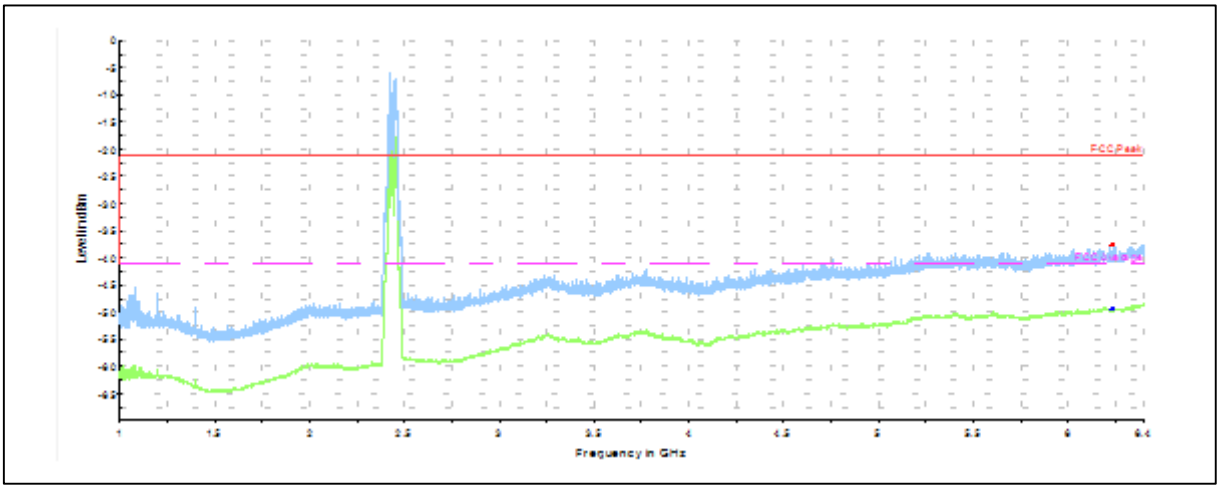
CH1



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
5999.0	---	-53.7	-41.2	12.5
5998.0	-43.9	---	-21.2	22.7

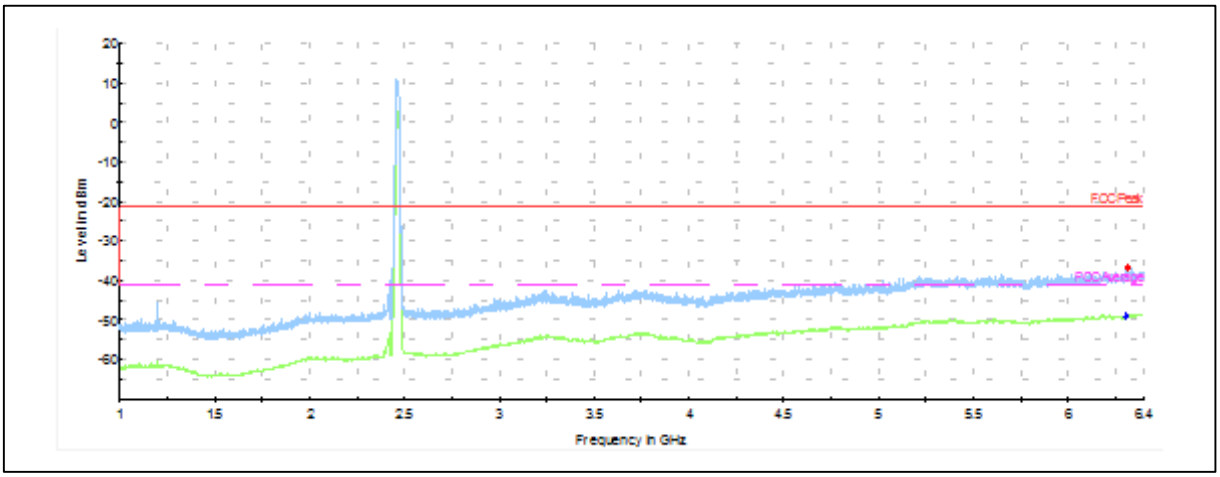
CH6



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6234.0	--	-49.3	-41.2	8.1
6236.5	-37.6	---	-21.2	16.4

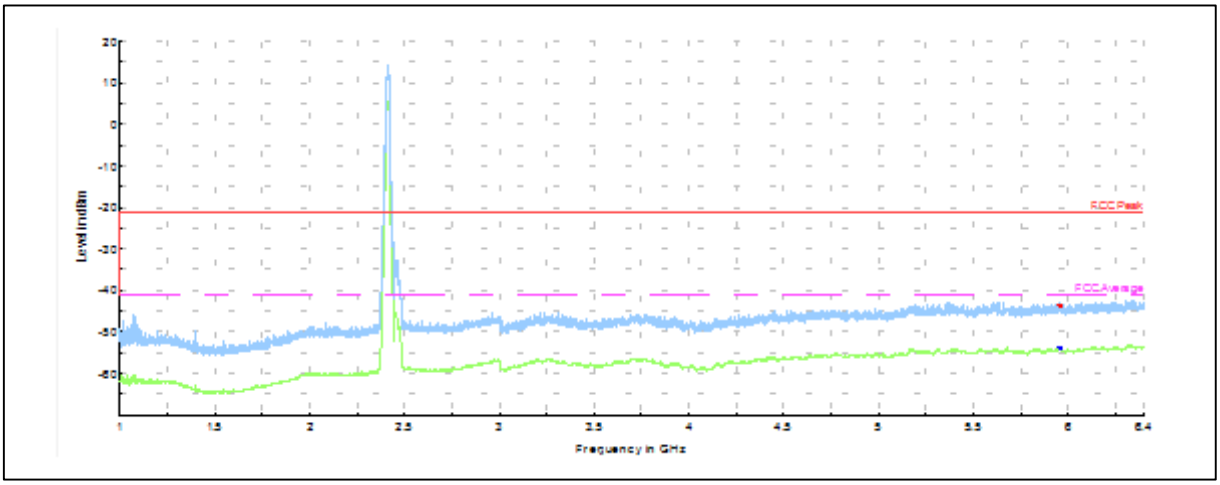
CH11



Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6306.0	---	-49.2	-41.2	8.0
6317.0	-36.9	---	-21.2	15.7

Radiated Spurious – 1 GHz to 6.4GHz
802.11n20, HT0 (SISO), Chain B

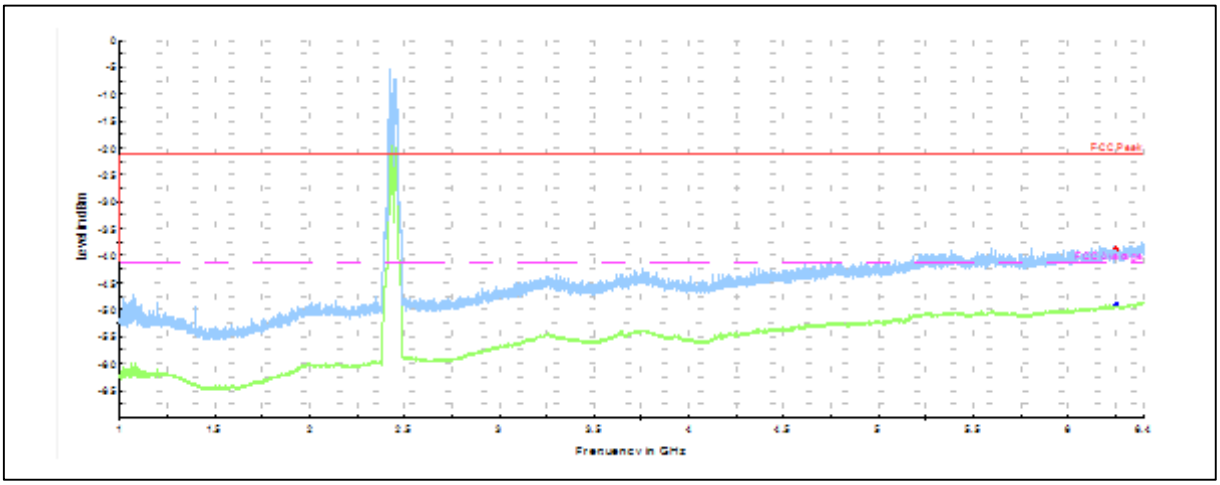
CH1



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
5957.5	---	-53.9	-41.2	12.7
5957.5	-43.7	---	-21.2	22.5

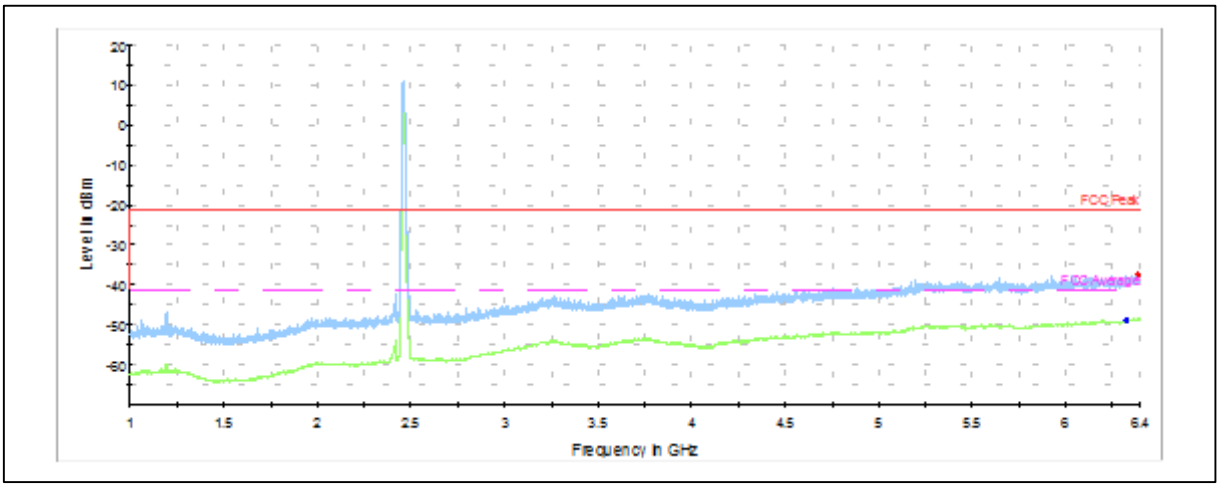
CH6



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6254.0	---	-49.1	-41.2	7.9
6250.5	-38.6	---	-21.2	17.4

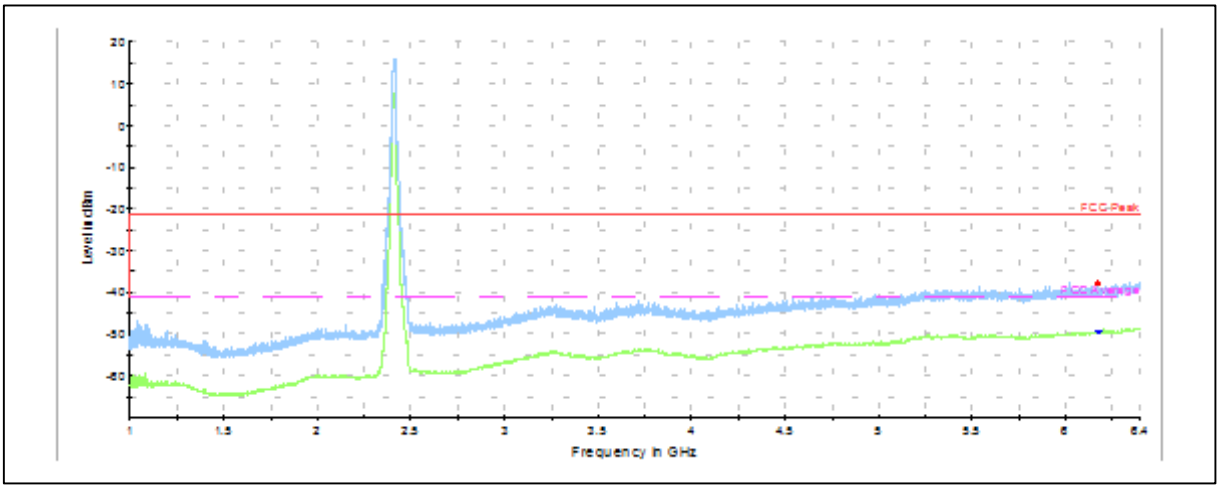
CH11



Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6325.5	---	-48.9	-41.2	7.7
6385.0	-37.5	---	-21.2	16.3

Radiated Spurious – 1 GHz to 6.4GHz
802.11n20, HT8 (MIMO), Chain A+B

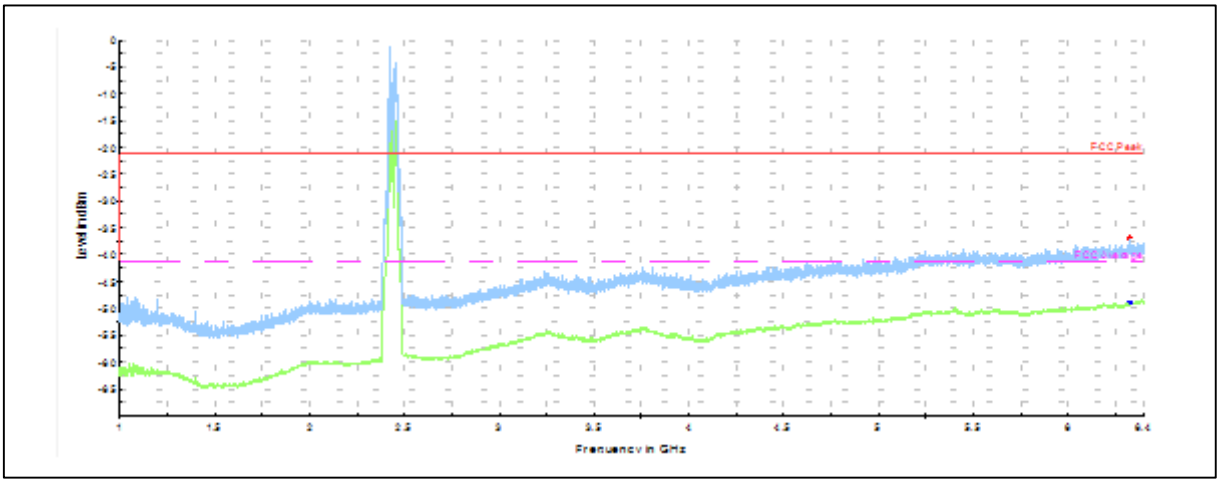
CH1



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6175.5	---	-49.4	-41.2	8.2
6172.0	-37.8	---	-21.2	16.6

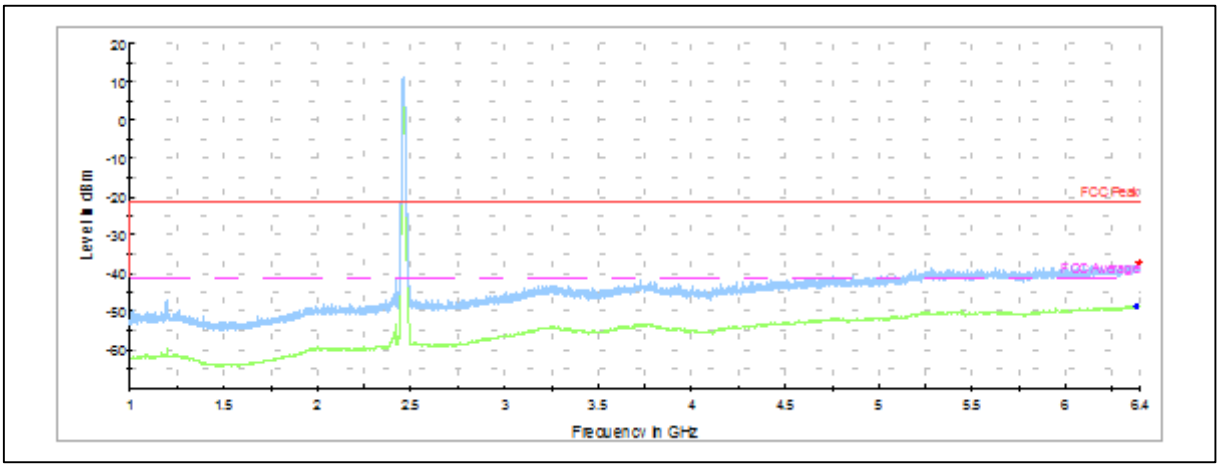
CH6



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6326.0	---	-48.9	-41.2	7.7
6324.5	-36.7	---	-21.2	15.5

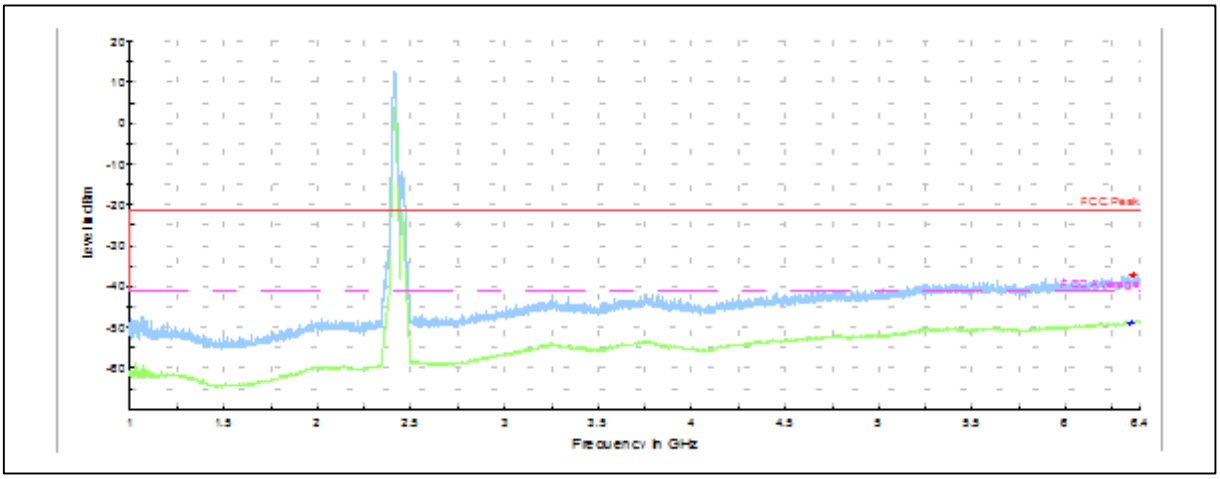
CH11



Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6383.5	---	-48.5	-41.2	7.3
6392.0	-37.3	---	-21.2	16.1

Radiated Spurious – 1 GHz to 6.4GHz
802.11n40, HT0 (SISO), Chain A

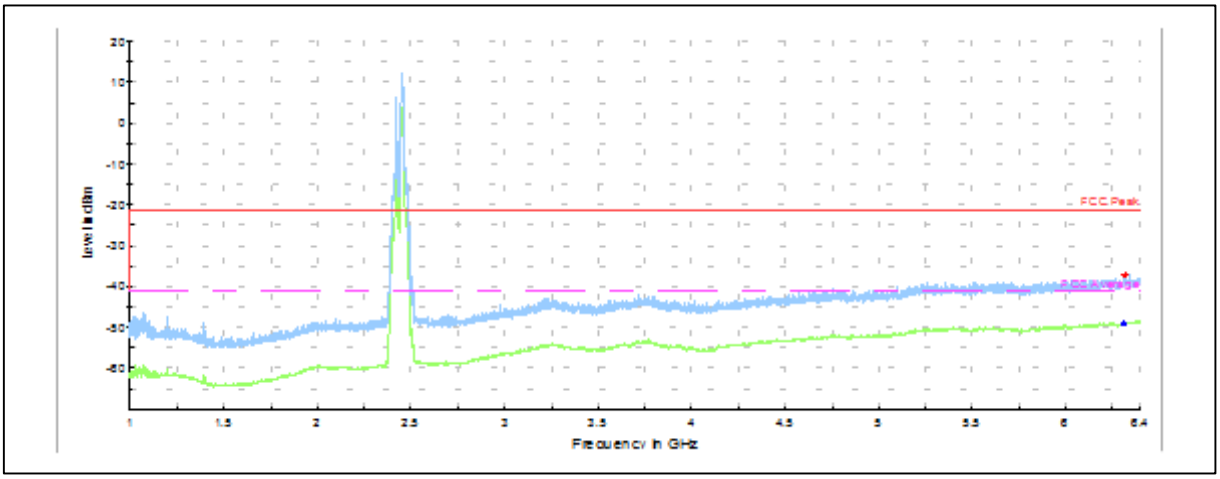
CH3F



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6353.5	---	-48.9	-41.2	7.7
6359.5	-37.2	---	-21.2	16.0

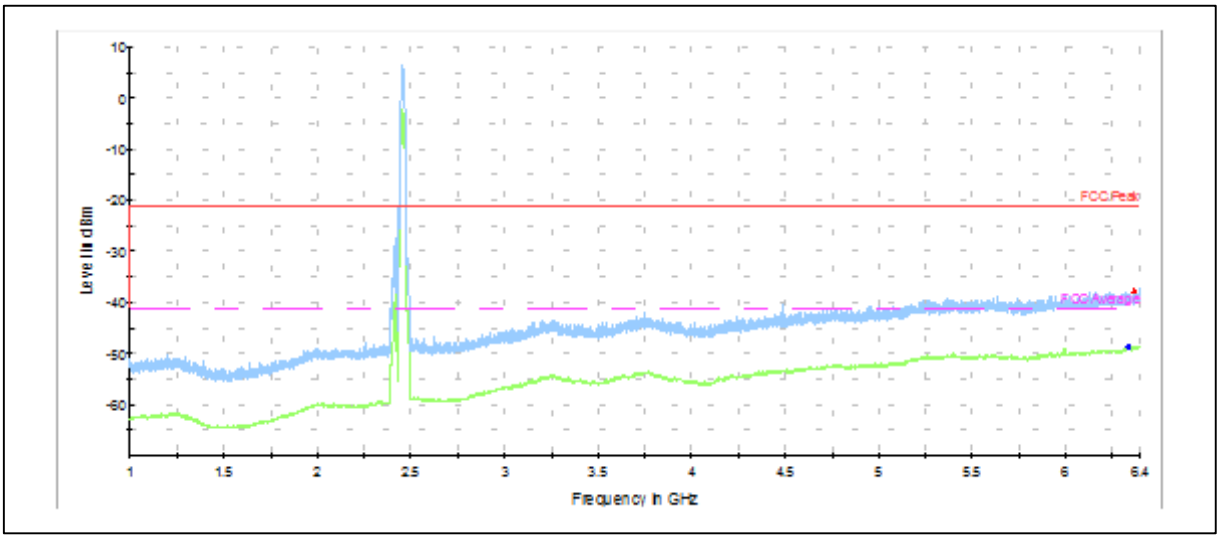
CH6F



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6310.0	---	-49.1	-41.2	7.9
6316.0	-37.2	---	-21.2	16.0

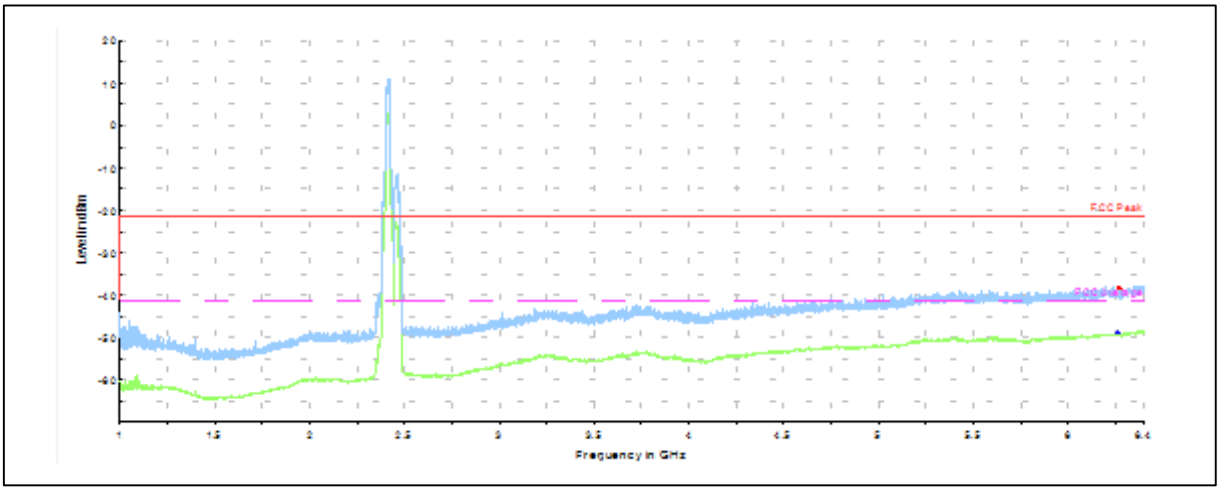
CH9F



Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6336.5	---	-48.7	-41.2	7.5
6366.5	-37.9	---	-21.2	16.7

Radiated Spurious – 1 GHz to 6.4GHz
802.11n40, HT0 (SISO), Chain B

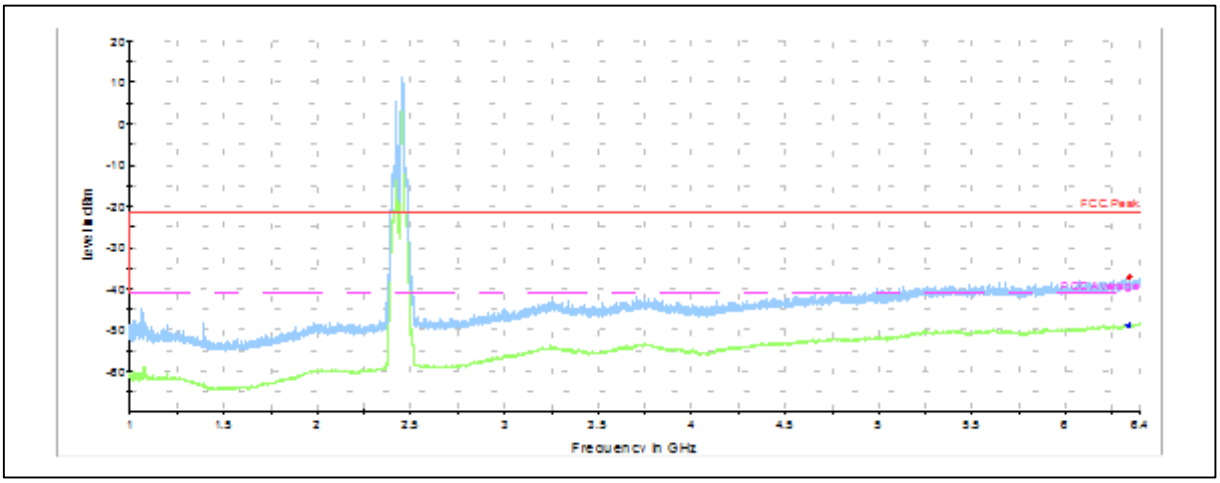
CH3F



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6262.0	---	-48.8	-41.2	7.6
6271.0	-38.3	---	-21.2	17.1

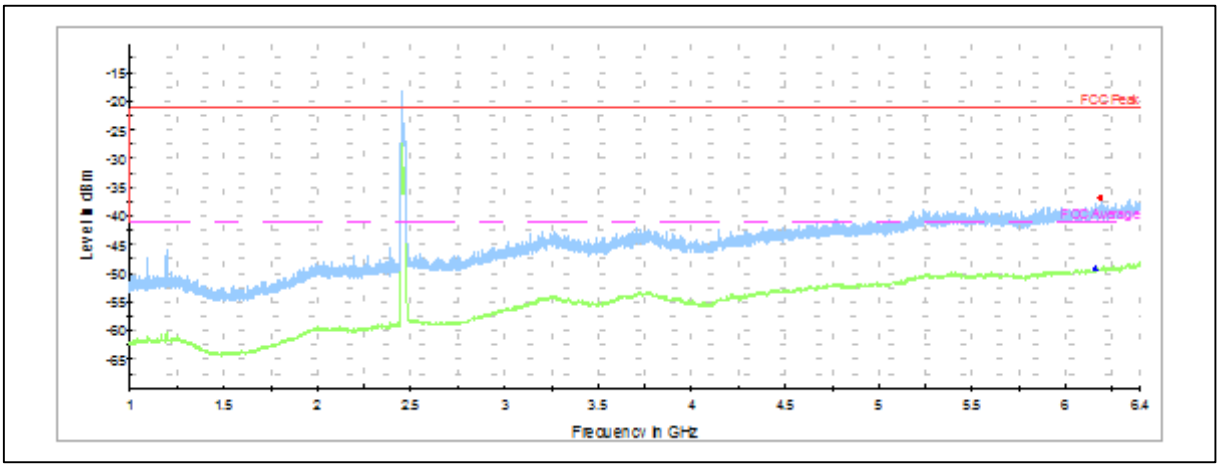
CH6F



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6336.5	---	-48.8	-41.2	7.6
6340.0	-37.3	---	-21.2	16.1

CH9F

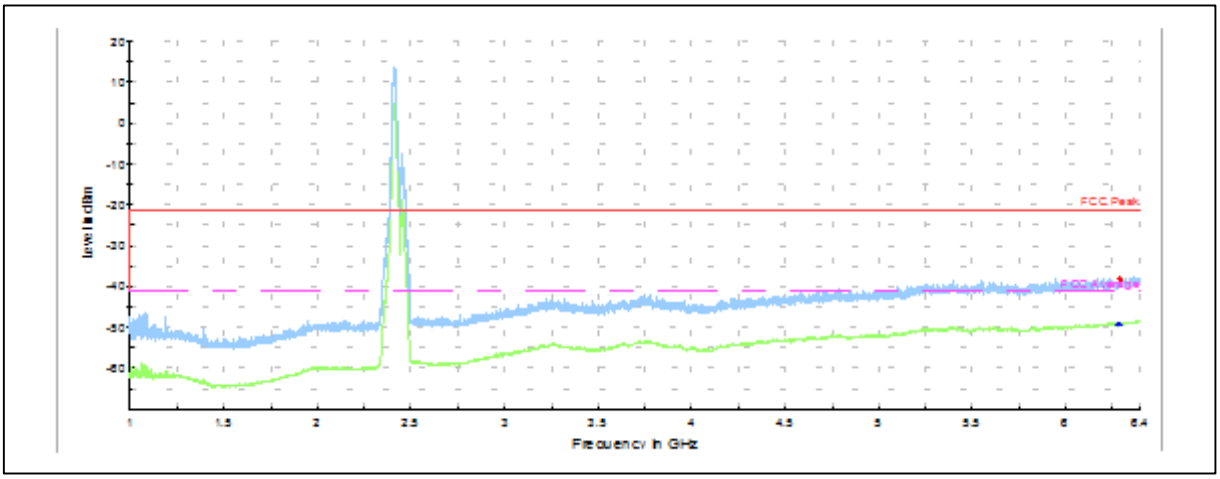


Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6231.5	---	-49.5	-41.2	8.3
6394.0	-37.2	---	-21.2	16.0

Radiated Spurious – 1 GHz to 6.4GHz
802.11n40, HT8 (MIMO), Chain A+B

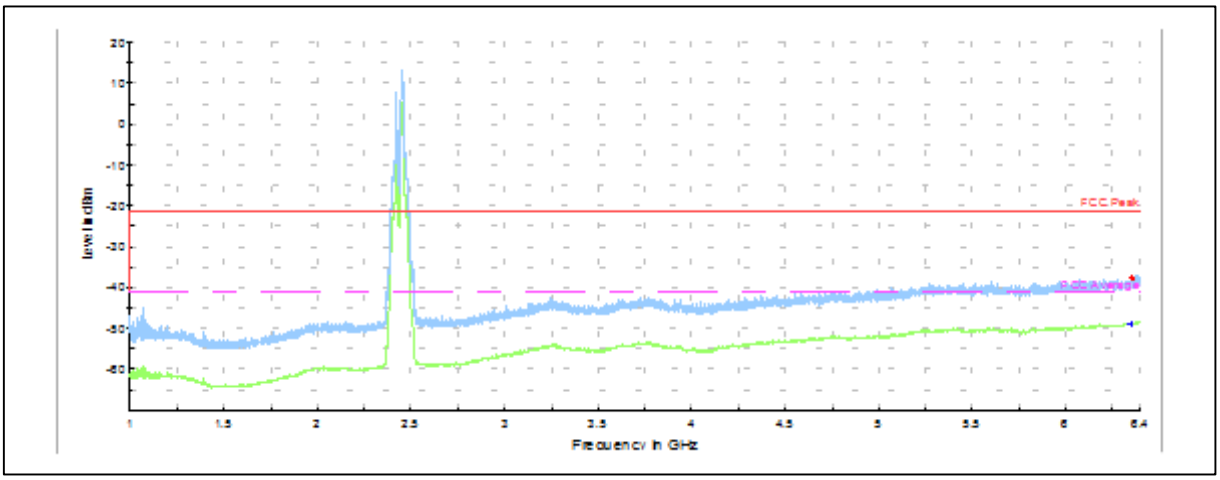
CH3F



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6286.0	---	-49.3	-41.2	8.1
6290.5	-38.2	---	-21.2	17.0

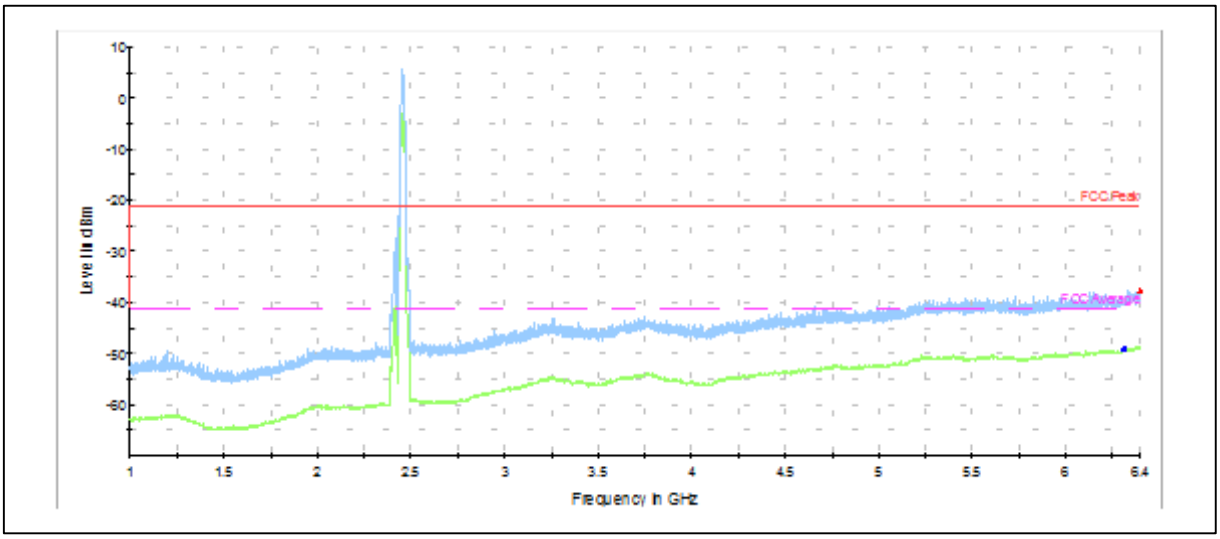
CH6F



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
5996.5	---	-50.6	-41.2	9.4
5998.0	-39.5	---	-21.2	18.3

CH9F

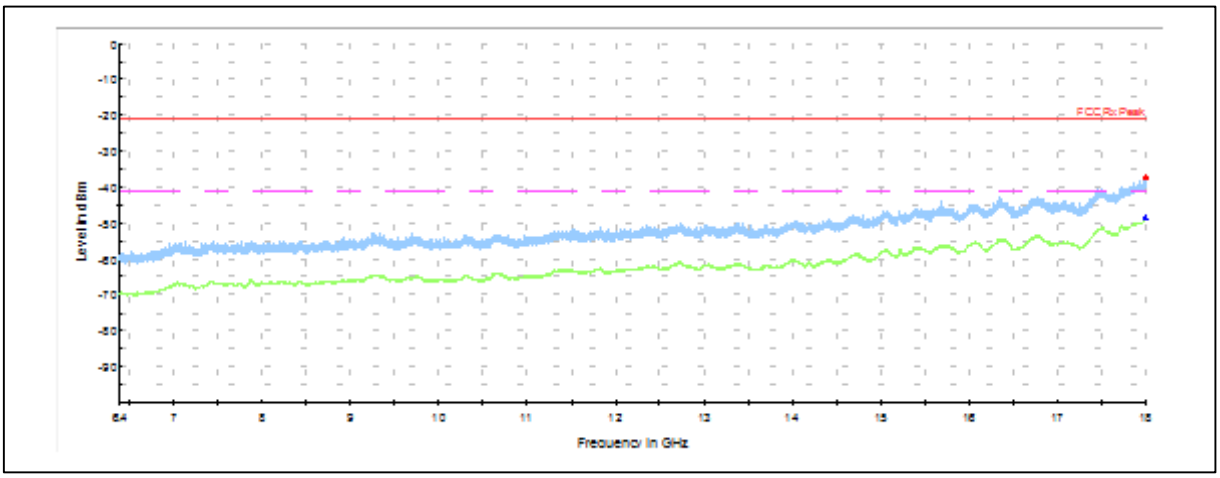


Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
6313.0	---	-49.2	-41.2	8.0
6397.0	-37.8	---	-21.2	16.6

Radiated Spurious – 6.4GHz – 18GHz

All modes



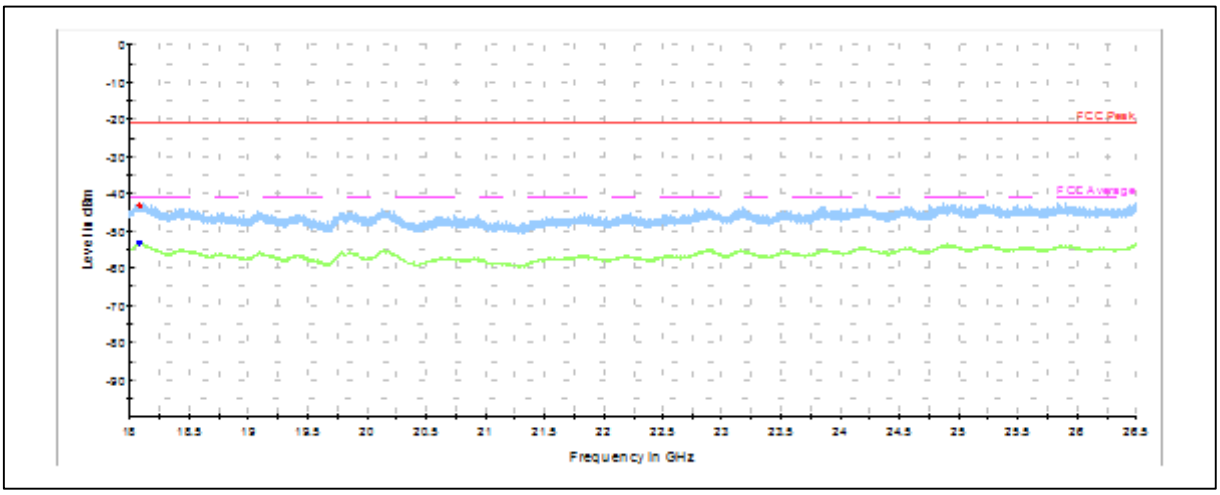
Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
17995.7	---	-48.7	-41.2	7.5
17992.6	-37.5	---	-21.2	16.3

Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.
Note 2: No spurious signals were found in all modulations and channels tested.
Note 3: This plot is valid for both SISO and MIMO modes.

Radiated Spurious – 18GHz to 26.5GHz

All modes



Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
18081.2	---	-53.1	-41.2	11.9
18084.0	-43.3	---	-21.2	22.1

Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.
Note 2: No spurious signals were found in all modulations and channels tested.
Note 3: This plot is valid for both SISO and MIMO modes.

Annex C. Test Results BLE

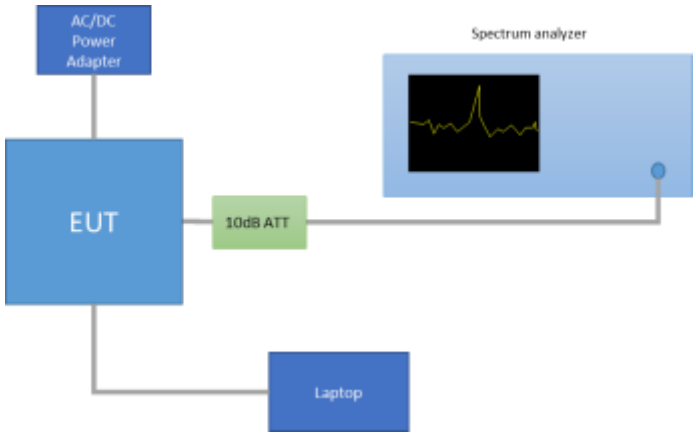
C.1 6dB & 99% Bandwidth

Test limits:

FCC part	RSS part	Limits
15.247 (a) (2)	RSS-247 Clause 5.2 (1)	Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure:

The setup below was used to measure the 6dB & 99% Bandwidth. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



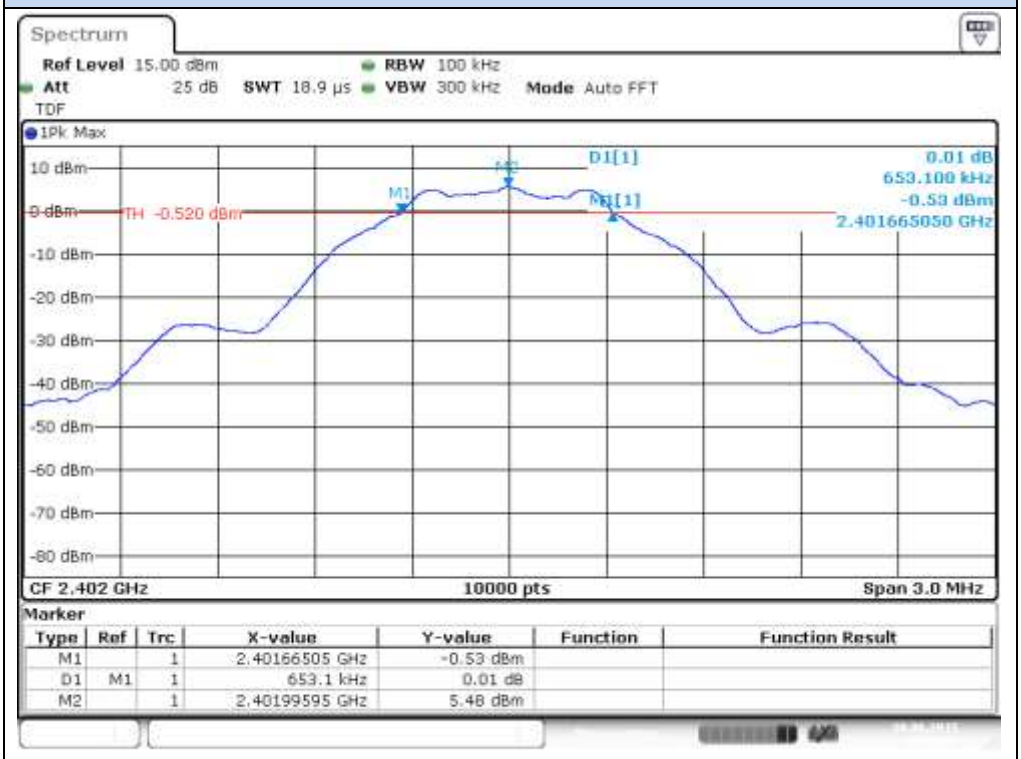
Results tables:

Mode	Channel	Frequency [MHz]	6dB BW [MHz]	99% BW [MHz]
BLE	0	2402	0.653	1.125
	19	2440	0.662	1.120
	39	2480	0.669	1.125

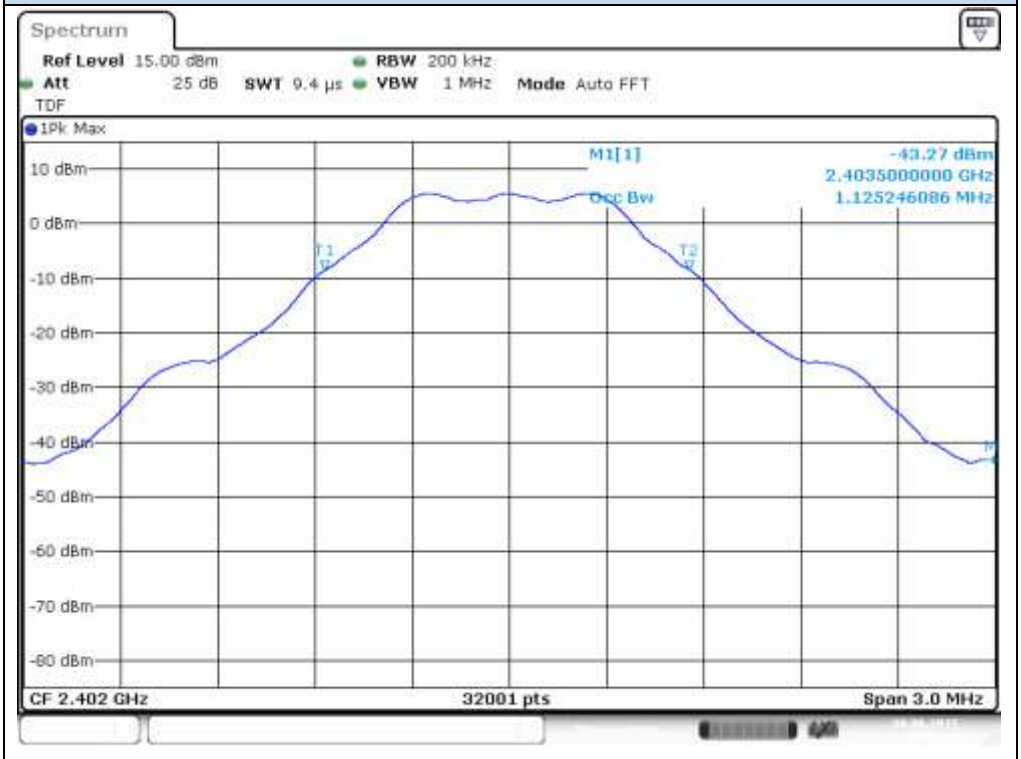
Results screenshot:

BLE

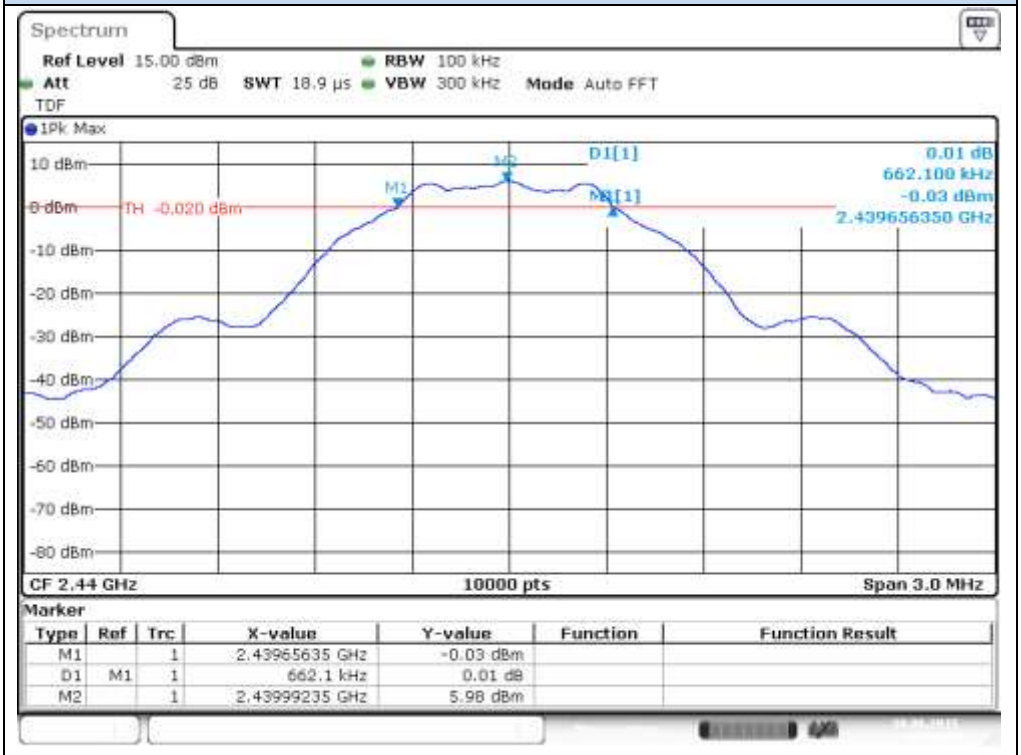
6dB BW – CH0



99% BW – CH0

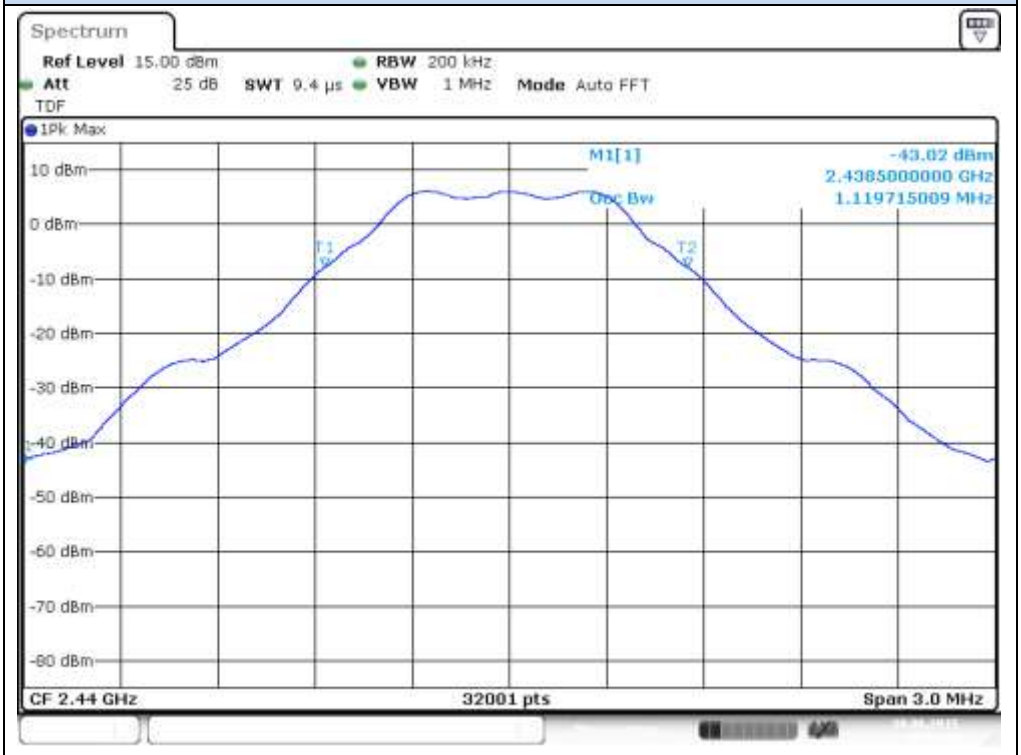


6dB BW – CH19



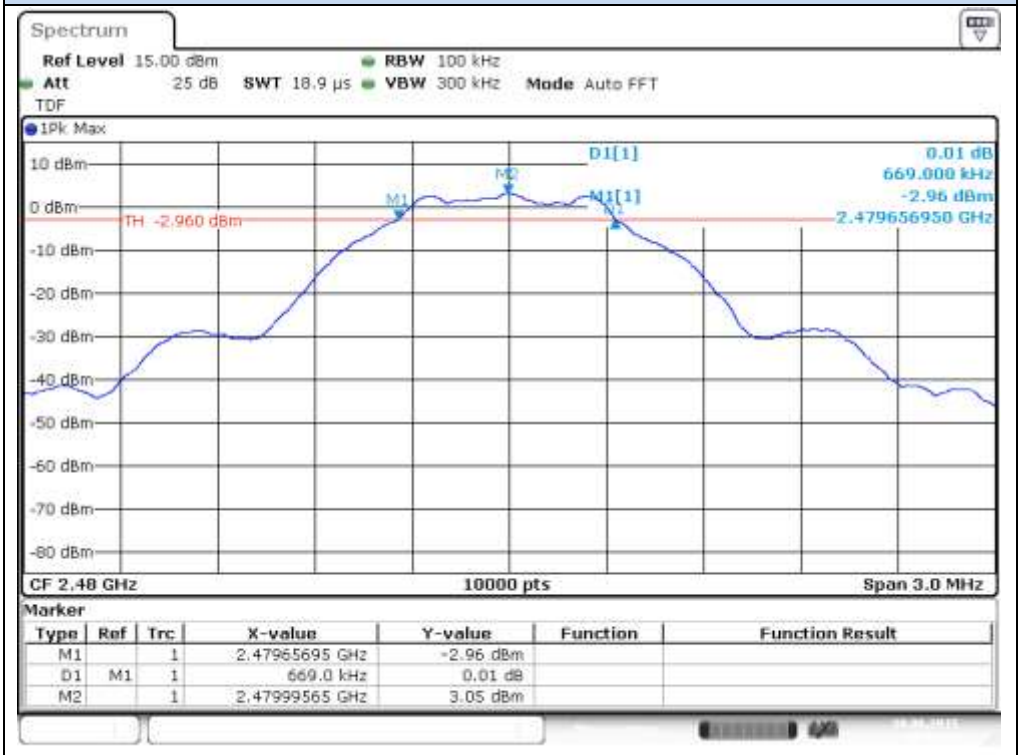
Date: 30.JUN.2015 17:38:53

99% BW – CH19



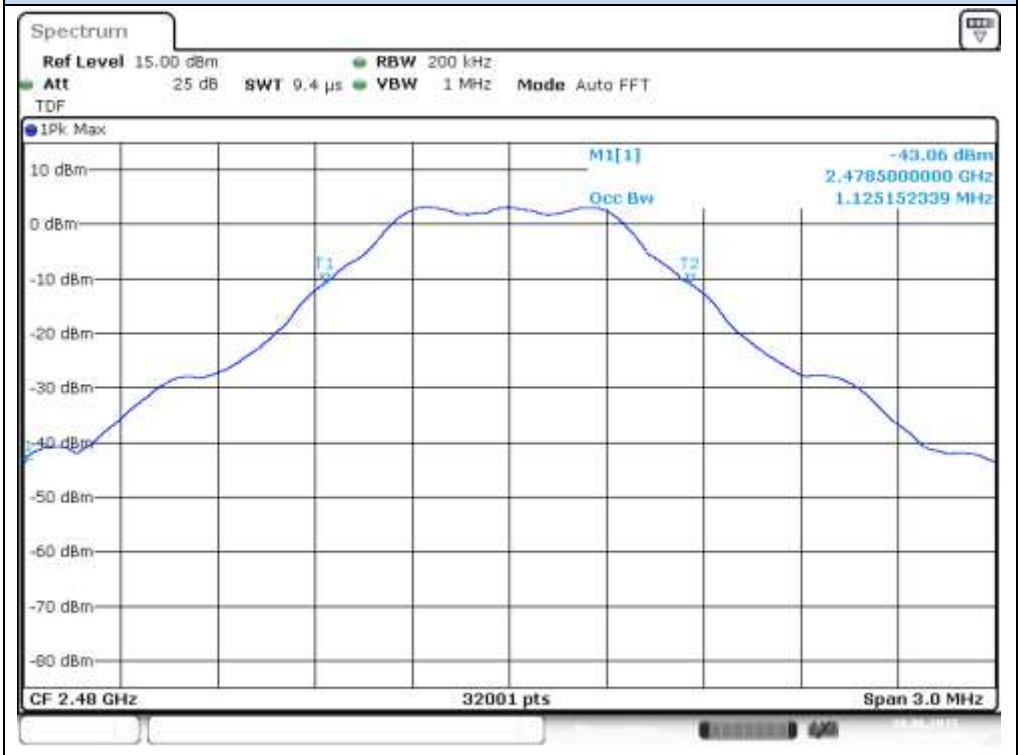
Date: 30.JUN.2015 17:43:35

6dB BW – CH39



Date: 30.JUN.2015 17:41:23

99% BW – CH39



Date: 30.JUN.2015 17:44:35

C.2 Maximum Output Power and antenna gain

Test limits:

FCC part	RSS part	Limits
15.247 (b) (3)	RSS-247 Clause 5.4 (4)	(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.

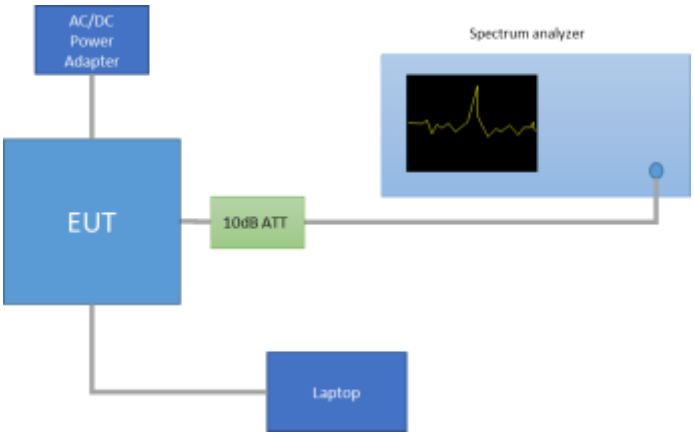
Test procedure:

The Maximum peak conducted output power was measured using the *RBW ≥ DTS bandwidth* method defined in paragraph 9.1.1 of FCC KDB 558074 D01 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

The Maximum conducted average output power was measured using the channel integration method according to Method AVGSA-2, defined in paragraph 9.2.2.4 of FCC KDB 558074 D01 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power. The declared maximum antenna gain is 3dBi.

The setup below was used to measure the maximum conducted output power. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



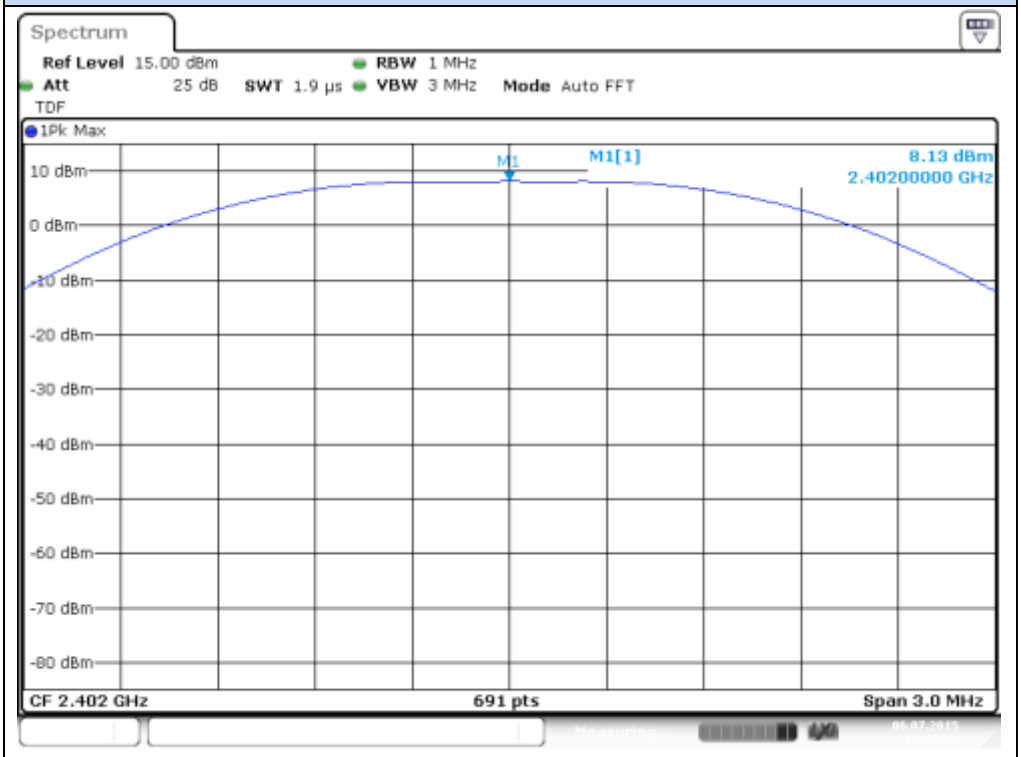
Results tables:

				Power [dBm]			
Mode	**Meas. Duty Cycle [%]**	**CH**	**Frequency [MHz]**	**Measured Conducted RMS**	**Duty cycle Compensated**	**EIRP**	**Measured Conducted PEAK**
BLE	63.2	0	2402	6.07	8.06	11.06	8.13
		19	2440	6.29	8.28	11.28	8.30
		39	2480	4.48	6.47	9.47	6.48

Results screenshot:

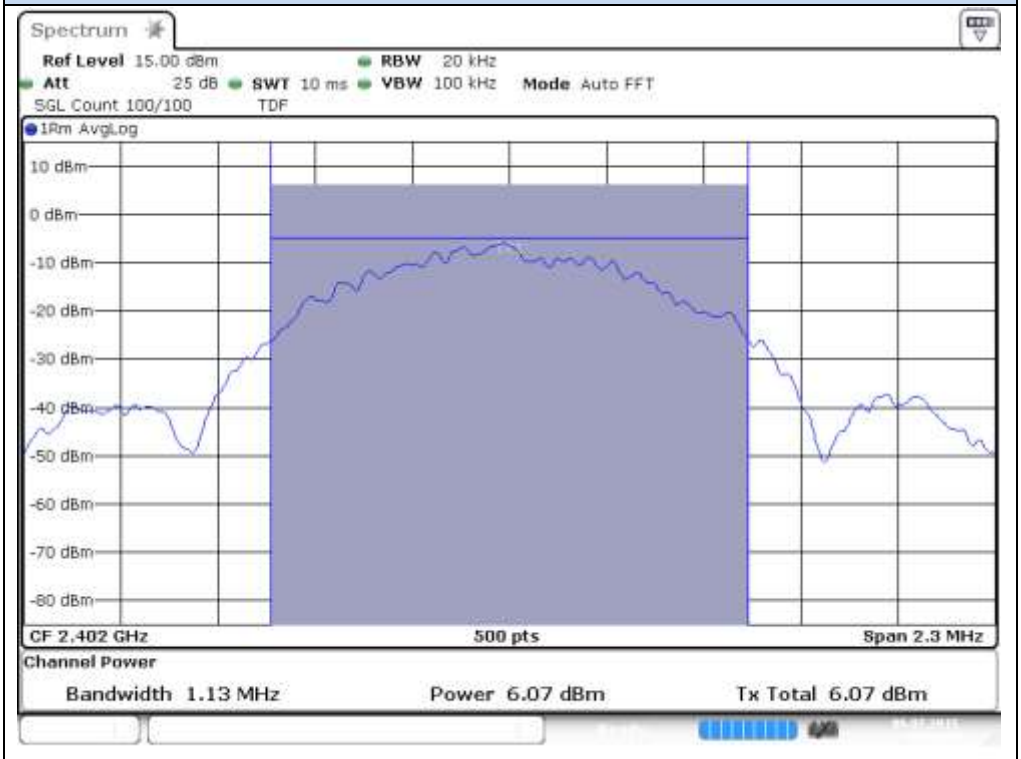
BLE

Max Power Peak - CH0



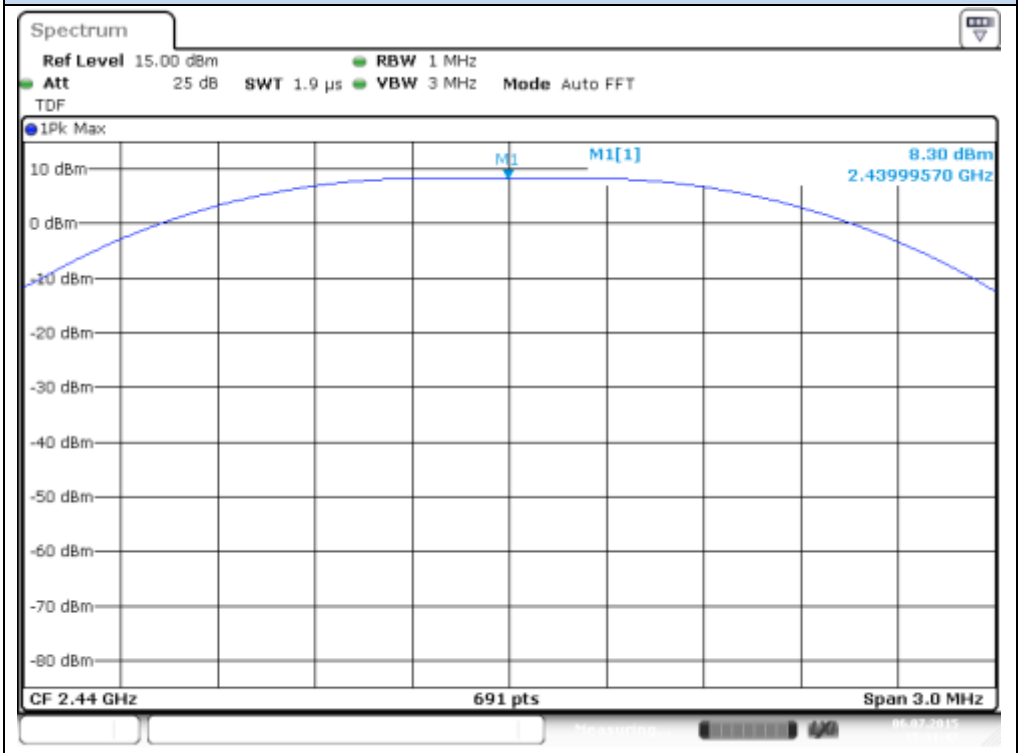
Date: 6.JUL.2015 15:30:52

Max Power RMS - CH0

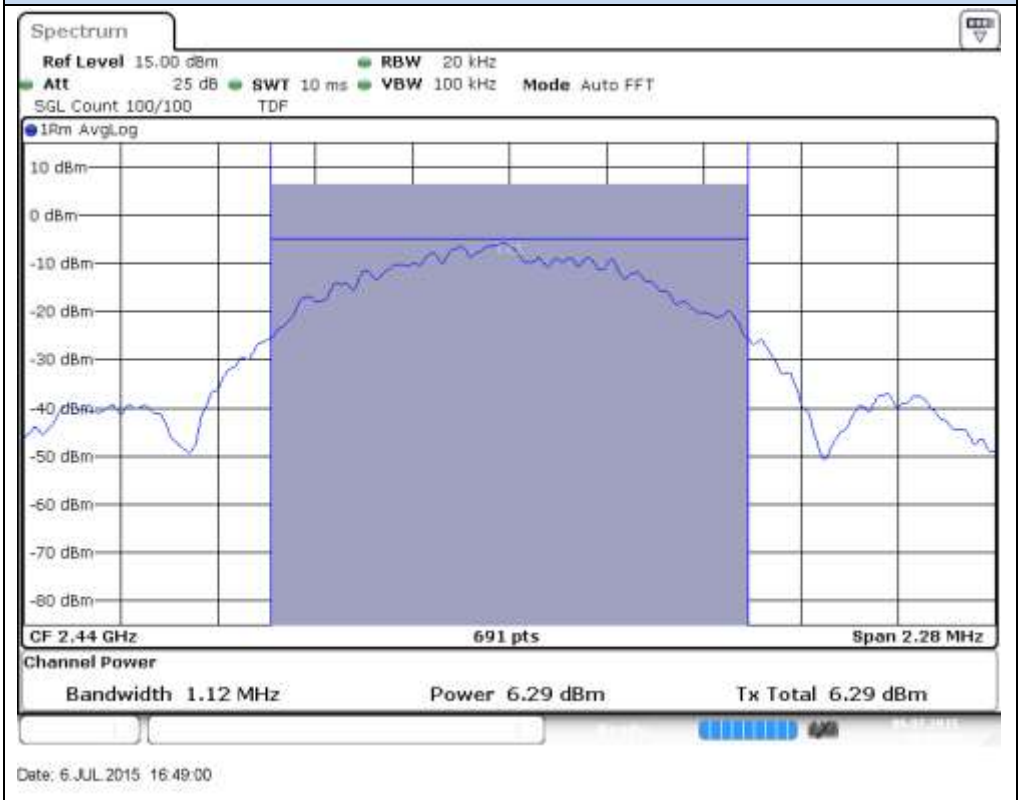


Date: 6.JUL.2015 15:50:21

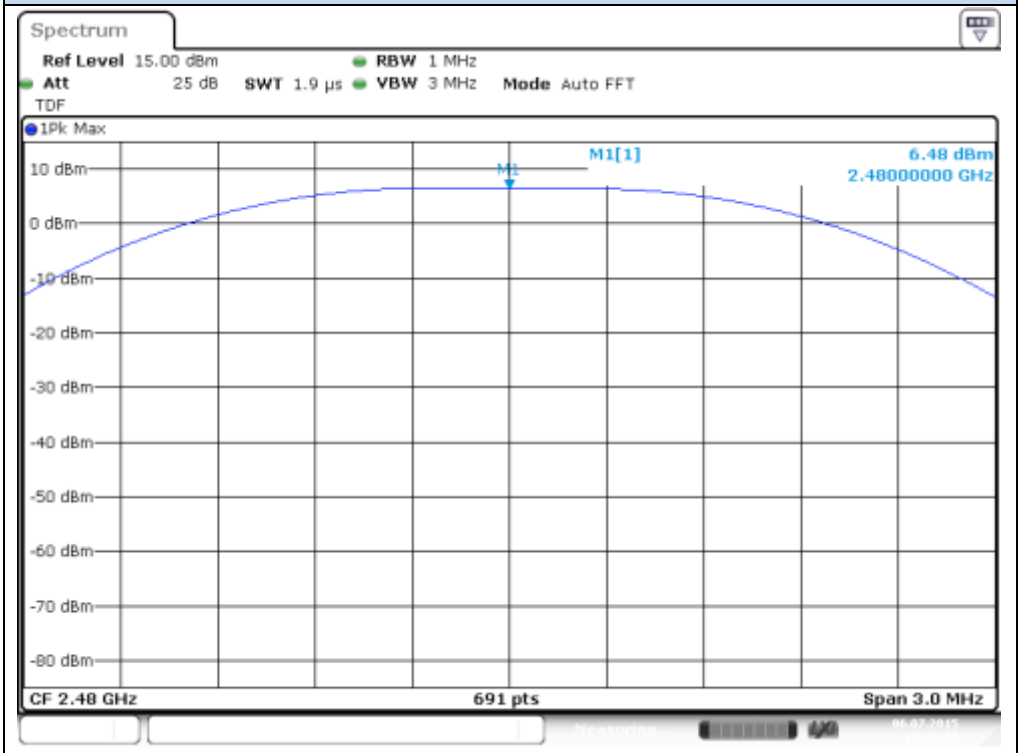
Max Power Peak - CH19



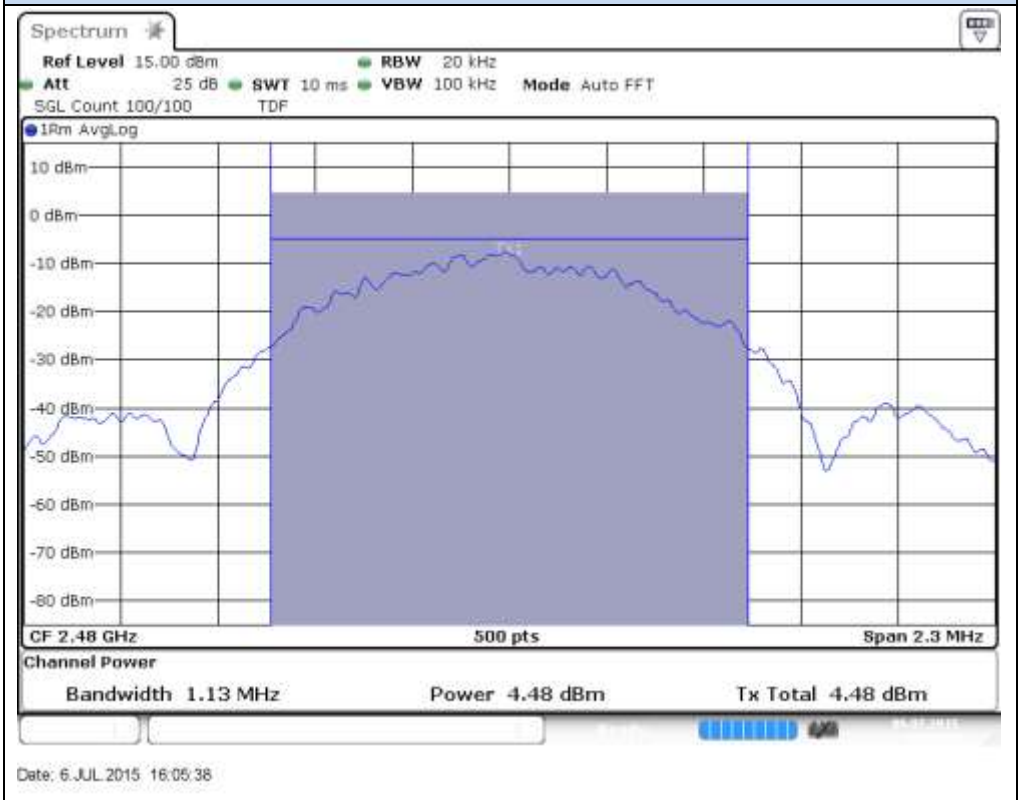
Max Power RMS - CH19



Max Power Peak - CH39



Max Power RMS - CH39



C.3 Out-of-band emissions (conducted)

Test limits:

<table>
<tr><th>FCC part</th><th>RSS part</th><th>Limits</th></tr>
<tr><td>15.247 (d)</td><td>RSS-247
Clause 5.5</td><td>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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 band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.</td></tr>
<tr><td>15.209</td><td>RSS-247
Clause 6.2.2
(2)</td><td>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):
<table>
<tr><th>Freq Range (MHz)</th><th>Field Stregth (µV/m)</th><th>Field Stregth (dBµV/m)</th><th>Meas. Distance (m)</th></tr>
<tr><td>0.009-0.490</td><td>2400/f(kHz)</td><td>-</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/f(kHz)</td><td>-</td><td>300</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>-</td><td>30</td></tr>
<tr><td>30-88</td><td>100</td><td>40</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>43.5</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>46</td><td>3</td></tr>
<tr><td>960-25000</td><td>500</td><td>54</td><td>3</td></tr>
</table>
The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.</td></tr>
</table>

Test procedure:

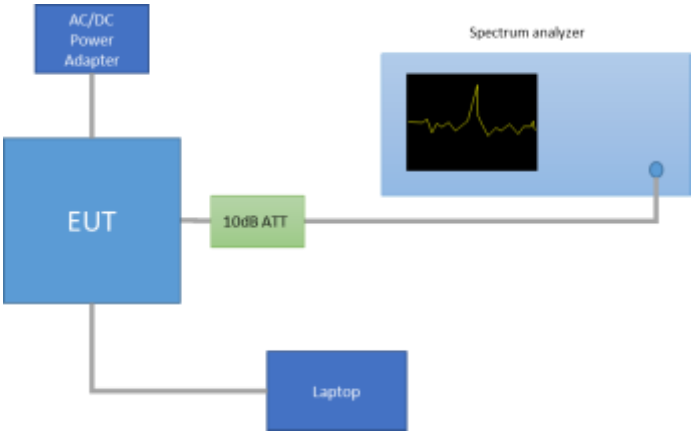
The PSD reference values to determine the -20dB compliance are taken from *C.4 Power Spectral Density*.

For Band Edge measurements falling in restricted bands, the following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dBµV/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

§15.209(a)			Converted values	
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
960-25000	3	100	40.00	-55.2

In case of Band Edge measurements falling in restricted bands, the declared Antenna Gain is also compensated in the graph. The declared maximum antenna gain is 3dBi.

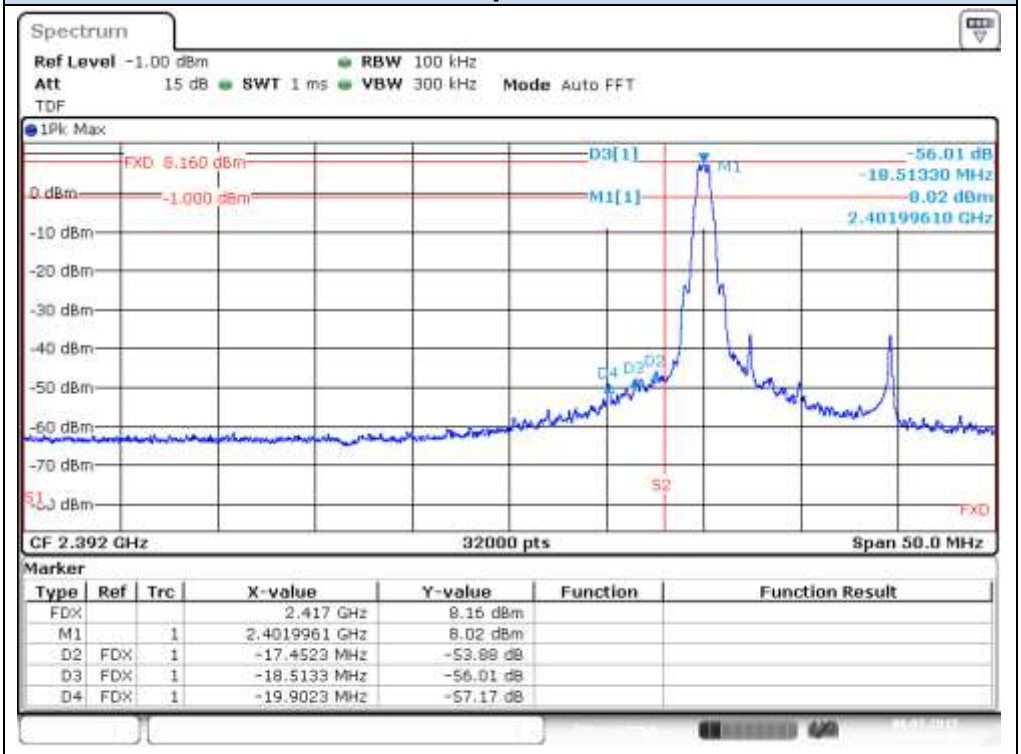
The setup below was used to measure the out-of-band emissions. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



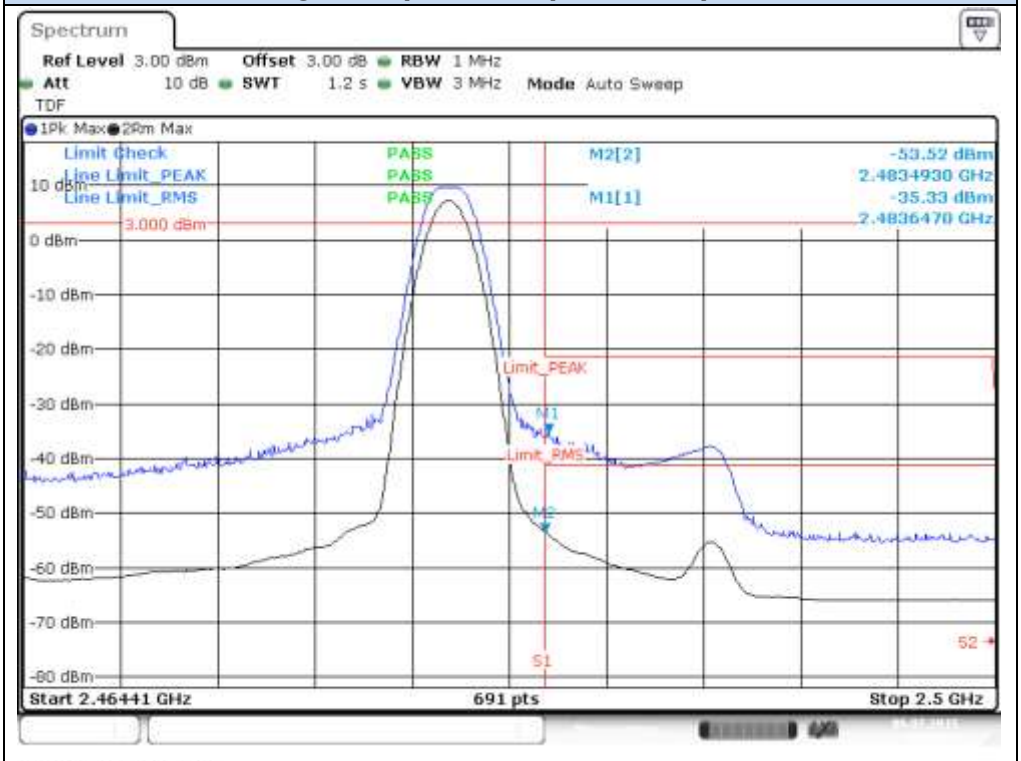
Band Edge results Screenshot:

BLE

BE Low Freq Section, CH 0



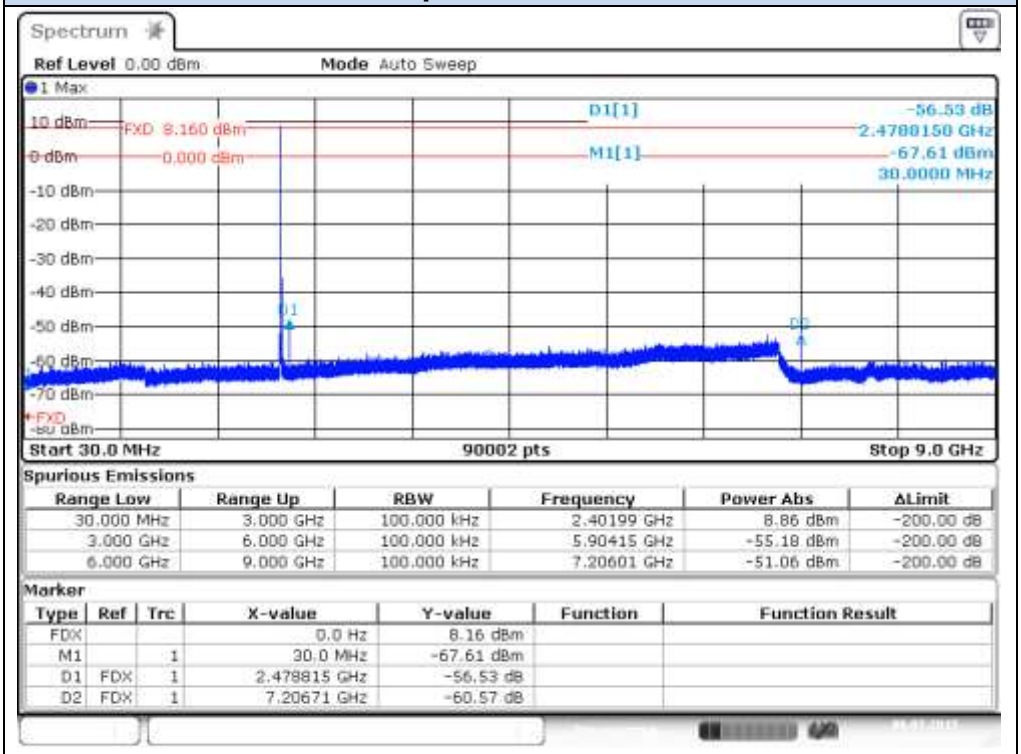
BE High Freq Section (restricted), CH39



Spurious results Screenshot:

BLE, CH0

Cond Spur, 30MHz – 9GHz



Spurious Emissions

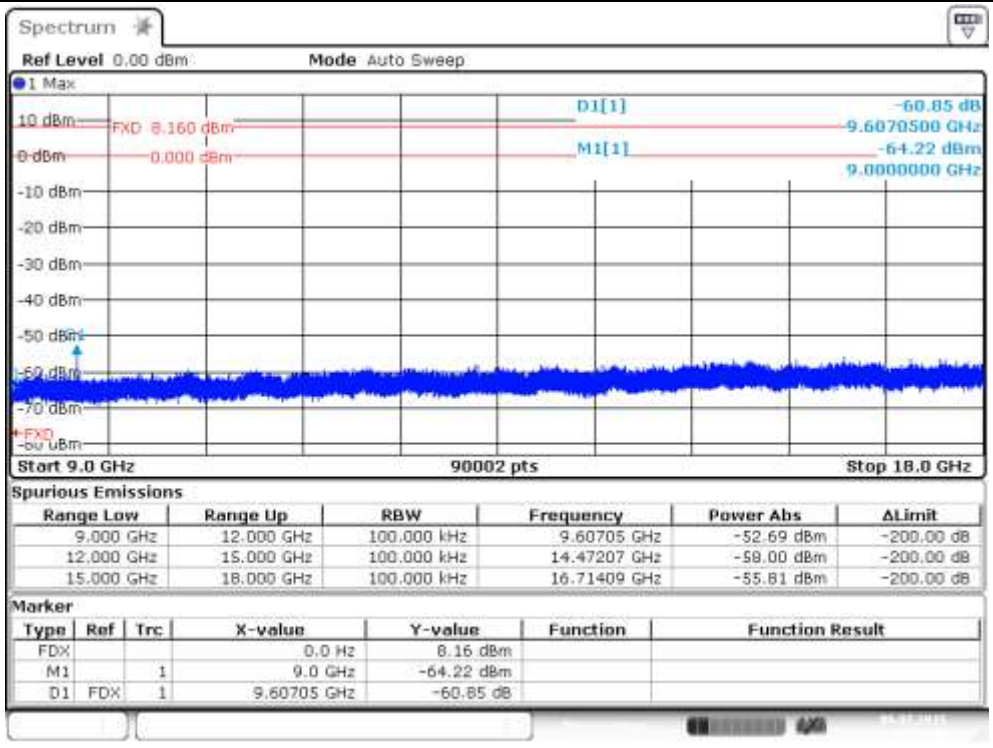
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.40199 GHz	8.86 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.90415 GHz	-55.18 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	7.20601 GHz	-51.06 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			0.0 Hz	8.16 dBm		
M1		1	30.0 MHz	-67.61 dBm		
D1	FDX	1	2.478815 GHz	-56.53 dB		
D2	FDX	1	7.20671 GHz	-60.57 dB		

Date: 6.JUL.2015 17:51:31

Cond Spur, 9GHz – 18GHz



Spurious Emissions

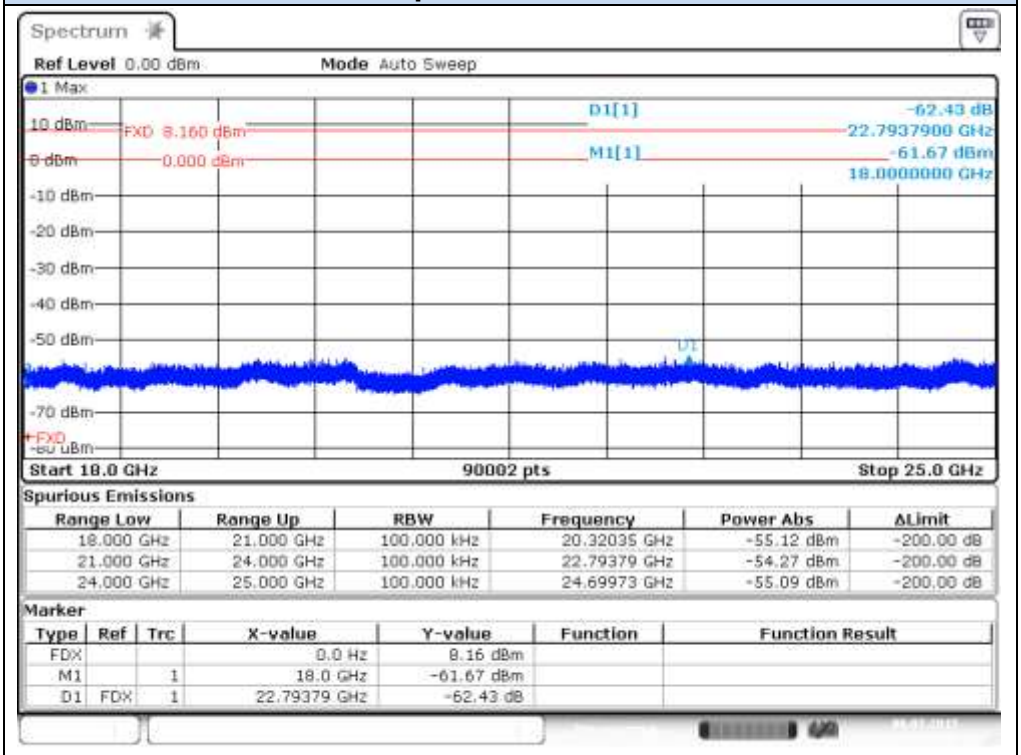
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	9.60705 GHz	-52.69 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.47207 GHz	-58.00 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	16.71409 GHz	-55.81 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			0.0 Hz	8.16 dBm		
M1		1	9.0 GHz	-64.22 dBm		
D1	FDX	1	9.60705 GHz	-60.85 dB		

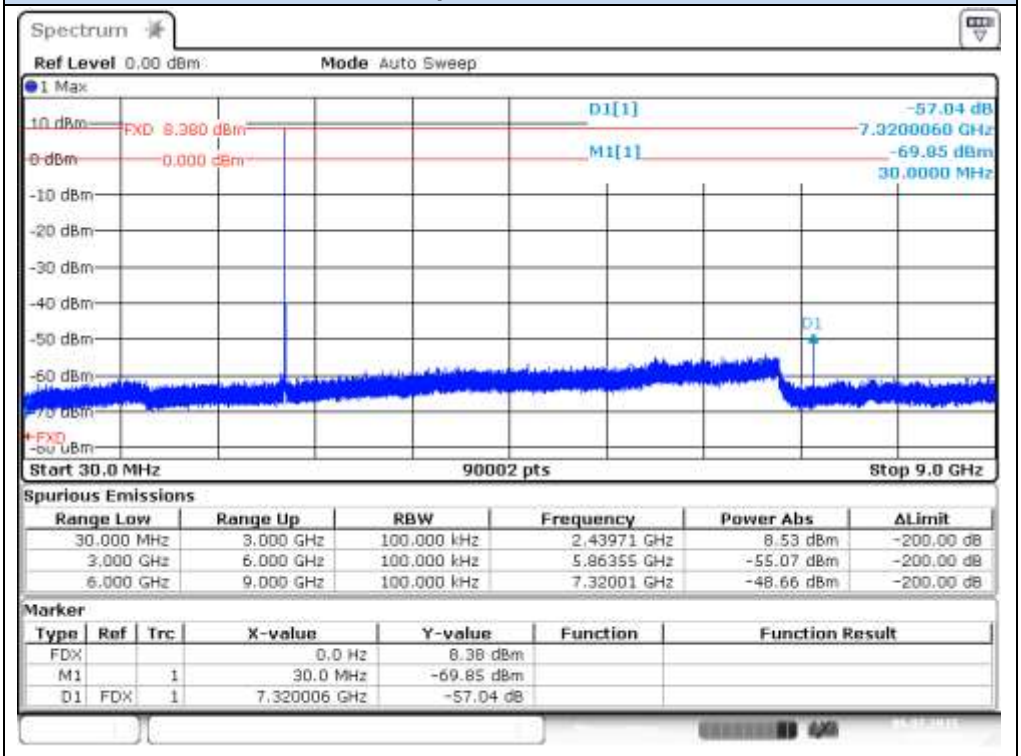
Date: 6.JUL.2015 17:53:16

Cond Spur, 18GHz – 25GHz



BLE, CH19

Cond Spur, 30MHz – 9GHz



Spurious Emissions

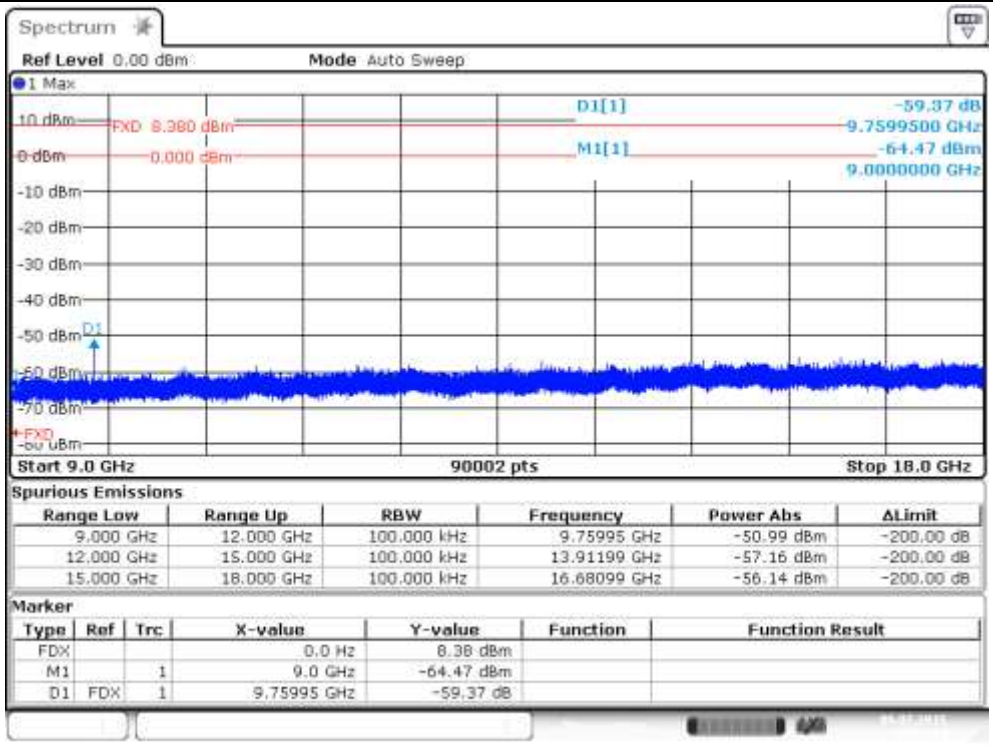
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.43971 GHz	8.53 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.86355 GHz	-55.07 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	7.32001 GHz	-48.66 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			0.0 Hz	8.38 dBm		
M1		1	30.0 MHz	-69.85 dBm		
D1	FDX	1	7.320006 GHz	-57.04 dB		

Date: 6.JUL.2015 17:55:33

Cond Spur, 9GHz – 18GHz



Spurious Emissions

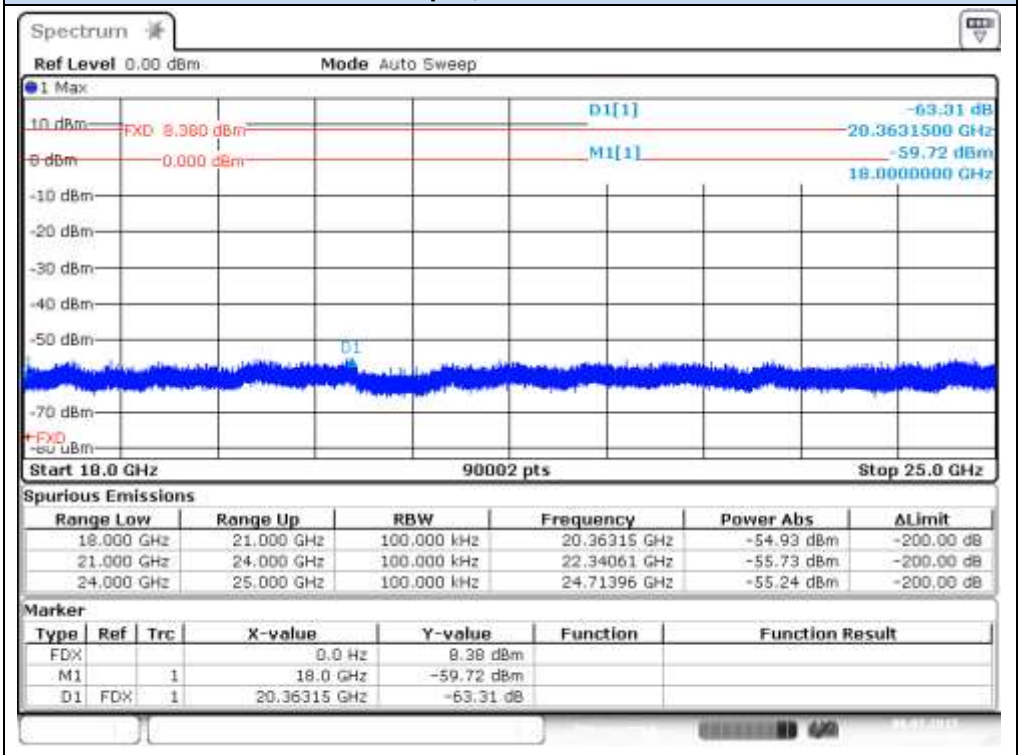
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	9.75995 GHz	-50.99 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	13.91199 GHz	-57.16 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	16.68099 GHz	-56.14 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			0.0 Hz	8.38 dBm		
M1		1	9.0 GHz	-64.47 dBm		
D1	FDX	1	9.75995 GHz	-59.37 dB		

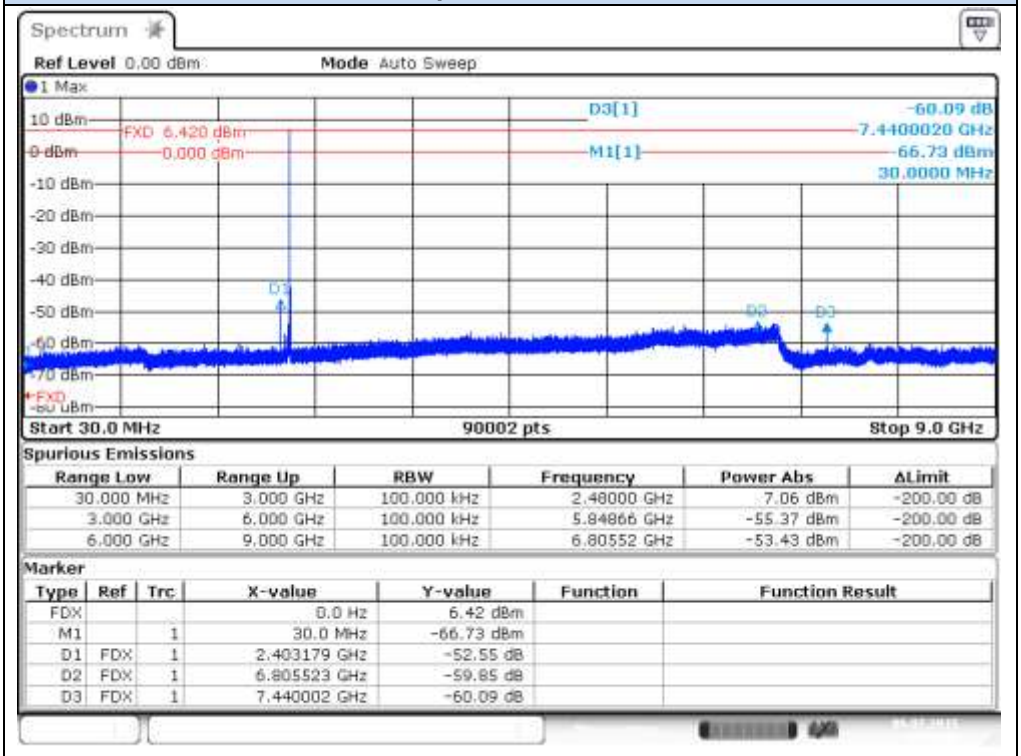
Date: 6.JUL.2015 17:56:14

Cond Spur, 18GHz – 25GHz



BLE, CH39

Cond Spur, 30MHz – 9GHz



Spurious Emissions

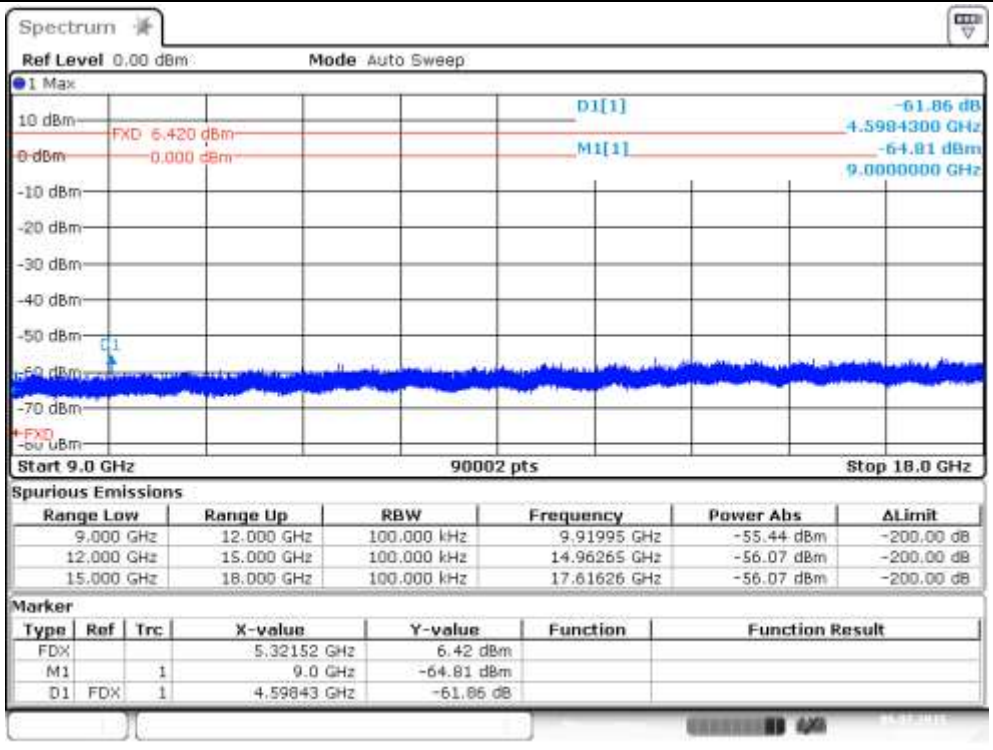
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.48000 GHz	7.06 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.84866 GHz	-55.37 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.80552 GHz	-53.43 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			0.0 Hz	6.42 dBm		
M1		1	30.0 MHz	-66.73 dBm		
D1	FDX	1	2.403179 GHz	-52.55 dB		
D2	FDX	1	6.805523 GHz	-59.85 dB		
D3	FDX	1	7.440002 GHz	-60.09 dB		

Date: 6.JUL.2015 17:58:48

Cond Spur, 9GHz – 18GHz



Spurious Emissions

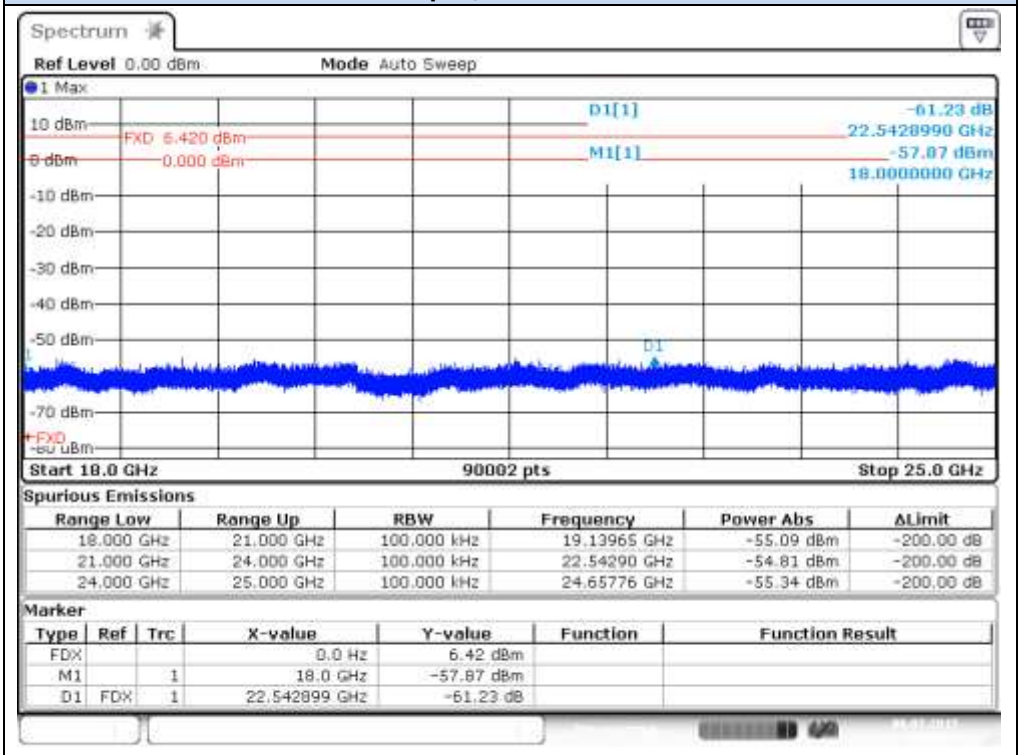
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	9.91995 GHz	-55.44 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.96265 GHz	-56.07 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.61626 GHz	-56.07 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			5.32152 GHz	6.42 dBm		
M1		1	9.0 GHz	-64.81 dBm		
D1	FDX	1	4.59843 GHz	-61.86 dB		

Date: 6.JUL.2015 18:00:23

Cond Spur, 18GHz – 25GHz



C.4 Power Spectral Density

Test limits:

FCC part	RSS part	Limits
15.247 (e)	RSS-247 Clause 5.2 (2)	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

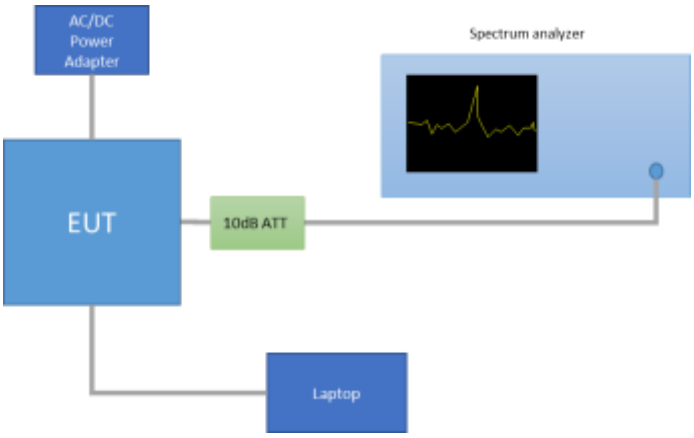
Test procedure:

The maximum peak power spectral density level of the fundamental emission was measured using the method PKPSD, defined in paragraph 10.2 of FCC KDB 558074 D01 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

The maximum average power spectral density level of the fundamental emission was measured using the method AVGPSD-2, defined in paragraph 10.5 FCC KDB 558074 D01 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

The setup below was used to measure the power spectral density. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

The declared maximum antenna gain is 3dBi.



Results tables:

PSD RMS

Mode	Meas. Duty Cycle [%]	CH	Frequency [MHz]	PSD RMS [dBm]	
				Measured Conducted	Duty cycle Compensated
BLE	63	0	2402	-0.03	1.69
		19	2440	0.24	2.23
		39	2480	-1.72	0.27

PSD Peak

Note: these PSD_{Peak} values are shown just as a reference for the compliance of the Out-of-band Measurements, thus the RBW used for these measurements was 100kHz.

In any case, the corresponding PSD Peak value at 3kHz can be derived from these results by using the RBW correction:

$$PSD_{Peak}@3kHz = PSD_{Peak}@100kHz - 10log\left(\frac{100kHz}{3kHz}\right)$$

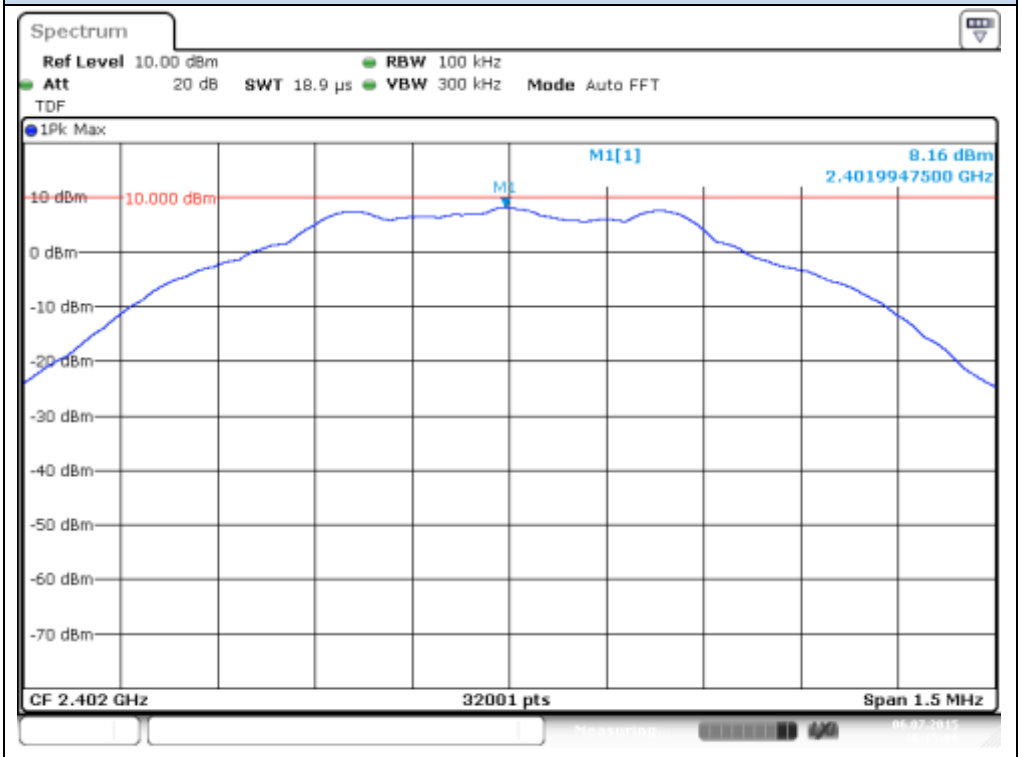
For the maximum PSD_{Peak} value found (8.38dBm), the corresponding PSD_{Peak} at 3kHz is -6.85dBm.

Mode	CH	Frequency [MHz]	PSD PEAK [dBm]
			Measured Conducted
BLE	0	2402	8.16
	19	2440	8.38
	39	2480	6.42

Results screenshot:

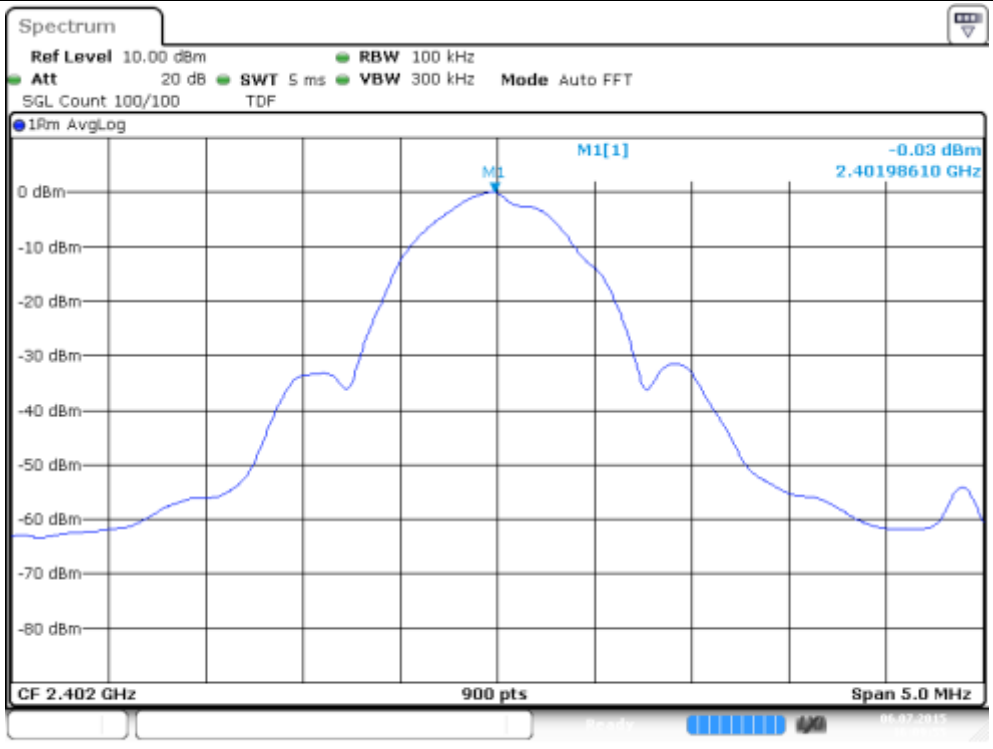
BLE

PSD PEAK - CH0



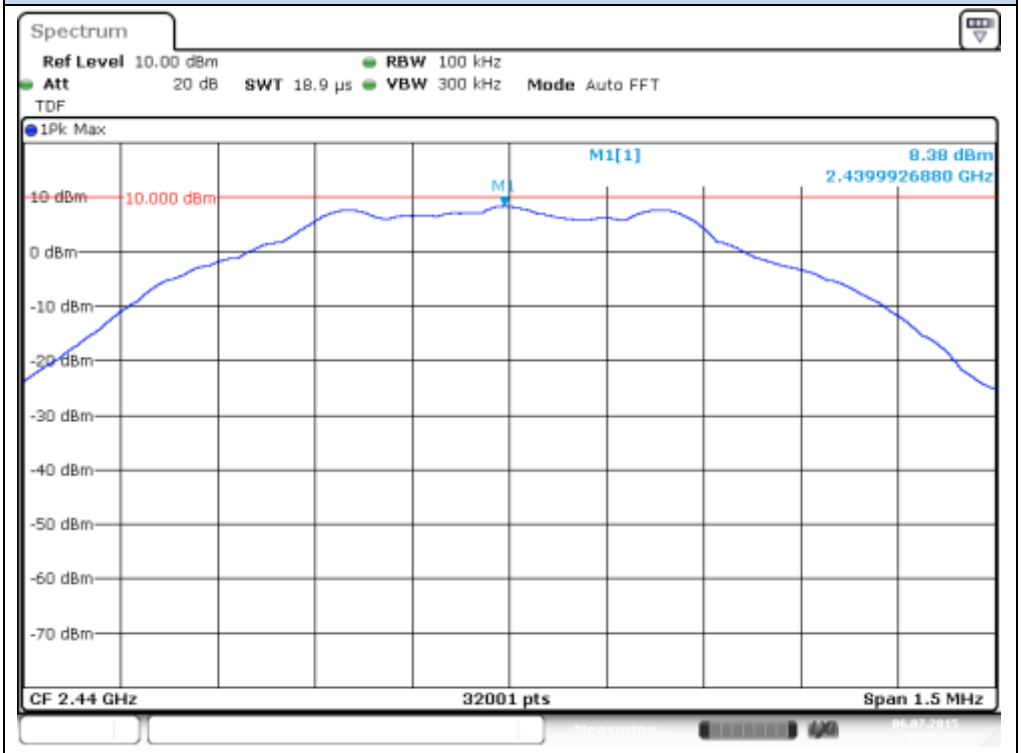
Date: 6.JUL.2015 16:15:09

PSD RMS - CH0



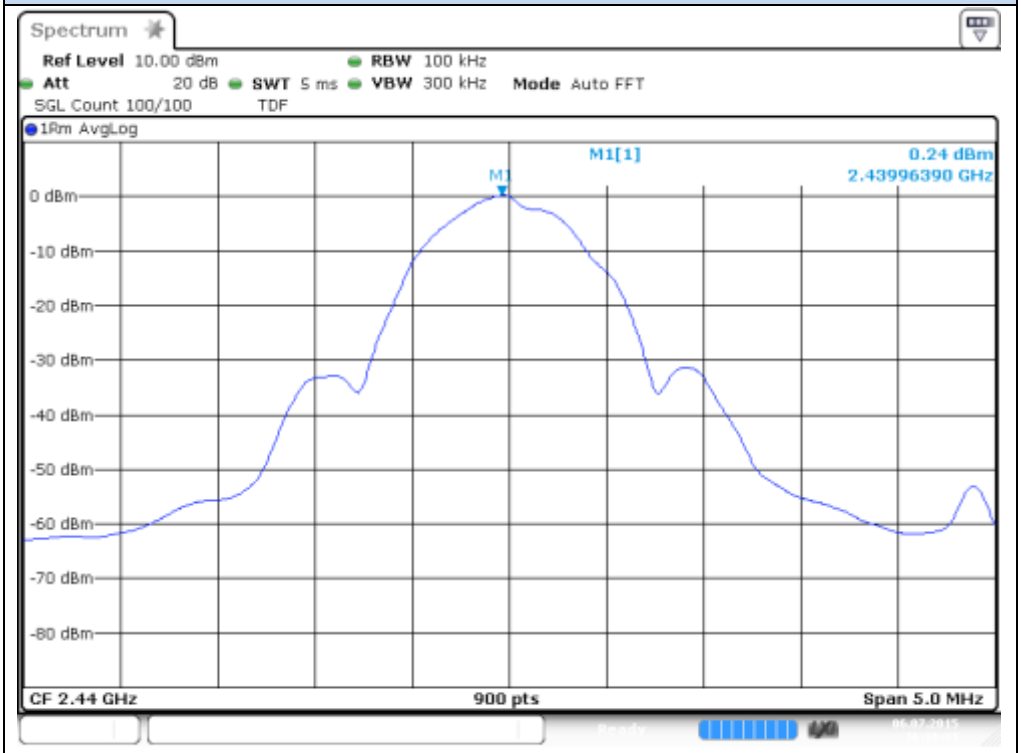
Date: 6.JUL.2015 16:09:55

PSD PEAK - CH19



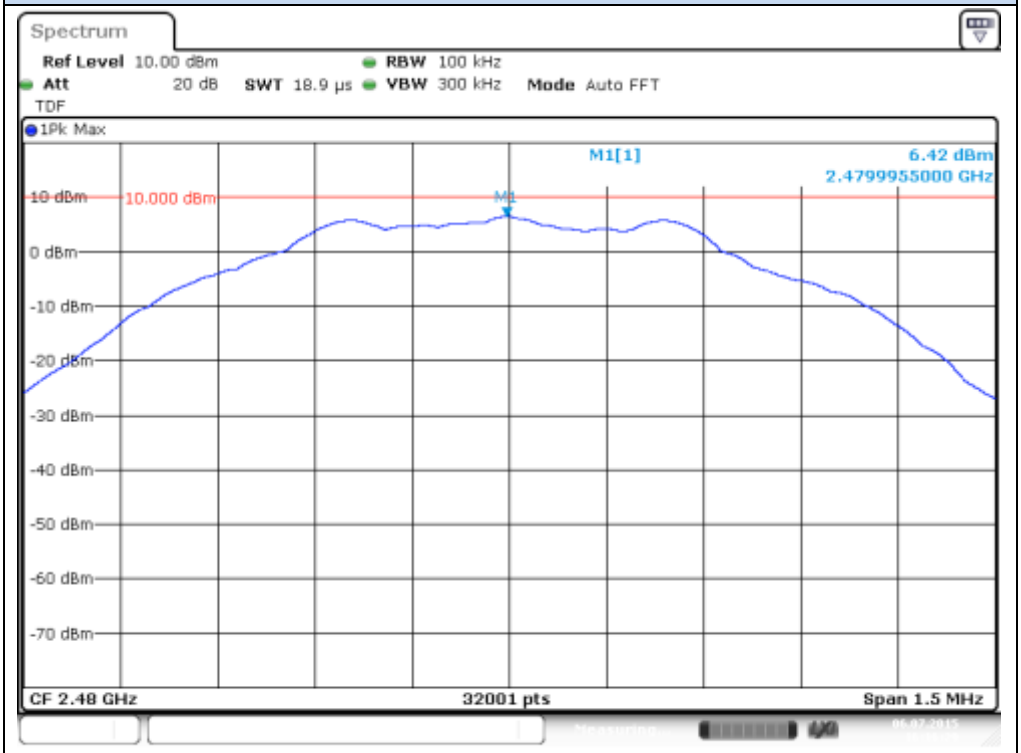
Date: 6.JUL.2015 16:15:50

PSD RMS - CH19



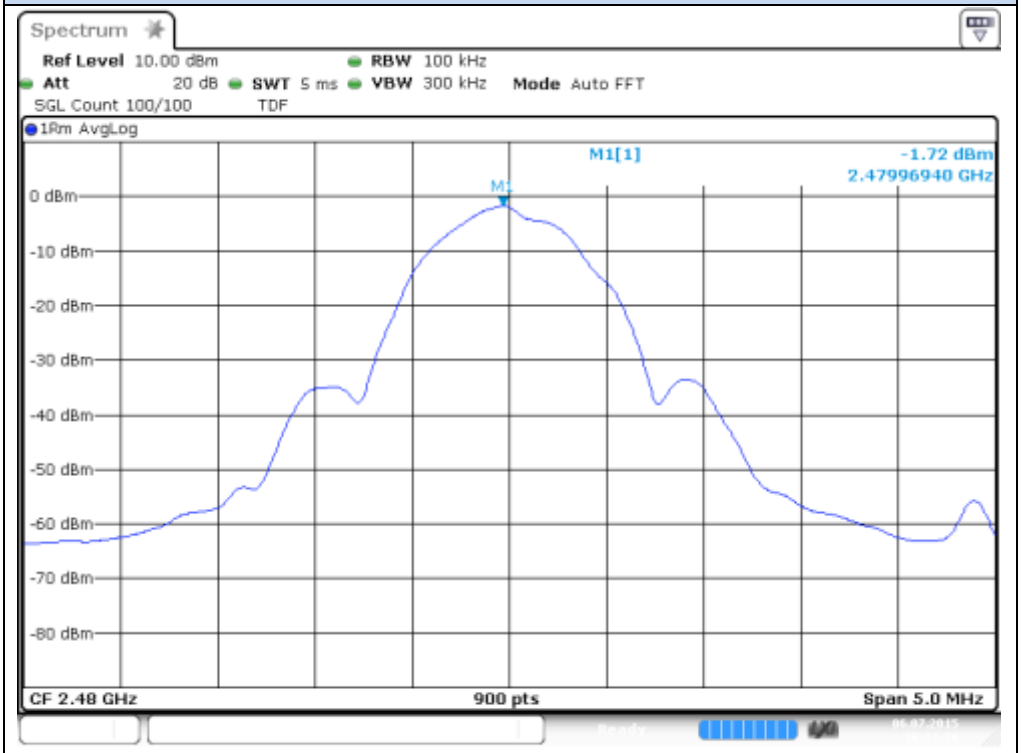
Date: 6.JUL.2015 16:10:42

PSD PEAK - CH39



Date: 6.JUL.2015 16:16:30

PSD RMS - CH39



Date: 6.JUL.2015 16:12:16

C.5 Radiated spurious emission

Standard references:

<table>
<tr><th>FCC part</th><th>RSS part</th><th>Limits</th></tr>
<tr><td>15.247 (d)</td><td>RSS-247
Clause 5.5</td><td>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):

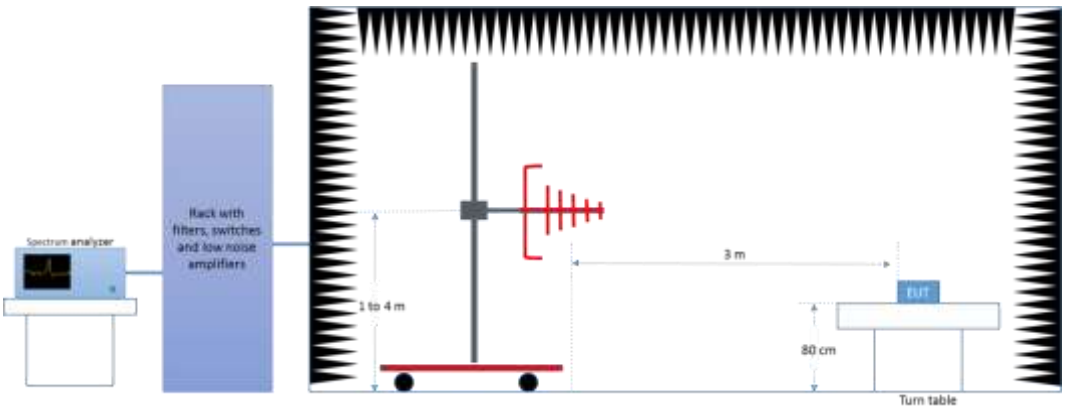
<table>
<tr><th>Freq Range (MHz)</th><th>Field Stregth (µV/m)</th><th>Field Stregth (dBµV/m)</th><th>Meas. Distance (m)</th></tr>
<tr><td>0.009-0.490</td><td>2400/f(kHz)</td><td>-</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/f(kHz)</td><td>-</td><td>300</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>-</td><td>30</td></tr>
<tr><td>30-88</td><td>100</td><td>40</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>43.5</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>46</td><td>3</td></tr>
<tr><td>960-25000</td><td>500</td><td>54</td><td>3</td></tr>
</table>

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.</td></tr>
</table>

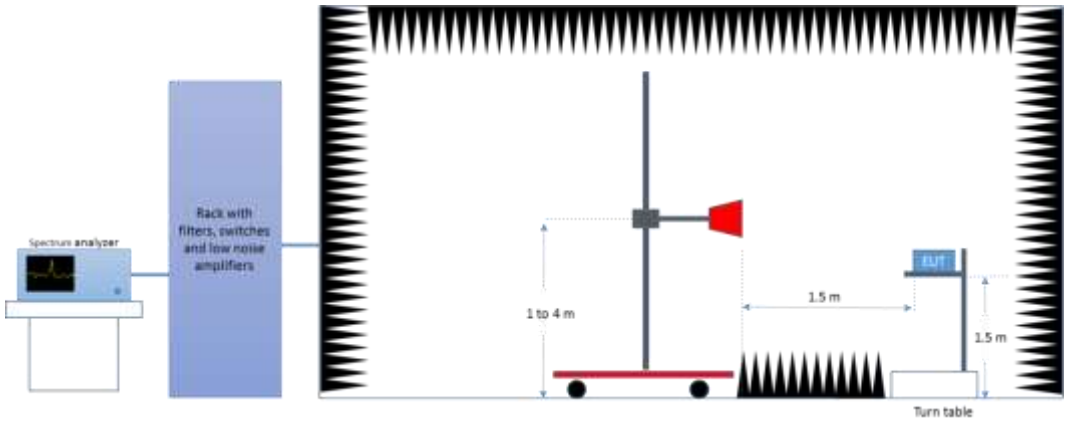
Test procedure:

The setups below were used to measure the radiated spurious emissions.
Depending of the frequency range and bands being tested, different antennas and filters were used.
The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360º and for both Vertical and Horizontal polarizations.
The radiated spurious emissions were measured on the worst case configuration selected from the chapter *C.2 Maximum Output Power and antenna gain* and using the lowest, middle and highest channels.

Radiated Setup < 1GHz



Radiated Setup > 1GHz



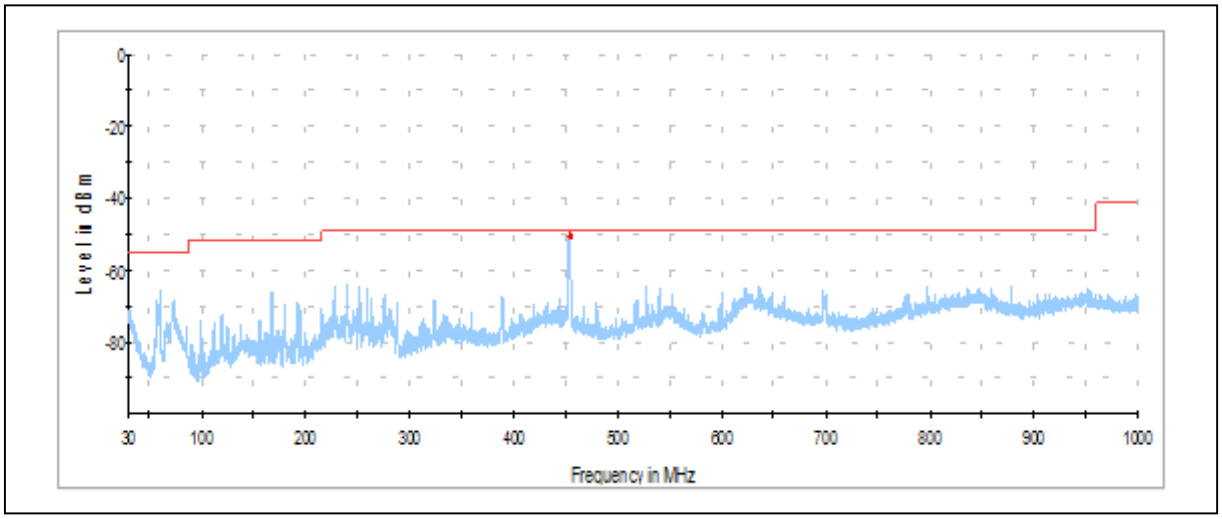
The following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dBµV/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

§15.209(a)			Converted values	
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
30-88	3	500	53.98	-41.2
88-216	3	200	46.02	-49.2
216-960	3	150	43.52	-51.7
960-25000	3	100	40.00	-55.2

Test Results:

Radiated Spurious – 30MHz to 1GHz

All channels



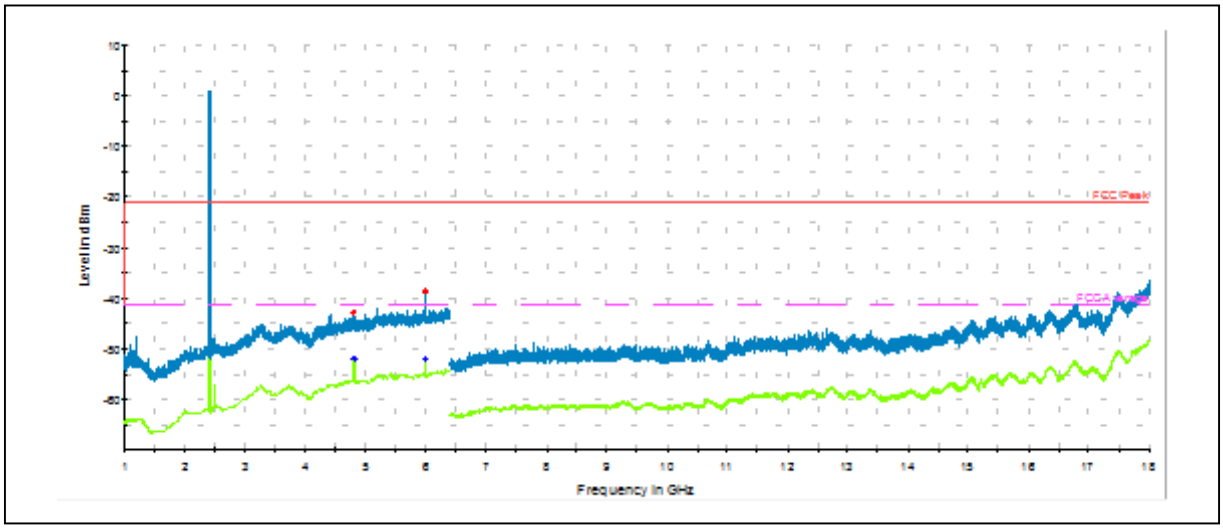
Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	Limit	Margin
MHz	dBm	dBm	dB
454.5	-50.5	-49.2	1.3

Note 1: The spurious signals detected do not depend on either the operating channel.
Note 2: No spurious signals were found in all channels tested.

Radiated Spurious – 1 GHz to 18GHz
BLE

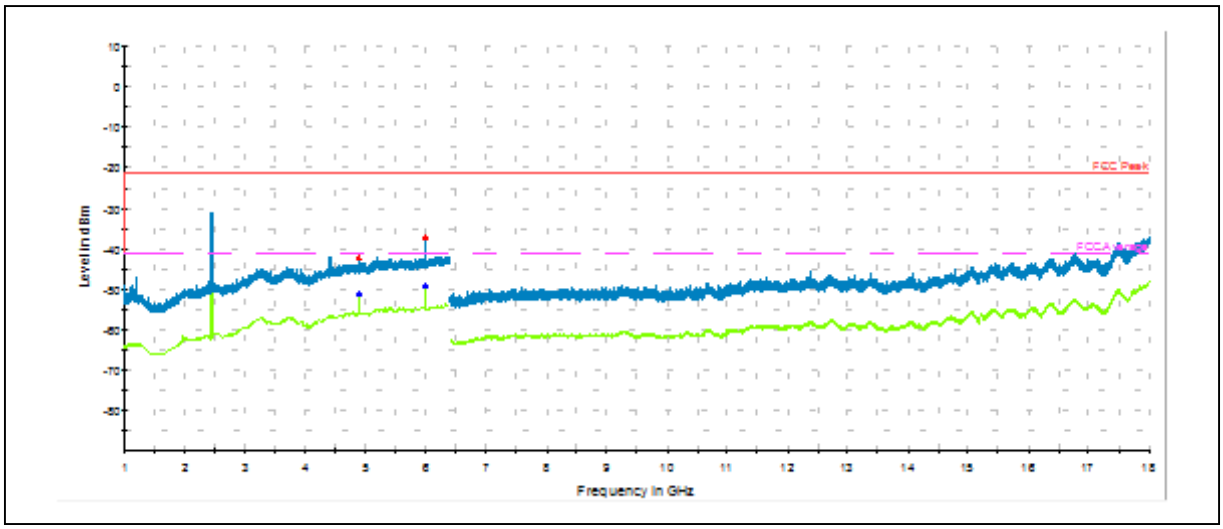
CH0



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
4804.0	---	-51.8	-41.20	10.6
4803.5	-42.7	---	-21.20	21.5
5991.5	---	-52.0	-41.20	10.8
5991.0	-38.6	---	-21.20	17.4
17480.1	---	-50.5	-41.20	9.3
17486.9	-38.8	---	-21.20	17.6

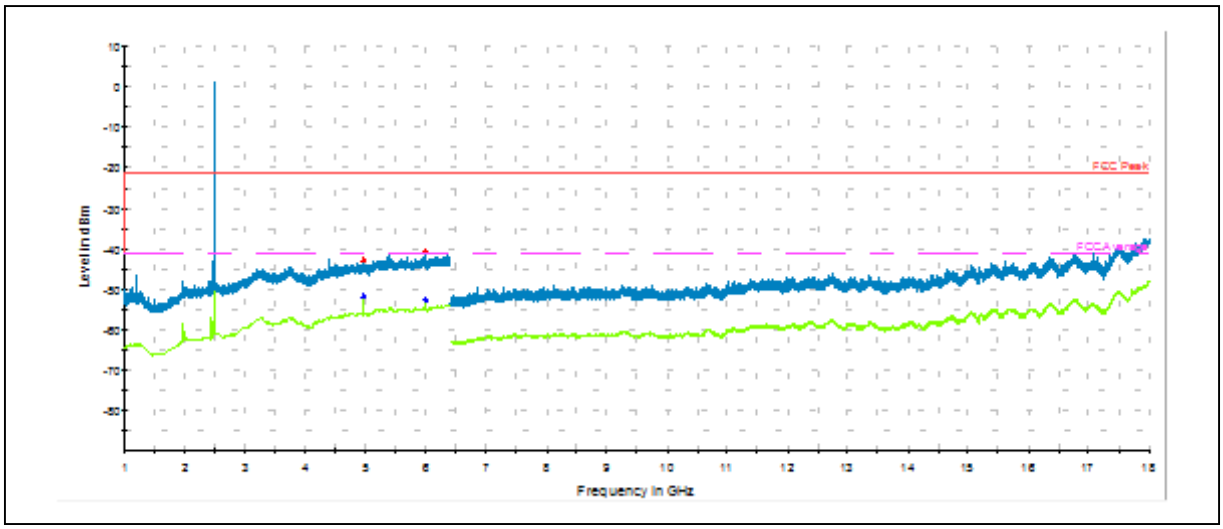
CH19



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
4880.0	---	-51.3	-41.20	10.1
4880.5	-42.5	---	-21.20	21.3
5993.0	---	-49.4	-41.20	8.2
5992.5	-37.2	---	-21.20	16.0
17486.9	---	-50.0	-41.20	8.8
17494.3	-39.3	---	-21.20	18.1

CH39

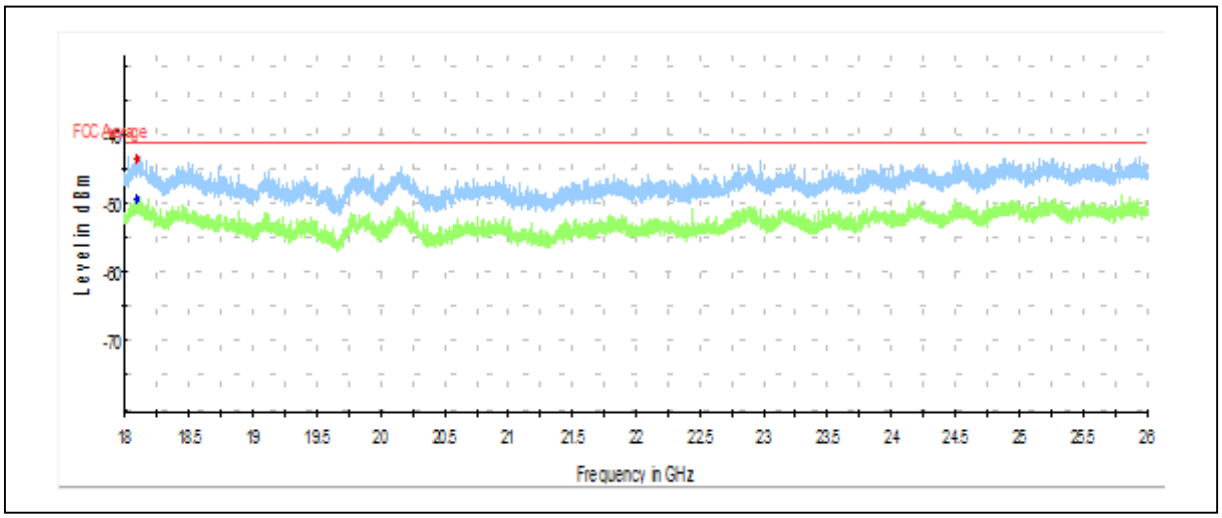


Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
4960.0	---	-51.8	-41.20	10.6
4960.0	-42.9	---	-21.20	21.7
5989.0	---	-52.8	-41.20	11.6
5988.5	-40.9	---	-21.20	19.7
17486.4	---	-50.3	-41.20	9.1
17498.0	-39.1	---	-21.20	17.9

Radiated Spurious – 18GHz to 26.5GHz

All channels



Peak measurements RMS measurements FCC Peak FCC RMS

Frequency	Max Peak	RMS	Limit	Margin
MHz	dBm		dBm	dB
18092.9	-43.5	---	-21.20	22.3
18092.9	---	-49.3	-41.20	6.3

Note 1: The spurious signals detected do not depend on either the operating channel.
Note 2: No spurious signals were found in all channels tested.