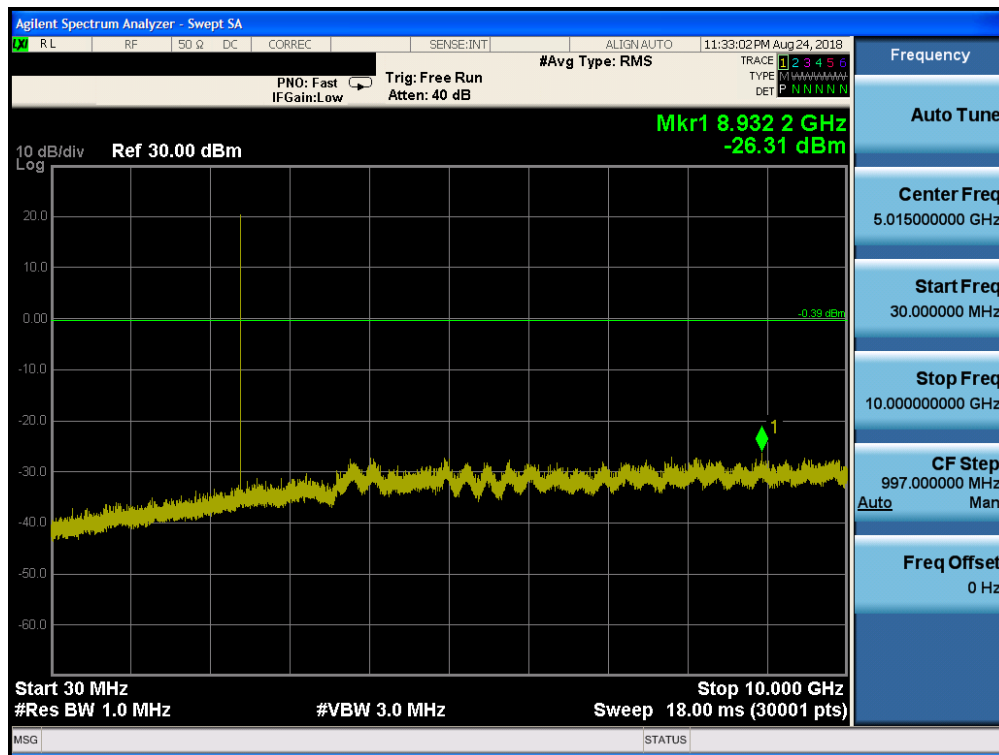
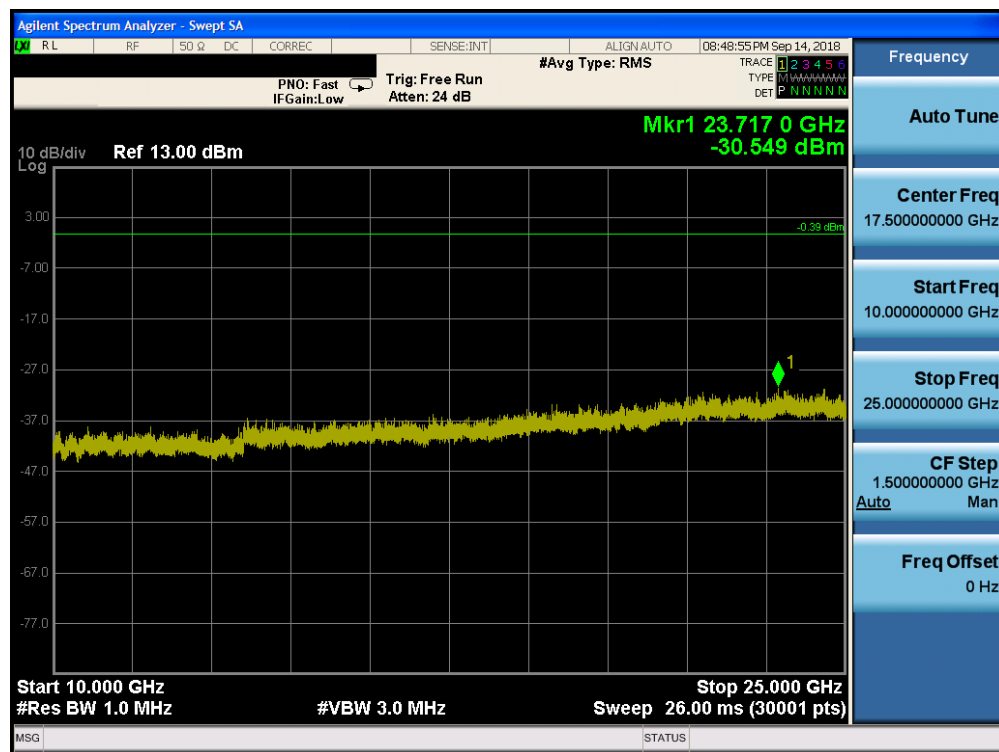


Antenna 1

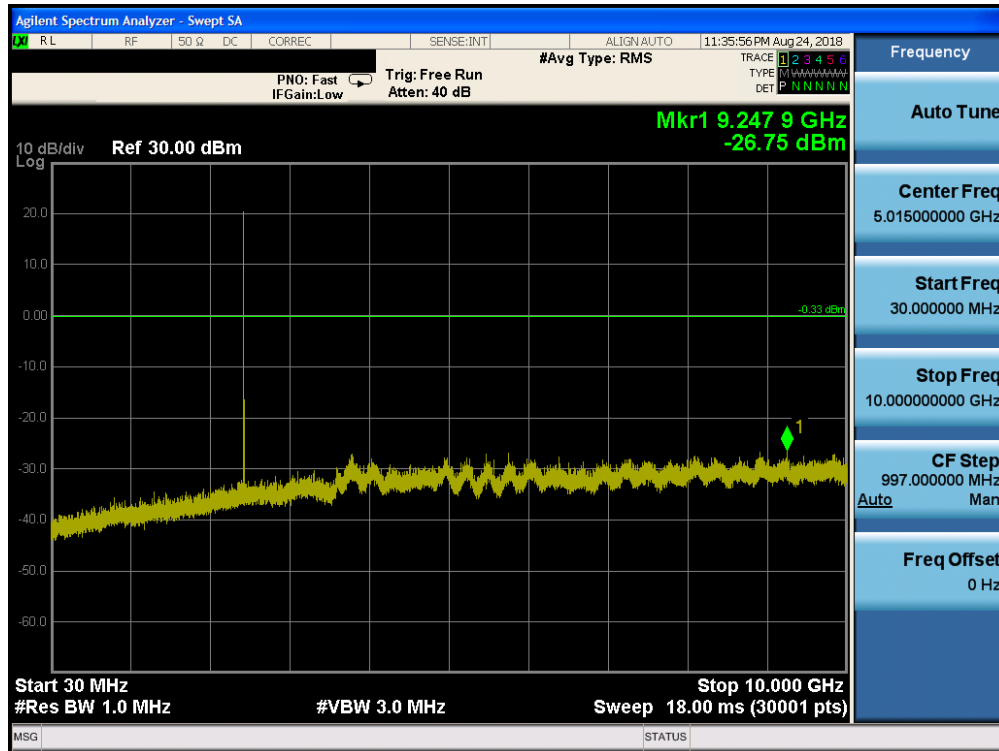


Plot 7-73. Conducted Spurious Plot ANT 1 (Bluetooth, GFSK, ePA – Ch. 0)

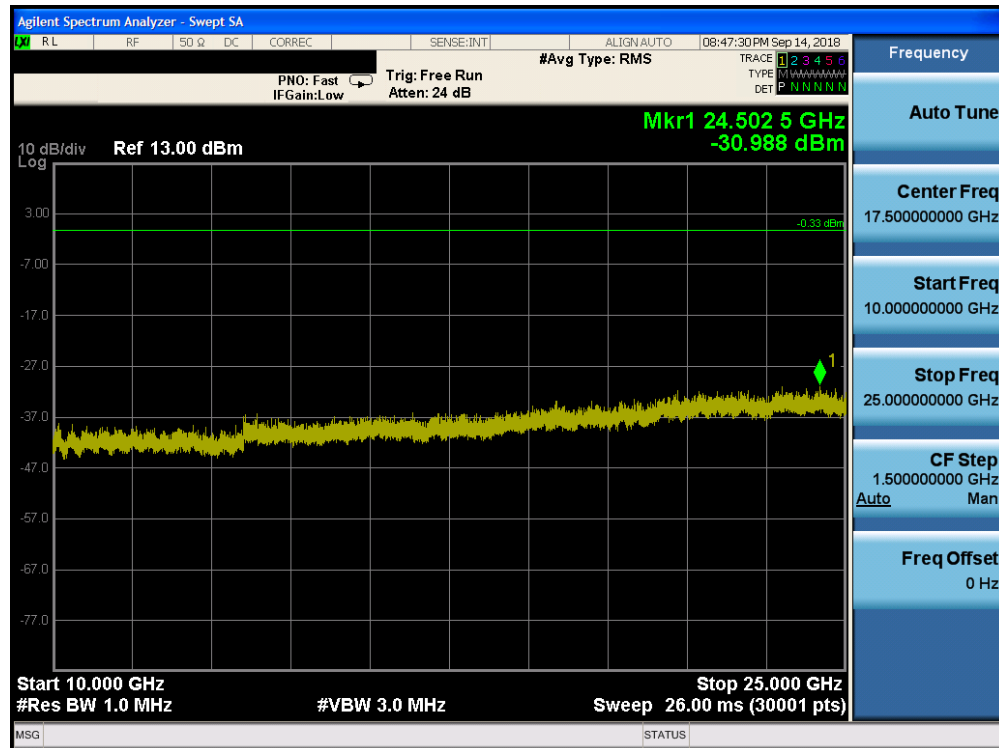


Plot 7-74. Conducted Spurious Plot ANT 1 (Bluetooth, GFSK, ePA – Ch. 0)

FCC ID: BCGA1980	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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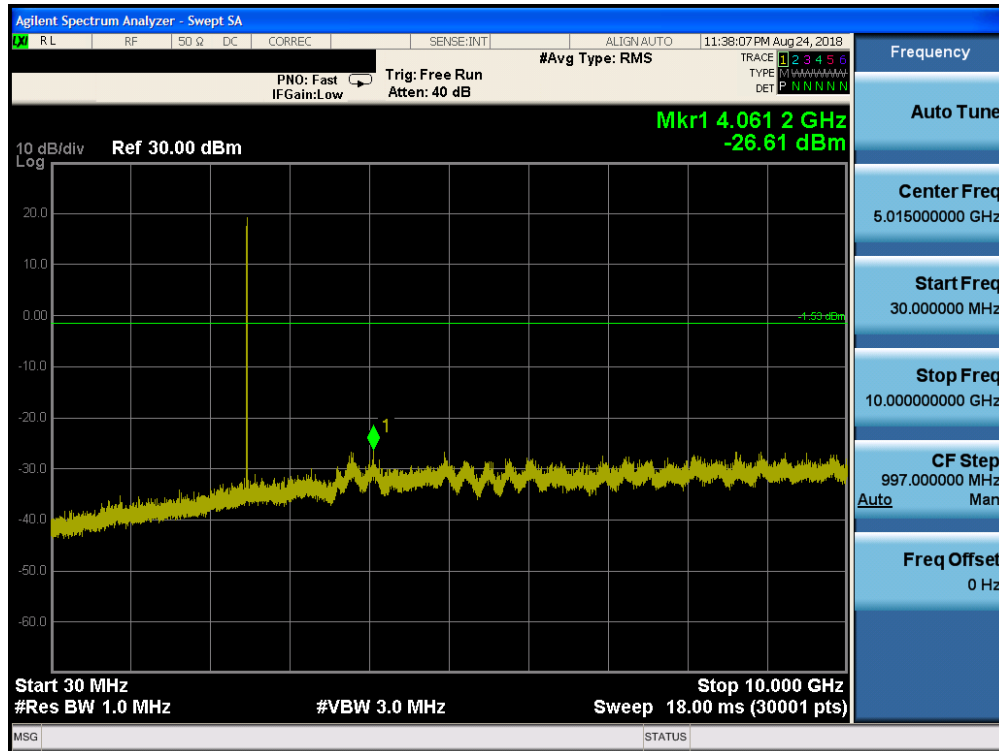


Plot 7-75. Conducted Spurious Plot ANT 1 (Bluetooth, GFSK, ePA – Ch. 39)

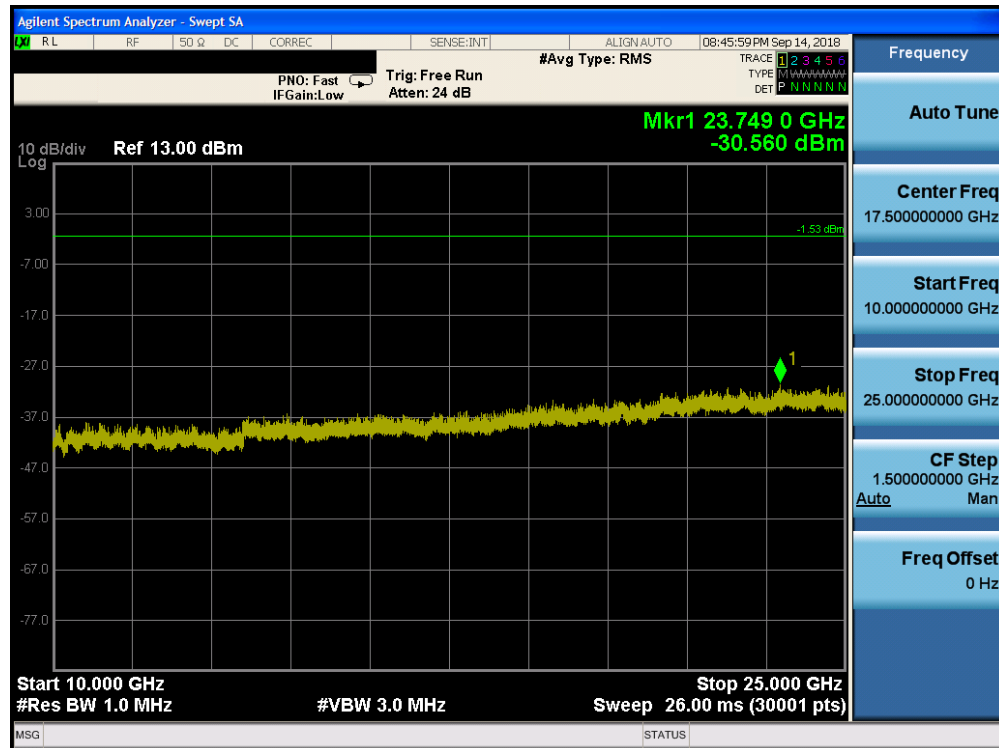


Plot 7-76. Conducted Spurious Plot ANT 1 (Bluetooth, GFSK, ePA Ch. 39)

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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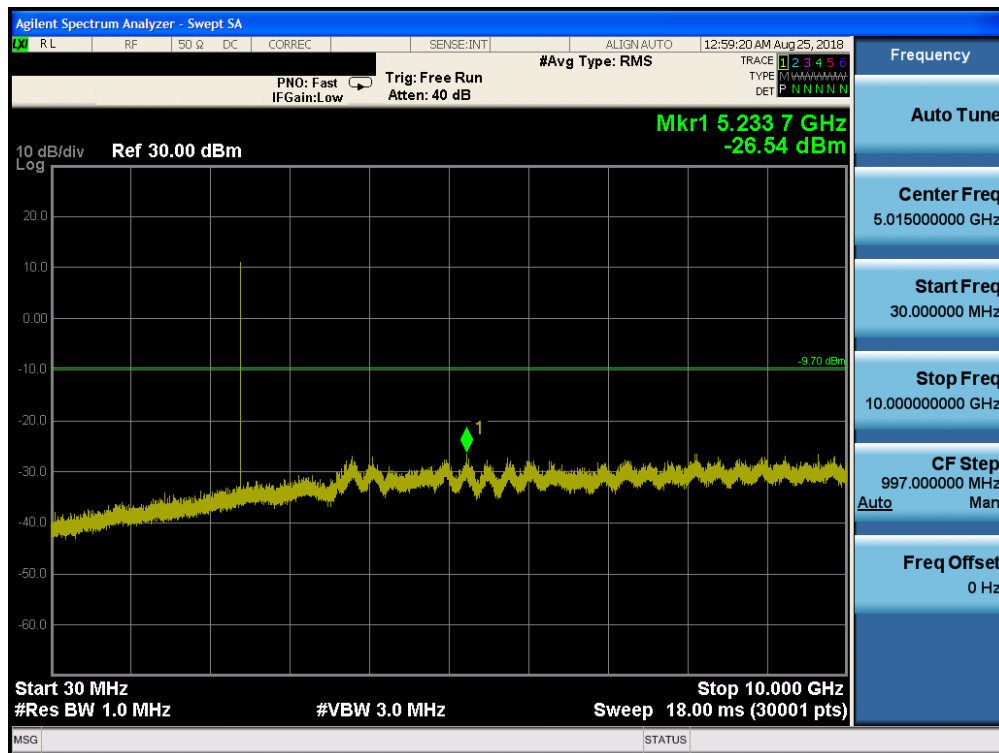
Plot 7-77. Conducted Spurious Plot ANT 1 (Bluetooth, GFSK, ePA – Ch. 78)



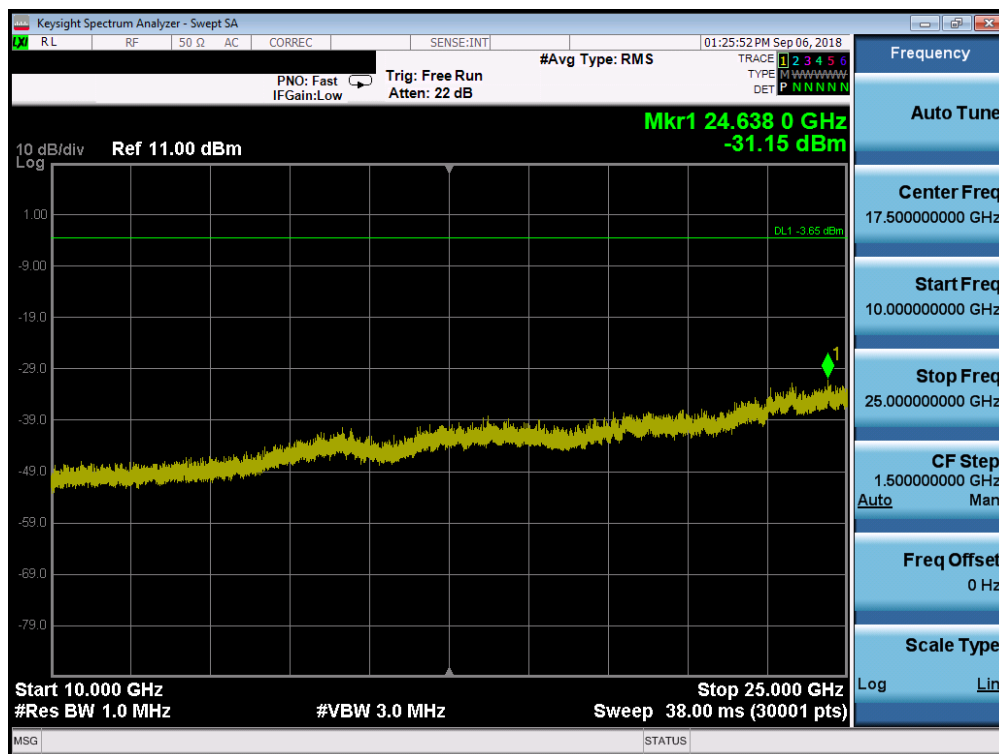
Plot 7-78. Conducted Spurious Plot ANT 1 (Bluetooth, GFSK, ePA – Ch. 78)

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 73 of 112

Antenna 2

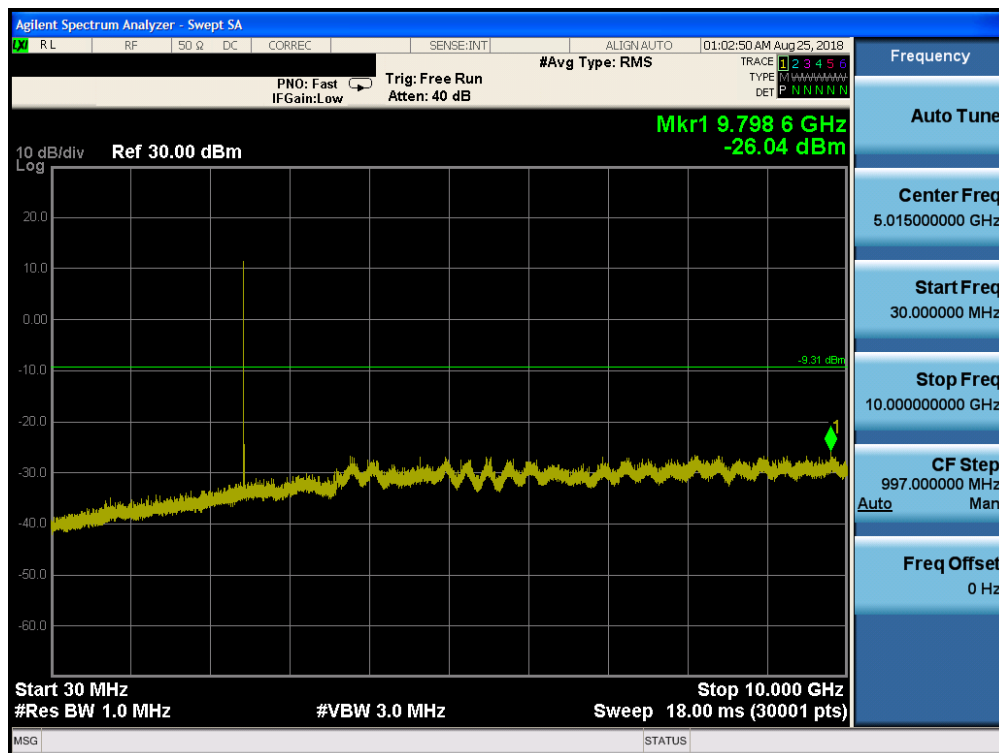


Plot 7-79. Conducted Spurious Plot ANT 2 (Bluetooth, GFSK, ePA – Ch. 0)

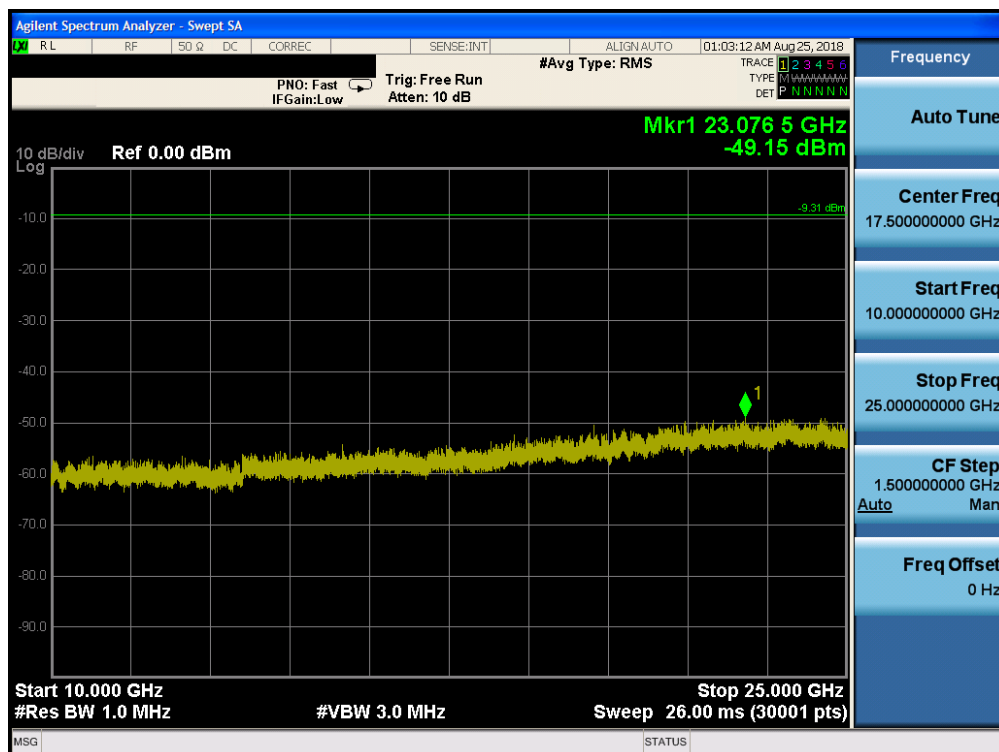


Plot 7-80. Conducted Spurious Plot ANT 2 (Bluetooth, GFSK, ePA – Ch. 0)

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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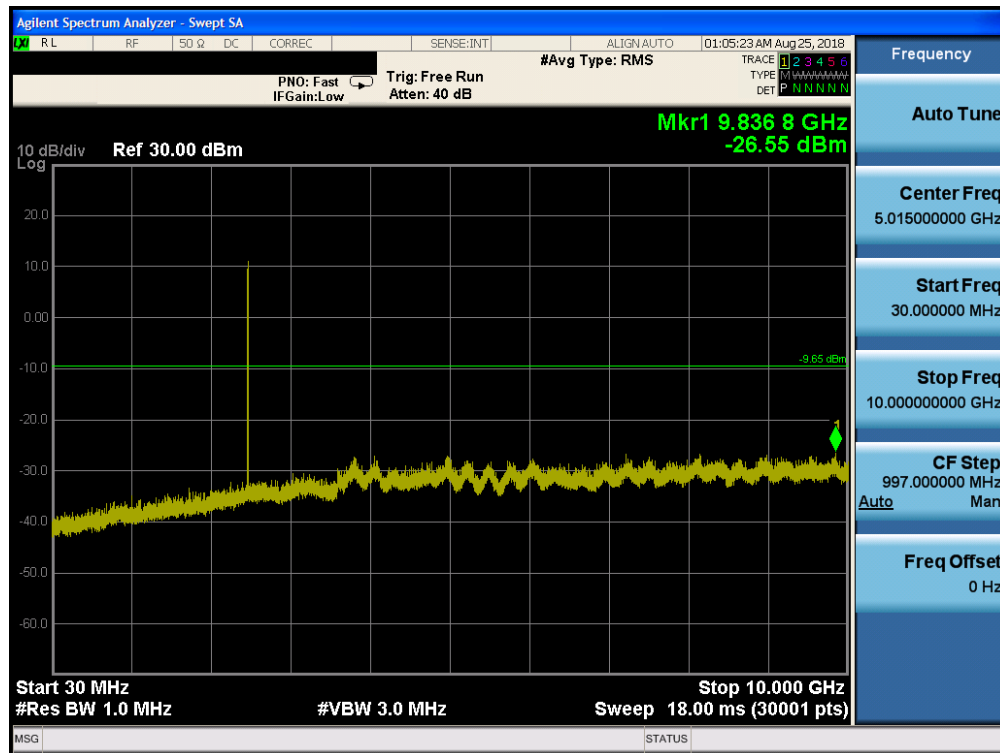


Plot 7-81. Conducted Spurious Plot ANT 2 (Bluetooth, GFSK, ePA – Ch. 39)

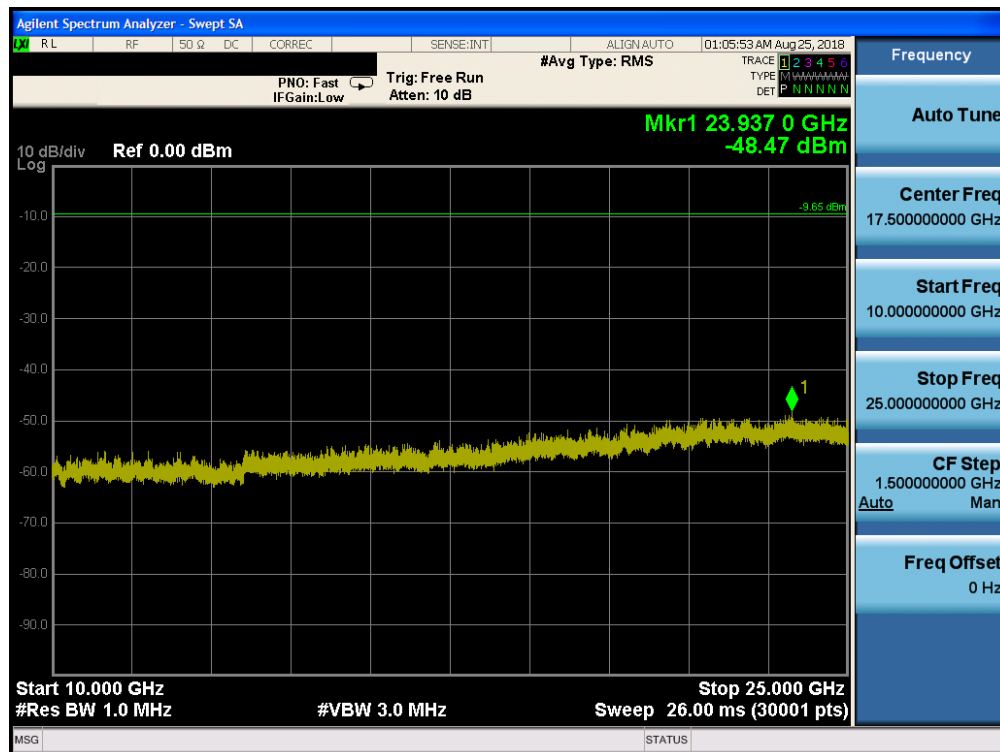


Plot 7-82. Conducted Spurious Plot ANT 2 (Bluetooth, GFSK, ePA Ch. 39)

FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 75 of 112



Plot 7-83. Conducted Spurious Plot ANT 2 (Bluetooth, GFSK, ePA – Ch. 78)



Plot 7-84. Conducted Spurious Plot ANT 2 (Bluetooth, GFSK, ePA – Ch. 78)

FCC ID: BCGA1980	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 76 of 112

7.9 Radiated Spurious Emission Measurements – 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 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-14 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 7-14. Radiated Limits

Test Procedure Used

ANSI C63.10-2013 – Section 6.6.4.3

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 $> 2 \times \text{span/RBW}$)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces

Peak Field Strength Measurements

8. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
9. RBW is set depending on measurement frequency, as specified in Table 7-15 below
10. VBW = 3MHz
11. Detector = peak
12. Sweep time = auto couple
13. Trace mode = max hold
14. Trace was allowed to stabilize

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Frequency	RBW
9 – 150kHz	200 – 300Hz
0.15 – 30MHz	9 – 10kHz
30 – 1000MHz	100 – 120kHz
> 1000MHz	1MHz

Table 7-15. RBW as a Function of Frequency

Test Setup

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

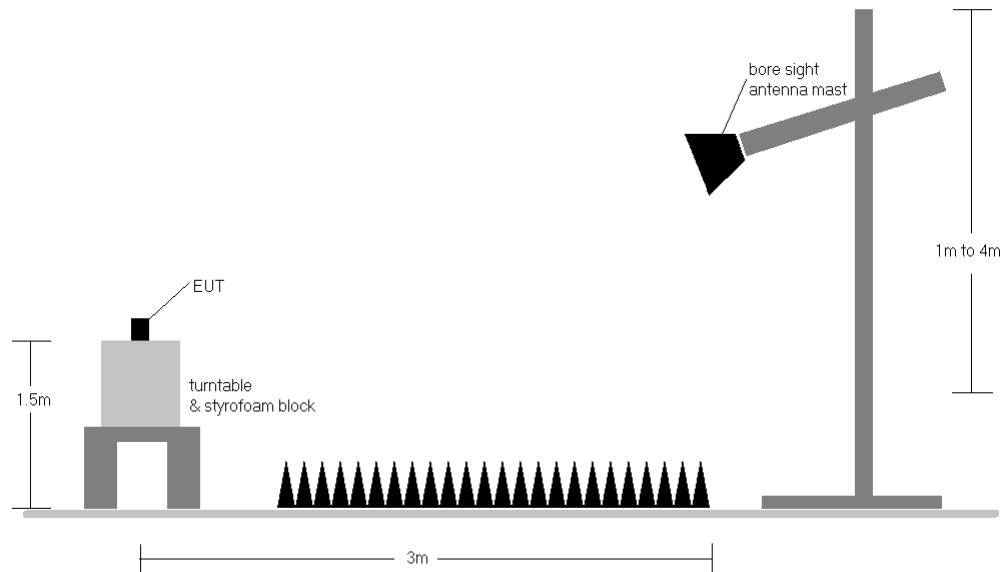


Figure 7-8. Radiated Test Setup >1GHz

Test Notes

1. All emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-14.
2. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
5. The duty cycle correction factor was not applied to noise floor measurements.
6. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
7. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
8. Both power schemes were investigated, and only the worst case is reported.

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Sample Calculation

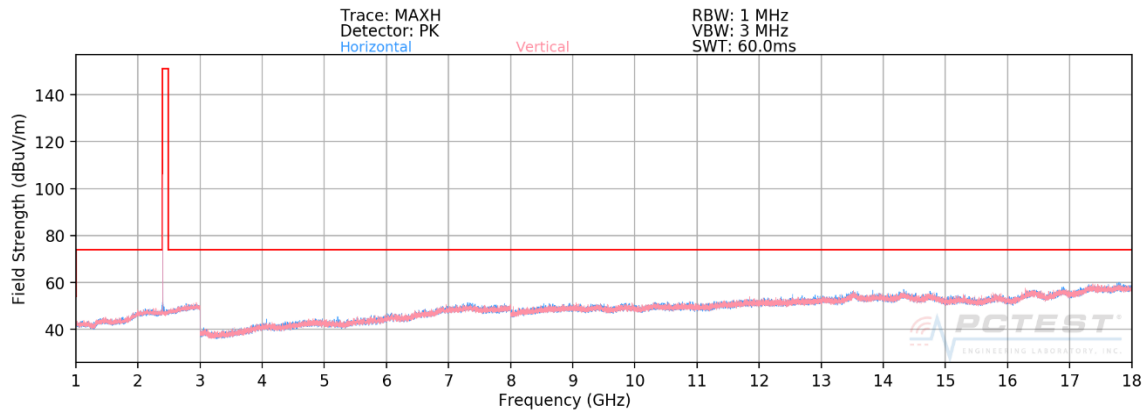
- Field Strength Level $[\text{dB}\mu\text{V/m}] = \text{Analyzer Level } [\text{dBm}] + 107 + \text{AFCL } [\text{dB/m}] + \text{Duty Cycle Correction } [\text{dB}]$
- $\text{AFCL } [\text{dB/m}] = \text{Antenna Factor } [\text{dB/m}] + \text{Cable Loss } [\text{dB}]$
- $\text{Margin } [\text{dB}] =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

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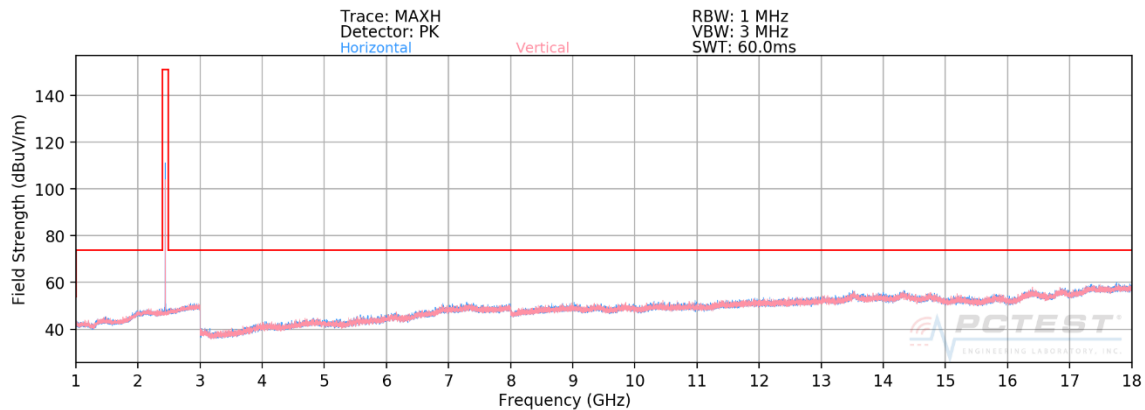
Radiated Spurious Emission Measurements

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

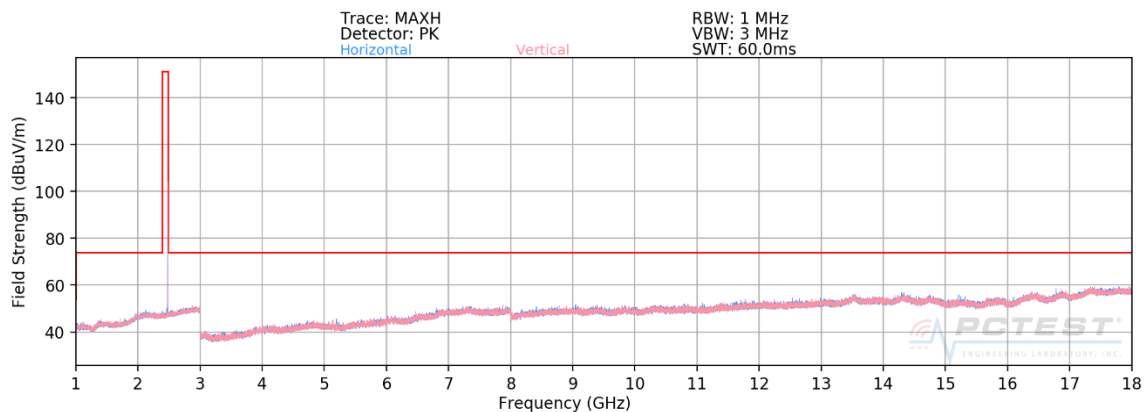
Antenna 0



Plot 7-85. Radiated Spurious Plot above 1GHz ANT0 (BT GFSK ePA – Ch. 0)



Plot 7-86. Radiated Spurious Plot above 1GHz ANT0 (BT GFSK ePA – Ch. 39)



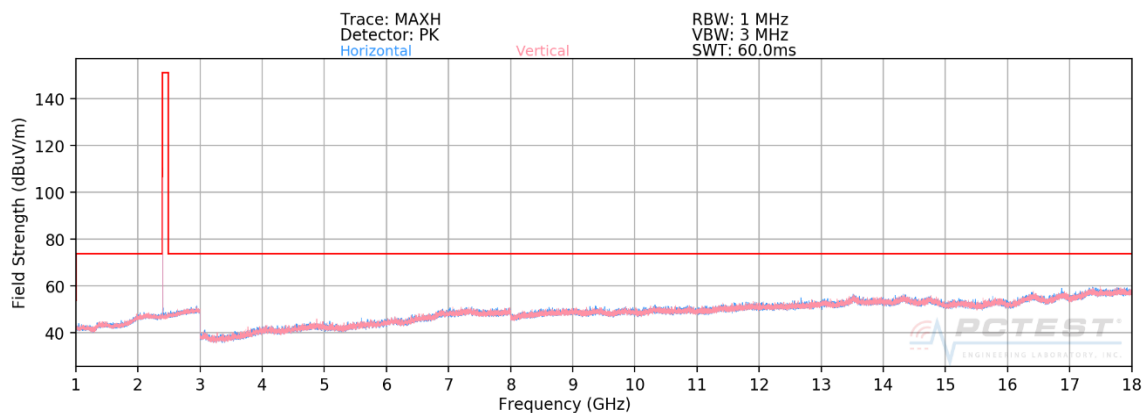
Plot 7-87. Radiated Spurious Plot above 1GHz ANT0 (BT GFSK ePA – Ch. 78)

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 80 of 112

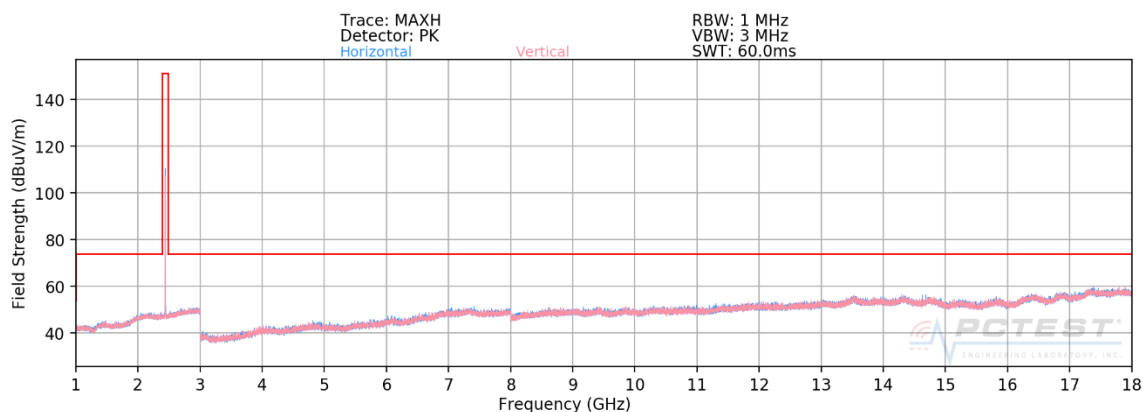
Radiated Spurious Emission Measurements

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

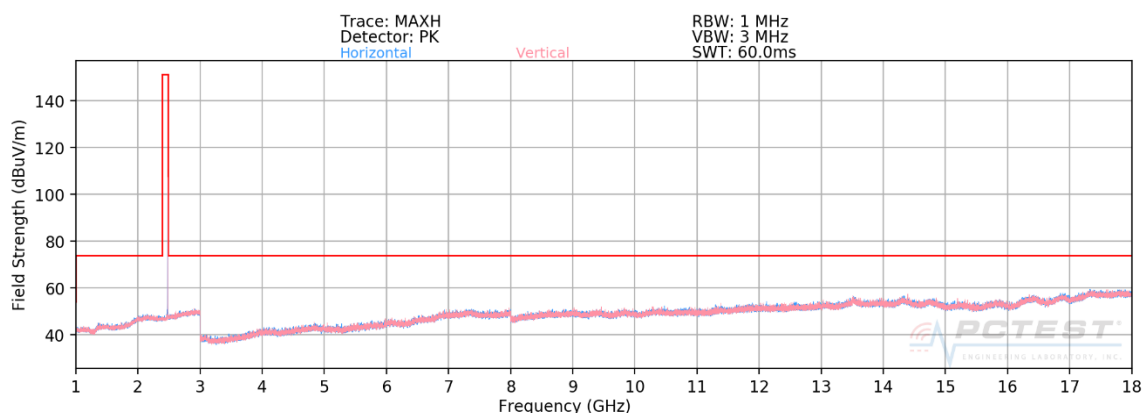
Antenna 1



Plot 7-88. Radiated Spurious Plot above 1GHz ANT1 (BT GFSK ePA – Ch. 0)



Plot 7-89. Radiated Spurious Plot above 1GHz ANT1 (BT GFSK ePA – Ch. 39)



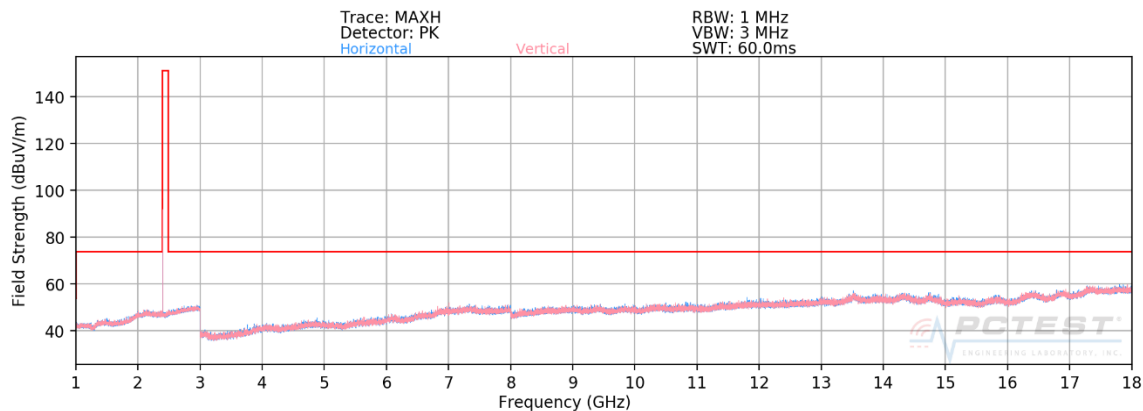
Plot 7-90. Radiated Spurious Plot above 1GHz ANT1 (BT GFSK ePA – Ch. 78)

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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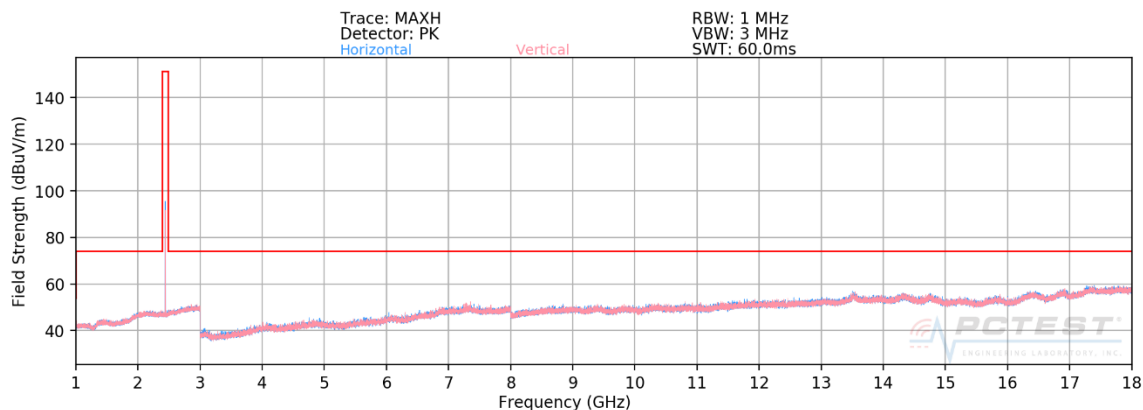
Radiated Spurious Emission Measurements

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

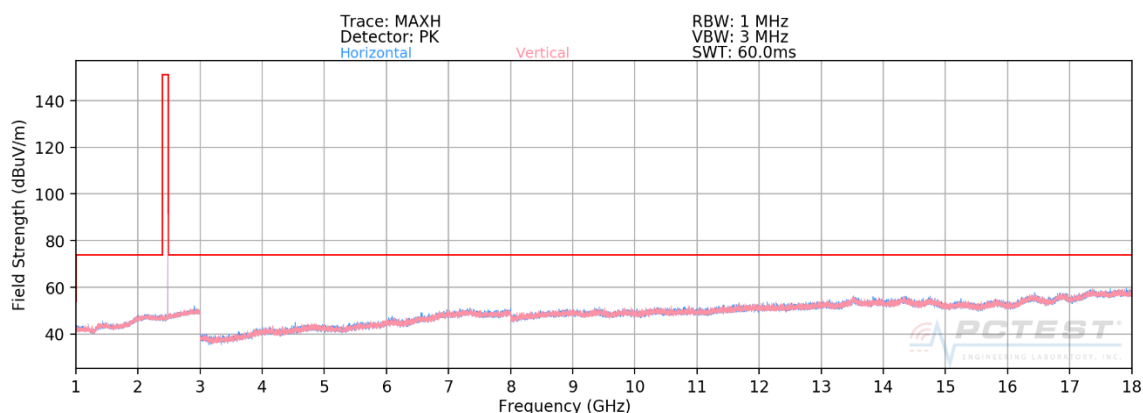
Antenna 2



Plot 7-91. Radiated Spurious Plot above 1GHz ANT2 (BT GFSK ePA – Ch. 0)



Plot 7-92. Radiated Spurious Plot above 1GHz ANT2 (BT GFSK ePA – Ch. 39)

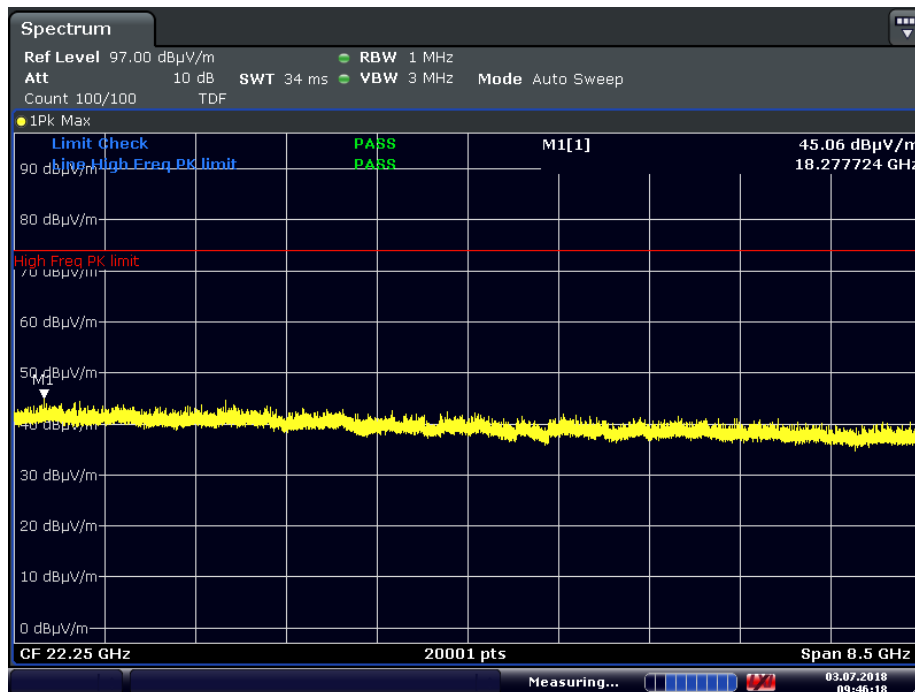


Plot 7-93. Radiated Spurious Plot above 1GHz ANT2 (BT GFSK ePA – Ch. 78)

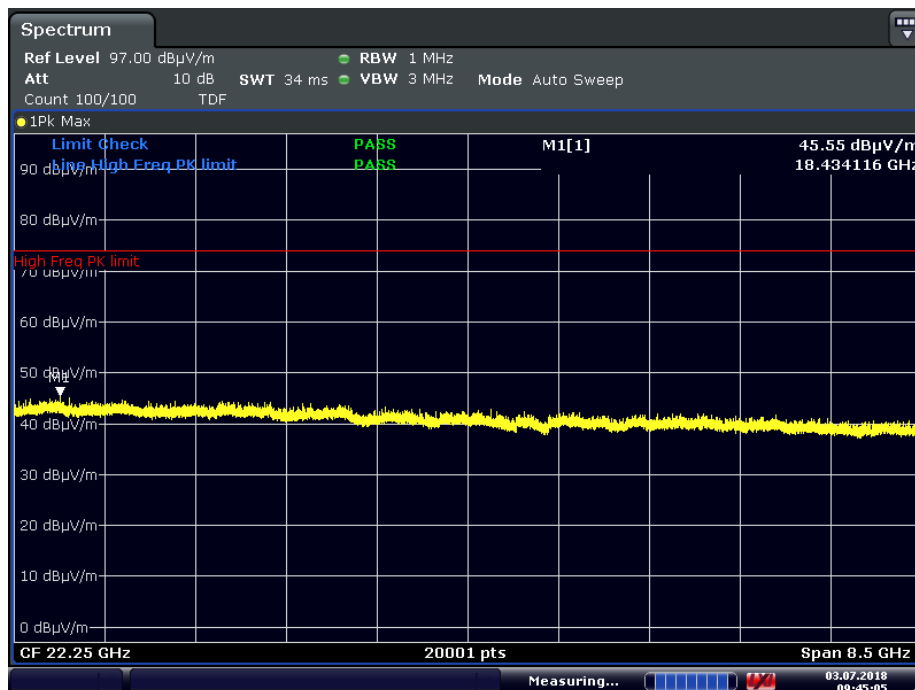
FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209; RSS-Gen [8.9]



Plot 7-94. Radiated Spurious Plot above 18GHz (GFSK ePA, Pol. H)



Plot 7-95. Radiated Spurious Plot above 18GHz (GFSK ePA, Pol. V)

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Radiated Spurious Emission Measurements

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

Antenna 0

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 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 [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4804.00	Avg	V	-	-	-81.07	5.44	31.37	53.98	-22.61
4804.00	Peak	V	-	-	-67.52	5.44	44.92	73.98	-29.06
12010.00	Avg	V	-	-	-86.57	19.33	39.76	53.98	-14.22
12010.00	Peak	V	-	-	-73.05	19.33	53.28	73.98	-20.70

Table 7-16. Radiated Measurements

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 3 Meters
Operating Frequency: 2441MHz
Channel: 39

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]
4882.00	Avg	H	-	-	-80.59	5.73	32.14	53.98	-21.84
4882.00	Peak	H	-	-	-67.50	5.73	45.23	73.98	-28.75
7323.00	Avg	H	-	-	-82.94	12.76	36.82	53.98	-17.16
7323.00	Peak	H	-	-	-68.93	12.76	50.83	73.98	-23.15
12205.00	Avg	H	-	-	-86.82	20.11	40.29	53.98	-13.69
12205.00	Peak	H	-	-	-73.18	20.11	53.93	73.98	-20.05

Table 7-17. Radiated Measurements

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Radiated Spurious Emission Measurements

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

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 3 Meters
Operating Frequency: 2480MHz
Channel: 78

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]
4960.00	Avg	H	-	-	-80.81	5.00	31.19	53.98	-22.79
4960.00	Peak	H	-	-	-67.27	5.00	44.73	73.98	-29.25
7440.00	Avg	H	349	187	-81.64	12.49	15.35	53.98	-38.63
7440.00	Peak	H	349	187	-68.49	12.49	51.00	73.98	-22.98
12400.00	Avg	H	-	-	-86.79	20.06	40.27	53.98	-13.71
12400.00	Peak	H	-	-	-73.04	20.06	54.02	73.98	-19.96

Table 7-18. Radiated Measurements

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Radiated Spurious Emission Measurements

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

Antenna 1

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 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 [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4804.00	Avg	V	-	-	-80.71	5.44	31.73	53.98	-22.25
4804.00	Peak	V	-	-	-66.88	5.44	45.56	73.98	-28.42
12010.00	Avg	V	-	-	-86.58	19.33	39.75	53.98	-14.23
12010.00	Peak	V	-	-	-72.89	19.33	53.44	73.98	-20.54

Table 7-19. Radiated Measurements

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 3 Meters
Operating Frequency: 2441MHz
Channel: 39

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]
4882.00	Avg	H	-	-	-81.09	5.73	31.64	53.98	-22.34
4882.00	Peak	H	-	-	-67.29	5.73	45.44	73.98	-28.54
7323.00	Avg	H	-	-	-82.77	12.76	36.99	53.98	-16.99
7323.00	Peak	H	-	-	-68.69	12.76	51.07	73.98	-22.91
12205.00	Avg	H	-	-	-86.90	20.11	40.21	53.98	-13.77
12205.00	Peak	H	-	-	-73.37	20.11	53.74	73.98	-20.24

Table 7-20. Radiated Measurements

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Radiated Spurious Emission Measurements

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

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 3 Meters
Operating Frequency: 2480MHz
Channel: 78

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]
4960.00	Avg	H	-	-	-80.76	5.00	31.24	53.98	-22.74
4960.00	Peak	H	-	-	-67.09	5.00	44.91	73.98	-29.07
7440.00	Avg	H	-	-	-83.00	12.49	36.49	53.98	-17.49
7440.00	Peak	H	-	-	-69.26	12.49	50.23	73.98	-23.75
12400.00	Avg	V	-	-	-87.02	20.06	40.04	53.98	-13.94
12400.00	Peak	V	-	-	-73.84	20.06	53.22	73.98	-20.76

Table 7-21. Radiated Measurements

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Radiated Spurious Emission Measurements

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

Antenna 2

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 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 [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4804.00	Avg	H	-	-	-79.90	5.44	32.54	53.98	-21.44
4804.00	Peak	H	-	-	-67.24	5.44	45.20	73.98	-28.78
12010.00	Avg	H	-	-	-86.50	19.33	39.83	53.98	-14.15
12010.00	Peak	H	-	-	-73.55	19.33	52.78	73.98	-21.20

Table 7-22. Radiated Measurements

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 3 Meters
Operating Frequency: 2441MHz
Channel: 39

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]
4882.00	Avg	H	-	-	-80.32	5.73	32.41	53.98	-21.57
4882.00	Peak	H	-	-	-67.69	5.73	45.04	73.98	-28.94
7323.00	Avg	H	-	-	-82.98	12.76	36.78	53.98	-17.20
7323.00	Peak	H	-	-	-68.43	12.76	51.33	73.98	-22.65
12205.00	Avg	H	-	-	-86.74	20.11	40.37	53.98	-13.61
12205.00	Peak	H	-	-	-72.98	20.11	54.13	73.98	-19.85

Table 7-23. Radiated Measurements

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Radiated Spurious Emission Measurements

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

Worst Case Mode: Bluetooth
Worst Case Modulation: GFSK
Worst Case Power Scheme: ePA
Measurement Distance: 3 Meters
Operating Frequency: 2480MHz
Channel: 78

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]
4960.00	Avg	H	-	-	-80.44	5.00	31.56	53.98	-22.42
4960.00	Peak	H	-	-	-66.67	5.00	45.33	73.98	-28.65
7440.00	Avg	H	-	-	-82.39	12.49	37.10	53.98	-16.88
7440.00	Peak	H	-	-	-68.81	12.49	50.68	73.98	-23.30
12400.00	Avg	H	-	-	-86.39	20.06	40.67	53.98	-13.31
12400.00	Peak	H	-	-	-74.25	20.06	52.81	73.98	-21.17

Table 7-24. Radiated Measurements

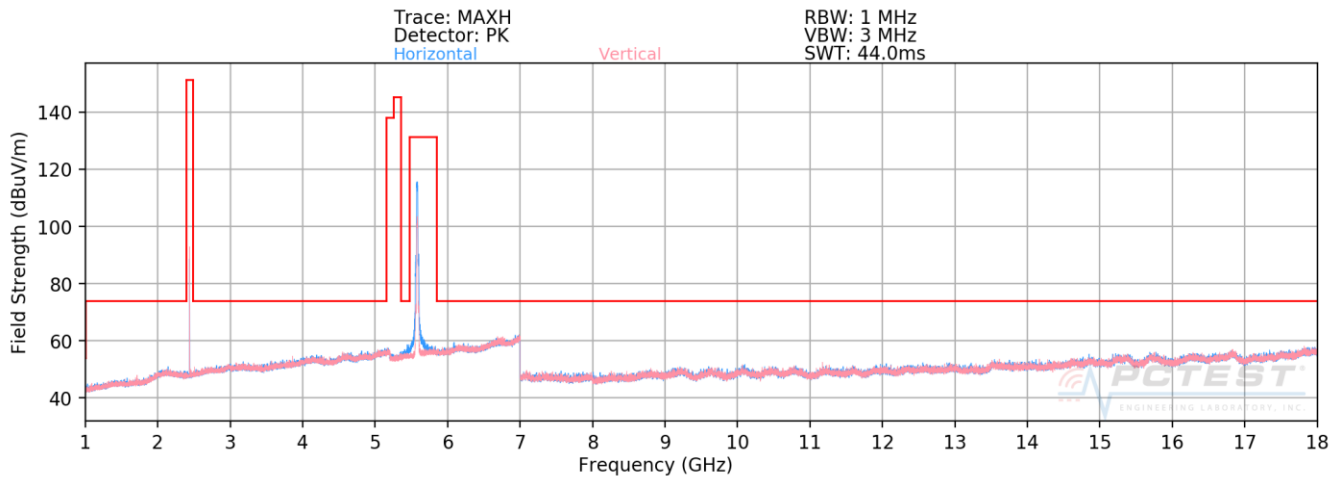
FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 89 of 112

Simultaneous Tx Radiated Spurious Emissions Measurements

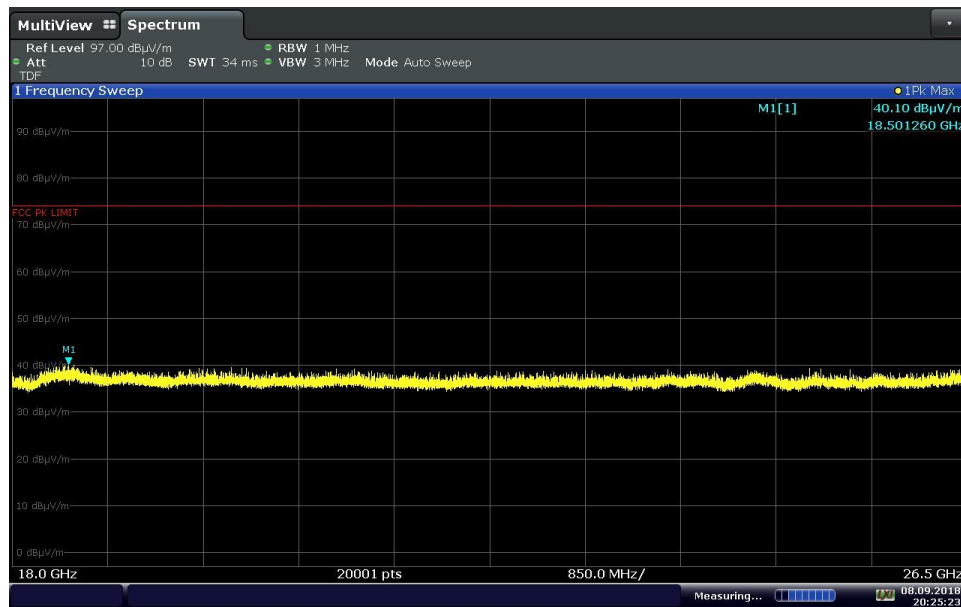
§15.247 §15.205 & §15.209; RSS-Gen [8.9]

Description	2.4 GHz Emission	5 GHz Emission
Antenna	2	2
Channel	39	116
Operating Frequency (MHz)	2441	5580
Data Rate (Mbps)	GFSK/1Mbps	MCS0
Mode	Bluetooth	UNII

Table 7-25. Worst Case Simultaneous Transmission Config



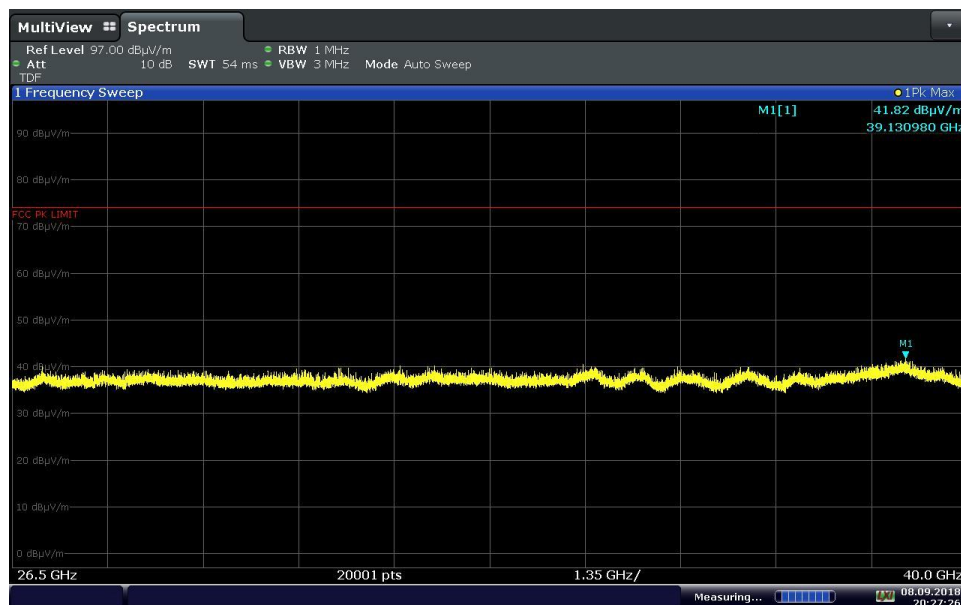
Plot 7-96. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz)



20:25:24 08.09.2018

Plot 7-97. Radiated Spurious Plot 18GHz – 26.5GHz (2.4GHz – 5GHz)

FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 90 of 112



20:27:26 08.09.2018

Plot 7-98. Radiated Spurious Plot above 26.5GHz (2.4GHz – 5GHz)

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]
4882.00	Avg	H	-	-	-79.78	14.37	41.59	53.98	-12.39
4882.00	Peak	H	-	-	-69.57	14.37	51.80	73.98	-22.18
7323.00	Avg	H	-	-	-80.34	10.71	37.37	53.98	-16.61
7323.00	Peak	H	-	-	-70.92	10.71	46.79	73.98	-27.19
12205.00	Avg	H	-	-	-82.99	14.63	38.64	53.98	-15.34
12205.00	Peak	H	-	-	-72.70	14.63	48.93	73.98	-25.05
11160.00	Avg	H	-	-	-82.42	14.36	38.94	53.98	-15.04
11160.00	Peak	H	-	-	-71.65	14.36	49.71	73.98	-24.27
16740.00	Avg	H	-	-	-84.06	20.19	43.13	53.98	-10.85
16740.00	Peak	H	-	-	-73.67	20.19	53.52	73.98	-20.46
8719.00	Avg	H	-	-	-81.36	12.45	38.09	53.98	-15.89
8719.00	Peak	H	-	-	-70.88	12.45	48.57	73.98	-25.41
11858.00	Avg	H	-	-	-82.59	14.46	38.87	53.98	-15.11
11858.00	Peak	H	-	-	-72.52	14.46	48.94	73.98	-25.04
3837.00	Avg	H	-	-	-79.64	12.00	39.36	53.98	-14.62
3837.00	Peak	H	-	-	-69.62	12.00	49.38	73.98	-24.60

Table 7-26. Radiated Measurements (Antenna 2 2.4GHz – Antenna 2 5GHz)

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 91 of 112

7.10 Radiated Restricted Band Edge Measurements

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

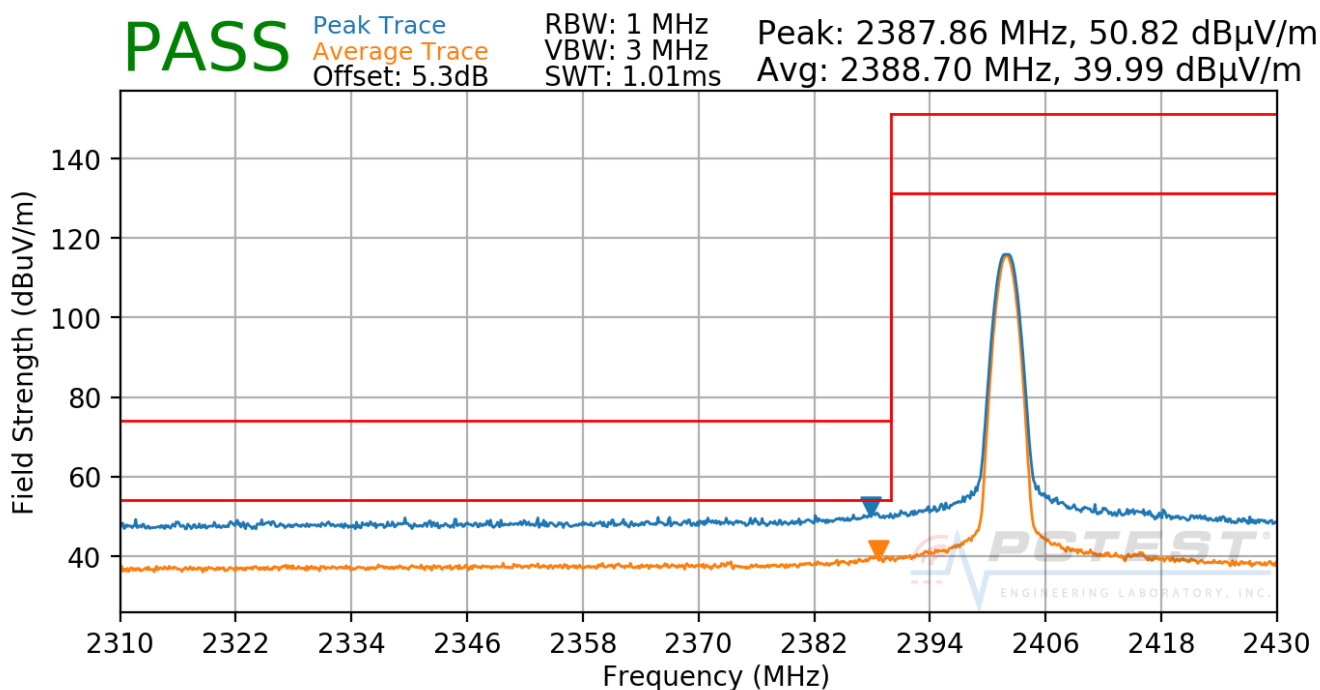
The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

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 + DCCF

Antenna 0

Worst Case Mode:	Bluetooth
Worst Case Modulation:	GFSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0



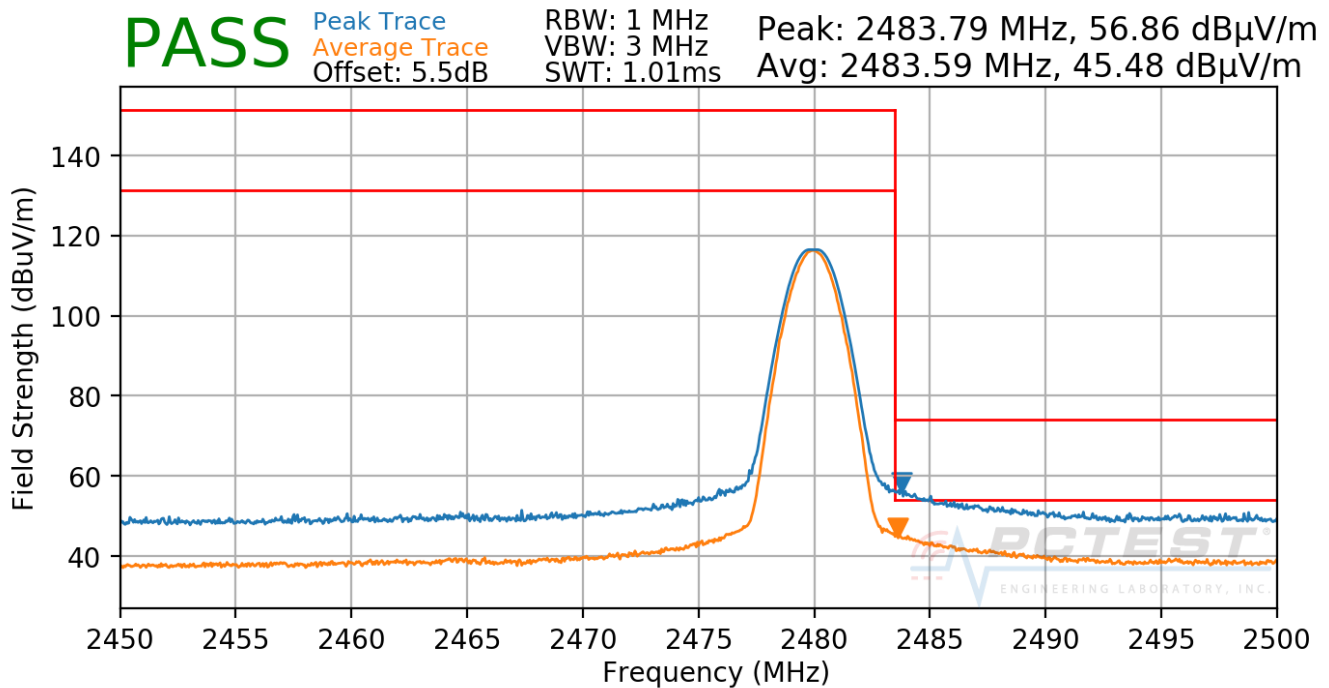
Plot 7-99. Radiated Restricted Lower Band Edge Measurement ANT0 (Average & Peak)

FCC ID: BCGA1980	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 92 of 112

Radiated Spurious Emission Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Modulation:	GFSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



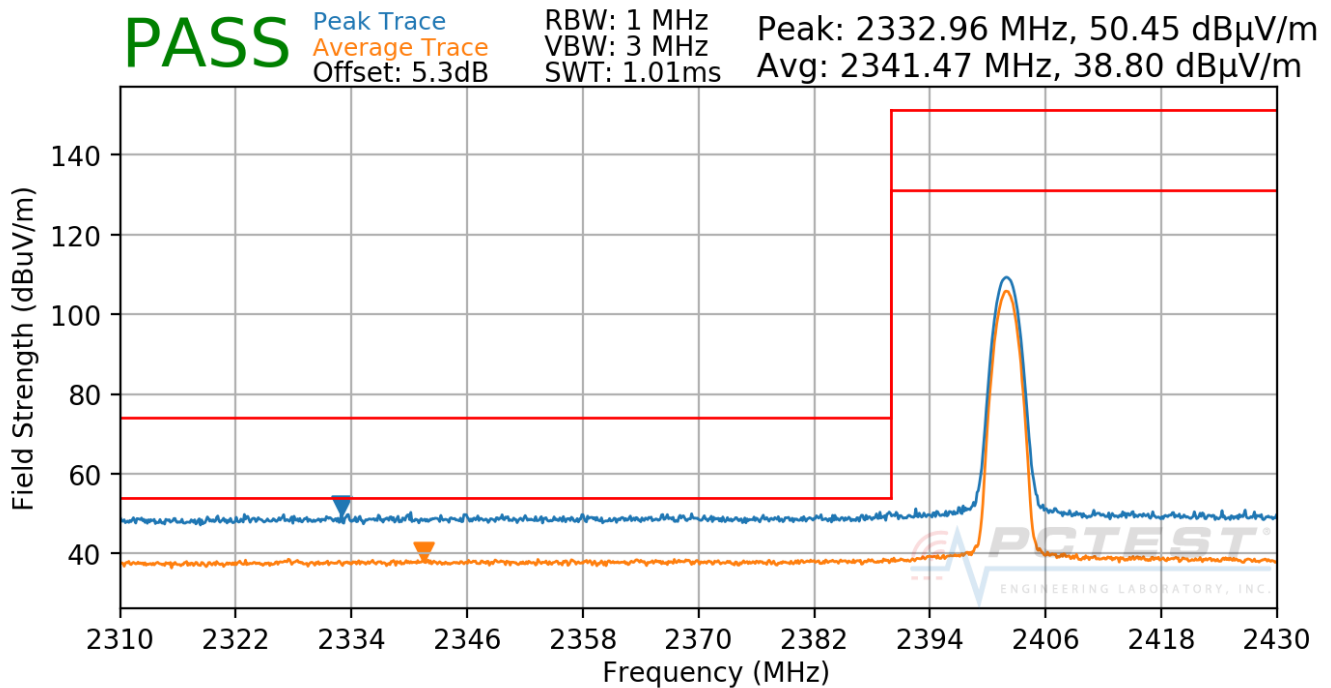
Plot 7-100. Radiated Restricted Upper Band Edge Measurement ANT0 (Average & Peak)

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 93 of 112

Radiated Restricted Band Edge Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Modulation:	8DPSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0



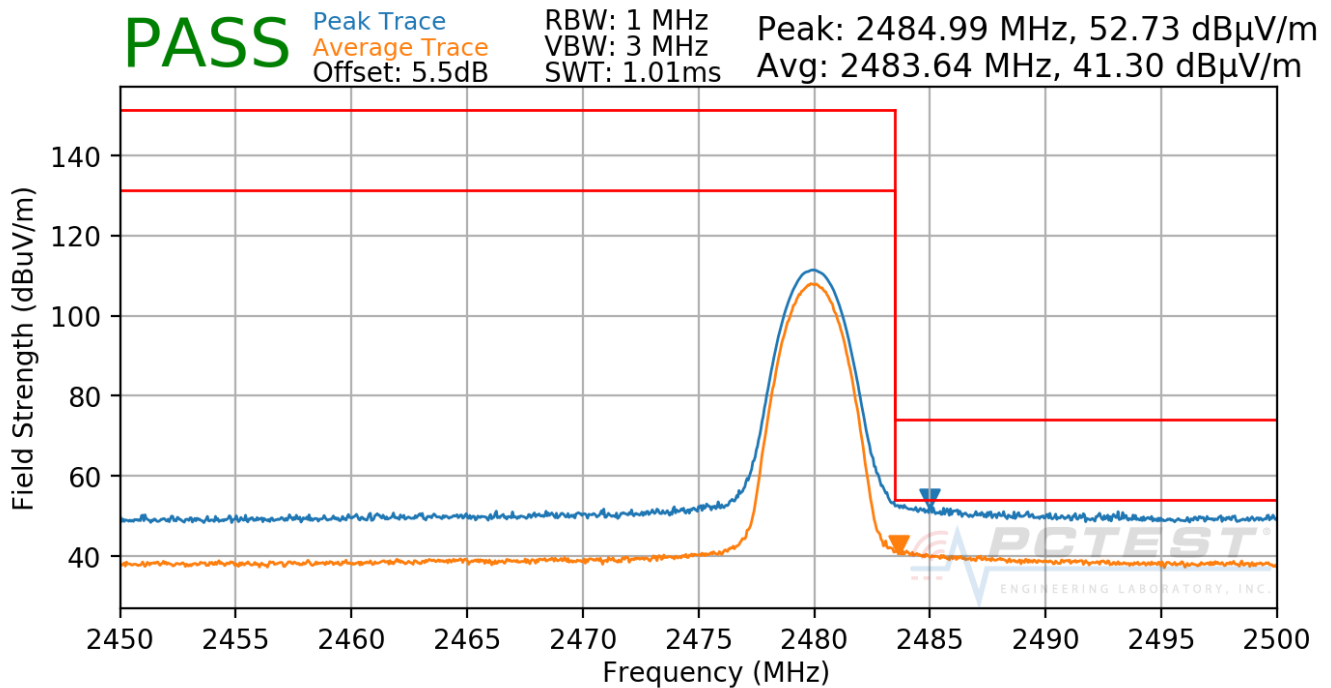
Plot 7-101. Radiated Restricted Lower Band Edge Measurement ANT0 (Average & Peak)

FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 94 of 112

Radiated Spurious Emission Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Modulation:	8DPSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



Plot 7-102. Radiated Restricted Upper Band Edge Measurement ANT0 (Average & Peak)

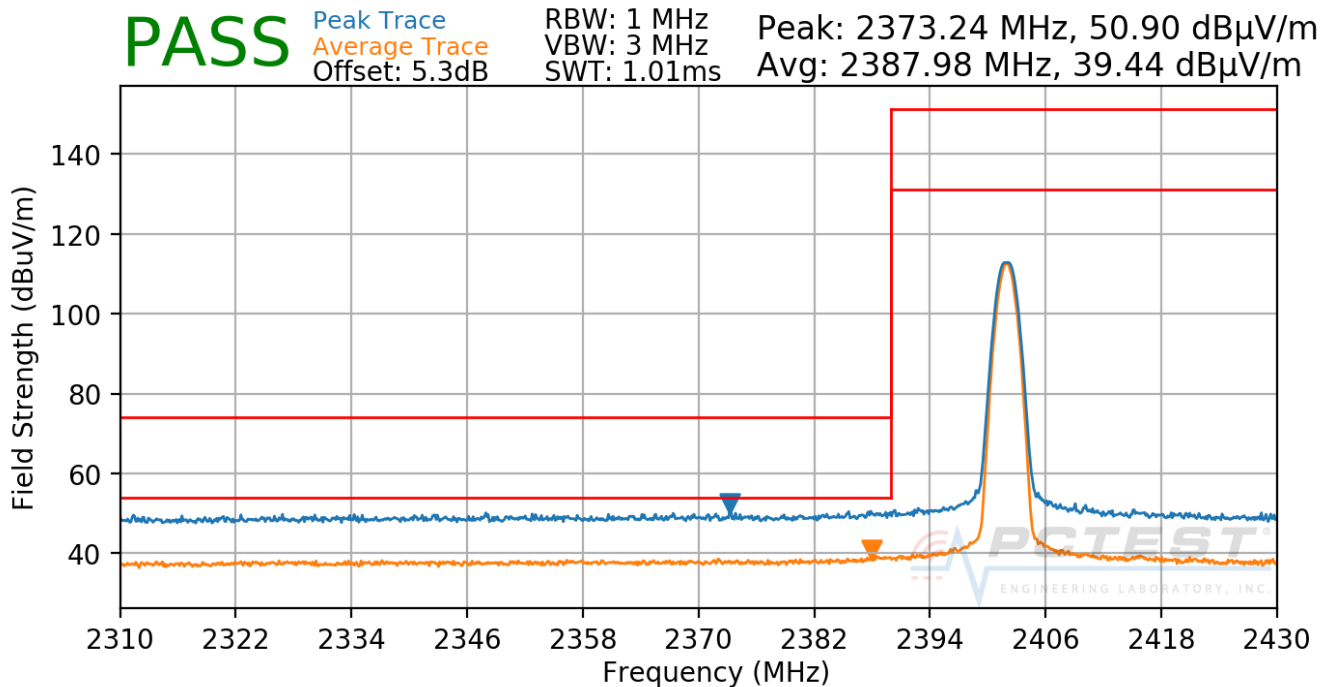
FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 95 of 112

Radiated Restricted Band Edge Measurements

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

Antenna 1

Worst Case Mode:	Bluetooth
Worst Case Modulation:	GFSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0



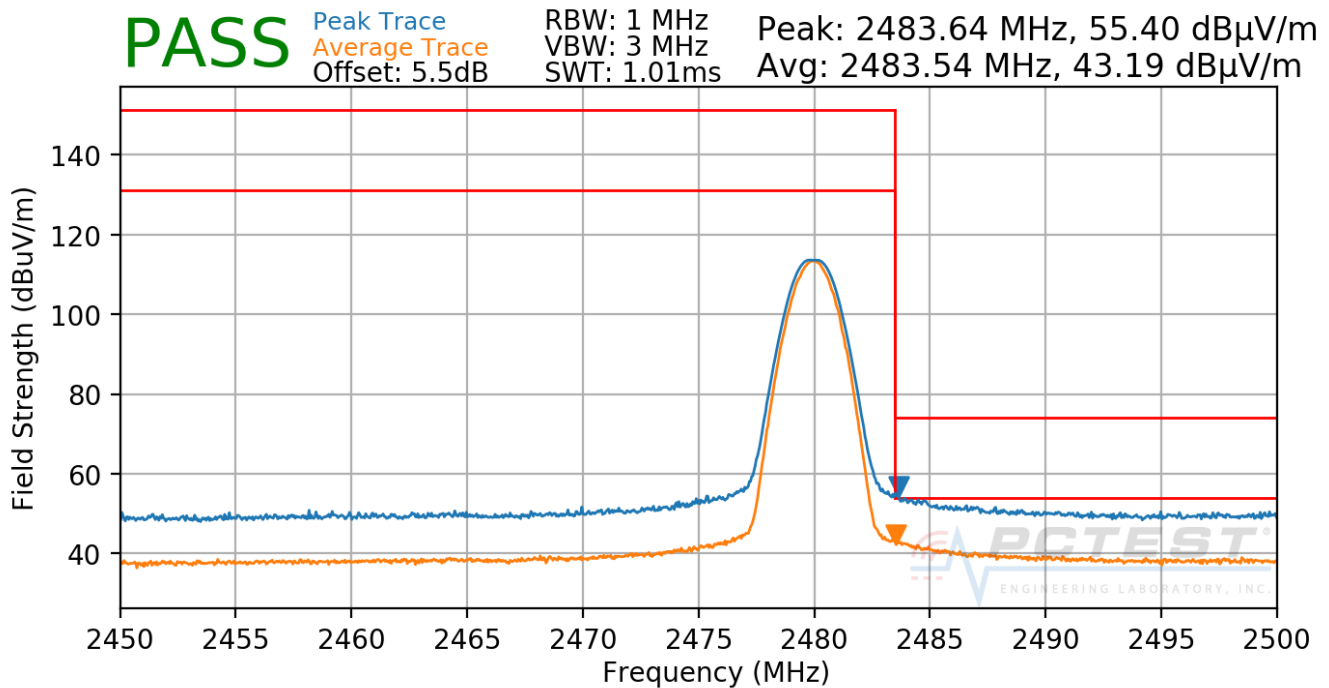
Plot 7-103. Radiated Restricted Lower Band Edge Measurement ANT1 (Average & Peak)

FCC ID: BCGA1980	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 96 of 112

Radiated Spurious Emission Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Modulation:	GFSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



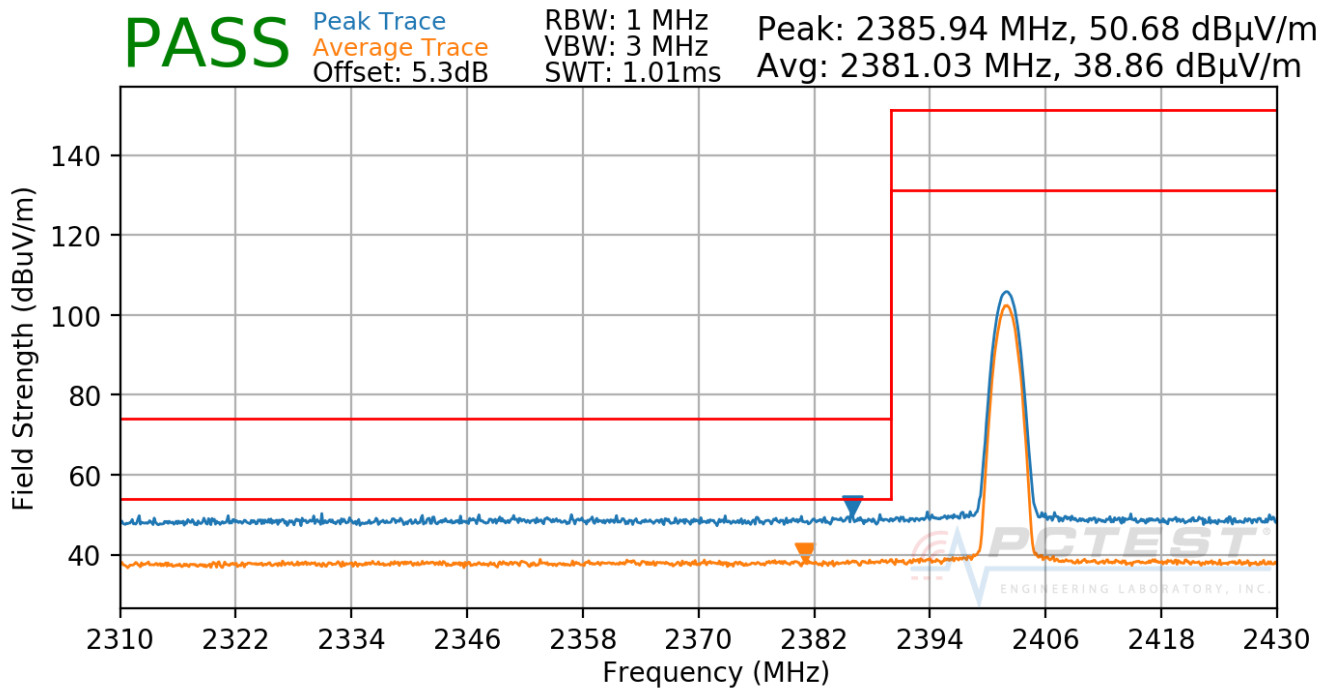
Plot 7-104. Radiated Restricted Upper Band Edge Measurement ANT1 (Average & Peak)

FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 97 of 112

Radiated Restricted Band Edge Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Modulation:	8DPSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0



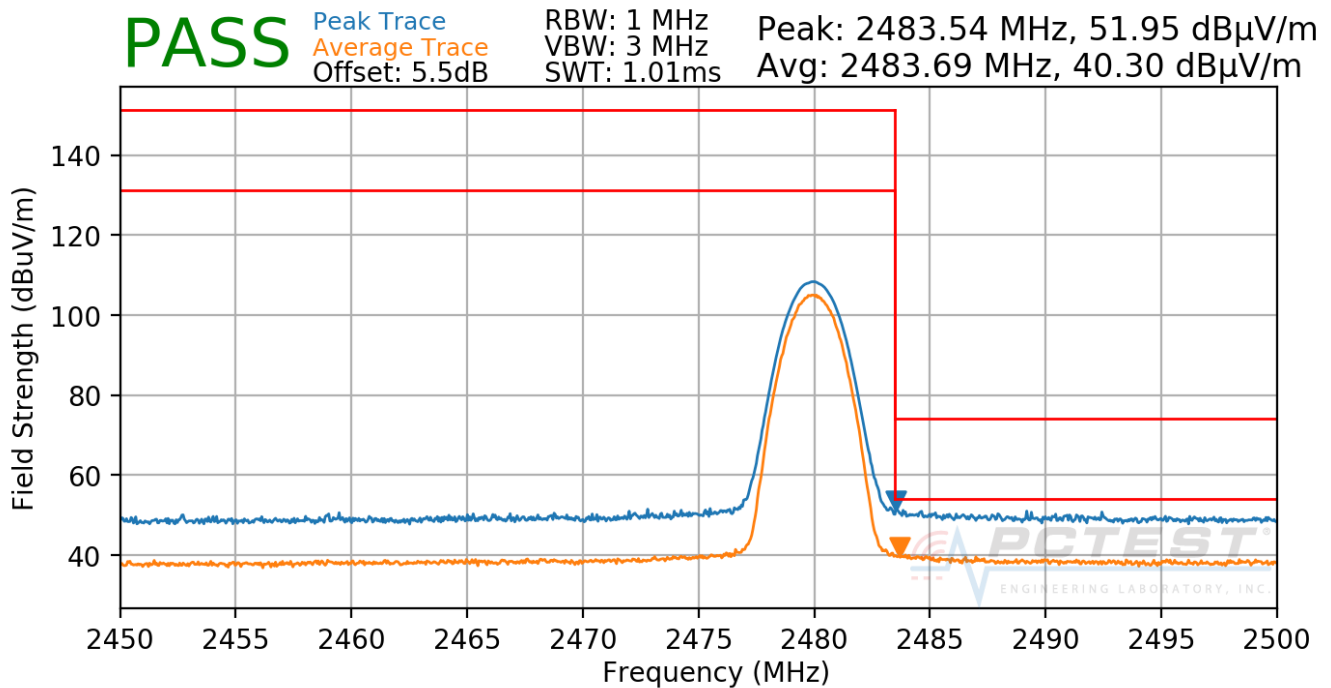
Plot 7-105. Radiated Restricted Lower Band Edge Measurement ANT1 (Average & Peak)

FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 98 of 112

Radiated Spurious Emission Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Modulation:	8DPSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



Plot 7-106. Radiated Restricted Upper Band Edge Measurement ANT1 (Average & Peak)

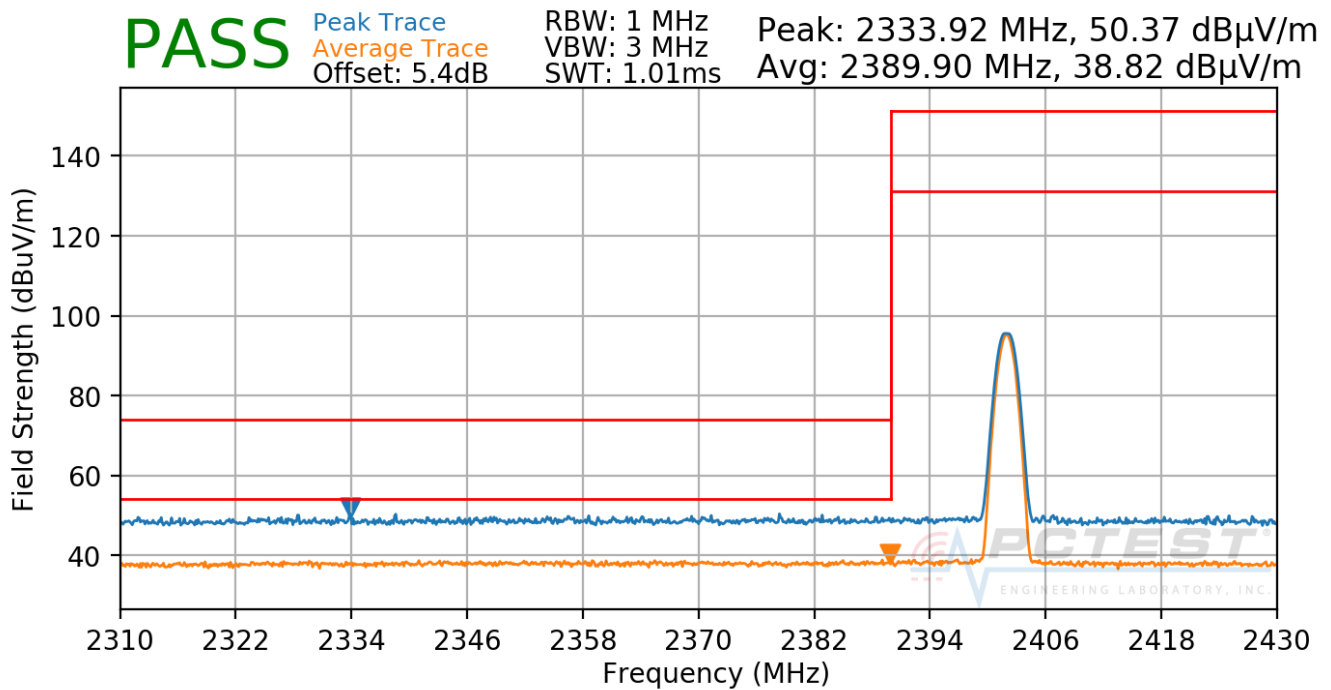
FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 99 of 112

Radiated Restricted Band Edge Measurements

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

Antenna 2

Worst Case Mode:	Bluetooth
Worst Case Modulation:	GFSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0



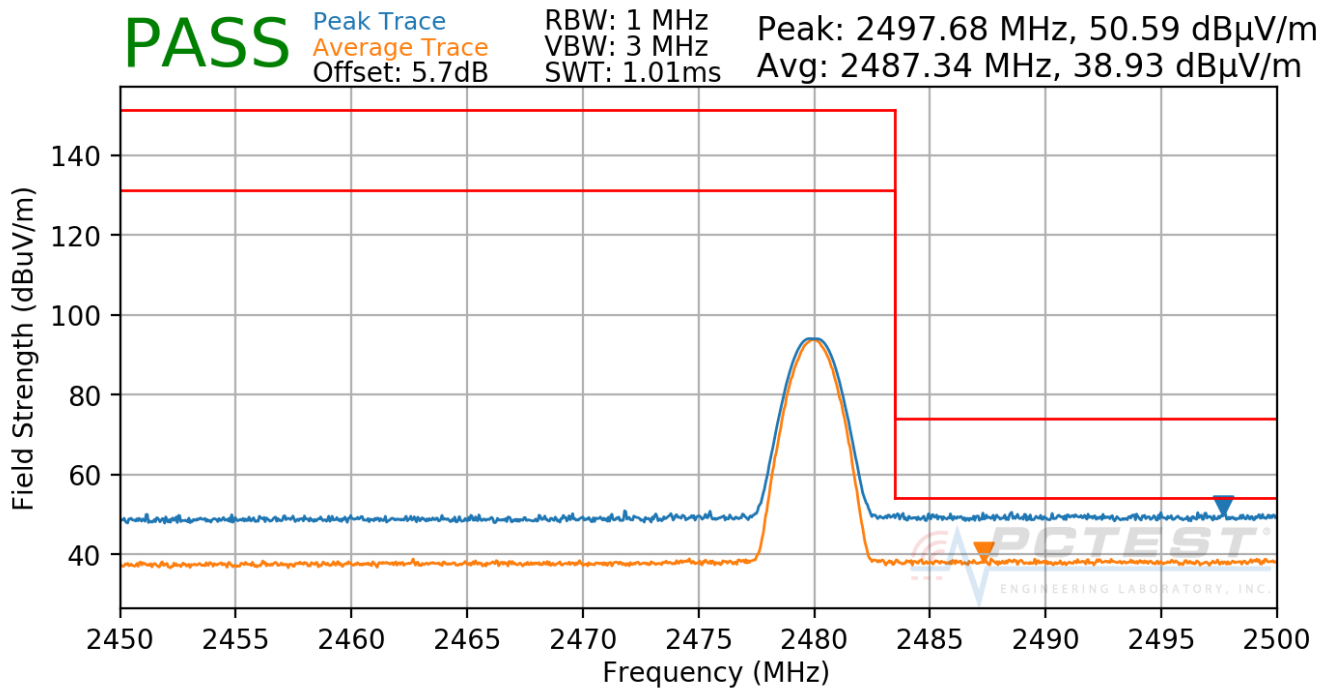
Plot 7-107. Radiated Restricted Lower Band Edge Measurement ANT2 (Average & Peak)

FCC ID: BCGA1980	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 100 of 112

Radiated Spurious Emission Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Modulation:	GFSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



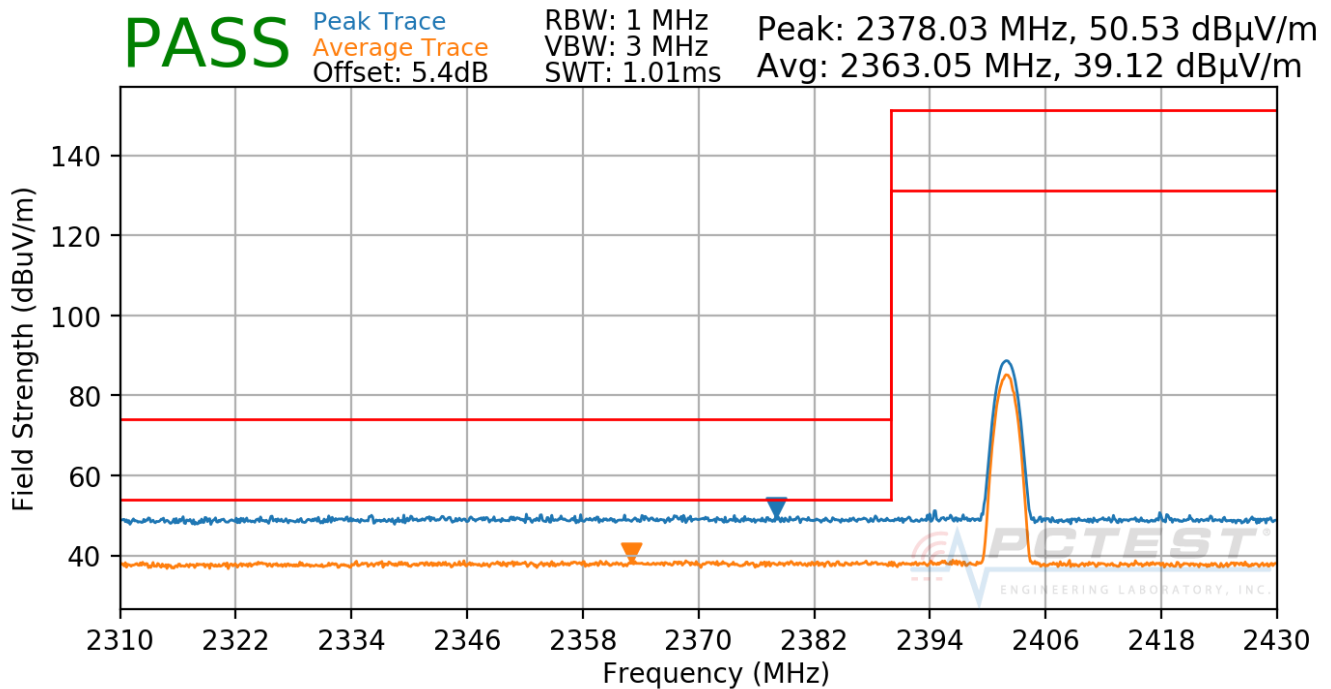
FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 101 of 112

Radiated Restricted Band Edge Measurements

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

Plot 7-108. Radiated Restricted Upper Band Edge Measurement ANT2 (Average & Peak)

Worst Case Mode:	Bluetooth
Worst Case Modulation:	8DPSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0



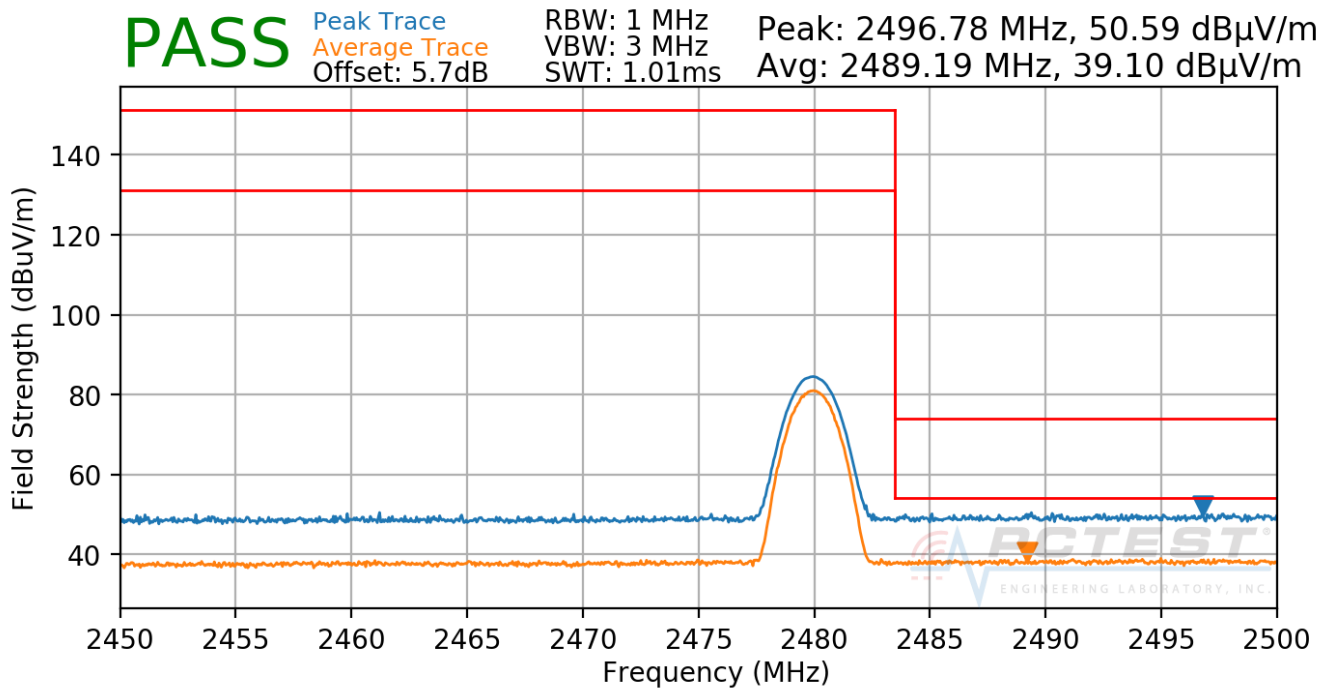
Plot 7-109. Radiated Restricted Lower Band Edge Measurement ANT2 (Average & Peak)

FCC ID: BCGA1980	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 102 of 112

Radiated Spurious Emission Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Modulation:	8DPSK
Worst Case Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



Plot 7-110. Radiated Restricted Upper Band Edge Measurement ANT2 (Average & Peak)

FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 103 of 112

7.11 Radiated Spurious Emissions Measurements – Below 1GHz

§15.209; RSS-Gen [8.9]

Test Overview and Limit

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

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-25 per Section 15.209 and RSS-Gen (8.9).

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

Table 7-27. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

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

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Setup

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

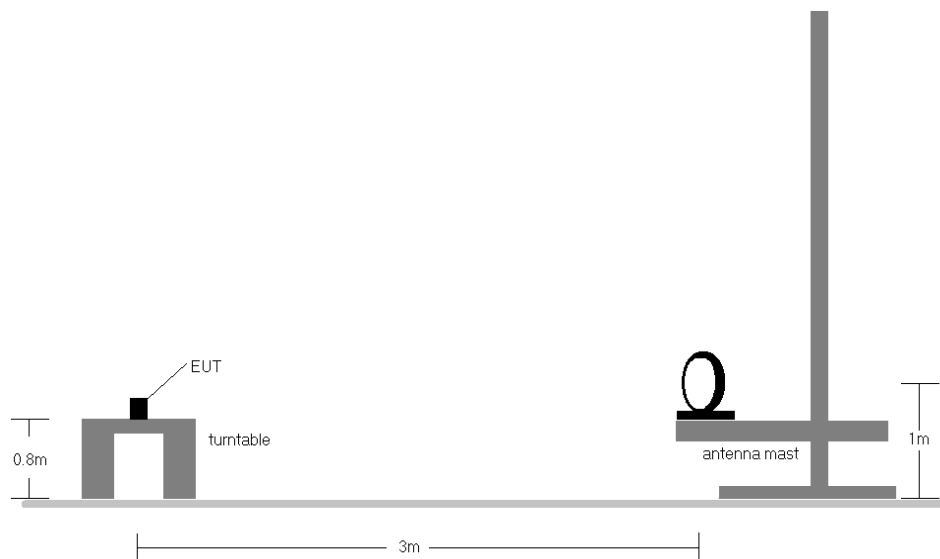


Figure 7-9. Radiated Test Setup < 30Mhz

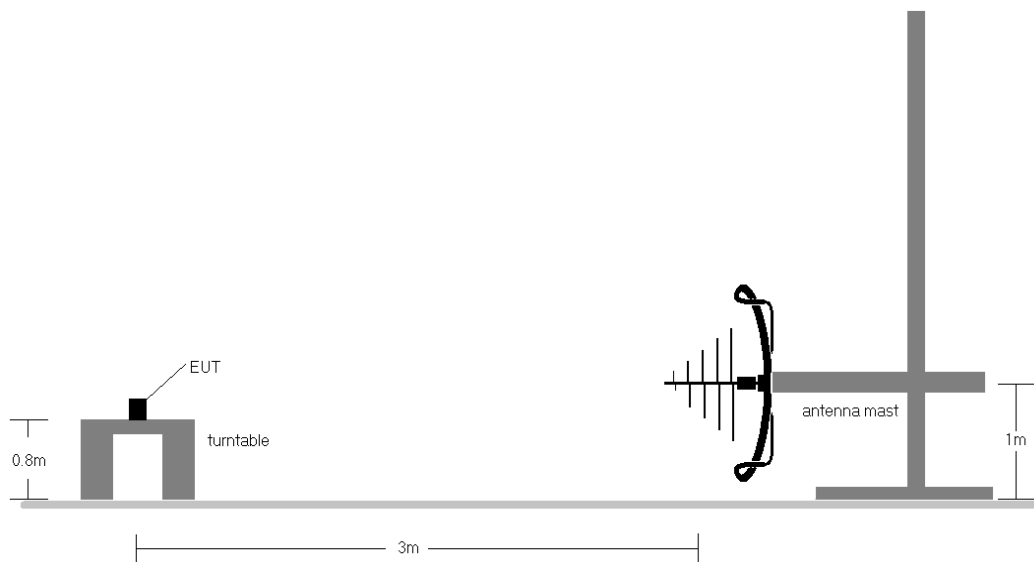


Figure 7-10. Radiated Test Setup < 1GHz

FCC ID: BCGA1980	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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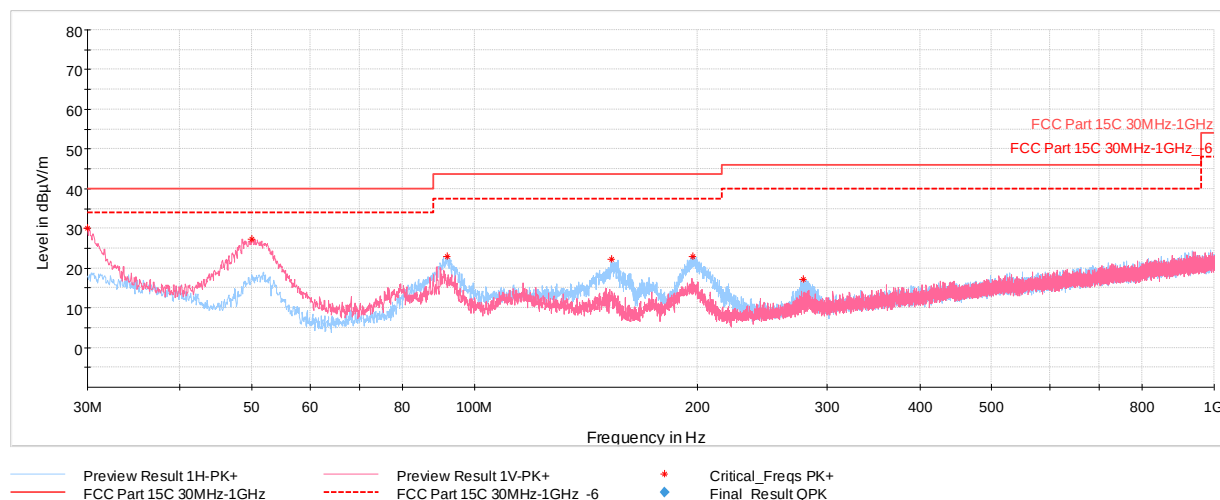
Test Notes

1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen (8.10) are below the limit shown in Table 7-25.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.
10. Both power schemes were investigated, and only the worst case is reported.

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Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-111. Radiated Spurious Plot below 1GHz (GFSK ePA, 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]
30.00	Max-Peak	V	100	101	-68.05	-8.89	30.06	40.00	-9.94
50.08	Max-Peak	V	100	353	-58.09	-21.53	27.38	40.00	-12.62
91.93	Max-Peak	H	250	195	-66.10	-18.08	22.82	43.52	-20.70
153.14	Max-Peak	H	100	227	-65.60	-19.13	22.27	43.52	-21.25
197.47	Max-Peak	H	100	216	-65.01	-19.00	22.99	43.52	-20.53
278.32	Max-Peak	H	100	299	-73.47	-16.37	17.16	46.02	-28.86

Table 7-28. Radiated Spurious Emissions Below 1GHz (GFSK ePA with AC/DC Adapter)

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.12 Line Conducted Measurement Data

§15.207; RSS-Gen [8.8]

Test Overview and Limit

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

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

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

Table 7-29. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013, Section 6.2

Test Settings

Quasi-Peak Field Strength Measurements

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

Average Field Strength Measurements

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

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Setup

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

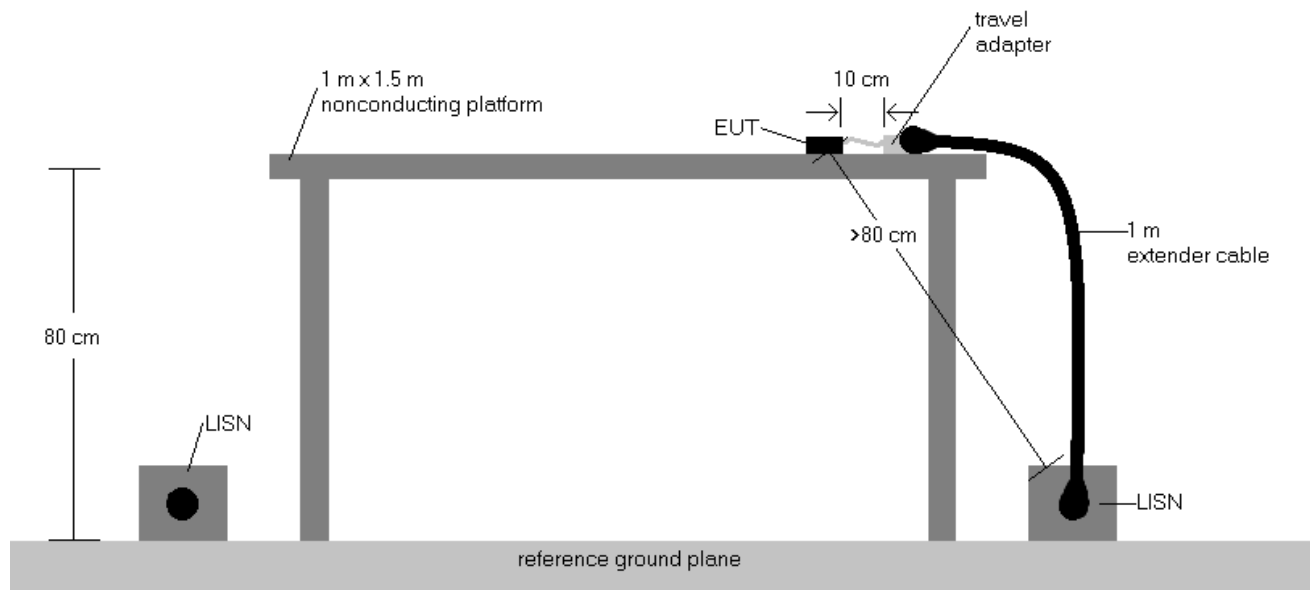
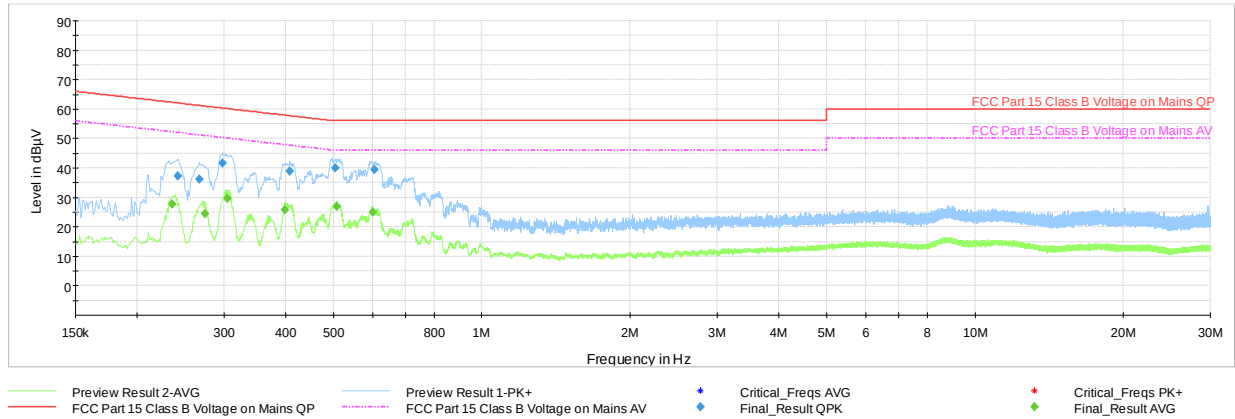


Figure 7-11. Test Instrument & Measurement Setup

Test Notes

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

FCC ID: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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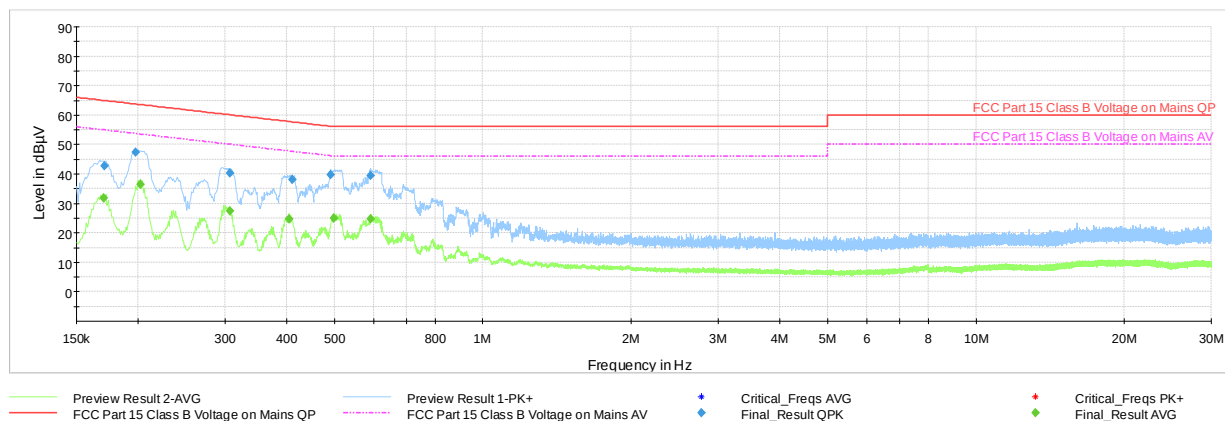


Plot 7-112. Line-Conducted Test Plot (L1, with AC/DC Adapter)

Frequency MHz	Process State	QuasiPeak dBμV	Average dBμV	Limit dBμV	Margin dB	Bandwidth kHz	Line	PE	Corr. dB
0.236000	FINAL	—	27.71	52.24	-24.53	9.000	L1	GND	11.1
0.242000	FINAL	37.20	—	62.03	-24.83	9.000	L1	GND	11.0
0.267000	FINAL	36.05	—	61.21	-25.16	9.000	L1	GND	10.9
0.275000	FINAL	—	24.43	50.97	-26.54	9.000	L1	GND	10.8
0.298000	FINAL	41.64	—	60.30	-18.66	9.000	L1	GND	10.7
0.305000	FINAL	—	29.56	50.11	-20.55	9.000	L1	GND	10.7
0.399000	FINAL	—	25.90	47.87	-21.97	9.000	L1	GND	10.6
0.408000	FINAL	38.89	—	57.69	-18.80	9.000	L1	GND	10.6
0.504000	FINAL	40.12	—	56.00	-15.88	9.000	L1	GND	10.6
0.508000	FINAL	—	26.79	46.00	-19.21	9.000	L1	GND	10.6
0.600000	FINAL	—	25.01	46.00	-20.99	9.000	L1	GND	10.6
0.606000	FINAL	39.37	—	56.00	-16.63	9.000	L1	GND	10.6

Table 7-30. Line-Conducted Test Data (L1, with AC/DC Adapter)

FCC ID: BCGA1980	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 110 of 112



Plot 7-113. Line-Conducted Test Plot (N, with AC/DC Adapter)

Frequency MHz	Process State	QuasiPeak dBμV	Average dBμV	Limit dBμV	Margin dB	Bandwidth kHz	Line	PE	Corr. dB
0.170000	FINAL	—	31.88	54.96	-23.08	9.000	N	GND	11.4
0.171000	FINAL	42.69	—	64.91	-22.22	9.000	N	GND	11.4
0.198000	FINAL	47.32	—	63.69	-16.37	9.000	N	GND	11.3
0.202000	FINAL	—	36.48	53.53	-17.05	9.000	N	GND	11.2
0.307000	FINAL	40.14	—	60.05	-19.91	9.000	N	GND	10.6
0.307000	FINAL	—	27.53	50.05	-22.52	9.000	N	GND	10.6
0.405000	FINAL	—	24.72	47.75	-23.03	9.000	N	GND	10.5
0.411000	FINAL	37.99	—	57.63	-19.64	9.000	N	GND	10.5
0.492000	FINAL	39.60	—	56.13	-16.53	9.000	N	GND	10.5
0.499000	FINAL	—	24.97	46.02	-21.05	9.000	N	GND	10.5
0.593000	FINAL	—	24.67	46.00	-21.33	9.000	N	GND	10.5
0.593000	FINAL	39.46	—	56.00	-16.54	9.000	N	GND	10.5

Table 7-31. Line-Conducted Test Data (N, with AC/DC Adapter)

FCC ID: BCGA1980		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 111 of 112

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Apple Tablet Device FCC ID: BCGA1980** 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: BCGA1980	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1806220013-05.BCG	Test Dates: 07/27/2018-09/21/2018	EUT Type: Tablet Device	Page 112 of 112