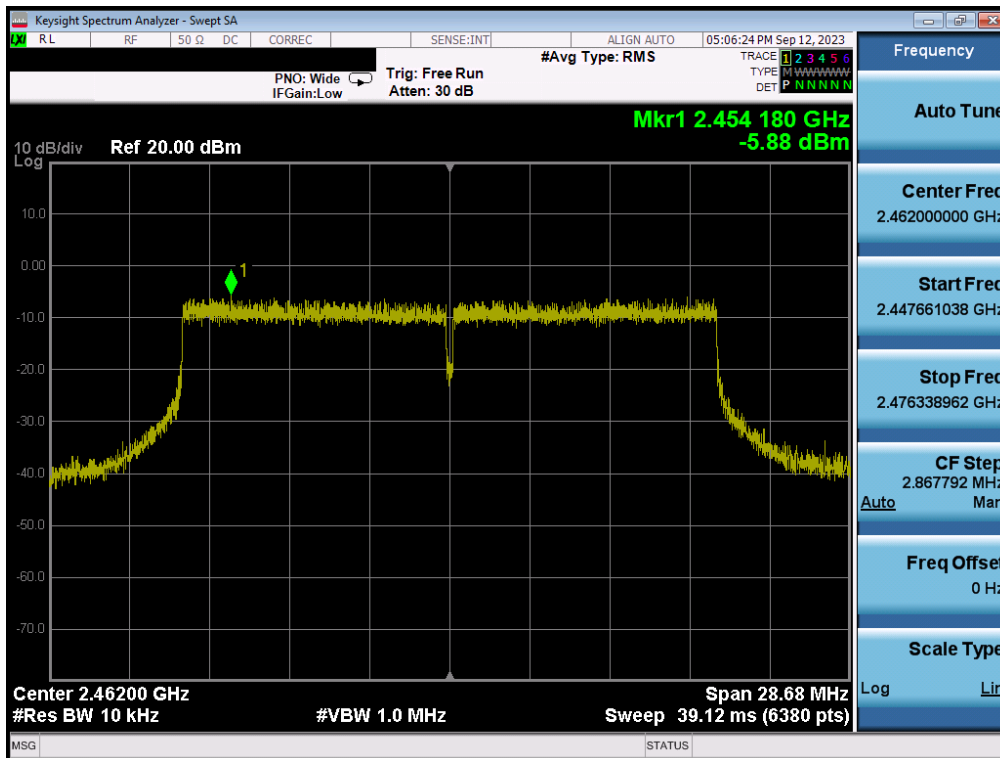
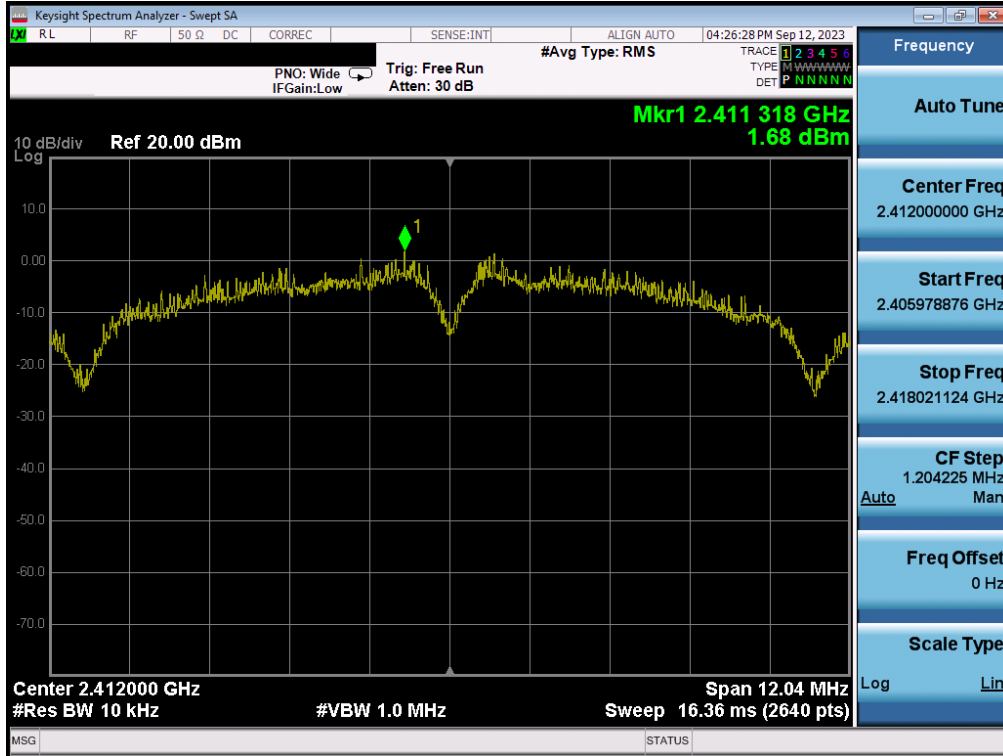


Plot 7-83. Power Spectral Density Plot MIMO ANT1 (802.11be (2.4GHz) – Ch. 6)

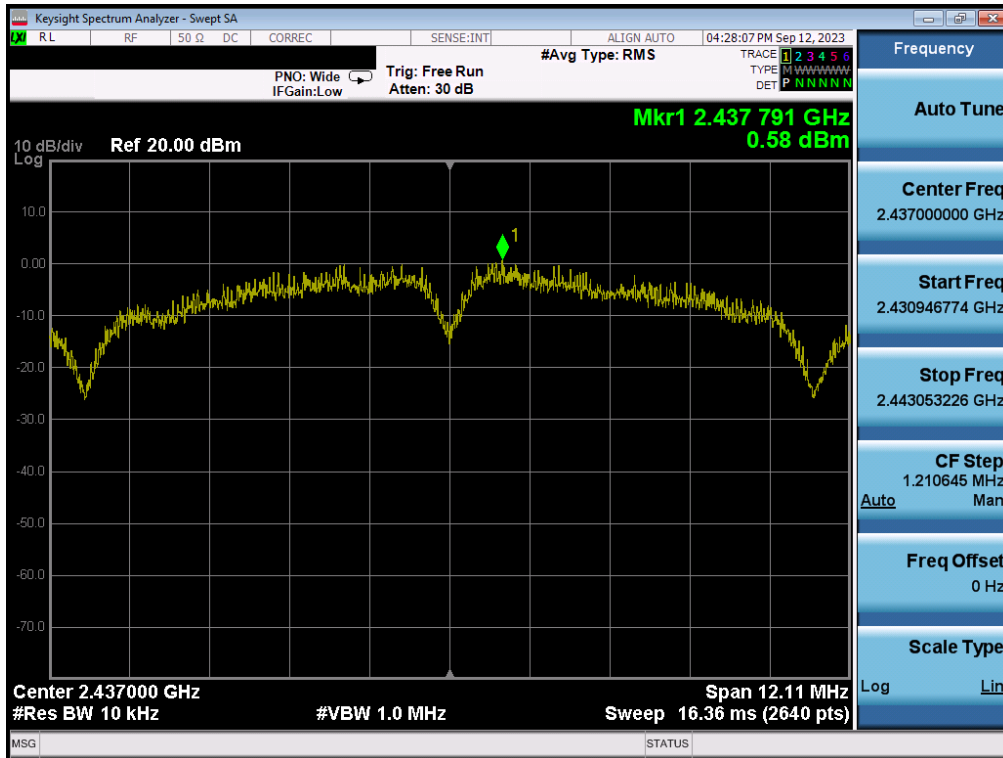


Plot 7-84. Power Spectral Density Plot MIMO ANT1 (802.11be (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 70 of 137

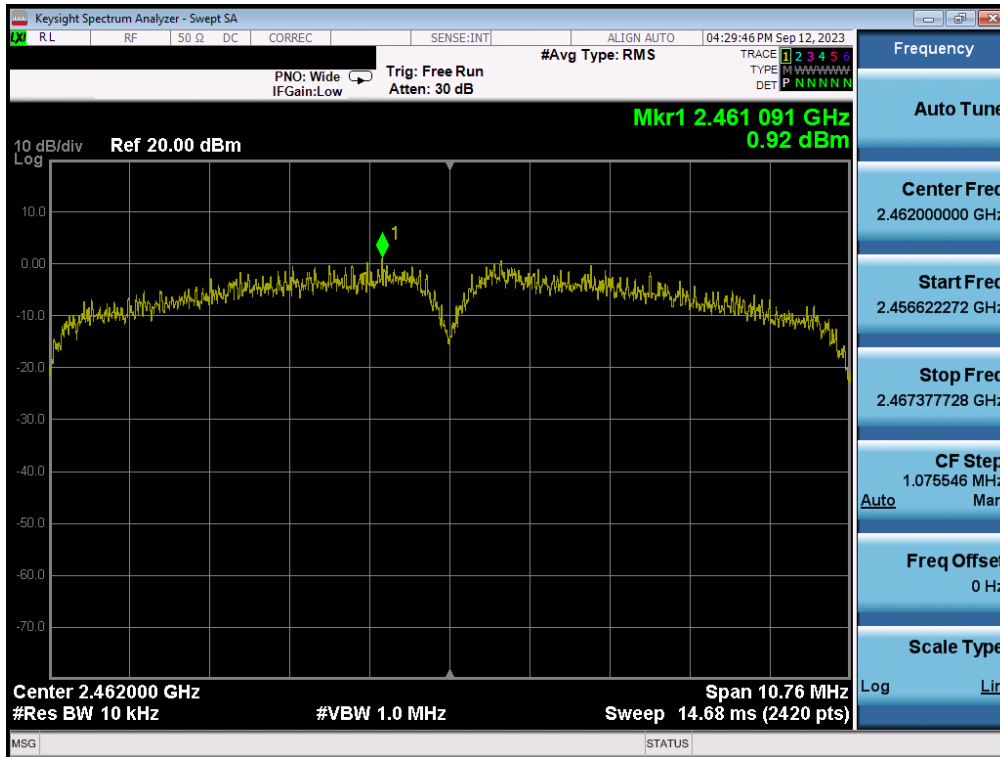


Plot 7-85. Power Spectral Density Plot MIMO ANT2 (802.11b – Ch. 1)

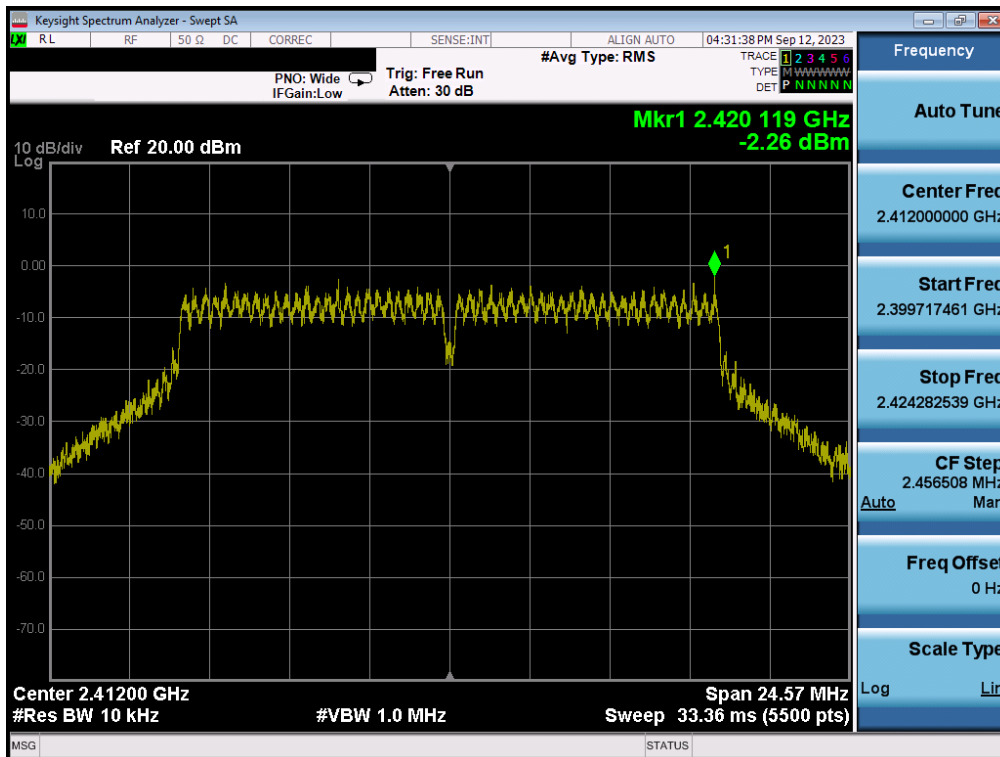


Plot 7-86. Power Spectral Density Plot MIMO ANT2 (802.11b – Ch. 6)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 71 of 137

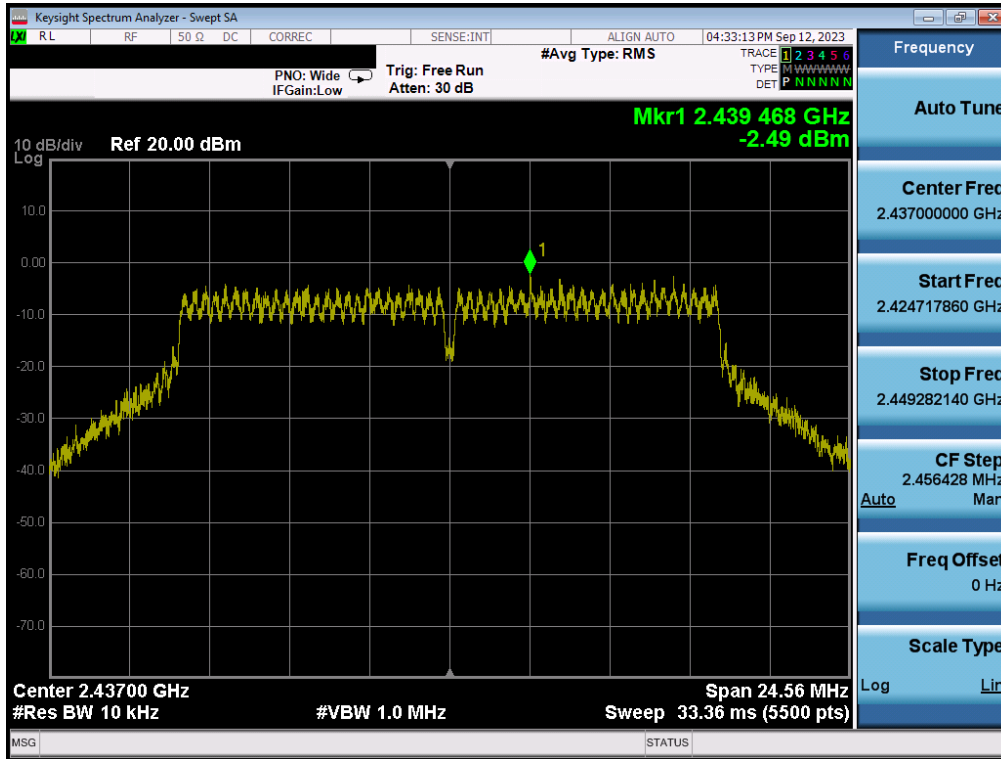


Plot 7-87. Power Spectral Density Plot MIMO ANT2 (802.11b – Ch. 11)

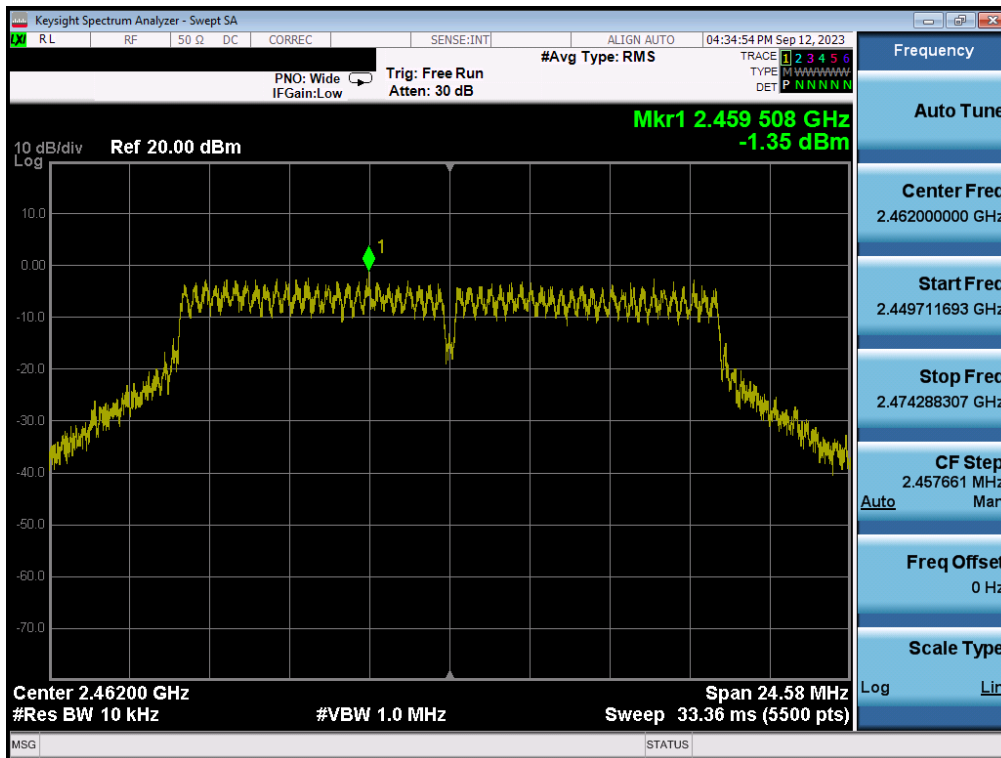


Plot 7-88. Power Spectral Density Plot MIMO ANT2 (802.11g – Ch. 1)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 72 of 137

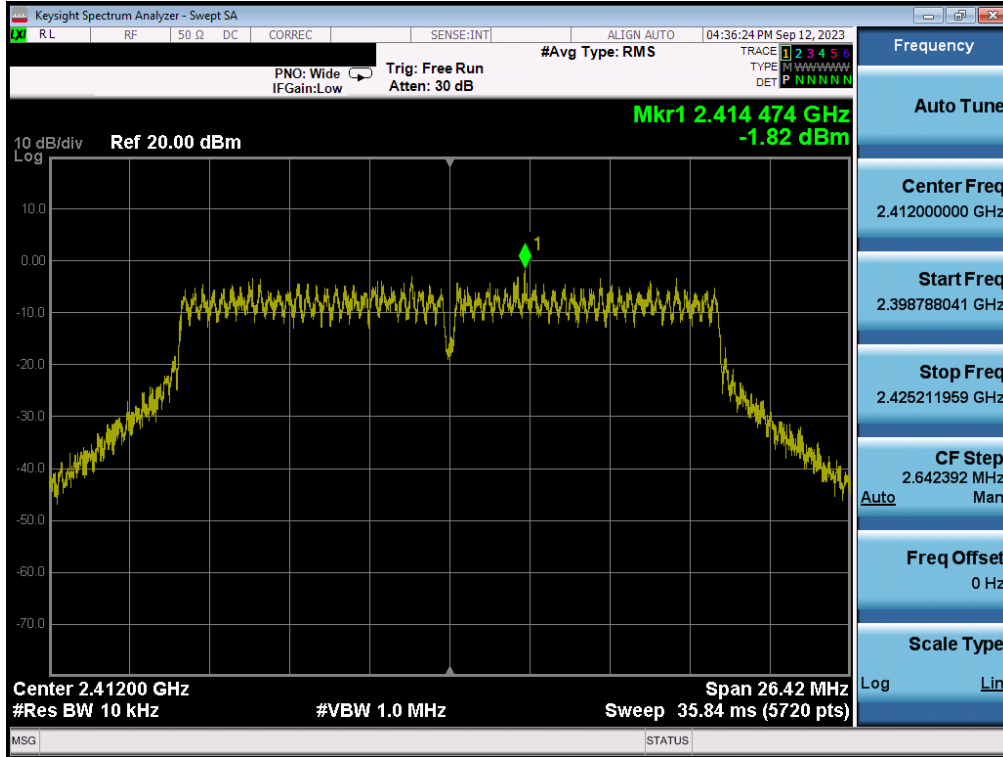


Plot 7-89. Power Spectral Density Plot MIMO ANT2 (802.11g – Ch. 6)

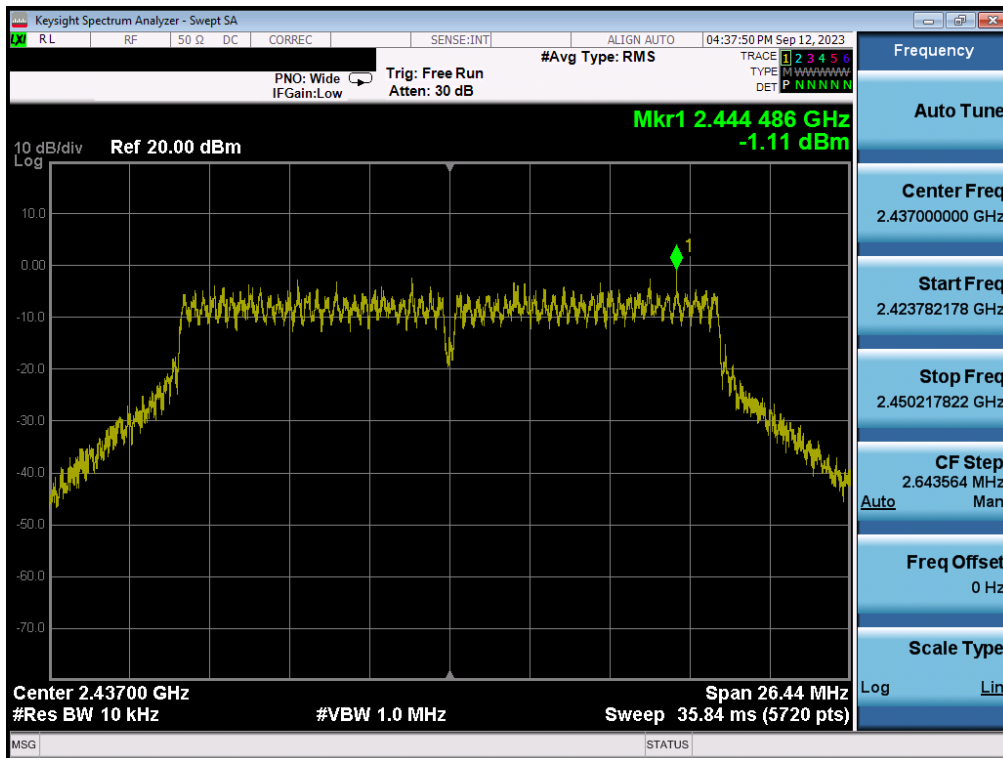


Plot 7-90. Power Spectral Density Plot MIMO ANT2 (802.11g – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 73 of 137

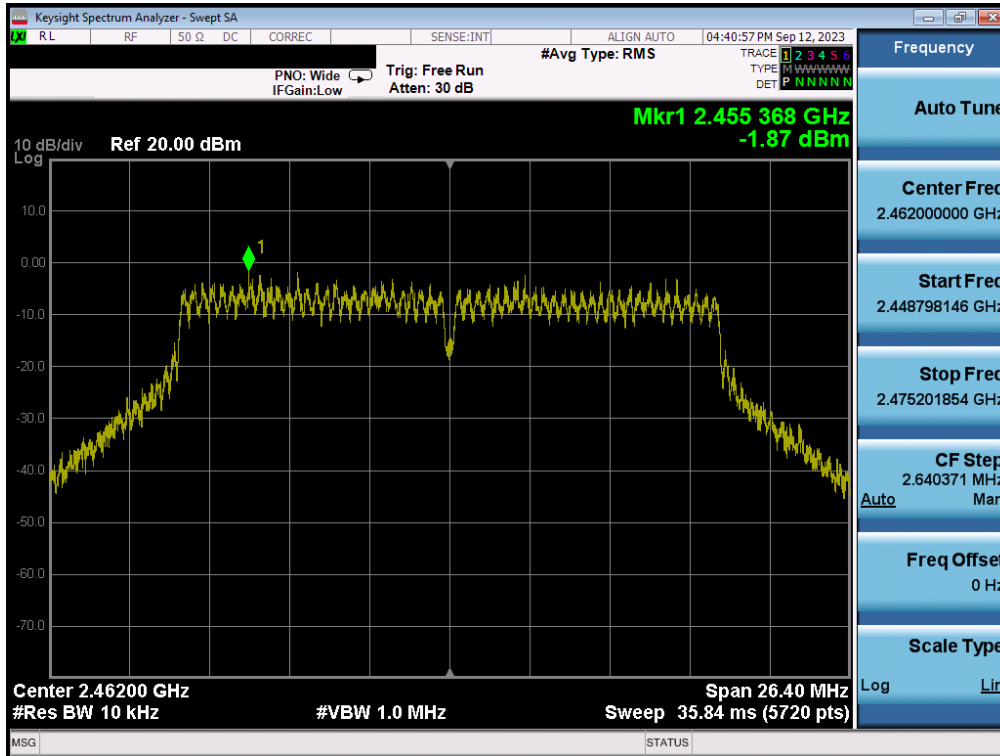


Plot 7-91. Power Spectral Density Plot MIMO ANT2 (802.11n (2.4GHz) – Ch. 1)

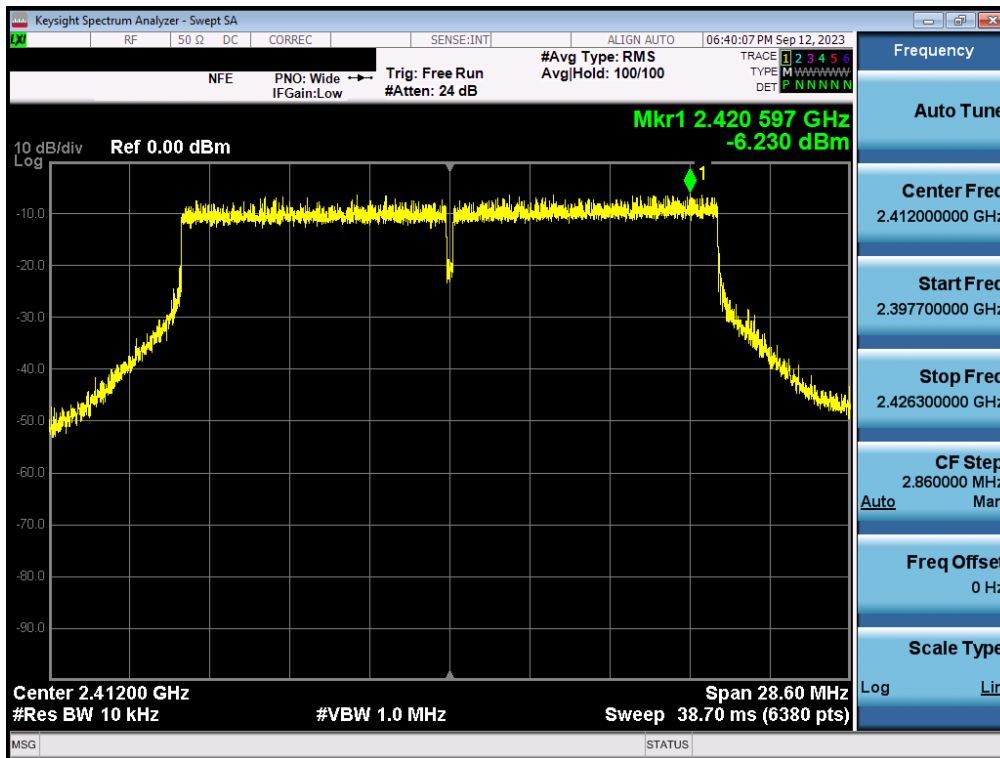


Plot 7-92. Power Spectral Density Plot MIMO ANT2 (802.11n (2.4GHz) – Ch. 8)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 74 of 137

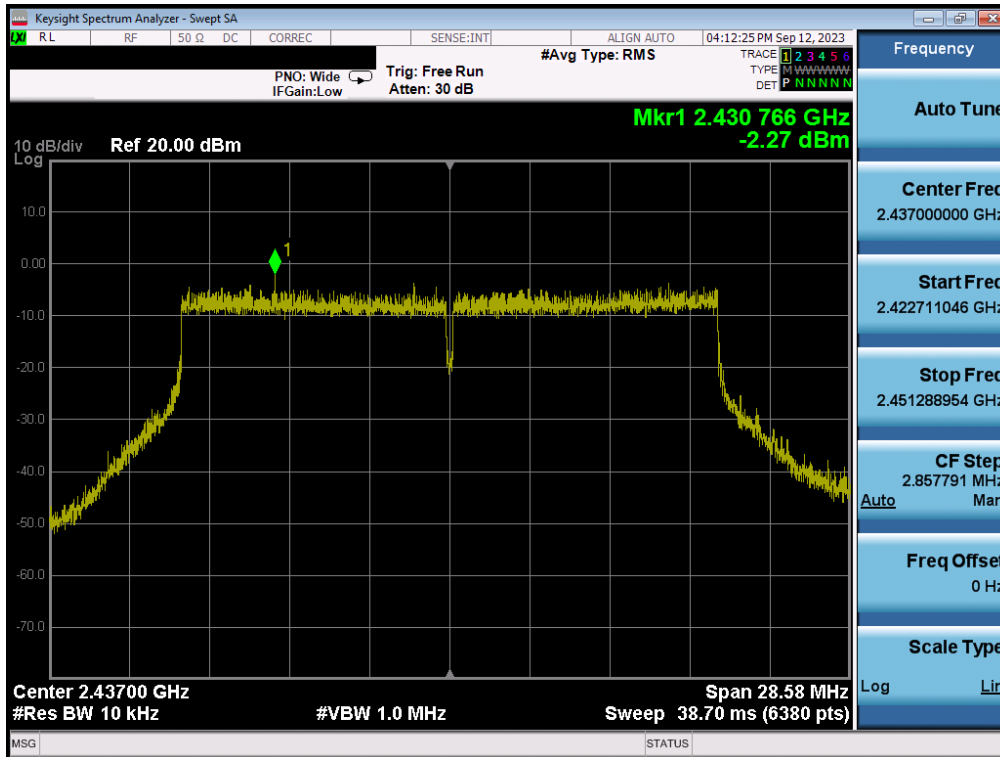


Plot 7-93. Power Spectral Density Plot MIMO ANT2 (802.11n (2.4GHz) – Ch. 11)

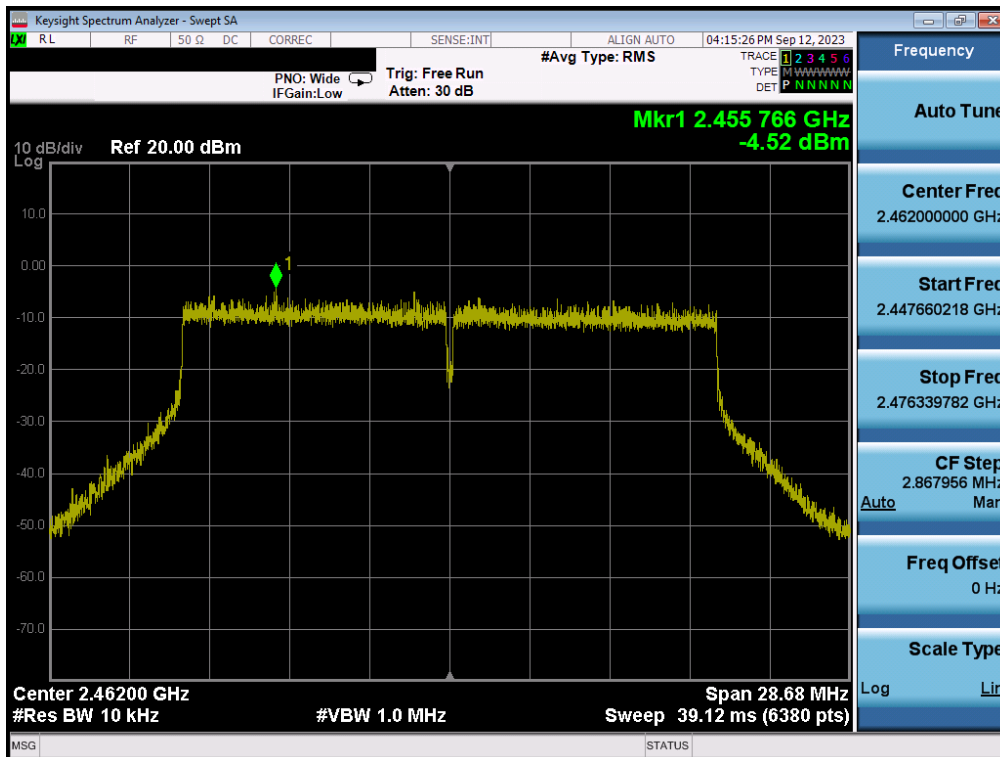


Plot 7-94. Power Spectral Density Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 1)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 75 of 137



Plot 7-95. Power Spectral Density Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 6)



Plot 7-96. Power Spectral Density Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 76 of 137



Note:

Per ANSI C63.10-2013 Section 14.3.1, the power spectral density at Antenna 1 and Antenna 2 were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Sample MIMO Calculation:

At 2412MHz the average conducted power spectral density was measured to be N/A dBm for Antenna 1 and N/A dBm for Antenna 2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

$$(N/A \text{ dBm} + N/A \text{ dBm}) = (N/A \text{ mW} + N/A \text{ mW}) = N/A \text{ mW} = N/A \text{ dBm}$$

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7.5 Conducted Band Edge Emissions

Test Overview and Limit

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. For the following out of band conducted spurious emissions plots at the band edge, the EUT was set at a data rate of 1Mbps for “b” mode, 6 Mbps for “g” mode, 6.5\7.2Mbps for “n” mode, and 8.6Mbps for “ax” mode as these settings produced the worst-case emissions.

The limit for out-of-band spurious emissions at the band edge is 30dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the PSD procedure (Section 7.4).

Test Procedure Used

ANSI C63.10-2013 – Section 11.11.3

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW = 100kHz
4. VBW = 1MHz
5. Detector = Peak
6. Number of sweep points $\geq 2 \times \text{Span} \backslash \backslash \text{RBW}$
7. Trace mode = max hold
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Setup

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



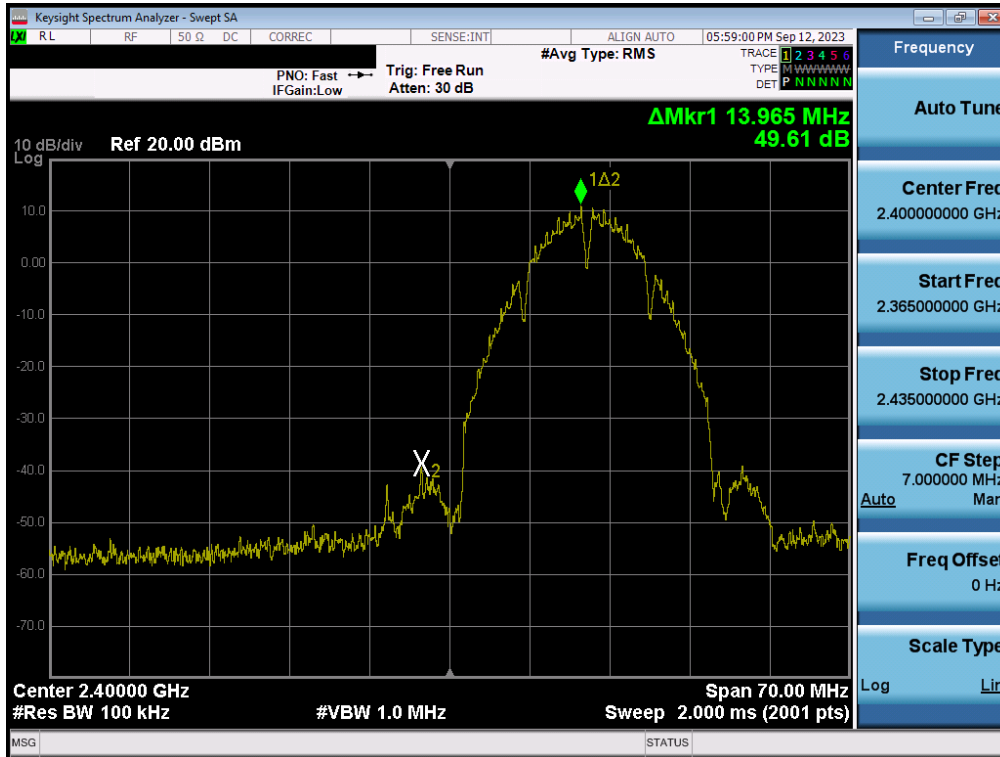
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

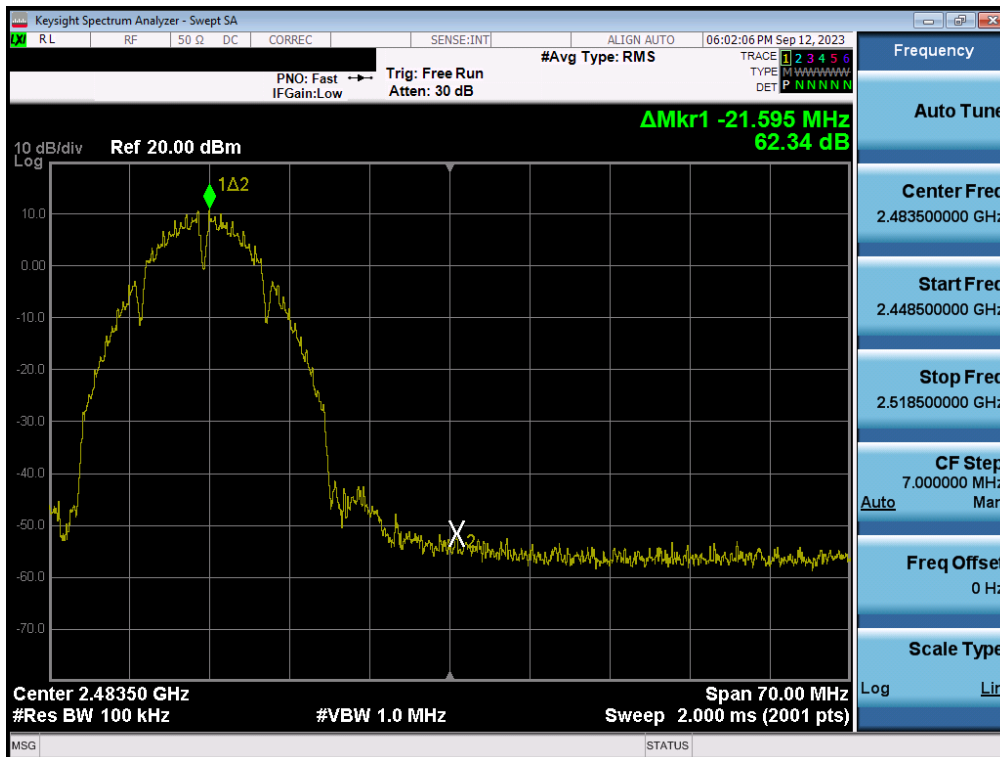
None.

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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7.5.1 SISO Antenna-1 Conducted Band Edge Emissions

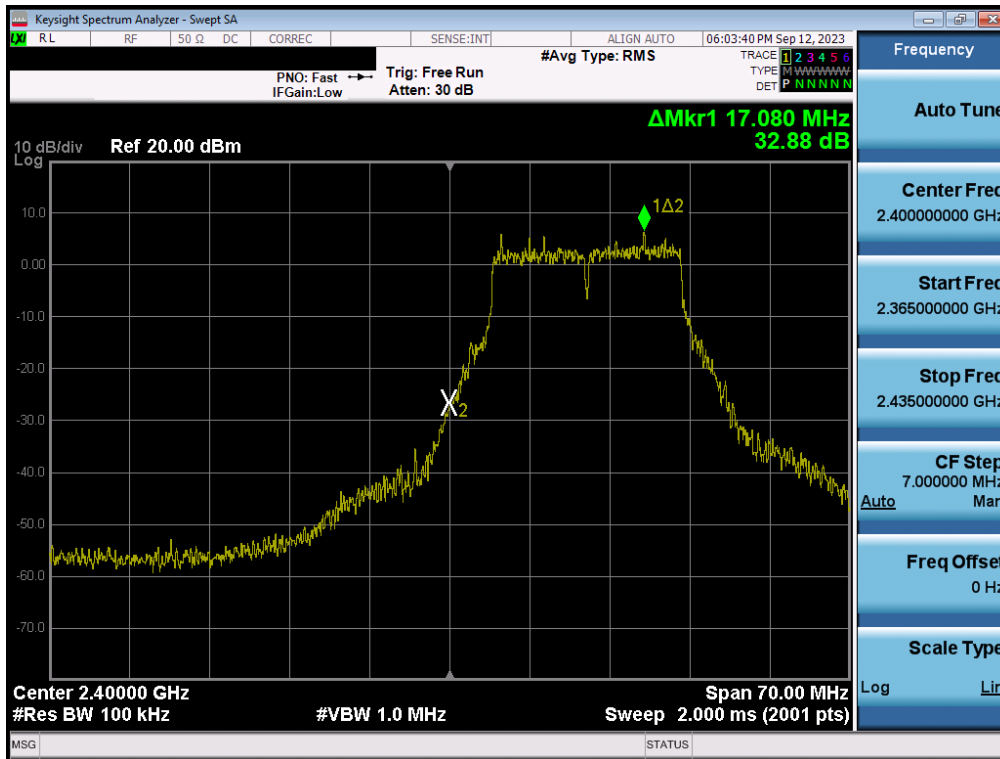


Plot 7-97. Band Edge Plot SISO ANT1 (802.11b – Ch. 1)

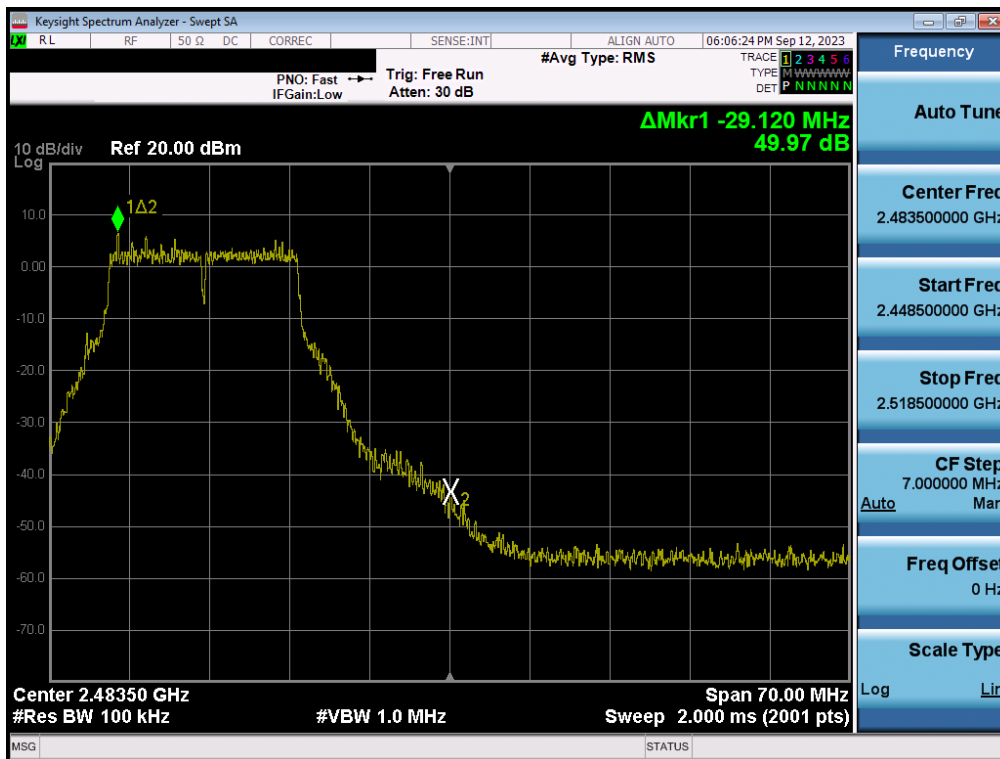


Plot 7-98. Band Edge Plot SISO ANT1 (802.11b – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 79 of 137

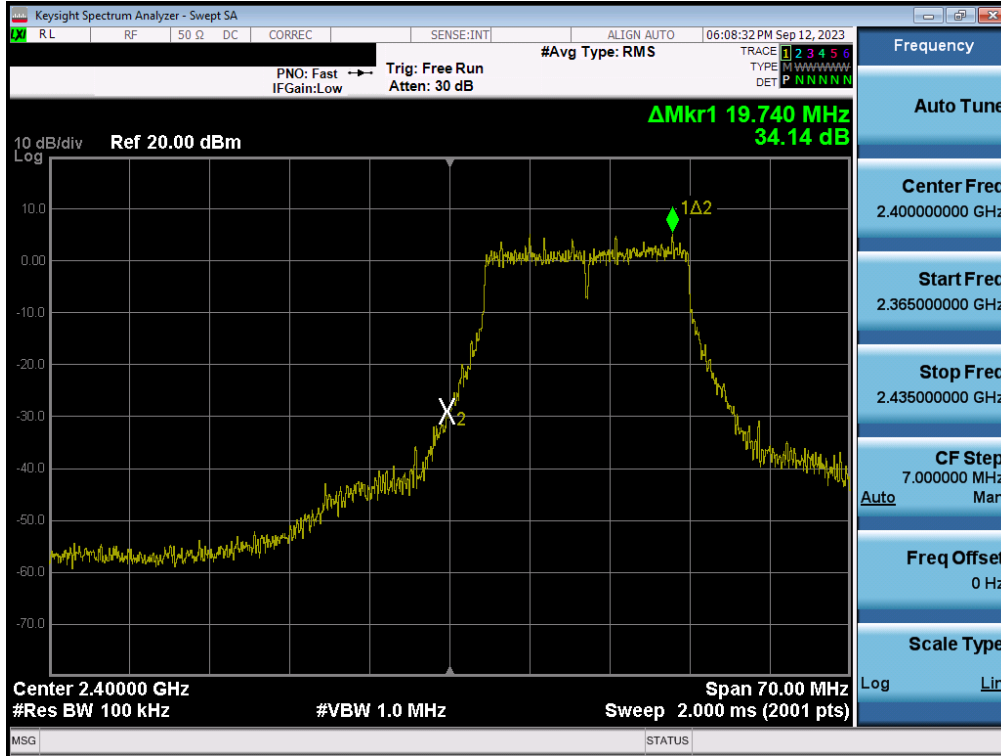


Plot 7-99. Band Edge Plot SISO ANT1 (802.11g- Ch. 1)

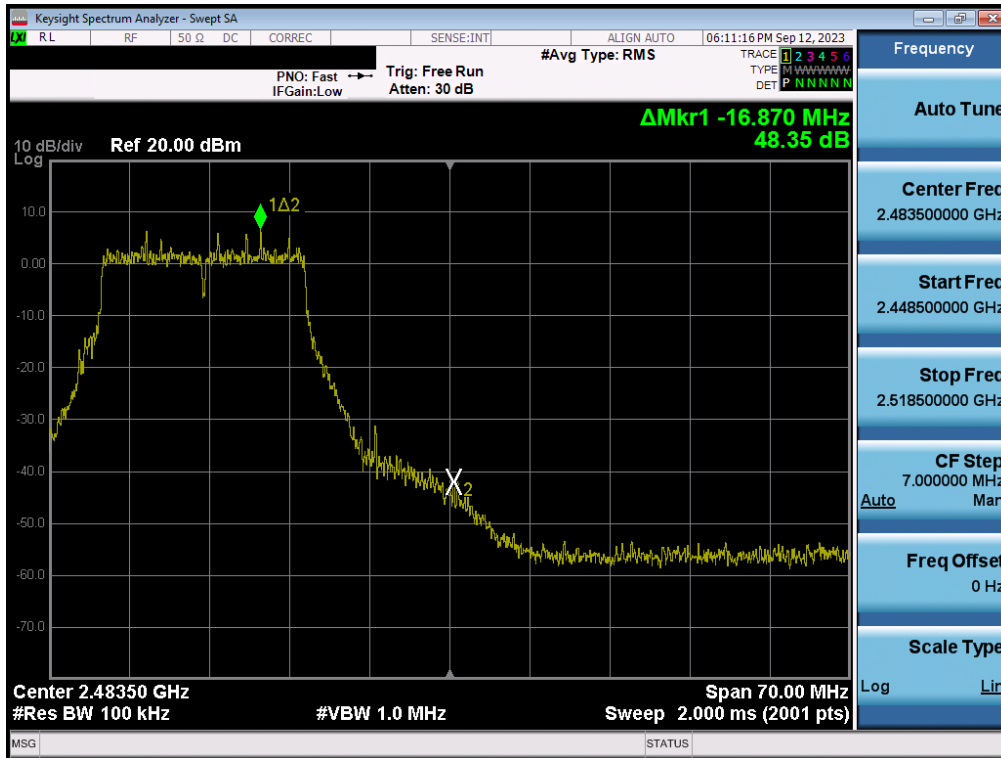


Plot 7-100. Band Edge Plot SISO ANT1 (802.11g - Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 80 of 137

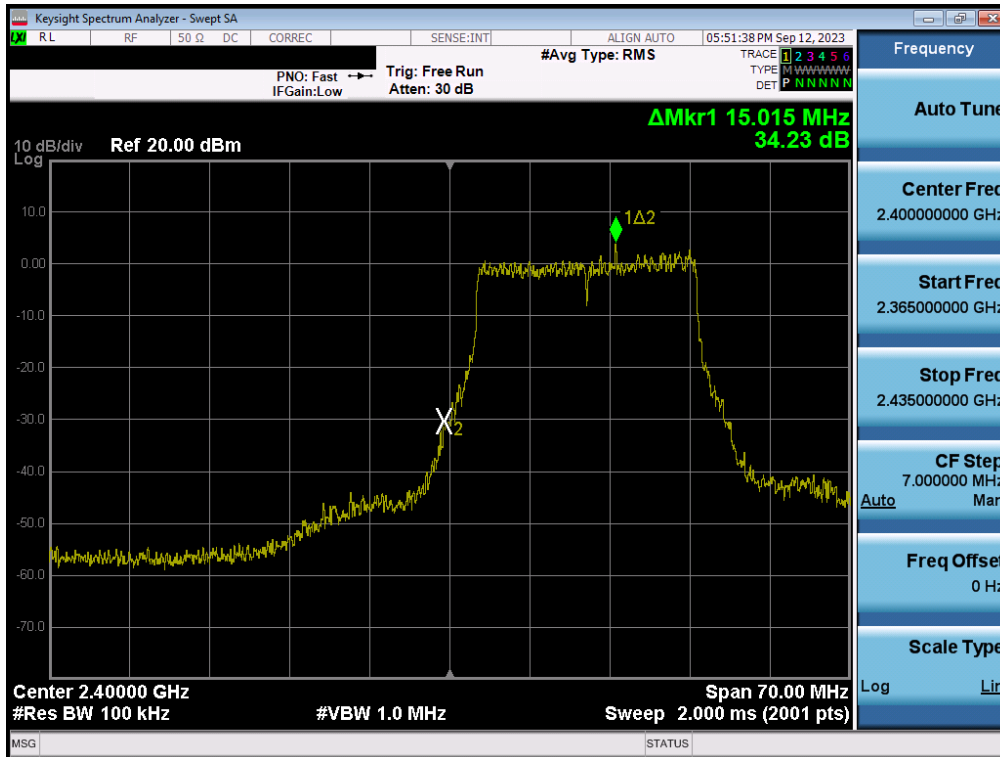


Plot 7-101. Band Edge Plot SISO ANT1 (802.11n (2.4GHz) – Ch. 1)

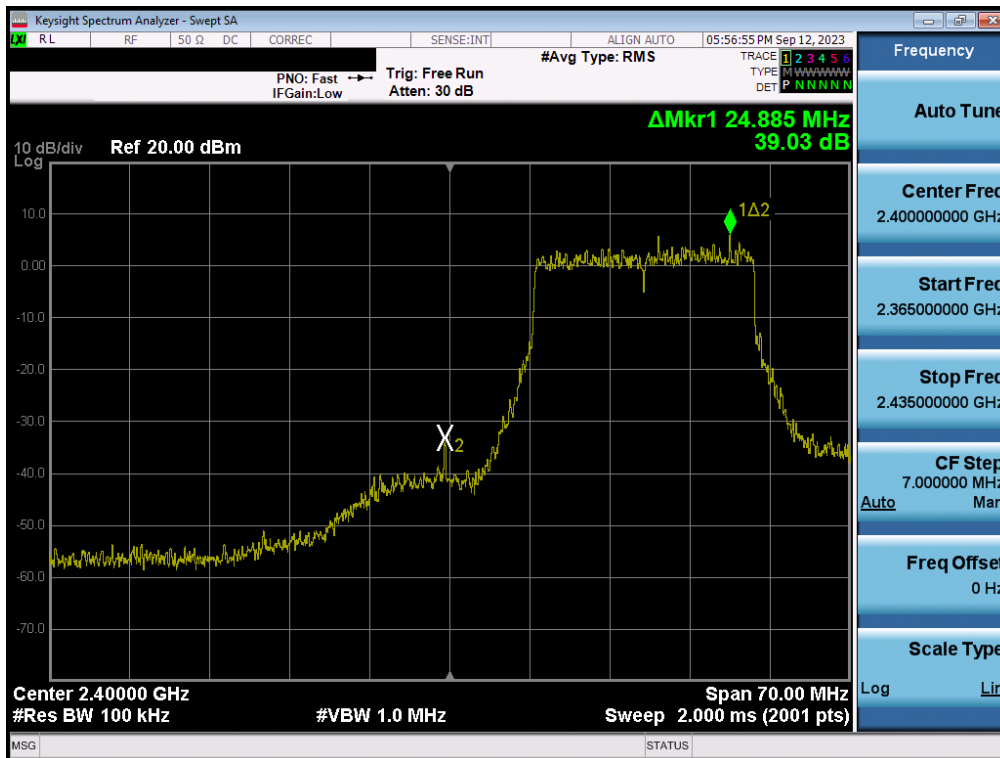


Plot 7-102. Band Edge Plot SISO ANT1 (802.11n (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 81 of 137

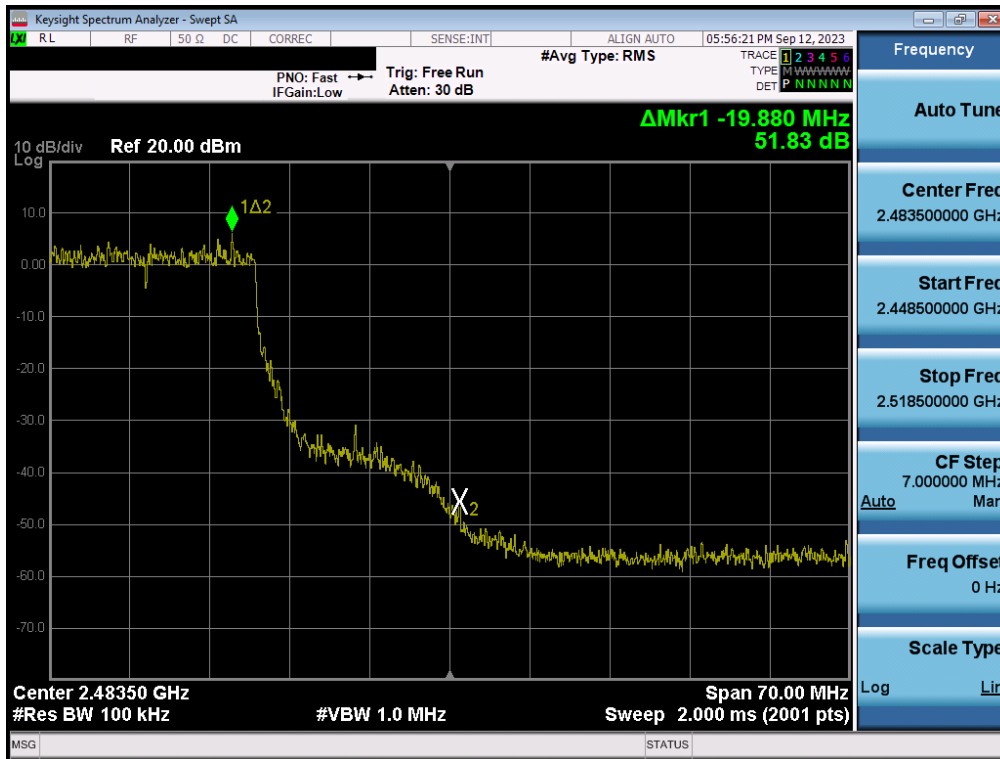


Plot 7-103. Band Edge Plot SISO ANT1 (802.11be (2.4GHz) – Ch. 1)

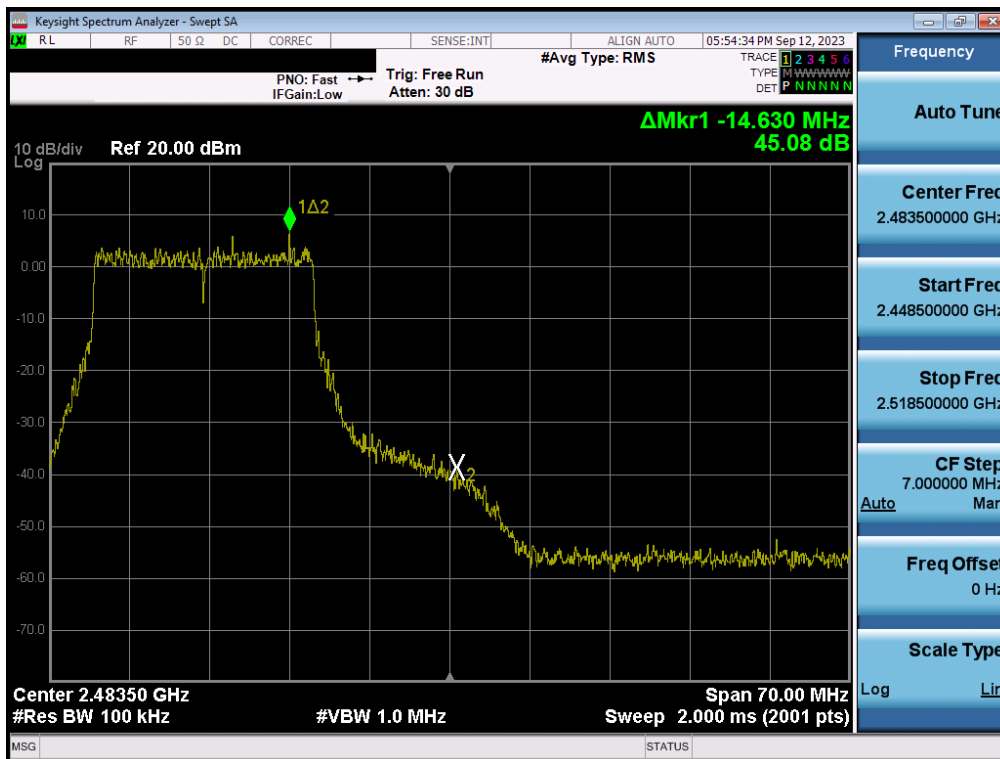


Plot 7-104. Band Edge Plot SISO ANT1 (802.11be (2.4GHz) – Ch. 2)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 82 of 137



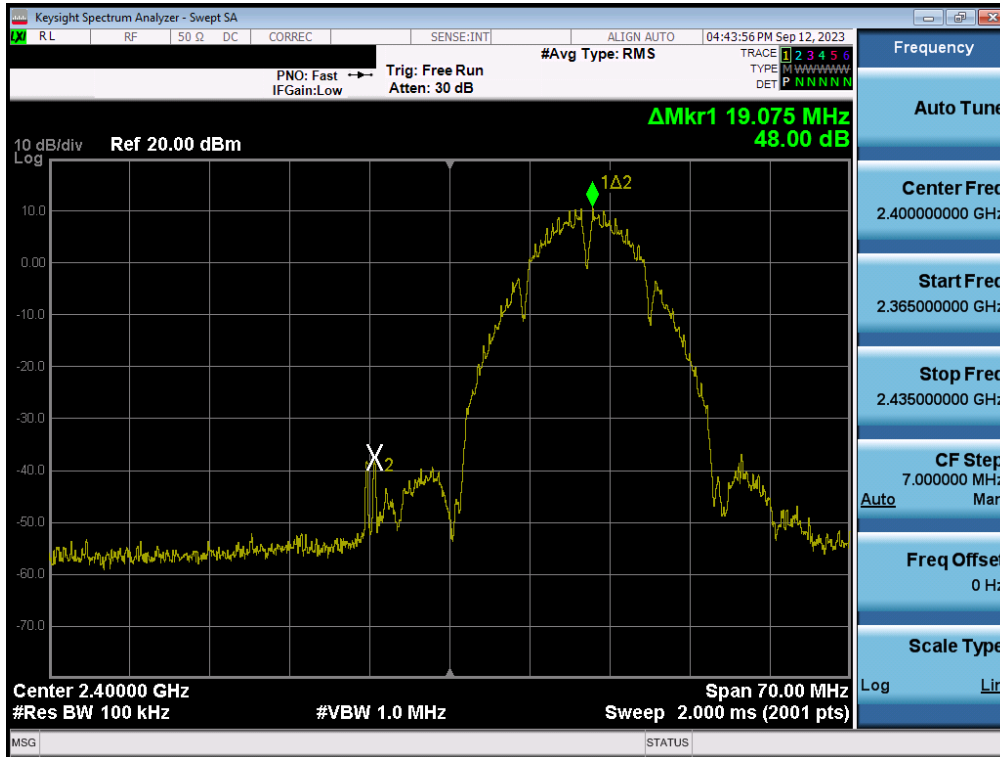
Plot 7-105. Band Edge Plot SISO ANT1 (802.11be (2.4GHz) – Ch. 10)



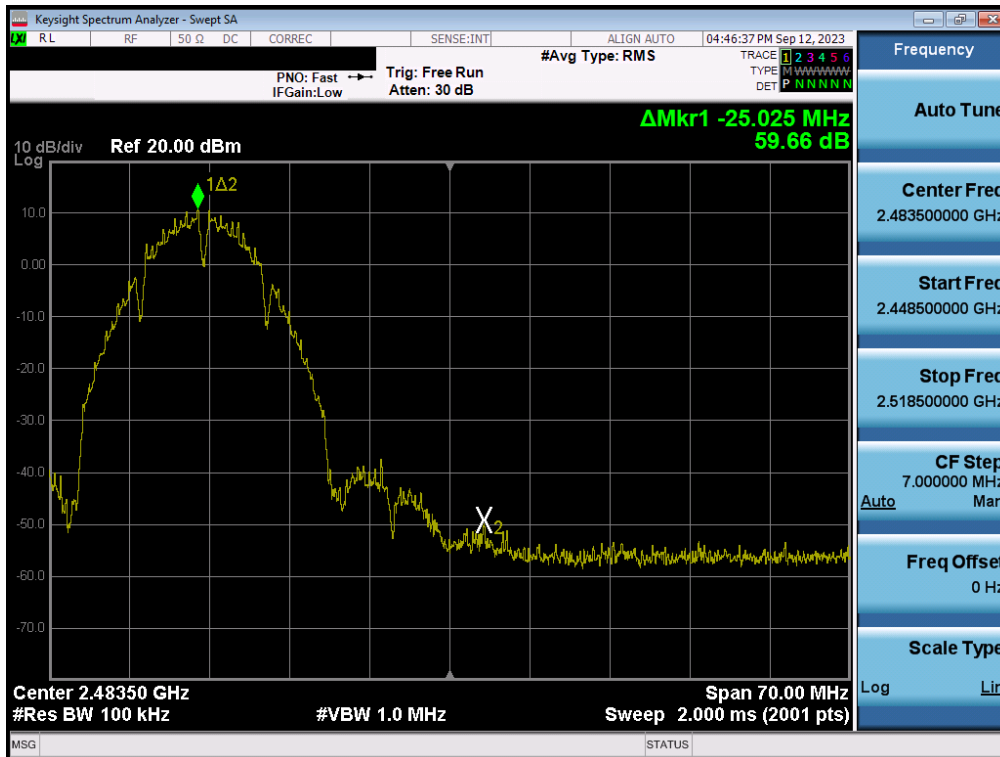
Plot 7-106. Band Edge Plot SISO ANT1 (802.11be (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 83 of 137

7.5.2 SISO Antenna-2 Conducted Band Edge Emissions

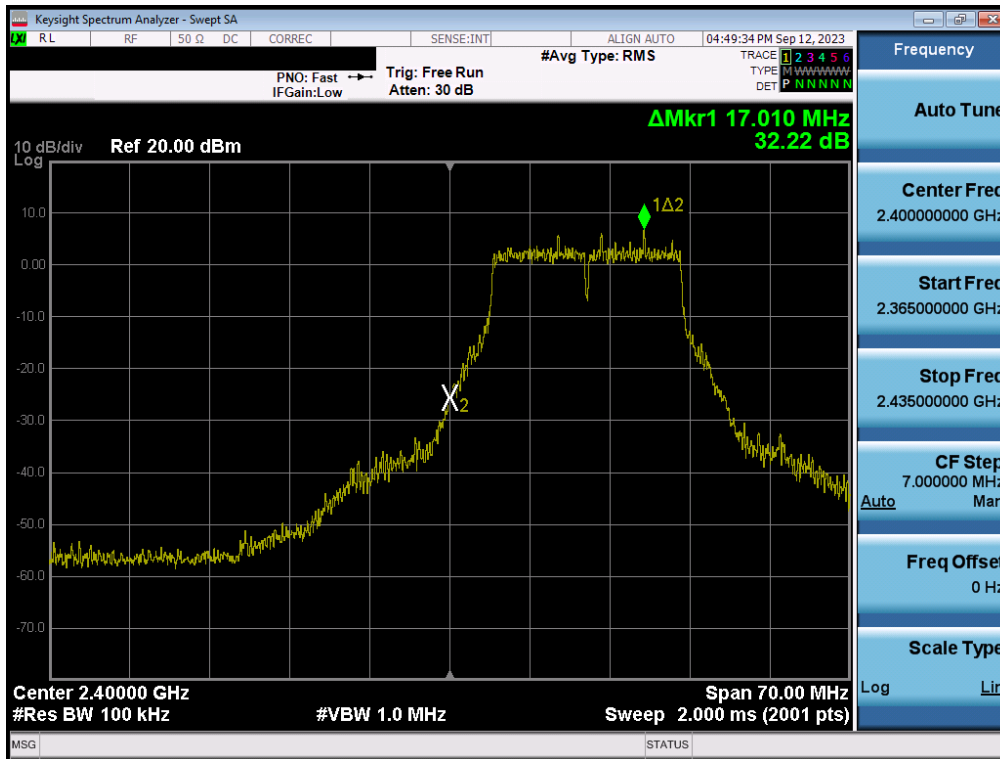


Plot 7-107. Band Edge Plot SISO ANT2 (802.11b – Ch. 1)

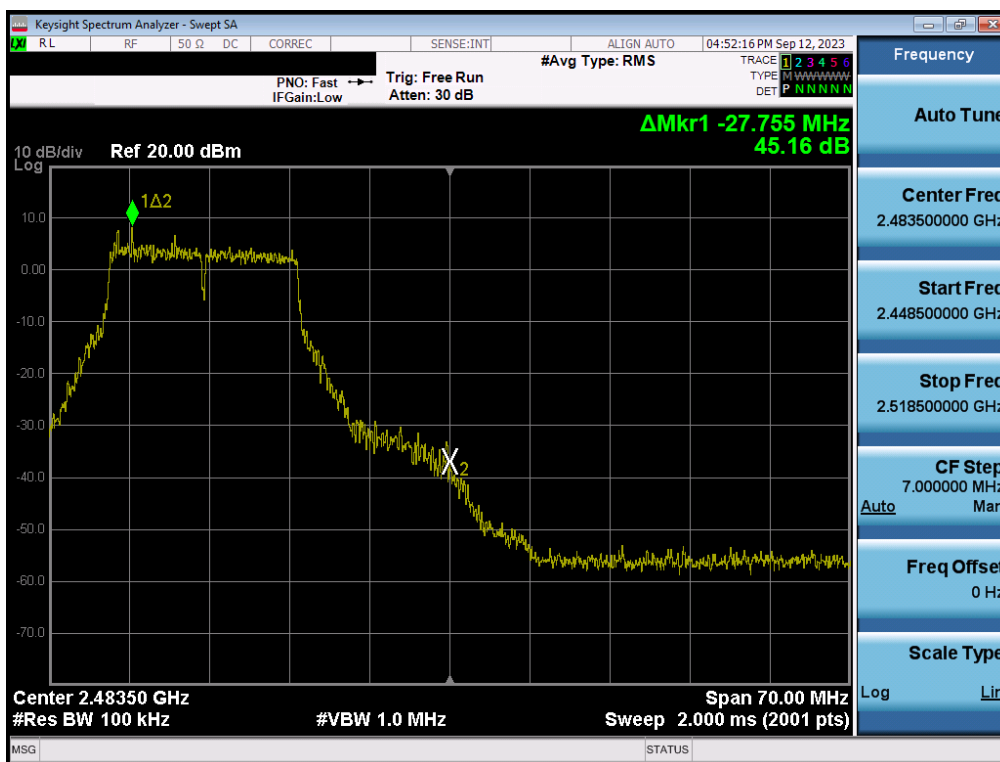


Plot 7-108. Band Edge Plot SISO ANT2 (802.11b – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 84 of 137

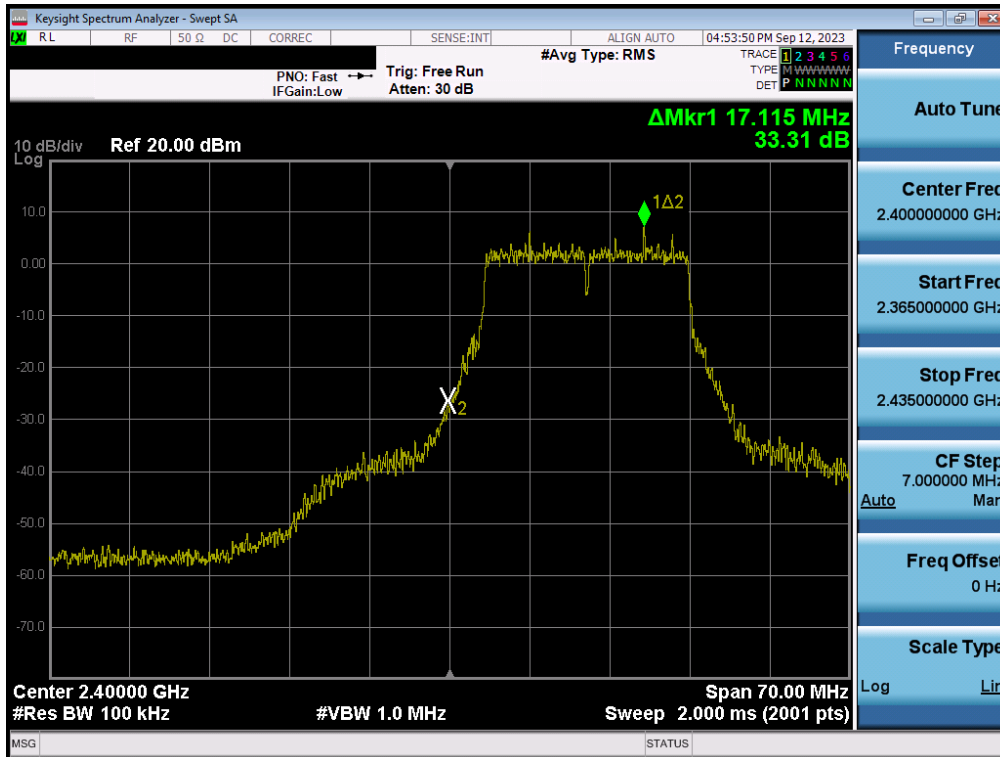


Plot 7-109. Band Edge Plot SISO ANT2 (802.11g- Ch. 1)

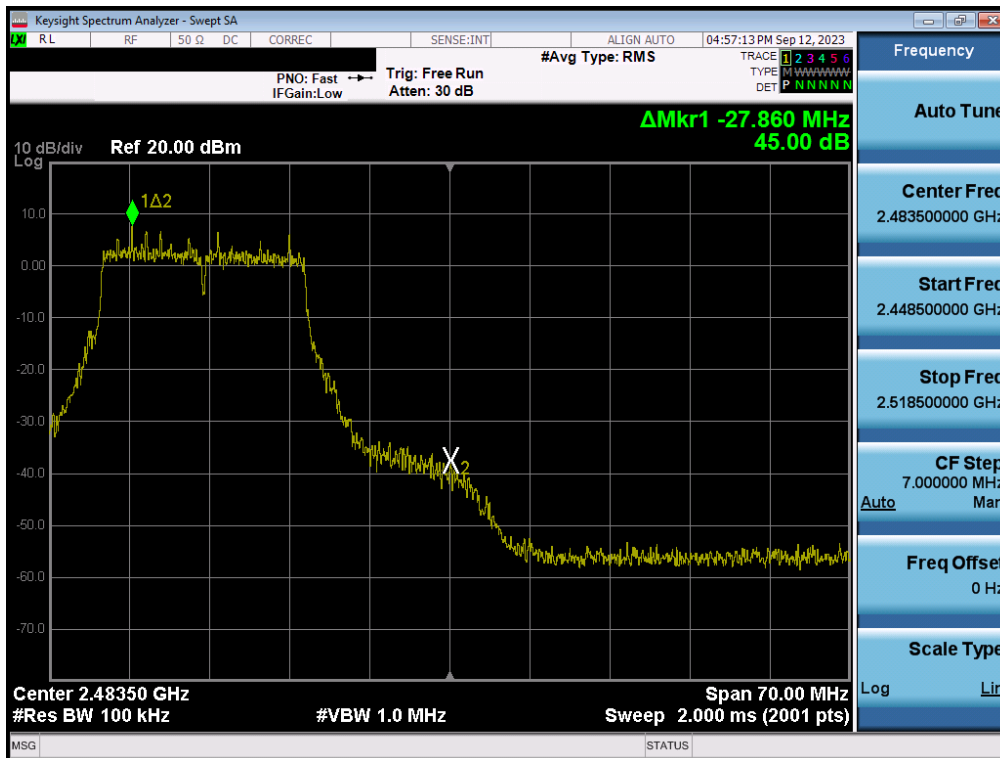


Plot 7-110. Band Edge Plot SISO ANT2 (802.11g - Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 85 of 137

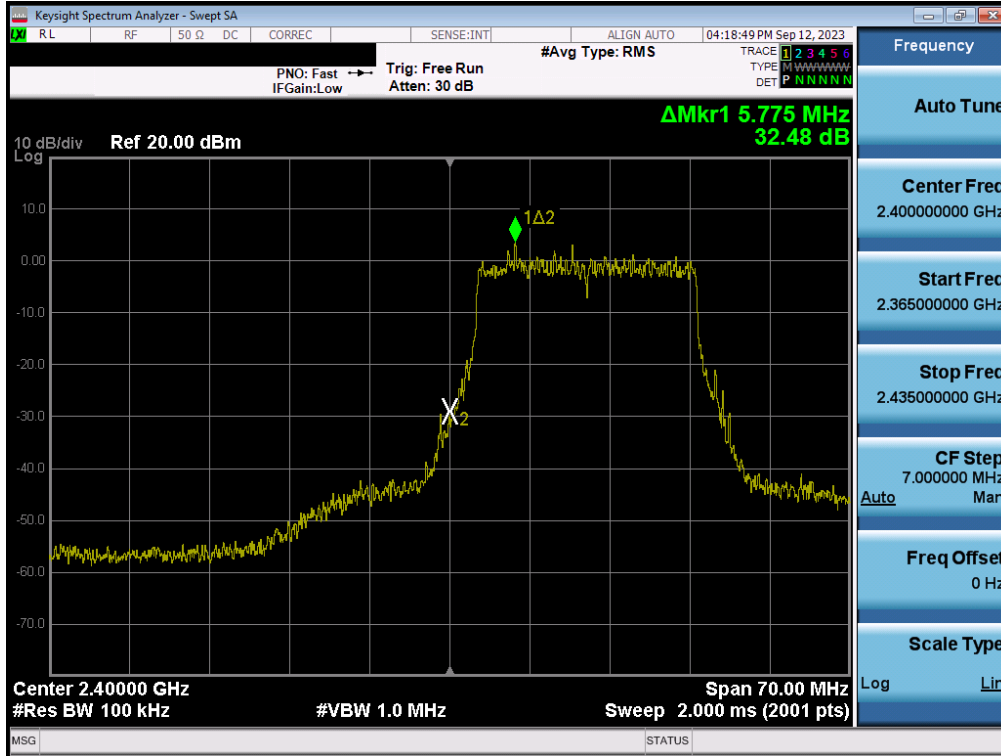


Plot 7-111. Band Edge Plot SISO ANT2 (802.11n (2.4GHz) – Ch. 1)

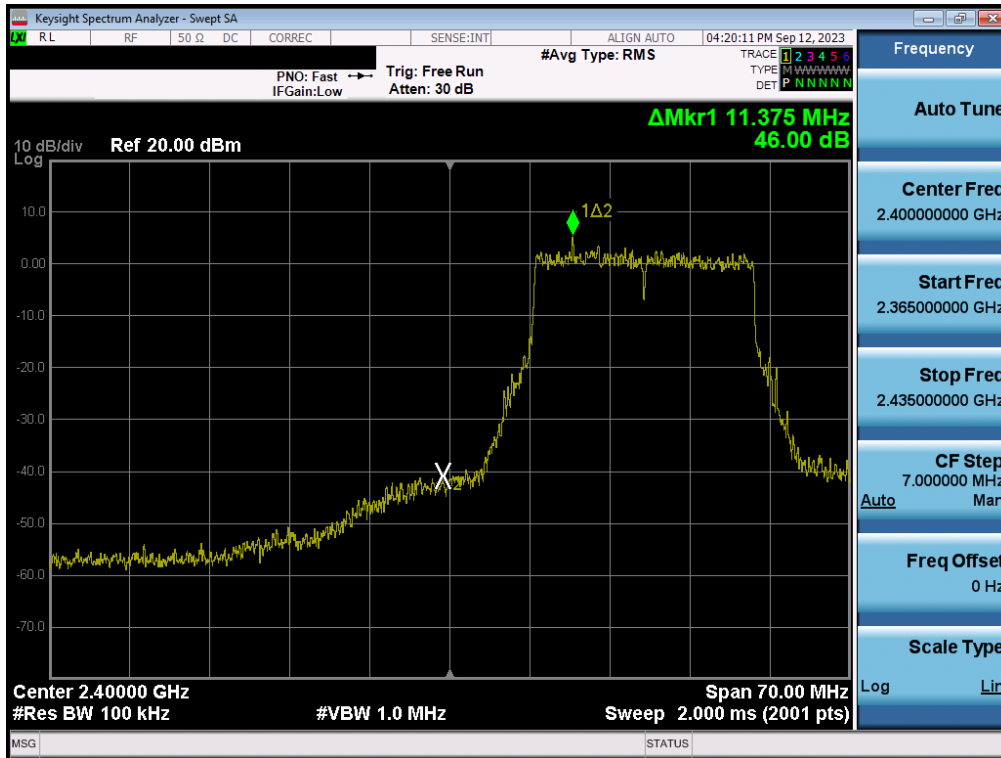


Plot 7-112. Band Edge Plot SISO ANT2 (802.11n (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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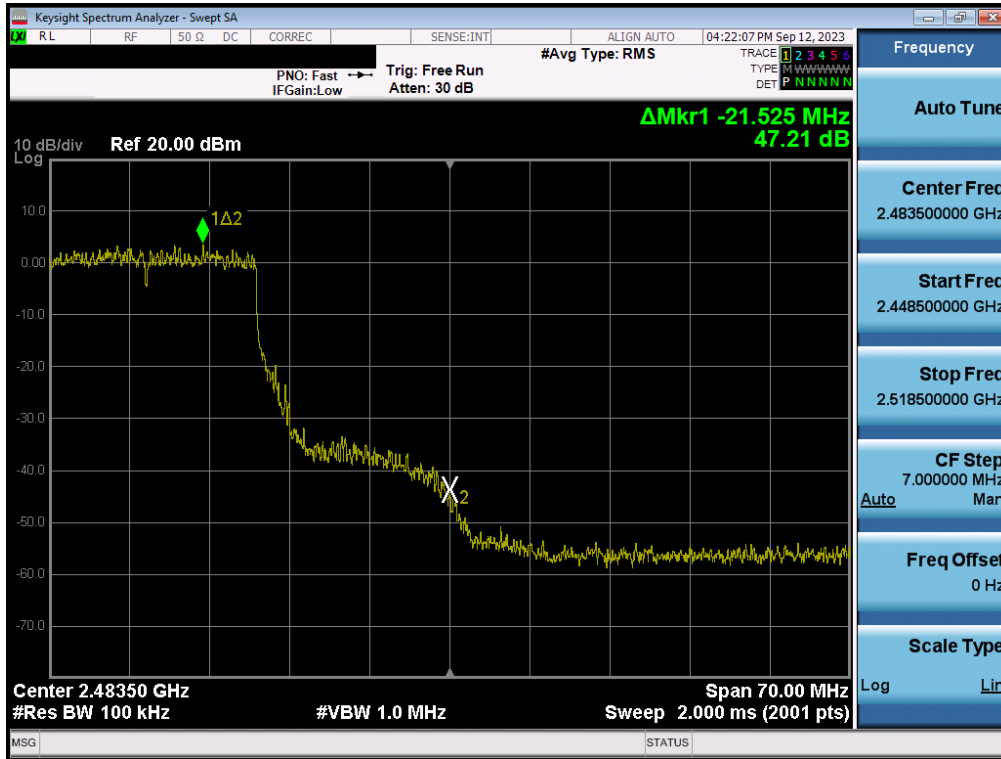


Plot 7-113. Band Edge Plot SISO ANT2 (802.11be (2.4GHz) – Ch. 1)



Plot 7-114. Band Edge Plot SISO ANT2 (802.11be (2.4GHz) – Ch. 2)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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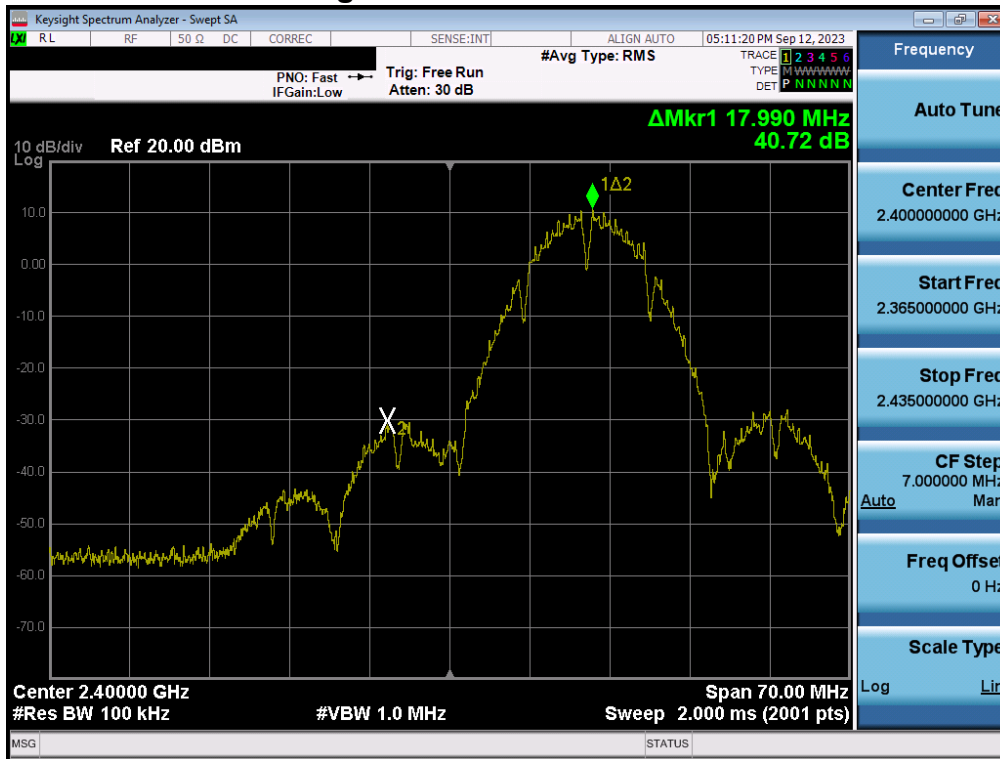
Plot 7-115. Band Edge Plot SISO ANT2 (802.11be (2.4GHz) – Ch. 10)



Plot 7-116. Band Edge Plot SISO ANT2 (802.11be (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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7.5.3 MIMO Conducted Band Edge Emissions

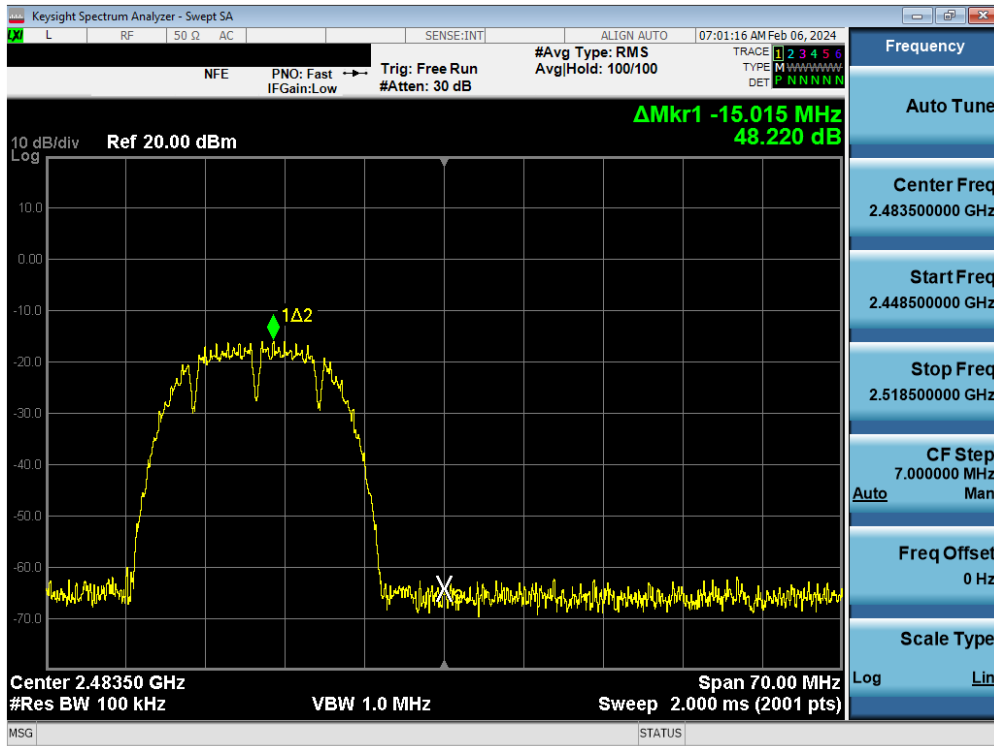


Plot 7-117. Band Edge Plot MIMO ANT1 (802.11b – Ch. 1)

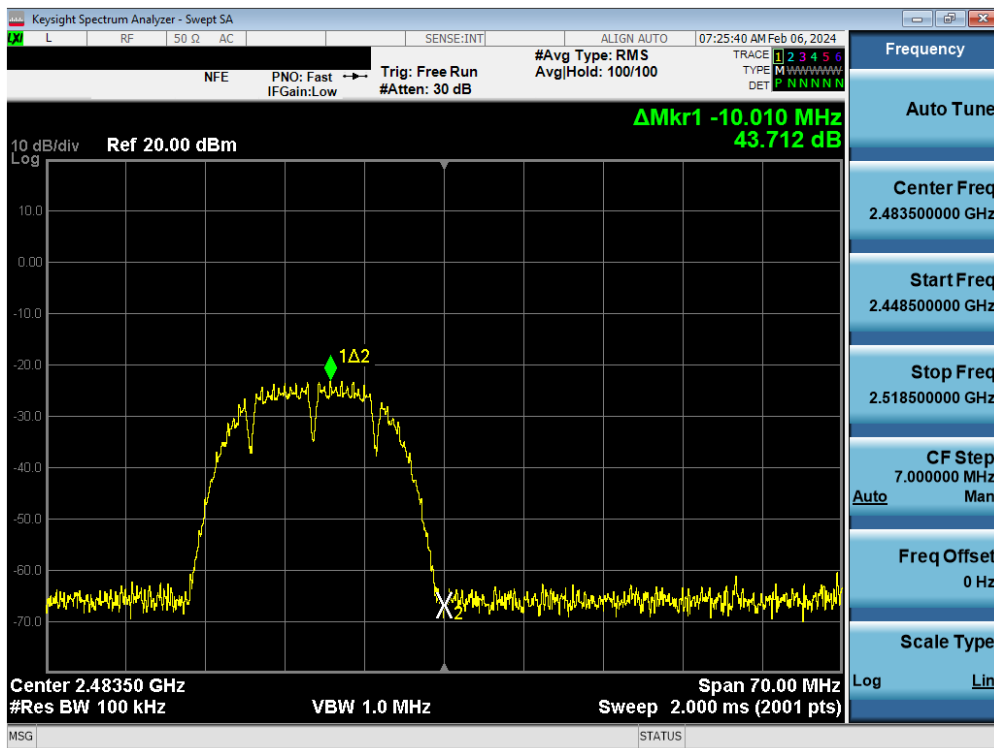


Plot 7-118. Band Edge Plot MIMO ANT1 (802.11b – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 89 of 137

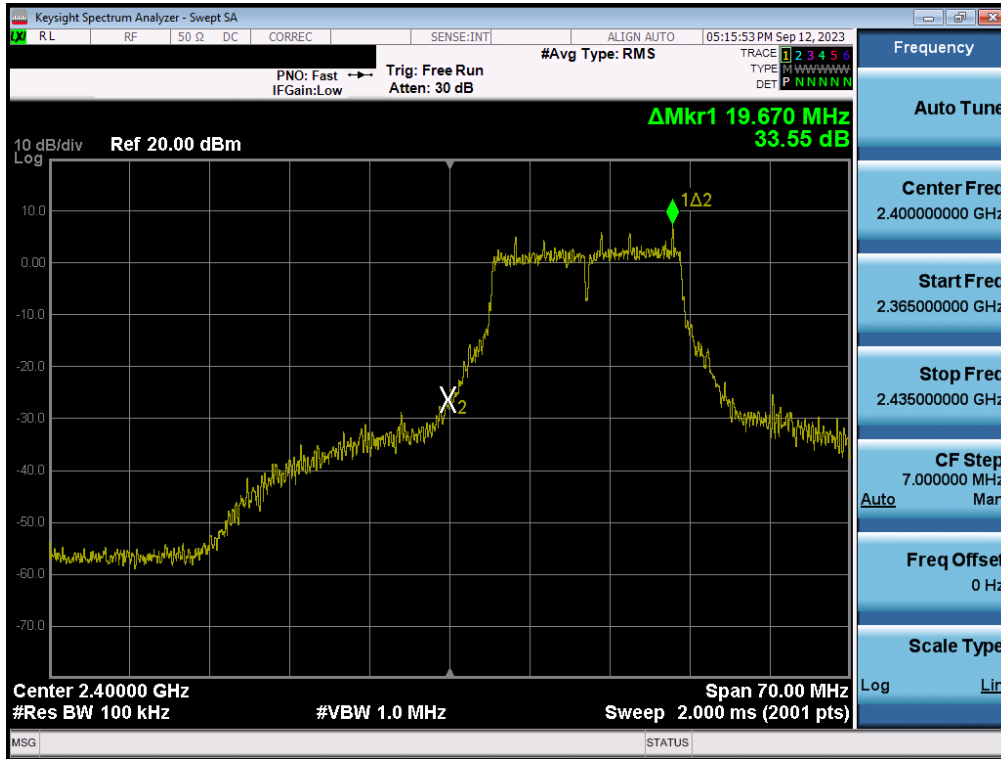


Plot 7-119. Band Edge Plot MIMO ANT1 (802.11b – Ch. 12)

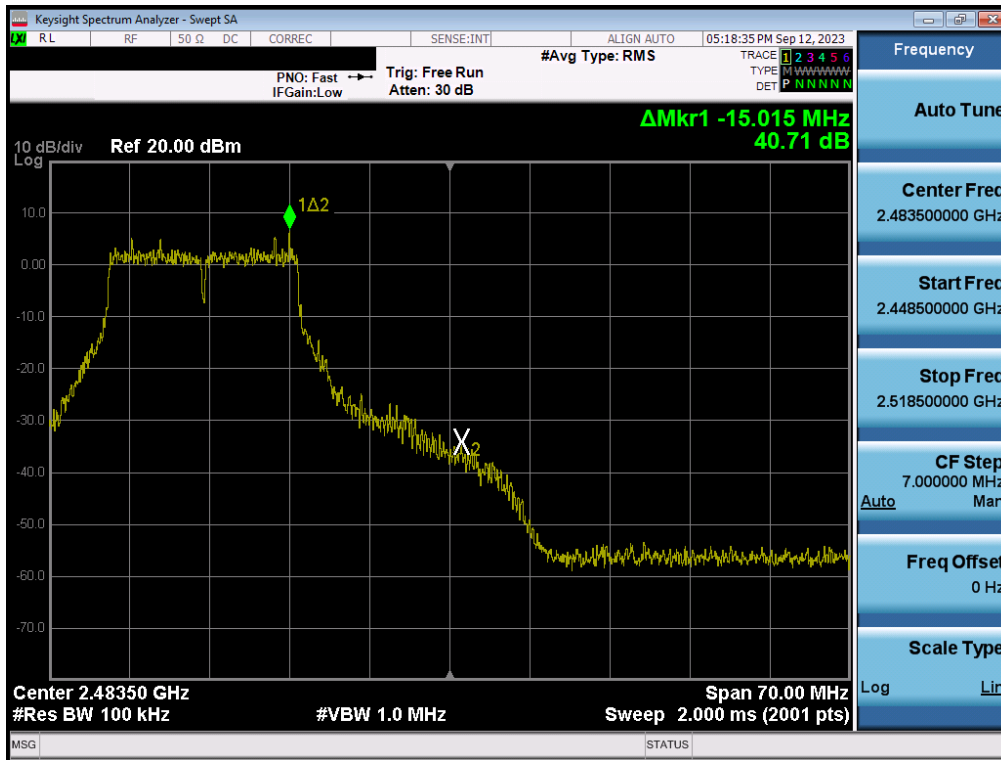


Plot 7-120. Band Edge Plot MIMO ANT1 (802.11b – Ch. 13)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 90 of 137

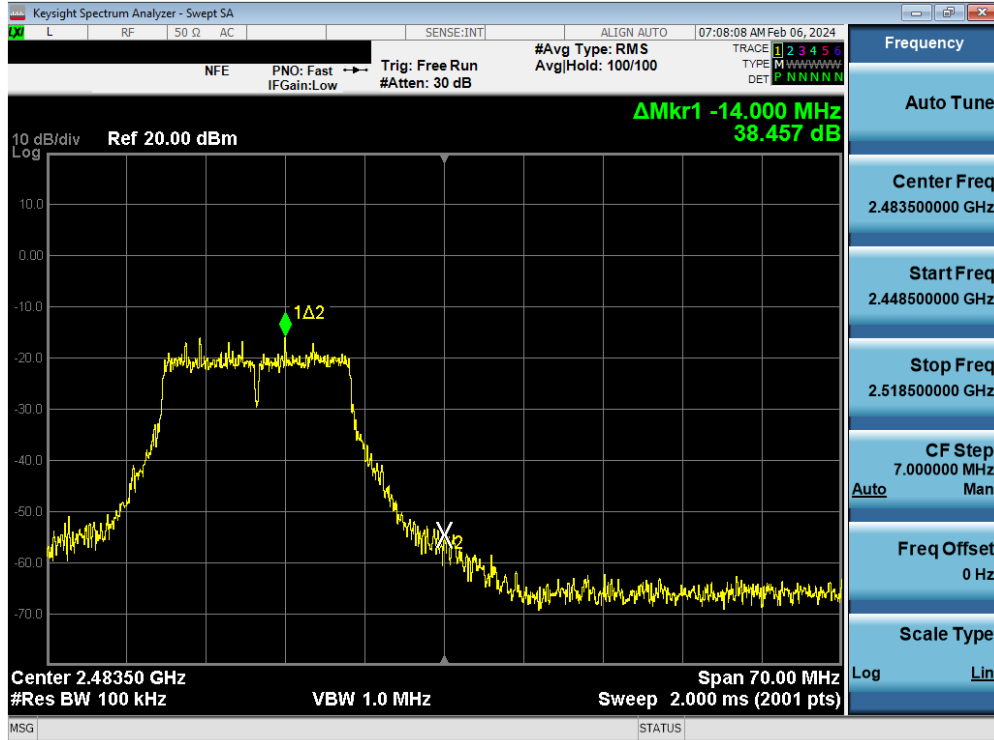


Plot 7-121. Band Edge Plot MIMO ANT1 (802.11g- Ch. 1)

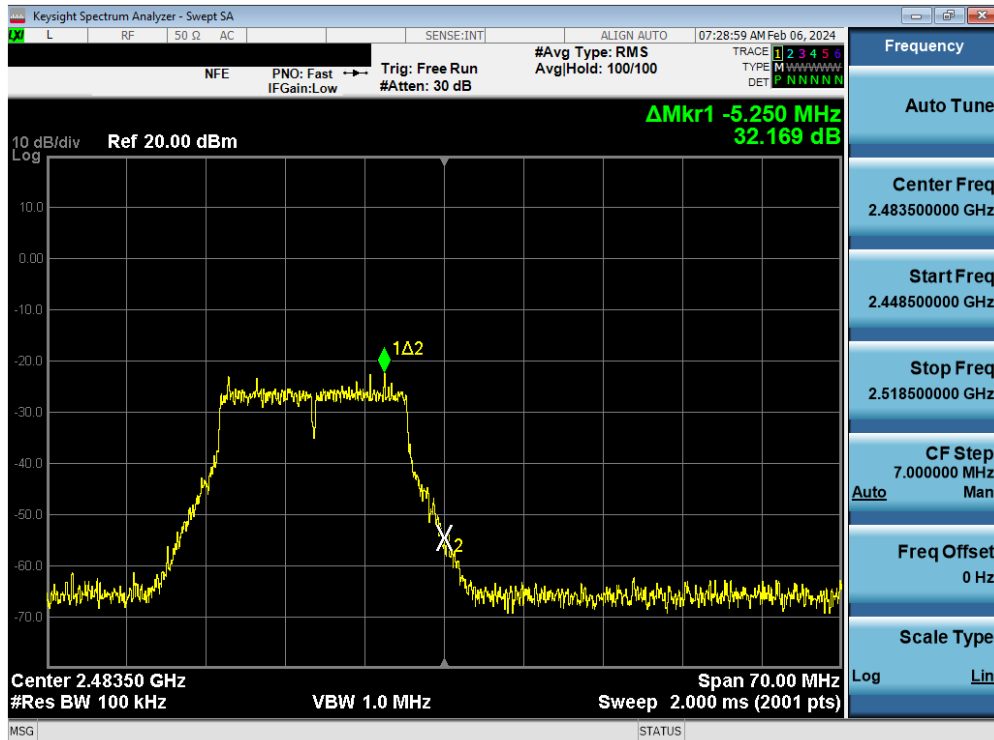


Plot 7-122. Band Edge Plot MIMO ANT1 (802.11g - Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 91 of 137

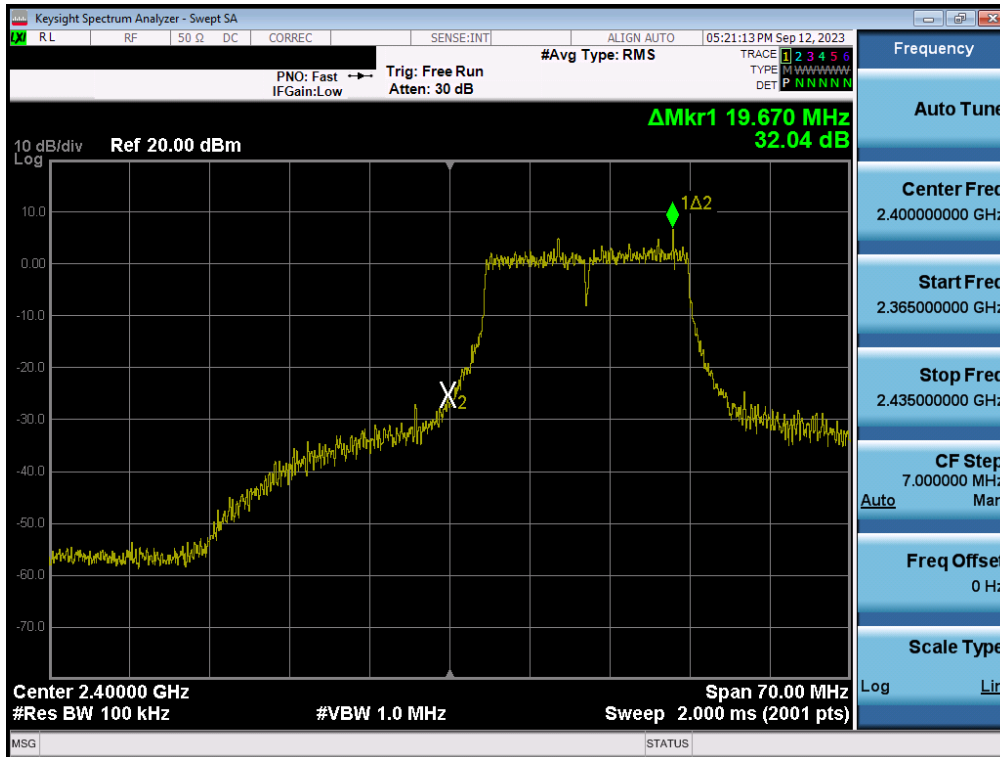


Plot 7-123. Band Edge Plot MIMO ANT1 (802.11g – Ch. 12)

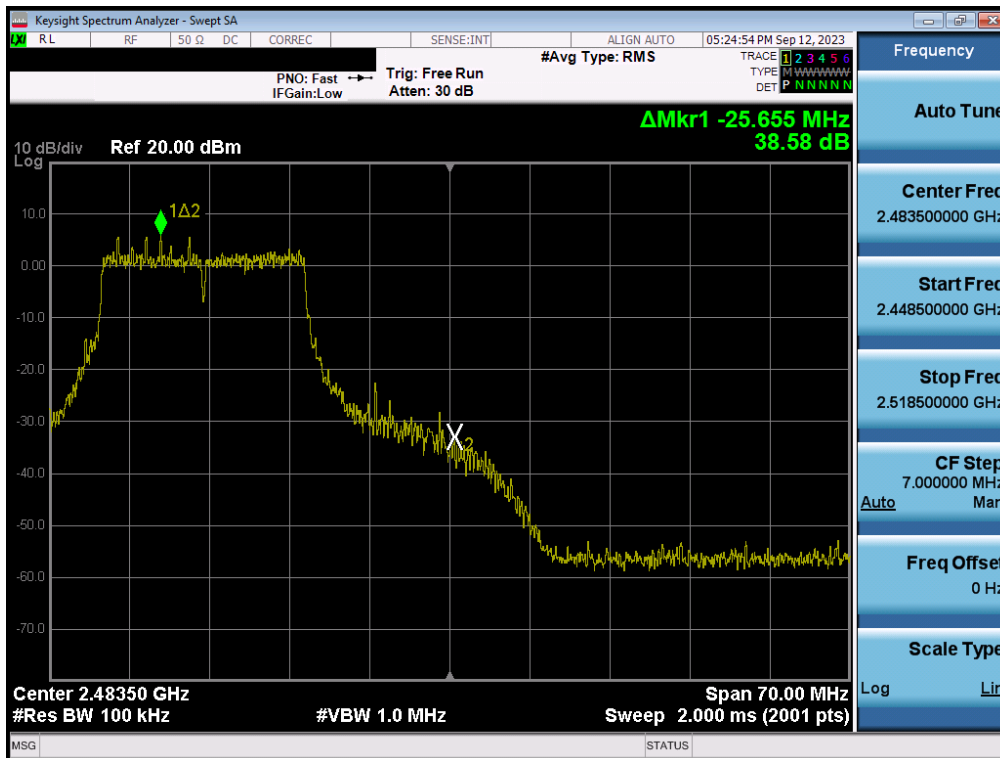


Plot 7-124. Band Edge Plot MIMO ANT1 (802.11g – Ch. 13)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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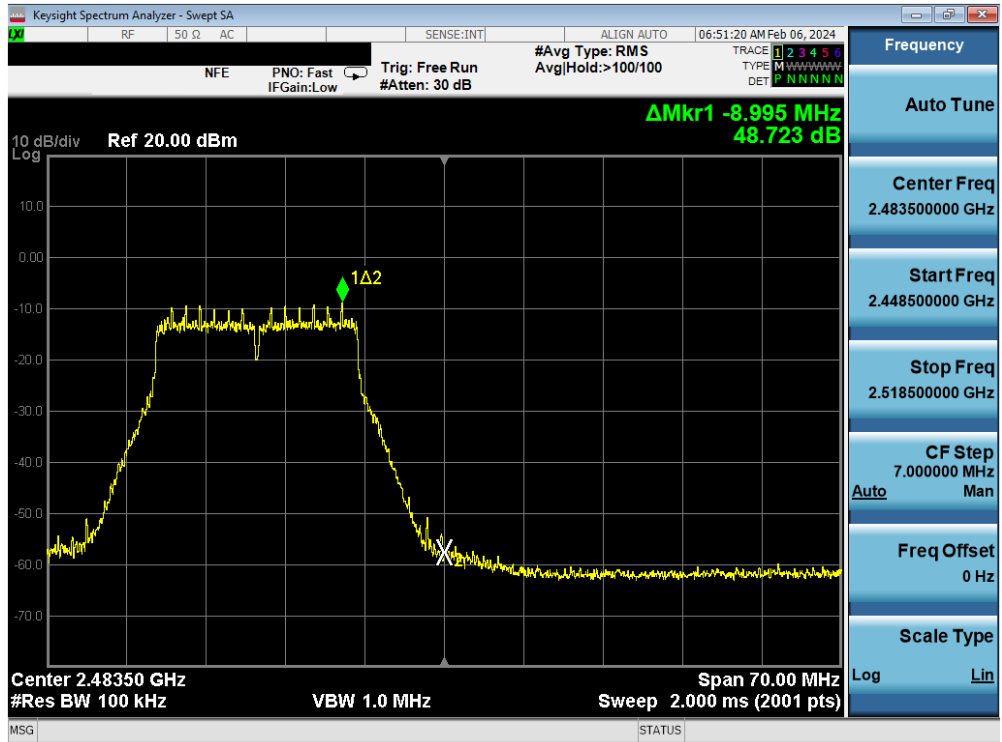


Plot 7-125. Band Edge Plot MIMO ANT1 (802.11n (2.4GHz) – Ch. 1)

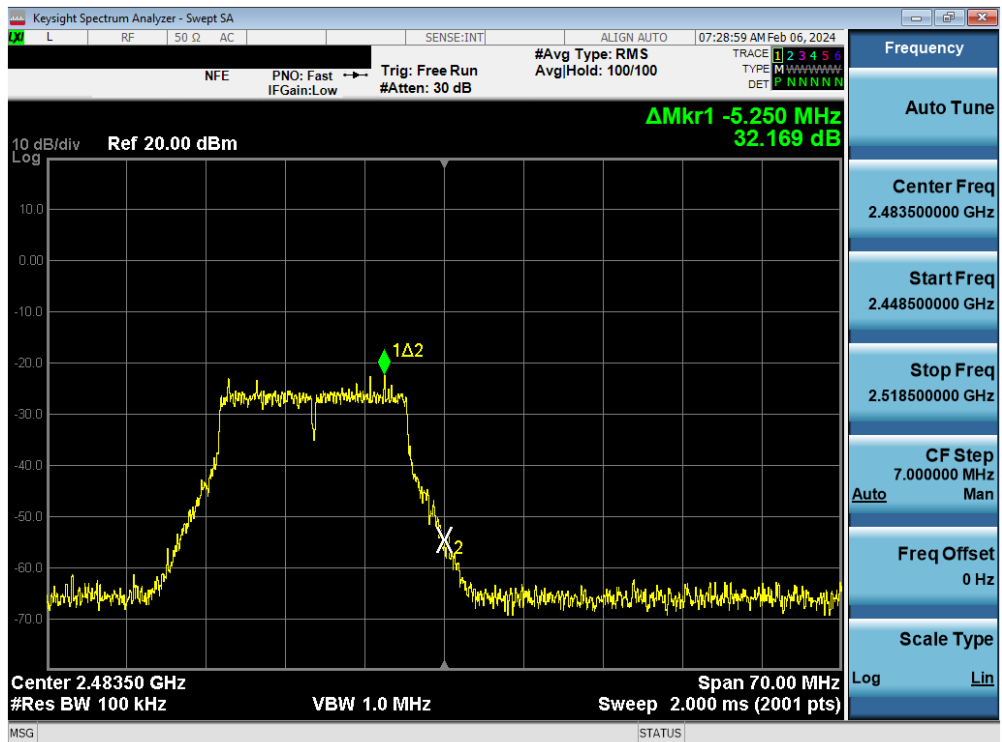


Plot 7-126. Band Edge Plot MIMO ANT1 (802.11n (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 93 of 137

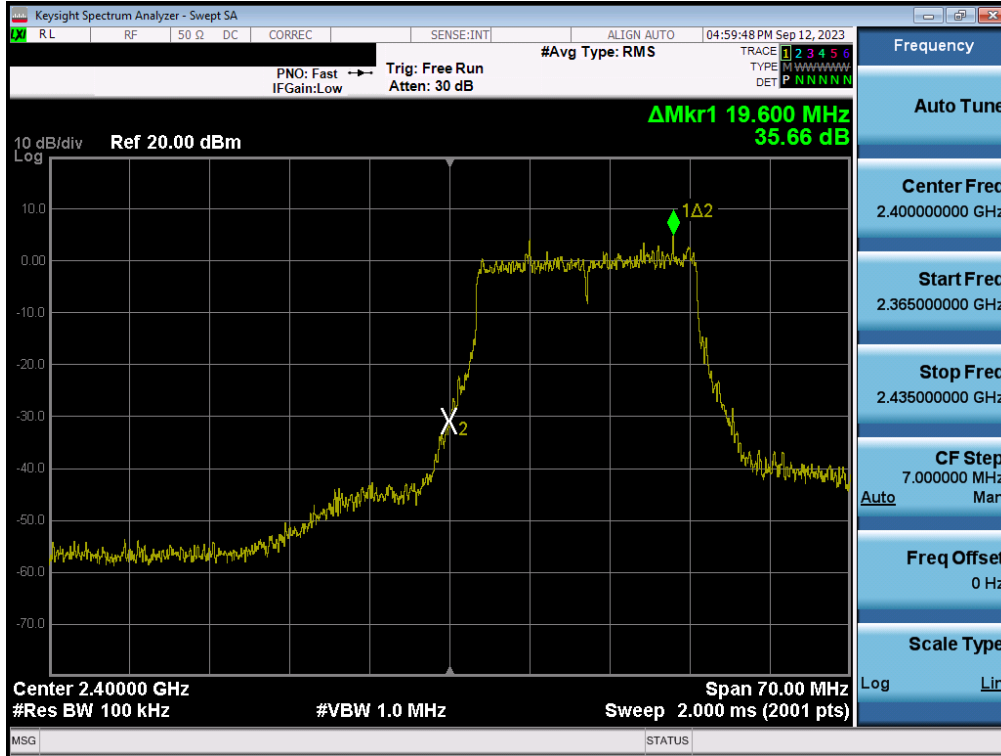


Plot 7-127. Band Edge Plot MIMO ANT1 (802.11n (2.4GHz) – Ch. 12)

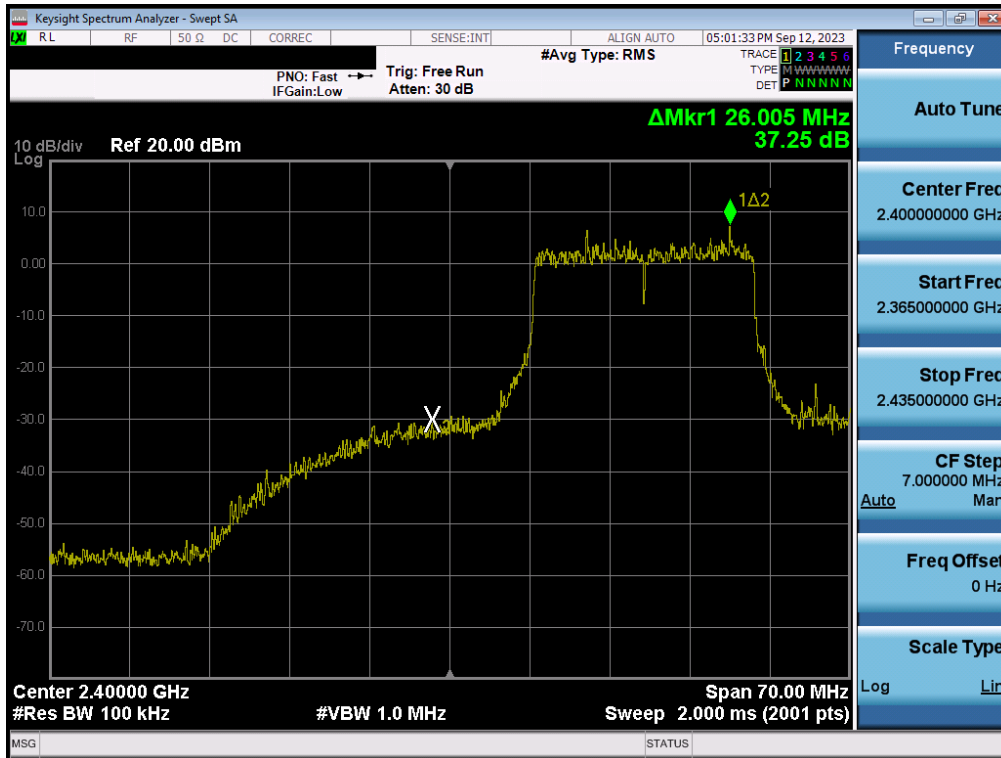


Plot 7-128. Band Edge Plot MIMO ANT1 (802.11n (2.4GHz) – Ch. 13)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-129. Band Edge Plot MIMO ANT1 (802.11be (2.4GHz) – Ch. 1)

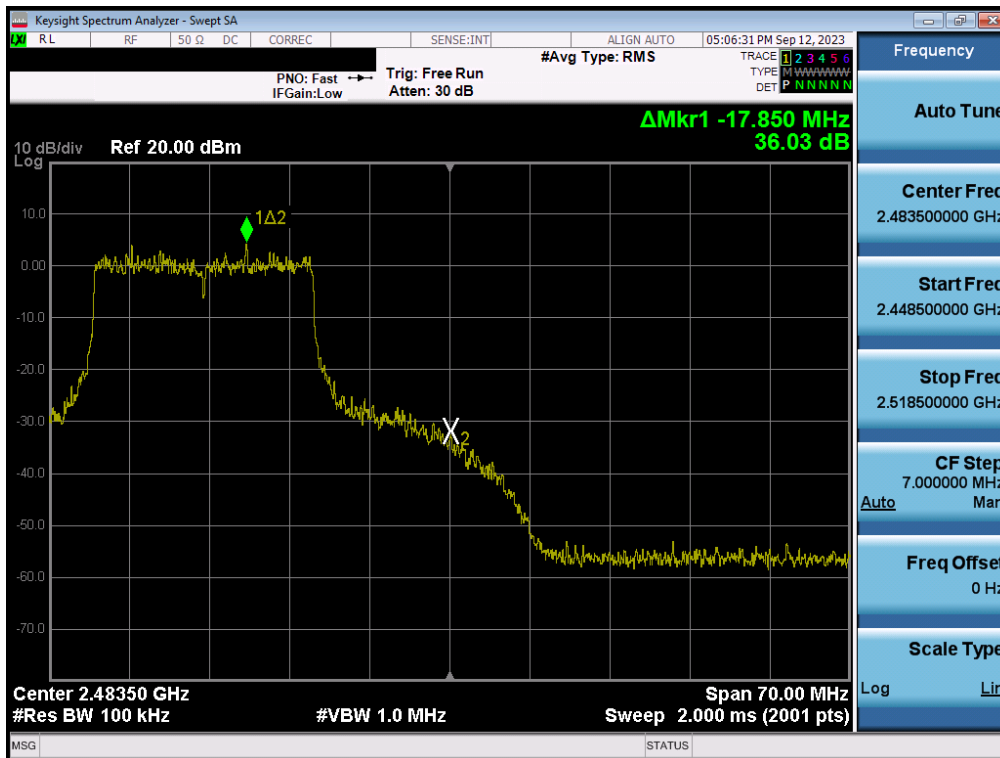


Plot 7-130. Band Edge Plot MIMO ANT1 (802.11be (2.4GHz) – Ch. 2)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 95 of 137

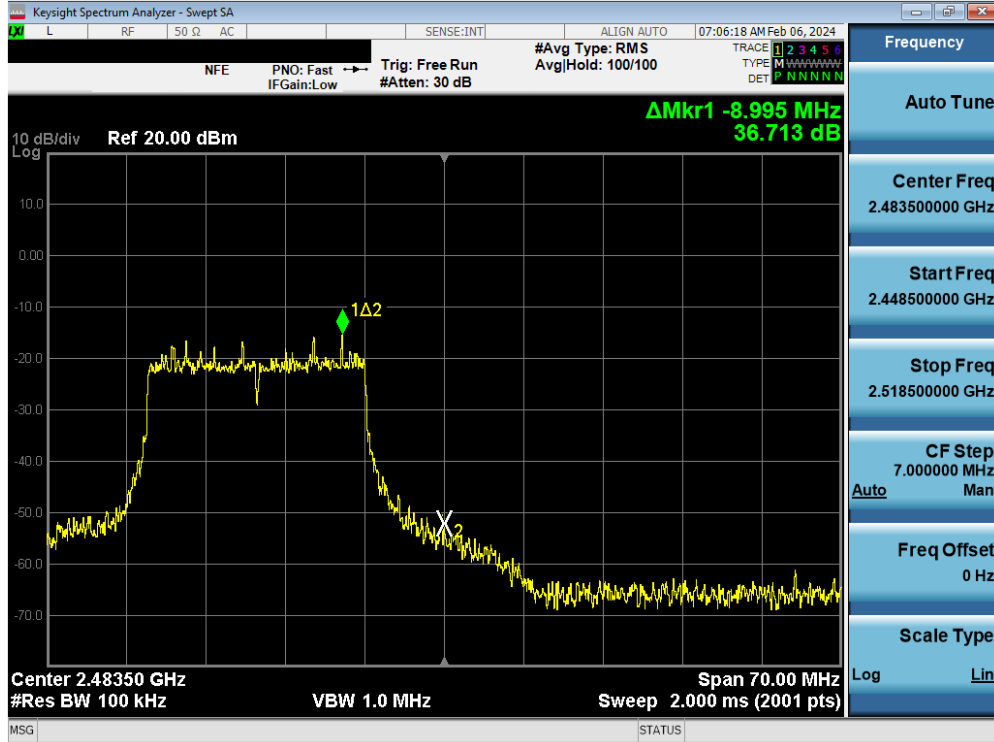


Plot 7-131. Band Edge Plot MIMO ANT1 (802.11be (2.4GHz) – Ch. 10)

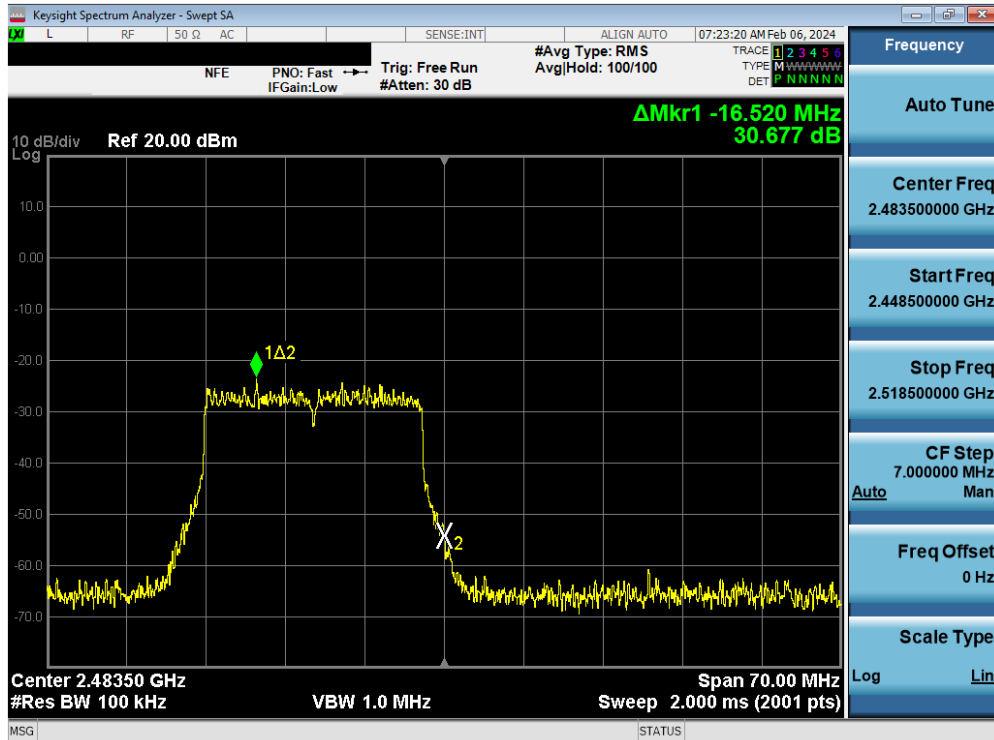


Plot 7-132. Band Edge Plot MIMO ANT1 (802.11be (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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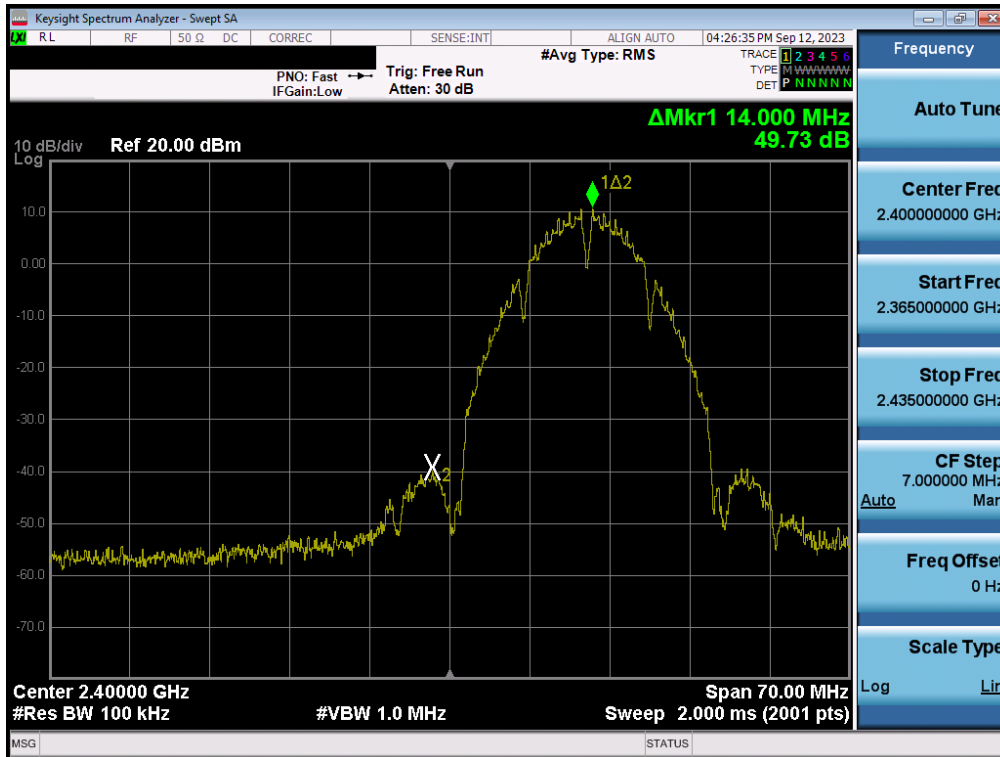


Plot 7-133. Band Edge Plot MIMO ANT1 (802.11be (2.4GHz) – Ch. 12)

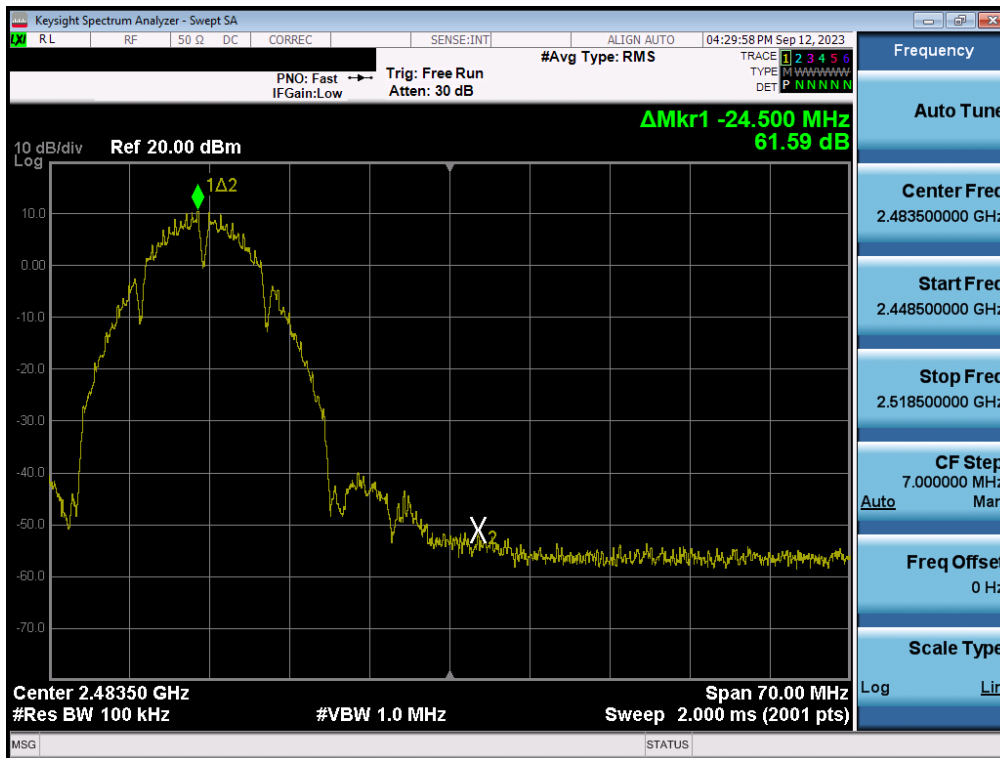


Plot 7-134. Band Edge Plot MIMO ANT1 (802.11be (2.4GHz) – Ch. 13)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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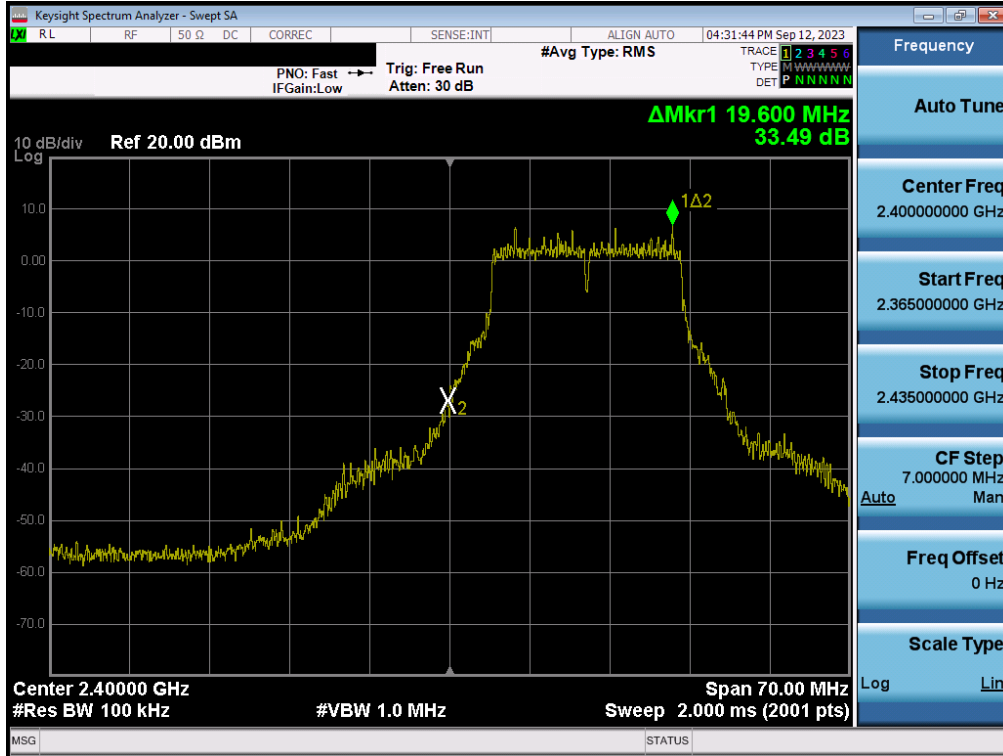


Plot 7-135. Band Edge Plot MIMO ANT2 (802.11b – Ch. 1)

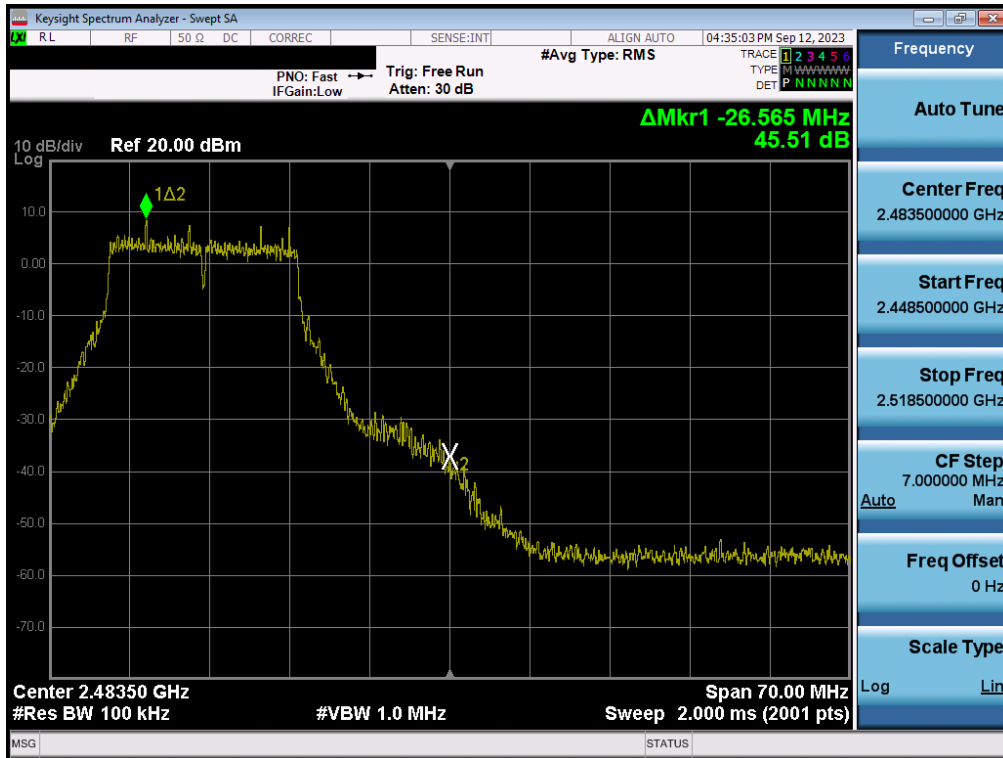


Plot 7-136. Band Edge Plot MIMO ANT2 (802.11b – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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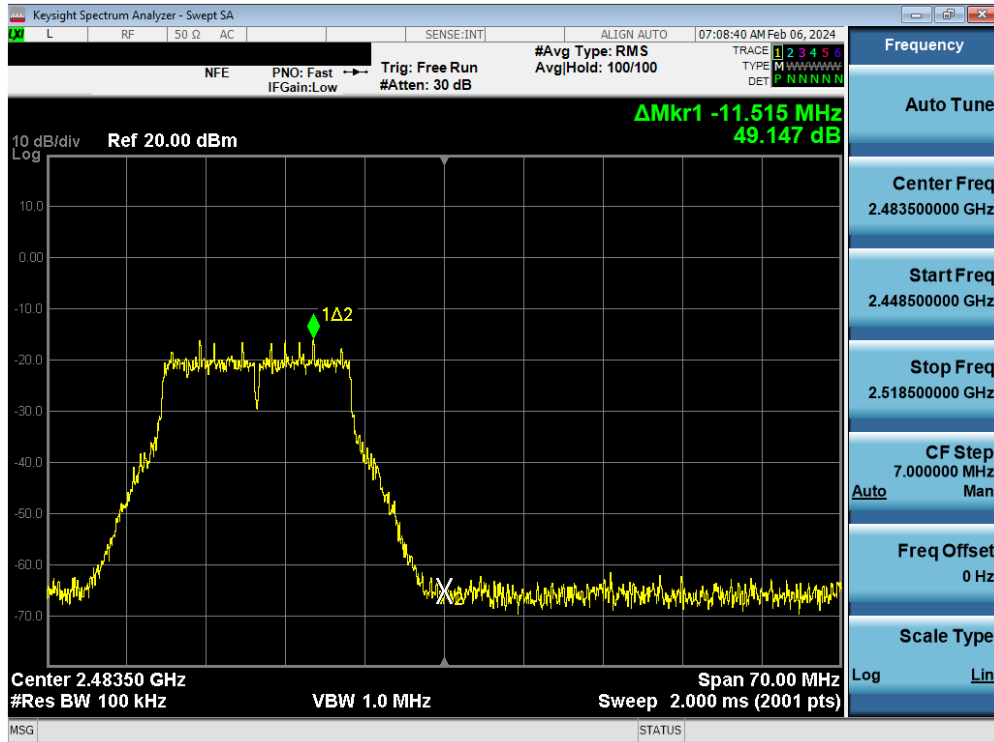


Plot 7-139. Band Edge Plot MIMO ANT2 (802.11g- Ch. 1)

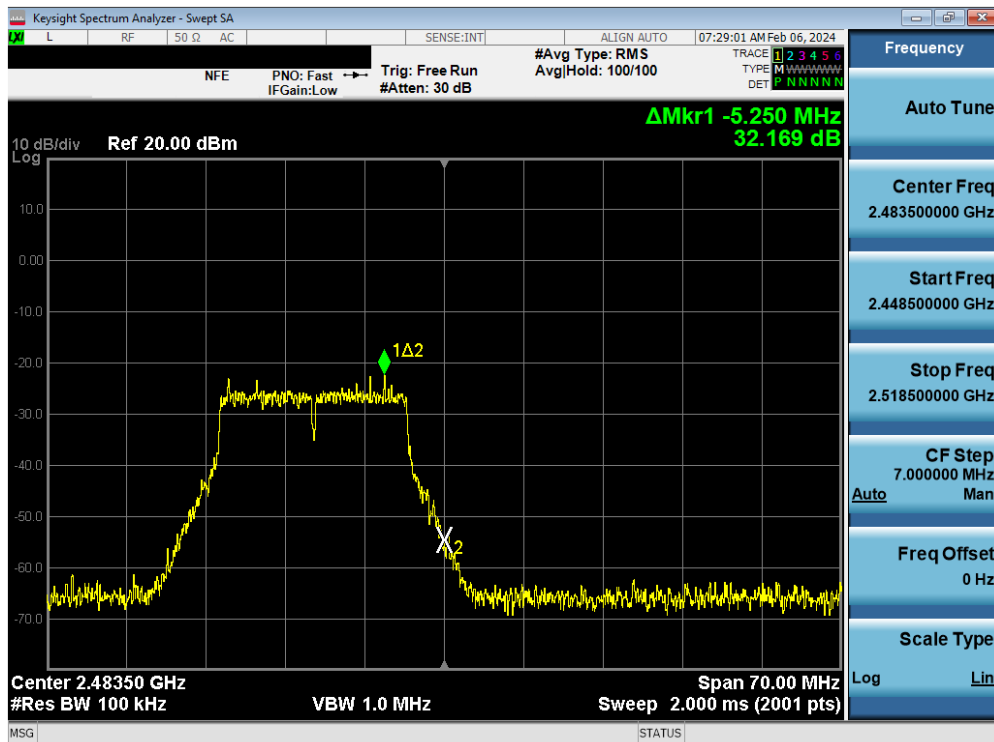


Plot 7-140. Band Edge Plot MIMO ANT2 (802.11g - Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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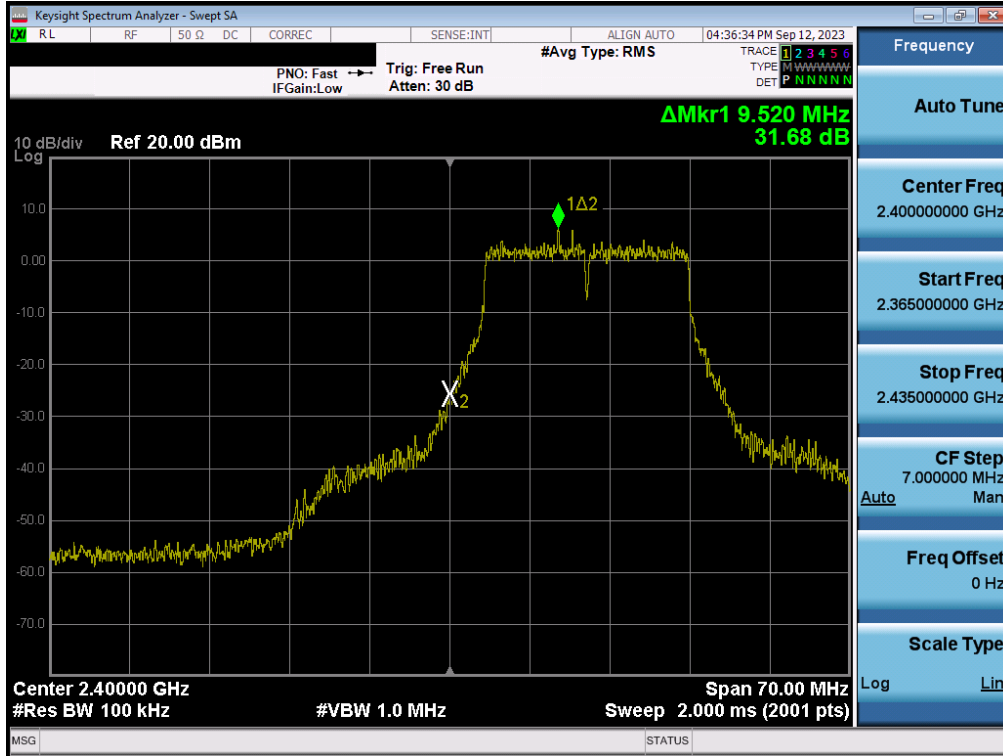


Plot 7-141. Band Edge Plot MIMO ANT2 (802.11g – Ch. 12)

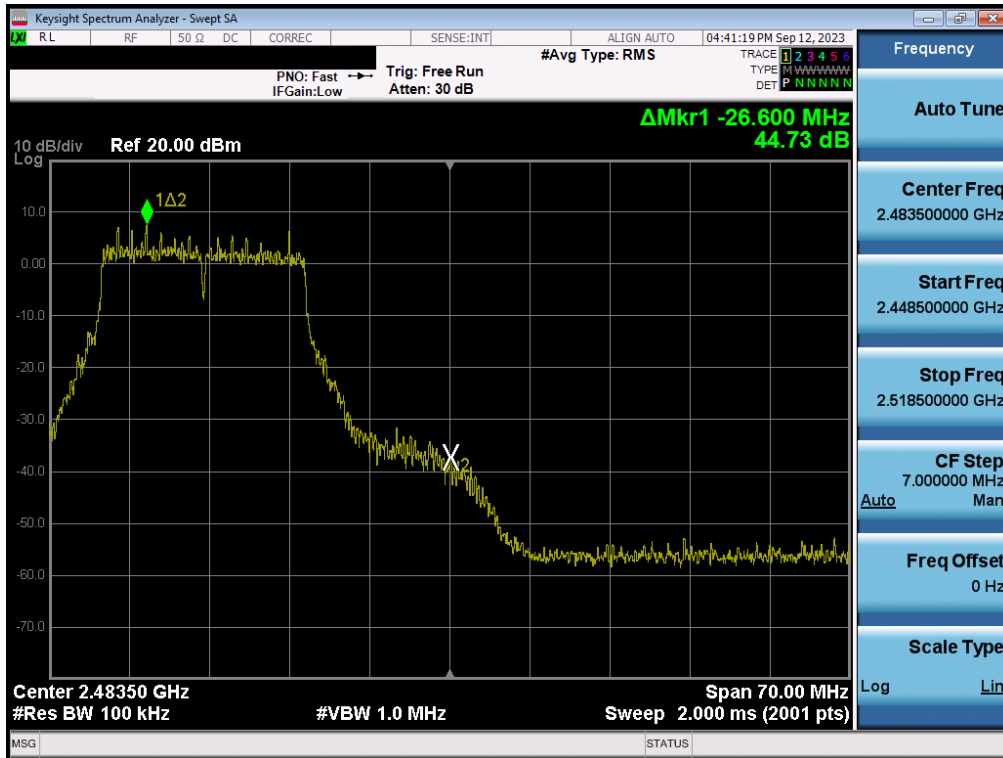


Plot 7-142. Band Edge Plot MIMO ANT2 (802.11g – Ch. 13)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2312110124-06.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 101 of 137

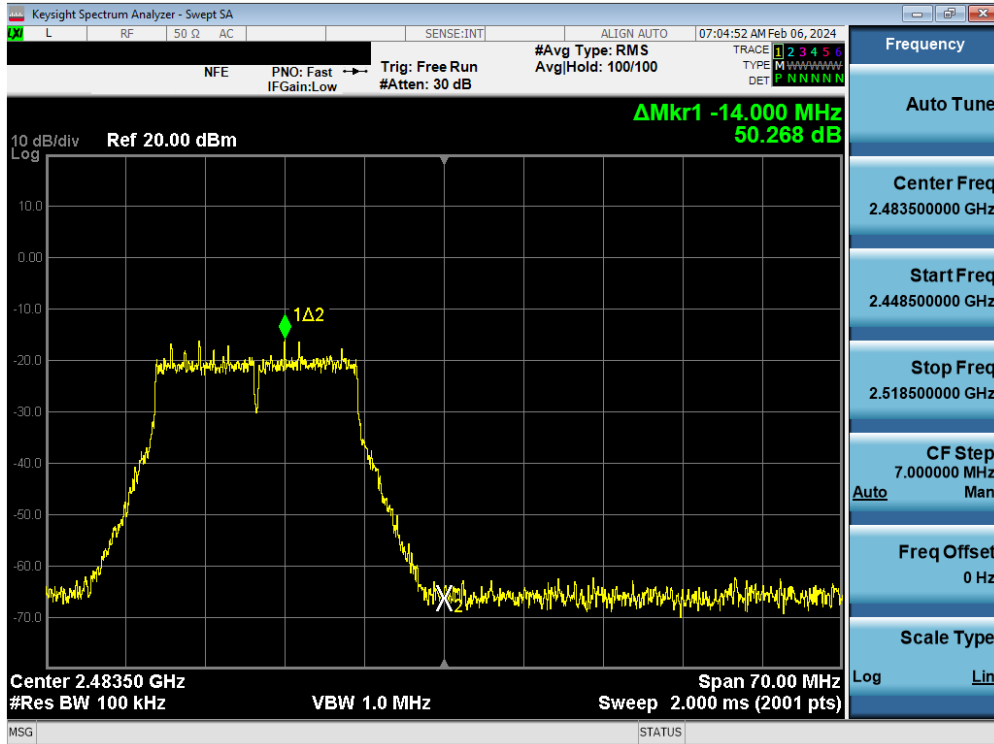


Plot 7-143. Band Edge Plot MIMO ANT2 (802.11n (2.4GHz) – Ch. 1)

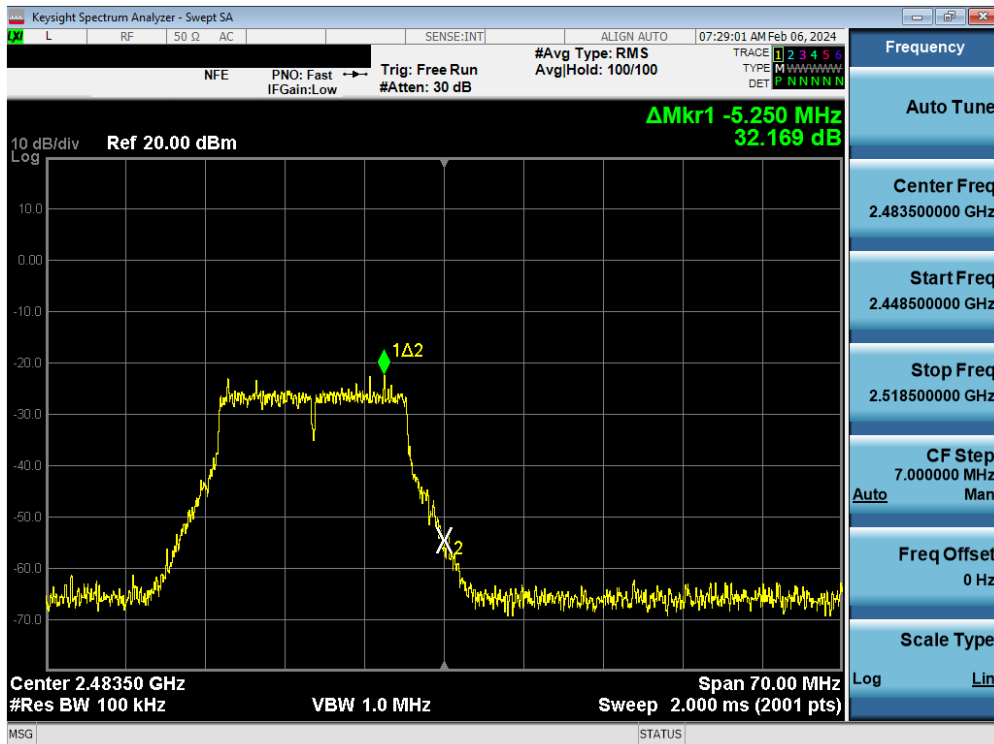


Plot 7-144. Band Edge Plot MIMO ANT2 (802.11n (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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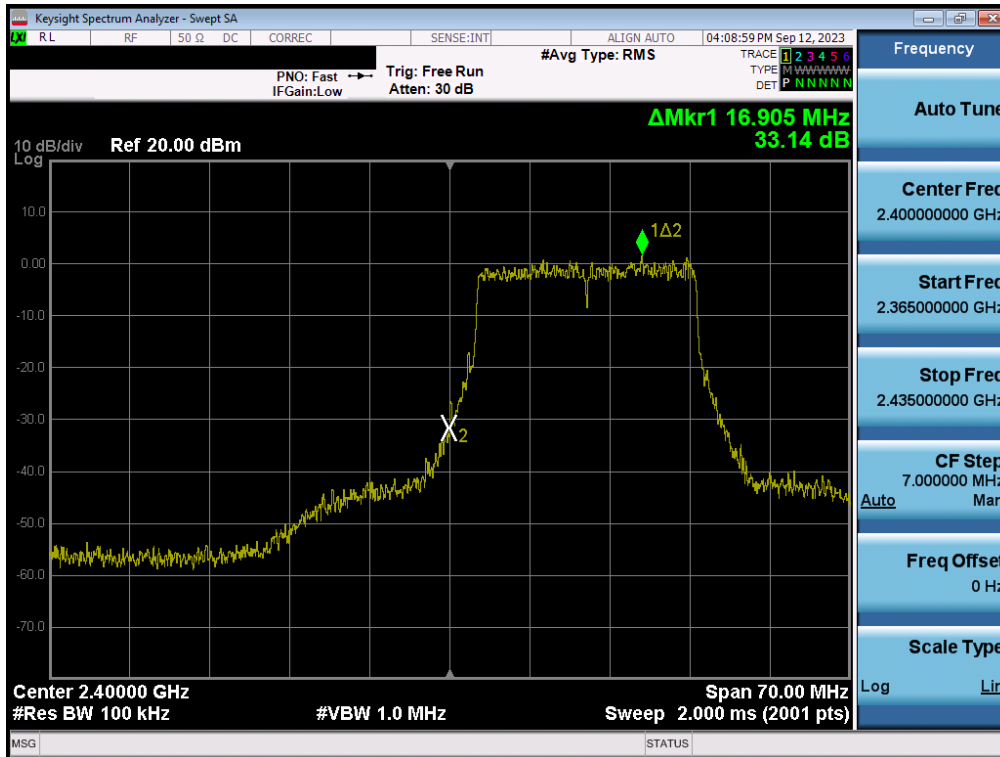


Plot 7-145. Band Edge Plot MIMO ANT2 (802.11n (2.4GHz) – Ch. 12)

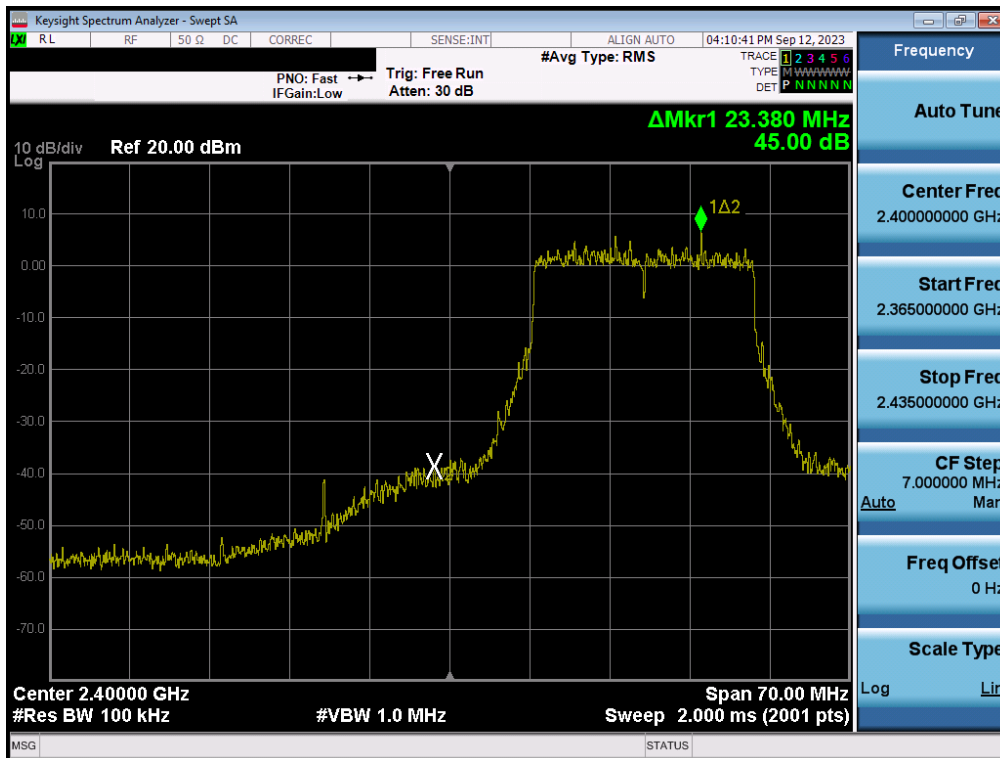


Plot 7-146. Band Edge Plot MIMO ANT2 (802.11n (2.4GHz) – Ch. 13)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-147. Band Edge Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 1)

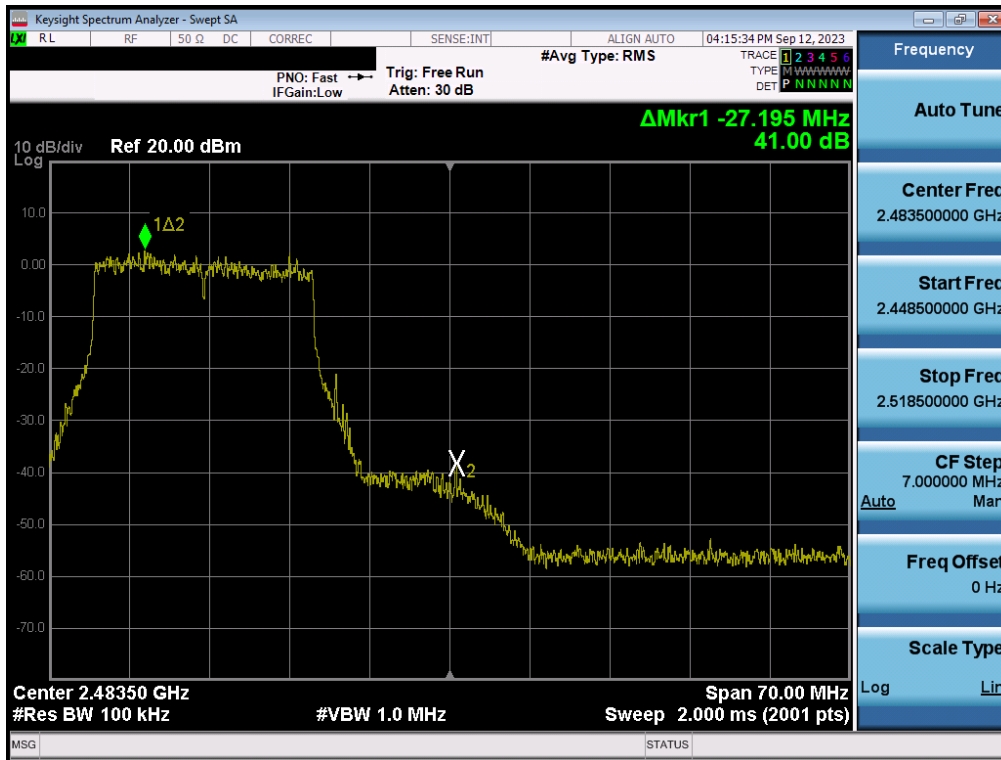


Plot 7-148. Band Edge Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 2)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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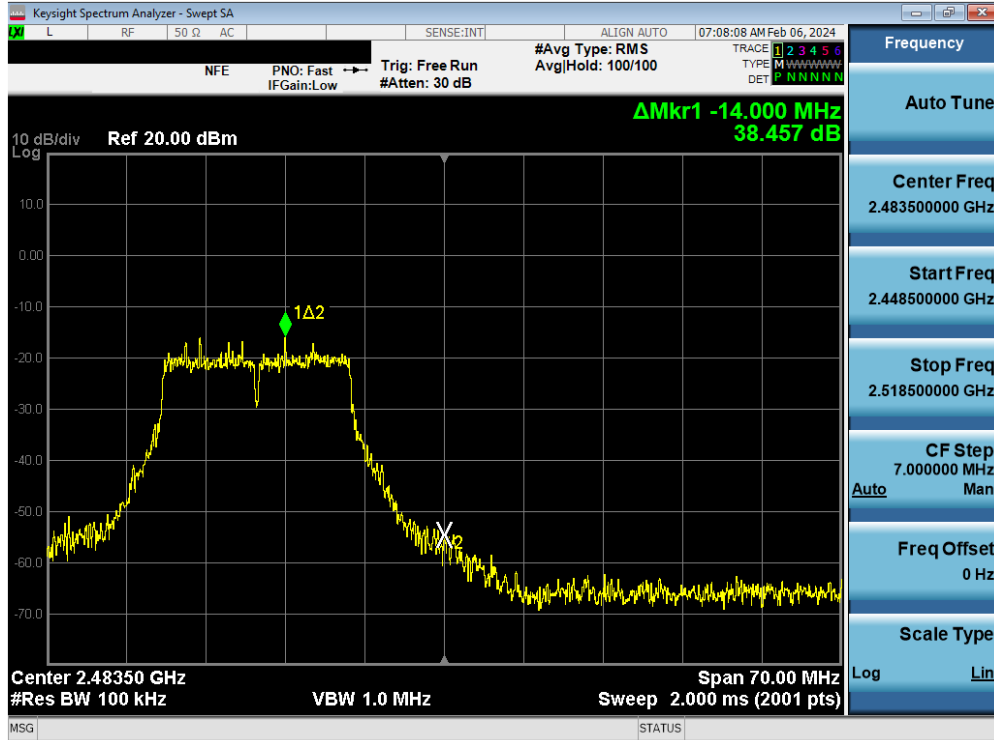


Plot 7-149. Band Edge Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 10)

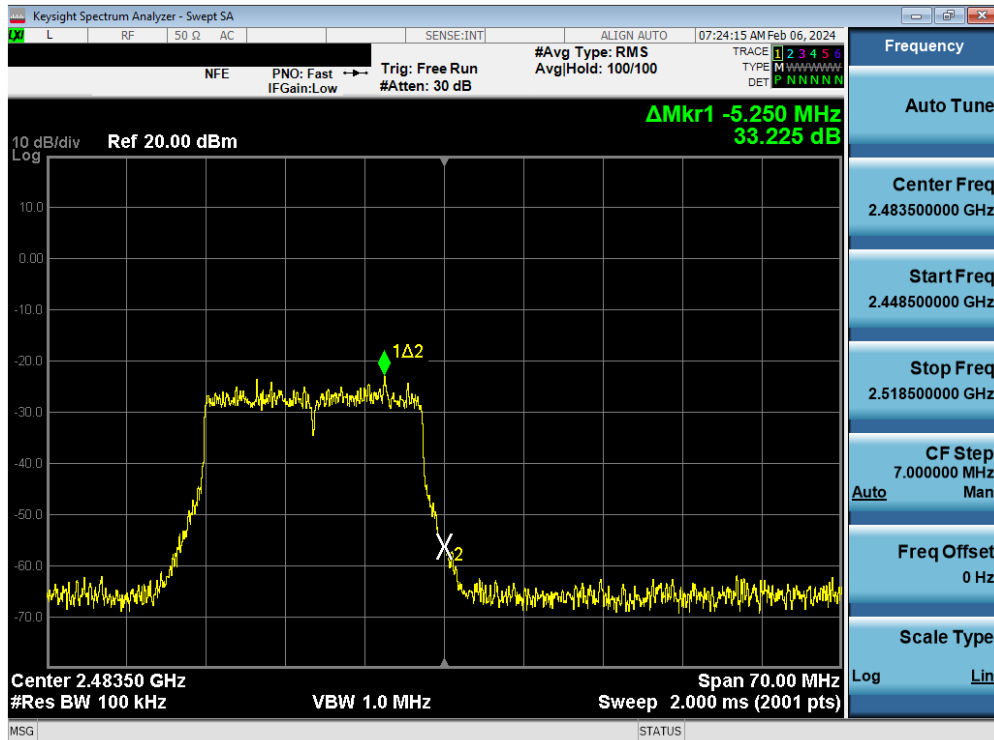


Plot 7-150. Band Edge Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-151. Band Edge Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 11)



Plot 7-152. Band Edge Plot MIMO ANT2 (802.11be (2.4GHz) – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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7.6 Conducted Spurious Emissions

Test Overview and Limit

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. For the following out of band conducted spurious emissions plots, the EUT was investigated in all available data rates for “b”, “g”, “n”, “ax” modes. The worst-case spurious emissions for the 2.4GHz band were found while transmitting in “b” mode at 1 Mbps and are shown in the plots below.

The limit for out-of-band spurious emissions at the band edge is 30dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the procedure in Section 11.11.3 of ANSI C63.10-2013.

Test Procedure Used

ANSI C63.10-2013 – Section 11.11.3
ANSI C63.10-2013 – Section 14.3.3

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
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.



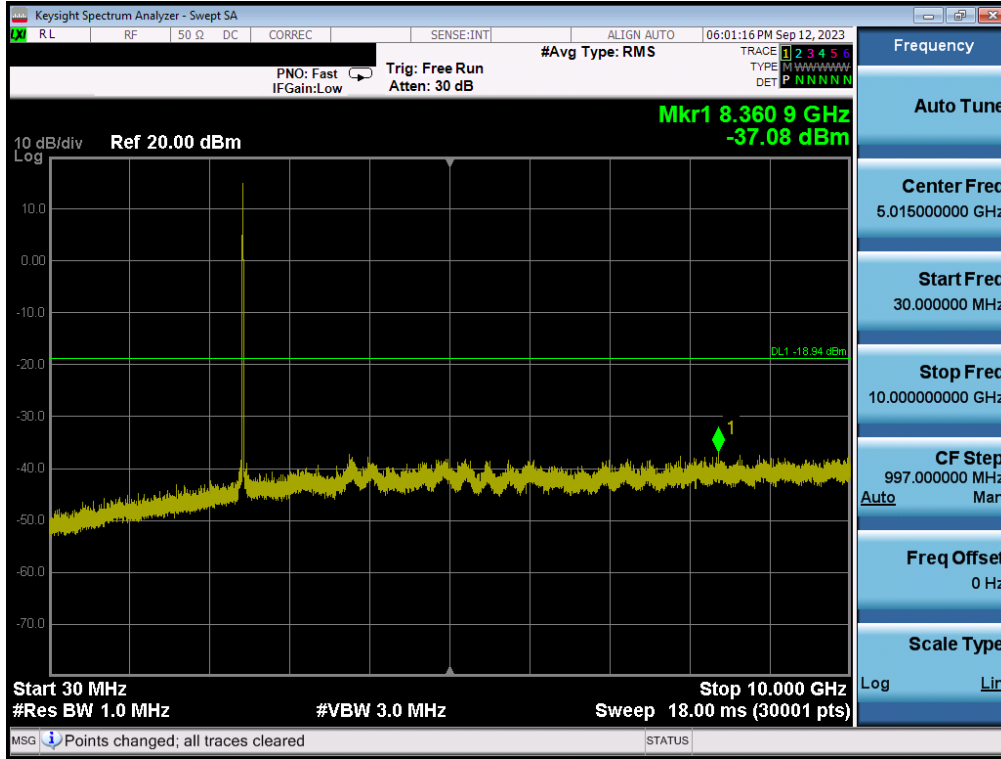
Figure 7-5. Test Instrument & Measurement Setup

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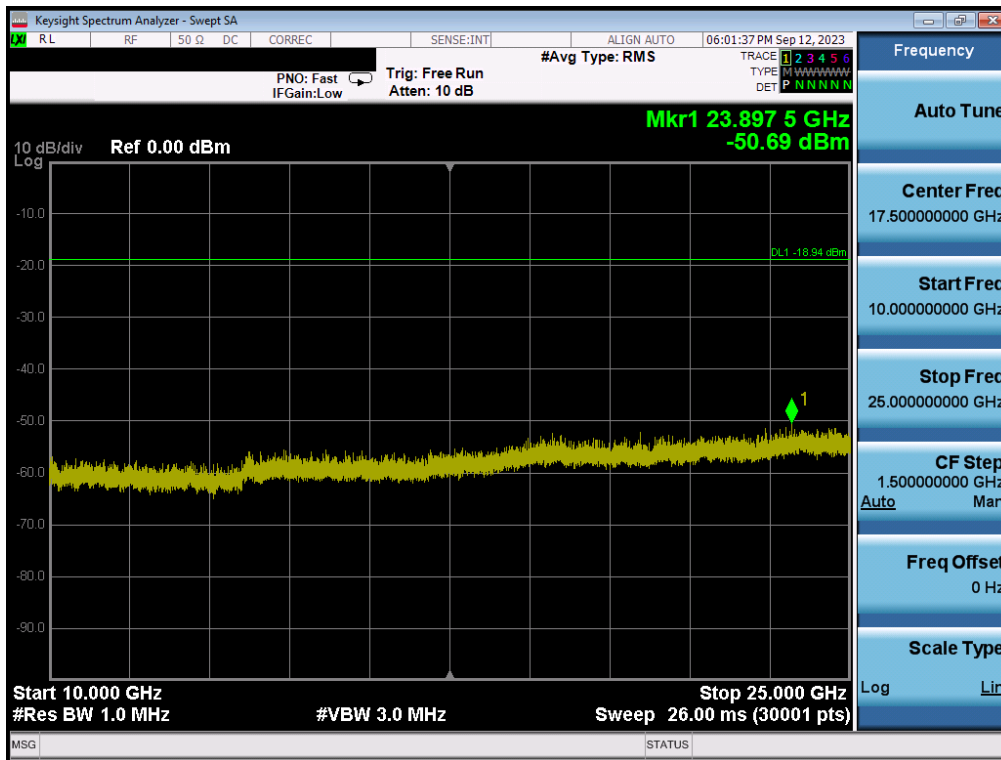
Test Notes

1. RBW was set to 1MHz rather than 100kHz in order to increase the measurement speed.
2. The display line shown in the following plots denotes the limit at 30dB below the fundamental emission level measured in a 100kHz bandwidth. However, since the traces in the following plots are measured with a 1MHz RBW, the display line may not necessarily appear to be 30dB below the level of the fundamental in a 1MHz bandwidth.
3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.
4. The conducted spurious emissions were measured to relative limits. Therefore, in accordance with ANSI C63.10-2013 Section 14.3.3, it was unnecessary to show compliance through the summation of test results of the individual outputs.

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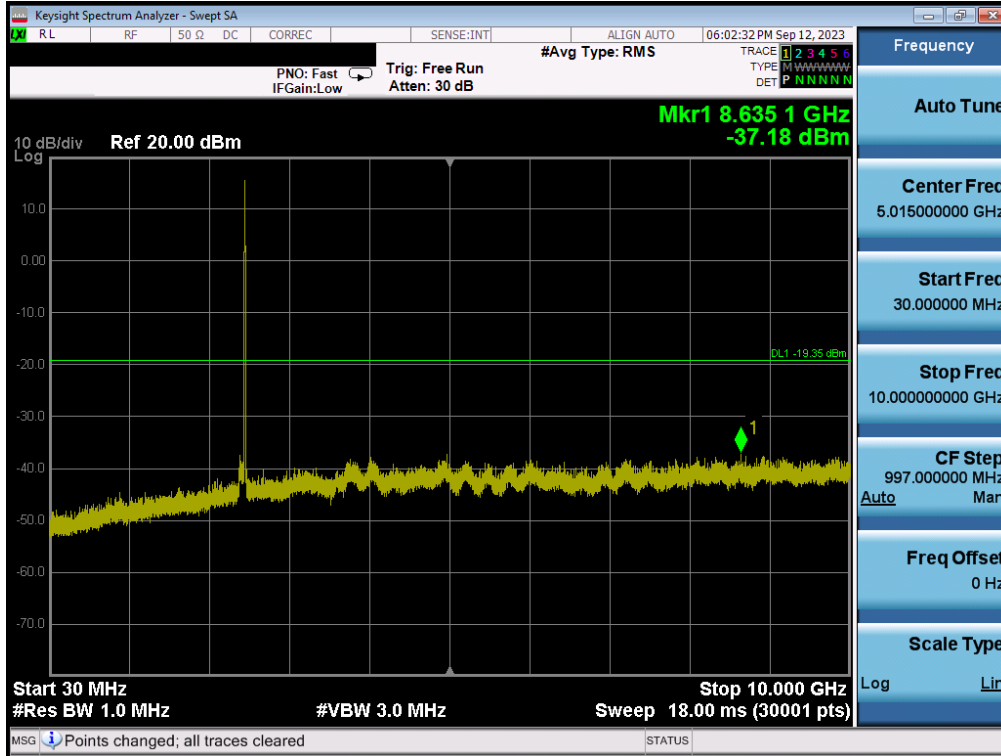


Plot 7-155. Conducted Spurious Plot SISO ANT1 (802.11b – Ch. 6)

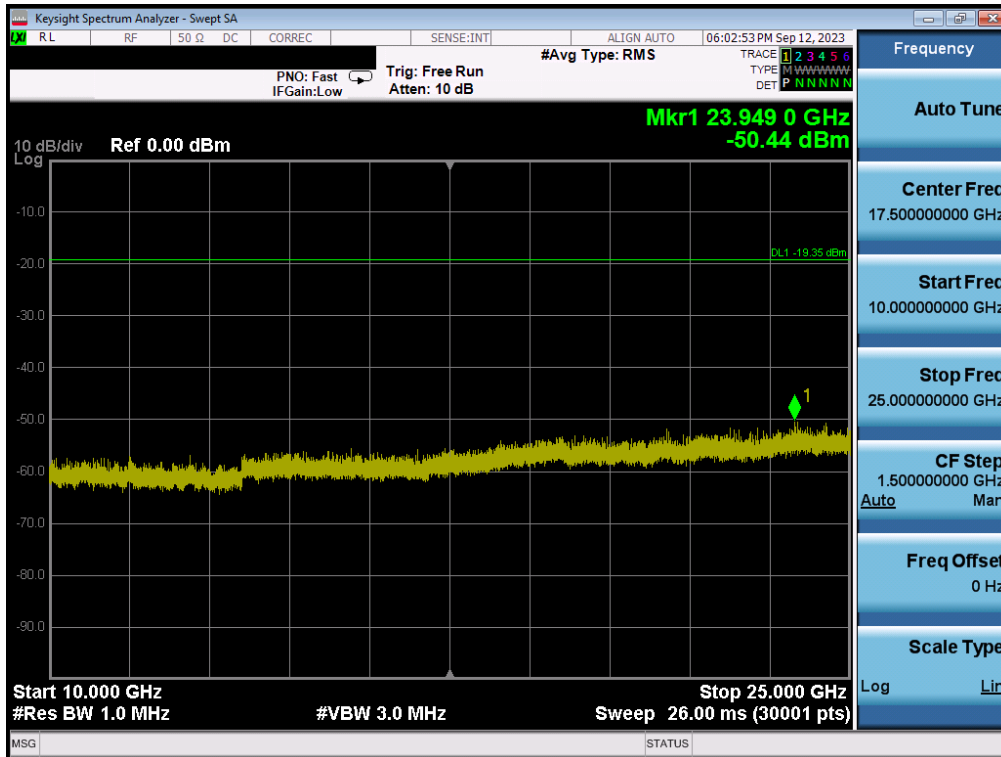


Plot 7-156. Conducted Spurious Plot SISO ANT1 (802.11b – Ch. 6)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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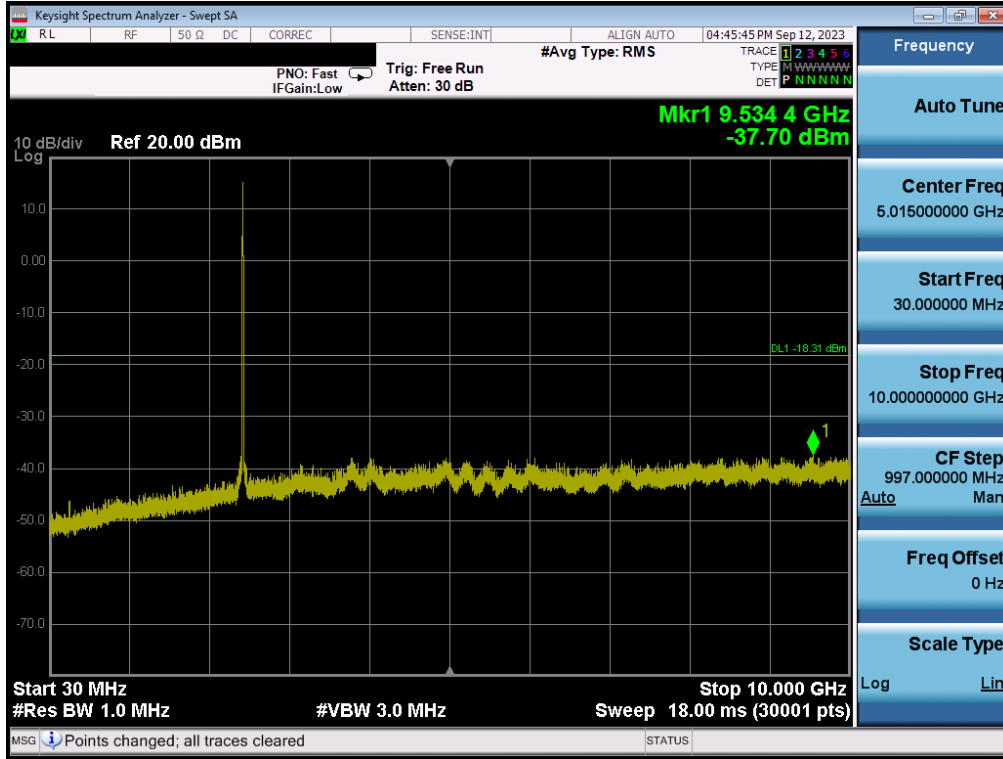


Plot 7-157. Conducted Spurious Plot SISO ANT1 (802.11b – Ch. 11)

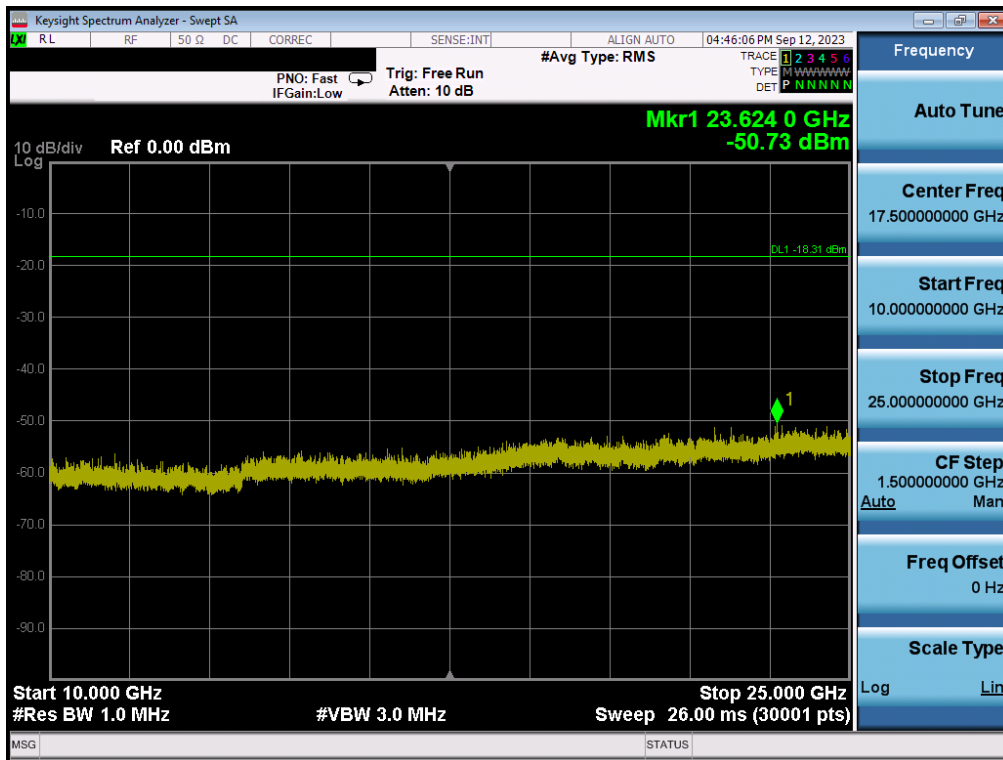


Plot 7-158. Conducted Spurious Plot SISO ANT1 (802.11b – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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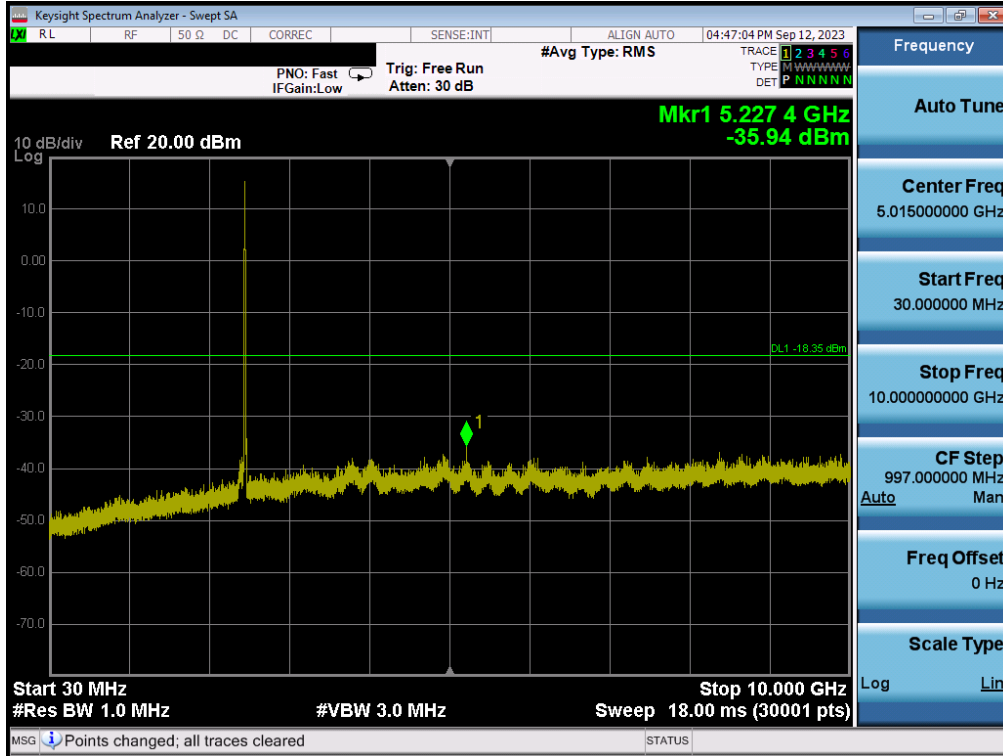


Plot 7-161. Conducted Spurious Plot SISO ANT2 (802.11b – Ch. 6)

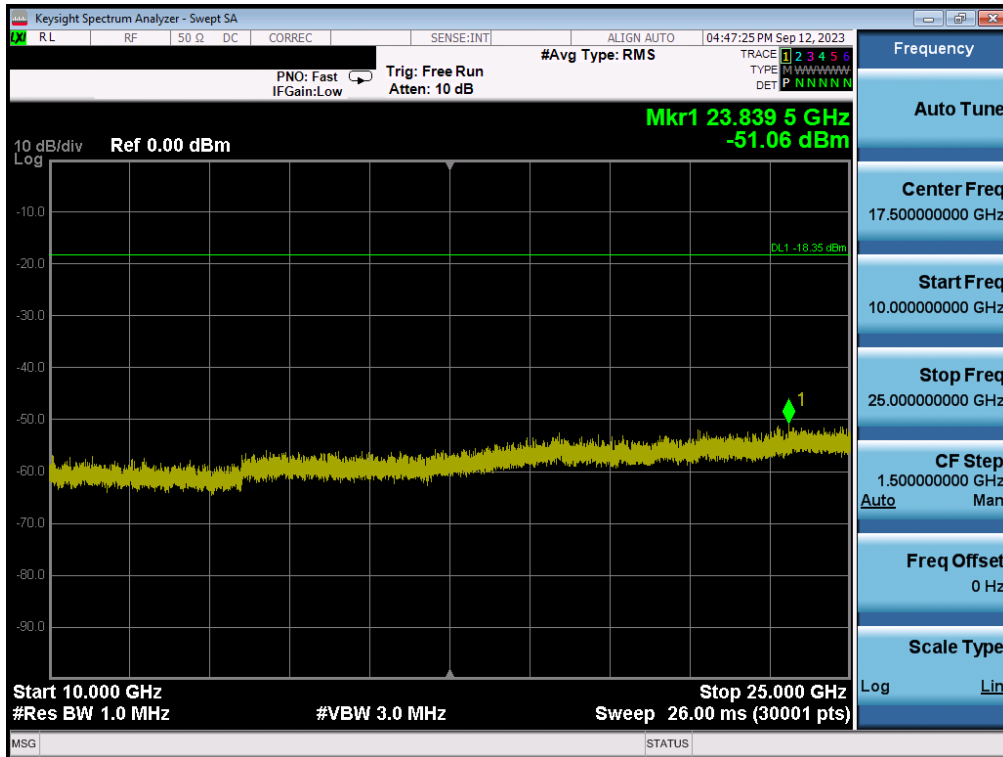


Plot 7-162. Conducted Spurious Plot SISO ANT2 (802.11b – Ch. 6)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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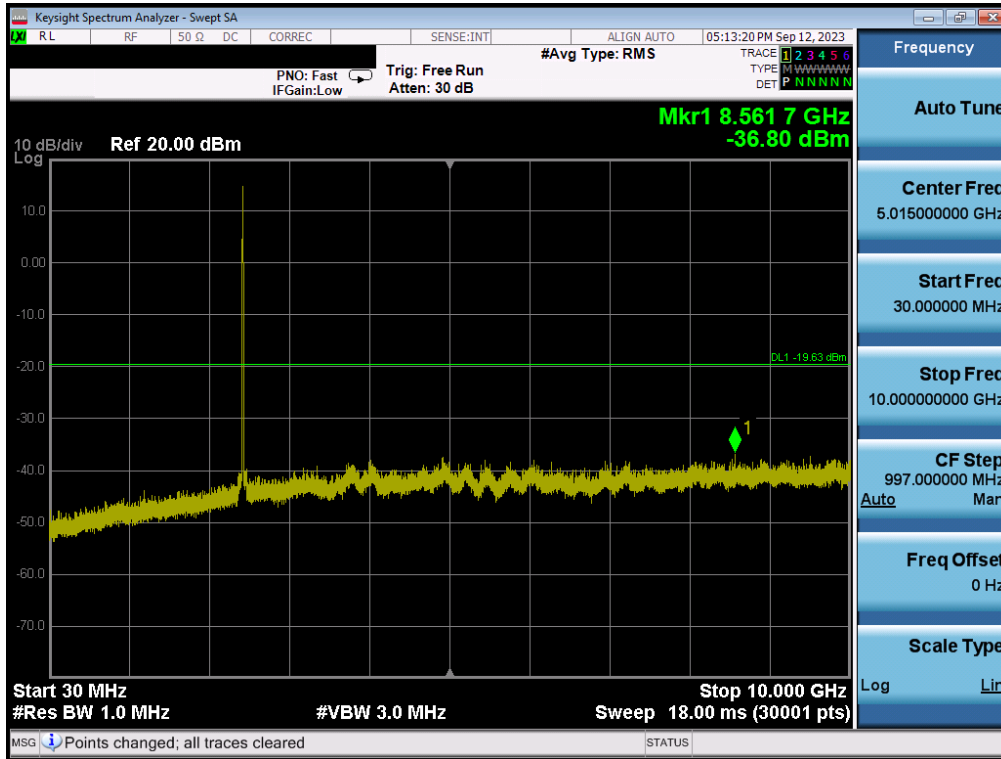


Plot 7-163. Conducted Spurious Plot SISO ANT2 (802.11b – Ch. 11)

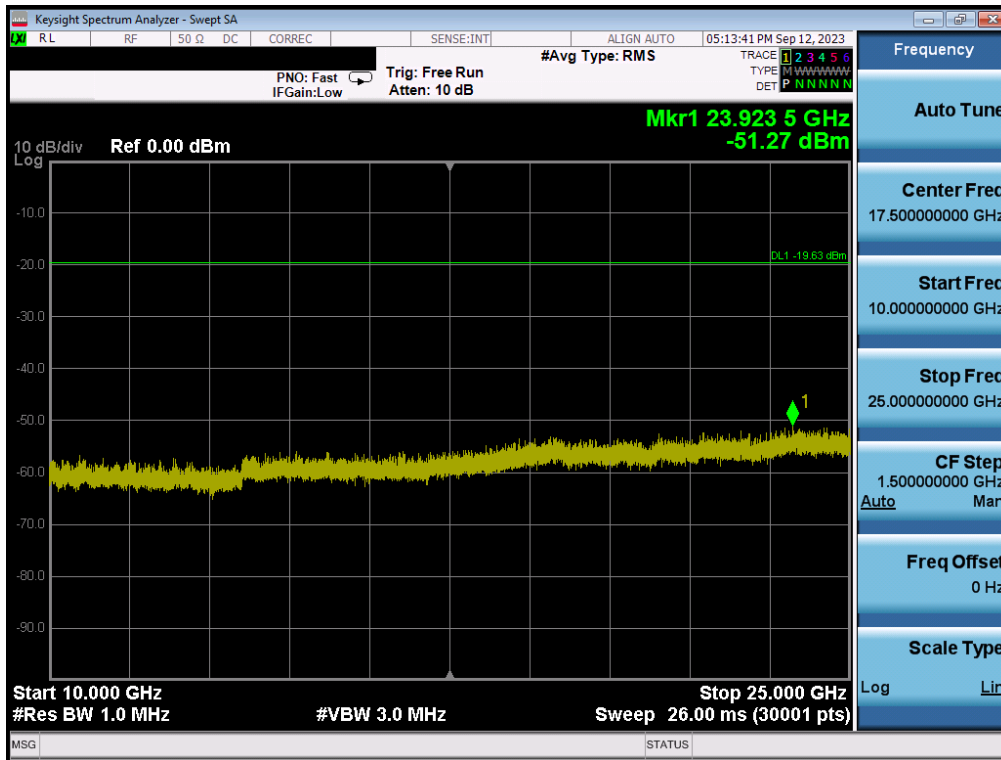


Plot 7-164. Conducted Spurious Plot SISO ANT2 (802.11b – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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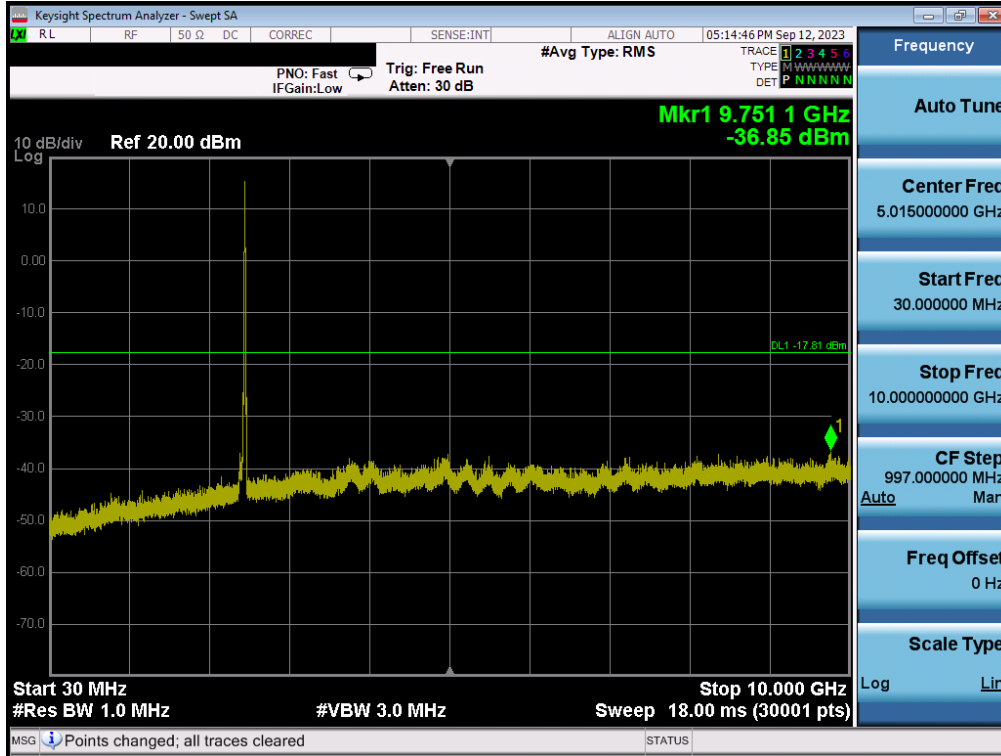


Plot 7-167. Conducted Spurious Plot MIMO ANT1 (802.11b – Ch. 6)

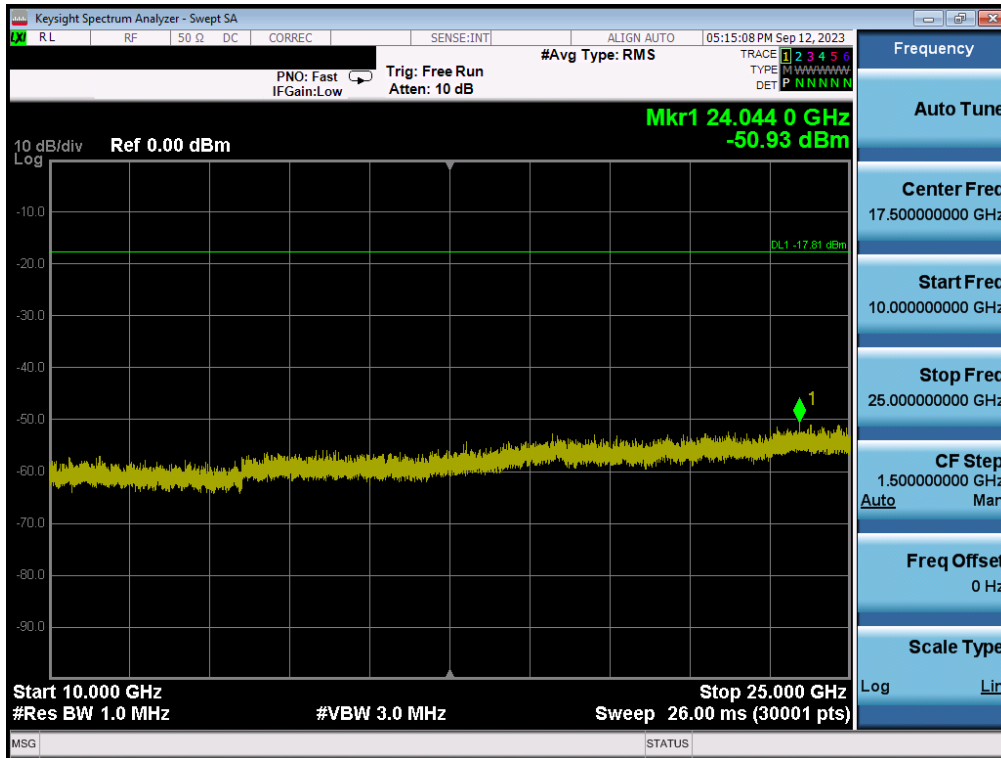


Plot 7-168. Conducted Spurious Plot MIMO ANT1 (802.11b – Ch. 6)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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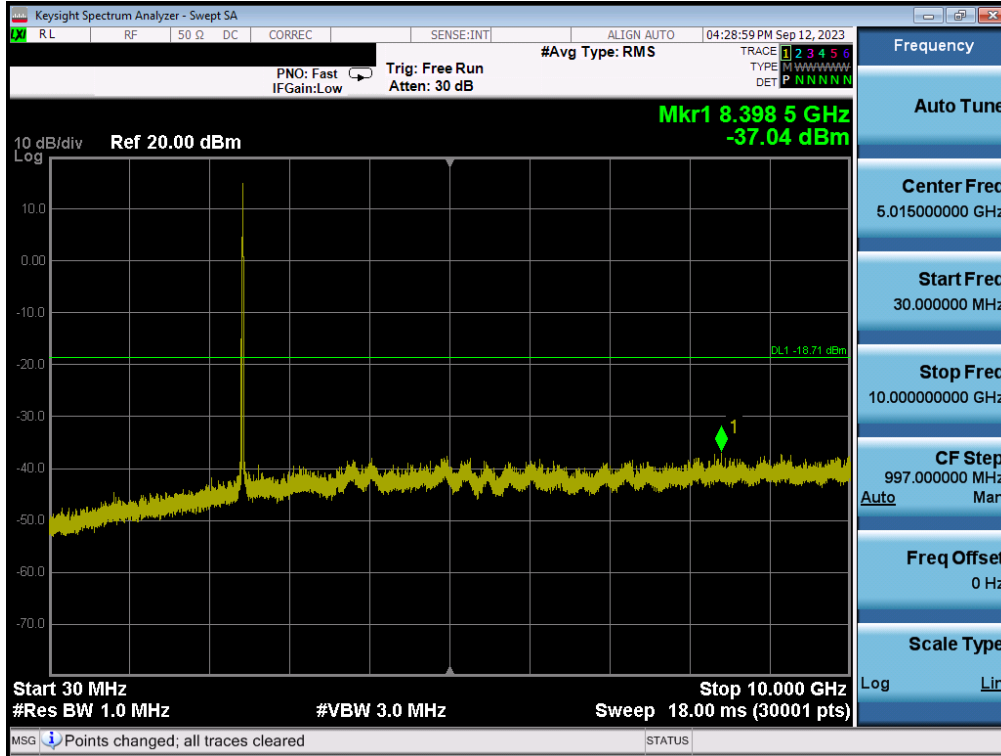


Plot 7-169. Conducted Spurious Plot MIMO ANT1 (802.11b – Ch. 11)

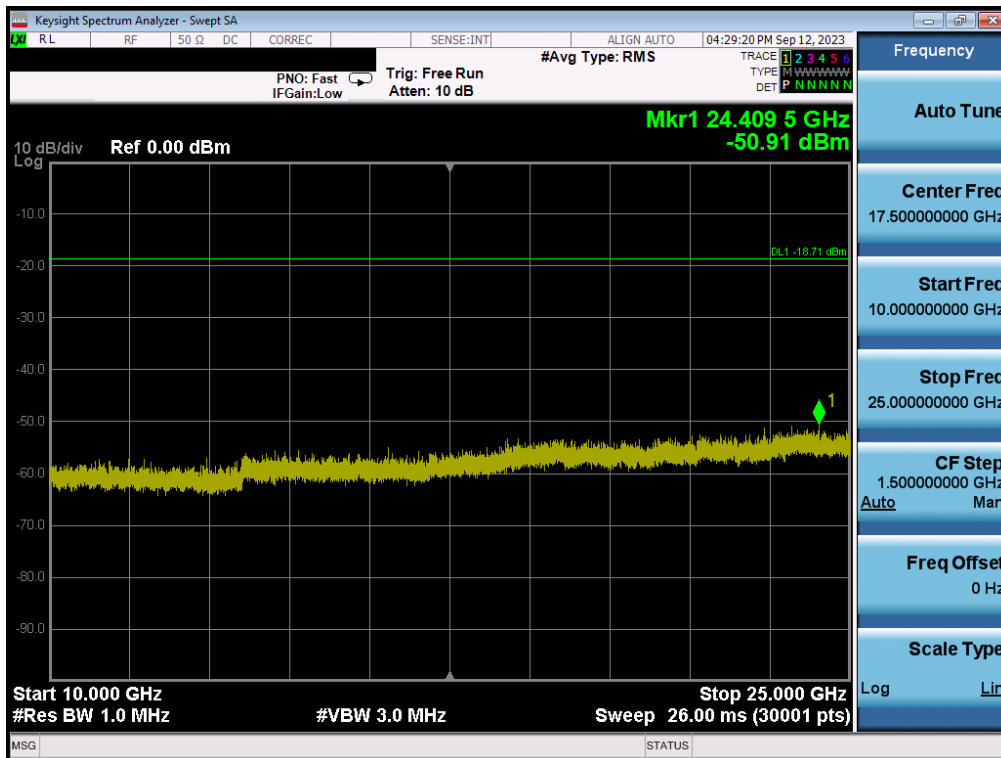


Plot 7-170. Conducted Spurious Plot MIMO ANT1 (802.11b – Ch. 11)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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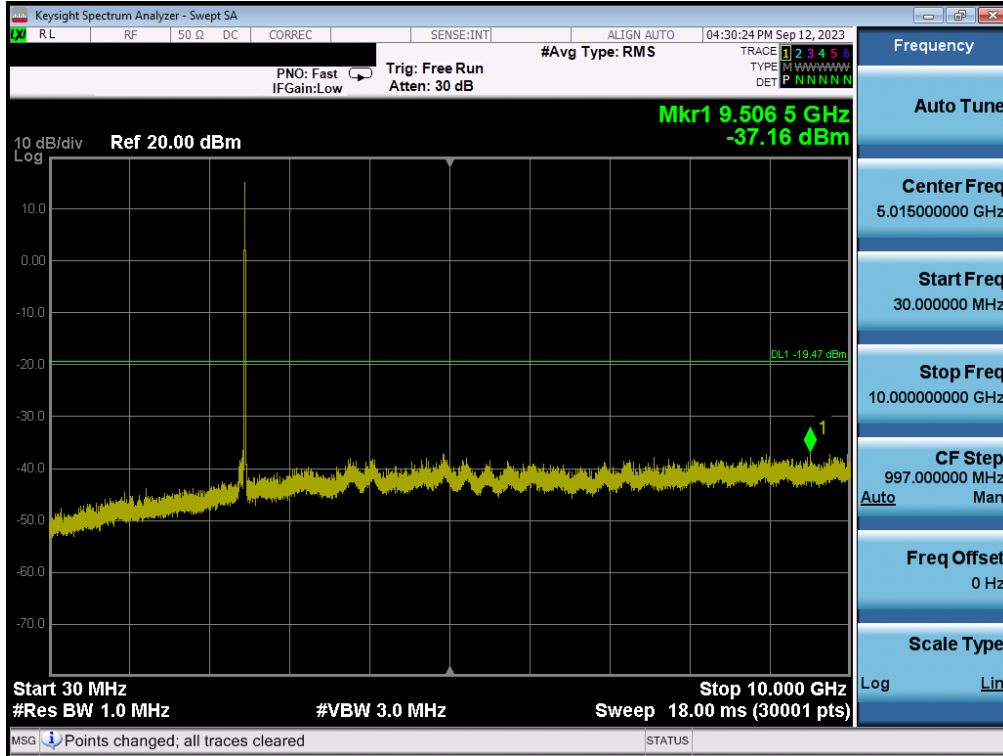


Plot 7-173. Conducted Spurious Plot MIMO ANT2 (802.11b – Ch. 6)

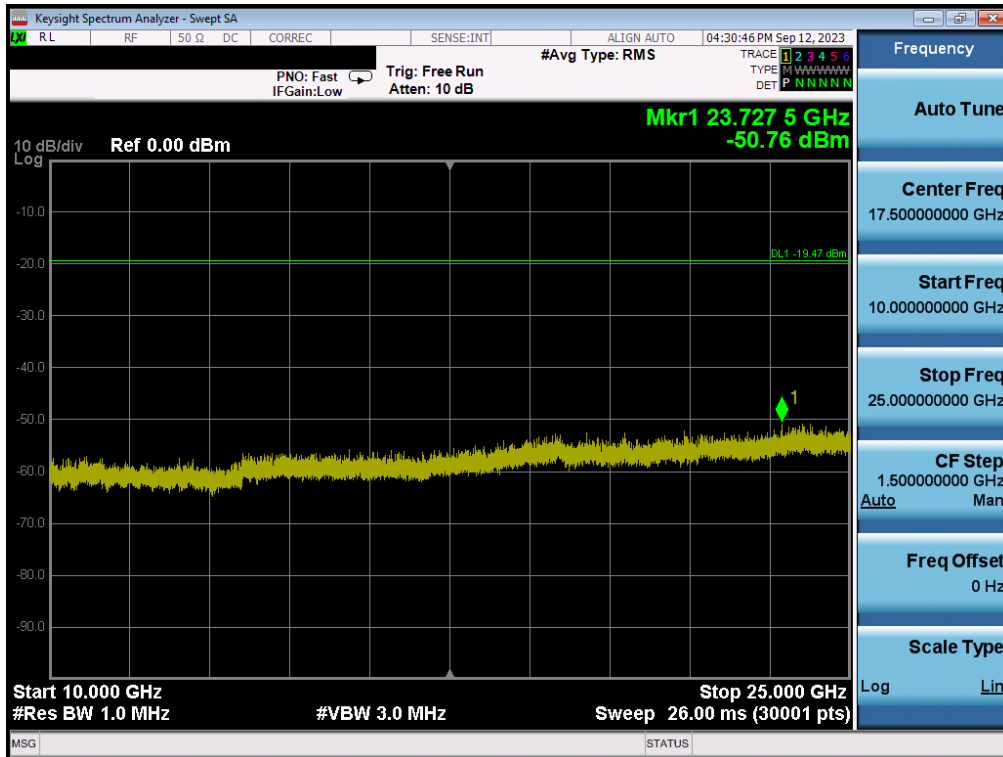


Plot 7-174. Conducted Spurious Plot MIMO ANT2 (802.11b – Ch. 6)

FCC ID: A3LSMS928JPN	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-175. Conducted Spurious Plot MIMO ANT2 (802.11b – Ch. 11)



Plot 7-176. Conducted Spurious Plot MIMO ANT2 (802.11b – Ch. 11)

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7.7 Radiated Emission Measurements

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 FCC §15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown FCC §15.209 and RSS-Gen (8.9).

Frequency	Field Strength [$\mu\text{V/m}$]	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 7-13. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Section 6.6.4.3

Test Settings – Above 1GHz

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be $\geq 2 \times \text{span} \backslash \backslash \text{RBW}$)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces

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Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Test Settings – Below 1GHz

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

Test Setup

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

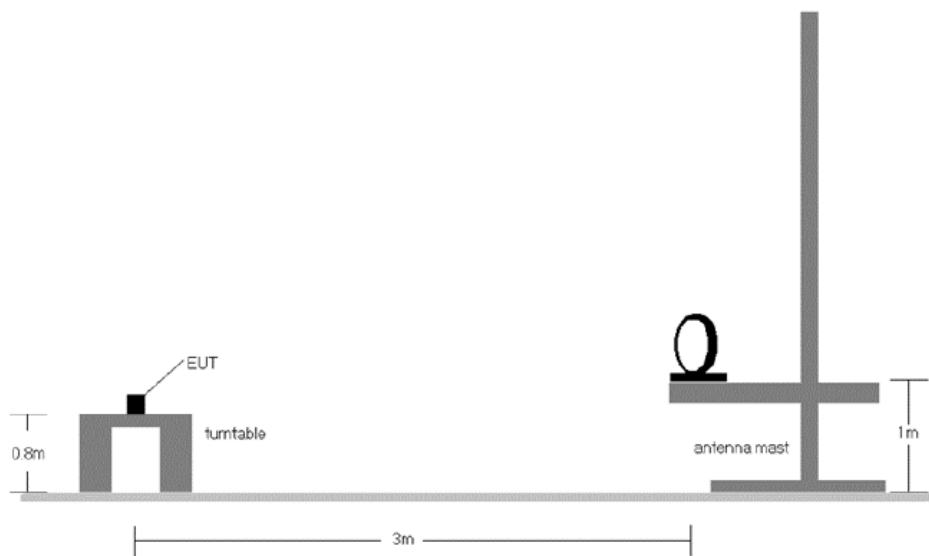


Figure 7-6. Radiated Test Setup < 30MHz

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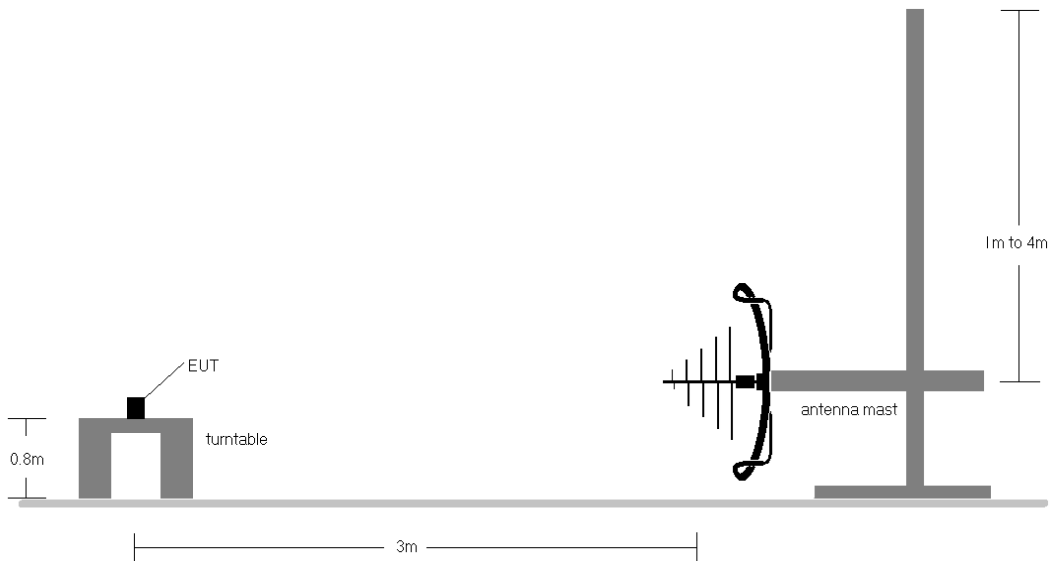


Figure 7-7. Radiated Test Setup < 1GHz

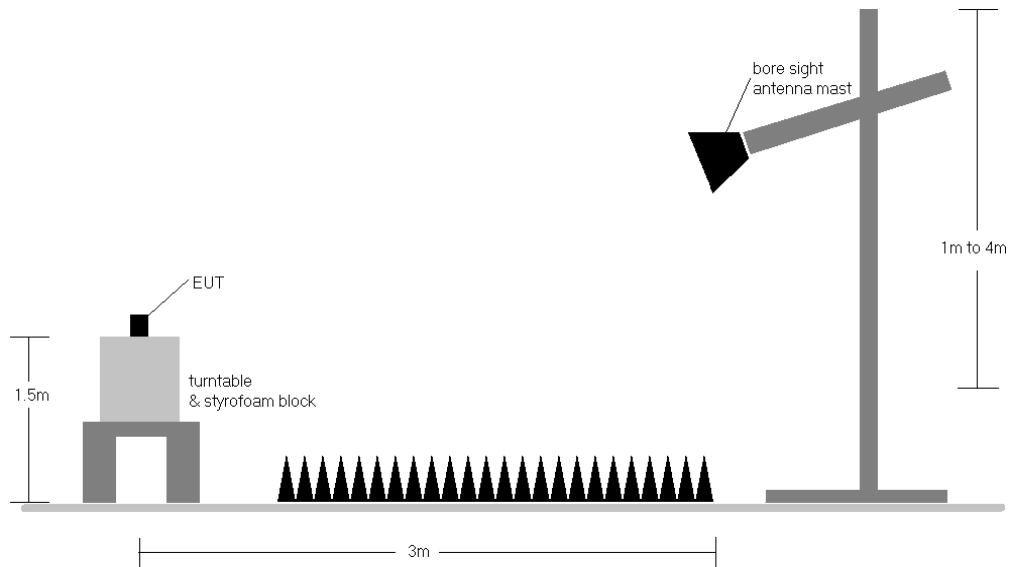


Figure 7-8. Radiated Test Setup > 1GHz

Test Notes

1. The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of ANSI C63.10-2013 Section 11.3 were not used to evaluate this device for compliance to radiated limits. All radiated spurious emissions levels were measured in a radiated test setup.
2. 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.

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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 of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. 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.
8. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
9. 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.
10. No spurious emissions were detected within 20dB of the limit below 30MHz.
11. The results recorded using the broadband antenna are 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.
12. 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.

Sample Calculations

Determining Spurious Emissions Levels

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

Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 7.7 was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamp Gain

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