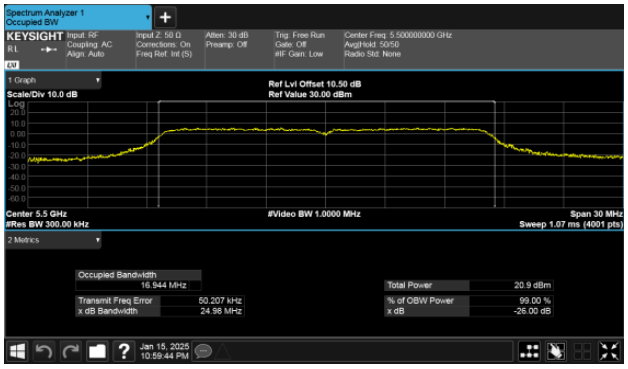
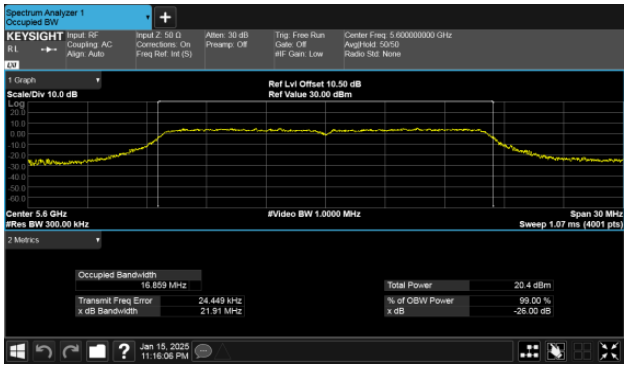
99% Bandwidth

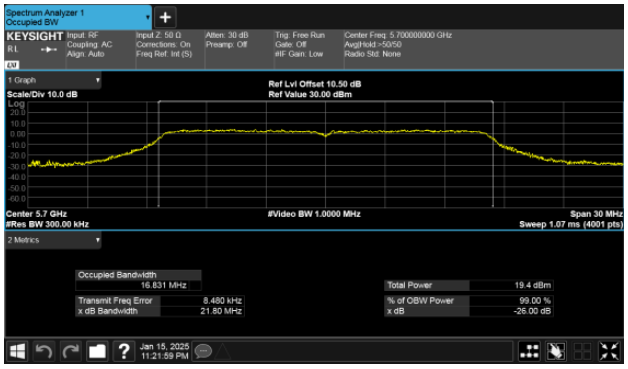
Modulation Type: 802.11a CH100



Modulation Type: 802.11a CH120

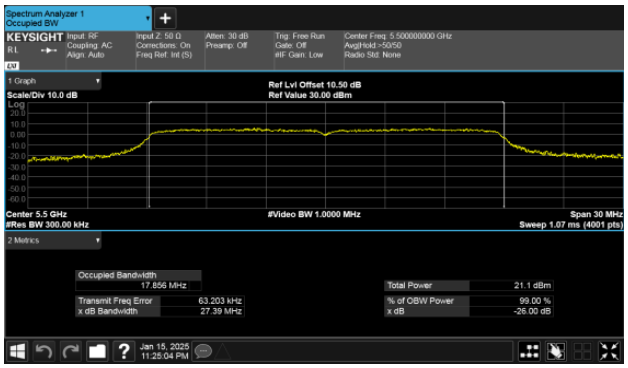


Modulation Type: 802.11a CH140

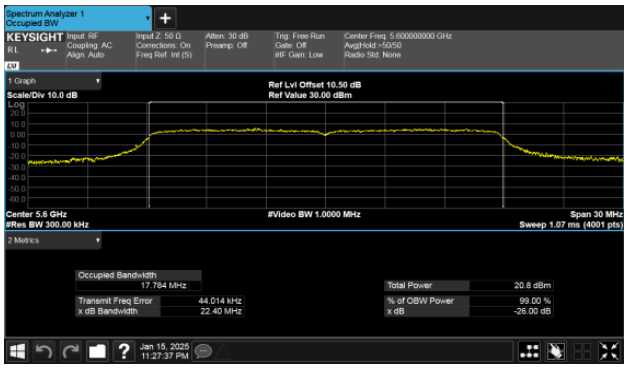


99% Bandwidth

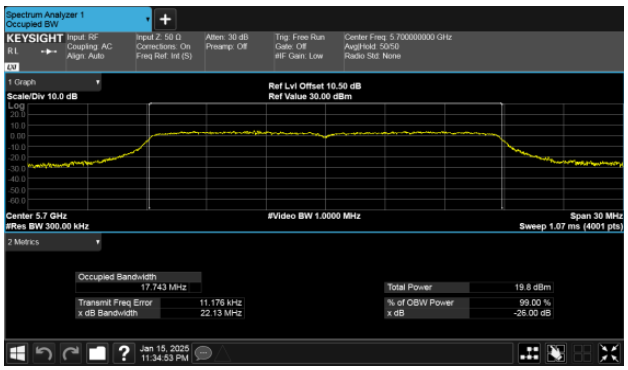
Modulation Type: 802.11ac VHT20 CH100



Modulation Type: 802.11ac VHT20 CH120

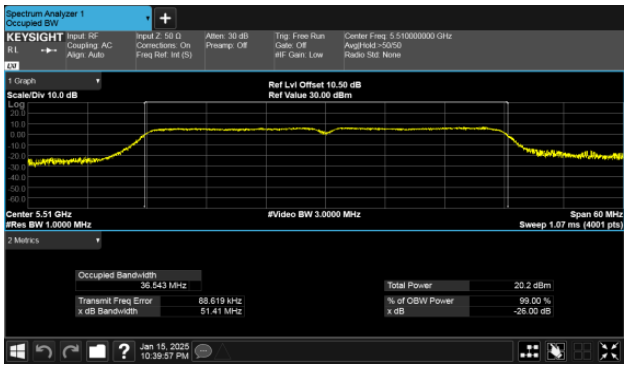


Modulation Type: 802.11ac VHT20 CH140

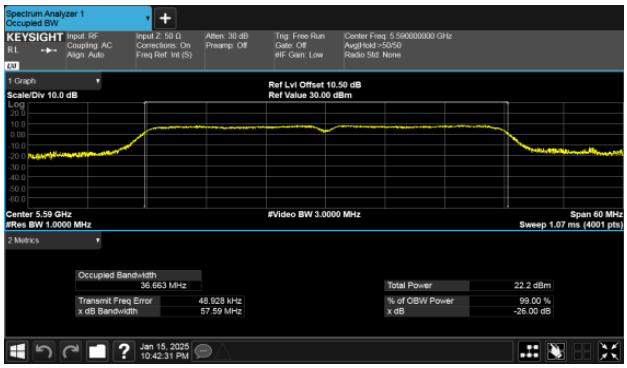


99% Bandwidth

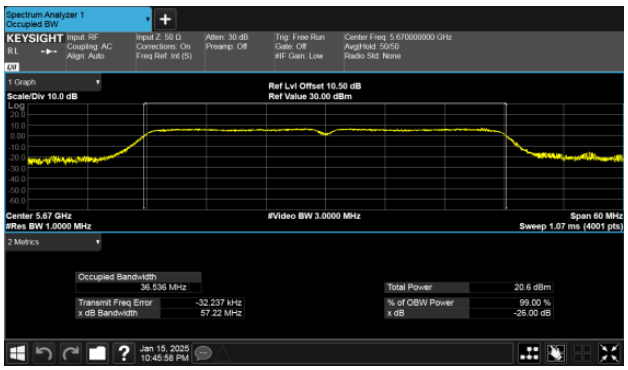
Modulation Type: 802.11ac VHT40 CH102



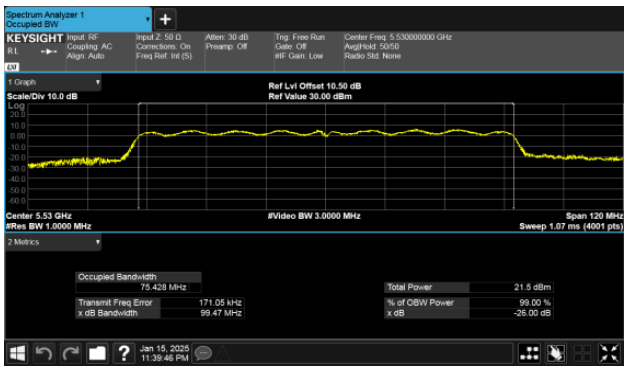
Modulation Type: 802.11ac VHT40 CH118



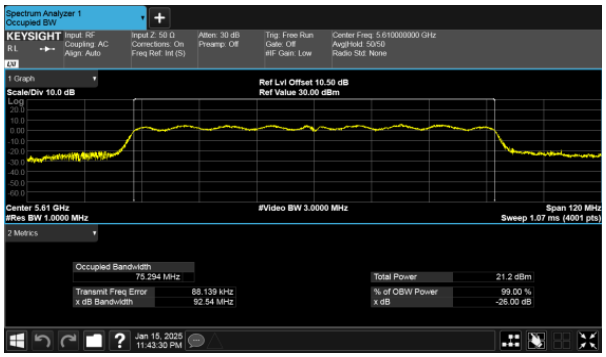
Modulation Type: 802.11ac VHT40 CH134



Modulation Type: 802.11ac VHT80 CH106

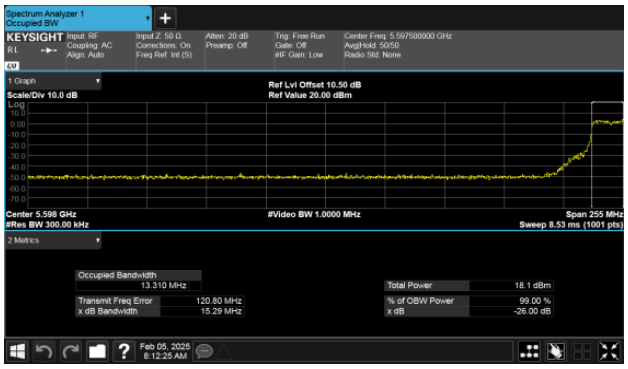


Modulation Type: 802.11ac VHT80 CH122

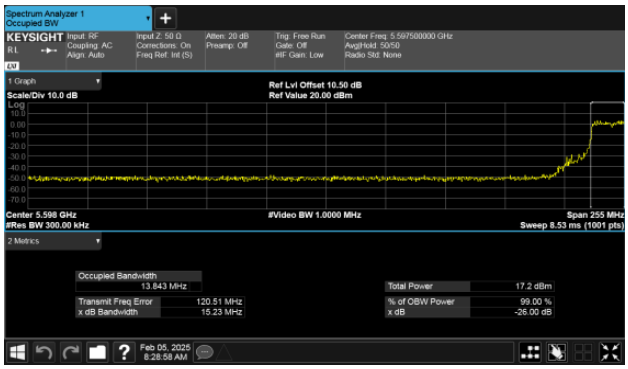


99% Bandwidth
Within 5470-5725MHz Band, Straddle Channel

Modulation Type: 802.11a CH144



Modulation Type: 802.11ac VHT20 CH144



Modulation Type: 802.11ac VHT40 CH142

Modulation Type: 802.11ac VHT80 CH138

10. Average Power

10.1. Test Limit

Output Power:

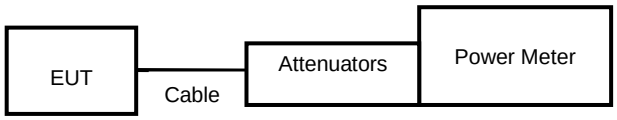
Frequency Band			Limit
☒	5.15~5.25GHz		
	Operating Mode		
	☐	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30degrees as measured from the horizon must not exceed125 mW (21 dBm).
	☐	Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
	☐	Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.
	☒	client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Frequency Band		Limit
☒	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
☒	5.470-5.725 GHz	
☒	5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

10.2. Test Procedure

According to the methods defined in ANSI C63.10-2013 Section 12.3
The transmitter output is connected to a power meter.

10.3. Test Setup Layout



10.4.Test Result and Data

In the 5.2G Band

Modulation Type	Data Rate	Setting	CH	Frequency (MHz)	Measured value of each antenna port (dBm)	Total power (dBm)	Total power (mW)	FCC Limit (dBm)
11a	6 Mbps	44	36	5180	14.64	14.64	29.107	24.00
11a	6 Mbps	44	40	5200	15.01	15.01	31.696	24.00
11a	6 Mbps	43	48	5240	15.03	15.03	31.842	24.00
11ac VHT20	NSS1-MCS0	47	36	5180	15.66	15.66	36.813	24.00
11ac VHT20	NSS1-MCS0	48	40	5200	16.04	16.04	40.179	24.00
11ac VHT20	NSS1-MCS0	46	48	5240	15.94	15.94	39.264	24.00
11ac VHT40	NSS1-MCS0	42	38	5190	13.87	13.87	24.378	24.00
11ac VHT40	NSS1-MCS0	46	46	5230	16.05	16.05	40.272	24.00
11ac VHT80	NSS1-MCS0	40	42	5210	12.90	12.90	19.498	24.00

In the 5.3G Band

Modulation Type	Data Rate	Setting	CH	Frequency (MHz)	Measured value of each antenna port (dBm)	Total power (dBm)	Total power (mW)	FCC Limit (dBm)
11a	6 Mbps	40	52	5260	14.52	14.52	28.314	24.00
11a	6 Mbps	39	60	5300	14.53	14.53	28.379	24.00
11a	6 Mbps	39	64	5320	14.65	14.65	29.174	24.00
11ac VHT20	NSS1-MCS0	44	52	5260	15.82	15.82	38.194	24.00
11ac VHT20	NSS1-MCS0	43	60	5300	15.87	15.87	38.637	24.00
11ac VHT20	NSS1-MCS0	42	64	5320	15.62	15.62	36.475	24.00
11ac VHT40	NSS1-MCS0	44	54	5270	16.17	16.17	41.400	24.00
11ac VHT40	NSS1-MCS0	37	62	5310	13.51	13.51	22.439	24.00
11ac VHT80	NSS1-MCS0	35	58	5290	12.33	12.33	17.100	24.00

In the 5.5G Band

Modulation Type	Data Rate	Setting	CH	Frequency (MHz)	Measured value of each antenna port (dBm)	Total power (dBm)	Total power (mW)	FCC Limit (dBm)
11a	6 Mbps	43	100	5500	15.23	15.23	33.343	24.00
11a	6 Mbps	42	120	5600	15.11	15.11	32.434	24.00
11a	6 Mbps	39	140	5700	14.03	14.03	25.293	24.00
11ac VHT20	NSS1-MCS0	42	100	5500	15.52	15.52	35.645	24.00
11ac VHT20	NSS1-MCS0	43	120	5600	15.25	15.25	33.497	24.00
11ac VHT20	NSS1-MCS0	40	140	5700	14.30	14.30	26.915	24.00
11ac VHT40	NSS1-MCS0	40	102	5510	14.08	14.08	25.586	24.00
11ac VHT40	NSS1-MCS0	44	118	5590	15.84	15.84	38.371	24.00
11ac VHT40	NSS1-MCS0	41	134	5670	14.22	14.22	26.424	24.00
11ac VHT80	NSS1-MCS0	41	106	5530	15.22	15.22	33.266	24.00
11ac VHT80	NSS1-MCS0	43	122	5610	14.88	14.88	30.761	24.00

In the 5.8G Band

Modulation Type	Data Rate	Setting	CH	Frequency (MHz)	Measured value of each antenna port (dBm)	Total power (dBm)	Total power (mW)	FCC Limit (dBm)
11a	6 Mbps	39	149	5745	13.32	13.32	21.478	30.00
11a	6 Mbps	40	157	5785	13.61	13.61	22.961	30.00
11a	6 Mbps	40	165	5825	13.17	13.17	20.749	30.00
11ac VHT20	NSS1-MCS0	40	149	5745	13.79	13.79	23.933	30.00
11ac VHT20	NSS1-MCS0	41	157	5785	14.01	14.01	25.177	30.00
11ac VHT20	NSS1-MCS0	40	165	5825	13.26	13.26	21.184	30.00
11ac VHT40	NSS1-MCS0	41	151	5755	14.20	14.20	26.303	30.00
11ac VHT40	NSS1-MCS0	43	159	5795	14.89	14.89	30.832	30.00
11ac VHT80	NSS1-MCS0	40	155	5775	13.70	13.70	23.442	30.00

FCC Maximum Conducted Output Power (Within 5470-5725MHz band) RF Output Power(dBm)									
Setting	Modulation Type	Data Rate	Freq. (MHz)	W/O Duty Factor Measured value of each antenna port (dBm)	W/O duty factor Total power (dBm)	Duty Factor (dB)	With duty factor Total power (mW)	With duty factor Total power (dBm)	FCC Limit (dBm)
39	11a	6M	5720	11.80	11.80	0.20	15.849	12.00	22.94
39	11ac VHT20	NSS1-MCS0	5720	11.86	11.86	0.21	16.106	12.07	23.01
39	11ac VHT40	NSS1-MCS0	5710	12.62	12.62	0.38	19.953	13.00	24.00
39	11ac VHT80	NSS1-MCS0	5690	12.47	12.47	0.56	20.091	13.03	24.00

FCC Maximum Conducted Output Power (Extends across 5725MHz band) RF Output Power(dBm)									
Setting	Modulation Type	Data Rate	Freq. (MHz)	W/O Duty Factor Measured value of each antenna port (dBm)	W/O duty factor Total power (dBm)	Duty Factor (dB)	With duty factor Total power (mW)	With duty factor Total power (dBm)	FCC Limit (dBm)
39	11a	6M	5720	5.75	5.75	0.20	3.936	5.95	30.00
39	11ac VHT20	NSS1-MCS0	5720	6.19	6.19	0.21	4.365	6.40	30.00
39	11ac VHT40	NSS1-MCS0	5710	1.36	1.36	0.38	1.493	1.74	30.00
39	11ac VHT80	NSS1-MCS0	5690	-2.84	-2.84	0.56	0.592	-2.28	30.00

Channel	Setting	Modulation Type	Date Rate	Frequency (MHz)	Avg Power Output (dBm)	Total Power (dBm)
Meter power (for full power)						
Ch144	39	11a	6 Mbps	5720MHz	13.24	13.24
Ch144	39	11ac VHT20	NSS1-MCS0	5720MHz	13.38	13.38
Ch142	39	11ac VHT40	NSS1-MCS0	5710MHz	13.37	13.37
Ch138	39	11ac VHT80	NSS1-MCS0	5690MHz	13.18	13.18

Note: Power Meter Average power is for reference only.

Within 5470-5725MHz Band, Straddle Channel

Modulation Type: 802.11a CH144

Modulation Type: 802.11ac VHT20 CH144

Modulation Type: 802.11ac VHT40 CH142

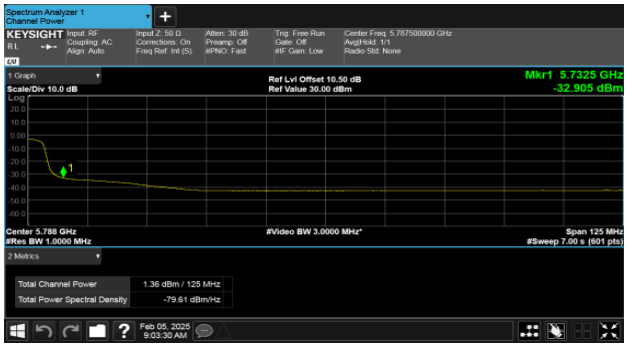
Modulation Type: 802.11ac VHT80 CH138

Extends across 5725MHz band, Straddle Channel

Modulation Type: 802.11a CH144

Modulation Type: 802.11ac VHT20 CH144

Modulation Type: 802.11ac VHT40 CH142



Modulation Type: 802.11ac VHT80 CH138

11. Power Spectral Density

11.1.Test Limit

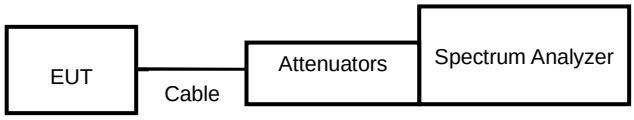
PSD:

Frequency Band			Limit
☒	5.15~5.25GHz		
	Operating Mode		
	☐	Outdoor access point	17 dBm/MHz
	☐	Indoor access point	17 dBm/MHz
	☐	Fixed point-to-point access points	17 dBm/MHz
	☒	Mobile and portable client devices	11 dBm/MHz
☒	5.725~5.85 GHz		11 dBm/MHz
☒	5.470-5.725 GHz		11 dBm/MHz
☒	5.725~5.85 GHz		30 dBm/500kHz

11.2.Test Procedure

Reference to KDB789033 D02 General UNII Test Procedures New Rules v02r01

11.3.Test Setup Layout



11.4. Test Result and Data

In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	Meas PSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PSD (dBm/MHz)	PSD Limit (dBm/MHz)
11a	36	5180	2.36	2.36	0.20	2.56	11.00
11a	40	5200	2.29	2.29	0.20	2.49	11.00
11a	48	5240	2.21	2.21	0.20	2.41	11.00
11ac VHT20	36	5180	2.87	2.87	0.21	3.08	11.00
11ac VHT20	40	5200	3.38	3.38	0.21	3.59	11.00
11ac VHT20	48	5240	2.94	2.94	0.21	3.15	11.00
11ac VHT40	38	5190	-1.75	-1.75	0.38	-1.37	11.00
11ac VHT40	46	5230	-0.18	-0.18	0.38	0.21	11.00
11ac VHT80	42	5210	-5.25	-5.25	0.56	-4.69	11.00

In the 5.3G Band

Modulation Type	Channel	Frequency (MHz)	Meas PSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PSD (dBm/MHz)	PSD Limit (dBm/MHz)
11a	52	5260	3.24	3.24	0.20	3.44	11.00
11a	60	5300	2.64	2.64	0.20	2.84	11.00
11a	64	5320	2.34	2.34	0.20	2.54	11.00
11ac VHT20	52	5260	3.51	3.51	0.21	3.72	11.00
11ac VHT20	60	5300	3.27	3.27	0.21	3.48	11.00
11ac VHT20	64	5320	2.88	2.88	0.21	3.09	11.00
11ac VHT40	54	5270	0.49	0.49	0.38	0.87	11.00
11ac VHT40	62	5310	-2.47	-2.47	0.38	-2.09	11.00
11ac VHT80	58	5290	-5.97	-5.97	0.56	-5.41	11.00

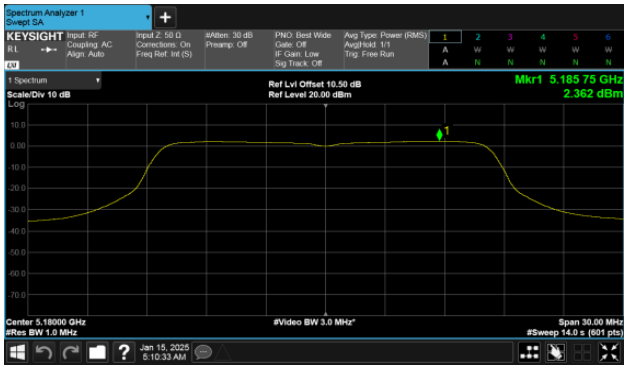
In the 5.5G Band

Modulation Type	Channel	Frequency (MHz)	Meas PSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PSD (dBm/MHz)	PSD Limit (dBm/MHz)
11a	100	5500	2.79	2.79	0.20	2.99	11.00
11a	120	5600	2.27	2.27	0.20	2.47	11.00
11a	140	5700	1.26	1.26	0.20	1.46	11.00
11a	144	5720	1.45	1.45	0.20	1.65	11.00
11ac VHT20	100	5500	2.77	2.77	0.21	2.98	11.00
11ac VHT20	120	5600	2.47	2.47	0.21	2.68	11.00
11ac VHT20	140	5700	1.43	1.43	0.21	1.64	11.00
11ac VHT20	144	5720	1.31	1.31	0.21	1.52	11.00
11ac VHT40	102	5510	-2.11	-2.11	0.38	-1.73	11.00
11ac VHT40	118	5590	-0.33	-0.33	0.38	0.05	11.00
11ac VHT40	134	5670	-1.95	-1.95	0.38	-1.57	11.00
11ac VHT40	142	5710	-1.49	-1.49	0.38	-1.11	11.00
11ac VHT80	106	5530	-2.89	-2.89	0.56	-2.33	11.00
11ac VHT80	122	5610	-3.18	-3.18	0.56	-2.62	11.00
11ac VHT80	138	5690	-3.77	-3.77	0.56	-3.21	11.00

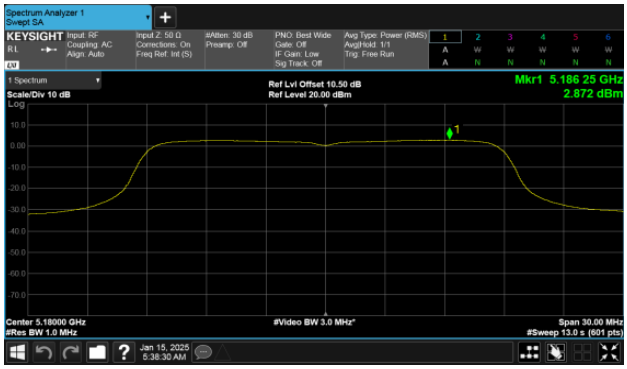
In the 5.8G Band

Modulation Type	Channel	Frequency (MHz)	Meas PSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF (dB)	10log (500KHz /RBW) CF (dB)	Total Corr'd PSD (dBm/ 500kHz)	PSD Limit (dBm/ 500kHz)
11a	149	5745	1.92	1.92	0.20	-3.01	-0.89	30.00
11a	157	5785	1.72	1.72	0.20	-3.01	-1.09	30.00
11a	165	5825	0.87	0.87	0.20	-3.01	-1.94	30.00
11ac VHT20	149	5745	1.35	1.35	0.21	-3.01	-1.45	30.00
11ac VHT20	157	5785	1.50	1.50	0.21	-3.01	-1.31	30.00
11ac VHT20	165	5825	0.38	0.38	0.21	-3.01	-2.42	30.00
11ac VHT40	151	5755	-1.43	-1.43	0.38	-3.01	-4.06	30.00
11ac VHT40	159	5795	-0.98	-0.98	0.38	-3.01	-3.61	30.00
11ac VHT80	155	5775	-4.19	-4.19	0.56	-3.01	-6.64	30.00

Modulation Type: 802.11a CH36



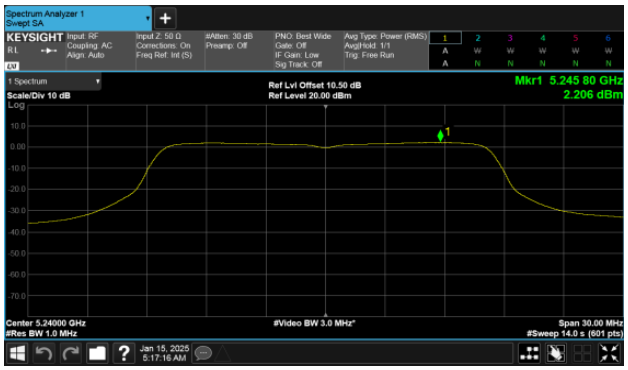
Modulation Type: 802.11ac VHT20 CH36



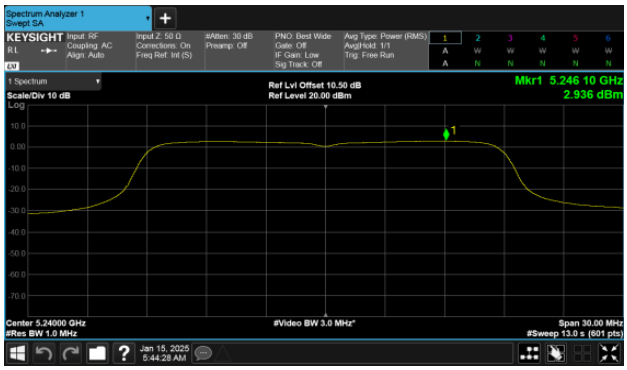
Modulation Type: 802.11a CH40

Modulation Type: 802.11ac VHT20 CH40

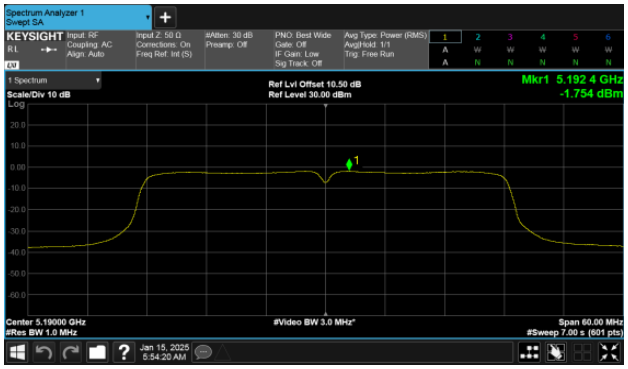
Modulation Type: 802.11a CH48



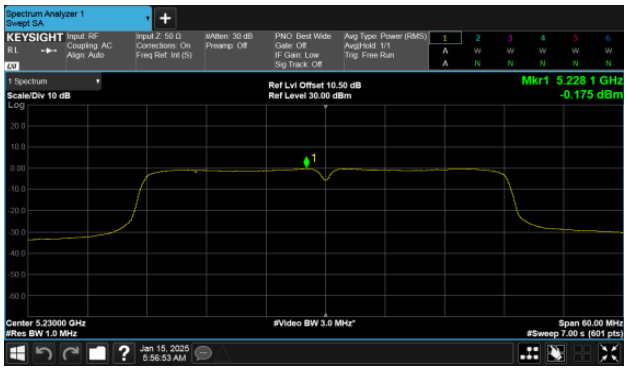
Modulation Type: 802.11ac VHT20 CH48



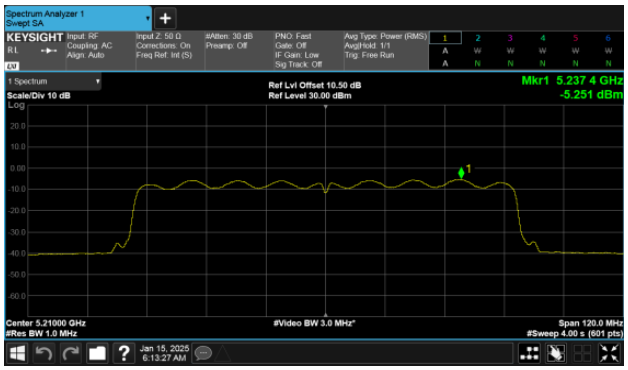
Modulation Type: 802.11ac VHT40 CH38



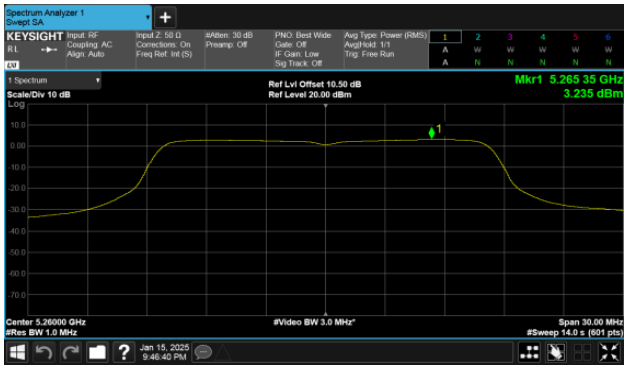
Modulation Type: 802.11ac VHT40 CH46



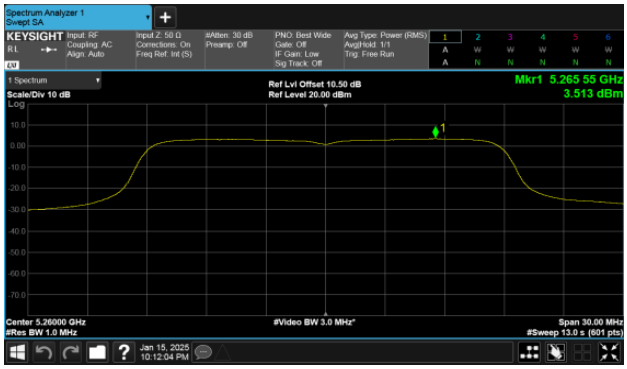
Modulation Type: 802.11ac VHT80 CH42



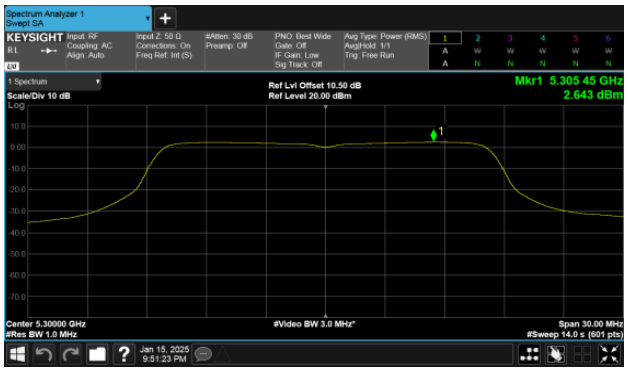
Modulation Type: 802.11a CH52



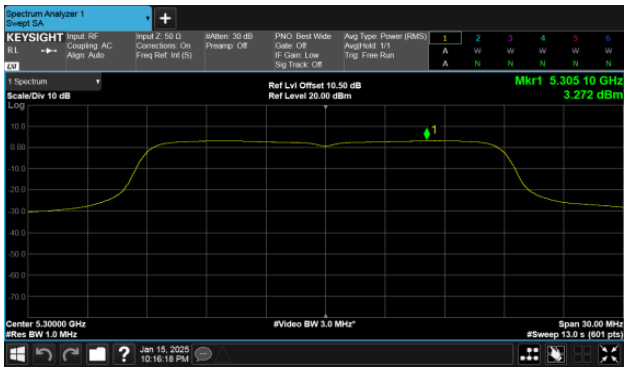
Modulation Type: 802.11ac VHT20 CH52



Modulation Type: 802.11a CH60

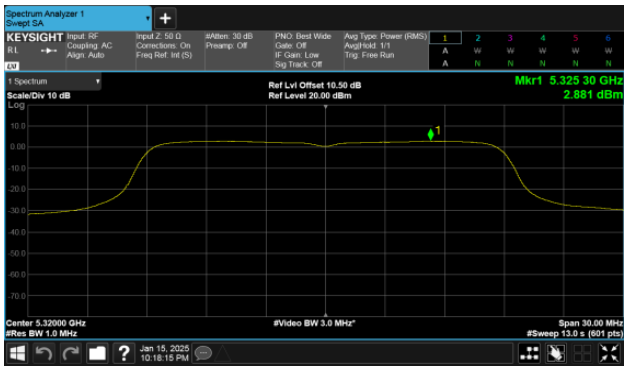


Modulation Type: 802.11ac VHT20 CH60

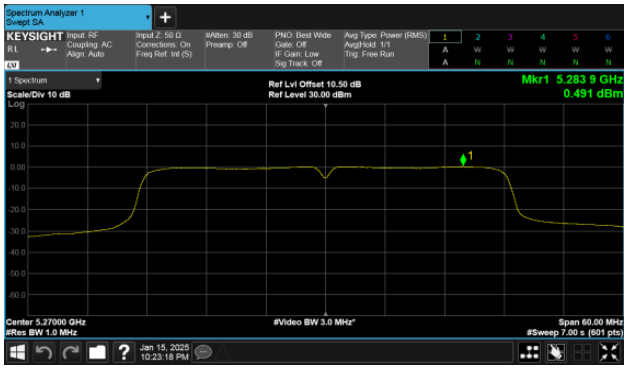


Modulation Type: 802.11a CH64

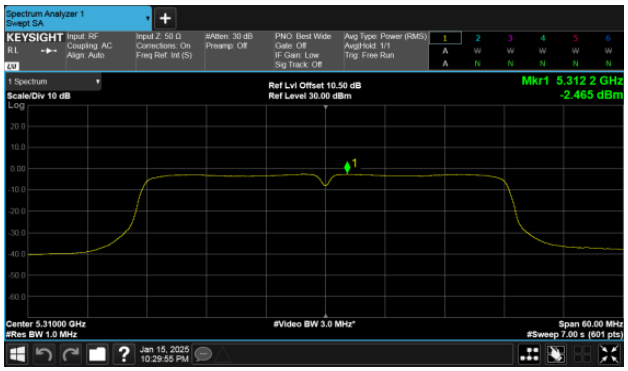
Modulation Type: 802.11ac VHT20 CH64



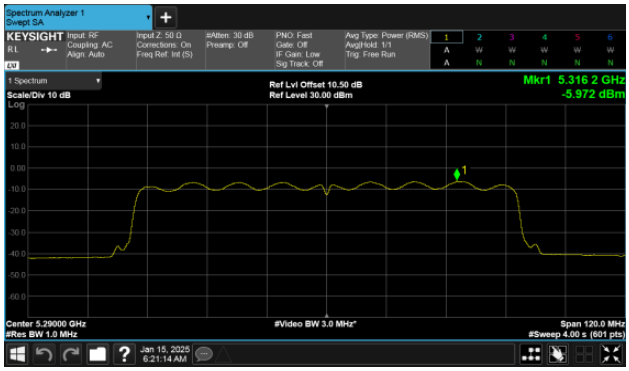
Modulation Type: 802.11ac VHT40 CH54



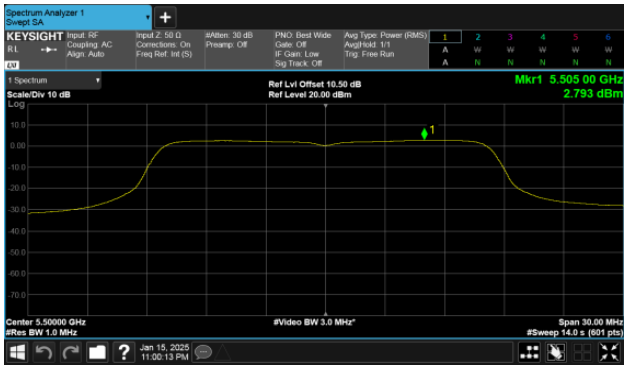
Modulation Type: 802.11ac VHT40 CH62



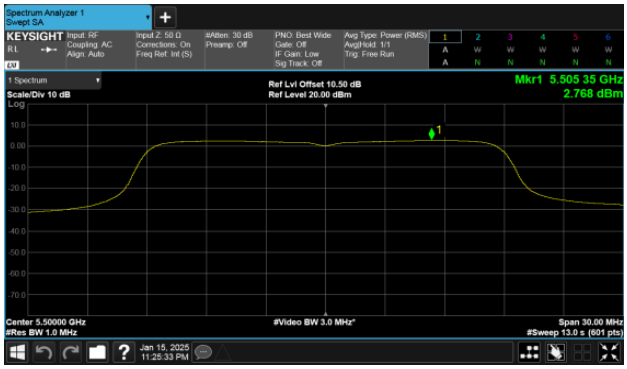
Modulation Type: 802.11ac VHT80 CH58



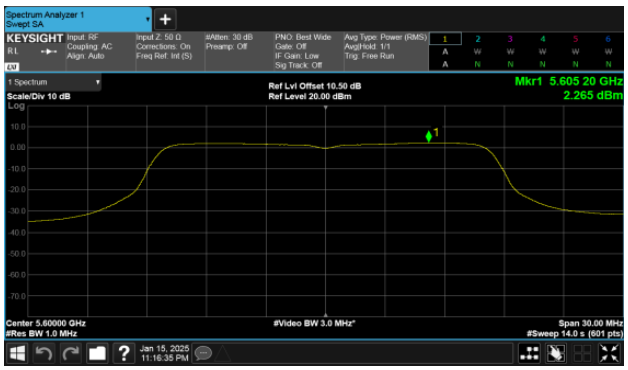
Modulation Type: 802.11a CH100



Modulation Type: 802.11ac VHT20 CH100

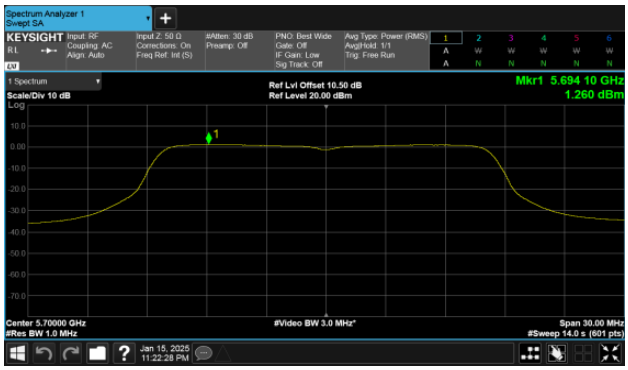


Modulation Type: 802.11a CH120

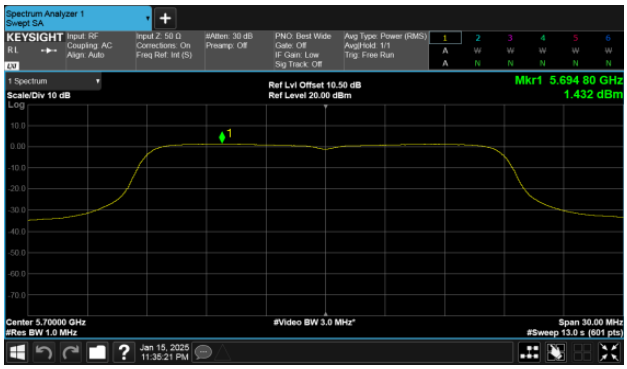


Modulation Type: 802.11ac VHT20 CH120

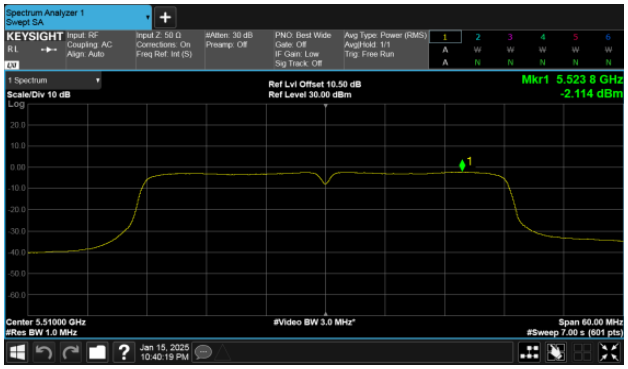
Modulation Type: 802.11a CH140



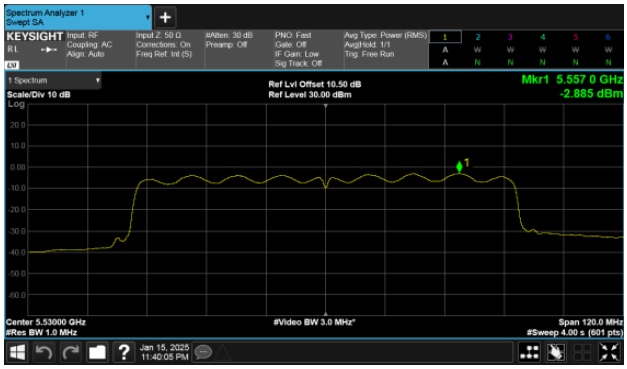
Modulation Type: 802.11ac VHT20 CH140



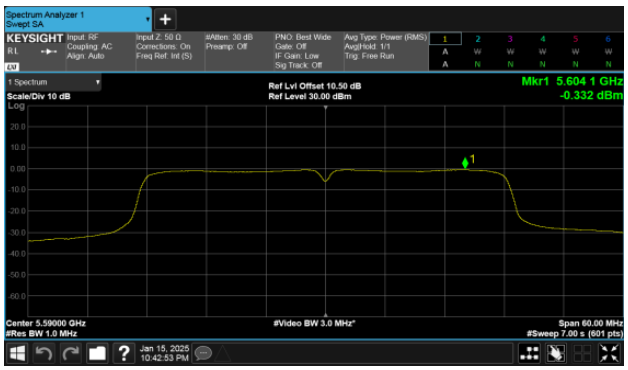
Modulation Type: 802.11ac VHT40 CH102



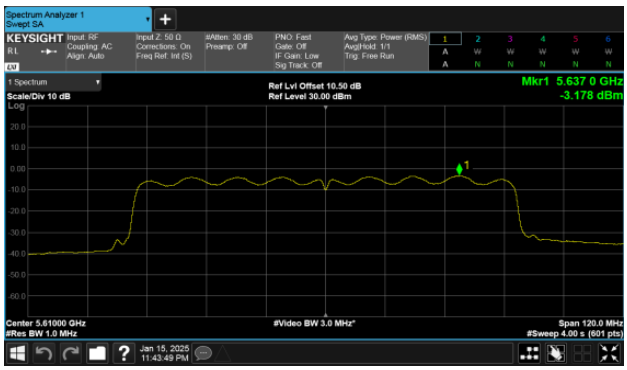
Modulation Type: 802.11ac VHT80 CH106



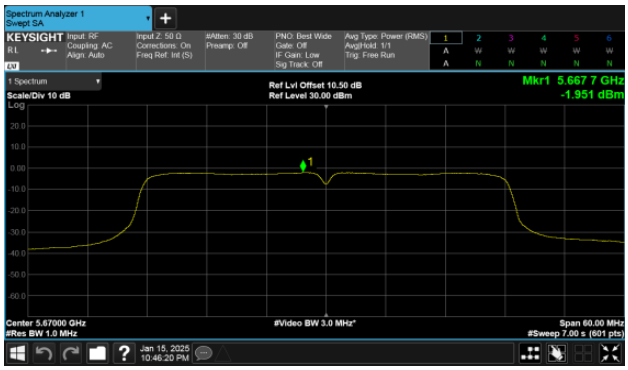
Modulation Type: 802.11ac VHT40 CH118



Modulation Type: 802.11ac VHT80 CH122

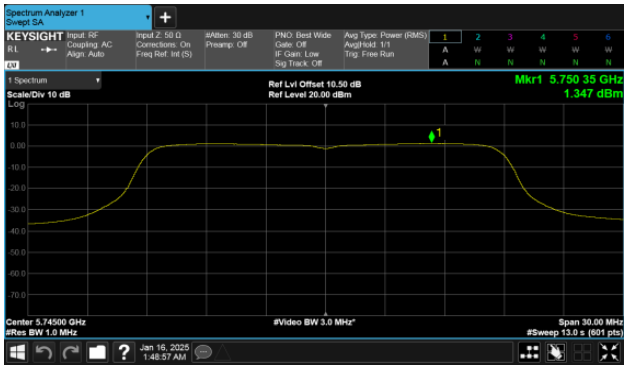


Modulation Type: 802.11ac VHT40 CH134

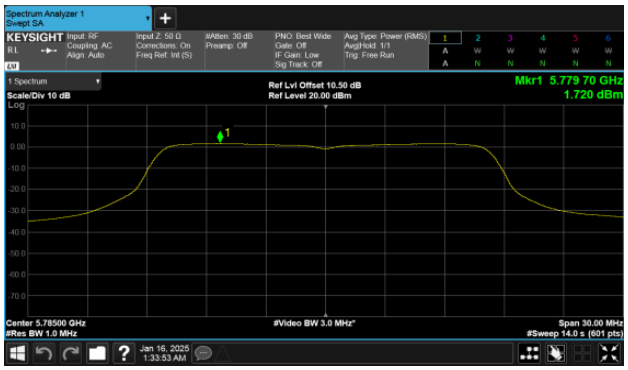


Modulation Type: 802.11a CH149

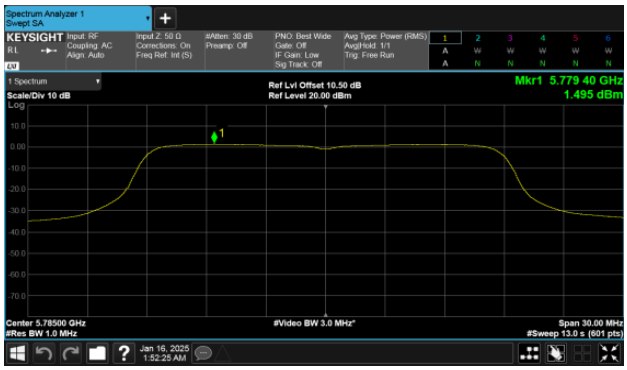
Modulation Type: 802.11ac VHT20 CH149



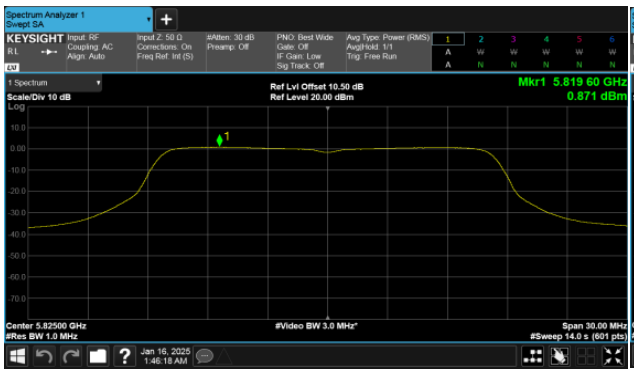
Modulation Type: 802.11a CH157



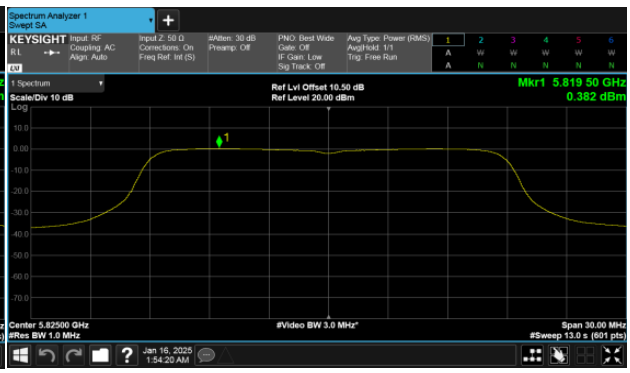
Modulation Type: 802.11ac VHT20 CH157



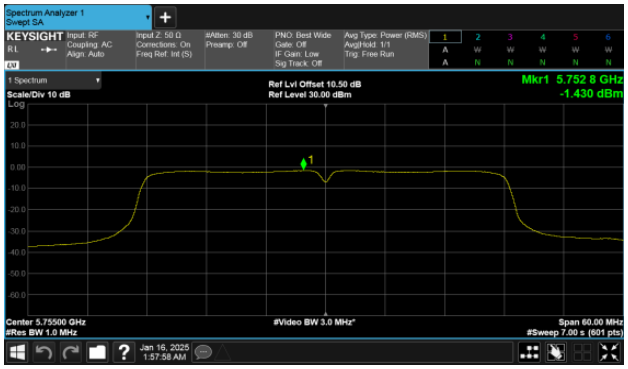
Modulation Type: 802.11a CH165



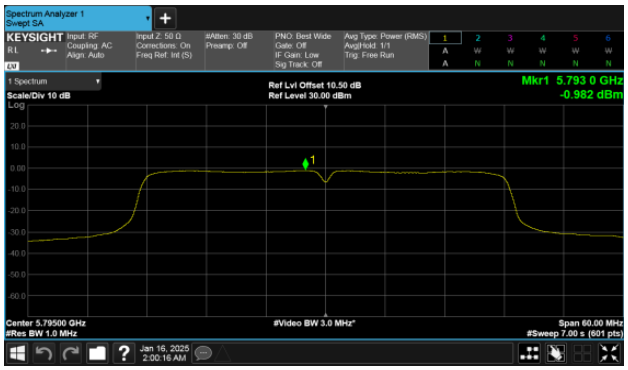
Modulation Type: 802.11ac VHT20 CH165



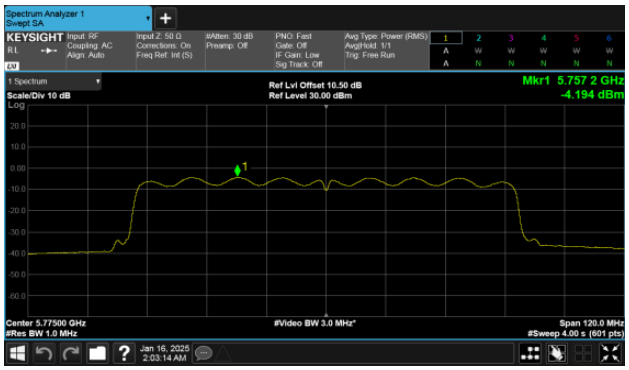
Modulation Type: 802.11ac VHT40 CH151



Modulation Type: 802.11ac VHT40 CH159

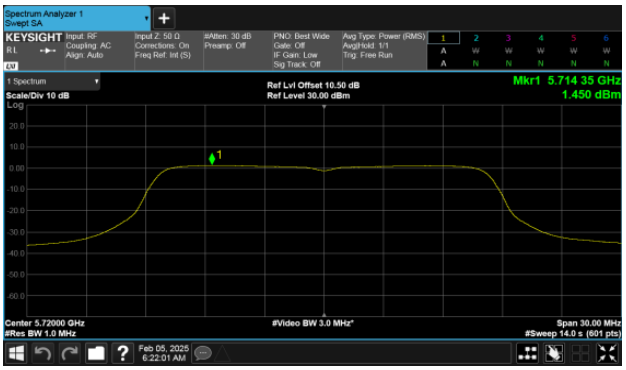


Modulation Type: 802.11ac VHT80 CH155

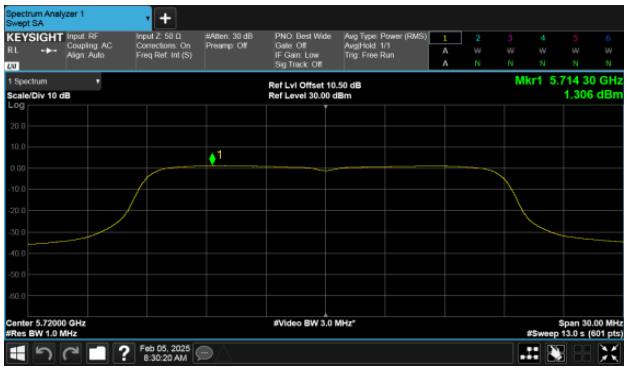


Straddle Channel

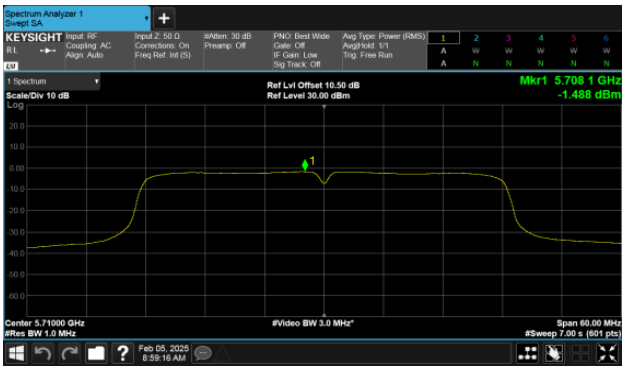
Modulation Type: 802.11a CH144



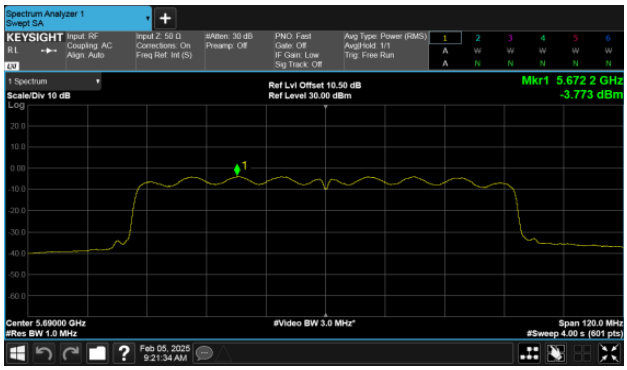
Modulation Type: 802.11ac VHT20 CH144



802.11ac VHT40 CH142



802.11ac VHT80 CH138



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