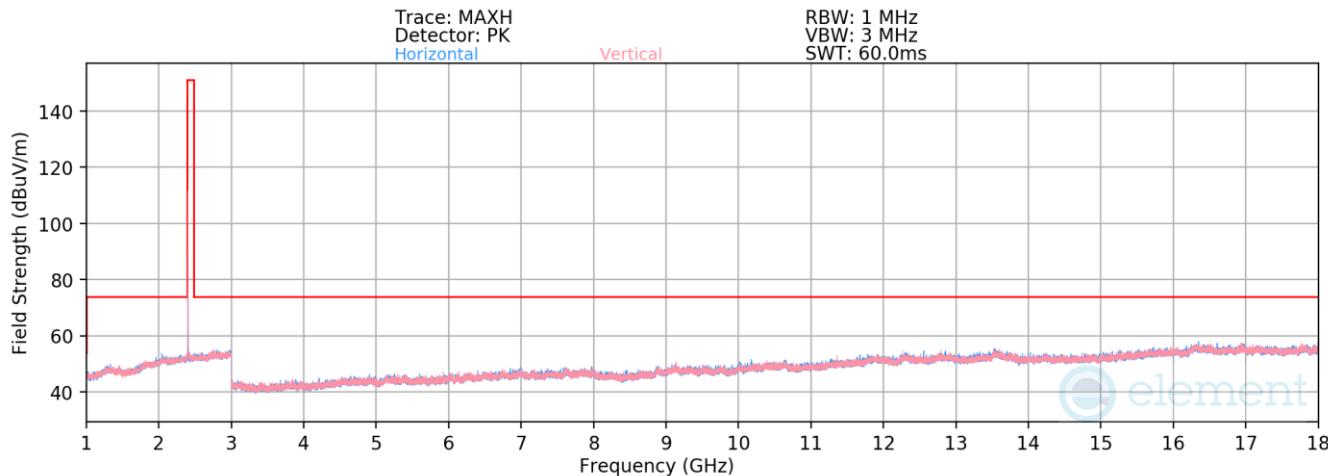


Radiated Spurious Emission Measurements (1 – 18GHz)

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

Antenna WF8



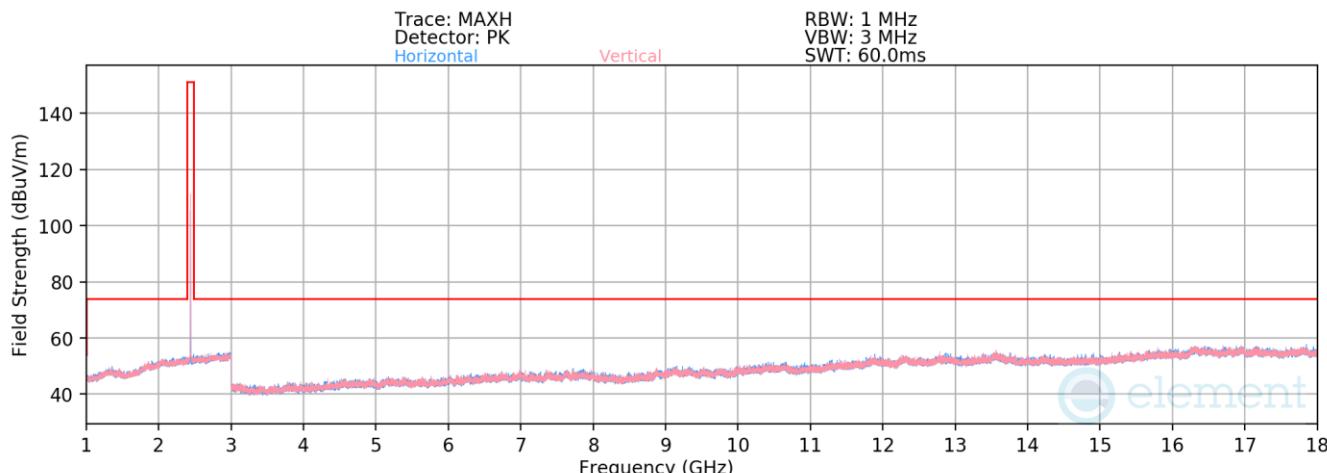
Plot 7-81. Radiated Spurious Emissions 1-18GHz Antenna WF8 (4Mbps, HDR4, ePA – Ch. 1)

Bluetooth Mode:	<u>HDR4</u>
Data Rate:	<u>4Mbps</u>
Power Scheme	<u>ePA</u>
Distance of Measurements:	<u>3 Meters</u>
Operating Frequency:	<u>2404MHz</u>
Channel:	<u>1</u>

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4808.00	Avg	V	-	-	-80.99	8.47	34.48	53.98	-19.50
4808.00	Peak	V	-	-	-70.33	8.47	45.14	73.98	-28.84
12020.00	Avg	V	-	-	-83.27	17.42	41.15	53.98	-12.83
12020.00	Peak	V	-	-	-71.30	17.42	53.12	73.98	-20.86

Table 7-14. Radiated Spurious Emission Measurements Antenna WF8

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 73 of 104



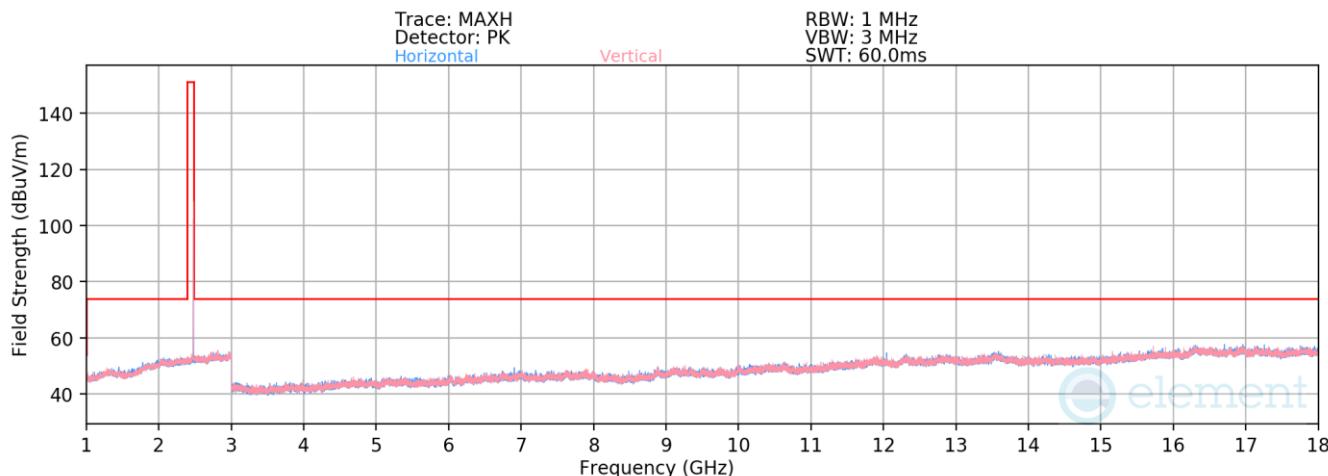
Plot 7-82. Radiated Spurious Emissions 1-18GHz Antenna WF8 (4Mbps, HDR4, ePA – Ch. 38)

Bluetooth Mode:	<u>HDR4</u>
Data Rate:	<u>4Mbps</u>
Power Scheme	<u>ePA</u>
Distance of Measurements:	<u>3 Meters</u>
Operating Frequency:	<u>2441MHz</u>
Channel:	<u>38</u>

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4882.00	Avg	V	-	-	-81.42	8.67	34.25	53.98	-19.73
4882.00	Peak	V	-	-	-69.62	8.67	46.05	73.98	-27.93
7323.00	Avg	V	-	-	-82.75	11.40	35.65	53.98	-18.33
7323.00	Peak	V	-	-	-71.08	11.40	47.32	73.98	-26.66
12205.00	Avg	V	-	-	-83.73	17.51	40.78	53.98	-13.20
12205.00	Peak	V	-	-	-71.80	17.51	52.71	73.98	-21.27

Table 7-15. Radiated Spurious Emission Measurements Antenna WF8

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 74 of 104



Plot 7-83. Radiated Spurious Emissions 1-18GHz Antenna WF8 (4Mbps, HDR4, ePA – Ch. 73)

Bluetooth Mode: HDR4
 Data Rate: 4Mbps
 Power Scheme ePA
 Distance of Measurements: 3 Meters
 Operating Frequency: 2476MHz
 Channel: 73

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4952.00	Avg	V	-	-	-82.04	9.14	34.10	53.98	-19.88
4952.00	Peak	V	-	-	-70.75	9.14	45.39	73.98	-28.59
7428.00	Avg	V	-	-	-83.00	12.27	36.27	53.98	-17.71
7428.00	Peak	V	-	-	-71.88	12.27	47.39	73.98	-26.59
12380.00	Avg	V	-	-	-83.96	17.76	40.80	53.98	-13.18
12380.00	Peak	V	-	-	-73.02	17.76	51.74	73.98	-22.24

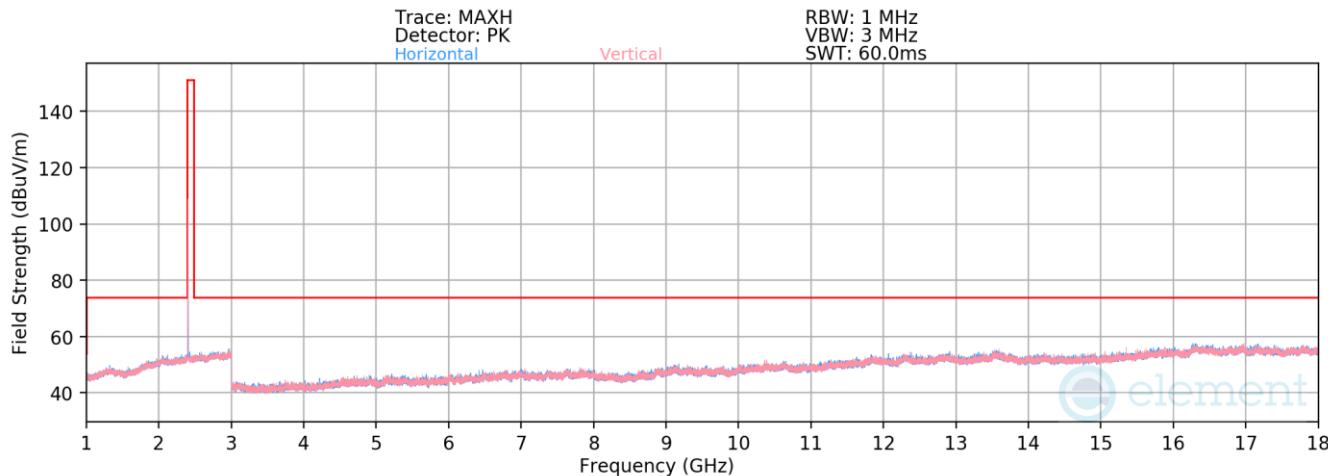
Table 7-16. Radiated Spurious Emission Measurements Antenna WF8

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 75 of 104

Radiated Spurious Emission Measurements (1 – 18GHz)

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

Antenna WF7b



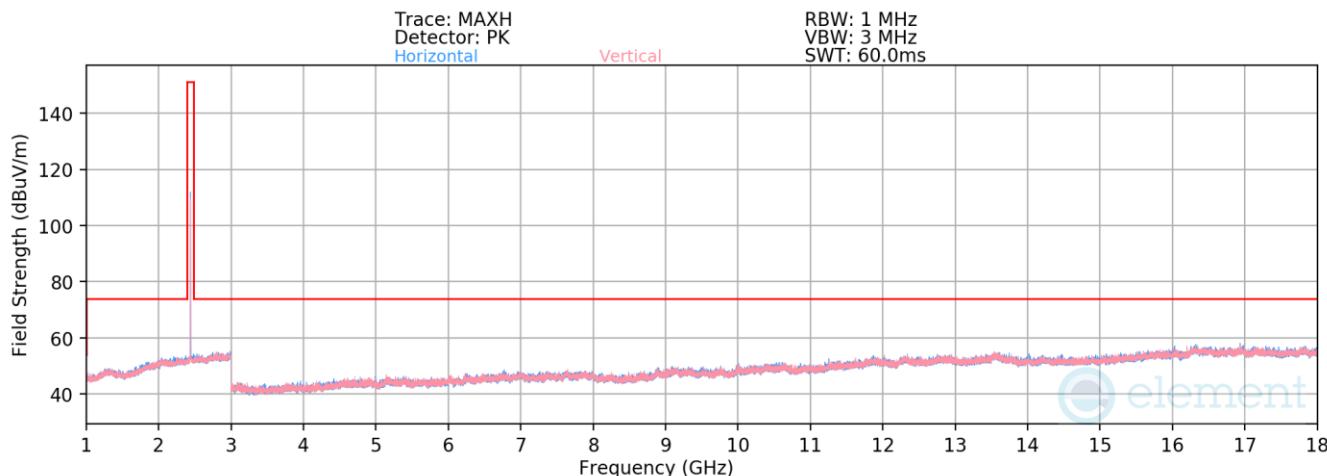
Plot 7-84. Radiated Spurious Emissions 1-18GHz Antenna WF7b (4Mbps, HDR4, ePA – Ch. 1)

Bluetooth Mode:	<u>HDR4</u>
Data Rate:	<u>4Mbps</u>
Power Scheme	<u>ePA</u>
Distance of Measurements:	<u>3 Meters</u>
Operating Frequency:	<u>2404MHz</u>
Channel:	<u>1</u>

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]
4808.00	Avg	H	-	-	-81.33	8.47	34.14	53.98	-19.84
4808.00	Peak	H	-	-	-68.68	8.47	46.79	73.98	-27.19
12020.00	Avg	H	-	-	-83.32	17.42	41.10	53.98	-12.88
12020.00	Peak	H	-	-	-71.71	17.42	52.71	73.98	-21.27

Table 7-17. Radiated Spurious Emission Measurements Antenna WF7b

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 76 of 104



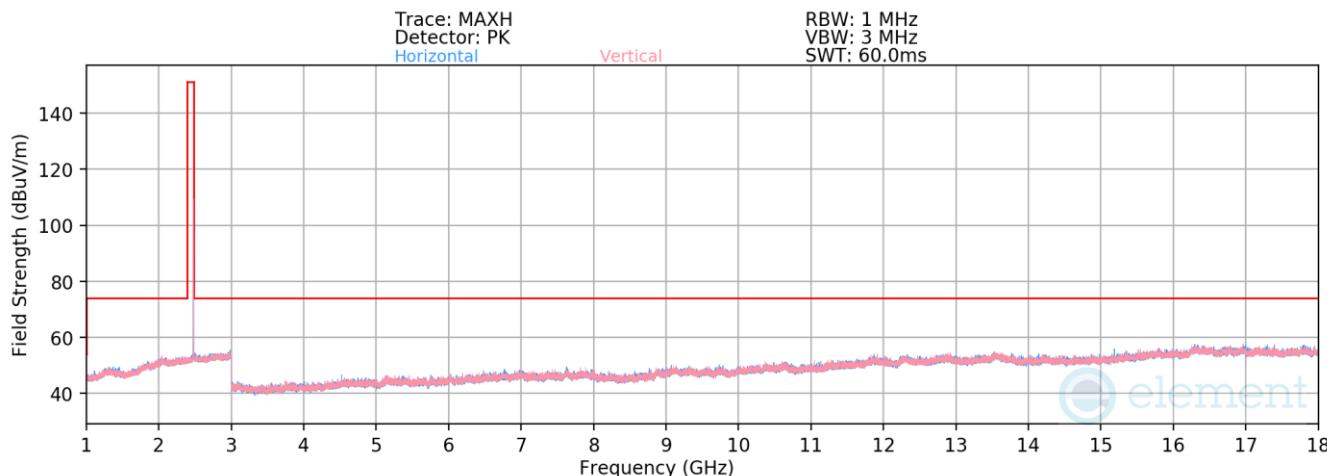
Plot 7-85. Radiated Spurious Emissions 1-18GHz Antenna WF7b (4Mbps, HDR4, ePA – Ch. 38)

Bluetooth Mode:	<u>HDR4</u>
Data Rate:	<u>4Mbps</u>
Power Scheme	<u>ePA</u>
Distance of Measurements:	<u>3 Meters</u>
Operating Frequency:	<u>2441MHz</u>
Channel:	<u>38</u>

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4882.00	Avg	H	-	-	-81.55	8.67	34.12	53.98	-19.86
4882.00	Peak	H	-	-	-70.05	8.67	45.62	73.98	-28.36
7323.00	Avg	H	-	-	-82.70	11.40	35.70	53.98	-18.28
7323.00	Peak	H	-	-	-71.57	11.40	46.83	73.98	-27.15
12205.00	Avg	H	-	-	-83.80	17.51	40.71	53.98	-13.27
12205.00	Peak	H	-	-	-72.77	17.51	51.74	73.98	-22.24

Table 7-18. Radiated Spurious Emission Measurements Antenna WF7b

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 77 of 104



Plot 7-86. Radiated Spurious Emissions 1-18GHz Antenna WF7b (4Mbps, HDR4, ePA – Ch. 73)

Bluetooth Mode: HDR4
 Data Rate: 4Mbps
 Power Scheme ePA
 Distance of Measurements: 3 Meters
 Operating Frequency: 2476MHz
 Channel: 73

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4952.00	Avg	H	-	-	-82.11	9.14	34.03	53.98	-19.95
4952.00	Peak	H	-	-	-70.87	9.14	45.27	73.98	-28.71
7428.00	Avg	H	-	-	-83.12	12.27	36.15	53.98	-17.83
7428.00	Peak	H	-	-	-71.80	12.27	47.47	73.98	-26.51
12380.00	Avg	H	-	-	-84.12	17.76	40.64	53.98	-13.34
12380.00	Peak	H	-	-	-72.69	17.76	52.07	73.98	-21.91

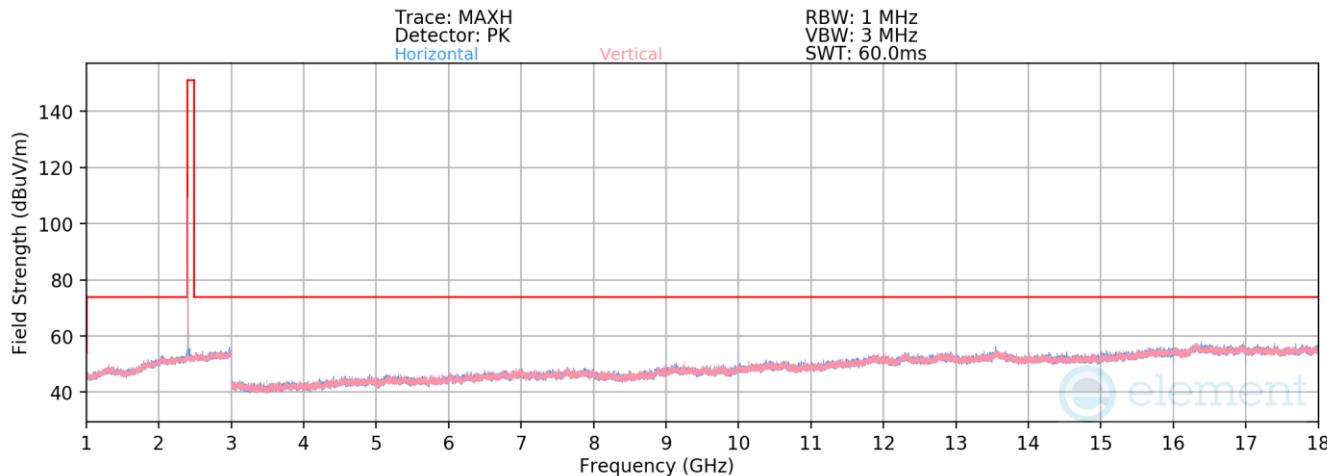
Table 7-19. Radiated Spurious Emission Measurements Antenna WF7b

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 78 of 104

Radiated Spurious Emission Measurements (1 – 18GHz)

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

TxBF



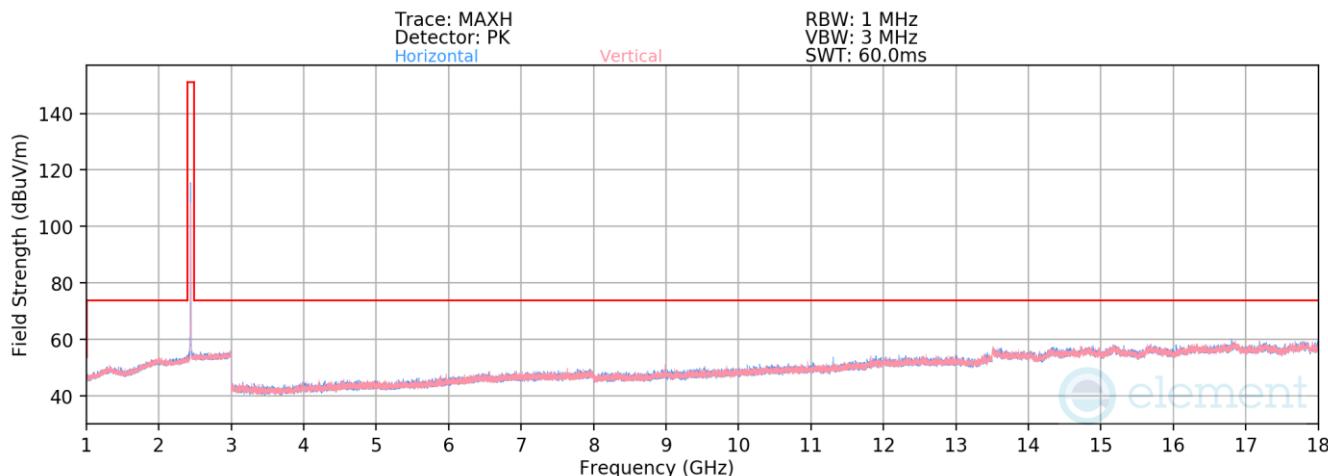
Plot 7-87. Radiated Spurious Emissions 1-18GHz TxBF (4Mbps, HDR4, ePA – Ch. 1)

Bluetooth Mode: HDR4
 Data Rate: 4Mbps
 Power Scheme ePA
 Distance of Measurements: 3 Meters
 Operating Frequency: 2404MHz
 Channel: 1

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]
4808.00	Avg	H	-	-	-81.32	8.47	34.15	53.98	-19.83
4808.00	Peak	H	-	-	-70.25	8.47	45.22	73.98	-28.76
12020.00	Avg	H	-	-	-83.16	17.42	41.26	53.98	-12.72
12020.00	Peak	H	-	-	-71.69	17.42	52.73	73.98	-21.25

Table 7-20. Radiated Spurious Emission Measurements TxBF

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device				



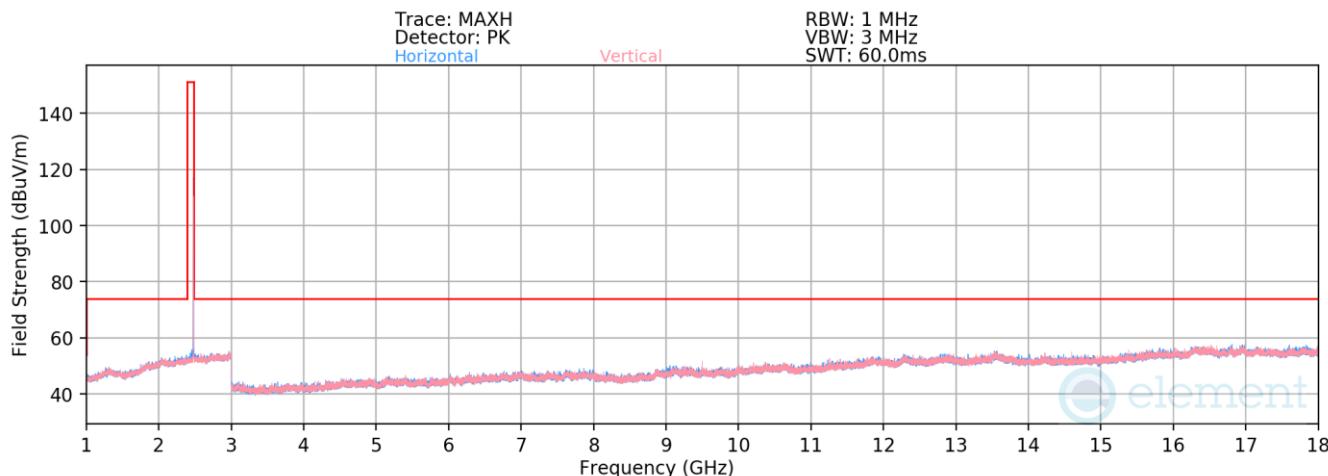
Plot 7-88. Radiated Spurious Emissions 1-18GHz TxBF (4Mbps, HDR4, ePA – Ch. 38)

Bluetooth Mode: HDR4
 Data Rate: 4Mbps
 Power Scheme ePA
 Distance of Measurements: 3 Meters
 Operating Frequency: 2441MHz
 Channel: 38

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4882.00	Avg	H	-	-	-81.47	8.67	34.20	53.98	-19.78
4882.00	Peak	H	-	-	-69.19	8.67	46.48	73.98	-27.50
7323.00	Avg	H	-	-	-82.78	11.40	35.62	53.98	-18.36
7323.00	Peak	H	-	-	-71.44	11.40	46.96	73.98	-27.02
12205.00	Avg	H	-	-	-83.87	17.51	40.64	53.98	-13.34
12205.00	Peak	H	-	-	-72.93	17.51	51.58	73.98	-22.40

Table 7-21. Radiated Spurious Emission Measurements TxBF

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 80 of 104



Plot 7-89. Radiated Spurious Emissions 1-18GHz TxBF (4Mbps, HDR4, ePA – Ch. 73)

Bluetooth Mode: HDR4
 Data Rate: 4Mbps
 Power Scheme ePA
 Distance of Measurements: 3 Meters
 Operating Frequency: 2476MHz
 Channel: 73

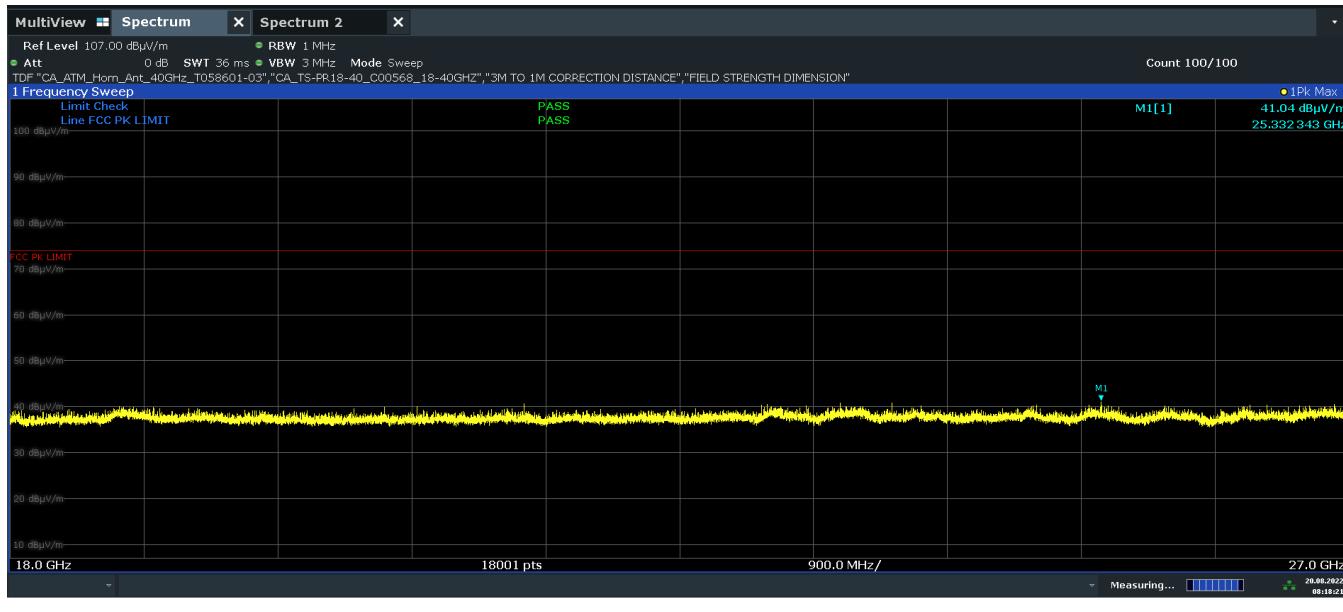
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4952.00	Avg	H	-	-	-82.13	9.14	34.01	53.98	-19.97
4952.00	Peak	H	-	-	-70.32	9.14	45.82	73.98	-28.16
7428.00	Avg	H	-	-	-83.20	12.27	36.07	53.98	-17.91
7428.00	Peak	H	-	-	-71.63	12.27	47.64	73.98	-26.34
12380.00	Avg	H	-	-	-84.15	17.76	40.61	53.98	-13.37
12380.00	Peak	H	-	-	-72.65	17.76	52.11	73.98	-21.87

Table 7-22. Radiated Spurious Emission Measurements TxBF

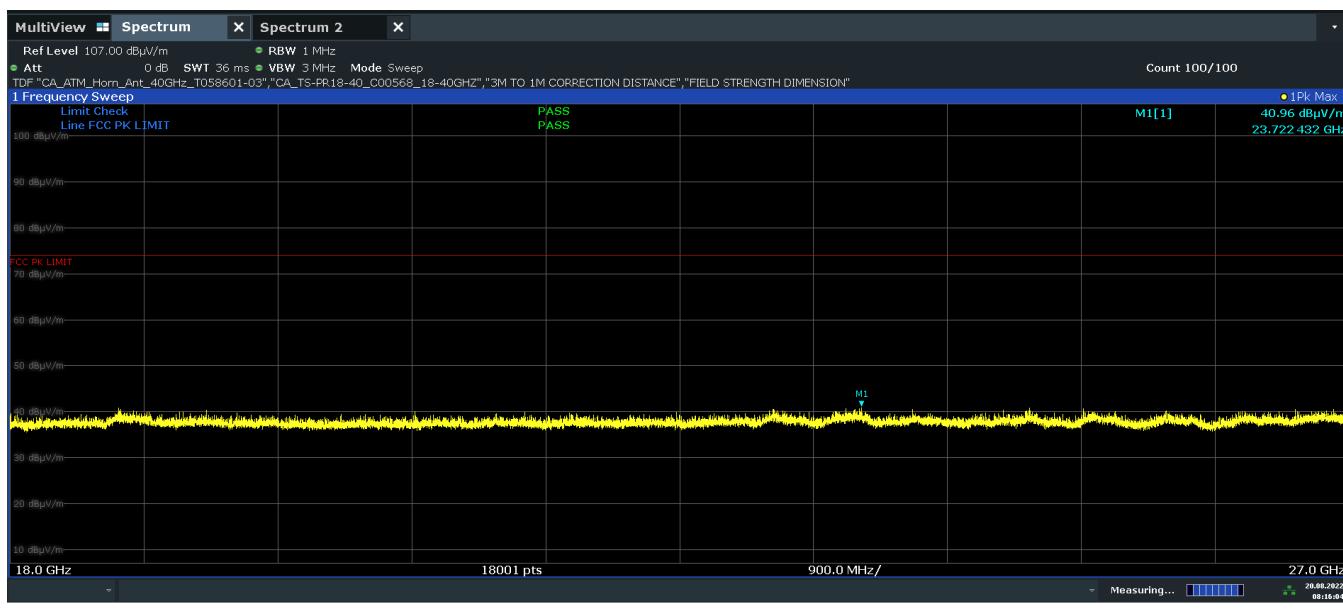
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 81 of 104

Radiated Spurious Emission Measurements (Above 18GHz)

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



Plot 7-90. Radiated Spurious Plot Above 18GHz (4Mbps, HDR4, ePA – Ch.38 , Ant. Pol. H)



Plot 7-91. Radiated Spurious Plot Above 18GHz (4Mbps, HDR4, ePA – Ch.38 , Ant. Pol. V)

FCC ID: BCGA2696 IC: 579C-A2696		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 82 of 104

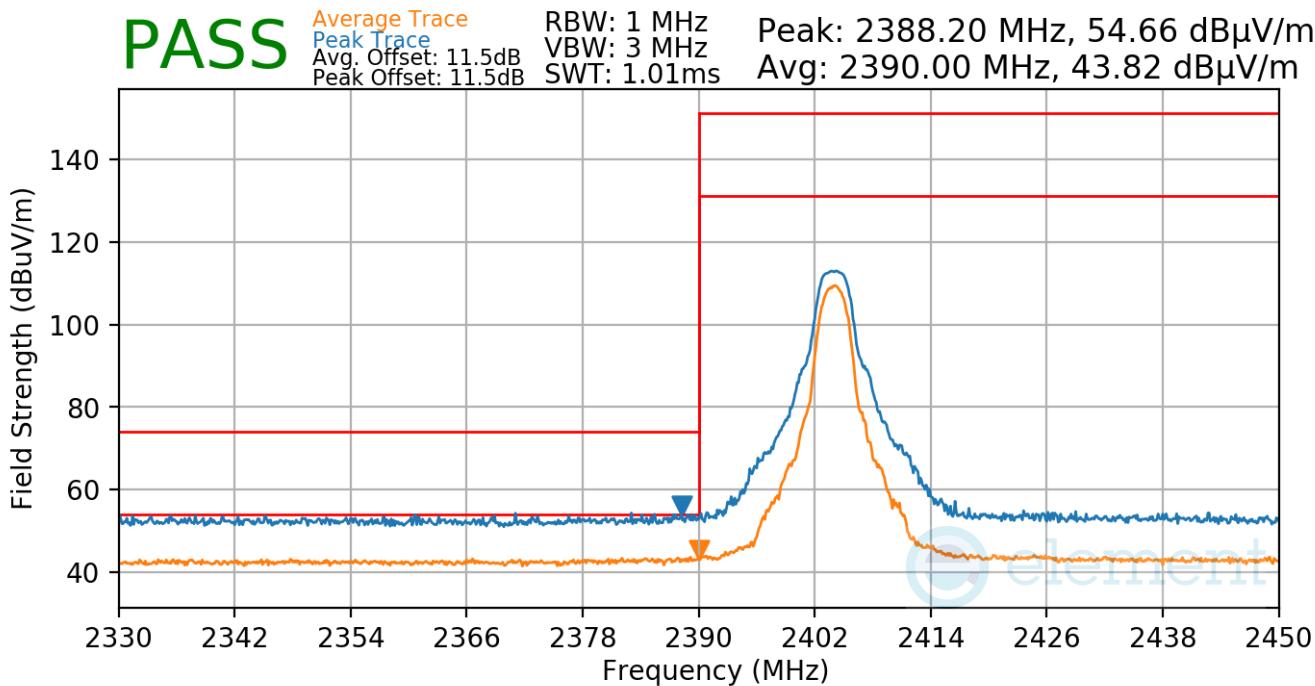
7.7.1 Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

Antenna WF8

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode:	HDR4
Data Rate:	4Mbps
Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2404MHz
Channel:	1



Plot 7-92. Radiated Restricted Lower Band Edge Measurement Antenna WF8

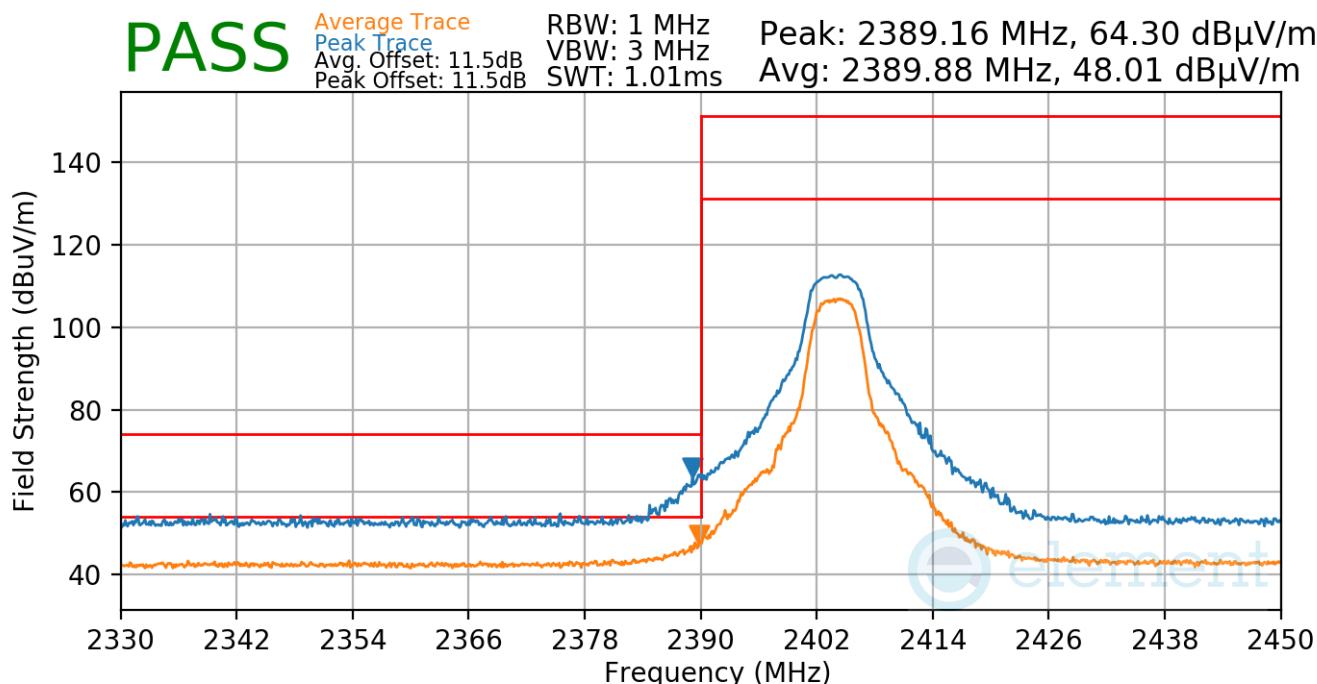
FCC ID: BCGA2696 IC: 579C-A2696		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 83 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode: HDR8
 Data Rate: 8Mbps
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 2404MHz
 Channel: 1



Plot 7-93. Radiated Restricted Lower Band Edge Measurement Antenna WF8

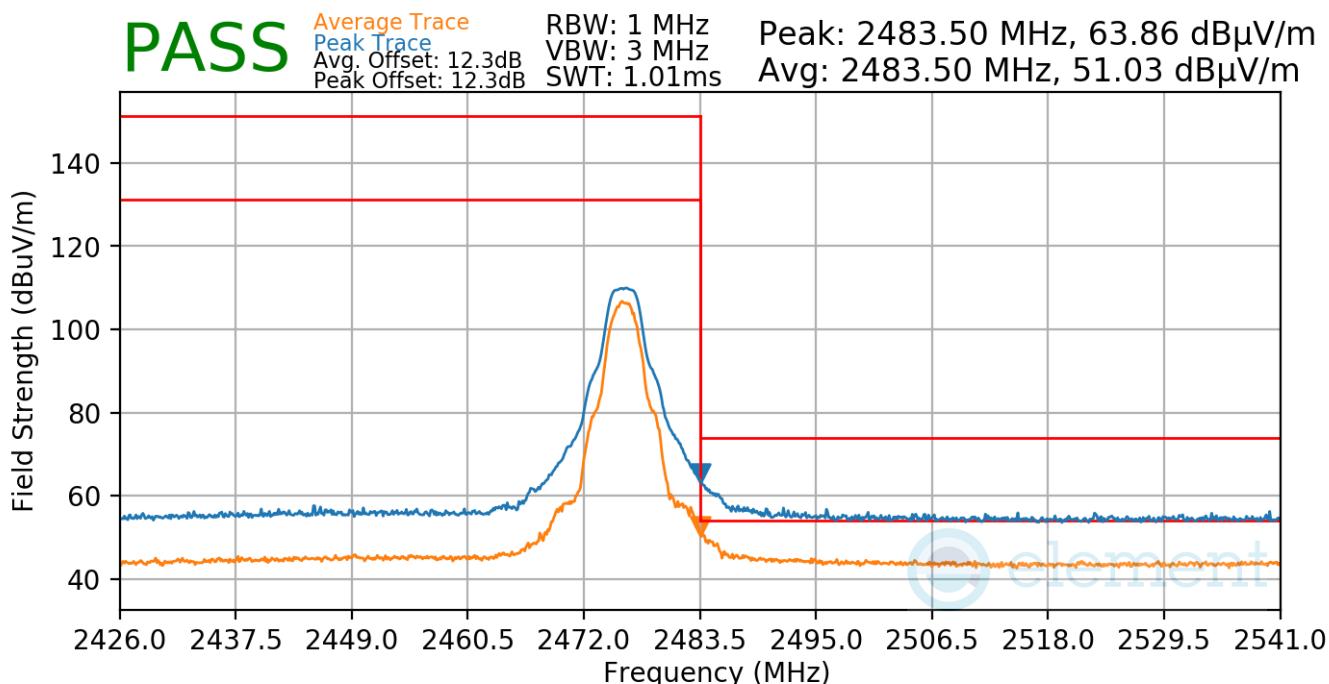
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 84 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode: HDR4
 Data Rate: 4Mbps
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 2476MHz
 Channel: 73



Plot 7-94. Radiated Restricted Upper Band Edge Measurement Antenna WF8

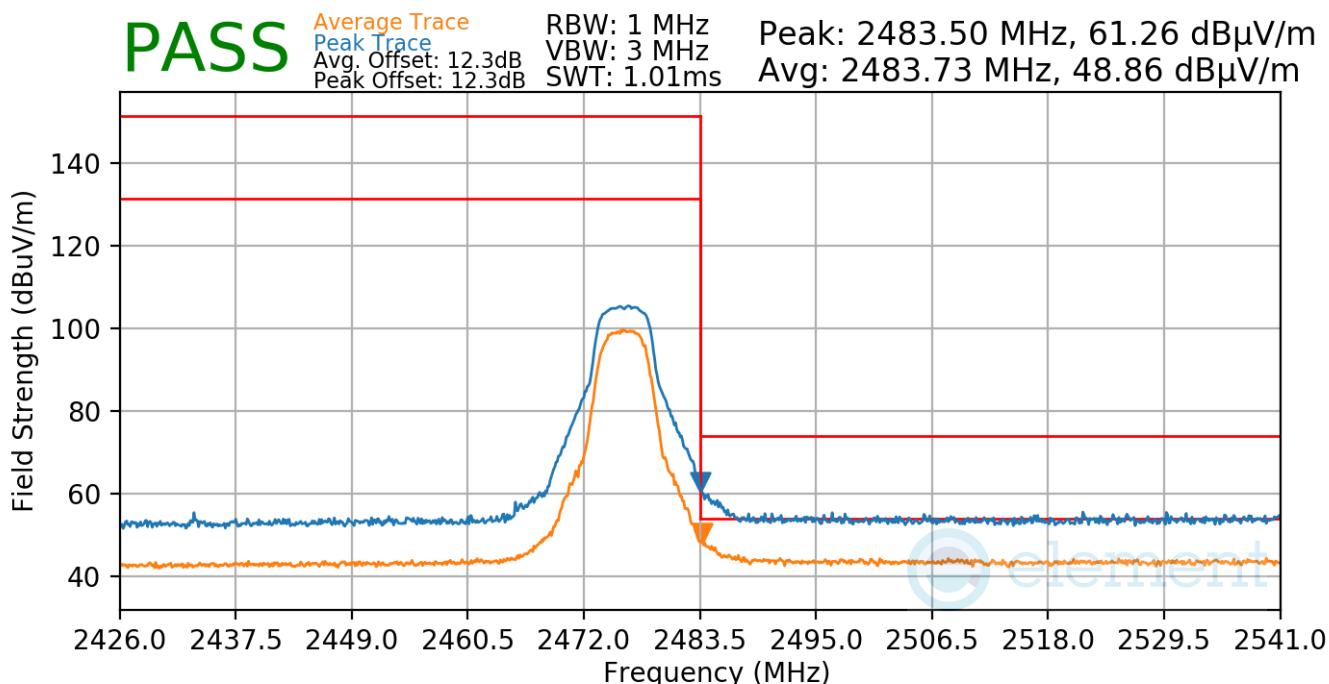
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 85 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode: HDR8
 Data Rate: 8Mbps
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 2476MHz
 Channel: 73



Plot 7-95. Radiated Restricted Upper Band Edge Measurement Antenna WF8

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 86 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

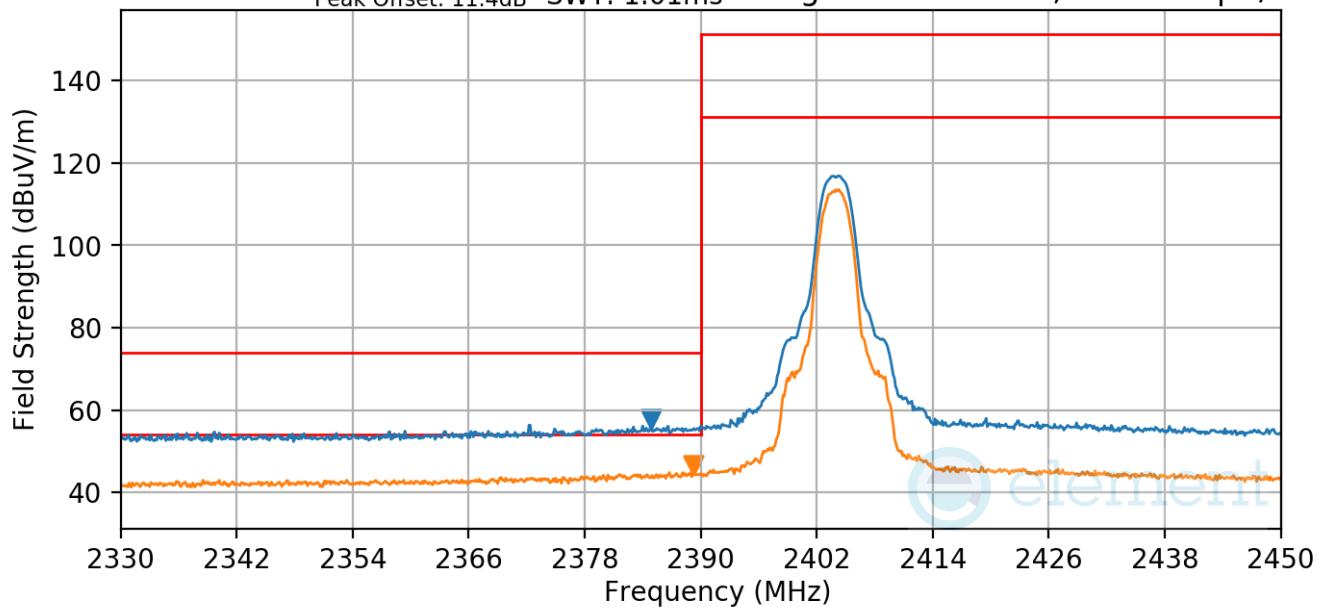
Antenna WF7b

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode:	HDR4
Data Rate:	4Mbps
Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2404MHz
Channel:	1

PASS

Average Trace
Peak Trace
 Avg. Offset: 11.5dB RBW: 1 MHz Peak: 2384.84 MHz, 56.38 dB μ V/m
 Peak Offset: 11.4dB VBW: 3 MHz Avg: 2389.28 MHz, 45.08 dB μ V/m
 SWT: 1.01ms



Plot 7-96. Radiated Restricted Lower Band Edge Measurement Antenna WF7b

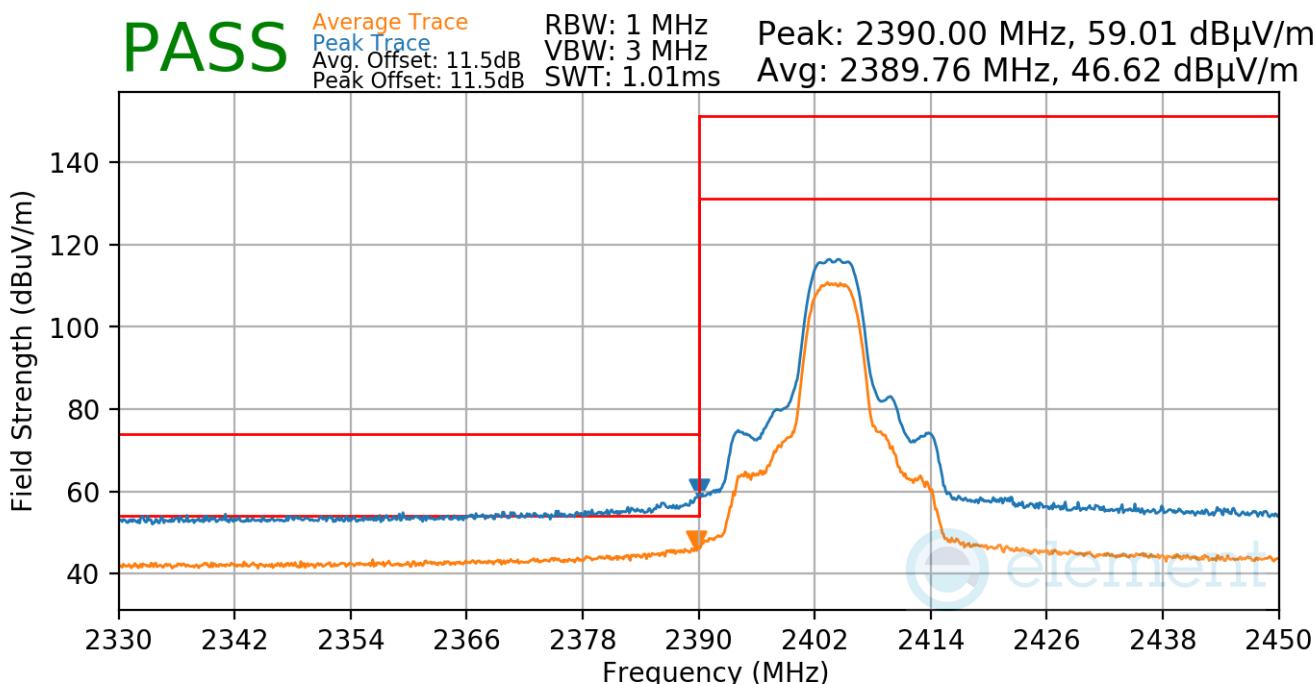
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 87 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode:	<u>HDR8</u>
Data Rate:	<u>8Mbps</u>
Power Scheme:	<u>ePA</u>
Measurement Distance:	<u>3 Meters</u>
Operating Frequency:	<u>2404MHz</u>
Channel:	<u>1</u>



Plot 7-97. Radiated Restricted Lower Band Edge Measurement Antenna WF7b

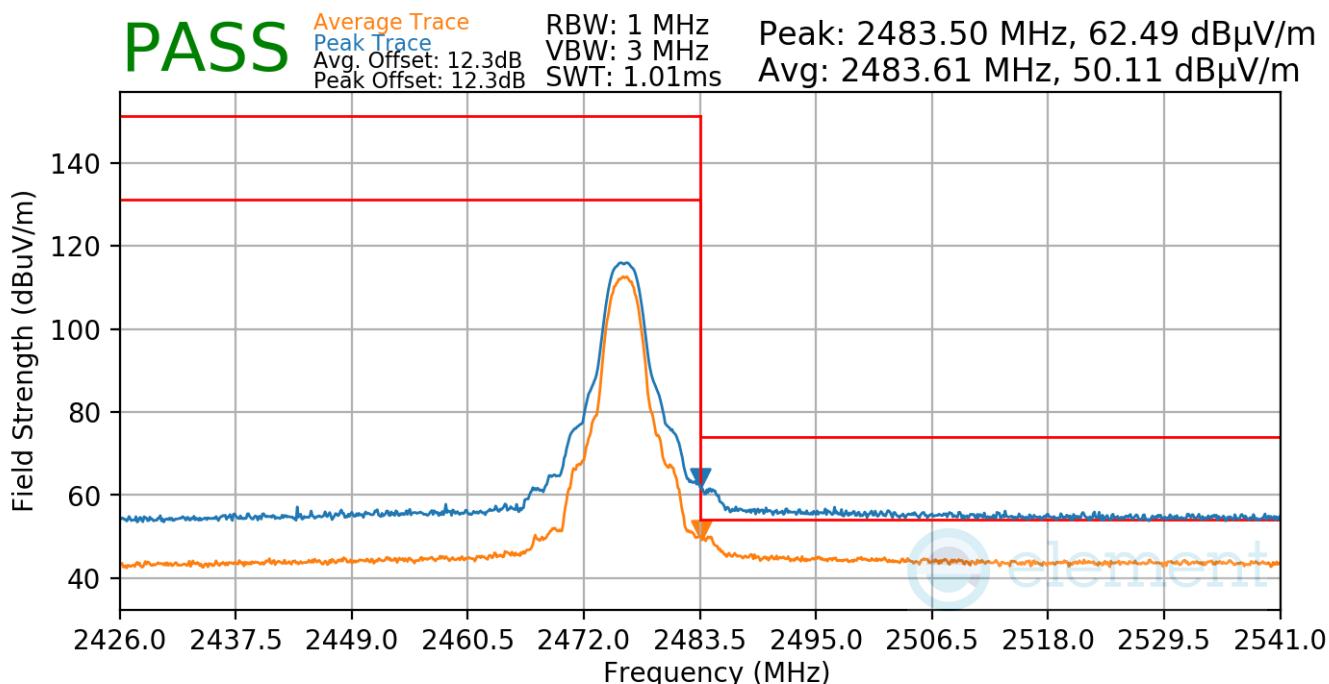
FCC ID: BCGA2696 IC: 579C-A2696		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 88 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode:	<u>HDR4</u>
Data Rate:	<u>4Mbps</u>
Power Scheme:	<u>ePA</u>
Measurement Distance:	<u>3 Meters</u>
Operating Frequency:	<u>2476MHz</u>
Channel:	<u>73</u>



Plot 7-98. Radiated Restricted Upper Band Edge Measurement Antenna WF7b

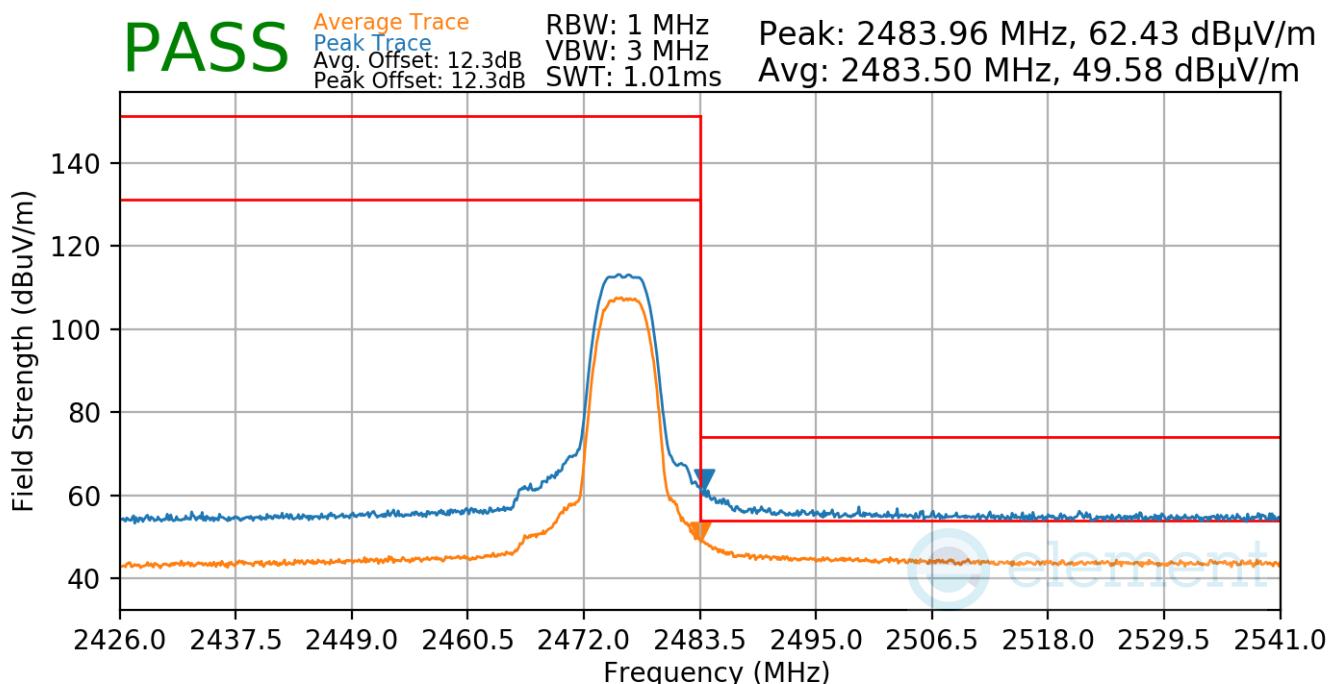
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 89 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode: HDR8
 Data Rate: 8Mbps
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 2476MHz
 Channel: 73



Plot 7-99. Radiated Restricted Upper Band Edge Measurement Antenna WF7b

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 90 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

TxBF

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

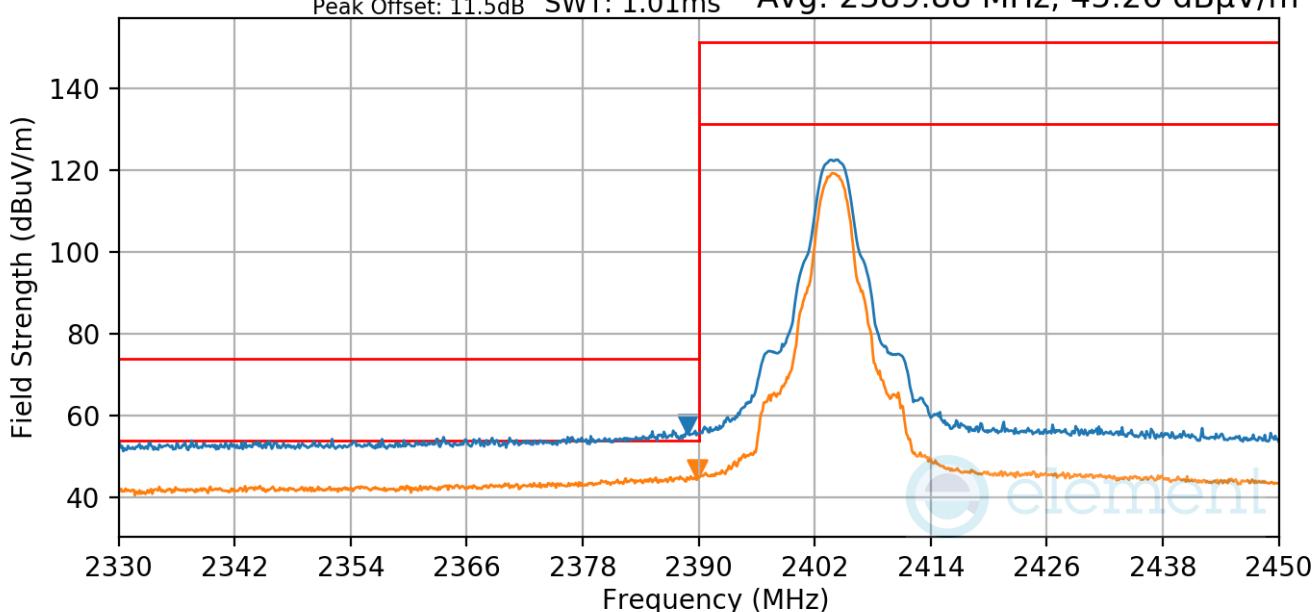
Bluetooth Mode:	HDR4
Data Rate:	4Mbps
Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2404MHz
Channel:	1

PASS

Average Trace
Peak Trace
Avg. Offset: 11.5dB
Peak Offset: 11.5dB

RBW: 1 MHz
VBW: 3 MHz
SWT: 1.01ms

Peak: 2388.80 MHz, 56.42 dB μ V/m
Avg: 2389.88 MHz, 45.26 dB μ V/m



Plot 7-100. Radiated Restricted Lower Band Edge Measurement TxBF

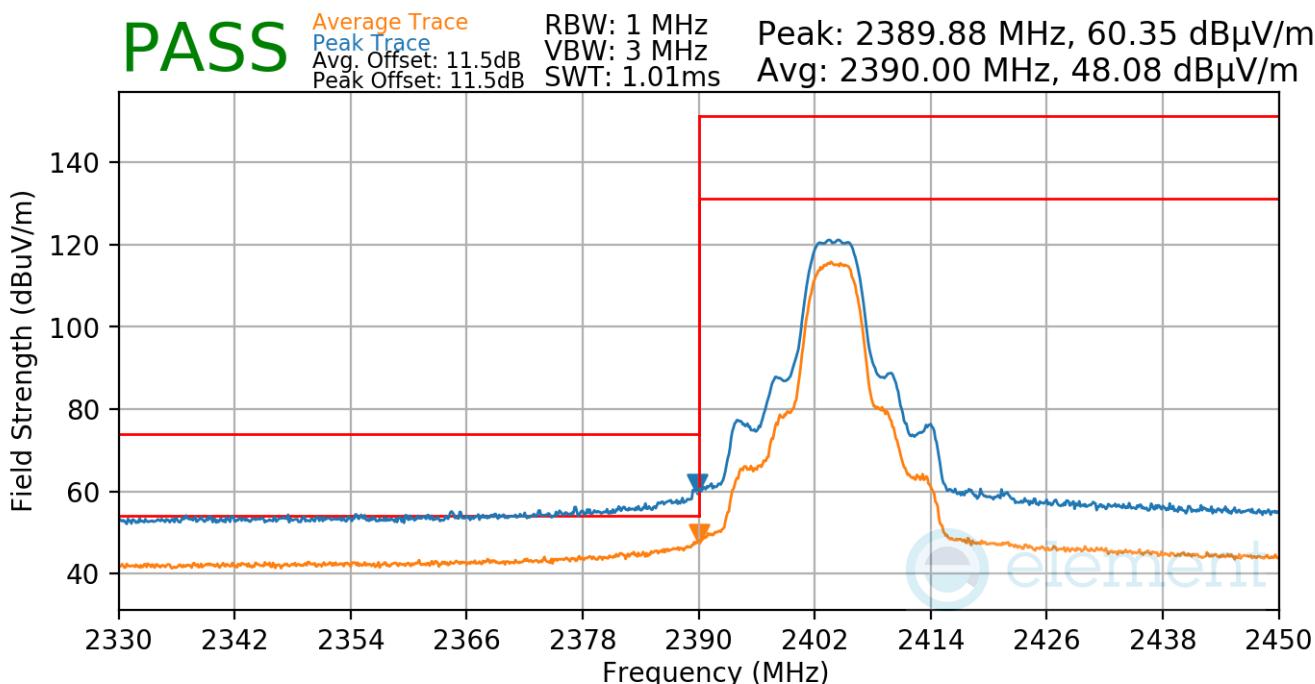
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode:	<u>HDR8</u>
Data Rate:	<u>8Mbps</u>
Power Scheme:	<u>ePA</u>
Measurement Distance:	<u>3 Meters</u>
Operating Frequency:	<u>2404MHz</u>
Channel:	<u>1</u>



Plot 7-101. Radiated Restricted Lower Band Edge Measurement Tx BF

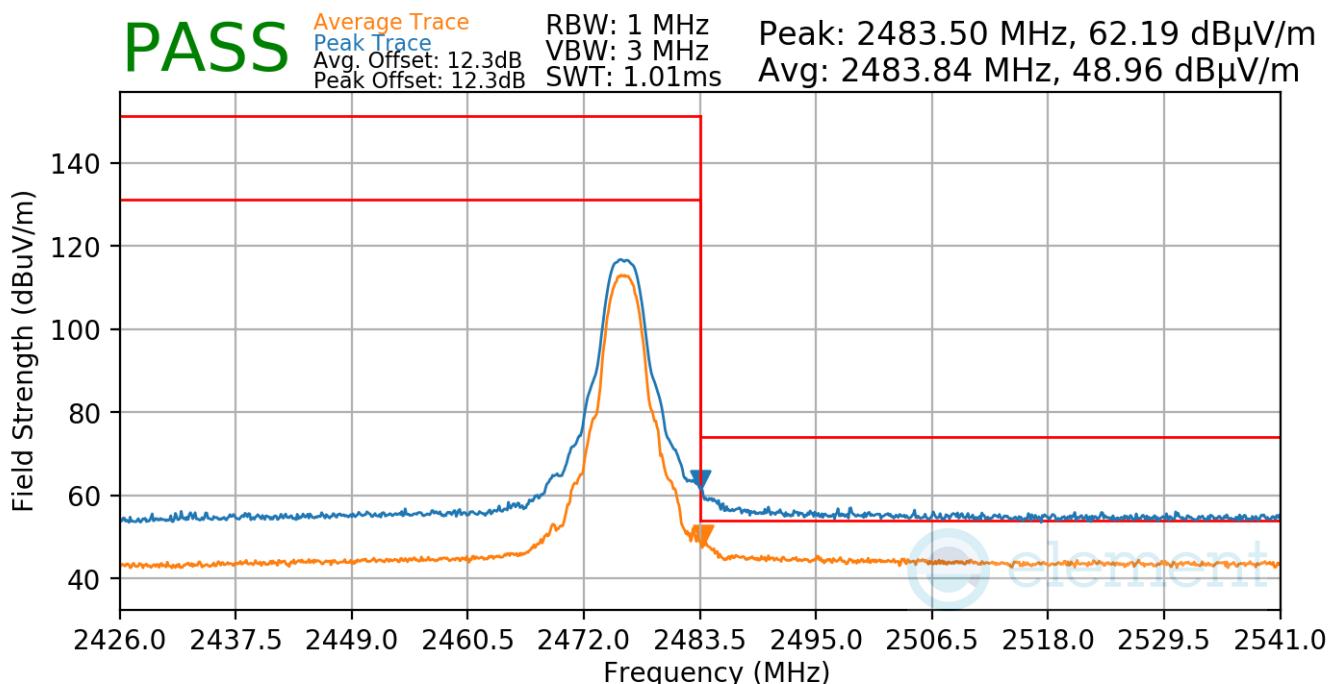
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 92 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode:	<u>HDR4</u>
Data Rate:	<u>4Mbps</u>
Power Scheme:	<u>ePA</u>
Measurement Distance:	<u>3 Meters</u>
Operating Frequency:	<u>2476MHz</u>
Channel:	<u>73</u>



Plot 7-102. Radiated Restricted Upper Band Edge Measurement Tx BF

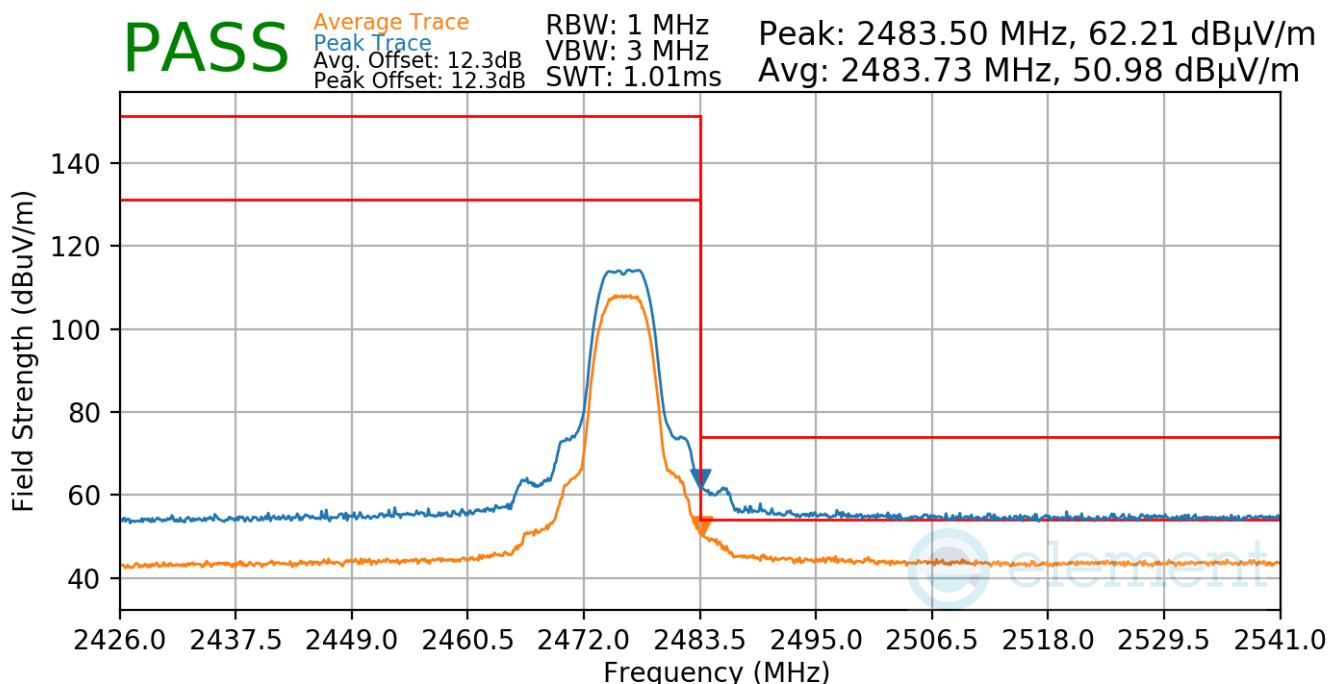
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 93 of 104

Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:
 Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

Bluetooth Mode: HDR8
 Data Rate: 8Mbps
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 2476MHz
 Channel: 73



Plot 7-103. Radiated Restricted Upper Band Edge Measurement Tx BF

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device	Page 94 of 104

7.8 Radiated Spurious Emissions – 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 7 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-23 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μ 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 7-23. 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

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. VBW = 300kHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Test Setup

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

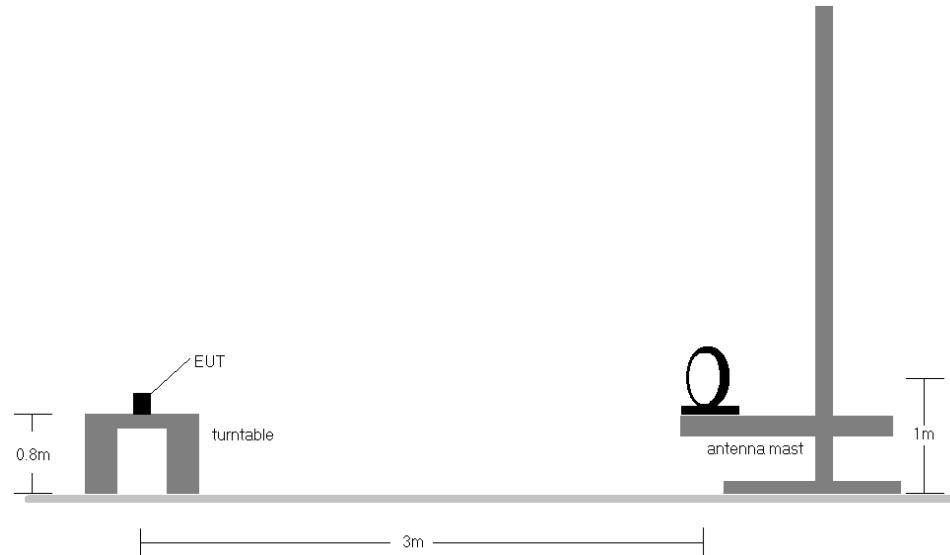


Figure 7-7. Radiated Test Setup < 30MHz

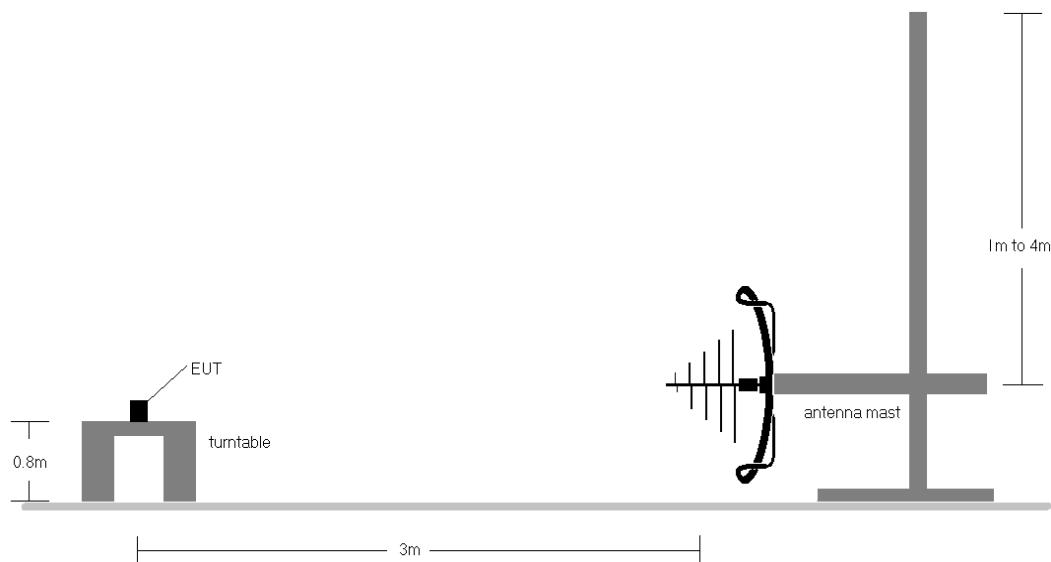


Figure 7-8. Radiated Test Setup < 1GHz

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical 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 7-23.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes. For below 30MHz the loop antenna was positioned in 3 orthogonal planes (X front, Y side, Z top) to determine the orientation resulting in the worst case emissions.
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 that were within 6dB of the limit.
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. All supported modulation, antenna (including TxBF mode) and power schemes have been tested on the unit and only worst case configuration is reported.
10. Both configurations below were investigated, and the worst case has been reported.
 - a. EUT powered by AC/DC adaptor via USB-C cable with wire charger
 - b. EUT powered by host PC via USB-C cable with wire charger

Sample Calculations

Determining Spurious Emissions Levels

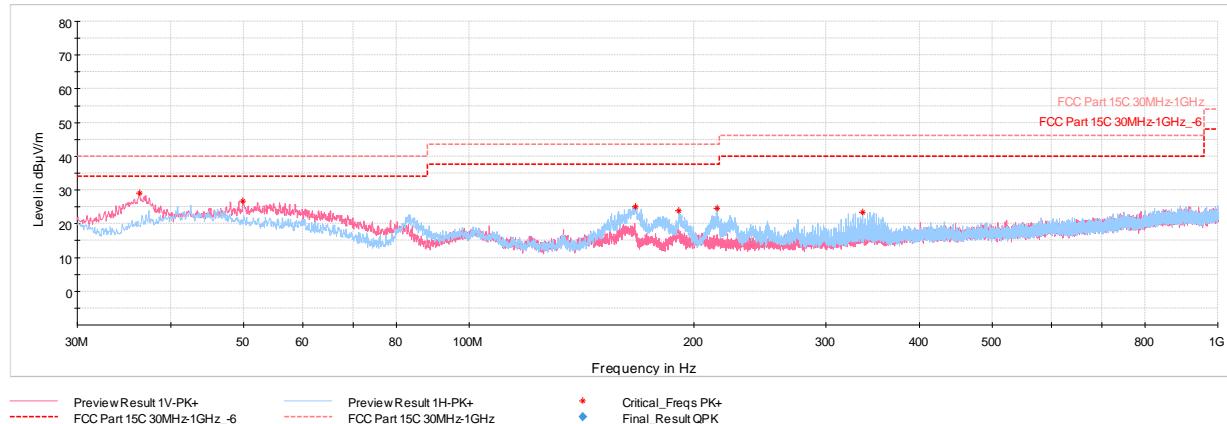
- Field Strength Level $[\text{dB}_{\mu\text{V/m}}]$ = Analyzer Level $[\text{dBm}]$ + 107 + AFCL $[\text{dB/m}]$
- AFCL $[\text{dB/m}]$ = Antenna Factor $[\text{dB/m}]$ + Cable Loss $[\text{dB}]$ – Preamplifier Gain $[\text{dB}]$
- Margin $[\text{dB}]$ = Field Strength Level $[\text{dB}_{\mu\text{V/m}}]$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

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]

TxBF



Plot 7-104. Radiated Spurious Emissions Below 1GHz TxBF (HDR4 ePA – Ch.38 with AC/DC Adapter)

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]
36.31	Max Peak	V	100	317	-59.44	-18.38	29.18	40.00	-10.82
49.89	Max Peak	V	100	206	-64.75	-15.52	26.73	40.00	-13.27
167.06	Max Peak	H	100	244	-61.69	-20.25	25.06	43.52	-18.46
190.73	Max Peak	H	200	233	-64.78	-18.33	23.89	43.52	-19.63
214.64	Max Peak	H	100	267	-64.56	-17.89	24.55	43.52	-18.97
335.74	Max Peak	H	100	115	-69.60	-13.94	23.46	46.02	-22.56

Table 7-24. Radiated Spurious Emissions Below 1GHz TxBF (HDR4 ePA – Ch.38 with AC/DC Adapter)

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Technical Manager
Test Report S/N: 1C2205090022-03-R1.BCG	Test Dates: 05/30/2022-09/30/2022	EUT Type: Tablet Device			

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V 10.5 12/15/2021

7.9 AC Line-Conducted Emissions Measurement

§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 AC Line 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 7-25. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013 – Subclause 6.2

Test Settings

Quasi-Peak 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 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

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Test Setup

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

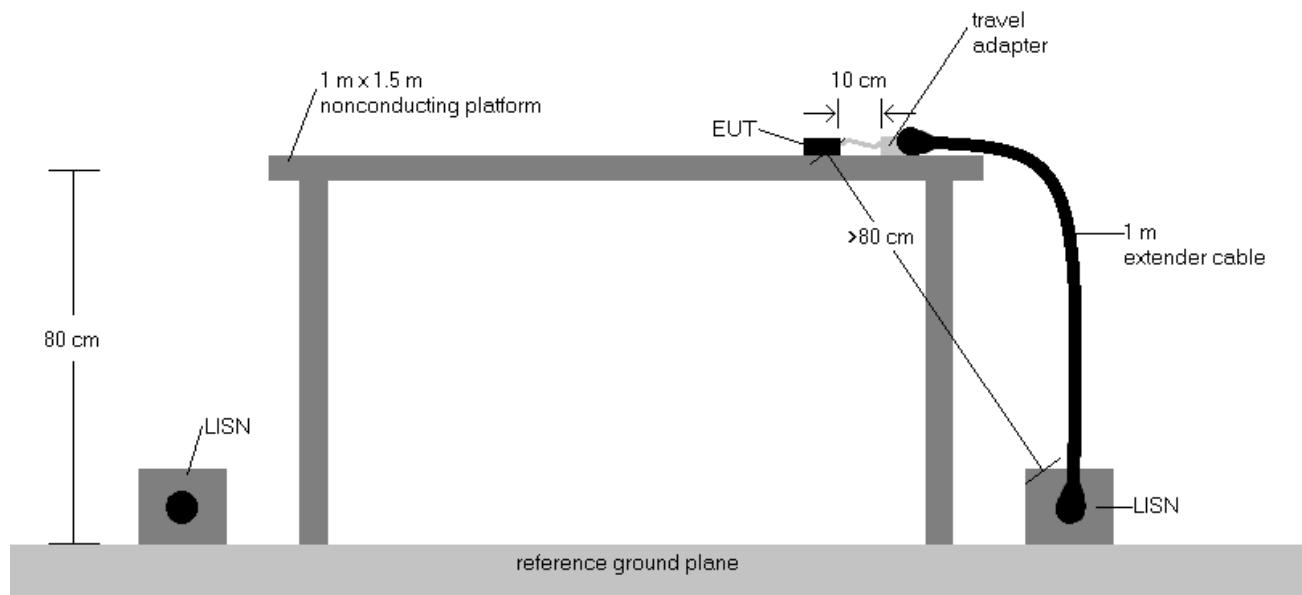
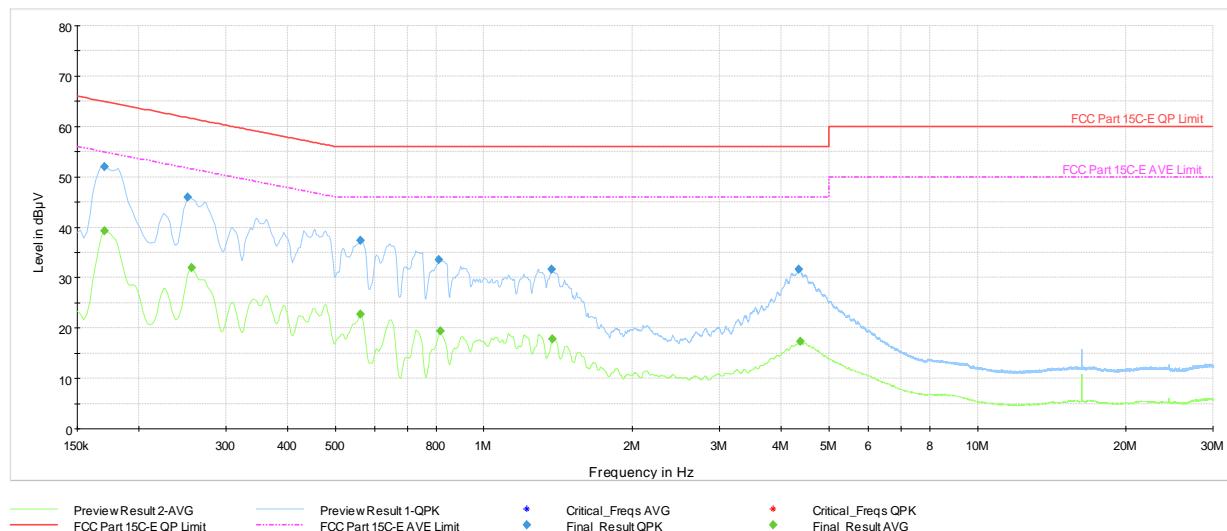


Figure 7-9. Test Instrument & Measurement Setup

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. Both configurations below were investigated, and the worst case has been reported.
 - a. EUT powered by AC/DC adaptor via USB-C cable with wire charger
 - b. EUT powered by host PC via USB-C cable with wire charger
3. The limit for an intentional radiator from 150kHz to 30MHz are specified in Part 15.207 and RSS-Gen(8.8).
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. $QP/AV\ Level\ (dB\mu V) = QP/AV\ Analyzer/Receiver\ Level\ (dB\mu V) + Correction\ Factor\ (dB)$
6. Margin (dB) = QP/AV Level (dB μ V) - QP/AV Limit (dB μ V)
7. Traces shown in plot are made using quasi peak and average detectors.
8. Deviations to the Specifications: None.

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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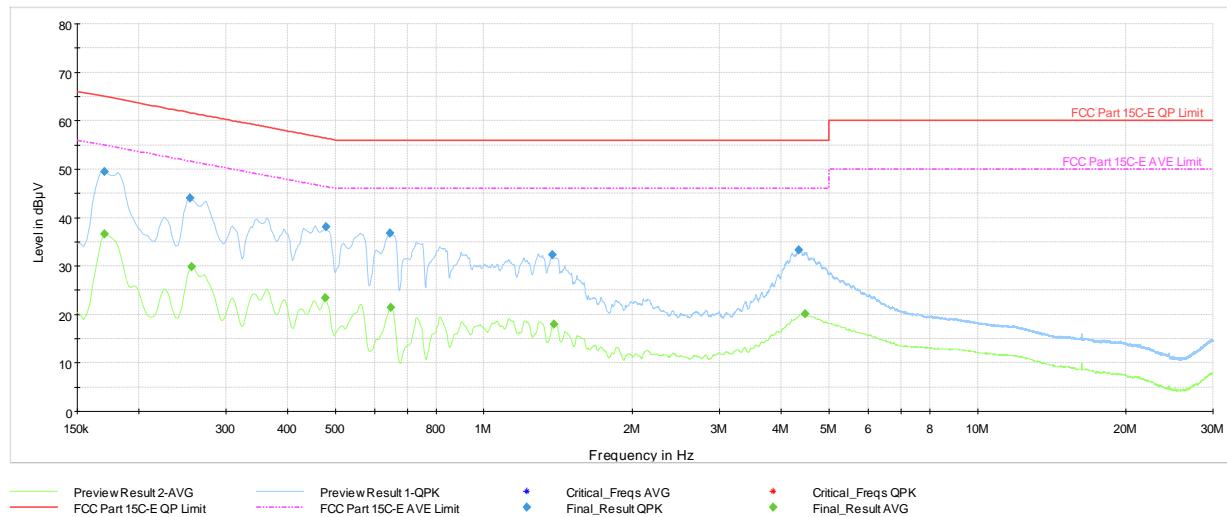


Plot 7-105. AC Line Conducted Plot with Bluetooth HDR TxBF (L1, 4Mbps ePA - Ch.38 with AC/DC Adapter)

Frequency [MHz]	Process State	QuasiPeak [dB μ V]	Average [dB μ V]	Limit [dB μ V]	Margin [dB]	Line	PE
0.170	FINAL	—	39.32	54.95	-15.63	L1	GND
0.170	FINAL	52.1	—	64.95	-12.87	L1	GND
0.251	FINAL	45.9	—	61.72	-15.78	L1	GND
0.256	FINAL	—	31.96	51.57	-19.61	L1	GND
0.562	FINAL	—	22.77	46.00	-23.23	L1	GND
0.562	FINAL	37.4	—	56.00	-18.64	L1	GND
0.812	FINAL	33.5	—	56.00	-22.52	L1	GND
0.816	FINAL	—	19.41	46.00	-26.59	L1	GND
1.372	FINAL	31.6	—	56.00	-24.38	L1	GND
1.376	FINAL	—	17.87	46.00	-28.13	L1	GND
4.349	FINAL	31.7	—	56.00	-24.31	L1	GND
4.373	FINAL	—	17.31	46.00	-28.69	L1	GND

Table 7-26. AC Line Conducted Data with Bluetooth HDR TxBF (L1, 4Mbps ePA - Ch.38 with AC/DC Adapter)

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Plot 7-106. AC Line Conducted Plot with Bluetooth HDR TxBF (N, 4Mbps ePA - Ch.38 with AC/DC Adapter)

Frequency [MHz]	Process State	QuasiPeak [dBμV]	Average [dBμV]	Limit [dBμV]	Margin [dB]	Line	PE
0.170	FINAL	—	36.61	54.95	-18.33	N	GND
0.170	FINAL	49.5	—	64.95	-15.43	N	GND
0.254	FINAL	44.0	—	61.64	-17.62	N	GND
0.256	FINAL	—	29.89	51.57	-21.68	N	GND
0.476	FINAL	—	23.39	46.40	-23.01	N	GND
0.479	FINAL	38.0	—	56.37	-18.32	N	GND
0.645	FINAL	36.7	—	56.00	-19.30	N	GND
0.647	FINAL	—	21.42	46.00	-24.58	N	GND
1.374	FINAL	32.3	—	56.00	-23.67	N	GND
1.385	FINAL	—	17.92	46.00	-28.08	N	GND
4.344	FINAL	33.3	—	56.00	-22.74	N	GND
4.472	FINAL	—	20.05	46.00	-25.95	N	GND

Table 7-27. AC Line Conducted Data with Bluetooth HDR TxBF (N, 4Mbps ePA - Ch.38 with AC/DC Adapter)

FCC ID: BCGA2696 IC: 579C-A2696		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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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: BCGA2696 and IC: 579C-A2696** 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.

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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9.0 APPENDIX A

Antenna gains provided by manufacturer:

Frequency (MHz)	Horizontal (dBi)	Vertical (dBi)
2412	1.6	-0.1
2442	1.6	-0.5
2472	0.8	-1.3

Table 9-1. BT 2.4GHz (Antenna WF8); Type: PIFA

Frequency (MHz)	Horizontal (dBi)	Vertical (dBi)
2412	0.4	-0.1
2442	0.1	-0.5
2472	-0.3	-0.6

Table 9-2. BT 2.4GHz (Antenna WF7b); Type: PIFA

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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