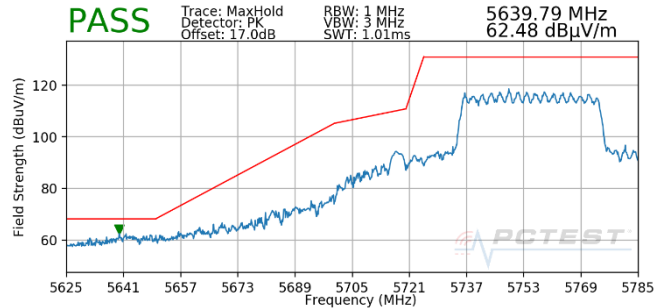
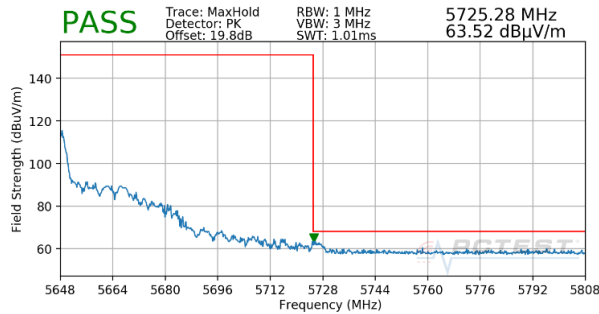


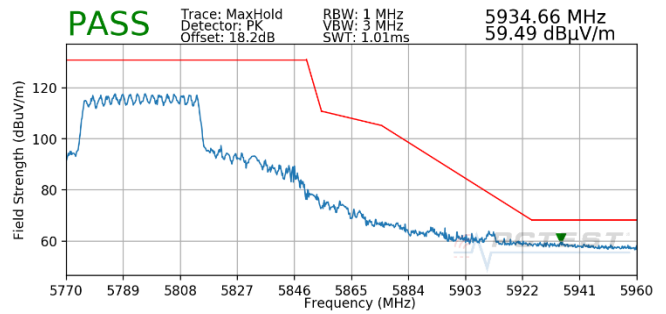
Plot 7-563. (FCC Only) CDD (Pk & Avg, RU484, Index 65, Ch.118, MCS11)



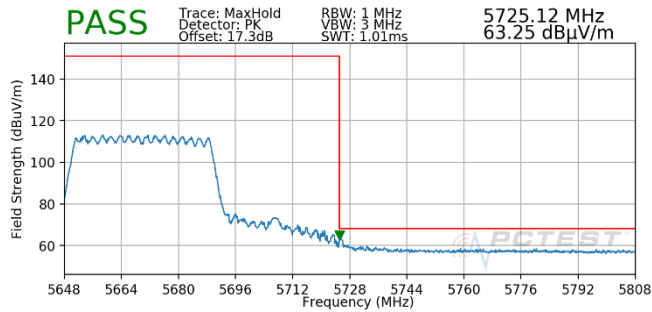
Plot 7-566. CDD (Pk, RU484, Index 65, Ch.151, MCS11)



Plot 7-564. (FCC Only) CDD (Pk, RU484, Index 65, Ch.126, MCS11)



Plot 7-567. CDD (Pk, RU484, Index 65, Ch.159, MCS11)



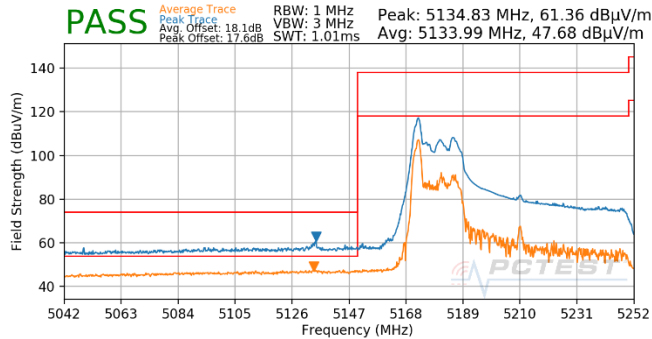
Plot 7-565. CDD (Pk, RU484, Index 65, Ch.134, MCS11)

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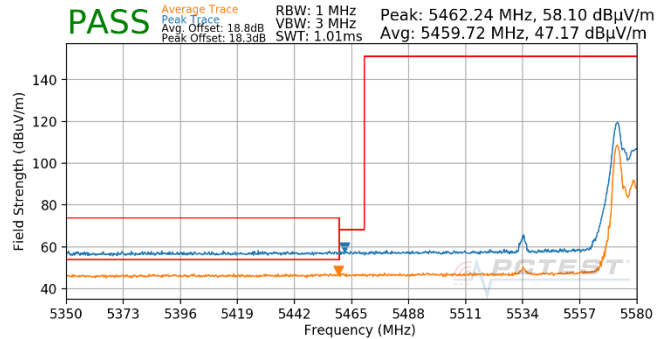
## 7.6.14 CDD/SDM Radiated Band Edge Measurements (80MHz BW)

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

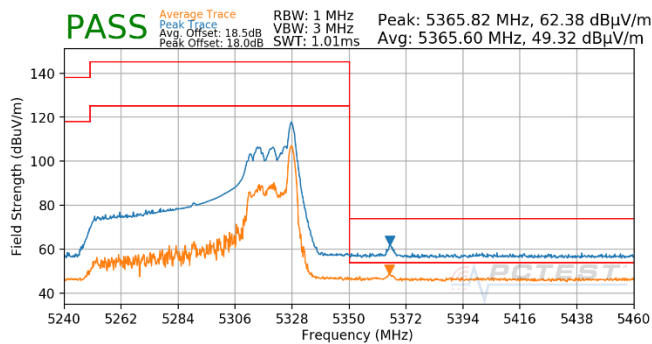
### RU26



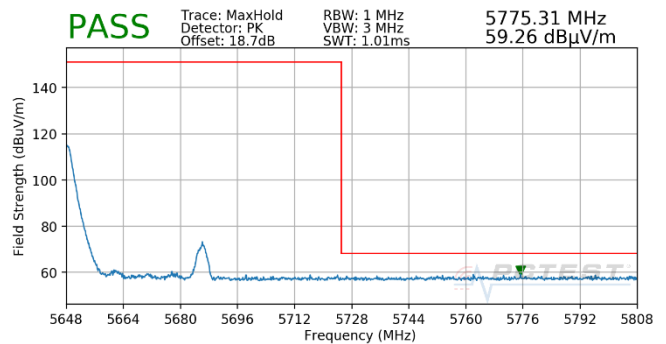
Plot 7-568. SDM (Pk & Avg, RU26, Index 0, Ch.42, MCS11)



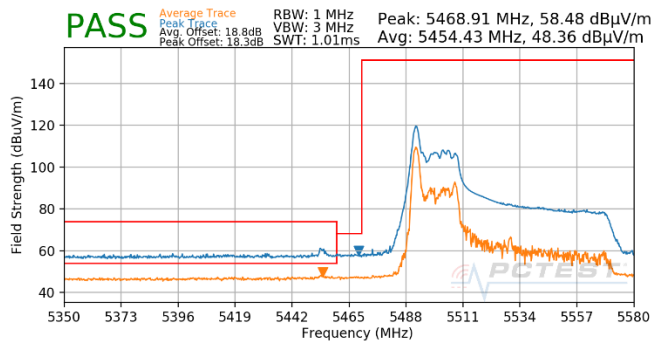
Plot 7-571. (FCC Only) SDM (Pk & Avg, RU26, Index 0, Ch.122, MCS11)



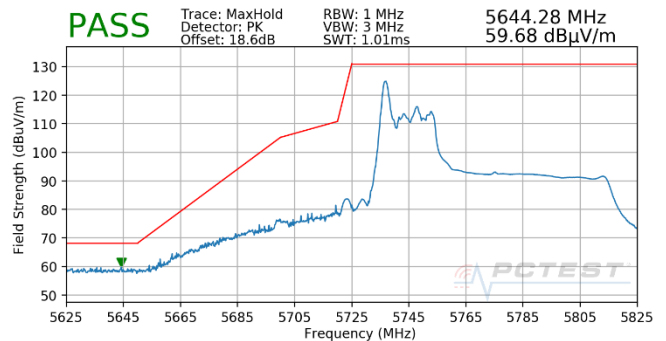
Plot 7-569. SDM (Pk & Avg, RU26, Index 36, Ch.58, MCS11)



Plot 7-572. (FCC Only) SDM (Pk, RU26, Index 36, Ch.122, MCS11)

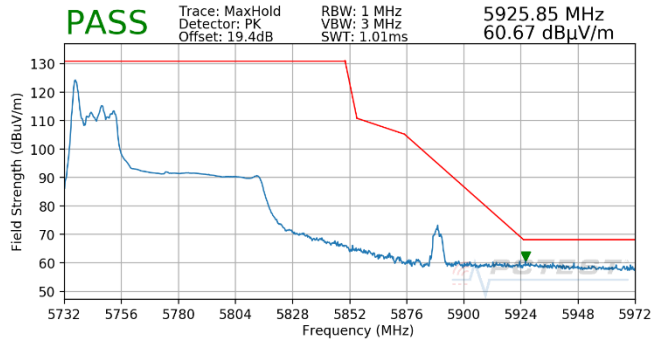


Plot 7-570. SDM (Pk & Avg, RU26, Index 0, Ch.106, MCS11)



Plot 7-573. CDD (Pk, RU26, Index 0, Ch.155, MCS11)

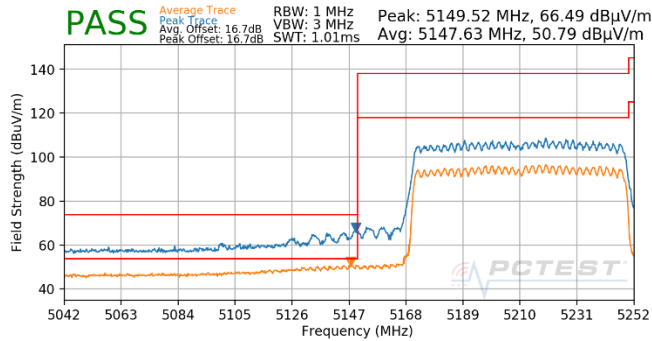
FCC ID: BCGA2301 IC: 579C-A2301	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2101020002-16-R1.BCG	Test Dates: 12/12/2020 - 3/10/2021	EUT Type: Tablet Device	Page 243 of 257



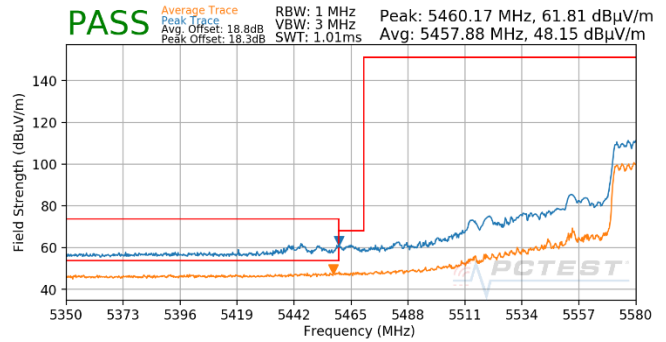
**Plot 7-574. CDD (Pk, RU26, Index 36, Ch.155, MCS11)**

<b>FCC ID:</b> BCGA2301 <b>IC:</b> 579C-A2301	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1C2101020002-16-R1.BCG	<b>Test Dates:</b> 12/12/2020 - 3/10/2021	<b>EUT Type:</b> Tablet Device	Page 244 of 257

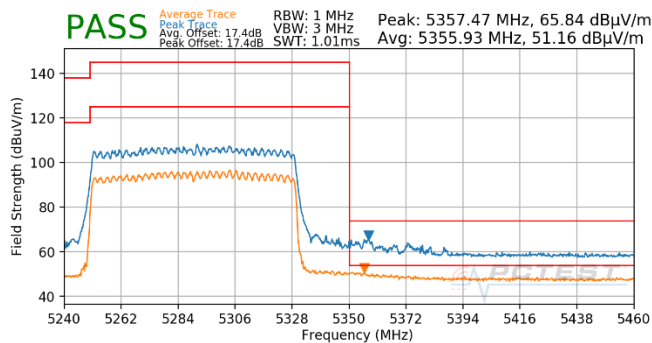
## RU996



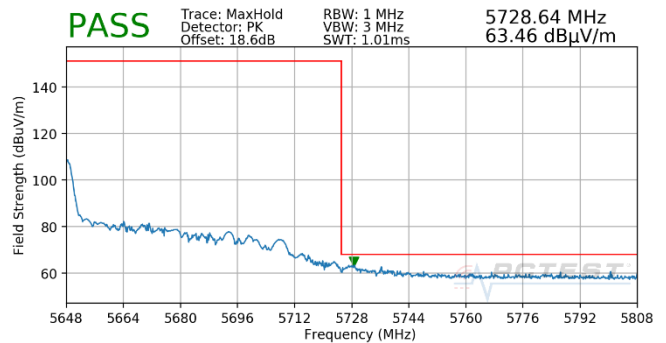
Plot 7-575. CDD (Pk & Avg, RU996, Index 67, Ch.42, MCS11)



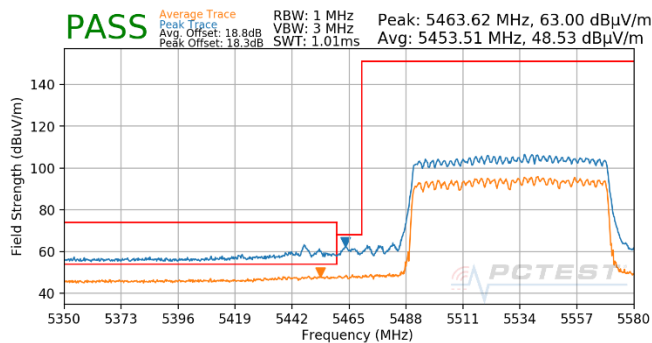
Plot 7-578. (FCC Only) CDD (Pk & Avg, RU996, Index 67, Ch.122, MCS11)



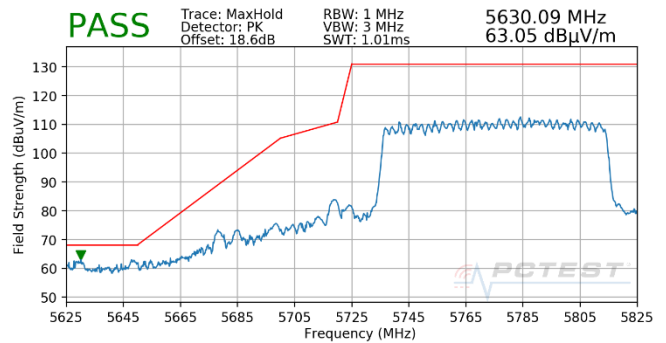
Plot 7-576. CDD (Pk & Avg, RU996, Index 67, Ch.58, MCS11)



Plot 7-579. (FCC Only) CDD (Pk, RU996, Index 67, Ch.122, MCS11)

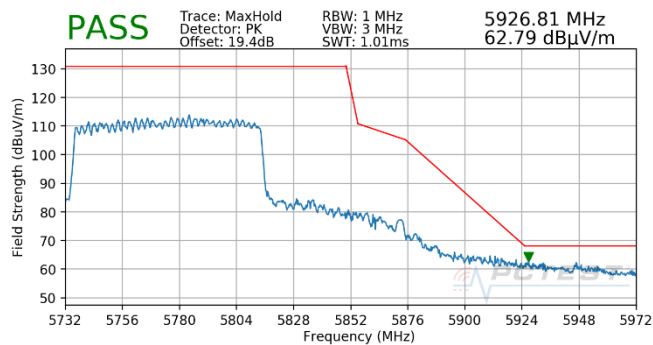


Plot 7-577. CDD (Pk & Avg, RU996, Index 67, Ch.106, MCS11)



Plot 7-580. CDD (Pk, RU996, Index 67, Ch.155, MCS11)

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**Plot 7-581. CDD (Pk, RU996, Index 67, Ch.155, MCS11)**

<b>FCC ID:</b> BCGA2301 <b>IC:</b> 579C-A2301	 <b>MEASUREMENT REPORT</b> <b>(CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1C2101020002-16-R1.BCG	<b>Test Dates:</b> 12/12/2020 - 3/10/2021	<b>EUT Type:</b> Tablet Device	Page 246 of 257

## 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 [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 7-158. 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

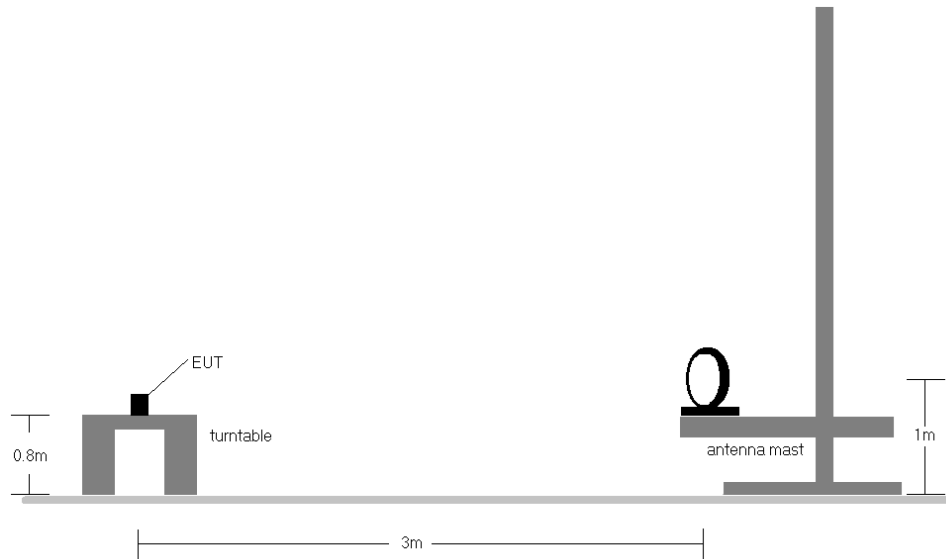
#### Average Measurements

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

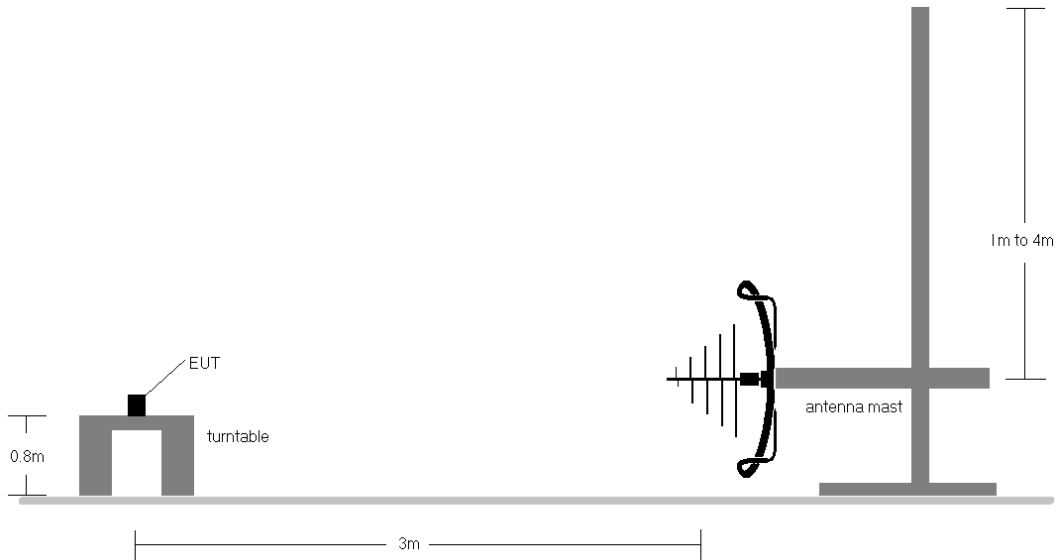
FCC ID: BCGA2301 IC: 579C-A2301		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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## Test Setup

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



**Figure 7-6. 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. All antenna configurations and data rates were investigated and only the worst case are reported.

## Sample Calculations

### Determining Spurious Emissions Levels

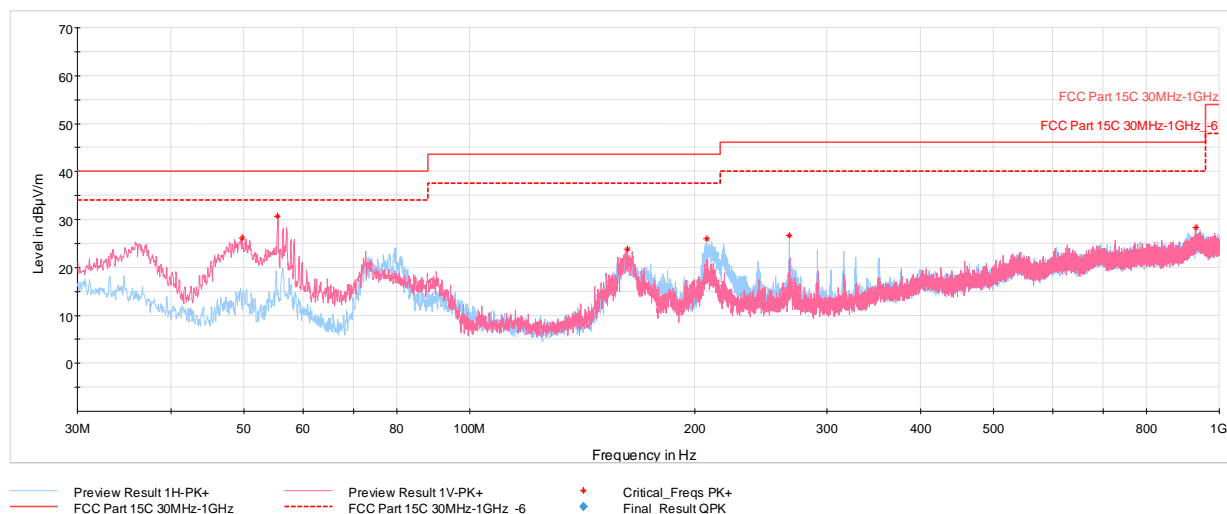
- Field Strength Level  $_{[dB\mu V/m]} = \text{Analyzer Level}_{[dBm]} + 107 + \text{AFCL}_{[dB/m]}$
- $\text{AFCL}_{[dB/m]} = \text{Antenna Factor}_{[dB/m]} + \text{Cable Loss}_{[dB]} - \text{Preamplifier Gain}_{[dB]}$
- $\text{Margin}_{[dB]} = \text{Field Strength Level}_{[dB\mu V/m]} - \text{Limit}_{[dB\mu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

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## CDD/SDM Radiated Spurious Emissions (Below 1GHz)

§15.209; RSS-Gen [8.9]

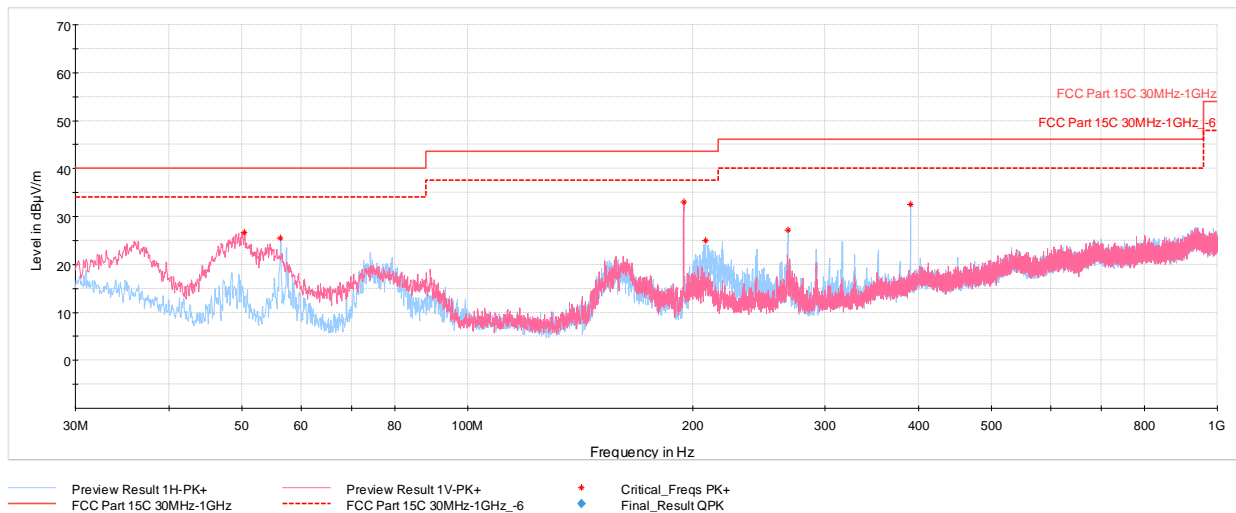


Plot 7-582. RSE below 1GHz CDD/SDM (RU26 – Ch.40), with AC/DC Adapter

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]
49.74	Max Peak	V	100	13	-59.77	-21.00	26.23	40.00	-13.77
55.46	Max Peak	V	250	9	-55.33	-21.00	30.67	40.00	-9.33
162.41	Max Peak	V	100	317	-66.27	-17.00	23.73	43.52	-19.79
207.17	Max Peak	H	100	323	-64.99	-16.00	26.01	43.52	-17.51
267.07	Max Peak	H	100	266	-66.42	-14.00	26.58	46.02	-19.44
932.15	Max Peak	H	250	312	-78.72	0.00	28.28	46.02	-17.74

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

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<b>Test Report S/N:</b> 1C2101020002-16-R1.BCG	<b>Test Dates:</b> 12/12/2020 - 3/10/2021	<b>EUT Type:</b> Tablet Device	Page 250 of 257



**Plot 7-583. RSE below 1GHz CDD/SDM (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]
50.42	Max Peak	V	100	5	-59.34	-21.07	26.59	40.00	-13.41
56.34	Max Peak	H	100	50	-60.50	-21.08	25.42	40.00	-14.58
194.27	Max Peak	V	250	297	-56.35	-17.58	33.07	43.52	-10.45
207.75	Max Peak	H	100	345	-65.59	-16.48	24.93	43.52	-18.59
267.46	Max Peak	H	100	103	-66.21	-13.68	27.11	46.02	-18.91
389.72	Max Peak	H	100	315	-64.85	-9.69	32.46	46.02	-13.56

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

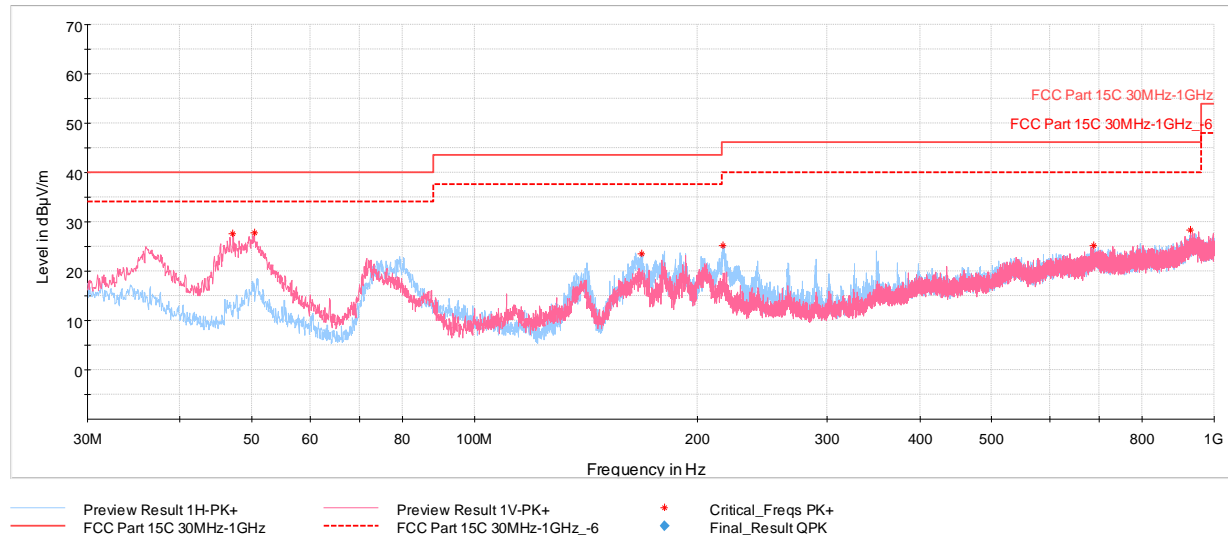
FCC ID: BCGA2301 IC: 579C-A2301		<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1C2101020002-16-R1.BCG	<b>Test Dates:</b> 12/12/2020 - 3/10/2021	<b>EUT Type:</b> Tablet Device	Page 251 of 257

## Simultaneous TX Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]

Description	LTE (Band 66)	802.11a/n/ac/ax 5GHz
Antenna	Antenna 4b	Antenna 4b
Channel	132572	36
Operating Frequency (MHz)	1770	5180
Mode/Modulation	QPSK/1RB/20MHz	802.11ax/RU26/MCS11

**Table 7-161. Worst Case Simultaneous Transmission Configuration**



**Plot 7-584. 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]
47.17	Max Peak	V	100	357	-59.03	-20.42	27.55	40.00	-12.45
50.42	Max Peak	V	100	25	-58.18	-21.07	27.75	40.00	-12.25
168.42	Max Peak	H	100	260	-66.01	-17.55	23.44	43.52	-20.08
216.58	Max Peak	H	100	247	-65.16	-16.56	25.28	46.02	-20.74
686.88	Max Peak	V	250	15	-79.09	-2.79	25.12	46.02	-20.90
928.37	Max Peak	H	100	131	-78.55	-0.20	28.25	46.02	-17.77

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

FCC ID: BCGA2301 IC: 579C-A2301	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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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 (dBμV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

**Table 7-163. 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

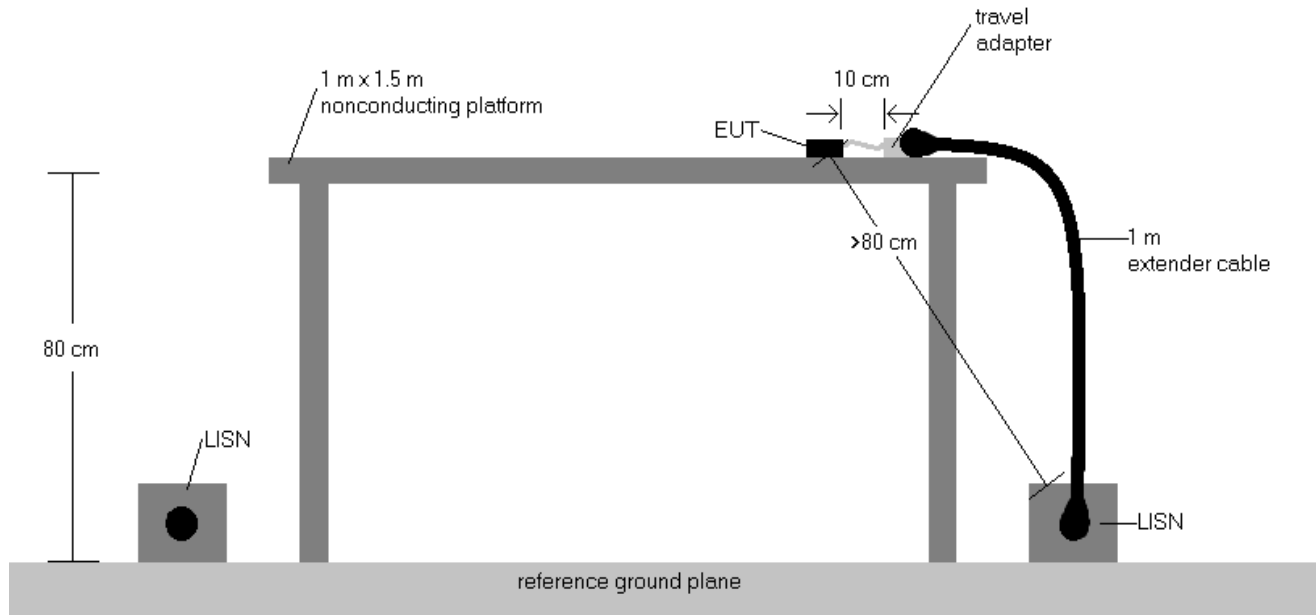
##### Average Measurements

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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<b>Test Report S/N:</b> 1C2101020002-16-R1.BCG	<b>Test Dates:</b> 12/12/2020 - 3/10/2021	<b>EUT Type:</b> Tablet Device	Page 253 of 257

## Test Setup

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

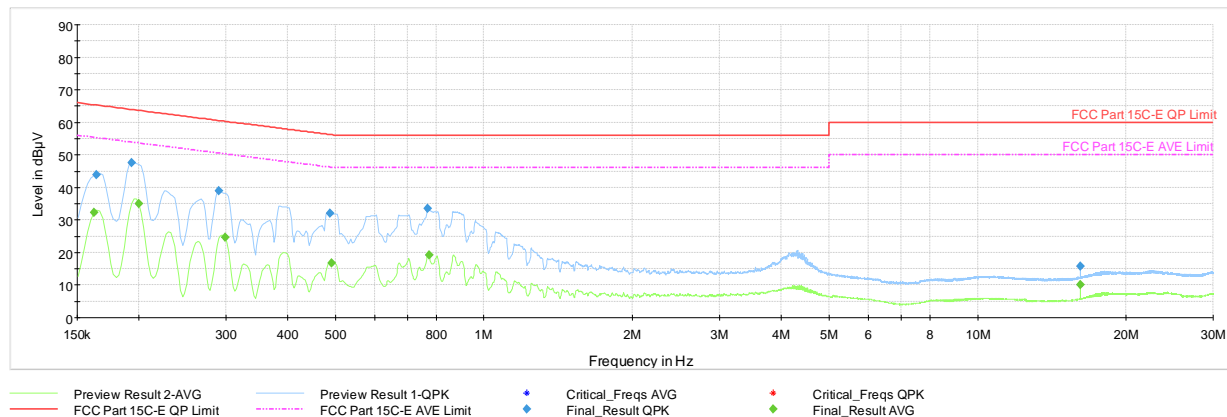


**Figure 7-8. Test Instrument & Measurement Setup**

## Test Notes

- 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.
- Both configurations below were investigated, and the worst case has been reported.
  - EUT powered by AC/DC adaptor via USB-C cable with wire charger
  - EUT powered by host PC via USB-C cable with wire charger
- The limit for an intentional radiator from 150kHz to 30MHz are specified in 15.207 and RSS-Gen (8.8).
- $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
- $\text{QP/AV Level (dB}_{\mu\text{V}}) = \text{QP/AV Analyzer/Receiver Level (dB}_{\mu\text{V}}) + \text{Correction Factor (dB)}$
- $\text{Margin (dB)} = \text{QP/AV Level (dB}_{\mu\text{V}}) - \text{QP/AV Limit (dB}_{\mu\text{V}})$
- Traces shown in plots are made using quasi-peak and average detectors.
- Deviations to the Specifications: None.

FCC ID: BCGA2301 IC: 579C-A2301	 <b>PCTEST</b> Proud to be part of 	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1C2101020002-16-R1.BCG	<b>Test Dates:</b> 12/12/2020 - 3/10/2021	<b>EUT Type:</b> Tablet Device	Page 254 of 257

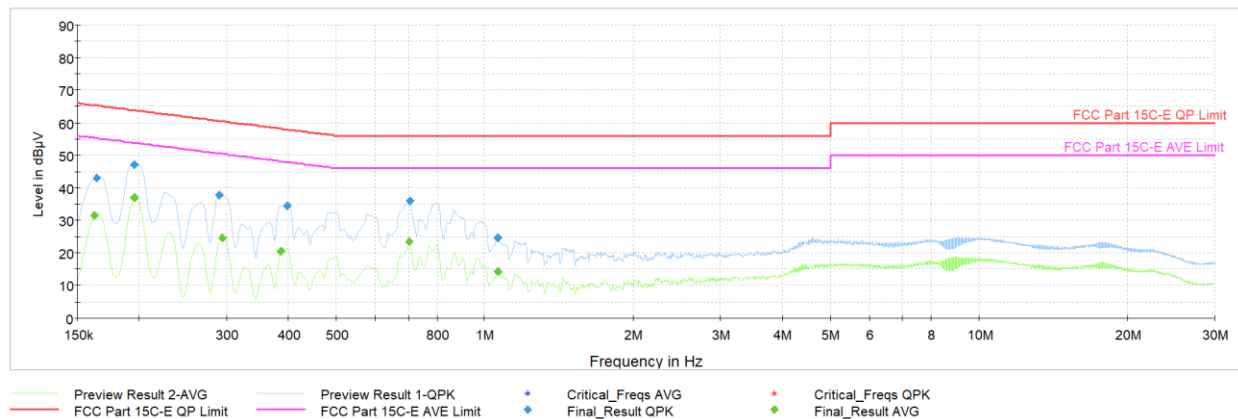


**Plot 7-585. AC Line Conducted Plot with 11ax UNII Band 1 – RU26 – Ch.40 (L1) with AC/DC Adapter**

Frequency [MHz]	Process State	QuasiPeak [dBµV]	Average [dBµV]	Limit [dBµV]	Margin [dB]	Line	PE
0.162	FINAL	—	32.39	55.36	-22.98	L1	GND
0.164	FINAL	44.0	—	65.25	-21.24	L1	GND
0.194	FINAL	47.6	—	63.89	-16.24	L1	GND
0.200	FINAL	—	34.97	53.60	-18.63	L1	GND
0.290	FINAL	38.9	—	60.52	-21.59	L1	GND
0.299	FINAL	—	24.70	50.26	-25.57	L1	GND
0.488	FINAL	32.1	—	56.20	-24.13	L1	GND
0.491	FINAL	—	16.73	46.16	-29.43	L1	GND
0.770	FINAL	33.6	—	56.00	-22.43	L1	GND
0.774	FINAL	—	19.12	46.00	-26.88	L1	GND
16.144	FINAL	—	10.21	50.00	-39.79	L1	GND
16.144	FINAL	15.7	—	60.00	-44.31	L1	GND

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

FCC ID: BCGA2301 IC: 579C-A2301	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	Approved by: Quality Manager
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**Plot 7-586. AC Line Conducted Plot with 11ax UNII Band 1 – RU26 – Ch.40 (N) with AC/DC Adapter**

Frequency [MHz]	Process State	QuasiPeak [dBµV]	Average [dBµV]	Limit [dBµV]	Margin [dB]	Line	PE
0.162	FINAL	—	31.67	55.36	-23.69	N	GND
0.164	FINAL	42.9	—	65.25	-22.37	N	GND
0.196	FINAL	—	36.87	53.79	-16.92	N	GND
0.196	FINAL	47.1	—	63.79	-16.65	N	GND
0.290	FINAL	37.8	—	60.52	-22.70	N	GND
0.295	FINAL	—	24.70	50.39	-25.69	N	GND
0.387	FINAL	—	20.56	48.13	-27.57	N	GND
0.398	FINAL	34.5	—	57.89	-23.42	N	GND
0.704	FINAL	—	23.39	46.00	-22.61	N	GND
0.707	FINAL	35.9	—	56.00	-20.12	N	GND
1.062	FINAL	—	14.23	46.00	-31.77	N	GND
1.064	FINAL	24.6	—	56.00	-31.41	N	GND

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

FCC ID: BCGA2301 IC: 579C-A2301	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2101020002-16-R1.BCG	Test Dates: 12/12/2020 - 3/10/2021	EUT Type: Tablet Device	Page 256 of 257

## 8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Apple Tablet Device FCC ID: BCGA2301** and **IC: 579C-A2301** 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.

<b>FCC ID:</b> BCGA2301 <b>IC:</b> 579C-A2301	 <b>PCTEST</b> Proud to be part of  element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1C2101020002-16-R1.BCG	<b>Test Dates:</b> 12/12/2020 - 3/10/2021	<b>EUT Type:</b> Tablet Device	Page 257 of 257