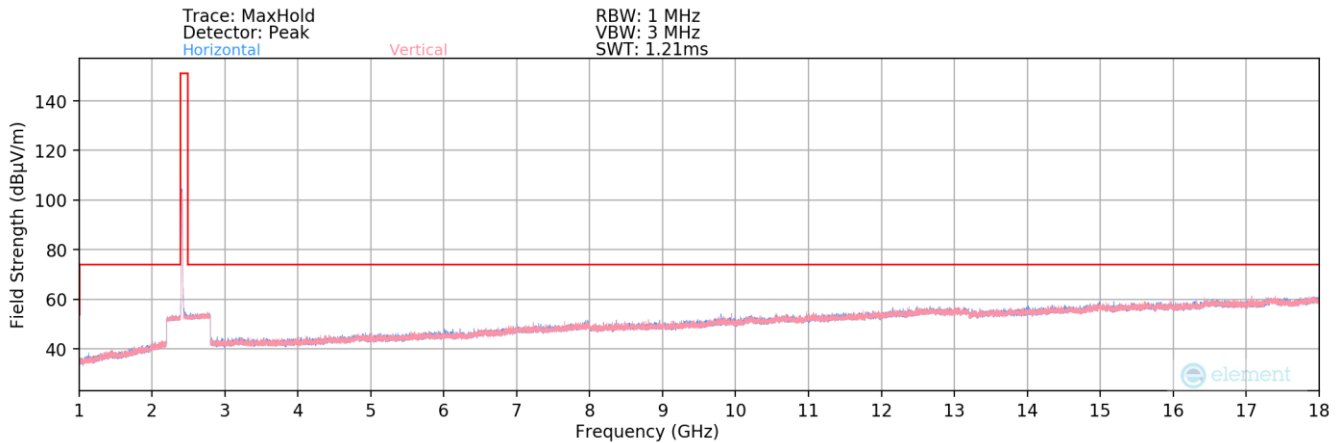
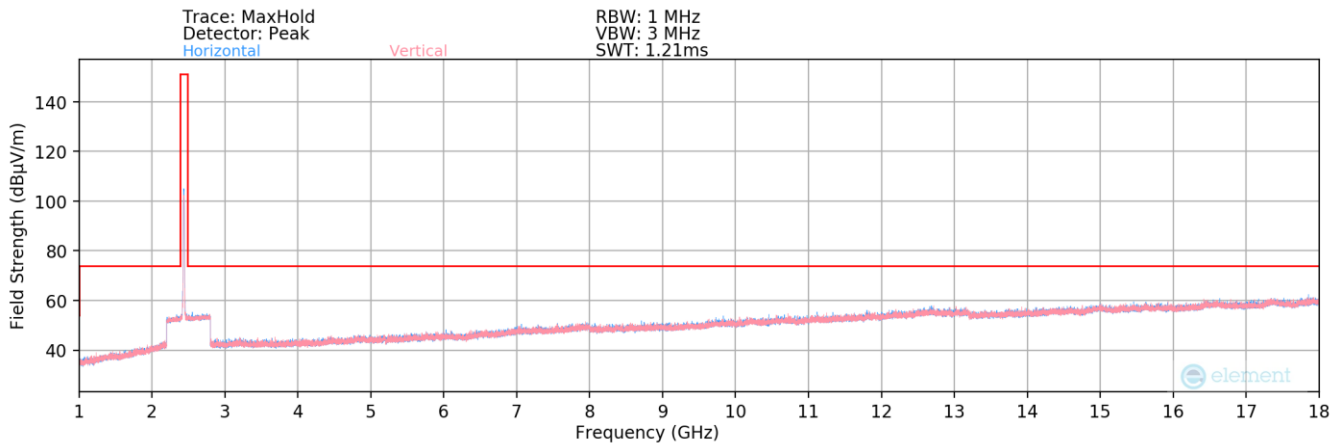


7.7.1 Radiated Spurious Emission Measurements

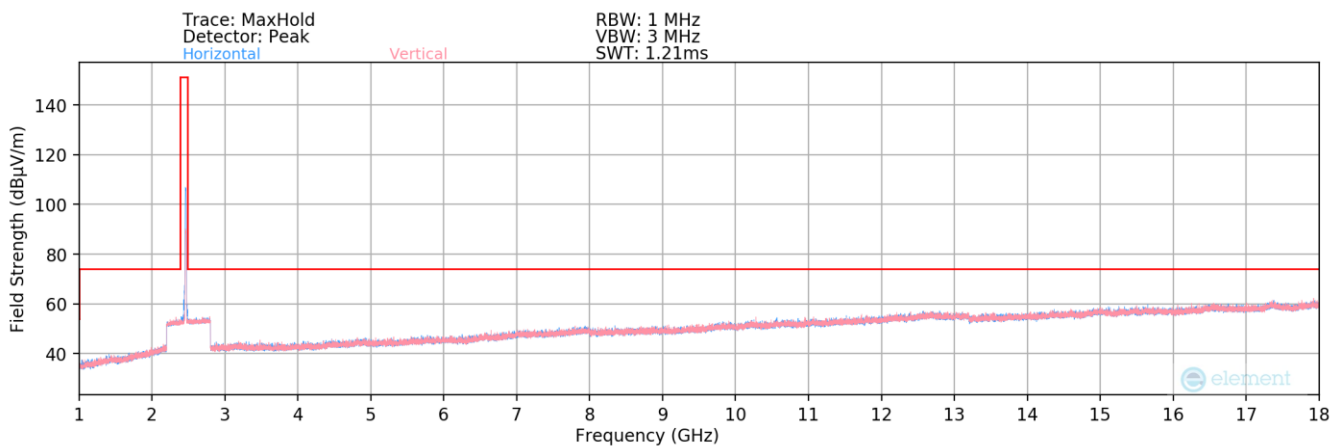
§15.247(d) §15.205 & §15.209; RSS-Gen [8.9]



Plot 7-115. Radiated Spurious Plot above 1GHz (802.11b – Ch. 1) SISO ANT 2



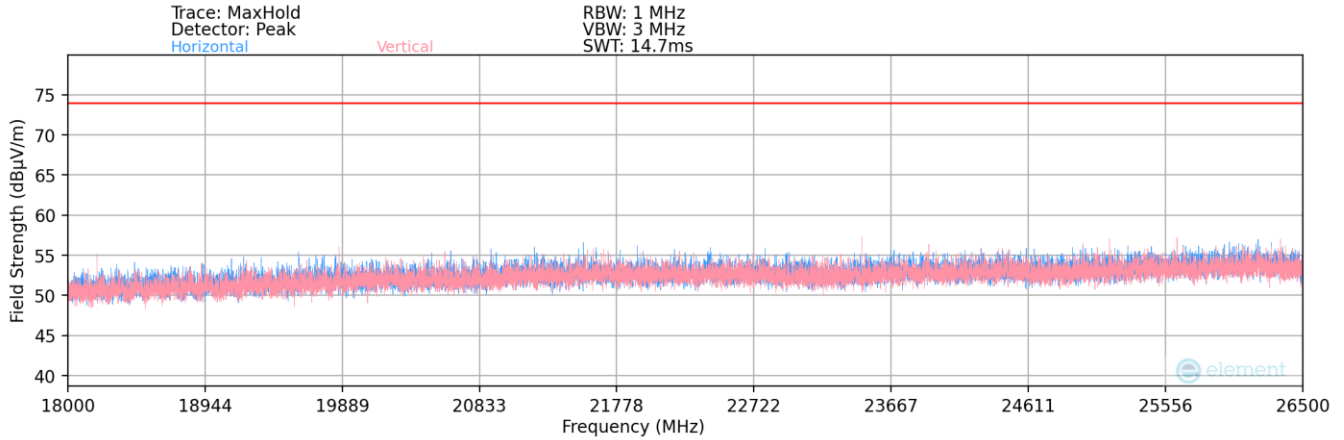
Plot 7-116. Radiated Spurious Plot above 1GHz (802.11b – Ch. 6) SISO ANT 2



Plot 7-117. Radiated Spurious Plot above 1GHz (802.11b – Ch. 11) SISO ANT 2

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 86 of 104

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



Plot 7-118. Radiated Spurious Plot above 18GHz SISO ANT 2

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 87 of 104



Radiated Spurious Emission Measurements

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

Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2412MHz
 Channel: 01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	Avg	V	-	-	-79.59	7.78	35.19	53.98	-18.79
4824.00	Peak	V	-	-	-69.27	7.78	45.51	73.98	-28.47
12060.00	Avg	V	-	-	-81.56	18.26	43.70	53.98	-10.28
12060.00	Peak	V	-	-	-71.51	18.26	53.75	73.98	-20.23

Table 7-12. Radiated Measurements SISO ANT 2

Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2437MHz
 Channel: 06

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	Avg	V	323	125	-79.59	7.53	34.94	53.98	-19.04
4874.00	Peak	V	323	125	-69.38	7.53	45.15	73.98	-28.83
7311.00	Avg	V	-	-	-79.33	12.43	40.10	53.98	-13.88
7311.00	Peak	V	-	-	-69.56	12.43	49.87	73.98	-24.11
12185.00	Avg	V	-	-	-81.98	19.08	44.10	53.98	-9.88
12185.00	Peak	V	-	-	-71.99	19.08	54.09	73.98	-19.89

Table 7-13. Radiated Measurements SISO ANT 2

FCC ID: A3LSMS916U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 88 of 104

V9.0 02/01/2019

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	Avg	V	400	164	-79.05	7.54	35.49	53.98	-18.49
4924.00	Peak	V	400	164	-68.68	7.54	45.86	73.98	-28.12
7386.00	Avg	V	-	-	-80.32	12.14	38.82	53.98	-15.16
7386.00	Peak	V	-	-	-69.60	12.14	49.54	73.98	-24.44
12310.00	Avg	V	-	-	-81.98	18.99	44.01	53.98	-9.97
12310.00	Peak	V	-	-	-70.26	18.99	55.73	73.98	-18.25

Table 7-14. Radiated Measurements SISO ANT 2

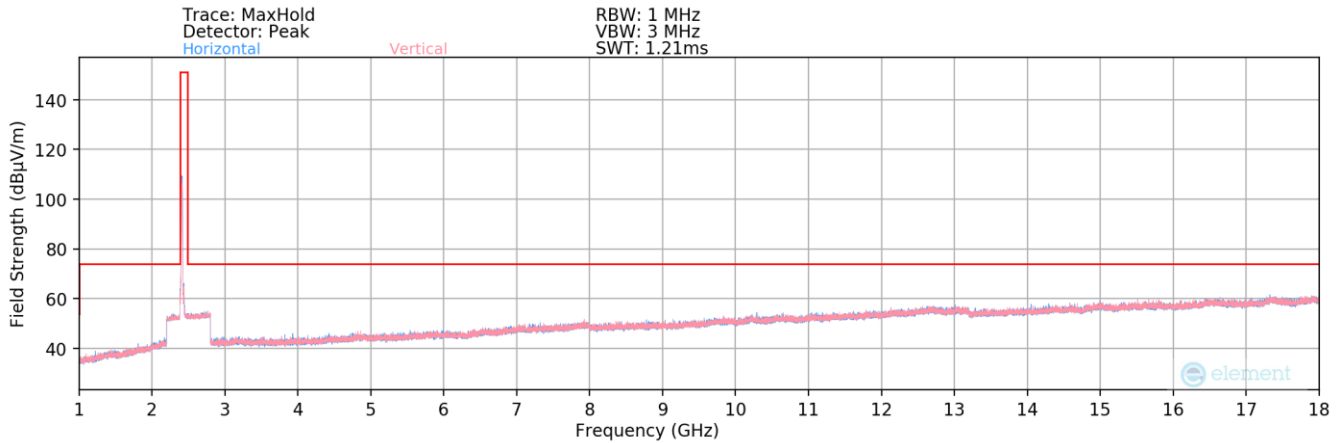
Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2462MHz
 Channel: 11

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	Avg	V	235	188	-78.49	7.54	36.05	53.98	-17.93
4924.00	Peak	V	235	188	-72.95	7.54	41.59	73.98	-32.39
7386.00	Avg	V	-	-	-85.30	12.14	33.84	53.98	-20.14
7386.00	Peak	V	-	-	-75.87	12.14	43.27	73.98	-30.71
12310.00	Avg	V	-	-	-86.82	18.99	39.17	53.98	-14.81
12310.00	Peak	V	-	-	-76.56	18.99	49.43	73.98	-24.55

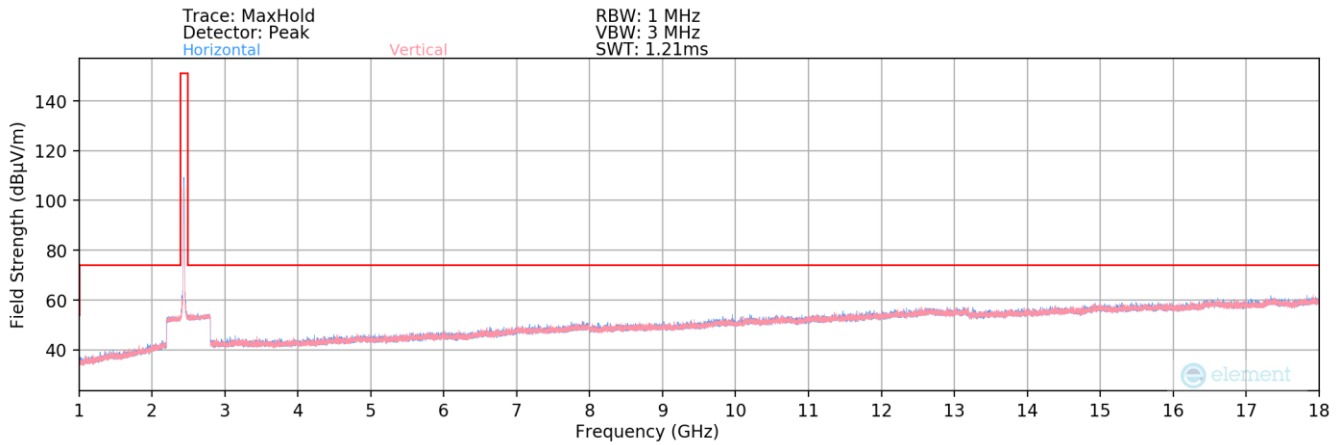
Table 7-15. Radiated Measurements SISO ANT 2 With WCP

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 89 of 104

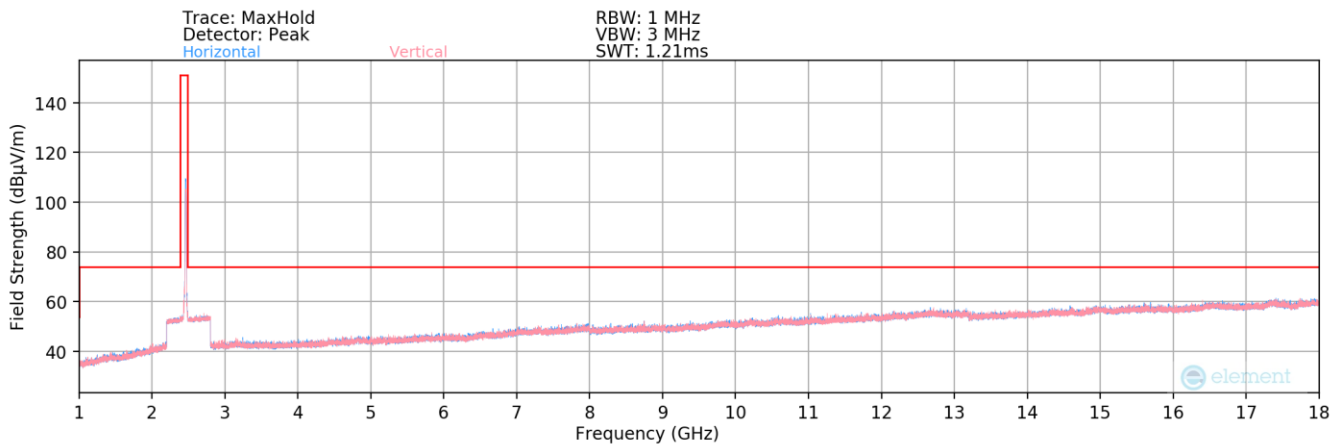
Radiated Spurious Emission Measurements
§15.247(d) §15.205 & §15.209; RSS-Gen [8.9]



Plot 7-119. Radiated Spurious Plot above 1GHz (802.11b – Ch. 1) MIMO



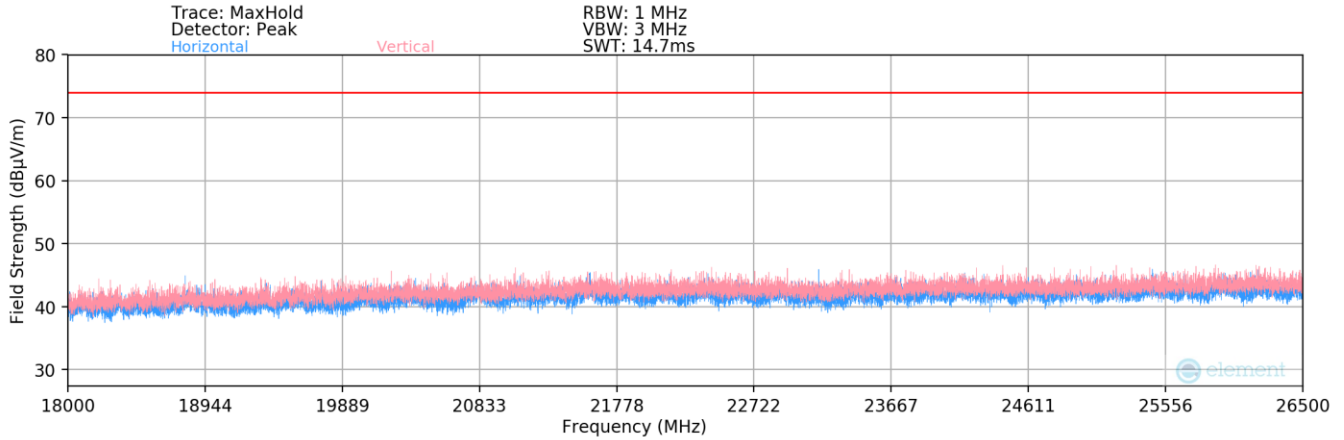
Plot 7-120. Radiated Spurious Plot above 1GHz (802.11b – Ch. 6) MIMO



Plot 7-121. Radiated Spurious Plot above 1GHz (802.11b – Ch. 11) MIMO

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 90 of 104

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



Plot 7-122. Radiated Spurious Plot above 18GHz MIMO

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 91 of 104

Radiated Spurious Emission Measurements

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

Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2412MHz
 Channel: 01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	Avg	H	185	186	-83.52	7.78	31.26	53.98	-22.72
4824.00	Peak	H	185	186	-74.49	7.78	40.29	73.98	-33.69
12060.00	Avg	H	-	-	-86.38	18.26	38.88	53.98	-15.10
12060.00	Peak	H	-	-	-76.70	18.26	48.56	73.98	-25.42

Table 7-16. Radiated Measurements MIMO

Worst Case Mode: 802.11b
 Worst Case Transfer Rate: 1 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 2437MHz
 Channel: 06

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	Avg	H	159	353	-82.57	7.53	31.96	53.98	-22.02
4874.00	Peak	H	159	353	-74.74	7.53	39.79	73.98	-34.19
7311.00	Avg	H	-	-	-85.30	12.43	34.13	53.98	-19.85
7311.00	Peak	H	-	-	-75.82	12.43	43.61	73.98	-30.37
12185.00	Avg	H	-	-	-86.85	19.08	39.23	53.98	-14.75
12185.00	Peak	H	-	-	-77.35	19.08	48.73	73.98	-25.25

Table 7-17. Radiated Measurements MIMO

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 92 of 104

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4924.00	Avg	H	332	161	-83.33	7.54	31.21	53.98	-22.77
4924.00	Peak	H	332	161	-75.27	7.54	39.27	73.98	-34.71
7386.00	Avg	H	-	-	-85.10	12.14	34.04	53.98	-19.94
7386.00	Peak	H	-	-	-75.07	12.14	44.07	73.98	-29.91
12310.00	Avg	H	-	-	-86.98	18.99	39.01	53.98	-14.97
12310.00	Peak	H	-	-	-77.46	18.99	48.53	73.98	-25.45

Table 7-18. Radiated Measurements MIMO

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4874.00	Avg	H	-	-	-84.10	7.53	30.43	53.98	-23.55
4874.00	Peak	H	-	-	-75.41	7.53	39.12	73.98	-34.86
7311.00	Avg	H	-	-	-85.61	12.43	33.82	53.98	-20.16
7311.00	Peak	H	-	-	-75.93	12.43	43.50	73.98	-30.48
12185.00	Avg	H	-	-	-86.64	19.08	39.44	53.98	-14.54
12185.00	Peak	H	-	-	-77.43	19.08	48.65	73.98	-25.33

Table 7-19. Radiated Measurements MIMO With WCP

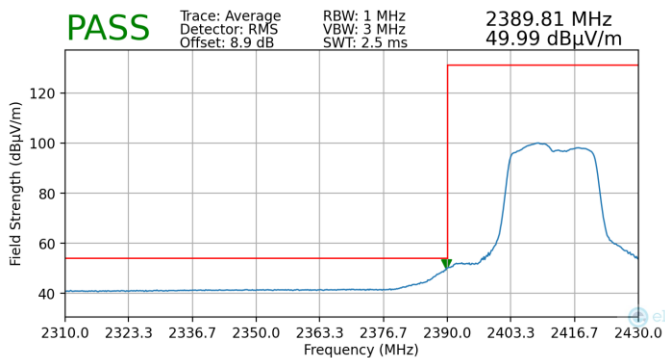
FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 93 of 104

7.7.2 SISO ANT 2 Radiated Restricted Band Edge Measurements

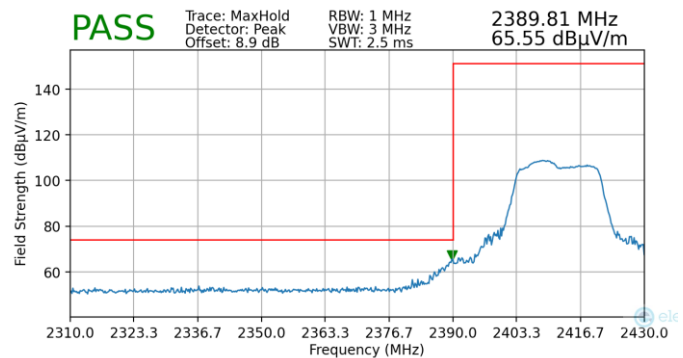
§15.205 §15.209; RSS-Gen [8.9]

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

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

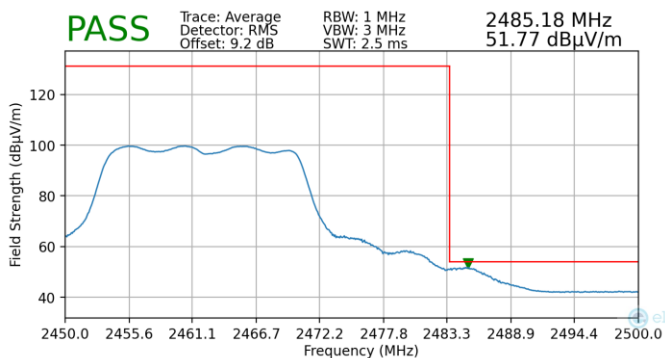


Plot 7-123. Radiated Restricted Lower Band Edge Measurement (Average) SISO ANT 2

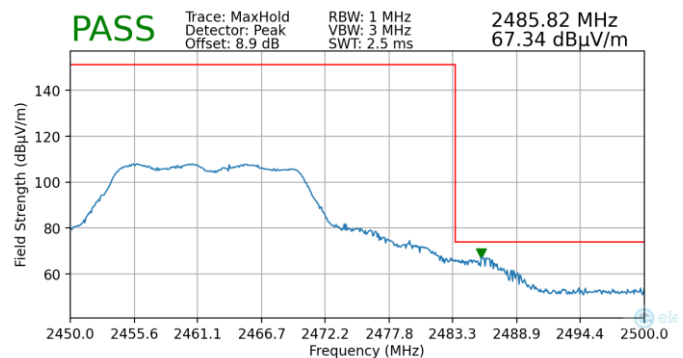


Plot 7-124. Radiated Restricted Lower Band Edge Measurement (Peak) SISO ANT 2

Worst Case Mode:	802.11g
Worst Case Transfer Rate:	6Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11



Plot 7-125. Radiated Restricted Upper Band Edge Measurement (Average) SISO ANT 2



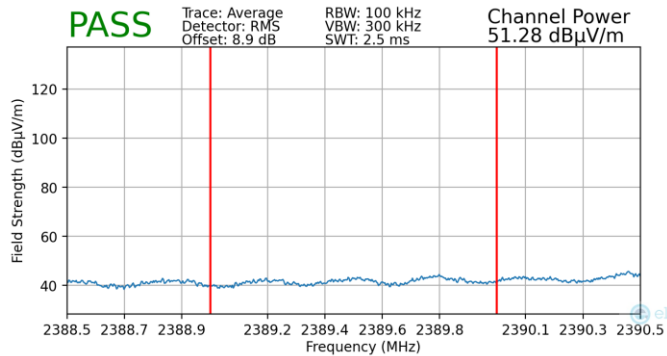
Plot 7-126. Radiated Restricted Upper Band Edge Measurement (Peak) SISO ANT 2

FCC ID: A3LSMS916U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 94 of 104

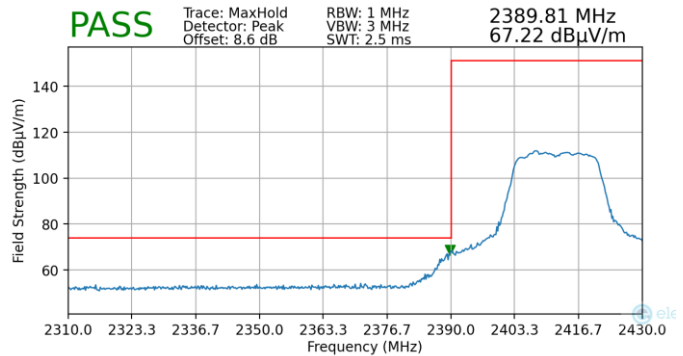
7.7.3 MIMO Radiated Restricted Band Edge Measurements

§15.205 §15.209; RSS-Gen [8.9]

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	1

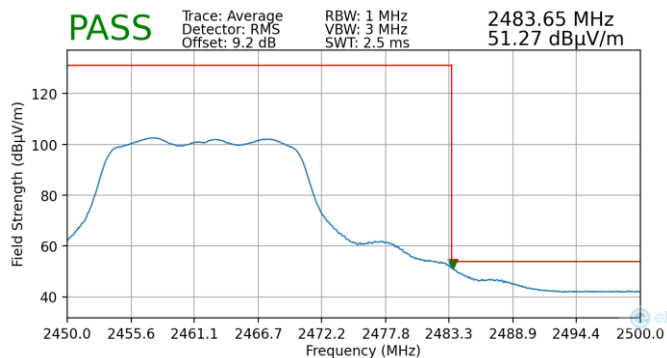


Plot 7-127. Radiated Restricted Lower Band Edge Measurement (Average) MIMO

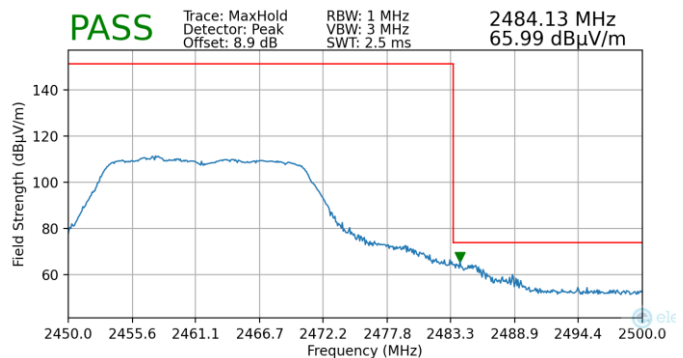


Plot 7-128. Radiated Restricted Lower Band Edge Measurement (Peak) MIMO

Worst Case Mode:	802.11g
Worst Case Transfer Rate:	6Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11



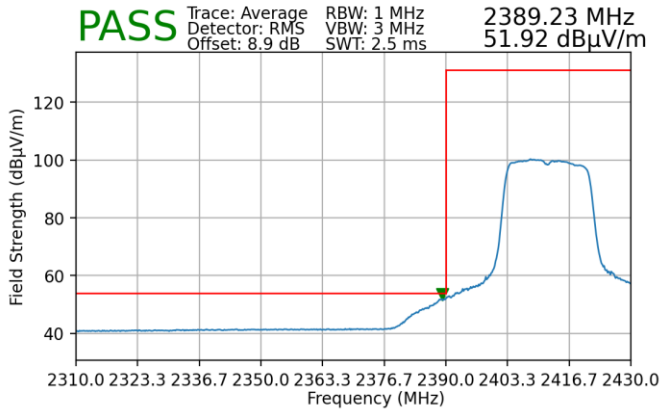
Plot 7-129. Radiated Restricted Upper Band Edge Measurement (Average) MIMO



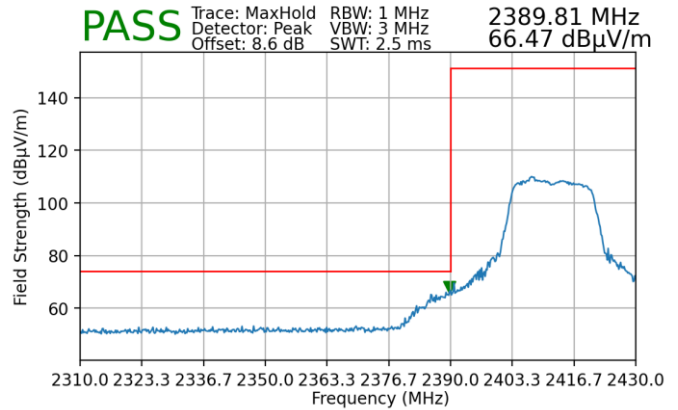
Plot 7-130. Radiated Restricted Upper Band Edge Measurement (Peak) MIMO

FCC ID: A3LSMS916U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 95 of 104

Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS8
 Distance of Measurements: 3 Meters
 Operating Frequency: 2412MHz
 Channel: 1



Plot 7-131. Radiated Restricted Lower Band Edge Measurement (Average) MIMO With WCP



Plot 7-132. Radiated Restricted Lower Band Edge Measurement (Peak) MIMO With WCP

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 96 of 104

7.8 Radiated Spurious Emissions Measurements – Below 1GHz

§15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions 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 Table 7-20 per Section 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 7-20. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

FCC ID: A3LSMS916U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 97 of 104

V9.0 02/01/2019

Test Setup

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

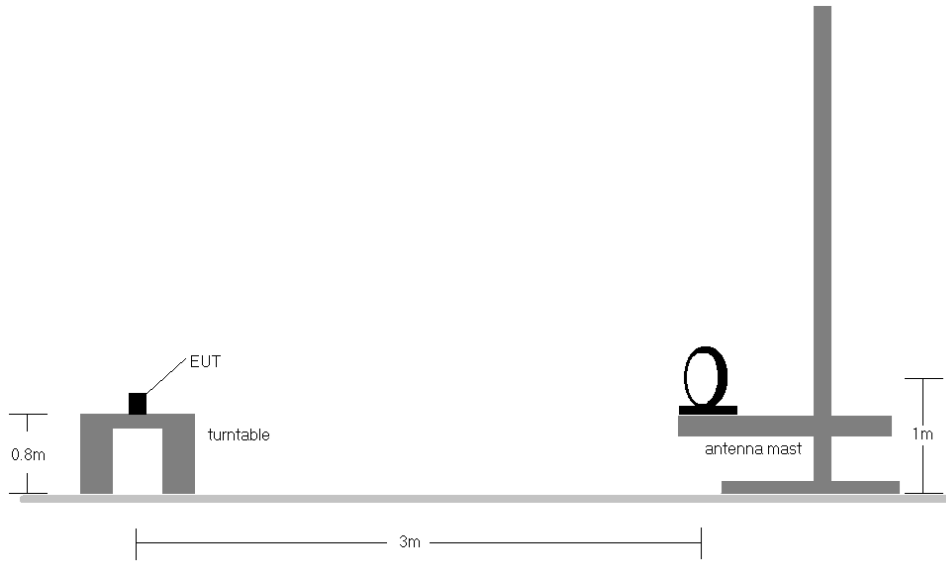


Figure 7-7. Radiated Test Setup < 30Mhz

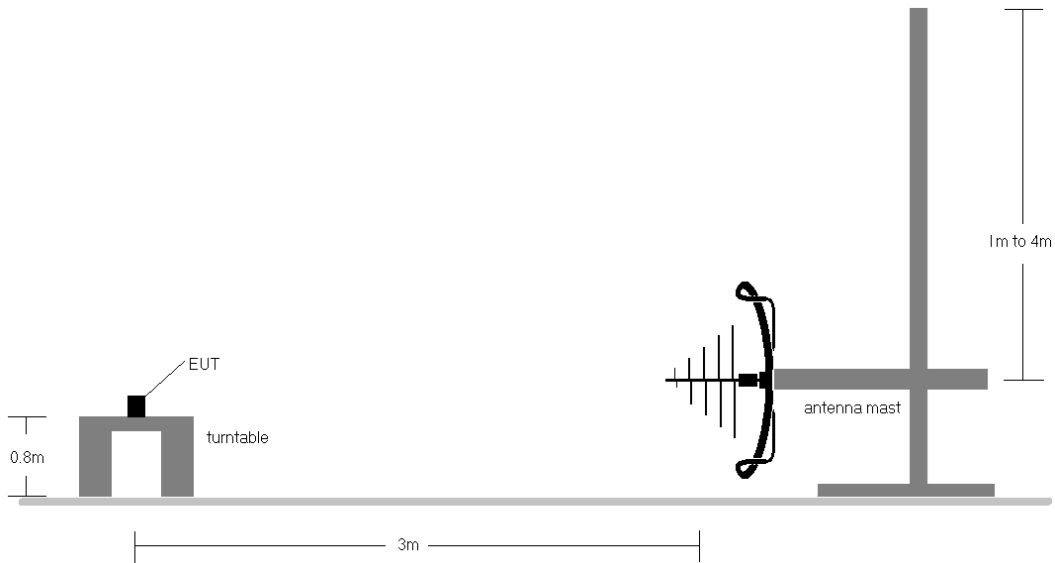


Figure 7-8. Radiated Test Setup < 1GHz

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 98 of 104

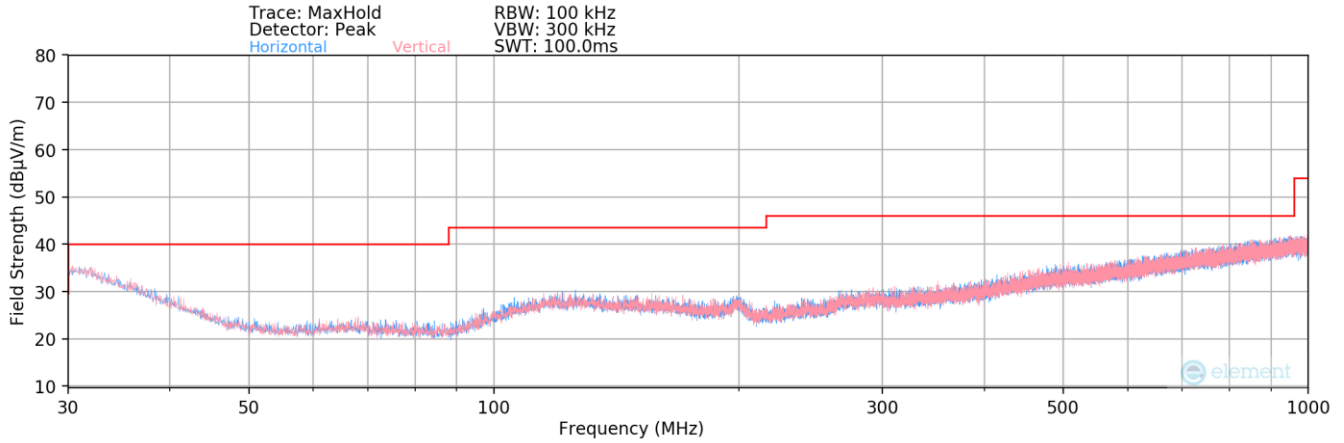
Test Notes

1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen(8.10) are below the limit shown in Table 7-20.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 99 of 104

Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-133. Radiated Spurious Plot below 1GHz MIMO

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
186.00	Quasi-Peak	H	-	-	-103.61	18.67	22.06	43.52	-21.46

Table 7-21. Radiated Spurious Emissions below 1GHz MIMO

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 100 of 104

7.9 Line-Conducted Test Data

§15.207; RSS-Gen [8.8]

Test Overview and Limit

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

All conducted emissions must not exceed the limits shown in the table below, per Section 15.207 and RSS-Gen (8.8).

Frequency of emission (MHz)	Conducted Limit (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 7-22. 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: A3LSMS916U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 101 of 104

V9.0 02/01/2019

Test Setup

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

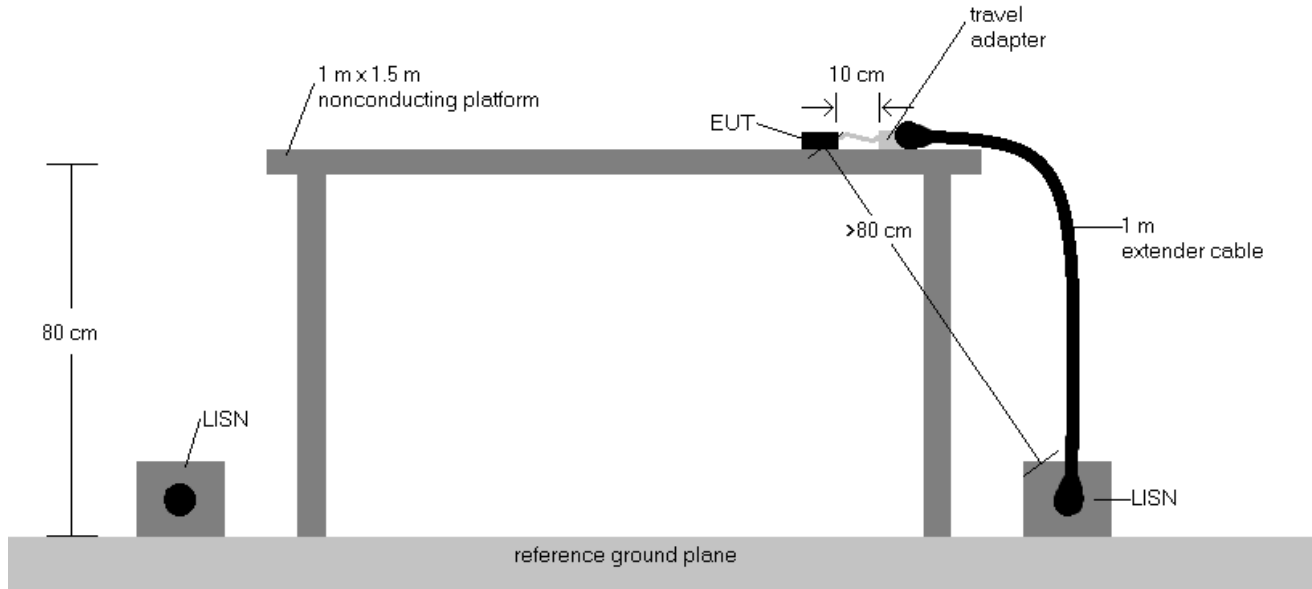
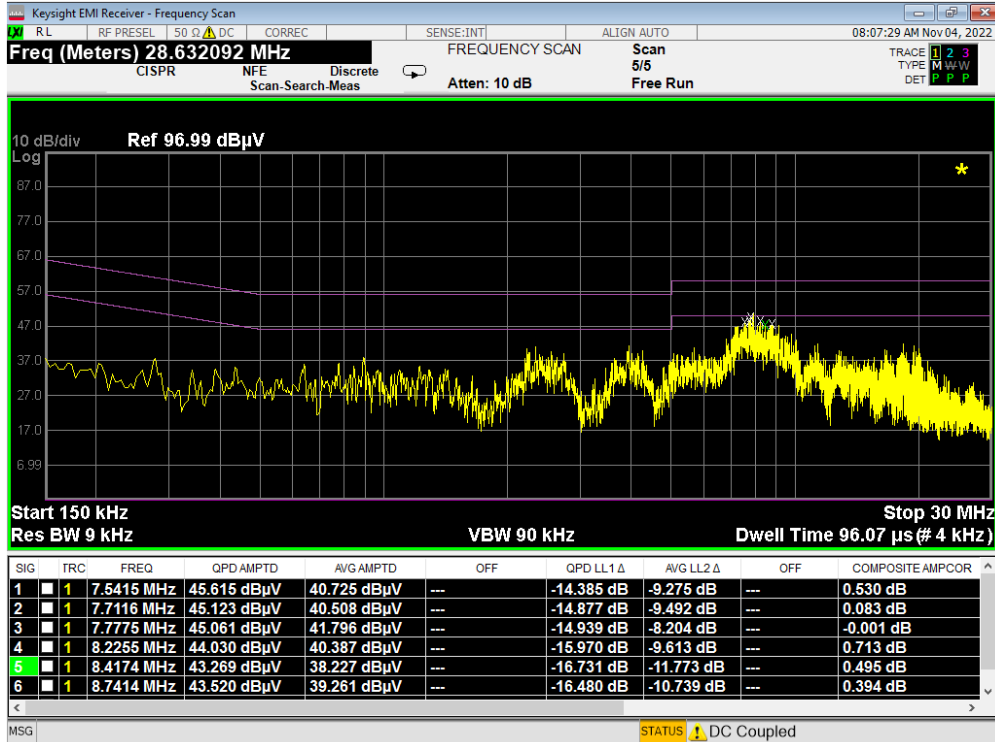


Figure 7-9. Test Instrument & Measurement Setup

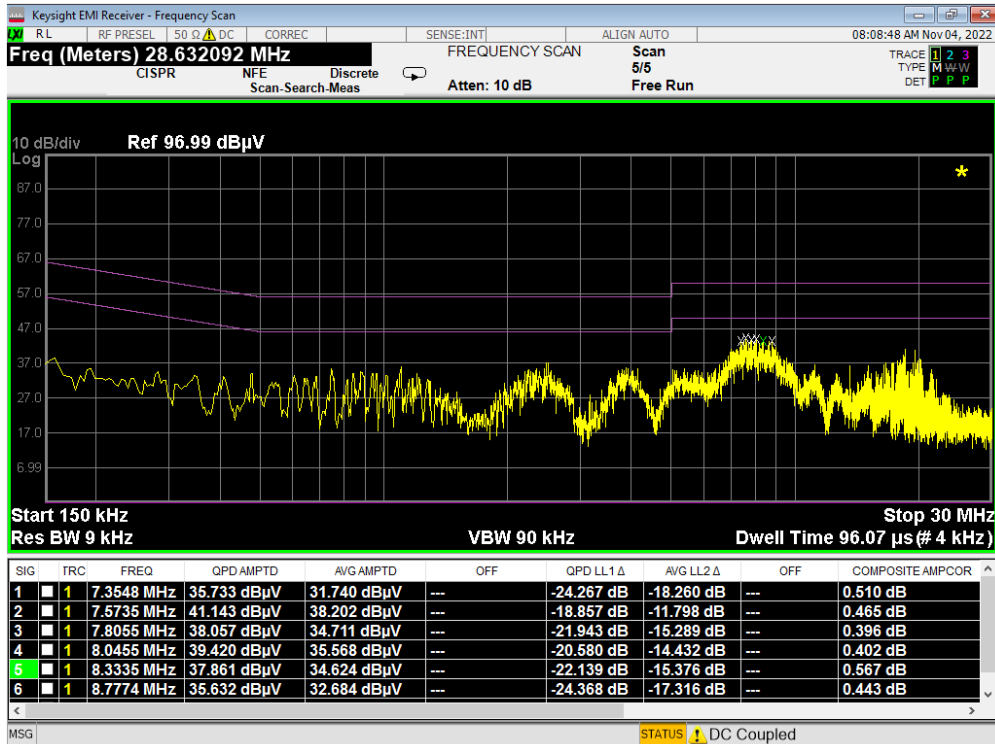
Test Notes

1. All modes of operation were investigated and the worst-case emissions are reported using mid channel. The emissions found were not affected by the choice of channel used during testing.
2. The limit for an intentional radiator from 150kHz to 30MHz are specified in Part 15.207 and RSS-Gen(8.8).
3. $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
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.
8. The EMI Receiver mode of the Agilent MXE was used to perform AC line conducted emissions testing.

FCC ID: A3LSMS916U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 102 of 104



Plot 7-134. Line Conducted Plot with 802.11b (L1)



Plot 7-135. Line Conducted Plot with 802.11b (N)

FCC ID: A3LSMS916U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 103 of 104

8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMS916U** is in compliance with Part 15 Subpart C (15.247) of the FCC Rules.

FCC ID: A3LSMS916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2209010097-11.A3L	Test Dates: 09/02/2022-11/08/2022	EUT Type: Portable Handset	Page 104 of 104