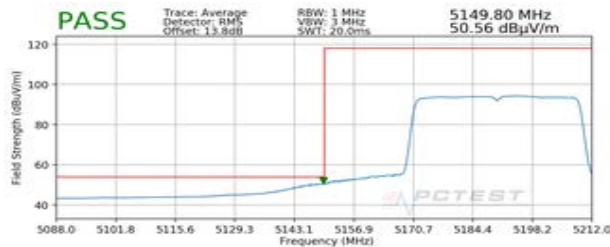


## 7.6.8 SISO Antenna-2 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

### 484 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38

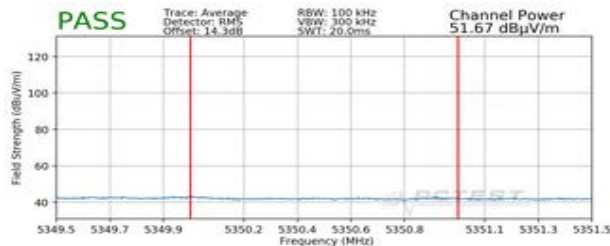


**Plot 7-403. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1 – 484 Tones)**

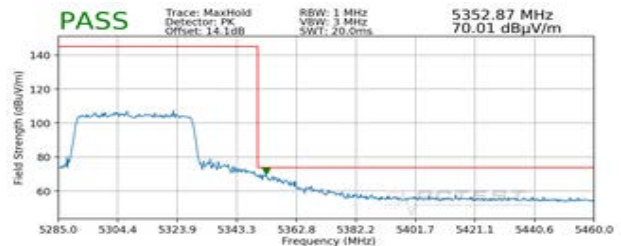


**Plot 7-404. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 1 – 484 Tones)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



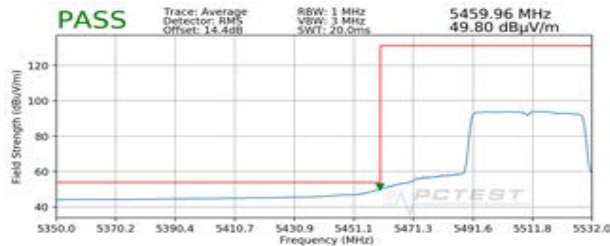
**Plot 7-405. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A – 484 Tones)**



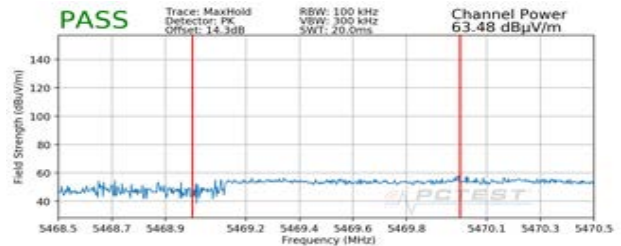
**Plot 7-406. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A – 484 Tones)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 293 of 307

Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
RU Index: 65  
Distance of Measurements: 3 Meters  
Operating Frequency: 5510MHz  
Channel: 102

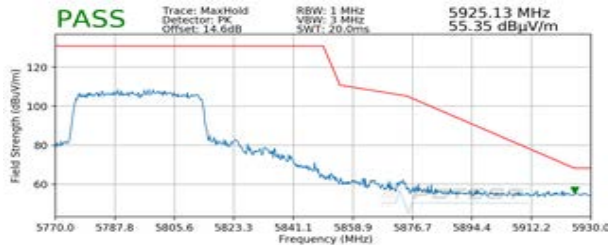


**Plot 7-407. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C – 484 Tones)**



**Plot 7-408. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C – 484 Tones)**

Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
RU Index: 65  
Distance of Measurements: 3 Meters  
Operating Frequency: 5795MHz  
Channel: 159



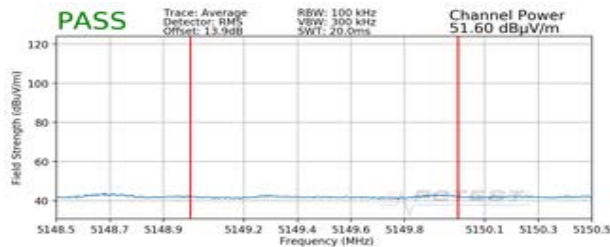
**Plot 7-409. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3 – 484 Tones)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 294 of 307

## 7.6.9 SISO Antenna-2 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

### 996 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42

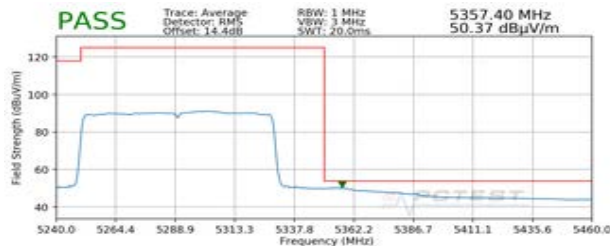


**Plot 7-410. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1 – 996 Tones)**



**Plot 7-411. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 1 – 996 Tones)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



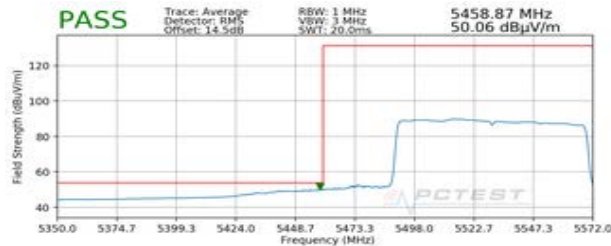
**Plot 7-412. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A – 996 Tones)**



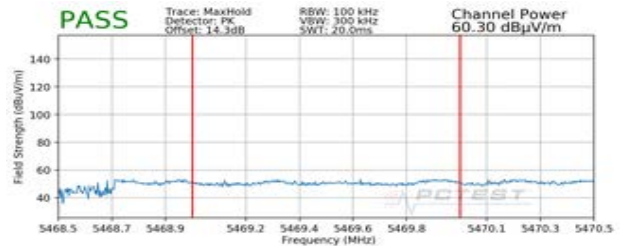
**Plot 7-413. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A – 996 Tones)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 295 of 307

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5530MHz
Channel:	106

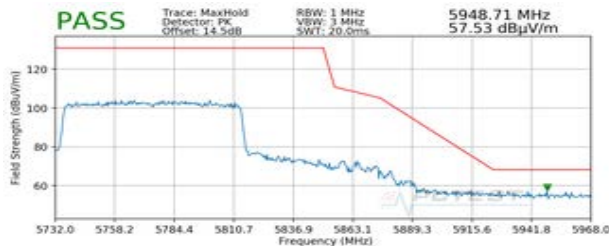


**Plot 7-414. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C – 996 Tones)**



**Plot 7-415. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C – 996 Tones)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5775MHz
Channel:	155



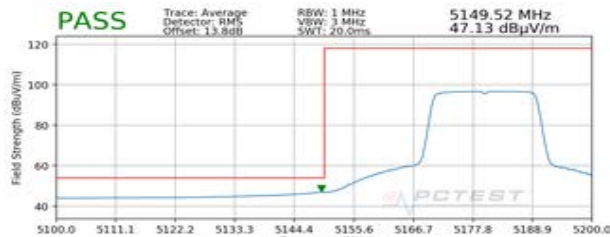
**Plot 7-416. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3 – 996 Tones)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 296 of 307

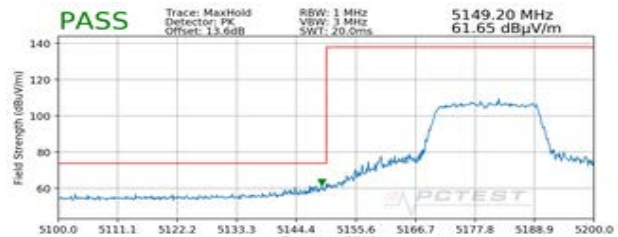
## 7.6.10 MIMO Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

### 242 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36

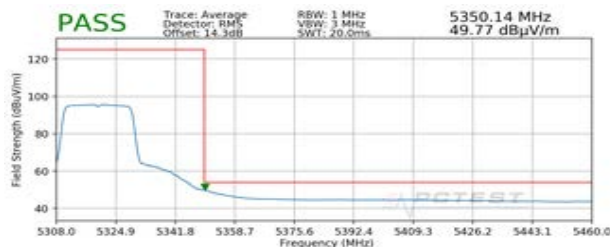


**Plot 7-417. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1 – 242 Tones)**

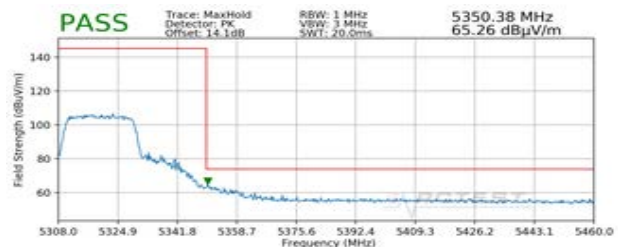


**Plot 7-418. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1 – 242 Tones)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



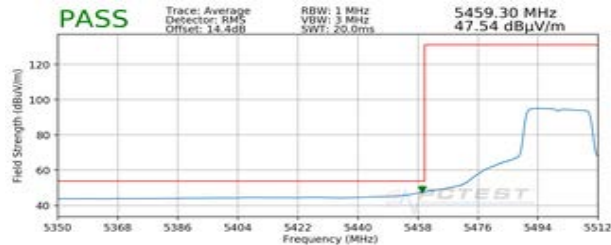
**Plot 7-419. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A – 242 Tones)**



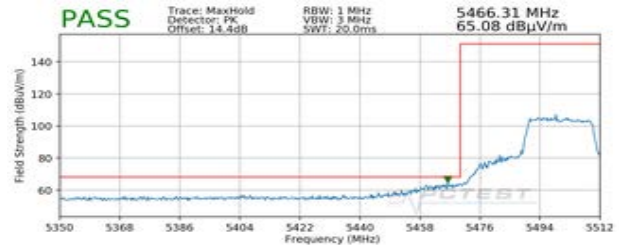
**Plot 7-420. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A – 242 Tones)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 297 of 307

Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
RU Index: 61  
Distance of Measurements: 3 Meters  
Operating Frequency: 5500MHz  
Channel: 100

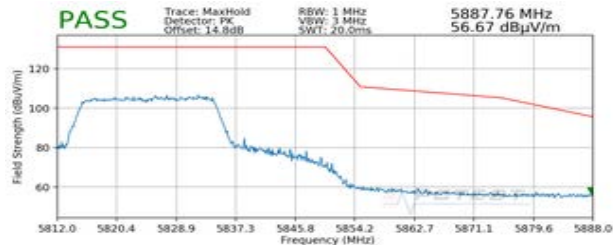


**Plot 7-421. Radiated Lower Band Edge Plot MIMO  
(Average – UNII Band 2C – 242 Tones)**



**Plot 7-422. Radiated Lower Band Edge Plot MIMO  
(Peak – UNII Band 2C – 242 Tones)**

Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
RU Index: 61  
Distance of Measurements: 3 Meters  
Operating Frequency: 5825MHz  
Channel: 165



**Plot 7-423. Radiated Upper Band Edge Plot MIMO  
(Peak – UNII Band 3 – 242 Tones)**

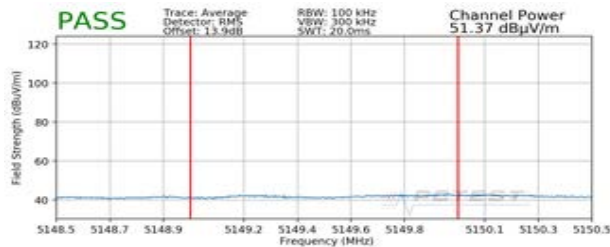
FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 298 of 307



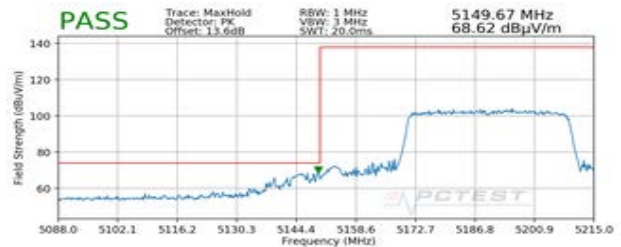
## 7.6.11 MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

### 484 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38

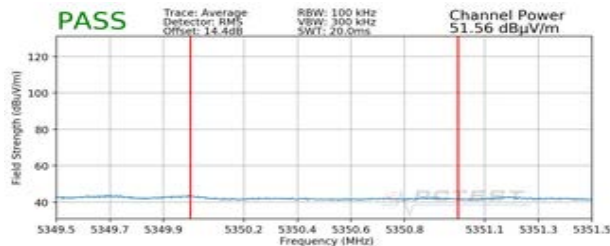


**Plot 7-424. Radiated Lower Band Edge Plot MIMO  
(Average – UNII Band 1 – 484 Tones)**

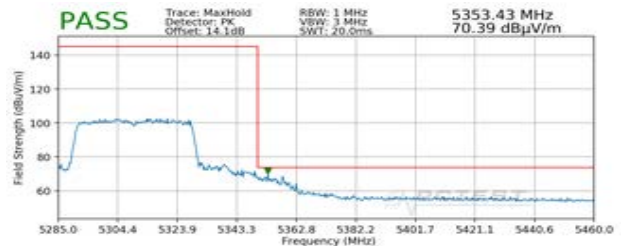


**Plot 7-425. Radiated Lower Band Edge Plot MIMO  
(Peak – UNII Band 1 – 484 Tones)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



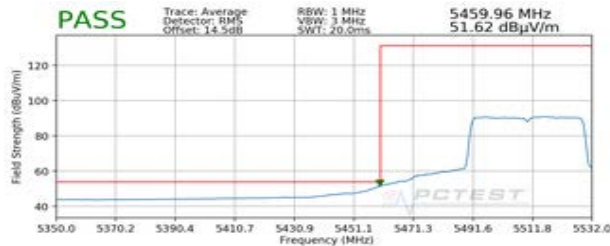
**Plot 7-426. Radiated Upper Band Edge Plot MIMO  
(Average – UNII Band 2A – 484 Tones)**



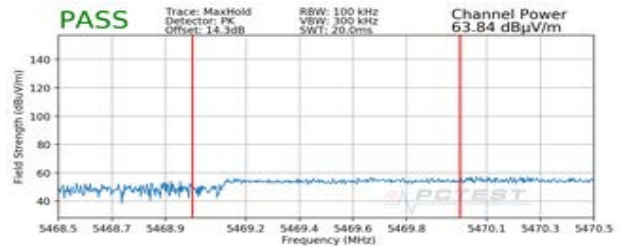
**Plot 7-427. Radiated Upper Band Edge Plot MIMO  
(Peak – UNII Band 2A – 484 Tones)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 299 of 307

Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
RU Index: 65  
Distance of Measurements: 3 Meters  
Operating Frequency: 5510MHz  
Channel: 102

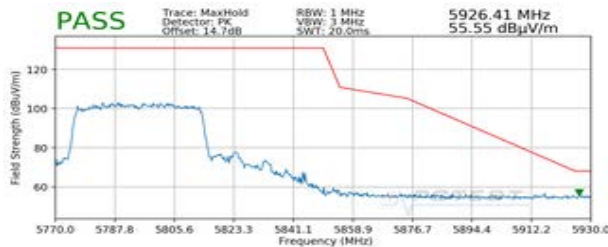


**Plot 7-428. Radiated Lower Band Edge Plot MIMO  
(Average – UNII Band 2C – 484 Tones)**



**Plot 7-429. Radiated Lower Band Edge Plot MIMO  
(Peak – UNII Band 2C – 484 Tones)**

Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
RU Index: 65  
Distance of Measurements: 3 Meters  
Operating Frequency: 5795MHz  
Channel: 159



**Plot 7-430. Radiated Upper Band Edge Plot MIMO  
(Peak – UNII Band 3 – 484 Tones)**

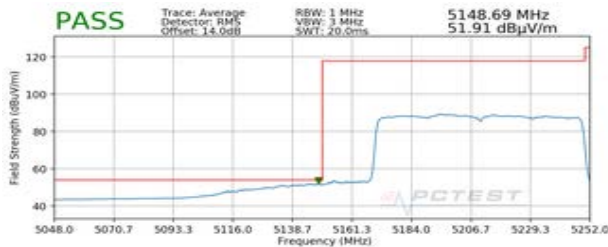
FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 300 of 307



## 7.6.12 MIMO Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

### 996 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42

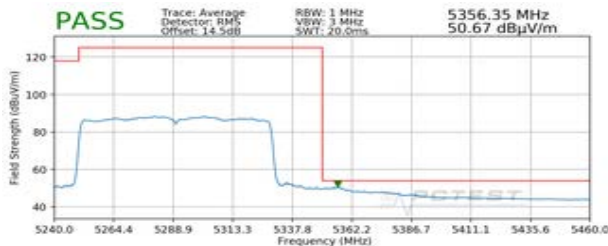


**Plot 7-431. Radiated Lower Band Edge Plot MIMO  
(Average – UNII Band 1 – 996 Tones)**

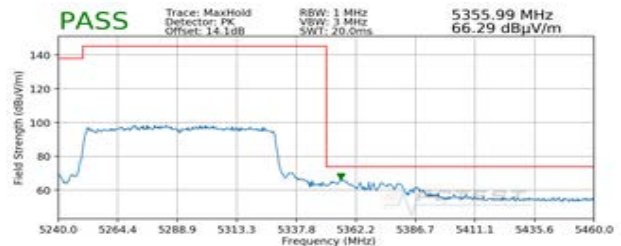


**Plot 7-432. Radiated Lower Band Edge Plot MIMO  
(Peak – UNII Band 1 – 996 Tones)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



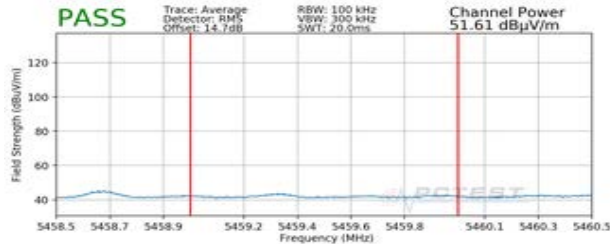
**Plot 7-433. Radiated Upper Band Edge Plot MIMO  
(Average – UNII Band 2A – 996 Tones)**



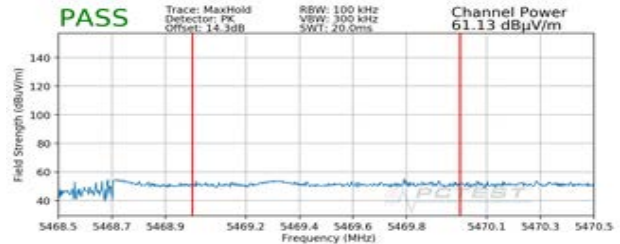
**Plot 7-434. Radiated Upper Band Edge Plot MIMO  
(Peak – UNII Band 2A – 996 Tones)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 301 of 307

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5530MHz
Channel:	106

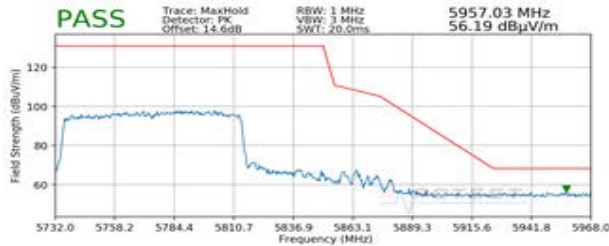


**Plot 7-435. Radiated Lower Band Edge Plot MIMO  
(Average – UNII Band 2C – 996 Tones)**



**Plot 7-436. Radiated Lower Band Edge Plot MIMO  
(Peak – UNII Band 2C – 996 Tones)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5775MHz
Channel:	155



**Plot 7-437. Radiated Upper Band Edge Plot MIMO  
(Peak – UNII Band 3 – 996 Tones)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 302 of 307

## 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 7-140 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 7-140. Radiated Limits**

### Test Procedures Used

ANSI C63.10-2013

### Test Settings

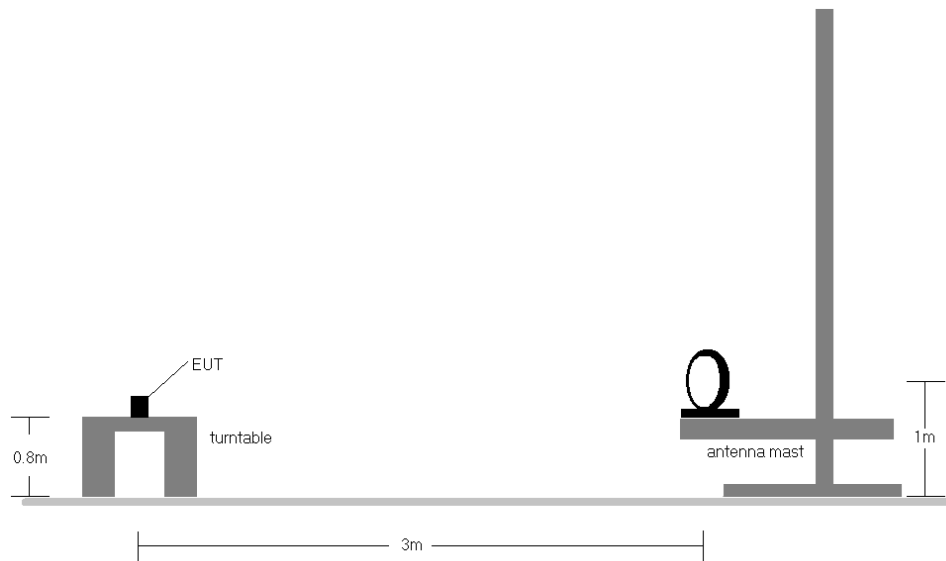
#### Quasi-Peak Field Strength Measurements

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

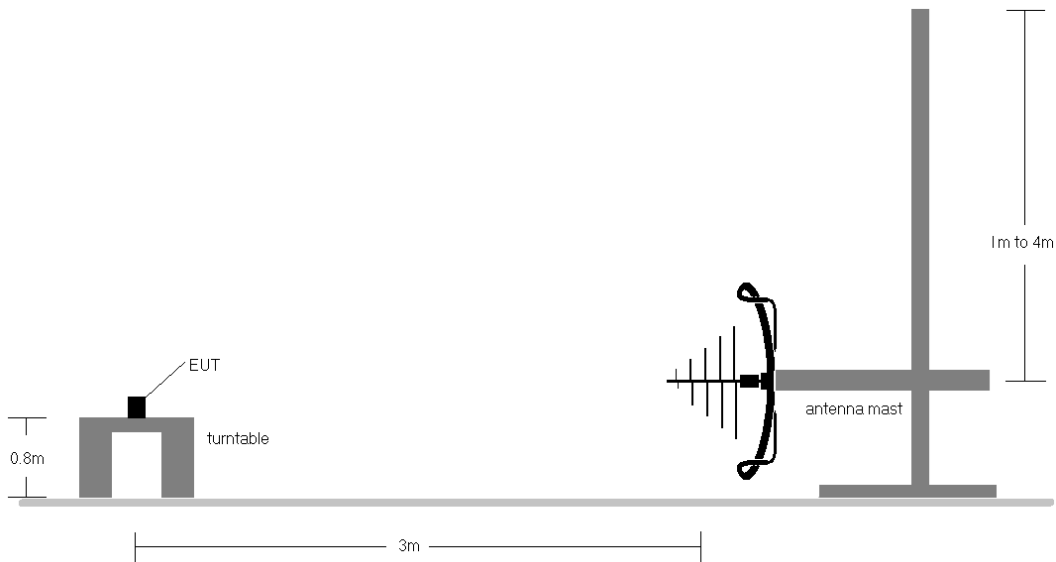
FCC ID: A3LSMG996U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2009140143-09.A3L	Test Dates: 09/15 - 12/01/2020	EUT Type: Portable Handset		Page 303 of 307

## 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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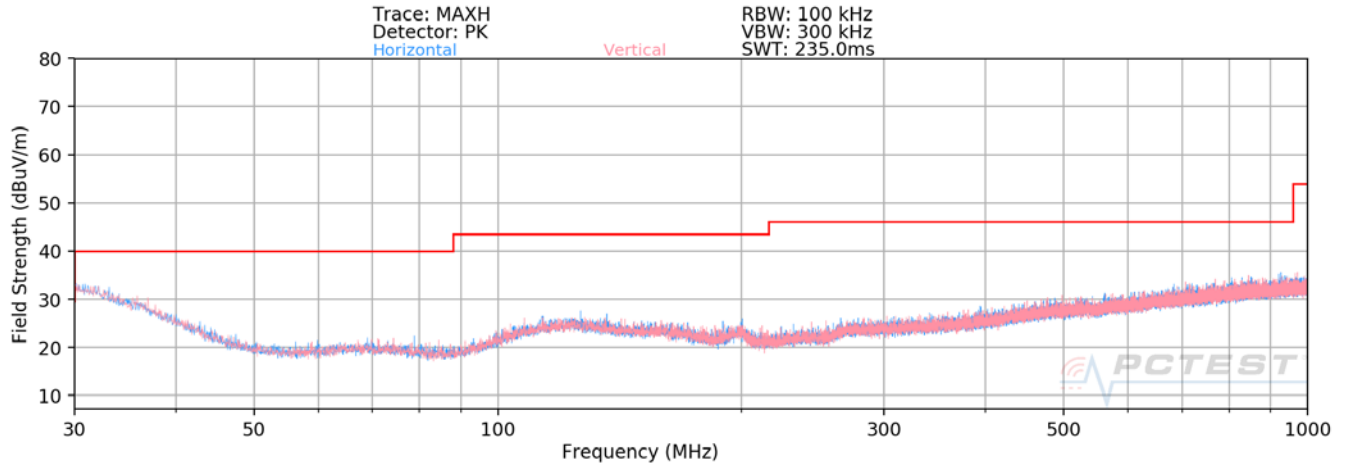
## Test Notes

1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen (8.10) are below the limit shown in Table 7-140.
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.

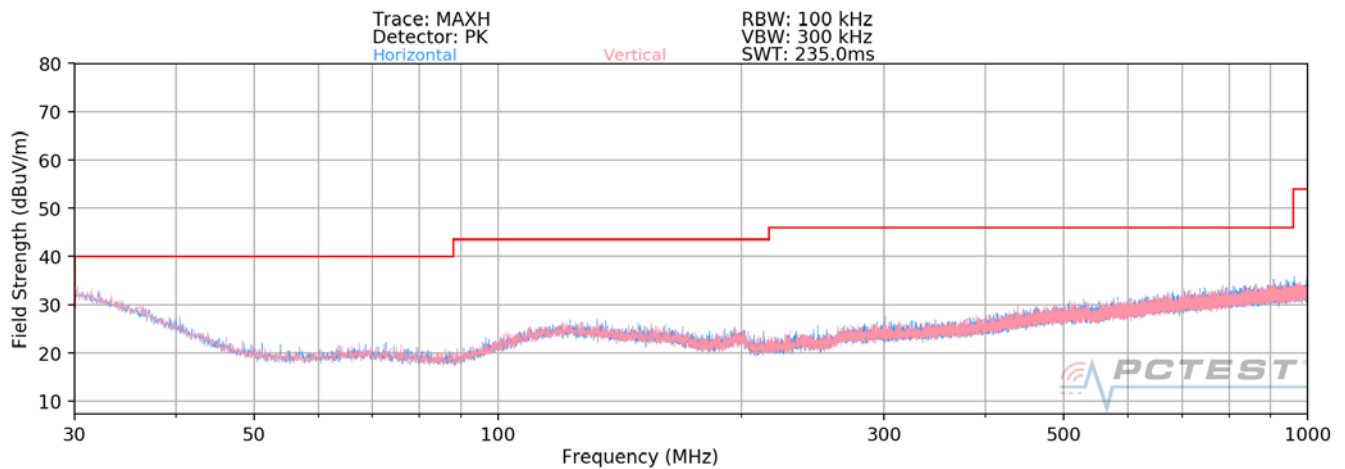
<b>FCC ID:</b> A3LSMG996U	 Proud to be part of 	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M2009140143-09.A3L	<b>Test Dates:</b> 09/15 - 12/01/2020	<b>EUT Type:</b> Portable Handset		Page 305 of 307

## MIMO Radiated Spurious Emissions Measurements (Below 1GHz)

**§15.209; RSS-Gen [8.9]**



**Plot 7-438. Radiated Spurious Plot below 1GHz MIMO (802.11ax – 26 Tones – U3 Ch. 157)**



**Plot 7-439. Radiated Spurious Plot below 1GHz MIMO (802.11ax – 242 Tones – U3 Ch. 157)**

FCC ID: A3LSMG996U	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
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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: A3LSMG996U** 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.

<b>FCC ID:</b> A3LSMG996U		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M2009140143-09.A3L	<b>Test Dates:</b> 09/15 - 12/01/2020	<b>EUT Type:</b> Portable Handset		Page 307 of 307