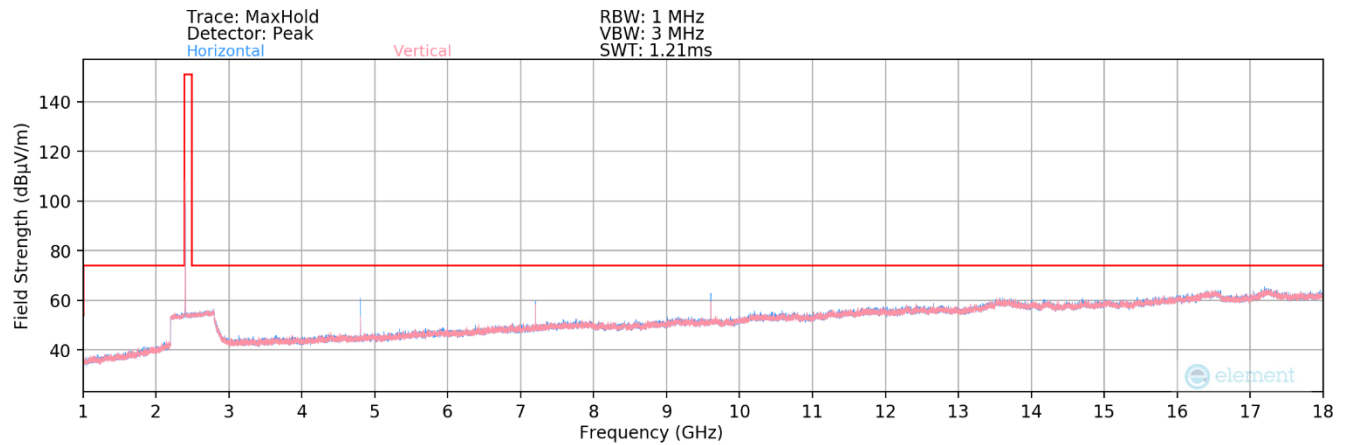


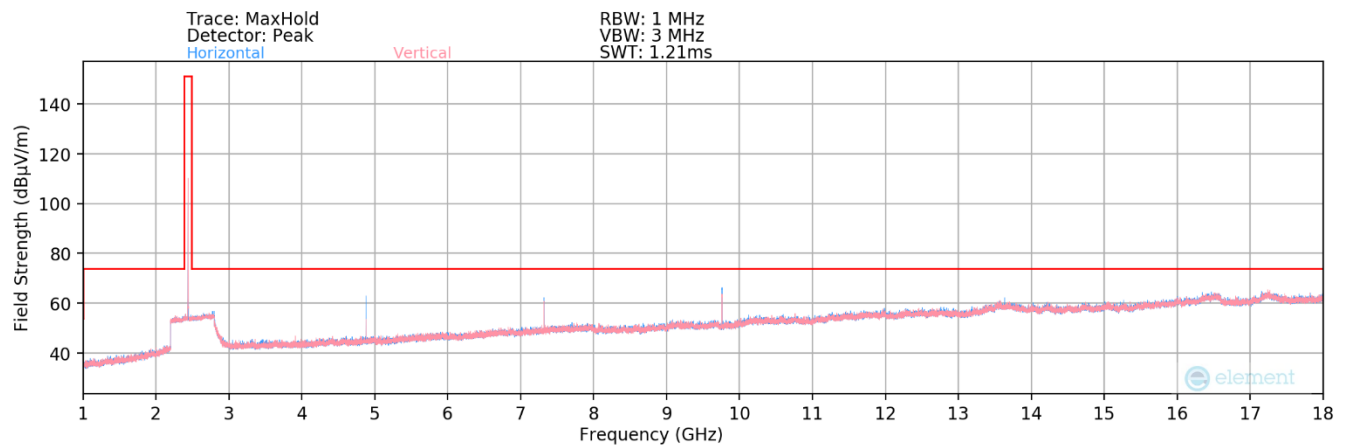


Radiated Spurious Emission Measurements – Dual Ant

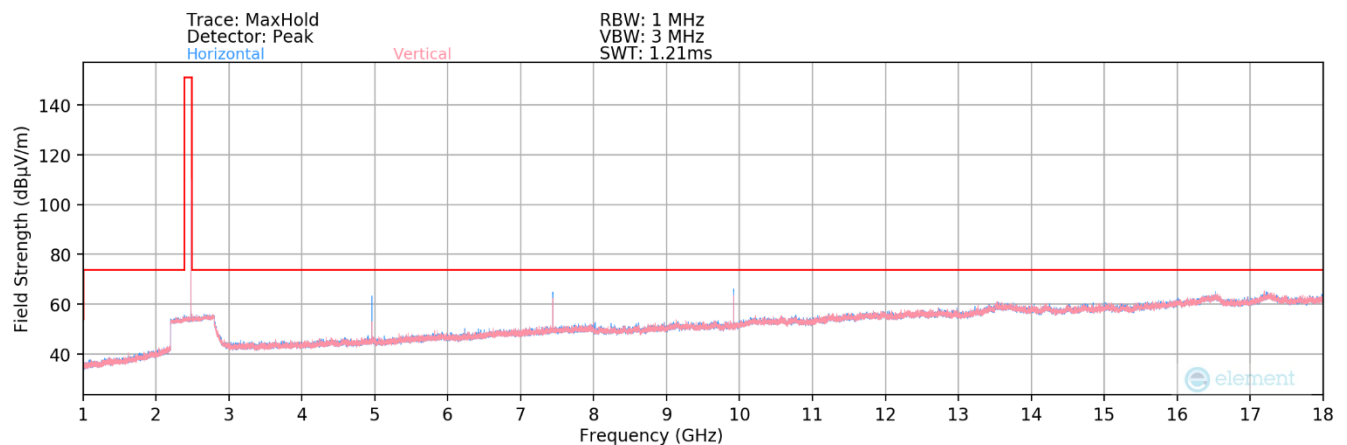
§15.205 §15.209 §15.247(d)



Plot 7-165. Radiated Spurious Plot above 1GHz (Bluetooth (LE) – Ch. 0) – Dual Ant

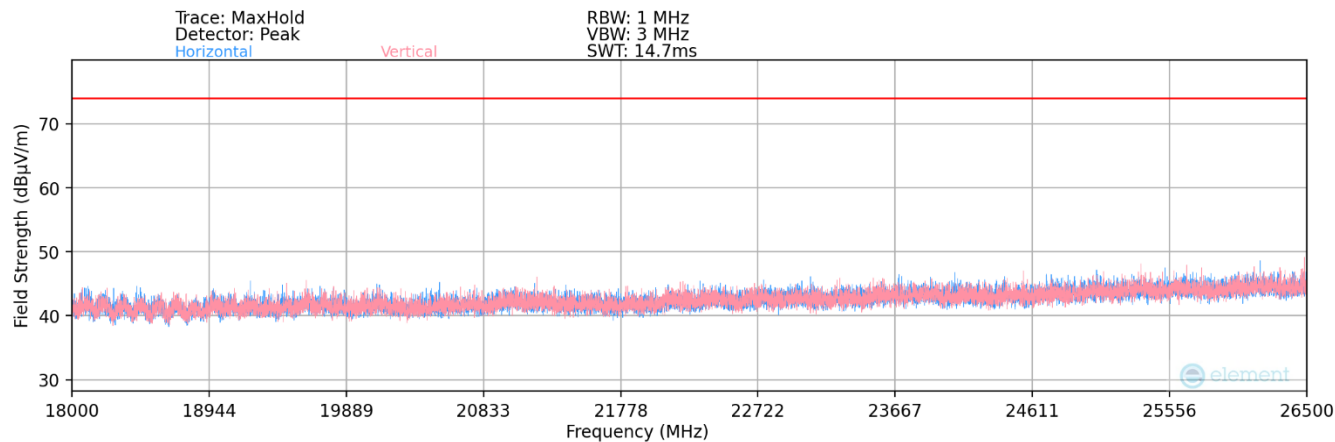


Plot 7-166. Radiated Spurious Plot above 1GHz (Bluetooth (LE) – Ch. 17) – Dual Ant



Plot 7-167. Radiated Spurious Plot above 1GHz (Bluetooth (LE) – Ch. 36) – Dual Ant

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Plot 7-168. Radiated Spurious Plot above 18GHz (Bluetooth (LE) – Ch. 17) – Dual Ant

FCC ID: A3LSMF966JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Radiated Spurious Emission Measurements

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

Bluetooth Mode: LE
Distance of Measurements: 3 Meters
Operating Frequency: 2404MHz
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]
4808.00	Avg	V	159	205	-71.84	9.36	44.52	53.98	-9.46
4808.00	Peak	V	159	205	-64.17	9.36	52.19	73.98	-21.79
12020.00	Avg	V	-	-	-83.59	22.39	45.80	53.98	-8.18
12020.00	Peak	V	-	-	-71.86	22.39	57.53	73.98	-16.45

Table 7-21. Radiated Measurements @ 3 meters – Dual Ant

Bluetooth Mode: LE
Distance of Measurements: 3 Meters
Operating Frequency: 2440MHz
Channel: 17

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]
4880.00	Avg	V	149	179	-70.56	9.75	46.19	53.98	-7.79
4880.00	Peak	V	149	179	-62.17	9.75	54.58	73.98	-19.40
7320.00	Avg	V	155	194	-76.80	15.17	45.37	53.98	-8.61
7320.00	Peak	V	155	194	-67.06	15.17	55.11	73.98	-18.87
12200.00	Avg	V	-	-	-84.04	23.07	46.03	53.98	-7.95
12200.00	Peak	V	-	-	-72.29	23.07	57.78	73.98	-16.20

Table 7-22. Radiated Measurements @ 3 meters – Dual Ant

FCC ID: A3LSMF966JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Bluetooth Mode: LE
Distance of Measurements: 3 Meters
Operating Frequency: 2478MHz
Channel: 36

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]
4956.00	Avg	V	165	196	-72.17	9.74	44.57	53.98	-9.41
4956.00	Peak	V	165	196	-64.46	9.74	52.28	73.98	-21.70
7434.00	Avg	V	177	210	-74.50	15.40	47.90	53.98	-6.08
7434.00	Peak	V	177	210	-65.72	15.40	56.68	73.98	-17.30
12390.00	Avg	V	-	-	-83.77	23.06	46.29	53.98	-7.69
12390.00	Peak	V	-	-	-72.53	23.06	57.53	73.98	-16.45

Table 7-23. Radiated Measurements @ 3 meters – Dual Ant

FCC ID: A3LSMF966JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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7.8 Radiated Restricted Band Edge Measurements

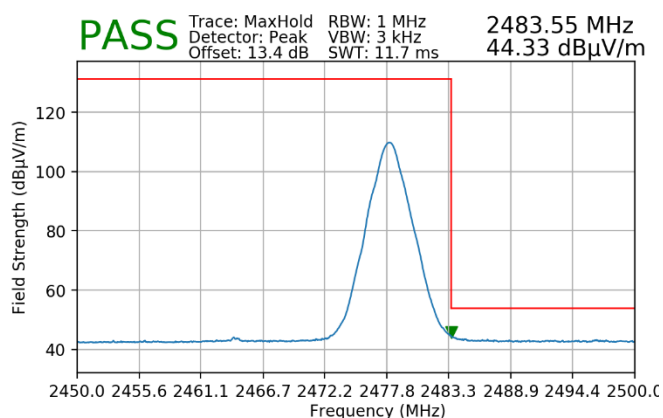
§15.205 §15.209; RSS-Gen [8.9]

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

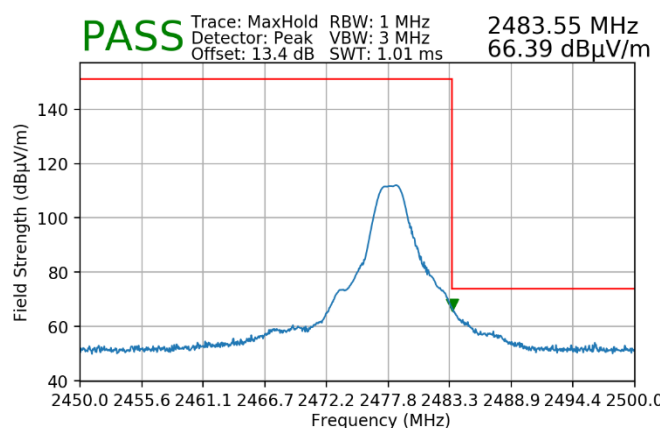
The amplitude offset shown in the following plots for average measurements was calculated using the formula:

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

Bluetooth Mode:	LE
Measurement Distance:	3 Meters
Operating Frequency:	2478MHz
Channel:	36



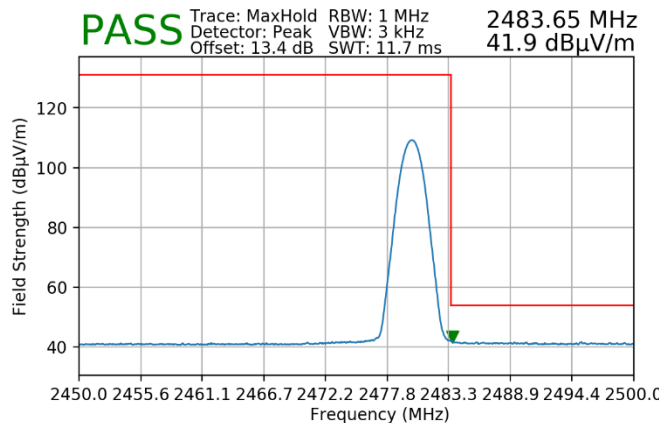
Plot 7-169. Radiated Restricted Upper Band Edge Measurement (Average) – Ant 1



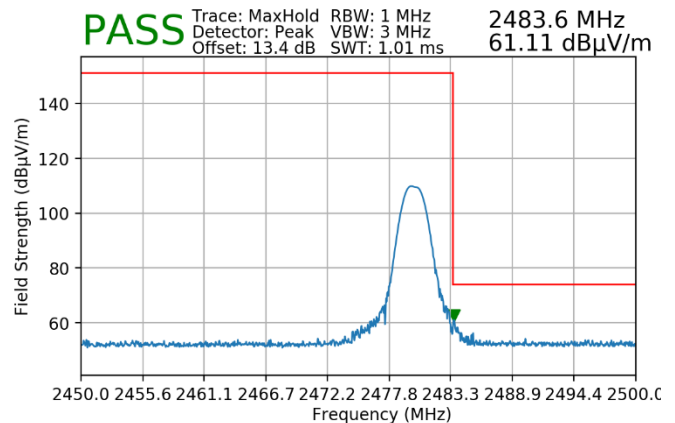
Plot 7-170. Radiated Restricted Upper Band Edge Measurement (Peak) – Ant 1

FCC ID: A3LSMF966JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Bluetooth Mode: LE
Measurement Distance: 3 Meters
Operating Frequency: 2480MHz
Channel: 39

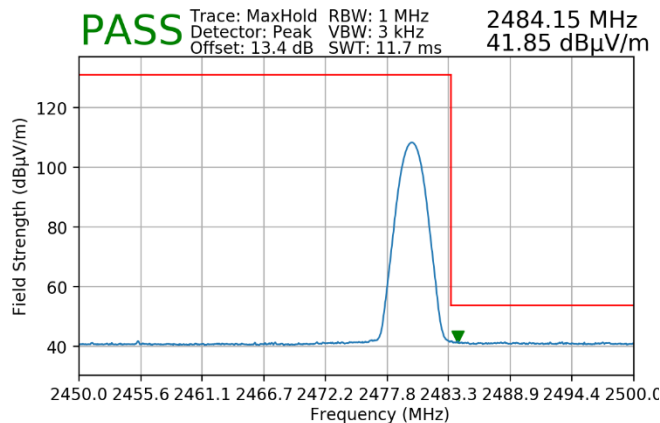


Plot 7-171. Radiated Restricted Upper Band Edge Measurement (Average) – Ant 2

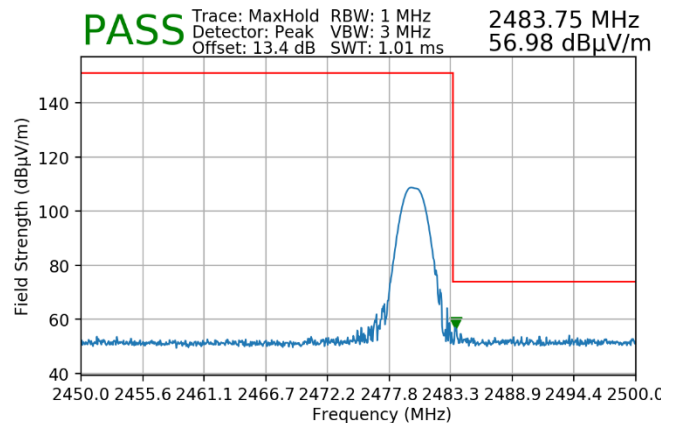


Plot 7-172. Radiated Restricted Upper Band Edge Measurement (Peak) – Ant 2

Bluetooth Mode: LE
Measurement Distance: 3 Meters
Operating Frequency: 2480MHz
Channel: 39



Plot 7-173. Radiated Restricted Upper Band Edge Measurement (Average) – Dual Ant



Plot 7-174. Radiated Restricted Upper Band Edge Measurement (Peak) – Dual Ant

FCC ID: A3LSMF966JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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7.9 Line-Conducted Test 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 7-24. 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

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Test Setup

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

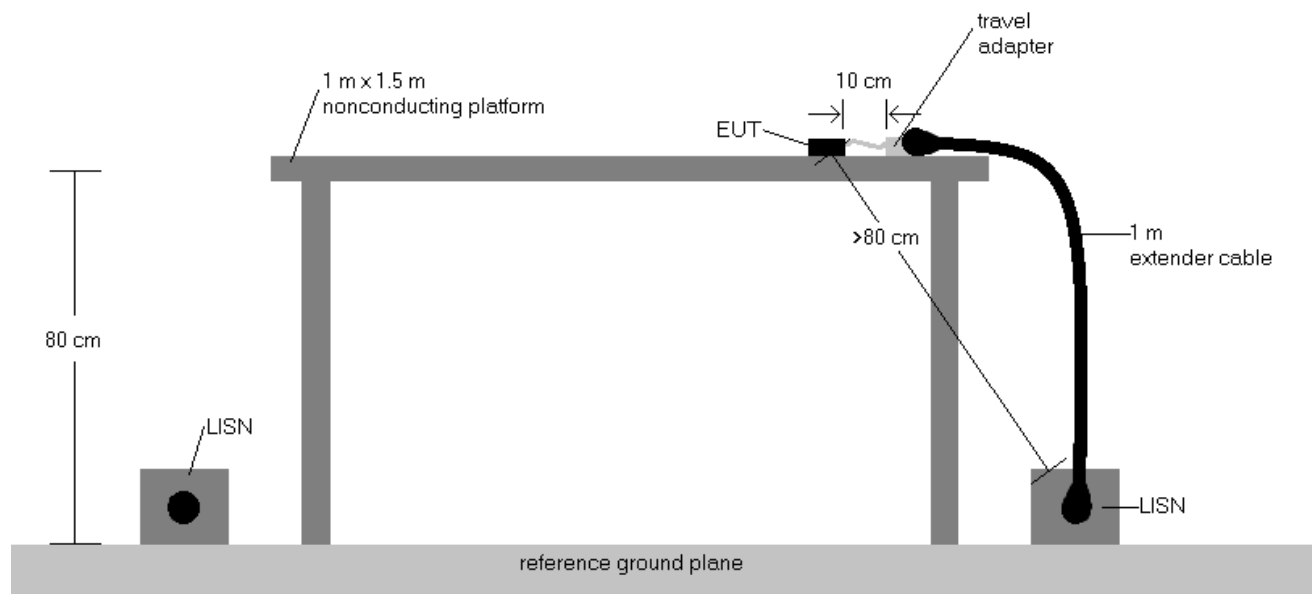
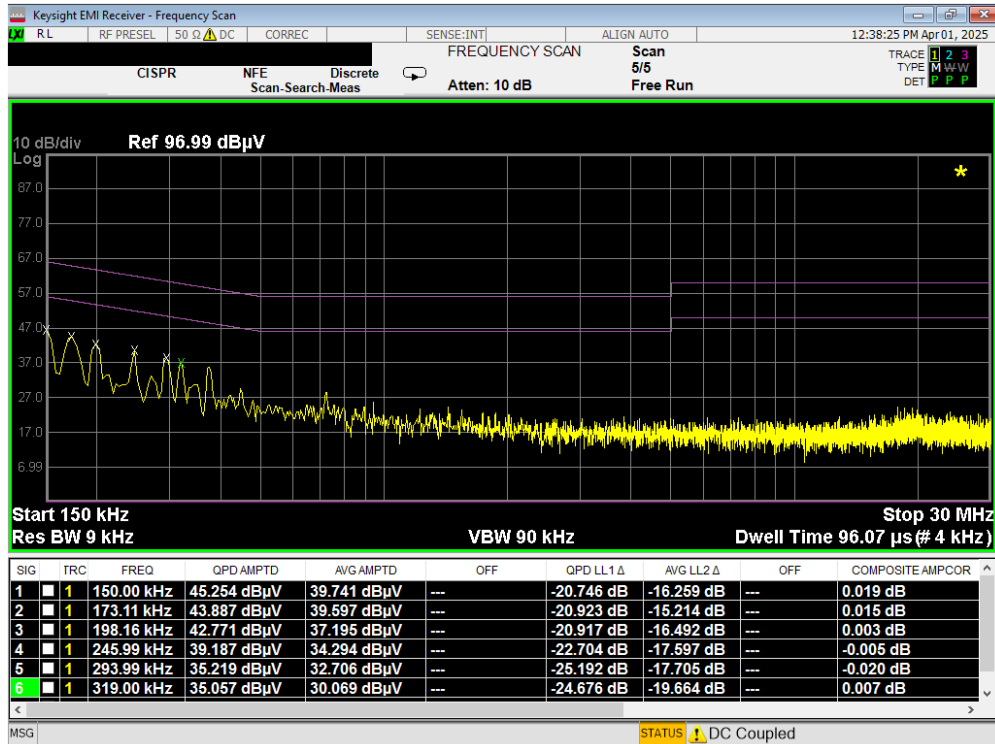


Figure 7-7. Test Instrument & Measurement Setup

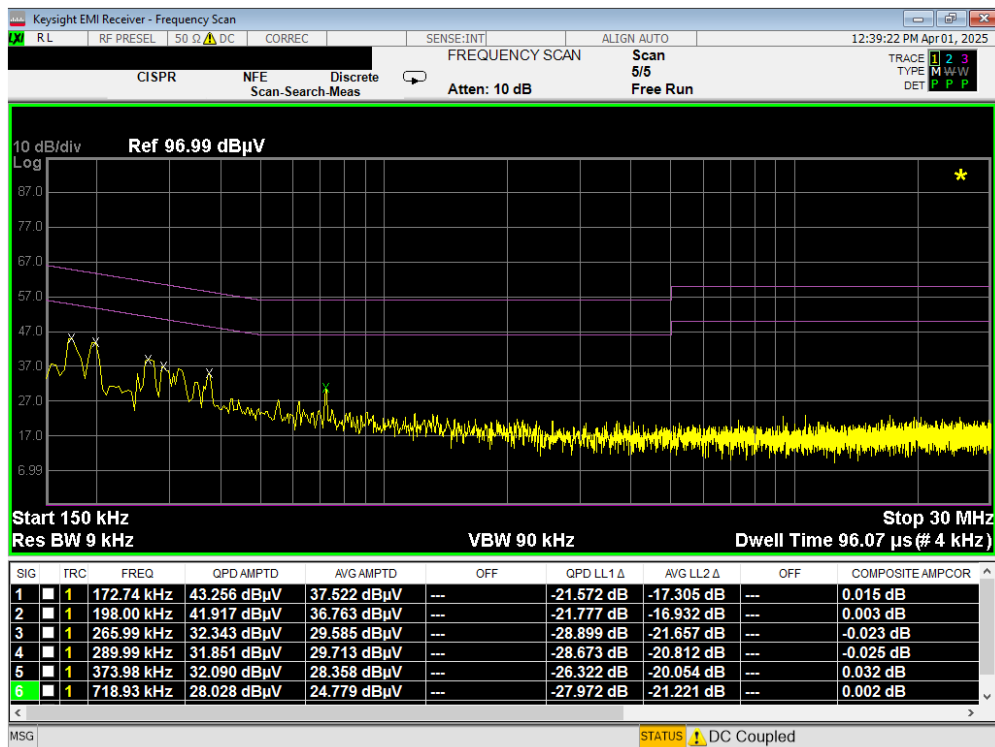
Test Notes

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 Part 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.

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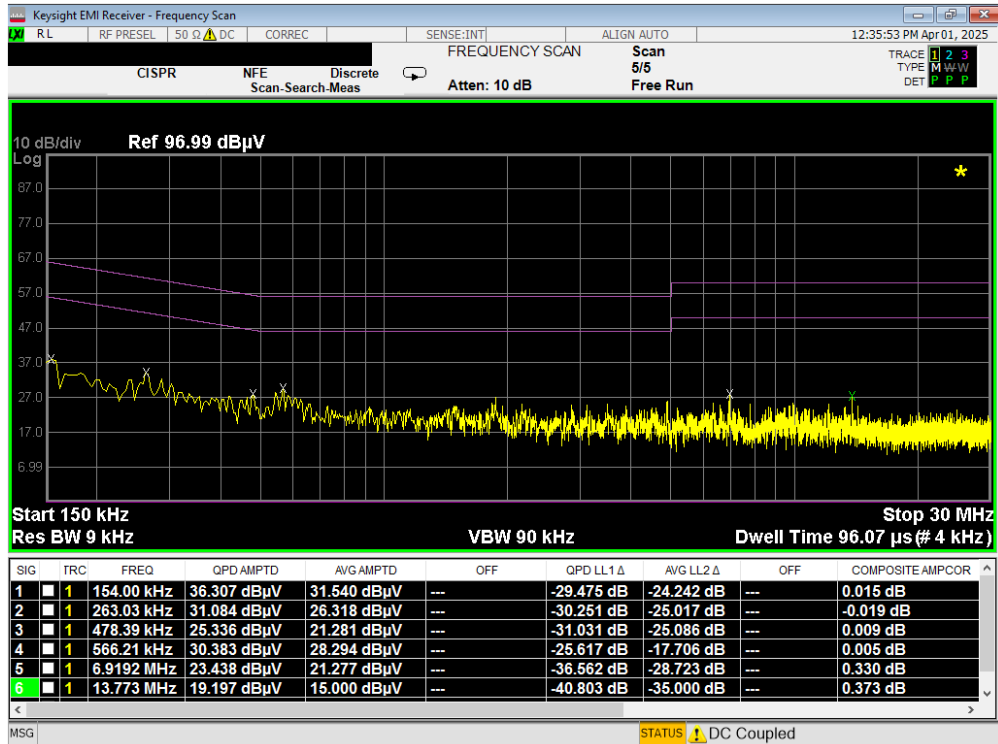


Plot 7-175. Line Conducted Plot with Bluetooth LE (L1)

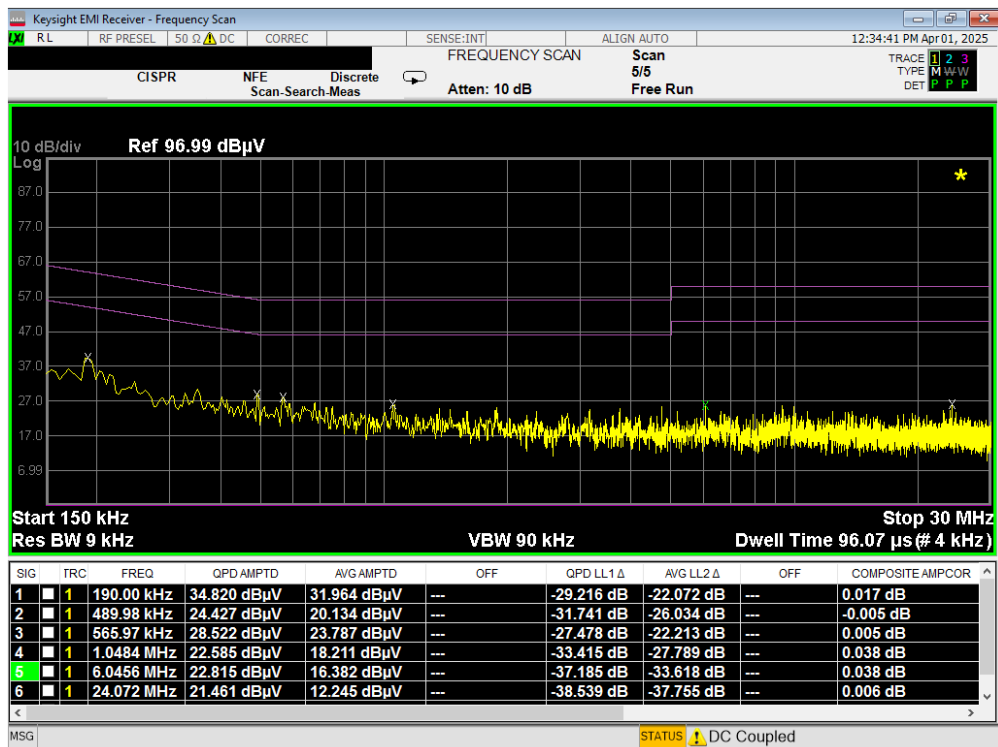


Plot 7-176. Line Conducted Plot with Bluetooth LE (N)

FCC ID: A3LSMF966JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-177. Line Conducted Plot with Bluetooth LE (L1) - WCP



Plot 7-178. Line Conducted Plot with Bluetooth LE (N) - WCP

FCC ID: A3LSMF966JPN	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 **Samsung Portable Handset FCC ID: A3LSMF966JPN** is in compliance with Part 15 Subpart C (15.247) of the FCC Rules.

FCC ID: A3LSMF966JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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9.0 APPENDIX A – DATA REFERENCING RESULTS

Overview

The spot-check data presented in this section was measured on the variant model following the guidance of the FCC's Data Referencing guidance in KDB 484596 D01 v03. Each spot-check test on the EUT was performed using the same procedure and setting that were used to perform the test on the corresponding reference device. For the worst-case RSE data, the measurement is determined by an actual emission and not by noise floor.

All test cases were performed to verify the variant EUT is still in compliance with the spot-checked results to the reference device and was performed using the guidance of ANSI C63.10-2013.

Notes

- Each spot check test on the EUT was performed using the same procedure and setting that were used to perform the test on the corresponding reference device.

Conducted Spot-Checks – SC-56F

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Peak Conducted Power	
				[dBm]	[mW]
2478	2 Mbps	36	LE	19.99	99.770

Table 9-1. Conducted Output Power Measurements – SISO Ant 2 (Spot-check)

Radiated Spot-Checks – SC-56F

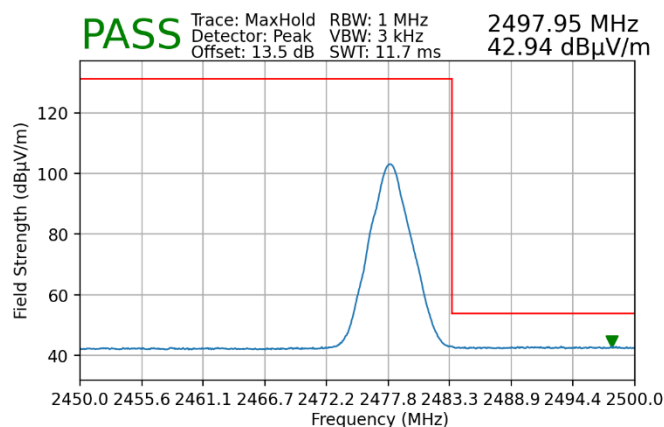
Bluetooth Mode:	LE
Distance of Measurements:	3 Meters
Operating Frequency:	2440MHz
Channel:	17

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]
4880.00	Avg	V	290	244	-77.05	6.79	36.74	53.98	-17.24
4880.00	Peak	V	290	244	-66.55	6.79	47.24	73.98	-26.74

Table 9-2. RSE Measurements – SISO Ant 1 (Spot-check)

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Bluetooth Mode: LE
Measurement Distance: 3 Meters
Operating Frequency: 2478MHz
Channel: 36



Plot 9-1. Radiated Restricted Upper Band Edge Measurement – SISO Ant1 (Average)

Results

FCC Rules	Test Item	Test Case	Units	Limit	Reference Model: SM-S966U	Variant Model: SC-56F	Deviation (dB)	Max Deviation (dB)	Pass/Fail
15.247(b)(3)	Conducted Output Power	Ant2 Ch.17 - 2 Mbps - Peak	dBm	N/A	19.49	19.99	0.50	1	PASS
15.209	Radiated Spurious Emissions	SISO Ant1 Ch.17 - Average - 4880 MHz	dBm	53.98	38.03	36.74	1.29	3	PASS
15.209	Radiated Band Edge Emissions	SISO Ant1 Ch.39 - Average	dBm	53.98	44.33	42.94	1.39	3	PASS

Table 9-3. Summary of Spot-checks

Conclusion

The spot-check data presented in this section was measured on the variant model following the guidance of the FCC's Data Referencing guidance in KDB 484596 D01 v03 demonstrates that the use of referenced data from A3LSMF966U for the certification of A3LSMF966JPN is acceptable.

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