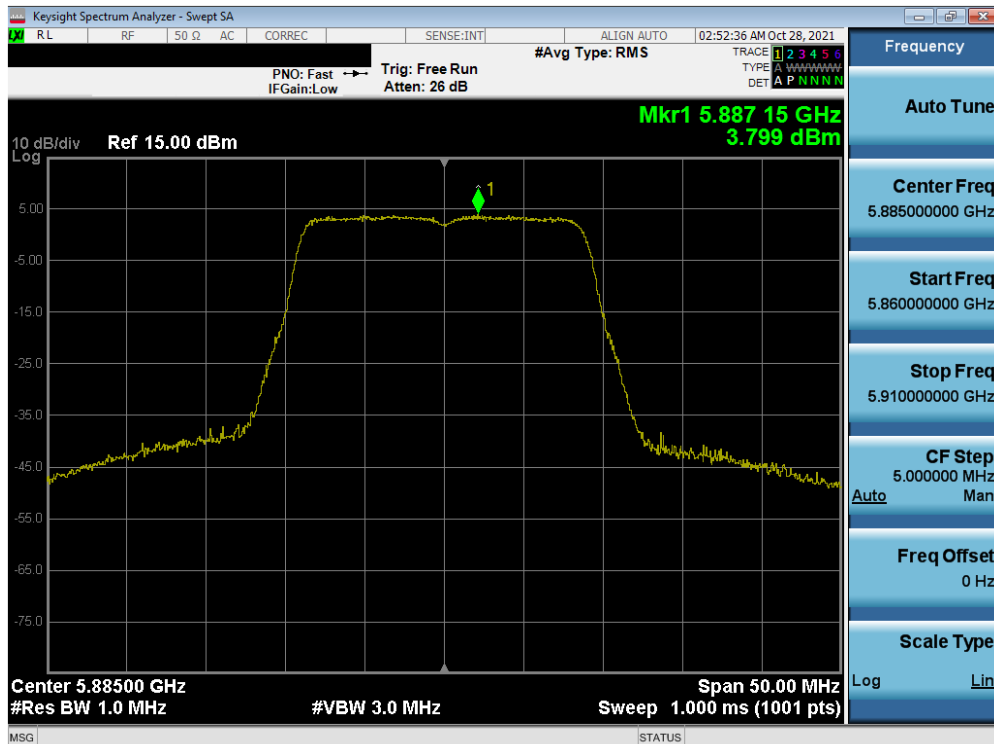
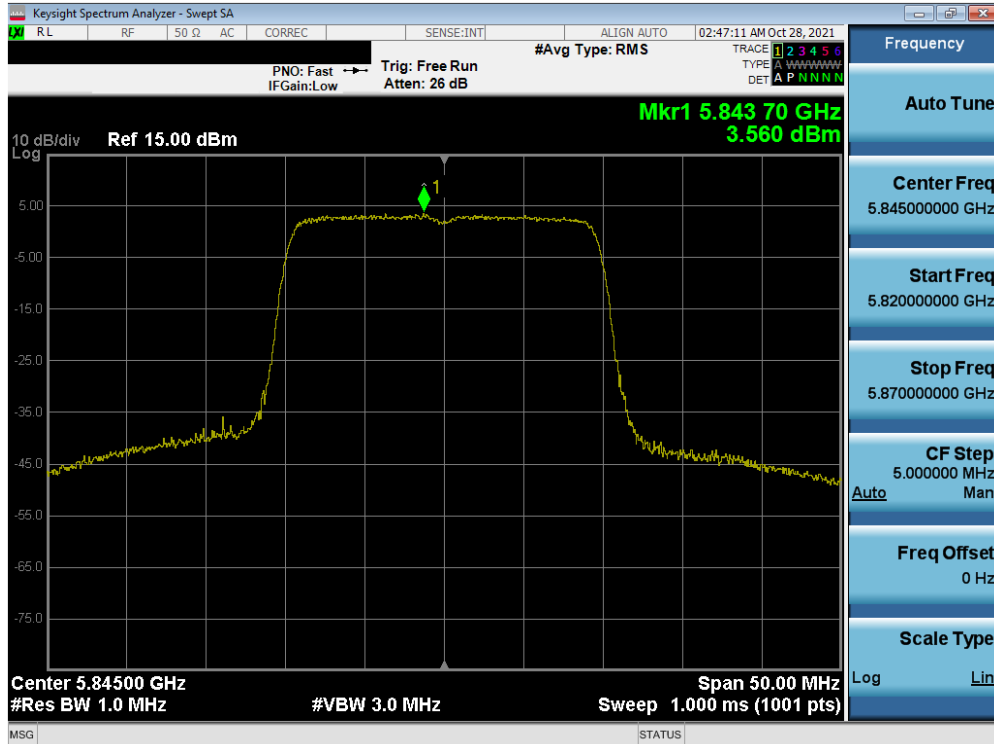


Plot 7-336. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 4) – Ch. 173)

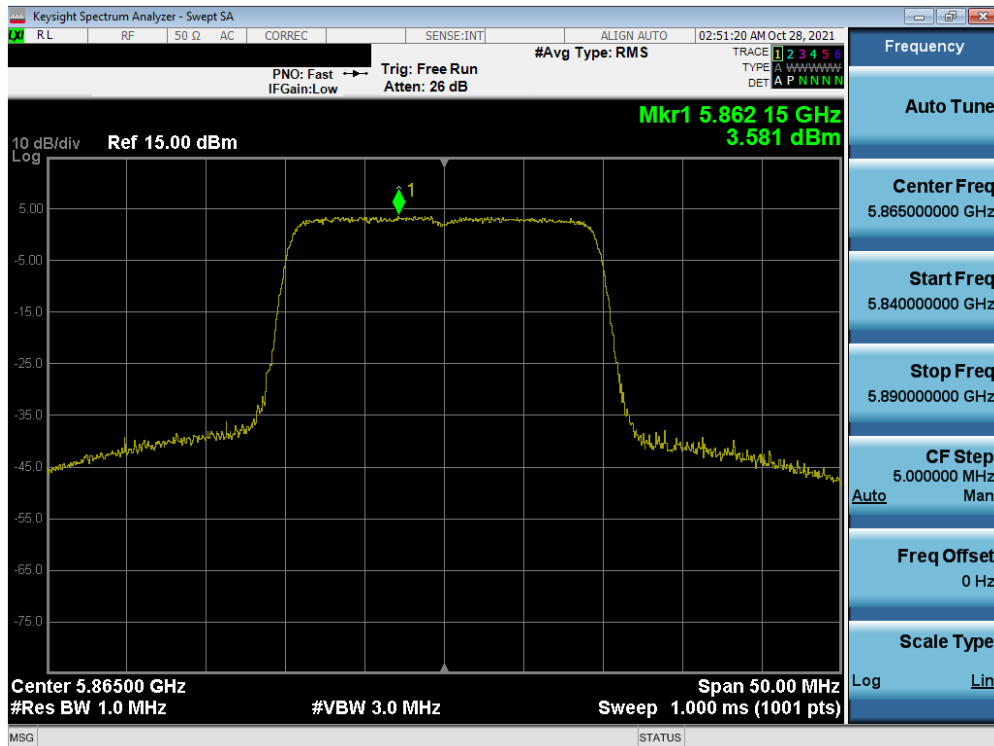


Plot 7-337. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 4) – Ch. 177)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
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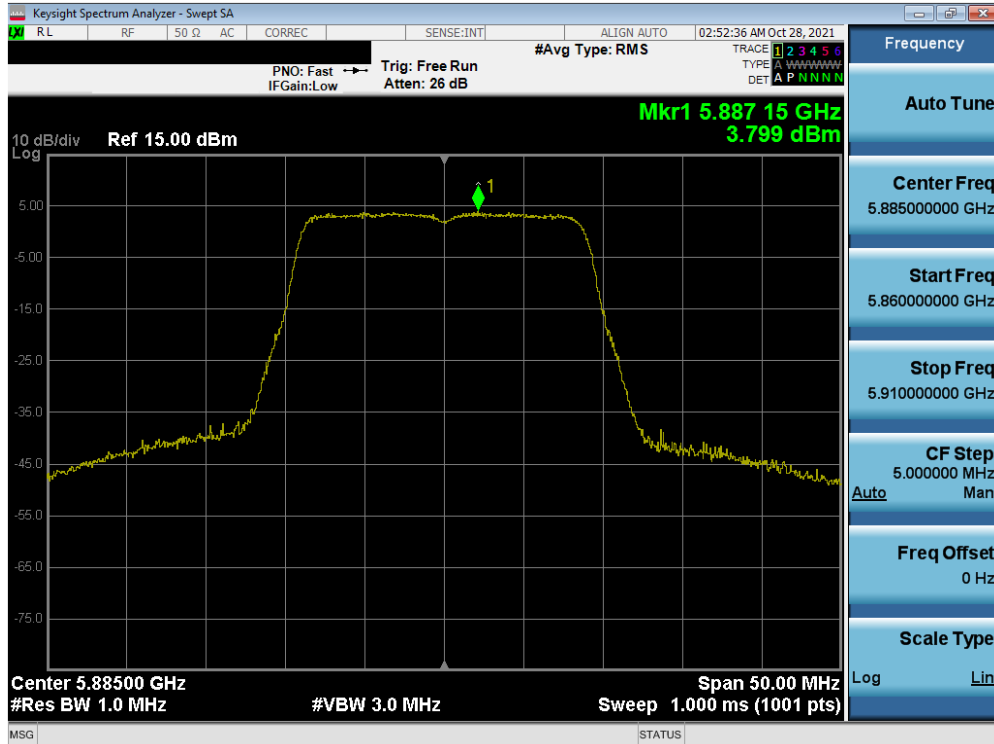


Plot 7-338. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3/4) – Ch. 169)

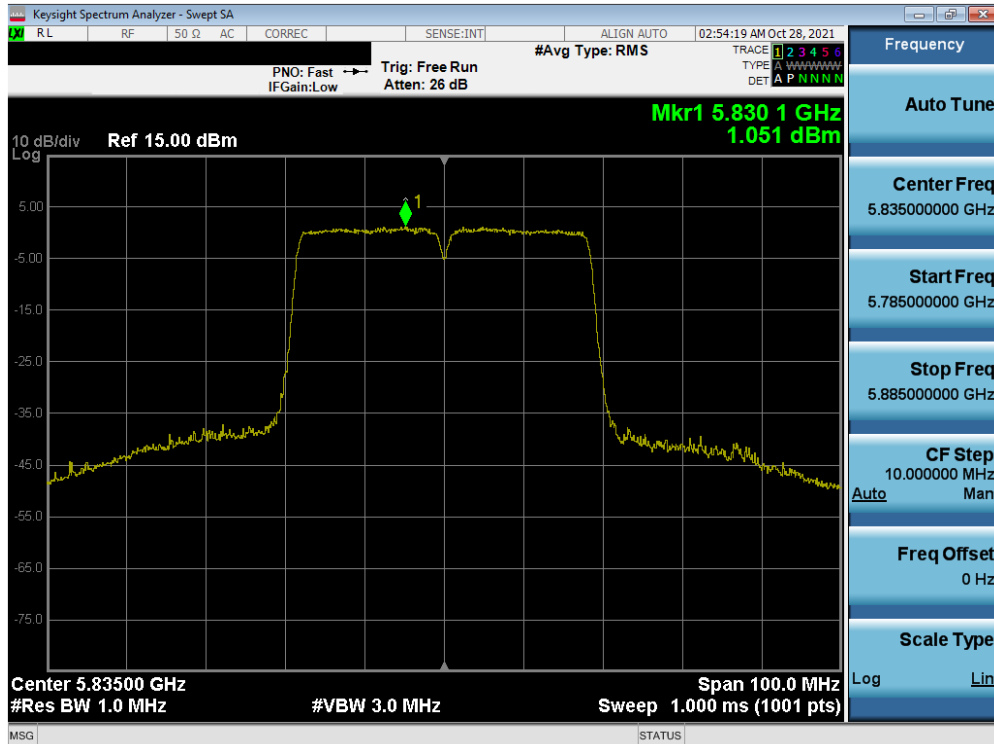


Plot 7-339. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 4) – Ch. 173)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
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Plot 7-340. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 4) – Ch. 177)



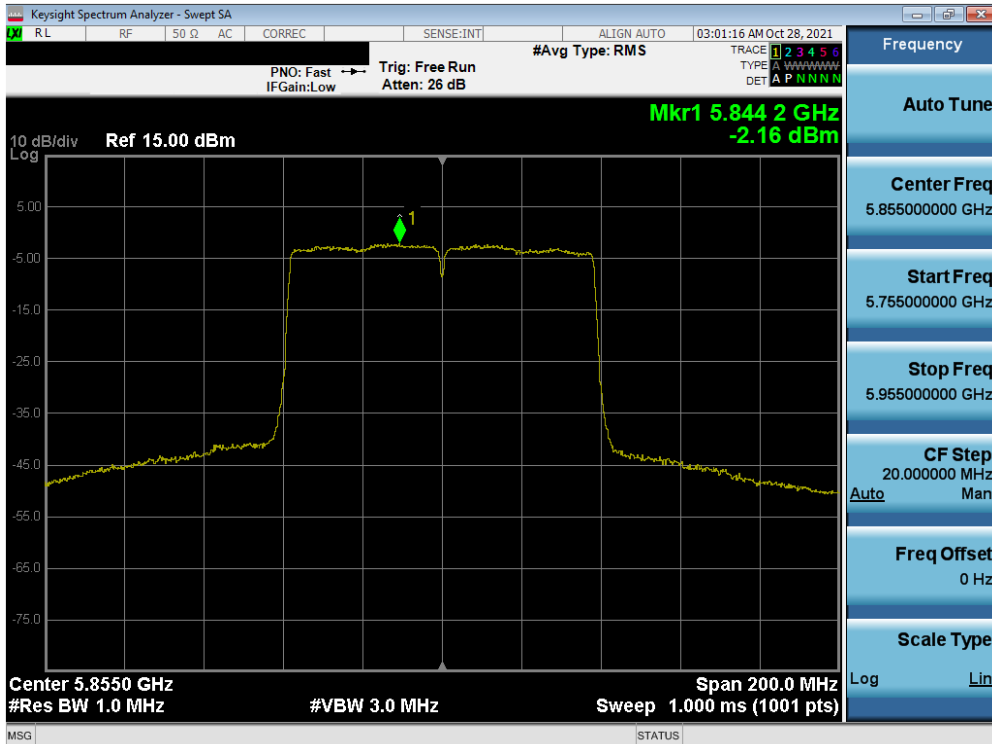
Plot 7-341. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3/4) – Ch. 167)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
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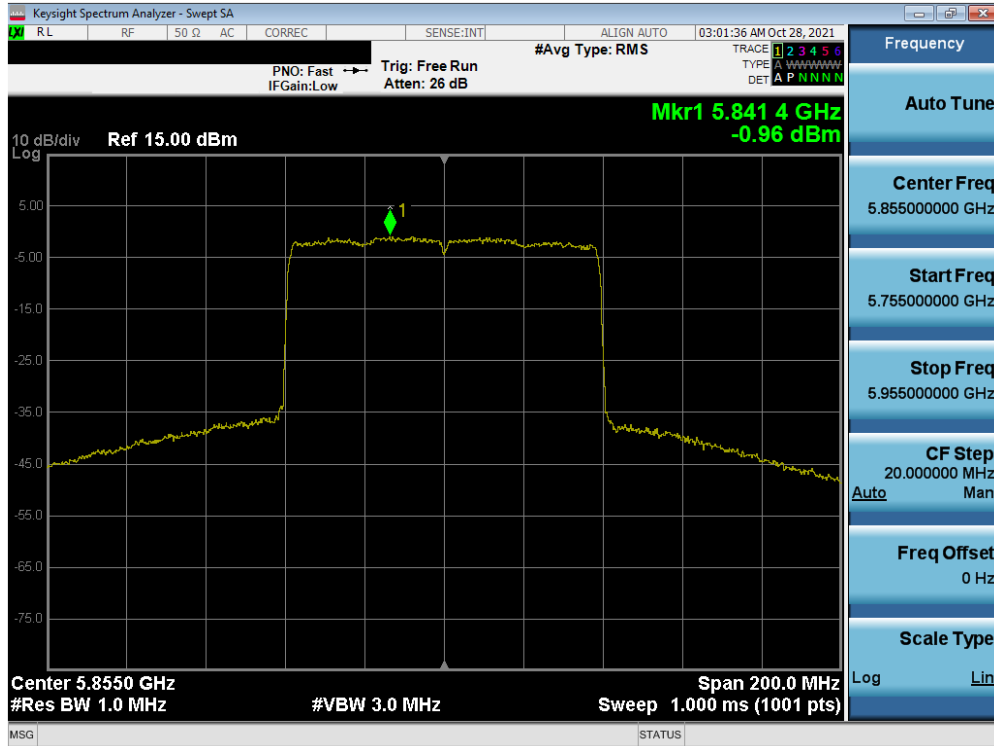


Plot 7-344. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 4) – Ch. 175)

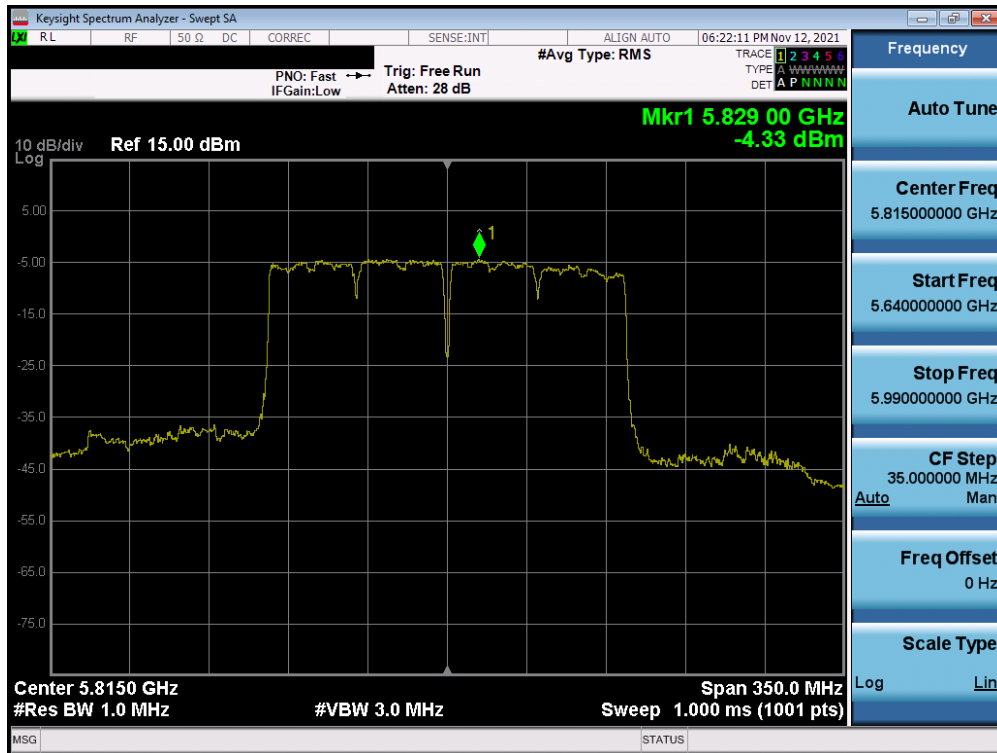


Plot 7-345. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 3/4) – Ch. 171)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
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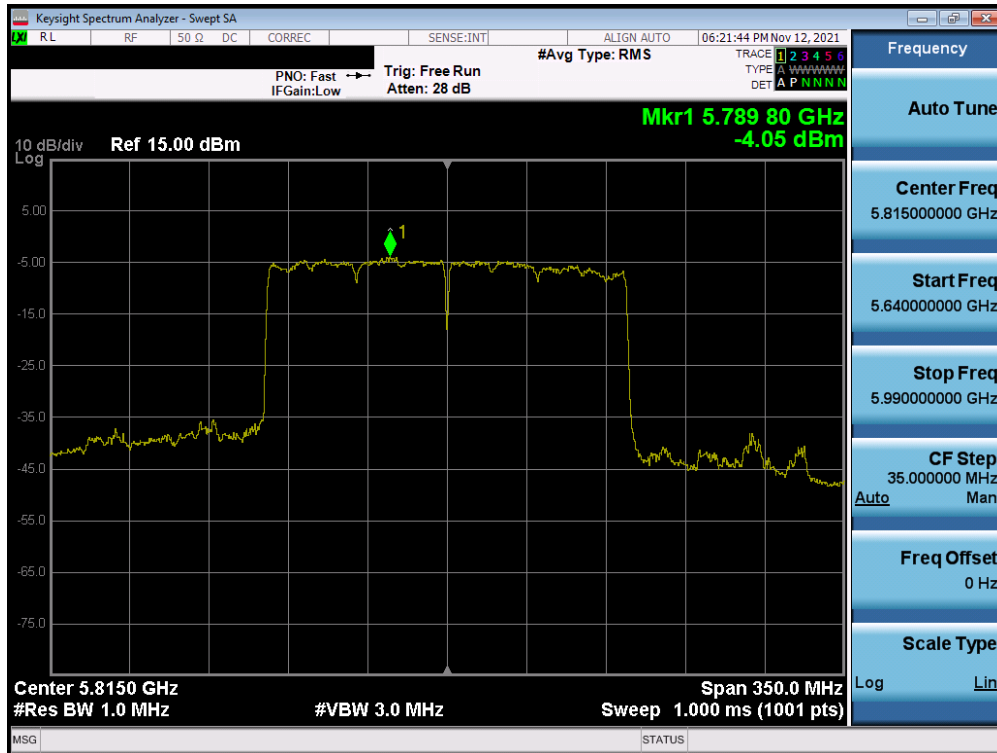


Plot 7-346. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 3/4) – Ch. 171)



Plot 7-347. Power Spectral Density Plot MIMO ANT2 (160MHz BW 802.11ac (UNII Band 3/4) – Ch. 163)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
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**Plot 7-348. Power Spectral Density Plot MIMO ANT2 (160MHz BW 802.11ax (UNII Band 3/4) – Ch. 163)**

**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 N/A dBm for Antenna-1 and N/A dBm for Antenna-2.

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

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

**Sample e.i.r.p Power Spectral Density Calculation:**

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO power density was calculated to be N/A dBm with directional gain of N/A dBi.

$$\text{e.i.r.p. Power Spectral Density(dBm)} = \text{Power Spectral Density (dBm)} + \text{Ant gain (dBi)}$$

$$N/A \text{ dBm} + N/A \text{ dBi} = N/A \text{ dBm}$$

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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## 7.6 Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b) §15.205 §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 its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11n, 802.11ax (20MHz BW), 802.11n, 802.11 ax (40MHz BW), and 802.11ac, 802.11ax (80MHz)), 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.***

***For transmitters operating in the 5.850 – 5.895 GHz band: all emissions at or above 5.895GHz shall not exceed an e.i.r.p. of -5dBm/MHz and shall decrease linearly up to an e.i.r.p. of -27dBm/MHz at or above 5.925GHz, and all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27dBm/MHz at 5.65 GHz increasing linearly to 10dBm/MHz at 5.7GHz and from 5.7GHz increasing linearly to a level of 15.6dBm/MHz at 5.72GHz, and from 5.72GHz increasing linearly to a level of 27dBm/MHz at 5.725GHz.***

***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 7-26 per Section 15.209 and RSS-Gen (8.9).***

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

Table 7-26. Radiated Limits

### Test Procedures Used

- ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5
- KDB 789033 D02 v02r01 – Section G

### Test Settings

#### Average Measurements above 1GHz (Method AD)

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)

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5. Number of measurement points = 1001 (Number of points must be  $\geq 2 \times \text{span/RBW}$ )
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

#### **Peak Measurements above 1GHz**

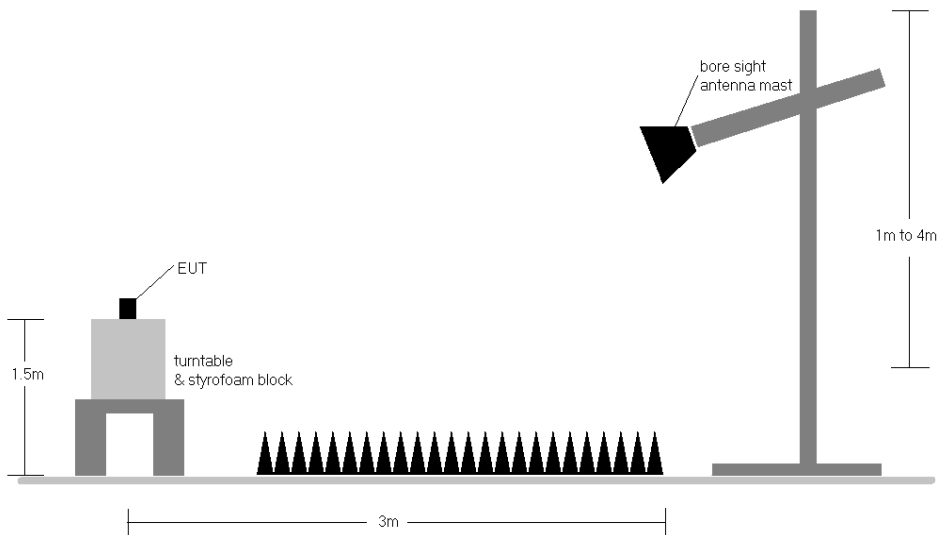
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

#### **Peak Measurements below 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

### **Test Setup**

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



**Figure 7-5. Test Instrument & Measurement Setup**

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### Test Notes

1. All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-26.
2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-26. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB $\mu$ 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 $\mu$ V/m.
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. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
8. 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.
9. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

### Sample Calculations

#### Determining Spurious Emissions Levels

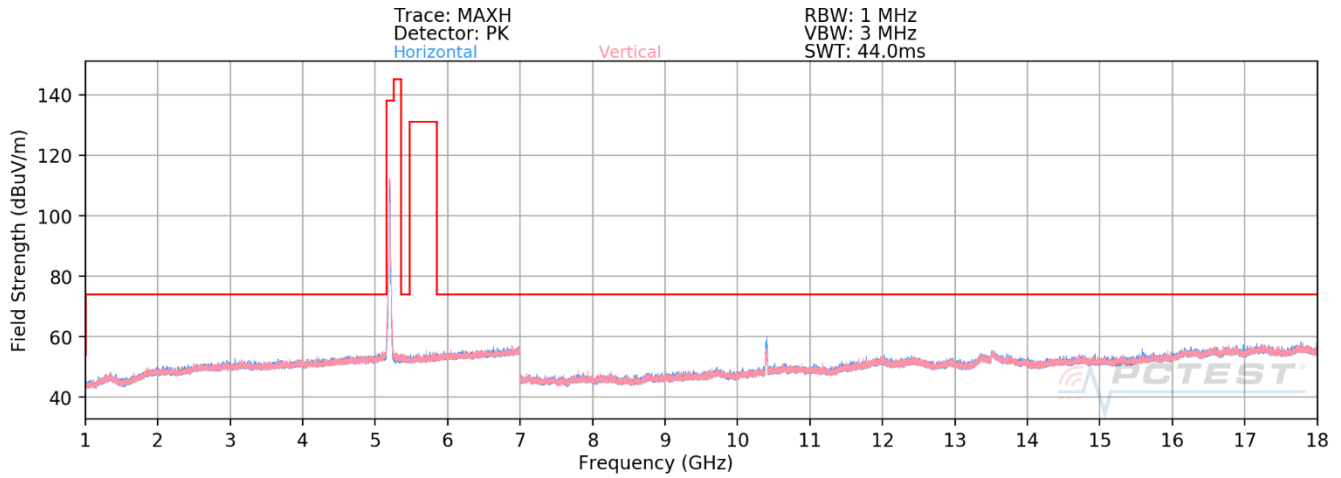
- Field Strength Level [dB $\mu$ V/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [dB $\mu$ V/m] – Limit [dB $\mu$ V/m]

#### Radiated Band Edge Measurement Offset

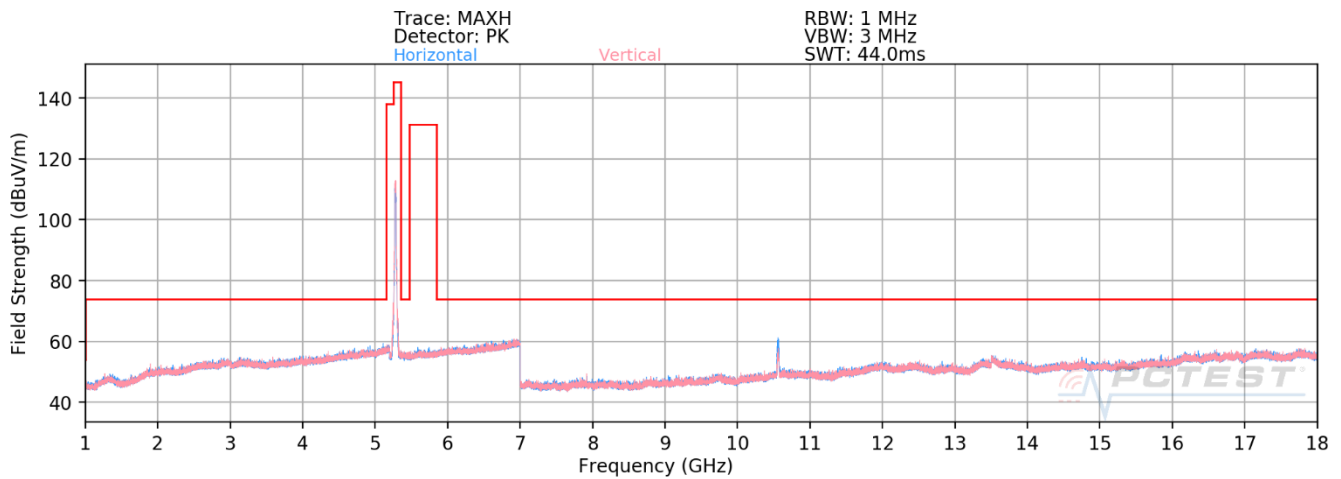
- The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula:  
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Pre-amplifier Gain

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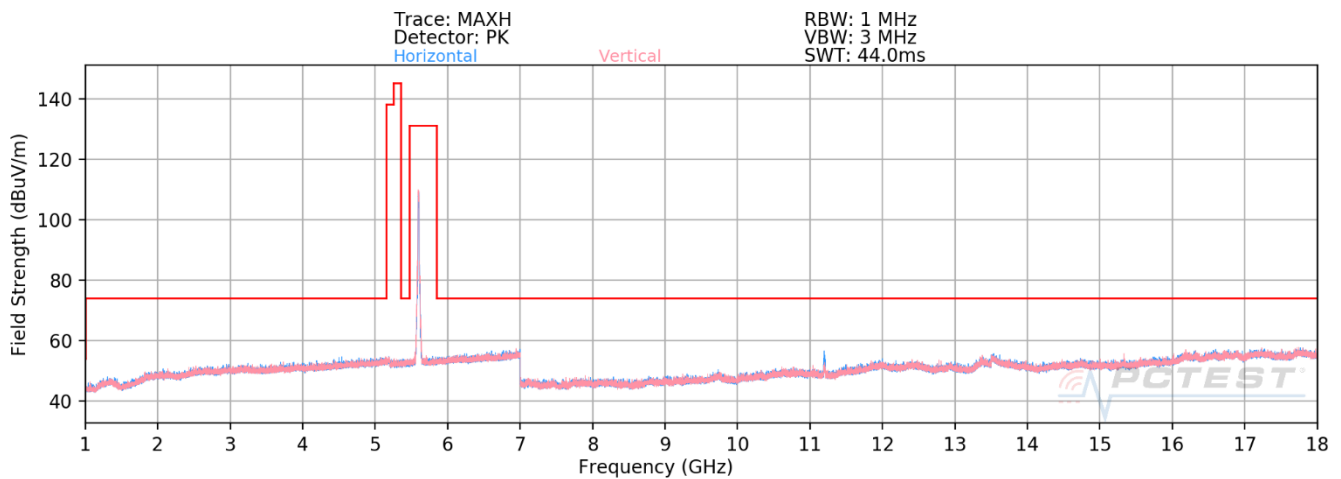
## 7.6.1 MIMO Radiated Spurious Emission Measurements



Plot 7-349. Radiated Spurious Plot above 1GHz MIMO (802.11a – U1 Ch. 40)

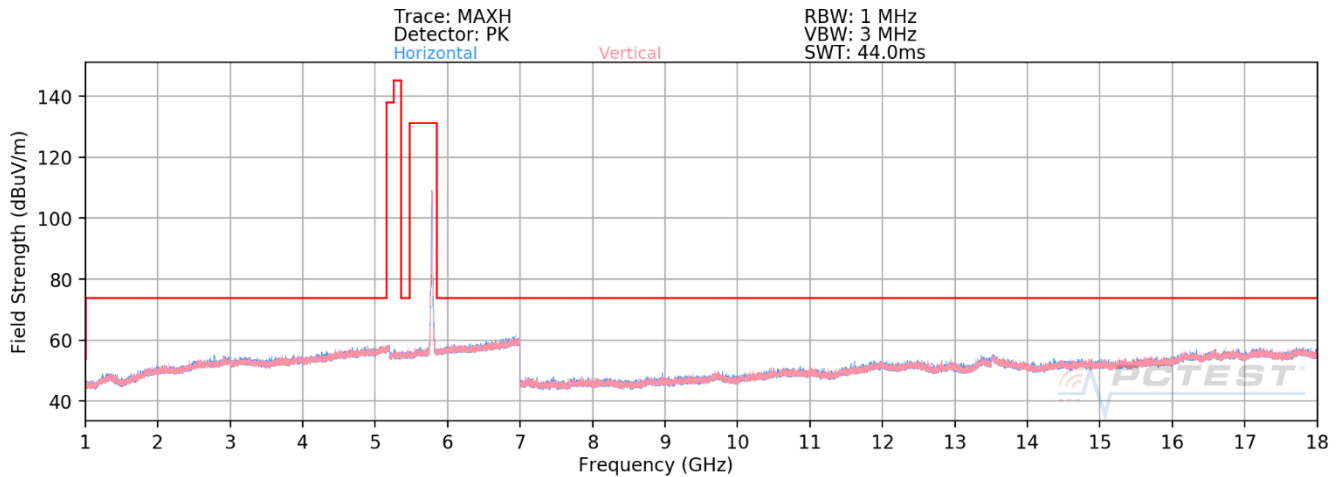


Plot 7-350. Radiated Spurious Plot above 1GHz MIMO (802.11a – U2A Ch. 56)

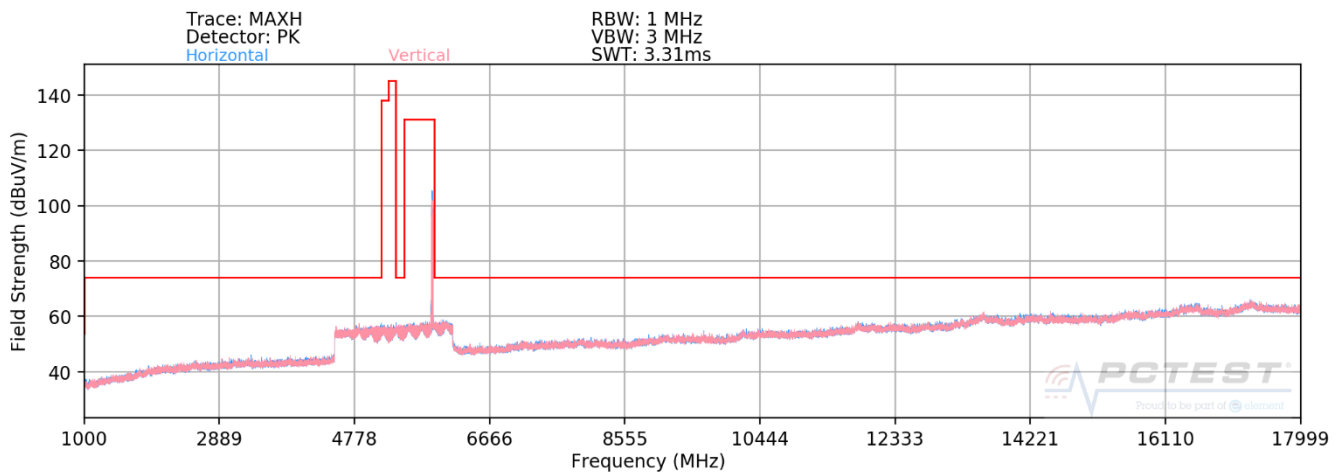


Plot 7-351. Radiated Spurious Plot above 1GHz MIMO (802.11a – U2C Ch. 120)

FCC ID: A3LSMS908JPN	 <b>PCTEST</b> Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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**Plot 7-352. Radiated Spurious Plot above 1GHz MIMO (802.11a – U3 Ch. 157)**



**Plot 7-353. Radiated Spurious Plot above 1GHz MIMO (802.11a – U4 Ch. 173)**

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## MIMO Radiated Spurious Emission Measurements

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

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	H	105	39	-58.42	15.17	0.00	63.75	68.20	-4.45
* 15540.00	Average	H	246	47	-83.94	20.94	0.00	44.00	53.98	-9.98
* 15540.00	Peak	H	246	47	-70.64	20.94	0.00	57.30	73.98	-16.68
* 20720.00	Average	H	-	-	-80.14	-4.66	-9.54	12.65	53.98	-41.33
* 20720.00	Peak	H	-	-	-70.15	-4.66	-9.54	22.64	73.98	-51.34
25900.00	Peak	H	-	-	-69.19	-3.85	-9.54	24.42	68.20	-43.78

**Table 7-27. 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	H	101	39	-59.95	15.42	0.00	62.47	68.20	-5.73
* 15600.00	Average	H	230	32	-82.91	20.71	0.00	44.80	53.98	-9.18
* 15600.00	Peak	H	230	32	-70.21	20.71	0.00	57.50	73.98	-16.48
* 20800.00	Average	H	-	-	-80.22	-4.65	-9.54	12.59	53.98	-41.39
* 20800.00	Peak	H	-	-	-70.34	-4.65	-9.54	22.47	73.98	-51.51
26000.00	Peak	H	-	-	-70.07	-3.88	-9.54	23.51	68.20	-44.69

**Table 7-28. Radiated Measurements MIMO**

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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	H	101	42	-58.62	16.41	0.00	64.79	68.20	-3.41
* 15720.00	Average	H	254	43	-83.44	20.69	0.00	44.25	53.98	-9.73
* 15720.00	Peak	H	254	43	-70.05	20.69	0.00	57.64	73.98	-16.34
* 20960.00	Average	H	-	-	-80.93	-4.44	-9.54	12.09	53.98	-41.89
* 20960.00	Peak	H	-	-	-70.94	-4.44	-9.54	22.08	73.98	-51.90
26200.00	Peak	H	-	-	-70.64	-3.90	-9.54	22.92	68.20	-45.28

Table 7-29. Radiated Measurements MIMO

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 [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	101	39	-59.20	16.61	0.00	64.41	68.20	-3.79
* 15780.00	Average	H	245	44	-84.72	20.75	0.00	43.03	53.98	-10.95
* 15780.00	Peak	H	245	44	-72.19	20.75	0.00	55.56	73.98	-18.42
* 21040.00	Average	H	-	-	-80.47	-4.26	-9.54	12.73	53.98	-41.25
* 21040.00	Peak	H	-	-	-71.23	-4.26	-9.54	21.97	73.98	-52.01
26300.00	Peak	H	-	-	-69.94	-3.69	-9.54	23.82	68.20	-44.38

Table 7-30. Radiated Measurements MIMO

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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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 [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	105	48	-58.70	16.45	0.00	64.75	68.20	-3.45
* 15840.00	Average	H	250	49	-82.86	20.54	0.00	44.68	53.98	-9.30
* 15840.00	Peak	H	250	49	-68.68	20.54	0.00	58.86	73.98	-15.12
* 21120.00	Average	H	-	-	-80.10	-4.12	-9.54	13.24	53.98	-40.74
* 21120.00	Peak	H	-	-	-70.49	-4.12	-9.54	22.85	73.98	-51.13
26400.00	Peak	H	-	-	-68.67	-3.57	-9.54	25.22	68.20	-42.98

Table 7-31. Radiated Measurements MIMO

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	H	105	44	-73.44	16.53	0.00	50.09	53.98	-3.89
* 10640.00	Peak	H	105	44	-60.21	16.53	0.00	63.32	73.98	-10.66
* 15960.00	Average	H	-	-	-86.65	20.96	0.00	41.31	53.98	-12.67
* 15960.00	Peak	H	-	-	-75.92	20.96	0.00	52.04	73.98	-21.94
* 21280.00	Average	H	-	-	-79.87	-3.93	-9.54	13.65	53.98	-40.33
* 21280.00	Peak	H	-	-	-69.24	-3.93	-9.54	24.28	73.98	-49.70
26600.00	Peak	H	-	-	-70.37	-3.36	-9.54	23.73	68.20	-44.47

Table 7-32. Radiated Measurements MIMO

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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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	H	101	37	-74.77	16.30	0.00	48.53	53.98	-5.45
* 11000.00	Peak	H	101	37	-62.72	16.30	0.00	60.58	73.98	-13.40
16500.00	Peak	H	291	50	-70.62	21.98	0.00	58.36	68.20	-9.84
22000.00	Peak	H	-	-	-69.55	-4.04	-9.54	23.87	68.20	-44.33
27500.00	Peak	H	-	-	-68.45	-3.28	-9.54	25.73	68.20	-42.47

**Table 7-33. 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	H	262	25	-77.29	16.25	0.00	45.96	53.98	-8.02
* 11200.00	Peak	H	262	25	-65.80	16.25	0.00	57.45	73.98	-16.53
16800.00	Peak	H	-	-	-73.76	22.73	0.00	55.97	68.20	-12.23
* 22400.00	Average	H	-	-	-80.00	-4.33	-9.54	13.12	53.98	-40.85
* 22400.00	Peak	H	-	-	-69.90	-4.33	-9.54	23.22	73.98	-50.75
28000.00	Peak	H	-	-	-70.77	-2.48	-9.54	24.21	68.20	-43.99

**Table 7-34. Radiated Measurements MIMO**

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 215 of 257



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	H	101	42	-79.41	16.90	0.00	44.49	53.98	-9.49
* 11440.00	Peak	H	101	42	-68.17	16.90	0.00	55.73	73.98	-18.25
17160.00	Peak	H	-	-	-73.45	22.09	0.00	55.64	68.20	-12.56
* 22880.00	Average	H	-	-	-79.90	-4.43	-9.54	13.13	53.98	-40.85
* 22880.00	Peak	H	-	-	-71.02	-4.43	-9.54	22.01	73.98	-51.97
28600.00	Peak	H	-	-	-70.70	-2.86	-9.54	23.90	68.20	-44.30

**Table 7-35. Radiated Measurements MIMO**

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	H	258	12	-83.54	16.64	0.00	40.10	53.98	-13.88
* 11490.00	Peak	H	258	12	-71.97	16.64	0.00	51.67	73.98	-22.31
17235.00	Peak	H	-	-	-74.29	22.84	0.00	55.55	68.20	-12.65
* 22980.00	Average	H	-	-	-79.23	-4.50	-9.54	13.73	53.98	-40.25
* 22980.00	Peak	H	-	-	-68.50	-4.50	-9.54	24.46	73.98	-49.52
28725.00	Peak	H	-	-	-69.55	-2.39	-9.54	25.52	69.20	-43.68

**Table 7-36. Radiated Measurements MIMO**

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 216 of 257

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	H	101	43	-81.41	16.85	0.00	42.44	53.98	-11.54
* 11570.00	Peak	H	101	43	-69.05	16.85	0.00	54.80	73.98	-19.18
17355.00	Peak	H	-	-	-73.56	22.26	0.00	55.70	68.20	-12.50
23140.00	Peak	H	-	-	-69.79	-4.58	-9.54	23.08	68.20	-45.12
28925.00	Peak	H	-	-	-69.57	-2.64	-9.54	25.25	68.20	-42.95

**Table 7-37. Radiated Measurements MIMO**

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	H	254	30	-82.23	17.55	0.00	42.32	53.98	-11.66
* 11650.00	Peak	H	254	30	-70.55	17.55	0.00	54.00	73.98	-19.98
17475.00	Peak	H	-	-	-72.73	22.39	0.00	56.66	68.20	-11.54
23300.00	Peak	H	-	-	-69.43	-4.41	-9.54	23.61	68.20	-44.59
29125.00	Peak	H	-	-	-70.50	-3.19	-9.54	23.77	68.20	-44.43

**Table 7-38. Radiated Measurements MIMO**

FCC ID: A3LSMS908JPN	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 217 of 257

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6Mbps  
 Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5845 MHz  
 Channel: 169

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]
* 11690.00	Average	V	202	37	-85.10	22.12	0.00	44.02	53.98	-9.96
* 11690.00	Peak	V	202	37	-73.89	22.12	0.00	55.23	73.98	-18.75
17535.00	Peak	V	-	-	-78.67	31.35	0.00	59.68	62.80	-3.12
23380.00	Peak	V	-	-	-57.32	4.67	-9.54	44.80	62.80	-18.00
29225.00	Peak	V	-	-	-58.29	6.67	-9.54	45.84	62.80	-16.96
35070.00	Peak	V	-	-	-58.02	8.57	-9.54	48.00	62.80	-14.80

**Table 7-39. Radiated Measurements MIMO**

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6Mbps  
 Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5865 MHz  
 Channel: 173

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]
* 11730.00	Average	V	118	29	-84.24	21.84	0.00	44.60	53.98	-9.38
* 11730.00	Peak	V	118	29	-72.83	21.84	0.00	56.01	73.98	-17.97
17595.00	Peak	V	-	-	-78.20	30.82	0.00	59.62	62.80	-3.18
23460.00	Peak	V	-	-	-58.38	4.63	-9.54	43.70	62.80	-19.10
29325.00	Peak	V	-	-	-57.15	6.99	-9.54	47.30	62.80	-15.50
35190.00	Peak	V	-	-	-56.80	8.73	-9.54	49.38	62.80	-13.42

**Table 7-40. Radiated Measurements MIMO**

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 218 of 257

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6Mbps  
 Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5885 MHz  
 Channel: 177

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]
* 11770.00	Average	V	106	30	-85.70	22.55	0.00	43.85	53.98	-10.13
* 11770.00	Peak	V	106	30	-74.05	22.55	0.00	55.50	73.98	-18.48
17655.00	Peak	V	-	-	-78.78	31.48	0.00	59.70	62.80	-3.10
23540.00	Peak	V	-	-	-58.11	4.72	-9.54	44.06	62.80	-18.74
29425.00	Peak	V	-	-	-57.86	7.00	-9.54	46.60	62.80	-16.20
35310.00	Peak	V	-	-	-57.27	8.79	-9.54	48.98	62.80	-13.82

**Table 7-41. Radiated Measurements MIMO**

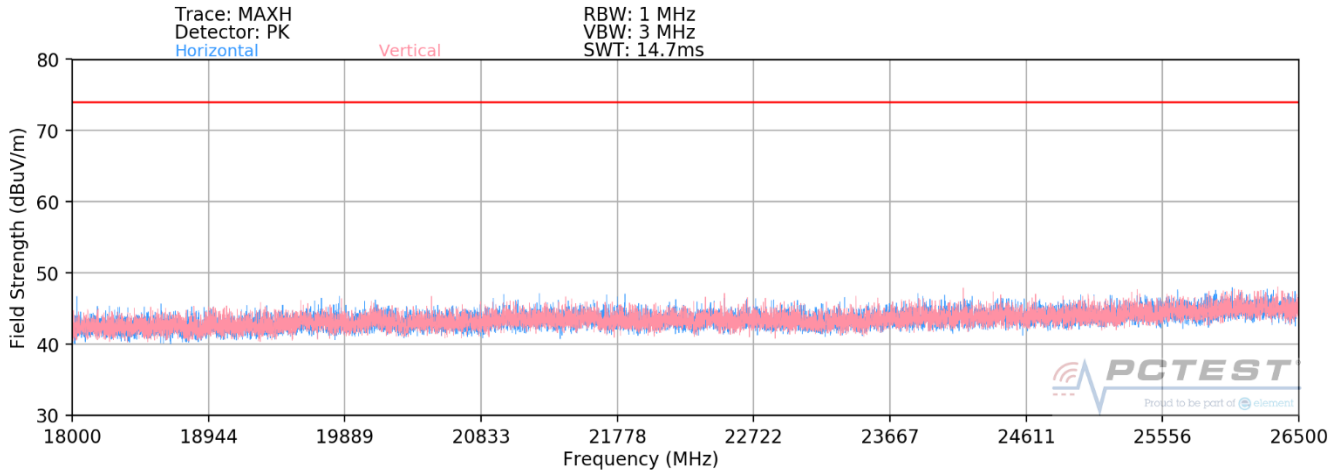
Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6Mbps  
 Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5240MHz  
 Channel: 48

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	H	286	82	-65.37	16.41	0.00	58.04	68.20	-10.16
* 15720.00	Average	H	-	-	-85.30	20.69	0.00	42.39	53.98	-11.59
* 15720.00	Peak	H	-	-	-72.61	20.69	0.00	55.08	73.98	-18.90
* 20960.00	Average	H	-	-	-62.14	-7.45	-9.54	27.87	53.98	-26.11
* 20960.00	Peak	H	-	-	-50.16	-7.45	-9.54	39.85	73.98	-34.13
26200.00	Peak	H	-	-	-51.50	-6.25	-9.54	39.71	68.20	-28.49

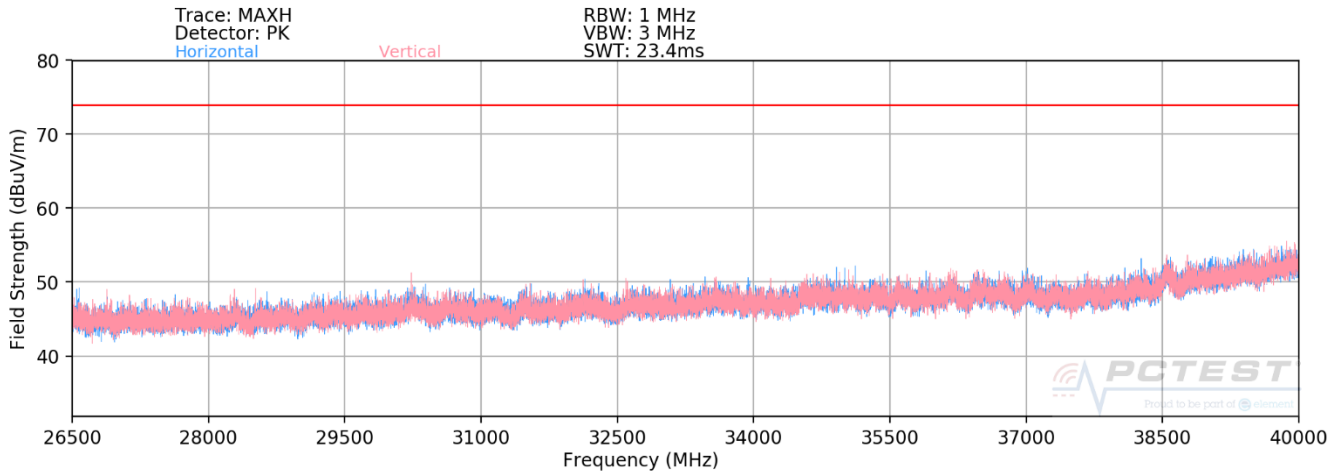
**Table 7-42. Radiated Measurements MIMO with WCP**

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 219 of 257

## MIMO Radiated Spurious Emissions Measurements (Above 18GHz)



**Plot 7-354. Radiated Spurious Plot above 18GHz - 26.5GHz MIMO (802.11a)**



**Plot 7-355. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11a)**

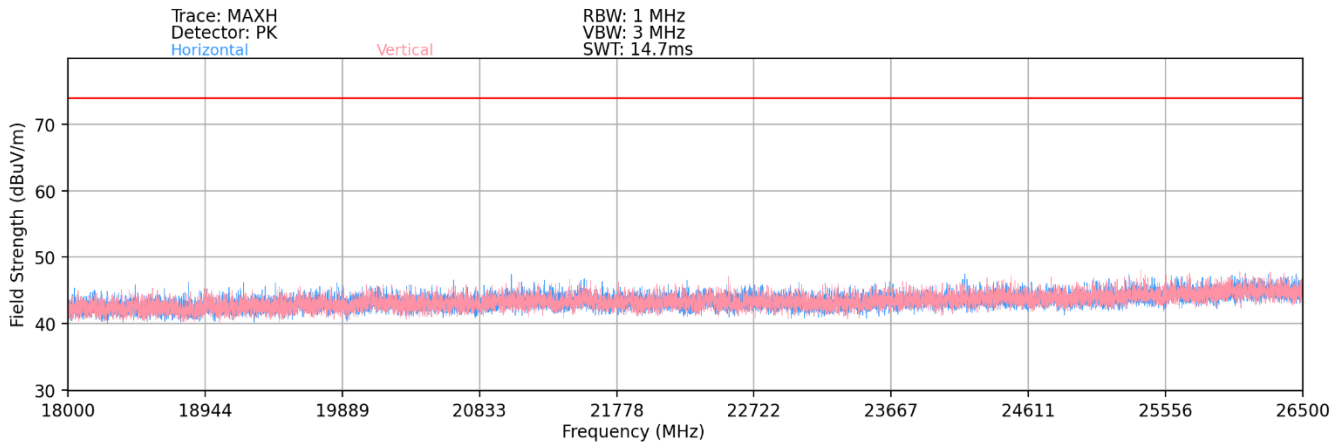
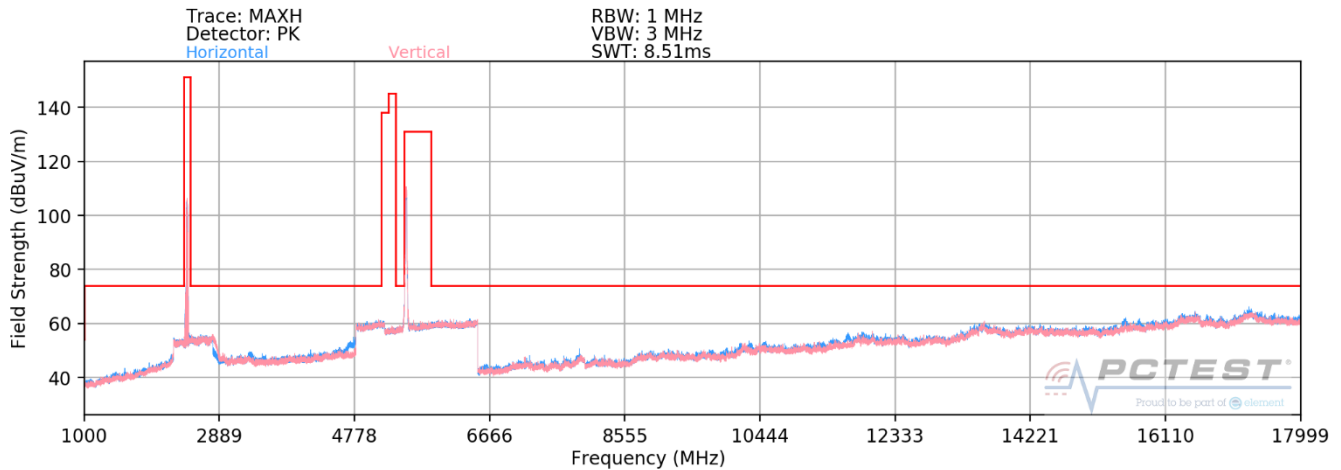
<b>FCC ID:</b> A3LSMS908JPN		<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112100159-07.A3L	<b>Test Dates:</b> 9/14/2021 - 11/12/2021	<b>EUT Type:</b> Portable Handset	Page 220 of 257

## 7.6.2 Simultaneous Tx Radiated Spurious Emissions Measurements

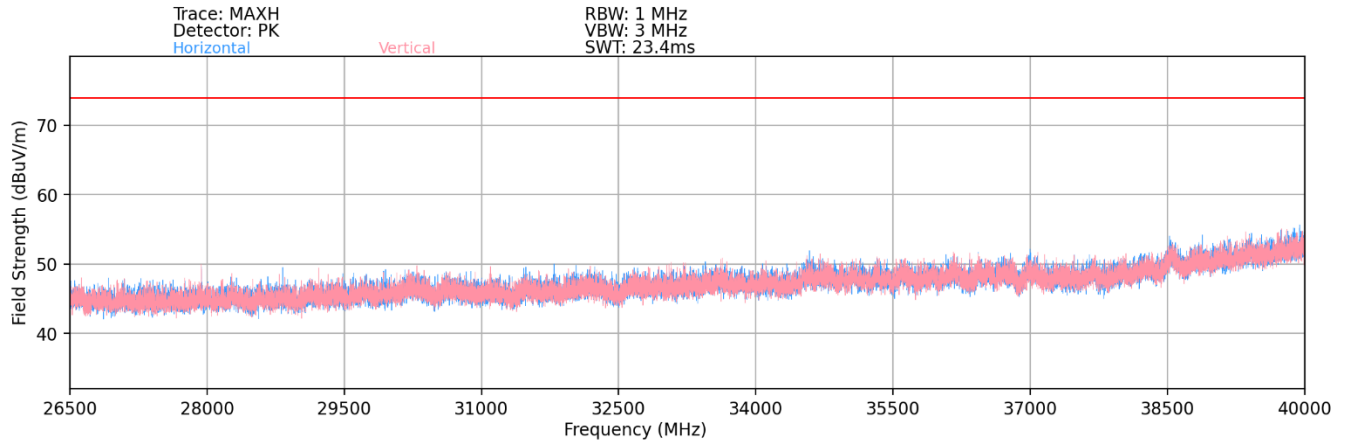
§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1,2	1,2
Channel	6	100
Operating Frequency (MHz)	2437	5500
Data Rate (Mbps)	1	6
Mode	802.11b	802.11a

**Table 7-43. Simultaneous Transmission Config-1**



FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 221 of 257



Plot 7-358. Radiated Spurious Plot above 26.5GHz (MIMO 2.4GHz / MIMO 5GHz)

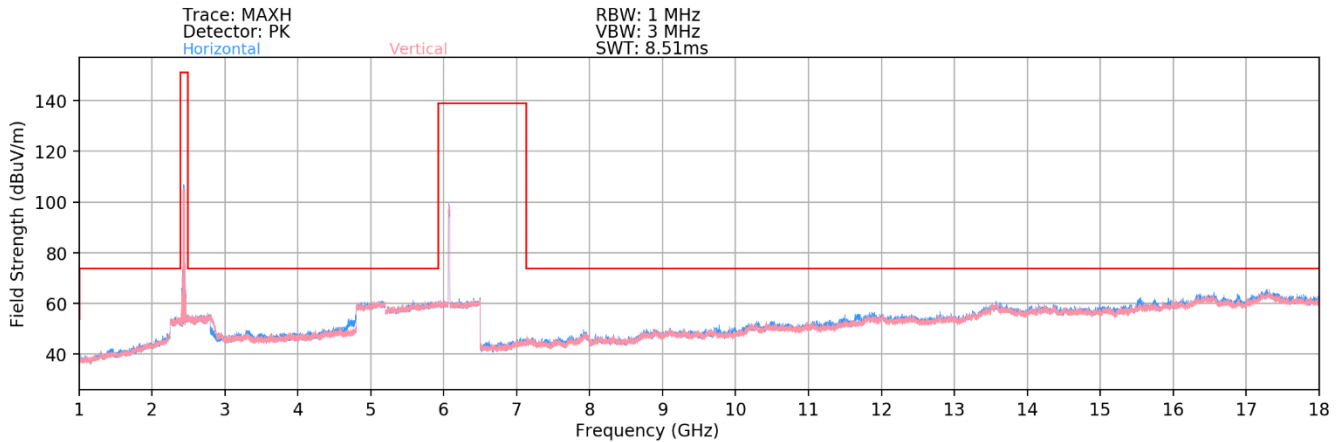
	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
*	3689.00	Average	H	-	-	-75.83	10.80	41.97	53.98	-12.01
*	3689.00	Peak	H	-	-	-63.71	10.80	54.09	73.98	-19.89
	6752.00	Peak	H	-	-	-64.87	16.17	58.30	68.20	-9.90
	8563.00	Peak	H	-	-	-67.82	10.08	49.26	68.20	-18.94
*	11626.00	Average	H	-	-	-79.75	13.44	40.69	53.98	-13.29
*	11626.00	Peak	H	-	-	-67.65	13.44	52.79	73.98	-21.19

Table 7-44. Radiated Measurements (MIMO 2.4GHz / MIMO 5GHz)

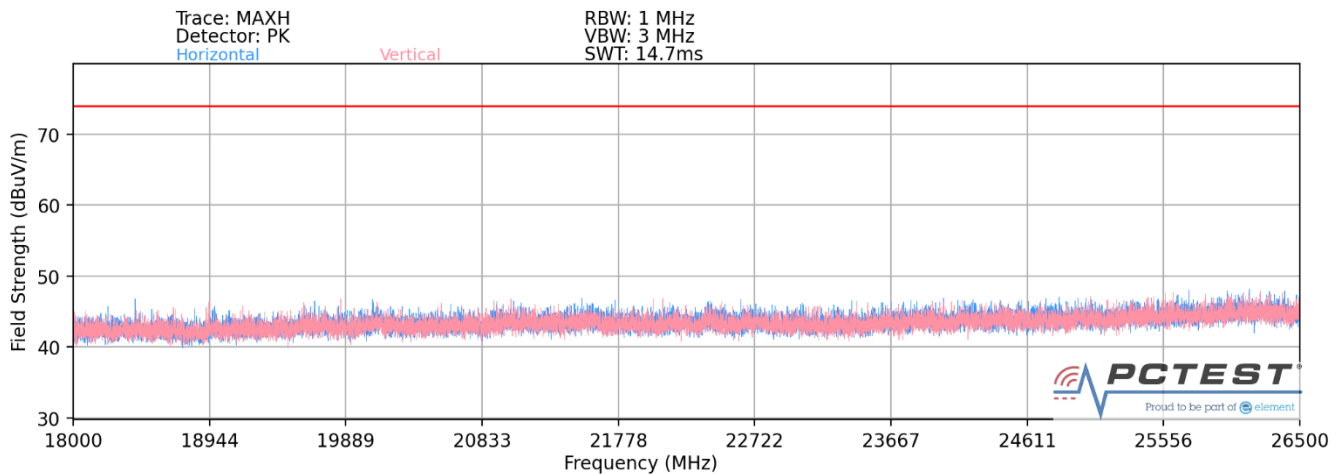
FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 222 of 257

Description	2.4 GHz Emission	6 GHz Emission
Antenna	1,2	1,2
Channel	6	25
Operating Frequency (MHz)	2437	6075
Data Rate (Mbps)	1	6
Mode	802.11b	802.11a

**Table 7-45. Simultaneous Transmission Config-2**



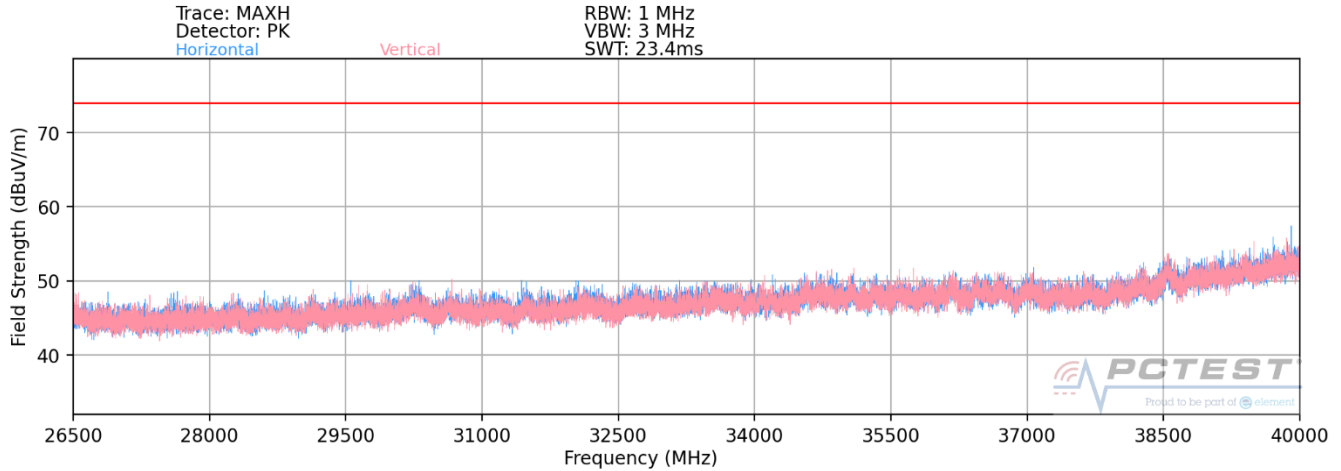
**Plot 7-359. Radiated Spurious Plot above 1GHz (MIMO 2.4GHz / MIMO 6GHz)**



**Plot 7-360. Radiated Spurious Plot 18GHz - 26.5GHz (MIMO 2.4GHz / MIMO 6GHz)**

FCC ID: A3LSMS908JPN	 <b>PCTEST</b> Proud to be part of 	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 223 of 257





Plot 7-361. Radiated Spurious Plot above 26.5GHz (MIMO 2.4GHz / MIMO 6GHz)

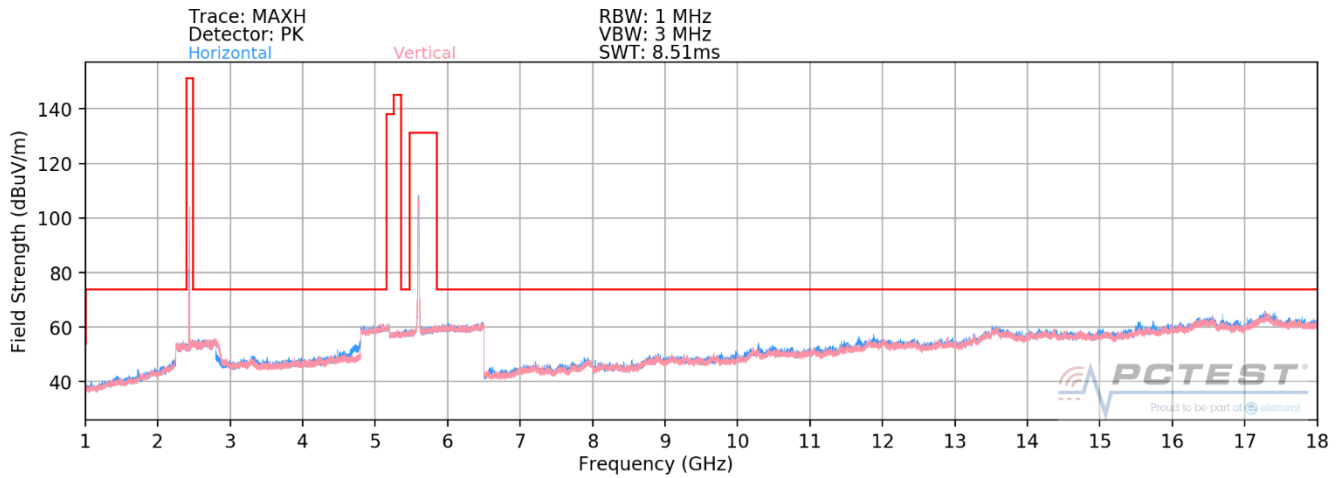
	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	1201.00	Average	H	293	341	-70.56	2.91	39.35	53.98	-14.63
*	1201.00	Peak	H	293	341	-61.88	2.91	48.03	73.98	-25.95
*	4839.00	Average	H	-	-	-78.05	12.45	41.40	53.98	-12.58
*	4839.00	Peak	H	-	-	-62.86	12.45	56.59	73.98	-17.39
	9713.00	Peak	H	-	-	-67.25	10.62	50.37	68.20	-17.83
	16989.00	Peak	H	-	-	-65.72	17.24	58.52	68.20	-9.68

Table 7-46. Radiated Measurements (MIMO 2.4GHz / MIMO 6GHz)

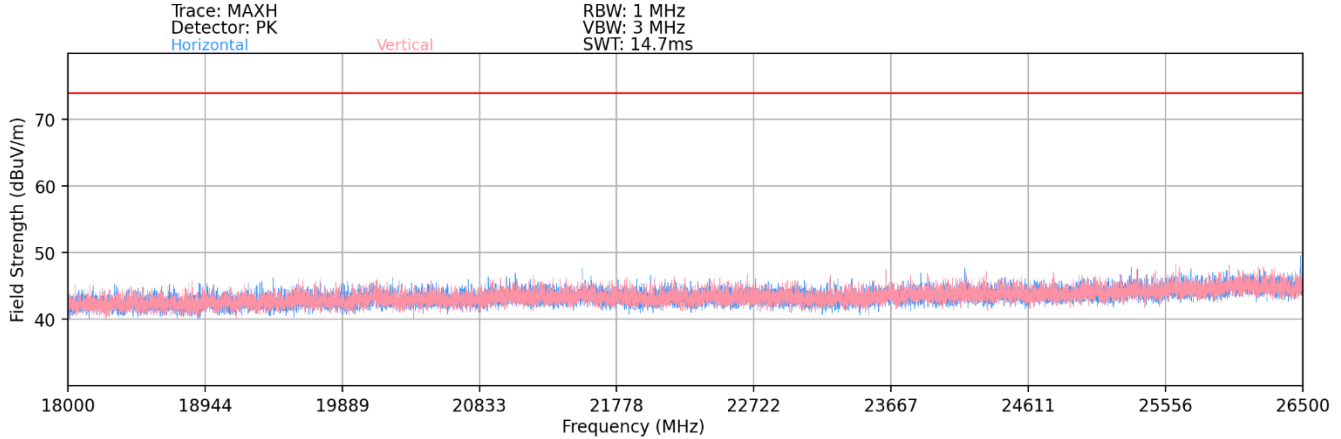
FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 224 of 257

Description	Bluetooth Emission	5 GHz Emission
Antenna	1,2	1,2
Channel	39	120
Operating Frequency (MHz)	2441	5600
Data Rate (Mbps)	1Mbps	6
Mode	ePA	802.11a

**Table 7-47. Dual Band Simultaneous Transmission**

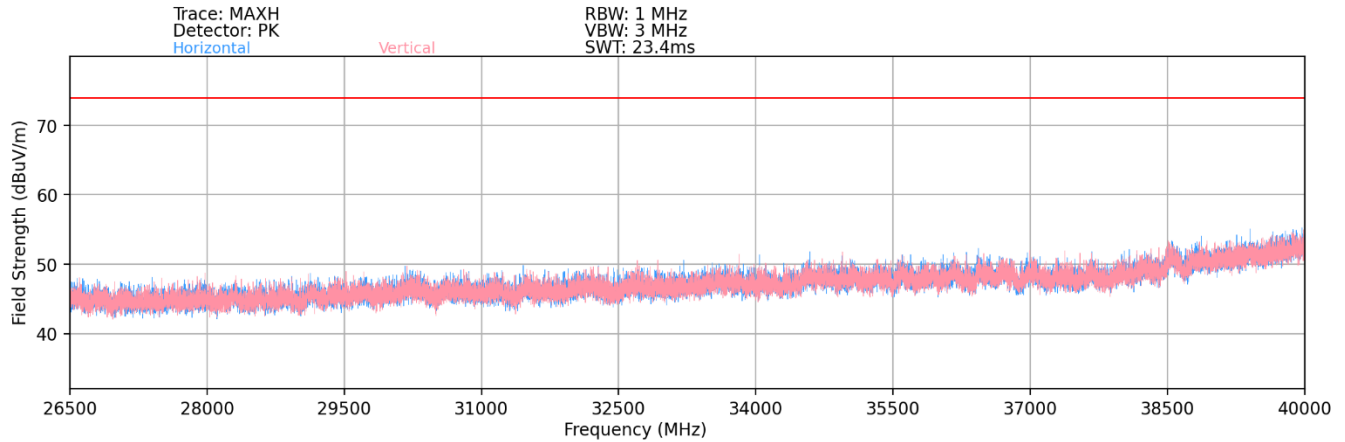


**Plot 7-362. Radiated Spurious Plot above 1GHz (DUAL BT / MIMO 5GHz)**



**Plot 7-363. Radiated Spurious Plot 18GHz – 26.5GHz (DUAL BT / MIMO 5GHz)**

FCC ID: A3LSMS908JPN	 <b>PCTEST</b> Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 225 of 257



Plot 7-364. Radiated Spurious Plot above 26.5GHz (DUAL BT / MIMO 5GHz)

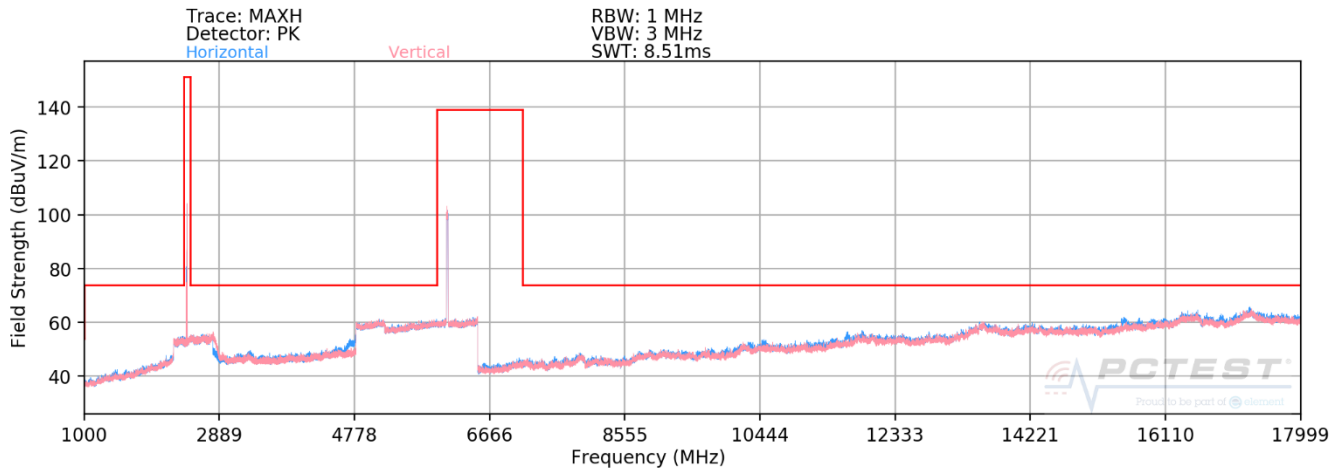
	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	3677.00	Average	H	-	-	-76.11	10.92	41.81	53.98	-12.17
*	3677.00	Peak	H	-	-	-64.31	10.92	53.61	73.98	-20.37
	6736.00	Peak	H	-	-	-65.46	16.01	57.55	68.20	-10.65
	8559.00	Peak	H	-	-	-66.33	9.94	50.61	68.20	-17.59
*	11618.00	Average	H	-	-	-82.69	13.40	37.71	53.98	-16.27
*	11618.00	Peak	H	-	-	-69.34	13.40	51.06	73.98	-22.92

Table 7-48. Radiated Measurements (DUAL BT / MIMO 5GHz)

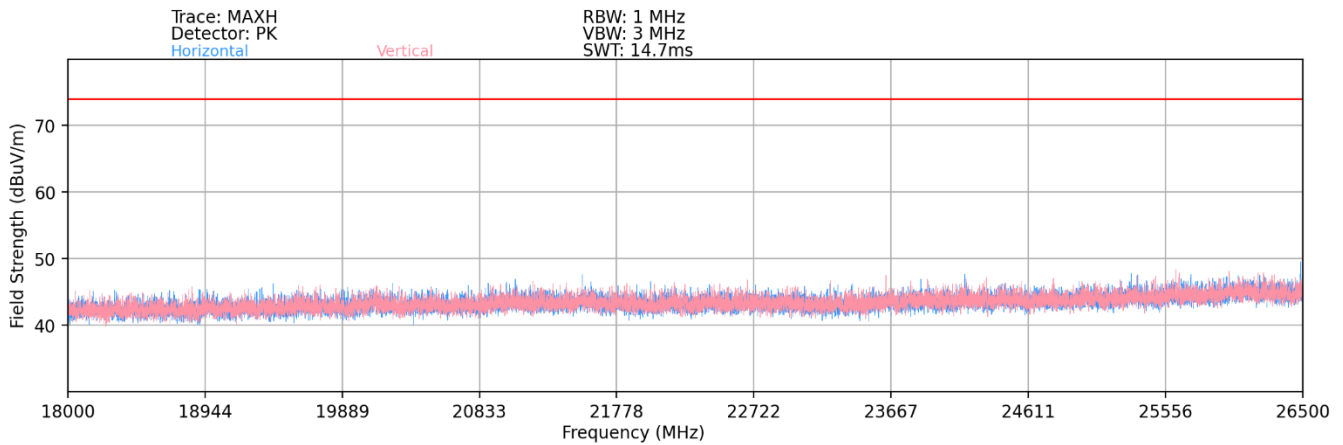
FCC ID: A3LSMS908JPN	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 226 of 257

Description	Bluetooth Emission	6 GHz Emission
Antenna	1,2	1,2
Channel	39	117
Operating Frequency (MHz)	2441	6535
Data Rate (Mbps)	1Mbps	6Mbps
Mode	ePA	a

**Table 7-49. Dual Band Simultaneous Transmission**

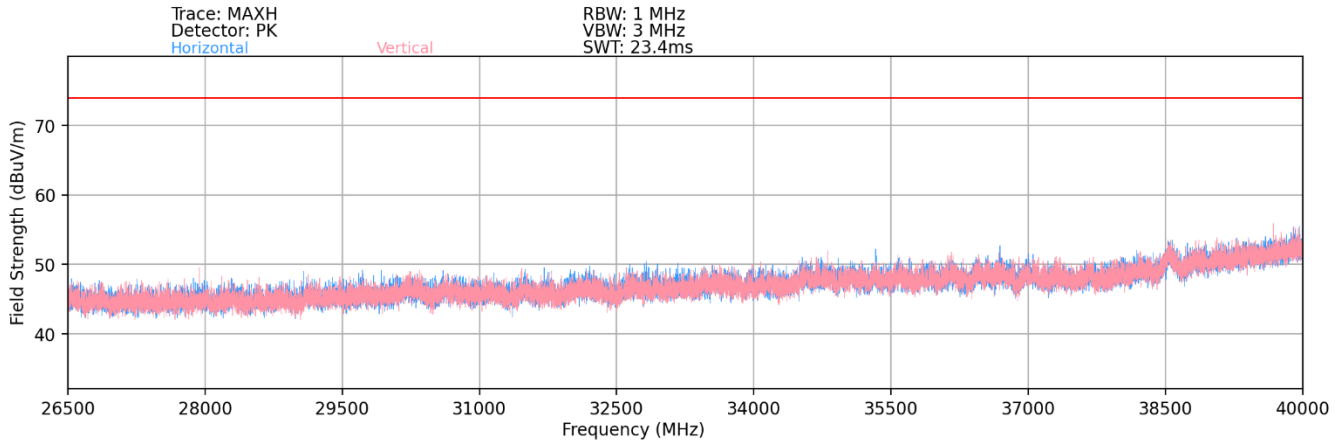


**Plot 7-365. Radiated Spurious Plot above 1GHz (DUAL BT / MIMO 6GHz)**



**Plot 7-366. Radiated Spurious Plot 18GHz - 26.5GHz (DUAL BT / MIMO 6GHz)**

FCC ID: A3LSMS908JPN	 <b>PCTEST</b> Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 227 of 257



Plot 7-367. Radiated Spurious Plot above 26.5GHz (DUAL BT / MIMO 6GHz)

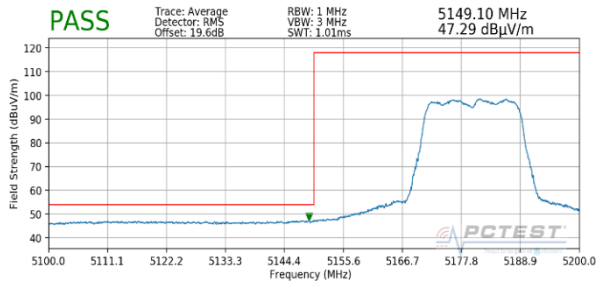
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 1193.00	Average	H	-	-	-75.07	2.89	34.82	53.98	-19.16
* 1193.00	Peak	H	-	-	-62.64	2.89	47.25	73.98	-26.73
* 4827.00	Average	H	-	-	-75.57	12.50	43.93	53.98	-10.05
* 4827.00	Peak	H	-	-	-65.79	12.50	53.71	73.98	-20.27
* 8461.00	Average	H	-	-	-81.13	8.45	34.32	53.98	-19.66
* 8461.00	Peak	H	-	-	-68.29	8.45	47.16	73.98	-26.82
* 13343.00	Average	H	-	-	-82.47	15.44	39.97	53.98	-14.01
* 13343.00	Peak	H	-	-	-69.52	15.44	52.92	73.98	-21.06

Table 7-50. Radiated Measurements (DUAL BT / MIMO 6GHz)

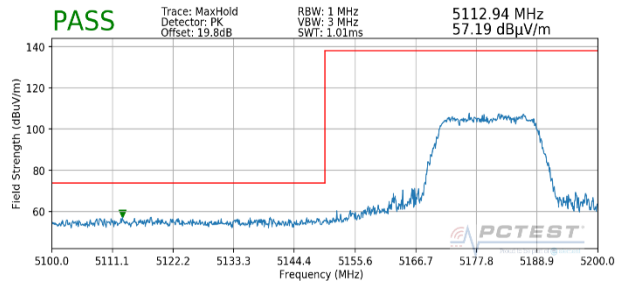
FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 228 of 257

### 7.6.3 MIMO Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

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

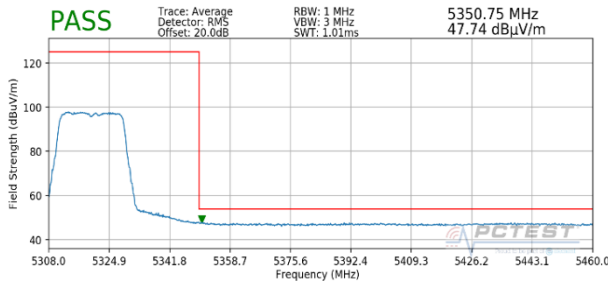


Plot 7-368. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)

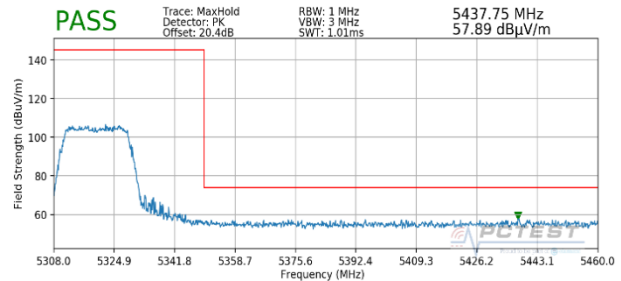


Plot 7-369. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)

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



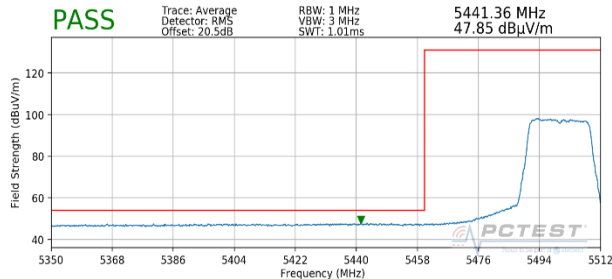
Plot 7-370. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)



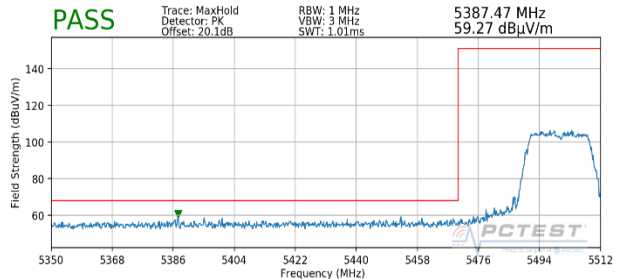
Plot 7-371. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Worst Case Mode: 802.11n  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5500MHz  
 Channel: 100

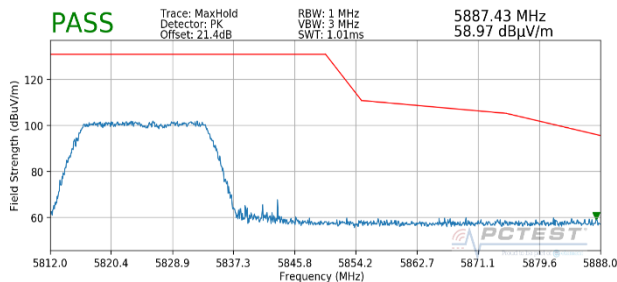


**Plot 7-372. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)**



**Plot 7-373. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)**

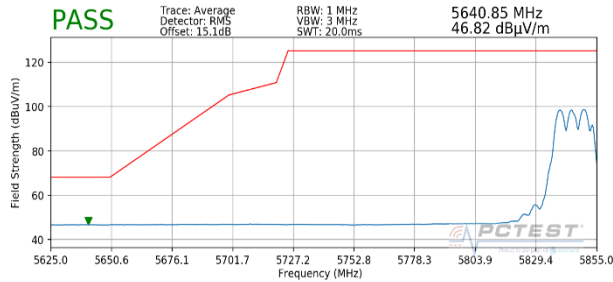
Worst Case Mode: 802.11n  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5825MHz  
 Channel: 165



**Plot 7-374. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3)**

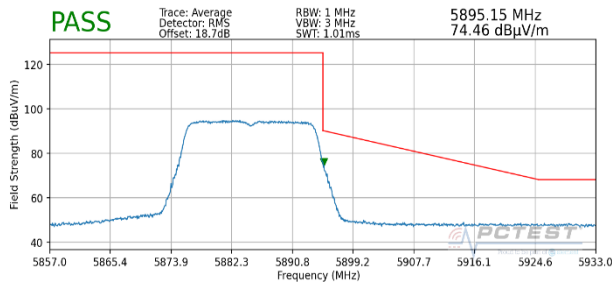
FCC ID: A3LSMS908JPN	 <p>PCTEST<sup>®</sup> Proud to be part of element</p>	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset	Page 230 of 257	

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6Mbps  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5845MHz  
 Channel: 169



**Plot 7-375. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 4)**

Worst Case Mode: 802.11ac  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5885MHz  
 Channel: 177



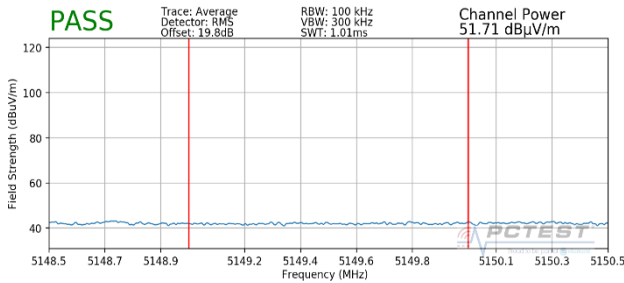
**Plot 7-376. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 4)**

FCC ID: A3LSMS908JPN	 Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 231 of 257

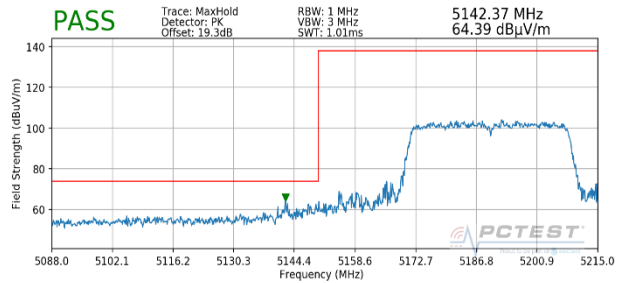


### 7.6.4 MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

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

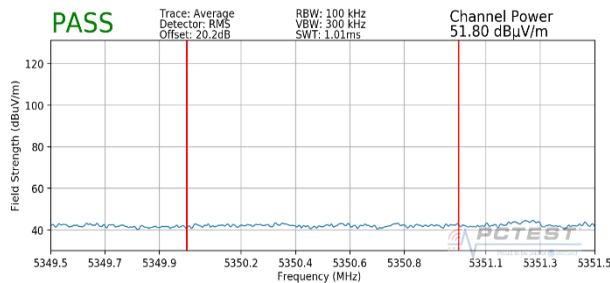


Plot 7-377. Radiated Lower Band Edge Plot MIMO (Average - UNII Band 1)

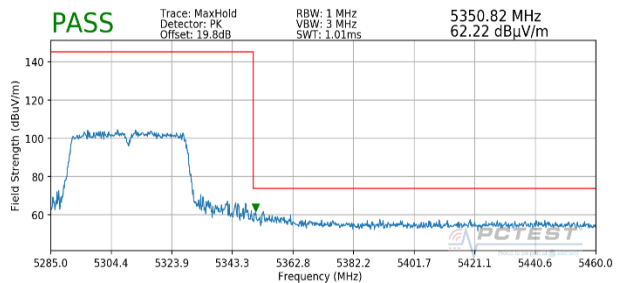


Plot 7-378. Radiated Lower Band Edge Plot MIMO (Peak - UNII Band 1)

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



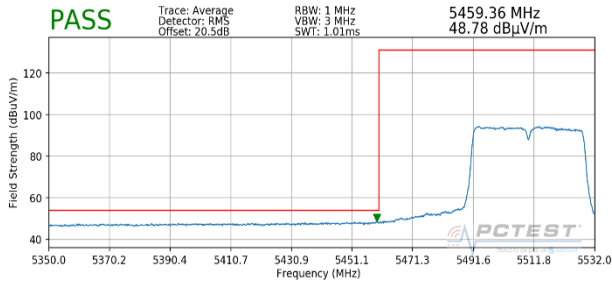
Plot 7-379. Radiated Upper Band Edge Plot MIMO (Average - UNII Band 2A)



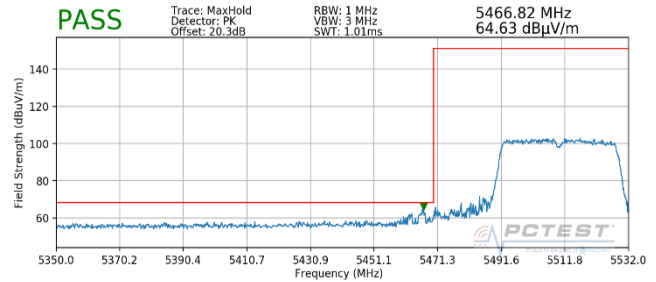
Plot 7-380. Radiated Upper Band Edge Plot MIMO (Peak - UNII Band 2A)

FCC ID: A3LSMS908JPN	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Worst Case Mode: 802.11n  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5510MHz  
 Channel: 102

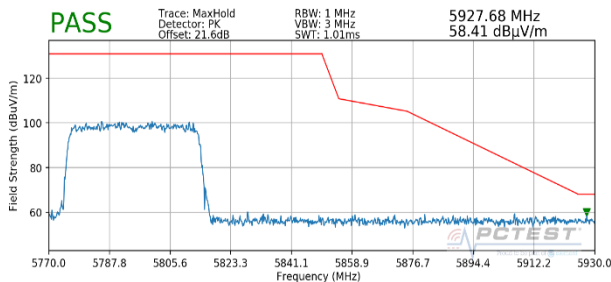


**Plot 7-381. Radiated Lower Band Edge Plot MIMO (Average - UNII Band 2C)**



**Plot 7-382. Radiated Lower Band Edge Plot MIMO (Peak - UNII Band 2C)**

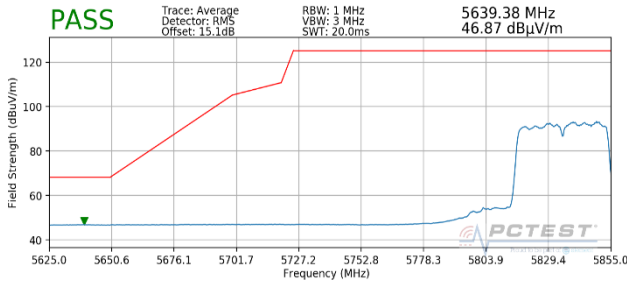
Worst Case Mode: 802.11n  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5795MHz  
 Channel: 159



**Plot 7-383. Radiated Upper Band Edge Plot MIMO (Peak - UNII Band 3)**

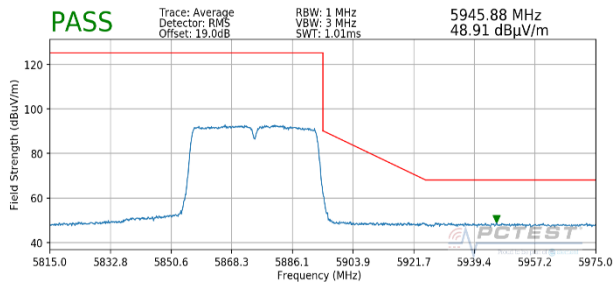
FCC ID: A3LSMS908JPN	 <p>PCTEST<sup>®</sup> Proud to be part of element</p>	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset	Page 233 of 257	

Worst Case Mode: 802.11ax  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5835MHz  
 Channel: 167



**Plot 7-384. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 4)**

Worst Case Mode: 802.11ac  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5875MHz  
 Channel: 175



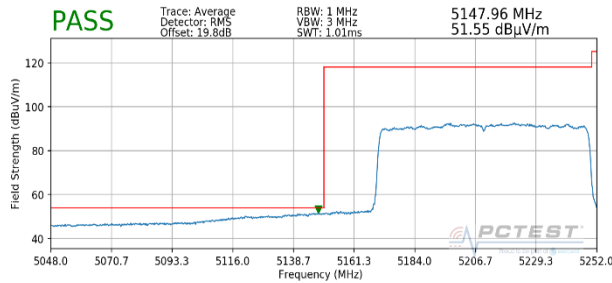
**Plot 7-385. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 4)**

<b>FCC ID:</b> A3LSMS908JPN		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112100159-07.A3L	<b>Test Dates:</b> 9/14/2021 - 11/12/2021	<b>EUT Type:</b> Portable Handset	Page 234 of 257	

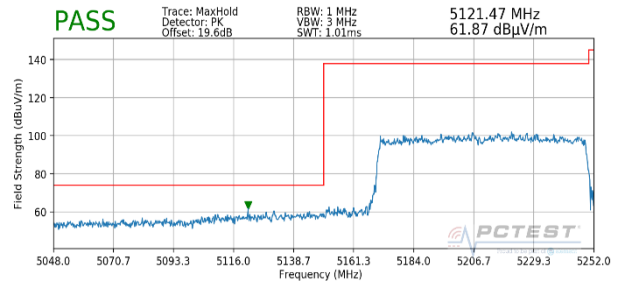
## 7.6.5 MIMO Radiated Band Edge Measurements (80MHz BW)

**\$15.407(b.1)(b.2) \$15.205 \$15.209; RSS-Gen [8.9]**

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

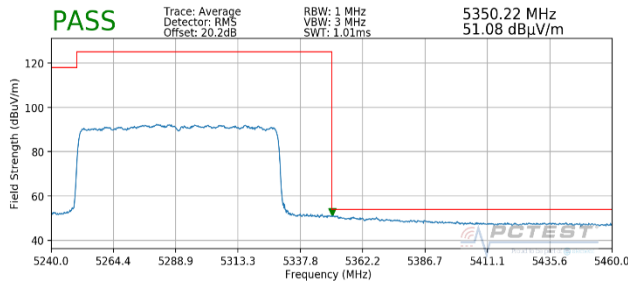


**Plot 7-386. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)**

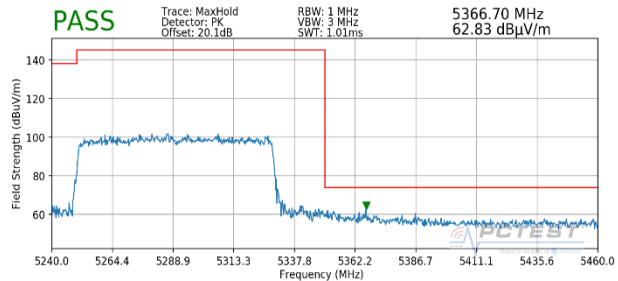


**Plot 7-387. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)**

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



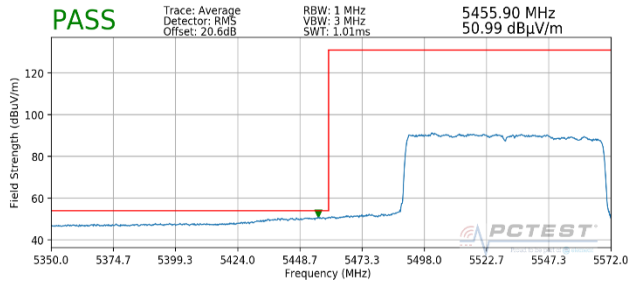
**Plot 7-388. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)**



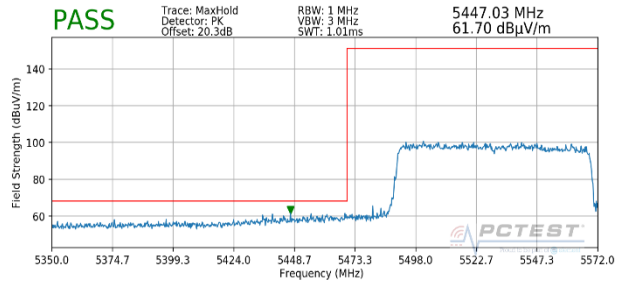
**Plot 7-389. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)**

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Worst Case Mode: 802.11ac  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5530MHz  
 Channel: 106

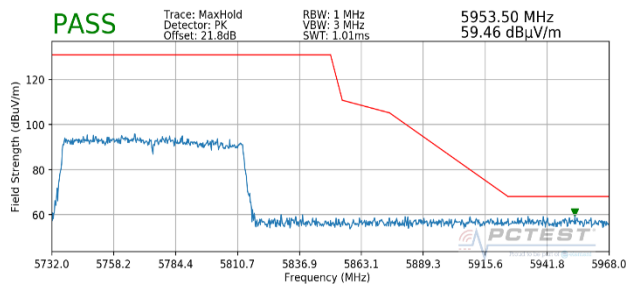


**Plot 7-390. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)**



**Plot 7-391. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)**

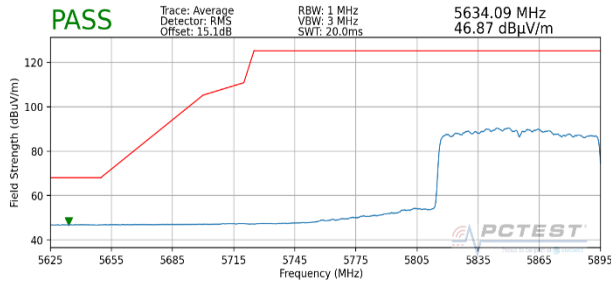
Worst Case Mode: 802.11ac  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5775MHz  
 Channel: 155



**Plot 7-392. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3)**

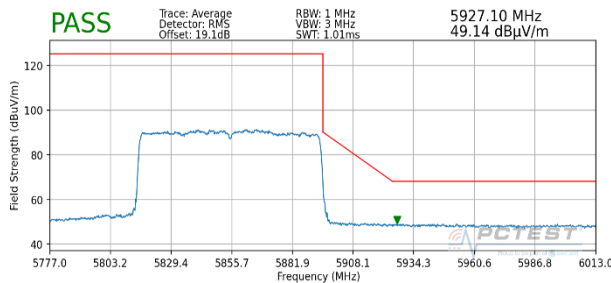
<b>FCC ID:</b> A3LSMS908JPN		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112100159-07.A3L	<b>Test Dates:</b> 9/14/2021 - 11/12/2021	<b>EUT Type:</b> Portable Handset	Page 236 of 257	

Worst Case Mode: 802.11ax  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5855MHz  
 Channel: 171



**Plot 7-393. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 4)**

Worst Case Mode: 802.11ax  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5855MHz  
 Channel: 171

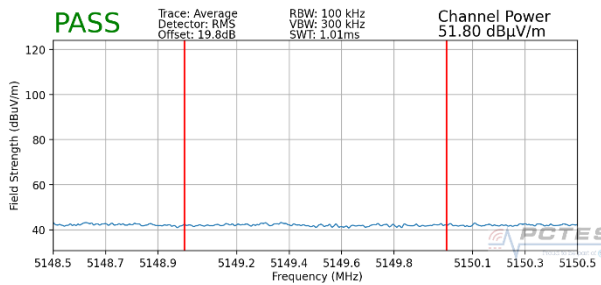


**Plot 7-394. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 4)**

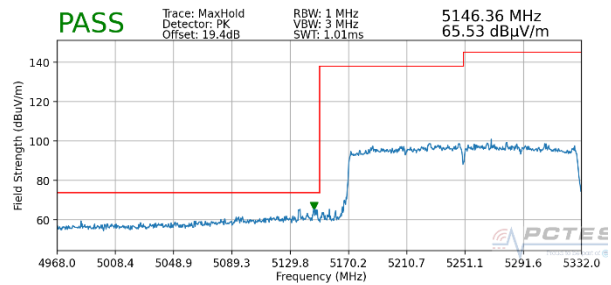
FCC ID: A3LSMS908JPN	 <p>Proud to be part of </p>	MEASUREMENT REPORT (CERTIFICATION)	 Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset	Page 237 of 257

## 7.6.6 MIMO Radiated Band Edge Measurements (160MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5250MHz
Channel:	50

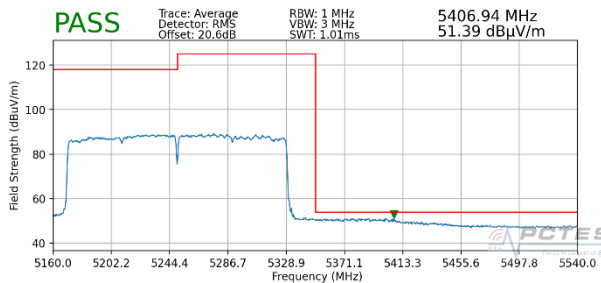


Plot 7-395. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)

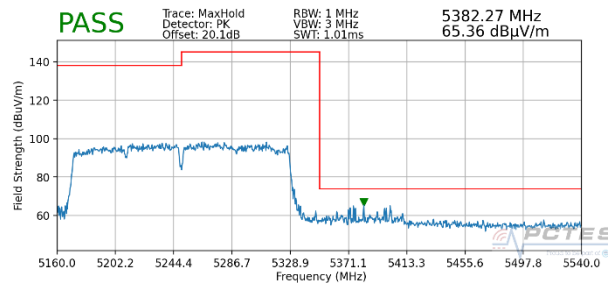


Plot 7-396. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)

Worst Case Mode:	802.11ac
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5250MHz
Channel:	50



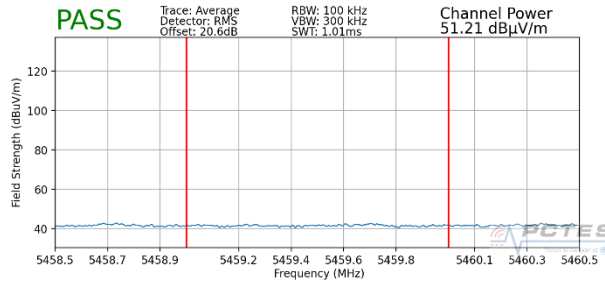
Plot 7-397. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)



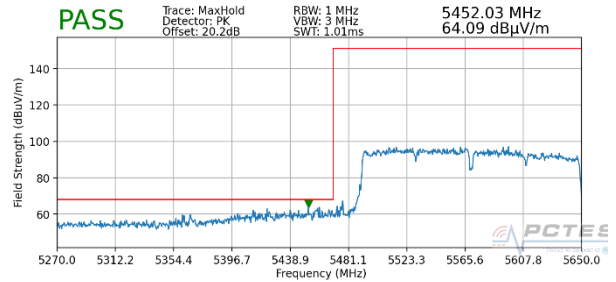
Plot 7-398. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		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: 5570MHz  
 Channel: 117



**Plot 7-399. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)**

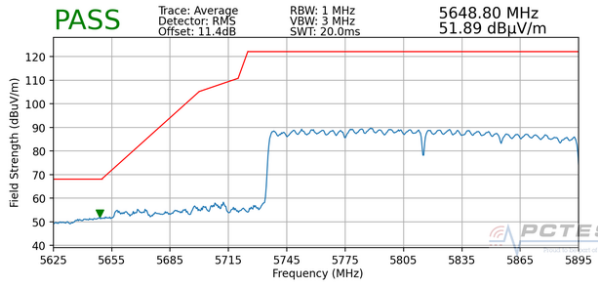


**Plot 7-400. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)**

<b>FCC ID:</b> A3LSMS908JPN		<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112100159-07.A3L	<b>Test Dates:</b> 9/14/2021 - 11/12/2021	<b>EUT Type:</b> Portable Handset	Page 239 of 257

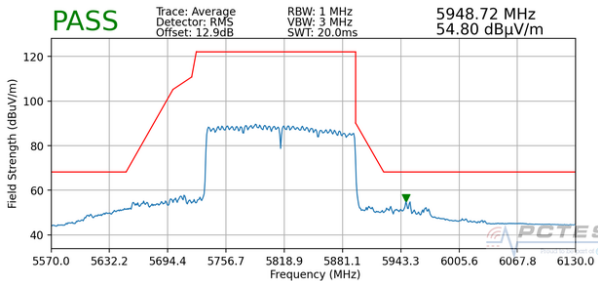


Worst Case Mode: 802.11ax  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5815MHz  
 Channel: 163



**Plot 7-401. Radiated Lower Band Edge Plot MIMO (Average - UNII Band 4)**

Worst Case Mode: 802.11ax  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5815MHz  
 Channel: 163



**Plot 7-402. Radiated Upper Band Edge Plot MIMO (Average - UNII Band 4)**

FCC ID: A3LSMS908JPN	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 240 of 257

## 7.7 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 7-51 per Section 15.209 and RSS-Gen (8.9).**

Frequency	Field Strength [ $\mu$ 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 7-51. Radiated Limits

### Test Procedures Used

ANSI C63.10-2013

### Test Settings

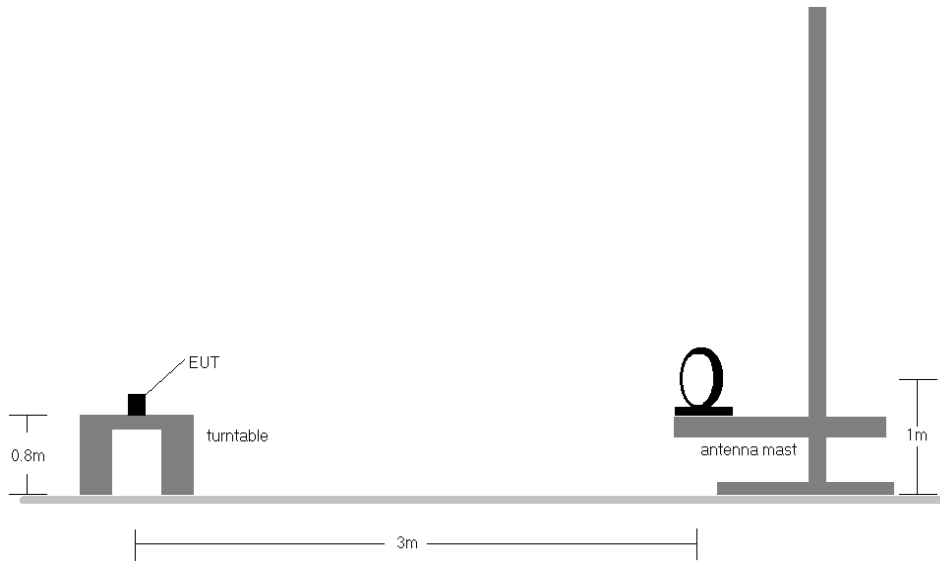
#### Quasi-Peak Field Strength Measurements

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

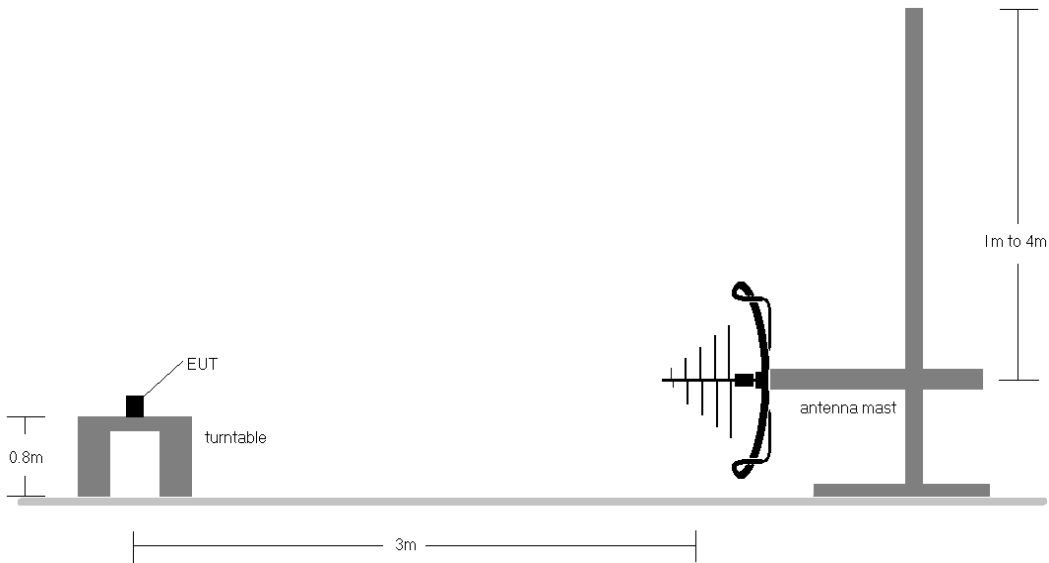
FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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**Test Setup**

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



**Figure 7-6. Radiated Test Setup < 30MHz**



**Figure 7-7. Radiated Test Setup < 1GHz**

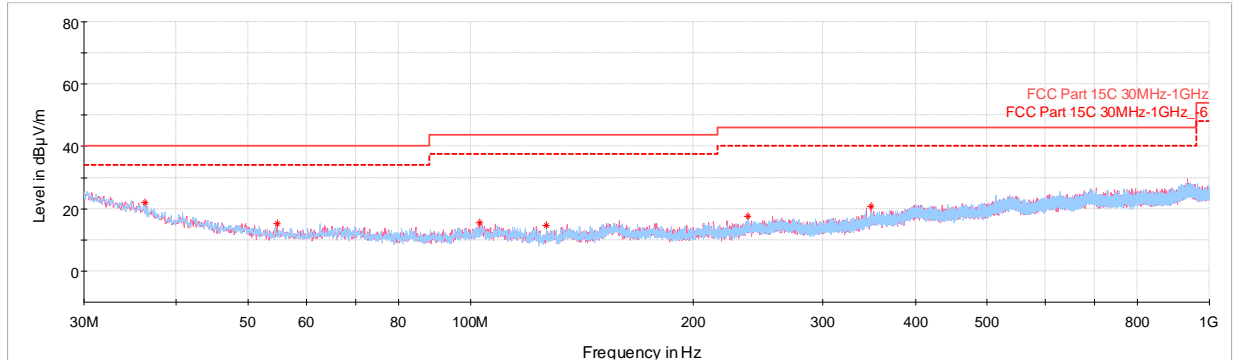
<p>FCC ID: A3LSMS908JPN</p>		<p>MEASUREMENT REPORT (CERTIFICATION)</p>	<p>Approved by: Technical Manager</p>
<p>Test Report S/N: 1M2112100159-07.A3L</p>	<p>Test Dates: 9/14/2021 - 11/12/2021</p>	<p>EUT Type: Portable Handset</p>	<p>Page 242 of 257</p>

**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 7-51.
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.

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<b>Test Report S/N:</b> 1M2112100159-07.A3L	<b>Test Dates:</b> 9/14/2021 - 11/12/2021	<b>EUT Type:</b> Portable Handset	Page 243 of 257	

**MIMO Radiated Spurious Emissions Measurements (Below 1GHz)**  
**§15.209; RSS-Gen [8.9]**

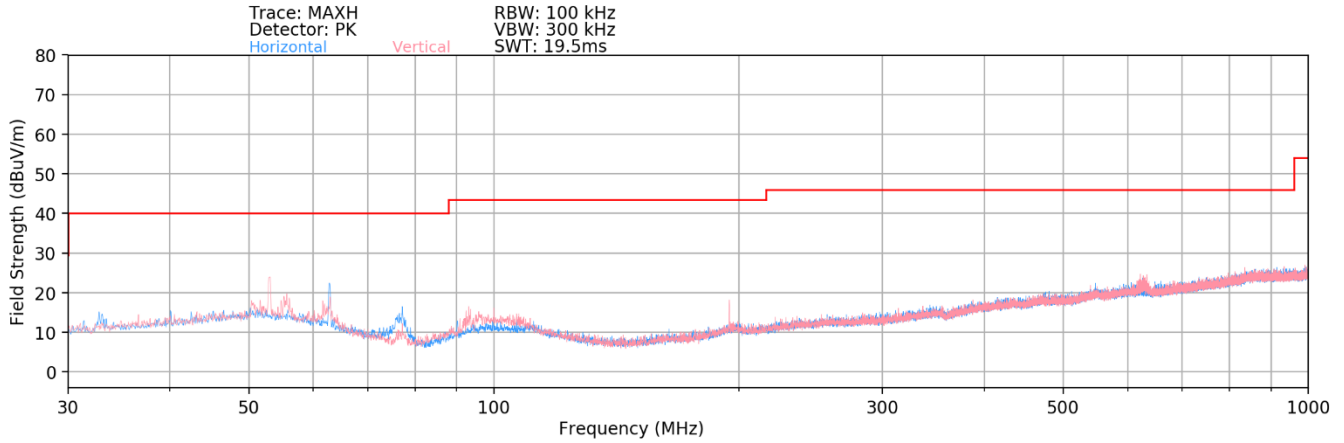


— Preview Result 1V-PK+      — Preview Result 1H-PK+      \* Critical\_Freqs PK+  
- - - FCC Part 15C 30MHz-1GHz      - - - FCC Part 15C 30MHz-1GHz\_-6      ◆ Final\_Result QPK

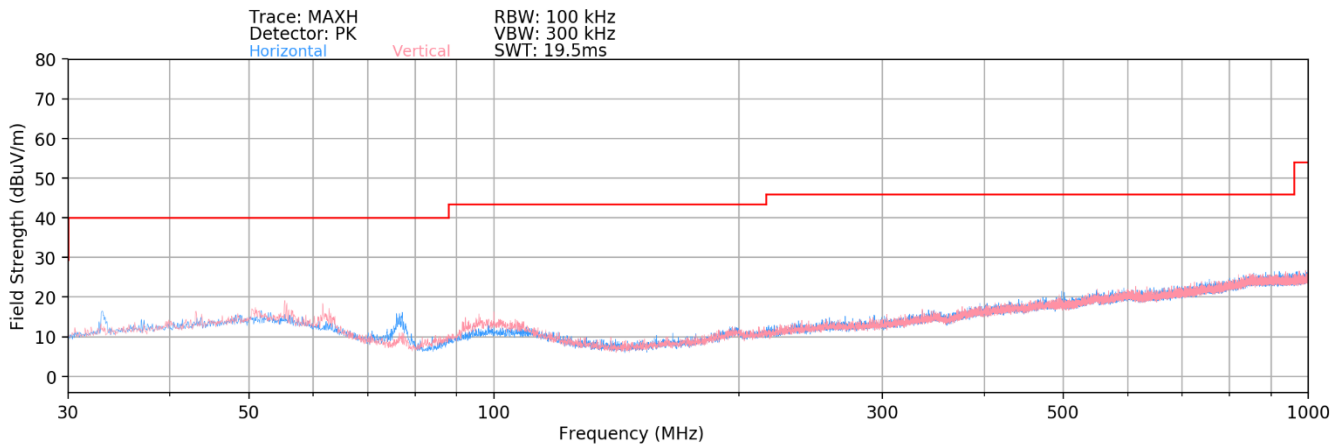
**Plot 7-403. Radiated Spurious Emissions below 1GHz MIMO (802.11a – U3 Ch. 157)**

<b>FCC ID:</b> A3LSMS908JPN		<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112100159-07.A3L	<b>Test Dates:</b> 9/14/2021 - 11/12/2021	<b>EUT Type:</b> Portable Handset	Page 244 of 257

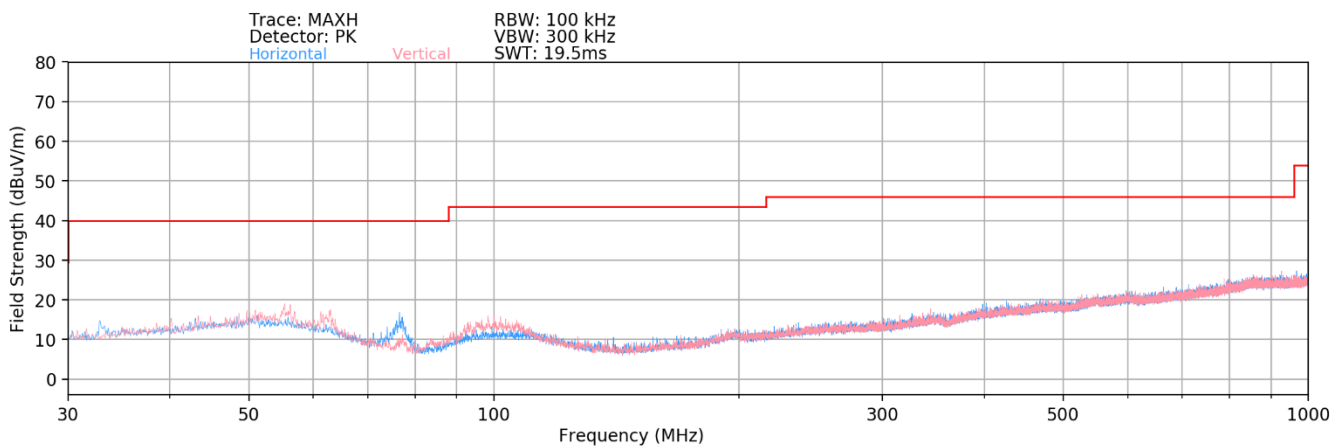
## Simultaneous Tx Radiated Spurious Emissions Measurements (Below 1GHz) §15.209; RSS-Gen [8.9]



Plot 7-404. Radiated Spurious Plot below 1GHz (MIMO 2.4GHz / MIMO 5GHz)

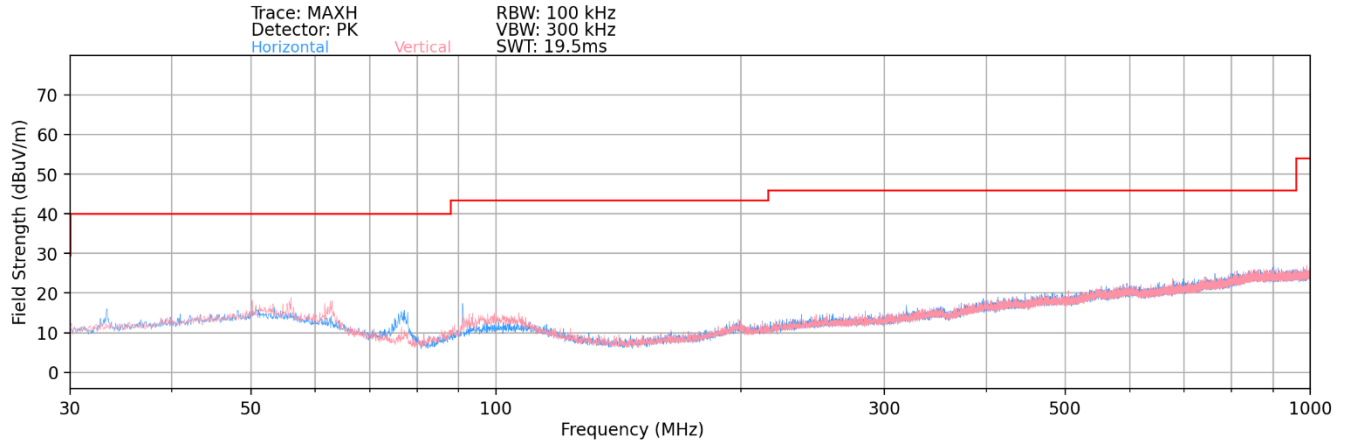


Plot 7-405. Radiated Spurious Plot below 1GHz (MIMO 2.4GHz / MIMO 6GHz)



Plot 7-406. Radiated Spurious Plot below 1GHz (DUAL BT / MIMO 5GHz)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 245 of 257



**Plot 7-407. Radiated Spurious Plot below 1GHz (DUAL BT / MIMO 6GHz)**

<b>FCC ID:</b> A3LSMS908JPN		<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112100159-07.A3L	<b>Test Dates:</b> 9/14/2021 - 11/12/2021	<b>EUT Type:</b> Portable Handset	Page 246 of 257

## 7.8 Line-Conducted Test Data

### §15.407; RSS-Gen [8.8]

#### Test Overview and Limit

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

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

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

Table 7-52. 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

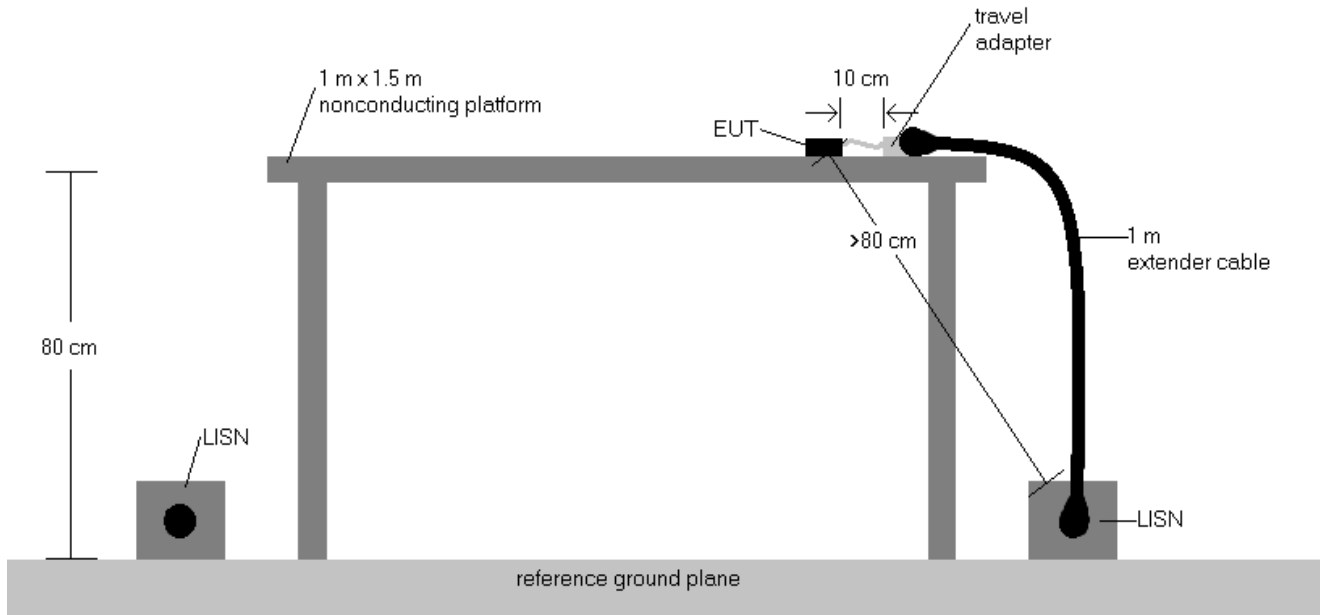
1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = RMS
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

FCC ID: A3LSMS908JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 247 of 257



**Test Setup**

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

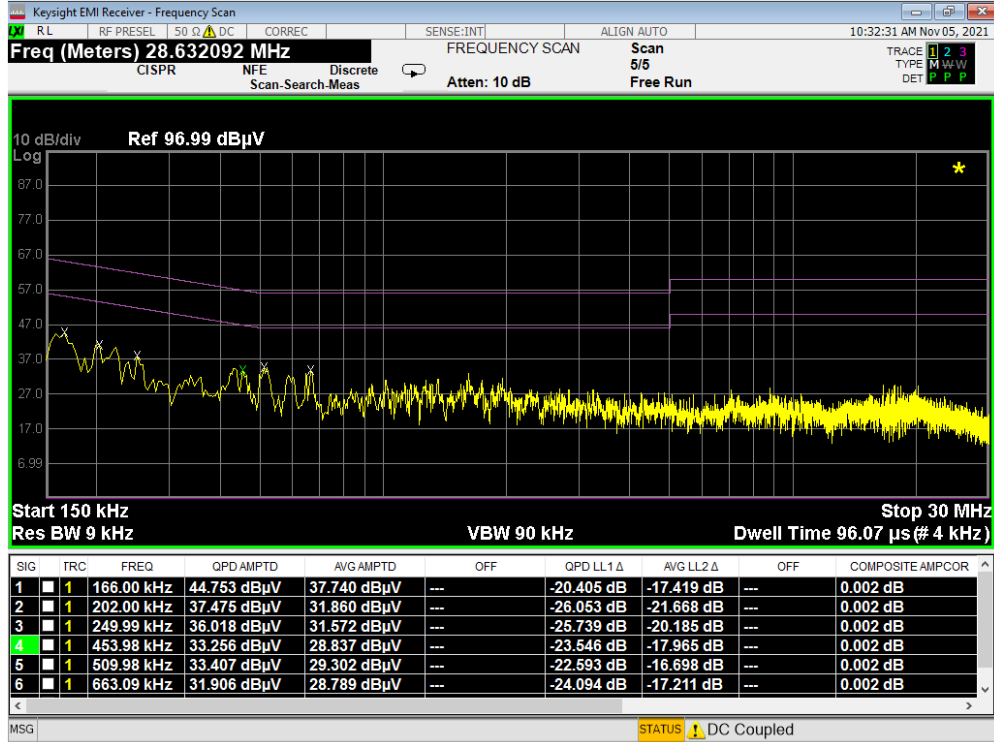


**Figure 7-8. Test Instrument & Measurement Setup**

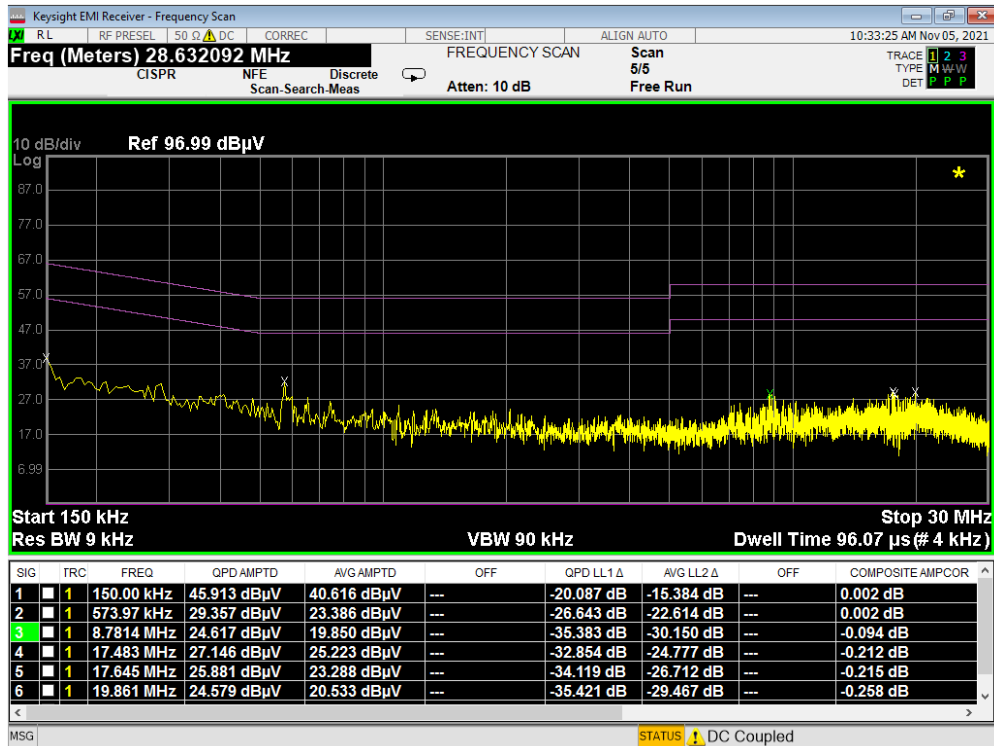
**Test Notes**

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 are specified in 15.207 and RSS-Gen (8.8).
3.  $Corr. (dB) = Cable\ loss (dB) + LISN\ insertion\ factor (dB)$
4.  $QP/AV\ Level (dB\mu V) = QP/AV\ Analyzer/Receiver\ Level (dB\mu V) + Corr. (dB)$
5.  $Margin (dB) = QP/AV\ Limit (dB\mu V) - QP/AV\ Level (dB\mu V)$
6. Traces shown in plot are made using a peak detector.
7. Deviations to the Specifications: None.

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
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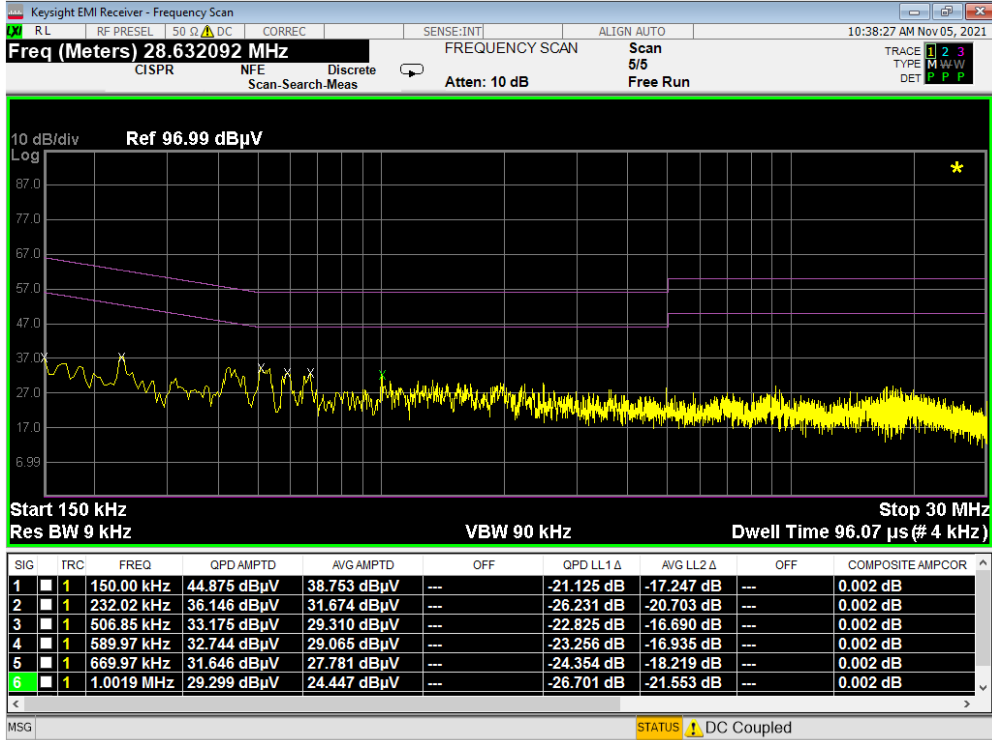


Plot 7-408. Line Conducted Plot with 802.11a UNII Band 1 (L1)

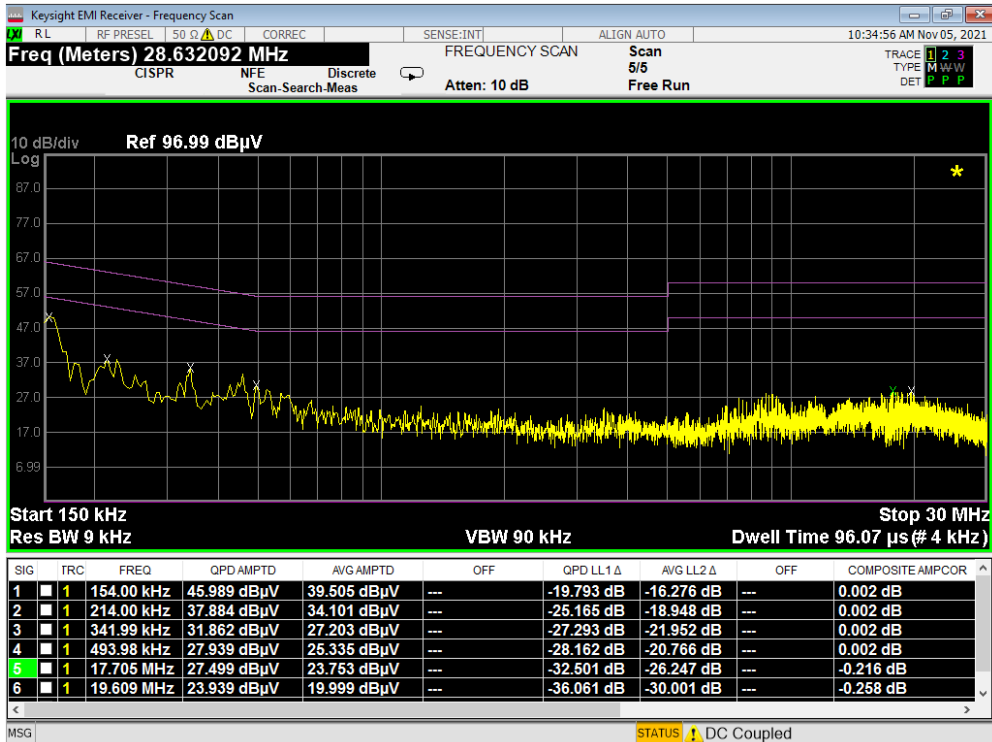


Plot 7-409. Line Conducted Plot with 802.11a UNII Band 1 (N)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 249 of 257

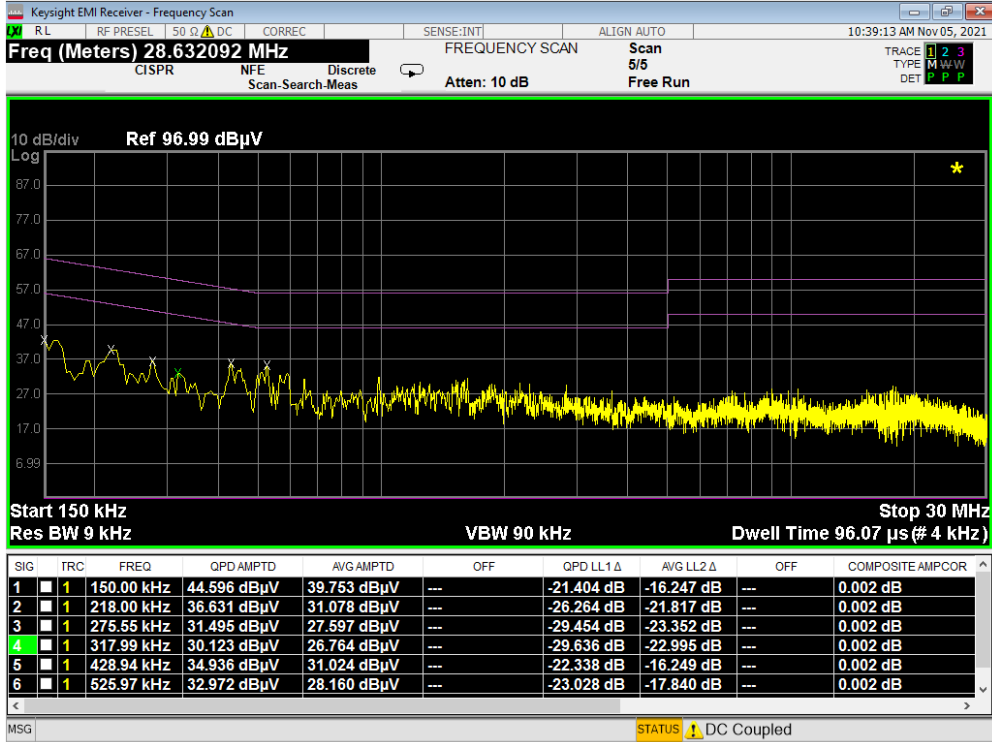


Plot 7-410. Line Conducted Plot with 802.11a UNII Band 2A (L1)

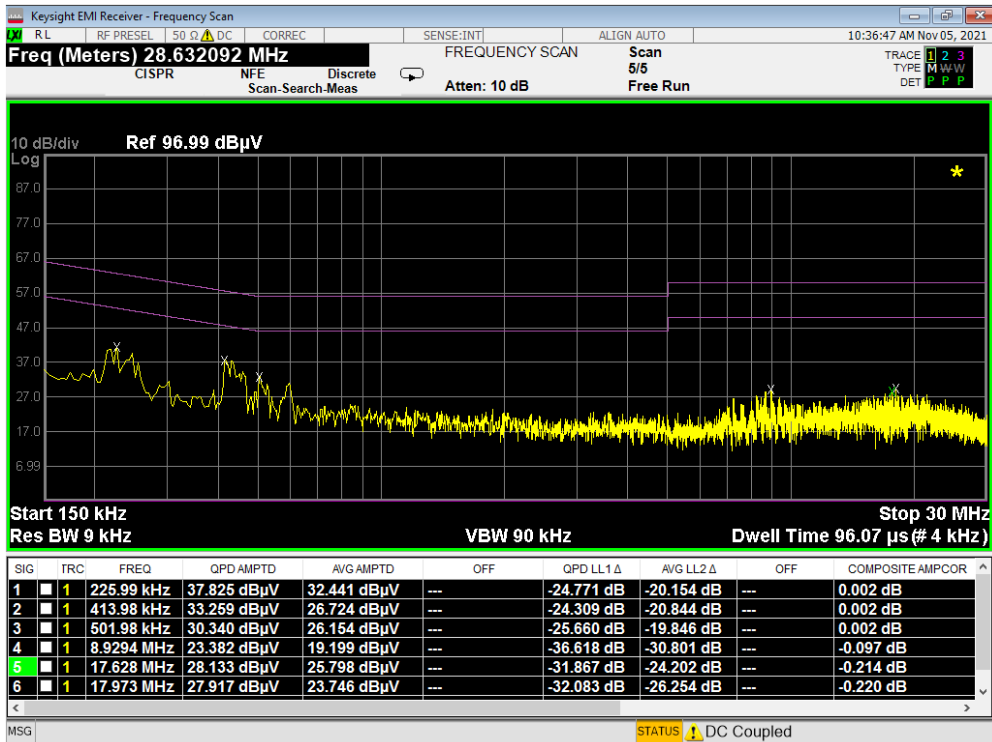


Plot 7-411. Line Conducted Plot with 802.11a UNII Band 2A (N)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 250 of 257

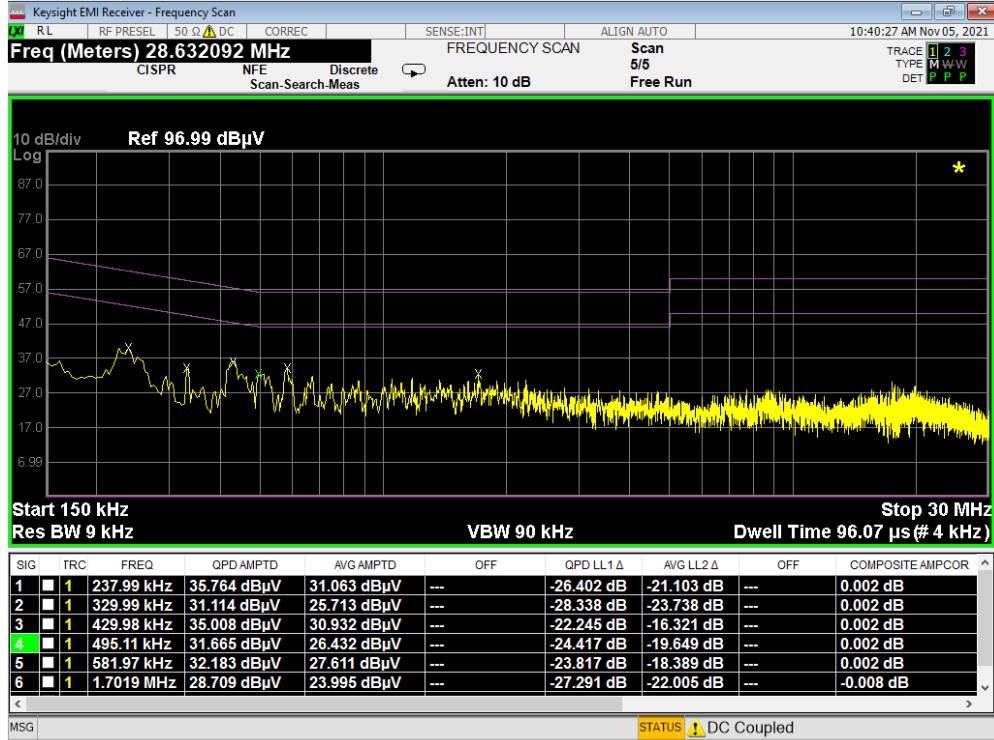


Plot 7-412. Line Conducted Plot with 802.11a UNII Band 2C (L1)

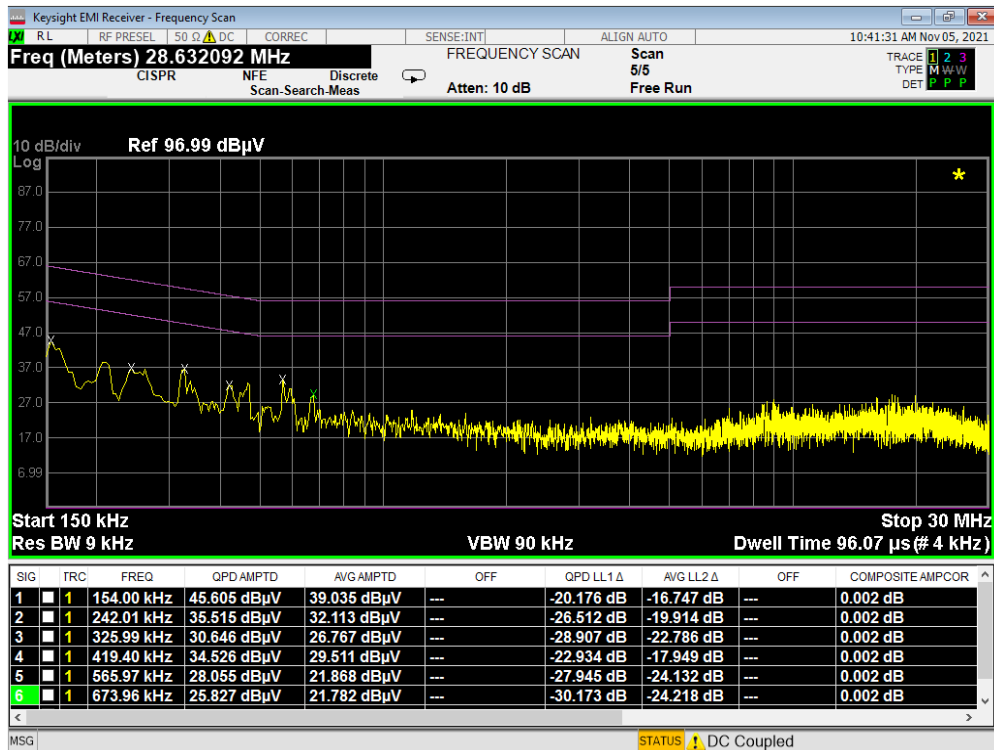


Plot 7-413. Line Conducted Plot with 802.11a UNII Band 2C (N)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 251 of 257

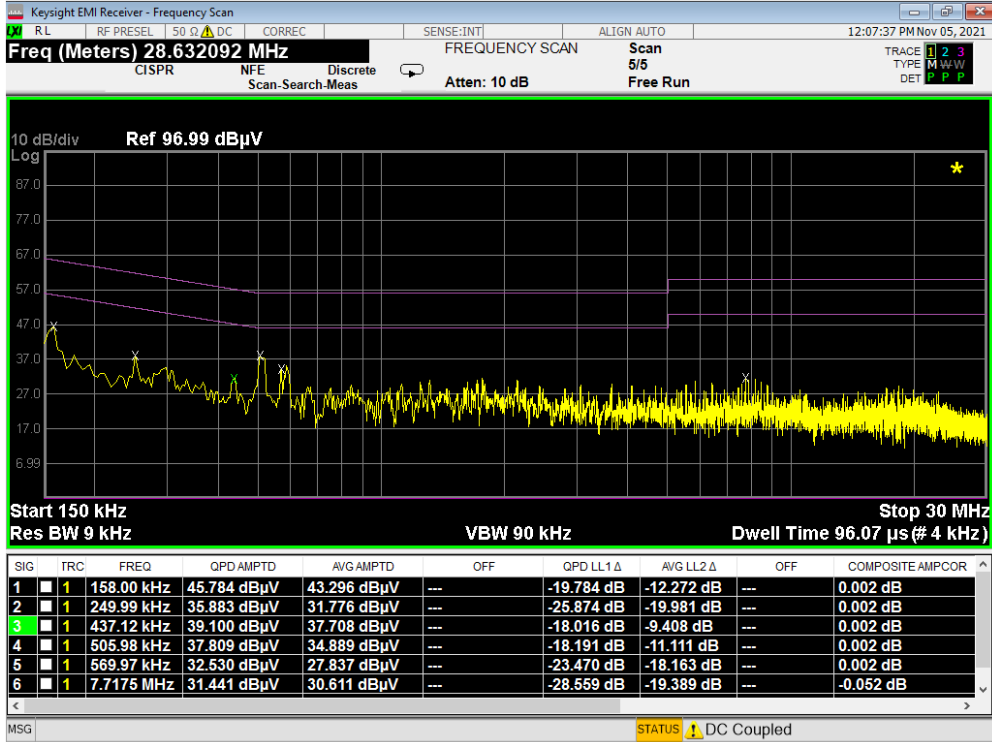


Plot 7-414. Line Conducted Plot with 802.11a UNII Band 3 (L1)

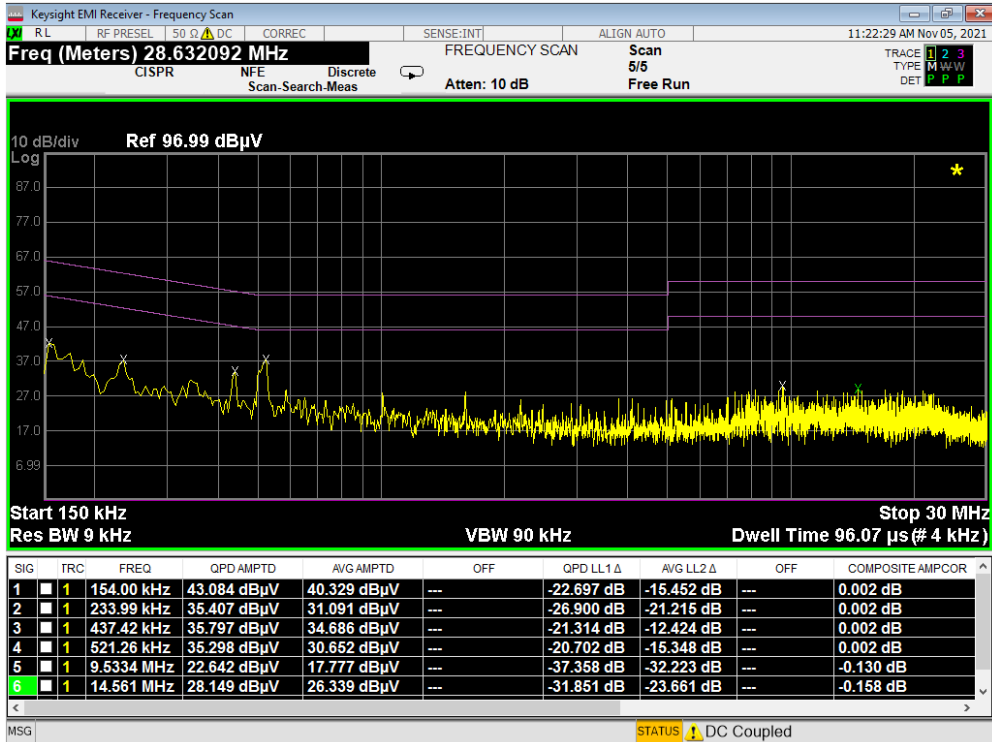


Plot 7-415. Line Conducted Plot with 802.11a UNII Band 3 (N)

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 252 of 257

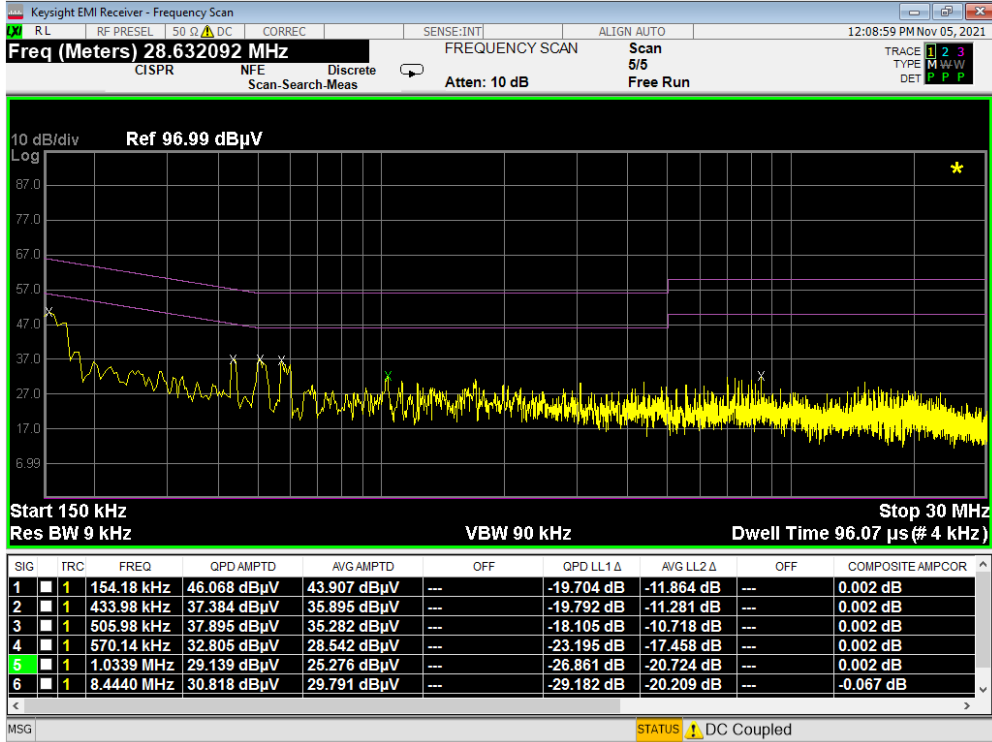


Plot 7-416. Line Conducted Plot with 802.11a UNII Band 1 (L1) – WCP

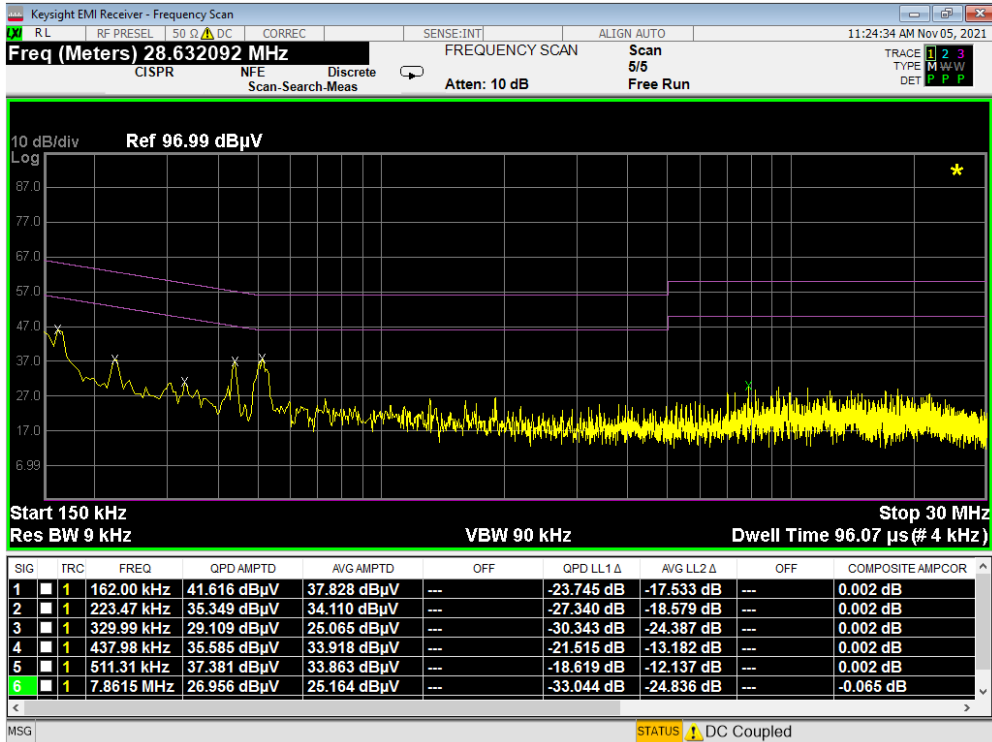


Plot 7-417. Line Conducted Plot with 802.11a UNII Band 1 (N) – WCP

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 253 of 257

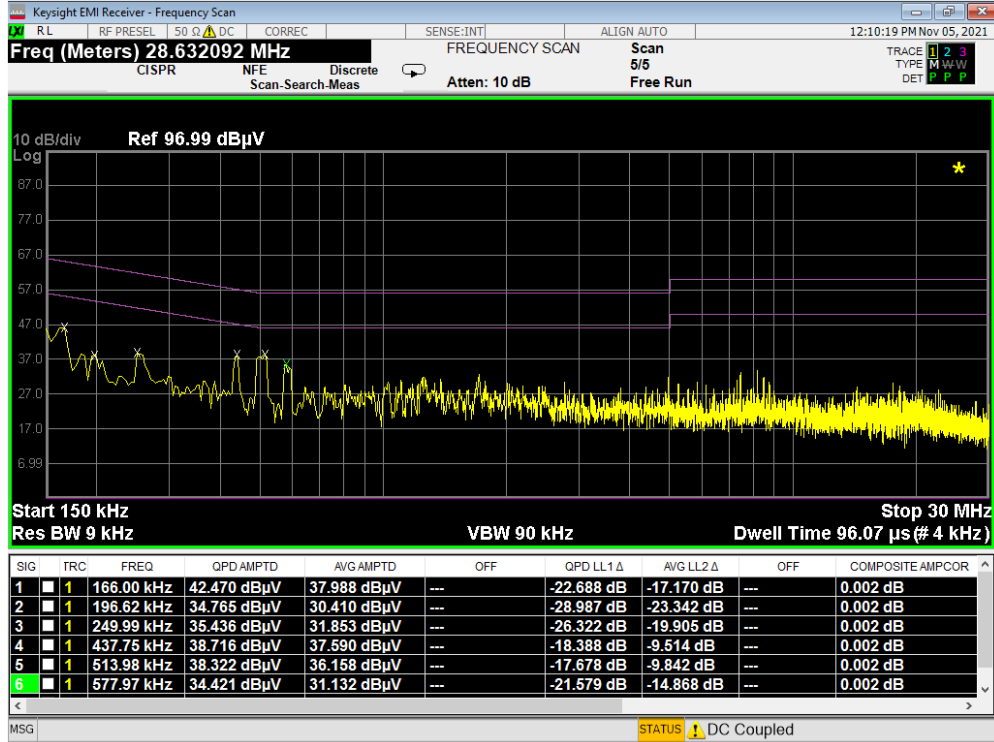


Plot 7-418. Line Conducted Plot with 802.11a UNII Band 2A (L1) – WCP

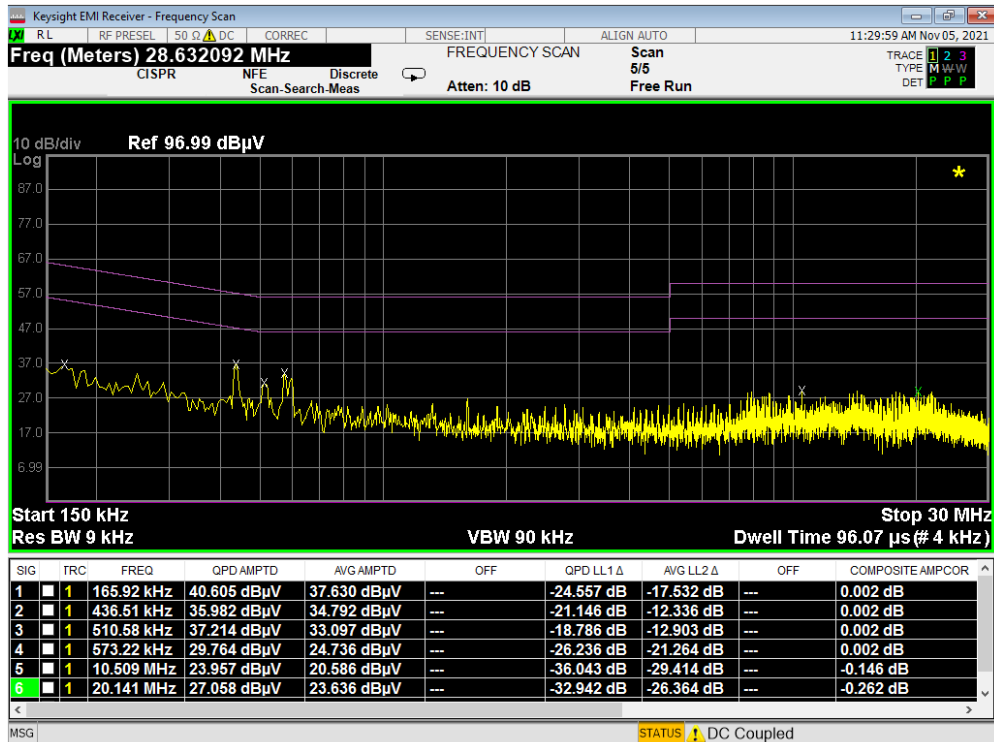


Plot 7-419. Line Conducted Plot with 802.11a UNII Band 2A (N) – WCP

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 254 of 257



Plot 7-420. Line Conducted Plot with 802.11a UNII Band 2C (L1) – WCP



Plot 7-421. Line Conducted Plot with 802.11a UNII Band 2C (N) – WCP

FCC ID: A3LSMS908JPN	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112100159-07.A3L	Test Dates: 9/14/2021 - 11/12/2021	EUT Type: Portable Handset		Page 255 of 257