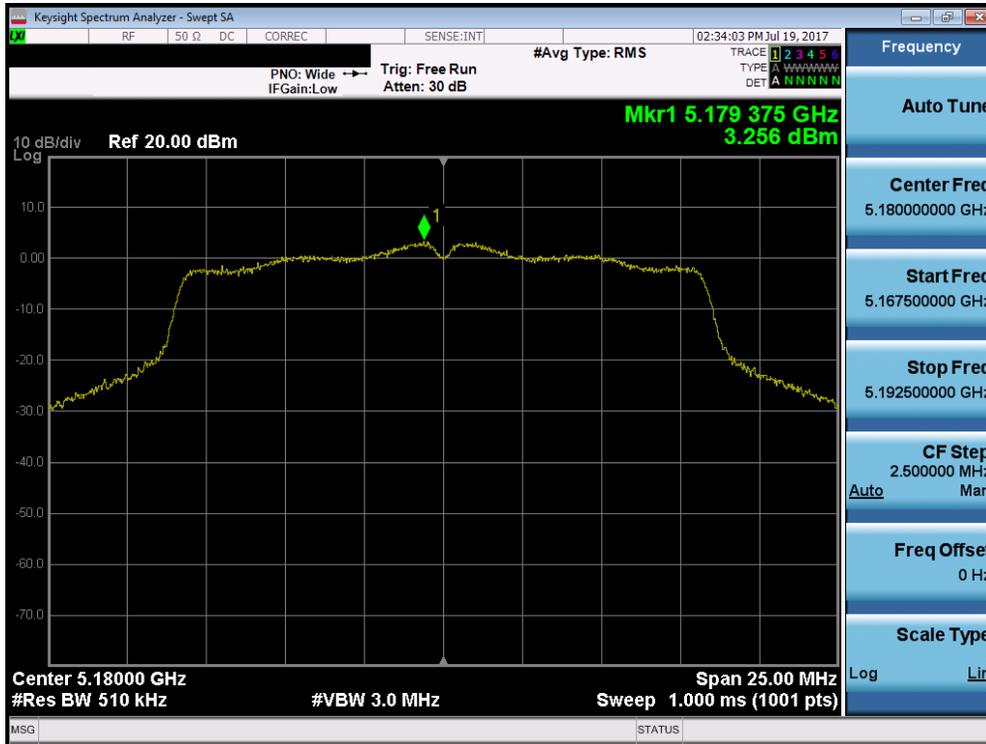


## Antenna-2 Power Spectral Density Measurements

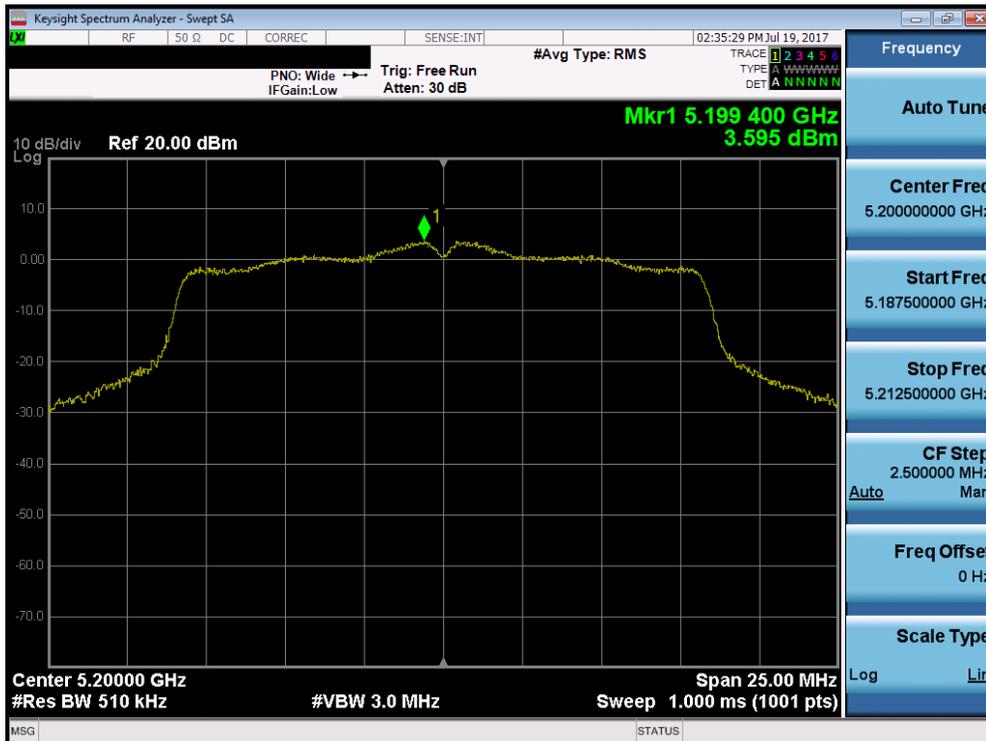
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	3.26	11.0	-7.74
	5200	40	a	6	3.60	11.0	-7.41
	5240	48	a	6	3.13	11.0	-7.87
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	3.01	11.0	-7.99
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	3.03	11.0	-7.97
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	3.29	11.0	-7.71
	5190	38	n (40MHz)	13.5/15 (MCS0)	-3.29	11.0	-14.29
	5230	46	n (40MHz)	13.5/15 (MCS0)	-0.56	11.0	-11.56
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-6.74	11.0	-17.74
Band 2A	5260	52	a	6	3.44	11.0	-7.56
	5280	56	a	6	3.68	11.0	-7.32
	5320	64	a	6	3.63	11.0	-7.37
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	2.93	11.0	-8.07
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	3.10	11.0	-7.90
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	2.87	11.0	-8.13
	5270	54	n (40MHz)	13.5/15 (MCS0)	-0.52	11.0	-11.52
	5310	62	n (40MHz)	13.5/15 (MCS0)	-2.66	11.0	-13.66
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-8.61	11.0	-19.61
Band 2C	5500	100	a	6	3.40	11.0	-7.60
	5580	116	a	6	3.56	11.0	-7.44
	5720	144	a	6	3.40	11.0	-7.60
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	2.87	11.0	-8.13
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	3.22	11.0	-7.78
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	3.07	11.0	-7.93
	5510	102	n (40MHz)	13.5/15 (MCS0)	-2.45	11.0	-13.45
	5550	110	n (40MHz)	13.5/15 (MCS0)	-0.91	11.0	-11.91
	5710	142	n (40MHz)	13.5/15 (MCS0)	-1.02	11.0	-12.02
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-6.81	11.0	-17.81
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-7.30	11.0	-18.30

**Table 7-20. Conducted Power Spectral Density Measurements**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 86 of 209	

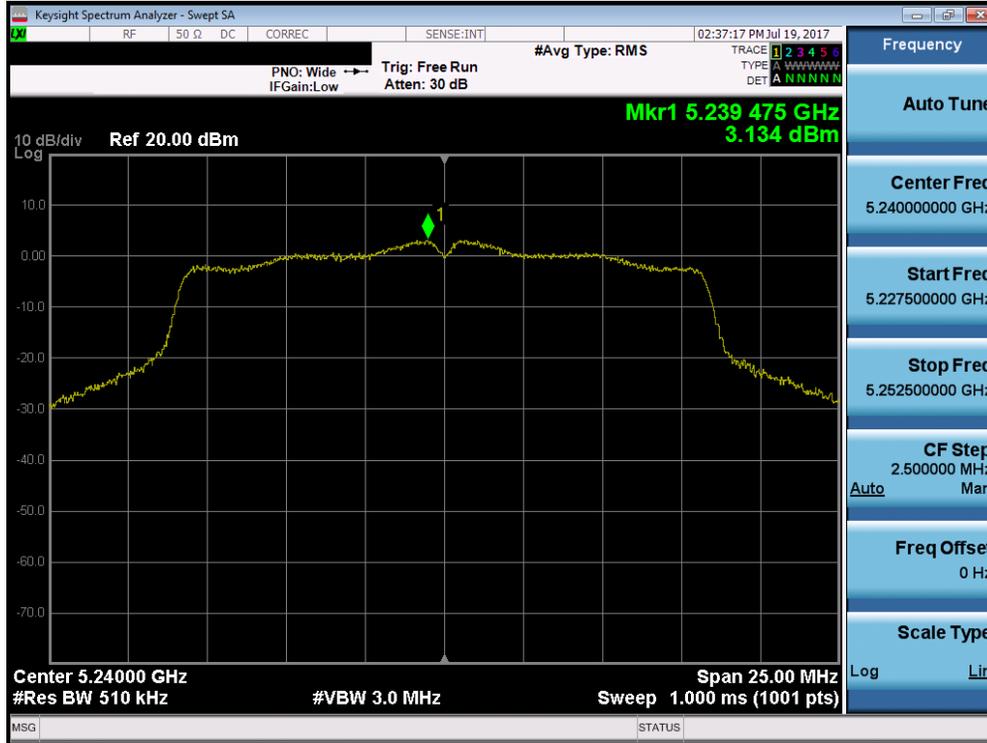


Plot 7-115. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

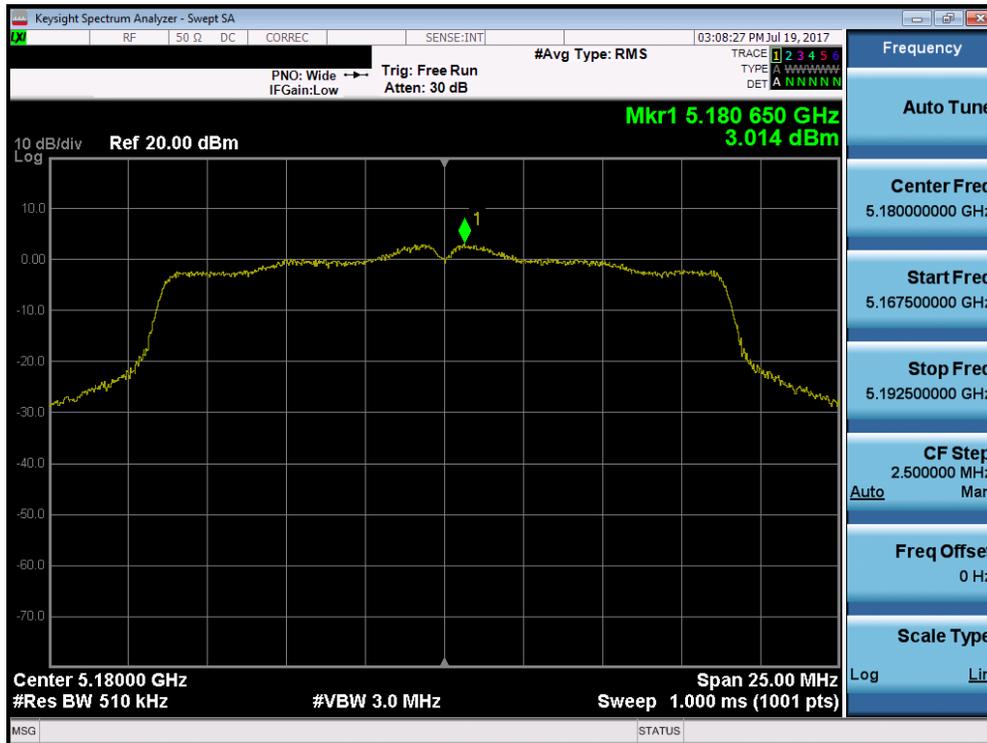


Plot 7-116. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 87 of 209

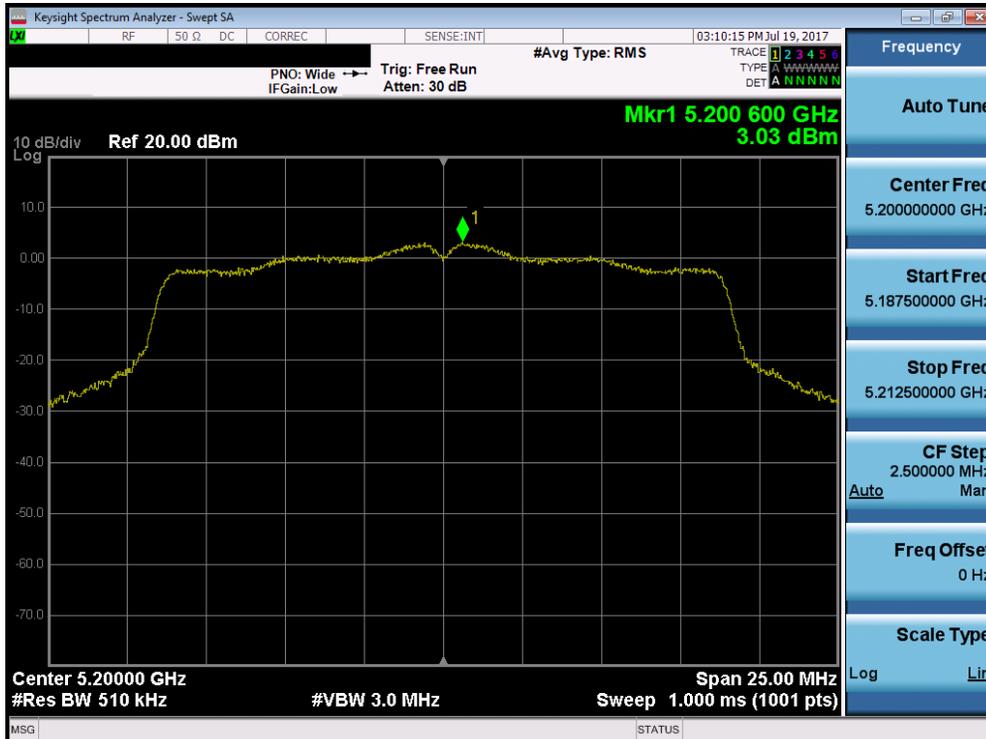


Plot 7-117. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

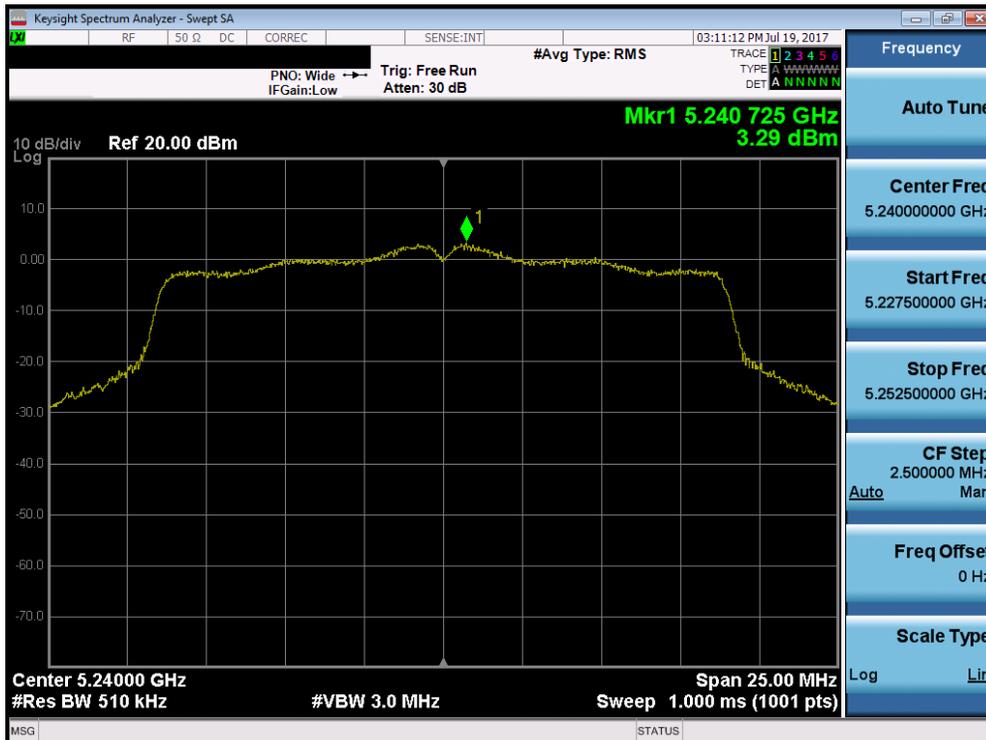


Plot 7-118. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 88 of 209

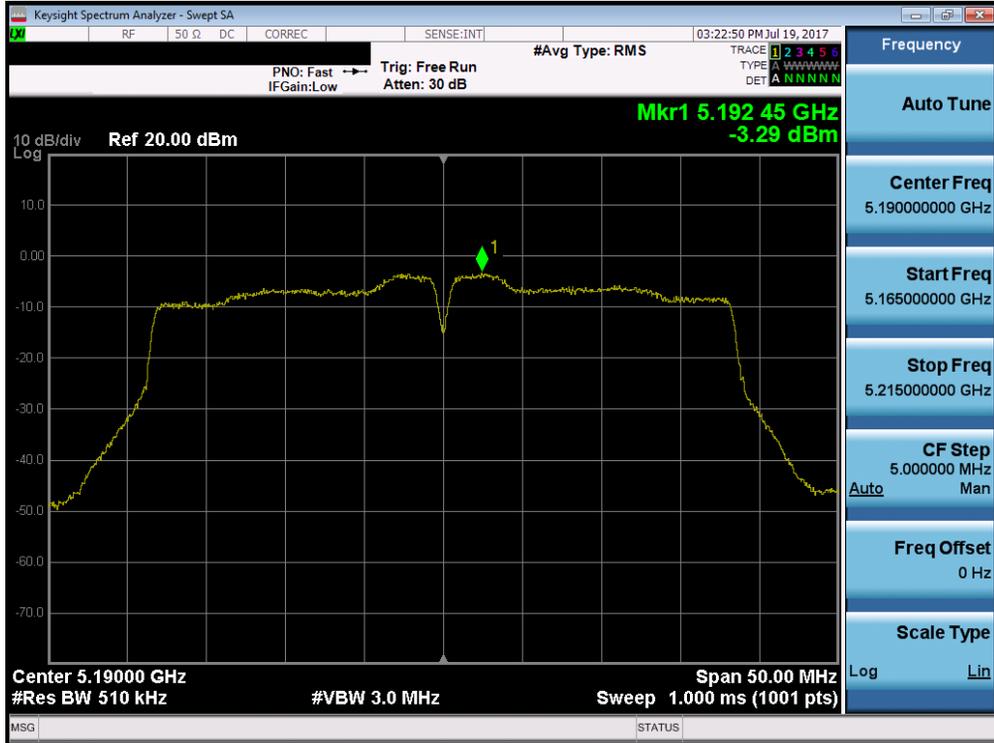


Plot 7-119. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

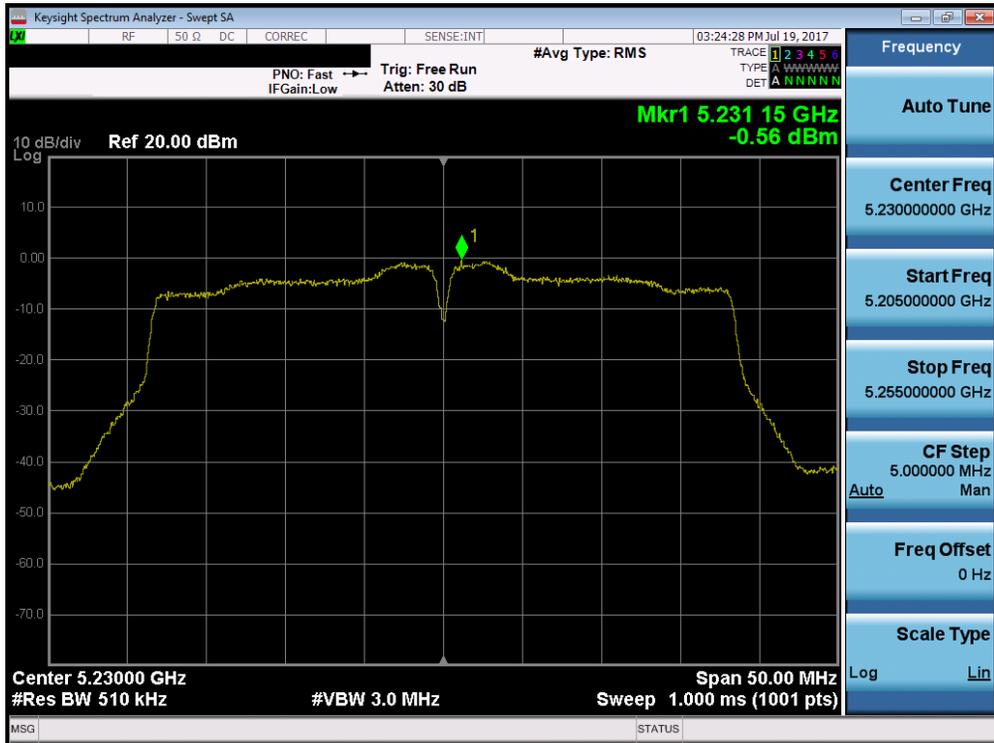


Plot 7-120. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 89 of 209

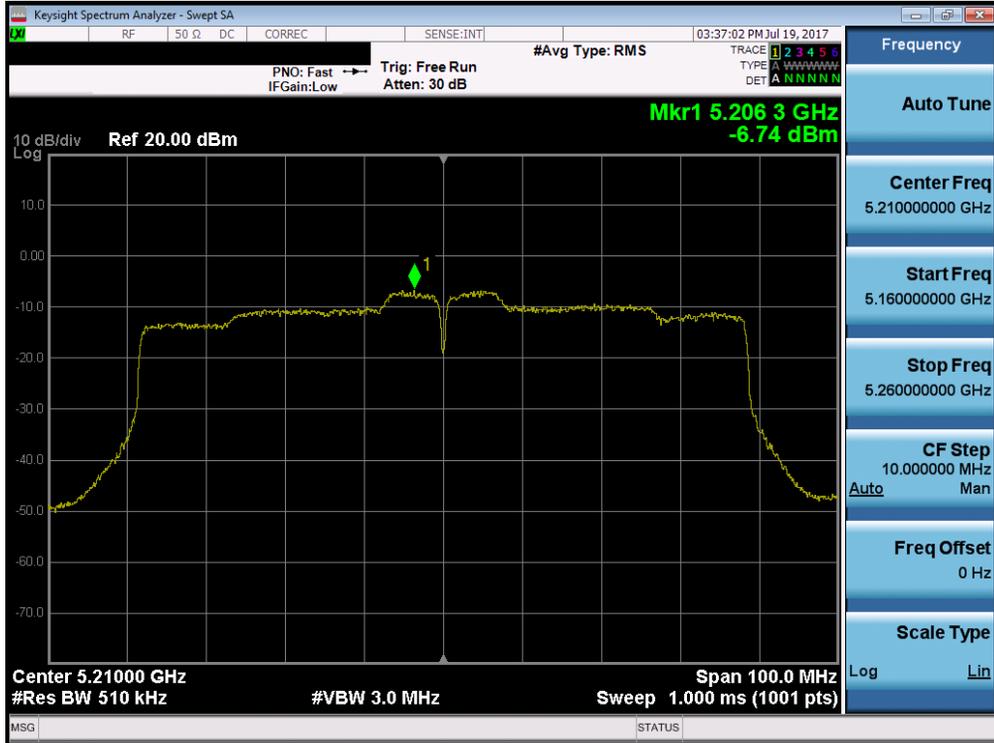


Plot 7-121. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

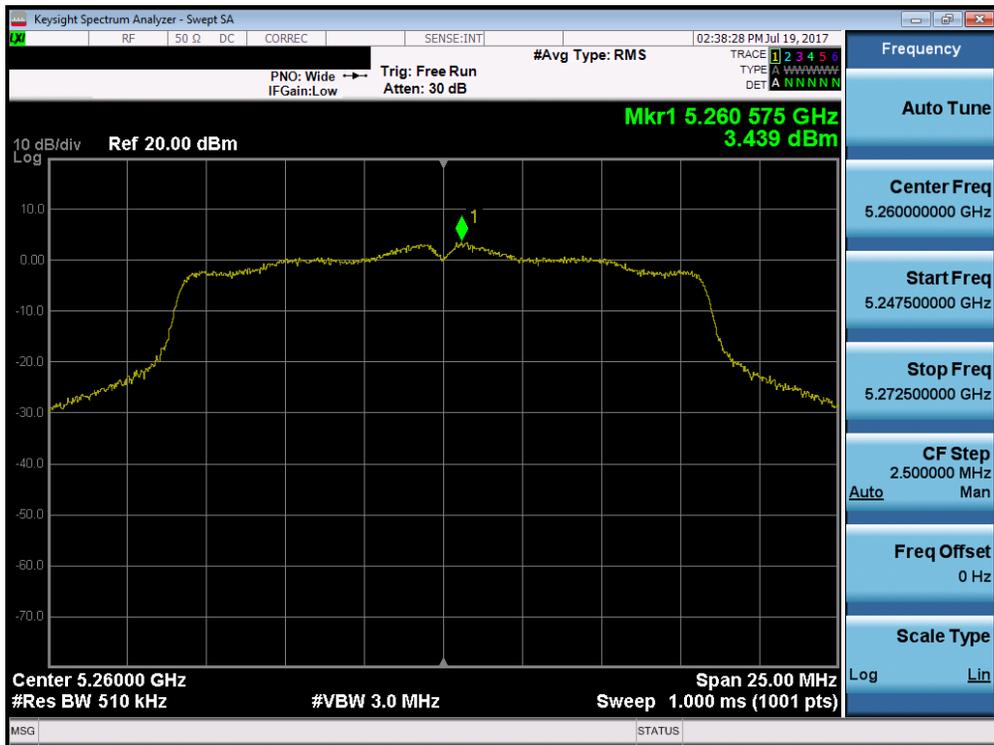


Plot 7-122. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 90 of 209

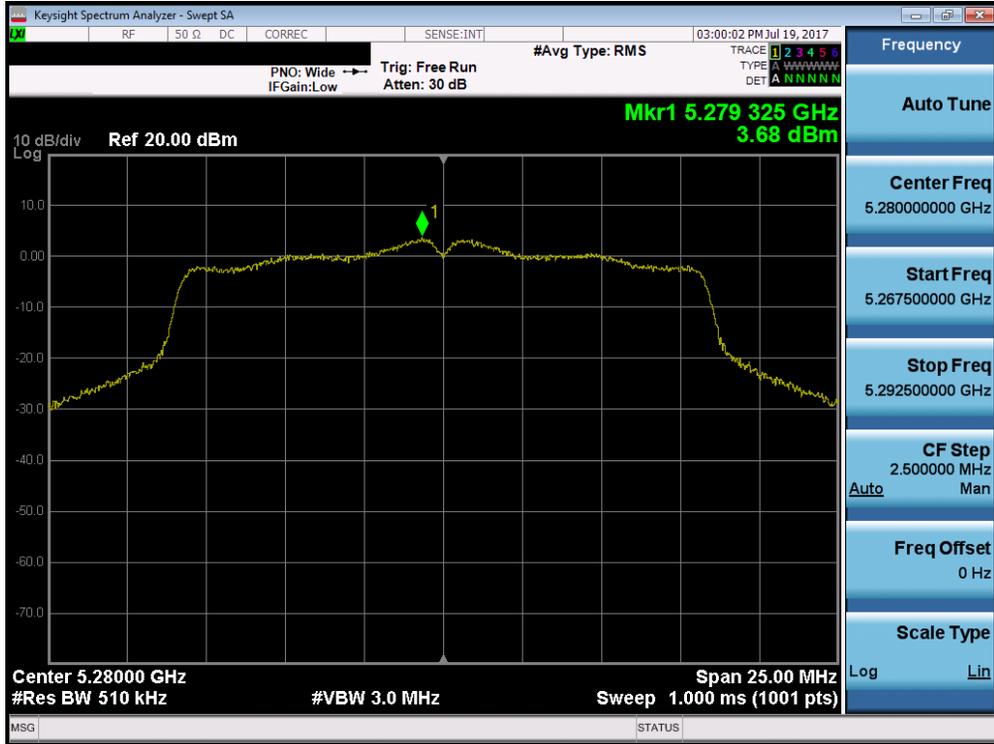


Plot 7-123. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

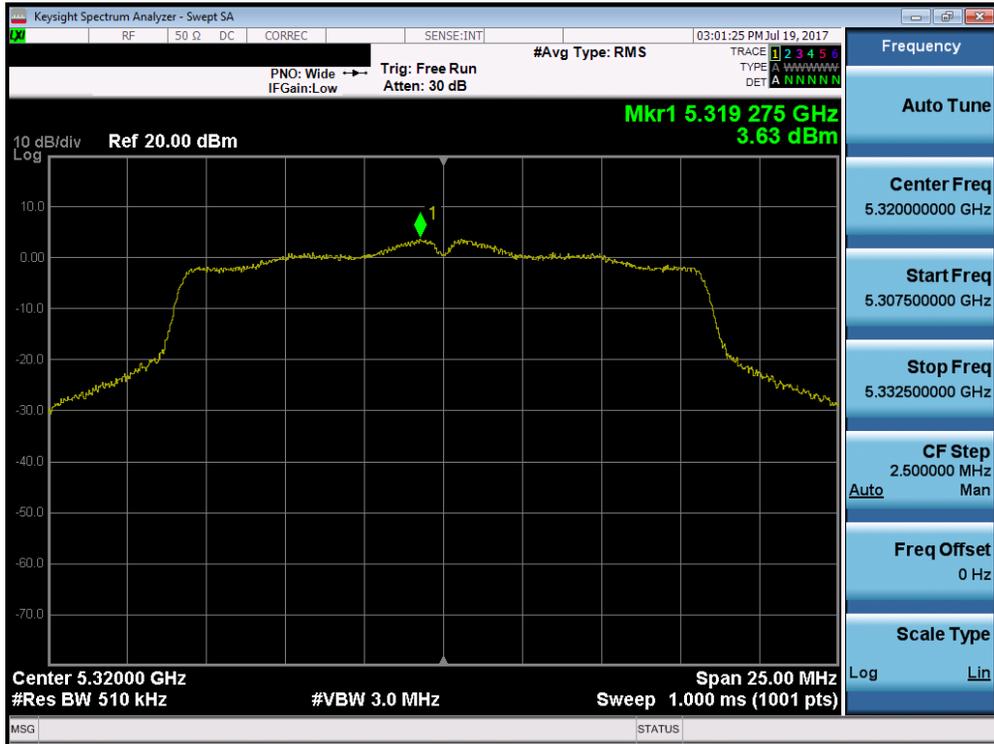


Plot 7-124. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 91 of 209

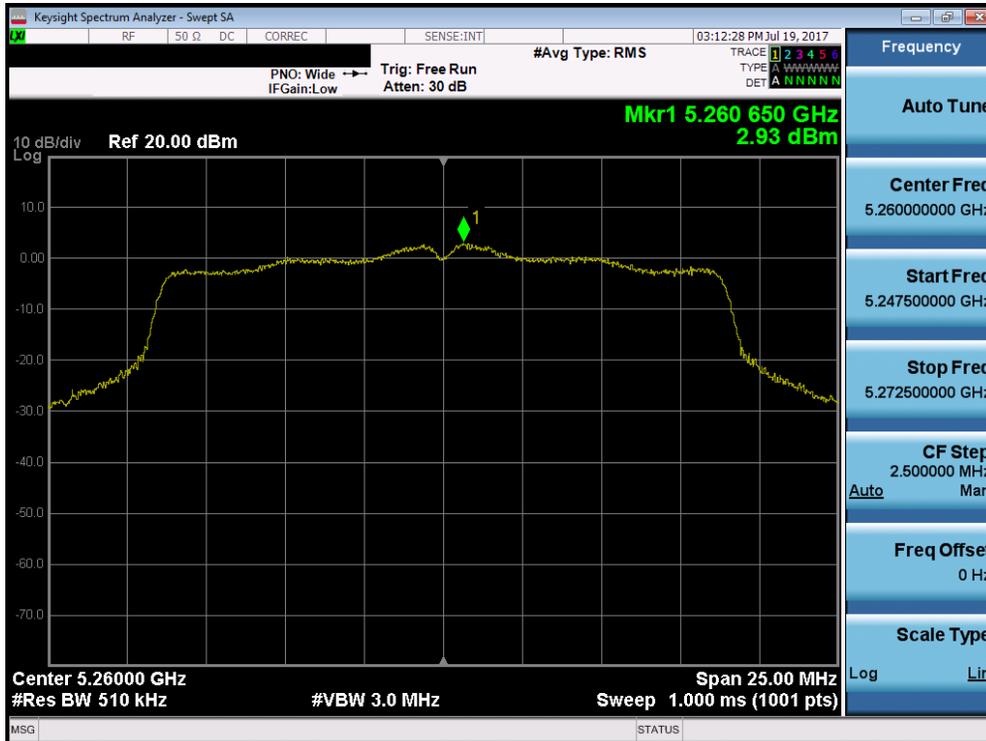


Plot 7-125. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

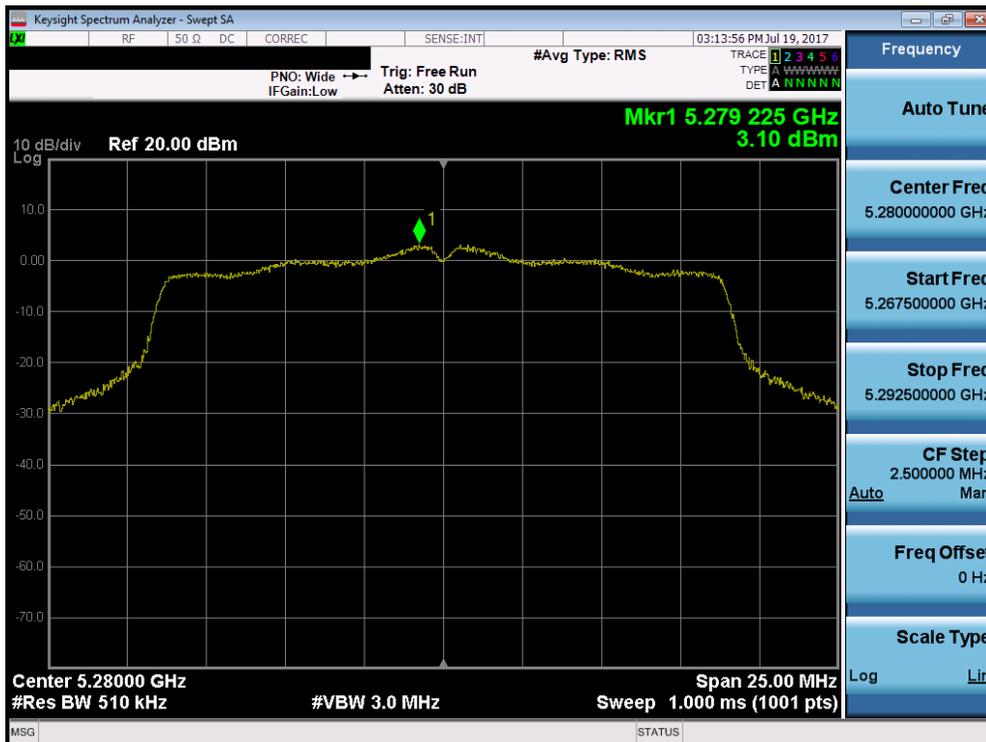


Plot 7-126. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 92 of 209

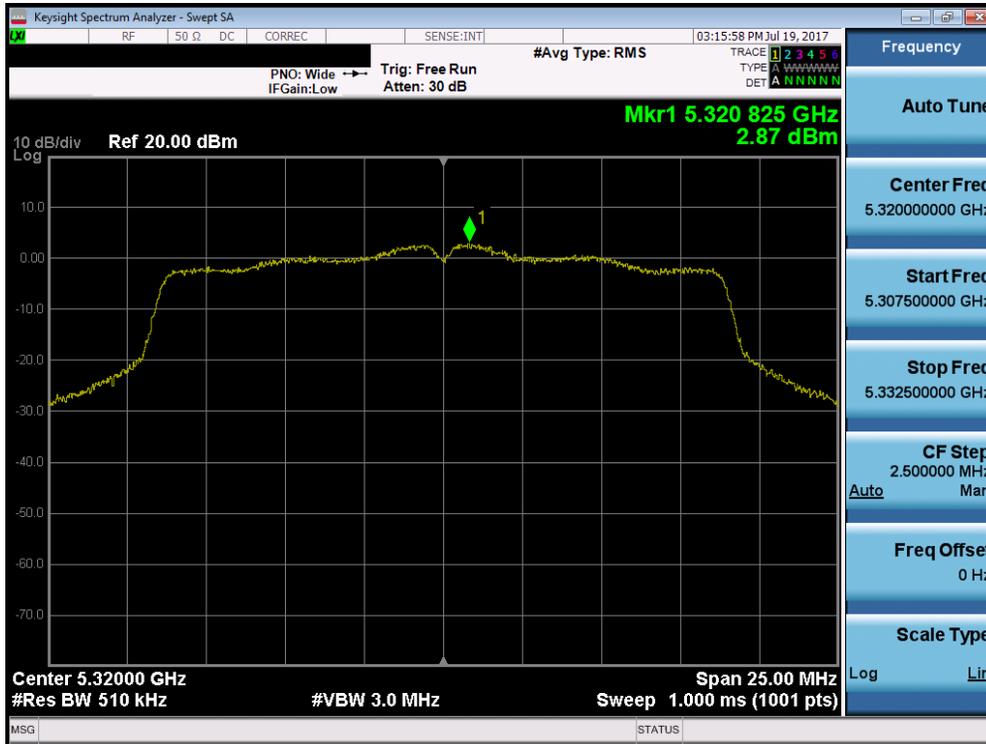


Plot 7-127. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

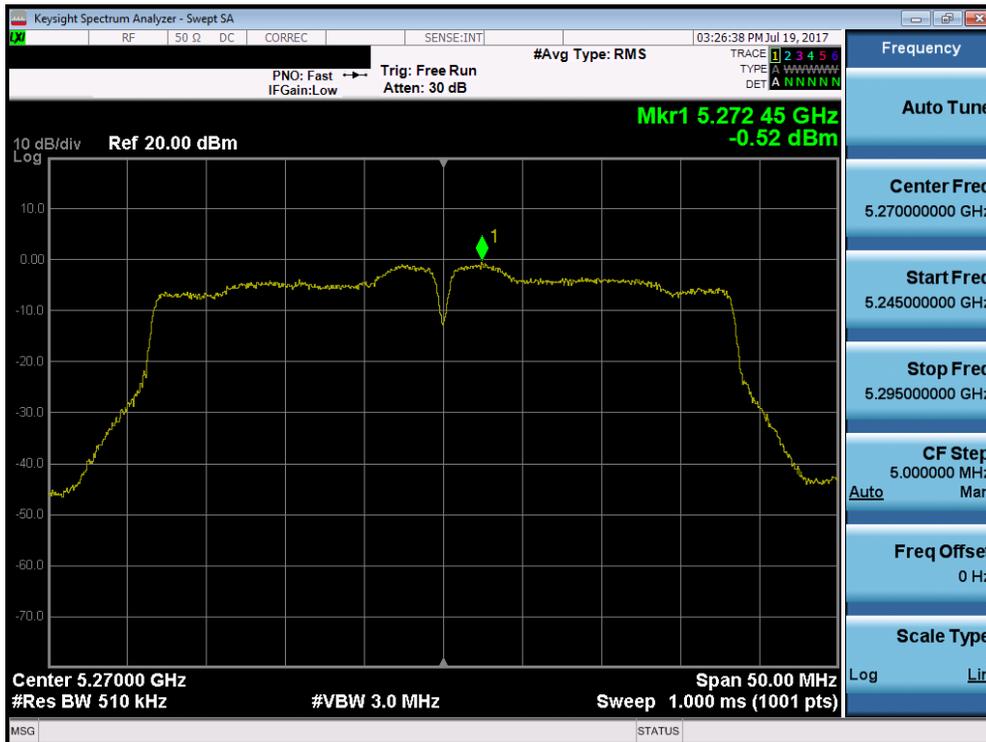


Plot 7-128. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 93 of 209

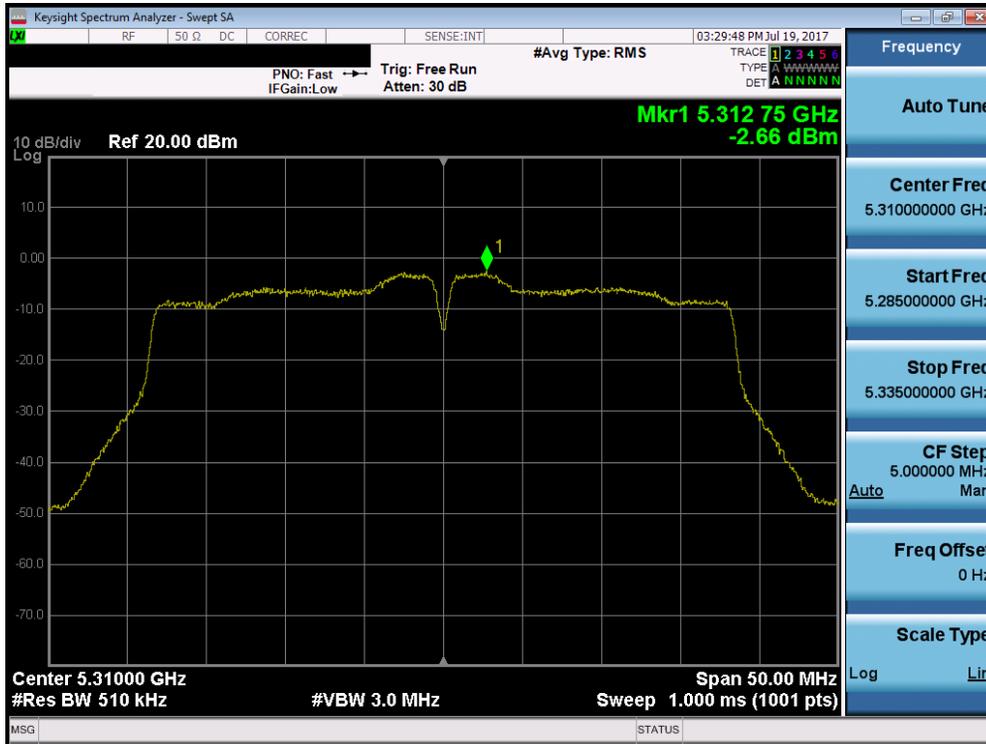


Plot 7-129. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

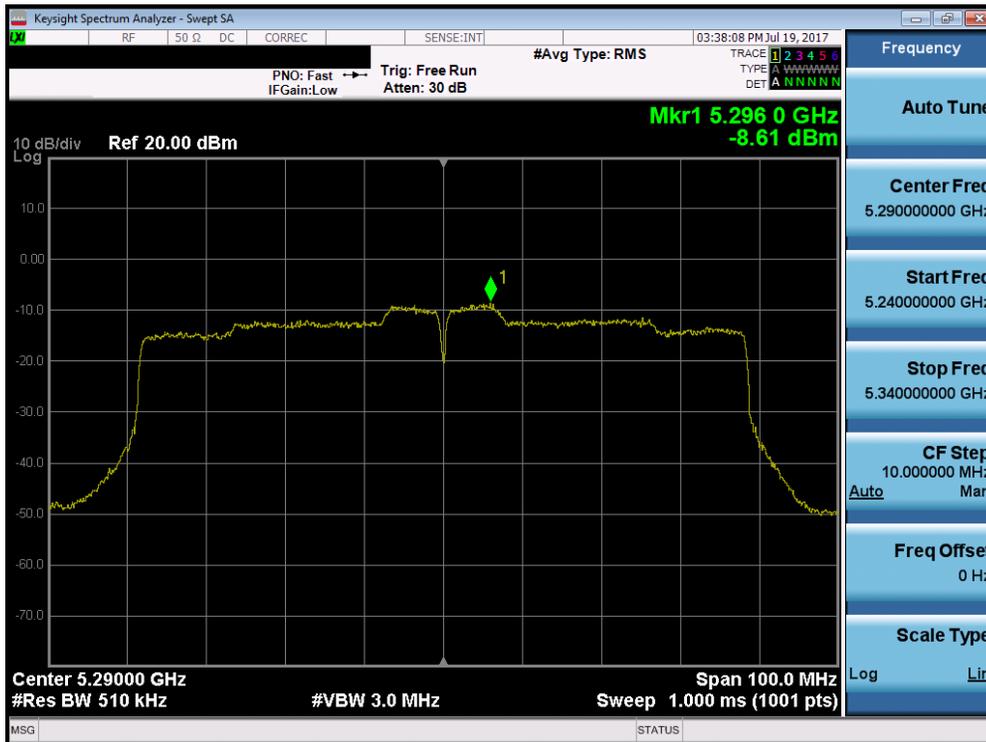


Plot 7-130. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 94 of 209

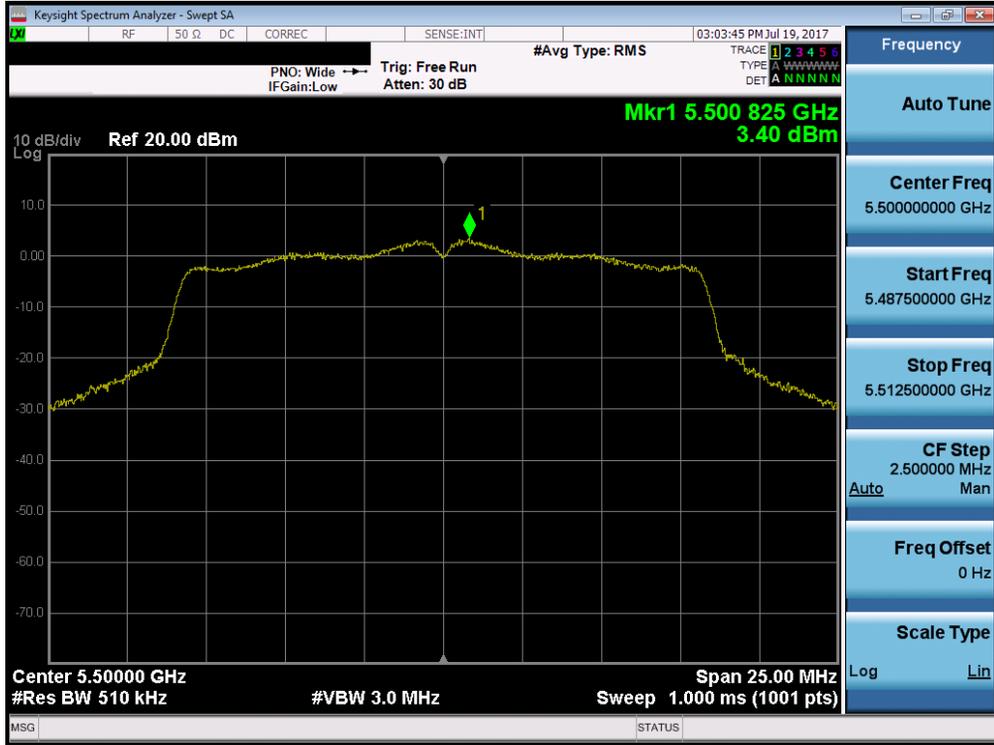


Plot 7-131. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

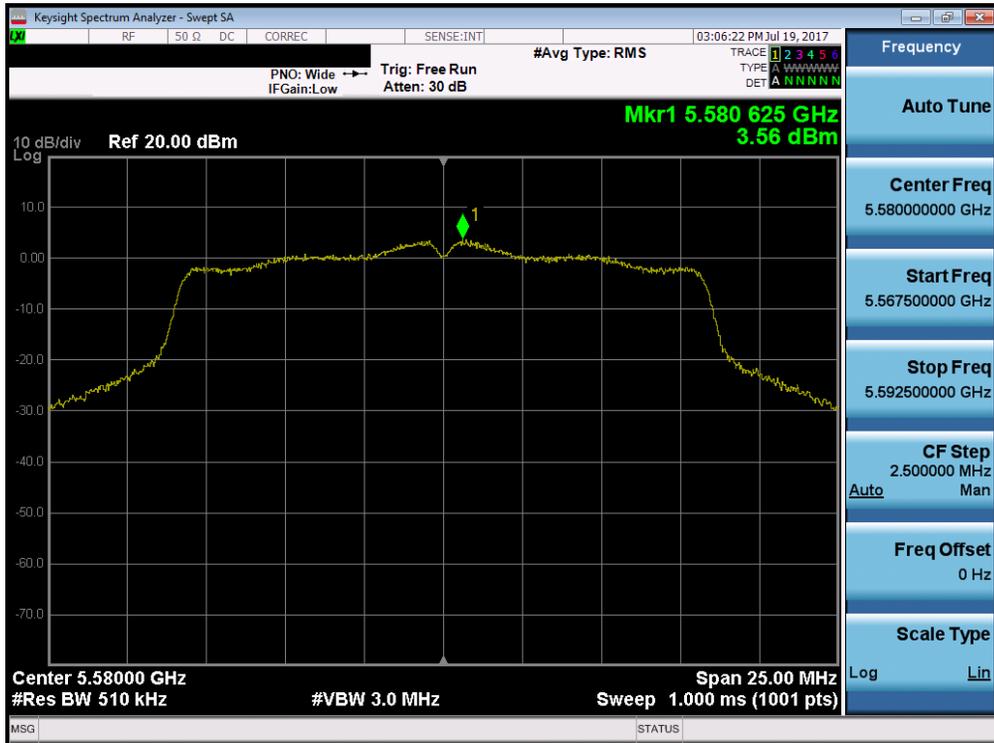


Plot 7-132. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 95 of 209

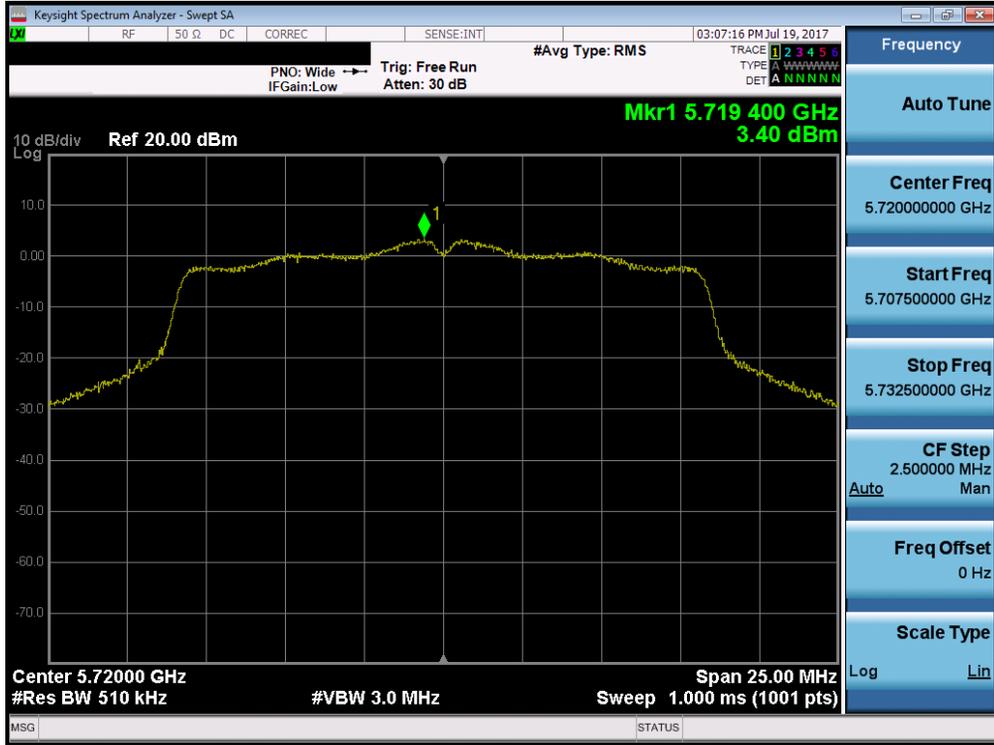


Plot 7-133. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

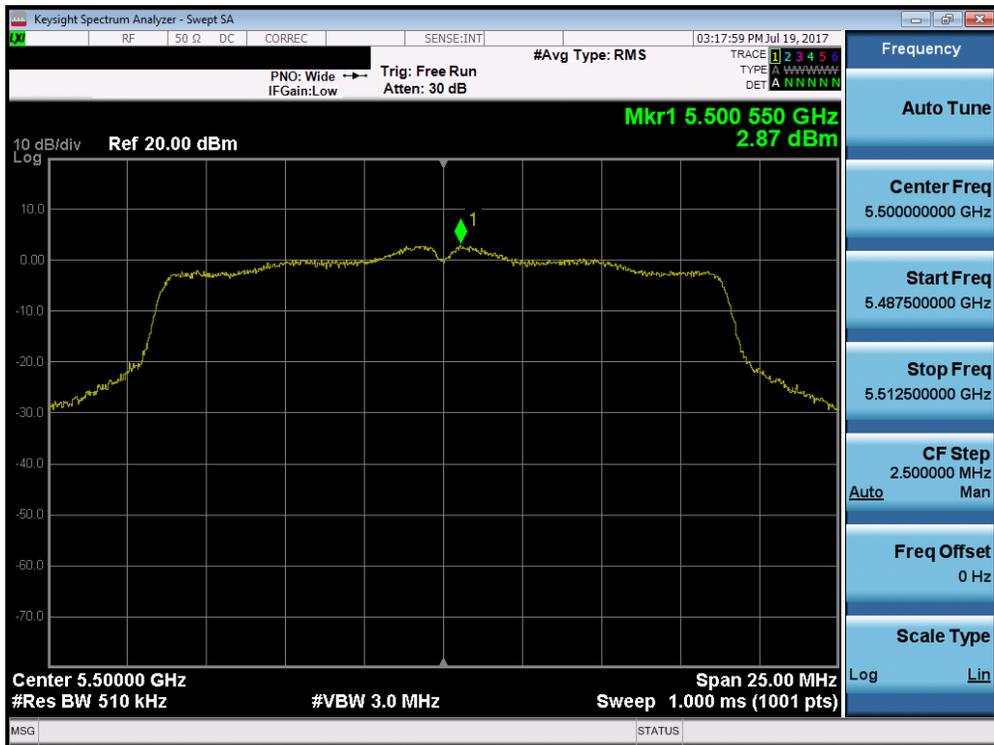


Plot 7-134. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 116)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 96 of 209

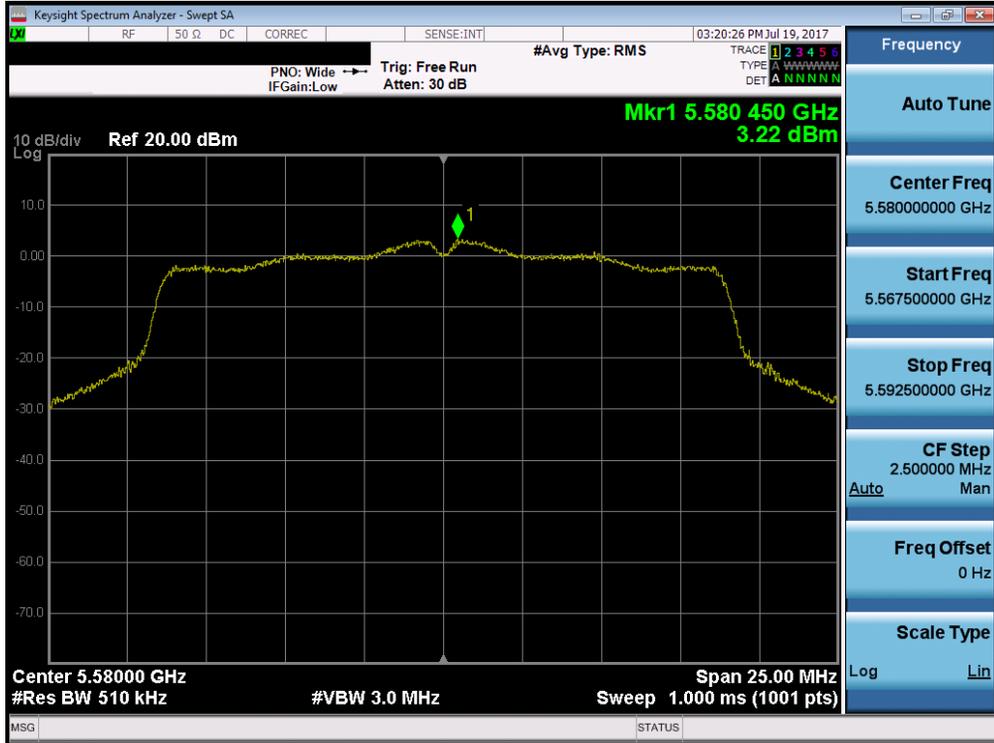


Plot 7-135. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

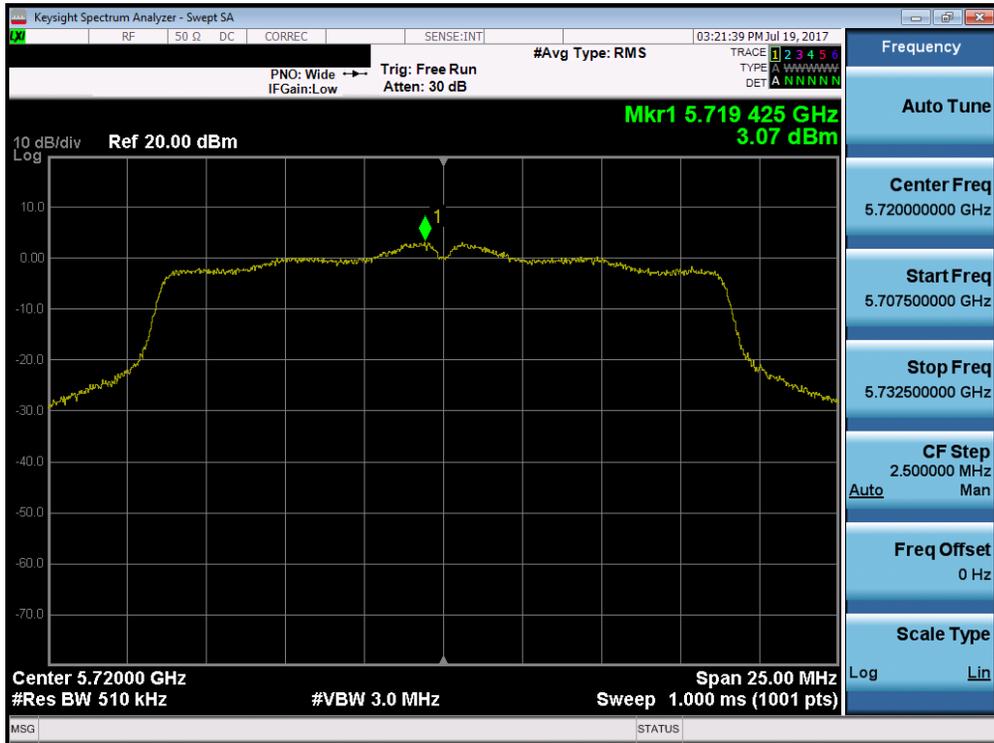


Plot 7-136. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 97 of 209

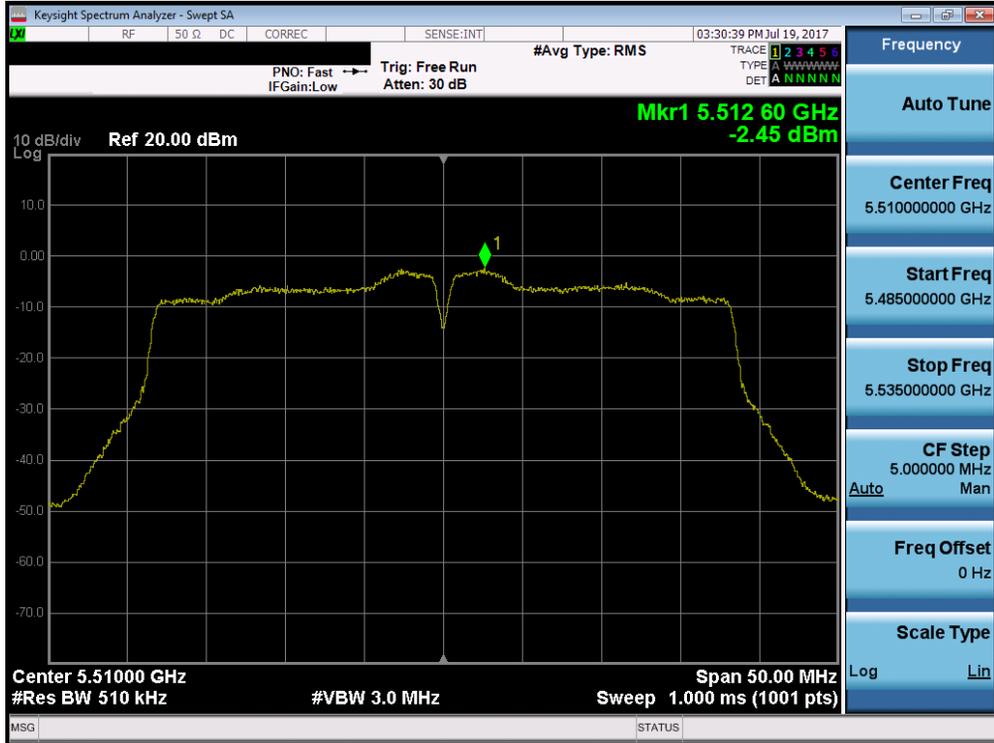


Plot 7-137. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 116)

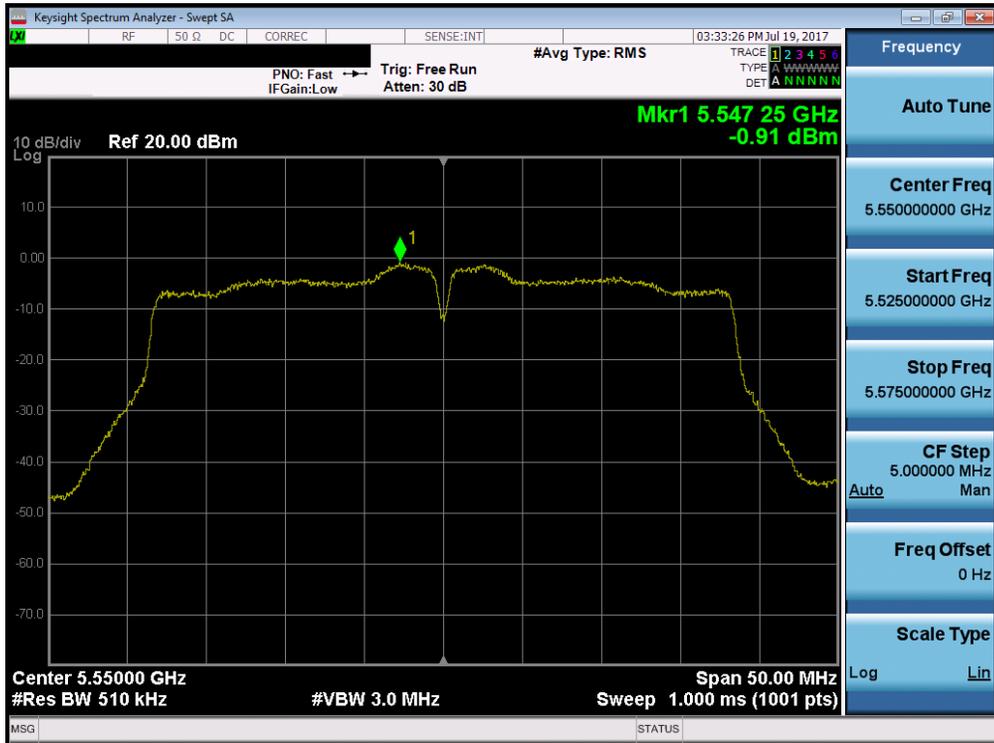


Plot 7-138. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 98 of 209

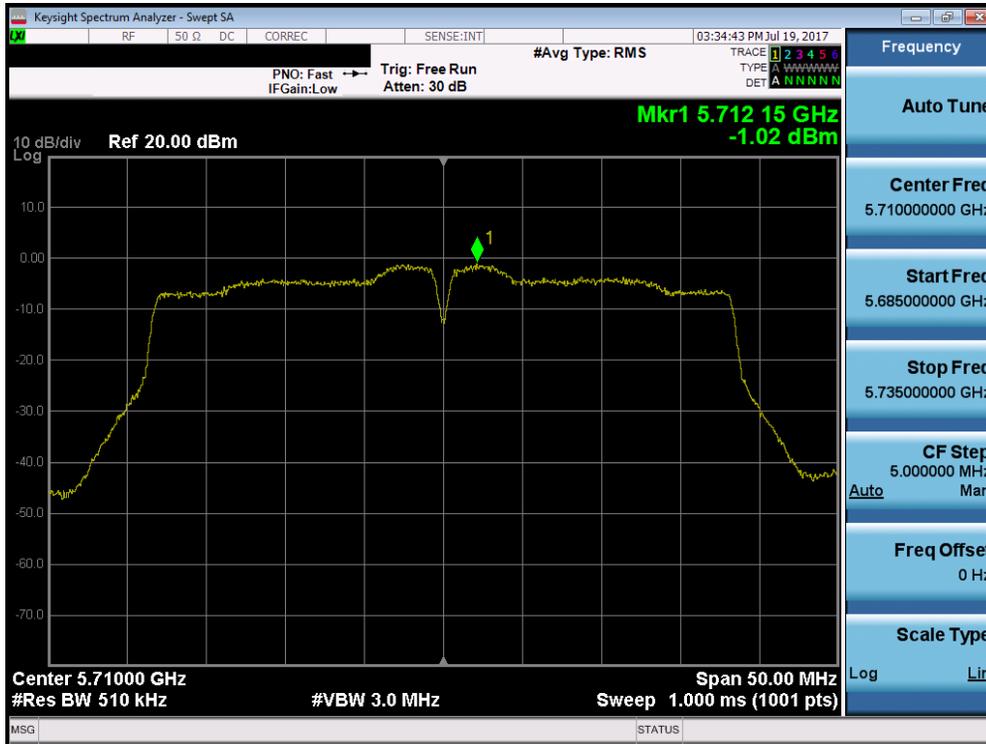


Plot 7-139. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

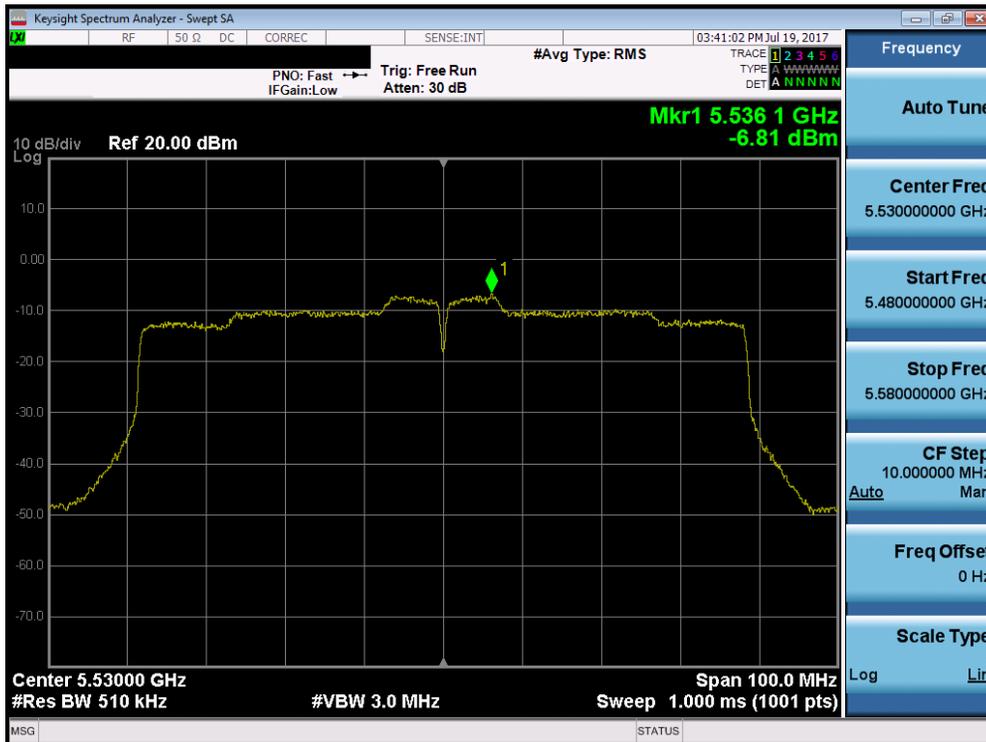


Plot 7-140. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 99 of 209

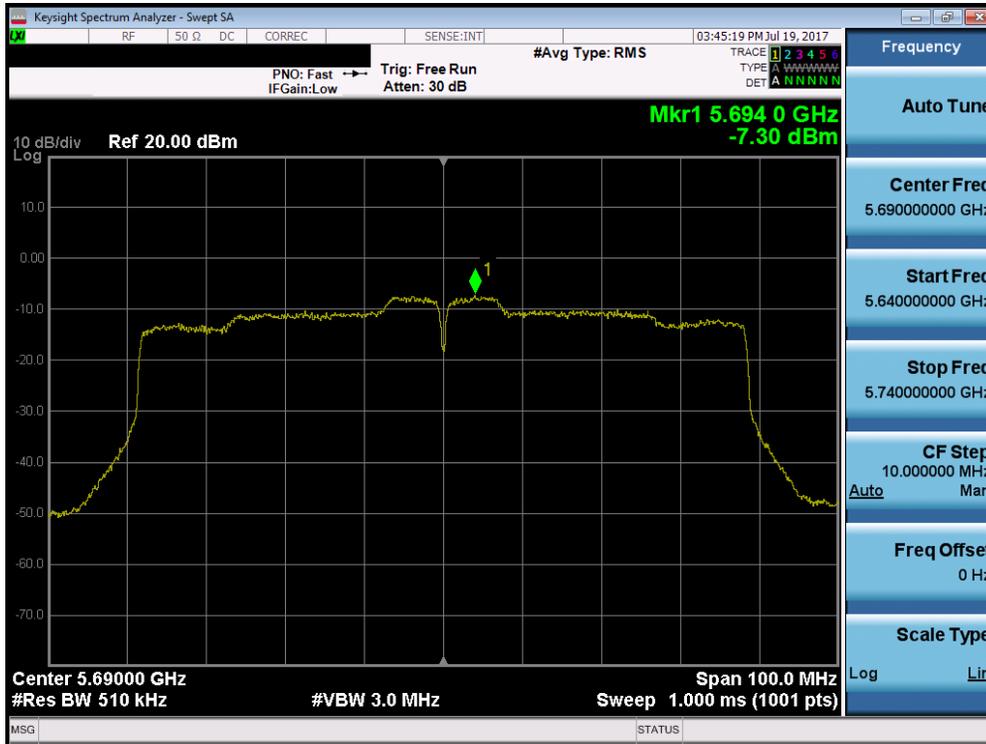


Plot 7-141. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)



Plot 7-142. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 100 of 209

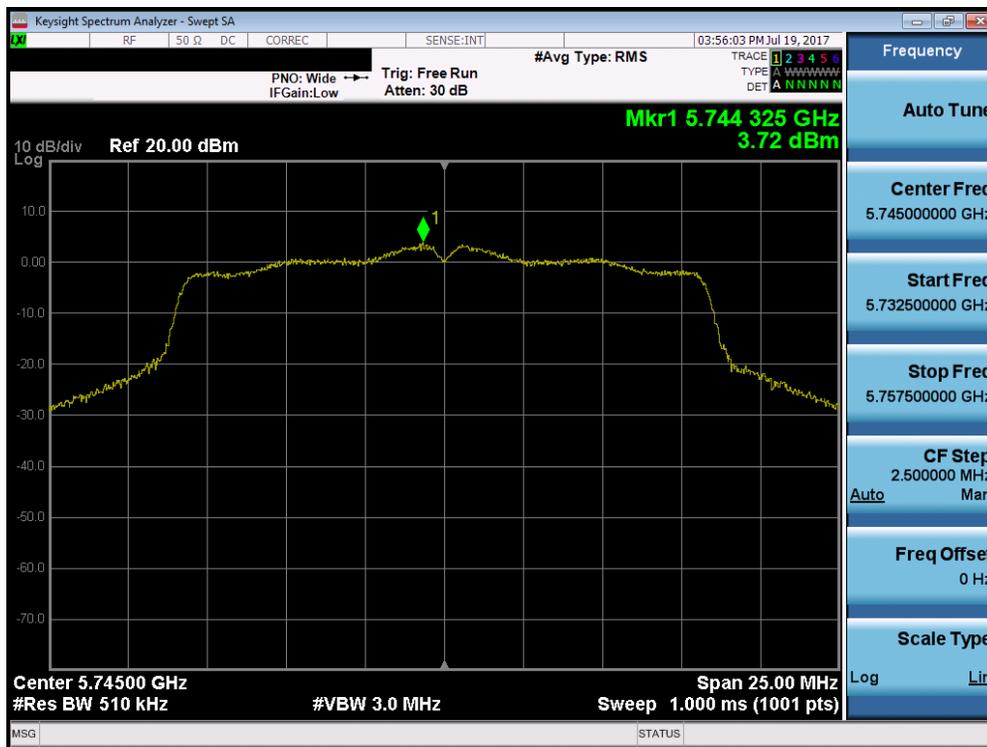


Plot 7-143. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 101 of 209

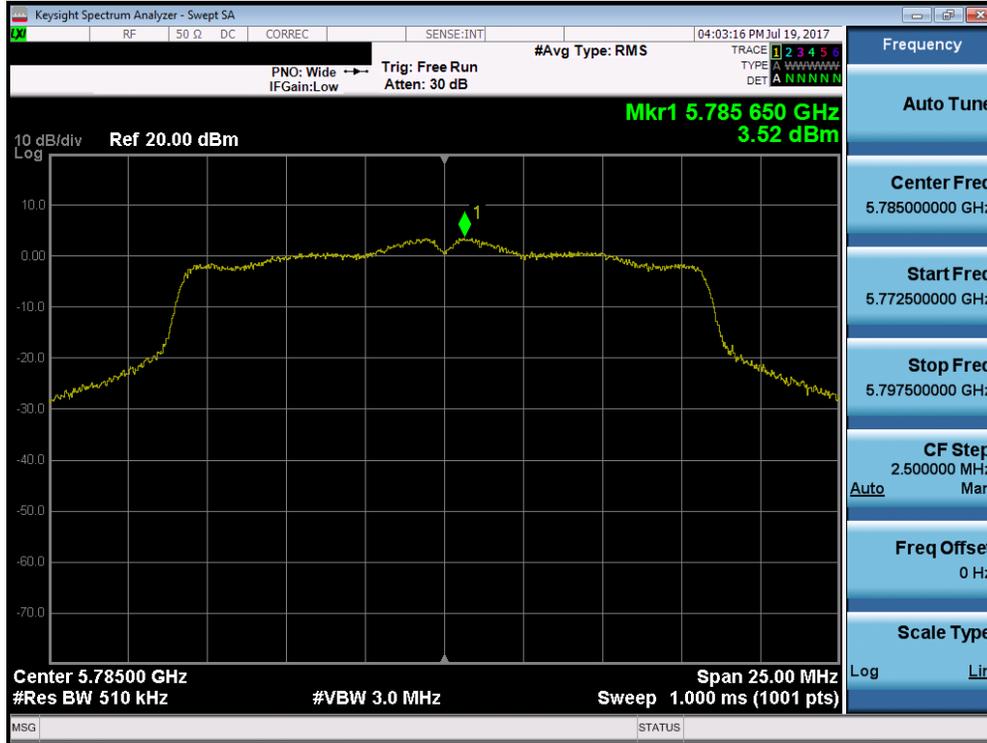
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
<b>Band 3</b>	5745	149	a	6	3.72	30.0	-26.28
	5785	157	a	6	3.52	30.0	-26.48
	5825	165	a	6	3.42	30.0	-26.58
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	3.26	30.0	-26.74
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	3.64	30.0	-26.36
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	3.78	30.0	-26.22
	5755	151	n (40MHz)	13.5/15 (MCS0)	-0.44	30.0	-30.44
	5795	159	n (40MHz)	13.5/15 (MCS0)	-0.64	30.0	-30.64
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-7.36	30.0	-37.36

**Table 7-21. Band 3 Conducted Power Spectral Density Measurements**

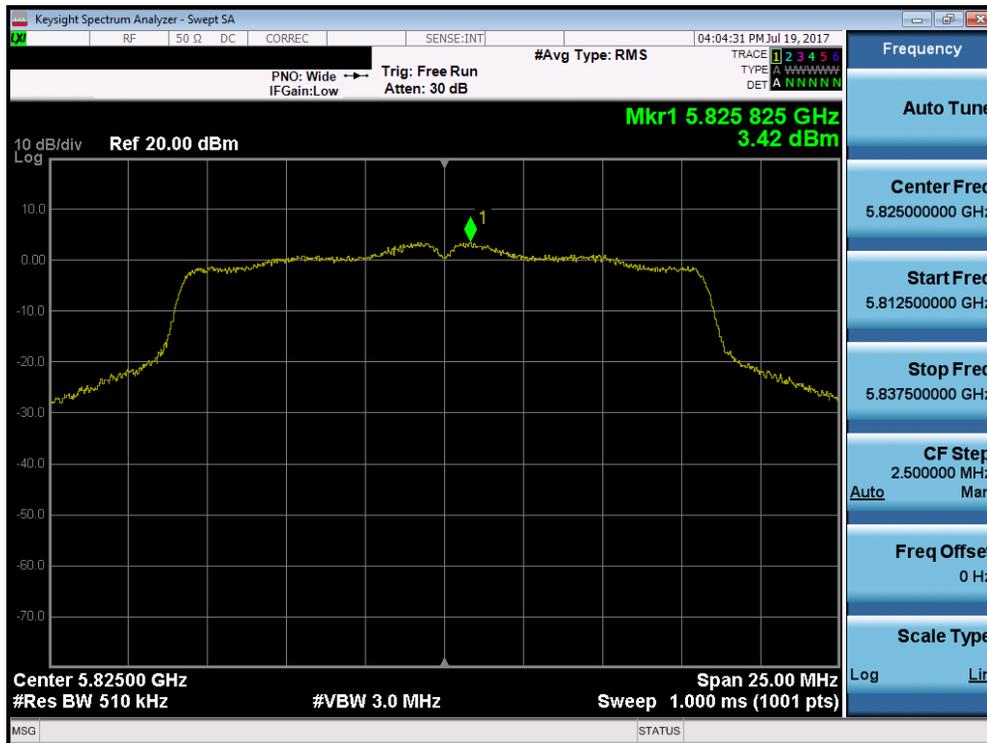


**Plot 7-144. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 149)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 102 of 209

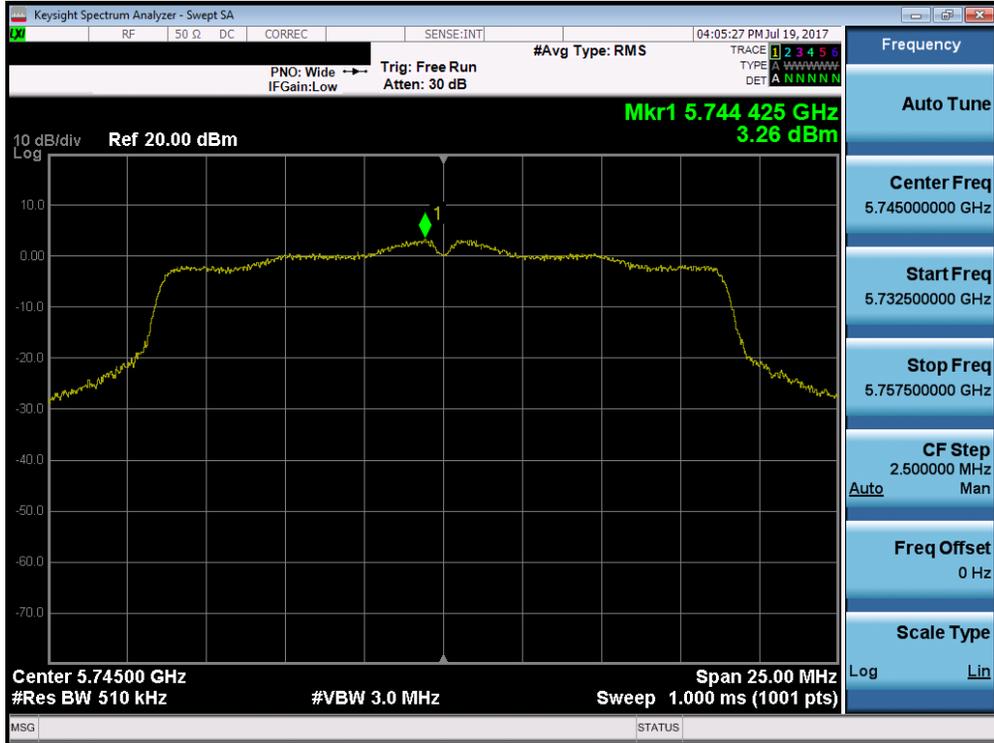


Plot 7-145. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)

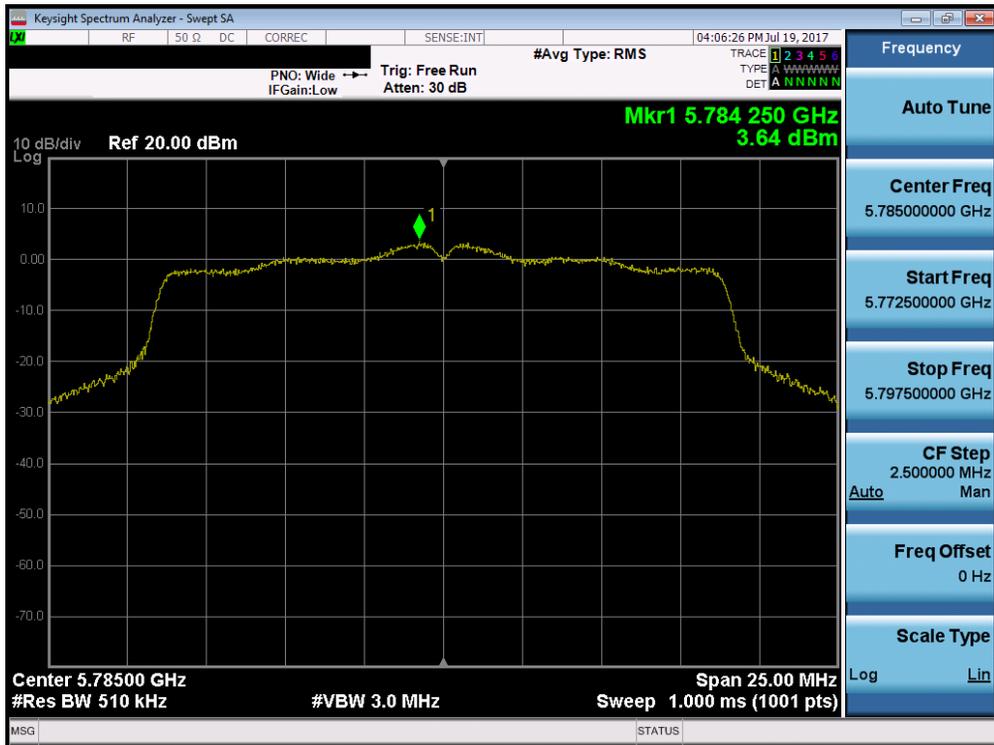


Plot 7-146. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 103 of 209

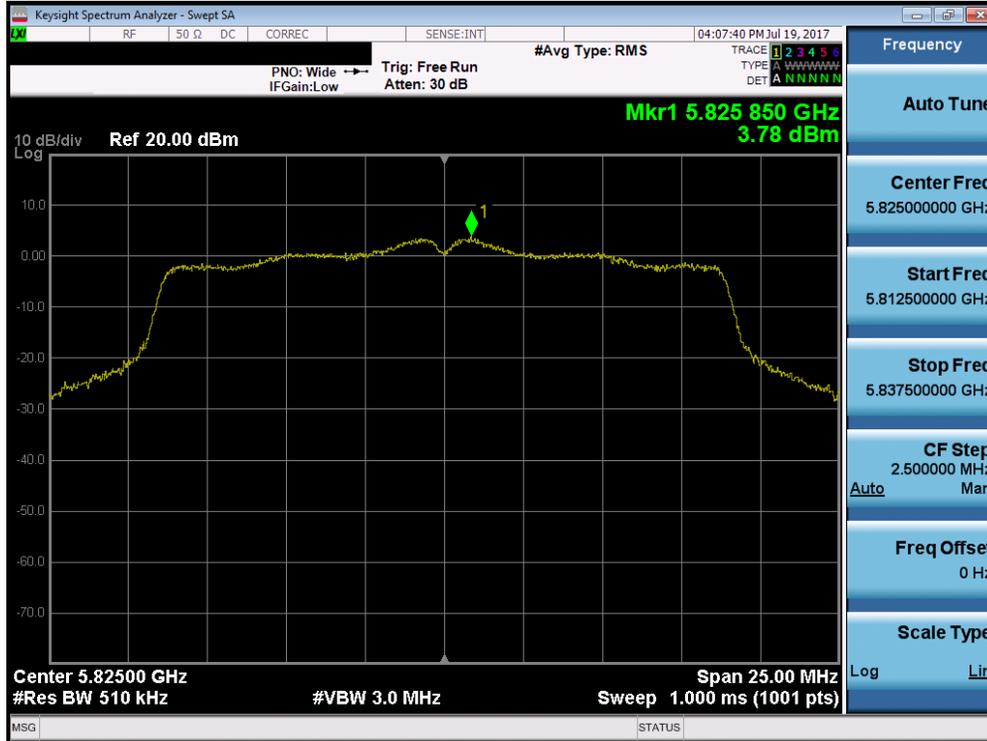


Plot 7-147. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

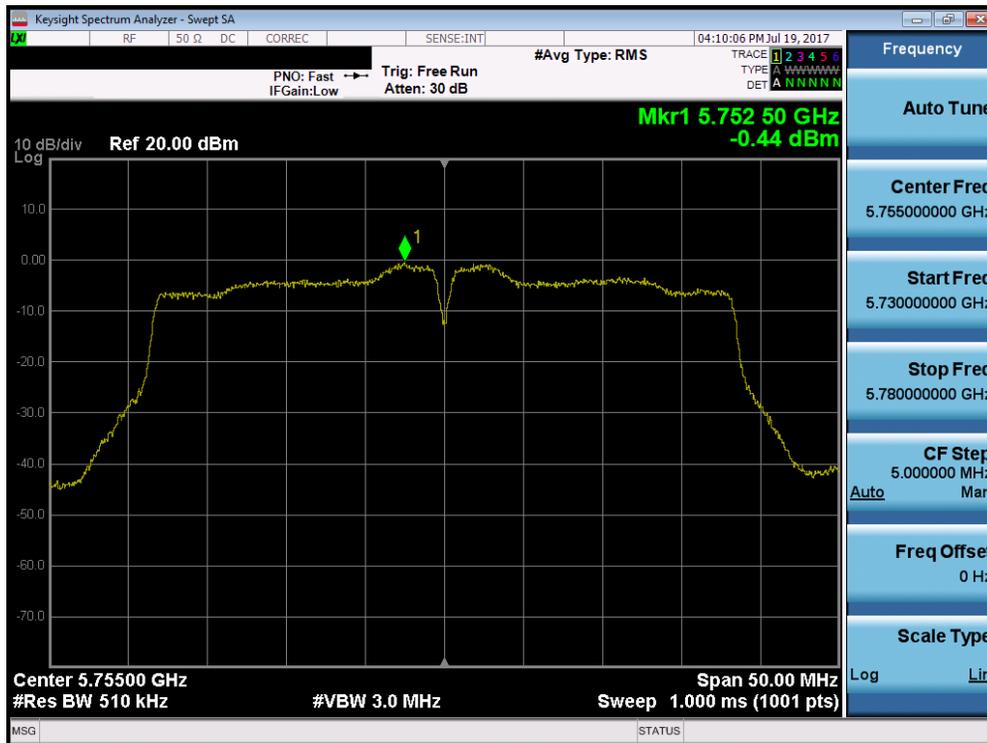


Plot 7-148. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 104 of 209

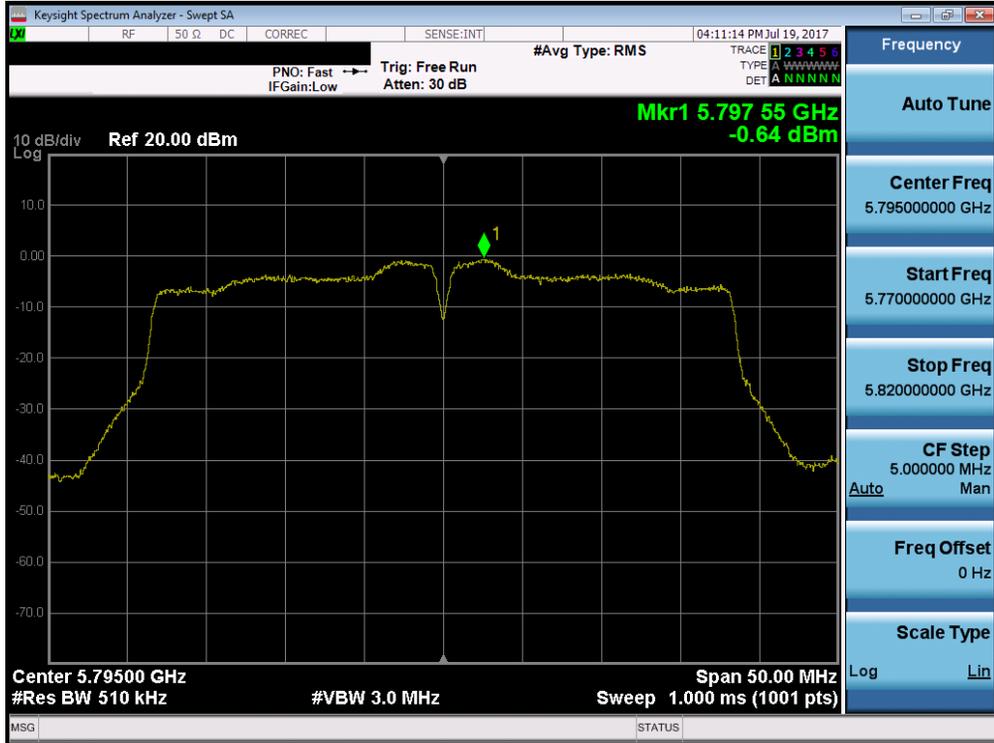


Plot 7-149. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

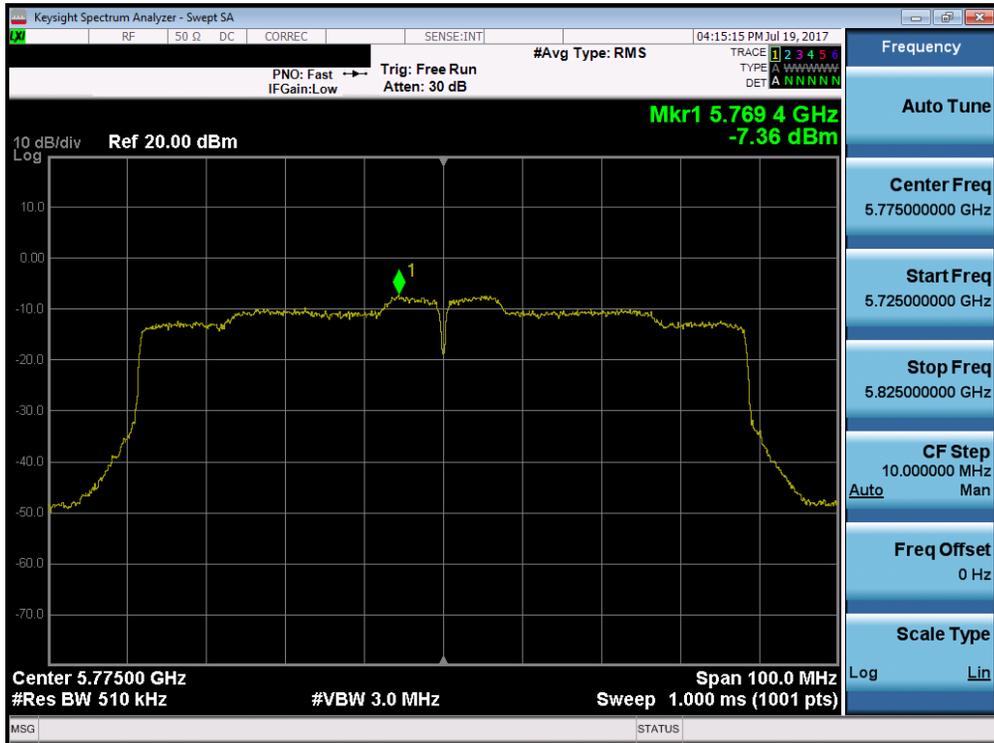


Plot 7-150. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 105 of 209



Plot 7-151. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-152. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

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## Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6.5/7.2 (MCS0)	7.20	3.26	8.67	11.0	-2.33
	5200	40	a	6.5/7.2 (MCS0)	7.50	3.60	8.98	11.0	-2.02
	5240	48	a	6.5/7.2 (MCS0)	7.20	3.13	8.64	11.0	-2.36
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.94	3.01	8.41	11.0	-2.59
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.85	3.03	8.36	11.0	-2.64
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	7.13	3.29	8.63	11.0	-2.37
	5190	38	n (40MHz)	13.5/15 (MCS0)	0.32	-3.29	1.89	11.0	-9.11
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.13	-0.56	4.67	11.0	-6.33
Band 2A	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.31	-6.74	-0.97	11.0	-11.97
	5260	52	a	6.5/7.2 (MCS0)	7.37	3.44	8.85	11.0	-2.15
	5280	56	a	6.5/7.2 (MCS0)	7.56	3.68	9.05	11.0	-1.95
	5320	64	a	6.5/7.2 (MCS0)	7.68	3.63	9.12	11.0	-1.88
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.86	2.93	8.34	11.0	-2.66
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	7.13	3.10	8.58	11.0	-2.42
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	7.04	2.87	8.45	11.0	-2.55
	5270	54	n (40MHz)	13.5/15 (MCS0)	3.03	-0.52	4.62	11.0	-6.38
Band 2C	5310	62	n (40MHz)	13.5/15 (MCS0)	0.97	-2.66	2.53	11.0	-8.47
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-4.65	-8.61	-3.19	11.0	-14.19
	5500	100	a	6.5/7.2 (MCS0)	7.31	3.40	8.79	11.0	-2.21
	5580	116	a	6.5/7.2 (MCS0)	7.19	3.56	8.76	11.0	-2.24
	5720	144	a	6.5/7.2 (MCS0)	6.78	3.40	8.42	11.0	-2.58
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	7.09	2.87	8.49	11.0	-2.51
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	6.93	3.22	8.47	11.0	-2.53
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.57	3.07	8.17	11.0	-2.83
5510	102	n (40MHz)	13.5/15 (MCS0)	1.07	-2.45	2.67	11.0	-8.33	
5550	110	n (40MHz)	13.5/15 (MCS0)	2.80	-0.91	4.34	11.0	-6.66	
5710	142	n (40MHz)	13.5/15 (MCS0)	2.23	-1.02	3.91	11.0	-7.09	
5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-3.10	-6.81	-1.56	11.0	-12.56	
5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-4.04	-7.30	-2.36	11.0	-13.36	

Table 7-22. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6.5/7.2 (MCS0)	4.38	3.72	7.07	30.0	-22.93
	5785	157	a	6.5/7.2 (MCS0)	4.46	3.52	7.03	30.0	-22.97
	5825	165	a	6.5/7.2 (MCS0)	4.58	3.42	7.05	30.0	-22.95
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	4.36	3.26	6.86	30.0	-23.14
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	4.58	3.64	7.15	30.0	-22.85
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	4.15	3.78	6.98	30.0	-23.02
	5755	151	n (40MHz)	13.5/15 (MCS0)	0.29	-0.44	2.95	30.0	-27.05
	5795	159	n (40MHz)	13.5/15 (MCS0)	-0.01	-0.64	2.70	30.0	-27.30
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-6.21	-7.36	-3.74	30.0	-33.74

Table 7-23. Band 3 MIMO Conducted Power Spectral Density Measurements

**Note:**

Per KDB 662911 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

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**Sample MIMO Calculation:**

At 5180MHz the average conducted power spectral density was measured to be 6.94 dBm for Antenna-1 and 3.01 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

$$(6.94 \text{ dBm} + 3.01 \text{ dBm}) = (4.94 \text{ mW} + 2.00 \text{ mW}) = 6.94 \text{ mW} = 8.41 \text{ dBm}$$

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## 7.6 Frequency Stability

### §15.407(g)

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

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,180,000,124	124	0.00000239
100 %		- 30	5,179,999,930	-70	-0.00000135
100 %		- 20	5,180,000,200	200	0.00000386
100 %		- 10	5,180,000,226	226	0.00000436
100 %		0	5,180,000,213	213	0.00000411
100 %		+ 10	5,179,999,892	-108	-0.00000208
100 %		+ 20	5,180,000,086	86	0.00000166
100 %		+ 30	5,180,000,179	179	0.00000346
100 %		+ 40	5,179,999,909	-91	-0.00000176
100 %		+ 50	5,180,000,036	36	0.00000069
BATT. ENDPOINT		3.45	+ 20	5,180,000,069	69

**Table 7-24. Frequency Stability Measurements for UNII Band 1 (Ch. 36)**

#### Note:

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

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## Frequency Stability

### §15.407(g)

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

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,259,999,830	-170	-0.00000323
100 %		- 30	5,260,000,380	380	0.00000722
100 %		- 20	5,259,999,963	-37	-0.00000070
100 %		- 10	5,260,000,134	134	0.00000255
100 %		0	5,259,999,871	-129	-0.00000245
100 %		+ 10	5,260,000,055	55	0.00000105
100 %		+ 20	5,260,000,039	39	0.00000074
100 %		+ 30	5,260,000,076	76	0.00000144
100 %		+ 40	5,259,999,686	-314	-0.00000597
100 %		+ 50	5,260,000,011	11	0.00000021
BATT. ENDPOINT		3.45	+ 20	5,259,999,670	-330

**Table 7-25. Frequency Stability Measurements for UNII Band 2A (Ch. 52)**

#### Note:

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

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## Frequency Stability

### §15.407(g)

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

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,500,000,094	94	0.00000171
100 %		- 30	5,500,000,362	362	0.00000658
100 %		- 20	5,499,999,979	-21	-0.00000038
100 %		- 10	5,500,000,166	166	0.00000302
100 %		0	5,500,000,033	33	0.00000060
100 %		+ 10	5,499,999,991	-9	-0.00000016
100 %		+ 20	5,500,000,041	41	0.00000075
100 %		+ 30	5,500,000,213	213	0.00000387
100 %		+ 40	5,500,000,246	246	0.00000447
100 %		+ 50	5,500,000,022	22	0.00000040
BATT. ENDPOINT		3.45	+ 20	5,500,000,084	84

**Table 7-26. Frequency Stability Measurements for UNII Band 2C (Ch. 100)**

#### Note:

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

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## Frequency Stability

### §15.407(g)

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

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,745,000,048	48	0.00000084
100 %		- 30	5,744,999,971	-29	-0.00000050
100 %		- 20	5,744,999,966	-34	-0.00000059
100 %		- 10	5,744,999,969	-31	-0.00000054
100 %		0	5,745,000,197	197	0.00000343
100 %		+ 10	5,744,999,669	-331	-0.00000576
100 %		+ 20	5,745,000,152	152	0.00000265
100 %		+ 30	5,745,000,044	44	0.00000077
100 %		+ 40	5,745,000,409	409	0.00000712
100 %		+ 50	5,744,999,801	-199	-0.00000346
BATT. ENDPOINT		3.45	+ 20	5,744,999,987	-13

**Table 7-27. Frequency Stability Measurements for UNII Band 3 (Ch. 149)**

#### Note:

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

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## 7.7 Radiated Spurious Emission Measurements – Above 1GHz

**§15.407(b) §15.205 §15.209**

### Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in KDB 789033 D02 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 7-28 per Section 15.209.***

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

**Table 7-28. 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

#### Peak Measurements above 1GHz

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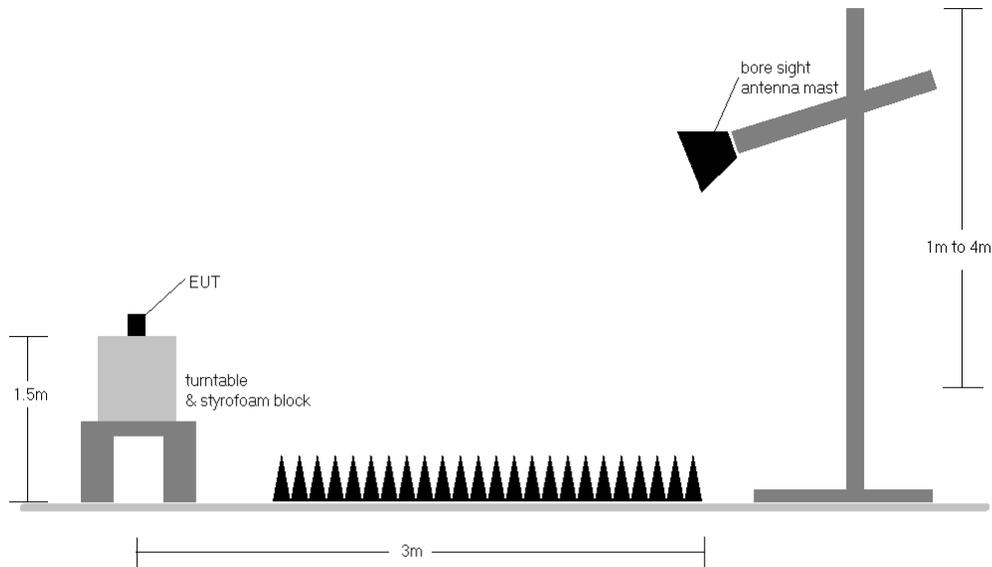
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

**Peak Measurements below 1GHz**

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

**Test Setup**

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



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

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## Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 D02 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 7-28.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-28. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB $\mu$ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dB $\mu$ V/m.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.
6. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
8. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section. Rohde & Schwarz EMC32, Version 9.15.00 automated test software was used to perform the Radiated Spurious Emissions Pre-Scan testing.
10. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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## Sample Calculations

### Determining Spurious Emissions Levels

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

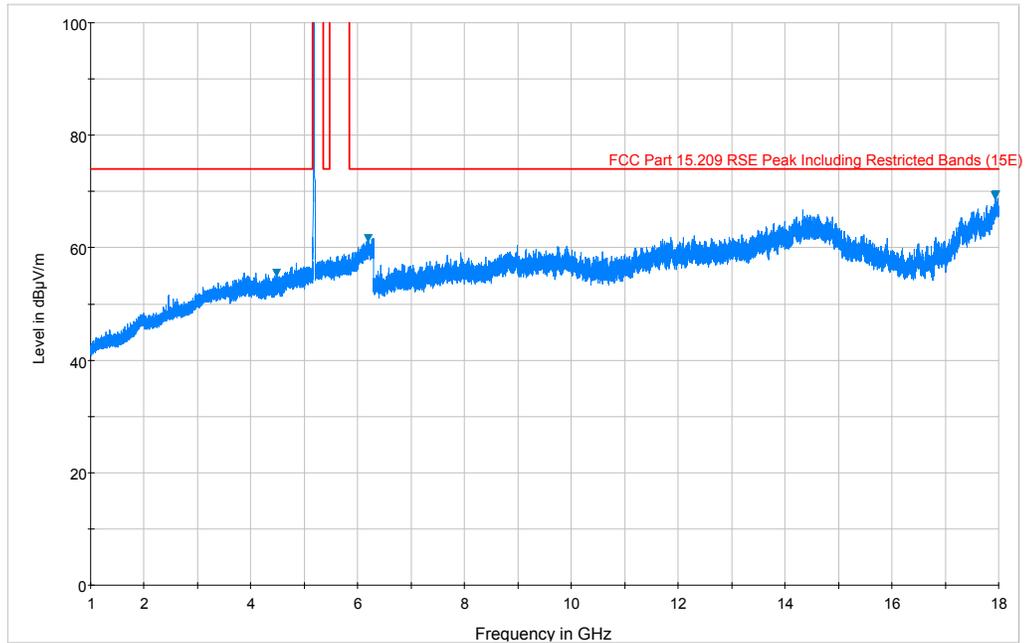
### Radiated Band Edge Measurement Offset

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

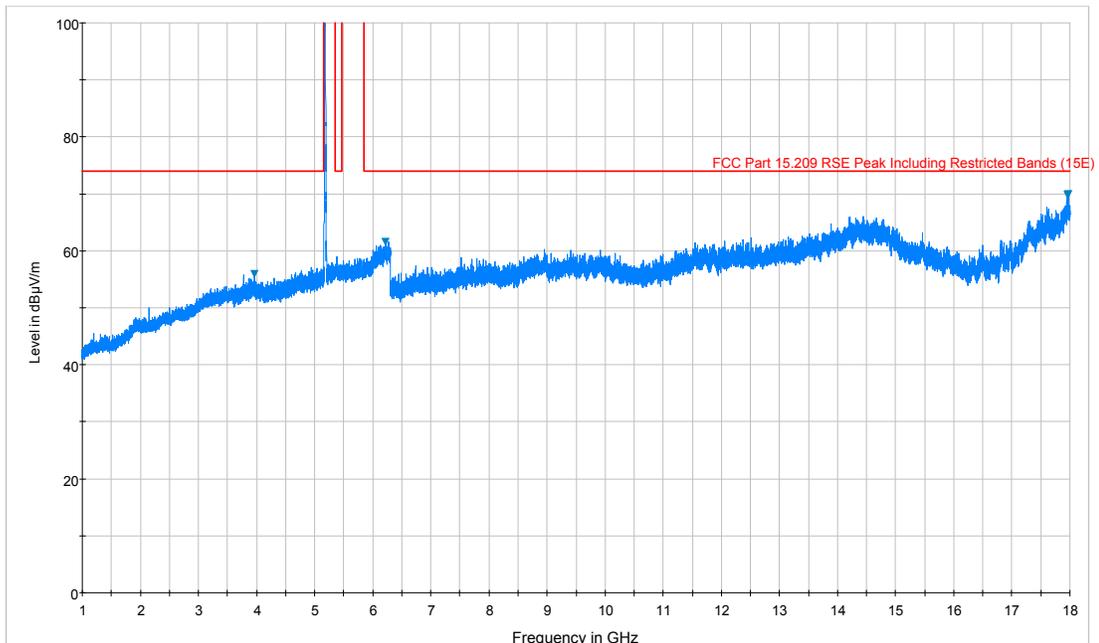
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

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### 7.7.1 Antenna-1 Radiated Spurious Emission Measurements

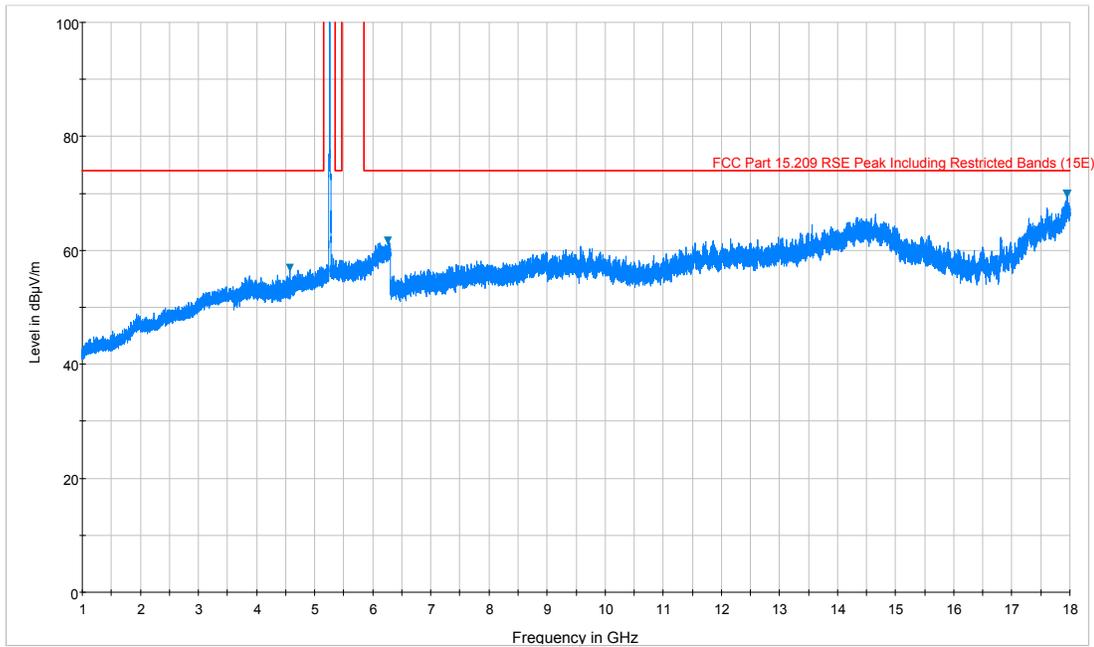


**Plot 7-153. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)**

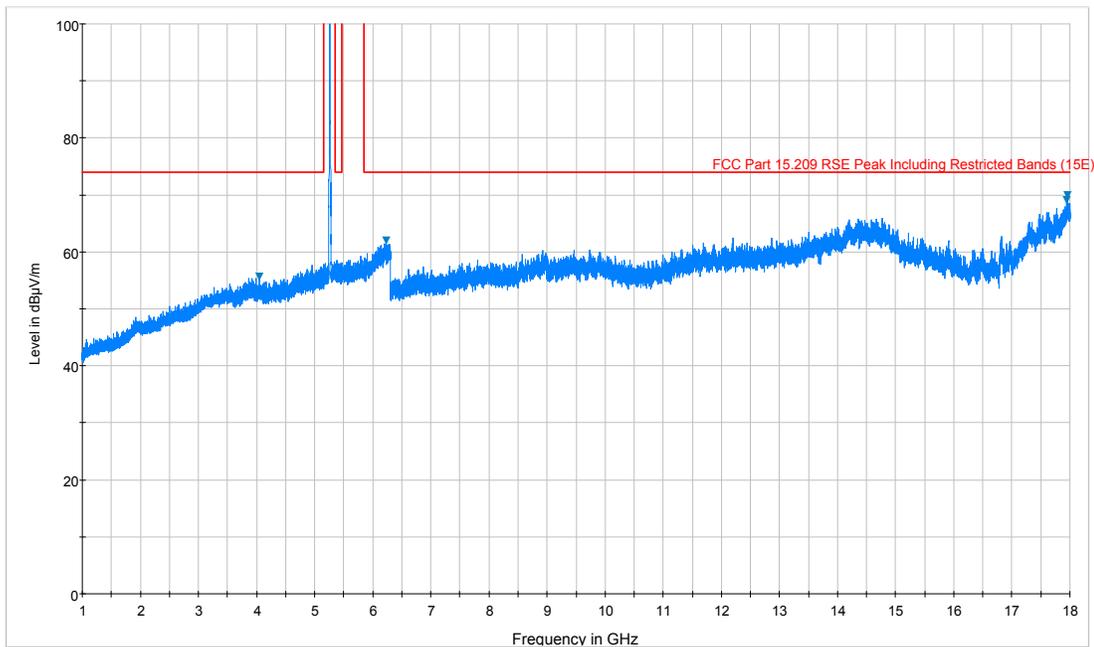


**Plot 7-154. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)**

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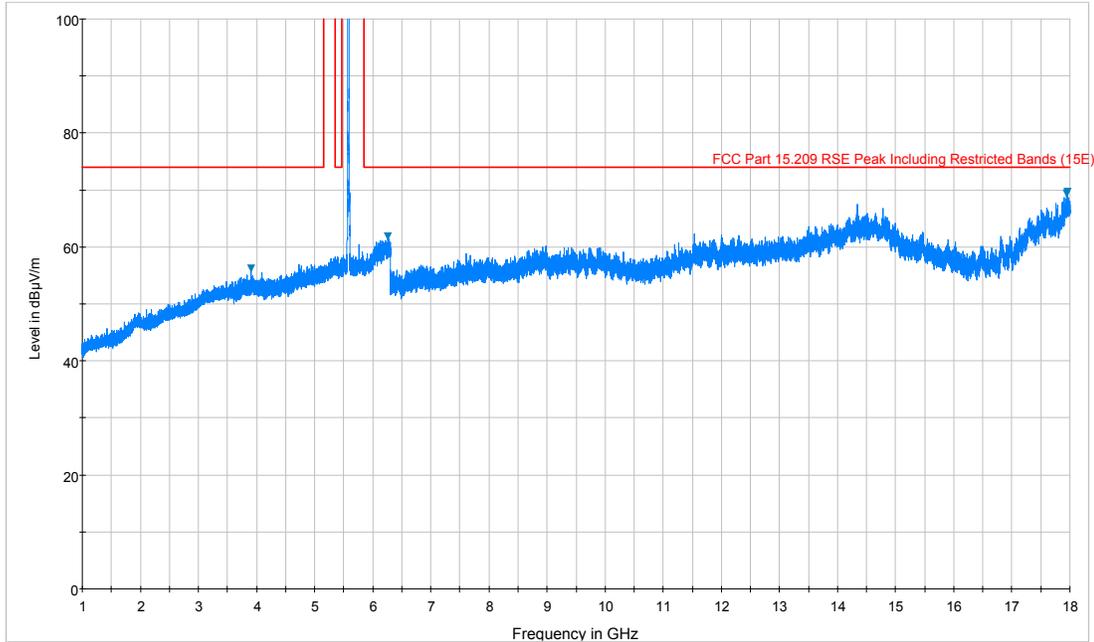


**Plot 7-155. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)**



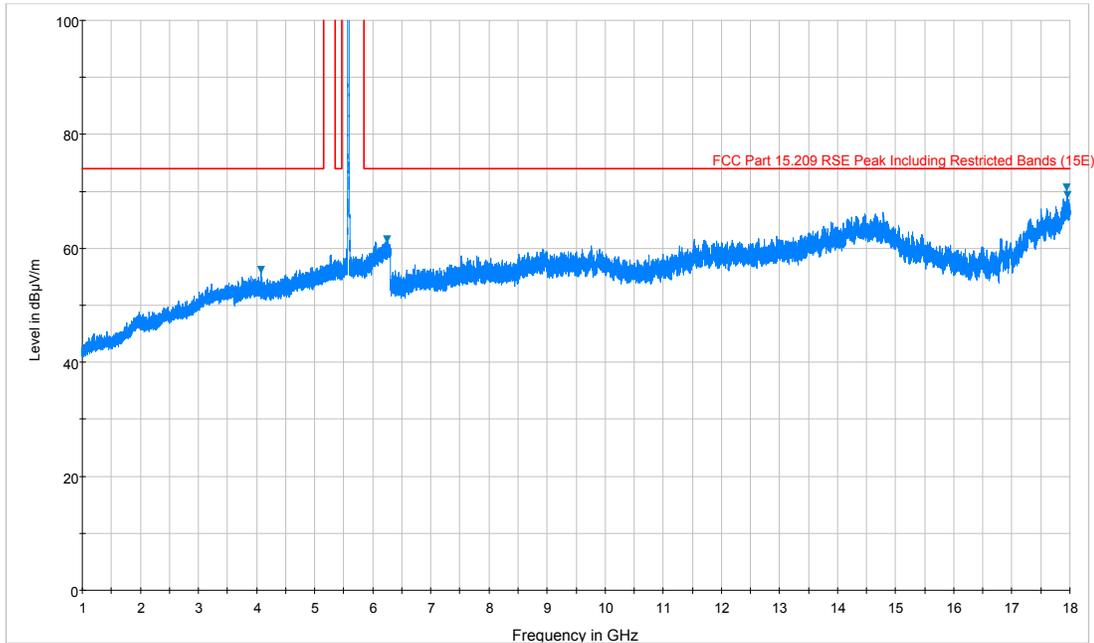
**Plot 7-156. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 118 of 209	



Preview Result 1-PK+    FCC Part 15.209 RSE Peak Including Restricted Bands (15E)    Final\_Result PK+

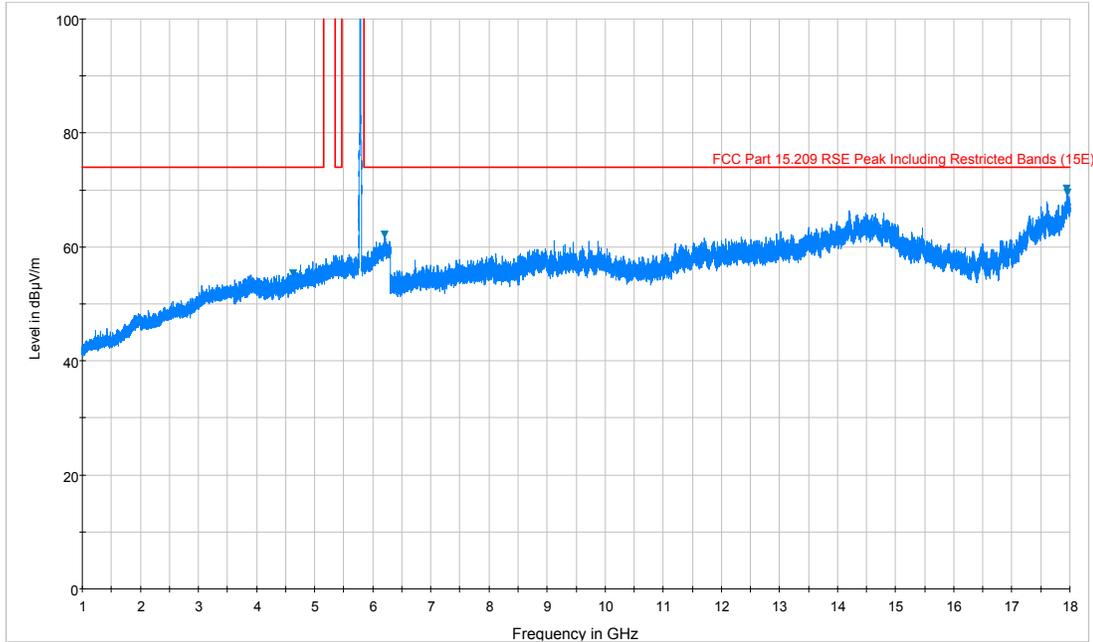
**Plot 7-157. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)**



Preview Result 1-PK+    FCC Part 15.209 RSE Peak Including Restricted Bands (15E)    Final\_Result PK+

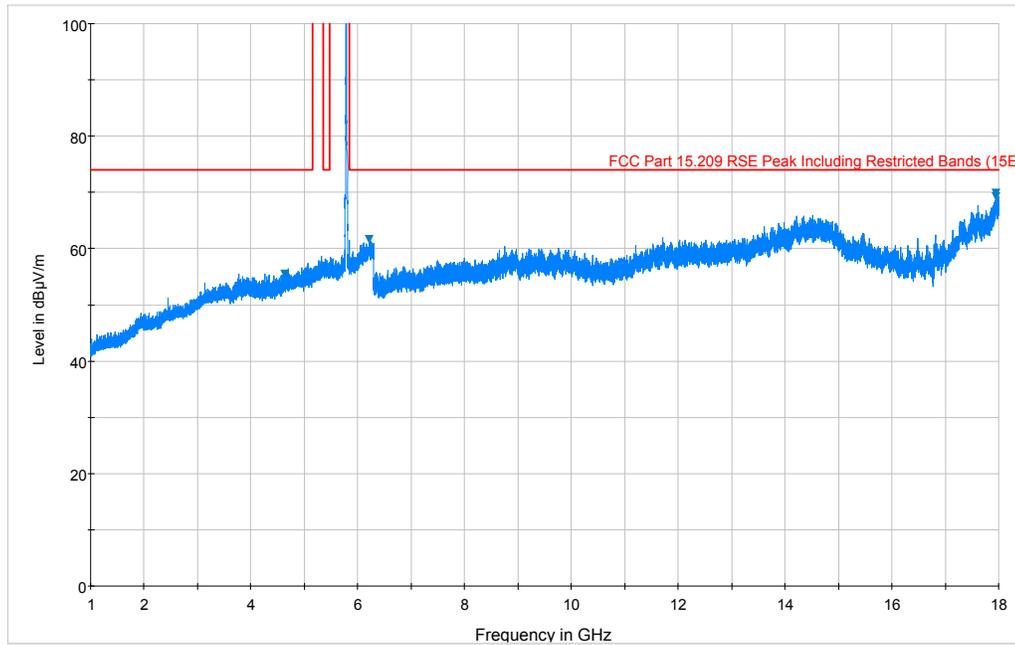
**Plot 7-158. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 119 of 209



Preview Result 1-PK+    FCC Part 15.209 RSE Peak Including Restricted Bands (15E)    Final\_Result PK+

**Plot 7-159. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)**



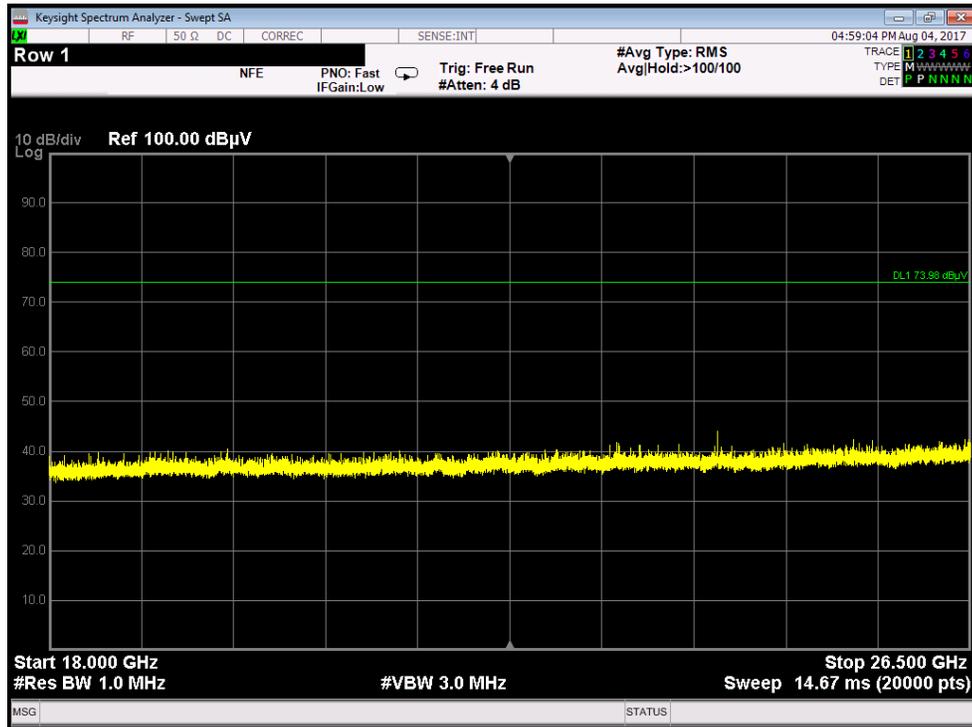
Preview Result 1-PK+    FCC Part 15.209 RSE Peak Including Restricted Bands (15E)    Final\_Result PK+

**Plot 7-160. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)**

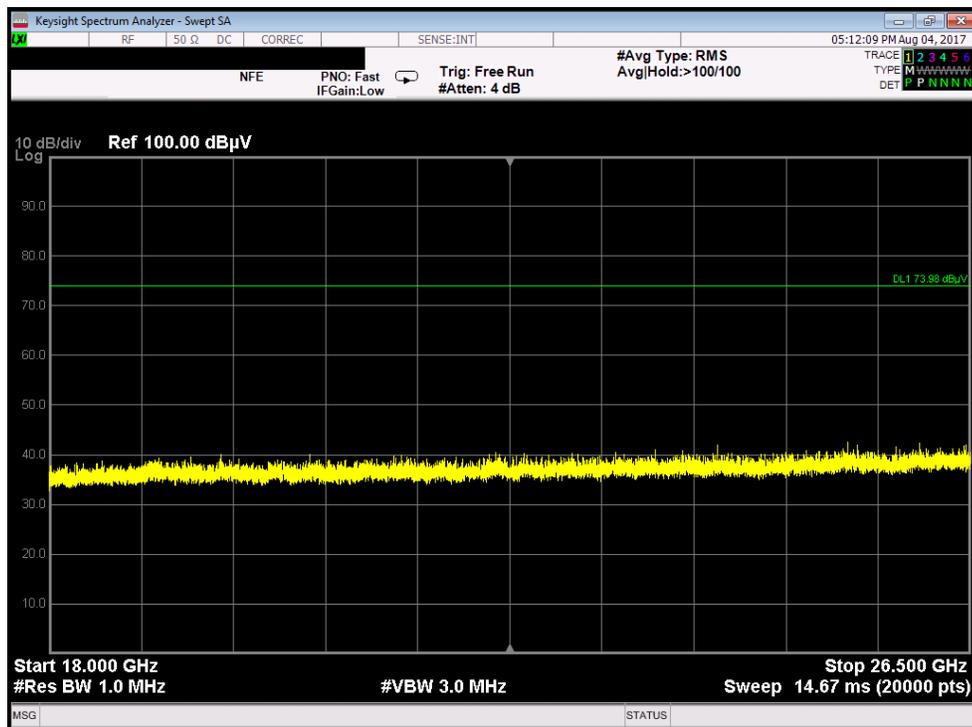
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 120 of 209

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

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Plot 7-161. Radiated Spurious Plot 18GHz - 26.5GHz (802.11a – Ant. Pol. H)

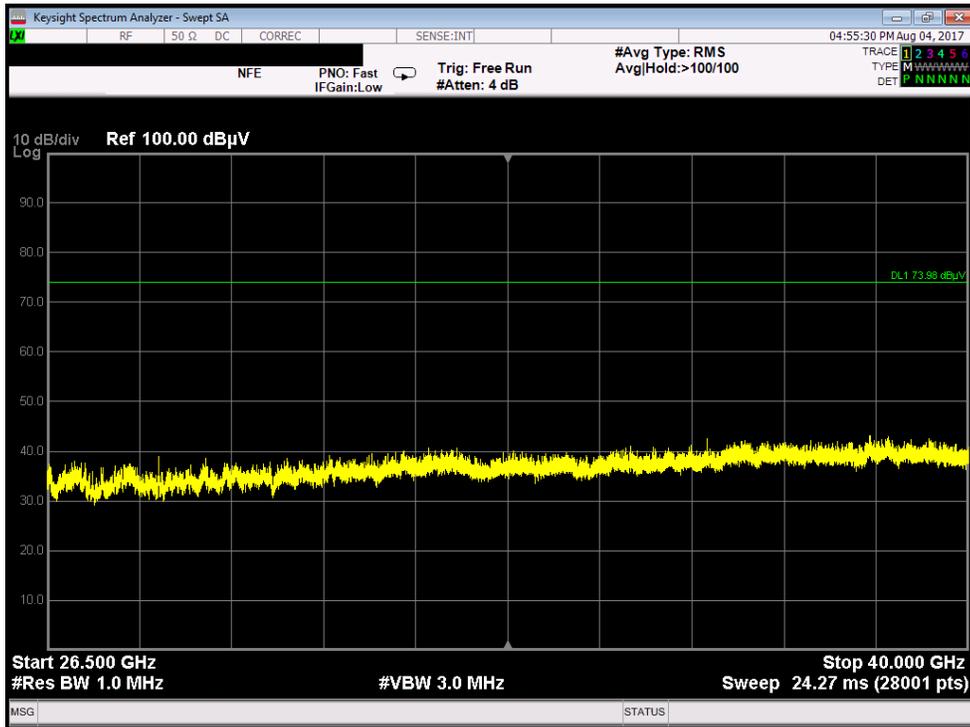


Plot 7-162. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a – Ant. Pol. V)

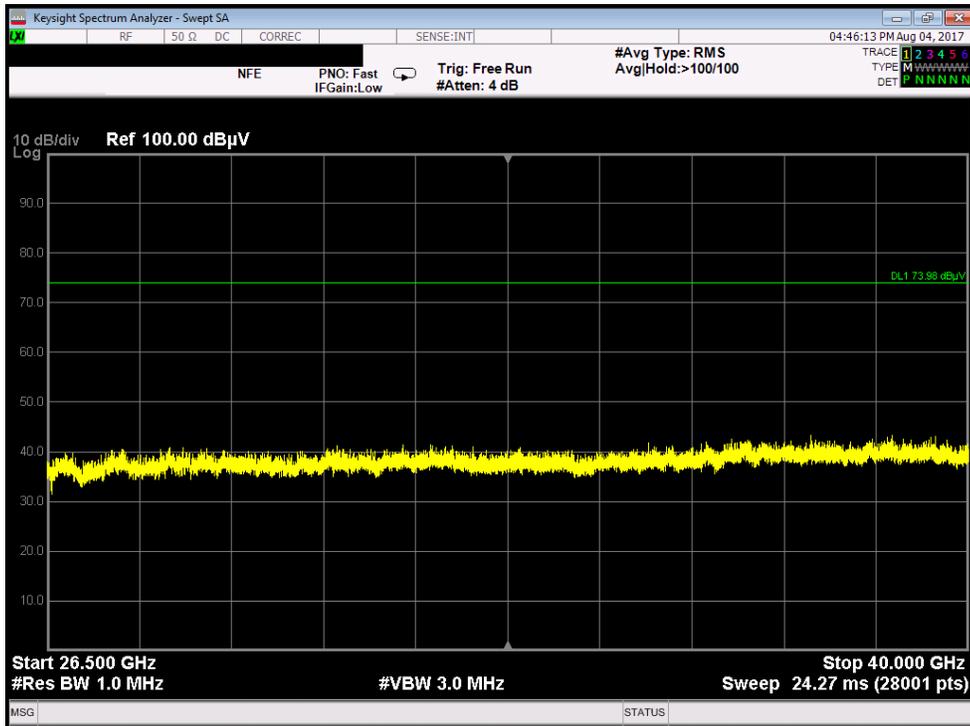
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 121 of 209

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

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Plot 7-163. Radiated Spurious Plot 26.5GHz - 40GHz (802.11a – Ant. Pol. H)



Plot 7-164. Radiated Spurious Plot above 26.5GHz - 40GHz (802.11a – Ant. Pol. V)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 122 of 209

## 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	100	62	-66.87	12.13	-9.54	42.72	68.20	-25.48
* 15540.00	Average	H	-	-	-70.85	14.49	-9.54	41.10	53.98	-12.88
* 15540.00	Peak	H	-	-	-68.96	14.49	-9.54	42.99	73.98	-30.99
* 20720.00	Average	H	-	-	-74.75	7.94	-9.54	30.64	53.98	-23.34
* 20720.00	Peak	H	-	-	-63.80	7.94	-9.54	41.59	73.98	-32.39
25900.00	Peak	H	-	-	-61.72	8.46	-9.54	44.20	68.20	-24.00

**Table 7-29. 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	100	66	-67.28	12.12	-9.54	42.30	68.20	-25.90
* 15600.00	Average	H	-	-	-70.49	14.31	-9.54	41.28	53.98	-12.70
* 15600.00	Peak	H	-	-	-68.34	14.31	-9.54	43.43	73.98	-30.55
* 20800.00	Average	H	-	-	-75.60	7.95	-9.54	29.81	53.98	-24.17
* 20800.00	Peak	H	-	-	-63.12	7.95	-9.54	42.29	73.98	-31.69
26000.00	Peak	H	-	-	-62.06	8.60	-9.54	44.00	68.20	-24.20

**Table 7-30. Radiated Measurements**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 123 of 209	

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	100	220	-68.06	12.09	-9.54	41.49	68.20	-26.71
* 15720.00	Average	H	-	-	-70.65	14.02	-9.54	40.83	53.98	-13.15
* 15720.00	Peak	H	-	-	-68.63	14.02	-9.54	42.85	73.98	-31.13
* 20960.00	Average	H	-	-	-73.99	7.91	-9.54	31.38	53.98	-22.60
* 20960.00	Peak	H	-	-	-63.69	7.91	-9.54	41.68	73.98	-32.30
26200.00	Peak	H	-	-	-60.53	8.62	-9.54	45.55	68.20	-22.65

**Table 7-31. 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	100	61	-63.72	12.12	-9.54	45.86	68.20	-22.34
* 15600.00	Average	H	-	-	-70.29	14.31	-9.54	41.48	53.98	-12.50
* 15600.00	Peak	H	-	-	-54.39	14.31	-9.54	57.38	73.98	-16.60
* 20800.00	Average	H	-	-	-70.76	7.95	-9.54	34.66	53.98	-19.32
* 20800.00	Peak	H	-	-	-62.30	7.95	-9.54	43.12	73.98	-30.86
26000.00	Peak	H	-	-	-60.24	8.60	-9.54	45.82	68.20	-22.38

**Table 7-32. Radiated Measurements with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 124 of 209	

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	100	268	-66.84	12.16	-9.54	42.78	68.20	-25.42
* 15780.00	Average	H	-	-	-70.21	14.03	-9.54	41.28	53.98	-12.70
* 15780.00	Peak	H	-	-	-67.98	14.03	-9.54	43.51	73.98	-30.47
* 21040.00	Average	H	-	-	-74.22	7.92	-9.54	31.16	53.98	-22.82
* 21040.00	Peak	H	-	-	-62.76	7.92	-9.54	42.62	73.98	-31.36
26300.00	Peak	H	-	-	-60.02	8.73	-9.54	46.17	68.20	-22.03

**Table 7-33. Radiated Measurements**

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	100	270	-67.72	12.04	-9.54	41.78	68.20	-26.42
* 15840.00	Average	H	-	-	-70.30	14.25	-9.54	41.40	53.98	-12.58
* 15840.00	Peak	H	-	-	-68.27	14.25	-9.54	43.43	73.98	-30.55
* 21120.00	Average	H	-	-	-74.58	7.96	-9.54	30.84	53.98	-23.14
* 21120.00	Peak	H	-	-	-62.87	7.96	-9.54	42.55	73.98	-31.43
26400.00	Peak	H	-	-	-61.25	8.94	-9.54	45.15	68.20	-23.05

**Table 7-34. Radiated Measurements**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 125 of 209	

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	100	270	-69.44	12.06	-9.54	40.08	53.98	-13.90
* 10640.00	Peak	H	100	270	-67.41	12.06	-9.54	42.11	73.98	-31.87
* 15960.00	Average	H	-	-	-70.49	14.55	-9.54	41.52	53.98	-12.46
* 15960.00	Peak	H	-	-	-68.30	14.55	-9.54	43.71	73.98	-30.27
* 21280.00	Average	H	-	-	-75.50	8.04	-9.54	30.00	53.98	-23.98
* 21280.00	Peak	H	-	-	-64.13	8.04	-9.54	41.36	73.98	-32.62
26600.00	Peak	H	-	-	-55.94	-8.30	-9.54	33.22	68.20	-34.98

**Table 7-35. 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	100	245	-69.62	12.06	-9.54	39.90	53.98	-14.08
* 10640.00	Peak	H	100	245	-64.39	12.06	-9.54	45.13	73.98	-28.85
* 15960.00	Average	H	-	-	-73.75	14.55	-9.54	38.26	53.98	-15.72
* 15960.00	Peak	H	-	-	-63.24	14.55	-9.54	48.77	73.98	-25.21
* 21280.00	Average	H	-	-	-72.58	8.04	-9.54	32.92	53.98	-21.06
* 21280.00	Peak	H	-	-	-62.20	8.04	-9.54	43.29	73.98	-30.69
26600.00	Peak	H	-	-	-54.76	-8.30	-9.54	34.39	68.20	-33.81

**Table 7-36. Radiated Measurements with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 126 of 209	

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	100	270	-70.78	12.87	-9.54	39.55	53.98	-14.43
* 11000.00	Peak	H	100	270	-67.37	12.87	-9.54	42.96	73.98	-31.02
16500.00	Peak	H	-	-	-67.85	16.61	-9.54	46.22	68.20	-21.98
22000.00	Peak	H	-	-	-62.46	8.43	-9.54	43.43	68.20	-24.77
27500.00	Peak	H	-	-	-53.05	-8.80	-9.54	35.61	68.20	-32.59

**Table 7-37. 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	100	264	-69.39	12.64	-9.54	40.71	53.98	-13.27
* 11160.00	Peak	H	100	264	-67.63	12.64	-9.54	42.47	73.98	-31.51
16740.00	Peak	H	-	-	-67.54	16.21	-9.54	46.13	68.20	-22.07
* 22320.00	Average	H	-	-	-71.32	8.08	-9.54	34.22	53.98	-19.76
* 22320.00	Peak	H	-	-	-62.13	8.08	-9.54	43.41	73.98	-30.57
27900.00	Peak	H	-	-	-54.84	-9.08	-9.54	33.54	68.20	-34.66

**Table 7-38. Radiated Measurements**

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]
* 11400.00	Average	H	100	270	-71.22	12.47	-9.54	38.71	53.98	-15.27
* 11400.00	Peak	H	100	270	-69.08	12.47	-9.54	40.85	73.98	-33.13
17100.00	Peak	H	-	-	-68.57	18.06	-9.54	46.95	68.20	-21.25
* 22800.00	Average	H	-	-	-62.25	8.37	-9.54	43.58	53.98	-10.39
* 22800.00	Peak	H	-	-	-62.11	8.37	-9.54	43.72	73.98	-30.26
28500.00	Peak	H	-	-	-52.96	-8.95	-9.54	35.55	68.20	-32.65

**Table 7-39. Radiated Measurements**

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]
* 11400.00	Average	H	-	-	-76.74	12.47	-9.54	33.18	53.98	-20.80
* 11400.00	Peak	H	-	-	-69.98	12.47	-9.54	39.95	73.98	-34.03
17100.00	Peak	H	-	-	-65.41	18.06	-9.54	50.11	68.20	-18.09
* 22800.00	Average	H	-	-	-71.07	8.37	-9.54	34.76	53.98	-19.21
* 22800.00	Peak	H	-	-	-62.32	8.37	-9.54	43.51	73.98	-30.47
28500.00	Peak	H	-	-	-51.71	-8.95	-9.54	36.80	68.20	-31.40

**Table 7-40. Radiated Measurements with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 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	100	270	-71.15	12.43	-9.54	38.74	53.98	-15.24
* 11490.00	Peak	H	100	270	-67.88	12.43	-9.54	42.01	73.98	-31.97
17235.00	Peak	H	-	-	-67.62	18.61	-9.54	48.45	68.20	-19.75
* 22980.00	Average	H	-	-	-74.99	8.16	-9.54	30.63	53.98	-23.35
* 22980.00	Peak	H	-	-	-63.39	8.16	-9.54	42.23	73.98	-31.75
28725.00	Peak	H	-	-	-52.85	-9.24	-9.54	35.36	68.20	-32.84

**Table 7-41. Radiated Measurements**

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	-	-	-71.14	12.54	-9.54	38.86	53.98	-15.12
* 11570.00	Peak	H	-	-	-68.91	12.54	-9.54	41.09	73.98	-32.89
17355.00	Peak	H	-	-	-67.65	18.73	-9.54	48.54	68.20	-19.66
23140.00	Peak	H	-	-	-62.54	8.37	-9.54	43.29	68.20	-24.91
28925.00	Peak	H	-	-	-52.79	-9.65	-9.54	35.01	68.20	-33.19

**Table 7-42. Radiated Measurements**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 129 of 209	

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	-	-	-71.47	12.99	-9.54	38.97	53.98	-15.01
* 11650.00	Peak	H	-	-	-69.38	12.99	-9.54	41.06	73.98	-32.92
17475.00	Peak	H	-	-	-68.29	19.25	-9.54	48.41	68.20	-19.79
23300.00	Peak	H	-	-	-62.49	8.50	-9.54	43.46	68.20	-24.74
29125.00	Peak	H	-	-	-51.44	-9.87	-9.54	36.15	68.20	-32.05

**Table 7-43. Radiated Measurements**

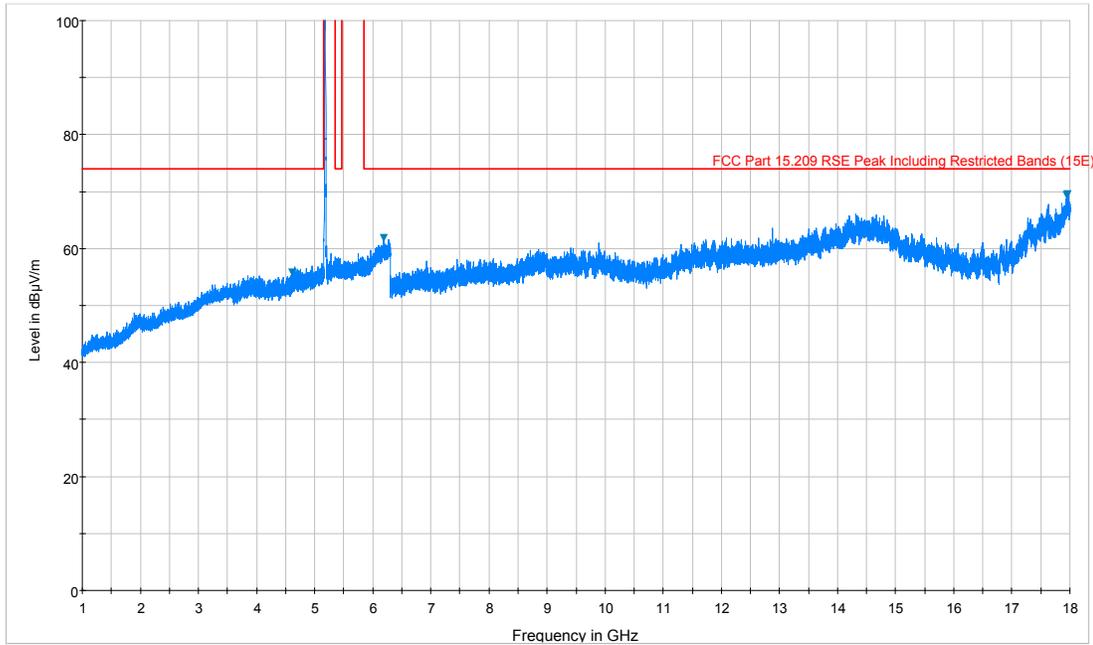
Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 Meter  
 Operating Frequency: 5825MHz  
 Channel: 165

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	-	-	-69.49	12.99	-9.54	40.96	53.98	-13.02
* 11650.00	Peak	H	-	-	-65.67	12.99	-9.54	44.78	73.98	-29.20
17475.00	Peak	H	-	-	-64.10	19.25	-9.54	52.60	68.20	-15.60
23300.00	Peak	H	-	-	-61.92	8.50	-9.54	44.04	68.20	-24.16
29125.00	Peak	H	-	-	-55.19	-9.87	-9.54	32.39	68.20	-35.81

**Table 7-44. Radiated Measurements with WCP**

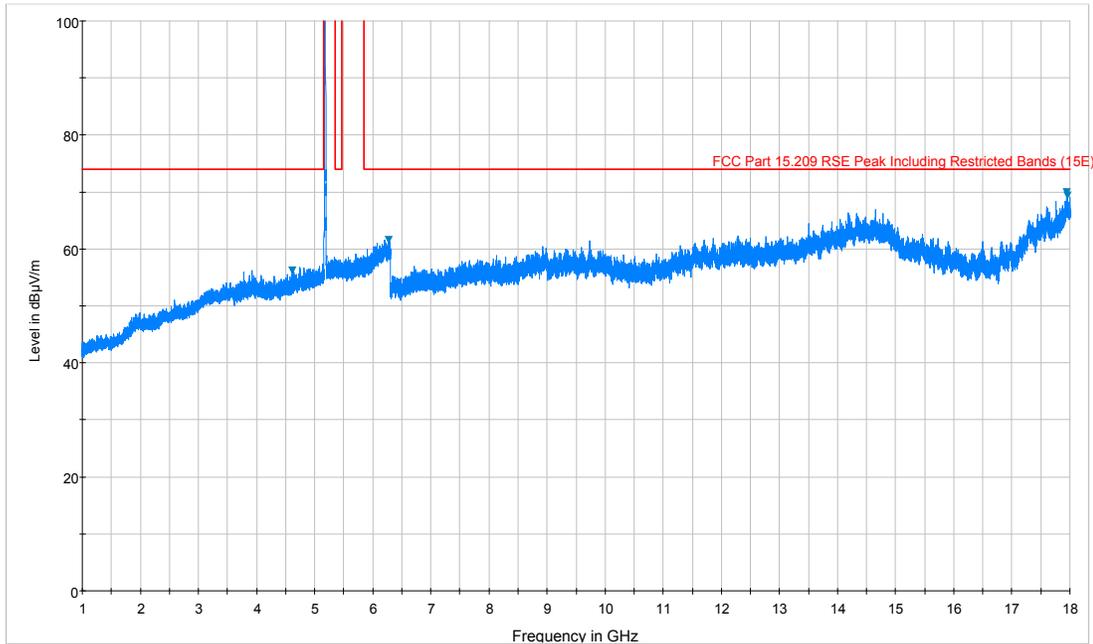
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 130 of 209	

## 7.7.2 Antenna-2 Radiated Spurious Emission Measurements



Preview Result 1-PK+    FCC Part 15.209 RSE Peak Including Restricted Bands (15E)    Final\_Result PK+

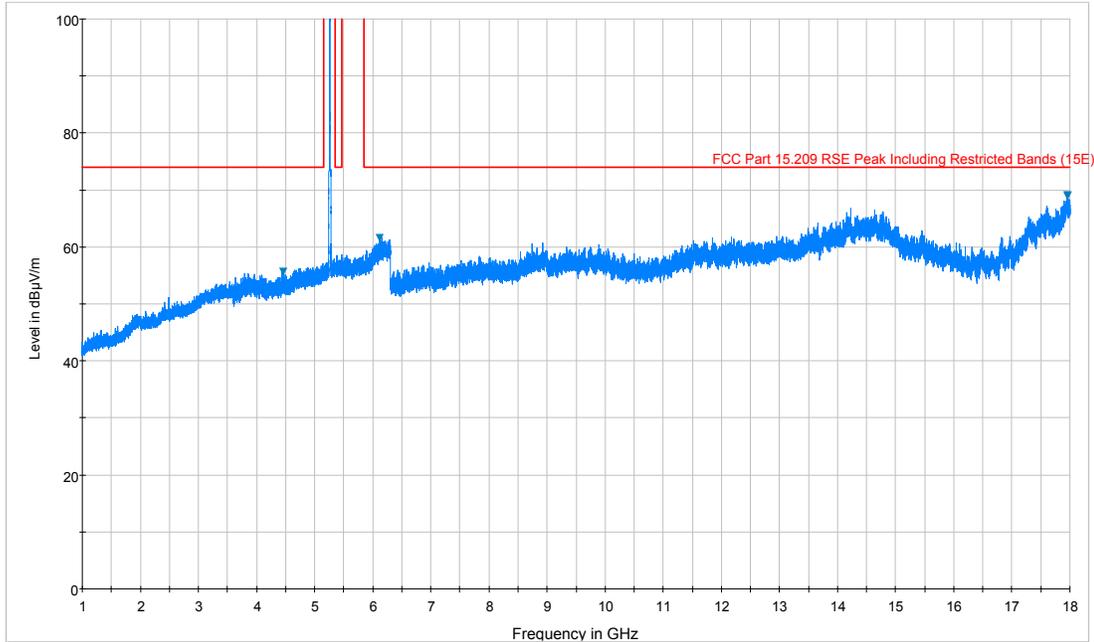
**Plot 7-165. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)**



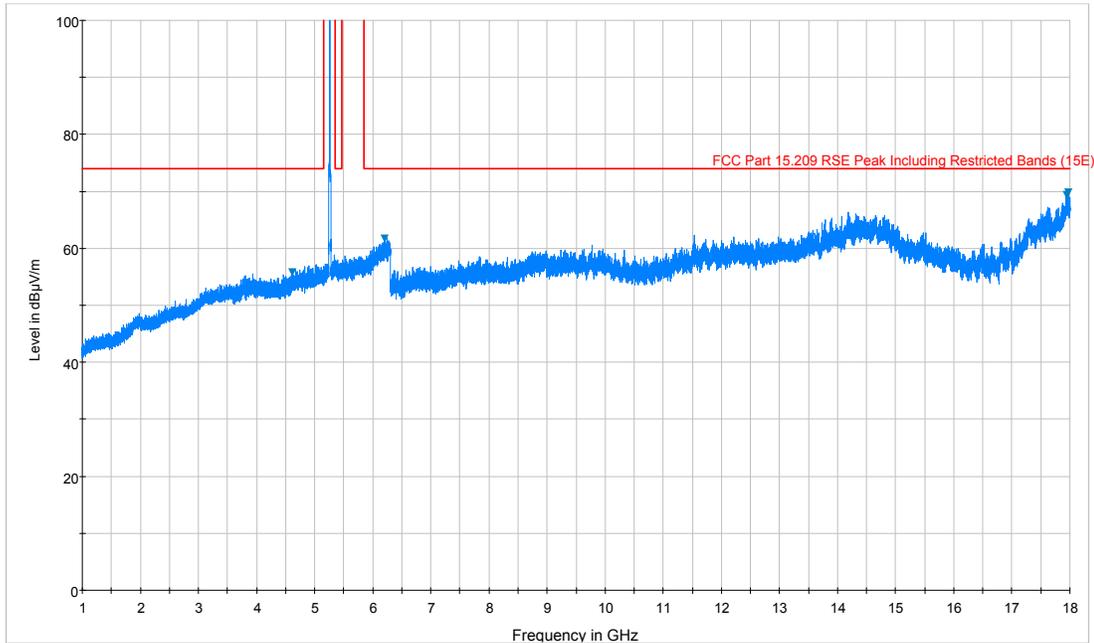
Preview Result 1-PK+    FCC Part 15.209 RSE Peak Including Restricted Bands (15E)    Final\_Result PK+

**Plot 7-166. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 131 of 209

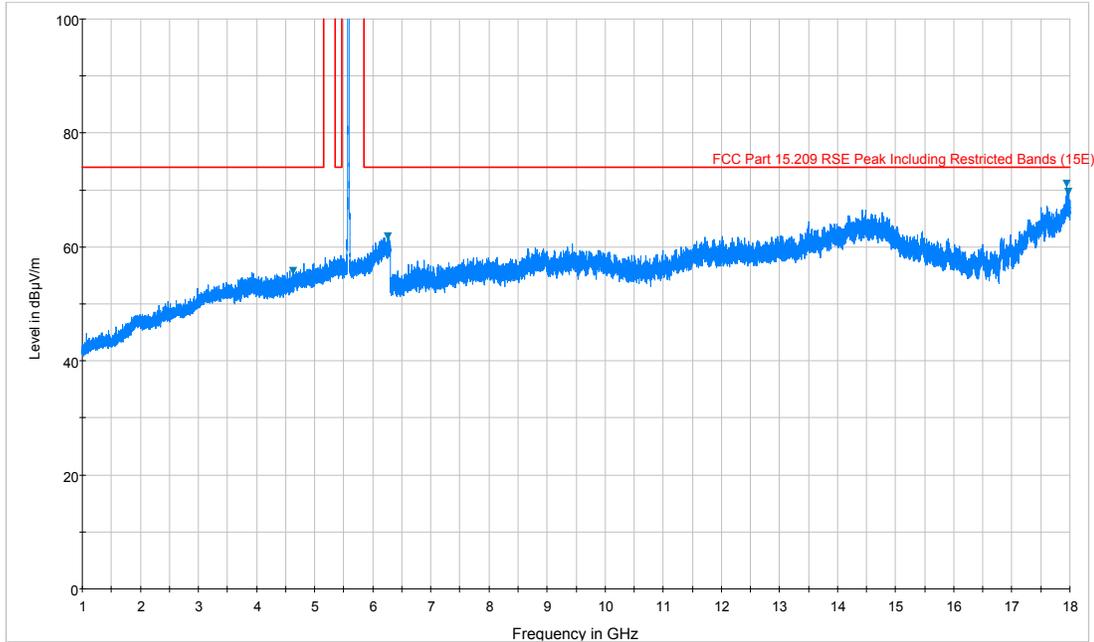


**Plot 7-167. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)**



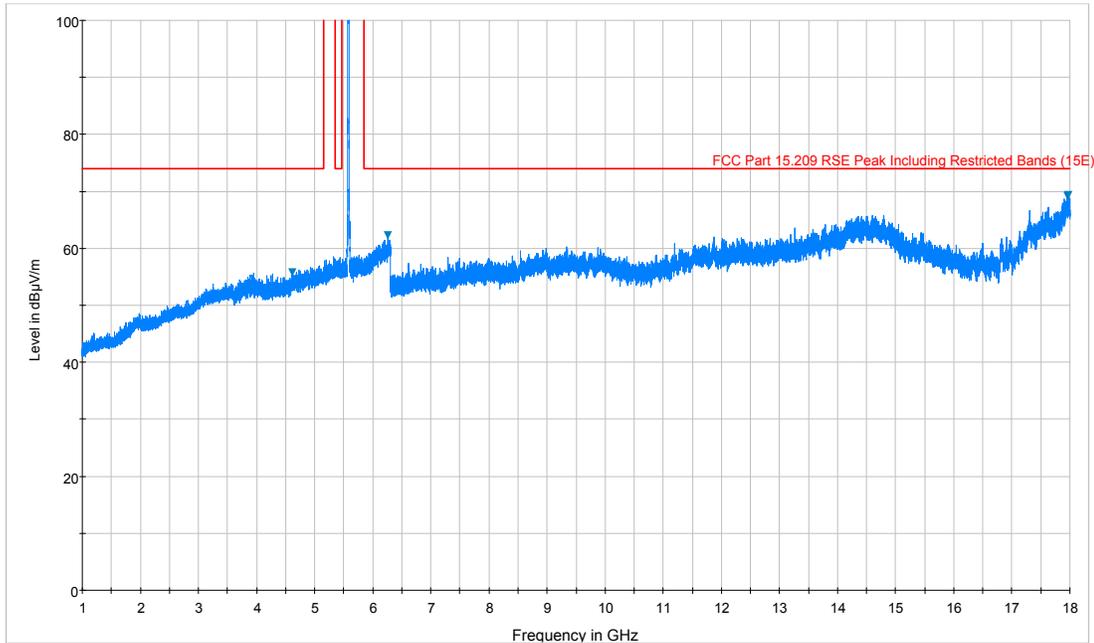
**Plot 7-168. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 132 of 209



Preview Result 1-PK+    FCC Part 15.209 RSE Peak Including Restricted Bands (15E)    Final\_Result PK+

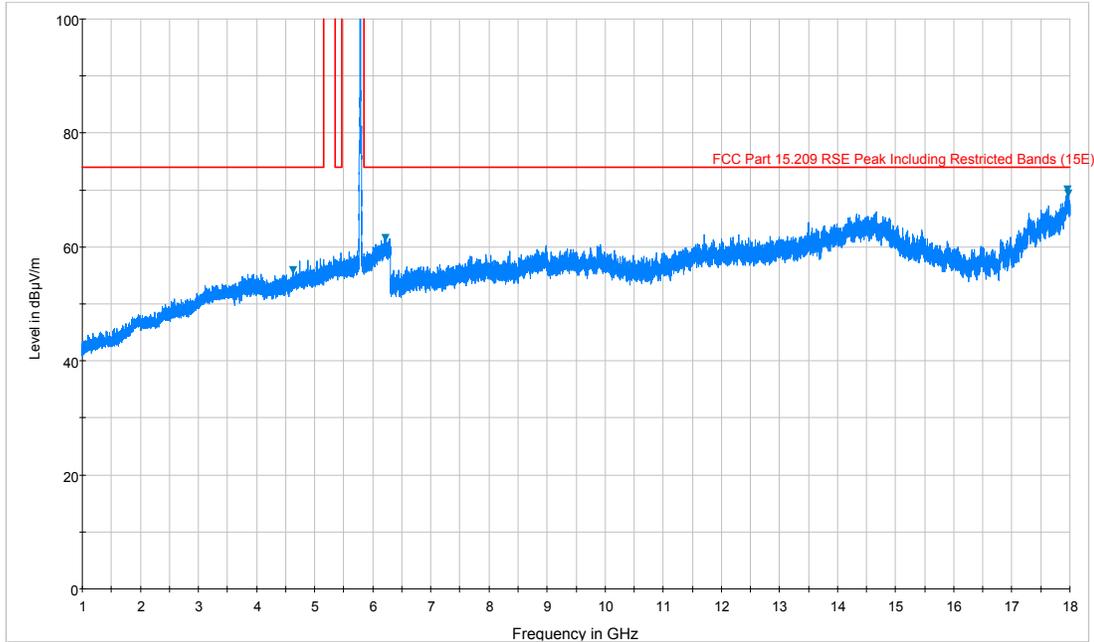
**Plot 7-169. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)**



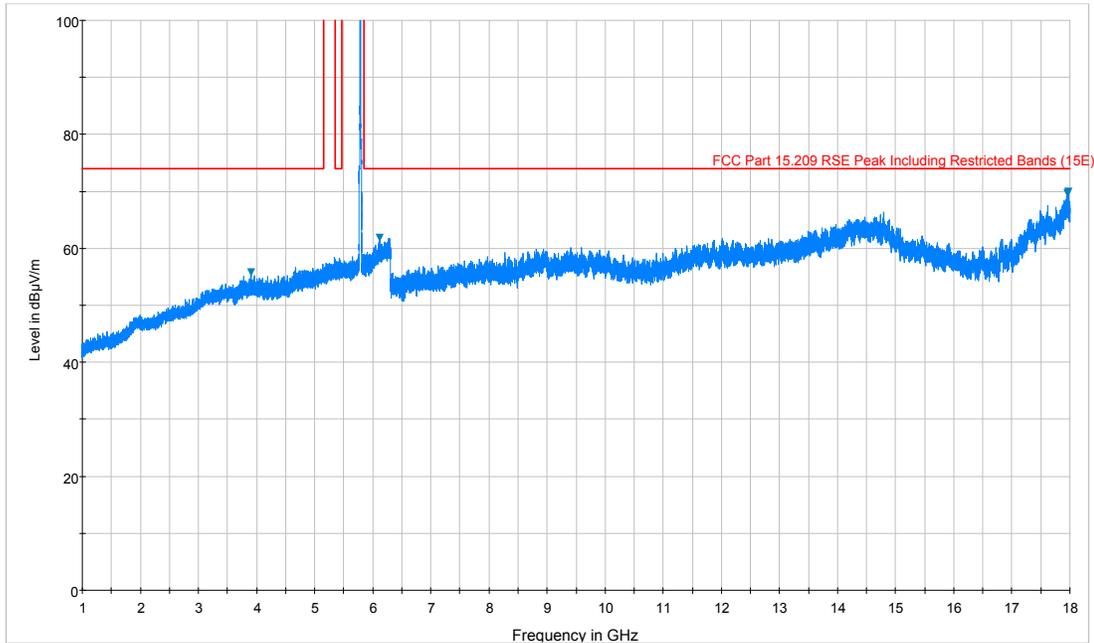
Preview Result 1-PK+    FCC Part 15.209 RSE Peak Including Restricted Bands (15E)    Final\_Result PK+

**Plot 7-170. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 133 of 209



**Plot 7-171. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)**

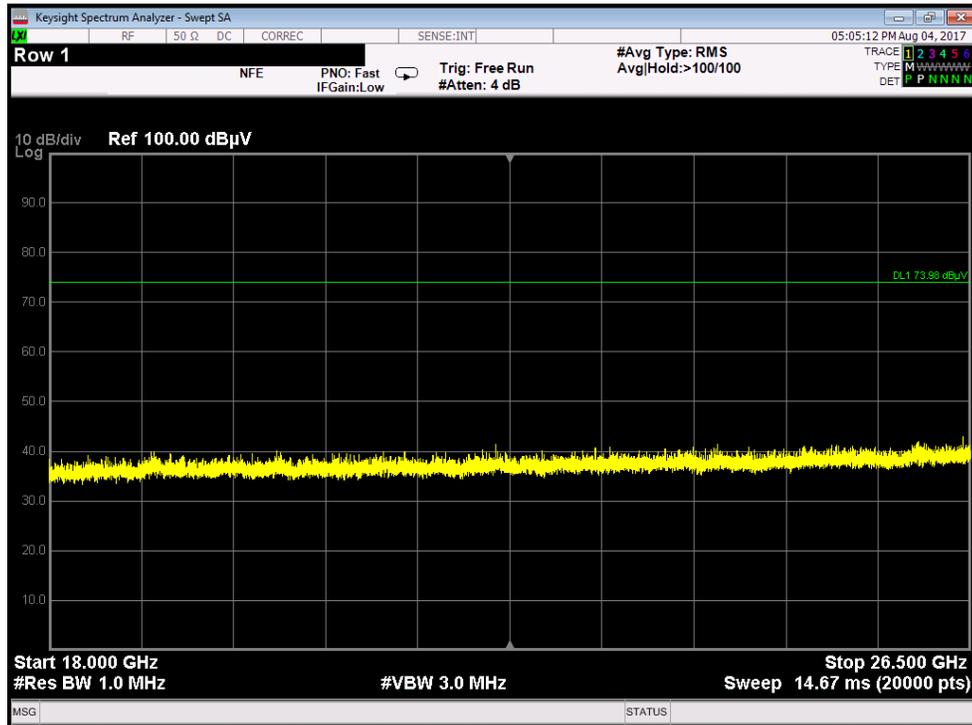


**Plot 7-172. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)**

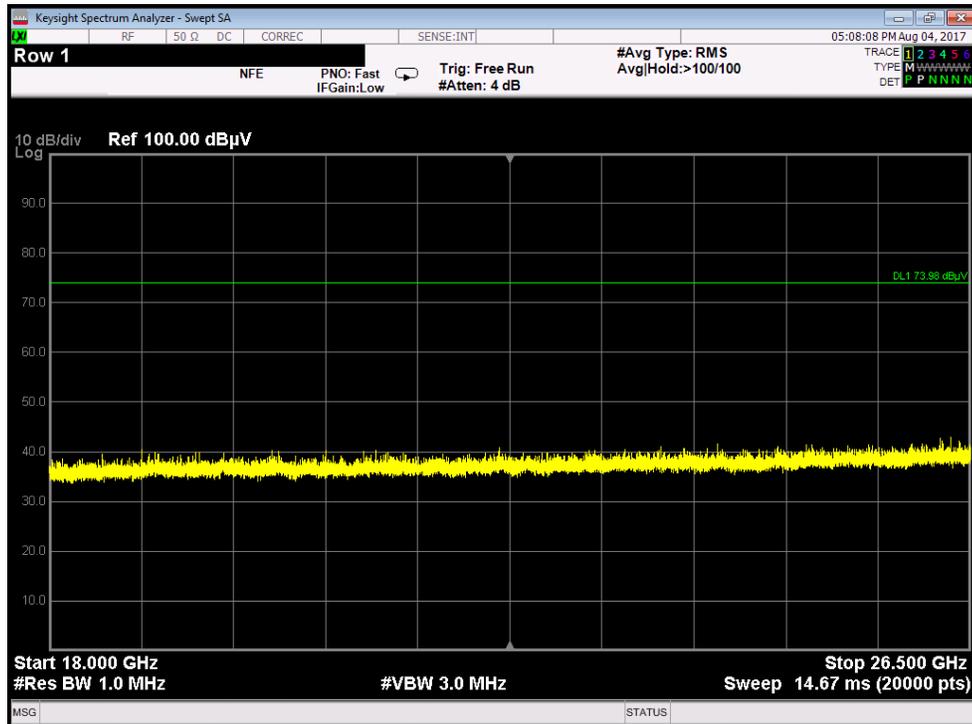
<b>FCC ID:</b> ZNFH932		<b>FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1707110215-05-R1.ZNF	<b>Test Dates:</b> 7/12/2017-8/8/2017	<b>EUT Type:</b> Portable Handset	Page 134 of 209	

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

§15.209



Plot 7-173. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a – Ant. Pol. H)

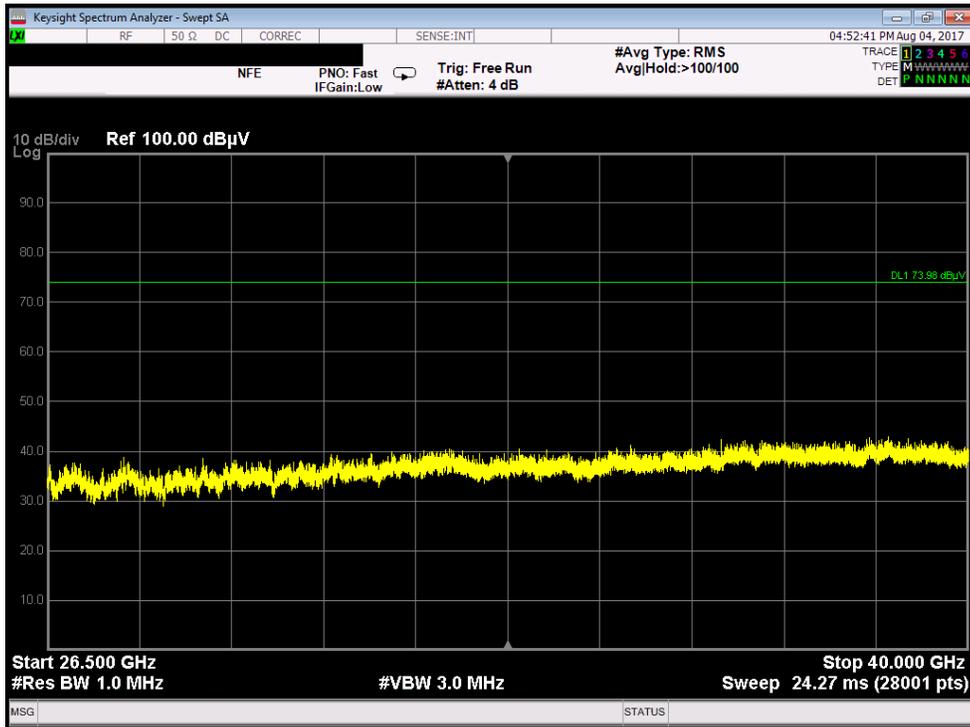


Plot 7-174. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a – Ant. Pol. V)

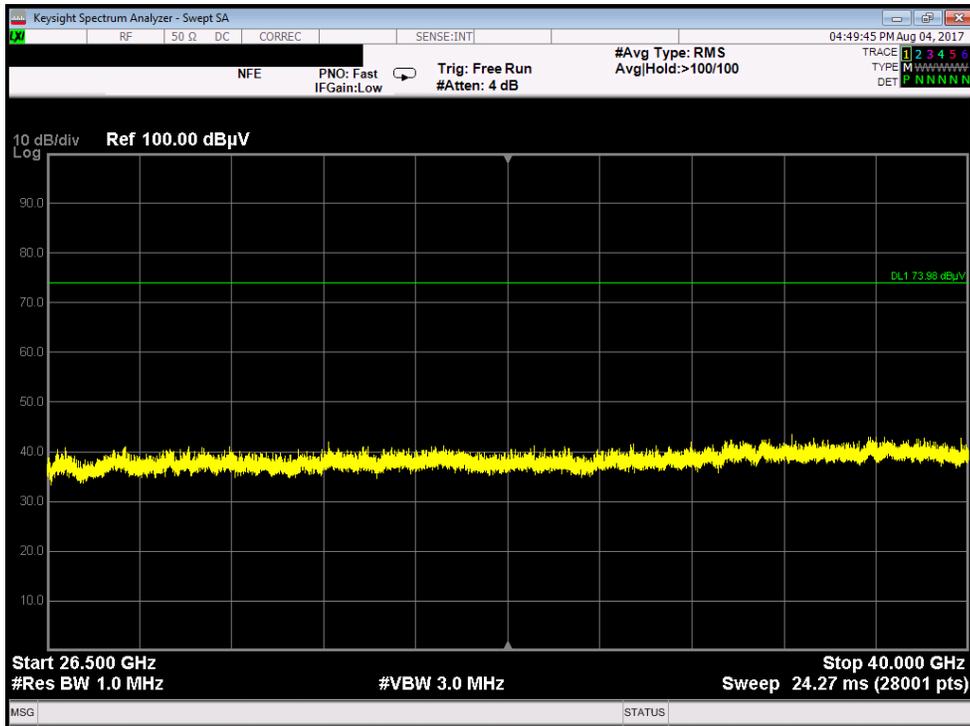
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 135 of 209

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

§15.209



Plot 7-175. Radiated Spurious Plot 26.5GHz - 40GHz (802.11a – Ant. Pol. H)



Plot 7-176. Radiated Spurious Plot above 26.5GHz - 40GHz (802.11a – Ant. Pol. V)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 136 of 209

## 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	H	100	147	-66.05	12.13	-9.54	43.54	68.20	-24.66
* 15540.00	Average	H	-	-	-71.60	14.49	-9.54	40.35	53.98	-13.63
* 15540.00	Peak	H	-	-	-68.51	14.49	-9.54	43.44	73.98	-30.54
* 20720.00	Average	H	-	-	-71.28	7.94	-9.54	34.12	53.98	-19.86
* 20720.00	Peak	H	-	-	-62.00	7.94	-9.54	43.40	73.98	-30.58
25900.00	Peak	H	-	-	-60.75	8.46	-9.54	45.17	68.20	-23.03

**Table 7-45. 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	100	278	-65.15	12.12	-9.54	44.43	68.20	-23.77
* 15600.00	Average	H	-	-	-70.77	14.31	-9.54	41.00	53.98	-12.98
* 15600.00	Peak	H	-	-	-68.75	14.31	-9.54	43.02	73.98	-30.96
* 20800.00	Average	H	-	-	-73.42	7.95	-9.54	31.99	53.98	-21.99
* 20800.00	Peak	H	-	-	-63.19	7.95	-9.54	42.23	73.98	-31.75
26000.00	Peak	H	-	-	-60.99	8.60	-9.54	45.07	68.20	-23.13

**Table 7-46. Radiated Measurements**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 137 of 209	

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	100	135	-65.63	12.09	-9.54	43.92	68.20	-24.28
* 15720.00	Average	H	-	-	-70.73	14.02	-9.54	40.75	53.98	-13.23
* 15720.00	Peak	H	-	-	-68.35	14.02	-9.54	43.13	73.98	-30.85
* 20960.00	Average	H	-	-	-70.85	7.91	-9.54	34.52	53.98	-19.46
* 20960.00	Peak	H	-	-	-61.46	7.91	-9.54	43.91	73.98	-30.07
26200.00	Peak	H	-	-	-60.29	8.62	-9.54	45.79	68.20	-22.41

**Table 7-47. 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	100	128	-64.65	12.12	-9.54	44.93	68.20	-23.27
* 15600.00	Average	H	-	-	-73.99	14.31	-9.54	37.77	53.98	-16.21
* 15600.00	Peak	H	-	-	-64.72	14.31	-9.54	47.05	73.98	-26.93
* 20800.00	Average	H	-	-	-71.58	7.95	-9.54	33.83	53.98	-20.15
* 20800.00	Peak	H	-	-	-62.64	7.95	-9.54	42.77	73.98	-31.21
26000.00	Peak	H	-	-	-59.21	8.60	-9.54	46.84	68.20	-21.36

**Table 7-48. Radiated Measurements with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 138 of 209	

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	100	153	-66.33	12.16	-9.54	43.29	68.20	-24.91
* 15780.00	Average	H	-	-	-71.18	14.03	-9.54	40.31	53.98	-13.67
* 15780.00	Peak	H	-	-	-68.28	14.03	-9.54	43.21	73.98	-30.77
* 21040.00	Average	H	-	-	-71.17	7.92	-9.54	34.21	53.98	-19.77
* 21040.00	Peak	H	-	-	-61.91	7.92	-9.54	43.47	73.98	-30.51
26300.00	Peak	H	-	-	-60.18	8.73	-9.54	46.01	68.20	-22.19

**Table 7-49. Radiated Measurements**

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	100	60	-66.70	12.04	-9.54	42.80	68.20	-25.40
* 15840.00	Average	H	-	-	-70.44	14.25	-9.54	41.26	53.98	-12.72
* 15840.00	Peak	H	-	-	-67.53	14.25	-9.54	44.17	73.98	-29.81
* 21120.00	Average	H	-	-	-71.42	7.96	-9.54	34.00	53.98	-19.97
* 21120.00	Peak	H	-	-	-61.80	7.96	-9.54	43.62	73.98	-30.36
26400.00	Peak	H	-	-	-60.54	8.94	-9.54	45.86	68.20	-22.34

**Table 7-50. Radiated Measurements**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 139 of 209	

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	100	152	-69.53	12.06	-9.54	39.99	53.98	-13.99
* 10640.00	Peak	H	100	152	-66.98	12.06	-9.54	42.54	73.98	-31.44
* 15960.00	Average	H	-	-	-70.72	14.55	-9.54	41.29	53.98	-12.69
* 15960.00	Peak	H	-	-	-67.97	14.55	-9.54	44.04	73.98	-29.94
* 21280.00	Average	H	-	-	-72.13	8.04	-9.54	33.36	53.98	-20.62
* 21280.00	Peak	H	-	-	-62.63	8.04	-9.54	42.87	73.98	-31.11
26600.00	Peak	H	-	-	-53.31	-8.30	-9.54	35.85	68.20	-32.35

**Table 7-51. 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	-	-	-73.46	12.06	-9.54	36.06	53.98	-17.92
* 10640.00	Peak	H	-	-	-64.56	12.06	-9.54	44.96	73.98	-29.02
* 15960.00	Average	H	-	-	-73.45	14.55	-9.54	38.55	53.98	-15.43
* 15960.00	Peak	H	-	-	-63.58	14.55	-9.54	48.43	73.98	-25.55
* 21280.00	Average	H	-	-	-71.20	8.04	-9.54	34.30	53.98	-19.68
* 21280.00	Peak	H	-	-	-62.85	8.04	-9.54	42.64	73.98	-31.34
26600.00	Peak	H	-	-	-53.31	-8.30	-9.54	35.85	68.20	-32.35

**Table 7-52. Radiated Measurements with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 140 of 209	

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	100	152	-71.58	12.87	-9.54	38.75	53.98	-15.23
* 11000.00	Peak	H	100	152	-69.08	12.87	-9.54	41.25	73.98	-32.73
16500.00	Peak	H	-	-	-67.57	16.61	-9.54	46.50	68.20	-21.70
22000.00	Peak	H	-	-	-62.56	8.43	-9.54	43.32	68.20	-24.88
27500.00	Peak	H	-	-	-51.28	-8.80	-9.54	37.38	68.20	-30.82

**Table 7-53. 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	100	159	-70.49	12.64	-9.54	39.61	53.98	-14.37
* 11160.00	Peak	H	100	159	-68.04	12.64	-9.54	42.06	73.98	-31.92
16740.00	Peak	H	-	-	-67.74	16.21	-9.54	45.93	68.20	-22.27
* 22320.00	Average	H	-	-	-70.69	8.08	-9.54	34.85	53.98	-19.13
* 22320.00	Peak	H	-	-	-62.06	8.08	-9.54	43.48	73.98	-30.50
27900.00	Peak	H	-	-	-51.45	-9.08	-9.54	36.94	68.20	-31.26

**Table 7-54. Radiated Measurements**

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]
* 11400.00	Average	H	-	-	-71.82	12.47	-9.54	38.11	53.98	-15.87
* 11400.00	Peak	H	-	-	-68.98	12.47	-9.54	40.95	73.98	-33.03
17100.00	Peak	H	-	-	-67.94	18.06	-9.54	47.58	68.20	-20.62
* 22800.00	Average	H	-	-	-70.17	8.37	-9.54	35.66	53.98	-18.32
* 22800.00	Peak	H	-	-	-61.81	8.37	-9.54	44.02	73.98	-29.96
28500.00	Peak	H	-	-	-50.05	-8.95	-9.54	38.46	68.20	-29.74

**Table 7-55. 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	-	-	-73.17	12.64	-9.54	36.93	53.98	-17.05
* 11160.00	Peak	H	-	-	-64.87	12.64	-9.54	45.23	73.98	-28.75
16740.00	Peak	H	-	-	-65.20	16.21	-9.54	48.47	68.20	-19.73
* 22320.00	Average	H	-	-	-70.33	8.08	-9.54	35.21	53.98	-18.77
* 22320.00	Peak	H	-	-	-62.30	8.08	-9.54	43.24	73.98	-30.74
27900.00	Peak	H	-	-	-53.36	-9.08	-9.54	35.02	68.20	-33.18

**Table 7-56. Radiated Measurements with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 142 of 209	

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	100	270	-70.97	12.43	-9.54	38.92	53.98	-15.06
* 11490.00	Peak	H	100	270	-68.73	12.43	-9.54	41.16	73.98	-32.82
17235.00	Peak	H	-	-	-67.42	18.61	-9.54	48.65	68.20	-19.55
* 22980.00	Average	H	-	-	-72.13	8.16	-9.54	33.49	53.98	-20.49
* 22980.00	Peak	H	-	-	-61.15	8.16	-9.54	44.47	73.98	-29.51
28725.00	Peak	H	-	-	-50.67	-9.24	-9.54	37.55	68.20	-30.65

**Table 7-57. Radiated Measurements**

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	100	269	-71.36	12.54	-9.54	38.64	53.98	-15.34
* 11570.00	Peak	H	100	269	-68.75	12.54	-9.54	41.25	73.98	-32.73
17355.00	Peak	H	-	-	-67.25	18.73	-9.54	48.94	68.20	-19.26
23140.00	Peak	H	-	-	-61.58	8.37	-9.54	44.25	68.20	-23.95
28925.00	Peak	H	-	-	-51.06	-9.65	-9.54	36.75	68.20	-31.45

**Table 7-58. Radiated Measurements**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 143 of 209	

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	-	-	-71.31	12.99	-9.54	39.13	53.98	-14.85
* 11650.00	Peak	H	-	-	-69.98	12.99	-9.54	40.46	73.98	-33.52
17475.00	Peak	H	-	-	-67.95	19.25	-9.54	48.75	68.20	-19.45
23300.00	Peak	H	-	-	-61.57	8.50	-9.54	44.38	68.20	-23.82
29125.00	Peak	H	-	-	-51.37	-9.87	-9.54	36.22	68.20	-31.98

**Table 7-59. 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	-	-	-73.63	12.99	-9.54	36.81	53.98	-17.17
* 11650.00	Peak	H	-	-	-64.32	12.99	-9.54	46.13	73.98	-27.85
17475.00	Peak	H	-	-	-63.77	19.25	-9.54	52.93	68.20	-15.27
23300.00	Peak	H	-	-	-60.67	8.50	-9.54	45.29	68.20	-22.91
29125.00	Peak	H	-	-	-52.01	-9.87	-9.54	35.57	68.20	-32.63

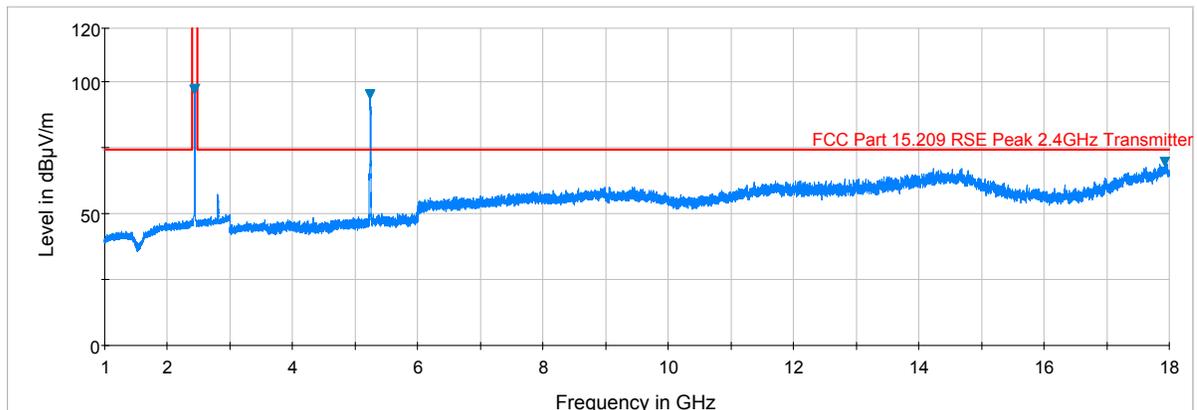
**Table 7-60. Radiated Measurements with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 144 of 209	

### 7.7.3 Simultaneous Tx Radiated Spurious Emissions Measurements §15.247(d) §15.205 & §15.209

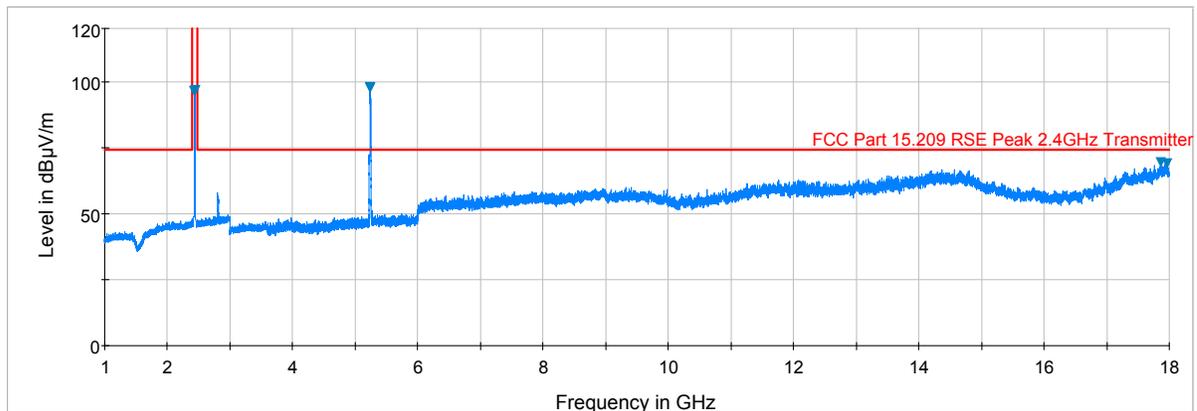
Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	2	48
Operating Frequency (MHz)	2417	5240
Data Rate (Mbps)	1	6
Mode	b	a

Table 7-61. Config-1 (ANT1 2.4GHz & ANT2 5GHz)



Preview Result 1-PK+    FCC Part 15.209 RSE Peak 2.4GHz Transmitter    Final\_Result PK+

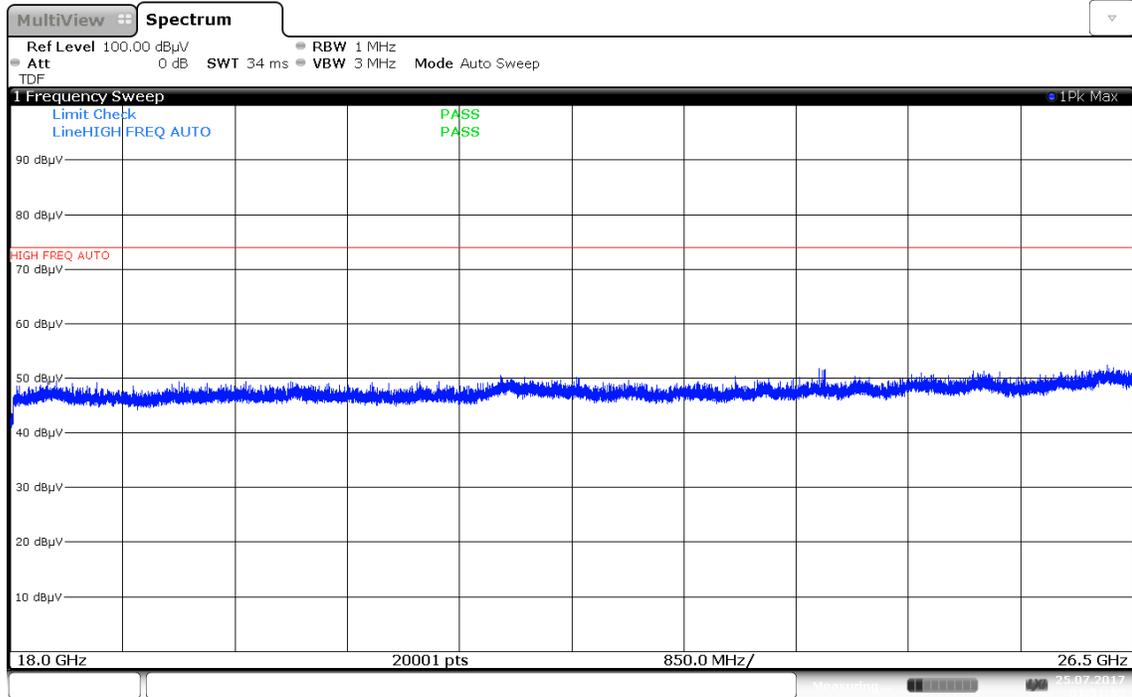
Plot 7-177. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. H)



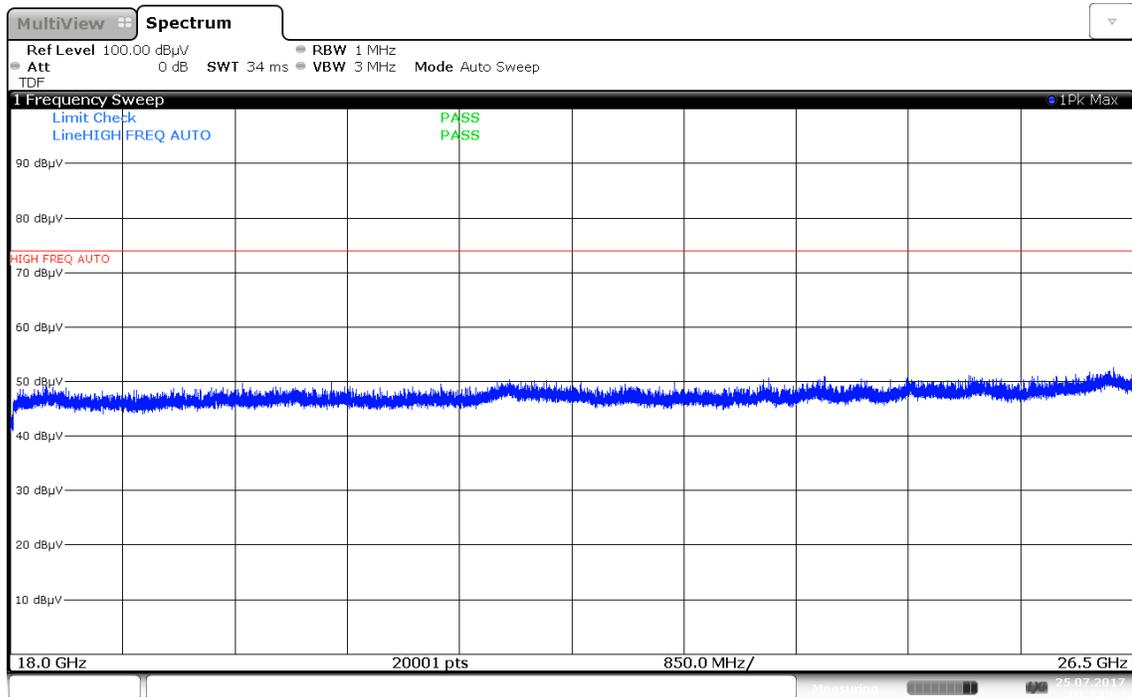
Preview Result 1-PK+    FCC Part 15.209 RSE Peak 2.4GHz Transmitter    Final\_Result PK+

Plot 7-178. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 145 of 209	

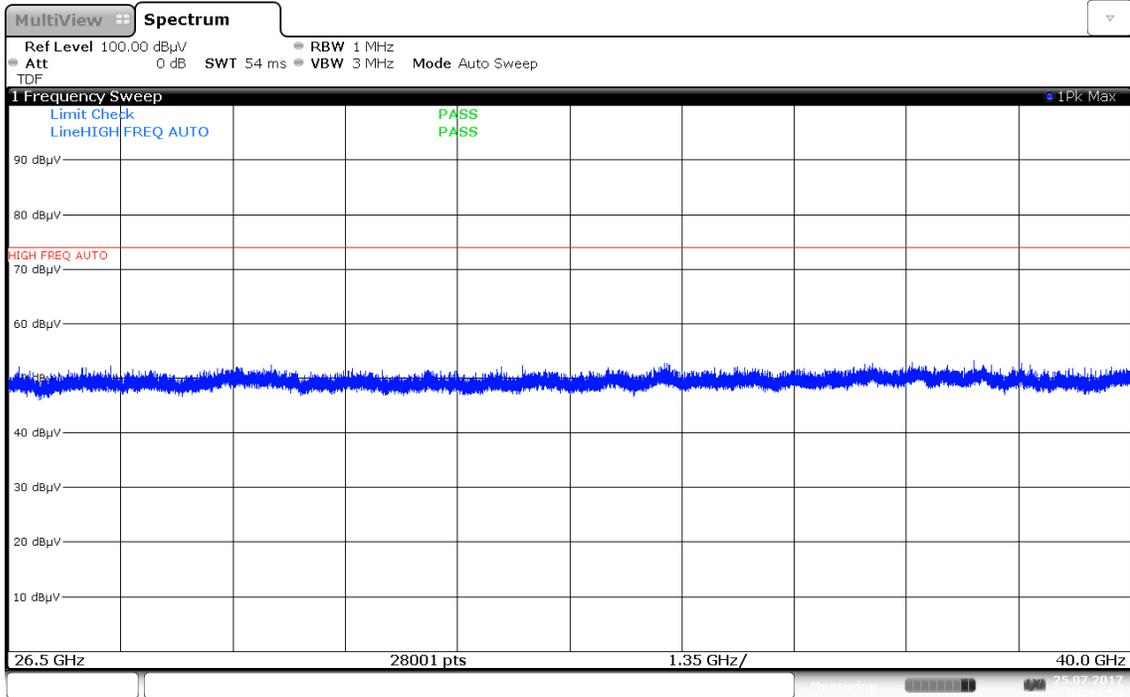


**Plot 7-179. Radiated Spurious Plot 18-26.5GHz (2.4GHz – 5GHz, Ant. Pol. H)**



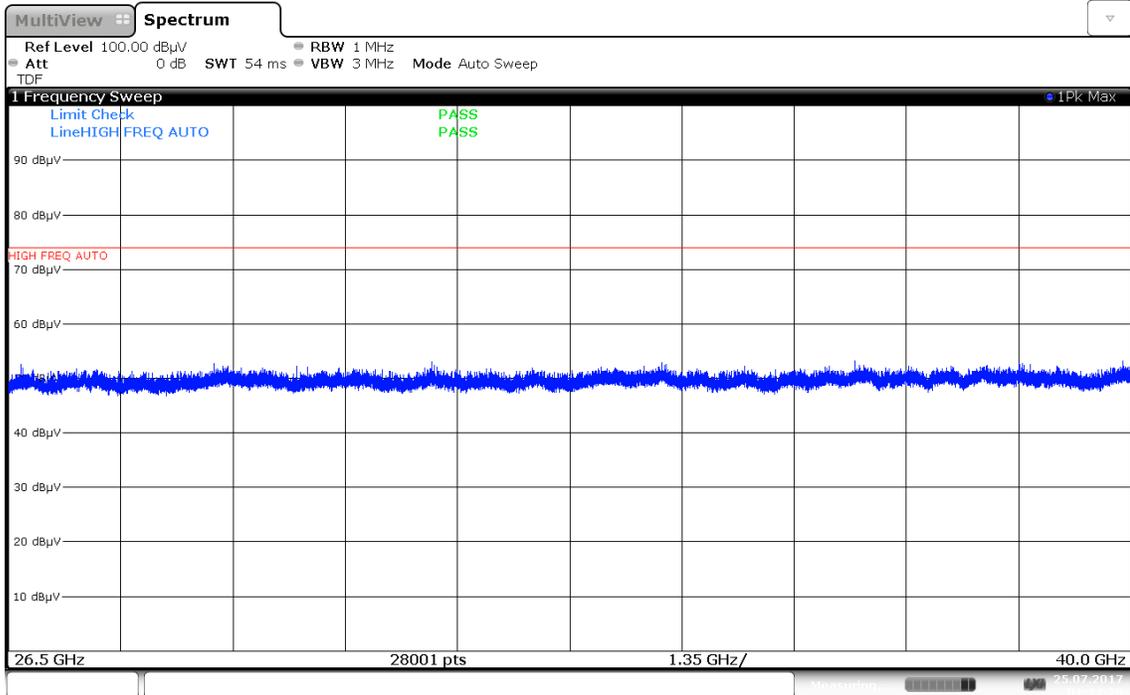
**Plot 7-180. Radiated Spurious Plot 18-26.5GHz (2.4GHz – 5GHz, Ant. Pol. V)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 146 of 209	



01:47:55 25.07.2017

Plot 7-181. Radiated Spurious Plot 26.5-40 GHz (2.4GHz – 5GHz, Ant. Pol. H)



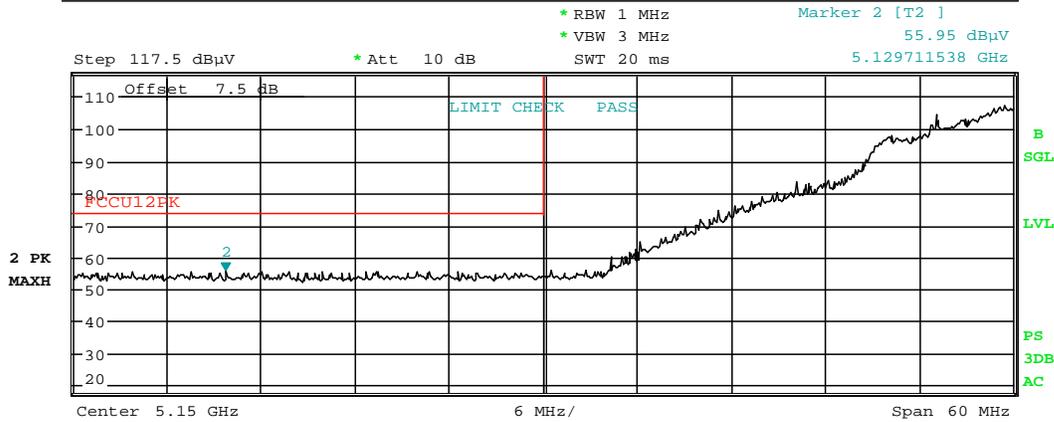
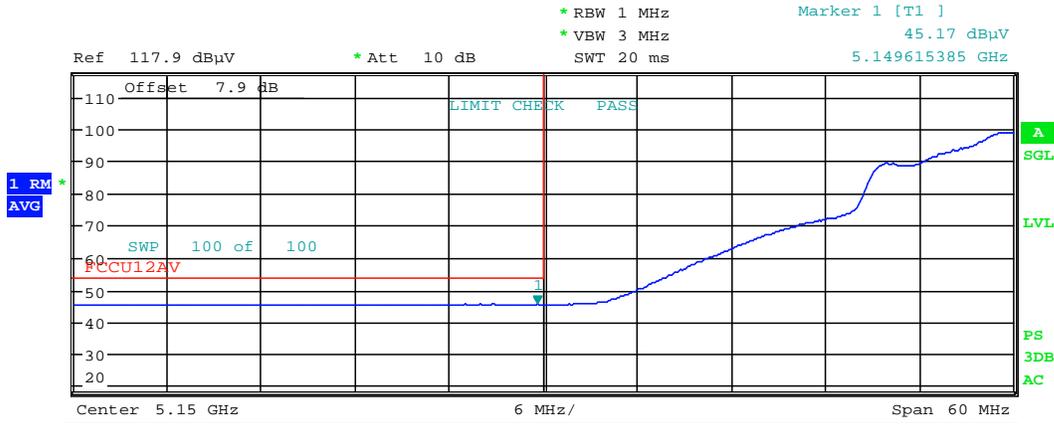
01:44:30 25.07.2017

Plot 7-182. Radiated Spurious Plot 26.5-40 GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 147 of 209

### 7.7.4 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: 18.JUL.2017 02:43:20

**Plot 7-183. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 148 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

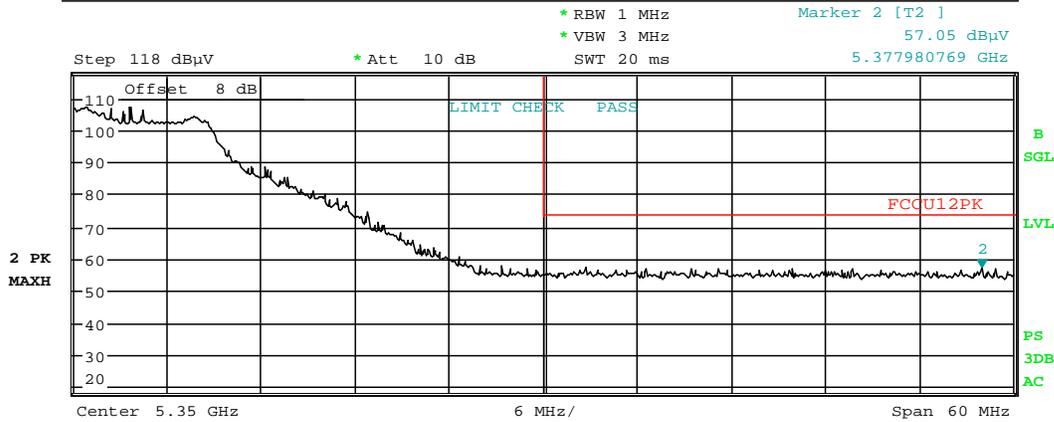
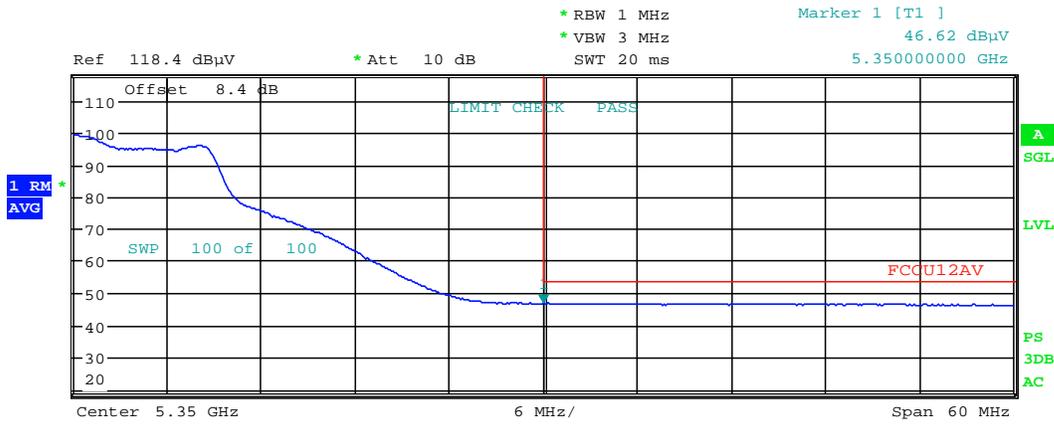
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 18.JUL.2017 02:50:25

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 149 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

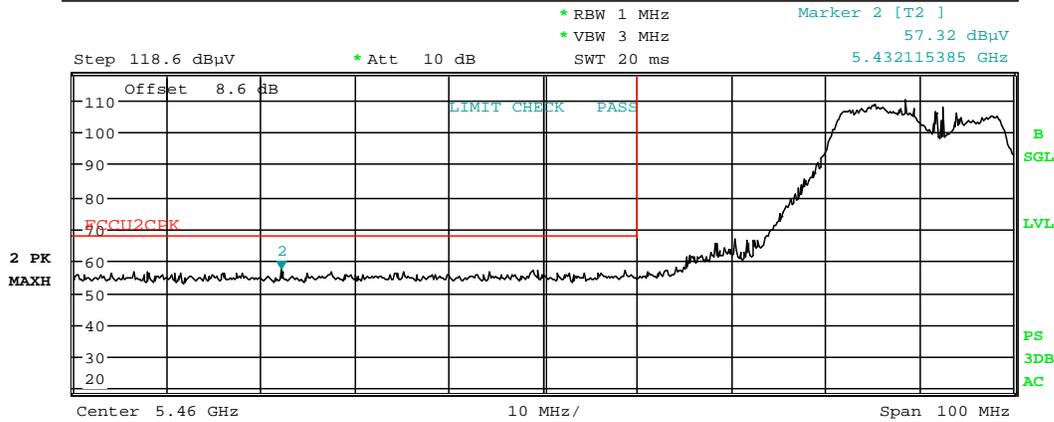
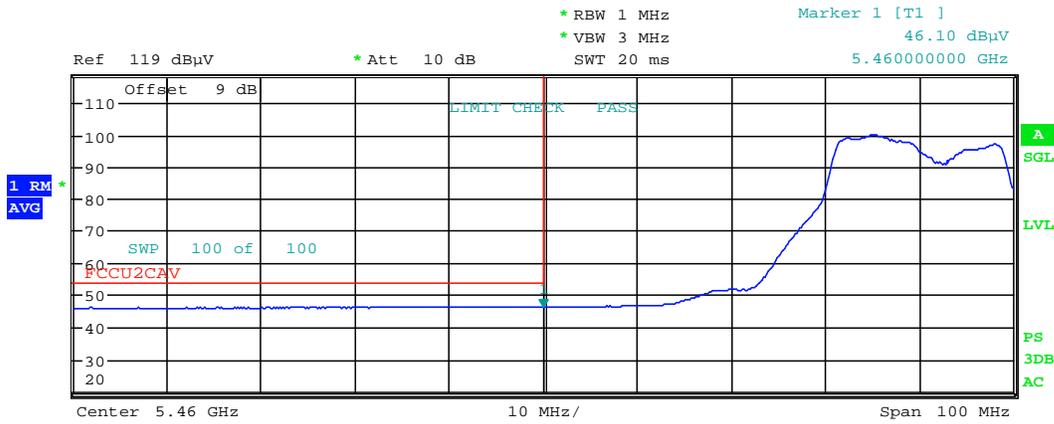
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 18.JUL.2017 02:57:56

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 150 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

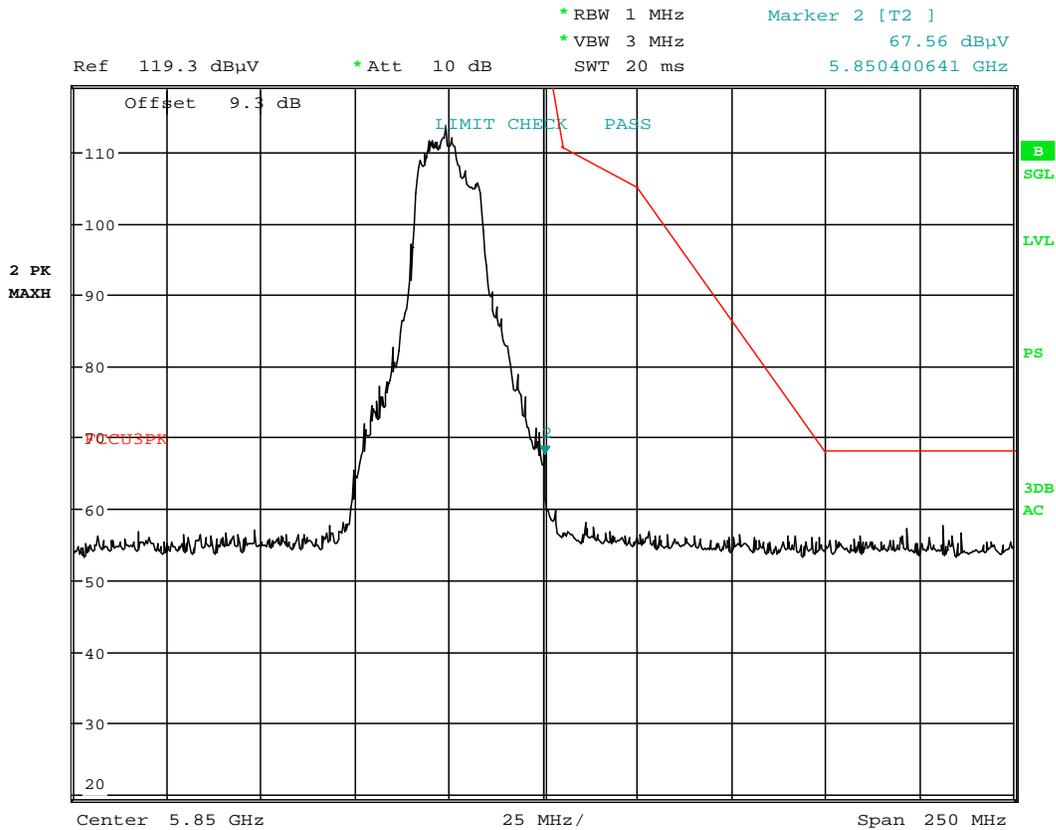
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 18.JUL.2017 03:04:21

**Plot 7-186. Radiated Upper Band Edge Plot (Peak – UNII Band 3)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 151 of 209	

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

§15.407(b.1)(b.2) §15.205 §15.209

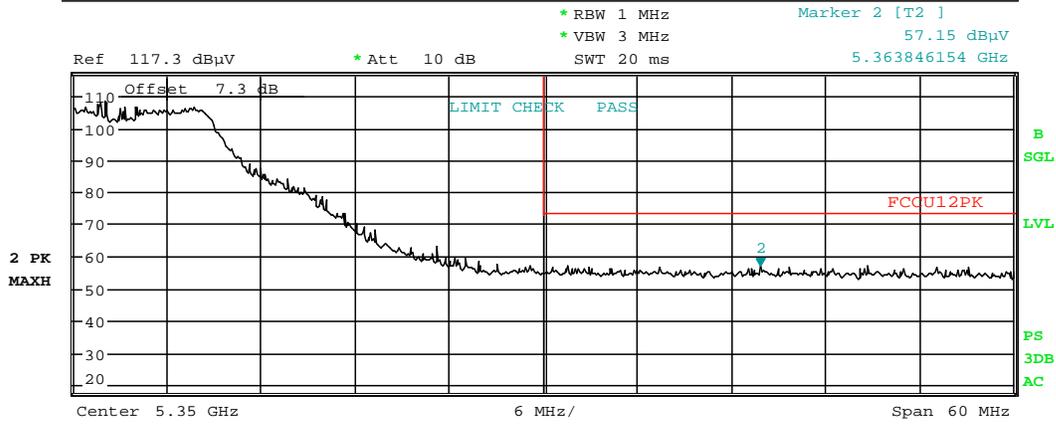
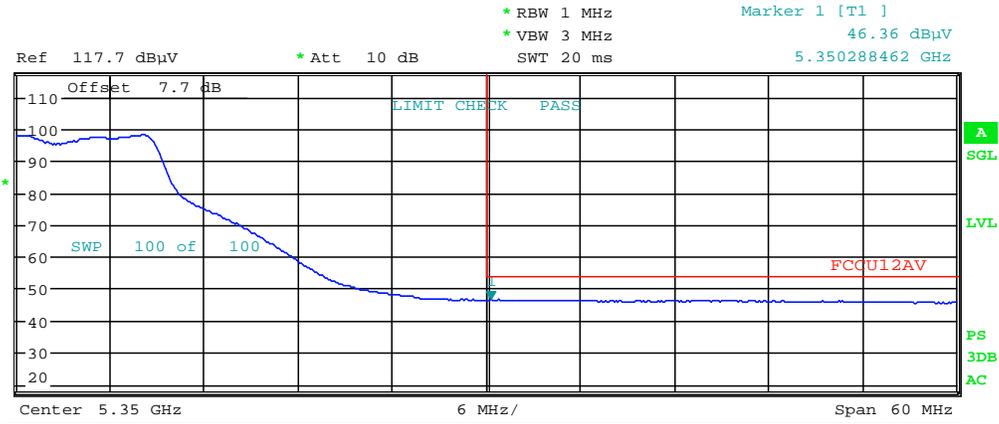
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 18.JUL.2017 18:38:37

**Plot 7-187. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 152 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

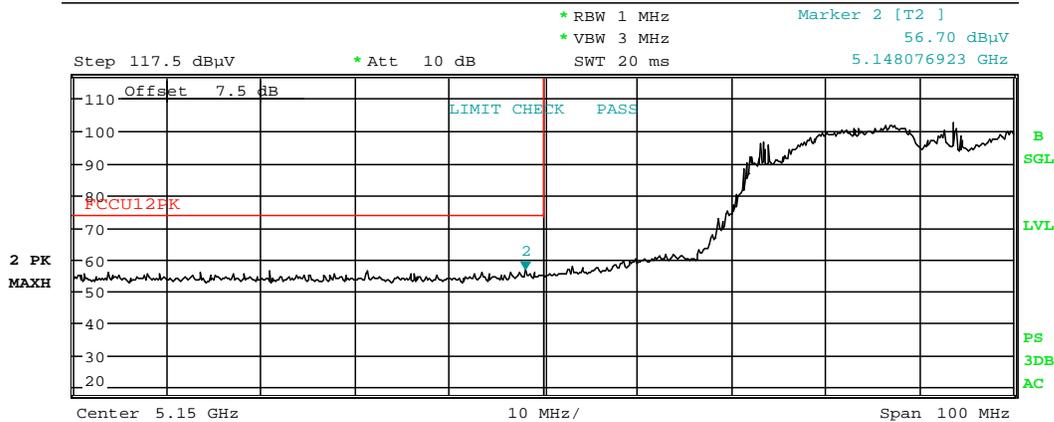
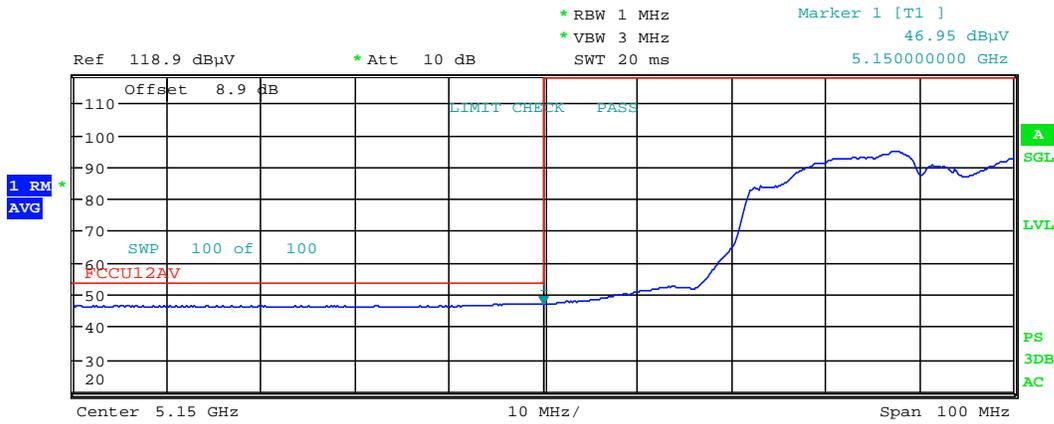
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 18.JUL.2017 02:44:34

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 153 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

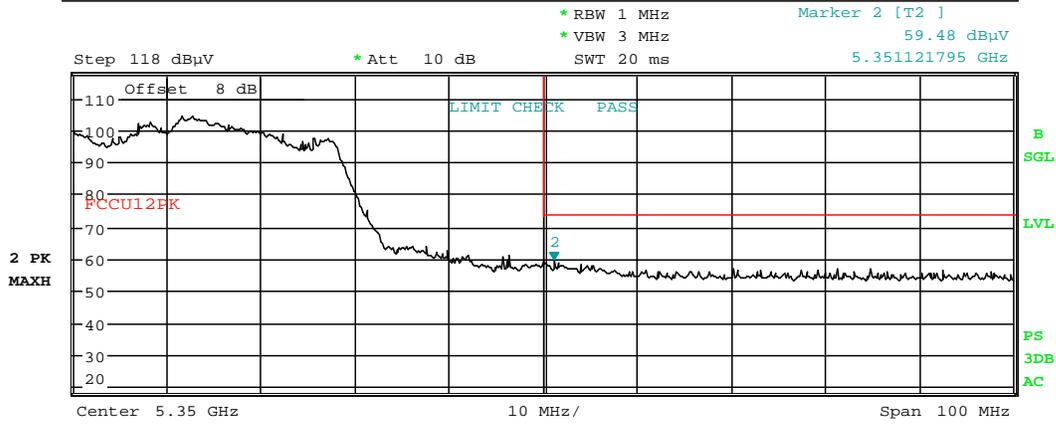
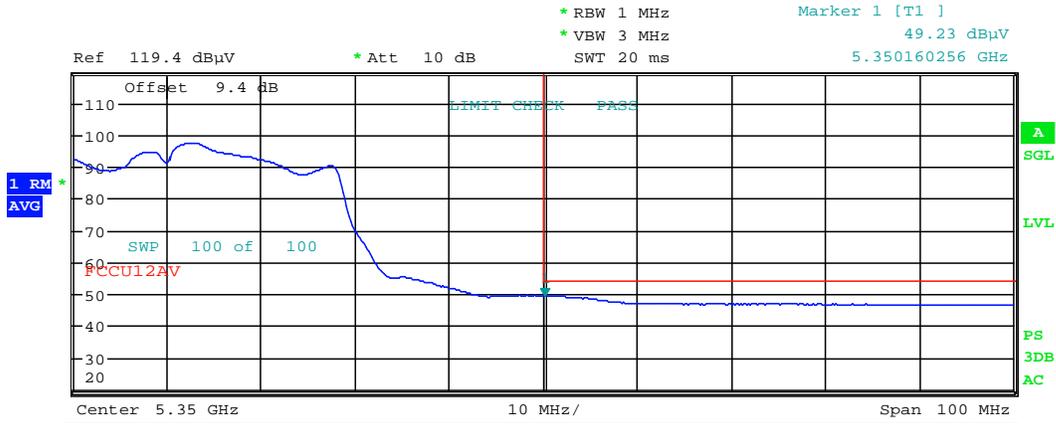
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 18.JUL.2017 02:51:35

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 154 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

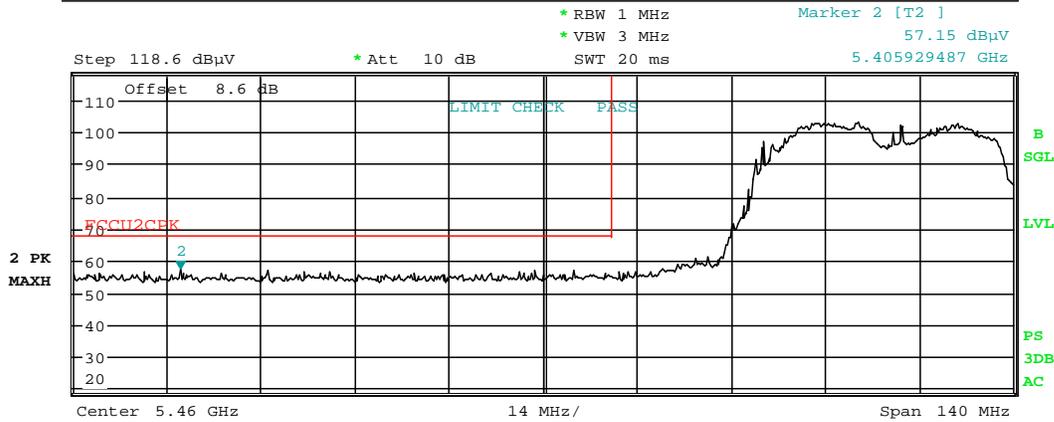
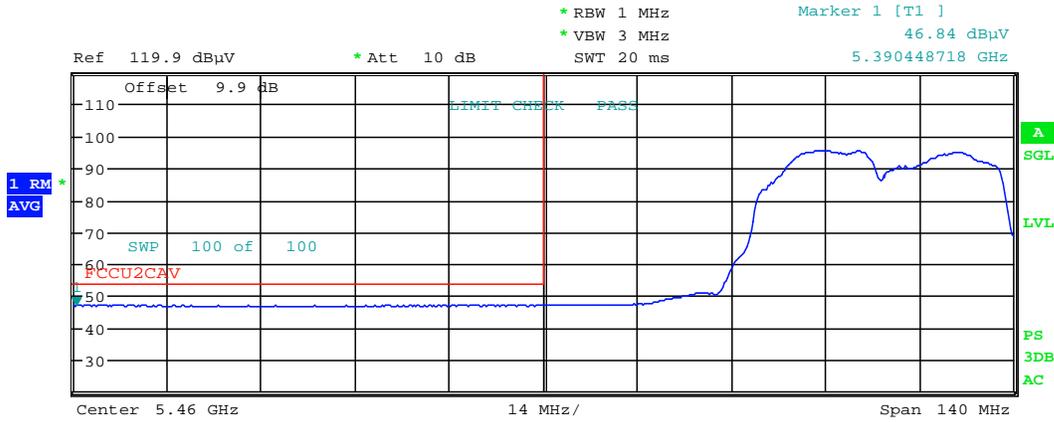
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 18.JUL.2017 02:59:12

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 155 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

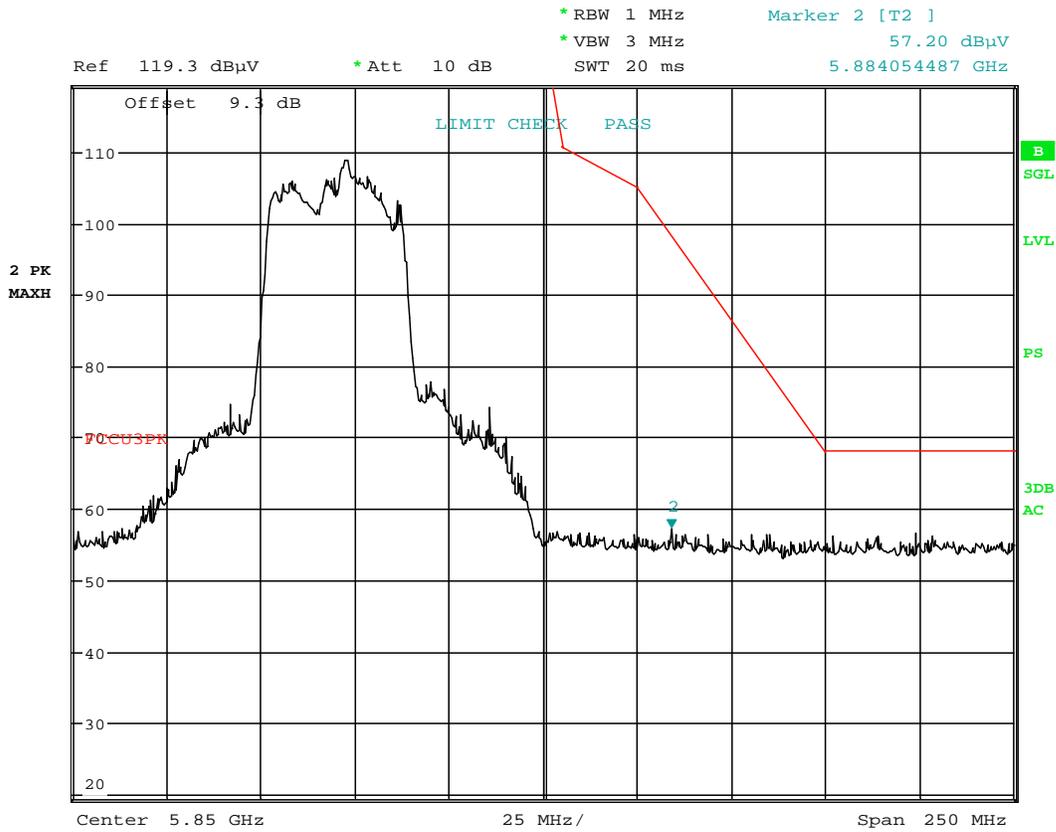
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 18.JUL.2017 03:05:37

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 156 of 209	

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

§15.407(b.1)(b.2) §15.205 §15.209

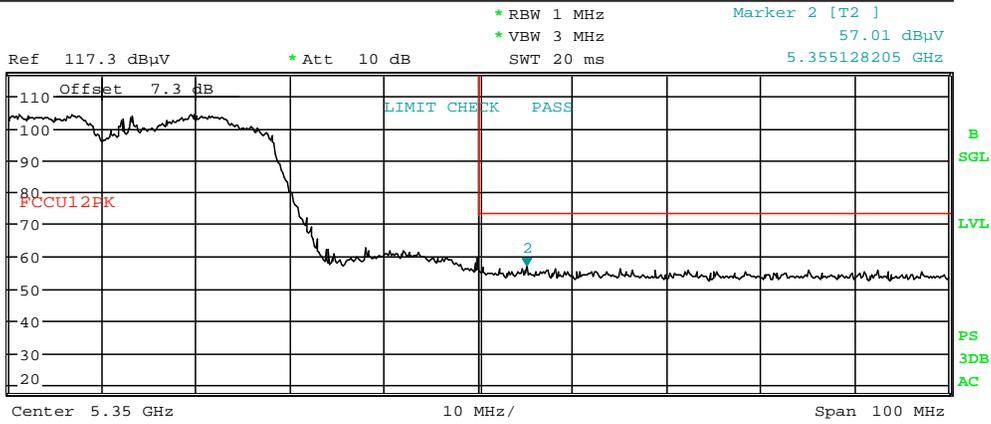
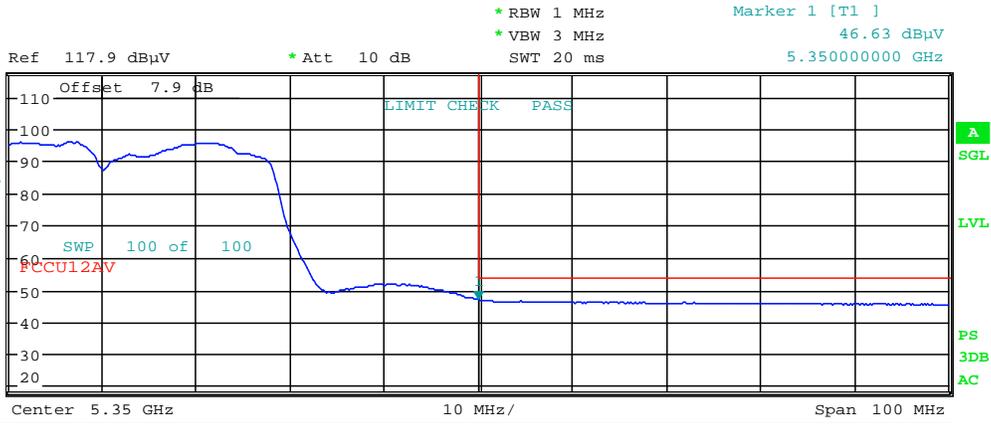
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 18.JUL.2017 18:42:11

**Plot 7-192. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 157 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

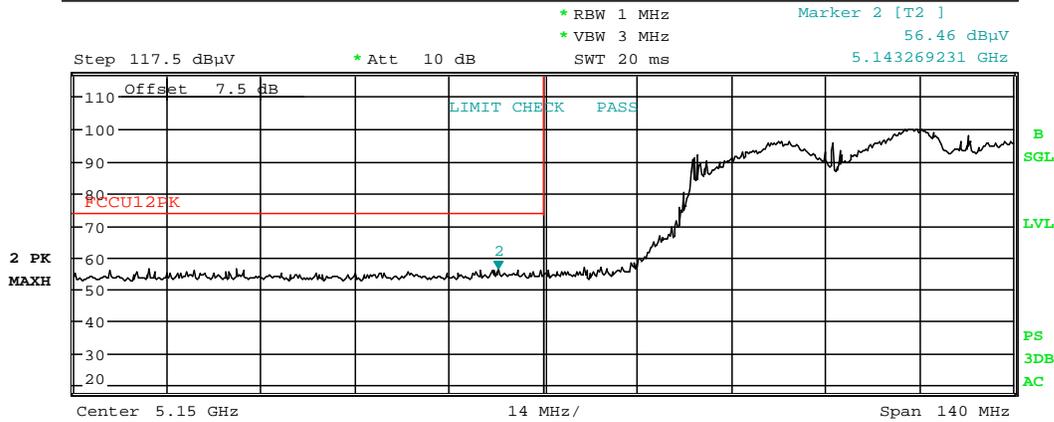
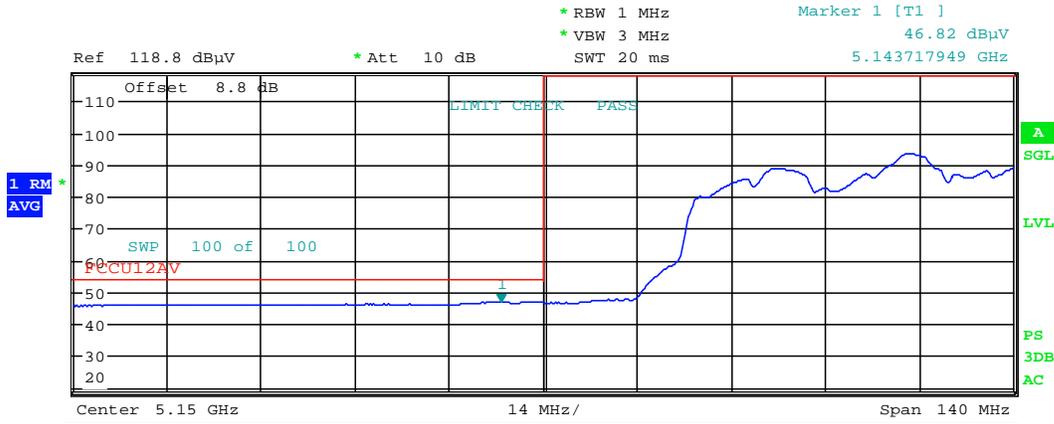
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 18.JUL.2017 02:45:45

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 158 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

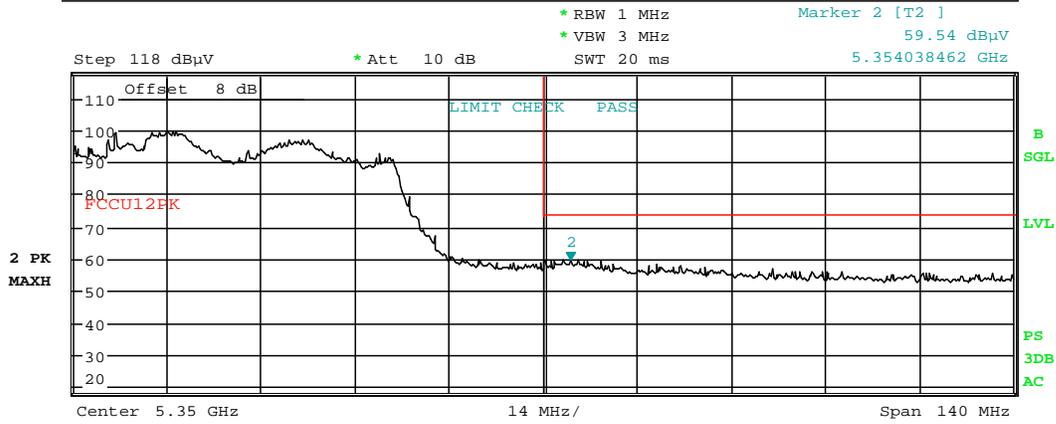
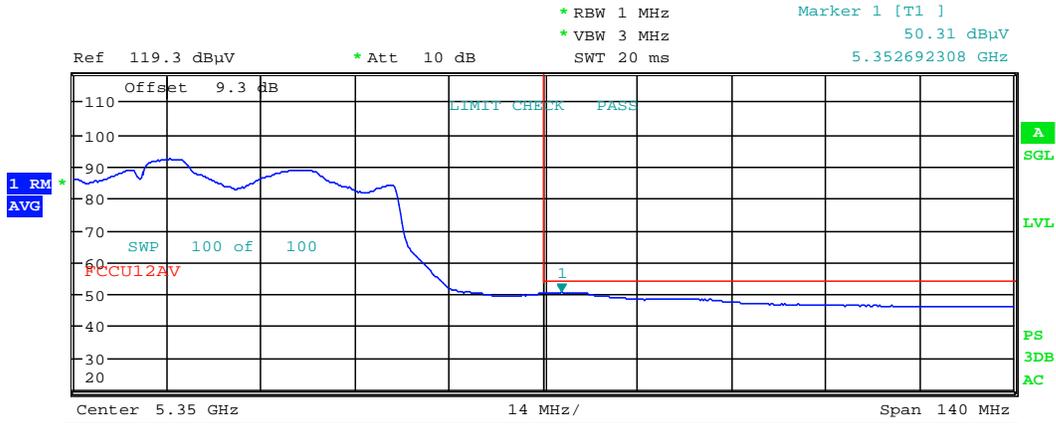
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 18.JUL.2017 02:53:34

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 159 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

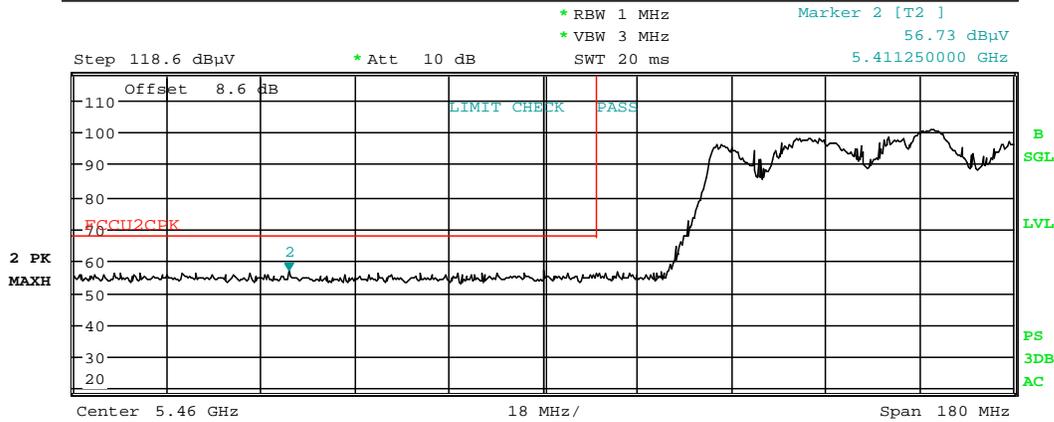
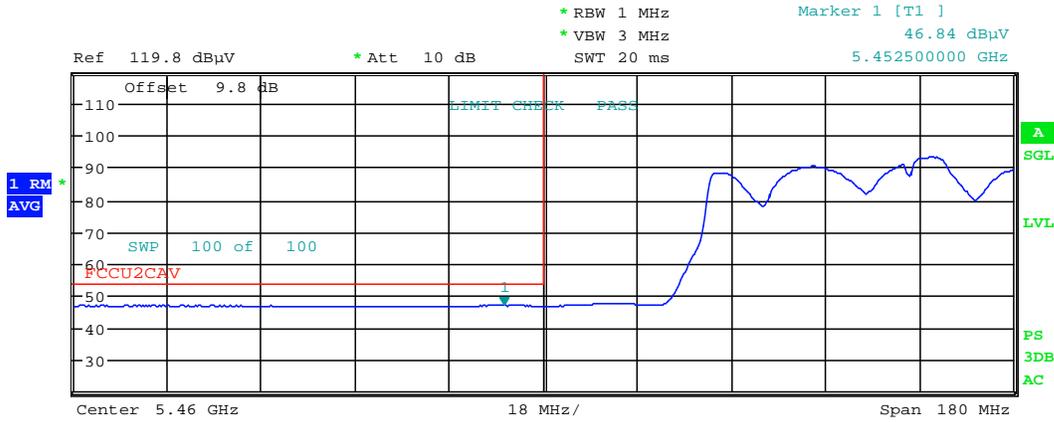
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 18.JUL.2017 03:00:25

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 160 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

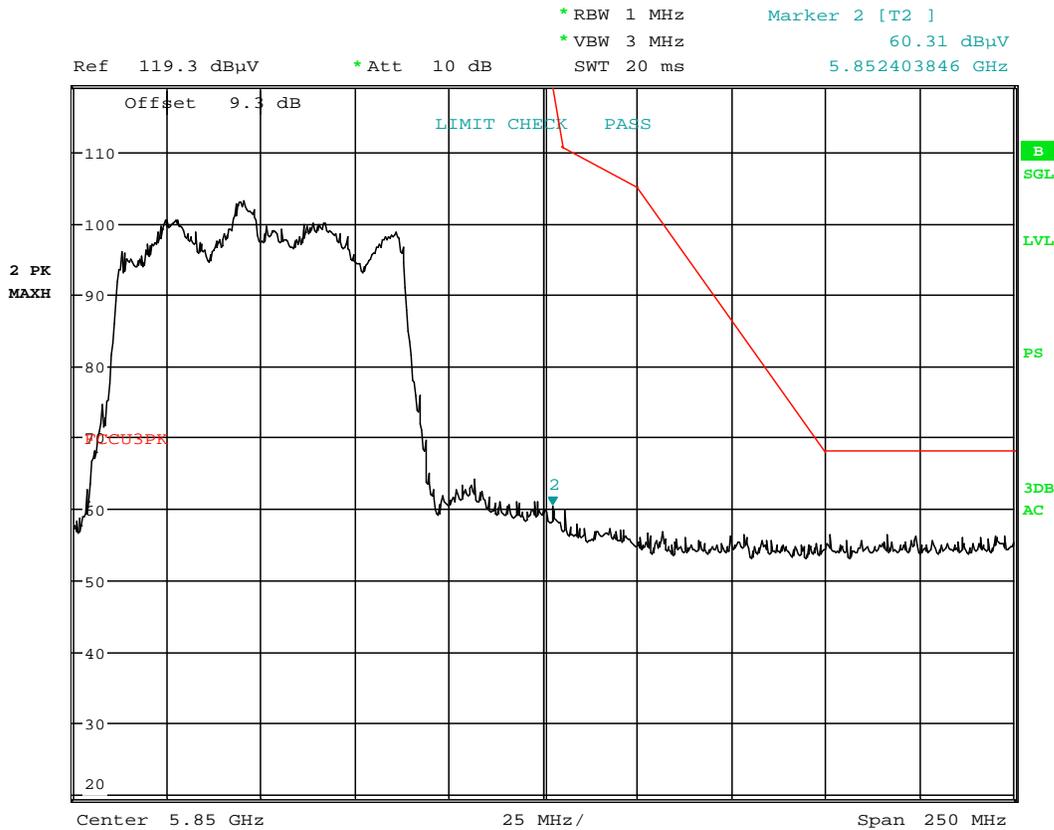
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 18.JUL.2017 03:06:57

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 161 of 209	

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

§15.407(b.1)(b.2) §15.205 §15.209

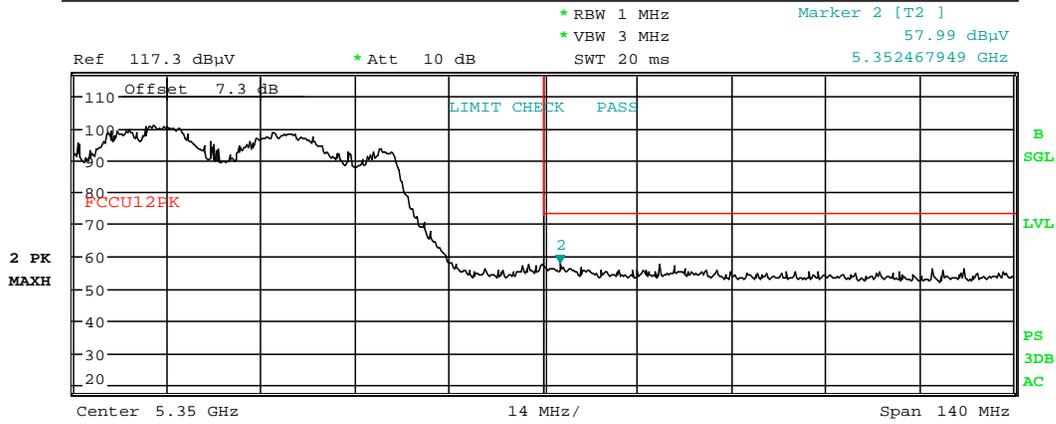
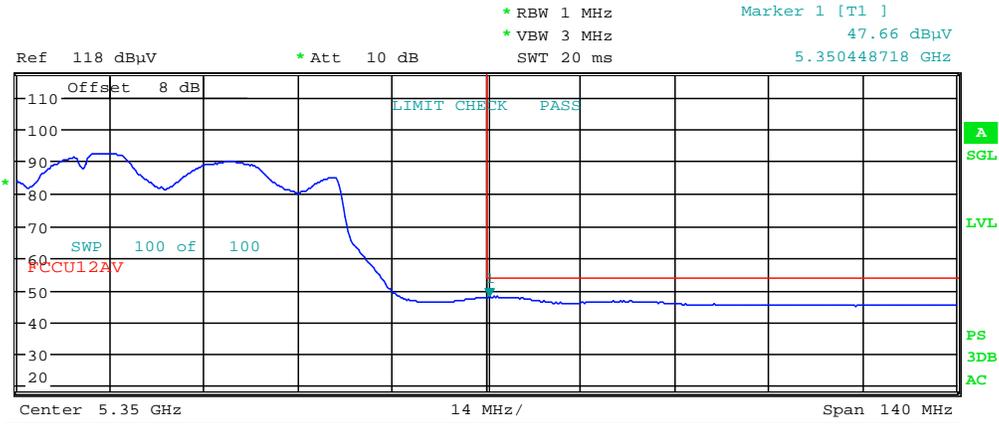
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 18.JUL.2017 18:47:39

**Plot 7-197. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 162 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

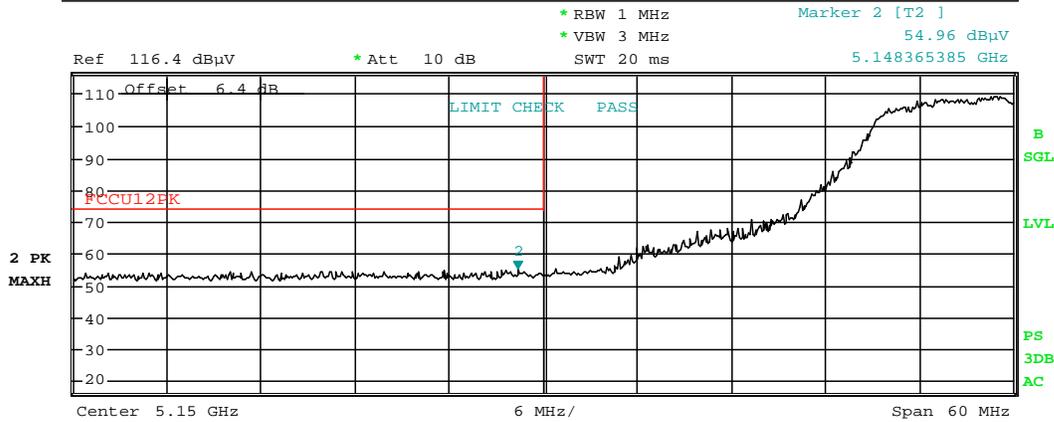
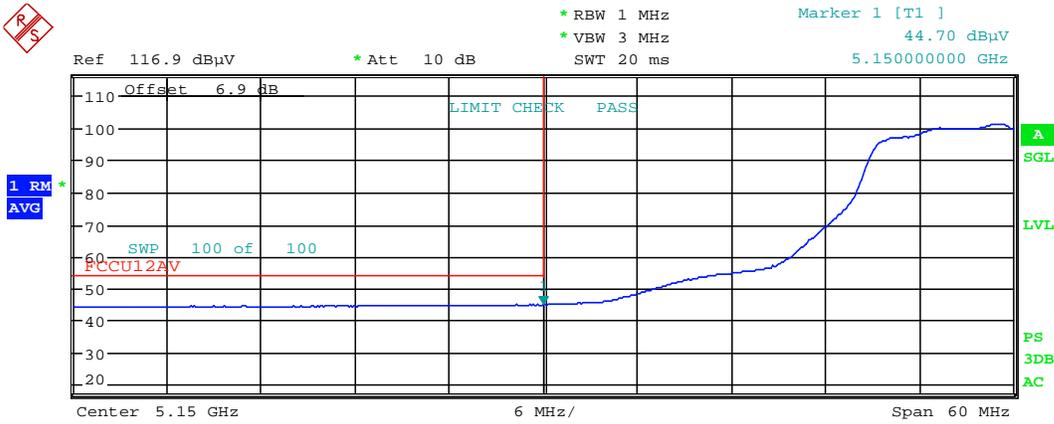
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 18.JUL.2017 17:42:10

**Plot 7-198. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 163 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

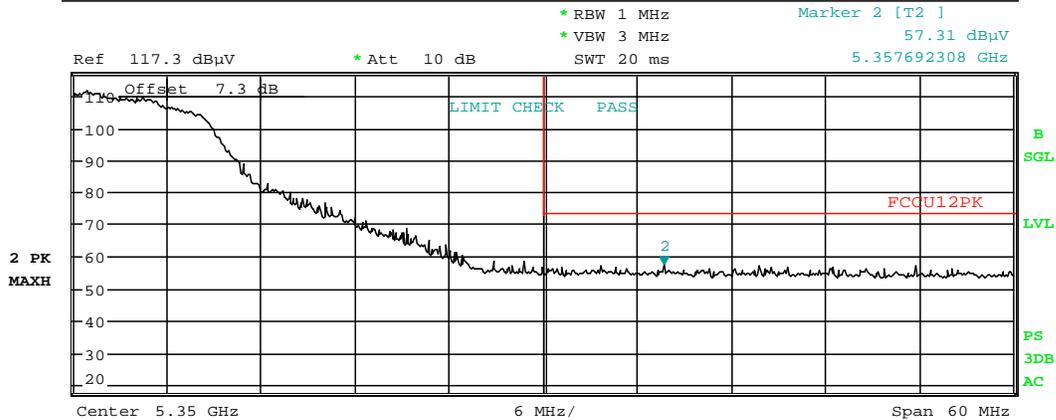
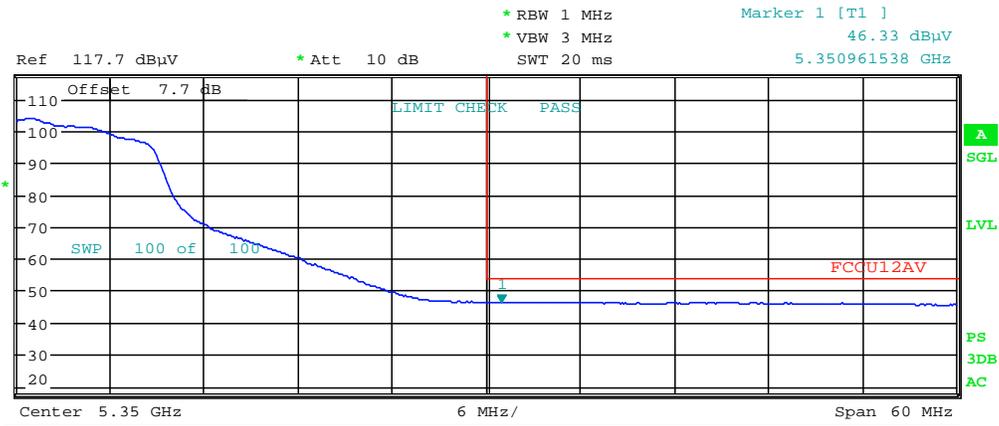
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 18.JUL.2017 17:57:23

**Plot 7-199. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 164 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

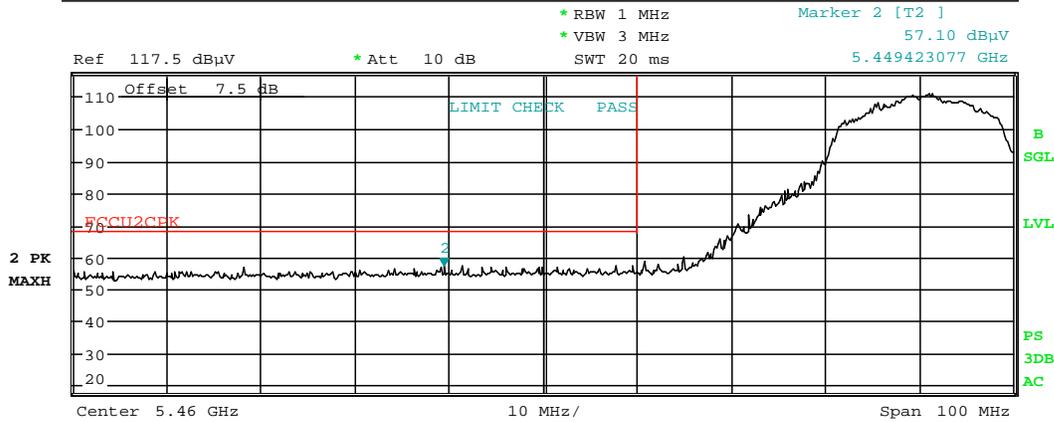
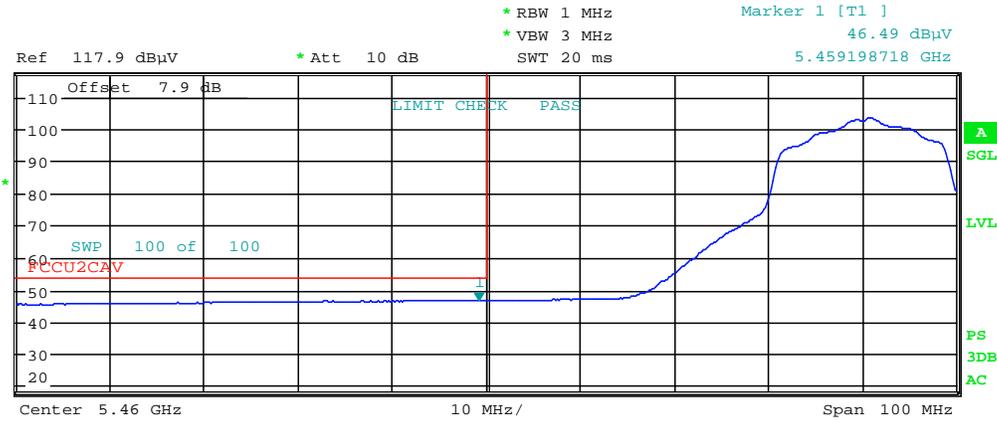
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 18.JUL.2017 18:09:24

**Plot 7-200. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 165 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

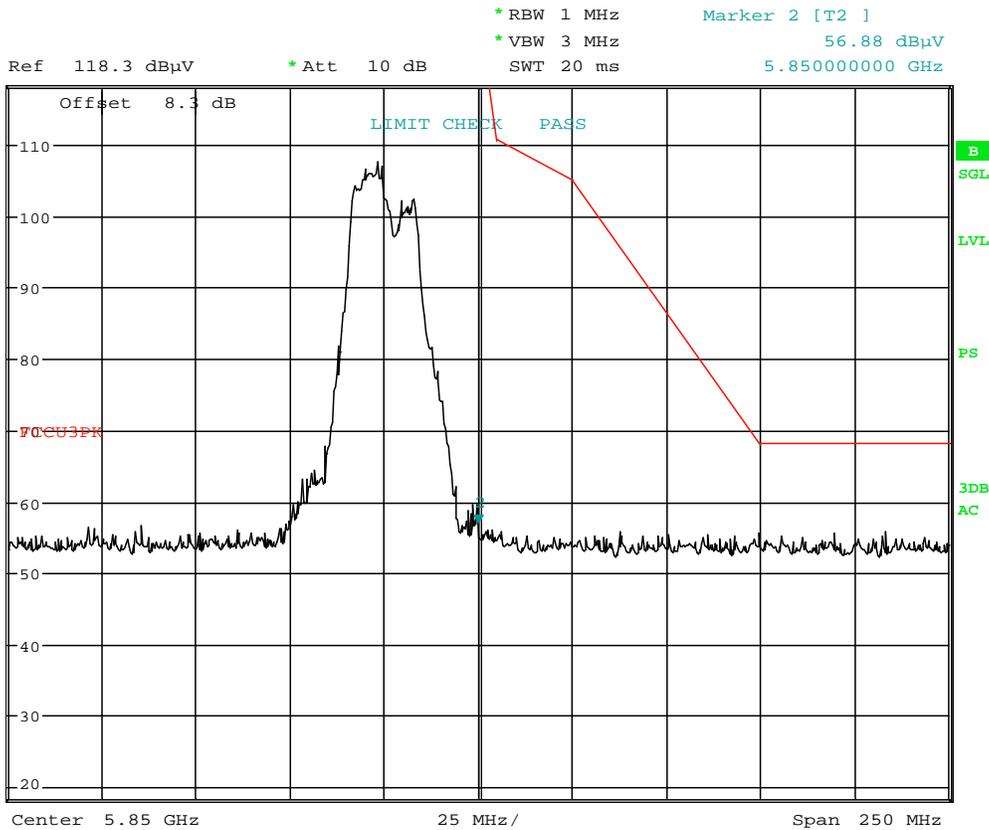
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 18.JUL.2017 18:21:32

**Plot 7-201. Radiated Upper Band Edge Plot (Peak – UNII Band 3)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 166 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

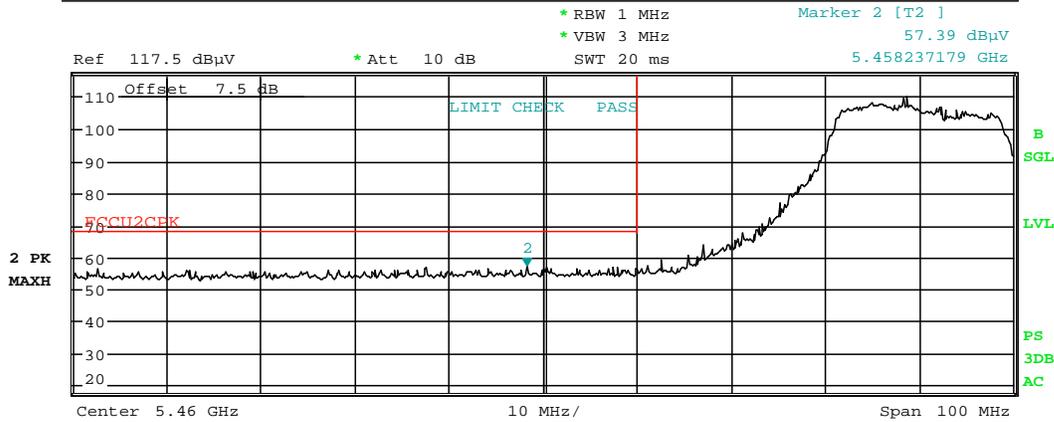
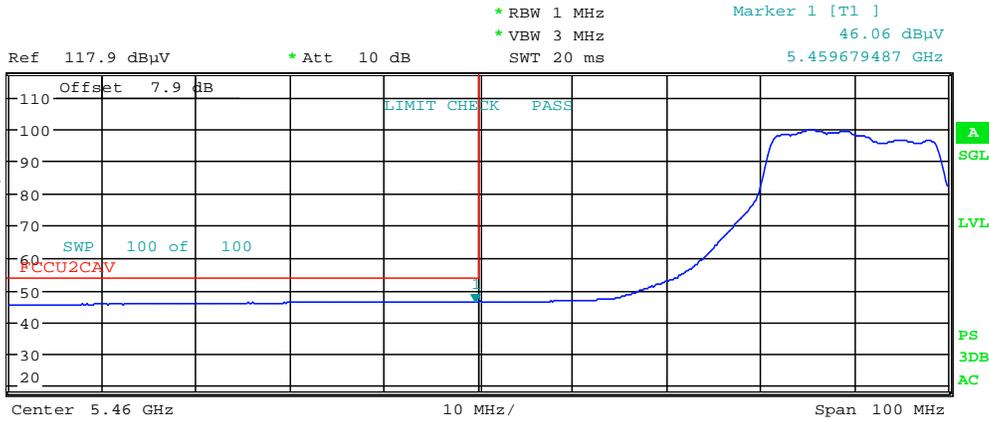
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 18.JUL.2017 18:52:54

**Plot 7-202. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 167 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

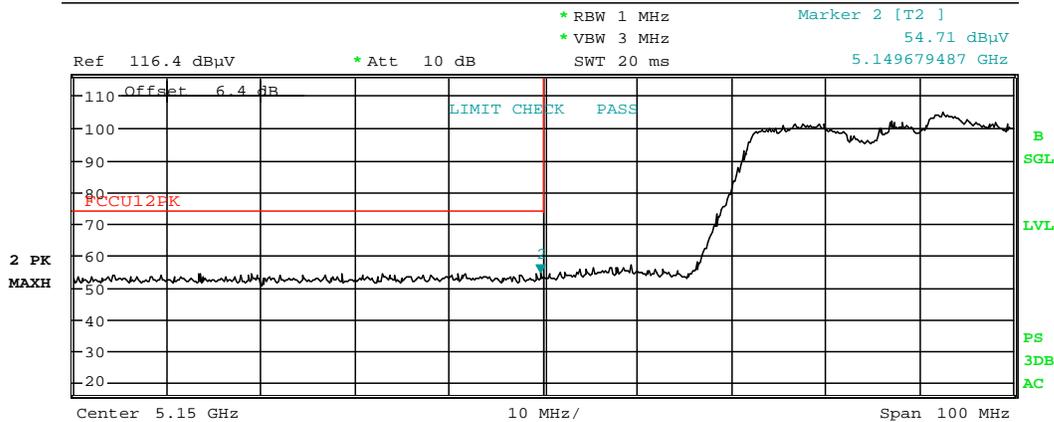
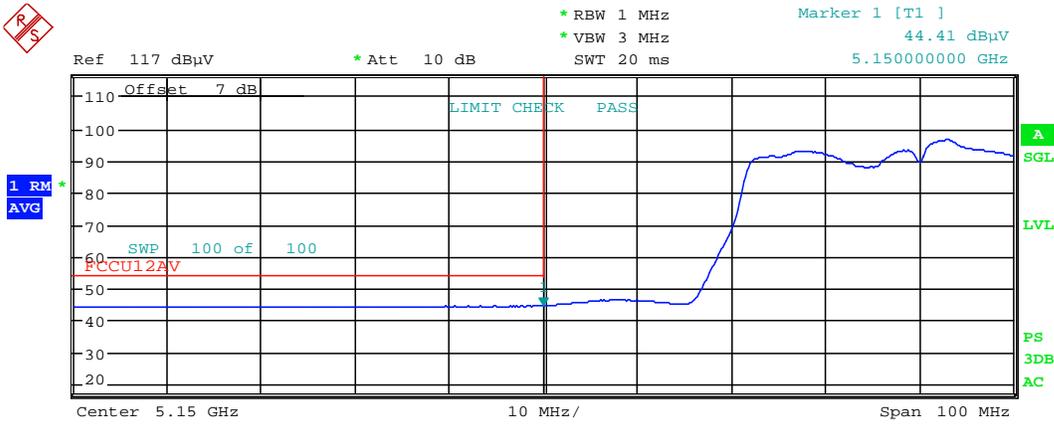
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 18.JUL.2017 17:49:15

**Plot 7-203. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 168 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

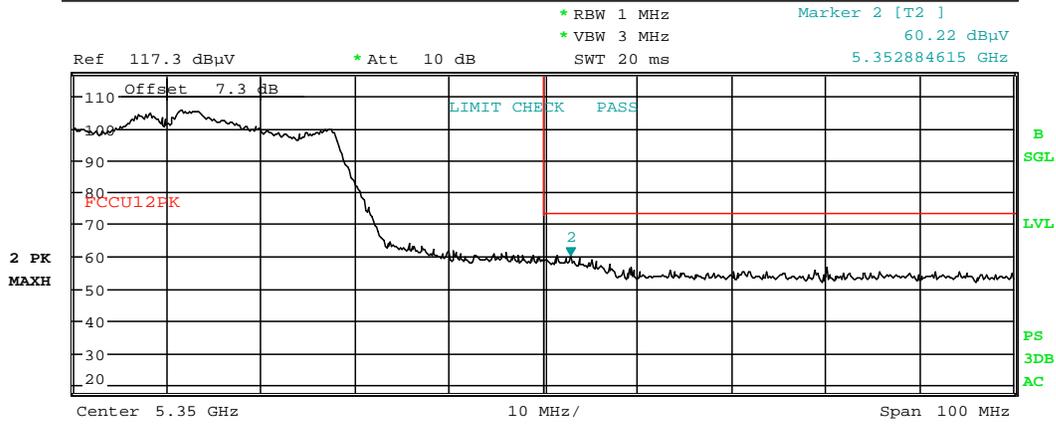
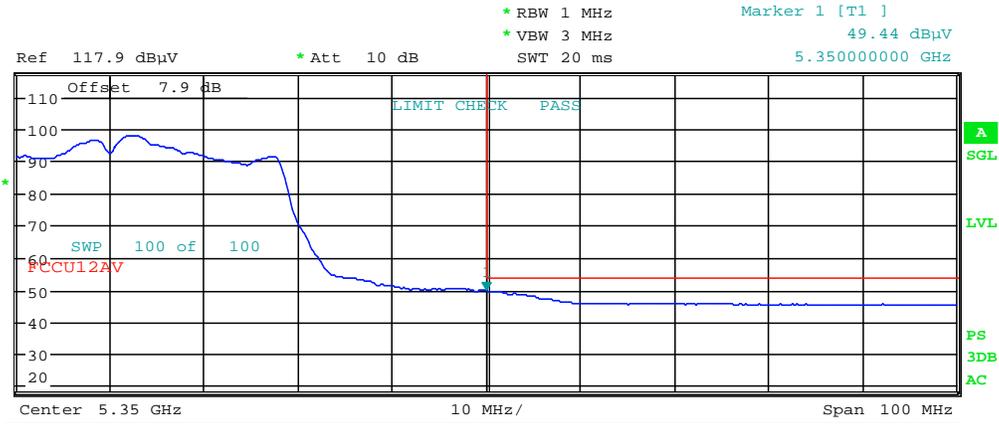
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 18.JUL.2017 18:00:17

**Plot 7-204. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 169 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

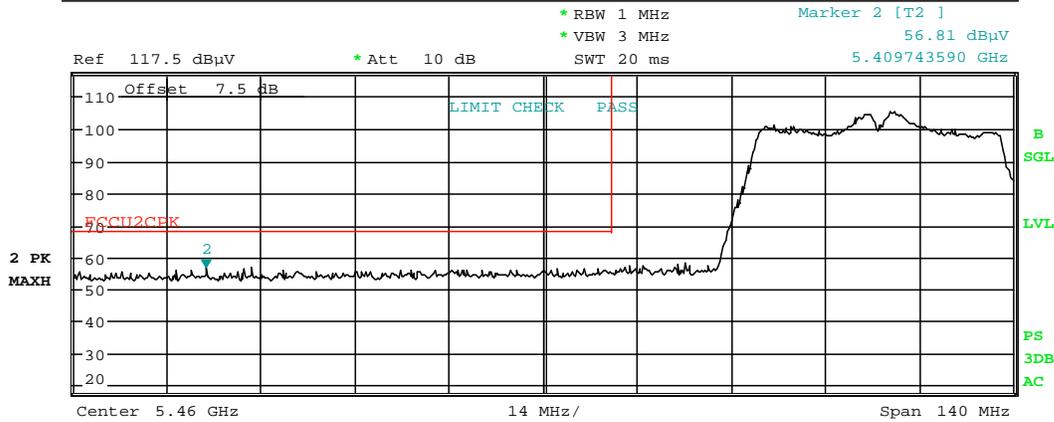
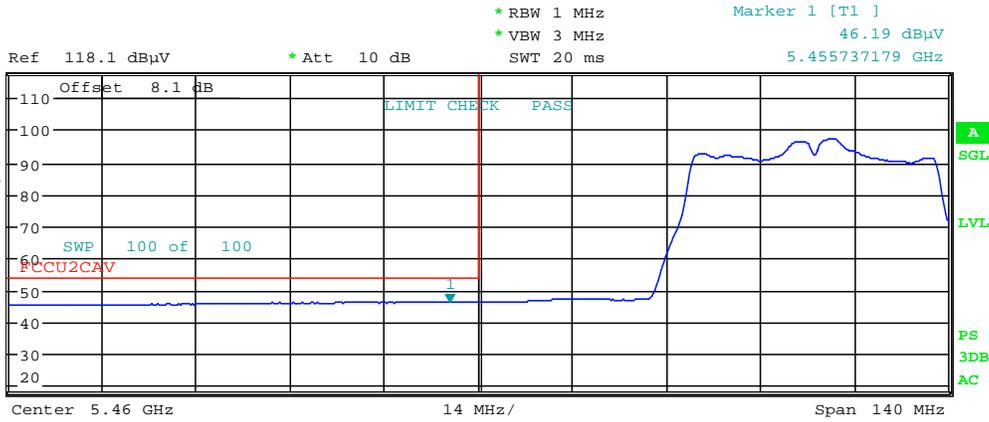
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 18.JUL.2017 18:12:49

**Plot 7-205. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 170 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

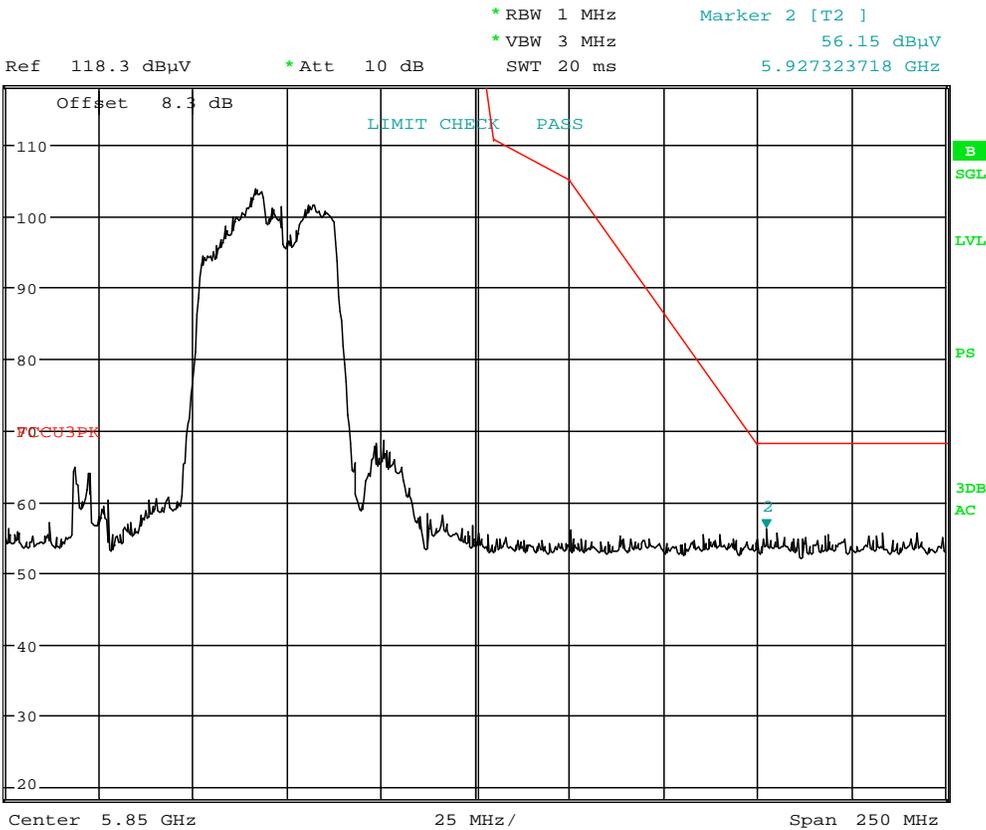
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 18.JUL.2017 18:24:07

**Plot 7-206. Radiated Upper Band Edge Plot (Peak – UNII Band 3)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 171 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

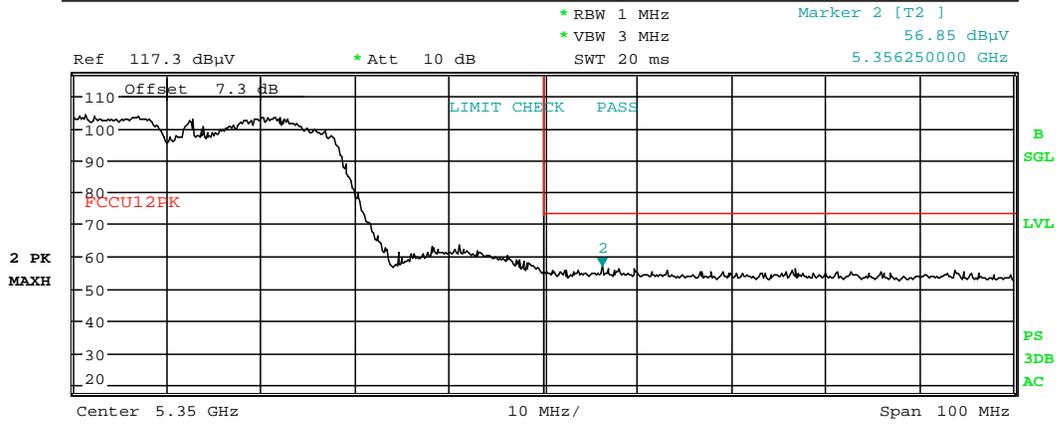
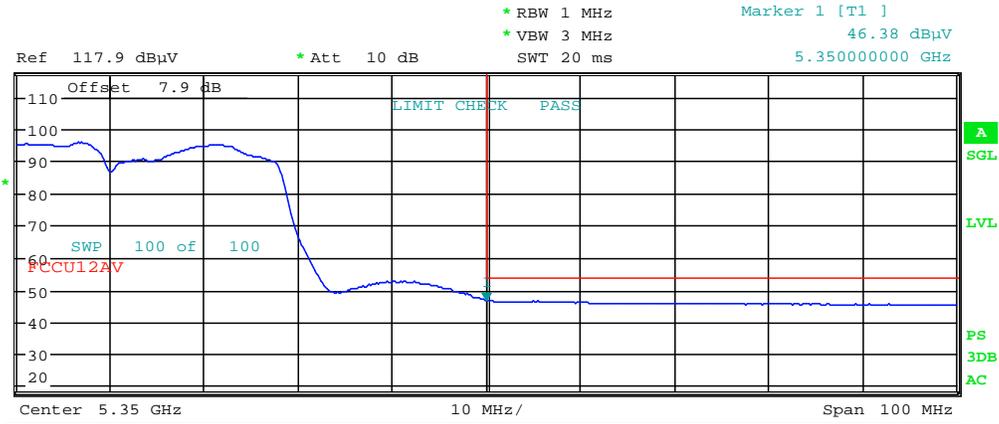
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 18.JUL.2017 18:59:20

**Plot 7-207. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 172 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

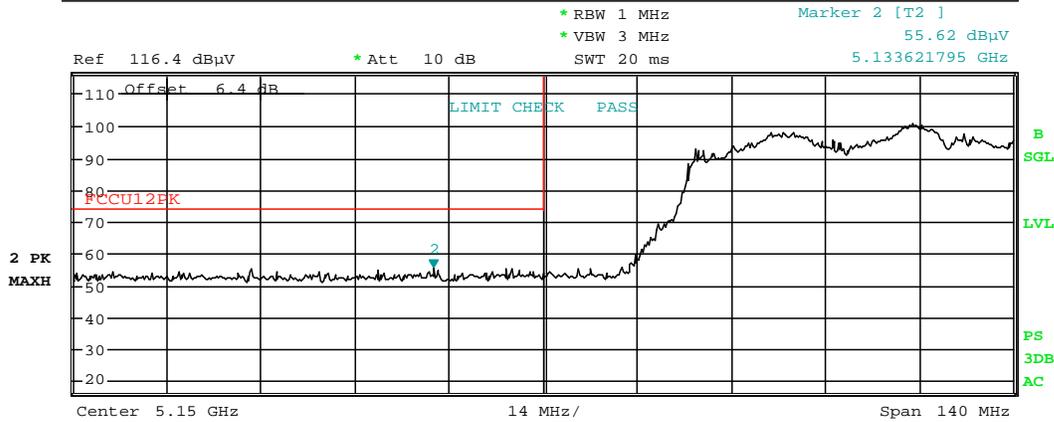
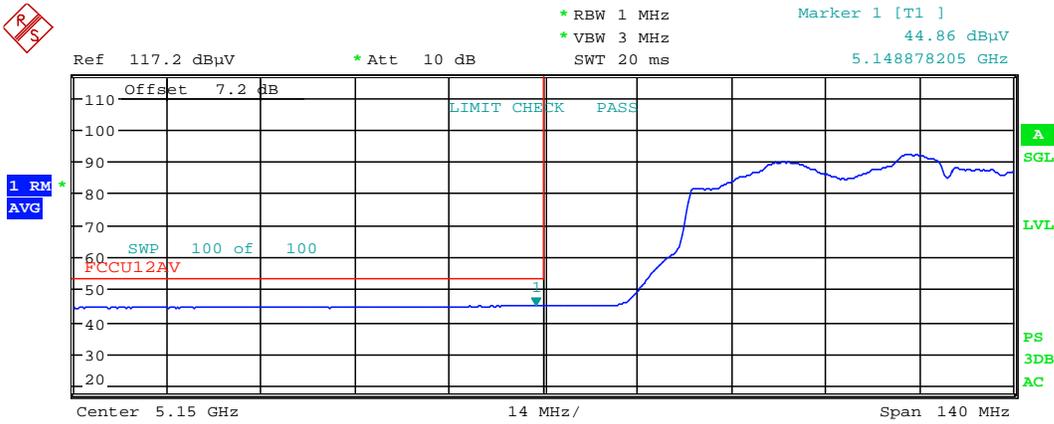
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 18.JUL.2017 17:50:29

**Plot 7-208. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 173 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

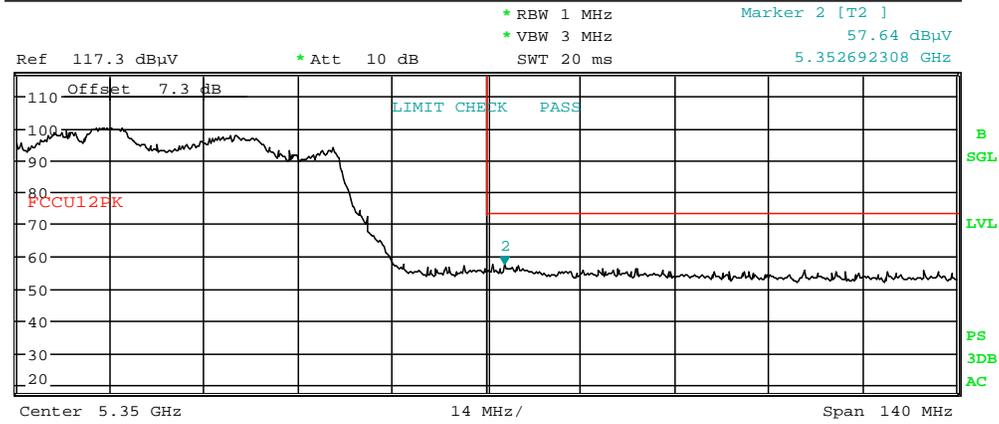
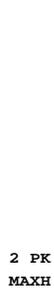
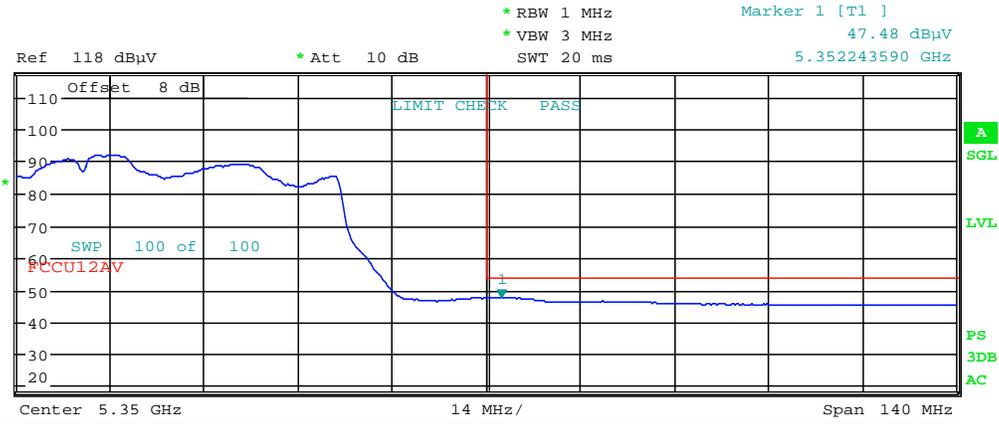
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 18.JUL.2017 18:02:51

**Plot 7-209. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 174 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

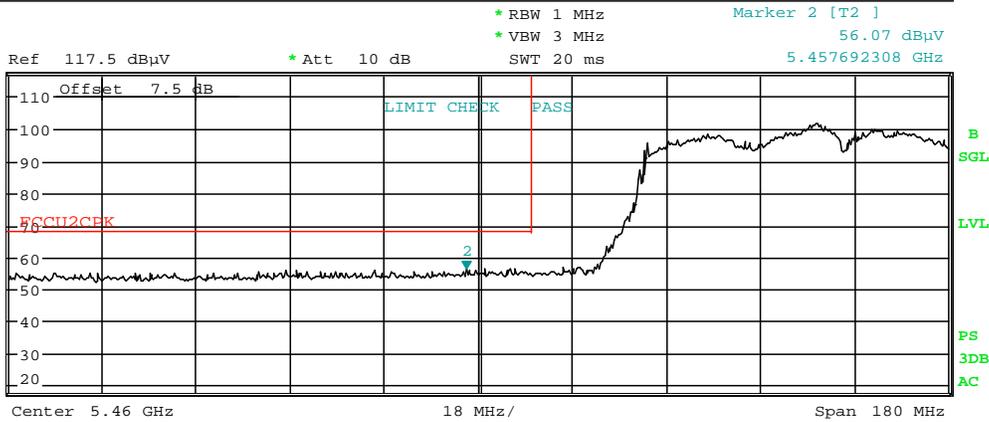
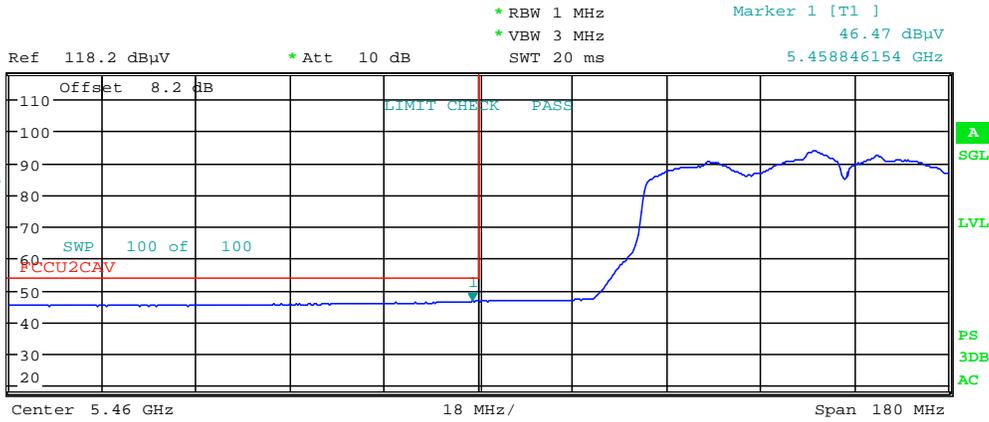
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 18.JUL.2017 18:17:16

**Plot 7-210. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 175 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

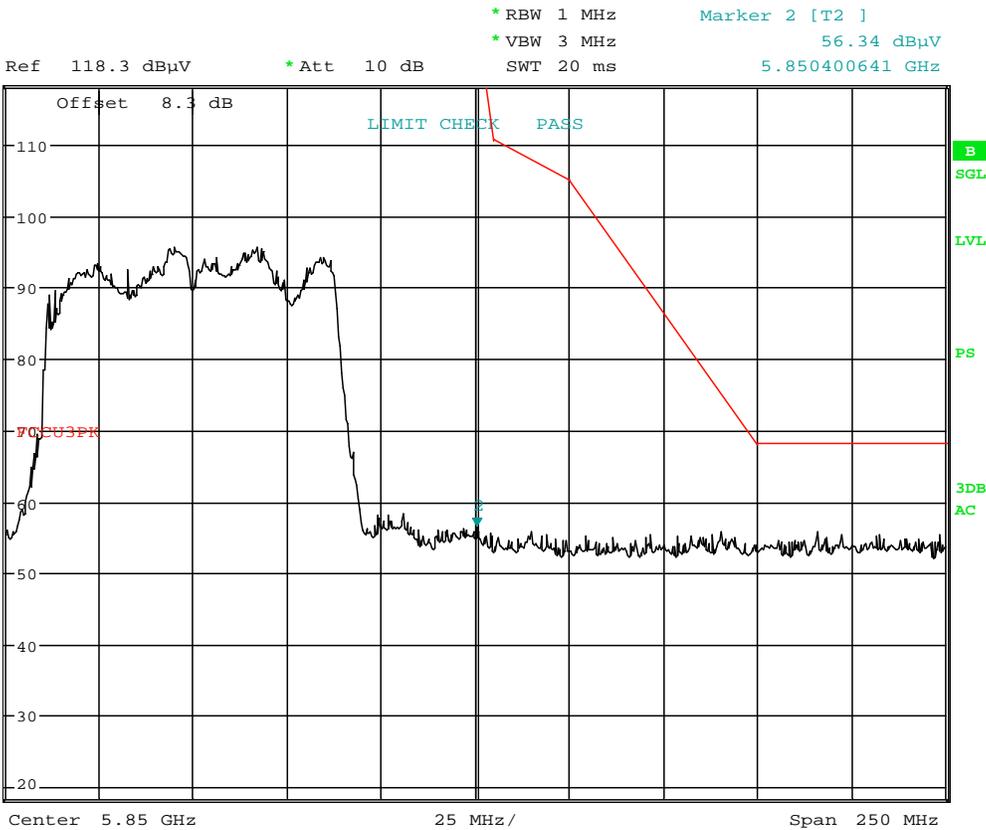
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 18.JUL.2017 18:25:48

**Plot 7-211. Radiated Upper Band Edge Plot (Peak – UNII Band 3)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 176 of 209

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

§15.407(b.1)(b.2) §15.205 §15.209

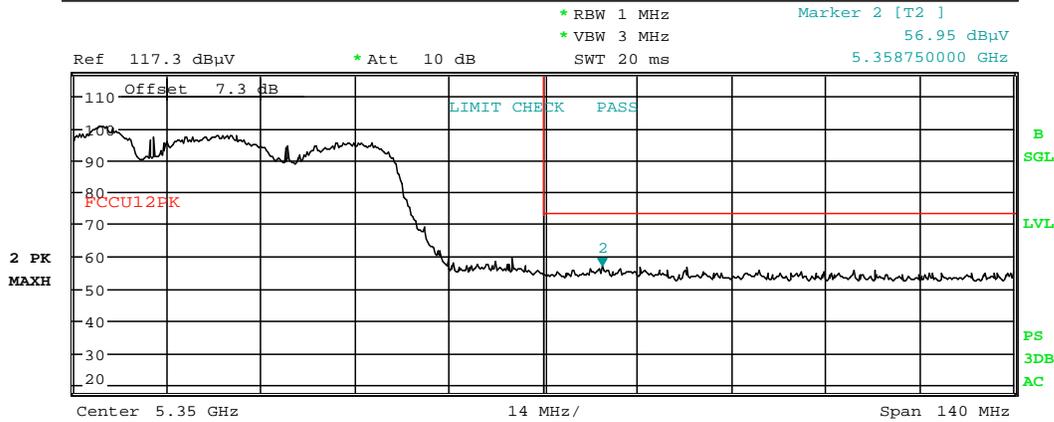
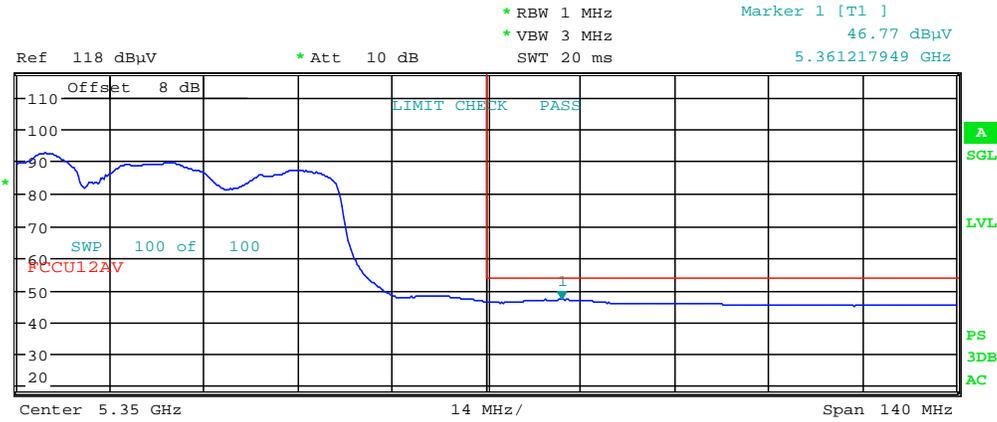
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



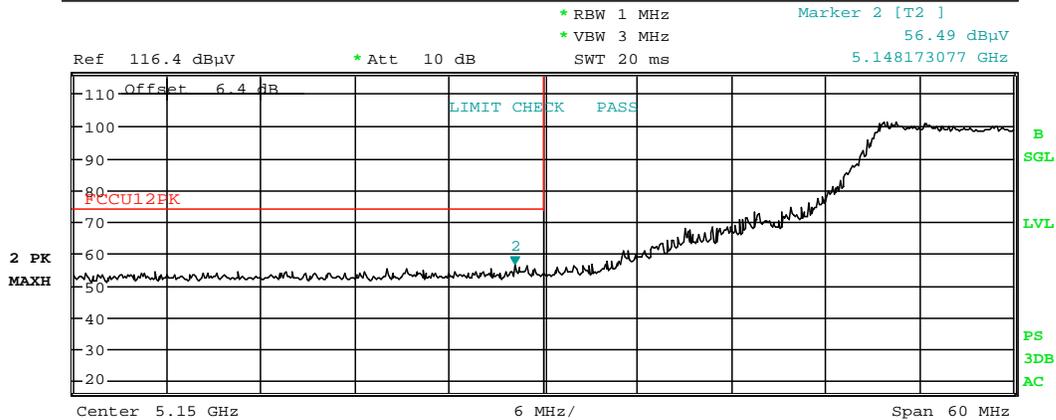
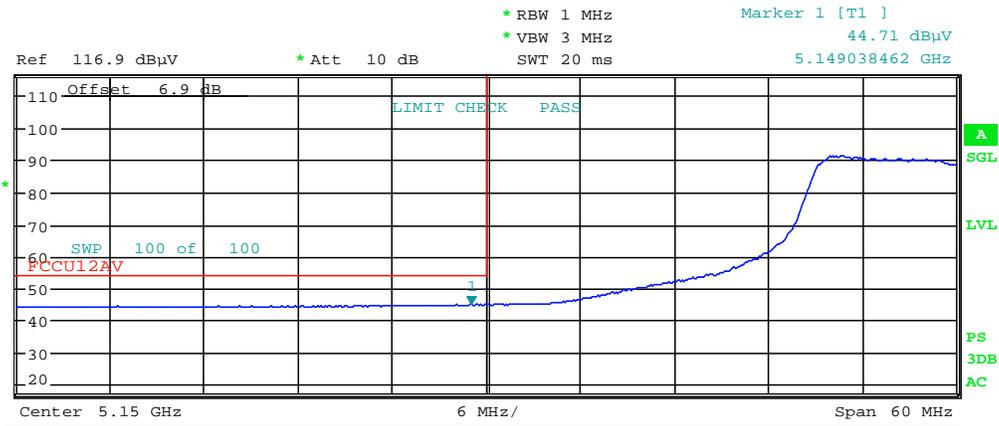
Date: 18.JUL.2017 19:03:12

**Plot 7-212. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 177 of 209

### 7.7.10 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: 18.JUL.2017 20:12:33

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 178 of 209

# MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

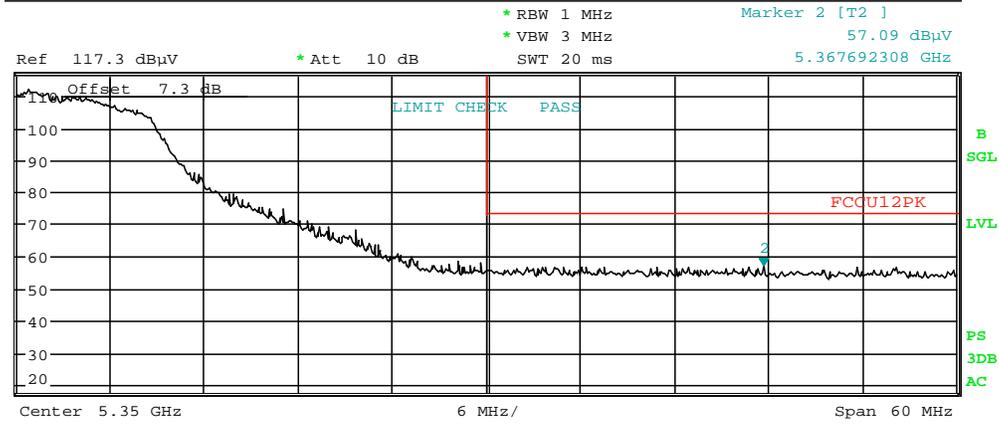
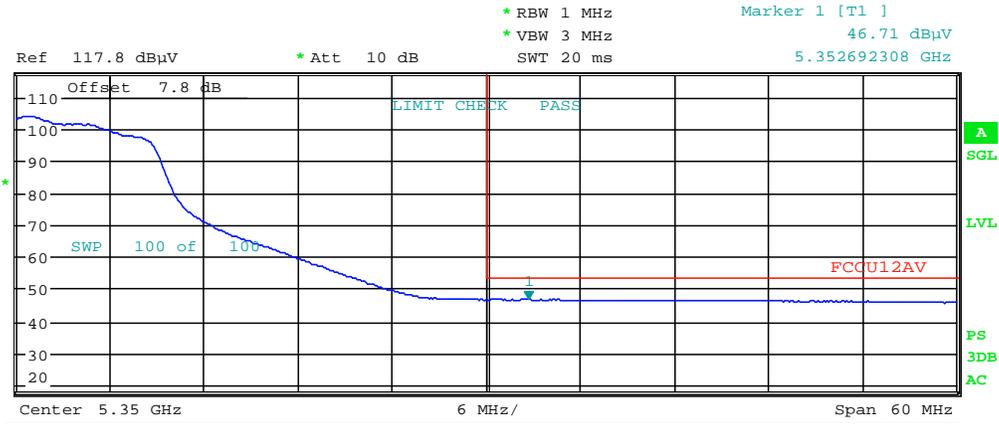
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 18.JUL.2017 20:20:36

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 179 of 209

# MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

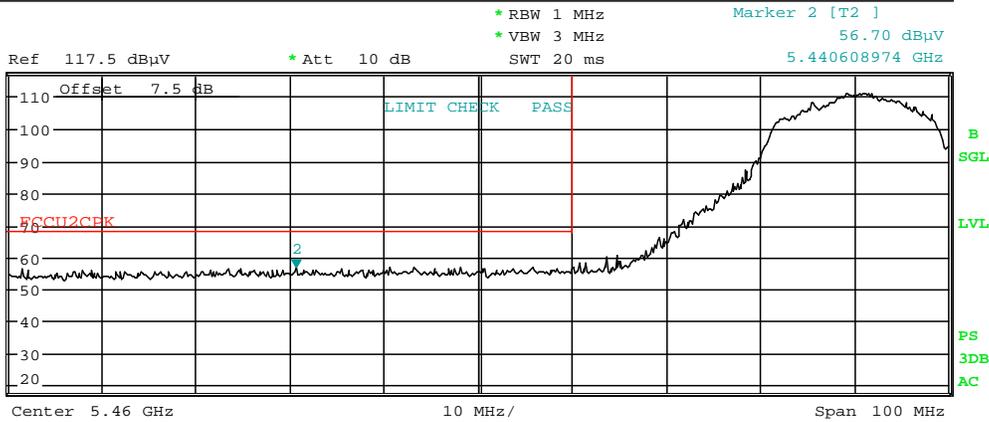
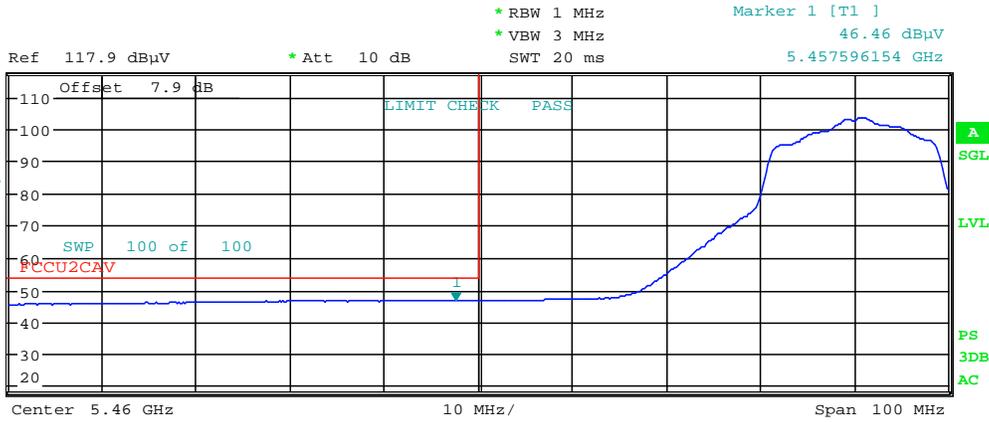
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 18.JUL.2017 20:35:32

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 180 of 209

# MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

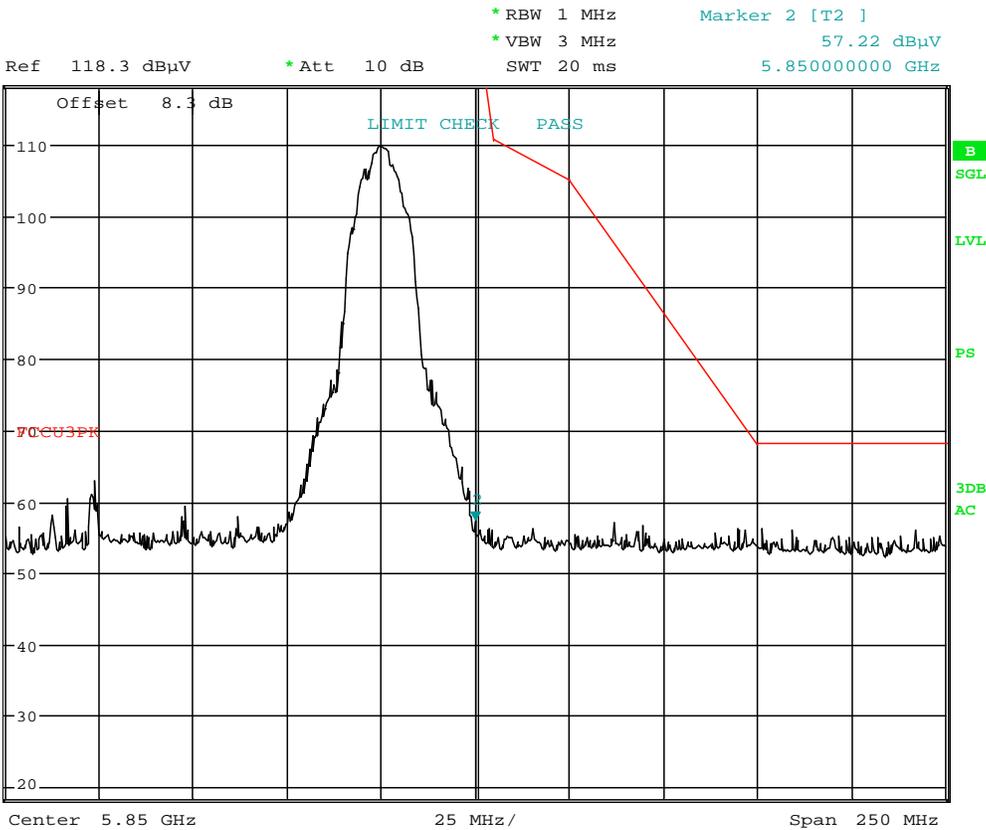
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 18.JUL.2017 20:50:07

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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 181 of 209

# MIMO WCP Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

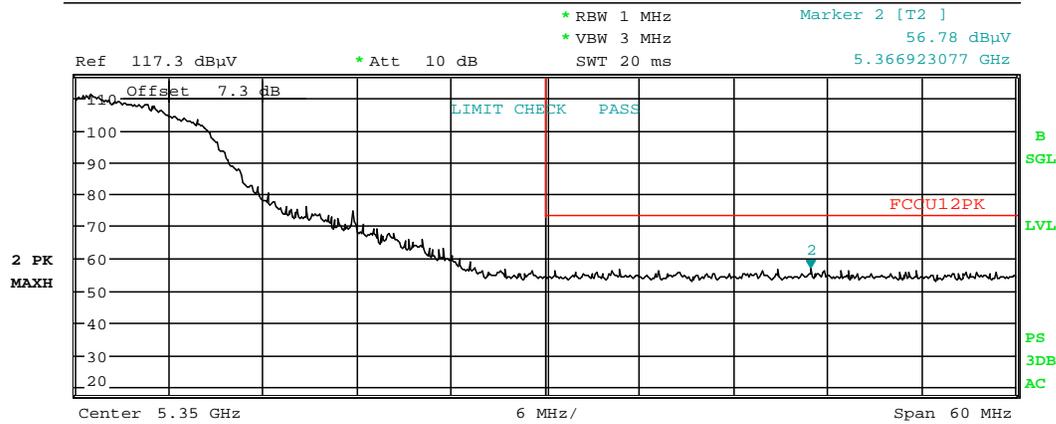
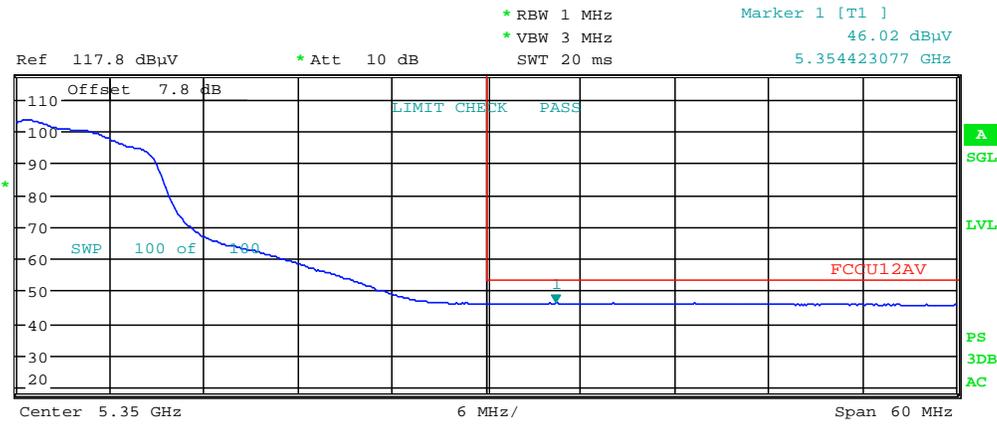
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



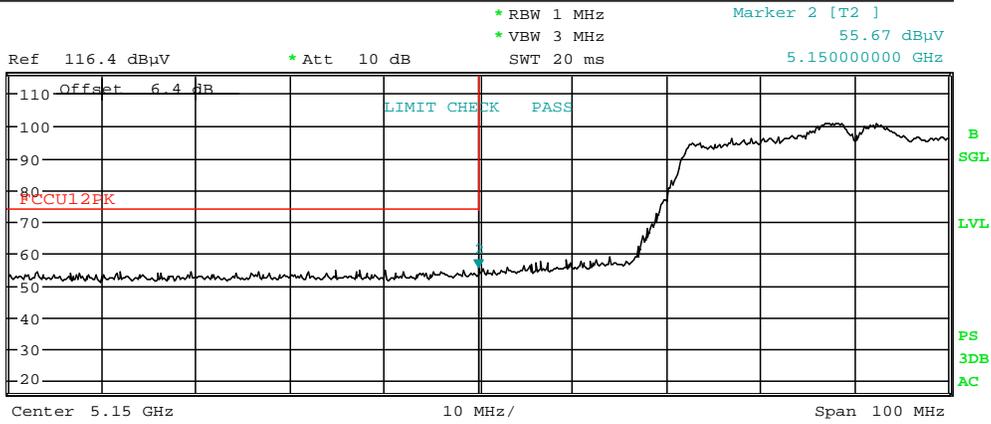
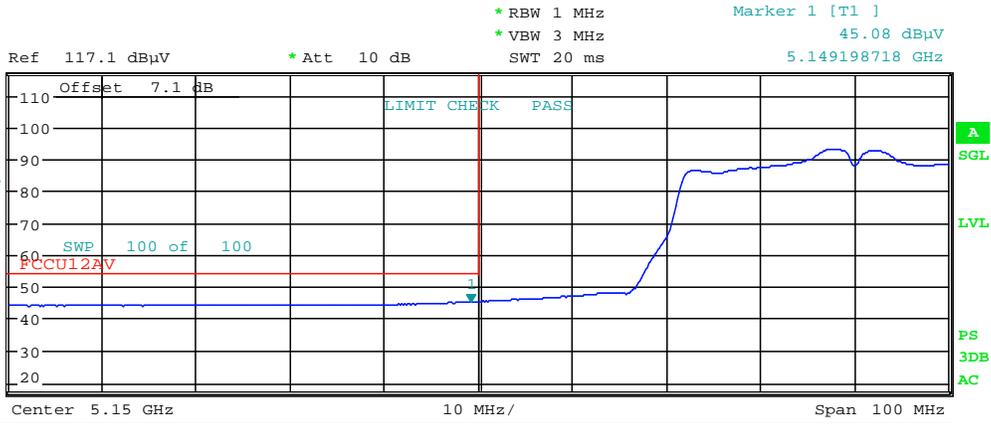
Date: 18.JUL.2017 21:09:45

**Plot 7-217. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 182 of 209

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

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



Date: 18.JUL.2017 20:14:07

**Plot 7-218. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 183 of 209

# MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

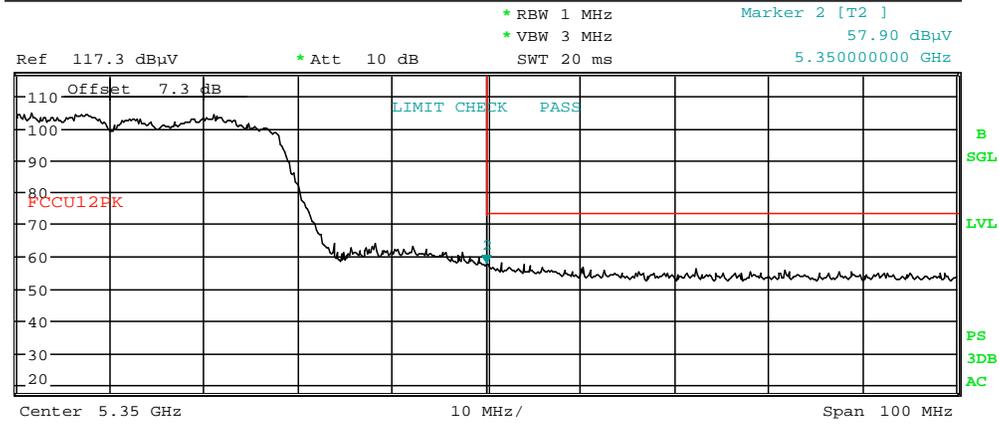
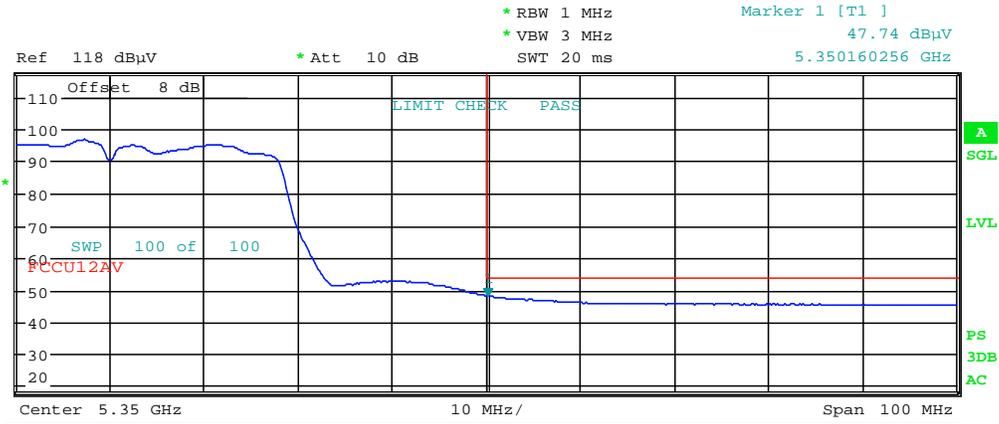
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 18.JUL.2017 20:24:15

**Plot 7-219. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 184 of 209

# MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

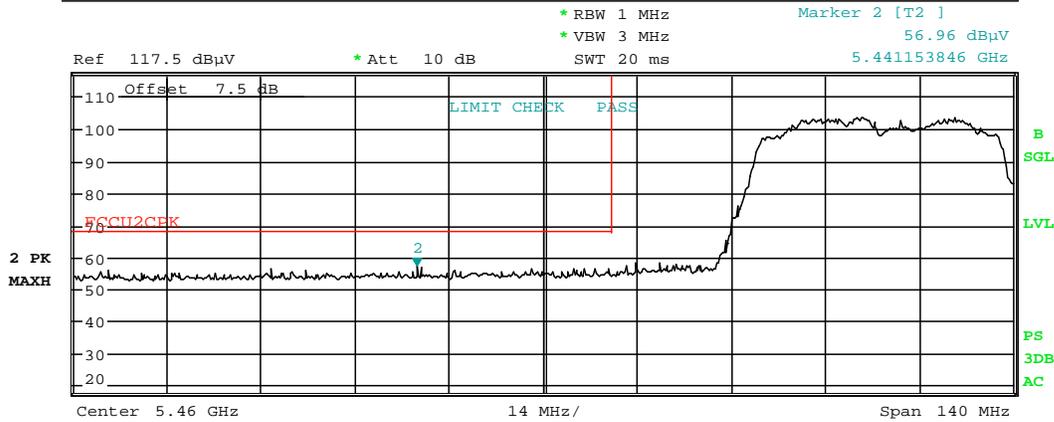
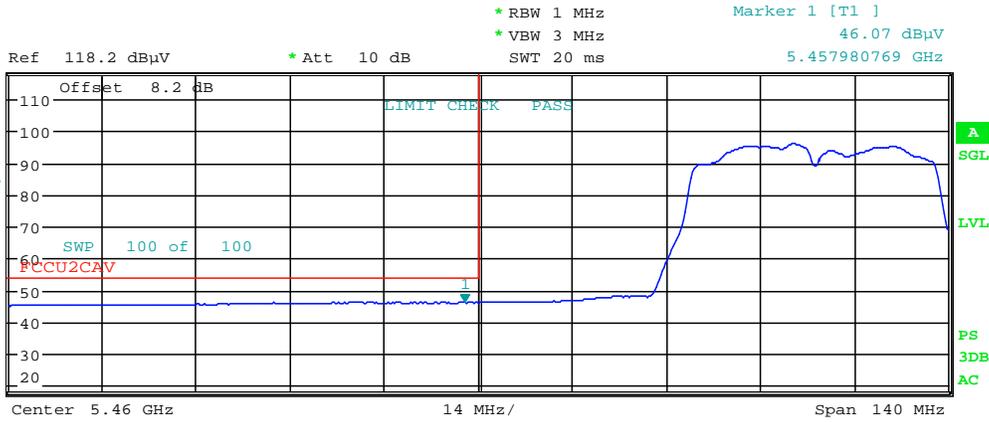
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



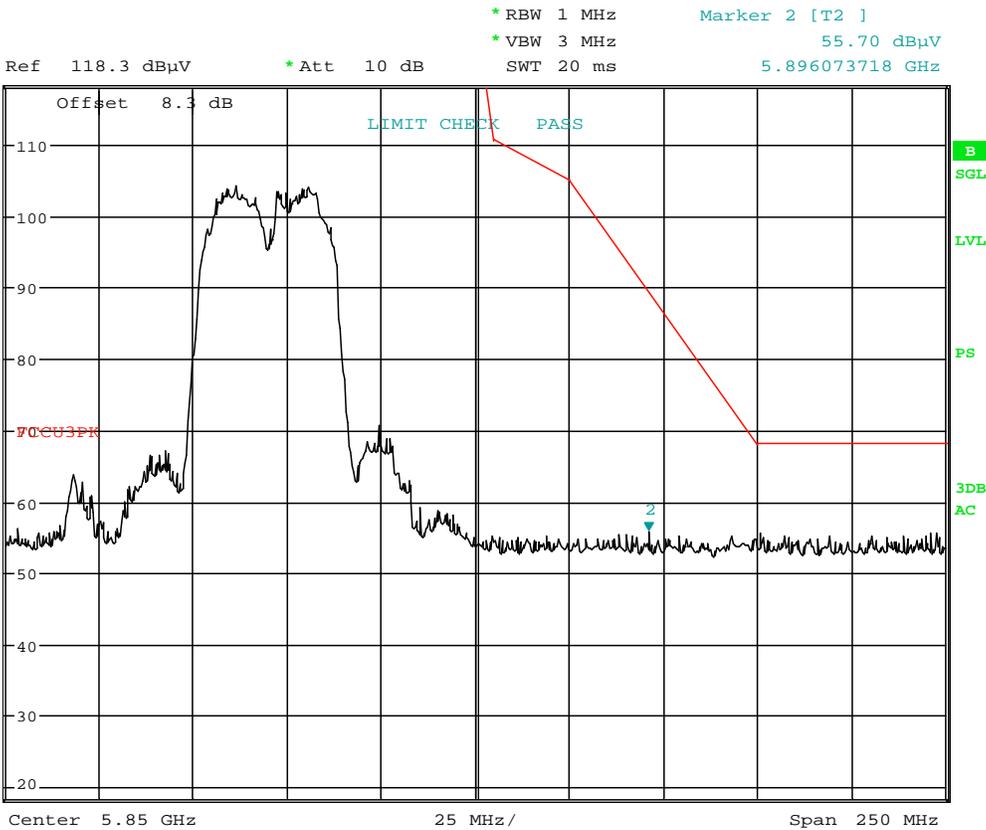
Date: 18.JUL.2017 20:38:12

**Plot 7-220. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 185 of 209

**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: 18.JUL.2017 20:53:17

**Plot 7-221. Radiated Upper Band Edge Plot (Peak – UNII Band 3)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 186 of 209

# MIMO WCP Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

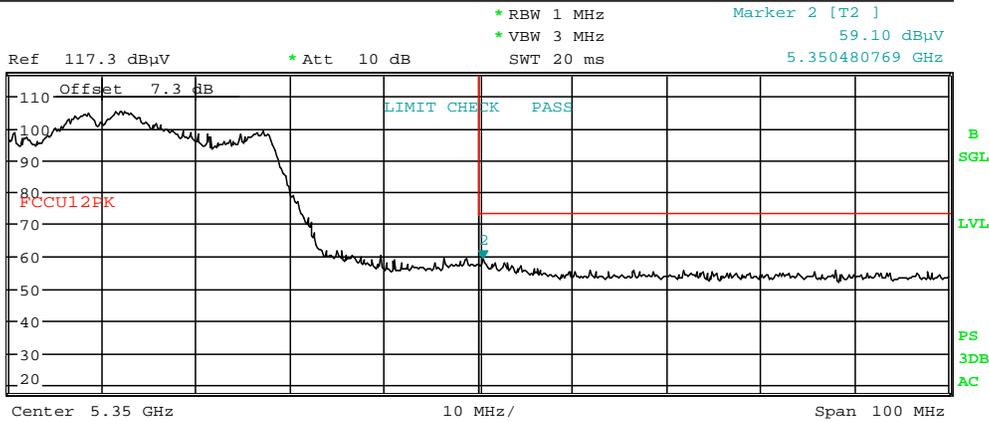
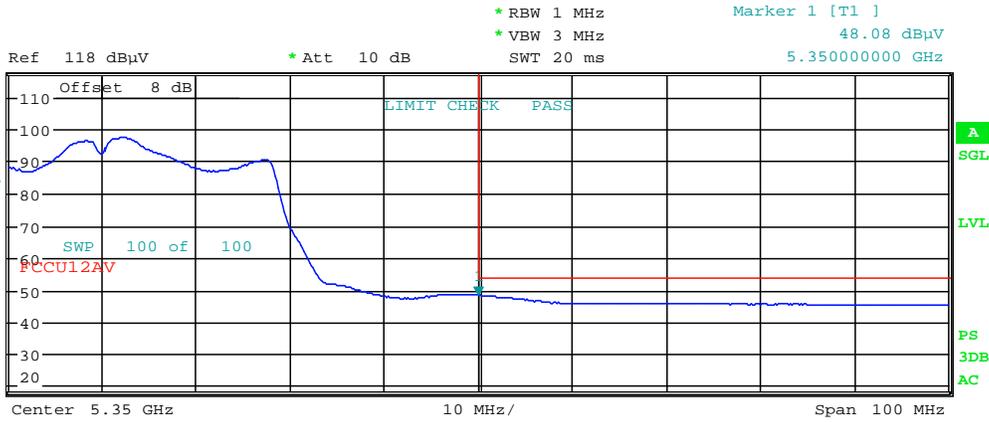
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



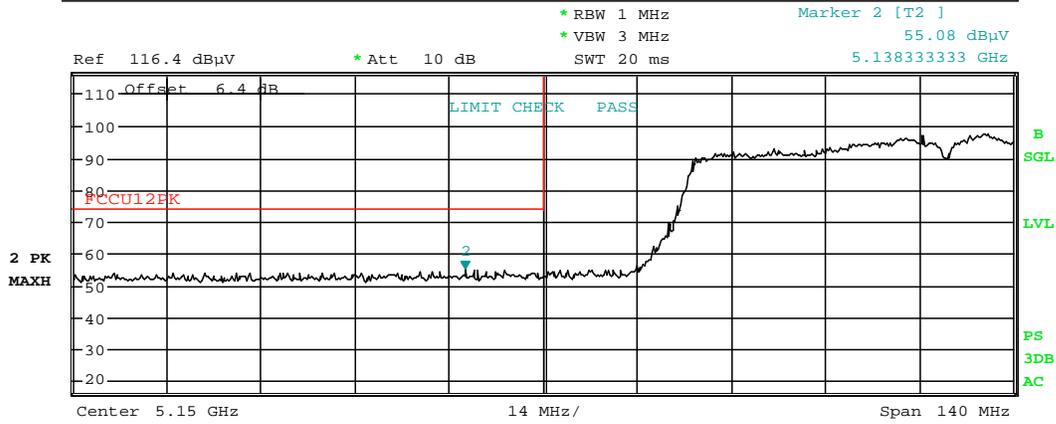
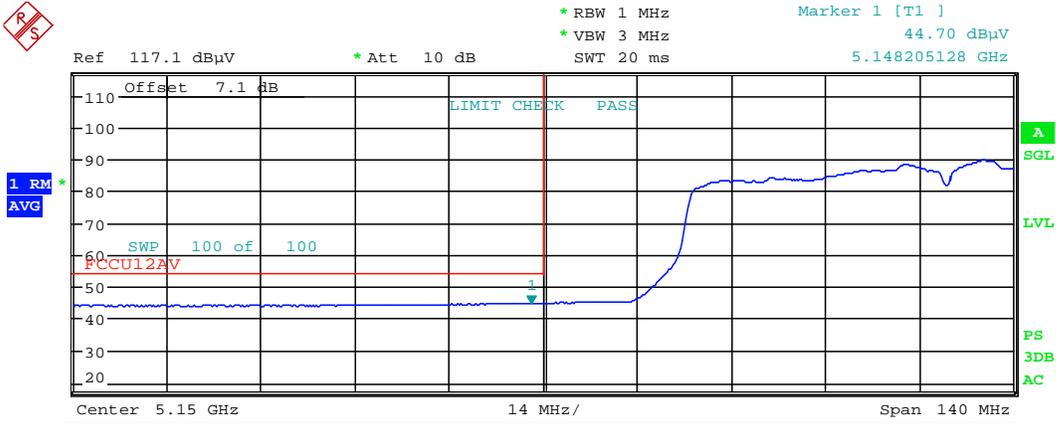
Date: 18.JUL.2017 21:20:31

**Plot 7-222. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 187 of 209

### 7.7.12 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: 18.JUL.2017 20:15:27

**Plot 7-223. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 188 of 209

# MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

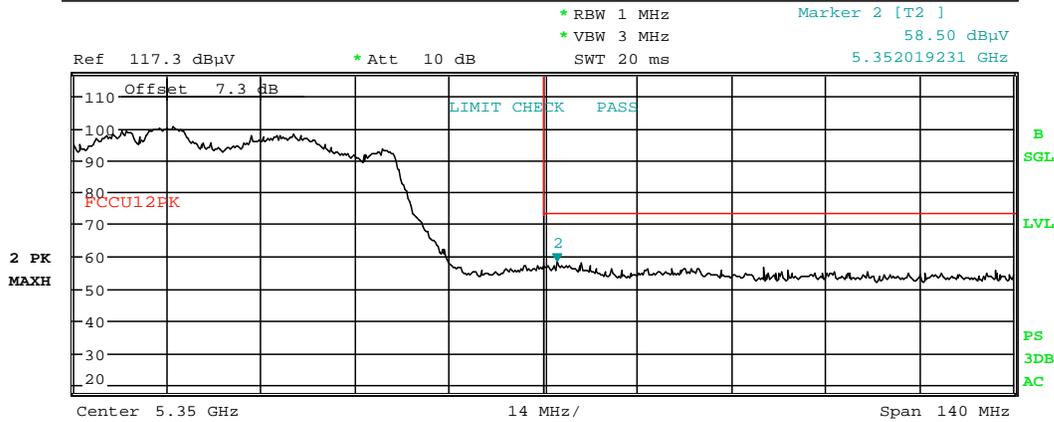
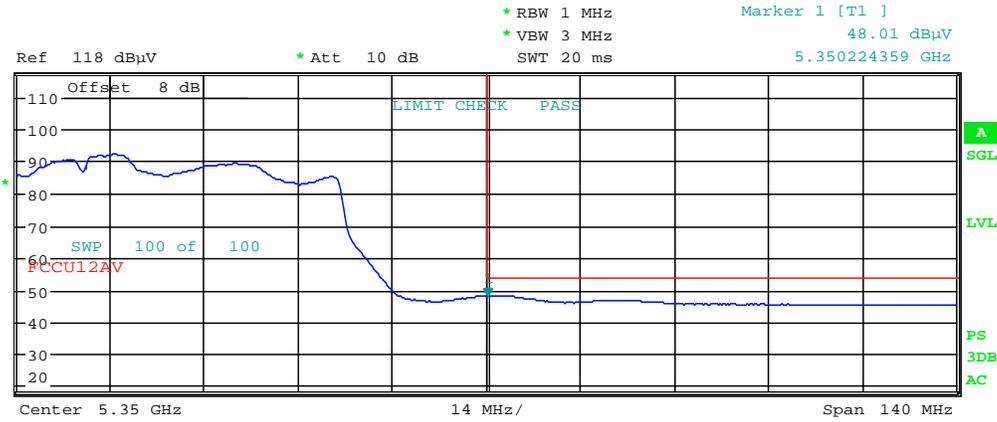
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 18.JUL.2017 20:29:56

**Plot 7-224. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 189 of 209

# MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

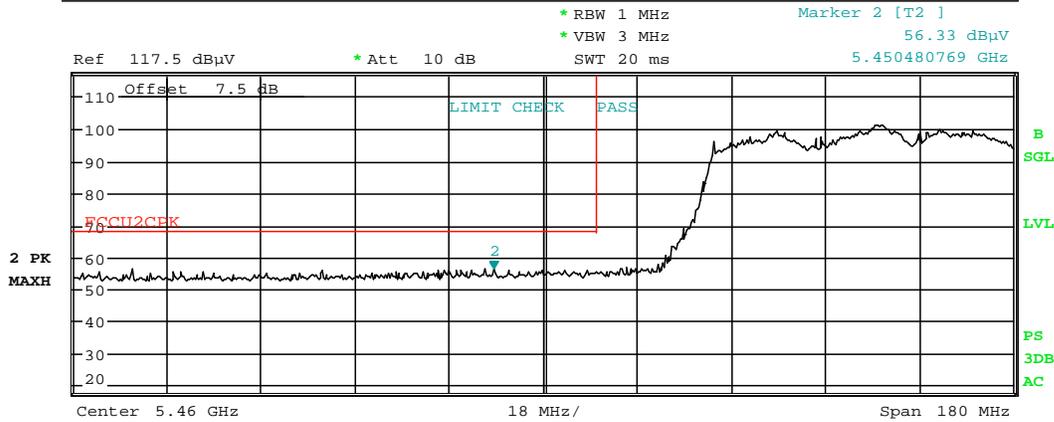
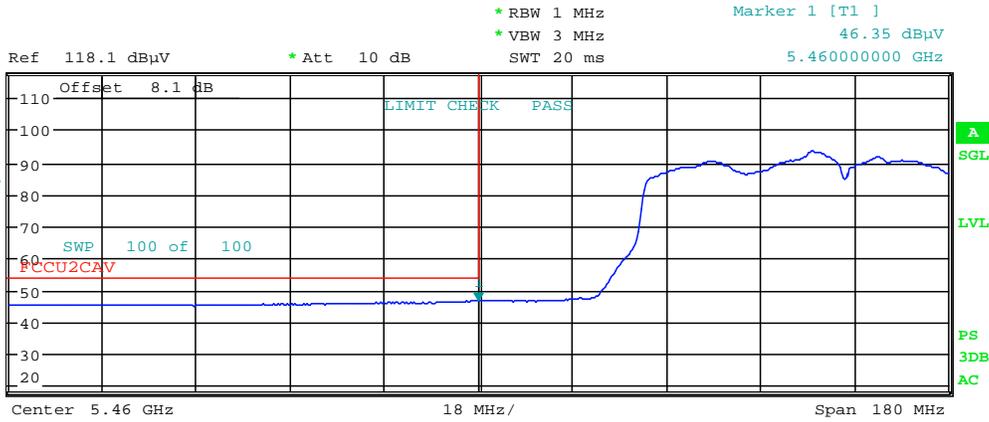
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 18.JUL.2017 20:44:04

**Plot 7-225. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 190 of 209

# MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

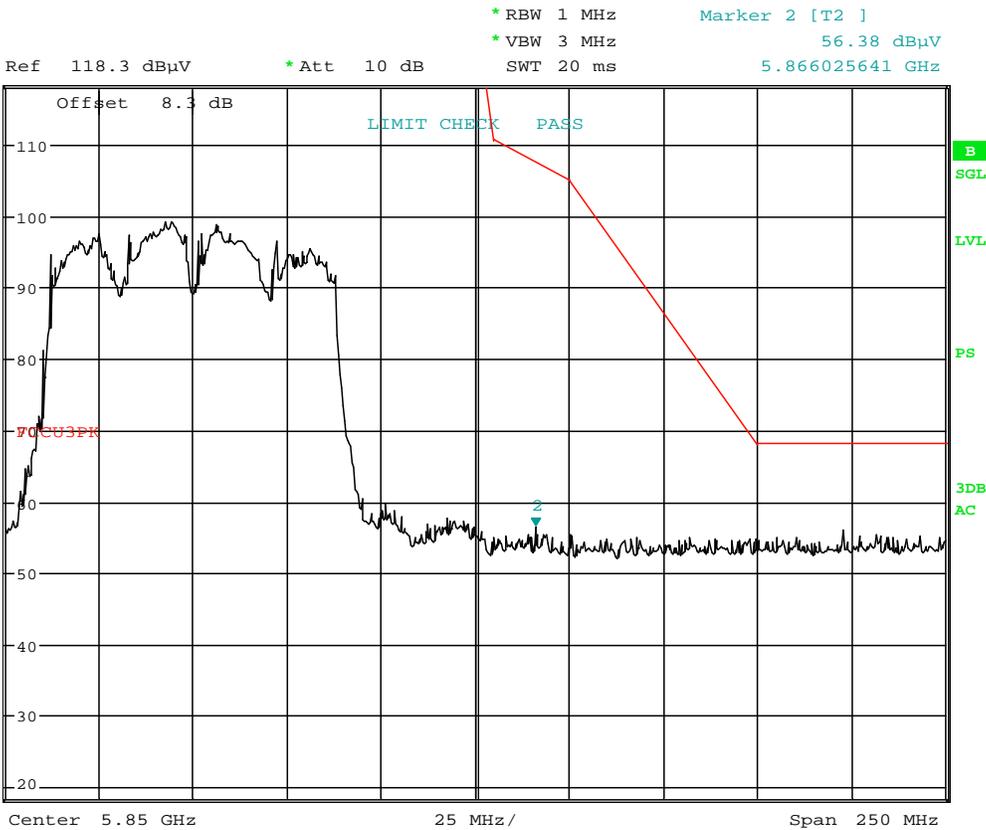
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



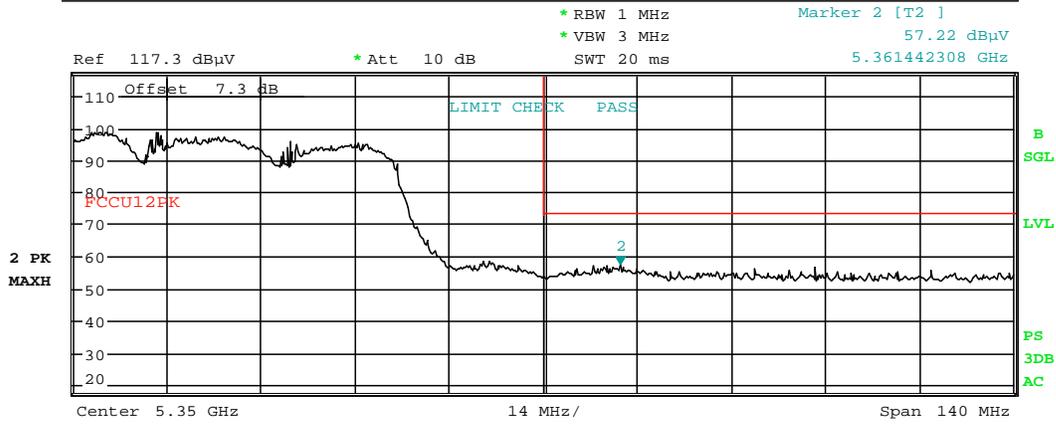
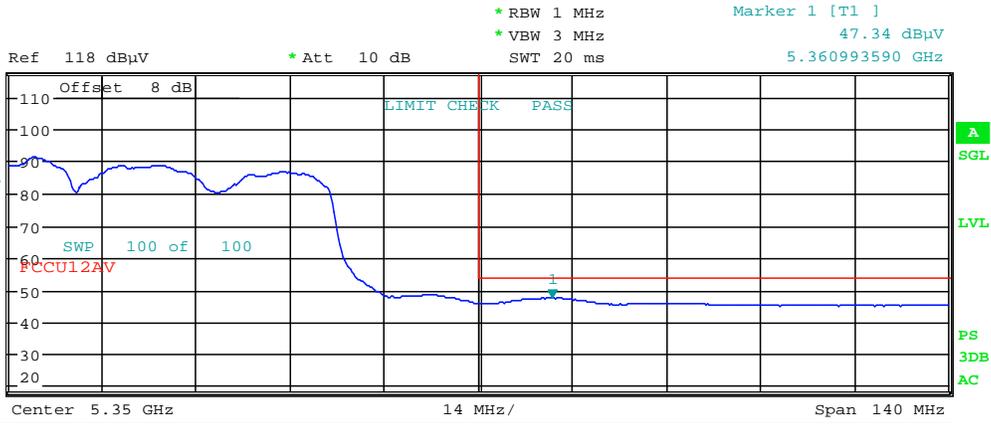
Date: 18.JUL.2017 20:58:54

**Plot 7-226. Radiated Upper Band Edge Plot (Peak – UNII Band 3)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 191 of 209

**MIMO WCP 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



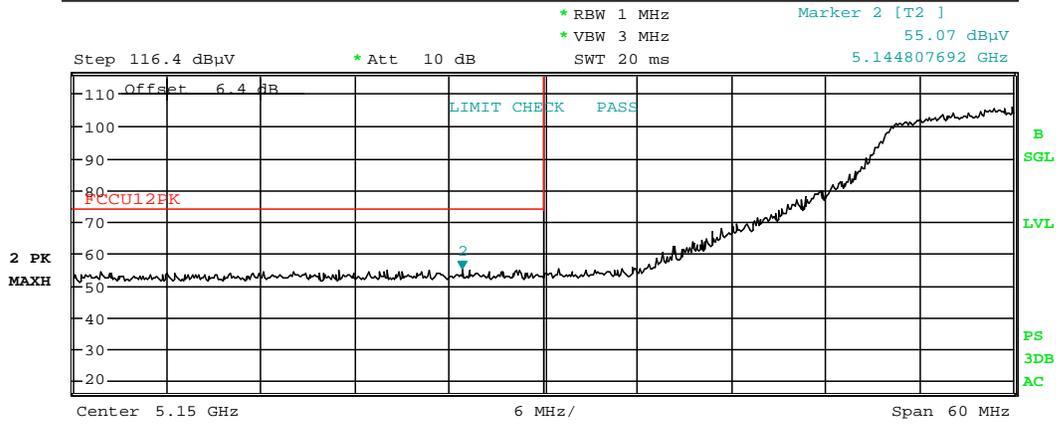
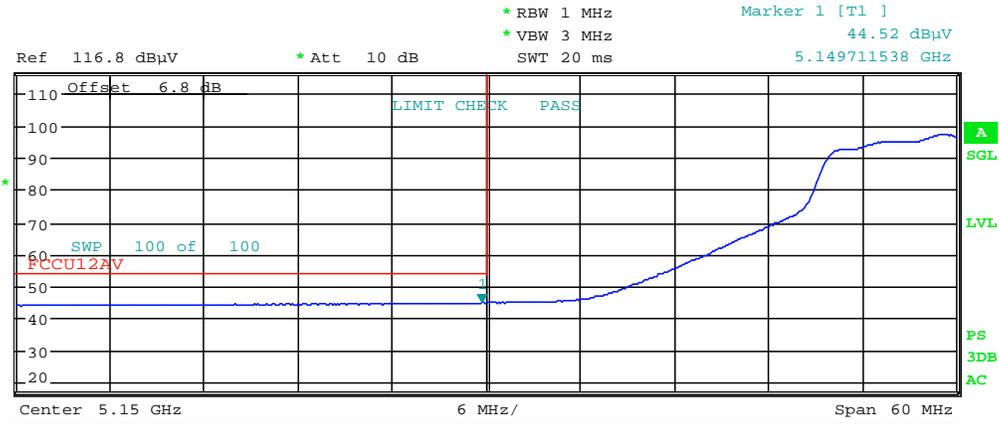
Date: 18.JUL.2017 21:23:24

**Plot 7-227. Radiated Restricted Band Edge Plot with WCP**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 192 of 209

### 7.7.13 CDD Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11a (20MHz)  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5180MHz  
 Channel: 36



Date: 4.AUG.2017 20:28:03

**Plot 7-228. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 193 of 209

# CDD Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

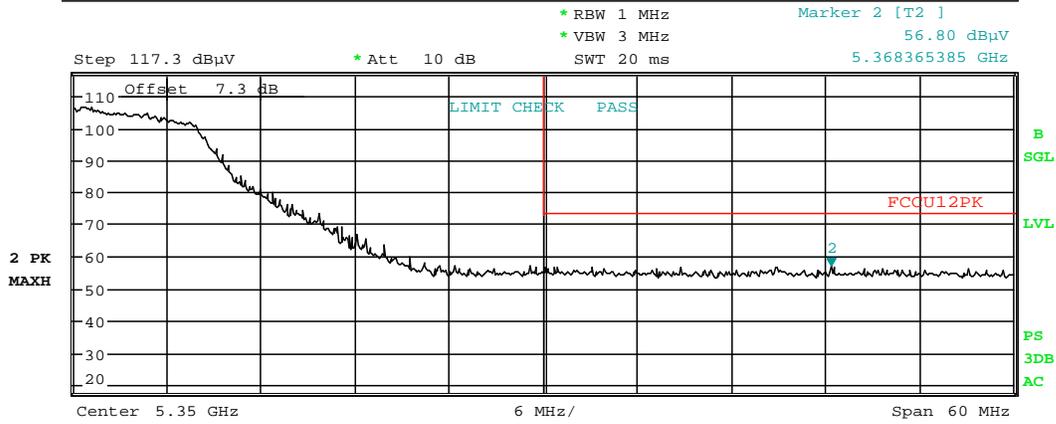
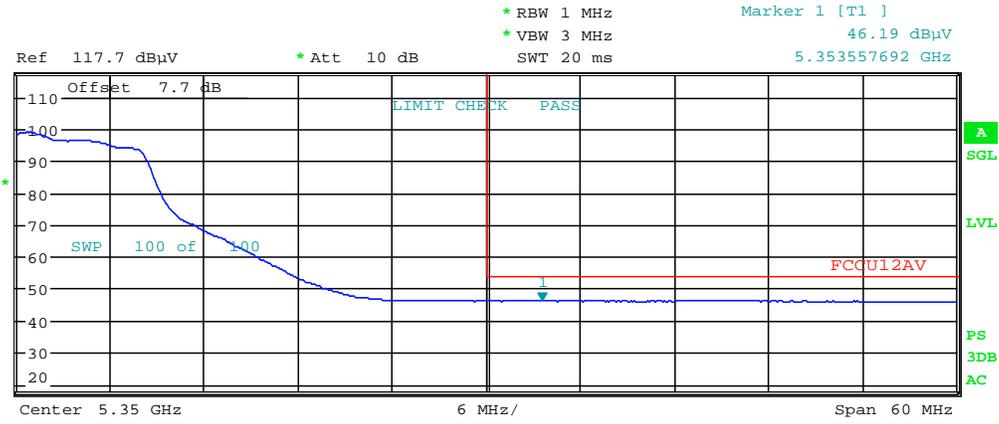
Worst Case Mode: 802.11a (20MHz)

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 4.AUG.2017 20:32:02

**Plot 7-229. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 194 of 209

# CDD Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

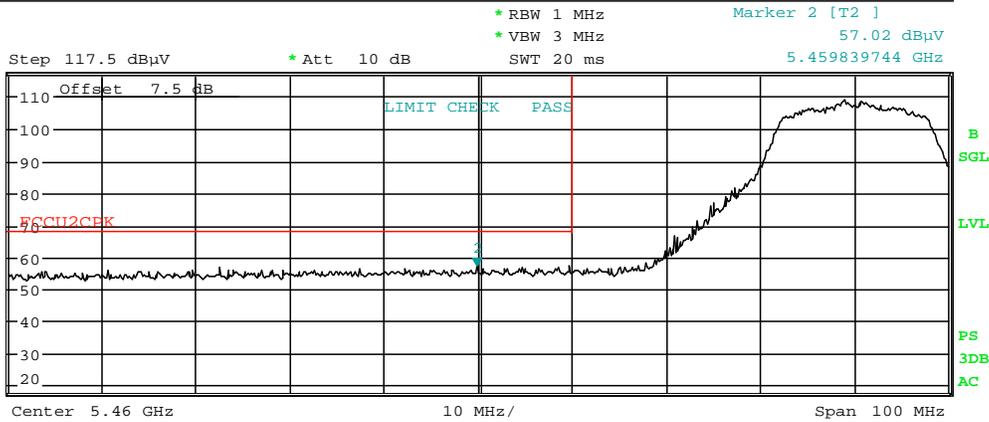
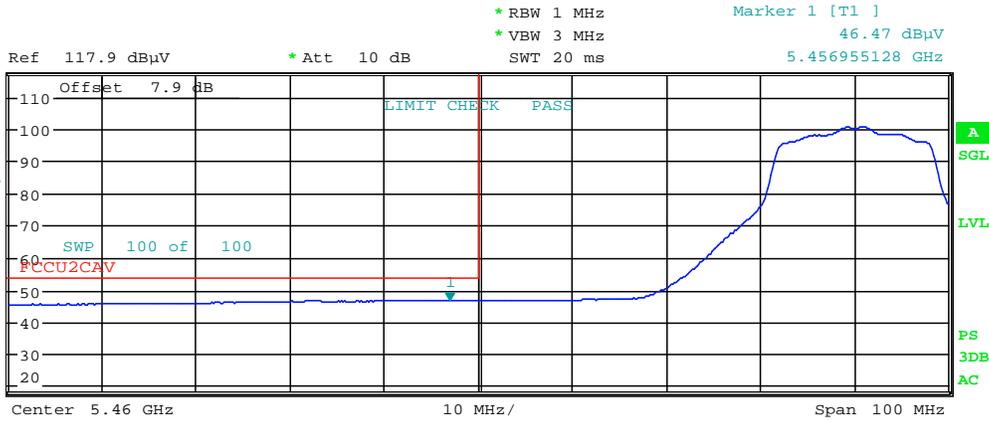
Worst Case Mode: 802.11a (20MHz)

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



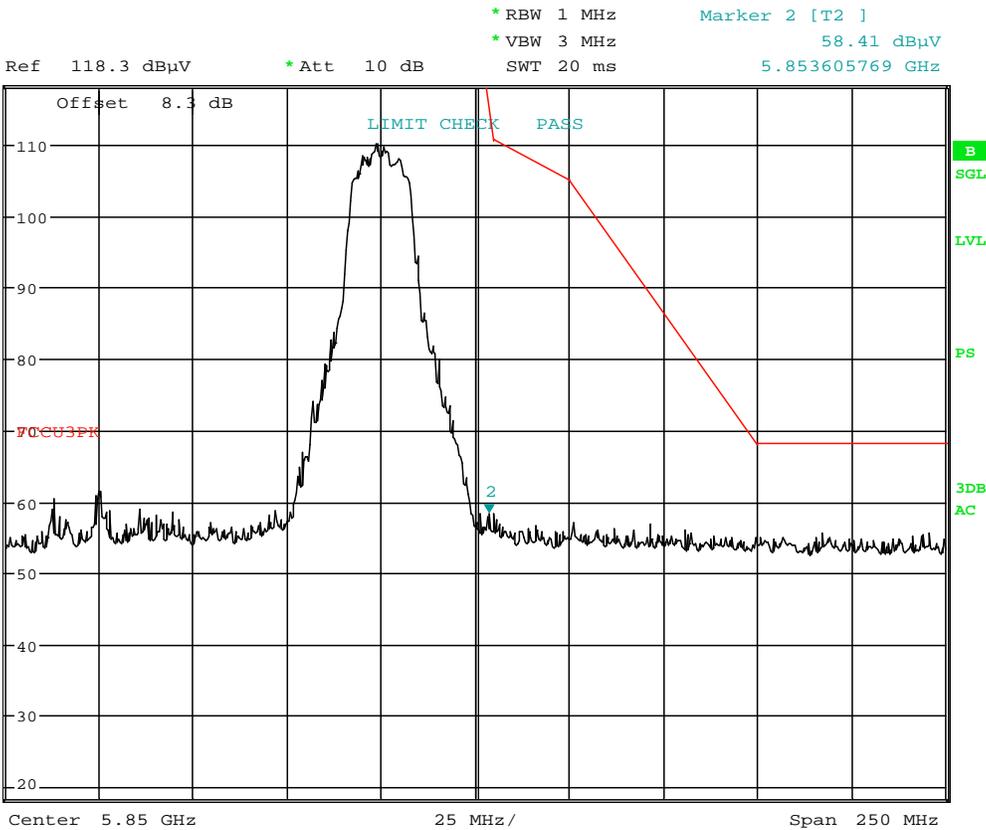
Date: 4.AUG.2017 20:35:45

**Plot 7-230. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 195 of 209

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

Worst Case Mode: 802.11a (20MHz)  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5825MHz  
 Channel: 165



Date: 4.AUG.2017 20:44:47

**Plot 7-231. Radiated Upper Band Edge Plot (Peak – UNII Band 3)**

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 196 of 209

# CDD WCP Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

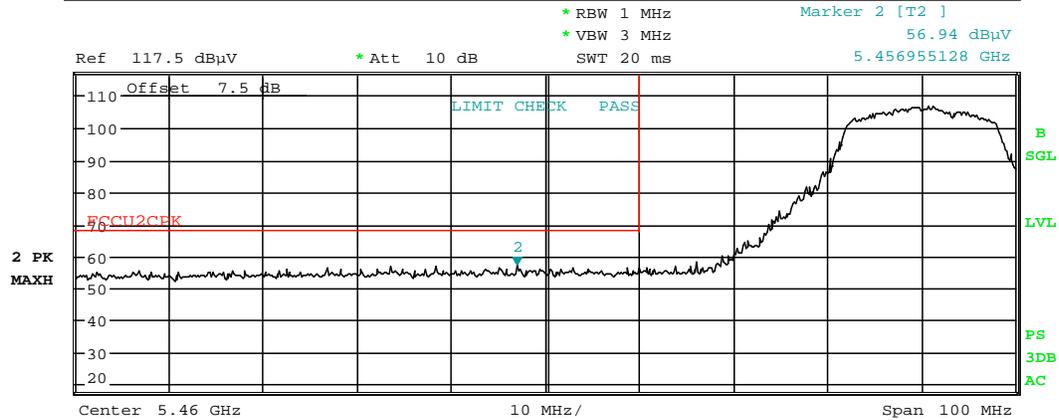
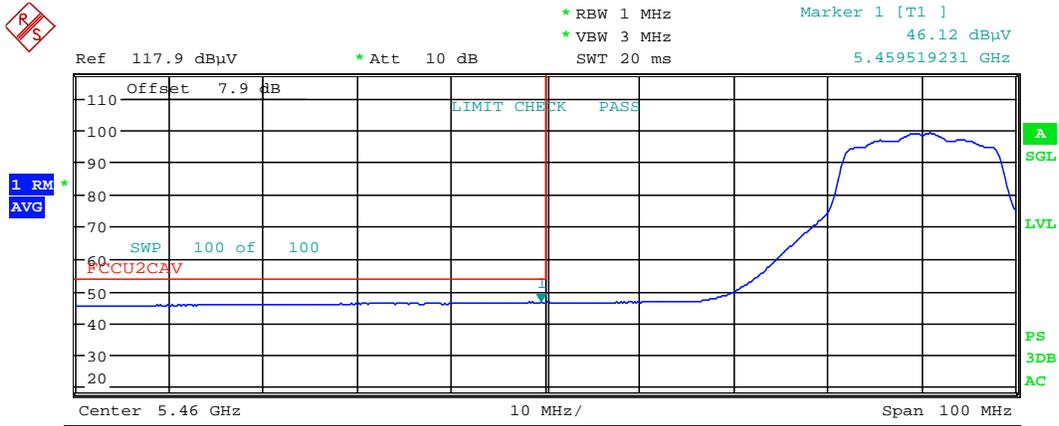
Worst Case Mode: 802.11a (20MHz)

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 4.AUG.2017 20:41:02

Plot 7-232. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset		Page 197 of 209

## 7.8 Radiated Spurious Emissions Measurements – Below 1GHz

§15.209

### Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

***All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 7-62 per Section 15.209.***

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

**Table 7-62. Radiated Limits**

### Test Procedures Used

ANSI C63.10-2013

### Test Settings

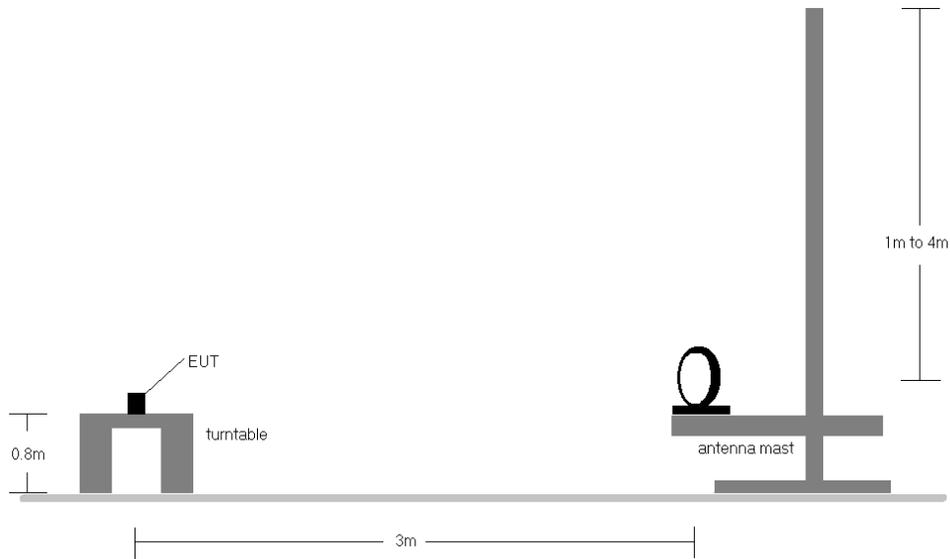
#### Quasi-Peak Field Strength Measurements

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

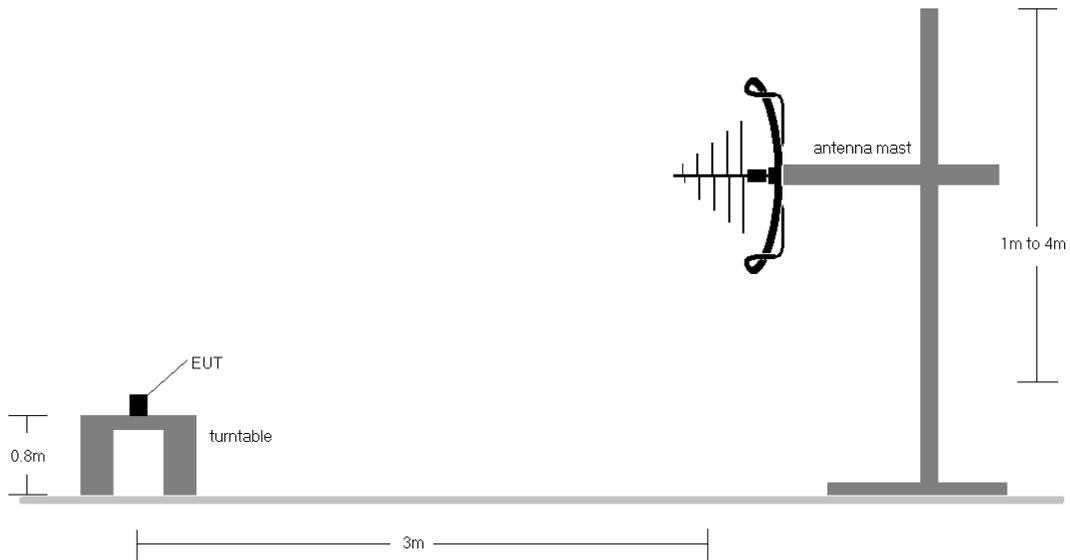
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 198 of 209	

### Test Setup

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



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



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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707110215-05-R1.ZNF	Test Dates: 7/12/2017-8/8/2017	EUT Type: Portable Handset	Page 199 of 209	

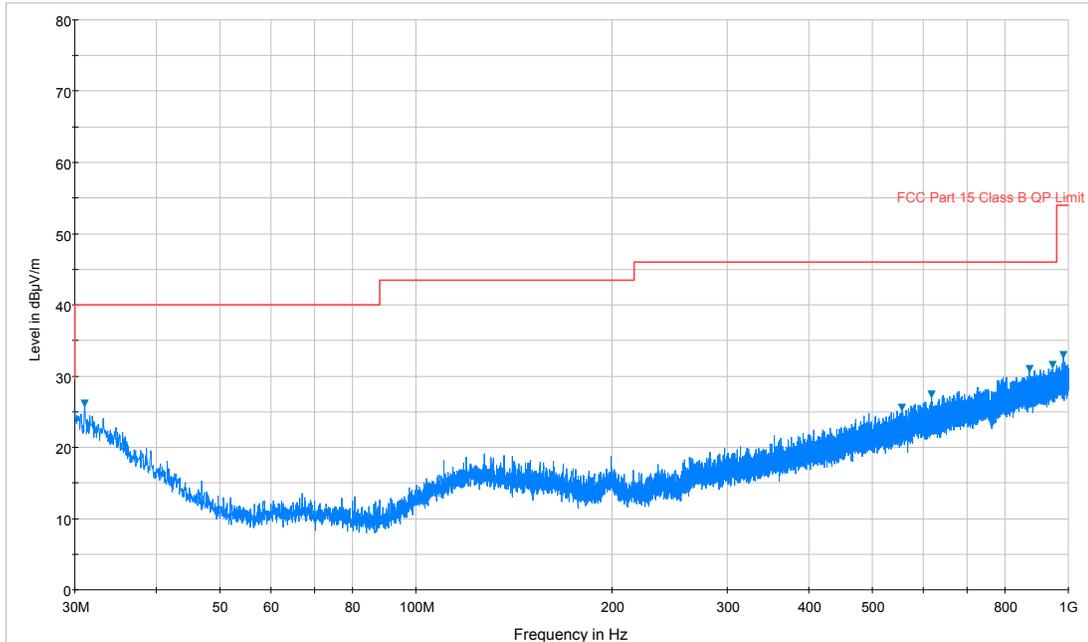
## Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-62.
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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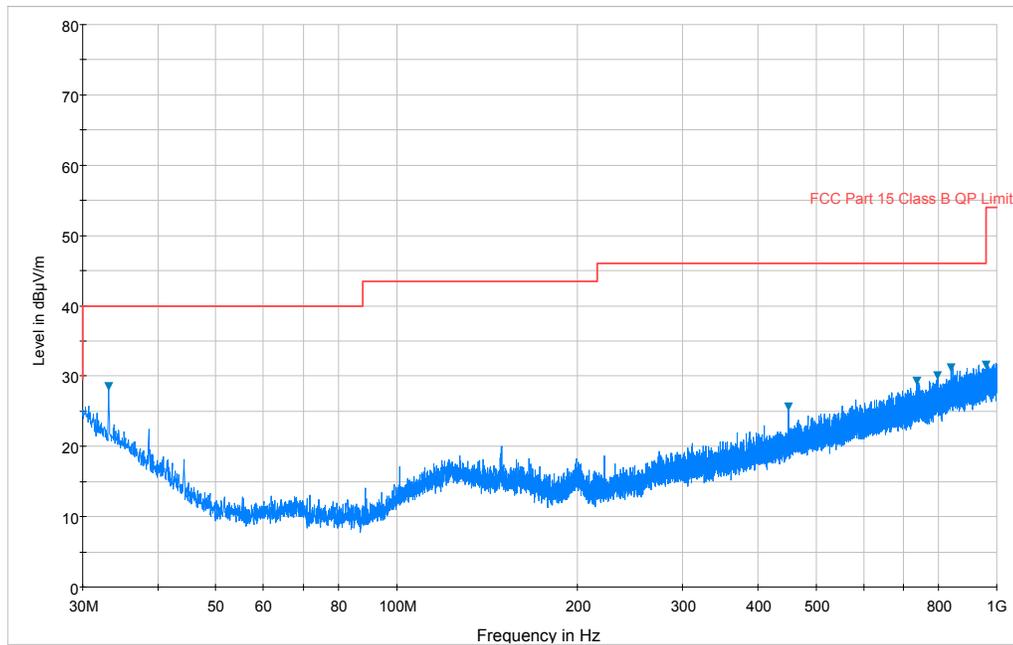
# Antenna-1 Radiated Spurious Emissions Measurements (Below 1GHz)

**§15.209**



— Preview Result 1H-PK+    — FCC Part 15 Class B QP Limit    ▼ Final\_Result PK+

**Plot 7-233. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)**



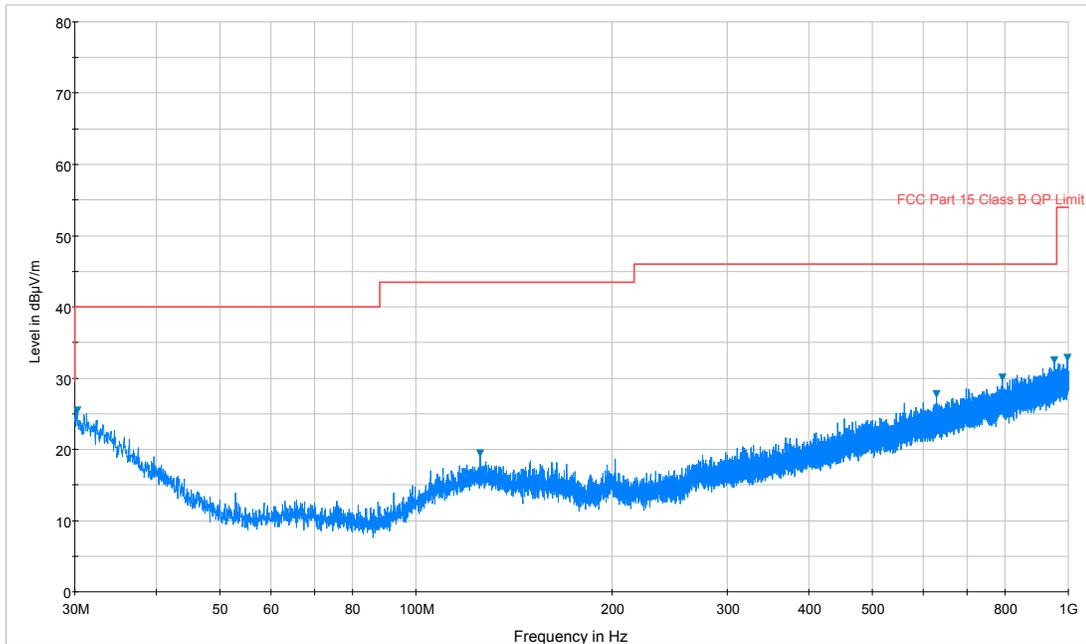
— Preview Result 1H-PK+    — FCC Part 15 Class B QP Limit    ▼ Final\_Result PK+

**Plot 7-234. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)**

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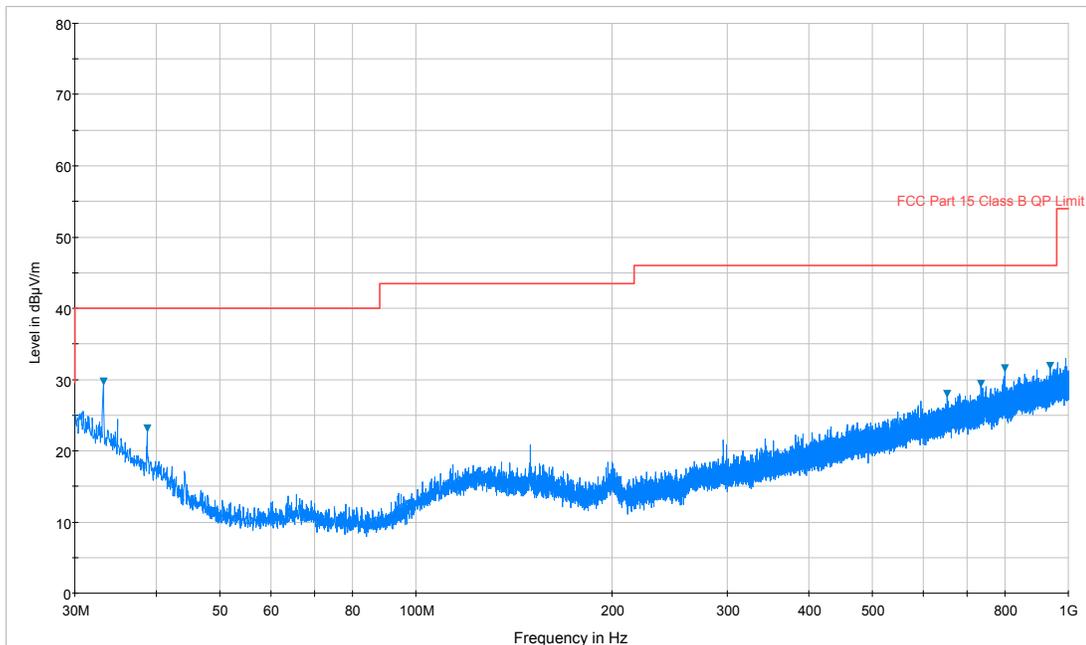
# Antenna-2 Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209



Preview Result 1H-PK+    FCC Part 15 Class B QP Limit    Final\_Result PK+

**Plot 7-235. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)**



Preview Result 1H-PK+    FCC Part 15 Class B QP Limit    Final\_Result PK+

**Plot 7-236. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)**

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## 7.9 Line-Conducted Test Data

§15.407

### Test Overview and Limit

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

**All conducted emissions must not exceed the limits shown in the table below, per Section 15.207.**

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

**Table 7-63. Conducted Limits**

\*Decreases with the logarithm of the frequency.

### Test Procedures Used

ANSI C63.10-2013, Section 6.2

### Test Settings

#### Quasi-Peak Field Strength Measurements

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

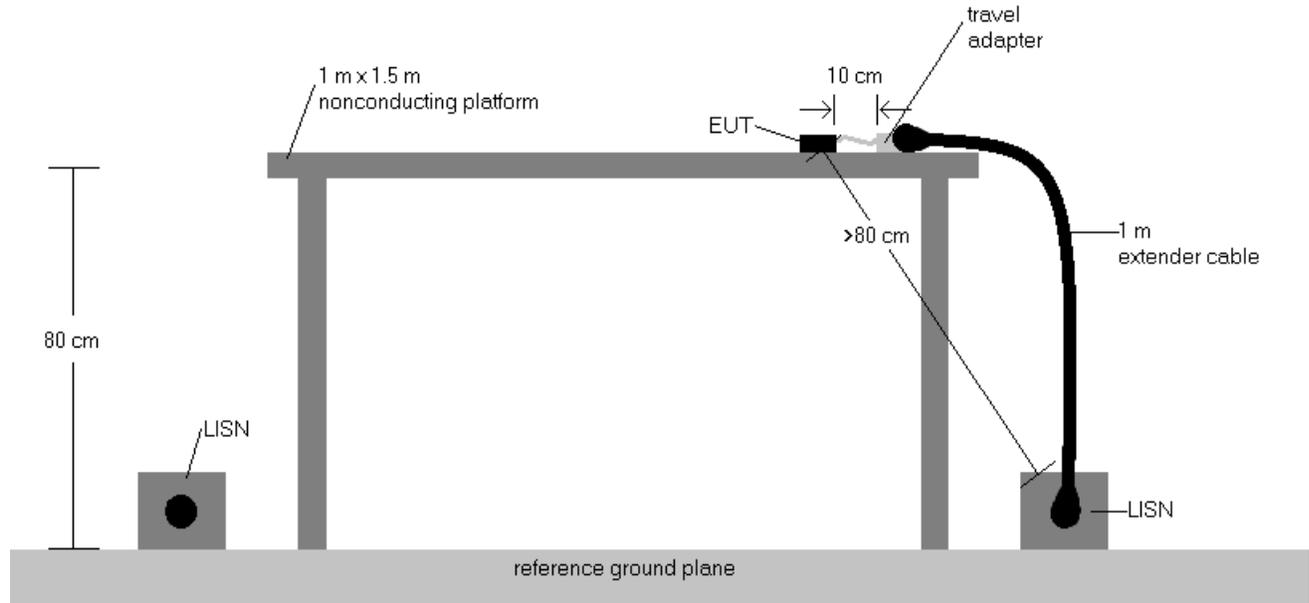
#### Average Field Strength Measurements

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

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## Test Setup

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

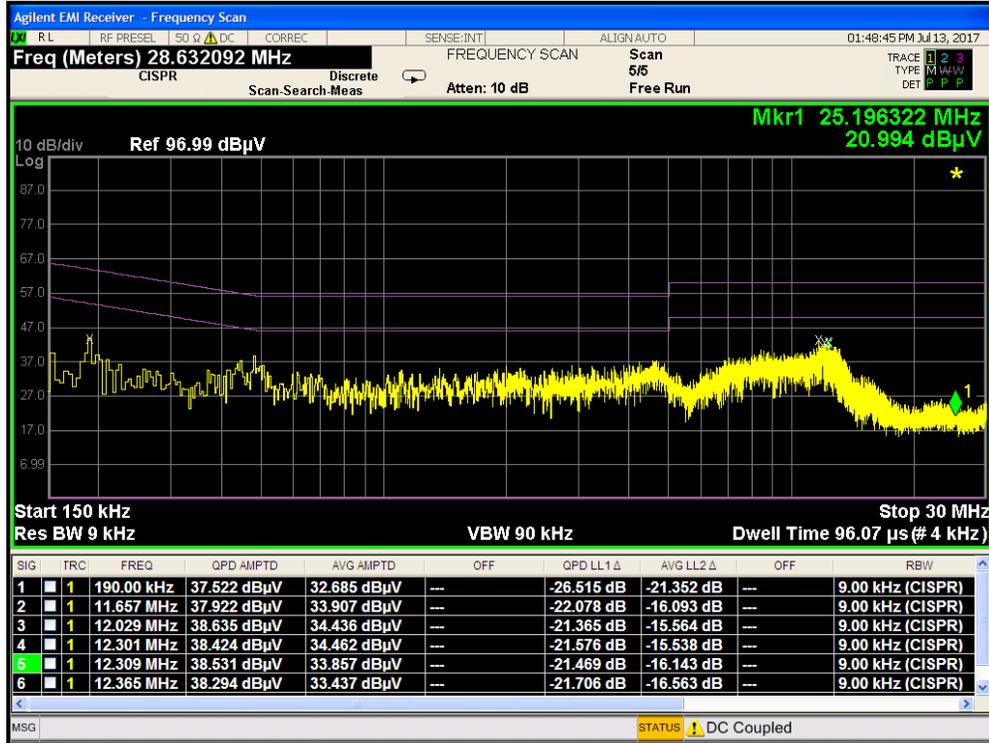


**Figure 7-8. Test Instrument & Measurement Setup**

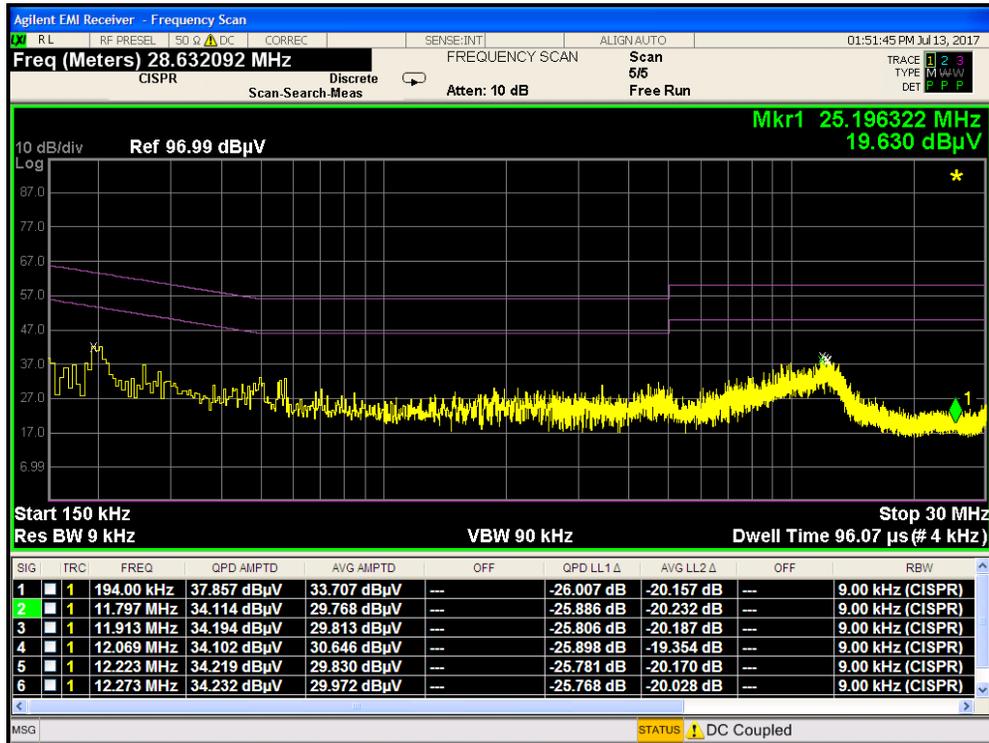
## Test Notes

1. All modes of operation were investigated and the worst-case emissions are reported using mid channel. The emissions found were not affected by the choice of channel used during testing.
2. The limit for an intentional radiator from 150kHz to 30MHz are specified in 15.207.
3.  $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
4.  $\text{QP/AV Level (dB}\mu\text{V)} = \text{QP/AV Analyzer/Receiver Level (dB}\mu\text{V)} + \text{Corr. (dB)}$
5.  $\text{Margin (dB)} = \text{QP/AV Limit (dB}\mu\text{V)} - \text{QP/AV Level (dB}\mu\text{V)}$
6. Traces shown in plot are made using a peak detector.
7. Deviations to the Specifications: None.

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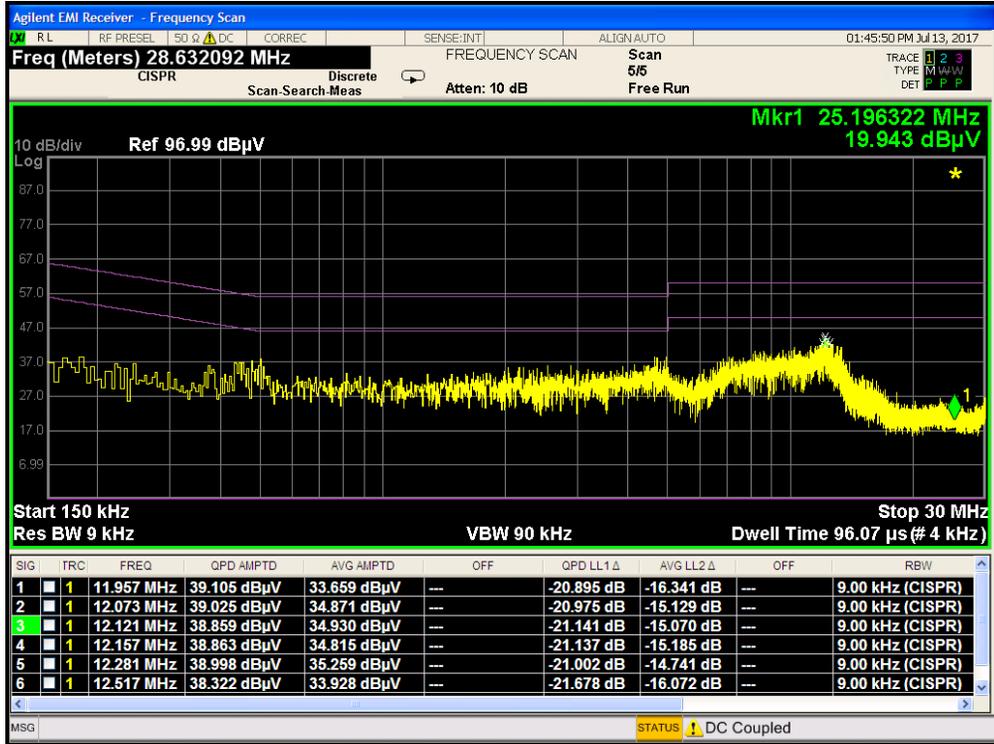


Plot 7-237. Line Conducted Plot with 802.11a UNII Band 1 (L1)

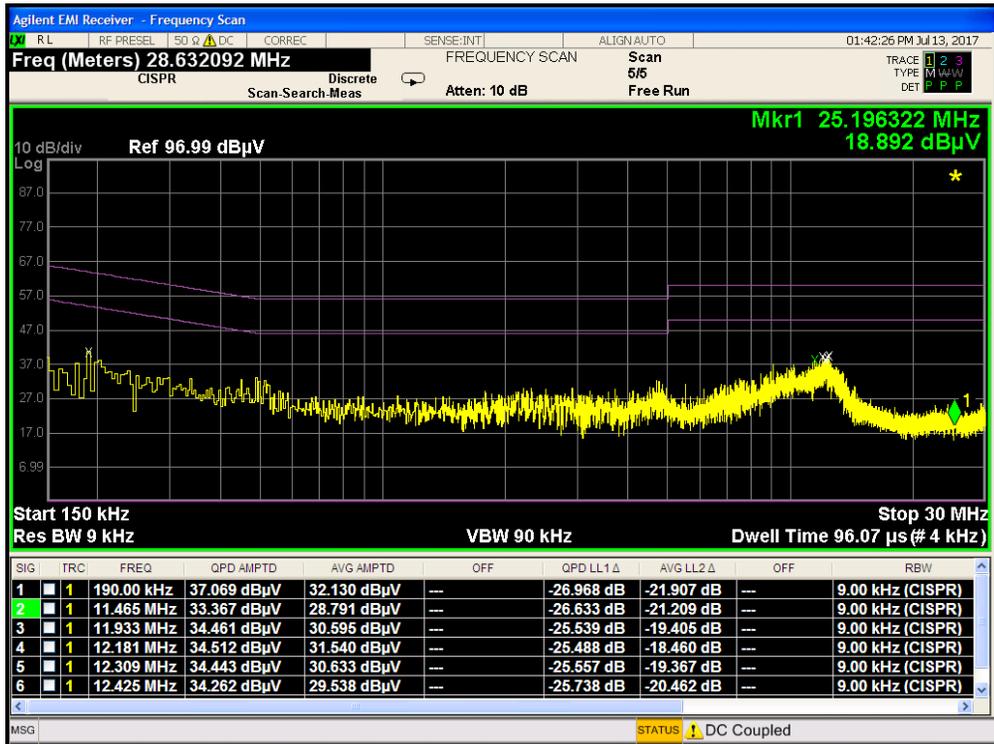


Plot 7-238. Line Conducted Plot with 802.11a UNII Band 1 (N)

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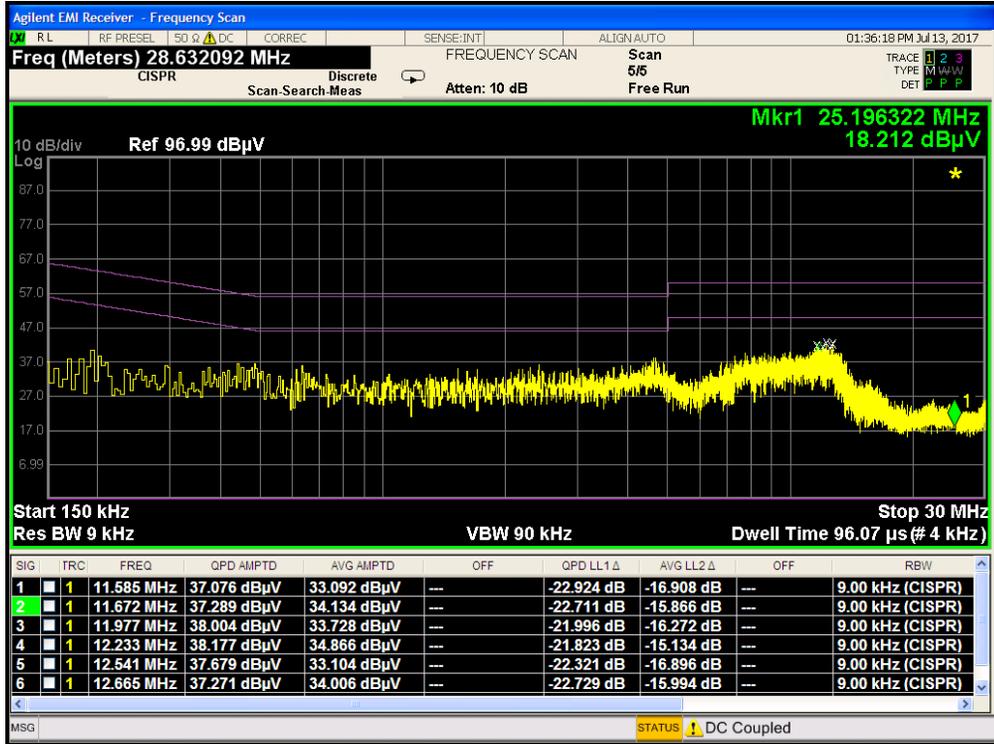


Plot 7-239. Line Conducted Plot with 802.11a UNII Band 2A (L1)

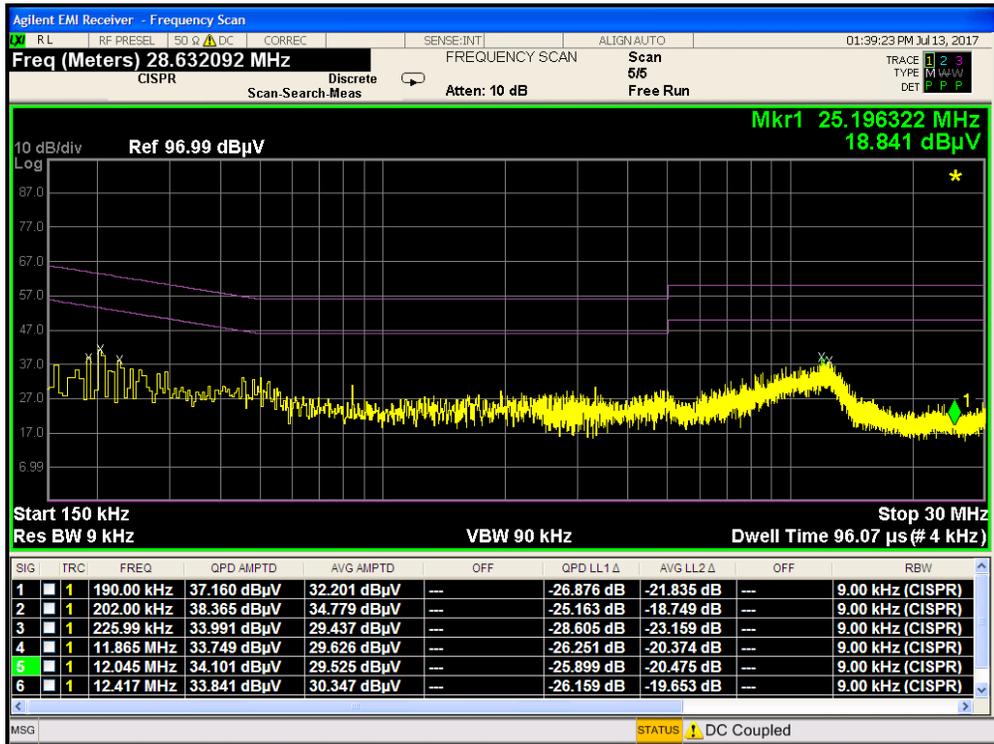


Plot 7-240. Line Conducted Plot with 802.11a UNII Band 2A (N)

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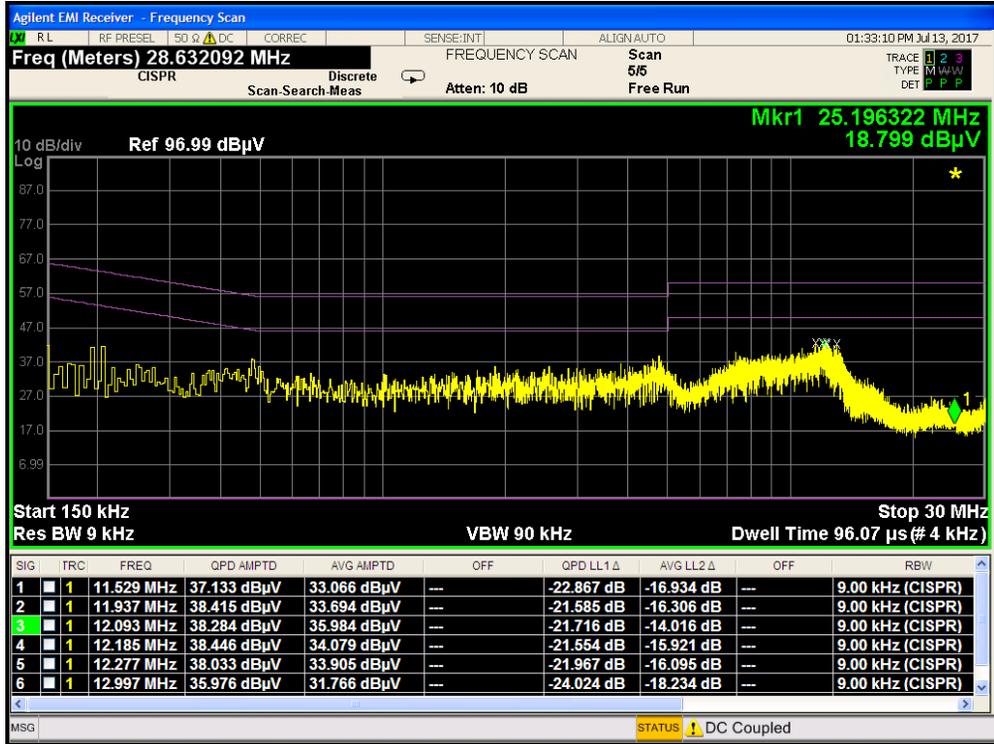


Plot 7-241. Line Conducted Plot with 802.11a UNII Band 2C (L1)

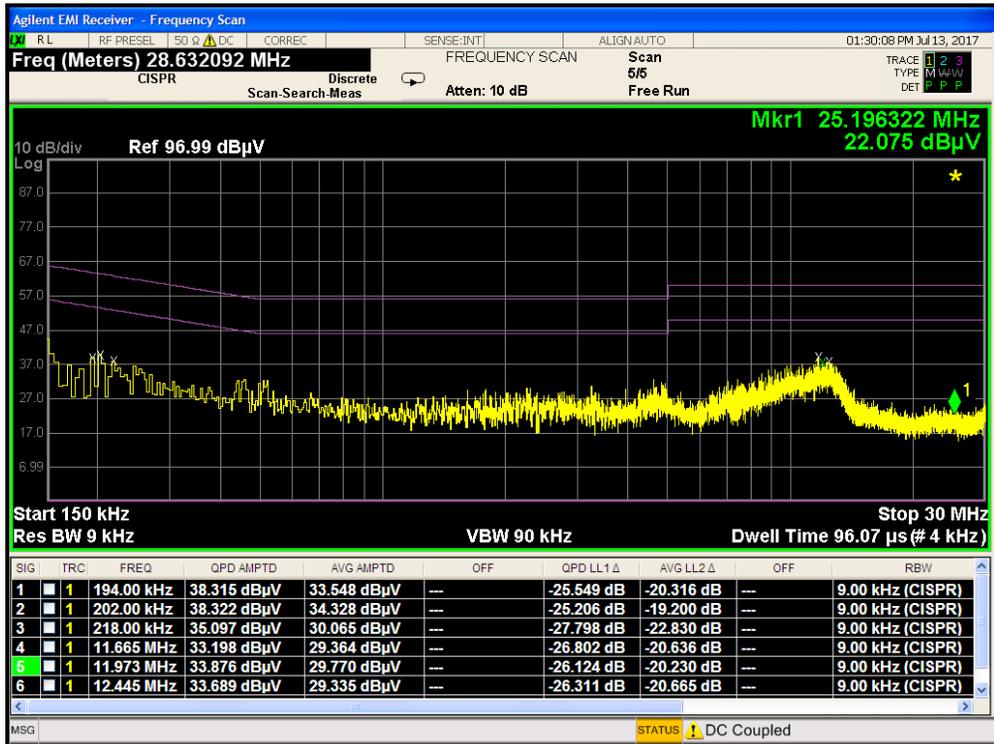


Plot 7-242. Line Conducted Plot with 802.11a UNII Band 2C (N)

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Plot 7-243. Line Conducted Plot with 802.11a UNII Band 3 (L1)



Plot 7-244. Line Conducted Plot with 802.11a UNII Band 3 (N)

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## 8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFH932** is in compliance with Part 15E of the FCC Rules.

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