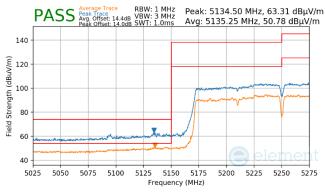
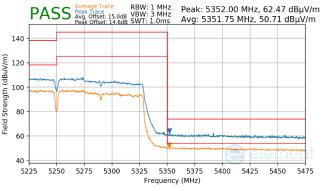


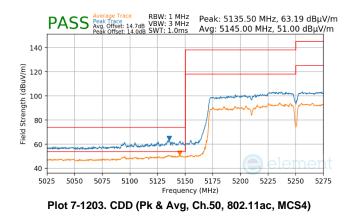
7.6.16 CDD/SDM Radiated Band Edge Measurements (160MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

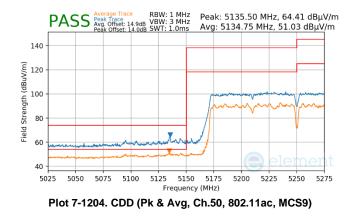


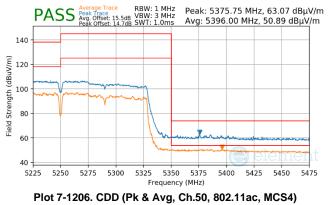
Plot 7-1202. CDD (Pk & Avg, Ch.50, 802.11ac, MCS2)

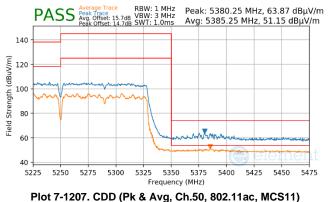


Plot 7-1205. CDD (Pk & Avg, Ch.50, 802.11ac, MCS2)



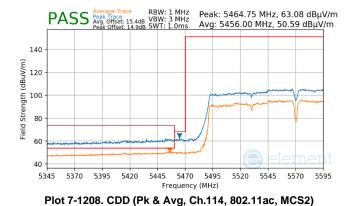


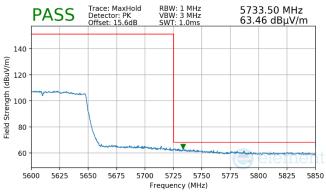




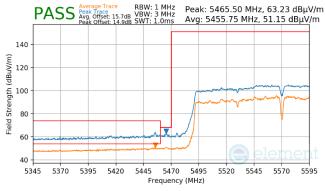
FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 271 of 207
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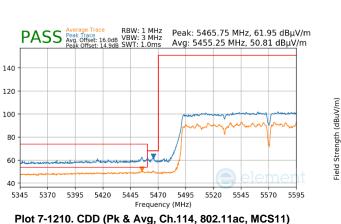




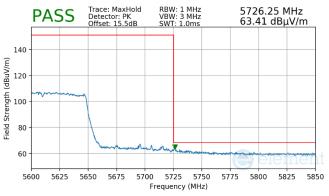
Plot 7-1211. CDD (Pk & Avg, Ch.114, 802.11ac, MCS2)



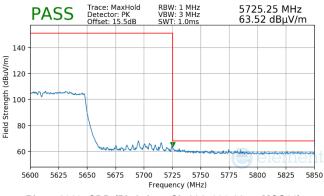
Plot 7-1209. CDD (Pk & Avg, Ch.114, 802.11ac, MCS4)



Field Strength (dBuV/m)



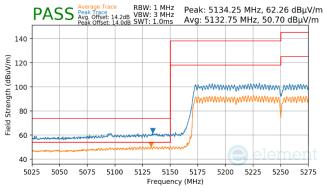
Plot 7-1212. CDD (Pk & Avg, Ch.114, 802.11ac, MCS4)



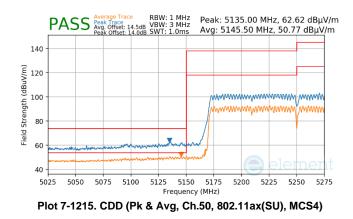
Plot 7-1213. CDD (Pk & Avg, Ch.114, 802.11ac, MCS11)

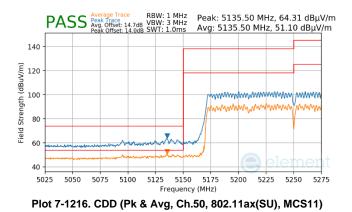
FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 272 of 297
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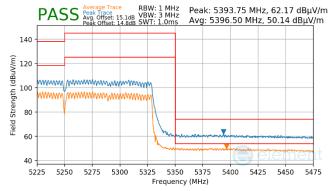




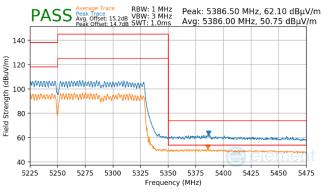
Plot 7-1214. CDD (Pk & Avg, Ch.50, 802.11ax(SU), MCS2)



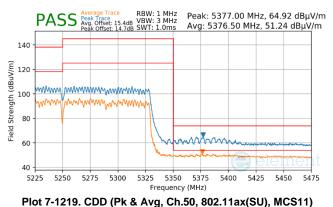




Plot 7-1217. CDD (Pk & Avg, Ch.50, 802.11ax(SU), MCS2)



Plot 7-1218. CDD (Pk & Avg, Ch.50, 802.11ax(SU), MCS4)

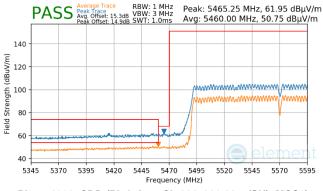


FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 272 of 207
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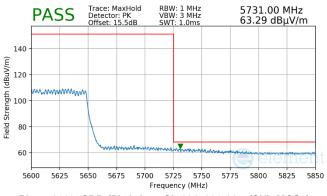


(dBuV/m)

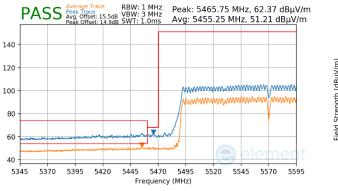
Field Strength



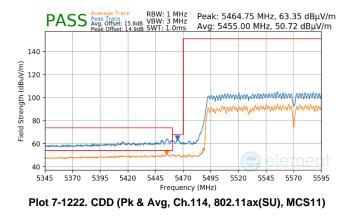


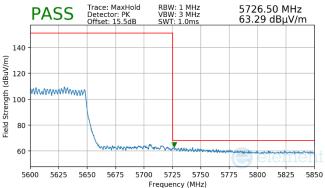


Plot 7-1223. CDD (Pk & Avg, Ch.114, 802.11ax(SU), MCS2)

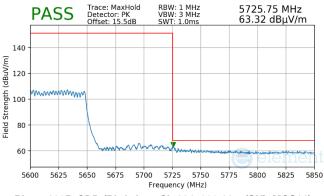


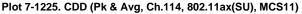
Plot 7-1221. CDD (Pk & Avg, Ch.114, 802.11ax(SU), MCS4)





Plot 7-1224. CDD (Pk & Avg, Ch.114, 802.11ax(SU), MCS4)





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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 7-219 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 7-219. 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 = quasi-peak
- 5. Sweep time = auto couple
- 6. Trace mode = max hold

7. Trace was allowed to stabilize

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Test Setup

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

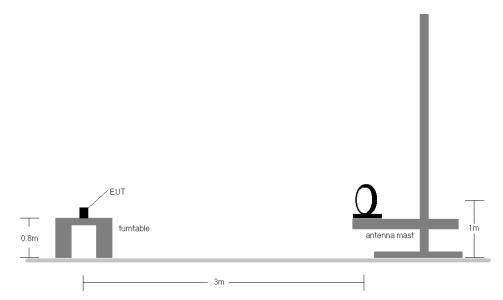
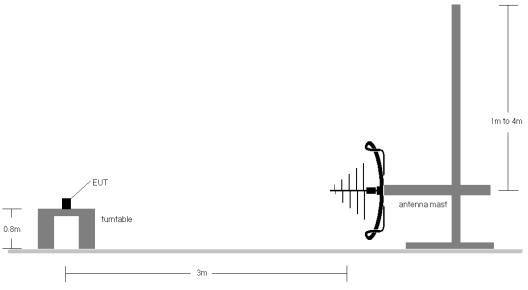
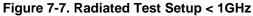


Figure 7-6. Radiated Test Setup < 30MHz





FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 276 of 207
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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 7-219.
- 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 guasi 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. 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
- 10. All antenna configurations were investigated and only the worst case is reported.
- 11. The unit was tested with all possible modes and only the highest emission is reported.

Sample Calculations

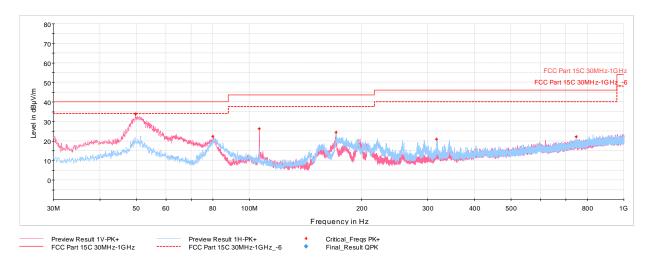
Determining Spurious Emissions Levels

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

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



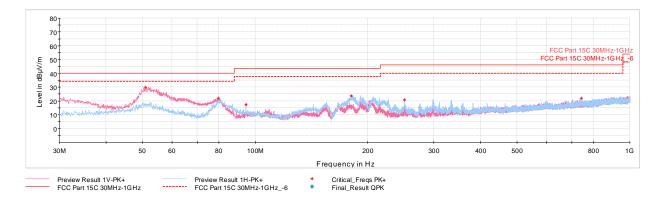
Plot 7-1226. Radiated Spurious Emissions below 1GHz, 802.11n, Ch.36 with AC/DC Adapter

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]
49.74	Max-Peak	V	100	3	-60.56	-12.62	33.82	40.00	-6.18
80.10	Max-Peak	V	300	15	-63.36	-21.23	22.41	40.00	-17.59
106.48	Max-Peak	V	100	143	-64.17	-16.52	26.31	43.52	-17.21
170.75	Max-Peak	н	200	149	-63.71	-18.90	24.39	43.52	-19.13
316.68	Max-Peak	н	100	81	-72.37	-13.76	20.87	46.02	-25.15
746.39	Max-Peak	н	100	280	-79.51	-5.36	22.13	46.02	-23.89

Table 7-220. Radiated Spurious Emissions below 1GHz, 802.11n, Ch.36 with AC/DC Adapter

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Plot 7-1227. Radiated Spurious Emissions below 1GHz SDM 802.11ax (SU), Ch.36 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]
51.05	Max-Peak	V	100	9	-64.57	-12.71	29.72	40.00	-10.28
79.86	Max-Peak	V	100	90	-63.80	-21.26	21.94	40.00	-18.06
94.51	Max-Peak	н	200	265	-72.84	-16.91	17.25	43.52	-26.27
180.69	Max-Peak	н	100	200	-65.09	-18.30	23.61	43.52	-19.91
250.63	Max-Peak	Н	100	336	-70.94	-15.23	20.83	46.02	-25.19
742.17	Max-Peak	н	100	212	-79.73	-5.44	21.83	46.02	-24.19

Table 7-221. Radiated Spurious Emissions below 1GHz, 802.11ax (SU), Ch.36 with AC/DC Adapter

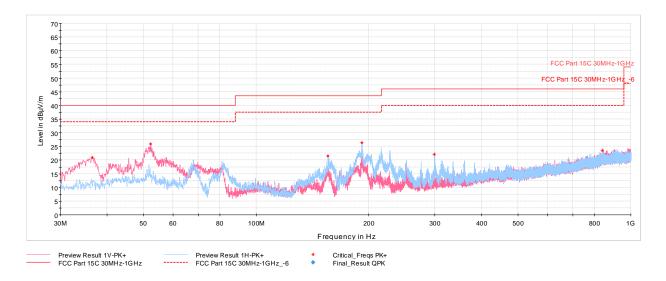
FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 270 of 207
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Simultaneous TX Radiated Spurious Emissions Measurements (Below 1GHz) §15.209; RSS-Gen [8.9]

Description	Bluetooth	UNII
Antenna	Antenna WF8	Antenna WF8
Channel	79	36
Operating Frequency (MHz)	2480	5180
Mode/Modulation	GFSK ePA	802.11n

Table 7-222. Worst Case Simultaneous Transmission Configuration



Plot 7-1228. Radiated Spurious Emissions – S	Simultaneous Transmission 30MH	z – 1GHz, with AC/DC Adapter)
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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]
36.50	Max-Peak	V	100	357	-70.72	-15.36	20.92	40.00	-19.08
52.36	Max-Peak	V	100	193	-67.86	-13.22	25.92	40.00	-14.08
155.57	Max-Peak	н	200	227	-65.61	-19.88	21.51	43.52	-22.01
191.41	Max-Peak	н	100	28	-63.23	-17.34	26.43	43.52	-17.09
298.98	Max-Peak	н	100	5	-70.22	-14.61	22.17	46.02	-23.85
840.14	Max-Peak	V	100	253	-80.11	-3.31	23.58	46.02	-22.44

Table 7-223. Radiated Spurious Emissions – Simultaneous Transmission 30MHz – 1GHz, with AC/DC Adapter)

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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7.8 AC Line-Conducted Emissions Measurement

§15.407; 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	Conducted Limit (dBµV)			
(MHz)	Quasi-peak	Average		
0.15 – 0.5	66 to 56*	56 to 46*		
0.5 – 5	56	46		
5 – 30	60	50		

Table 7-224. 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

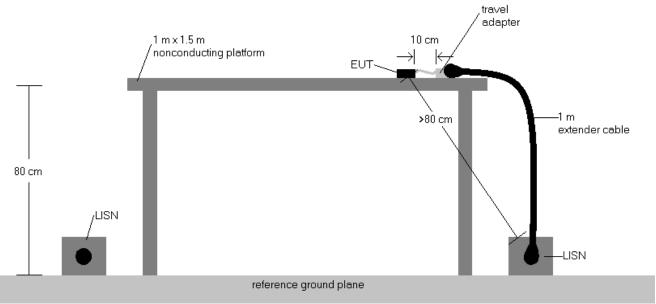
- 1. Analyzer center frequency was set to the frequency of the spurious emission of interest
- 2. RBW = 9kHz (for emissions from 150kHz 30MHz)
- 3. Detector = RMS
- 4. Sweep time = auto couple
- 5. Trace mode = max hold
- 6. Trace was allowed to stabilize

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Test Setup

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



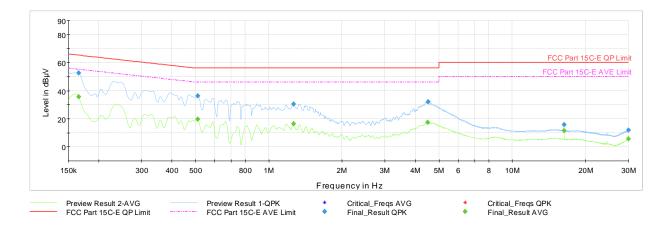


Test Notes

- 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.
- 9. The unit was tested with all possible modes and only the highest emission is reported.

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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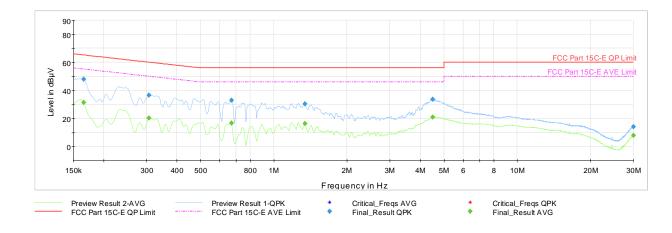


Frequency [MHz]	Process State	QuasiPeak [dBµV]	Averaqe [dBµV]	Limit [dBµV]	Marqin [dB]	Line	PE
0.166	FINAL	_	35.47	55.17	-19.70	L1	GND
0.166	FINAL	52.5	_	65.17	-12.70	L1	GND
0.510	FINAL	—	19.76	46.00	-26.24	L1	GND
0.510	FINAL	36.2	_	56.00	-19.76	L1	GND
1.262	FINAL	—	16.39	46.00	-29.61	L1	GND
1.262	FINAL	30.4	—	56.00	-25.58	L1	GND
4.504	FINAL	—	17.39	46.00	-28.61	L1	GND
4.508	FINAL	31.9	—	56.00	-24.10	L1	GND
16.316	FINAL	15.8	—	60.00	-44.22	L1	GND
16.316	FINAL	—	11.36	50.00	-38.64	L1	GND
29.985	FINAL	11.9	_	60.00	-48.08	L1	GND
29.992	FINAL	_	5.72	50.00	-44.28	L1	GND

Table 7-225. AC Line Conducted Data with 802.11n CDD - Ch.40 (L1) with AC/DC adapter

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 202 of 207
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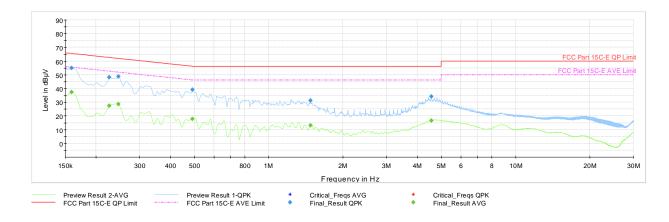


Frequency [MHz]	Process State	QuasiPeak [dBµV]	Averaqe [dBµV]	Limit [dBµV]	Marqin [dB]	Line	PE
0.166	FINAL	_	31.38	55.17	-23.79	N	GND
0.166	FINAL	48.1	_	65.17	-17.09	N	GND
0.308	FINAL	_	20.21	50.04	-29.82	N	GND
0.308	FINAL	36.7	_	60.04	-23.32	N	GND
0.670	FINAL	33.0	_	56.00	-22.97	N	GND
0.670	FINAL	—	16.68	46.00	-29.32	N	GND
1.343	FINAL	30.3	_	56.00	-25.67	N	GND
1.343	FINAL	—	16.36	46.00	-29.64	N	GND
4.499	FINAL	—	21.06	46.00	-24.94	N	GND
4.502	FINAL	33.7	_	56.00	-22.33	N	GND
29.969	FINAL	14.2	_	60.00	-45.83	N	GND
29.972	FINAL	_	8.07	50.00	-41.93	N	GND

Table 7-226. AC Line Conducted Data with 802.11n CDD - Ch.40 (N), with AC/DC adapter

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 384 of 387
1C2311270063-11.BCG	11/29/2023 - 1/15/2024	Tablet Device	Fage 364 01 367
			V 10.5 12/15/2021





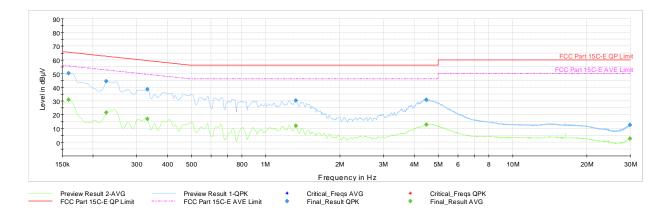
Plot 7-1231. AC Line Conducted Plot with 802.11ax(SU) CDD - Ch.40 (L1), with AC/DC adapter

Frequency [MHz]	Process State	QuasiPeak [dBµV]	Averaqe [dBµV]	Limit [dBµV]	Marqin [dB]	Line	PE
0.159	FINAL	—	37.36	55.52	-18.16	L1	GND
0.159	FINAL	55.0	_	65.52	-10.49	L1	GND
0.227	FINAL	—	27.43	52.58	-25.15	L1	GND
0.227	FINAL	48.1	_	62.58	14.47	L1	GND
0.247	FINAL	_	28.57	51.87	-23.30	L1	GND
0.247	FINAL	48.7	_	61.87	13.21	L1	GND
0.492	FINAL	39.1	_	56.13	17.05	L1	GND
0.492	FINAL	—	17.73	46.13	-28.40	L1	GND
1.480	FINAL	31.3	_	56.00	24.75	L1	GND
1.480	FINAL	—	13.06	46.00	-32.94	L1	GND
4.558	FINAL	34.1	_	56.00	-21.94	L1	GND
4.567	FINAL	_	16.74	46.00	-29.26	L1	GND

Table 7-227. AC Line Conducted Data with 802.11ax(SU) CDD - Ch.40 (L1) with AC/DC adapter

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 385 of 387
1C2311270063-11.BCG	11/29/2023 - 1/15/2024	Tablet Device	Fage 303 01 307
			V 10.5 12/15/2021





Plot 7-1232. AC Line Conducted Plot with 802.1	11ax(SU) CDD – Ch.4	40 (N), with AC/DC adapter

Frequency [MHz]	Process State	QuasiPeak [dBµV]	Averaqe [dBµV]	Limit [dB µ V]	Marqin [dB]	Line	PE
0.152	FINAL	—	29.72	55.88	-26.15	N	GND
0.152	FINAL	49.4	_	65.88	-16.48	N	GND
0.227	FINAL	—	22.44	52.58	-30.14	N	GND
0.227	FINAL	42.9	_	62.58	-19.66	N	GND
0.301	FINAL	—	17.40	50.22	-32.82	N	GND
0.301	FINAL	38.9	_	60.22	-21.34	N	GND
1.309	FINAL	30.0	_	56.00	-26.02	N	GND
1.309	FINAL	—	12.64	46.00	-33.36	N	GND
4.578	FINAL	31.3	_	56.00	-24.72	N	GND
4.578	FINAL	—	15.50	46.00	-30.50	N	GND
29.972	FINAL	—	4.37	50.00	-45.63	N	GND
29.972	FINAL	13.6	_	60.00	-46.38	N	GND

Table 7-228. AC Line Conducted Data with 802.11ax(SU) CDD - Ch.40 (N), with AC/DC adapter

FCC ID: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 200 of 207
1C2311270063-11.BCG	11/29/2023 - 1/15/2024	Tablet Device	Page 386 of 387
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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: BCGA2902** and **IC: 579C-A2902** 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: BCGA2902 IC: 579C-A2902	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 207 of 207
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