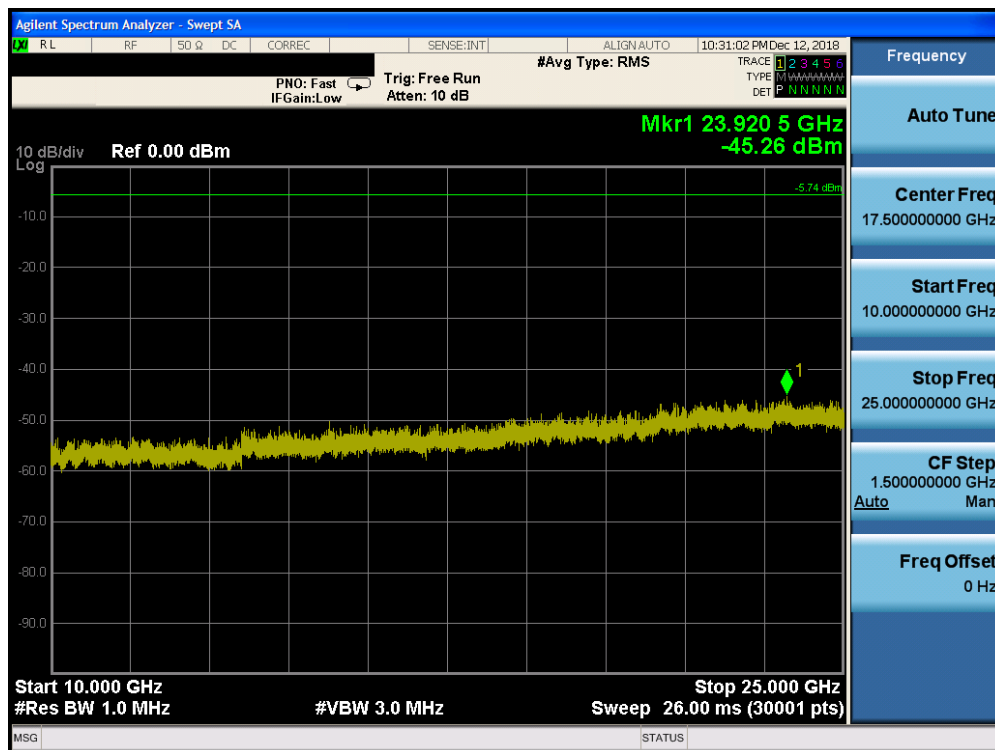
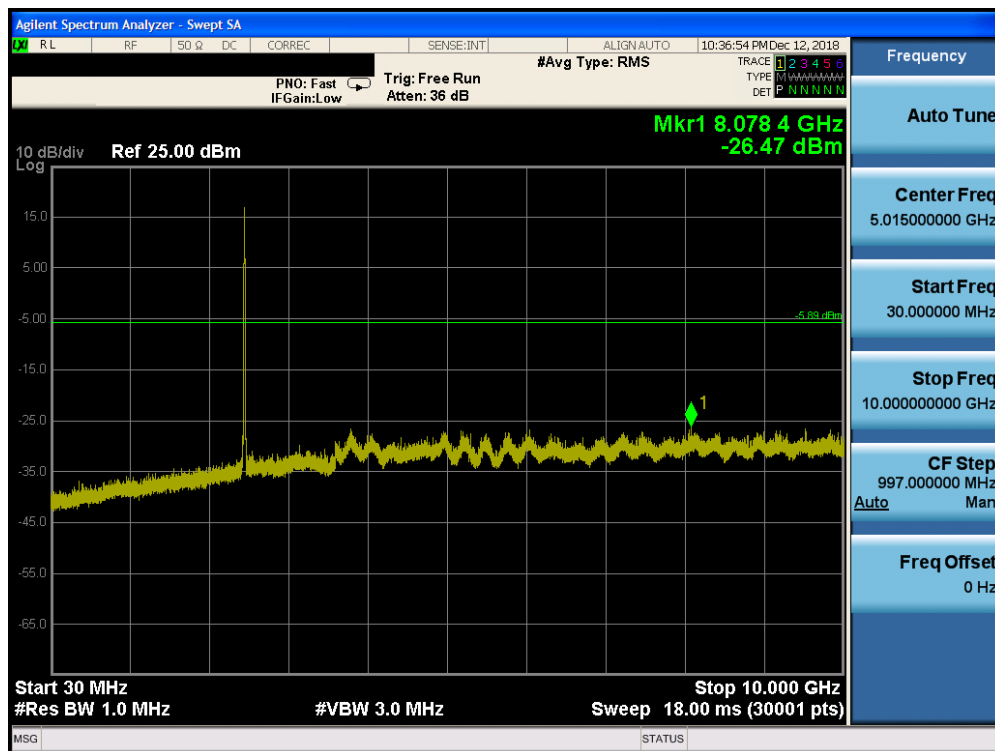


Plot 7-81. Conducted Spurious Plot SISO CORE 1 (802.11b – Ch. 6)

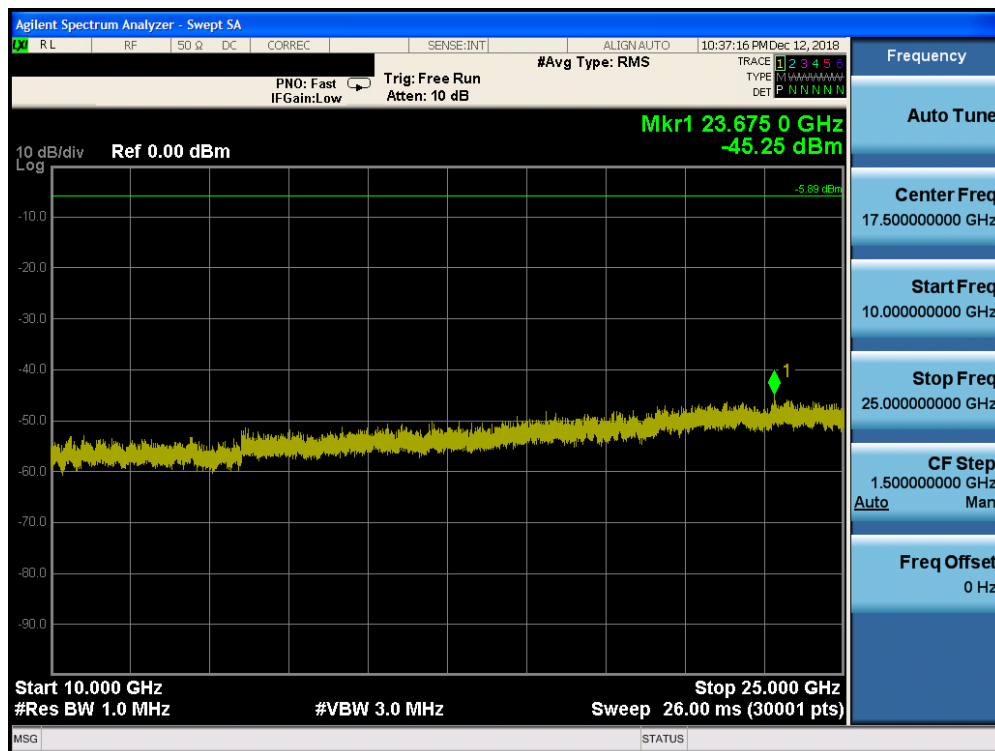


Plot 7-82. Conducted Spurious Plot SISO CORE 1 (802.11b – Ch. 6)

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Plot 7-83. Conducted Spurious Plot SISO CORE 1 (802.11b – Ch. 11)



Plot 7-84. Conducted Spurious Plot SISO CORE 1 (802.11b – Ch. 11)

FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.7 Radiated Spurious Emission Measurements – Above 1 GHz

§15.247(d) §15.205 & §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 7-15 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-15. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Section 6.6.4.3

KDB 558074 D01 v05r01 – Sections 8.6, 8.7

Test Settings

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be $\geq 2 \times \text{span/RBW}$)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

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Test Setup

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

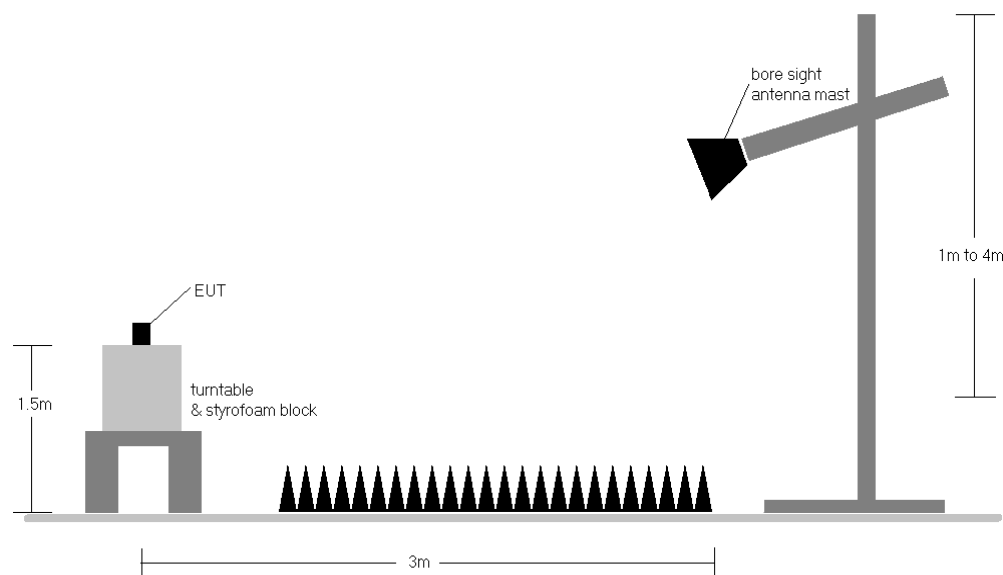


Figure 7-6. Test Instrument & Measurement Setup

Test Notes

1. The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of KDB 558074 D01 v05r01 were not used to evaluate this device for compliance to radiated limits. All radiated spurious emissions levels were measured in a radiated test setup.
2. All emissions lying in restricted bands specified in Section 15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-15.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
8. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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Sample Calculations

Determining Spurious Emissions Levels

- Field Strength Level $[\text{dB}\mu\text{V/m}] = \text{Analyzer Level} [\text{dBm}] + 107 + \text{AFCL} [\text{dB/m}]$
- AFCL $[\text{dB/m}] = \text{Antenna Factor} [\text{dB/m}] + \text{Cable Loss} [\text{dB}]$
- Margin $[\text{dB}] = \text{Field Strength Level} [\text{dB}\mu\text{V/m}] - \text{Limit} [\text{dB}\mu\text{V/m}]$

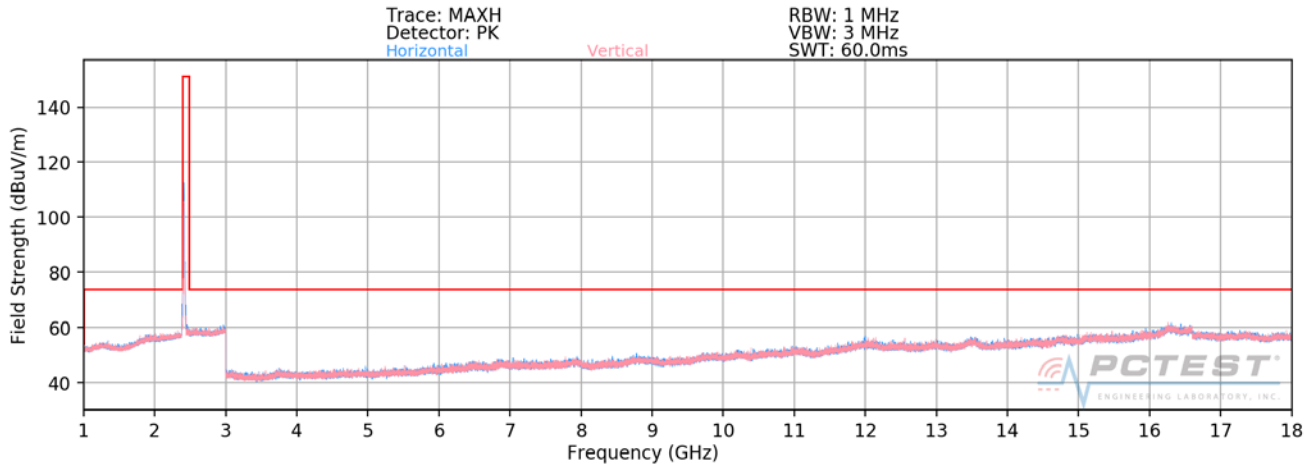
Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 7.7 was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

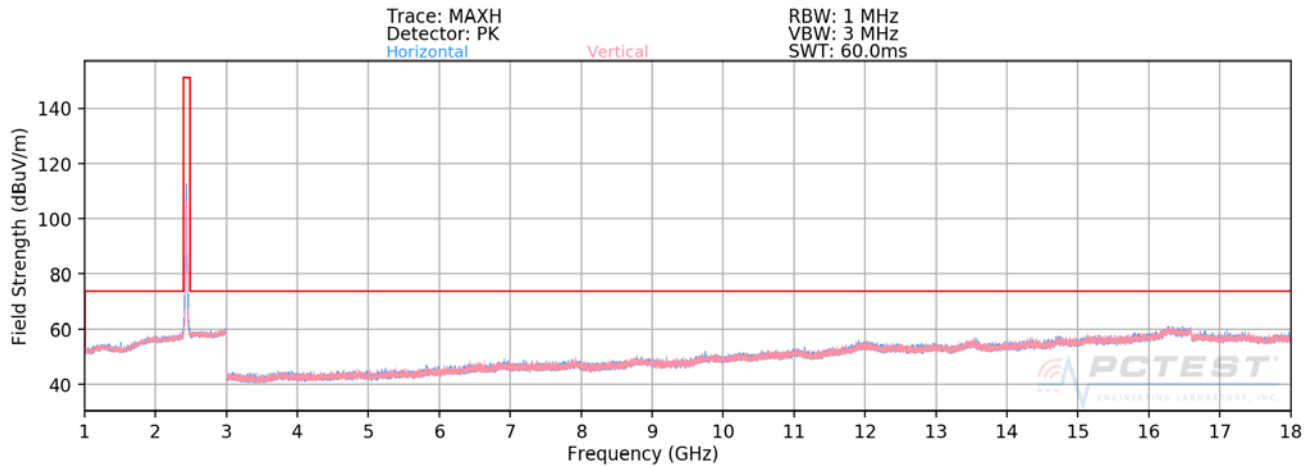
FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device	Page 76 of 112

7.7.1 SISO CORE 0 Radiated Spurious Emission Measurements

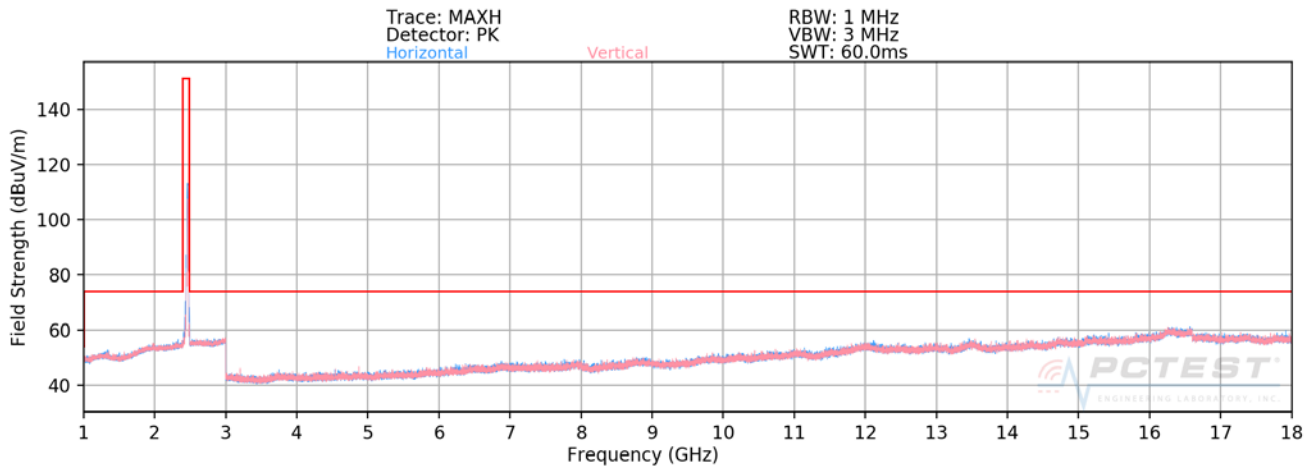
§15.247(d) §15.205 & §15.209; RSS-Gen [8.9]



Plot 7-85. Radiated Spurious Plot above 1GHz SISO CORE 0 (802.11b – Ch. 1)



Plot 7-86. Radiated Spurious Plot above 1GHz SISO CORE 0 (802.11b – Ch. 6)



Plot 7-87. Radiated Spurious Plot above 1GHz SISO CORE 0 (802.11b – Ch. 11)

FCC ID: BCGA2123	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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SISO CORE 0 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2412MHz
Channel: 01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	Avg	H	133	140	-78.08	5.66	34.58	53.98	-19.40
4824.00	Peak	H	133	140	-65.84	5.66	46.82	73.98	-27.16
12060.00	Avg	H	-	-	-82.35	19.38	44.03	53.98	-9.95
12060.00	Peak	H	-	-	-70.64	19.38	55.74	73.98	-18.24

Table 7-16. Radiated Measurements SISO CORE 0

Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2437MHz
Channel: 06

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	Avg	H	-	-	-78.46	5.89	34.43	53.98	-19.55
4874.00	Peak	H	-	-	-67.22	5.89	45.67	73.98	-28.31
7311.00	Avg	H	-	-	-80.29	10.51	37.22	53.98	-16.76
7311.00	Peak	H	-	-	-68.68	10.51	48.83	73.98	-25.15
12185.00	Avg	H	-	-	-82.67	19.44	43.77	53.98	-10.21
12185.00	Peak	H	-	-	-71.25	19.44	55.19	73.98	-18.79

Table 7-17. Radiated Measurements SISO CORE 0

FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device	Page 78 of 112

Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2462MHz
 Channel: 11

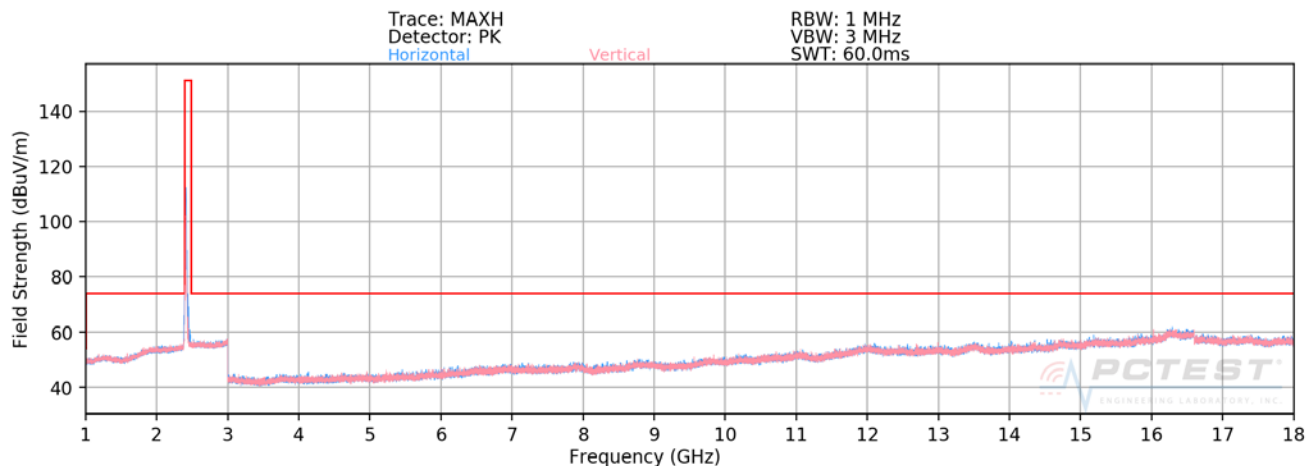
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4924.00	Avg	H	-	-	-78.40	5.58	34.18	53.98	-19.80
4924.00	Peak	H	-	-	-67.13	5.58	45.45	73.98	-28.53
7386.00	Avg	H	365	105	-73.93	10.16	43.23	53.98	-10.75
7386.00	Peak	H	365	105	-65.59	10.16	51.57	73.98	-22.41
12310.00	Avg	H	-	-	-83.29	19.15	42.86	53.98	-11.12
12310.00	Peak	H	-	-	-71.96	19.15	54.19	73.98	-19.79

Table 7-18. Radiated Measurements SISO CORE 0

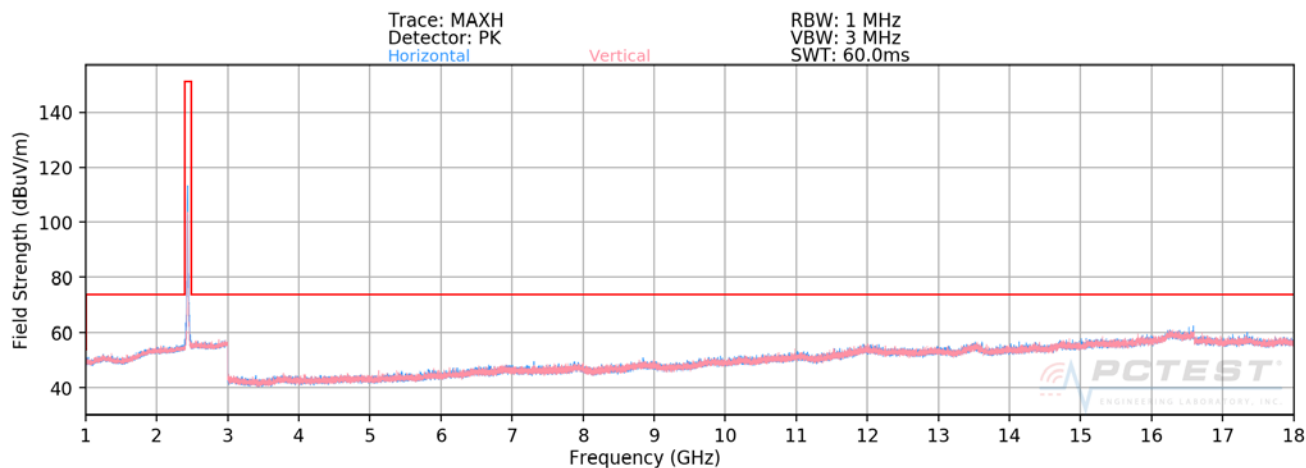
FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.7.2 SISO CORE 1 Radiated Spurious Emission Measurements

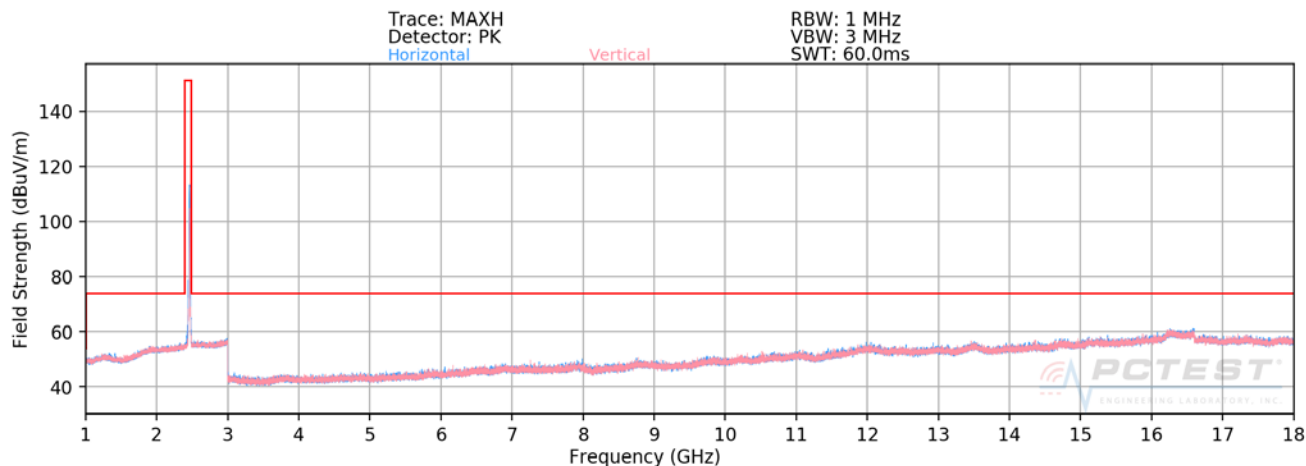
§15.247(d) §15.205 & §15.209; RSS-Gen [8.9]



Plot 7-88. Radiated Spurious Plot above 1GHz SISO CORE 1 (802.11b – Ch. 1)



Plot 7-89. Radiated Spurious Plot above 1GHz SISO CORE 1 (802.11b – Ch. 6)



Plot 7-90. Radiated Spurious Plot above 1GHz SISO CORE 1 (802.11b – Ch. 11)

FCC ID: BCGA2123	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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SISO CORE 1 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2412MHz
Channel: 01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4824.00	Avg	H	165	108	-77.27	5.66	35.39	53.98	-18.59
4824.00	Peak	H	165	108	-66.77	5.66	45.89	73.98	-28.09
12060.00	Avg	H	-	-	-82.63	19.38	43.75	53.98	-10.23
12060.00	Peak	H	-	-	-71.05	19.38	55.33	73.98	-18.65

Table 7-19. Radiated Measurements SISO CORE 1

Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2437MHz
Channel: 06

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4874.00	Avg	H	-	-	-78.34	5.89	34.55	53.98	-19.43
4874.00	Peak	H	-	-	-66.81	5.89	46.08	73.98	-27.90
7311.00	Avg	H	126	109	-74.73	10.51	42.78	53.98	-11.20
7311.00	Peak	H	126	109	-65.97	10.51	51.54	73.98	-22.44
12185.00	Avg	H	-	-	-82.70	19.44	43.74	53.98	-10.24
12185.00	Peak	H	-	-	-71.53	19.44	54.91	73.98	-19.07

Table 7-20. Radiated Measurements SISO CORE 1

FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device	Page 81 of 112

Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2462MHz
 Channel: 11

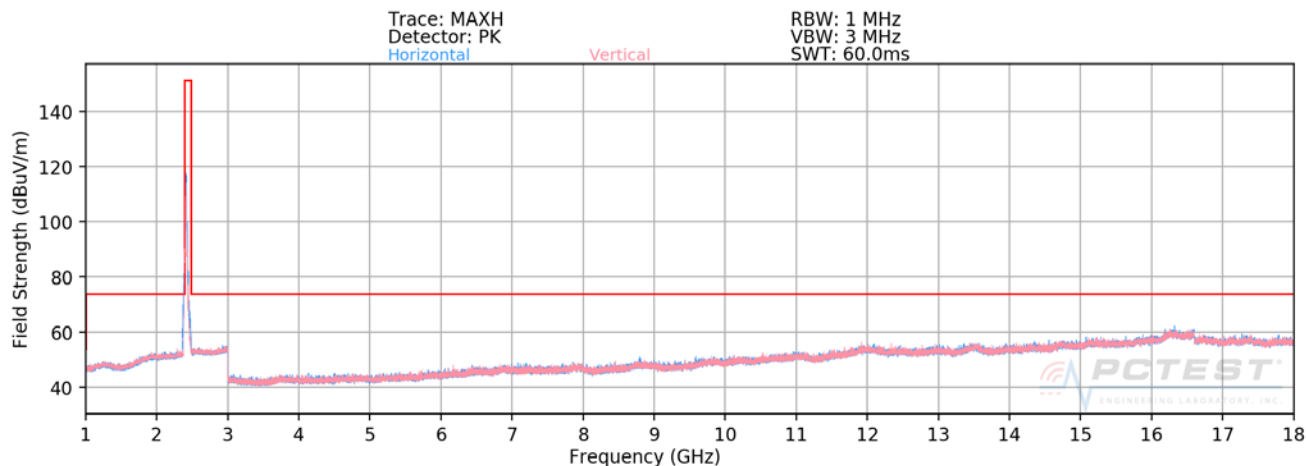
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4924.00	Avg	H	-	-	-78.38	5.58	34.20	53.98	-19.78
4924.00	Peak	H	-	-	-66.26	5.58	46.32	73.98	-27.66
7386.00	Avg	H	107	223	-79.60	10.16	37.56	53.98	-16.42
7386.00	Peak	H	107	223	-68.92	10.16	48.24	73.98	-25.74
12310.00	Avg	H	-	-	-83.33	19.15	42.82	53.98	-11.16
12310.00	Peak	H	-	-	-72.15	19.15	54.00	73.98	-19.98

Table 7-21. Radiated Measurements SISO CORE 1

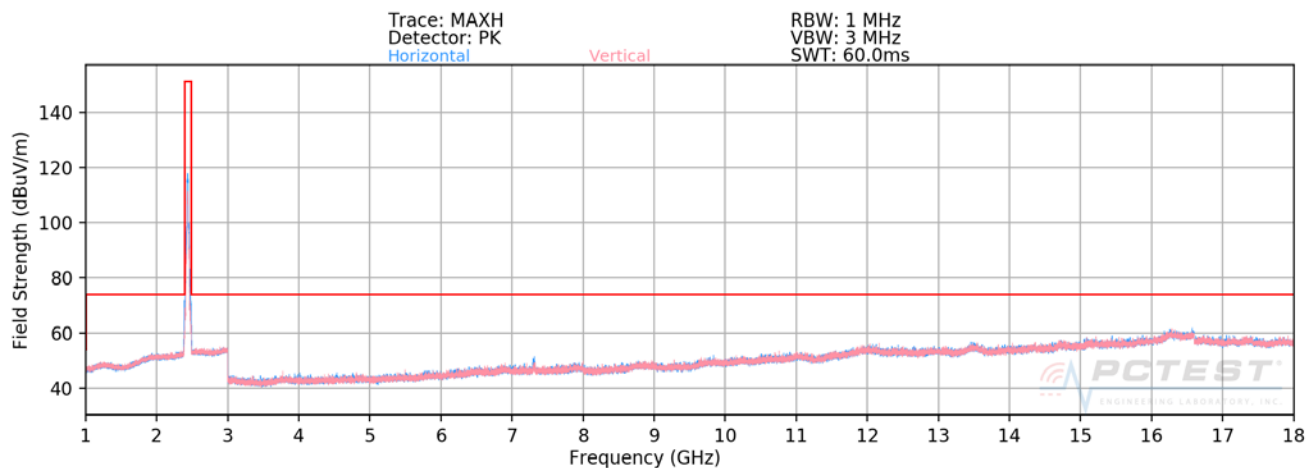
FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device	Page 82 of 112

7.7.3 CDD Radiated Spurious Emission Measurements

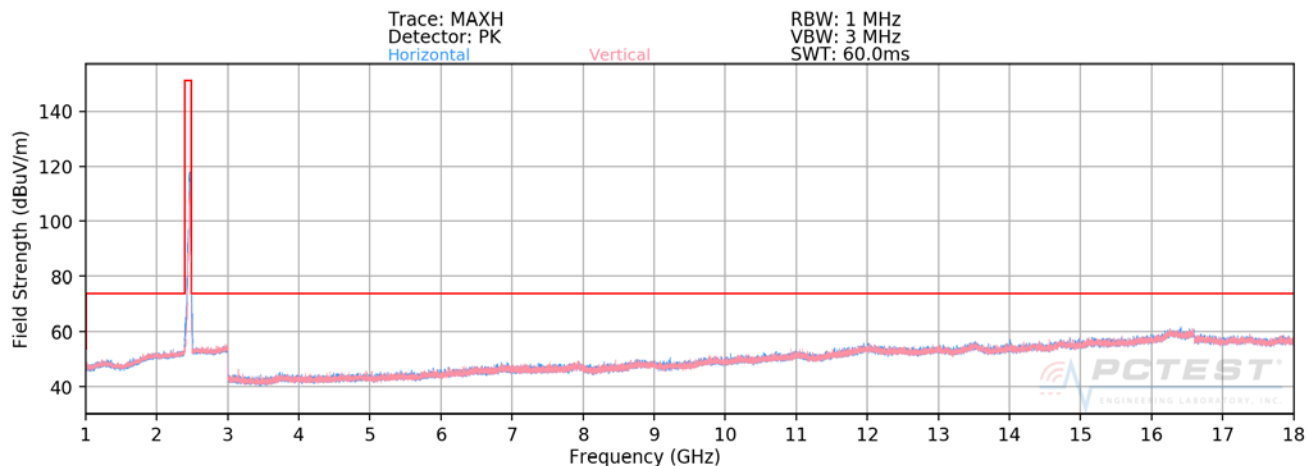
§15.247(d) §15.205 & §15.209; RSS-Gen [8.9]



Plot 7-91. Radiated Spurious Plot above 1GHz CDD (802.11n – Ch. 1)



Plot 7-92. Radiated Spurious Plot above 1GHz CDD (802.11n – Ch. 6)



Plot 7-93. Radiated Spurious Plot above 1GHz CDD (802.11n – Ch. 11)

FCC ID: BCGA2123	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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CDD Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2412MHz
Channel: 01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	Avg	H	-	-	-78.28	5.66	34.38	53.98	-19.60
4824.00	Peak	H	-	-	-66.90	5.66	45.76	73.98	-28.22
12060.00	Avg	H	-	-	-82.35	19.38	44.03	53.98	-9.95
12060.00	Peak	H	-	-	-71.05	19.38	55.33	73.98	-18.65

Table 7-22. Radiated Measurements CDD

Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2437MHz
Channel: 06

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	Avg	H	-	-	-78.32	5.89	34.57	53.98	-19.41
4874.00	Peak	H	-	-	-67.28	5.89	45.61	73.98	-28.37
7311.00	Avg	H	322	110	-73.49	10.51	44.02	53.98	-9.96
7311.00	Peak	H	322	110	-61.09	10.51	56.42	73.98	-17.56
12185.00	Avg	H	-	-	-82.79	19.44	43.65	53.98	-10.33
12185.00	Peak	H	-	-	-71.52	19.44	54.92	73.98	-19.06

Table 7-23. Radiated Measurements CDD

FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 2462MHz
 Channel: 11

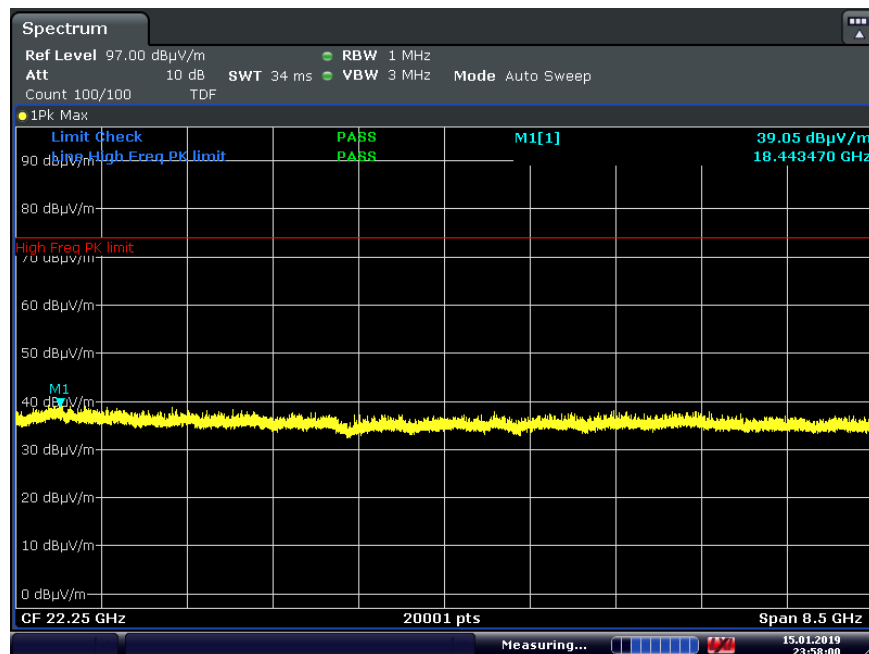
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4924.00	Avg	H	-	-	-78.37	5.58	34.21	53.98	-19.77
4924.00	Peak	H	-	-	-67.12	5.58	45.46	73.98	-28.52
7386.00	Avg	H	-	-	-80.39	10.16	36.77	53.98	-17.21
7386.00	Peak	H	-	-	-69.06	10.16	48.10	73.98	-25.88
12310.00	Avg	H	-	-	-83.40	19.15	42.75	53.98	-11.23
12310.00	Peak	H	-	-	-71.68	19.15	54.47	73.98	-19.51

Table 7-24. Radiated Measurements CDD

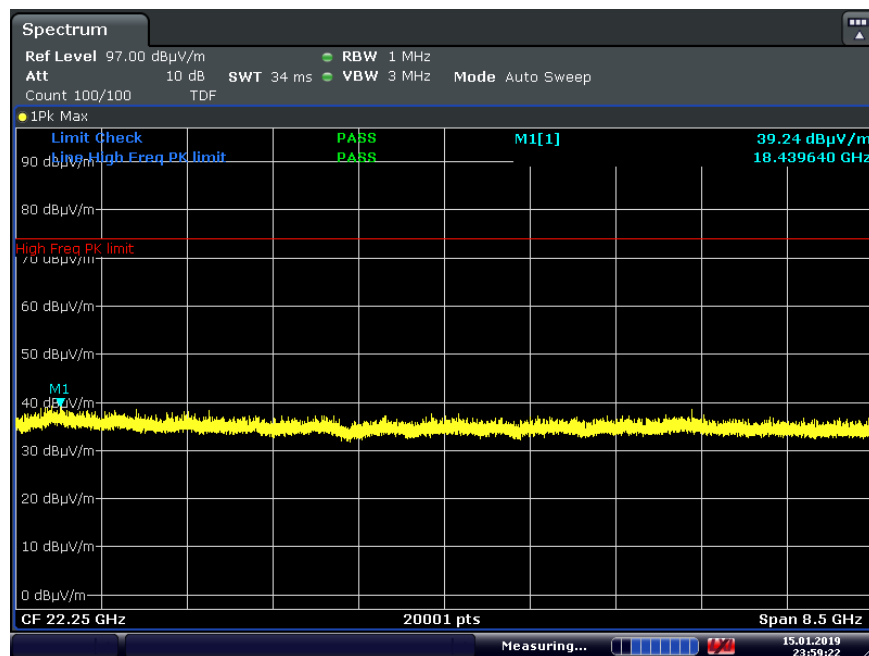
FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device	Page 85 of 112

CDD Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209; RSS-Gen [8.9]



Plot 7-94. Radiated Spurious Plot above 18GHz CDD (802.11n – Ch.6, Pol H)



Plot 7-95. Radiated Spurious Plot above 18GHz CDD (802.11n – Ch.6, Pol V)

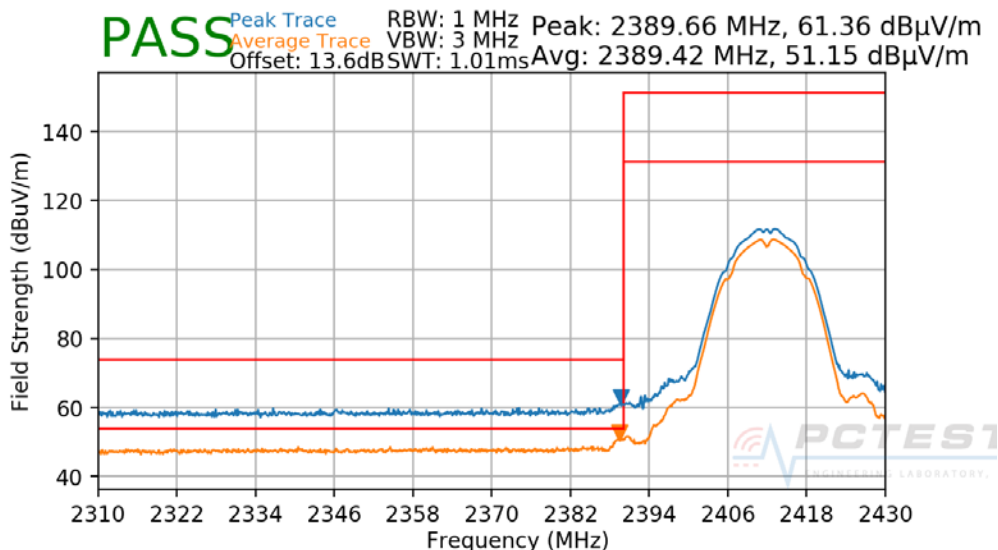
FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device	Page 86 of 112

7.7.4 SISO CORE 0 Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

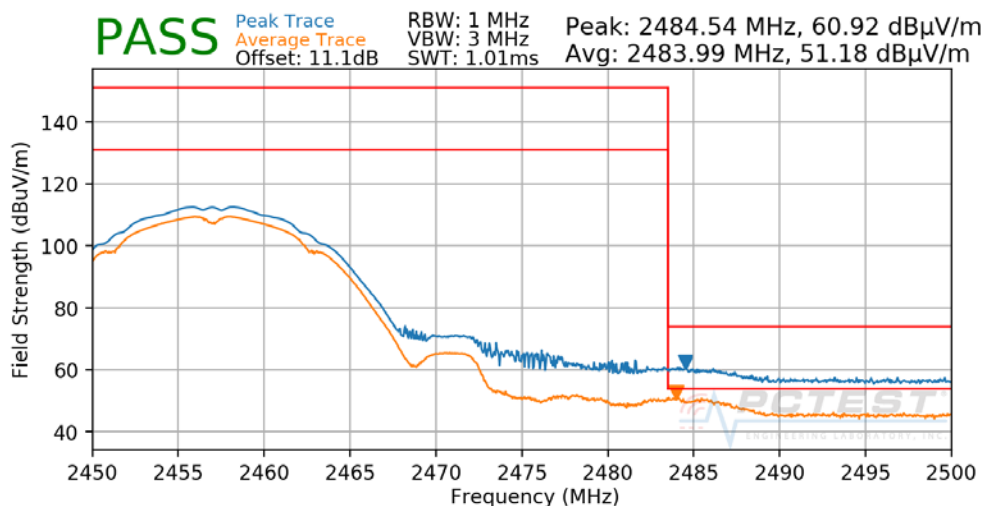
The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

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



Plot 7-96. Radiated Restricted Lower Band Edge Measurement SISO CORE 0

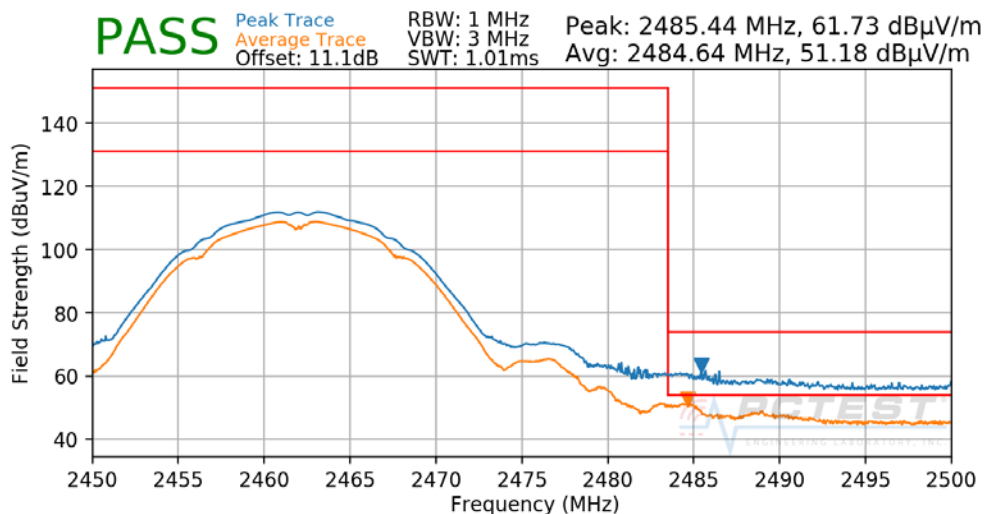
Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2457MHz
Channel:	10



Plot 7-97. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

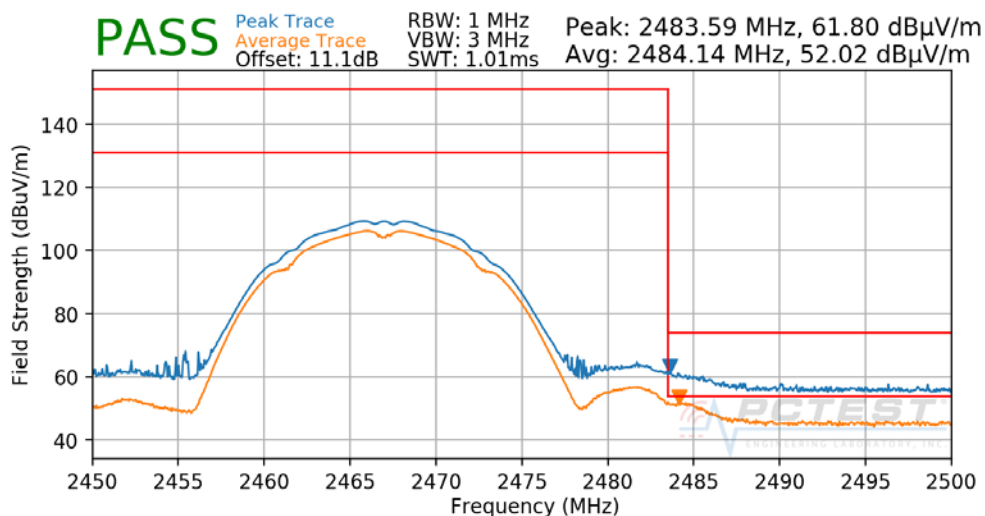
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 87 of 112

Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2462MHz
Channel: 11



Plot 7-98. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

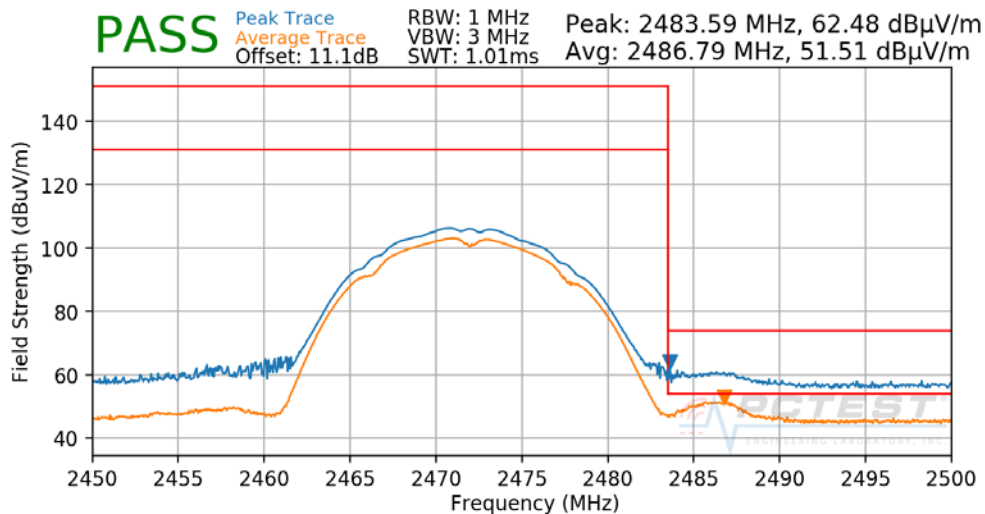
Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2467MHz
Channel: 12



Plot 7-99. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

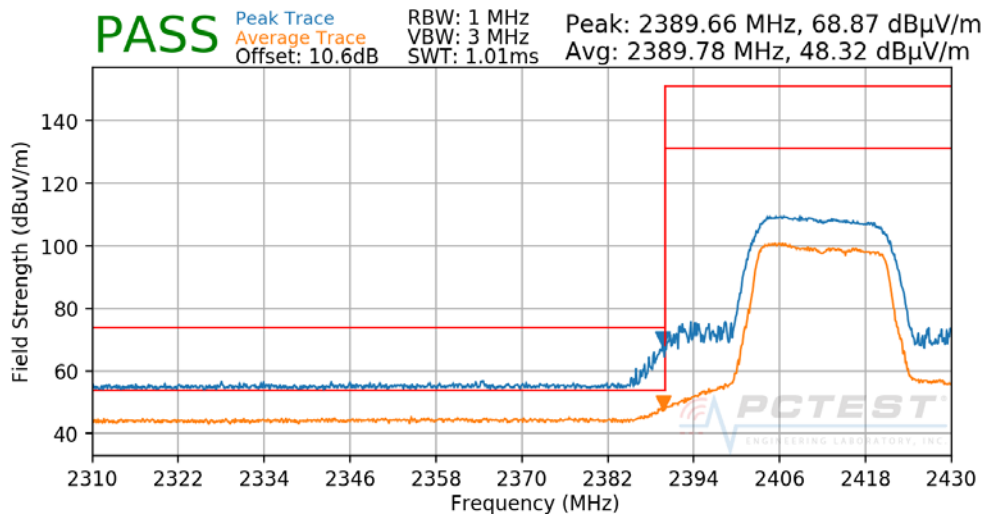
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 88 of 112

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



Plot 7-100. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

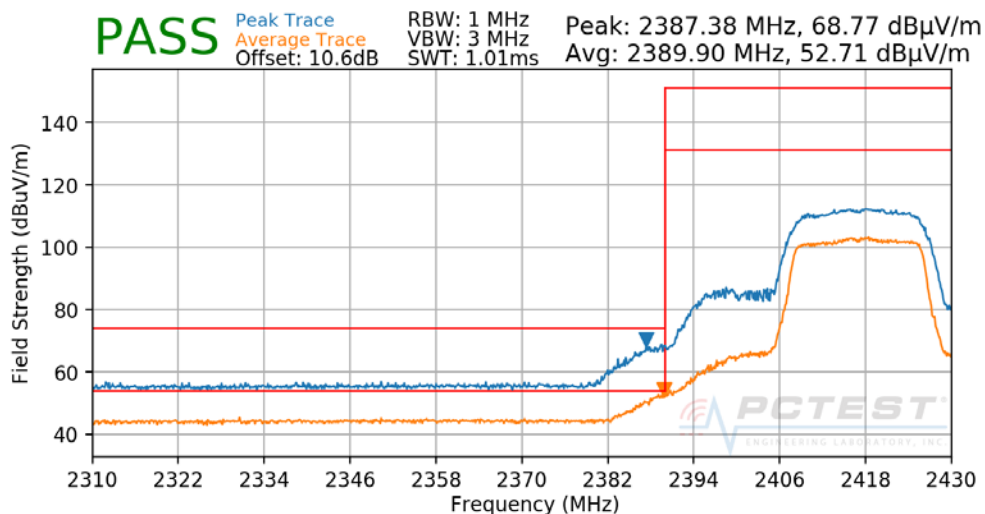
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2412MHz
Channel: 1



Plot 7-101. Radiated Restricted Lower Band Edge Measurement SISO CORE 0

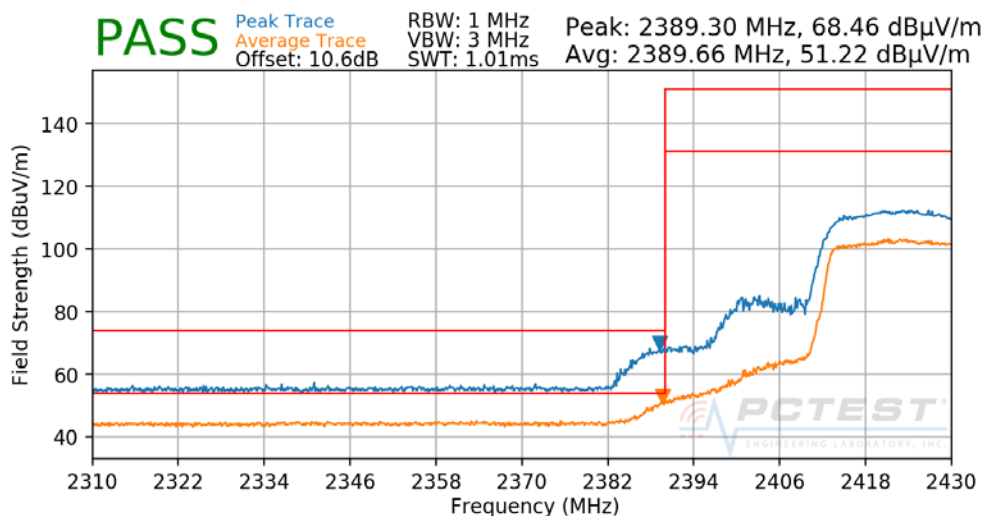
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 89 of 112

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



Plot 7-102. Radiated Restricted Lower Band Edge Measurement SISO CORE 0

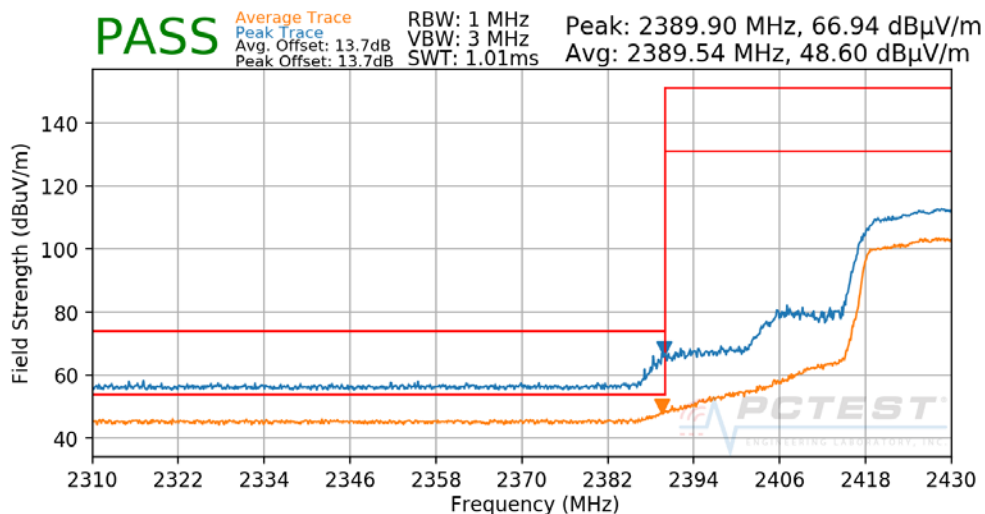
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2422MHz
Channel: 3



Plot 7-103. Radiated Restricted Lower Band Edge Measurement SISO CORE 0

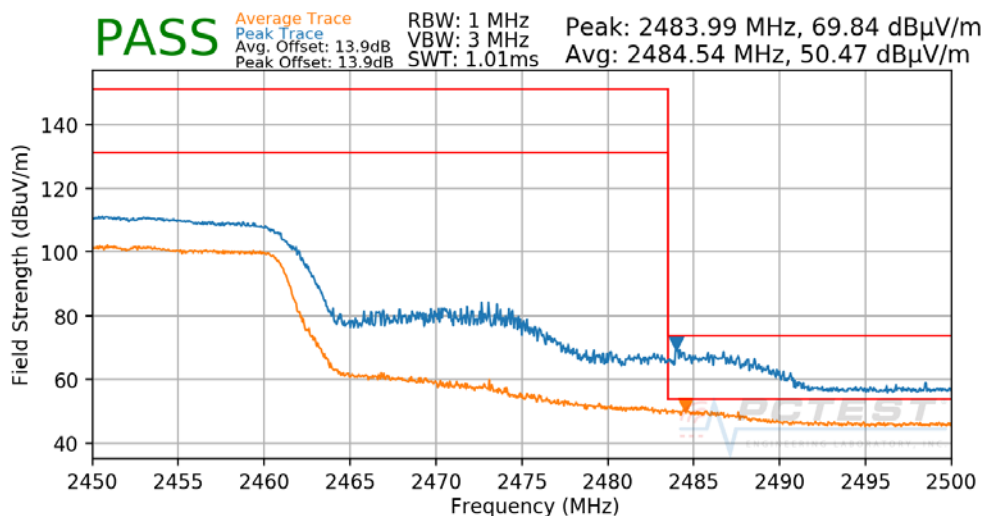
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 90 of 112

Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2427MHz
Channel: 4



Plot 7-104. Radiated Restricted Lower Band Edge Measurement SISO CORE 0

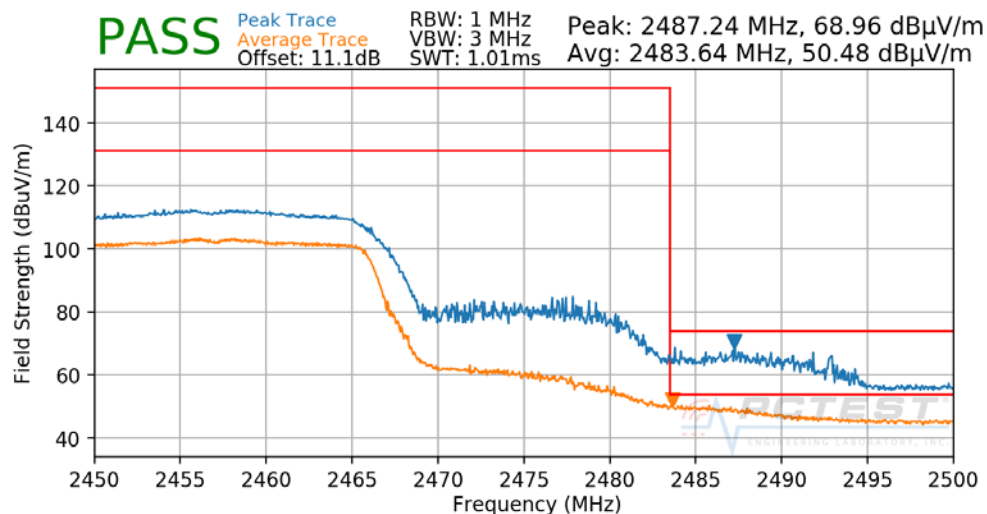
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2452MHz
Channel: 09



Plot 7-105. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

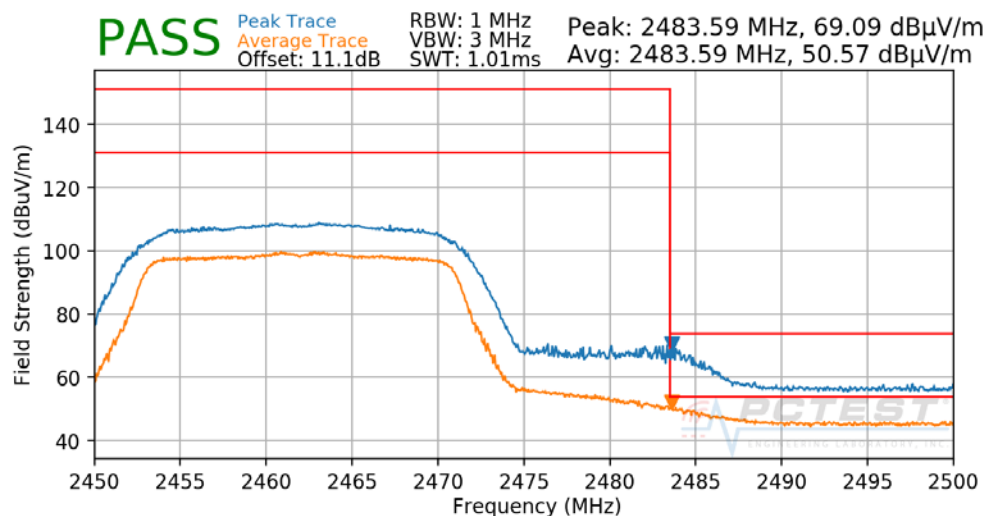
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 91 of 112

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



Plot 7-106. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

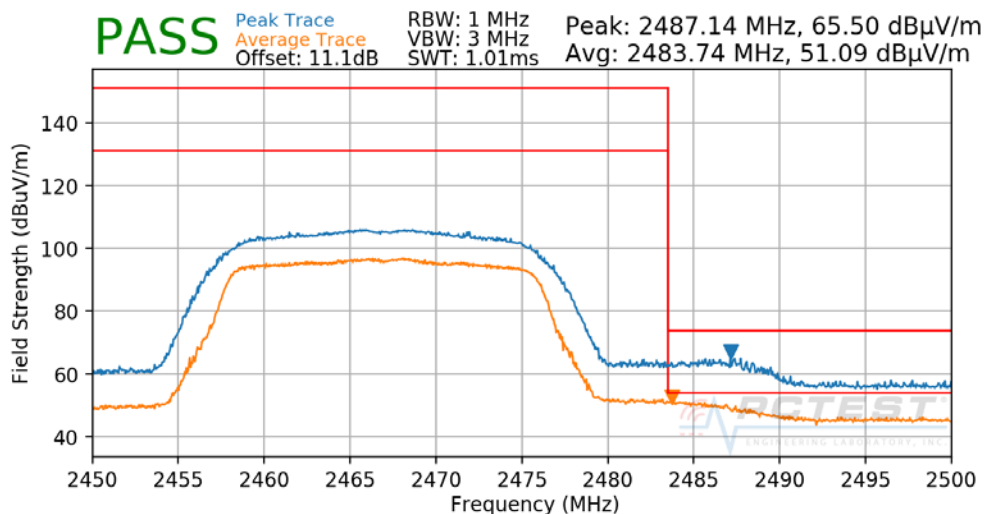
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2462MHz
Channel: 11



Plot 7-107. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

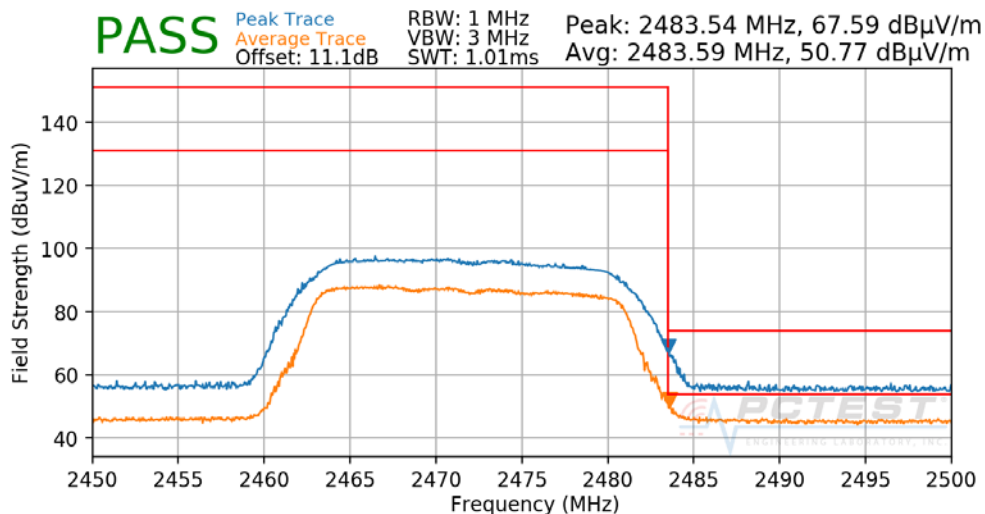
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 92 of 112

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



Plot 7-108. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

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



Plot 7-109. Radiated Restricted Upper Band Edge Measurement SISO CORE 0

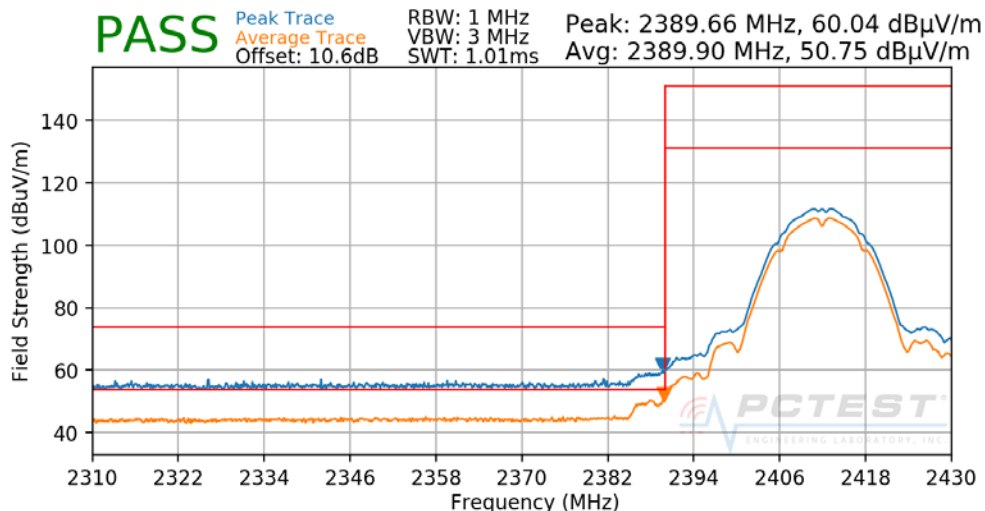
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 93 of 112

7.7.5 SISO CORE 1 Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

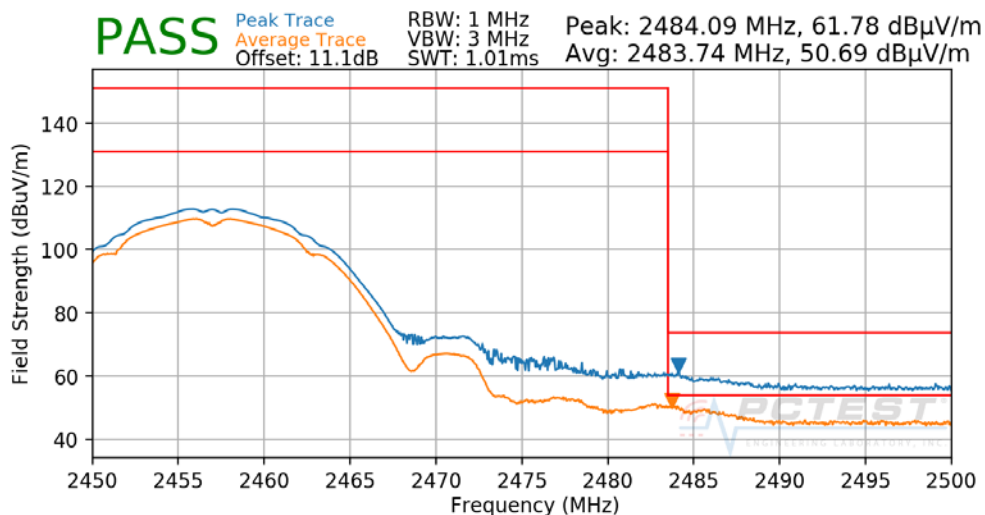
The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

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



Plot 7-110. Radiated Restricted Lower Band Edge Measurement SISO CORE 1

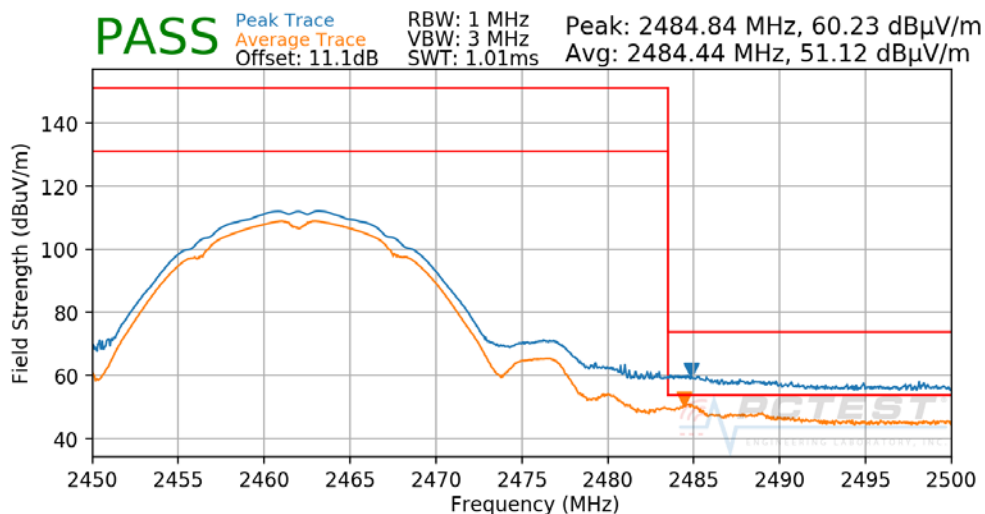
Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2457MHz
Channel: 10



Plot 7-111. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

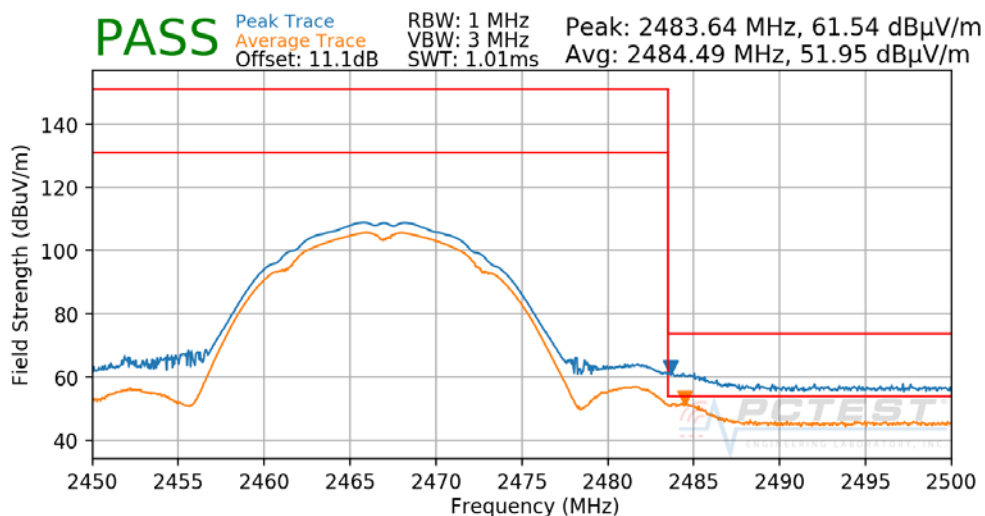
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 94 of 112

Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2462MHz
Channel: 11



Plot 7-112. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

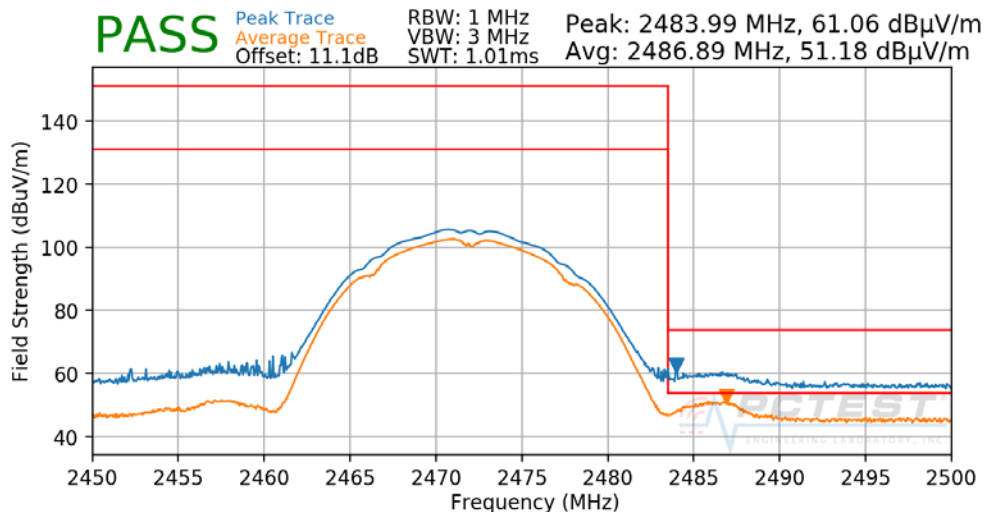
Worst Case Mode: 802.11b
Worst Case Transfer Rate: 1 Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 2467MHz
Channel: 12



Plot 7-113. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

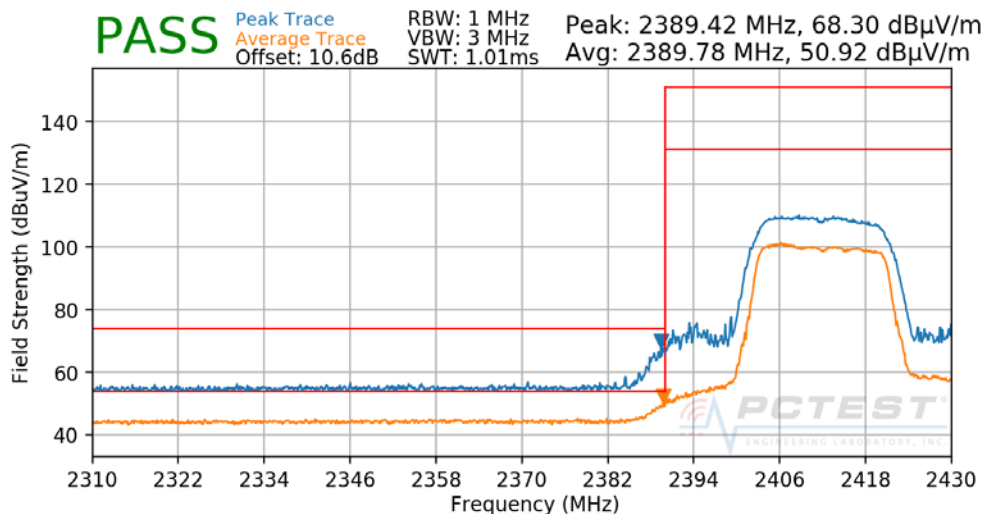
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 95 of 112

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



Plot 7-114. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

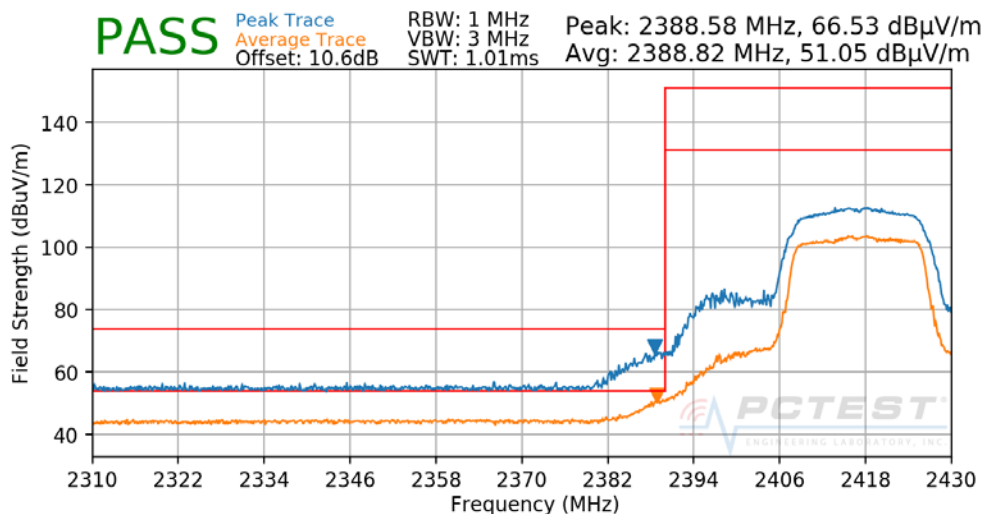
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2412MHz
Channel: 1



Plot 7-115. Radiated Restricted Lower Band Edge Measurement SISO CORE 1

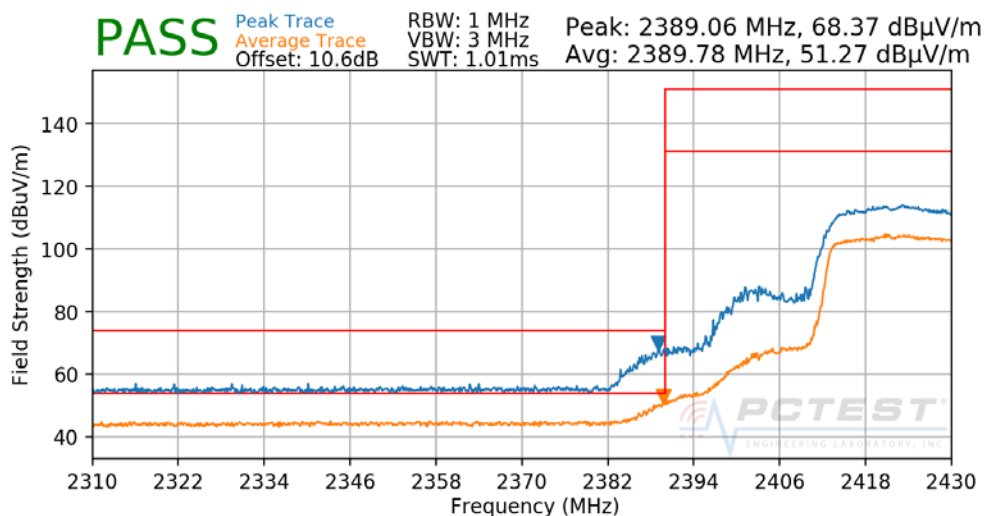
FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device	Page 96 of 112

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



Plot 7-116. Radiated Restricted Lower Band Edge Measurement SISO CORE 1

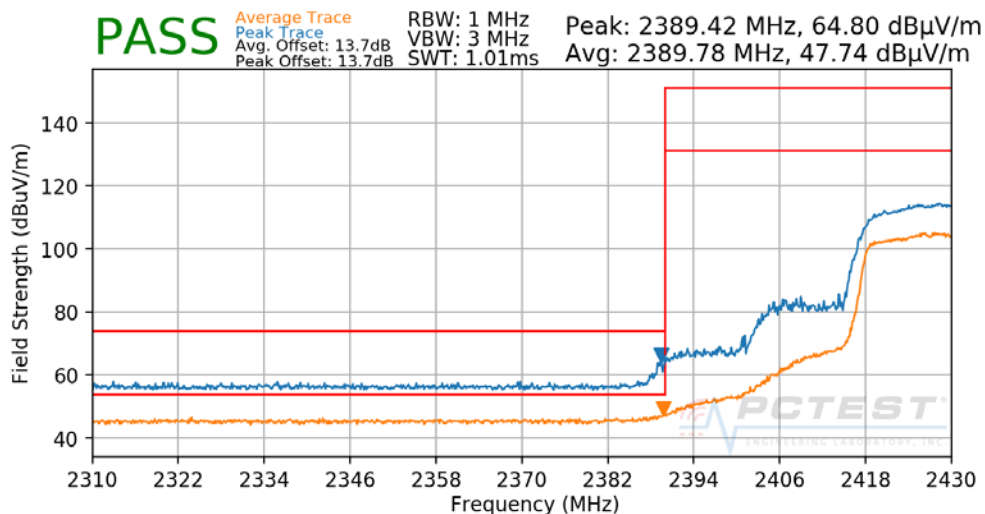
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2422MHz
Channel: 3



Plot 7-117. Radiated Restricted Lower Band Edge Measurement SISO CORE 1

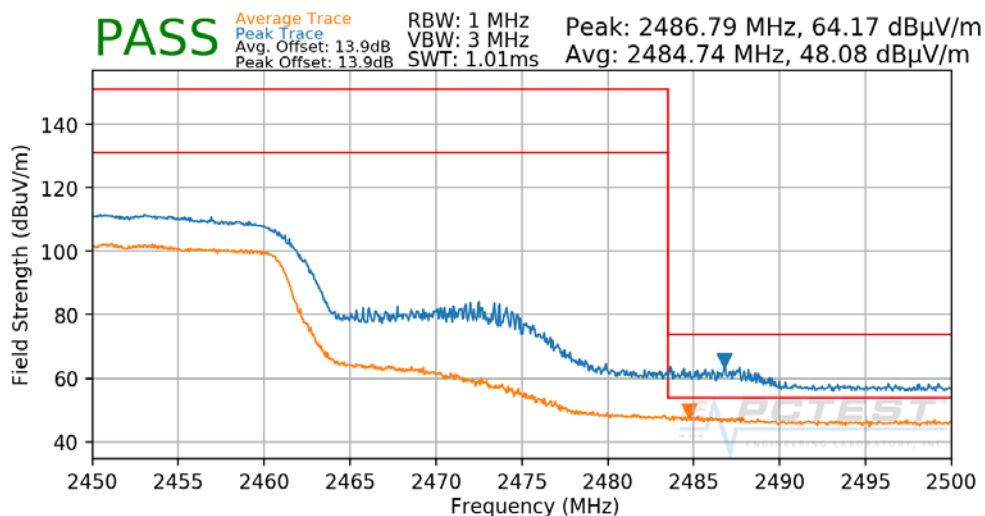
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 97 of 112

Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2427MHz
Channel: 4



Plot 7-118. Radiated Restricted Lower Band Edge Measurement SISO CORE 1

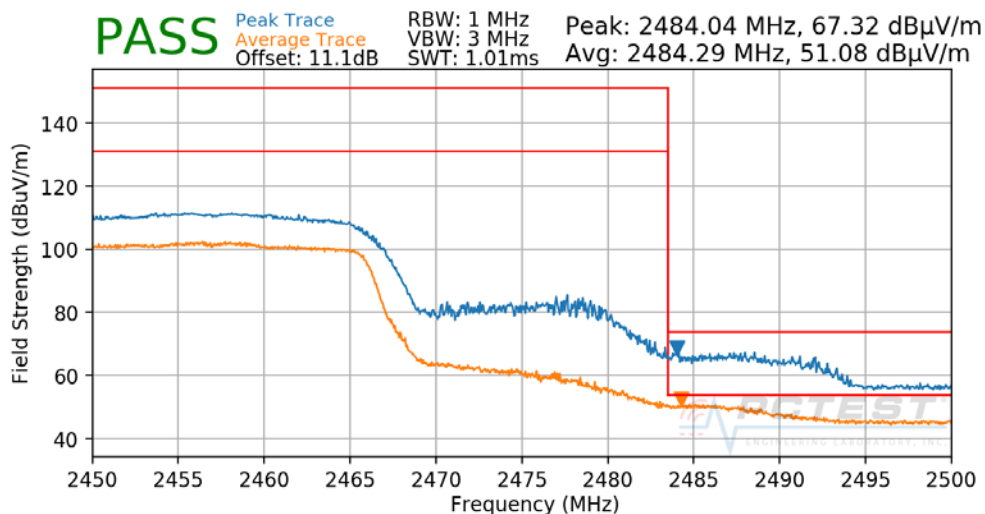
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2452MHz
Channel: 09



Plot 7-119. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

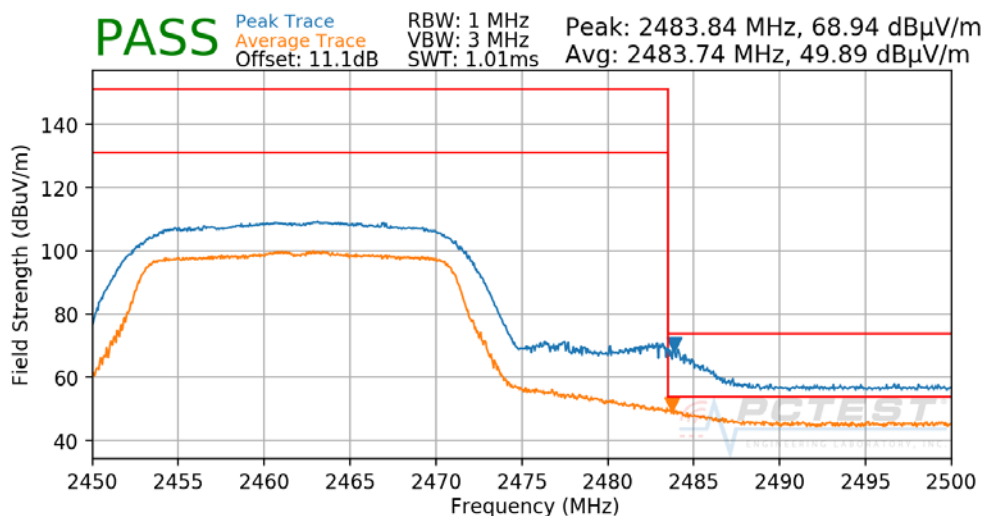
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 98 of 112

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



Plot 7-120. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

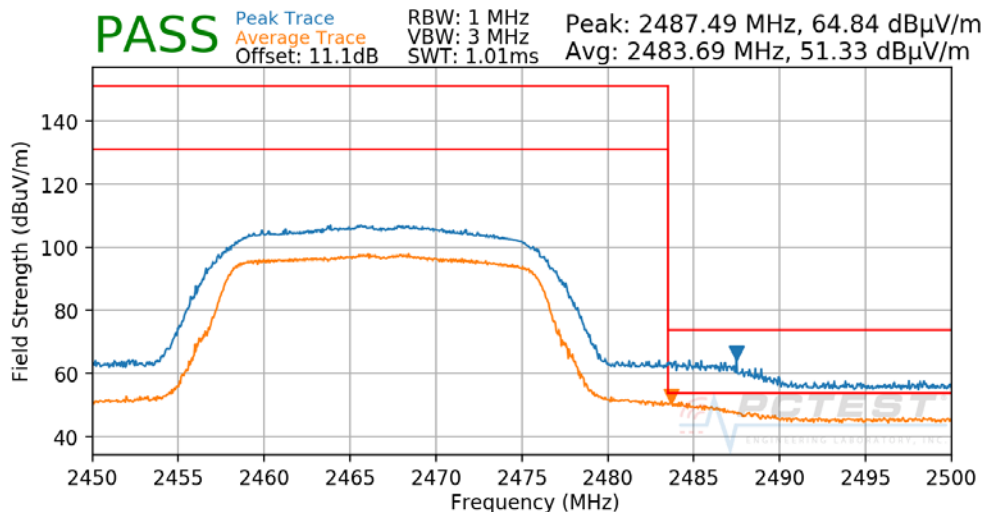
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2462MHz
Channel: 11



Plot 7-121. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

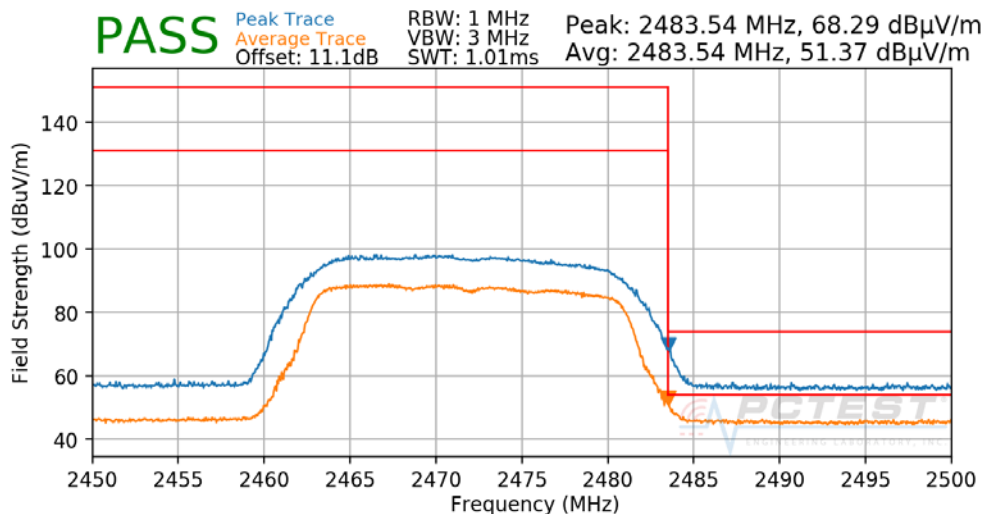
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 99 of 112

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



Plot 7-122. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

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



Plot 7-123. Radiated Restricted Upper Band Edge Measurement SISO CORE 1

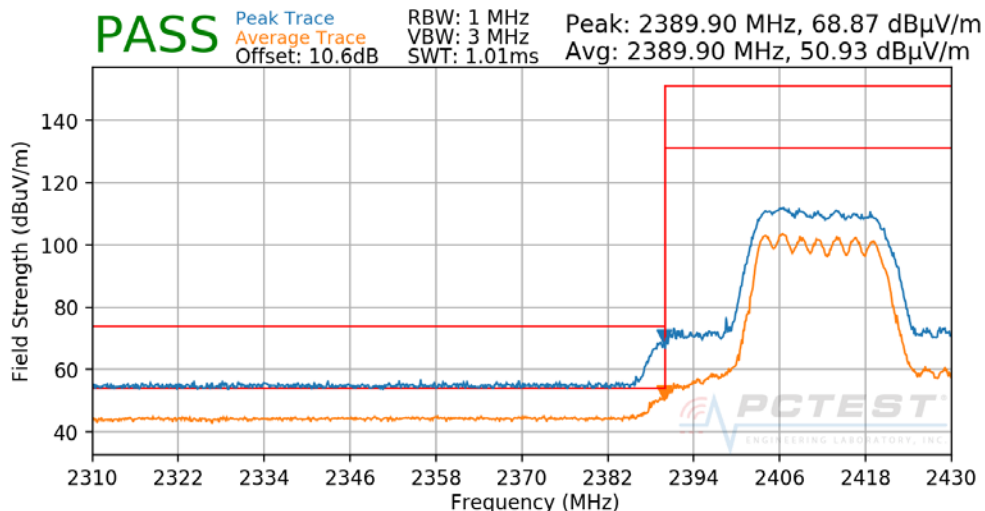
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 100 of 112

7.7.6 CDD Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

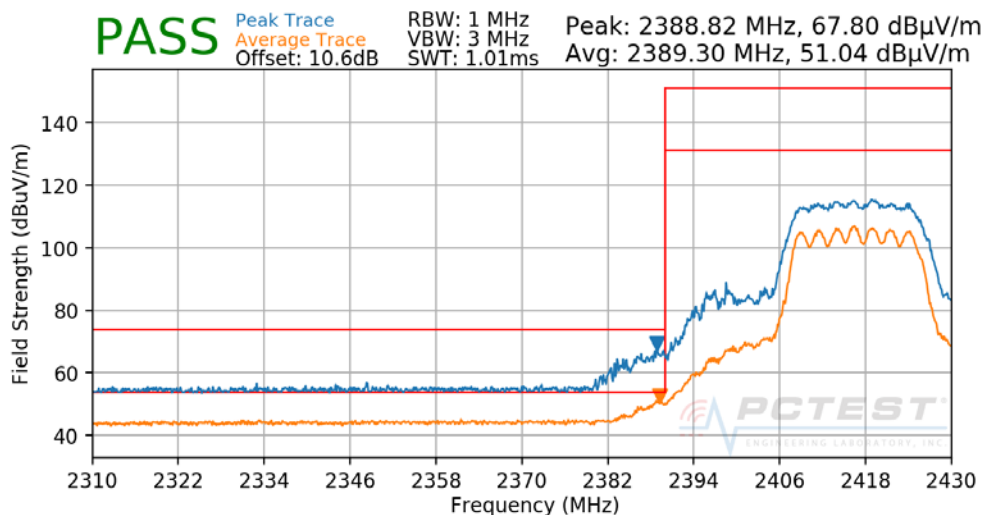
The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

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



Plot 7-124. Radiated Restricted Lower Band Edge Measurement CDD

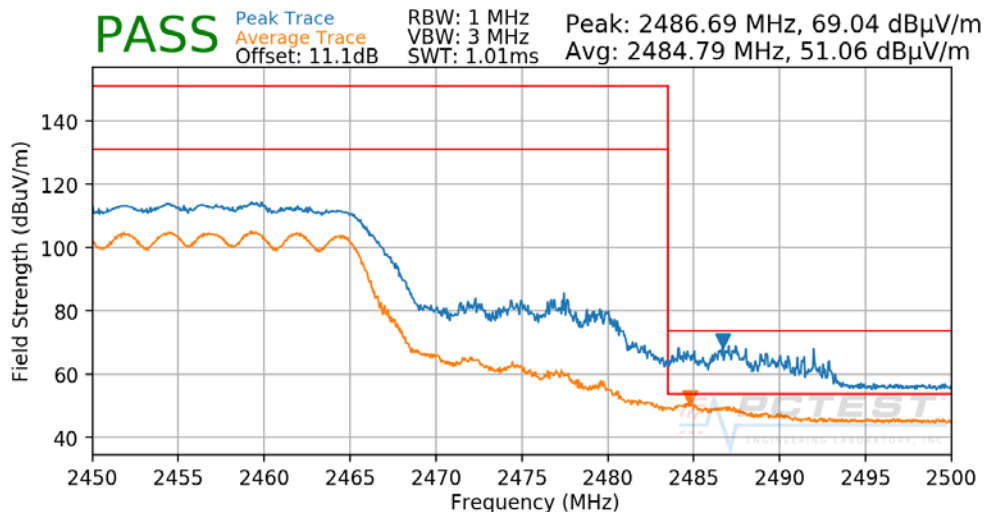
Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2417MHz
Channel:	2



Plot 7-125. Radiated Restricted Lower Band Edge Measurement CDD

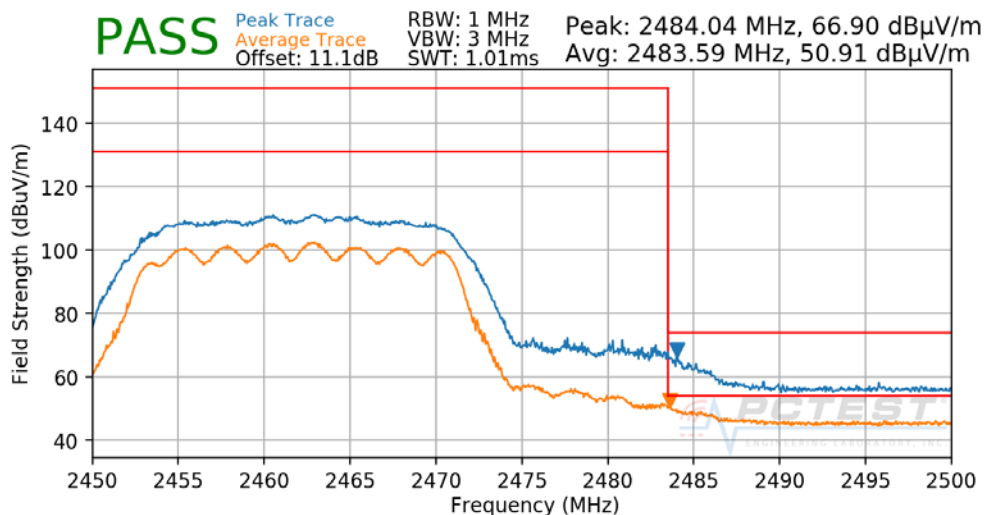
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 101 of 112

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



Plot 7-126. Radiated Restricted Upper Band Edge Measurement CDD

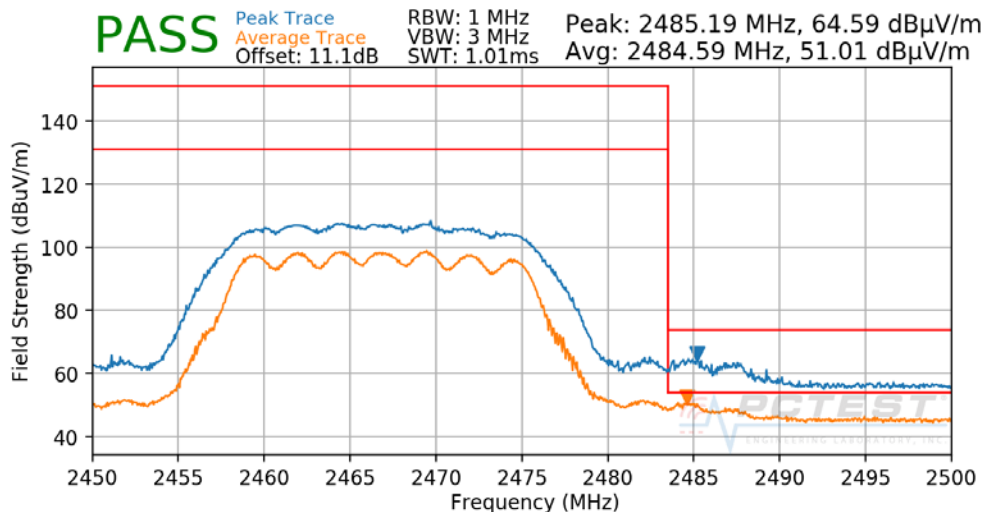
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 2462MHz
Channel: 11



Plot 7-127. Radiated Restricted Upper Band Edge Measurement CDD

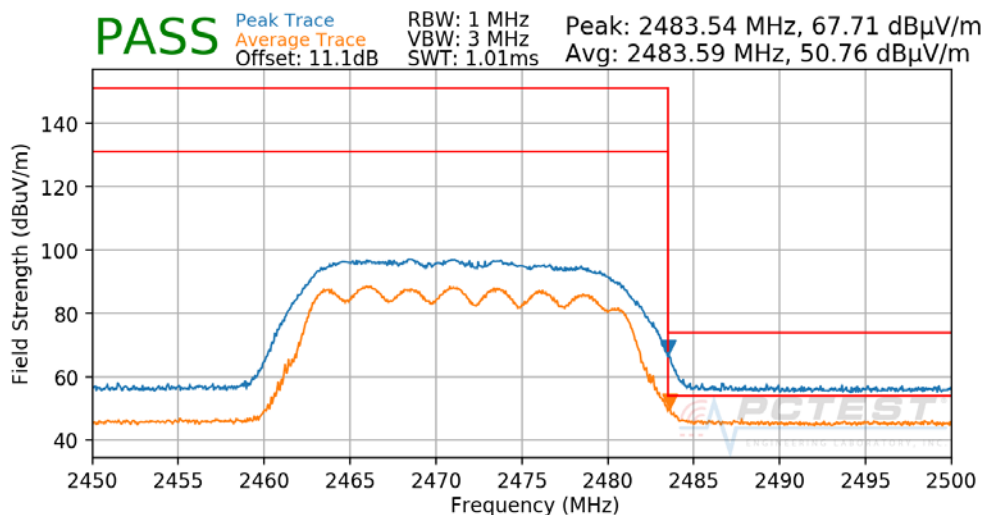
FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 102 of 112

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



Plot 7-128. Radiated Restricted Upper Band Edge Measurement CDD

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



Plot 7-129. Radiated Restricted Upper Band Edge Measurement CDD

FCC ID: BCGA2123	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1811080029-05.BCG	Test Dates: 11/09/2018-02/02/2019	EUT Type: Tablet Device		Page 103 of 112

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 7-25 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [$\mu\text{V/m}$]	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 7-25. 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

FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Setup

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

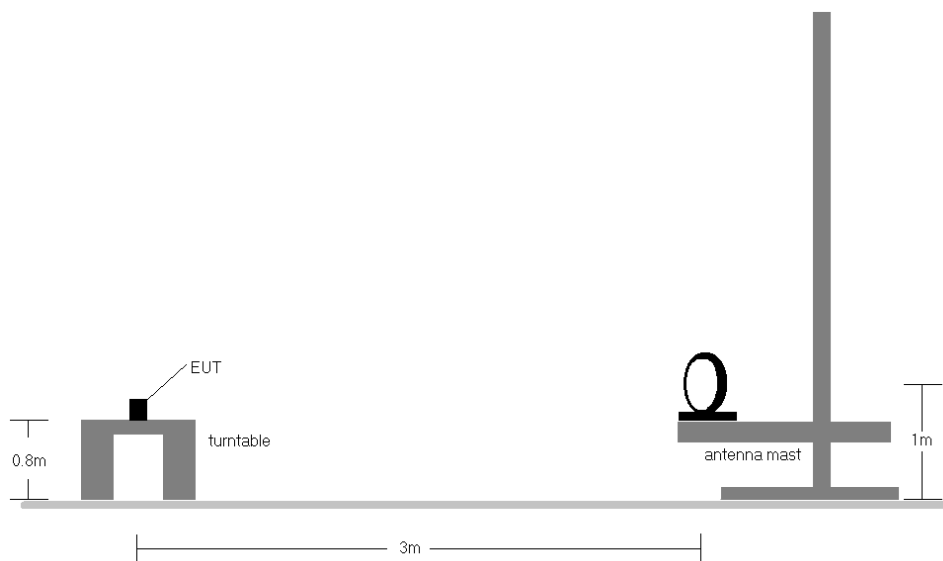


Figure 7-7. Radiated Test Setup < 30Mhz

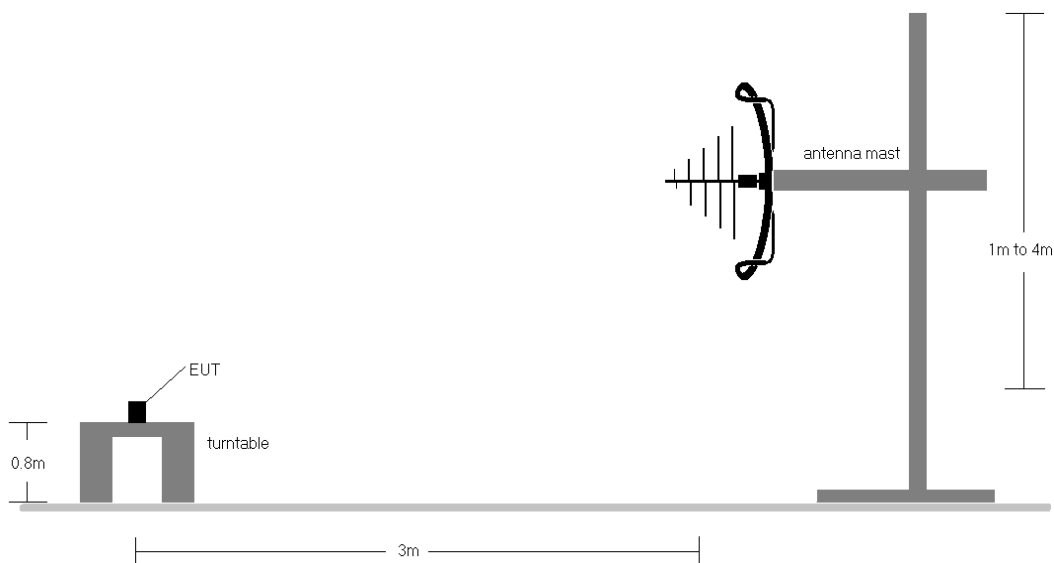


Figure 7-8. Radiated Test Setup < 1GHz

FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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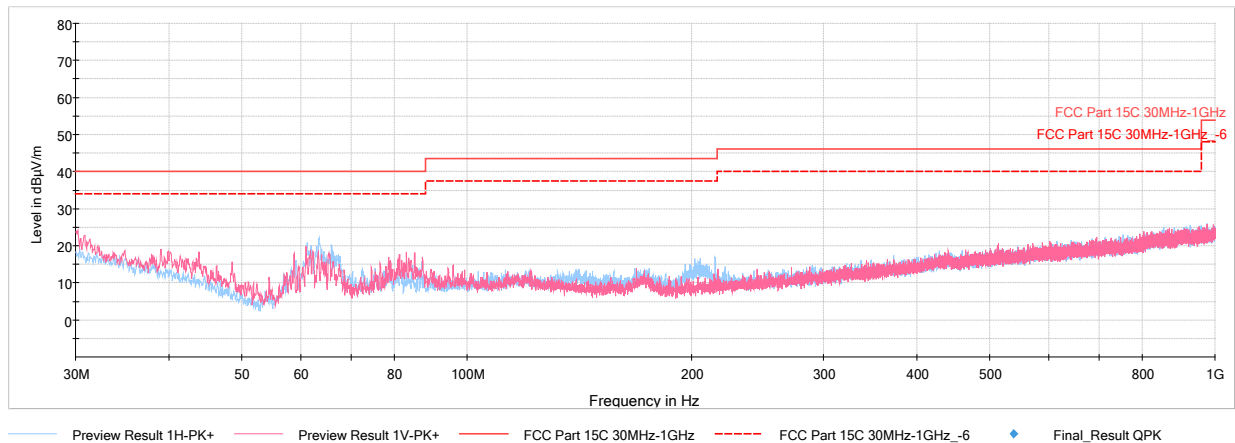
Test Notes

1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen(8.10) are below the limit shown in Table 7-25.
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 on emissions within 6dB of limit. 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.

FCC ID: BCGA2123	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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CDD Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-130. Radiated Spurious Plot below 1GHz 802.11n CDD Ch.6, with Laptop

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
43.92	Max Peak	V	100	265	-77.15	-12.77	17.08	40.00	-22.92
63.51	Max Peak	H	250	166	-68.49	-16.70	21.81	40.00	-18.19
85.19	Max Peak	V	100	82	-75.44	-13.60	17.96	40.00	-22.04
170.70	Max Peak	H	100	190	-82.10	-11.41	13.49	43.52	-30.03
214.83	Max Peak	H	100	169	-77.57	-12.81	16.62	43.52	-26.90
428.04	Max Peak	H	100	158	-82.63	-6.30	18.07	46.02	-27.95

Table 7-26. Radiated Spurious Emissions below 1GHz CDD 802.11n Ch.6, with Laptop

FCC ID: BCGA2123	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.9 AC 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 (dB μ V)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

Table 7-27. 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

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Test Setup

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

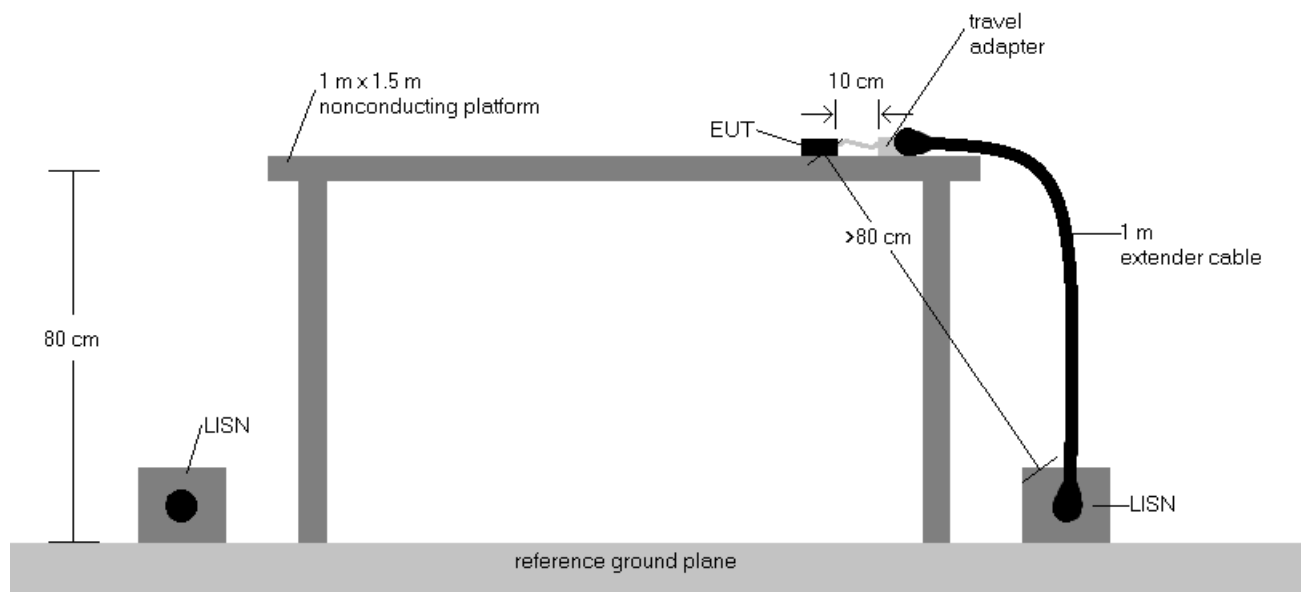
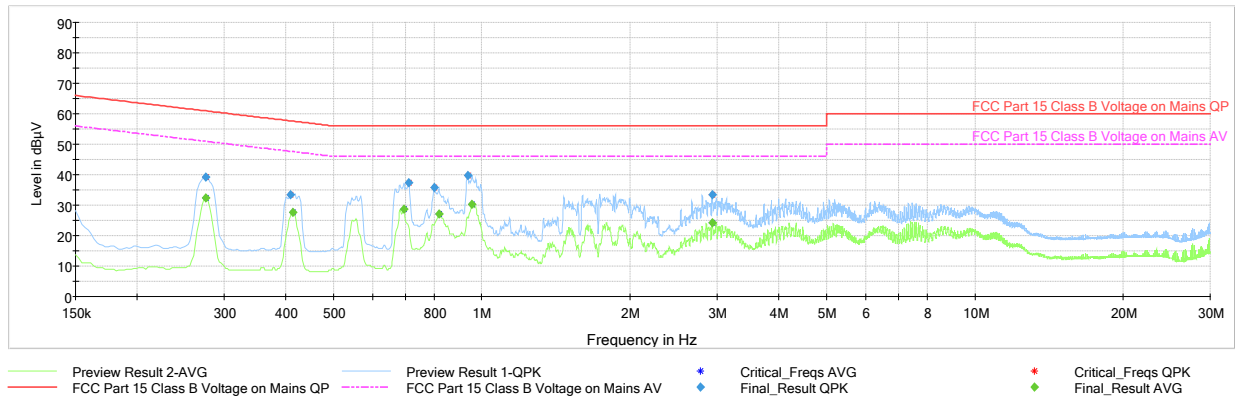


Figure 7-9. Test Instrument & Measurement Setup

Test Notes

1. All modes of operation were investigated and the worst-case emissions are reported. 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. $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
4. $\text{QP/AV Level (dB}\mu\text{V)} = \text{QP/AV Analyzer/Receiver Level (dB}\mu\text{V)} + \text{Corr. (dB)}$
5. $\text{Margin (dB)} = \text{QP/AV Limit (dB}\mu\text{V)} - \text{QP/AV Level (dB}\mu\text{V)}$
6. Traces shown in plot are made using a peak detector.
7. Deviations to the Specifications: None.

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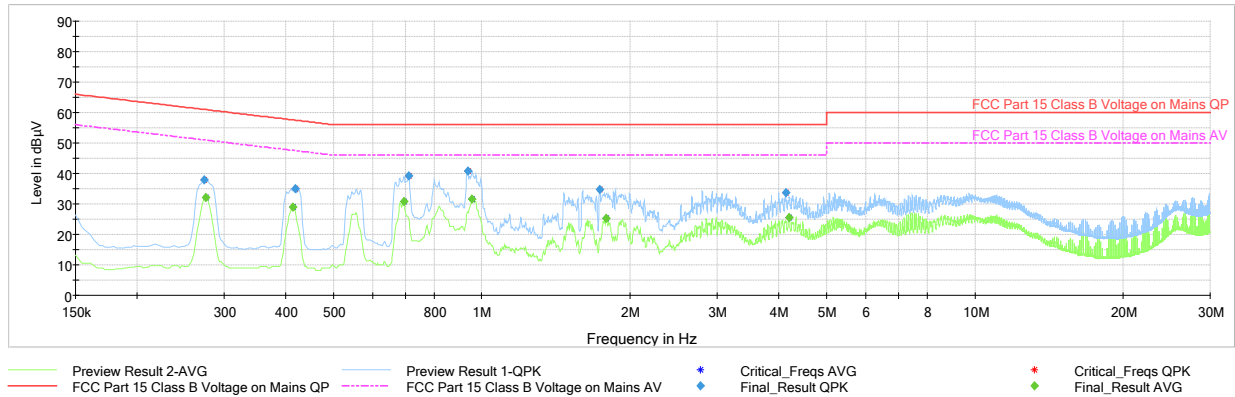


Plot 7-131. AC Line Conducted Plot with 802.11n CDD Ch.6 (L1, with AC/DC Adapter)

Frequency [MHz]	Process State	QuasiPeak [dBμV]	Average [dBμV]	Limit [dBμV]	Margin [dB]	Line	PE
0.276	FINAL	---	32.39	50.94	-18.54	L1	GND
0.276	FINAL	39.1	---	60.94	-21.83	L1	GND
0.409	FINAL	33.5	---	57.67	-24.21	L1	GND
0.413	FINAL	---	27.73	47.58	-19.85	L1	GND
0.695	FINAL	---	28.63	46.00	-17.37	L1	GND
0.710	FINAL	37.4	---	56.00	-18.56	L1	GND
0.803	FINAL	35.7	---	56.00	-20.31	L1	GND
0.818	FINAL	---	27.14	46.00	-18.86	L1	GND
0.935	FINAL	39.8	---	56.00	-16.22	L1	GND
0.956	FINAL	---	30.34	46.00	-15.66	L1	GND
2.933	FINAL	---	24.08	46.00	-21.92	L1	GND
2.933	FINAL	33.3	---	56.00	-22.67	L1	GND

Table 7-28. AC Line Conducted Measurements with 802.11n CDD Ch.6 (L1, with AC/DC Adapter)

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Plot 7-132. AC Line Conducted Plot with 802.11n CDD Ch.6 (N, with AC/DC Adapter)

Frequency [MHz]	Process State	QuasiPeak [dBμV]	Average [dBμV]	Limit [dBμV]	Margin [dB]	Line	PE
0.274	FINAL	37.8	---	61.00	-23.20	N	GND
0.276	FINAL	---	32.13	50.94	-18.81	N	GND
0.413	FINAL	---	28.82	47.58	-18.76	N	GND
0.418	FINAL	35.1	---	57.49	-22.42	N	GND
0.695	FINAL	---	30.66	46.00	-15.34	N	GND
0.710	FINAL	39.2	---	56.00	-16.82	N	GND
0.935	FINAL	40.9	---	56.00	-15.15	N	GND
0.956	FINAL	---	31.66	46.00	-14.34	N	GND
1.734	FINAL	34.7	---	56.00	-21.29	N	GND
1.788	FINAL	---	25.35	46.00	-20.65	N	GND
4.135	FINAL	33.8	---	56.00	-22.19	N	GND
4.200	FINAL	---	25.62	46.00	-20.38	N	GND

Table 7-29. AC Line Conducted Measurements with 802.11n CDD Ch.6 (N, with AC/DC Adapter)

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8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Apple Tablet Device FCC ID: BCGA2123** 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.

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