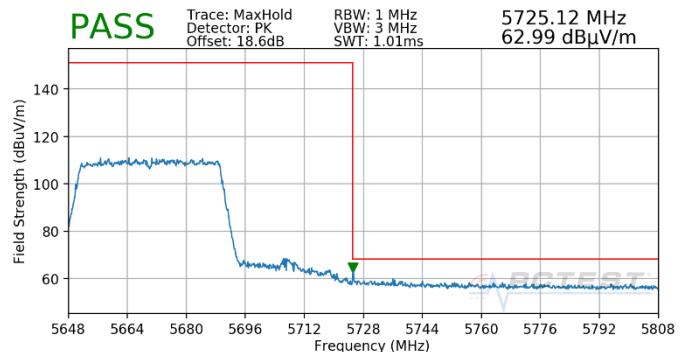
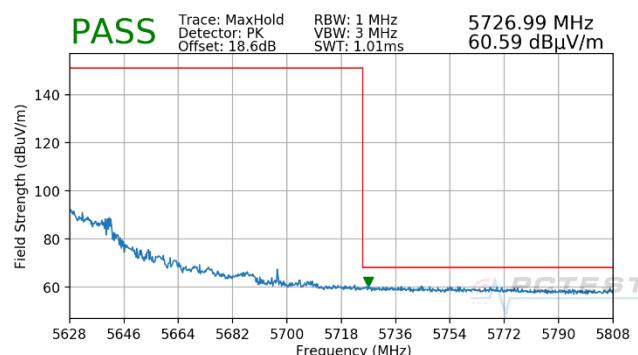


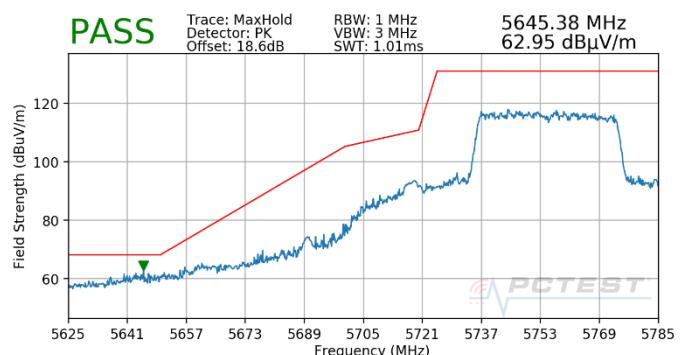
Plot 7-555. (FCC Only) CDD (Pk & Avg, RU484, Index 65, Ch.118, MCS11)



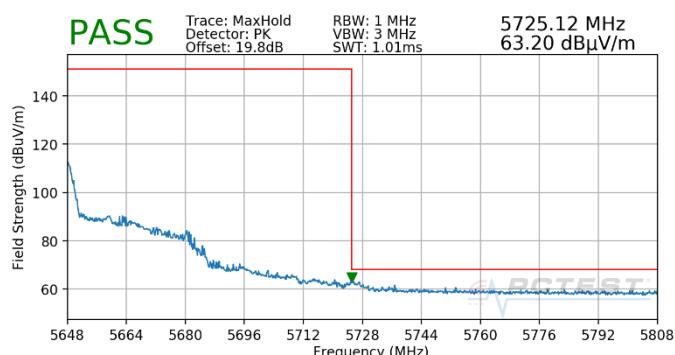
Plot 7-558. CDD (Pk, RU484, Index 65, Ch.134, MCS11)



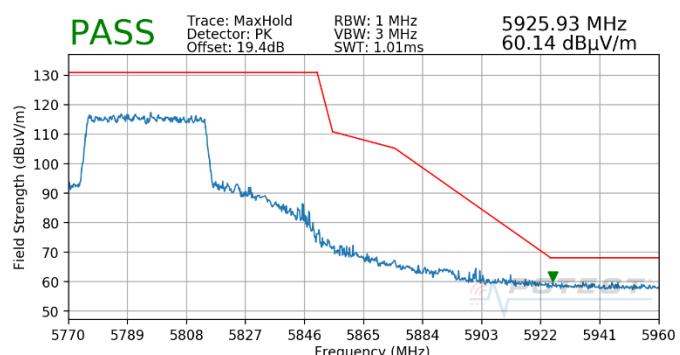
Plot 7-556. (FCC Only) CDD (Pk & Avg, RU484, Index 65, Ch.118, MCS11)



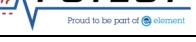
Plot 7-559. CDD (Pk, RU484, Index 65, Ch.151, MCS11)



Plot 7-557. (FCC Only) CDD (Pk, RU484, Index 65, Ch.126, MCS11)

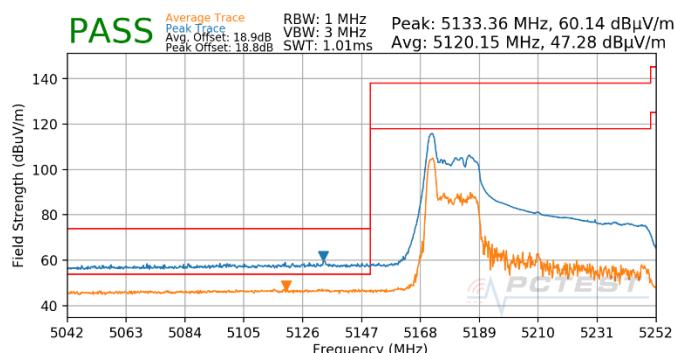


Plot 7-560. CDD (Pk, RU484, Index 65, Ch.159, MCS11)

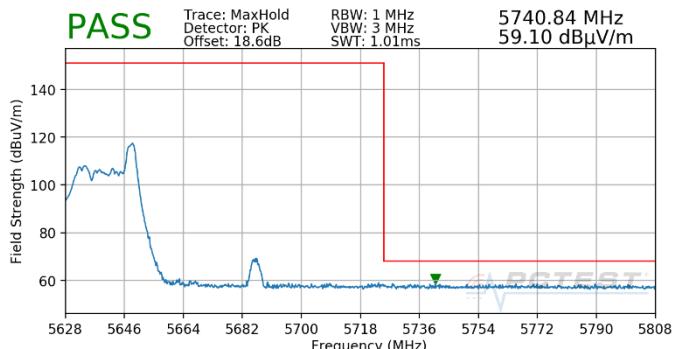
FCC ID: BCGA2379 IC: 579C-A2379	PCTEST® Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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7.6.14 CDD Radiated Band Edge Measurements (80MHz BW)

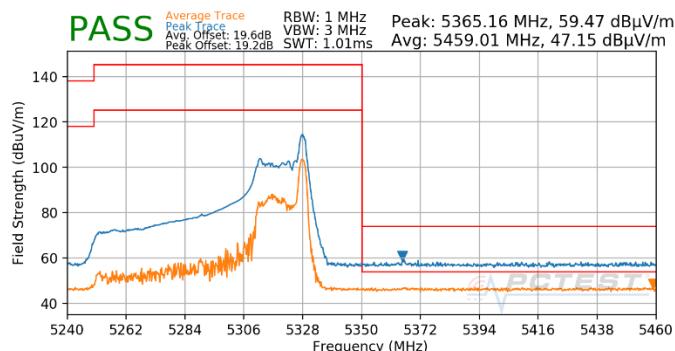
§15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

RU26


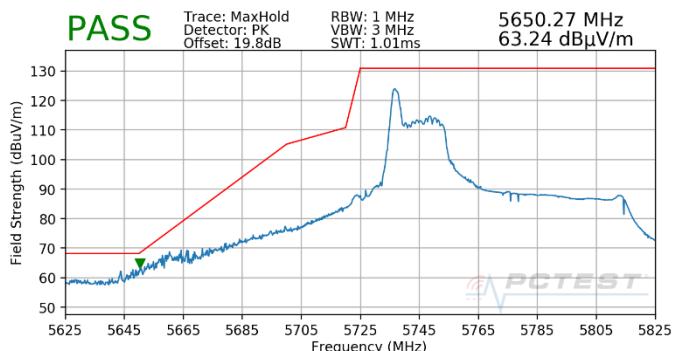
Plot 7-561. CDD (Pk & Avg, RU26, Index 0, Ch.42, MCS11)



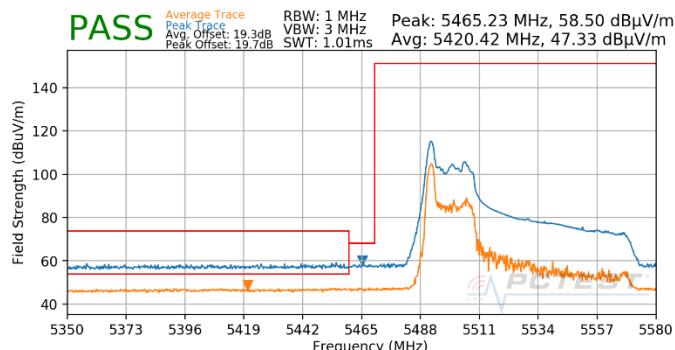
Plot 7-564. (FCC Only) CDD (Pk, RU26, Index 36, Ch.122, MCS11)



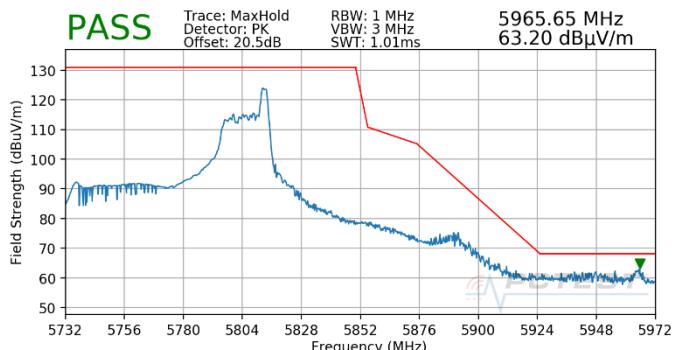
Plot 7-562. CDD (Pk & Avg, RU26, Index 36, Ch.58, MCS11)



Plot 7-565. CDD (Pk, RU26, Index 0, Ch.155, MCS11)



Plot 7-563. CDD (Pk & Avg, RU26, Index 0, Ch.106, MCS11)



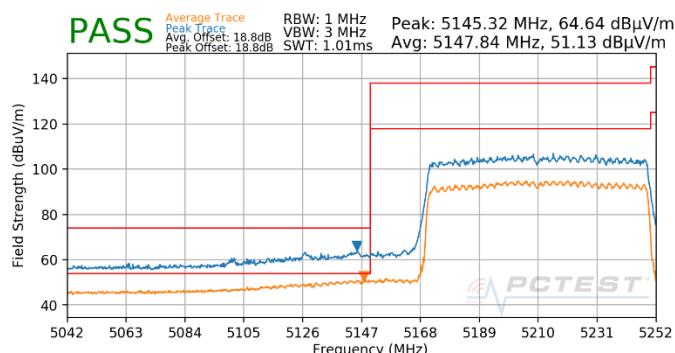
Plot 7-566. CDD (Pk, RU26, Index 36, Ch.155, MCS11)

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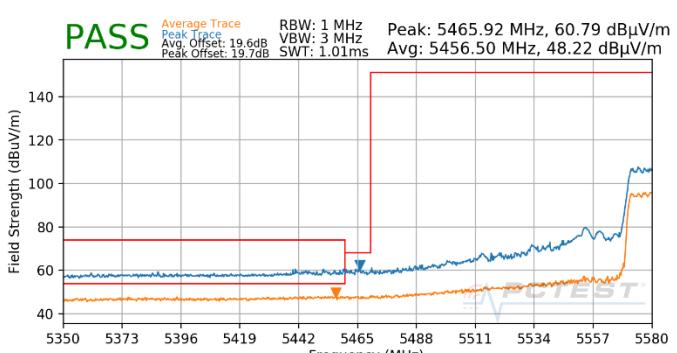
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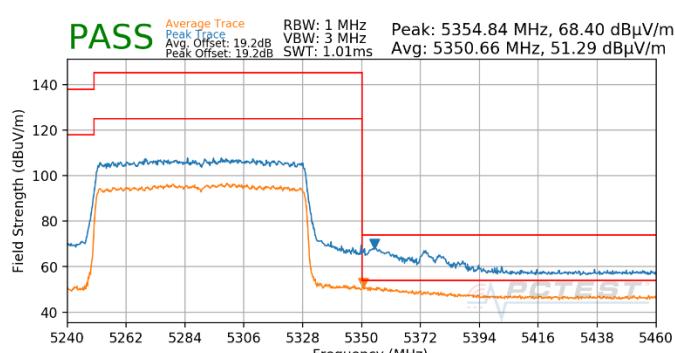
V 10.3 11/16/2020

RU996


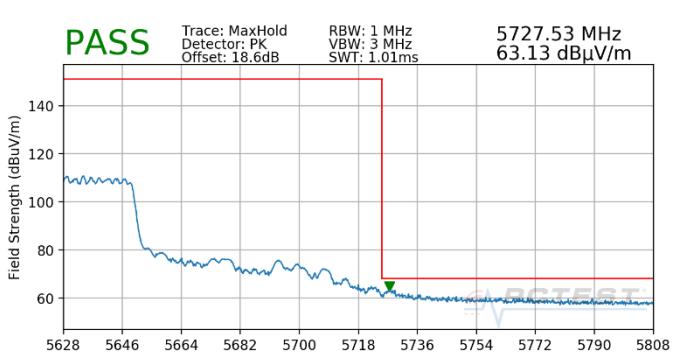
Plot 7-567. CDD (Pk & Avg, RU996, Index 67, Ch.42, MCS11)



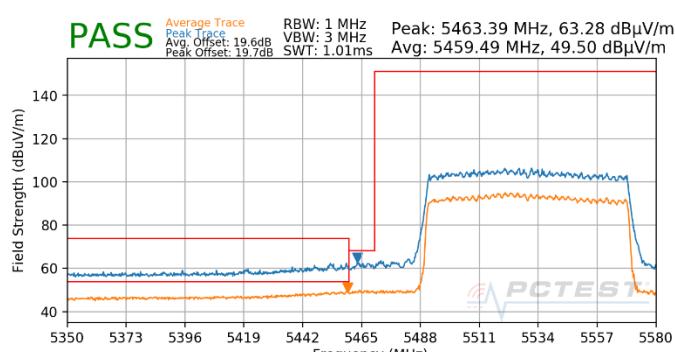
Plot 7-570. (FCC Only) CDD (Pk & Avg, RU996, Index 67, Ch.122, MCS11)



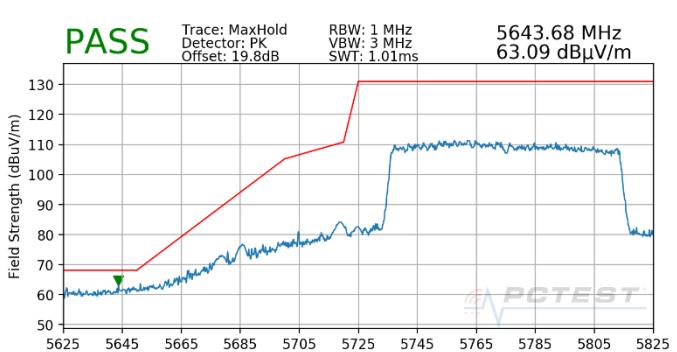
Plot 7-568. CDD (Pk & Avg, RU996, Index 67, Ch.58, MCS11)



Plot 7-571. (FCC Only) CDD (Pk, RU996, Index 67, Ch.122, MCS11)

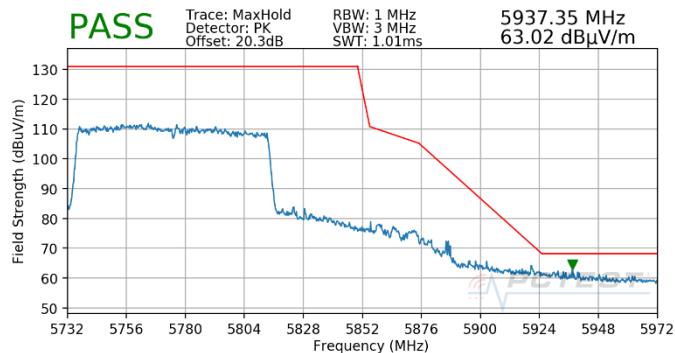


Plot 7-569. CDD (Pk & Avg, RU996, Index 67, Ch.106, MCS11)



Plot 7-572. CDD (Pk, RU996, Index 67, Ch.155, MCS11)

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Plot 7-573. CDD (Pk, RU996, Index 67, Ch.155, MCS11)

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7.7 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 7-158 per Section 15.209 and RSS-Gen (8.9).

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

Table 7-158. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

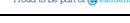
Test Settings

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

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 diagrams below.

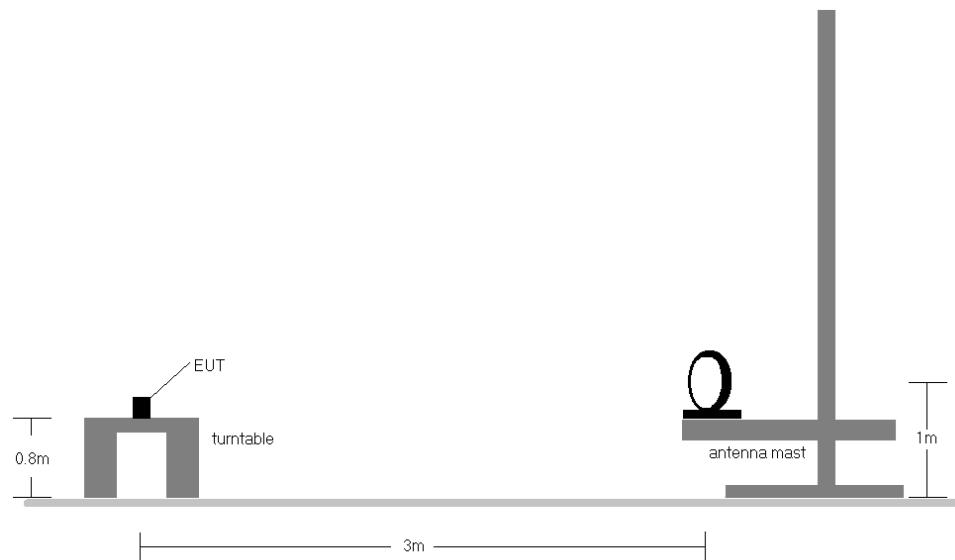


Figure 7-6. Radiated Test Setup < 30MHz

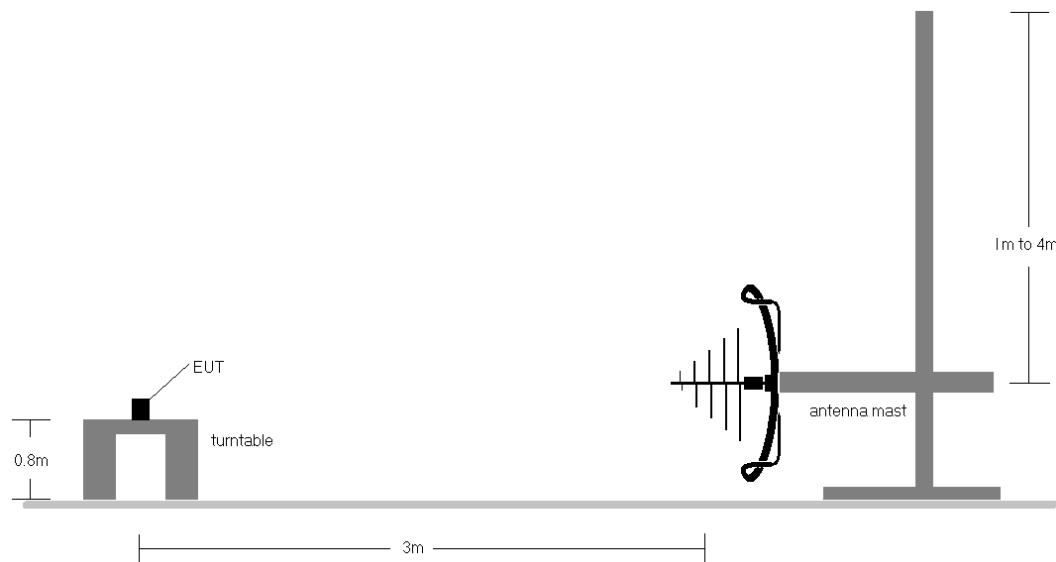


Figure 7-7. Radiated Test Setup < 1GHz

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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 7-158.
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 for emissions 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. 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
9. 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.
10. 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.
11. All antenna configurations and data rates were investigated and only the worst case are reported.

Sample Calculations

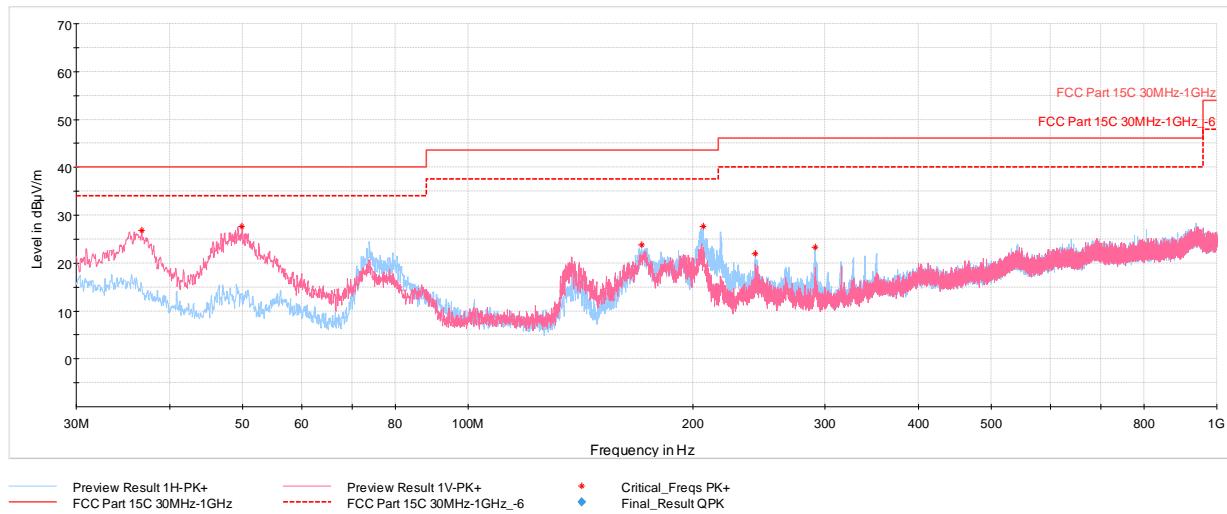
Determining Spurious Emissions Levels

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

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CDD Radiated Spurious Emissions (Below 1GHz)

§15.209; RSS-Gen [8.9]

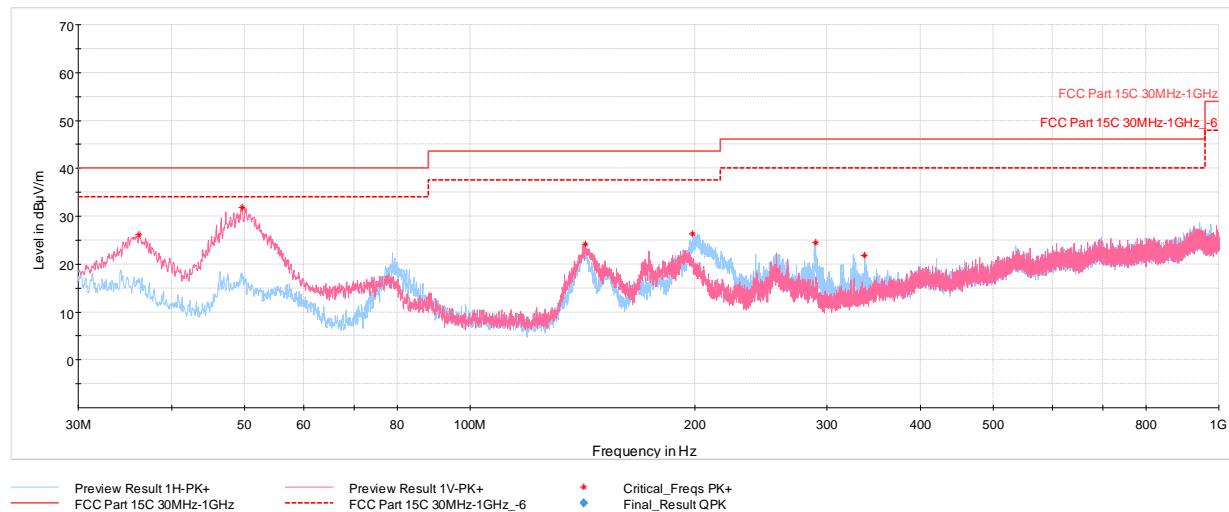


Plot 7-574. RSE below 1GHz CDD (RU26 – Ch.40), with AC/DC Adapter

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	Peak	V	100	0	-65.02	-15.22	26.76	40.00	-13.24
49.93	Peak	V	100	0	-58.25	-21.06	27.69	40.00	-12.31
170.55	Peak	H	100	273	-65.83	-17.42	23.75	43.52	-19.77
206.10	Peak	H	100	333	-62.71	-16.57	27.72	43.52	-15.80
242.24	Peak	H	100	341	-70.06	-14.96	21.98	46.02	-24.04
290.69	Peak	H	100	0	-68.77	-14.86	23.37	46.02	-22.65

Table 7-159. RSE below 1GHz CDD (RU26 – Ch.40), with AC/DC Adapter

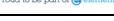
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Plot 7-575. RSE below 1GHz CDD (RU242 – Ch.40), with AC/DC Adapter

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]
36.16	Peak	V	100	337	-65.99	-14.89	26.12	40.00	-13.88
49.64	Peak	V	100	43	-54.17	-21.00	31.83	40.00	-8.17
142.67	Peak	V	100	43	-64.14	-18.79	24.07	43.52	-19.45
198.44	Peak	H	100	165	-63.34	-17.26	26.40	43.52	-17.12
289.28	Peak	H	100	273	-67.50	-14.94	24.56	46.02	-21.46
336.76	Peak	H	100	284	-72.35	-12.92	21.73	46.02	-24.29

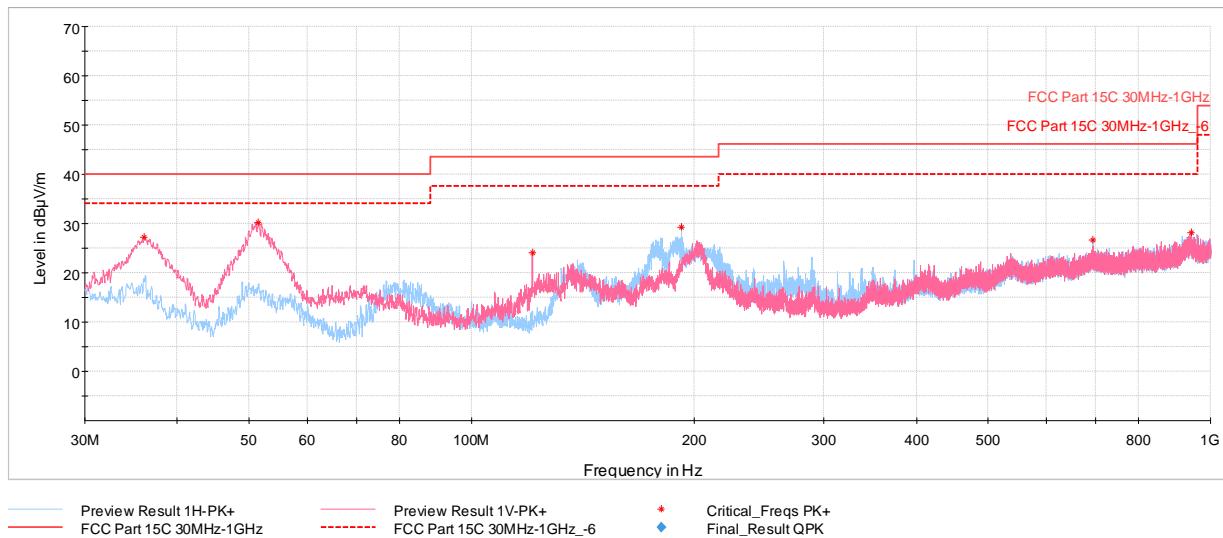
Table 7-160. RSE below 1GHz CDD (RU242 – Ch.40), with AC/DC Adapter

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Simultaneous TX Radiated Spurious Emissions Measurements (Below 1GHz) §15.209; RSS-Gen [8.9]

Description	LTE (Band 41)	802.11a/n/ac/ax 5GHz
Antenna	Antenna 4b	Antenna 4b
Channel	41490	36
Operating Frequency (MHz)	2680	5180
Mode/Modulation	QPSK/1RB/20MHz	802.11ax/RU26/MCS11

Table 7-161. Worst Case Simultaneous Transmission Configuration



Plot 7-576. Radiated Spurious Emissions – Simultaneous Transmission 30MHz – 1GHz, 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]
36.06	Peak	V	100	0	-64.90	-14.83	27.27	40.00	-12.73
51.53	Peak	V	100	6	-55.74	-21.12	30.14	40.00	-9.86
120.94	Peak	V	100	349	-63.49	-19.45	24.06	43.52	-19.46
192.38	Peak	H	100	243	-60.04	-17.72	29.24	43.52	-14.28
692.61	Peak	H	100	8	-77.64	-2.66	26.70	46.02	-19.32
942.14	Peak	V	250	174	-79.00	0.21	28.21	46.02	-17.81

Table 7-162. Radiated Spurious Emissions – Simultaneous Transmission 30MHz – 1GHz, with AC/DC Adapter)

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7.8 AC Line Conducted Emission 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. All data rates and modes were investigated for AC Line conducted spurious emissions.

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

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

Table 7-163. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013, Section 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

7. Analyzer center frequency was set to the frequency of the spurious emission of interest
8. RBW = 9kHz (for emissions from 150kHz – 30MHz)
9. Detector = RMS
10. Sweep time = auto couple
11. Trace mode = max hold
12. 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.

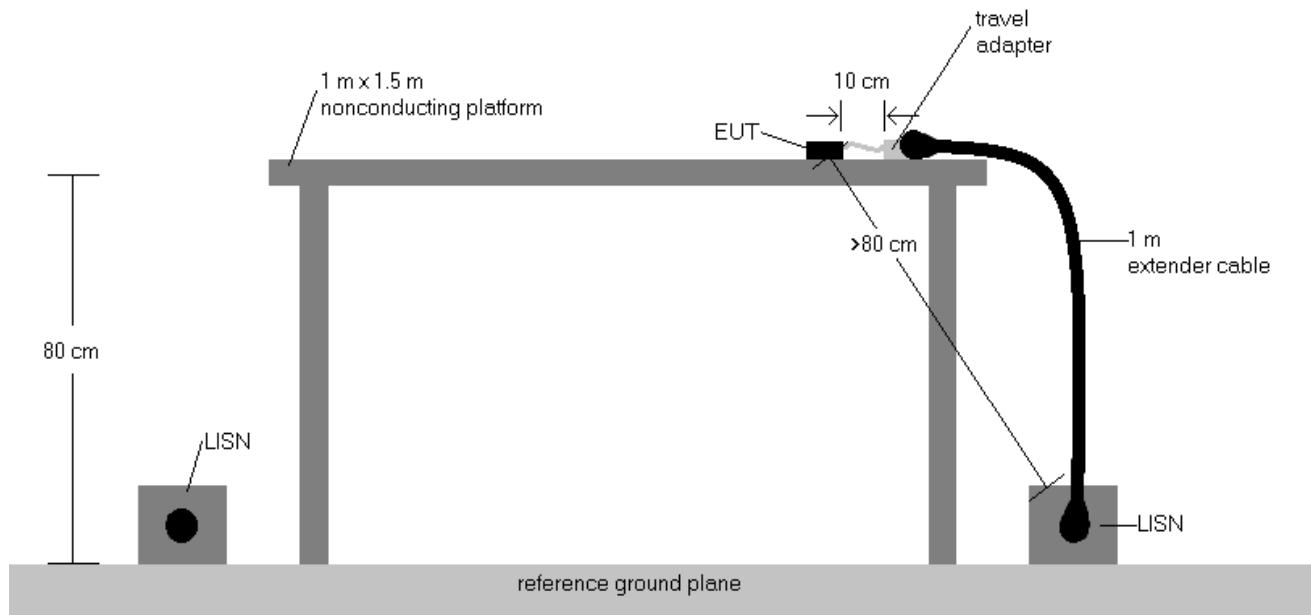
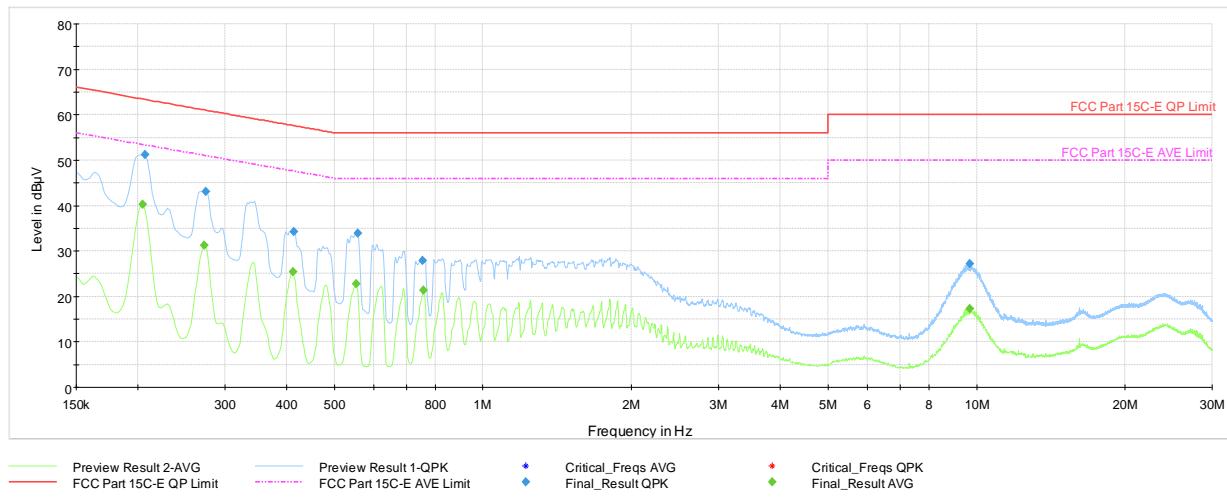


Figure 7-8. Test Instrument & Measurement Setup

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 15.207 and RSS-Gen (8.8).
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dB μ V) = QP/AV Analyzer/Receiver Level (dB μ V) + Correction Factor (dB)
6. Margin (dB) = QP/AV Level (dB μ V) - QP/AV Limit (dB μ V)
7. Traces shown in plots are made using quasi-peak and average detectors.
8. Deviations to the Specifications: None.

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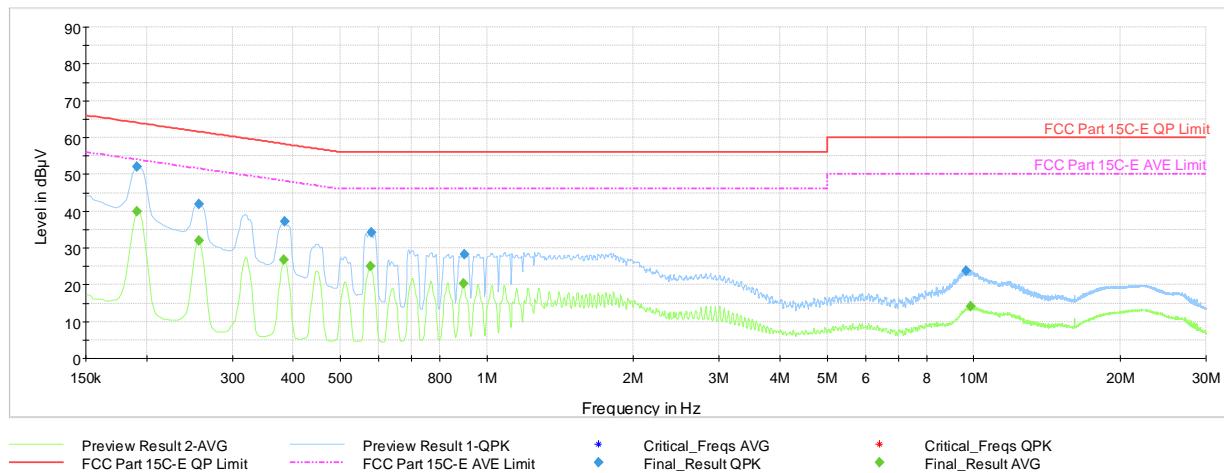


Plot 7-577. AC Line Conducted Plot with 11ax UNII Band 1 – RU26 – Ch.40 (L1) with Laptop

Frequency [MHz]	Process State	QuasiPeak [dB μ V]	Average [dB μ V]	Limit [dB μ V]	Margin [dB]	Line	PE
0.205	FINAL	—	40.30	53.42	-13.11	L1	GND
0.207	FINAL	51.2	—	63.33	-12.11	L1	GND
0.272	FINAL	—	31.18	51.05	-19.87	L1	GND
0.275	FINAL	43.0	—	60.98	-17.95	L1	GND
0.412	FINAL	—	25.51	47.61	-22.10	L1	GND
0.414	FINAL	34.2	—	57.57	-23.34	L1	GND
0.554	FINAL	—	22.72	46.00	-23.28	L1	GND
0.558	FINAL	34.0	—	56.00	-22.02	L1	GND
0.754	FINAL	27.9	—	56.00	-28.10	L1	GND
0.758	FINAL	—	21.34	46.00	-24.66	L1	GND
9.686	FINAL	—	17.29	50.00	-32.71	L1	GND
9.686	FINAL	27.2	—	60.00	-32.85	L1	GND

Table 7-164. AC Line Conducted with 11ax UNII Band 1 – RU26 – Ch.40 (L1) with Laptop

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Plot 7-578. AC Line Conducted Plot with 11ax UNII Band 1 – RU26 – Ch.40 (N) with Laptop

Frequency [MHz]	Process State	QuasiPeak [dB μ V]	Average [dB μ V]	Limit [dB μ V]	Margin [dB]	Line	PE
0.191	FINAL	—	39.99	53.98	-13.99	N	GND
0.191	FINAL	52.0	—	63.98	-11.98	N	GND
0.257	FINAL	—	31.97	51.54	-19.57	N	GND
0.257	FINAL	41.9	—	61.54	-19.66	N	GND
0.383	FINAL	—	26.66	48.23	-21.57	N	GND
0.385	FINAL	37.1	—	58.18	-21.09	N	GND
0.576	FINAL	—	25.12	46.00	-20.88	N	GND
0.578	FINAL	34.2	—	56.00	-21.83	N	GND
0.896	FINAL	—	20.44	46.00	-25.56	N	GND
0.898	FINAL	28.3	—	56.00	-27.72	N	GND
9.630	FINAL	23.8	—	60.00	-36.18	N	GND
9.875	FINAL	—	14.02	50.00	-35.98	N	GND

Table 7-165. AC Line Conducted with 11ax UNII Band 1 – RU26 – Ch.40 (N) with Laptop

FCC ID: BCGA2379 IC: 579C-A2379	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2101020005-16-R1.BCG	Test Dates: 12/12/2020 - 03/2/2021	EUT Type: Tablet Device	Page 248 of 249	

8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Apple Tablet Device** **FCC ID: BCGA2379** and **IC: 579C-A2379** is in compliance with is in compliance with Part 15 Subpart E (15.407) of the FCC Rules and RSS-247 of the Innovation, Science and Economic Development Canada Rules.

FCC ID: BCGA2379 IC: 579C-A2379	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2101020005-16-R1.BCG	Test Dates: 12/12/2020 - 03/2/2021	EUT Type: Tablet Device	Page 249 of 249