Appendix D

RF Test Data for 5.2G WLAN (Conducted Measurement)

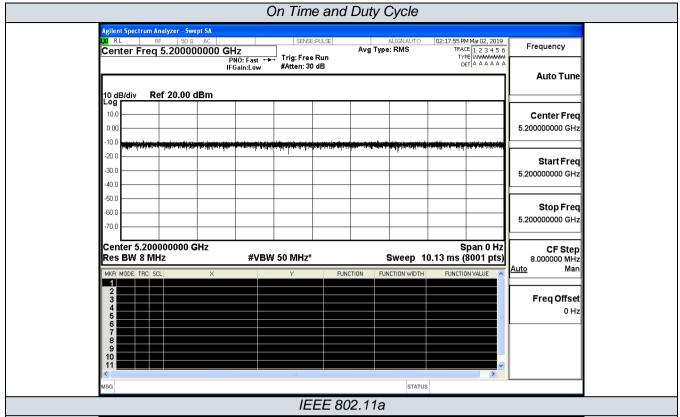
Product Name: Android TV BOX Trade Mark: N/A **Test Model: KM**

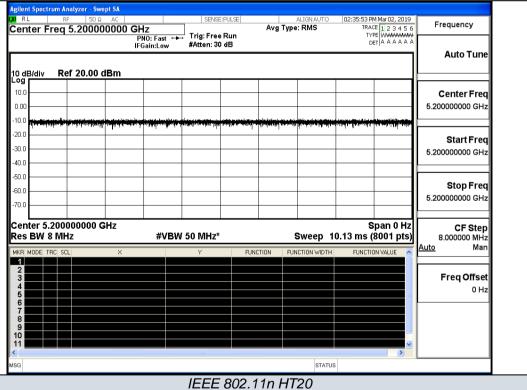
Environmental Conditions

	TVII OTIIII OTII OTII OTII OTII OTII OTI
Temperature:	23.2 ° C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Jayden.Zhuo

D.1 Duty Cycle

Test Mode	Test Frequency (MHz)	Duty Cycle (%)	10log(1/x) Factor (dB)	1/B Minimum VBW (KHz)
11A	5200	100	0.00	0.01
11N20 SISO	5200	100	0.00	0.01
11N40 SISO	5190	100	0.00	0.01
11AC20 SISO	5200	100	0.00	0.01
11AC40 SISO	5190	100	0.00	0.01
11AC80 SISO	5210	100	0.00	0.01



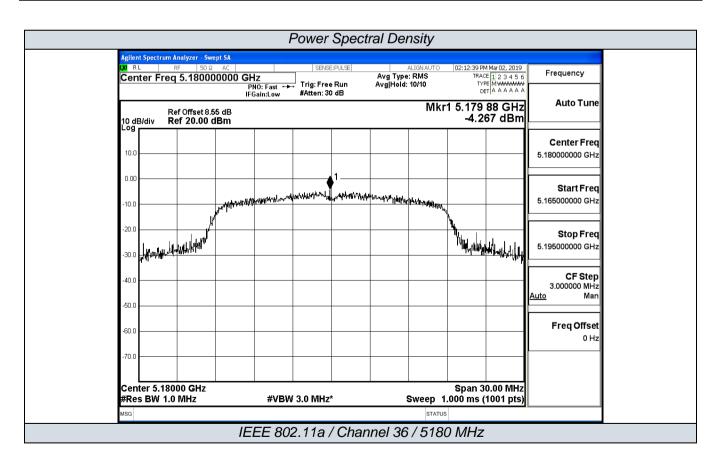


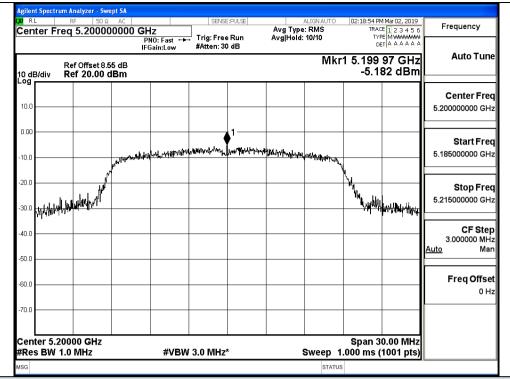
D.2 Maximum Conduct Output Power

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor (dB)	Report Conducted Power (dBm)	Limit dBm)	
	36	5180	11.86	0	11.86		
IEEE 802.11a	40	5200	11.34	0	11.34	24.00	
	48	5240	11.16	0 11.16 0 11.01 0 11.09 24.00 0 11.48			
	36	5180	11.01	0	11.01		
IEEE 802.11n HT20	40	5200	11.09	0	11.09	24.00	
	48	5240					
IEEE 802.11n HT40	38	5190	10.56	0	10.56	24.00	
ILLL 002.111111140	46	5230	10.72	0	10.72	24.00	
	36	5180	11.17	0	11.17		
IEEE 802.11ac VHT20	40	5200	11.68	0	11.68	24.00	
	48	5240	11.69	0	11.69		
IEEE 802.11ac VHT40	38	5190	10.73	0	10.73	24.00	
ILLE OUZ. I IdC VII 140	46	5230	10.32	0	10.32	24.00	
IEEE 802.11ac VHT80	42	5210	10.02	0	10.02	24.00	

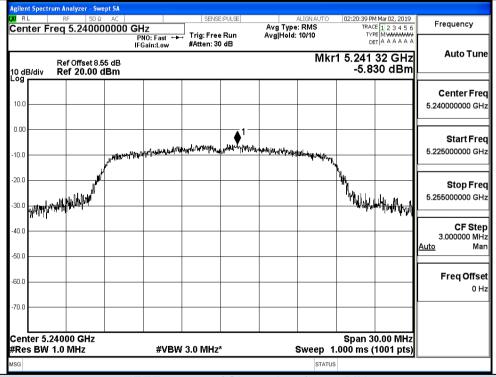
D.3 Power Spectral Density

Test Mode	Channel	Frequency (MHz)	Power Density (dBm/MHz)	Duty Cycle Factor (dB)	Report Power Density (dBm/MHz)	Limit (dBm/MHz)
	36	5180	-4.267	0	-4.267	
IEEE 802.11a	40	5200	-5.182	0	-5.182	11.00
	48	5240	-5.830	0	-5.830	
	36	5180	-4.927	0	-4.927	
IEEE 802.11n HT20	40	5200	-4.817	0	-4.817	11.00
	48	5240	-5.410	0	-5.410	
IEEE 802.11n HT40	38	5190	-8.047	0	-8.047	11.00
1666 002.111111140	46	5230	-8.131	0	-8.131	11.00
	36	5180	-4.208	0	-4.208	
IEEE 802.11ac VHT20	40	5200	-4.833	0	-4.833	11.00
	48	5240	-7.255	0	-7.255	11.00
IEEE 802.11ac VHT40	38	5190	-7.979	0	-7.979	11.00
ILLE 002.11dc VH140	46	5230	-8.657	0	-8.657	11.00
IEEE 802.11ac VHT80	42	5210	-10.835	0	-10.835	11.00

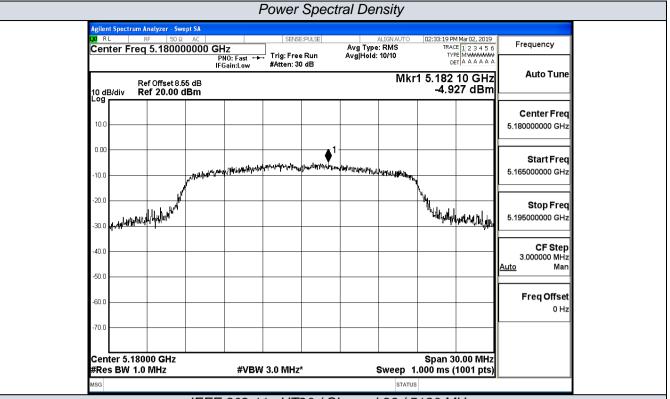




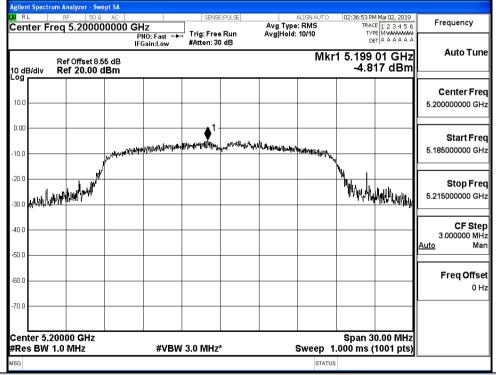
IEEE 802.11a / Channel 40 / 5200 MHz



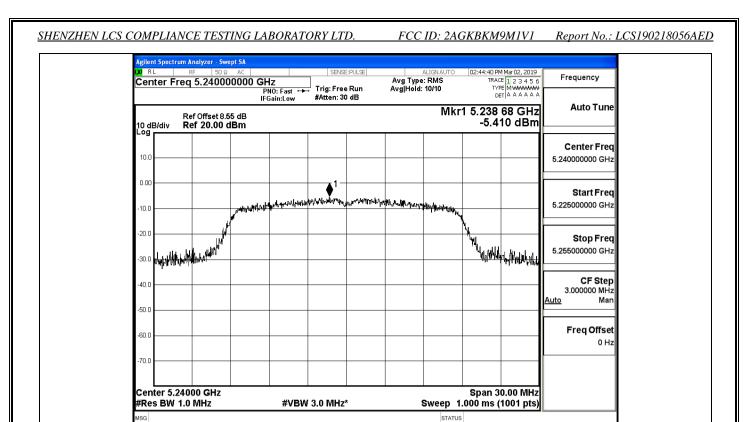
IEEE 802.11a / Channel 48 / 5240 MHz



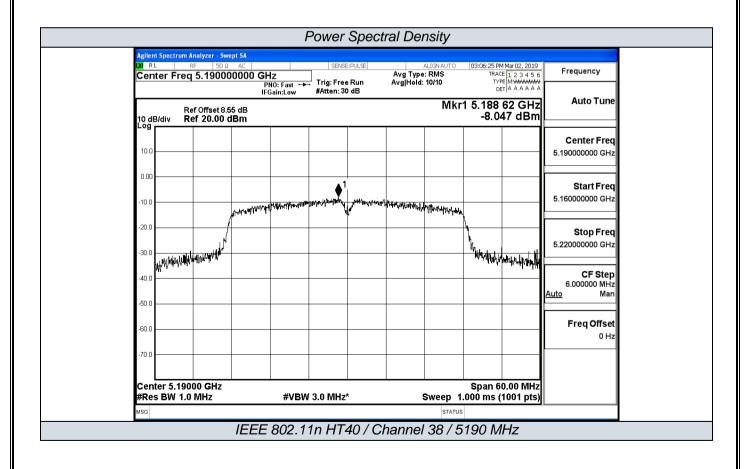
IEEE 802.11n HT20 / Channel 36 / 5180 MHz

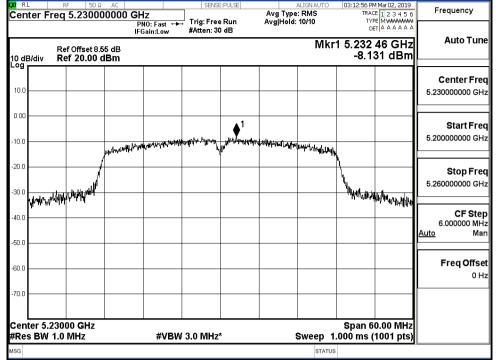


IEEE 802.11n HT20 / Channel 40 / 5200 MHz

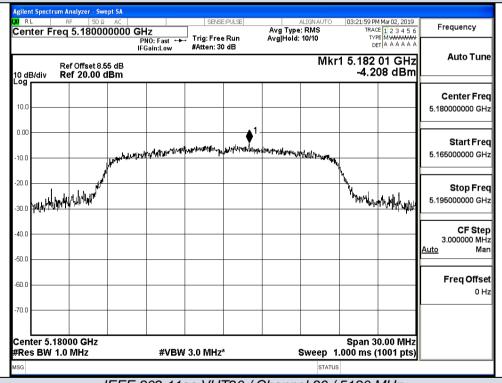


IEEE 802.11n HT20 / Channel 48 / 5240 MHz

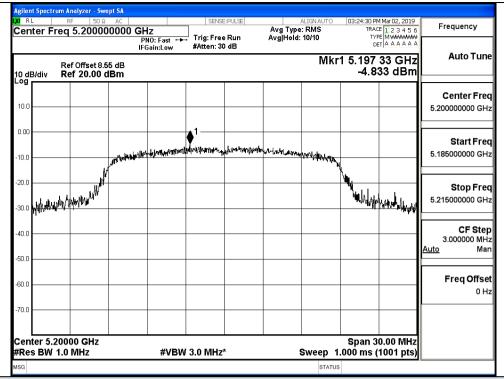




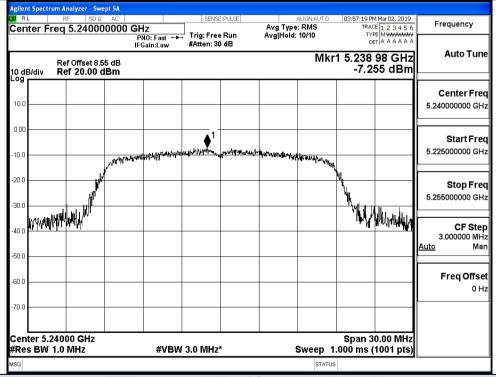
IEEE 802.11n HT40 / Channel 46 / 5230 MHz



IEEE 802.11ac VHT20 / Channel 36 / 5180 MHz

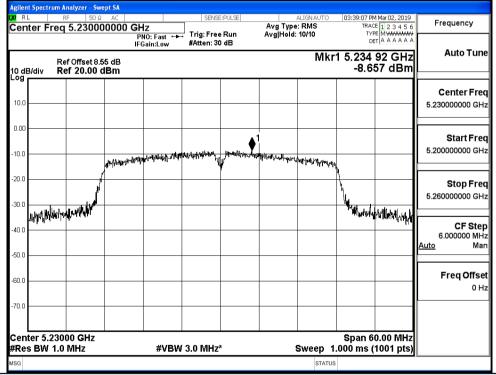


IEEE 802.11ac VHT20 / Channel 40 / 5200 MHz



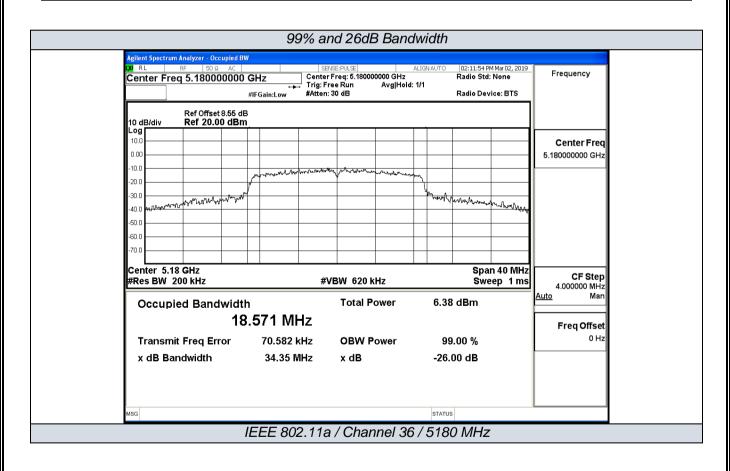
IEEE 802.11ac VHT20 / Channel 48 / 5240 MHz

IEEE 802.11ac VHT40 / Channel 38 / 5190 MHz

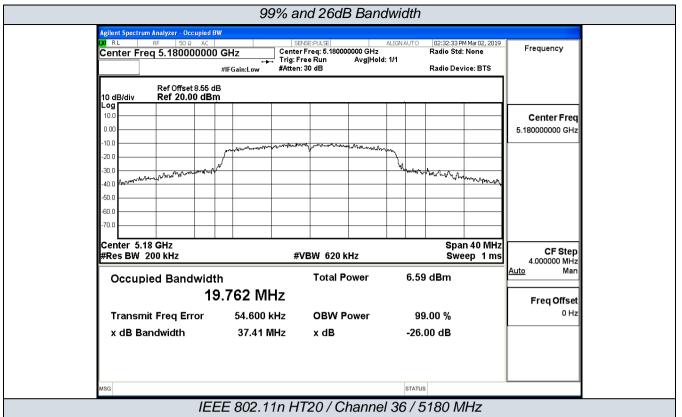


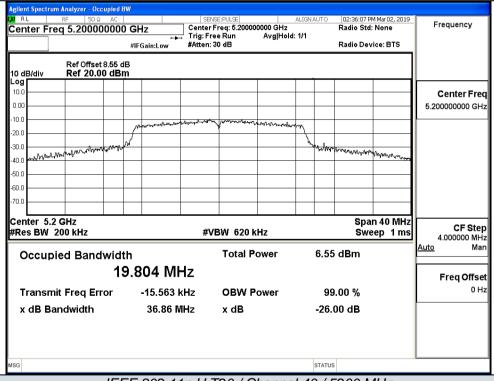
D.4 Emission Bandwidth

Test Mode	Channel	Frequency	99% Bandwidth	26dB Bandwidth	Limit	
rest Mode	Charine	(MHz)	(MHz)	(MHz)	(MHz)	
	36	5180	18.751	34.350		
IEEE 802.11a	40	5200	18.276	34.980	No Limit	
	48	5240	18.169	36.990		
	36	5180	19.762	37.410		
IEEE 802.11n HT20	40	5200	19.804	36.860	No Limit	
	48	5240	18.209	35.000		
IEEE 802.11n HT40	38	5190	36.864	68.550	No Limit	
ILLL 002.111111140	46	5230	37.287	73.770	INO LIITIIL	
	36	5180	19.457	36.780		
IEEE 802.11ac VHT20	40	5200	19.038	34.140	No Limit	
	48	5240	17.735	26.380		
IEEE 802.11ac VHT40	38	5190	36.748	69.570	No Limit	
ILLE OUZ.ITAU VITT4U	46	5230	36.600	71.490	INO LIIIIII	
IEEE 802.11ac VHT80	42	5210	77.735	153.700	No Limit	

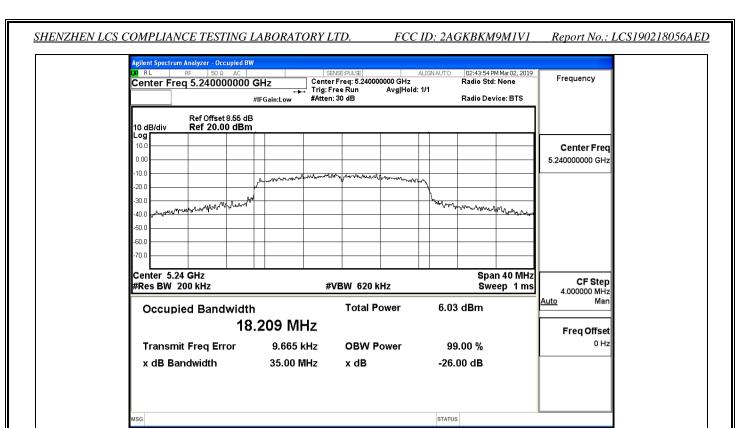


STATUS

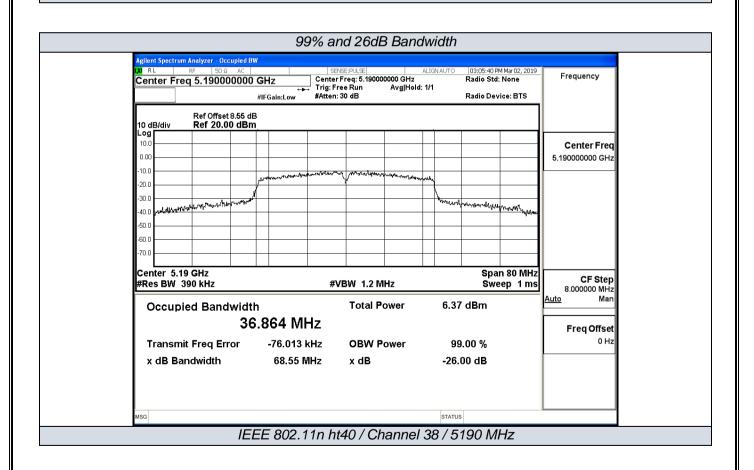




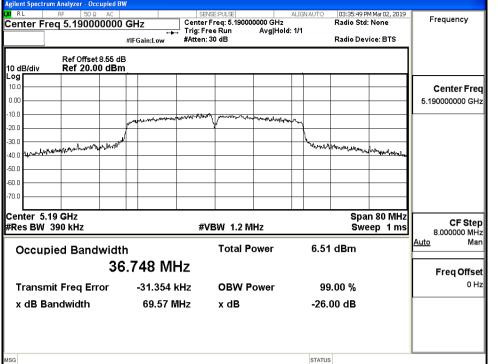
IEEE 802.11n H T20 / Channel 40 / 5200 MHz



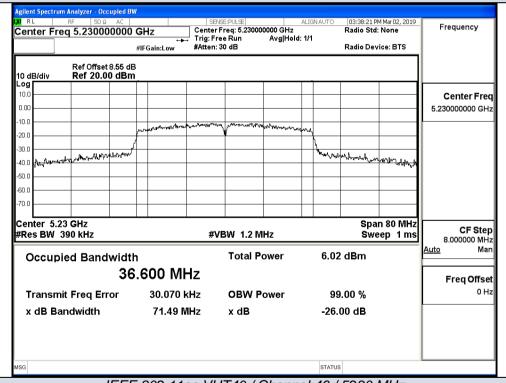
IEEE 802.11n HT20 / Channel 48 / 5240 MHz



-50.0 Center 5.18 GHz Span 40 MHz CF Step 4.000000 MHz #Res BW 200 kHz #VBW 620 kHz Sweep 1 ms <u>Auto</u> Occupied Bandwidth **Total Power** 6.77 dBm 19.457 MHz Freq Offset 0 Hz Transmit Freq Error 112.66 kHz **OBW Power** 99.00 % x dB Bandwidth 36.78 MHz x dB -26.00 dB STATUS



IEEE 802.11ac VHT40 / Channel 38 / 5190 MHz

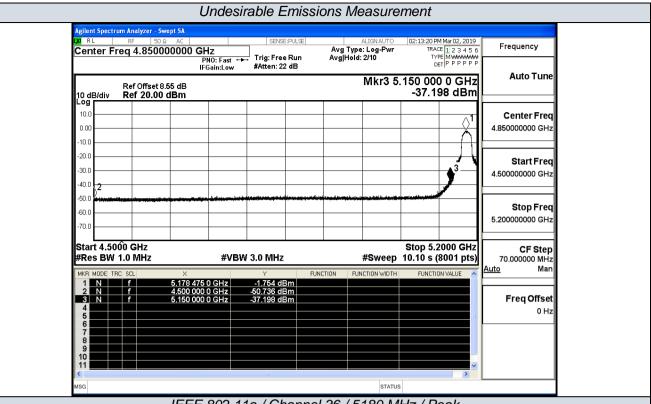


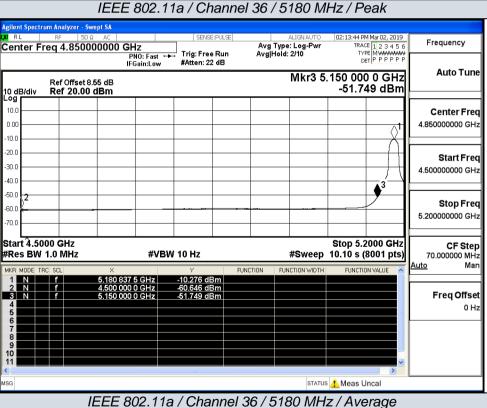
IEEE 802.11ac VHT40 / Channel 46 / 5230 MHz

D.5 Undesirable Emissions Measurement

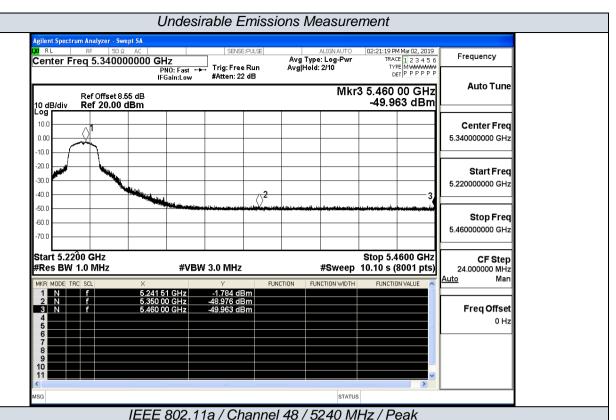
Test Mode	Channel	Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)
		4500.0	-50.736	3.00	0	47.492	Peak	68.20
	00	4500.0	-60.646	3.00	0	37.582	Average	54.00
	36	5150.0	-37.198	3.00	0	61.030	Peak	68.20
440		5150.0	-51.749	3.00	0	46.479	Average	54.00
11A		5350.0	-48.976	3.00	0	49.252	Peak	68.20
	48	5350.0	-60.659	3.00	0	37.569	Average	54.00
	40	5460.0	-49.963	3.00	0	48.265	Peak	68.20
		5460.0	-60.921	3.00	0	37.307	Average	54.00
		4500.0	-50.296	3.00	0	47.932	Peak	68.20
	26	4500.0	-60.604	3.00	0	37.624	Average	54.00
	36	5150.0	-42.259	3.00	0	55.969	Peak	68.20
11N20		5150.0	-57.277	3.00	0	40.951	Average	54.00
SISO		5350.0	-50.176	3.00	0	48.052	Peak	68.20
	40	5350.0	-60.687	3.00	0	37.541	Average	54.00
	48	5460.0	-50.548	3.00	0	47.680	Peak	68.20
		5460.0	-60.960	3.00	0	37.268	Average	eak 68.20
		4500.0	-51.611	3.00	0	46.617	Peak	eak 68.20
	20	4500.0	-60.613	3.00	0	37.615	Average	54.00
	38	5150.0	-31.638	3.00	0	66.590	Peak	54.00 68.20 54.00
11N40		5150.0	-46.655	3.00	0	51.573	Average	54.00
SISO		5350.0	-50.557	3.00	0	47.671	Peak	68.20
	40	5350.0	-60.182	3.00	0	38.046	Average	54.00
	46	5460.0	-50.283	3.00	0	47.945	Peak	68.20
		5460.0	-60.662	3.00	0	37.566	Average	54.00
		4500.0	-50.763	3.00	0	47.465	Peak	68.20
	20	4500.0	-60.613	3.00	0	37.615	Average	54.00
	36	5150.0	-43.512	3.00	0	54.716	Peak	68.20
11AC20		5150.0	-56.256	3.00	0	41.972	Average	54.00
SISO		4500.0	-50.599	3.00	0	47.629	Peak	68.20
	40	4500.0	-60.658	3.00	0	37.570	Average	54.00
	48	5150.0	-49.953	3.00	0	48.275	Peak	68.20
		5150.0	-60.908	3.00	0	37.320	Average	54.00
		4500.0	-49.942	3.00	0	48.286	Peak	68.20
	20	4500.0	-60.604	3.00	0	37.624	Average	54.00
	38	5150.0	-33.869	3.00	0	64.359	Peak	68.20
11AC40		5150.0	-45.480	3.00	0	52.748	Average	54.00
SISO		5350.0	-50.113	3.00	0	48.115	Peak	68.20
	46	5350.0	-60.279	3.00	0	37.949	Average	54.00
	40	5460.0	-50.529	3.00	0	47.699	Peak	68.20
		5460.0	-60.630	3.00	0	37.598	Average	54.00
		4500.0	-50.477	3.00	0	47.751	Peak	68.20
11AC80	40	5150.0	-60.645	3.00	0	37.583	Average	54.00
SISO	42	4500.0	-42.367	3.00	0	55.861	Peak	68.20
		5150.0	-55.594	3.00	0	42.634	Average	54.00

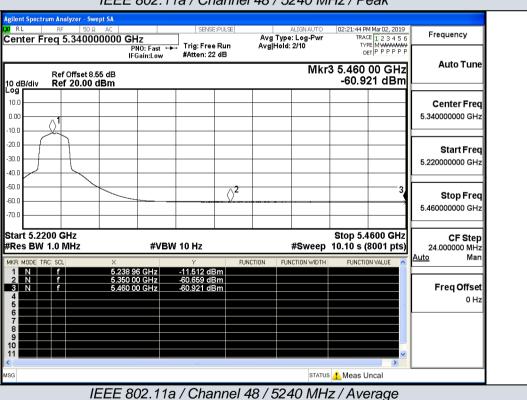
5350.0	-49.527	3.00	0	48.701	Peak	68.20
5460.0	-59.763	3.00	0	38.465	Average	54.00
5350.0	-49.873	3.00	0	48.355	Peak	68.20
5460.0	-60.167	3.00	0	38.061	Average	54.00



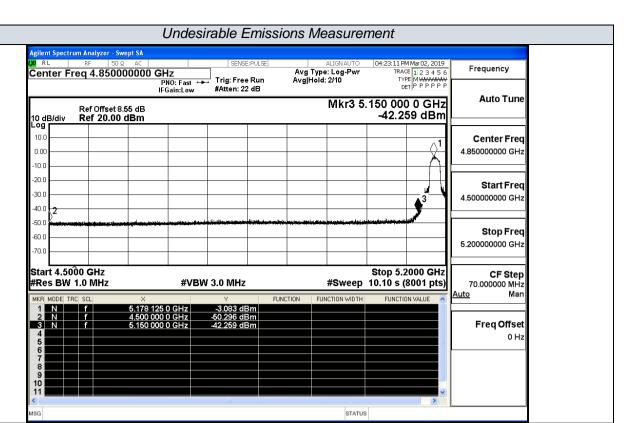


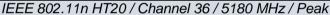
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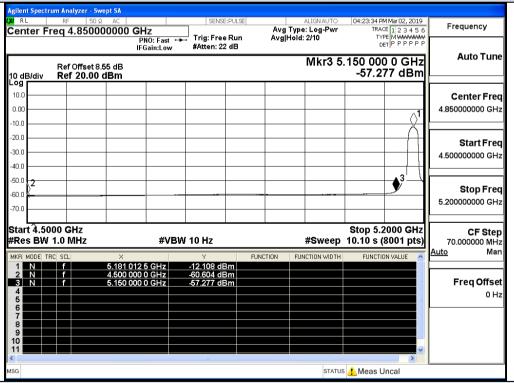




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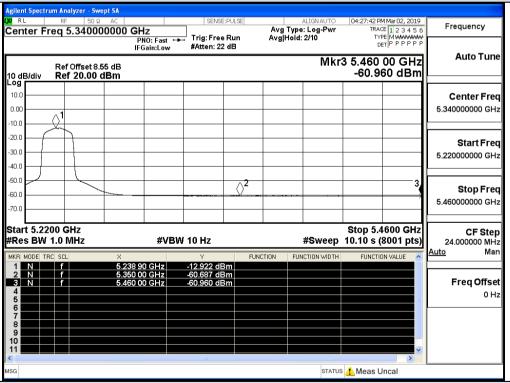




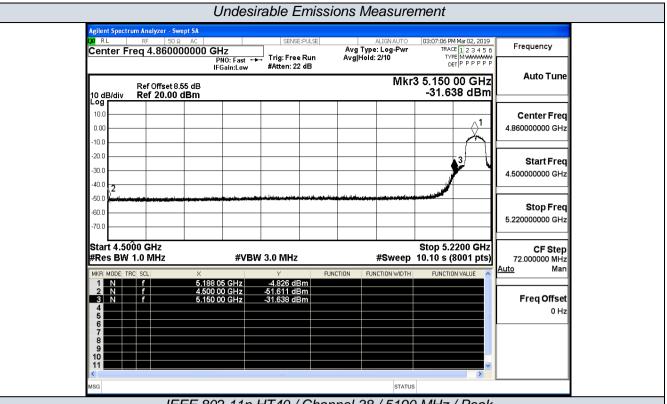
IEEE 802.11n HT20 / Channel 36 / 5180 MHz / Average

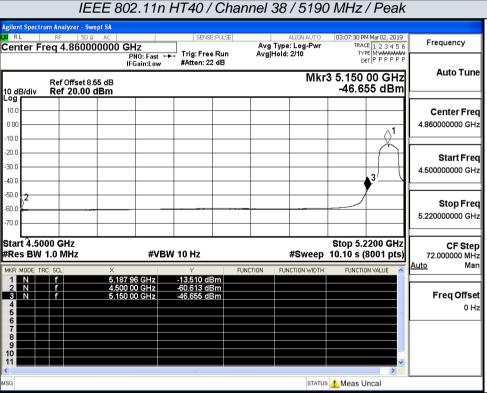
Undesirable Emissions Measurement gilent Spectrum Analyzer - Swept SA ALIGNAUTO Avg Type: Log-Pwr Avg|Hold: 2/10 TO 04:27:19 PM Mar 02, 2019 Wr TRACE 1 2 3 4 5 6 Center Freq 5.340000000 GHz Frequency PNO: Fast → Trig: Free Run IFGain:Low #Atten: 22 dB TYPE MWWWWW **Auto Tune** Mkr3 5.460 00 GHz Ref Offset 8.55 dB Ref 20.00 dBm -50.548 dBm 10 dB/div Log 10.0 Center Freq 0.00 5.340000000 GHz -10.0 -20.0 Start Freq -30.0 5.220000000 GHz 40.0 -50 C Stop Freq -60 C 5.460000000 GHz Start 5.2200 GHz Stop 5.4600 GHz **CF Step** 24.000000 MHz #Sweep 10.10 s (8001 pts) #Res BW 1.0 MHz **#VBW 3.0 MHz** <u>Auto</u> Man FUNCTION FUNCTION WIDTH Freq Offset 0 Hz

IEEE 802.11n HT20 / Channel 48 / 5240 MHz / Peak



IEEE 802.11n HT20 / Channel 48 / 5240 MHz / Average

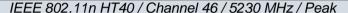


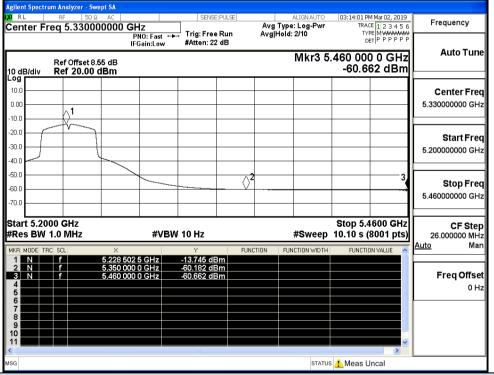


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IEEE 802.11n HT40 / Channel 38 / 5190 MHz / Average

Undesirable Emissions Measurement Frequency PNO: Fast → Trig: Free Run IFGain:Low #Atten: 22 dB **Auto Tune** Mkr3 5.460 000 0 GHz Ref Offset 8.55 dB Ref 20.00 dBm -50.283 dBm 10 dB/div Log 10.0 Center Freq 5.330000000 GHz 0.00 -20.0 Start Freq 30.0 5.200000000 GHz -40.0 -50.0 Stop Freq -60.0 5.460000000 GHz Start 5.2000 GHz Stop 5.4600 GHz **CF Step** 26.000000 MHz #Sweep 10.10 s (8001 pts) #Res BW 1.0 MHz **#VBW 3.0 MHz** Man <u>Auto</u> FUNCTION WIDTH Freq Offset 0 Hz





IEEE 802.11n HT40 / Channel 46 / 5230 MHz / Average

FUNCTION

#VBW 10 Hz

Stop 5.4600 GHz

#Sweep 10.10 s (8001 pts)

FUNCTION WIDTH

CF Step 24.000000 MHz

Freq Offset

<u>Auto</u>

Start 5.2200 GHz

#Res BW 1.0 MHz

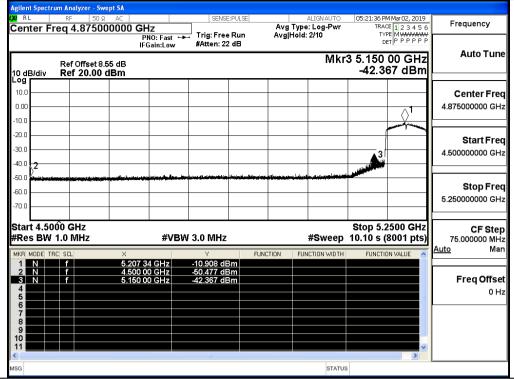
IEEE 802.11ac VHT40 / Channel 38 / 5190 MHz / Average

STATUS / Meas Uncal

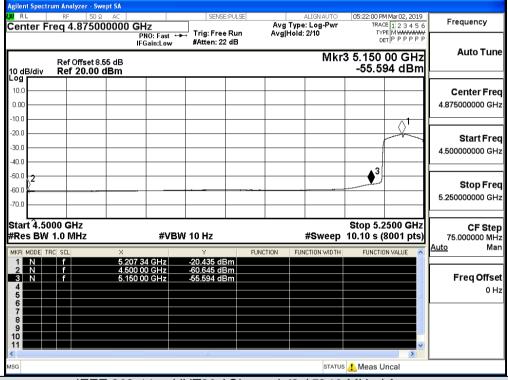
Freq Offset

STATUS / Meas Uncal

Freq Offset



IEEE 802.11ac VHT80 / Channel 42 / 5210 MHz / Peak



IEEE 802.11ac VHT80 / Channel 42 / 5210 MHz / Average

FUNCTION

#VBW 10 Hz

-7n r

Start 5.1700 GHz

5.460000000 GHz

29.000000 MHz

Freq Offset

<u>Auto</u>

CF Step

Stop 5.4600 GHz

FUNCTION VALUE

#Sweep 10.10 s (8001 pts)

FUNCTION WIDTH