

# **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]
	5180	36	а	6	3.26	11.0	-7.74
	5200	40	а	6	3.60	11.0	-7.41
	5240	48	а	6	3.13	11.0	-7.87
-	5180	36	n (20MHz)	6.5/7.2 (MCS0)	3.01	11.0	-7.99
Band 1	5200	40	n (20MHz)	6.5/7.2 (MCS0)	3.03	11.0	-7.97
ä	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
	5260	52	а	6	3.44	11.0	-7.56
	5280	56	а	6	3.68	11.0	-7.32
	5320	64	а	6	3.63	11.0	-7.37
ZA	5260	52	n (20MHz)	6.5/7.2 (MCS0)	2.93	11.0	-8.07
Band 2A	5280	56	n (20MHz)	6.5/7.2 (MCS0)	3.10	11.0	-7.90
Ba	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
	5500	100	а	6	3.40	11.0	-7.60
	5580	116	а	6	3.56	11.0	-7.44
	5720	144	а	6	3.40	11.0	-7.60
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	2.87	11.0	-8.13
SC	5580	116	n (20MHz)	6.5/7.2 (MCS0)	3.22	11.0	-7.78
Band 2C	5720	144	n (20MHz)	6.5/7.2 (MCS0)	3.07	11.0	-7.93
Ba	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

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Keysight Spectrum Analyzer - Swept SA					
RF 50 Ω DC		SENSE:INT	#Avg Type: RMS	02:34:03 PM Jul 19, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
0 dB/div Ref 20.00 dBm	IFGain:Low	Atten: 30 dB	Mkr1	1 5.179 375 GHz 3.256 dBm	Auto Tune
10.0					Center Fre 5.180000000 GH
0.00 <b>10.0</b>	and a second		and apply the second and a second day of the sec		<b>Start Fre</b> 5.167500000 GH
20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0				Construction of the second sec	<b>Stop Fre</b> 5.192500000 GH
40.0					CF Ste 2.500000 MH <u>Auto</u> Ma
60.0					Freq Offs 0 H
Center 5.18000 GHz					Scale Typ
Res BW 510 kHz	#VBW 3	.0 MHz	Sweep 7	1.000 ms (1001 pts)	





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)	🕒 LG	Approved by: Quality Manager	
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🔤 Keysight Sp	ectrum Analyzer	- Swept SA									5 ×
l <mark>XI</mark>	RF	50Ω DC	CORREC		ENSE:INT	#Avg Type	e: RMS	TRAC	M Jul 19, 2017 CE 1 2 3 4 5 6 PE A WWWWW T A N N N N N	Frequen	су
			IFGain:Low	Atten: 3			Mkr1	5.239 4	75 GHz	Auto	Tune
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-20.0	Marrie Marrie Marrie							Andered Contraction	than the want on the	<b>Stop</b> 5.25250000	<b>Freq</b> 00 GHz
-40.0											Step
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Center 5. #Res BW	24000 GH 510 kHz	z	#VE	3W 3.0 MH:	z		Sweep 1	Span 2 .000 m <u>s (</u>	5.00 MHz (1001 pts)	Log	Lir
MSG							STATUS				





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)	🔁 LG	Approved by: Quality Manager	
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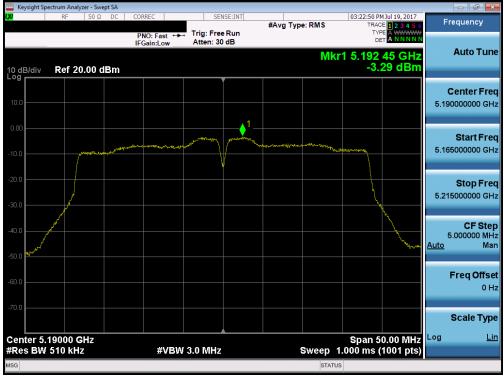
Plot 7-119. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)



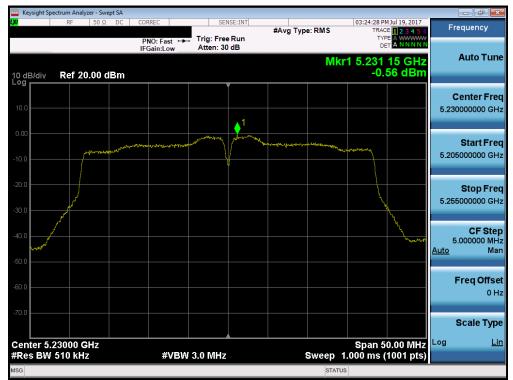
Plot 7-120. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) - Ch. 48)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Daga 80 of 200		
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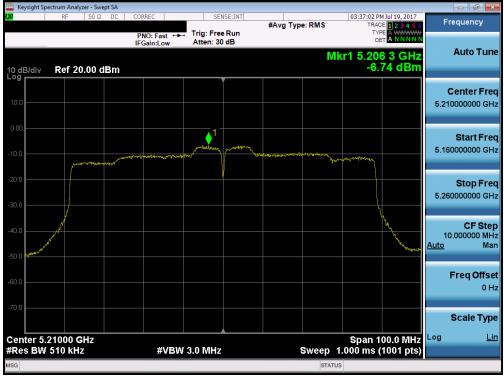
Plot 7-121. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) - Ch. 38)



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

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



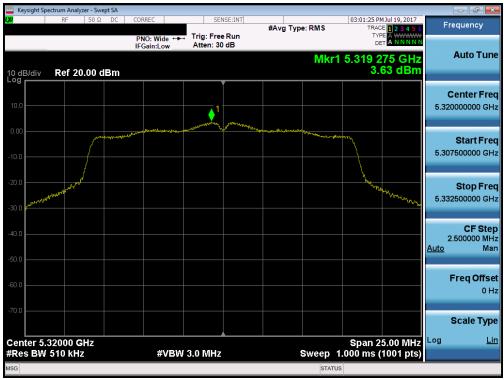
Plot 7-124. Power Spectral Density Plot (802.11a (UNII Band 2A) - Ch. 52)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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Keysight S	Spectrum Analyz	er - Swe	pt SA										
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-20.0	and and the state of the state	,								Rowerster	Maryny Myrawys	5.29	<b>Stop Fred</b> 2500000 GH2
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	5.28000 GI V 510 kHz			#	¢νΒ₩	3.0 MHz			Sweep ′	Span 2 1.000 ms (	5.00 MHz (1001 pts)	Log	<u>Lir</u>
MSG									STATU	s			

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)	🔁 LG	Approved by: Quality Manager	
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Plot 7-127. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)



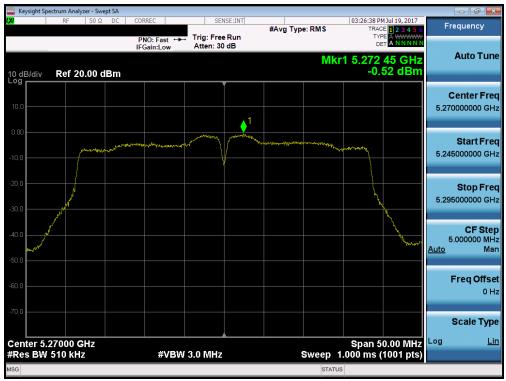
Plot 7-128. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) - Ch. 56)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
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1M1707110215-05-R1.ZNF	7/12/2017-8/8/2017	Portable Handset		Page 93 of 209		
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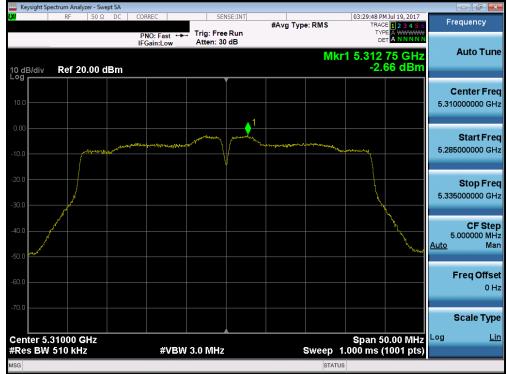
Plot 7-129. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) - Ch. 64)



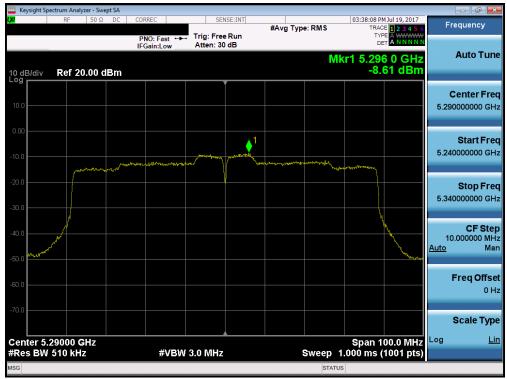
Plot 7-130. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) - Ch. 54)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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Plot 7-131. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)



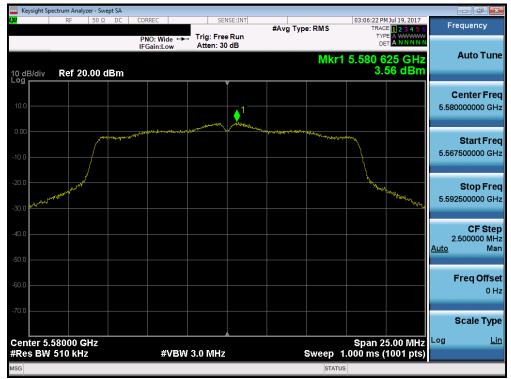
Plot 7-132. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) - Ch. 58)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spe	ectrum Analyz												- 6
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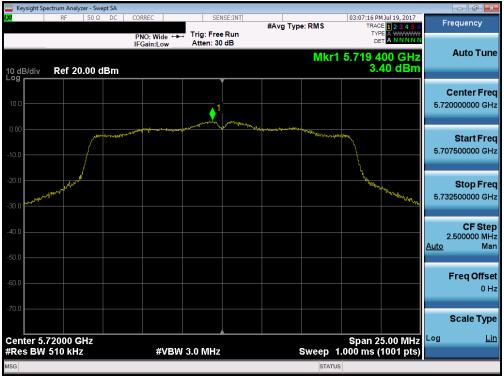




Plot 7-134. Power Spectral Density Plot (802.11a (UNII Band 2C) - Ch. 116)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-136. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) - Ch. 100)

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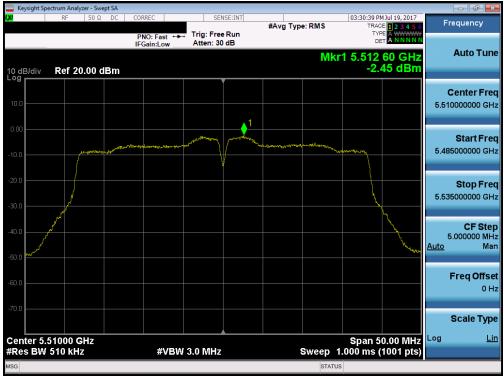
Plot 7-137. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) - Ch. 116)



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)	🔁 LG	Approved by: Quality Manager
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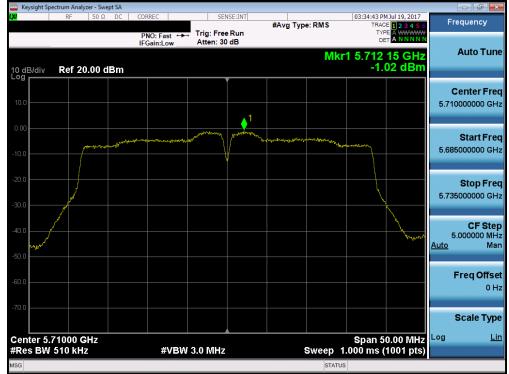
Plot 7-139. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) - Ch. 102)



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)	🔁 LG	Approved by: Quality Manager
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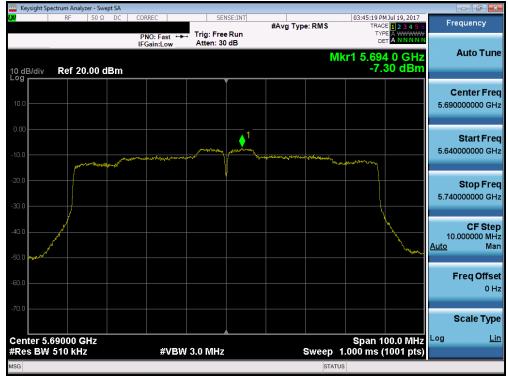
Plot 7-141. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)



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

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

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	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]		Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	5745	149	а	6	3.72	30.0	-26.28
	5785	157	а	6	3.52	30.0	-26.48
	5825	165	а	6	3.42	30.0	-26.58
e	5745	149	n (20MHz)	6.5/7.2 (MCS0)	3.26	30.0	-26.74
Band	5785	157	n (20MHz)	6.5/7.2 (MCS0)	3.64	30.0	-26.36
ä	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)	🕑 LG	Approved by: Quality Manager
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RF 50											- 6 💌
N D	DΩ DC		:Wide ↔	, Trig: Fre		#Avg Typ	e:RMS	TRAC	M Jul 19, 2017 DE <b>1 2 3 4 5</b> 6 DE A WWWW TANNNNN	Free	quency
Ref 20.00	0 dBm	IFGa	in:Low	Atten: 3	0 dB		Mkr1	5.785 6	50 GHz	A	uto Tun
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water								Ny N	Ward where and where a		<b>Stop Fre</b> 00000 GH
										2.5 <u>Auto</u>	CF Ste 00000 M⊢ Ma
										Fi	req Offs 0 ⊦
											cale Typ
8500 GHz 10 kHz			#VBV	V 3.0 MH:	z		Sweep ′	Span 2 1.000 ms (	5.00 MHz 1001 pts)	Log	Li
	2000 GH2	алания алания в 500 GHz	Ref 20.00 dBm	Ref 20.00 dBm	IFGain:Low     Atten: 3       Ref 20.00 dBm	IFGain:Low     Atten: 30 dB       Ref 20.00 dBm	PNO: Wide  Trig: Free Run Atten: 30 dB  Ref 20.00 dBm	PNO: Wide Trig: Free Run Atten: 30 dB Ref 20.00 dBm	PNO: Wide       Trig: Free Run       Trig: Free Run         Mkr1 5.785 €         Ref 20.00 dBm         3	PNO: Wide Trig: Free Run Atten: 30 dB Ref 20.00 dBm	PNO: Wide Trig: Free Run Atten: 30 dB Mikr1 5.785 650 CHZ 3.52 dBm Cer 5.7850 5.7725 5.7755 5





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)	🕒 LG	Approved by: Quality Manager	
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Keysight Sp	ectrum Analyz RF		t SA DC	CORREC		SE	NSE:INT			04:05:27 P	M Jul 19, 2017	_	
				PNO: W	ide 🔶	Trig: Fre		#Avg Typ	e:RMS	ΤY	CE 1 2 3 4 5 6 PE A WWWW ET A NNNN	Fr	equency
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D.0												2 <u>Auto</u>	CF Ste .500000 M M
).0												-	F <b>req Offs</b> 0
0.0													Scale Typ
	74500 G 510 kHz				#VBW	3.0 MHz			Sweep	Span 2 1.000 ms	25.00 MHz (1001 pts)	Log	L
G									STATU				





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

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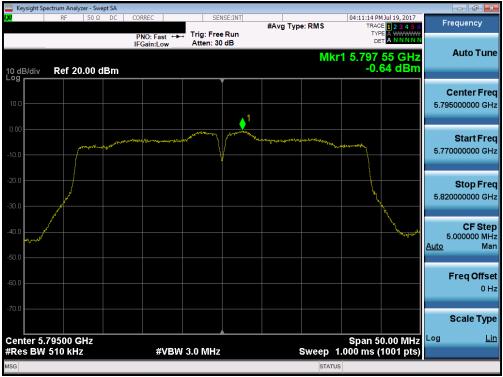




Plot 7-150. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) - Ch. 151)

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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]
	5180	36	а	6.5/7.2 (MCS0)	7.20	3.26	8.67	11.0	-2.33
	5200	40	а	6.5/7.2 (MCS0)	7.50	3.60	8.98	11.0	-2.02
	5240	48	а	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
Band 1	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.85	3.03	8.36	11.0	-2.64
ä	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
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.31	-6.74	-0.97	11.0	-11.97
	5260	52	а	6.5/7.2 (MCS0)	7.37	3.44	8.85	11.0	-2.15
	5280	56	а	6.5/7.2 (MCS0)	7.56	3.68	9.05	11.0	-1.95
	5320	64	а	6.5/7.2 (MCS0)	7.68	3.63	9.12	11.0	-1.88
2A	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.86	2.93	8.34	11.0	-2.66
Band	5280	56	n (20MHz)	6.5/7.2 (MCS0)	7.13	3.10	8.58	11.0	-2.42
Ba	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
	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	а	6.5/7.2 (MCS0)	7.31	3.40	8.79	11.0	-2.21
	5580	116	а	6.5/7.2 (MCS0)	7.19	3.56	8.76	11.0	-2.24
	5720	144	а	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
SC	5580	116	n (20MHz)	6.5/7.2 (MCS0)	6.93	3.22	8.47	11.0	-2.53
Band 2C	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.57	3.07	8.17	11.0	-2.83
Ba	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]
	5745	149	а	6.5/7.2 (MCS0)	4.38	3.72	7.07	30.0	-22.93
	5785	157	а	6.5/7.2 (MCS0)	4.46	3.52	7.03	30.0	-22.97
	5825	165	а	6.5/7.2 (MCS0)	4.58	3.42	7.05	30.0	-22.95
er.		149	n (20MHz)	6.5/7.2 (MCS0)	4.36	3.26	6.86	30.0	-23.14
Band	5785	157	n (20MHz)	6.5/7.2 (MCS0)	4.58	3.64	7.15	30.0	-22.85
ŭ	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 dBm + 3.01 dBm) = (4.94 mW + 2.00 mW) = 6.94 mW = 8.41 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	0.00000133
Table 7-24	. Frequency	Stability Me	asurements for U	NII 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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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	-0.00000627
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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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	0.00000153
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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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	-0.00000023
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.

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 [μV/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 x 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.

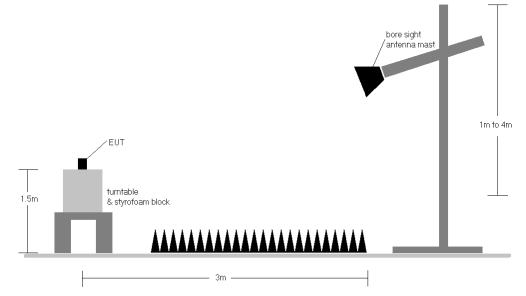


Figure 7-5. Test Instrument & Measurement Setup

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# Test Notes

- 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 dBµV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBµV/m.
- 4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- 5. This unit was tested with its standard battery.
- 6. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
- 7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 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**

- ο Field Strength Level [dBµV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [dBμV/m] Limit [dBμV/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:

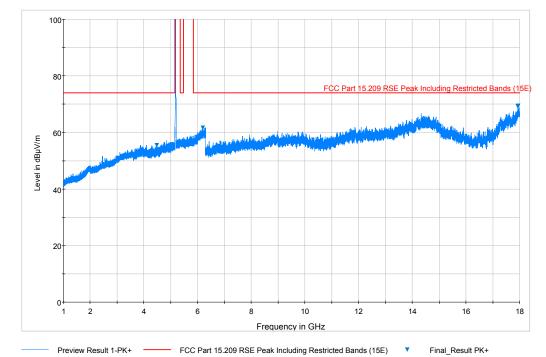
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

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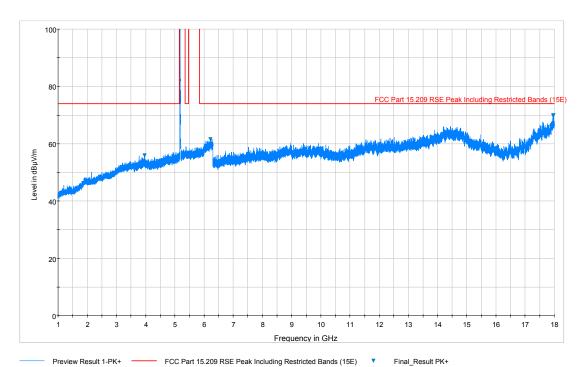
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# 7.7.1 Antenna-1 Radiated Spurious Emission Measurements



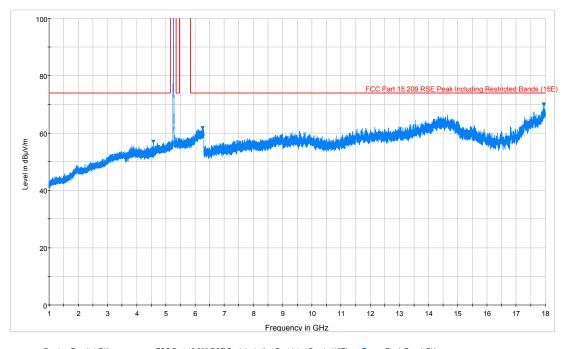


# Plot 7-154. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

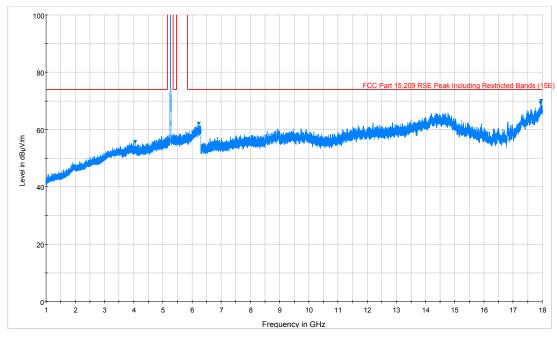
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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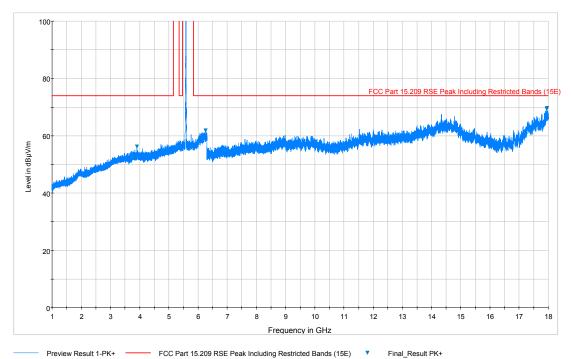
Preview Result 1-PK+ FCC Part 15.209 RSE Peak Including Restricted Bands (15E) Final\_Result PK+ Plot 7-155. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)



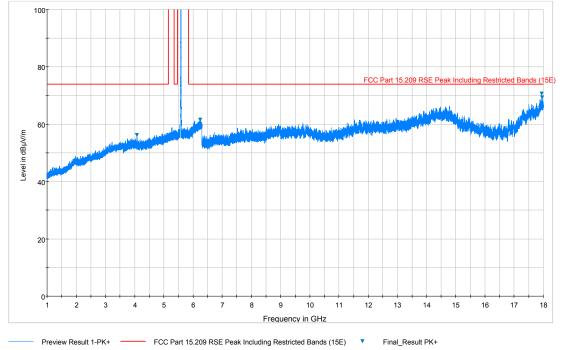
Preview Result 1-PK+ FCC Part 15.209 RSE Peak Including Restricted Bands (15E) Final\_Result PK+ Plot 7-156. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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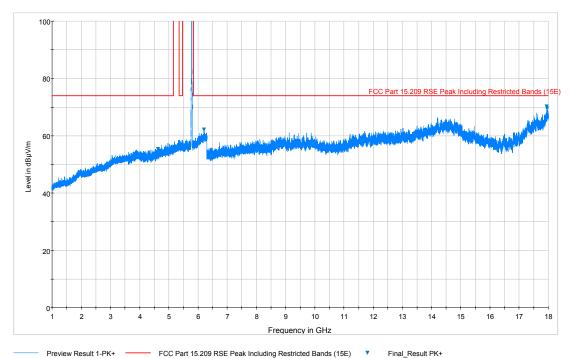
Plot 7-157. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)



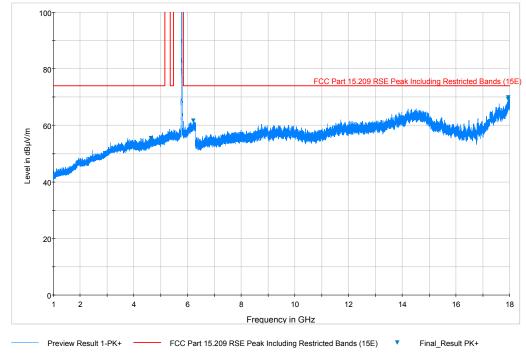
Plot 7-158. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
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Plot 7-159. Radiated Spurious Plot above 1GHz (802.11a - U3 Ch. 157, Ant. Pol. H)

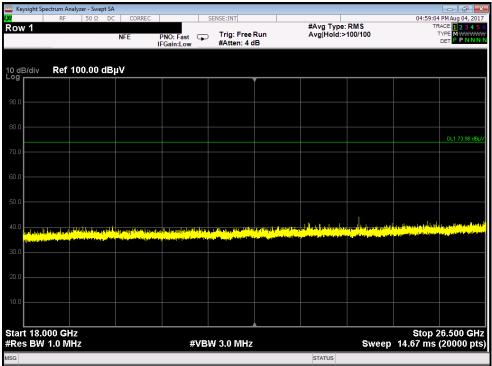


Plot 7-160. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

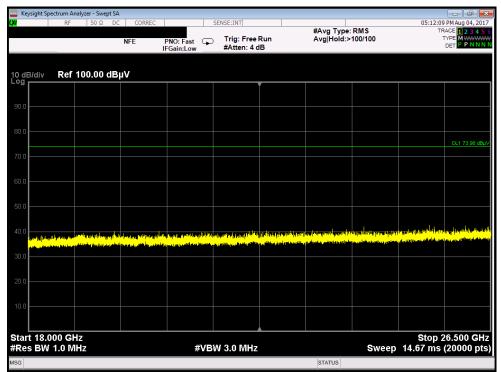
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 120 of 200
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Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)



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

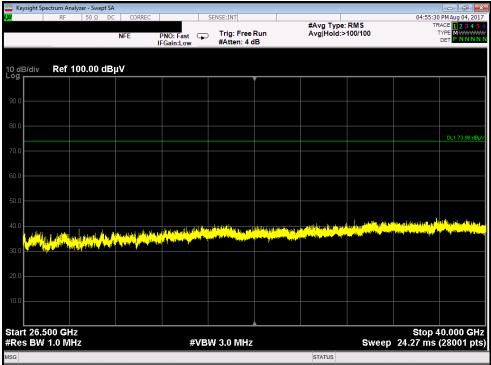


Plot 7-162. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a - Ant. Pol. V)

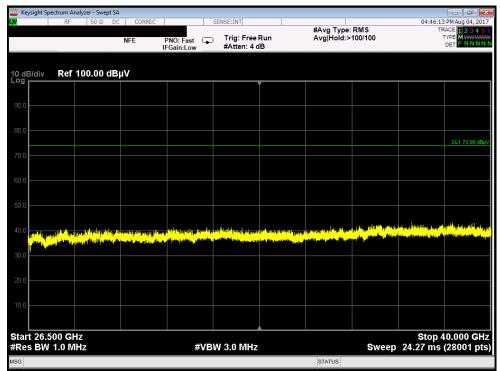
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 121 of 209
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Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)



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)	🔁 LG	Approved by: Quality Manager	
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# Antenna-1 Radiated Spurious Emission Measurements §15.247(d) §15.205 & §15.209

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10360.00	Peak	н	100	62	-66.87	12.13	-9.54	42.72	68.20	-25.48
*	15540.00	Average	Н	-	-	-70.85	14.49	-9.54	41.10	53.98	-12.88
*	15540.00	Peak	Н	-	-	-68.96	14.49	-9.54	42.99	73.98	-30.99
*	20720.00	Average	Н	-	-	-74.75	7.94	-9.54	30.64	53.98	-23.34
*	20720.00	Peak	Н	-	-	-63.80	7.94	-9.54	41.59	73.98	-32.39
	25900.00	Peak	Н	-	-	-61.72	8.46	-9.54	44.20	68.20	-24.00

Table 7-29. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 Meter	
5200MHz	
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	н	100	66	-67.28	12.12	-9.54	42.30	68.20	-25.90
*	15600.00	Average	Н	-	-	-70.49	14.31	-9.54	41.28	53.98	-12.70
*	15600.00	Peak	Н	-	-	-68.34	14.31	-9.54	43.43	73.98	-30.55
*	20800.00	Average	Η	-	-	-75.60	7.95	-9.54	29.81	53.98	-24.17
*	20800.00	Peak	Η	-	-	-63.12	7.95	-9.54	42.29	73.98	-31.69
	26000.00	Peak	Н	-	-	-62.06	8.60	-9.54	44.00	68.20	-24.20
ļ	Table 7-30 Radiated Measurements										

#### Table 7-30. Radiated Measurements

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 Meter
Operating Frequency:	5240MHz
Channel:	48

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	Peak	Н	100	220	-68.06	12.09	-9.54	41.49	68.20	-26.71
*	15720.00	Average	Н	-	-	-70.65	14.02	-9.54	40.83	53.98	-13.15
*	15720.00	Peak	Н	-	-	-68.63	14.02	-9.54	42.85	73.98	-31.13
*	20960.00	Average	Н	-	-	-73.99	7.91	-9.54	31.38	53.98	-22.60
*	20960.00	Peak	Н	-	-	-63.69	7.91	-9.54	41.68	73.98	-32.30
	26200.00	Peak	Н	-	-	-60.53	8.62	-9.54	45.55	68.20	-22.65

#### Table 7-31. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

	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	Н	100	61	-63.72	12.12	-9.54	45.86	68.20	-22.34
*	15600.00	Average	Н	-	-	-70.29	14.31	-9.54	41.48	53.98	-12.50
*	15600.00	Peak	Н	-	-	-54.39	14.31	-9.54	57.38	73.98	-16.60
*	20800.00	Average	Н	-	-	-70.76	7.95	-9.54	34.66	53.98	-19.32
*	20800.00	Peak	Н	-	-	-62.30	7.95	-9.54	43.12	73.98	-30.86
	26000.00	Peak	Η	-	-	-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)	🔁 LG	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:	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	Н	100	268	-66.84	12.16	-9.54	42.78	68.20	-25.42
*	15780.00	Average	Н	-	-	-70.21	14.03	-9.54	41.28	53.98	-12.70
*	15780.00	Peak	Н	-	-	-67.98	14.03	-9.54	43.51	73.98	-30.47
*	21040.00	Average	Н	-	-	-74.22	7.92	-9.54	31.16	53.98	-22.82
*	21040.00	Peak	Н	-	-	-62.76	7.92	-9.54	42.62	73.98	-31.36
	26300.00	Peak	Н	-	-	-60.02	8.73	-9.54	46.17	68.20	-22.03

Table 7-33. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a
6 Mbps
1 Meter
5280MHz
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	Н	100	270	-67.72	12.04	-9.54	41.78	68.20	-26.42
*	15840.00	Average	Н	-	-	-70.30	14.25	-9.54	41.40	53.98	-12.58
*	15840.00	Peak	Н	-	-	-68.27	14.25	-9.54	43.43	73.98	-30.55
*	21120.00	Average	Н	-	-	-74.58	7.96	-9.54	30.84	53.98	-23.14
*	21120.00	Peak	Н	-	-	-62.87	7.96	-9.54	42.55	73.98	-31.43
	26400.00	Peak	Н	-	-	-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)	🕒 LG	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:	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	Н	100	270	-69.44	12.06	-9.54	40.08	53.98	-13.90
*	10640.00	Peak	Н	100	270	-67.41	12.06	-9.54	42.11	73.98	-31.87
*	15960.00	Average	Н	-	-	-70.49	14.55	-9.54	41.52	53.98	-12.46
*	15960.00	Peak	Н	-	-	-68.30	14.55	-9.54	43.71	73.98	-30.27
*	21280.00	Average	Н	-	-	-75.50	8.04	-9.54	30.00	53.98	-23.98
*	21280.00	Peak	Н	-	-	-64.13	8.04	-9.54	41.36	73.98	-32.62
	26600.00	Peak	Н	-	-	-55.94	-8.30	-9.54	33.22	68.20	-34.98

#### Table 7-35. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 Meter	
5320MHz	
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	н	100	245	-69.62	12.06	-9.54	39.90	53.98	-14.08
*	10640.00	Peak	Н	100	245	-64.39	12.06	-9.54	45.13	73.98	-28.85
*	15960.00	Average	Н	-	-	-73.75	14.55	-9.54	38.26	53.98	-15.72
*	15960.00	Peak	Н	-	-	-63.24	14.55	-9.54	48.77	73.98	-25.21
*	21280.00	Average	Н	-	-	-72.58	8.04	-9.54	32.92	53.98	-21.06
*	21280.00	Peak	Н	-	-	-62.20	8.04	-9.54	43.29	73.98	-30.69
	26600.00	Peak	Н	-	-	-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)	🔁 LG	Approved by: Quality Manager		
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Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 Meter
Operating Frequency:	5500MHz
Channel:	100

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Factor	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11000.00	Average	Н	100	270	-70.78	12.87	-9.54	39.55	53.98	-14.43
*	11000.00	Peak	Н	100	270	-67.37	12.87	-9.54	42.96	73.98	-31.02
	16500.00	Peak	Н	-	-	-67.85	16.61	-9.54	46.22	68.20	-21.98
	22000.00	Peak	Н	-	-	-62.46	8.43	-9.54	43.43	68.20	-24.77
	27500.00	Peak	Н	-	-	-53.05	-8.80	-9.54	35.61	68.20	-32.59

Table 7-37. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 Meter	
5580MHz	
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	Н	100	264	-69.39	12.64	-9.54	40.71	53.98	-13.27
*	11160.00	Peak	Н	100	264	-67.63	12.64	-9.54	42.47	73.98	-31.51
	16740.00	Peak	Н	-	-	-67.54	16.21	-9.54	46.13	68.20	-22.07
*	22320.00	Average	Н	-	-	-71.32	8.08	-9.54	34.22	53.98	-19.76
*	22320.00	Peak	Н	-	-	-62.13	8.08	-9.54	43.41	73.98	-30.57
	27900.00	Peak	Н	-	-	-54.84	-9.08	-9.54	33.54	68.20	-34.66

Table 7-38. Radiated Measurements

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	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:	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	Н	100	270	-71.22	12.47	-9.54	38.71	53.98	-15.27
*	11400.00	Peak	Н	100	270	-69.08	12.47	-9.54	40.85	73.98	-33.13
	17100.00	Peak	Н	-	-	-68.57	18.06	-9.54	46.95	68.20	-21.25
*	22800.00	Average	Н	-	-	-62.25	8.37	-9.54	43.58	53.98	-10.39
*	22800.00	Peak	Н	-	-	-62.11	8.37	-9.54	43.72	73.98	-30.26
	28500.00	Peak	Н	-	-	-52.96	-8.95	-9.54	35.55	68.20	-32.65

Table 7-39. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: **Operating Frequency:** Channel:

802.11a
6 Mbps
1 Meter
5720MHz
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	Н	-	-	-76.74	12.47	-9.54	33.18	53.98	-20.80
*	11400.00	Peak	Н	-	-	-69.98	12.47	-9.54	39.95	73.98	-34.03
	17100.00	Peak	Н	-	-	-65.41	18.06	-9.54	50.11	68.20	-18.09
*	22800.00	Average	Н	-	-	-71.07	8.37	-9.54	34.76	53.98	-19.21
*	22800.00	Peak	Н	-	-	-62.32	8.37	-9.54	43.51	73.98	-30.47
	28500.00	Peak	Н	-	-	-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)	🔁 LG	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	Н	100	270	-71.15	12.43	-9.54	38.74	53.98	-15.24
*	11490.00	Peak	Н	100	270	-67.88	12.43	-9.54	42.01	73.98	-31.97
	17235.00	Peak	Н	-	-	-67.62	18.61	-9.54	48.45	68.20	-19.75
*	22980.00	Average	Н	-	-	-74.99	8.16	-9.54	30.63	53.98	-23.35
*	22980.00	Peak	Н	-	-	-63.39	8.16	-9.54	42.23	73.98	-31.75
	28725.00	Peak	Н	-	-	-52.85	-9.24	-9.54	35.36	68.20	-32.84

#### Table 7-41. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a
6 Mbps
1 Meter
5785MHz
157

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Factor	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11570.00	Average	Н	-	-	-71.14	12.54	-9.54	38.86	53.98	-15.12
*	11570.00	Peak	Н	-	-	-68.91	12.54	-9.54	41.09	73.98	-32.89
	17355.00	Peak	Н	-	-	-67.65	18.73	-9.54	48.54	68.20	-19.66
	23140.00	Peak	Н	-	-	-62.54	8.37	-9.54	43.29	68.20	-24.91
	28925.00	Peak	Н	-	-	-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)	🕒 LG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dogo 120 of 200			
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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	Н	-	-	-71.47	12.99	-9.54	38.97	53.98	-15.01
*	11650.00	Peak	Н	-	-	-69.38	12.99	-9.54	41.06	73.98	-32.92
	17475.00	Peak	Н	-	-	-68.29	19.25	-9.54	48.41	68.20	-19.79
	23300.00	Peak	Н	-	-	-62.49	8.50	-9.54	43.46	68.20	-24.74
	29125.00	Peak	Н	-	-	-51.44	-9.87	-9.54	36.15	68.20	-32.05

Table 7-43. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

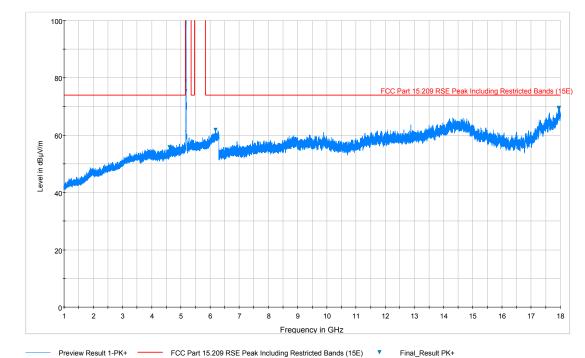
_	802.11a
	6 Mbps
	1 Meter
	5825MHz
	165

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]		Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11650.00	Average	Н	-	-	-69.49	12.99	-9.54	40.96	53.98	-13.02
*	11650.00	Peak	Н	-	-	-65.67	12.99	-9.54	44.78	73.98	-29.20
	17475.00	Peak	Н	-	-	-64.10	19.25	-9.54	52.60	68.20	-15.60
	23300.00	Peak	Н	-	-	-61.92	8.50	-9.54	44.04	68.20	-24.16
	29125.00	Peak	Н	-	-	-55.19	-9.87	-9.54	32.39	68.20	-35.81

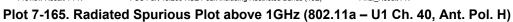
 Table 7-44. Radiated Measurements with WCP

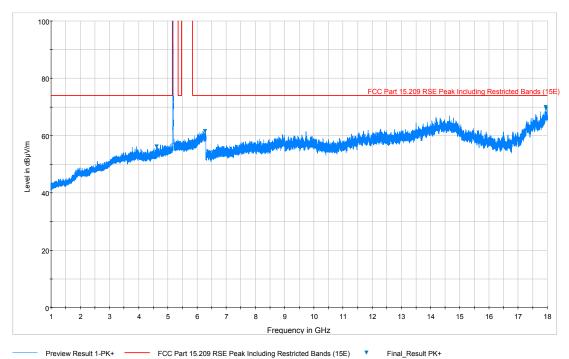
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 130 of 209
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7.7.2 Antenna-2 Radiated Spurious Emission Measurements

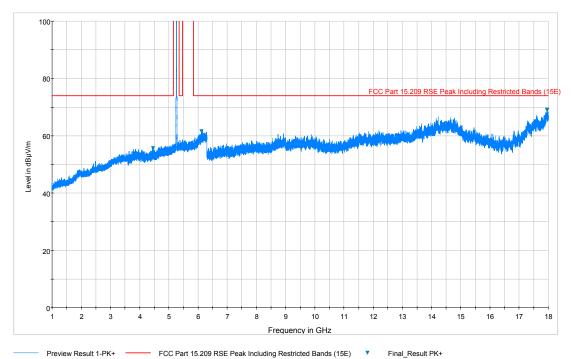




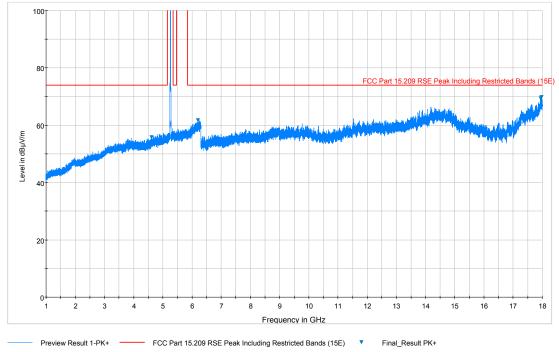
Plot 7-166. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-167. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

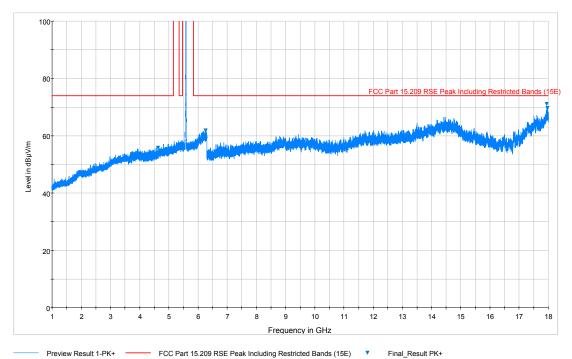


Plot 7-168. Radiated Spurious Plot above 1GHz (802.11a - U2A Ch. 56, Ant. Pol. V)

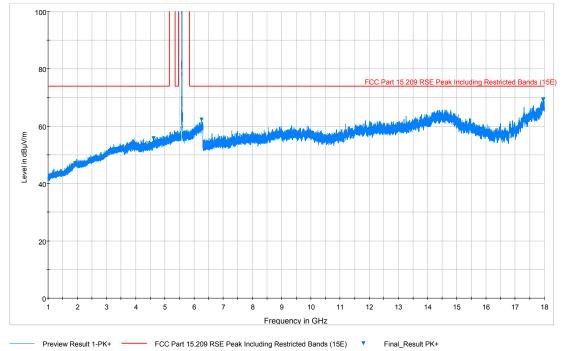
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 122 of 200
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Plot 7-169. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

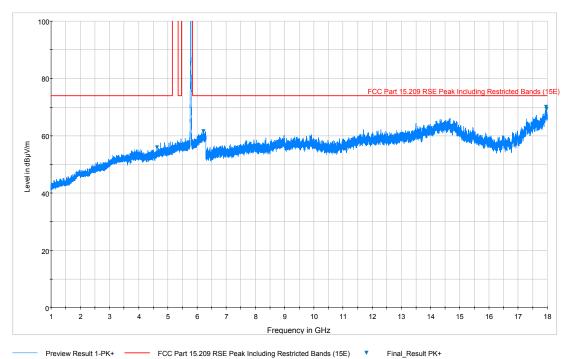


Plot 7-170. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

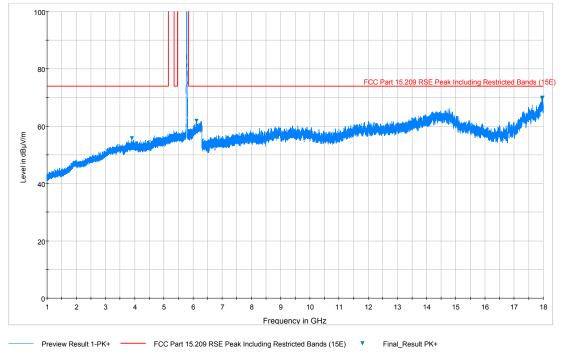
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 122 of 200
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Plot 7-171. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)



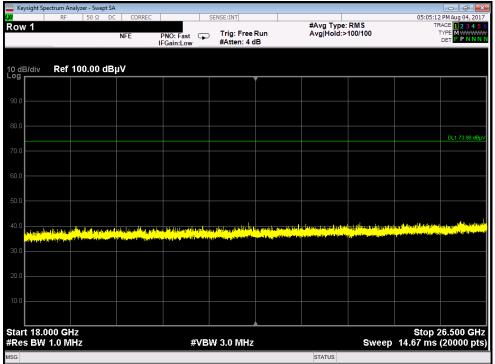
Plot 7-172. Radiated Spurious Plot above 1GHz (802.11a - U3 Ch. 157, Ant. Pol. V)

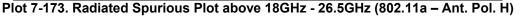
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 134 of 209
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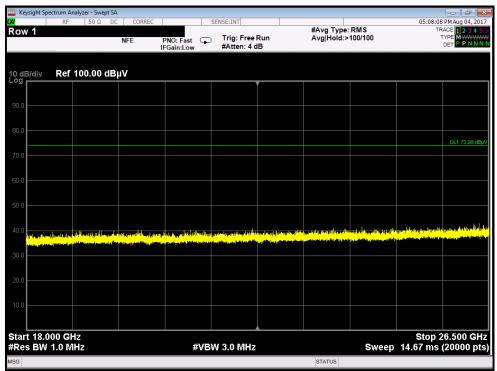
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Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)





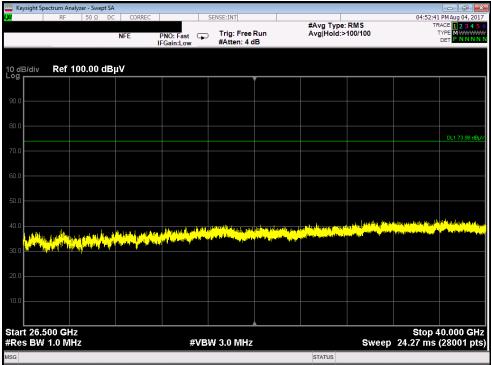


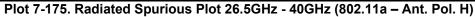
Plot 7-174. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a - Ant. Pol. V)

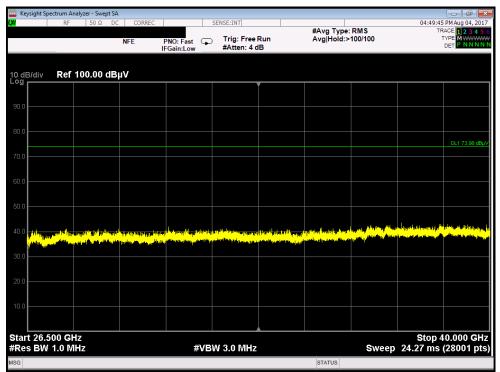
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 125 of 200
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Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)







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)	🔁 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 126 of 200
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# Antenna-2 Radiated Spurious Emission Measurements §15.247(d) §15.205 & §15.209

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10360.00	Peak	Н	100	147	-66.05	12.13	-9.54	43.54	68.20	-24.66
*	15540.00	Average	Н	-	-	-71.60	14.49	-9.54	40.35	53.98	-13.63
*	15540.00	Peak	Н	-	-	-68.51	14.49	-9.54	43.44	73.98	-30.54
*	20720.00	Average	Н	-	-	-71.28	7.94	-9.54	34.12	53.98	-19.86
*	20720.00	Peak	Н	-	-	-62.00	7.94	-9.54	43.40	73.98	-30.58
	25900.00	Peak	Н	-	-	-60.75	8.46	-9.54	45.17	68.20	-23.03

Table 7-45. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 Meter	
5200MHz	
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	Н	100	278	-65.15	12.12	-9.54	44.43	68.20	-23.77
*	15600.00	Average	Н	-	-	-70.77	14.31	-9.54	41.00	53.98	-12.98
*	15600.00	Peak	Н	-	-	-68.75	14.31	-9.54	43.02	73.98	-30.96
*	20800.00	Average	Η	-	-	-73.42	7.95	-9.54	31.99	53.98	-21.99
*	20800.00	Peak	Н	-	-	-63.19	7.95	-9.54	42.23	73.98	-31.75
	26000.00	Peak	Н	-	-	-60.99	8.60	-9.54	45.07	68.20	-23.13
	Table 7-46 Radiated Measurements										

#### Table 7-46. Radiated Measurements

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dega 127 of 200		
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Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 Meter
Operating Frequency:	5240MHz
Channel:	48

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	Peak	Н	100	135	-65.63	12.09	-9.54	43.92	68.20	-24.28
*	15720.00	Average	Н	-	-	-70.73	14.02	-9.54	40.75	53.98	-13.23
*	15720.00	Peak	Н	-	-	-68.35	14.02	-9.54	43.13	73.98	-30.85
*	20960.00	Average	Н	-	-	-70.85	7.91	-9.54	34.52	53.98	-19.46
*	20960.00	Peak	Н	-	-	-61.46	7.91	-9.54	43.91	73.98	-30.07
	26200.00	Peak	Н	-	-	-60.29	8.62	-9.54	45.79	68.20	-22.41

## Table 7-47. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 Meter	
5200MHz	
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	н	100	128	-64.65	12.12	-9.54	44.93	68.20	-23.27
*	15600.00	Average	Н	-	-	-73.99	14.31	-9.54	37.77	53.98	-16.21
*	15600.00	Peak	Н	-	-	-64.72	14.31	-9.54	47.05	73.98	-26.93
*	20800.00	Average	Н	-	-	-71.58	7.95	-9.54	33.83	53.98	-20.15
*	20800.00	Peak	Н	-	-	-62.64	7.95	-9.54	42.77	73.98	-31.21
	26000.00	Peak	Н	-	-	-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)	🔁 LG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dogo 128 of 200		
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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	Η	100	153	-66.33	12.16	-9.54	43.29	68.20	-24.91
*	15780.00	Average	Н	-	-	-71.18	14.03	-9.54	40.31	53.98	-13.67
*	15780.00	Peak	Н	-	-	-68.28	14.03	-9.54	43.21	73.98	-30.77
*	21040.00	Average	Н	-	-	-71.17	7.92	-9.54	34.21	53.98	-19.77
*	21040.00	Peak	Н	-	-	-61.91	7.92	-9.54	43.47	73.98	-30.51
	26300.00	Peak	Н	-	-	-60.18	8.73	-9.54	46.01	68.20	-22.19

Table 7-49. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a
6 Mbps
1 Meter
5280MHz
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	Η	100	60	-66.70	12.04	-9.54	42.80	68.20	-25.40
*	15840.00	Average	Н	-	-	-70.44	14.25	-9.54	41.26	53.98	-12.72
*	15840.00	Peak	Н	-	-	-67.53	14.25	-9.54	44.17	73.98	-29.81
*	21120.00	Average	Н	-	-	-71.42	7.96	-9.54	34.00	53.98	-19.97
*	21120.00	Peak	Н	-	-	-61.80	7.96	-9.54	43.62	73.98	-30.36
	26400.00	Peak	Н	-	-	-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)	🕒 LG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dogo 120 of 200			
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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	Н	100	152	-69.53	12.06	-9.54	39.99	53.98	-13.99
*	10640.00	Peak	Н	100	152	-66.98	12.06	-9.54	42.54	73.98	-31.44
*	15960.00	Average	Н	-	-	-70.72	14.55	-9.54	41.29	53.98	-12.69
*	15960.00	Peak	Н	-	-	-67.97	14.55	-9.54	44.04	73.98	-29.94
*	21280.00	Average	Н	-	-	-72.13	8.04	-9.54	33.36	53.98	-20.62
*	21280.00	Peak	Н	-	-	-62.63	8.04	-9.54	42.87	73.98	-31.11
	26600.00	Peak	Н	-	-	-53.31	-8.30	-9.54	35.85	68.20	-32.35

#### Table 7-51. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 Meter	
5320MHz	
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	Н	-	-	-73.46	12.06	-9.54	36.06	53.98	-17.92
*	10640.00	Peak	Н	-	-	-64.56	12.06	-9.54	44.96	73.98	-29.02
*	15960.00	Average	Н	-	-	-73.45	14.55	-9.54	38.55	53.98	-15.43
*	15960.00	Peak	Н	-	-	-63.58	14.55	-9.54	48.43	73.98	-25.55
*	21280.00	Average	Η	-	-	-71.20	8.04	-9.54	34.30	53.98	-19.68
*	21280.00	Peak	Н	-	-	-62.85	8.04	-9.54	42.64	73.98	-31.34
	26600.00	Peak	Н	-	-	-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)	🔁 LG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dogo 140 of 200			
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Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 Meter
Operating Frequency:	5500MHz
Channel:	100

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11000.00	Average	Н	100	152	-71.58	12.87	-9.54	38.75	53.98	-15.23
*	11000.00	Peak	Н	100	152	-69.08	12.87	-9.54	41.25	73.98	-32.73
	16500.00	Peak	Н	-	-	-67.57	16.61	-9.54	46.50	68.20	-21.70
	22000.00	Peak	Н	-	-	-62.56	8.43	-9.54	43.32	68.20	-24.88
	27500.00	Peak	Н	-	-	-51.28	-8.80	-9.54	37.38	68.20	-30.82

Table 7-53. Radiated Measurements

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]		Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11160.00	Average	Н	100	159	-70.49	12.64	-9.54	39.61	53.98	-14.37
*	11160.00	Peak	Н	100	159	-68.04	12.64	-9.54	42.06	73.98	-31.92
	16740.00	Peak	Н	-	-	-67.74	16.21	-9.54	45.93	68.20	-22.27
*	22320.00	Average	Н	-	-	-70.69	8.08	-9.54	34.85	53.98	-19.13
*	22320.00	Peak	Н	-	-	-62.06	8.08	-9.54	43.48	73.98	-30.50
	27900.00	Peak	Н	-	-	-51.45	-9.08	-9.54	36.94	68.20	-31.26

Table 7-54. Radiated Measurements

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager				
Test Report S/N:	Test Dates:	EUT Type:		Page 141 of 209				
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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	Н	-	-	-71.82	12.47	-9.54	38.11	53.98	-15.87
*	11400.00	Peak	Н	-	-	-68.98	12.47	-9.54	40.95	73.98	-33.03
	17100.00	Peak	Н	-	-	-67.94	18.06	-9.54	47.58	68.20	-20.62
*	22800.00	Average	Н	-	-	-70.17	8.37	-9.54	35.66	53.98	-18.32
*	22800.00	Peak	Н	-	-	-61.81	8.37	-9.54	44.02	73.98	-29.96
	28500.00	Peak	Н	-	-	-50.05	-8.95	-9.54	38.46	68.20	-29.74

# Table 7-55. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 Meter	
5580MHz	
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	Н	-	-	-73.17	12.64	-9.54	36.93	53.98	-17.05
*	11160.00	Peak	Н	-	-	-64.87	12.64	-9.54	45.23	73.98	-28.75
	16740.00	Peak	Н	-	-	-65.20	16.21	-9.54	48.47	68.20	-19.73
*	22320.00	Average	Н	-	-	-70.33	8.08	-9.54	35.21	53.98	-18.77
*	22320.00	Peak	Н	-	-	-62.30	8.08	-9.54	43.24	73.98	-30.74
	27900.00	Peak	Н	-	-	-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)	🕒 LG	Approved by: Quality Manager	
Test Report S/N: Test Dates:		EUT Type:		Dogo 142 of 200	
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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	Н	100	270	-70.97	12.43	-9.54	38.92	53.98	-15.06
*	11490.00	Peak	Н	100	270	-68.73	12.43	-9.54	41.16	73.98	-32.82
	17235.00	Peak	Н	-	-	-67.42	18.61	-9.54	48.65	68.20	-19.55
*	22980.00	Average	Н	-	-	-72.13	8.16	-9.54	33.49	53.98	-20.49
*	22980.00	Peak	Н	-	-	-61.15	8.16	-9.54	44.47	73.98	-29.51
	28725.00	Peak	Н	-	-	-50.67	-9.24	-9.54	37.55	68.20	-30.65

#### Table 7-57. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 Meter	
5785MHz	
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	Н	100	269	-71.36	12.54	-9.54	38.64	53.98	-15.34
*	11570.00	Peak	Н	100	269	-68.75	12.54	-9.54	41.25	73.98	-32.73
	17355.00	Peak	Н	-	-	-67.25	18.73	-9.54	48.94	68.20	-19.26
	23140.00	Peak	Н	-	-	-61.58	8.37	-9.54	44.25	68.20	-23.95
	28925.00	Peak	Н	-	-	-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)	🕒 LG	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:	5825MHz
Channel:	165

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Factor	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11650.00	Average	Н	-	-	-71.31	12.99	-9.54	39.13	53.98	-14.85
*	11650.00	Peak	Н	-	-	-69.98	12.99	-9.54	40.46	73.98	-33.52
	17475.00	Peak	Н	-	-	-67.95	19.25	-9.54	48.75	68.20	-19.45
	23300.00	Peak	Н	-	-	-61.57	8.50	-9.54	44.38	68.20	-23.82
	29125.00	Peak	Н	-	-	-51.37	-9.87	-9.54	36.22	68.20	-31.98

Table 7-59. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a
6 Mbps
1 Meter
5825MHz
165

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Factor	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11650.00	Average	н	-	-	-73.63	12.99	-9.54	36.81	53.98	-17.17
*	11650.00	Peak	Н	-	-	-64.32	12.99	-9.54	46.13	73.98	-27.85
	17475.00	Peak	Н	-	-	-63.77	19.25	-9.54	52.93	68.20	-15.27
	23300.00	Peak	Н	-	-	-60.67	8.50	-9.54	45.29	68.20	-22.91
	29125.00	Peak	Н	-	-	-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)	🕒 LG	Approved by: Quality Manager	
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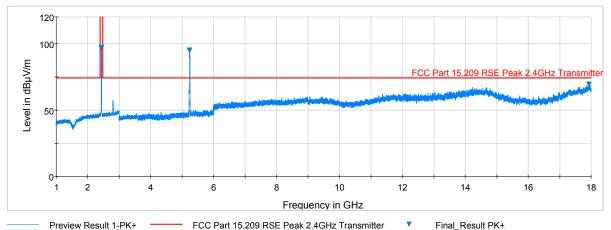
06/23/2017

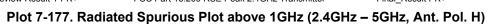


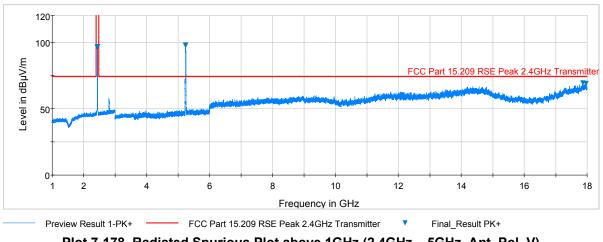
# 7.7.3 Simultaneous Tx Radiated Spurious Emissions Measurements §15.247(d) §15.205 & §15.209

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	а

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







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

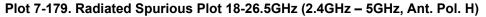
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 145 of 200	
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MultiView B	Spectrum								▼
Ref Level 100.00 Att		● RBW 34 ms ● VBW	1 MHz 3 MHz Mode	Auto Sweep					
Frequency Swee	ер			22					●1Pk Max
Limit Check LineHIGH FRI	EQ AUTO		PA PA						
90 dBµV									
ю dвµv									
IIGH FREQ AUTO 70 dBµV									
50 dBµV									
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20 dBµV									
20 dBµV									
10 dBµV			20001 pt	6	85	0.0 MHz/			26.5 GH

01:51:54 25.07.2017



MultiView	Spectrun	n							7
Ref Level 100	.00 dBµ∨	= RI	3W 1 MHz						
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Limit Chec	:k			ASS					
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0 dBµV									
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0.0 012	T		20001		00	0.0 111127	Measuring		25.07.20
							, mensul ing		agent in the second

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

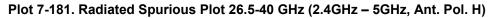
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dego 146 of 200		
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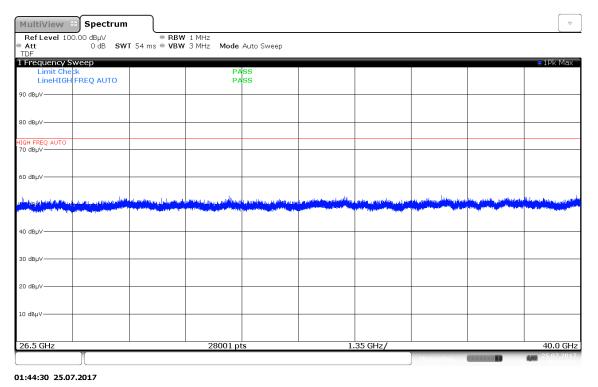
06/23/2017



MultiView 😁 Spectrur	n					$\nabla$
	● RBW 1 MHz NT 54 ms ● VBW 3 MHz Mode	Auto Sweep				
Frequency Sweep						●1Pk Max
Limit Check LineHIGH FREQ AUTO						
10 dBµV						
0 dBµV						
GH FREQ AUTO						
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0 dBµV						
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0 dBµV						
0 dBµV						
26.5 GHz		ts	1.35 GHz/			40.0 GH
				Measuring		25.07.201

01:47:55 25.07.2017





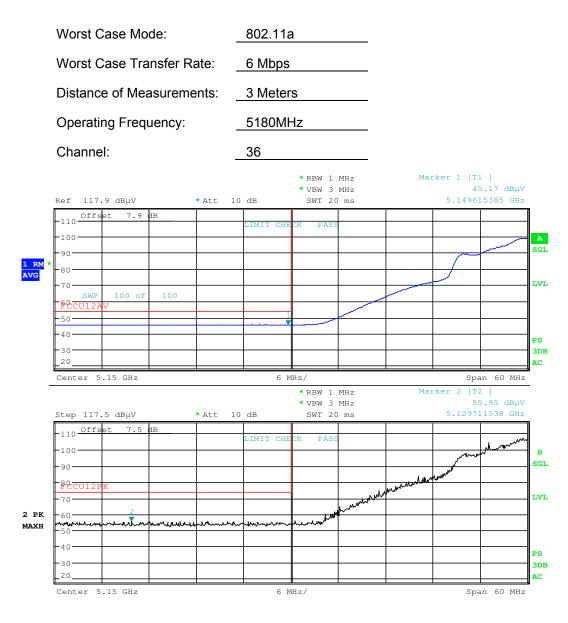
## Plot 7-182. Radiated Spurious Plot 26.5-40 GHz (2.4GHz - 5GHz, Ant. Pol. V)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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## 7.7.4 Antenna-1 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



Date: 18.JUL.2017 02:43:20

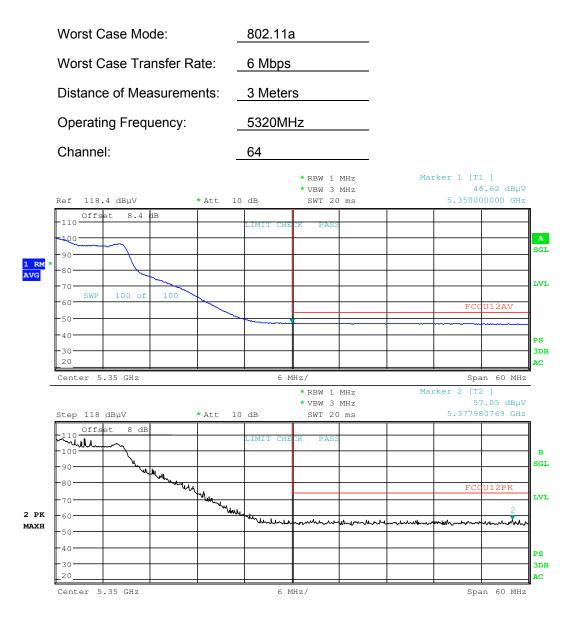
#### Plot 7-183. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
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# Antenna-1 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

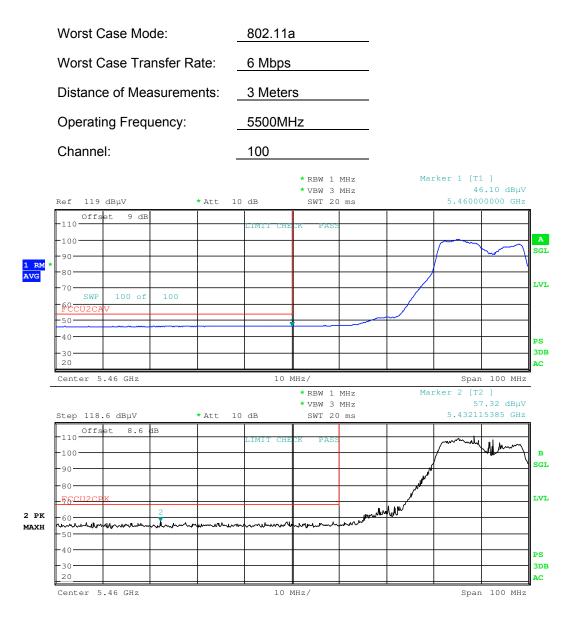
Plot 7-184. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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## Antenna-1 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

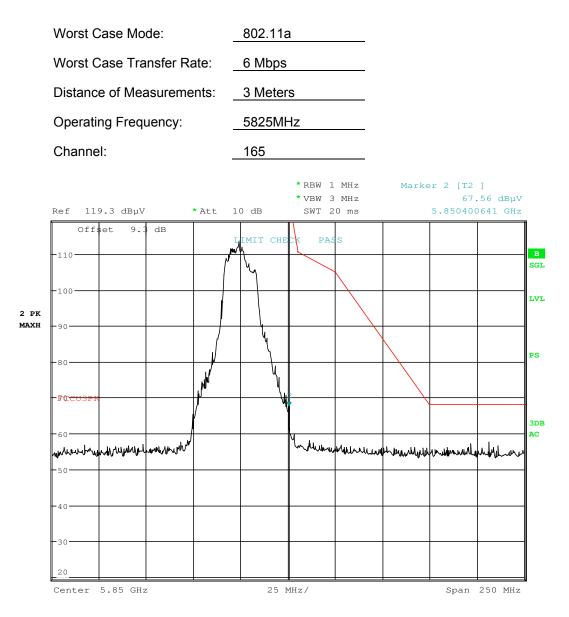
Plot 7-185. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 150 of 200	
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## Antenna-1 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

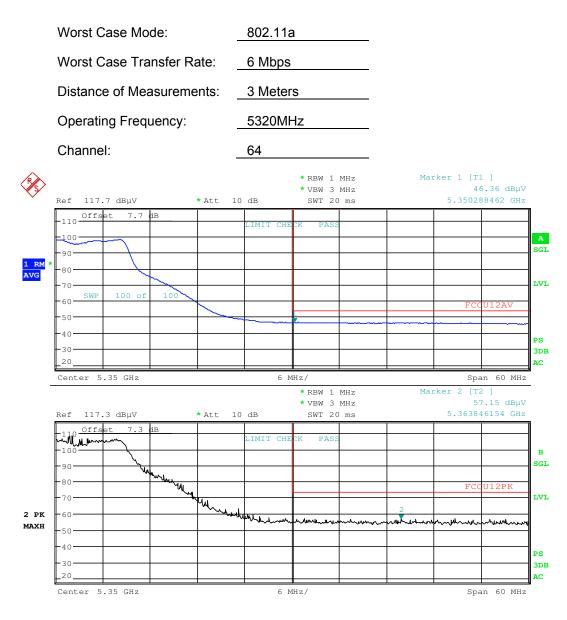
## Plot 7-186. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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## Antenna-1 WCP Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

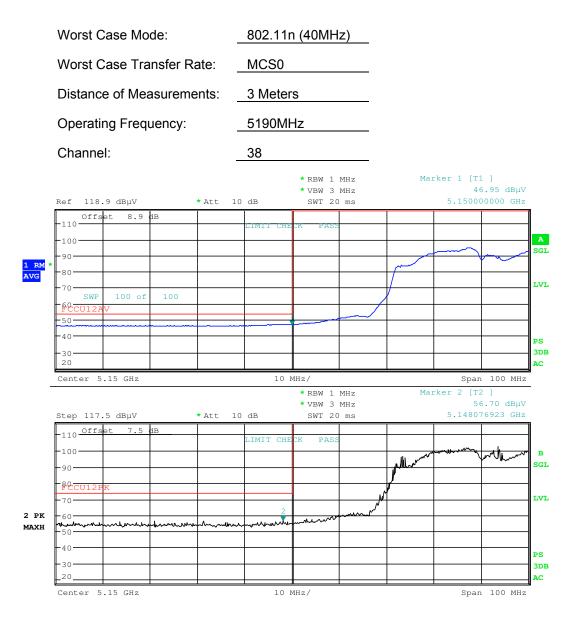
#### Plot 7-187. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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## 7.7.5 Antenna-1 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

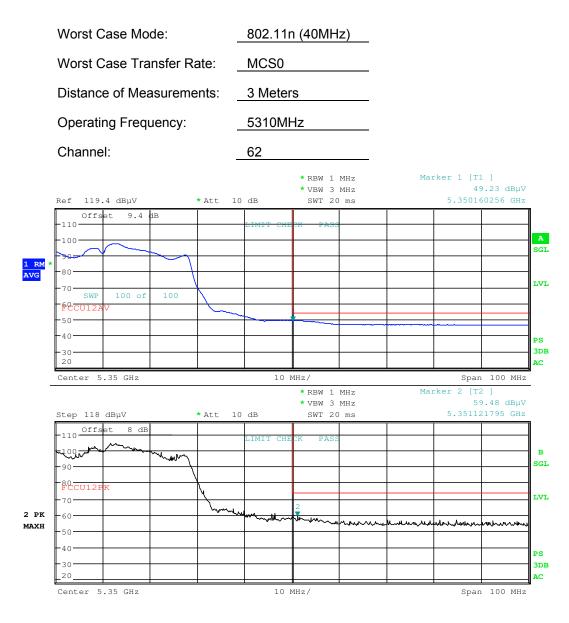
#### Plot 7-188. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Antenna-1 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

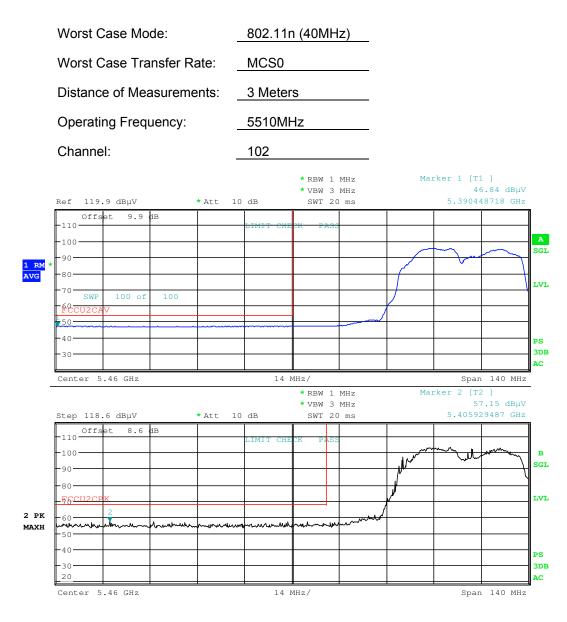
Plot 7-189. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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## Antenna-1 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

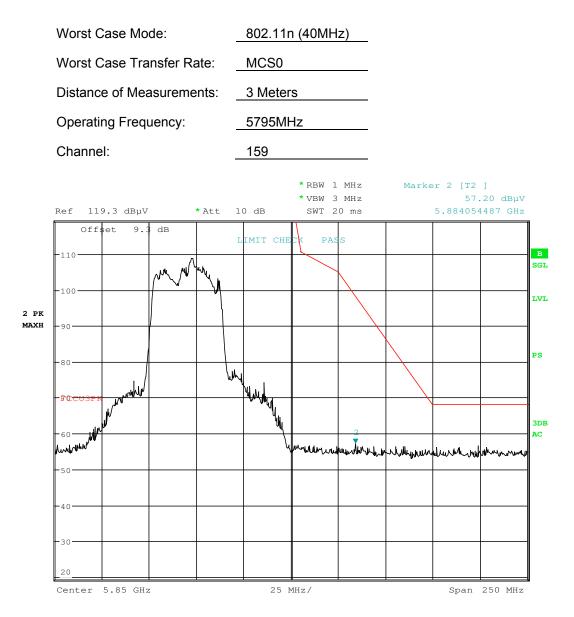
#### Plot 7-190. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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## Antenna-1 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

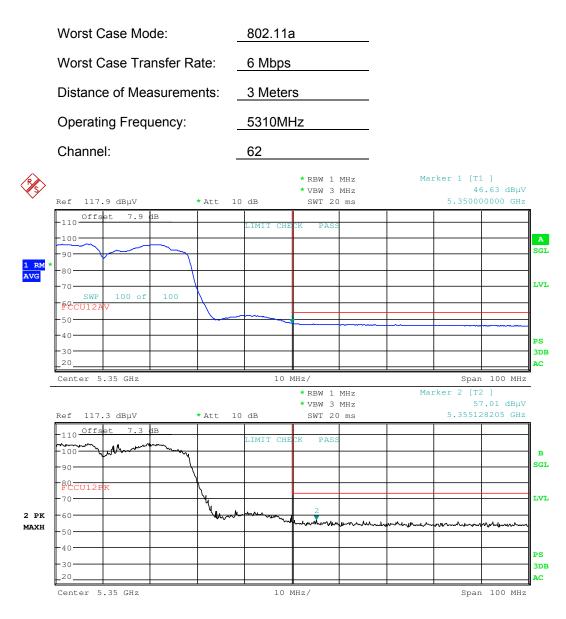
#### Plot 7-191. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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## Antenna-1 WCP Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

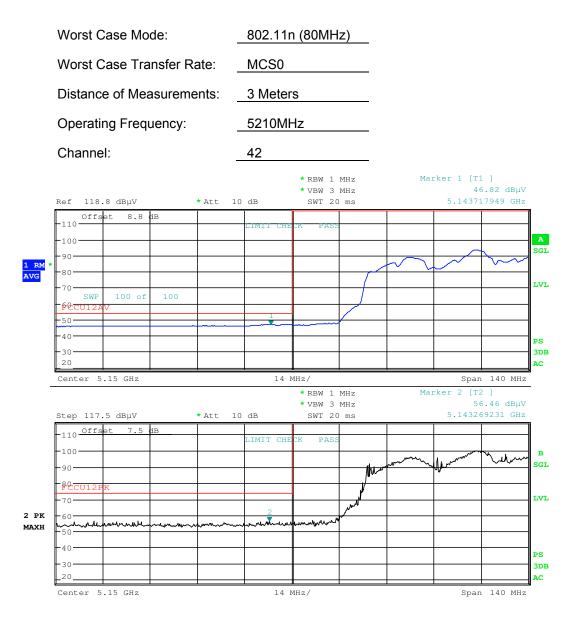
#### Plot 7-192. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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1M1707110215-05-R1.ZNF	7/12/2017-8/8/2017	Portable Handset		Page 157 of 209
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# 7.7.6 Antenna-1 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

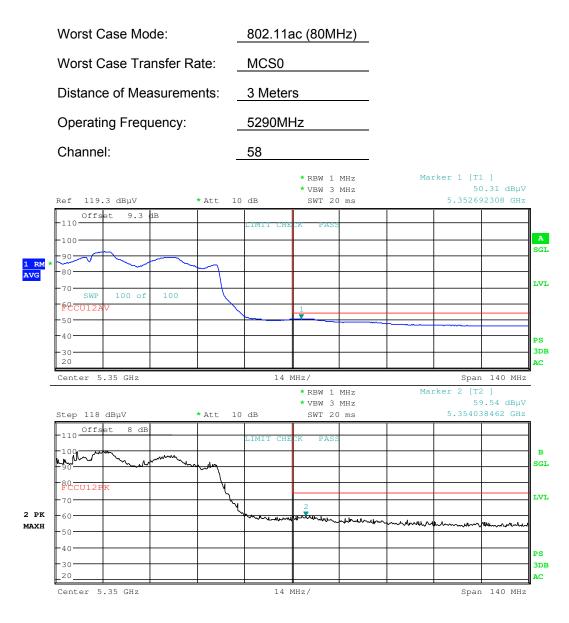
#### Plot 7-193. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 158 of 209
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# Antenna-1 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

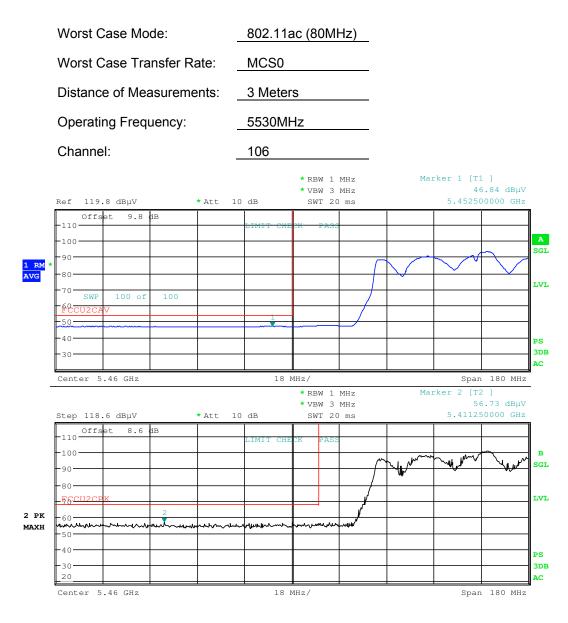
#### Plot 7-194. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# Antenna-1 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

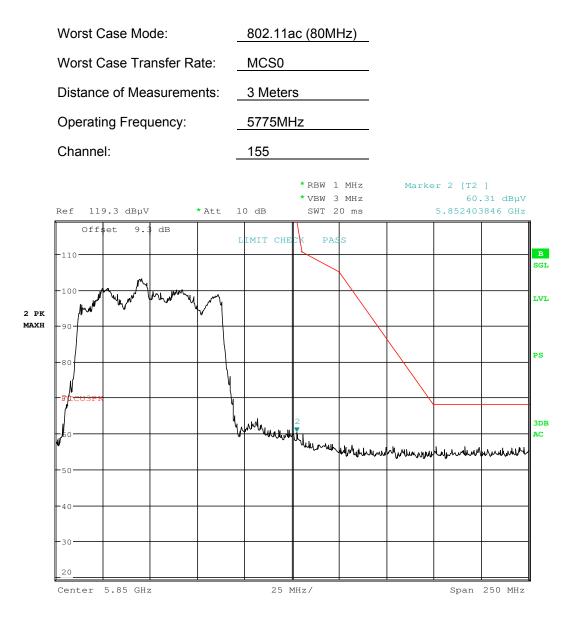
Plot 7-195. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Antenna-1 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

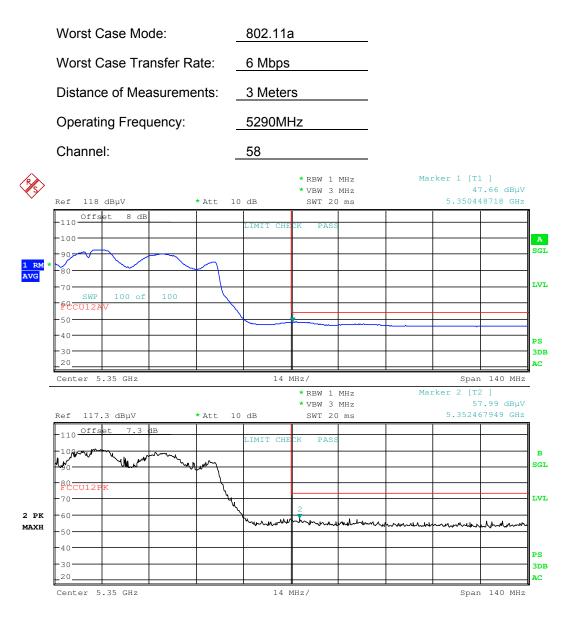
#### Plot 7-196. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
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# Antenna-1 WCP Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

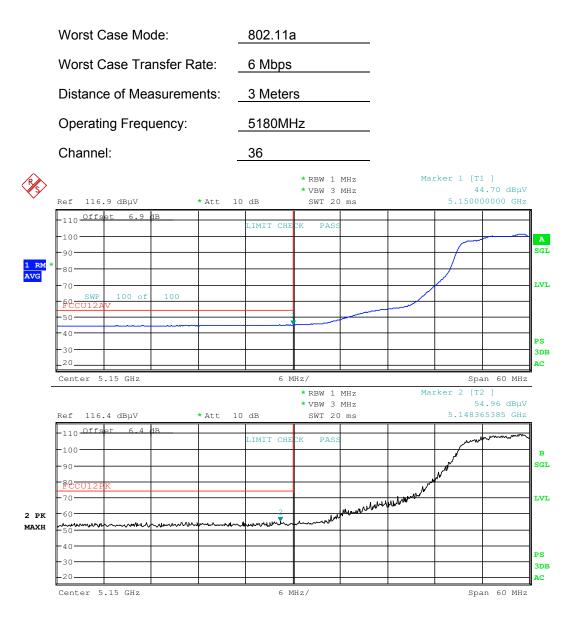
#### Plot 7-197. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# 7.7.7 Antenna-2 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

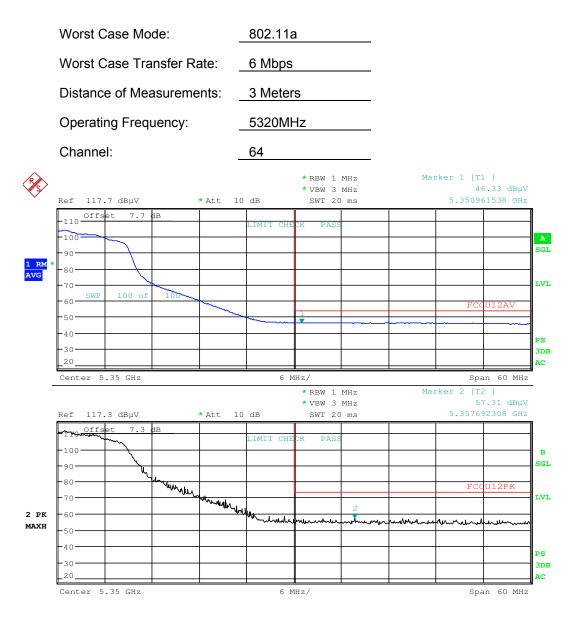
#### Plot 7-198. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 163 of 209
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# Antenna-2 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

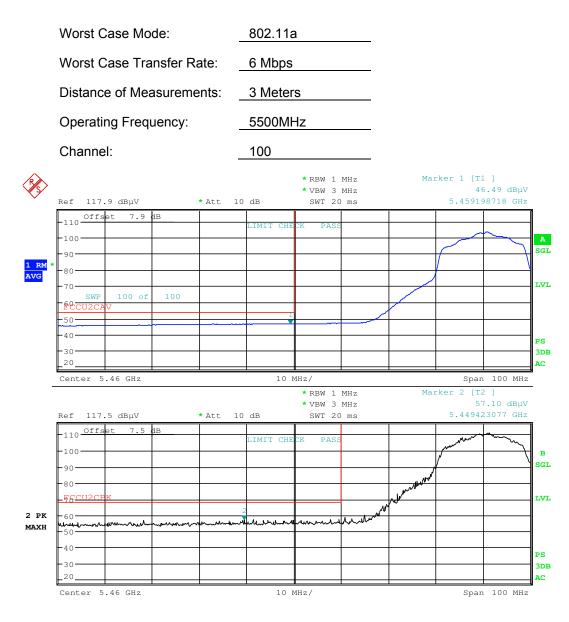
Plot 7-199. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# Antenna-2 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

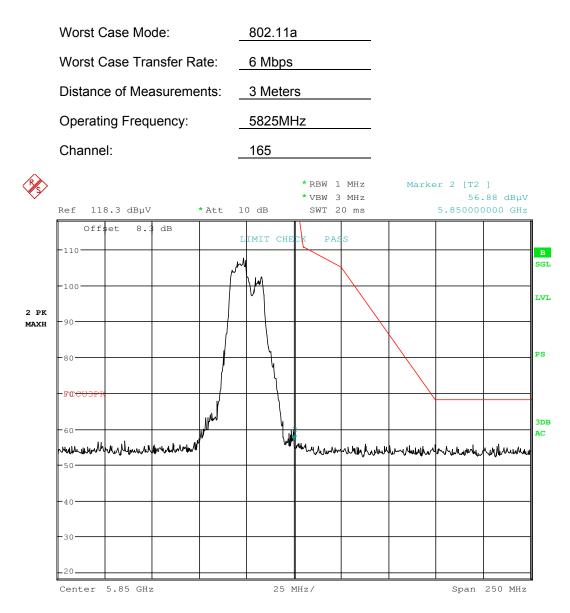
Plot 7-200. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 165 of 200
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# Antenna-2 Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

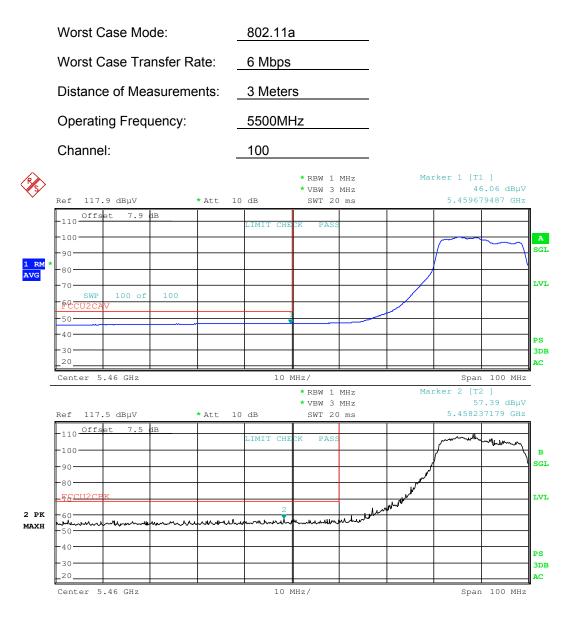
### Plot 7-201. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
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# Antenna-2 WCP Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

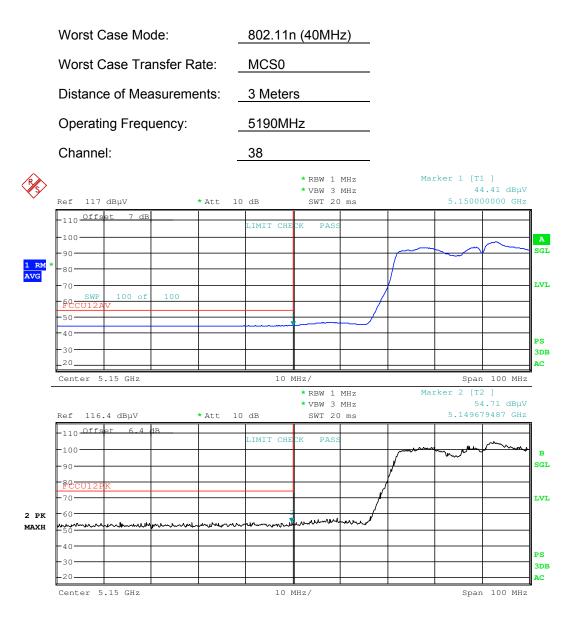
#### Plot 7-202. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# 7.7.8 Antenna-2 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

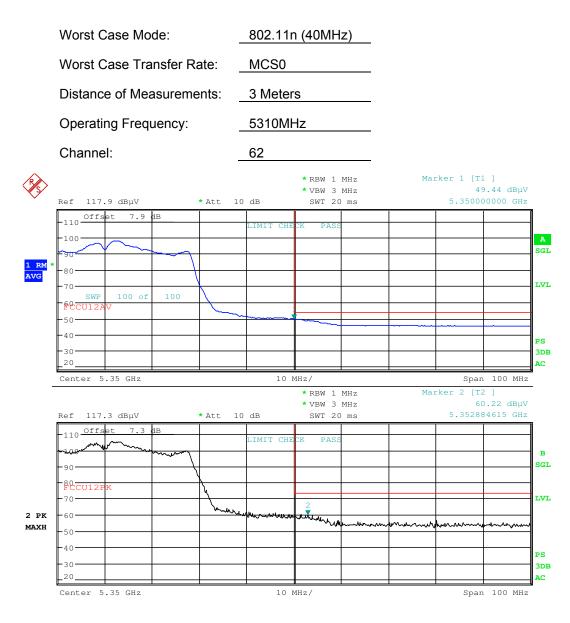
#### Plot 7-203. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Antenna-2 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

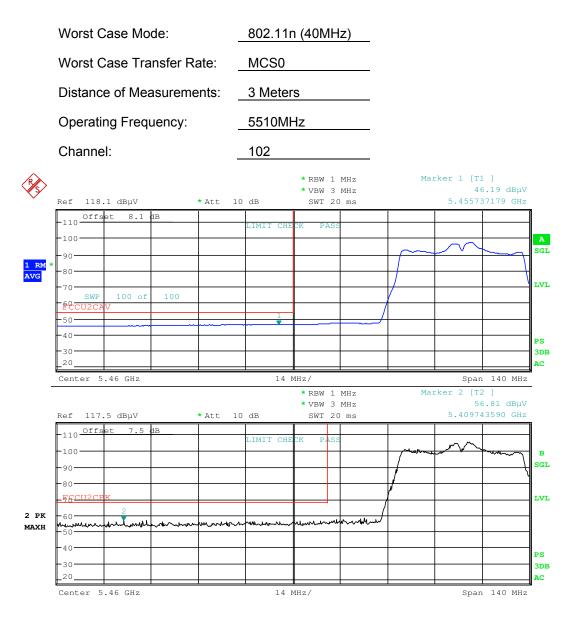
Plot 7-204. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Antenna-2 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

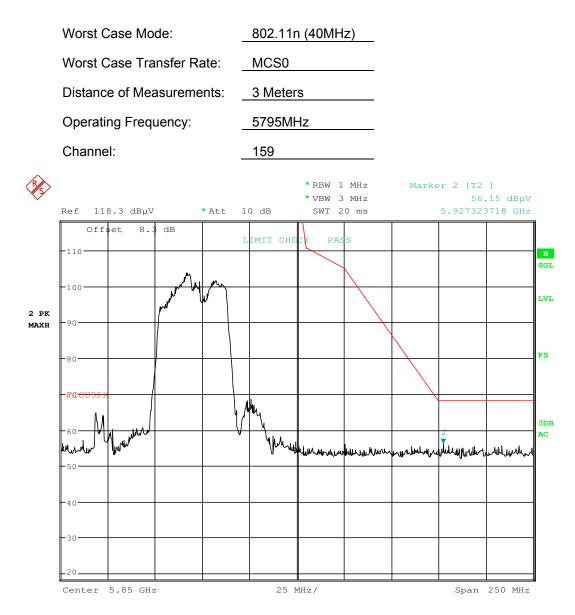
#### Plot 7-205. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# Antenna-2 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

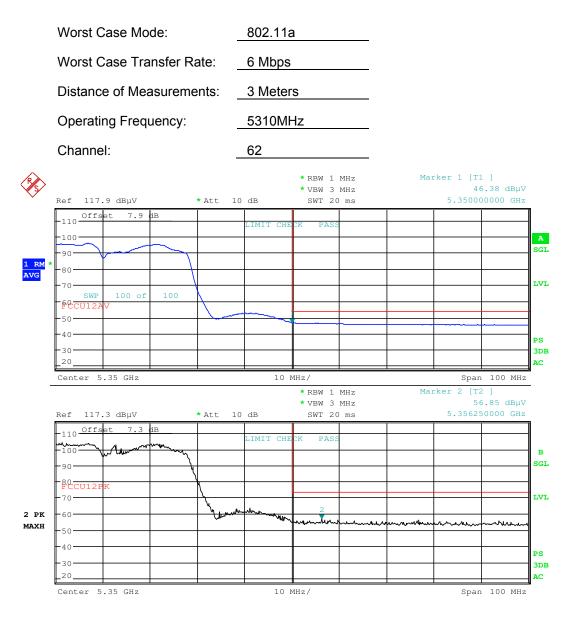
### Plot 7-206. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Antenna-2 WCP Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

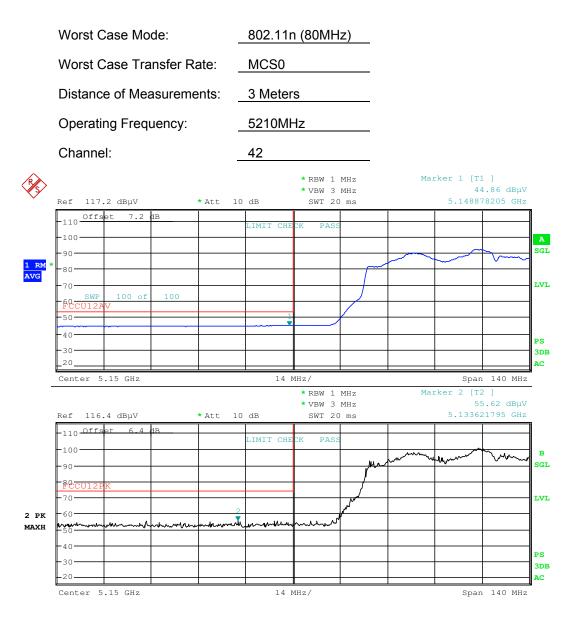
#### Plot 7-207. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# 7.7.9 Antenna-2 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

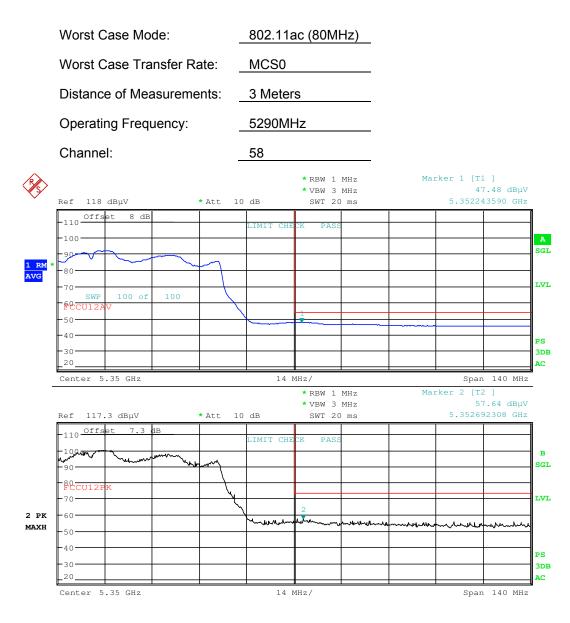
#### Plot 7-208. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Antenna-2 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

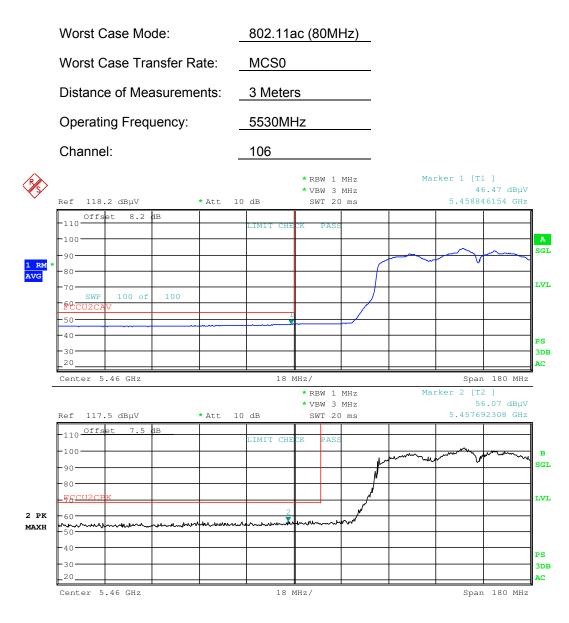
Plot 7-209. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# Antenna-2 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

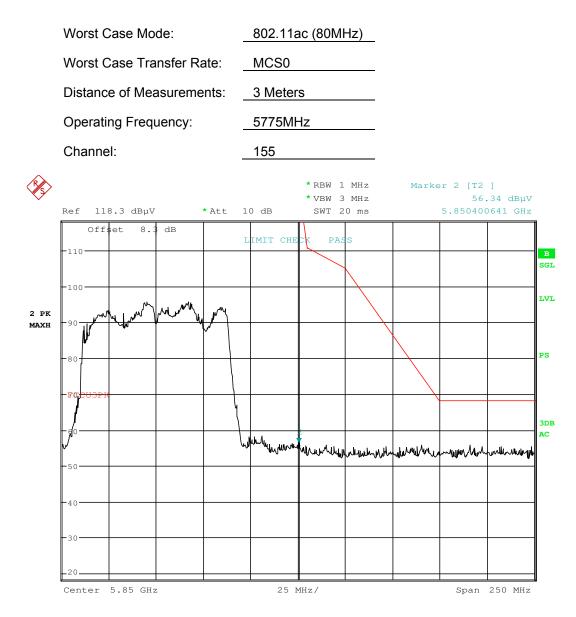
#### Plot 7-210. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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### Antenna-2 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

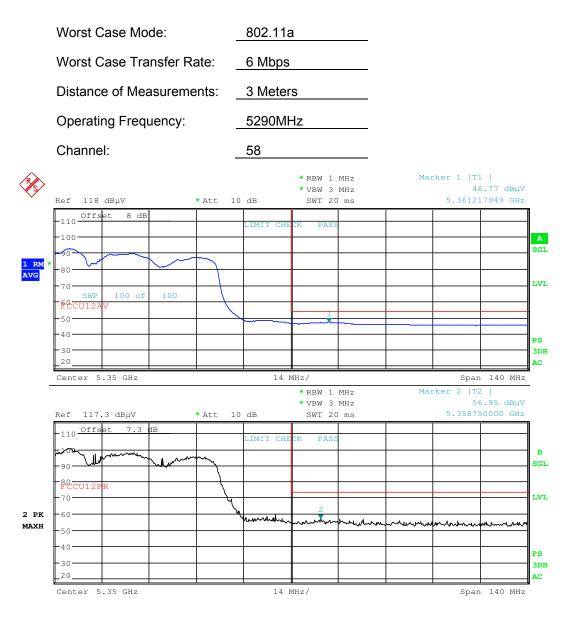
#### Plot 7-211. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# Antenna-2 WCP Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

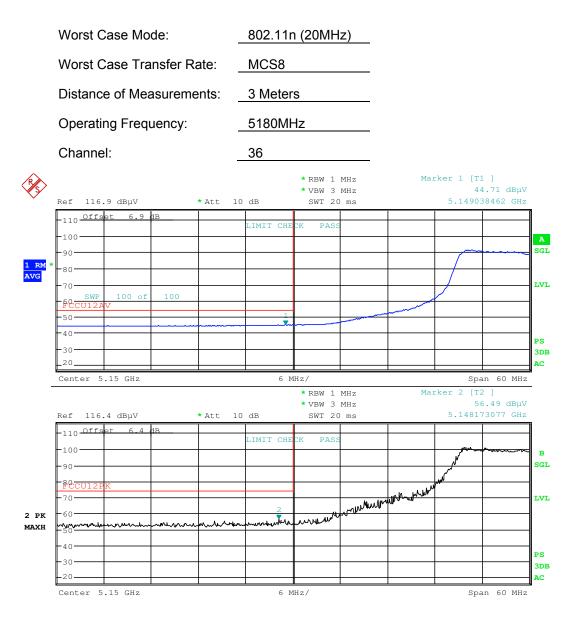
#### Plot 7-212. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# 7.7.10 MIMO Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



Date: 18.JUL.2017 20:12:33

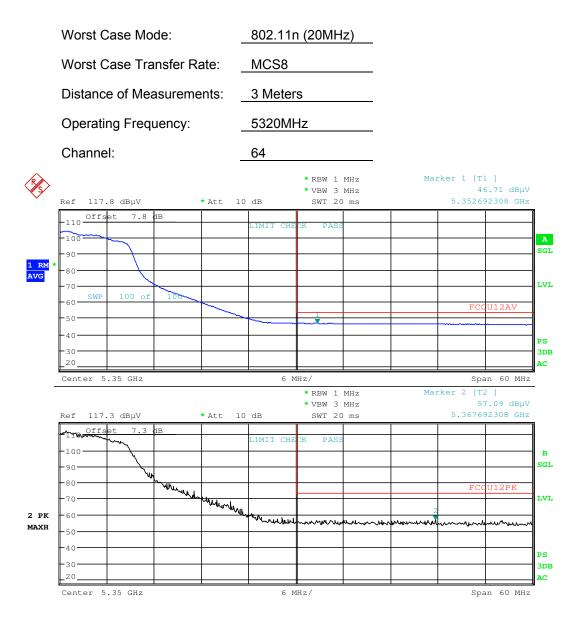
#### Plot 7-213. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# MIMO Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

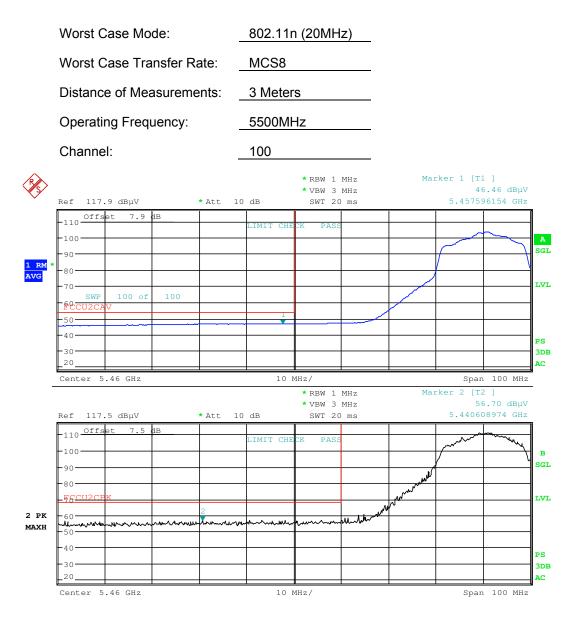
Plot 7-214. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 170 of 200
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# MIMO Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

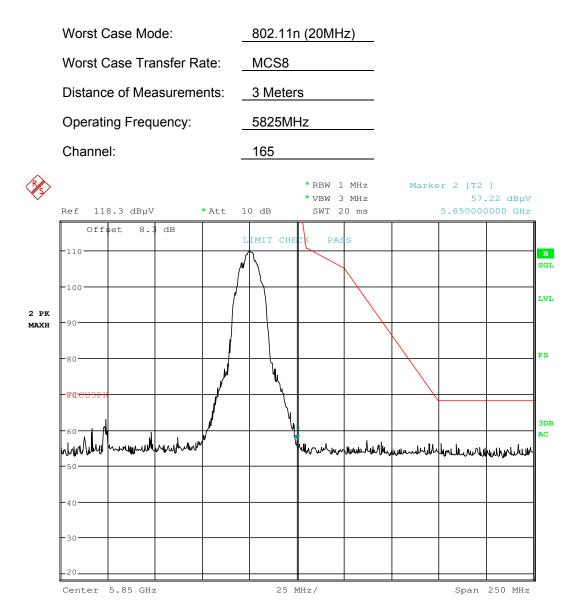
#### Plot 7-215. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# MIMO Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

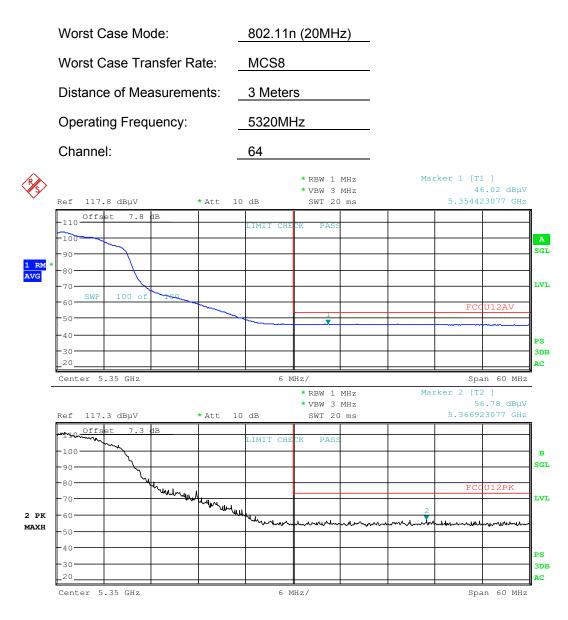
#### Plot 7-216. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
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# MIMO WCP Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

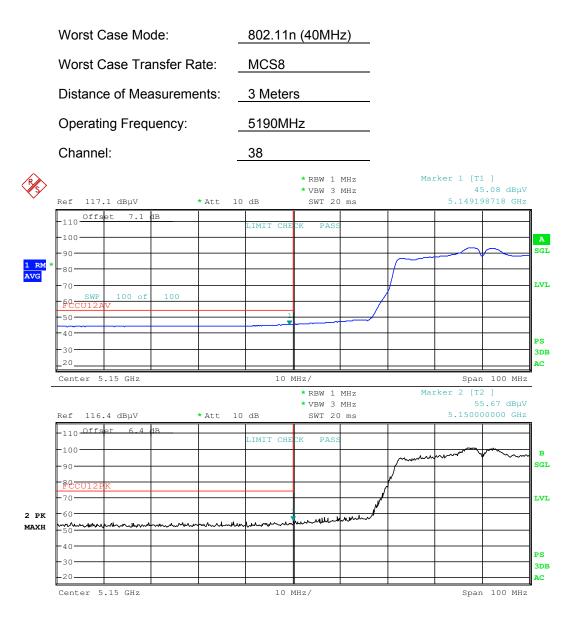
#### Plot 7-217. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# 7.7.11 MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

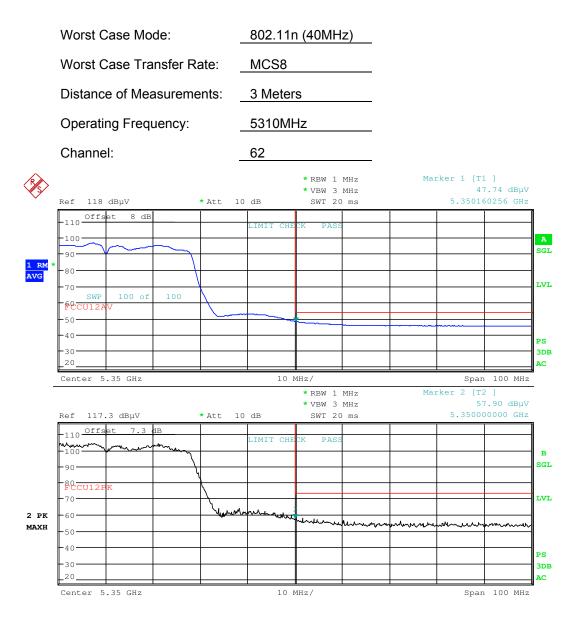
#### Plot 7-218. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

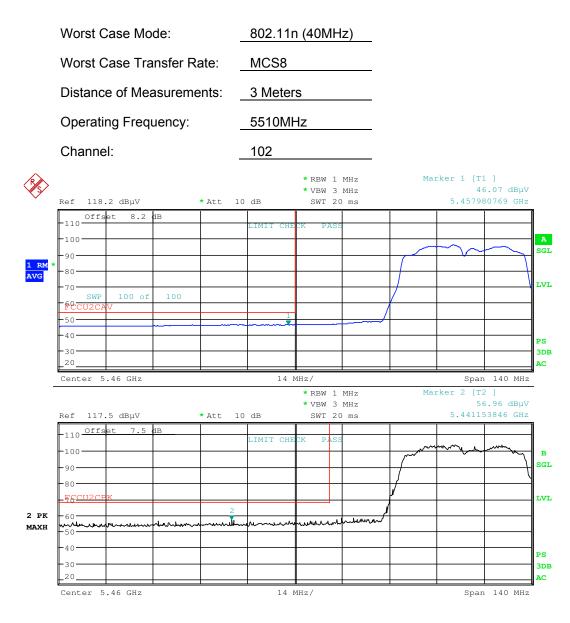
#### Plot 7-219. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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## MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

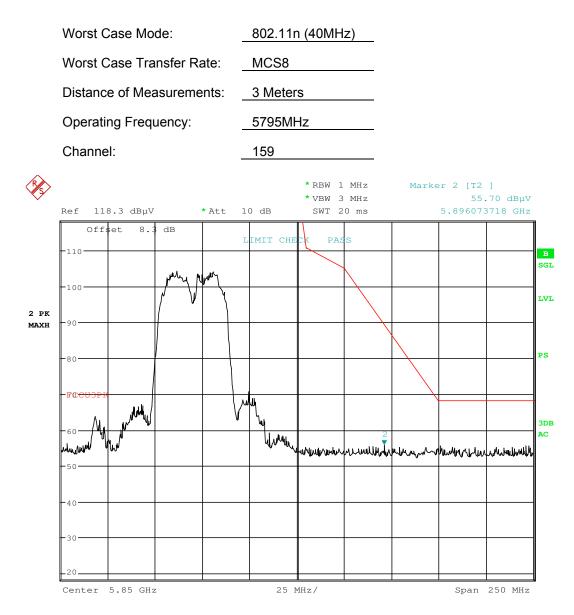
#### Plot 7-220. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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## MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

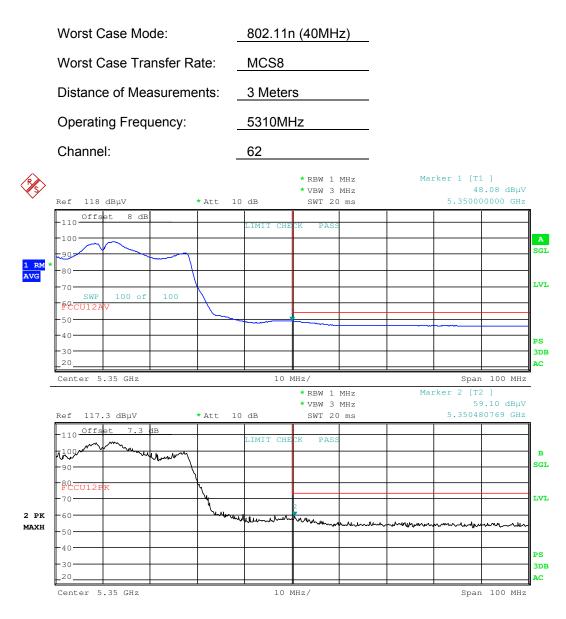
### Plot 7-221. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# MIMO WCP Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

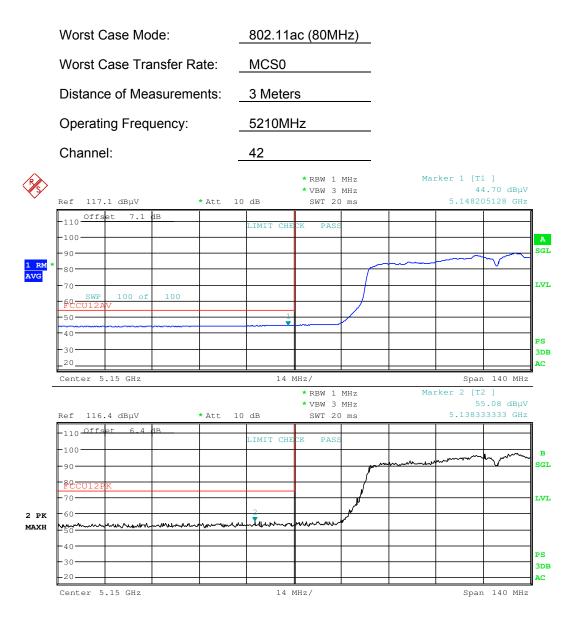
#### Plot 7-222. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# 7.7.12 MIMO Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



Date: 18.JUL.2017 20:15:27

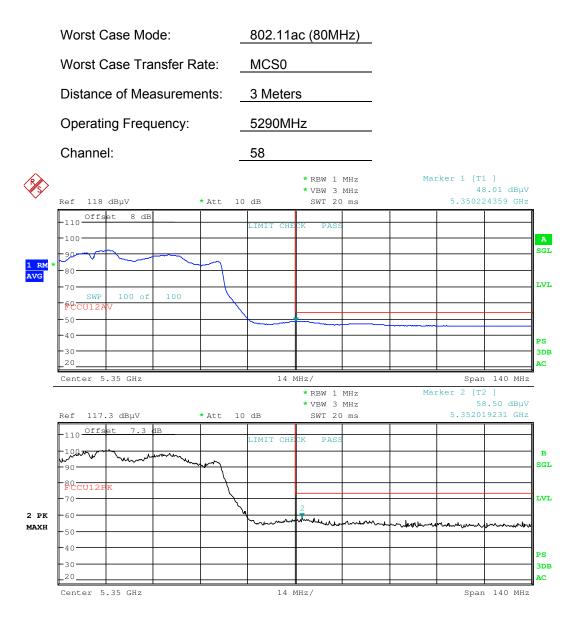
#### Plot 7-223. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# MIMO Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

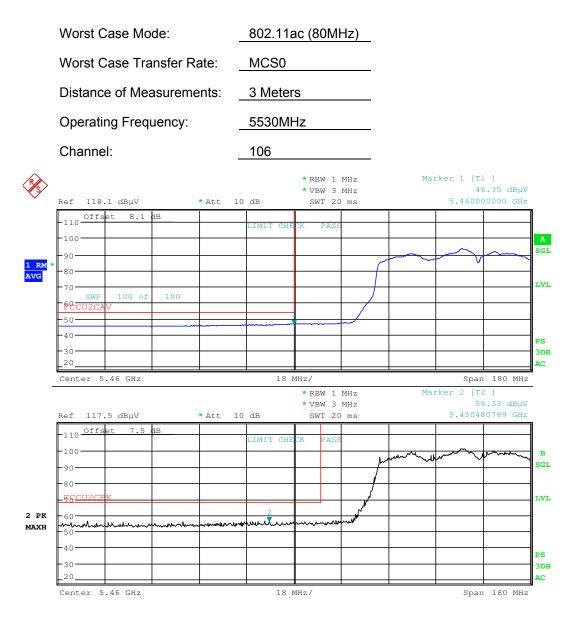
Plot 7-224. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 190 of 200
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## MIMO Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

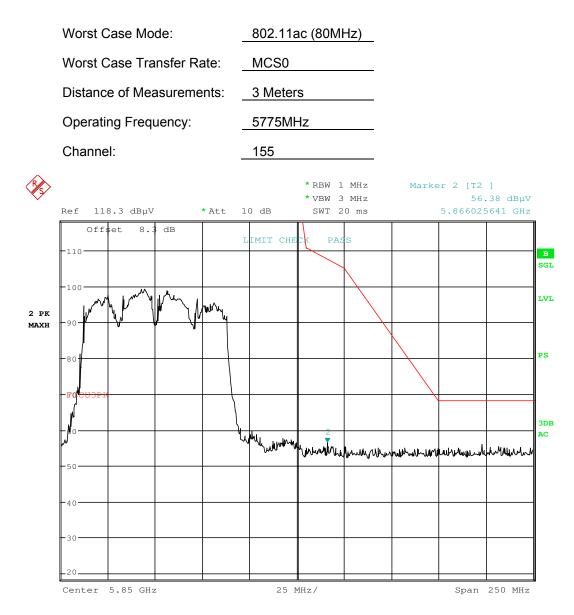
#### Plot 7-225. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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## MIMO Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

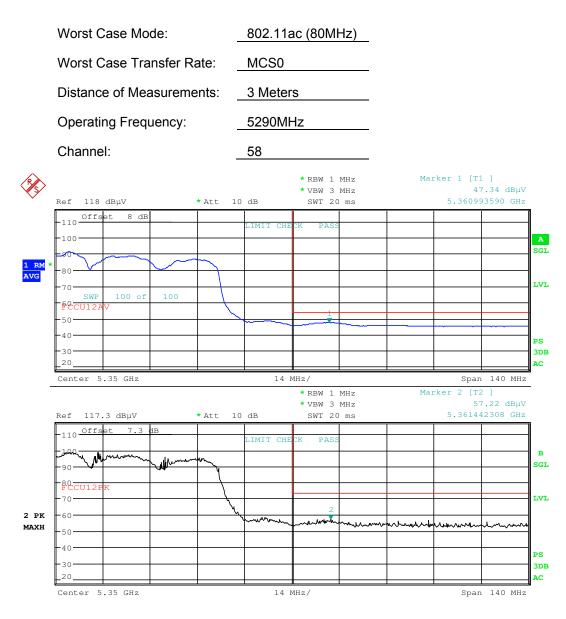
### Plot 7-226. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
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# MIMO WCP Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

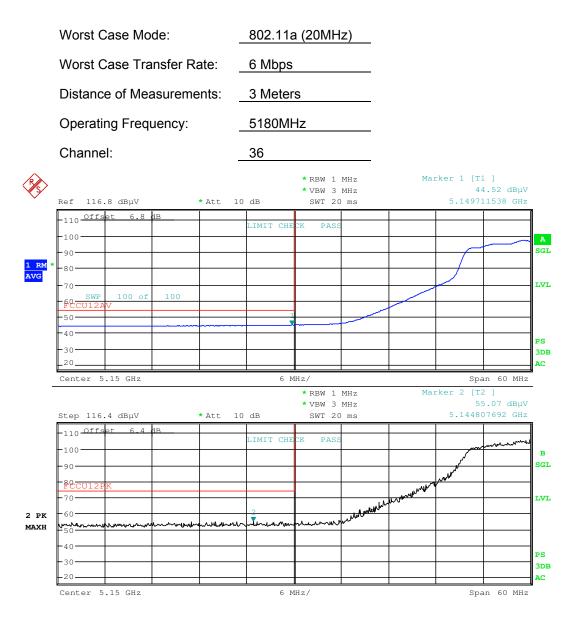
#### Plot 7-227. Radiated Restricted Band Edge Plot with WCP

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# 7.7.13 CDD Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

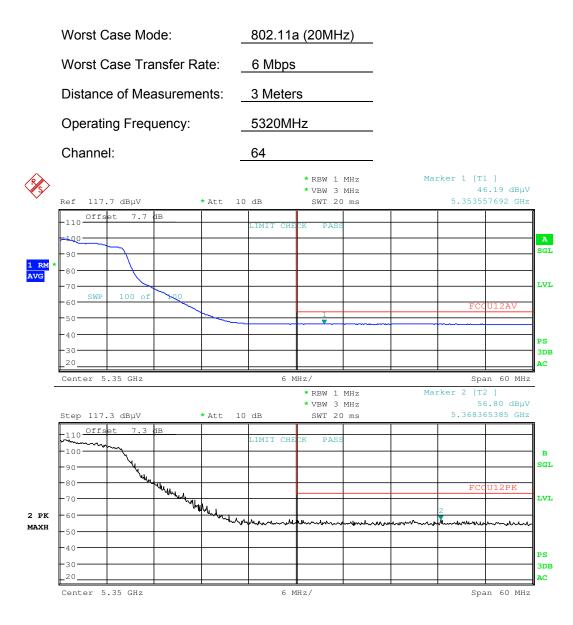
#### Plot 7-228. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 1)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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### CDD Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

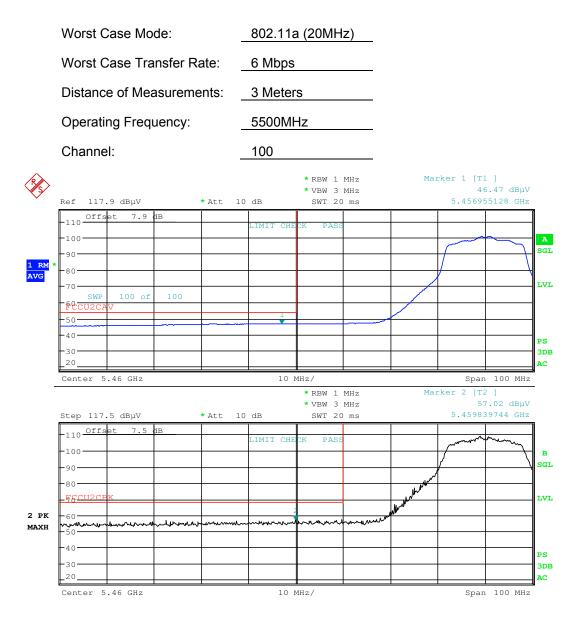
#### Plot 7-229. Radiated Restricted Upper Band Edge Plot (Average & Peak – UNII Band 2A)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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### CDD Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

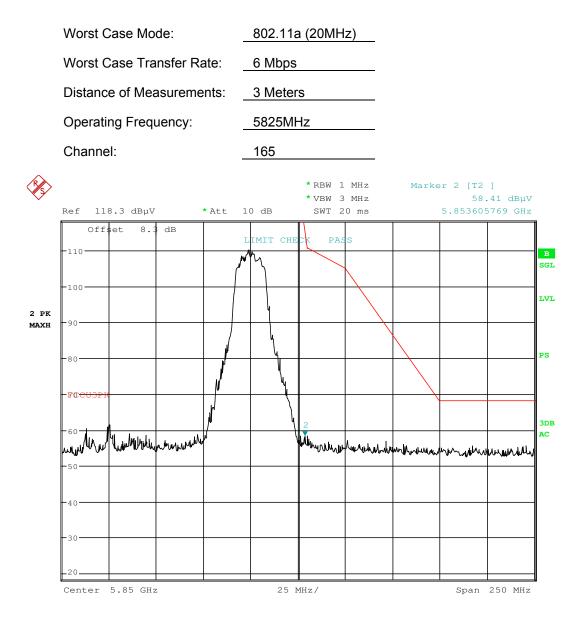
#### Plot 7-230. Radiated Restricted Lower Band Edge Plot (Average & Peak – UNII Band 2C)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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## CDD Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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

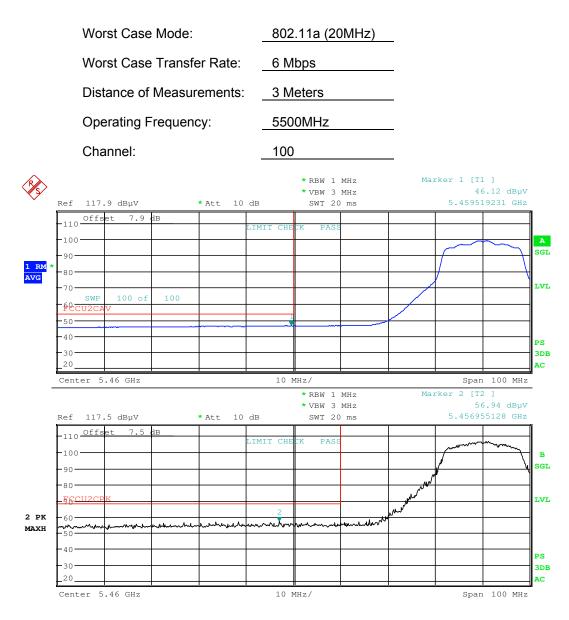
## Plot 7-231. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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## CDD WCP Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209



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)	🕒 LG	Approved by: Quality Manager
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## 7.8 Radiated Spurious Emissions Measurements – Below 1GHz §15.209

#### Test Overview and Limit

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

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

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

Table 7-62. 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

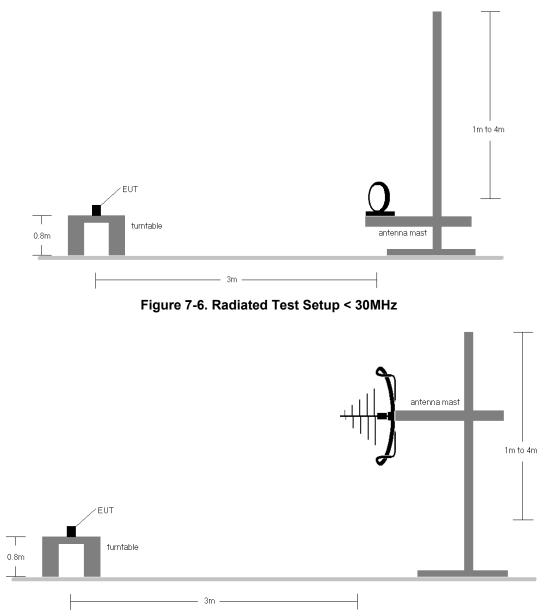
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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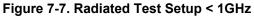
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#### Test Setup

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





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#### **Test Notes**

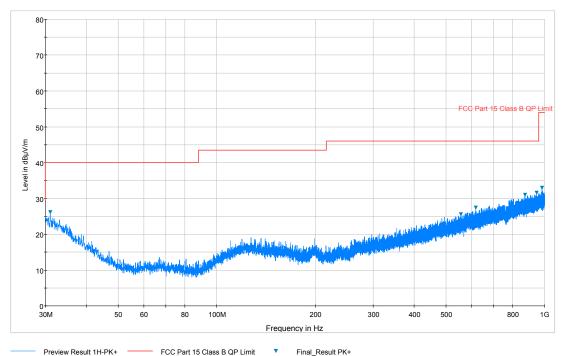
- 1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-62.
- 2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
- 3. This unit was tested 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.
- 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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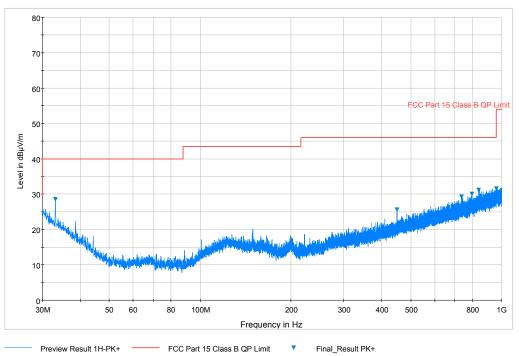
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## Antenna-1 Radiated Spurious Emissions Measurements (Below 1GHz) §15.209





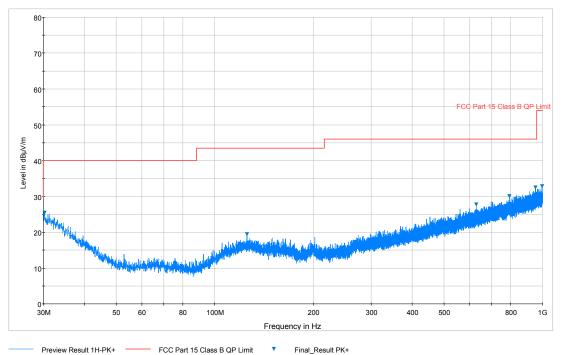


Plot 7-234. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

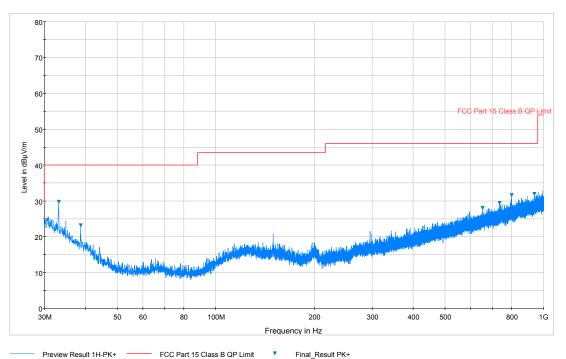
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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## Antenna-2 Radiated Spurious Emissions Measurements (Below 1GHz) §15.209







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

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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# 7.9 Line-Conducted Test Data §15.407

#### Test Overview and Limit

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

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

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

 Table 7-63. 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.

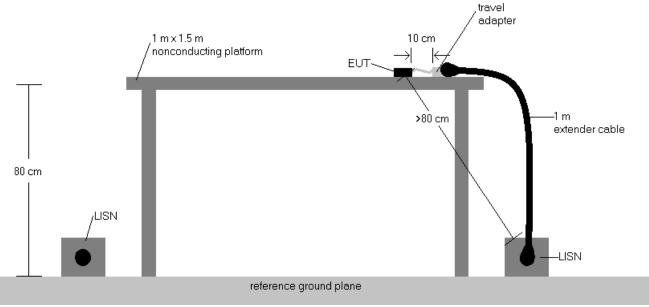


Figure 7-8. Test Instrument & Measurement Setup

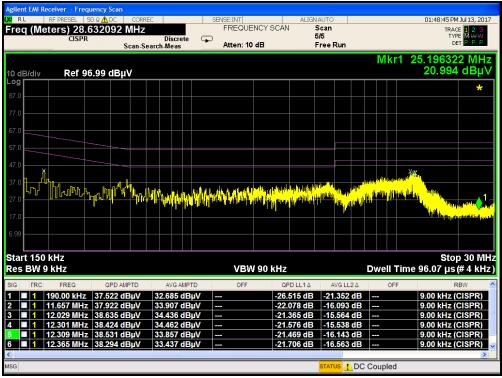
#### Test Notes

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

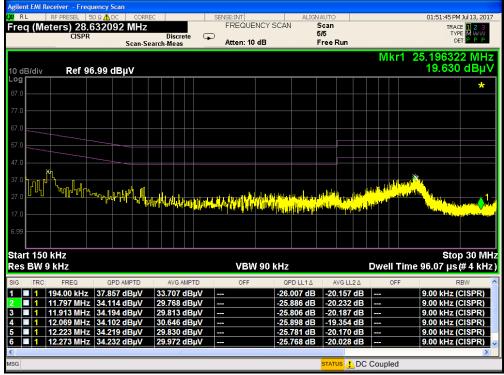
FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-237. Line Conducted Plot with 802.11a UNII Band 1 (L1)



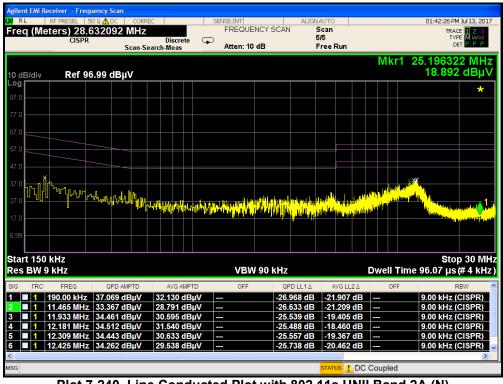
Plot 7-238. Line Conducted Plot with 802.11a UNII Band 1 (N)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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art 150	9 kHz FREQ 11.957 MHz 12.073 MHz	39.10 39.02	5 dBj 5 dBj	JV JV	33.6 34.8	59 dE 71 dE	BµV BµV	OFF		1z QPD LL1A 20.895 dB 20.975 dB	AV -16.3 -15.1	341 dB 129 dB			9	6.07 µ .00 kHz .00 kHz	RBW C(CISPR) C(CISPR)
art 150	9 KHz FREQ 11.957 MHz	39.10 39.02 38.85	5 dBµ 5 dBµ 9 dBµ	Vu Vu Vu	33.6	59 dE 71 dE 30 dE	BμV BμV BμV	OFF 		<b>ΙΖ</b> QPD LL1Δ <b>20.895 dB</b>	AV -16.; -15.′	341 dB			9 9 9	6.07 µ .00 kHz .00 kHz .00 kHz	RBW
art 150 es BW 9 rrc 1 1 1 1	9 kHz FREQ 11.957 MHz 12.073 MHz 12.121 MHz 12.157 MHz 12.281 MHz	39.10 39.02 38.85 38.86 38.99	05 dBµ 25 dBµ 39 dBµ 33 dBµ 08 dBµ	1V 1V 1V	33.6 34.8 34.9 34.8 35.2	59 dE 71 dE 30 dE 15 dE 59 dE	3μV 3μV 3μV 3μV 3μV	OFF		1z QPD LL1Δ 20.895 dB 20.975 dB 21.141 dB 21.137 dB 21.137 dB 21.002 dB	AV -16.3 -15.7 -15.0 -15.7 -14.7	341 dB 129 dB 070 dB 185 dB 741 dB			9 9 9 9 9	6.07 µ .00 kHz .00 kHz .00 kHz .00 kHz .00 kHz	s (# 4 kl RBW (CISPR) (CISPR) (CISPR) (CISPR) (CISPR)
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Plot 7-239. Line Conducted Plot with 802.11a UNII Band 2A (L1)



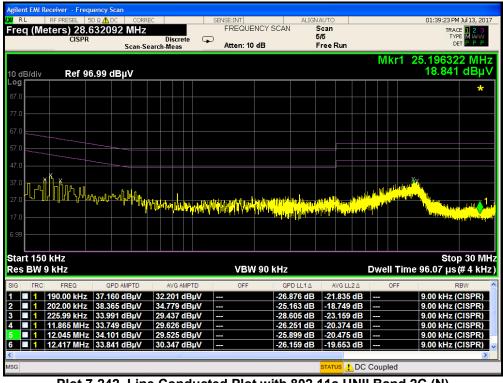
Plot 7-240. Line Conducted Plot with 802.11a UNII Band 2A (N)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 206 of 200
1M1707110215-05-R1.ZNF	7/12/2017-8/8/2017	Portable Handset		Page 206 of 209
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art 150 es BW 9	KHZ KHZ FREQ 11.585 MHZ	37.0	PD AMP 76 dB	PTD B <b>µV</b>		.09	2 dB	μV			V 90	QPE -22.9	DLL1A 224 dB	-16	WG LL2	2∆ dB		ell T	ime	96.07 9.00 k	μs R Hz (0	# 4 kH <sup>BW</sup> CISPR)
art 150 es BW 9	KHZ KHZ FREQ	37.0	PD AMP 76 dB 89 dB	TD TD TD	34	.09 .13	2 dB 4 dB	μV μV			V 90	QPE -22.9 -22.7	DLL1A 24 dB 11 dB	-16	WG LL2 .908	2∆ dB dB	Dwe	ell T	ime s	96.07 9.00 k 9.00 k	μs R Hz (0	# 4 kH <sup>BW</sup> CISPR) CISPR)
art 150 es BW 9	KHZ KHZ FREQ 11.585 MHZ 11.672 MHZ	37.0 37.2 38.0	PD AMP 76 dB 89 dB		34 33	.09 .13	2 dB	μV μV μV			V 90	QPE -22.9 -22.7 -21.9	DLL1A 224 dB	-16 -15 -16	WG LL2	2∆ dB dB dB	Dwe	ell T	ime	96.07 9.00 k 9.00 k 9.00 k	μs R Hz (0 Hz (0	# 4 kH <sup>BW</sup> CISPR)
art 150 s BW 9	KHz KHz FREQ 11.585 MHz 11.672 MHz 11.977 MHz	37.0 37.2 38.0 38.1	PD AMP 76 dB 89 dB 04 dB 77 dB		34 33 34	.09 .13 .72	2 dB 4 dB 8 dB	μV μV μV			V 90	QPI -22.9 -22.7 -21.9 -21.8	2LL1A 24 dB 11 dB 96 dB	-16 -15 -16 -15	WG LL2 .908 .866 .272	2 A dB dB dB dB	Dwe	ell T	ime	96.07 9.00 k 9.00 k 9.00 k 9.00 k	μs R Hz (0 Hz (0 Hz (0	# 4 kH <sup>BW</sup> CISPR) CISPR) CISPR)
art 150 s BW 9	KHz FREQ 11.585 MHz 11.672 MHz 11.977 MHz 12.233 MHz	37.0 37.2 38.0 38.1 38.1	PD AMP 76 dB 89 dB 04 dB 77 dB 79 dB		34 33 34 33	.09 .13 .72 .86	2 dB 4 dB 8 dB 6 dB	μV μV μV μV			V 90	QPE -22.9 -22.7 -21.9 -21.8 -22.3	24 dB 11 dB 96 dB	-16 -15 -16 -15 -16	WG LL2 .908 .866 .272	2 A dB dB dB dB dB	Dwe	ell T	ime	96.07 9.00 k 9.00 k 9.00 k 9.00 k 9.00 k	н р ( н ( н с ( н с ( н с ( н с ( н с ()	# 4 kH <sup>BW</sup> CISPR) CISPR) CISPR) CISPR)
art 150 s BW 9	KHZ FREQ 11.585 MHz 11.672 MHz 11.977 MHz 12.233 MHz 12.234 MHz	37.0 37.2 38.0 38.1 38.1	PD AMP 76 dB 89 dB 04 dB 77 dB 79 dB		34 33 34 33	.09 .13 .72 .86	2 dB 4 dB 8 dB 6 dB 4 dB	μV μV μV μV	  		V 90	QPE -22.9 -22.7 -21.9 -21.8 -22.3	2LL1A 24 dB 11 dB 96 dB 23 dB 21 dB	-16 -15 -16 -15 -16	WG LL2 .908 .272 .134 .896	2 A dB dB dB dB dB	Dwe	ell T	ime	96.07 9.00 k 9.00 k 9.00 k 9.00 k 9.00 k	н р ( н ( н с ( н с ( н с ( н с ( н с ()	CISPR) CISPR) CISPR) CISPR) CISPR)

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



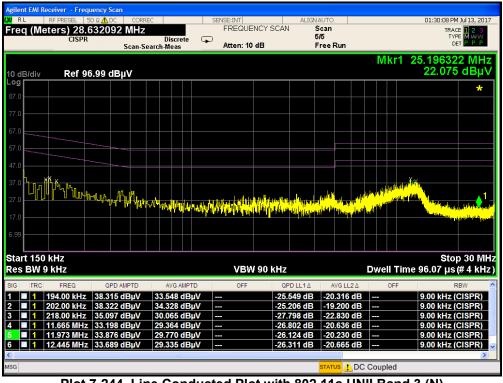
Plot 7-242. Line Conducted Plot with 802.11a UNII Band 2C (N)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 207 of 200
1M1707110215-05-R1.ZNF	7/12/2017-8/8/2017	Portable Handset		Page 207 of 209
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RL	RF PRESEL 5	50 Ω <u>Λ</u> DC	CORR	(EC			SENSE:INT		ALI	GN AUTO					01:33:10	PM Jul 13, 20
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art 150	) kHz		/ <sup>1</sup> 14/14/14	<b>₩₩</b> ₩	<b>"//h-¦</b>	, <mark>N</mark> ofely (		BW 90	KHZ							
art 150 s BW	) kHz		AMPTD	<b>111</b>		PTD		BW 90	KHZ		V μ V μ V μ V μ V μ V μ V μ V μ V μ V μ			ime 9		
art 150 s BW	0 kHz 9 kHz 11.529 MHz	QPD /	dBµV	33.0	66 d	BμV			QPD LL12	B -16	VG LL2 A	Dw	ell T	ime 9	6.07 µ	s (# 4 kl RBW (CISPR)
art 150	D kHz 9 kHz 11.529 MHz 11.937 MHz	QPD / 37.133 38.415	dBµV dBµV	33.0 33.6	66 d 94 d	BμV BμV	0		QPD LL12 -22.867 dl -21.585 dl	B -16 B -16	WG LL2 A .934 dE .306 dE	Dw 3	ell T	ime 9	6.07 µ 0.00 kHz 0.00 kHz	RBW (CISPR) (CISPR)
art 150 s BW	0 kHz 9 kHz 11.529 MHz 11.937 MHz 12.093 MHz	QPD / 37.133 38.415 38.284	dBµV dBµV dBµV	33.0 33.6 35.9	66 d 94 d 84 d	BµV BµV BµV	0		QPD LL12 -22.867 dl -21.585 dl -21.716 dl	B -16 B -16 B -14	VG LL2 A .934 dE .306 dE .016 dE	Dw 3 3	ell T	ime 9	6.07 µ 0.00 kHz 0.00 kHz 0.00 kHz	(CISPR) (CISPR) (CISPR)
art 150 s BW	0 kHz 9 kHz 11.529 MHz 11.937 MHz 12.093 MHz 12.093 MHz 12.185 MHz	QPD 37.133 38.415 38.284 38.284	dBµV dBµV dBµV dBµV	33.0 33.6 35.9 34.0	66 d 94 d 84 d 79 d	ΒμV ΒμV ΒμV ΒμV	0 		QPD LL12 -22.867 dl -21.585 dl -21.716 dl -21.554 dl	B -16 B -16 B -14 B -15	VG LL2A .934 dE .306 dE .016 dE .921 dE	Dw 3 3 3	ell T	ime 9	6.07 µ 0.00 kHz 0.00 kHz 0.00 kHz 0.00 kHz	RBW (CISPR) (CISPR) (CISPR) (CISPR) (CISPR)
art 150 s BW	0 kHz 9 kHz 11.529 MHz 11.937 MHz 12.093 MHz 12.185 MHz 12.277 MHz	<ul> <li>QPD /</li> <li>37.133</li> <li>38.415</li> <li>38.2446</li> <li>38.033</li> </ul>	dBµV dBµV dBµV dBµV dBµV	33.0 33.6 35.9 34.0 33.9	66 d 94 d 84 d 79 d 05 d	ΒμV ΒμV ΒμV ΒμV ΒμV	0		QPD LL12 -22.867 dl -21.585 dl -21.716 dl -21.554 dl -21.967 dl	B -16 B -16 B -14 B -14 B -15 B -16	WG LL2 A 1.934 dE 1.306 dE 1.016 dE 1.921 dE 1.995 dE	Dw 3 3 3 3	ell T	ime 9	6.07 µ 0.00 kHz 0.00 kHz 0.00 kHz 0.00 kHz 0.00 kHz	s (# 4 kl RBW (CISPR) (CISPR) (CISPR) (CISPR) (CISPR)
.0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	0 kHz 9 kHz 11.529 MHz 11.937 MHz 12.093 MHz 12.093 MHz 12.185 MHz	<ul> <li>QPD /</li> <li>37.133</li> <li>38.415</li> <li>38.2446</li> <li>38.033</li> </ul>	dBµV dBµV dBµV dBµV dBµV	33.0 33.6 35.9 34.0 33.9	66 d 94 d 84 d 79 d	ΒμV ΒμV ΒμV ΒμV ΒμV	0 		QPD LL12 -22.867 dl -21.585 dl -21.716 dl -21.554 dl	B -16 B -16 B -14 B -14 B -15 B -16	VG LL2A .934 dE .306 dE .016 dE .921 dE	Dw 3 3 3 3	ell T	ime 9	6.07 µ 0.00 kHz 0.00 kHz 0.00 kHz 0.00 kHz 0.00 kHz	RBW (CISPR) (CISPR) (CISPR) (CISPR) (CISPR)

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)

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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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.

FCC ID: ZNFH932		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager					
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06/23/2017