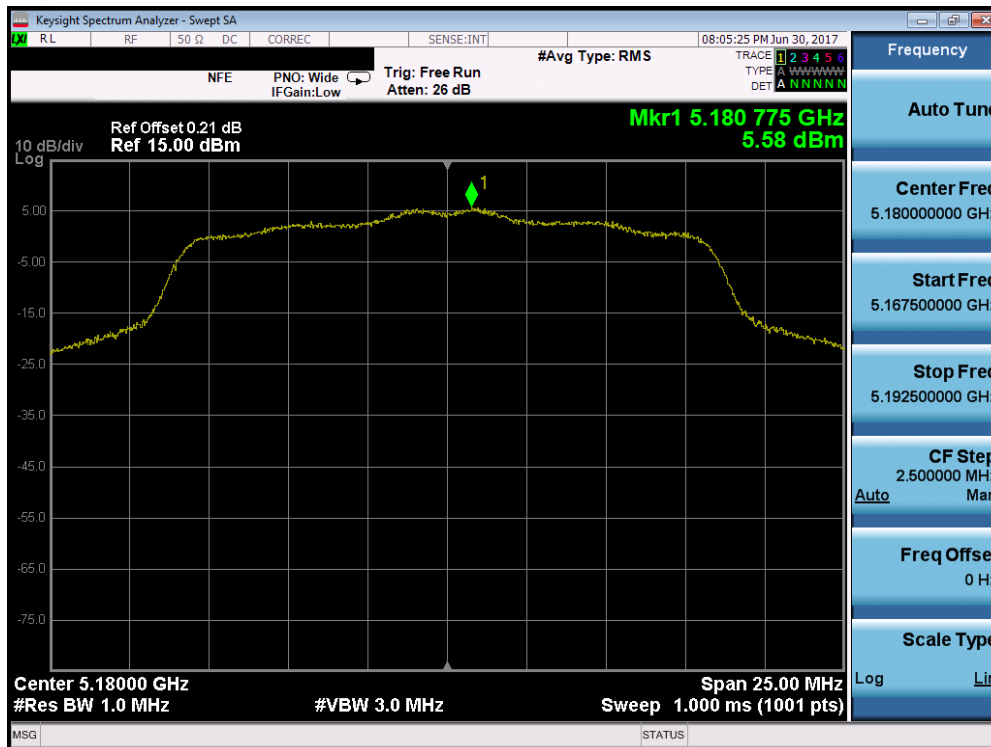


Antenna-2 Power Spectral Density Measurements

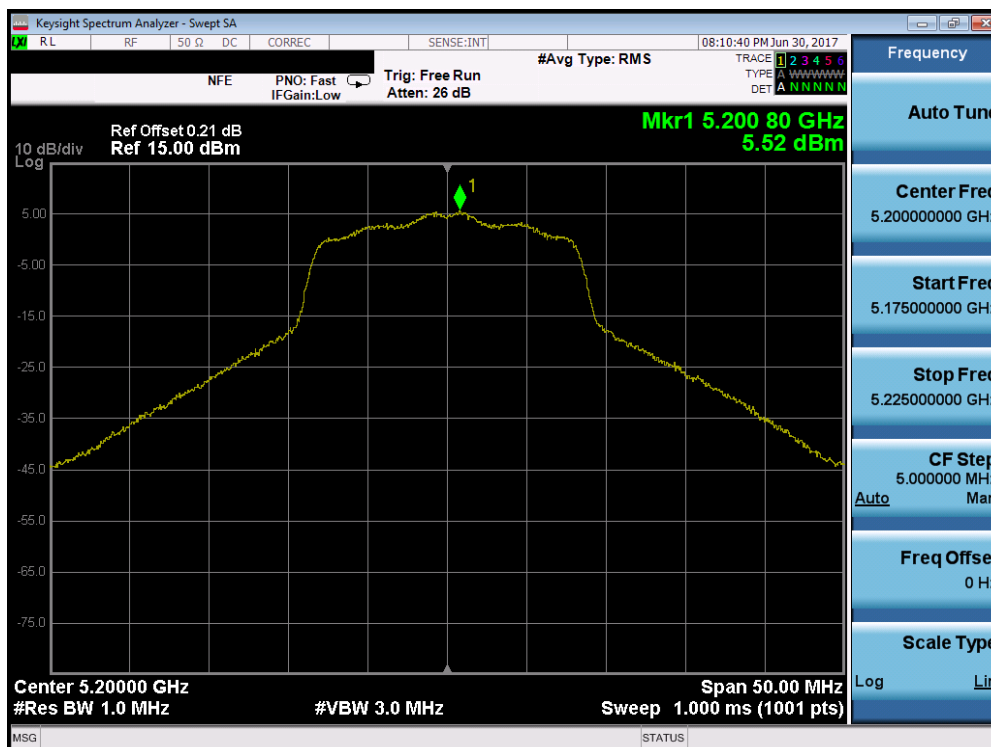
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	5.58	11.0	-5.42
	5200	40	a	6	5.52	11.0	-5.48
	5240	48	a	6	5.63	11.0	-5.37
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	4.66	11.0	-6.34
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	4.65	11.0	-6.35
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	5.05	11.0	-5.95
	5190	38	n (40MHz)	13.5/15 (MCS0)	-0.45	11.0	-11.45
	5230	46	n (40MHz)	13.5/15 (MCS0)	1.68	11.0	-9.32
Band 2A	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-4.60	11.0	-15.60
	5260	52	a	6	5.63	11.0	-5.37
	5280	56	a	6	5.31	11.0	-5.69
	5320	64	a	6	5.44	11.0	-5.56
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	5.15	11.0	-5.85
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	4.47	11.0	-6.53
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	4.90	11.0	-6.10
	5270	54	n (40MHz)	13.5/15 (MCS0)	1.65	11.0	-9.35
Band 2C	5310	62	n (40MHz)	13.5/15 (MCS0)	-0.22	11.0	-11.22
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-4.87	11.0	-15.87
	5500	100	a	6	5.95	11.0	-5.05
	5600	120	a	6	4.80	11.0	-6.20
	5720	144	a	6	6.05	11.0	-4.95
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	5.97	11.0	-5.04
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	4.11	11.0	-6.89
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	5.92	11.0	-5.08
	5510	102	n (40MHz)	13.5/15 (MCS0)	0.82	11.0	-10.18
	5590	118	n (40MHz)	13.5/15 (MCS0)	2.00	11.0	-9.00
	5710	142	n (40MHz)	13.5/15 (MCS0)	1.61	11.0	-9.39
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-4.74	11.0	-15.74
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-3.31	11.0	-14.31
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-3.78	11.0	-14.78

Table 7-17. Conducted Power Spectral Density Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 69 of 177

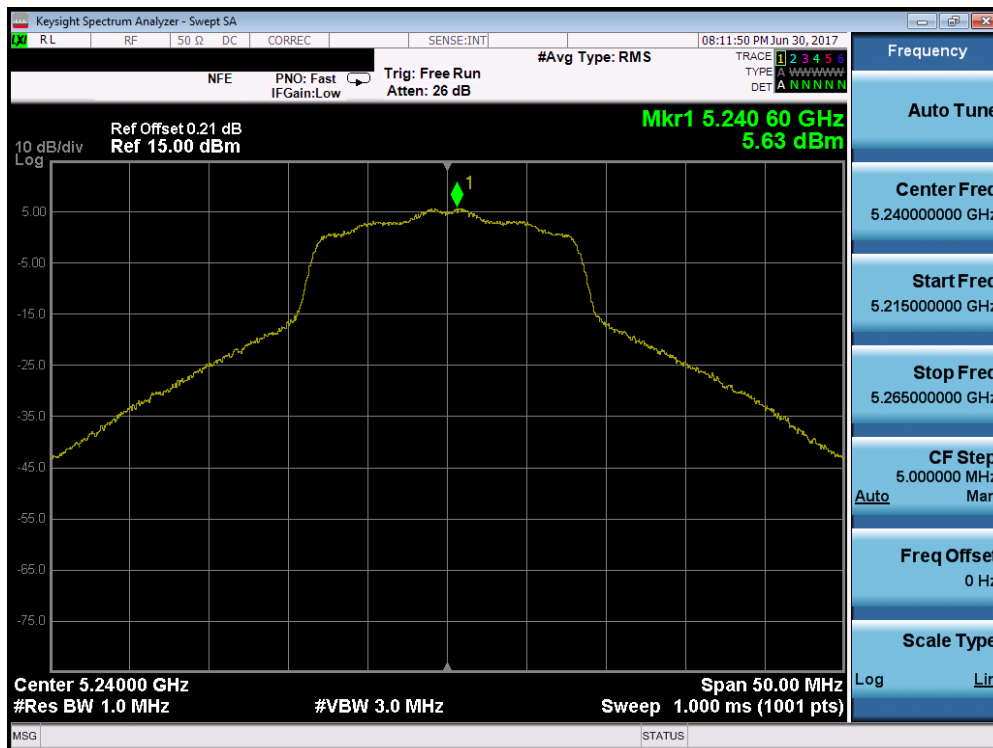


Plot 7-90. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

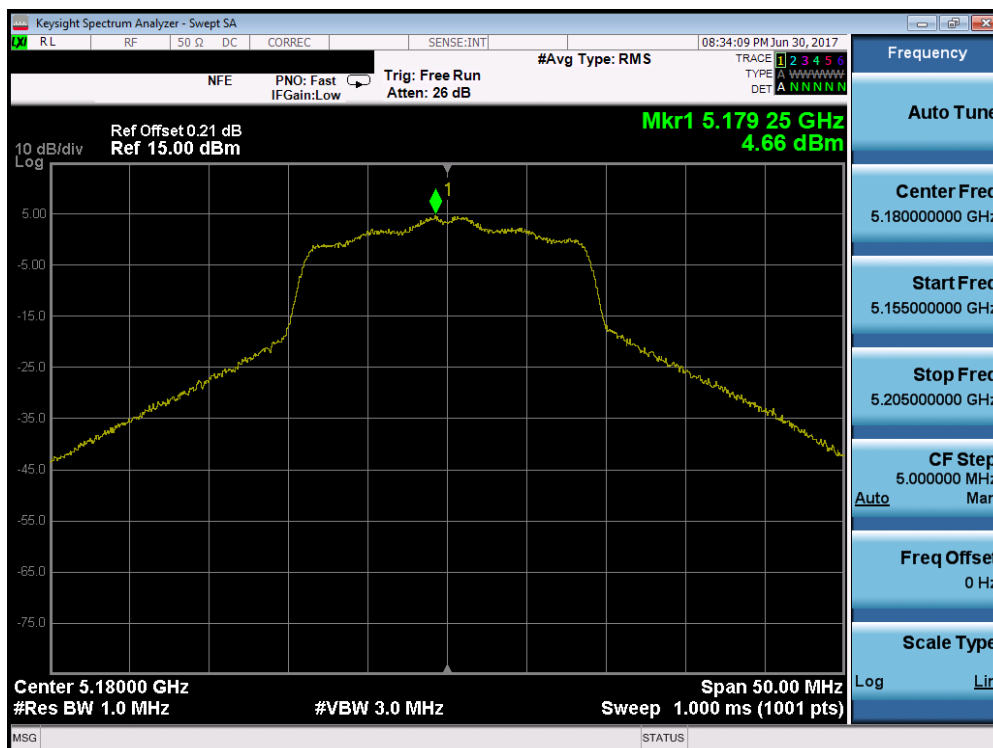


Plot 7-91. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 70 of 177



Plot 7-92. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)



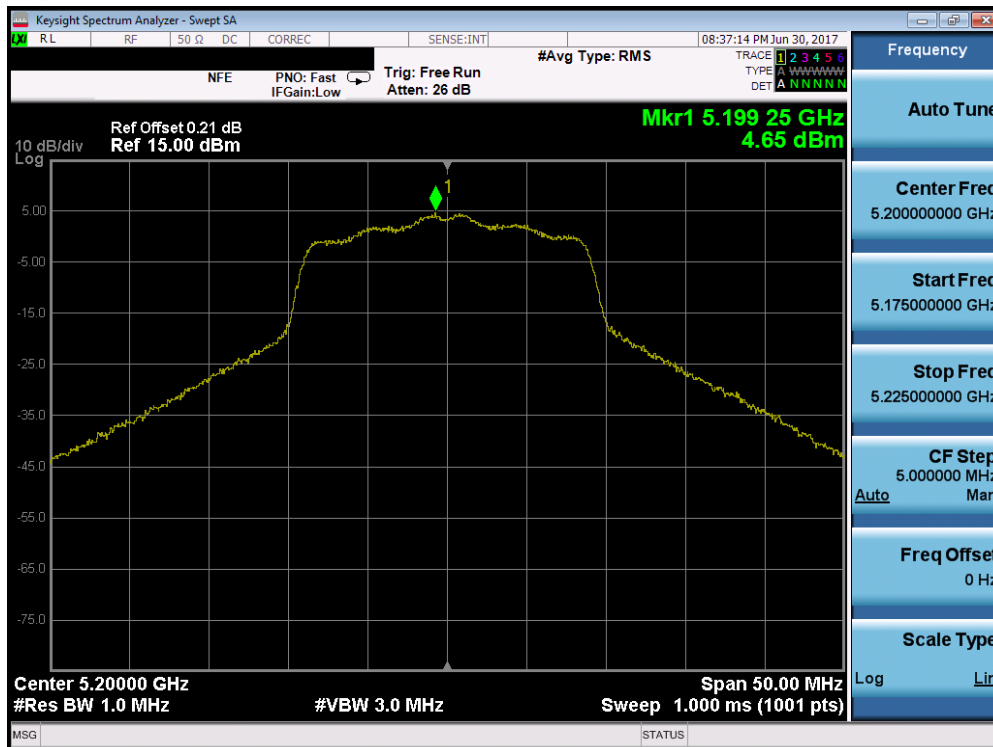
Plot 7-93. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 71 of 177

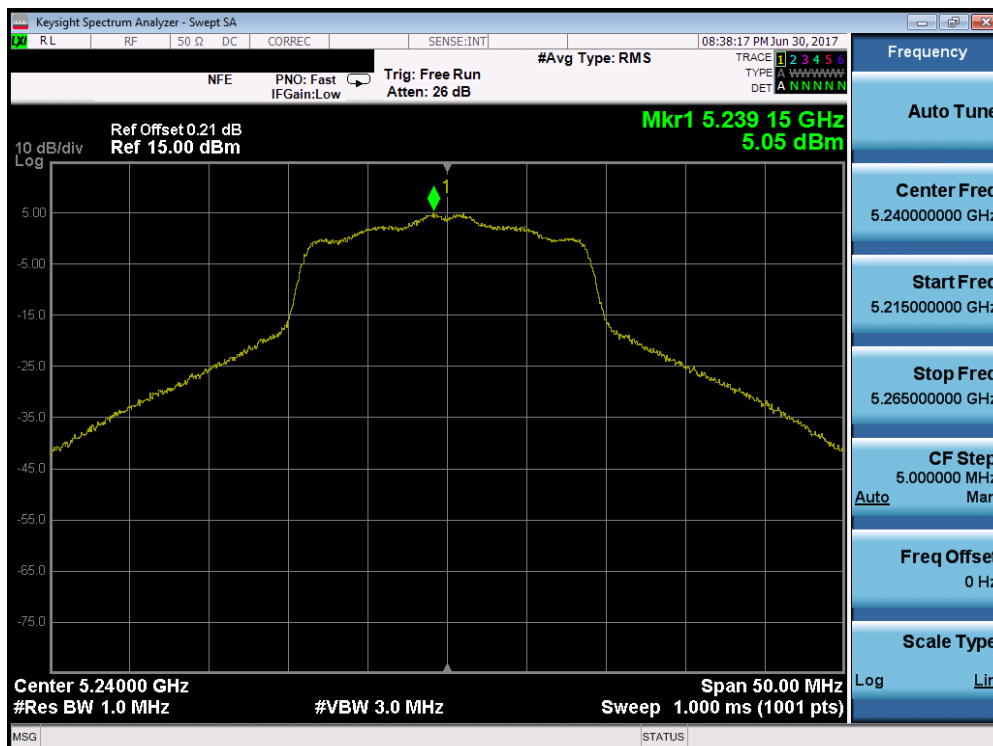
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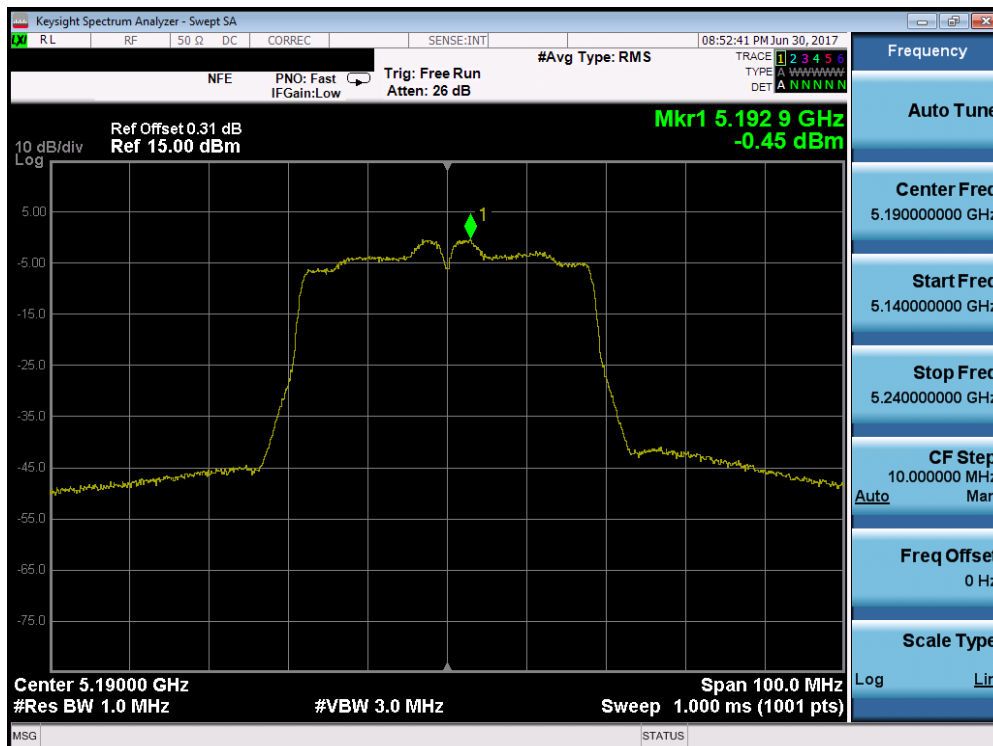


Plot 7-94. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

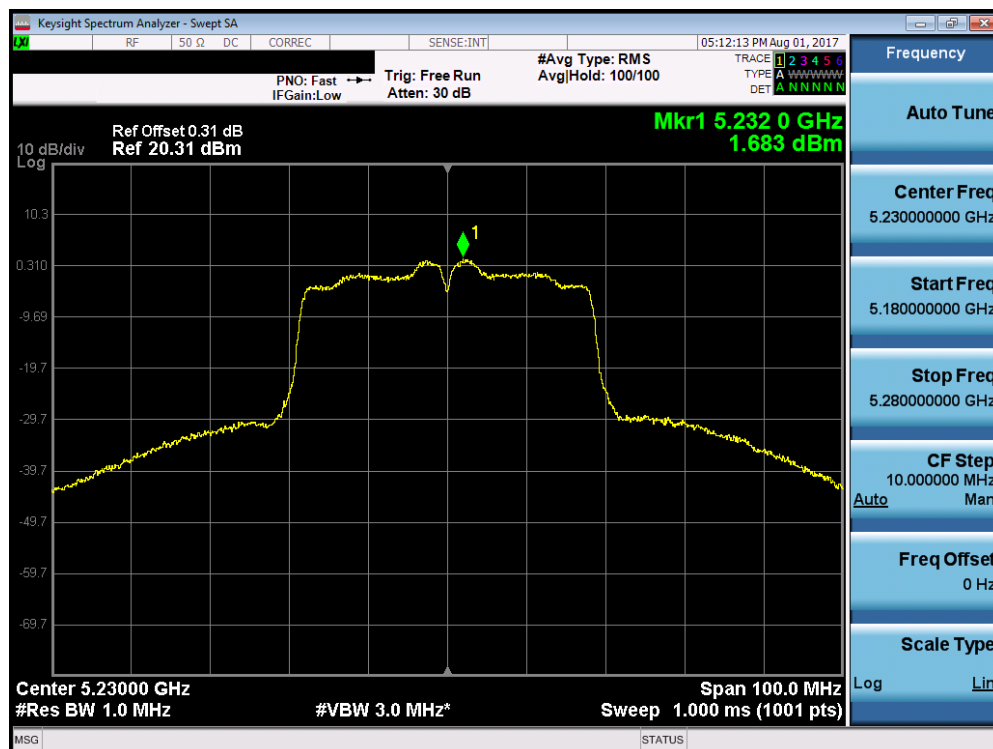


Plot 7-95. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 72 of 177

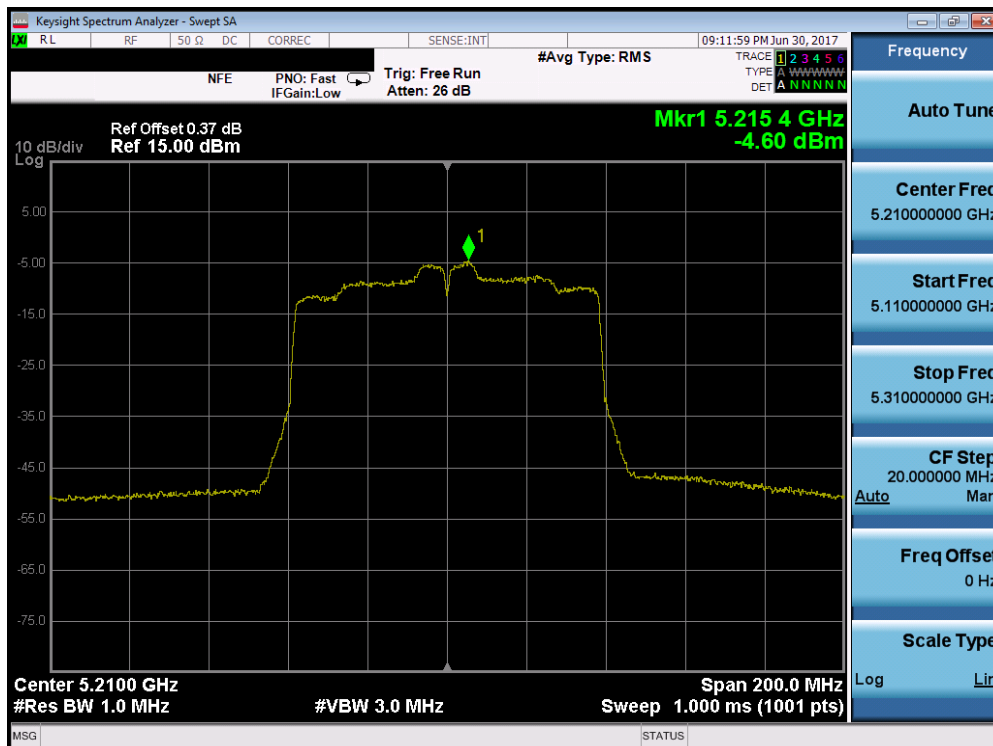


Plot 7-96. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

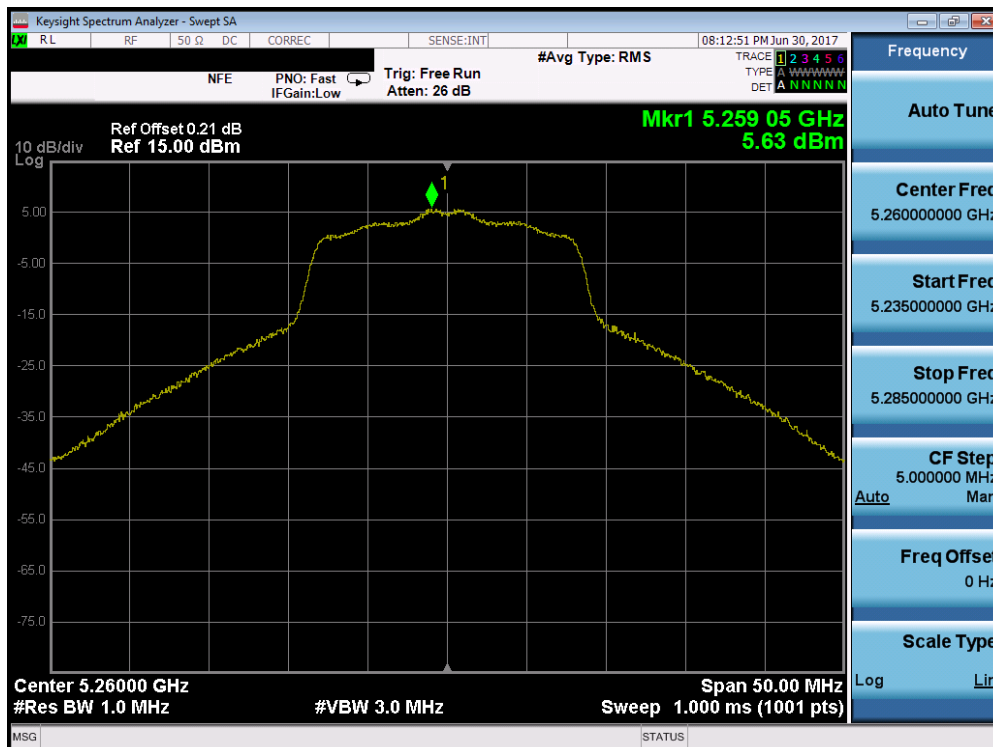


Plot 7-97. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 73 of 177

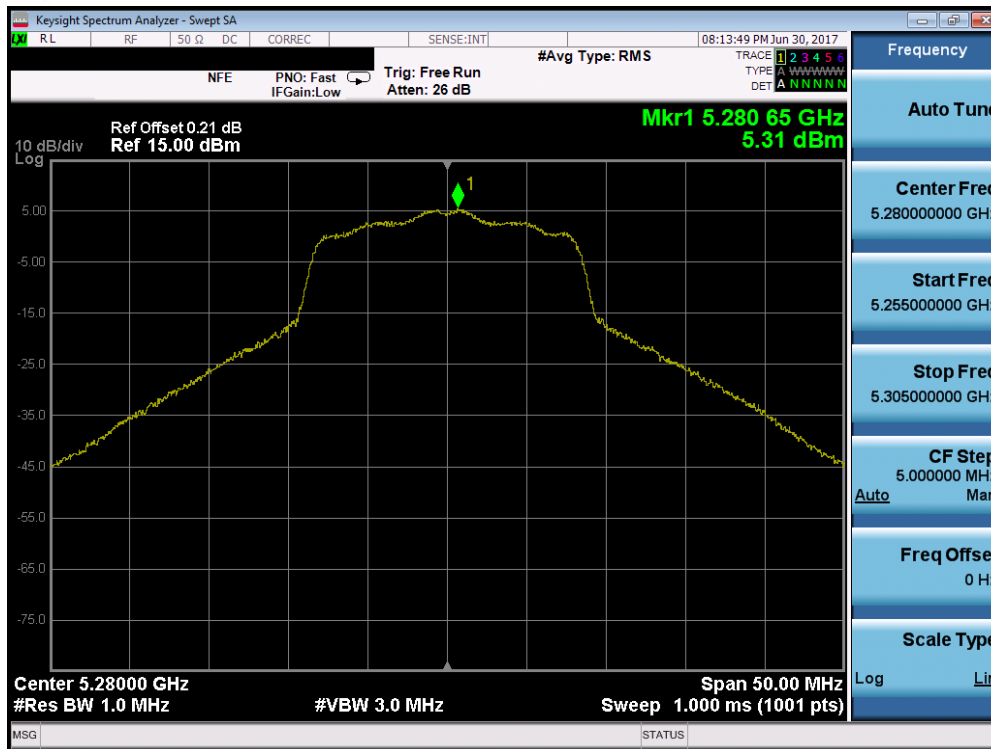


Plot 7-98. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

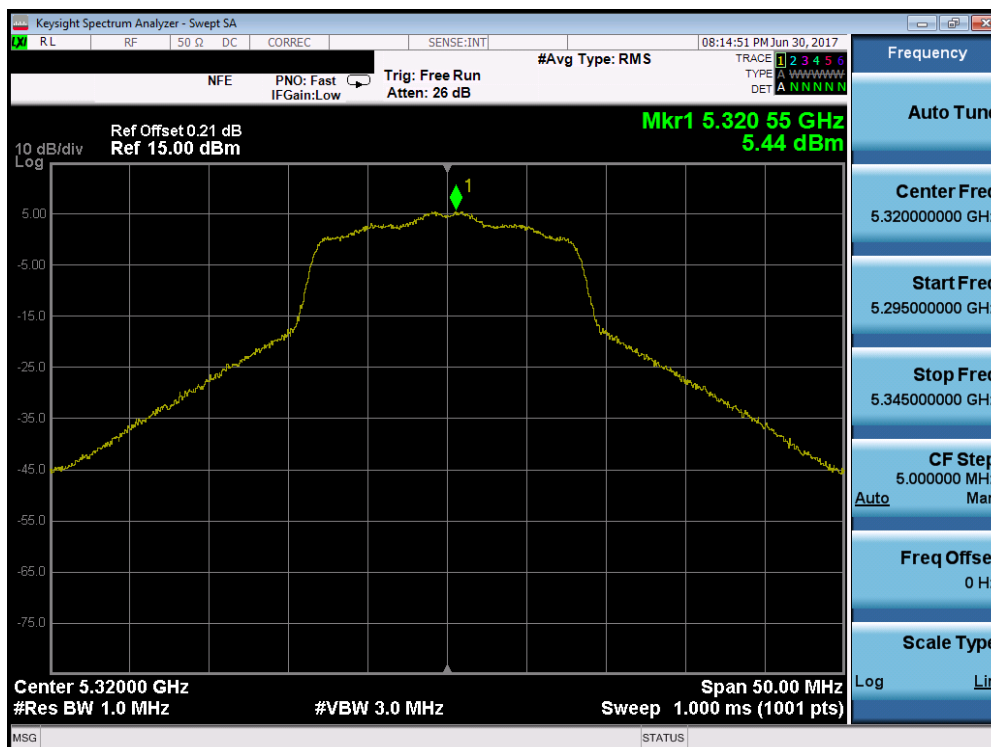


Plot 7-99. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 74 of 177

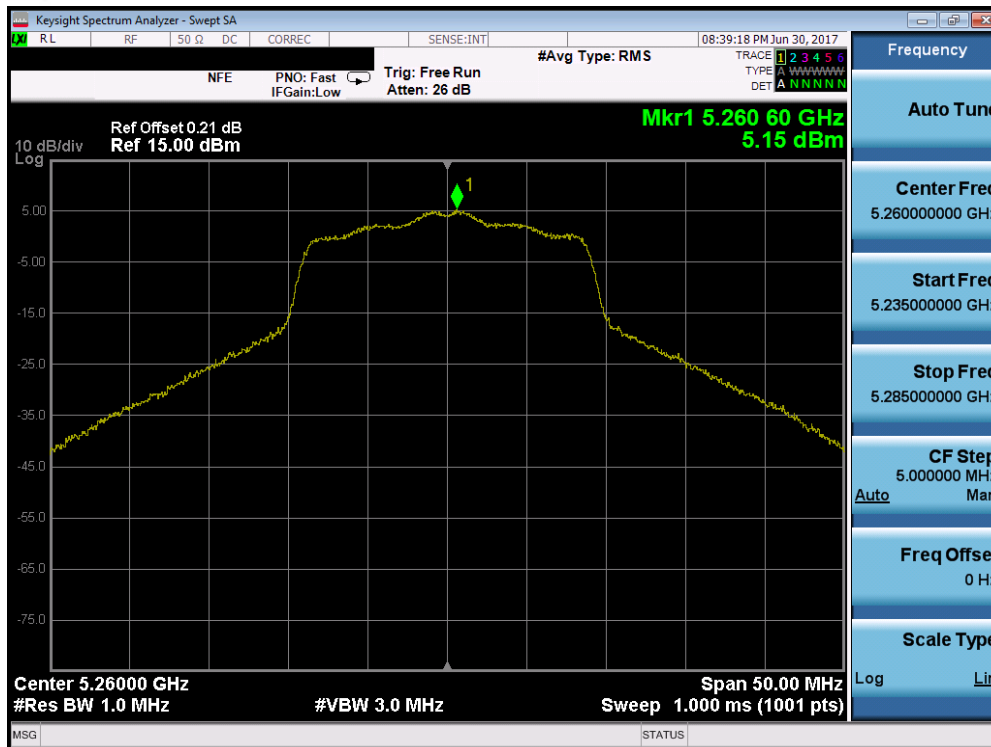


Plot 7-100. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

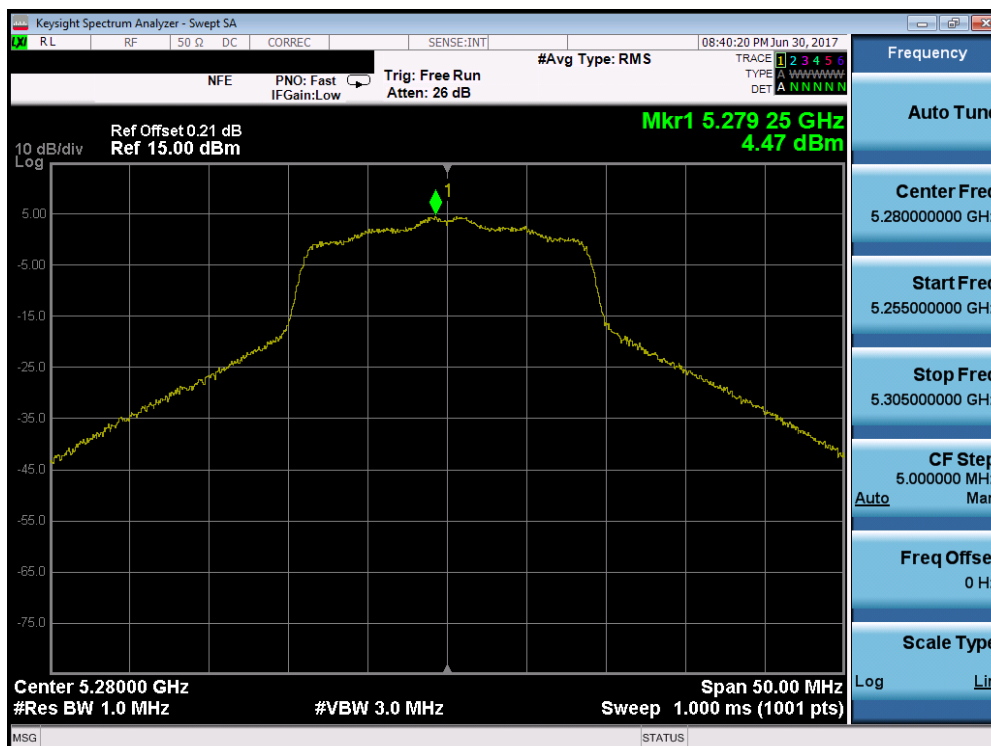


Plot 7-101. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 75 of 177

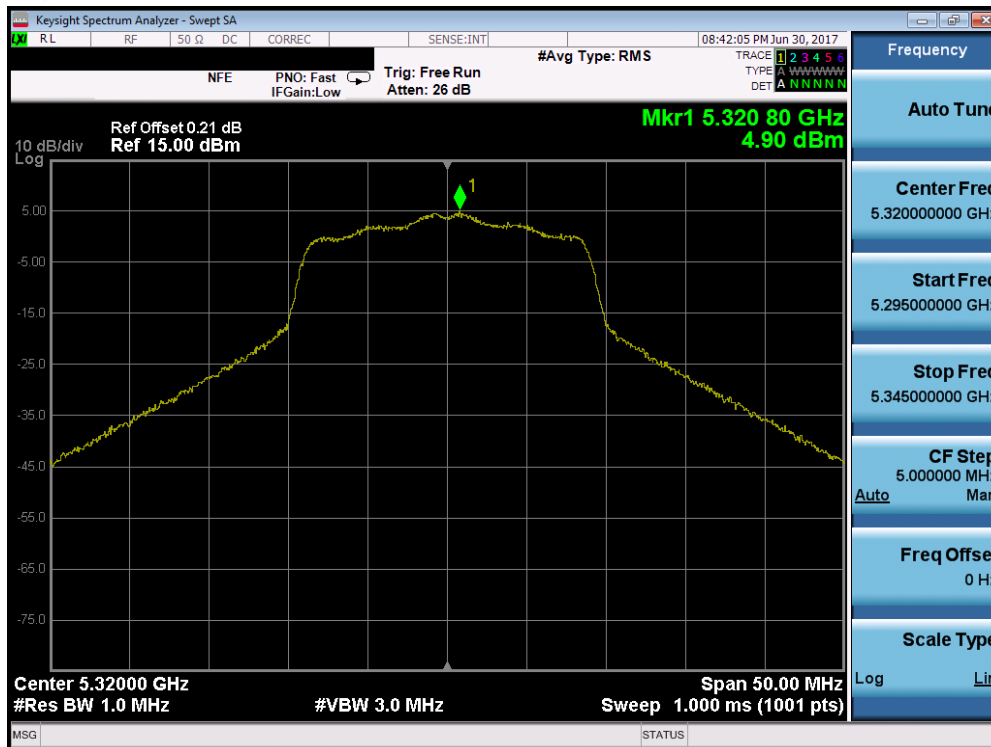


Plot 7-102. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

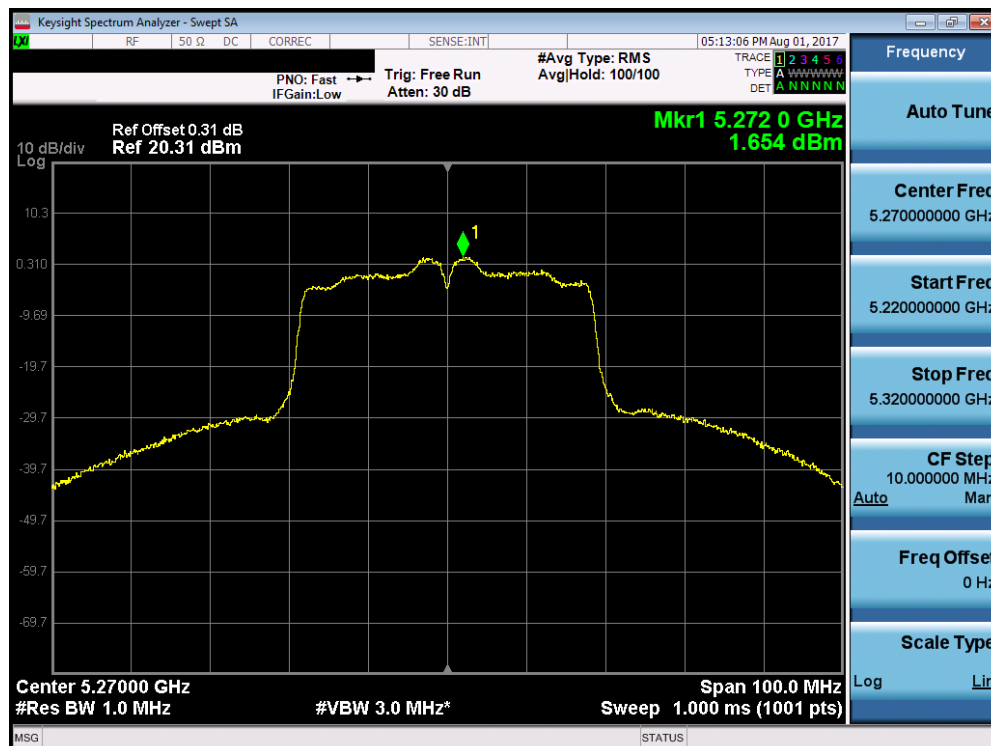


Plot 7-103. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 76 of 177

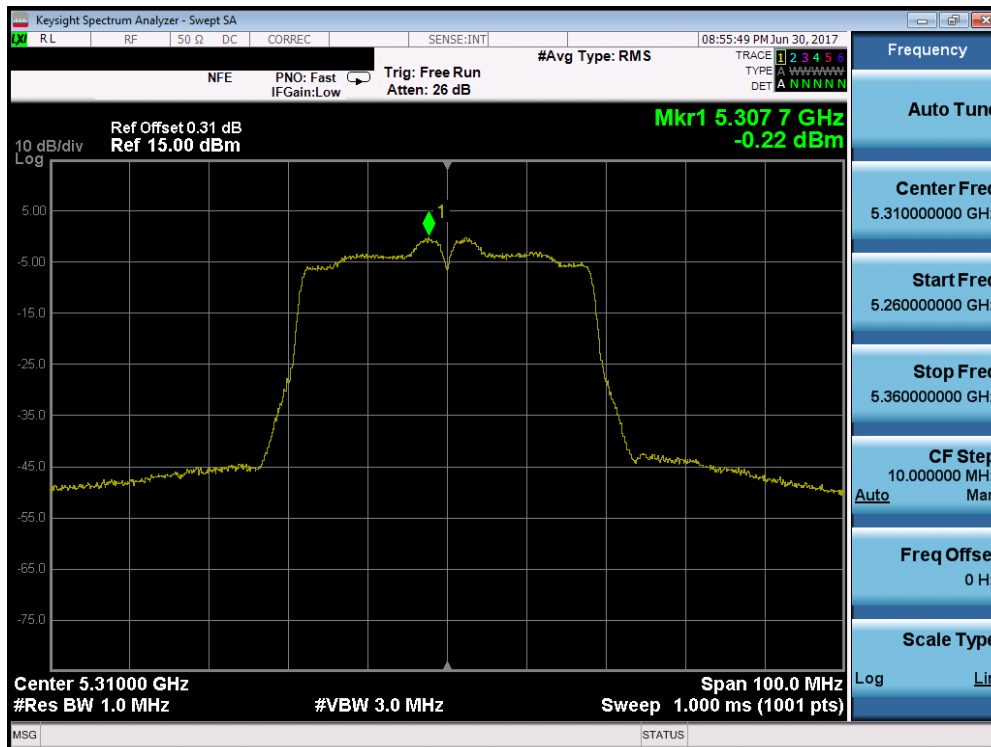


Plot 7-104. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

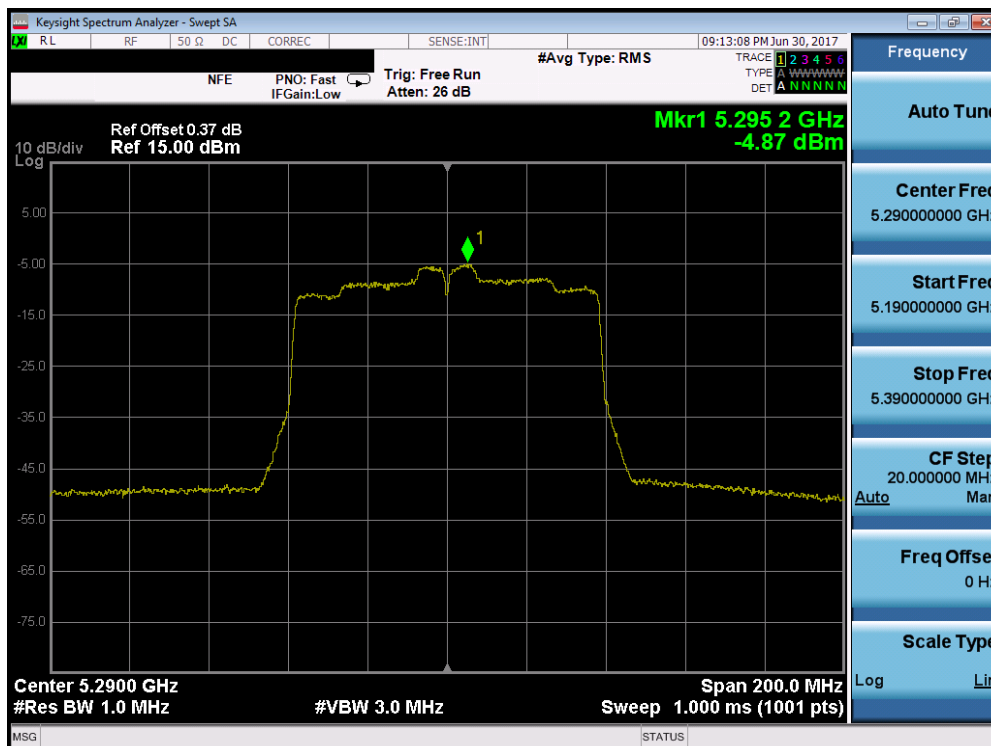


Plot 7-105. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 77 of 177

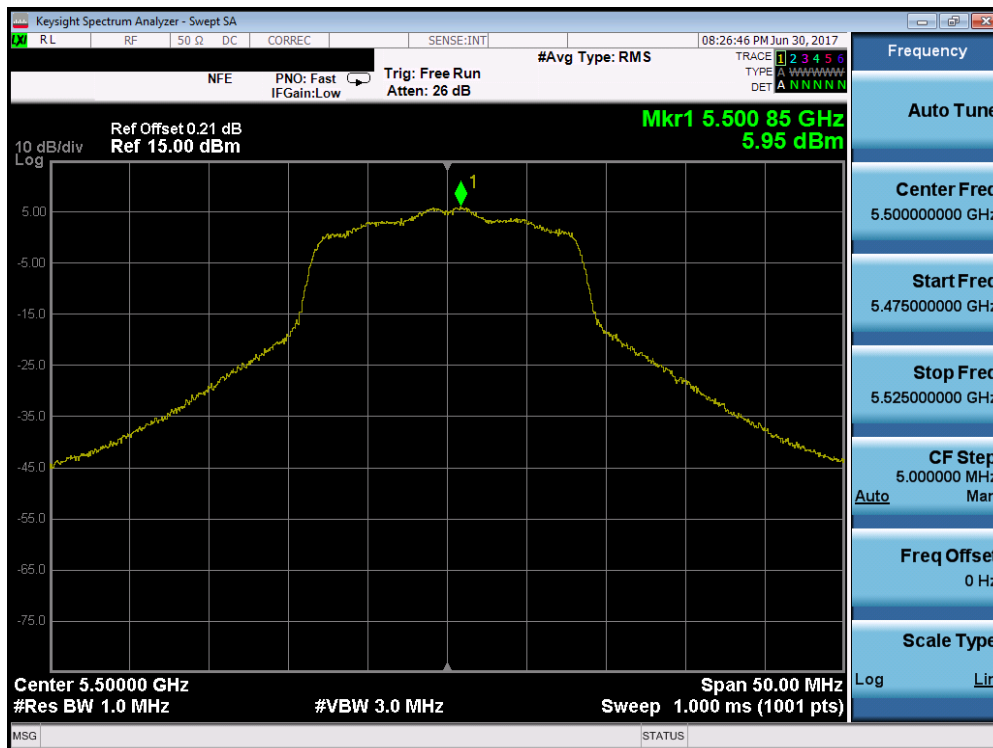


Plot 7-106. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

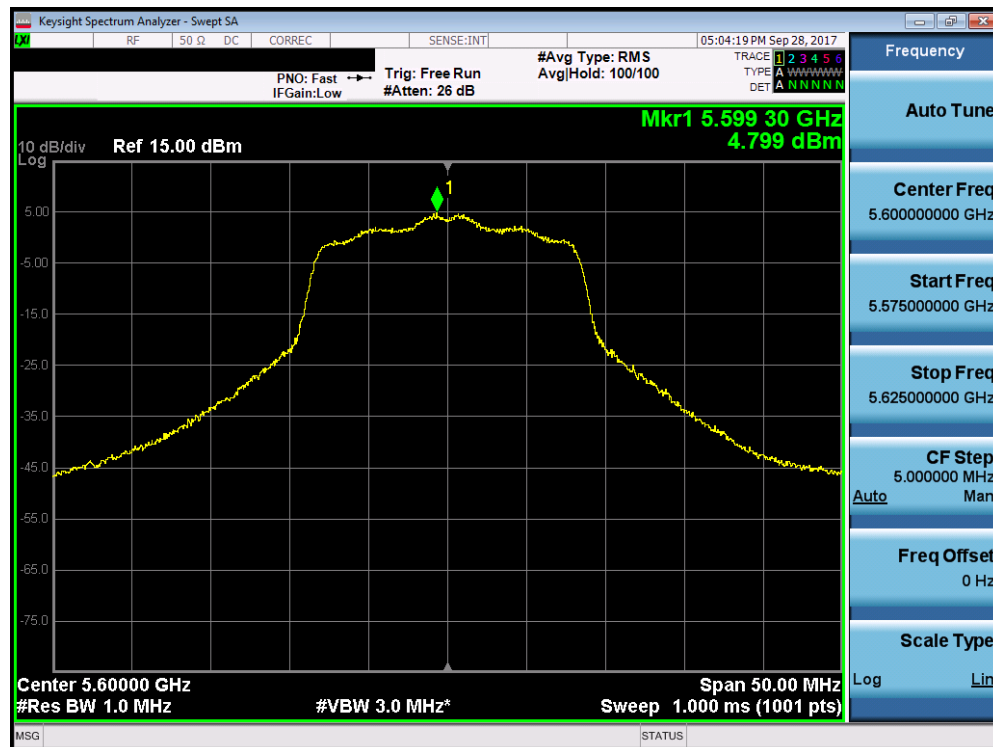


Plot 7-107. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 78 of 177

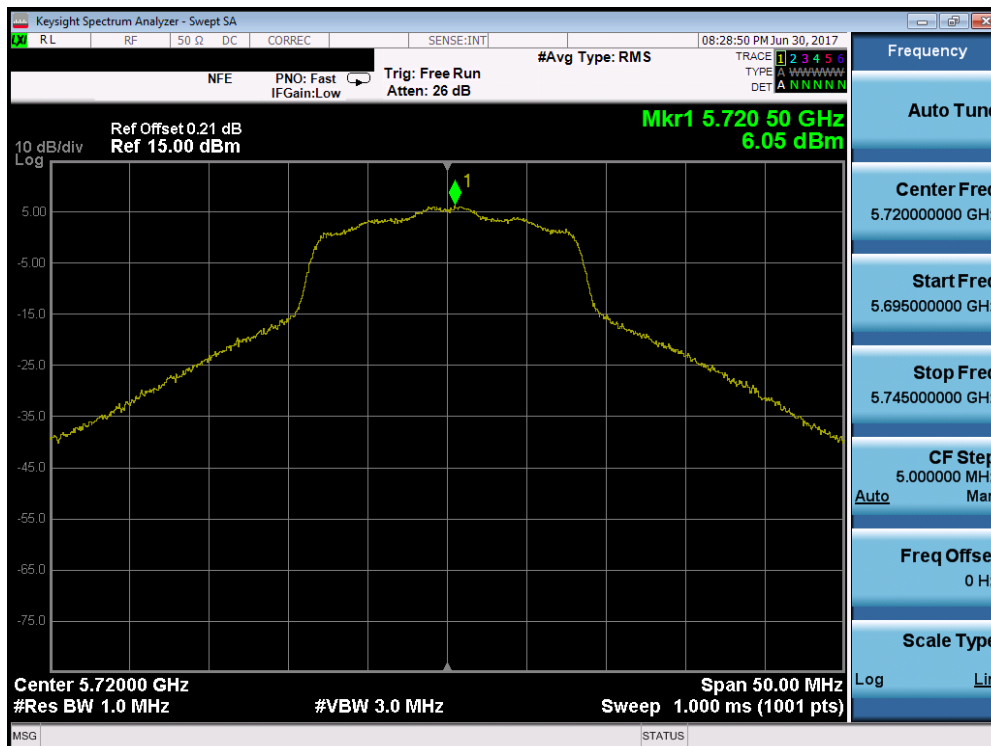


Plot 7-108. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

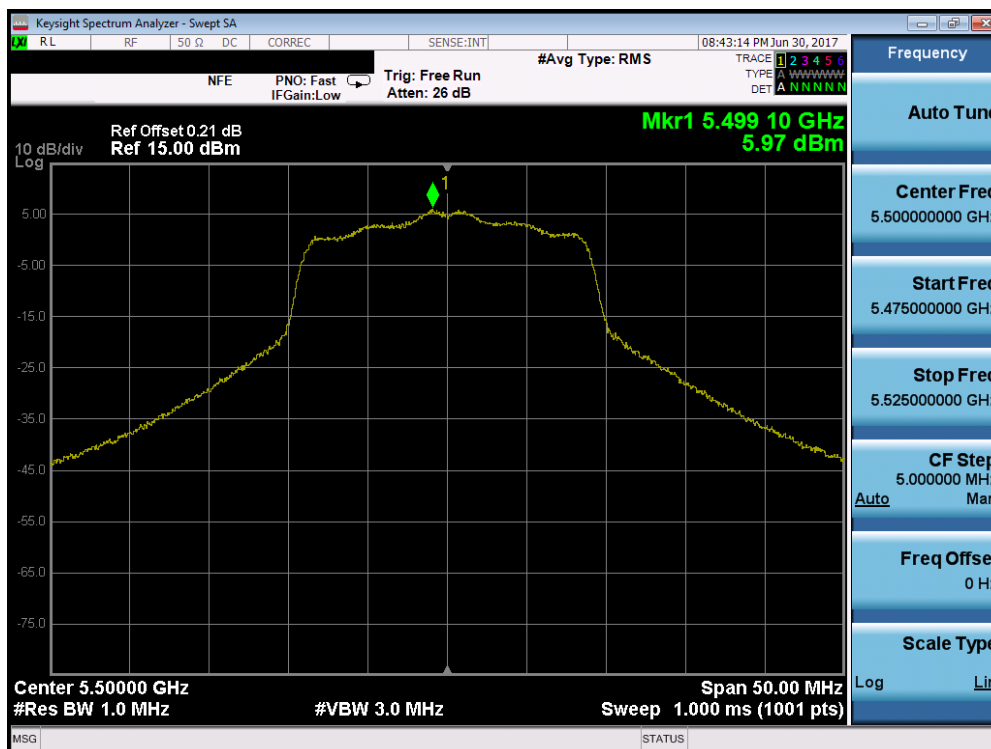


Plot 7-109. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 79 of 177

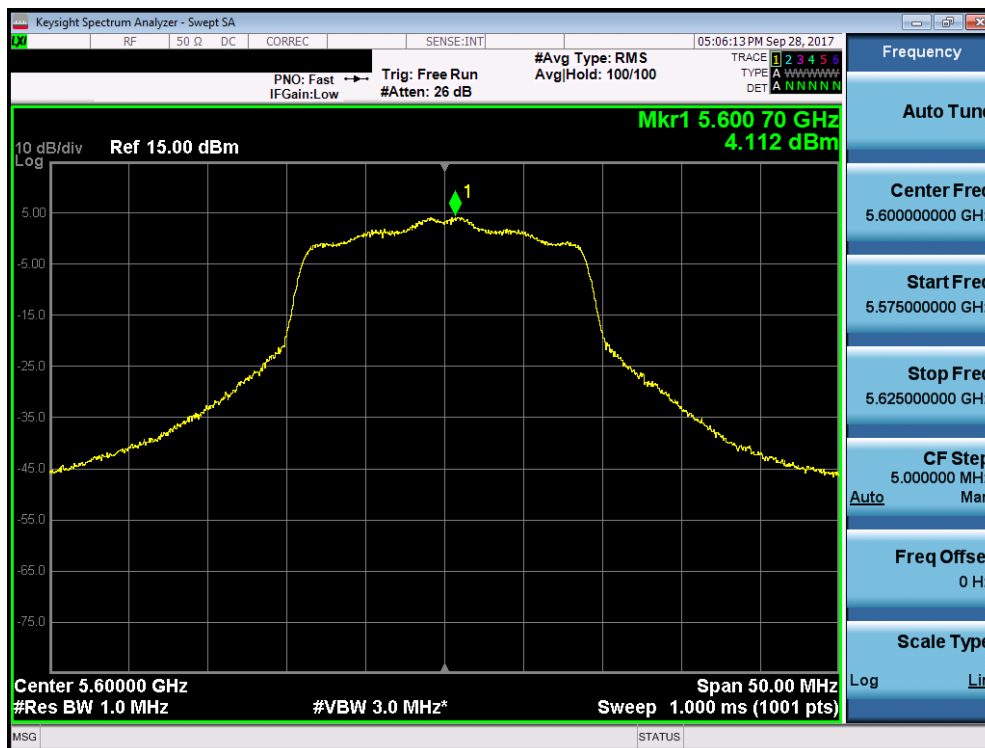


Plot 7-110. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

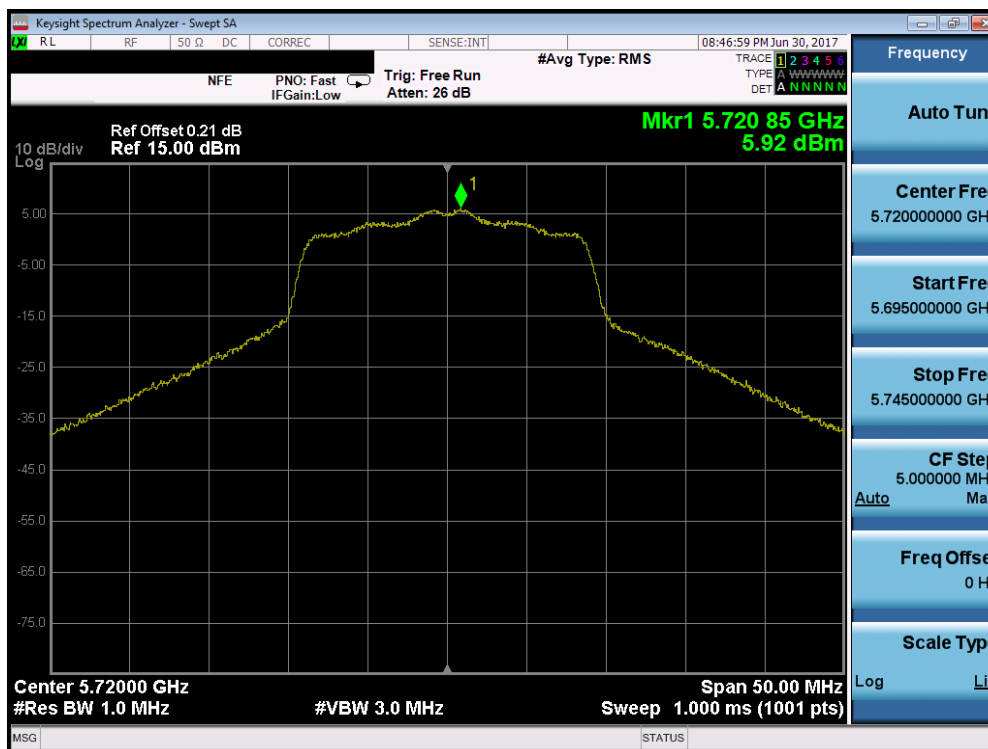


Plot 7-111. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 80 of 177

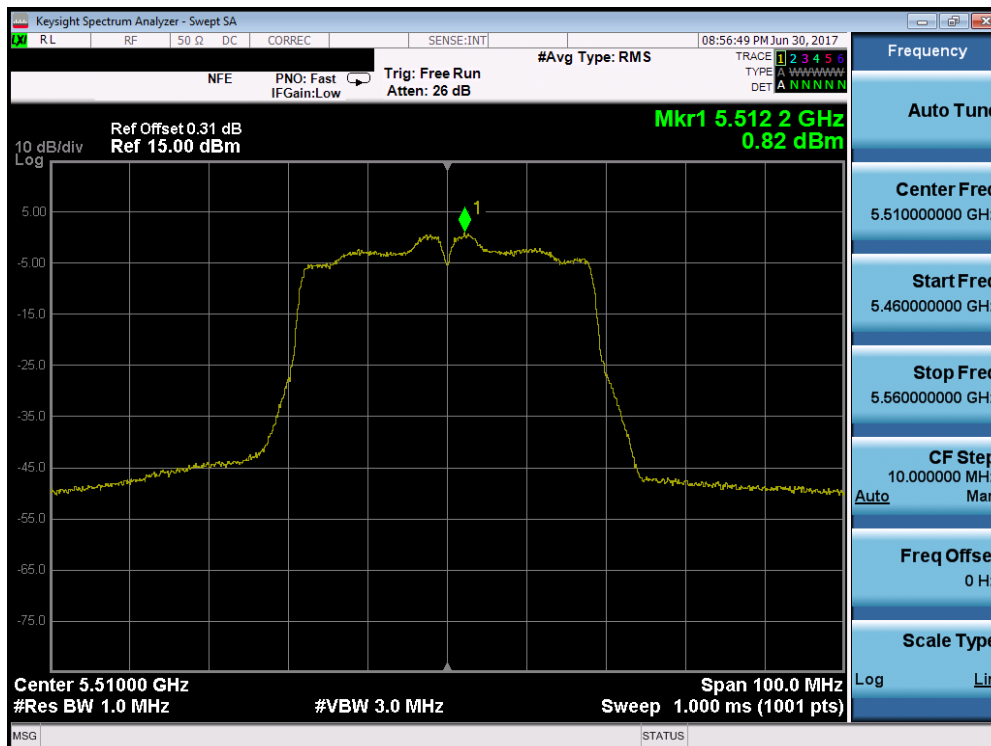


Plot 7-112. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

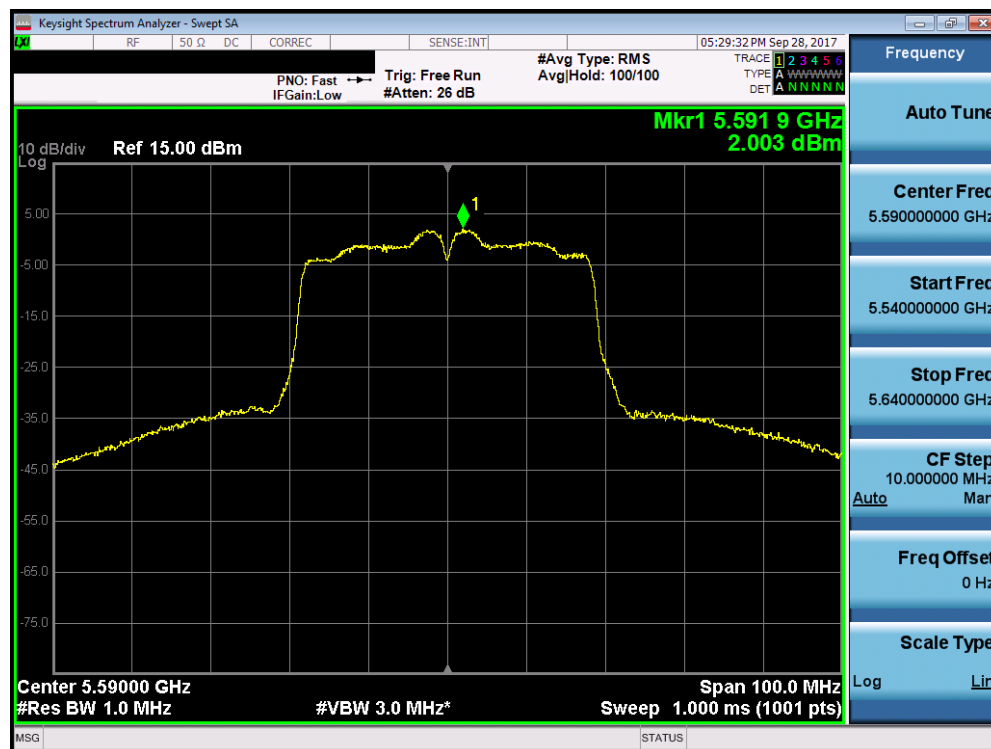


Plot 7-113. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 81 of 177

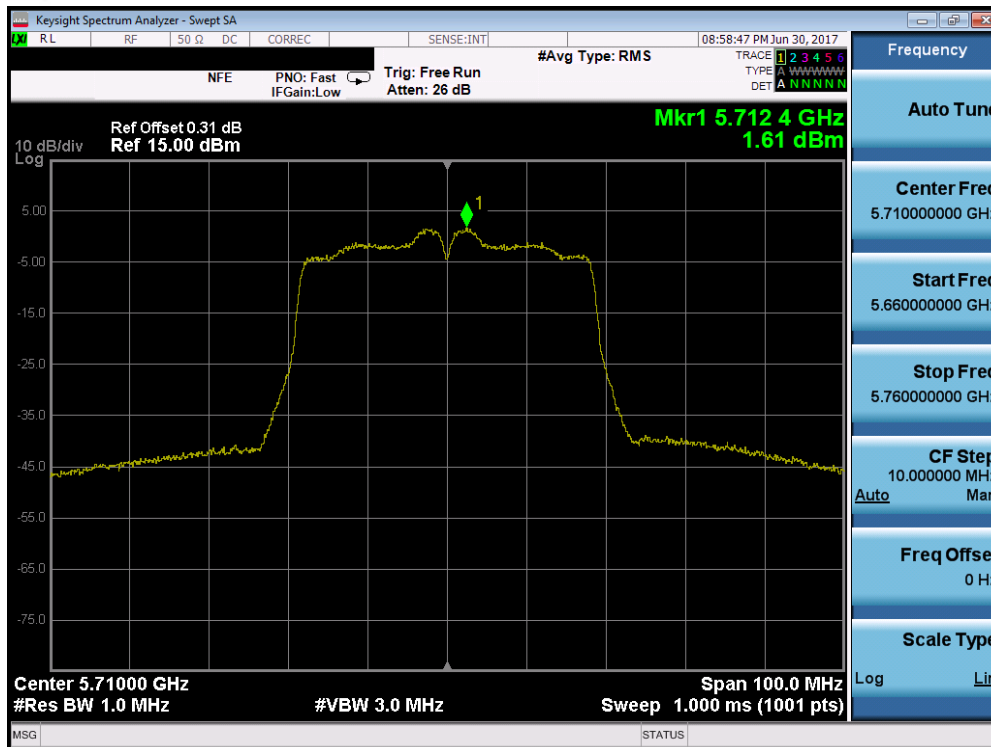


Plot 7-114. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

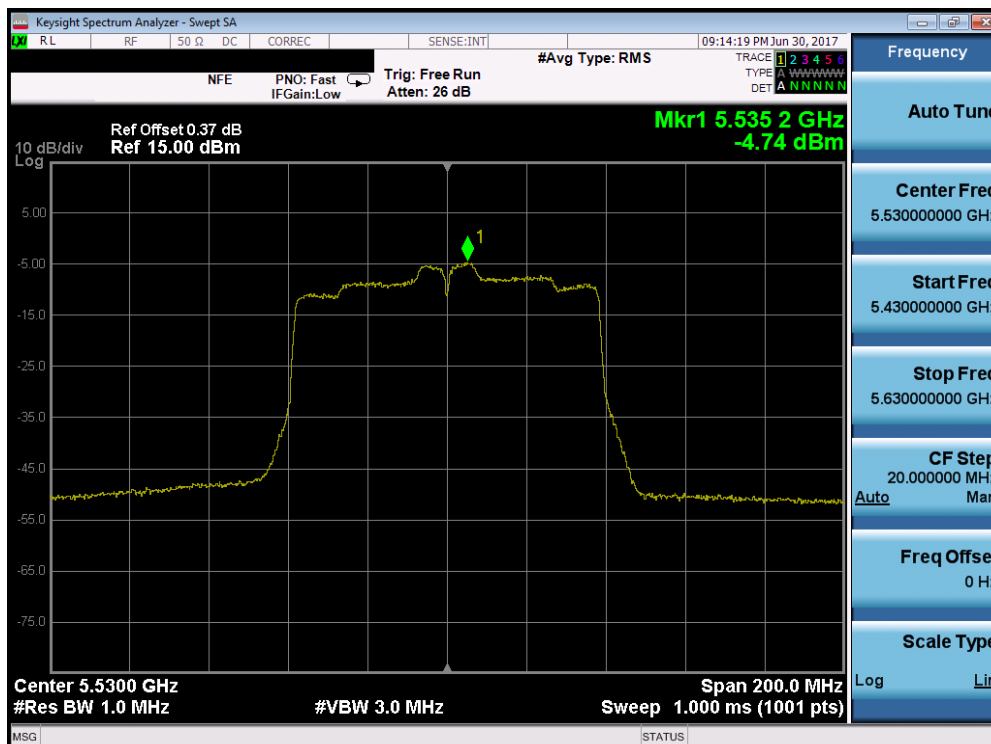


Plot 7-115. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 82 of 177



Plot 7-116. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

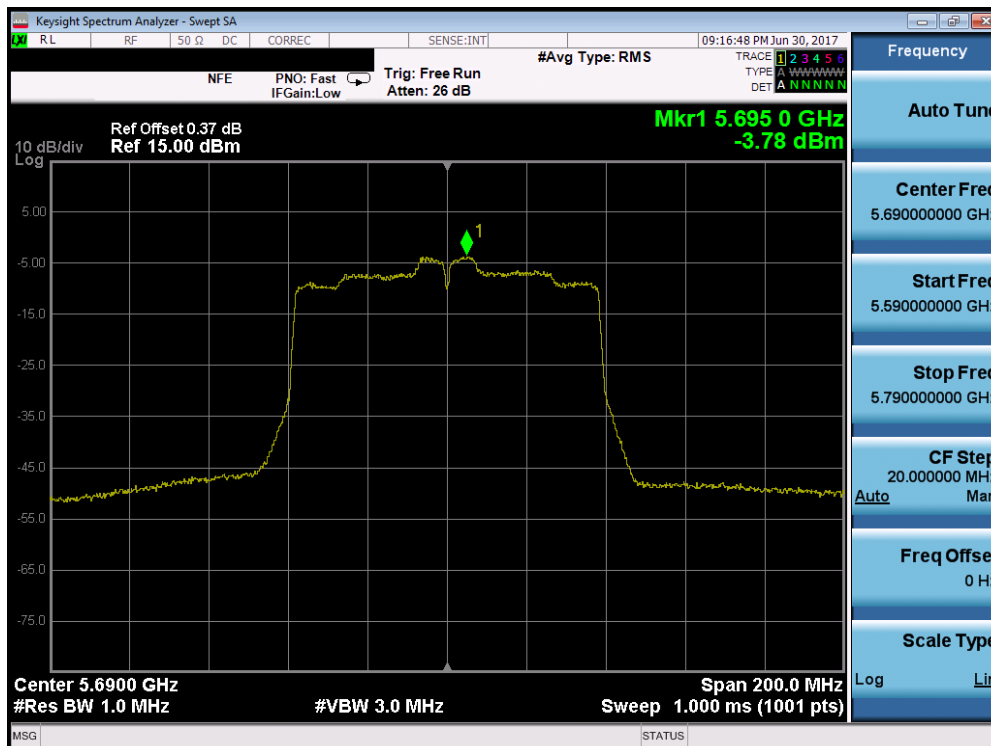


Plot 7-117. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 83 of 177



Plot 7-118. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)



Plot 7-119. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 84 of 177

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]
Band 1	5180	36	a	6.5/7.2 (MCS0)	5.29	5.58	8.45	11.0	-2.55
	5200	40	a	6.5/7.2 (MCS0)	5.41	5.52	8.48	11.0	-2.52
	5240	48	a	6.5/7.2 (MCS0)	6.59	5.63	9.14	11.0	-1.86
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	4.78	4.66	7.73	11.0	-3.27
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	5.34	4.65	8.02	11.0	-2.98
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.27	5.05	8.71	11.0	-2.29
	5190	38	n (40MHz)	13.5/15 (MCS0)	-0.08	-0.45	2.75	11.0	-8.25
	5230	46	n (40MHz)	13.5/15 (MCS0)	2.52	1.68	5.13	11.0	-5.87
Band 2A	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-4.42	-4.60	-1.50	11.0	-12.50
	5260	52	a	6.5/7.2 (MCS0)	6.44	5.63	9.07	11.0	-1.93
	5280	56	a	6.5/7.2 (MCS0)	5.94	5.31	8.65	11.0	-2.35
	5320	64	a	6.5/7.2 (MCS0)	5.51	5.44	8.49	11.0	-2.51
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.23	5.15	8.73	11.0	-2.27
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.01	4.47	8.32	11.0	-2.68
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	5.44	4.90	8.19	11.0	-2.81
	5270	54	n (40MHz)	13.5/15 (MCS0)	2.25	1.65	4.97	11.0	-6.03
	5310	62	n (40MHz)	13.5/15 (MCS0)	0.41	-0.22	3.11	11.0	-7.89
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-4.44	-4.87	-1.64	11.0	-12.64
Band 2C	5500	100	a	6.5/7.2 (MCS0)	6.28	5.95	9.13	11.0	-1.87
	5600	120	a	6.5/7.2 (MCS0)	2.74	4.80	6.90	11.0	-4.10
	5720	144	a	6.5/7.2 (MCS0)	5.23	6.05	8.67	11.0	-2.33
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	6.04	5.97	9.01	11.0	-1.99
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	2.28	4.11	6.30	11.0	-4.70
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	5.22	5.92	8.59	11.0	-2.41
	5510	102	n (40MHz)	13.5/15 (MCS0)	0.23	0.82	3.55	11.0	-7.45
	5590	118	n (40MHz)	13.5/15 (MCS0)	0.69	2.00	4.41	11.0	-6.59
	5710	142	n (40MHz)	13.5/15 (MCS0)	0.01	1.61	3.89	11.0	-7.11
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-5.11	-4.74	-1.91	11.0	-12.91
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-4.95	-3.31	-1.04	11.0	-12.04
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-4.75	-3.78	-1.23	11.0	-12.23

Table 7-18. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
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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 4.78 dBm for Antenna-1 and 4.66 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

$$(4.78 \text{ dBm} + 4.66 \text{ dBm}) = (3.00 \text{ mW} + 2.92 \text{ mW}) = 5.93 \text{ mW} = 7.73 \text{ dBm}$$

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7.5 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 v01r04, 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 7-19 per Section 15.209.

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

Table 7-19. Radiated Limits

Test Procedures Used

KDB 789033 D02 v01r04 – 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.

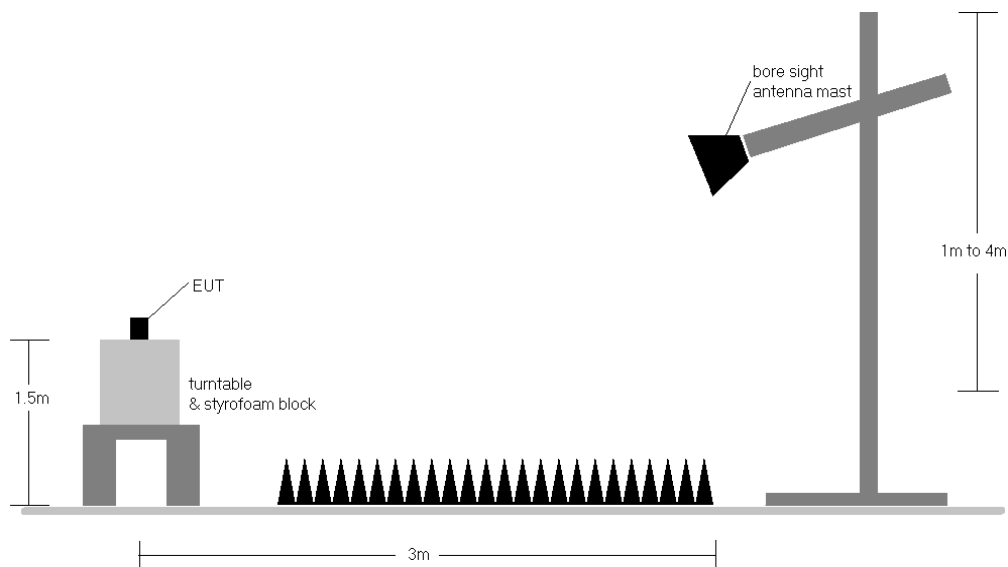


Figure 7-4. Test Instrument & Measurement Setup

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
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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 v01r04 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 7-19.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-19. 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

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

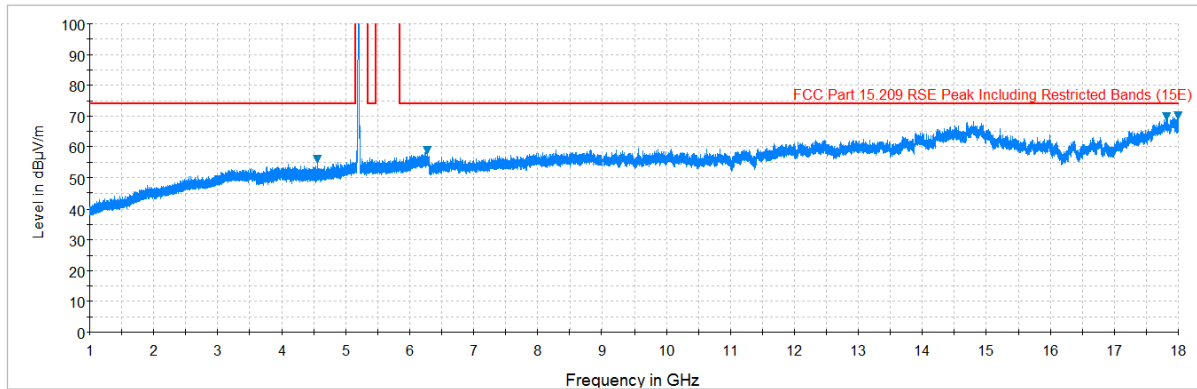
Radiated Band Edge Measurement Offset

- o The amplitude offset shown in the radiated restricted band edge plots in Section 7.5 was calculated using the formula:

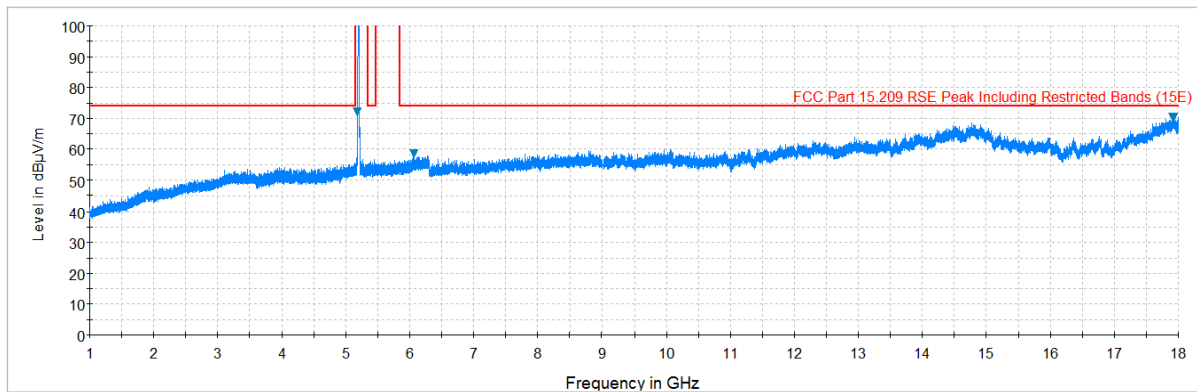
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
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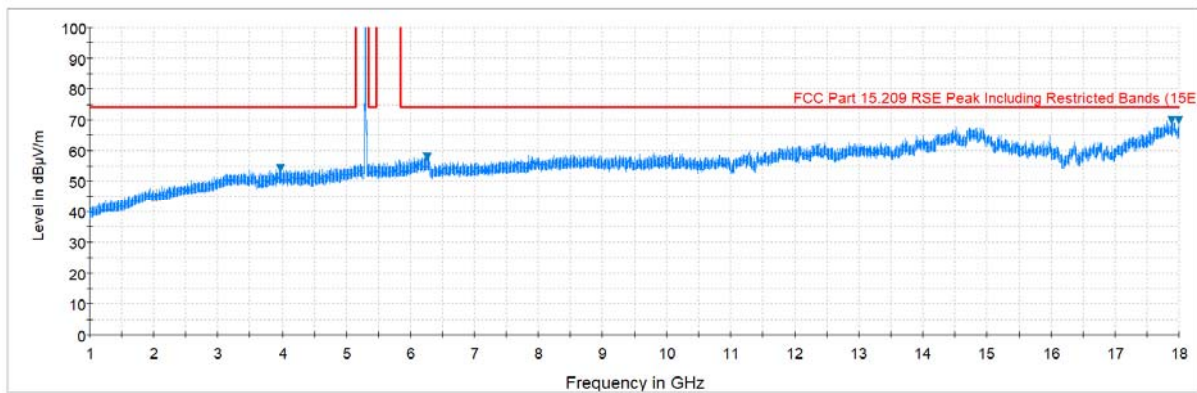
7.2.1 Antenna-1 Radiated Spurious Emission Measurements



Plot 7-119. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)

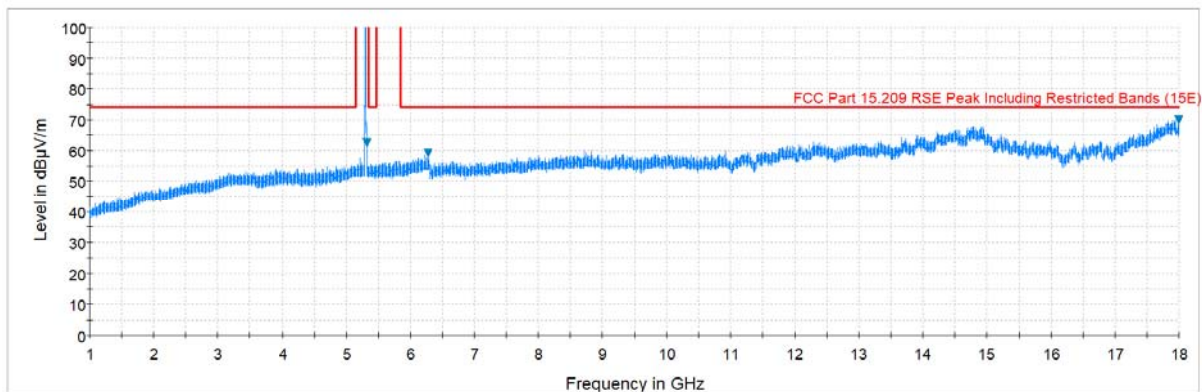


Plot 7-120. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

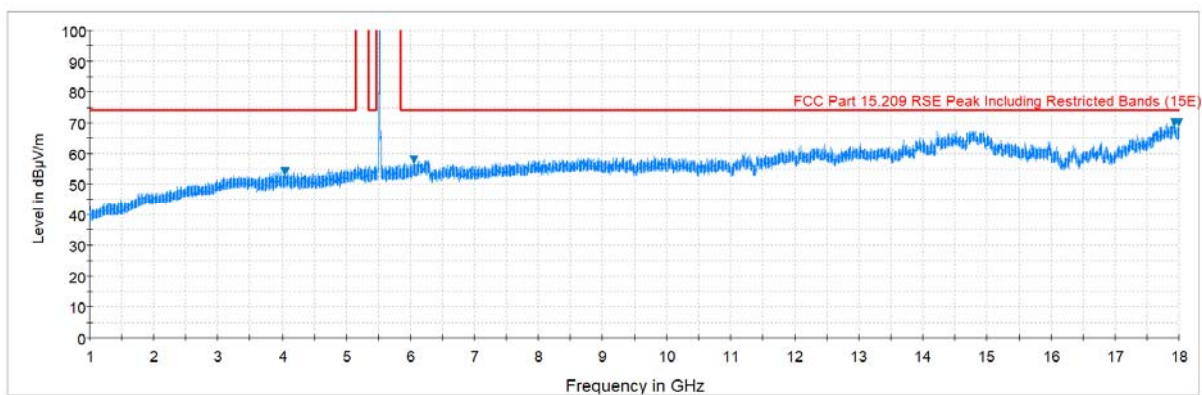


Plot 7-121. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

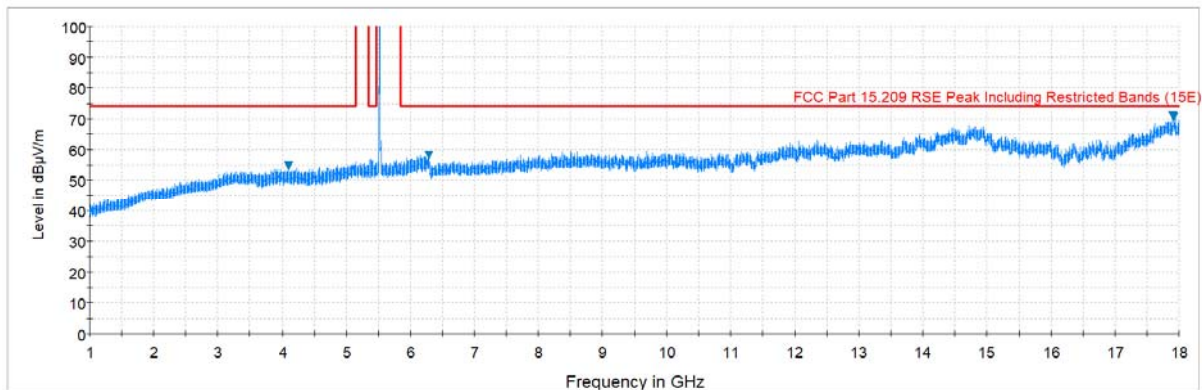
FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
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Plot 7-122. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

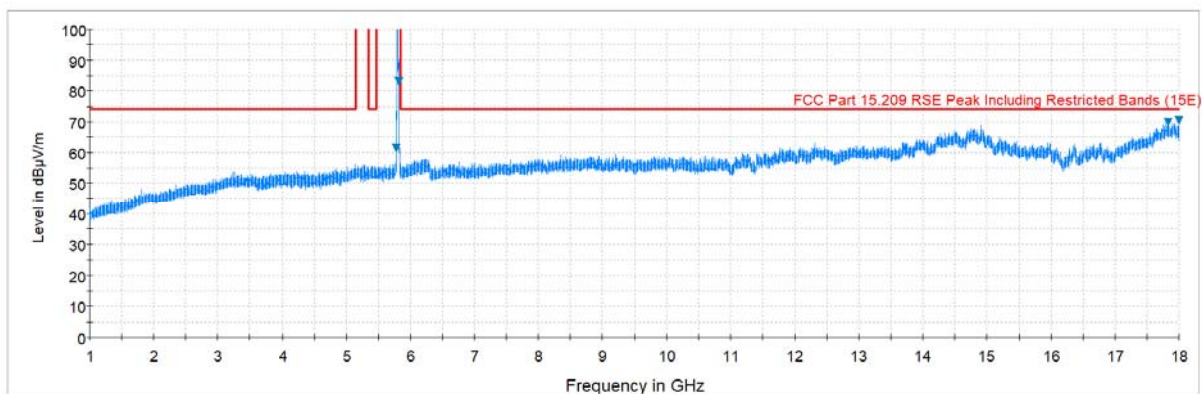


Plot 7-123. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

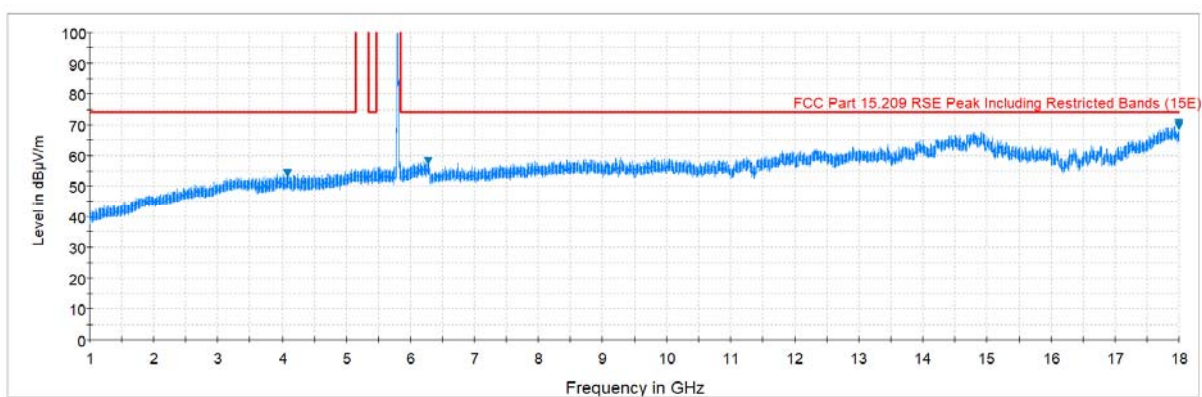


Plot 7-124. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
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Plot 7-125. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

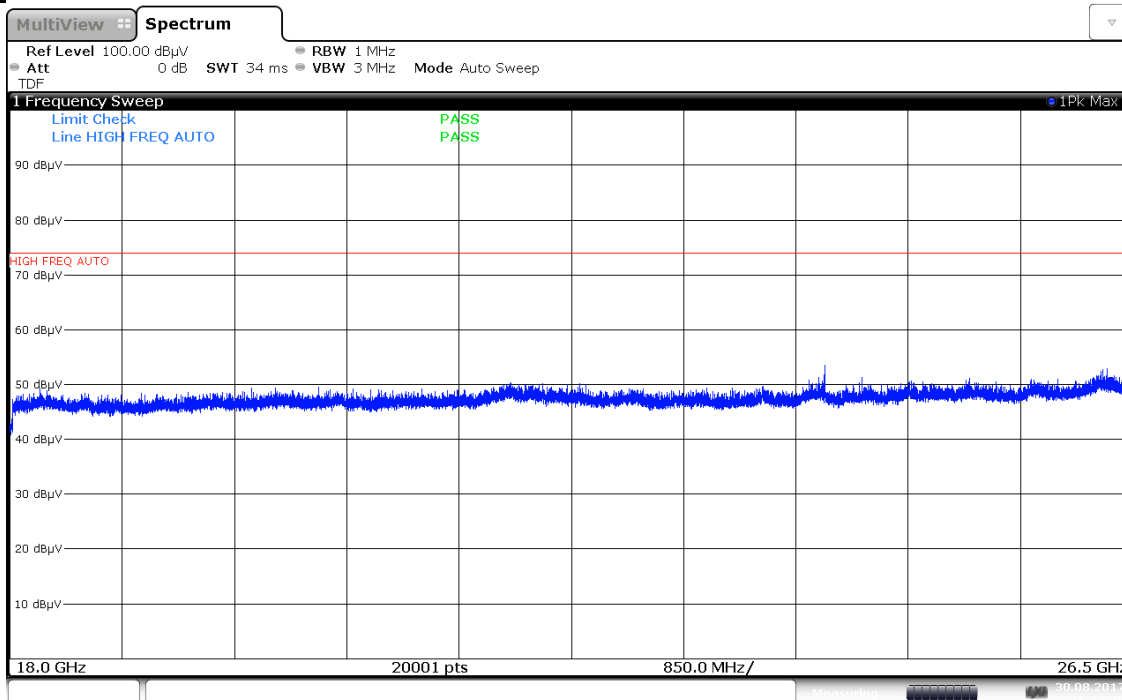


Plot 7-126. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

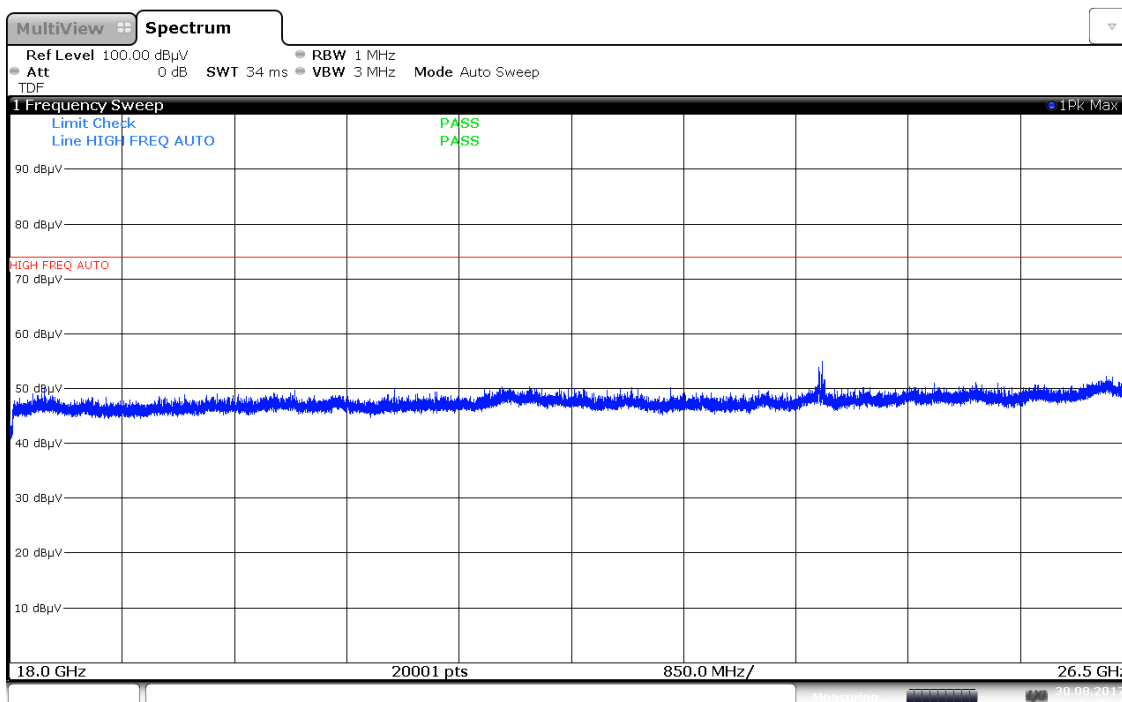
FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 93 of 177

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

\$15.209



Plot 7-127. Radiated Spurious Plot 18GHz - 26.5GHz (802.11a – Ant. Pol. H)

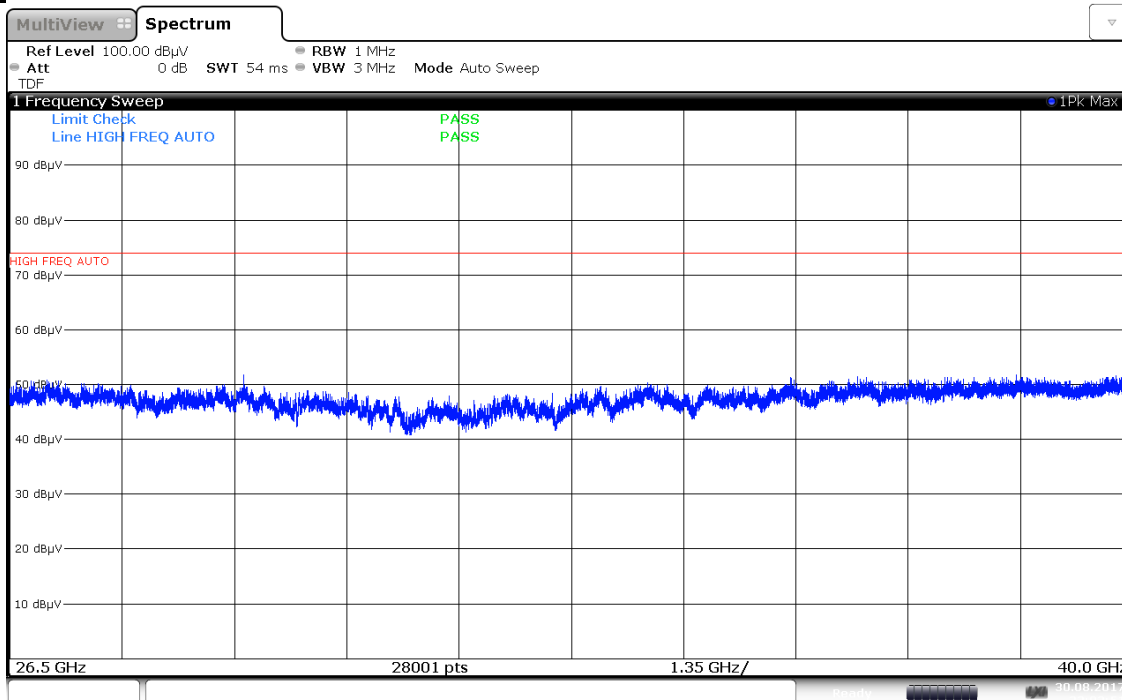


Plot 7-128. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a – Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
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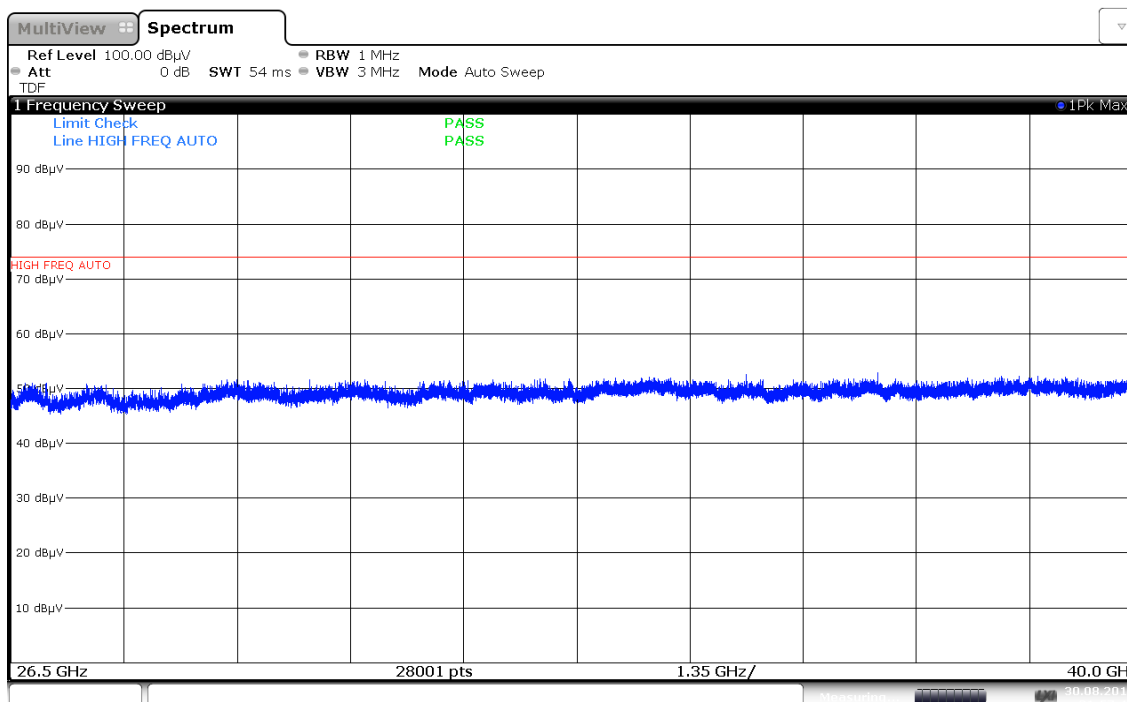
Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)

\$15.209



22:02:53 30.08.2017

Plot 7-129. Radiated Spurious Plot 26.5GHz - 40GHz (802.11a – Ant. Pol. H)



21:57:48 30.08.2017

Plot 7-130. Radiated Spurious Plot above 26.5GHz - 40GHz (802.11a – Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
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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 Meter
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	-	-	-64.64	12.13	-9.54	44.95	68.20	-23.25
* 15540.00	Average	H	-	-	-72.46	14.49	-9.54	39.50	53.98	-14.48
* 15540.00	Peak	H	-	-	-64.81	14.49	-9.54	47.14	73.98	-26.84
* 20720.00	Average	H	-	-	-69.69	7.94	-9.54	35.71	53.98	-18.27
* 20720.00	Peak	H	-	-	-62.58	7.94	-9.54	42.82	73.98	-31.16
25900.00	Peak	H	-	-	-60.52	8.46	-9.54	45.40	68.20	-22.80

Table 7-20. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 Meter
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	-	-	-65.58	12.12	-9.54	44.00	68.20	-24.20
* 15600.00	Average	H	-	-	-72.61	14.31	-9.54	39.15	53.98	-14.83
* 15600.00	Peak	H	-	-	-66.04	14.31	-9.54	45.73	73.98	-28.25
* 20800.00	Average	H	-	-	-71.23	7.95	-9.54	34.18	53.98	-19.80
* 20800.00	Peak	H	-	-	-62.78	7.95	-9.54	42.64	73.98	-31.34
26000.00	Peak	H	-	-	-60.96	8.60	-9.54	45.10	68.20	-23.10

Table 7-21. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 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	-	-	-65.82	12.09	-9.54	43.72	68.20	-24.48
* 15720.00	Average	H	-	-	-72.83	14.02	-9.54	38.65	53.98	-15.33
* 15720.00	Peak	H	-	-	-64.74	14.02	-9.54	46.74	73.98	-27.24
* 20960.00	Average	H	-	-	-71.38	7.91	-9.54	33.99	53.98	-19.99
* 20960.00	Peak	H	-	-	-61.29	7.91	-9.54	44.08	73.98	-29.90
26200.00	Peak	H	-	-	-60.76	8.62	-9.54	45.32	68.20	-22.88

Table 7-22. Radiated Measurements

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 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	-	-	-65.62	12.16	-9.54	44.00	68.20	-24.20
* 15780.00	Average	H	-	-	-72.31	14.03	-9.54	39.18	53.98	-14.80
* 15780.00	Peak	H	-	-	-63.67	14.03	-9.54	47.82	73.98	-26.16
* 21040.00	Average	H	-	-	-71.02	7.92	-9.54	34.36	53.98	-19.62
* 21040.00	Peak	H	-	-	-63.21	7.92	-9.54	42.17	73.98	-31.81
26300.00	Peak	H	-	-	-59.98	8.73	-9.54	46.20	68.20	-22.00

Table 7-23. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 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	-	-	-65.71	12.04	-9.54	43.79	68.20	-24.41
* 15840.00	Average	H	-	-	-73.18	14.25	-9.54	38.52	53.98	-15.46
* 15840.00	Peak	H	-	-	-65.16	14.25	-9.54	46.55	73.98	-27.43
* 21120.00	Average	H	-	-	-71.26	7.96	-9.54	34.16	53.98	-19.82
* 21120.00	Peak	H	-	-	-62.05	7.96	-9.54	43.37	73.98	-30.61
26400.00	Peak	H	-	-	-61.11	8.94	-9.54	45.28	68.20	-22.92

Table 7-24. Radiated Measurements

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 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	-	-	-73.23	12.06	-9.54	36.29	53.98	-17.69
* 10640.00	Peak	H	-	-	-64.84	12.06	-9.54	44.68	73.98	-29.29
* 15960.00	Average	H	-	-	-72.91	14.55	-9.54	39.09	53.98	-14.89
* 15960.00	Peak	H	-	-	-65.31	14.55	-9.54	46.69	73.98	-27.29
* 21280.00	Average	H	-	-	-70.98	8.04	-9.54	34.52	53.98	-19.46
* 21280.00	Peak	H	-	-	-61.99	8.04	-9.54	43.51	73.98	-30.47
26600.00	Peak	H	-	-	-52.23	-8.30	-9.54	36.93	68.20	-31.27

Table 7-25. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 Meter
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	-	-	-73.74	12.87	-9.54	36.59	53.98	-17.39
* 11000.00	Peak	H	-	-	-64.58	12.87	-9.54	45.74	73.98	-28.23
16500.00	Peak	H	-	-	-64.81	16.61	-9.54	49.26	68.20	-18.94
22000.00	Peak	H	-	-	-63.01	8.43	-9.54	42.87	68.20	-25.33
27500.00	Peak	H	-	-	-49.28	-8.80	-9.54	39.38	68.20	-28.82

Table 7-26. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 Meter
Operating Frequency: 5580MHz
Channel: 116

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]
* 11160.00	Average	H	-	-	-73.02	12.64	-9.54	37.08	53.98	-16.90
* 11160.00	Peak	H	-	-	-64.40	12.64	-9.54	45.70	73.98	-28.28
16740.00	Peak	H	-	-	-65.63	16.21	-9.54	48.04	68.20	-20.16
* 22320.00	Average	H	-	-	-70.98	8.08	-9.54	34.56	53.98	-19.42
* 22320.00	Peak	H	-	-	-62.84	8.08	-9.54	42.70	73.98	-31.28
27900.00	Peak	H	-	-	-48.11	-9.08	-9.54	40.27	68.20	-27.93

Table 7-27. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 99 of 177

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 Meter
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	-	-	-73.57	12.47	-9.54	36.35	53.98	-17.63
* 11440.00	Peak	H	-	-	-64.53	12.47	-9.54	45.40	73.98	-28.58
17160.00	Peak	H	-	-	-64.76	18.06	-9.54	50.76	68.20	-17.44
* 22880.00	Average	H	-	-	-70.36	8.37	-9.54	35.47	53.98	-18.51
* 22880.00	Peak	H	-	-	-63.14	8.37	-9.54	42.70	73.98	-31.28
28600.00	Peak	H	-	-	-52.01	-8.95	-9.54	36.50	68.20	-31.70

Table 7-28. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 Meter
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	-	-	-73.00	12.43	-9.54	36.89	53.98	-17.09
* 11490.00	Peak	H	-	-	-66.34	12.43	-9.54	43.55	73.98	-30.43
17235.00	Peak	H	-	-	-64.91	18.61	-9.54	51.16	68.20	-17.04
* 22980.00	Average	H	-	-	-70.25	8.16	-9.54	35.38	53.98	-18.60
* 22980.00	Peak	H	-	-	-62.02	8.16	-9.54	43.60	73.98	-30.38
28725.00	Peak	H	-	-	-51.99	-9.24	-9.54	36.23	68.20	-31.97

Table 7-29. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 100 of 177

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 Meter
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	-	-	-74.06	12.54	-9.54	35.93	53.98	-18.05
* 11570.00	Peak	H	-	-	-66.16	12.54	-9.54	43.83	73.98	-30.15
17355.00	Peak	H	-	-	-64.95	18.73	-9.54	51.24	68.20	-16.96
23140.00	Peak	H	-	-	-62.35	8.37	-9.54	43.48	68.20	-24.72
28925.00	Peak	H	-	-	-50.29	-9.65	-9.54	37.52	68.20	-30.68

Table 7-30. Radiated Measurements

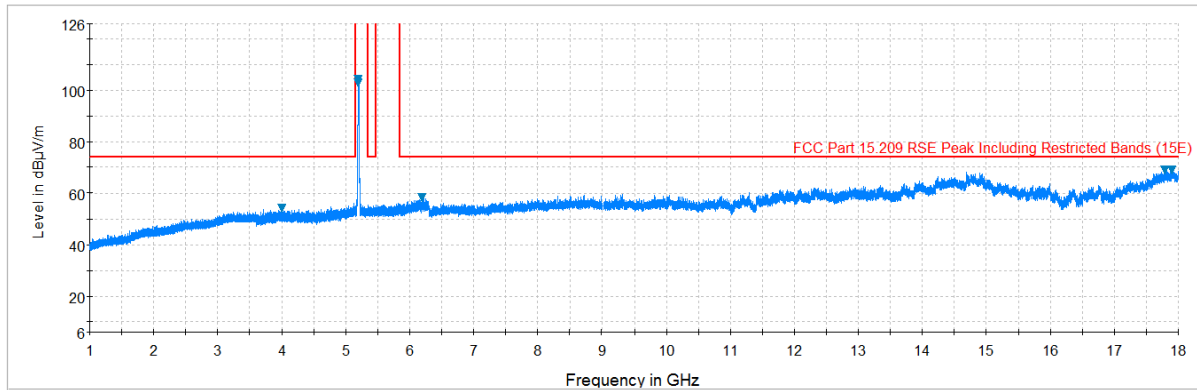
Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 Meter
Operating Frequency: 5825MHz
Channel: 165

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	-	-	-72.10	12.99	-9.54	38.35	53.98	-15.63
* 11650.00	Peak	H	-	-	-63.91	12.99	-9.54	46.53	73.98	-27.45
17475.00	Peak	H	-	-	-64.94	19.25	-9.54	51.77	68.20	-16.43
23300.00	Peak	H	-	-	-61.84	8.50	-9.54	44.11	68.20	-24.09
29125.00	Peak	H	-	-	-52.96	-9.87	-9.54	34.63	68.20	-33.57

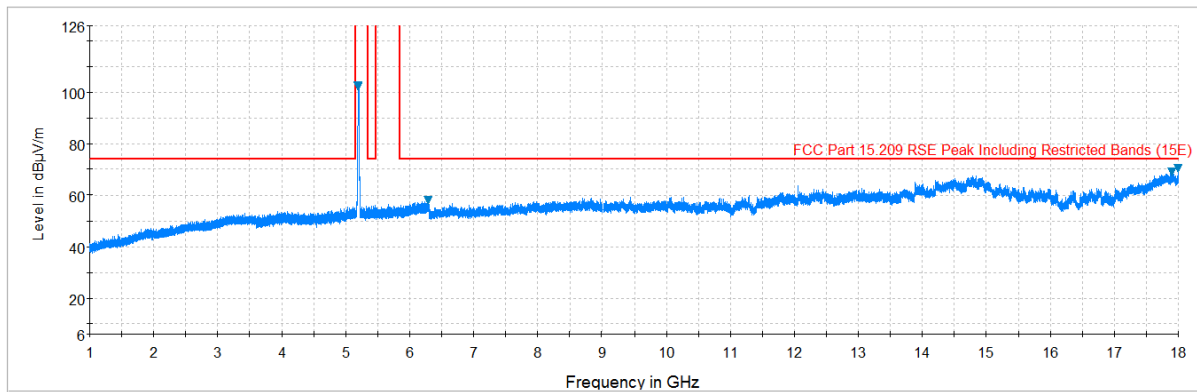
Table 7-31. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset	Page 101 of 177	

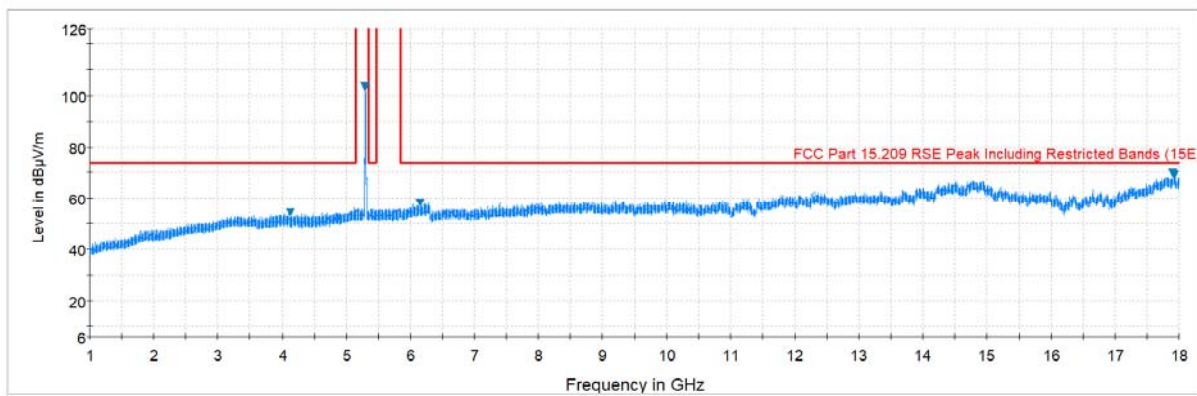
7.2.2 Antenna-2 Radiated Spurious Emission Measurements



Plot 7-131. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)

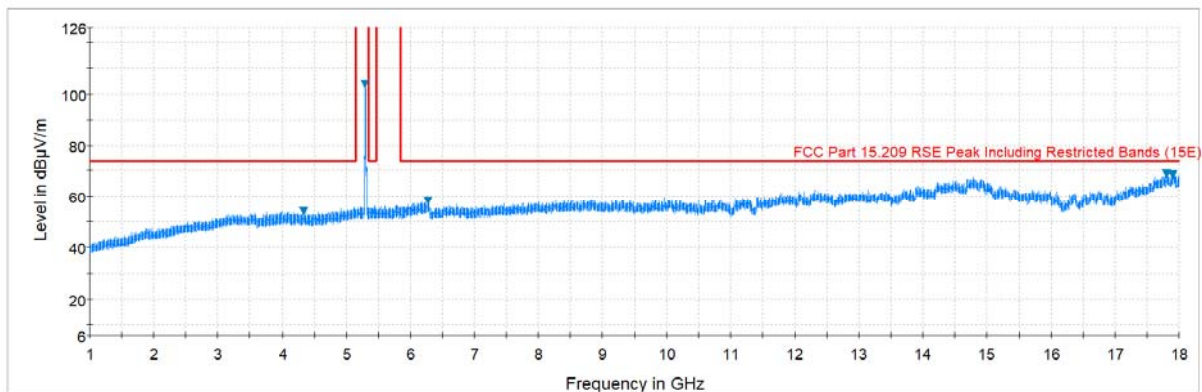


Plot 7-132. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

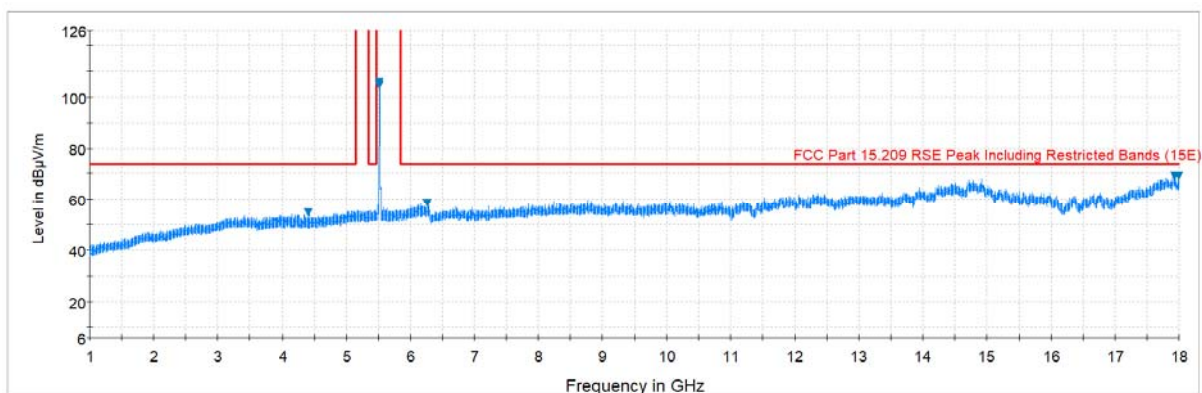


Plot 7-133. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

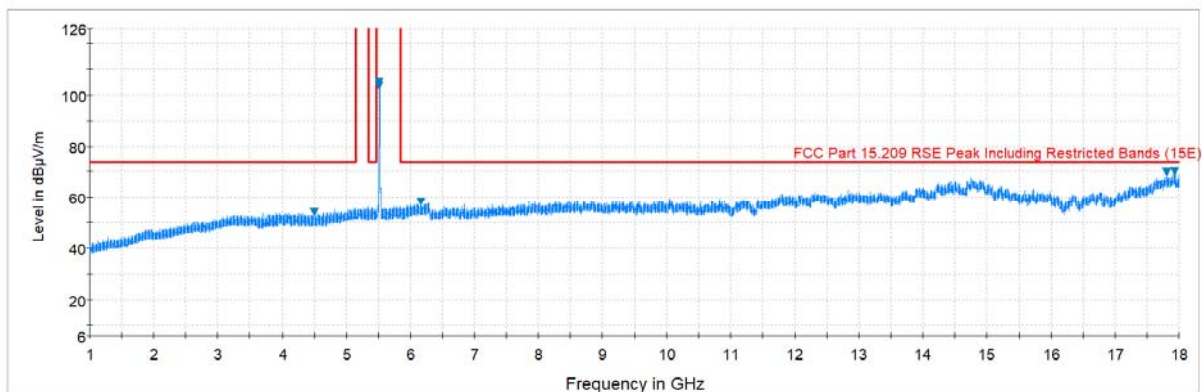
FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 102 of 177



Plot 7-134. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

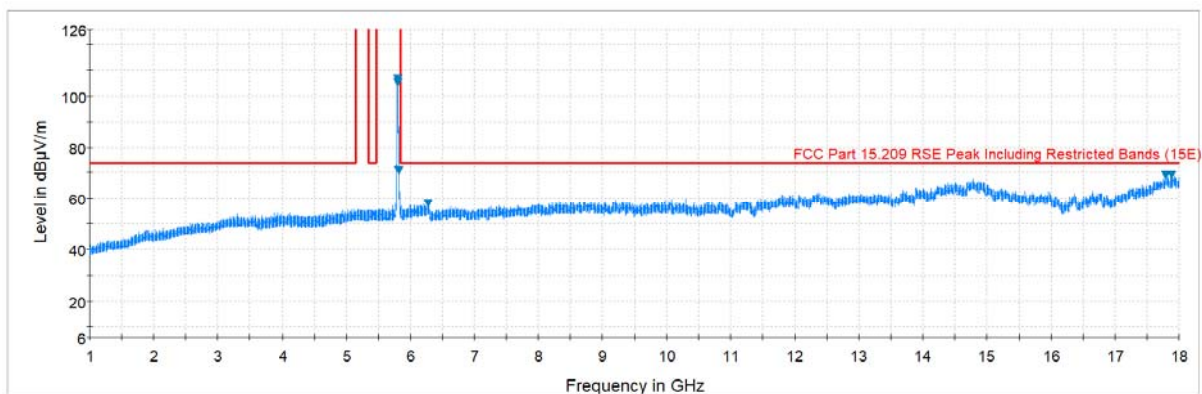


Plot 7-135. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

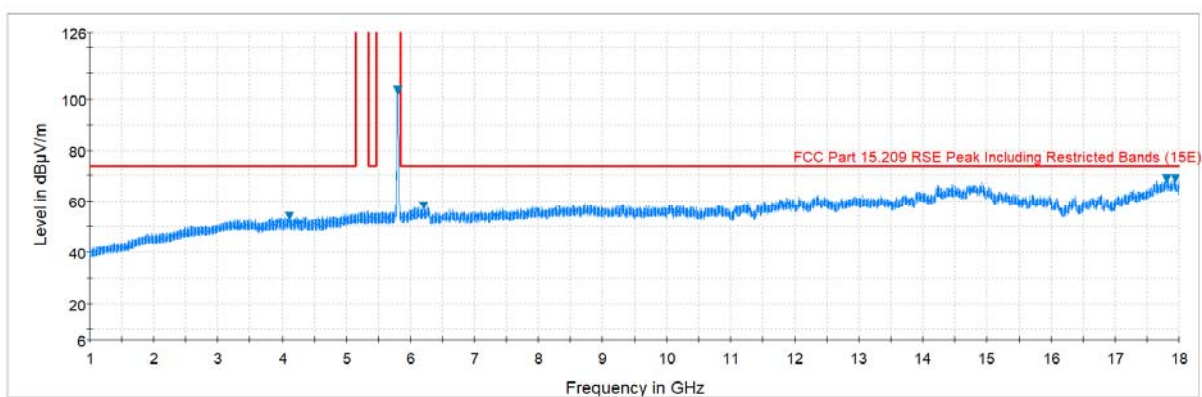


Plot 7-136. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 103 of 177



Plot 7-137. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

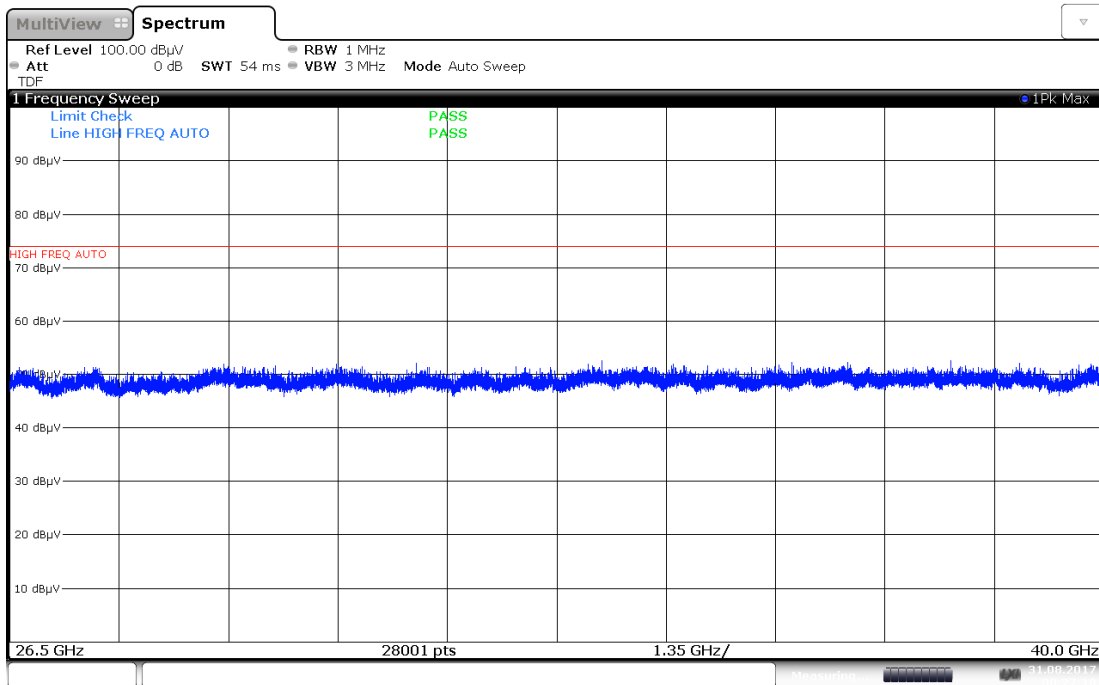


Plot 7-138. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

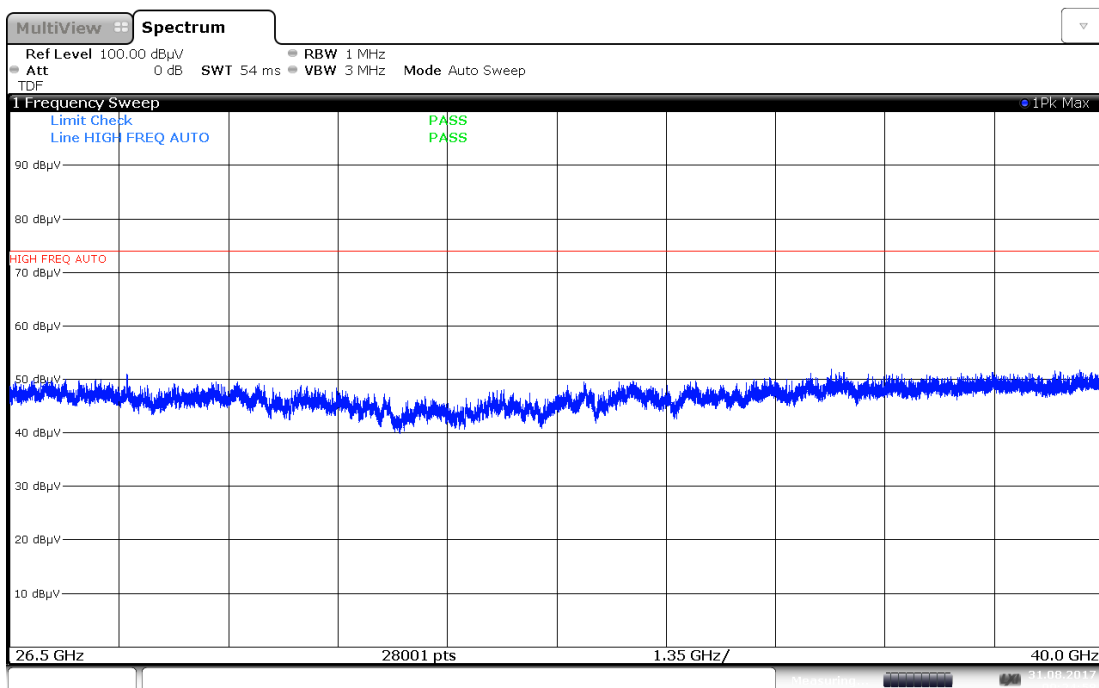
FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset	Page 104 of 177

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

\$15.209



Plot 7-139. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a – Ant. Pol. H)



Plot 7-140. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a – Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 105 of 177

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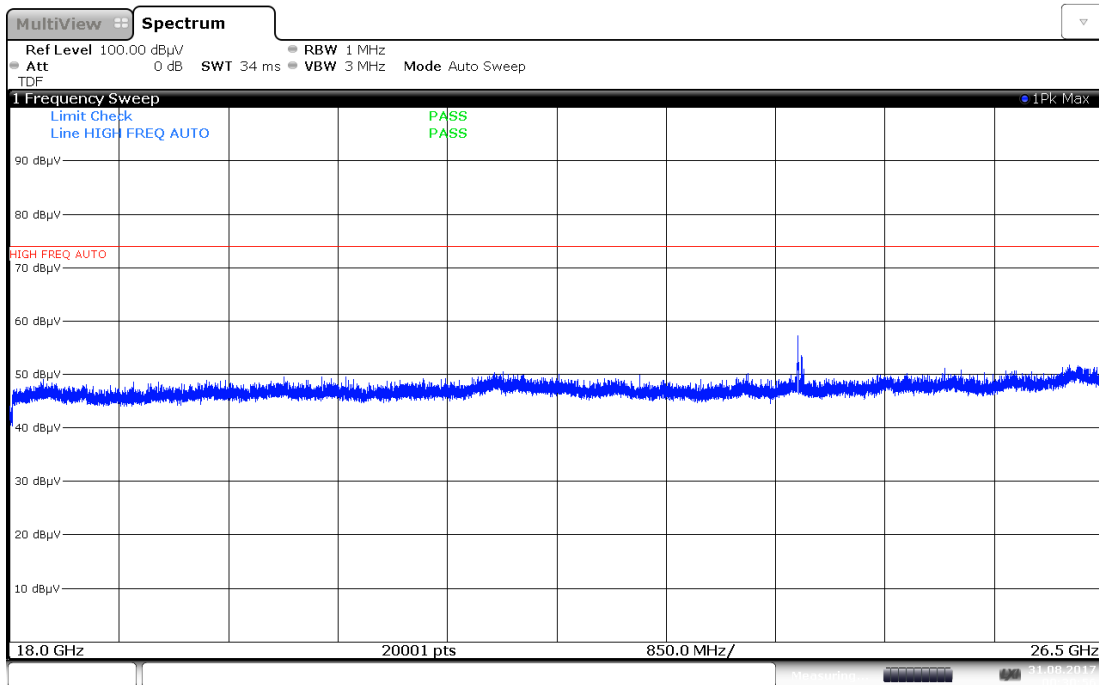
V 6.8

07/14/2017

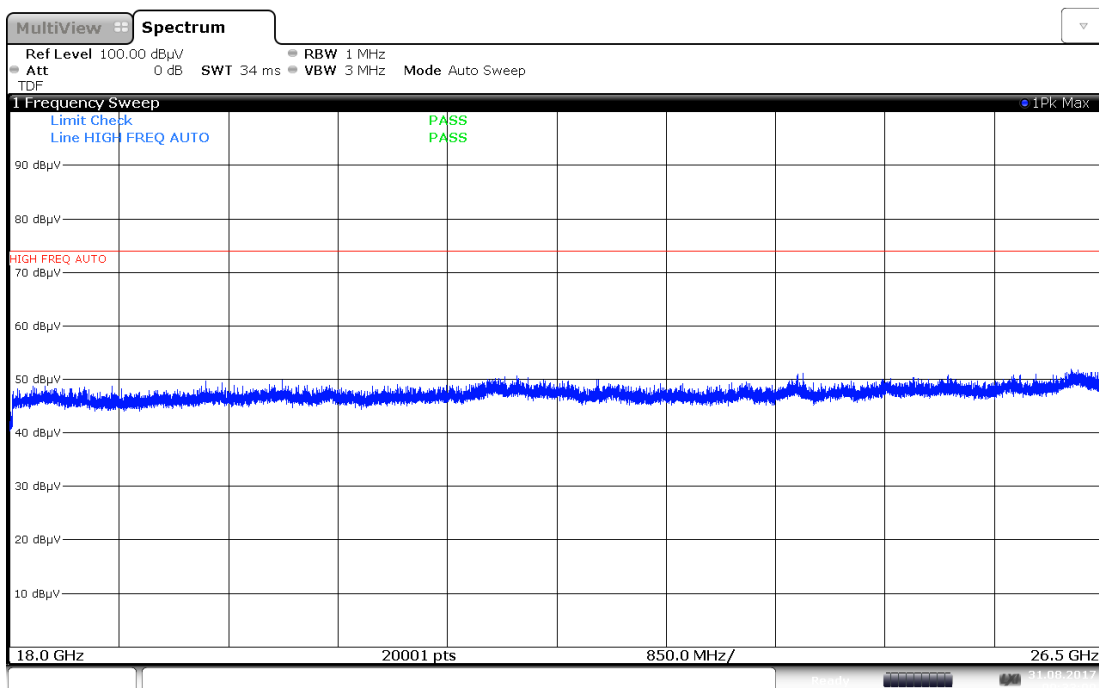
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Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)

\$15.209



Plot 7-141. Radiated Spurious Plot 26.5GHz - 40GHz (802.11a – Ant. Pol. H)



Plot 7-142. Radiated Spurious Plot above 26.5GHz - 40GHz (802.11a – Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset	Page 106 of 177	

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V 6.8

07/14/2017

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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 Meter
Operating Frequency: 5180MHz
Channel: 36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	V	-	-	-65.06	12.13	-9.54	44.52	68.20	-23.68
* 15540.00	Average	V	100	224	-73.48	14.49	-9.54	38.47	53.98	-15.51
* 15540.00	Peak	V	100	224	-64.67	14.49	-9.54	47.29	73.98	-26.69
* 20720.00	Average	V	-	-	-71.41	7.94	-9.54	33.98	53.98	-19.99
* 20720.00	Peak	V	-	-	-63.34	7.94	-9.54	42.05	73.98	-31.92
25900.00	Peak	V	-	-	-60.10	8.46	-9.54	45.82	68.20	-22.38

Table 7-32. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	-	-	-65.98	12.12	-9.54	43.60	68.20	-24.60
* 15600.00	Average	V	100	11	-73.99	14.31	-9.54	37.78	53.98	-16.20
* 15600.00	Peak	V	100	11	-64.26	14.31	-9.54	47.51	73.98	-26.47
* 20800.00	Average	V	-	-	-71.28	7.95	-9.54	34.13	53.98	-19.85
* 20800.00	Peak	V	-	-	-63.30	7.95	-9.54	42.12	73.98	-31.86
26000.00	Peak	V	-	-	-60.06	8.60	-9.54	46.00	68.20	-22.20

Table 7-33. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 107 of 177

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	-	-	-65.81	12.09	-9.54	43.74	68.20	-24.46
* 15720.00	Average	V	100	31	-72.60	14.02	-9.54	38.88	53.98	-15.10
* 15720.00	Peak	V	100	31	-64.61	14.02	-9.54	46.87	73.98	-27.11
* 20960.00	Average	V	-	-	-71.24	7.91	-9.54	34.13	53.98	-19.85
* 20960.00	Peak	V	-	-	-62.42	7.91	-9.54	42.95	73.98	-31.03
26200.00	Peak	V	-	-	-59.47	8.62	-9.54	46.61	68.20	-21.59

Table 7-34. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	V	-	-	-65.00	12.16	-9.54	44.62	68.20	-23.58
* 15780.00	Average	V	100	27	-72.22	14.03	-9.54	39.27	53.98	-14.71
* 15780.00	Peak	V	100	27	-62.98	14.03	-9.54	48.51	73.98	-25.47
* 21040.00	Average	V	-	-	-71.34	7.92	-9.54	34.04	53.98	-19.94
* 21040.00	Peak	V	-	-	-60.51	7.92	-9.54	44.87	73.98	-29.11
26300.00	Peak	V	-	-	-60.59	8.73	-9.54	45.60	68.20	-22.60

Table 7-35. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 108 of 177

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	V	-	-	-64.56	12.04	-9.54	44.94	68.20	-23.26
* 15840.00	Average	V	100	22	-72.96	14.25	-9.54	38.74	53.98	-15.24
* 15840.00	Peak	V	100	22	-64.38	14.25	-9.54	47.32	73.98	-26.66
* 21120.00	Average	V	-	-	-71.28	7.96	-9.54	34.14	53.98	-19.83
* 21120.00	Peak	V	-	-	-63.13	7.96	-9.54	42.29	73.98	-31.69
26400.00	Peak	V	-	-	-60.93	8.94	-9.54	45.46	68.20	-22.74

Table 7-36. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	-	-	-73.76	12.06	-9.54	35.76	53.98	-18.21
* 10640.00	Peak	V	-	-	-65.82	12.06	-9.54	43.70	73.98	-30.28
* 15960.00	Average	V	100	17	-72.68	14.55	-9.54	39.33	53.98	-14.65
* 15960.00	Peak	V	100	17	-64.13	14.55	-9.54	47.88	73.98	-26.10
* 21280.00	Average	V	-	-	-71.35	8.04	-9.54	34.14	53.98	-19.84
* 21280.00	Peak	V	-	-	-62.92	8.04	-9.54	42.57	73.98	-31.41
26600.00	Peak	V	-	-	-51.33	-8.30	-9.54	37.83	68.20	-30.37

Table 7-37. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 109 of 177

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	-	-	-74.61	12.87	-9.54	35.72	53.98	-18.26
* 11000.00	Peak	V	-	-	-66.20	12.87	-9.54	44.13	73.98	-29.85
16500.00	Peak	V	100	31	-64.25	16.61	-9.54	49.81	68.20	-18.39
22000.00	Peak	V	-	-	-62.27	8.43	-9.54	43.61	68.20	-24.59
27500.00	Peak	V	-	-	-50.48	-8.80	-9.54	38.18	68.20	-30.02

Table 7-38. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 Meter
Operating Frequency: 5580MHz
Channel: 116

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]
* 11160.00	Average	V	100	25	-73.08	12.64	-9.54	37.02	53.98	-16.96
* 11160.00	Peak	V	100	25	-64.30	12.64	-9.54	45.79	73.98	-28.19
16740.00	Peak	V	100	17	-63.68	16.21	-9.54	49.99	68.20	-18.21
* 22320.00	Average	V	-	-	-70.68	8.08	-9.54	34.86	53.98	-19.12
* 22320.00	Peak	V	-	-	-62.58	8.08	-9.54	42.96	73.98	-31.02
27900.00	Peak	V	100	196	-48.26	-9.08	-9.54	40.12	68.20	-28.08

Table 7-39. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 110 of 177

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	100	69	-73.72	12.47	-9.54	36.20	53.98	-17.78
* 11440.00	Peak	V	100	69	-64.44	12.47	-9.54	45.49	73.98	-28.49
17160.00	Peak	V	100	332	-62.23	18.06	-9.54	53.29	68.20	-14.91
* 22880.00	Average	V	-	-	-70.66	8.37	-9.54	35.17	53.98	-18.81
* 22880.00	Peak	V	-	-	-62.18	8.37	-9.54	43.66	73.98	-30.32
28600.00	Peak	V	100	200	-49.02	-8.95	-9.54	39.49	68.20	-28.71

Table 7-40. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	100	22	-73.60	12.43	-9.54	36.29	53.98	-17.69
* 11490.00	Peak	V	100	22	-65.16	12.43	-9.54	44.73	73.98	-29.25
17235.00	Peak	V	100	19	-63.82	18.61	-9.54	52.25	68.20	-15.95
* 22980.00	Average	V	-	-	-70.02	8.16	-9.54	35.60	53.98	-18.38
* 22980.00	Peak	V	-	-	-62.42	8.16	-9.54	43.20	73.98	-30.78
28725.00	Peak	V	-	-	-50.68	-9.24	-9.54	37.54	68.20	-30.66

Table 7-41. Radiated Measurements

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 111 of 177

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	100	29	-74.08	12.54	-9.54	35.92	53.98	-18.06
* 11570.00	Peak	V	100	29	-65.75	12.54	-9.54	44.25	73.98	-29.73
17355.00	Peak	V	100	25	-62.67	18.73	-9.54	53.51	68.20	-14.69
23140.00	Peak	V	-	-	-62.63	8.37	-9.54	43.21	68.20	-24.99
28925.00	Peak	V	-	-	-50.53	-9.65	-9.54	37.28	68.20	-30.92

Table 7-42. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	-	-	-73.81	12.99	-9.54	36.63	53.98	-17.35
* 11650.00	Peak	V	-	-	-65.50	12.99	-9.54	44.94	73.98	-29.04
17475.00	Peak	V	100	18	-64.26	19.25	-9.54	52.44	68.20	-15.76
23300.00	Peak	V	-	-	-61.20	8.50	-9.54	44.75	68.20	-23.45
29125.00	Peak	V	-	-	-50.89	-9.87	-9.54	36.70	68.20	-31.50

Table 7-43. Radiated Measurements

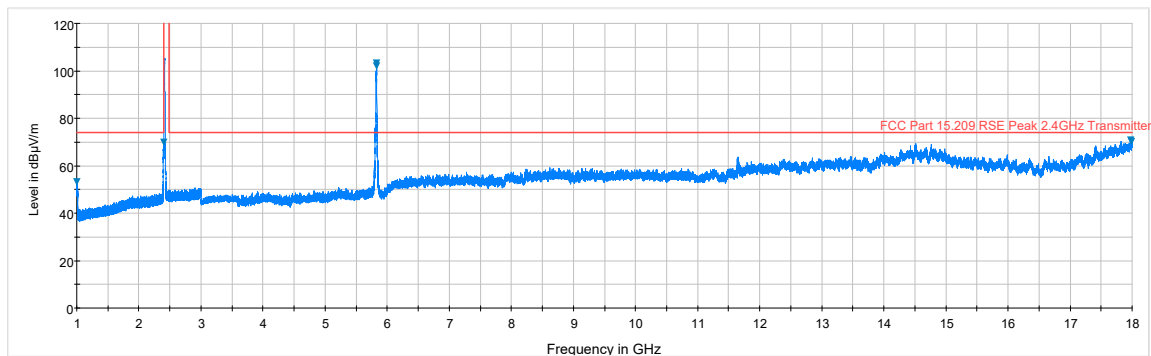
FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset	Page 112 of 177	

7.2.3 Simultaneous Tx Radiated Spurious Emissions Measurements

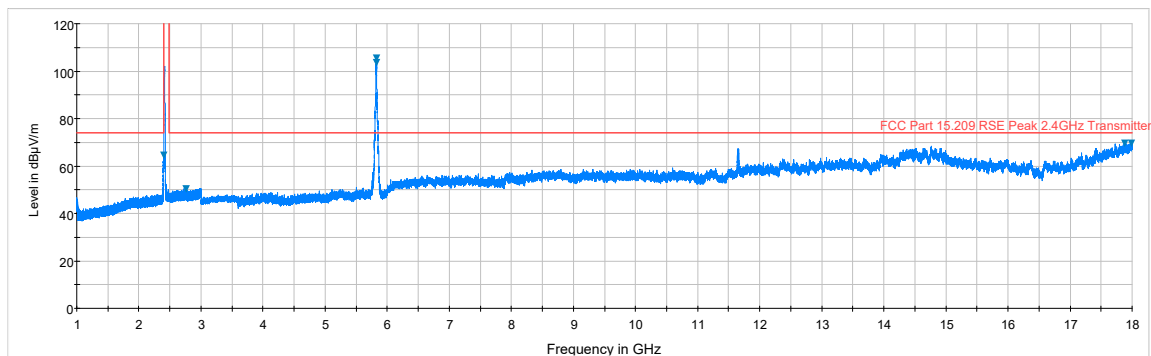
§15.247(d) §15.205 & §15.209

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	1	165
Operating Frequency (MHz)	2412	5825
Data Rate (Mbps)	1	6
Mode	b	a

Table 7-44. Simultaneous Transmission Config-1

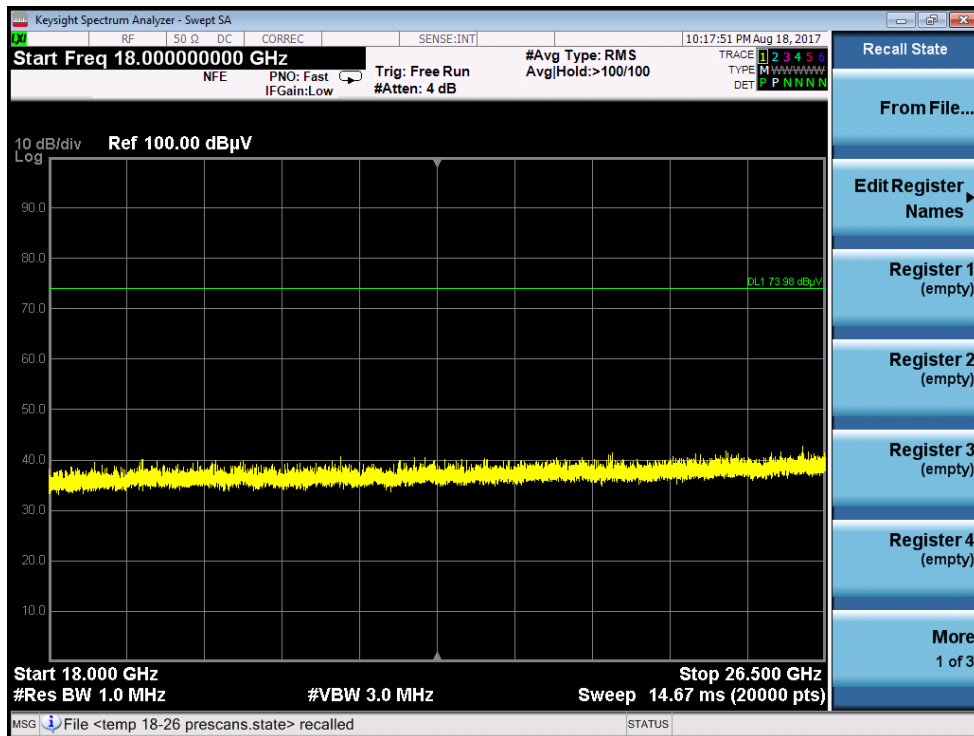


Plot 7-143. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. H)

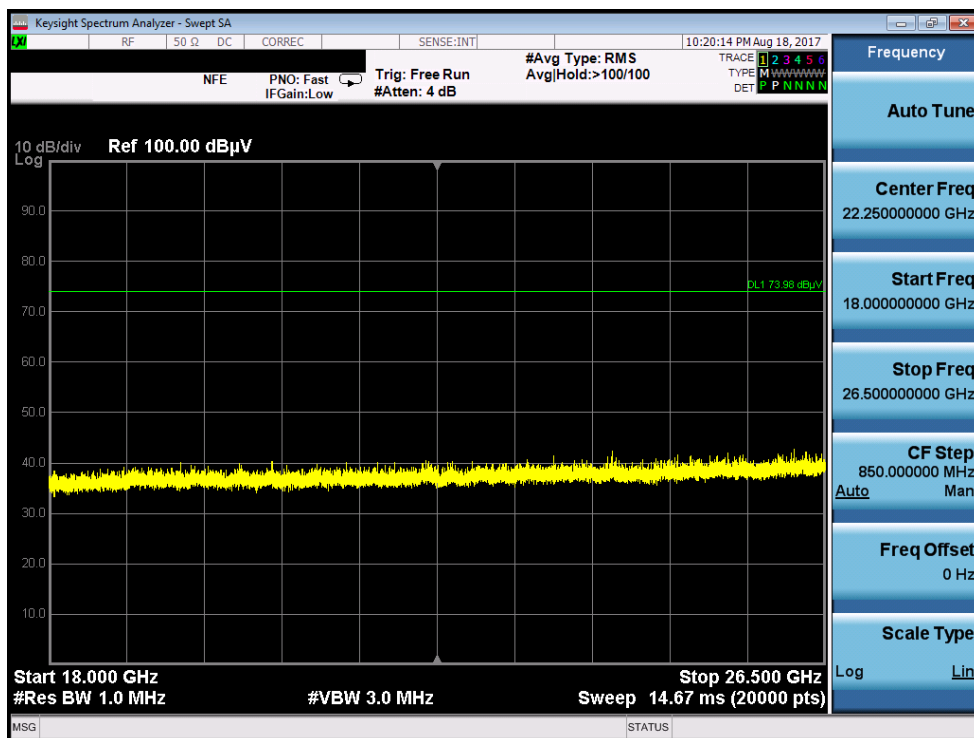


Plot 7-144. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 113 of 177

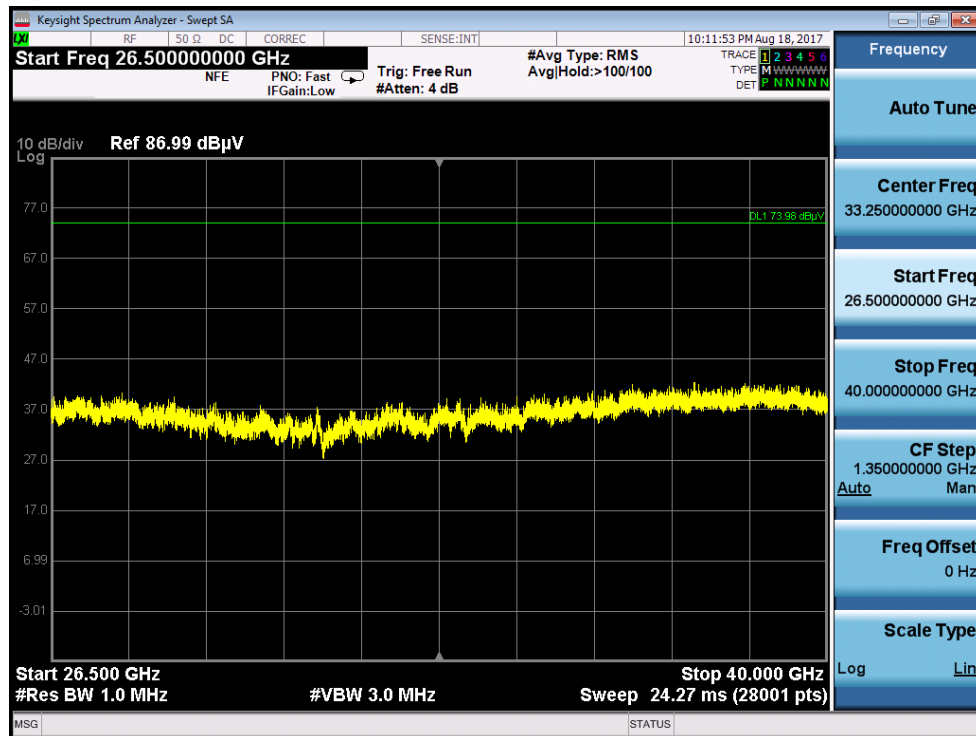


Plot 7-145. Radiated Spurious Plot 18GHz – 26.5GHz (2.4GHz – 5GHz, Ant. Pol. H)

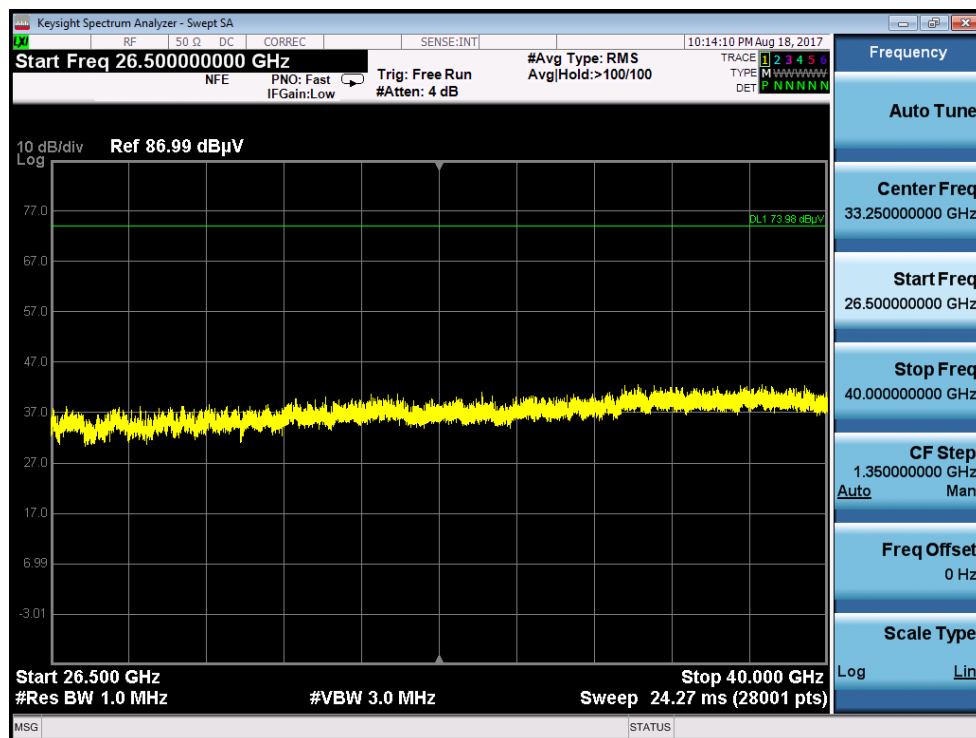


Plot 7-146. Radiated Spurious Plot 18GHz – 26.5GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 114 of 177



Plot 7-147. Radiated Spurious Plot above 26.5GHz (2.4GHz – 5GHz, Ant. Pol. H)



Plot 7-148. Radiated Spurious Plot above 26.5GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 115 of 177

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	1001.00	Average	H	104.00	168.00	-54.50	-2.84	49.66	53.98	-4.32
*	1001.00	Peak	H	104.00	168.00	-41.70	-2.84	62.46	73.98	-11.52
	4414.00	Peak	H	-	-	-57.26	1.49	51.23	68.20	-16.97
	7827.00	Peak	H	-	-	-57.62	9.58	58.96	68.20	-9.24
	9238.00	Peak	H	-	-	-57.64	10.55	59.91	68.20	-8.29
*	11240.00	Average	H	-	-	-71.34	13.70	49.36	53.98	-4.62
*	11240.00	Peak	H	-	-	-59.02	13.70	61.68	73.98	-12.30
*	12651.00	Average	V	-	-	-72.22	15.77	50.55	53.98	-3.43
*	12651.00	Peak	V	-	-	-58.29	15.77	54.94	73.98	-19.04
*	16064.00	Average	V	-	-	-69.49	18.30	46.26	53.98	-7.71
*	16064.00	Peak	V	-	-	-57.98	18.30	57.77	73.98	-16.20

Table 7-45. Radiated Measurements (ANT1 2.4GHz – ANT2 5GHz)

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset	Page 116 of 177	

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

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

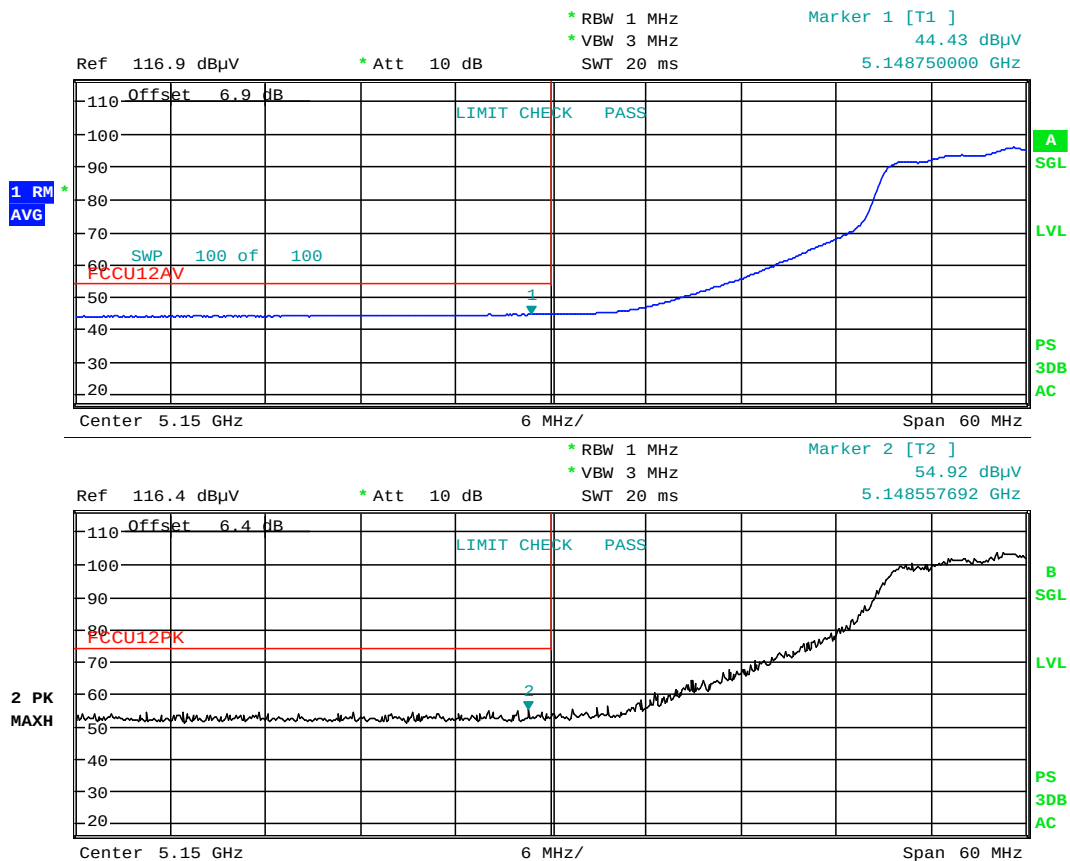
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 16.AUG.2017 21:27:39

Plot 7-149. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 117 of 177

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

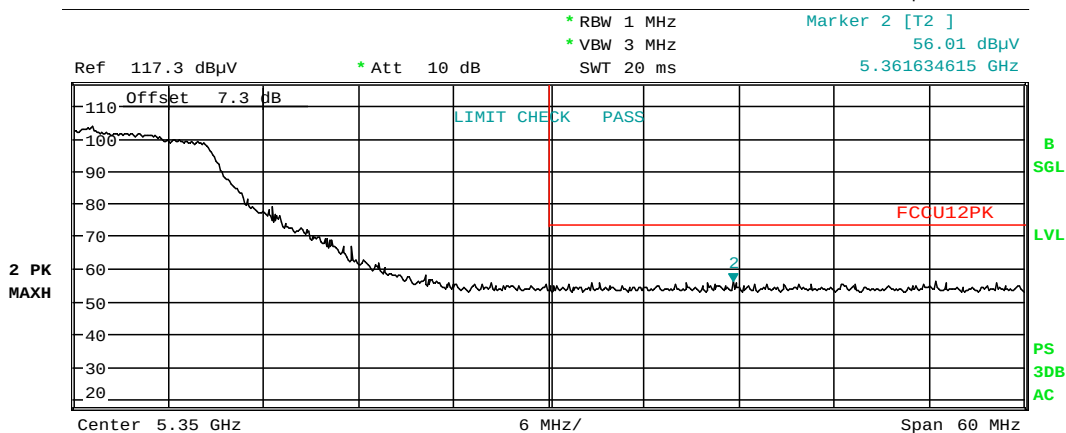
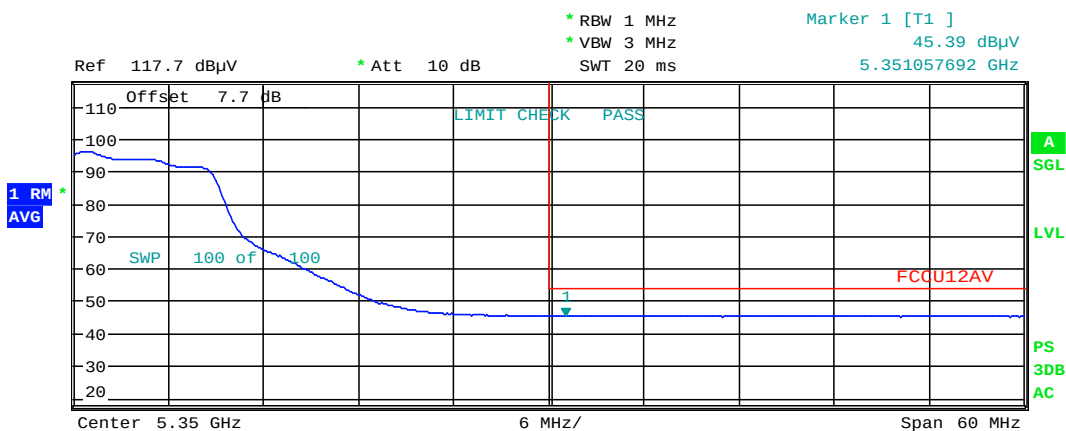
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 16.AUG.2017 21:31:35

Plot 7-150. Radiated Restricted Upper Band Edge Plot (Average & Peak– UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 118 of 177

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

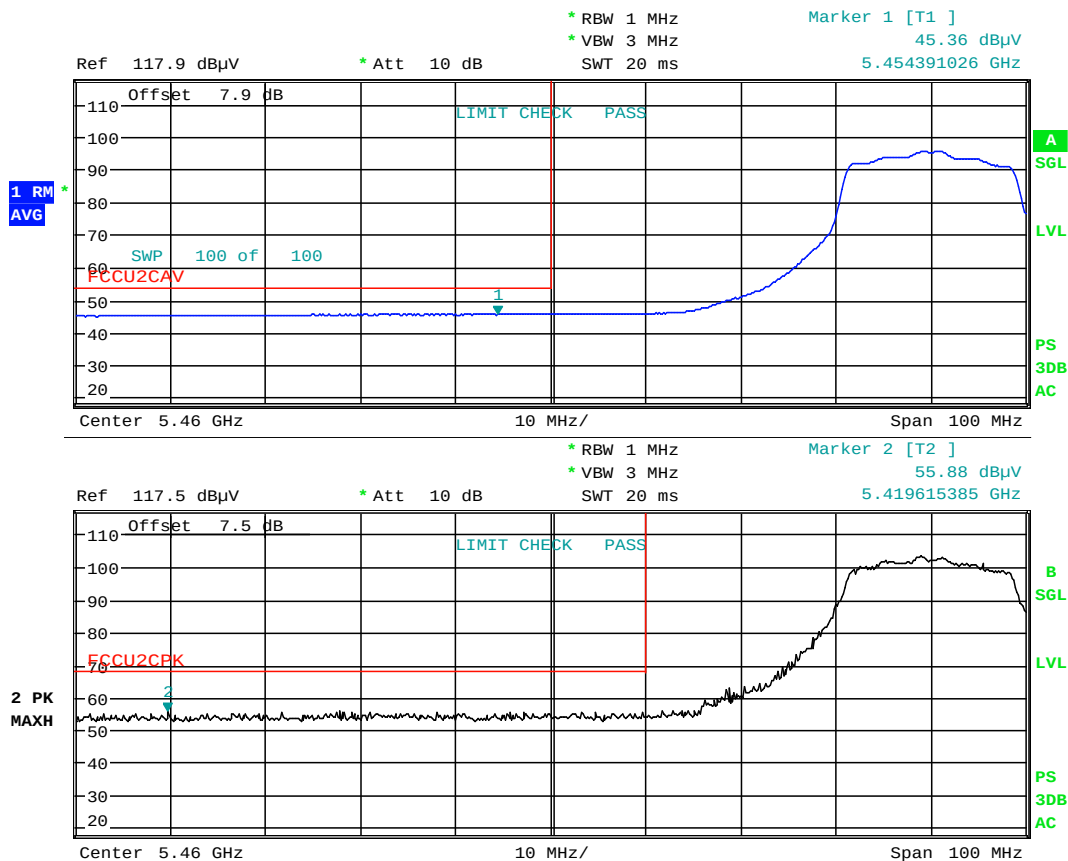
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 16.AUG.2017 21:35:27

Plot 7-151. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 119 of 177

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

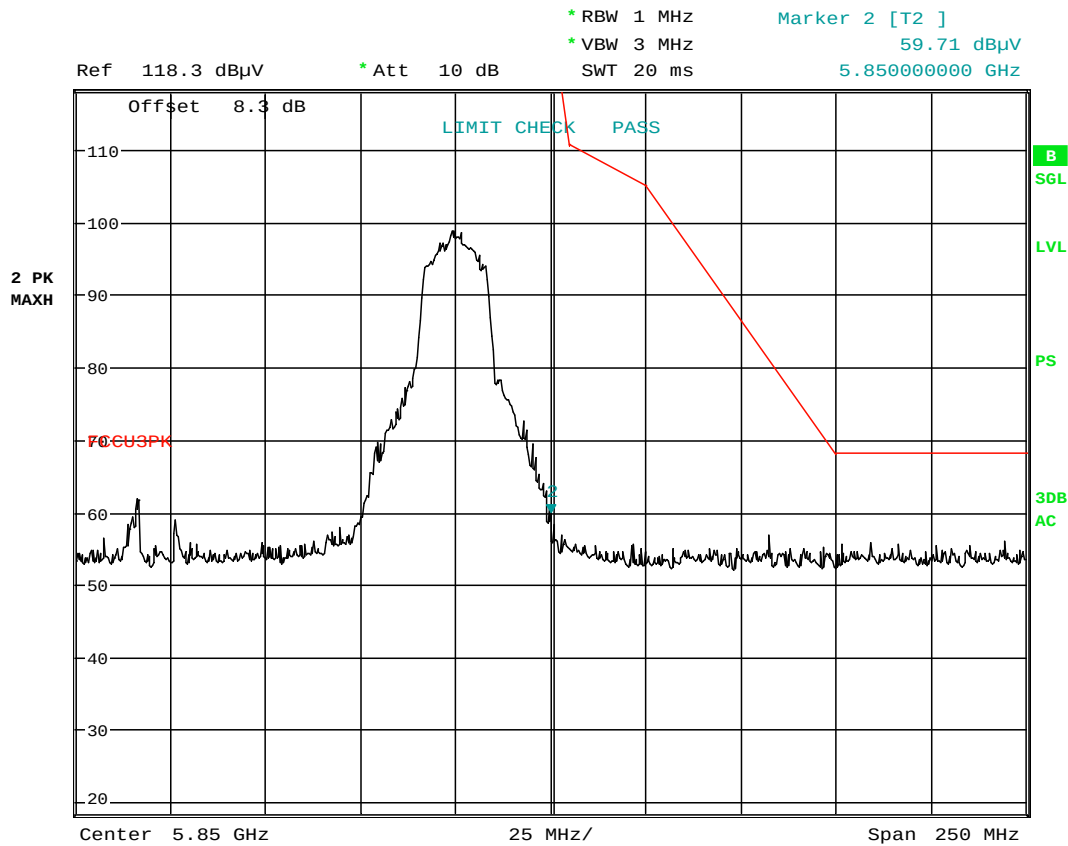
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5745MHz

Channel: 149



Date: 16.AUG.2017 21:44:17

Plot 7-152. Radiated Lower Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 120 of 177

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

§15.407(b.1)(b.2) §15.205 §15.209

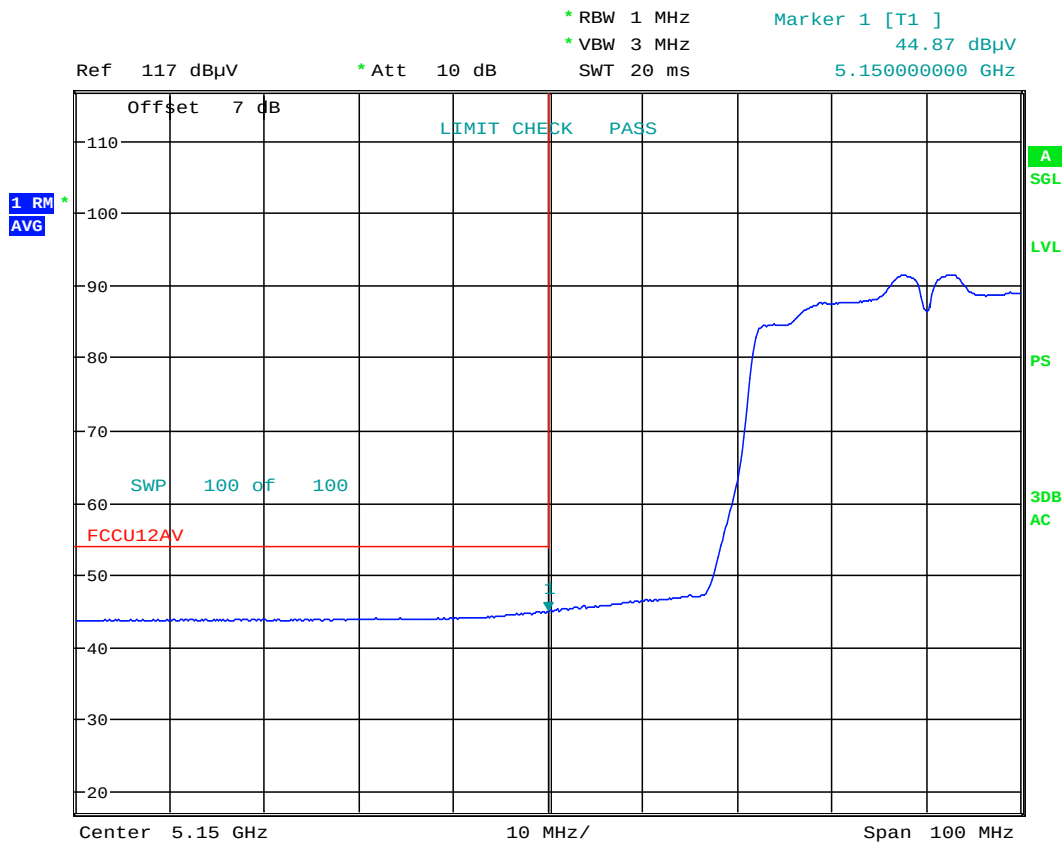
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 17.AUG.2017 13:34:30

Plot 7-153. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 121 of 177

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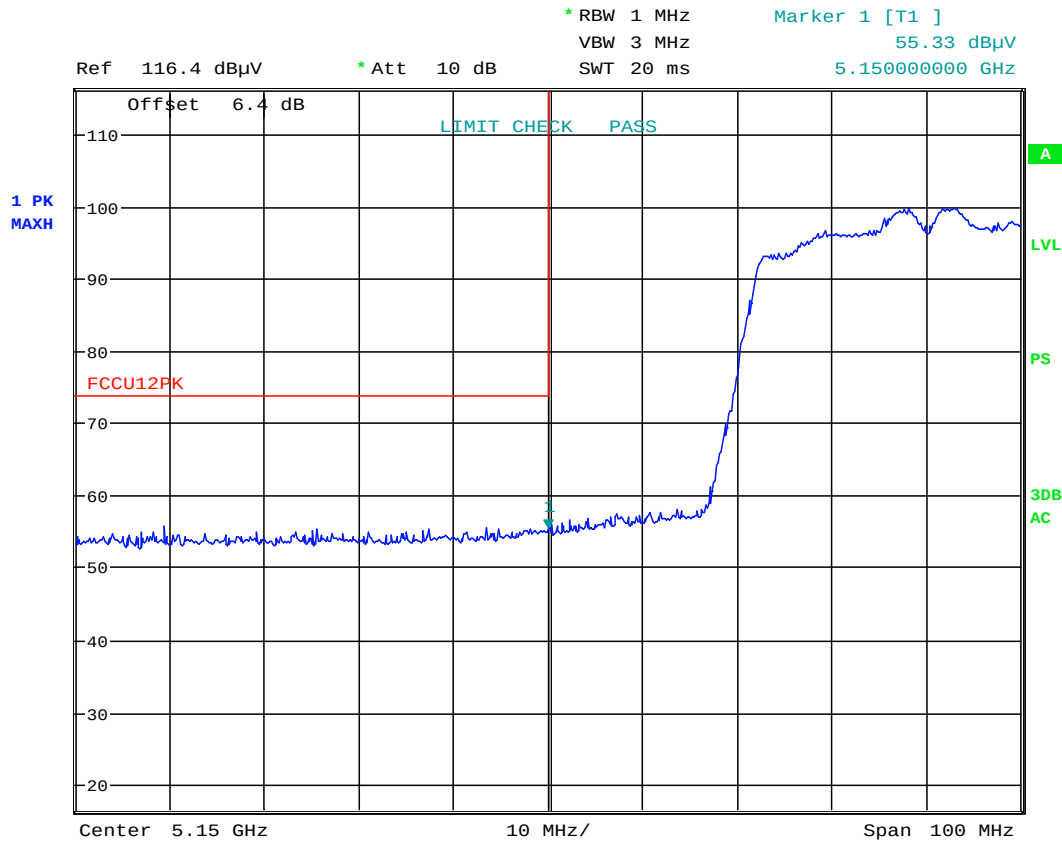
V 6.8

07/14/2017

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 17.AUG.2017 13:32:18

Plot 7-154. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 122 of 177

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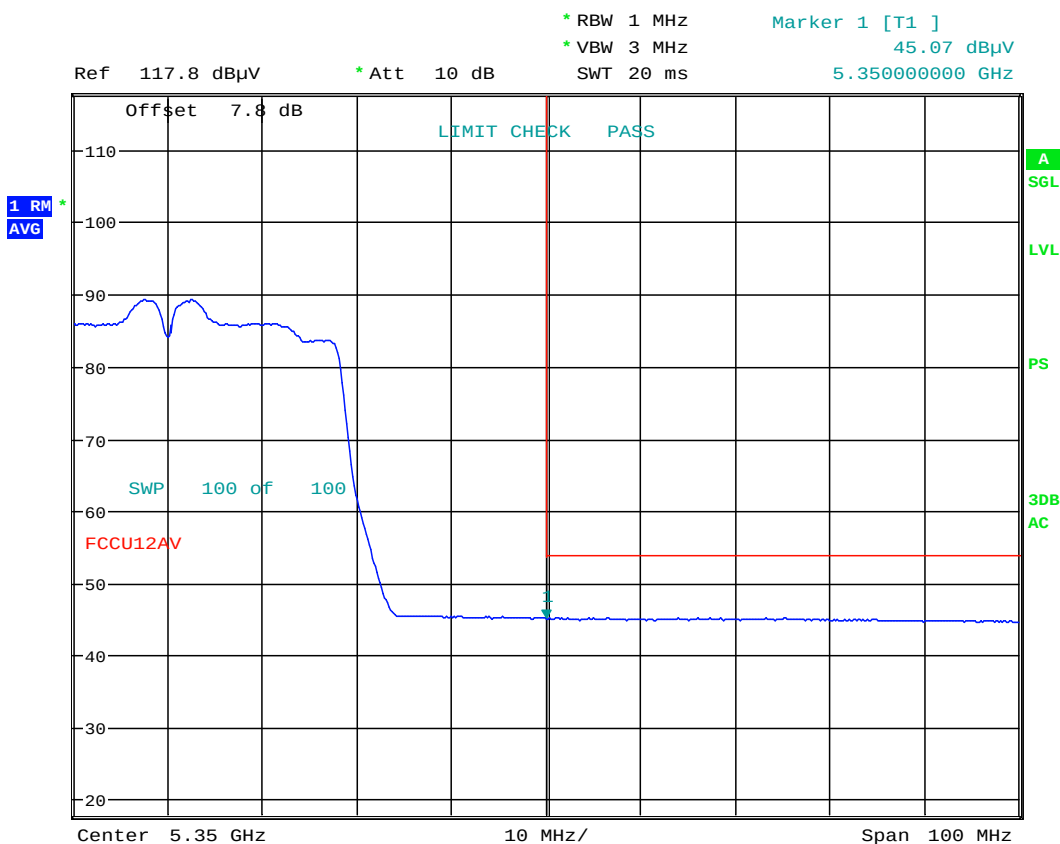
V 6.8

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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: 17.AUG.2017 13:56:22

Plot 7-155. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 123 of 177

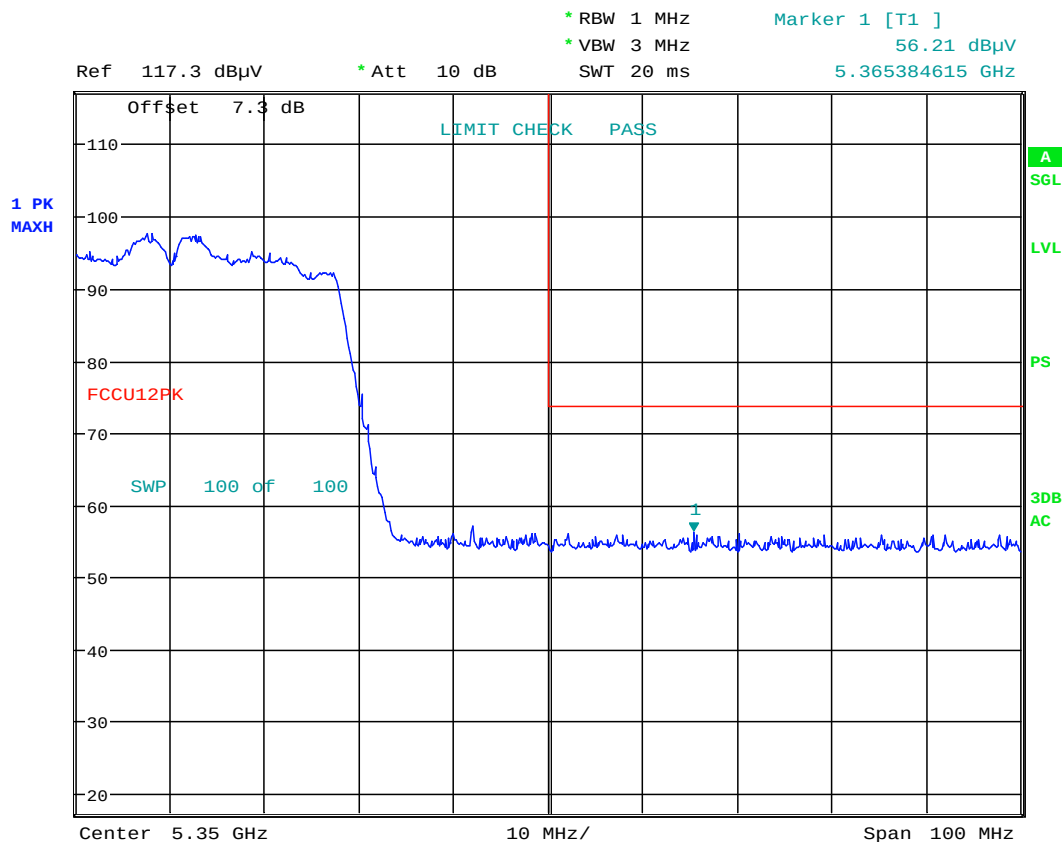
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Antenna-1 Radiated Band Edge Measurements (40MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**



Date: 17.AUG.2017 13:55:25

Plot 7-156. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 124 of 177

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

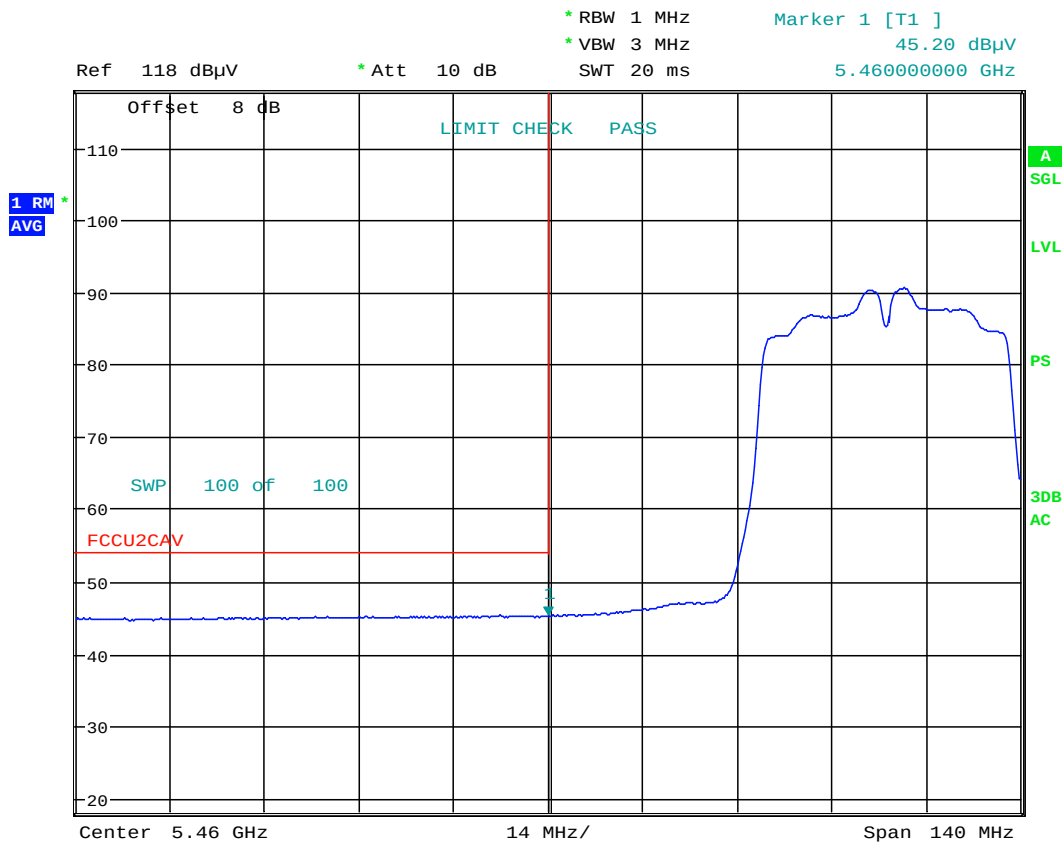
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



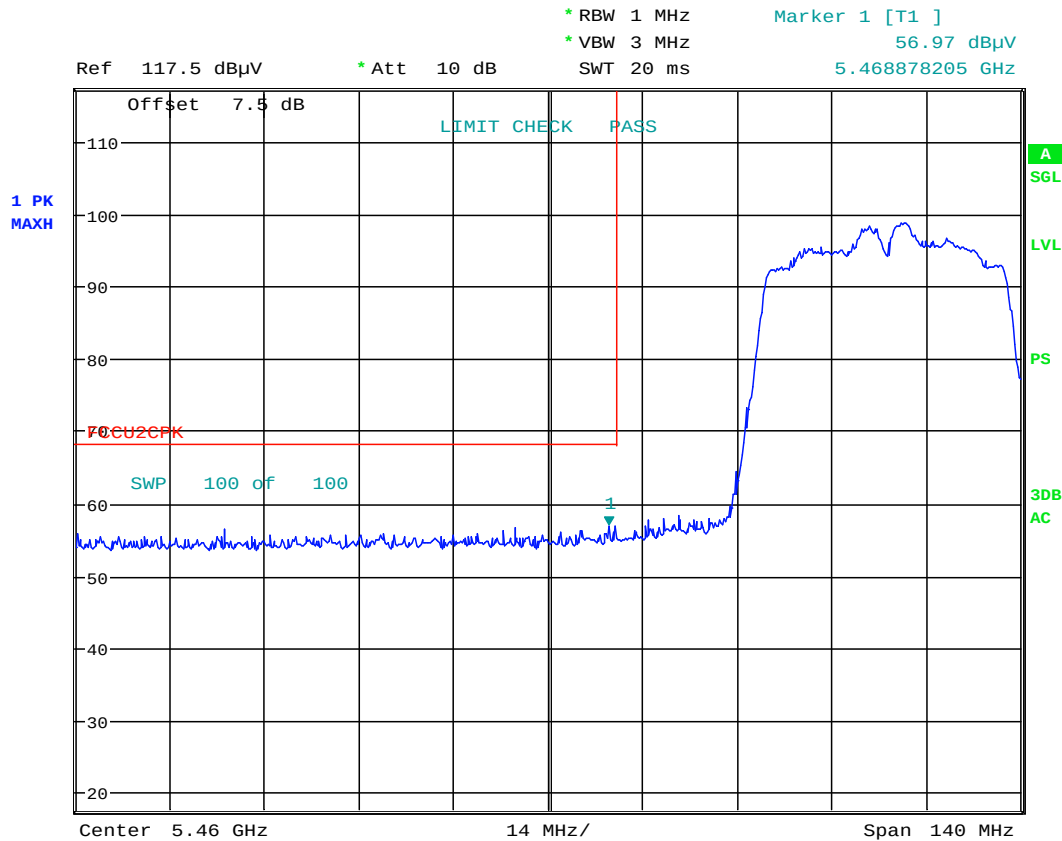
Date: 17.AUG.2017 14:11:46

Plot 7-157. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 125 of 177

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

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



Date: 17.AUG.2017 14:10:59

Plot 7-158. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 126 of 177

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

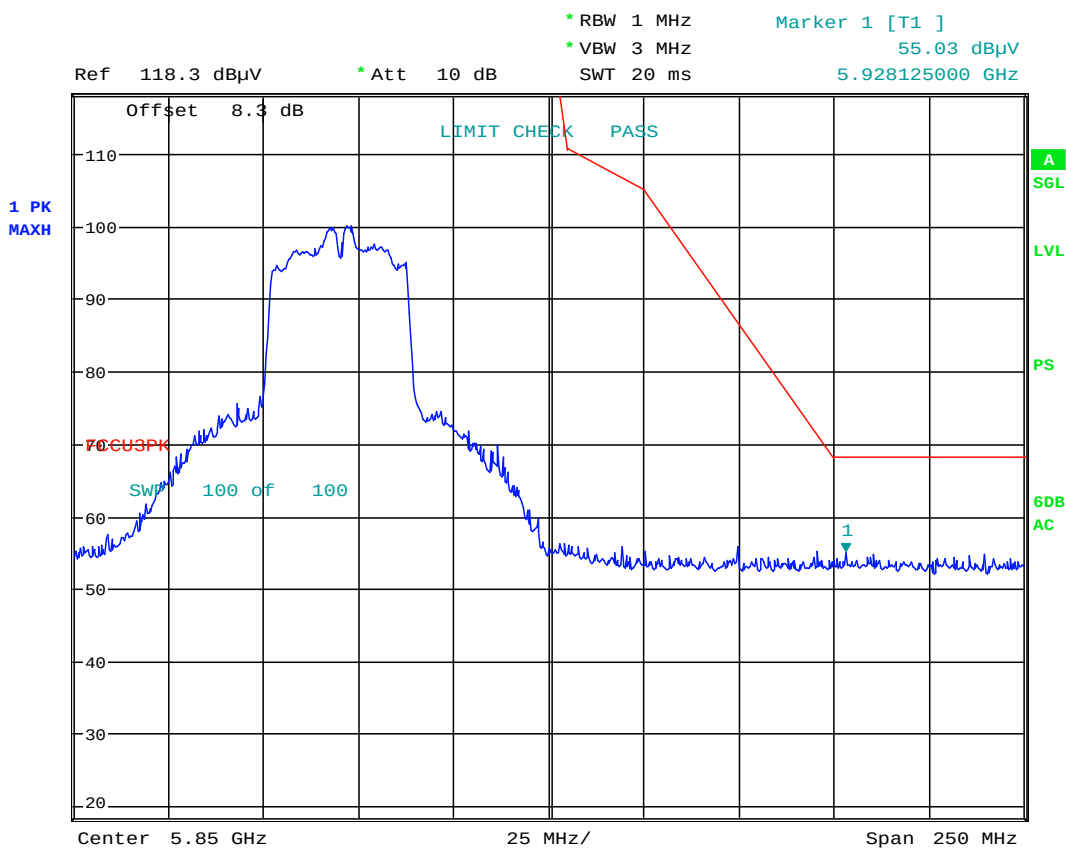
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5755MHz

Channel: 151



Date: 17.AUG.2017 14:27:38

Plot 7-159. Radiated Lower Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 127 of 177

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

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

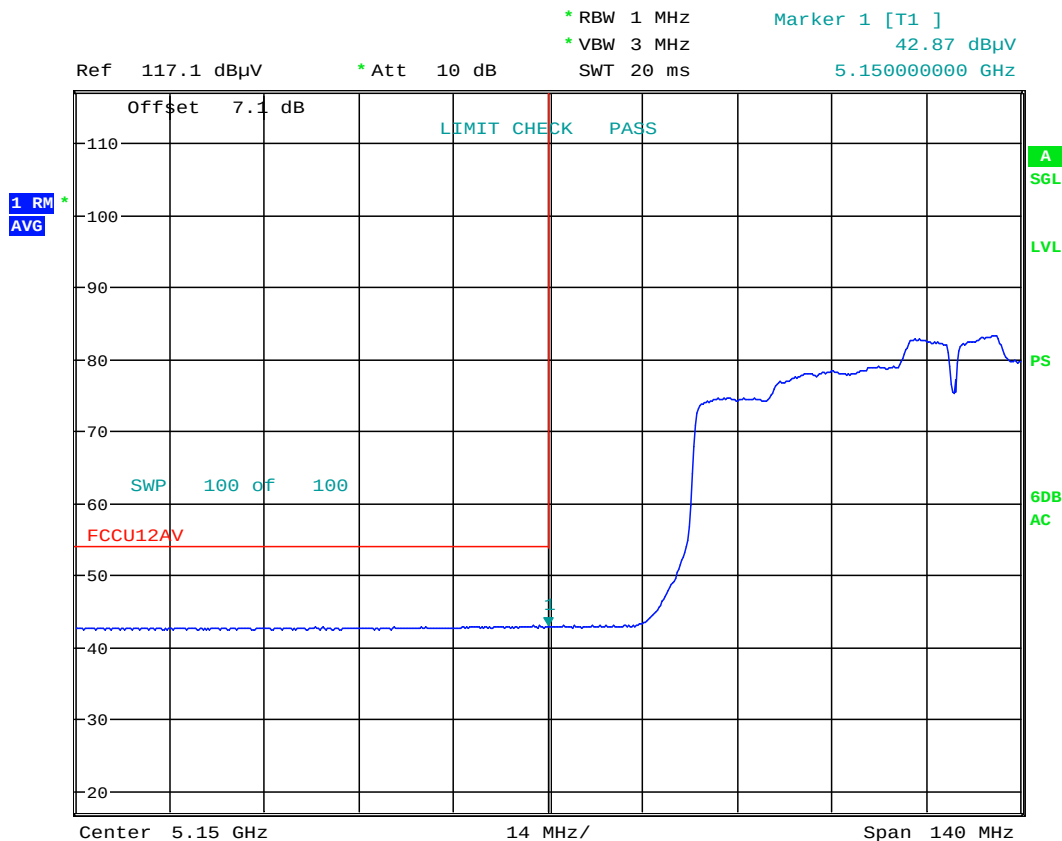
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42

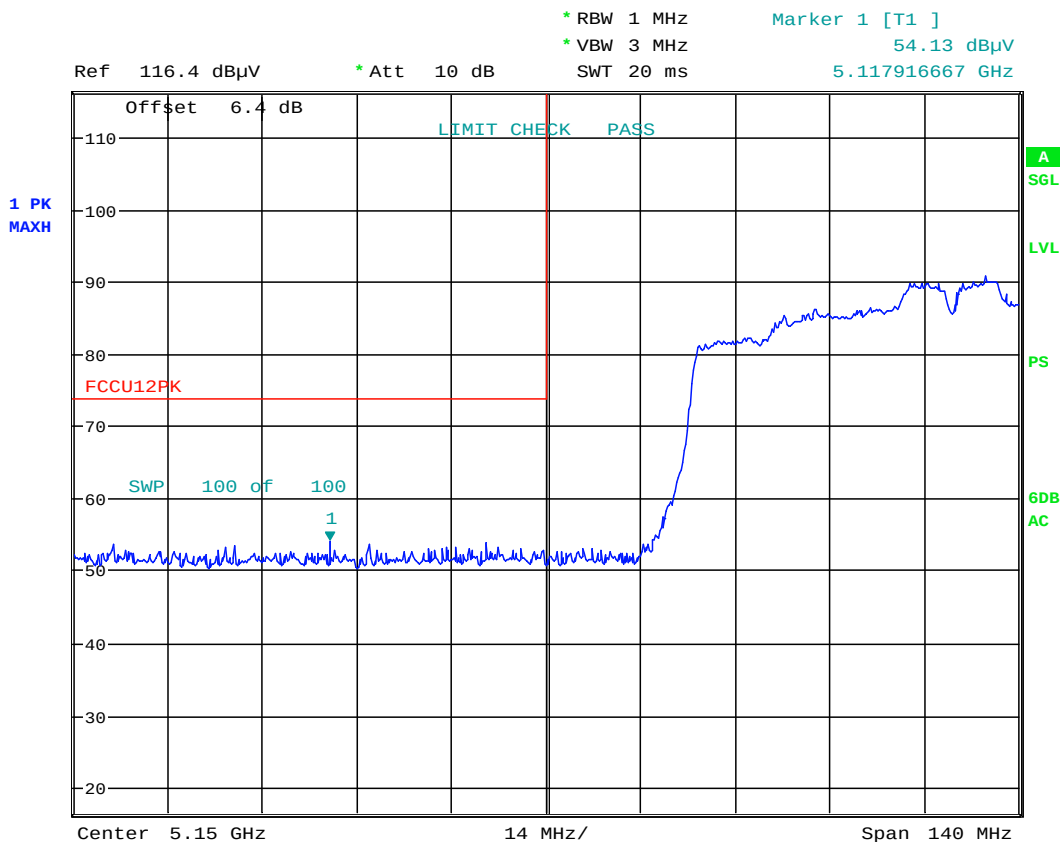


Date: 17.AUG.2017 18:30:07

Plot 7-160. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 128 of 177

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



Date: 17.AUG.2017 18:29:17

Plot 7-161. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 129 of 177

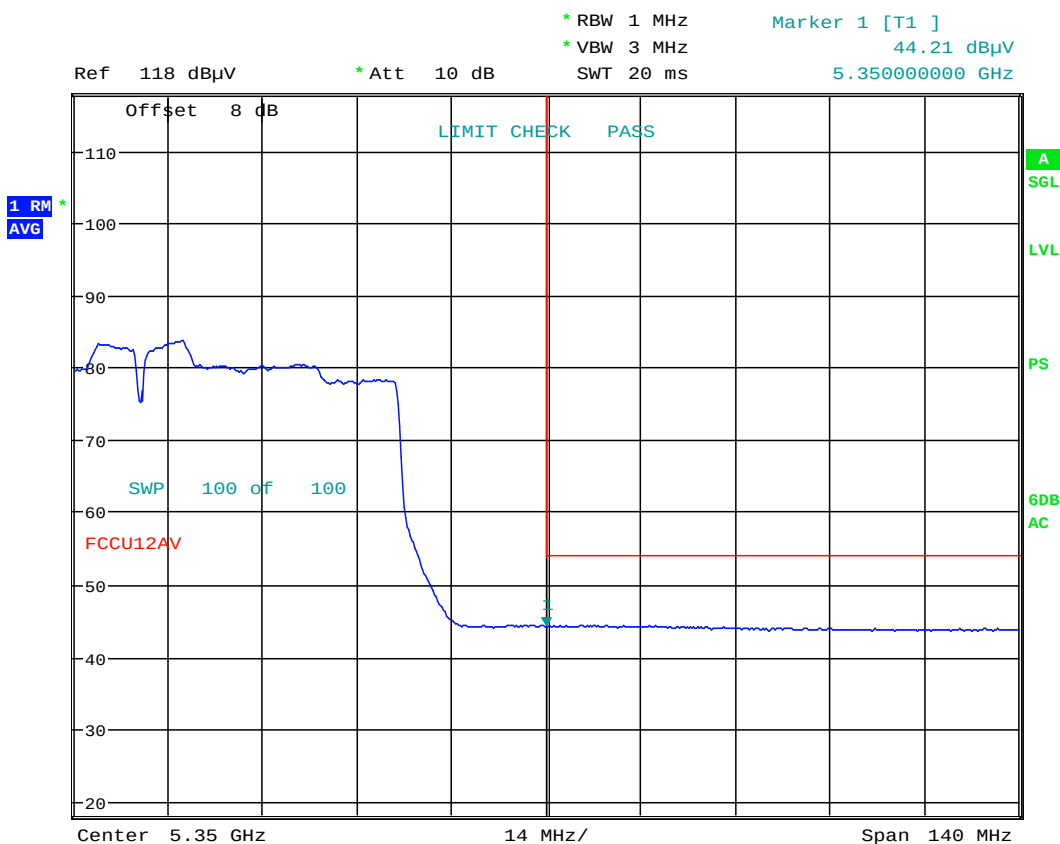
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Antenna-1 Radiated Band Edge Measurements (80MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

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



Date: 17.AUG.2017 15:09:55

Plot 7-162. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 130 of 177

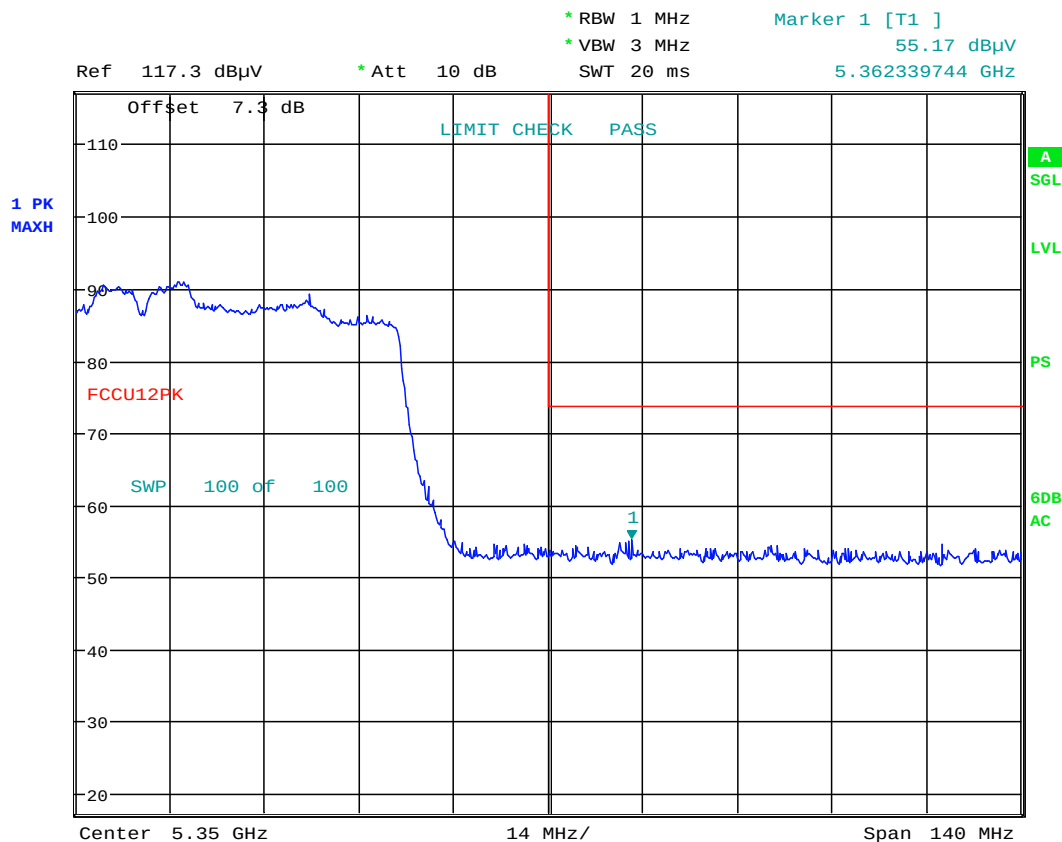
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Antenna-1 Radiated Band Edge Measurements (80MHz BW)

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



Date: 17.AUG.2017 15:08:38

Plot 7-163. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 131 of 177

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

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

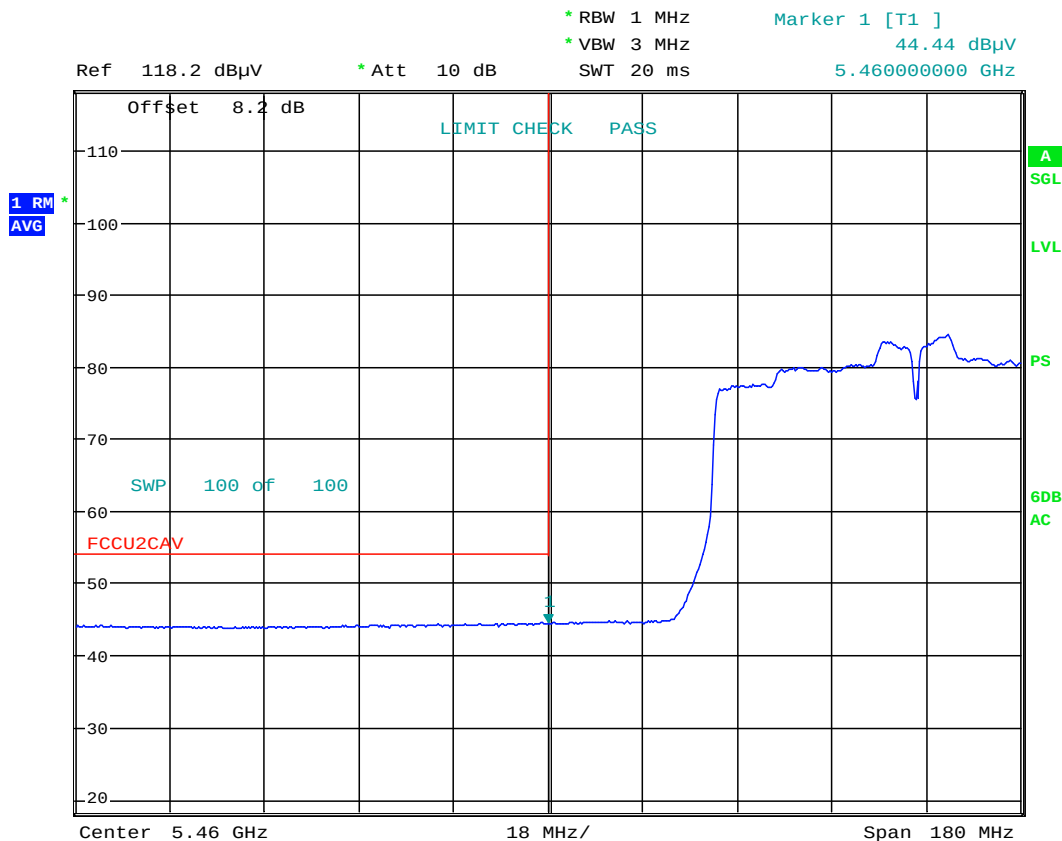
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



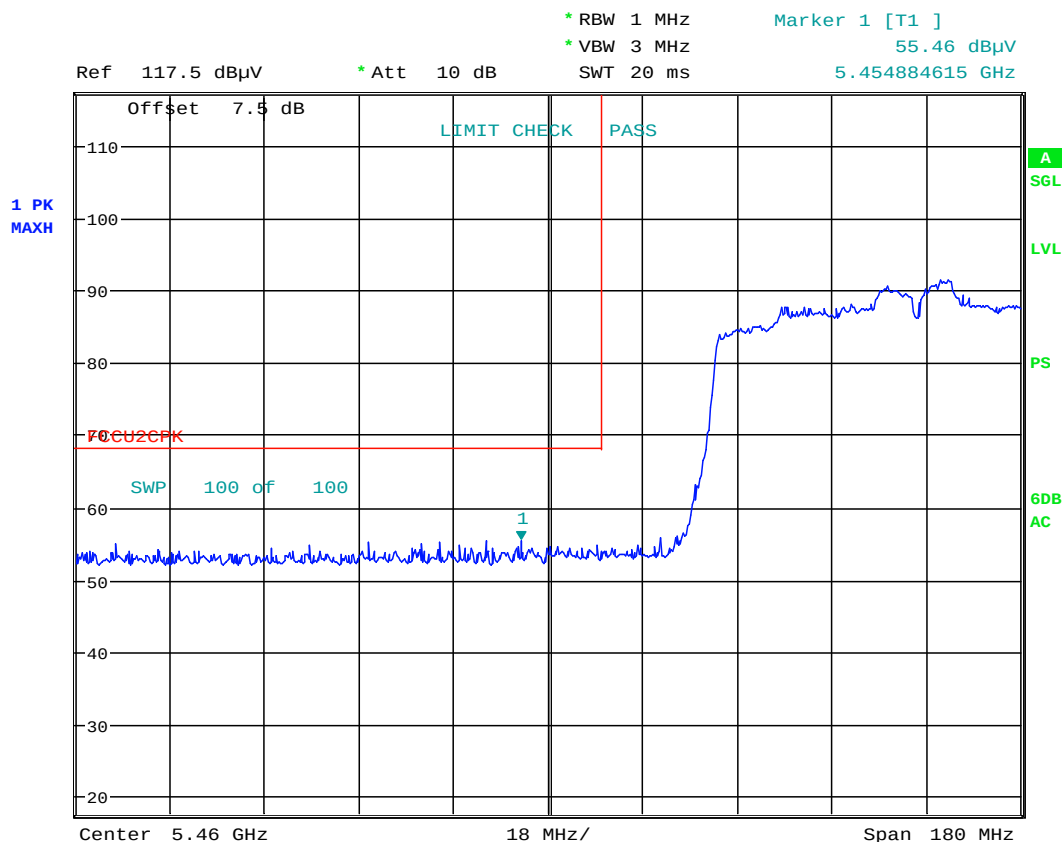
Date: 17.AUG.2017 15:26:59

Plot 7-164. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 132 of 177

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

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



Date: 17.AUG.2017 15:26:00

Plot 7-165. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 133 of 177

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

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

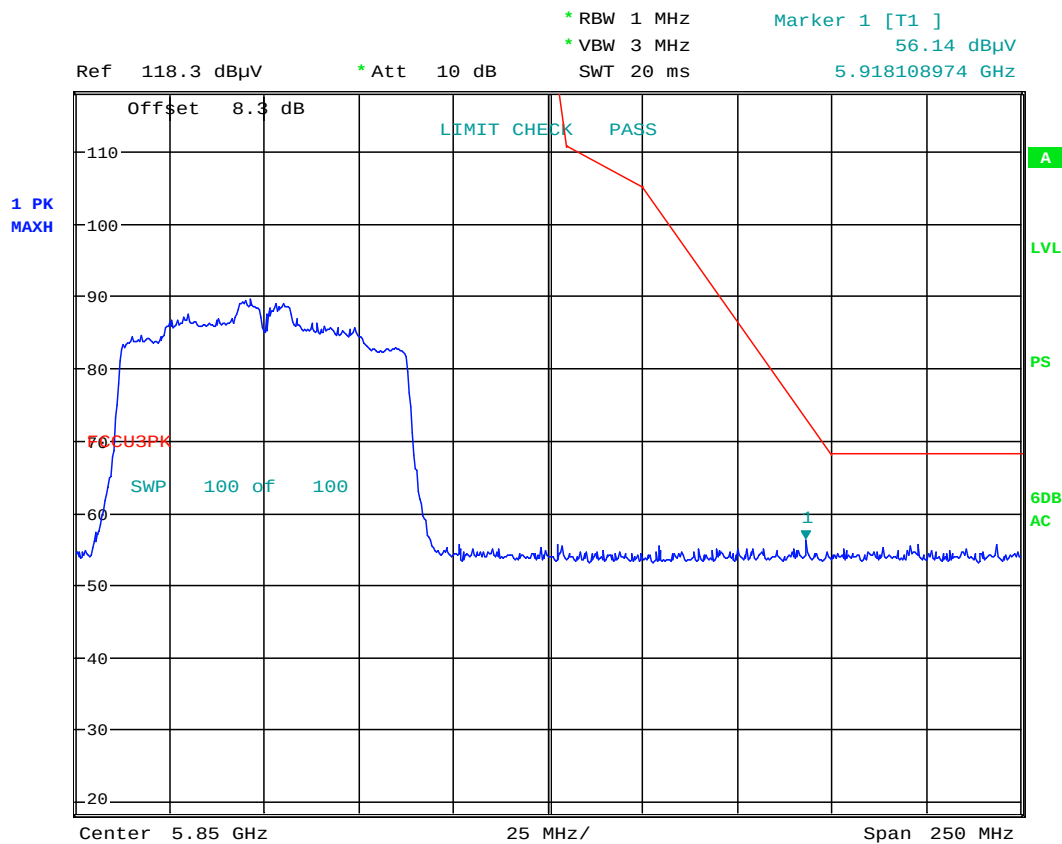
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 17.AUG.2017 15:40:08

Plot 7-166. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 134 of 177

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

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

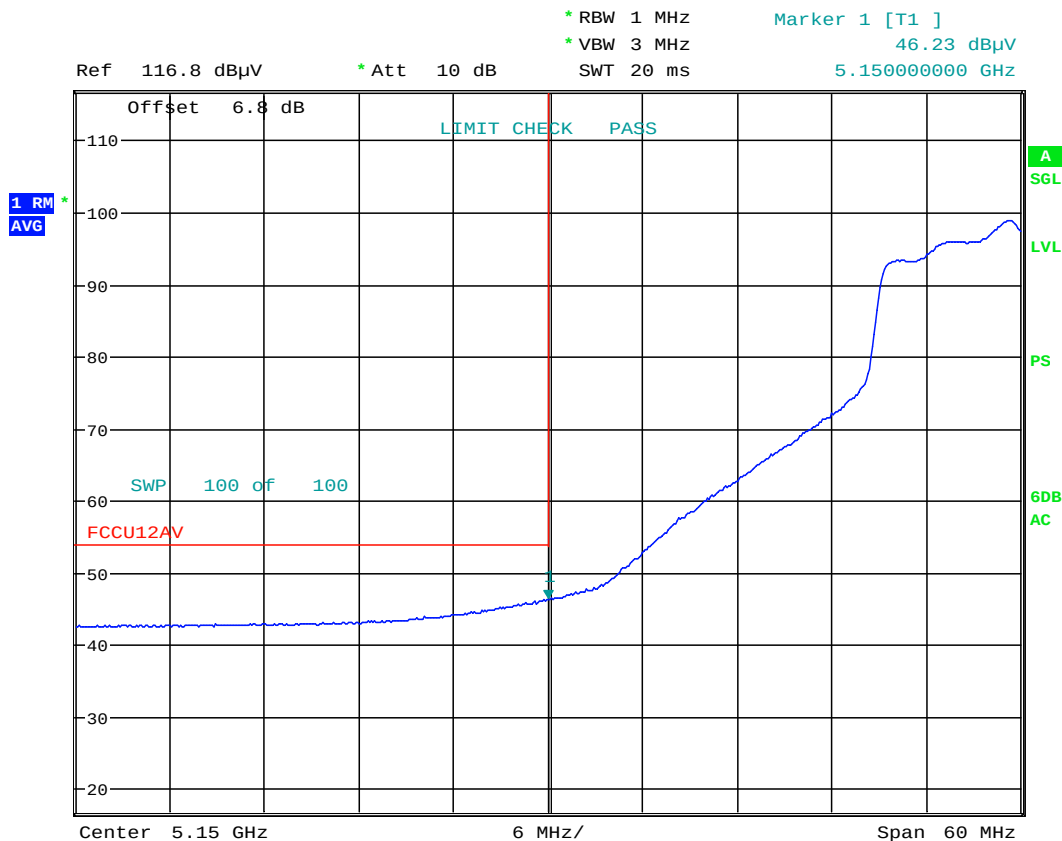
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



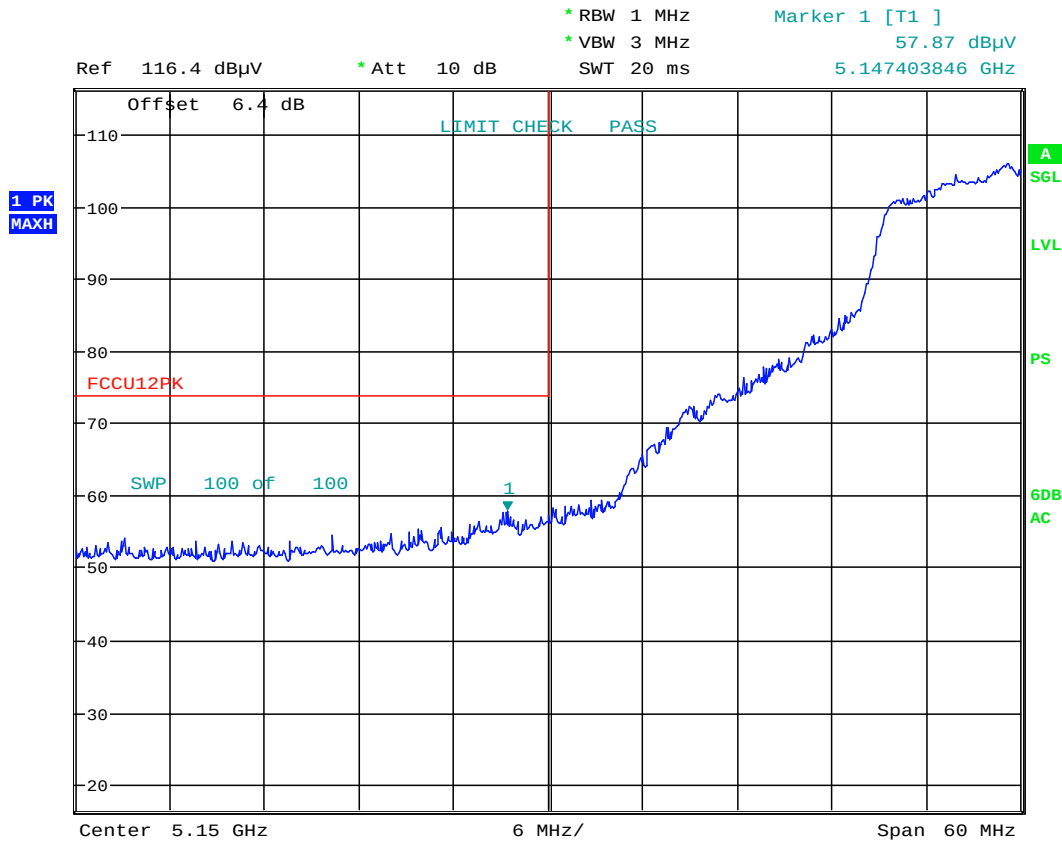
Date: 17.AUG.2017 16:01:02

Plot 7-167. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 135 of 177

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

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



Date: 17.AUG.2017 16:02:18

Plot 7-168. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 136 of 177

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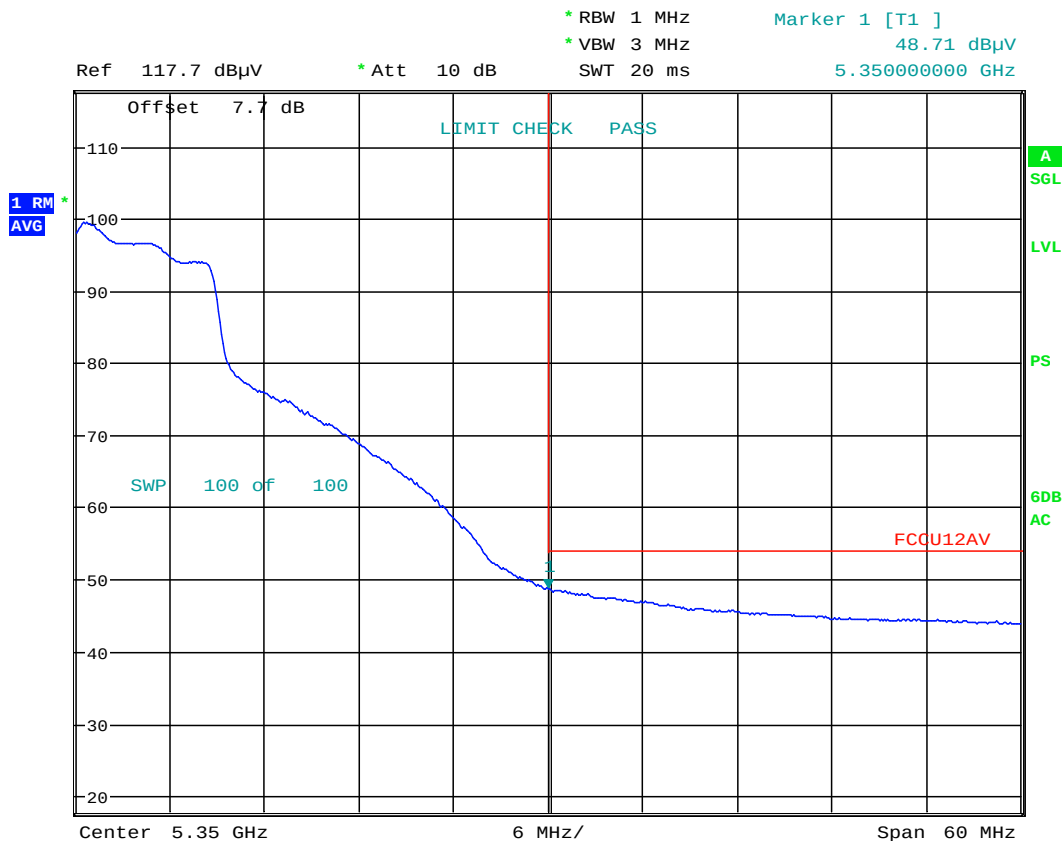
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Antenna-2 Radiated Band Edge Measurements (20MHz BW) \$15.407(b.1)(b.2) \$15.205 \$15.209

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

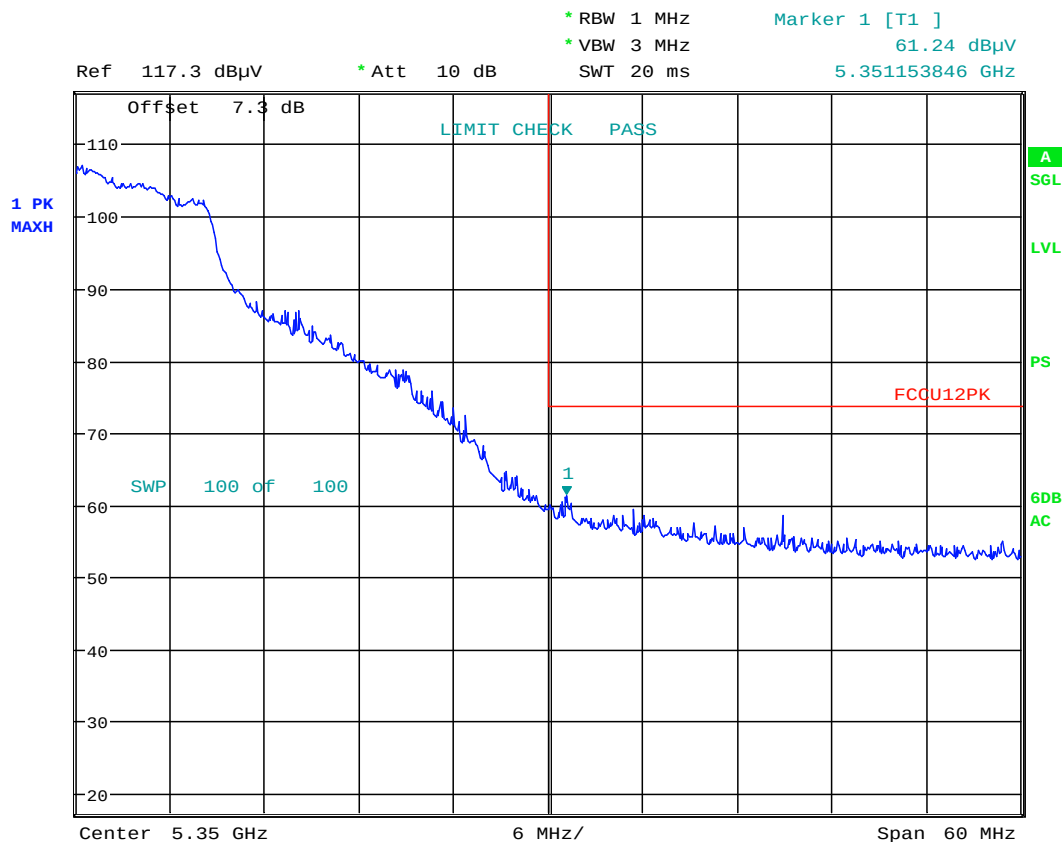


Date: 17.AUG.2017 16:21:42

Plot 7-169. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 137 of 177

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



Date: 17.AUG.2017 16:20:31

Plot 7-170. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 138 of 177

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

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

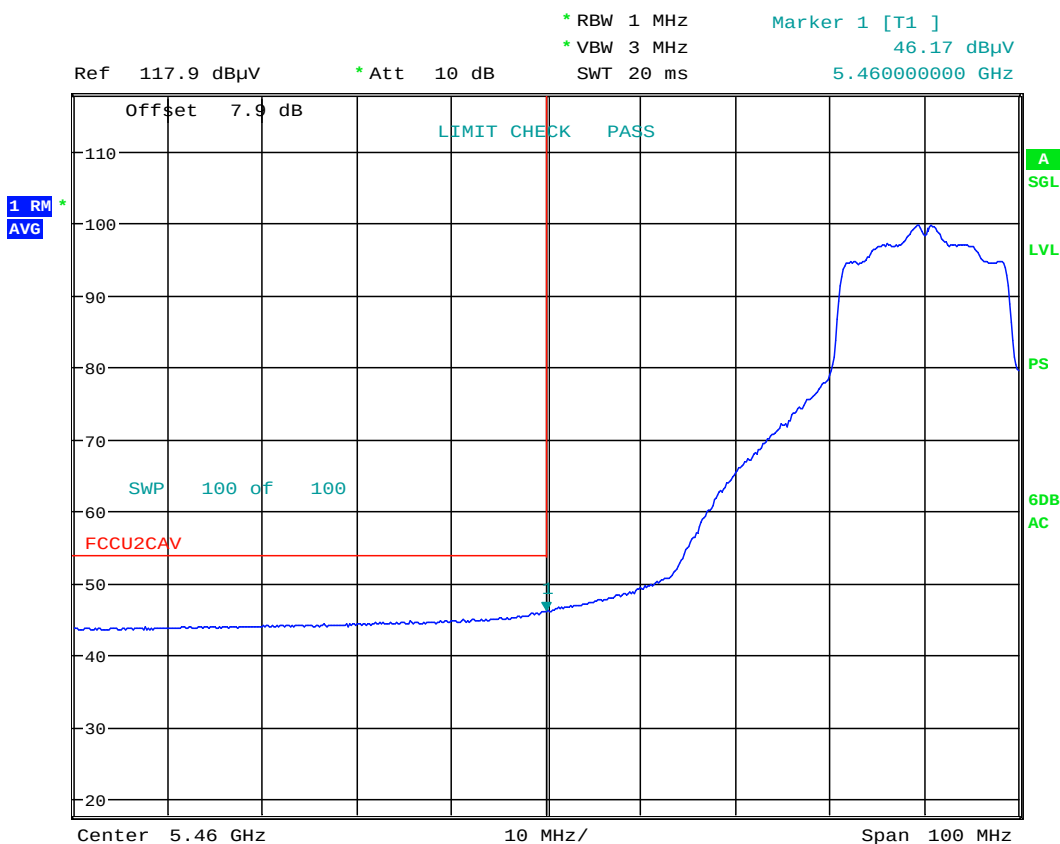
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



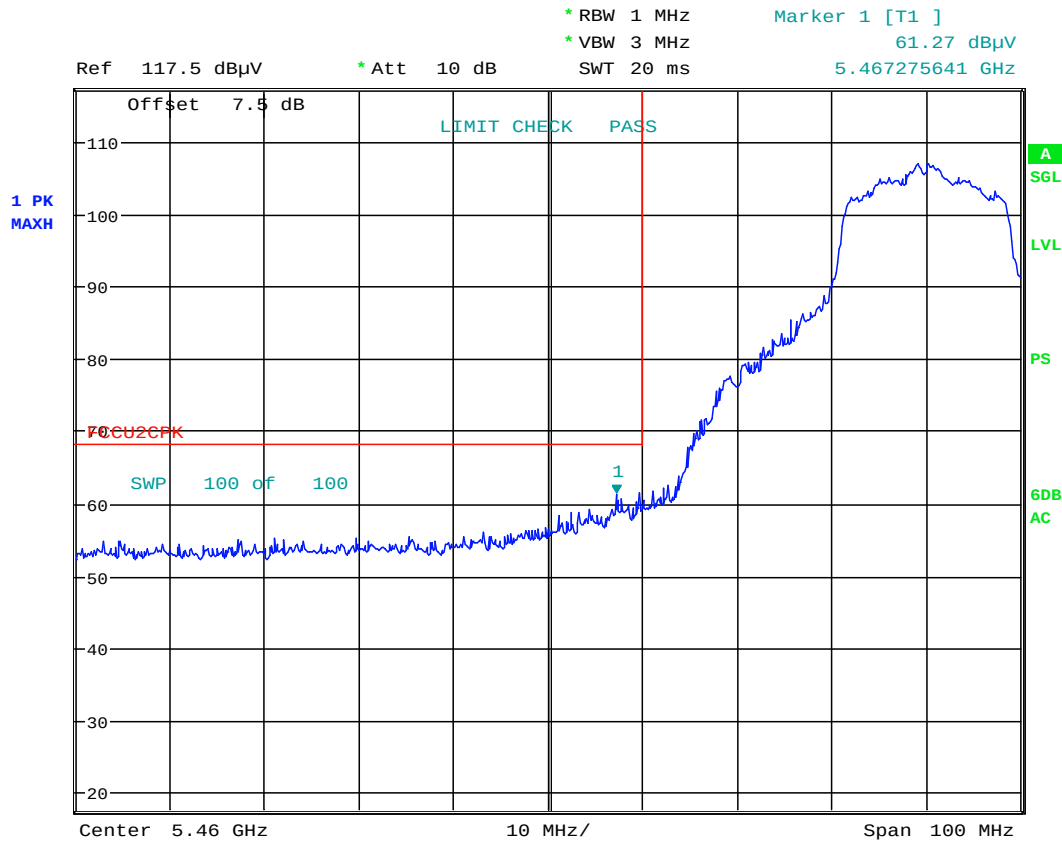
Date: 17.AUG.2017 16:30:09

Plot 7-171. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 139 of 177

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

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



Date: 17.AUG.2017 16:29:19

Plot 7-172. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 140 of 177

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

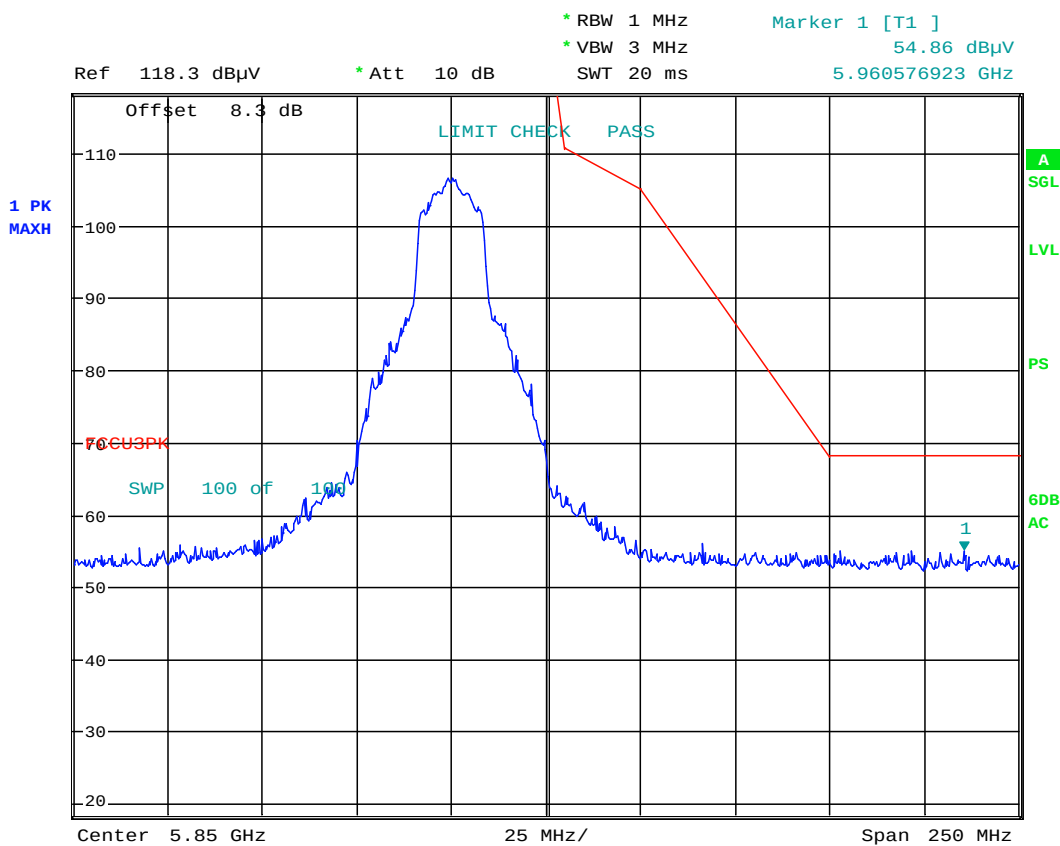
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 17.AUG.2017 16:38:38

Plot 7-173. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 141 of 177

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

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

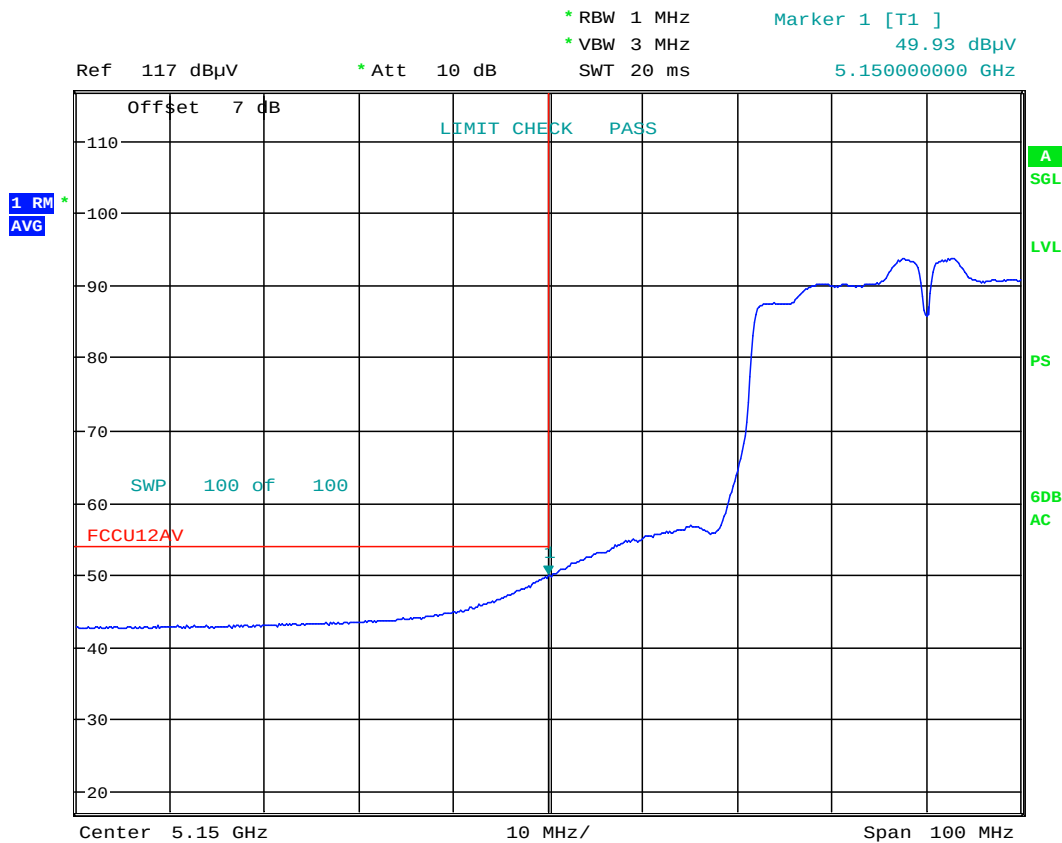
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 17.AUG.2017 16:48:51

Plot 7-174. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 142 of 177

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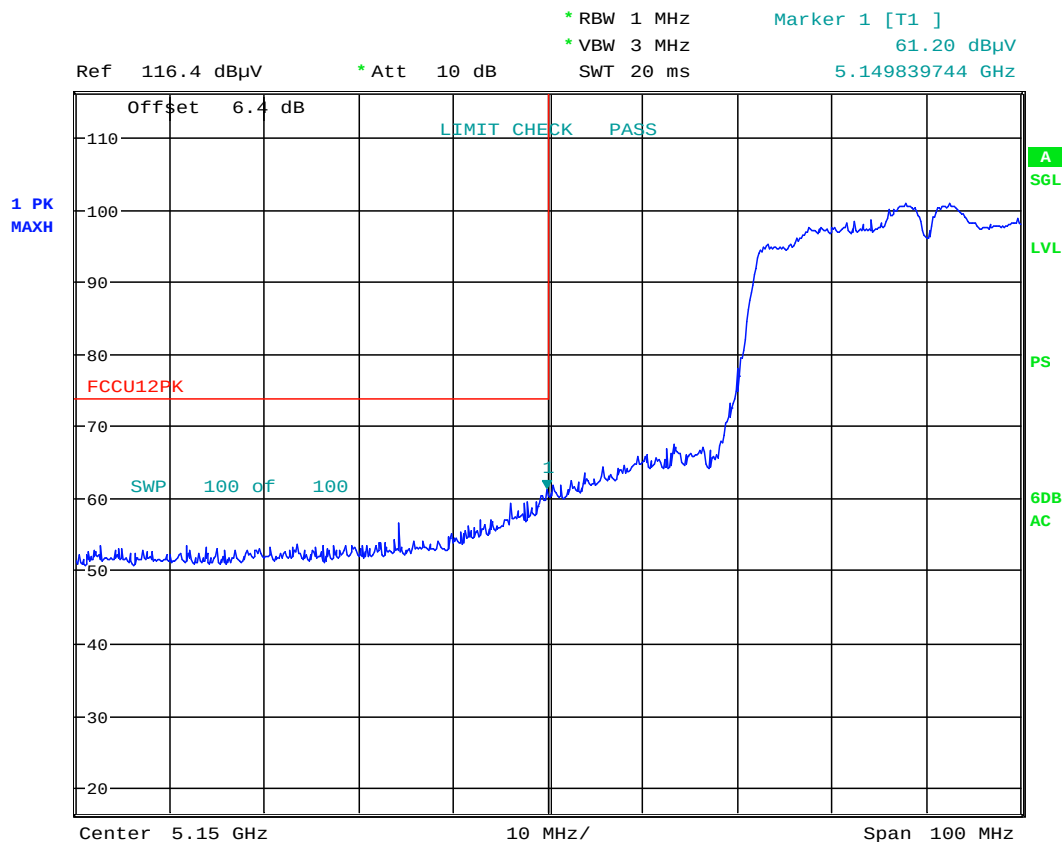
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Antenna-2 Radiated Band Edge Measurements (40MHz BW)

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



Date: 17.AUG.2017 16:47:12

Plot 7-175. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 143 of 177

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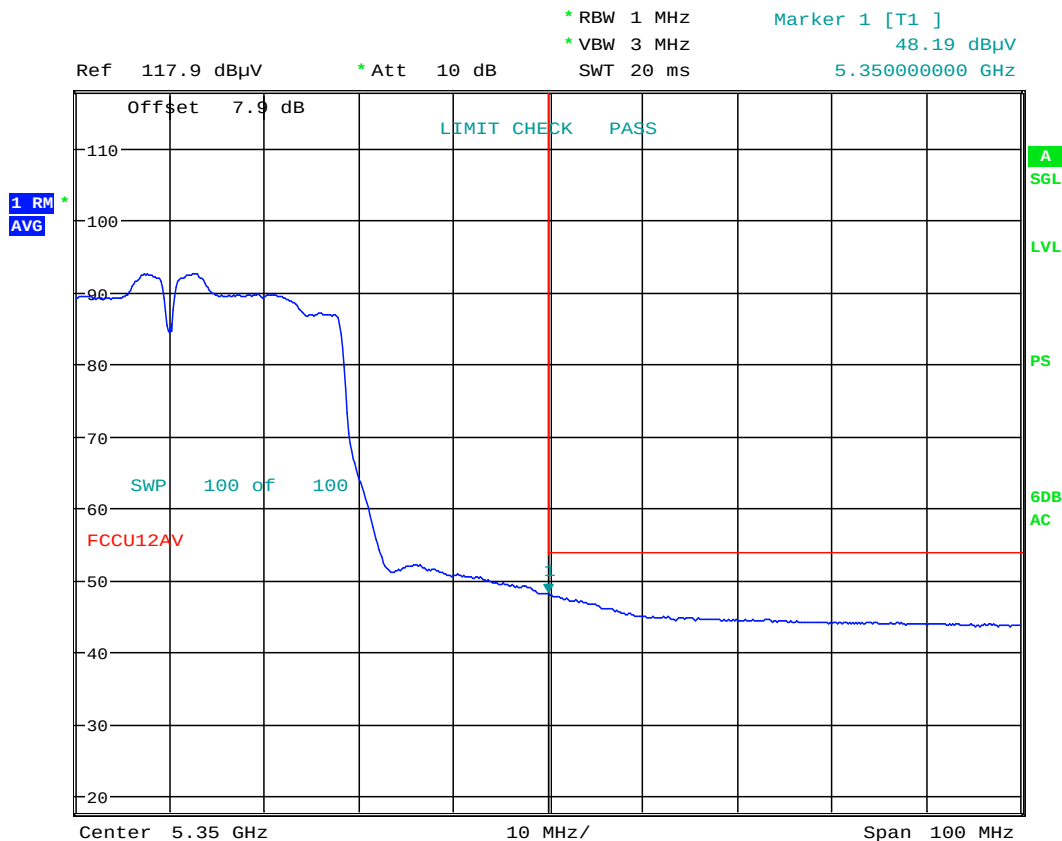
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Antenna-2 Radiated Band Edge Measurements (40MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

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



Date: 17.AUG.2017 17:10:56

Plot 7-176. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 144 of 177

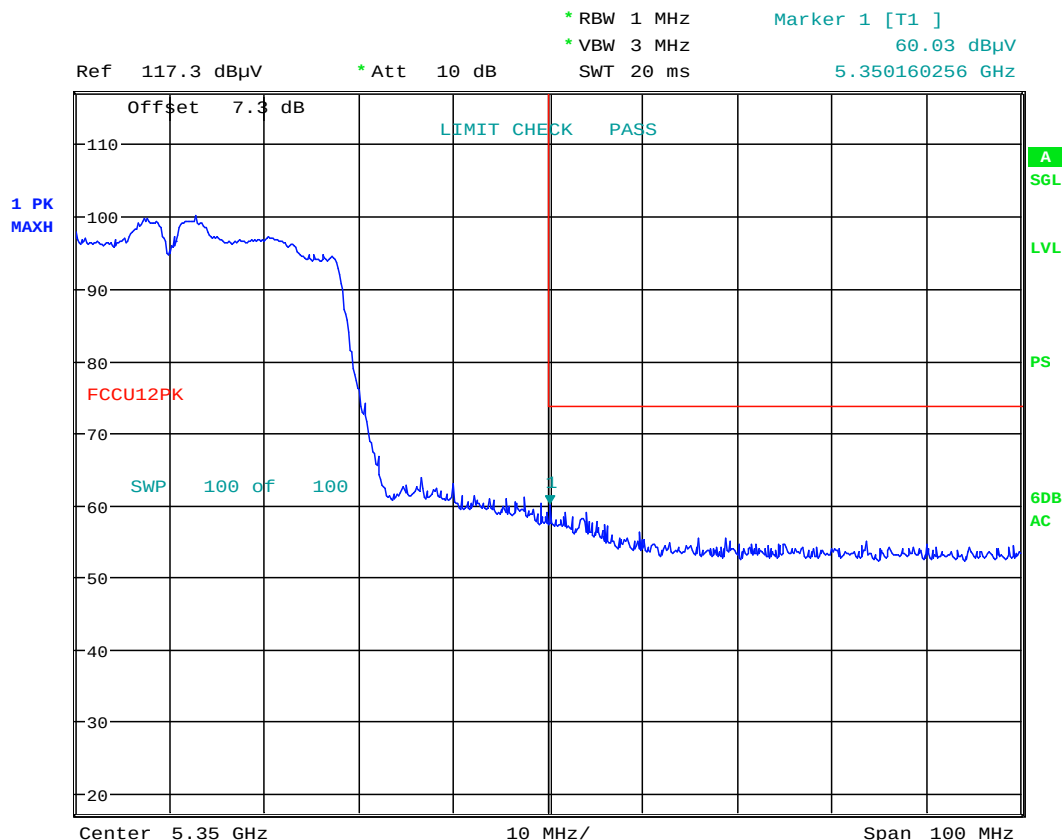
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Antenna-2 Radiated Band Edge Measurements (40MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**



Date: 17.AUG.2017 17:10:09

Plot 7-177. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 145 of 177

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

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

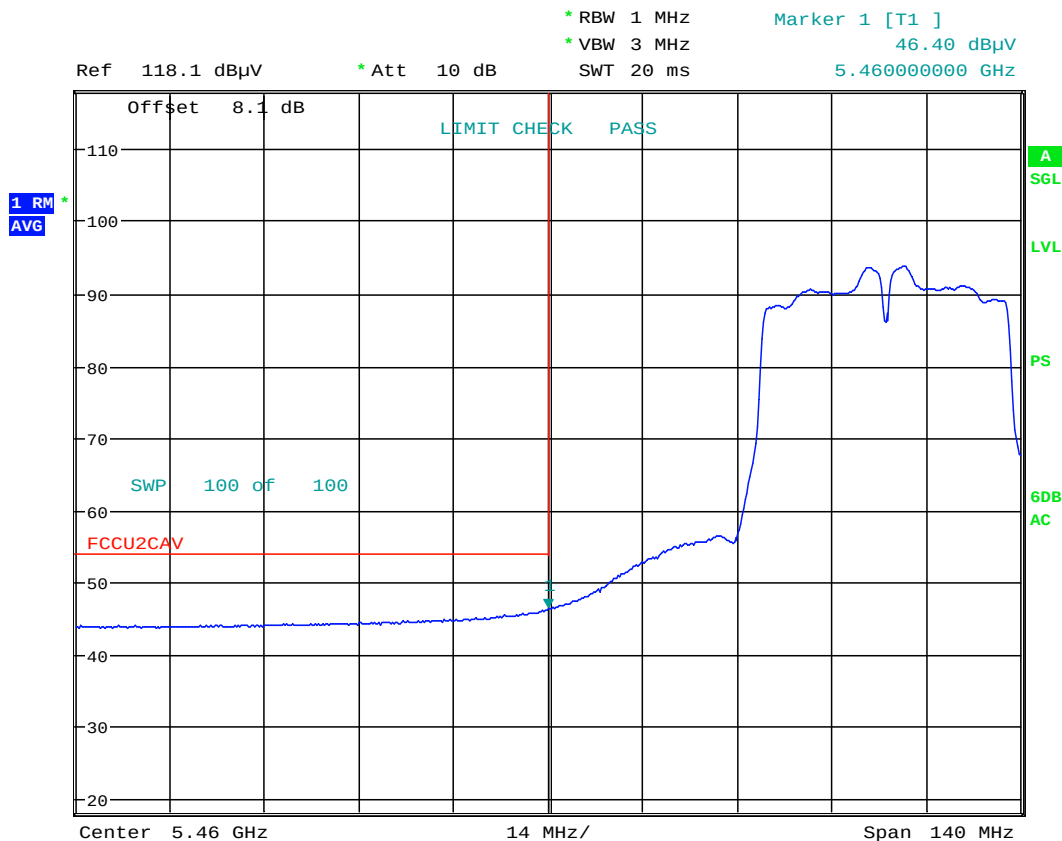
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



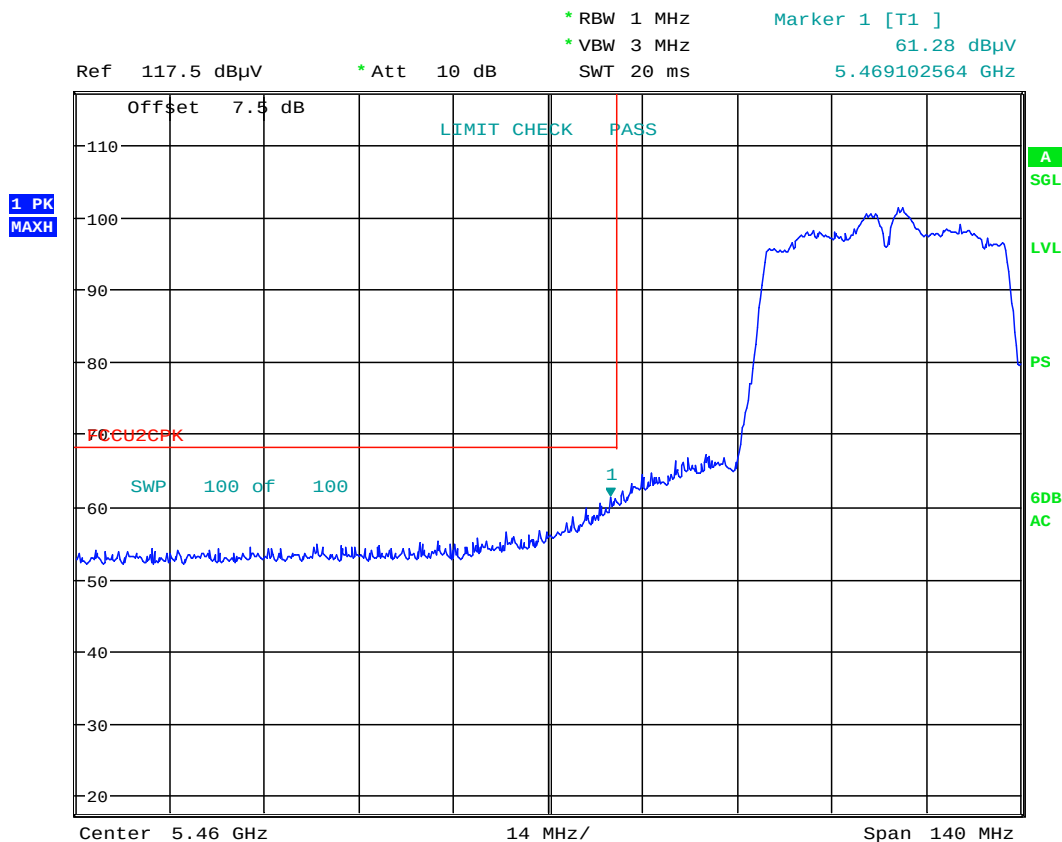
Date: 17.AUG.2017 17:26:06

Plot 7-178. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 146 of 177

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

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



Date: 17.AUG.2017 17:24:59

Plot 7-179. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 147 of 177

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

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

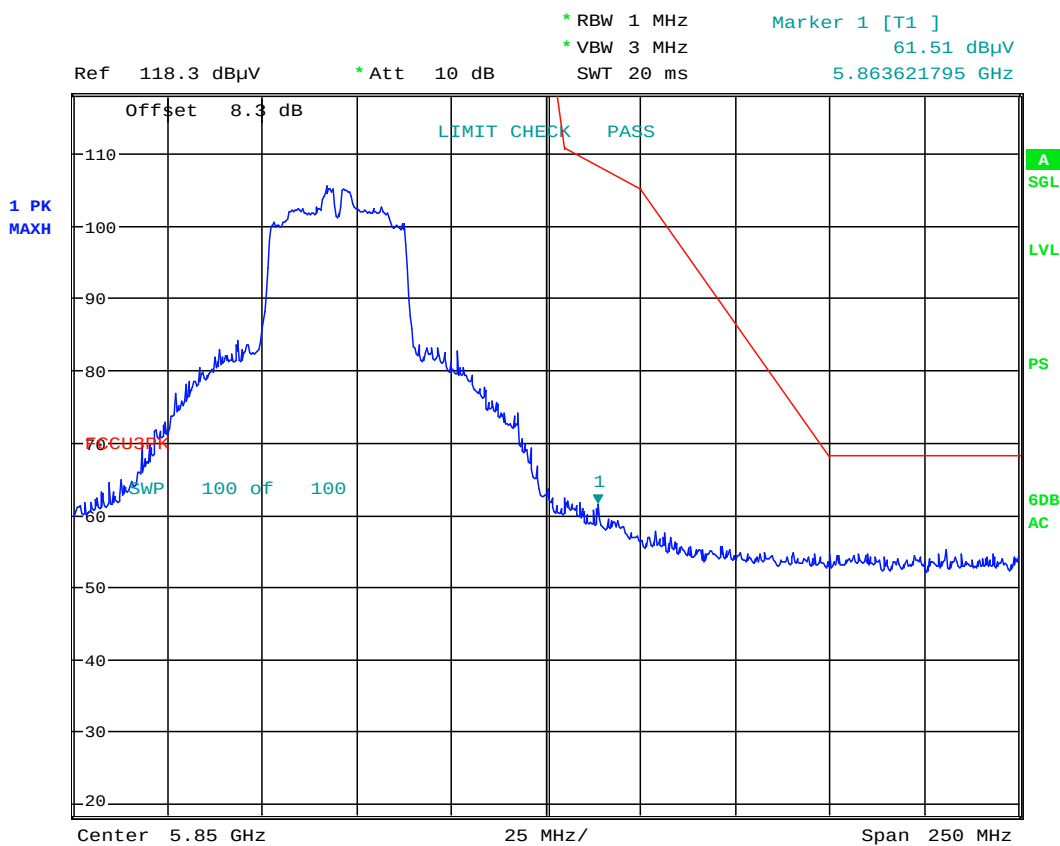
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 17.AUG.2017 17:37:43

Plot 7-180. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 148 of 177

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

§15.407(b.1)(b.2) §15.205 §15.209

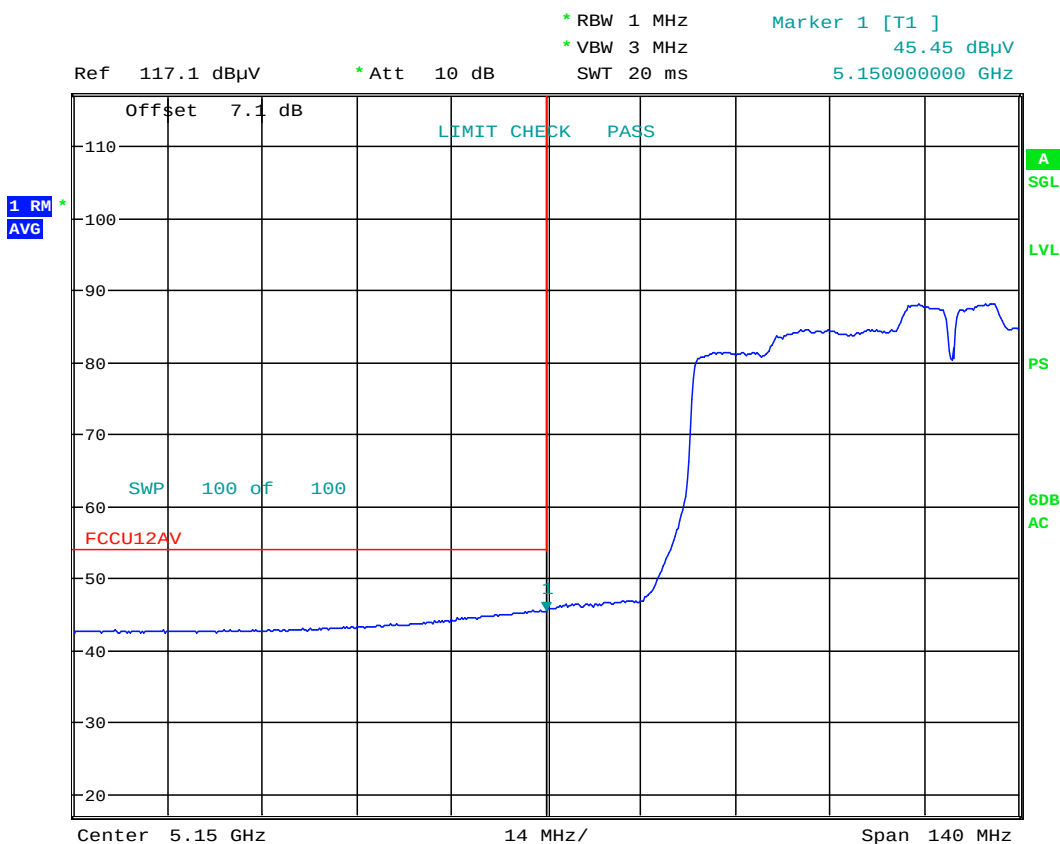
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



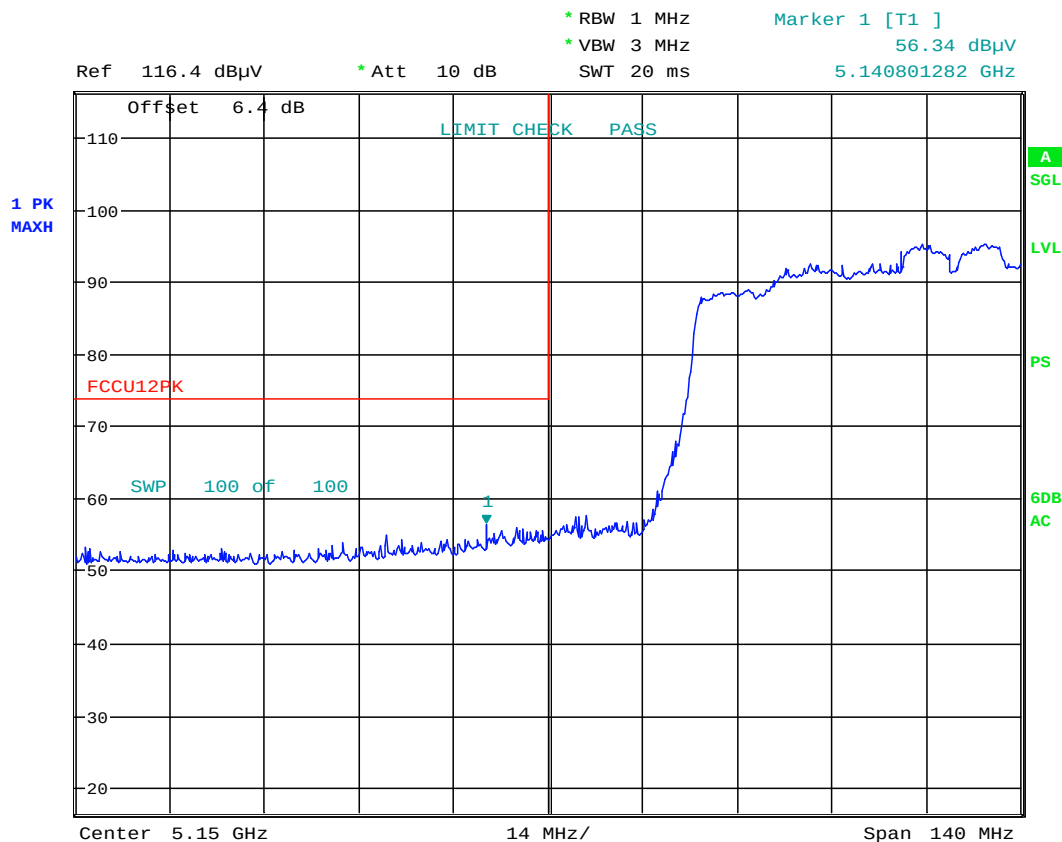
Date: 17.AUG.2017 18:00:03

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

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 149 of 177

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

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



Date: 17.AUG.2017 17:59:22

Plot 7-182. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 150 of 177

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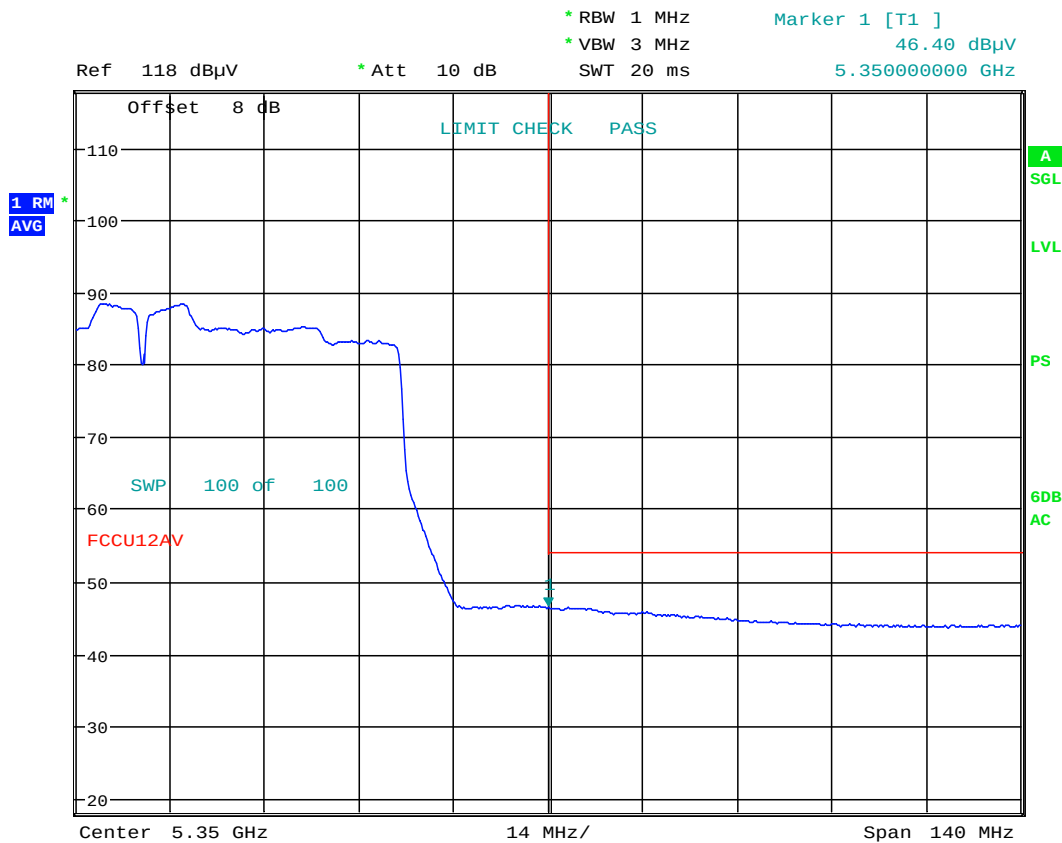
V 6.8

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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

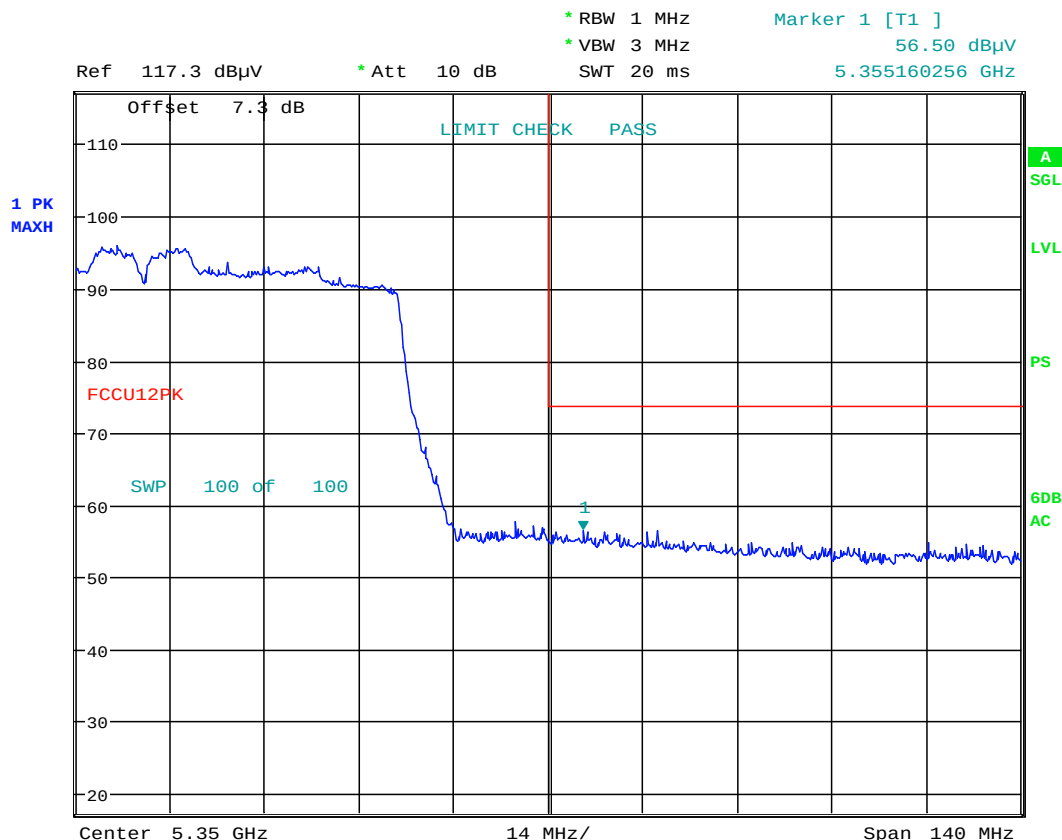


Date: 17.AUG.2017 18:05:42

Plot 7-183. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 151 of 177

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



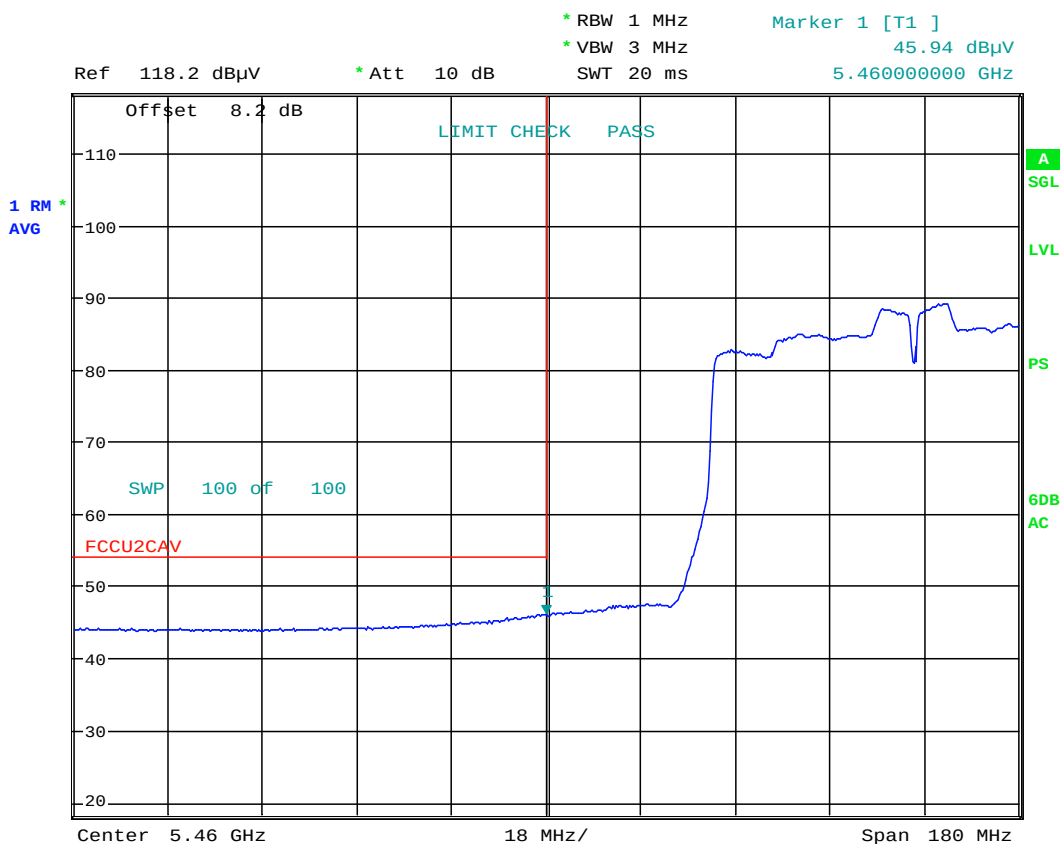
Date: 17.AUG.2017 18:03:24

Plot 7-184. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 152 of 177

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: 17.AUG.2017 18:12:31

Plot 7-185. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 153 of 177

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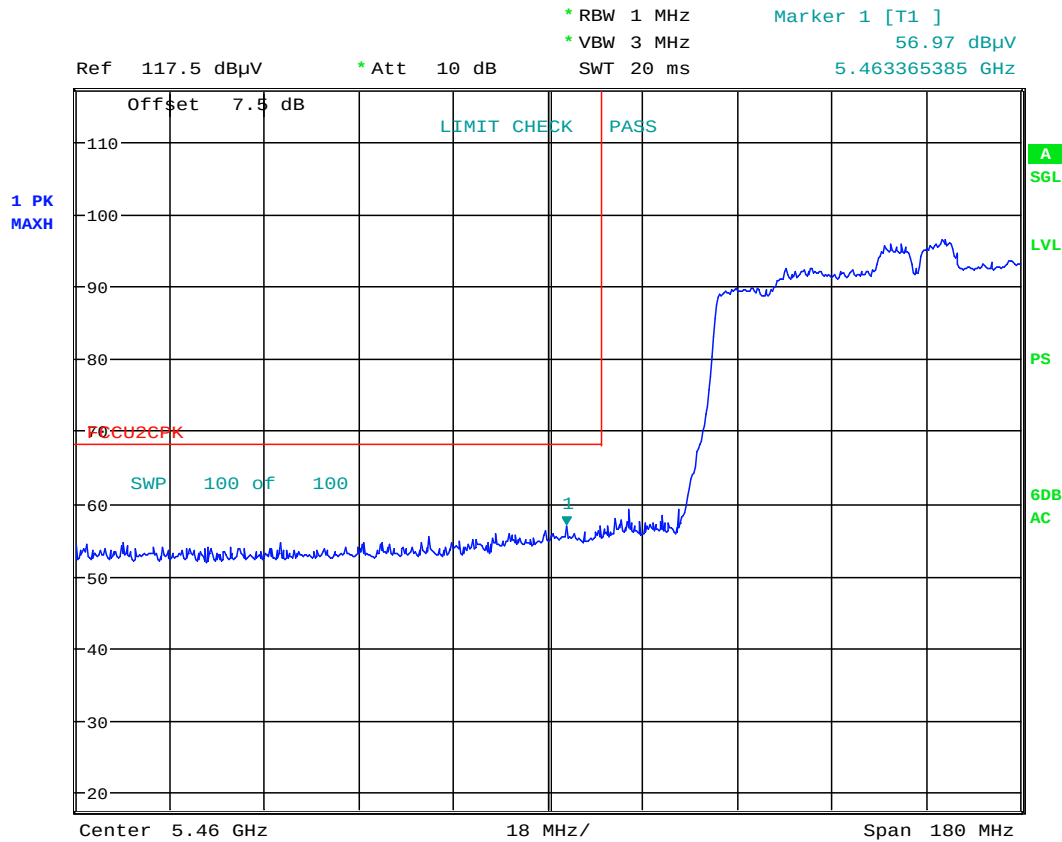
V 6.8

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

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



Date: 17.AUG.2017 18:11:20

Plot 7-186. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 154 of 177

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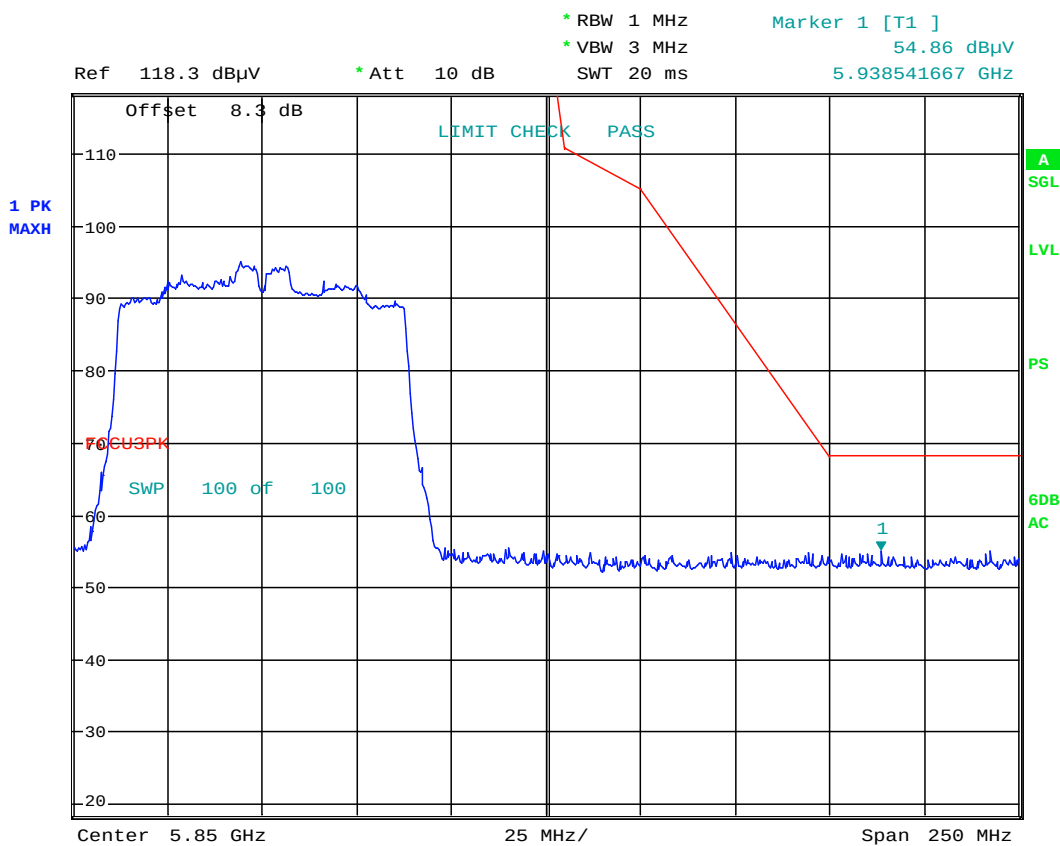
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Antenna-2 Radiated Band Edge Measurements (80MHz BW) \$15.407(b.1)(b.2) \$15.205 \$15.209

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



Date: 17.AUG.2017 18:20:15

Plot 7-187. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 155 of 177

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7.2.10 MIMO Radiated Band Edge Measurements (20MHz BW)

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

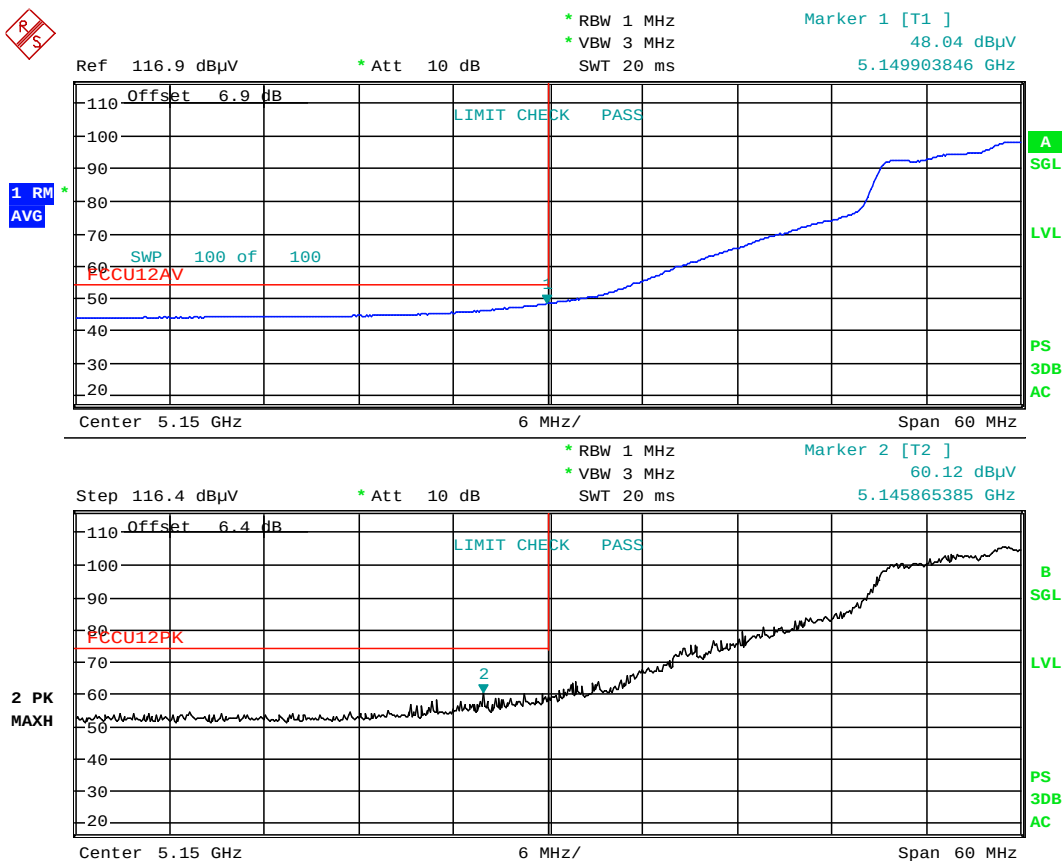
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 14.AUG.2017 23:08:27

Plot 7-188. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 156 of 177

MIMO Radiated Band Edge Measurements (20MHz BW)

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

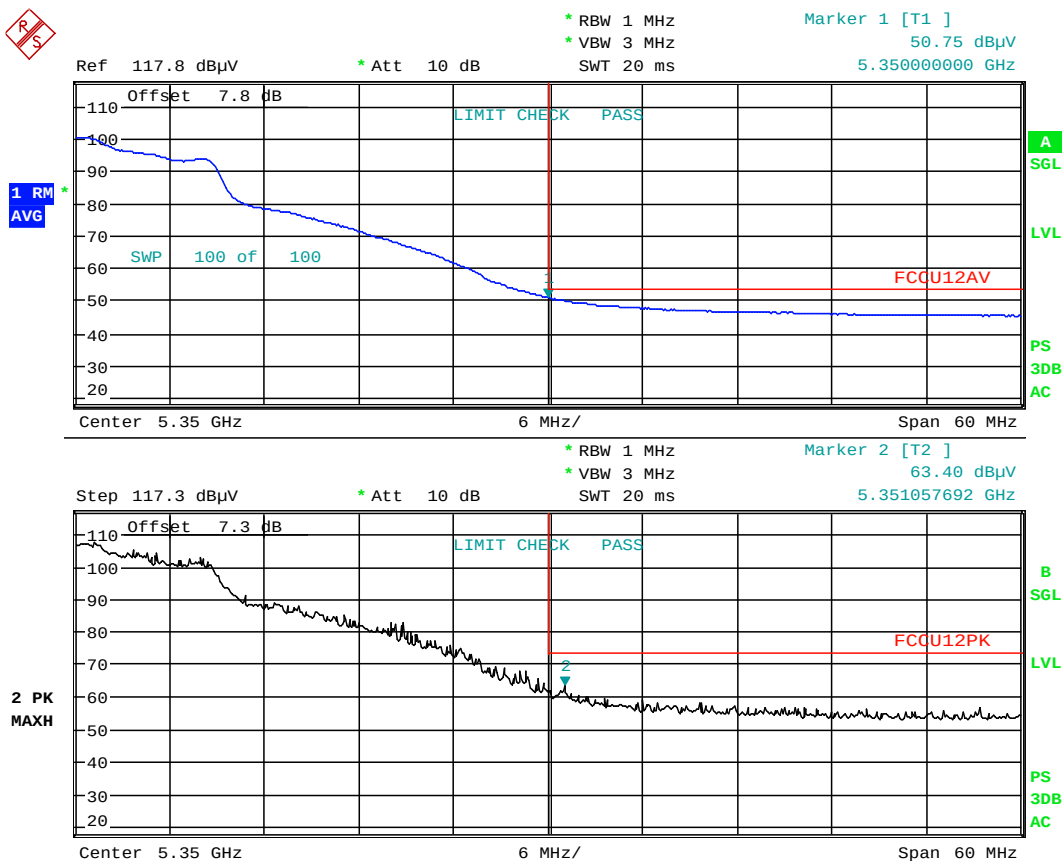
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 14.AUG.2017 23:27:36

Plot 7-189. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 157 of 177

MIMO Radiated Band Edge Measurements (20MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

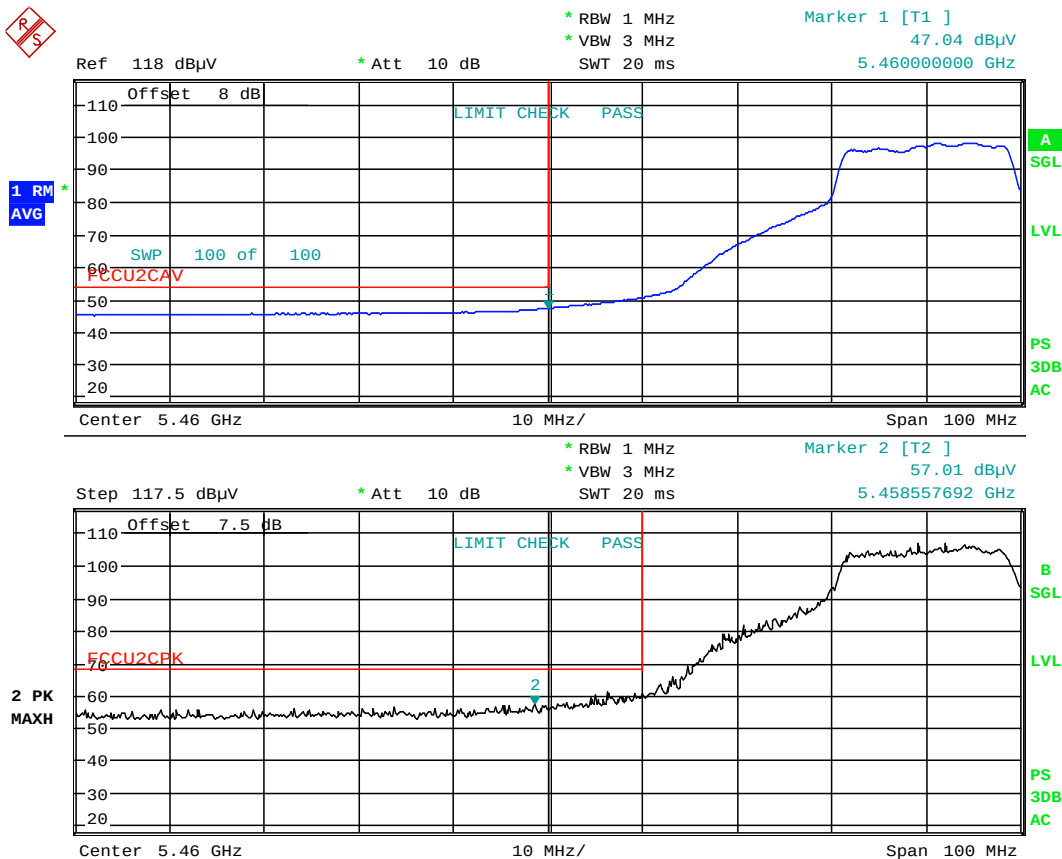
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 15.AUG.2017 00:05:14

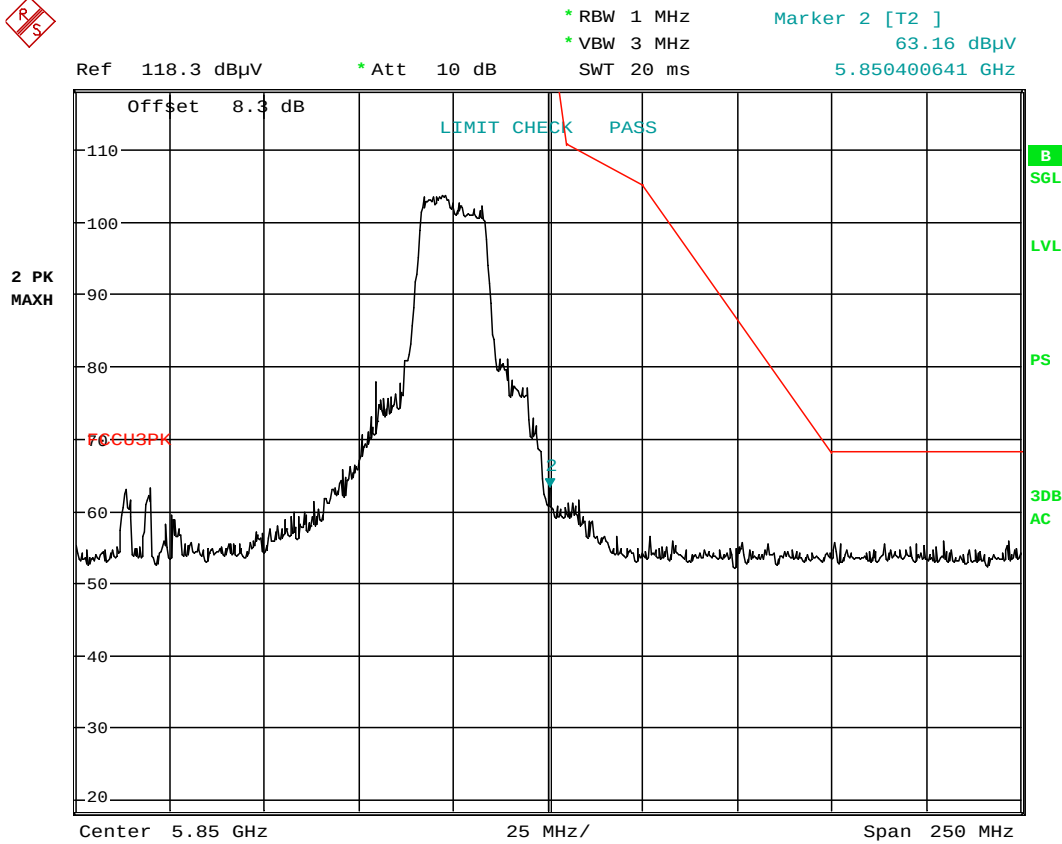
Plot 7-190. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 158 of 177

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



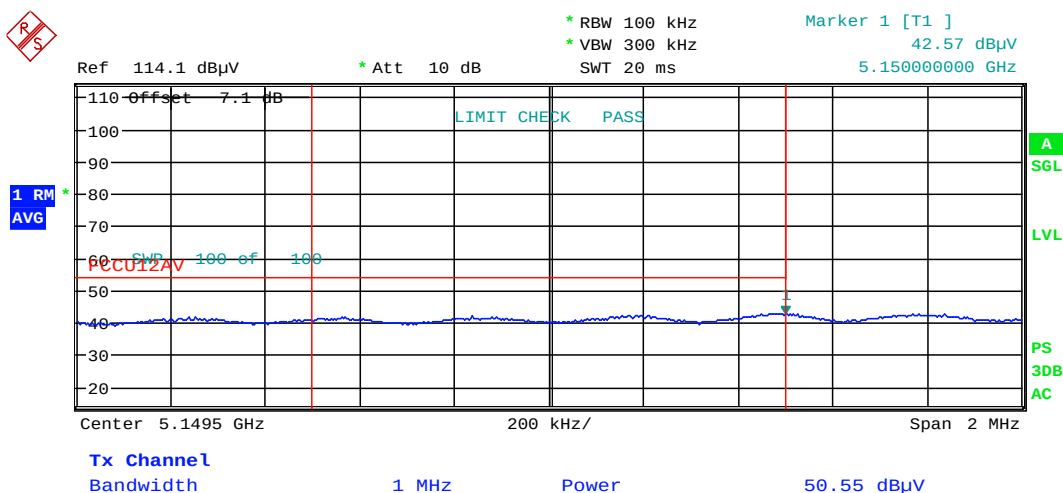
Date: 15.AUG.2017 00:27:02

Plot 7-191. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 159 of 177

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

Worst Case Mode:	<u>802.11n (40MHz)</u>
Worst Case Transfer Rate:	<u>MCS8</u>
Distance of Measurements:	<u>3 Meters</u>
Operating Frequency:	<u>5190MHz</u>
Channel:	<u>38</u>



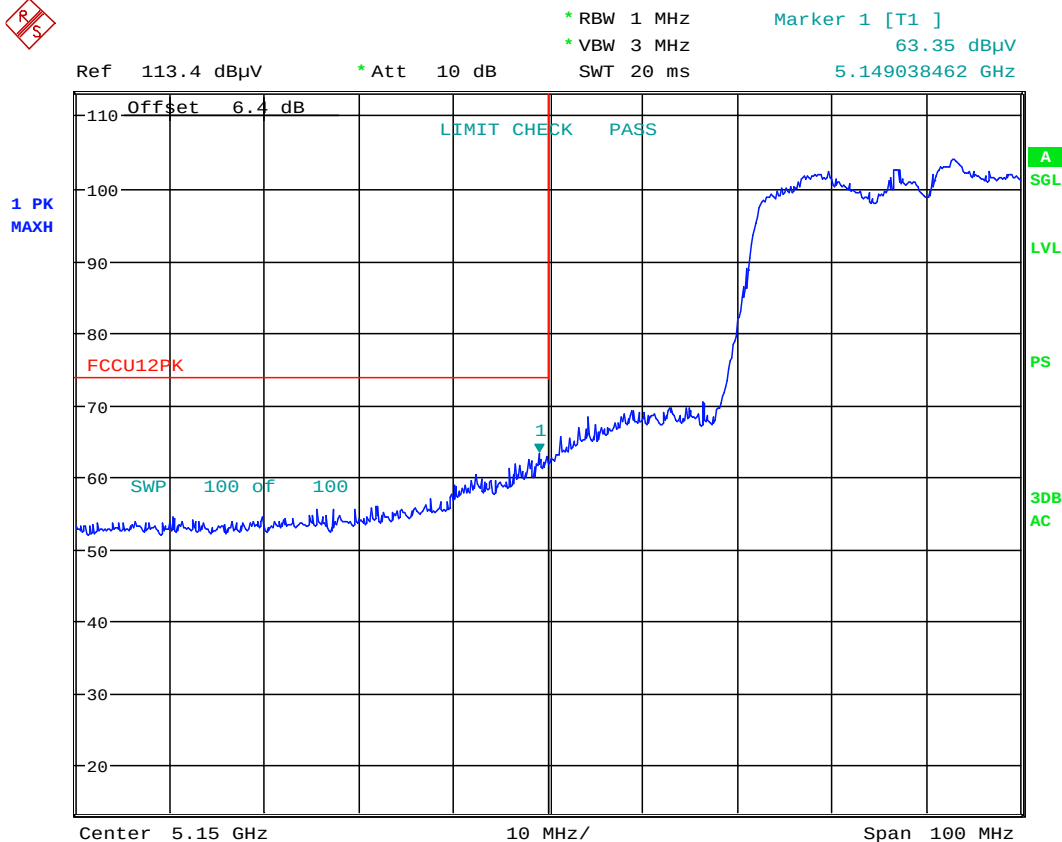
Date: 15.AUG.2017 20:40:22

Plot 7-192. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: ZNFG011C	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE) 		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset	Page 160 of 177

MIMO Radiated Band Edge Measurements (40MHz BW)

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



Date: 15.AUG.2017 20:08:11

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

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 161 of 177

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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

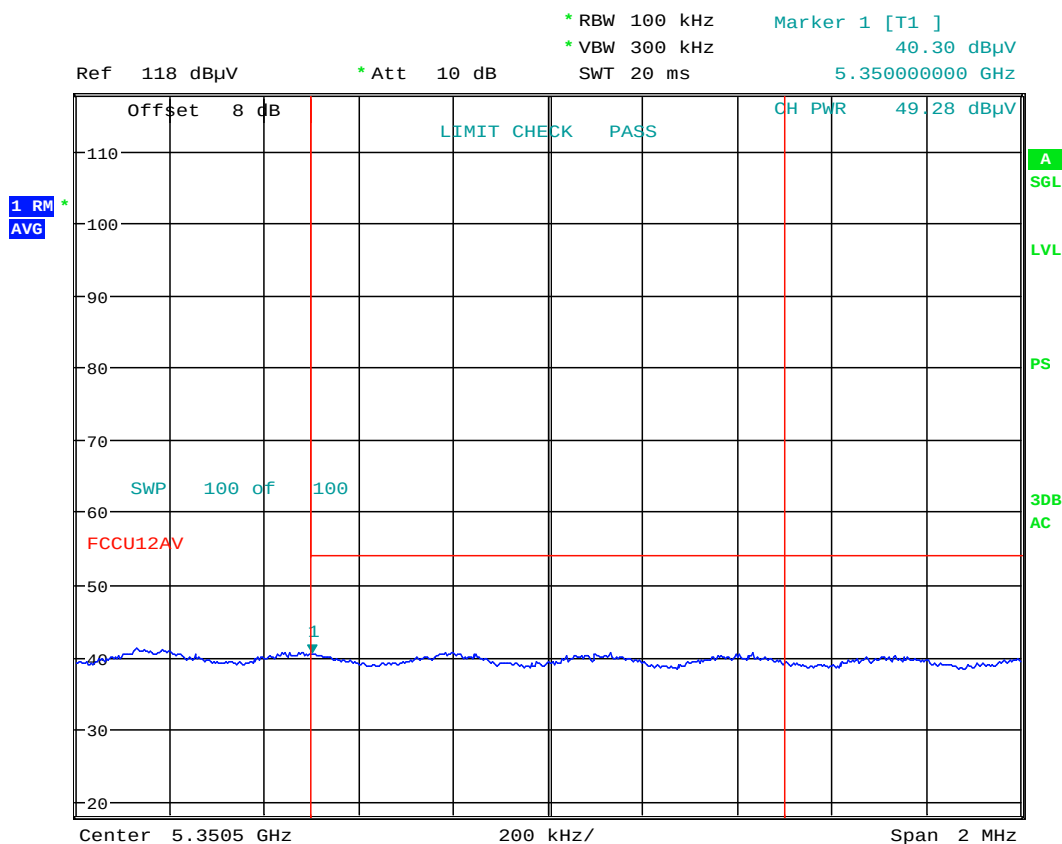
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



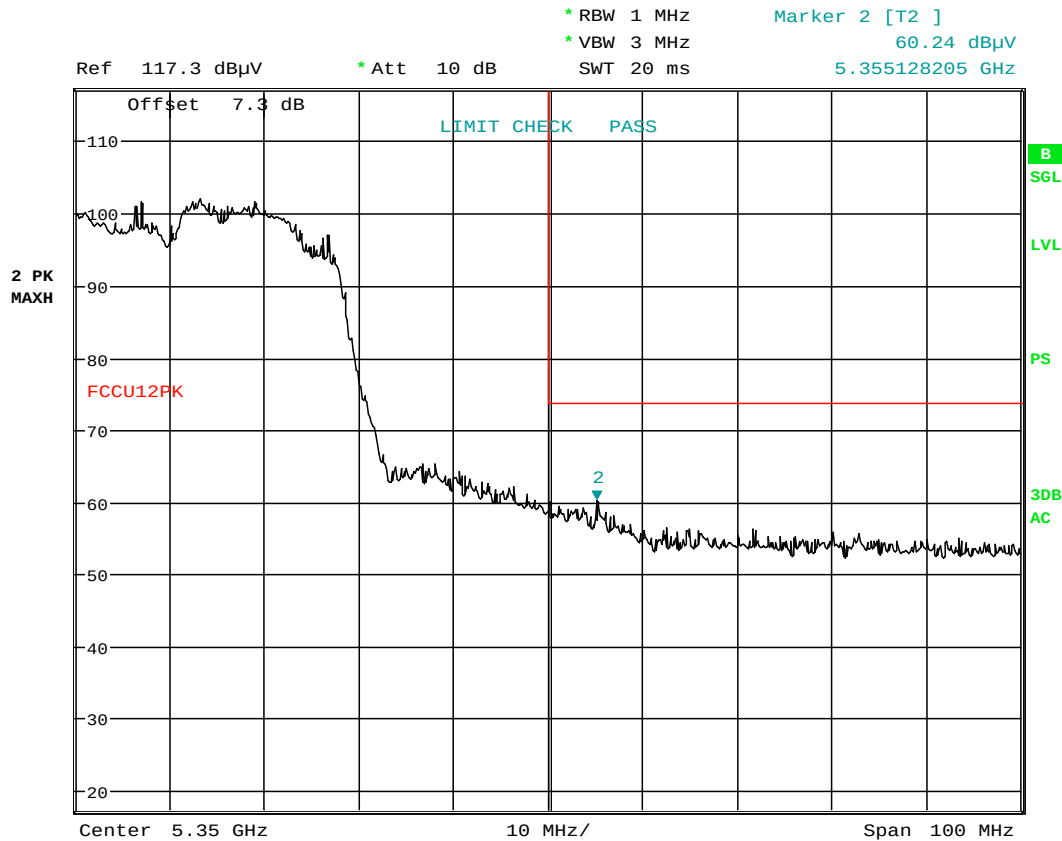
Date: 16.AUG.2017 19:54:50

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

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 162 of 177

MIMO Radiated Band Edge Measurements (40MHz BW)

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



Date: 16.AUG.2017 19:55:26

Plot 7-195. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 163 of 177

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MIMO Radiated Band Edge Measurements (40MHz BW)

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

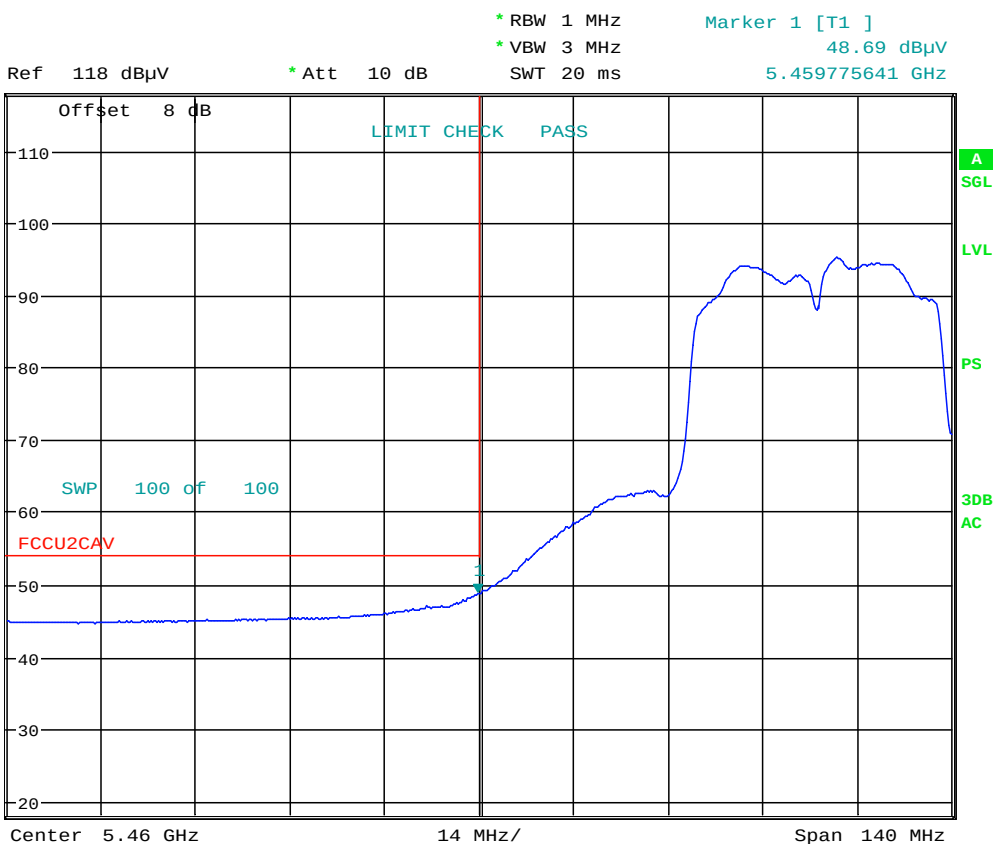
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



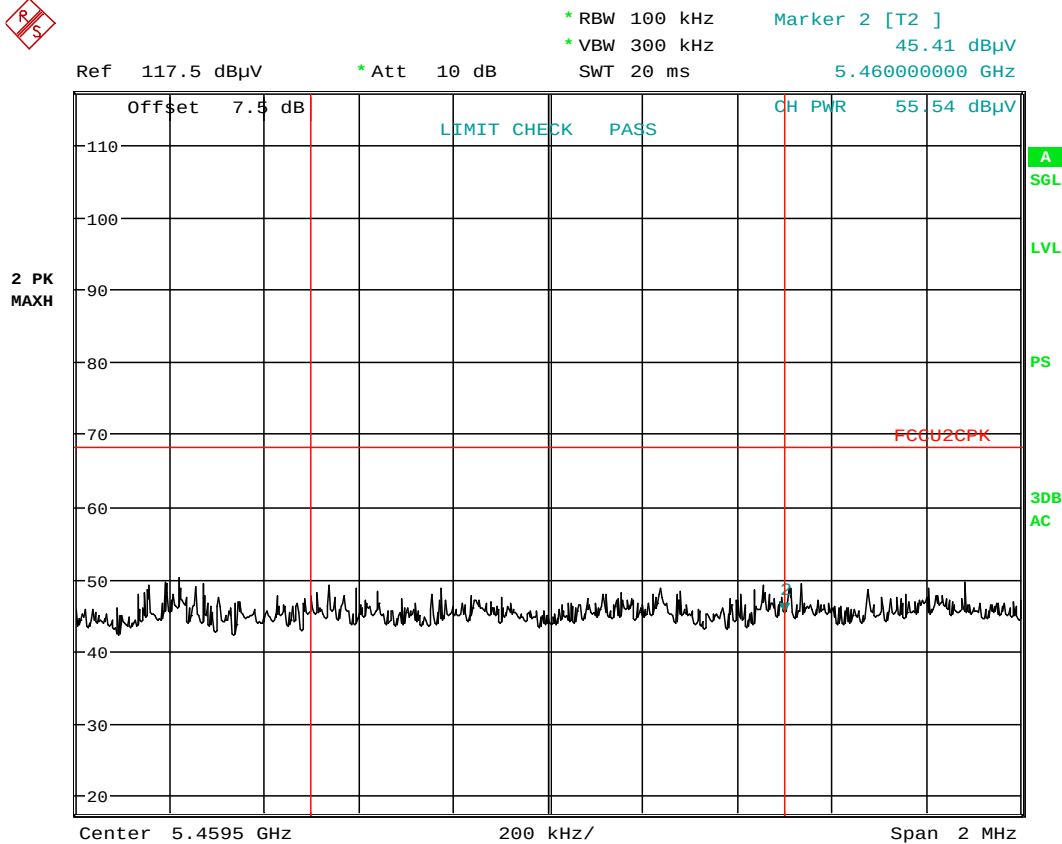
Date: 15.AUG.2017 00:15:23

Plot 7-196. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 164 of 177

MIMO Radiated Band Edge Measurements (40MHz BW)

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



Date: 15.AUG.2017 00:16:13

Plot 7-197. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: ZNFG011C		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 165 of 177

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MIMO Radiated Band Edge Measurements (40MHz BW)

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

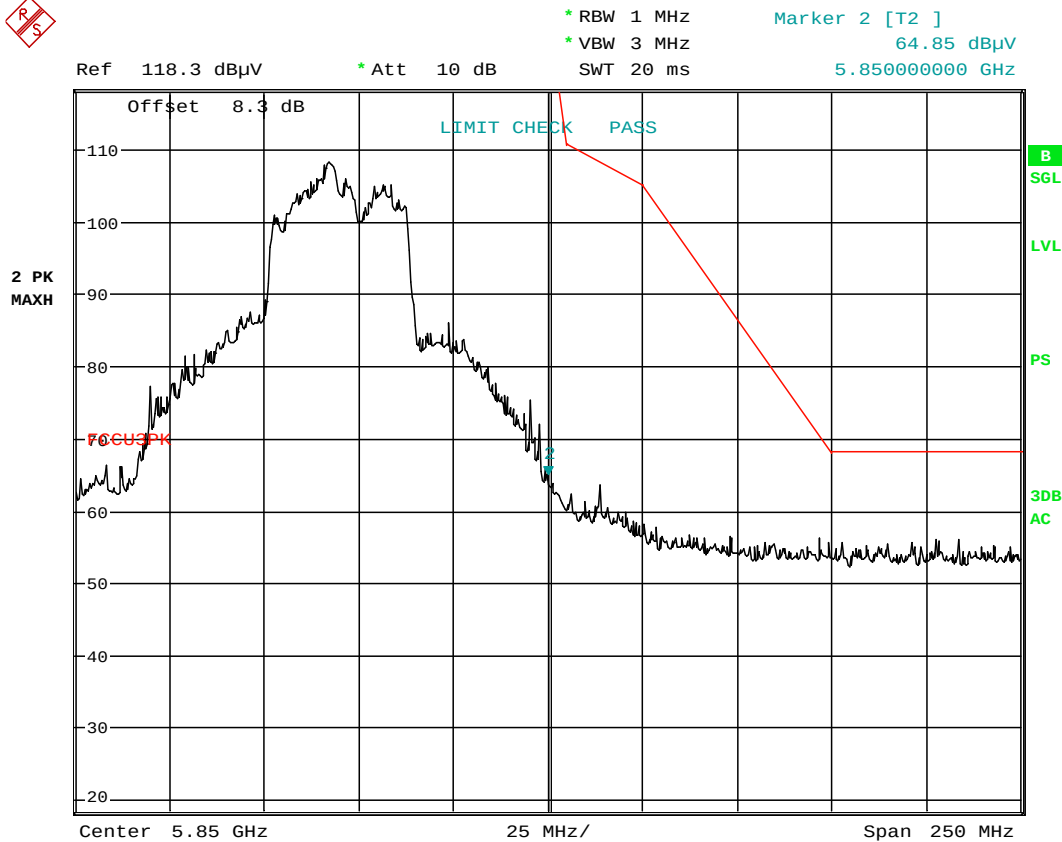
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 15.AUG.2017 00:27:47

Plot 7-198. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 166 of 177

7.2.12 MIMO Radiated Band Edge Measurements (80MHz BW)

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

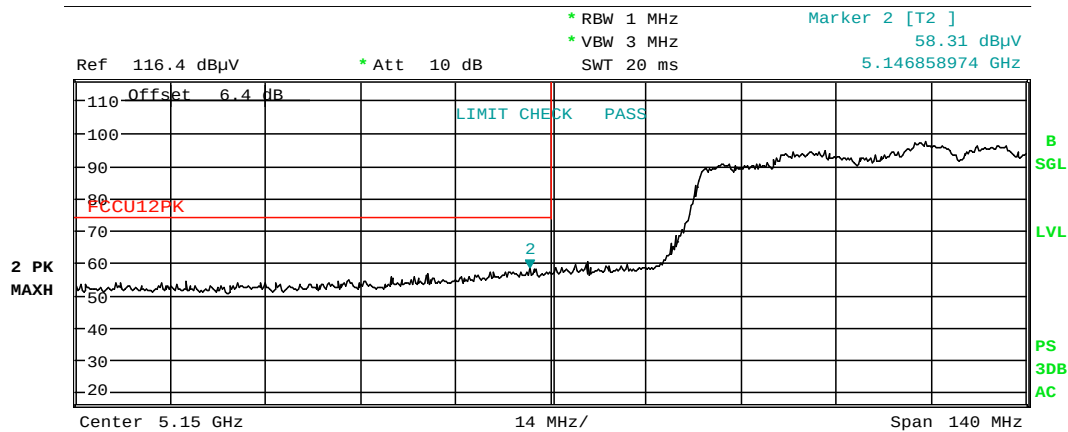
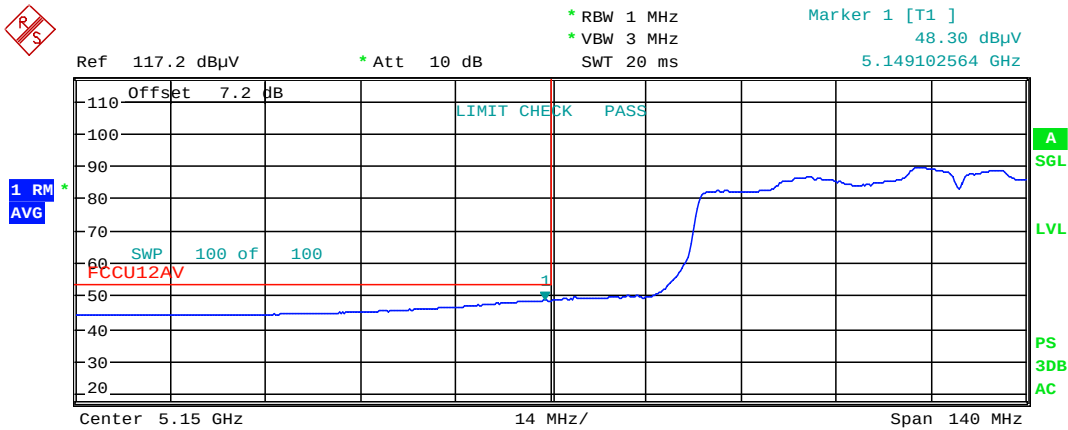
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



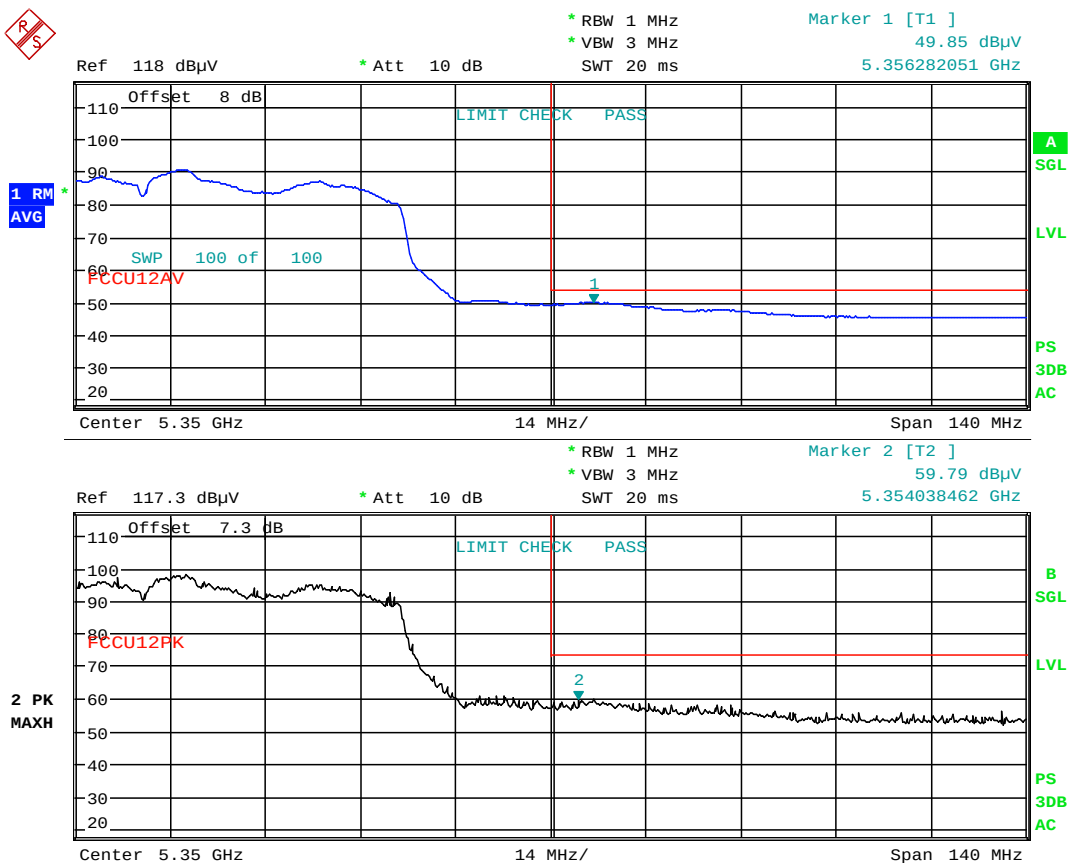
Date: 15.AUG.2017 22:12:00

Plot 7-199. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 167 of 177

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



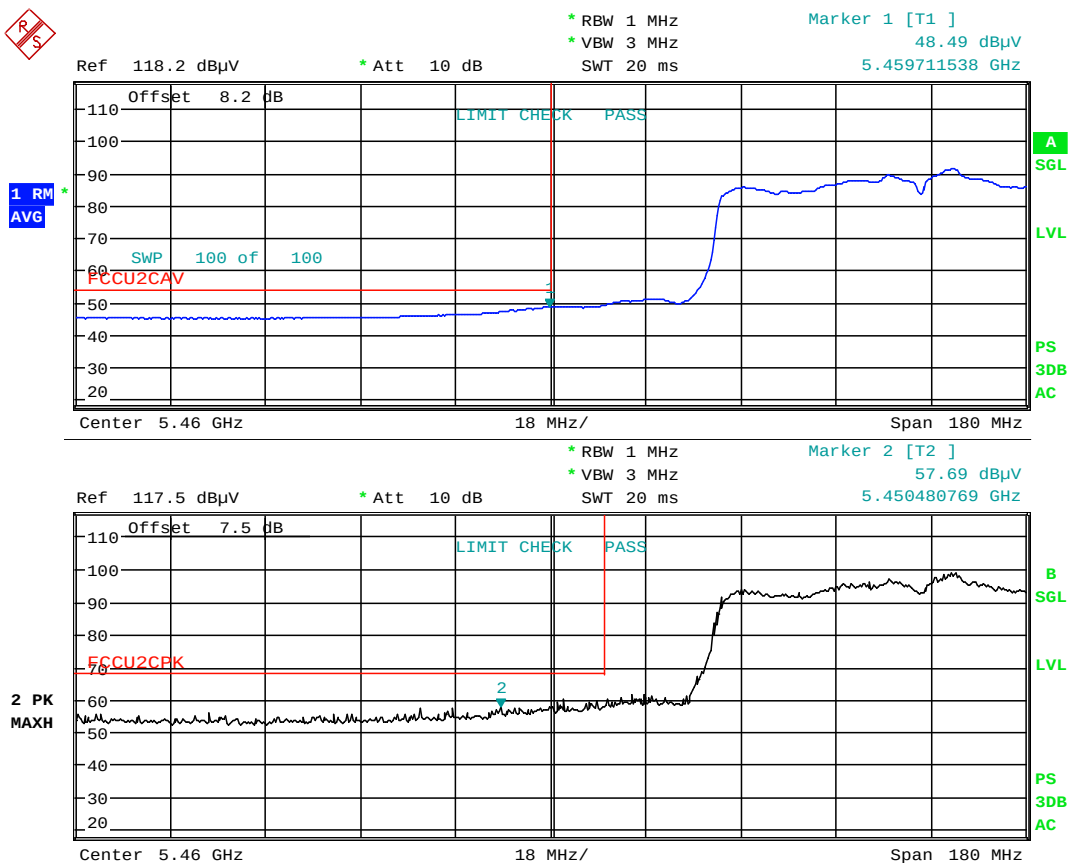
Date: 15.AUG.2017 22:18:09

Plot 7-200. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 168 of 177

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.AUG.2017 22:22:36

Plot 7-201. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 169 of 177

MIMO Radiated Band Edge Measurements (80MHz BW)

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

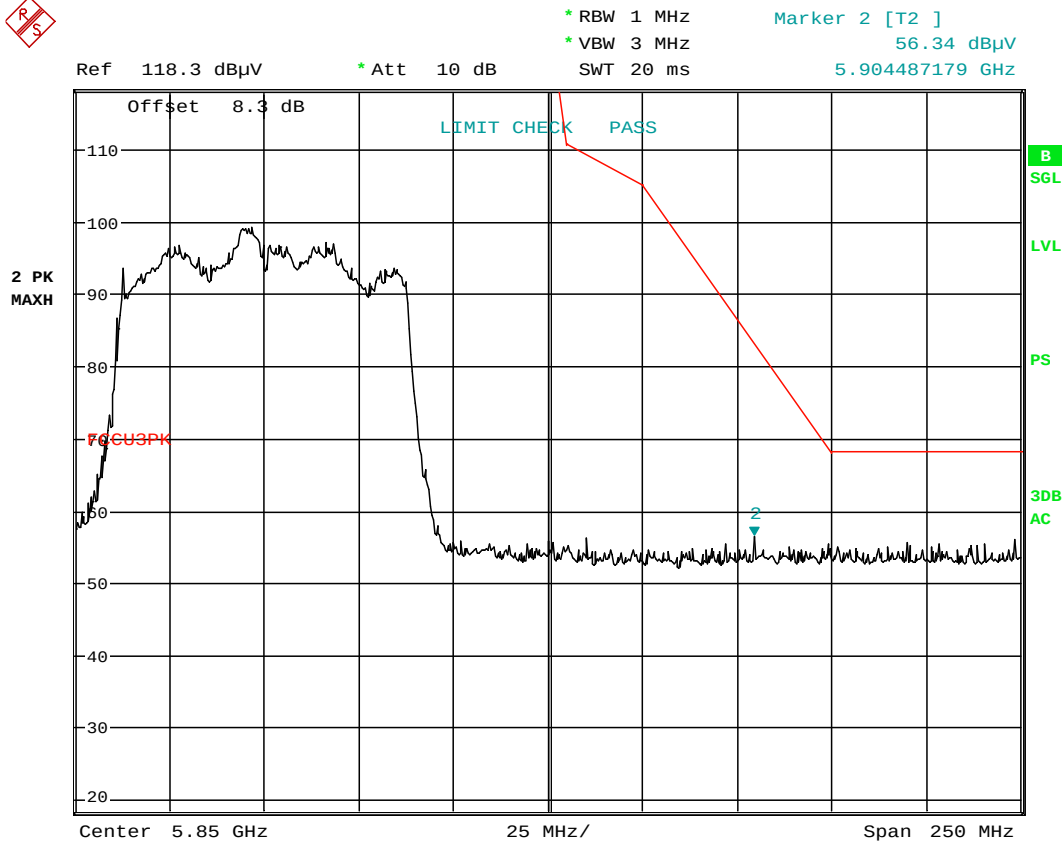
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 15.AUG.2017 00:28:37

Plot 7-202. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-05-R1.ZNF	Test Dates: 6/23/2017-8/30/2017, 9/28/2017	EUT Type: Portable Handset		Page 170 of 177

7.6 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 7-46 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 7-46. 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.

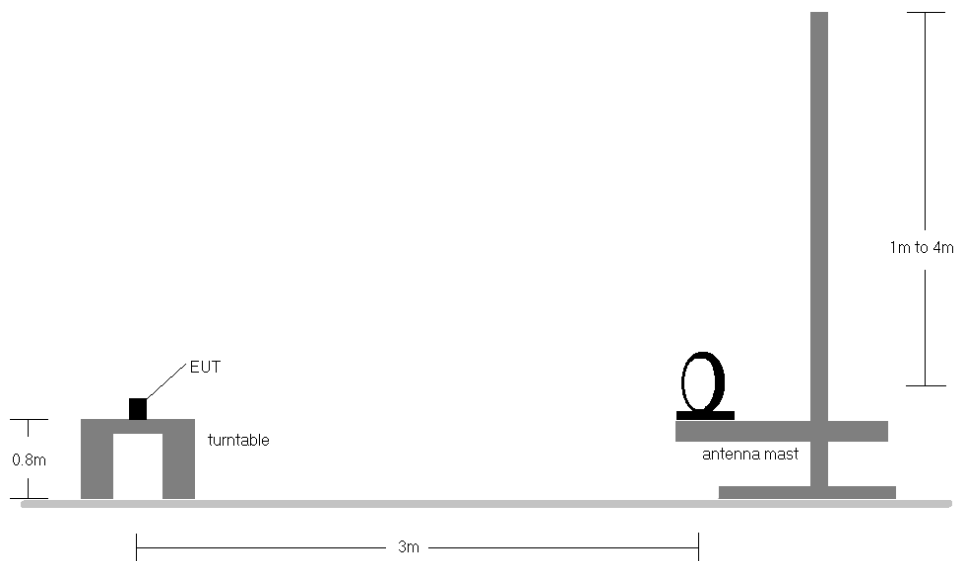


Figure 7-5. Radiated Test Setup < 30MHz

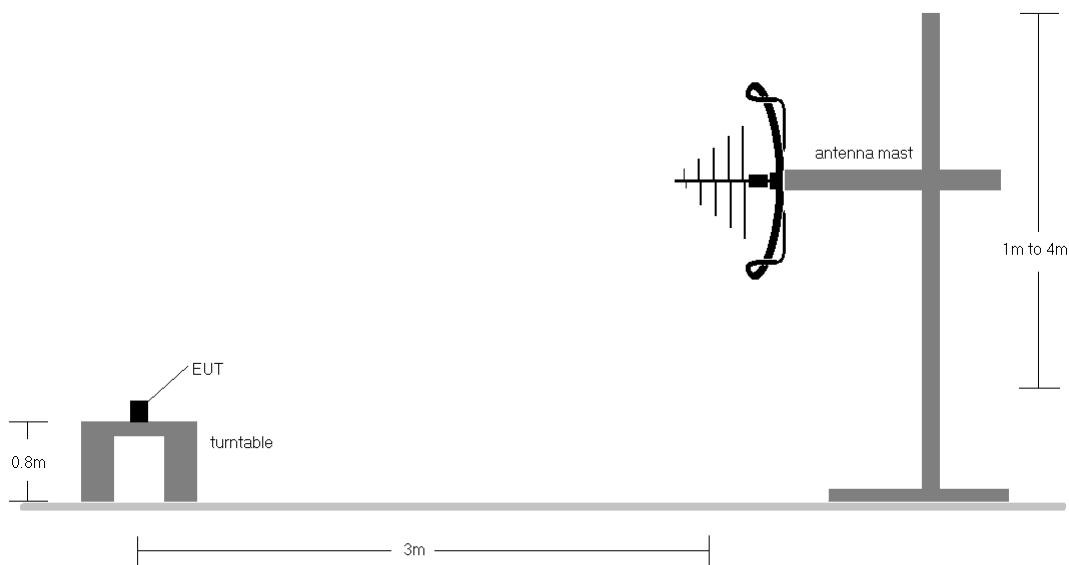


Figure 7-6. Radiated Test Setup < 1GHz

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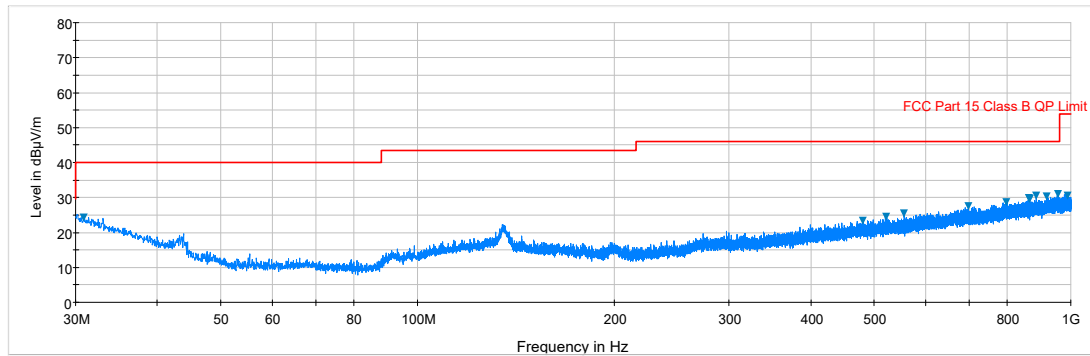
Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-46.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

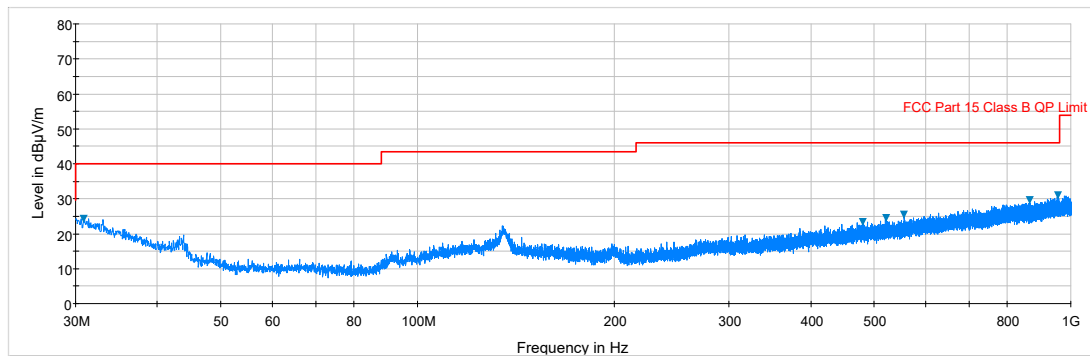
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Antenna-1 Radiated Spurious Emissions Measurements (Below 1GHz)

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Plot 7-203. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

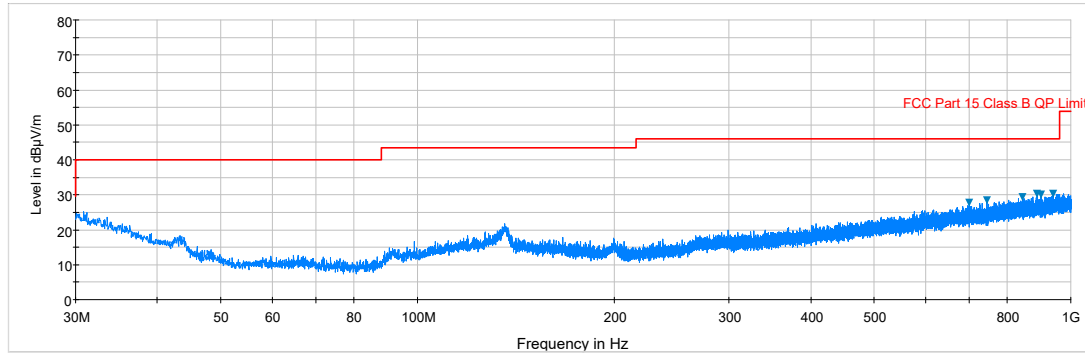


Plot 7-204. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

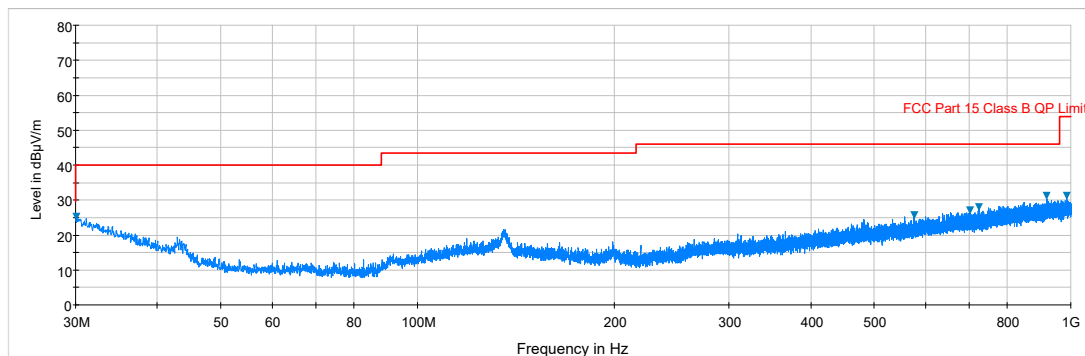
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Antenna-2 Radiated Spurious Emissions Measurements (Below 1GHz)

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Plot 7-205. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

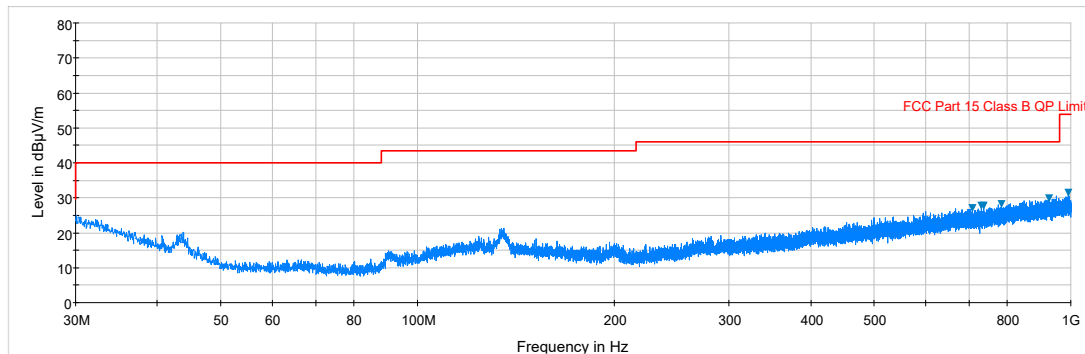


Plot 7-206. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

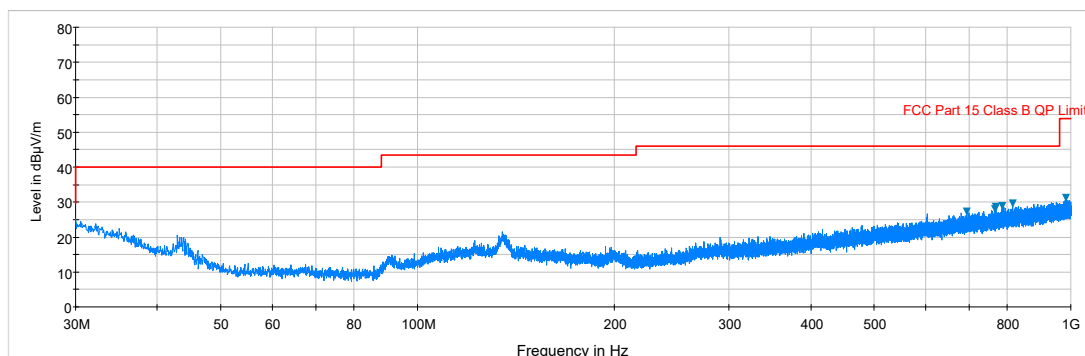
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Simultaneous Tx Radiated Spurious Emissions Measurements (Below 1GHz)

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Plot 7-207. Radiated Spurious Plot below 1GHz (2.4GHz – 5GHz, Ant. Pol. H)



Plot 7-208. Radiated Spurious Plot below 1GHz (2.4GHz – 5GHz, Ant. Pol. V)

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8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFG011C** is in compliance with Part 15E of the FCC Rules.

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