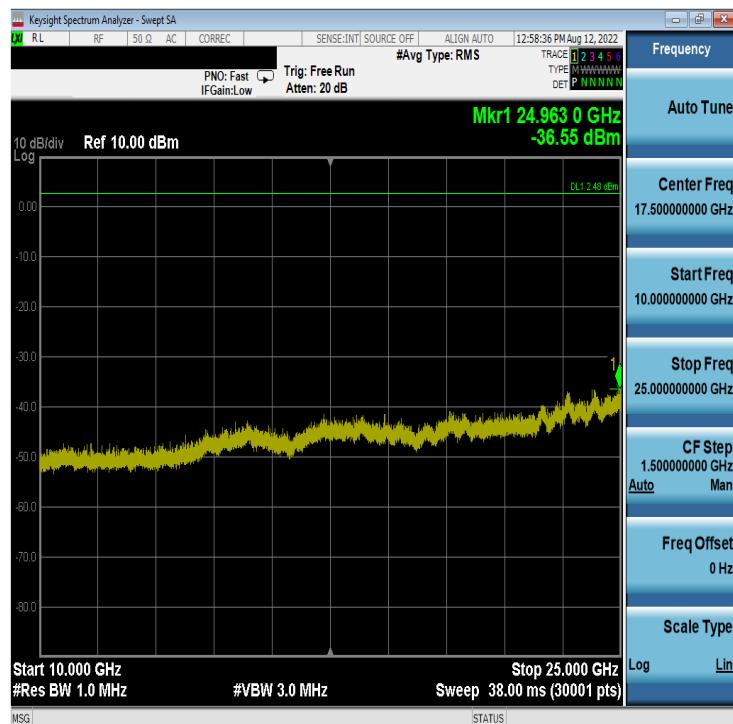


**Plot 7-79. Conducted Spurious Plot Antenna WF7b (Bluetooth (LE), 1Mbps, ePA – Ch. 39)**



**Plot 7-80. Conducted Spurious Plot Antenna WF7b (Bluetooth (LE), 1Mbps, ePA – Ch. 39)**

FCC ID: BCGA2696 IC: 579C-A2696	 <b>element</b> <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device		Page 71 of 106

## 7.7 Radiated Spurious Emissions – Above 1GHz

§15.205 §15.209 §15.247(d); 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 maximum power and at the appropriate frequencies. 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 7-13 per Section 15.209 and RSS-Gen (8.9).***

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

Table 7-13. Radiated Limits

### Test Procedures Used

ANSI C63.10-2013 – Subclause 6.6.4.3

KDB 558074 D01 v05r02 – Section 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  $\geq 2 \times$  span/RBW)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces

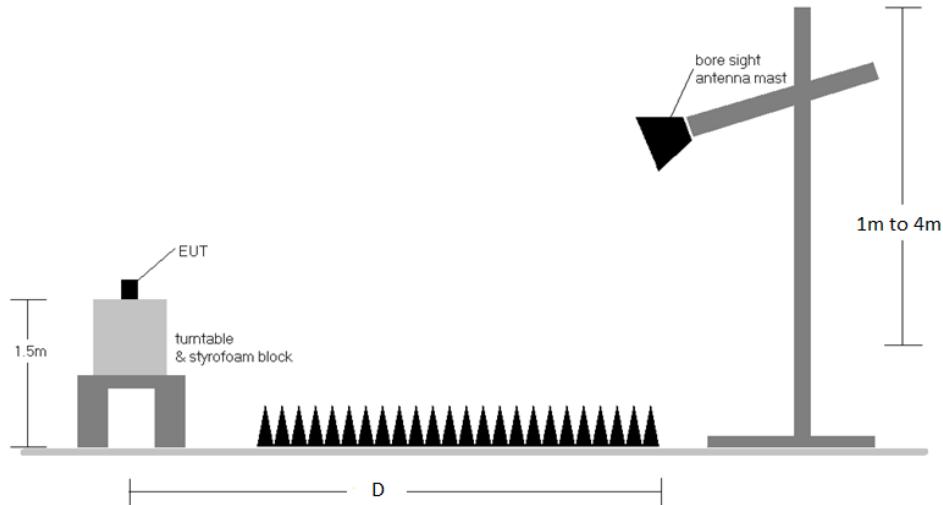
#### Peak Field Strength Measurements

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

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 7-6. Radiated Test Setup >1GHz**

## Test Notes

1. The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of KDB 558074 D01 v05r02 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 §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-13.
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.
6. D is the measurement test distance and emissions 1-18GHz were measured at a 3 meters test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
8. All supported modulation, antenna (including TxBF mode) and power schemes have been tested on the unit and only worst case configuration is reported.

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 73 of 106

## Sample Calculations

### Determining Spurious Emissions Levels

- Field Strength Level  $[\text{dB}_{\mu\text{V/m}}]$  = Analyzer Level  $[\text{dBm}] + 107 + \text{AFCL} [\text{dB/m}]$
- $\text{AFCL} [\text{dB/m}] = \text{Antenna Factor} [\text{dB/m}] + \text{Cable Loss} [\text{dB}] - \text{Preamplifier Gain} [\text{dB}]$
- 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 7.7.1 was calculated using the formula:

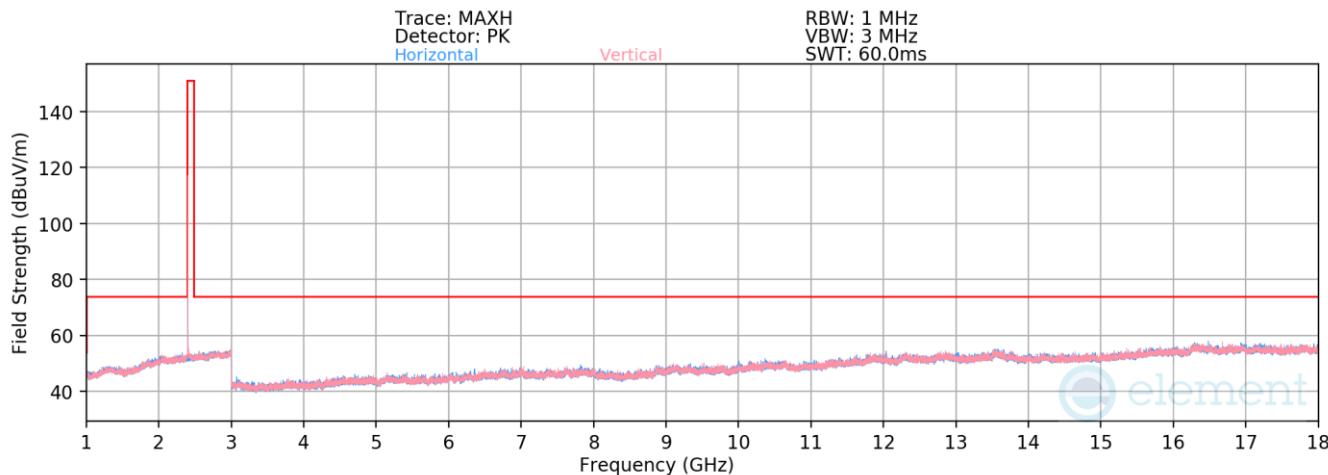
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 74 of 106

## Radiated Spurious Emission Measurements (1 – 18GHz)

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

### Antenna WF8



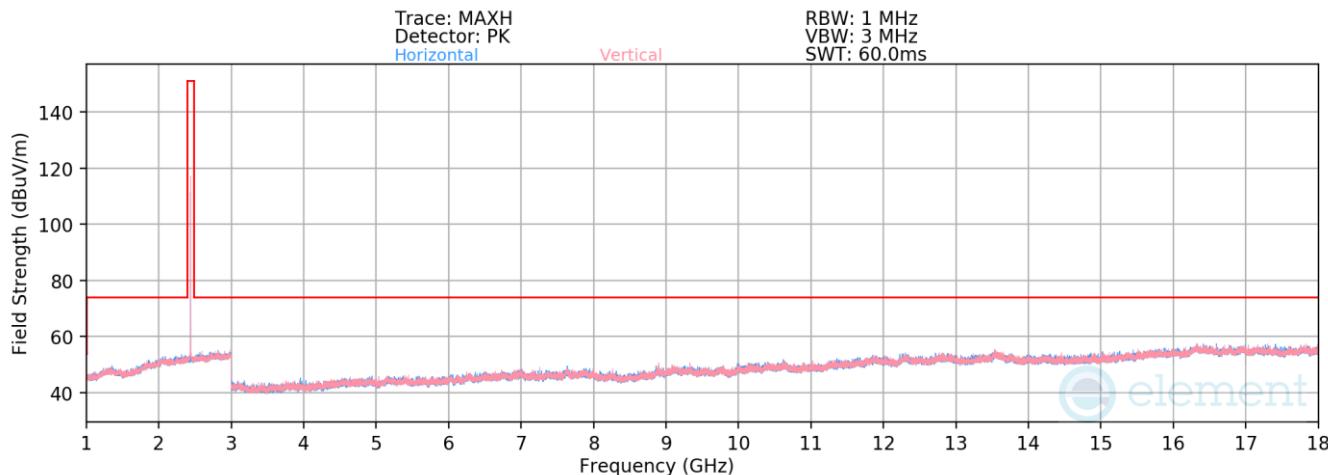
**Plot 7-81. Radiated Spurious Emissions 1-18GHz Antenna WF8 (1Mbps, ePA – Ch. 0)**

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme ePA  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2402MHz  
 Channel: 0

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4804.00	Avg	V	-	-	-81.20	8.49	34.29	53.98	-19.68
4804.00	Peak	V	-	-	-69.33	8.49	46.16	73.98	-27.81
12010.00	Avg	V	-	-	-83.13	17.30	41.17	53.98	-12.81
12010.00	Peak	V	-	-	-72.10	17.30	52.20	73.98	-21.78

**Table 7-14. Radiated Measurements Antenna WF8**

FCC ID: BCGA2696 IC: 579C-A2696	 <b>element</b> <b>MEASUREMENT REPORT (CERTIFICATION)</b>				Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device			



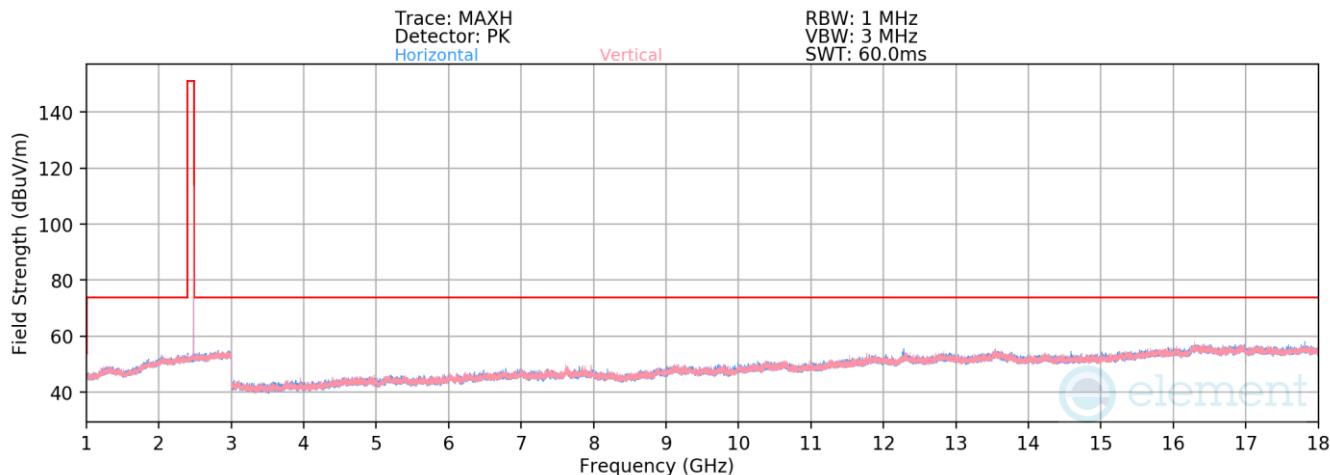
**Plot 7-82. Radiated Spurious Emissions 1-18GHz Antenna WF8 (1Mbps, ePA – Ch. 19)**

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme ePA  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2440MHz  
 Channel: 19

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4880.00	Avg	V	-	-	-81.26	8.68	34.42	53.98	-19.56
4880.00	Peak	V	-	-	-70.07	8.68	45.61	73.98	-28.37
7320.00	Avg	V	282	121	-82.21	11.35	36.14	53.98	-17.83
7320.00	Peak	V	282	121	-71.32	11.35	47.03	73.98	-26.94
12200.00	Avg	V	-	-	-83.58	17.42	40.84	53.98	-13.14
12200.00	Peak	V	-	-	-72.67	17.42	51.75	73.98	-22.23

**Table 7-15. Radiated Measurements Antenna WF8**

FCC ID: BCGA2696 IC: 579C-A2696		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 76 of 106



**Plot 7-83. Radiated Spurious Emissions 1-18GHz Antenna WF8 (1Mbps ePA – Ch. 39)**

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme ePA  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2480MHz  
 Channel: 39

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4960.00	Avg	V	-	-	-81.80	9.08	34.28	53.98	-19.70
4960.00	Peak	V	-	-	-70.43	9.08	45.65	73.98	-28.33
7440.00	Avg	V	-	-	-83.08	12.23	36.15	53.98	-17.83
7440.00	Peak	V	-	-	-71.87	12.23	47.36	73.98	-26.62
12400.00	Avg	V	-	-	-83.81	17.71	40.90	53.98	-13.07
12400.00	Peak	V	-	-	-72.15	17.71	52.56	73.98	-21.41

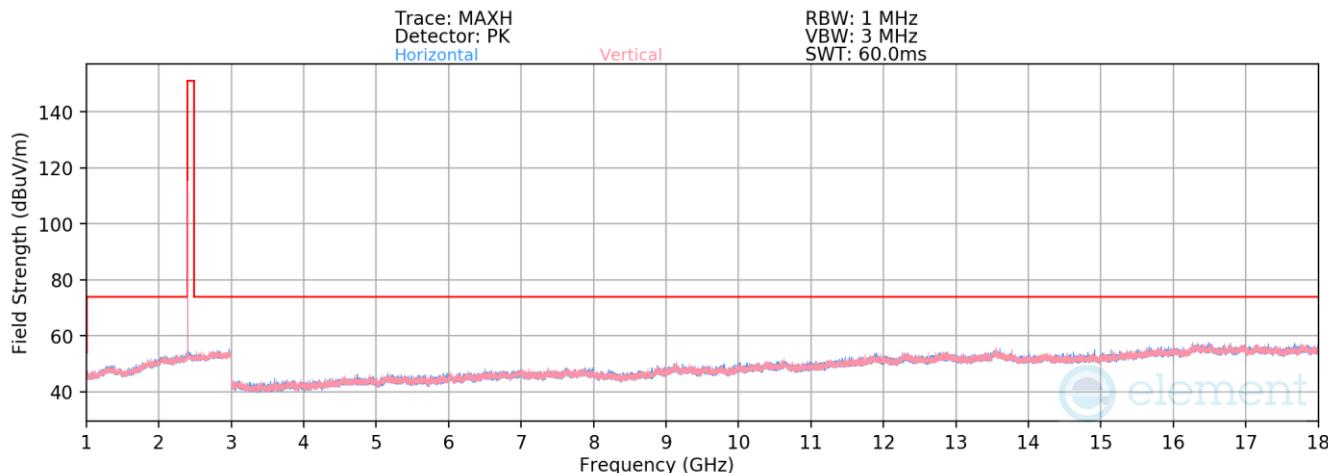
**Table 7-16. Radiated Measurements Antenna WF8**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 77 of 106

## Radiated Spurious Emission Measurements (1 – 18GHz)

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

### Antenna WF7b



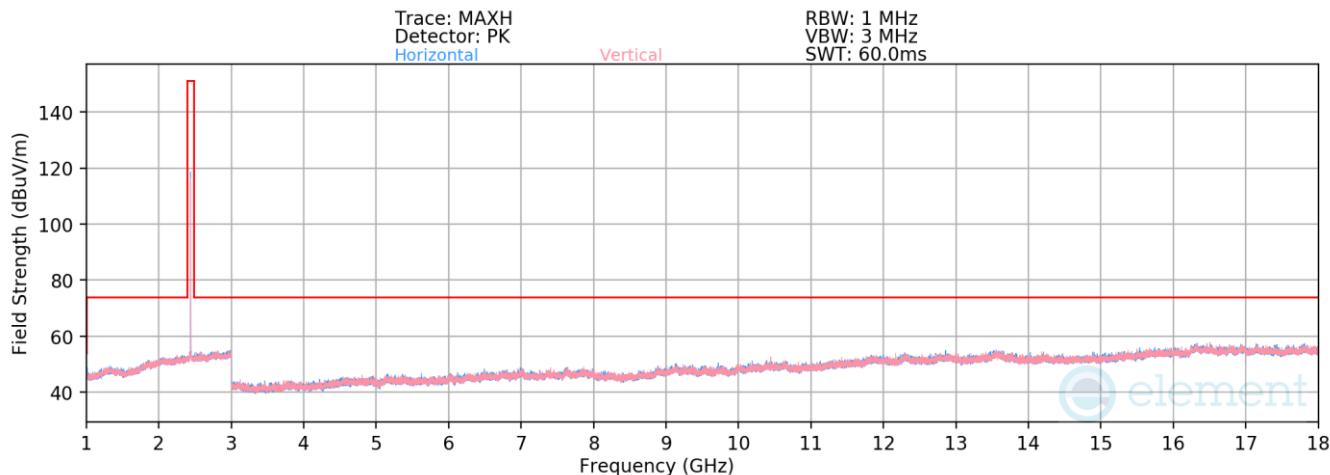
**Plot 7-84. Radiated Spurious Emissions 1-18GHz Antenna WF7b (1Mbps, ePA – Ch. 0)**

Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2402MHz
Channel:	0

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4804.00	Avg	H	-	-	-81.32	8.49	34.17	53.98	-19.80
4804.00	Peak	H	-	-	-70.19	8.49	45.30	73.98	-28.67
12010.00	Avg	H	-	-	-83.31	17.30	40.99	53.98	-12.99
12010.00	Peak	H	-	-	-72.21	17.30	52.09	73.98	-21.89

**Table 7-17. Radiated Measurements Antenna WF7b**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 78 of 106



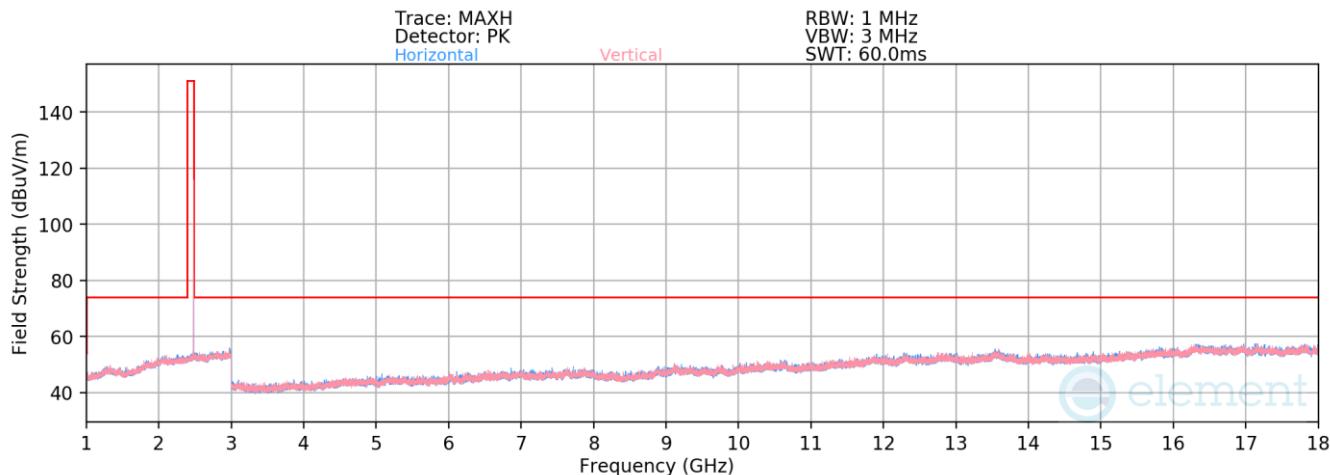
**Plot 7-85. Radiated Spurious Emissions 1-18GHz Antenna WF7b (1Mbps, ePA – Ch. 19)**

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme ePA  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2440MHz  
 Channel: 19

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4880.00	Avg	H	-	-	-81.40	8.68	34.28	53.98	-19.70
4880.00	Peak	H	-	-	-70.29	8.68	45.39	73.98	-28.59
7320.00	Avg	V	105	165	-80.98	11.35	37.37	53.98	-16.60
7320.00	Peak	V	105	165	-70.28	11.35	48.07	73.98	-25.90
12200.00	Avg	H	-	-	-83.53	17.42	40.89	53.98	-13.09
12200.00	Peak	H	-	-	-71.02	17.42	53.40	73.98	-20.58

**Table 7-18. Radiated Measurements Antenna WF7b**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 79 of 106



**Plot 7-86. Radiated Spurious Emissions 1-18GHz Antenna WF7b (1Mbps ePA – Ch. 39)**

Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2480MHz
Channel:	39

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4960.00	Avg	H	-	-	-82.01	9.08	34.07	53.98	-19.91
4960.00	Peak	H	-	-	-70.22	9.08	45.86	73.98	-28.12
7440.00	Avg	H	262	111	-81.75	12.23	37.48	53.98	-16.50
7440.00	Peak	H	262	111	-71.47	12.23	47.76	73.98	-26.22
12400.00	Avg	H	-	-	-83.95	17.71	40.76	53.98	-13.21
12400.00	Peak	H	-	-	-73.06	17.71	51.65	73.98	-22.32

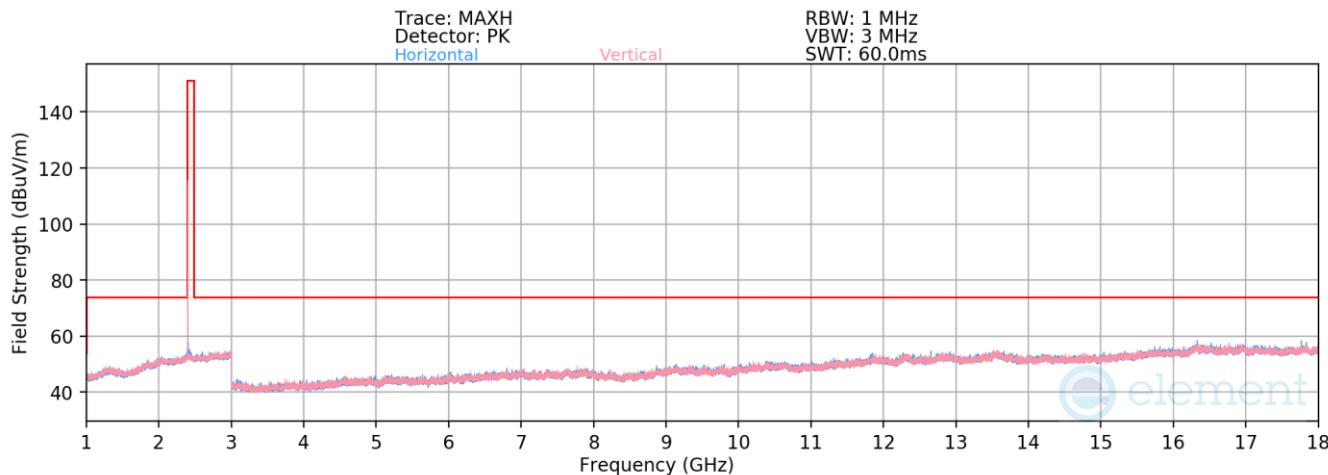
**Table 7-19. Radiated Measurements Antenna WF7b**

FCC ID: BCGA2696 IC: 579C-A2696		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 80 of 106

## Radiated Spurious Emission Measurements (1-18GHz)

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

### TxBF



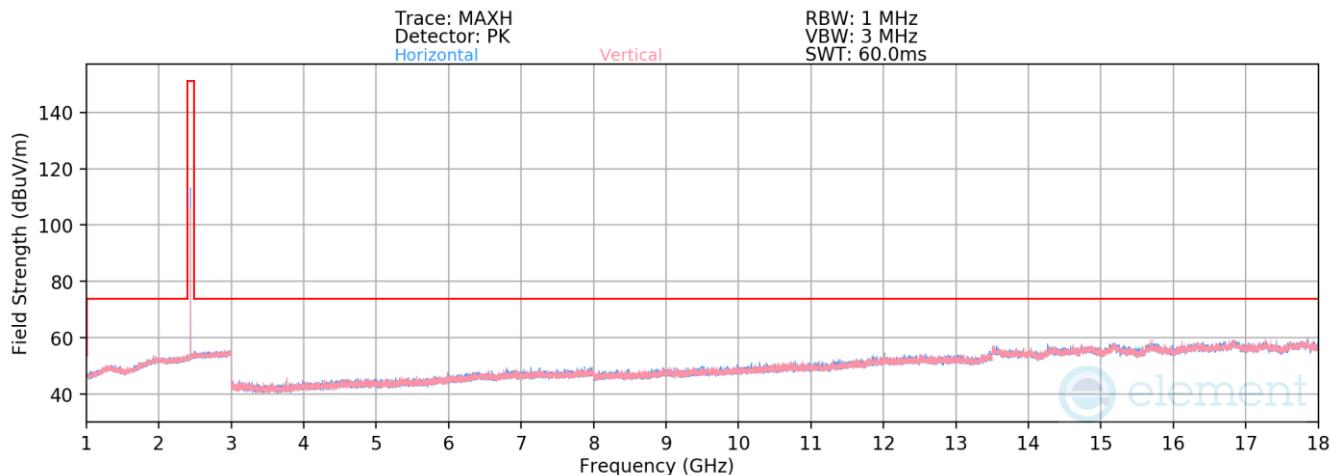
Plot 7-87. Radiated Spurious Emissions 1-18GHz TxBF (1Mbps, ePA – Ch. 0)

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme ePA  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2402MHz  
 Channel: 0

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4804.00	Avg	H	-	-	-81.33	8.49	34.16	53.98	-19.81
4804.00	Peak	H	-	-	-69.82	8.49	45.67	73.98	-28.30
12010.00	Avg	H	-	-	-83.16	17.30	41.14	53.98	-12.84
12010.00	Peak	H	-	-	-71.83	17.30	52.47	73.98	-21.51

Table 7-20. Radiated Measurements TxBF

FCC ID: BCGA2696 IC: 579C-A2696	 <b>element</b> <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device		



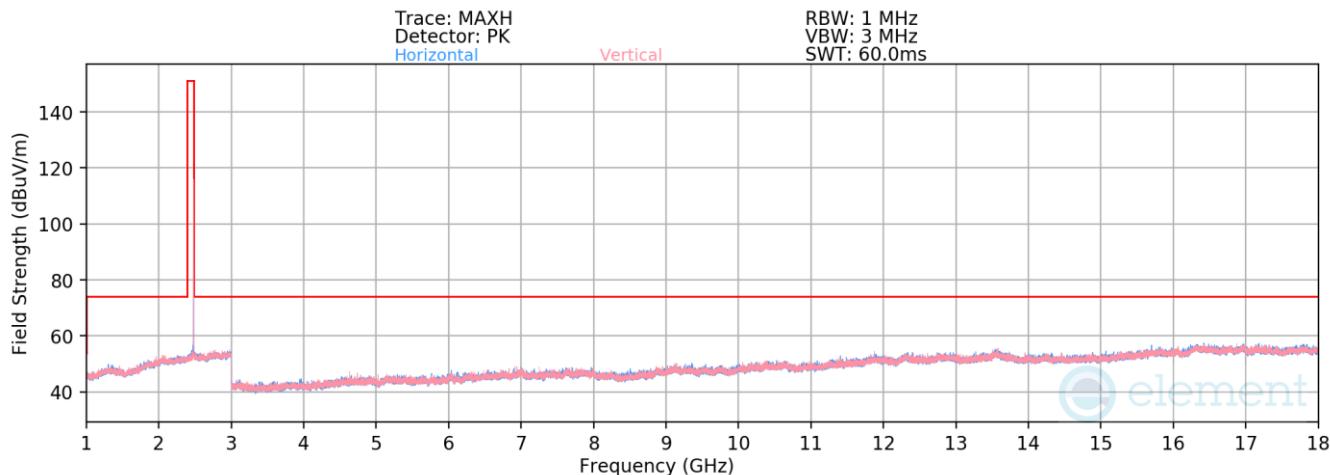
**Plot 7-88. Radiated Spurious Emissions 1-18GHz TxBF (1Mbps, ePA – Ch. 19)**

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme ePA  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2440MHz  
 Channel: 19

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4880.00	Avg	H	-	-	-81.42	8.68	34.26	53.98	-19.72
4880.00	Peak	H	-	-	-70.41	8.68	45.27	73.98	-28.71
7320.00	Avg	V	105	169	-81.22	11.35	37.13	53.98	-16.84
7320.00	Peak	V	105	169	-70.28	11.35	48.07	73.98	-25.90
12200.00	Avg	H	-	-	-83.69	17.42	40.73	53.98	-13.25
12200.00	Peak	H	-	-	-72.64	17.42	51.78	73.98	-22.20

**Table 7-21. Radiated Measurements TxBF**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 82 of 106



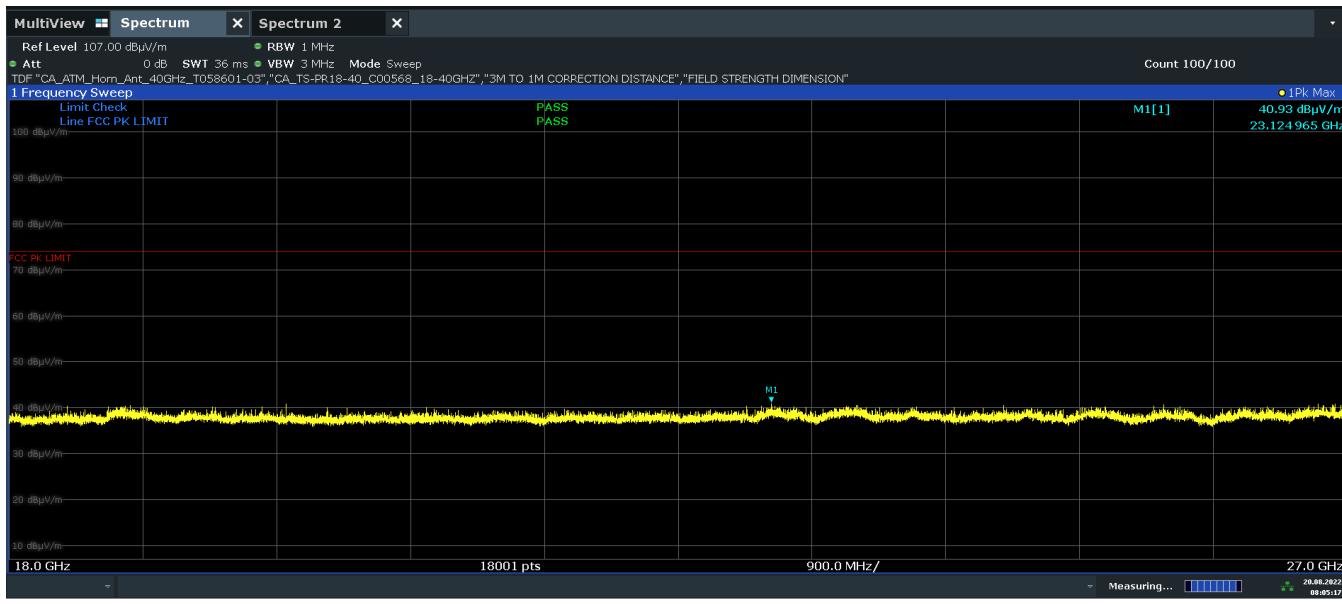
**Plot 7-89. Radiated Spurious Emissions 1-18GHz TxBF (1Mbps ePA – Ch. 39)**

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme ePA  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2480MHz  
 Channel: 39

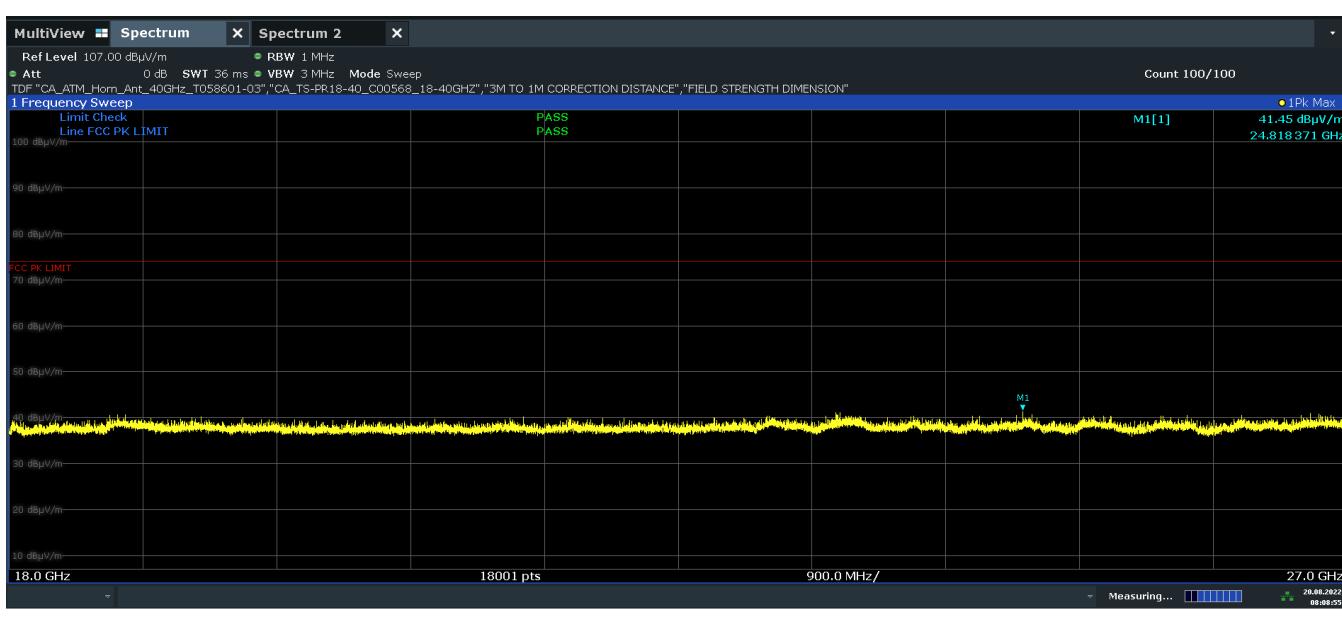
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4960.00	Avg	H	-	-	-82.05	9.08	34.03	53.98	-19.95
4960.00	Peak	H	-	-	-71.24	9.08	44.84	73.98	-29.14
7440.00	Avg	H	246	145	-81.41	12.23	37.82	53.98	-16.16
7440.00	Peak	H	246	145	-70.15	12.23	49.08	73.98	-24.90
12400.00	Avg	H	-	-	-83.91	17.71	40.80	53.98	-13.17
12400.00	Peak	H	-	-	-72.61	17.71	52.10	73.98	-21.87

**Table 7-22. Radiated Measurements TxBF**

FCC ID: BCGA2696 IC: 579C-A2696		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 83 of 106



**Plot 7-90. Radiated Spurious Emissions Above 18GHz TxBF (1Mbps ePA – Ch. 39 Pol. H)**



**Plot 7-91. Radiated Spurious Emissions Above 18GHz TxBF (1Mbps ePA – Ch. 39 Pol. V)**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 84 of 106

### 7.7.1 Radiated Restricted Band Edge Measurements

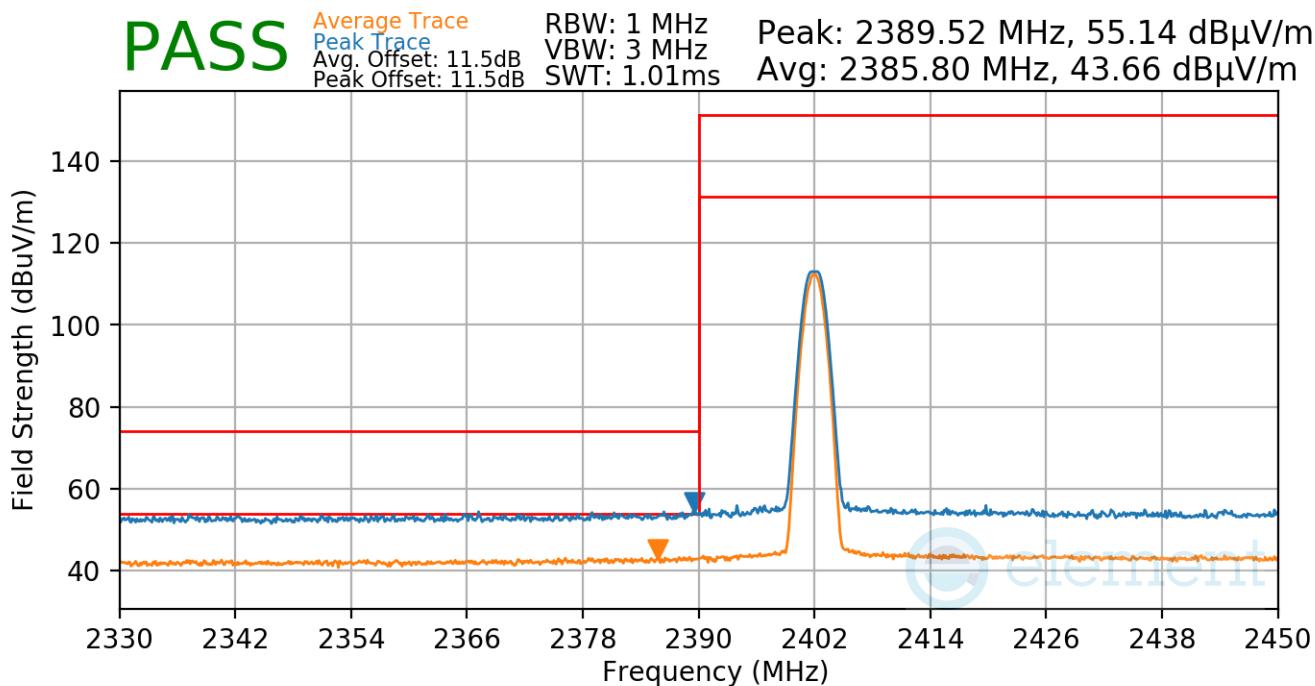
§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

#### Antenna WF8

Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0



Plot 7-92. Radiated Restricted Lower Band Edge Measurement Antenna WF8 (Average & Peak)

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 85 of 106

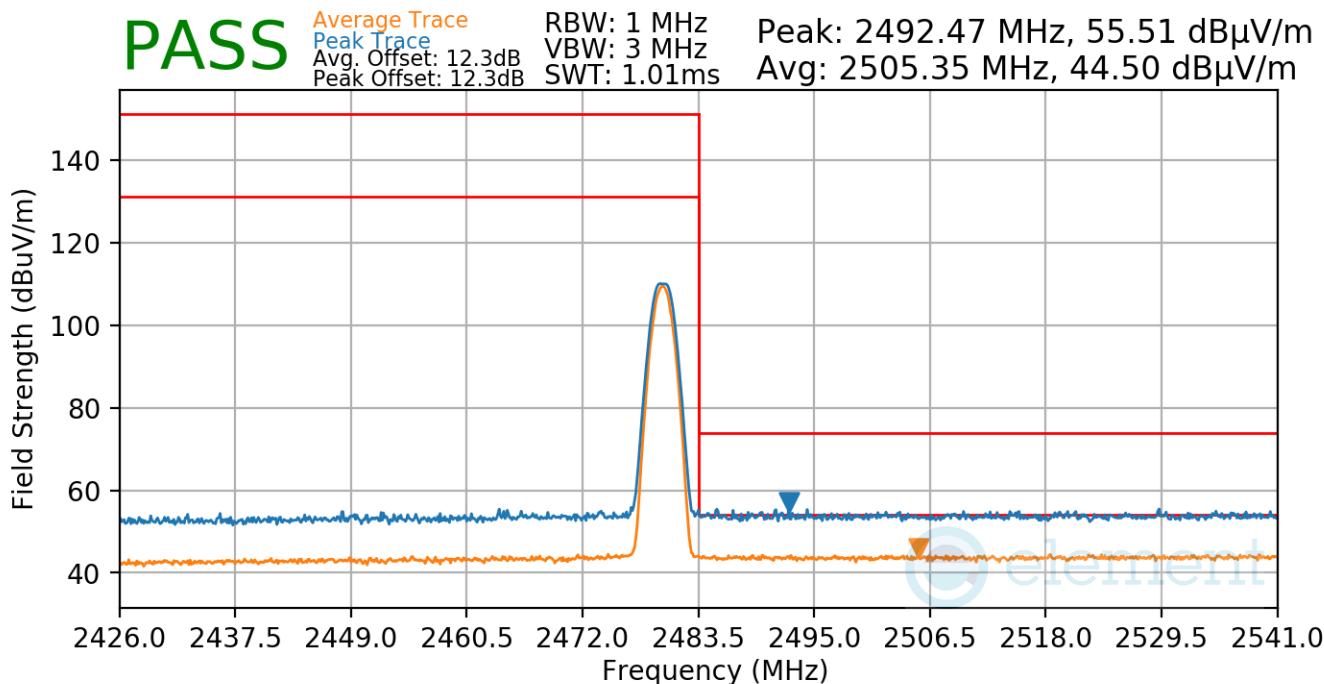
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2480MHz  
 Channel: 39



**Plot 7-93. Radiated Restricted Upper Band Edge Measurement Antenna WF8 (Average & Peak)**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 86 of 106

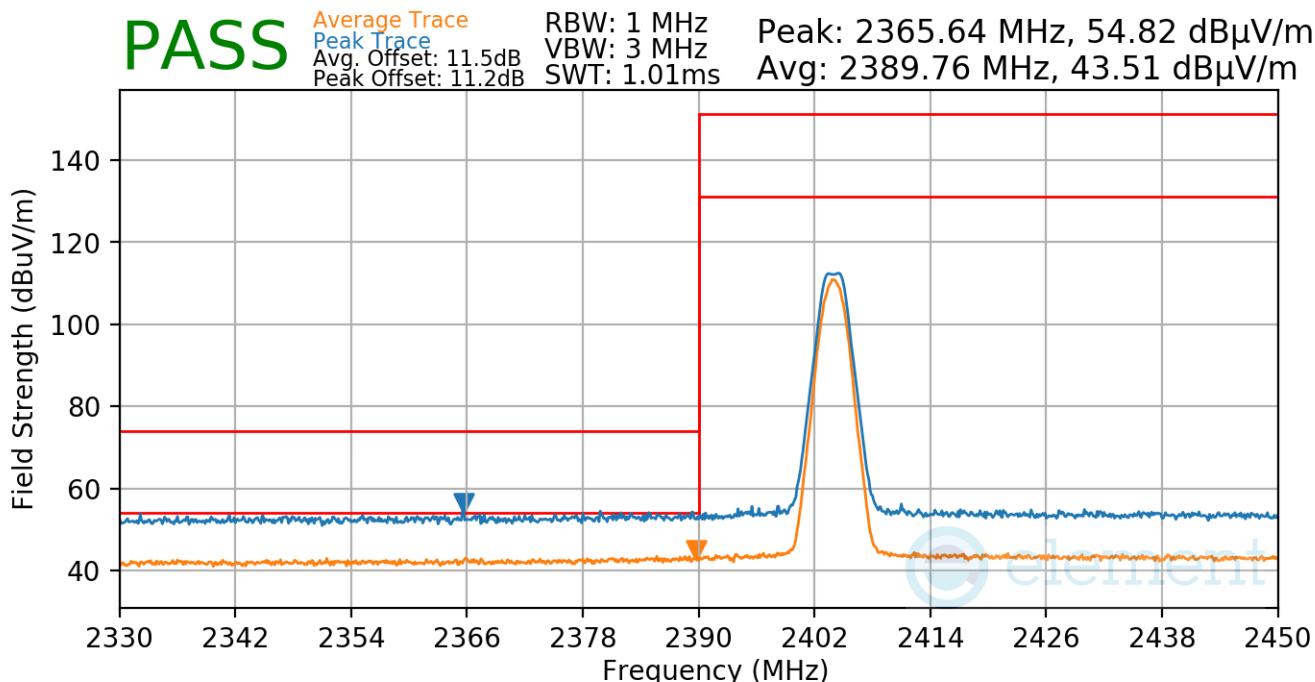
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode: LE  
 Data Rate: 2Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2404MHz  
 Channel: 1



**Plot 7-94. Radiated Restricted Lower Band Edge Measurement Antenna WF8 (Average & Peak)**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 87 of 106

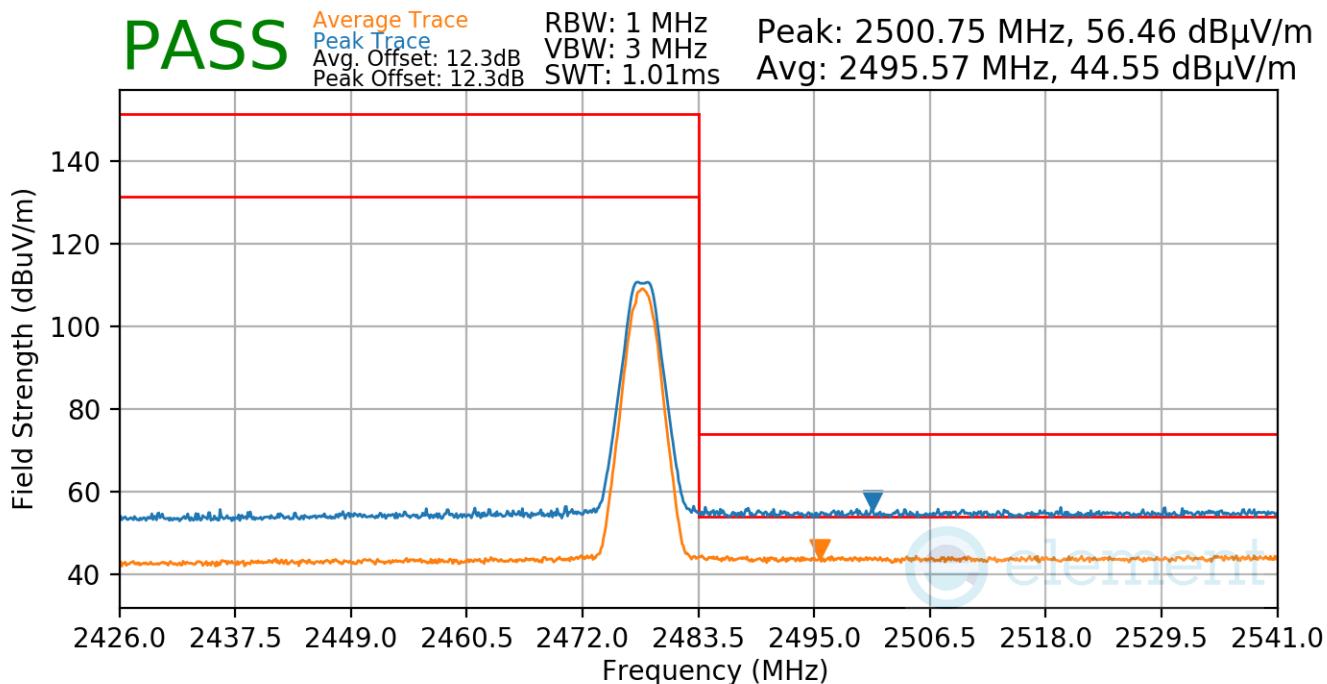
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode: LE  
 Data Rate: 2Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2478MHz  
 Channel: 38



**Plot 7-95. Radiated Restricted Upper Band Edge Measurement Antenna WF8 (Average & Peak)**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 88 of 106

## Radiated Restricted Band Edge Measurements

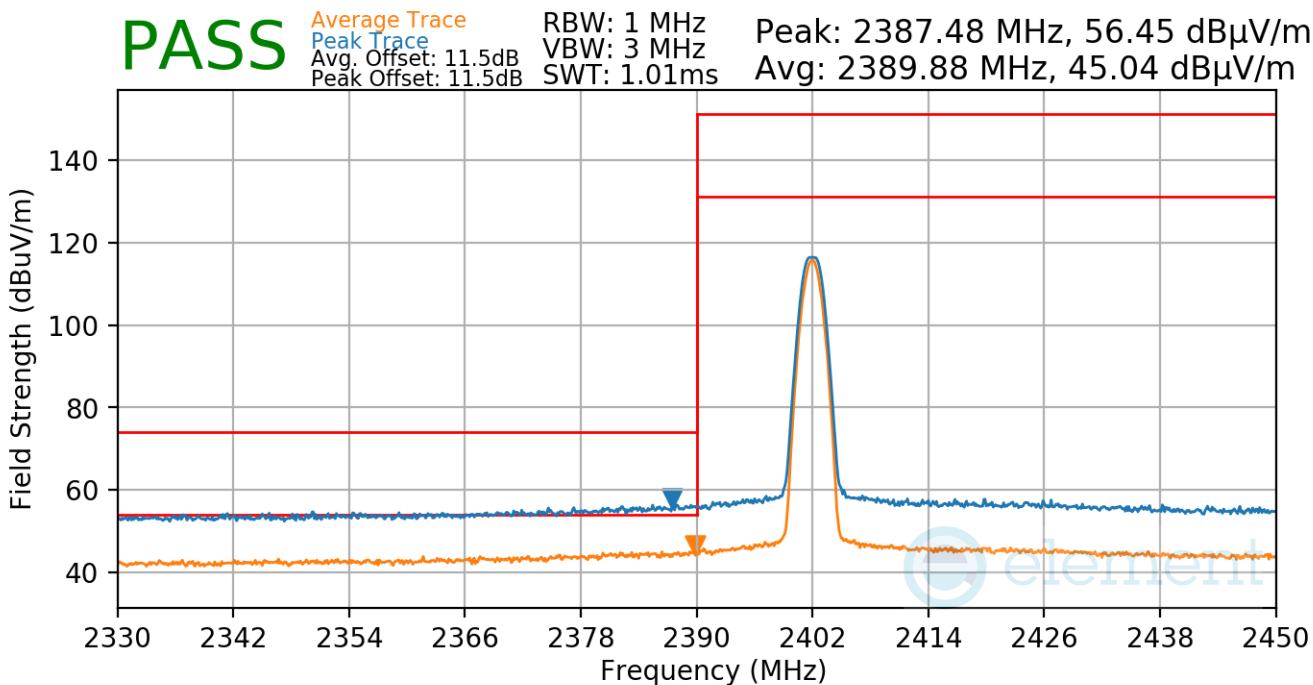
§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

### Antenna WF7b

Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0



Plot 7-96. Radiated Restricted Lower Band Edge Measurement Antenna WF7b (Average & Peak)

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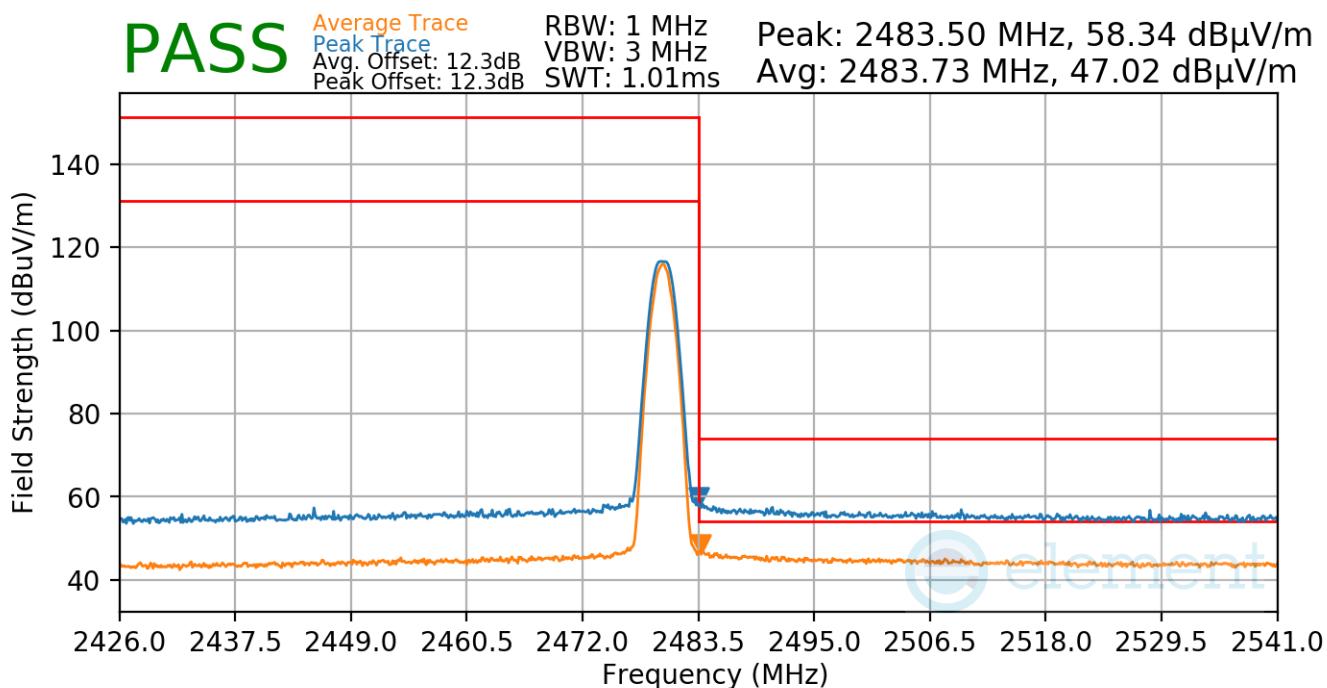
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	39



**Plot 7-97. Radiated Restricted Upper Band Edge Measurement Antenna WF7b (Average & Peak)**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 90 of 106

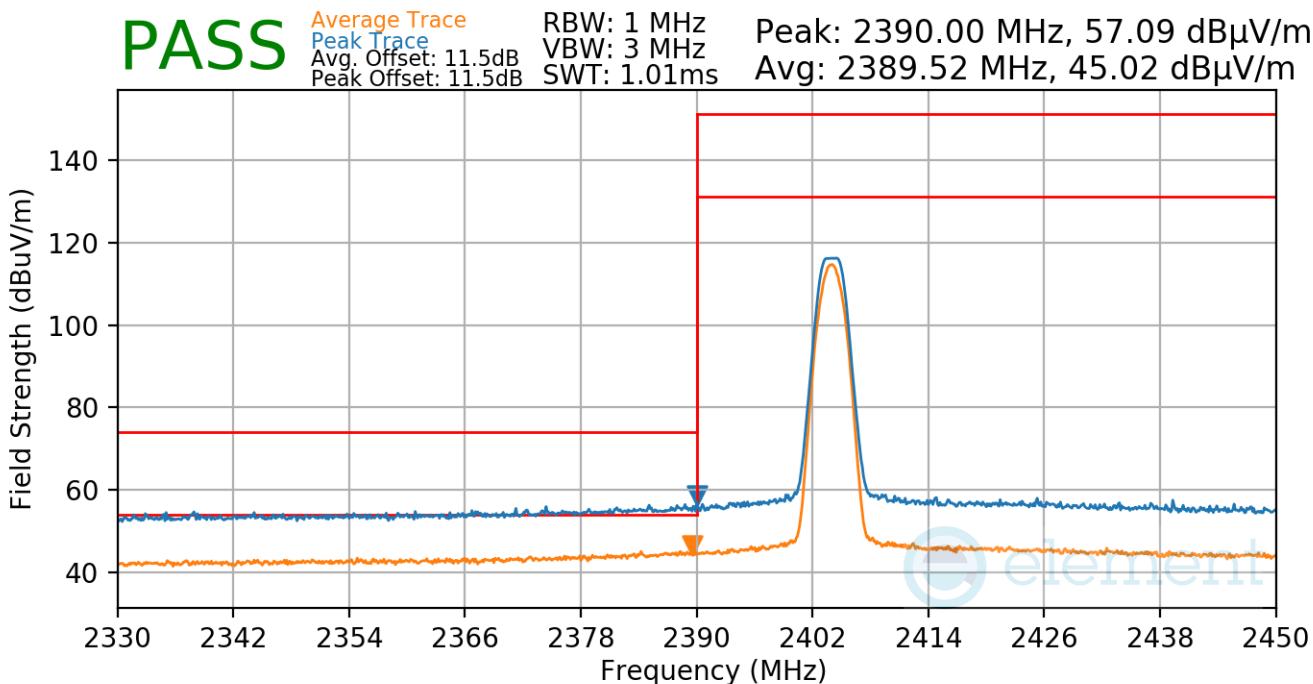
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode: LE  
 Data Rate: 2Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2404MHz  
 Channel: 1



Plot 7-98. Radiated Restricted Lower Band Edge Measurement Antenna WF7b (Average & Peak)

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 91 of 106

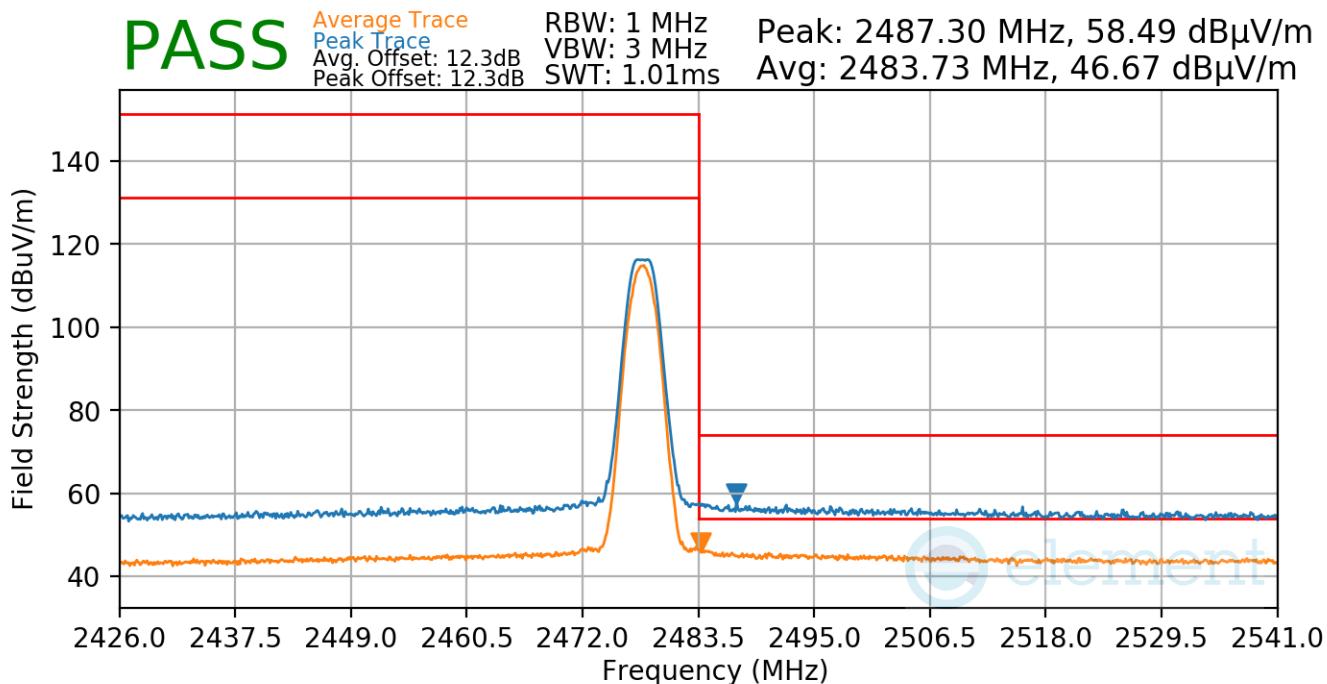
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode: LE  
 Data Rate: 2Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2478MHz  
 Channel: 38



Plot 7-99. Radiated Restricted Upper Band Edge Measurement Antenna WF7b (Average & Peak)

FCC ID: BCGA2696 IC: 579C-A2696		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:

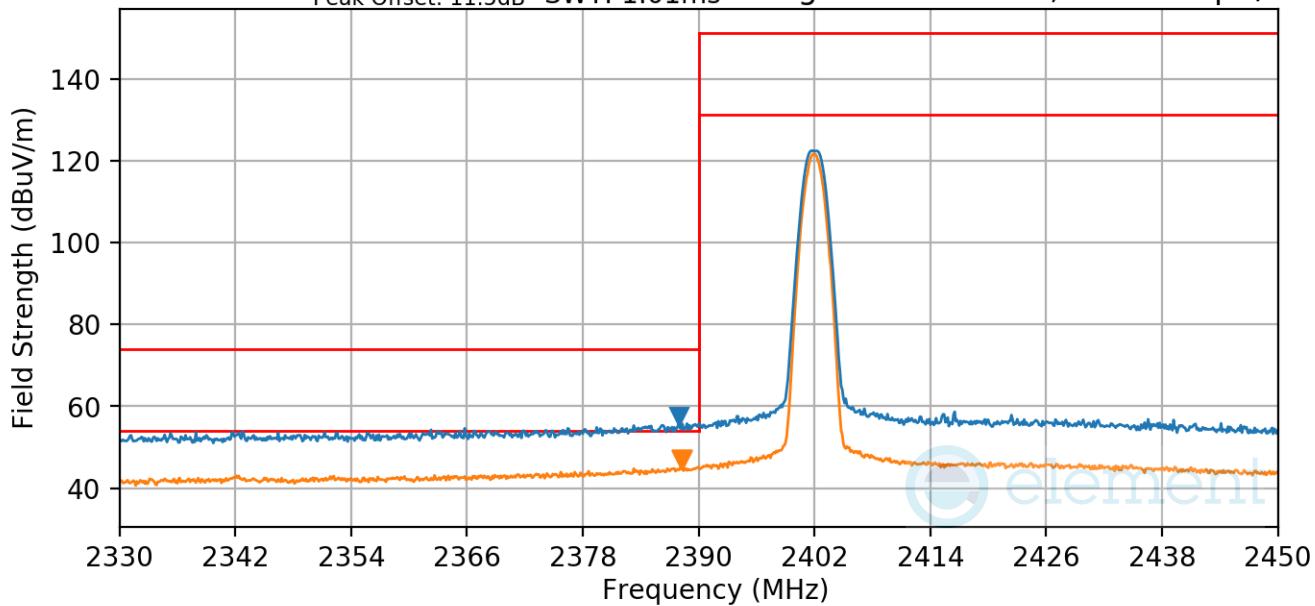
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

### TxBF

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2402MHz  
 Channel: 0

**PASS**

Average Trace      Peak Trace  
 Peak: 2387.96 MHz, 56.21 dB $\mu$ V/m  
 Avg. Offset: 11.5dB      RBW: 1 MHz  
 Peak Offset: 11.5dB      VBW: 3 MHz  
 Avg: 2388.20 MHz, 45.47 dB $\mu$ V/m  
 Peak: 2388.20 MHz, 45.47 dB $\mu$ V/m  
 Peak Offset: 11.5dB      SWT: 1.01ms



Plot 7-100. Radiated Restricted Lower Band Edge Measurement TxBF (Average & Peak)

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 93 of 106

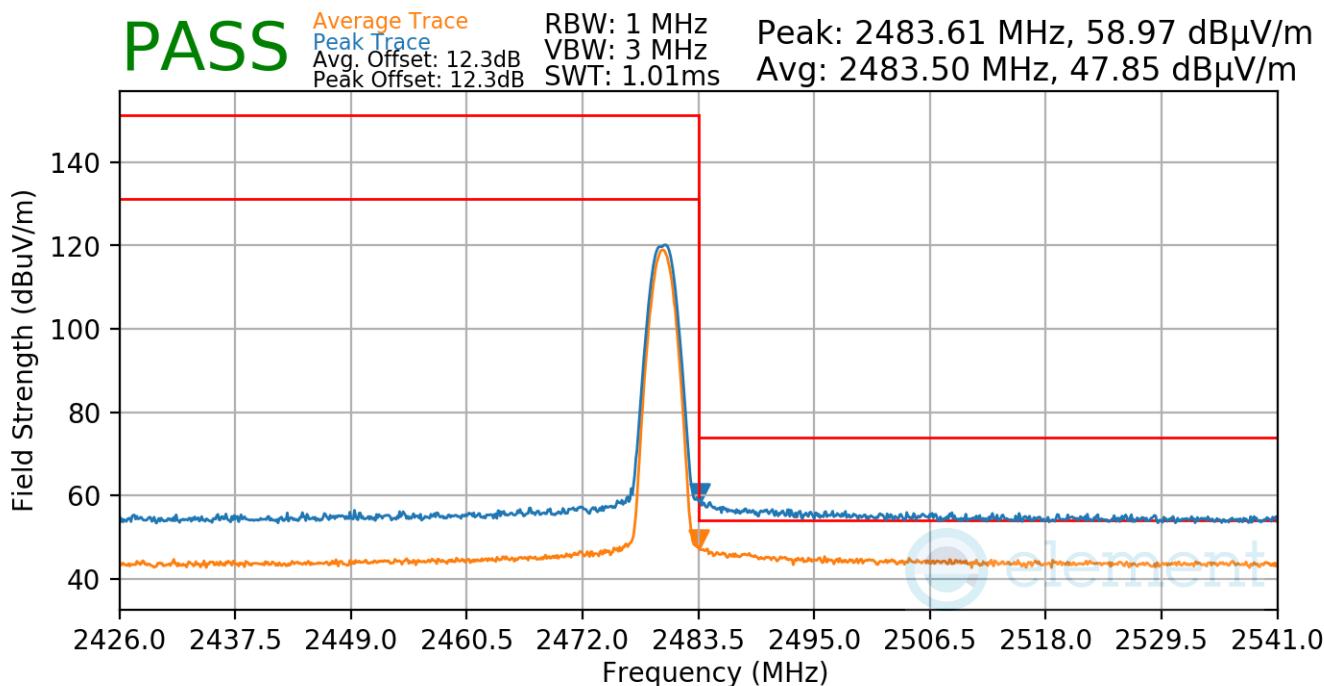
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode: LE  
 Data Rate: 1Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2480MHz  
 Channel: 39



**Plot 7-101. Radiated Restricted Upper Band Edge Measurement TxBF (Average & Peak)**

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 94 of 106

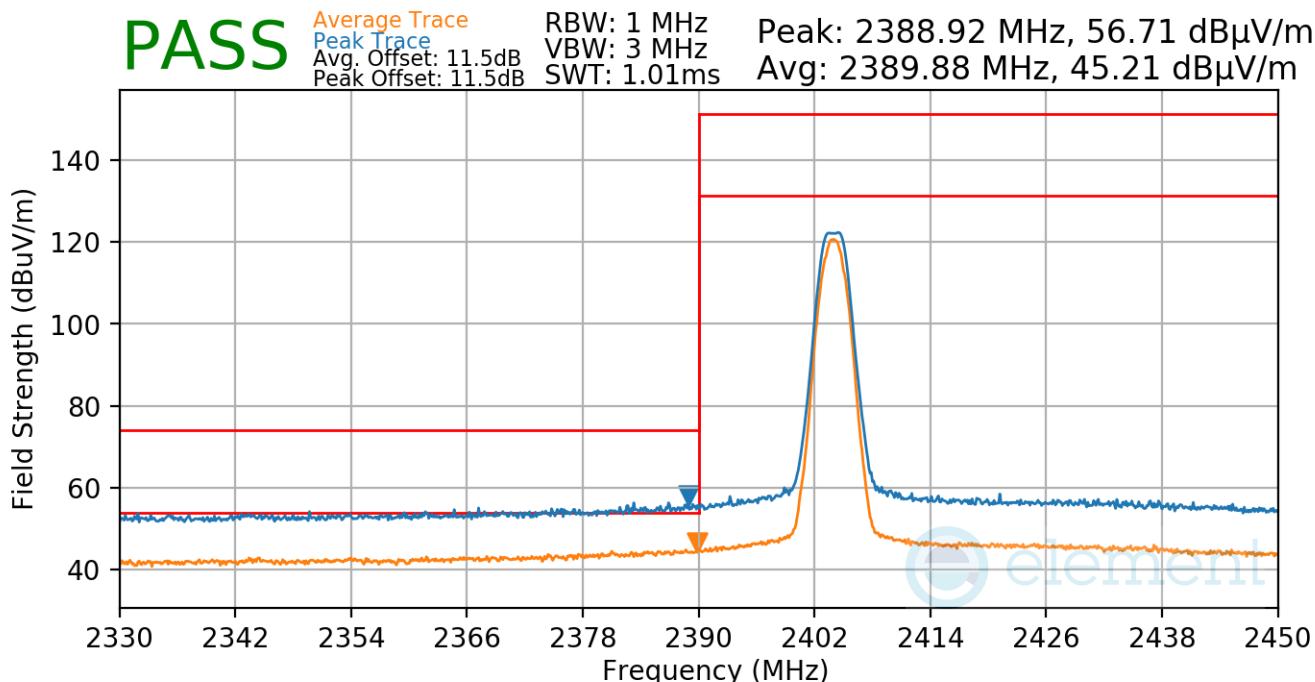
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode: LE  
 Data Rate: 2Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2404MHz  
 Channel: 1



Plot 7-102. Radiated Restricted Lower Band Edge Measurement Tx BF (Average & Peak)

FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 95 of 106

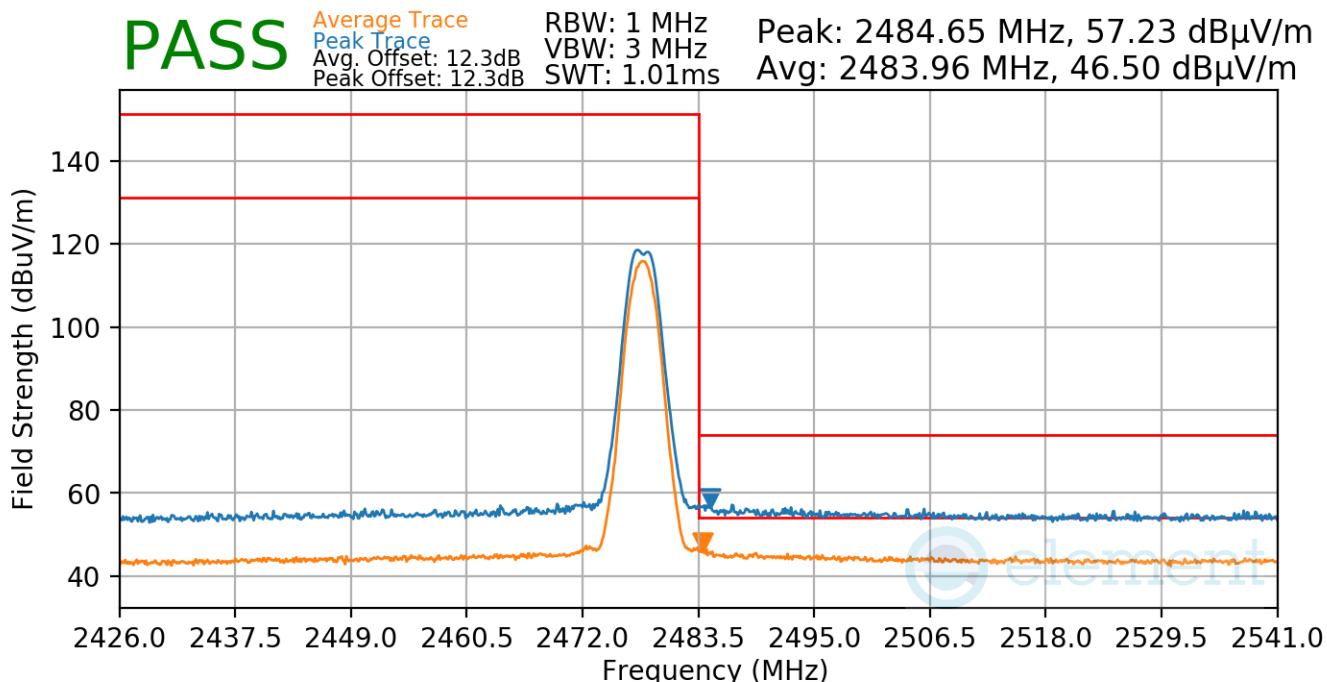
## Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

The amplitude offset shown in the following plots for average measurements was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Bluetooth Mode: LE  
 Data Rate: 2Mbps  
 Power Scheme: ePA  
 Measurement Distance: 3 Meters  
 Operating Frequency: 2478MHz  
 Channel: 38



Plot 7-103. Radiated Restricted Upper Band Edge Measurement Tx BF (Average & Peak)

FCC ID: BCGA2696 IC: 579C-A2696		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 96 of 106

## 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 [ $\mu$ 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

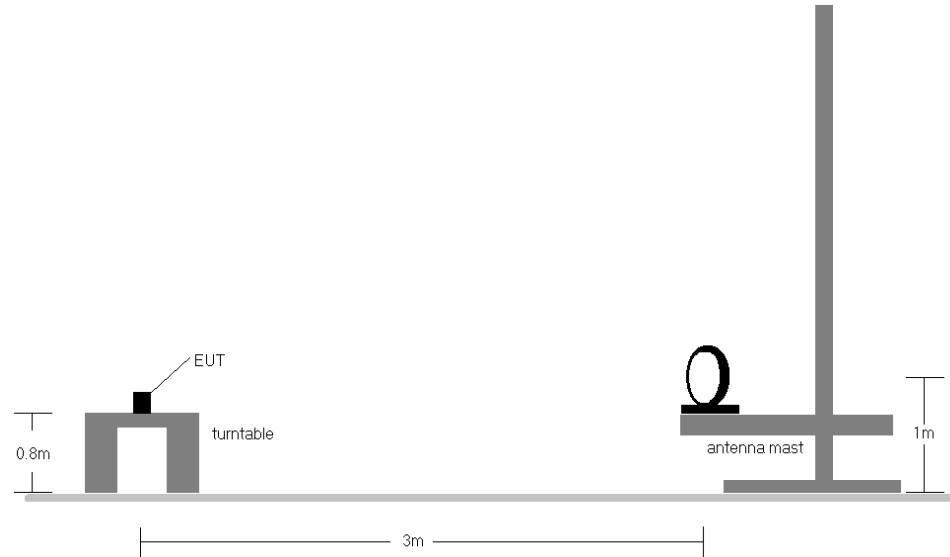
#### Peak Field Strength Measurements

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

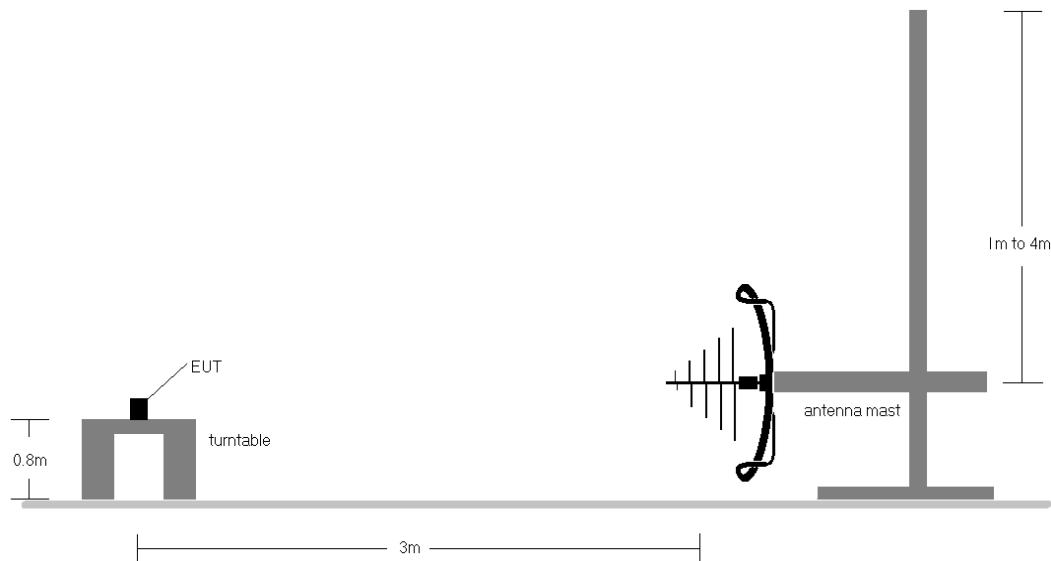
FCC ID: BCGA2696 IC: 579C-A2696	 element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 97 of 106

### 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**

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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

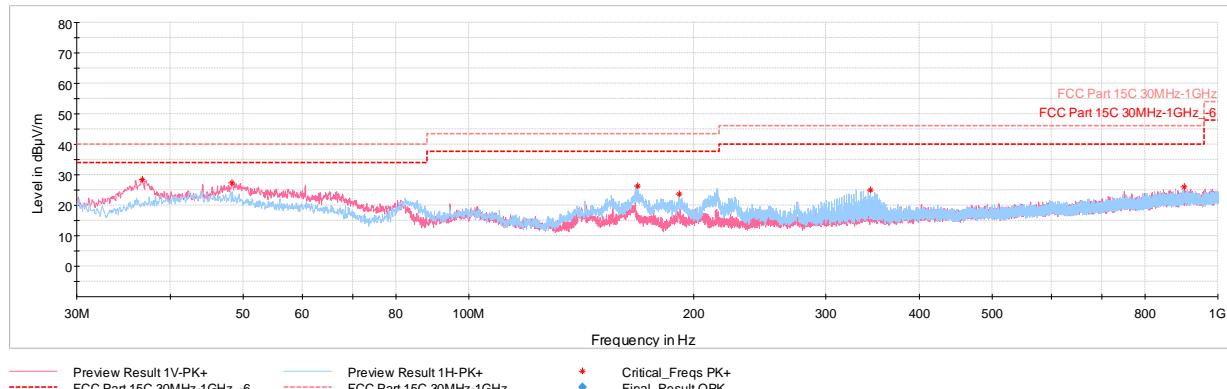
- Field Strength Level  $[\text{dB}_{\mu\text{V/m}}]$  = Analyzer Level  $[\text{dBm}]$  + 107 + AFCL  $[\text{dB}/\text{m}]$
- AFCL  $[\text{dB}/\text{m}]$  = Antenna Factor  $[\text{dB}/\text{m}]$  + Cable Loss  $[\text{dB}]$  – Preamplifier Gain  $[\text{dB}]$
- Margin  $[\text{dB}]$  = Field Strength 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 (1Mbps, ePA – Ch.39, Pol. H & V, 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]
36.69	Max Peak	V	100	349	-60.30	-18.28	28.42	40.00	-11.58
48.33	Max Peak	V	200	193	-64.11	-15.45	27.44	40.00	-12.56
168.32	Max Peak	H	100	238	-60.43	-20.33	26.24	43.52	-17.28
191.21	Max Peak	H	100	250	-65.17	-18.25	23.58	43.52	-19.94
343.75	Max Peak	H	100	158	-68.13	-13.75	25.12	46.02	-20.90
901.21	Max Peak	V	300	247	-76.83	-4.23	25.94	46.02	-20.08

Table 7-24. Radiated Spurious Emissions Below 1GHz TxBF (1Mbps, ePA – Ch.39, Pol. H & V, with AC/DC Adapter)

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

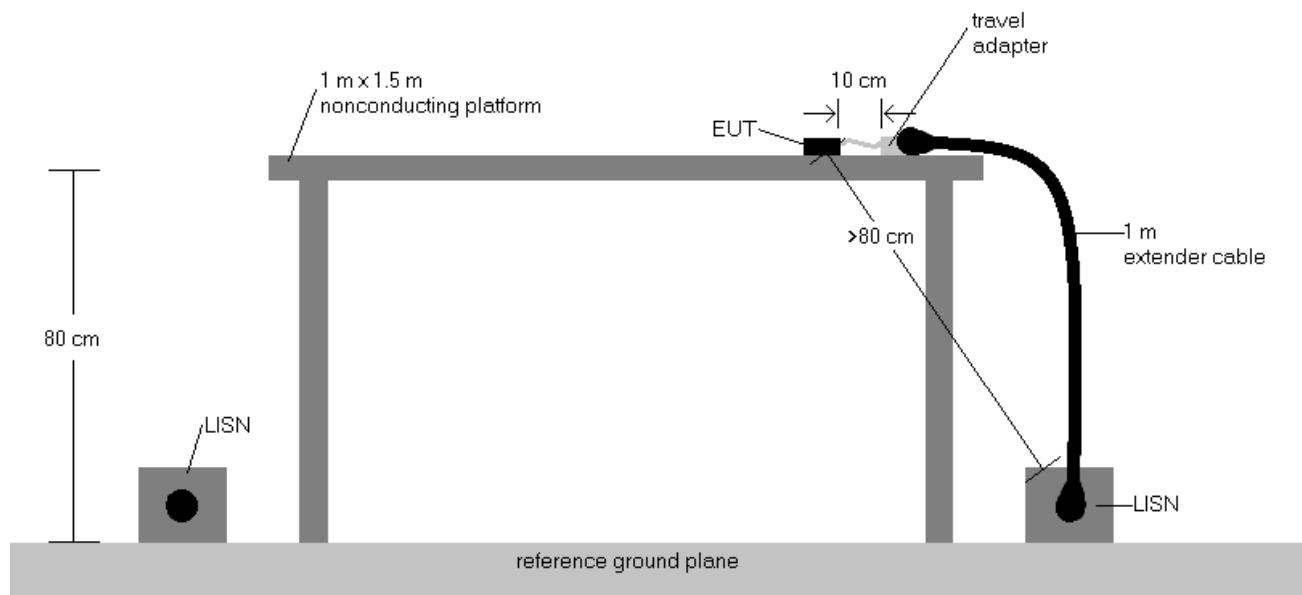
1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = RMS
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

FCC ID: BCGA2696 IC: 579C-A2696	e <b>element</b>		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.

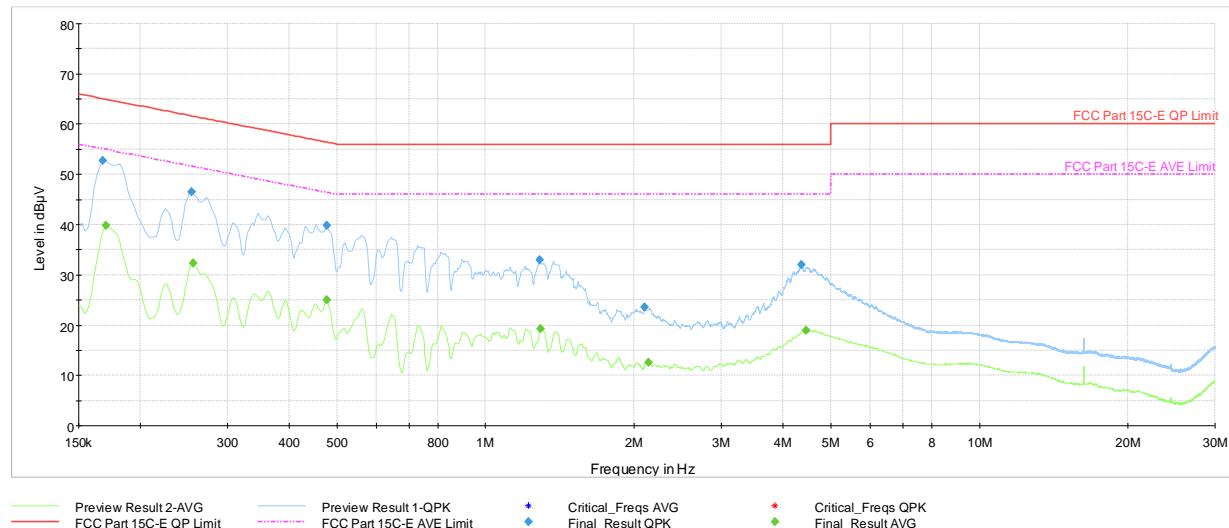


**Figure 7-9. Test Instrument & Measurement Setup**

## 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 $\mu$ V) - QP/AV Limit (dB $\mu$ V)
7. Traces shown in plot are made using a quasi peak and average detectors.
8. Deviations to the Specifications: None.

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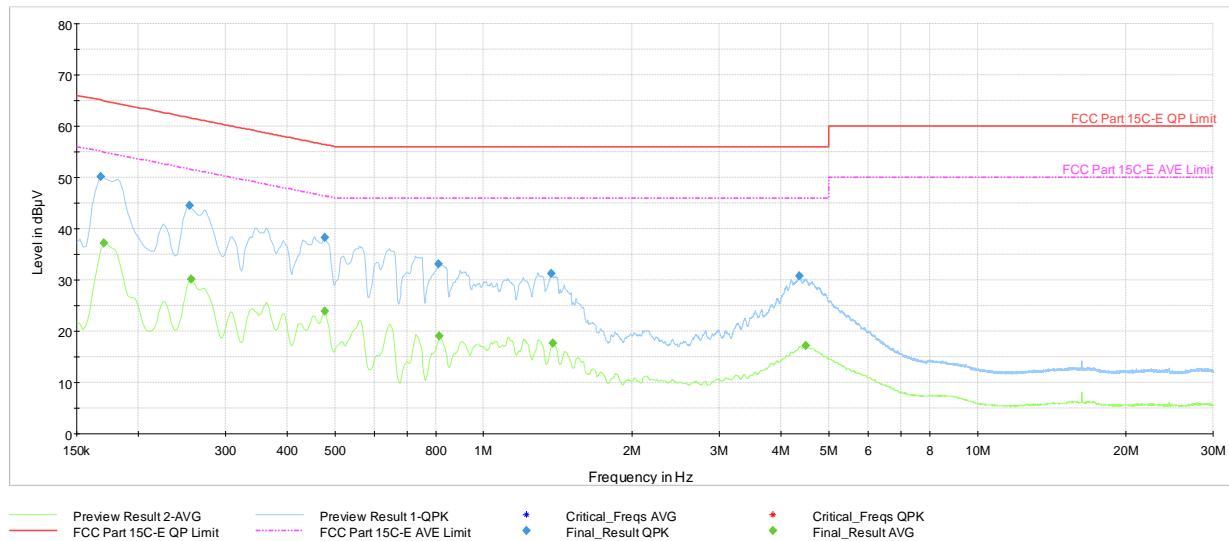


**Plot 7-105. AC Line Conducted Plot with Bluetooth LE TxBF (L1, 1Mbps ePA – Ch.39 with AC/DC Adapter)**

Frequency [MHz]	Process State	QuasiPeak [dB $\mu$ V]	Average [dB $\mu$ V]	Limit [dB $\mu$ V]	Margin [dB]	Line	PE
0.168	FINAL	52.8	—	65.06	-12.29	L1	GND
0.170	FINAL	—	39.76	54.95	-15.18	L1	GND
0.254	FINAL	46.6	—	61.64	-15.10	L1	GND
0.256	FINAL	—	32.31	51.57	-19.26	L1	GND
0.476	FINAL	—	25.05	46.40	-21.35	L1	GND
0.476	FINAL	39.8	—	56.40	-16.62	L1	GND
1.289	FINAL	32.9	—	56.00	-23.08	L1	GND
1.291	FINAL	—	19.30	46.00	-26.70	L1	GND
2.101	FINAL	23.5	—	56.00	-32.48	L1	GND
2.137	FINAL	—	12.66	46.00	-33.34	L1	GND
4.353	FINAL	32.0	—	56.00	-24.05	L1	GND
4.461	FINAL	—	18.91	46.00	-27.09	L1	GND

**Table 7-26. AC Line Conducted Data with Bluetooth LE TxBF (L1, 1Mbps ePA – Ch.39 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 LE TxBF (N, 1Mbps ePA – Ch.39, with AC/DC Adapter)**

Frequency [MHz]	Process State	QuasiPeak [dB $\mu$ V]	Average [dB $\mu$ V]	Limit [dB $\mu$ V]	Margin [dB]	Line	PE
0.168	FINAL	50.1	—	65.06	-14.96	N	GND
0.170	FINAL	—	37.14	54.95	-17.81	N	GND
0.254	FINAL	44.5	—	61.64	-17.16	N	GND
0.256	FINAL	—	30.10	51.57	-21.47	N	GND
0.476	FINAL	—	23.86	46.40	-22.54	N	GND
0.476	FINAL	38.3	—	56.40	-18.13	N	GND
0.812	FINAL	33.1	—	56.00	-22.92	N	GND
0.814	FINAL	—	19.11	46.00	-26.89	N	GND
1.372	FINAL	31.3	—	56.00	-24.73	N	GND
1.381	FINAL	—	17.58	46.00	-28.42	N	GND
4.353	FINAL	30.8	—	56.00	-25.22	N	GND
4.486	FINAL	—	17.12	46.00	-28.88	N	GND

**Table 7-27. AC Line Conducted Data with Bluetooth LE TxBF (N, 1Mbps ePA – Ch.39 with AC/DC Adapter)**

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

The data collected relate only to 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	 <b>element</b>		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090022-04.BCG	Test Dates: 5/30/2022-9/15/2022	EUT Type: Tablet Device	Page 106 of 106	