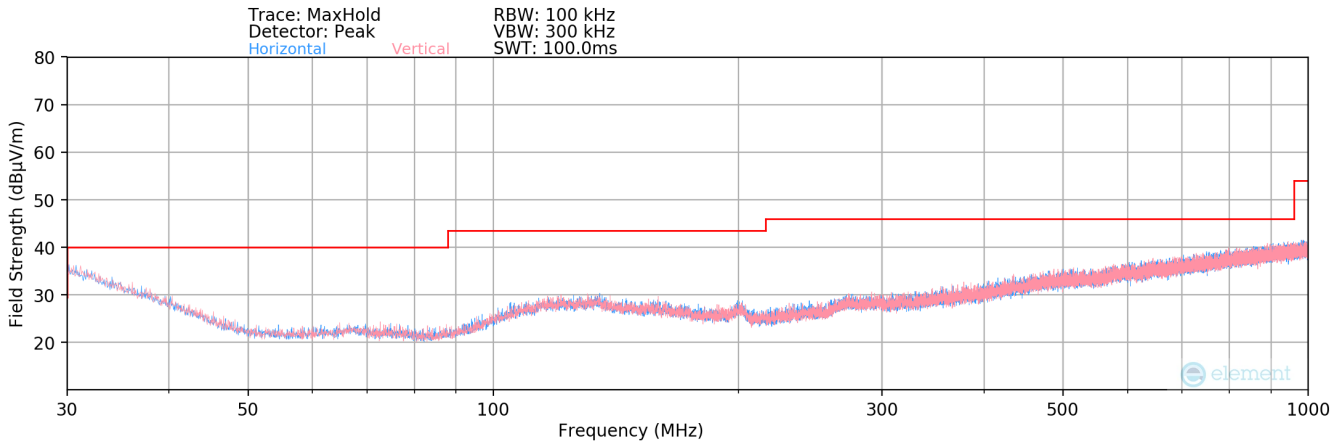
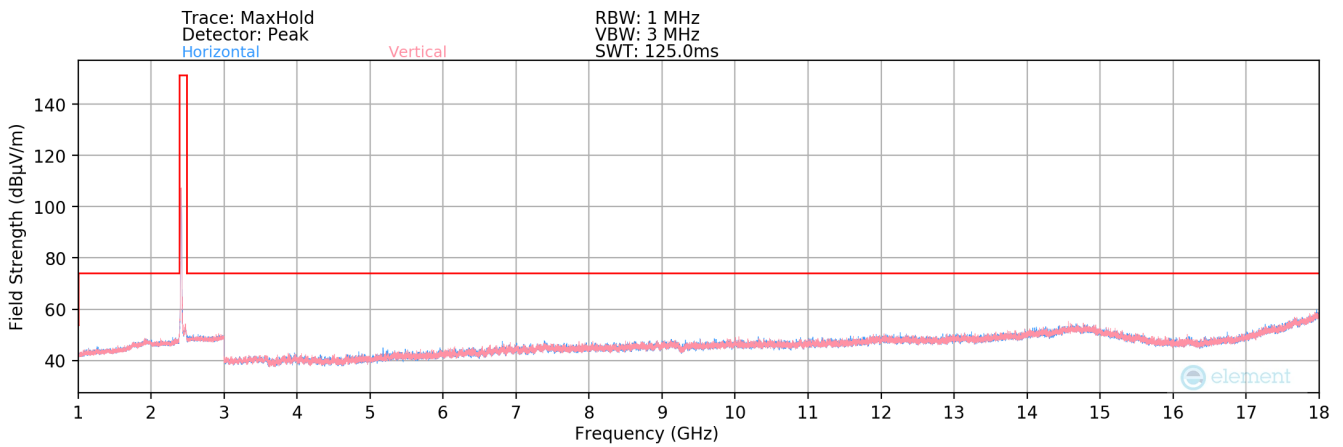


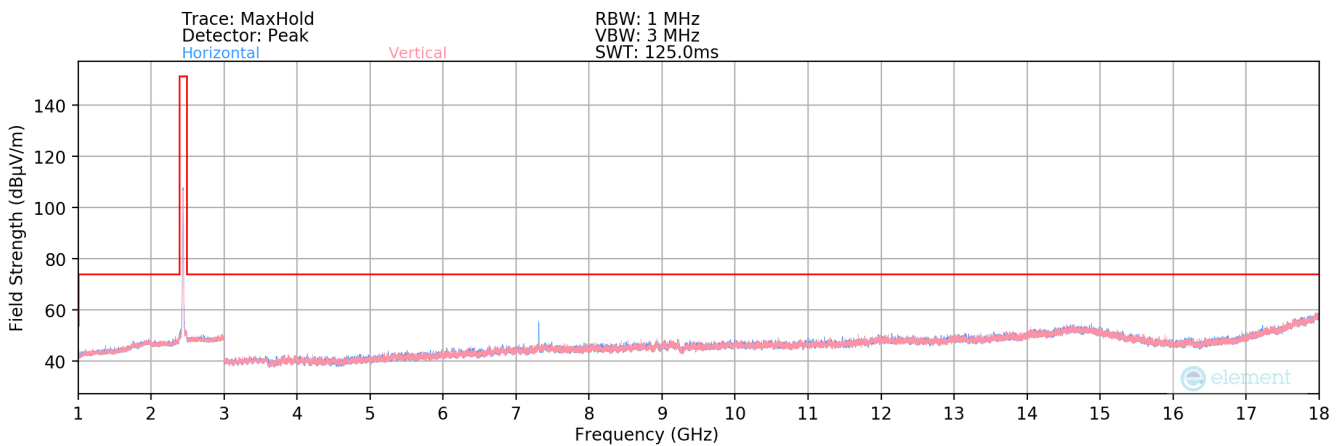
7.7.1 MIMO Radiated Spurious Emission Measurements



Plot 7-177. Radiated Spurious Plot below 1GHz MIMO

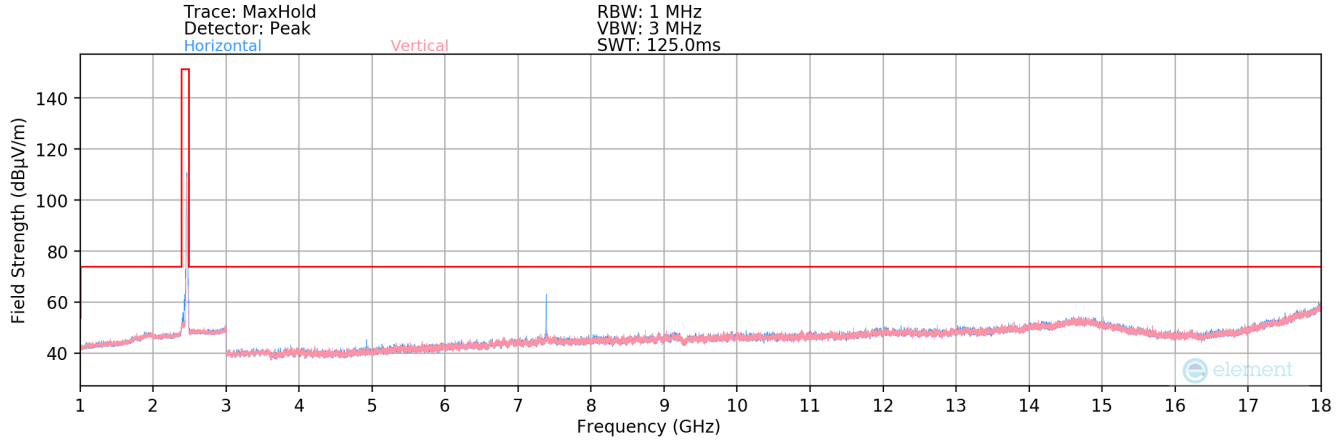


Plot 7-178. Radiated Spurious Plot above 1GHz MIMO (802.11b – Ch. 1)

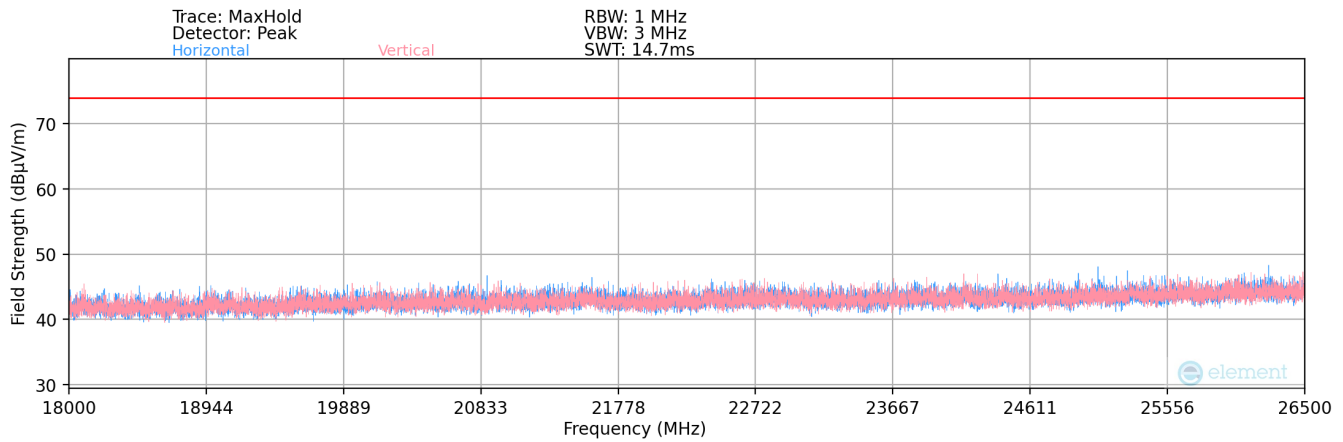


Plot 7-179. Radiated Spurious Plot above 1GHz MIMO (802.11b – Ch. 6)

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Plot 7-180. Radiated Spurious Plot above 1GHz MIMO (802.11b – Ch. 11)



Plot 7-181. Radiated Spurious Plot above 18GHz MIMO

Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2412MHz
 Channel: 1

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]
4824.00	Avg	H	161	328	-73.83	7.45	40.62	53.98	-13.36
4824.00	Peak	H	161	328	-68.39	7.45	46.06	73.98	-27.92
12060.00	Avg	H	-	-	-83.38	18.70	42.32	53.98	-11.66
12060.00	Peak	H	-	-	-71.95	18.70	53.75	73.98	-20.23

Table 7-14. Radiated Measurements MIMO

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2437MHz
 Channel: 6

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]
4874.00	Avg	H	136	329	-74.15	7.18	40.03	53.98	-13.95
4874.00	Peak	H	136	329	-67.34	7.18	46.84	73.98	-27.14
7311.00	Avg	H	-	-	-82.03	12.31	37.28	53.98	-16.70
7311.00	Peak	H	-	-	-70.83	12.31	48.48	73.98	-25.50
12185.00	Avg	H	-	-	-83.79	19.45	42.66	53.98	-11.32
12185.00	Peak	H	-	-	-72.87	19.45	53.58	73.98	-20.40

Table 7-15. Radiated Measurements MIMO

Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2462MHz
 Channel: 11

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]
4924.00	Avg	H	146	332	-73.67	7.51	40.84	53.98	-13.14
4924.00	Peak	H	146	332	-67.13	7.51	47.38	73.98	-26.60
7386.00	Avg	H	-	-	-82.00	12.24	37.24	53.98	-16.74
7386.00	Peak	H	-	-	-69.64	12.24	49.60	73.98	-24.38
12310.00	Avg	H	-	-	-84.03	19.24	42.21	53.98	-11.77
12310.00	Peak	H	-	-	-72.25	19.24	53.99	73.98	-19.99

Table 7-16. Radiated Measurements MIMO

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: MHz
 Channel: 11

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]
4924.00	Avg	H	110	40	-73.50	-1.16	32.34	53.98	-21.64
4924.00	Peak	H	110	40	-62.01	-1.16	43.83	73.98	-30.15
7386.00	Avg	H	396	12	-75.42	4.81	36.39	53.98	-17.59
7386.00	Peak	H	396	12	-64.21	4.81	47.60	73.98	-26.38
12310.00	Avg	H	-	-	-78.36	9.69	38.33	53.98	-15.65
12310.00	Peak	H	-	-	-66.67	9.69	50.02	73.98	-23.96

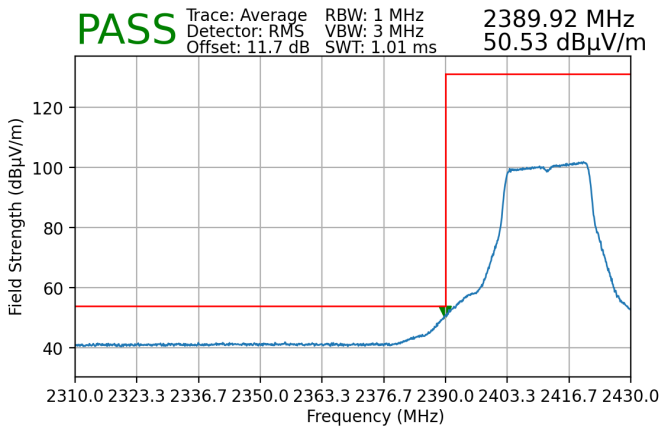
Table 7-17. Radiated Measurements MIMO with WCP

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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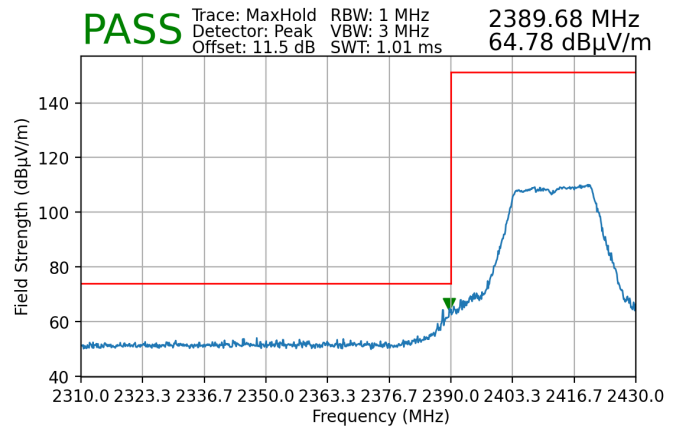
7.7.2 MIMO Radiated Restricted Band Edge Measurements

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

Worst Case Mode:	802.11ac
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1

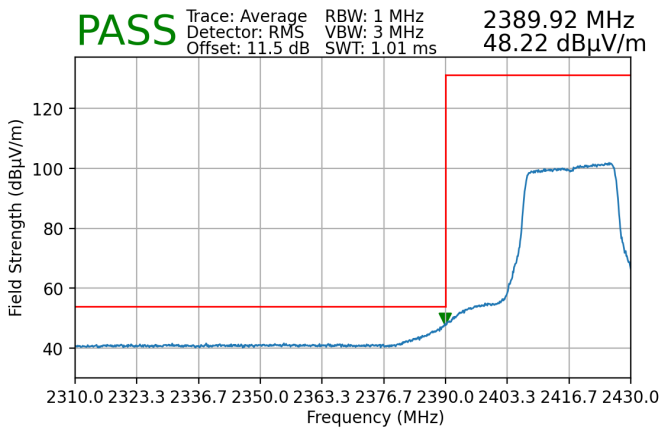


Plot 7-182. Radiated Restricted Lower Band Edge Measurement MIMO (Average)

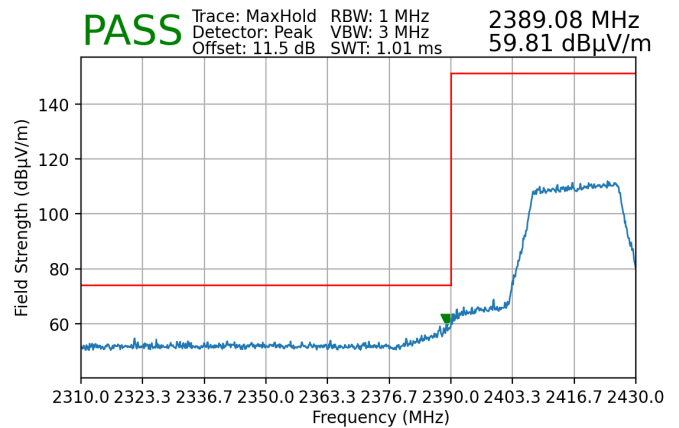


Plot 7-183. Radiated Restricted Lower Band Edge Measurement MIMO (Peak)

Worst Case Mode:	802.11be
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	2417MHz
Channel:	2



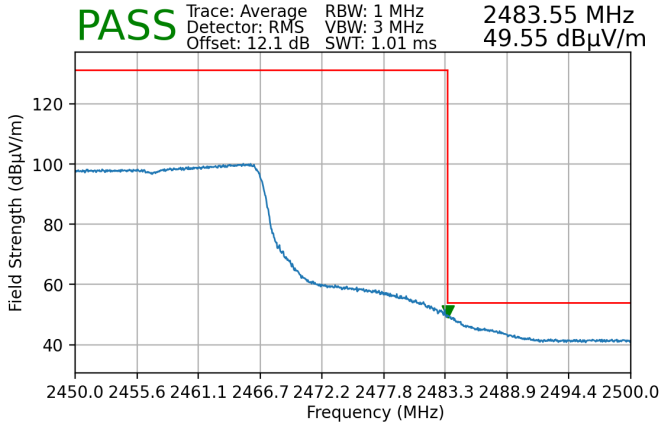
Plot 7-184. Radiated Restricted Lower Band Edge Measurement MIMO (Average)



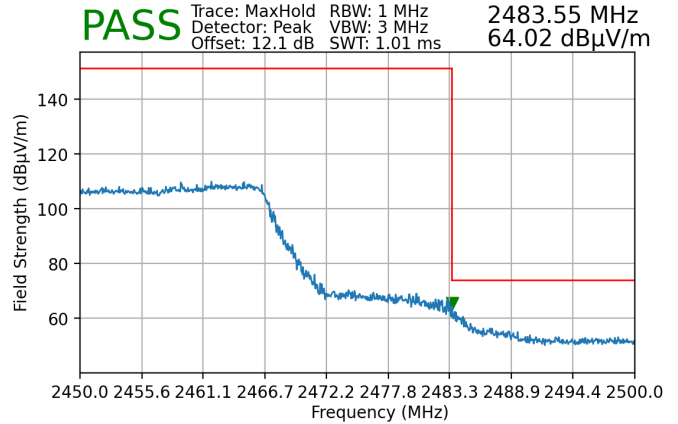
Plot 7-185. Radiated Restricted Lower Band Edge Measurement MIMO (Peak)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 2457MHz
 Channel: 10

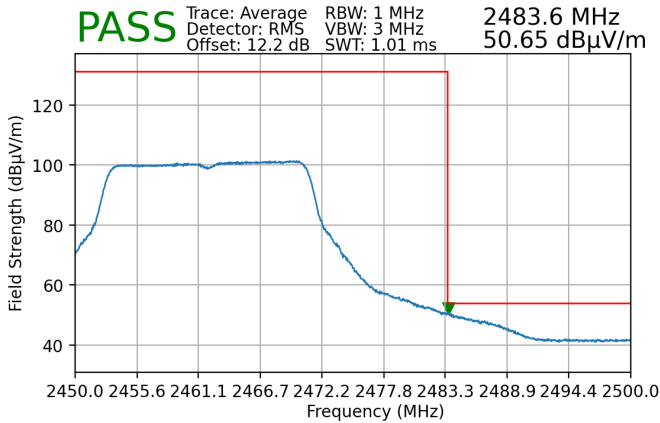


Plot 7-186. Radiated Restricted Upper Band Edge Measurement MIMO (Average)

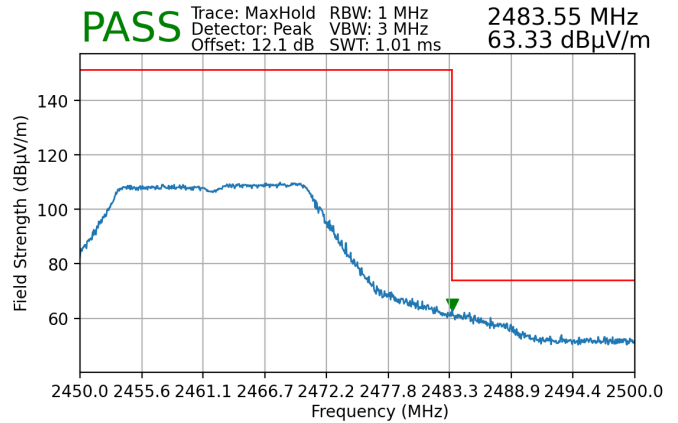


Plot 7-187. Radiated Restricted Upper Band Edge Measurement MIMO (Peak)

Worst Case Mode: 802.11ac
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 2462MHz
 Channel: 11



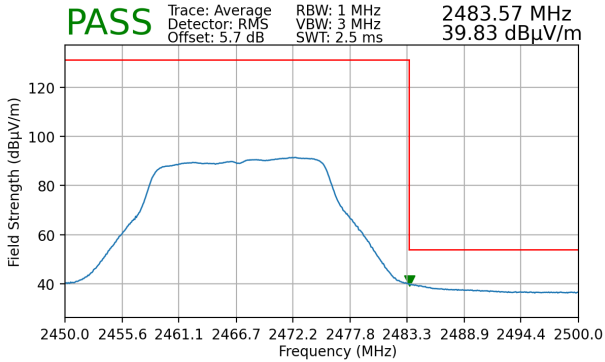
Plot 7-188. Radiated Restricted Upper Band Edge Measurement MIMO (Average)



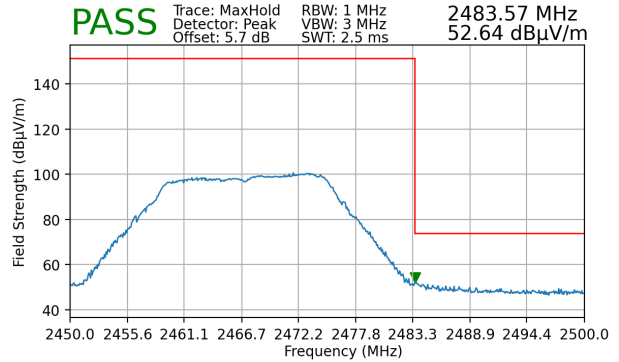
Plot 7-189. Radiated Restricted Upper Band Edge Measurement MIMO (Peak)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Worst Case Mode: 802.1ac
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 2467MHz
 Channel: 12

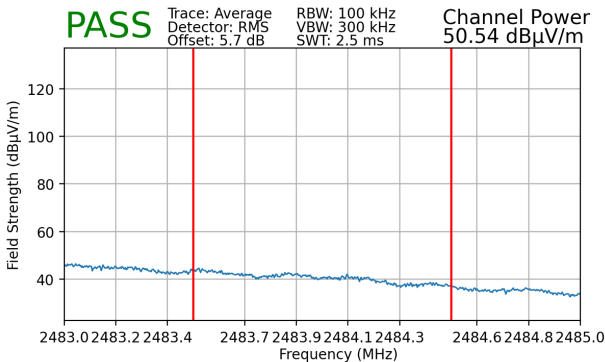


Plot 7-190. Radiated Restricted Band Edge Measurement MIMO (Average)

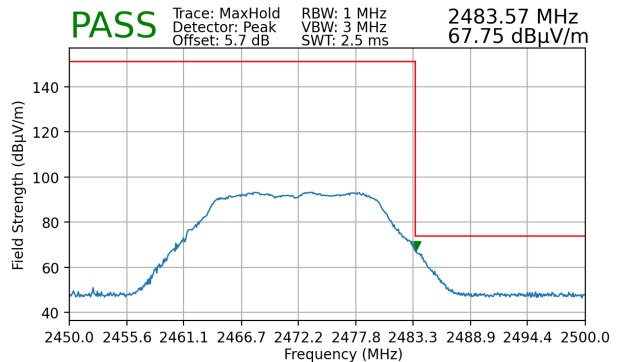


Plot 7-191. Radiated Restricted Band Edge Measurement MIMO (Peak)

Worst Case Mode: 802.1ac
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 2472MHz
 Channel: 13



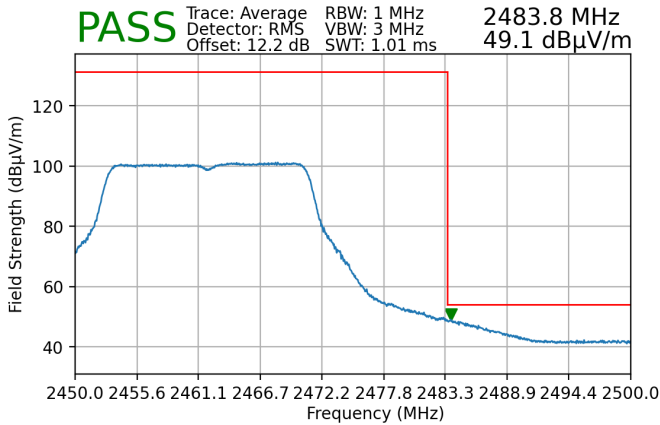
Plot 7-192. Radiated Restricted Band Edge Measurement MIMO (Average)



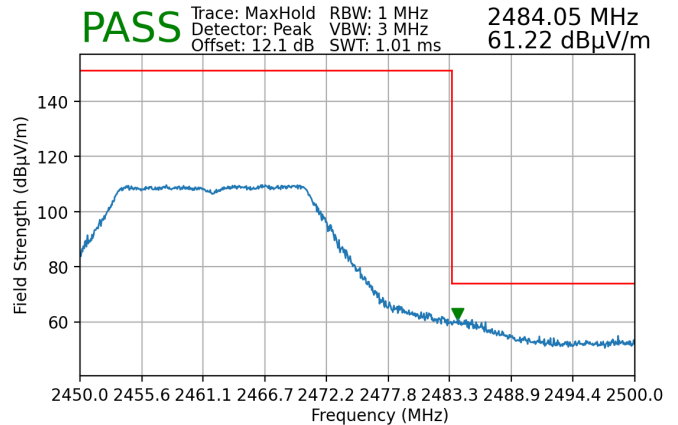
Plot 7-193. Radiated Restricted Band Edge Measurement MIMO (Peak)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Worst Case Mode: 802.1ac
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 2462MHz
 Channel: 11



Plot 7-194. Radiated Restricted Band Edge Measurement MIMO with WCP (Average)



Plot 7-195. Radiated Restricted Band Edge Measurement MIMO with WCP (Peak)

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7.8 Line-Conducted Test Data

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 §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 7-18. 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.

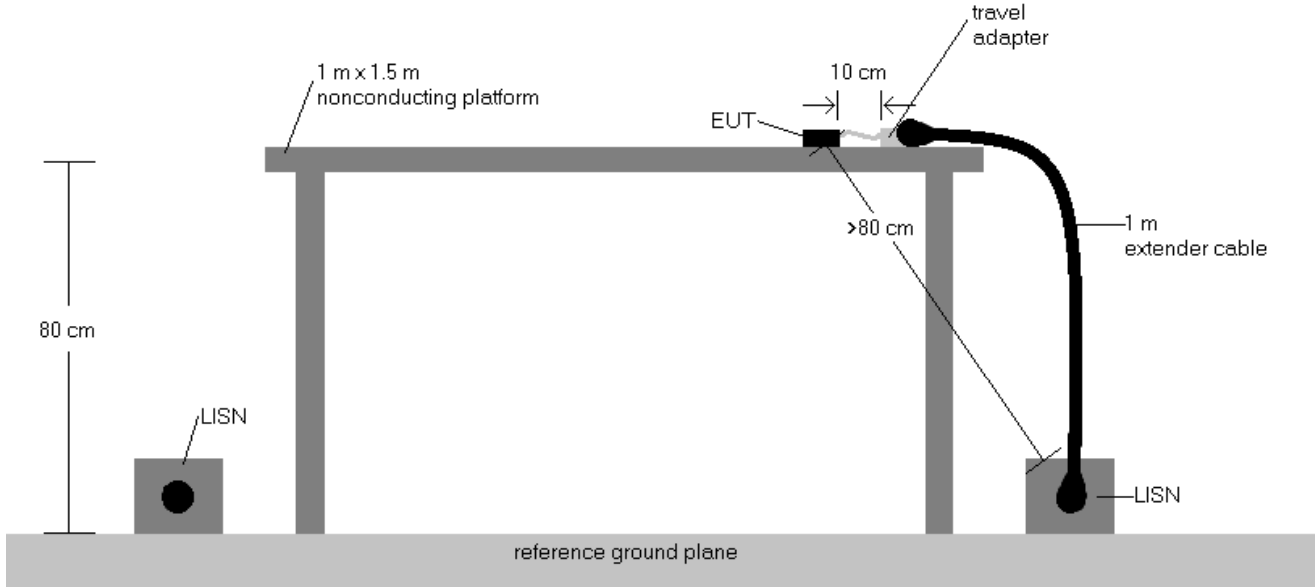
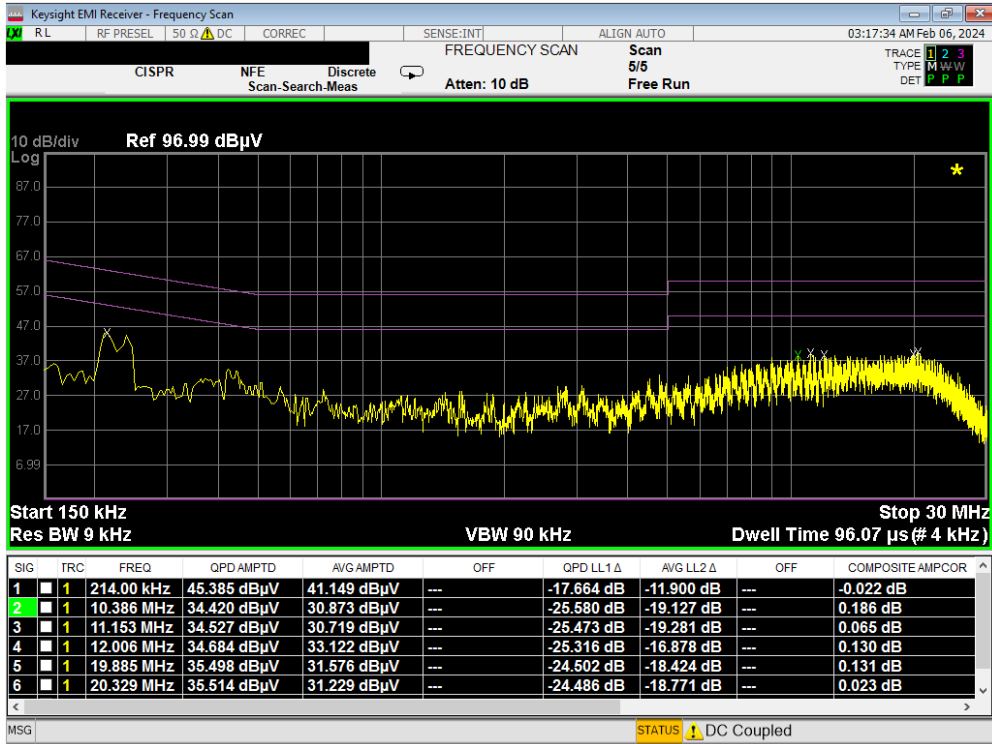


Figure 7-9. Test Instrument & Measurement Setup

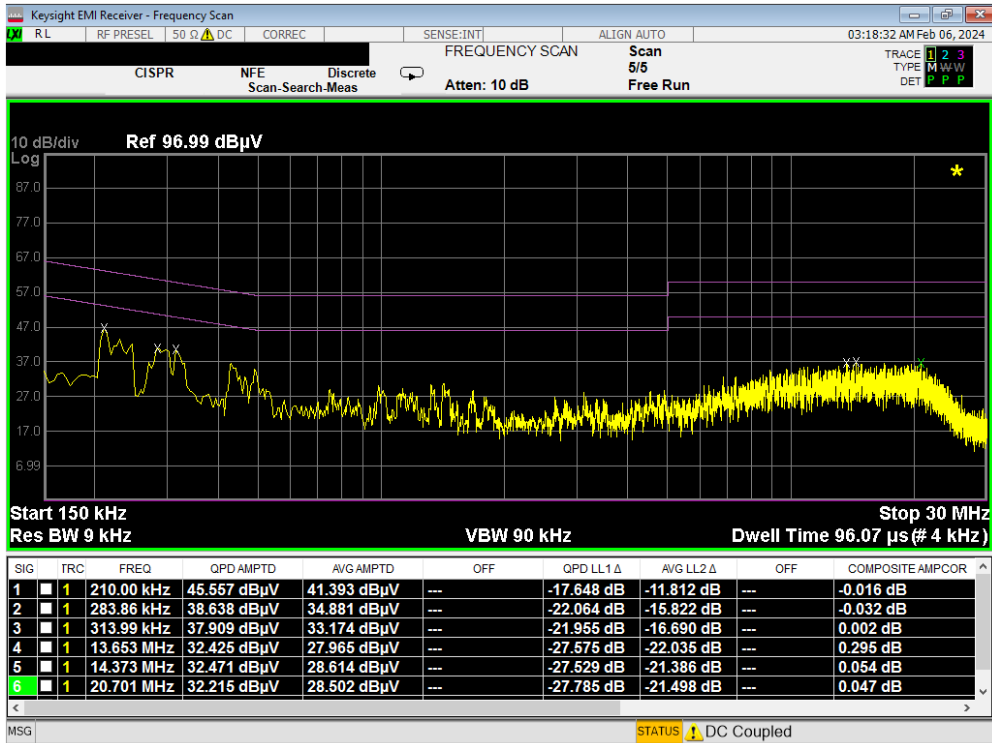
Test Notes

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. $Corr. (dB) = Cable\ loss (dB) + LISN\ insertion\ factor (dB)$
4. $QP\AV\ Level (dB\mu V) = QP\AV\ Analyzer\ Receiver\ Level (dB\mu V) + Corr. (dB)$
5. $Margin (dB) = QP\AV\ Limit (dB\mu V) - QP\AV\ Level (dB\mu V)$
6. Traces shown in plot are made using a peak detector.
7. Deviations to the Specifications: None.

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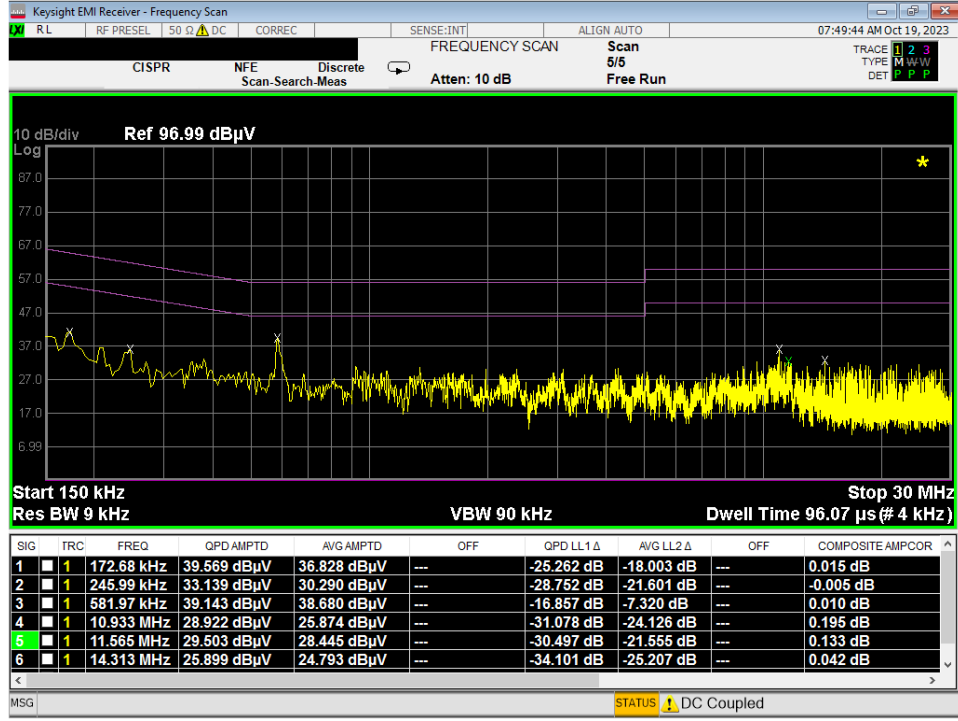


Plot 7-196. Line Conducted Plot with 802.11b (L1)

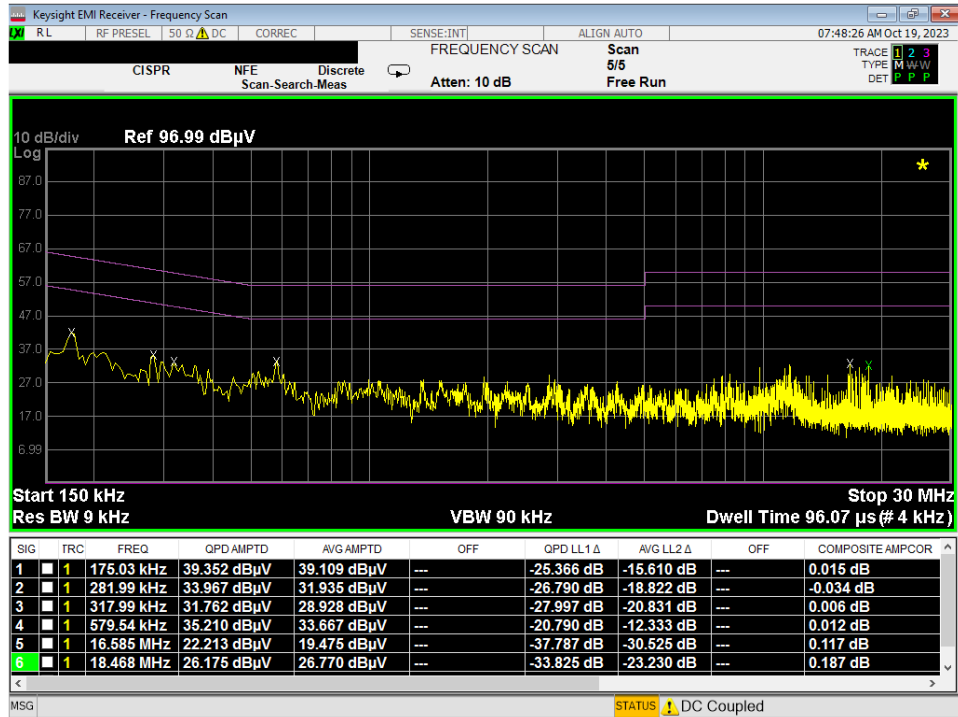


Plot 7-197. Line Conducted Plot with 802.11b (N)

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Plot 7-198. Line Conducted Plot with 802.11b (L1) with WCP



Plot 7-199. Line Conducted Plot with 802.11b (N) with WCP

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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: A3LSMS928JPN** is in compliance with Part 15 Subpart C (15.247) of the FCC Rules.

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