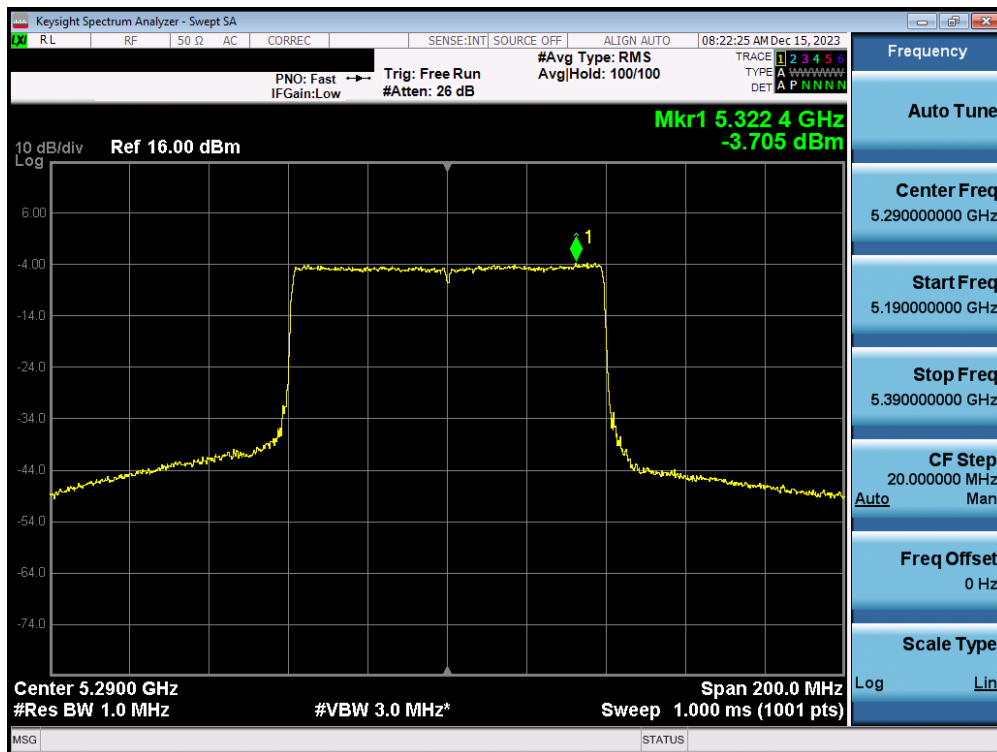
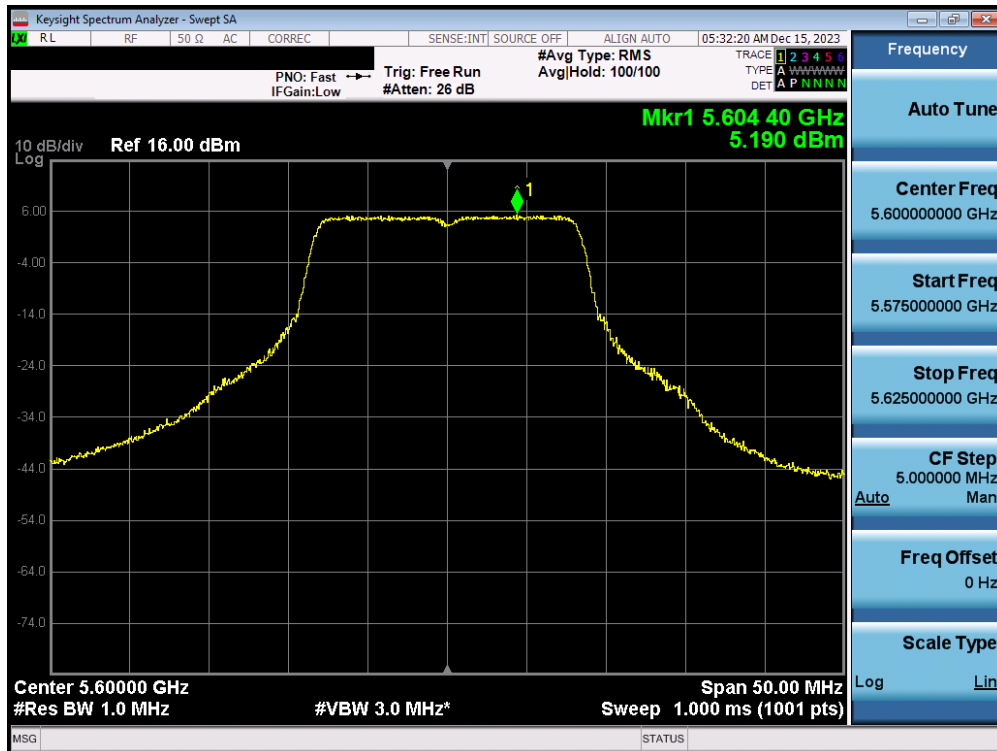


Plot 7-97. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

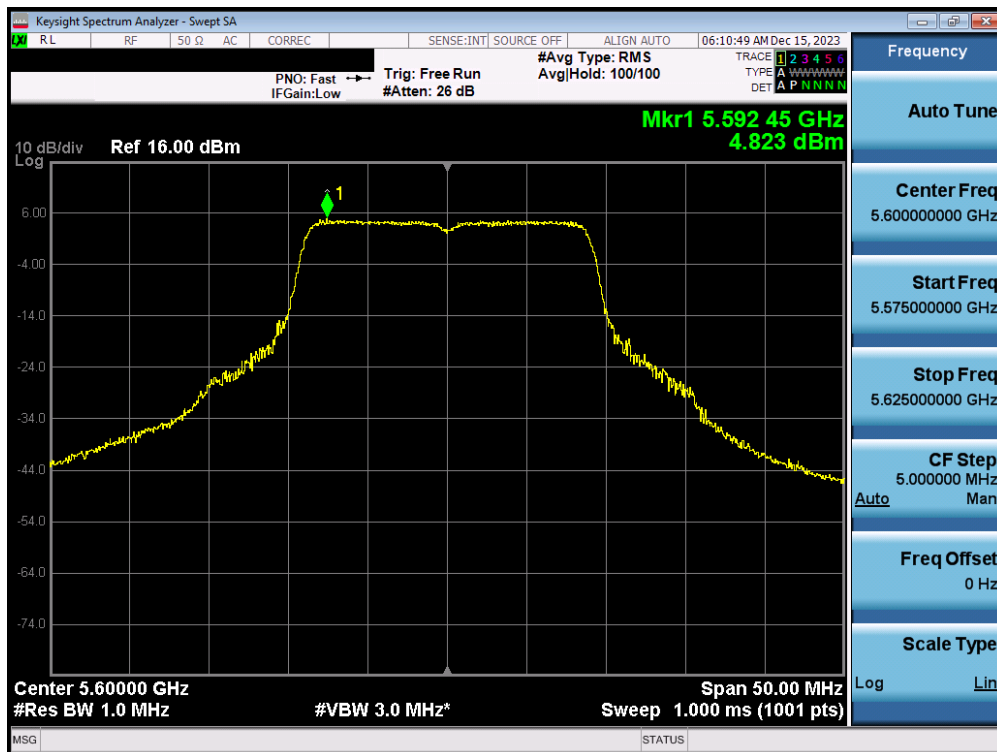


Plot 7-98. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 79 of 116

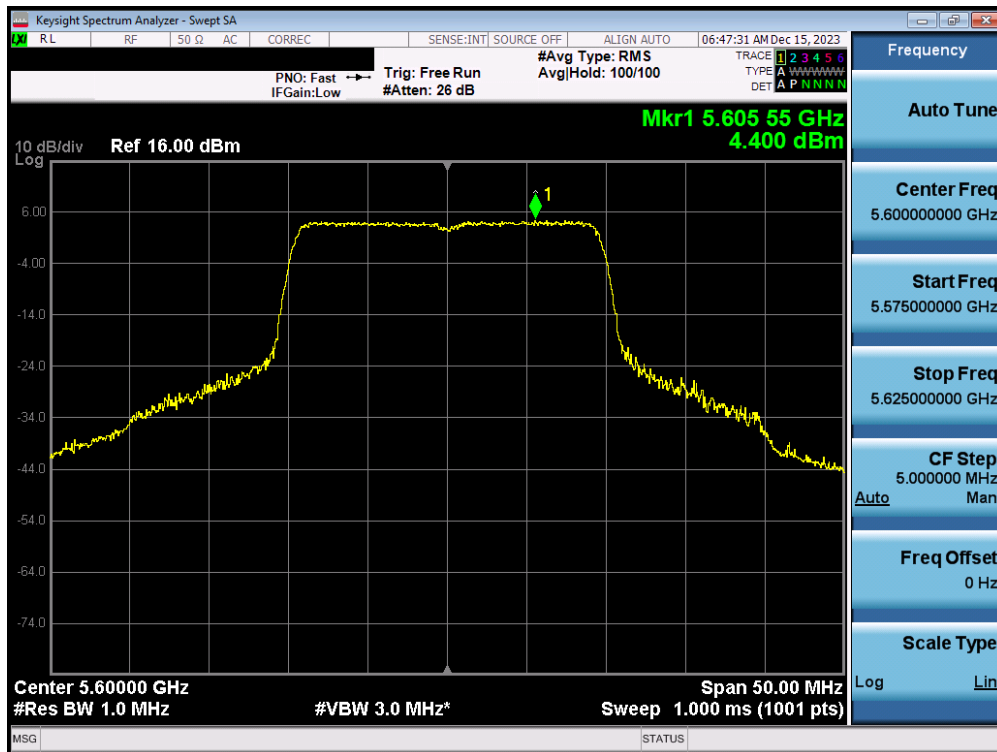


Plot 7-99. Power Spectral Density Plot MIMO ANT2 (802.11a (UNII Band 2C) – Ch. 120)

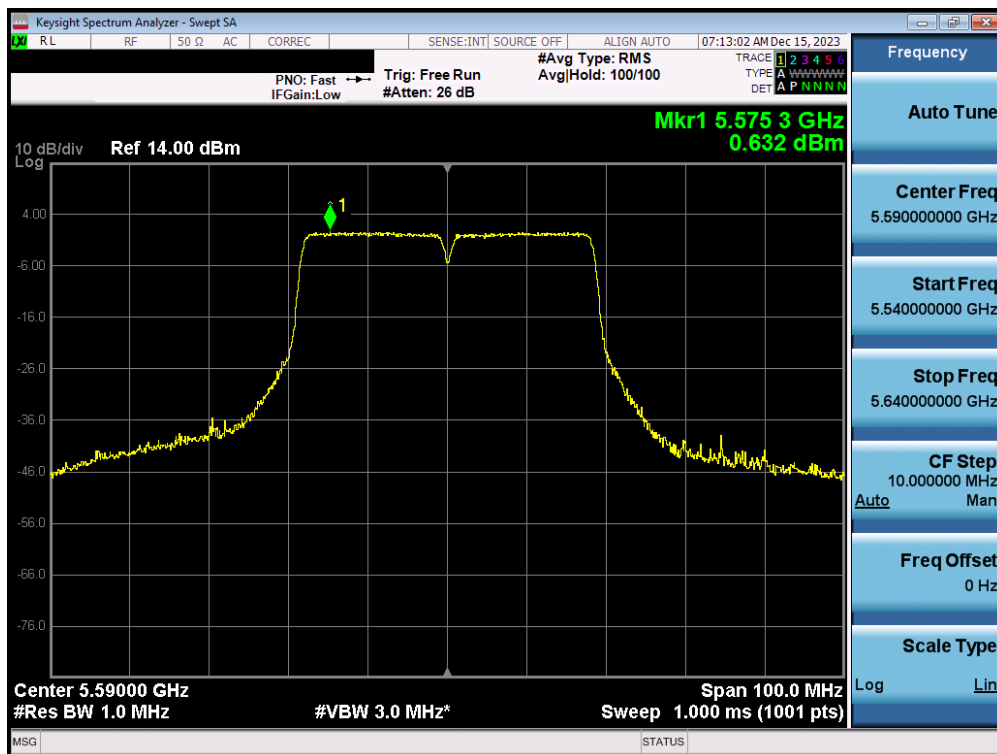


Plot 7-100. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 80 of 116

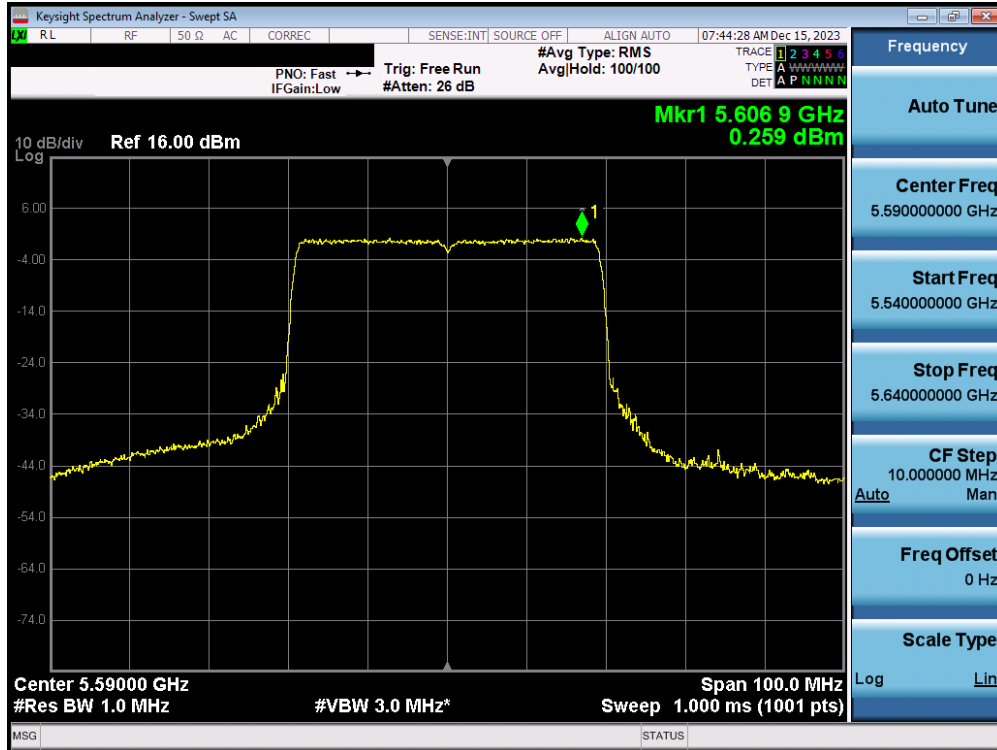


Plot 7-101. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 120)

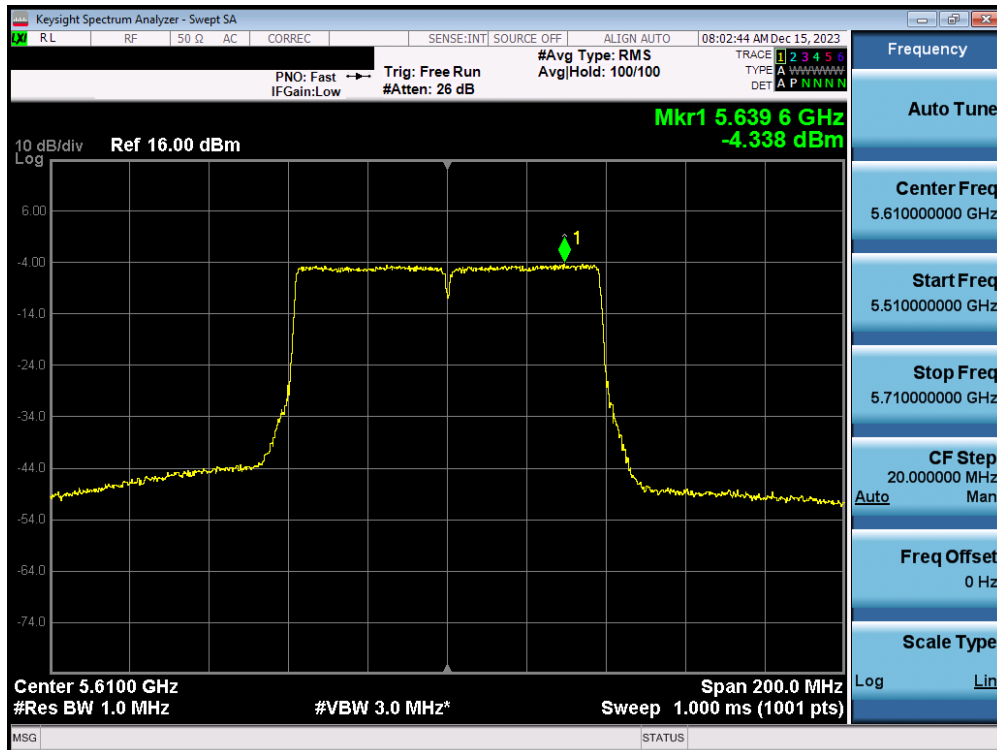


Plot 7-102. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 81 of 116

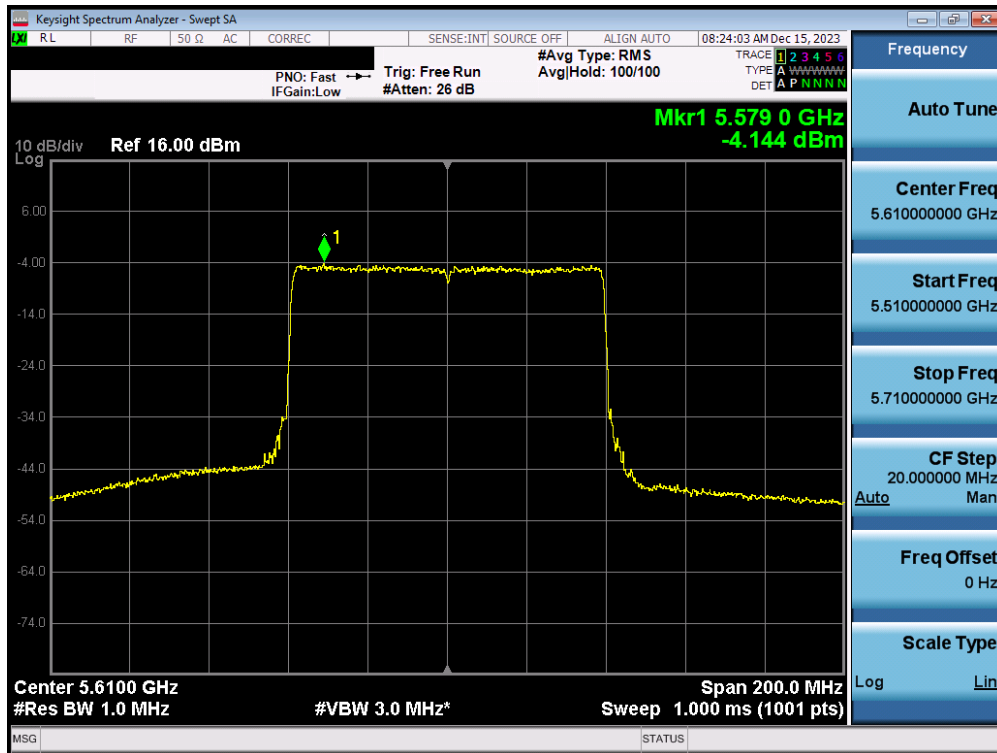


Plot 7-103. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 118)

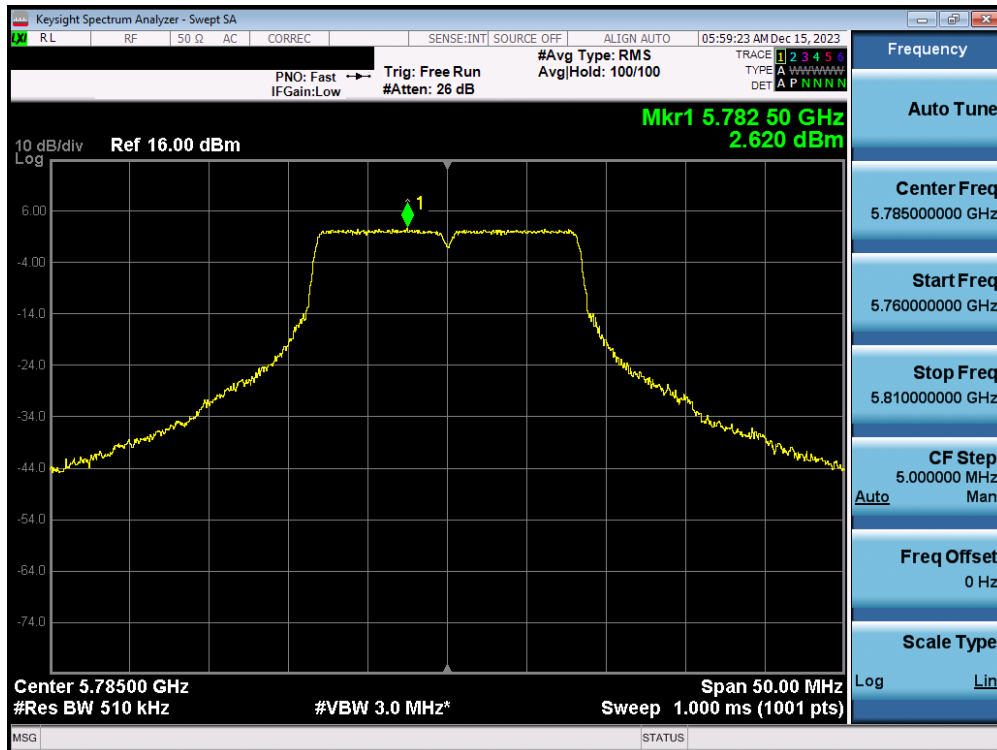


Plot 7-104. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 82 of 116

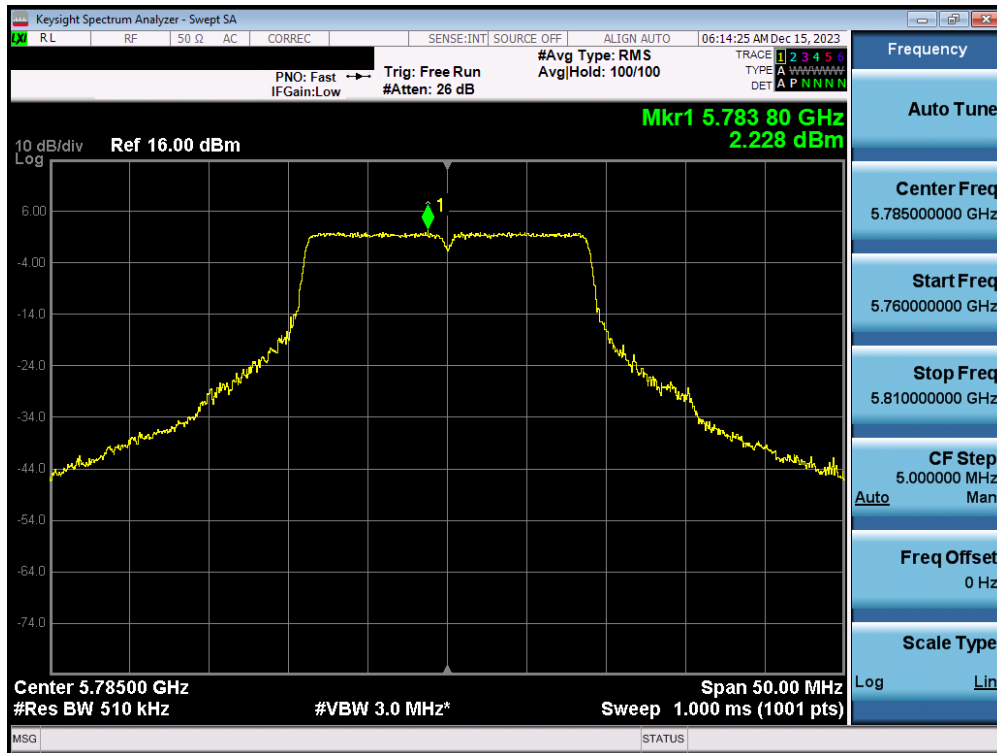


Plot 7-105. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 122)

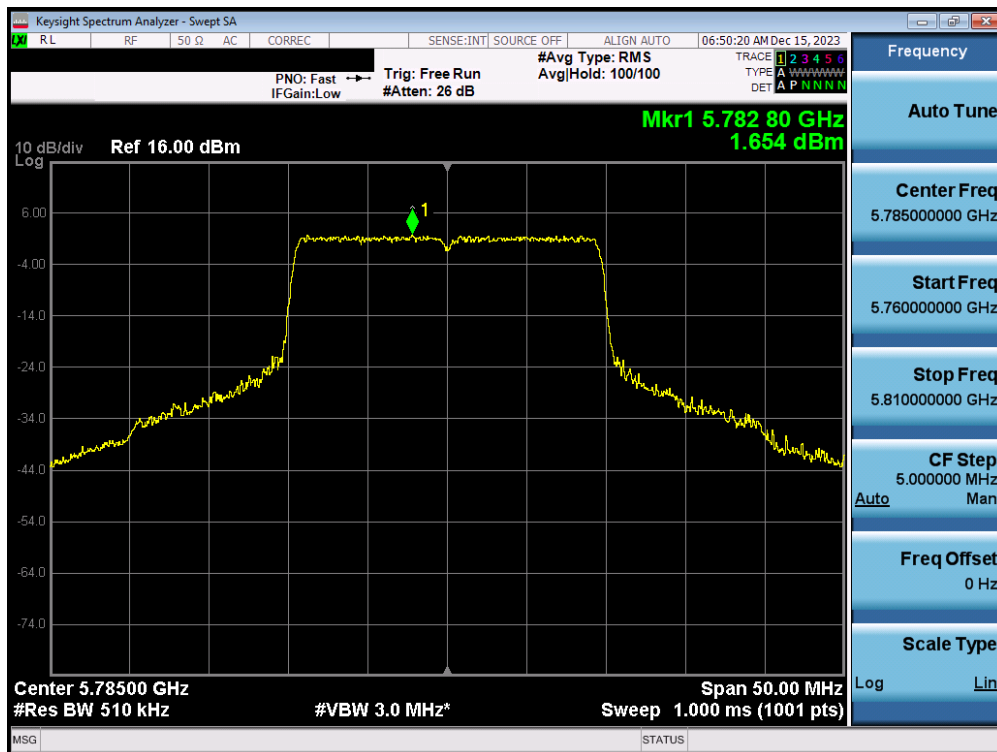


Plot 7-106. Power Spectral Density Plot MIMO ANT2 (802.11a (UNII Band 3) – Ch. 157)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 83 of 116

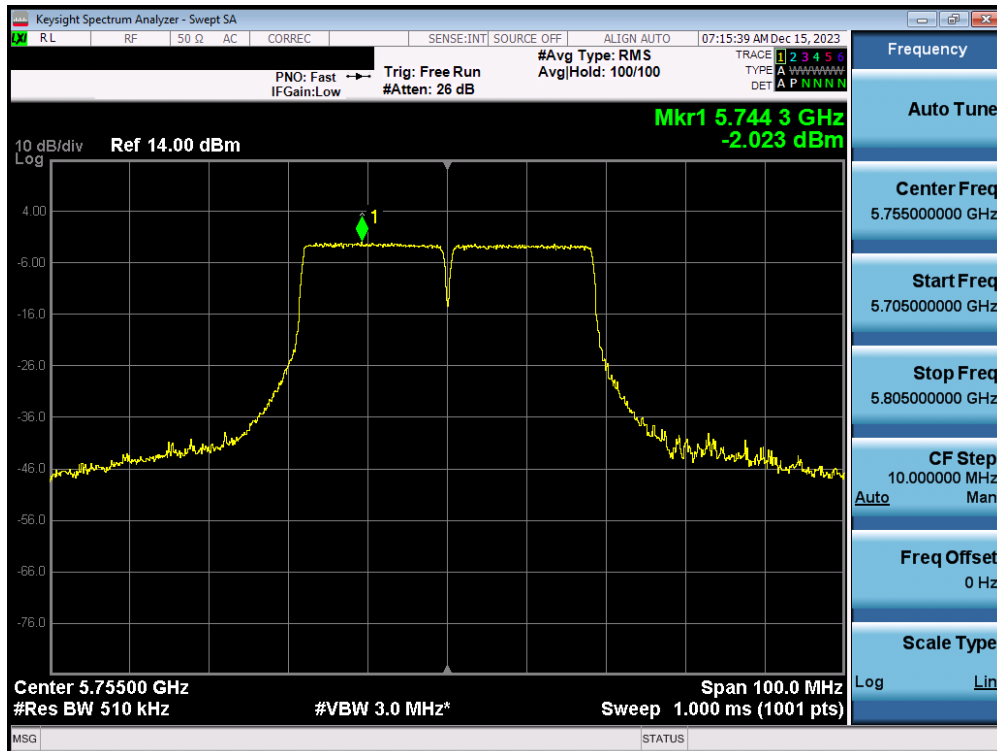


Plot 7-107. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

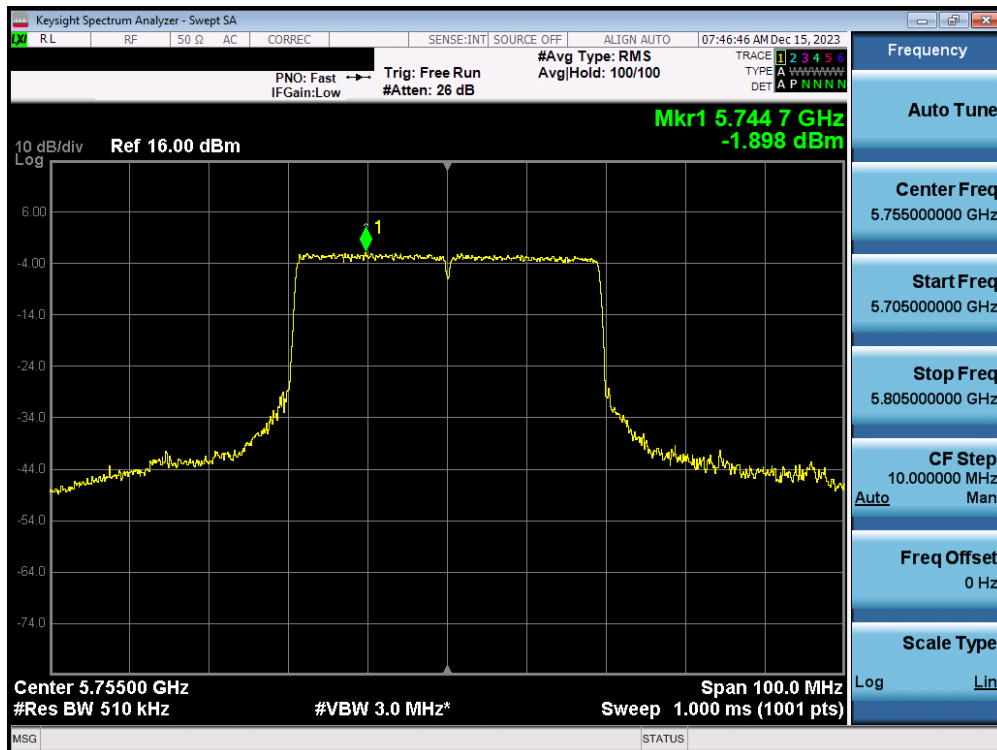


Plot 7-108. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 157)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 84 of 116

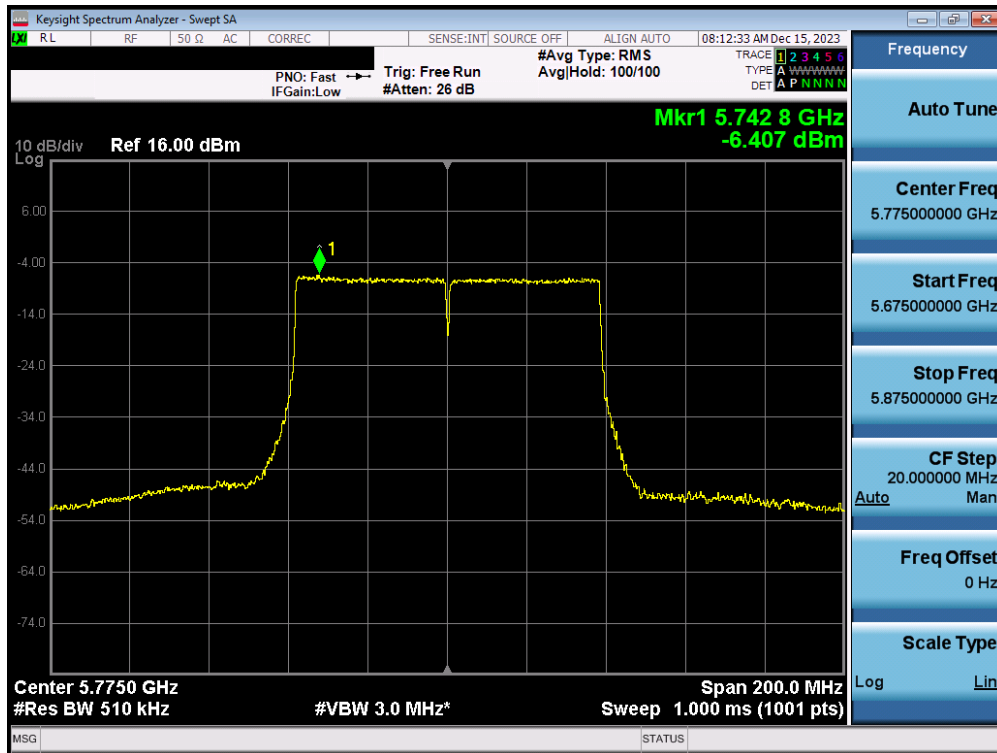


Plot 7-109. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

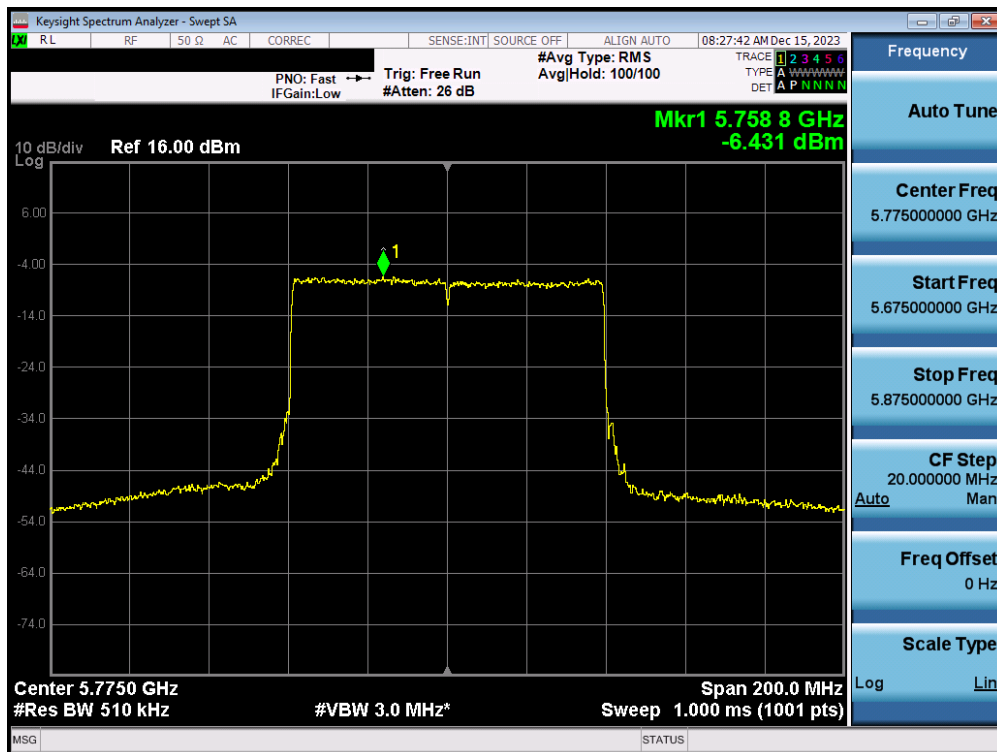


Plot 7-110. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 85 of 116



Plot 7-111. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)



Plot 7-112. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 3) – Ch. 155)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 86 of 116



Note:

Per ANSI C63.10-2013 Section 14.3.2.2 and KDB 662911 v02r01 Section E)2), 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 5180MHz in 802.11n (20MHz BW) mode, the average conducted power spectral density was measured to be 5.22 dBm for Antenna 1 and 5.09 dBm for Antenna 2.

Antenna 1 + Antenna 2 = MIMO

$$(5.22 \text{ dBm} + 5.09 \text{ dBm}) = (3.18 \text{ mW} + 3.23 \text{ mW}) = 6.41 \text{ mW} = 8.07 \text{ dBm}$$

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 87 of 116

7.6 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, 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 5.15-5.25 GHz and 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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 in the table below per FCC §15.209 and RSS-Gen (8.9).

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 7-15. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5 (Radiated Spurious Emissions)

ANSI C63.10-2013 – Section 12.7.4.4 (Band Edge Measurements)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 88 of 116

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.

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.

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 89 of 116

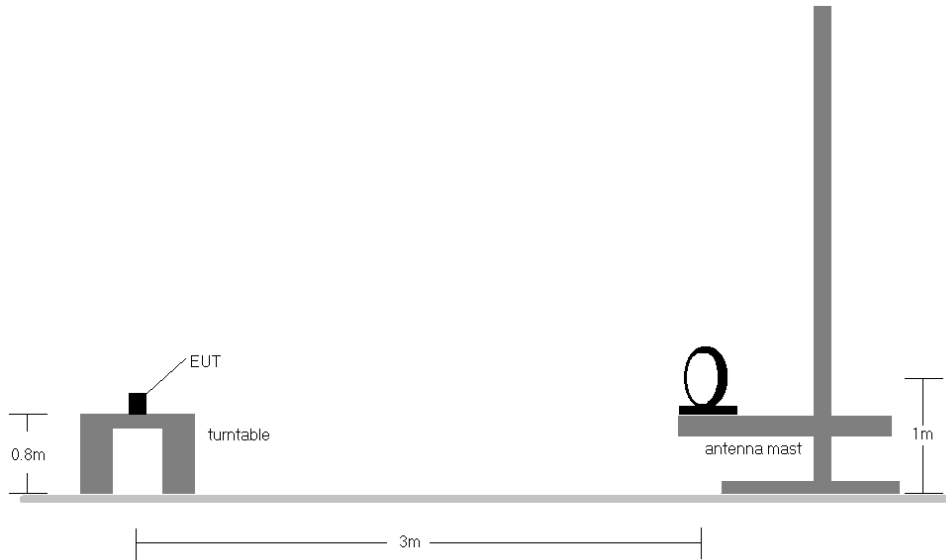


Figure 7-5. Radiated Test Setup < 30MHz

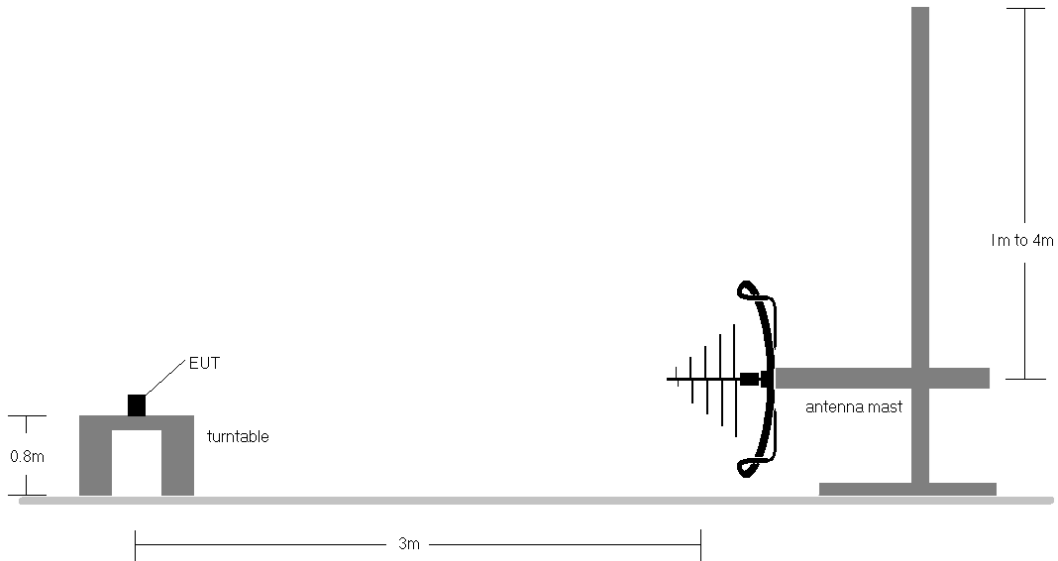


Figure 7-6. Radiated Test Setup < 1GHz

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 90 of 116

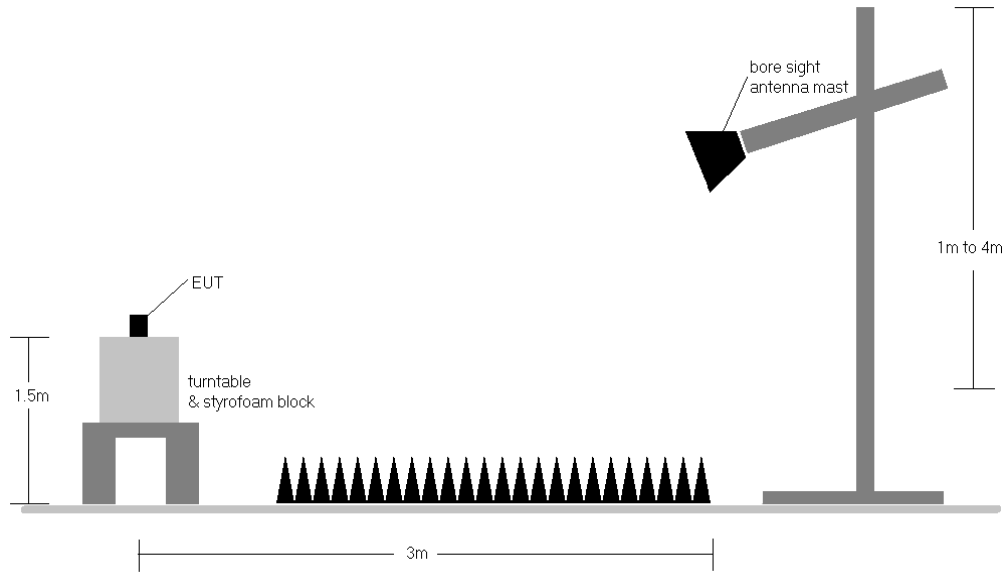


Figure 7-7. Radiated Test Setup > 1GHz

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 91 of 116

Test Notes

1. All spurious emissions lying in restricted bands specified in §15.205 are below the limits shown 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.
8. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
9. In the case where a peak-detector measurement passed the given RMS limit it was determined sufficient to demonstrate compliance.
10. 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

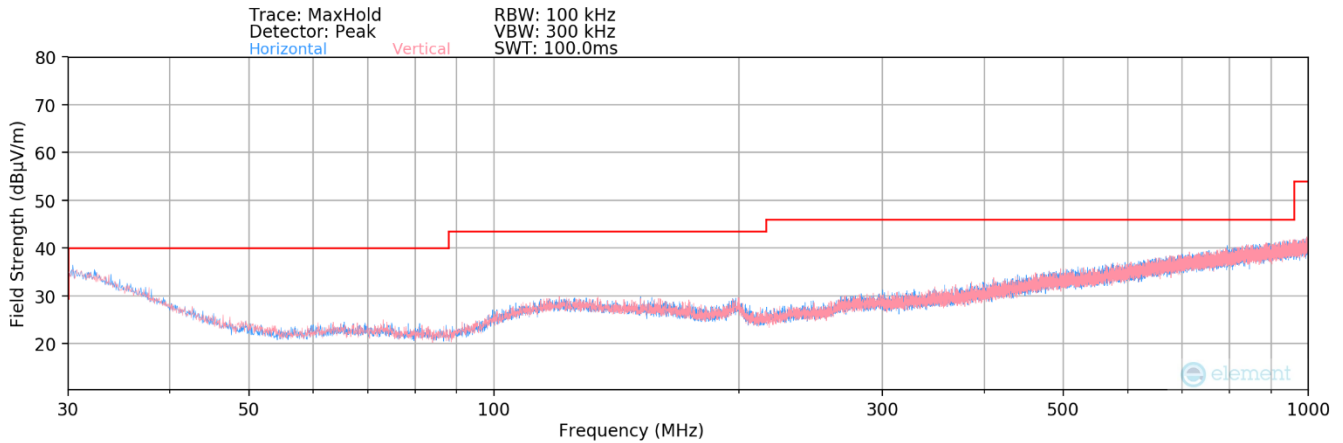
- Field Strength Level [dB μ V/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [dB μ V/m] – Limit [dB μ V/m]

Radiated Band Edge Measurement Offset

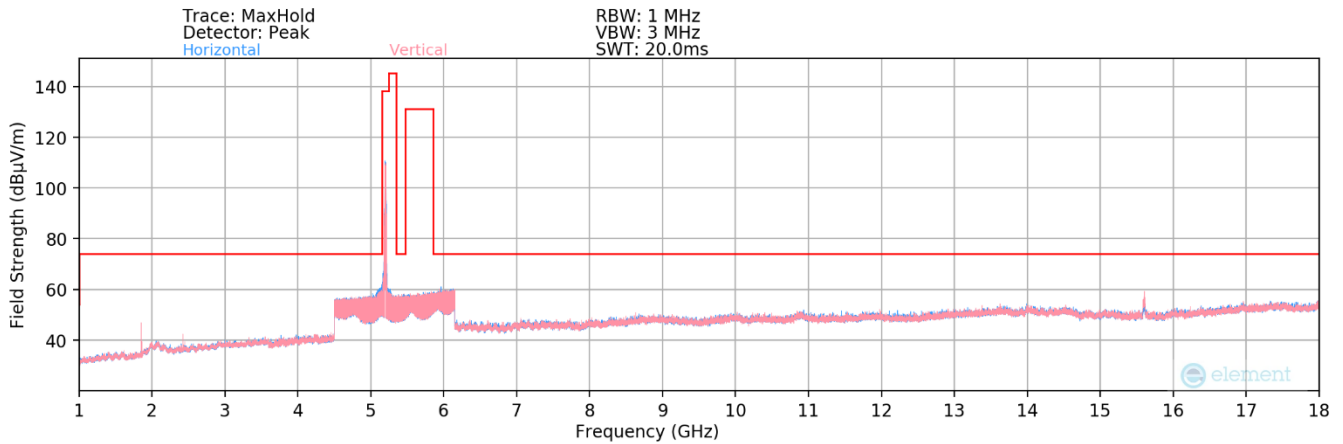
- The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Pre-amplifier Gain

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 92 of 116

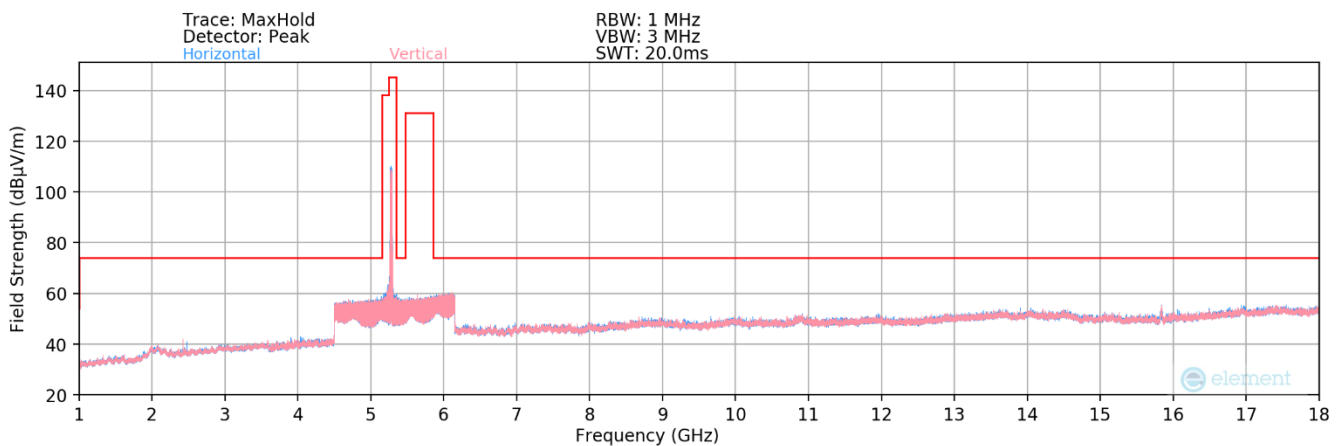
7.6.1 MIMO Radiated Spurious Emission Measurements



Plot 7-113. Radiated Spurious Plot below 1GHz MIMO (802.11a)

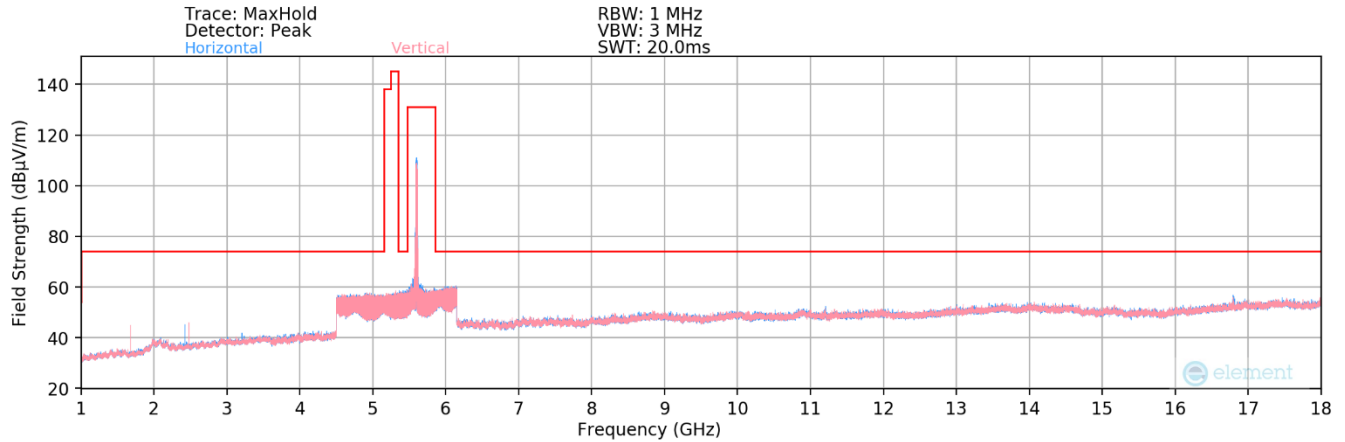


Plot 7-114. Radiated Spurious Plot above 1GHz MIMO (802.11ax – UNII Band 1 Ch. 40)

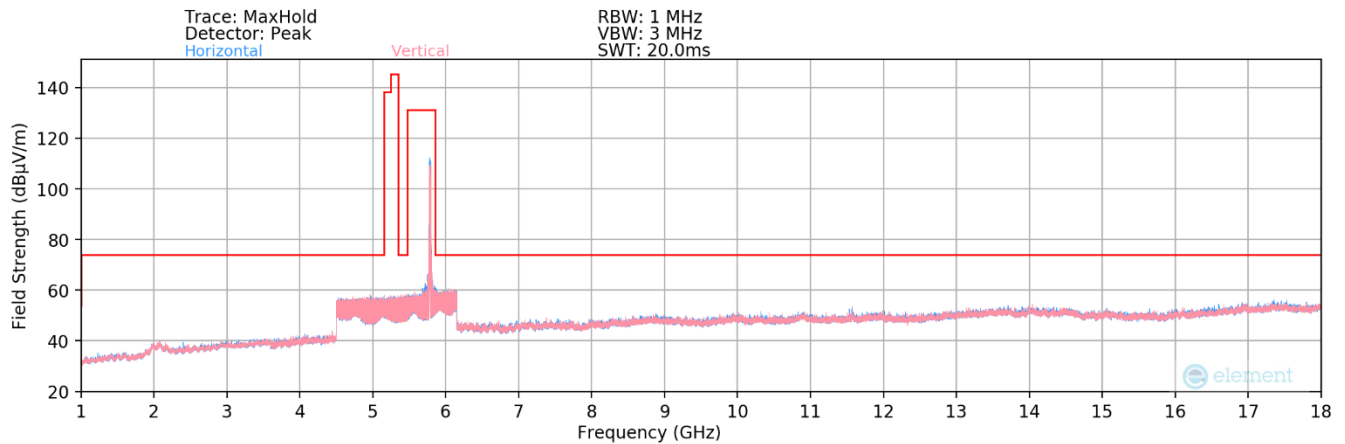


Plot 7-115. Radiated Spurious Plot above 1GHz MIMO (802.11ax – UNII Band 2A Ch. 56)

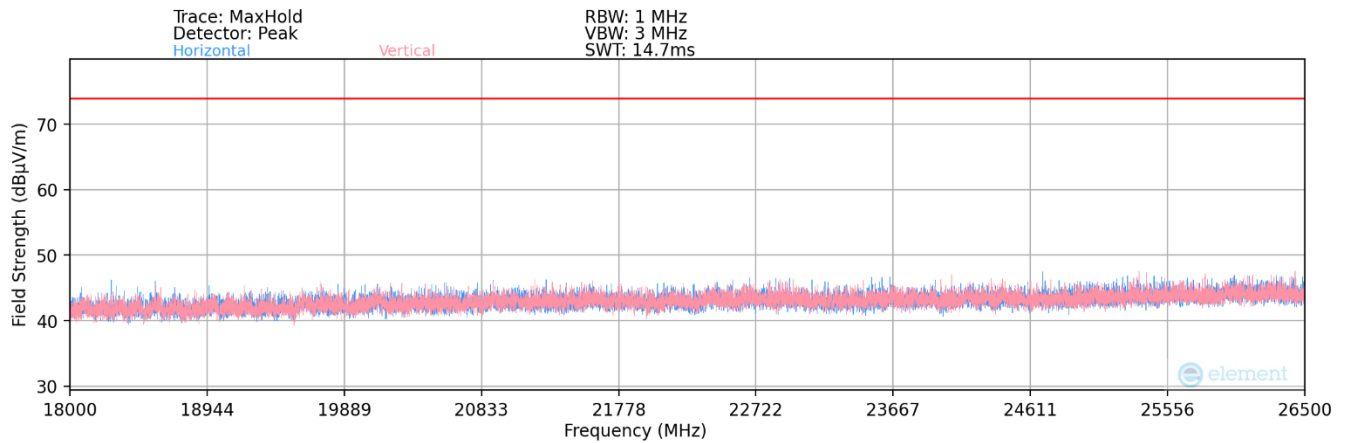
FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 93 of 116



Plot 7-116. Radiated Spurious Plot above 1GHz MIMO (802.11ax – UNII Band 2C Ch. 120)

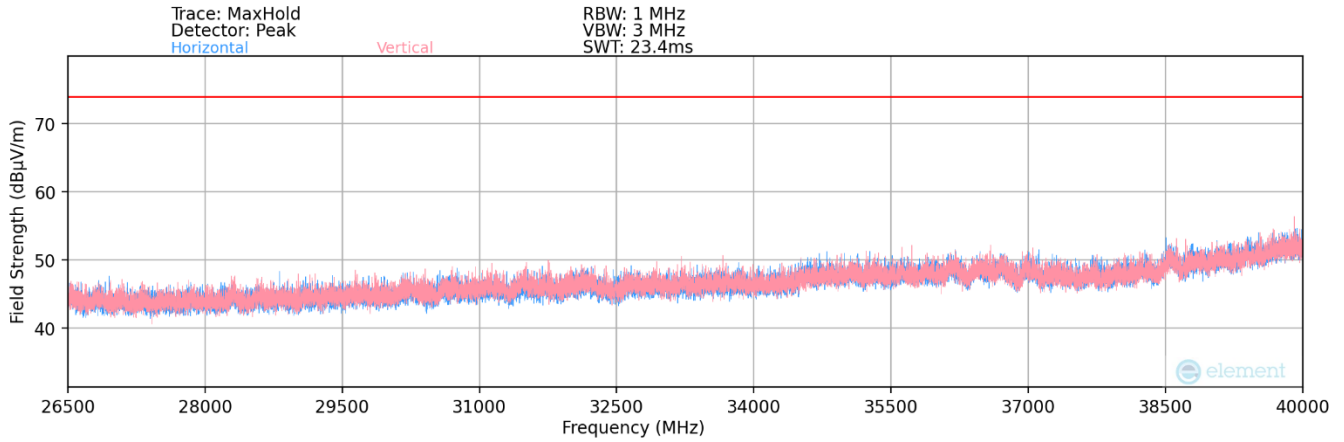


Plot 7-117. Radiated Spurious Plot above 1GHz MIMO (802.11ax – UNII Band 3 Ch. 157)



Plot 7-118. Radiated Spurious Plot 18GHz – 26.5GHz MIMO (802.11ax)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 94 of 116



Plot 7-119. Radiated Spurious Plot 26.5GHz – 40GHz MIMO (802.11ax)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 95 of 116

MIMO Radiated Spurious Emission Measurements – UNII Band 1

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

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]
10360.00	Peak	V	334	4	-67.25	12.12	0.00	51.87	68.20	-16.33
* 15540.00	Average	V	248	136	-72.65	14.11	0.00	48.46	53.98	-5.52
* 15540.00	Peak	V	248	136	-59.64	14.11	0.00	61.47	73.98	-12.51
* 20720.00	Average	V	-	-	-65.45	2.12	-9.54	34.12	53.98	-19.86
* 20720.00	Peak	V	-	-	-56.22	2.12	-9.54	43.35	73.98	-30.63
25900.00	Peak	V	-	-	-56.14	4.33	-9.54	45.65	68.20	-22.55

Table 7-16. Radiated Measurements MIMO

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

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]
10400.00	Peak	V	344	352	-68.68	12.37	0.00	50.69	68.20	-17.51
* 15600.00	Average	V	305	147	-73.32	14.22	0.00	47.90	53.98	-6.08
* 15600.00	Peak	V	305	147	-59.89	14.22	0.00	61.33	73.98	-12.65
* 20800.00	Average	V	-	-	-65.36	2.34	-9.54	34.44	53.98	-19.54
* 20800.00	Peak	V	-	-	-55.96	2.34	-9.54	43.84	73.98	-30.14
26000.00	Peak	V	-	-	-55.84	4.46	-9.54	46.07	68.20	-22.13

Table 7-17. Radiated Measurements MIMO

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 96 of 116

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

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]
10480.00	Peak	V	330	3	-67.97	13.08	0.00	52.11	68.20	-16.09
* 15720.00	Average	V	302	148	-73.96	14.65	0.00	47.69	53.98	-6.29
* 15720.00	Peak	V	302	148	-60.61	14.65	0.00	61.04	73.98	-12.94
* 20960.00	Average	V	-	-	-65.74	2.48	-9.54	34.19	53.98	-19.79
* 20960.00	Peak	V	-	-	-55.45	2.48	-9.54	44.48	73.98	-29.50
26200.00	Peak	V	-	-	-55.82	4.69	-9.54	46.33	68.20	-21.87

Table 7-18. Radiated Measurements MIMO

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 97 of 116

MIMO Radiated Spurious Emission Measurements – UNII Band 2A

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5260MHz
Channel:	52

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 [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
10520.00	Peak	V	109	182	-68.34	12.95	0.00	51.61	68.20	-16.59
* 15780.00	Average	V	301	143	-76.02	14.23	0.00	45.21	53.98	-8.77
* 15780.00	Peak	V	301	143	-63.10	14.23	0.00	58.13	73.98	-15.85
* 21040.00	Average	V	-	-	-65.44	2.59	-9.54	34.61	53.98	-19.37
* 21040.00	Peak	V	-	-	-56.28	2.59	-9.54	43.77	73.98	-30.21
26300.00	Peak	V	-	-	-56.44	4.68	-9.54	45.70	68.20	-22.50

Table 7-19. Radiated Measurements MIMO

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5280MHz
Channel:	56

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 [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
10560.00	Peak	V	111	196	-68.71	12.97	0.00	51.26	68.20	-16.94
* 15840.00	Average	V	312	57	-74.10	14.09	0.00	46.99	53.98	-6.99
* 15840.00	Peak	V	312	57	-60.58	14.09	0.00	60.51	73.98	-13.47
* 21120.00	Average	V	-	-	-65.66	2.68	-9.54	34.47	53.98	-19.50
* 21120.00	Peak	V	-	-	-56.25	2.68	-9.54	43.88	73.98	-30.09
26400.00	Peak	V	-	-	-55.87	4.70	-9.54	46.29	68.20	-21.91

Table 7-20. Radiated Measurements MIMO

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 98 of 116



Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

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]
* 10640.00	Average	V	110	184	-77.92	12.51	0.00	41.59	53.98	-12.39
* 10640.00	Peak	V	110	184	-67.63	12.51	0.00	51.88	73.98	-22.10
* 15960.00	Average	V	308	50	-76.65	15.27	0.00	45.62	53.98	-8.36
* 15960.00	Peak	V	308	50	-63.10	15.27	0.00	59.17	73.98	-14.81
* 21280.00	Average	V	-	-	-65.42	2.67	-9.54	34.70	53.98	-19.28
* 21280.00	Peak	V	-	-	-56.21	2.67	-9.54	43.91	73.98	-30.07
26600.00	Peak	V	-	-	-56.11	4.59	-9.54	45.94	68.20	-22.26

Table 7-21. Radiated Measurements MIMO

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 99 of 116



MIMO Radiated Spurious Emission Measurements – UNII Band 2C

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

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]
* 11000.00	Average	V	112	189	-75.36	12.66	0.00	44.30	53.98	-9.68
* 11000.00	Peak	V	112	189	-64.94	12.66	0.00	54.72	73.98	-19.26
16500.00	Peak	V	112	167	-62.91	15.81	0.00	59.90	68.20	-8.30
22000.00	Peak	V	-	-	-55.65	2.95	-9.54	44.76	68.20	-23.44
27500.00	Peak	V	-	-	-55.47	4.79	-9.54	46.78	68.20	-21.42

Table 7-22. Radiated Measurements MIMO

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

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]
* 11200.00	Average	V	116	196	-74.82	12.54	0.00	44.72	53.98	-9.26
* 11200.00	Peak	V	116	196	-64.08	12.54	0.00	55.46	73.98	-18.52
16800.00	Peak	V	114	168	-64.01	16.25	0.00	59.24	68.20	-8.96
* 22400.00	Average	V	-	-	-65.42	3.11	-9.54	35.15	53.98	-18.83
* 22400.00	Peak	V	-	-	-56.21	3.11	-9.54	44.36	73.98	-29.62
28000.00	Peak	V	-	-	-56.11	4.95	-9.54	46.30	68.20	-21.90

Table 7-23. Radiated Measurements MIMO

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 100 of 116

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

	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]
*	11440.00	Average	V	120	202	-76.90	13.54	0.00	43.64	53.98	-10.34
*	11440.00	Peak	V	120	202	-66.88	13.54	0.00	53.66	73.98	-20.32
	17160.00	Peak	V	110	229	-67.46	16.79	0.00	56.33	68.20	-11.87
*	22880.00	Average	V	-	-	-65.23	3.05	-9.54	35.28	53.98	-18.70
*	22880.00	Peak	V	-	-	-56.33	3.05	-9.54	44.18	73.98	-29.80
	28600.00	Peak	V	-	-	-57.01	4.92	-9.54	45.37	68.20	-22.83

Table 7-24. Radiated Measurements MIMO

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 101 of 116



MIMO Radiated Spurious Emission Measurements – UNII Band 3

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 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]
* 11490.00	Average	V	270	197	-75.90	13.10	0.00	44.20	53.98	-9.78
* 11490.00	Peak	V	270	197	-65.78	13.10	0.00	54.32	73.98	-19.66
17235.00	Peak	V	110	227	-67.64	16.91	0.00	56.27	68.20	-11.93
* 22980.00	Average	V	-	-	-65.23	3.05	-9.54	35.28	53.98	-18.70
* 22980.00	Peak	V	-	-	-56.25	3.05	-9.54	44.26	73.98	-29.72
28725.00	Peak	V	-	-	-55.33	4.97	-9.54	47.10	69.20	-22.10

Table 7-25. Radiated Measurements MIMO

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

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]
* 11570.00	Average	V	114	198	-75.43	12.96	0.00	44.53	53.98	-9.45
* 11570.00	Peak	V	114	198	-65.74	12.96	0.00	54.22	73.98	-19.76
17355.00	Peak	V	290	135	-67.32	17.83	0.00	57.51	68.20	-10.69
23140.00	Peak	V	-	-	-56.44	3.10	-9.54	44.12	68.20	-24.08
28925.00	Peak	V	-	-	-56.52	4.78	-9.54	45.71	68.20	-22.49

Table 7-26. Radiated Measurements MIMO

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 102 of 116



Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

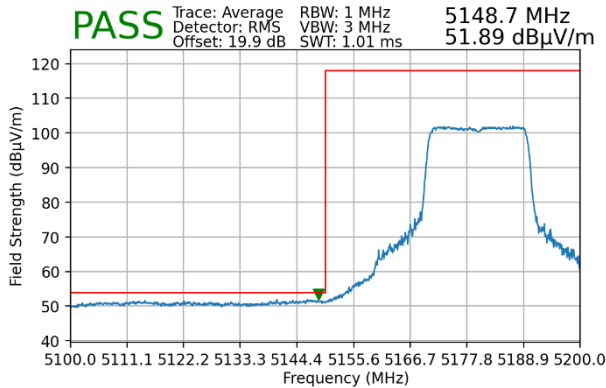
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	274	200	-76.62	13.39	0.00	43.77	53.98	-10.21
* 11650.00	Peak	V	274	200	-66.31	13.39	0.00	54.08	73.98	-19.90
17475.00	Peak	V	288	140	-67.28	17.09	0.00	56.81	68.20	-11.39
23300.00	Peak	V	-	-	-56.39	3.28	-9.54	44.35	68.20	-23.85
29125.00	Peak	V	-	-	-56.11	4.84	-9.54	46.19	68.20	-22.01

Table 7-27. Radiated Measurements MIMO

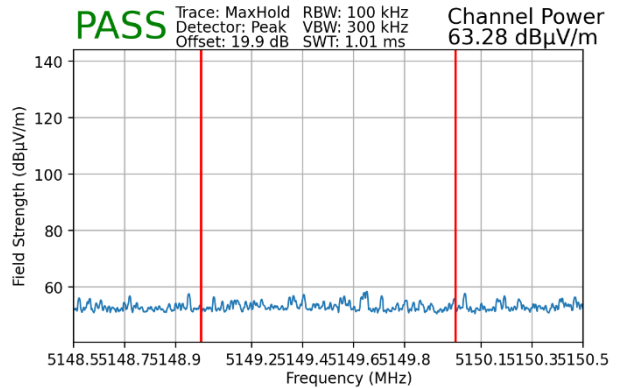
FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 103 of 116

7.6.2 MIMO Radiated Band Edge Measurements (20MHz BW)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36

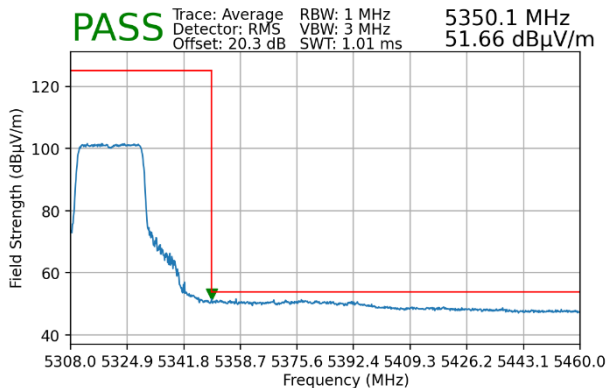


Plot 7-120. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)

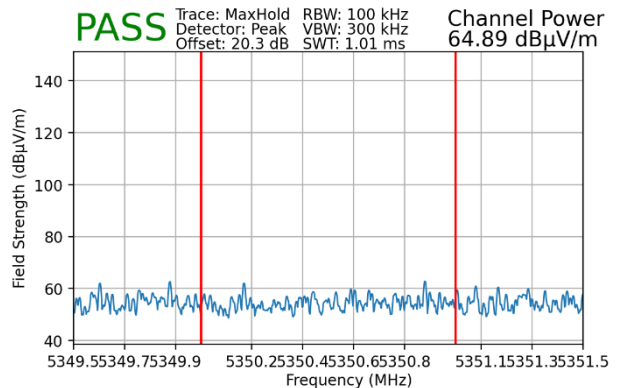


Plot 7-121. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



Plot 7-122. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)

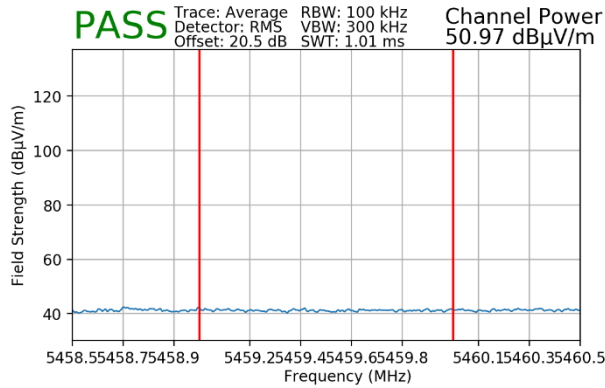


Plot 7-123. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)

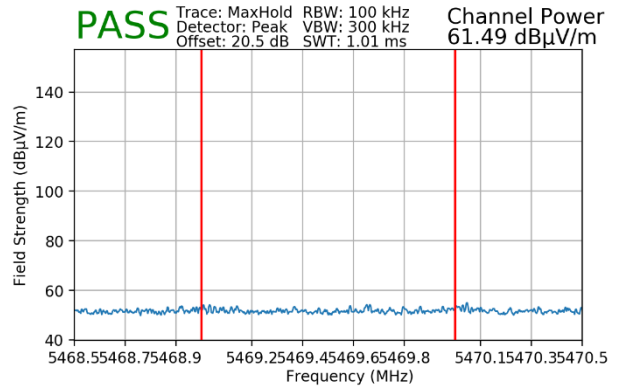
FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 104 of 116



Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

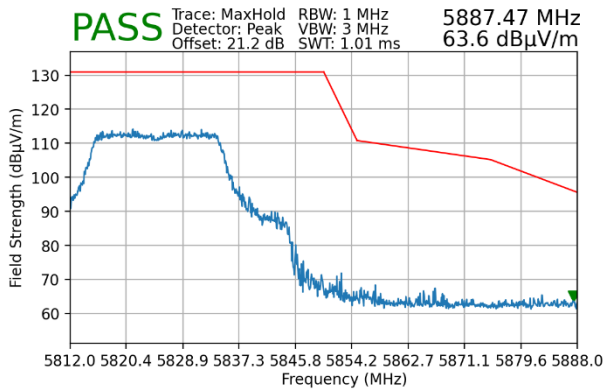


Plot 7-124. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)



Plot 7-125. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

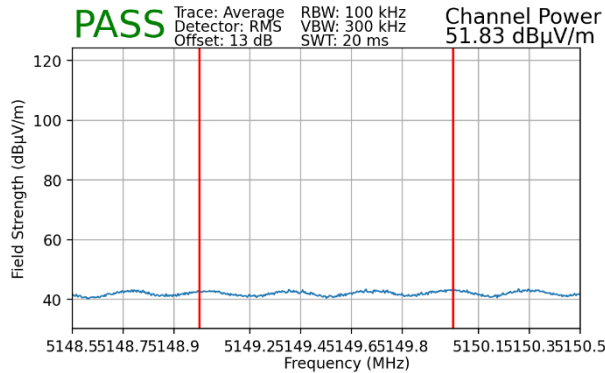


Plot 7-126. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3)

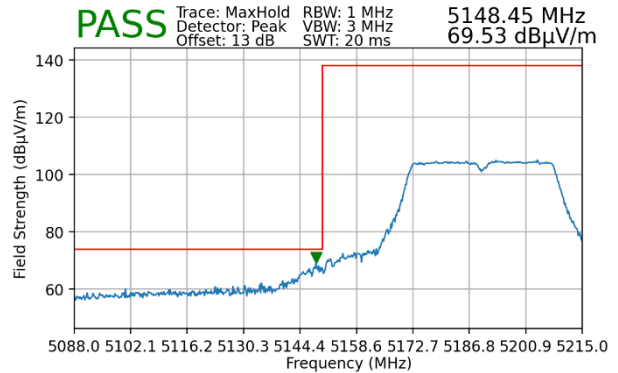
FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 105 of 116

7.6.3 MIMO Radiated Band Edge Measurements (40MHz BW)

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 5190MHz
 Channel: 38

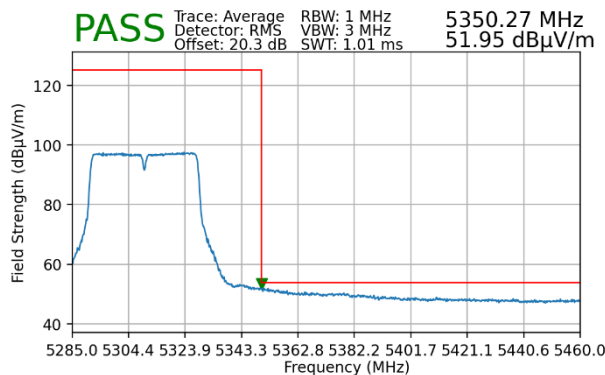


Plot 7-127. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)

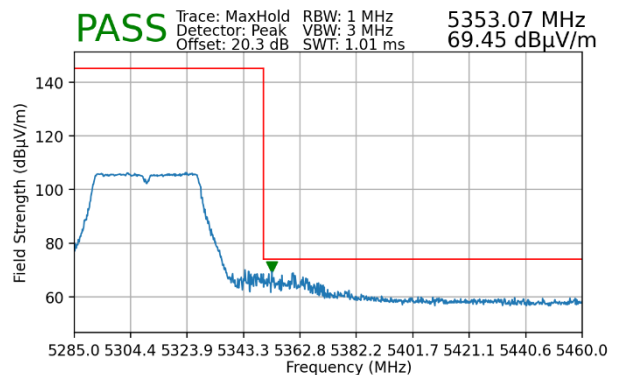


Plot 7-128. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 5310MHz
 Channel: 62



Plot 7-129. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)

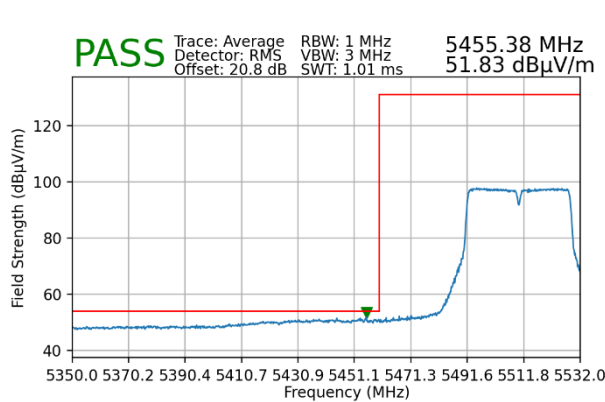


Plot 7-130. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)

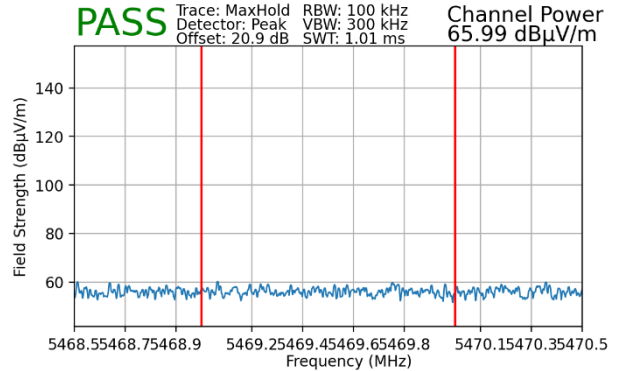
FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 106 of 116



Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 5510MHz
 Channel: 102

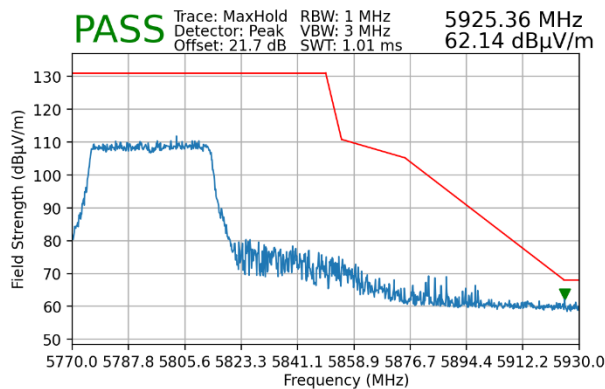


Plot 7-131. Radiated Lower Band Edge Plot MIMO (Average - UNII Band 2C)



Plot 7-132. Radiated Lower Band Edge Plot MIMO (Peak - UNII Band 2C)

Worst Case Mode: 802.11ac
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 5795MHz
 Channel: 159

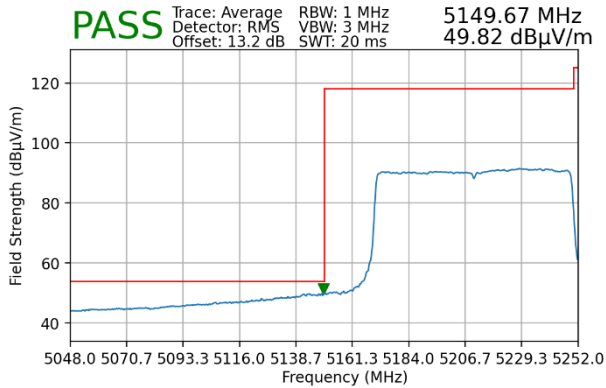


Plot 7-133. Radiated Upper Band Edge Plot MIMO (Peak - UNII Band 3)

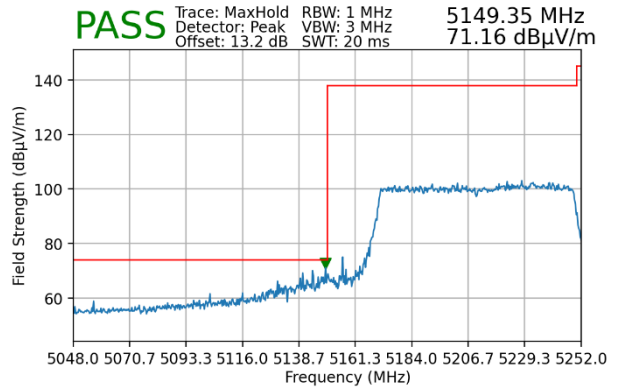
FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 107 of 116

7.6.4 MIMO Radiated Band Edge Measurements (80MHz BW)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42

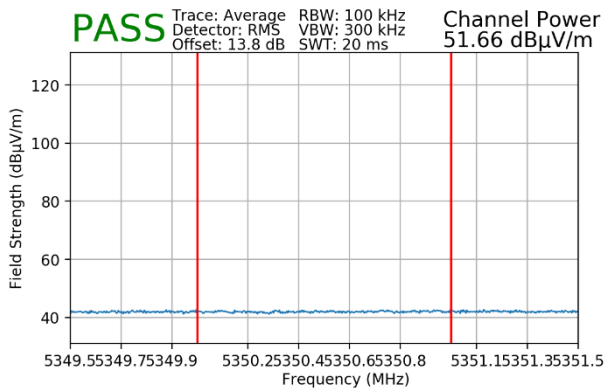


Plot 7-134. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)

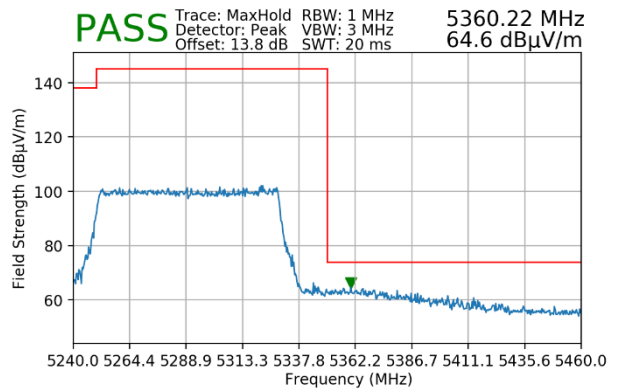


Plot 7-135. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



Plot 7-136. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)

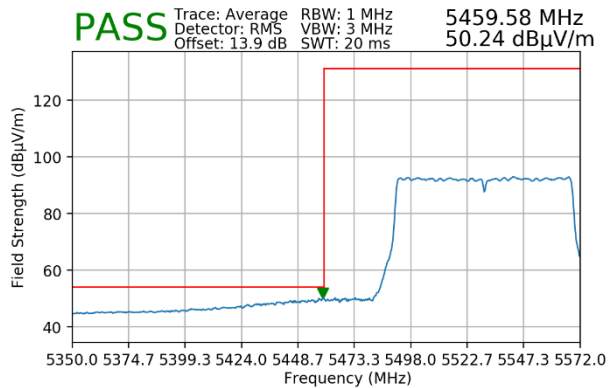


Plot 7-137. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)

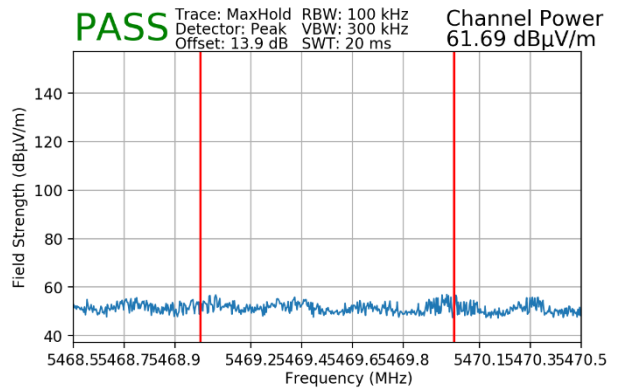
FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 108 of 116



Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 5530MHz
 Channel: 106

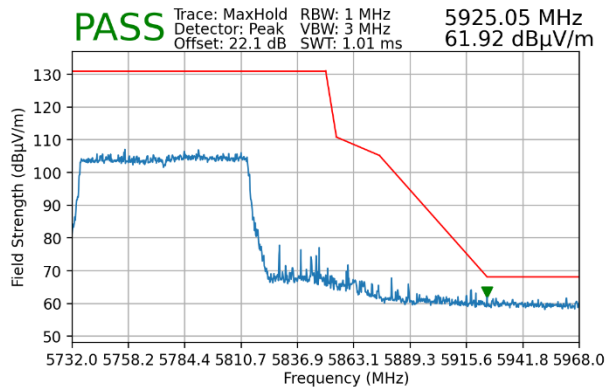


Plot 7-138. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)



Plot 7-139. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 Distance of Measurements: 3 Meters
 Operating Frequency: 5775MHz
 Channel: 155



Plot 7-140. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 109 of 116

7.7 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 FCC §15.207 and RSS-Gen (8.8).

Frequency of emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

Table 7-28. 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: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 110 of 116

Test Setup

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

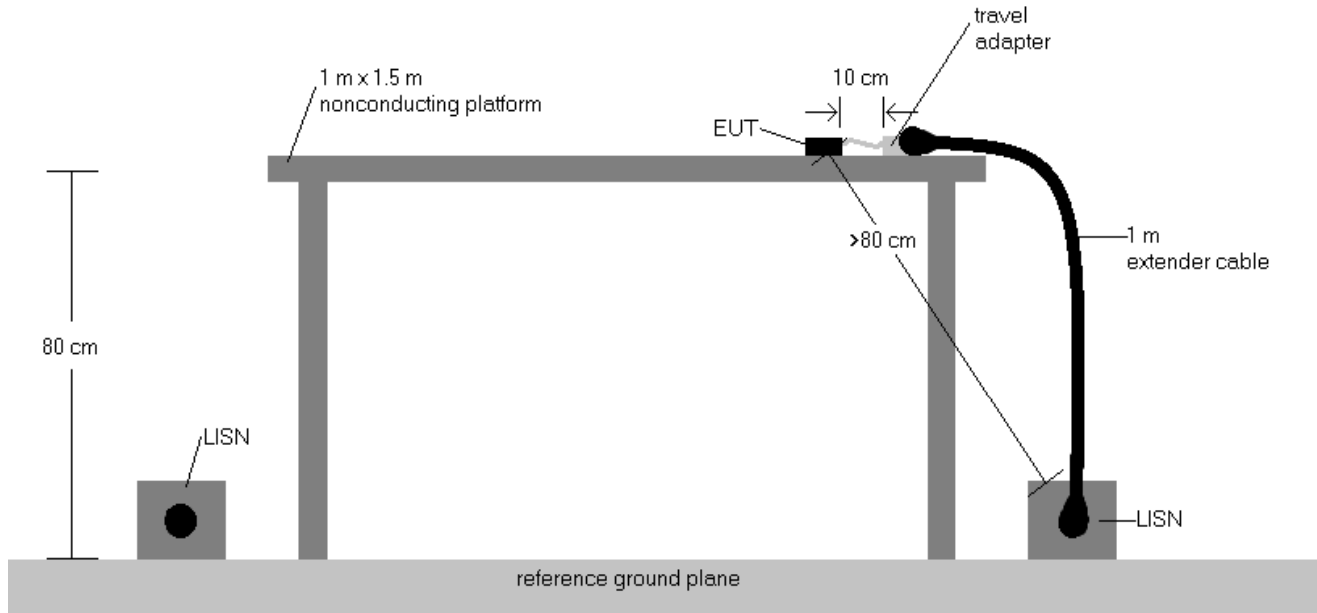
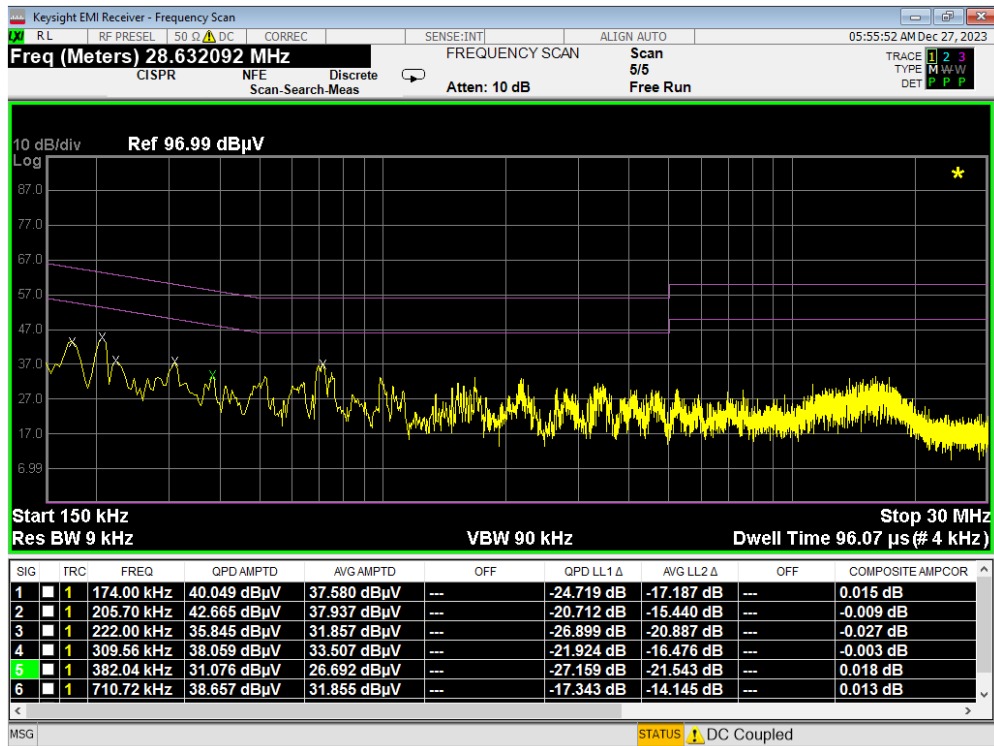


Figure 7-8. Test Instrument & Measurement Setup

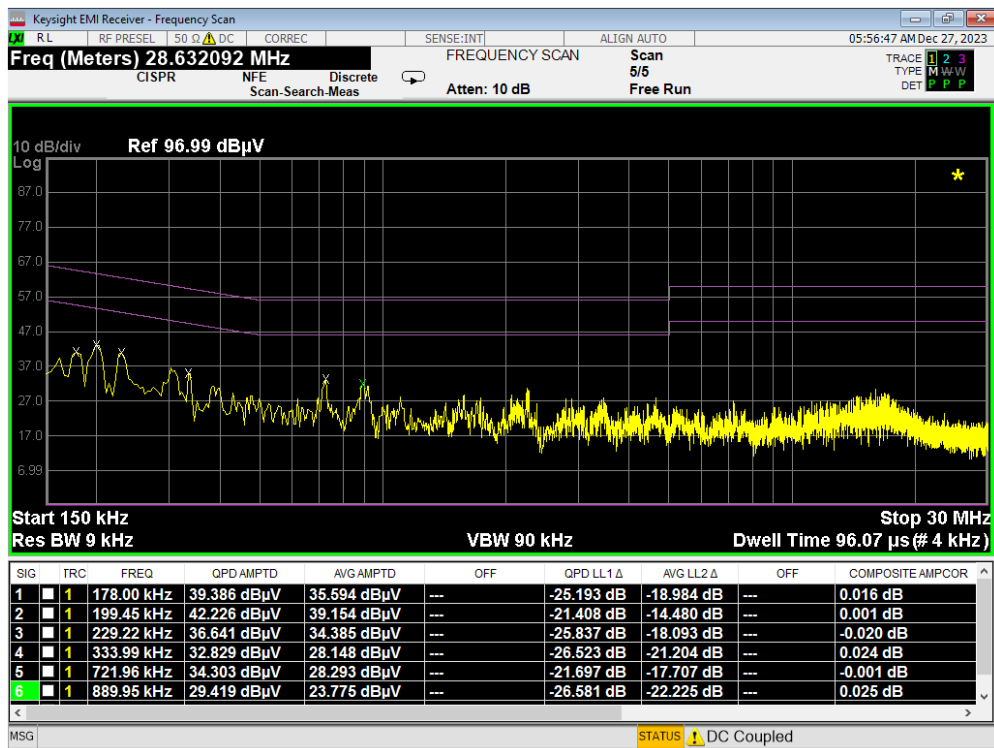
Test Notes

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 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: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 111 of 116

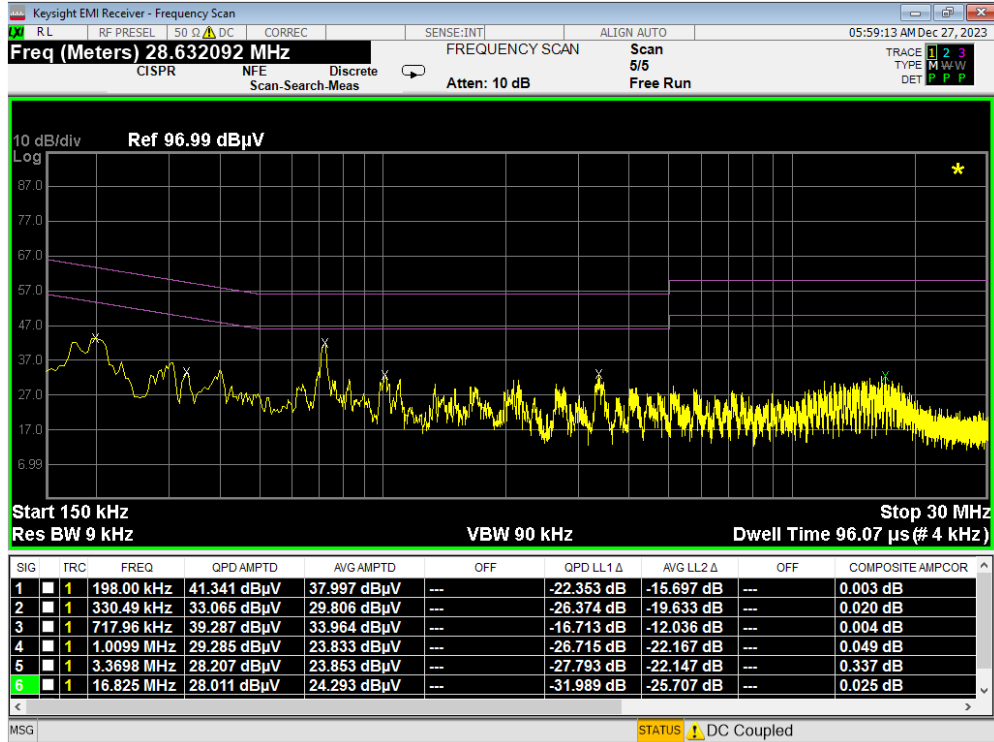


Plot 7-141. Line Conducted Plot with 802.11a UNII Band 1 (L1)

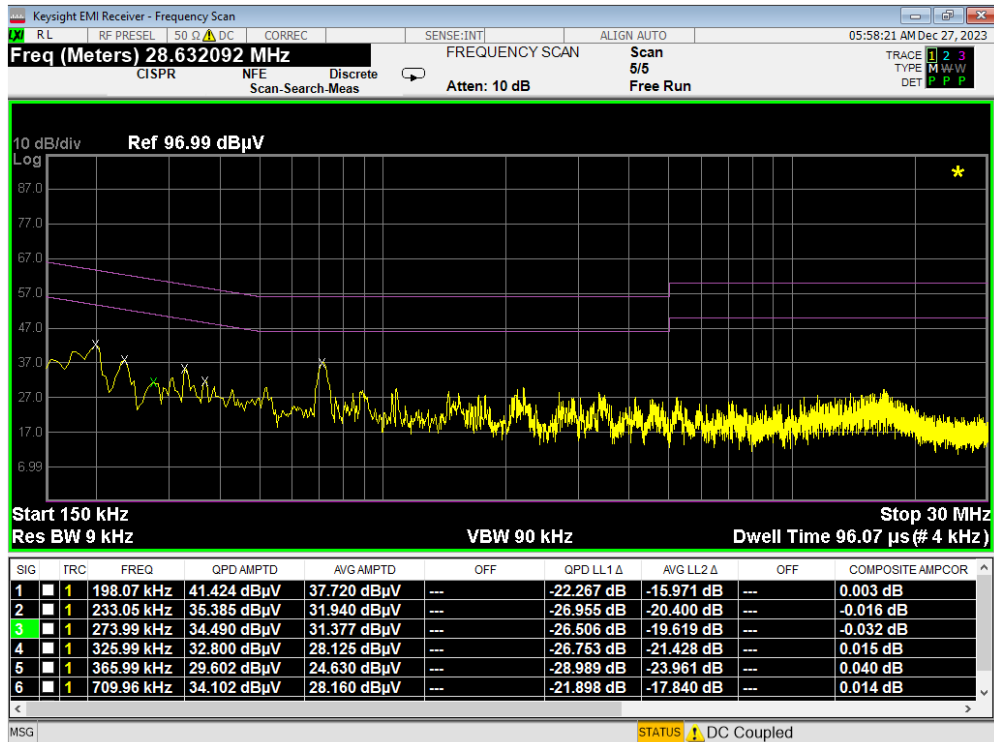


Plot 7-142. Line Conducted Plot with 802.11a UNII Band 1 (N)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 112 of 116

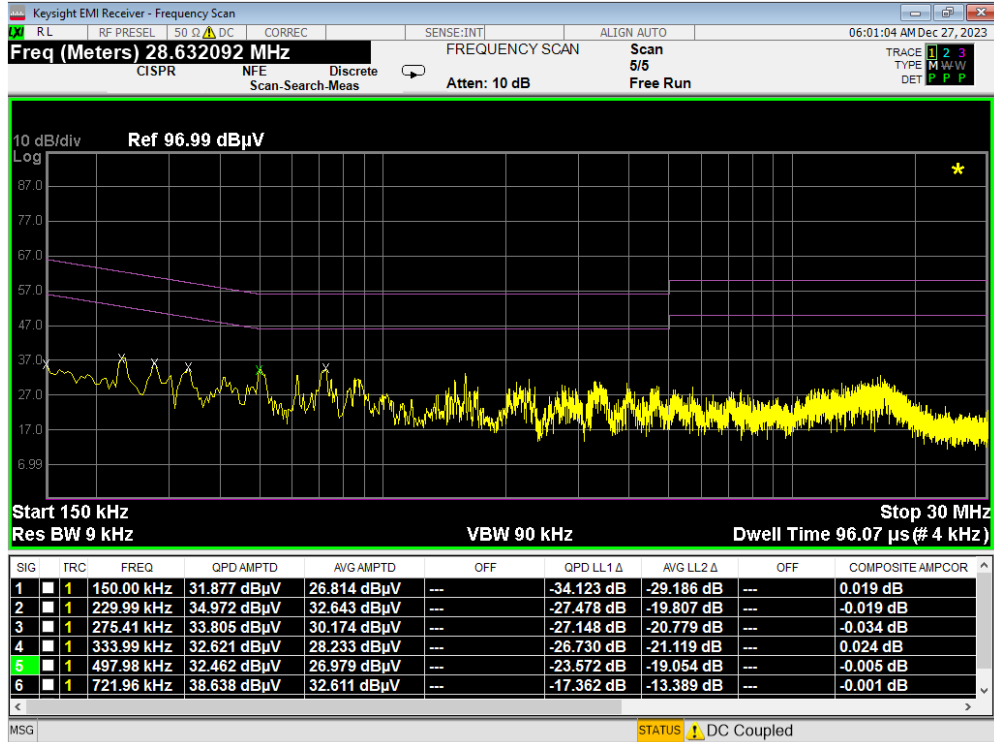


Plot 7-143. Line Conducted Plot with 802.11a UNII Band 2A (L1)

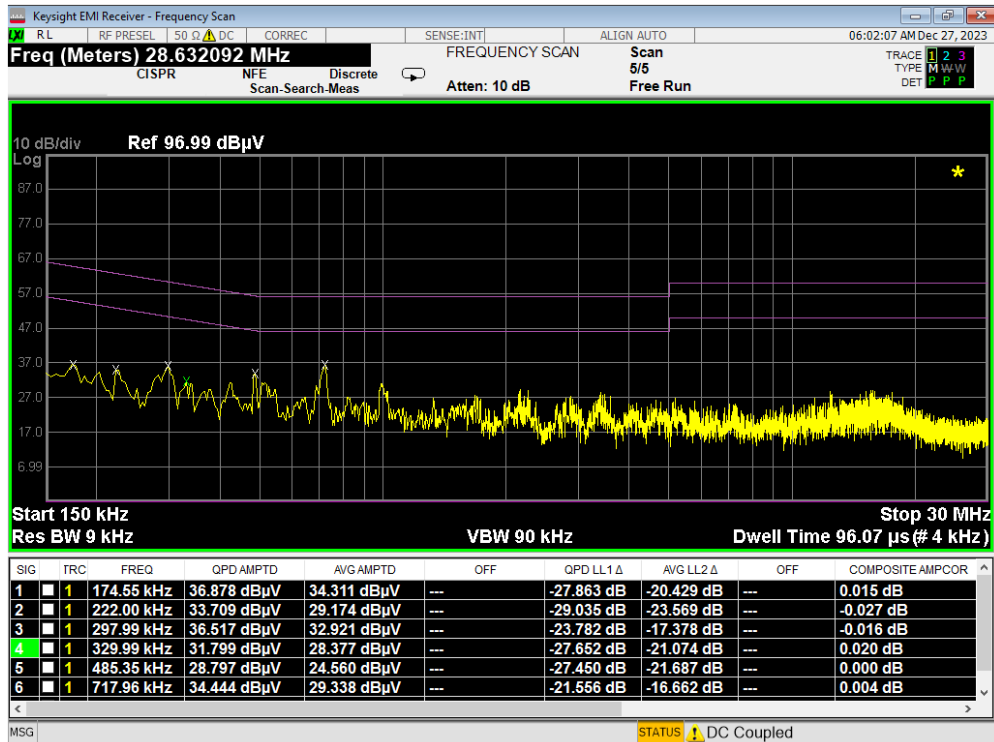


Plot 7-144. Line Conducted Plot with 802.11a UNII Band 2A (N)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 113 of 116

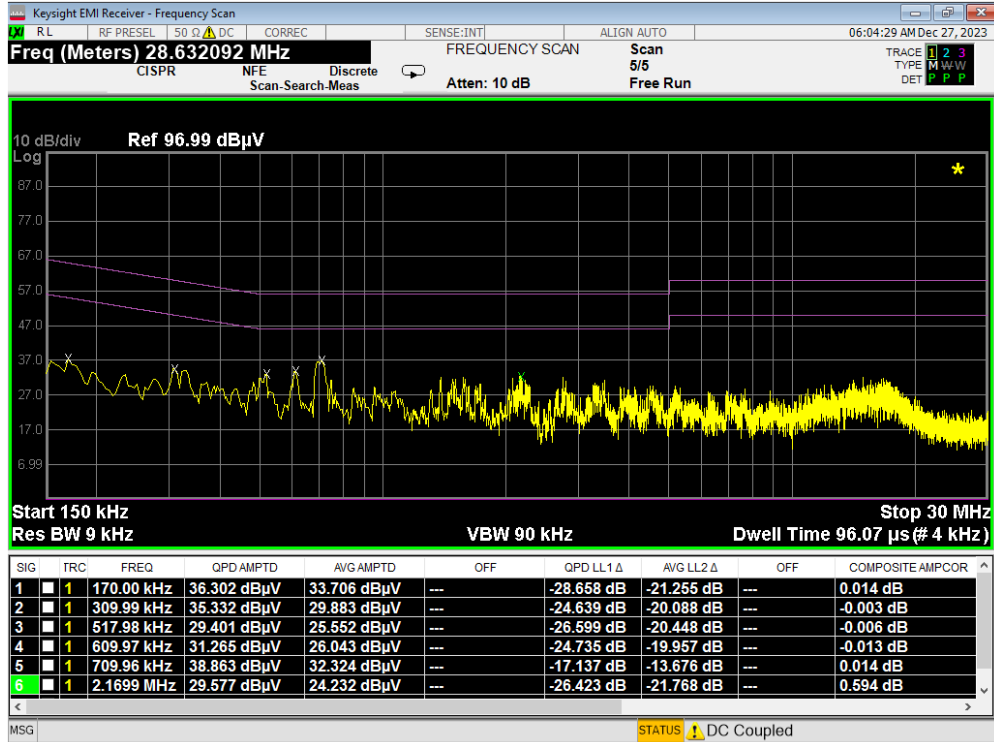


Plot 7-145. Line Conducted Plot with 802.11a UNII Band 2C (L1)

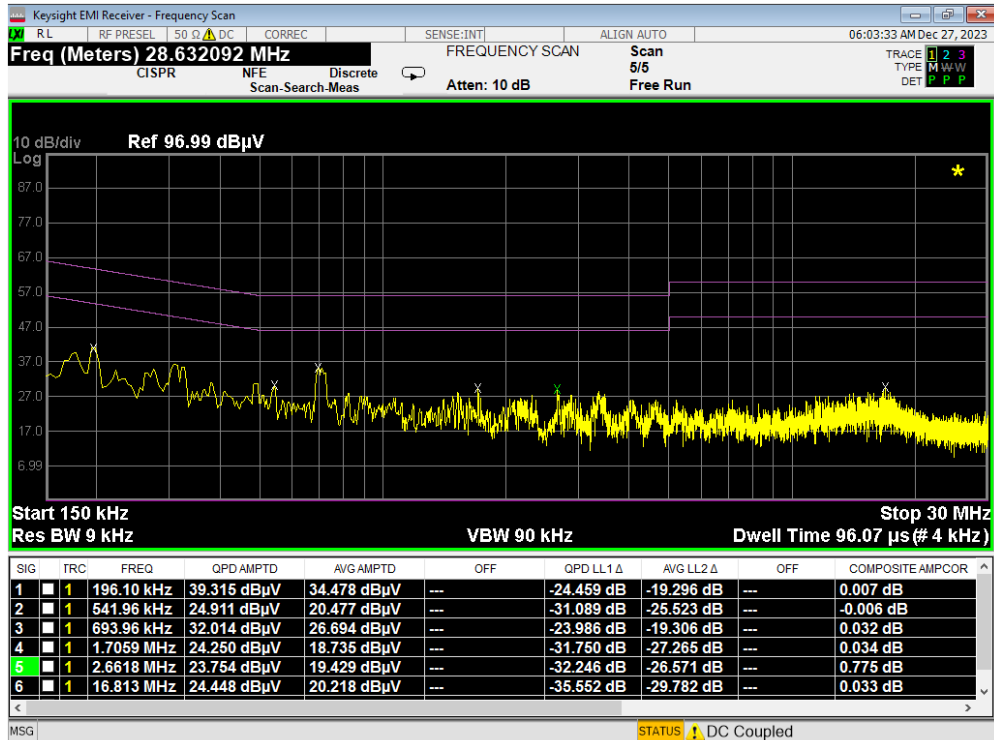


Plot 7-146. Line Conducted Plot with 802.11a UNII Band 2C (N)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 114 of 116



Plot 7-147. Line Conducted Plot with 802.11a UNII Band 3 (L1)



Plot 7-148. Line Conducted Plot with 802.11a UNII Band 3 (N)

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 115 of 116

8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMA356E** is in compliance with Part 15 Subpart E (15.407) of the FCC Rules.

FCC ID: A3LSMA356E	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2310260110-09.A3L	Test Dates: 11/6/2023 - 12/27/2023	EUT Type: Portable Handset	Page 116 of 116