

Annex D

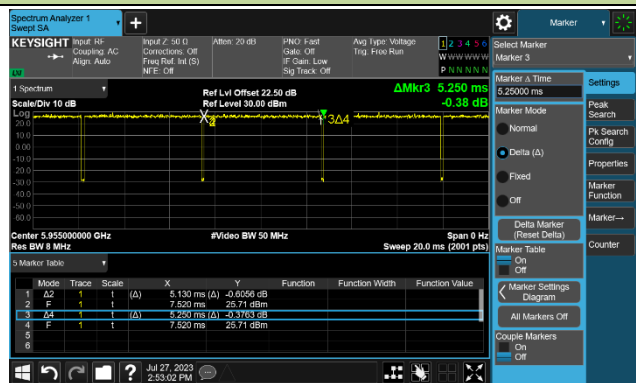
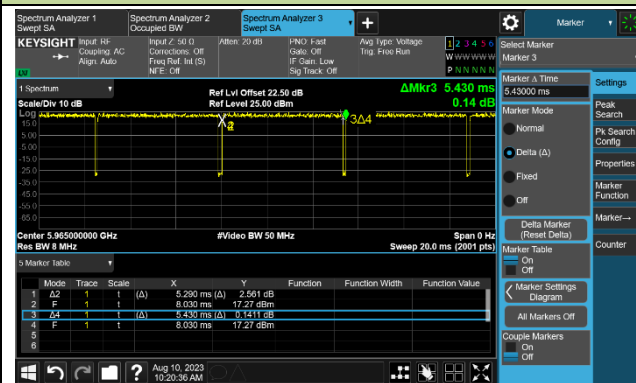
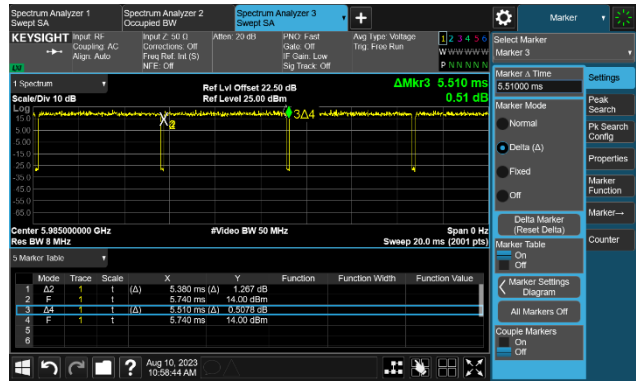
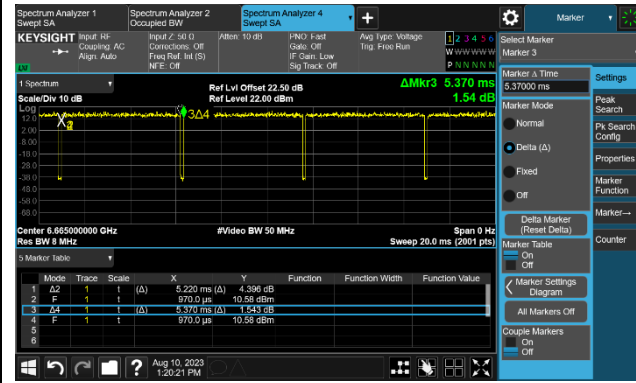
WLAN 802.11ax Test Result

Model No.: APEX0677

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1. Duty Cycle Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2023-07-25~2023-08-10		

Test Mode	Duty Cycle
802.11ax-HE20	97.71%
802.11ax-HE40	97.42%
802.11ax-HE80	97.64%
802.11ax-HE160	97.21%
Duty Cycle (T = Transmission Duration)	
802.11ax-HE20 (T = 5.130ms)	802.11ax-HE40 (T = 5.290ms)
	
802.11ax-HE80 (T = 5.380ms)	802.11ax-HE160 (T = 5.220ms)
	

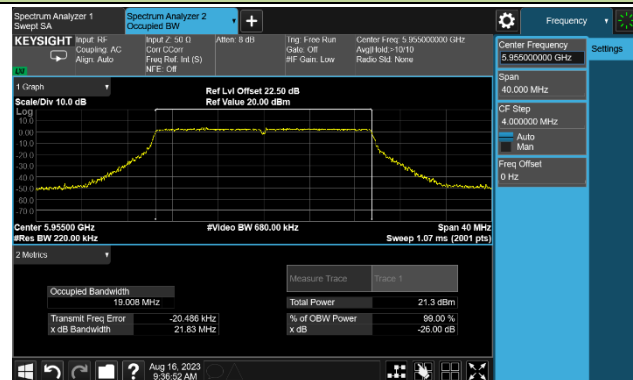
2. 26dB Bandwidth Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2023-08-16~2023-10-09		

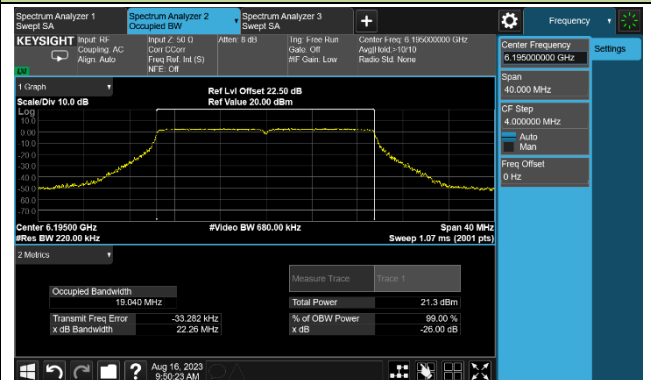
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Test Result
802.11ax-HE20	MCS0	1	5955	21.83	19.008	Pass
802.11ax-HE20	MCS0	49	6195	22.26	19.040	Pass
802.11ax-HE20	MCS0	93	6415	22.00	19.018	Pass
802.11ax-HE20	MCS0	117	6535	22.29	19.030	Pass
802.11ax-HE20	MCS0	153	6715	22.77	19.034	Pass
802.11ax-HE20	MCS0	181	6855	22.08	18.979	Pass
802.11ax-HE40	MCS0	3	5965	43.26	37.893	Pass
802.11ax-HE40	MCS0	51	6205	42.61	37.902	Pass
802.11ax-HE40	MCS0	91	6405	43.51	37.874	Pass
802.11ax-HE40	MCS0	123	6565	43.06	37.898	Pass
802.11ax-HE40	MCS0	147	6685	43.30	37.897	Pass
802.11ax-HE40	MCS0	179	6845	42.86	37.914	Pass
802.11ax-HE80	MCS0	7	5985	88.34	77.637	Pass
802.11ax-HE80	MCS0	55	6225	88.99	77.711	Pass
802.11ax-HE80	MCS0	87	6385	87.57	77.749	Pass
802.11ax-HE80	MCS0	135	6625	88.50	77.773	Pass
802.11ax-HE80	MCS0	151	6705	88.22	77.588	Pass
802.11ax-HE80	MCS0	167	6785	87.59	77.752	Pass
802.11ax-HE160	MCS0	15	6025	170.70	157.07	Pass
802.11ax-HE160	MCS0	47	6185	170.10	157.07	Pass
802.11ax-HE160	MCS0	79	6345	171.60	157.25	Pass
802.11ax-HE160	MCS0	143	6665	170.30	156.78	Pass

802.11ax-HE20 26dB Bandwidth

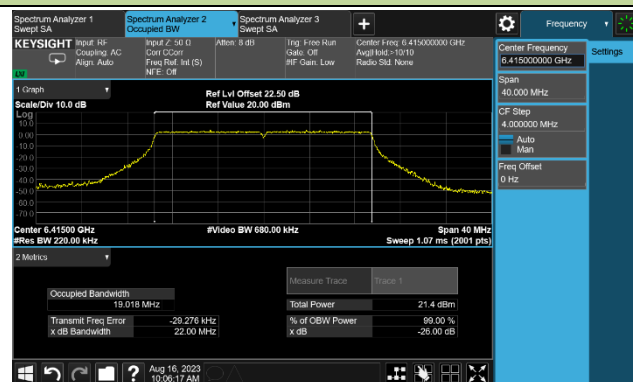
Channel 1 (5955MHz)



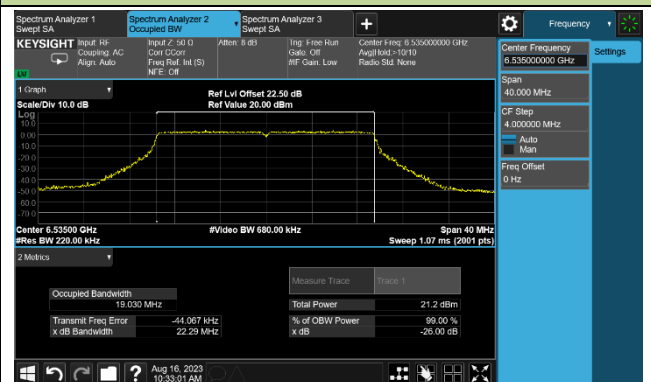
Channel 49 (6195MHz)



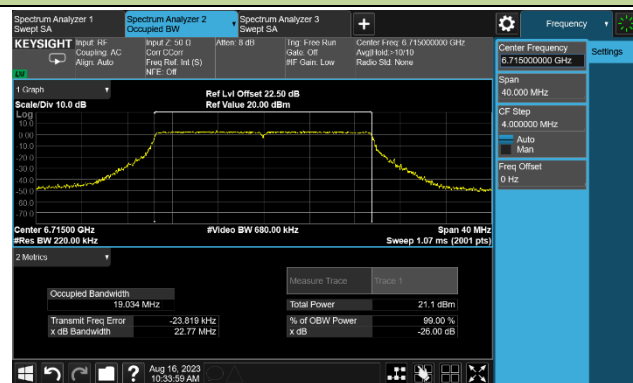
Channel 93 (6415MHz)



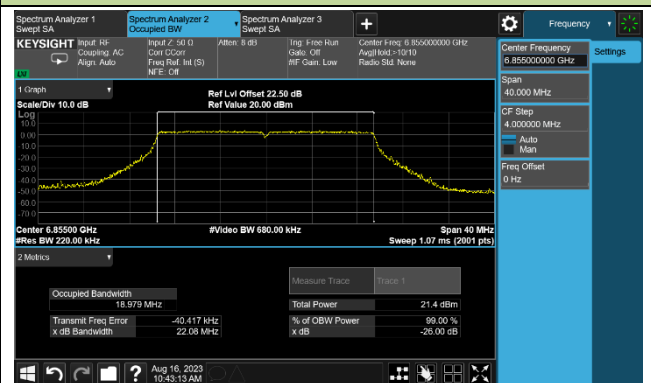
Channel 117 (6535MHz)



Channel 153 (6715MHz)

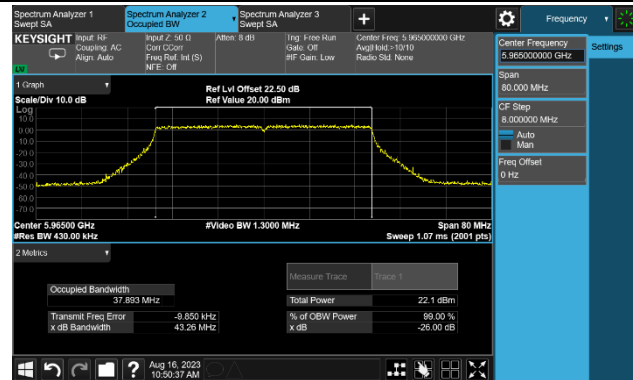


Channel 181 (6855MHz)

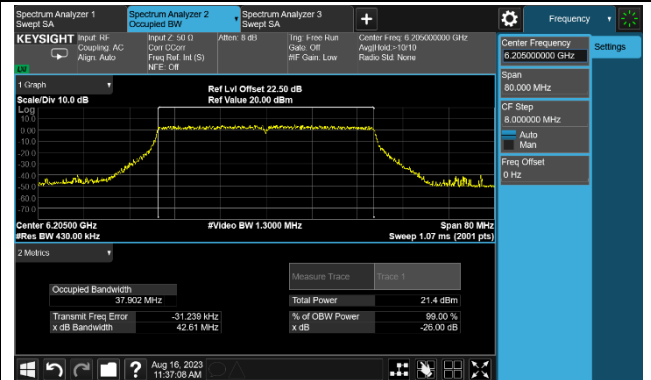


802.11ax-HE40 26dB Bandwidth

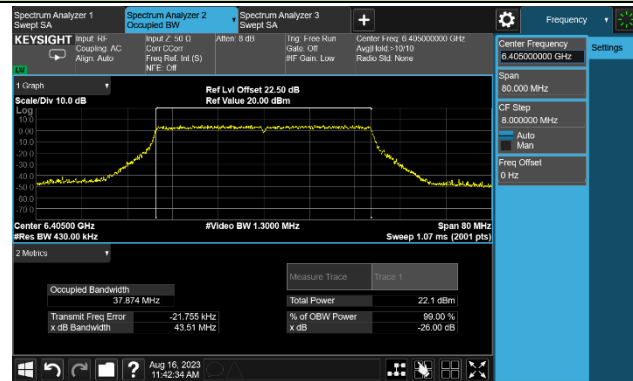
Channel 3 (5965MHz)



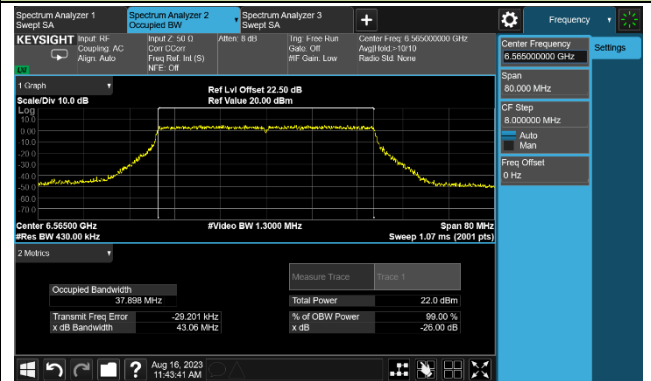
Channel 51 (6205MHz)



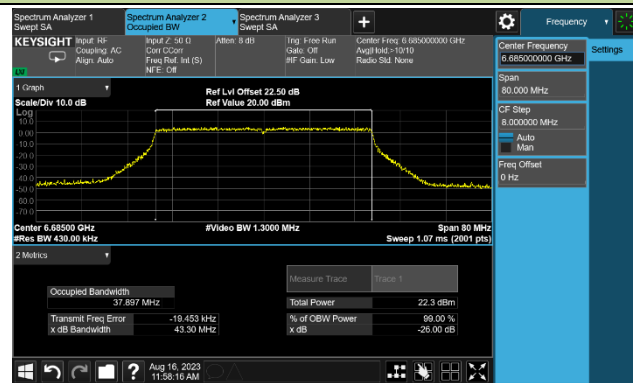
Channel 91 (6405MHz)



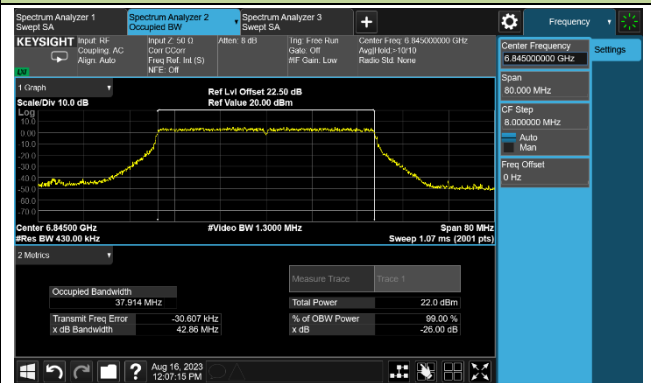
Channel 123 (6565MHz)



Channel 147 (6685MHz)

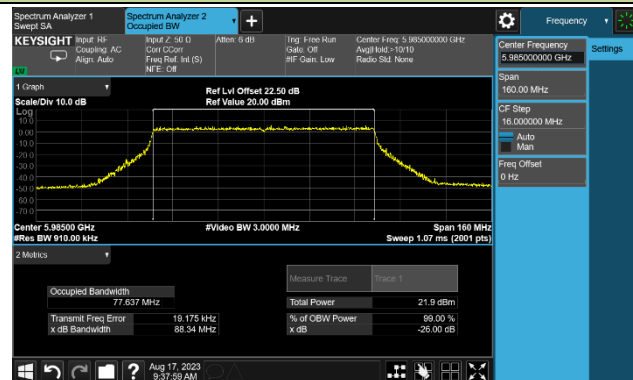


Channel 179 (6845MHz)

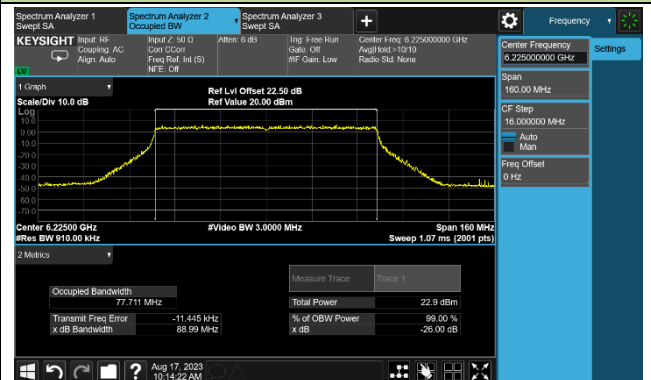


802.11ax-HE80 26dB Bandwidth

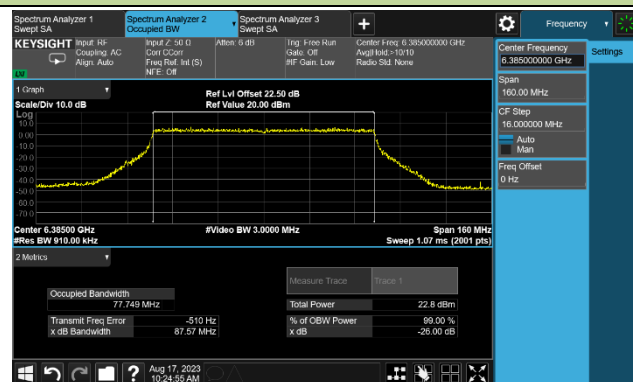
Channel 7 (5985MHz)



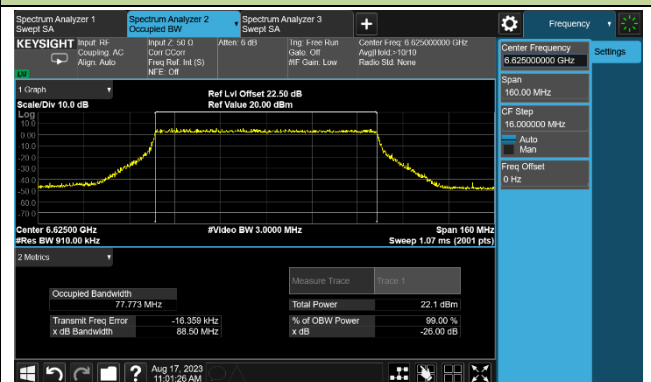
Channel 55 (6225MHz)



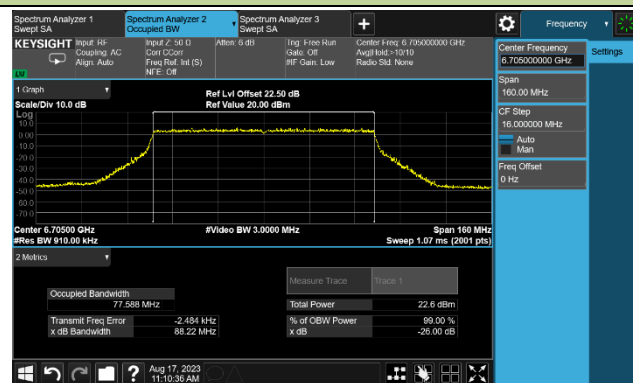
Channel 87 (6385MHz)



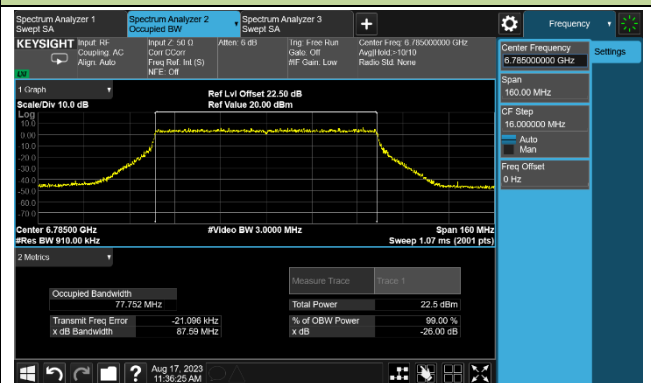
Channel 135 (6625MHz)



Channel 151 (6705MHz)

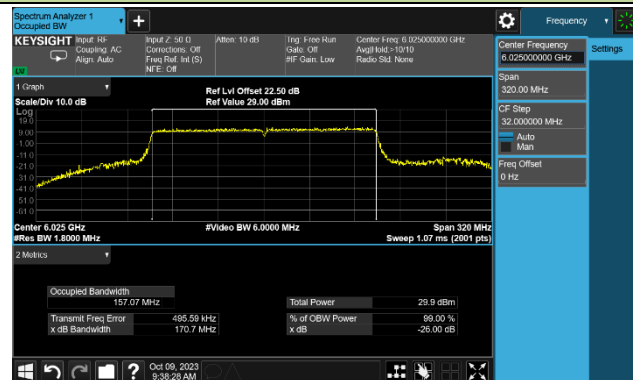


Channel 167 (6785MHz)

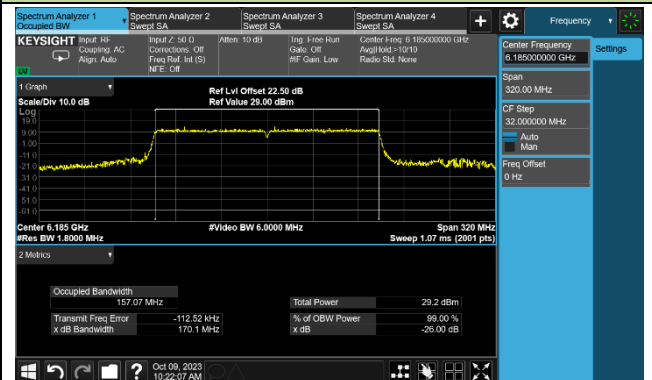


802.11ax-HE160 26dB Bandwidth

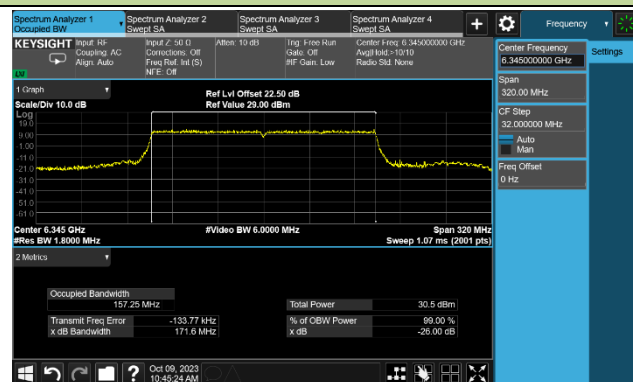
Channel 15 (6025MHz)



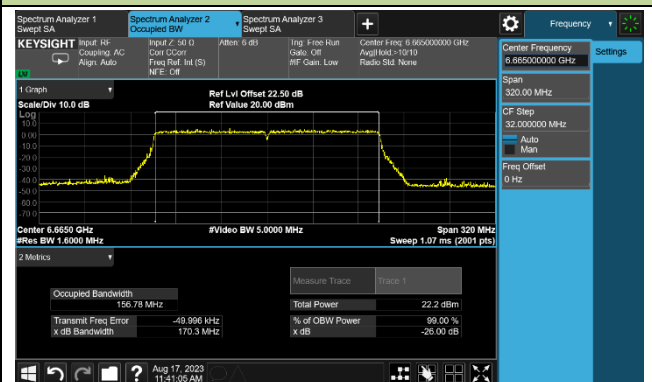
Channel 47 (6185MHz)



Channel 79 (6345MHz)



Channel 143 (6665MHz)



3. Output Power Measurement Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2023-09-26 ~ 2023-10-09		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Power (dBm)	30 Degree EIRP (dBm)	Limit (dBm)	Result
802.11ax-HE20	MCS0	1	5955	11.22	10.98	14.11	20.41	≤ 21.00	Pass
802.11ax-HE20	MCS0	49	6195	11.29	11.48	14.40	20.70	≤ 21.00	Pass
802.11ax-HE20	MCS0	93	6415	11.03	10.84	13.95	20.25	≤ 21.00	Pass
802.11ax-HE20	MCS0	117	6535	11.06	10.98	14.03	20.33	≤ 21.00	Pass
802.11ax-HE20	MCS0	153	6715	10.97	11.15	14.07	20.37	≤ 21.00	Pass
802.11ax-HE20	MCS0	181	6855	11.36	11.32	14.35	20.65	≤ 21.00	Pass
802.11ax-HE40	MCS0	3	5965	11.34	11.16	14.26	20.56	≤ 21.00	Pass
802.11ax-HE40	MCS0	51	6205	11.04	11.13	14.10	20.40	≤ 21.00	Pass
802.11ax-HE40	MCS0	91	6405	11.04	10.93	14.00	20.30	≤ 21.00	Pass
802.11ax-HE40	MCS0	123	6565	11.07	10.90	14.00	20.30	≤ 21.00	Pass
802.11ax-HE40	MCS0	147	6685	11.08	11.02	14.06	20.36	≤ 21.00	Pass
802.11ax-HE40	MCS0	179	6845	11.31	11.34	14.34	20.64	≤ 21.00	Pass
802.11ax-HE80	MCS0	7	5985	11.27	11.13	14.21	20.51	≤ 21.00	Pass
802.11ax-HE80	MCS0	55	6225	10.94	11.20	14.08	20.38	≤ 21.00	Pass
802.11ax-HE80	MCS0	87	6385	11.21	10.95	14.09	20.39	≤ 21.00	Pass
802.11ax-HE80	MCS0	135	6625	11.09	10.92	14.02	20.32	≤ 21.00	Pass
802.11ax-HE80	MCS0	151	6705	11.03	11.01	14.03	20.33	≤ 21.00	Pass
802.11ax-HE80	MCS0	167	6785	11.26	11.46	14.37	20.67	≤ 21.00	Pass
802.11ax-HE160	MCS0	15	6025	11.19	10.58	13.91	20.21	≤ 21.00	Pass
802.11ax-HE160	MCS0	47	6185	11.33	11.01	14.18	20.48	≤ 21.00	Pass
802.11ax-HE160	MCS0	79	6345	11.56	10.68	14.15	20.45	≤ 21.00	Pass
802.11ax-HE160	MCS0	143	6665	11.10	10.86	13.99	20.29	≤ 21.00	Pass

Note 1: Total Average Power (dBm) = $10 \cdot \log\{10^{(\text{Ant 0 Average Power} / 10)} + 10^{(\text{Ant 1 Average Power} / 10)}\}$.

Note 2: EIRP Above 30 Degree Angle (dBm) = Total Power (dBm) + 30 Degree Antenna Gain (dBi).

4. Power Spectral Density Measurement Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2023-09-26 ~ 2023-10-09		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/MHz)		Duty Cycle (%)	EIRP PSD (dBm/MHz)	Limit (dBm/MHz)
				Ant 0	Ant 1			
802.11ax-HE20	MCS0	1	5955	-1.513	-1.830	97.71	7.74	≤ 23.00
802.11ax-HE20	MCS0	49	6195	-1.057	-0.916	97.71	8.42	≤ 23.00
802.11ax-HE20	MCS0	93	6415	-1.615	-1.904	97.71	7.65	≤ 23.00
802.11ax-HE20	MCS0	117	6535	-1.621	-1.689	97.71	7.76	≤ 23.00
802.11ax-HE20	MCS0	153	6715	-1.768	-1.683	97.71	7.69	≤ 23.00
802.11ax-HE20	MCS0	181	6855	-1.248	-1.124	97.71	8.23	≤ 23.00
802.11ax-HE40	MCS0	3	5965	-4.058	-4.258	97.42	5.27	≤ 23.00
802.11ax-HE40	MCS0	51	6205	-4.402	-4.227	97.42	5.11	≤ 23.00
802.11ax-HE40	MCS0	91	6405	-4.475	-4.701	97.42	4.84	≤ 23.00
802.11ax-HE40	MCS0	123	6565	-4.483	-4.809	97.42	4.78	≤ 23.00
802.11ax-HE40	MCS0	147	6685	-4.647	-4.585	97.42	4.81	≤ 23.00
802.11ax-HE40	MCS0	179	6845	-4.291	-4.056	97.42	5.25	≤ 23.00
802.11ax-HE80	MCS0	7	5985	-6.918	-7.236	97.64	2.34	≤ 23.00
802.11ax-HE80	MCS0	55	6225	-7.616	-7.417	97.64	1.90	≤ 23.00
802.11ax-HE80	MCS0	87	6385	-7.522	-8.019	97.64	1.65	≤ 23.00
802.11ax-HE80	MCS0	135	6625	-7.650	-8.062	97.64	1.56	≤ 23.00
802.11ax-HE80	MCS0	151	6705	-7.768	-7.647	97.64	1.71	≤ 23.00
802.11ax-HE80	MCS0	167	6785	-7.391	-7.314	97.64	2.06	≤ 23.00
802.11ax-HE160	MCS0	15	6025	-10.108	-10.819	97.21	-1.02	≤ 23.00
802.11ax-HE160	MCS0	47	6185	-10.509	-10.642	97.21	-1.14	≤ 23.00
802.11ax-HE160	MCS0	79	6345	-10.273	-11.067	97.21	-1.22	≤ 23.00
802.11ax-HE160	MCS0	143	6665	-10.752	-10.760	97.21	-1.32	≤ 23.00

Note:

When EUT duty cycle < 98%, $EIRP\ PSD\ (dBm/MHz) = 10 \cdot \log \{10^{(Ant\ 0\ PSD/10)} + 10^{(Ant\ 1\ PSD/10)}\} (dBm/MHz) + 10 \cdot \log (1/Duty\ Cycle) + Directional\ Gain\ for\ PSD\ (dBi)$.

When EUT duty cycle ≥ 98%, $EIRP\ PSD\ (dBm/MHz) = 10 \cdot \log \{10^{(Ant\ 0\ PSD/10)} + 10^{(Ant\ 1\ PSD/10)}\} (dBm/MHz) + Directional\ Gain\ for\ PSD\ (dBi)$.

802.11ax-HE20 Power Spectral Density- Ant 0

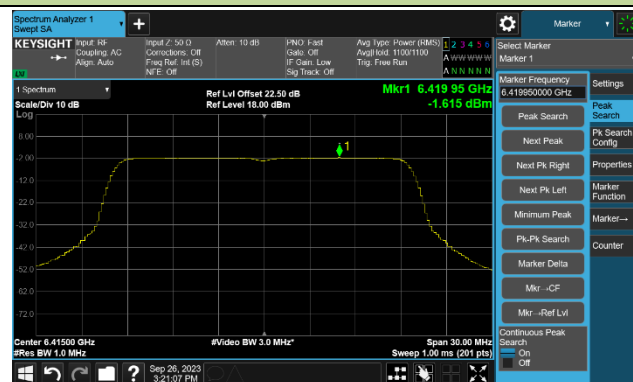
Channel 1 (5955MHz)



Channel 49 (6195MHz)



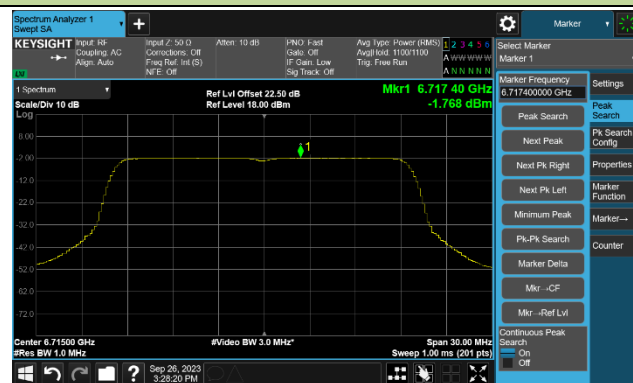
Channel 93 (6415MHz)



Channel 117 (6535MHz)



Channel 153 (6715MHz)



Channel 181 (6855MHz)



802.11ax-HE40 Power Spectral Density- Ant 0

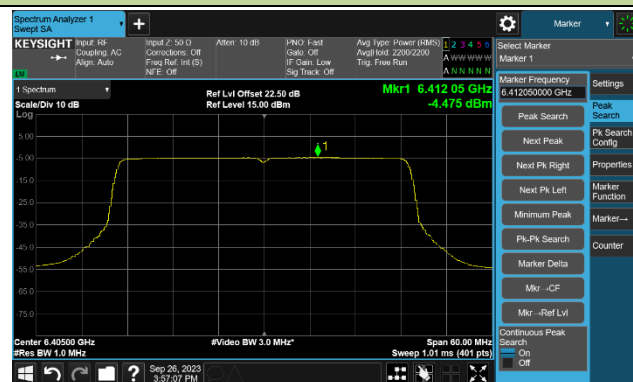
Channel 3 (5965MHz)



Channel 51 (6205MHz)



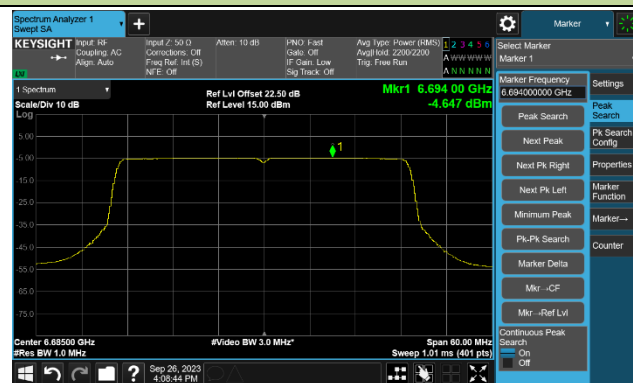
Channel 91 (6405MHz)



Channel 123 (6565MHz)



Channel 147 (6685MHz)

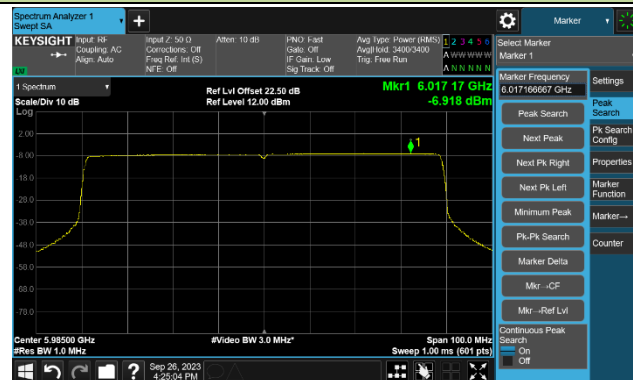


Channel 179 (6845MHz)



802.11ax-HE80 Power Spectral Density- Ant 0

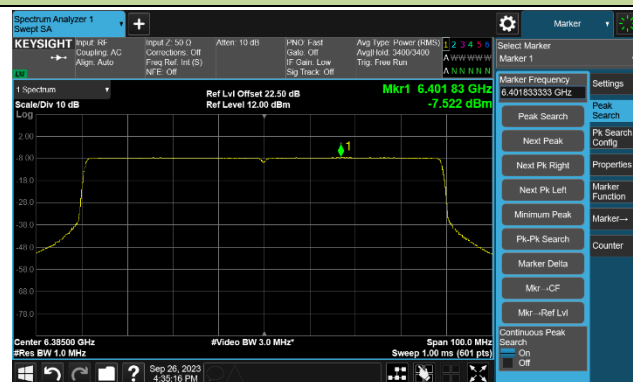
Channel 7 (5985MHz)



Channel 55 (6225MHz)



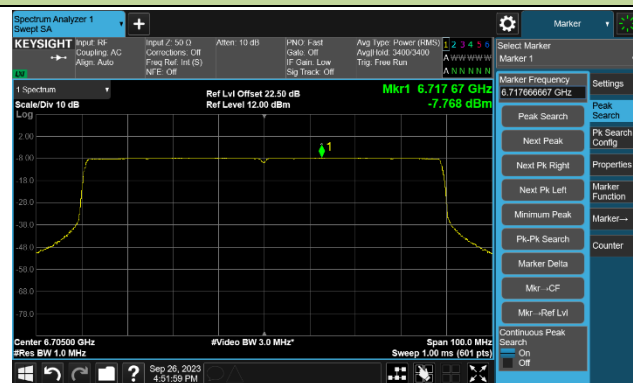
Channel 87 (6385MHz)



Channel 135 (6625MHz)



Channel 151 (6705MHz)

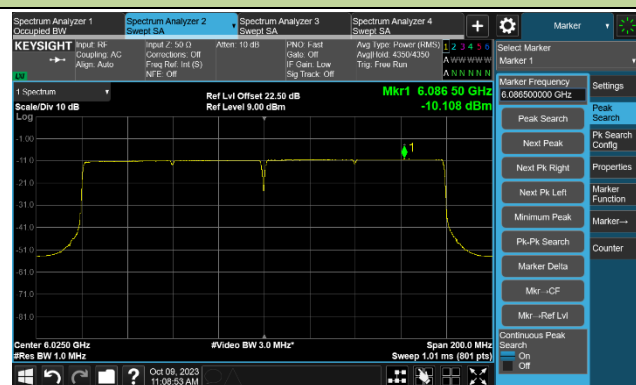


Channel 167 (6785MHz)

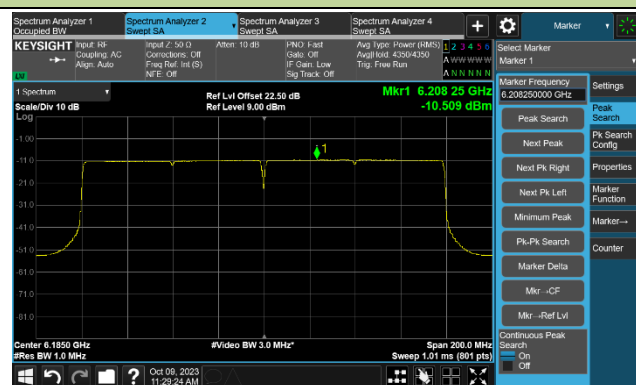


802.11ax-HE160 Power Spectral Density- Ant 0

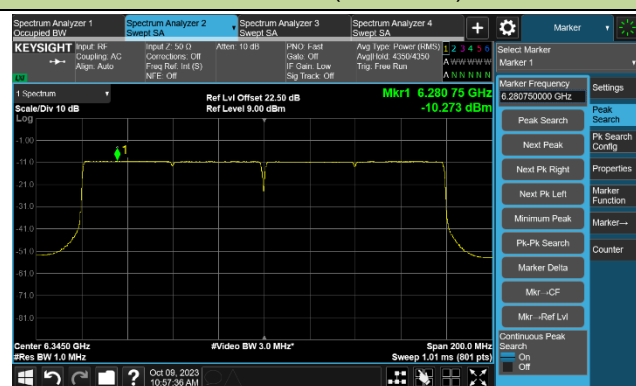
Channel 15 (6025MHz)



Channel 47 (6185MHz)



Channel 79 (6345MHz)



Channel 143 (6665MHz)



802.11ax-HE20 Power Spectral Density- Ant 1

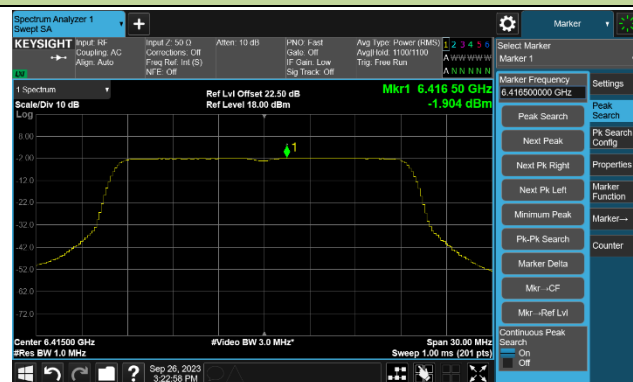
Channel 1 (5955MHz)



Channel 49 (6195MHz)



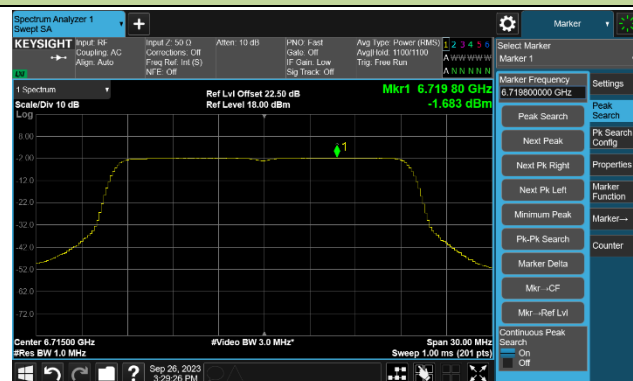
Channel 93 (6415MHz)



Channel 117 (6535MHz)



Channel 153 (6715MHz)

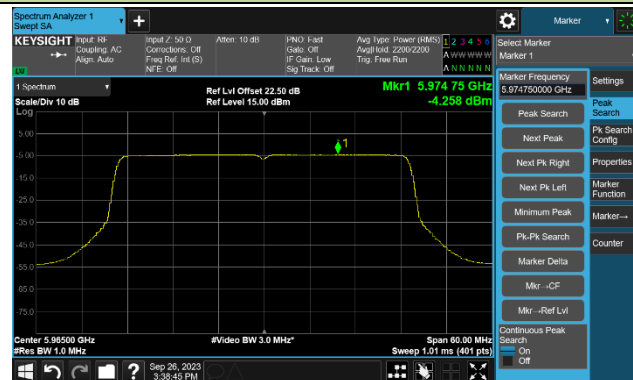


Channel 181 (6855MHz)



802.11ax-HE40 Power Spectral Density- Ant 1

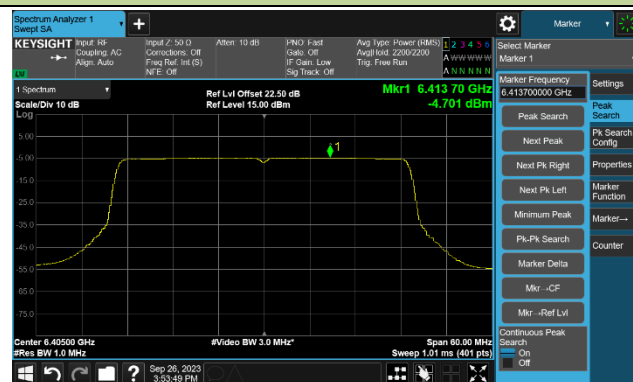
Channel 3 (5965MHz)



Channel 51 (6205MHz)



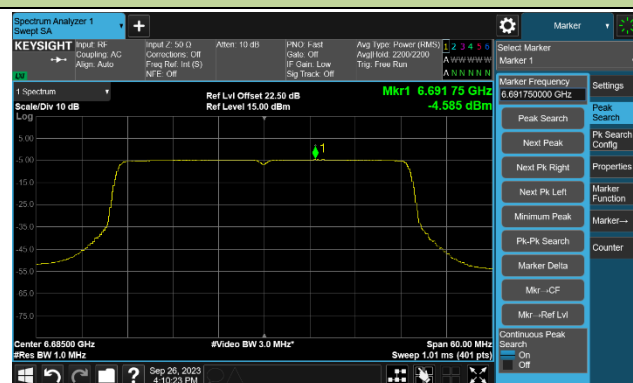
Channel 91 (6405MHz)



Channel 123 (6565MHz)



Channel 147 (6685MHz)



Channel 179 (6845MHz)



802.11ax-HE80 Power Spectral Density- Ant 1

Channel 7 (5985MHz)



Channel 55 (6225MHz)



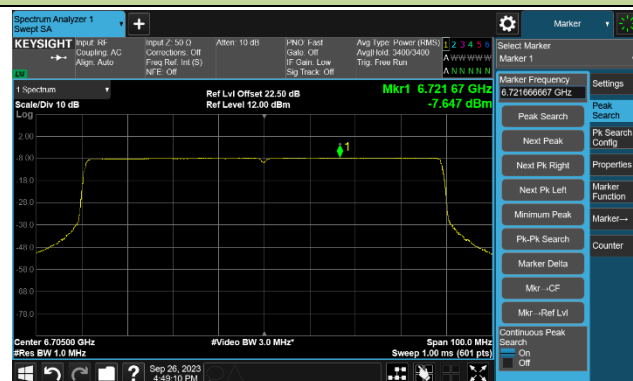
Channel 87 (6385MHz)



Channel 135 (6625MHz)



Channel 151 (6705MHz)

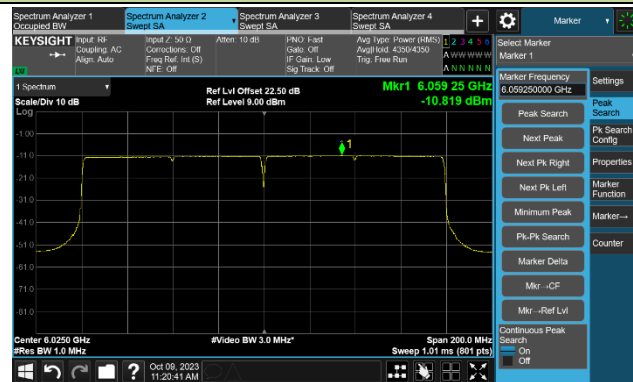


Channel 167 (6785MHz)

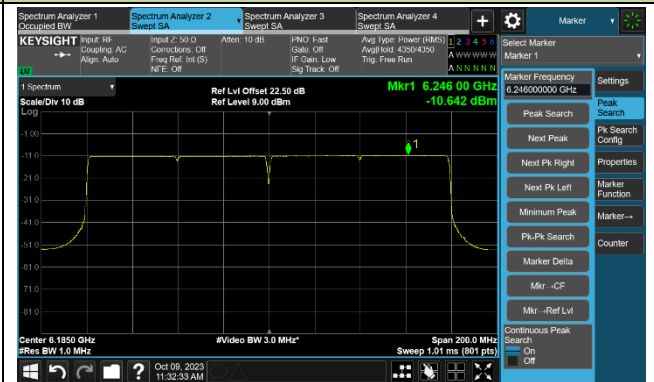


802.11ax-HE160 Power Spectral Density- Ant 1

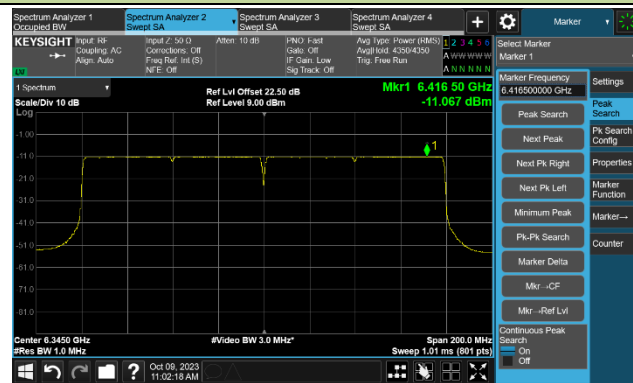
Channel 15 (6025MHz)



Channel 47 (6185MHz)



Channel 79 (6345MHz)



Channel 143 (6665MHz)

