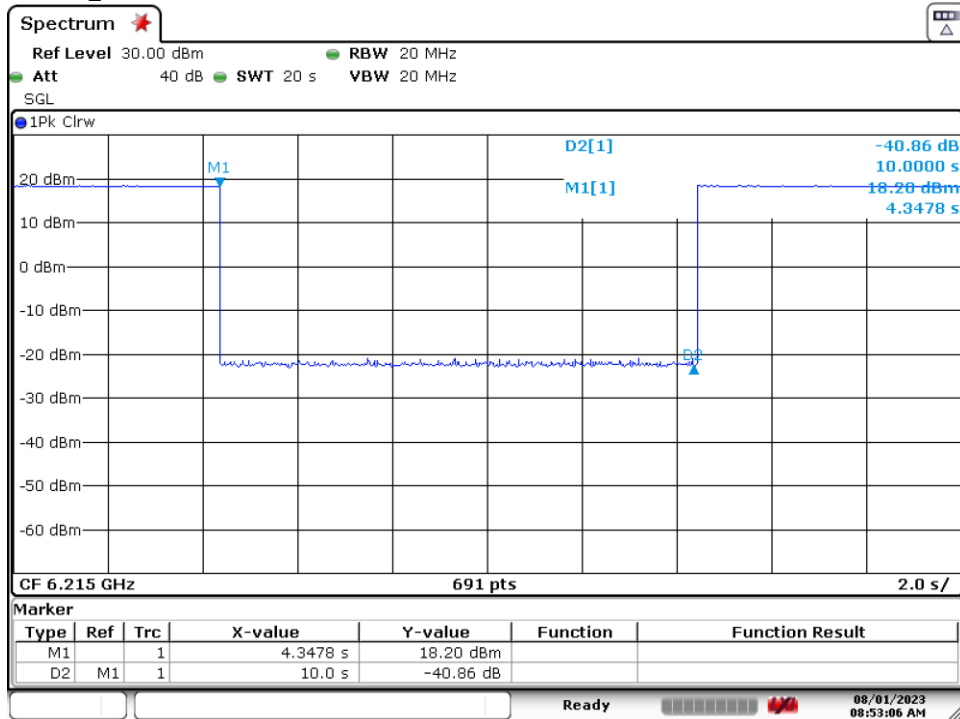
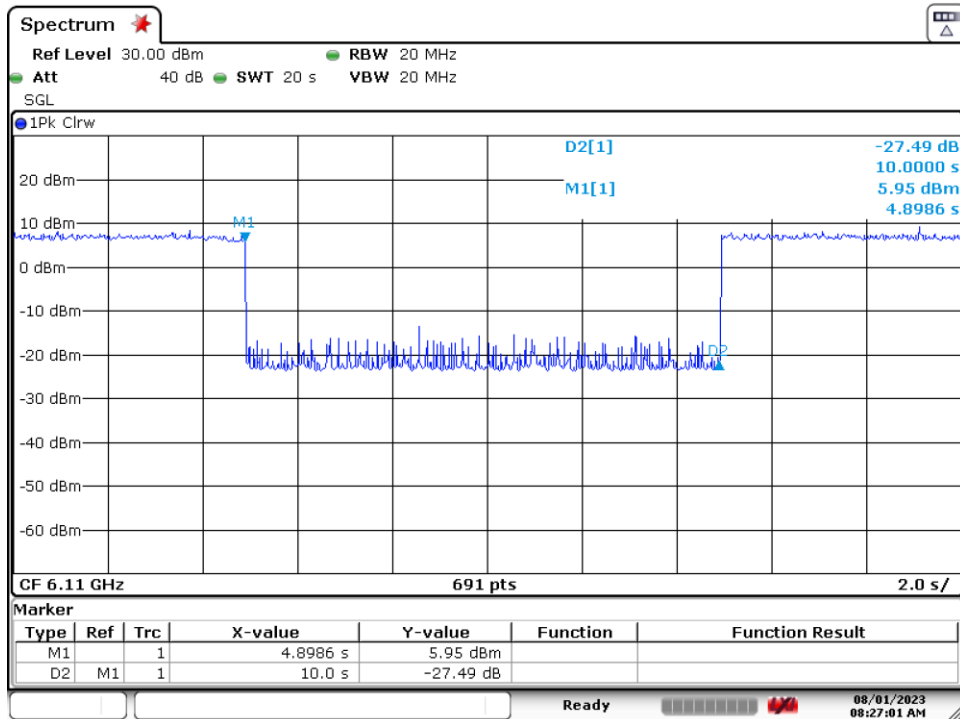


7.6.2 CBP Timing Plots

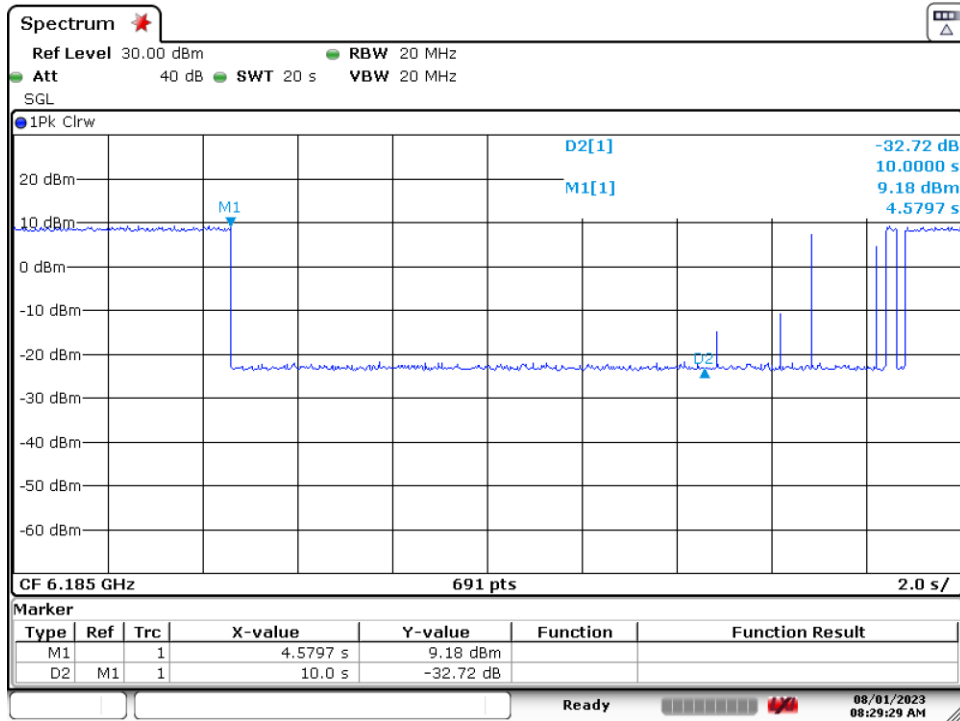


Date: 1.AUG.2023 08:53:07



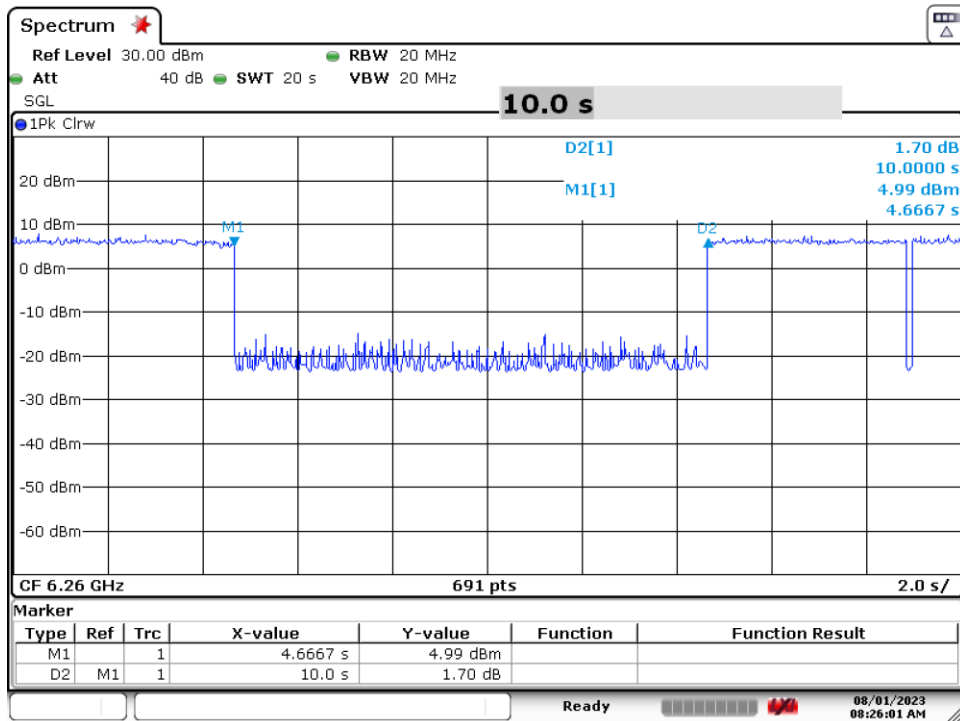
Date: 1.AUG.2023 08:27:01

FCC ID: A3LSMS711U			MEASUREMENT REPORT		Approved by: Technical Manager
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Date: 1.AUG.2023 08:29:30

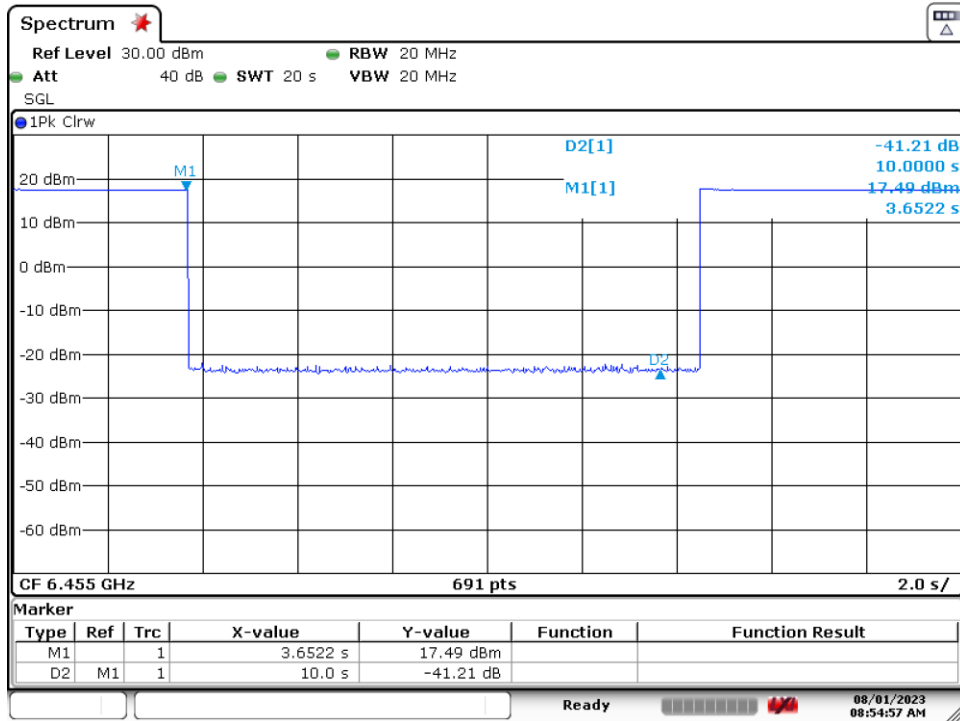
Plot 7-124. Contention Based Protocol Timing Plot (160MHz (UNII Band 5) – Ch. 47 Mid)



Date: 1.AUG.2023 08:26:01

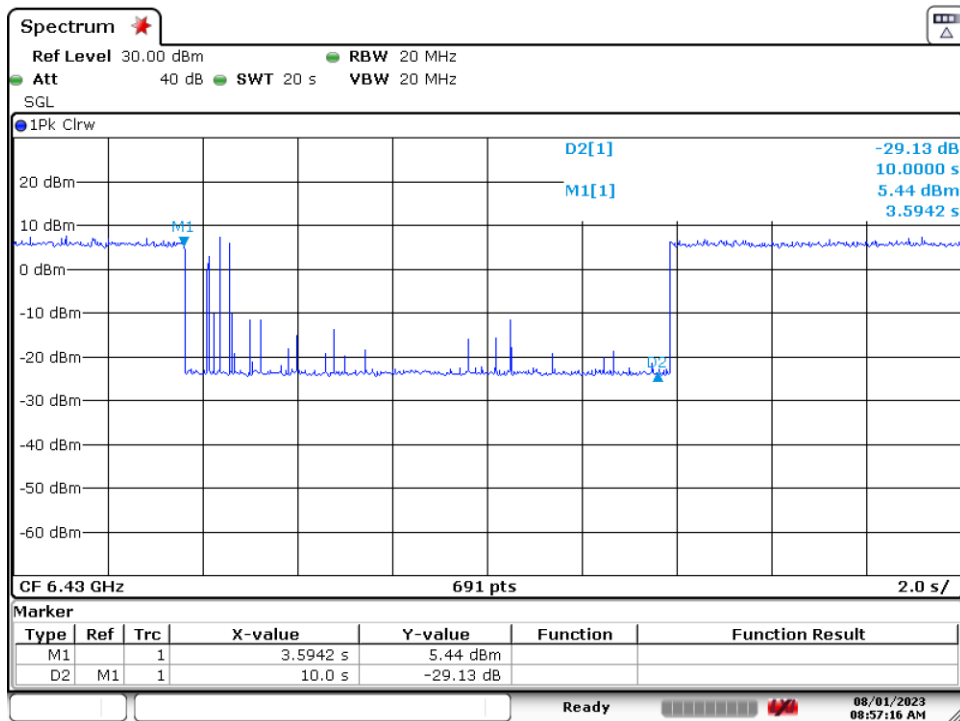
Plot 7-125. Contention Based Protocol Timing Plot (160MHz (UNII Band 5) – Ch. 47 High)

FCC ID: A3LSMS711U		MEASUREMENT REPORT		Approved by: Technical Manager
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Date: 1.AUG.2023 08:54:57

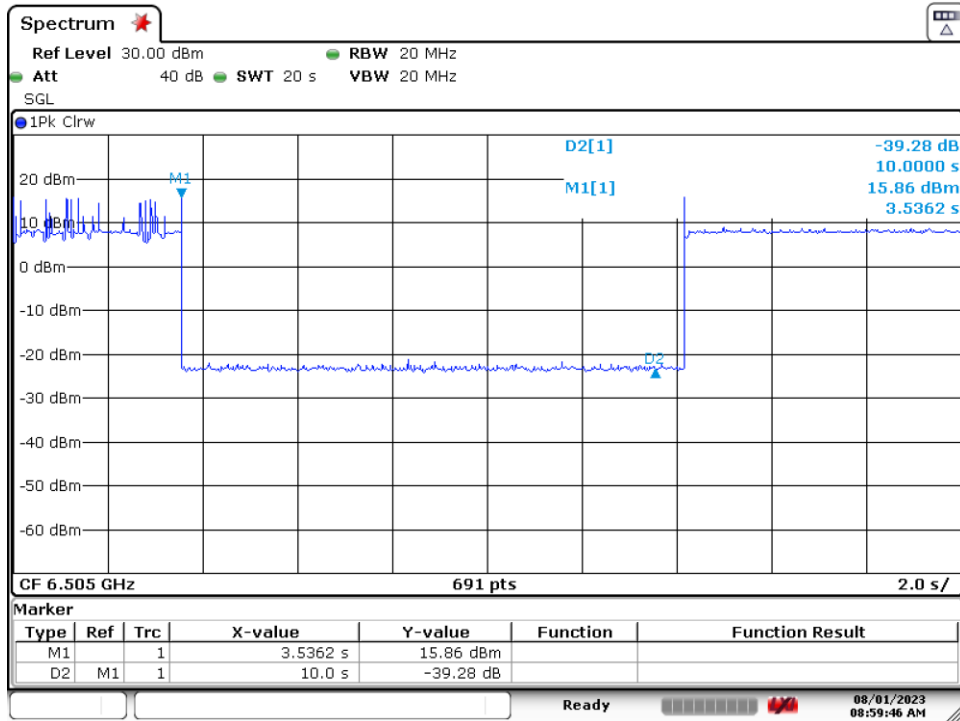
Plot 7-126. Contention Based Protocol Timing Plot (20MHz (UNII Band 6) – Ch. 101)



Date: 1.AUG.2023 08:57:16

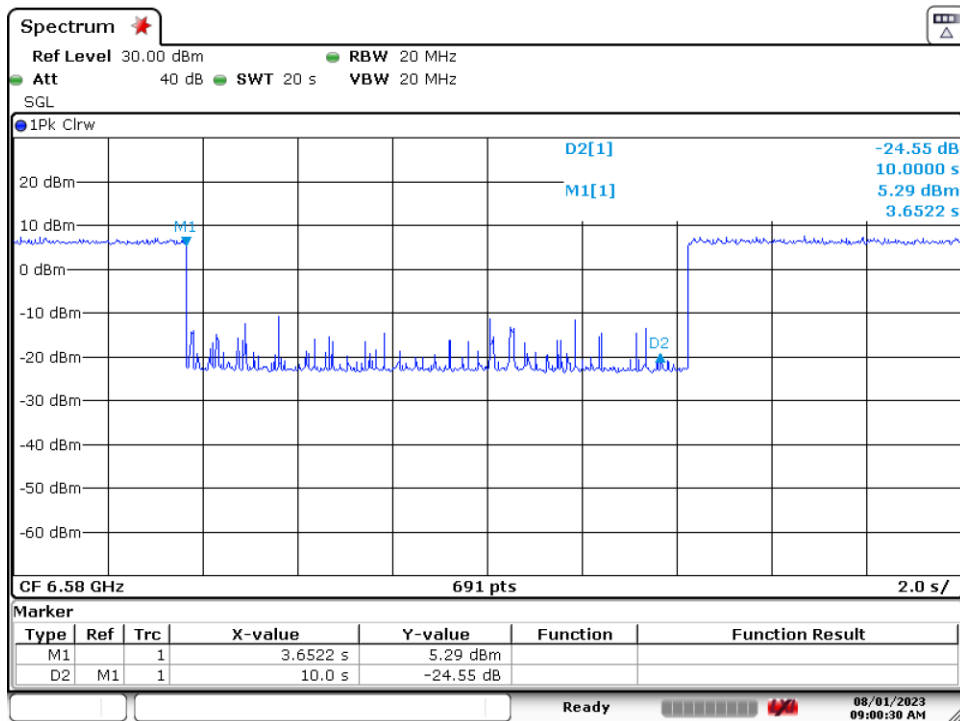
Plot 7-127. Contention Based Protocol Timing Plot (160MHz (UNII Band 6) – Ch. 111 Low)

FCC ID: A3LSMS711U		MEASUREMENT REPORT		Approved by: Technical Manager
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Date: 1.AUG.2023 08:59:46

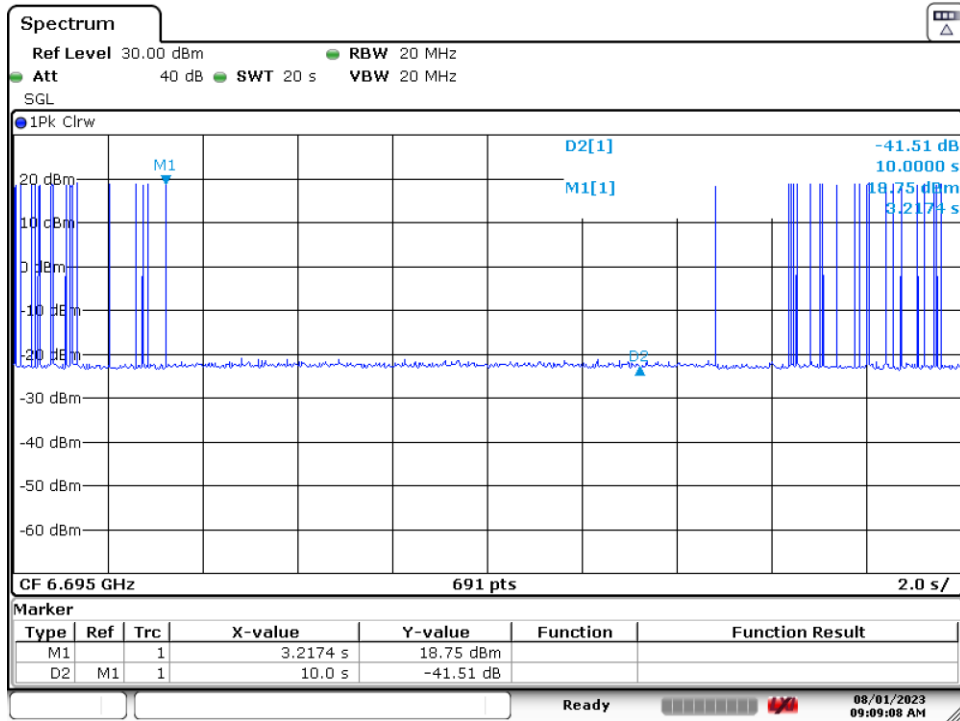
Plot 7-128. Contention Based Protocol Timing Plot (160MHz (UNII Band 6) – Ch. 111 Mid)



Date: 1.AUG.2023 09:00:30

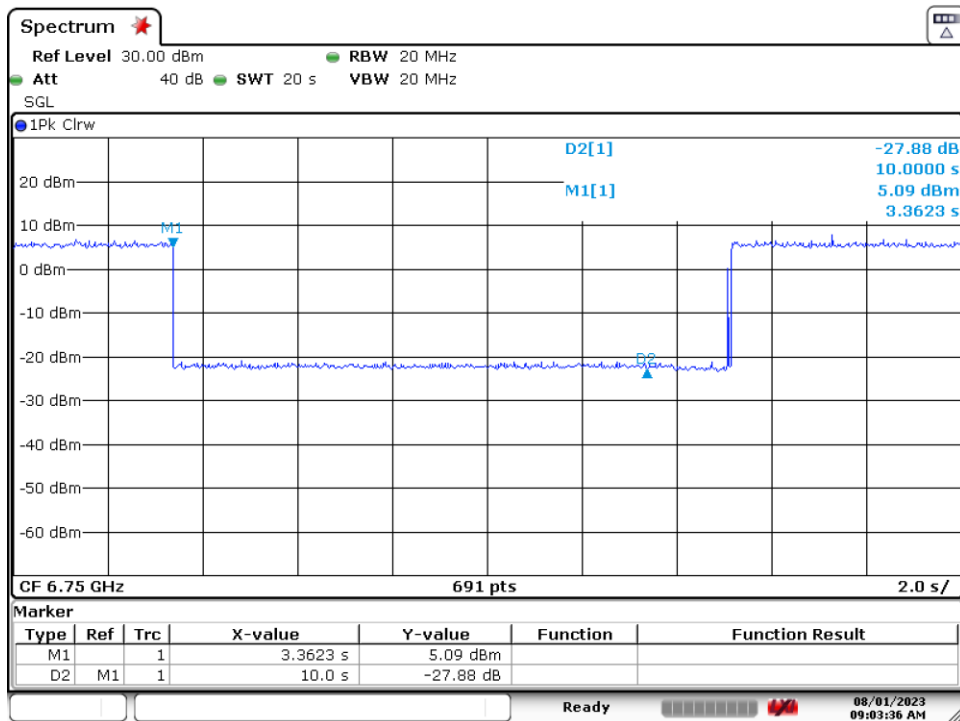
Plot 7-129. Contention Based Protocol Timing Plot (160MHz (UNII Band 6) – Ch. 111 High)

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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Date: 1.AUG.2023 09:09:07

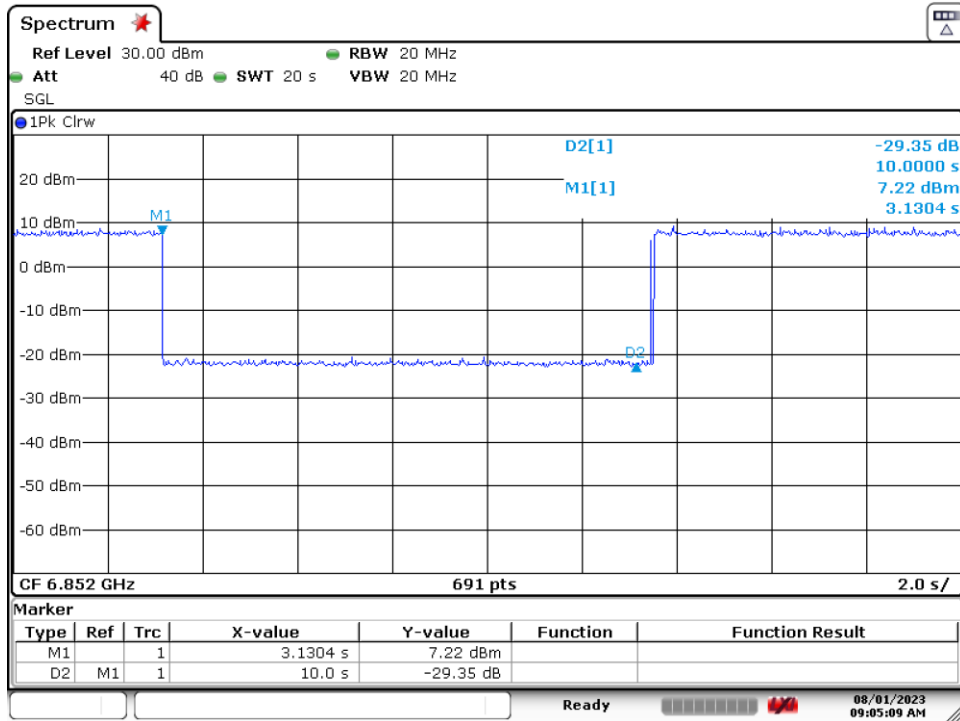
Plot 7-130. Contention Based Protocol Timing Plot (20MHz (UNII Band 7) – Ch. 149)



Date: 1.AUG.2023 09:03:36

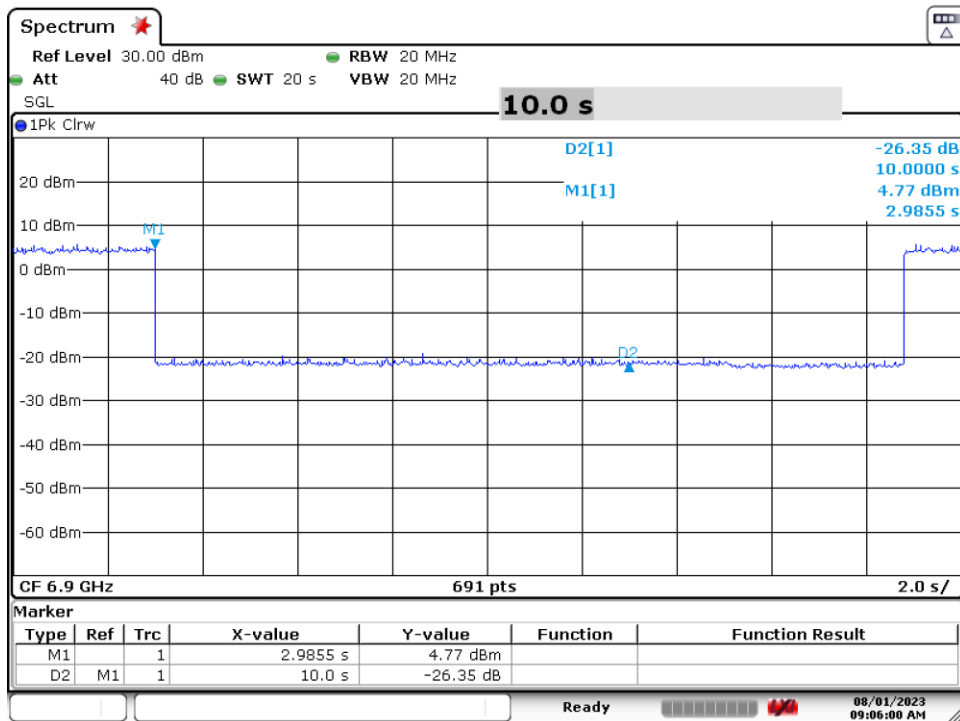
Plot 7-131. Contention Based Protocol Timing Plot (160MHz (UNII Band 7) – Ch. 175 Low)

FCC ID: A3LSMS711U		MEASUREMENT REPORT		Approved by: Technical Manager
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Date: 1.AUG.2023 09:05:09

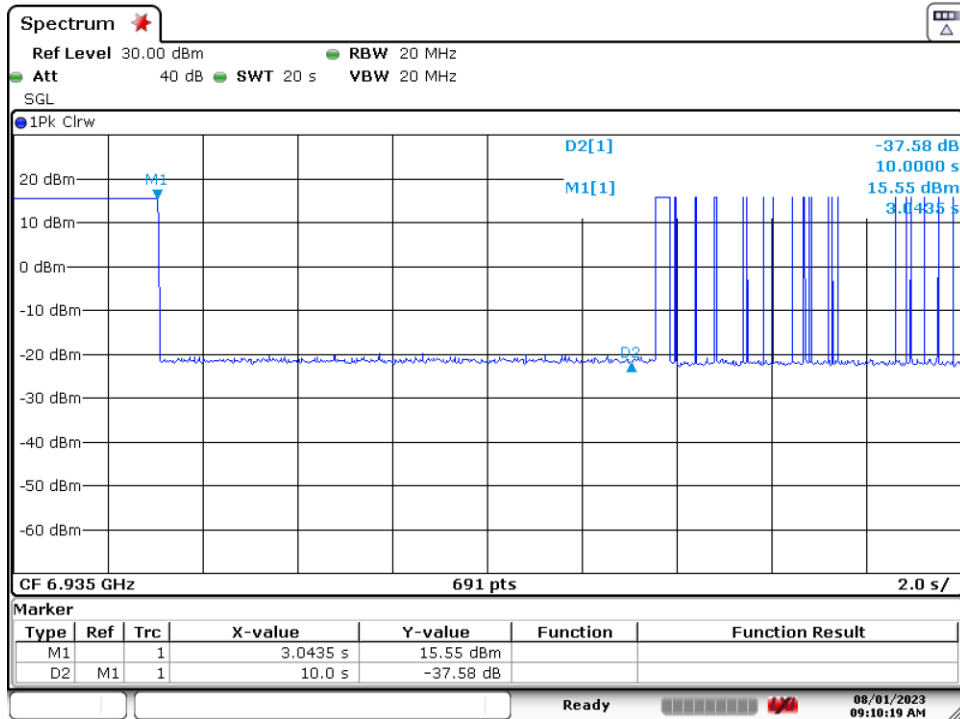
Plot 7-132. Contention Based Protocol Timing Plot (160MHz (UNII Band 7) – Ch. 175 Mid)



Date: 1.AUG.2023 09:06:00

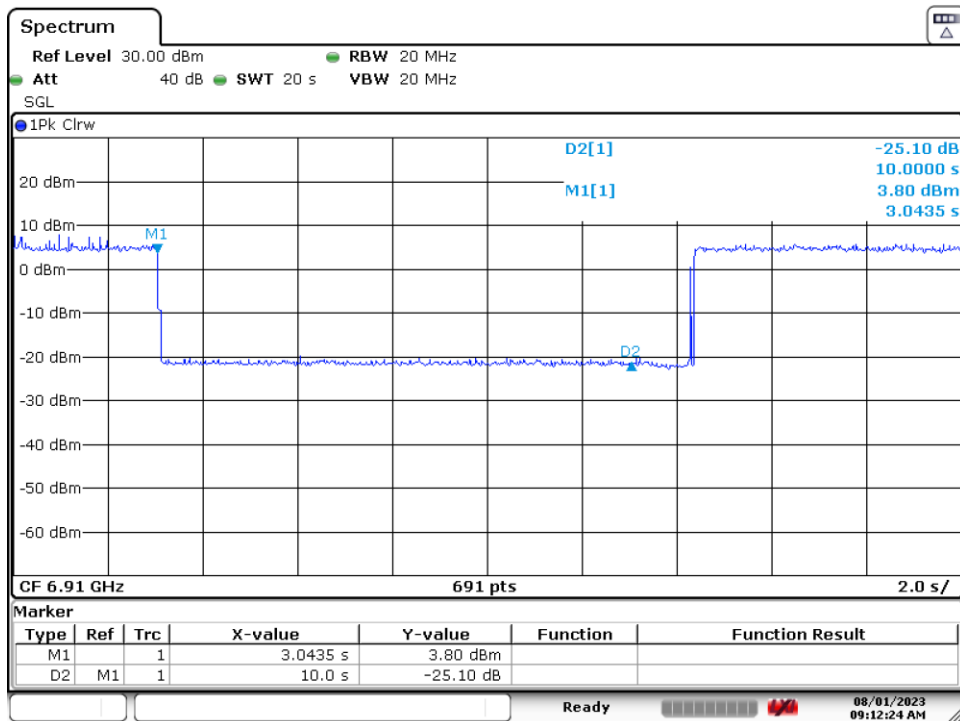
Plot 7-133. Contention Based Protocol Timing Plot (160MHz (UNII Band 7) – Ch. 175 High)

FCC ID: A3LSMS711U		MEASUREMENT REPORT		Approved by: Technical Manager
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Date: 1.AUG.2023 09:10:20

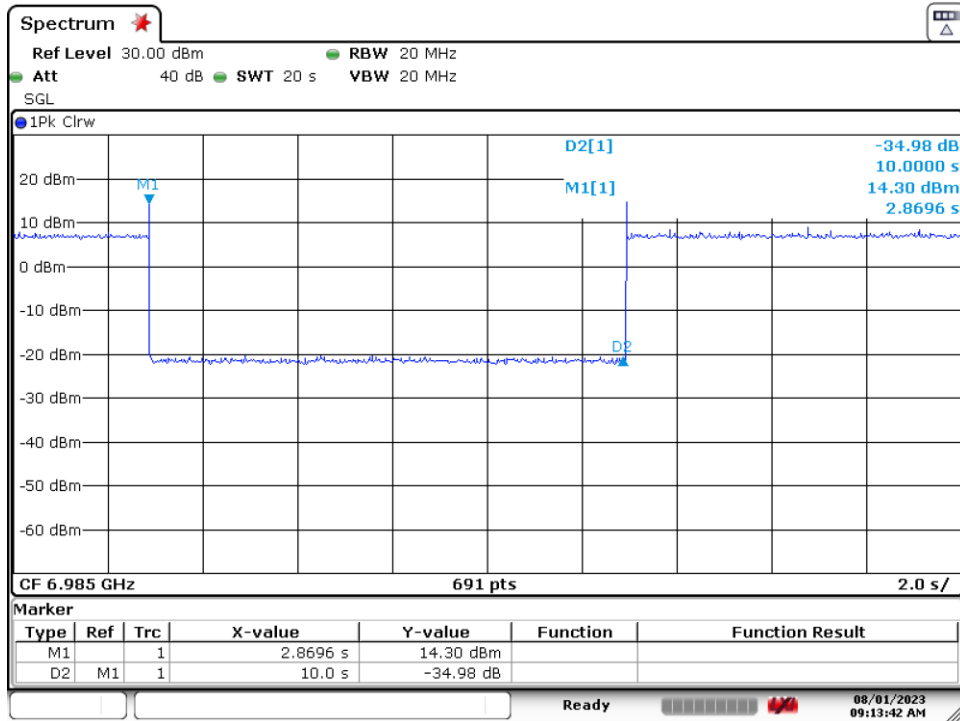
Plot 7-134. Contention Based Protocol Timing Plot (20MHz (UNII Band 8) – Ch. 197)



Date: 1.AUG.2023 09:12:25

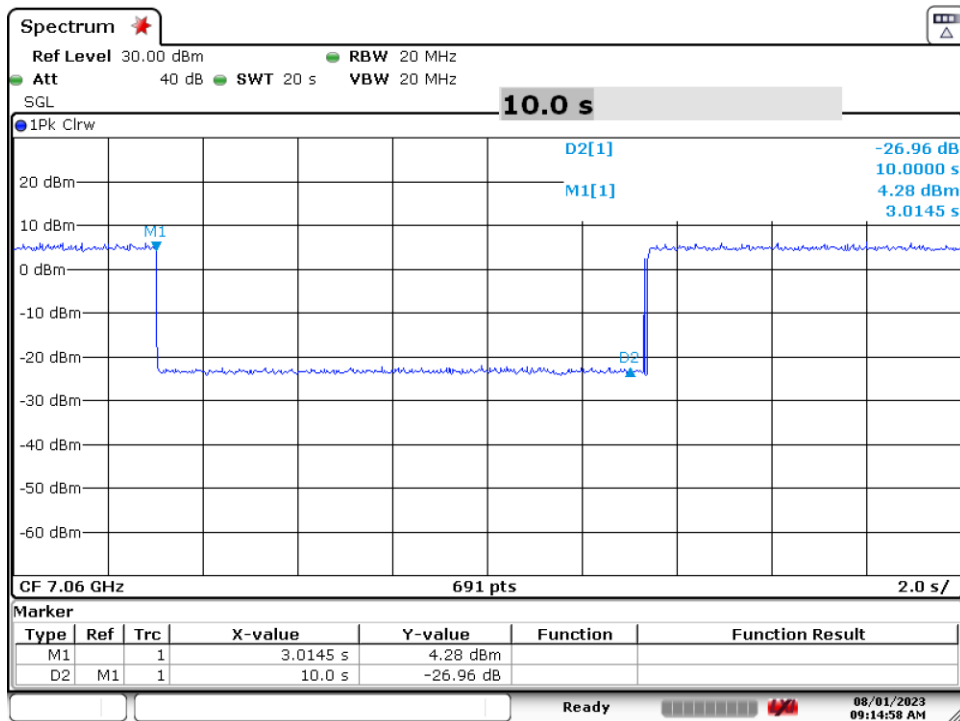
Plot 7-135. Contention Based Protocol Timing Plot (160MHz (UNII Band 8) – Ch. 207 Low)

FCC ID: A3LSMS711U		MEASUREMENT REPORT		Approved by: Technical Manager
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Date: 1.AUG.2023 09:13:43

Plot 7-136. Contention Based Protocol Timing Plot (160MHz (UNII Band 8) – Ch. 207 Mid)



Date: 1.AUG.2023 09:14:59

Plot 7-137. Contention Based Protocol Timing Plot (160MHz (UNII Band 8) – Ch. 207 High)

FCC ID: A3LSMS711U		MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260060-19.A3L	Test Dates: 5/24-8/1/2023	EUT Type: Portable Handset		Page 111 of 138

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 its maximum power control level, as defined in ANSI C63.10-2013, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11ax (20/40/80/160MHz), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst-case emissions are reported in this section.

For transmitters operating in the 5.925-7.125 GHz band: All emissions outside of the 5.925-7.125 GHz band shall not exceed an EIRP of -27dBm/MHz (68.2dBuV/m at a 3m distance). Emissions found in a restricted band are subject to the limits of 15.209 as shown in the table below.

Frequency	Field Strength [μ V/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400\F (kHz)	300
0.490 – 1.705 MHz	24000\F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-13. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5

Test Settings – Above 1GHz

Average Field Strength Measurements (Method AD – Average Detection)

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.

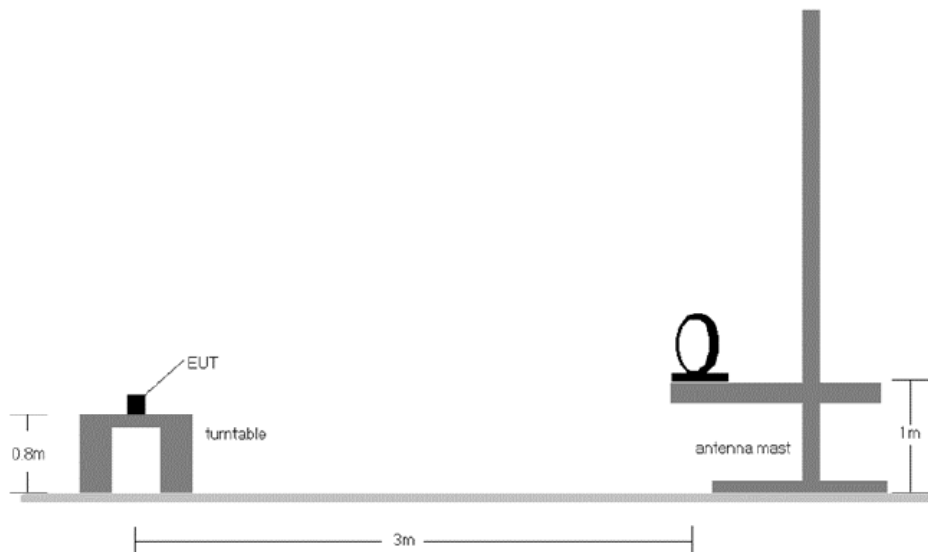


Figure 7-6. Radiated Test Setup < 30MHz

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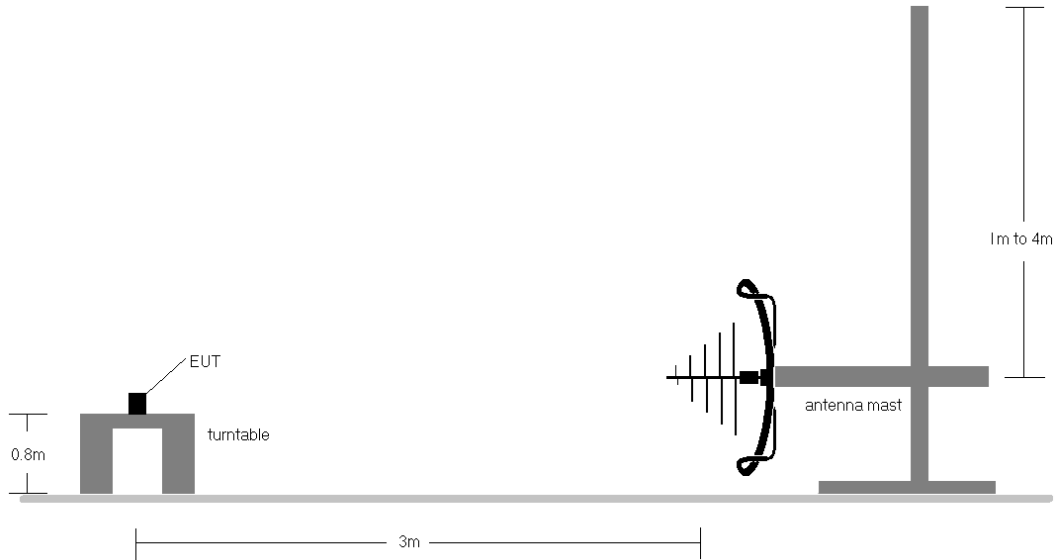


Figure 7-7. Radiated Test Setup < 1GHz

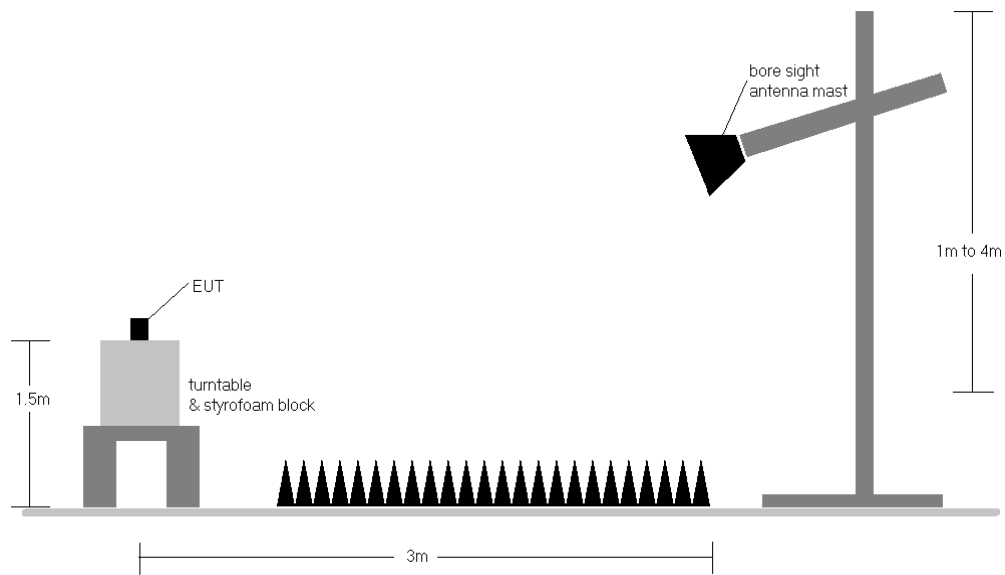


Figure 7-8. Radiated Test Setup > 1GHz

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Test Notes

1. All spurious emissions lying in restricted bands specified in §15.205 are below the limits specified in §15.209. All spurious emissions that do not lie in a restricted band are subject to an average limit of -27dBm/MHz. At 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dB μ V/m.
2. All spurious emissions that do not lie in a restricted band are subject to a peak limit not to exceed 20dB of the average limit [68.2dB μ V/m]. If a peak measurement passes the average limit, it was determined no further investigation is necessary.
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. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
8. In the case where a peak-detector measurement passed the given RMS limit it was determined sufficient to demonstrate compliance.
9. 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.

Sample Calculations

Determining Spurious Emissions Levels

- Field Strength Level [dB μ 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 μ V/m] – Limit [dB μ V/m]

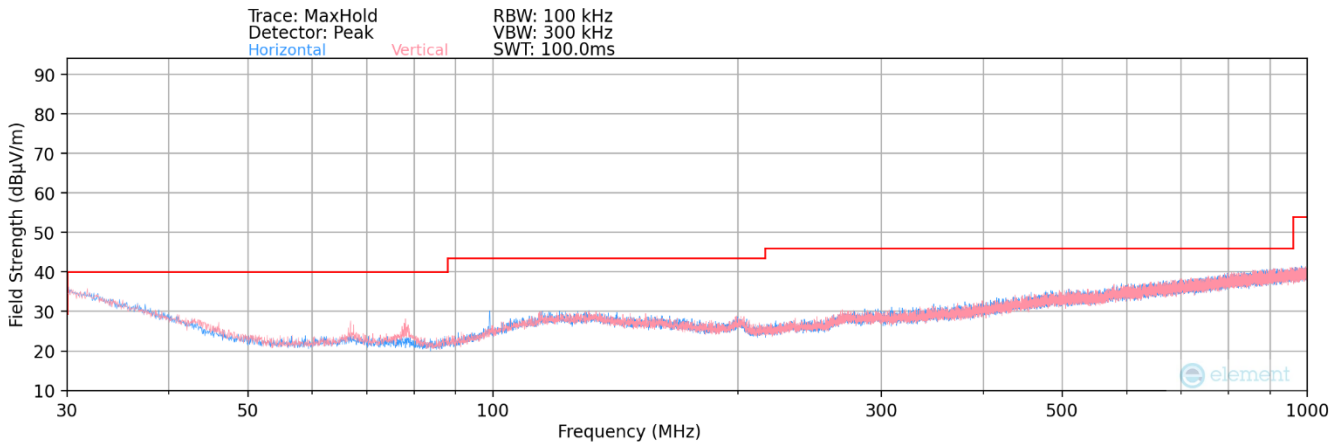
Radiated Band Edge Measurement Offset

The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula:

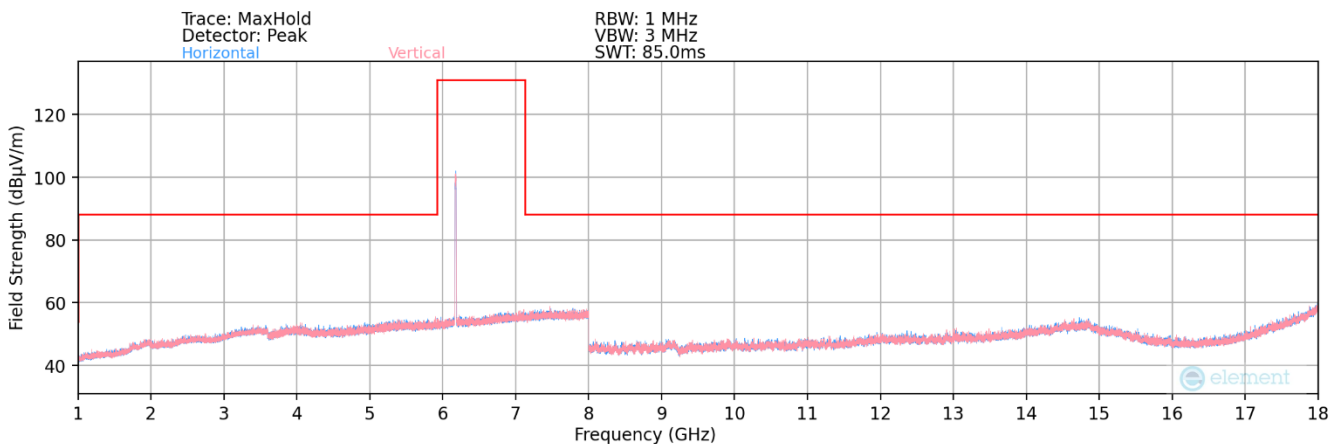
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

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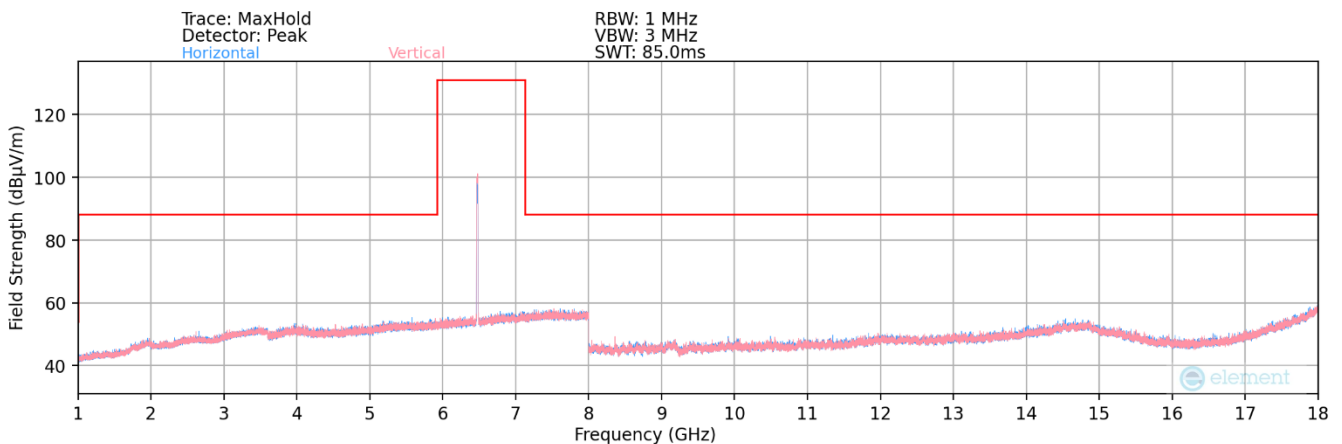
7.7.1 MIMO Radiated Spurious Emission Measurements



Plot 7-138. Radiated Spurious Plot below 1GHz MIMO (802.11ax)

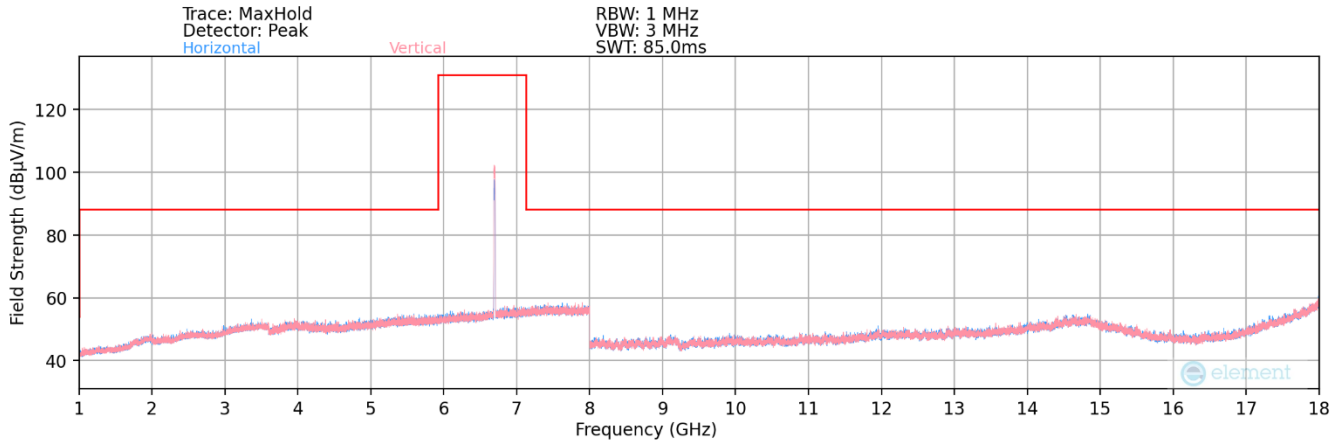


Plot 7-139. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 5 Ch. 45)

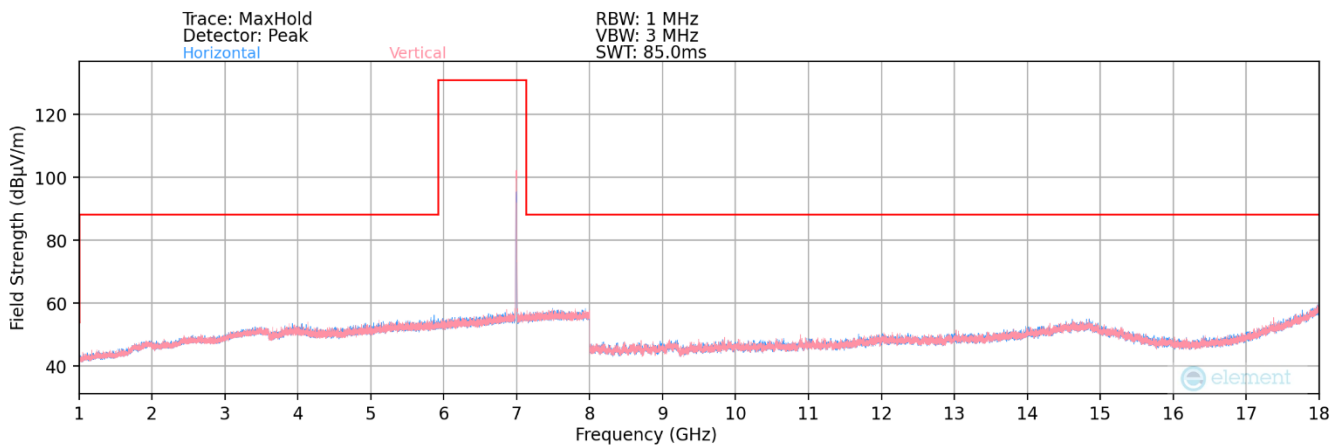


Plot 7-140. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 6 Ch. 105)

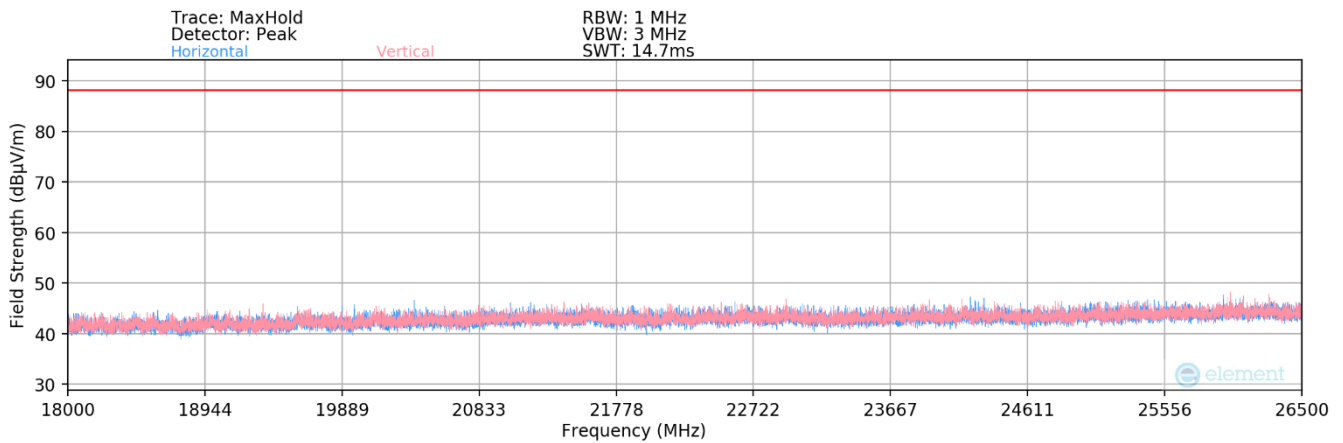
FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-141. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 7 Ch. 149)

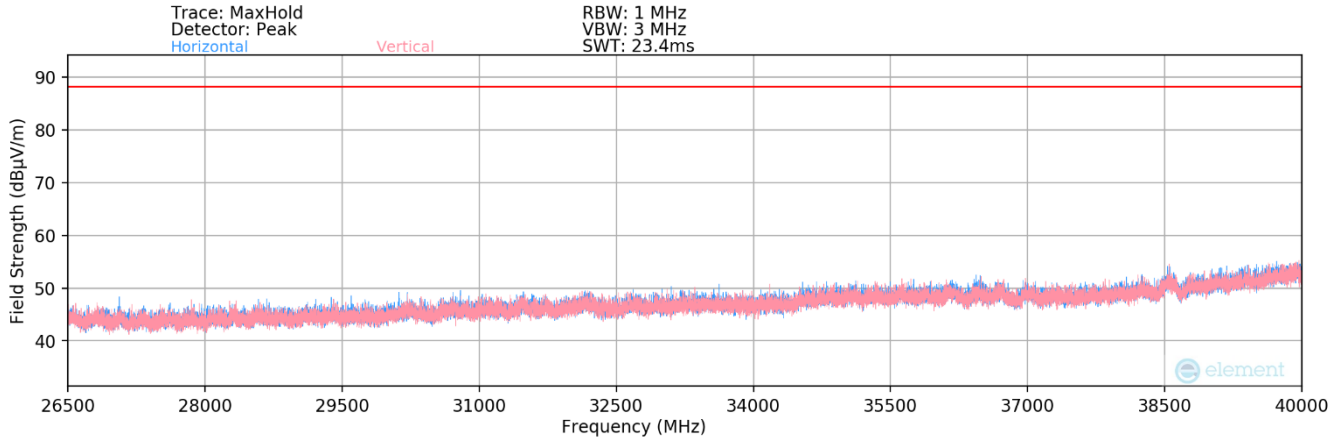


Plot 7-142. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – U Band 8 Ch. 209)



Plot 7-143. Radiated Spurious Plot 18GHz - 26.5GHz (802.11ax)

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Plot 7-144. Radiated Spurious Plot 26.5GHz - 40GHz (802.11ax)

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MIMO Radiated Spurious Emission Measurements – UNII Band 5

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5935MHz
 Channel: 2

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11870.00	Average	V	-	-	-78.03	9.32	0.00	38.29	53.98	-15.69
* 11870.00	Peak	V	-	-	-66.20	9.32	0.00	50.12	73.98	-23.86
* 17805.00	Average	V	-	-	-76.89	15.72	0.00	45.83	53.98	-8.15
* 17805.00	Peak	V	-	-	-64.99	15.72	0.00	57.73	73.98	-16.25
* 23740.00	Average	V	150	20	-64.17	3.96	-9.54	37.25	53.98	-16.73
* 23740.00	Peak	V	150	20	-56.63	3.96	-9.54	44.79	73.98	-29.19
* 29675.00	Peak	V	-	-	-57.03	5.90	-9.54	46.34	68.20	-21.86

Table 7-14. Radiated Measurements MIMO

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6175MHz
 Channel: 45

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 12350.00	Average	V	100	53	-77.29	9.61	0.00	39.32	53.98	-14.66
* 12350.00	Peak	V	100	53	-65.07	9.67	0.00	51.60	73.98	-22.38
* 18525.00	Average	V	-	-	-66.00	1.55	-9.54	33.01	53.98	-20.97
* 18525.00	Peak	V	-	-	-55.19	1.55	-9.54	43.82	73.98	-30.16
24700.00	Peak	V	150	315	-55.93	4.20	-9.54	45.73	68.20	-22.47
30875.00	Peak	V	-	-	-57.52	6.77	-9.54	46.70	68.20	-21.50

Table 7-15. Radiated Measurements MIMO

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Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6415MHz
 Channel: 93

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
12830.00	Peak	V	-	-	-66.32	9.64	0.00	50.32	68.20	-17.88
* 19245.00	Average	V	-	-	-66.26	2.35	-9.54	33.56	53.98	-20.42
* 19245.00	Peak	V	-	-	-56.57	2.35	-9.54	43.25	73.98	-30.73
25660.00	Peak	V	150	0	-56.41	4.41	-9.54	45.46	68.20	-22.74
32075.00	Peak	V	-	-	-57.24	7.43	-9.54	47.65	68.20	-20.55

Table 7-16. Radiated Measurements MIMO

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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MIMO Radiated Spurious Emission Measurements – UNII Band 6

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6435MHz
 Channel: 97

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
12870.00	Peak	V	-	-	-66.55	10.05	0.00	50.50	68.20	-17.70
* 19305.00	Average	V	-	-	-66.24	2.13	-9.54	33.35	53.98	-20.63
* 19305.00	Peak	V	-	-	-56.21	2.13	-9.54	43.38	73.98	-30.60
25740.00	Peak	V	150	1	-56.16	4.51	-9.54	45.81	68.20	-22.39
32175.00	Peak	V	-	-	-57.63	7.53	-9.54	47.36	68.20	-20.84

Table 7-17. Radiated Measurements MIMO

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6475MHz
 Channel: 105

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
12950.00	Peak	V	-	-	-65.96	10.13	0.00	51.17	68.20	-17.03
* 19425.00	Average	V	-	-	-66.34	2.22	-9.54	33.34	53.98	-20.64
* 19425.00	Peak	V	-	-	-55.98	2.22	-9.54	43.70	73.98	-30.28
25900.00	Peak	V	150	315	-55.71	4.57	-9.54	46.32	68.20	-21.88
32375.00	Peak	V	-	-	-57.90	7.29	-9.54	46.86	68.20	-21.34

Table 7-18. Radiated Measurements MIMO

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6515MHz
 Channel: 113

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
13030.00	Peak	V	-	-	-65.18	10.12	0.00	51.94	68.20	-16.26
* 19545.00	Average	V	-	-	-66.23	2.37	-9.54	33.61	53.98	-20.37
* 19545.00	Peak	V	-	-	-55.84	2.37	-9.54	43.99	73.98	-29.99
26060.00	Peak	V	150	316	-56.36	4.80	-9.54	45.91	68.20	-22.29
32575.00	Peak	V	-	-	-56.86	6.85	-9.54	47.46	68.20	-20.74

Table 7-19. Radiated Measurements MIMO

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260060-19.A3L	Test Dates: 5/24-8/1/2023	EUT Type: Portable Handset	Page 122 of 138



MIMO Radiated Spurious Emission Measurements – UNII Band 7

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6535MHz
 Channel: 117

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
13070.00	Peak	V	-	-	-66.33	10.15	0.00	50.82	68.20	-17.38
* 19605.00	Average	V	-	-	-66.12	2.64	-9.54	33.98	53.98	-20.00
* 19605.00	Peak	V	-	-	-56.01	2.64	-9.54	44.10	73.98	-29.88
26140.00	Peak	V	150	318	-56.97	4.56	-9.54	45.04	68.20	-23.16
32675.00	Peak	V	-	-	-56.88	7.03	-9.54	47.61	68.20	-20.59

Table 7-20. Radiated Measurements MIMO

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6695MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 13390.00	Average	V	216	38	-77.02	10.35	0.00	40.33	53.98	-13.65
* 13390.00	Peak	V	216	38	-65.03	10.35	0.00	52.32	73.98	-21.66
* 20085.00	Average	V	-	-	-63.43	3.01	-9.54	37.04	53.98	-16.94
* 20085.00	Peak	V	-	-	-56.68	3.01	-9.54	43.79	73.98	-30.19
26780.00	Peak	V	150	35	-56.73	4.57	-9.54	45.30	68.20	-22.90
33475.00	Peak	V	-	-	-56.87	7.57	-9.54	48.16	68.20	-20.04

Table 7-21. Radiated Measurements MIMO

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260060-19.A3L	Test Dates: 5/24-8/1/2023	EUT Type: Portable Handset	Page 123 of 138

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6875MHz
 Channel: 185

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
13750.00	Peak	V	338	44	-64.96	11.07	0.00	53.11	68.20	-15.09
* 20625.00	Average	V	-	-	-64.40	3.42	-9.54	36.48	53.98	-17.50
* 20625.00	Peak	V	-	-	-56.67	3.42	-9.54	44.21	73.98	-29.77
27500.00	Peak	V	150	58	-56.89	4.54	-9.54	45.11	68.20	-23.09
34375.00	Peak	V	-	-	-57.33	8.08	-9.54	48.21	68.20	-19.99

Table 7-22. Radiated Measurements MIMO

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6695MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 13390.00	Average	V	231	47	-77.81	10.35	0.00	39.54	53.98	-14.44
* 13390.00	Peak	V	231	47	-65.63	10.35	0.00	51.72	73.98	-22.26
* 20085.00	Average	V	-	-	-63.36	3.01	-9.54	37.11	53.98	-16.87
* 20085.00	Peak	V	-	-	-56.71	3.01	-9.54	43.76	73.98	-30.22
26780.00	Peak	V	150	27	-56.75	4.57	-9.54	45.28	68.20	-22.92
33475.00	Peak	V	-	-	-56.93	7.57	-9.54	48.09	68.20	-20.11

Table 7-23. Radiated Measurements MIMO with WCP

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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MIMO Radiated Spurious Emission Measurements – UNII Band 8

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6895MHz
 Channel: 189

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
13790.00	Peak	V	-	-	-64.36	11.00	0.00	53.64	68.20	-14.56
* 20685.00	Average	V	-	-	-64.78	3.67	-9.54	36.35	53.98	-17.63
* 20685.00	Peak	V	-	-	-57.60	3.67	-9.54	43.53	73.98	-30.45
27580.00	Peak	V	150	50	-56.69	4.68	-9.54	45.45	68.20	-22.75
34475.00	Peak	V	-	-	-57.06	7.83	-9.54	48.23	68.20	-19.97

Table 7-24. Radiated Measurements MIMO

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 6995MHz
 Channel: 209

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
13990.00	Peak	V	185	13	-64.68	11.26	0.00	53.58	68.20	-14.62
* 20985.00	Average	V	-	-	-64.52	3.59	-9.54	36.54	53.98	-17.44
* 20985.00	Peak	V	-	-	-56.45	3.59	-9.54	44.60	73.98	-29.38
27980.00	Peak	V	150	0	-57.52	5.05	-9.54	44.99	68.20	-23.21
34975.00	Peak	V	-	-	-56.42	8.24	-9.54	49.28	68.20	-18.92

Table 7-25. Radiated Measurements MIMO

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 7115MHz
 Channel: 233

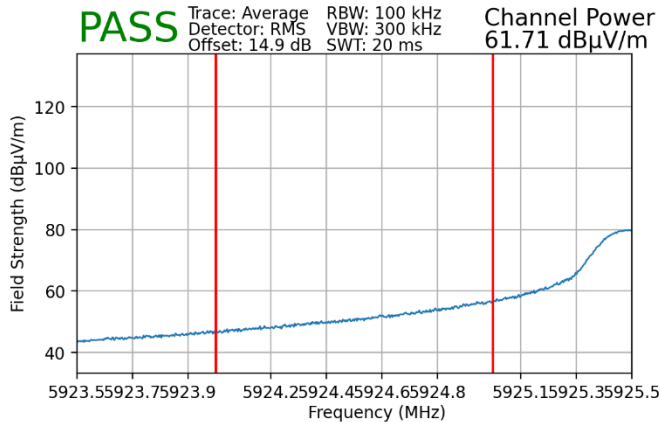
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
14230.00	Peak	V	216	14	-65.28	12.13	0.00	53.85	68.20	-14.35
* 21345.00	Average	V	-	-	-66.85	4.08	-9.54	34.69	53.98	-19.29
* 21345.00	Peak	V	-	-	-56.09	4.08	-9.54	45.45	73.98	-28.53
28460.00	Peak	V	-	-	-57.12	5.14	-9.54	45.47	68.20	-22.73
35575.00	Peak	V	-	-	-56.61	8.16	-9.54	49.01	68.20	-19.19

Table 7-26. Radiated Measurements MIMO

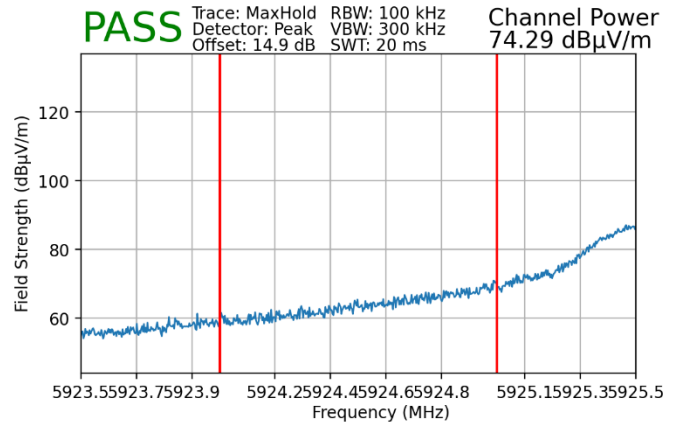
FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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7.7.2 MIMO Radiated Band Edge Measurements (20MHz BW)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5935MHz
Channel:	2

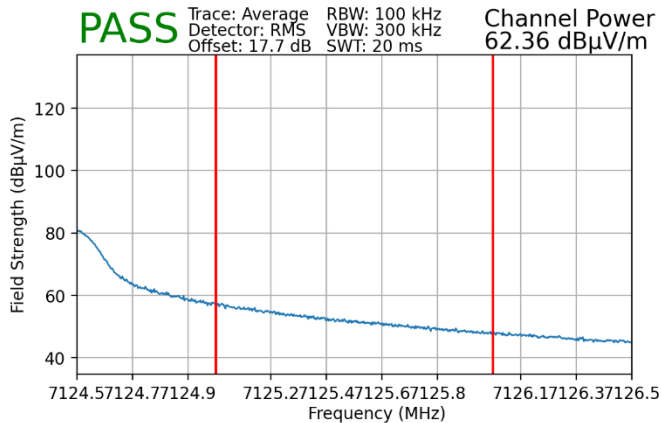


Plot 7-145. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5)

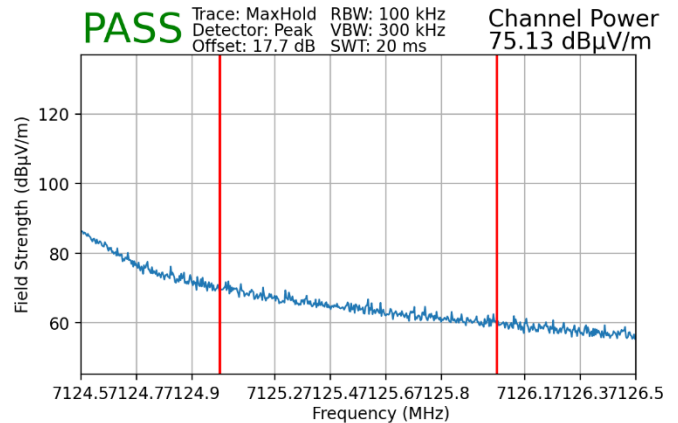


Plot 7-146. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	7115MHz
Channel:	233



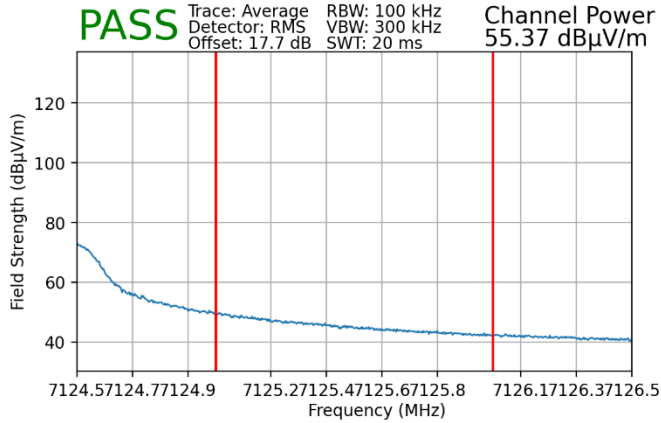
Plot 7-147. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8)



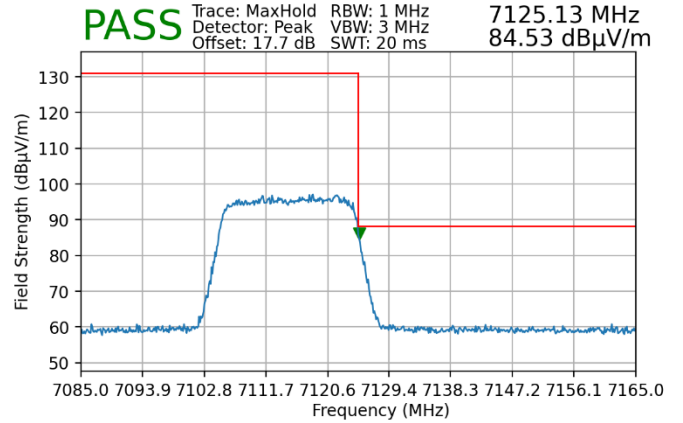
Plot 7-148. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8)

FCC ID: A3LSMS711U	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:	7115MHz
Channel:	233



Plot 7-149. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8) with WCP

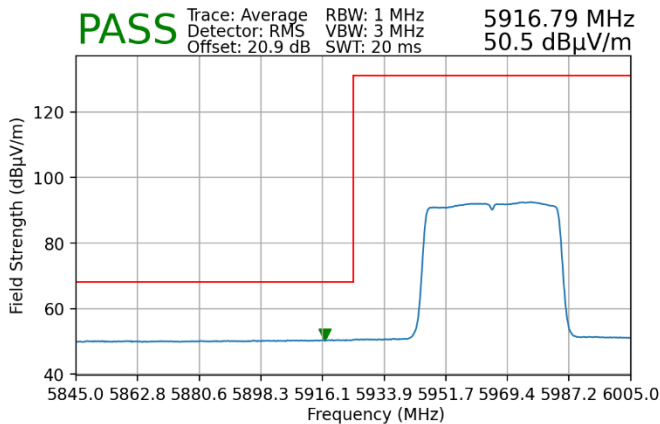


Plot 7-150. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8) with WCP

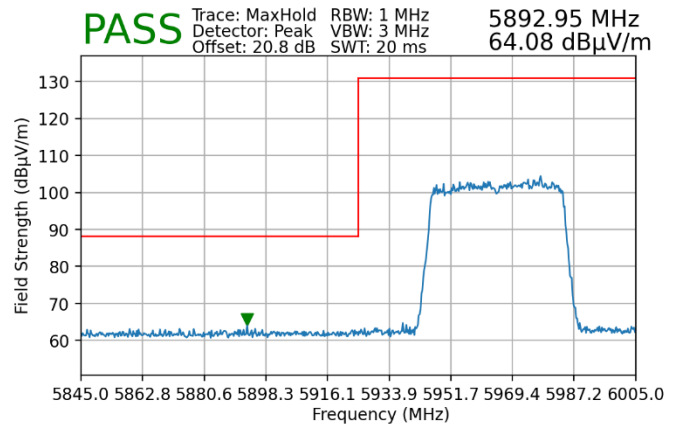
FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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7.7.3 MIMO Radiated Band Edge Measurements (40MHz BW)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5965MHz
Channel:	3

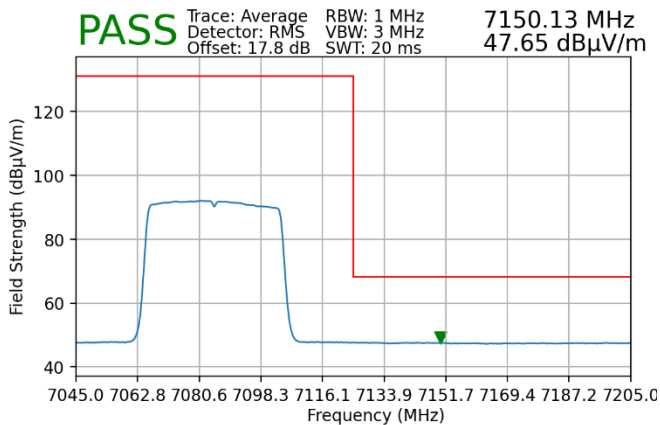


Plot 7-151. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5)

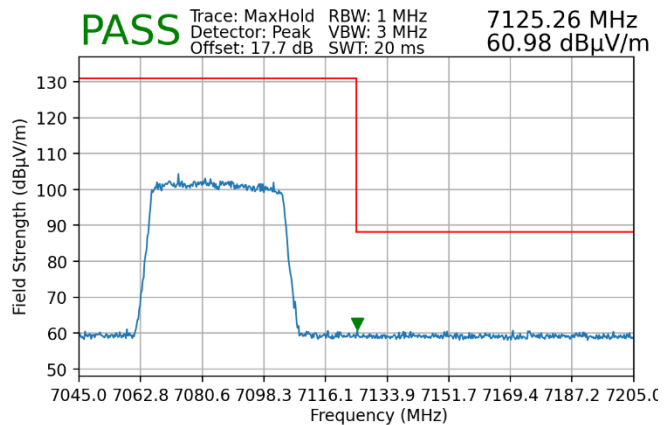


Plot 7-152. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	7085MHz
Channel:	227



Plot 7-153. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8)

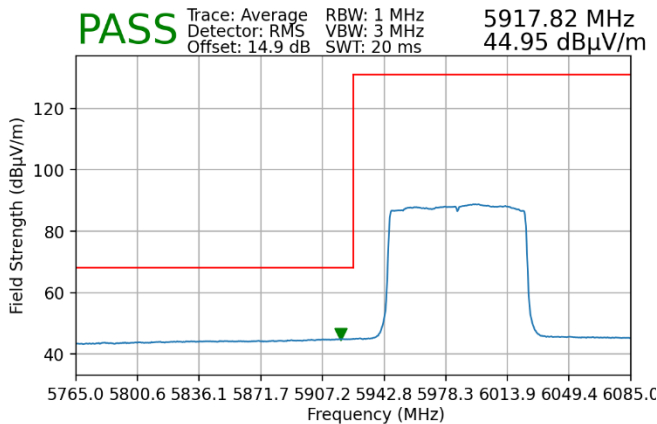


Plot 7-154. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8)

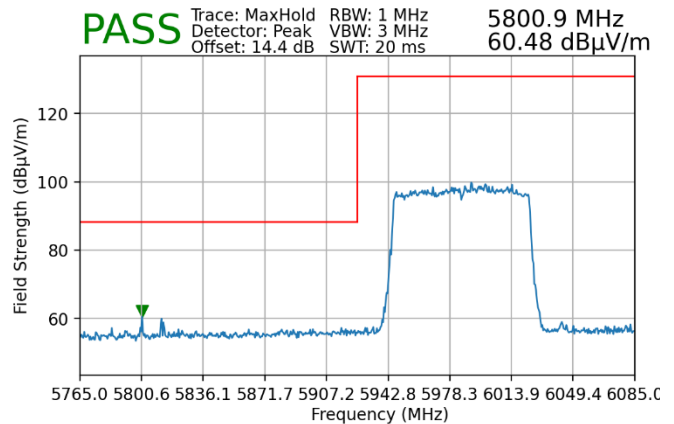
FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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7.7.4 MIMO Radiated Band Edge Measurements (80MHz BW)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5985MHz
Channel:	7

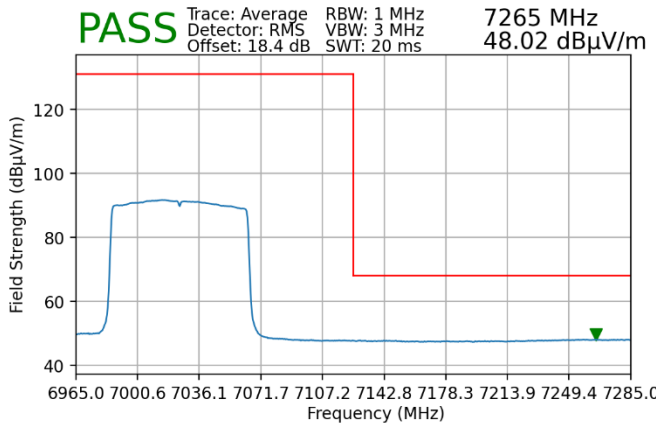


Plot 7-155. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5)

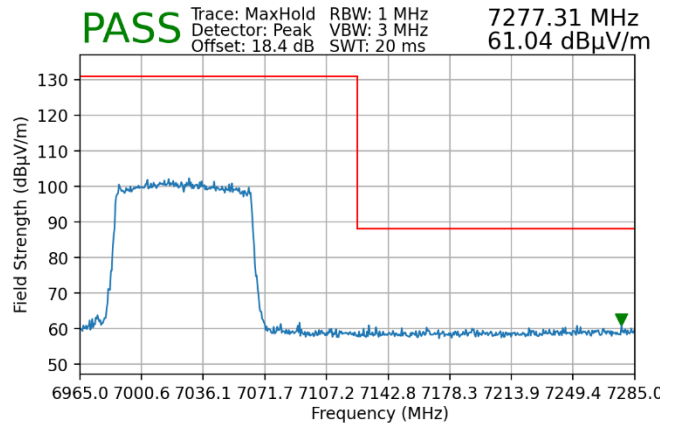


Plot 7-156. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	7025MHz
Channel:	215



Plot 7-157. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8)

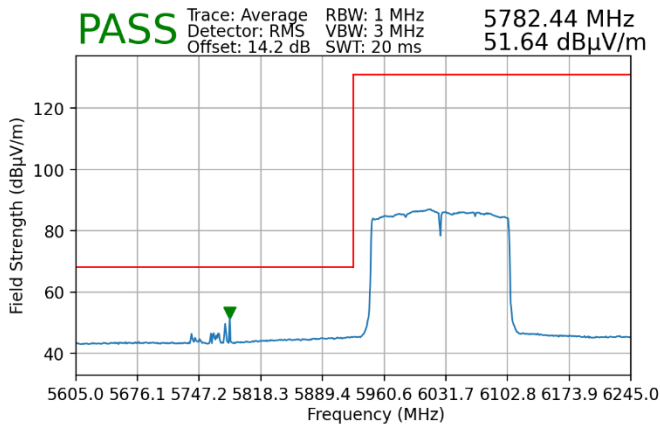


Plot 7-158. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8)

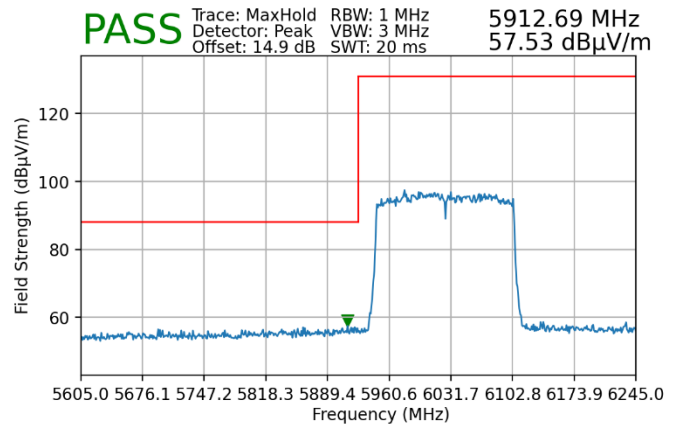
FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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7.7.5 MIMO Radiated Band Edge Measurements (160MHz BW)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	6025MHz
Channel:	15

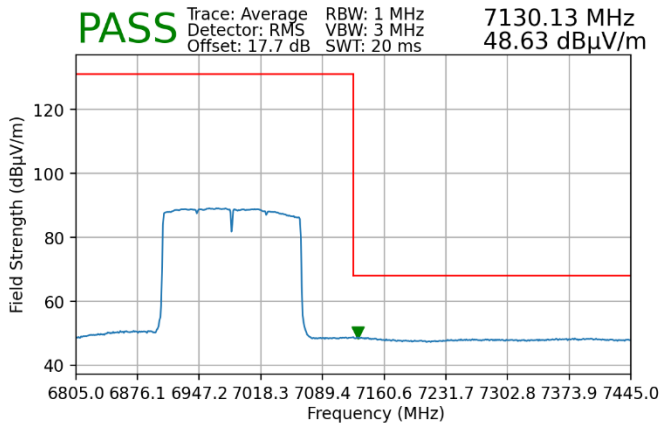


Plot 7-159. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5)

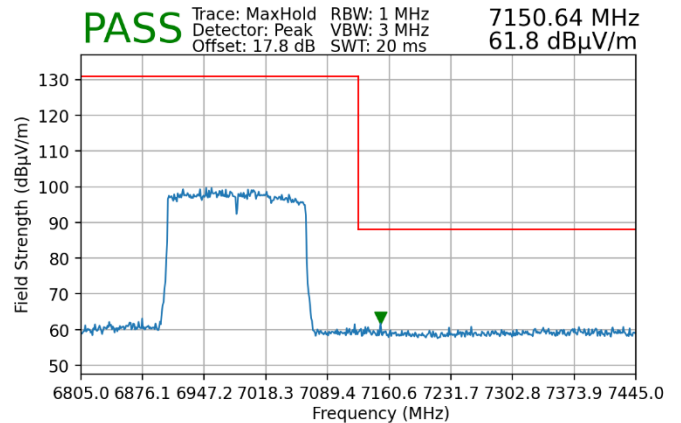


Plot 7-160. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	6985MHz
Channel:	207



Plot 7-161. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8)



Plot 7-162. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8)

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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 Section 15.207.

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 7-27. 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.

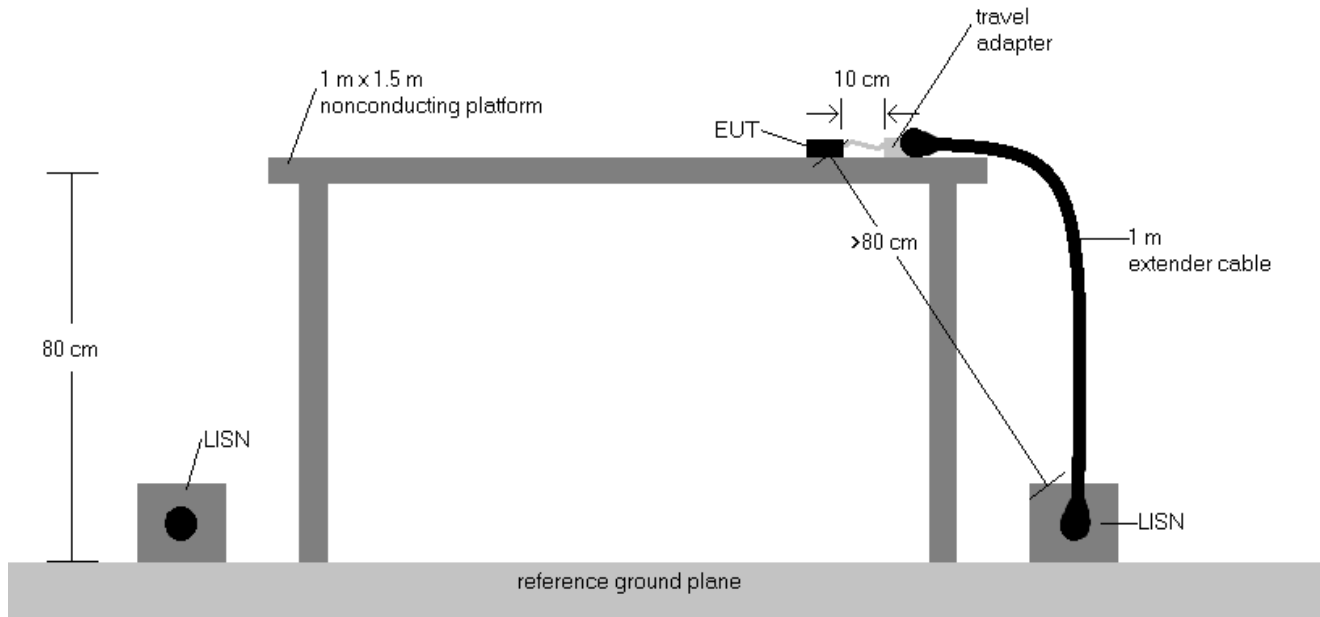
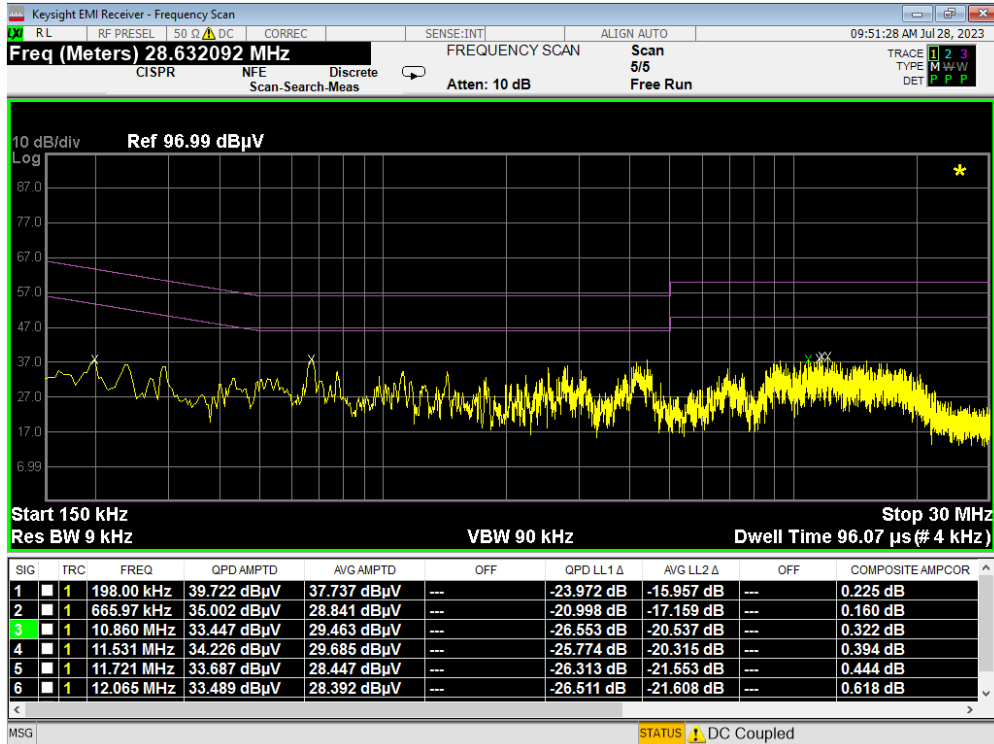


Figure 7-9. Test Instrument & Measurement Setup

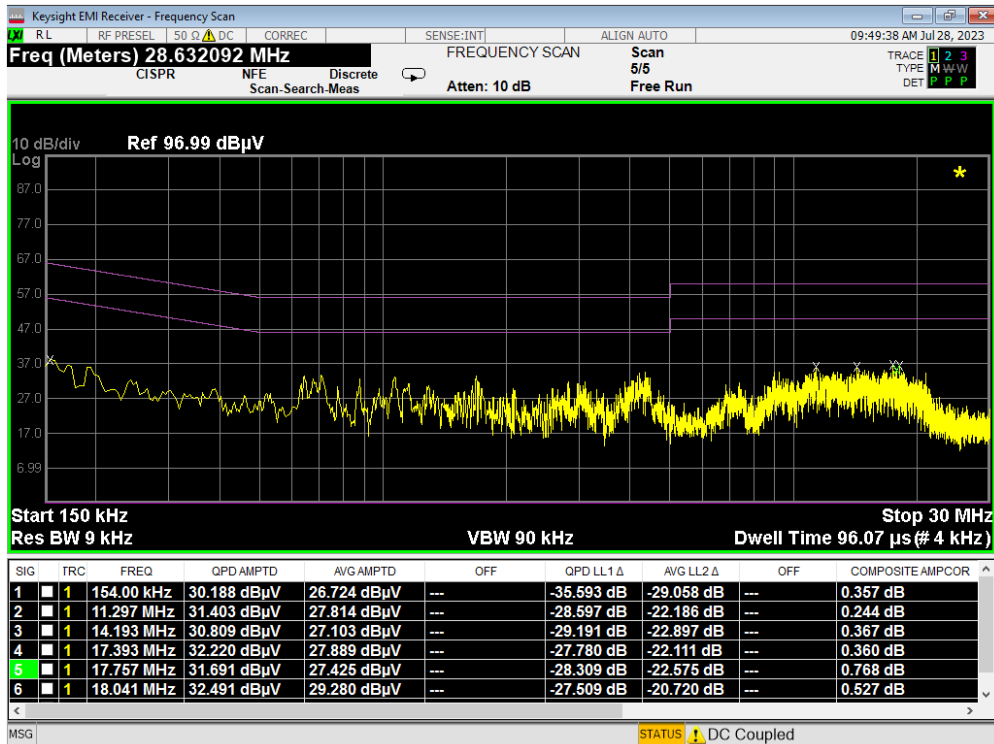
Test Notes

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 is specified in 15.207.
3. $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
4. $\text{QP/AV Level (dB}\mu\text{V)} = \text{QP/AV Analyzer/Receiver Level (dB}\mu\text{V)} + \text{Corr. (dB)}$
5. $\text{Margin (dB)} = \text{QP/AV Limit (dB}\mu\text{V)} - \text{QP/AV Level (dB}\mu\text{V)}$
6. Traces shown in plot are made using a peak detector.
7. Deviations to the Specifications: None.

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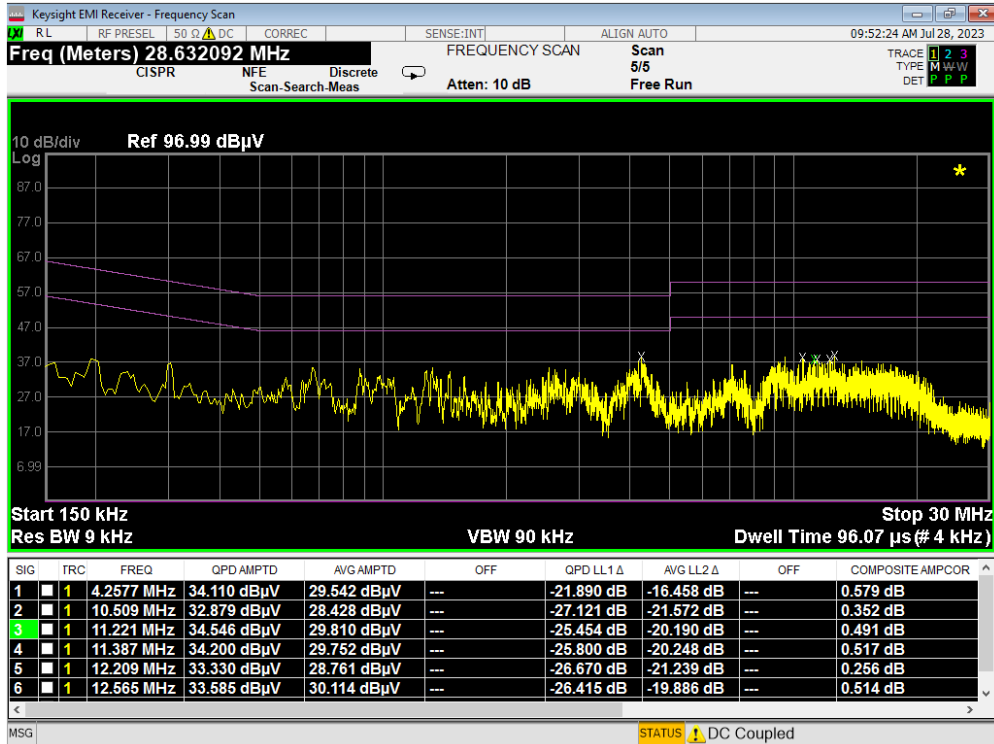


Plot 7-163. Line Conducted Plot with 802.11a UNII Band 5 (L1)

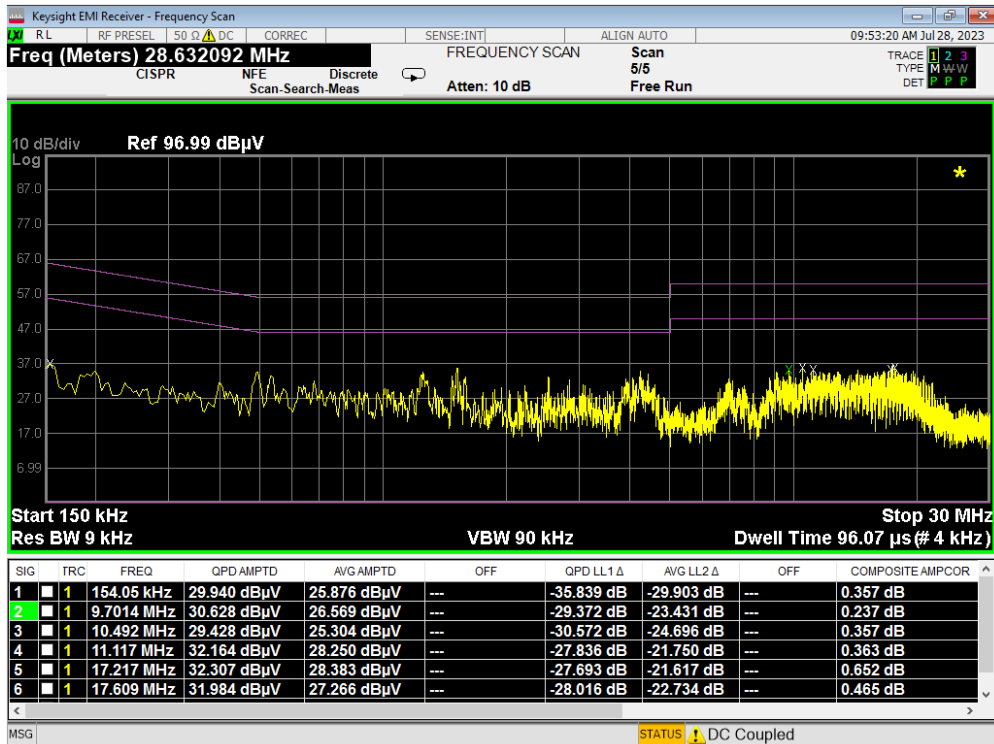


Plot 7-164. Line Conducted Plot with 802.11a UNII Band 5 (N)

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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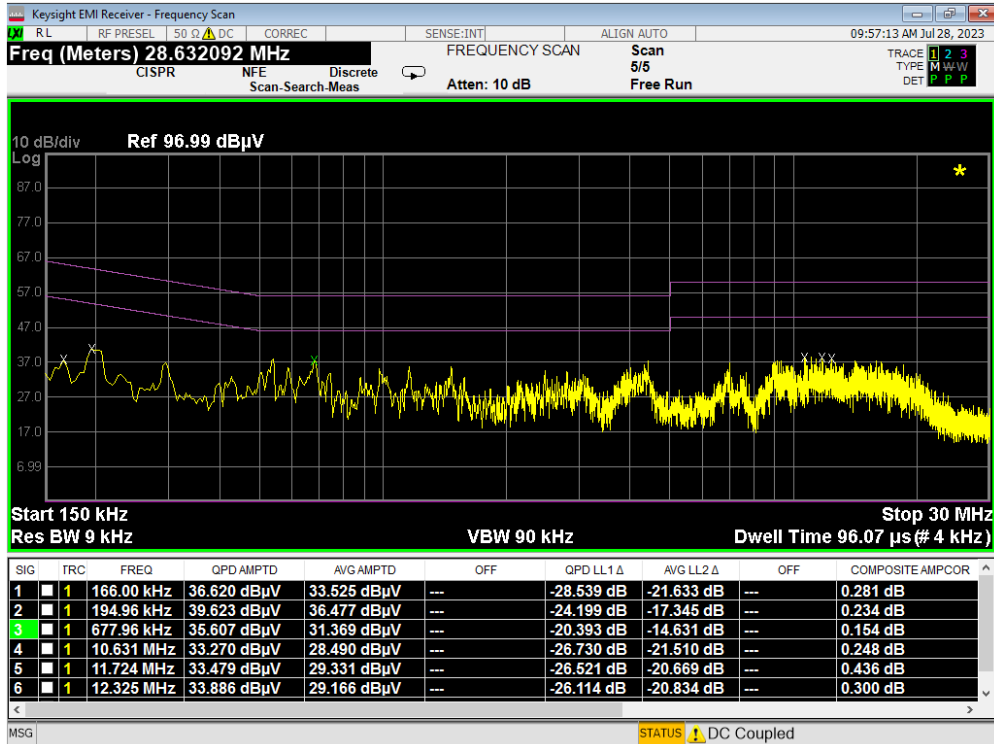


Plot 7-165. Line Conducted Plot with 802.11a UNII Band 6 (L1)

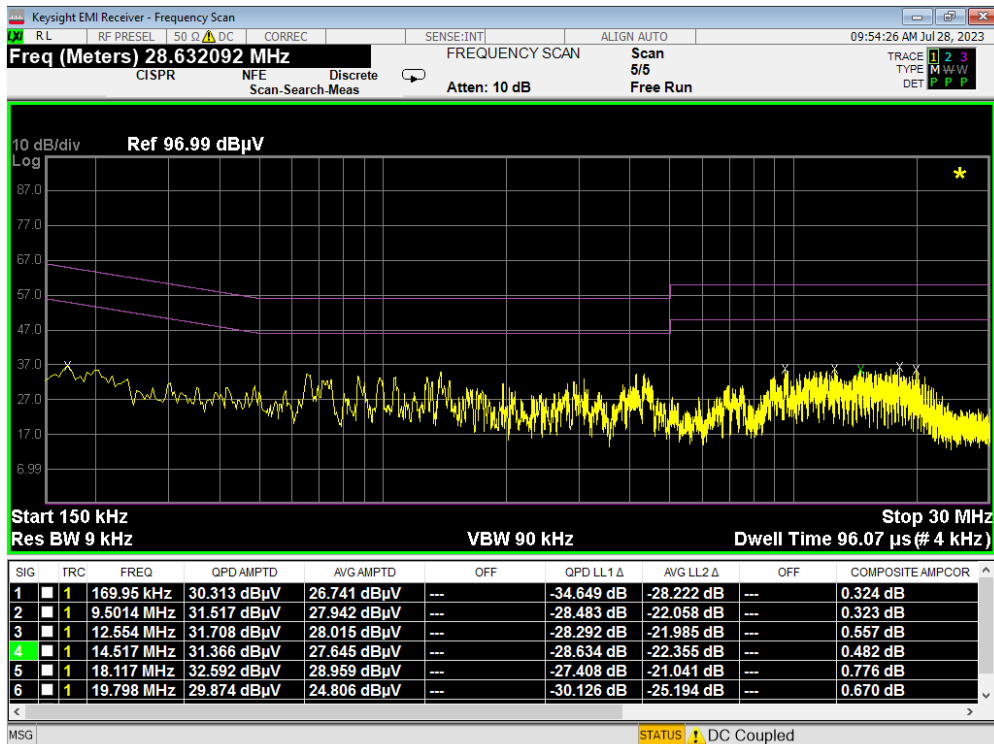


Plot 7-166. Line Conducted Plot with 802.11a UNII Band 6 (N)

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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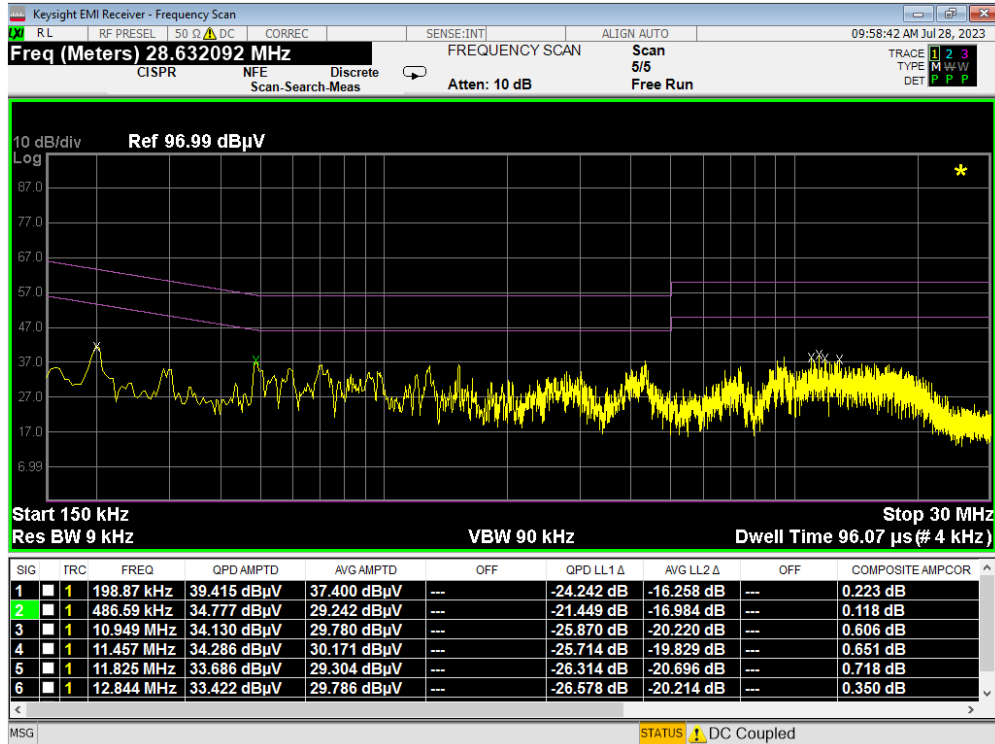


Plot 7-167. Line Conducted Plot with 802.11a UNII Band 7 (L1)

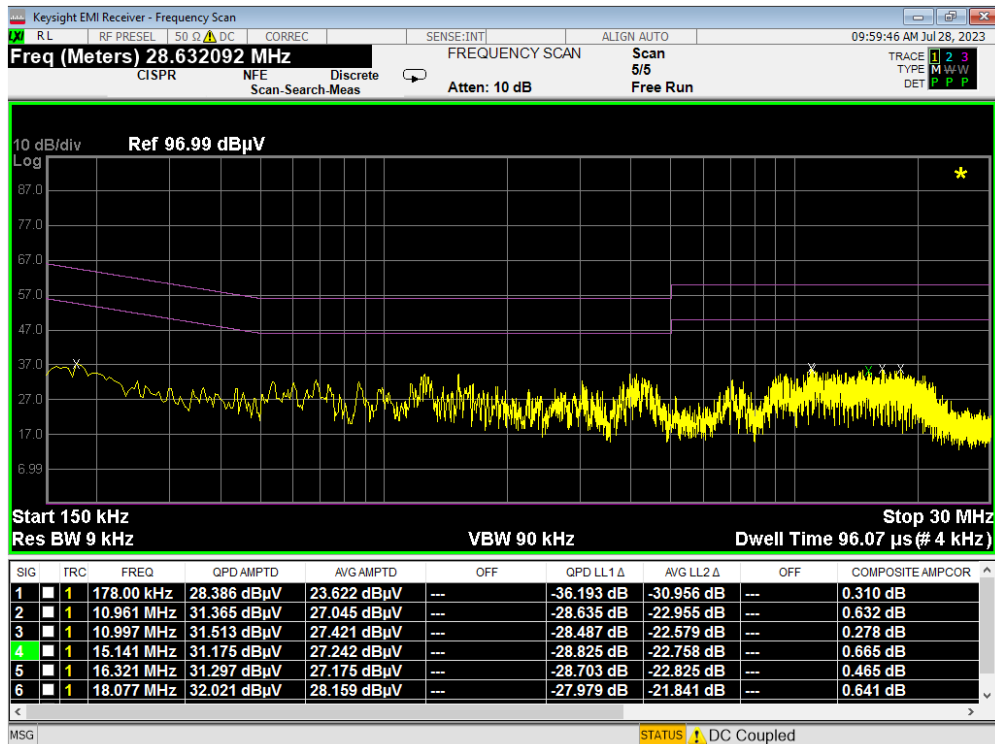


Plot 7-168. Line Conducted Plot with 802.11a UNII Band 7 (N)

FCC ID: A3LSMS711U	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-169. Line Conducted Plot with 802.11a UNII Band 8 (L1)



Plot 7-170. Line Conducted Plot with 802.11a UNII Band 8 (N)

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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: A3LSMS711U** is in compliance with FCC Part Subpart E (15.407) of the FCC rules for operation as a client device.

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