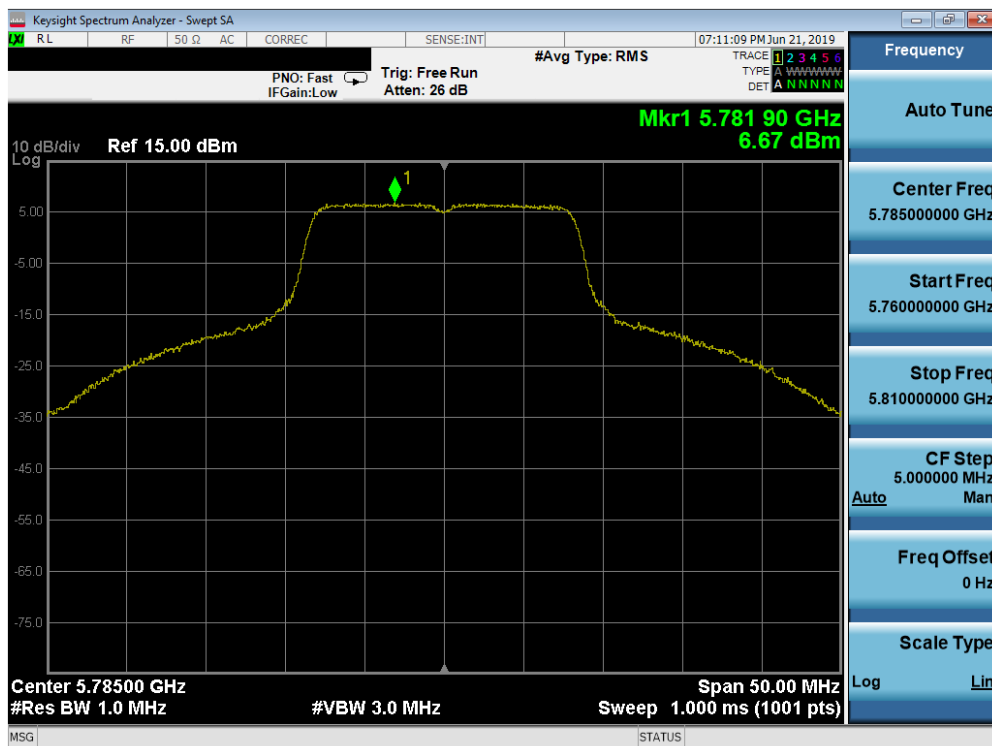
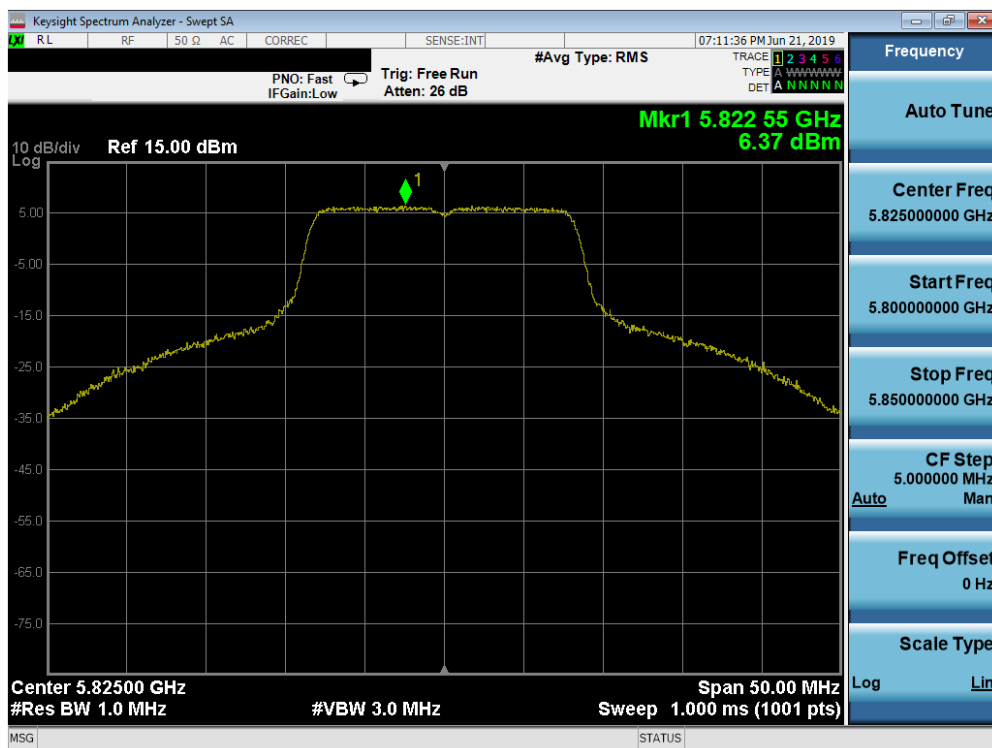


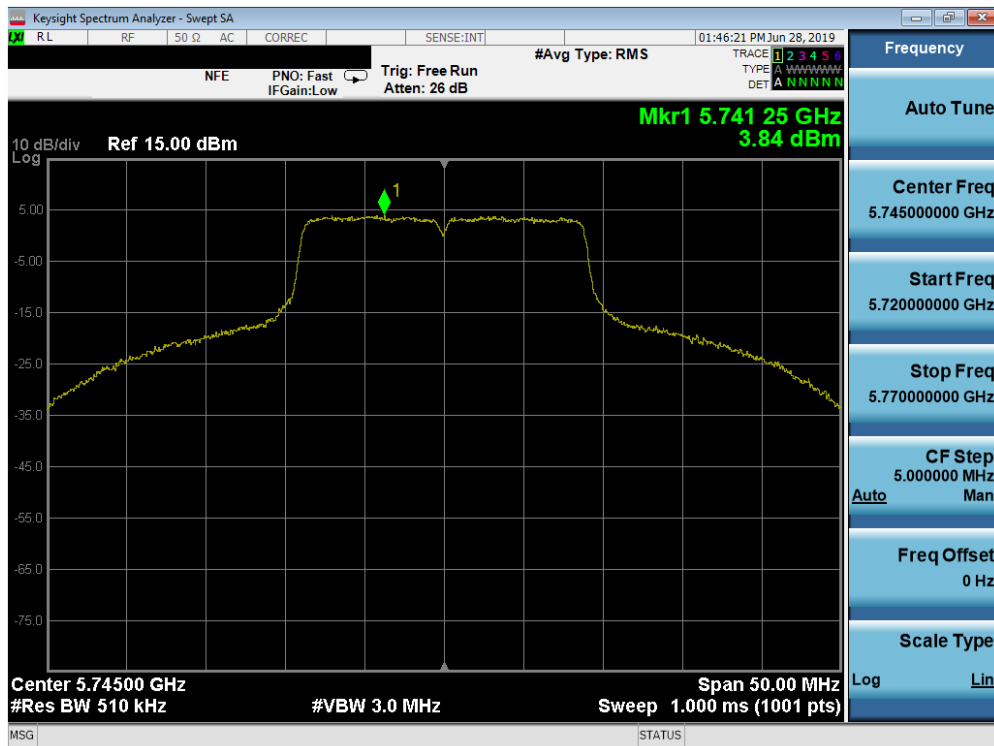


Plot 7-245. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 157)

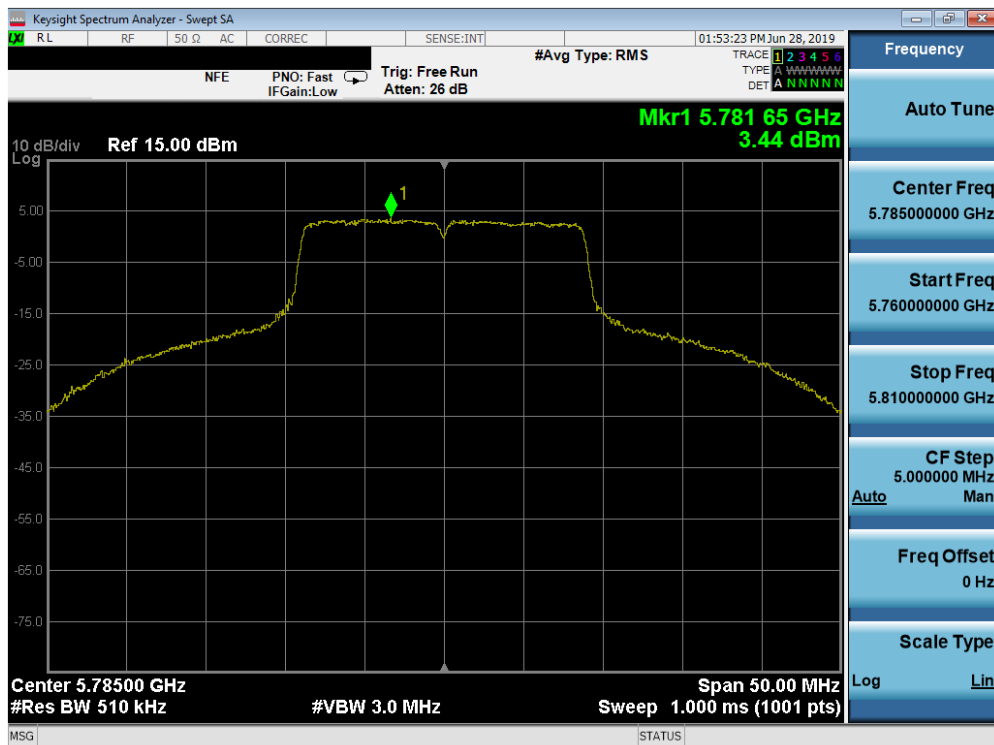


Plot 7-246. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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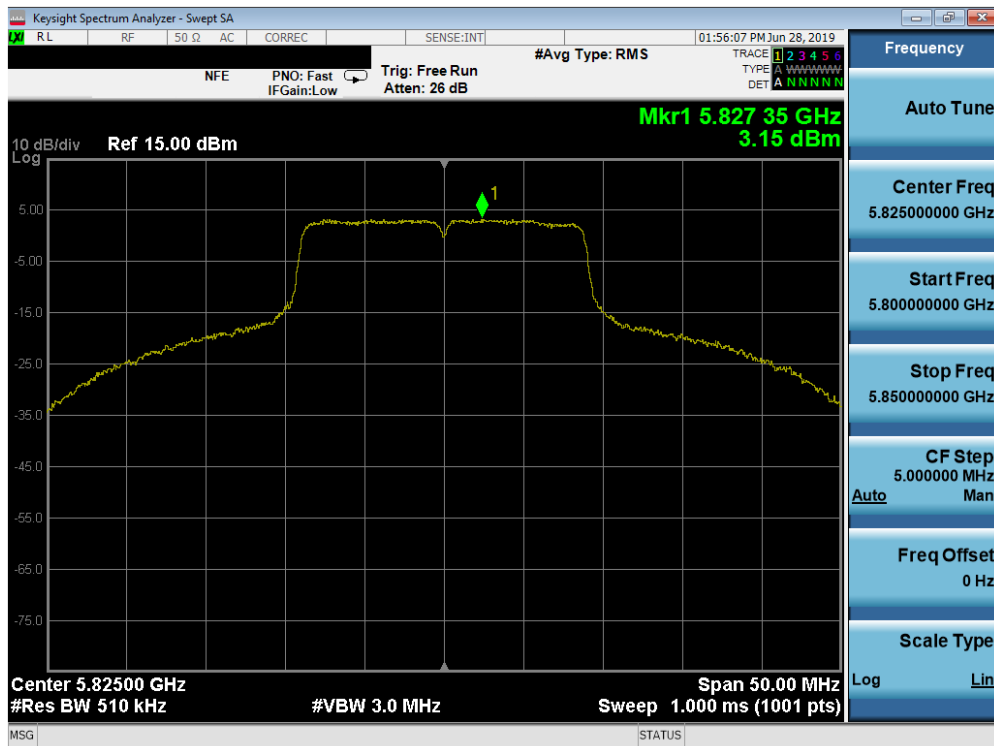


Plot 7-247. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

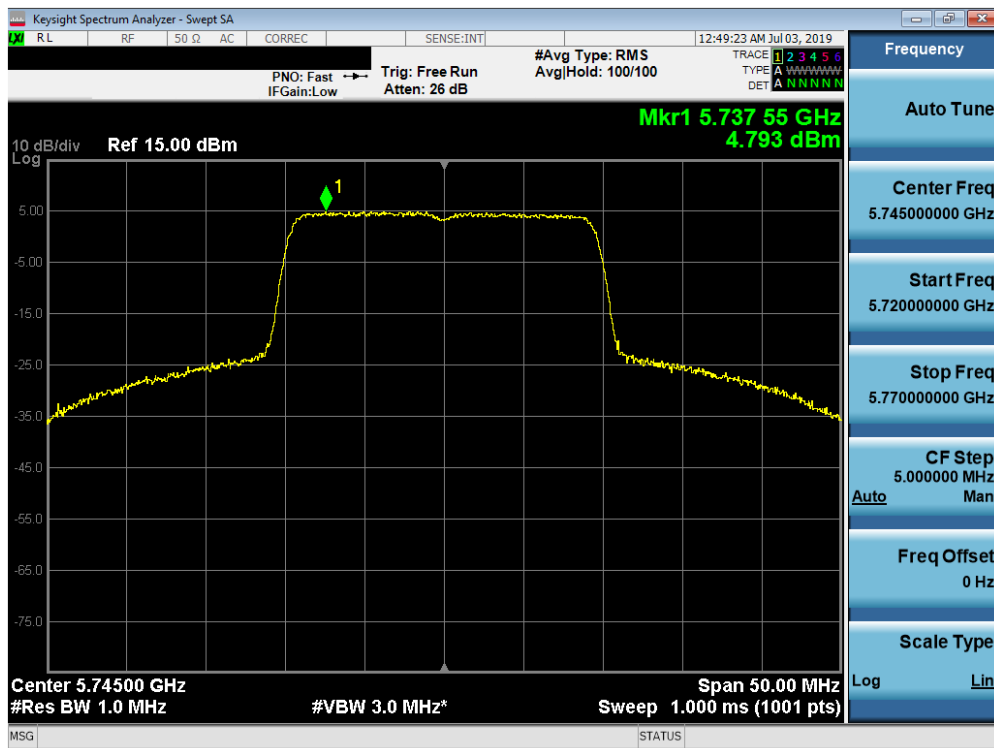


Plot 7-248. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 158 of 247

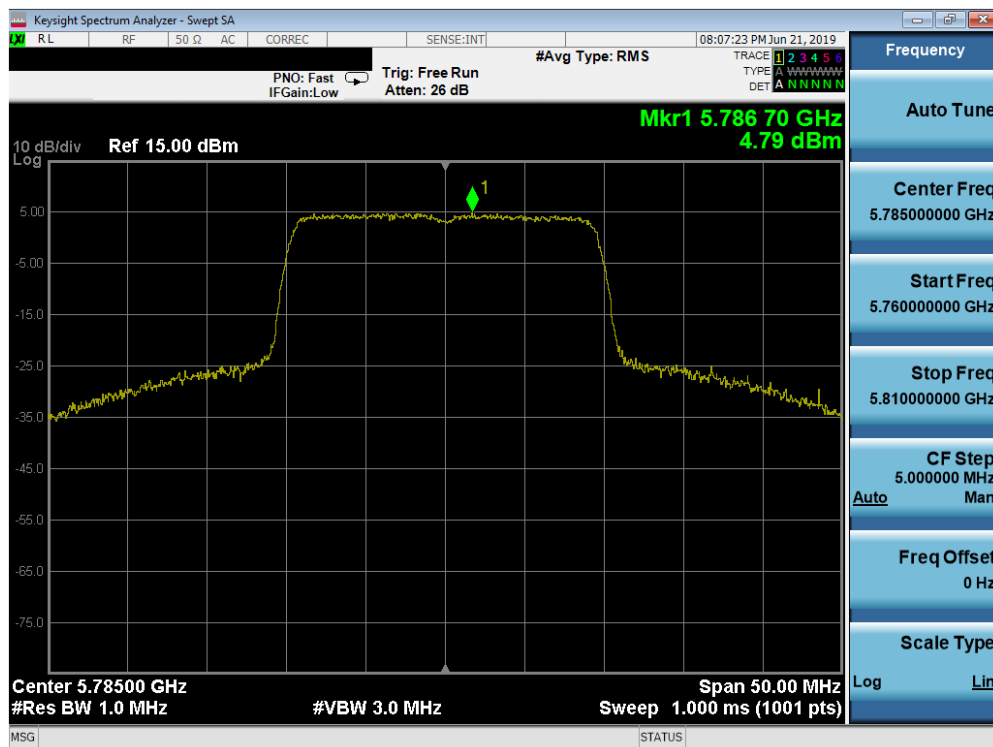


Plot 7-249. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

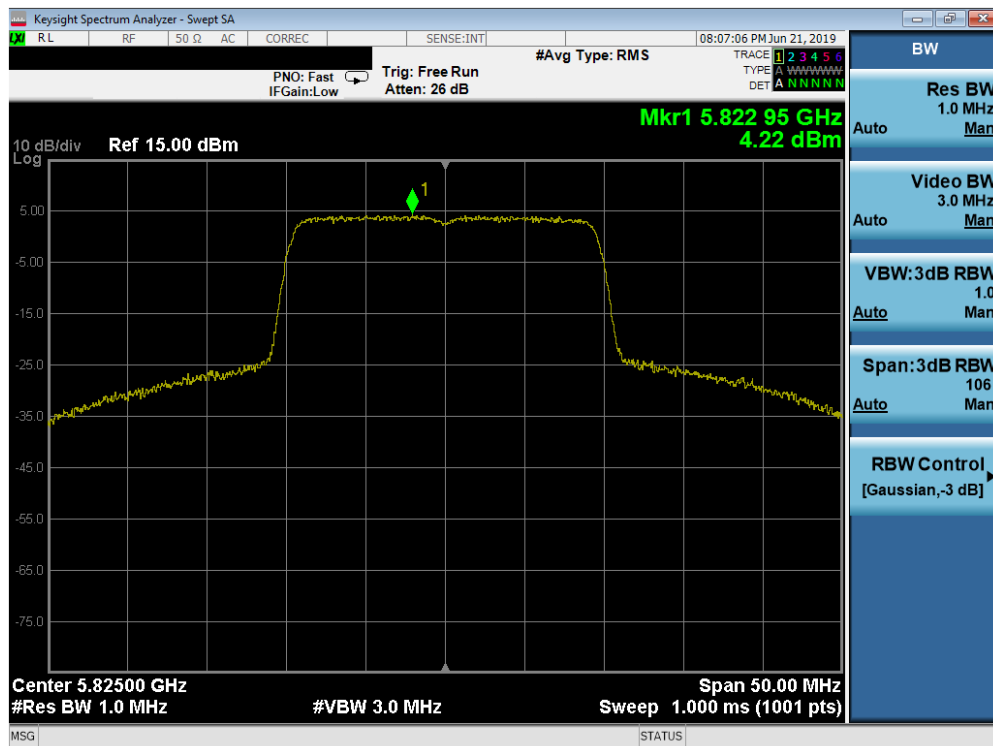


Plot 7-250. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 149)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 159 of 247

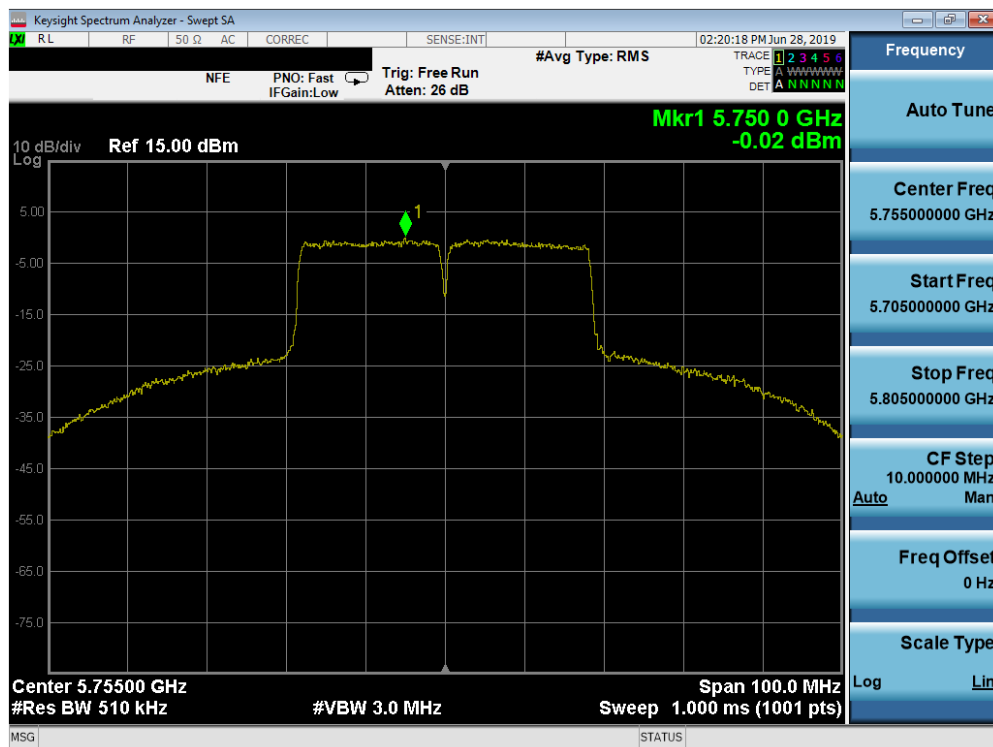


Plot 7-251. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 157)

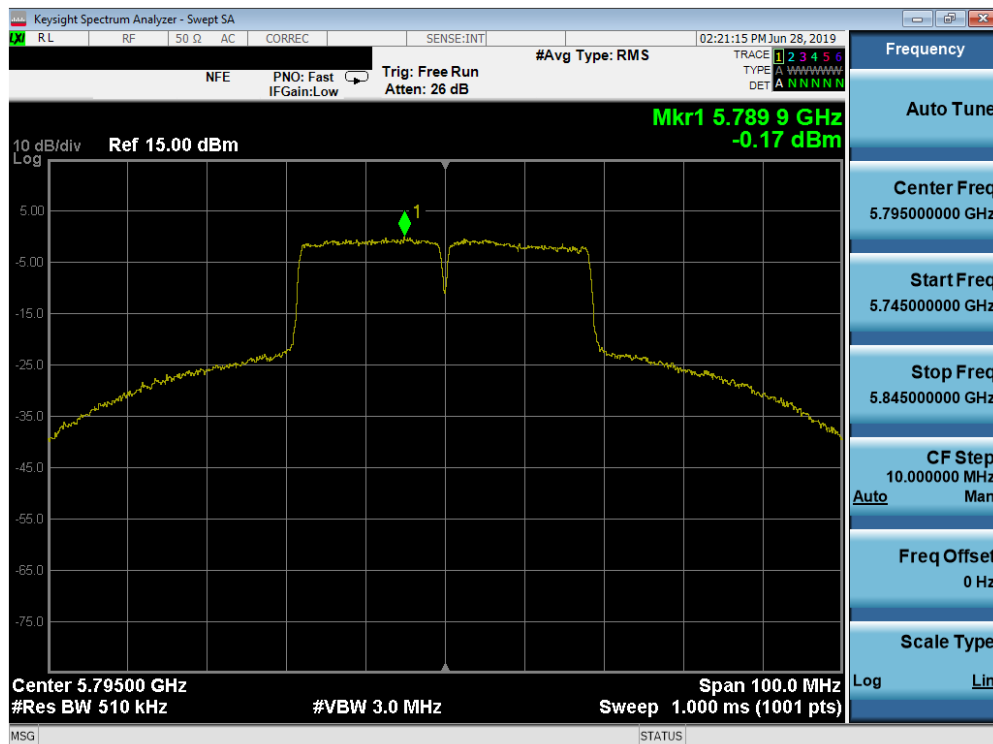


Plot 7-252. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 160 of 247

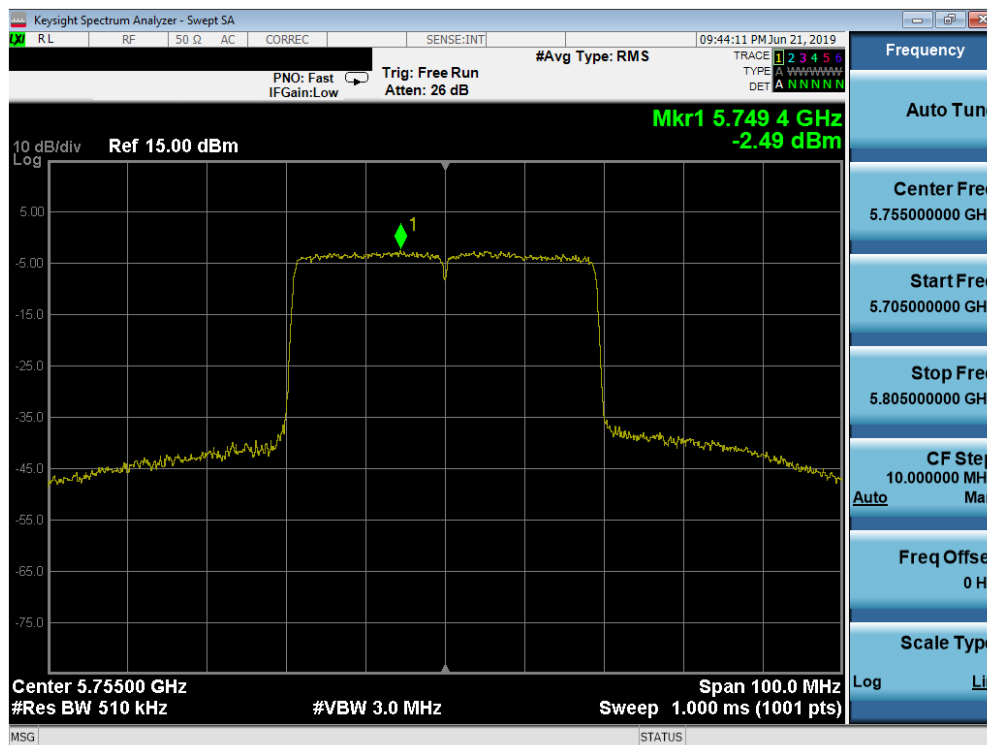


Plot 7-253. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

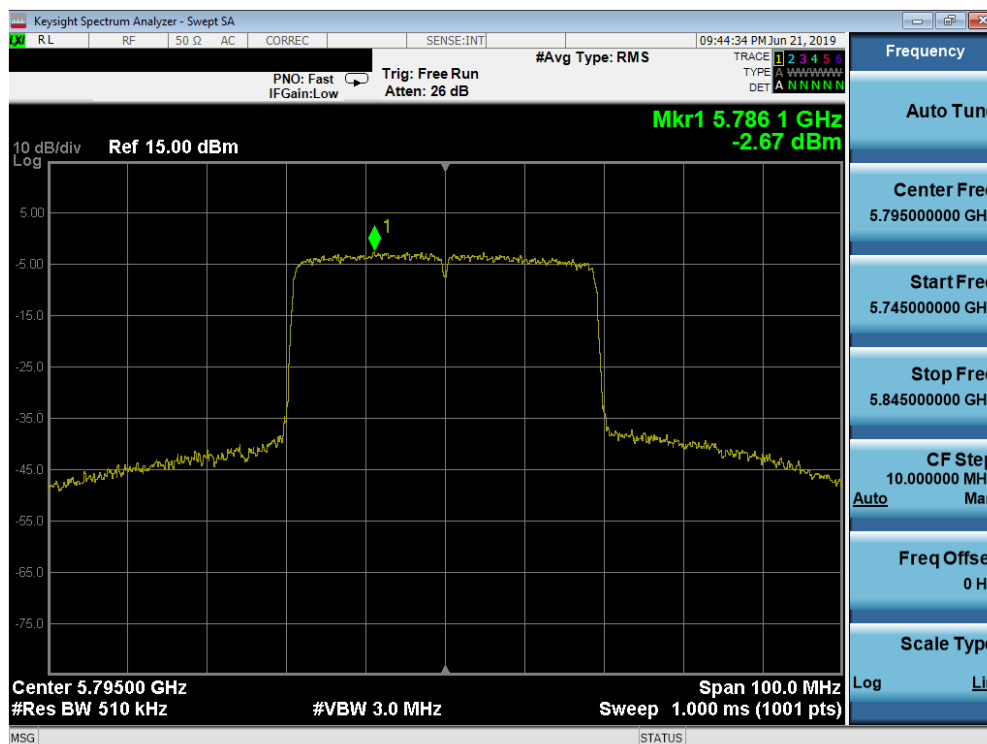


Plot 7-254. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 161 of 247

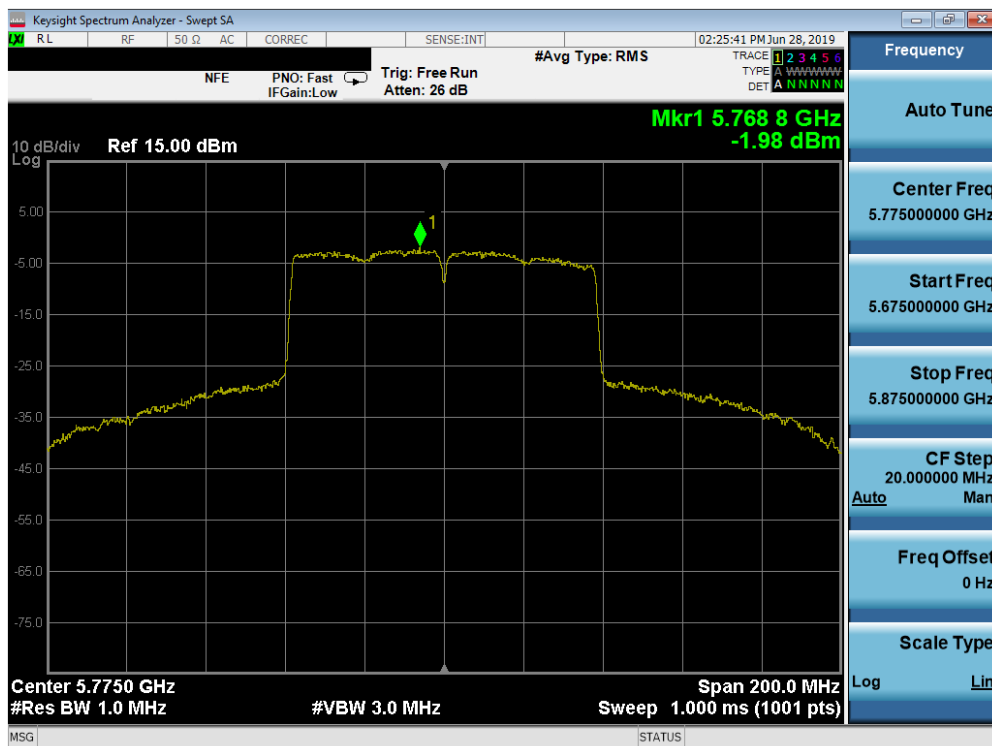


Plot 7-255. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)

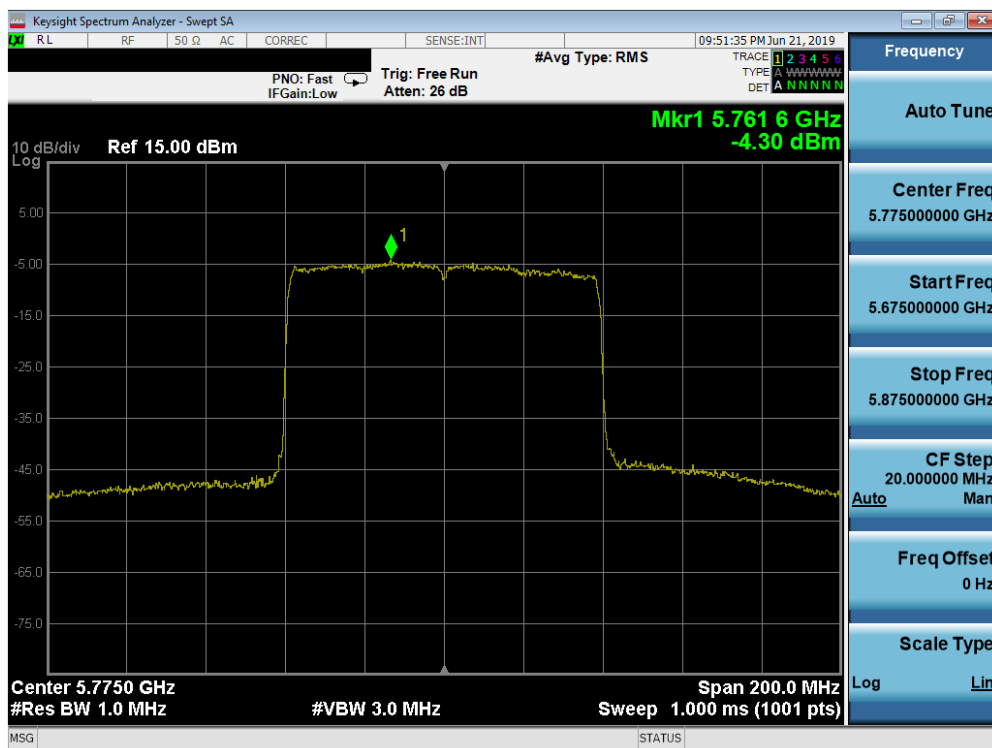


Plot 7-256. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 159)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-257. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)



Plot 7-258. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 3) – Ch. 155)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 163 of 247

Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6.5/7.2 (MCS0)	6.48	5.97	9.24	11.0	-1.76
	5200	40	a	6.5/7.2 (MCS0)	6.76	6.84	9.81	11.0	-1.19
	5240	48	a	6.5/7.2 (MCS0)	6.25	6.70	9.49	11.0	-1.51
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	7.28	6.39	9.87	11.0	-1.13
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.45	6.62	9.55	11.0	-1.45
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.78	6.73	9.77	11.0	-1.23
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	2.40	4.56	6.62	11.0	-4.38
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	2.71	4.44	6.67	11.0	-4.33
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	2.94	4.43	6.76	11.0	-4.24
	5190	38	n (40MHz)	13.5/15 (MCS0)	1.59	0.27	3.99	11.0	-7.01
	5230	46	n (40MHz)	13.5/15 (MCS0)	0.95	2.43	4.76	11.0	-6.24
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-2.45	-2.41	0.58	11.0	-10.42
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-1.97	-1.83	1.11	11.0	-9.89
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.52	-3.46	0.05	11.0	-10.95
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-6.21	-4.62	-2.33	11.0	-13.33
Band 2A	5260	52	a	6.5/7.2 (MCS0)	6.87	6.77	9.83	11.0	-1.17
	5280	56	a	6.5/7.2 (MCS0)	6.78	6.81	9.81	11.0	-1.19
	5320	64	a	6.5/7.2 (MCS0)	5.80	7.10	9.51	11.0	-1.49
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.58	6.63	9.62	11.0	-1.38
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.55	6.19	9.38	11.0	-1.62
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	6.68	7.26	9.99	11.0	-1.01
	5260	52	ax (20MHz)	6.5/7.2 (MCS0)	2.81	4.30	6.63	11.0	-4.37
	5280	56	ax (20MHz)	6.5/7.2 (MCS0)	2.97	4.23	6.66	11.0	-4.34
	5320	64	ax (20MHz)	6.5/7.2 (MCS0)	2.93	4.46	6.77	11.0	-4.23
	5270	54	n (40MHz)	13.5/15 (MCS0)	0.95	2.02	4.53	11.0	-6.47
	5310	62	n (40MHz)	13.5/15 (MCS0)	1.67	1.07	4.39	11.0	-6.61
	5270	54	ax (40MHz)	13.5/15 (MCS0)	-1.76	-0.23	2.08	11.0	-8.92
	5310	62	ax (40MHz)	13.5/15 (MCS0)	-2.07	-0.59	1.74	11.0	-9.26
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-2.91	-4.67	-0.69	11.0	-11.69
	5290	58	ax (80MHz)	29.3/32.5 (MCS0)	-6.34	-5.23	-2.74	11.0	-13.74
Band 2C	5500	100	a	6.5/7.2 (MCS0)	6.90	6.68	9.80	11.0	-1.20
	5600	120	a	6.5/7.2 (MCS0)	5.97	6.88	9.46	11.0	-1.54
	5720	144	a	6.5/7.2 (MCS0)	7.17	6.42	9.82	11.0	-1.18
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	6.81	6.78	9.81	11.0	-1.19
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	6.63	6.56	9.61	11.0	-1.39
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.80	6.48	9.65	11.0	-1.35
	5500	100	ax (20MHz)	6.5/7.2 (MCS0)	3.08	4.89	7.09	11.0	-3.91
	5600	120	ax (20MHz)	6.5/7.2 (MCS0)	3.10	4.68	6.97	11.0	-4.03
	5720	144	ax (20MHz)	6.5/7.2 (MCS0)	3.21	4.77	7.07	11.0	-3.93
	5510	102	n (40MHz)	13.5/15 (MCS0)	1.67	3.40	5.63	11.0	-5.37
	5590	118	n (40MHz)	13.5/15 (MCS0)	0.67	2.61	4.76	11.0	-6.24
	5710	142	n (40MHz)	13.5/15 (MCS0)	1.13	2.59	4.93	11.0	-6.07
	5510	102	ax (40MHz)	13.5/15 (MCS0)	-1.83	0.00	2.19	11.0	-8.81
	5590	118	ax (40MHz)	13.5/15 (MCS0)	-1.74	-0.04	2.20	11.0	-8.80
	5710	142	ax (40MHz)	13.5/15 (MCS0)	-1.37	0.20	2.50	11.0	-8.50
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-2.58	-3.51	-0.01	11.0	-11.01
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-3.89	-2.84	-0.32	11.0	-11.32
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-3.52	-4.86	-1.13	11.0	-12.13
	5530	106	ax (80MHz)	29.3/32.5 (MCS0)	-5.84	-4.37	-2.03	11.0	-13.03
	5610	122	ax (80MHz)	29.3/32.5 (MCS0)	-6.38	-4.94	-2.59	11.0	-13.59
	5690	138	ax (80MHz)	29.3/32.5 (MCS0)	-5.97	-3.82	-1.75	11.0	-12.75

Table 7-27. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Directional Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6.5/7.2 (MCS0)	6.48	5.97	9.24	-3.45	5.79	10.0	-4.21
	5200	40	a	6.5/7.2 (MCS0)	6.76	6.84	9.81	-3.45	6.36	10.0	-3.64
	5240	48	a	6.5/7.2 (MCS0)	6.25	6.70	9.49	-3.62	5.87	10.0	-4.13
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	7.28	6.39	9.87	-3.45	6.42	10.0	-3.58
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.45	6.62	9.55	-3.45	6.10	10.0	-3.90
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.78	6.73	9.77	-3.62	6.15	10.0	-3.85
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	2.40	4.56	6.62	-3.45	3.17	10.0	-6.83
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	2.71	4.44	6.67	-3.45	3.22	10.0	-6.78
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	2.94	4.43	6.76	-3.62	3.14	10.0	-6.86
	5190	38	n (40MHz)	13.5/15 (MCS0)	1.59	4.56	6.33	-3.45	2.88	10.0	-7.12
	5230	46	n (40MHz)	13.5/15 (MCS0)	0.95	4.44	6.05	-3.62	2.43	10.0	-7.57
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-2.45	4.43	5.24	-3.45	1.79	10.0	-8.21
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-1.97	0.27	2.30	-3.62	-1.31	10.0	-11.31
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.52	4.43	5.23	-3.62	1.61	10.0	-8.39
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-6.21	0.27	1.15	-3.62	-2.47	10.0	-12.47

Table 7-28. Band 1 MIMO e.i.r.p. Conducted Power Spectral Density Measurements (ISED)

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6.5/7.2 (MCS0)	7.36	6.86	10.13	30.0	-19.87
	5785	157	a	6.5/7.2 (MCS0)	5.61	6.67	9.18	30.0	-20.82
	5825	165	a	6.5/7.2 (MCS0)	7.26	6.37	9.85	30.0	-20.15
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	6.84	3.84	8.60	30.0	-21.40
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	6.90	3.44	8.52	30.0	-21.48
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	6.73	3.15	8.31	30.0	-21.69
	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	2.88	4.79	6.95	30.0	-23.05
	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	3.04	4.79	7.01	30.0	-22.99
	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	2.70	4.22	6.54	30.0	-23.46
	5755	151	n (40MHz)	13.5/15 (MCS0)	0.92	-0.02	3.49	30.0	-26.51
	5795	159	n (40MHz)	13.5/15 (MCS0)	0.85	-0.17	3.38	30.0	-26.62
	5755	151	ax (40MHz)	13.5/15 (MCS0)	-1.78	-2.49	0.89	30.0	-29.11
	5795	159	ax (40MHz)	13.5/15 (MCS0)	-1.80	-2.67	0.80	30.0	-29.20
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-3.48	-1.98	0.34	30.0	-29.66
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	-6.08	-4.30	-2.09	30.0	-32.09

Table 7-29. Band 3 MIMO Conducted Power Spectral Density Measurements

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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 7.28 dBm for Antenna-1 and 6.39 dBm for Antenna-2.

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

$$(7.28 \text{ dBm} + 6.39 \text{ dBm}) = (5.35 \text{ mW} + 4.36 \text{ mW}) = 9.70 \text{ mW} = 9.87 \text{ dBm}$$

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 9.87 dBm with directional gain of N/A dBi.

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

$$9.87 \text{ dBm} + -3.45 \text{ dBi} = 6.42 \text{ dBm}$$

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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 (20MHz BW), 802.11n (40MHz BW), and 802.11ac (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.

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 7-30 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μ V/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-30. 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)
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

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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.

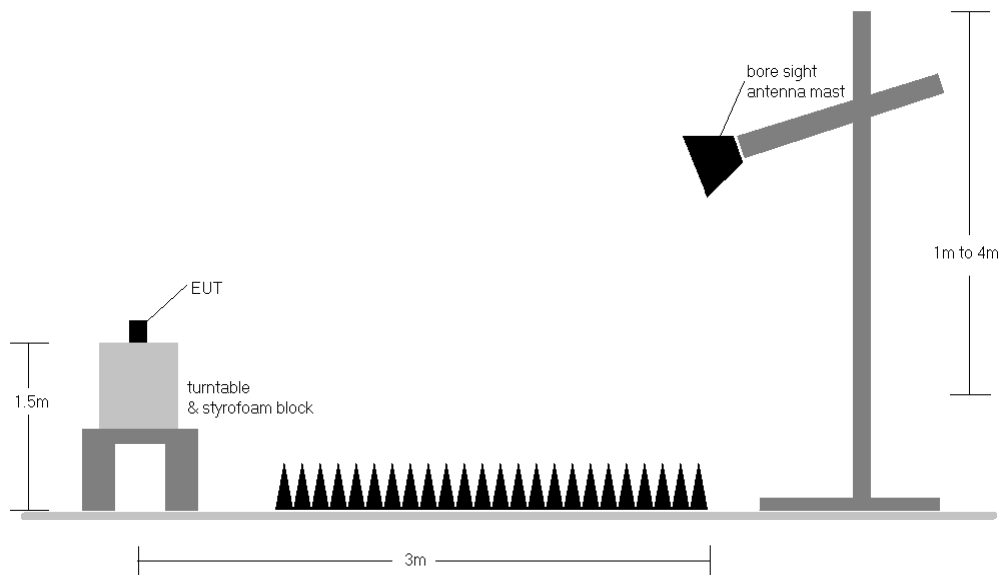


Figure 7-5. Test Instrument & Measurement Setup

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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 7-30.
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 7-30. 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 dBμV/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 68.2dBμV/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

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

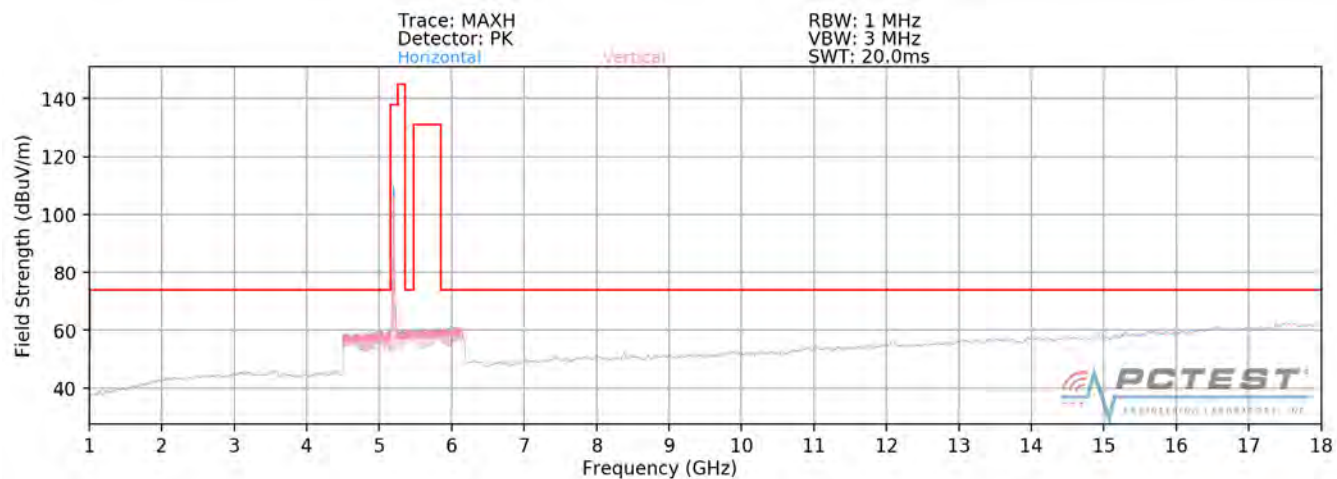
Radiated Band Edge Measurement Offset

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

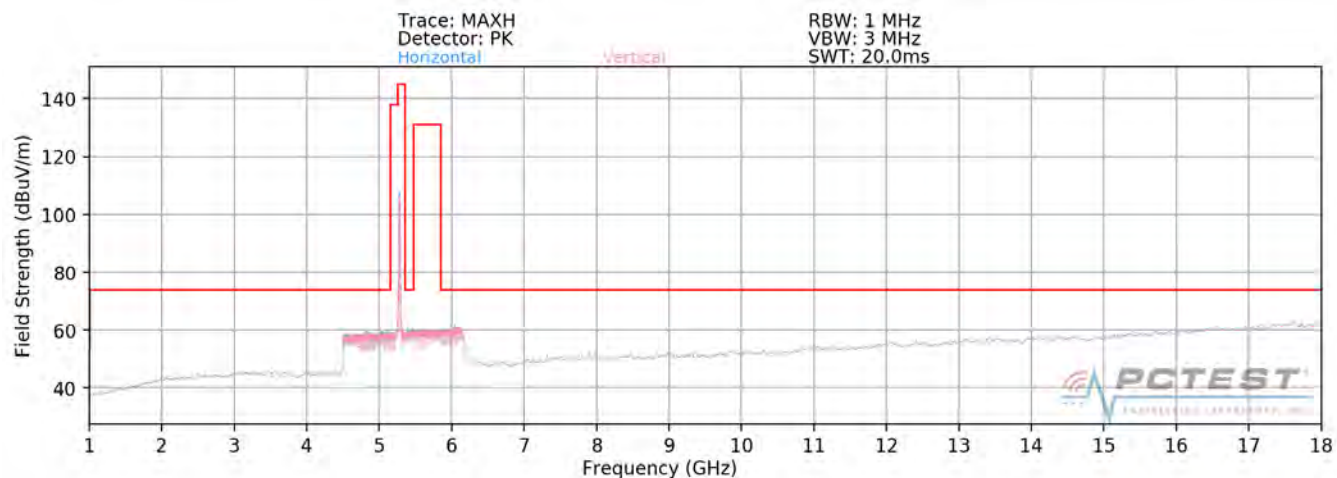
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

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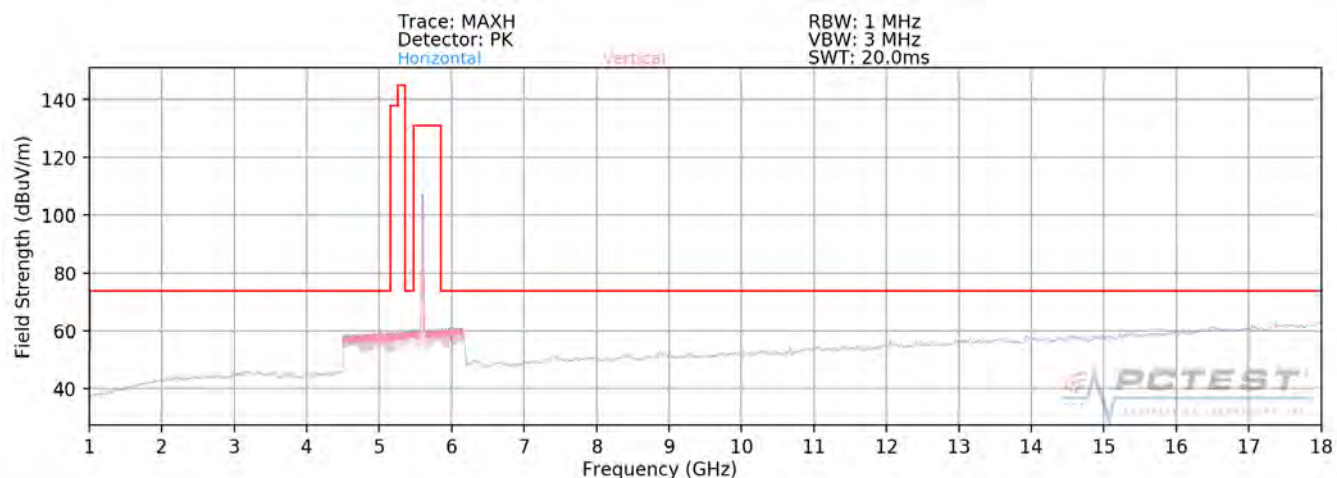
7.6.1 SISO Antenna-1 Radiated Spurious Emission Measurements



Plot 7-259. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U1 Ch. 40)

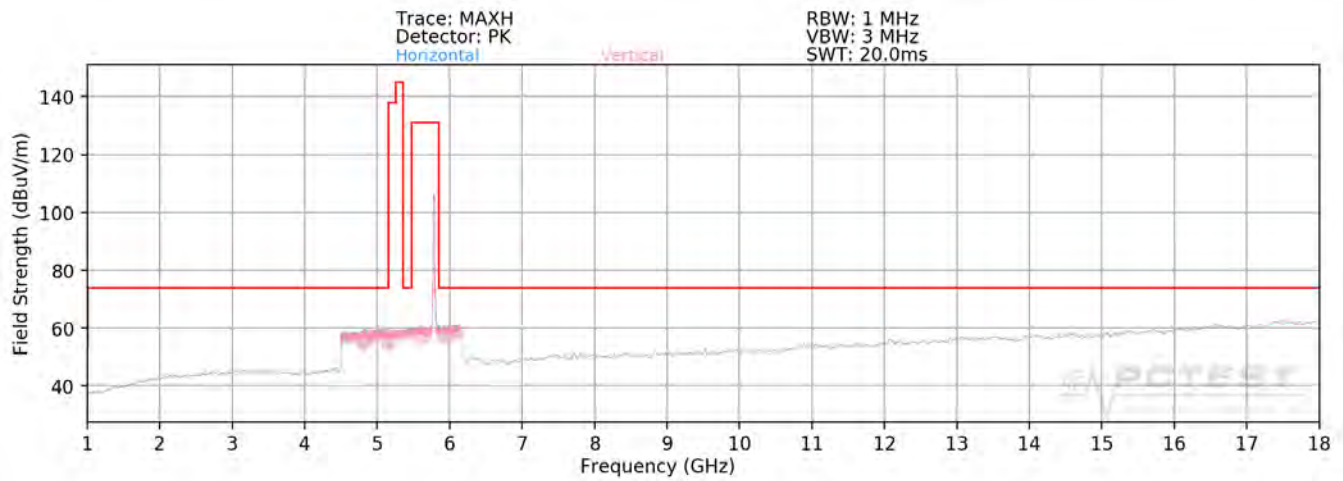


Plot 7-260. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U2A Ch. 56)



Plot 7-261. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U2C Ch. 120)

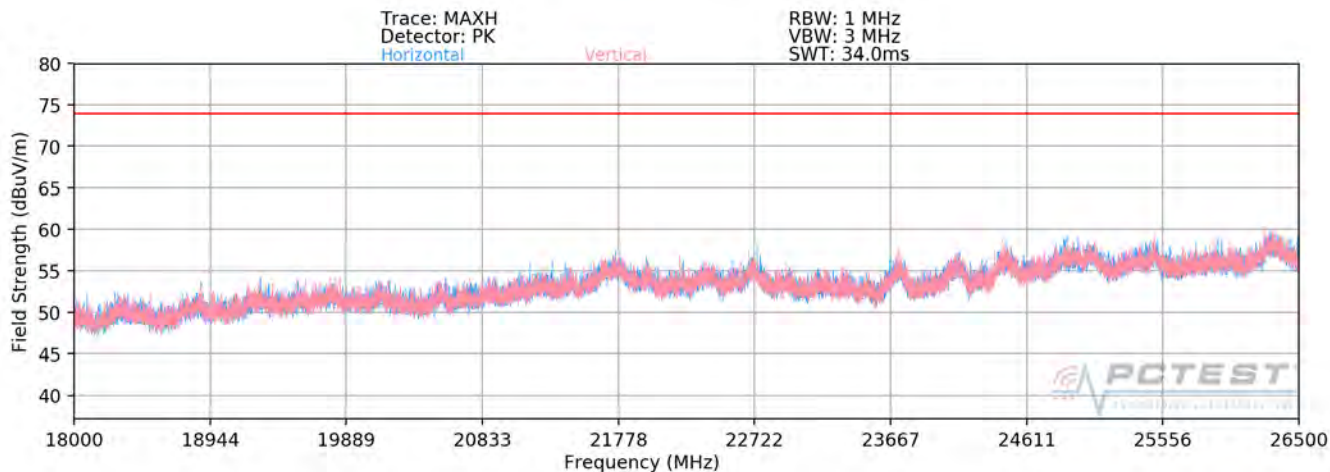
FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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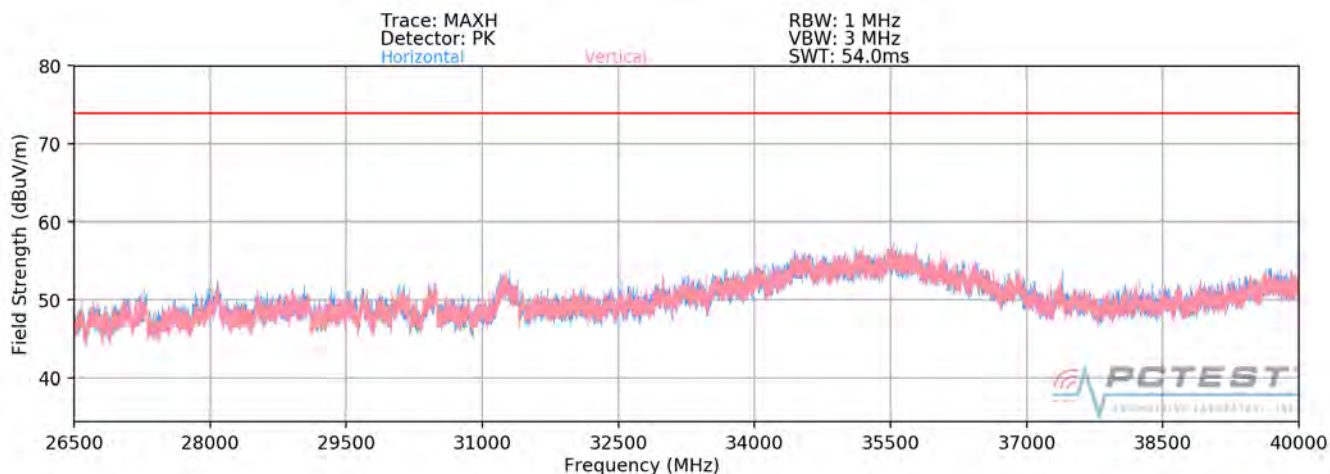
Plot 7-262. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U3 Ch. 157)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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SISO Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-263. Radiated Spurious Plot 18GHz - 26.5GHz SISO ANT1 (802.11a)



Plot 7-264. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT1 (802.11a)

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SISO Antenna-1 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	V	346	160	-66.52	13.04	0.00	53.52	68.20	-14.68
* 15540.00	Average	V	-	-	-81.42	15.90	0.00	41.48	53.98	-12.50
* 15540.00	Peak	V	-	-	-70.86	15.90	0.00	52.04	73.98	-21.94
* 20720.00	Average	V	-	-	-77.85	17.17	-9.54	36.78	53.98	-17.20
* 20720.00	Peak	V	-	-	-65.98	17.17	-9.54	48.65	73.98	-25.33
25900.00	Peak	V	-	-	-65.18	19.34	-9.54	51.61	68.20	-16.59

Table 7-31. Radiated Measurements SISO ANT1

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	340	167	-66.65	12.66	0.00	53.01	68.20	-15.19
* 15600.00	Average	V	264	147	-78.47	15.61	0.00	44.14	53.98	-9.84
* 15600.00	Peak	V	264	147	-65.59	15.61	0.00	57.02	73.98	-16.96
* 20800.00	Average	V	-	-	-77.97	17.31	-9.54	36.79	53.98	-17.19
* 20800.00	Peak	V	-	-	-66.72	17.31	-9.54	48.04	73.98	-25.94
26000.00	Peak	V	-	-	-65.52	19.60	-9.54	51.54	68.20	-16.66

Table 7-32. Radiated Measurements SISO ANT1

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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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	V	362	166	-60.54	13.08	0.00	59.54	68.20	-8.66
* 15720.00	Average	V	260	144	-78.21	16.23	0.00	45.02	53.98	-8.96
* 15720.00	Peak	V	260	144	-65.45	16.23	0.00	57.78	73.98	-16.20
* 20960.00	Average	V	-	-	-78.05	17.60	-9.54	37.00	53.98	-16.98
* 20960.00	Peak	V	-	-	-66.70	17.60	-9.54	48.35	73.98	-25.63
26200.00	Peak	V	-	-	-65.48	19.73	-9.54	51.70	68.20	-16.50

Table 7-33. Radiated Measurements SISO ANT1

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	-	-	-70.47	13.08	0.00	49.61	68.20	-18.59
* 15720.00	Average	V	127	328	-79.03	16.23	0.00	44.20	53.98	-9.78
* 15720.00	Peak	V	127	328	-63.16	16.23	0.00	60.07	73.98	-13.91
* 20960.00	Average	V	-	-	-77.87	17.60	-9.54	37.18	53.98	-16.80
* 20960.00	Peak	V	-	-	-66.94	17.60	-9.54	48.11	73.98	-25.87
26200.00	Peak	V	-	-	-65.79	19.73	-9.54	51.39	68.20	-16.81

Table 7-34. Radiated Measurements SISO ANT1 with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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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	V	-	-	-68.54	13.27	0.00	51.73	68.20	-16.47
* 15780.00	Average	V	144	221	-79.28	15.82	0.00	43.54	53.98	-10.44
* 15780.00	Peak	V	144	221	-68.22	15.82	0.00	54.60	73.98	-19.38
* 21040.00	Average	V	-	-	-77.61	17.67	-9.54	37.52	53.98	-16.46
* 21040.00	Peak	V	-	-	-66.23	17.67	-9.54	48.90	73.98	-25.08
26300.00	Peak	V	-	-	-64.80	20.29	-9.54	52.94	68.20	-15.26

Table 7-35. Radiated Measurements SISO ANT1

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	V	-	-	-69.21	13.54	0.00	51.33	68.20	-16.87
* 15840.00	Average	V	182	244	-76.54	15.20	0.00	45.66	53.98	-8.32
* 15840.00	Peak	V	182	244	-67.22	15.20	0.00	54.98	73.98	-19.00
* 21120.00	Average	V	-	-	-77.64	17.83	-9.54	37.65	53.98	-16.33
* 21120.00	Peak	V	-	-	-65.63	17.83	-9.54	49.66	73.98	-24.32
26400.00	Peak	V	-	-	-65.14	20.07	-9.54	52.39	68.20	-15.81

Table 7-36. Radiated Measurements SISO ANT1

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5320MHz
Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	-	-	-78.29	12.93	0.00	41.64	53.98	-12.34
* 10640.00	Peak	V	-	-	-66.21	12.93	0.00	53.72	73.98	-20.26
* 15960.00	Average	V	-	-	-81.64	16.66	0.00	42.02	53.98	-11.96
* 15960.00	Peak	V	-	-	-70.10	16.66	0.00	53.56	73.98	-20.42
* 21280.00	Average	V	-	-	-77.31	17.98	-9.54	38.12	53.98	-15.85
* 21280.00	Peak	V	-	-	-66.40	17.98	-9.54	49.03	73.98	-24.94
26600.00	Peak	V	150	325	-52.24	4.42	-9.54	49.64	68.20	-18.56

Table 7-37. Radiated Measurements SISO ANT1

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	V	-	-	-70.19	13.54	0.00	50.35	68.20	-17.85
15840.00	Average	V	-	-	-71.82	15.20	0.00	50.38	53.98	-3.60
15840.00	Peak	V	-	-	-83.46	15.20	0.00	38.74	73.98	-35.24
21120.00	Average	V	-	-	-77.97	17.83	-9.54	37.32	53.98	-16.66
21120.00	Peak	V	-	-	-66.91	17.83	-9.54	48.38	73.98	-25.60
26400.00	Peak	V	-	-	-65.31	20.07	-9.54	52.22	68.20	-15.98

Table 7-38. Radiated Measurements SISO ANT1 with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality 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	V	-	-	-81.54	13.94	0.00	39.40	53.98	-14.58
* 11000.00	Peak	V	-	-	-71.22	13.94	0.00	49.72	73.98	-24.26
16500.00	Peak	V	-	-	-70.21	16.61	0.00	53.40	68.20	-14.80
22000.00	Peak	V	-	-	-66.23	18.43	-9.54	49.66	68.20	-18.54
27500.00	Peak	V	-	-	-50.20	3.16	-9.54	50.41	68.20	-17.79

Table 7-39. Radiated Measurements SISO ANT1

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
11200.00	Average	V	-	-	-80.73	13.75	0.00	40.02	53.98	-13.96
11200.00	Peak	V	-	-	-69.90	13.75	0.00	50.85	73.98	-23.13
16800.00	Peak	V	-	-	-69.20	17.20	0.00	55.00	68.20	-13.20
22400.00	Average	V	-	-	-77.90	18.58	-9.54	38.14	53.98	-15.84
22400.00	Peak	V	-	-	-66.99	18.58	-9.54	49.05	73.98	-24.93
28000.00	Peak	V	150	109	-51.80	4.79	-9.54	50.45	68.20	-17.75

Table 7-40. Radiated Measurements SISO ANT1

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5720MHz
Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	-	-	-80.70	15.01	0.00	41.31	53.98	-12.67
* 11440.00	Peak	V	-	-	-69.39	15.01	0.00	52.62	73.98	-21.36
17160.00	Peak	V	-	-	-68.21	19.45	0.00	58.24	68.20	-9.96
* 22880.00	Average	V	-	-	-78.73	18.88	-9.54	37.61	53.98	-16.37
* 22880.00	Peak	V	-	-	-67.06	18.88	-9.54	49.28	73.98	-24.70
28600.00	Peak	V	150	358	-50.89	3.32	-9.54	49.88	68.20	-18.32

Table 7-41. Radiated Measurements SISO ANT1

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
11440.00	Average	V	-	-	-83.27	15.01	0.00	38.74	53.98	-15.24
11440.00	Peak	V	-	-	-70.97	15.01	0.00	51.04	73.98	-22.94
17160.00	Peak	V	-	-	-71.48	19.45	0.00	54.97	68.20	-13.23
22880.00	Average	V	-	-	-78.56	18.88	-9.54	37.78	53.98	-16.20
22880.00	Peak	V	-	-	-67.08	18.88	-9.54	49.26	73.98	-24.72
28600.00	Peak	V	-	-	-51.43	3.32	-9.54	49.34	68.20	-18.86

Table 7-42. Radiated Measurements SISO ANT1 with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5745MHz
Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	-	-	-80.86	14.54	0.00	40.68	53.98	-13.30
* 11490.00	Peak	V	-	-	-69.88	14.54	0.00	51.66	73.98	-22.32
17235.00	Peak	V	-	-	-67.24	19.96	0.00	59.72	68.20	-8.48
* 22980.00	Average	V	-	-	-78.05	19.03	-9.54	38.44	53.98	-15.54
* 22980.00	Peak	V	-	-	-66.98	19.03	-9.54	49.51	73.98	-24.47
28725.00	Peak	V	-	-	-51.30	3.65	-9.54	49.81	68.20	-18.39

Table 7-43. Radiated Measurements SISO ANT1

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	-	-	-80.69	14.70	0.00	41.01	53.98	-12.97
* 11570.00	Peak	V	-	-	-72.49	14.70	0.00	49.21	73.98	-24.77
17355.00	Peak	V	-	-	-70.78	23.34	0.00	59.56	68.20	-8.64
23140.00	Peak	V	-	-	-67.62	18.82	-9.54	48.66	68.20	-19.54
28925.00	Peak	V	-	-	-50.79	4.50	-9.54	51.17	68.20	-17.03

Table 7-44. Radiated Measurements SISO ANT1

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 179 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	-	-	-78.93	15.47	0.00	43.54	53.98	-10.44
* 11650.00	Peak	V	-	-	-68.22	15.47	0.00	54.25	73.98	-19.73
17475.00	Peak	V	-	-	-70.28	21.96	0.00	58.68	68.20	-9.52
23300.00	Peak	V	-	-	-66.18	18.40	-9.54	49.68	68.20	-18.52
29125.00	Peak	V	-	-	-50.10	2.23	-9.54	49.59	68.20	-18.61

Table 7-45. Radiated Measurements SISO ANT1

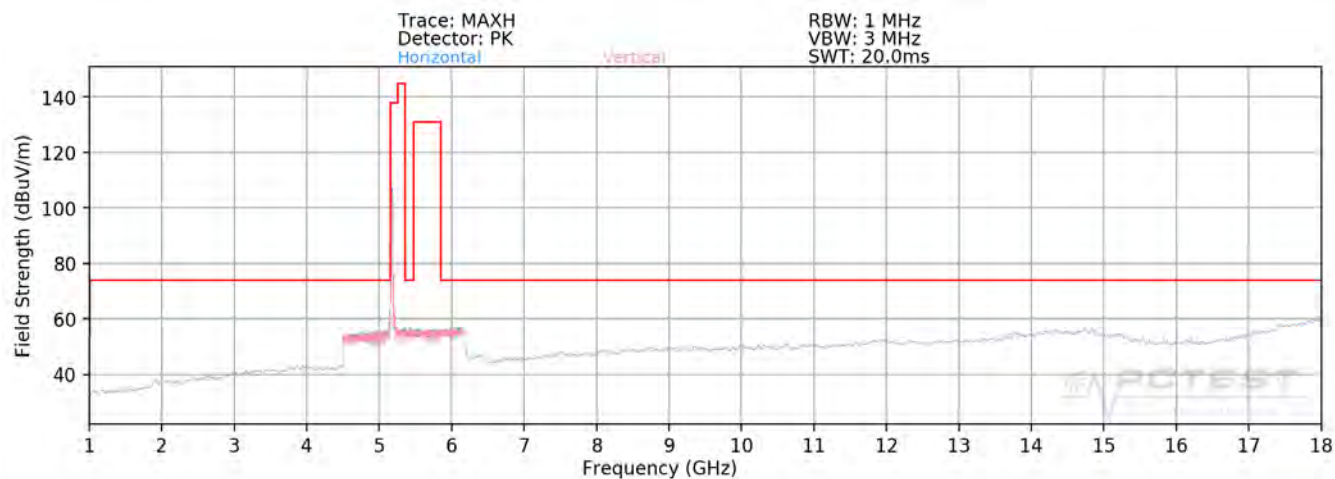
Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5745MHz
Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	-	-	-83.01	14.54	0.00	38.53	53.98	-15.45
* 11490.00	Peak	V	-	-	-70.51	14.54	0.00	51.03	73.98	-22.95
17235.00	Peak	V	-	-	-71.79	19.96	0.00	55.17	68.20	-13.03
22980.00	Average	V	-	-	-67.92	19.03	-9.54	48.57	53.98	-5.41
22980.00	Peak	V	-	-	-56.44	19.03	-9.54	60.05	73.98	-13.93
28725.00	Peak	V	-	-	-51.41	3.65	-9.54	49.70	68.20	-18.50

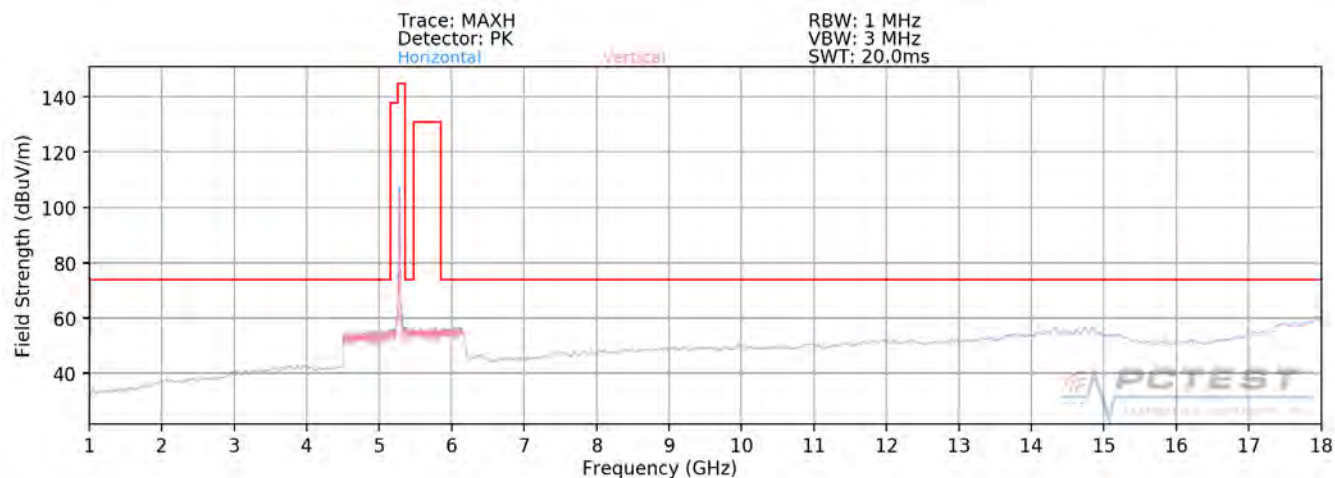
Table 7-46. Radiated Measurements SISO ANT1 with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 180 of 247

7.6.2 SISO Antenna-2 Radiated Spurious Emission Measurements



Plot 7-265. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U1 Ch. 40)

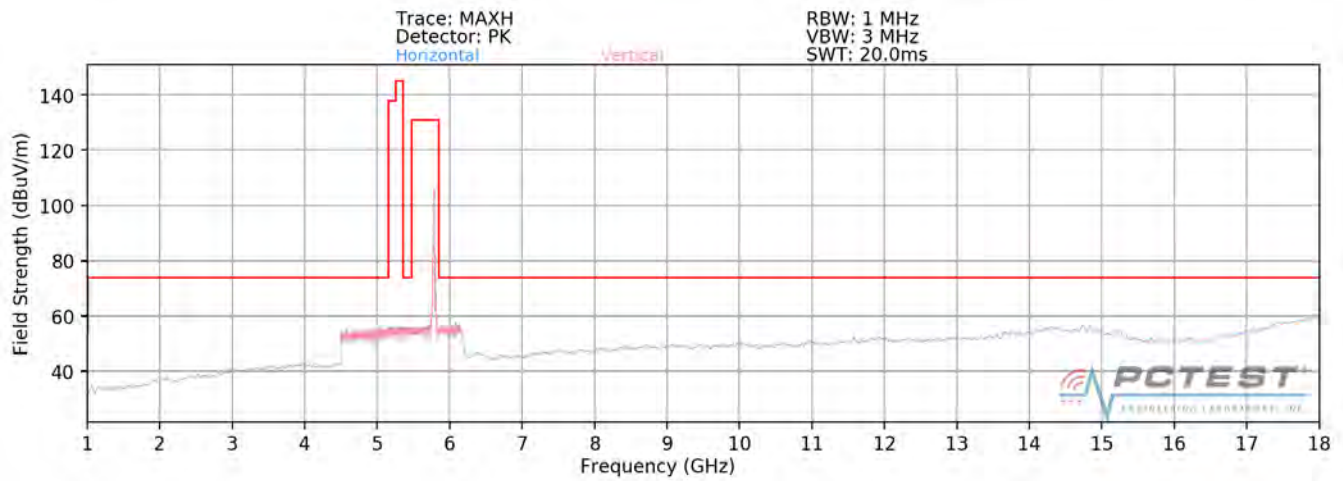


Plot 7-266. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U2A Ch. 56)



Plot 7-267. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U2C Ch. 120)

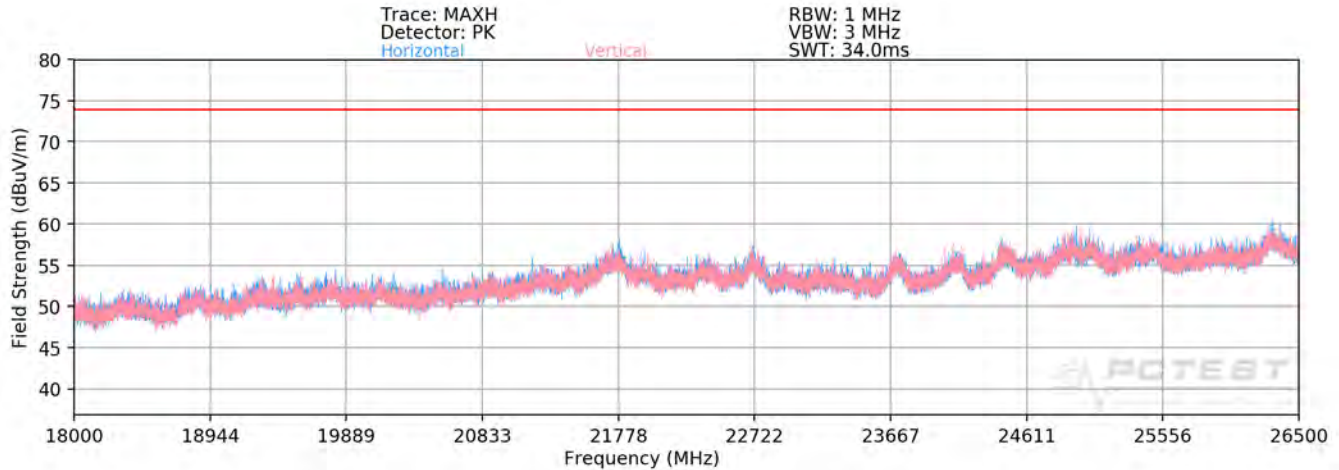
FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 181 of 247



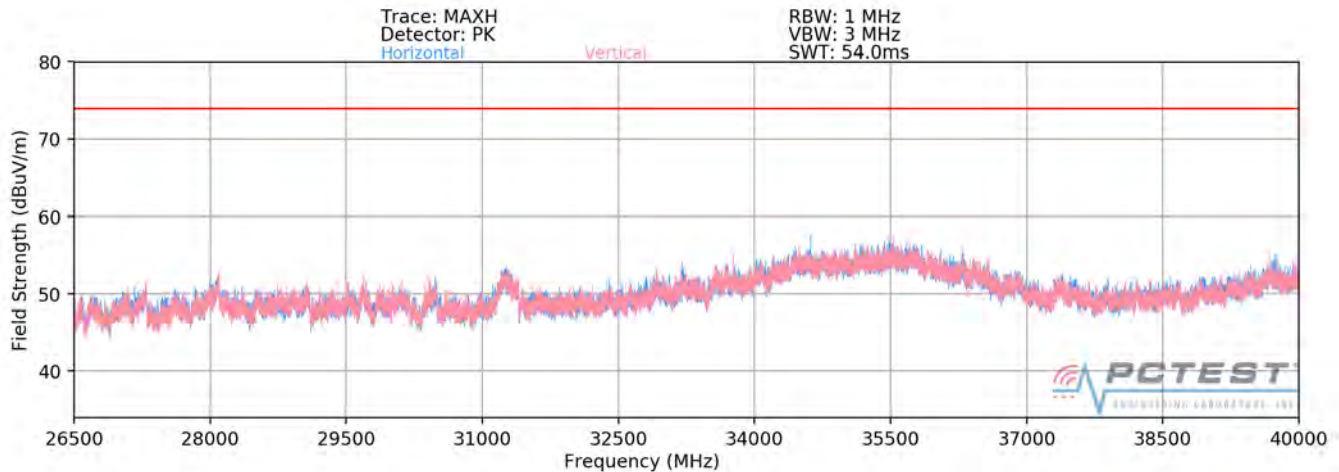
Plot 7-268. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U3 Ch. 157)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 182 of 247

SISO Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-269. Radiated Spurious Plot above 18GHz - 26.5GHz SISO ANT2 (802.11a)



Plot 7-270. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT2 (802.11a)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 183 of 247

SISO Antenna-2 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	V	123	150	-68.49	13.04	0.00	51.55	68.20	-16.65
* 15540.00	Average	V	-	-	-77.35	15.90	0.00	45.55	53.98	-8.43
* 15540.00	Peak	V	-	-	-68.22	15.90	0.00	54.68	73.98	-19.30
* 20720.00	Average	V	-	-	-77.97	17.17	-9.54	36.66	53.98	-17.32
* 20720.00	Peak	V	-	-	-66.83	17.17	-9.54	47.80	73.98	-26.18
25900.00	Peak	V	-	-	-65.34	19.34	-9.54	51.45	68.20	-16.75

Table 7-47. Radiated Measurements SISO ANT2

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	321	184	-66.76	12.66	0.00	52.90	68.20	-15.30
* 15600.00	Average	V	-	-	-80.75	15.61	0.00	41.86	53.98	-12.12
* 15600.00	Peak	V	-	-	-68.33	15.61	0.00	54.28	73.98	-19.70
* 20800.00	Average	V	-	-	-77.94	17.31	-9.54	36.82	53.98	-17.16
* 20800.00	Peak	V	-	-	-66.37	17.31	-9.54	48.39	73.98	-25.59
26000.00	Peak	V	-	-	-65.56	19.60	-9.54	51.50	68.20	-16.70

Table 7-48. Radiated Measurements SISO ANT2

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 184 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	116	179	-68.99	13.08	0.00	51.09	68.20	-17.11
* 15720.00	Average	V	134	152	-79.50	16.23	0.00	43.73	53.98	-10.25
* 15720.00	Peak	V	134	152	-66.45	16.23	0.00	56.78	73.98	-17.20
* 20960.00	Average	V	-	-	-77.41	17.60	-9.54	37.64	53.98	-16.34
* 20960.00	Peak	V	-	-	-65.74	17.60	-9.54	49.31	73.98	-24.67
26200.00	Peak	V	-	-	-65.48	19.73	-9.54	51.70	68.20	-16.50

Table 7-49. Radiated Measurements SISO ANT2

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	V	367	98	-73.50	13.04	0.00	46.54	68.20	-21.66
* 15540.00	Average	V	374	92	-84.28	15.90	0.00	38.62	53.98	-15.36
* 15540.00	Peak	V	374	92	-72.24	15.90	0.00	50.66	73.98	-23.32
* 20720.00	Average	V	-	-	-77.42	17.17	-9.54	37.21	53.98	-16.77
* 20720.00	Peak	V	-	-	-66.65	17.17	-9.54	47.98	73.98	-26.00
25900.00	Peak	V	-	-	-64.59	19.34	-9.54	52.20	68.20	-16.00

Table 7-50. Radiated Measurements SISO ANT2 with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 185 of 247

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	V	-	-	-69.71	13.27	0.00	50.56	68.20	-17.64
* 15780.00	Average	V	187	148	-76.34	15.82	0.00	46.48	53.98	-7.50
* 15780.00	Peak	V	187	148	-61.97	15.82	0.00	60.85	73.98	-13.13
* 21040.00	Average	V	-	-	-77.44	17.67	-9.54	37.69	53.98	-16.29
* 21040.00	Peak	V	-	-	-66.47	17.67	-9.54	48.66	73.98	-25.32
26300.00	Peak	V	-	-	-65.10	20.29	-9.54	52.64	68.20	-15.56

Table 7-51. Radiated Measurements SISO ANT2

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	V	-	-	-68.22	13.54	0.00	52.32	68.20	-15.88
* 15840.00	Average	V	130	148	-74.81	15.20	0.00	47.39	53.98	-6.59
* 15840.00	Peak	V	130	148	-60.64	15.20	0.00	61.56	73.98	-12.42
* 21120.00	Average	V	-	-	-77.80	17.83	-9.54	37.49	53.98	-16.49
* 21120.00	Peak	V	-	-	-66.31	17.83	-9.54	48.98	73.98	-25.00
26400.00	Peak	V	-	-	-65.07	20.07	-9.54	52.46	68.20	-15.74

Table 7-52. Radiated Measurements SISO ANT2

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 186 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	-	-	-79.11	12.93	0.00	40.82	53.98	-13.16
* 10640.00	Peak	V	-	-	-68.42	12.93	0.00	51.51	73.98	-22.47
* 15960.00	Average	V	132	151	-72.89	16.66	0.00	50.77	53.98	-3.21
* 15960.00	Peak	V	132	151	-59.42	16.66	0.00	64.24	73.98	-9.74
* 21280.00	Average	V	-	-	-77.20	17.98	-9.54	38.23	53.98	-15.74
* 21280.00	Peak	V	-	-	-66.77	17.98	-9.54	48.66	73.98	-25.31
26600.00	Peak	V	150	358	-48.62	4.42	-9.54	53.26	68.20	-14.94

Table 7-53. Radiated Measurements SISO ANT2

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10640.00	Average	V	-	-	-82.34	12.93	0.00	37.59	53.98	-16.39
* 10640.00	Peak	V	-	-	-70.20	12.93	0.00	49.73	73.98	-24.25
* 15960.00	Average	V	-	-	-84.23	16.66	0.00	39.43	53.98	-14.55
* 15960.00	Peak	V	-	-	-71.38	16.66	0.00	52.28	73.98	-21.70
* 21280.00	Average	V	150	333	-75.48	17.98	-9.54	39.95	53.98	-14.02
21280.00	Peak	V	150	333	-63.71	17.98	-9.54	51.72	73.98	-22.25

Table 7-54. Radiated Measurements SISO ANT2 with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 187 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	-	-	-78.23	13.94	0.00	42.71	53.98	-11.27
* 11000.00	Peak	V	-	-	-69.22	13.94	0.00	51.72	73.98	-22.26
16500.00	Peak	V	-	-	-66.91	16.61	0.00	56.70	68.20	-11.50
22000.00	Peak	V	-	-	-66.12	18.43	-9.54	49.77	68.20	-18.43
27500.00	Peak	V	150	28	-42.08	3.16	-9.54	58.53	68.20	-9.67

Table 7-55. Radiated Measurements SISO ANT2

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	V	-	-	-80.83	13.75	0.00	39.92	53.98	-14.06
* 11200.00	Peak	V	-	-	-69.50	13.75	0.00	51.25	73.98	-22.73
16800.00	Peak	V	177	144	-68.25	17.20	0.00	55.95	68.20	-12.25
* 22400.00	Average	V	-	-	-77.71	18.58	-9.54	38.33	53.98	-15.65
* 22400.00	Peak	V	-	-	-66.72	18.58	-9.54	49.32	73.98	-24.66
28000.00	Peak	V	150	318	-51.09	4.79	-9.54	51.16	68.20	-17.04

Table 7-56. Radiated Measurements SISO ANT2

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 188 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	-	-	-80.51	15.01	0.00	41.50	53.98	-12.48
* 11440.00	Peak	V	-	-	-70.01	15.01	0.00	52.00	73.98	-21.98
17160.00	Peak	V	147	170	-68.72	19.45	0.00	57.73	68.20	-10.47
* 22880.00	Average	V	-	-	-77.47	18.88	-9.54	38.87	53.98	-15.11
* 22880.00	Peak	V	-	-	-66.78	18.88	-9.54	49.56	73.98	-24.42
28600.00	Peak	V	150	346	-37.77	3.32	-9.54	63.00	68.20	-5.20

Table 7-57. Radiated Measurements SISO ANT2

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	134	317	-80.67	15.01	0.00	41.34	53.98	-12.64
* 11440.00	Peak	V	134	317	-67.81	15.01	0.00	54.20	73.98	-19.78
17160.00	Peak	V	124	303	-72.29	19.45	0.00	54.16	68.20	-14.04
22880.00	Average	V	-	-	-77.48	18.88	-9.54	38.86	53.98	-15.12
22880.00	Peak	V	-	-	-66.55	18.88	-9.54	49.79	73.98	-24.19
28600.00	Peak	V	150	363	-39.72	3.32	-9.54	61.05	68.20	-7.15

Table 7-58. Radiated Measurements SISO ANT2 with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 189 of 247

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5745MHz
Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	122	185	-78.22	14.54	0.00	43.32	53.98	-10.66
* 11490.00	Peak	V	122	185	-66.22	14.54	0.00	55.32	73.98	-18.66
17235.00	Peak	V	-	-	-73.28	19.96	0.00	53.68	68.20	-14.52
* 22980.00	Average	V	-	-	-78.05	19.03	-9.54	38.44	53.98	-15.54
* 22980.00	Peak	V	-	-	-66.98	19.03	-9.54	49.51	73.98	-24.47
28725.00	Peak	V	-	-	-51.30	3.65	-9.54	49.81	68.20	-18.39

Table 7-59. Radiated Measurements SISO ANT2

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	134	138	-79.71	14.70	0.00	41.99	53.98	-11.99
* 11570.00	Peak	V	134	138	-67.92	14.70	0.00	53.78	73.98	-20.20
17355.00	Peak	V	-	-	-70.44	23.34	0.00	59.90	68.20	-8.30
23140.00	Peak	V	-	-	-67.62	18.82	-9.54	48.66	68.20	-19.54
28925.00	Peak	V	-	-	-50.79	4.50	-9.54	51.17	68.20	-17.03

Table 7-60. Radiated Measurements SISO ANT2

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 190 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	123	143	-80.43	15.47	0.00	42.04	53.98	-11.94
* 11650.00	Peak	V	123	143	-69.16	15.47	0.00	53.31	73.98	-20.67
17475.00	Peak	V	-	-	-69.80	21.96	0.00	59.16	68.20	-9.04
23300.00	Peak	V	-	-	-66.18	18.40	-9.54	49.68	68.20	-18.52
29125.00	Peak	V	-	-	-50.10	2.23	-9.54	49.59	68.20	-18.61

Table 7-61. Radiated Measurements SISO ANT2

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	120	288	-82.73	15.47	0.00	39.74	53.98	-14.24
* 11650.00	Peak	V	120	288	-69.61	15.47	0.00	52.86	73.98	-21.12
17475.00	Peak	V	124	305	-72.57	21.96	0.00	56.39	68.20	-11.81
23300.00	Peak	V	-	-	-66.71	18.40	-9.54	49.15	68.20	-19.05
29125.00	Peak	V	150	26	-39.15	2.23	-9.54	60.54	68.20	-7.66

Table 7-62. Radiated Measurements SISO ANT2 with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 191 of 247

7.6.3 MIMO/CDD 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	V	346	160	-66.52	13.04	0.00	53.52	68.20	-14.68
* 15540.00	Average	V	-	-	-81.42	15.90	0.00	41.48	53.98	-12.50
* 15540.00	Peak	V	-	-	-70.86	15.90	0.00	52.04	73.98	-21.94
* 20720.00	Average	V	-	-	-77.71	17.17	-9.54	36.92	53.98	-17.06
* 20720.00	Peak	V	-	-	-66.77	17.17	-9.54	47.86	73.98	-26.12
25900.00	Peak	V	-	-	-65.61	19.34	-9.54	51.18	68.20	-17.02

Table 7-63. Radiated Measurements MIMO/CDD

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	340	167	-66.65	12.66	0.00	53.01	68.20	-15.19
* 15600.00	Average	V	264	147	-78.47	15.61	0.00	44.14	53.98	-9.84
* 15600.00	Peak	V	264	147	-65.59	15.61	0.00	57.02	73.98	-16.96
* 20800.00	Average	V	-	-	-77.93	17.31	-9.54	36.83	53.98	-17.15
* 20800.00	Peak	V	-	-	-66.80	17.31	-9.54	47.96	73.98	-26.02
26000.00	Peak	V	-	-	-66.11	19.60	-9.54	50.95	68.20	-17.25

Table 7-64. Radiated Measurements MIMO/CDD

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 192 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	362	166	-60.54	13.08	0.00	59.54	68.20	-8.66
* 15720.00	Average	V	260	144	-78.21	16.23	0.00	45.02	53.98	-8.96
* 15720.00	Peak	V	260	144	-65.45	16.23	0.00	57.78	73.98	-16.20
* 20960.00	Average	V	-	-	-77.97	17.60	-9.54	37.08	53.98	-16.90
* 20960.00	Peak	V	-	-	-67.08	17.60	-9.54	47.97	73.98	-26.01
26200.00	Peak	V	-	-	-65.18	19.73	-9.54	52.00	68.20	-16.20

Table 7-65. Radiated Measurements MIMO/CDD

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	114	39	-67.61	12.46	0.00	51.85	68.20	-16.35
* 15720.00	Average	V	-	-	-71.91	14.51	0.00	49.60	53.98	-4.38
* 15720.00	Peak	V	-	-	-59.04	14.51	0.00	62.47	73.98	-11.51
* 20960.00	Average	V	-	-	-77.84	17.60	-9.54	37.21	53.98	-16.77
* 20960.00	Peak	V	-	-	-66.78	17.60	-9.54	48.27	73.98	-25.71
26200.00	Peak	V	-	-	-66.41	19.73	-9.54	50.77	68.20	-17.43

Table 7-66. Radiated Measurements MIMO/CDD with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 193 of 247

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	V	-	-	-68.17	13.27	0.00	52.10	68.20	-16.10
* 15780.00	Average	V	-	-	-80.56	15.82	0.00	42.26	53.98	-11.72
* 15780.00	Peak	V	-	-	-68.40	15.82	0.00	54.42	73.98	-19.56
* 21040.00	Average	V	-	-	-77.66	17.67	-9.54	37.47	53.98	-16.51
* 21040.00	Peak	V	-	-	-66.78	17.67	-9.54	48.35	73.98	-25.63
26300.00	Peak	V	-	-	-64.49	20.29	-9.54	53.25	68.20	-14.95

Table 7-67. Radiated Measurements MIMO/CDD

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	V	-	-	-68.22	13.54	0.00	52.32	68.20	-15.88
* 15840.00	Average	V	-	-	-81.03	15.20	0.00	41.17	53.98	-12.81
* 15840.00	Peak	V	-	-	-70.16	15.20	0.00	52.04	73.98	-21.94
* 21120.00	Average	V	-	-	-77.41	17.83	-9.54	37.88	53.98	-16.10
* 21120.00	Peak	V	-	-	-66.27	17.83	-9.54	49.02	73.98	-24.96
26400.00	Peak	V	-	-	-64.63	20.07	-9.54	52.90	68.20	-15.30

Table 7-68. Radiated Measurements MIMO/CDD

Worst Case Mode: 802.11a

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 194 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	-	-	-79.95	12.93	0.00	39.98	53.98	-14.00
* 10640.00	Peak	V	-	-	-68.82	12.93	0.00	51.11	73.98	-22.87
* 15960.00	Average	V	257	154	-79.15	16.66	0.00	44.51	53.98	-9.47
* 15960.00	Peak	V	257	154	-66.41	16.66	0.00	57.25	73.98	-16.73
* 21280.00	Average	V	-	-	-77.54	17.98	-9.54	37.89	53.98	-16.08
* 21280.00	Peak	V	-	-	-66.34	17.98	-9.54	49.09	73.98	-24.88
26600.00	Peak	V	150	137	-52.02	4.42	-9.54	49.86	68.20	-18.34

Table 7-69. Radiated Measurements MIMO/CDD

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10640.00	Average	V	344	26	-81.43	12.25	0.00	37.82	53.98	-16.16
* 10640.00	Peak	V	334	26	-68.56	12.25	0.00	50.69	73.98	-23.29
* 15960.00	Average	V	119	321	-72.21	14.54	0.00	49.33	53.98	-4.65
* 15960.00	Peak	V	119	321	-58.94	14.54	0.00	62.60	73.98	-11.38
* 21280.00	Average	V	-	-	-77.15	17.98	-9.54	38.28	53.98	-15.69
21280.00	Peak	V	-	-	-66.77	17.98	-9.54	48.66	73.98	-25.31
26600.00	Peak	V	150	355	-48.71	4.42	-9.54	53.17	68.20	-15.03

Table 7-70. Radiated Measurements MIMO/CDD with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 195 of 247

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	313	170	-79.74	13.94	0.00	41.20	53.98	-12.78
* 11000.00	Peak	V	313	170	-67.09	13.94	0.00	53.85	73.98	-20.13
16500.00	Peak	V	-	-	-70.15	16.61	0.00	53.46	68.20	-14.74
22000.00	Peak	V	-	-	-66.94	18.43	-9.54	48.95	68.20	-19.25
27500.00	Peak	V	150	32	-47.27	3.16	-9.54	53.34	68.20	-14.86

Table 7-71. Radiated Measurements MIMO/CDD

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	V	363	178	-77.93	13.75	0.00	42.82	53.98	-11.16
* 11200.00	Peak	V	363	178	-64.44	13.75	0.00	56.31	73.98	-17.67
16800.00	Peak	V	-	-	-69.47	17.20	0.00	54.73	68.20	-13.47
* 22400.00	Average	V	-	-	-77.89	18.58	-9.54	38.15	53.98	-15.83
* 22400.00	Peak	V	-	-	-66.88	18.58	-9.54	49.16	73.98	-24.82
28000.00	Peak	V	150	28	-45.33	4.79	-9.54	56.92	68.20	-11.28

Table 7-72. Radiated Measurements MIMO/CDD

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5700MHz
Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	325	154	-78.22	15.01	0.00	43.79	53.98	-10.19
* 11440.00	Peak	V	325	154	-65.99	15.01	0.00	56.02	73.98	-17.96
17160.00	Peak	V	-	-	-71.24	19.45	0.00	55.21	68.20	-12.99
* 22880.00	Average	V	-	-	-77.81	18.88	-9.54	38.53	53.98	-15.45
* 22880.00	Peak	V	-	-	-66.81	18.88	-9.54	49.53	73.98	-24.45
28600.00	Peak	V	150	32	-46.08	3.32	-9.54	54.69	68.20	-13.51

Table 7-73. Radiated Measurements MIMO/CDD

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5700MHz
Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	141	320	-79.35	15.01	0.00	42.66	53.98	-11.32
* 11440.00	Peak	V	141	320	-67.25	15.01	0.00	54.76	73.98	-19.22
17160.00	Peak	V	113	317	-68.35	19.45	0.00	58.10	68.20	-10.10
22880.00	Average	V	-	-	-77.41	18.88	-9.54	38.93	53.98	-15.05
22880.00	Peak	V	-	-	-66.71	18.88	-9.54	49.63	73.98	-24.35
28600.00	Peak	V	150	312	-37.46	3.32	-9.54	63.31	68.20	-4.89

Table 7-74. Radiated Measurements MIMO/CDD with WCP

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5745MHz
Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	-	-	-77.24	14.54	0.00	44.30	53.98	-9.68
* 11490.00	Peak	V	-	-	-69.97	14.54	0.00	51.57	73.98	-22.41
17235.00	Peak	V	-	-	-70.11	19.96	0.00	56.85	68.20	-11.35
* 22980.00	Average	V	-	-	-77.14	19.03	-9.54	39.35	53.98	-14.63
* 22980.00	Peak	V	-	-	-66.45	19.03	-9.54	50.04	73.98	-23.94
28725.00	Peak	V	150	34	-45.74	3.65	-9.54	55.37	69.20	-13.83

Table 7-75. Radiated Measurements MIMO/CDD

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	-	-	-80.56	14.70	0.00	41.14	53.98	-12.84
* 11570.00	Peak	V	-	-	-71.20	14.70	0.00	50.50	73.98	-23.48
17355.00	Peak	V	-	-	-67.88	23.34	0.00	62.46	68.20	-5.74
23140.00	Peak	V	-	-	-66.74	18.82	-9.54	49.54	68.20	-18.66
28925.00	Peak	V	150	41	-45.74	4.50	-9.54	56.22	68.20	-11.98

Table 7-76. Radiated Measurements MIMO/CDD

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5825MHz
Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	-	-	-79.88	15.47	0.00	42.59	53.98	-11.39
* 11650.00	Peak	V	-	-	-69.91	15.47	0.00	52.56	73.98	-21.42
17475.00	Peak	V	-	-	-67.99	21.96	0.00	60.97	68.20	-7.23
23300.00	Peak	V	-	-	-66.43	18.40	-9.54	49.43	68.20	-18.77
29125.00	Peak	V	150	48	-45.53	2.23	-9.54	54.16	68.20	-14.04

Table 7-77. Radiated Measurements MIMO/CDD

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	128	318	-80.21	14.70	0.00	41.49	53.98	-12.49
* 11570.00	Peak	V	128	318	-66.95	14.70	0.00	54.75	73.98	-19.23
17355.00	Peak	V	148	363	-72.62	23.34	0.00	57.72	68.20	-10.48
23140.00	Peak	V	-	-	-66.41	18.82	-9.54	49.87	68.20	-18.33
28925.00	Peak	V	150	27	-36.93	4.50	-9.54	65.03	68.20	-3.17

Table 7-78. Radiated Measurements MIMO/CDD with WCP

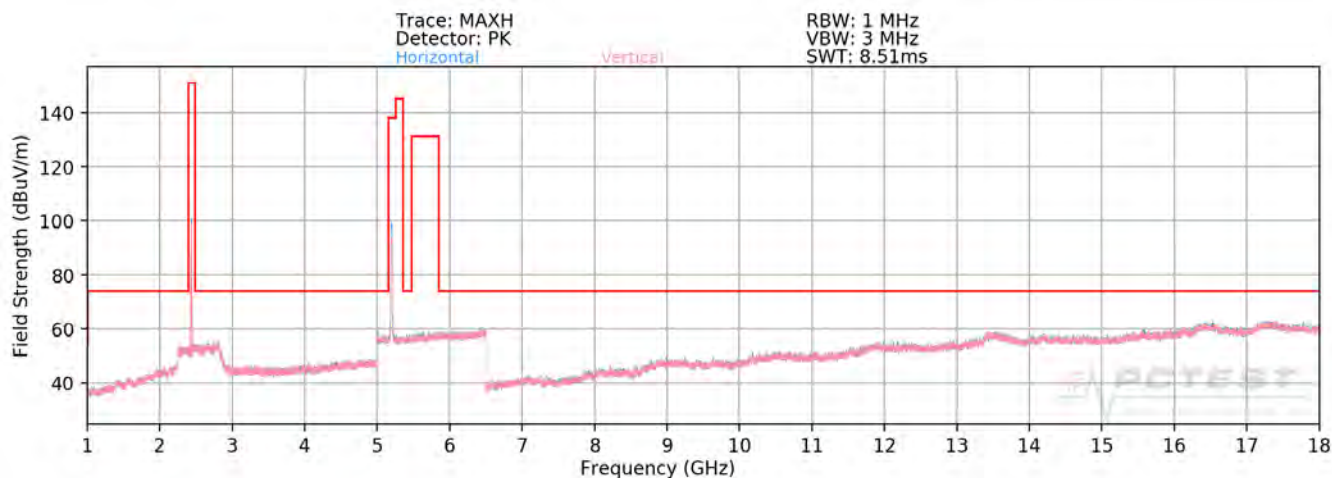
FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.6.4 Simultaneous Tx Radiated Spurious Emissions Measurements

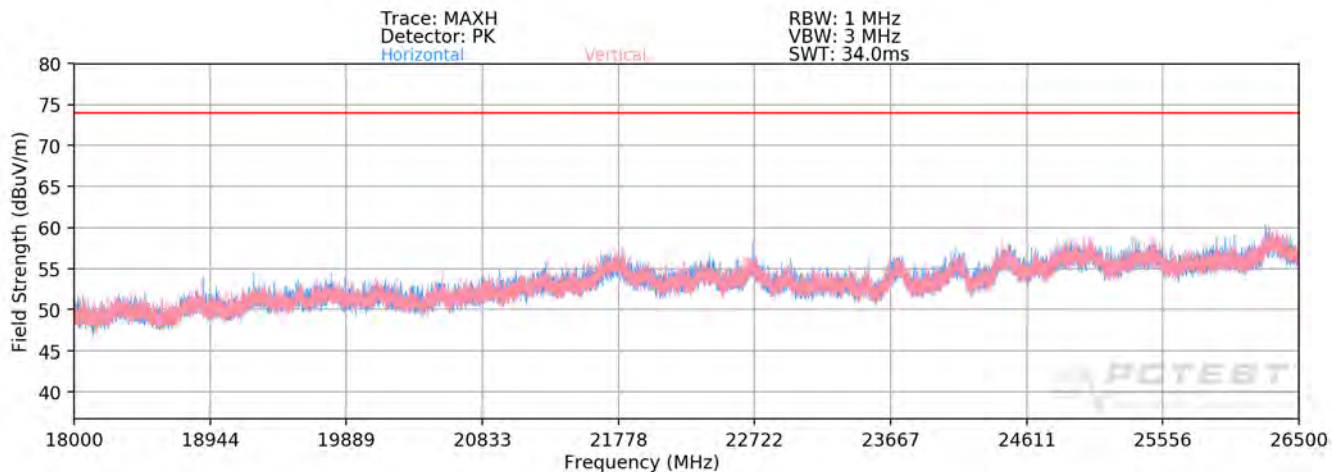
§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	6	40
Operating Frequency (MHz)	2437	5200
Data Rate (Mbps)	1	MCS8
Mode	802.11 b	802.11 n

Table 7-79. Simultaneous Transmission Config-1

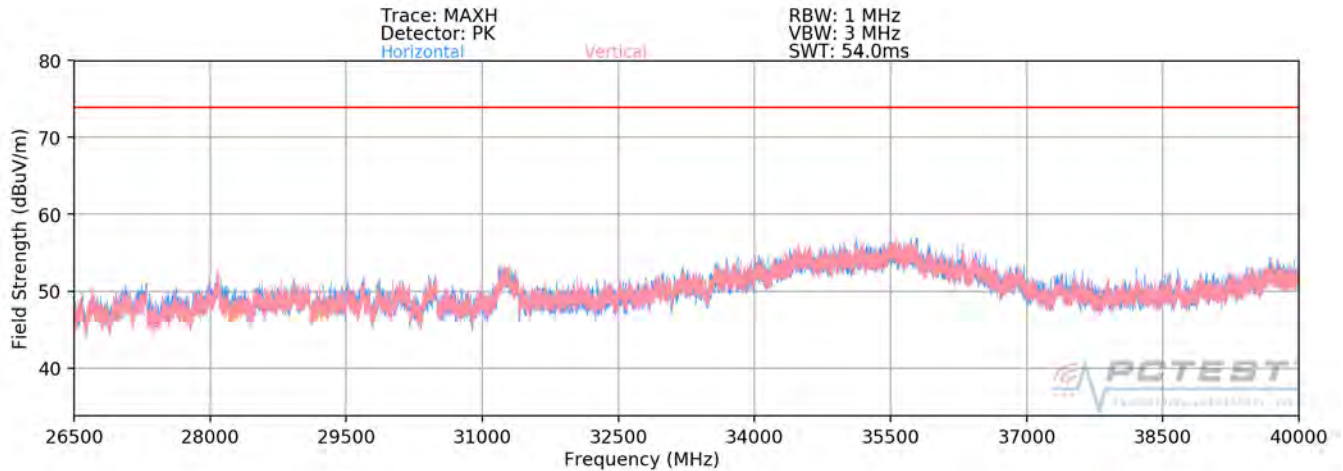


Plot 7-271. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz)



Plot 7-272. Radiated Spurious Plot 18GHz – 26.5GHz (2.4GHz – 5GHz)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-273. Radiated Spurious Plot above 26.5GHz (2.4GHz – 5GHz)

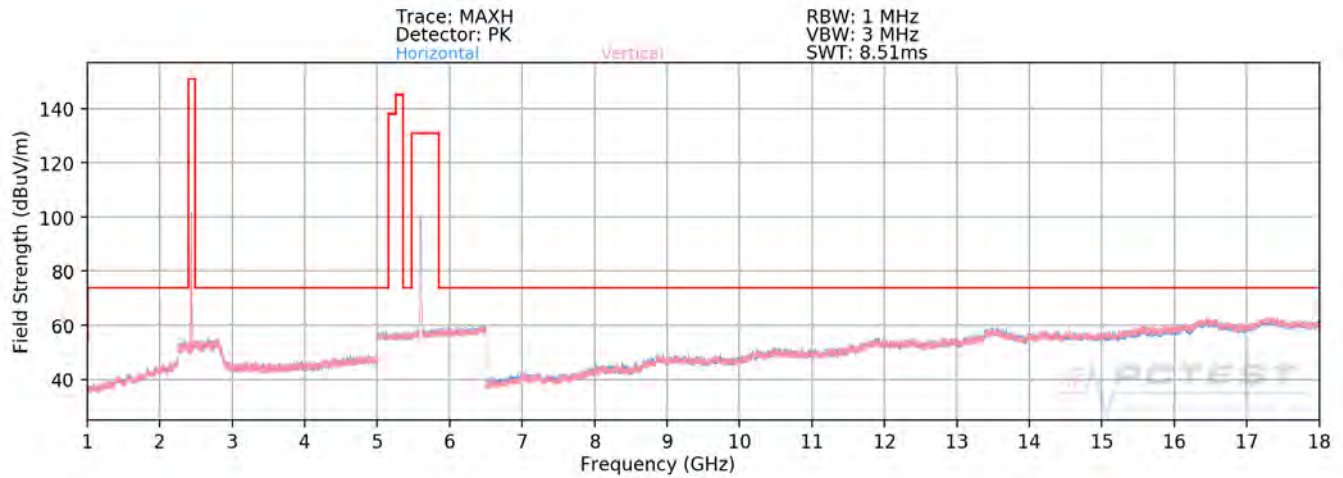
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 326.00	Average	H	-	-	-90.02	-14.23	2.75	53.98	-51.23
* 326.00	Peak	H	-	-	-80.64	-14.23	12.13	73.98	-61.85
3089.00	Peak	H	-	-	-70.04	-0.08	36.88	68.20	-31.32
5852.00	Peak	H	-	-	-69.36	5.31	42.95	68.20	-25.25
7963.00	Peak	H	-	-	-73.02	10.61	44.59	68.20	-23.61
8615.00	Peak	H	-	-	-73.00	11.41	45.41	68.20	-22.79
* 10726.00	Average	H	-	-	-83.28	13.38	37.10	53.98	-16.88
* 10726.00	Peak	H	-	-	-72.11	13.38	48.27	73.98	-25.71
13489.00	Peak	H	-	-	-72.46	16.90	51.44	68.20	-16.76
16252.00	Peak	H	-	-	-74.41	15.38	47.97	68.20	-20.23

Table 7-80. Radiated Measurements (ANT1 2.4GHz-ANT2 5GHz)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 201 of 247

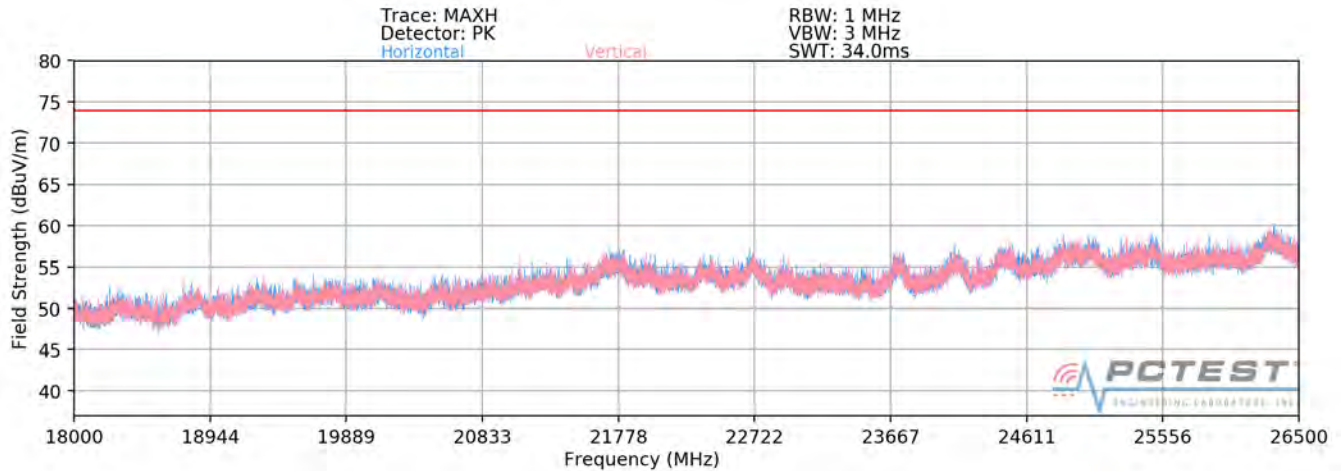
Description	2.4 GHz Emission	5 GHz Emission
Antenna	2	1
Channel	6	120
Operating Frequency (MHz)	2437	5600
Data Rate (Mbps)	1	MCS0
Mode	802.11 b	802.11 n

Table 7-81. Simultaneous Transmission Config-2

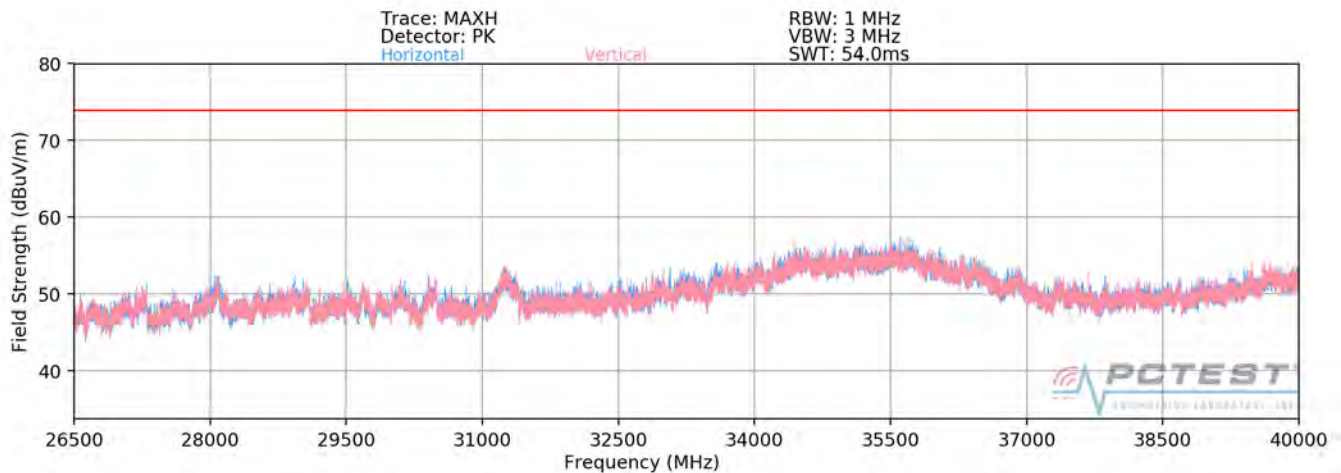


Plot 7-274. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 202 of 247



Plot 7-275. Radiated Spurious Plot 18GHz – 26.5GHz (5GHz – 2.4 GHz)



Plot 7-276. Radiated Spurious Plot above 26.5GHz (5GHz – 2.4 GHz)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 203 of 247

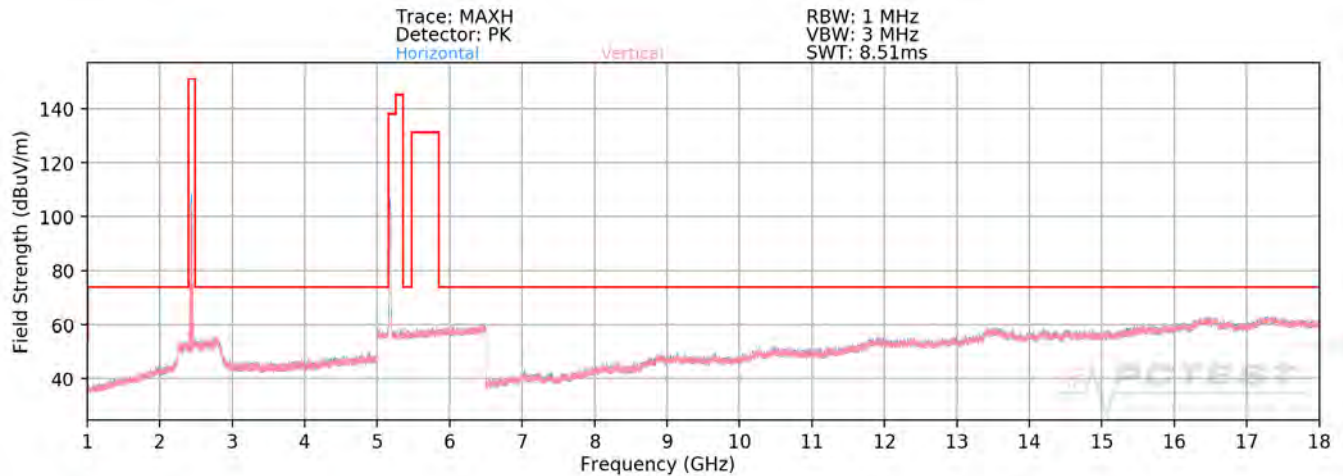
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
726.00	Peak	H	-	-	-81.82	-6.16	19.02	68.20	-49.18
* 3889.00	Average	H	-	-	-80.80	6.99	33.19	53.98	-20.79
* 3889.00	Peak	H	-	-	-69.97	6.99	44.02	73.98	-29.96
7052.00	Peak	H	-	-	-72.51	14.09	48.58	68.20	-19.62
8763.00	Peak	H	-	-	-72.36	16.53	51.17	68.20	-17.03
10215.00	Peak	H	-	-	-72.91	18.22	52.31	68.20	-15.89
* 11926.00	Average	H	-	-	-83.27	22.18	45.91	53.98	-8.07
* 11926.00	Peak	H	-	-	-72.39	22.18	56.79	73.98	-17.19
15089.00	Peak	H	-	-	-73.60	26.72	60.12	68.20	-8.08

Table 7-82. Radiated Measurements (ANT1 5GHz-ANT2 2.4GHz)

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 204 of 247

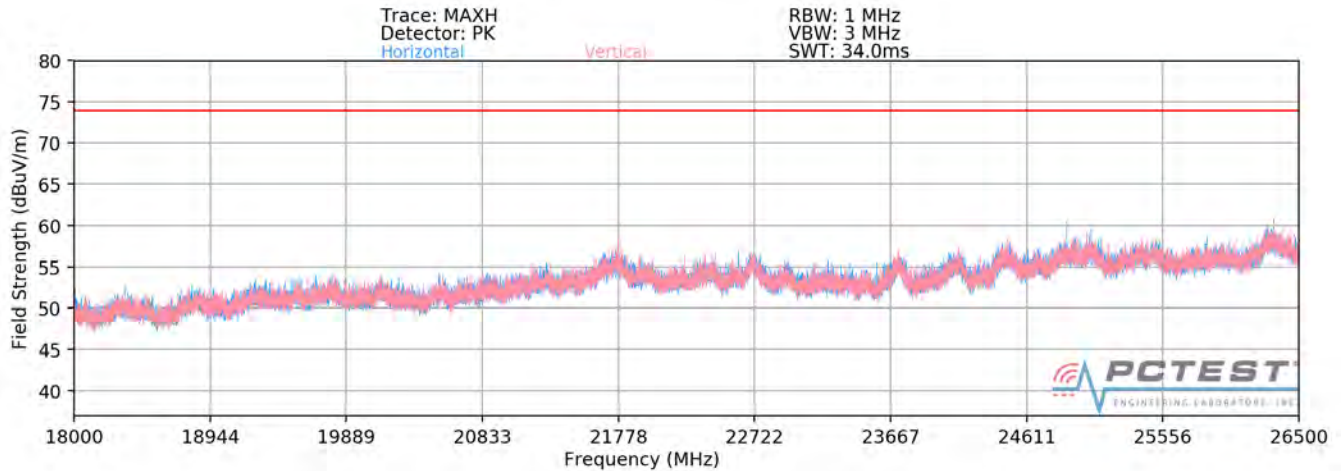
Description	2.4 GHz Emission	5 GHz Emission
Antenna	1,2	1,2
Channel	6	36
Operating Frequency (MHz)	2437	5180
Data Rate (Mbps)	MCS8	MCS8
Mode	802.11 n	802.11 n

Table 7-83. Dual Band Simultaneous Transmission

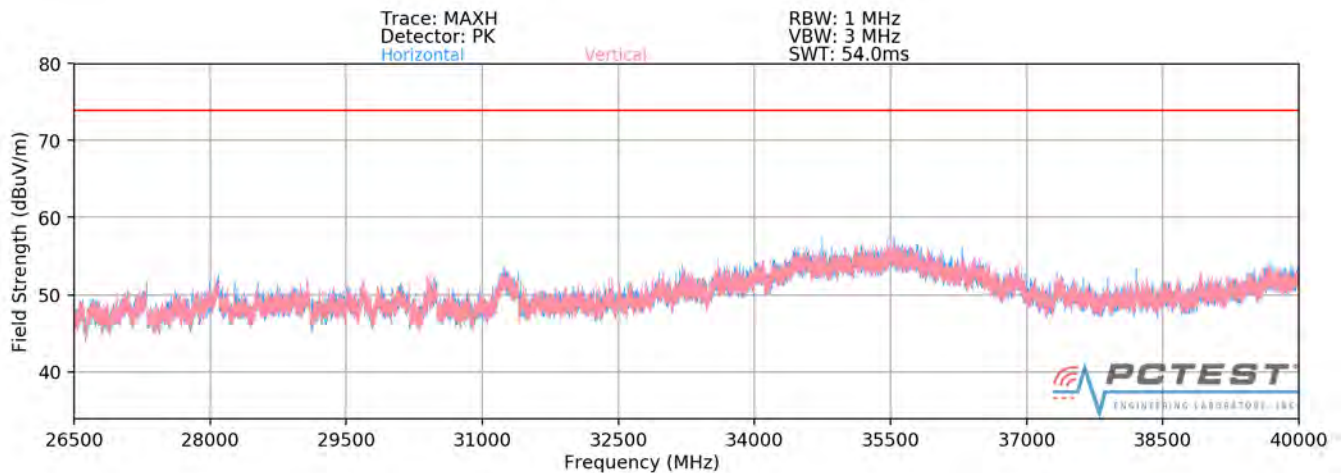


Plot 7-277. Radiated Spurious Plot above 1GHz (Dual Band Simult. Tx)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 205 of 247



Plot 7-278. Radiated Spurious Plot 18GHz – 26.5GHz (Dual Band Simult. Tx)



Plot 7-279. Radiated Spurious Plot above 26.5GHz (Dual Band Simult. Tx)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 206 of 247

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]
306.00	Peak	H	-	-	-79.79	-14.64	12.57	68.20	-55.63
3049.00	Peak	H	-	-	-70.29	-0.04	36.67	68.20	-31.53
5792.00	Peak	H	-	-	-71.93	7.84	42.91	68.20	-25.29
7923.00	Peak	H	-	-	-72.11	9.87	44.76	68.20	-23.44
8535.00	Peak	H	-	-	-73.17	11.15	44.98	68.20	-23.22
* 10666.00	Average	H	-	-	-83.15	13.04	36.89	53.98	-17.09
* 10666.00	Peak	H	-	-	-71.61	13.04	48.43	73.98	-25.55
13049.00	Peak	H	-	-	-73.27	16.36	50.09	68.20	-18.11
* 16152.00	Average	H	-	-	-85.01	16.19	38.18	53.98	-15.80
* 16152.00	Peak	H	-	-	-74.60	16.19	48.59	73.98	-25.39

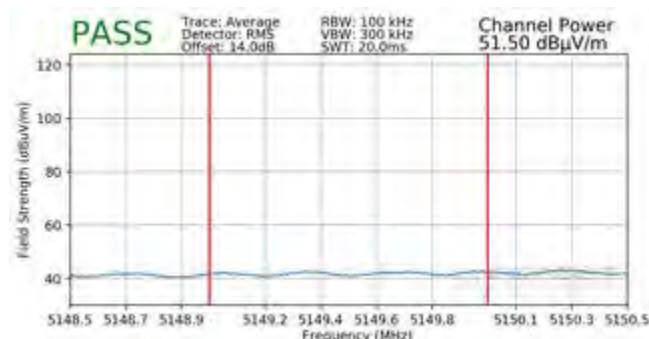
Table 7-84. Radiated Measurements (Dual Band Simult. Tx)

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 207 of 247

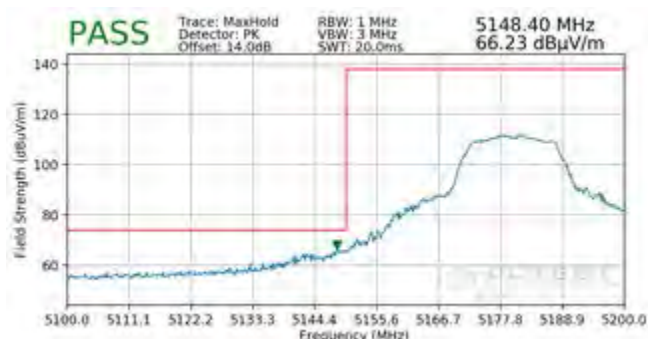
7.6.5 SISO Antenna-1 Radiated Band Edge Measurements (20MHz BW)

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

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



Plot 7-280. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 1)

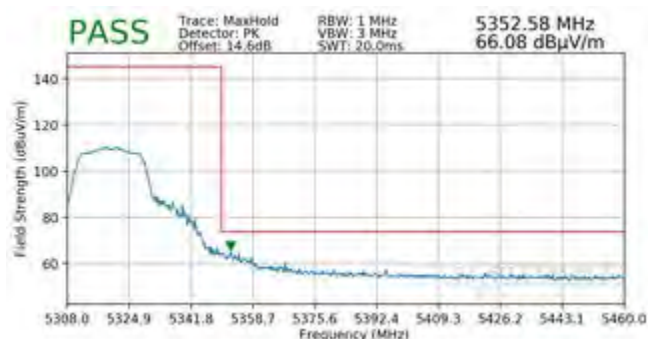


Plot 7-281. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 1)

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



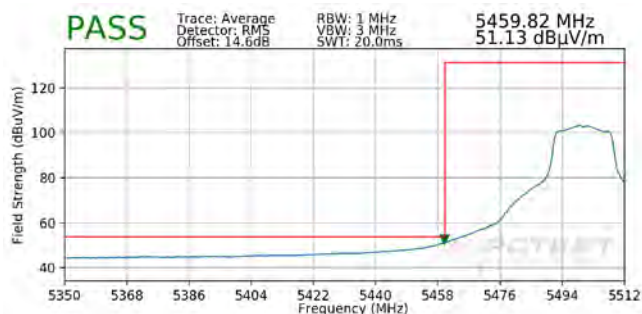
Plot 7-282. Radiated Upper Band Edge Plot SISO ANT1 (Average – UNII Band 2A)



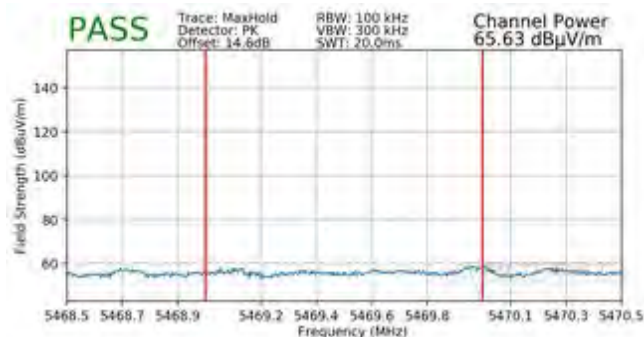
Plot 7-283. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 2A)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 208 of 247

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

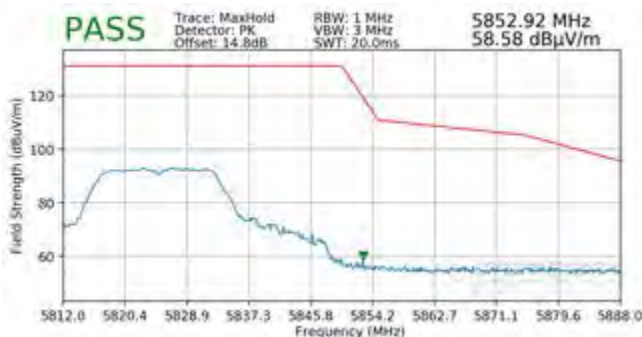


Plot 7-284. Radiated Lower Band Edge Plot SISO ANT1 (Average - UNII Band 2C)



Plot 7-285. Radiated Lower Band Edge Plot SISO ANT1 (Peak - UNII Band 2C)

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



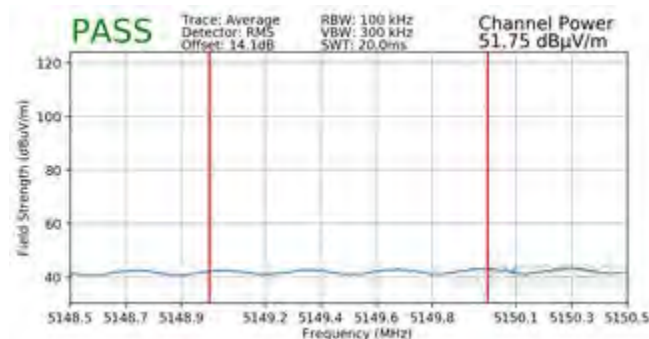
Plot 7-286. Radiated Upper Band Edge Plot SISO ANT1 (Peak - UNII Band 3)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 209 of 247

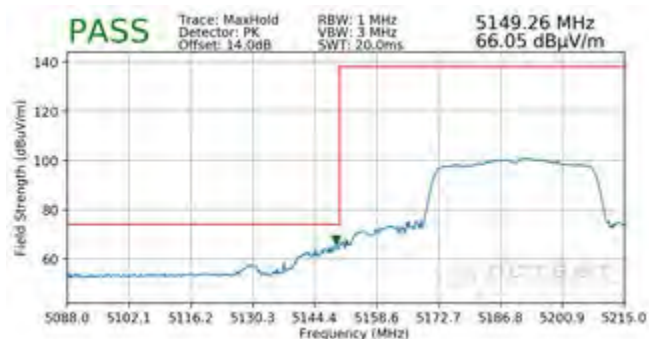
7.6.6 SISO Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§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

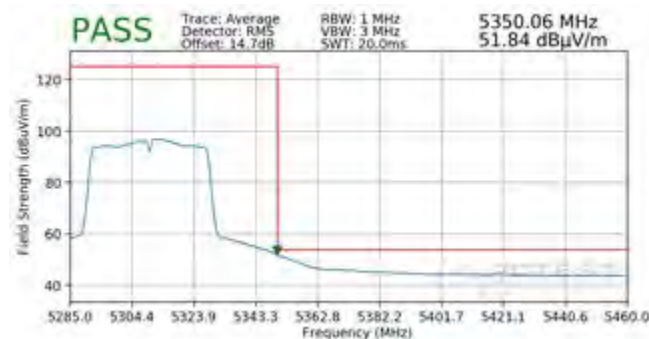


Plot 7-287. Radiated Lower Band Edge Plot SISO ANT1 (Average - UNII Band 1)

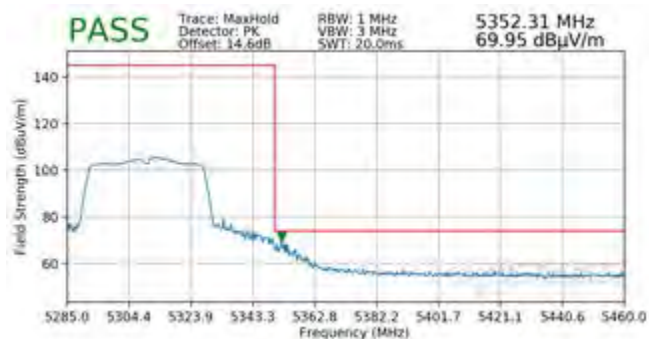


Plot 7-288. Radiated Lower Band Edge Plot SISO ANT1 (Peak - UNII Band 1)

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



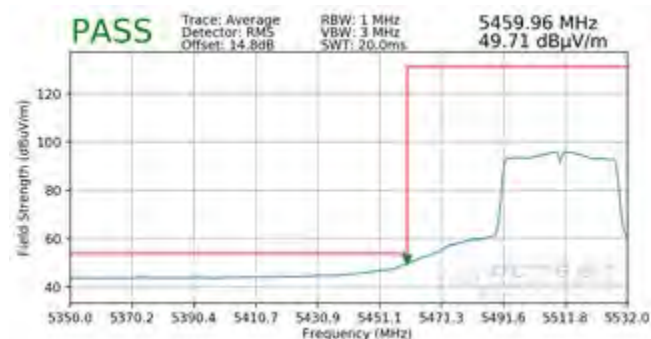
Plot 7-289. Radiated Upper Band Edge Plot SISO ANT1 (Average - UNII Band 2A)



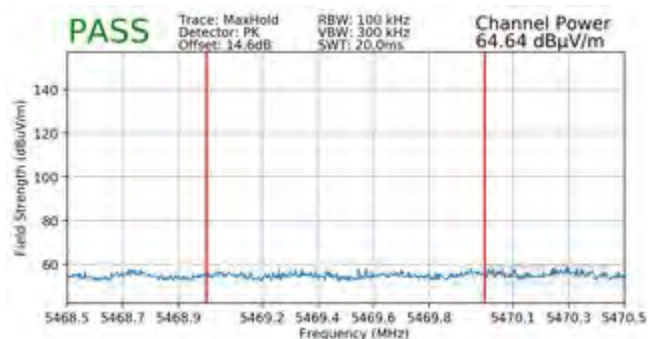
Plot 7-290. Radiated Upper Band Edge Plot SISO ANT1 (Peak - UNII Band 2A)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality 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

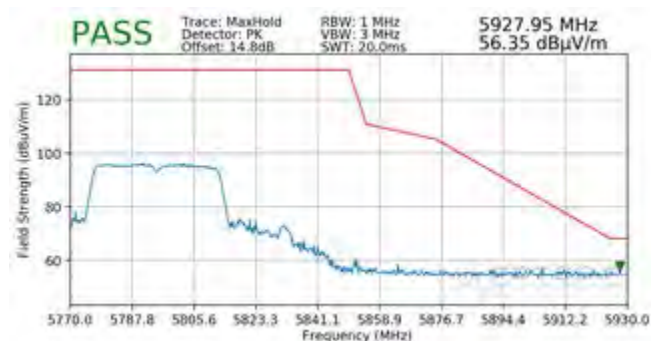


Plot 7-291. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C)



Plot 7-292. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C)

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



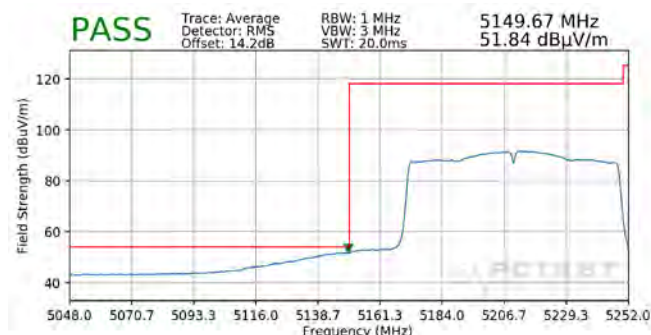
Plot 7-293. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 211 of 247

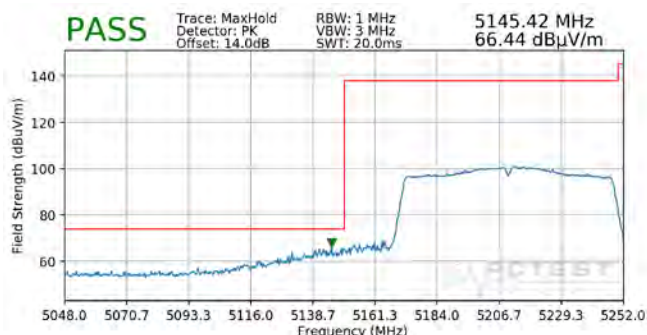
7.6.7 SISO Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§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

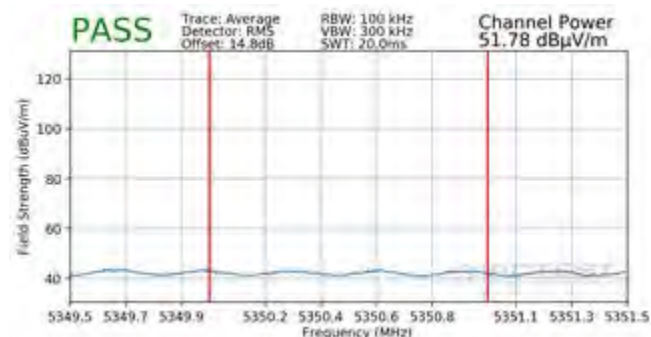


Plot 7-294. Radiated Lower Band Edge Plot SISO ANT1 (Average - UNII Band 1)

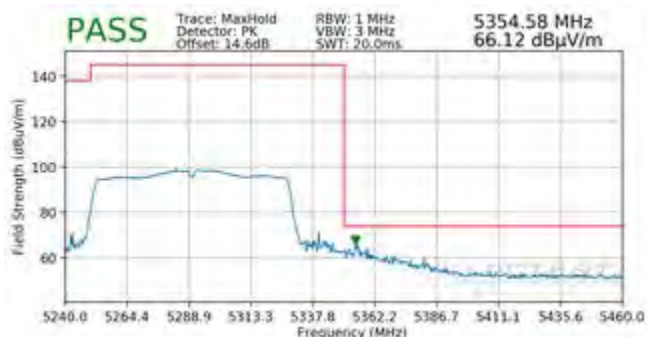


Plot 7-295. Radiated Lower Band Edge Plot SISO ANT1 (Peak - UNII Band 1)

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



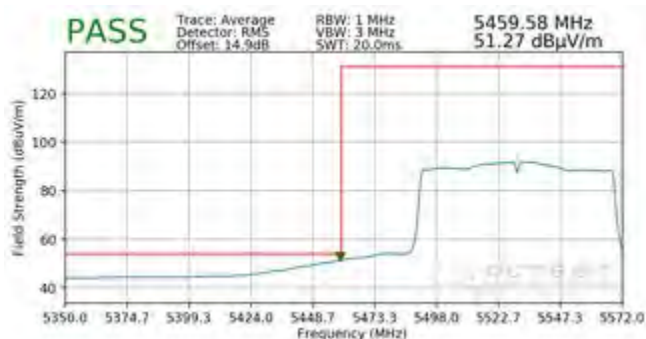
Plot 7-296. Radiated Upper Band Edge Plot SISO ANT1 (Average - UNII Band 2A)



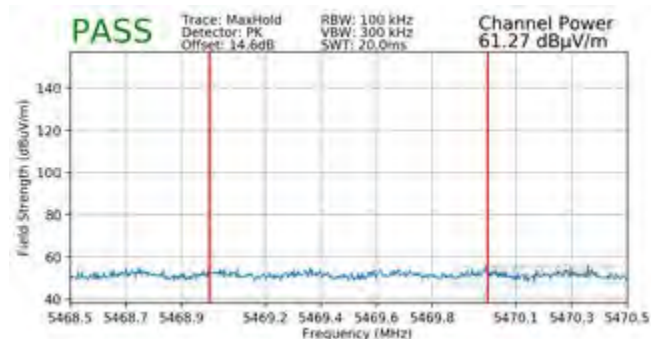
Plot 7-297. Radiated Upper Band Edge Plot SISO ANT1 (Peak - UNII Band 2A)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality 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

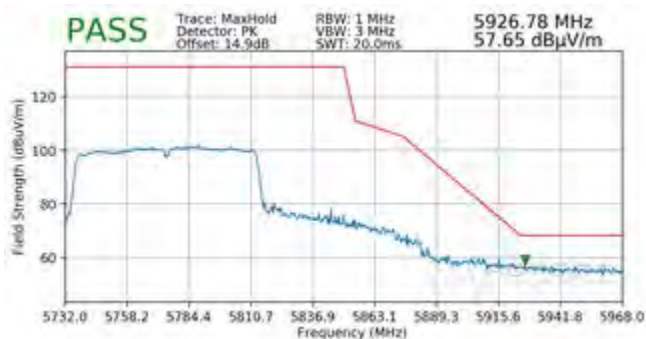


Plot 7-298. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C)



Plot 7-299. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C)

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



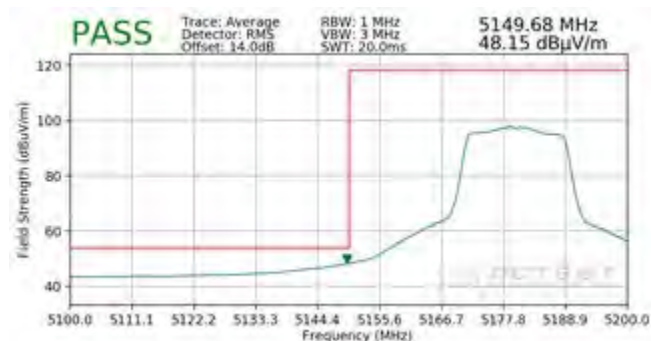
Plot 7-300. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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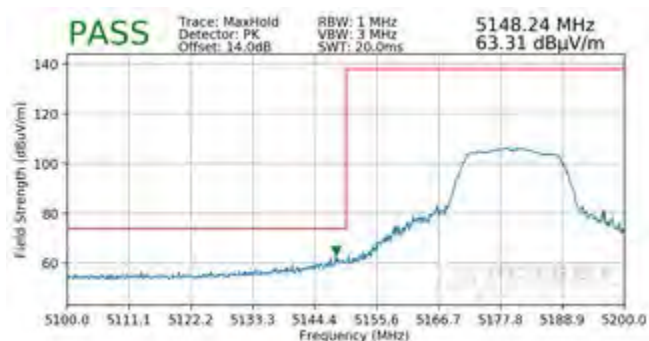
7.6.8 SISO Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§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:	5180MHz
Channel:	36

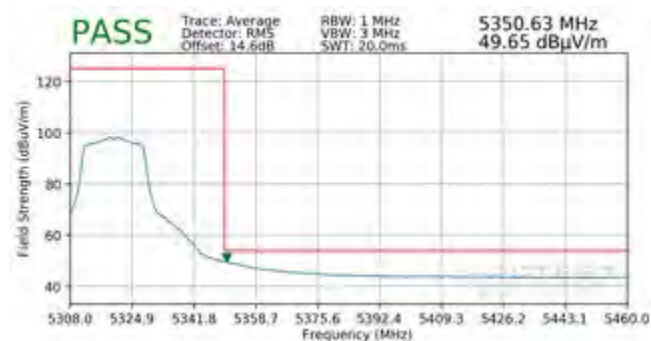


Plot 7-301. Radiated Lower Band Edge Plot SISO ANT2 (Average - UNII Band 1)

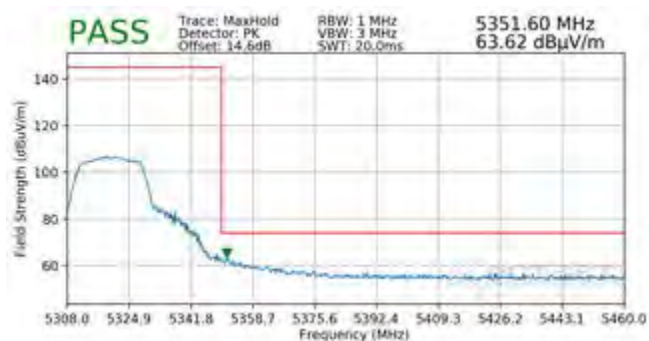


Plot 7-302. Radiated Lower Band Edge Plot SISO ANT2 (Peak - UNII Band 1)

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



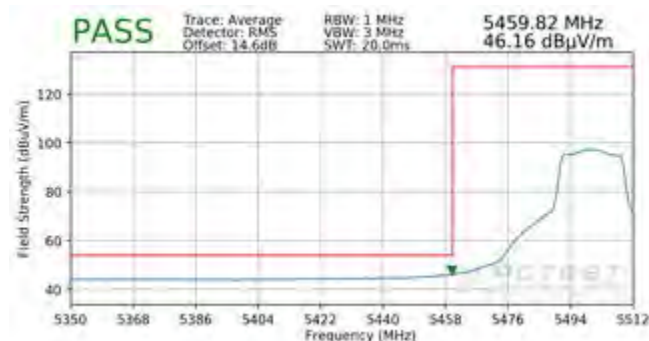
Plot 7-303. Radiated Upper Band Edge Plot SISO ANT2 (Average - UNII Band 2A)



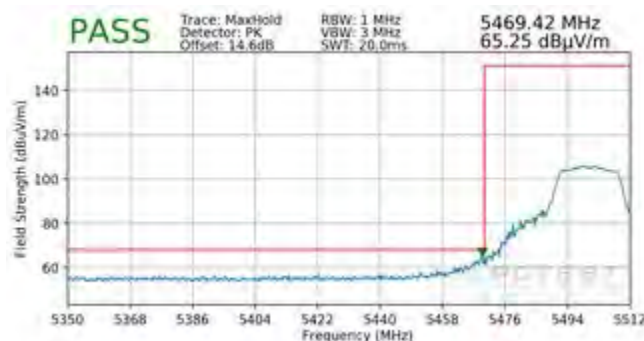
Plot 7-304. Radiated Upper Band Edge Plot SISO ANT2 (Peak - UNII Band 2A)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Worst Case Mode: 802.11ac
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5500MHz
Channel: 100

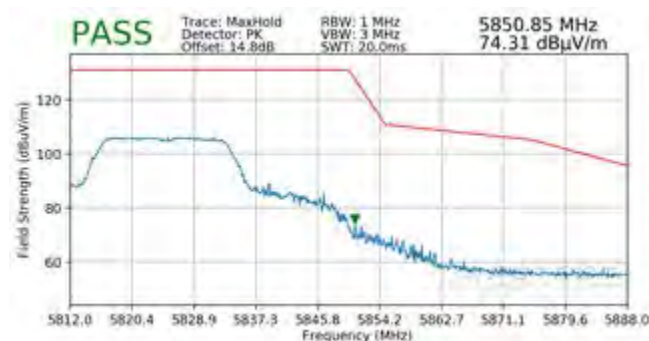


Plot 7-305. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C)



Plot 7-306. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C)

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



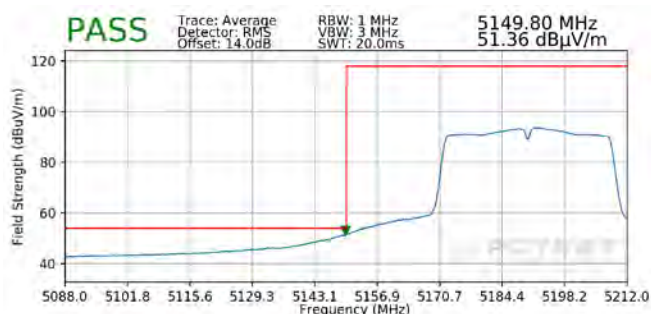
Plot 7-307. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08-A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 215 of 247

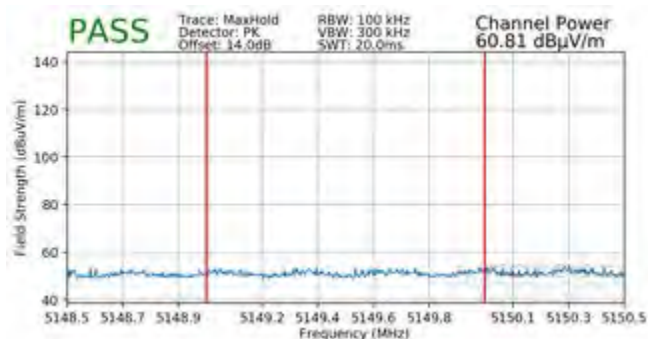
7.6.9 SISO Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§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:	5190MHz
Channel:	38

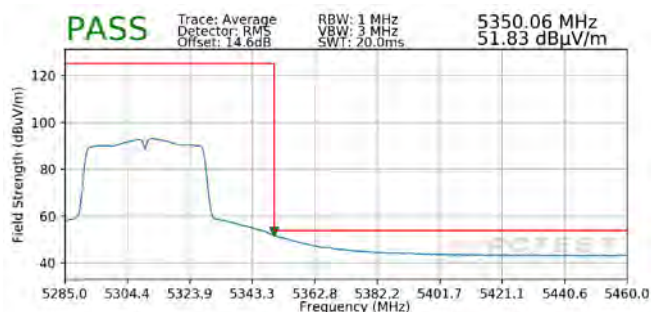


Plot 7-308. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1)

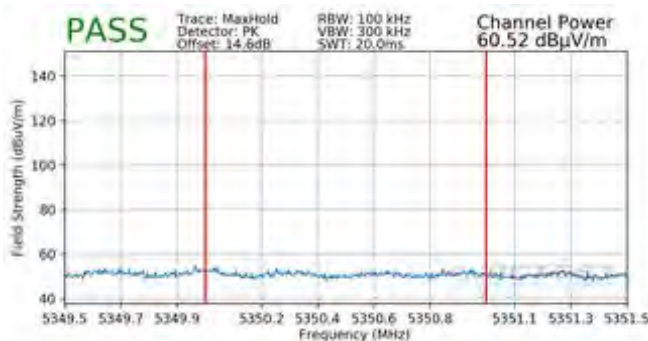


Plot 7-309. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 1)

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



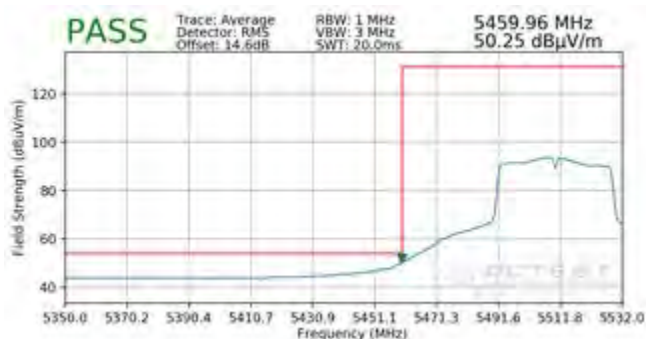
Plot 7-310. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A)



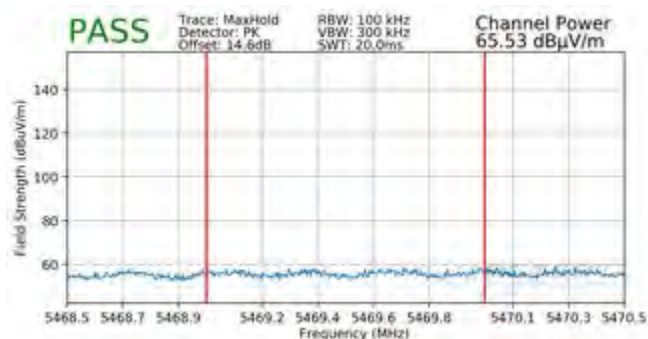
Plot 7-311. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 216 of 247

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

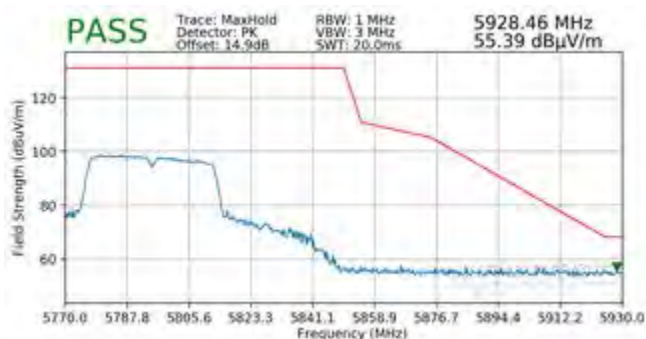


Plot 7-312. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C)



Plot 7-313. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C)

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



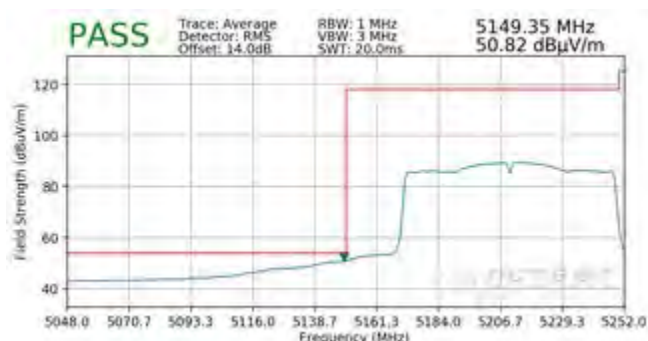
Plot 7-314. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 217 of 247

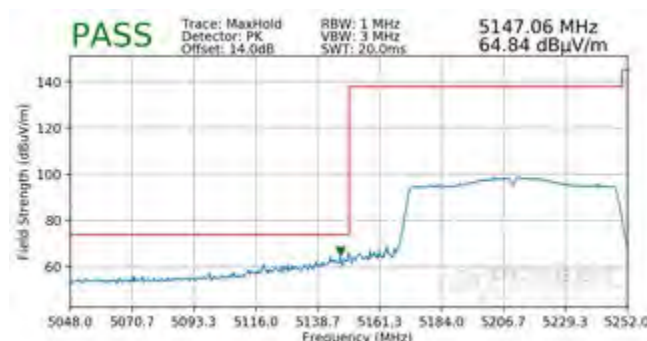
7.6.10 SISO Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§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

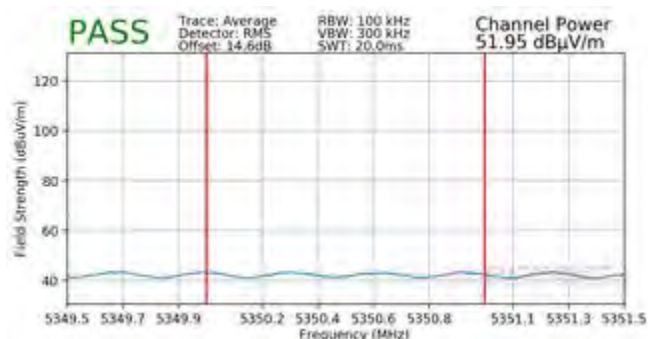


Plot 7-315. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1)

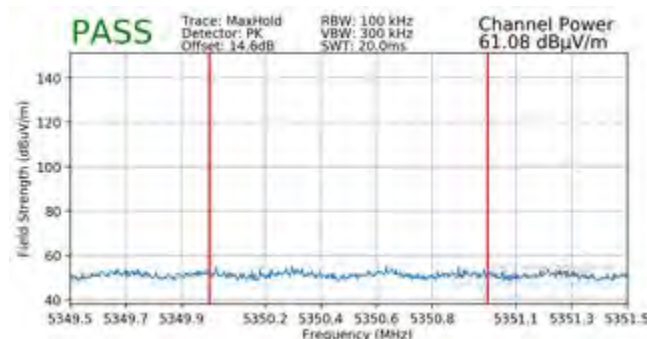


Plot 7-316. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 1)

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



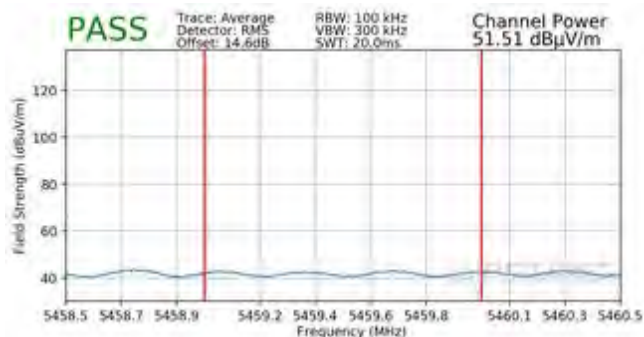
Plot 7-317. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A)



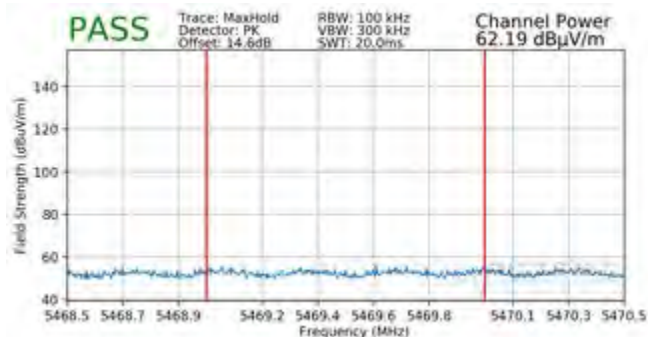
Plot 7-318. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 218 of 247

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

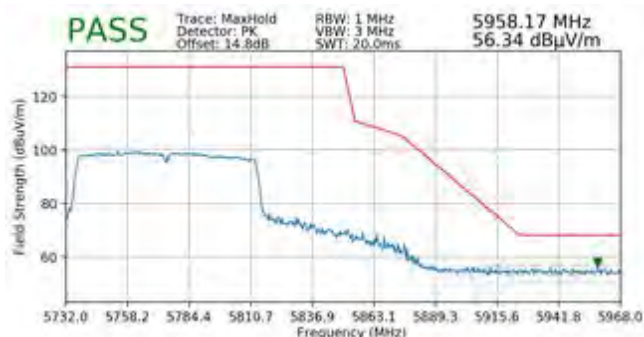


Plot 7-319. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C)



Plot 7-320. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C)

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



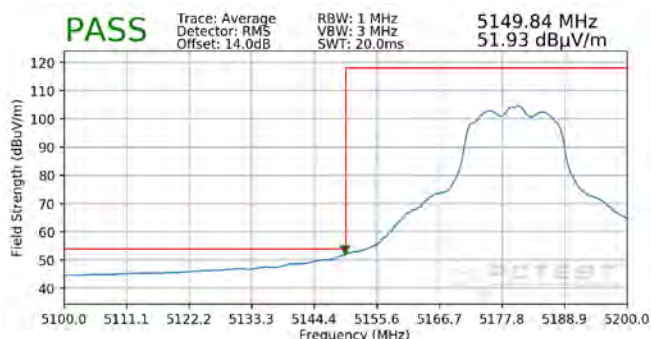
Plot 7-321. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 219 of 247

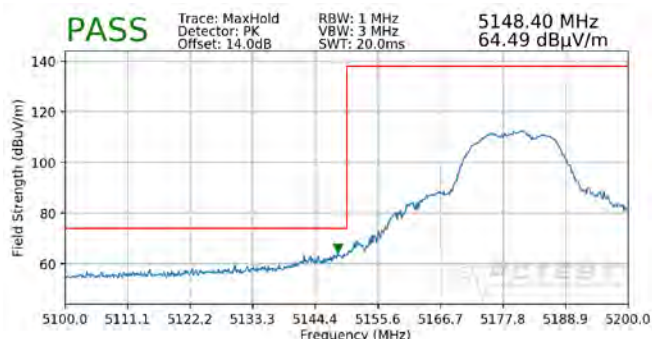
7.6.11 CDD Radiated Band Edge Measurements (20MHz BW)

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

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

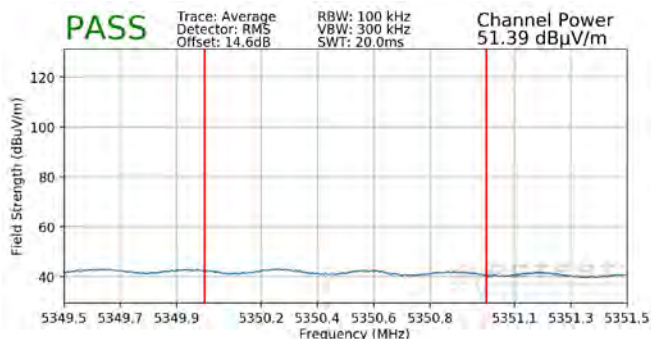


**Plot 7-322. Radiated Lower Band Edge Plot MIMO
(Average – UNII Band 1)**



**Plot 7-323. Radiated Lower Band Edge Plot MIMO
(Peak – UNII Band 1)**

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



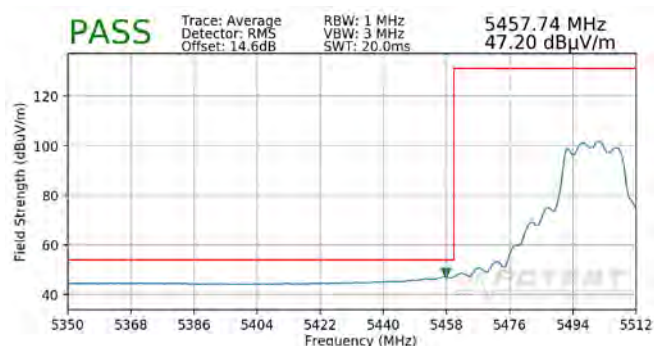
**Plot 7-324. Radiated Upper Band Edge Plot MIMO
(Average – UNII Band 2A)**



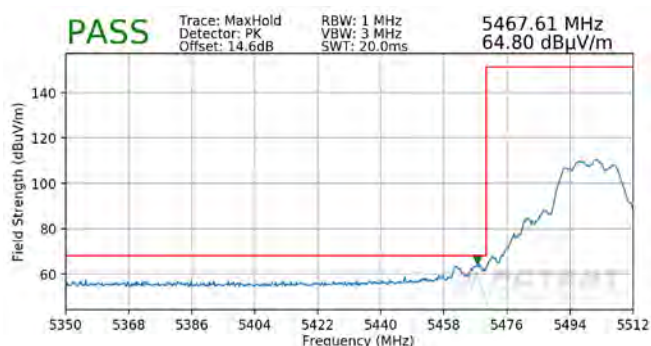
**Plot 7-325. Radiated Upper Band Edge Plot MIMO
(Peak – UNII Band 2A)**

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 220 of 247

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

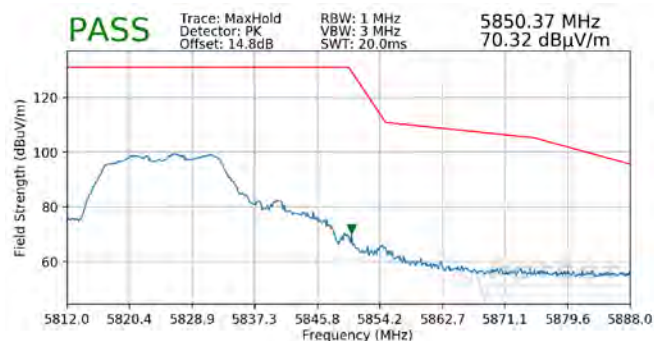


Plot 7-326. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)



Plot 7-327. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)

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



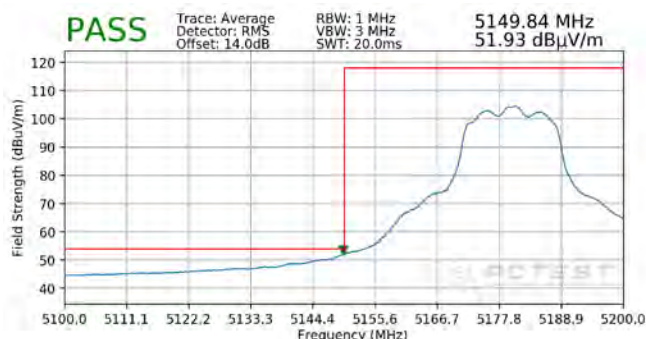
Plot 7-328. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 221 of 247

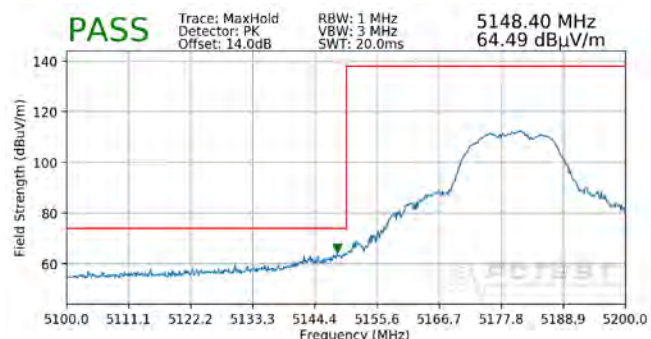
7.6.12 MIMO Radiated Band Edge Measurements (20MHz BW)

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

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36

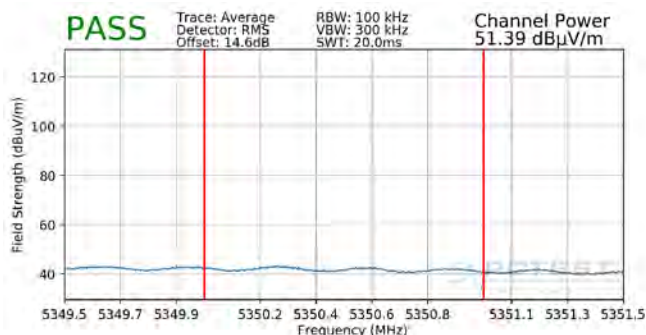


Plot 7-329. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)



Plot 7-330. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



Plot 7-331. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)



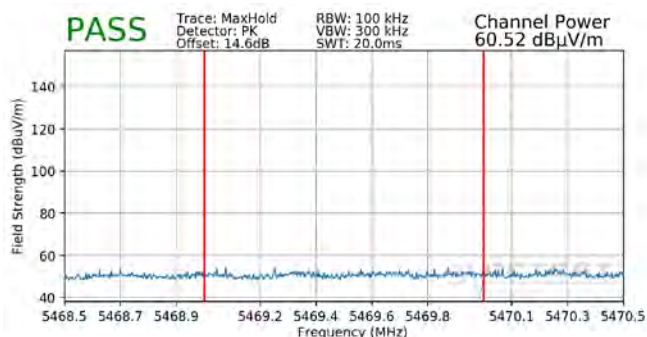
Plot 7-332. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 222 of 247

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100

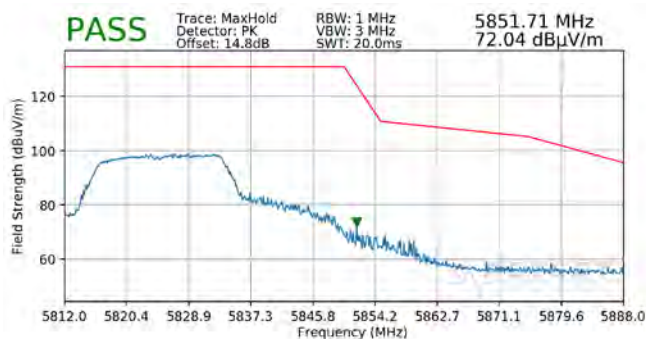


Plot 7-333. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)



Plot 7-334. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)

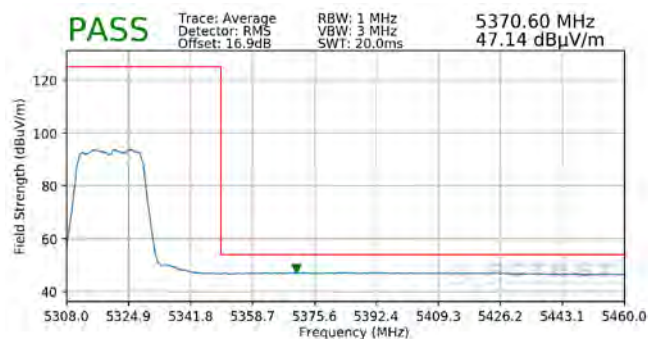
Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5825MHz
Channel:	165



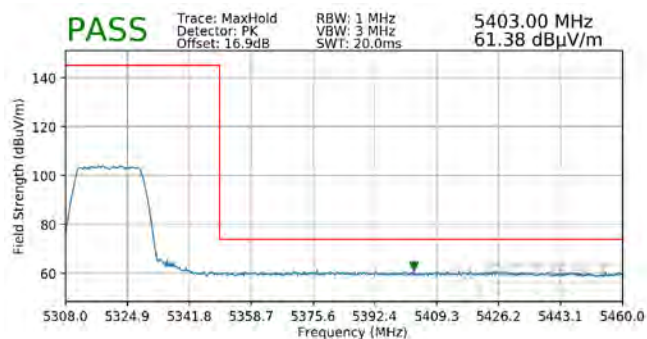
Plot 7-335. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08-A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 223 of 247

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



**Plot 7-336. Radiated Band Edge Plot MIMO
(Average - WCP)**



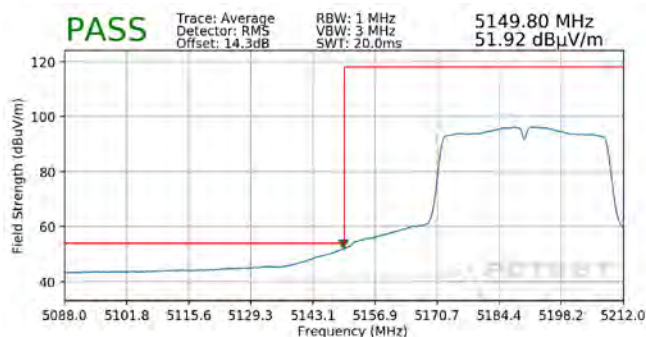
**Plot 7-337. Radiated Band Edge Plot MIMO (Peak -
WCP)**

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 224 of 247

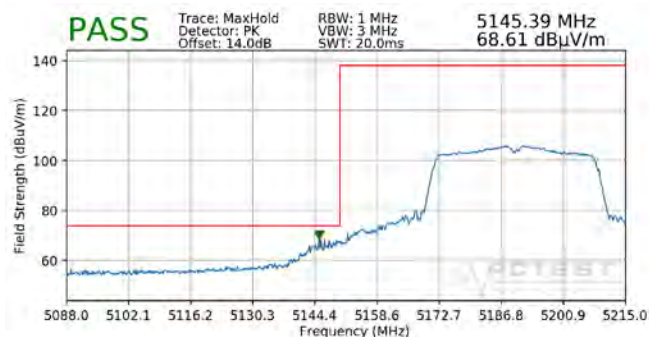
7.6.13 MIMO Radiated Band Edge Measurements (40MHz BW)

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

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38

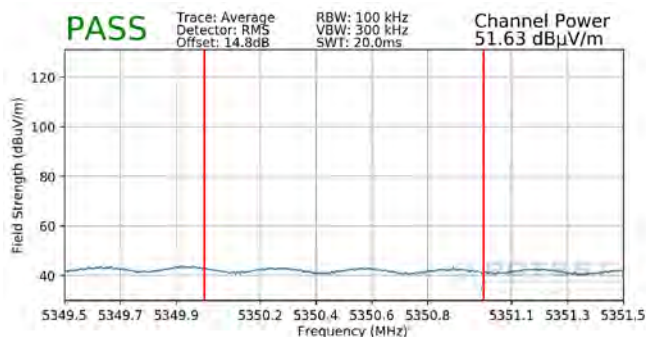


Plot 7-338. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)

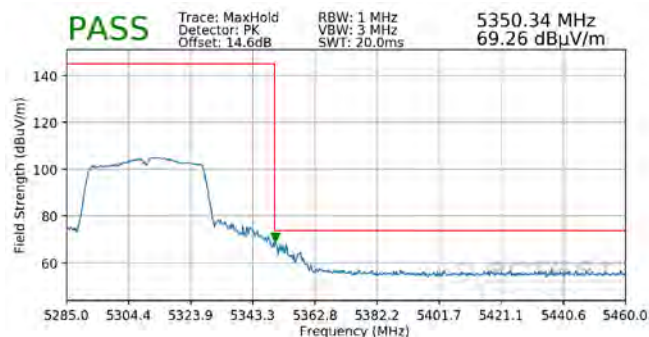


Plot 7-339. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



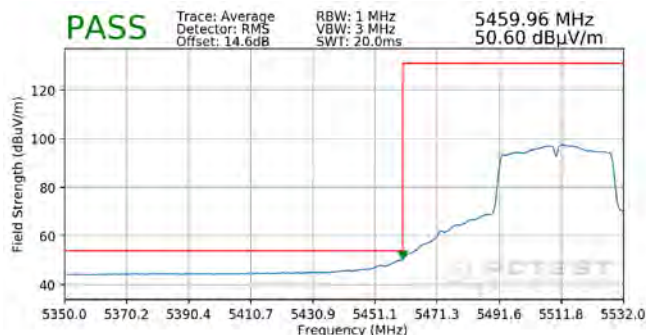
Plot 7-340. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)



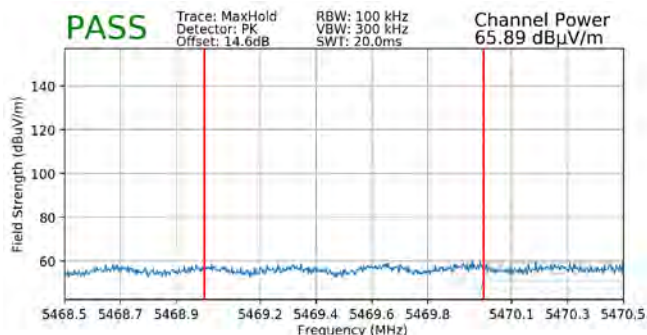
Plot 7-341. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 225 of 247

Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS8
Distance of Measurements: 3 Meters
Operating Frequency: 5510MHz
Channel: 102

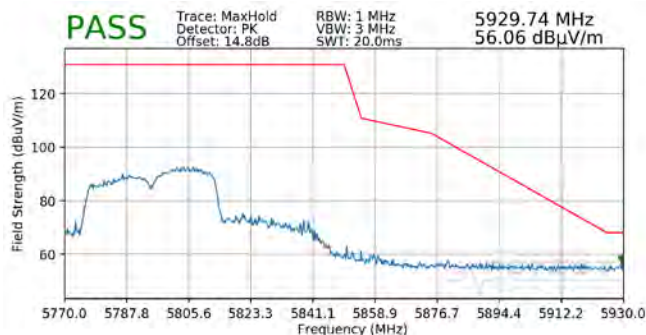


Plot 7-342. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)



Plot 7-343. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)

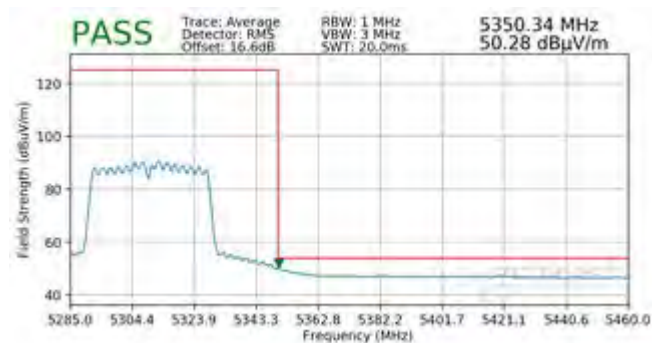
Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS8
Distance of Measurements: 3 Meters
Operating Frequency: 5795MHz
Channel: 159



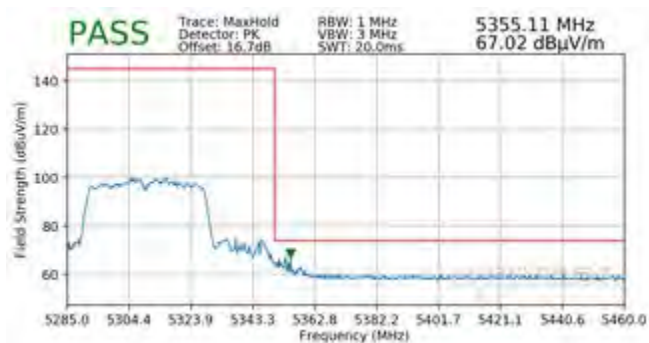
Plot 7-344. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 226 of 247

Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



**Plot 7-345. Radiated Band Edge Plot MIMO
(Average – WCP)**



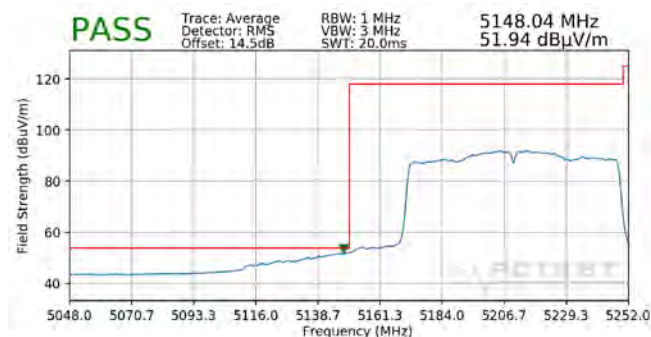
**Plot 7-346. Radiated Band Edge Plot MIMO (Peak –
WCP)**

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 227 of 247

7.6.14 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

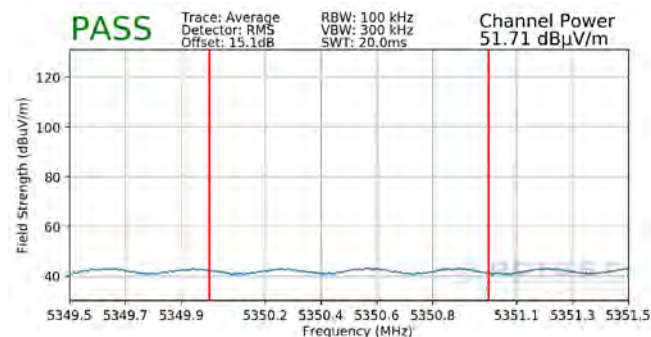


Plot 7-347. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)

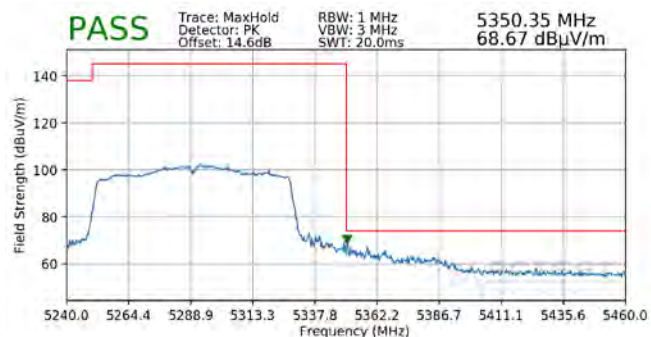


Plot 7-348. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)

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



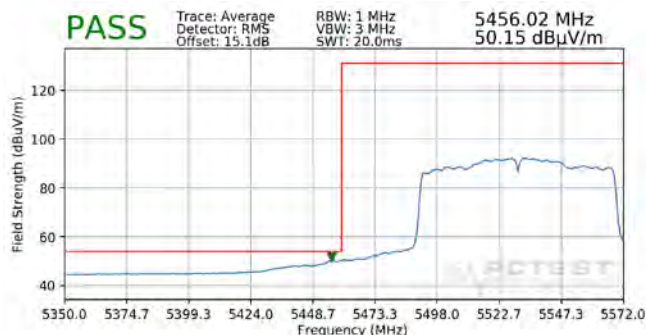
Plot 7-349. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)



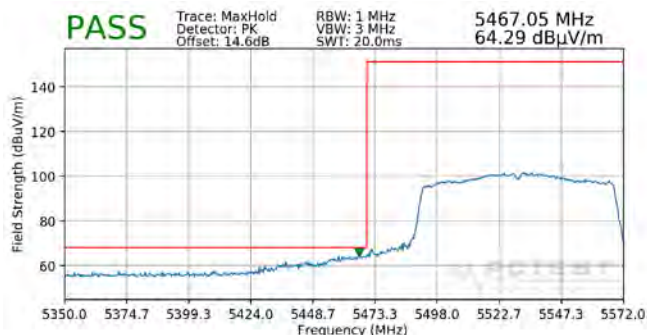
Plot 7-350. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality 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

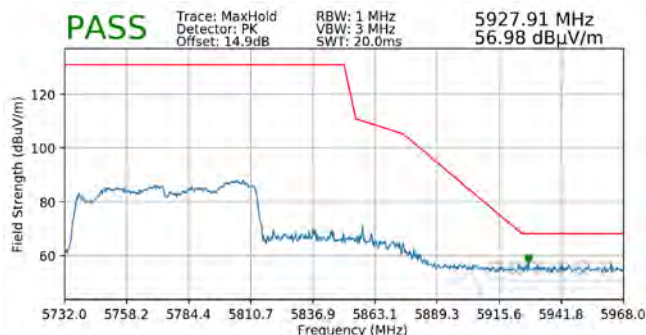


Plot 7-351. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C)



Plot 7-352. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C)

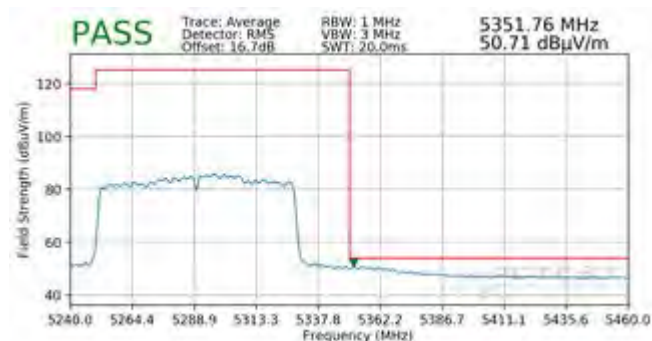
Worst Case Mode:	802.11ac
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5775MHz
Channel:	155



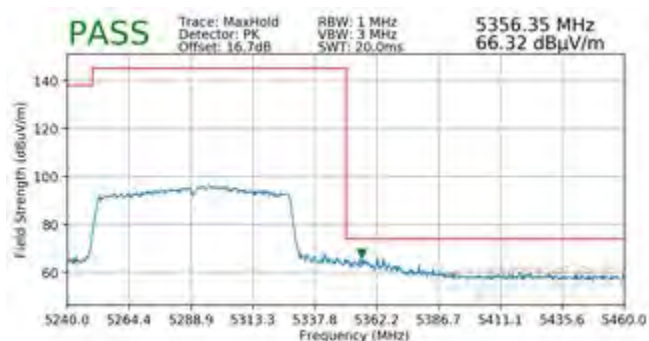
Plot 7-353. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode:	802.11ac
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



Plot 7-354. Radiated Band Edge Plot MIMO (Average - WCP)



Plot 7-355. Radiated Band Edge Plot MIMO (Peak - WCP)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905220084-08.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 230 of 247

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 7-85 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μV/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 7-85. 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

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Test Setup

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

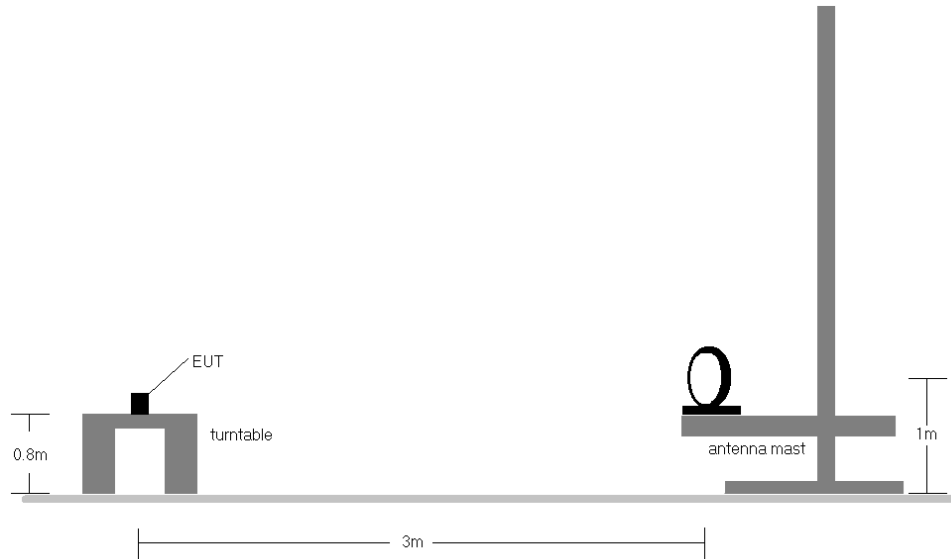


Figure 7-6. Radiated Test Setup < 30MHz

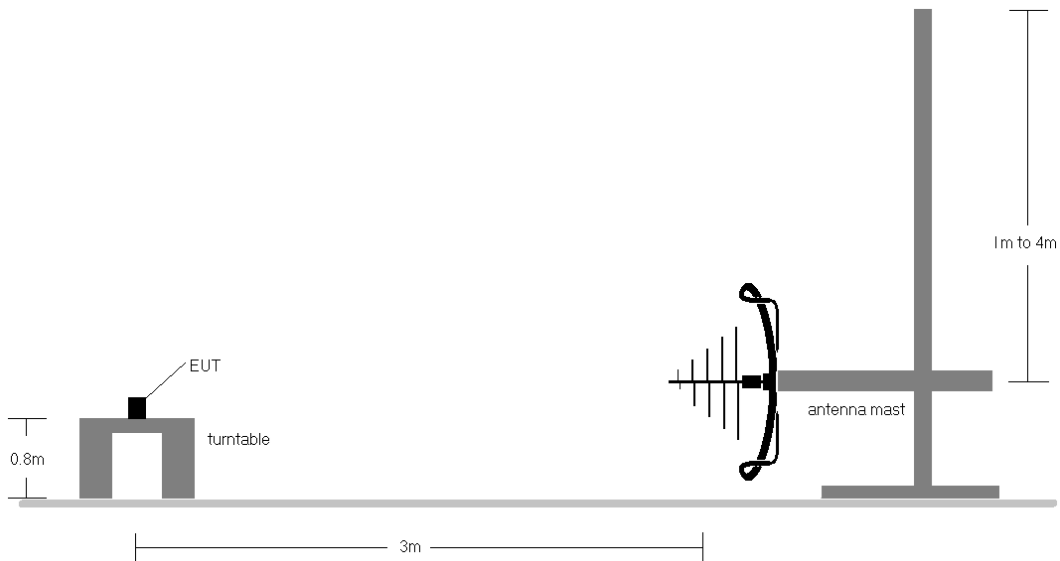


Figure 7-7. Radiated Test Setup < 1GHz

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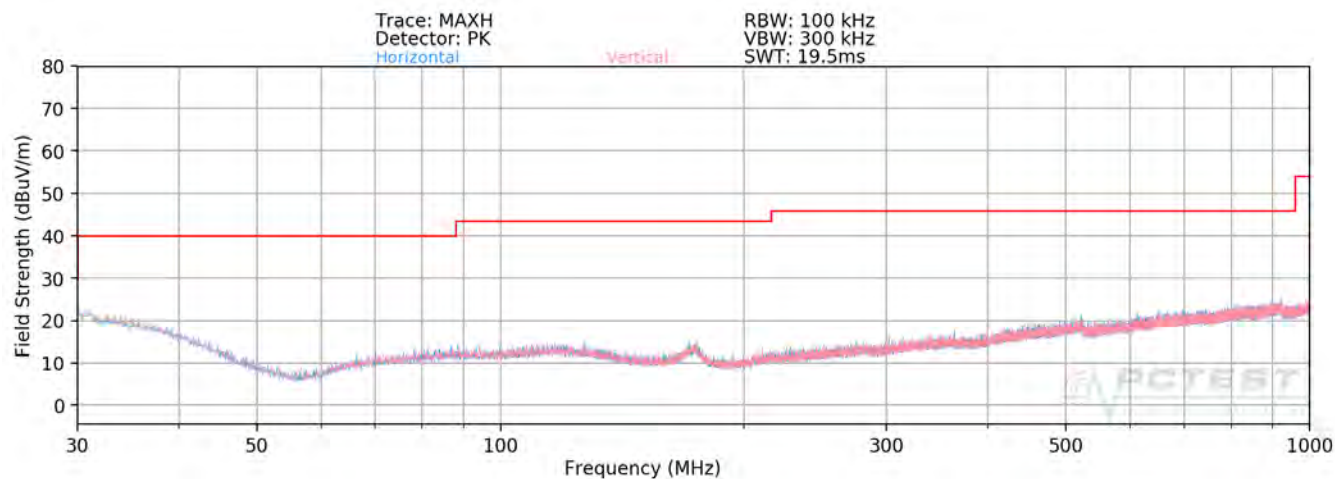
Test Notes

1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen (8.10) are below the limit shown in Table 7-85.
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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SISO Antenna-1 Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]

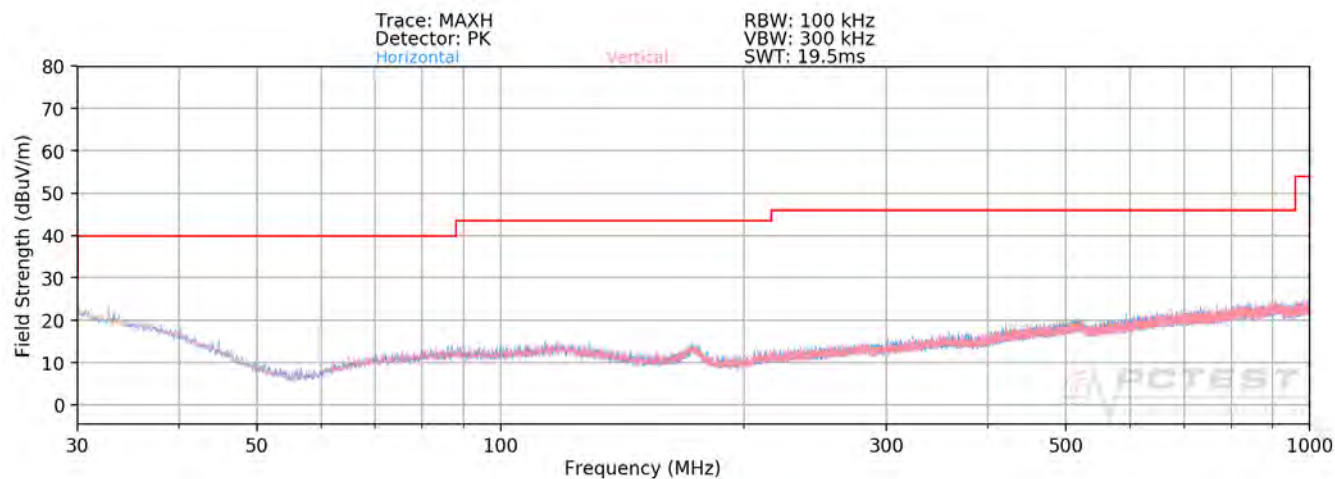


Plot 7-356. Radiated Spurious Plot below 1GHz SISO ANT1 (802.11a – U2A Ch. 56)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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SISO Antenna-2 Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]

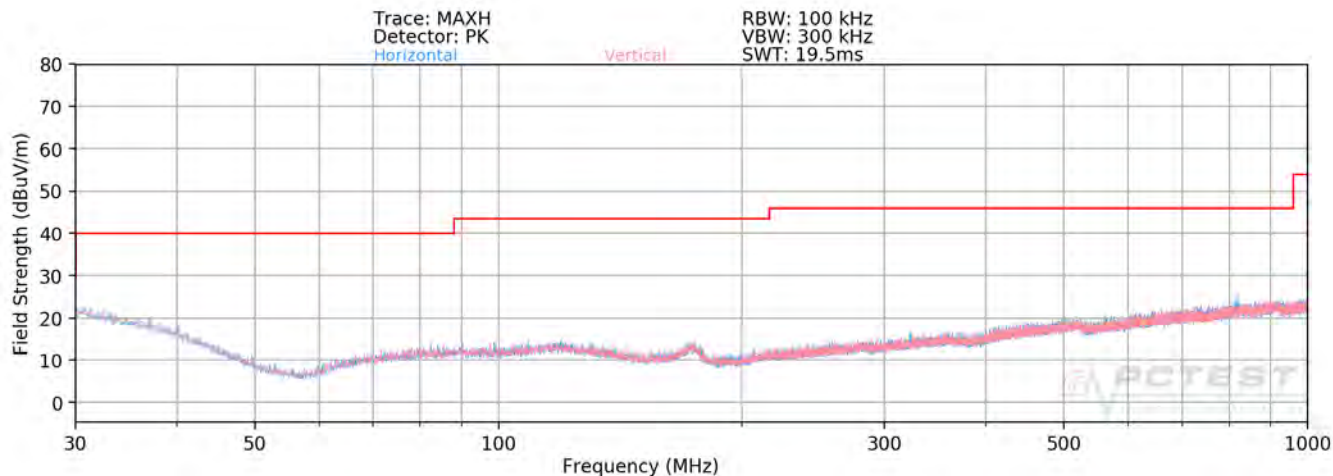


Plot 7-357. Radiated Spurious Plot below 1GHz SISO ANT2 (802.11a - U2A Ch. 64)

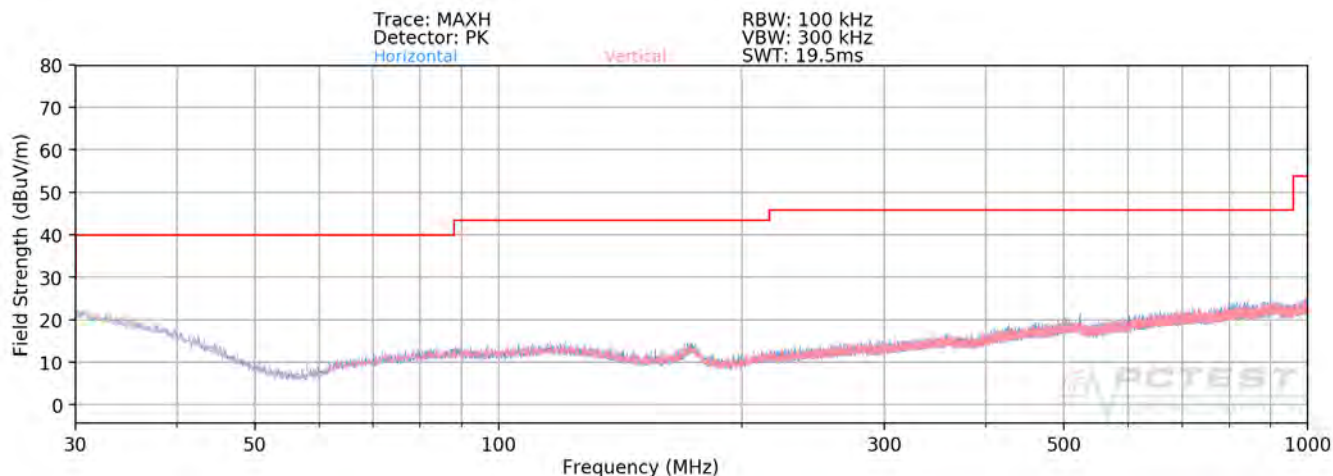
FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Simultaneous Tx Radiated Spurious Emissions Measurements (Below 1GHz)

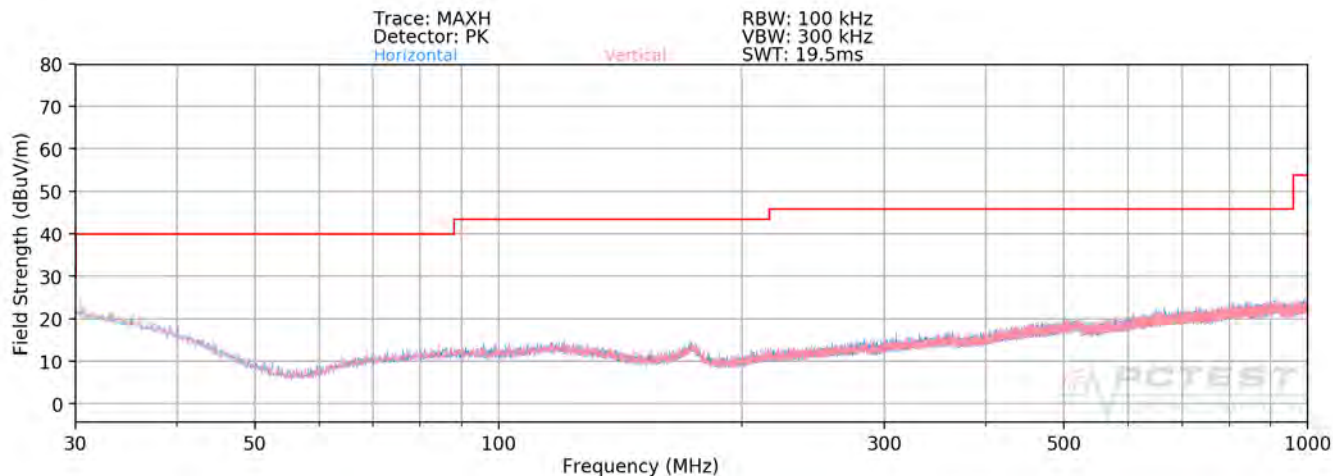
§15.209; RSS-Gen [8.9]



Plot 7-358. Radiated Spurious Plot below 1GHz (2.4GHz – 5GHz)



Plot 7-359. Radiated Spurious Plot below 1GHz (2.4GHz – 5GHz)



Plot 7-360. Radiated Spurious Plot below 1GHz (Dual Band Simult. Tx)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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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 7-86. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013, Section 6.2

Test Settings

Quasi-Peak Field Strength Measurements

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

Average Field Strength Measurements

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

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Test Setup

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

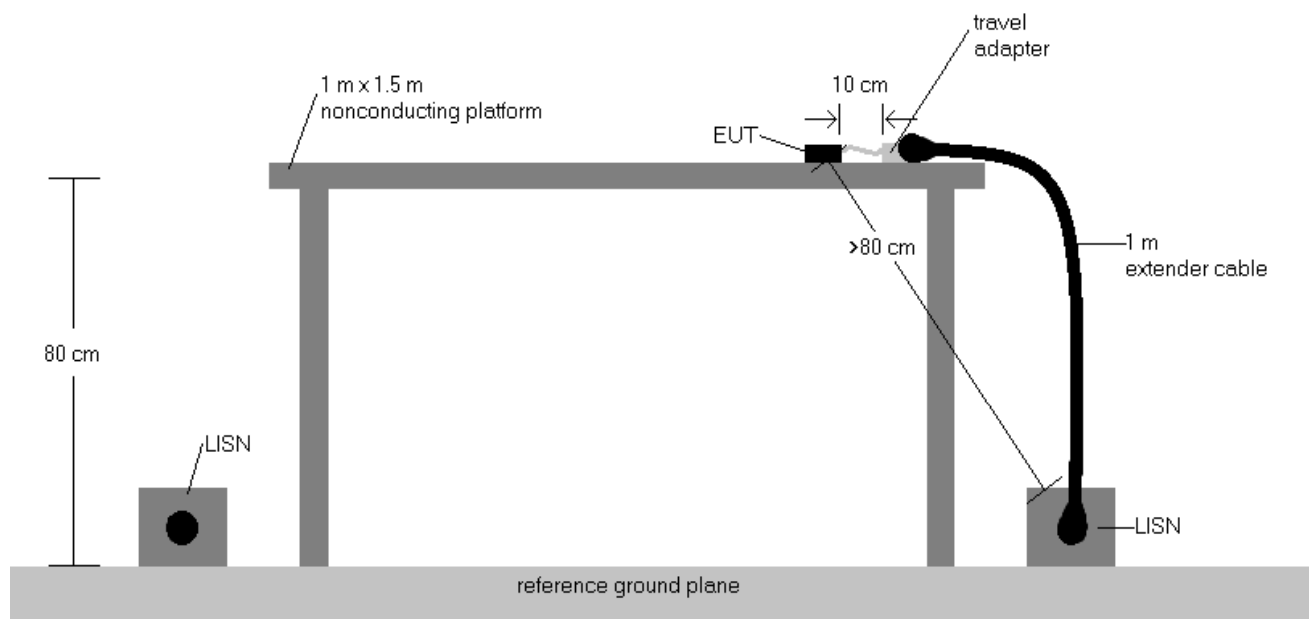
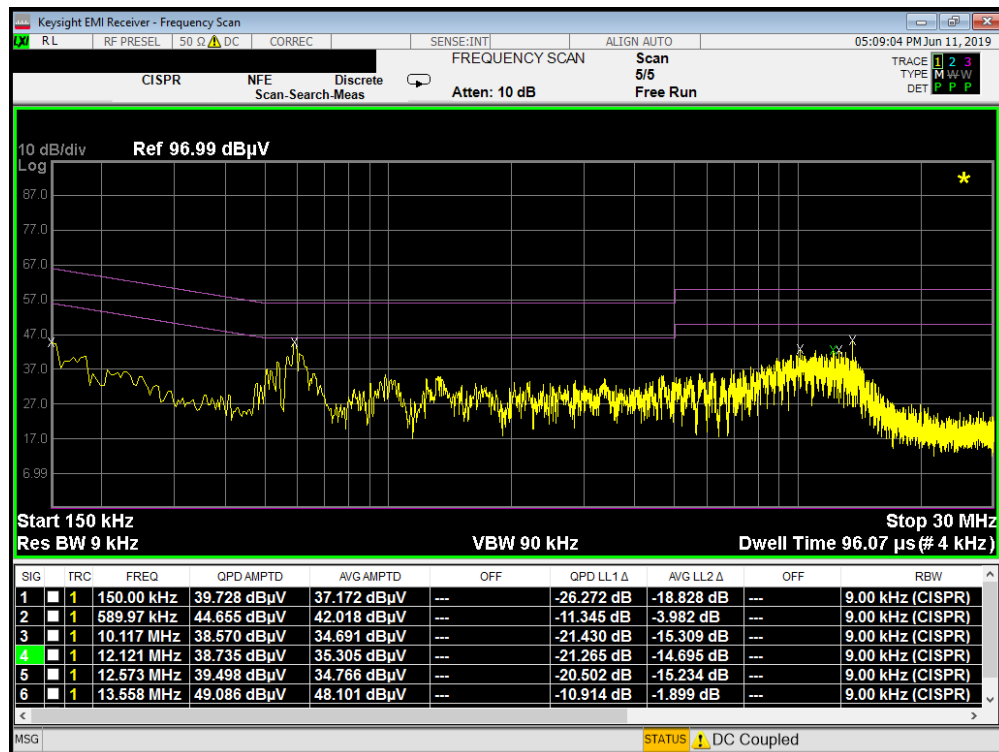


Figure 7-8. Test Instrument & Measurement Setup

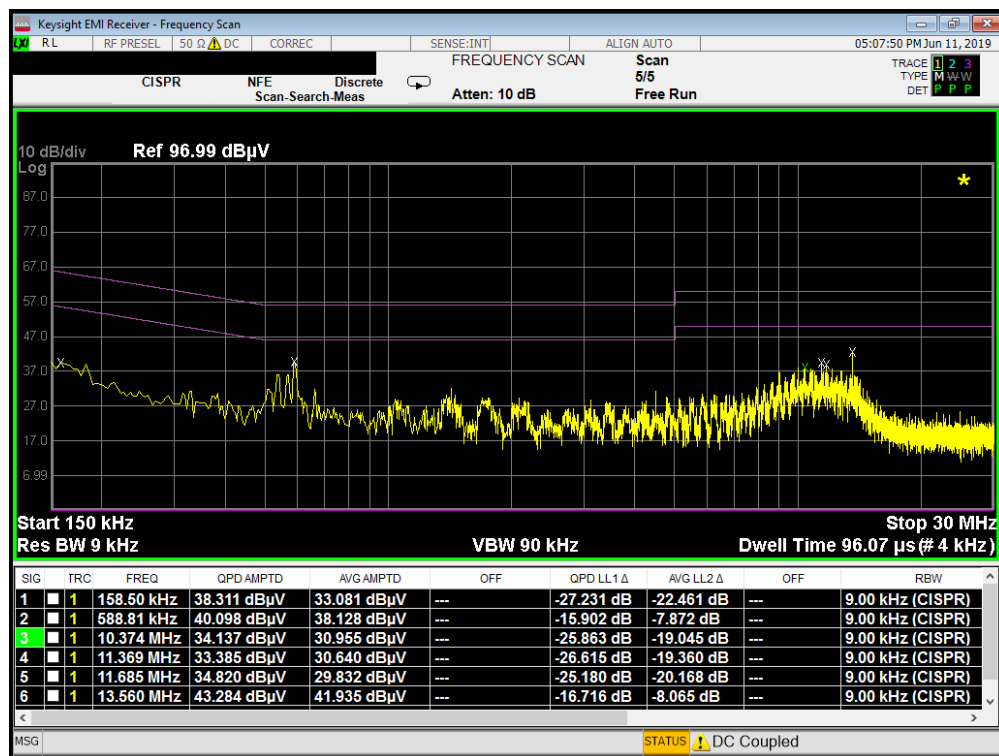
Test Notes

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

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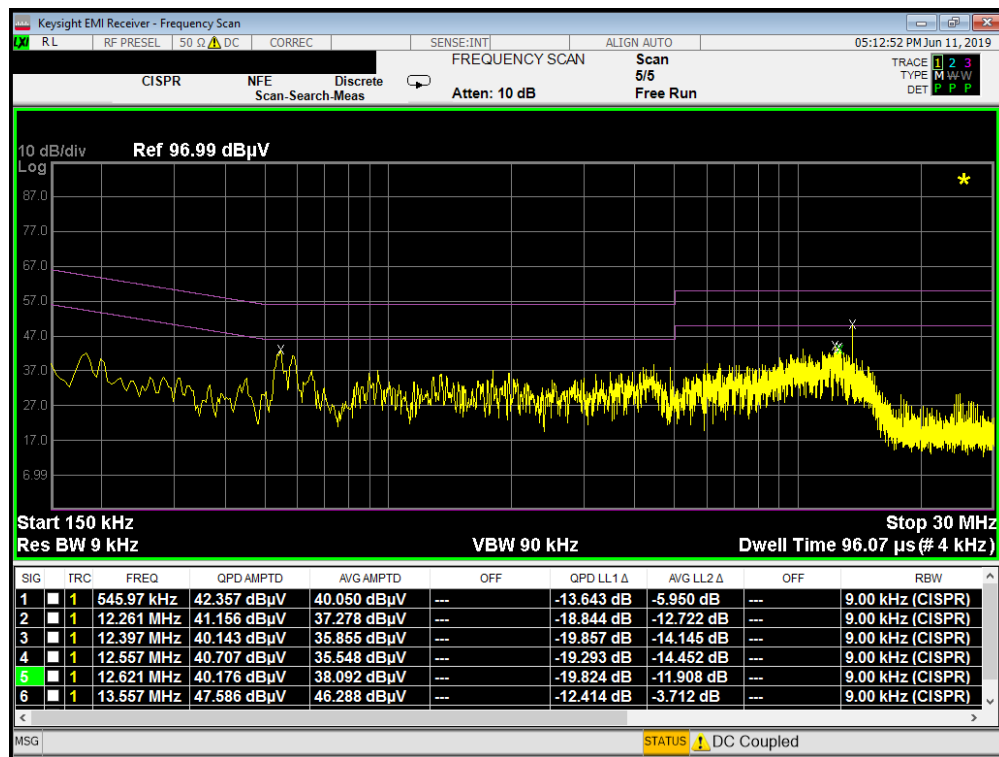


Plot 7-361. Line Conducted Plot with 802.11a UNII Band 1 (L1)

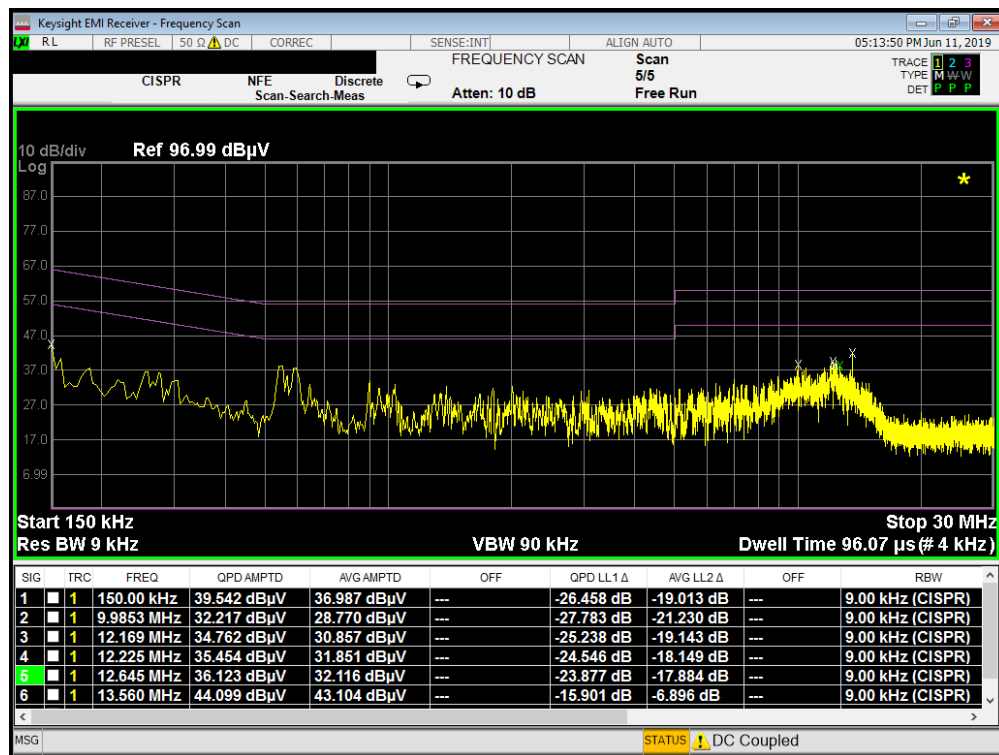


Plot 7-362. Line Conducted Plot with 802.11a UNII Band 1 (N)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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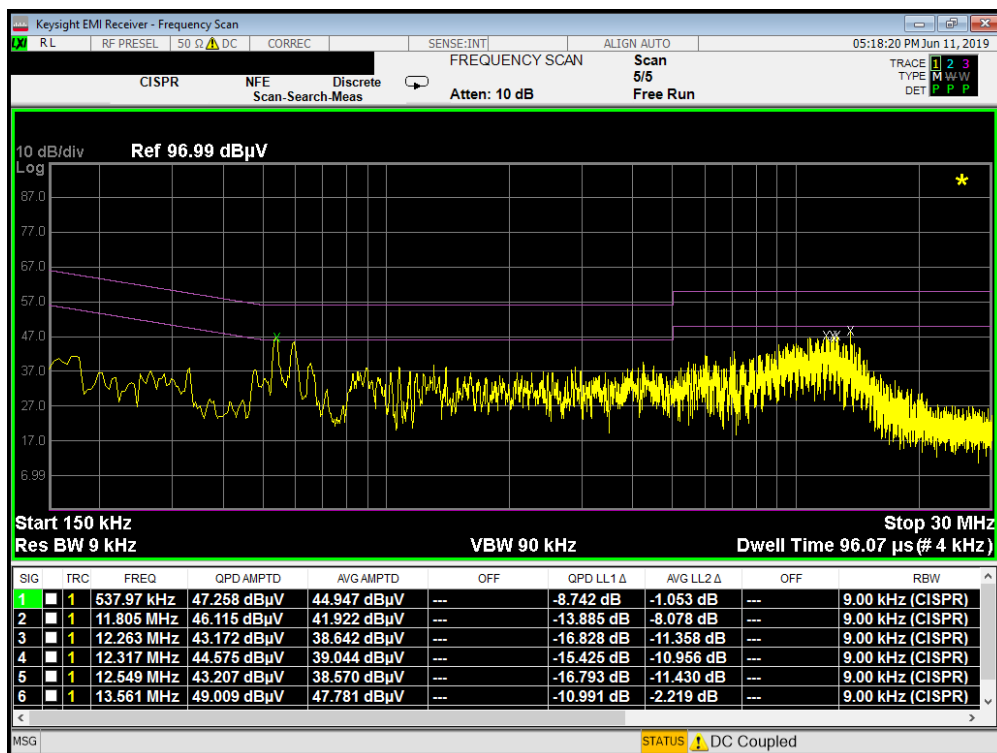


Plot 7-363. Line Conducted Plot with 802.11a UNII Band 1 with WCP (L1)

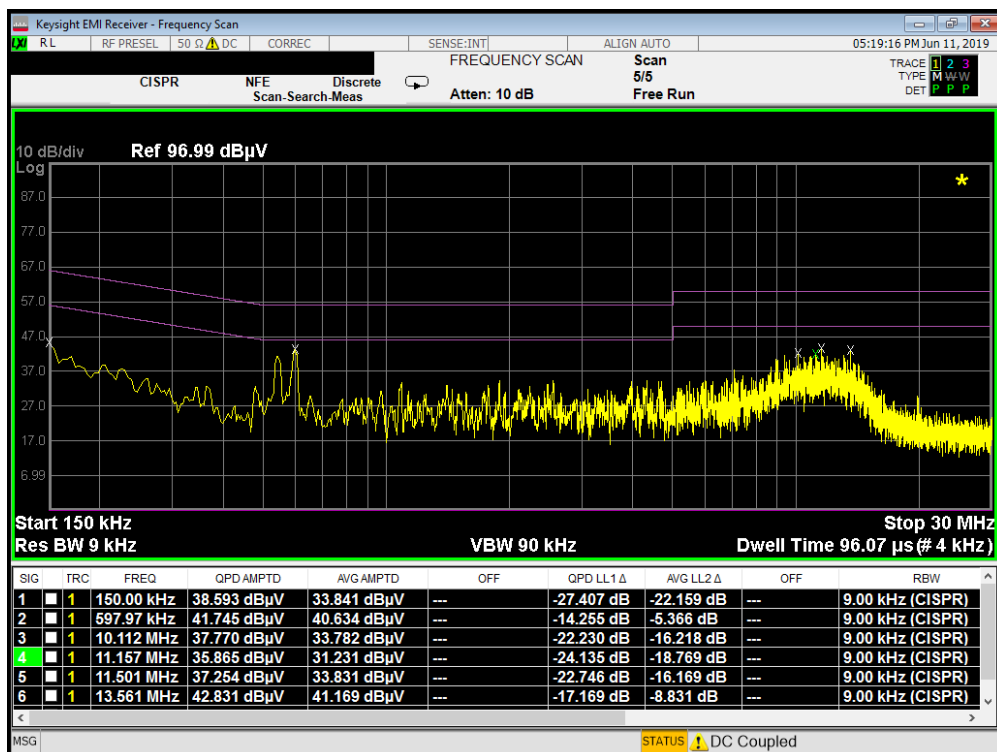


Plot 7-364. Line Conducted Plot with 802.11a UNII Band 1 with WCP (N)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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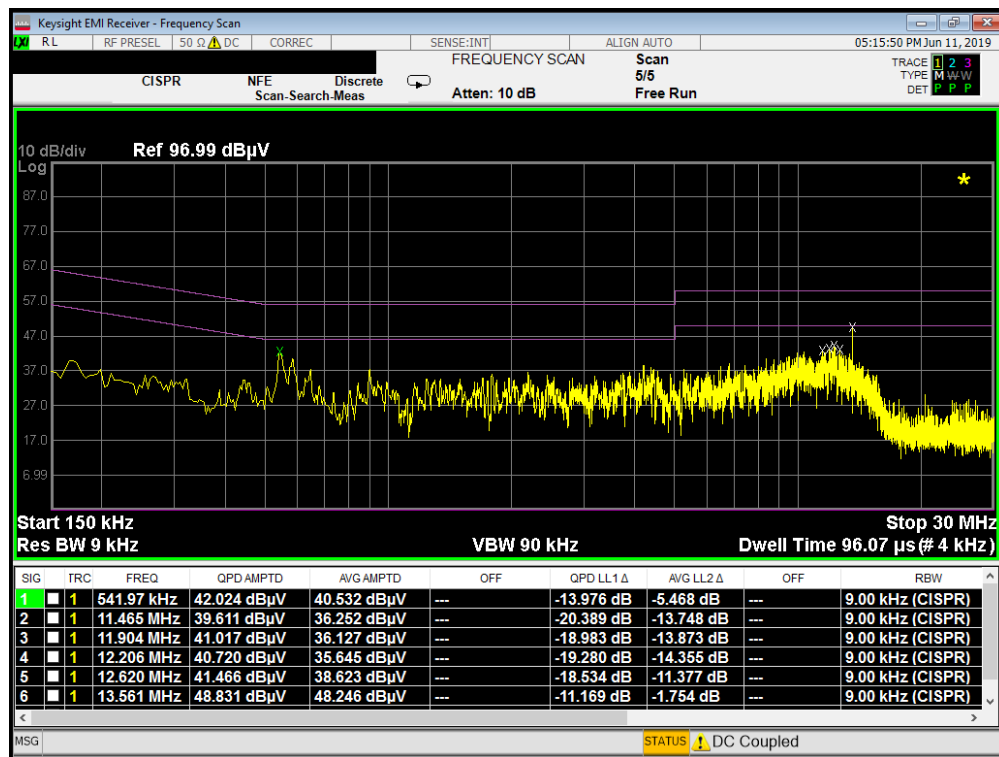


Plot 7-365. Line Conducted Plot with 802.11a UNII Band 2A (L1)

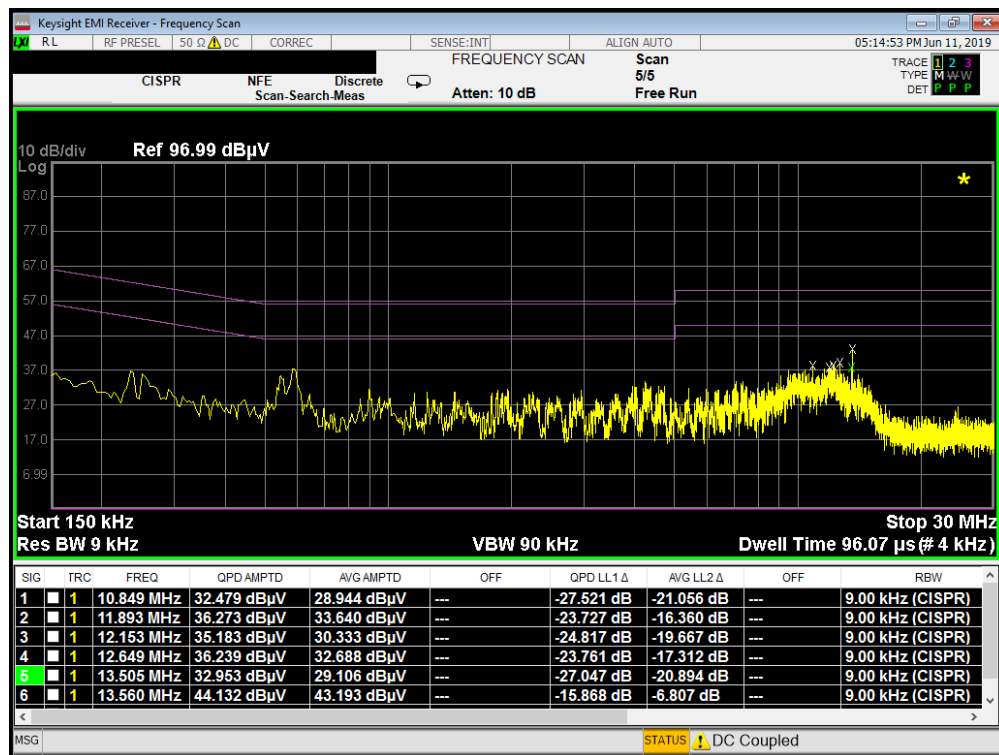


Plot 7-366. Line Conducted Plot with 802.11a UNII Band 2A (N)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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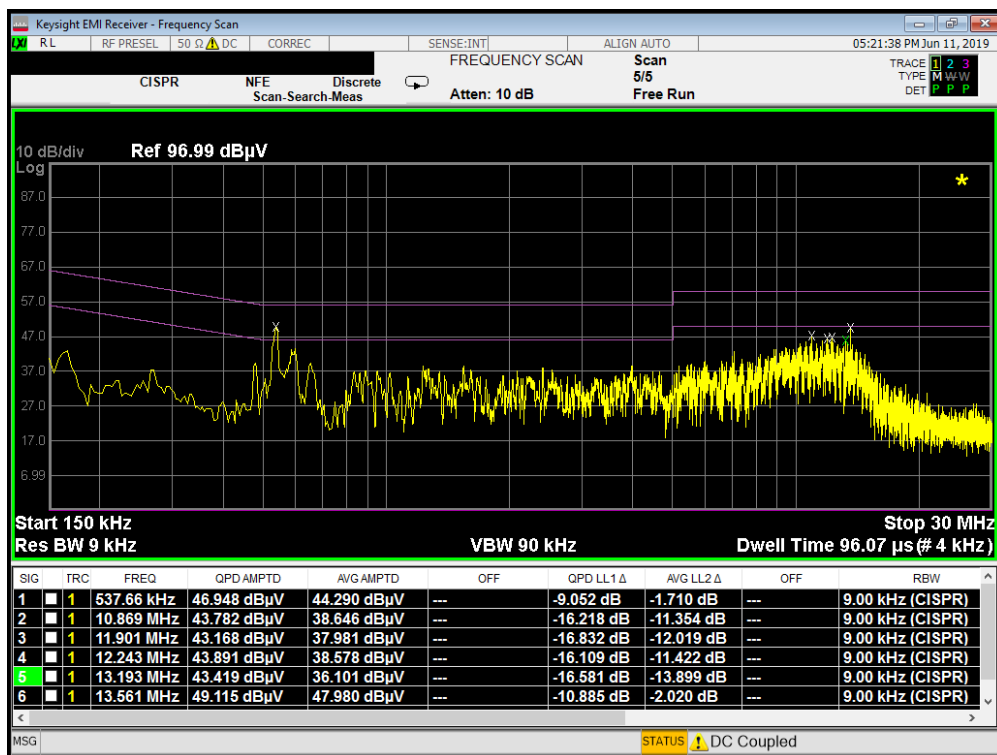


Plot 7-367. Line Conducted Plot with 802.11a UNII Band 2A with WCP (L1)

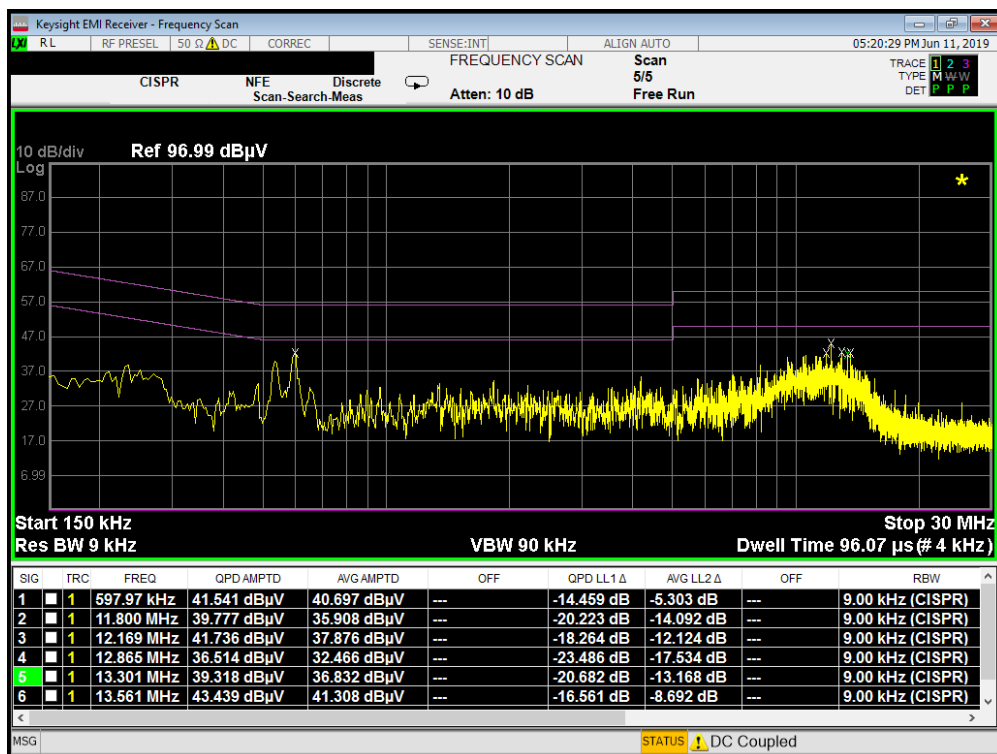


Plot 7-368. Line Conducted Plot with 802.11a UNII Band 2A with WCP (N)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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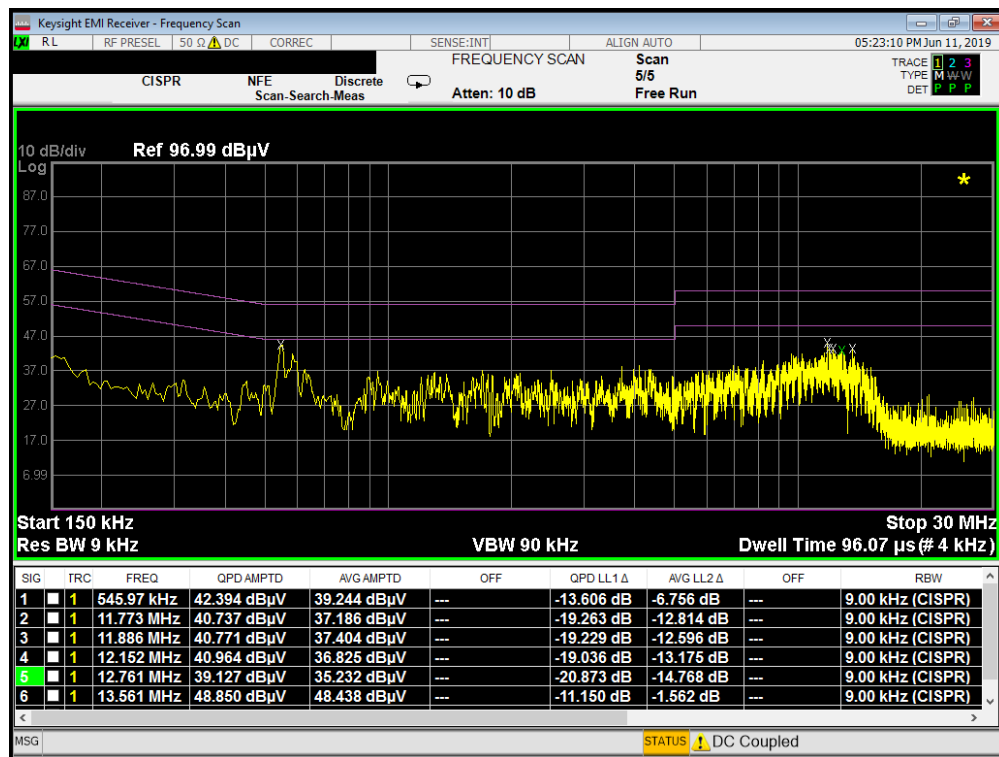


Plot 7-369. Line Conducted Plot with 802.11a UNII Band 2C (L1)

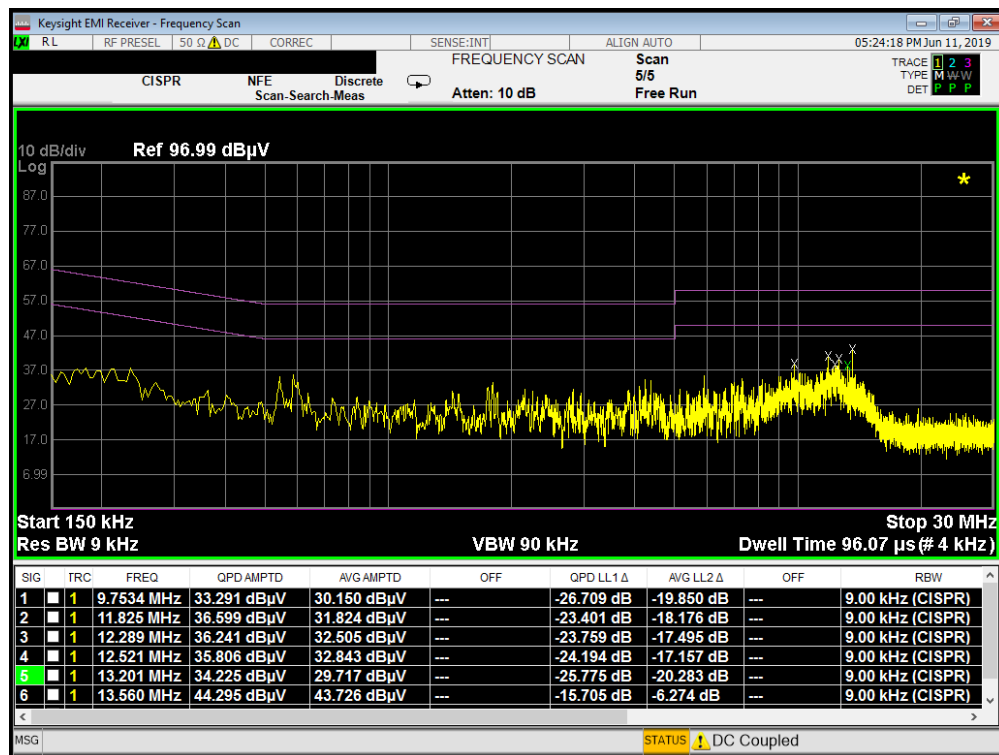


Plot 7-370. Line Conducted Plot with 802.11a UNII Band 2C (N)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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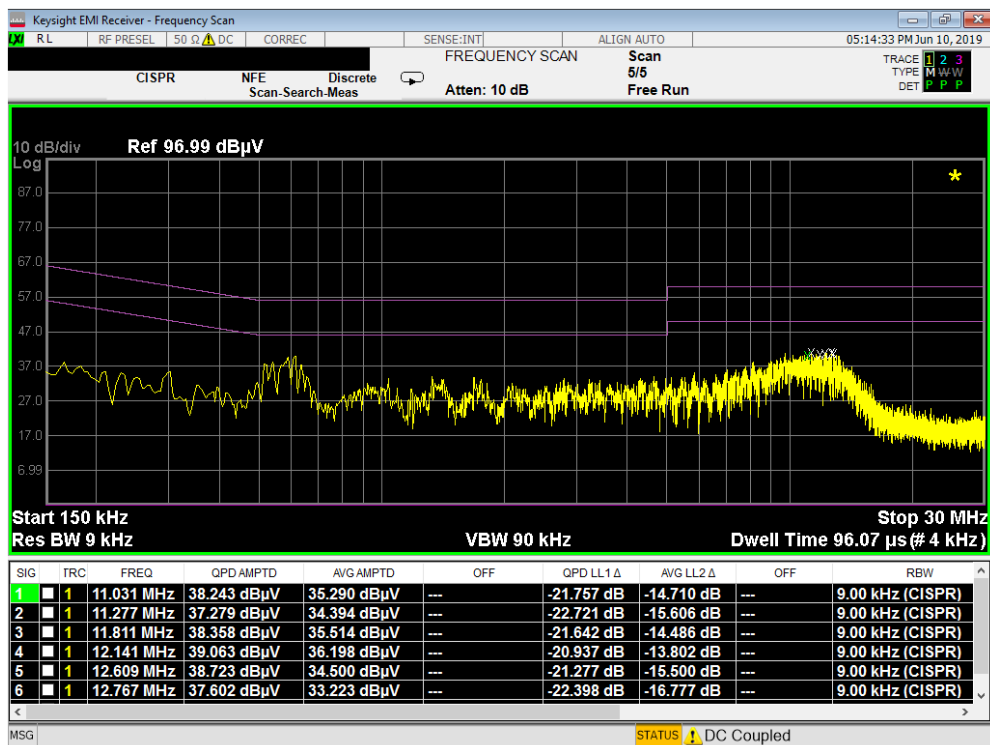


Plot 7-371. Line Conducted Plot with 802.11a UNII Band 2C with WCP (L1)

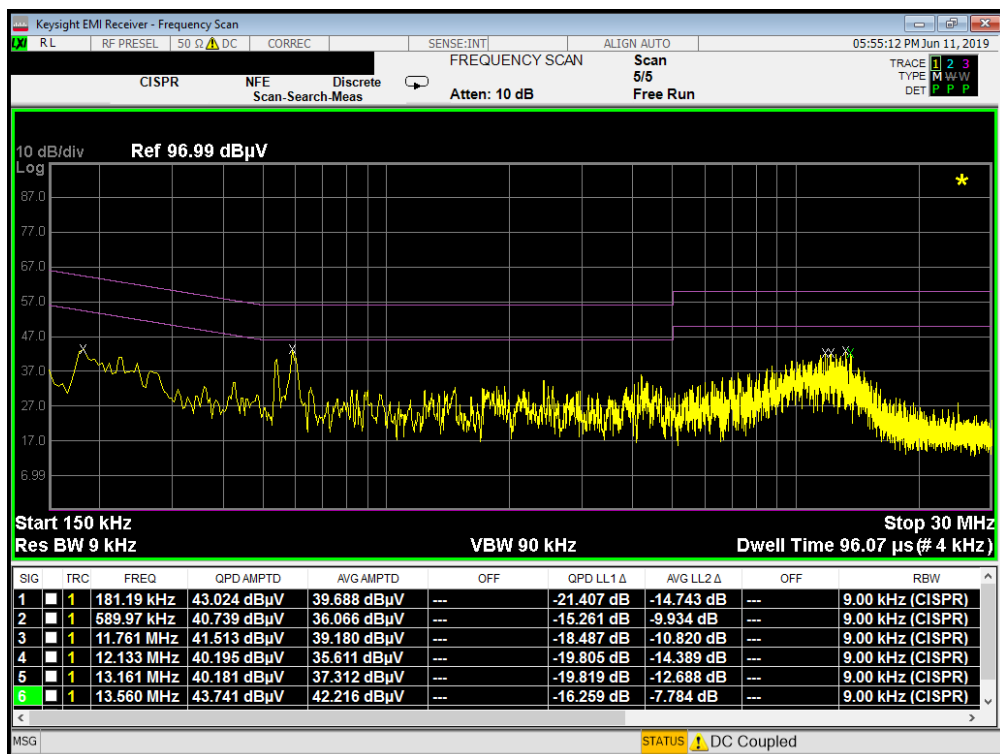


Plot 7-372. Line Conducted Plot with 802.11a UNII Band 2C with WCP (N)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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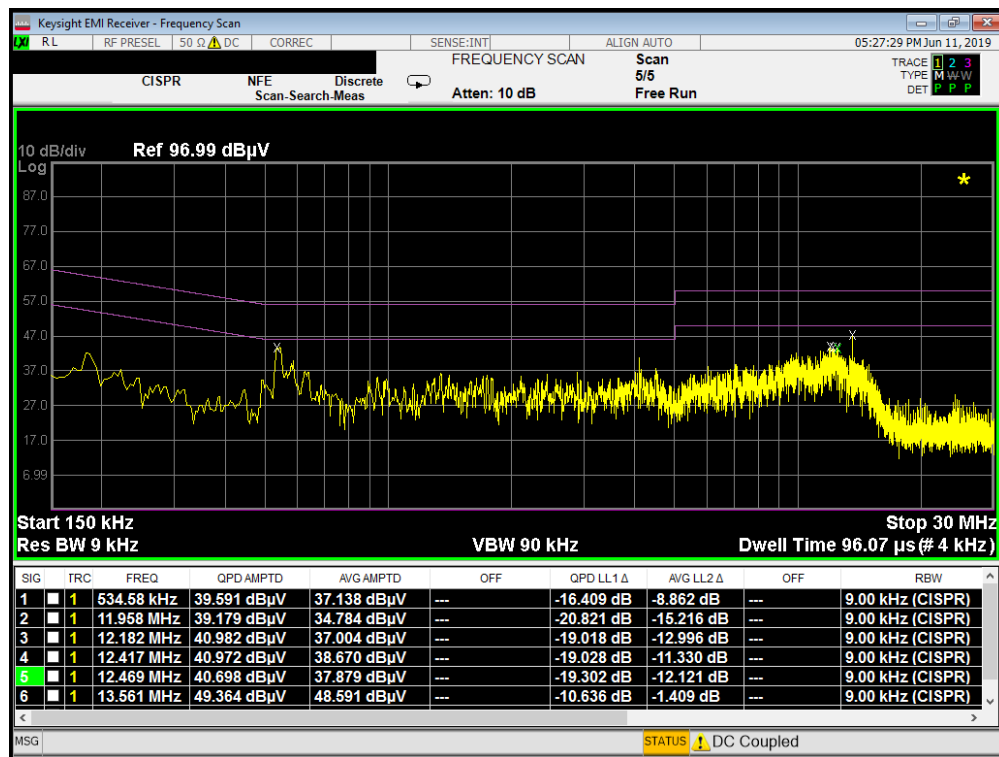


Plot 7-373. Line Conducted Plot with 802.11a UNII Band 3 (L1)

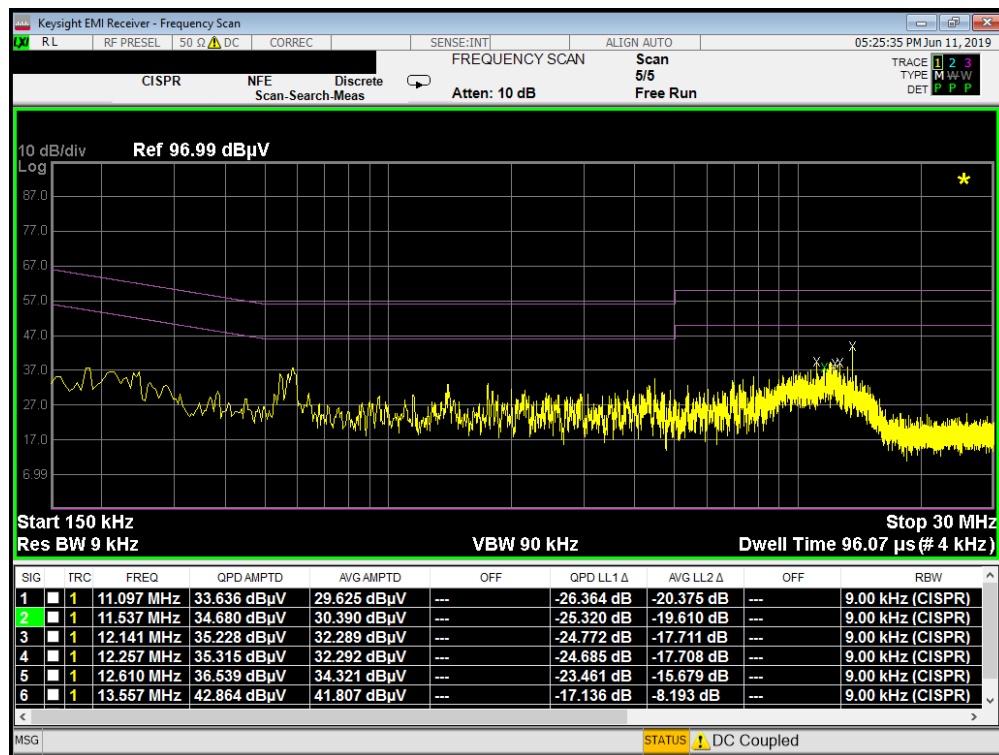


Plot 7-374. Line Conducted Plot with 802.11a UNII Band 3 (N)

FCC ID: A3LSMN970U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-375. Line Conducted Plot with 802.11a UNII Band 3 with WCP (L1)



Plot 7-376. Line Conducted Plot with 802.11a UNII Band 3 with WCP (N)

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8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN970U** is in compliance with Part 15 Subpart E (15.407) of the FCC Rules and RSS-247 of the Innovation, Science and Economic Development Canada Rules.

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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