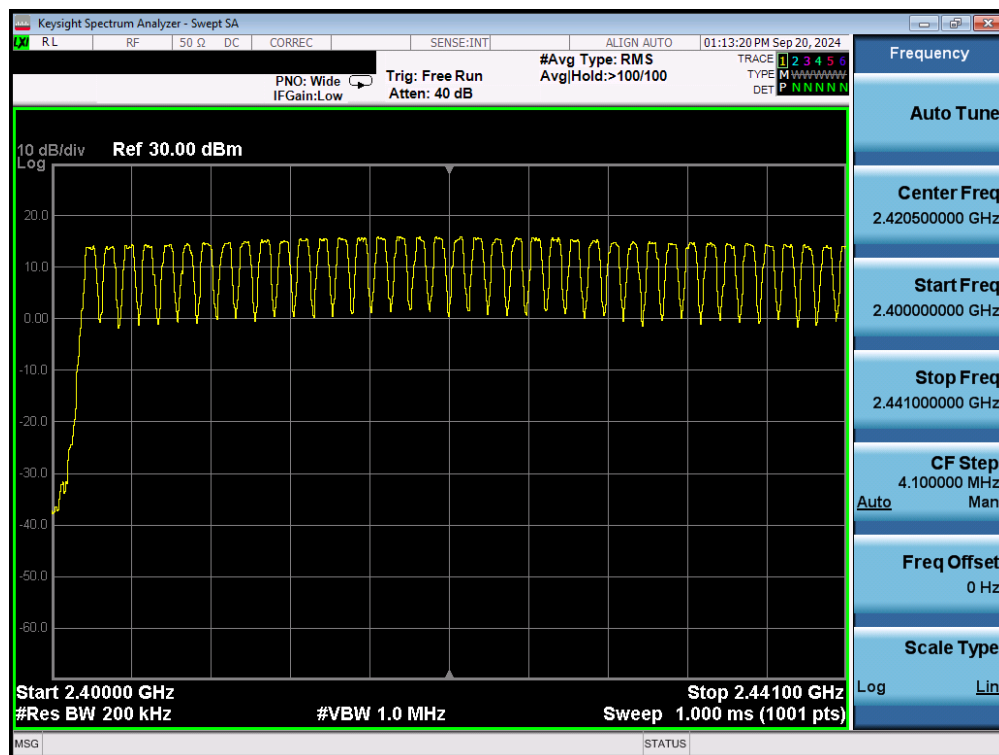
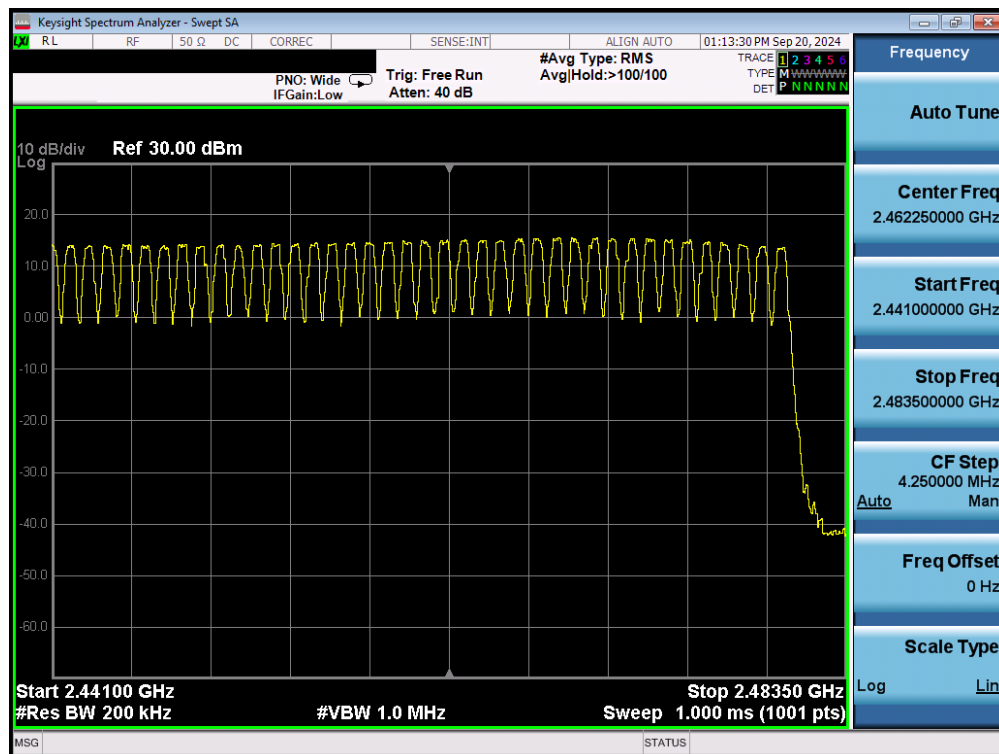




Plot 7-141. Low End Spectrum Channel Hopping Plot (Bluetooth) – Dual Ant 2



Plot 7-142. High End Spectrum Channel Hopping Plot (Bluetooth) – Dual Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 98 of 142

7.8 Conducted Spurious Emissions

§15.247 (d); RSS-247 [5.5]

Test Overview and Limit

Conducted out-of-band spurious emissions were investigated from 30MHz up to 25GHz to include the 10th harmonic of the fundamental transmit frequency. **The maximum permissible out-of-band emission level is 20 dBc.**

Test Procedure Used

ANSI C63.10-2013 – Section 7.8.8

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 25GHz (separated into two plots per channel)
2. RBW = 1MHz* (See note below)
3. VBW = 3MHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

Test Setup

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

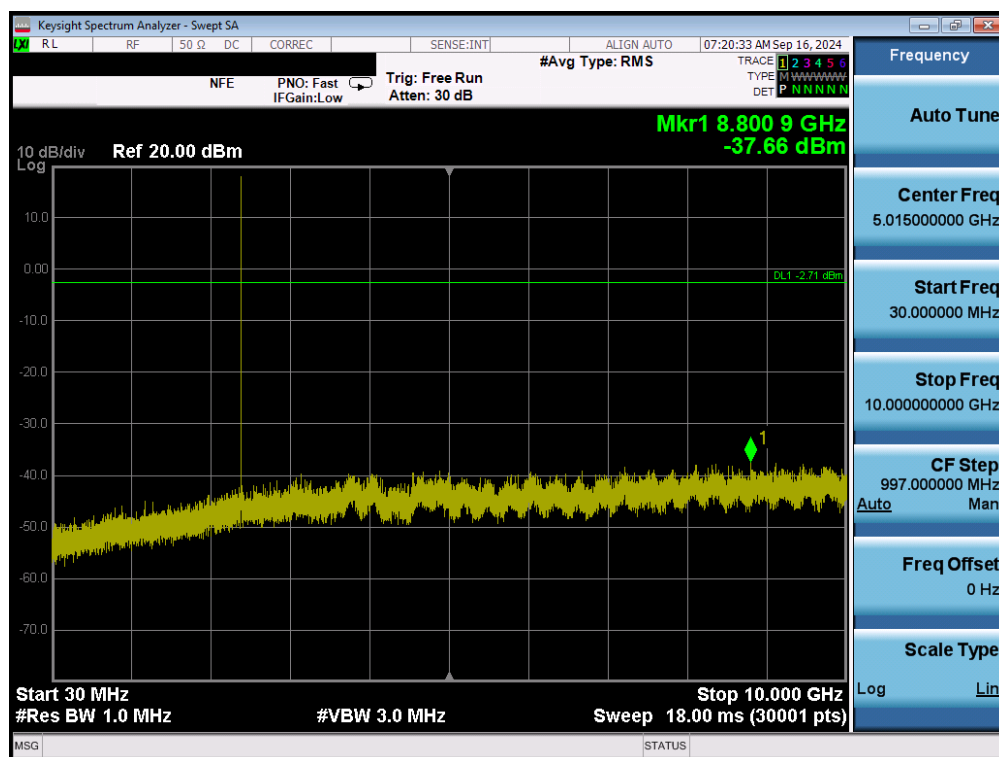


Figure 7-7. Test Instrument & Measurement Setup

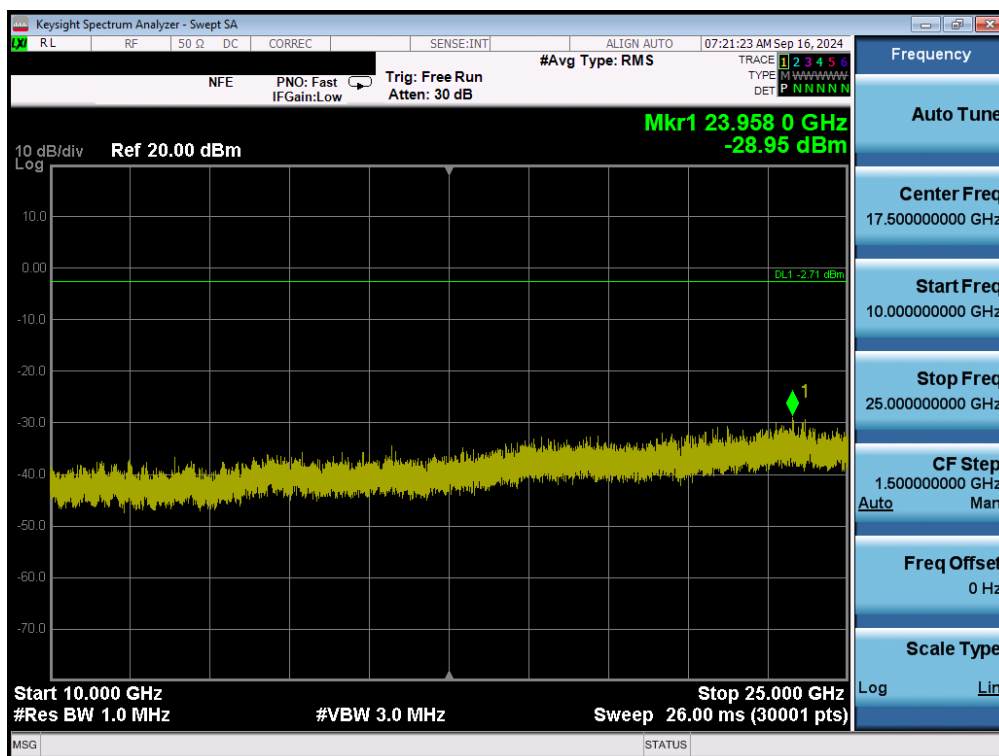
Test Notes

Out-of-band conducted spurious emissions were investigated for all data rates and the worst-case emissions were found with the EUT transmitting at 1Mbps. The display line shown in the following plots is the limit at 20dB below the fundamental emission level measured in a 100kHz bandwidth. However, the traces in the following plots are measured with a 1MHz RBW to reduce test time, so the display line may not necessarily appear to be 20dB below the level of the fundamental in a 1MHz bandwidth.

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 99 of 142

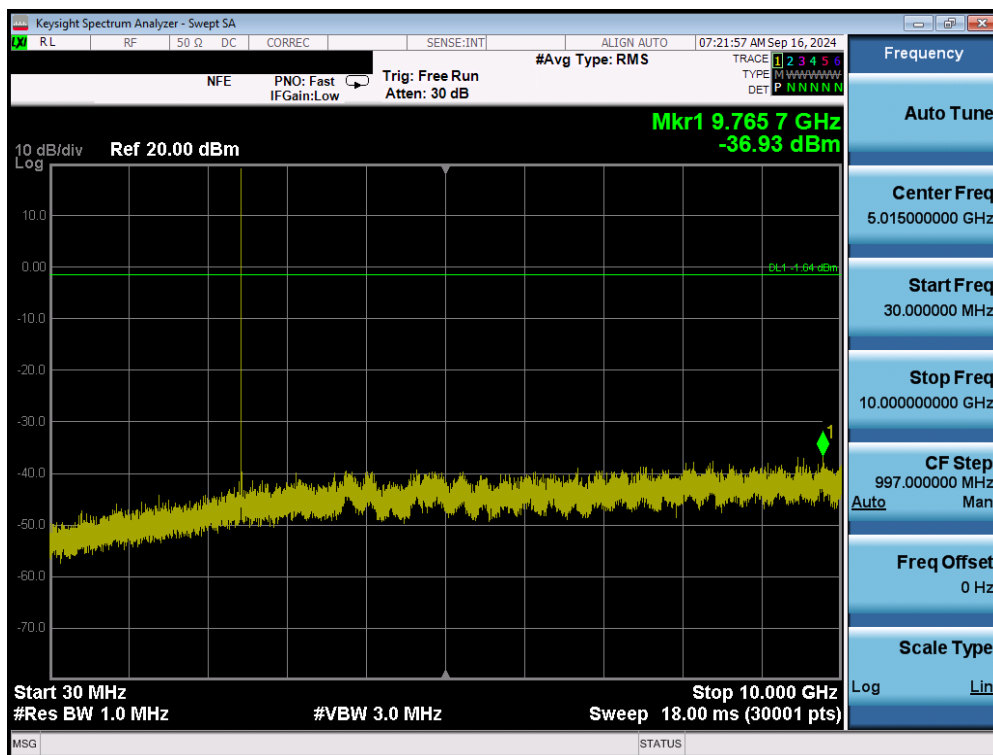


Plot 7-143. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 0) – Ant 1

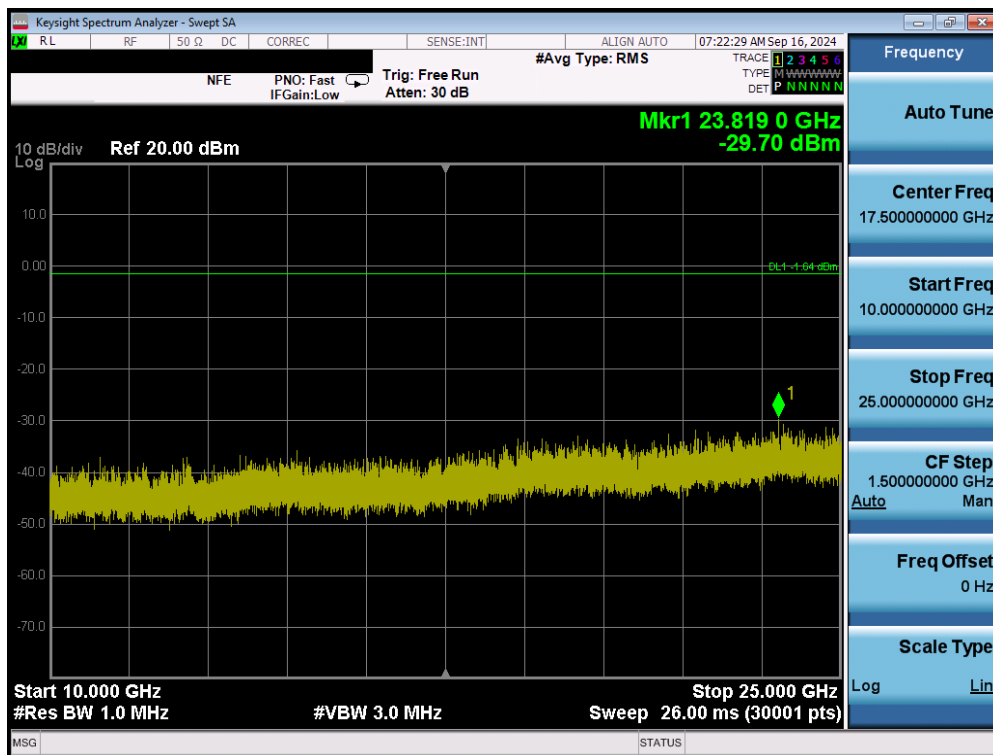


Plot 7-144. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 0) – Ant 1

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 100 of 142

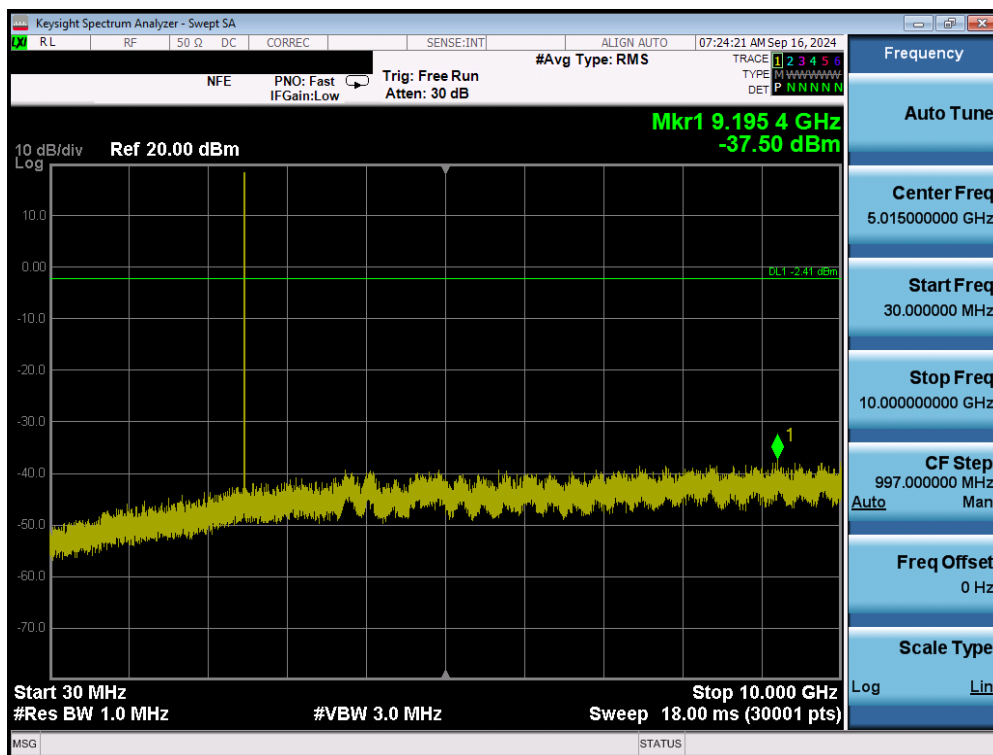


Plot 7-145. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 39) – Ant 1



Plot 7-146. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 39) – Ant 1

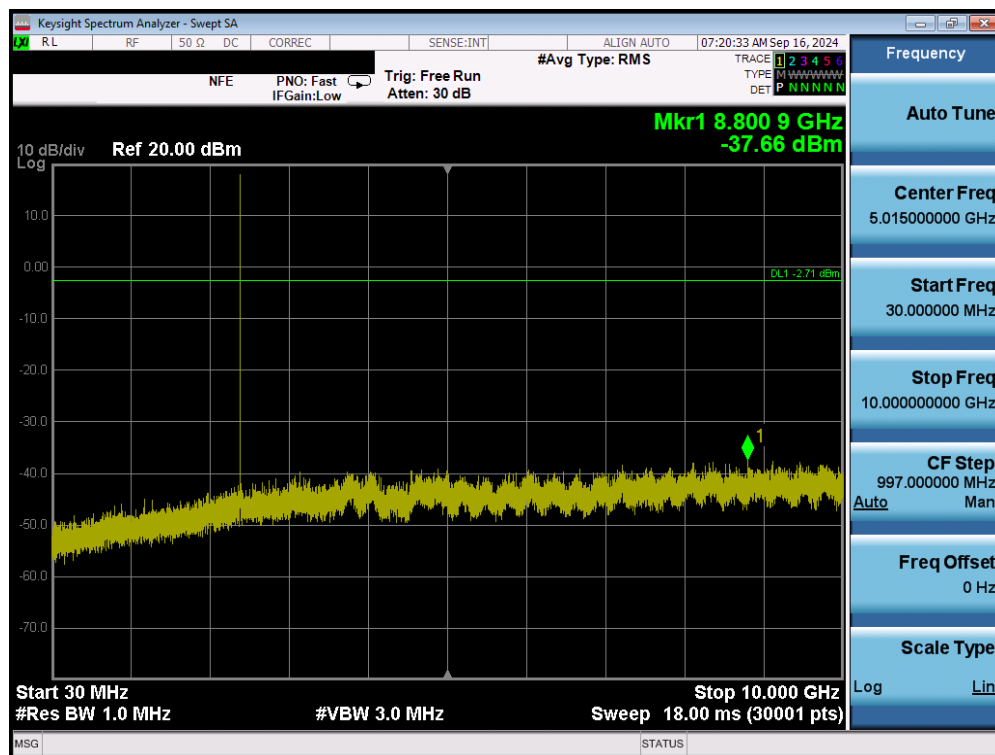
FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 101 of 142



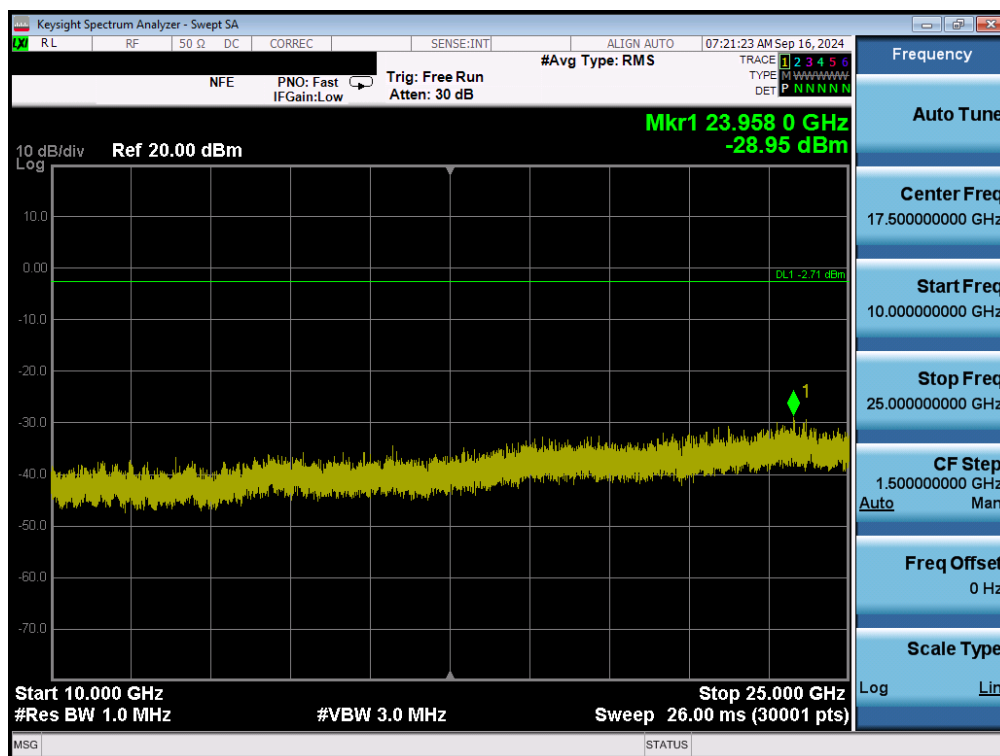
Plot 7-147. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 78) – Ant 1

Plot 7-148. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 78) – Ant 1

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 102 of 142

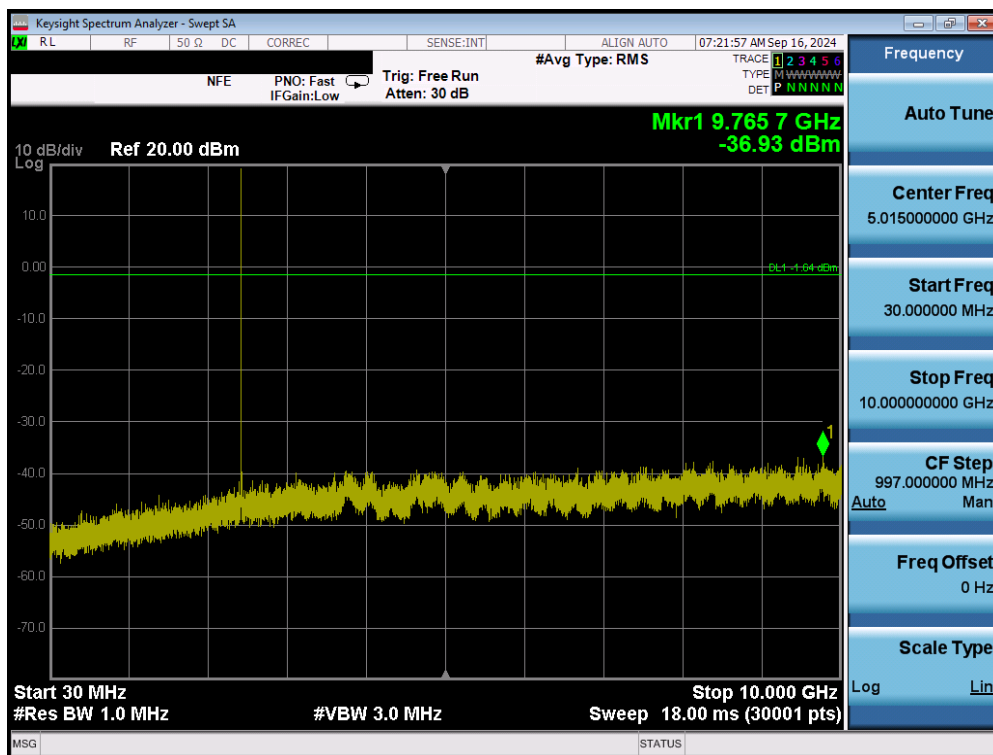


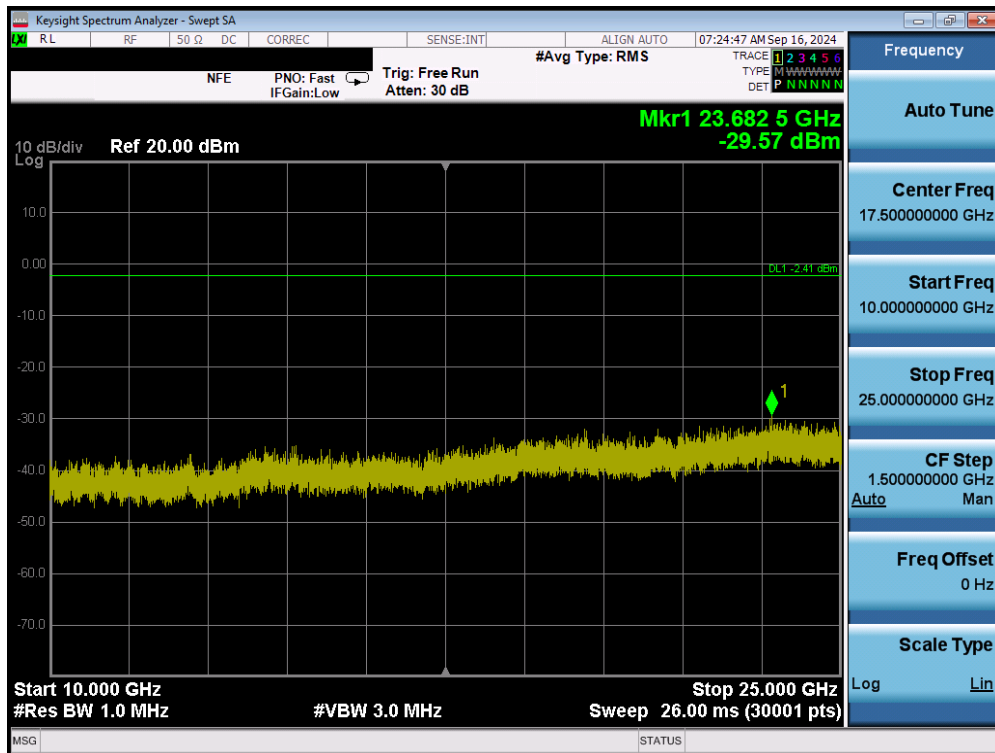
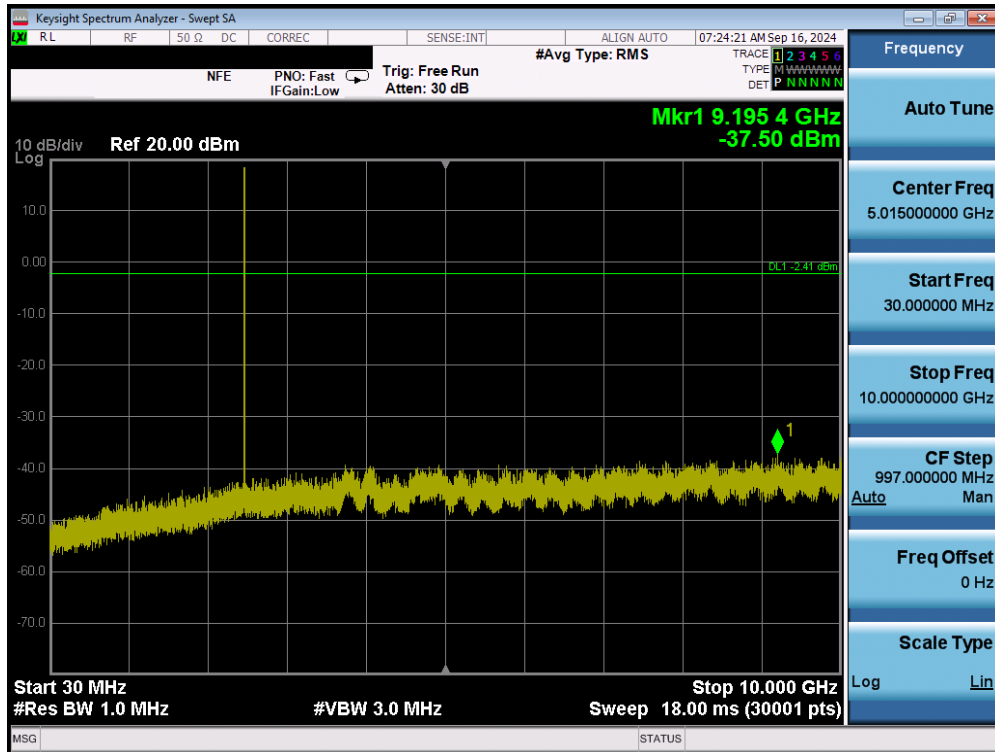
Plot 7-149. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 0) – Ant 2



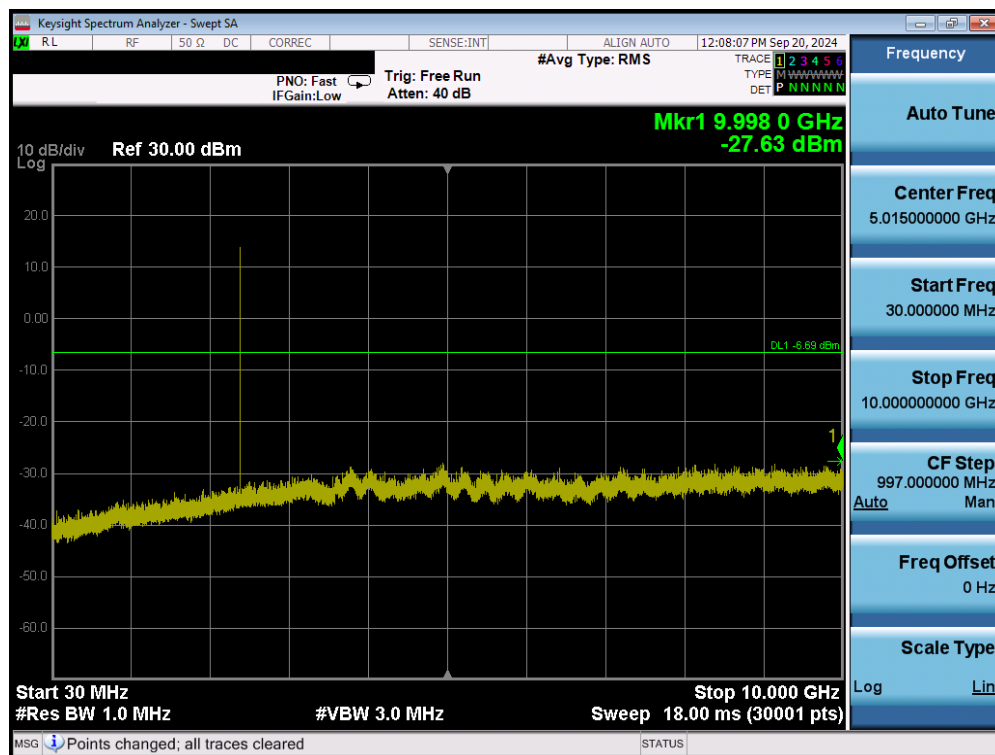
Plot 7-150. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 0) – Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 103 of 142

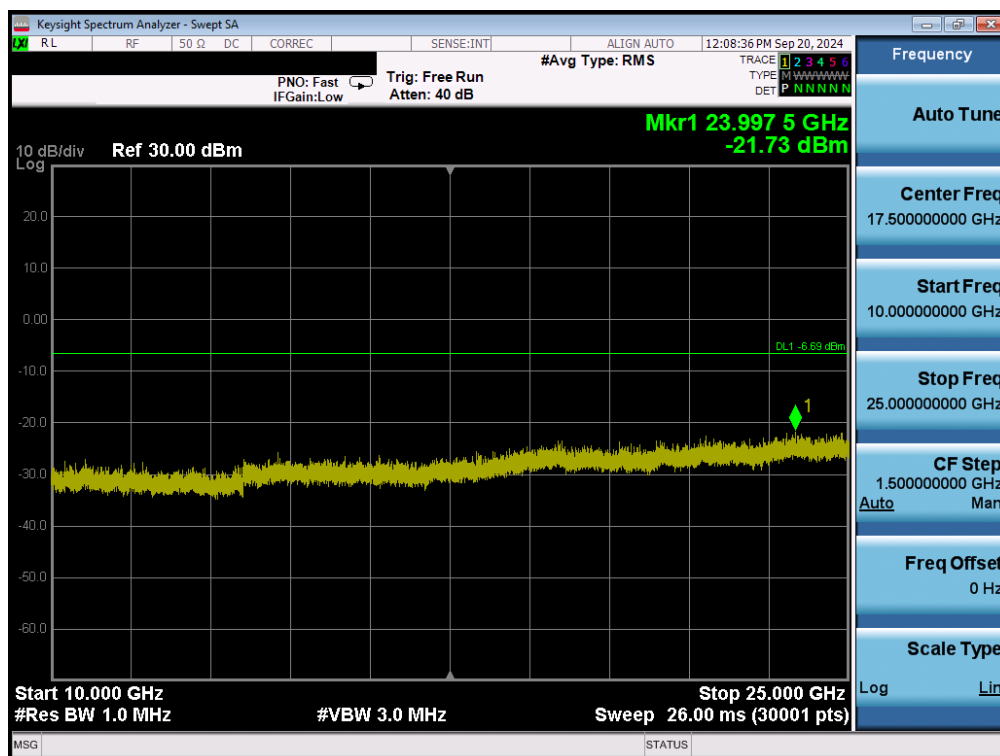




FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 105 of 142

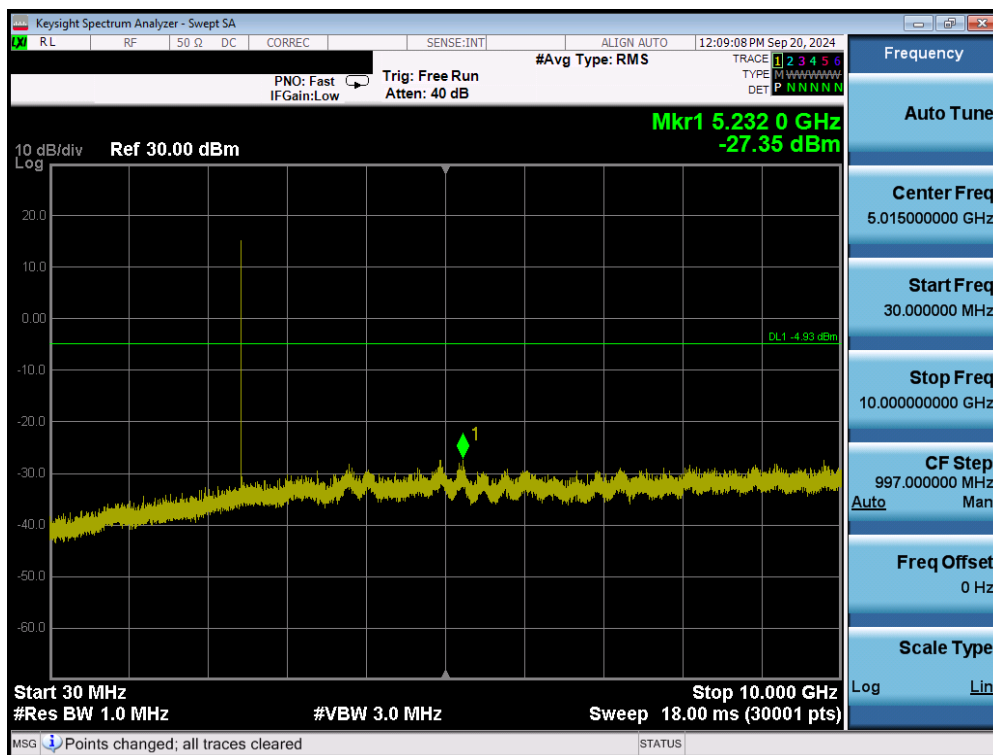


Plot 7-155. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 0) – Dual Ant 1

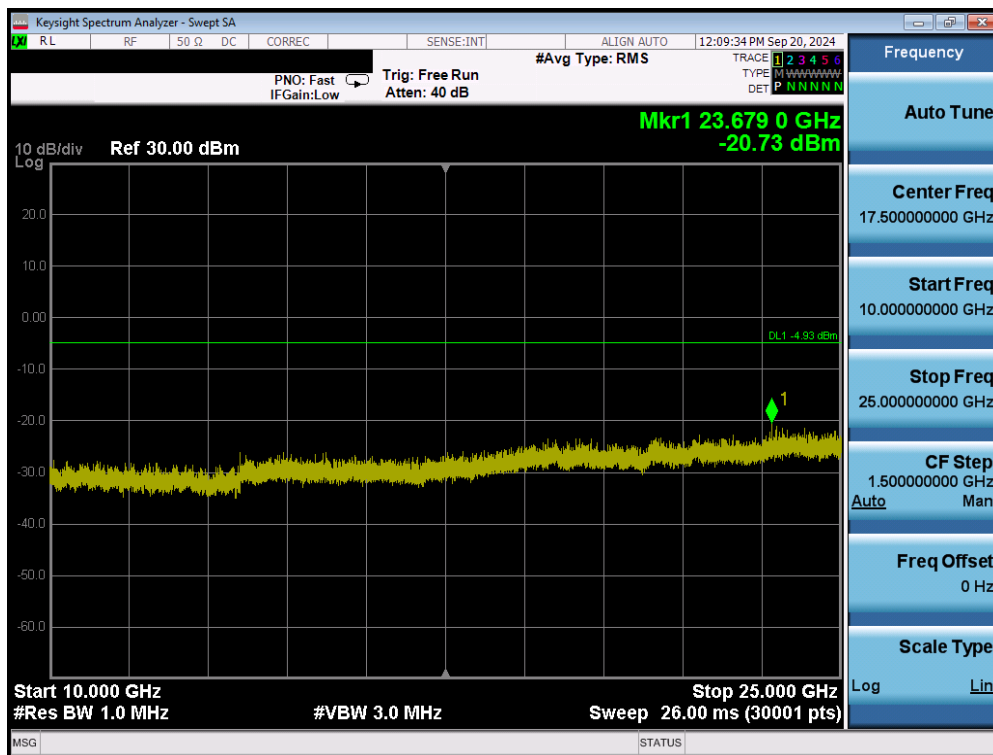


Plot 7-156. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 0) – Dual Ant 1

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 106 of 142

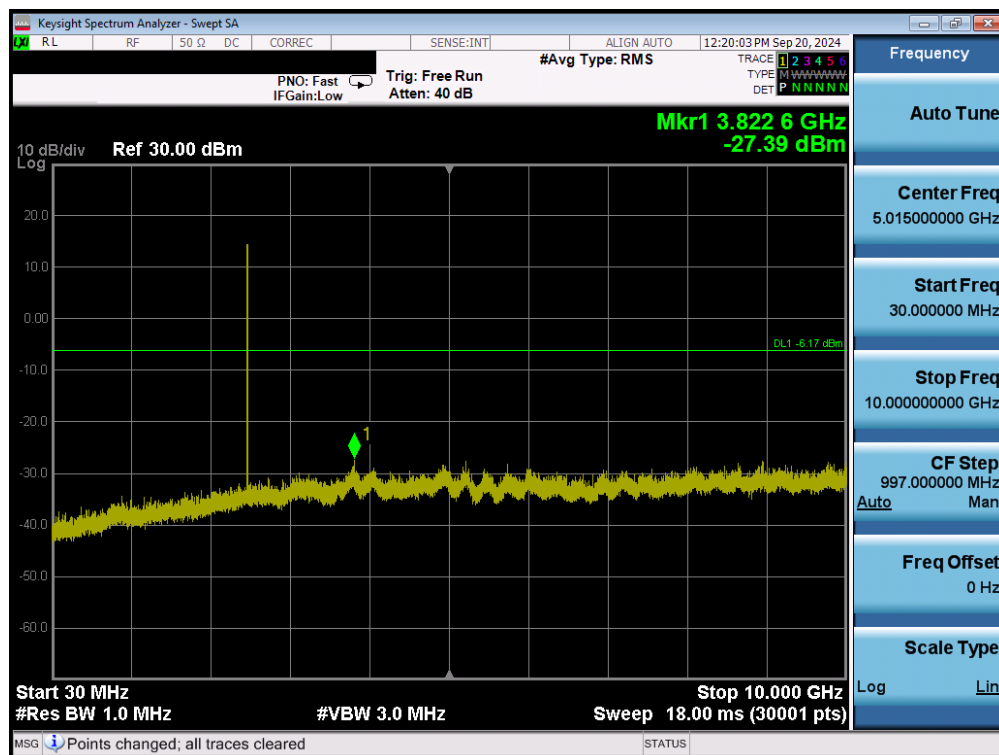


Plot 7-157. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 39) – Dual Ant 1

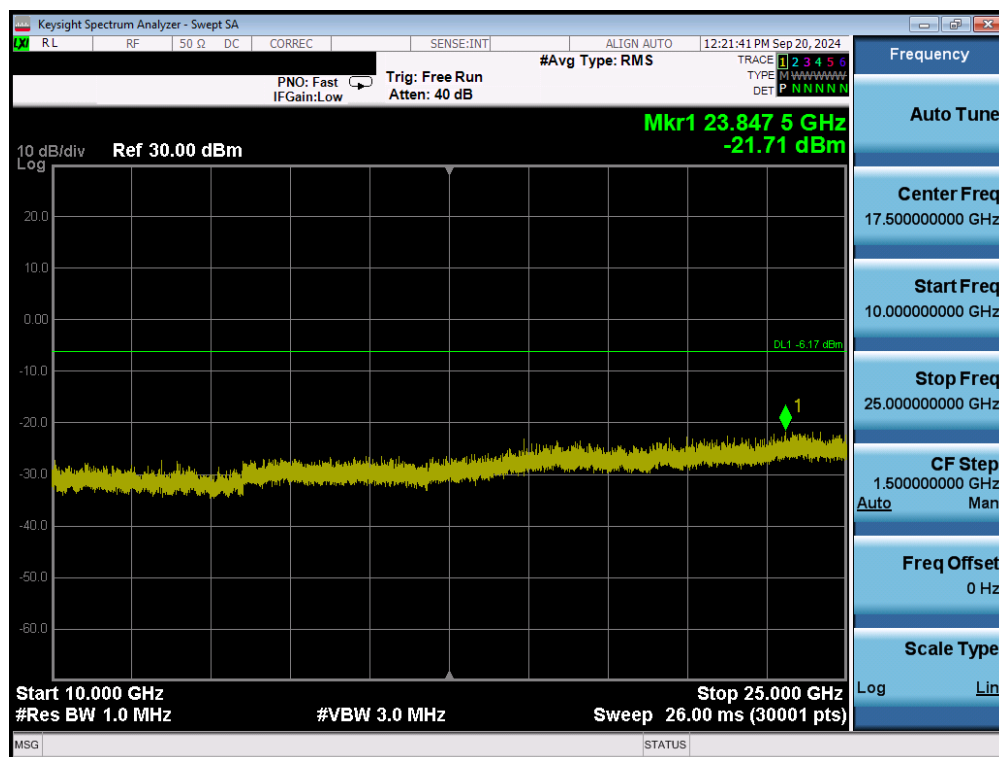


Plot 7-158. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 39) – Dual Ant 1

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 107 of 142

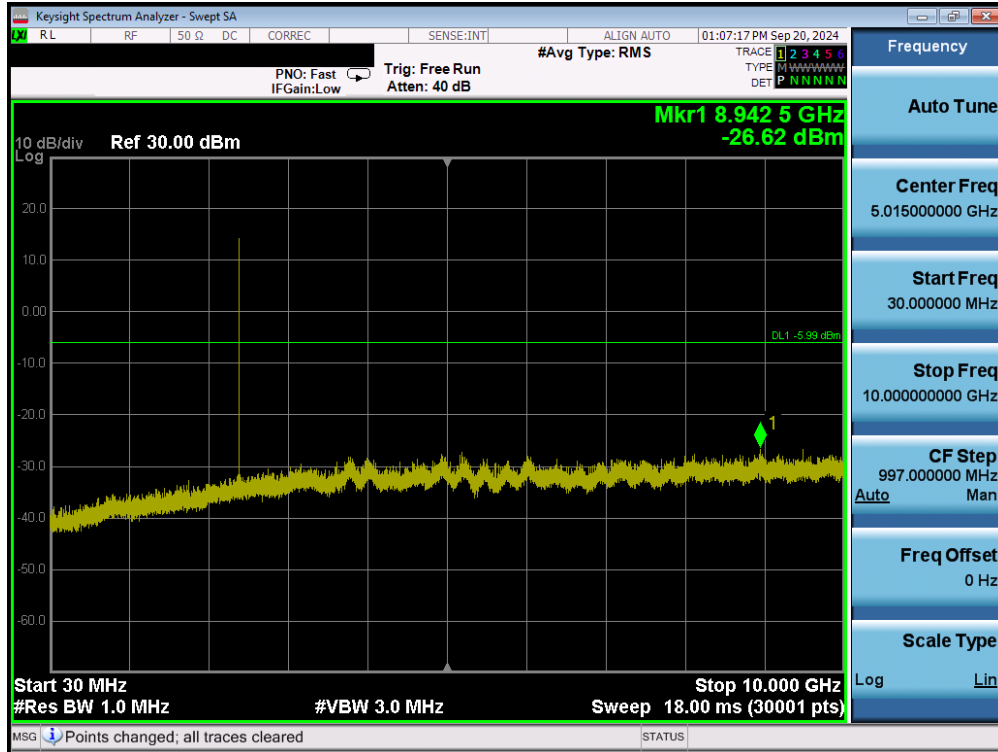


Plot 7-159. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 78) – Dual Ant 1

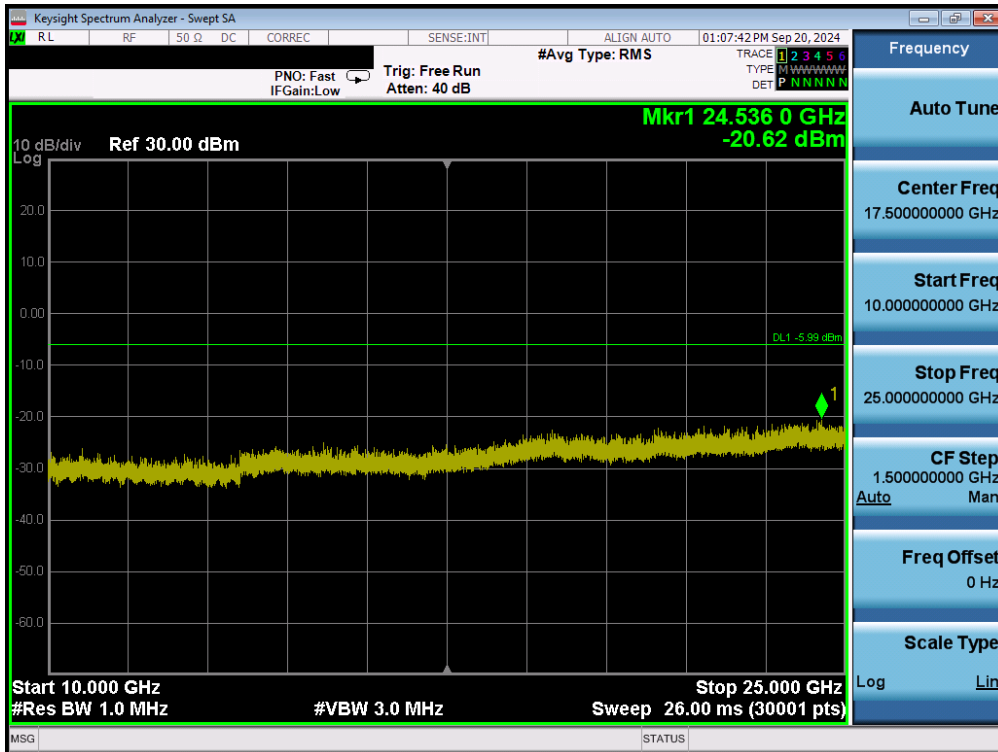


Plot 7-160. Conducted Spurious Plot (Bluetooth, 3Mbps – Ch. 78) – Dual Ant 1

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 108 of 142

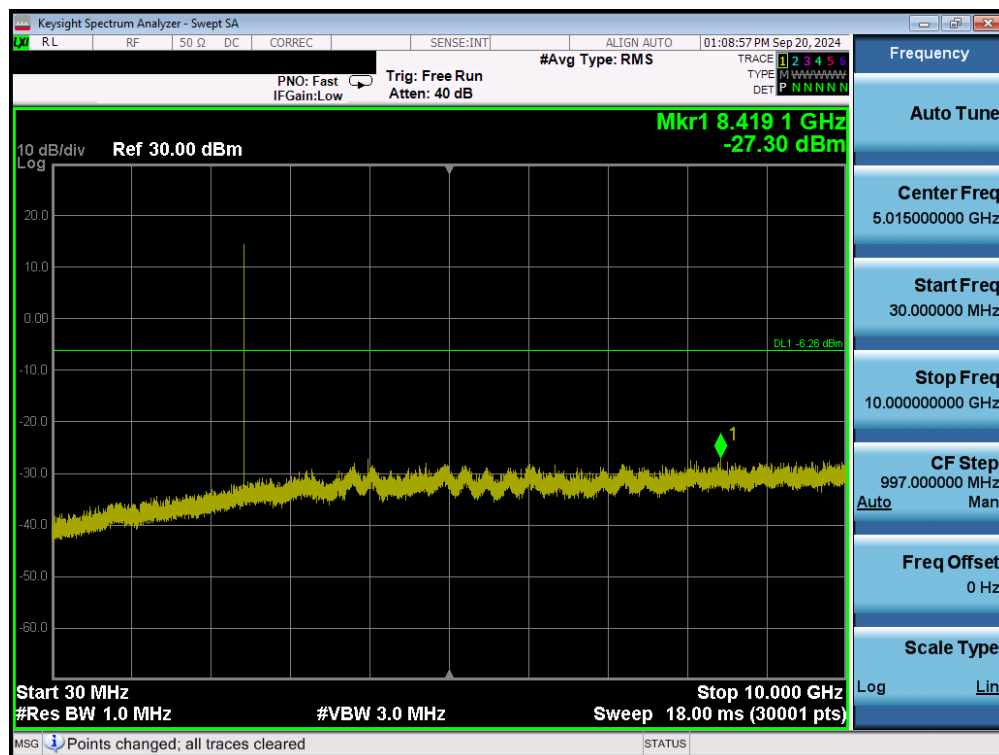


Plot 7-161. Conducted Spurious Plot (Bluetooth, 1Mbps – Ch. 0) – Dual Ant 2

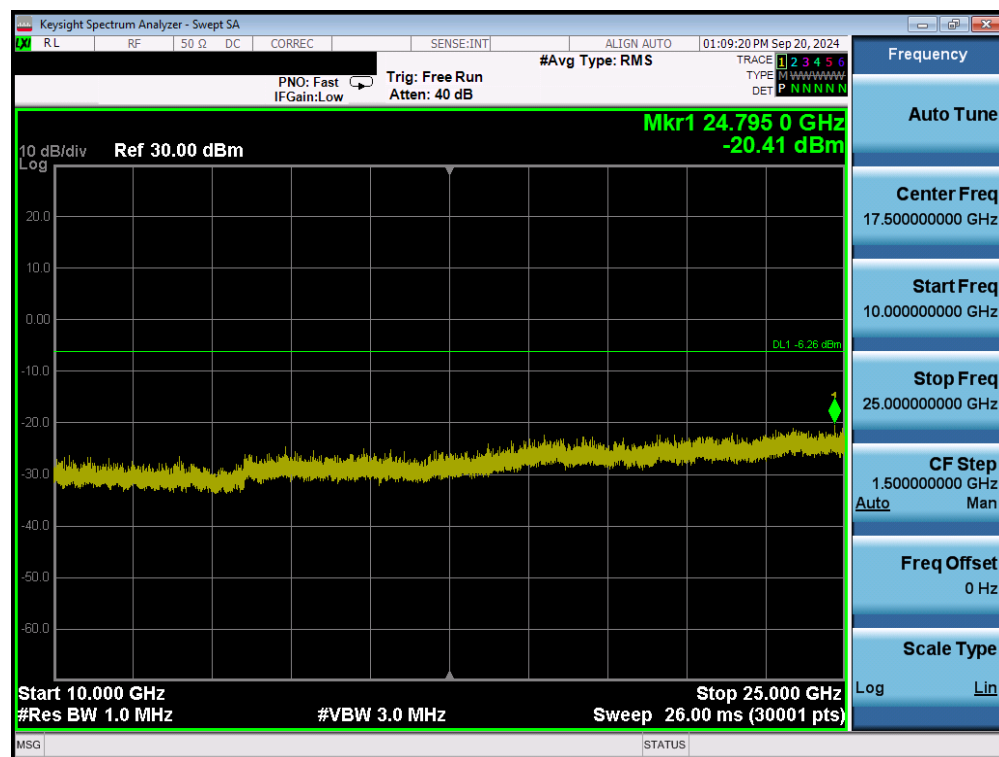


Plot 7-162. Conducted Spurious Plot (Bluetooth, 1Mbps – Ch. 0) – Dual Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 109 of 142

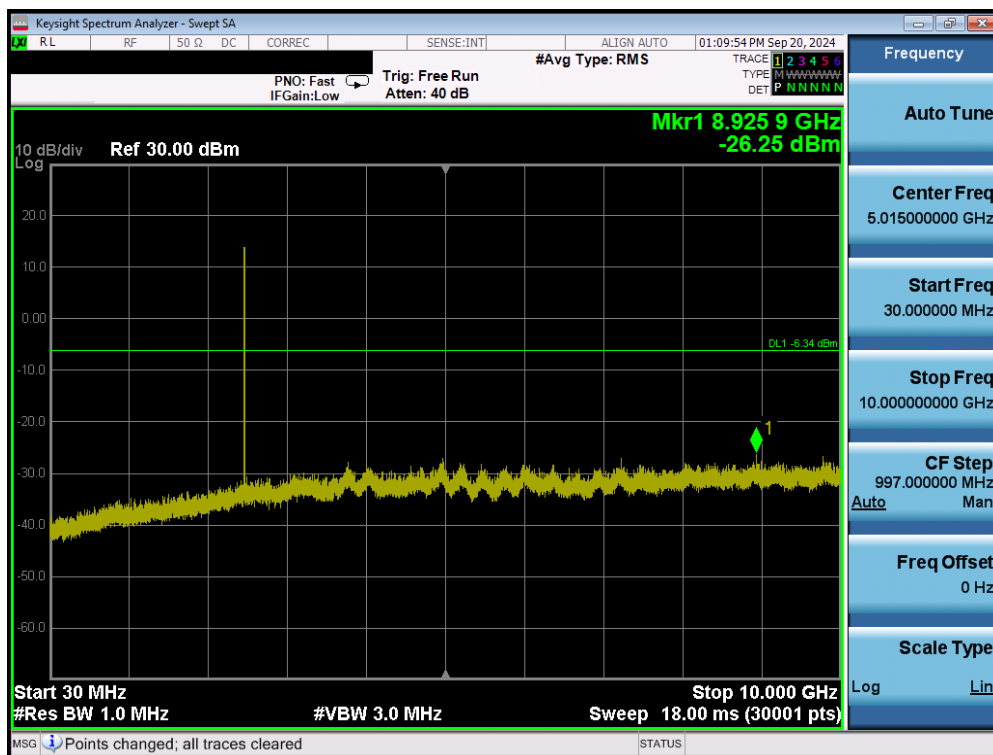


Plot 7-163. Conducted Spurious Plot (Bluetooth, 1Mbps – Ch. 39) – Dual Ant 2

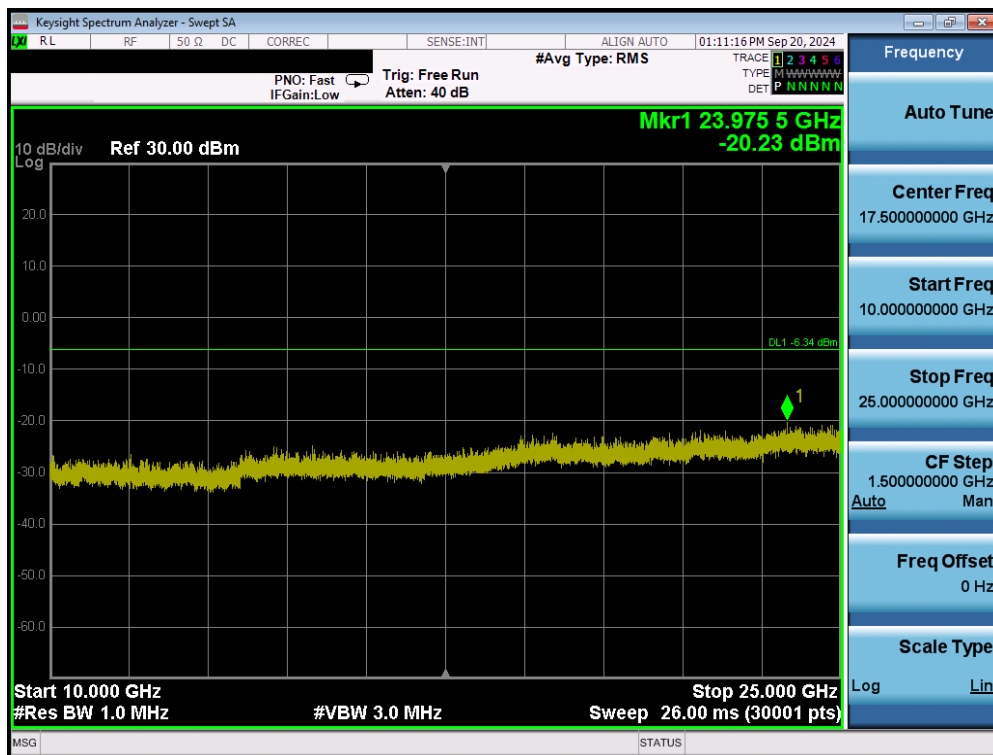


Plot 7-164. Conducted Spurious Plot (Bluetooth, 1Mbps – Ch. 39) – Dual Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 110 of 142



Plot 7-165. Conducted Spurious Plot (Bluetooth, 1Mbps – Ch. 78) – Dual Ant 2



Plot 7-166. Conducted Spurious Plot (Bluetooth, 1Mbps – Ch. 78) – Dual Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 111 of 142

7.9 Radiated Spurious Emission Measurements – Above 1GHz

§15.205 §15.209 §15.247 (d); 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 maximum power and at the appropriate frequencies. 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 6 of RSS-Gen (8.10) must not exceed the limits shown below per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-16. Radiated Limits

Test Procedure Used

ANSI C63.10-2013 – Section 6.6.4.3

Test Settings

Average Field Strength Measurements per Section 4.1.4.2.3 of ANSI C63.10-2013

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 1kHz $\geq 1/\tau$ Hz, where τ = pulse width in seconds
4. Averaging type was set to RMS to ensure that video filtering was applied in the power domain
5. Detector = peak
6. Sweep time = auto
7. Trace mode = max hold
8. Trace was allowed to stabilize

Peak Field Strength Measurements per Section 4.1.4.2.2 of ANSI C63.10-2013

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW is set depending on measurement frequency, as specified in Table 7-17 below
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 112 of 142

Frequency	RBW
9 – 150kHz	200 – 300Hz
0.15 – 30MHz	9 – 10kHz
30 – 1000MHz	100 – 120kHz
> 1000MHz	1MHz

Table 7-17. RBW as a Function of Frequency

Test Setup

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

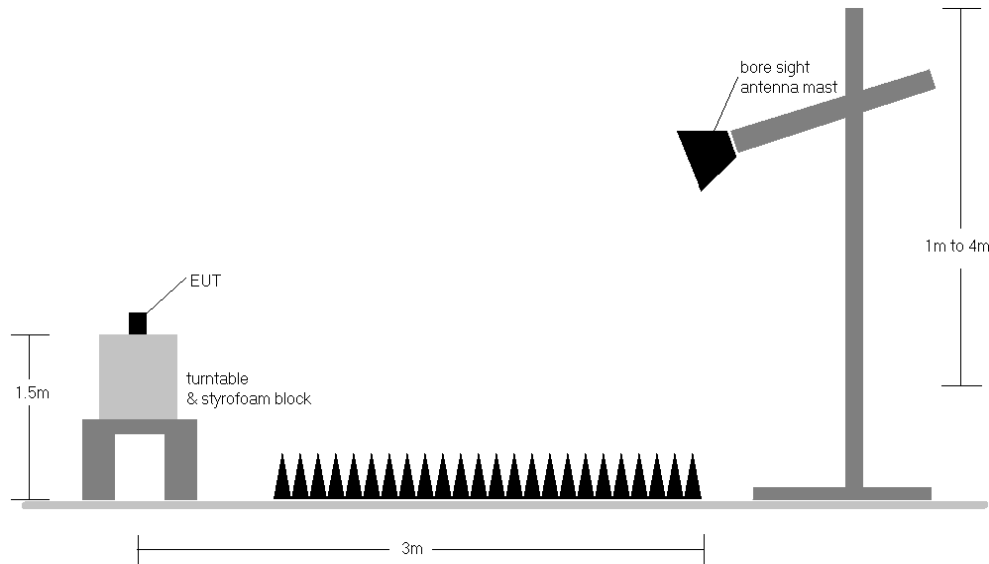


Figure 7-8. Radiated Test Setup >1GHz

Test Notes

- All emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in §15.209.
- No significant radiated emissions were found in the 2310 - 2390MHz restricted band.
- The antenna is manipulated through typical positions, polarity, and length during the tests. The EUT is manipulated through three orthogonal planes.
- This unit was tested with its standard battery.
- The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- The duty cycle correction factor was not applied to noise floor measurements.
- The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
- The "-" shown in the following RSE tables is used to denote a noise floor measurement.

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 113 of 142

Sample Calculation

- Field Strength Level $_{\text{dB}\mu\text{V/m}} = \text{Analyzer Level}_{\text{dBm}} + 107 + \text{AFCL}_{\text{dB/m}} + \text{Duty Cycle Correction}_{\text{dB}}$
- $\text{AFCL}_{\text{dB/m}} = \text{Antenna Factor}_{\text{dB/m}} + \text{Cable Loss}_{\text{dB}}$
- $\text{Margin}_{\text{dB}} = \text{Field Strength Level}_{\text{dB}\mu\text{V/m}} - \text{Limit}_{\text{dB}\mu\text{V/m}}$

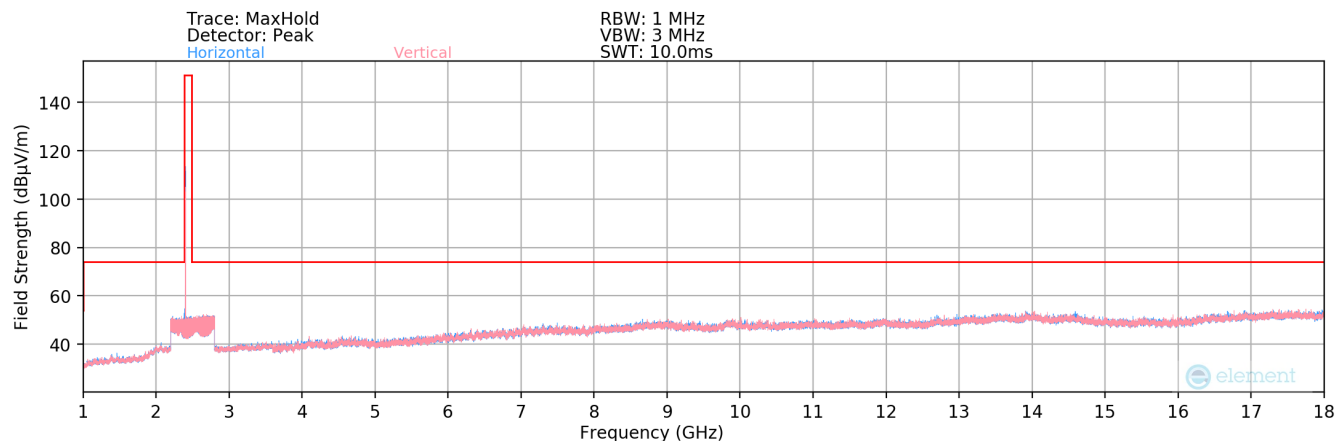
Duty Cycle Correction Factor Calculation

- Channel hop rate = N/A hops/second (N/A Mode)
- Adjusted channel hop rate for DH5 mode = N/A hops/second
- Time per channel hop = $1 / \text{N/A hops/second} = \text{N/A ms}$
- Time to cycle through all channels = $\text{N/A} \times \text{N/A channels} = \text{N/A ms}$
- Number of times transmitter hits on one channel = $100 \text{ ms} / \text{N/A ms} = \text{N/A time(s)}$
- Worst case dwell time = N/A ms
- Duty cycle correction factor = $20\log_{10}(\text{N/Ams}/100\text{ms}) = \text{N/A dB}$

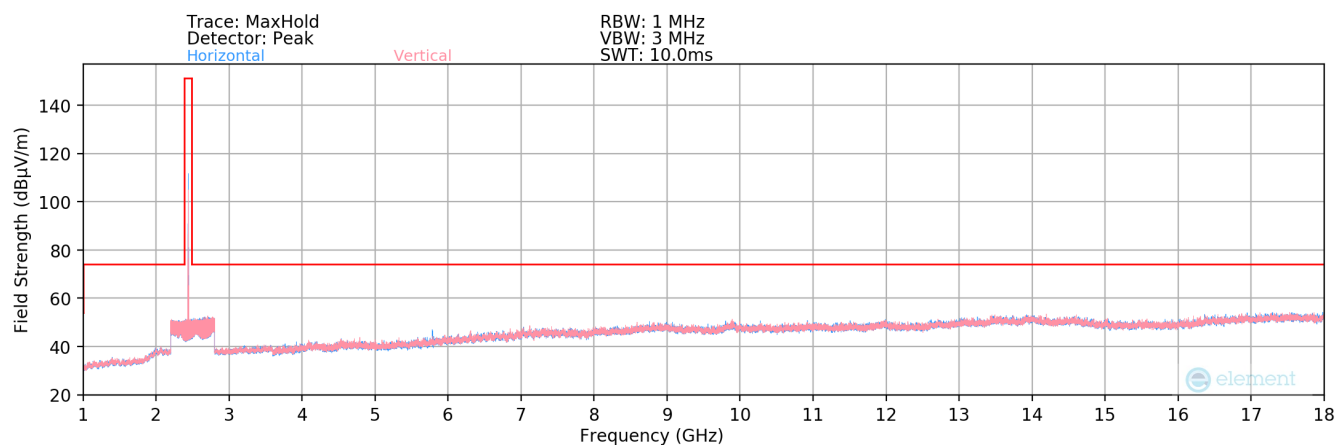
FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 114 of 142

Radiated Spurious Emission Measurements

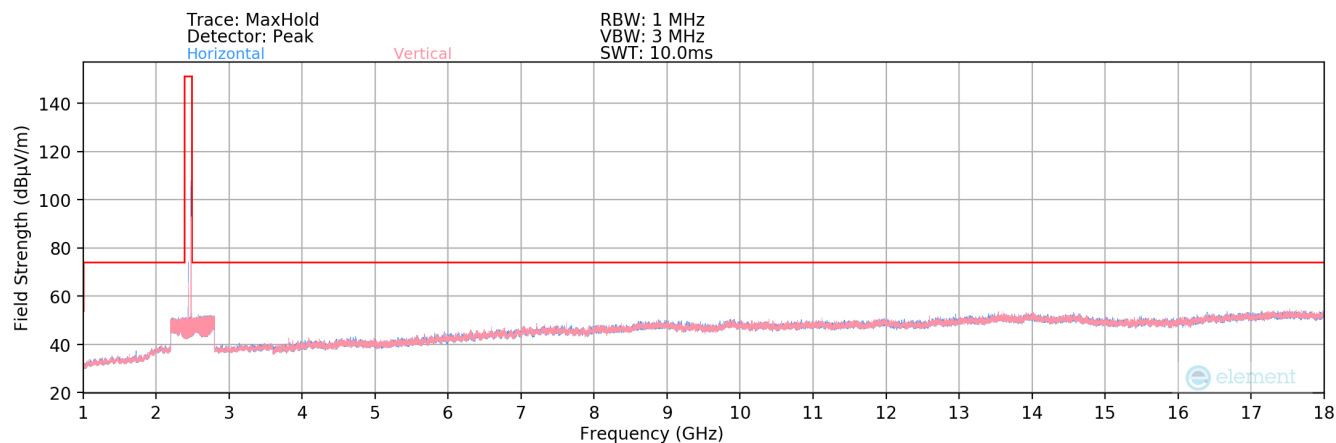
§15.205 §15.209 §15.247 (d); RSS-Gen [8.9]



Plot 7-167. Radiated Spurious Plot above 1GHz (BT – Ch. 0) – Ant 1



Plot 7-168. Radiated Spurious Plot above 1GHz (BT – Ch. 39) – Ant 1



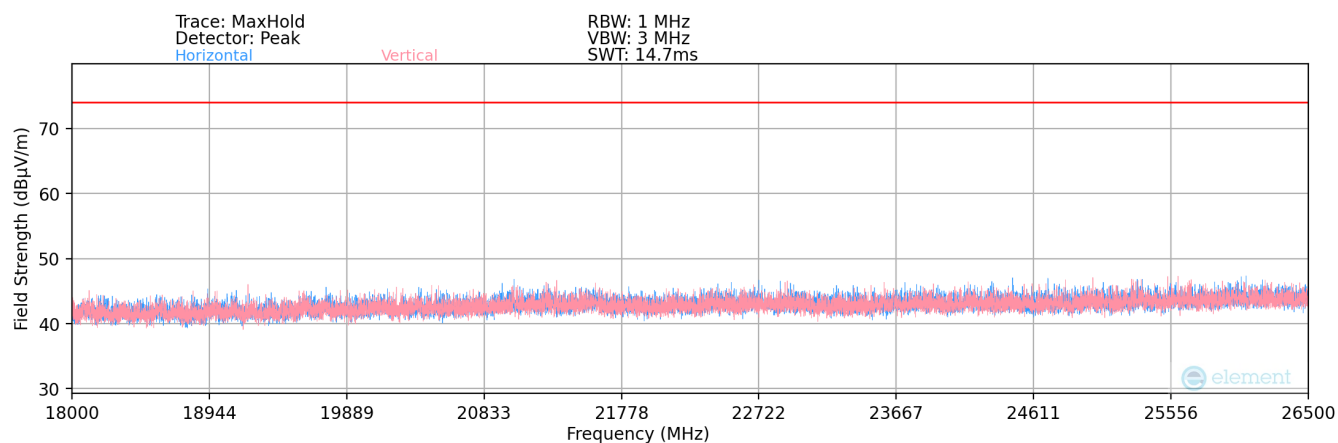
Plot 7-169. Radiated Spurious Plot above 1GHz (BT – Ch. 78) – Ant 1

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 115 of 142



Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209; RSS-Gen [8.9]



Plot 7-170. Radiated Spurious Plot above 18GHz – Ant 1

FCC ID: A3LSMS938JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset		Page 116 of 142

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V 11.1 08/28/2023



Radiated Spurious Emission Measurements

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

Worst Case Mode: Bluetooth
Worst Case Data Rate: 1 Mbps
Measurement Distance: 3 Meters
Operating Frequency: 2402MHz
Channel: 0

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4804.00	Avg	H	-	-	-79.77	2.66	0.00	0.00	29.89	53.98	-24.09
4804.00	Peak	H	-	-	-61.45	2.66	0.00	0.00	48.21	73.98	-25.77

Table 7-18. Radiated Measurements – Ant 1

Worst Case Mode: Bluetooth
Worst Case Data Rate: 1 Mbps
Measurement Distance: 3 Meters
Operating Frequency: 2441MHz
Channel: 39

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4882.00	Avg	H	-	-	-79.70	3.12	0.00	0.00	30.42	53.98	-23.55
4882.00	Peak	H	-	-	-62.10	3.12	0.00	0.00	48.02	73.98	-25.95
7323.00	Avg	H	-	-	-80.45	9.45	0.00	0.00	36.00	53.98	-17.98
7323.00	Peak	H	-	-	-60.76	9.45	0.00	0.00	55.69	73.98	-18.29

Table 7-19. Radiated Measurements– Ant 1

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 117 of 142

Worst Case Mode: Bluetooth
 Worst Case Data Rate: 1 Mbps
 Measurement Distance: 3 Meters
 Operating Frequency: 2480MHz
 Channel: 78

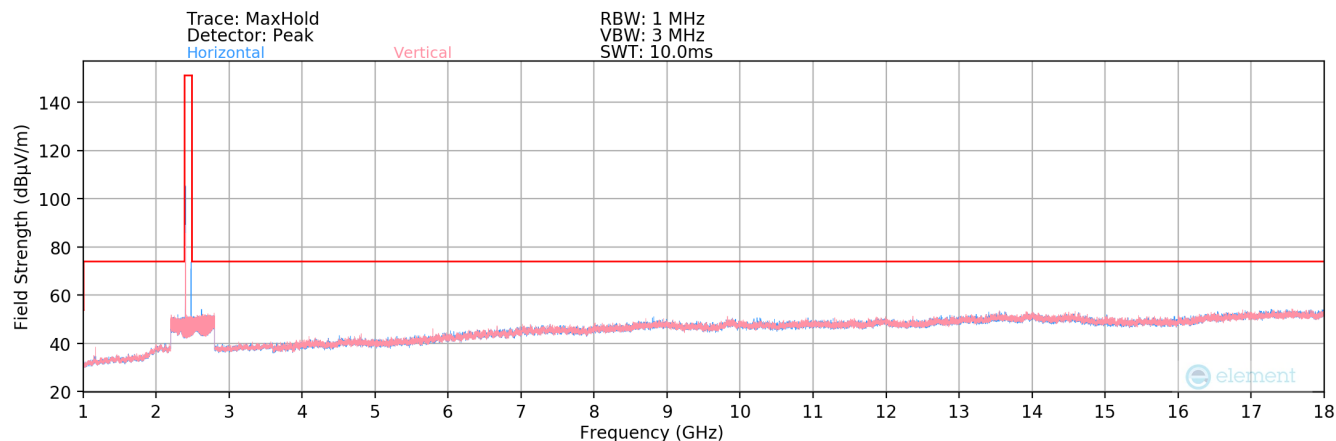
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4960.00	Avg	H	-	-	-79.70	3.20	0.00	0.00	30.50	53.98	-23.48
4960.00	Peak	H	-	-	-61.25	3.20	0.00	0.00	48.95	73.98	-25.03
7440.00	Avg	H	-	-	-80.62	9.00	0.00	0.00	35.38	53.98	-18.60
7440.00	Peak	H	-	-	-61.88	9.00	0.00	0.00	54.12	73.98	-19.86

Table 7-20. Radiated Measurements – Ant 1

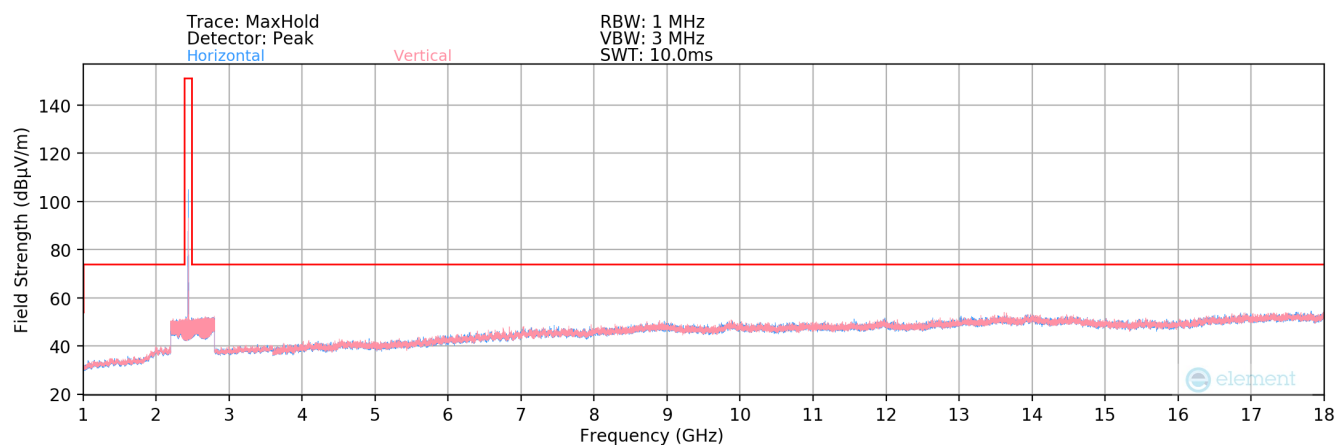
FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 118 of 142

Radiated Spurious Emission Measurements

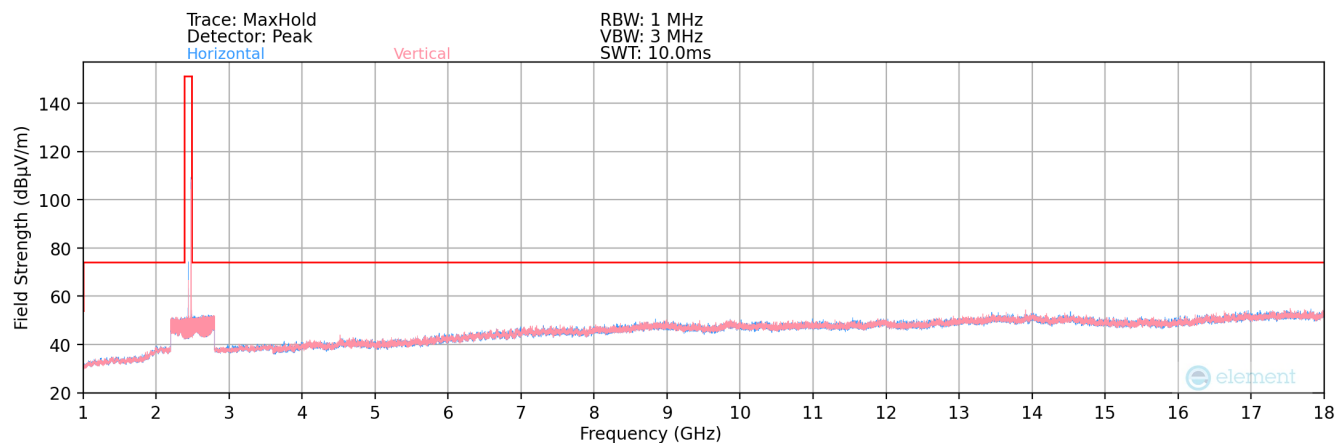
§15.205 §15.209 §15.247 (d); RSS-Gen [8.9]



Plot 7-171. Radiated Spurious Plot above 1GHz (BT – Ch. 0) – Ant 2



Plot 7-172. Radiated Spurious Plot above 1GHz (BT – Ch. 39) – Ant 2

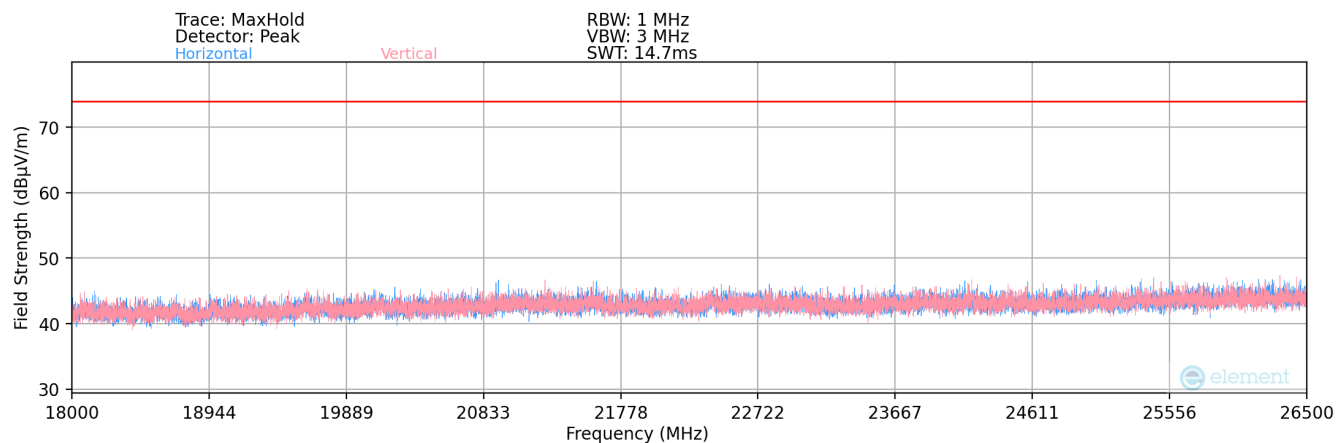


Plot 7-173. Radiated Spurious Plot above 1GHz (BT – Ch. 78) – Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 119 of 142

Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209; RSS-Gen [8.9]



Plot 7-174. Radiated Spurious Plot above 18GHz – Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 120 of 142



Radiated Spurious Emission Measurements

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

Worst Case Mode: Bluetooth
Worst Case Data Rate: 1 Mbps
Measurement Distance: 3 Meters
Operating Frequency: 2402MHz
Channel: 0

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4804.00	Avg	H	-	-	-76.80	2.66	0.00	0.00	32.86	53.98	-21.12
4804.00	Peak	H	-	-	-62.17	2.66	0.00	0.00	47.49	73.98	-26.49

Table 7-21. Radiated Measurements – Ant 2

Worst Case Mode: Bluetooth
Worst Case Data Rate: 1 Mbps
Measurement Distance: 3 Meters
Operating Frequency: 2441MHz
Channel: 39

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4882.00	Avg	H	-	-	-76.72	3.12	0.00	0.00	33.40	53.98	-20.57
4882.00	Peak	H	-	-	-61.09	3.12	0.00	0.00	49.03	73.98	-24.94
7323.00	Avg	H	-	-	-77.35	9.45	0.00	0.00	39.10	53.98	-14.88
7323.00	Peak	H	-	-	-61.99	9.45	0.00	0.00	54.46	73.98	-19.52

Table 7-22. Radiated Measurements – Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 121 of 142

Worst Case Mode: Bluetooth
 Worst Case Data Rate: 1 Mbps
 Measurement Distance: 3 Meters
 Operating Frequency: 2480MHz
 Channel: 78

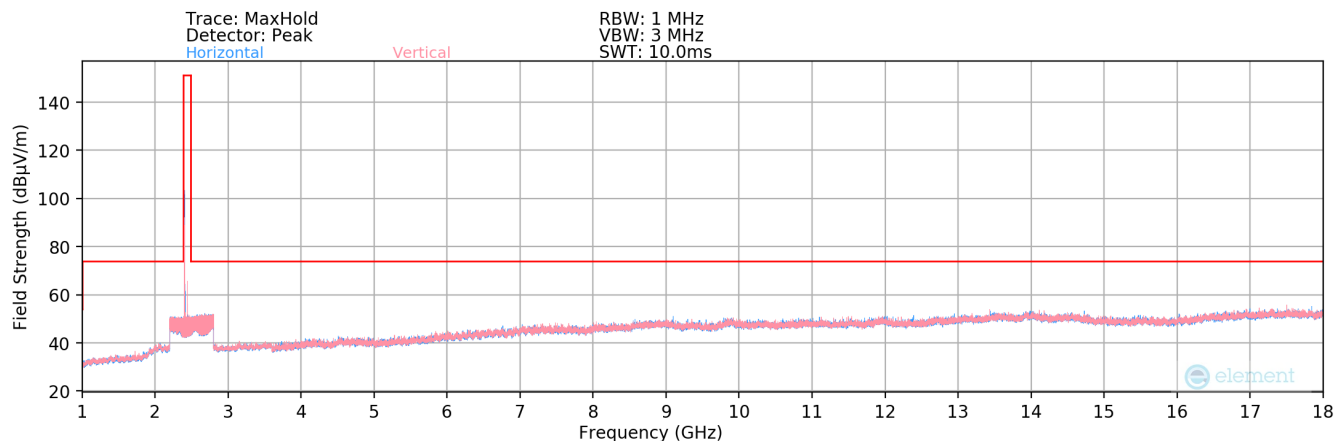
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4960.00	Avg	H	-	-	-76.78	3.20	0.00	0.00	33.42	53.98	-20.56
4960.00	Peak	H	-	-	-61.58	3.20	0.00	0.00	48.62	73.98	-25.36
7440.00	Avg	H	-	-	-77.35	9.00	0.00	0.00	38.65	53.98	-15.33
7440.00	Peak	H	-	-	-61.56	9.00	0.00	0.00	54.44	73.98	-19.54

Table 7-23. Radiated Measurements – Ant 2

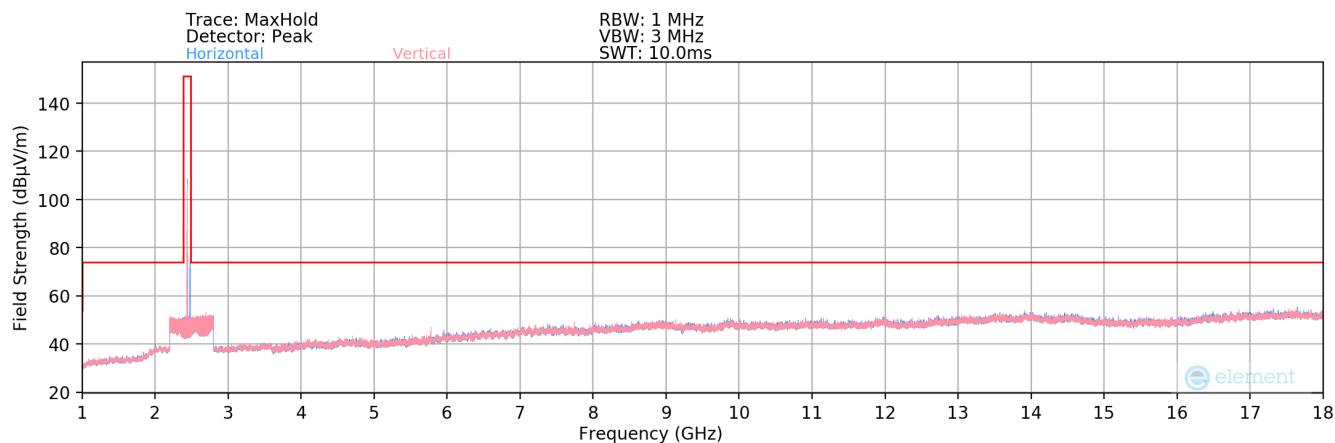
FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 122 of 142

Radiated Spurious Emission Measurements

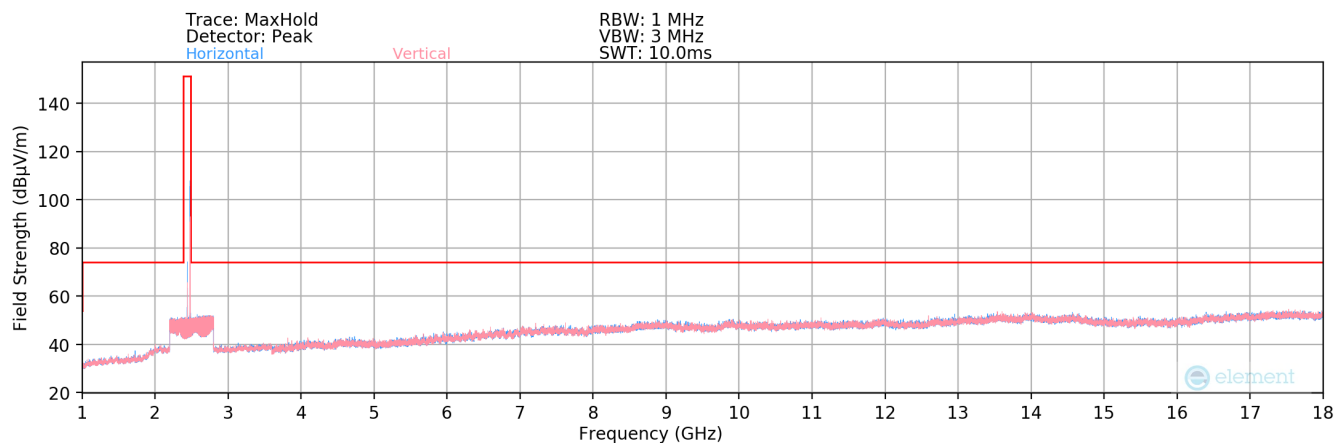
§15.205 §15.209 §15.247 (d); RSS-Gen [8.9]



Plot 7-175. Radiated Spurious Plot above 1GHz (BT – Ch. 0) – Dual



Plot 7-176. Radiated Spurious Plot above 1GHz (BT – Ch. 39) – Dual

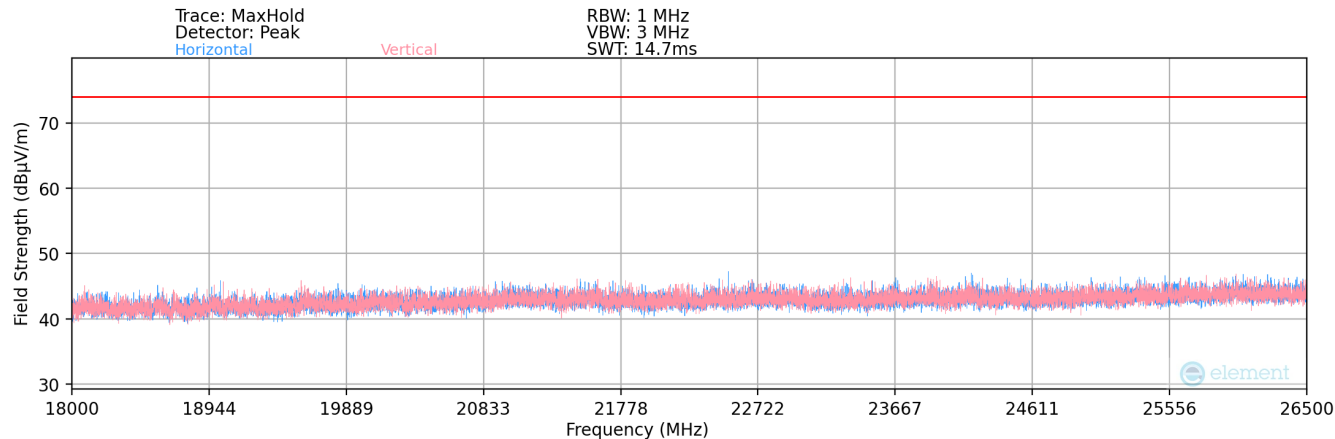


Plot 7-177. Radiated Spurious Plot above 1GHz (BT – Ch. 78) – Dual

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 123 of 142



Radiated Spurious Emissions Measurements (Above 18GHz)
§15.209; RSS-Gen [8.9]



Plot 7-178. Radiated Spurious Plot above 18GHz – Dual

FCC ID: A3LSMS938JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset		Page 124 of 142



Radiated Spurious Emission Measurements

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

Worst Case Mode:	Bluetooth
Worst Case Data Rate:	1 Mbps
Measurement Distance:	3 Meters
Operating Frequency:	2402MHz
Channel:	0

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4804.00	Avg	H	-	-	-76.82	2.66	0.00	0.00	32.84	53.98	-21.14
4804.00	Peak	H	-	-	-61.39	2.66	0.00	0.00	48.27	73.98	-25.71

Table 7-24. Radiated Measurements – Dual

Worst Case Mode:	Bluetooth
Worst Case Data Rate:	1 Mbps
Measurement Distance:	3 Meters
Operating Frequency:	2441MHz
Channel:	39

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4882.00	Avg	H	-	-	-76.56	3.12	0.00	0.00	33.56	53.98	-20.41
4882.00	Peak	H	-	-	-62.29	3.12	0.00	0.00	47.83	73.98	-26.14
7323.00	Avg	H	-	-	-77.40	9.45	0.00	0.00	39.05	53.98	-14.93
7323.00	Peak	H	-	-	-61.71	9.45	0.00	0.00	54.74	73.98	-19.24

Table 7-25. Radiated Measurements – Dual

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 125 of 142

Worst Case Mode: Bluetooth
Worst Case Data Rate: 1 Mbps
Measurement Distance: 3 Meters
Operating Frequency: 2480MHz
Channel: 78

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4960.00	Avg	H	-	-	-76.92	3.20	0.00	0.00	33.28	53.98	-20.70
4960.00	Peak	H	-	-	-61.95	3.20	0.00	0.00	48.25	73.98	-25.73
7440.00	Avg	H	-	-	-77.41	9.00	0.00	0.00	38.59	53.98	-15.39
7440.00	Peak	H	-	-	-61.51	9.00	0.00	0.00	54.49	73.98	-19.49

Table 7-26. Radiated Measurements – Dual

Worst Case Mode: Bluetooth
Worst Case Data Rate: 1 Mbps
Measurement Distance: 3 Meters
Operating Frequency: 2441MHz
Channel: 39

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Duty Cycle Correction [dB]	Dist. Corr. Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4804.00	Avg	H	-	-	-76.82	2.66	0.00	0.00	32.84	53.98	-21.14
4804.00	Peak	H	-	-	-61.77	2.66	0.00	0.00	47.89	73.98	-26.09

Table 7-27. Radiated Measurements with WCP – Dual

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 126 of 142

7.10 Radiated Restricted Band Edge Measurements

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

Test Overview and Limit

All out of band radiated emissions at the band edge are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power, at the appropriate frequencies, and with hopping disabled. 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 6 of RSS-Gen (8.10) must not exceed the limits shown below per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-28. Radiated Limits

Test Procedure Used

ANSI C63.10-2013 – Section 6.10.5.2

Test Settings

- Span is set large enough to capture the peak level of the emission operating on the channel closest to the band edge
- Reference level offset is set with the appropriate corrections for the frequencies shown in the plots
- Reference level is set to provide the appropriate amount of “head room” above the signal as specified in ANSI C63.10-2013 Section 4.1.5.2
- Attenuation is set to a low enough level to maintain enough dynamic range between the noise floor and the radiated limit
- Sweep time = Auto coupled
- RBW = 1MHz
- VBW = 3 x RBW for peak measurements and 1kHz for RMS measurements
- Detector = RMS and peak
- Trace = Max Hold
- Trace was allowed to stabilize

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 127 of 142

Test Setup

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

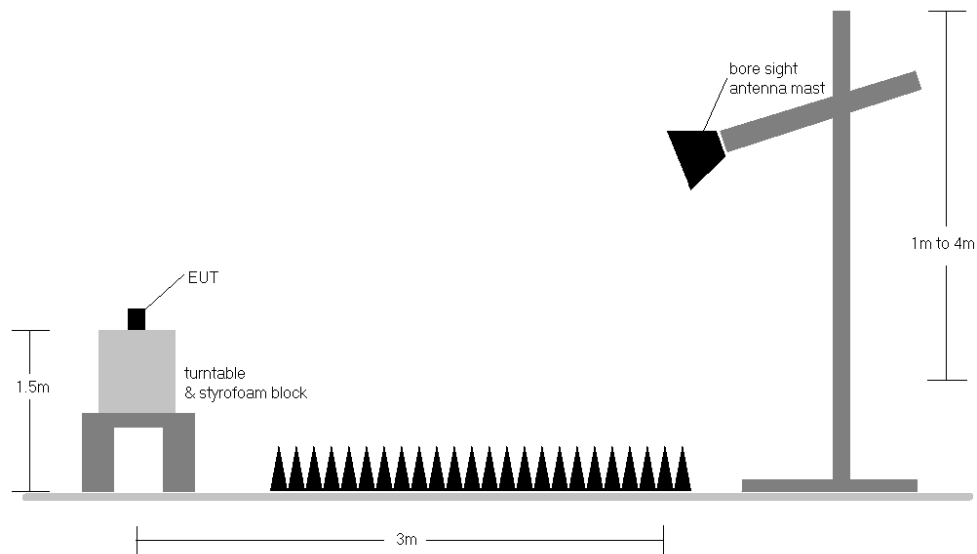


Figure 7-9. Radiated Test Setup >1GHz

Test Notes

1. All emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limits shown in §15.209.
2. No significant radiated emissions were found in the 2310 - 2390MHz restricted band.
3. The antenna is manipulated through typical positions, polarity, and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
6. Two different amplitude offsets were used depending on whether peak or average measurements were measured. The average measurements use a duty cycle correction factor (DCCF).

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

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

7. The "-" shown in the following RSE tables is used to denote a noise floor measurement.

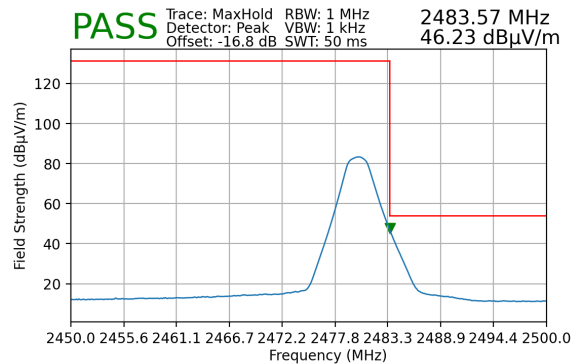
FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 128 of 142



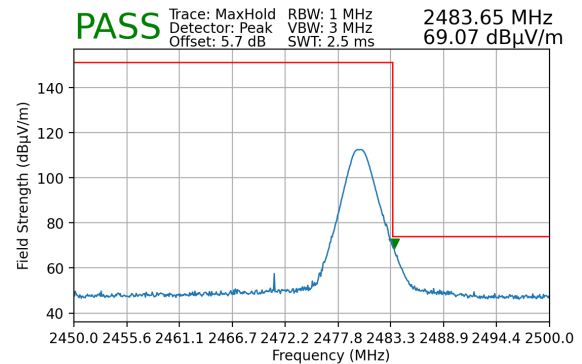
Radiated Restricted Band Edge Measurements – Ant 1

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

Worst Case Mode:	Bluetooth
Worst Case Data Rate:	1 Mbps
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



Plot 7-179. Radiated Restricted Upper Band Edge Measurement (Average)



Plot 7-180. Radiated Restricted Upper Band Edge Measurement (Peak)

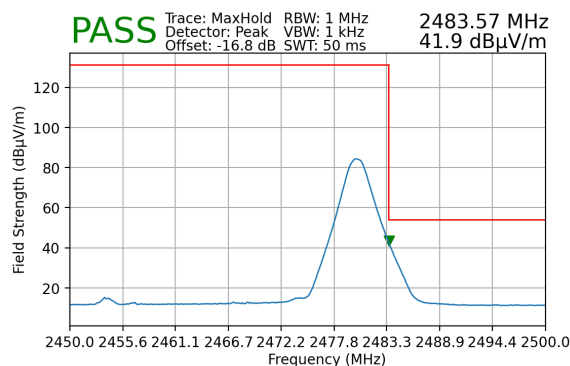
FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 129 of 142



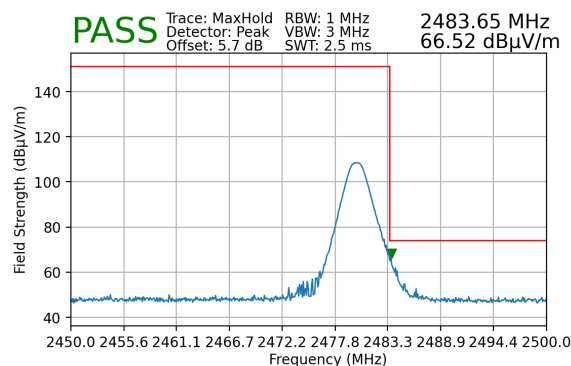
Radiated Restricted Band Edge Measurements – Ant 2

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

Worst Case Mode:	Bluetooth
Worst Case Data Rate:	1 Mbps
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



Plot 7-181. Radiated Restricted Upper Band Edge Measurement (Average)



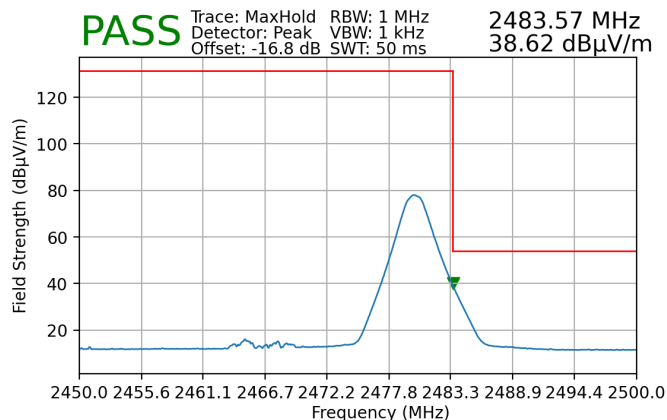
Plot 7-182. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 130 of 142

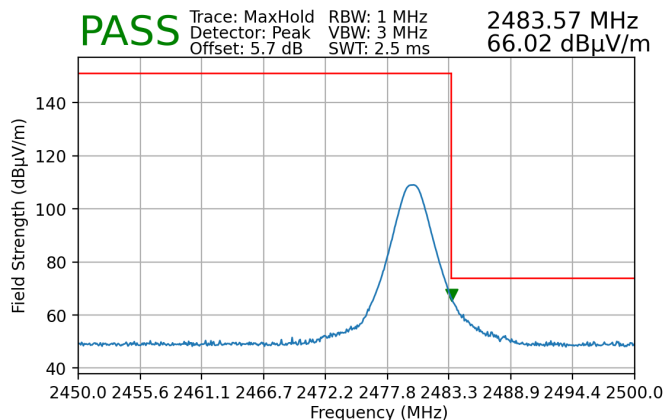
Radiated Restricted Band Edge Measurements – Dual

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

Worst Case Mode:	Bluetooth
Worst Case Data Rate:	1 Mbps
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	78



Plot 7-183. Radiated Restricted Upper Band Edge Measurement (Average)



Plot 7-184. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 131 of 142

7.11 Radiated Spurious Emissions Measurements – 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 must not exceed the limits shown below 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 7-29. 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

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 132 of 142

Test Setup

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

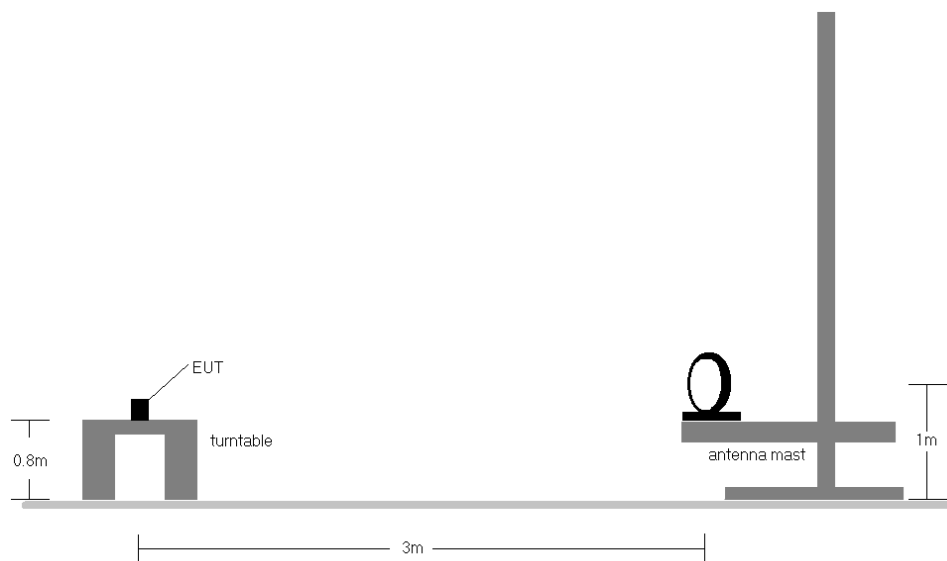


Figure 7-10. Radiated Test Setup < 30Mhz

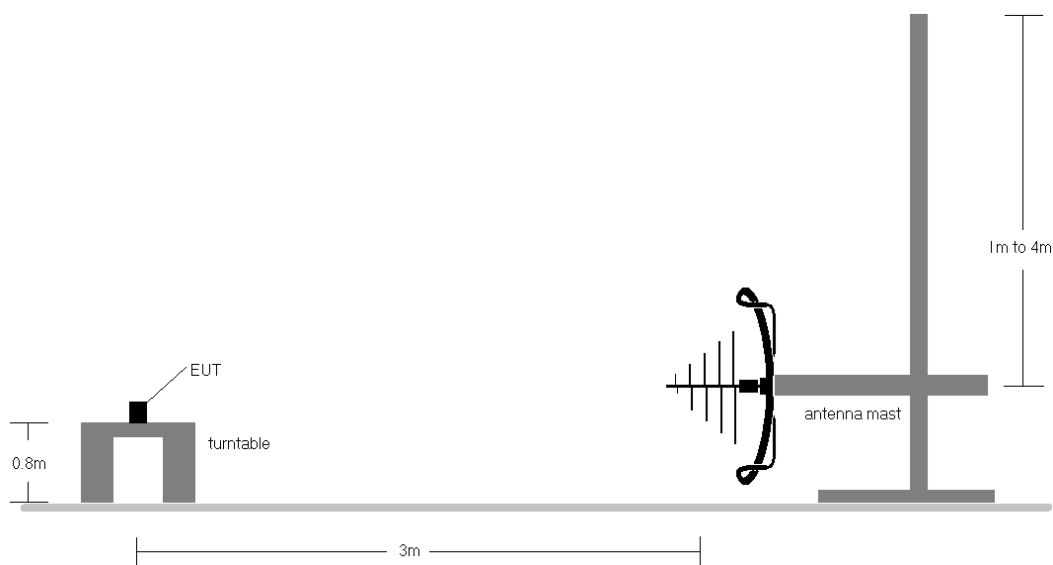


Figure 7-11. Radiated Test Setup < 1GHz

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 133 of 142

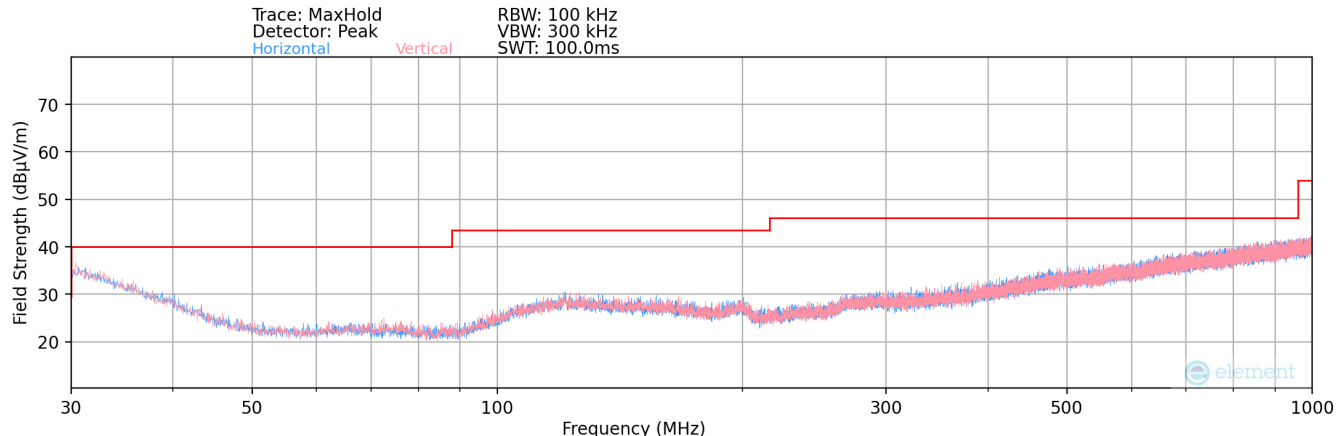
Test Notes

1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen (8.10) are below the limits shown in §15.209.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
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. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
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. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 134 of 142

Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-185. Radiated Spurious Plot below 1GHz – Ant 1

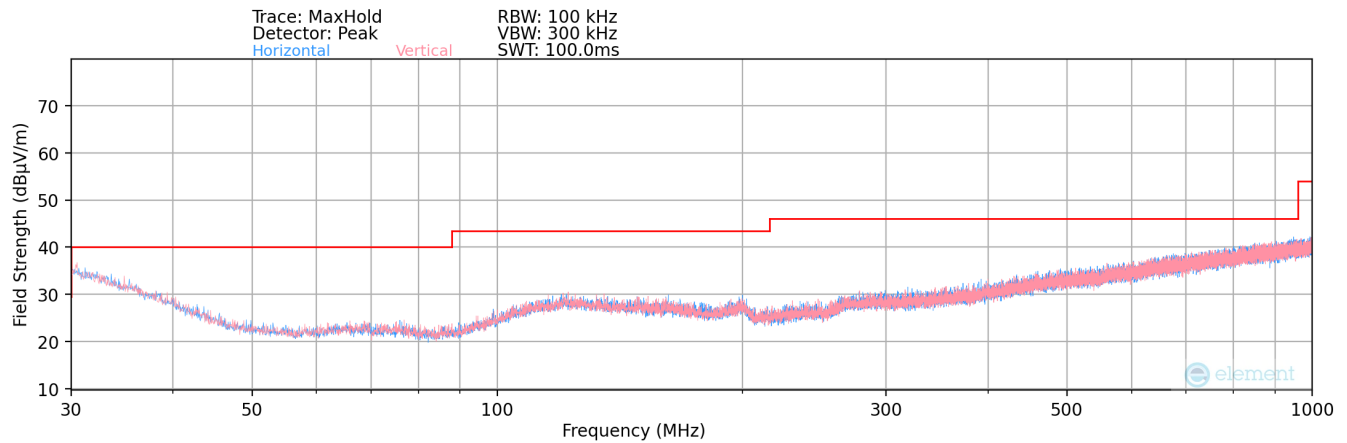
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
150.55	Quasi-Peak	H	-	-	-96.19	19.88	30.69	43.52	-12.83
486.30	Quasi-Peak	H	-	-	-96.70	25.93	36.23	46.02	-9.79
504.75	Quasi-Peak	H	-	-	-96.33	25.88	36.55	46.02	-9.47
614.20	Quasi-Peak	H	-	-	-96.45	27.13	37.68	46.02	-8.34
751.20	Quasi-Peak	H	-	-	-96.05	29.42	40.37	46.02	-5.65

Table 7-30. Radiated Spurious Emissions Below 1GHz – Ant 1

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 135 of 142

Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-186. Radiated Spurious Plot below 1GHz – Ant 2

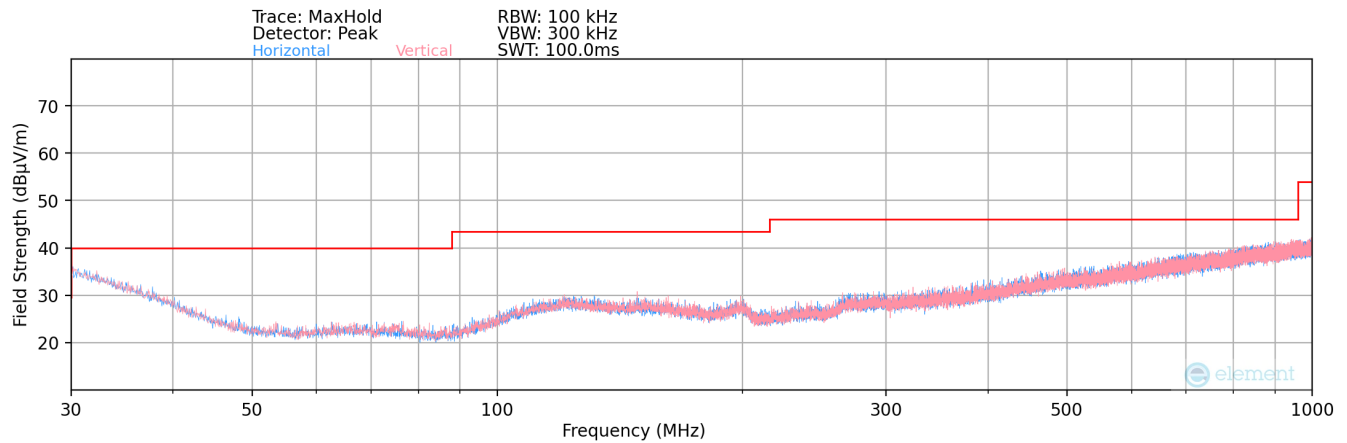
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
58.30	Quasi-Peak	H	-	-	-96.64	14.23	24.59	40.00	-15.41
291.05	Quasi-Peak	H	-	-	-96.79	20.92	31.13	46.02	-14.89
307.65	Quasi-Peak	H	-	-	-96.34	21.26	31.92	46.02	-14.10
347.00	Quasi-Peak	H	-	-	-96.66	22.07	32.41	46.02	-13.62
812.10	Quasi-Peak	H	-	-	-95.55	30.49	41.94	46.02	-4.08
975.10	Quasi-Peak	H	-	-	-92.16	31.94	46.78	53.98	-7.20

Table 7-31. Radiated Spurious Emissions Below 1GHz – Ant 2

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 136 of 142

Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-187. Radiated Spurious Plot below 1GHz – Dual

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]
184.25	Quasi-Peak	V	-	-	-96.98	18.51	28.53	43.52	-14.99
459.10	Quasi-Peak	V	-	-	-96.13	25.44	36.31	46.02	-9.71
624.30	Quasi-Peak	V	-	-	-96.22	27.46	38.24	46.02	-7.78
670.95	Quasi-Peak	V	-	-	-95.77	28.24	39.47	46.02	-6.55
755.25	Quasi-Peak	V	-	-	-95.93	29.46	40.53	46.02	-5.49
977.55	Quasi-Peak	V	-	-	-95.79	31.86	43.07	53.98	-10.91

Table 7-32. Radiated Spurious Emissions Below 1GHz – Dual

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 137 of 142

7.12 Line Conducted Measurement 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 7-33. 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

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 138 of 142

Test Setup

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

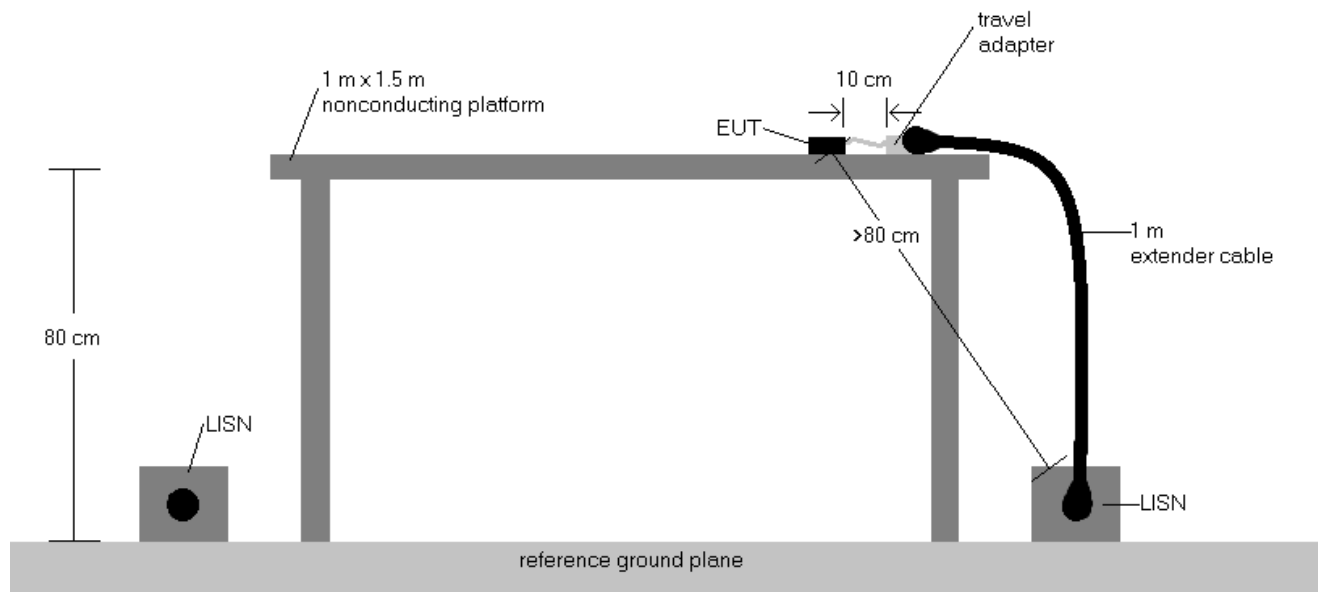
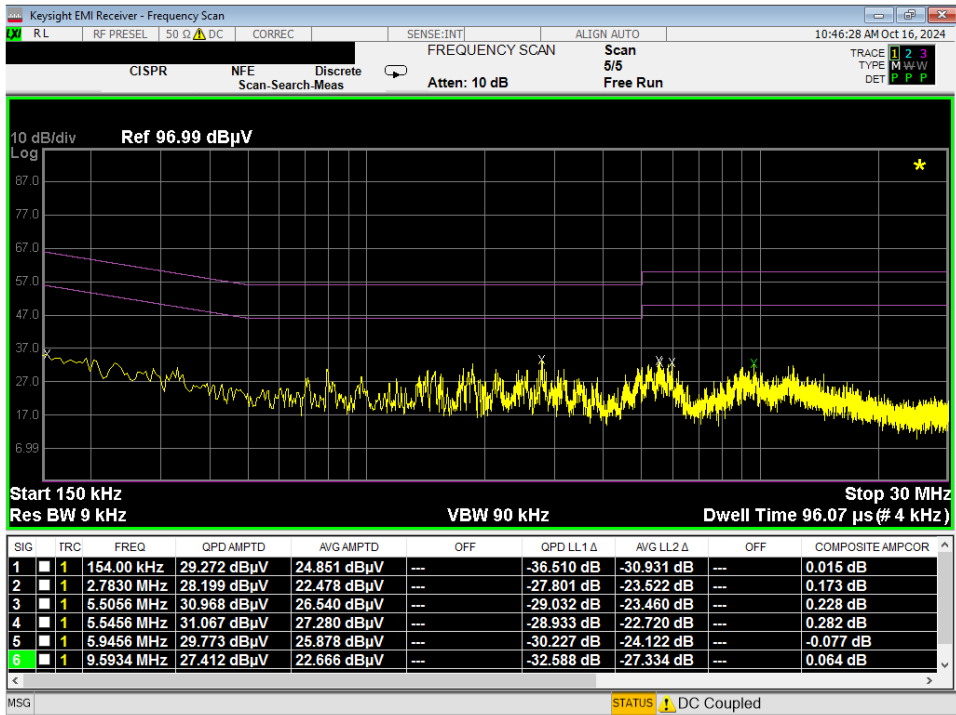


Figure 7-12. Test Instrument & Measurement Setup

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 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.

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 139 of 142



Plot 7-188. Line-Conducted Test Plot (L1)

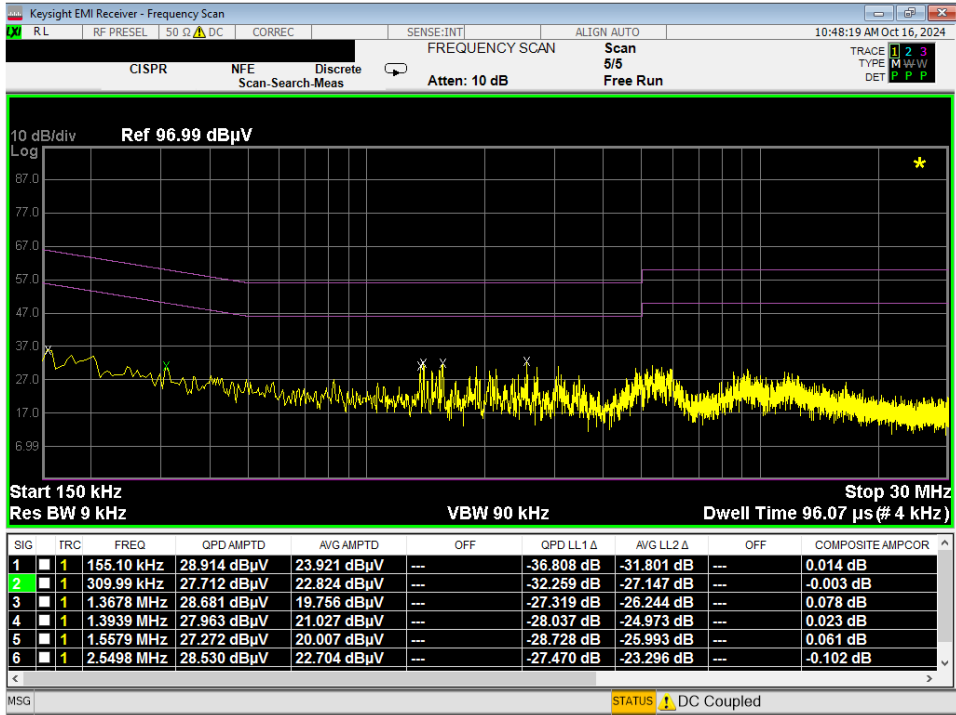
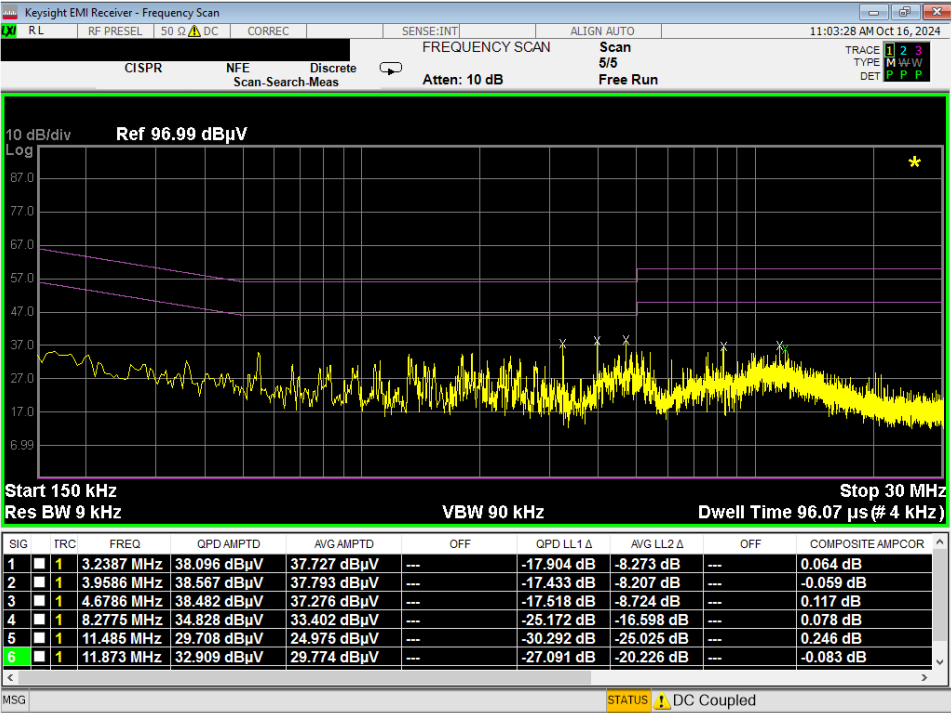


Table 7-34. Line-Conducted Test Data (N)

FCC ID: A3LSMS938JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset		Page 140 of 142



Plot 7-189. Line-Conducted Test Plot (L1) - WCP

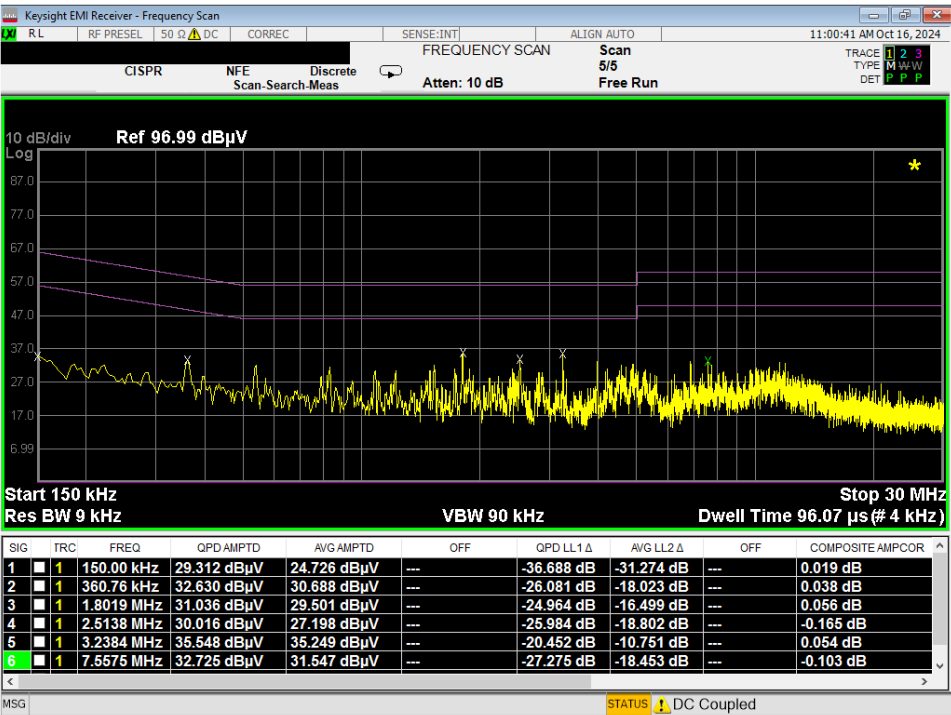


Table 7-35. Line-Conducted Test Data (N) - WCP

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 141 of 142



8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset** **FCC ID: A3LSMS938JPN** is in compliance with Part 15 Subpart C (15.247) of the FCC Rules.

FCC ID: A3LSMS938JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2408260070-19.A3L	Test Dates: 09/03/2024 - 10/25/2024	EUT Type: Portable Handset	Page 142 of 142