# Appendix B

# **RF Test Data for 5.2G WLAN (Conducted Measurement)**

Product Name: Wireless AP/CPE/Access Point/Bridge Test Model: DIP9526K-H

### **Environmental Conditions**

Temperature:	23.5 ° C
Relative Humidity:	53.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Tom Liu

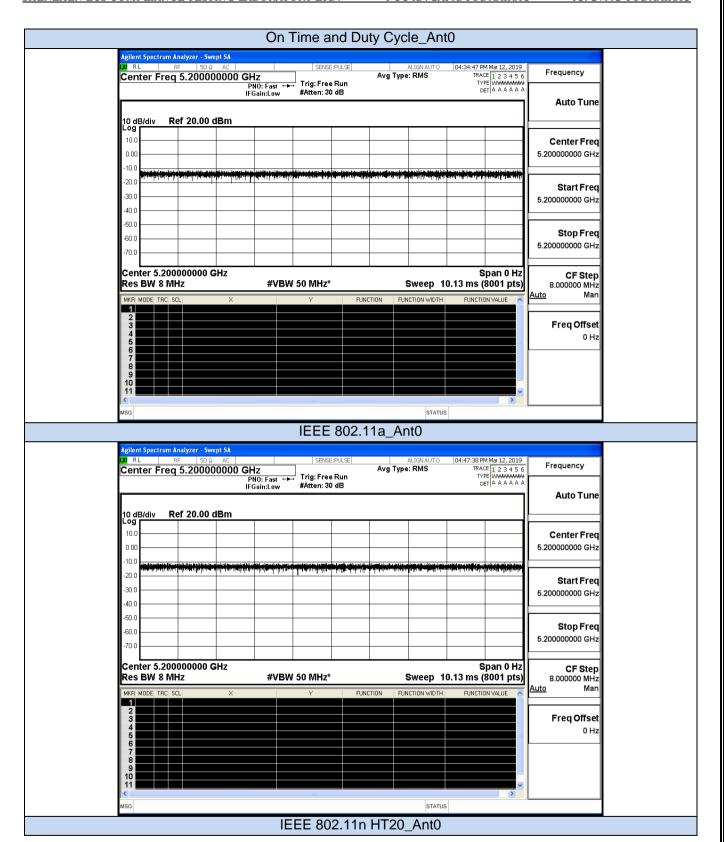
## **B.1 Duty Cycle**

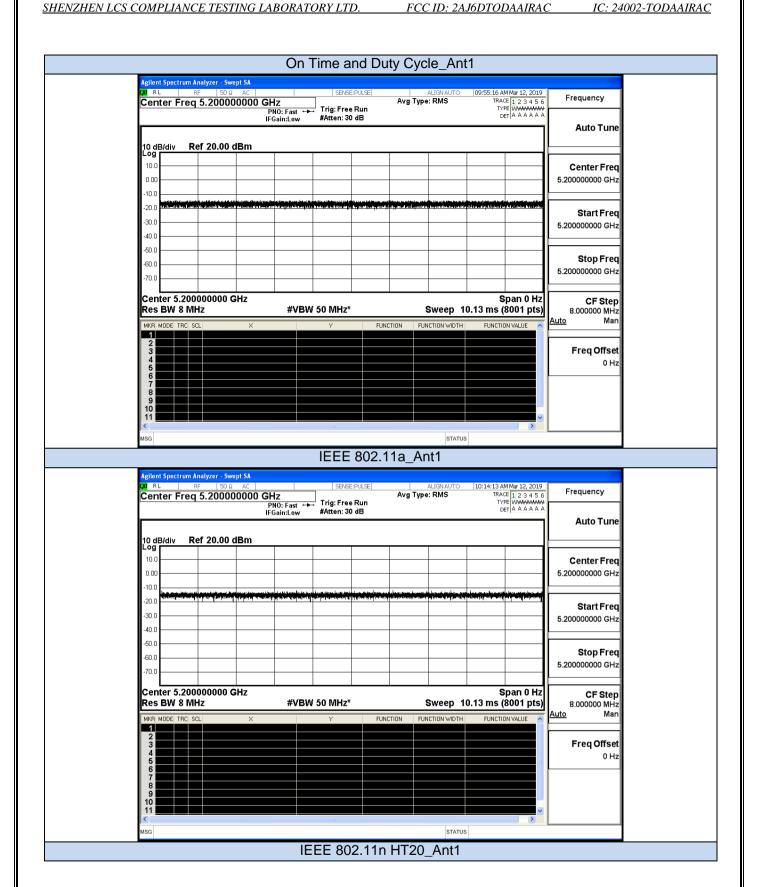
### Ant0

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	5200	100	0.00	0.01
11N40	5190	100	0.00	0.01
11AC20	5200	100	0.00	0.01
11AC40	5190	100	0.00	0.01
11AC80	5210	100	0.00	0.01

### Ant1

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	5200	100	0.00	0.01
11N40	5190	100	0.00	0.01
11AC20	5200	100	0.00	0.01
11AC40	5190	100	0.00	0.01
11AC80	5210	100	0.00	0.01





## **B.2 Maximum Conduct Output Power**

### Ant0

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor( dB)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
	36	5180	2.84	0	2.84		Pass
11A	40	5200	2.73	0	2.73	24	Pass
	48	5240	2.59	0	2.59		Pass
	36	5180	2.15	0	2.15		Pass
11N20	40	5200	2.01	0	2.01	24	Pass
	48	5240	2.33	0	2.33		Pass
11N40	38	5190	1.79	0	1.79	24	Pass
111140	46	5230	1.71	0	1.71	24	Pass
	36	5180	2.45	0	2.45		Pass
11AC20	40	5200	2.44	0	2.44	24	Pass
	48	5240	1.94	0	1.94		Pass
11AC40	38	5190	2.98	0	2.98	24	Pass
114040	46	5230	2.77	0	2.77		Pass
11AC80	42	5210	0.44	0	0.44	24	Pass

## Ant\_1

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor( dB)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
	36	5180	2.75	0	2.75		Pass
11A	40	5200	2.67	0	2.67	24	Pass
	48	5240	2.23	0	2.23		Pass
	36	5180	2.03	0	2.03		Pass
11N20	40	5200	1.96	0	1.96	24	Pass
	48	5240	2.19	0	2.19		Pass
11N40	38	5190	1.69	0	1.69	24	Pass
111140	46	5230	1.75	0	1.75	24	Pass
	36	5180	2.39	0	2.39		Pass
11AC20	40	5200	2.28	0	2.28	24	Pass
	48	5240	1.83	0	1.83		Pass
11AC40	38	5190	2.81	0	2.81	24	Pass
114040	46	5230	2.67	0	2.67		Pass
11AC80	42	5210	0.31	0	0.31	24	Pass

### **Combined Ant0 and Ant1**

Test Mode	Channel	Frequency (MHz)	AVG C	AVG Conducted Power (dBm)			Report Conducted Power (dBm)			Limit (dBm)
		(WITIZ)	Ant0	Ant1	Sum	Factor (dB)	Ant0	Ant1	Sum	(ubili)
	36	5180	2.15	2.03	5.10	0	2.15	2.03	5.10	
11N20	40	5200	2.01	1.96	5.00	0	2.01	1.96	5.00	20.99
	48	5240	2.33	2.19	5.27	0	2.33	2.19	5.27	
11N40	38	5190	1.79	1.69	4.75	0	1.79	1.69	4.75	20.99
111140	46	5230	1.71	1.75	4.74	0	1.71	1.75	4.74	20.99
	36	5180	2.45	2.39	5.43	0	2.45	2.39	5.43	
11AC20	40	5200	2.44	2.28	5.37	0	2.44	2.28	5.37	20.99
	48	5240	1.94	1.83	4.90	0	1.94	1.83	4.90	
11AC40	38	5190	2.98	2.81	5.91	0	2.98	2.81	5.91	20.99
11AC40	46	5230	2.77	2.67	5.73	0	2.77	2.67	5.73	20.99
11AC80	42	5210	0.44	0.31	3.39	0	0.44	0.31	3.39	20.99

## **B.3 Power Spectral Density**

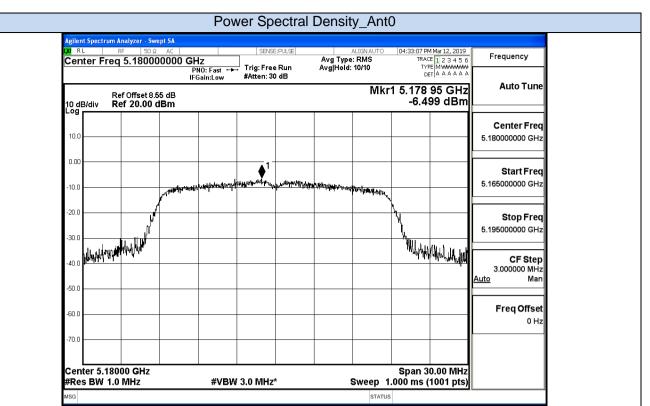
### Ant0

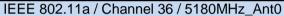
Test Mode	Channel	Frequency (MHz)	Power Density (dBm/MHz)	Duty Cycle Factor(dB)	Report Power Density (dBm/MHz)	Limit (dBm/MHz)	Verdict
	36	5180	-6.50	0	-6.50		Pass
11A	40	5200	-8.31	0	-8.31	11	Pass
	48	5240	-10.93	0	-10.93		Pass
	36	5180	-8.50	0	-8.50		Pass
11N20	40	5200	-8.57	0	-8.57	11	Pass
	48	5240	-9.33	0	-9.33	1	Pass
111110	38	5190	-12.96	0	-12.96	11	Pass
11N40	46	5230	-11.52	0	-11.52	11	Pass
	36	5180	-8.38	0	-8.38		Pass
11AC20	40	5200	-8.24	0	-8.24	11	Pass
	48	5240	-9.32	0	-9.32		Pass
11AC40	38	5190	-10.59	0	-10.59	11	Pass
117040	46	5230	-11.95	0	-11.95	1 ''	Pass
11AC80	42	5210	-16.71	0	-16.71	11	Pass

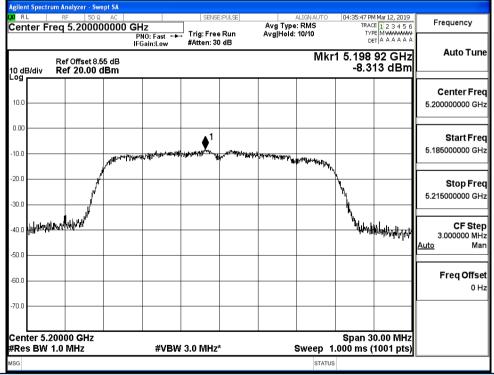
Test Mode	Channel	Frequency (MHz)	Power Density (dBm/MHz)	Duty Cycle Factor(dB)	Report Power Density (dBm/MHz)	Limit (dBm/MHz)	Verdict
	36	5180	-9.56	0	-9.56		Pass
11A	40	5200	-10.64	0	-10.64	11	Pass
	48	5240	-9.92	0	-9.92		Pass
	36	5180	-8.05	0	-8.05		Pass
11N20	40	5200	-8.50	0	-8.50	11	Pass
	48	5240	-9.05	0	-9.05		Pass
11N40	38	5190	-11.68	0	-11.68	11	Pass
1 11N4U	46	5230	-11.77	0	-11.77	-	Pass
	36	5180	-8.45	0	-8.45		Pass
11AC20	40	5200	-8.26	0	-8.26	11	Pass
	48	5240	-8.24	0	-8.24		Pass
11AC40	38	5190	-10.65	0	-10.65	11	Pass
114040	46	5230	-11.86	0	-11.86	1 ''	Pass
11AC80	42	5210	-16.64	0	-16.64	11	Pass

### **Combined Ant0 and Ant1**

	J 47 11 11 10 10									
Test Ch	Channel	Channel Frequency (MHz)		Power Density (dBm/MHz)			Duty Cycle Factor  Report Power Density (dBm/MHz)			Limit (dBm/MHz)
mode		(111112)	Ant0	Ant1	Sum	(dB)	Ant0	Ant1	Sum	(4511),1111 12)
	36	5180	-8.50	-8.05	-5.26	0	-8.50	-8.05	-5.26	
11N20	40	5200	-8.57	-8.50	-5.52	0	-8.57	-8.50	-5.52	7.99
	48	5240	-9.33	-9.05	-6.18	0	-9.33	-9.05	-6.18	1
11N40	38	5190	-12.96	-11.68	-9.26	0	-12.96	-11.68	-9.26	7.00
111140	46	5230	-11.52	-11.77	-8.63	0	-11.52	-11.77	-8.63	7.99
	36	5180	-8.38	-8.45	-5.40	0	-8.38	-8.45	-5.40	
11AC20	40	5200	-8.24	-8.26	-5.24	0	-8.24	-8.26	-5.24	7.99
	48	5240	-9.32	-8.24	-5.74	0	-9.32	-8.24	-5.74	
11AC40	38	5190	-10.59	-10.65	-7.61	0	-10.59	-10.65	-7.61	7.99
11AC40	46	5230	-11.95	-11.86	-8.89	0	-11.95	-11.86	-8.89	7.99
11AC80	42	5210	-16.71	-16.64	-13.66	0	-16.71	-16.64	-13.66	7.99







IEEE 802.11a / Channel 40 / 5200MHz\_Ant0

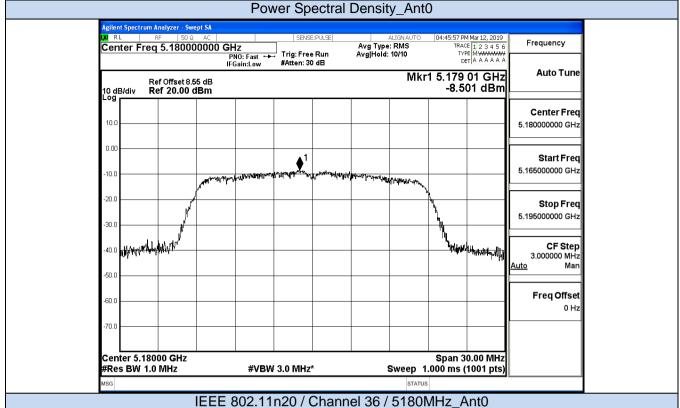
IEEE 802.11a / Channel 48 / 5240MHz\_Ant0

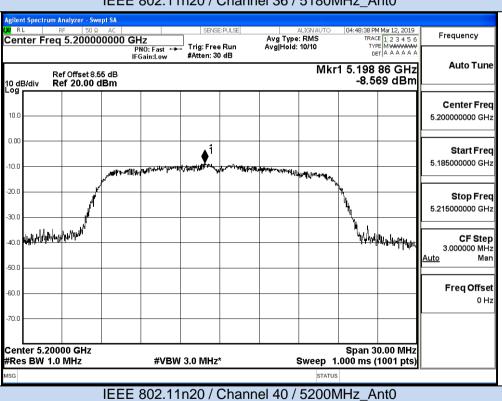
#VBW 3.0 MHz\*

Span 30.00 MHz Sweep 1.000 ms (1001 pts)

STATUS

Center 5.24000 GHz #Res BW 1.0 MHz





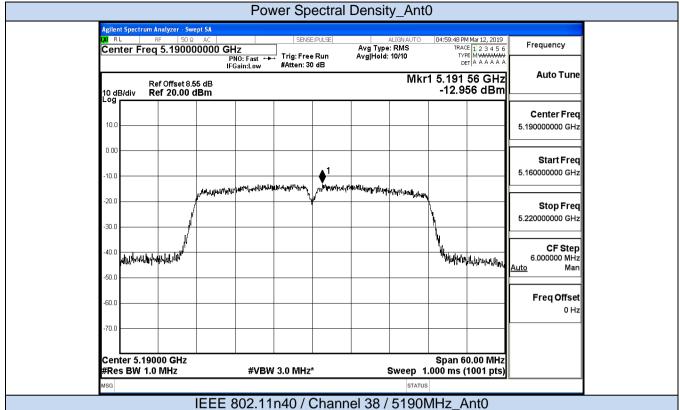
IEEE 802.11n20 / Channel 48 / 5240MHz\_Ant0

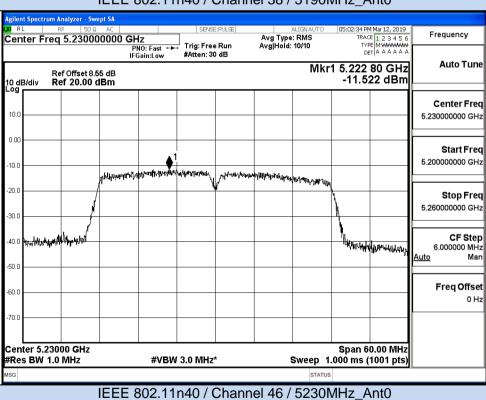
#VBW 3.0 MHz\*

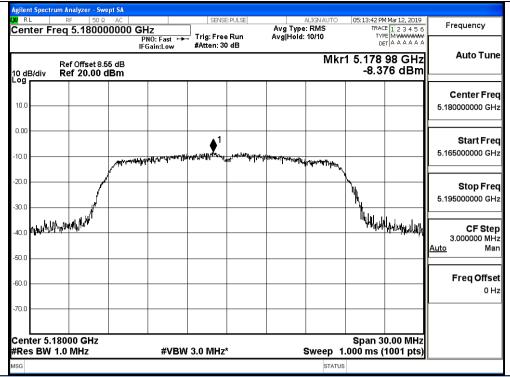
Span 30.00 MHz Sweep 1.000 ms (1001 pts)

STATUS

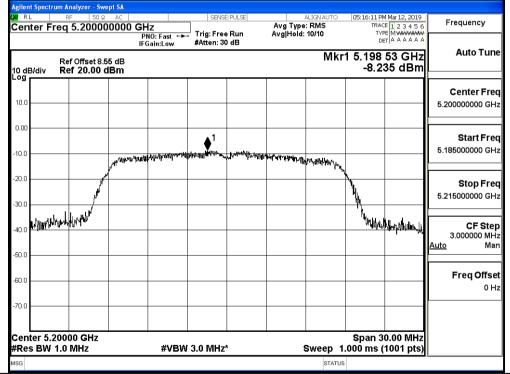
Center 5.24000 GHz #Res BW 1.0 MHz



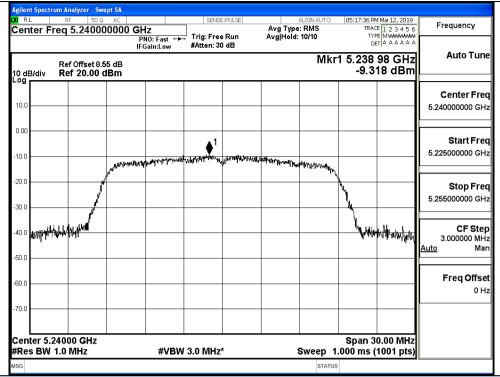




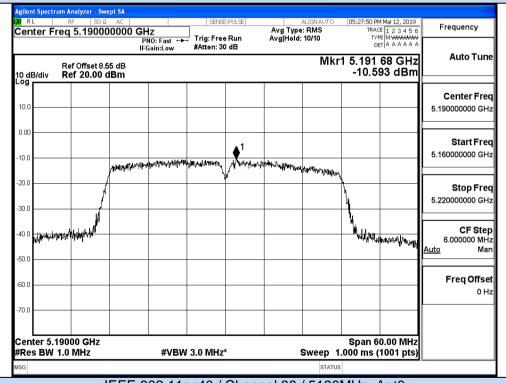
#### IEEE 802.11ac20 / Channel 36 / 5180MHz\_Ant0



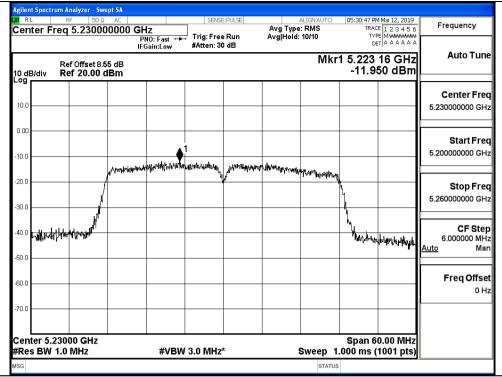
IEEE 802.11ac20 / Channel 40 / 5200MHz\_Ant0



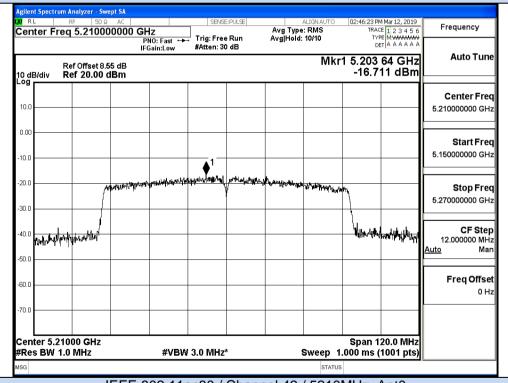
#### IEEE 802.11ac20 / Channel 48 / 5240MHz\_Ant0



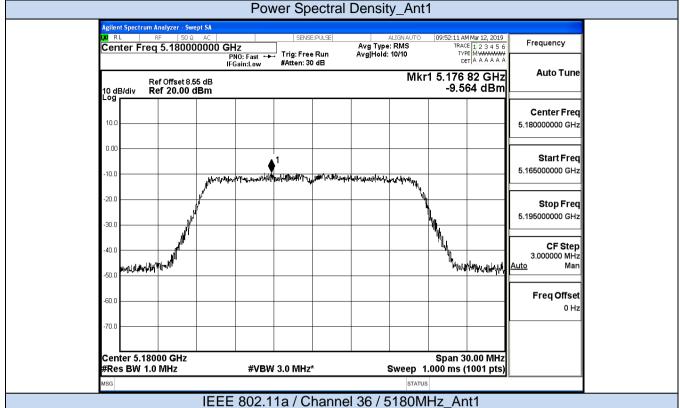
IEEE 802.11ac40 / Channel 38 / 5190MHz\_Ant0

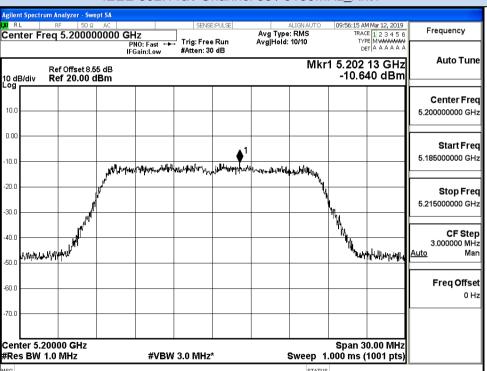


#### IEEE 802.11ac40 / Channel 46 / 5230MHz\_Ant0



IEEE 802.11ac80 / Channel 42 / 5210MHz\_Ant0





IEEE 802.11a / Channel 40 / 5200MHz\_Ant1

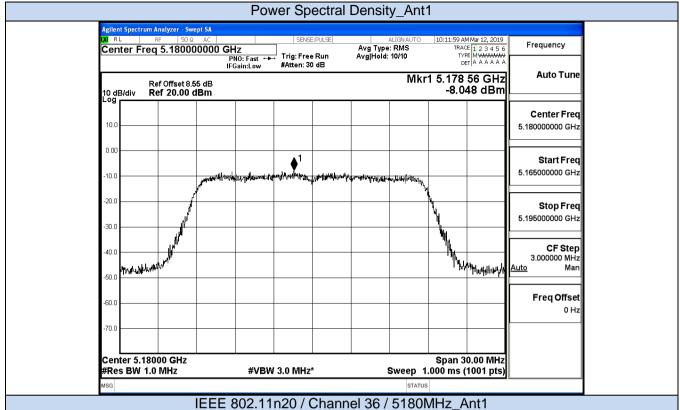
IEEE 802.11a / Channel 48 / 5240MHz\_Ant1

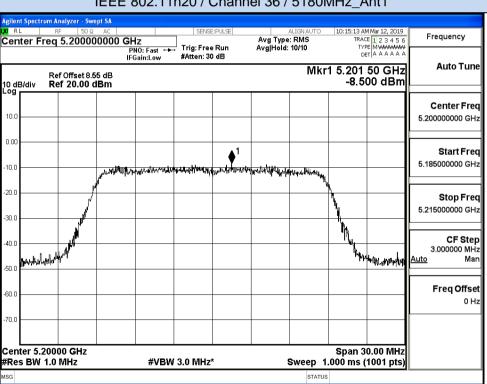
#VBW 3.0 MHz\*

Span 30.00 MHz Sweep 1.000 ms (1001 pts)

STATUS

Center 5.24000 GHz #Res BW 1.0 MHz





IEEE 802.11n20 / Channel 40 / 5200MHz\_Ant1

IEEE 802.11n20 / Channel 48 / 5240MHz\_Ant1

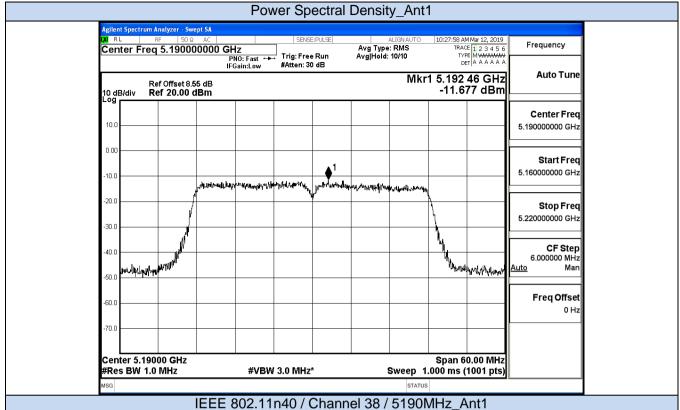
#VBW 3.0 MHz\*

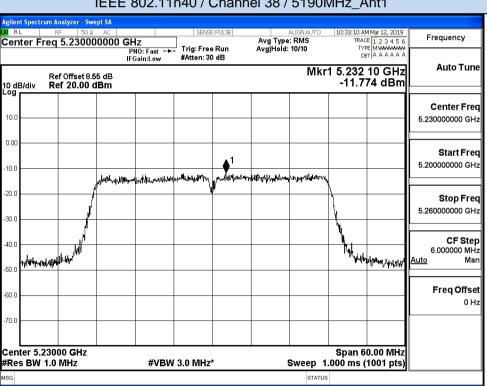
Span 30.00 MHz Sweep 1.000 ms (1001 pts)

STATUS

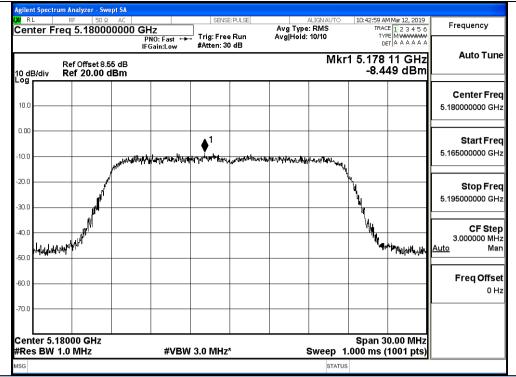
-70.0

Center 5.24000 GHz #Res BW 1.0 MHz

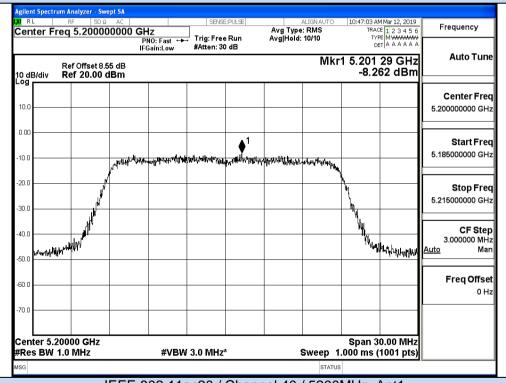




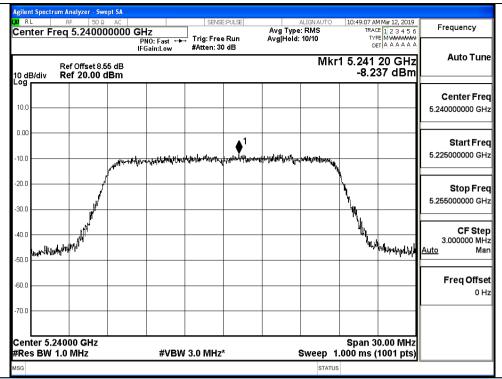
IEEE 802.11n40 / Channel 46 / 5230MHz\_Ant1



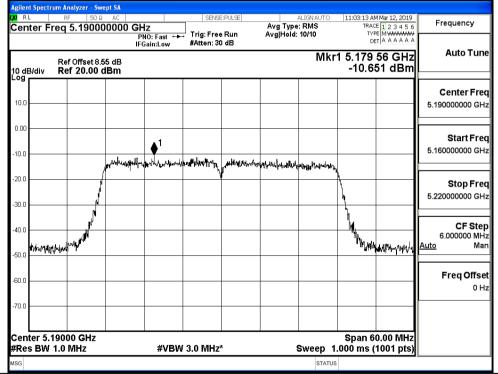
#### IEEE 802.11ac20 / Channel 36 / 5180MHz\_Ant1



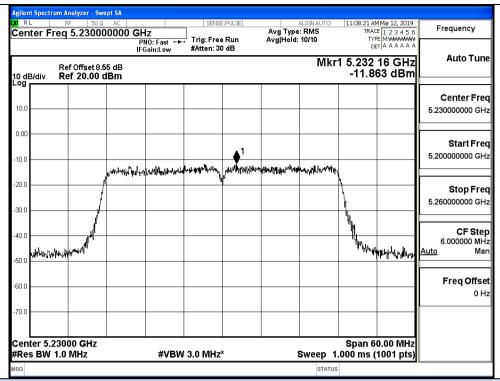
IEEE 802.11ac20 / Channel 40 / 5200MHz\_Ant1



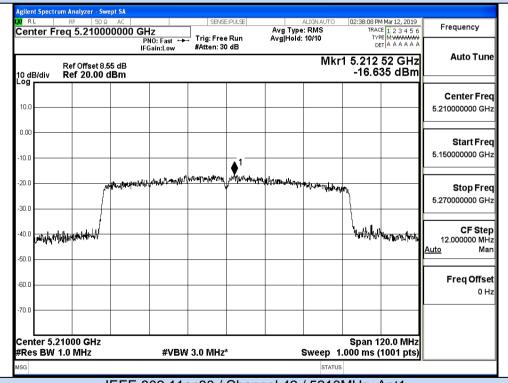
#### IEEE 802.11ac20 / Channel 48 / 5240MHz\_Ant1



IEEE 802.11ac40 / Channel 38 / 5190MHz\_Ant1



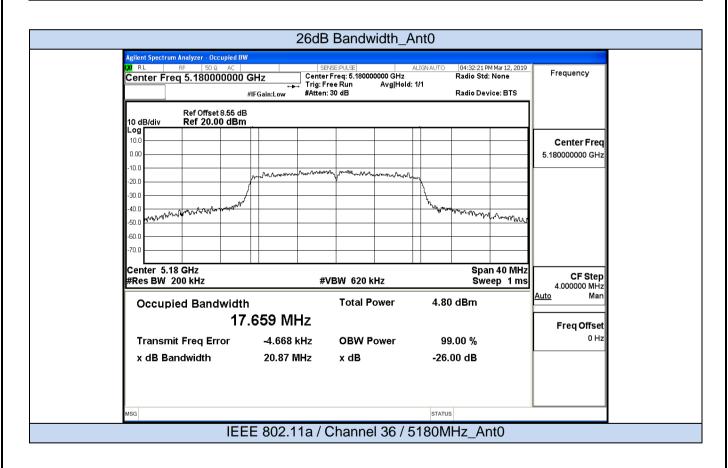
#### IEEE 802.11ac40 / Channel 46 / 5230MHz Ant1

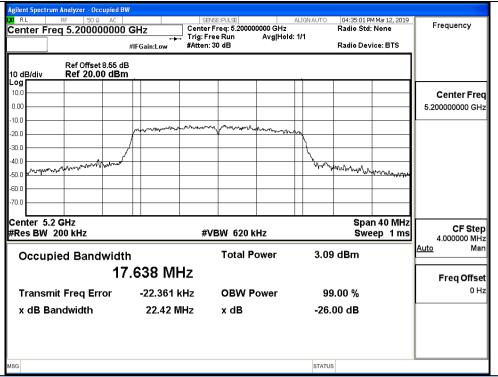


IEEE 802.11ac80 / Channel 42 / 5210MHz\_Ant1

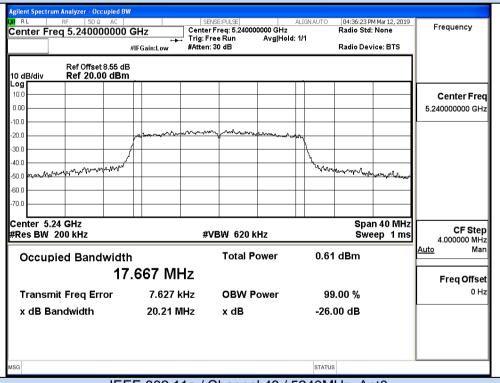
#### **B.4 Emission Bandwidth**

Test Mode	Channel Frequence (MHz)		26dB Bandwidth (MHz)		0070 = 0	ndwidth Hz)	Limit (MHz)	Verdict
Wode		(IVITIZ)	Ant0	Ant1	Ant0	Ant1	(IVIITIZ)	
	36	5180	20.87	19.09	17.631	17.638		Pass
11A	40	5200	22.42	19.44	17.650	17.672	No Limit	Pass
	48	5240	20.21	19.59	17.650	17.644	1	Pass
	36	5180	19.84	19.86	17.640	17.648		Pass
11N20	40	5200	20.40	19.97	17.619	17.649	No Limit	Pass
	48	5240	22.71	19.89	17.635	17.652		Pass
111110	38	5190	40.17	40.16	36.057	36.062	No Limit	Pass
11N40	46	5230	48.74	39.99	36.057	36.070	No Limit	Pass
	36	5180	20.29	19.80	17.638	17.651		Pass
11AC20	40	5200	22.06	19.88	17.659	17.653	No Limit	Pass
	48	5240	19.90	19.92	17.651	17.659	1	Pass
11AC40	38	5190	44.54	39.98	36.019	36.053	No Limit	Pass
11AC40	46	5230	47.96	40.12	36.063	36.087	No Limit	Pass
11AC80	42	5210	158.4	159.1	76.811	76.588	No Limit	Pass

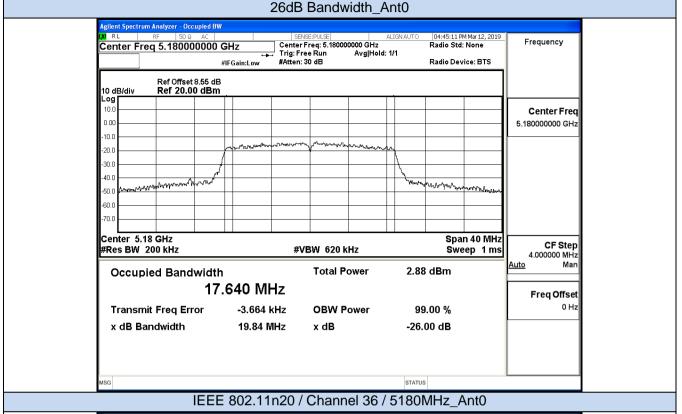


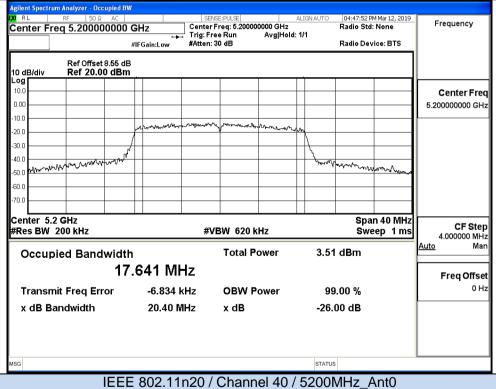


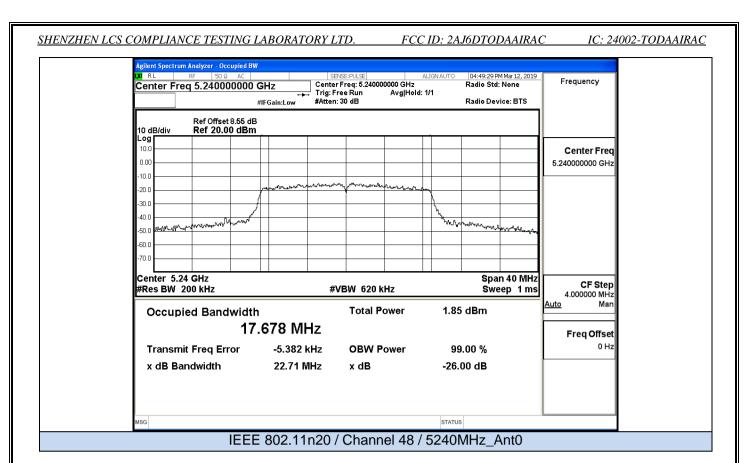
#### IEEE 802.11a / Channel 40 / 5200MHz\_Ant0

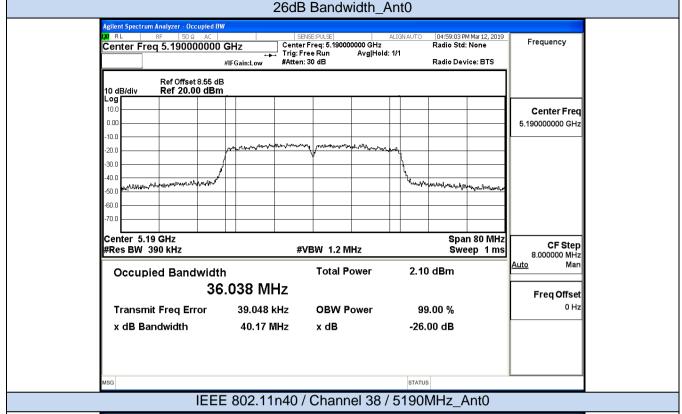


IEEE 802.11a / Channel 48 / 5240MHz\_Ant0

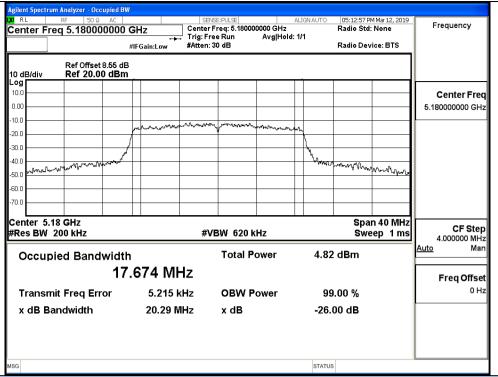




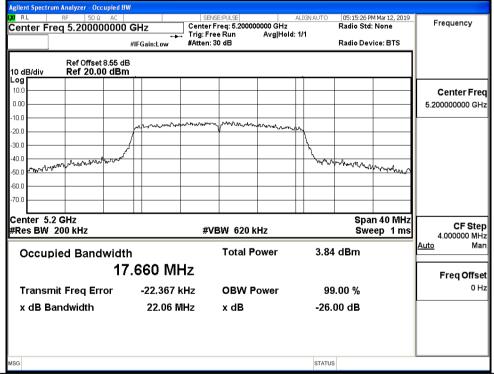




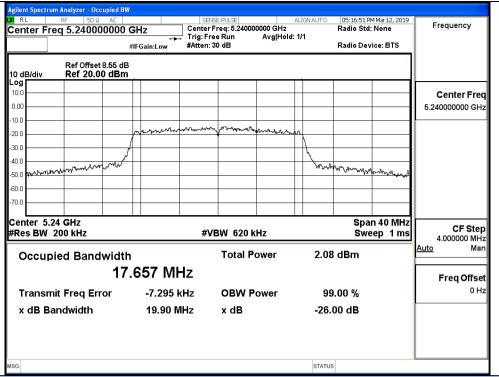
#### Agilent Spectrum Analyzer - Occupied BW 05:01:49 PM Mar 12, 2019 Radio Std: None Center Freq: 5.230000000 GHz Trig: Free Run Avg|Hold: 1/1 , #Atten: 30 dB Frequency Center Freq 5.230000000 GHz Radio Device: BTS Ref Offset 8.55 dB Ref 20.00 dBm 10 dB/div Center Freq 0.00 5.230000000 GHz 10.0 -20.0 **4**0 f الماليور لمسيعة مراكب المالية والمراد مداك المالية money follower of the first market -50.0 Center 5.23 GHz Span 80 MHz CF Step 8.000000 MHz #Res BW 390 kHz **#VBW 1.2 MHz** Sweep 1 ms <u>Auto</u> Occupied Bandwidth **Total Power** 3.31 dBm 36.064 MHz Freq Offset 0 Hz Transmit Freq Error -58.895 kHz **OBW Power** 99.00 % x dB 48.74 MHz -26.00 dB x dB Bandwidth STATUS IEEE 802.11n40 / Channel 46 / 5230MHz\_Ant0



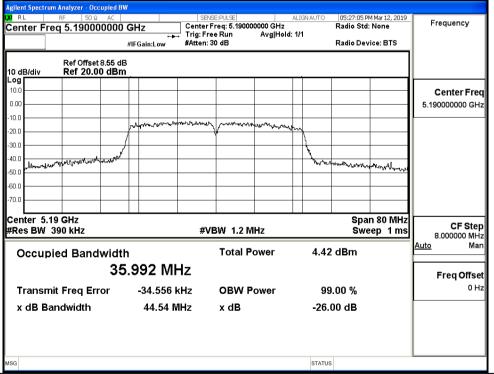
#### IEEE 802.11ac20 / Channel 36 / 5180MHz\_Ant0



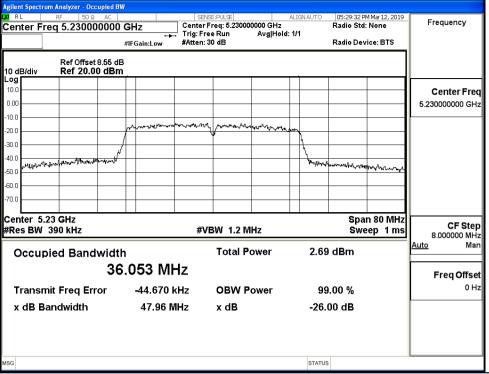
IEEE 802.11ac20 / Channel 40 / 5200MHz\_Ant0



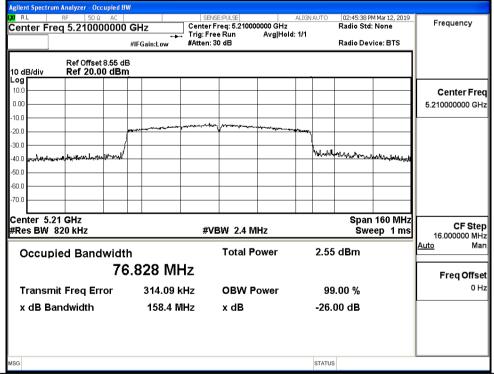
#### IEEE 802.11ac20 / Channel 48 / 5240MHz\_Ant0



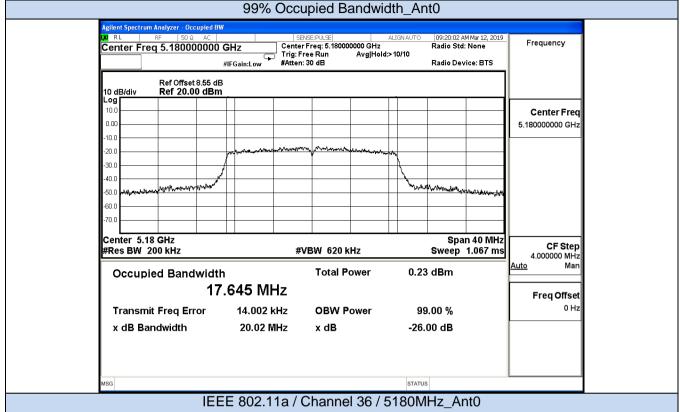
IEEE 802.11ac40 / Channel 38 / 5190MHz\_Ant0



#### IEEE 802.11ac40 / Channel 46 / 5230MHz\_Ant0



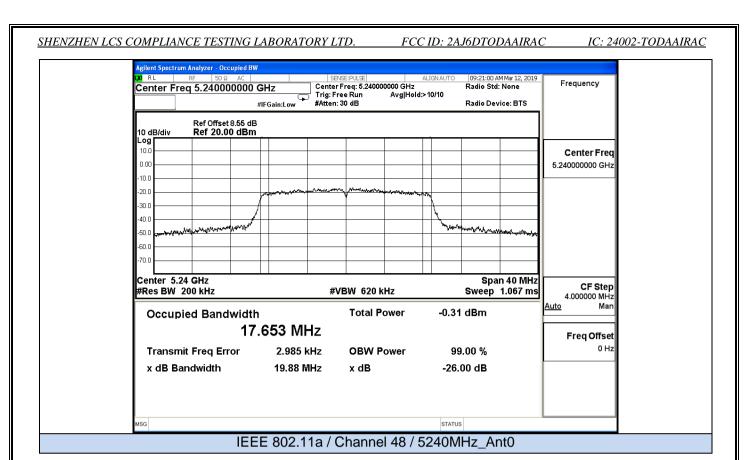
IEEE 802.11ac80 / Channel 42 / 5210MHz\_Ant0

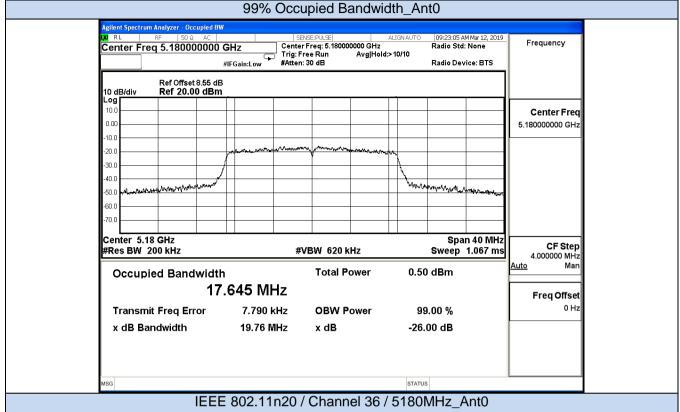


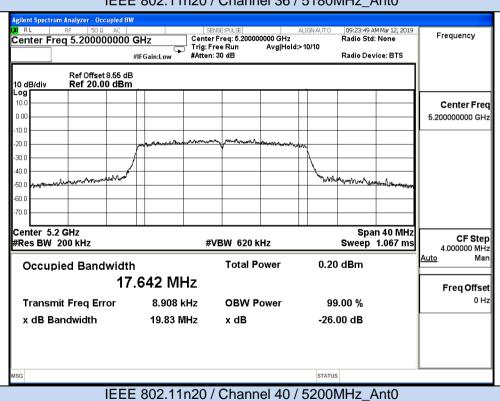
#### Agilent Spectrum Analyzer - Occupied BW SENSE:PULSE ALIGN AUTO Center Freq: 5.200000000 GHz Trig: Free Run Avg|Hold:>10/10 #Atten: 30 dB Frequency Center Freq 5.200000000 GHz Radio Device: BTS Ref Offset 8.55 dB Ref 20.00 dBm 10 dB/div Center Freq 5.200000000 GHz 10.0 -20.0 -30.0 4n r water many many -50.0 Center 5.2 GHz Span 40 MHz CF Step 4.000000 MHz #Res BW 200 kHz **#VBW 620 kHz** Sweep 1.067 ms <u>Auto</u> Occupied Bandwidth **Total Power** 0.16 dBm 17.655 MHz Freq Offset 0 Hz Transmit Freq Error 7.911 kHz **OBW Power** 99.00 % x dB 20.04 MHz -26.00 dB x dB Bandwidth STATUS

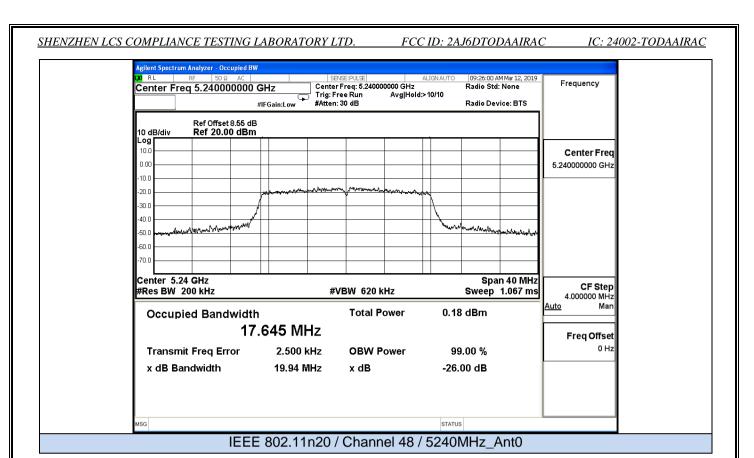
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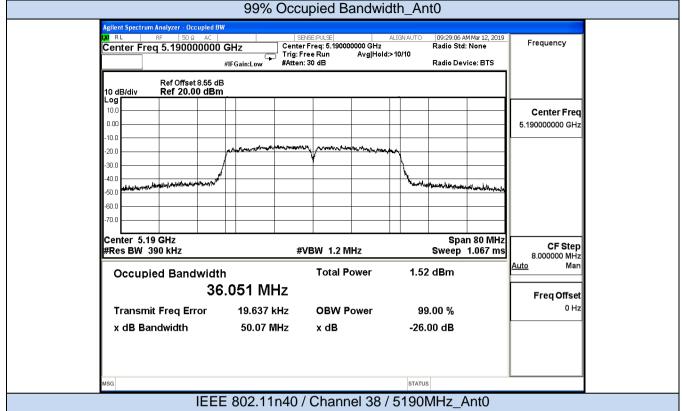
IEEE 802.11a / Channel 40 / 5200MHz\_Ant0







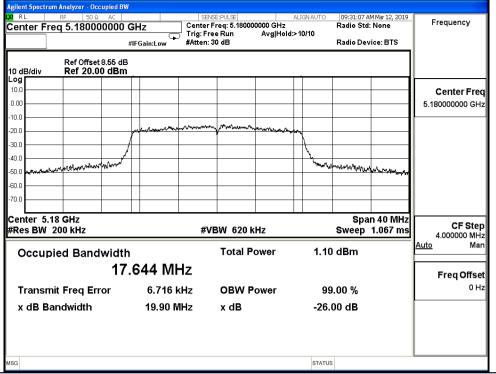




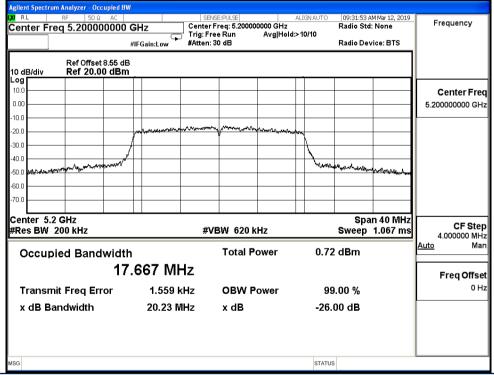
#### Agilent Spectrum Analyzer - Occupied BW SENSE:PULSE ALIGN AUTO Center Freq: 5.230000000 GHz Trig: Free Run Avg|Hold:>10/10 #Atten: 30 dB Frequency Center Freq 5.230000000 GHz Radio Device: BTS Ref Offset 8.55 dB Ref 20.00 dBm 10 dB/div Center Freq 0.00 5.230000000 GHz 10.0 -20.0 -30.0 -**4**n n المرادادية والمساهرة المساورة والمرادية والمرابع والمرابع والمرابع والمراجع والمرابع والمرابع -50.0 Center 5.23 GHz Span 80 MHz CF Step 8.000000 MHz #Res BW 390 kHz **#VBW 1.2 MHz** Sweep 1.067 ms <u>Auto</u> Occupied Bandwidth **Total Power** 0.84 dBm 36.068 MHz Freq Offset 0 Hz Transmit Freq Error 41.081 kHz **OBW Power** 99.00 % x dB 49.54 MHz -26.00 dB x dB Bandwidth

IEEE 802.11n40 / Channel 46 / 5230MHz\_Ant0

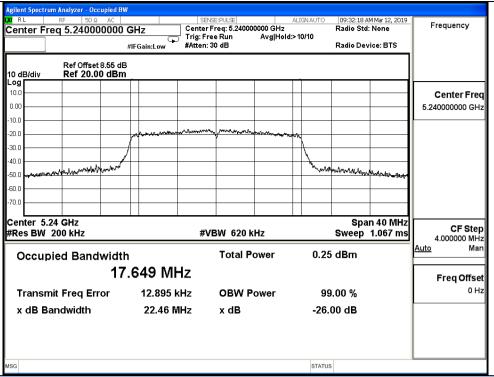
STATUS



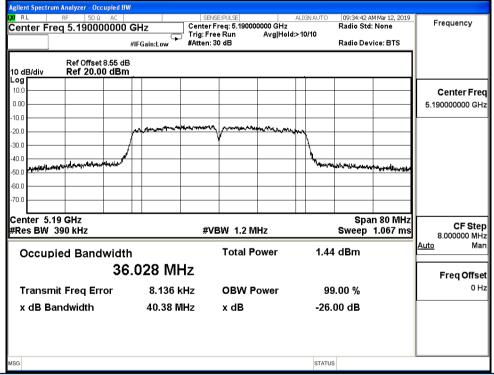
#### IEEE 802.11ac20 / Channel 36 / 5180MHz\_Ant0



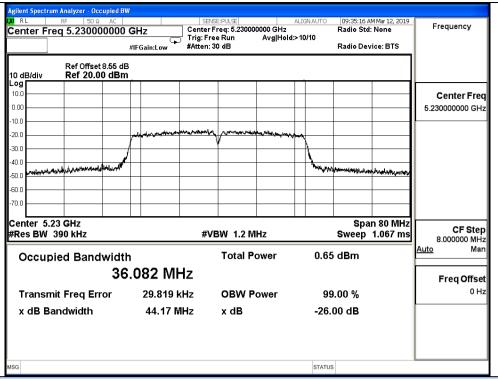
IEEE 802.11ac20 / Channel 40 / 5200MHz\_Ant0



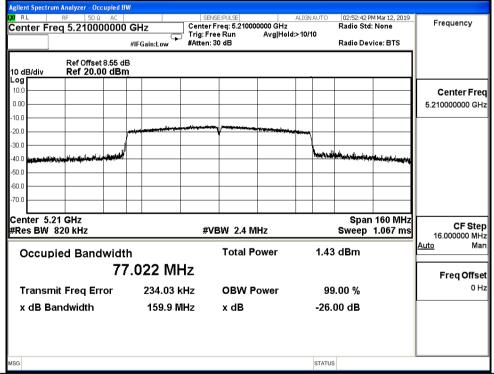
#### IEEE 802.11ac20 / Channel 48 / 5240MHz\_Ant0



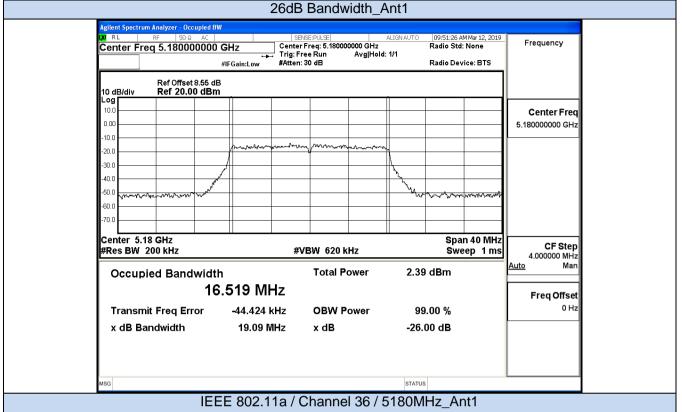
IEEE 802.11ac40 / Channel 38 / 5190MHz\_Ant0

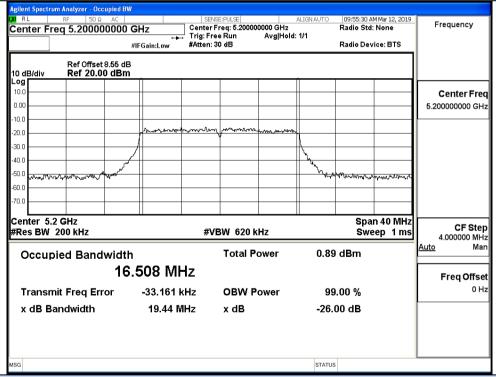


#### IEEE 802.11ac40 / Channel 46 / 5230MHz\_Ant0



IEEE 802.11ac80 / Channel 42 / 5210MHz\_Ant0





IEEE 802.11a / Channel 40 / 5200MHz\_Ant1