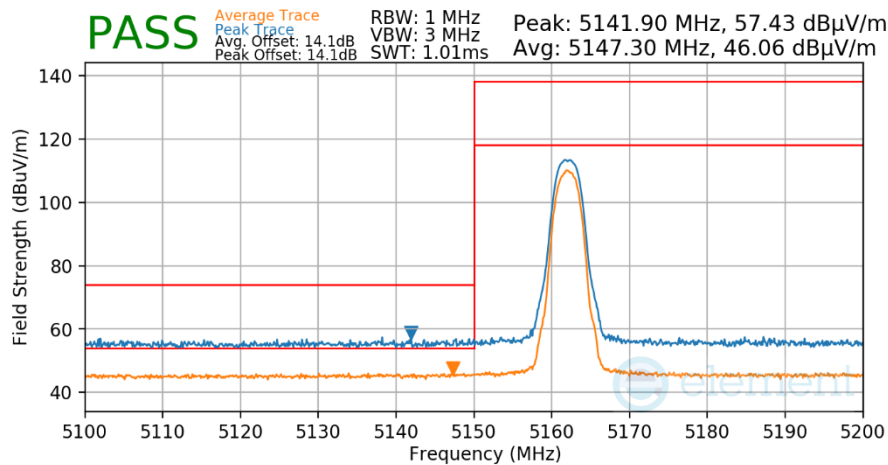


TxBF

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

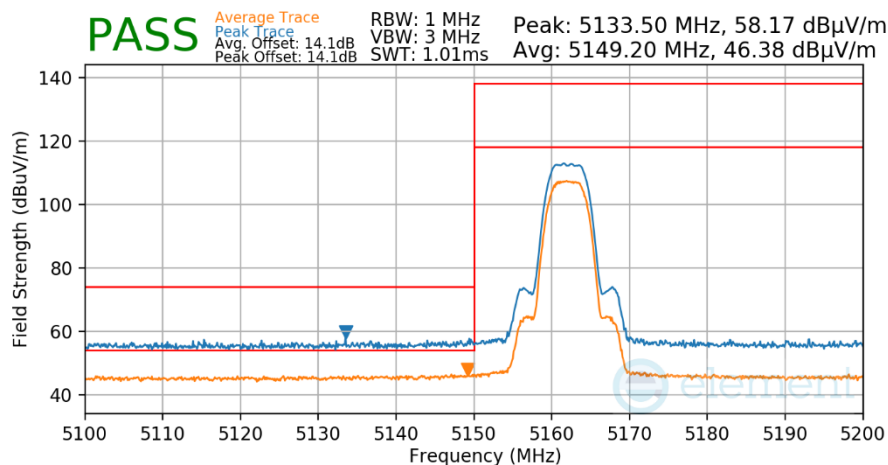
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

Mode:	HDR4
Power Scheme	ePA
Measurement Distance:	3 Meters
Operating Frequency:	5162MHz



Plot 7-155. Radiated Lower Band Edge Measurement

Mode:	HDR8
Power Scheme	ePA
Measurement Distance:	3 Meters
Operating Frequency:	5162MHz



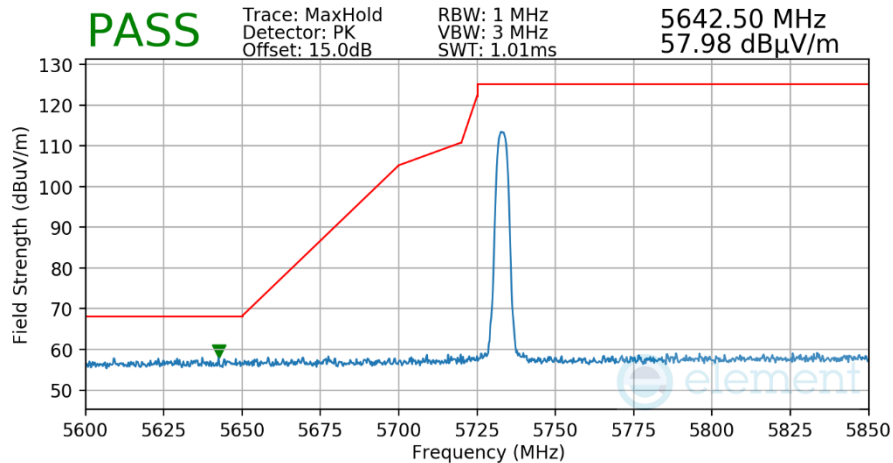
Plot 7-156. Radiated Lower Band Edge Measurement

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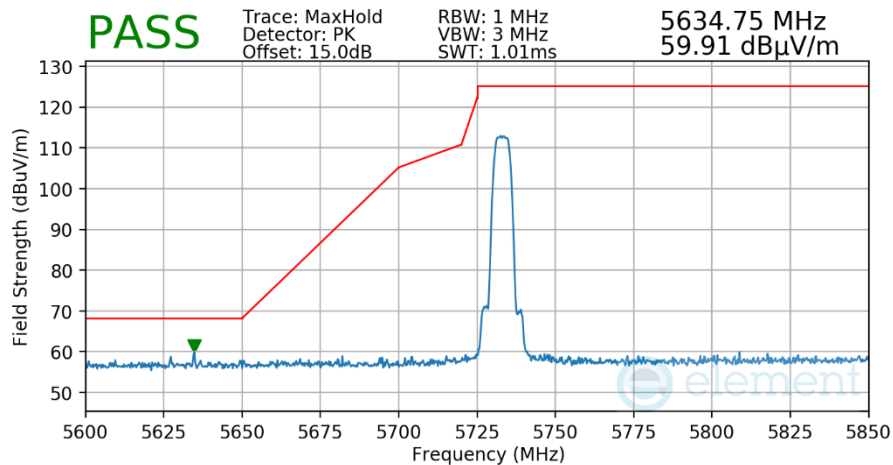
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Mode: HDR4
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 5733MHz



Plot 7-157. Radiated Lower Band Edge Measurement

Mode: HDR8
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 5733MHz

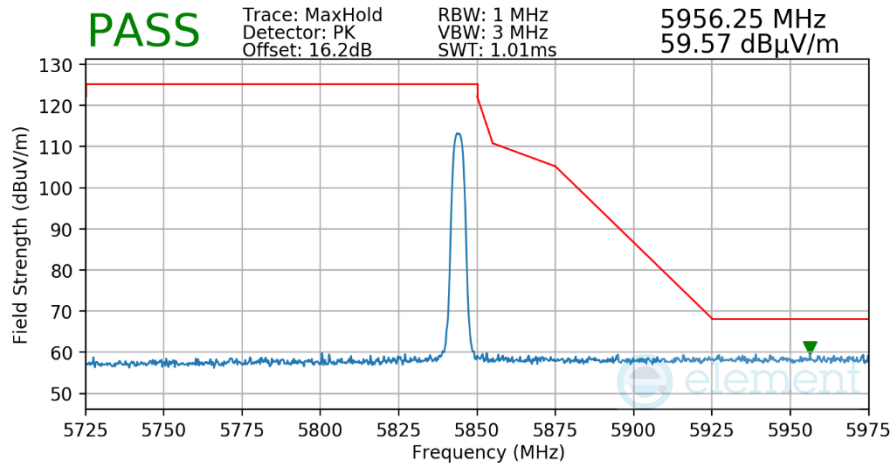


Plot 7-158. Radiated Lower Band Edge Measurement

FCC ID: BCGA2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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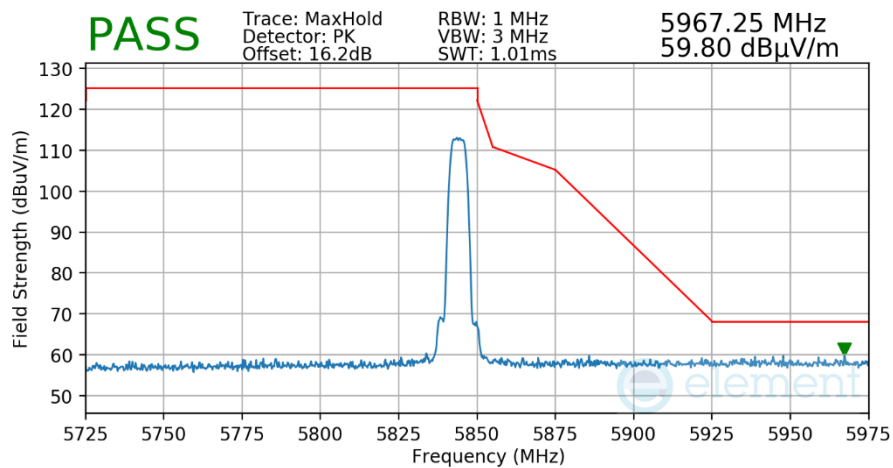
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Mode: HDR4
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 5844MHz



Plot 7-159. Radiated Upper Band Edge Measurement

Mode: HDR8
 Power Scheme: ePA
 Measurement Distance: 3 Meters
 Operating Frequency: 5844MHz



Plot 7-160. Radiated Upper Band Edge Measurement

FCC ID: BCGA2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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7.7 Radiated Spurious Emissions – Below 1GHz

§15.209

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 must not exceed the limits shown in Table 7-34 per Section 15.209.

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 7-34. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

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

Peak Field Strength Measurements

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

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Test Setup

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

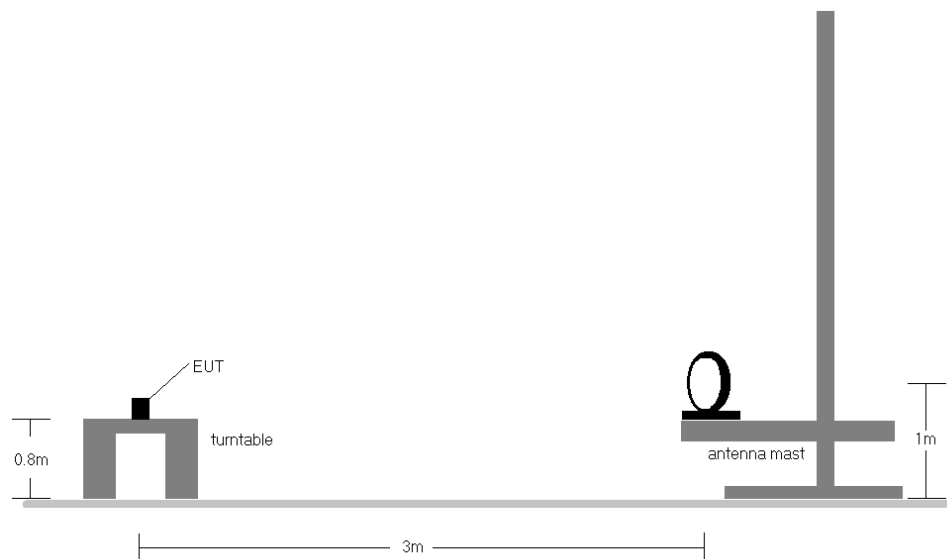


Figure 7-6. Radiated Test Setup < 30MHz

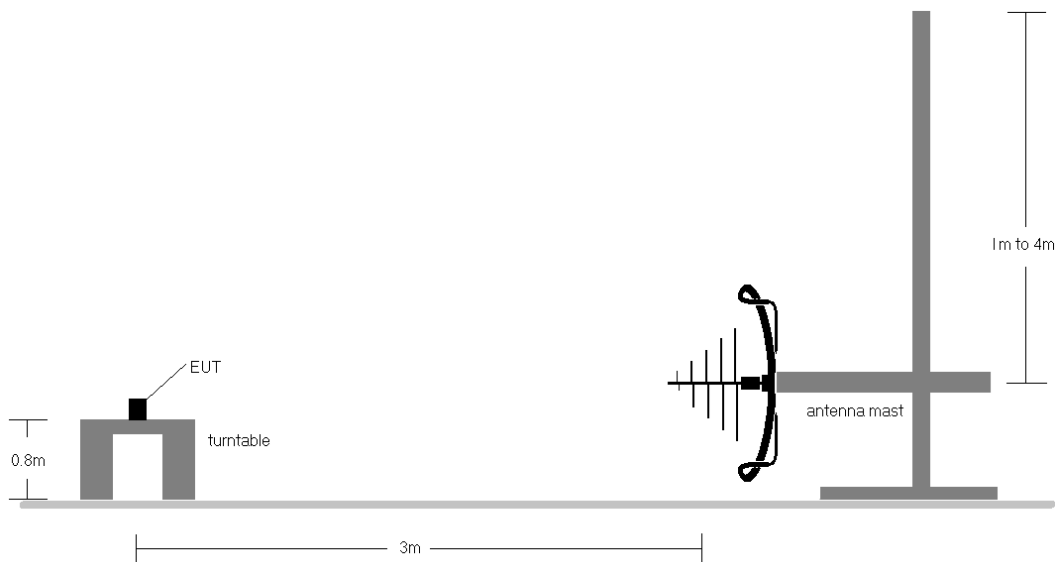


Figure 7-7. Radiated Test Setup < 1GHz

FCC ID: BCGA2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-34.
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. 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. All supported modulation have been tested on the unit and only worst case configuration is reported.
10. Both configurations below were investigated, and the worst case has been reported.
 - a. EUT powered by AC/DC adaptor via USB-C cable with wire charger
 - b. EUT powered by host PC via USB-C cable with wire charger

Sample Calculations

Determining Spurious Emissions Levels

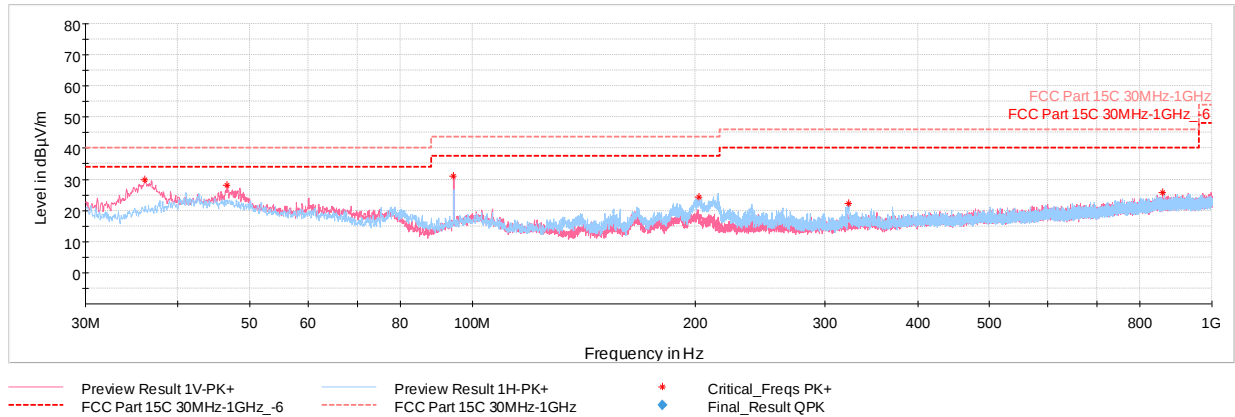
- Field Strength Level $_{[dB\mu V/m]} = \text{Analyzer Level}_{[dBm]} + 107 + \text{AFCL}_{[dB/m]}$
- $\text{AFCL}_{[dB/m]} = \text{Antenna Factor}_{[dB/m]} + \text{Cable Loss}_{[dB]} - \text{Preamplifier Gain}_{[dB]}$
- $\text{Margin}_{[dB]} = \text{Field Strength Level}_{[dB\mu V/m]} - \text{Limit}_{[dB\mu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

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TxBF Radiated Spurious Emissions (Below 1GHz)

§15.209



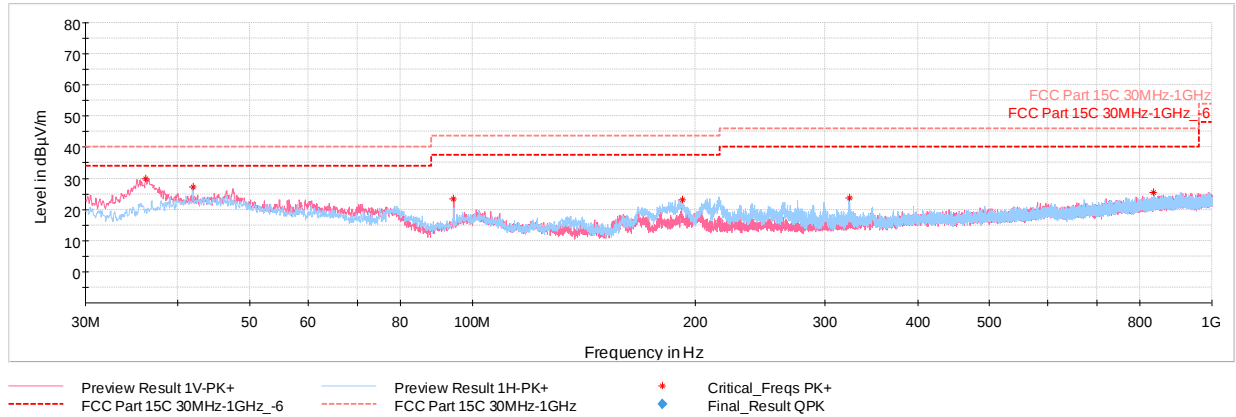
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
36.11	Max-Peak	V	100	13	-58.79	-18.42	29.79	40.00	-10.21
46.64	Max-Peak	V	100	21	-63.25	-15.60	28.15	40.00	-11.85
94.41	Max-Peak	V	100	209	-56.95	-19.08	30.97	43.52	-12.55
202.22	Max-Peak	H	100	84	-64.55	-18.07	24.38	43.52	-19.14
323.04	Max-Peak	H	100	46	-70.26	-14.47	22.27	46.02	-23.75
856.68	Max-Peak	V	300	298	-76.31	-4.91	25.78	46.02	-20.24

Table 7-35. RSE 30MHz - 1GHz TxBF (HDR4 - 5245MHz), with AC/DC Adapter

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Plot 7-162. RSE 30MHz - 1GHz Tx BF (HDR4 - 5844MHz), 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]
36.21	Max-Peak	V	100	355	-58.79	-18.40	29.81	40.00	-10.19
41.93	Max-Peak	H	200	247	-63.44	-16.38	27.18	40.00	-12.82
94.41	Max-Peak	V	200	6	-64.50	-19.08	23.42	43.52	-20.10
192.38	Max-Peak	H	100	153	-65.72	-18.08	23.20	43.52	-20.32
323.18	Max-Peak	H	100	133	-68.87	-14.48	23.65	46.02	-22.37
833.74	Max-Peak	H	100	89	-76.32	-5.32	25.36	46.02	-20.66

Table 7-36. RSE 30MHz - 1GHz Tx BF (HDR4 - 5844MHz), with AC/DC Adapter

FCC ID: BCGA2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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7.8 AC Line Conducted Emissions Measurement

§15.207

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.

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 7-37. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013, Subclause 6.2

Test Settings

Quasi-Peak Measurements

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

Average Measurements

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

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Test Setup

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

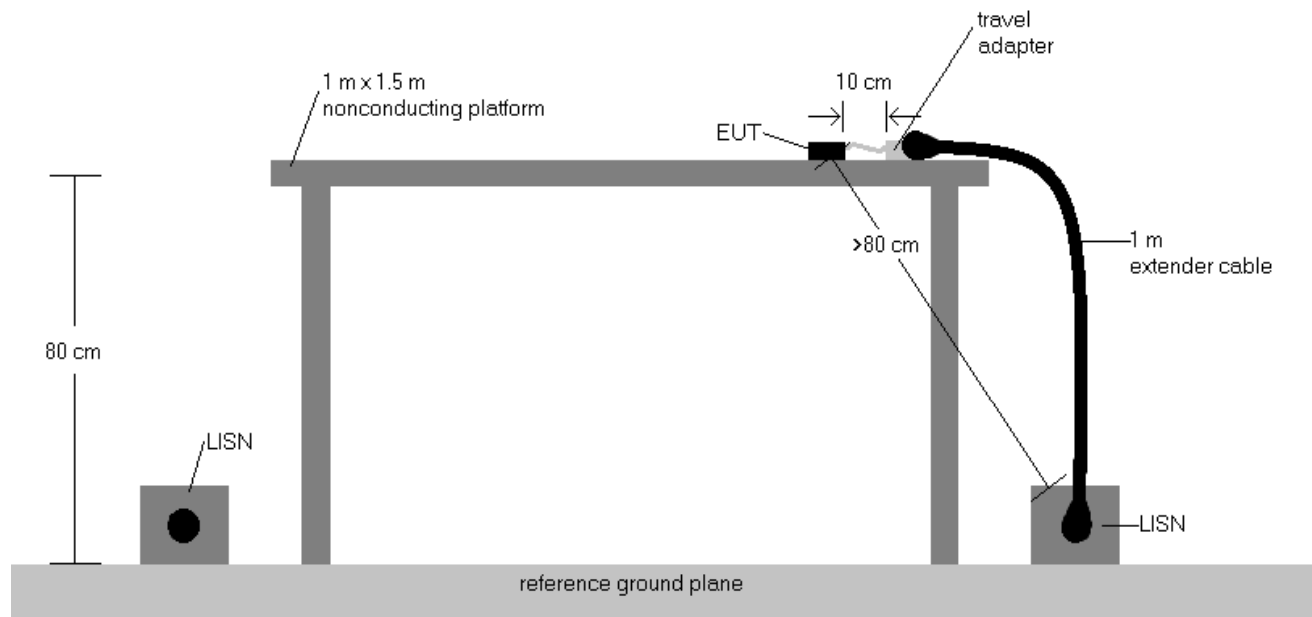


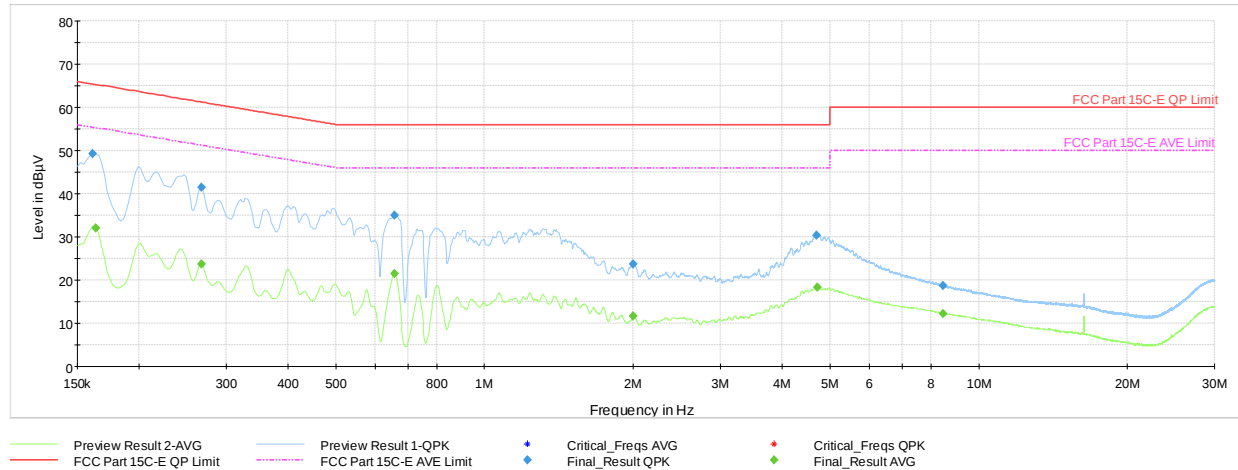
Figure 7-8. Test Instrument & Measurement Setup

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

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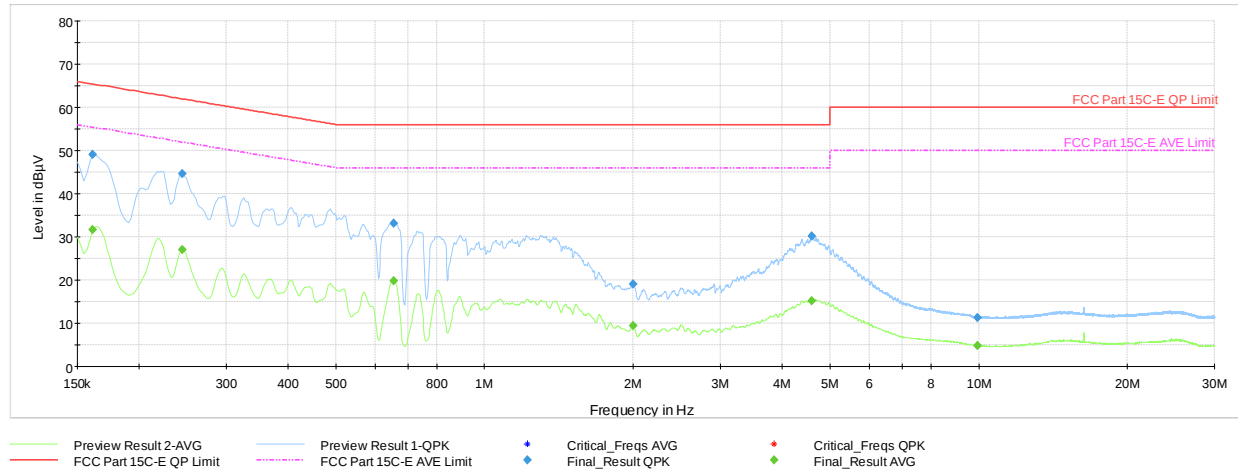
Frequency [MHz]	Process State	QuasiPeak [dBμV]	Average [dBμV]	Limit [dBμV]	Margin [dB]	Line	PE
0.161	FINAL	49.3	—	65.40	-16.14	L1	GND
0.164	FINAL	—	32.04	55.28	-23.25	L1	GND
0.267	FINAL	—	23.72	51.21	-27.49	L1	GND
0.267	FINAL	41.4	—	61.21	-19.81	L1	GND
0.659	FINAL	—	21.57	46.00	-24.43	L1	GND
0.659	FINAL	35.0	—	56.00	-20.96	L1	GND
1.997	FINAL	23.7	—	56.00	-32.28	L1	GND
2.002	FINAL	—	11.60	46.00	-34.40	L1	GND
4.695	FINAL	30.5	—	56.00	-25.55	L1	GND
4.711	FINAL	—	18.26	46.00	-27.74	L1	GND
8.468	FINAL	18.7	—	60.00	-41.33	L1	GND
8.484	FINAL	—	12.24	50.00	-37.76	L1	GND

Table 7-38. AC Line Conducted (HDR4 – 5245MHz) (L1) with AC/DC Adapter

FCC ID: BCGA2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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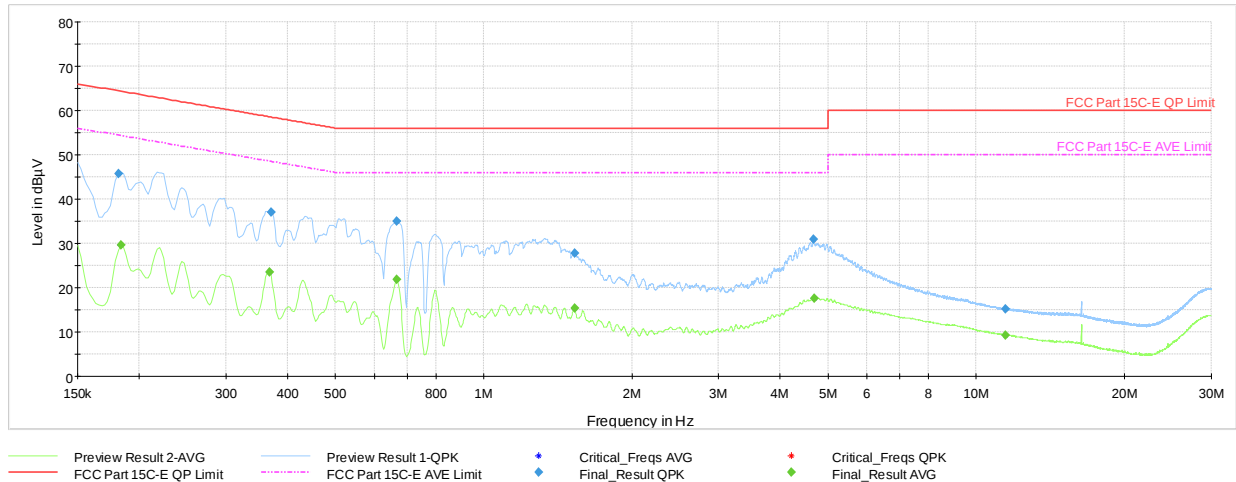
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Frequency [MHz]	Process State	QuasiPeak [dBμV]	Average [dBμV]	Limit [dBμV]	Margin [dB]	Line	PE
0.161	FINAL	—	31.72	55.40	-23.68	N	GND
0.161	FINAL	49.0	—	65.40	-16.40	N	GND
0.245	FINAL	—	27.11	51.94	-24.83	N	GND
0.245	FINAL	44.5	—	61.94	-17.40	N	GND
0.654	FINAL	—	19.87	46.00	-26.13	N	GND
0.654	FINAL	33.1	—	56.00	-22.86	N	GND
1.997	FINAL	19.1	—	56.00	-36.93	N	GND
2.000	FINAL	—	9.53	46.00	-36.47	N	GND
4.594	FINAL	30.1	—	56.00	-25.86	N	GND
4.598	FINAL	—	15.27	46.00	-30.73	N	GND
9.944	FINAL	—	4.77	50.00	-45.23	N	GND
9.944	FINAL	11.4	—	60.00	-48.62	N	GND

Table 7-39. AC Line Conducted (HDR4 – 5245MHz) (N) with AC/DC Adapter

FCC ID: BCGA2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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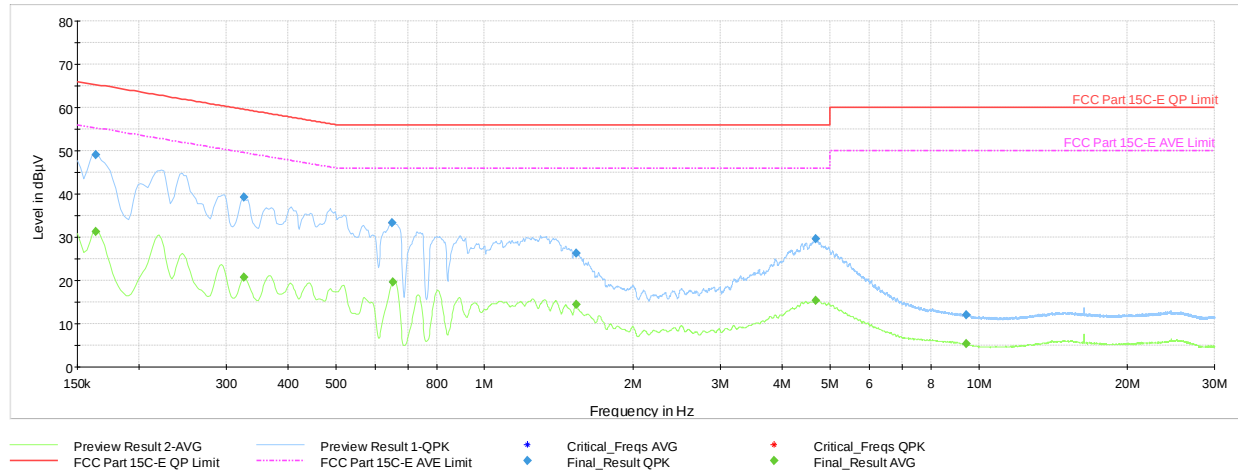
Plot 7-165. AC Line Conducted Plot (HDR4 – 5844MHz) (L1) with AC/DC Adapter

Frequency [MHz]	Process State	QuasiPeak [dBμV]	Average [dBμV]	Limit [dBμV]	Margin [dB]	Line	PE
0.182	FINAL	45.7	—	64.42	-18.69	L1	GND
0.184	FINAL	—	29.65	54.31	-24.66	L1	GND
0.368	FINAL	—	23.51	48.54	-25.03	L1	GND
0.371	FINAL	37.0	—	58.49	-21.49	L1	GND
0.665	FINAL	—	21.85	46.00	-24.15	L1	GND
0.665	FINAL	34.9	—	56.00	-21.07	L1	GND
1.529	FINAL	27.9	—	56.00	-28.15	L1	GND
1.529	FINAL	—	15.46	46.00	-30.54	L1	GND
4.679	FINAL	30.9	—	56.00	-25.15	L1	GND
4.700	FINAL	—	17.62	46.00	-28.38	L1	GND
11.463	FINAL	—	9.33	50.00	-40.67	L1	GND
11.463	FINAL	15.1	—	60.00	-44.86	L1	GND

Table 7-40. AC Line Conducted (HDR4 – 5844MHz) (L1) with AC/DC Adapter

FCC ID: BCGA2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Frequency [MHz]	Process State	QuasiPeak [dBμV]	Average [dBμV]	Limit [dBμV]	Margin [dB]	Line	PE
0.164	FINAL	—	31.38	55.28	-23.90	N	GND
0.164	FINAL	49.0	—	65.28	-16.29	N	GND
0.326	FINAL	—	20.80	49.57	-28.77	N	GND
0.326	FINAL	39.2	—	59.57	-20.36	N	GND
0.650	FINAL	33.3	—	56.00	-22.73	N	GND
0.652	FINAL	—	19.57	46.00	-26.43	N	GND
1.532	FINAL	26.3	—	56.00	-29.74	N	GND
1.534	FINAL	—	14.37	46.00	-31.63	N	GND
4.679	FINAL	29.5	—	56.00	-26.46	N	GND
4.684	FINAL	—	15.41	46.00	-30.59	N	GND
9.431	FINAL	—	5.29	50.00	-44.71	N	GND
9.431	FINAL	12.1	—	60.00	-47.87	N	GND

Table 7-41. AC Line Conducted (HDR4 – 5844MHz) (N) with AC/DC Adapter

FCC ID: BCGA2764		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Apple Tablet Device** **FCC ID: BCGA2764** is in compliance with Part 15 Subpart E (15.407) of the FCC Rules.

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