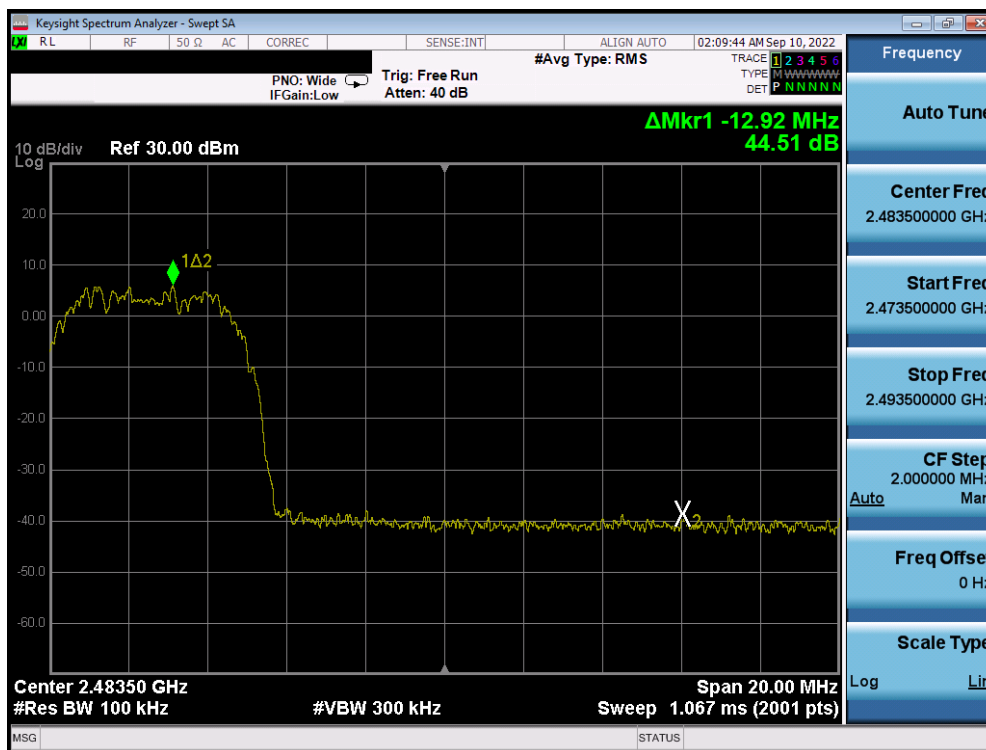


Plot 7-67. Band Edge Plot Antenna 2a (Bluetooth (HDR8), ePA – Ch. 1)



Plot 7-68. Band Edge Plot Antenna 2a (Bluetooth (HDR8), ePA – Ch. 73)

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## 7.6 Conducted Spurious Emissions

§15.247(d); RSS-247 [5.5]

### Test Overview and Limit

For the following out of band conducted spurious emissions plots, the EUT was set to transmit at maximum power with the largest packet size available. The worst case spurious emissions were found in this configuration.

***The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the procedure in Section 8.5 of KDB 558074 D01 v05r02 and Subclause 11.11 of ANSI C63.10-2013.***

### Test Procedure Used

ANSI C63.10-2013 – Subclause 11.11.3  
KDB 558074 D01 v05r02 – Section 8.5

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 25GHz (separated into two plots per channel)
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

### Test Setup

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



**Figure 7-5. Test Instrument & Measurement Setup**

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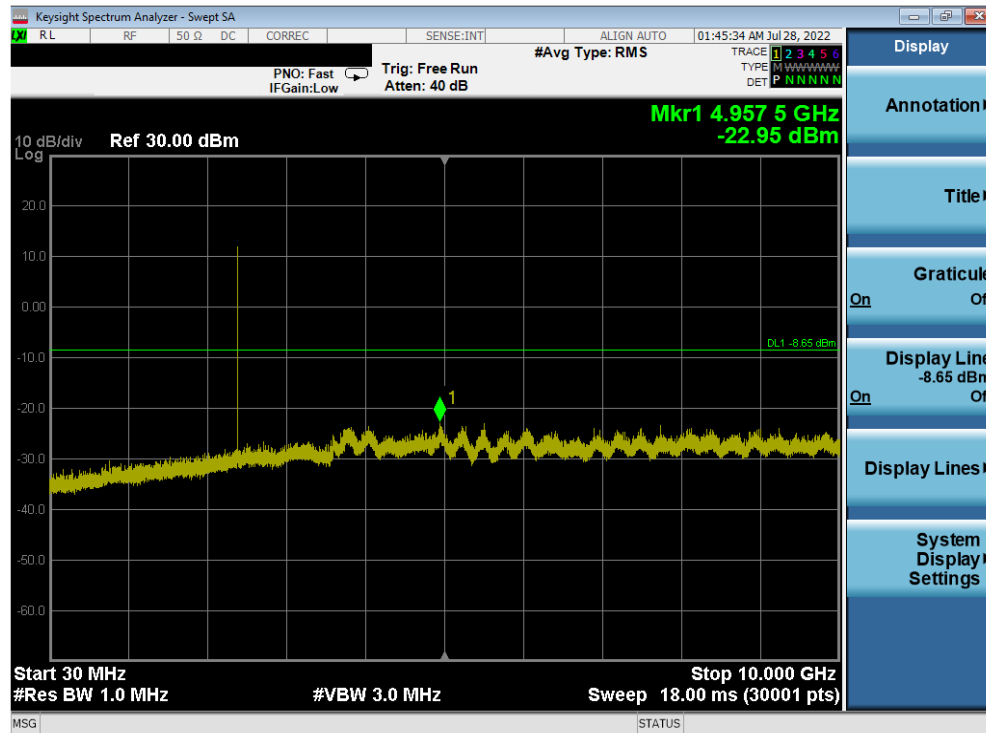
### **Test Notes**

1. RBW was set to 1MHz rather than 100kHz in order to increase the measurement speed.
2. The display line shown in the following plots denotes the limit at 20dB below the fundamental emission level measured in a 100kHz bandwidth. However, since the traces in the following plots are measured with a 1MHz RBW, the display line may not necessarily appear to be 20dB below the level of the fundamental in a 1MHz bandwidth.
3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.
4. All supported modulation, antenna (including TxBF mode) and power schemes have been tested on the unit and only worst case configuration is reported.

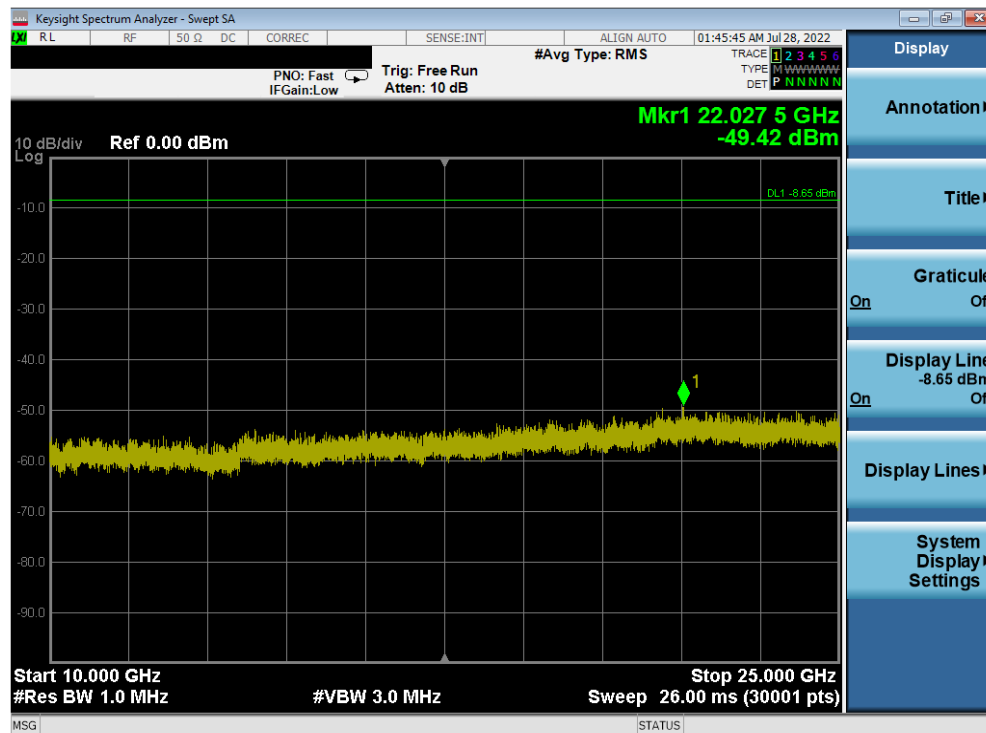
<b>FCC ID:</b> BCGA2764 <b>IC:</b> 579C-A2764		<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1C2205090028-13.BCG	<b>Test Dates:</b> 5/30/2022 - 9/30/2022	<b>EUT Type:</b> Tablet Device	Page 64 of 104

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## Antenna 4a

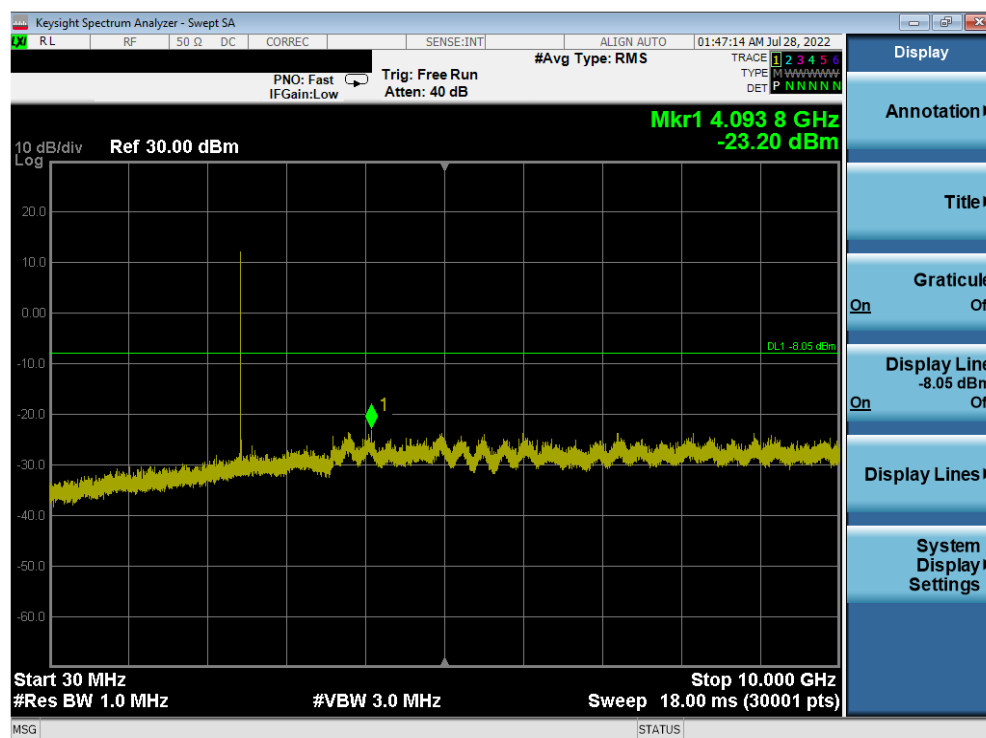


**Plot 7-69. Conducted Spurious Plot Antenna 4a (Bluetooth (HDR4), 4 Mbps, ePA – Ch. 1)**

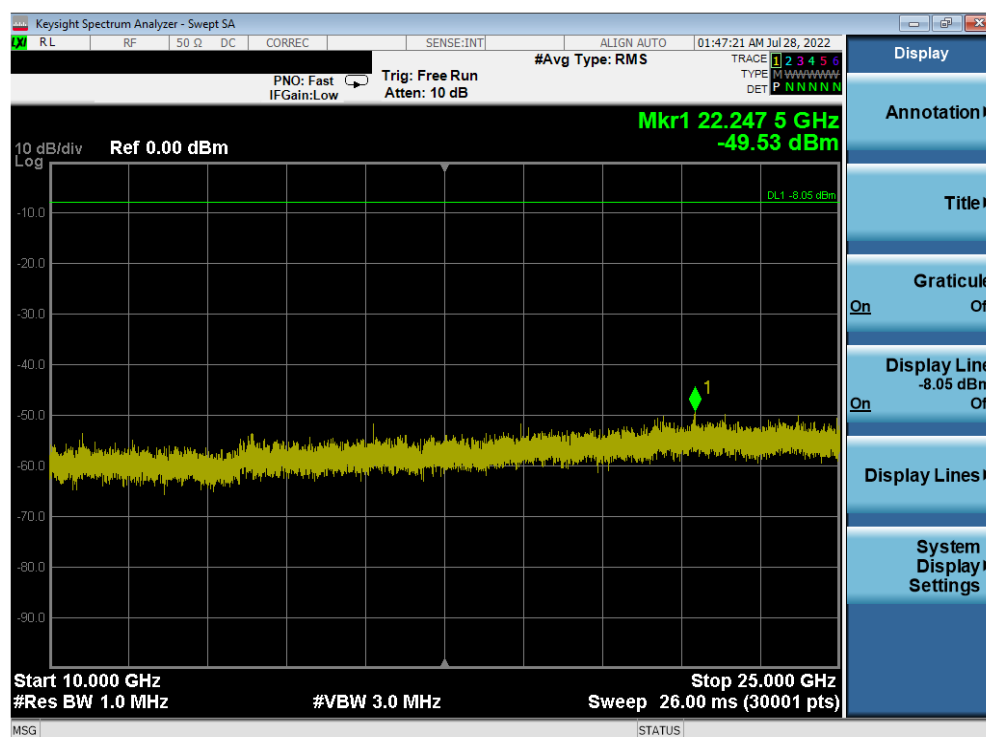


**Plot 7-70. Conducted Spurious Plot Antenna 4a (Bluetooth (HDR4), 4 Mbps, ePA – Ch. 1)**

<b>FCC ID:</b> BCGA2764 <b>IC:</b> 579C-A2764	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1C2205090028-13.BCG	<b>Test Dates:</b> 5/30/2022 - 9/30/2022	<b>EUT Type:</b> Tablet Device	Page 65 of 104

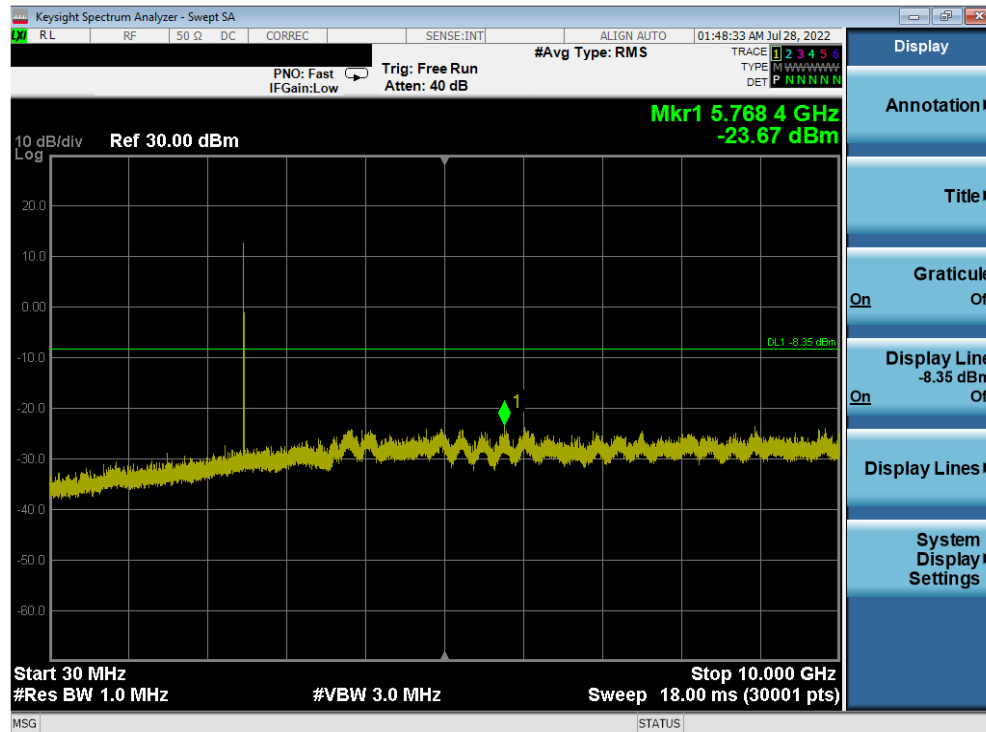


**Plot 7-71. Conducted Spurious Plot Antenna 4a (Bluetooth (HDR4), 4 Mbps, ePA – Ch. 38)**

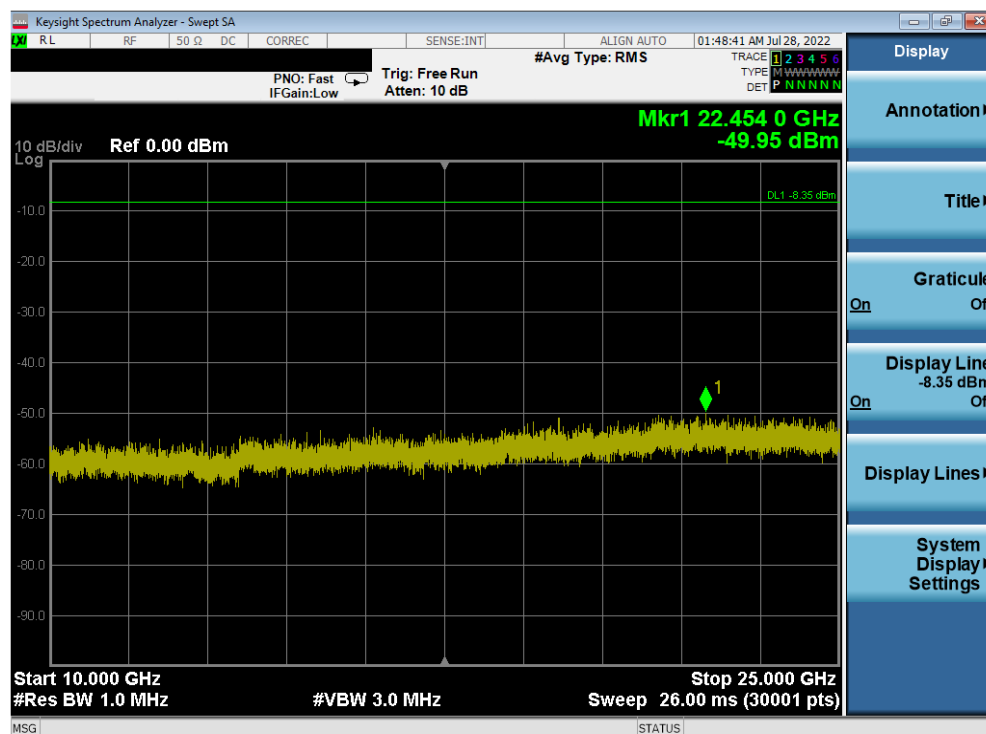


**Plot 7-72. Conducted Spurious Plot Antenna 4a (Bluetooth (HDR4), 4 Mbps, ePA – Ch. 38)**

<b>FCC ID:</b> BCGA2764 <b>IC:</b> 579C-A2764	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1C2205090028-13.BCG	<b>Test Dates:</b> 5/30/2022 - 9/30/2022	<b>EUT Type:</b> Tablet Device	Page 66 of 104

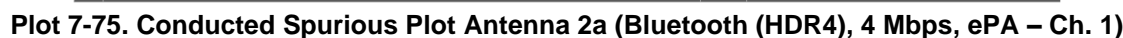


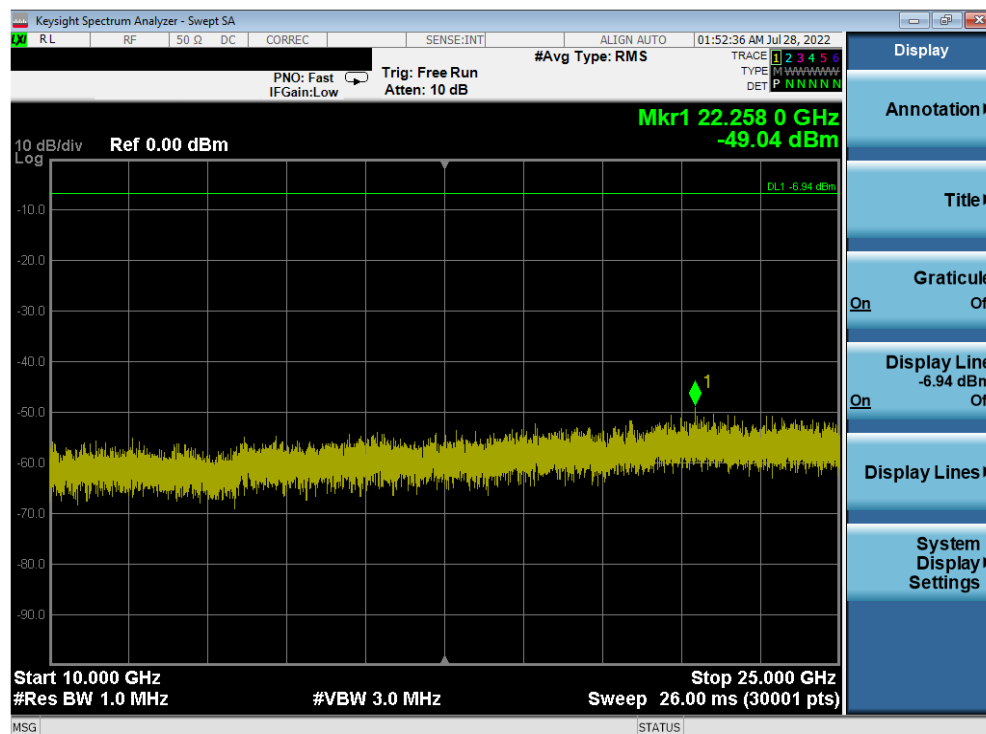
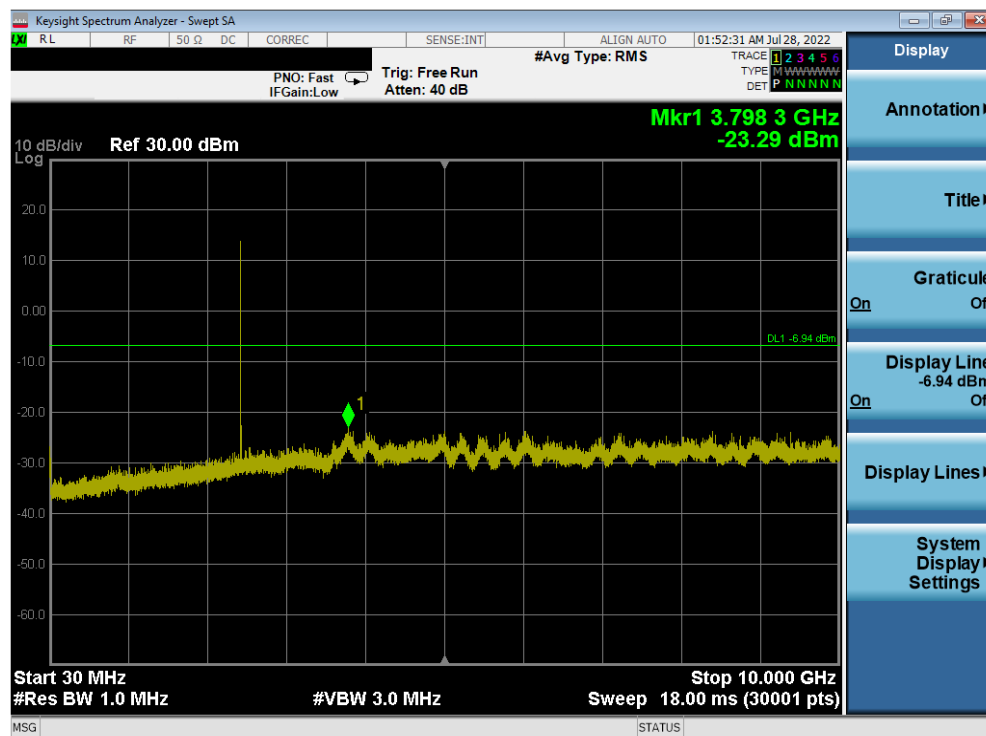
**Plot 7-73. Conducted Spurious Plot Antenna 4a (Bluetooth (HDR4), 4 Mbps, ePA – Ch. 73)**



**Plot 7-74. Conducted Spurious Plot Antenna 4a (Bluetooth (HDR4), 4 Mbps, ePA – Ch. 73)**

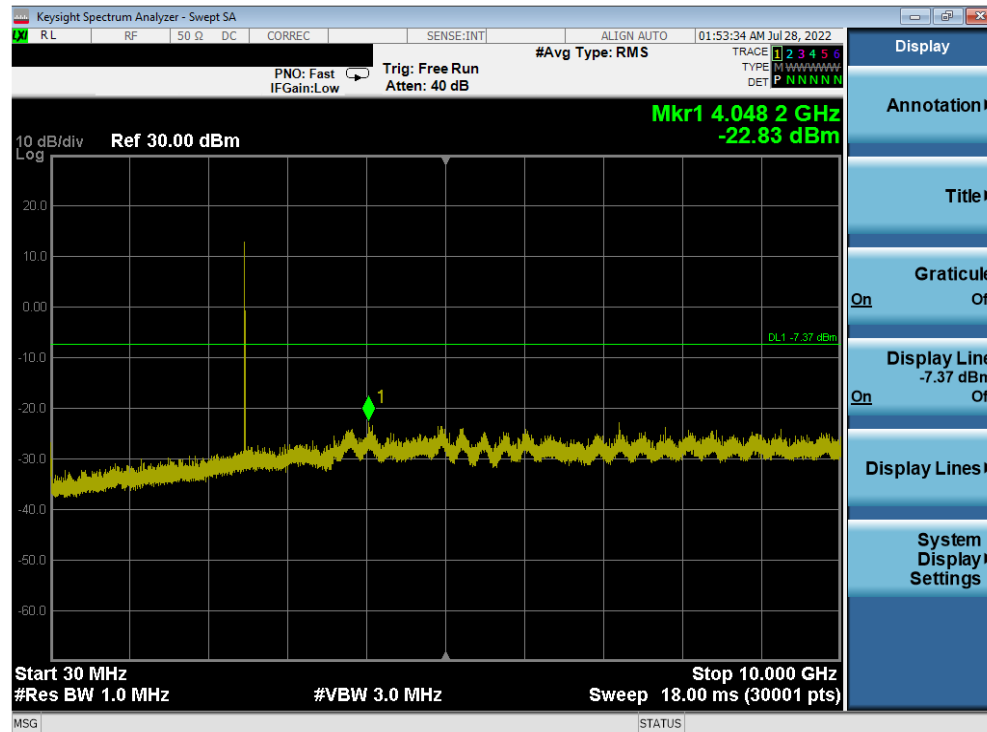
<b>FCC ID:</b> BCGA2764 <b>IC:</b> 579C-A2764	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1C2205090028-13.BCG	<b>Test Dates:</b> 5/30/2022 - 9/30/2022	<b>EUT Type:</b> Tablet Device	Page 67 of 104

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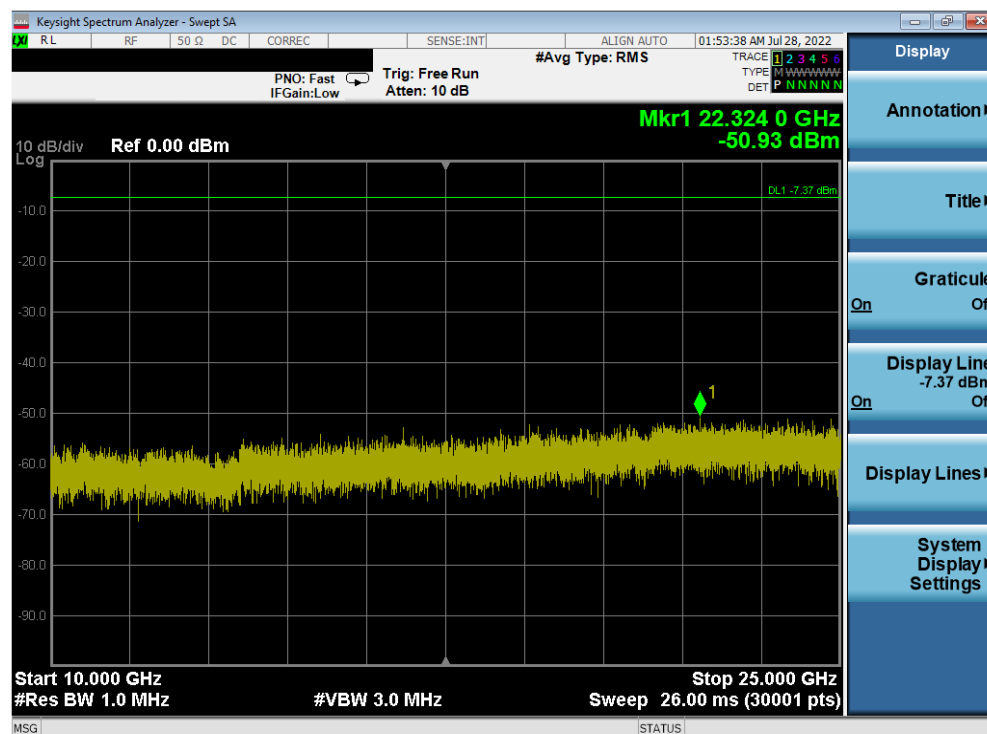


<b>FCC ID:</b> BCGA2764 <b>IC:</b> 579C-A2764	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1C2205090028-13.BCG	<b>Test Dates:</b> 5/30/2022 - 9/30/2022	<b>EUT Type:</b> Tablet Device	Page 69 of 104





**Plot 7-79. Conducted Spurious Plot Antenna 2a (Bluetooth (HDR4), 4 Mbps, ePA – Ch. 73)**



**Plot 7-80. Conducted Spurious Plot Antenna 2a (Bluetooth (HDR4), 4 Mbps, ePA – Ch. 73)**

<b>FCC ID:</b> BCGA2764 <b>IC:</b> 579C-A2764	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1C2205090028-13.BCG	<b>Test Dates:</b> 5/30/2022 - 9/30/2022	<b>EUT Type:</b> Tablet Device	Page 70 of 104

## 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 [ $\mu\text{V/m}$ ]	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  $\geq 2 \times \text{span/RBW}$ )
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces

#### Peak Field Strength Measurements

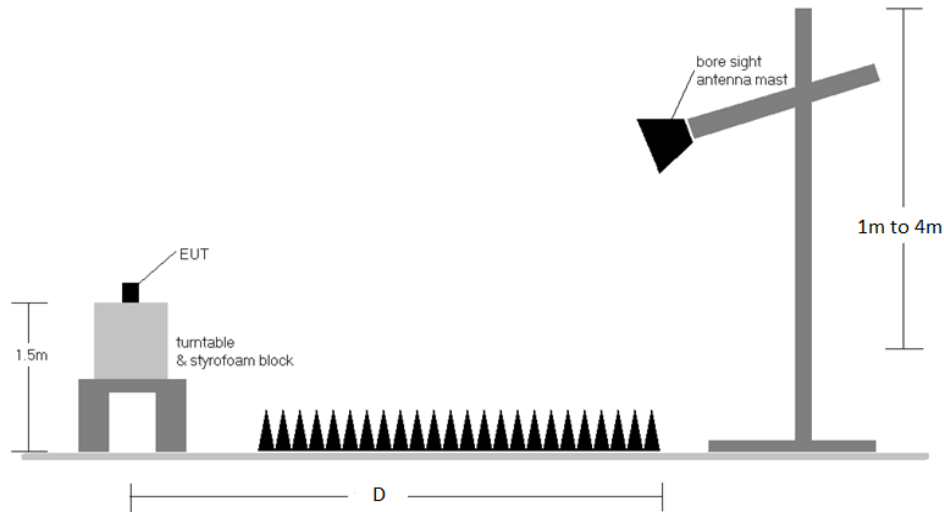
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

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## Test Setup

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



**Figure 7-6. 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.

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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  $[\text{dB/m}] = \text{Antenna Factor} [\text{dB/m}] + \text{Cable Loss} [\text{dB}] - \text{Preamplifier Gain} [\text{dB}]$
- 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

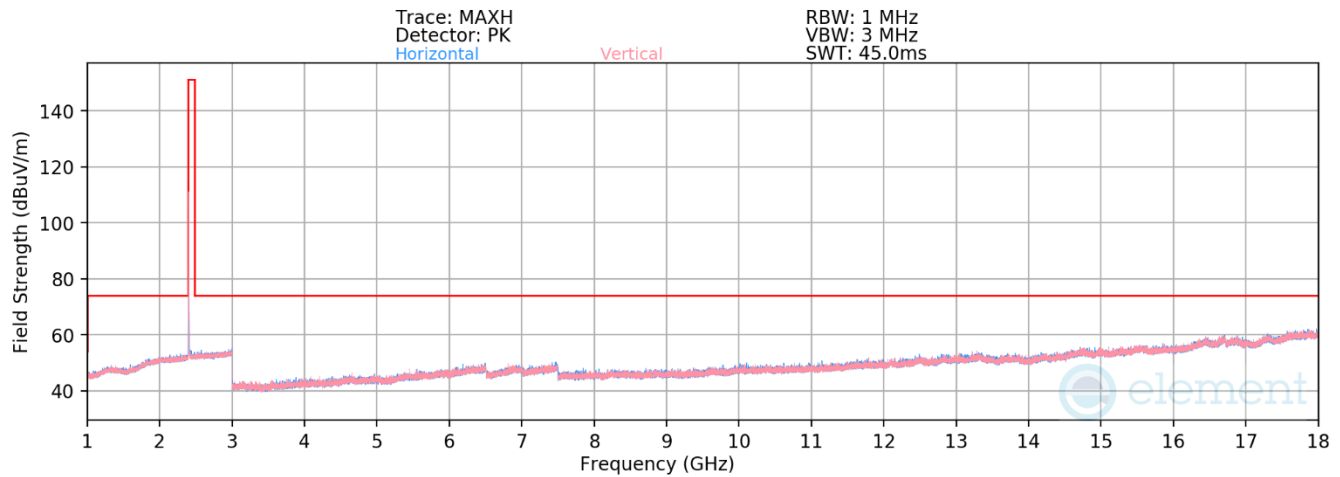
FCC ID: BCGA2764 IC: 579C-A2764	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 73 of 104

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

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

### Antenna 4a



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

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

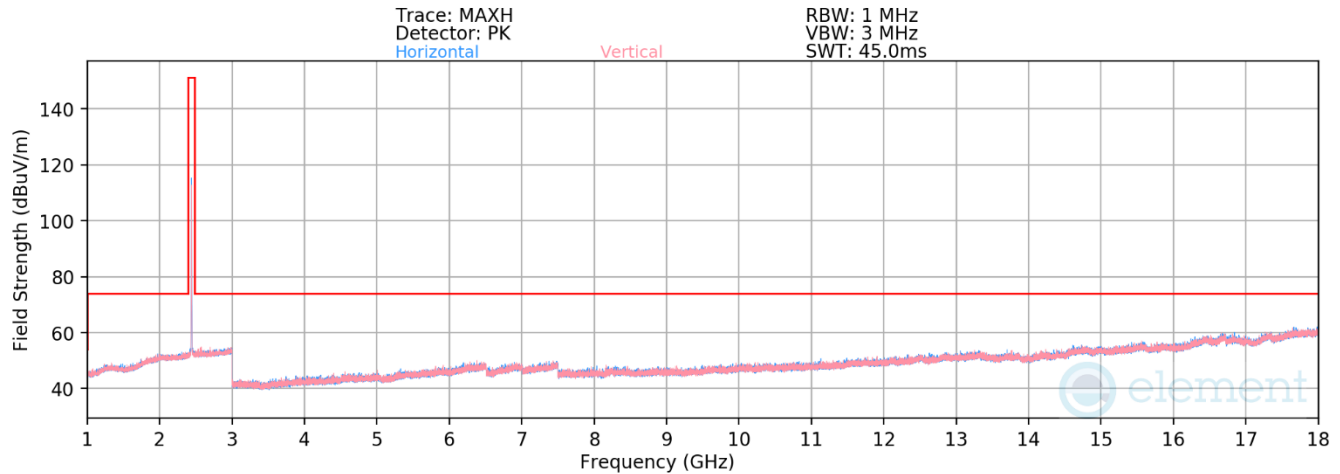
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4808.00	Avg	V	-	-	-79.86	5.92	33.06	53.98	-20.92
4808.00	Peak	V	-	-	-67.81	5.92	45.11	73.98	-28.87
12020.00	Avg	V	-	-	-84.21	14.65	37.44	53.98	-16.54
12020.00	Peak	V	-	-	-72.72	14.65	48.93	73.98	-25.05

**Table 7-14. Radiated Measurements Antenna 4a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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**Plot 7-82. Radiated Spurious Emissions 1-18GHz Antenna 4a (4Mbps, HDR4, ePA – Ch. 38)**

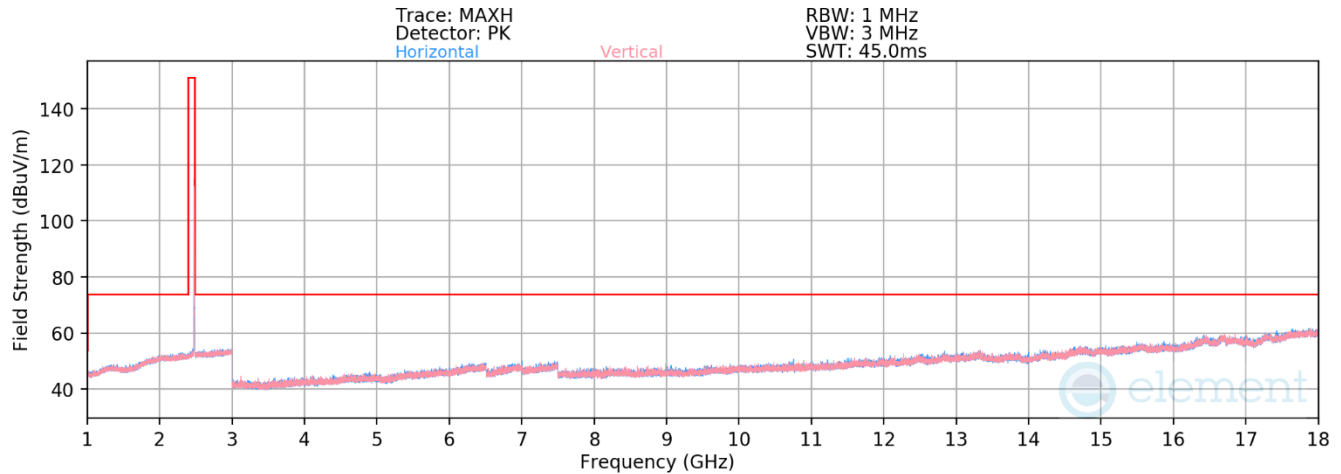
Bluetooth Mode: HDR4  
Data Rate: 4Mbps  
Power Scheme: ePA  
Distance of Measurements: 3 Meters  
Operating Frequency: 2441MHz  
Channel: 38

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4882.00	Avg	V	-	-	-80.22	6.23	33.01	53.98	-20.97
4882.00	Peak	V	-	-	-69.06	6.23	44.17	73.98	-29.81
7323.00	Avg	V	-	-	-80.58	9.95	36.37	53.98	-17.61
7323.00	Peak	V	-	-	-69.18	9.95	47.77	73.98	-26.21
12205.00	Avg	V	-	-	-84.63	14.84	37.21	53.98	-16.77
12205.00	Peak	V	-	-	-73.27	14.84	48.57	73.98	-25.41

**Table 7-15. Radiated Measurements Antenna 4a**

FCC ID: BCGA2764 IC: 579C-A2764	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
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**Plot 7-83. Radiated Spurious Emissions 1-18GHz Antenna 4a (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 [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4952.00	Avg	V	-	-	-80.52	6.44	32.92	53.98	-21.06
4952.00	Peak	V	-	-	-68.16	6.44	45.28	73.98	-28.70
7428.00	Avg	V	-	-	-80.09	9.97	36.88	53.98	-17.10
7428.00	Peak	V	-	-	-68.58	9.97	48.39	73.98	-25.59
12380.00	Avg	V	-	-	-84.33	15.03	37.70	53.98	-16.28
12380.00	Peak	V	-	-	-72.94	15.03	49.09	73.98	-24.89

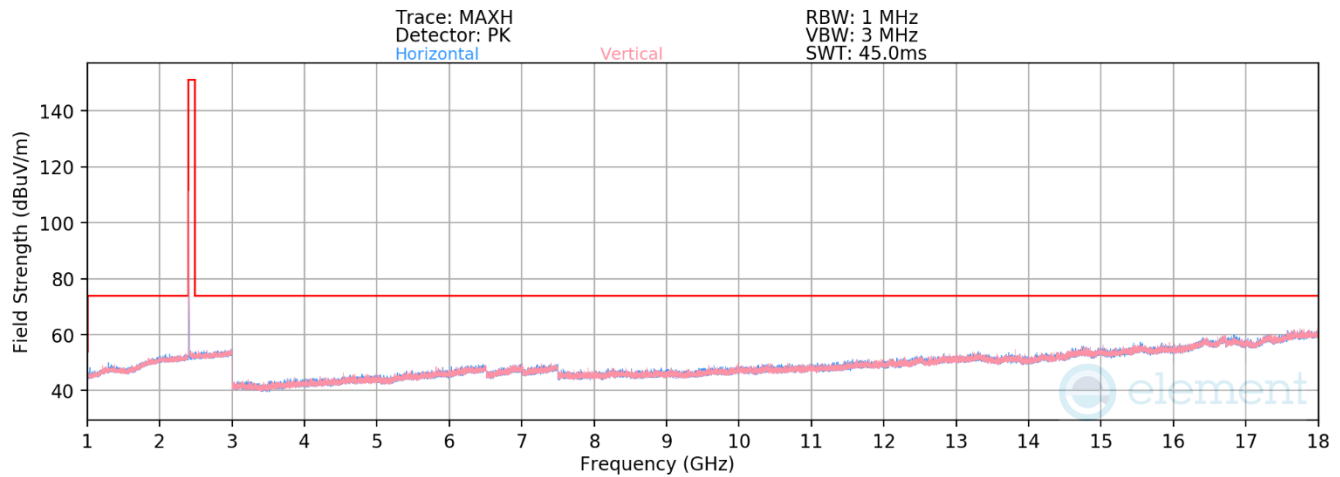
**Table 7-16. Radiated Measurements Antenna 4a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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## Radiated Spurious Emission Measurements (1 – 18GHz)

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

### Antenna 2a



**Plot 7-84. Radiated Spurious Emissions 1-18GHz Antenna 2a (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 [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4808.00	Avg	V	-	-	-79.91	5.92	33.01	53.98	-20.97
4808.00	Peak	V	-	-	-68.50	5.92	44.42	73.98	-29.56
12020.00	Avg	V	-	-	-84.04	14.65	37.61	53.98	-16.37
12020.00	Peak	V	-	-	-73.78	14.65	47.87	73.98	-26.11

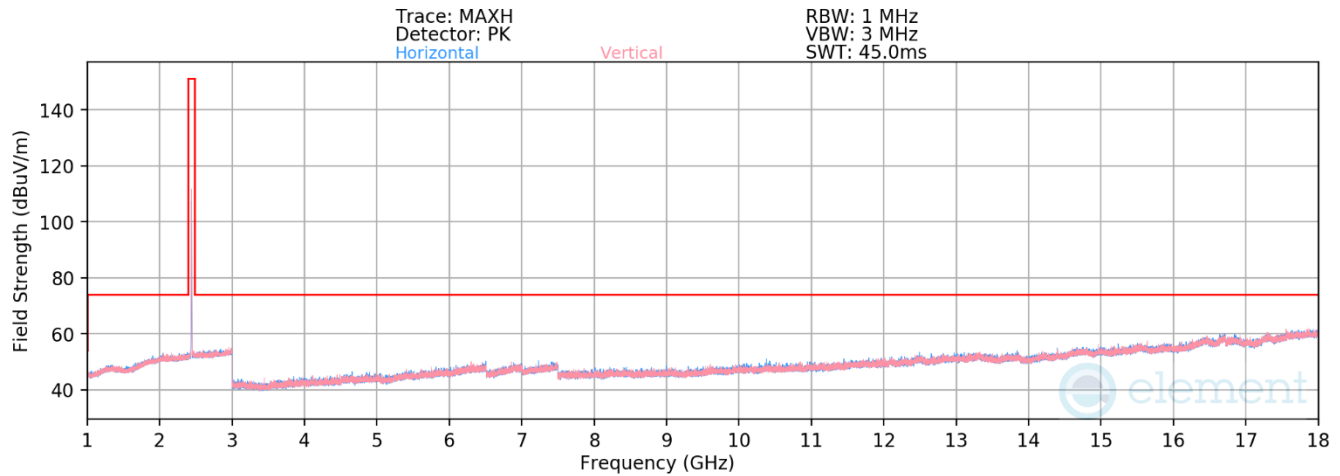
**Table 7-17. Radiated Measurements Antenna 2a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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**Plot 7-85. Radiated Spurious Emissions 1-18GHz Antenna 2a (4Mbps, HDR4, ePA – Ch. 38)**

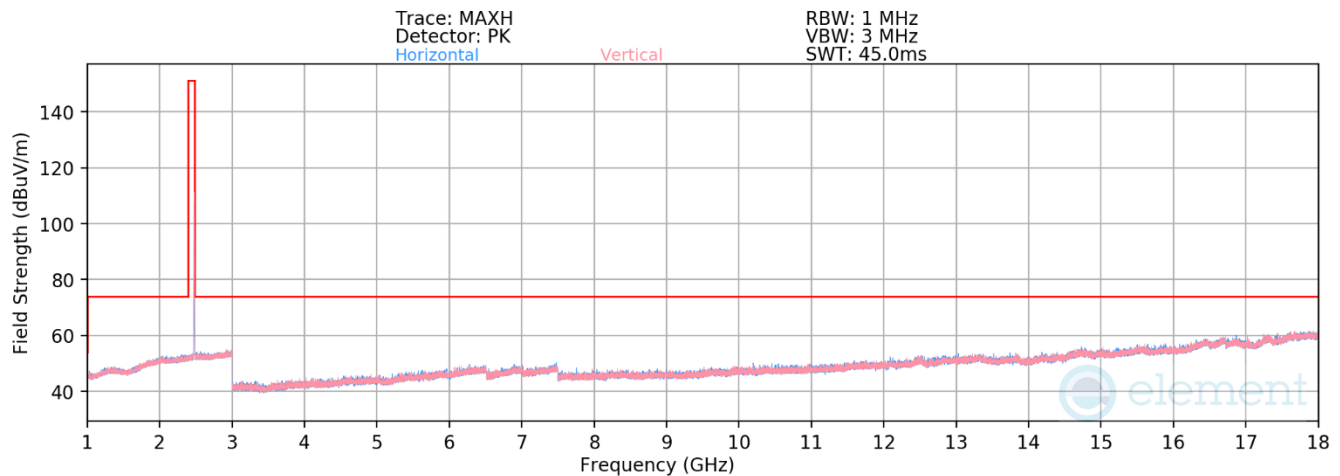
Bluetooth Mode: HDR4  
Data Rate: 4Mbps  
Power Scheme: ePA  
Distance of Measurements: 3 Meters  
Operating Frequency: 2441MHz  
Channel: 38

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4882.00	Avg	V	-	-	-80.27	6.23	32.96	53.98	-21.02
4882.00	Peak	V	-	-	-68.60	6.23	44.63	73.98	-29.35
7323.00	Avg	V	-	-	-80.74	9.95	36.21	53.98	-17.77
7323.00	Peak	V	-	-	-68.95	9.95	48.00	73.98	-25.98
12205.00	Avg	V	-	-	-84.58	14.84	37.26	53.98	-16.72
12205.00	Peak	V	-	-	-73.85	14.84	47.99	73.98	-25.99

**Table 7-18. Radiated Measurements Antenna 2a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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**Plot 7-86. Radiated Spurious Emissions 1-18GHz Antenna 2a (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 [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4952.00	Avg	V	-	-	-80.55	6.44	32.89	53.98	-21.09
4952.00	Peak	V	-	-	-69.05	6.44	44.39	73.98	-29.59
7428.00	Avg	V	-	-	-80.20	9.97	36.77	53.98	-17.21
7428.00	Peak	V	-	-	-68.87	9.97	48.10	73.98	-25.88
12380.00	Avg	V	-	-	-84.46	15.03	37.57	53.98	-16.41
12380.00	Peak	V	-	-	-73.40	15.03	48.63	73.98	-25.35

**Table 7-19. Radiated Measurements Antenna 2a**

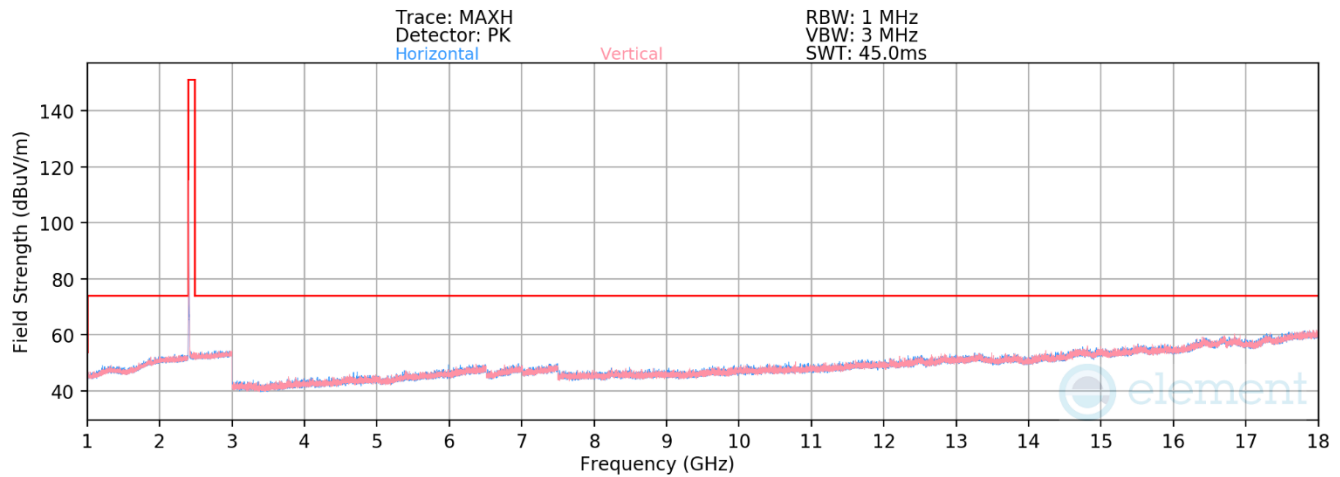
FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 79 of 104

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## 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)

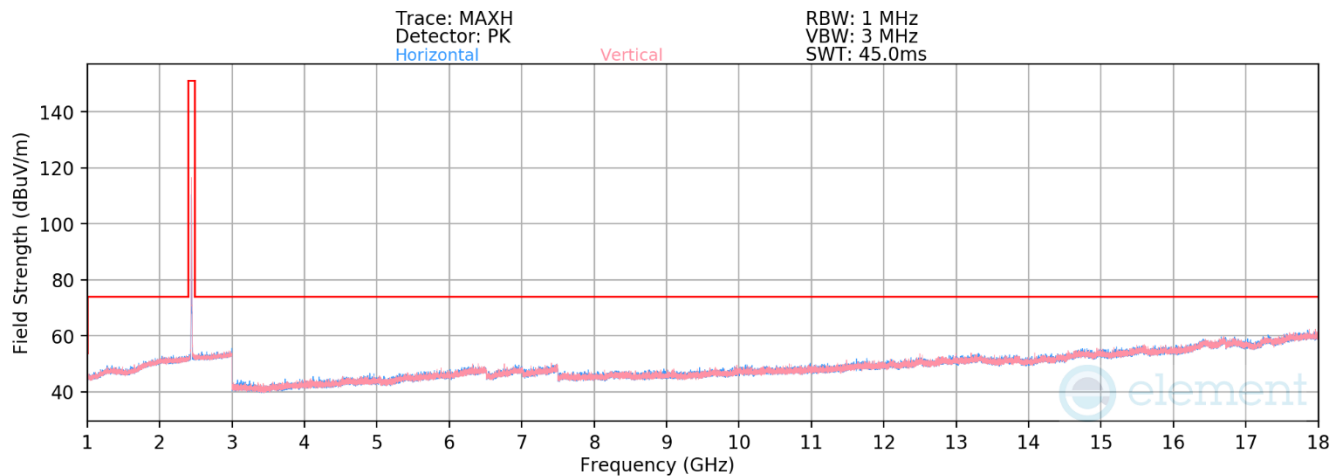
Bluetooth Mode: HDR4  
Data Rate: 4Mbps  
Power Scheme: ePA  
Distance of Measurements: 3 Meters  
Operating Frequency: 2404MHz  
Channel: 1

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4808.00	Avg	V	-	-	-80.07	5.92	32.85	53.98	-21.13
4808.00	Peak	V	-	-	-68.53	5.92	44.39	73.98	-29.59
12020.00	Avg	V	-	-	-84.17	14.65	37.48	53.98	-16.50
12020.00	Peak	V	-	-	-73.22	14.65	48.43	73.98	-25.55

Table 7-20. Radiated Measurements TxBF

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 80 of 104

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

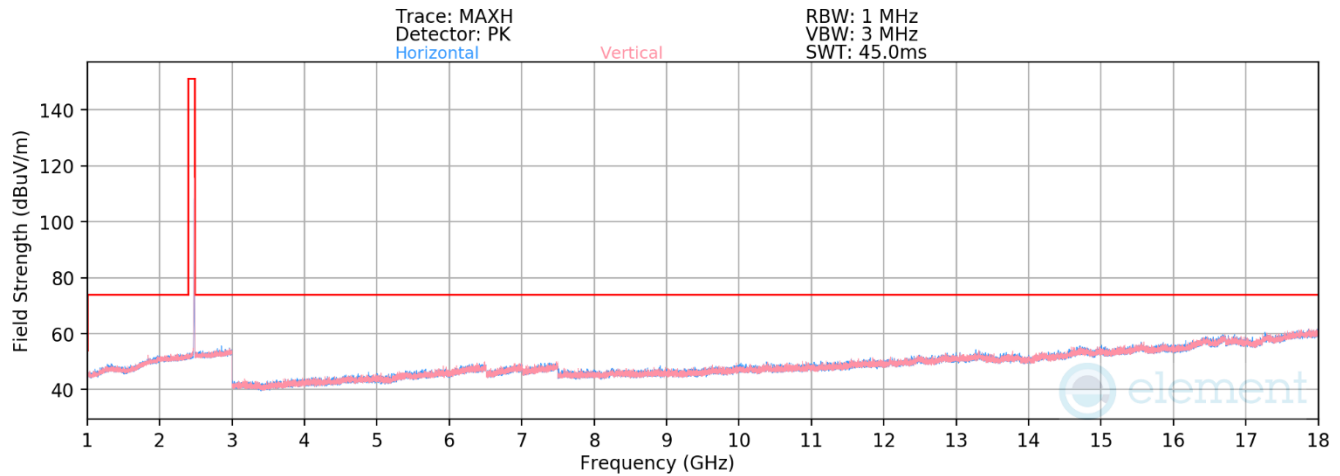
Bluetooth Mode: HDR4  
Data Rate: 4Mbps  
Power Scheme ePA  
Distance of Measurements: 3 Meters  
Operating Frequency: 2441MHz  
Channel: 38

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4882.00	Avg	V	125	125	-80.00	6.23	33.23	53.98	-20.75
4882.00	Peak	V	125	125	-68.83	6.23	44.40	73.98	-29.58
7323.00	Avg	V	-	-	-80.71	9.95	36.24	53.98	-17.74
7323.00	Peak	V	-	-	-69.23	9.95	47.72	73.98	-26.26
12205.00	Avg	V	-	-	-84.44	14.84	37.40	53.98	-16.58
12205.00	Peak	V	-	-	-73.07	14.84	48.77	73.98	-25.21

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

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 81 of 104

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**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 [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4952.00	Avg	V	264	151	-80.04	6.44	33.40	53.98	-20.58
4952.00	Peak	V	264	151	-69.19	6.44	44.25	73.98	-29.73
7428.00	Avg	V	-	-	-80.33	9.97	36.64	53.98	-17.34
7428.00	Peak	V	-	-	-68.38	9.97	48.59	73.98	-25.39
12380.00	Avg	V	-	-	-84.49	15.03	37.54	53.98	-16.44
12380.00	Peak	V	-	-	-73.28	15.03	48.75	73.98	-25.23

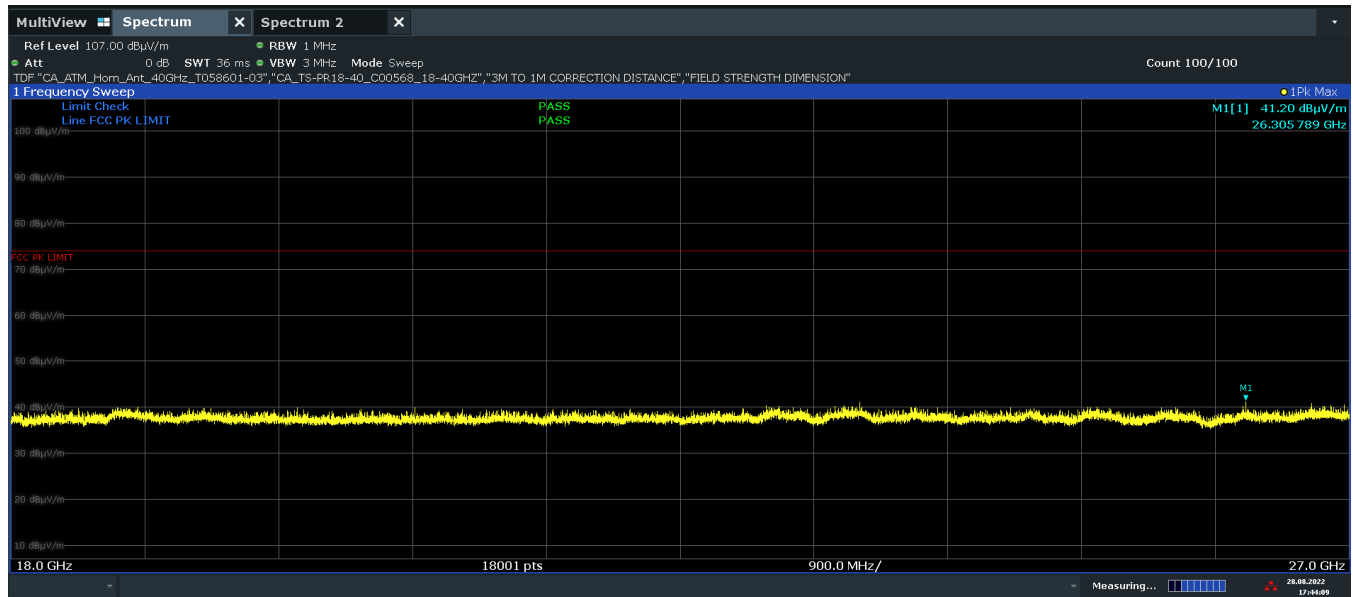
**Table 7-22. Radiated Measurements TxBF**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 82 of 104

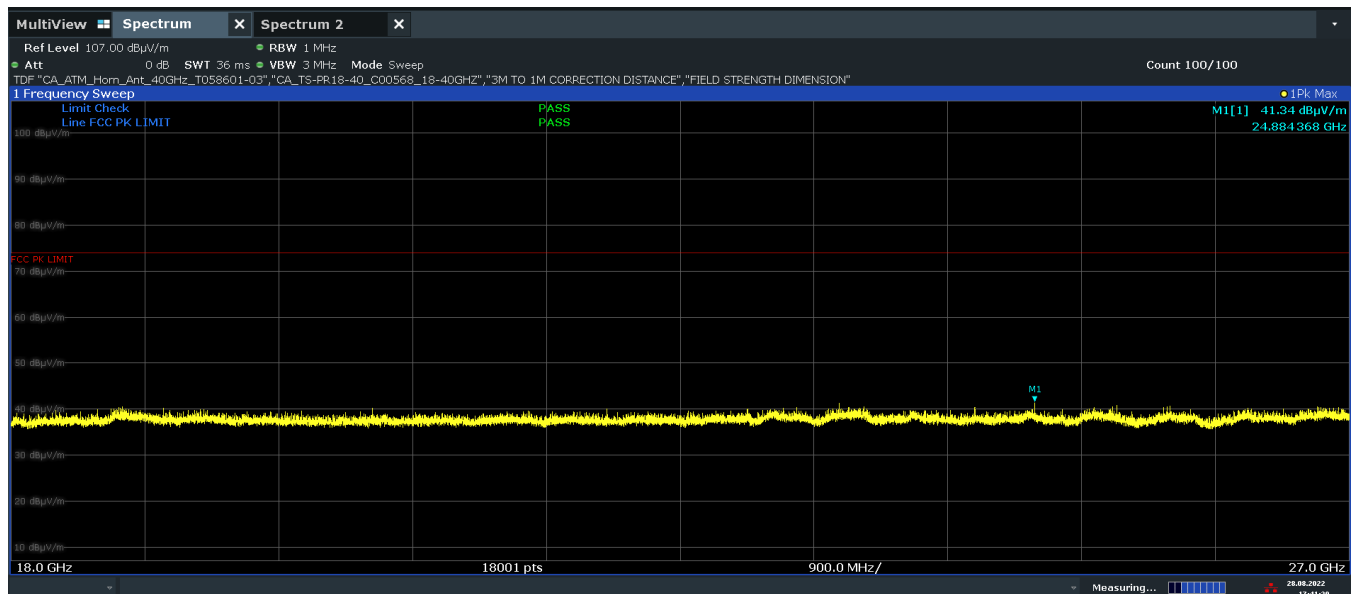


## Radiated Spurious Emission Measurements (Above 18GHz)

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



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



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

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 83 of 104

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## 7.7.1 Radiated Restricted Band Edge Measurements

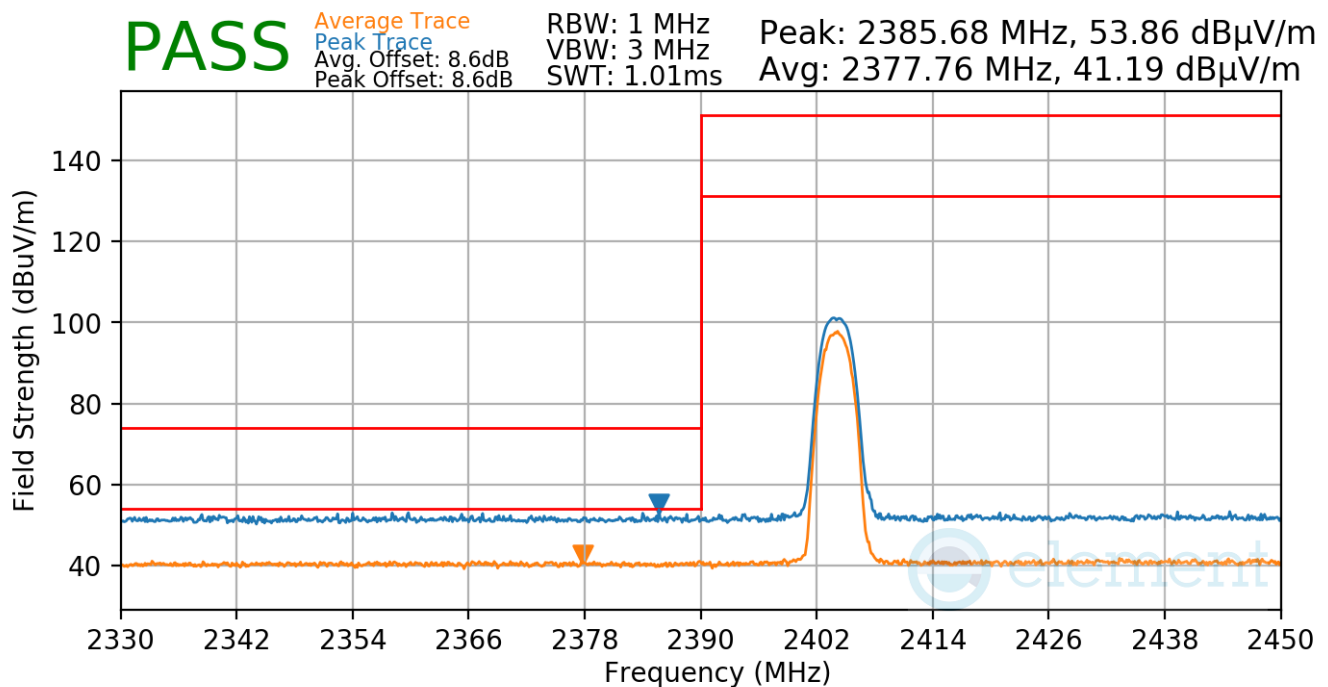
§15.205 §15.209; RSS-Gen [8.9]

### Antenna 4a

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:	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 4a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 84 of 104

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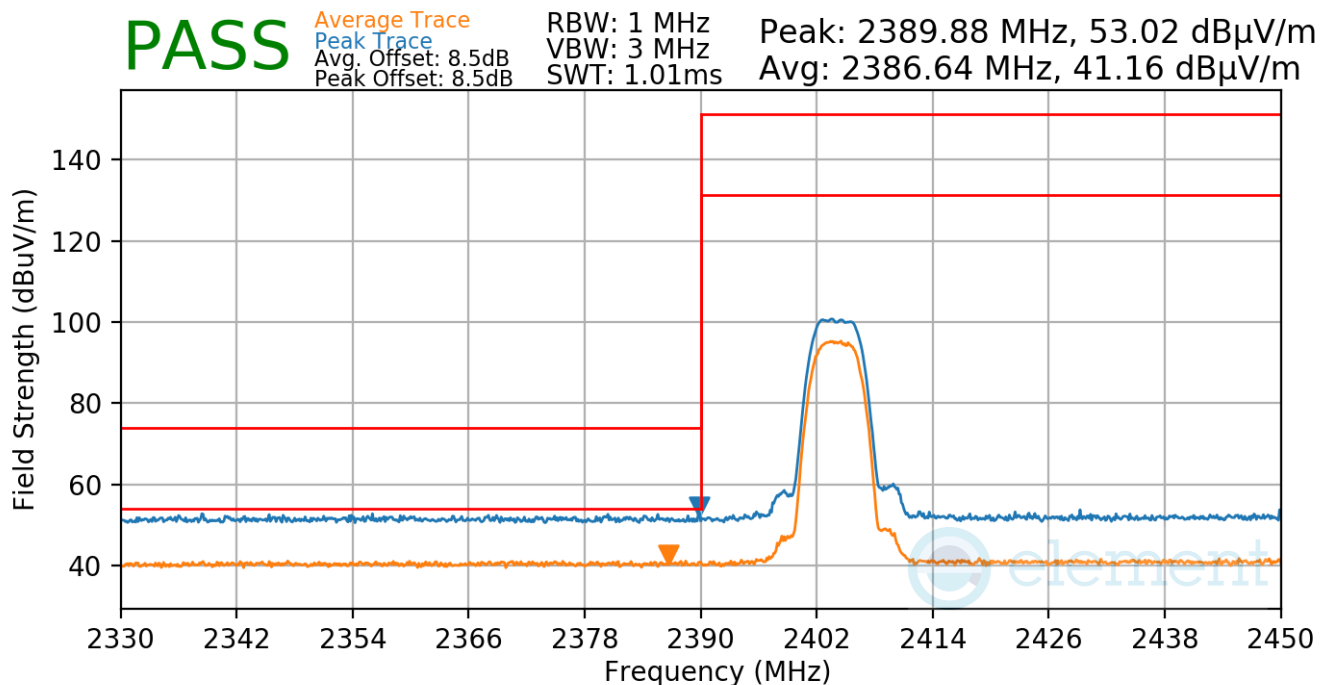
## Radiated Restricted Band Edge Measurements

§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:	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 4a

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 85 of 104

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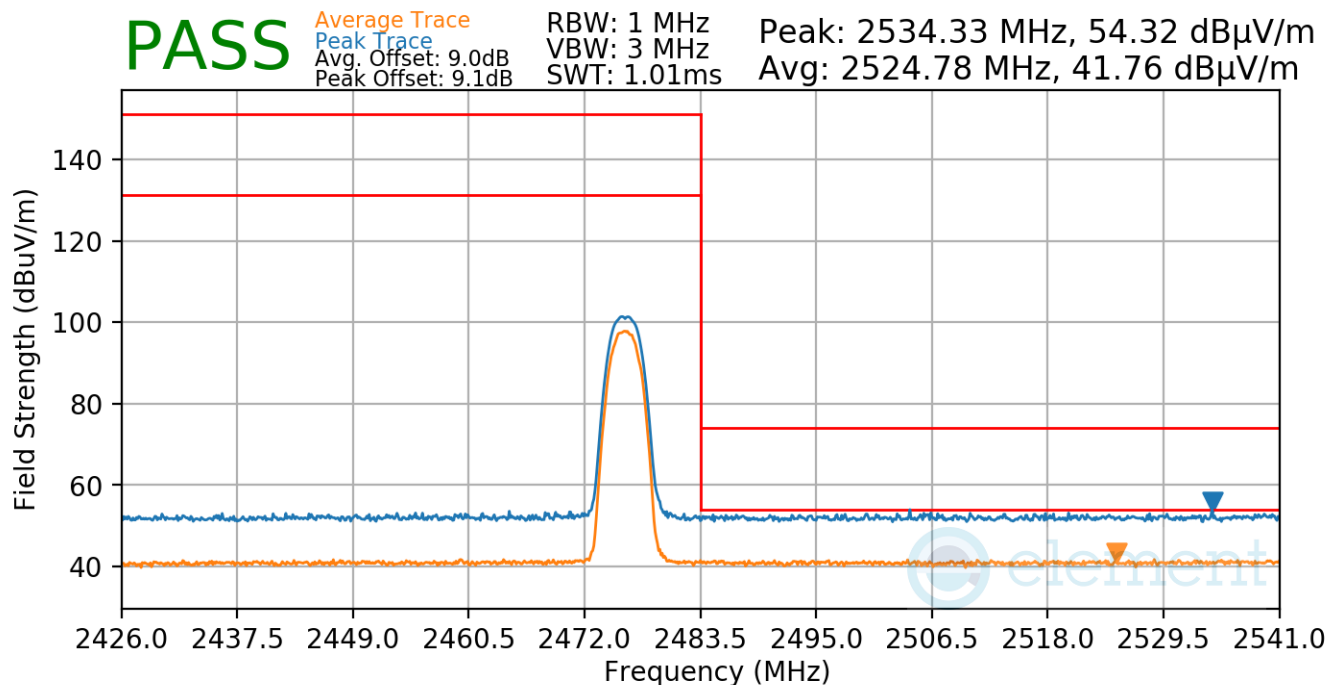
## Radiated Restricted Band Edge Measurements

§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:	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 4a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 86 of 104

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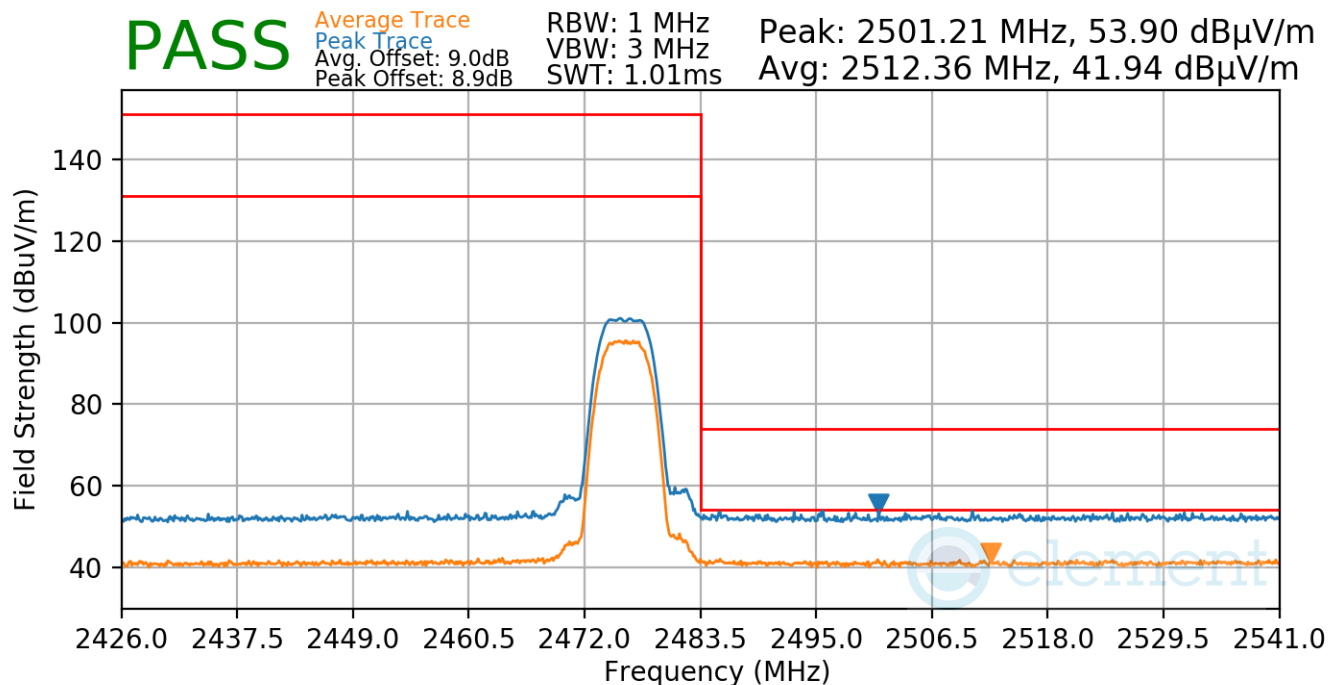
## Radiated Restricted Band Edge Measurements

§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:	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 4a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 87 of 104

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## Radiated Restricted Band Edge Measurements

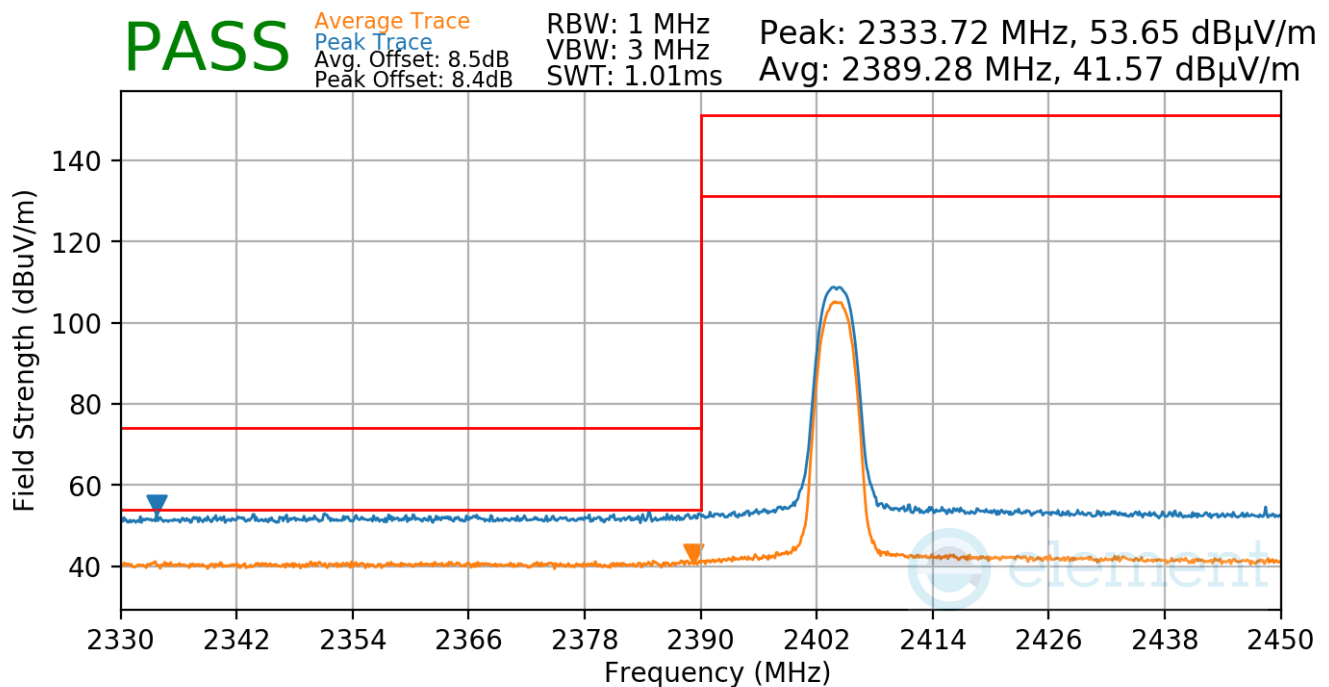
§15.205 §15.209; RSS-Gen [8.9]

### Antenna 2a

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



Plot 7-96. Radiated Restricted Lower Band Edge Measurement Antenna 2a

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 88 of 104

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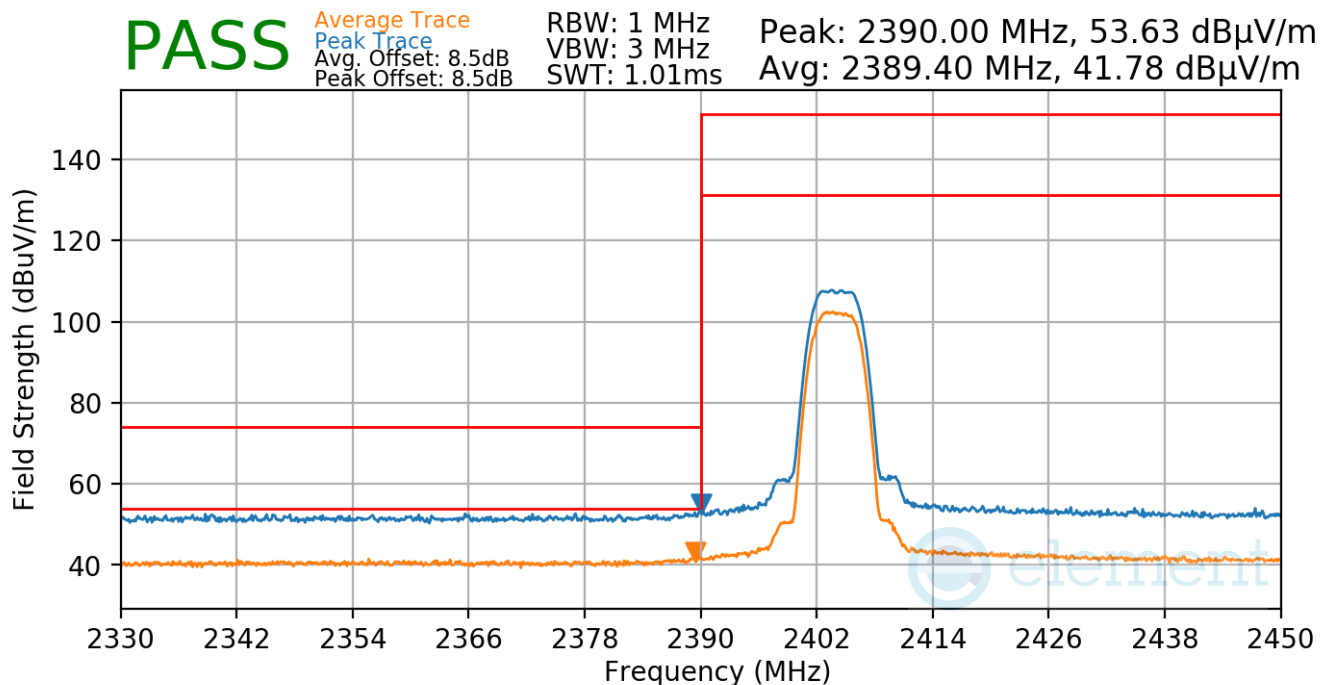
## Radiated Restricted Band Edge Measurements

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



**Plot 7-97. Radiated Restricted Lower Band Edge Measurement Antenna 2a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 89 of 104

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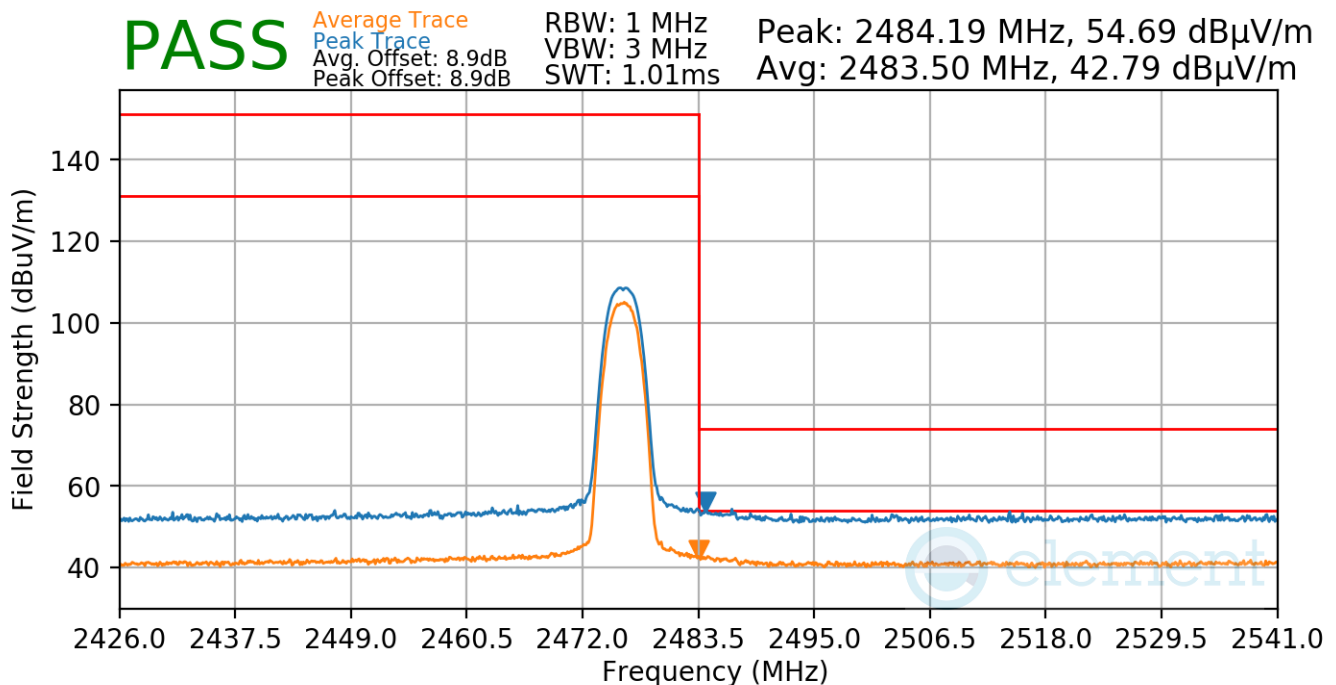
## Radiated Restricted Band Edge Measurements

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



**Plot 7-98. Radiated Restricted Upper Band Edge Measurement Antenna 2a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 90 of 104

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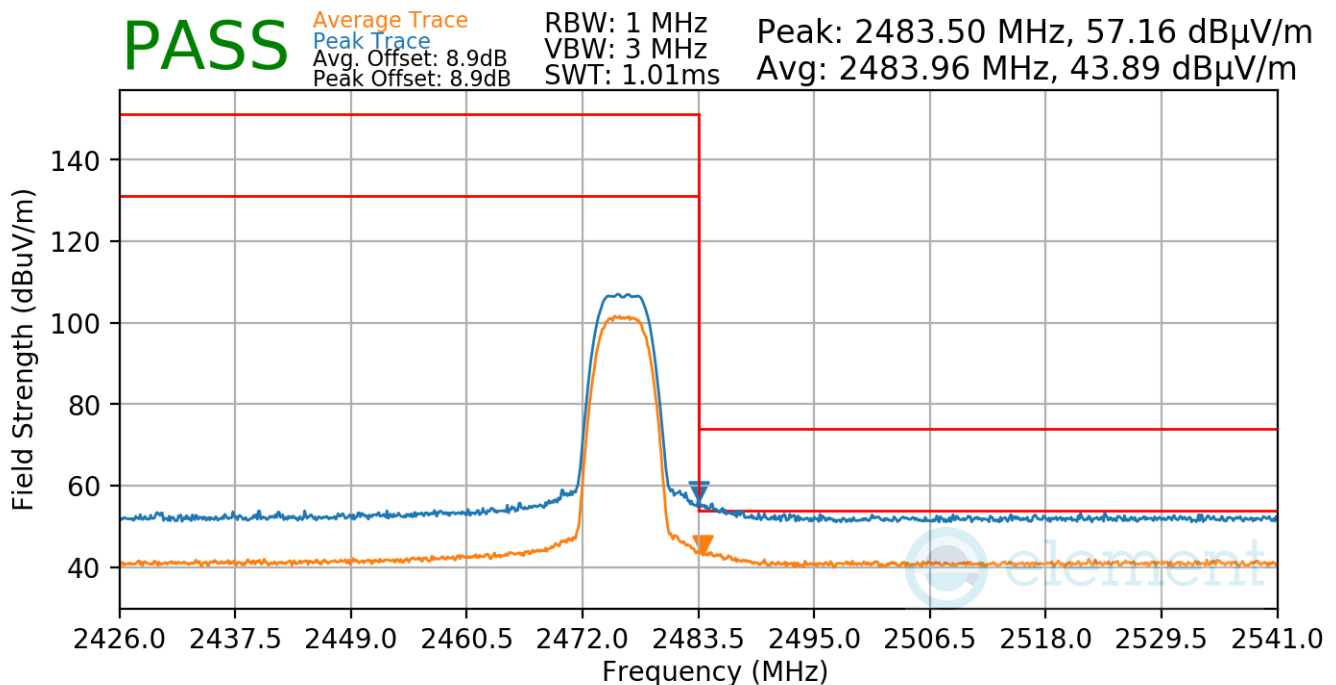
## Radiated Restricted Band Edge Measurements

§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:	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 2a**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 91 of 104

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## Radiated Restricted Band Edge Measurements

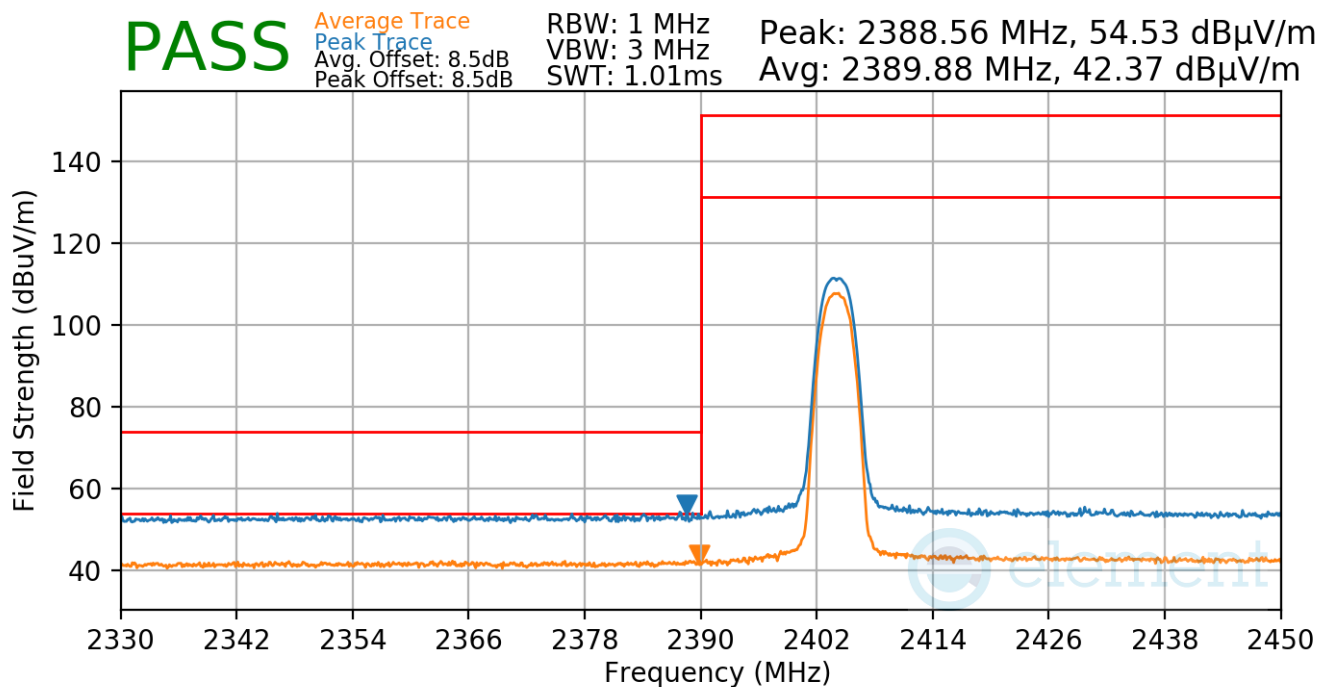
§15.205 §15.209; RSS-Gen [8.9]

### TxBF

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

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

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



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

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 92 of 104

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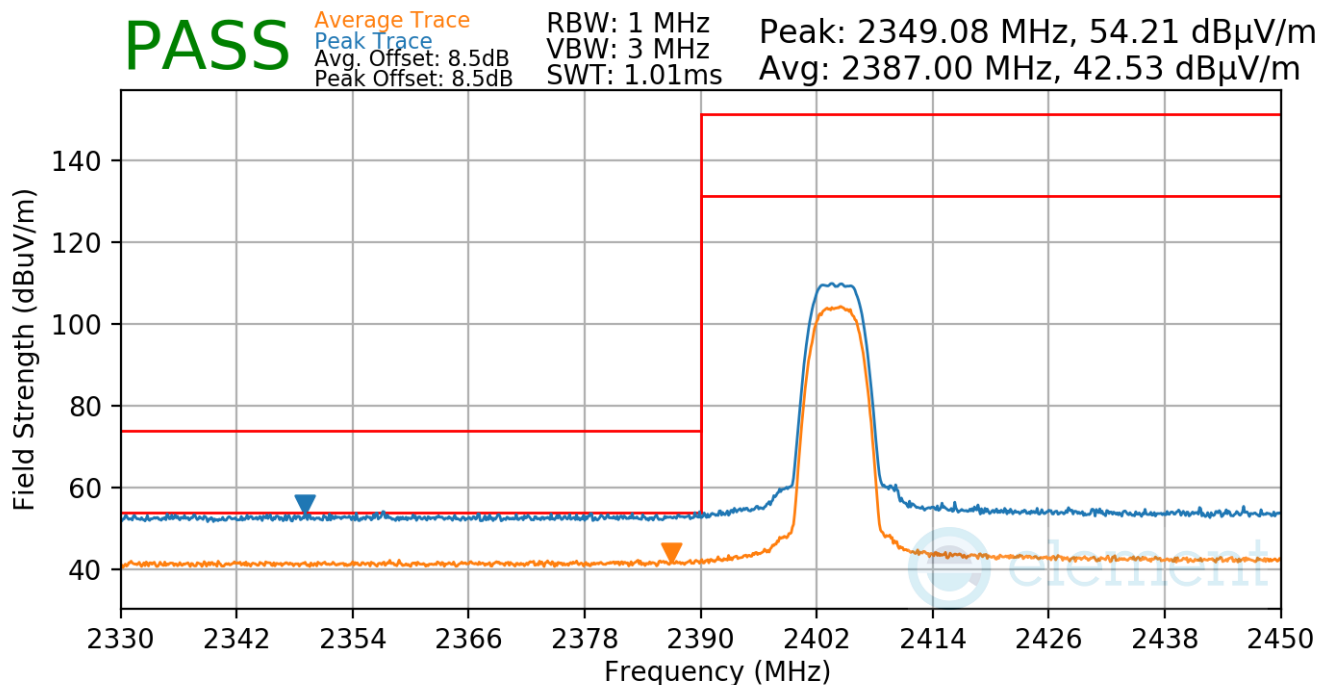
## Radiated Restricted Band Edge Measurements

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



Plot 7-101. Radiated Restricted Lower Band Edge Measurement TxBF

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 93 of 104

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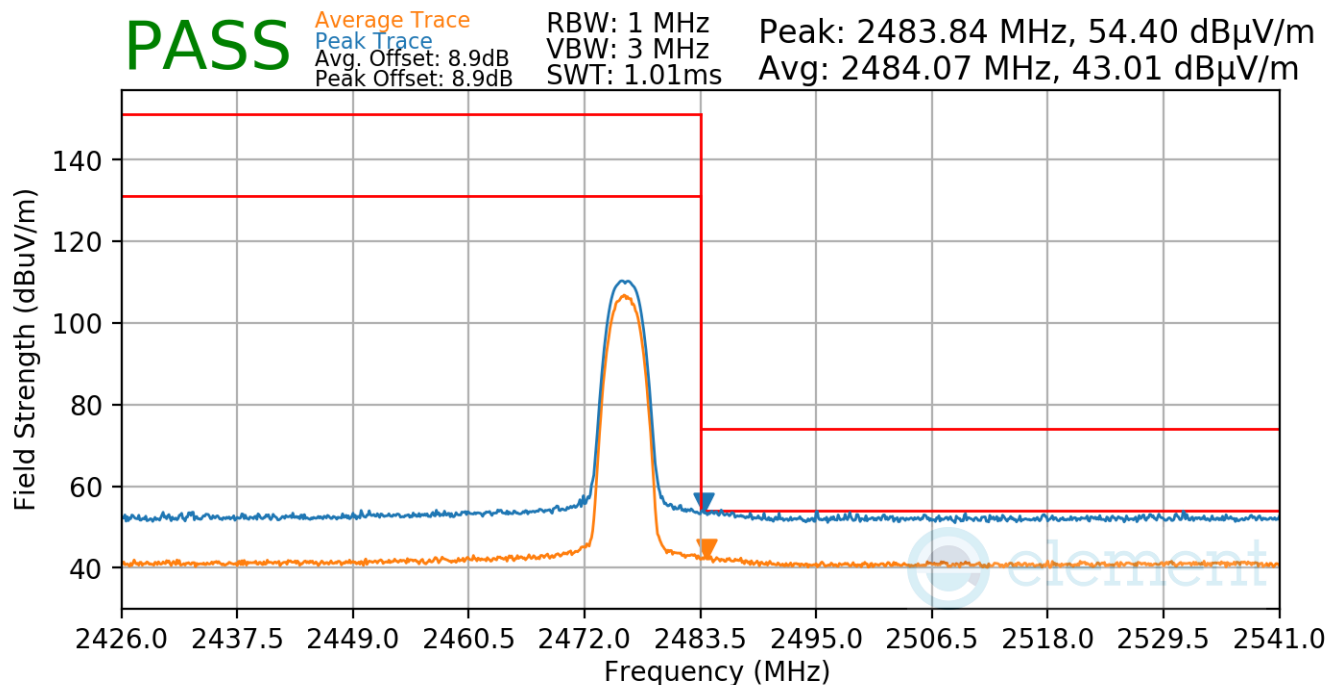
## Radiated Restricted Band Edge Measurements

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



**Plot 7-102. Radiated Restricted Upper Band Edge Measurement TxBF**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 94 of 104

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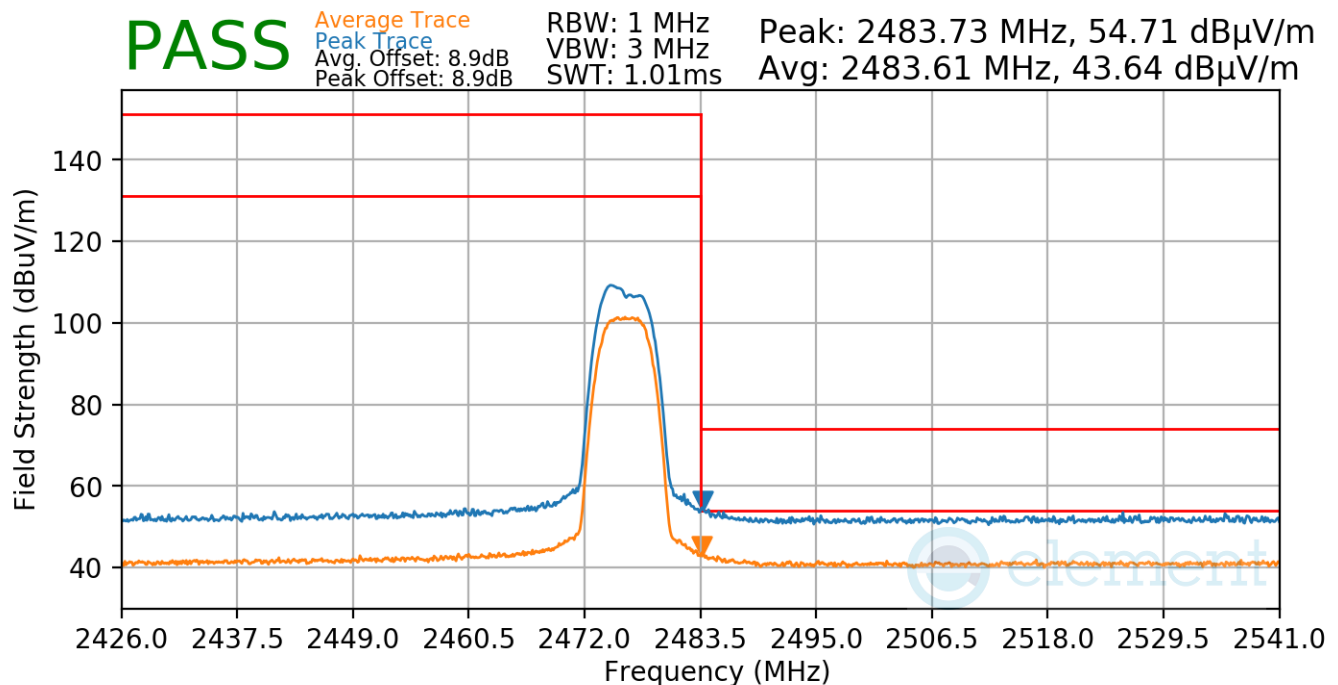
## Radiated Restricted Band Edge Measurements

\$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:	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 TxBF**

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 95 of 104

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

**Table 7-23. 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

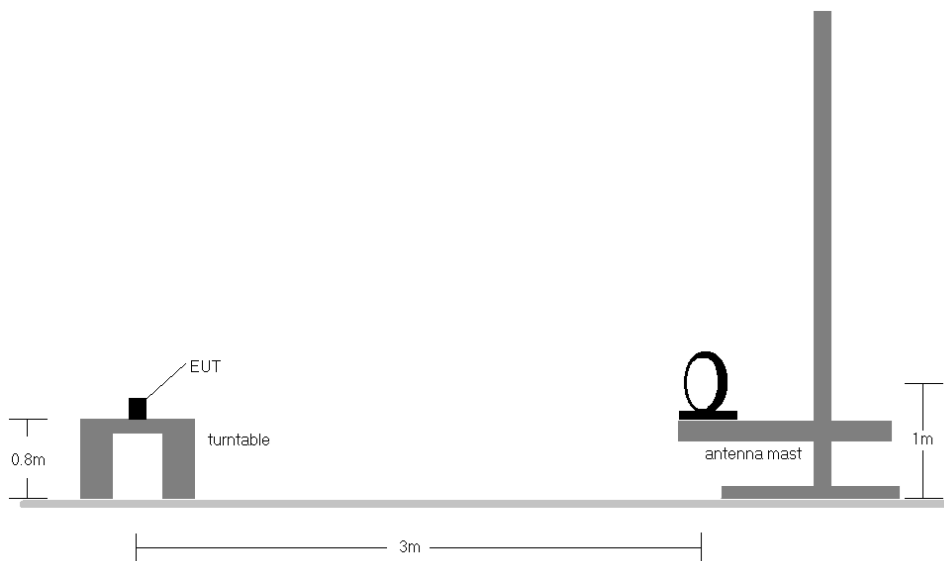
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. VBW = 300kHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

FCC ID: BCGA2764 IC: 579C-A2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2205090028-13.BCG	Test Dates: 5/30/2022 - 9/30/2022	EUT Type: Tablet Device	Page 96 of 104

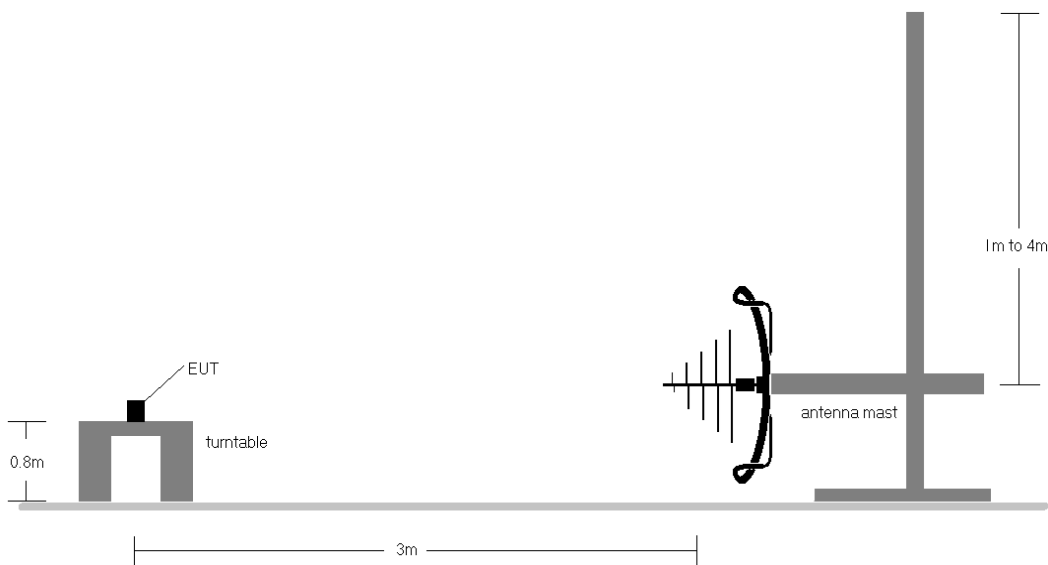
V 10.5 12/15/2021

## 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**

<b>FCC ID:</b> BCGA2764 <b>IC:</b> 579C-A2764	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1C2205090028-13.BCG	<b>Test Dates:</b> 5/30/2022 - 9/30/2022	<b>EUT Type:</b> Tablet Device	Page 97 of 104

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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. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.
10. All supported modulation, antenna (including TxBF mode) and power schemes have been tested on the unit and only worst case configuration is reported.
11. 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  $_{[dB_{\mu V/m}]}$  = Analyzer Level  $_{[dBm]} + 107 + AFCL_{[dB/m]}$
- AFCL  $_{[dB/m]}$  = Antenna Factor  $_{[dB/m]} + \text{Cable Loss}_{[dB]} - \text{Preamplifier Gain}_{[dB]}$
- Margin  $_{[dB]} = \text{Field Strength Level}_{[dB_{\mu V/m}]} - \text{Limit}_{[dB_{\mu V/m}]}$

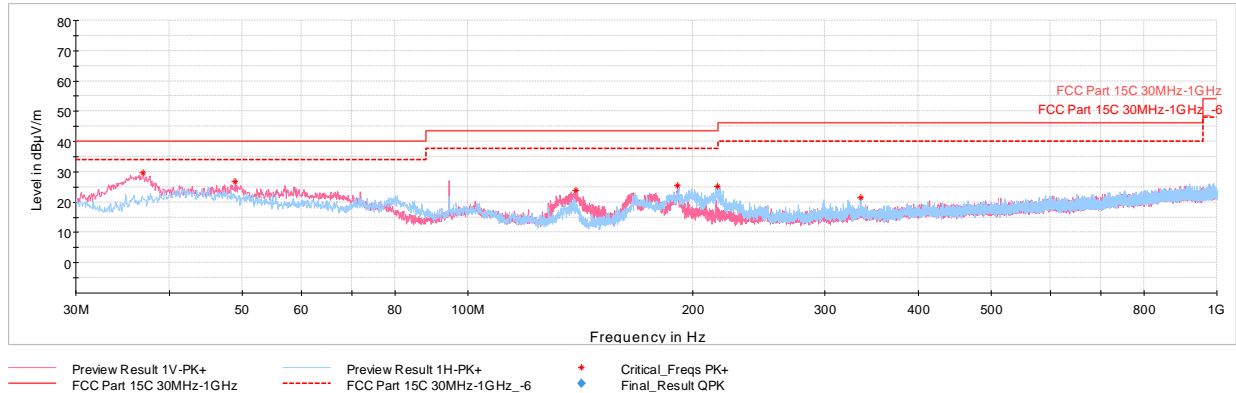
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## Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]

### TxBF



Plot 7-104. Radiated Spurious Emissions Below 1GHz TxBF (4Mbps, 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]
36.89	Max-Peak	V	100	15	-59.14	-18.24	29.62	40.00	-10.38
48.96	Max-Peak	V	100	21	-64.69	-15.52	26.79	40.00	-13.21
139.37	Max-Peak	V	100	13	-62.00	-21.22	23.78	43.52	-19.74
190.73	Max-Peak	V	100	91	-63.25	-18.33	25.42	43.52	-18.10
215.46	Max-Peak	H	100	182	-64.10	-17.81	25.09	43.52	-18.43
334.39	Max-Peak	H	100	289	-71.43	-14.01	21.56	46.02	-24.46

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

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## 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 (dBμV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

**Table 7-25. 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

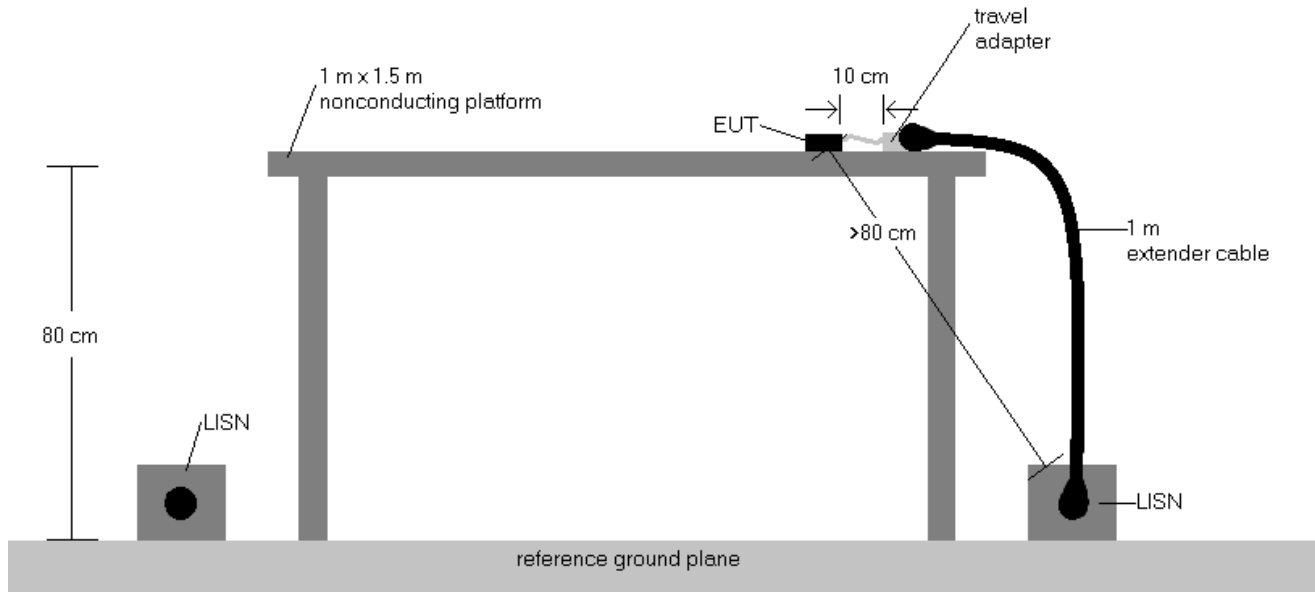
1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = RMS
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

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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**

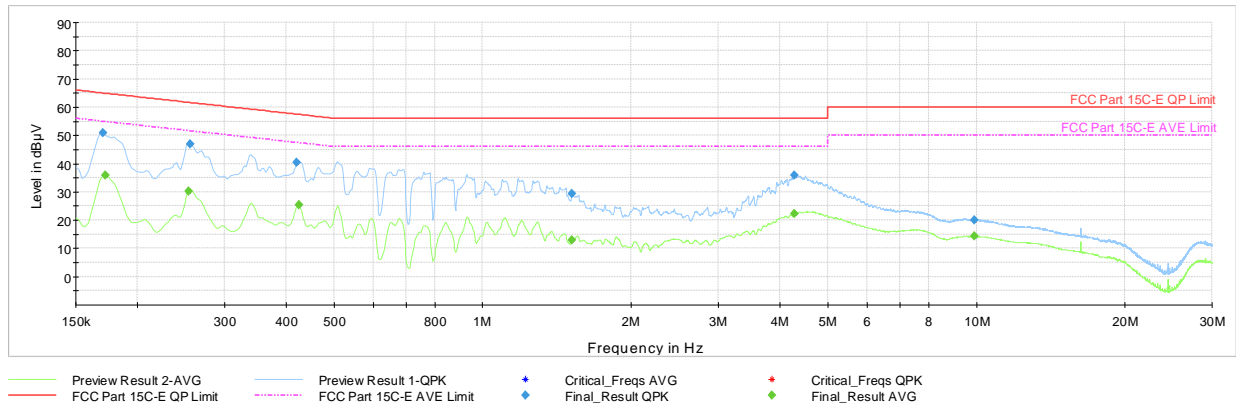
## Test Notes

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.  $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
5.  $\text{QP/AV Level (dB}\mu\text{V)} = \text{QP/AV Analyzer/Receiver Level (dB}\mu\text{V)} + \text{Correction Factor (dB)}$
6.  $\text{Margin (dB)} = \text{QP/AV Level (dB}\mu\text{V)} - \text{QP/AV Limit (dB}\mu\text{V)}$
7. Traces shown in plot are made using quasi peak and average detectors.
8. Deviations to the Specifications: None.

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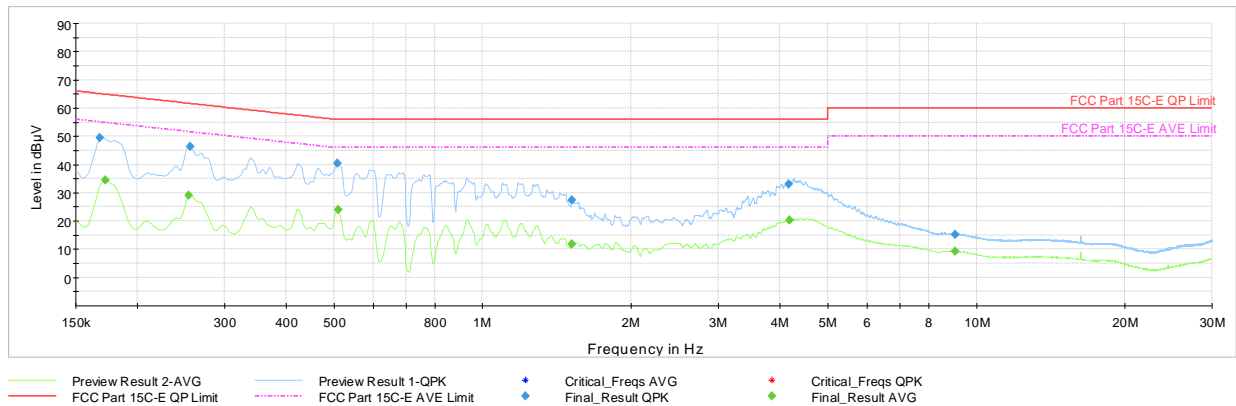
**Plot 7-105. AC Line Conducted Plot with Bluetooth HDR Tx BF (L1, 4Mbps ePA - Ch.38 with AC/DC Adapter)**

Frequency [MHz]	Process State	QuasiPeak [dBµV]	Average [dBµV]	Limit [dBµV]	Margin [dB]	Line	PE
0.170	FINAL	51.0	—	64.95	-13.96	L1	GND
0.173	FINAL	—	35.83	54.84	-19.01	L1	GND
0.254	FINAL	—	30.36	51.64	-21.28	L1	GND
0.256	FINAL	47.0	—	61.57	-14.54	L1	GND
0.420	FINAL	40.5	—	57.45	-16.94	L1	GND
0.425	FINAL	—	25.45	47.36	-21.91	L1	GND
1.516	FINAL	29.4	—	56.00	-26.63	L1	GND
1.518	FINAL	—	13.01	46.00	-32.99	L1	GND
4.274	FINAL	35.9	—	56.00	-20.08	L1	GND
4.281	FINAL	—	22.41	46.00	-23.59	L1	GND
9.897	FINAL	20.1	—	60.00	-39.87	L1	GND
9.911	FINAL	—	14.35	50.00	-35.65	L1	GND

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

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**Plot 7-106. AC Line Conducted Plot with Bluetooth HDR (N, 4Mbps ePA - Ch.38 with AC/DC Adapter)**

Frequency [MHz]	Process State	QuasiPeak [dBµV]	Average [dBµV]	Limit [dBµV]	Margin [dB]	Line	PE
0.168	FINAL	49.6	—	65.06	-15.50	N	GND
0.173	FINAL	—	34.35	54.84	-20.49	N	GND
0.254	FINAL	—	29.03	51.64	-22.61	N	GND
0.256	FINAL	46.3	—	61.57	-15.31	N	GND
0.508	FINAL	40.3	—	56.00	-15.66	N	GND
0.510	FINAL	—	24.10	46.00	-21.90	N	GND
1.516	FINAL	27.5	—	56.00	-28.51	N	GND
1.518	FINAL	—	11.82	46.00	-34.18	N	GND
4.171	FINAL	33.2	—	56.00	-22.81	N	GND
4.191	FINAL	—	20.19	46.00	-25.81	N	GND
9.058	FINAL	—	9.34	50.00	-40.66	N	GND
9.058	FINAL	15.4	—	60.00	-44.65	N	GND

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

FCC ID: BCGA2764 IC: 579C-A2764		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: BCGA2764 and IC: 579C-A2764** 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.

<b>FCC ID:</b> BCGA2764 <b>IC:</b> 579C-A2764		<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Technical Manager
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