

7.5 Maximum Power Spectral Density – 802.11a/n/ac §15.407(a.1.iv) §15.407(a.2) §15.407(a.3)

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in KDB 789033 D02 v01r03, and at the appropriate frequencies. Method SA-1, as defined in KDB 789033 D02 v01r03, was used to measure the power spectral density.

In the 5.15 – 5.25GHz, 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

Test Procedure Used

KDB 789033 D02 v01r03 – Section F
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points $\geq 2 \times (\text{span}/\text{RBW})$
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

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

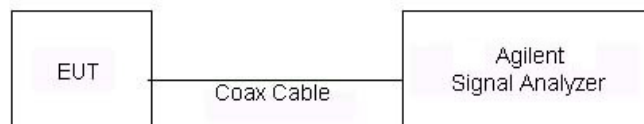


Figure 7-4. Test Instrument & Measurement Setup

Test Notes

None

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 67 of 195

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V 5.1

11/28/2016

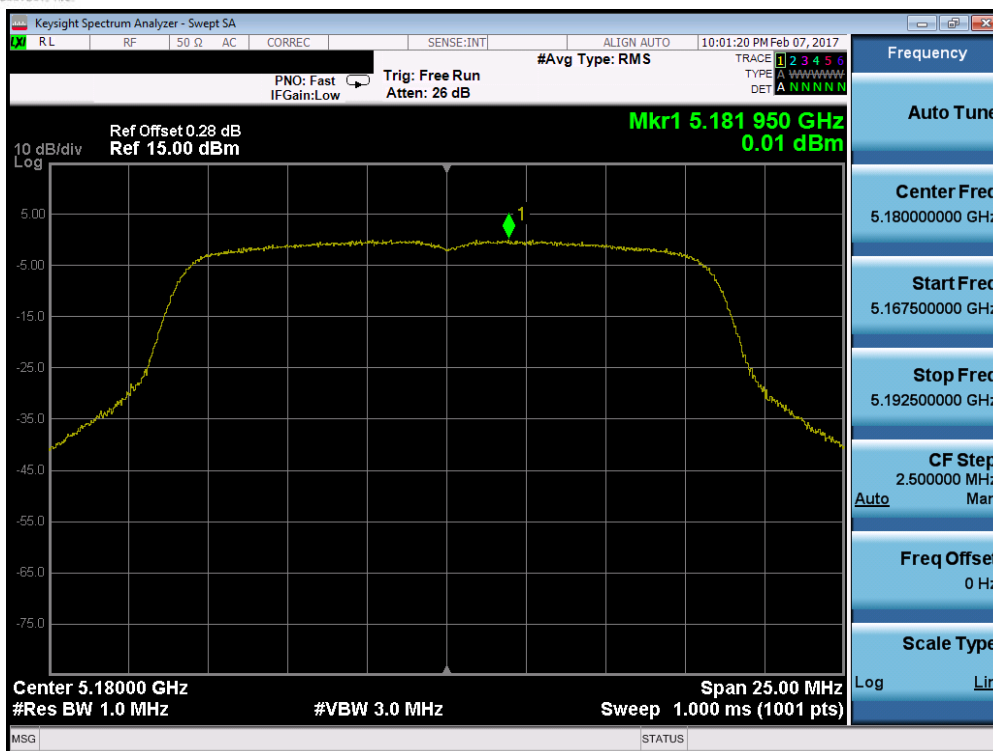
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Antenna-1 Power Spectral Density Measurements

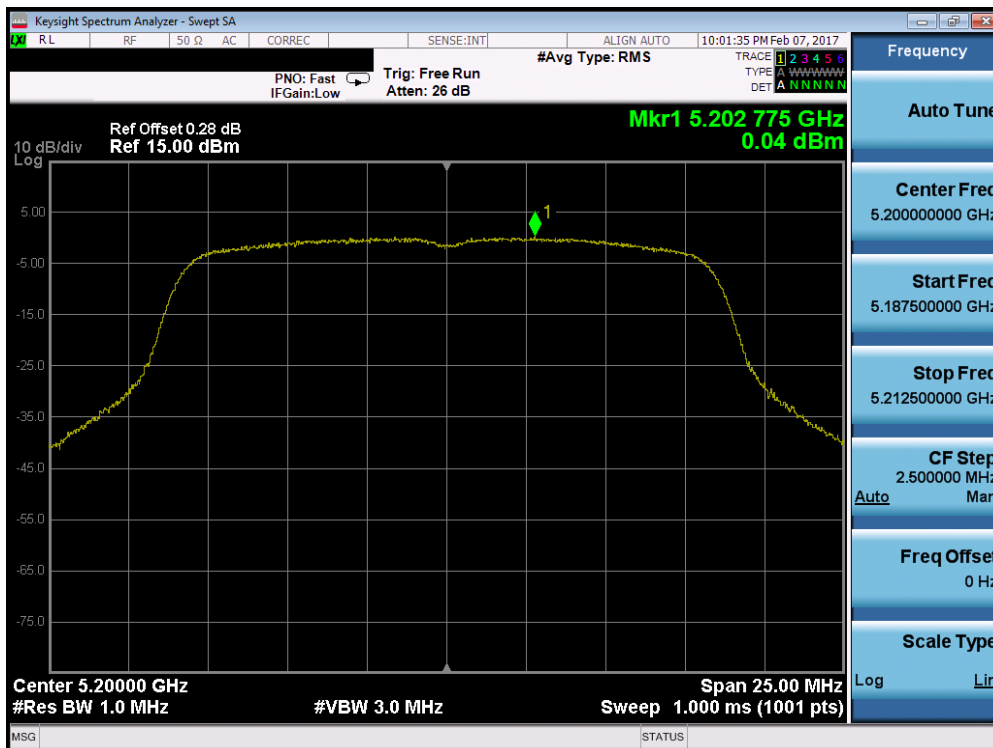
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	a	6	0.01	11.0	-10.99	Pass
	5200	40	a	6	0.04	11.0	-10.96	Pass
	5240	48	a	6	-0.02	11.0	-11.02	Pass
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	-0.50	11.0	-11.50	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	-0.29	11.0	-11.29	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	-0.25	11.0	-11.25	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	-2.82	11.0	-13.82	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	-2.08	11.0	-13.08	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-6.73	11.0	-17.73	Pass
Band 2A	5260	52	a	6	0.31	11.0	-10.69	Pass
	5280	56	a	6	0.36	11.0	-10.64	Pass
	5320	64	a	6	0.04	11.0	-10.96	Pass
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	-0.29	11.0	-11.29	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	0.03	11.0	-10.97	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	-0.34	11.0	-11.34	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	-2.67	11.0	-13.67	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	-2.86	11.0	-13.86	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-6.37	11.0	-17.37	Pass
Band 2C	5500	100	a	6	0.14	11.0	-10.86	Pass
	5600	120	a	6	0.63	11.0	-10.37	Pass
	5720	144	a	6	0.01	11.0	-11.00	Pass
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	-0.18	11.0	-11.18	Pass
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	-0.11	11.0	-11.11	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	-0.27	11.0	-11.27	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	-2.69	11.0	-13.69	Pass
	5590	118	n (40MHz)	13.5/15 (MCS0)	-2.69	11.0	-13.69	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	-2.72	11.0	-13.72	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-6.96	11.0	-17.96	Pass
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-6.65	11.0	-17.65	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-9.40	11.0	-20.40	Pass

Table 7-17. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements

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Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 68 of 195

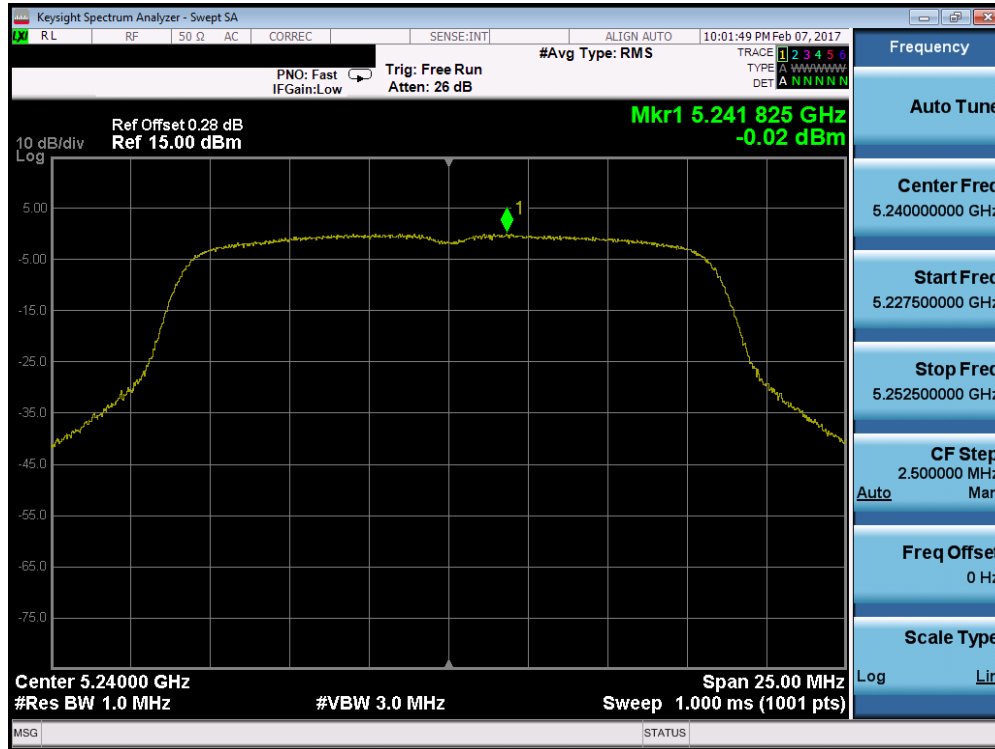


Plot 7-79. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

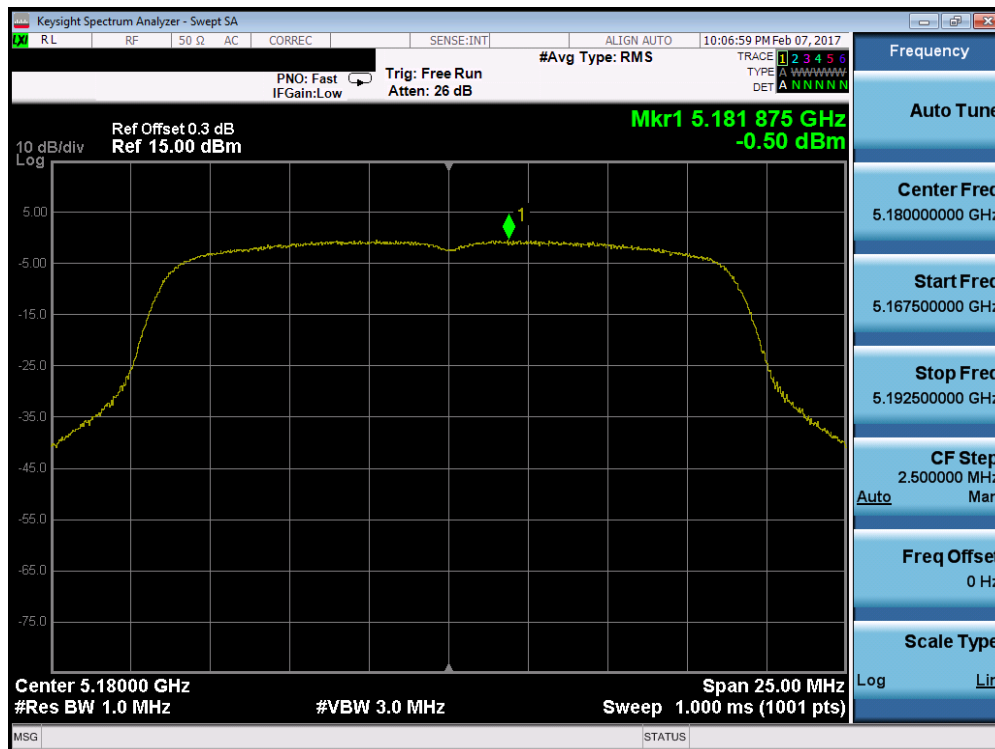


Plot 7-80. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 69 of 195

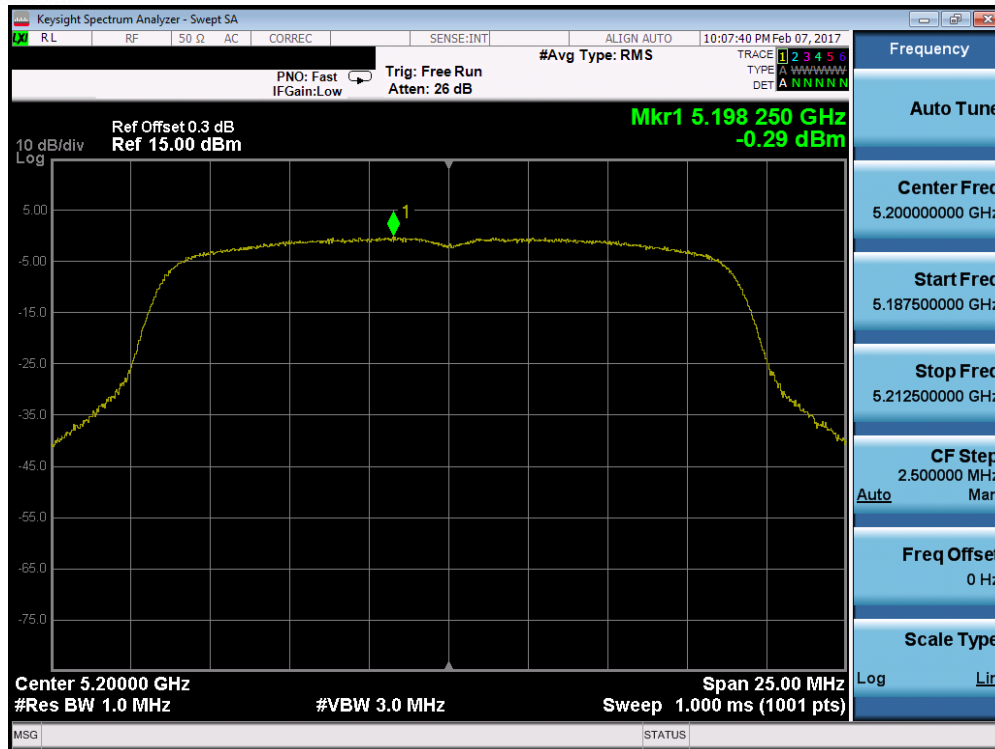


Plot 7-81. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

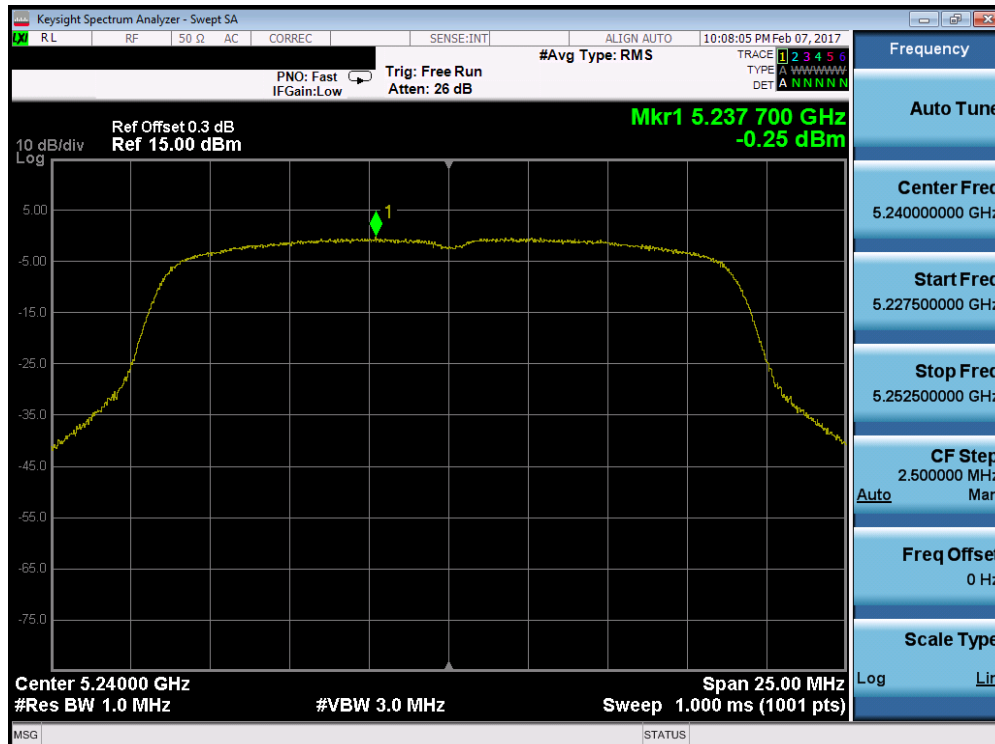


Plot 7-82. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 70 of 195

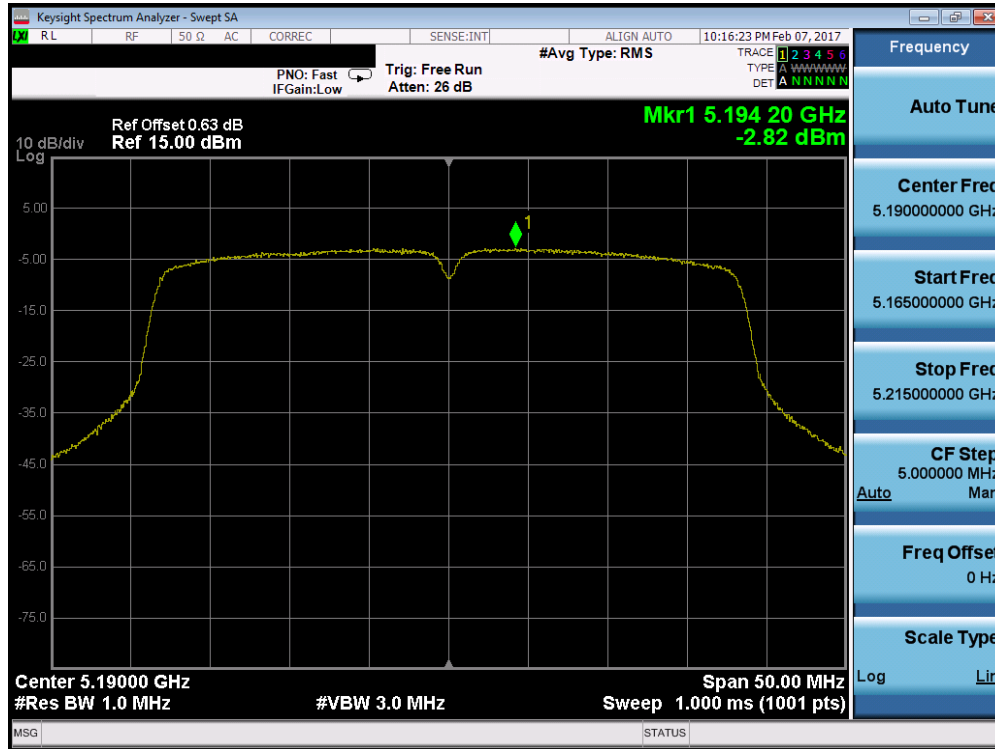


Plot 7-83. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

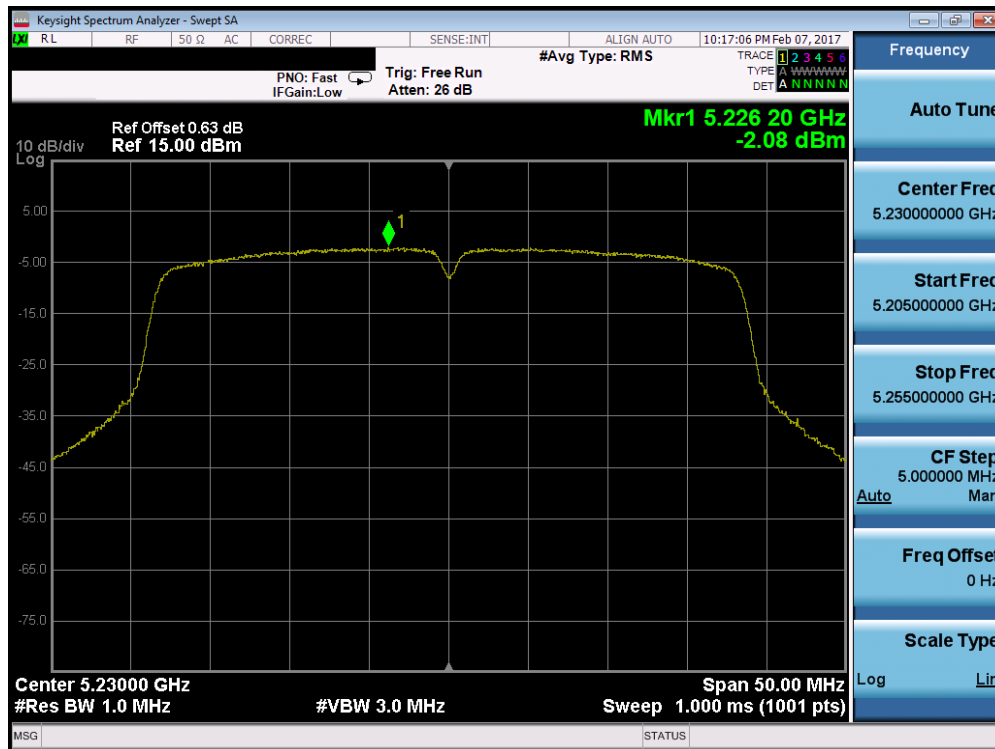


Plot 7-84. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-85. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

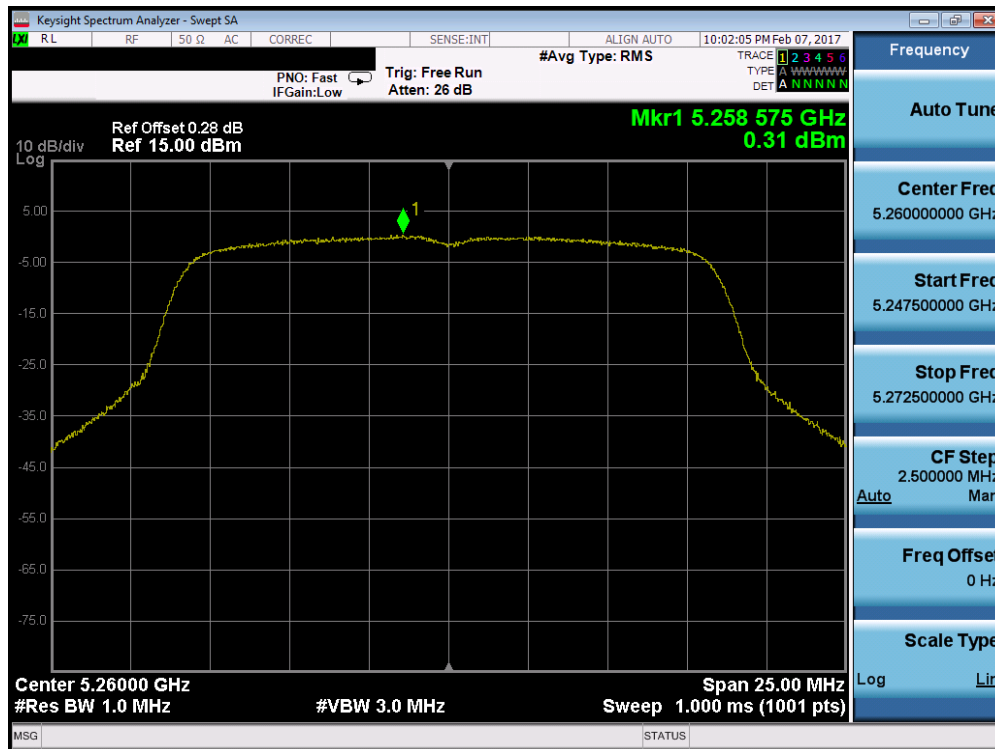


Plot 7-86. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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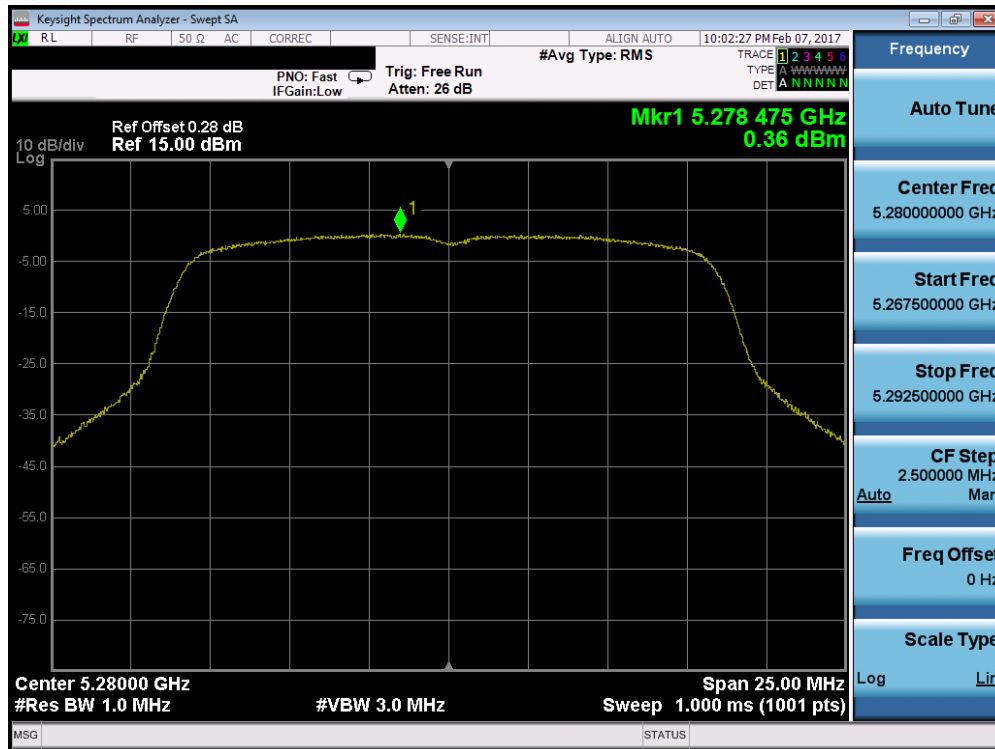


Plot 7-87. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

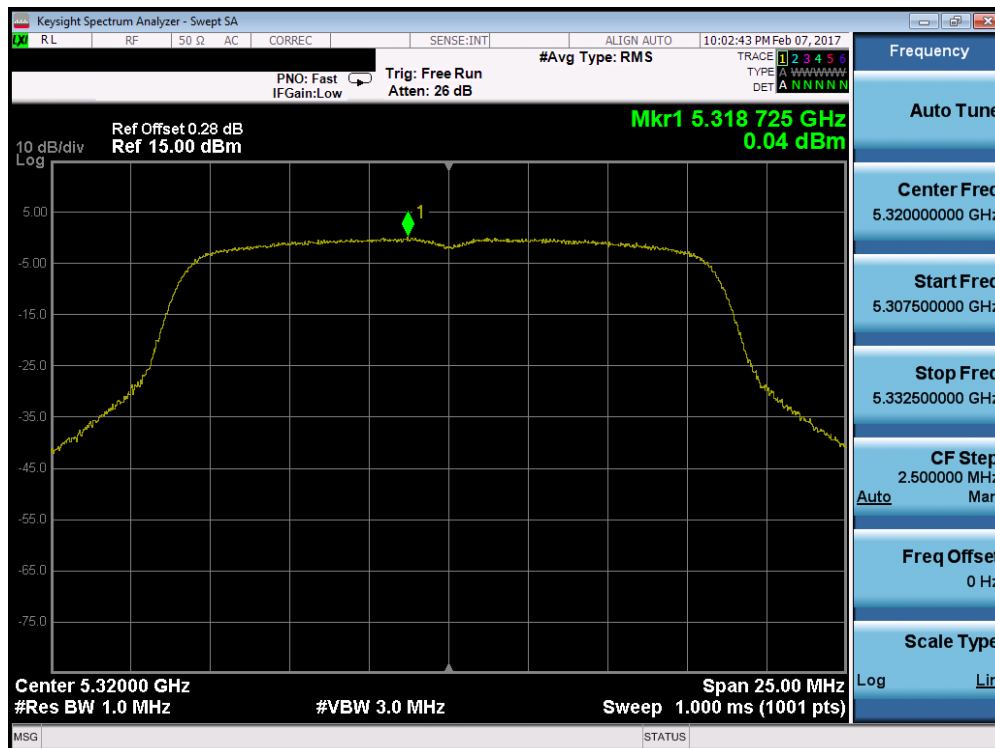


Plot 7-88. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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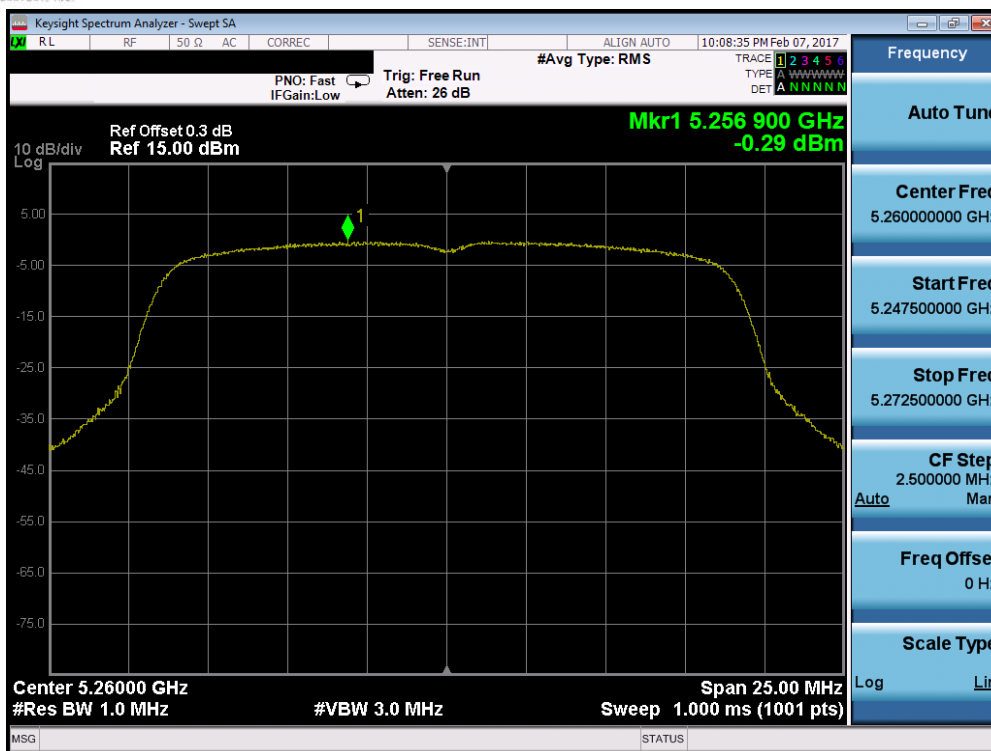


Plot 7-89. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

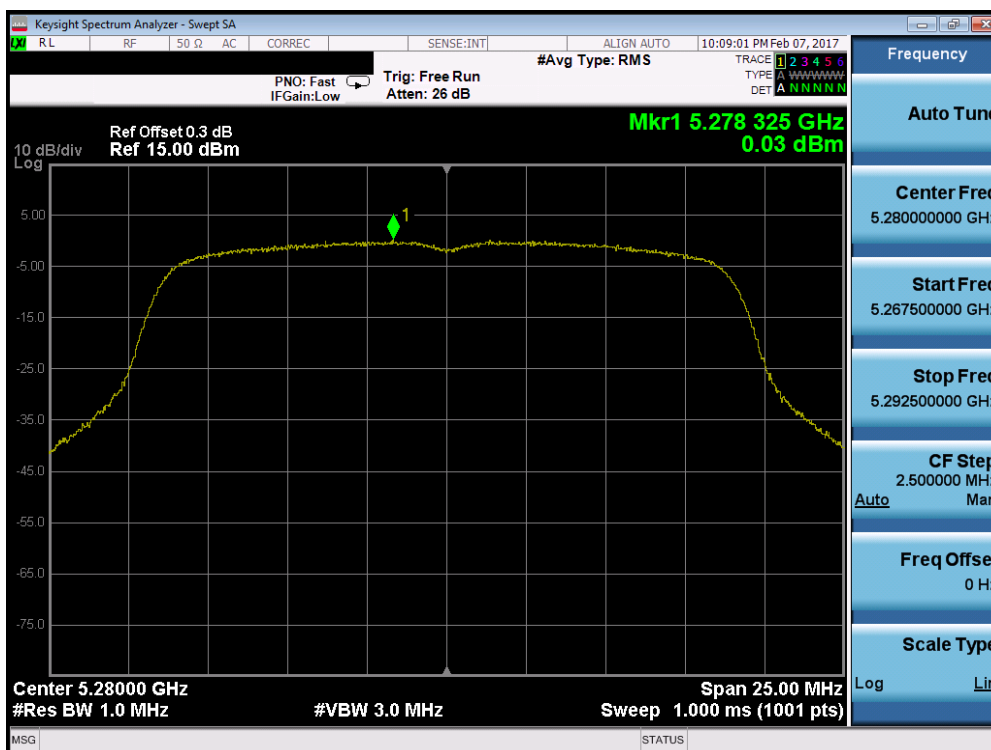


Plot 7-90. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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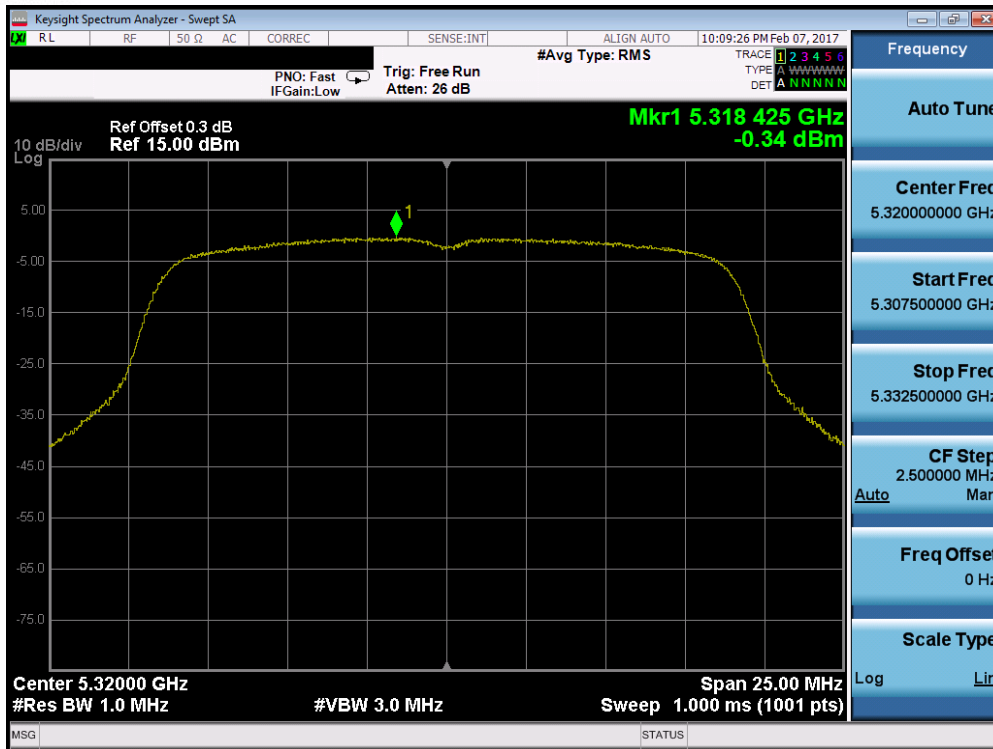


Plot 7-91. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

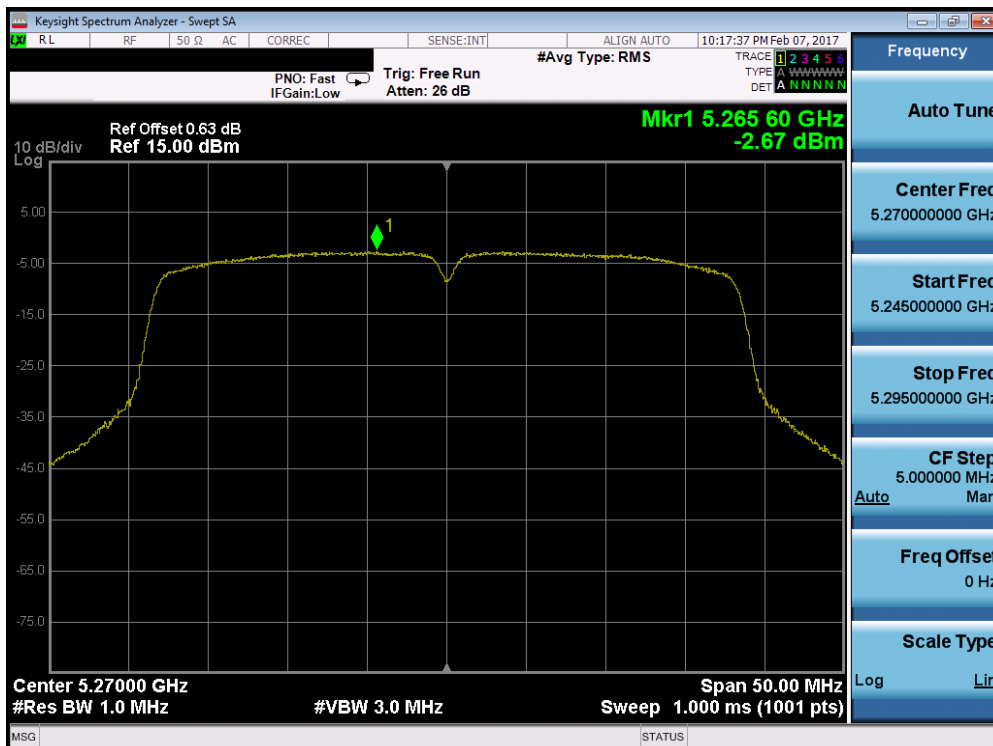


Plot 7-92. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 75 of 195

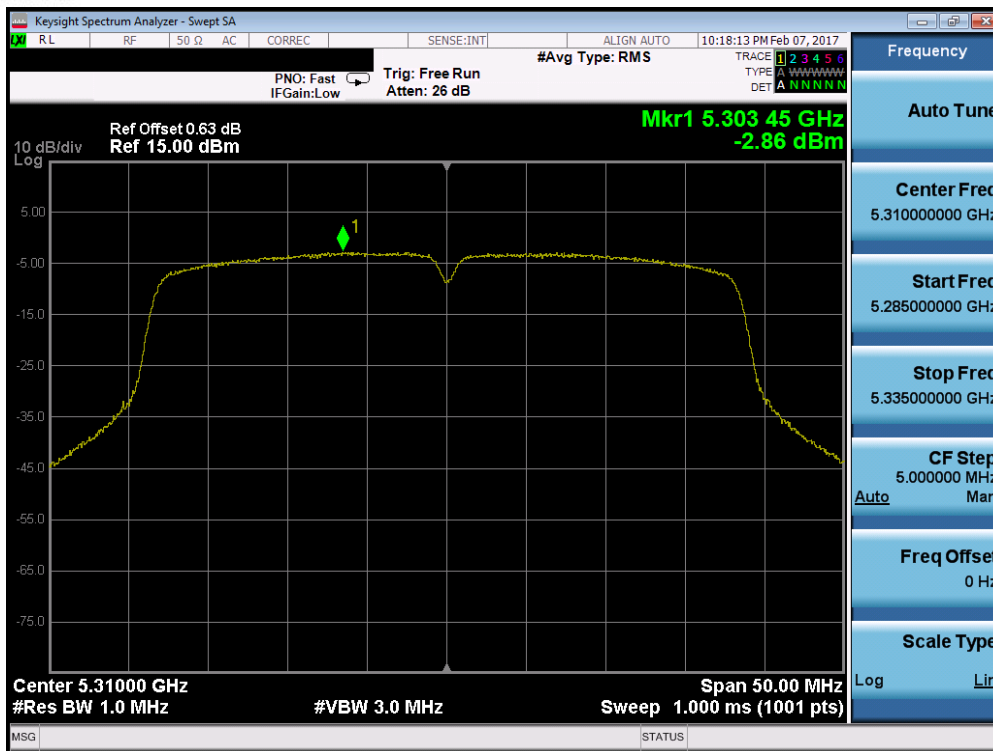


Plot 7-93. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)



Plot 7-94. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 76 of 195

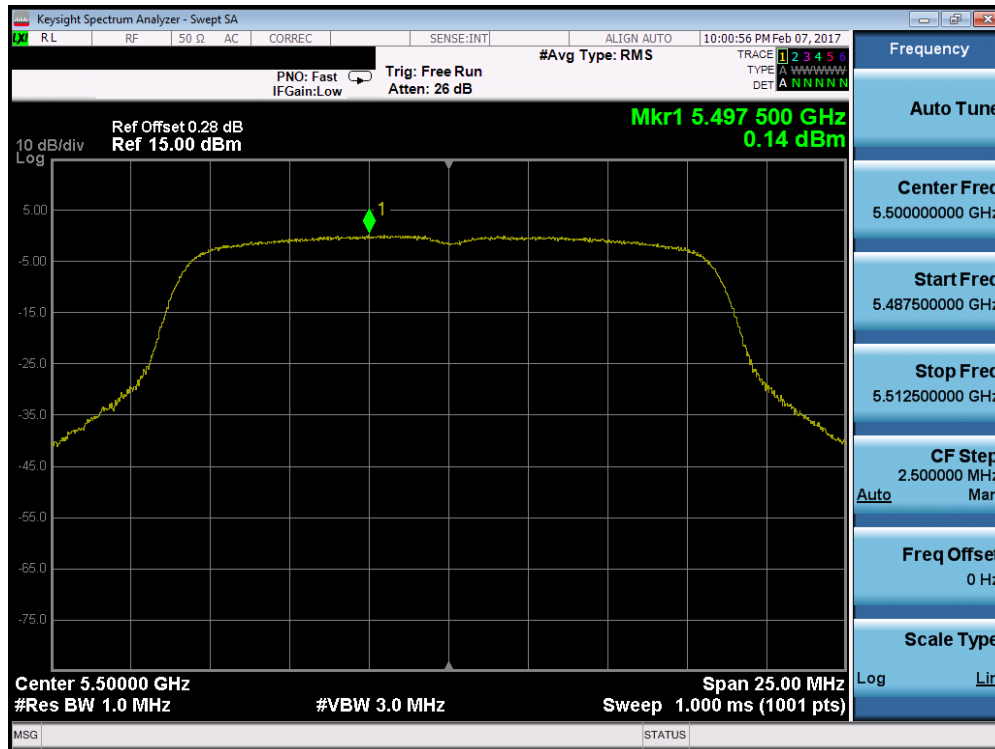


Plot 7-95. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

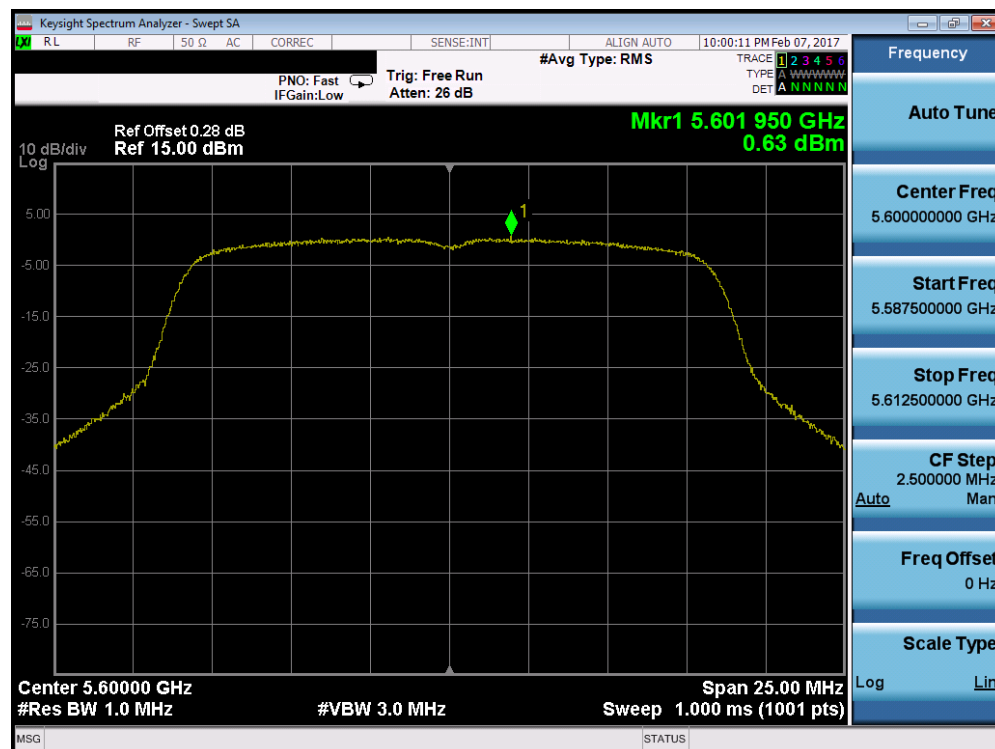


Plot 7-96. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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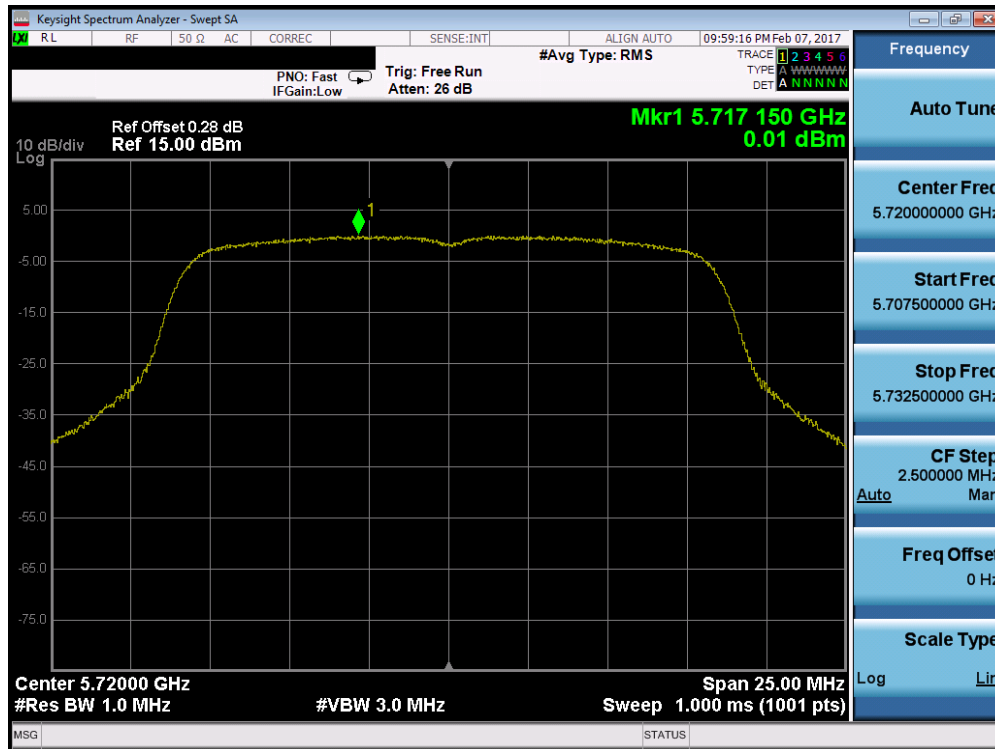


Plot 7-97. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

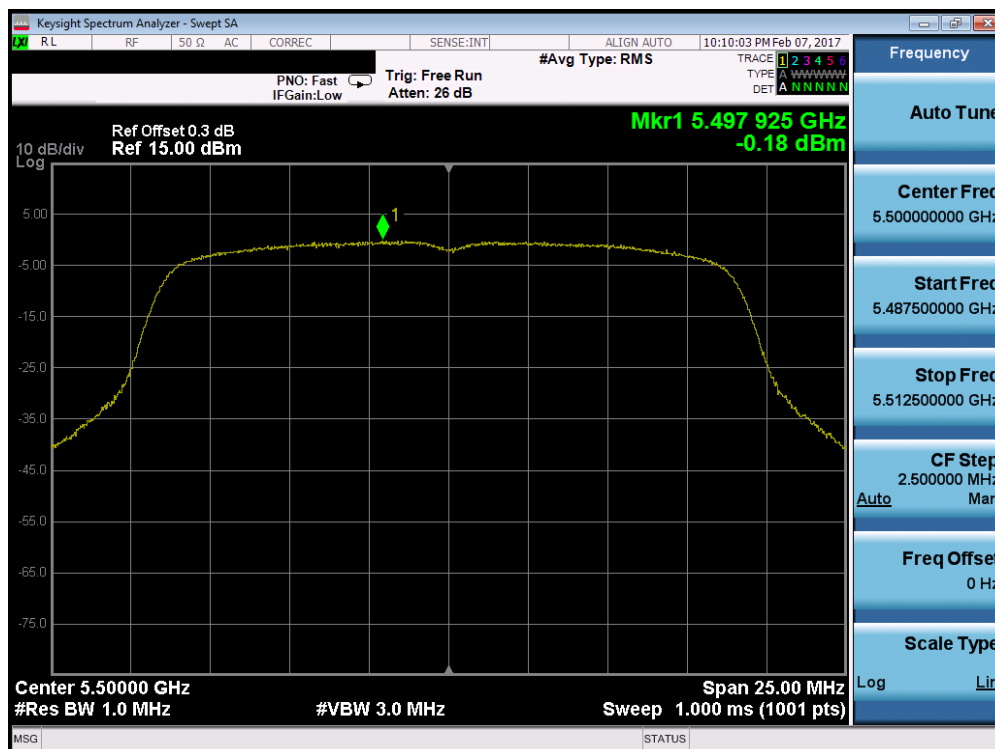


Plot 7-98. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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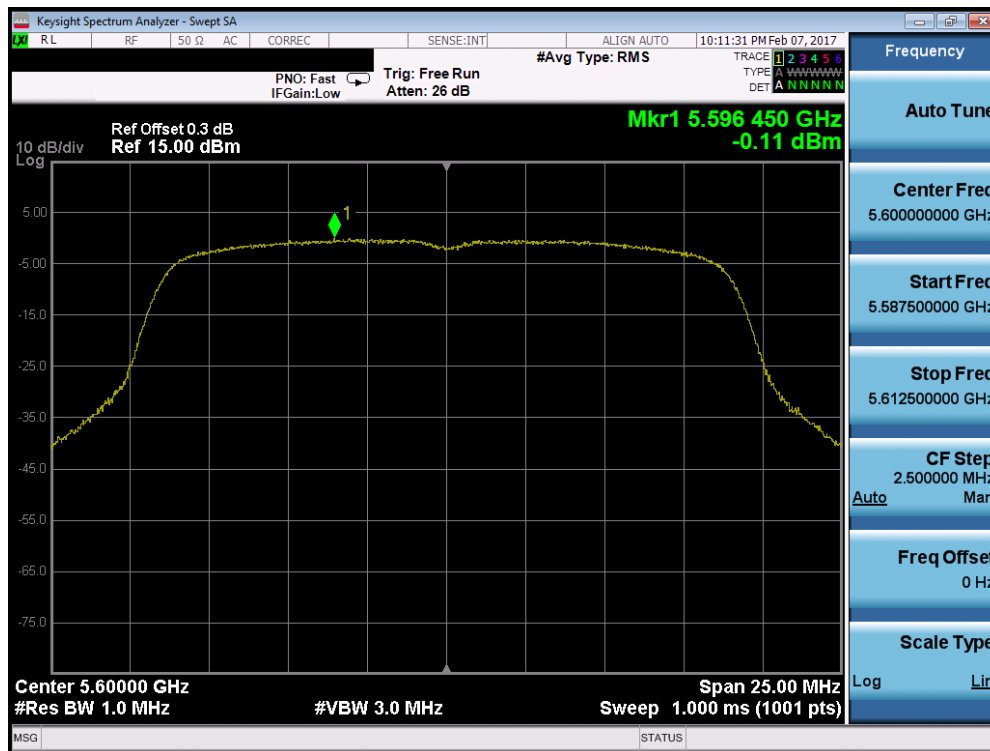


Plot 7-99. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

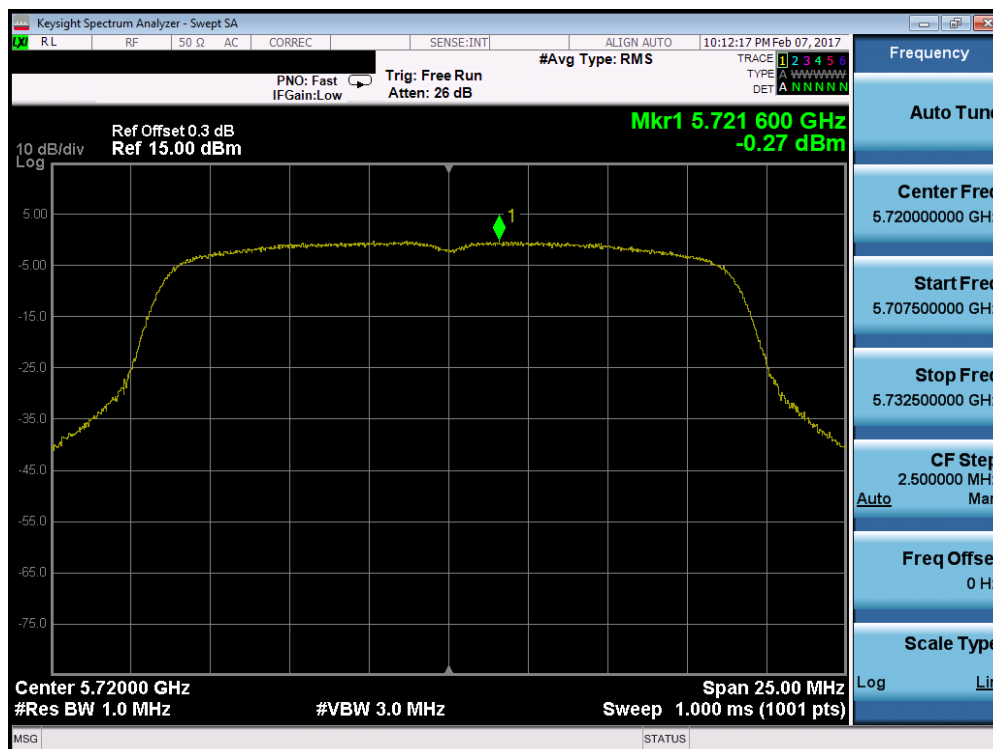


Plot 7-100. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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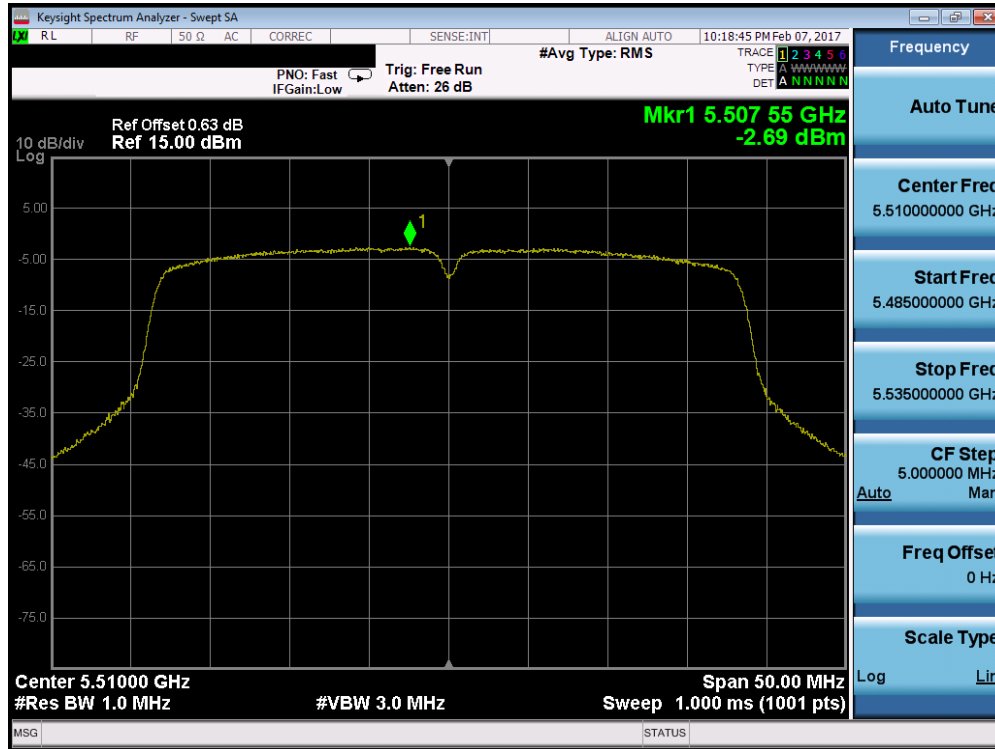


Plot 7-101. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

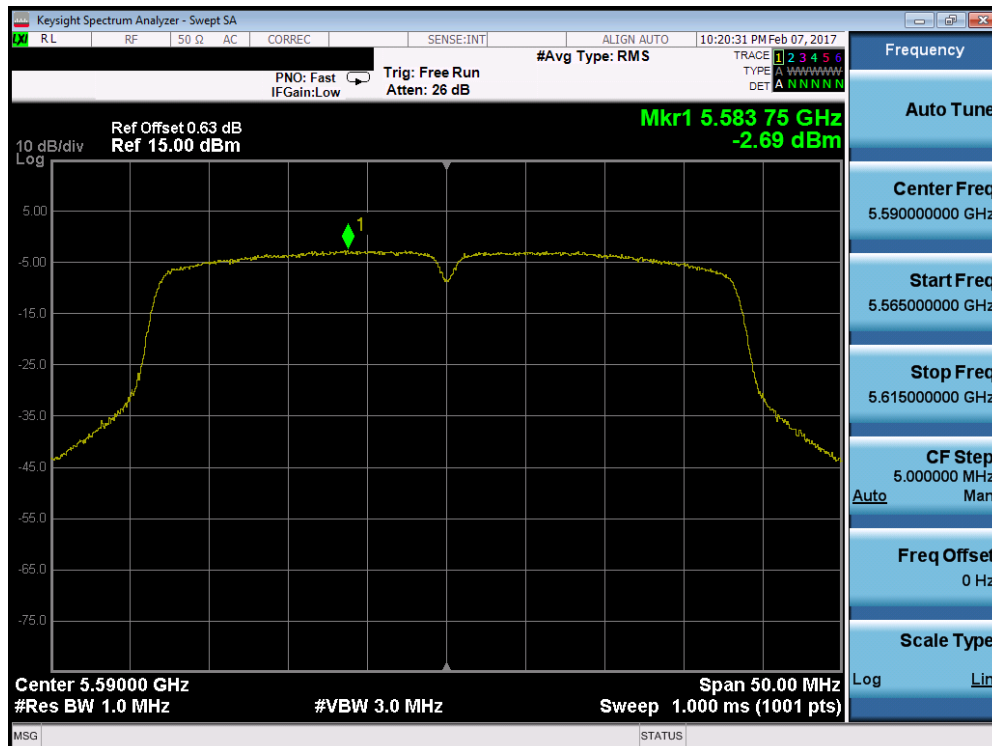


Plot 7-102. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

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Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 80 of 195

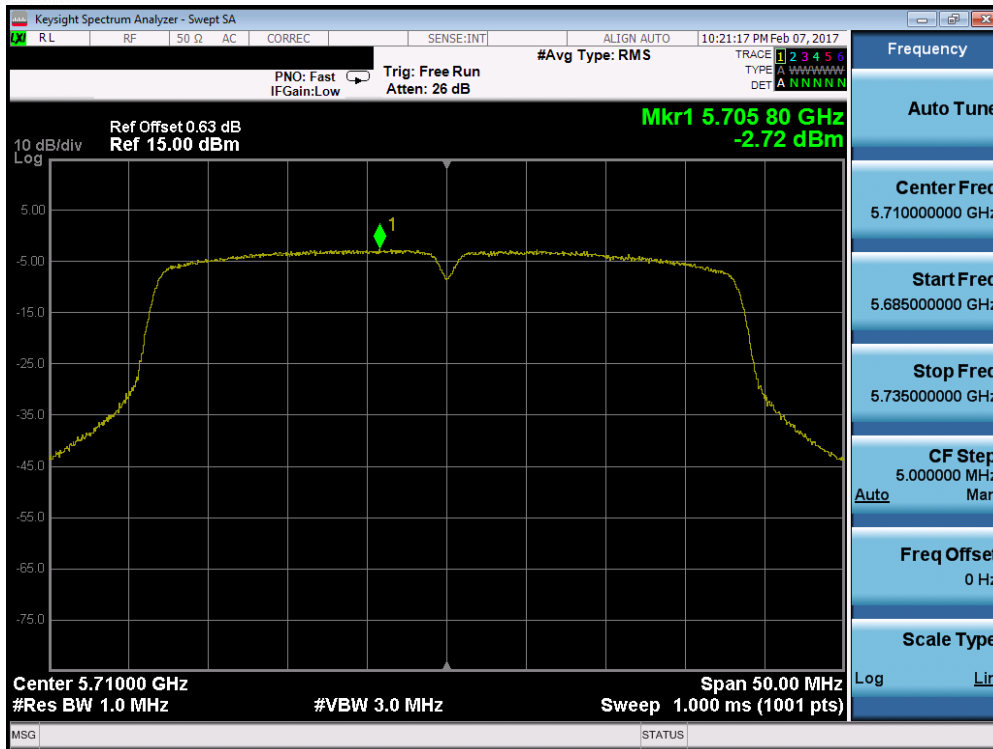


Plot 7-103. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

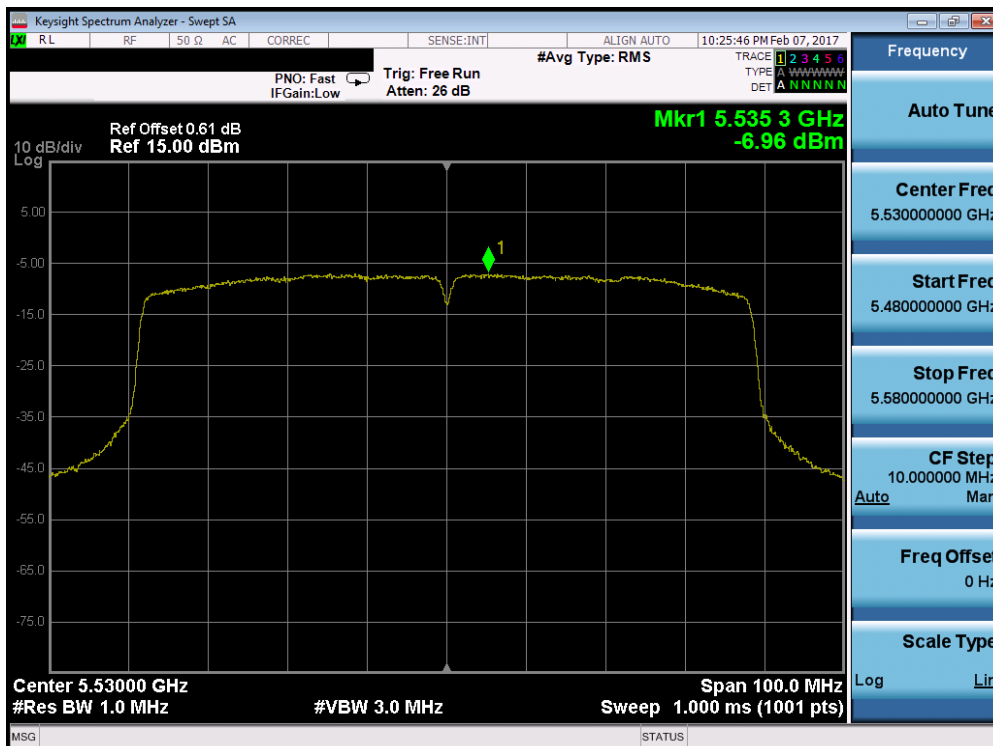


Plot 7-104. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 81 of 195

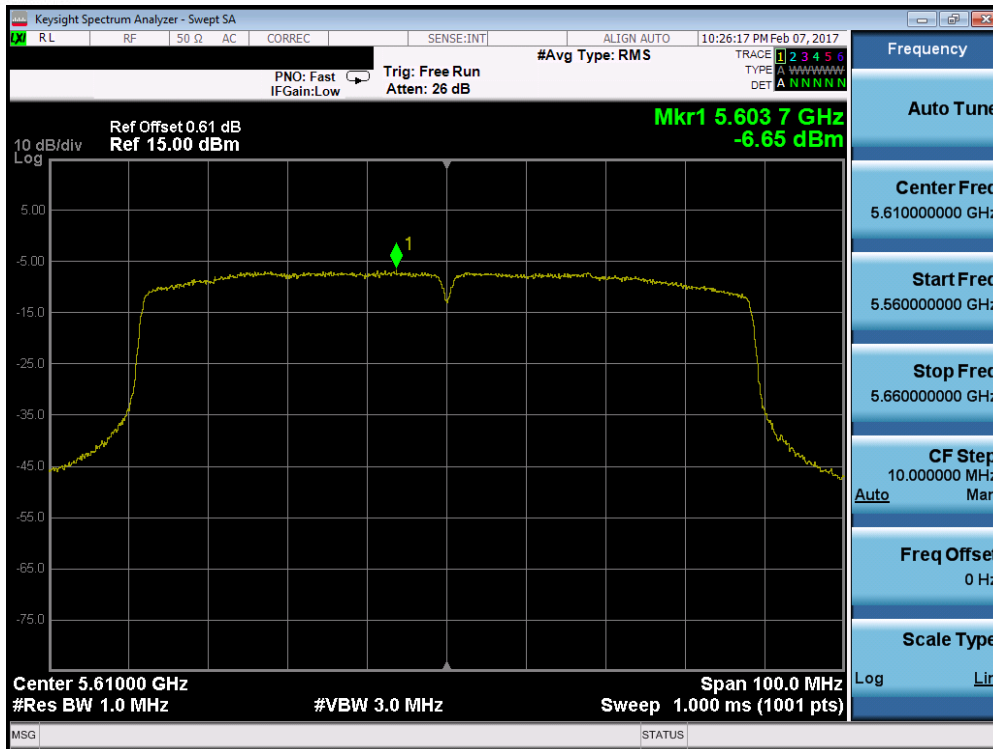


Plot 7-105. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

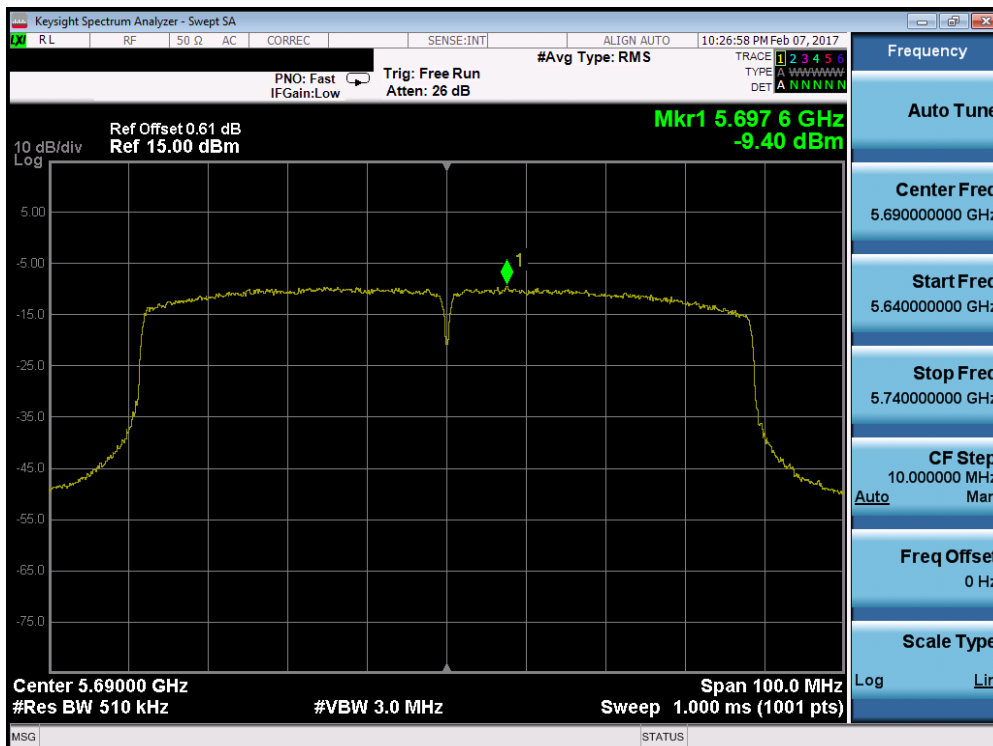


Plot 7-106. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-107. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

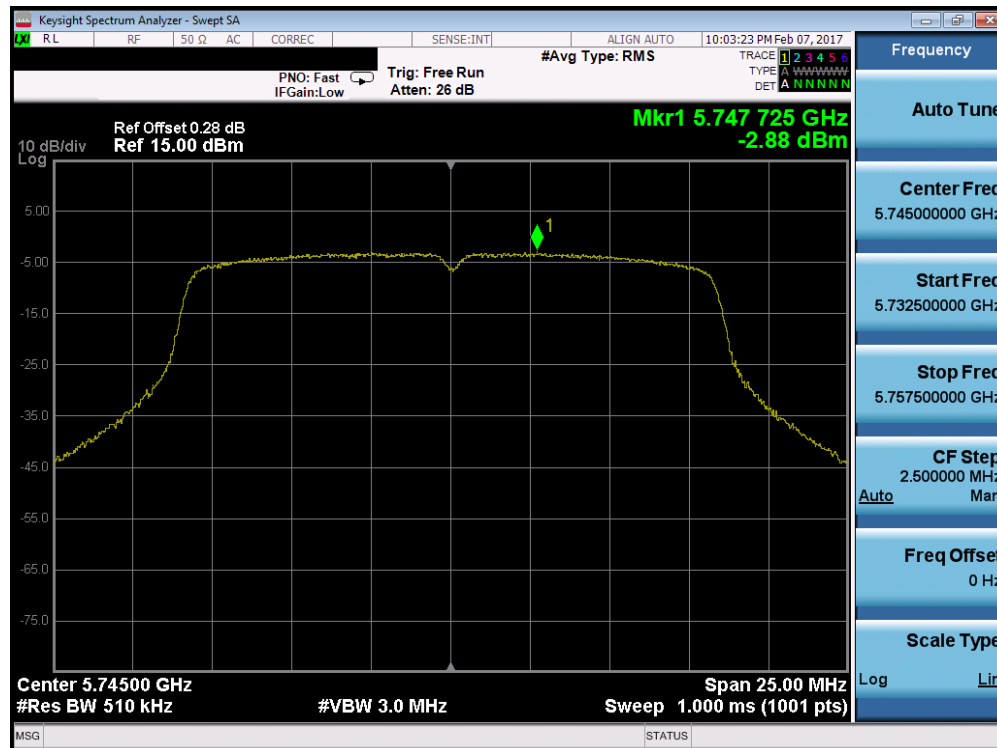


Plot 7-108. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 83 of 195

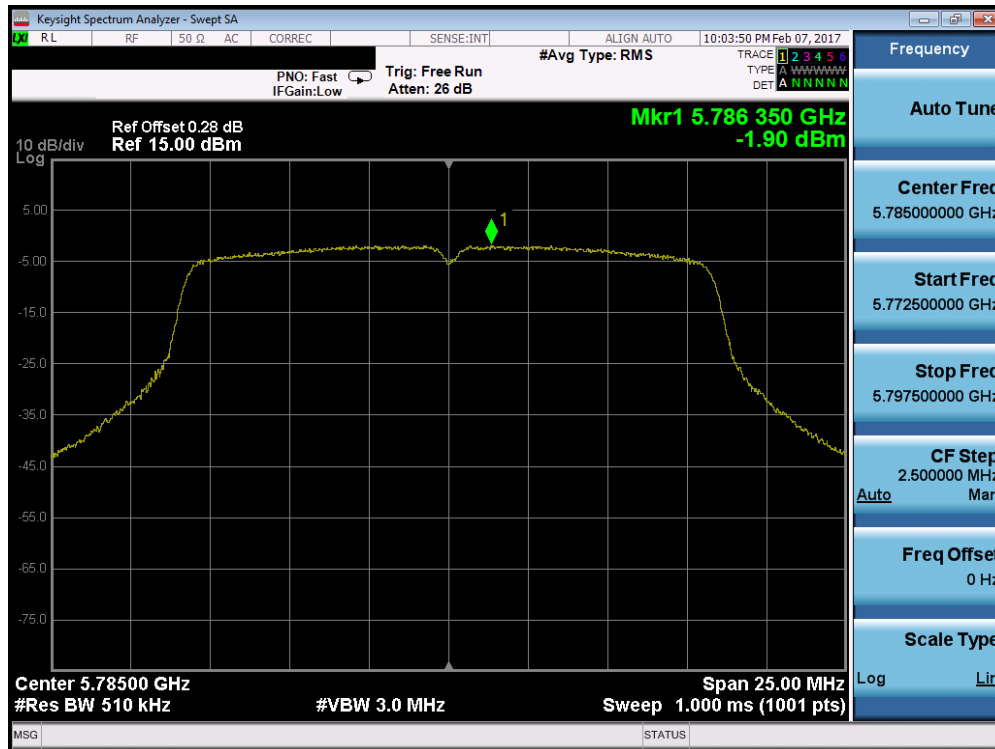
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Pass / Fail
Band 3	5745	149	a	6	-2.88	30.0	-32.88	Pass
	5785	157	a	6	-1.90	30.0	-31.90	Pass
	5825	165	a	6	-2.67	30.0	-32.67	Pass
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	-3.31	30.0	-33.31	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	-2.06	30.0	-32.06	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	-3.02	30.0	-33.02	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	-5.68	30.0	-35.68	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	-4.67	30.0	-34.67	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-6.94	30.0	-36.94	Pass

Table 7-18. Band 3 Conducted Power Spectral Density Measurements

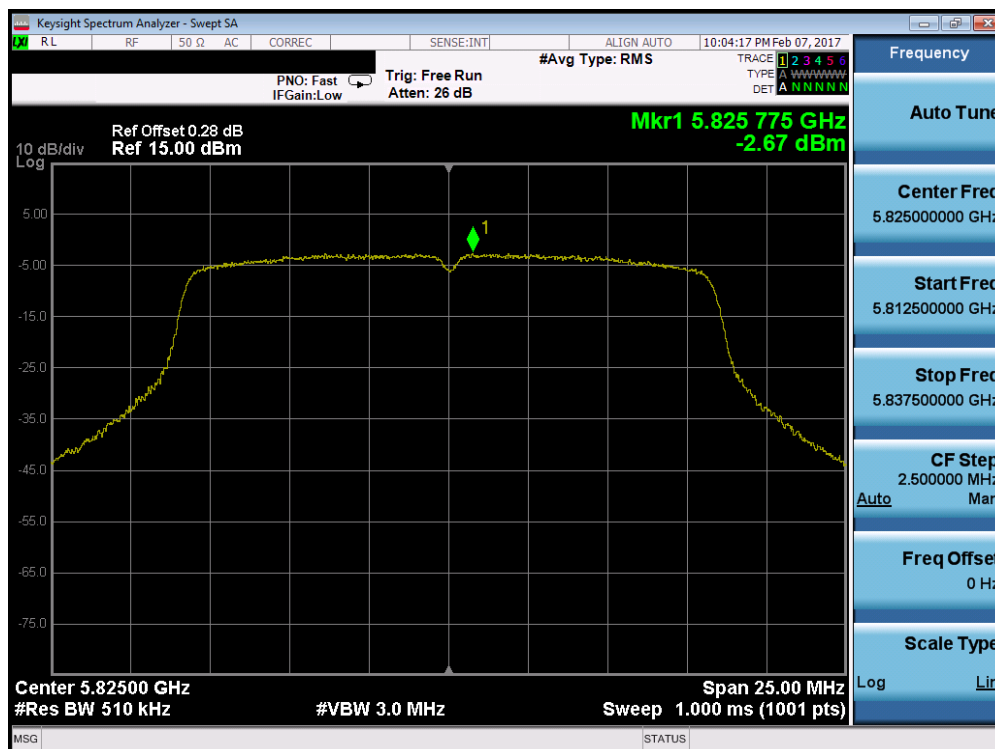


Plot 7-109. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 149)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 84 of 195

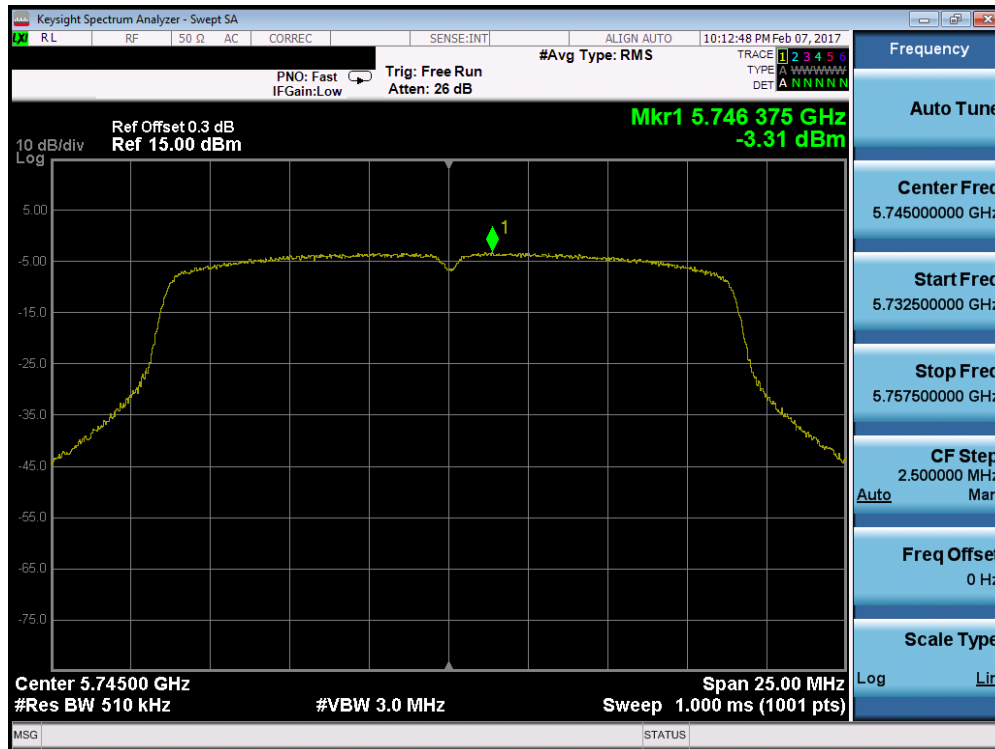


Plot 7-110. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)

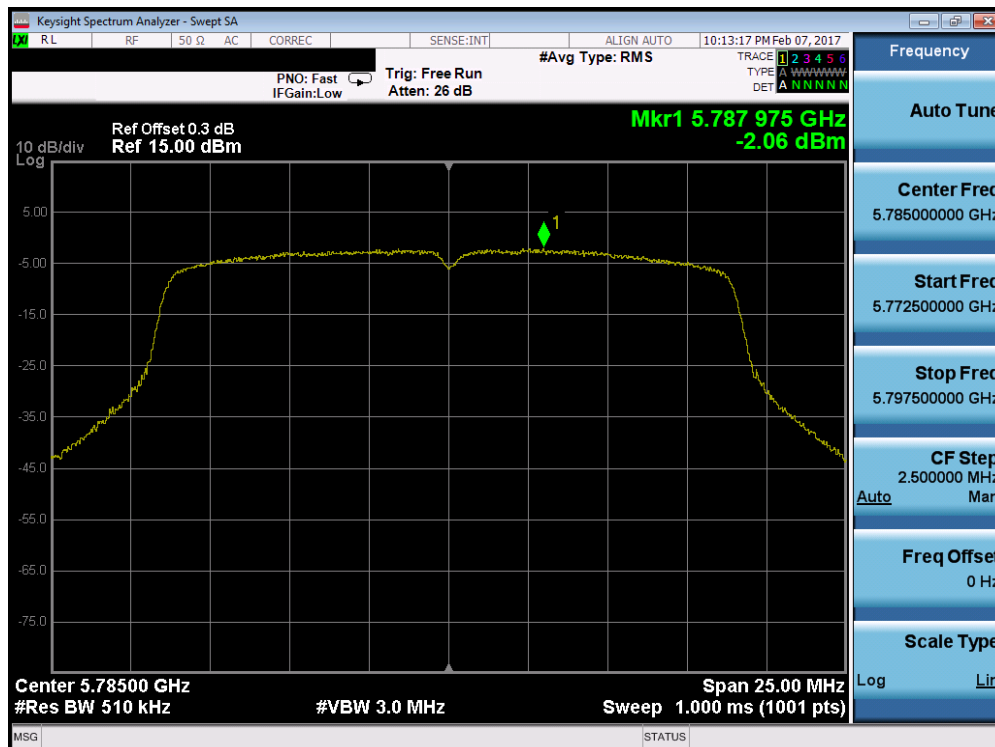


Plot 7-111. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 85 of 195

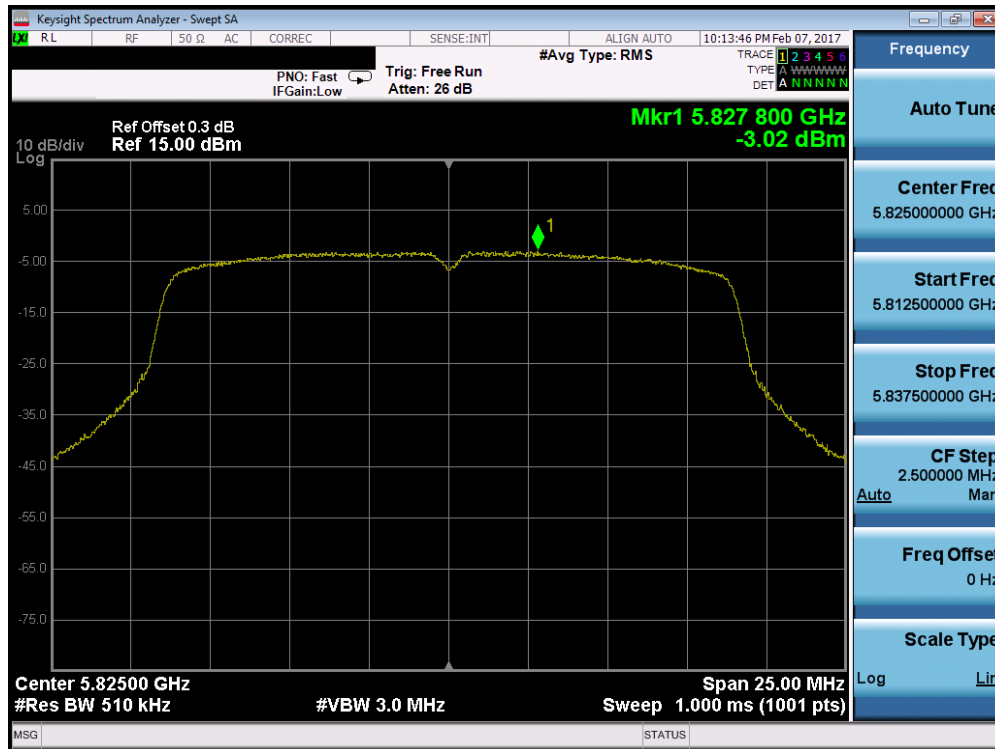


Plot 7-112. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

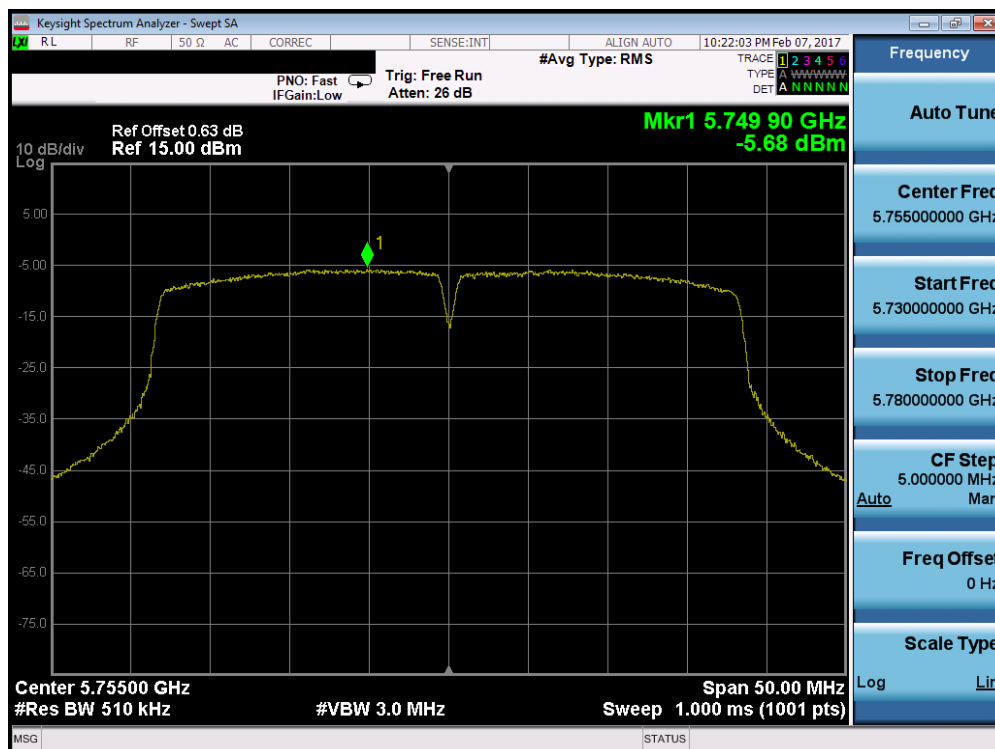


Plot 7-113. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 86 of 195

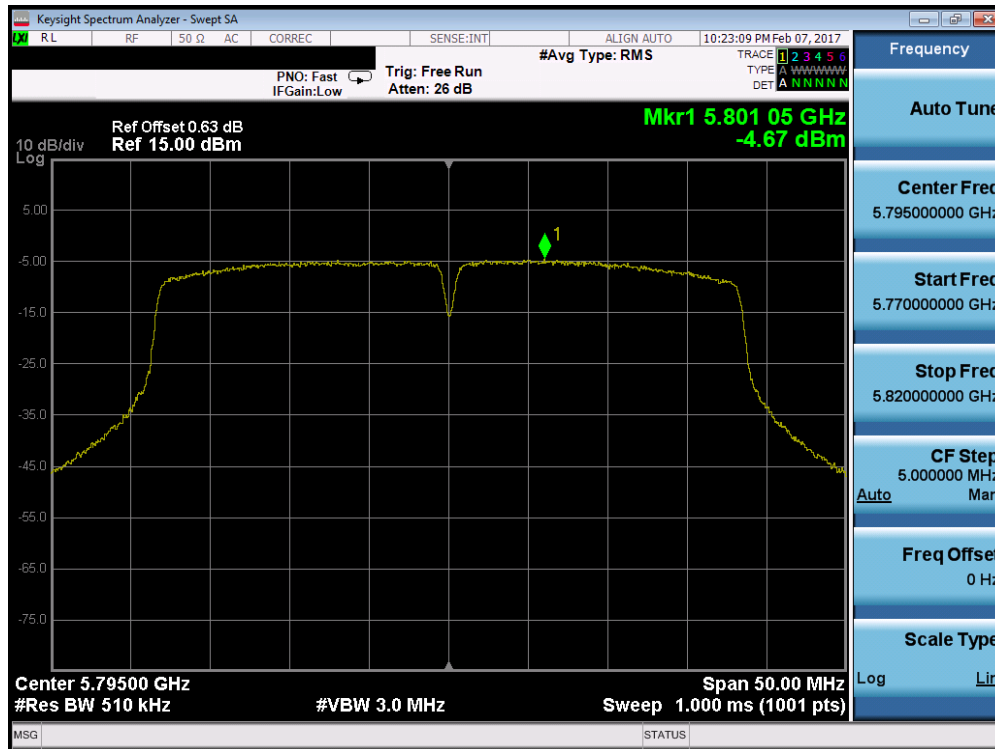


Plot 7-114. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

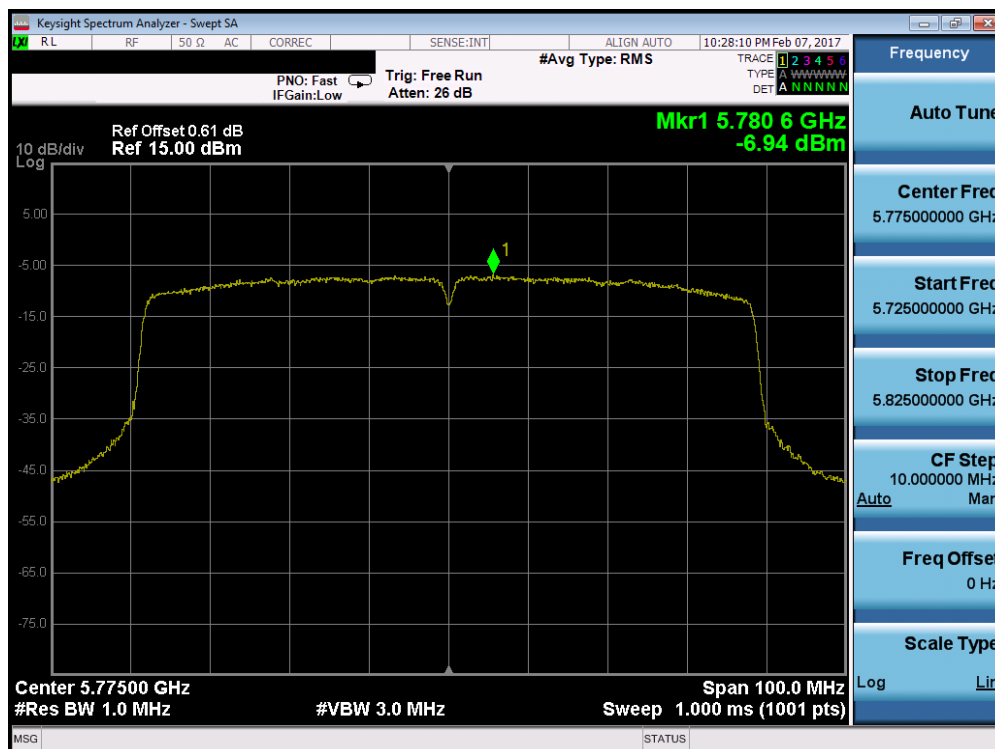


Plot 7-115. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 87 of 195



Plot 7-116. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-117. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

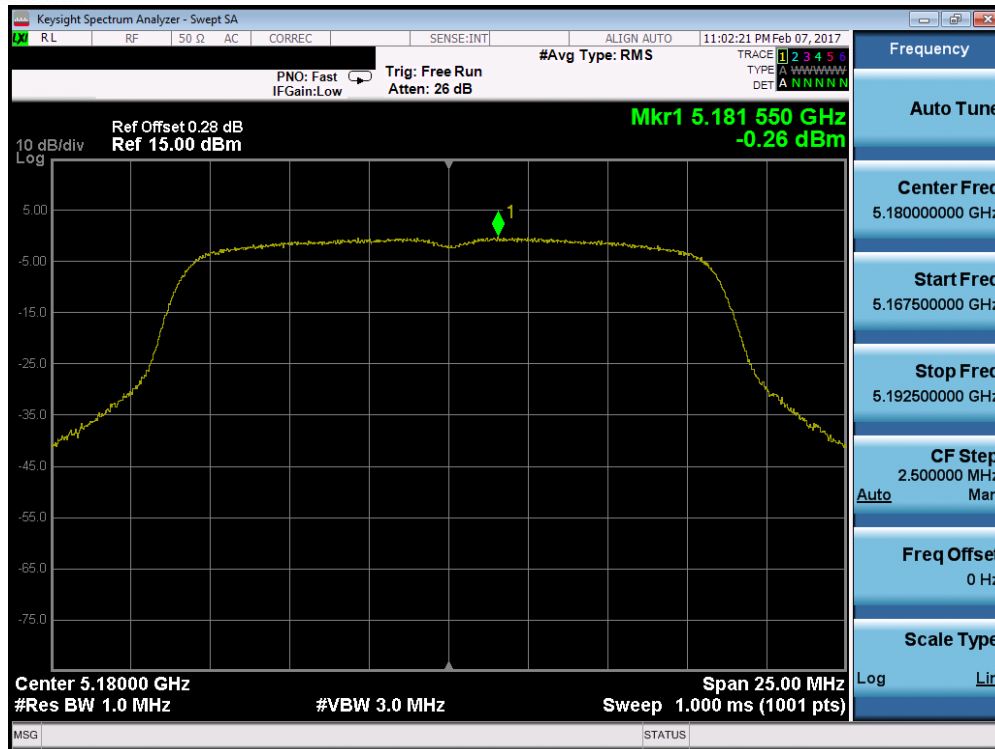
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 88 of 195

Antenna-2 Power Spectral Density Measurements

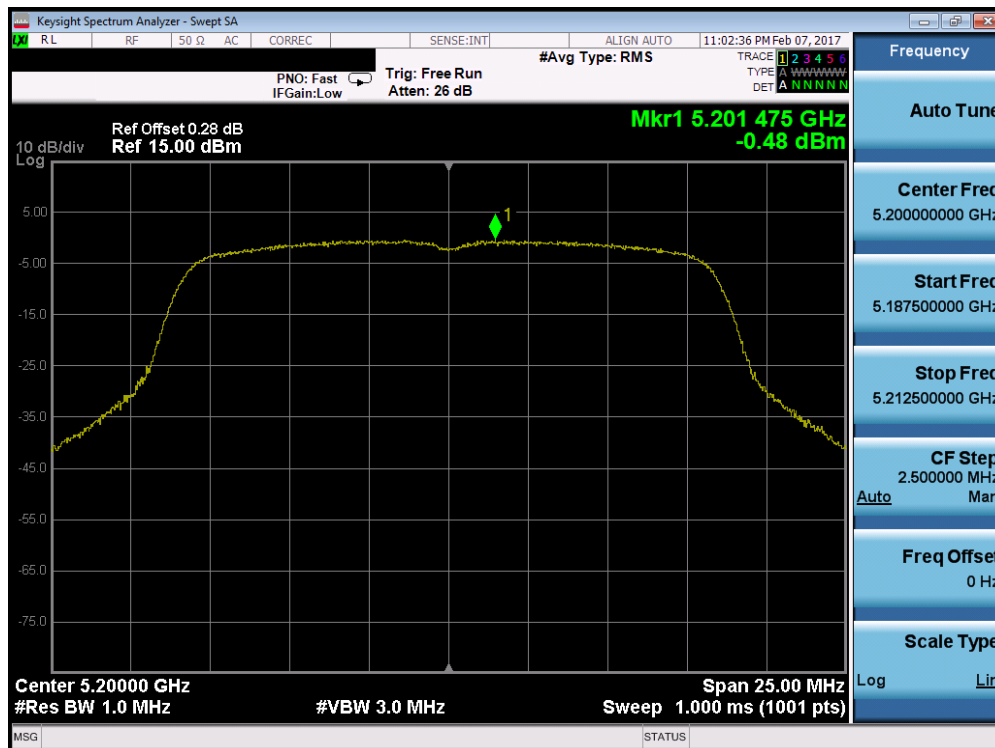
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	a	6	-0.26	11.0	-11.26	Pass
	5200	40	a	6	-0.48	11.0	-11.48	Pass
	5240	48	a	6	-0.12	11.0	-11.12	Pass
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	-1.76	11.0	-12.76	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	-1.79	11.0	-12.79	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	-1.54	11.0	-12.54	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	-3.17	11.0	-14.17	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	-2.08	11.0	-13.08	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-6.81	11.0	-17.81	Pass
Band 2A	5260	52	a	6	-0.48	11.0	-11.48	Pass
	5280	56	a	6	-0.72	11.0	-11.72	Pass
	5320	64	a	6	-0.94	11.0	-11.94	Pass
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	-1.83	11.0	-12.83	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	-1.06	11.0	-12.06	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	-0.94	11.0	-11.94	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	-3.45	11.0	-14.45	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	-3.25	11.0	-14.25	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-7.20	11.0	-18.20	Pass
Band 2C	5500	100	a	6	-0.33	11.0	-11.33	Pass
	5600	120	a	6	-0.37	11.0	-11.37	Pass
	5720	144	a	6	-0.46	11.0	-11.46	Pass
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	-0.74	11.0	-11.74	Pass
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	-0.80	11.0	-11.80	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	-0.93	11.0	-11.93	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	-3.42	11.0	-14.42	Pass
	5590	118	n (40MHz)	13.5/15 (MCS0)	-3.44	11.0	-14.44	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	-3.26	11.0	-14.26	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-6.96	11.0	-17.96	Pass
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-7.04	11.0	-18.04	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-10.09	11.0	-21.09	Pass

Table 7-19. Conducted Power Spectral Density Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 89 of 195

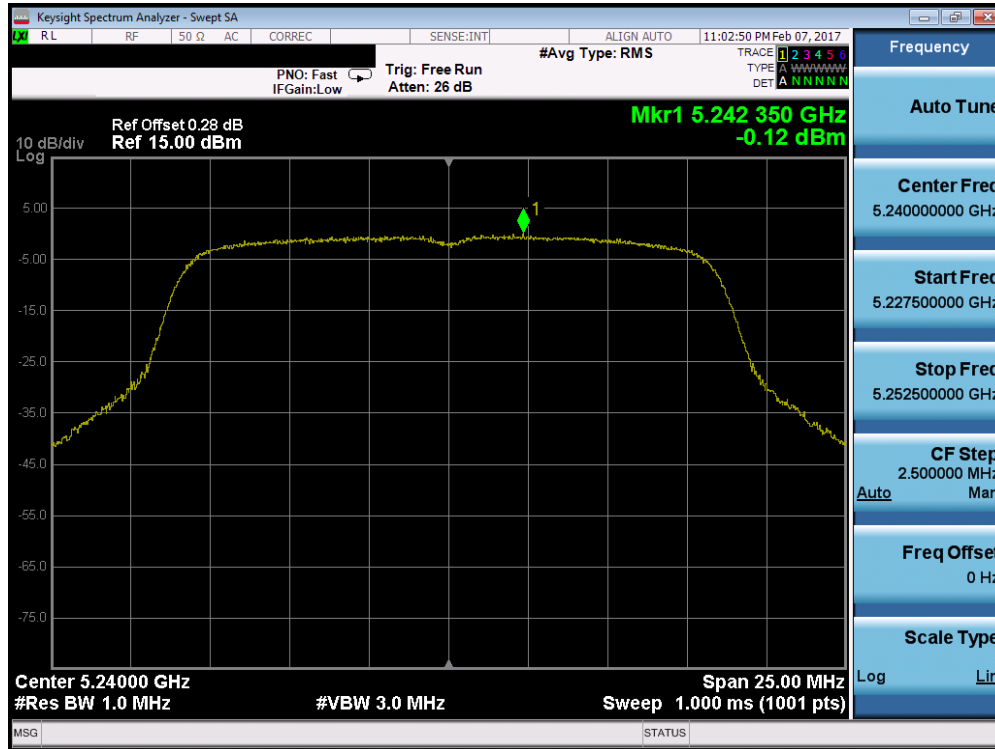


Plot 7-118. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

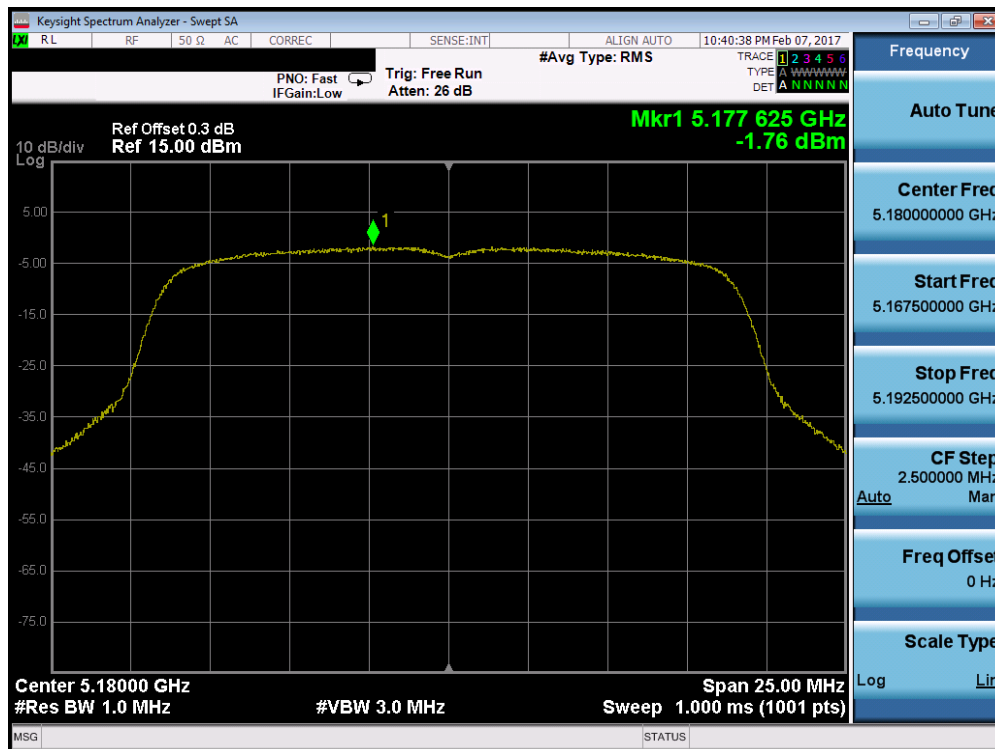


Plot 7-119. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 90 of 195

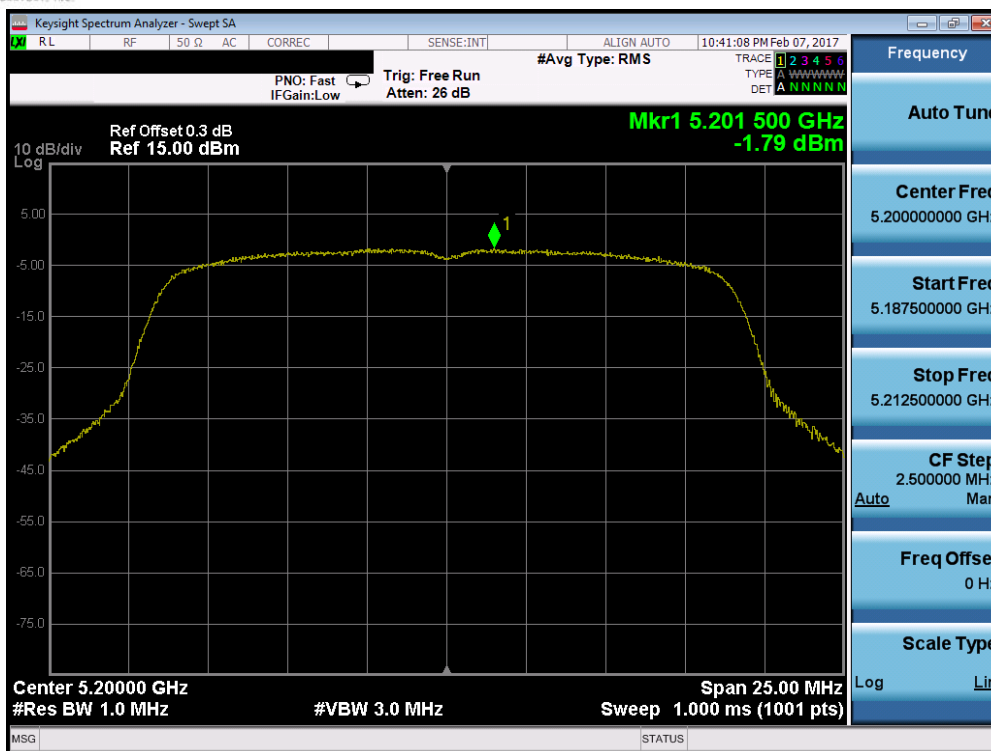


Plot 7-120. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

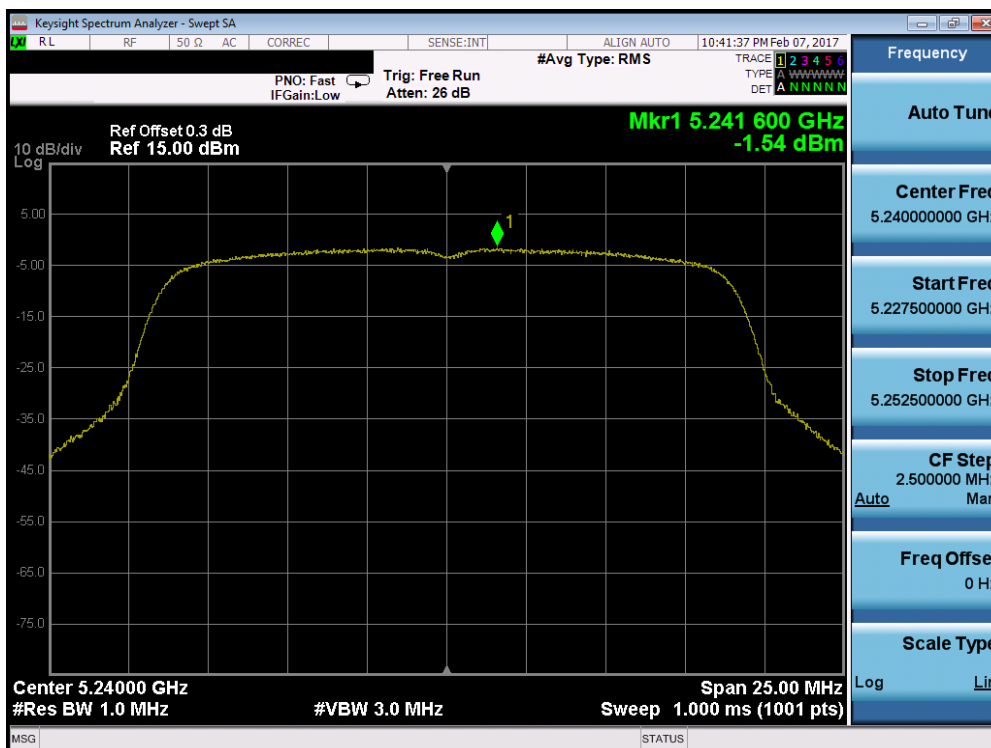


Plot 7-121. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 91 of 195

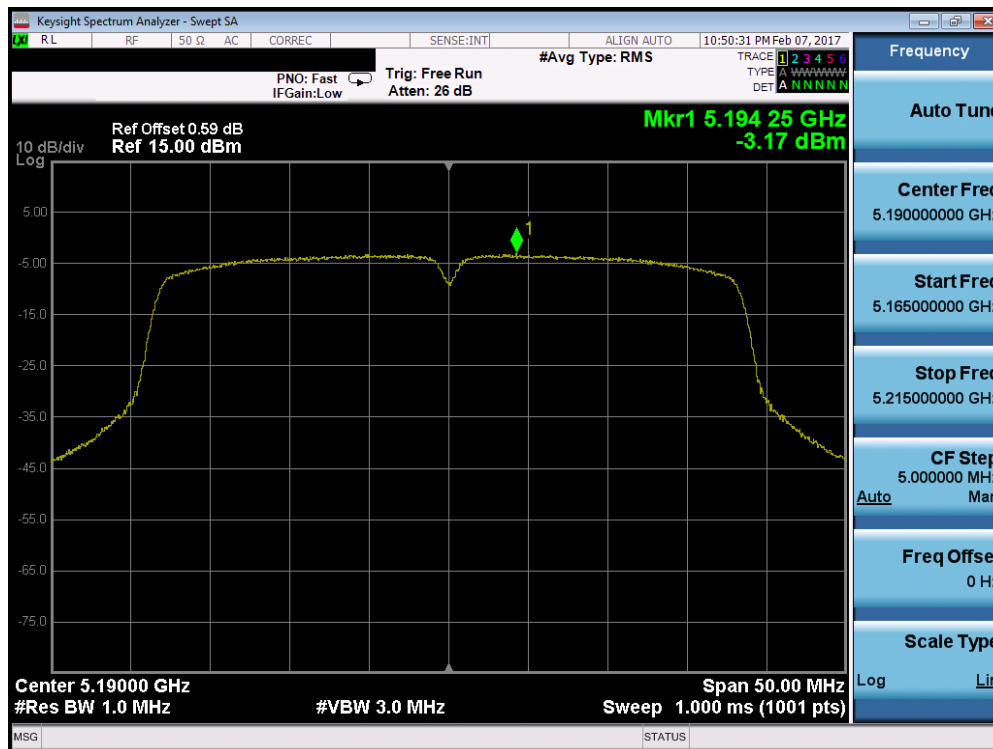


Plot 7-122. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

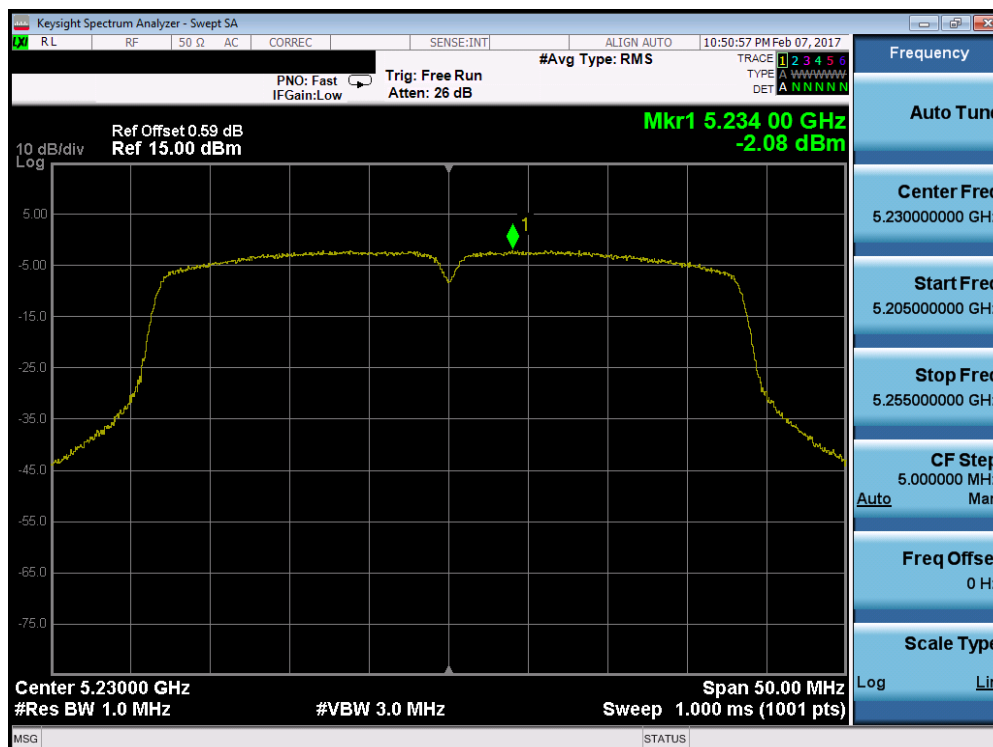


Plot 7-123. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 92 of 195

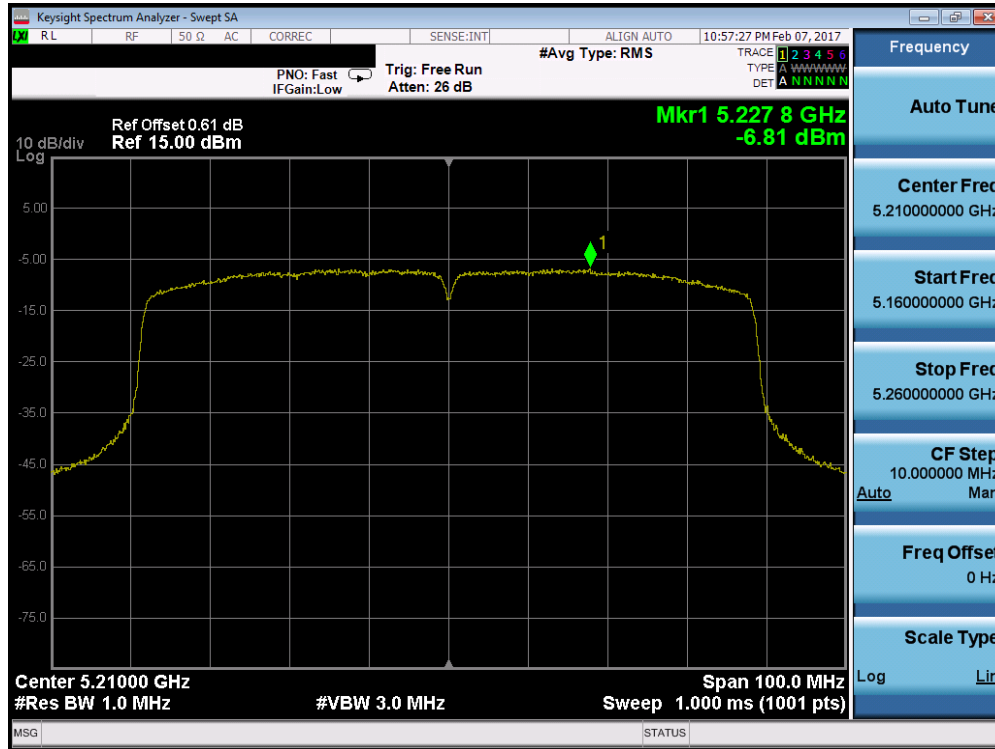


Plot 7-124. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

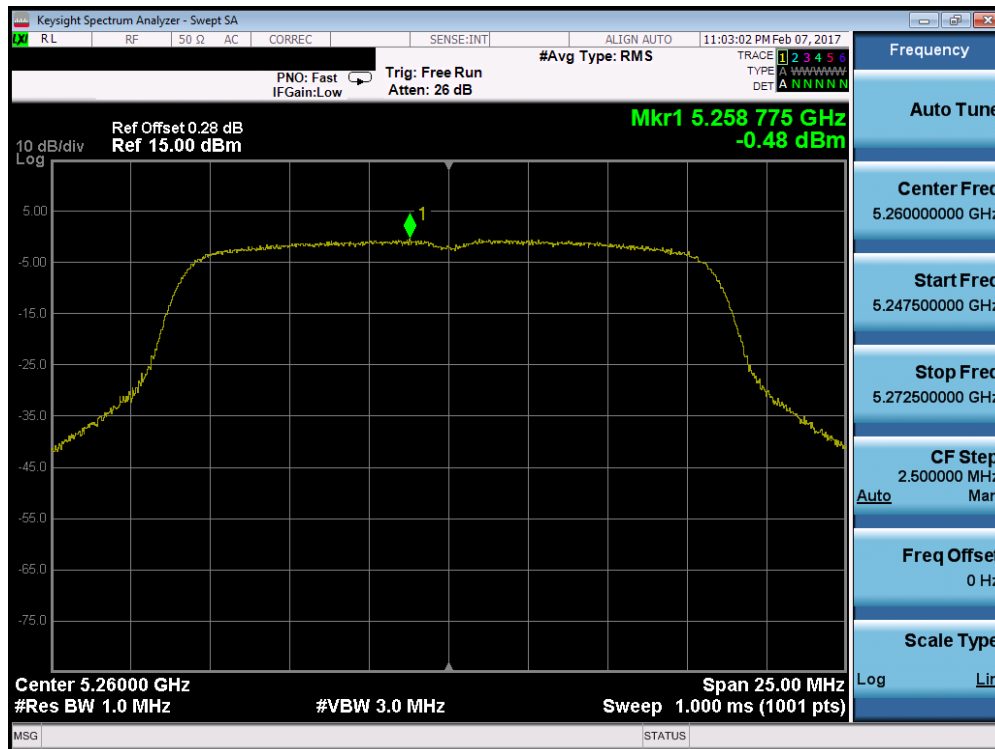


Plot 7-125. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 93 of 195

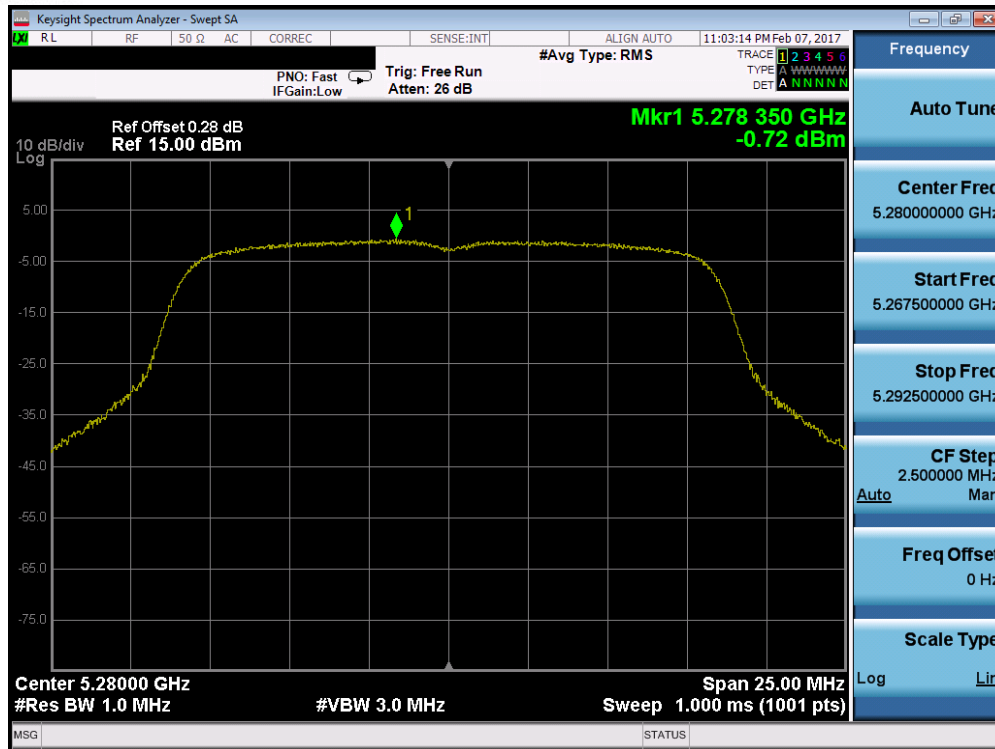


Plot 7-126. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

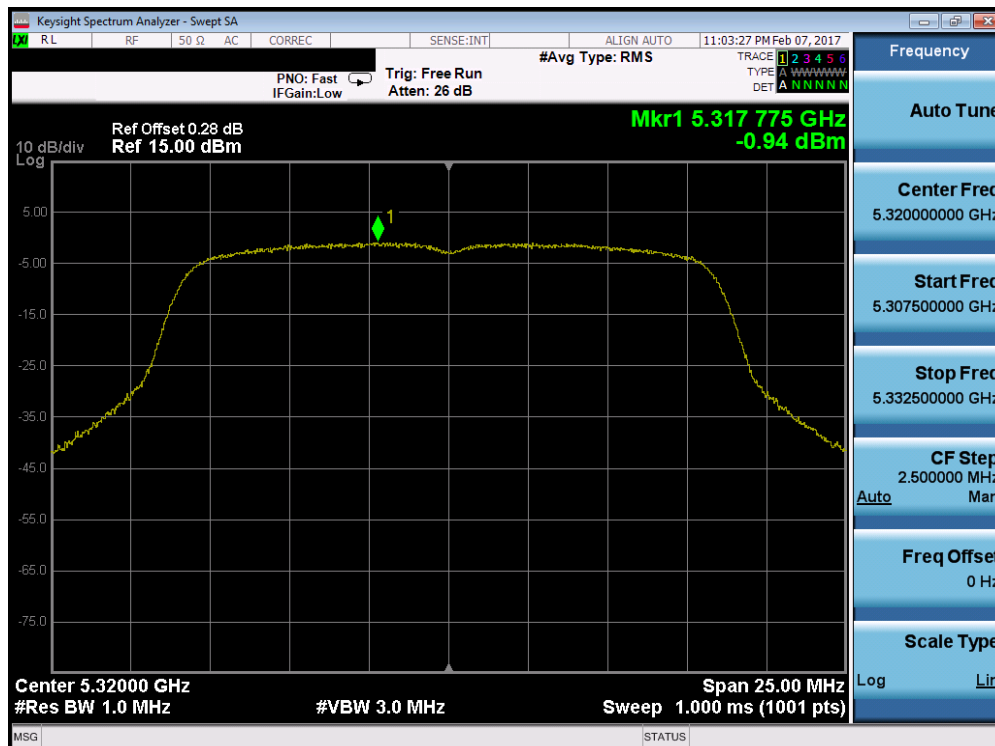


Plot 7-127. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 94 of 195

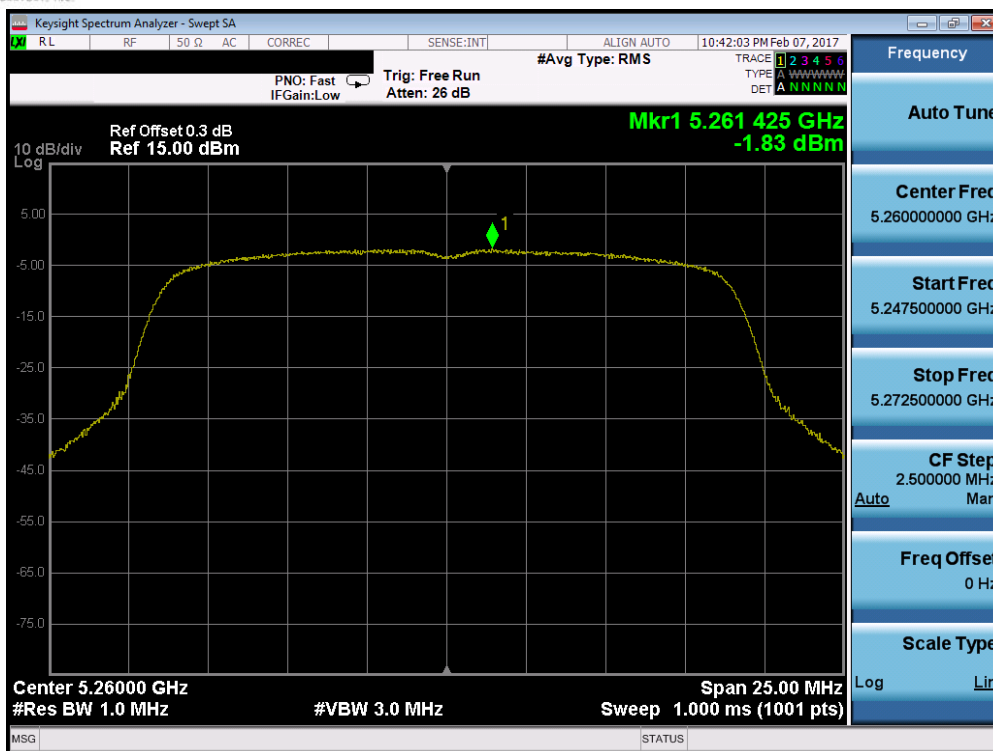


Plot 7-128. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

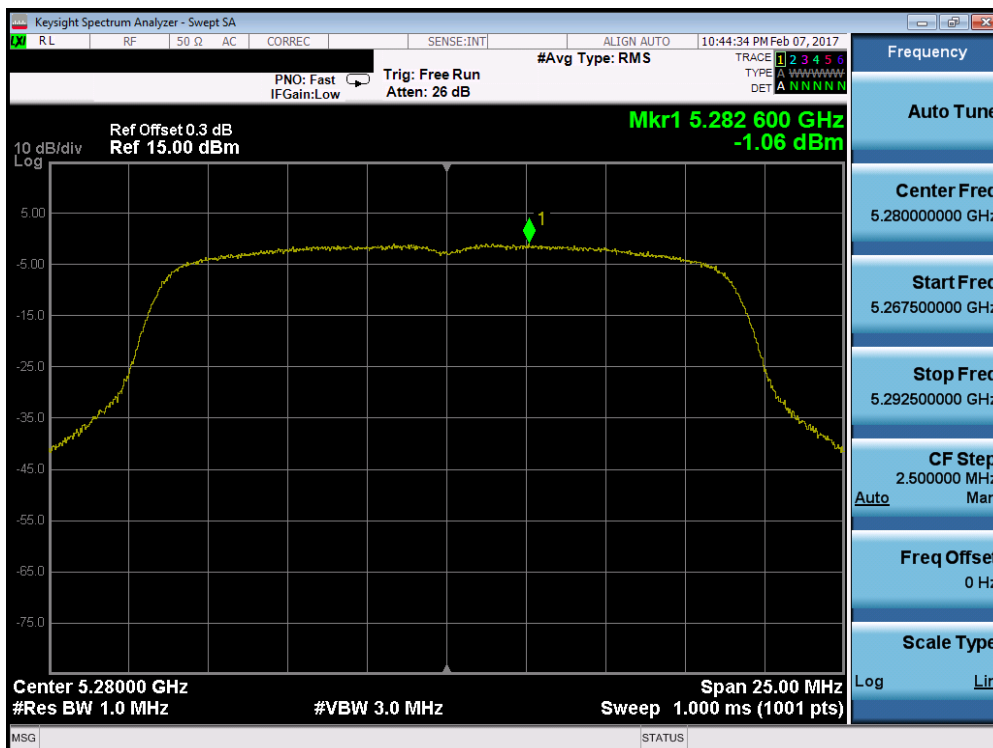


Plot 7-129. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 95 of 195

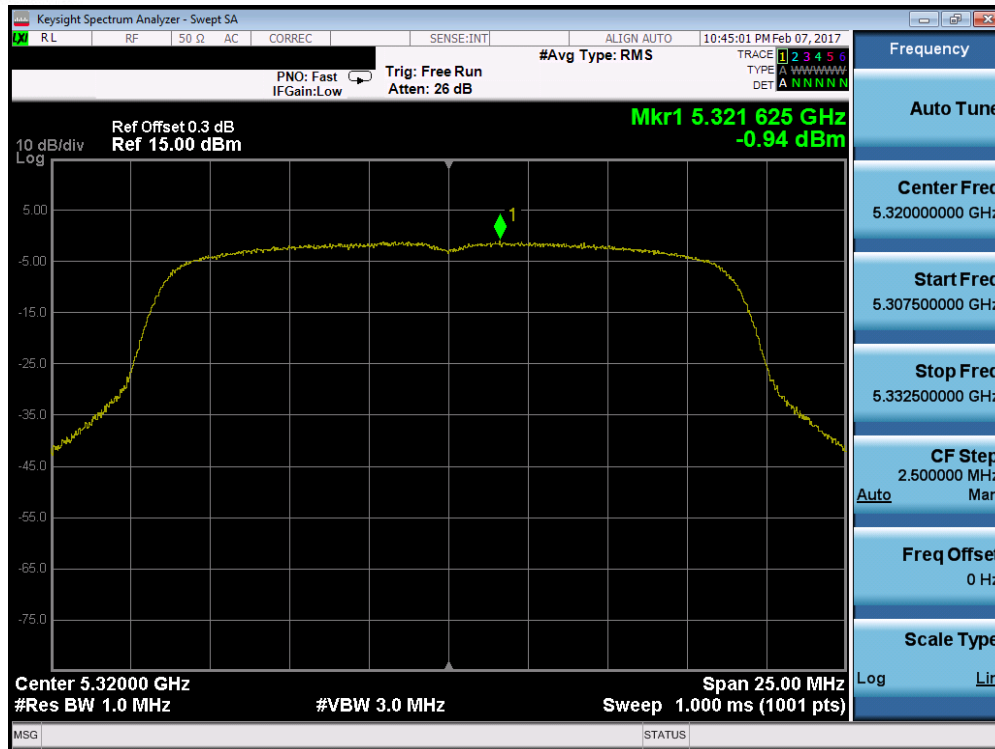


Plot 7-130. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

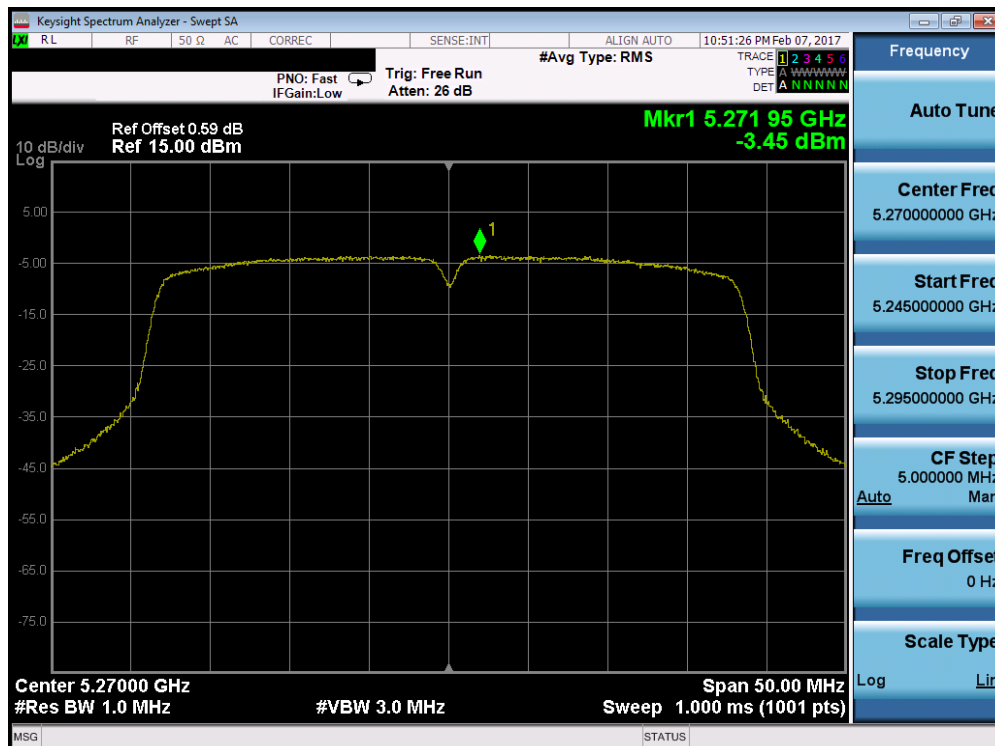


Plot 7-131. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 96 of 195

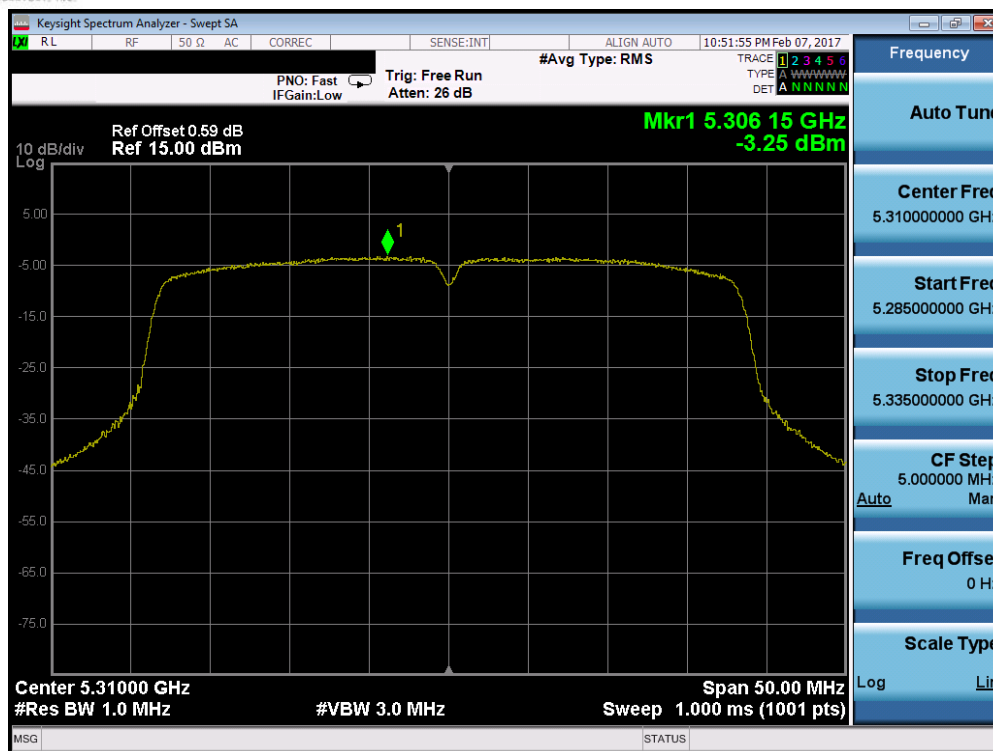


Plot 7-132. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

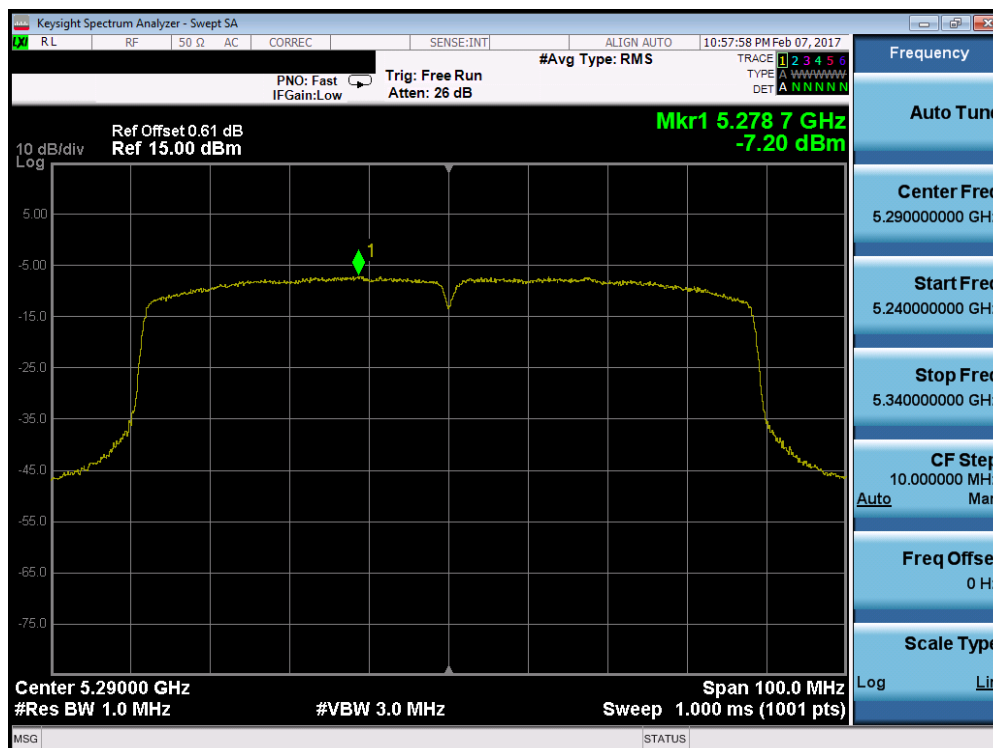


Plot 7-133. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 97 of 195

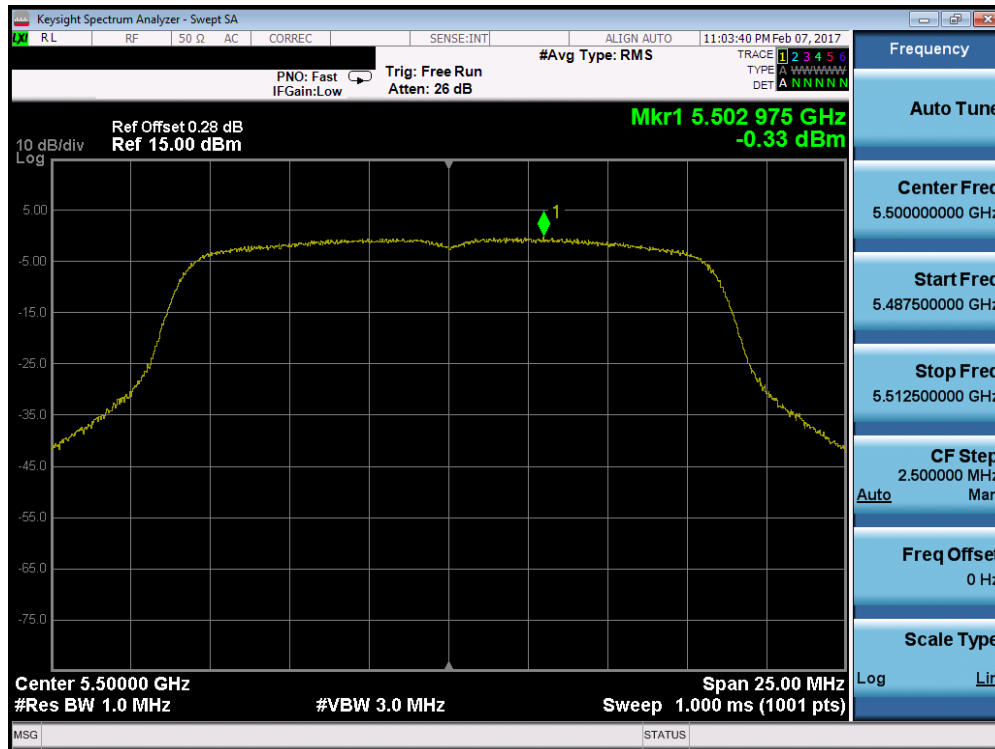


Plot 7-134. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

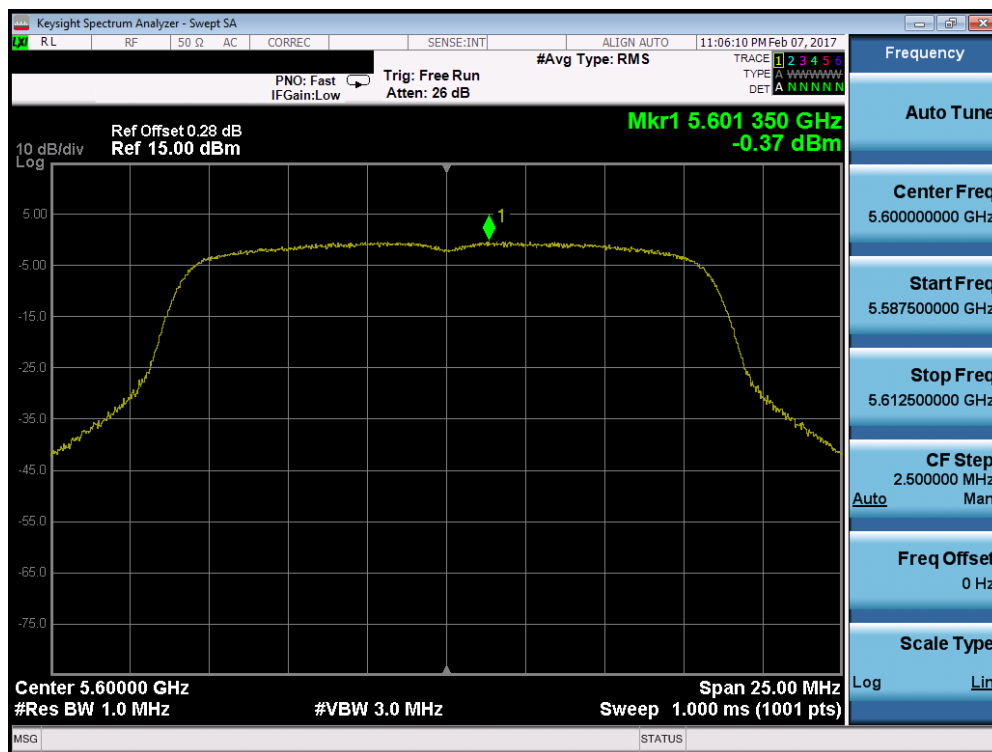


Plot 7-135. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 98 of 195

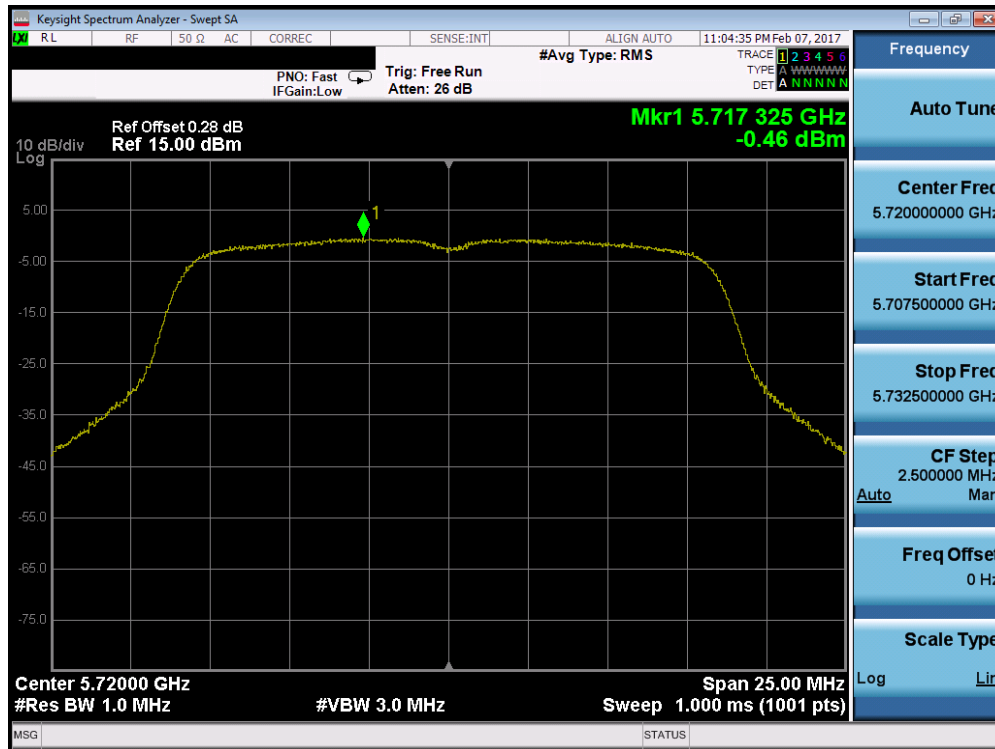


Plot 7-136. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

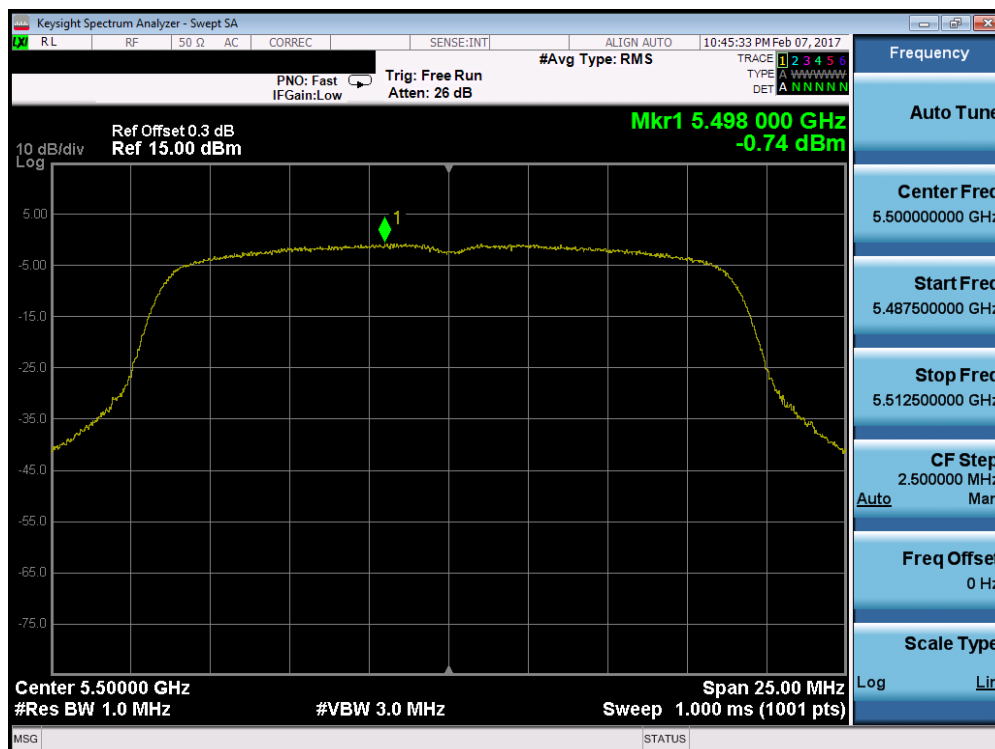


Plot 7-137. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 99 of 195

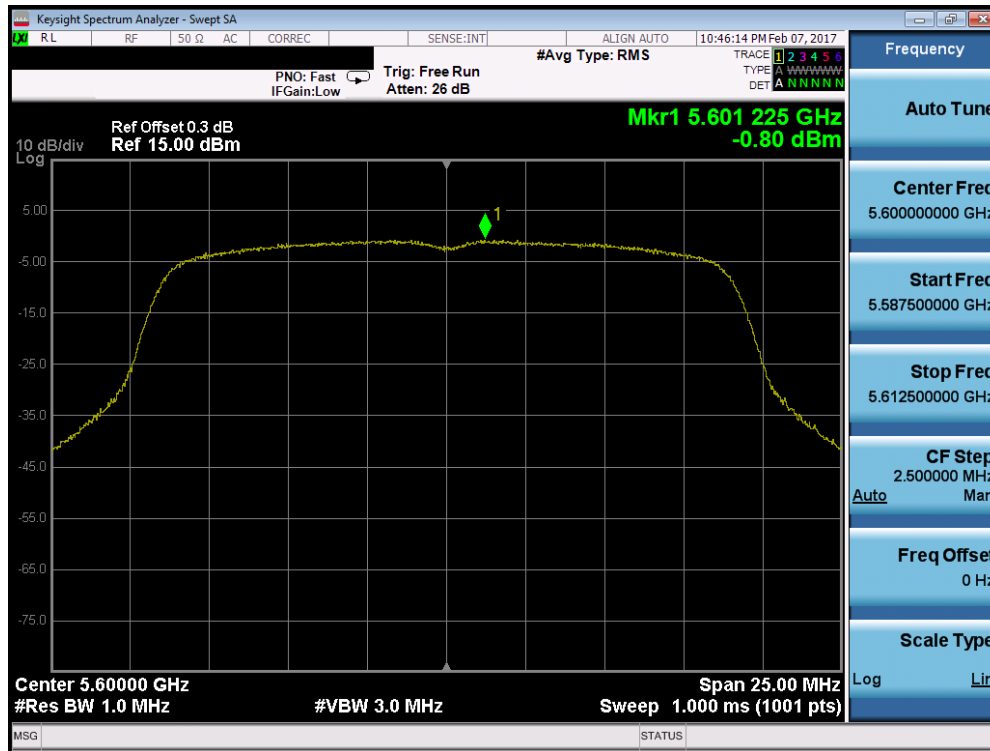


Plot 7-138. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

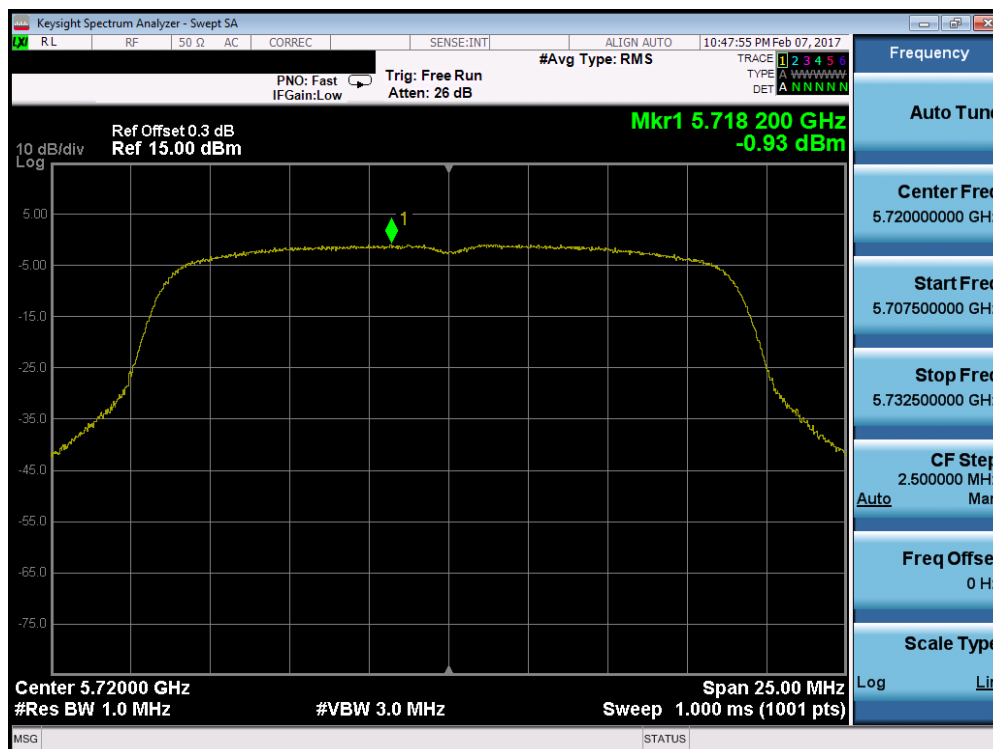


Plot 7-139. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 100 of 195

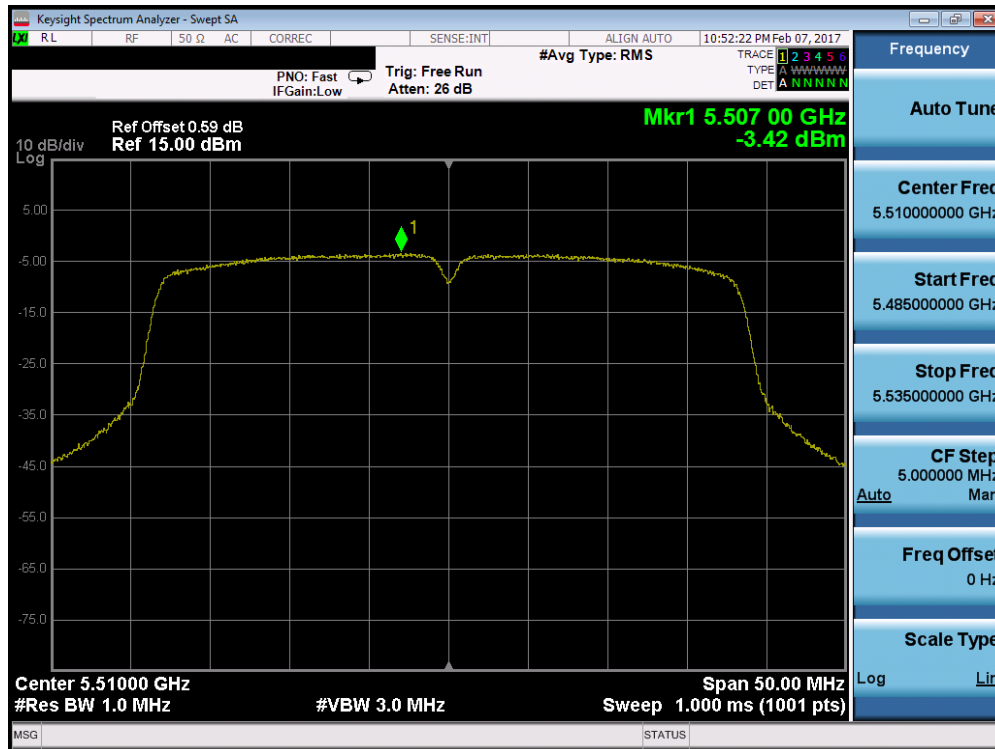


Plot 7-140. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

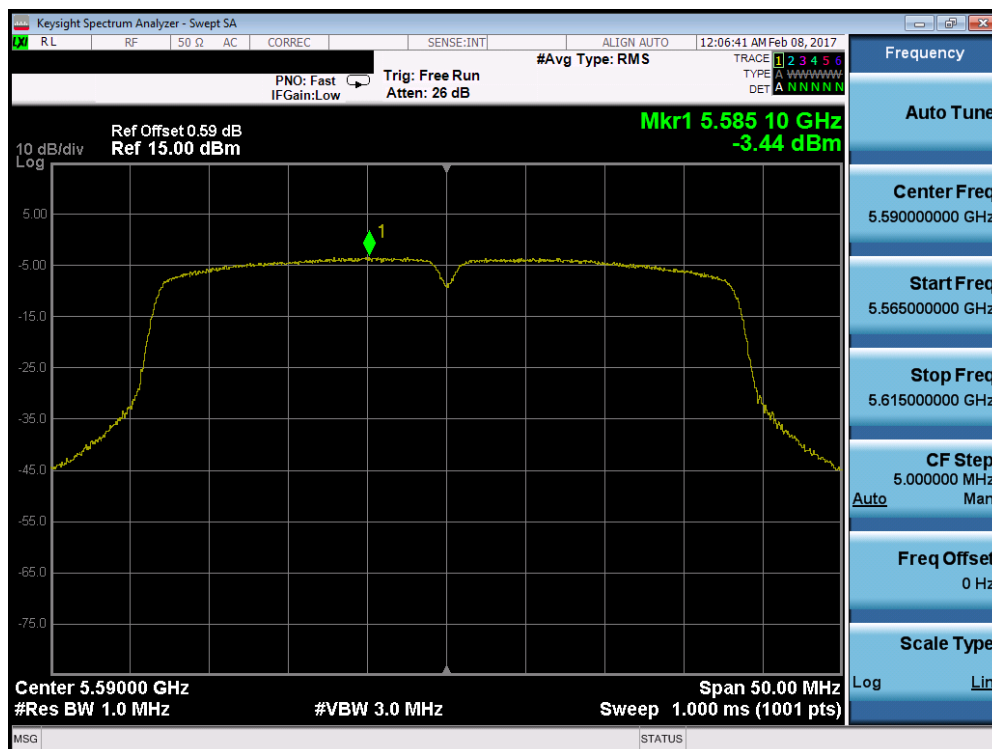


Plot 7-141. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 101 of 195

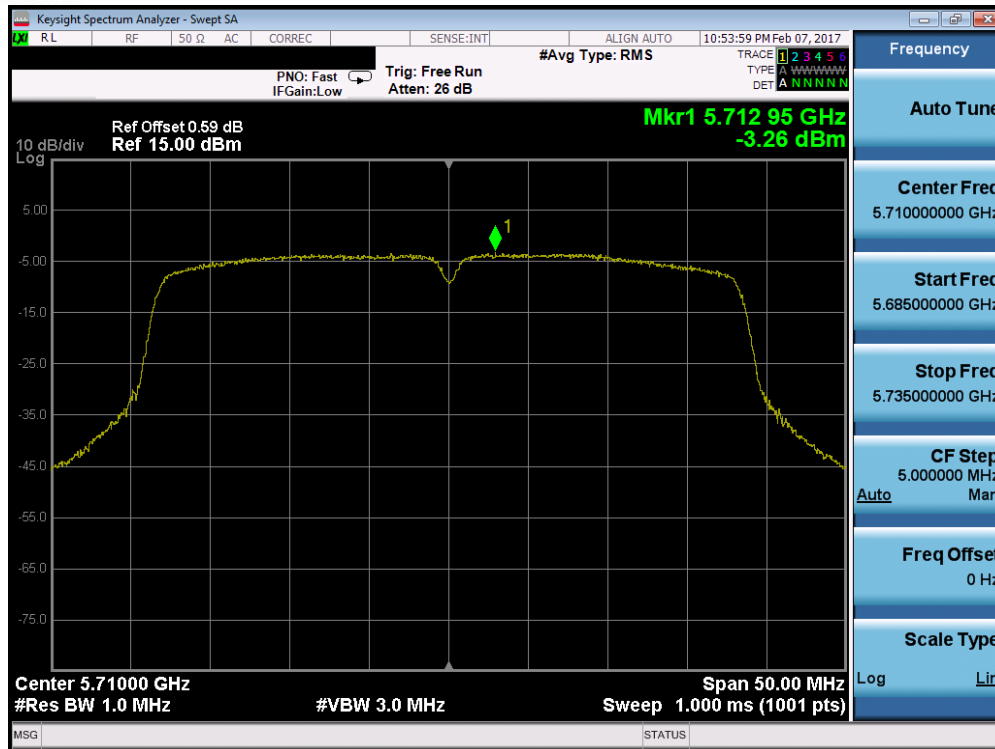


Plot 7-142. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)



Plot 7-143. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 102 of 195



Plot 7-144. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

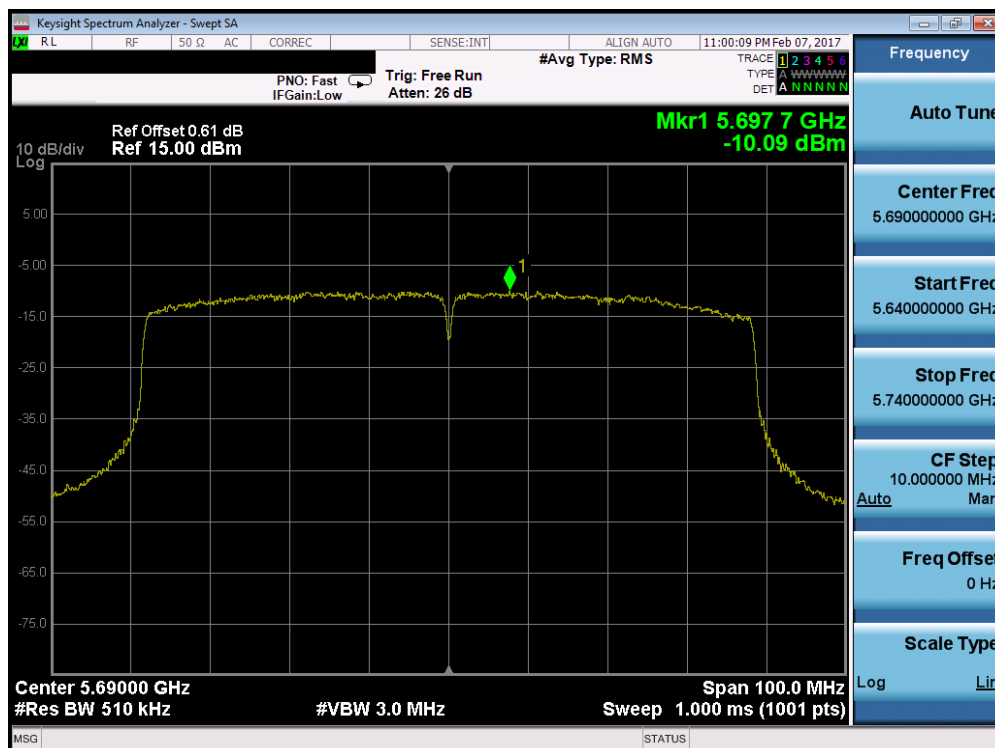


Plot 7-145. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 103 of 195

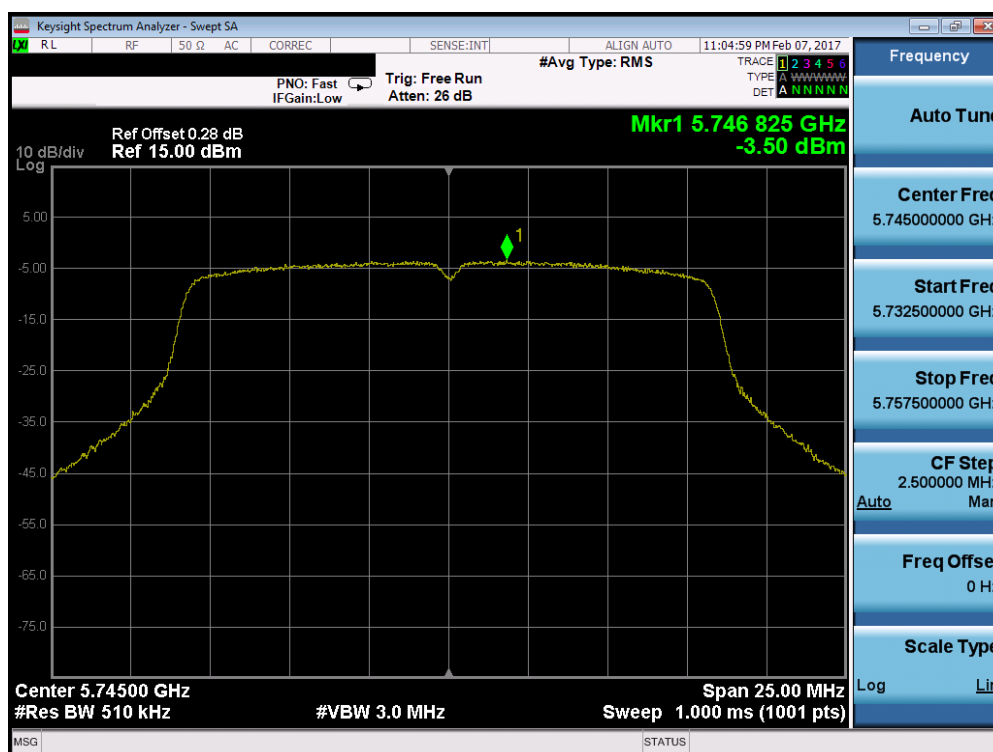


Plot 7-146. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

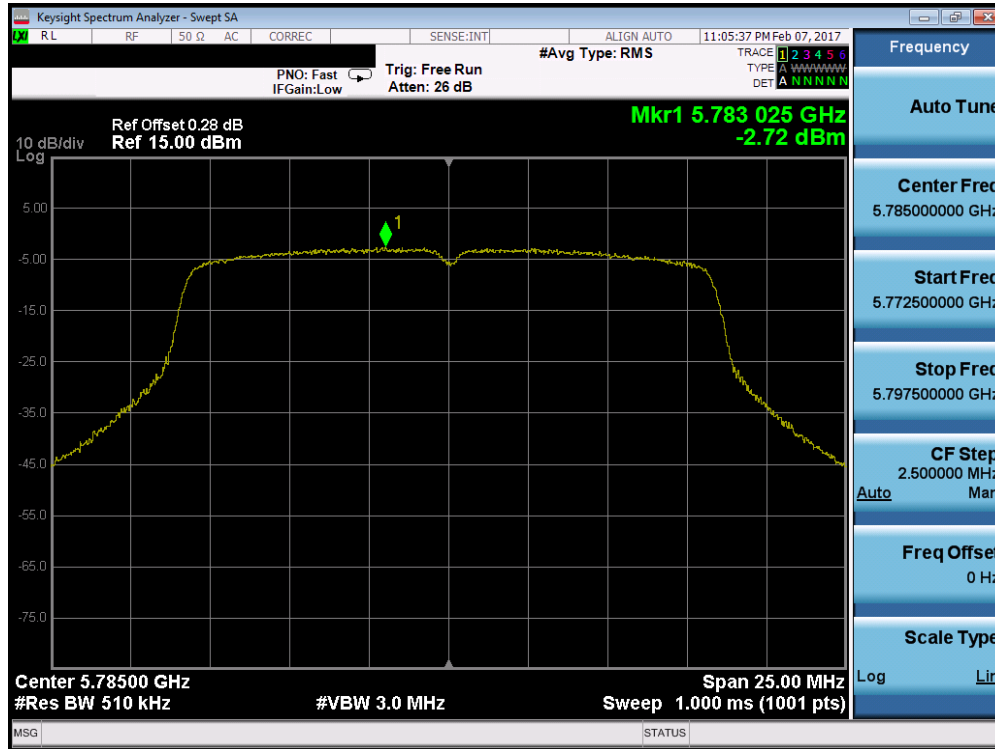


Plot 7-147. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

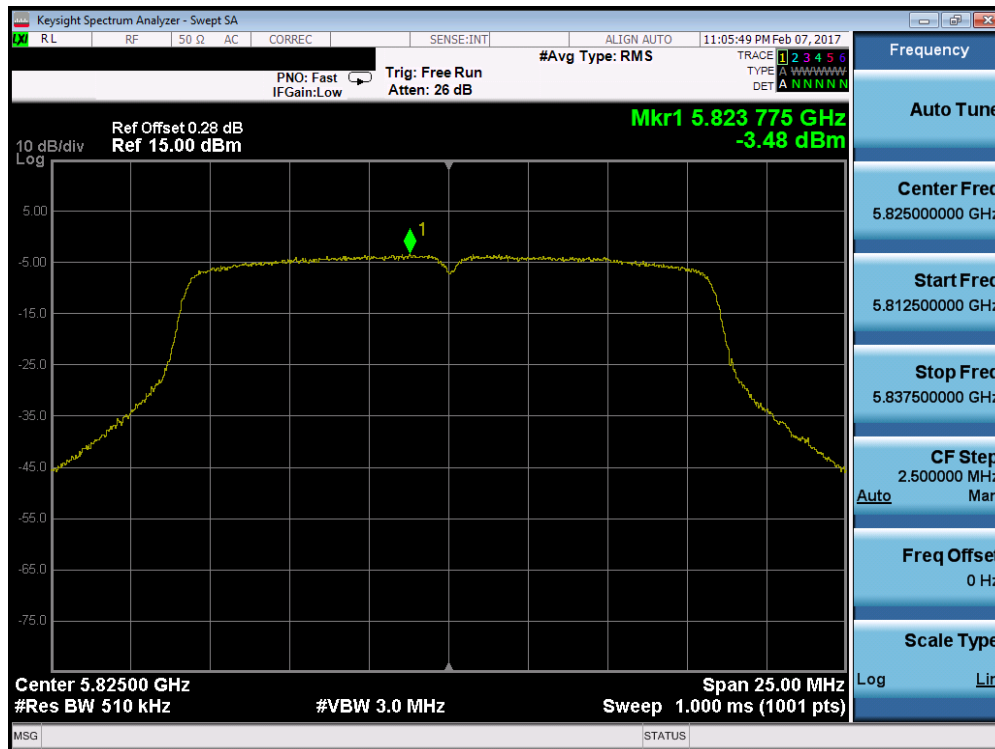
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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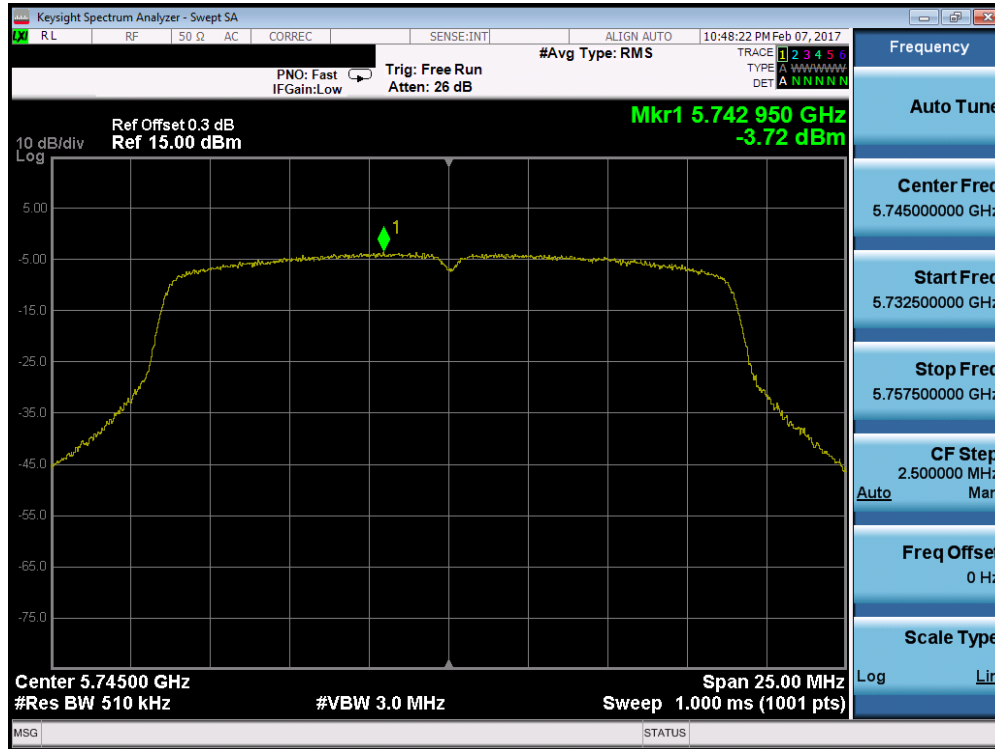


Plot 7-149. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)

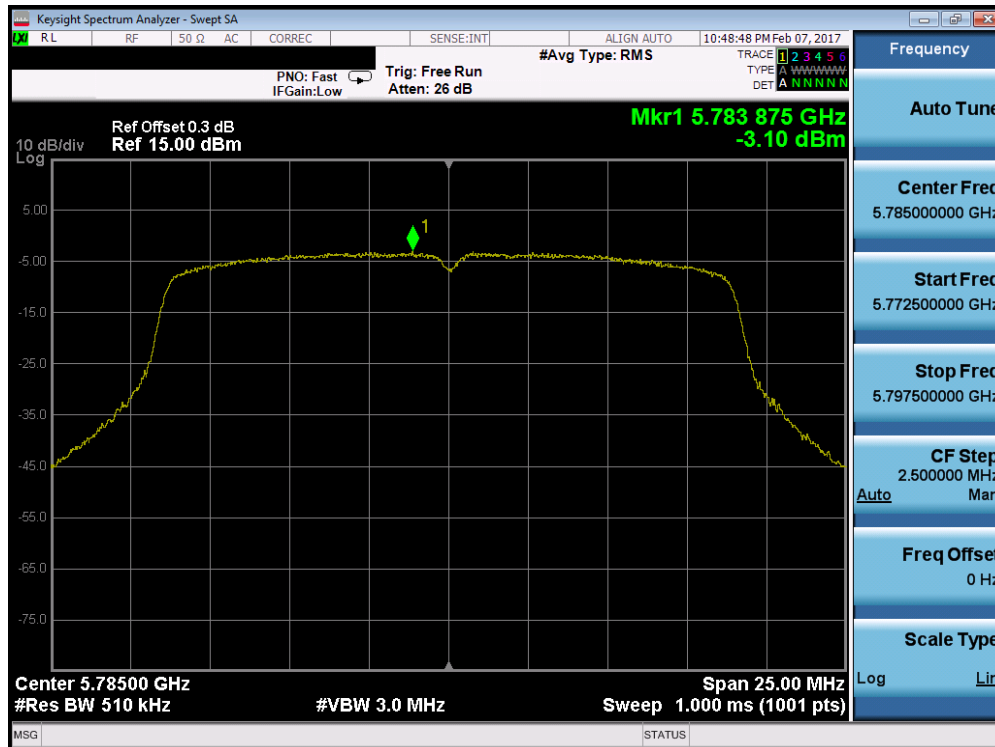


Plot 7-150. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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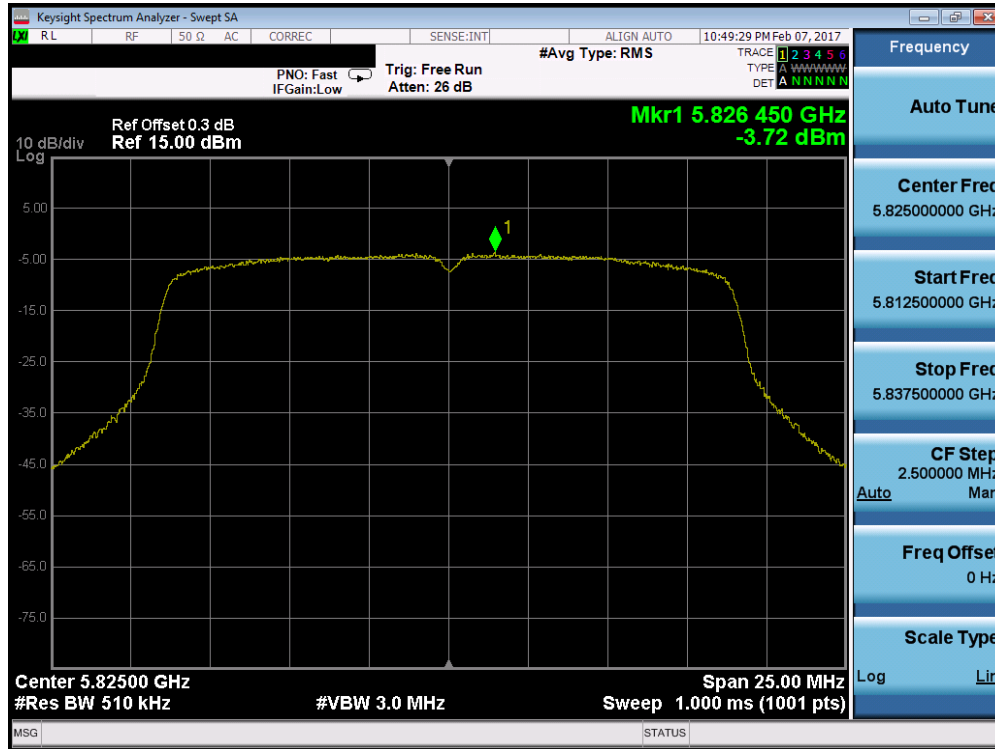


Plot 7-151. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



Plot 7-152. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

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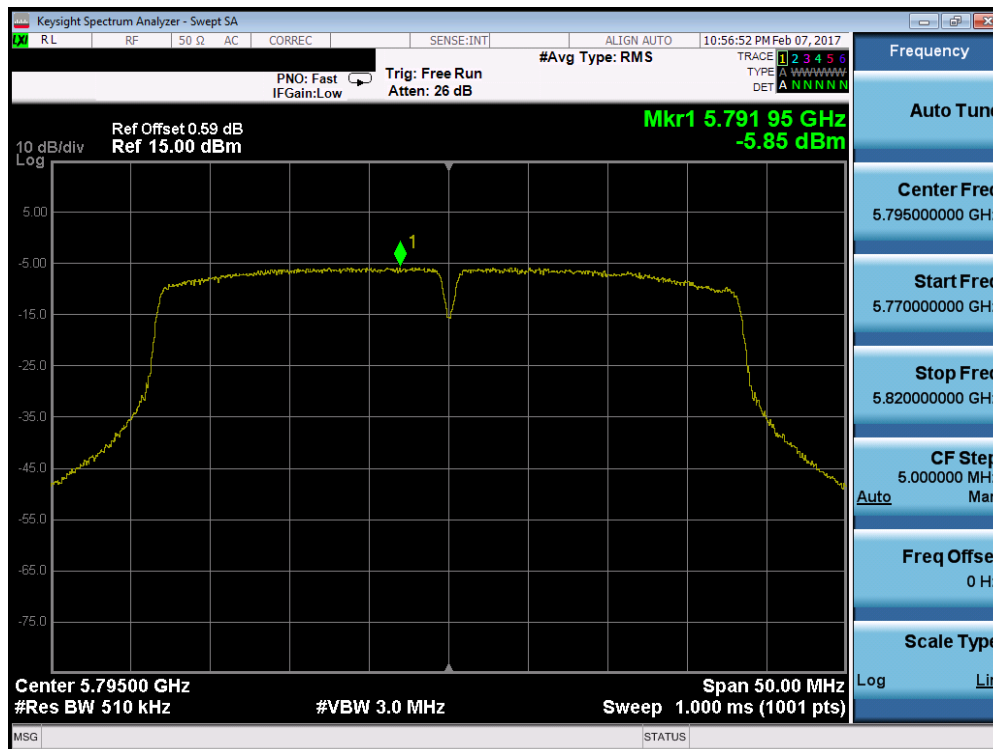


Plot 7-153. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

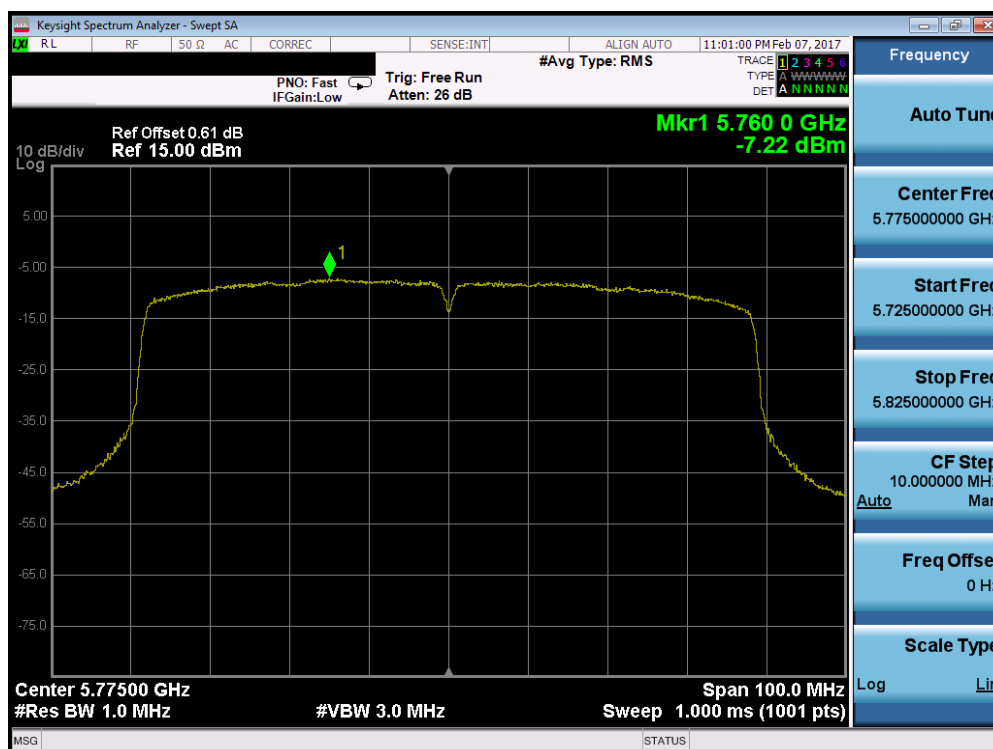


Plot 7-154. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

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Plot 7-155. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-156. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

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Summed MIMO Power Spectral Density Measurements

	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/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	n (20MHz)	6.5/7.2 (MCS0)	-0.50	-1.76	1.92	11.0	-9.08	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	-0.29	-1.79	2.03	11.0	-8.97	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	-0.25	-1.54	2.16	11.0	-8.84	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	-2.82	-3.17	0.02	11.0	-10.98	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	-2.08	-2.08	0.93	11.0	-10.07	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-6.73	-6.81	-3.76	11.0	-14.76	Pass
Band 2A	5260	52	n (20MHz)	6.5/7.2 (MCS0)	-0.29	-1.83	2.02	11.0	-8.98	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	0.03	-1.06	2.53	11.0	-8.47	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	-0.34	-0.94	2.38	11.0	-8.62	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	-2.67	-3.45	-0.03	11.0	-11.03	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	-2.86	-3.25	-0.04	11.0	-11.04	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-6.37	-7.20	-3.76	11.0	-14.76	Pass
Band 2C	5500	100	n (20MHz)	6.5/7.2 (MCS0)	-0.18	-0.74	2.56	11.0	-8.44	Pass
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	-0.11	-0.80	2.57	11.0	-8.43	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	-0.27	-0.93	2.42	11.0	-8.58	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	-2.69	-3.42	-0.03	11.0	-11.03	Pass
	5590	118	n (40MHz)	13.5/15 (MCS0)	-2.69	-3.44	-0.04	11.0	-11.04	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	-2.72	-3.26	0.03	11.0	-10.97	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-6.96	-6.96	-3.95	11.0	-14.95	Pass
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-6.65	-7.04	-3.83	11.0	-14.83	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-9.40	-10.09	-6.72	11.0	-17.72	Pass

Table 7-21. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

	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]	Pass / Fail
Band 3	5745	149	n (20MHz)	6.5/7.2 (MCS0)	-3.31	-3.72	-0.50	30.0	-30.50	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	-2.06	-3.10	0.46	30.0	-29.54	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	-3.02	-3.72	-0.35	30.0	-30.35	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	-5.68	-6.29	-2.97	30.0	-32.97	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	-4.67	-5.85	-2.21	30.0	-32.21	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-6.94	-7.22	-4.07	30.0	-34.07	Pass

Table 7-22. Band 3 MIMO Conducted Power Spectral Density Measurements

Note:

Per 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 the average conducted power spectral density was measured to be -0.50 dBm for Antenna-1 and -1.76 dBm for Antenna-2.

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

$$(-0.50 \text{ dBm} + -1.76 \text{ dBm}) = (0.89 \text{ mW} + 0.67 \text{ mW}) = 1.56 \text{ mW} = 1.92 \text{ dBm}$$

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7.6 Frequency Stability

§15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,180,000,000 Hz
 CHANNEL: 36
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,179,999,600	-400	-0.00000772
100 %		- 30	5,179,999,697	-303	-0.00000585
100 %		- 20	5,179,999,814	-186	-0.00000359
100 %		- 10	5,180,000,211	211	0.00000407
100 %		0	5,179,999,876	-124	-0.00000239
100 %		+ 10	5,180,000,352	352	0.00000680
100 %		+ 20	5,180,000,269	269	0.00000519
100 %		+ 30	5,179,999,907	-93	-0.00000180
100 %		+ 40	5,179,999,860	-140	-0.00000270
100 %		+ 50	5,179,999,940	-60	-0.00000116
BATT. ENDPOINT	3.45	+ 20	5,180,000,114	114	0.00000220

Table 7-23. Frequency Stability Measurements for UNII Band 1 (Ch. 36)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Frequency Stability

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The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,260,000,000 Hz
 CHANNEL: 52
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,259,999,819	-181	-0.00000344
100 %		- 30	5,259,999,930	-70	-0.00000133
100 %		- 20	5,260,000,183	183	0.00000348
100 %		- 10	5,260,000,264	264	0.00000502
100 %		0	5,259,999,970	-30	-0.00000057
100 %		+ 10	5,259,999,957	-43	-0.00000082
100 %		+ 20	5,260,000,036	36	0.00000068
100 %		+ 30	5,259,999,995	-5	-0.00000010
100 %		+ 40	5,259,999,855	-145	-0.00000276
100 %		+ 50	5,260,000,055	55	0.00000105
BATT. ENDPOINT	3.45	+ 20	5,259,999,967	-33	-0.00000063

Table 7-24. Frequency Stability Measurements for UNII Band 2A (Ch. 52)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Frequency Stability

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The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,500,000,000 Hz
 CHANNEL: 100
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,500,000,213	213	0.00000387
100 %		- 30	5,500,000,210	210	0.00000382
100 %		- 20	5,499,999,696	-304	-0.00000553
100 %		- 10	5,499,999,960	-40	-0.00000073
100 %		0	5,499,999,810	-190	-0.00000345
100 %		+ 10	5,499,999,912	-88	-0.00000160
100 %		+ 20	5,499,999,991	-9	-0.00000016
100 %		+ 30	5,499,999,924	-76	-0.00000138
100 %		+ 40	5,500,000,189	189	0.00000344
100 %		+ 50	5,500,000,083	83	0.00000151
BATT. ENDPOINT	3.45	+ 20	5,499,999,965	-35	-0.00000064

Table 7-25. Frequency Stability Measurements for UNII Band 2C (Ch. 100)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Frequency Stability

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The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,745,000,000 Hz
 CHANNEL: 149
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,744,999,902	-98	-0.00000171
100 %		- 30	5,744,999,687	-313	-0.00000545
100 %		- 20	5,745,000,029	29	0.00000050
100 %		- 10	5,745,000,058	58	0.00000101
100 %		0	5,745,000,365	365	0.00000635
100 %		+ 10	5,745,000,139	139	0.00000242
100 %		+ 20	5,745,000,063	63	0.00000110
100 %		+ 30	5,745,000,376	376	0.00000654
100 %		+ 40	5,744,999,904	-96	-0.00000167
100 %		+ 50	5,745,000,005	5	0.00000009
BATT. ENDPOINT	3.45	+ 20	5,744,999,961	-39	-0.00000068

Table 7-26. Frequency Stability Measurements for UNII Band 3 (Ch. 149)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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7.7 Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b) §15.205 §15.209

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 KDB 789033 D02 v01r03, 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 must not exceed the limits shown in Table 7-27 per Section 15.209.

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

Table 7-27. Radiated Limits

Test Procedures Used

KDB 789033 D02 v01r03 – 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.

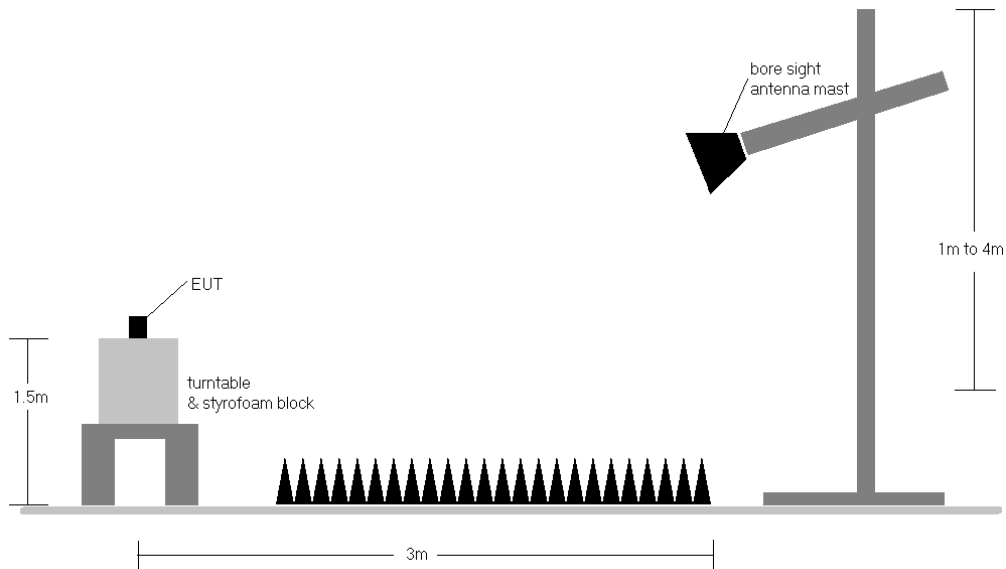


Figure 7-5. Test Instrument & Measurement Setup

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Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 D02 v01r03 Section G.
2. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 are below the limit shown in Table 7-27.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-27. 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.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.
6. 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.
7. 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.
8. 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.
9. 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. Rohde & Schwarz EMC32, Version 9.15.00 automated test software was used to perform the Radiated Spurious Emissions Pre-Scan testing.
10. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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Sample Calculations

Determining Spurious Emissions Levels

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

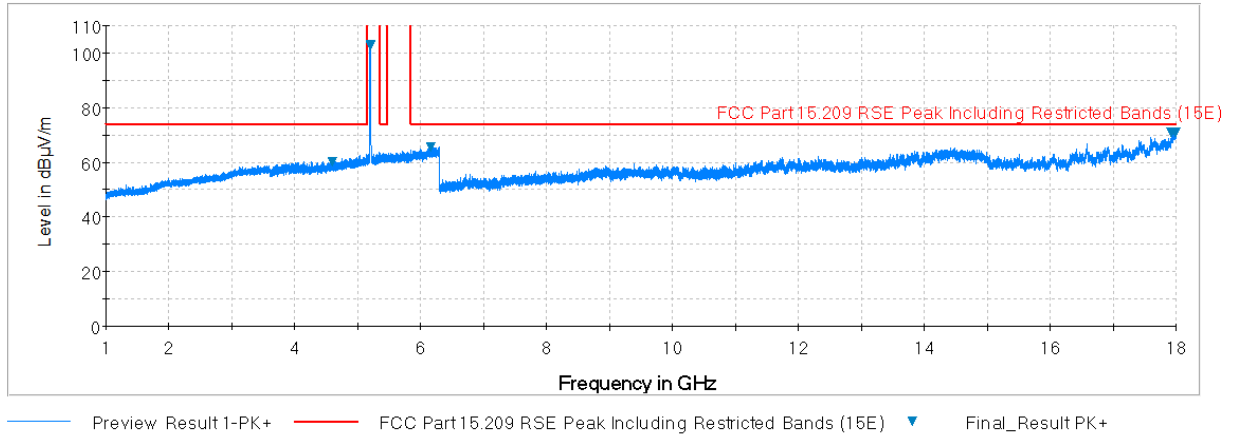
Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 7.7 was calculated using the formula:

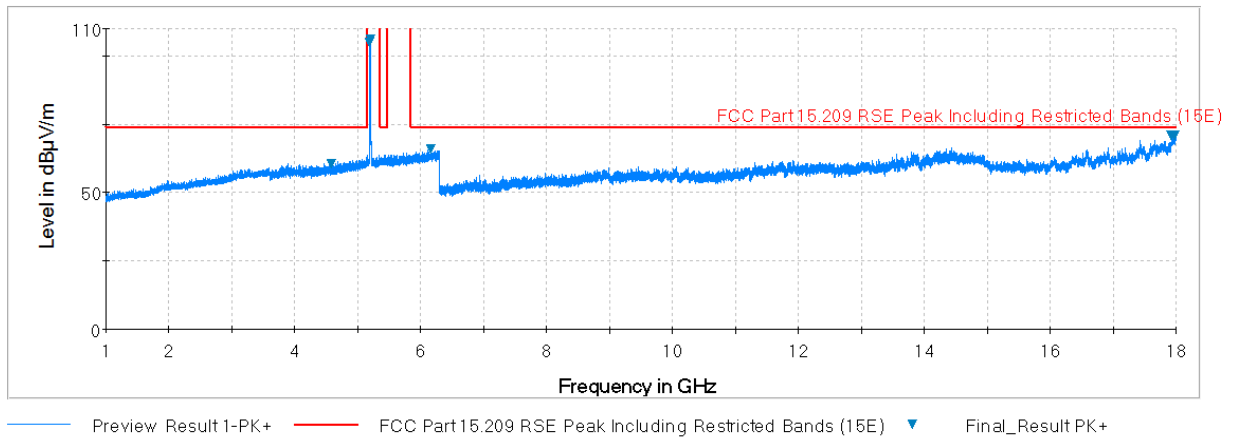
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

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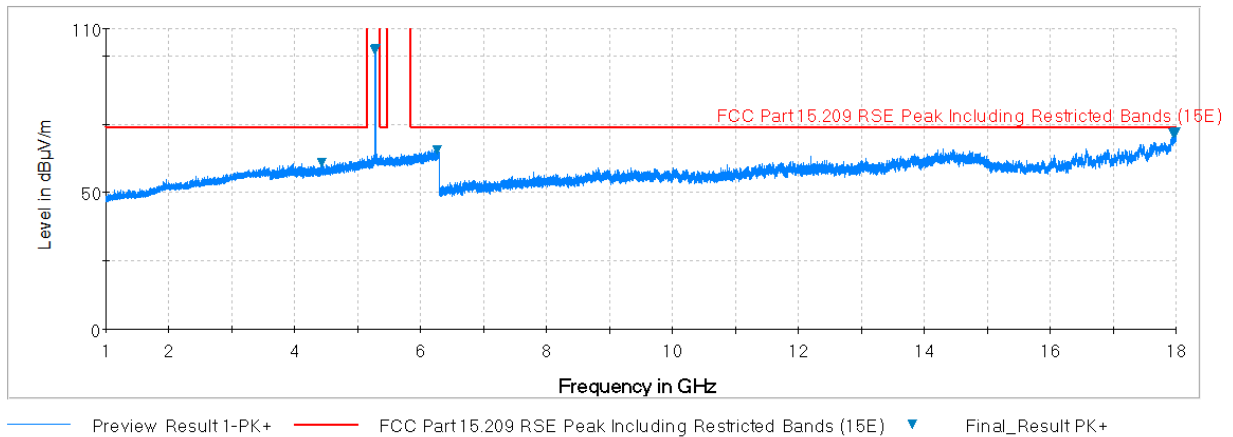
7.7.1 Antenna-1 Radiated Spurious Emission Measurements



Plot 7-157. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)

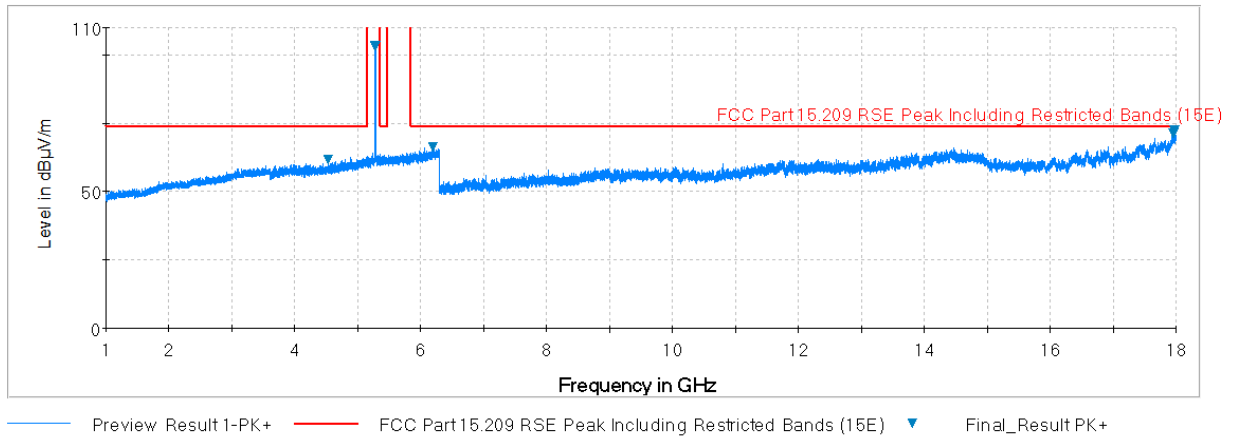


Plot 7-158. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

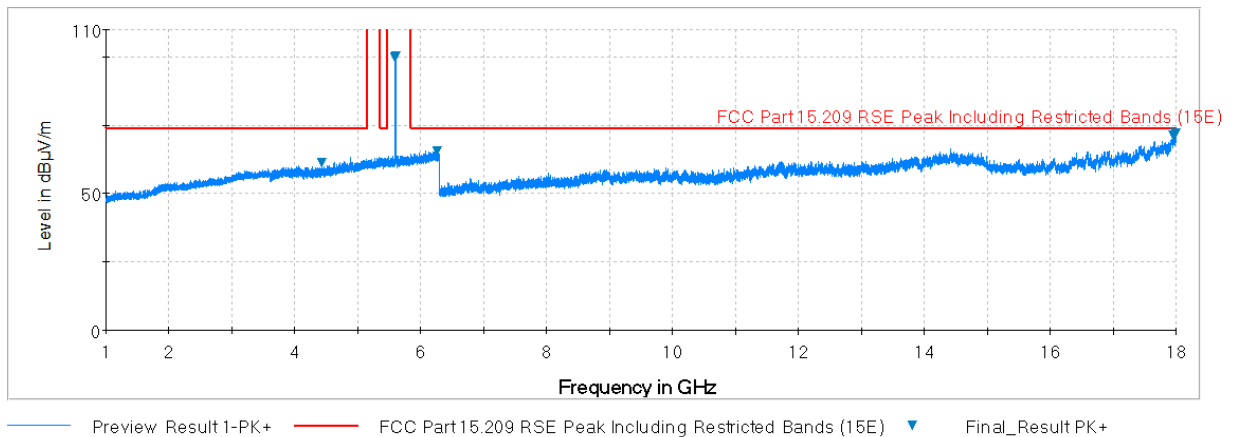


Plot 7-159. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

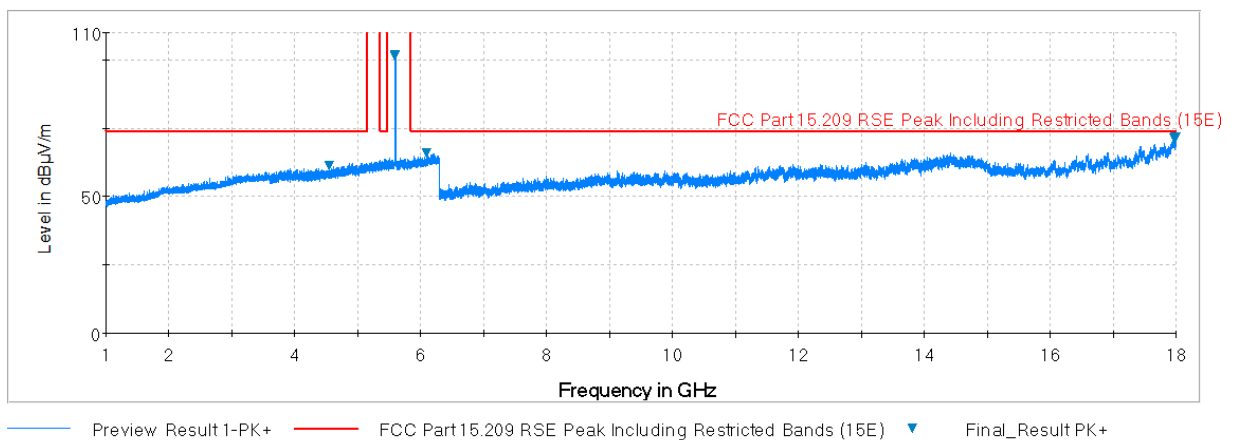
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 119 of 195



Plot 7-160. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

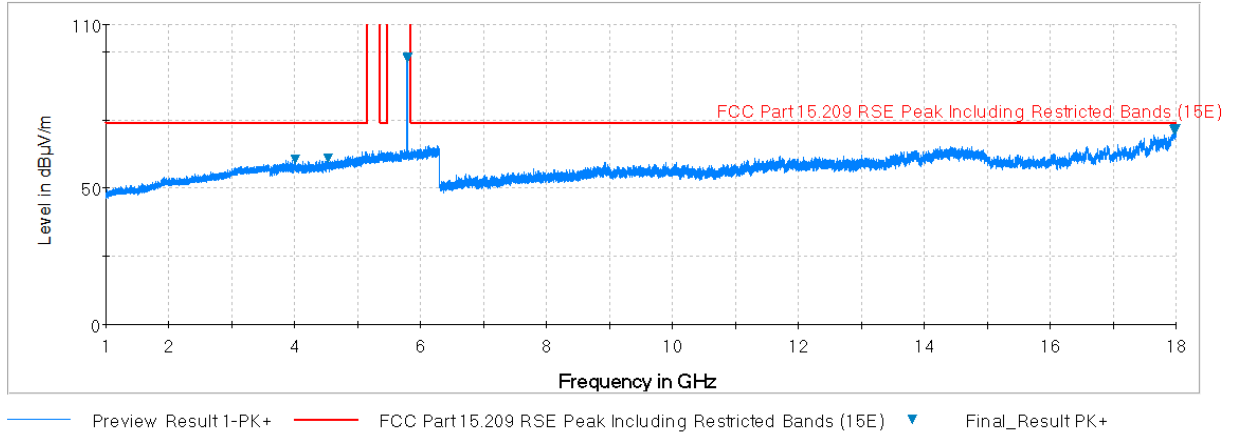


Plot 7-161. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 120, Ant. Pol. H)

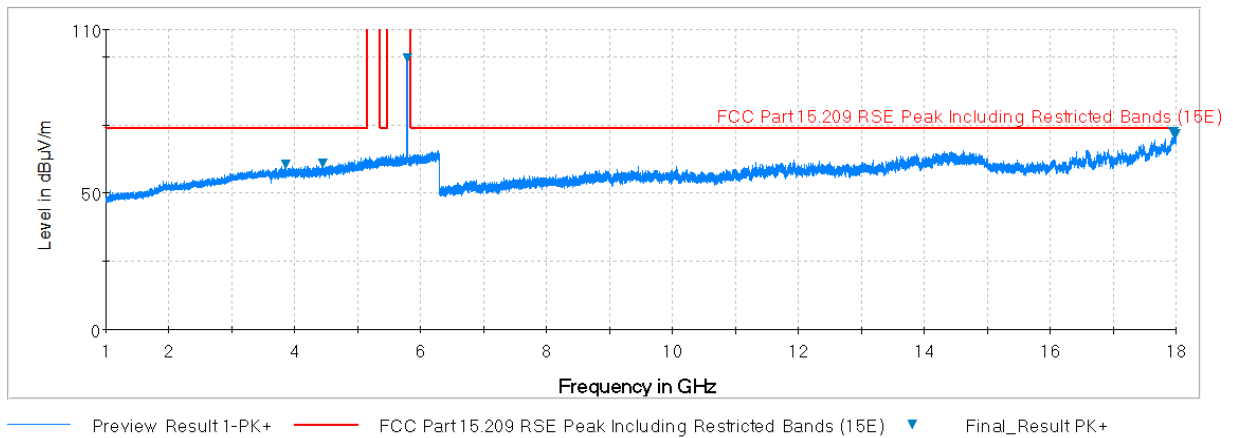


Plot 7-162. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 120, Ant. Pol. V)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-163. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

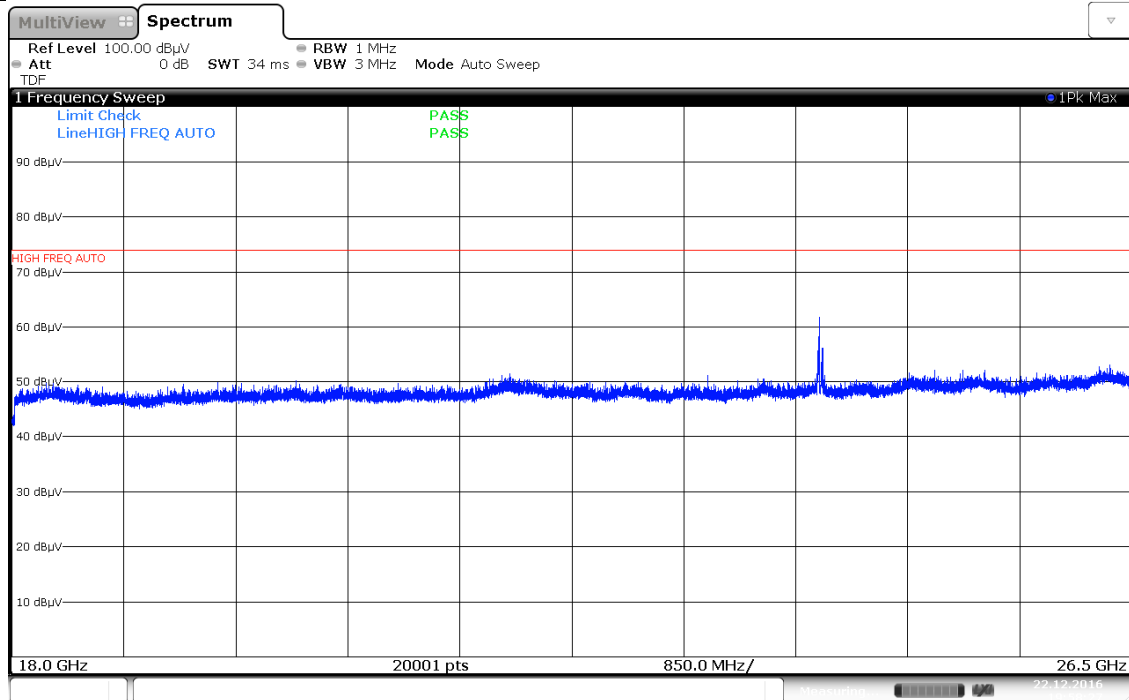


Plot 7-164. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

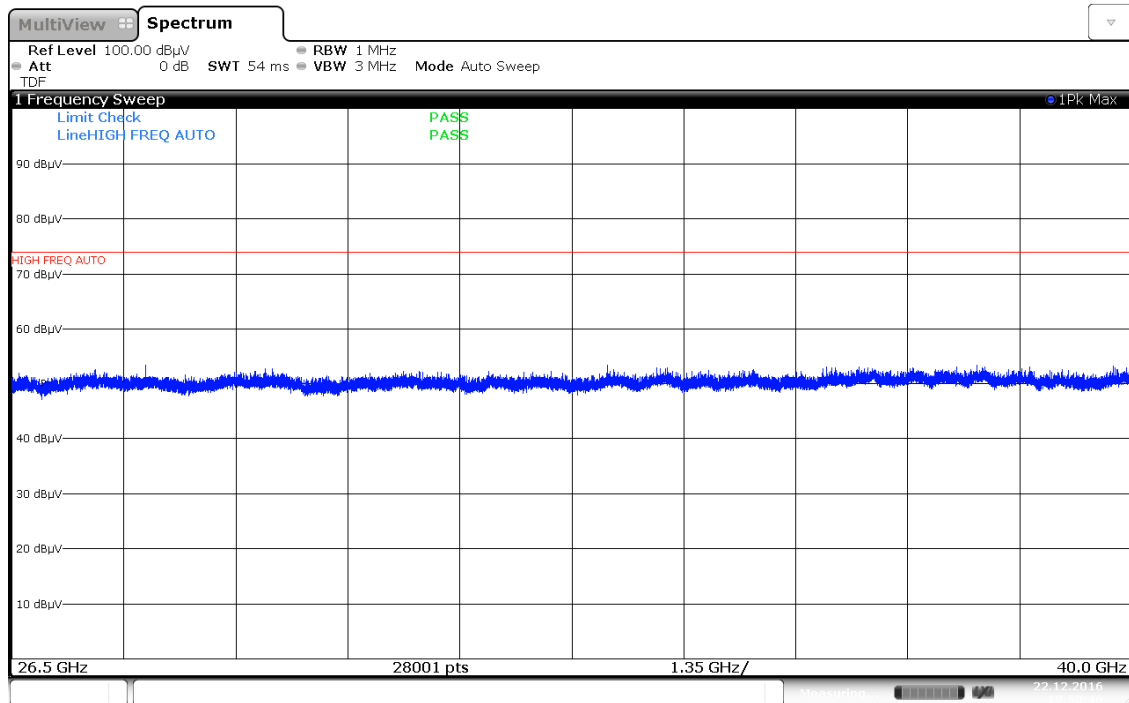
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 121 of 195

Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209



Plot 7-165. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)



Plot 7-166. Radiated Spurious Plot above 26.5GHz (802.11a – Ant. Pol. H)

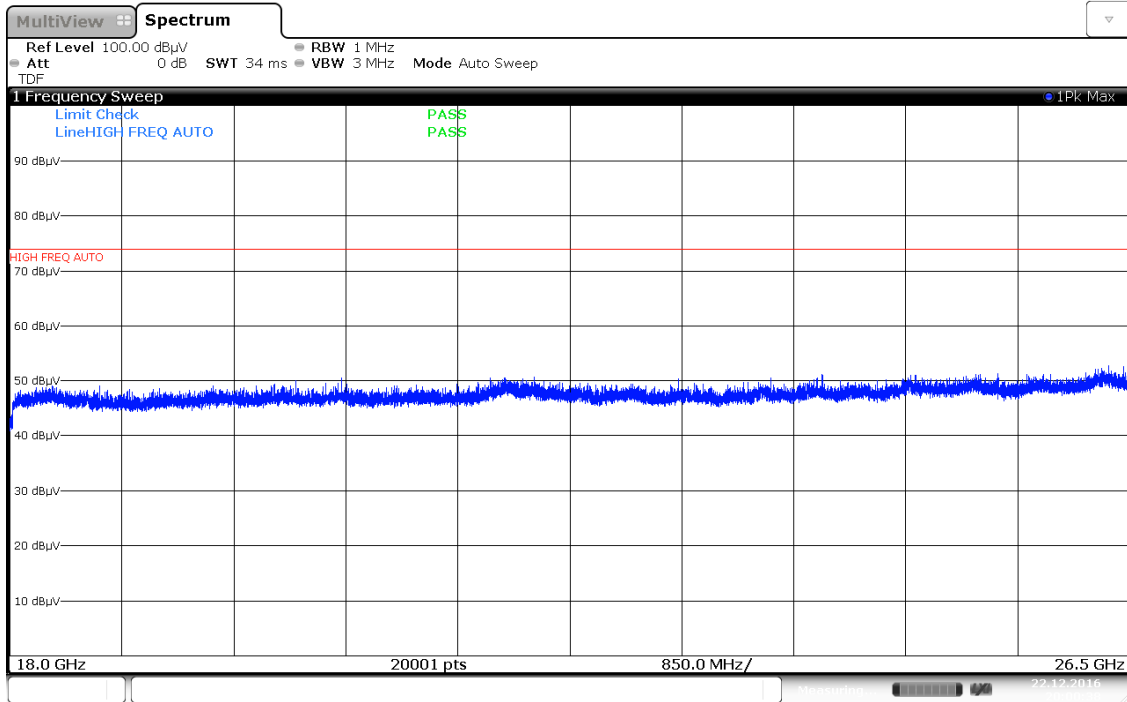
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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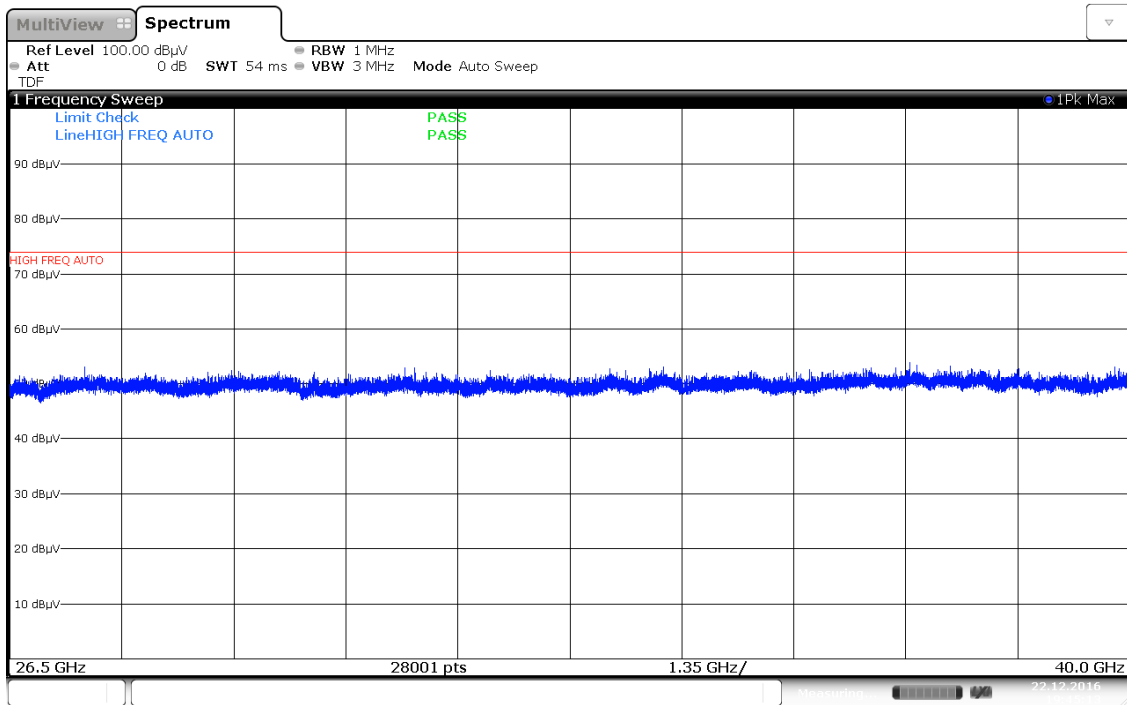
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Plot 7-167. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. V)



Plot 7-168. Radiated Spurious Plot above 26.5GHz (802.11a – Ant. Pol. H)

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Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 123 of 195

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Antenna-1 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-60.29	12.69	0.00	59.40	68.20	-8.80
* 15540.00	Average	H	-	-	-71.88	15.58	0.00	50.70	53.98	-3.28
* 15540.00	Peak	H	-	-	-59.14	15.58	0.00	63.44	73.98	-10.54
* 20720.00	Average	H	-	-	-112.46	44.42	-9.54	29.42	53.98	-24.56
* 20720.00	Peak	H	-	-	-101.14	44.42	-9.54	40.74	73.98	-33.24
25900.00	Peak	H	-	-	-100.08	45.16	-9.54	42.54	68.20	-25.66

Table 7-28. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-58.31	13.01	0.00	61.70	68.20	-6.50
* 15600.00	Average	H	-	-	-72.34	15.45	0.00	50.11	53.98	-3.87
* 15600.00	Peak	H	-	-	-60.26	15.45	0.00	62.19	73.98	-11.79
* 20800.00	Average	H	-	-	-112.23	44.43	-9.54	29.66	53.98	-24.32
* 20800.00	Peak	H	-	-	-100.74	44.43	-9.54	41.15	73.98	-32.83
26000.00	Peak	H	-	-	-100.28	45.14	-9.54	42.32	68.20	-25.88

Table 7-29. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 124 of 195

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-58.40	12.88	0.00	61.48	68.20	-6.72
* 15720.00	Average	H	-	-	-72.27	15.90	0.00	50.63	53.98	-3.35
* 15720.00	Peak	H	-	-	-60.18	15.90	0.00	62.72	73.98	-11.26
* 20960.00	Average	H	-	-	-112.77	44.44	-9.54	29.13	53.98	-24.85
* 20960.00	Peak	H	-	-	-102.32	44.44	-9.54	39.58	73.98	-34.40
26200.00	Peak	H	-	-	-100.53	45.08	-9.54	42.00	68.20	-26.20

Table 7-30. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-58.40	12.81	0.00	61.41	68.20	-6.79
* 15780.00	Average	H	-	-	-72.05	15.62	0.00	50.57	53.98	-3.41
* 15780.00	Peak	H	-	-	-59.87	15.62	0.00	62.75	73.98	-11.23
* 21040.00	Average	H	-	-	-101.55	44.43	-9.54	40.34	53.98	-13.64
* 21040.00	Peak	H	-	-	-101.35	44.43	-9.54	40.54	73.98	-33.44
26300.00	Peak	H	-	-	-100.14	45.06	-9.54	42.37	68.20	-25.83

Table 7-31. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-58.62	13.19	0.00	61.57	68.20	-6.63
* 15840.00	Average	H	-	-	-72.50	16.14	0.00	50.64	53.98	-3.34
* 15840.00	Peak	H	-	-	-60.22	16.14	0.00	62.92	73.98	-11.06
* 21120.00	Average	H	-	-	-112.14	44.41	-9.54	29.72	53.98	-24.26
* 21120.00	Peak	H	-	-	-101.89	44.41	-9.54	39.97	73.98	-34.01
26400.00	Peak	H	-	-	-100.16	45.06	-9.54	42.35	68.20	-25.85

Table 7-32. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-71.13	13.63	0.00	49.50	53.98	-4.48
* 10640.00	Peak	H	-	-	-58.98	13.63	0.00	61.65	73.98	-12.33
* 15960.00	Average	H	-	-	-72.35	15.91	0.00	50.56	53.98	-3.42
* 15960.00	Peak	H	-	-	-60.31	15.91	0.00	62.60	73.98	-11.38
* 21280.00	Average	H	-	-	-112.37	44.37	-9.54	29.47	53.98	-24.51
* 21280.00	Peak	H	-	-	-102.32	44.37	-9.54	39.52	73.98	-34.46
26600.00	Peak	H	-	-	-102.13	47.71	-9.54	43.04	68.20	-25.16

Table 7-33. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-71.03	13.98	0.00	49.95	53.98	-4.03
* 11000.00	Peak	H	-	-	-58.58	13.98	0.00	62.40	73.98	-11.58
16500.00	Peak	H	-	-	-60.46	17.93	0.00	64.47	68.20	-3.73
22000.00	Peak	H	-	-	-101.44	44.64	-9.54	40.66	68.20	-27.54
27500.00	Peak	H	-	-	-103.13	48.13	-9.54	42.46	68.20	-25.74

Table 7-34. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	-	-	-70.97	14.55	0.00	50.58	53.98	-3.40
* 11200.00	Peak	H	-	-	-58.90	14.55	0.00	62.65	73.98	-11.33
16800.00	Peak	H	-	-	-61.40	19.29	0.00	64.89	68.20	-3.31
* 22400.00	Average	H	-	-	-112.82	44.59	-9.54	29.23	53.98	-24.75
* 22400.00	Peak	H	-	-	-102.17	44.59	-9.54	39.88	73.98	-34.10
28000.00	Peak	H	-	-	-103.71	48.22	-9.54	41.97	68.20	-26.23

Table 7-35. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-70.77	14.66	0.00	50.89	53.98	-3.09
* 11440.00	Peak	H	-	-	-58.31	14.66	0.00	63.35	73.98	-10.63
17160.00	Peak	H	-	-	-61.13	18.95	0.00	64.82	68.20	-3.38
* 22880.00	Average	H	-	-	-112.92	44.63	-9.54	29.17	53.98	-24.81
* 22880.00	Peak	H	-	-	-101.94	44.63	-9.54	40.15	73.98	-33.83
28600.00	Peak	H	-	-	-103.80	48.41	-9.54	42.07	68.20	-26.13

Table 7-36. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-70.99	14.10	0.00	50.11	53.98	-3.87
* 11490.00	Peak	H	-	-	-58.83	14.10	0.00	62.27	73.98	-11.71
17235.00	Peak	H	-	-	-60.81	18.02	0.00	64.21	68.20	-3.99
* 22980.00	Average	H	-	-	-112.74	44.72	-9.54	29.43	53.98	-24.55
* 22980.00	Peak	H	-	-	-101.41	44.72	-9.54	40.76	73.98	-33.22
28725.00	Peak	H	-	-	-103.55	48.08	-9.54	41.99	68.20	-26.21

Table 7-37. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-70.86	14.26	0.00	50.40	53.98	-3.58
* 11570.00	Peak	H	-	-	-58.23	14.26	0.00	63.03	73.98	-10.95
17355.00	Peak	H	-	-	-60.53	18.34	0.00	64.81	68.20	-3.39
23140.00	Peak	H	-	-	-101.34	44.84	-9.54	40.95	68.20	-27.25
28925.00	Peak	H	-	-	-103.11	48.09	-9.54	42.44	68.20	-25.76

Table 7-38. Radiated Measurements

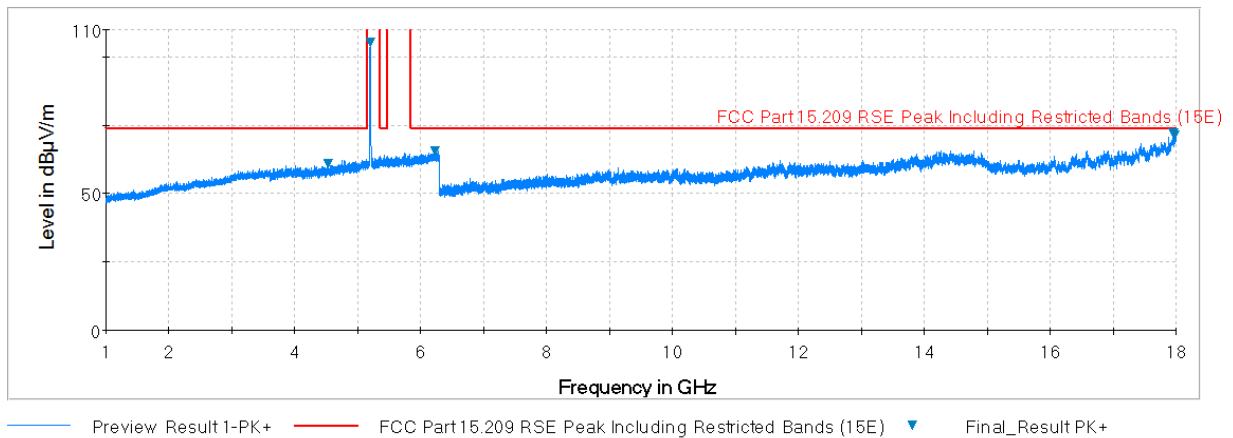
Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-70.87	14.60	0.00	50.73	53.98	-3.25
* 11650.00	Peak	H	-	-	-57.46	14.60	0.00	64.14	73.98	-9.84
17475.00	Peak	H	-	-	-60.38	17.82	0.00	64.44	68.20	-3.76
23300.00	Peak	H	-	-	-101.44	44.86	-9.54	40.88	68.20	-27.32
29125.00	Peak	H	-	-	-103.39	48.09	-9.54	42.16	68.20	-26.04

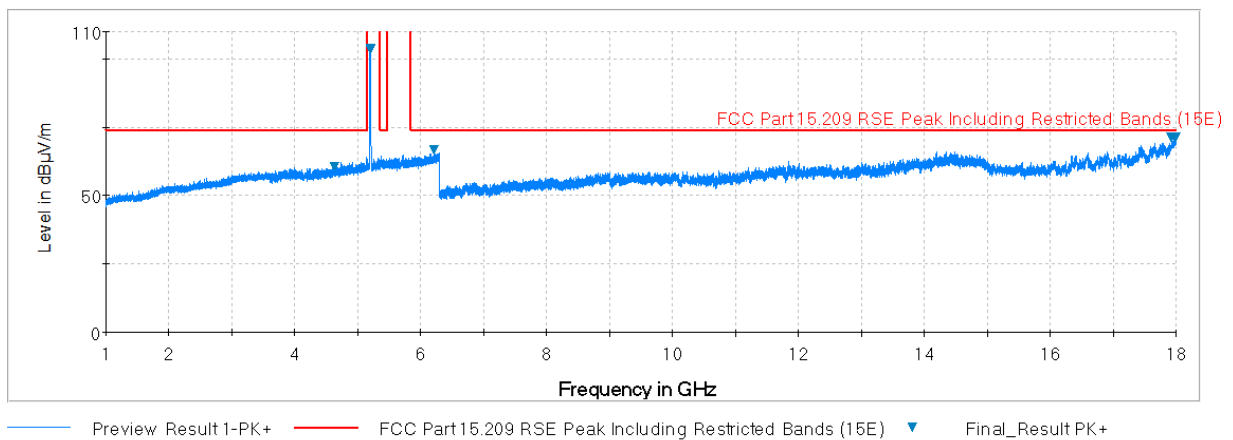
Table 7-39. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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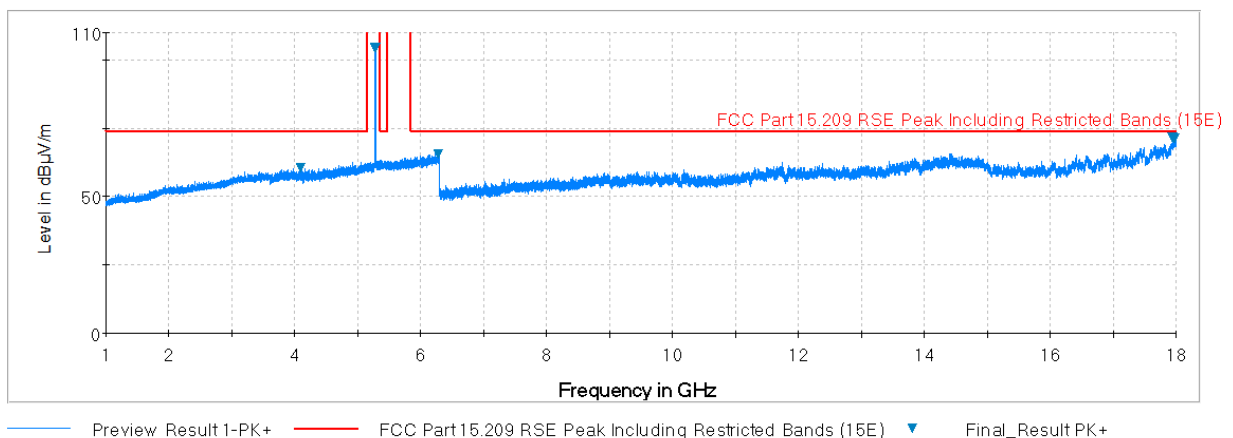
7.7.2 Antenna-2 Radiated Spurious Emission Measurements



Plot 7-169. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)

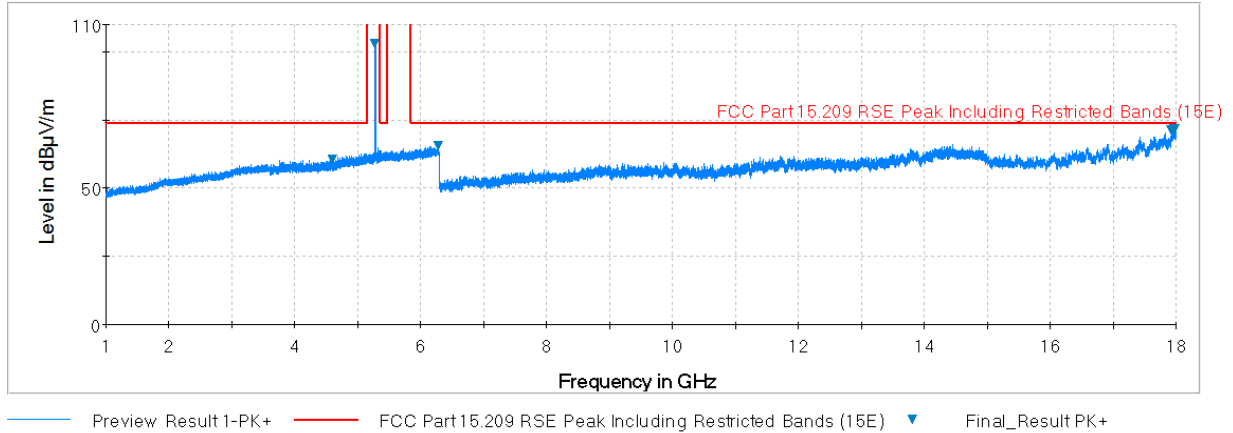


Plot 7-170. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

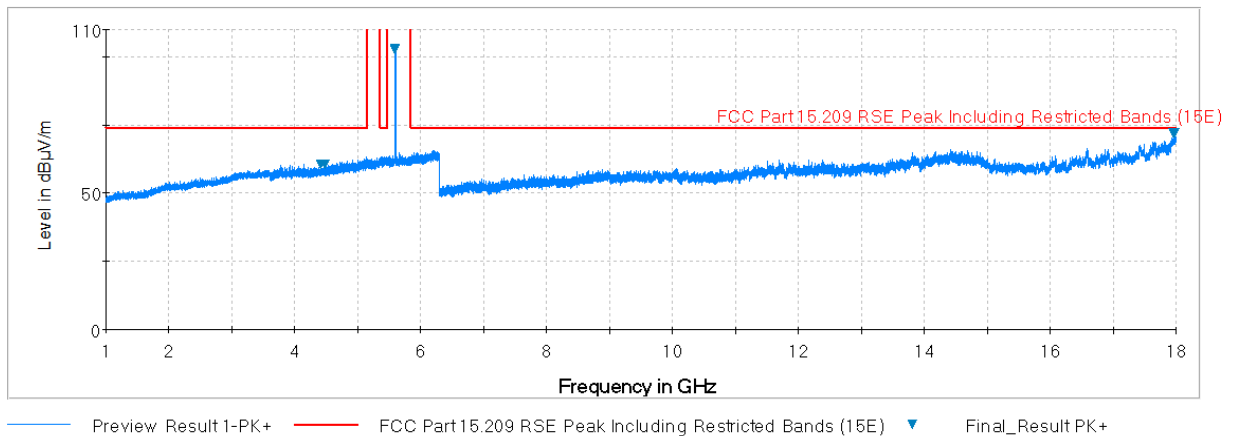


Plot 7-171. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

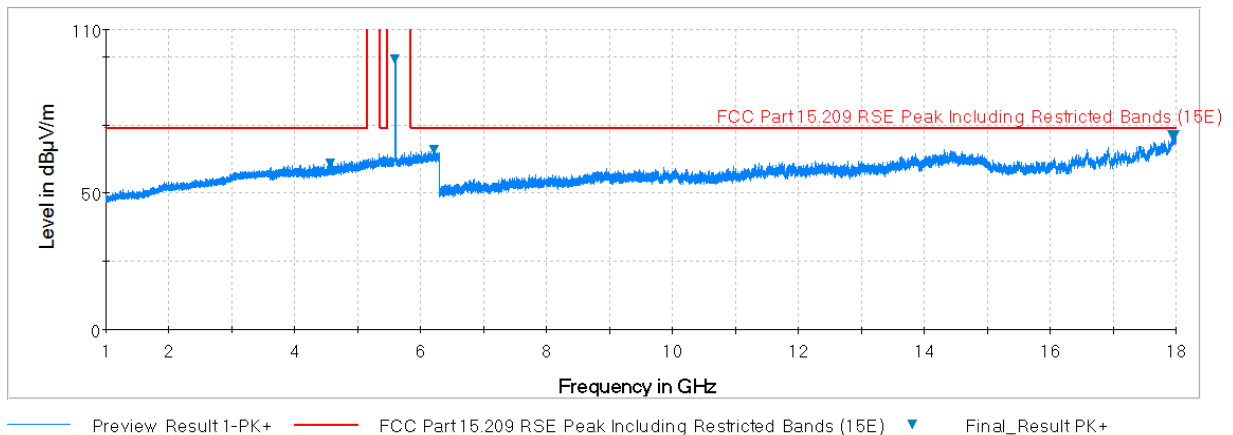
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 130 of 195



Plot 7-172. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

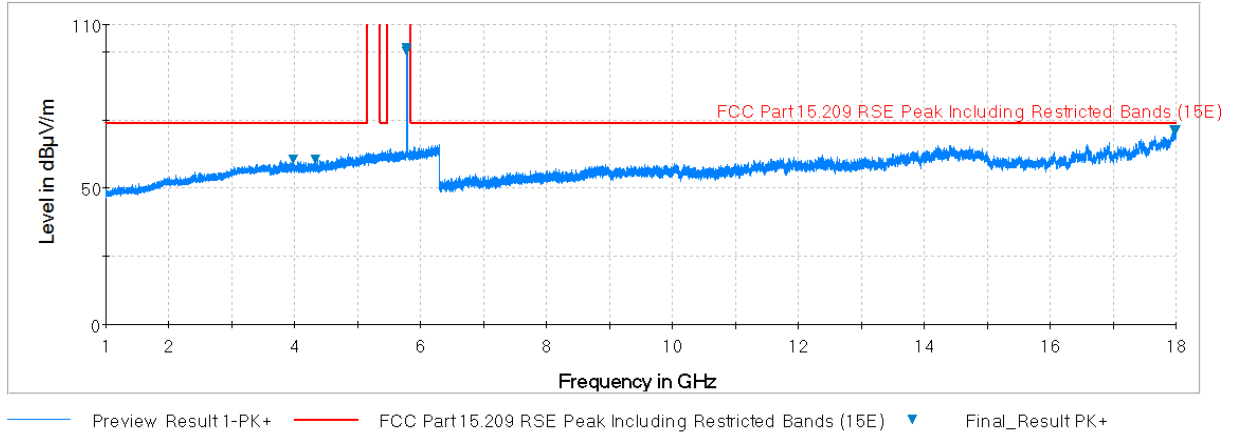


Plot 7-173. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 120, Ant. Pol. H)

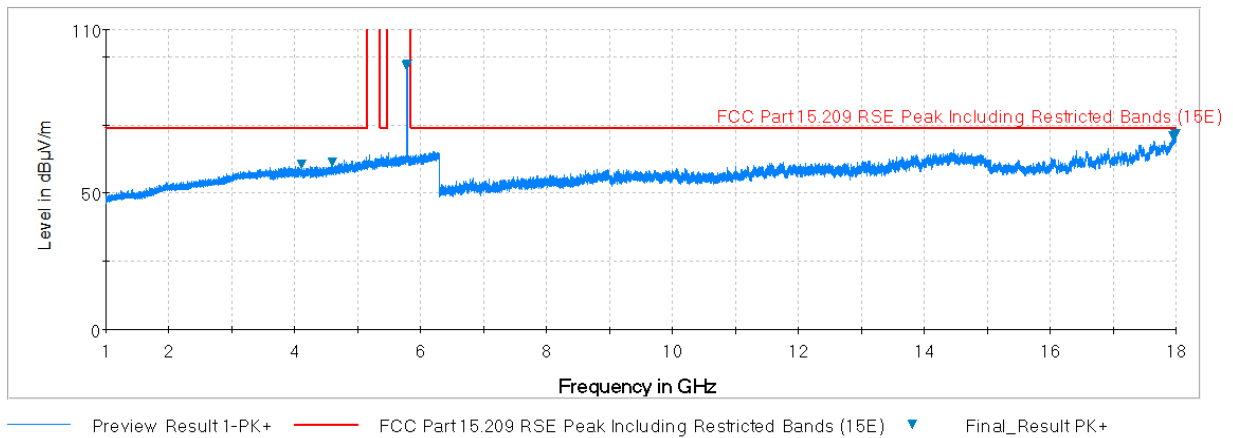


Plot 7-174. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 120, Ant. Pol. V)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 131 of 195



Plot 7-175. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

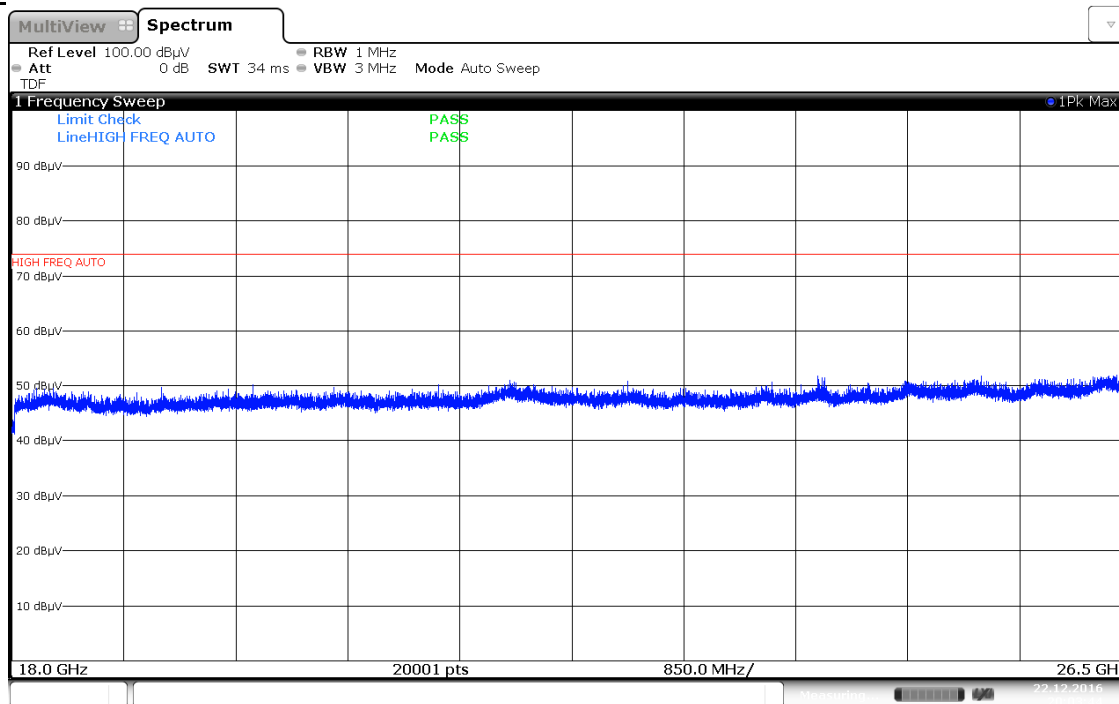


Plot 7-176. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

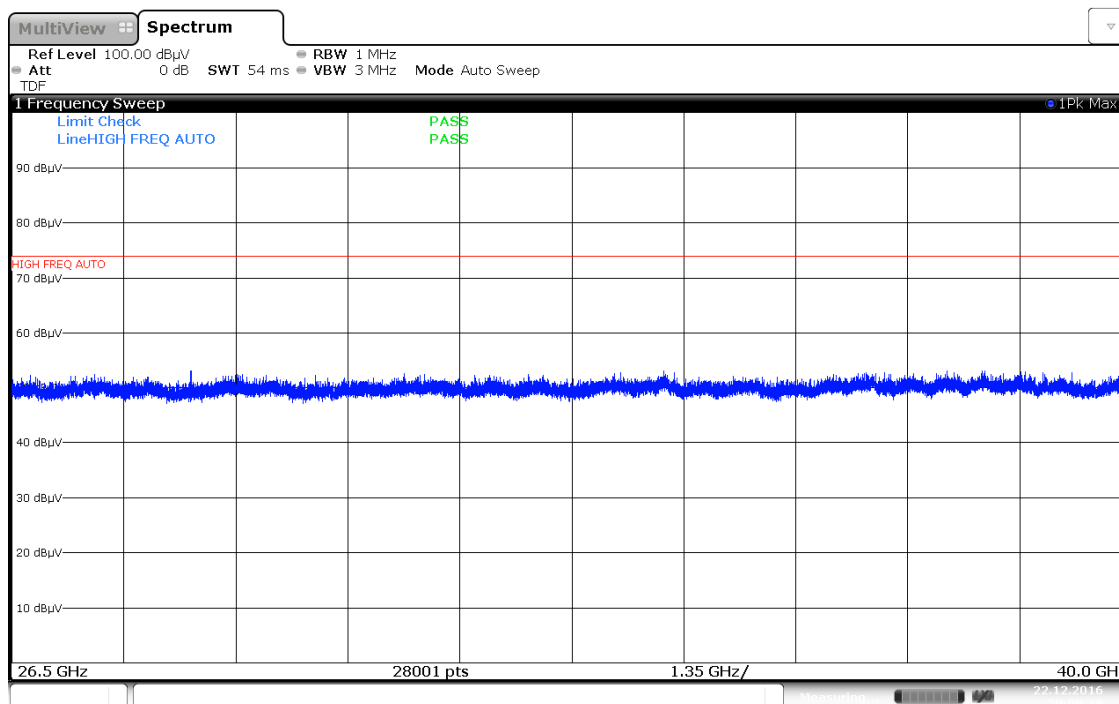
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 132 of 195

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

§15.209



Plot 7-177. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)



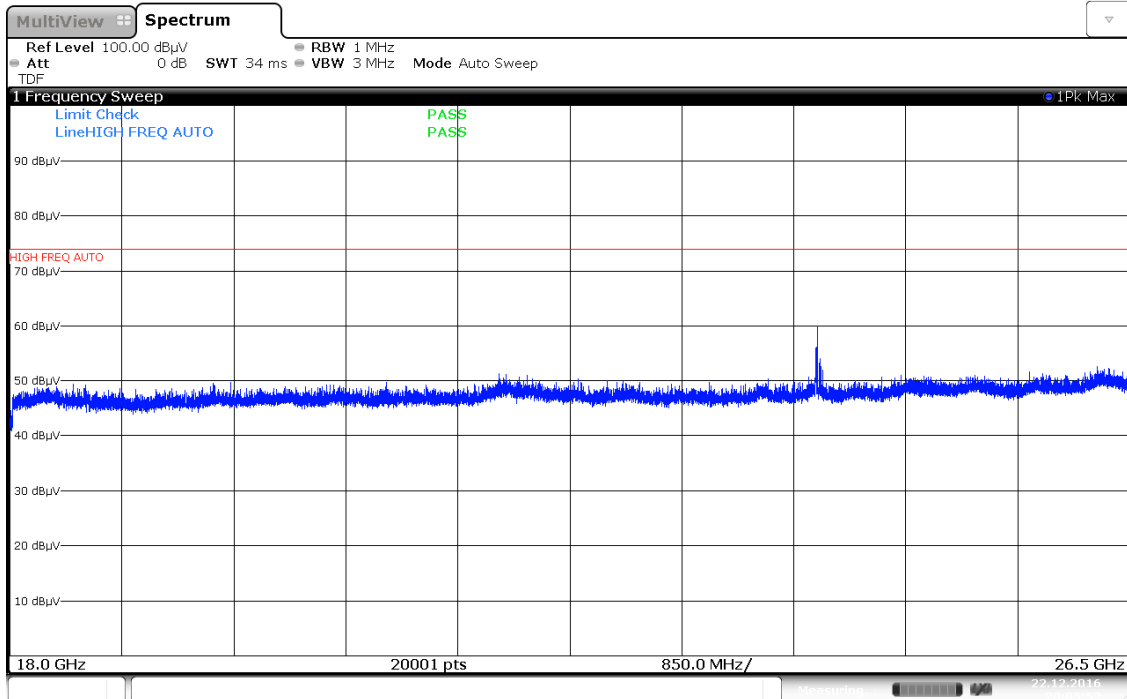
Plot 7-178. Radiated Spurious Plot above 26.5GHz (802.11a – Ant. Pol. H)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 133 of 195

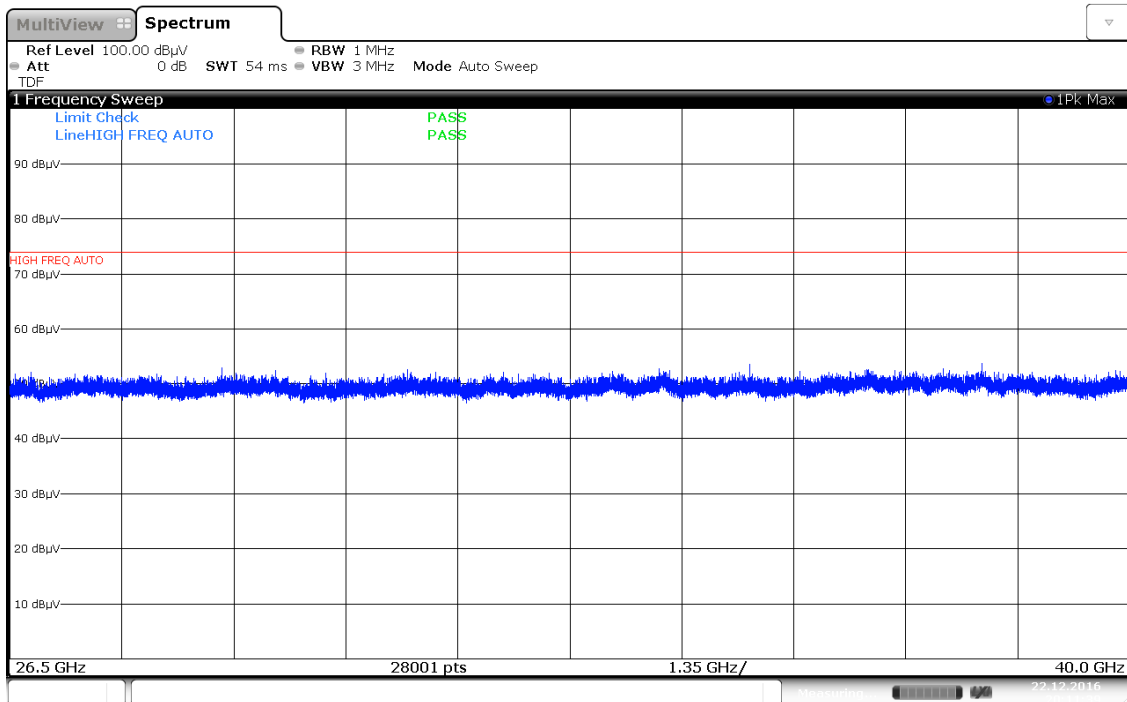
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Plot 7-179. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. V)



Plot 7-180. Radiated Spurious Plot above 26.5GHz (802.11a – Ant. Pol. V)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 134 of 195

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Antenna-2 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-59.37	12.69	0.00	60.32	68.20	-7.88
* 15540.00	Average	H	-	-	-71.99	15.58	0.00	50.59	53.98	-3.39
* 15540.00	Peak	H	-	-	-59.76	15.58	0.00	62.82	73.98	-11.16
* 20720.00	Average	H	-	-	-112.54	44.42	-9.54	29.34	53.98	-24.64
* 20720.00	Peak	H	-	-	-102.35	44.42	-9.54	39.53	73.98	-34.45
25900.00	Peak	H	-	-	-101.06	45.16	-9.54	41.56	68.20	-26.64

Table 7-40. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-58.17	13.01	0.00	61.84	68.20	-6.36
* 15600.00	Average	H	-	-	-72.42	15.45	0.00	50.03	53.98	-3.95
* 15600.00	Peak	H	-	-	-59.56	15.45	0.00	62.89	73.98	-11.09
* 20800.00	Average	H	-	-	-112.51	44.43	-9.54	29.38	53.98	-24.60
* 20800.00	Peak	H	-	-	-101.73	44.43	-9.54	40.16	73.98	-33.82
26000.00	Peak	H	-	-	-101.40	45.14	-9.54	41.20	68.20	-27.00

Table 7-41. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 135 of 195

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-59.57	12.88	0.00	60.31	68.20	-7.89
* 15720.00	Average	H	-	-	-72.43	15.90	0.00	50.47	53.98	-3.51
* 15720.00	Peak	H	-	-	-60.42	15.90	0.00	62.48	73.98	-11.50
* 20960.00	Average	H	-	-	-112.80	44.44	-9.54	29.10	53.98	-24.88
* 20960.00	Peak	H	-	-	-101.70	44.44	-9.54	40.20	73.98	-33.78
26200.00	Peak	H	-	-	-101.00	45.08	-9.54	41.53	68.20	-26.67

Table 7-42. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-59.79	12.81	0.00	60.02	68.20	-8.18
* 15780.00	Average	H	-	-	-71.86	15.62	0.00	50.76	53.98	-3.22
* 15780.00	Peak	H	-	-	-59.99	15.62	0.00	62.63	73.98	-11.35
* 21040.00	Average	H	100	90	-112.30	44.43	-9.54	29.59	53.98	-24.39
* 21040.00	Peak	H	100	90	-101.96	44.43	-9.54	39.93	73.98	-34.05
26300.00	Peak	H	-	-	-100.47	45.06	-9.54	42.04	68.20	-26.16

Table 7-43. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 136 of 195

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-58.27	13.19	0.00	61.92	68.20	-6.28
* 15840.00	Average	H	-	-	-72.52	16.14	0.00	50.62	53.98	-3.36
* 15840.00	Peak	H	-	-	-60.58	16.14	0.00	62.56	73.98	-11.42
* 21120.00	Average	H	-	-	-111.96	44.41	-9.54	29.90	53.98	-24.08
* 21120.00	Peak	H	-	-	-101.35	44.41	-9.54	40.51	73.98	-33.47
26400.00	Peak	H	-	-	-100.46	45.06	-9.54	42.05	68.20	-26.15

Table 7-44. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-71.28	13.63	0.00	49.35	53.98	-4.63
* 10640.00	Peak	H	-	-	-59.32	13.63	0.00	61.31	73.98	-12.67
* 15960.00	Average	H	-	-	-72.65	15.91	0.00	50.26	53.98	-3.72
* 15960.00	Peak	H	-	-	-61.21	15.91	0.00	61.70	73.98	-12.28
* 21280.00	Average	H	-	-	-112.38	44.37	-9.54	29.46	53.98	-24.52
* 21280.00	Peak	H	-	-	-102.00	44.37	-9.54	39.84	73.98	-34.14
26600.00	Peak	H	-	-	-103.18	47.71	-9.54	41.99	68.20	-26.21

Table 7-45. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 137 of 195

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-71.41	13.98	0.00	49.57	53.98	-4.41
* 11000.00	Peak	H	-	-	-61.18	13.98	0.00	59.80	73.98	-14.18
16500.00	Peak	H	-	-	-60.85	17.93	0.00	64.08	68.20	-4.12
22000.00	Peak	H	-	-	-101.66	44.64	-9.54	40.44	68.20	-27.76
27500.00	Peak	H	-	-	-102.29	48.13	-9.54	43.30	68.20	-24.90

Table 7-46. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	-	-	-71.10	14.55	0.00	50.45	53.98	-3.53
* 11200.00	Peak	H	-	-	-60.31	14.55	0.00	61.24	73.98	-12.74
16800.00	Peak	H	-	-	-61.77	19.29	0.00	64.52	68.20	-3.68
* 22400.00	Average	H	-	-	-112.91	44.59	-9.54	29.14	53.98	-24.84
* 22400.00	Peak	H	-	-	-102.67	44.59	-9.54	39.38	73.98	-34.60
28000.00	Peak	H	-	-	-101.51	48.22	-9.54	44.17	68.20	-24.03

Table 7-47. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 138 of 195

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-70.86	14.66	0.00	50.80	53.98	-3.18
* 11440.00	Peak	H	-	-	-59.05	14.66	0.00	62.61	73.98	-11.37
17160.00	Peak	H	-	-	-62.01	18.95	0.00	63.94	68.20	-4.26
* 22880.00	Average	H	-	-	-113.03	44.63	-9.54	29.06	53.98	-24.92
* 22880.00	Peak	H	-	-	-102.50	44.63	-9.54	39.59	73.98	-34.39
28600.00	Peak	H	-	-	-102.82	48.41	-9.54	43.05	68.20	-25.15

Table 7-48. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-70.88	14.10	0.00	50.22	53.98	-3.76
* 11490.00	Peak	H	-	-	-58.41	14.10	0.00	62.69	73.98	-11.29
17235.00	Peak	H	-	-	-60.79	18.02	0.00	64.23	68.20	-3.97
* 22980.00	Average	H	-	-	-112.71	44.72	-9.54	29.46	53.98	-24.52
* 22980.00	Peak	H	-	-	-101.57	44.72	-9.54	40.60	73.98	-33.38
28725.00	Peak	H	-	-	-102.64	48.08	-9.54	42.90	68.20	-25.30

Table 7-49. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 139 of 195

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-70.84	14.26	0.00	50.42	53.98	-3.56
* 11570.00	Peak	H	-	-	-58.91	14.26	0.00	62.35	73.98	-11.63
17355.00	Peak	H	-	-	-60.33	18.34	0.00	65.01	68.20	-3.19
23140.00	Peak	H	-	-	-101.06	44.84	-9.54	41.23	68.20	-26.97
28925.00	Peak	H	-	-	-102.91	48.09	-9.54	42.64	68.20	-25.56

Table 7-50. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-70.88	14.60	0.00	50.72	53.98	-3.26
* 11650.00	Peak	H	-	-	-58.60	14.60	0.00	63.00	73.98	-10.98
17475.00	Peak	H	-	-	-60.47	17.82	0.00	64.35	68.20	-3.85
23300.00	Peak	H	-	-	-102.19	44.86	-9.54	40.13	68.20	-28.07
29125.00	Peak	H	-	-	-103.71	48.09	-9.54	41.84	68.20	-26.36

Table 7-51. Radiated Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 140 of 195

7.7.3 Antenna-1 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

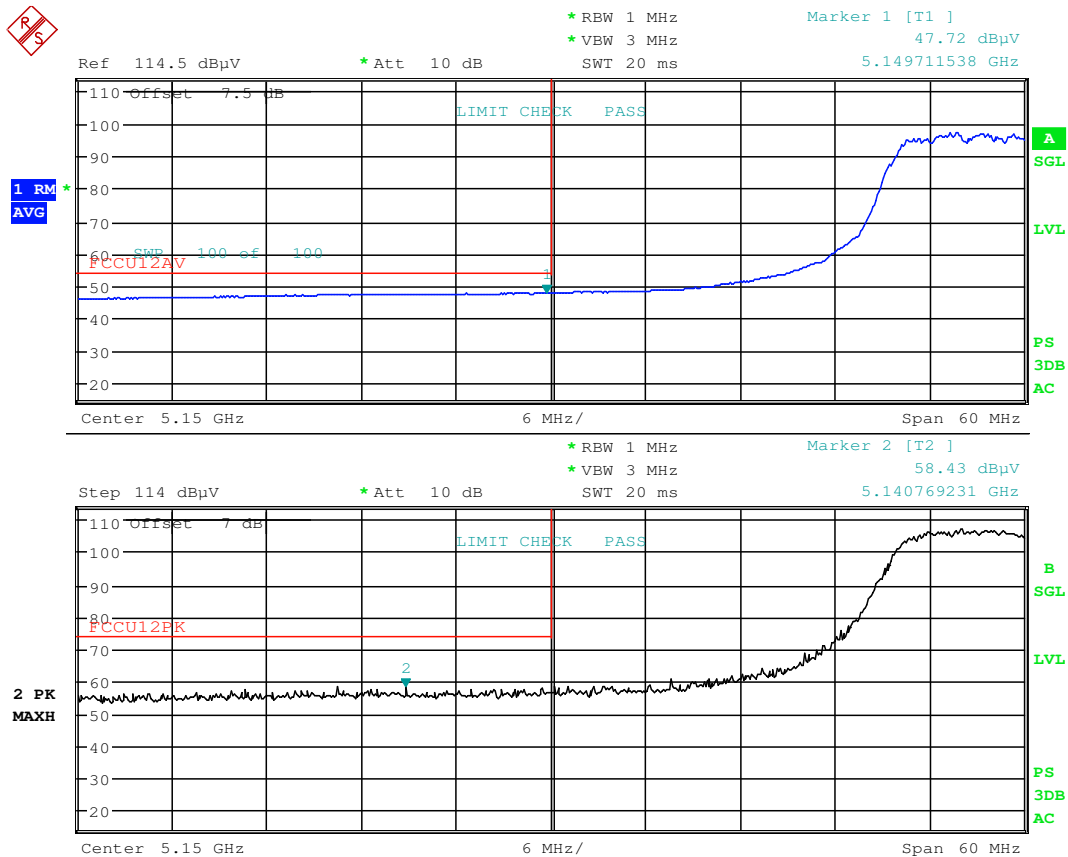
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 13.DEC.2016 21:47:13

Plot 7-181. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 141 of 195

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Antenna-1 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

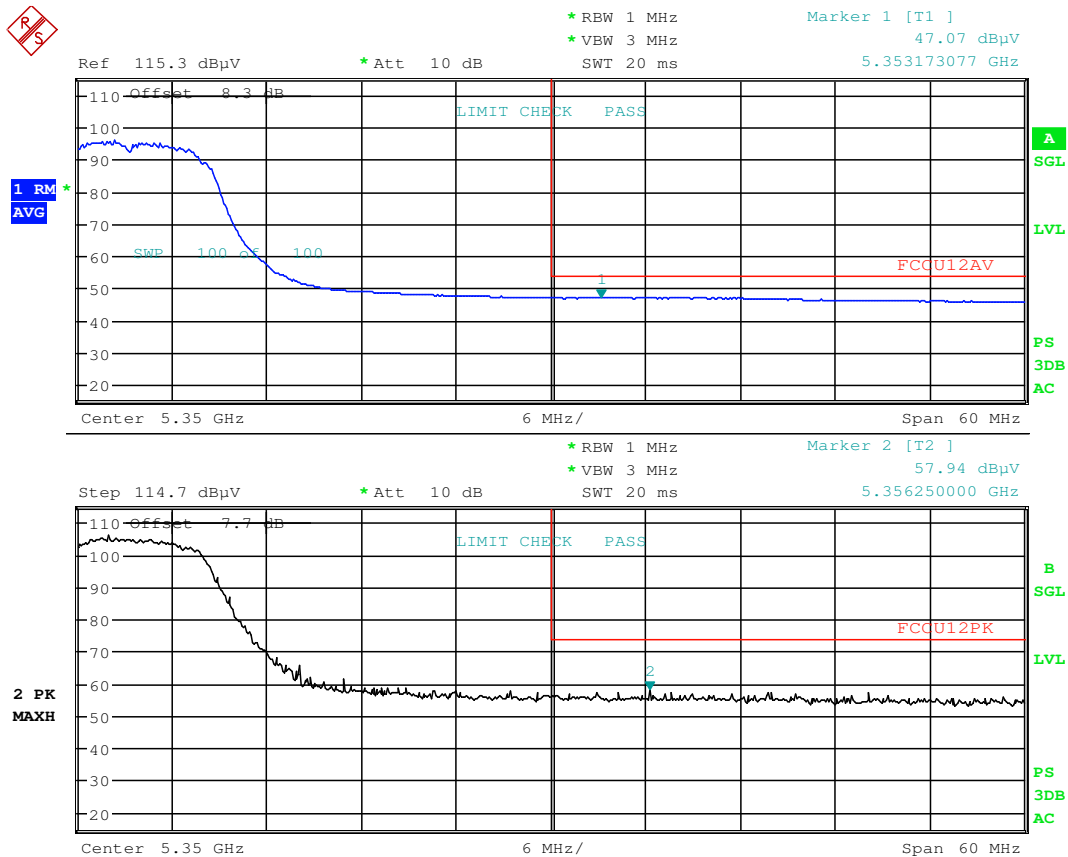
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 13.DEC.2016 21:52:37

Plot 7-182. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 142 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

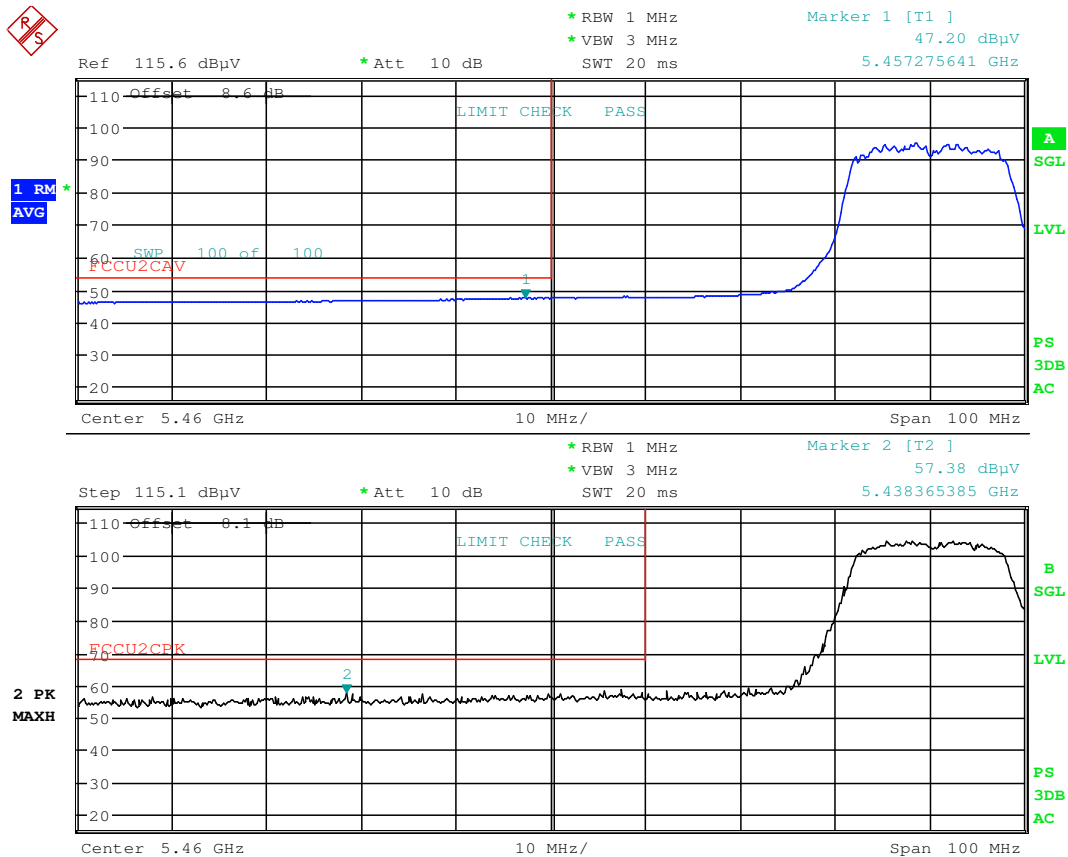
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 13.DEC.2016 21:56:45

Plot 7-183. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 143 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

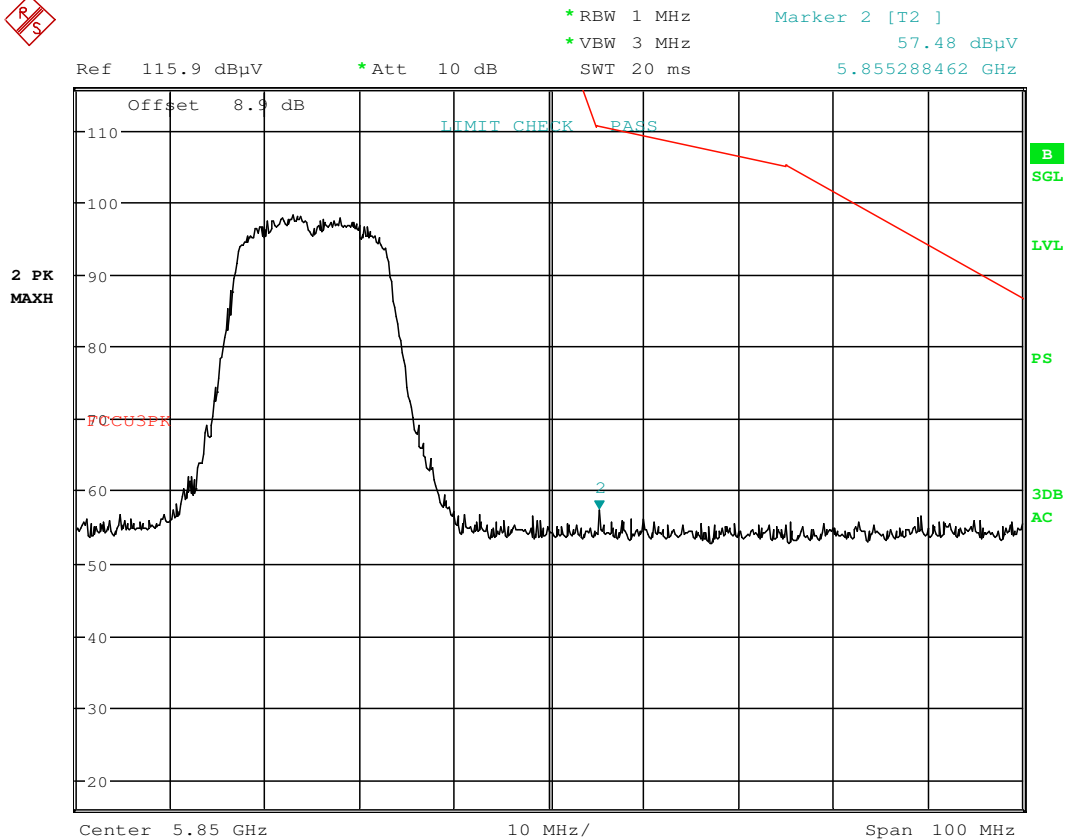
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 14.DEC.2016 22:15:09

Plot 7-184. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 144 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

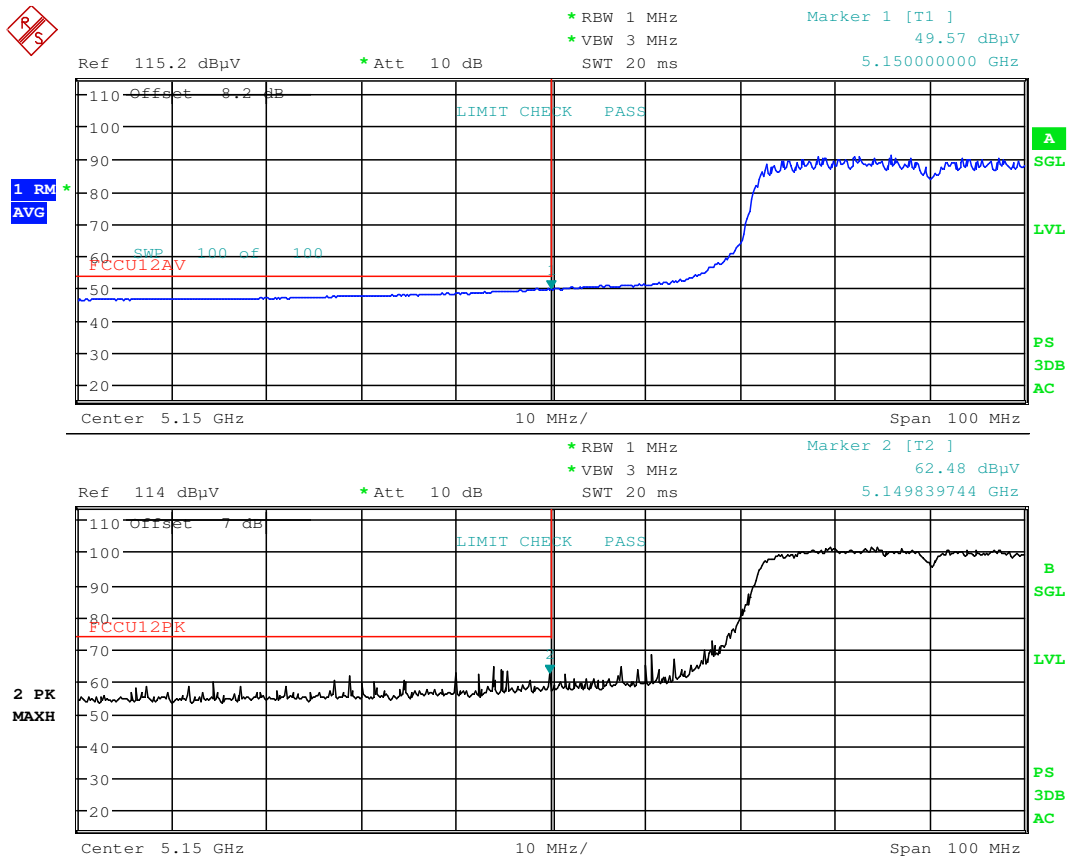
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 13.DEC.2016 22:10:51

Plot 7-185. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 145 of 195

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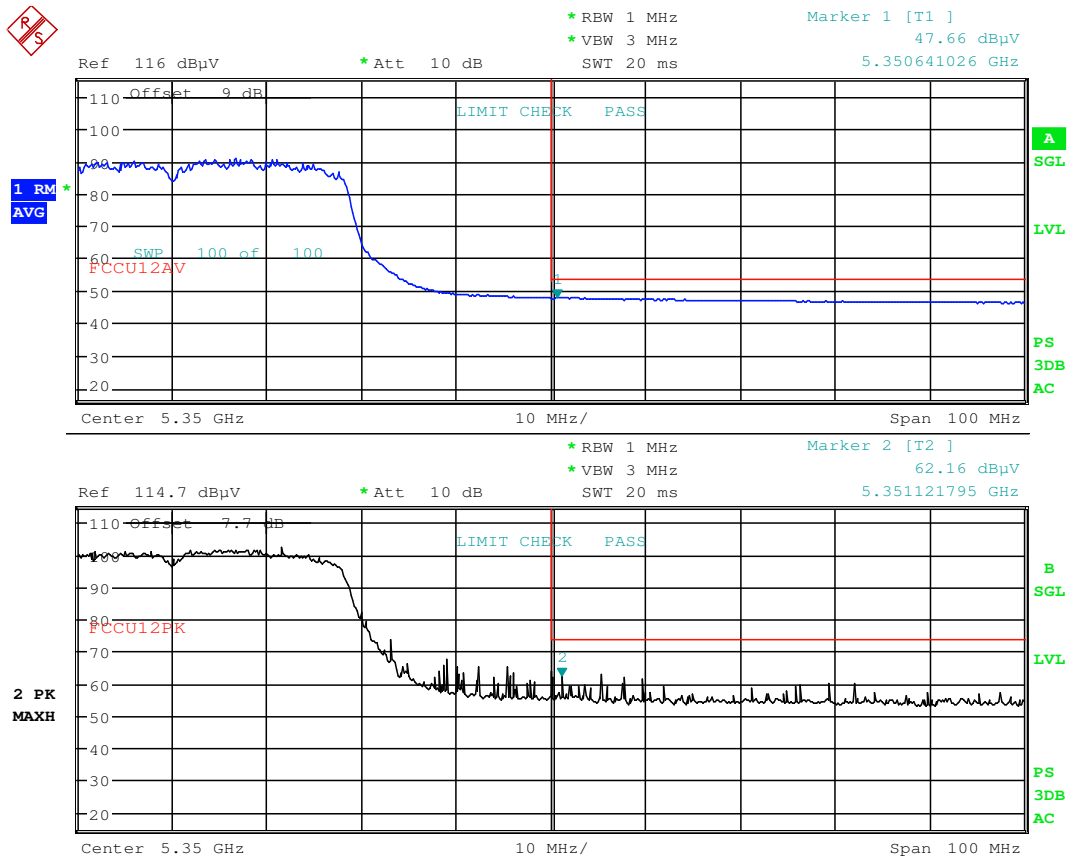
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Antenna-1 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n (40MHz)
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5310MHz
Channel: 62



Date: 13.DEC.2016 22:14:39

Plot 7-186. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 146 of 195

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Antenna-1 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

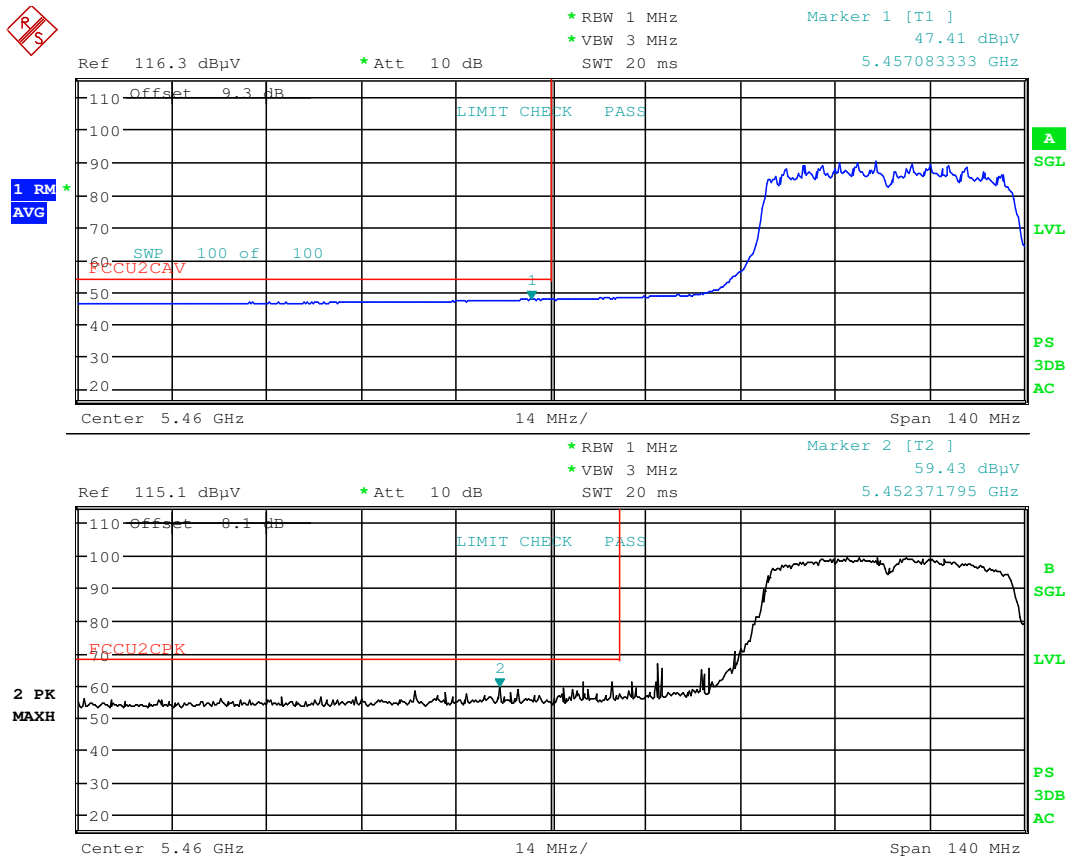
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 13.DEC.2016 22:18:26

Plot 7-187. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 147 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

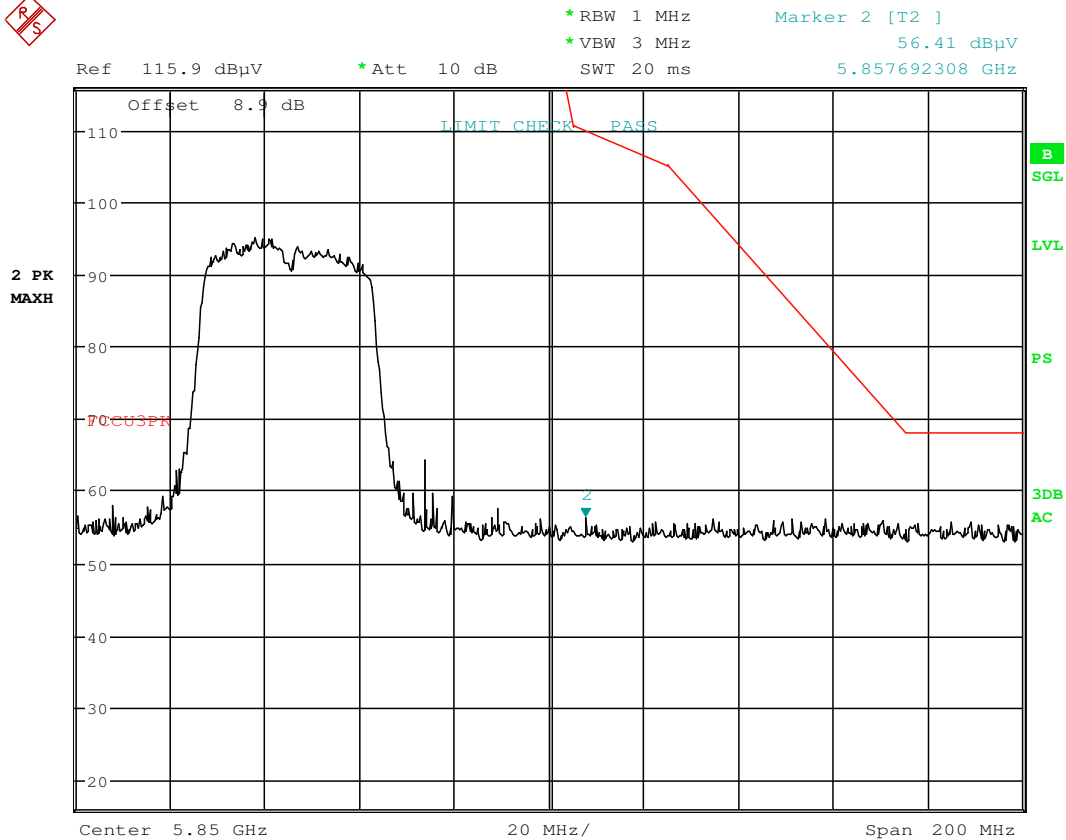
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 14.DEC.2016 22:16:24

Plot 7-188. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 148 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

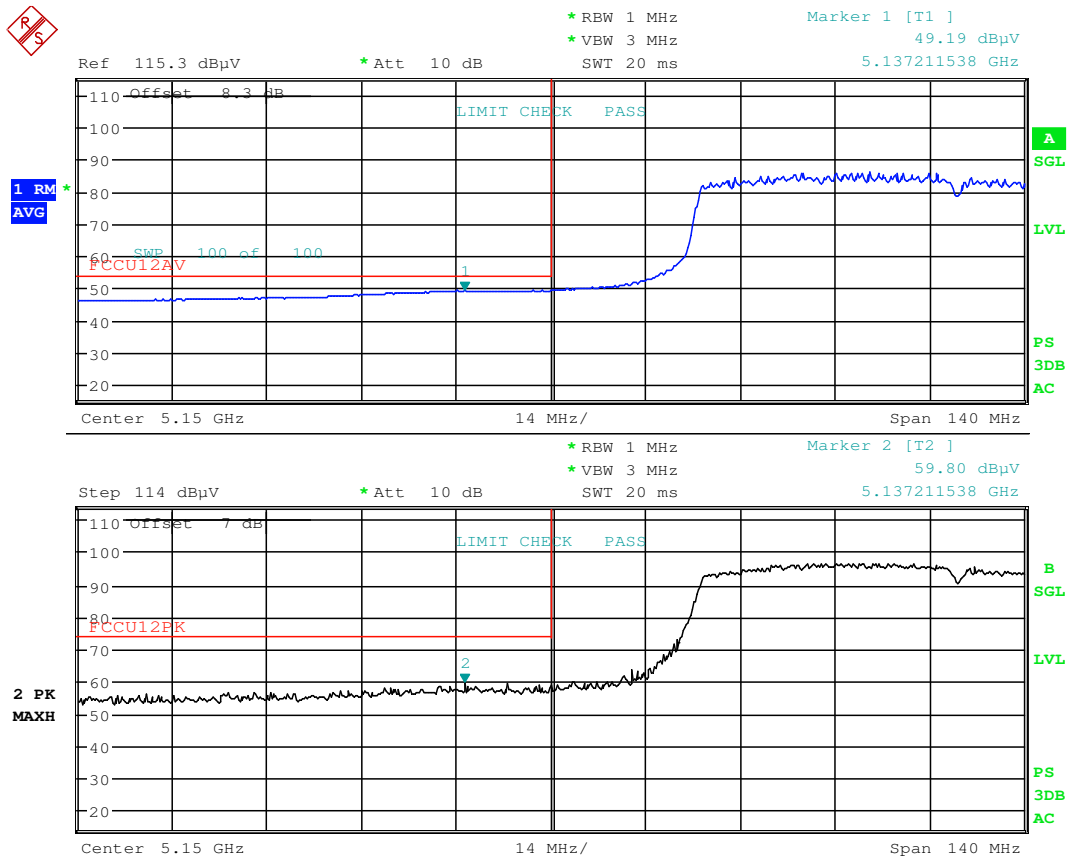
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 14.DEC.2016 22:05:42

Plot 7-189. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 149 of 195

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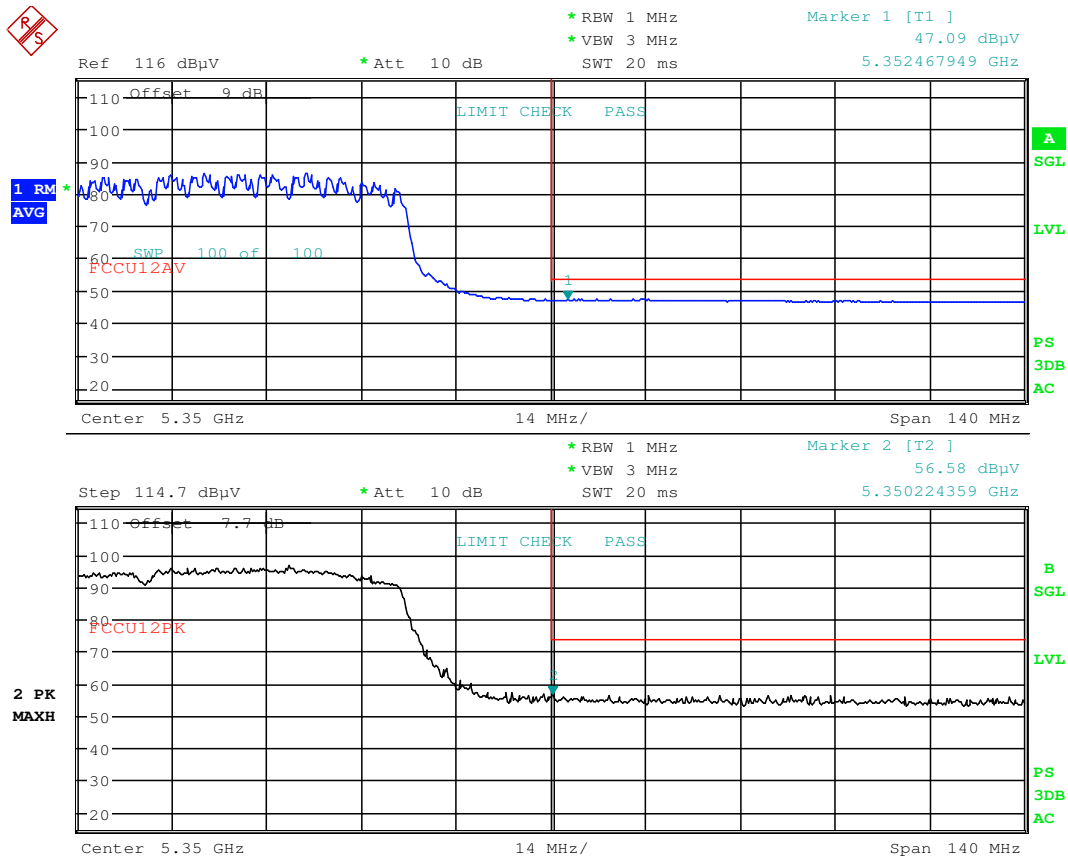
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Antenna-1 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11ac (80MHz)
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5290MHz
Channel: 58



Date: 14.DEC.2016 22:11:32

Plot 7-190. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 150 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

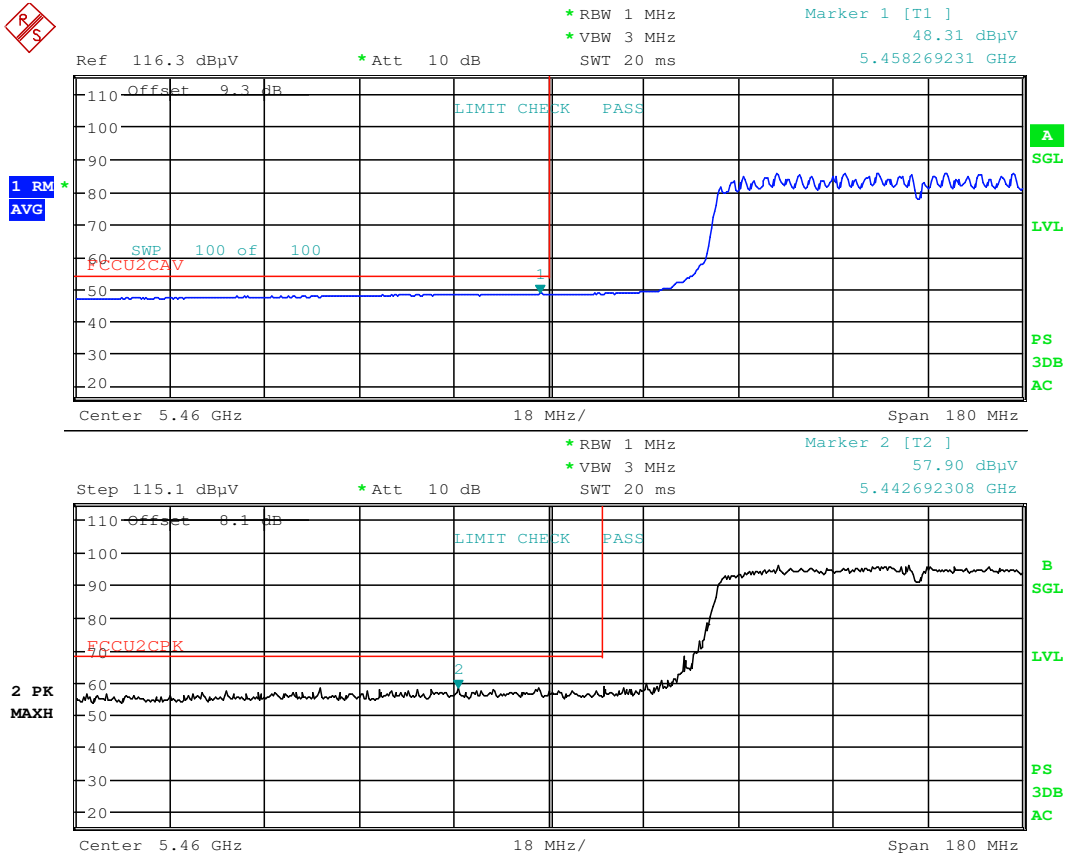
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 14.DEC.2016 22:12:54

Plot 7-191. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 151 of 195

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Antenna-1 Radiated Band Edge Measurements (80MHz BW) **§15.407(b.1)(b.2) §15.205 §15.209**

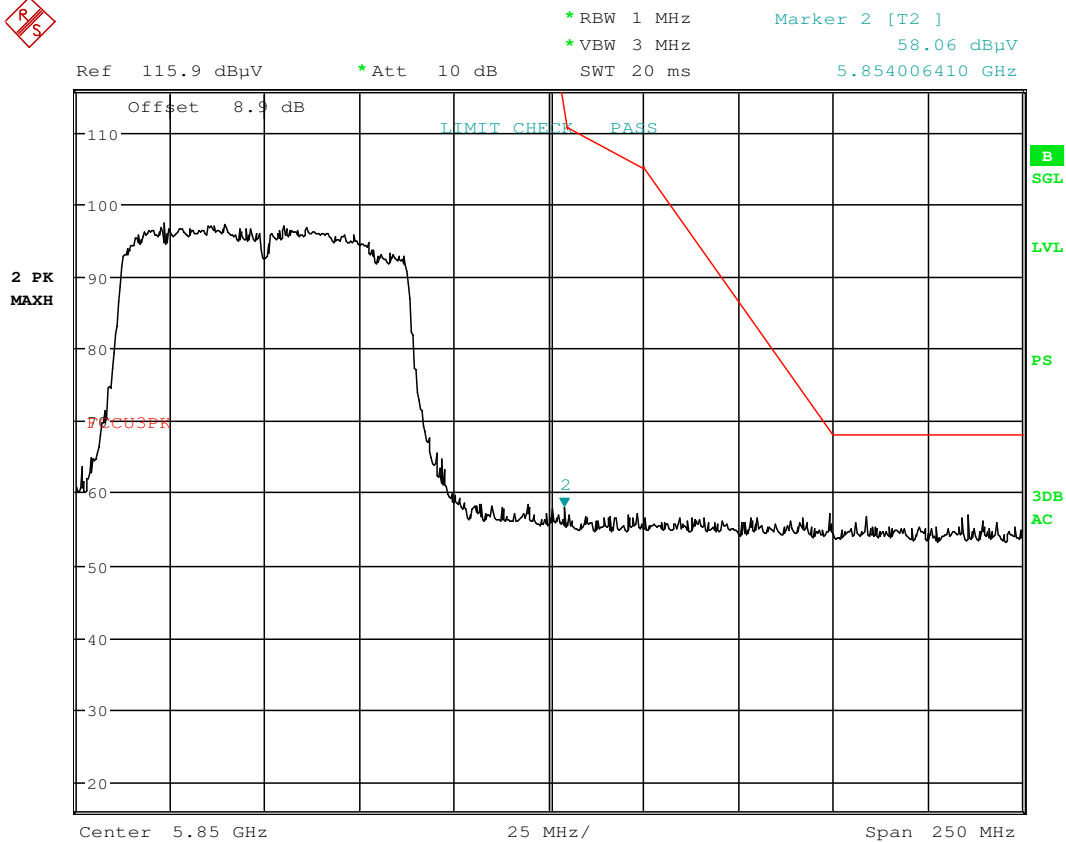
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 14.DEC.2016 21:59:24

Plot 7-192. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 152 of 195

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7.7.6 Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

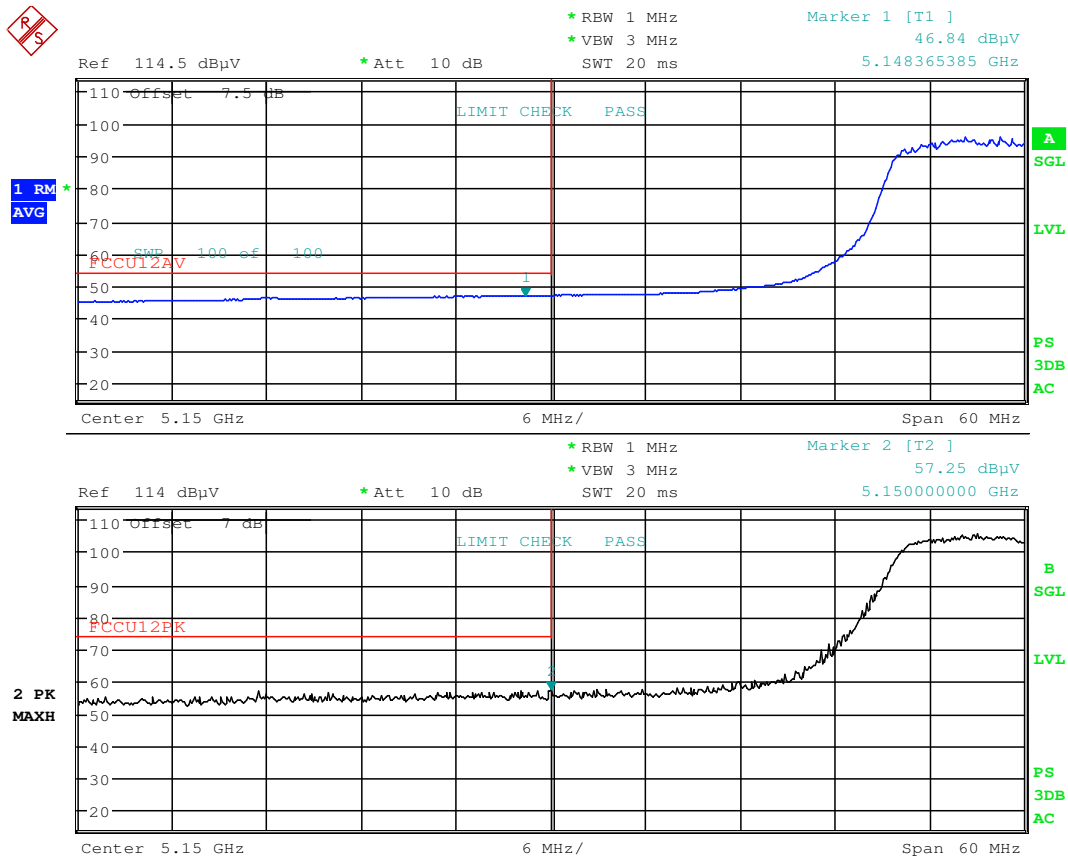
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 13.DEC.2016 22:39:07

Plot 7-193. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 153 of 195

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Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

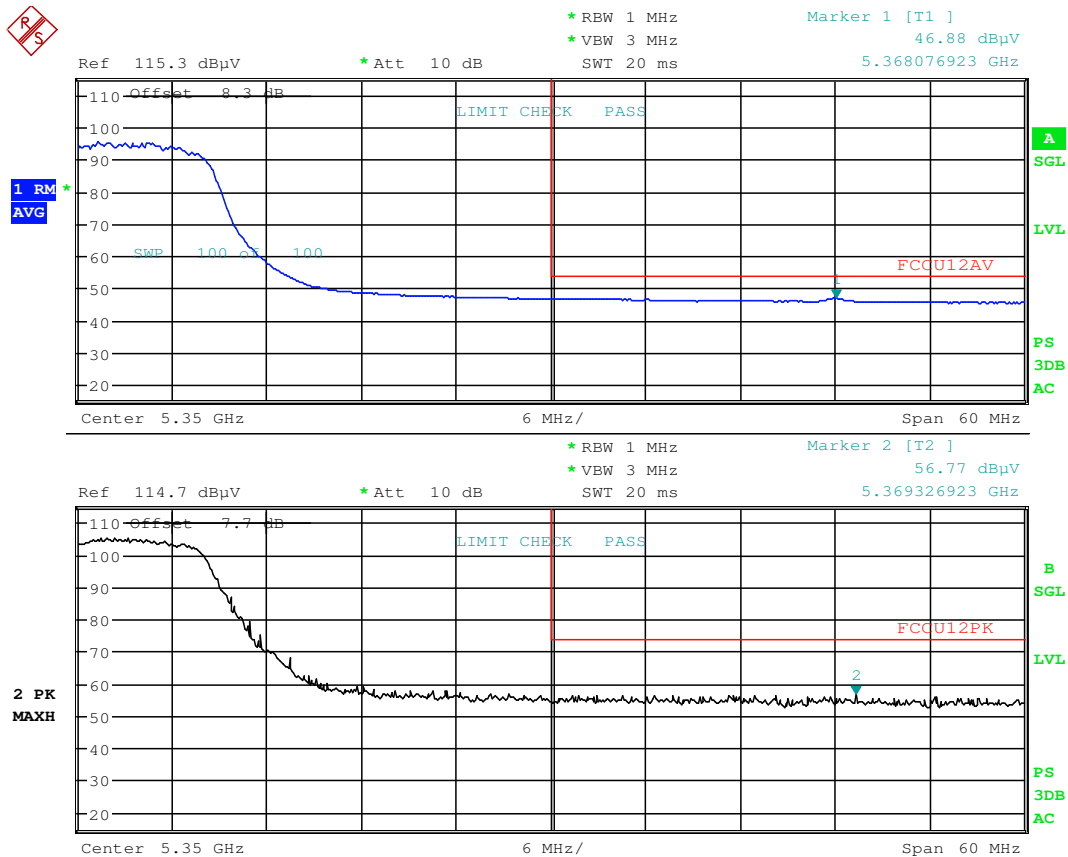
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 13.DEC.2016 22:48:56

Plot 7-194. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 154 of 195

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Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

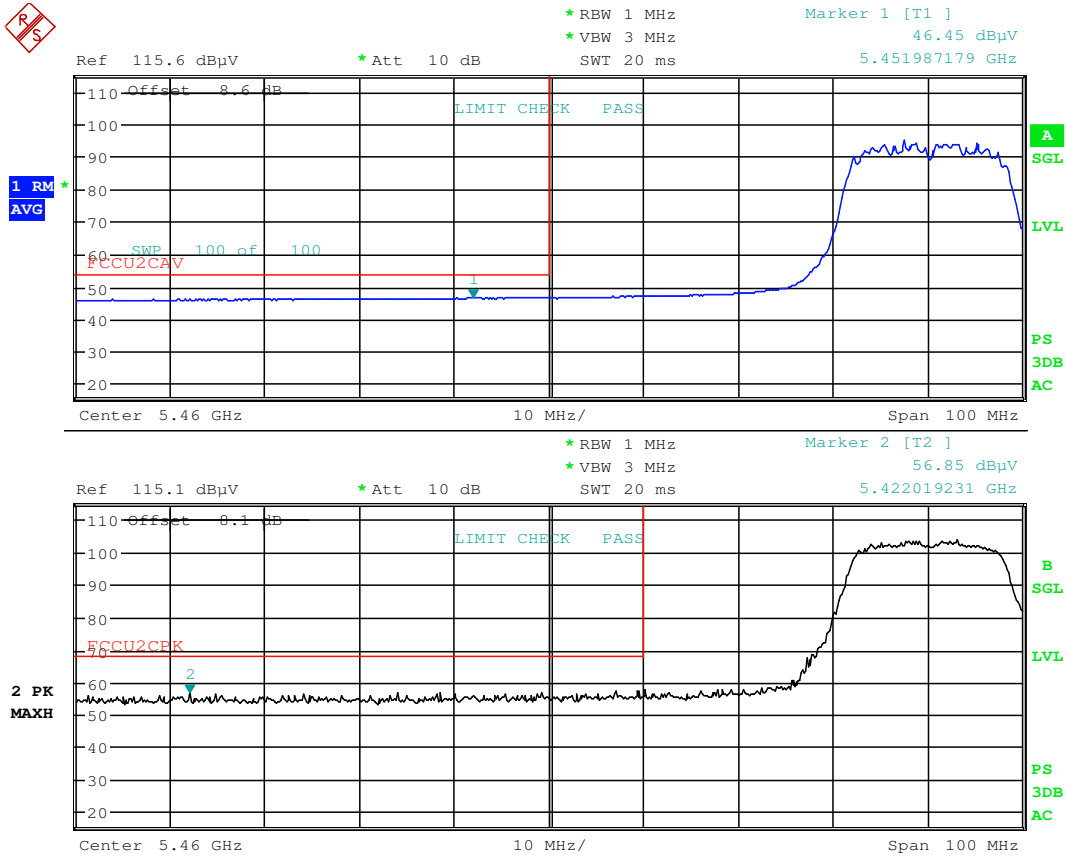
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 13.DEC.2016 22:57:23

Plot 7-195. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 155 of 195

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Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

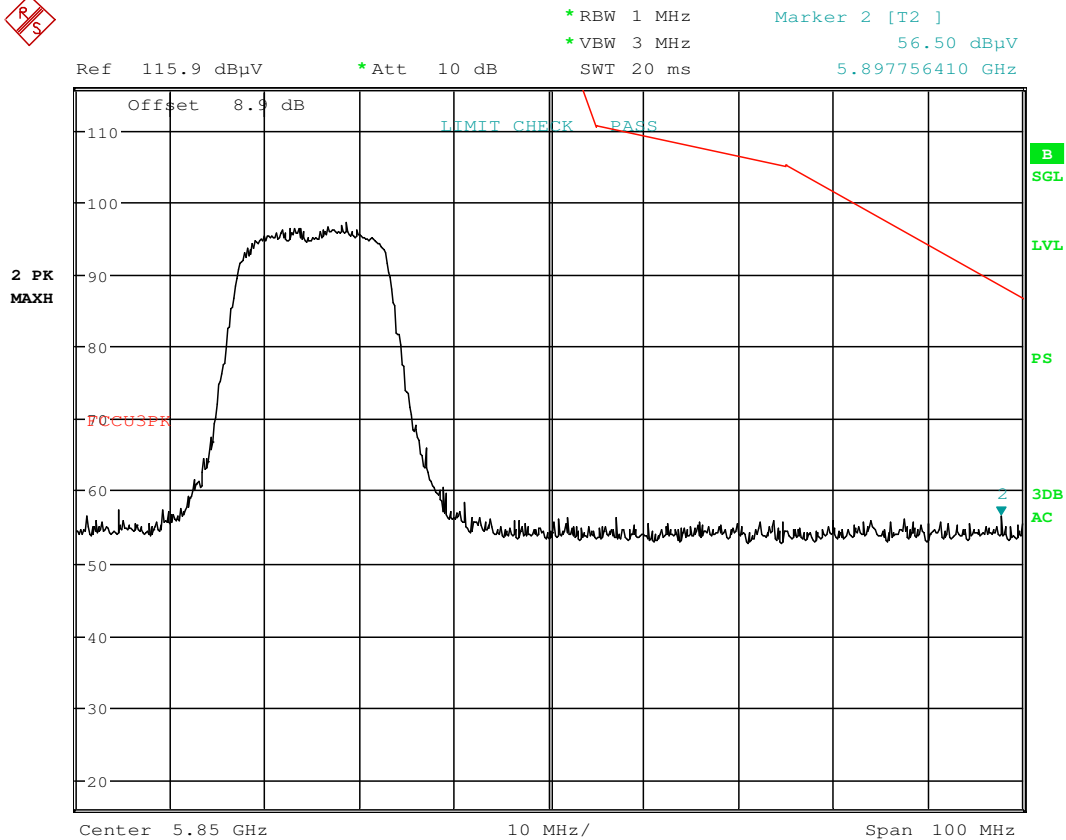
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 14.DEC.2016 22:33:56

Plot 7-196. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 156 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

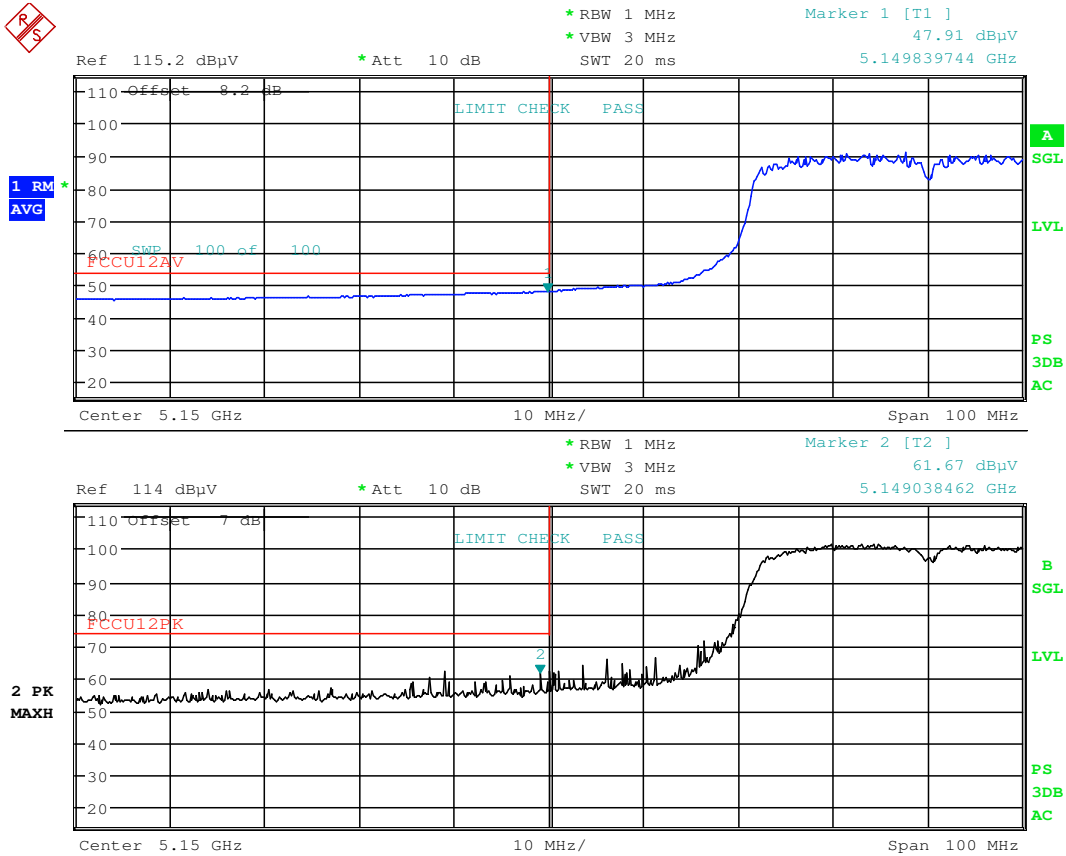
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 13.DEC.2016 23:03:49

Plot 7-197. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 157 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

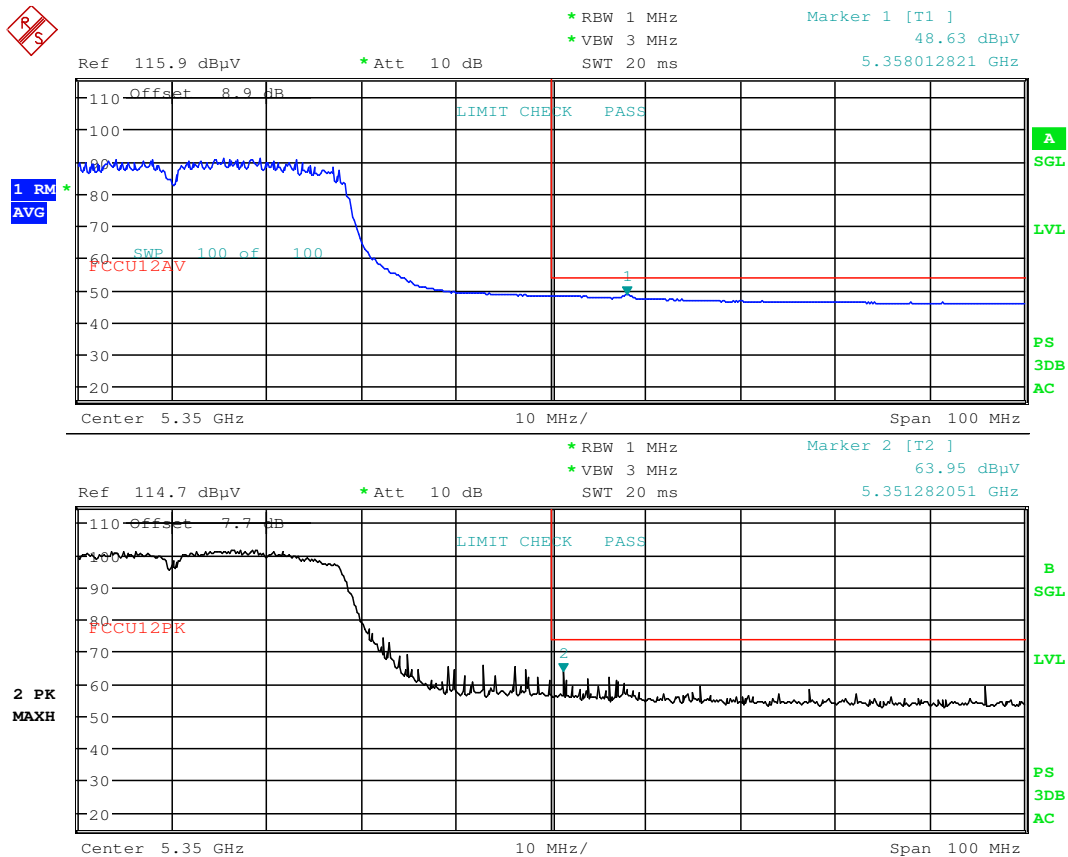
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 13.DEC.2016 23:05:07

Plot 7-198. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 158 of 195

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Antenna-2 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

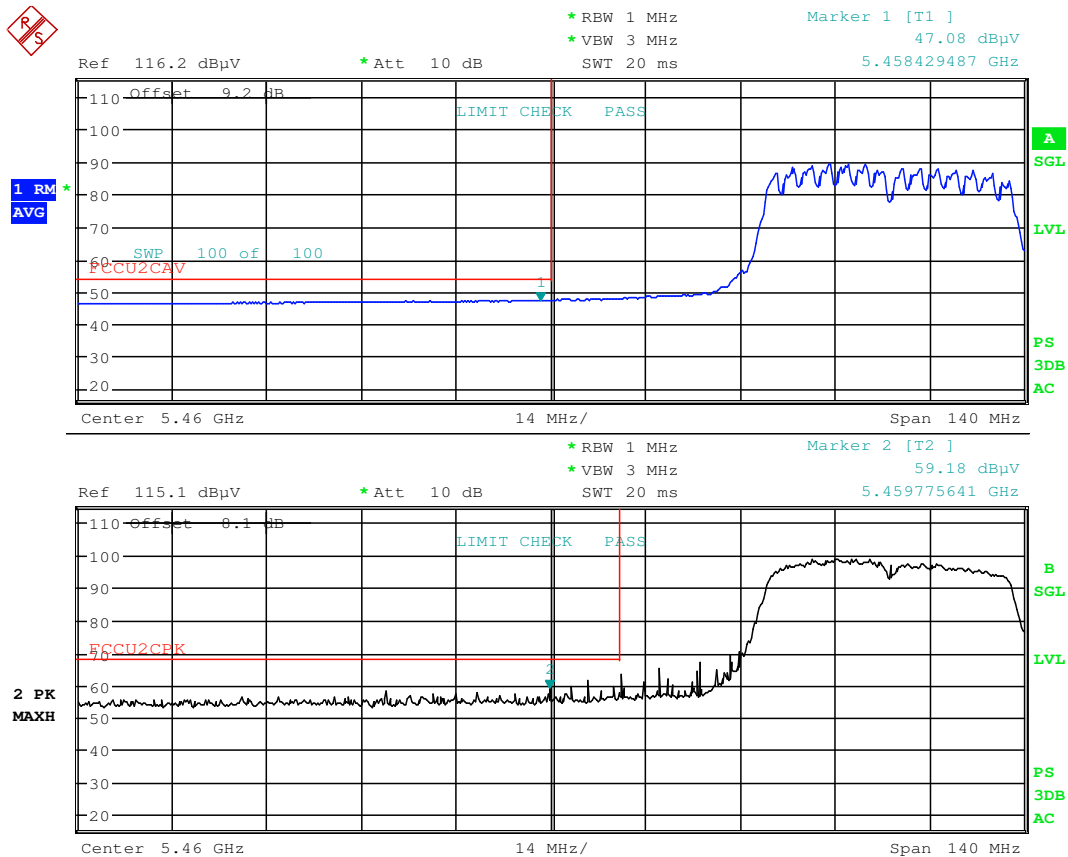
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 13.DEC.2016 23:09:16

Plot 7-199. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 159 of 195

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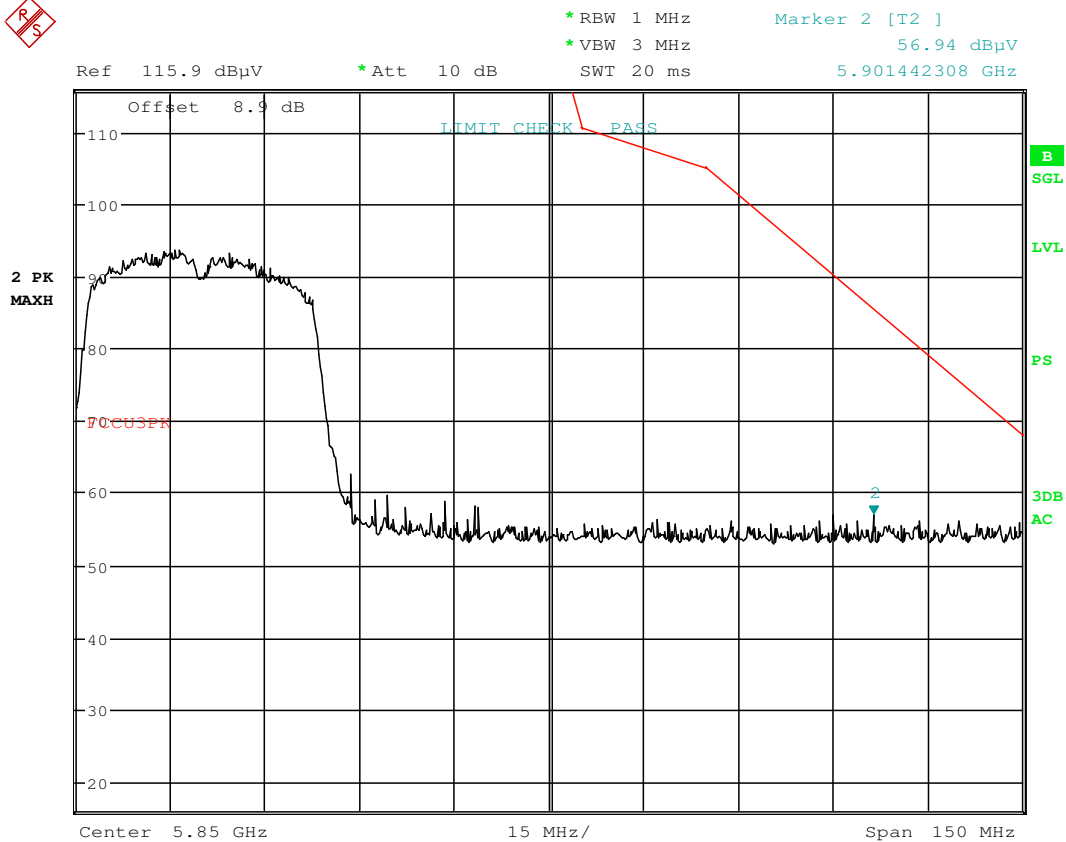
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Antenna-2 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n (40MHz)
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5795MHz
Channel: 159



Date: 14.DEC.2016 22:35:57

Plot 7-200. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 160 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

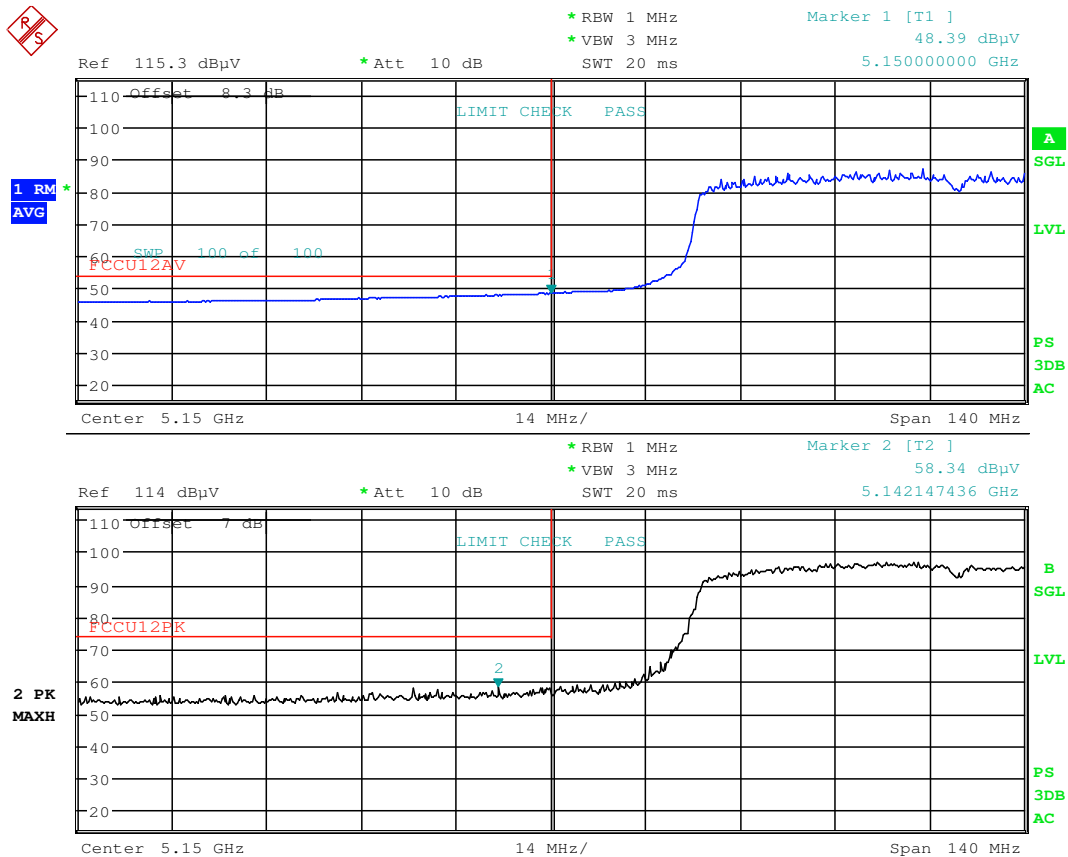
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 14.DEC.2016 22:43:02

Plot 7-201. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 161 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

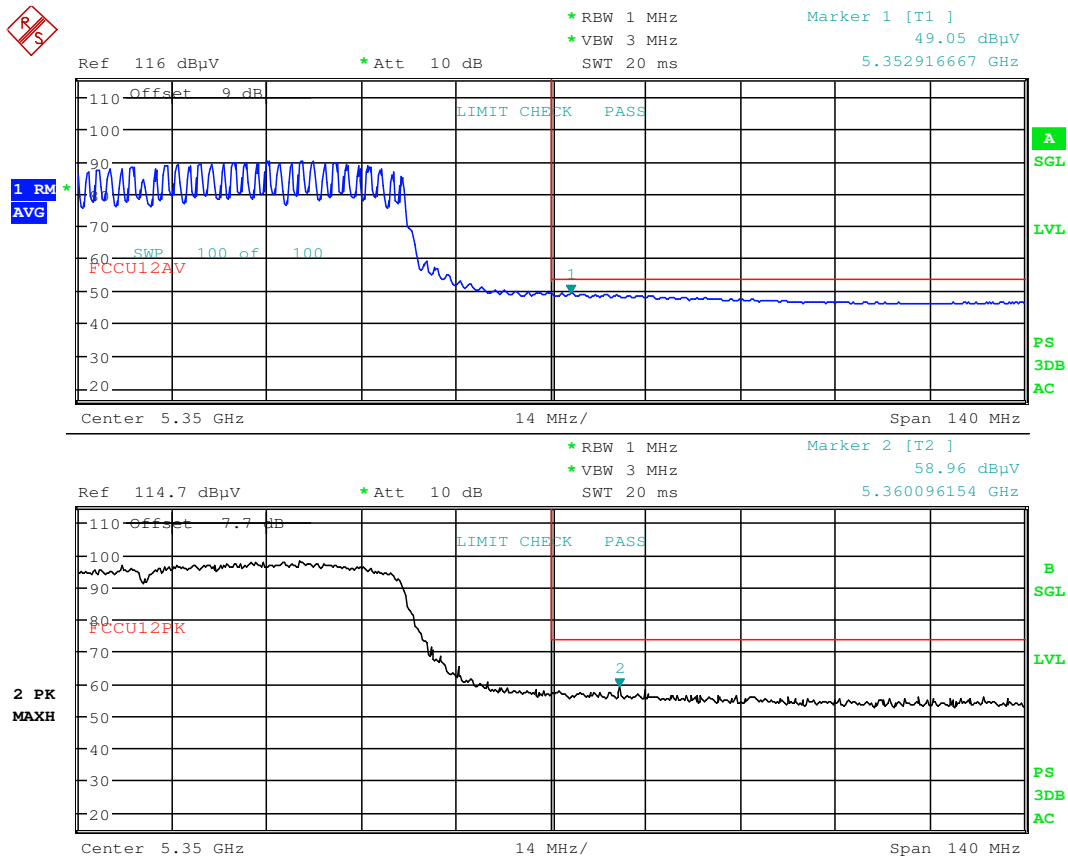
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 14.DEC.2016 22:47:38

Plot 7-202. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 162 of 195

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

§15.407(b.1)(b.2) §15.205 §15.209

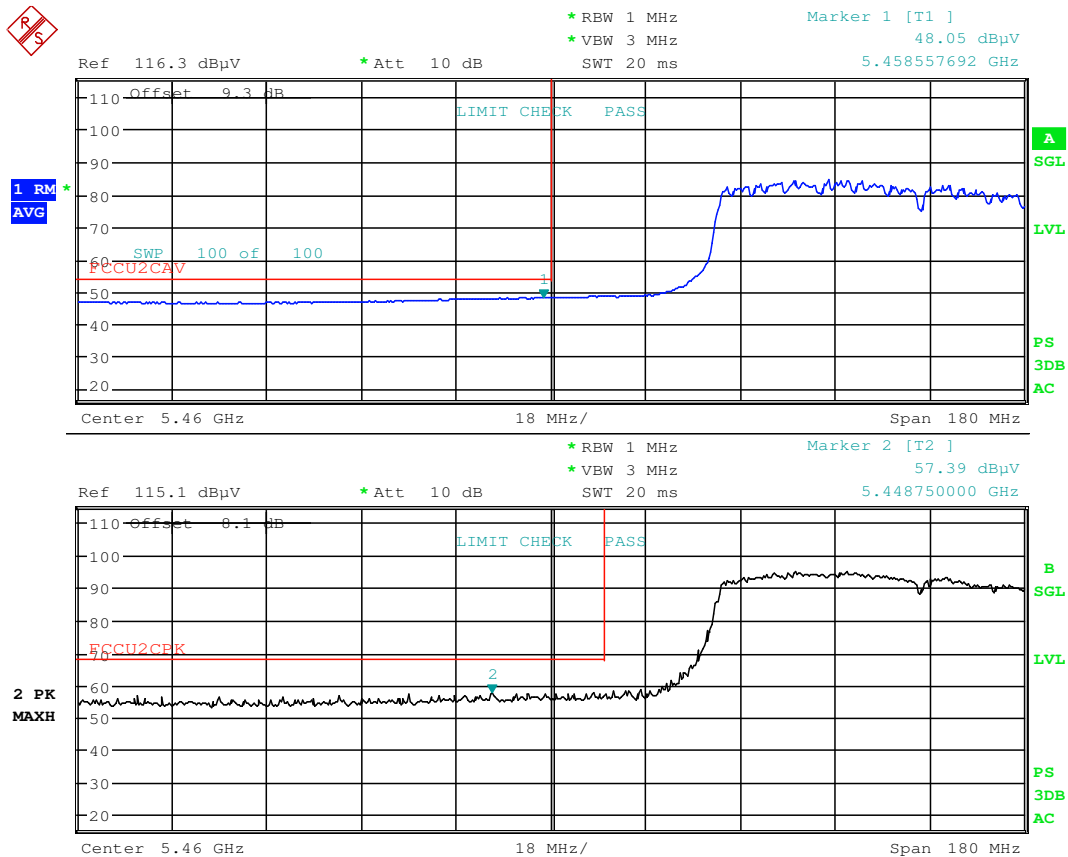
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 14.DEC.2016 22:54:29

Plot 7-203. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 163 of 195

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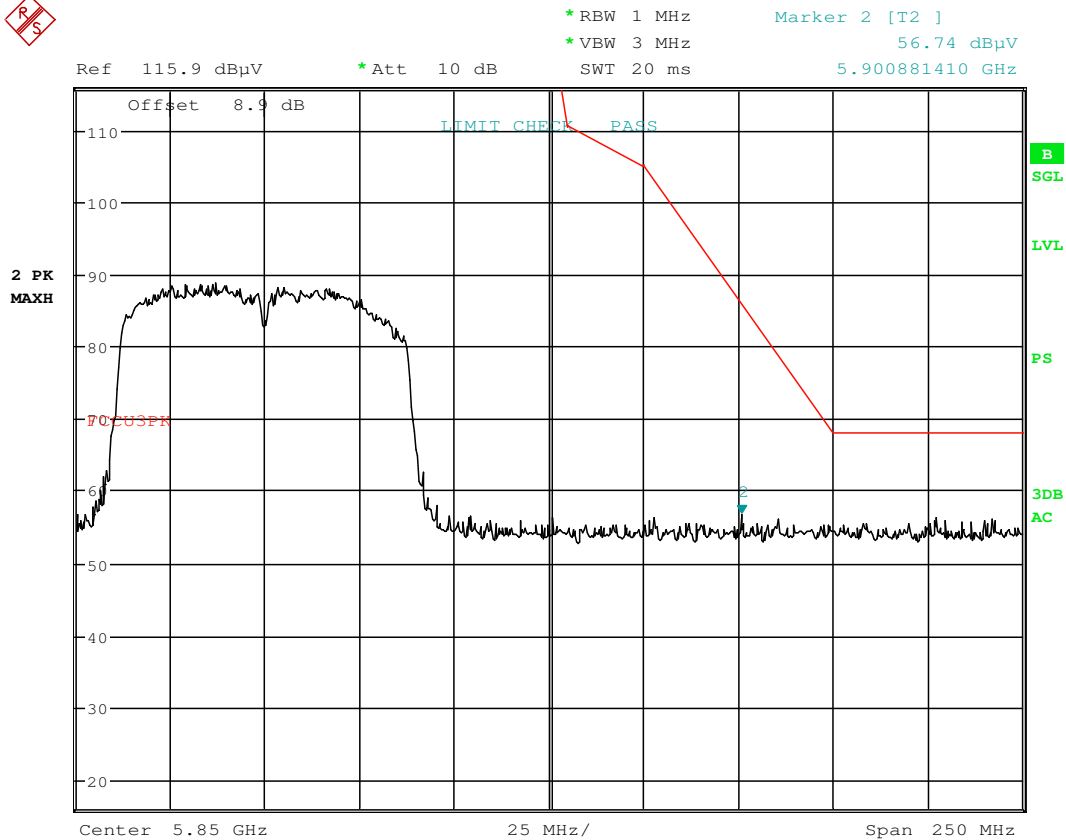
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Antenna-2 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11ac (80MHz)
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5775MHz
Channel: 155



Date: 14.DEC.2016 22:37:23

Plot 7-204. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 164 of 195

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7.7.9 MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

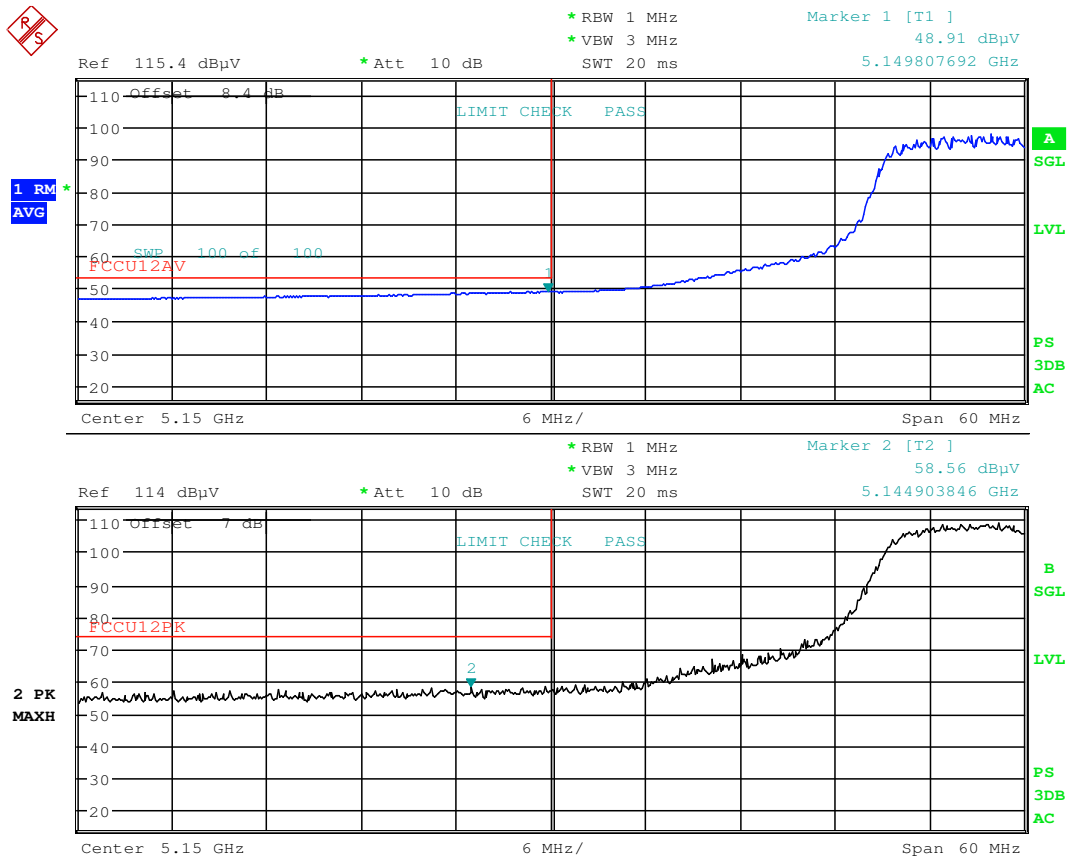
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 15.DEC.2016 00:39:42

Plot 7-205. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 165 of 195

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MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

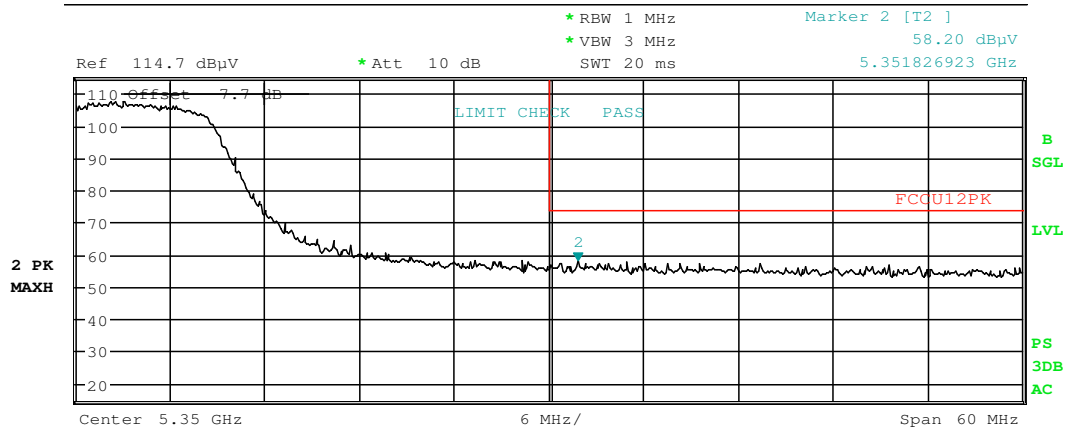
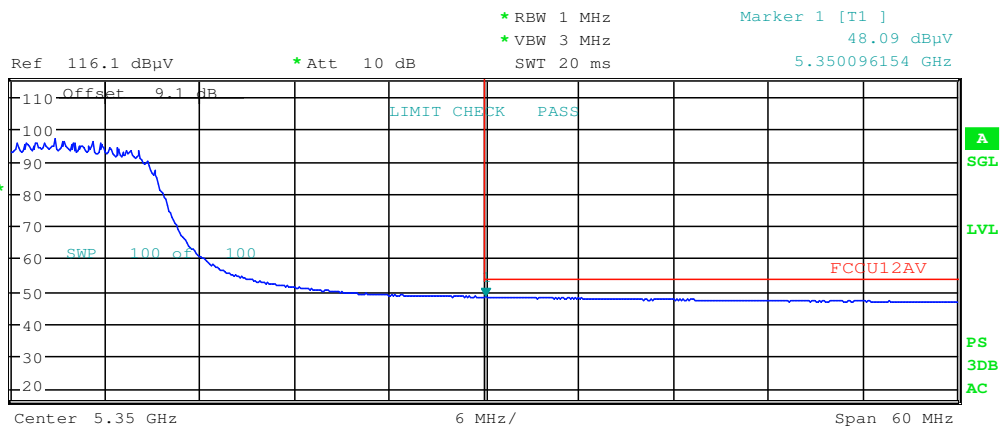
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 15.DEC.2016 00:49:59

Plot 7-206. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 166 of 195

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MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

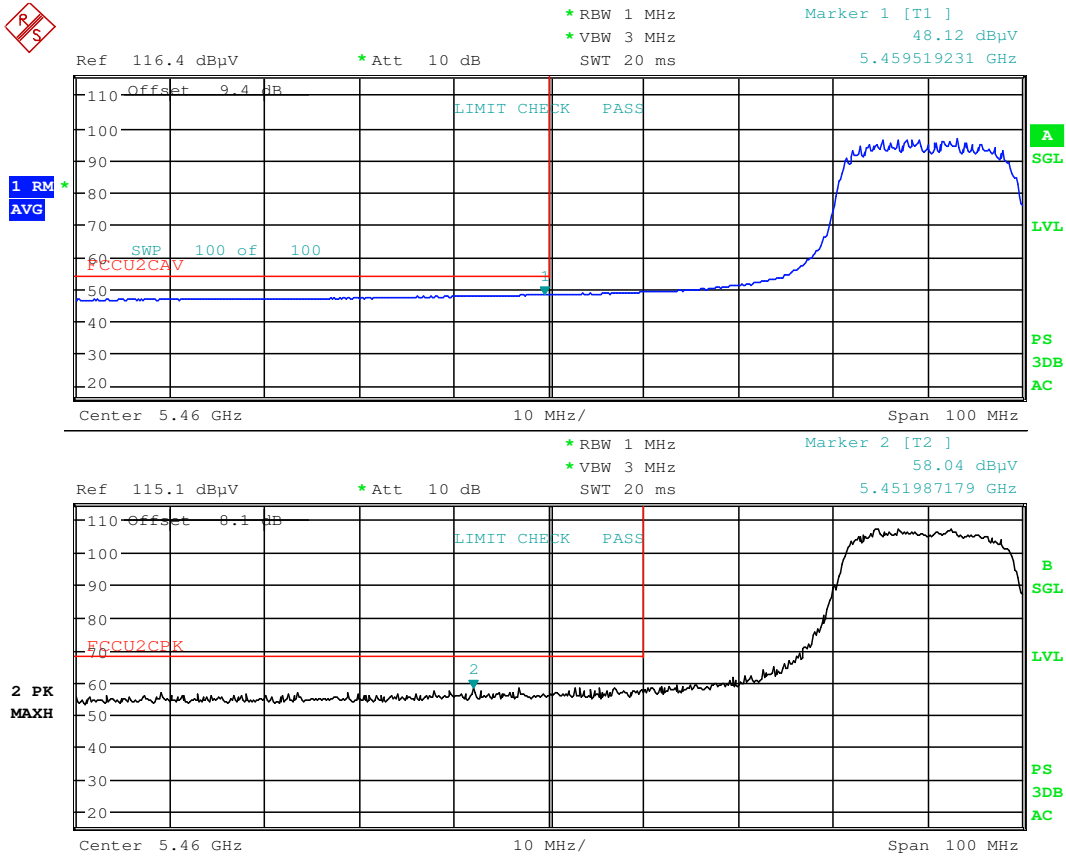
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 15.DEC.2016 00:48:28

Plot 7-207. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 167 of 195

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MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

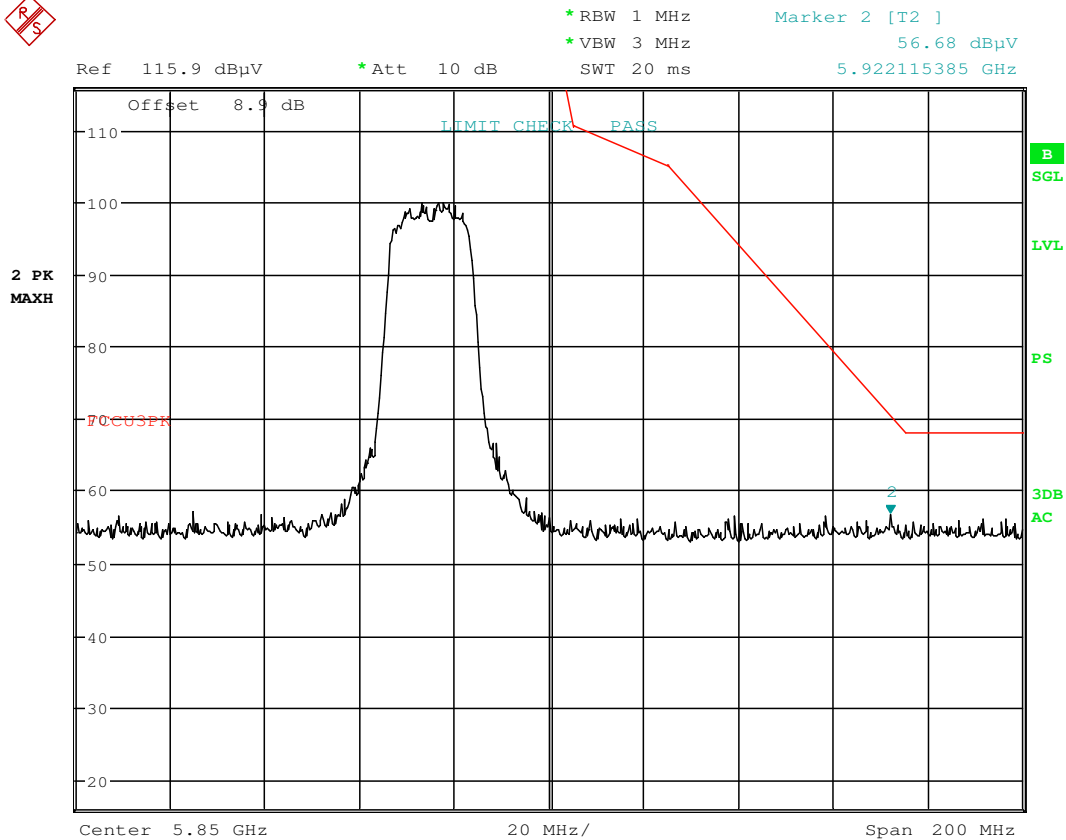
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 15.DEC.2016 00:50:59

Plot 7-208. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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7.7.10 MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

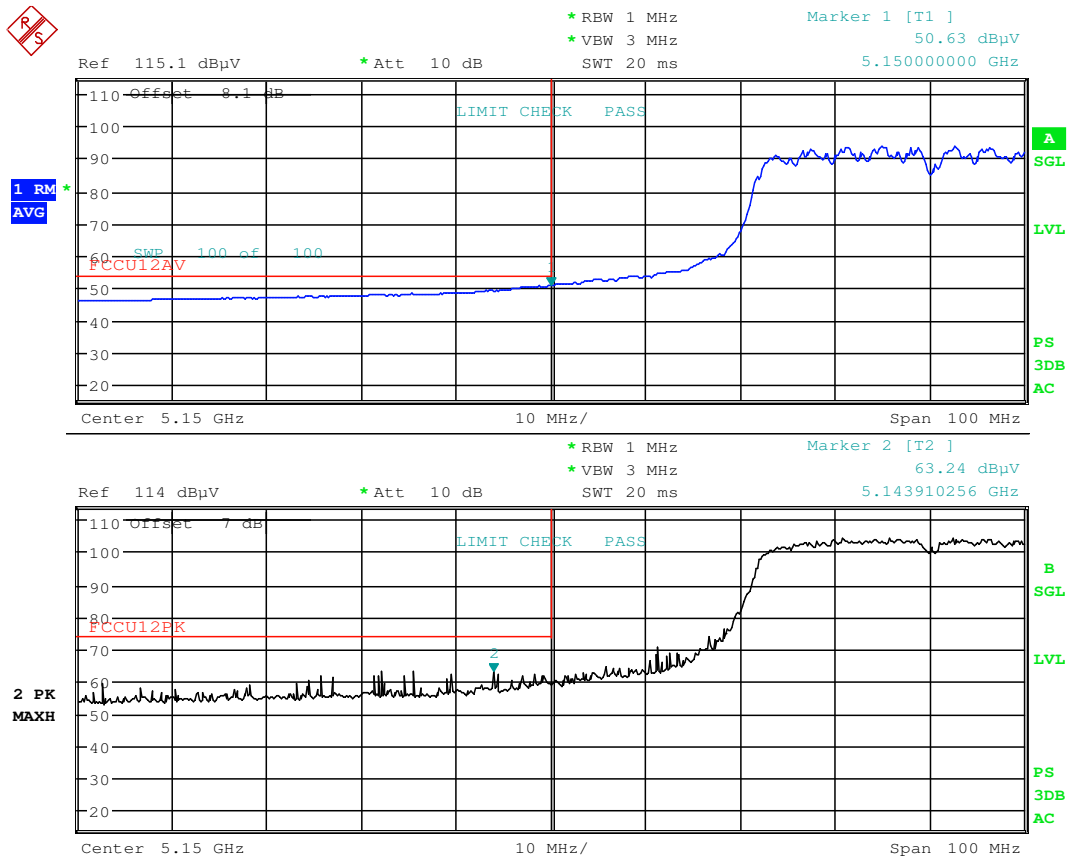
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 15.DEC.2016 00:59:39

Plot 7-209. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 169 of 195

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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

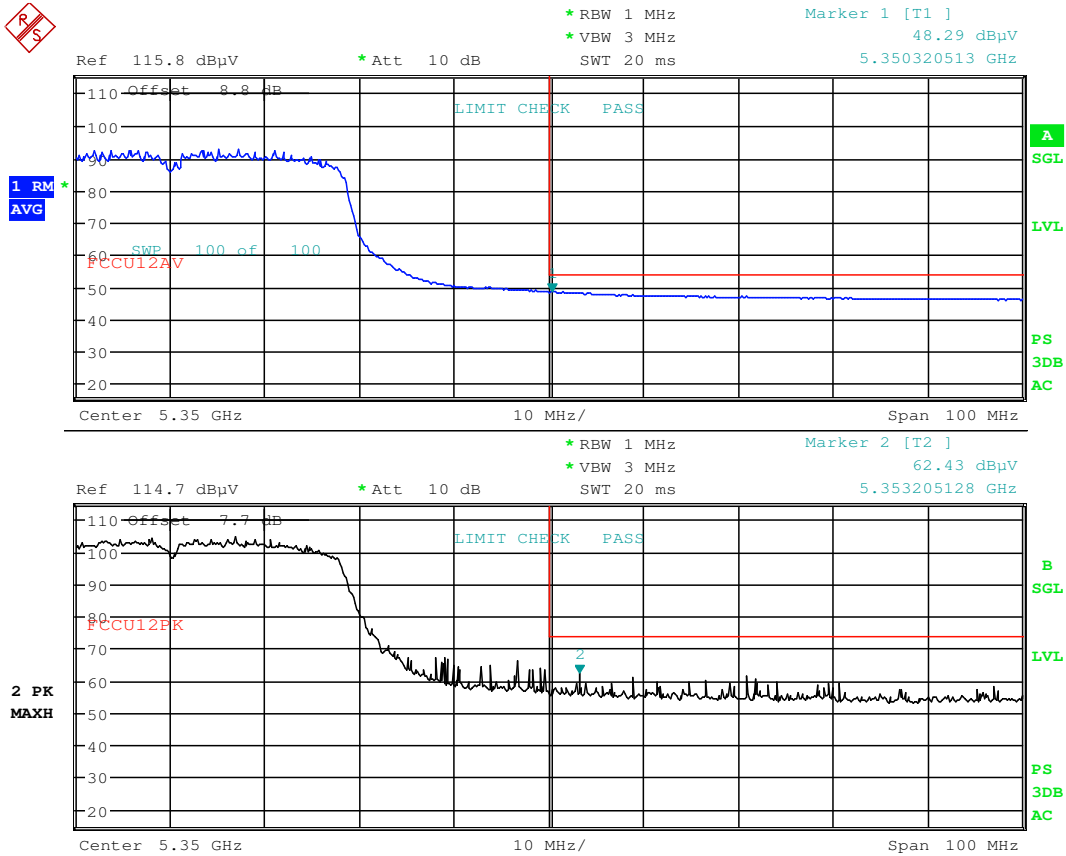
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 15.DEC.2016 01:00:52

Plot 7-210. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 170 of 195

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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

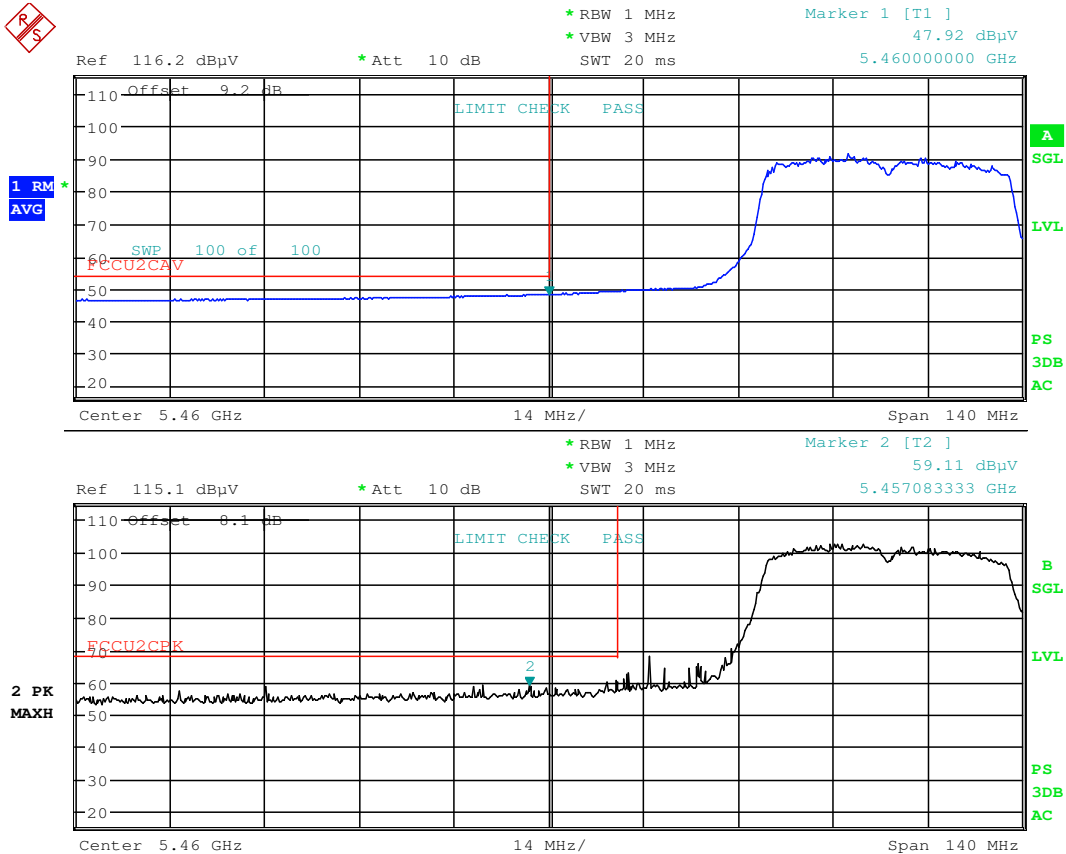
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 15.DEC.2016 01:04:54

Plot 7-211. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 171 of 195

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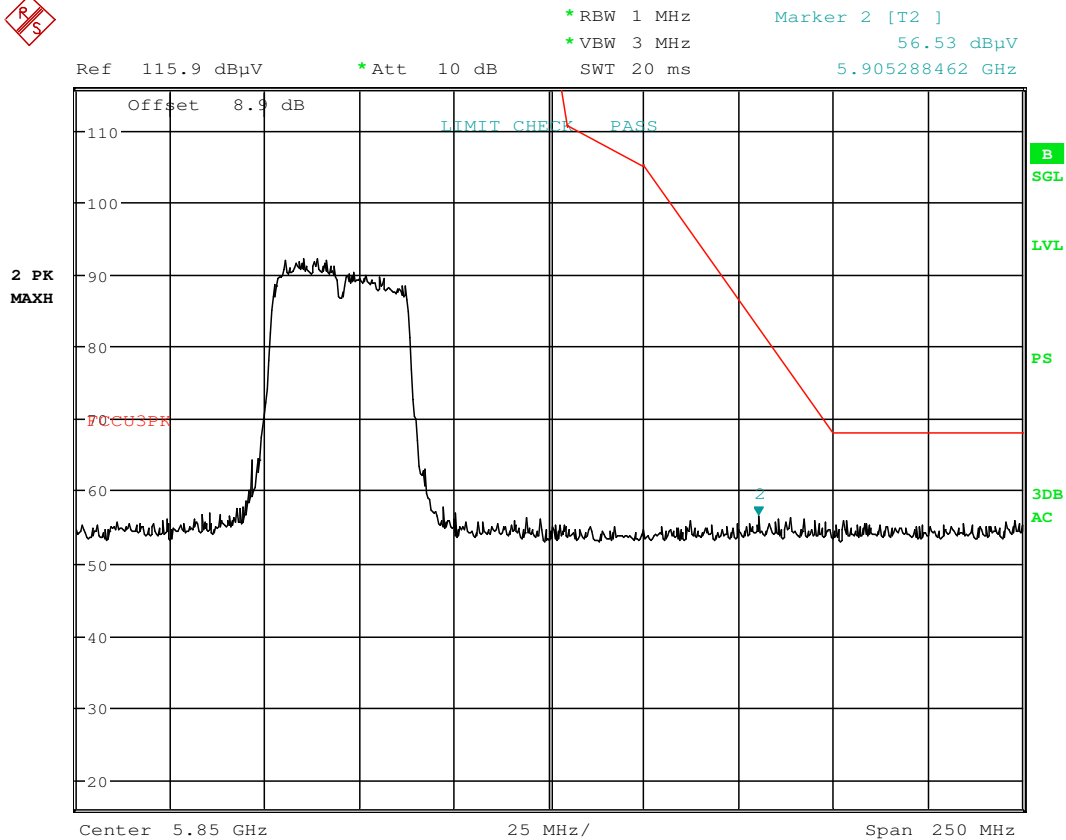
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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n (40MHz)
Worst Case Transfer Rate: MCS8
Distance of Measurements: 3 Meters
Operating Frequency: 5795MHz
Channel: 159



Date: 15.DEC.2016 01:05:41

Plot 7-212. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 172 of 195

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7.7.11 MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

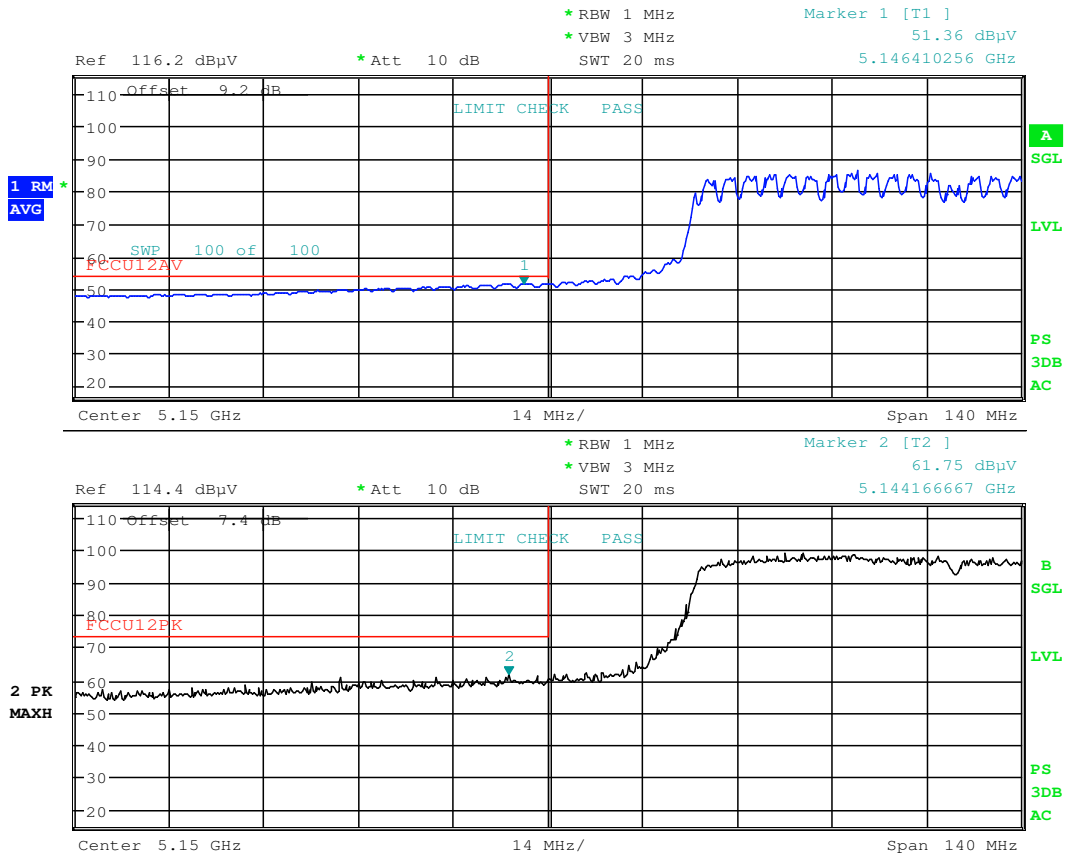
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 15.DEC.2016 21:53:07

Plot 7-213. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 173 of 195

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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

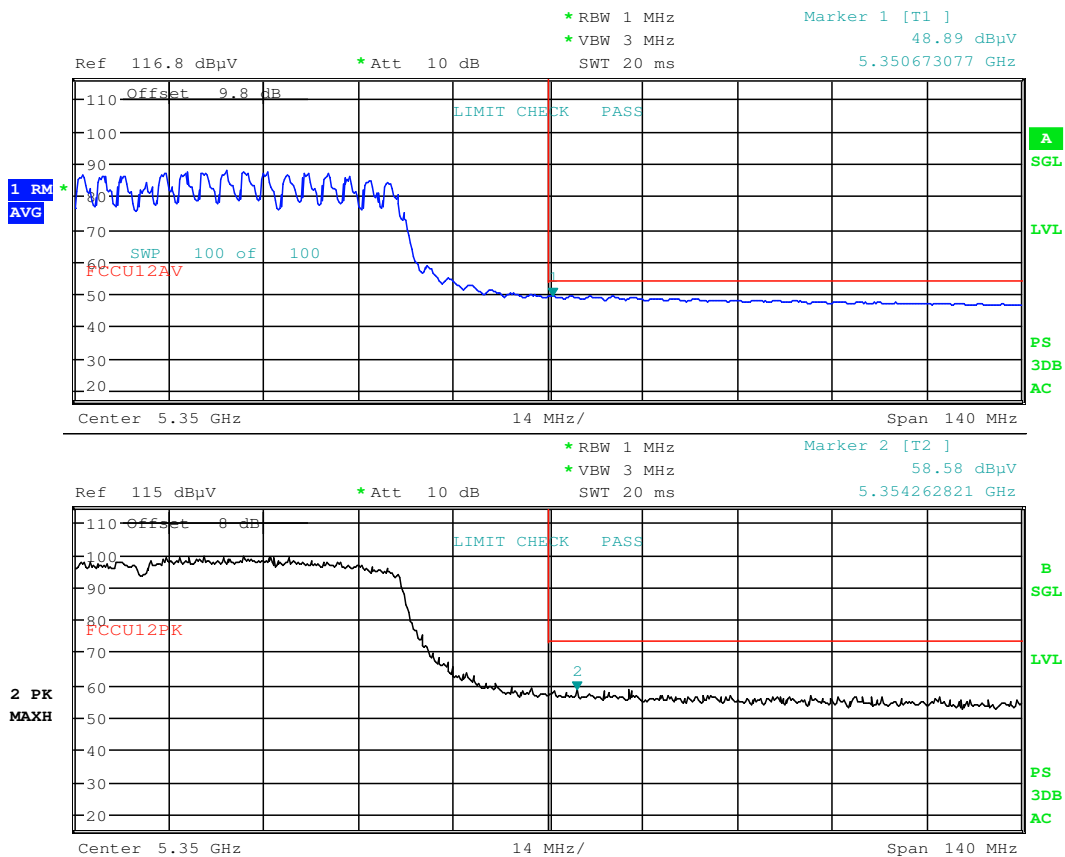
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 15.DEC.2016 22:12:06

Plot 7-214. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 174 of 195

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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

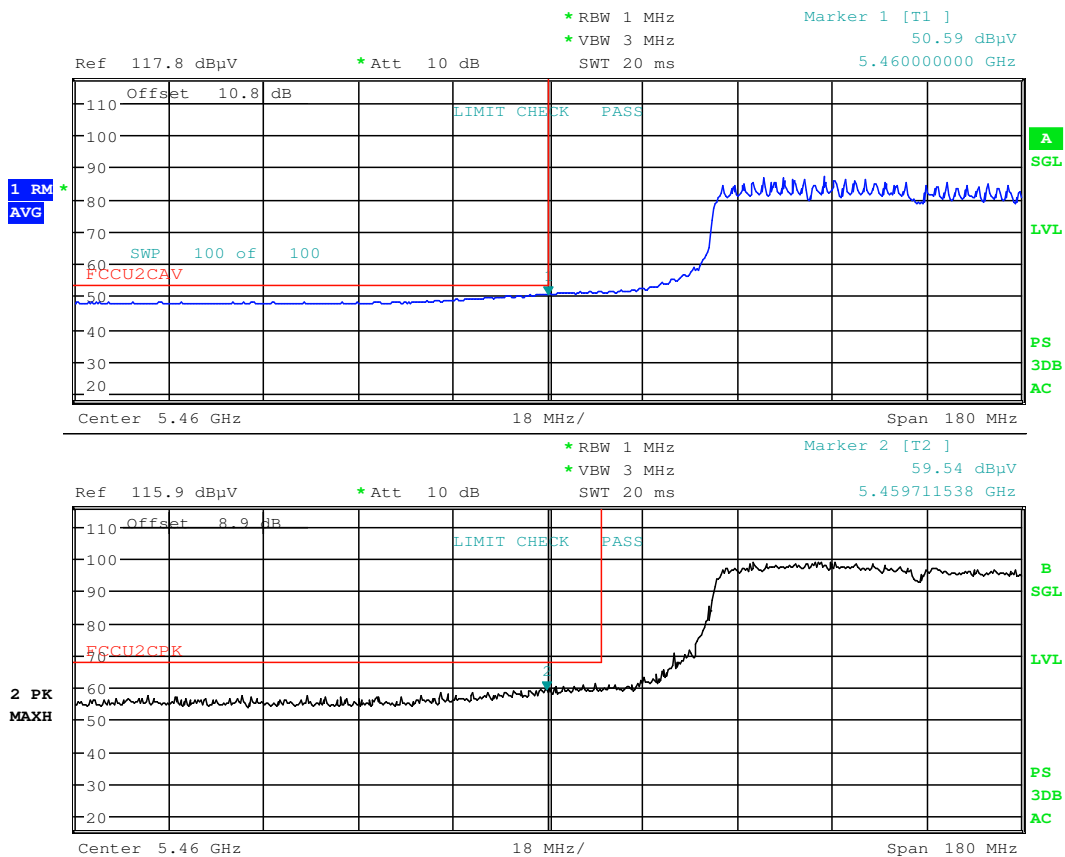
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 15.DEC.2016 22:17:16

Plot 7-215. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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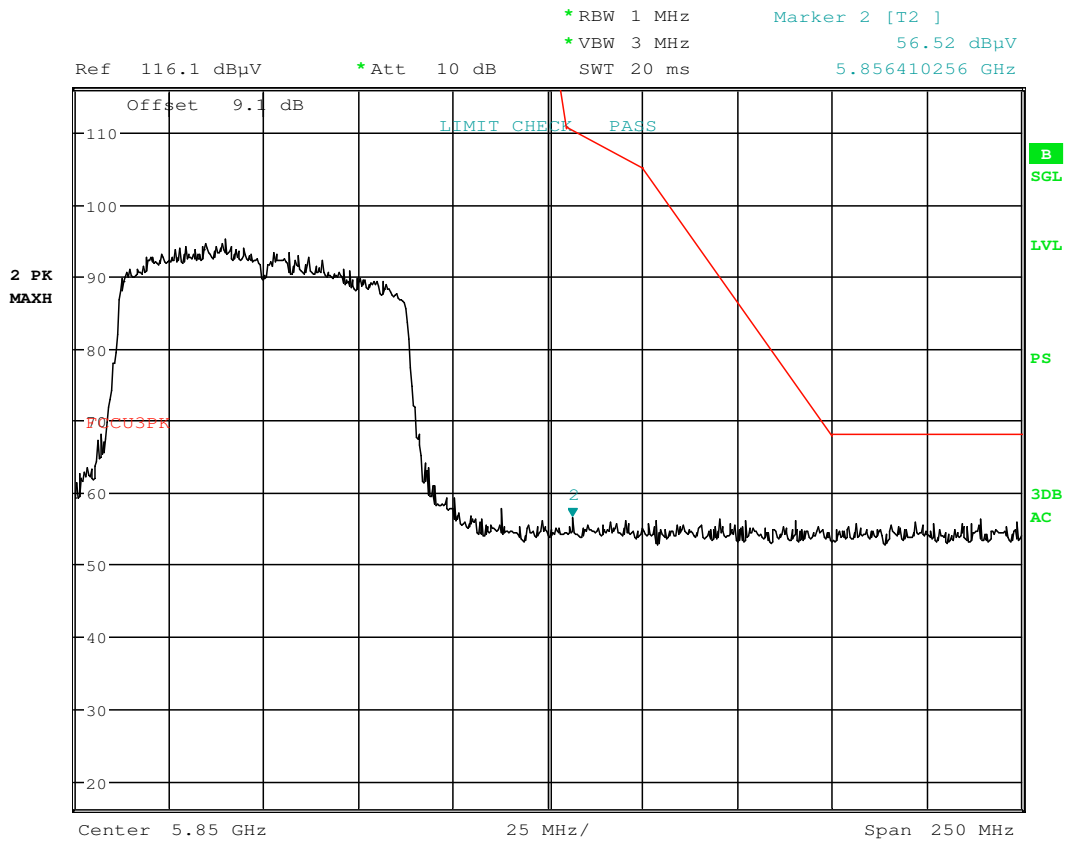
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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11ac (80MHz)
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5775MHz
Channel: 155



Date: 15.DEC.2016 22:18:18

Plot 7-216. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 176 of 195

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7.8 Radiated Spurious Emissions Measurements – Below 1GHz

§15.209

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 must not exceed the limits shown in Table 7-52 per Section 15.209.

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-52. 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.

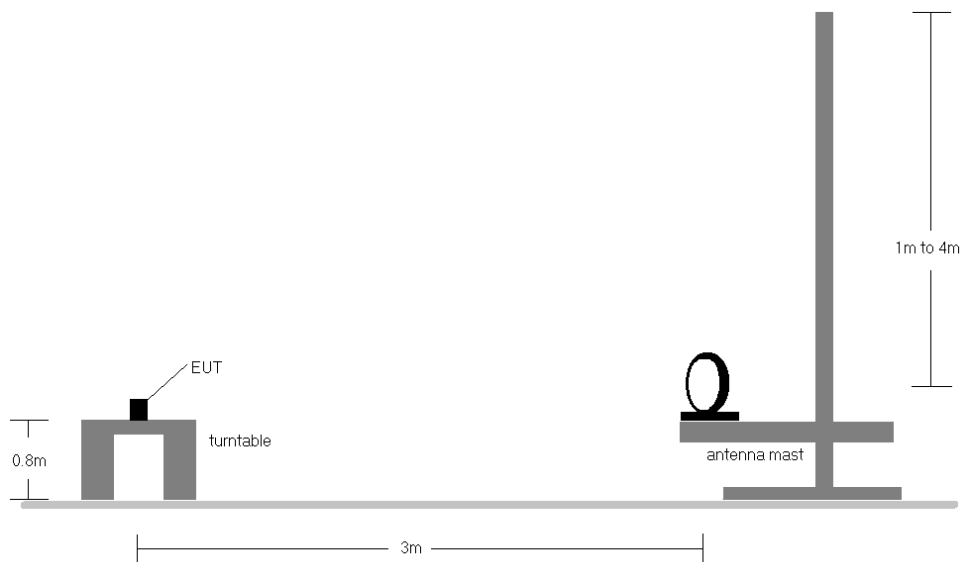


Figure 7-6. Radiated Test Setup < 30MHz

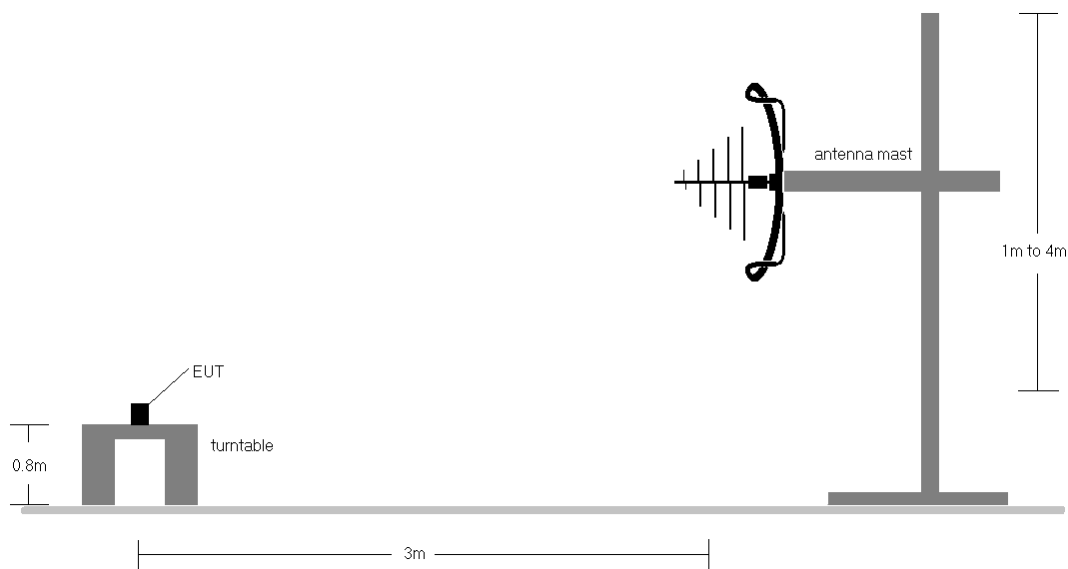


Figure 7-7. Radiated Test Setup < 1GHz

Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-52.
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.

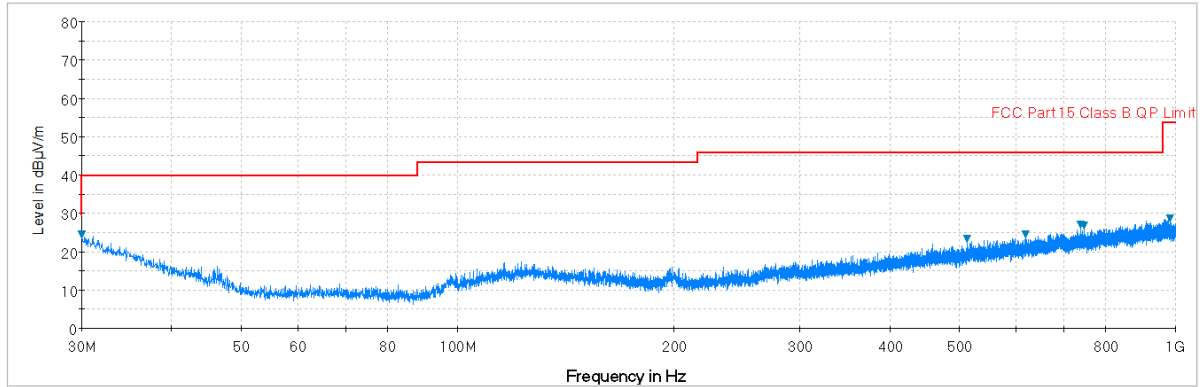
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

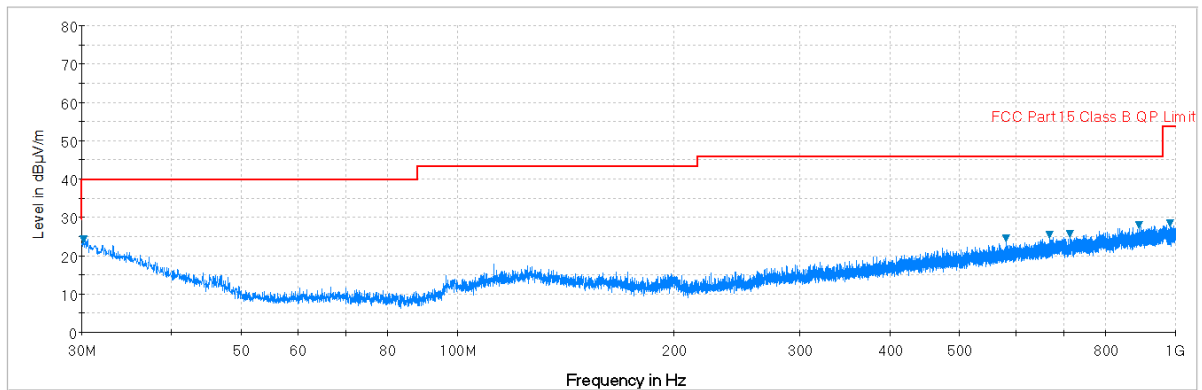
FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Antenna-1 Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209



Plot 7-217. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)



Plot 7-218. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

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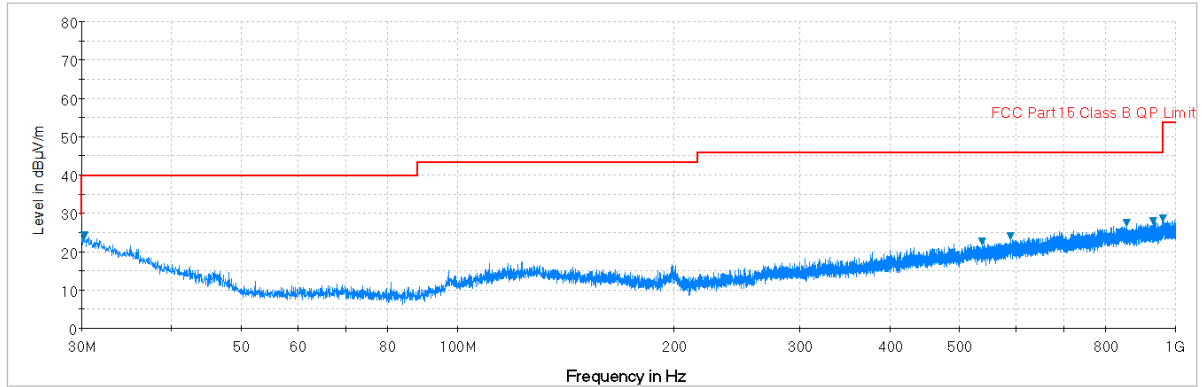
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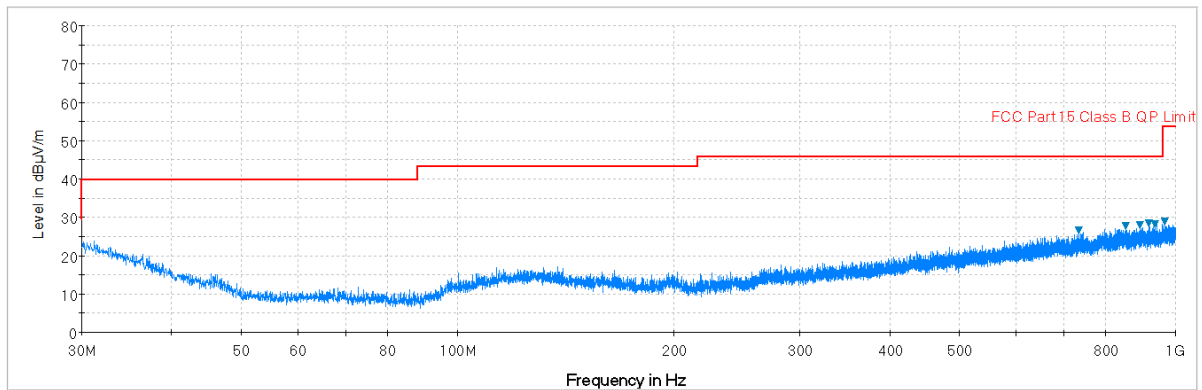
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Antenna-2 Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209



Plot 7-219. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)



Plot 7-220. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

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7.9 Line-Conducted Test Data

§15.407

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.

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 7-53. 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.

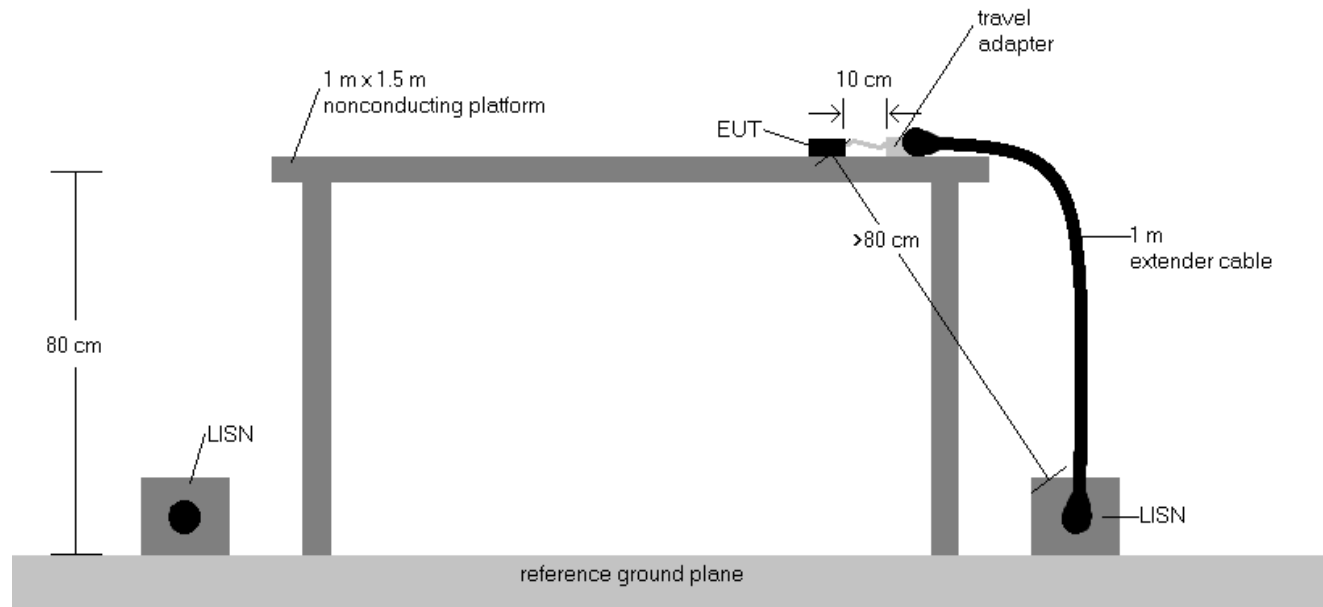


Figure 7-8. Test Instrument & Measurement Setup

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.
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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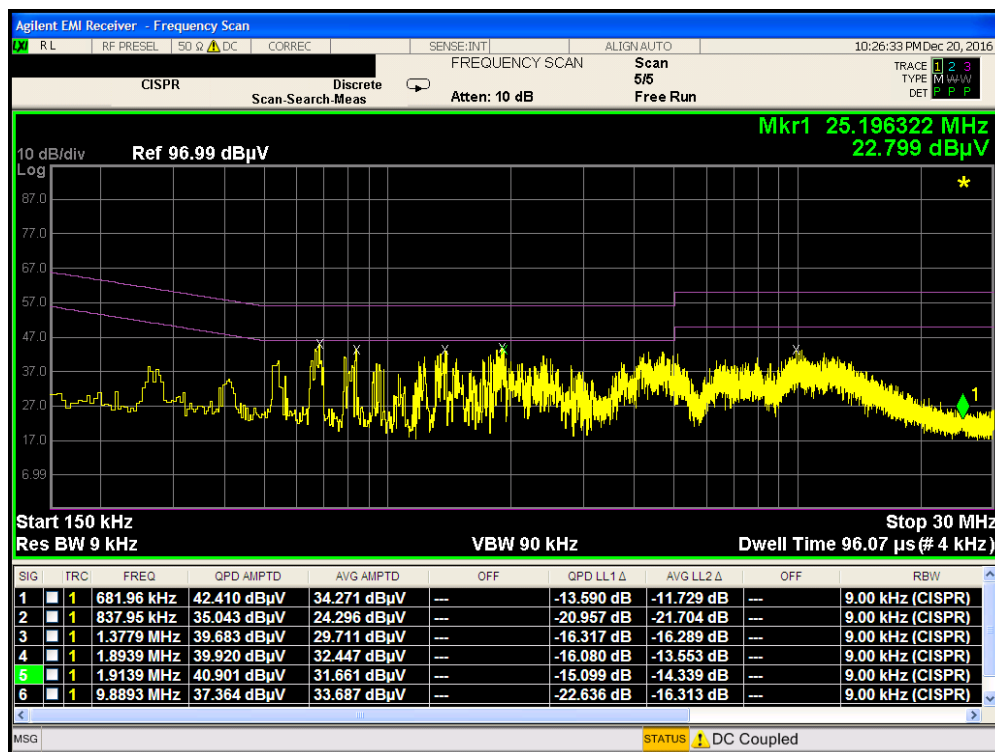
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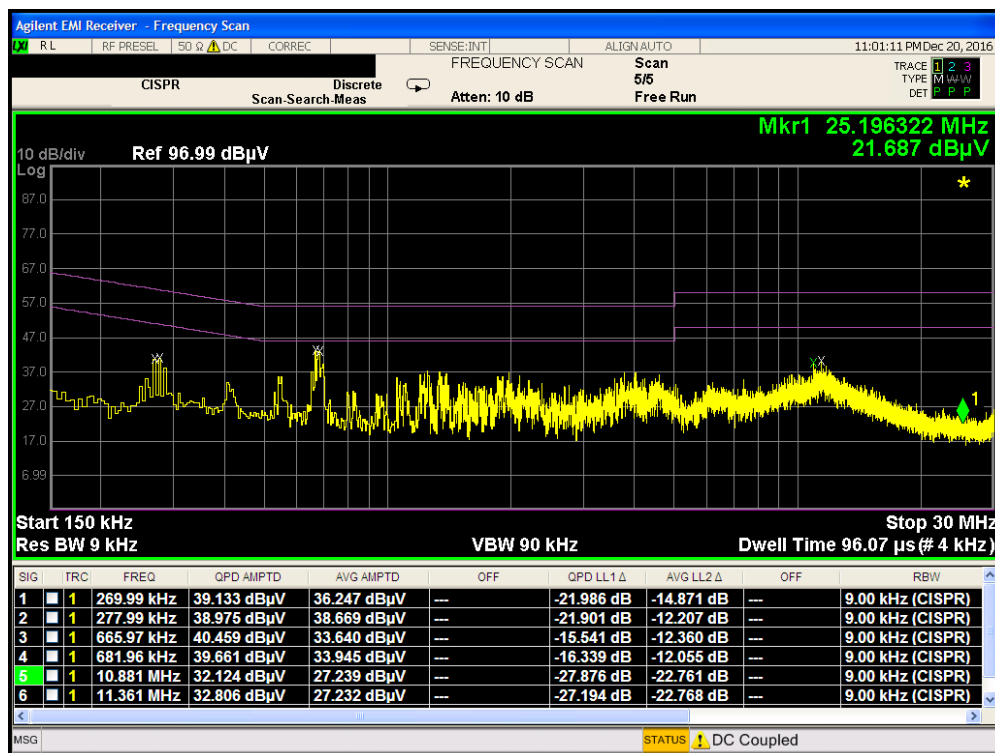
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Line-Conducted Test Data

\$15.407



Plot 7-221. Line Conducted Plot with 802.11a UNII Band 1 (L1)

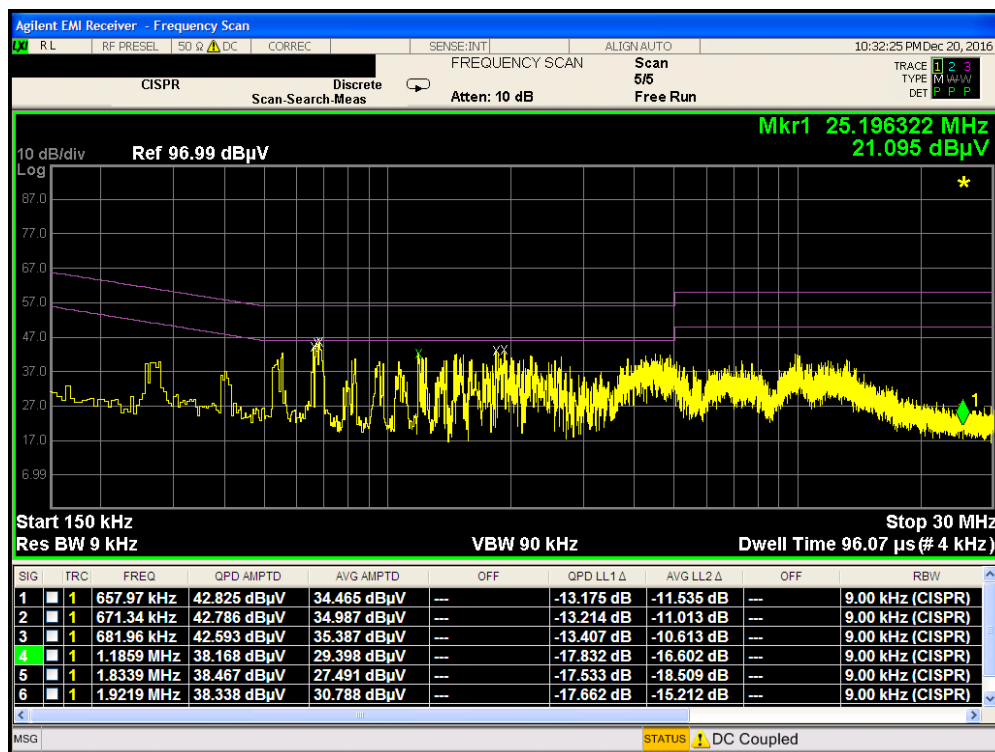


Plot 7-222. Line Conducted Plot with 802.11a UNII Band 1 (N)

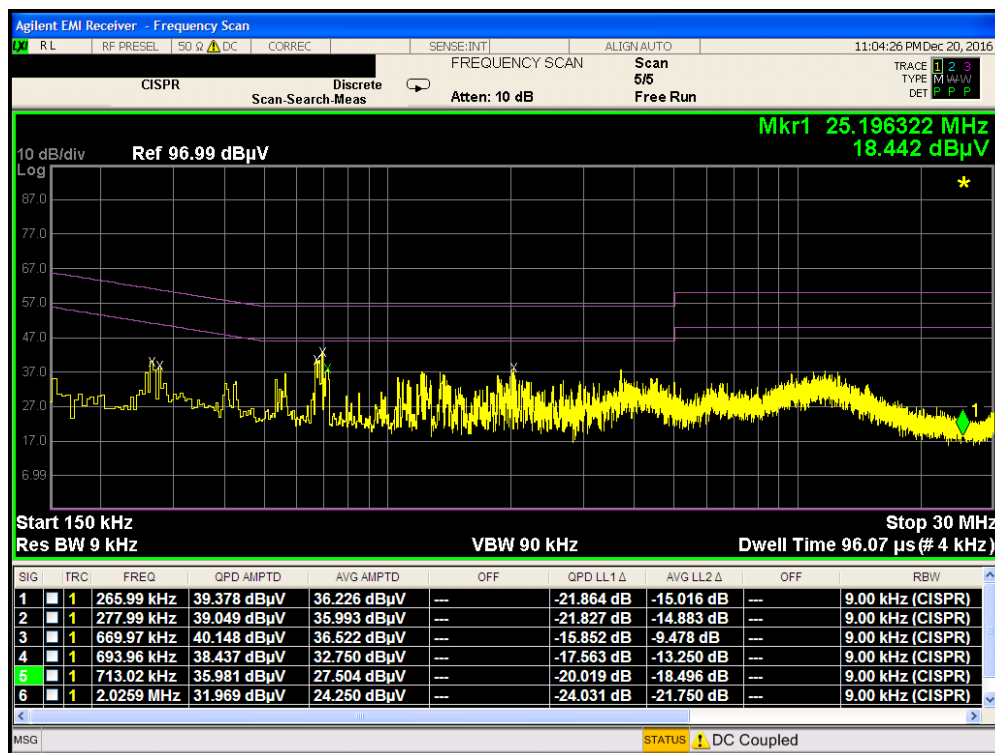
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Line-Conducted Test Data

\$15.407



Plot 7-223. Line Conducted Plot with 802.11a UNII Band 2A (L1)



Plot 7-224. Line Conducted Plot with 802.11a UNII Band 2A (N)

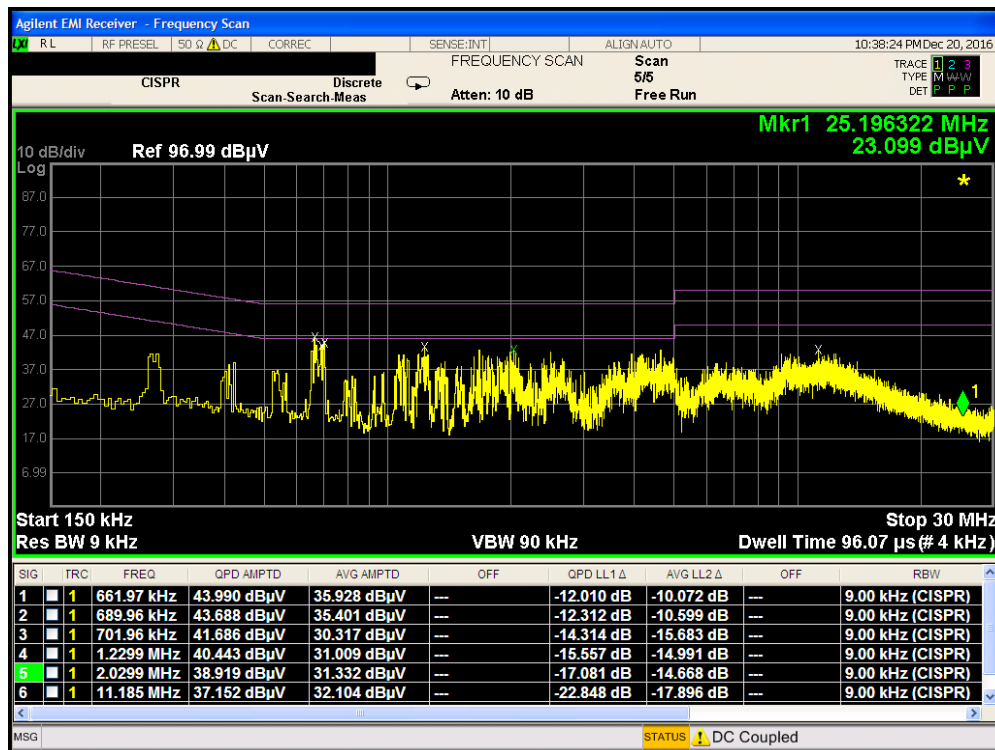
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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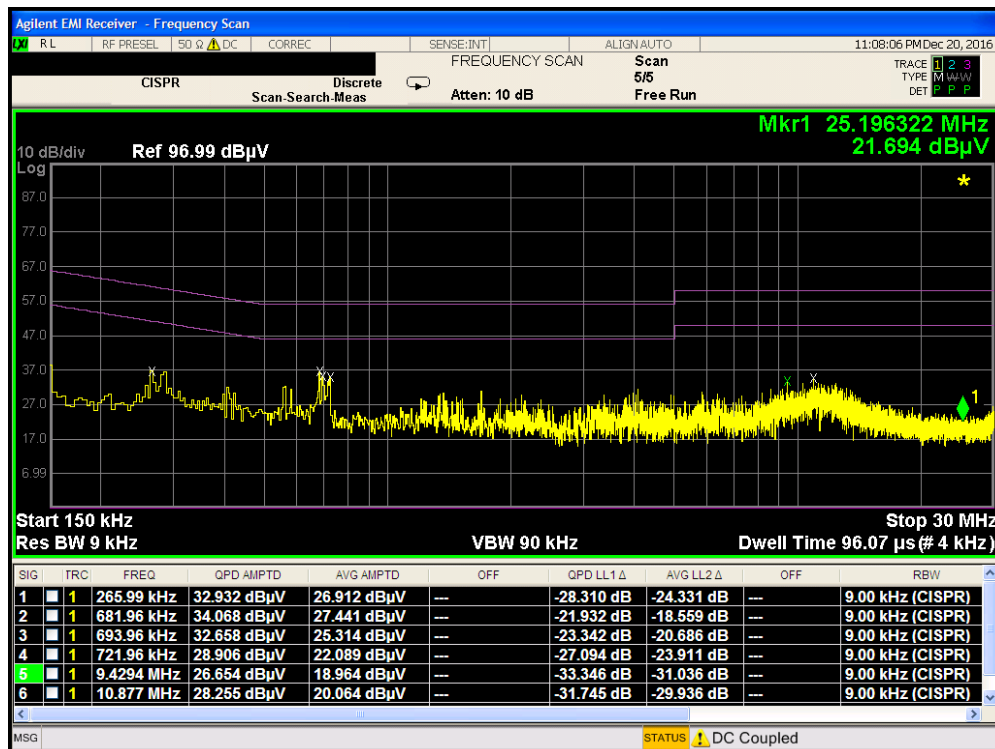
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Line-Conducted Test Data

\$15.407



Plot 7-225. Line Conducted Plot with 802.11a UNII Band 2C (L1)

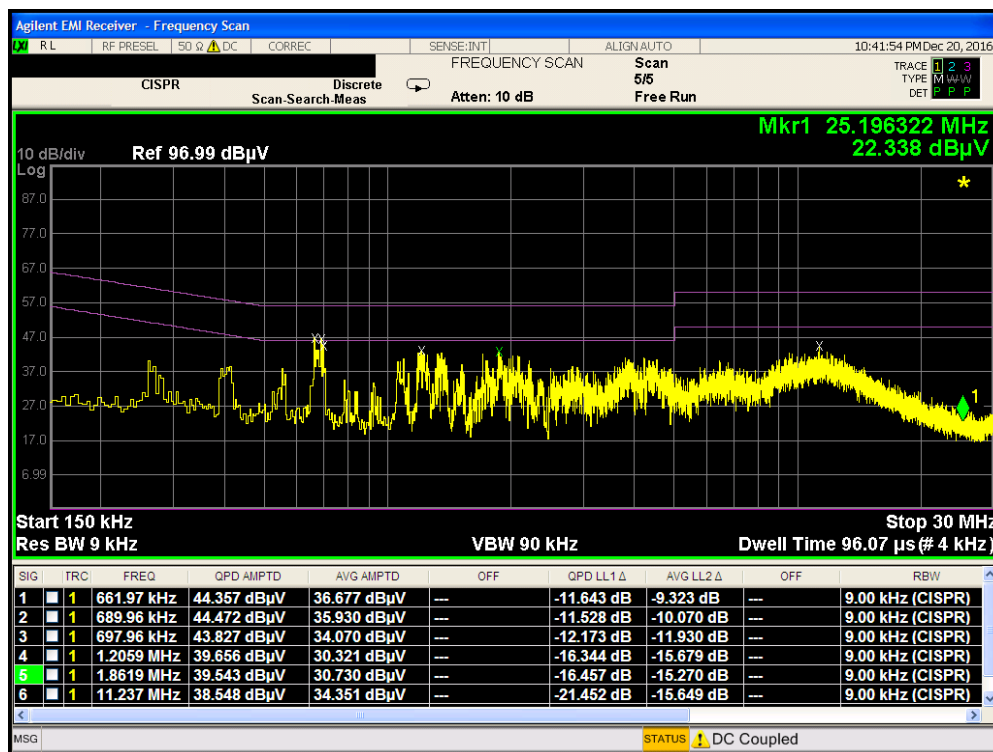


Plot 7-226. Line Conducted Plot with 802.11a UNII Band 2C (N)

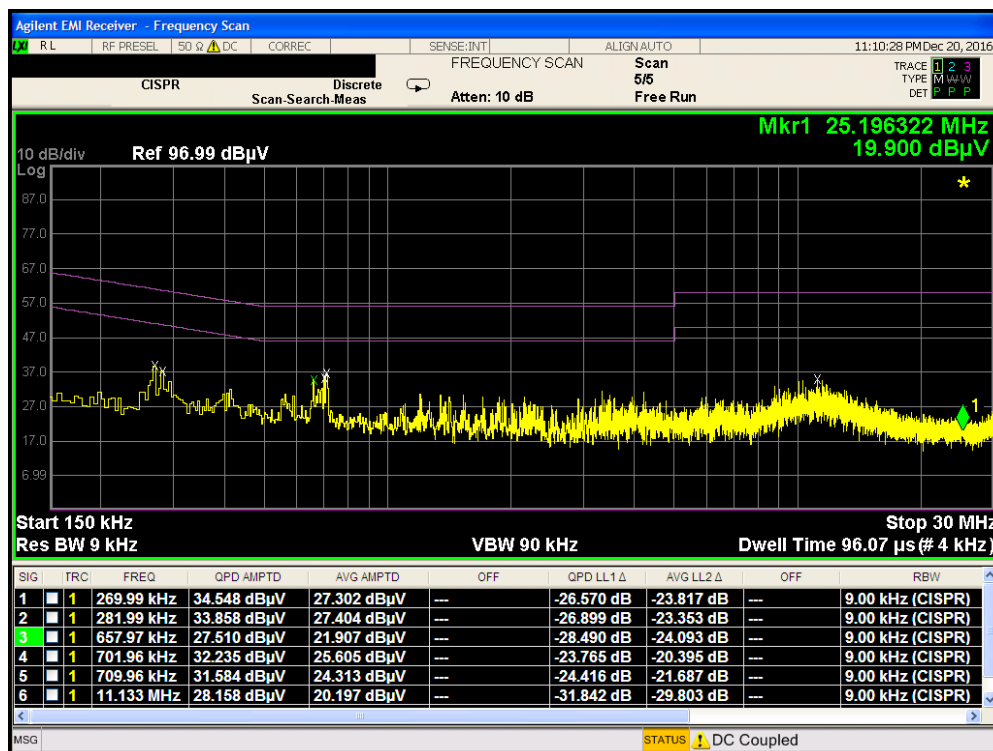
FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Line-Conducted Test Data

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Plot 7-227. Line Conducted Plot with 802.11a UNII Band 3 (L1)



Plot 7-228. Line Conducted Plot with 802.11a UNII Band 3 (N)

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8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Tablet FCC ID: A3LSMT825** is in compliance with Part 15E of the FCC Rules.

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APPENDIX A. 802.11A DUAL TX

A.1 Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)					
15.407 (a.1)	Maximum Conducted Output Power	Maximum conducted powers must meet the limits detailed in 15.407(a)	CONDUCTED	PASS	Section A.2
15.407 (a.1), (5)	Maximum Power Spectral Density	Maximum conducted powers must meet the limits detailed in 15.407(a)		PASS	Section A.3
15.205, 15.407(b.1),(5),(6)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS	Section A.4

Table A.1-1. Summary of Test Results

Notes:

- 1) This device employs dual transmission in 802.11a and 802.11g modes using CDD. For all test cases, the device was set to transmit from both antennas simultaneously. The data in this section demonstrates compliance to the dual-transmission requirements specified in KDB 662911 v02r01.
- 2) All data found in this section is compiled from plots found in the main body of this test report.
- 3) Since this device is able to transmit the same data through both of its antennas in a given symbol period, then, by the definition specified in KDB 662911 v02r01 Section F)1), the transmission symbols are correlated.
- 4) Since two antennas are supported in this device and a minimum of $N_{ss} = 1$ antenna can operate at any given time, the maximum array gain for two correlated signals is $10\log_{10}(N_{ant}/N_{ss}) = 3\text{dB}$, where N_{ss} is the number of spatial streams and N_{ant} is the total number of antennas.
- 5) For conducted spurious emissions, per KDB 662911 v02r01 Section E)3)b), the emissions on each individual output complied with its corresponding relative limit for that output, so additional testing was not required for dual transmission operation.

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A.2 Output Power Measurement

§15.247(b.3)

Test Overview

Using the “Measure and Sum” technique, the measured conducted power values were summed in linear power units then converted back to dBm. Original measured values are found in Section 7.4 of this report.

Freq [MHz]	Channel	Detector	5GHz (20MHz) Conducted Power [dBm]		
			IEEE Transmission Mode		
			ANT1	ANT2	CDD
5180	36	AVG	10.69	10.70	13.71
5200	40	AVG	10.82	10.56	13.70
5220	44	AVG	10.39	10.52	13.47
5240	48	AVG	10.75	10.63	13.70
5260	52	AVG	10.91	10.49	13.72
5280	56	AVG	10.06	10.27	13.18
5300	60	AVG	10.53	10.54	13.55
5320	64	AVG	10.66	10.12	13.41
5500	100	AVG	10.79	10.21	13.52
5520	104	AVG	10.88	10.36	13.64
5540	108	AVG	10.58	10.35	13.48
5560	112	AVG	10.69	10.31	13.51
5580	116	AVG	10.78	10.27	13.54
5600	120	AVG	10.89	10.28	13.61
5620	124	AVG	10.06	10.86	13.49
5640	128	AVG	10.81	10.95	13.89
5660	132	AVG	10.89	10.29	13.61
5680	136	AVG	10.83	10.23	13.55
5700	140	AVG	10.77	10.30	13.55
5720	144	AVG	10.74	10.27	13.52
5745	149	AVG	10.69	10.89	13.80
5765	153	AVG	10.67	10.69	13.69
5785	157	AVG	10.65	10.75	13.71
5805	161	AVG	10.07	10.89	13.51
5825	165	AVG	10.86	10.08	13.50

Table A2-1. Dual Tx 802.11a-mode Conducted Output Power Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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A.3 Power Spectral Density

§15.247(e)

Test Overview

Using the “Measure and Sum” technique, the measured conducted power density values were summed in linear power units then converted back to dBm.

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed CDD Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	a	6	0.01	-0.26	2.89	11.0	-8.11	Pass
	5200	40	a	6	0.04	-0.48	2.80	11.0	-8.20	Pass
	5240	48	a	6	-0.02	-0.12	2.94	11.0	-8.06	Pass
Band 2A	5260	52	a	6	0.31	-0.48	2.94	11.0	-8.06	Pass
	5280	56	a	6	0.36	-0.72	2.86	11.0	-8.14	Pass
	5320	64	a	6	0.04	-0.94	2.59	11.0	-8.41	Pass
Band 2C	5500	100	a	6	0.14	-0.33	2.92	11.0	-8.08	Pass
	5600	120	a	6	0.63	-0.37	3.17	11.0	-7.83	Pass
	5720	144	a	6	0.01	-0.46	2.79	11.0	-8.21	Pass
Band 3	5745	149	a	6	-2.88	-3.50	-0.17	11.0	-11.17	Pass
	5785	157	a	6	-1.90	-2.72	0.72	11.0	-10.28	Pass
	5825	165	a	6	-2.67	-3.48	-0.05	11.0	-11.05	Pass

Table A3-3.802.11a Dual Tx Conducted Power Density Measurements

FCC ID: A3LSMT825		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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A.4 Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting on both outputs in 802.11a mode.

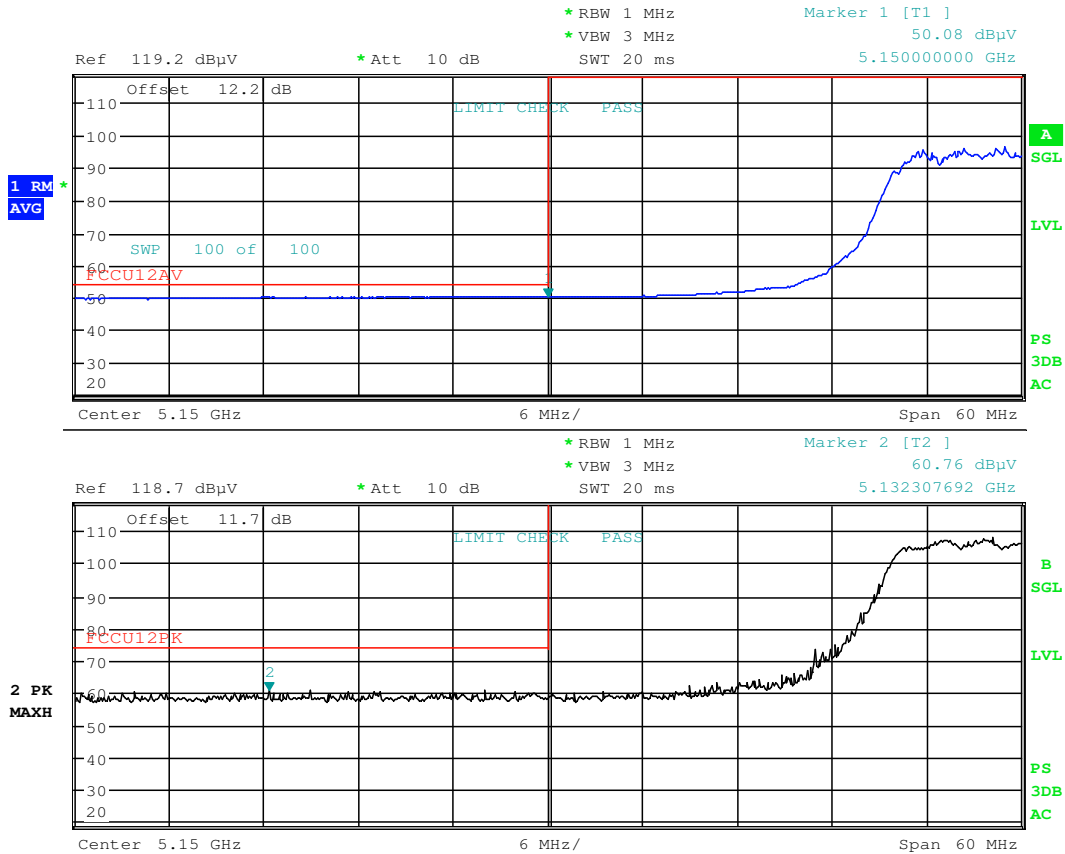
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 23.DEC.2016 17:20:08

Plot A.4-1. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 1)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Dual Tx Radiated Restricted Band Edge Measurements

\$15.407(b.1)(b.2) \$15.205 \$15.209

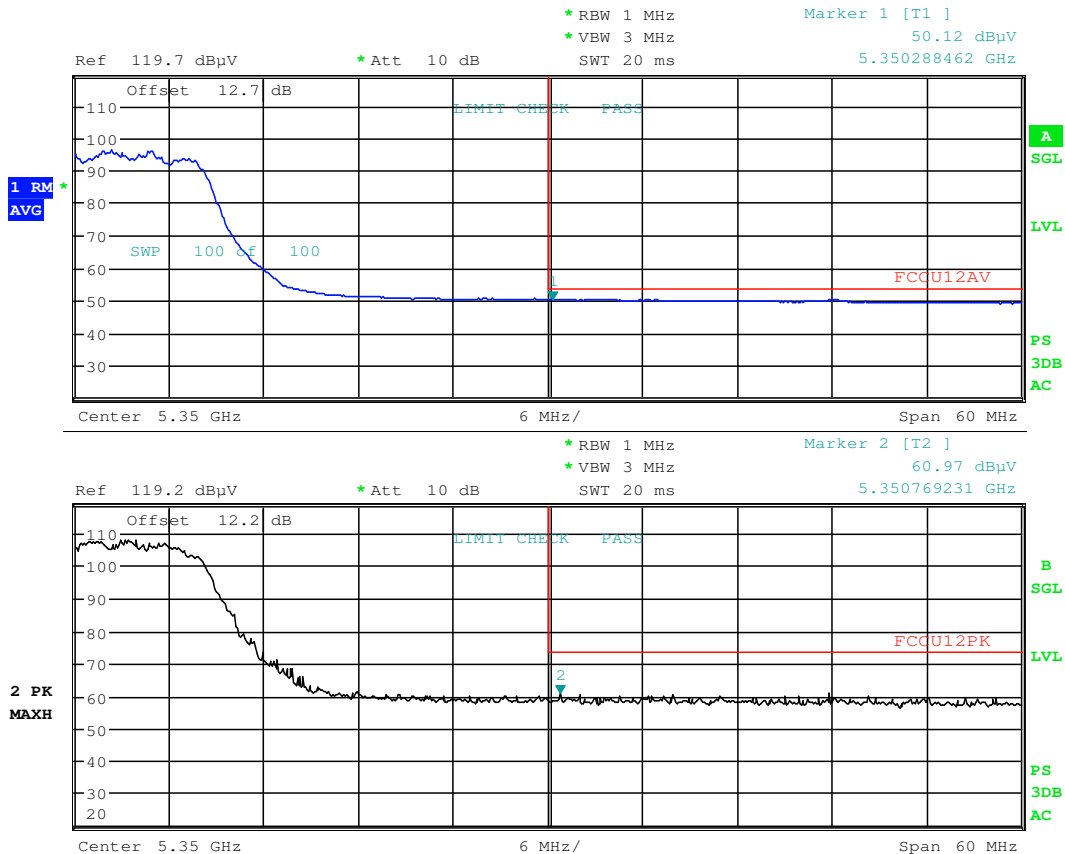
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 23.DEC.2016 17:24:42

Plot A.4-3. Radiated Restricted Upper Band Edge Plot (Average/Peak – UNII Band 2A)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Dual Tx Radiated Restricted Band Edge Measurements

\$15.407(b.1)(b.2) \$15.205 \$15.209

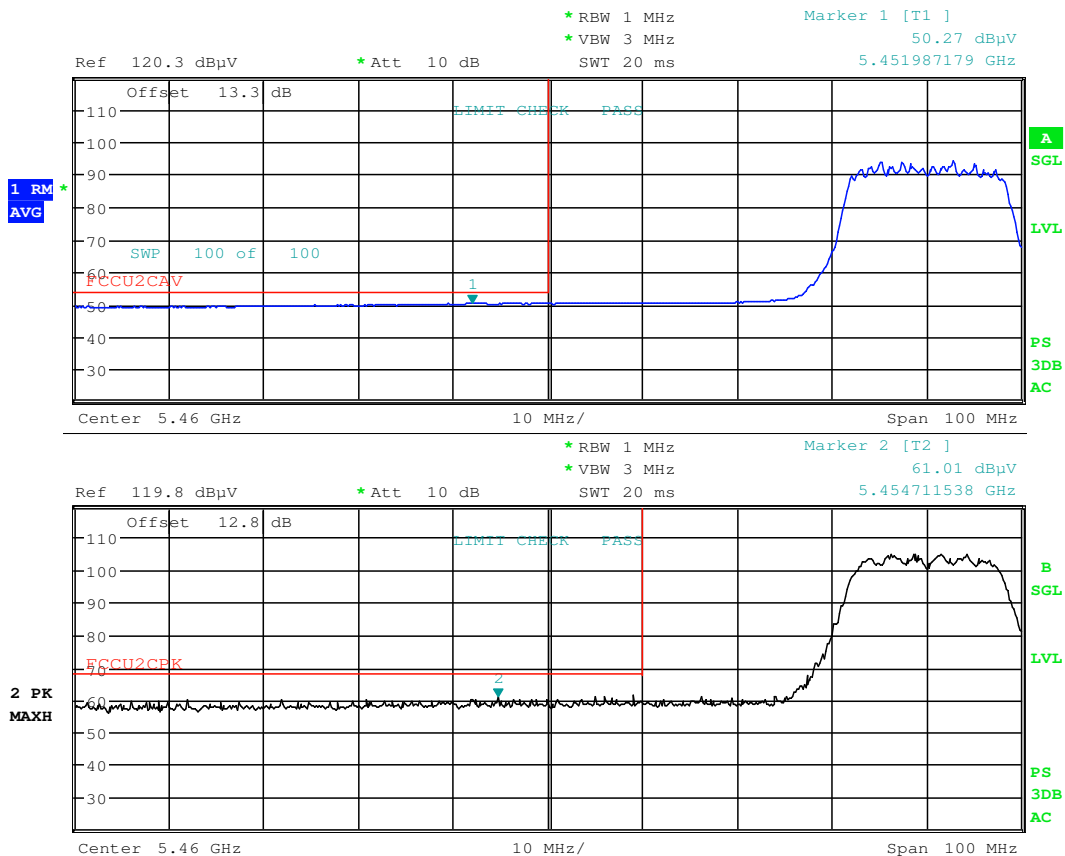
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 23.DEC.2016 17:25:46

Plot A.4-5. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 2C)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

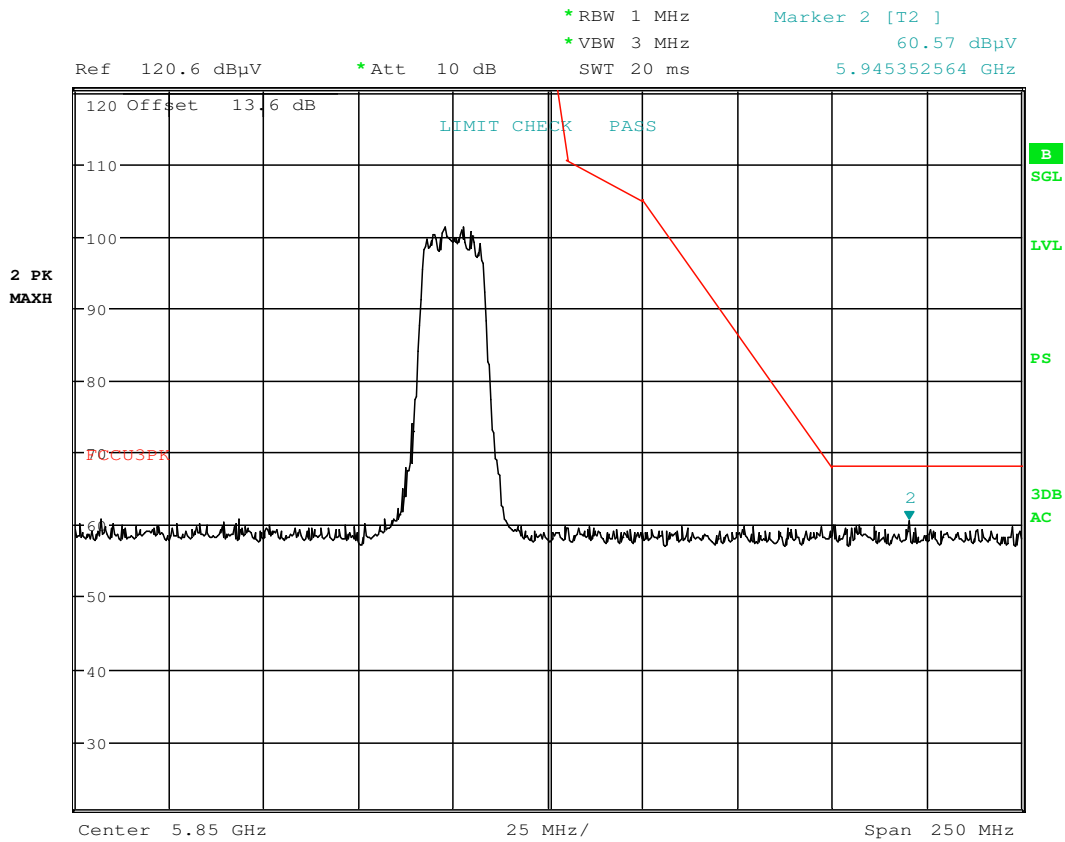
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 23.DEC.2016 17:26:45

Plot A.4-7. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMT825	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 0Y1612131944-R1.A3L	Test Dates: 12/12/2016-2/8/2017	EUT Type: Portable Tablet		Page 195 of 195

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