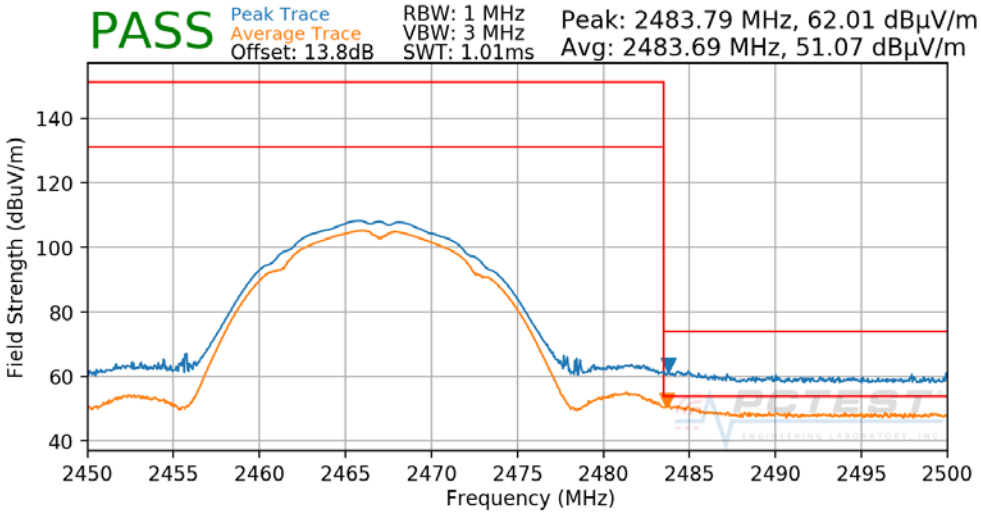
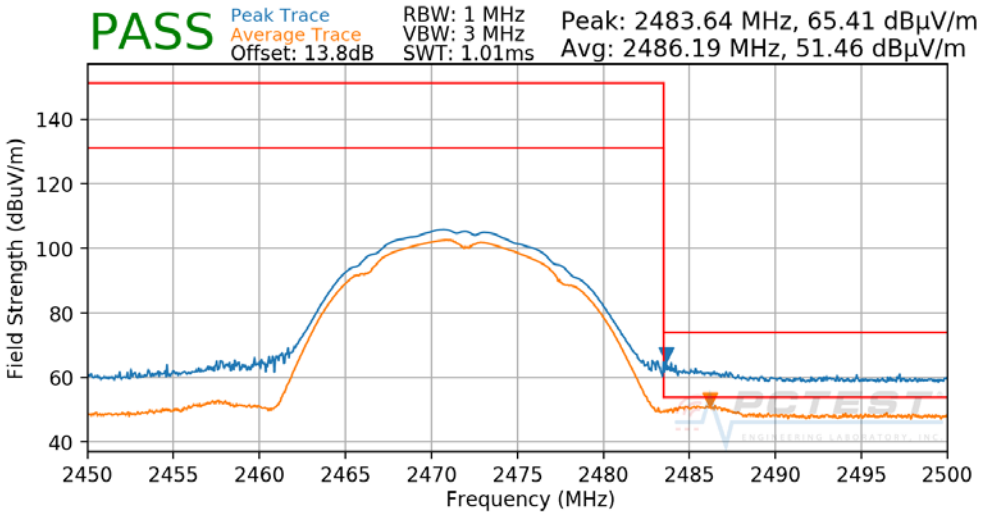
Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2467MHz
Channel:	12



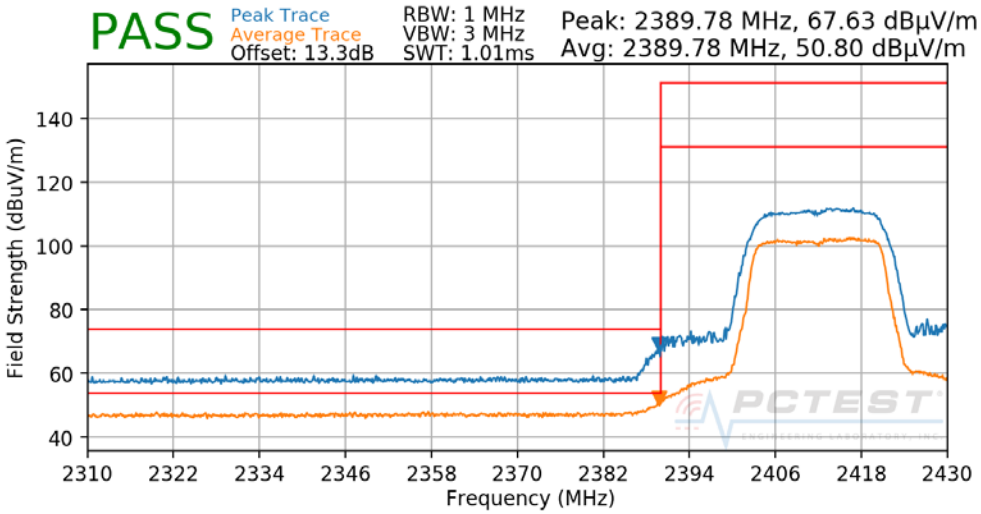
Plot 7-152. Radiated Restricted Upper Band Edge Measurement SISO CORE0 (Average & Peak)

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2472MHz
Channel:	13



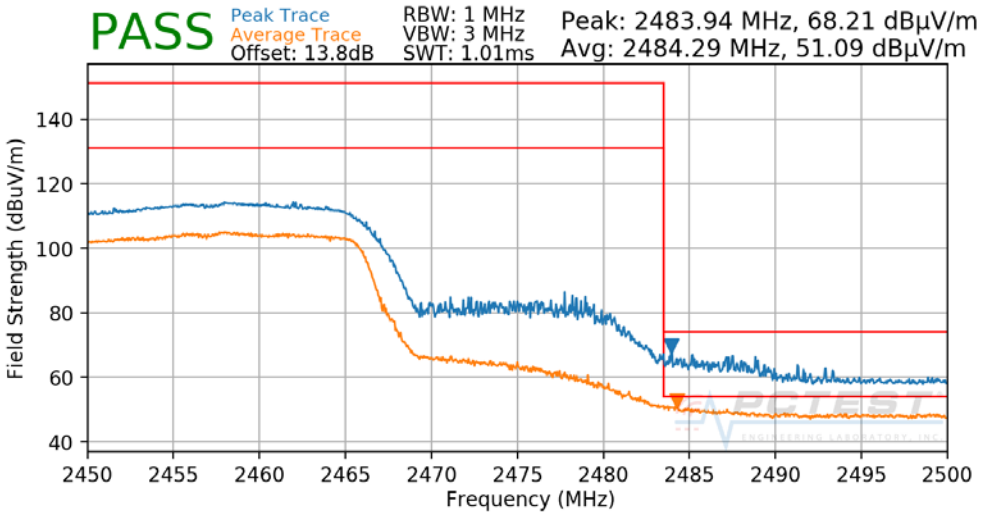
Plot 7-153. Radiated Restricted Upper Band Edge Measurement SISO CORE0 (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1



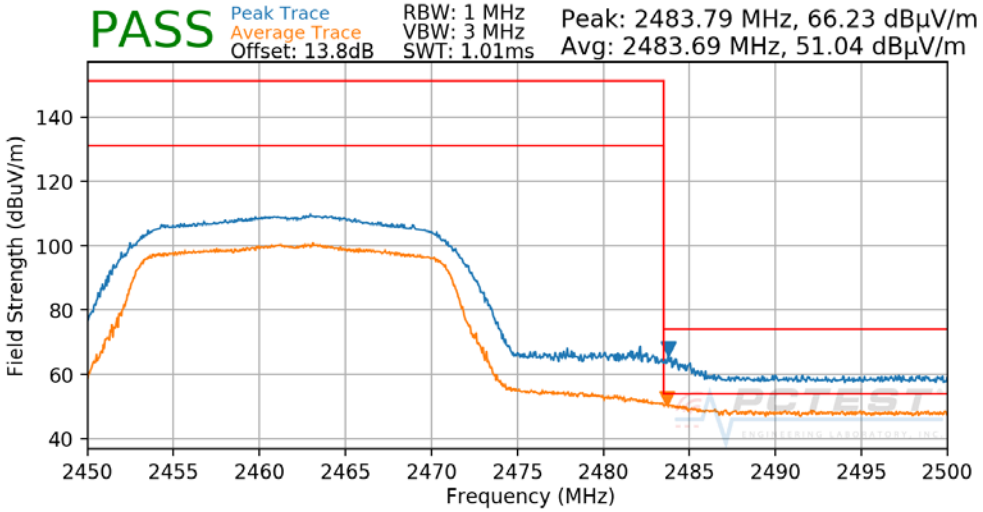
Plot 7-154. Radiated Restricted Lower Band Edge Measurement SISO CORE0 (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2457MHz
Channel:	10



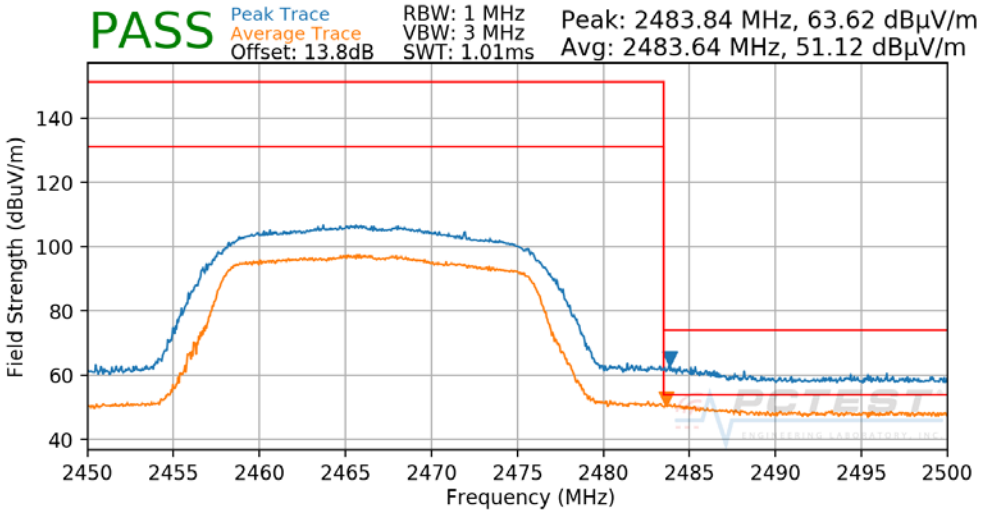
Plot 7-155. Radiated Restricted Upper Band Edge Measurement SISO CORE0 (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11



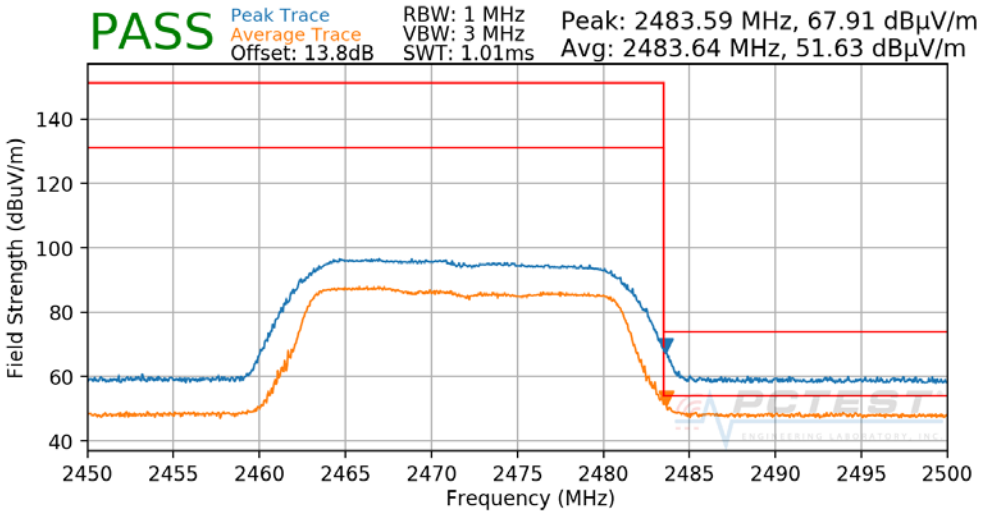
Plot 7-156. Radiated Restricted Upper Band Edge Measurement SISO CORE0 (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2467MHz
Channel:	12



Plot 7-157. Radiated Restricted Upper Band Edge Measurement SISO CORE0 (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2472MHz
Channel:	13



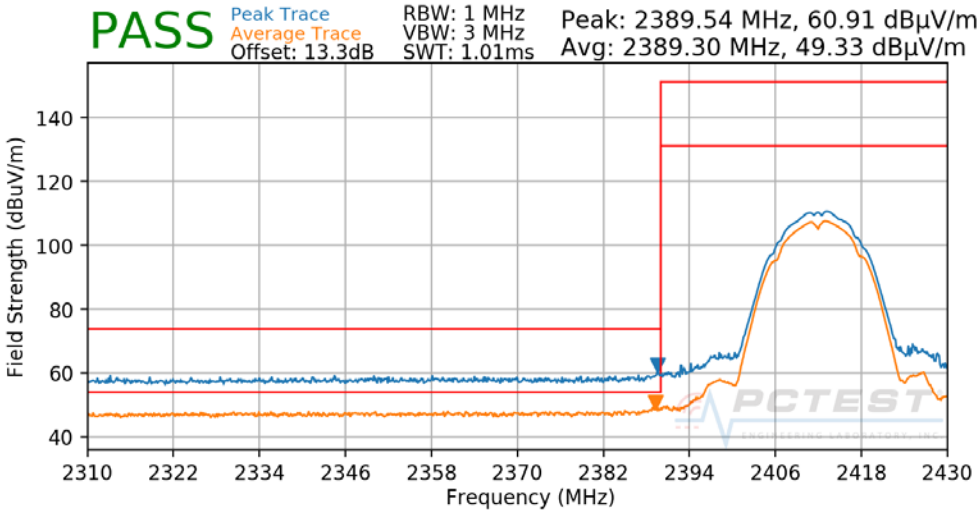
Plot 7-158. Radiated Restricted Upper Band Edge Measurement SISO CORE0 (Average & Peak)

7.7.7 SISO Core1 Primary Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

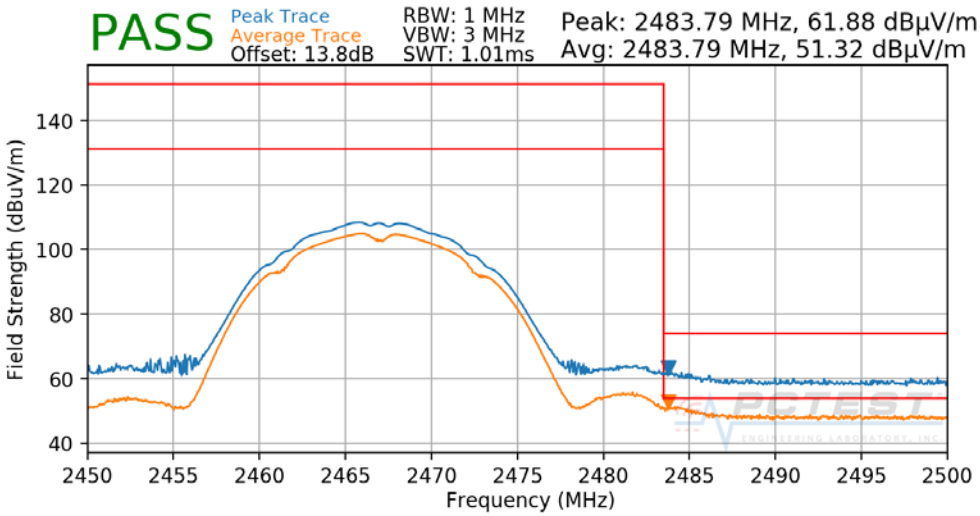
The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1



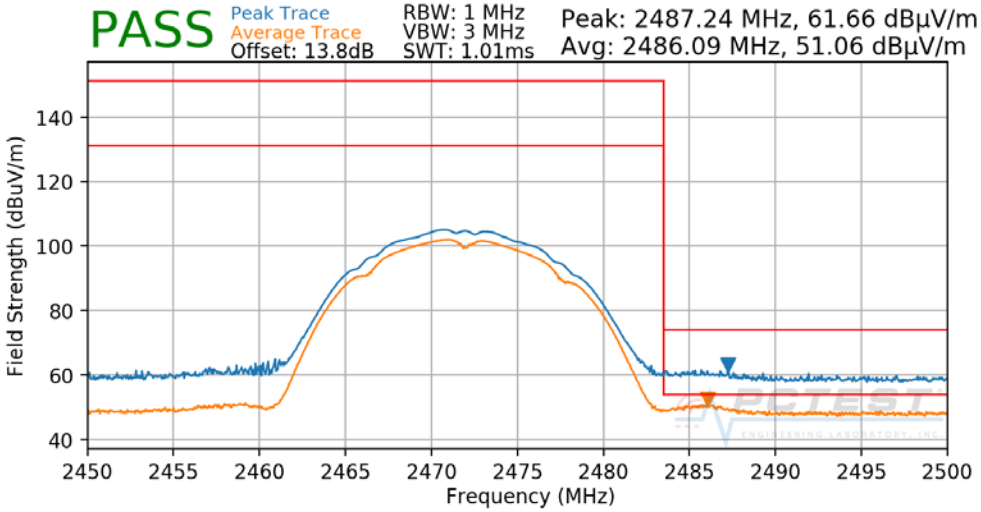
Plot 7-159. Radiated Restricted Lower Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2467MHz
Channel:	12



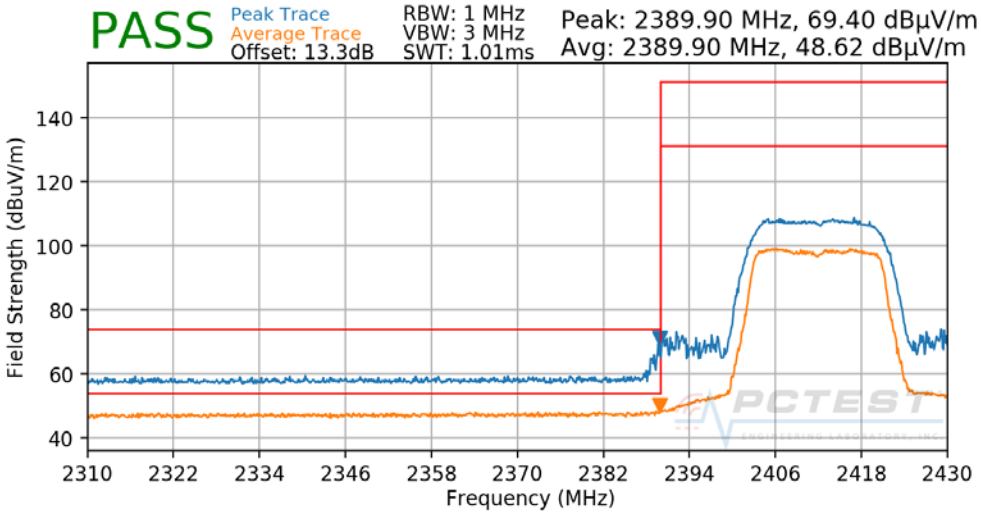
Plot 7-160. Radiated Restricted Upper Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2472MHz
Channel:	13



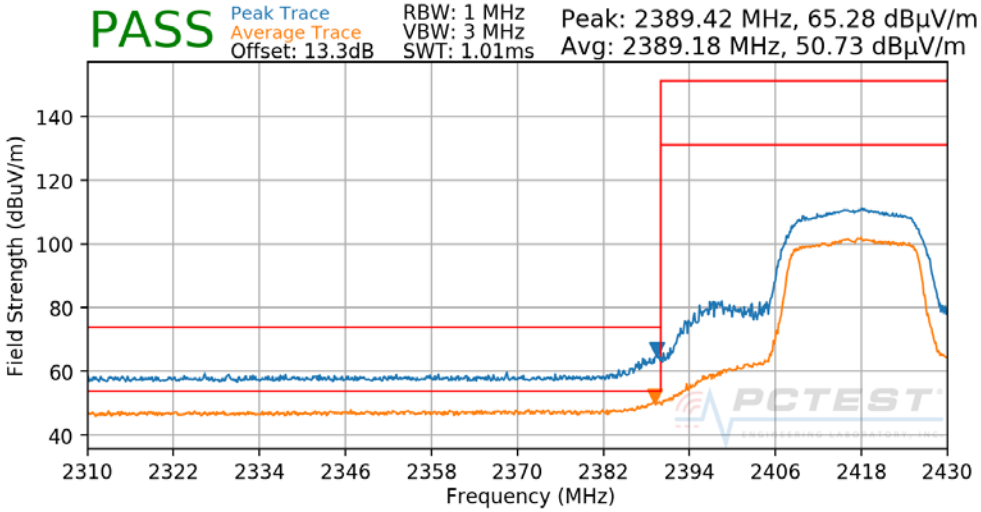
Plot 7-161. Radiated Restricted Upper Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1



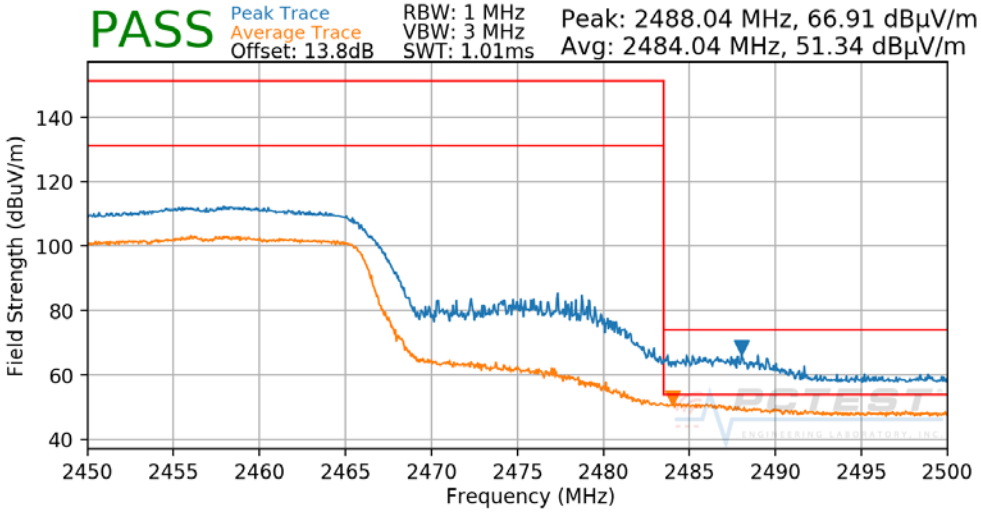
Plot 7-162. Radiated Restricted Lower Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2417MHz
Channel:	2



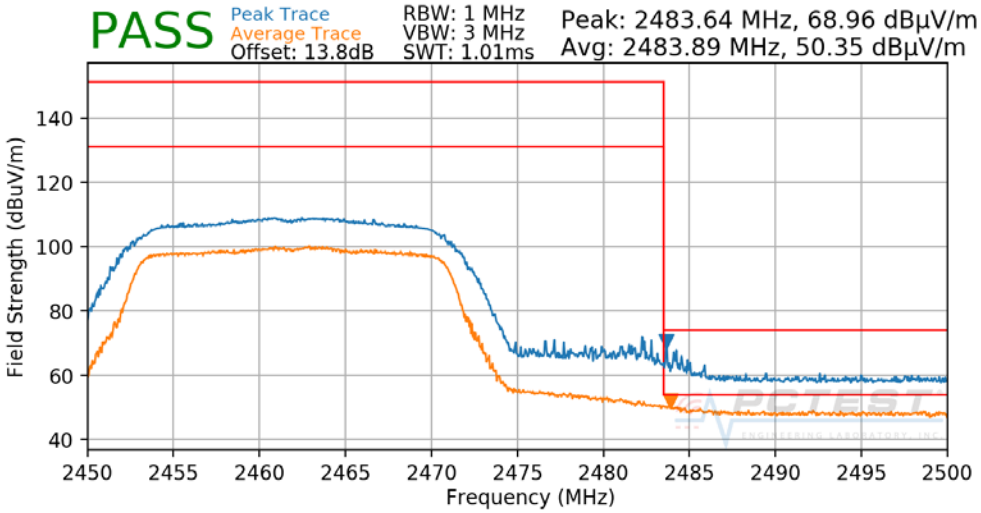
Plot 7-163. Radiated Restricted Lower Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2457MHz
Channel:	10



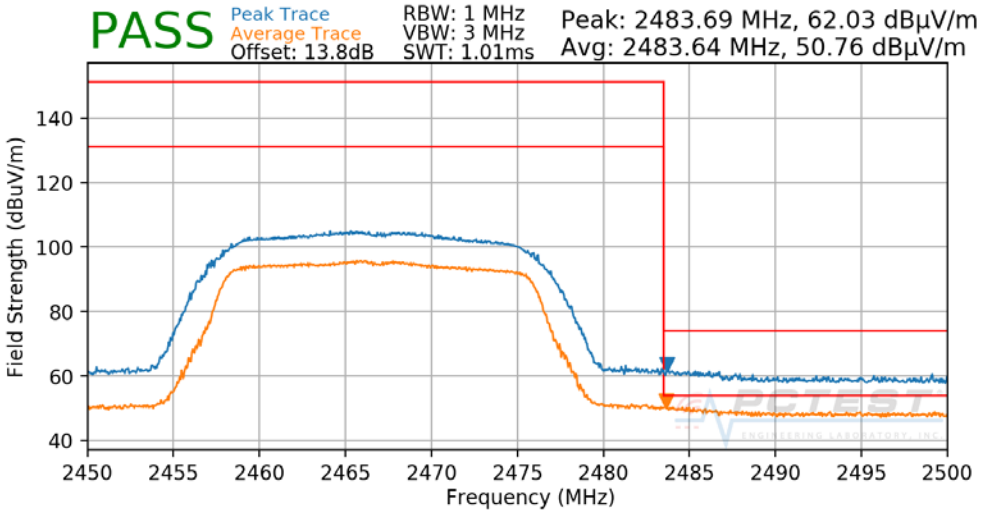
Plot 7-164. Radiated Restricted Upper Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11



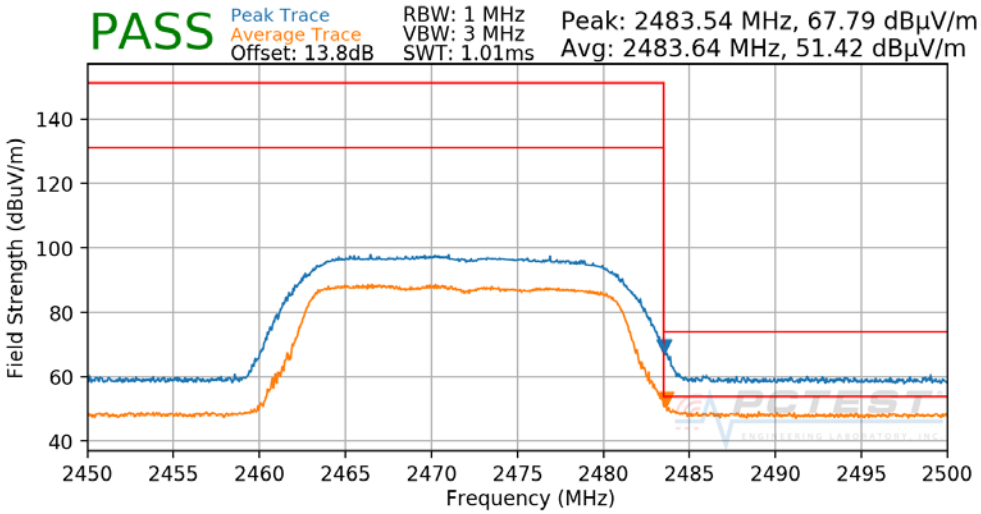
Plot 7-165. Radiated Restricted Upper Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2467MHz
Channel:	12



Plot 7-166. Radiated Restricted Upper Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2472MHz
Channel:	13



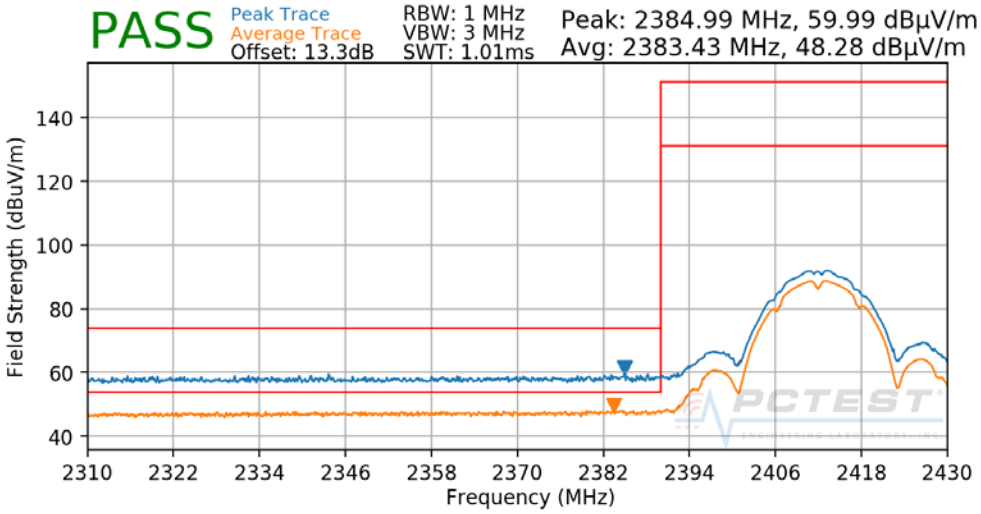
Plot 7-167. Radiated Restricted Upper Band Edge Measurement SISO CORE1 PRIMARY (Average & Peak)

7.7.8 SISO Core1 Diversity Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

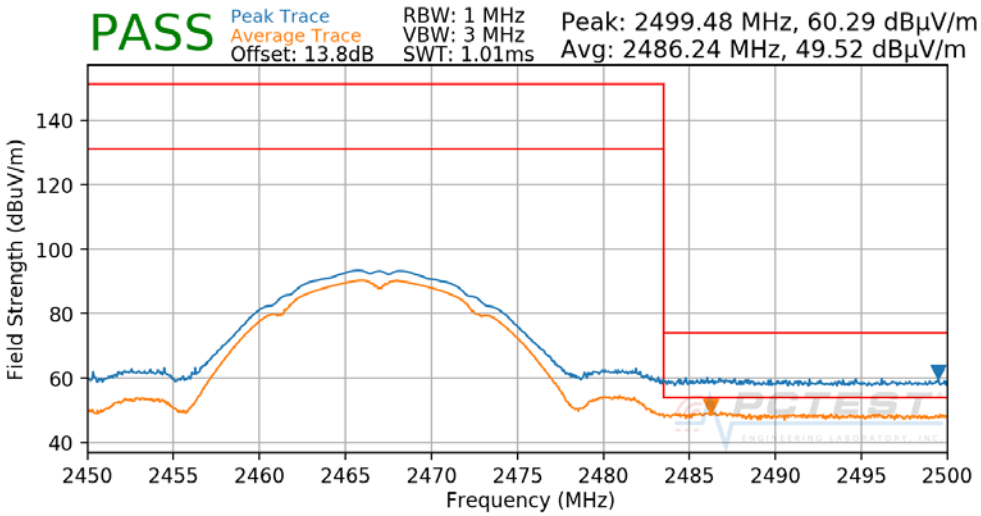
The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1



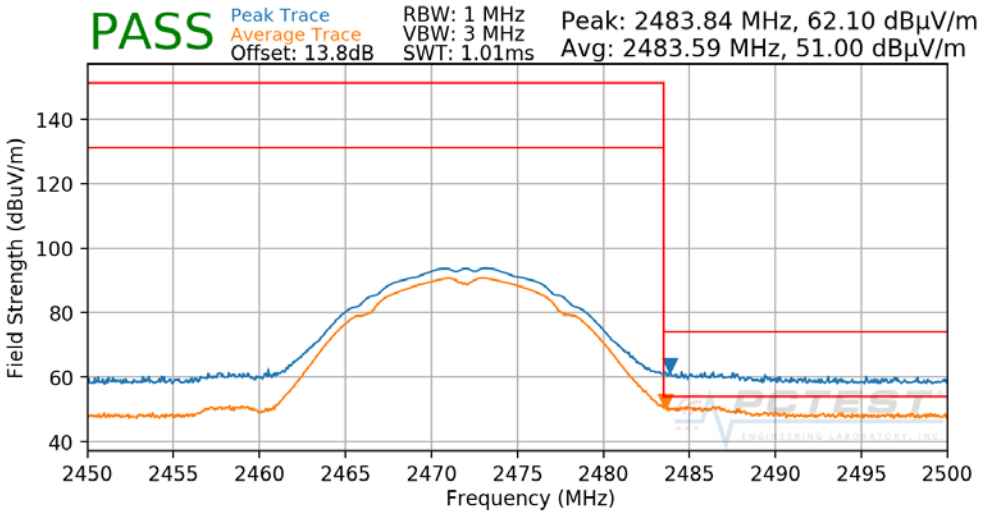
Plot 7-168. Radiated Restricted Lower Band Edge Measurement SISO CORE1 DIVERSITY (Average & Peak)

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2467MHz
Channel:	12



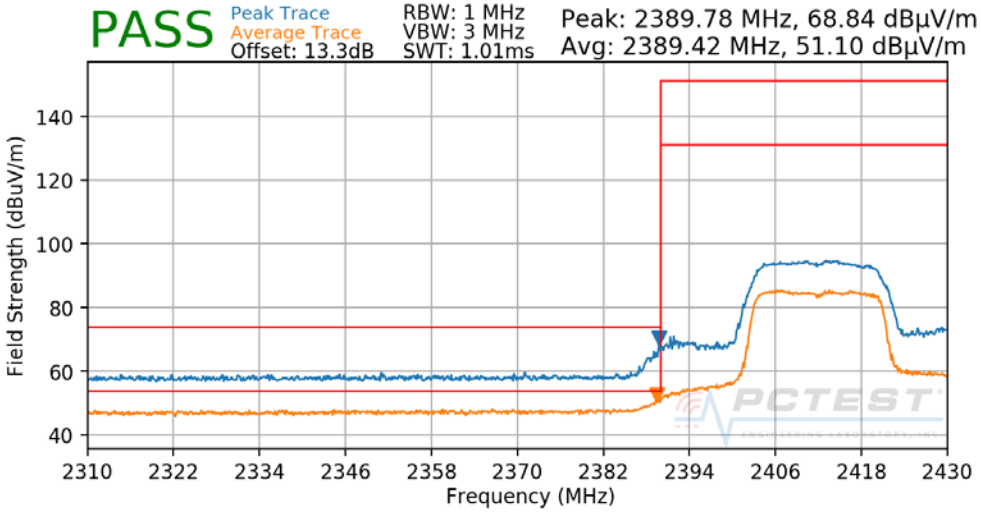
Plot 7-169. Radiated Restricted Upper Band Edge Measurement SISO CORE1 DIVERSITY (Average & Peak)

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2472MHz
Channel:	13



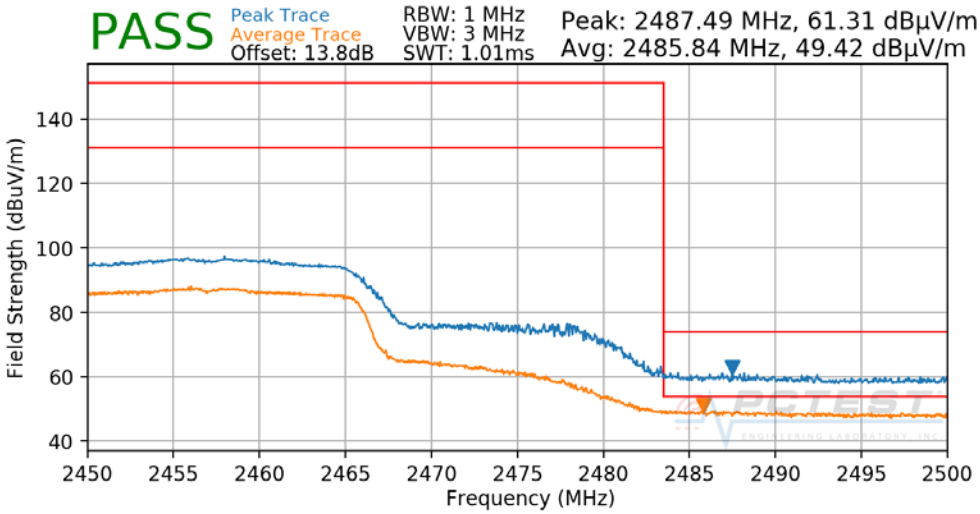
Plot 7-170. Radiated Restricted Upper Band Edge Measurement SISO CORE1 DIVERSITY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1



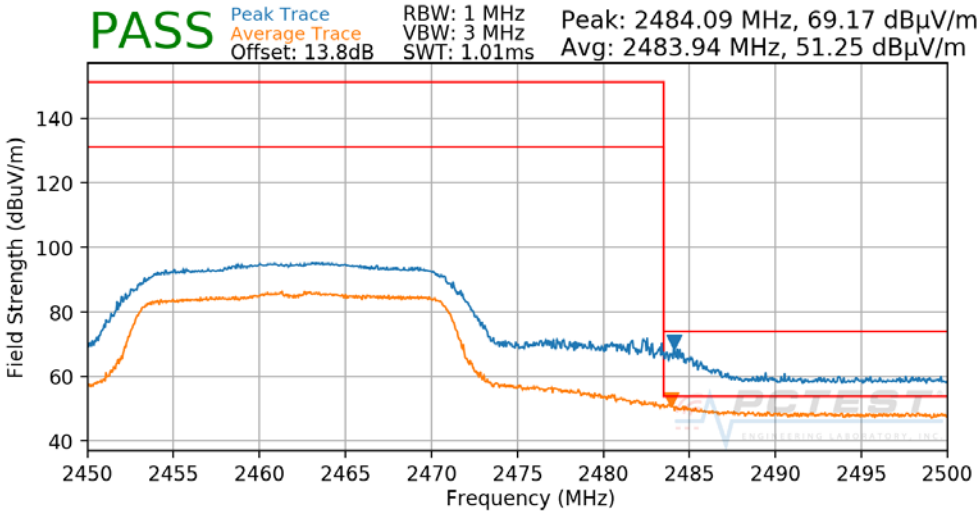
Plot 7-171. Radiated Restricted Lower Band Edge Measurement SISO CORE1 DIVERSITY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2457MHz
Channel:	10



Plot 7-172. Radiated Restricted Upper Band Edge Measurement SISO CORE1 DIVERSITY (Average & Peak)

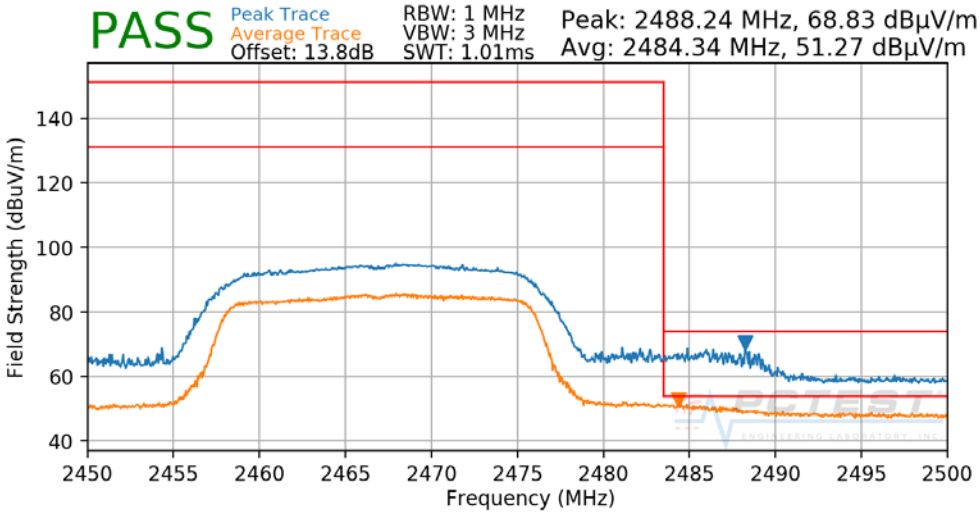
Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11



Plot 7-173. Radiated Restricted Upper Band Edge Measurement SISO CORE1 DIVERSITY (Average & Peak)

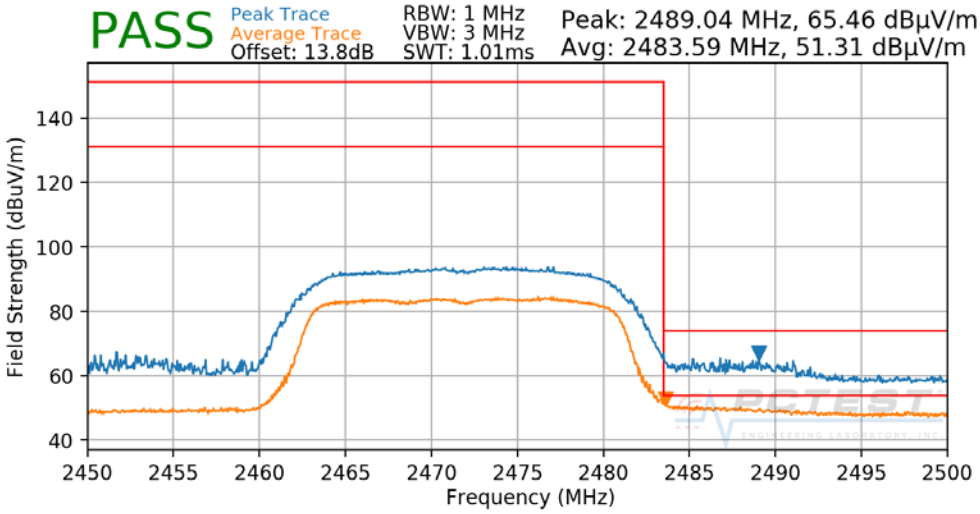
Worst Case Mode:	802.11n

Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2467MHz
Channel:	12



Plot 7-174. Radiated Restricted Upper Band Edge Measurement SISO CORE1 DIVERSITY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2472MHz
Channel:	13



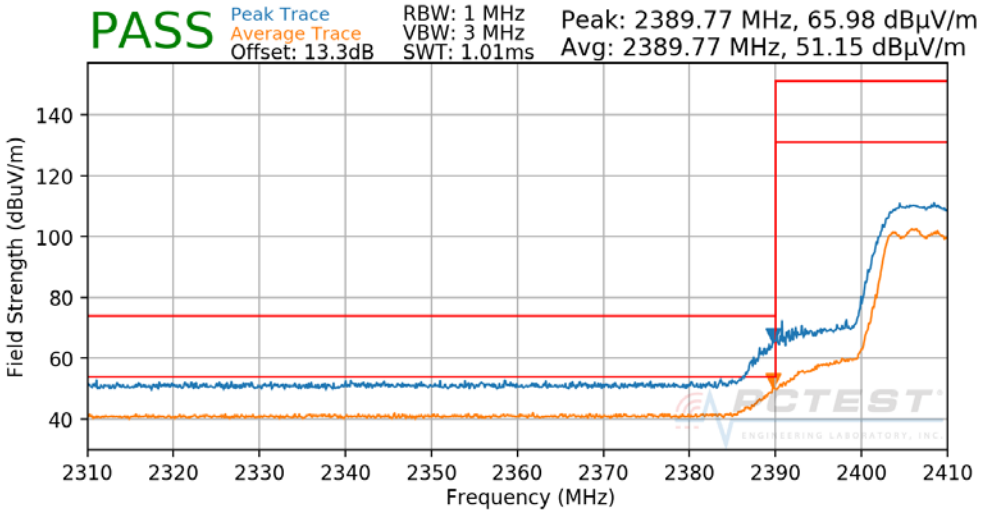
Plot 7-175. Radiated Restricted Upper Band Edge Measurement SISO CORE1 DIVERSITY (Average & Peak)

7.7.9 CDD Primary Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

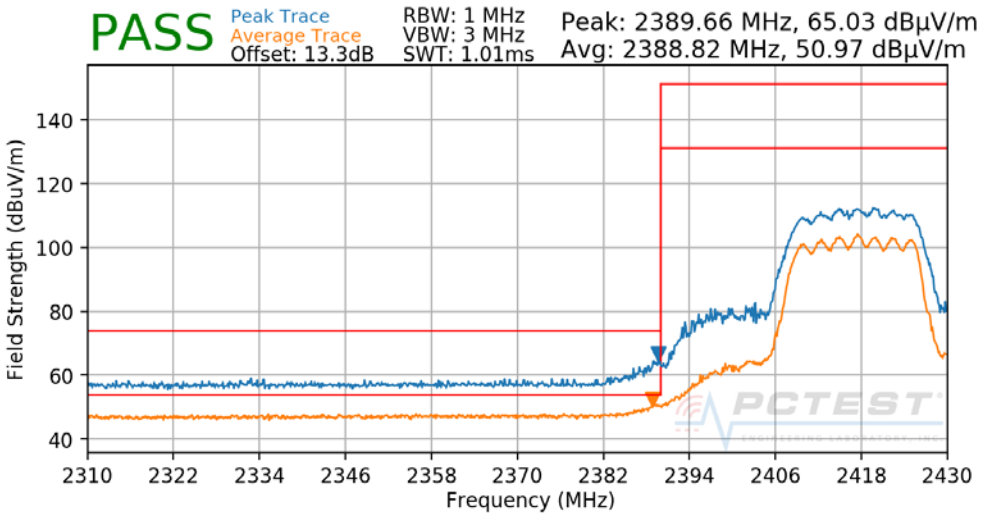
The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1



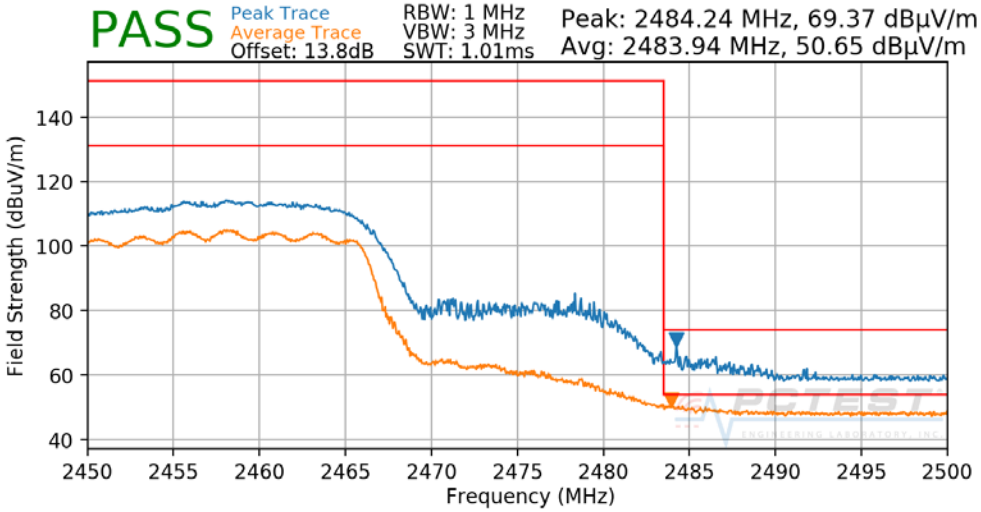
Plot 7-176. Radiated Restricted Lower Band Edge Measurement CDD PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2417MHz
Channel:	2



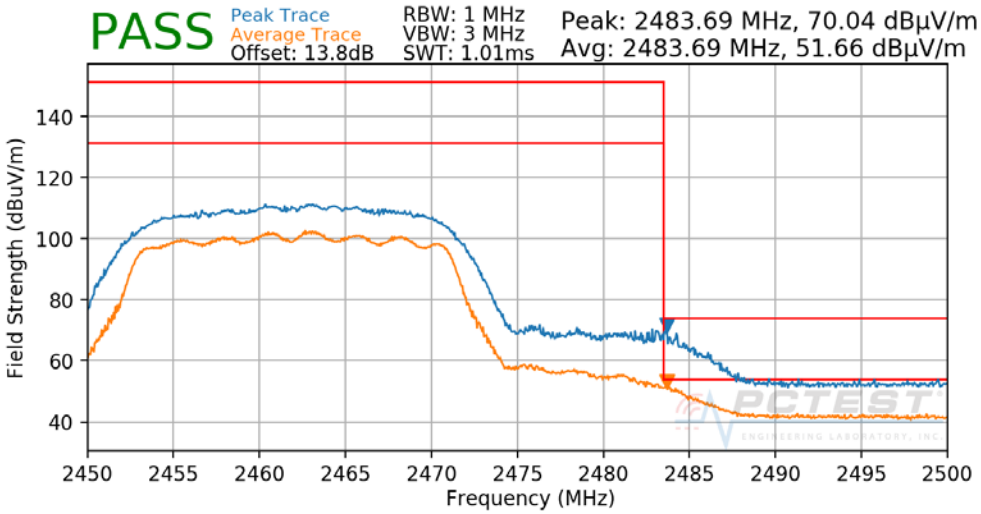
Plot 7-177. Radiated Restricted Lower Band Edge Measurement CDD PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2457MHz
Channel:	10



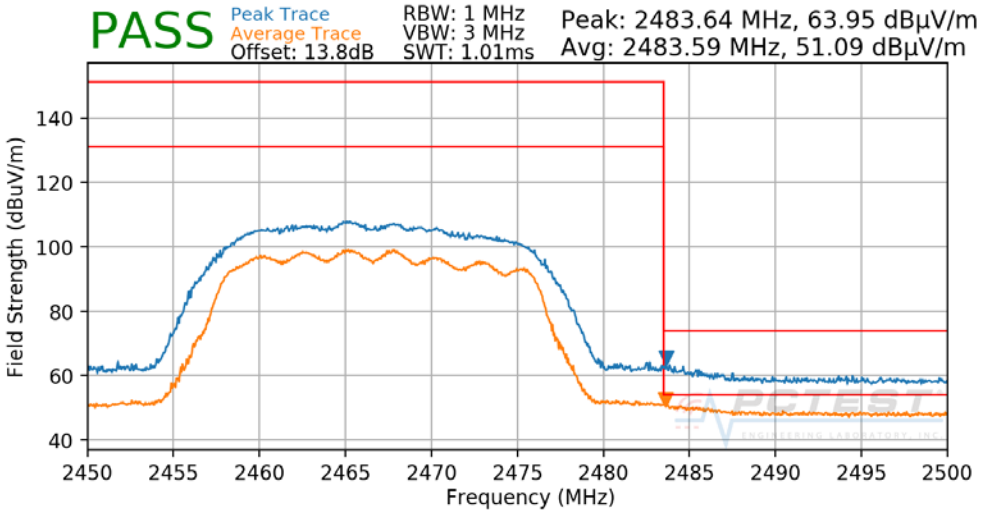
Plot 7-178. Radiated Restricted Upper Band Edge Measurement CDD PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MSC0
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11



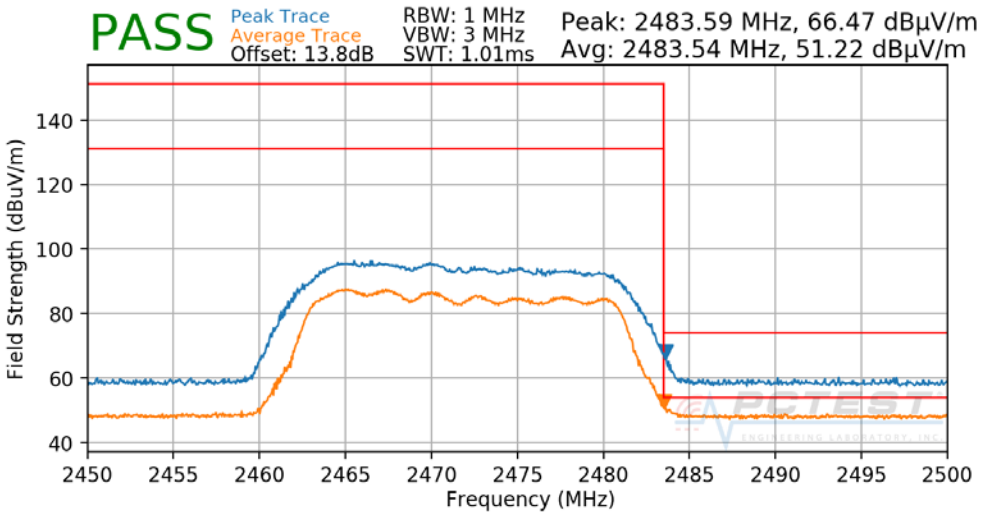
Plot 7-179. Radiated Restricted Upper Band Edge Measurement CDD PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MSC0
Distance of Measurements:	3 Meters
Operating Frequency:	2467MHz
Channel:	12



Plot 7-180. Radiated Restricted Upper Band Edge Measurement CDD PRIMARY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2472MHz
Channel:	13



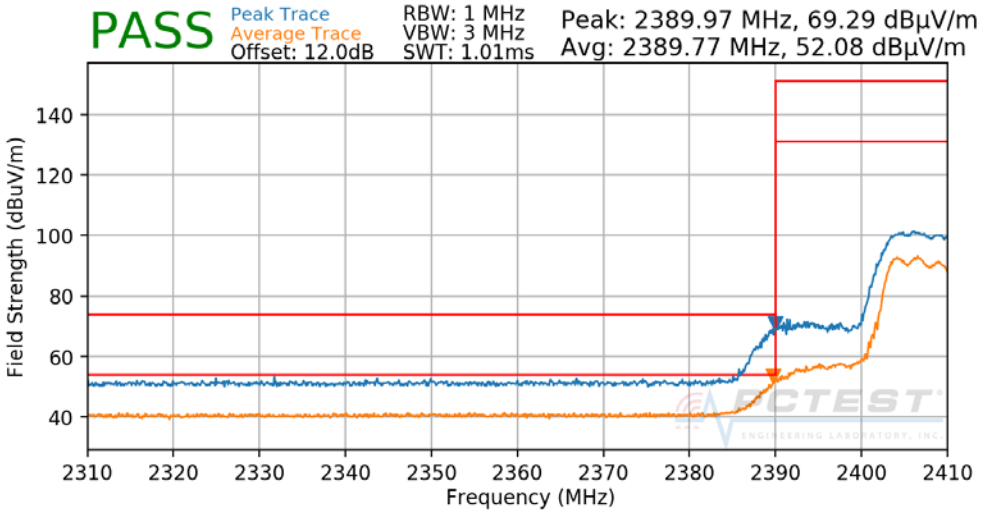
Plot 7-181. Radiated Restricted Upper Band Edge Measurement CDD PRIMARY (Average & Peak)

7.7.10 CDD Diversity Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

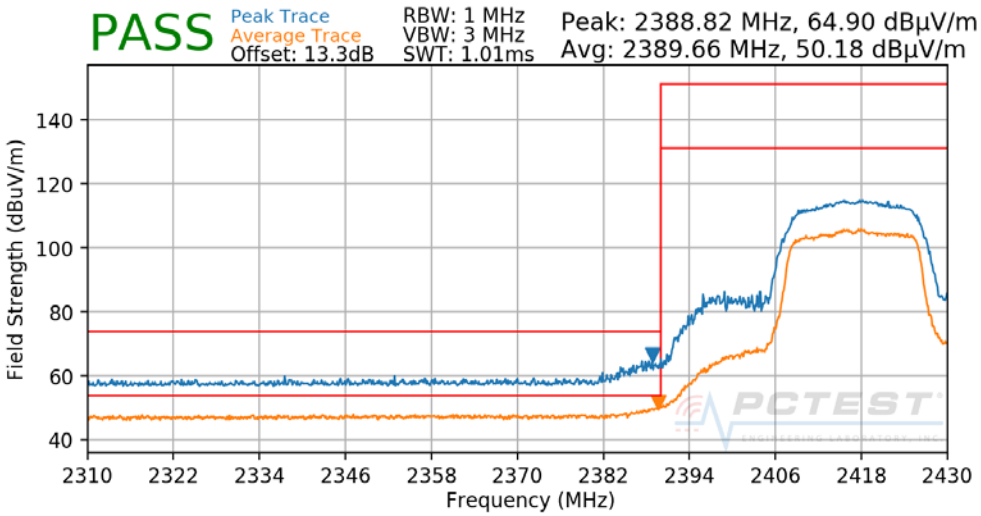
The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1



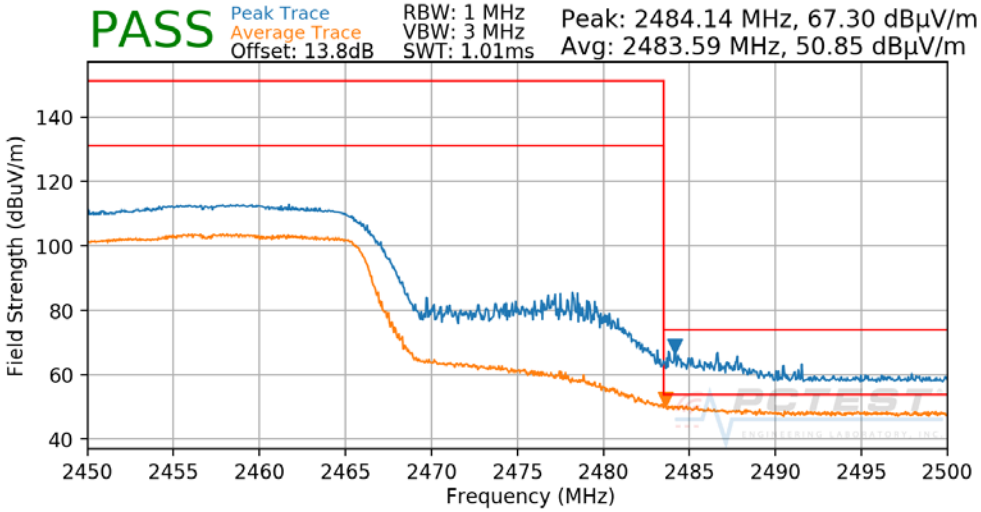
Plot 7-182. Radiated Restricted Lower Band Edge Measurement CDD DIVERSITY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2417MHz
Channel:	2



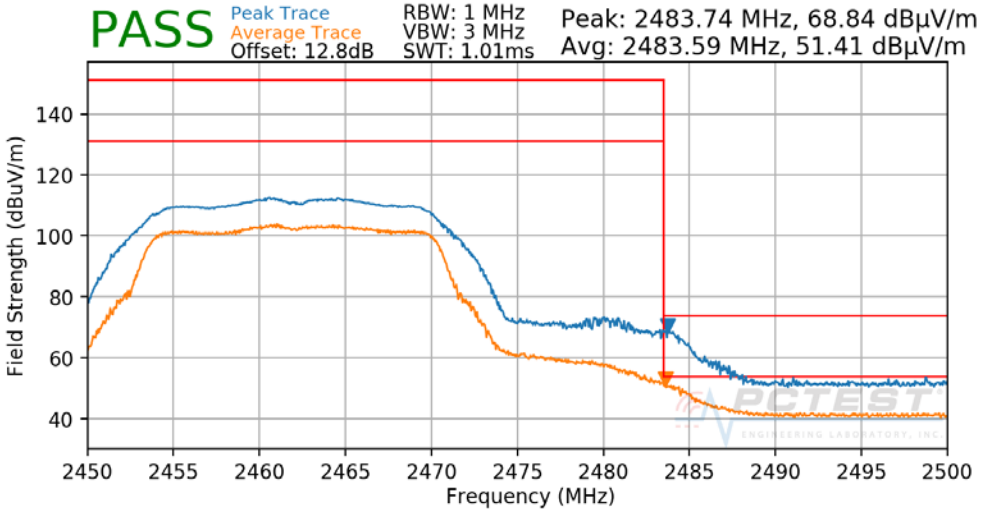
Plot 7-183. Radiated Restricted Lower Band Edge Measurement CDD DIVERSITY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2457MHz
Channel:	10



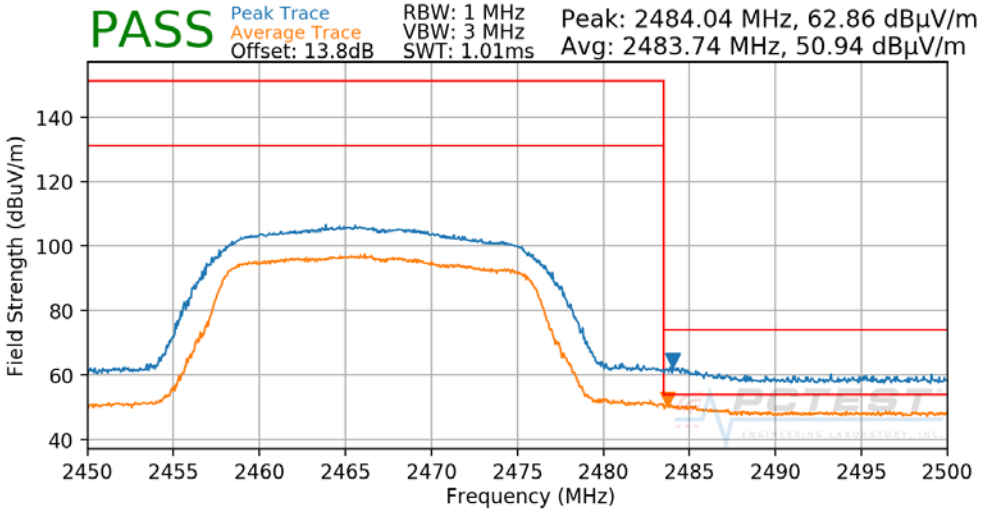
Plot 7-184. Radiated Restricted Upper Band Edge Measurement CDD DIVERSITY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MSC0
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11



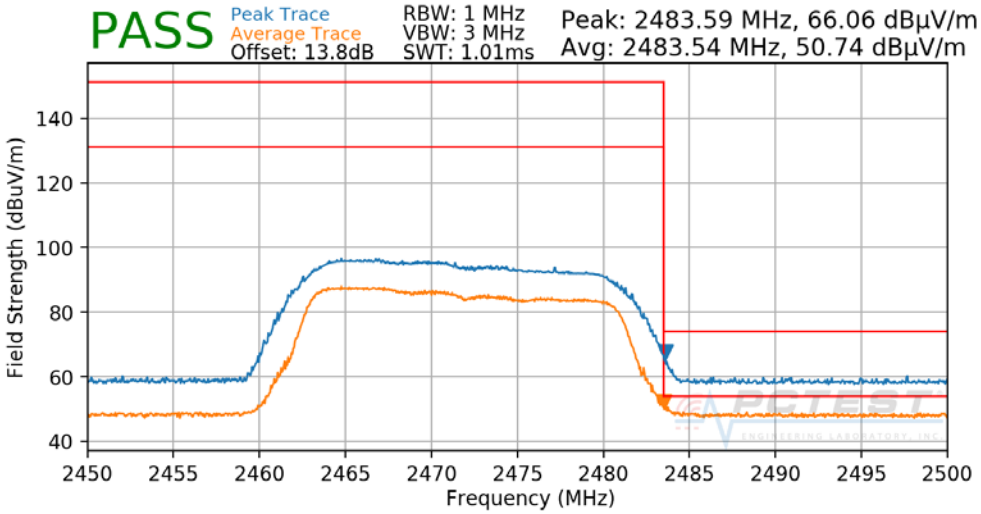
Plot 7-185. Radiated Restricted Upper Band Edge Measurement CDD DIVERSITY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MSC0
Distance of Measurements:	3 Meters
Operating Frequency:	2467MHz
Channel:	12



Plot 7-186. Radiated Restricted Upper Band Edge Measurement CDD DIVERSITY (Average & Peak)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2472MHz
Channel:	13



Plot 7-187. Radiated Restricted Upper Band Edge Measurement CDD DIVERSITY (Average & Peak)

7.8 Radiated Spurious Emissions Measurements – Below 1GHz

§15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-40 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-40. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagrams below.

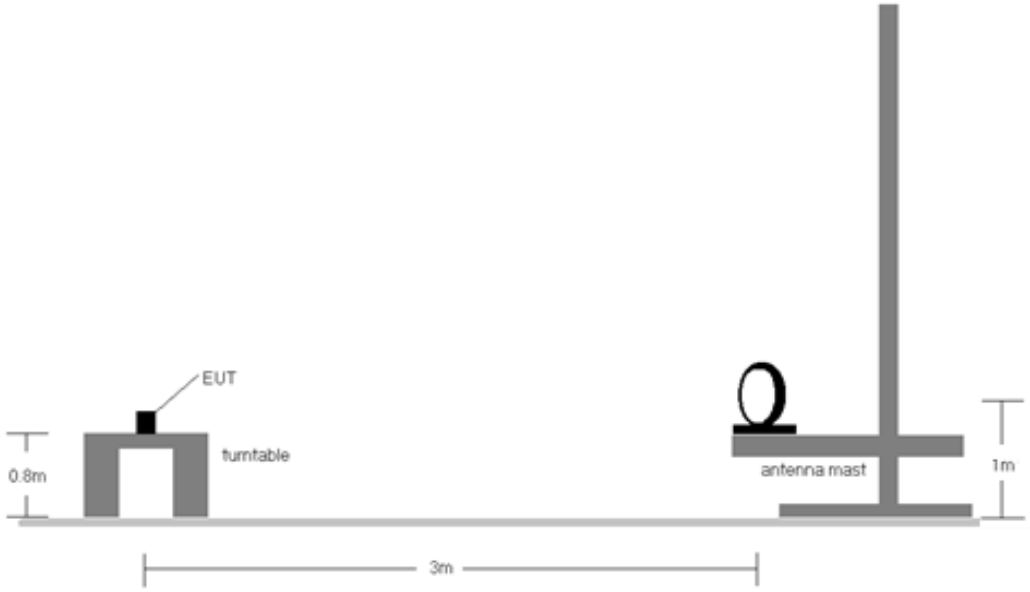


Figure 7-7. Radiated Test Setup < 30Mhz

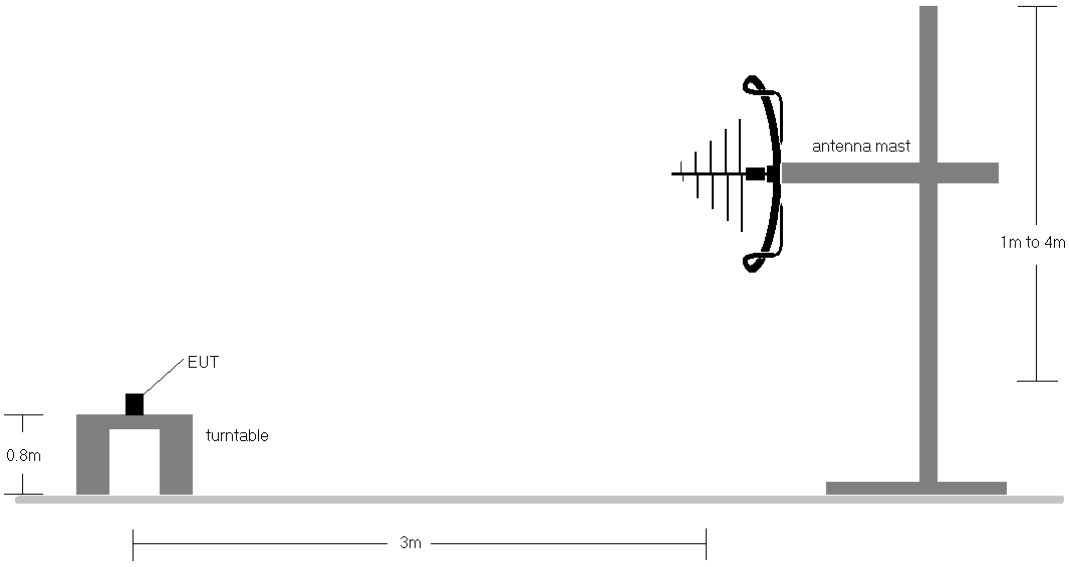


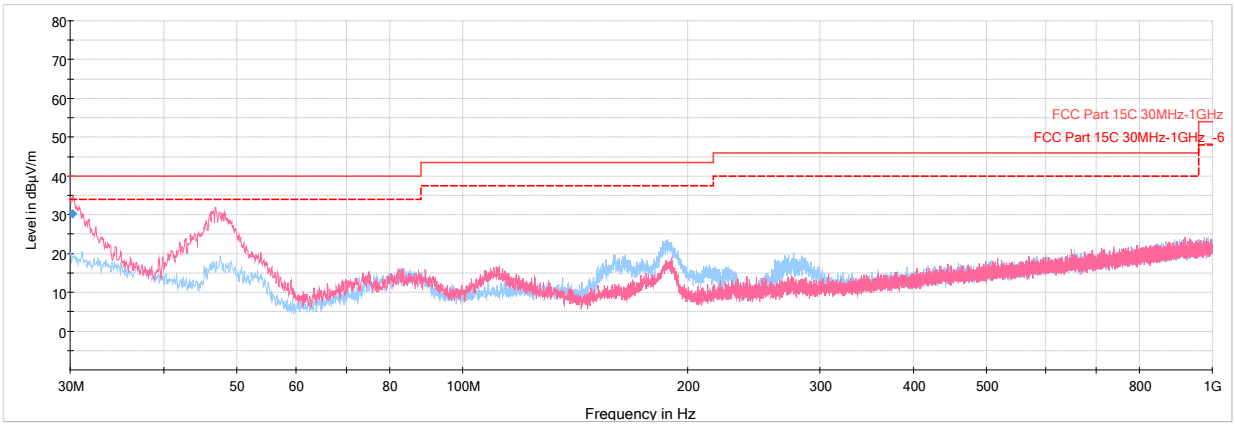
Figure 7-8. Radiated Test Setup < 1GHz

Test Notes

1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen(8.10) are below the limit shown in Table 7-40.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-188. Radiated Spurious Plot below 1GHz CDD Primary (802.11n – Ch. 6)

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
30.24	Quasi-Peak	V	100	288	-9.90	34.73	40.00	-5.27
46.83	Peak	V	100	99	-19.76	31.91	40.00	-8.09
59.10	Peak	V	100	252	-23.37	13.10	40.00	-26.90
111.04	Peak	V	100	300	-17.98	16.73	43.52	-26.79
187.53	Peak	H	100	247	-20.00	23.39	43.52	-20.13
276.67	Peak	H	100	311	-16.90	20.18	46.02	-25.84

Table 7-41. Radiated Spurious Emissions below 1GHz CDD Primary (802.11n – Ch. 6)

7.9 Line-Conducted Test Data

§15.207; RSS-Gen [8.8]

Test Overview and Limit

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

All conducted emissions must not exceed the limits shown in the table below, per Section 15.207 and RSS-Gen (8.8).

Frequency of emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

Table 7-42. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013, Section 6.2

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = RMS
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

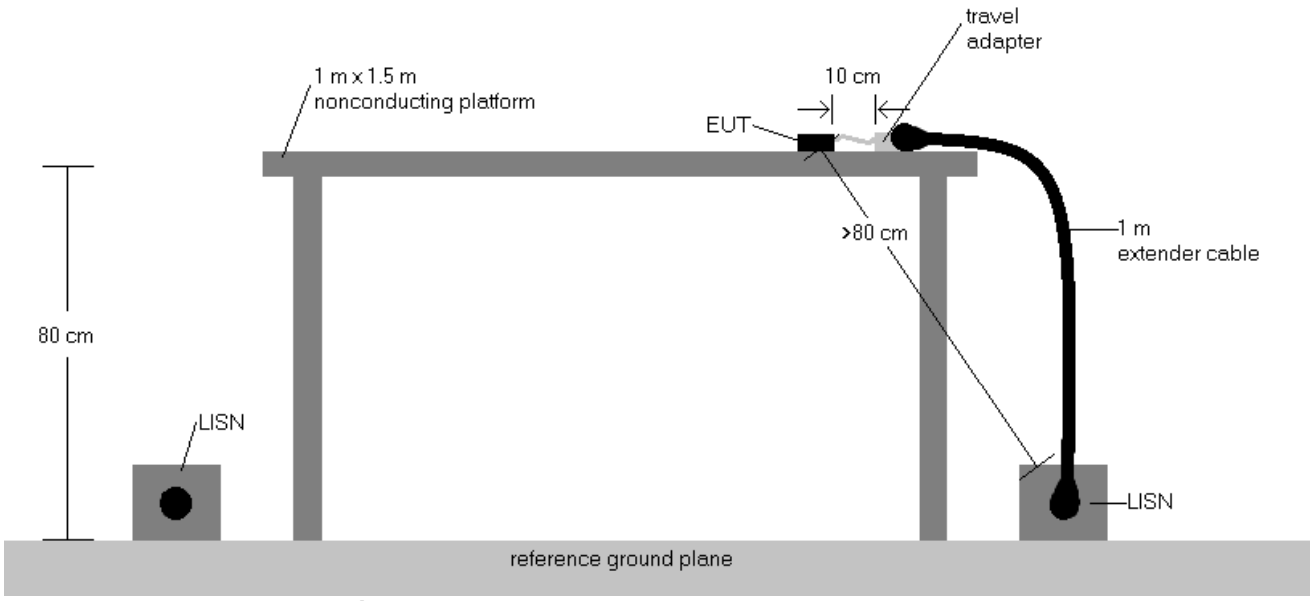
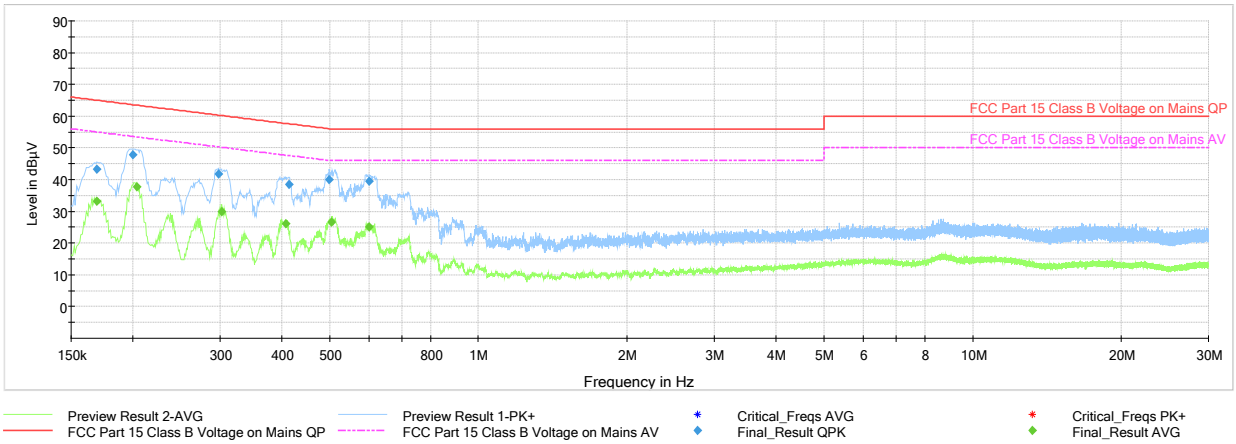


Figure 7-9. Test Instrument & Measurement Setup

Test Notes

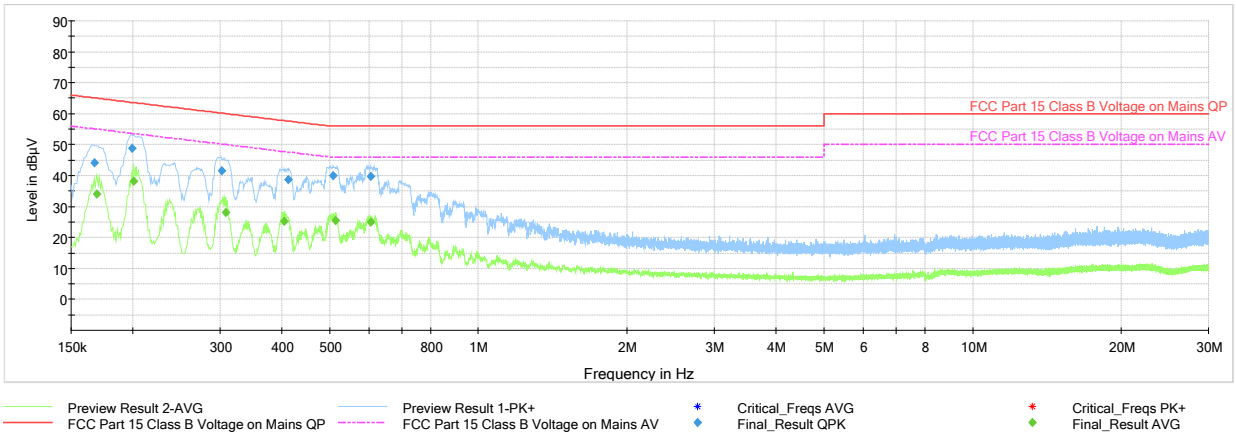
1. All modes of operation were investigated and the worst-case emissions are reported using mid channel. The emissions found were not affected by the choice of channel used during testing.
2. The limit for an intentional radiator from 150kHz to 30MHz are specified in Part 15.207 and RSS-Gen(8.8).
3. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
4. QP/AV Level (dBμV) = QP/AV Analyzer/Receiver Level (dBμV) + Corr. (dB)
5. Margin (dB) = QP/AV Limit (dBμV) - QP/AV Level (dBμV)
6. Traces shown in plot are made using a peak detector.
7. Deviations to the Specifications: None.



Plot 7-189. Line Conducted Plot with CDD Primary 802.11n, Ch6 (L1, with Adapter)

Frequency MHz	Process State	QuasiPeak dBµV	Average dBµV	Limit dBµV	Margin dB	Bandwidth kHz	Line	PE
0.169	FINAL	---	33.24	55.01	-21.77	9.00	L1	GND
0.169	FINAL	43.34	---	65.01	-21.67	9.00	L1	GND
0.200	FINAL	47.80	---	63.61	-15.81	9.00	L1	GND
0.204	FINAL	---	37.61	53.45	-15.84	9.00	L1	GND
0.298	FINAL	41.72	---	60.30	-18.58	9.00	L1	GND
0.302	FINAL	---	29.83	50.19	-20.36	9.00	L1	GND
0.407	FINAL	---	26.01	47.71	-21.70	9.00	L1	GND
0.414	FINAL	38.60	---	57.57	-18.97	9.00	L1	GND
0.499	FINAL	40.06	---	56.02	-15.96	9.00	L1	GND
0.505	FINAL	---	26.69	46.00	-19.31	9.00	L1	GND
0.601	FINAL	---	25.03	46.00	-20.97	9.00	L1	GND
0.602	FINAL	39.60	---	56.00	-16.40	9.00	L1	GND

Table 7-43. Line Conducted Data with CDD Primary 802.11n, Ch6 (L1, with Adapter)



Plot 7-190. Line Conducted Plot with CDD Primary 802.11n, Ch6 (N, with Adapter)

Frequency MHz	Process State	QuasiPeak dBµV	Average dBµV	Limit dBµV	Margin dB	Bandwidth kHz	Line	PE
0.167	FINAL	44.21	---	65.11	-20.90	9.00	N	GND
0.169	FINAL	---	33.95	55.01	-21.06	9.00	N	GND
0.199	FINAL	48.88	---	63.65	-14.77	9.00	N	GND
0.201	FINAL	---	38.22	53.57	-15.35	9.00	N	GND
0.302	FINAL	41.51	---	60.19	-18.68	9.00	N	GND
0.308	FINAL	---	28.19	50.02	-21.83	9.00	N	GND
0.404	FINAL	---	25.27	47.77	-22.50	9.00	N	GND
0.412	FINAL	38.61	---	57.61	-19.00	9.00	N	GND
0.509	FINAL	40.03	---	56.00	-15.97	9.00	N	GND
0.513	FINAL	---	25.50	46.00	-20.50	9.00	N	GND
0.605	FINAL	---	24.86	46.00	-21.14	9.00	N	GND
0.605	FINAL	39.70	---	56.00	-16.30	9.00	N	GND

Table 7-44. Line Conducted Data with CDD Primary 802.11n, Ch6 (N, with Adapter)

8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Apple Inc. Tablet Device FCC ID: BCGA1895** is in compliance with Part 15 Subpart C (15.247) of the FCC Rules and RSS-247 of the Innovation, Science and Economic Development Canada Rules.