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A.3 MAXIMUM POWER SPECTRAL DENSITY

Test Date	2022/02/17~03/31	Temp./Hum.	17~22°C/64~70%
Cable Loss	1.9dB	Tested By	Sam Chang
Test Voltage	AC 120V 60Hz (Via AC Adapter)		
Simultaneous Factor 10 log(N_{ANT})(Note: where N_{ANT} is the number of outputs)			3dB

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A.3.1 Power Spectral Density Result

- OFDM Modulation

SKU #1 (with INPAQ Antenna)

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/MHz) Note 2		Directional Antenna Gain (dBi) Note 4	Max. e.i.r.p Density (dBm/MHz) Note 3	Limit (dBm/MHz)
			ANT A (AUX)	ANT B (Main)			
802.11ax-HE20	5	5955	-7.303	-7.146	5.13	-2.016	-1
		6175	-7.431	-7.155	5.13	-2.025	
		6415	-7.381	-7.118	5.10	-2.018	
	6	6435	-7.252	-8.114	5.10	-2.152	
		6475	-7.403	-7.001	5.10	-1.901	
		6515	-7.224	-7.738	5.10	-2.124	
	7	6535	-9.041	-8.824	5.10	-3.724	
		6695	-7.958	-7.540	5.10	-2.440	
		6855	-7.743	-8.335	4.86	-2.883	
	8	6875	-7.840	-7.554	4.86	-2.694	
		6995	-6.641	-6.581	4.86	-1.721	
		7115	-11.179	-11.805	4.86	-6.319	
802.11ax-HE40	5	5965	-6.816	-7.368	5.13	-1.686	-1
		6165	-7.100	-7.913	5.13	-1.970	
		6405	-6.893	-7.920	5.10	-1.793	
	6	6445	-6.995	-7.836	5.10	-1.895	
		6485	-6.803	-7.594	5.10	-1.703	
	7	6525	-6.880	-7.140	5.10	-1.780	
		6685	-7.177	-7.536	5.10	-2.077	
		6845	-7.232	-7.723	4.86	-2.372	
	8	6885	-7.150	-7.742	4.86	-2.290	
		7005	-6.942	-7.591	4.86	-2.082	
		7085	-7.160	-7.878	4.86	-2.300	
802.11ax-HE80	5	5985	-7.051	-6.932	5.13	-1.802	-1
		6145	-6.887	-7.058	5.13	-1.757	
		6385	-6.710	-6.290	5.10	-1.190	
	6	6465	-6.921	-6.300	5.10	-1.200	
		6545	-7.301	-6.552	5.10	-1.452	
	7	6625	-8.057	-9.134	5.10	-1.452	
		6705	-8.295	-9.317	5.10	-2.957	
		6785	-8.090	-9.117	5.10	-3.195	
	8	6865	-8.547	-9.416	4.86	-2.990	
		6945	-7.815	-7.145	4.86	-3.687	
		7025	-7.817	-8.637	4.86	-2.285	
802.11ax-HE160	5	6025	-6.818	-6.780	5.13	-2.957	-1
		6185	-6.777	-6.841	5.13	-1.650	
		6345	-6.672	-6.307	5.10	-1.647	
	6	6505	-7.014	-6.998	5.10	-1.207	
	7	6665	-7.918	-8.228	5.10	-1.898	
		6825	-7.968	-8.025	5.10	-2.818	
	8	6985	-7.985	-8.259	4.86	-2.868	

Note: 1. All results have been included cable loss and Simultaneous Factor [Please refer to KDB 662911 E 2) c)]
2. Each output of PSD = individual spectrum value +10 log (N_{ANT})
3. Max. e.i.r.p Density= The Max. of Power Spectral Density [ANT A (AUX) or ANT B (Main)]+ Directional Antenna Gain
4. According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + … + $10^{GN/10}$)/N_{ANT}] dBi
Directional gain:
5925MHz: 10 log[($10^{5.6/10}$ +$10^{4.6/10}$)/2]= 5.13dBi
6525MHz: 10 log[($10^{5.2/10}$ +$10^{5.0/10}$)/2]= 5.10dBi
7125MHz: 10 log[($10^{5.1/10}$ +$10^{4.6/10}$)/2]= 4.86dBi
The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only.
This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).

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SKU #2 (with LUXSHARE-ICT Antenna)

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/MHz) Note 2		Directional Antenna Gain (dBi) Note 4	Max. e.i.r.p Density (dBm/MHz) Note 3	Limit (dBm/MHz)
			ANT A (AUX)	ANT B (Main)			
802.11ax-HE20	5	5955	-7.303	-7.146	1.95	-5.196	-1
		6175	-7.431	-7.155	1.95	-5.205	
		6415	-7.381	-7.118	1.60	-5.518	
	6	6435	-7.252	-8.114	1.60	-5.652	
		6475	-7.403	-7.001	1.60	-5.401	
		6515	-7.224	-7.738	1.60	-5.624	
	7	6535	-9.041	-8.824	1.60	-7.224	
		6695	-7.958	-7.540	1.60	-5.940	
		6855	-7.743	-8.335	2.83	-4.913	
	8	6875	-7.840	-7.554	2.83	-4.724	
		6995	-6.641	-6.581	2.83	-3.751	
		7115	-11.179	-11.805	2.83	-8.349	
802.11ax-HE40	5	5965	-6.816	-7.368	1.95	-4.866	-1
		6165	-7.100	-7.913	1.95	-5.150	
		6405	-6.893	-7.920	1.60	-5.293	
	6	6445	-6.995	-7.836	1.60	-5.395	
		6485	-6.803	-7.594	1.60	-5.203	
	7	6525	-6.880	-7.140	1.60	-5.280	
		6685	-7.177	-7.536	1.60	-5.577	
		6845	-7.232	-7.723	2.83	-4.402	
	8	6885	-7.150	-7.742	2.83	-4.320	
		7005	-6.942	-7.591	2.83	-4.112	
		7085	-7.160	-7.878	2.83	-4.330	
802.11ax-HE80	5	5985	-7.051	-6.932	1.95	-4.982	-1
		6145	-6.887	-7.058	1.95	-4.937	
		6385	-6.710	-6.290	1.60	-4.690	
	6	6465	-6.921	-6.300	1.60	-4.700	
		6545	-7.301	-6.552	1.60	-4.952	
	7	6625	-8.057	-9.134	1.60	-4.952	
		6705	-8.295	-9.317	1.60	-6.457	
		6785	-8.090	-9.117	1.60	-6.695	
	8	6865	-8.547	-9.416	2.83	-6.490	
		6945	-7.815	-7.145	2.83	-5.717	
		7025	-7.817	-8.637	2.83	-4.315	
802.11ax-HE160	5	6025	-6.818	-6.780	1.95	-4.987	-1
		6185	-6.777	-6.841	1.95	-4.830	
		6345	-6.672	-6.307	1.60	-4.827	
	6	6505	-7.014	-6.998	1.60	-4.707	
	7	6665	-7.918	-8.228	1.60	-5.398	
		6825	-7.968	-8.025	1.60	-6.318	
	8	6985	-7.985	-8.259	2.83	-6.368	

Note: 1. All results have been included cable loss and Simultaneous Factor [Please refer to KDB 662911 E 2) c)]
2. Each output of PSD = individual spectrum value +10 log (N_{ANT})
3. Max. e.i.r.p Density= The Max. of Power Spectral Density [ANT A (AUX) or ANT B (Main)]+ Directional Antenna Gain
4. According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + … + $10^{GN/10}$)/N_{ANT}] dBi
Directional gain:
5925MHz: 10 log[($10^{2.1/10}$ +$10^{1.8/10}$)/2]= 1.95dBi
6525MHz: 10 log[($10^{1.6/10}$ +$10^{1.6/10}$)/2]= 1.60dBi
7125MHz: 10 log[($10^{1.9/10}$ +$10^{3.6/10}$)/2]= 2.83dBi
The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only.
This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).

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- OFDMA Modulation

SKU #1 (with INPAQ Antenna)

Tones	RU Index	Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/MHz) Note 2		Directional Antenna Gain (dBi) Note 5	Max. e.i.r.p Density (dBm/MHz) Note 3	Limit (dBm/MHz)
					ANT A (AUX)	ANT B (Main)			
26T	0	802.11ax- HE20	5	5955	-6.805	-6.323	5.13	-1.193	-1
52T	37	802.11ax- HE20	5	5955	-6.328	-6.263	5.13	-1.133	
106T	53	802.11ax- HE20	5	5955	-6.928	-6.725	5.13	-1.595	
242T	62	802.11ax- HE160	5	6025	-6.808	-7.707	5.13	-1.678	
484T	66	802.11ax- HE160	5	6025	-6.728	-7.005	5.13	-1.598	
996T	67	802.11ax- HE160	5	6025	-6.934	-6.223	5.13	-1.093	

Note: 1. All results have been included cable loss and Simultaneous Factor [Please refer to KDB 662911 E 2) c)]
2. Each output of PSD = individual spectrum value +10 log (N_{ANT})
3. Max. e.i.r.p Density= The Max. of Power Spectral Density [ANT A (AUX) or ANT B (Main)]+ Directional Antenna Gain
4. After preliminary test, we present worst case with maximum power of each RU type.
5. According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + … + $10^{GN/10}$)/N_{ANT}] dBi
Directional gain:
5925MHz: 10 log[($10^{5.6/10}$ +$10^{4.6/10}$)/2]= 5.13dBi
6525MHz: 10 log[($10^{5.2/10}$ +$10^{5.0/10}$)/2]= 5.10dBi
7125MHz: 10 log[($10^{5.1/10}$ +$10^{4.6/10}$)/2]= 4.86dBi
The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only.
This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).

SKU #2 (with LUXSHARE-ICT Antenna)

Tones	RU Index	Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/MHz) Note 2		Directional Antenna Gain (dBi) Note 5	Max. e.i.r.p Density (dBm/MHz) Note 3	Limit (dBm/MHz)
					ANT A (AUX)	ANT B (Main)			
26T	0	802.11ax- HE20	5	5955	-6.805	-6.323	1.95	-4.373	-1
52T	37	802.11ax- HE20	5	5955	-6.328	-6.263	1.95	-4.313	
106T	53	802.11ax- HE20	5	5955	-6.928	-6.725	1.95	-4.775	
242T	62	802.11ax- HE160	5	6025	-6.808	-7.707	1.95	-4.858	
484T	66	802.11ax- HE160	5	6025	-6.728	-7.005	1.95	-4.778	
996T	67	802.11ax- HE160	5	6025	-6.934	-6.223	1.95	-4.273	

Note: 1. All results have been included cable loss and Simultaneous Factor [Please refer to KDB 662911 E 2) c)]
2. Each output of PSD = individual spectrum value +10 log (N_{ANT})
3. Max. e.i.r.p Density= The Max. of Power Spectral Density [ANT A (AUX) or ANT B (Main)]+ Directional Antenna Gain
4. After preliminary test, we present worst case with maximum power of each RU type.
5. According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + … + $10^{GN/10}$)/N_{ANT}] dBi
Directional gain:
5925MHz: 10 log[($10^{2.1/10}$ +$10^{1.8/10}$)/2]= 1.95dBi
6525MHz: 10 log[($10^{1.6/10}$ +$10^{1.6/10}$)/2]= 1.60dBi
7125MHz: 10 log[($10^{1.9/10}$ +$10^{3.6/10}$)/2]= 2.83dBi
The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only.
This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).

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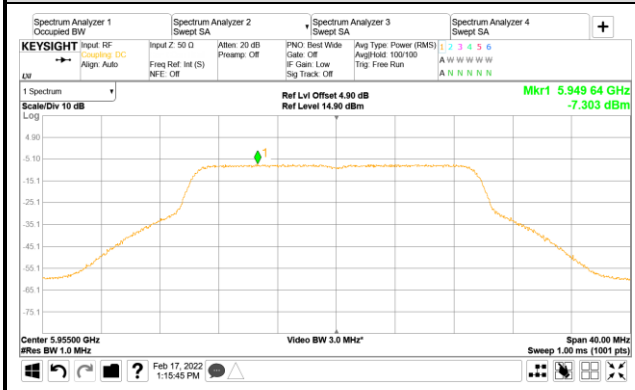
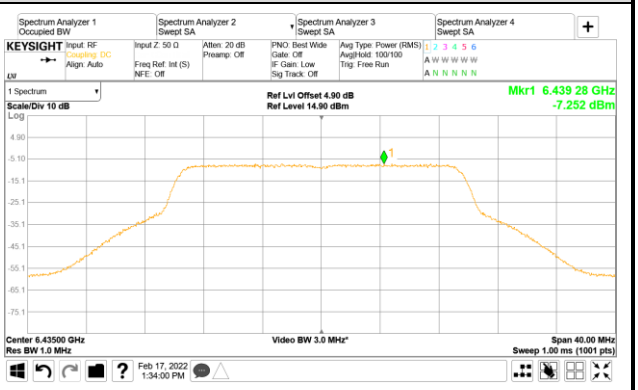
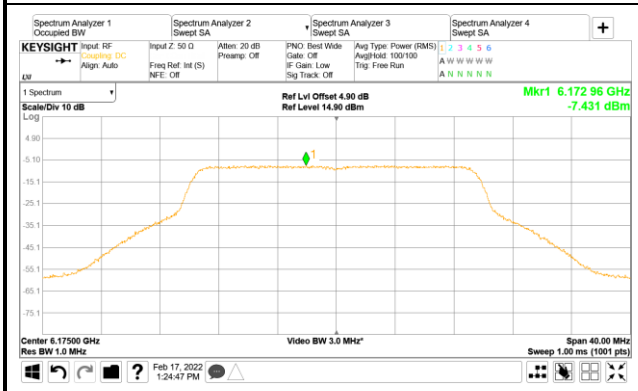
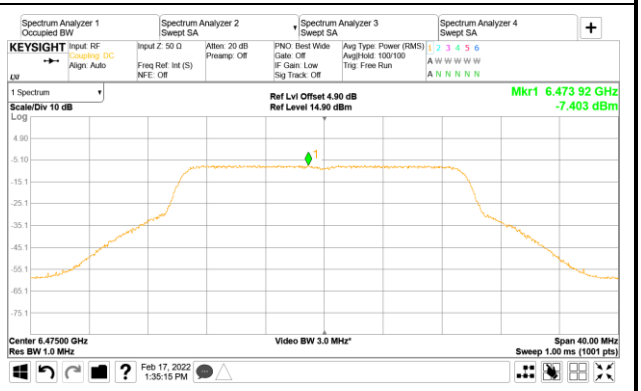
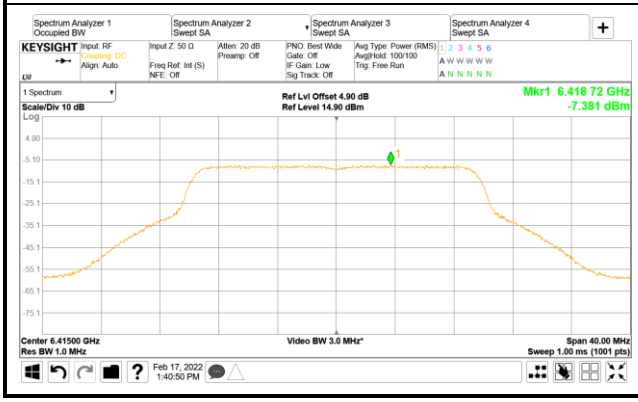
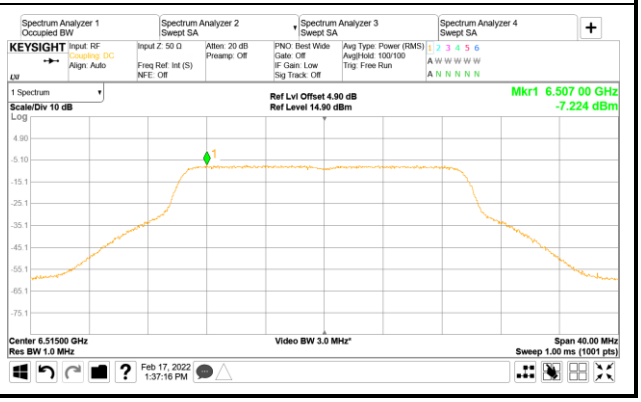
A.3.2 Measurement Plots

- OFDM Modulation

Mode: 802.11ax-HE20	
ANT A (AUX) Port	
U-NII Band 5	U-NII Band 6
	
	
	

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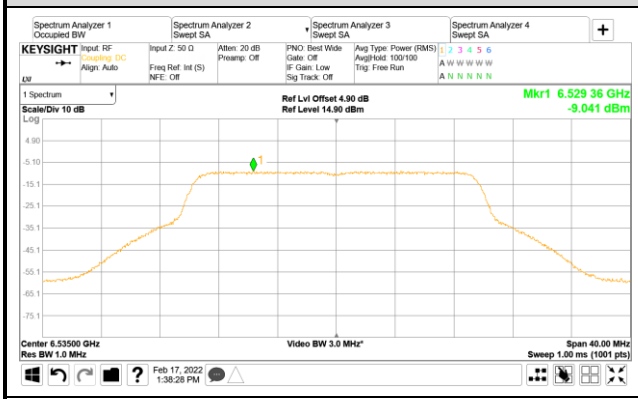
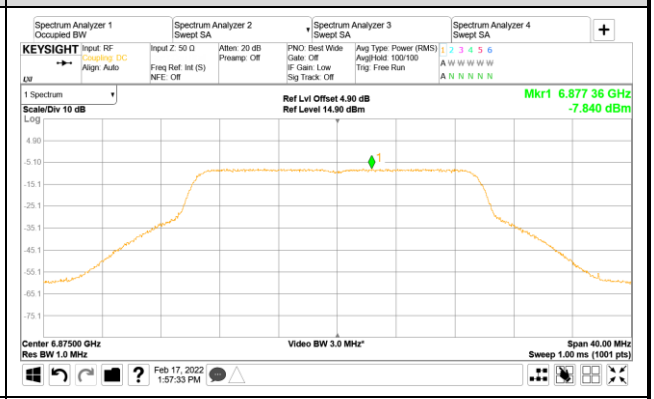
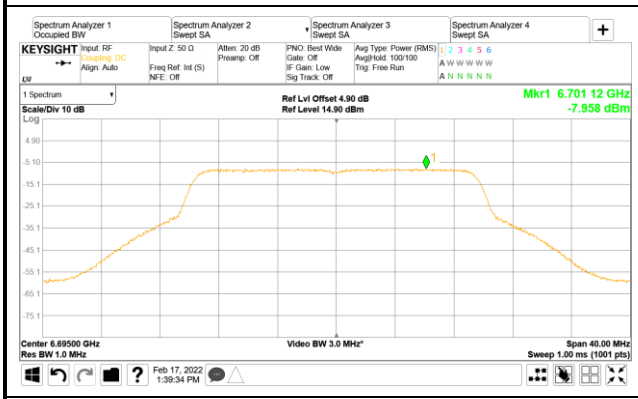
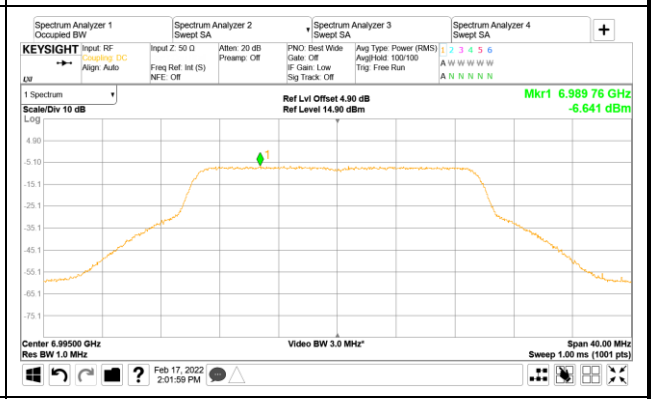
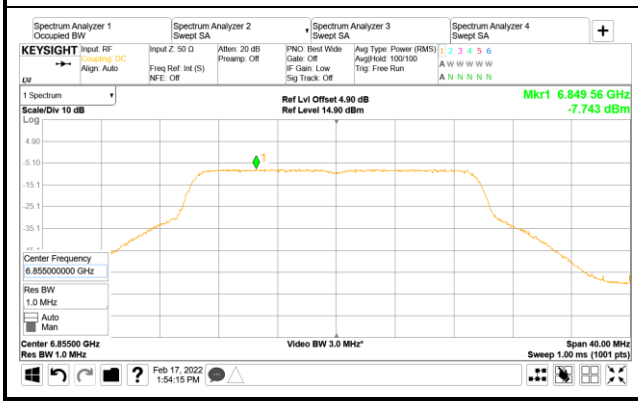
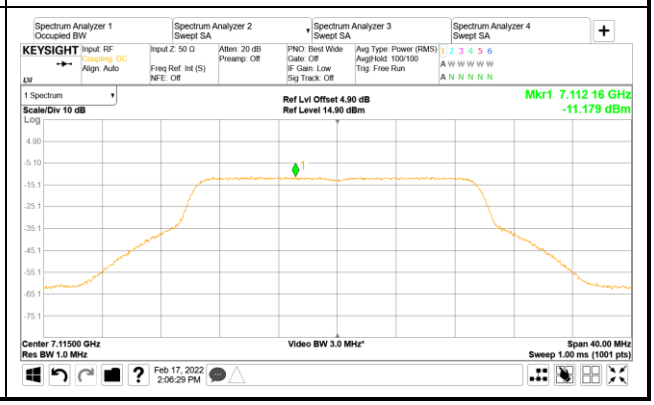
Mode: 802.11ax-HE20	
ANT A (AUX) Port	
U-NII Band 7	U-NII Band 8
	
	
	

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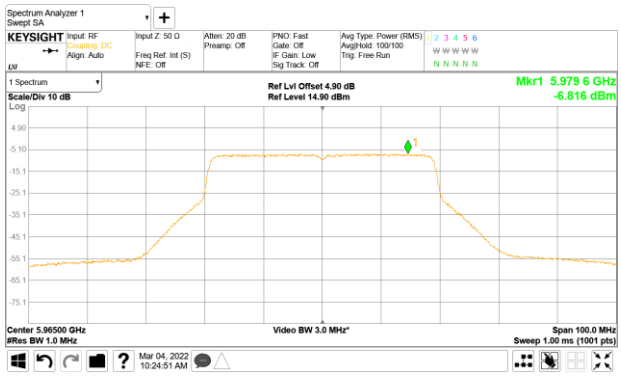
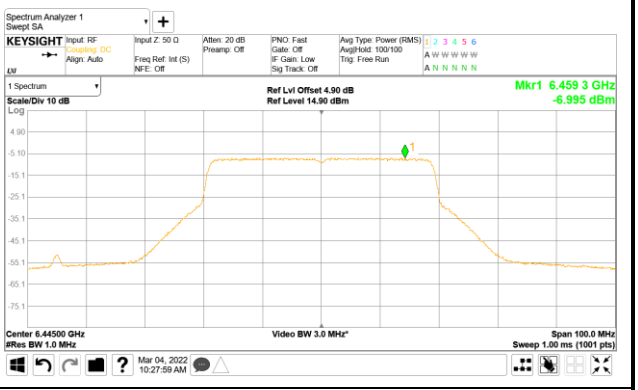
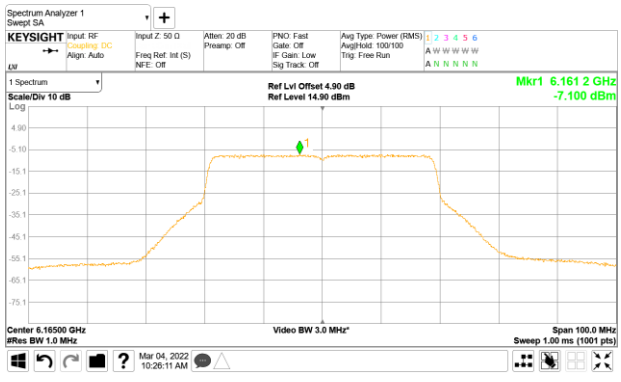
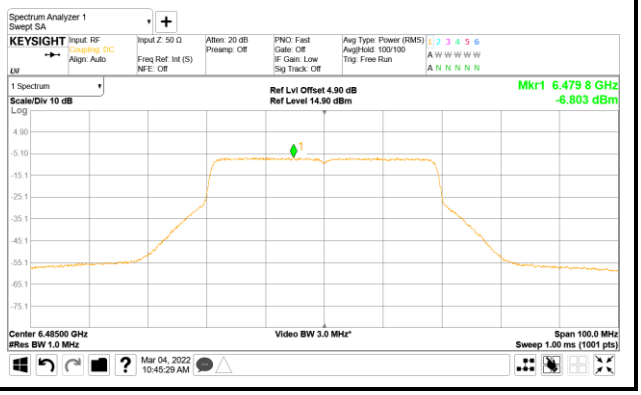
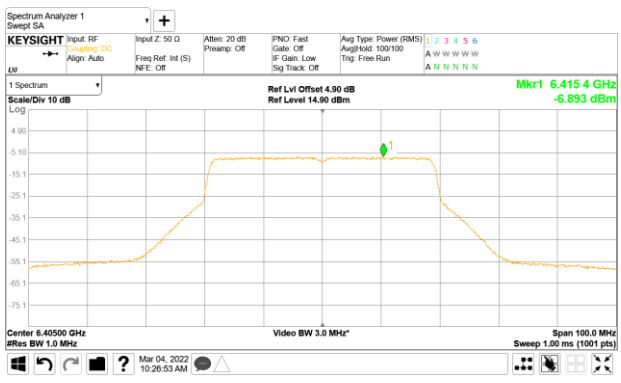
Mode: 802.11ax-HE40	
ANT A (AUX) Port	
U-NII Band 5	U-NII Band 6











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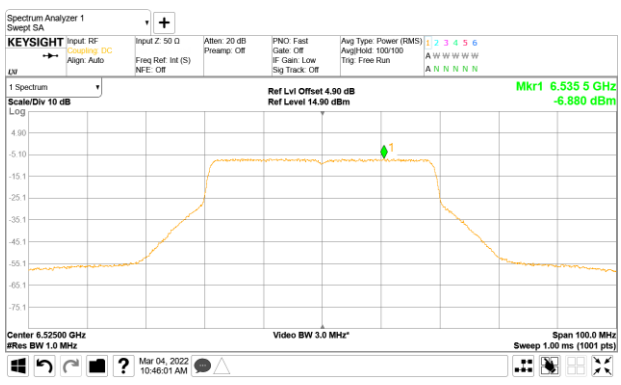
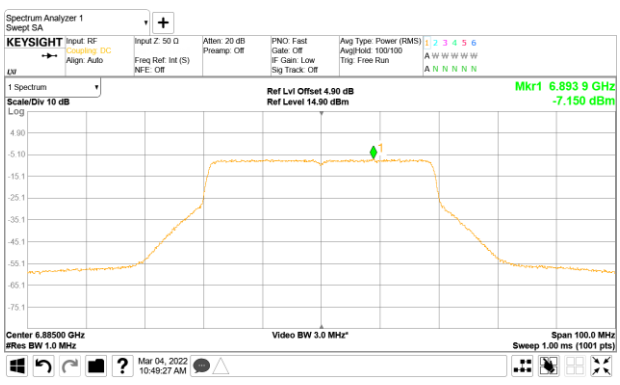
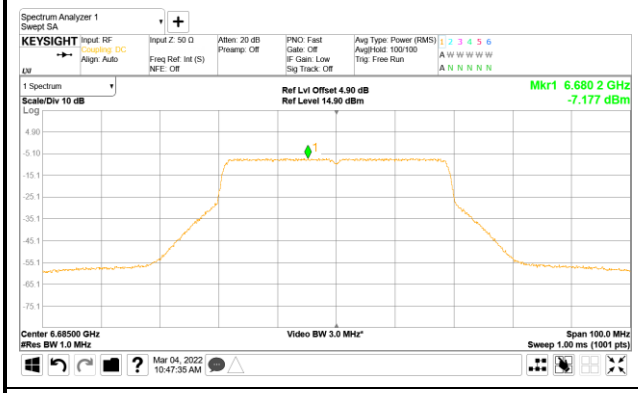
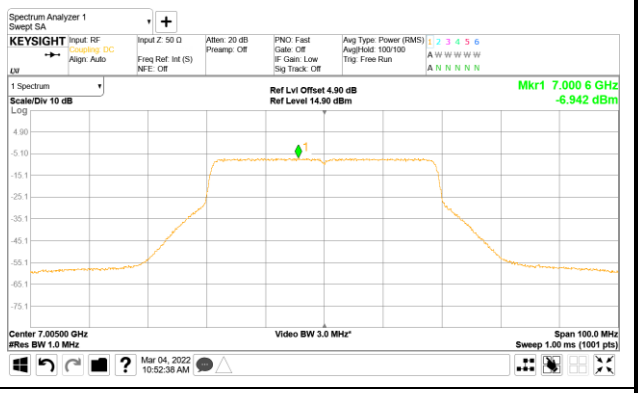
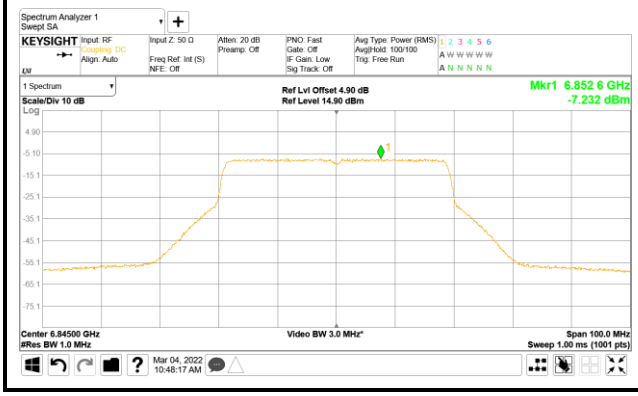
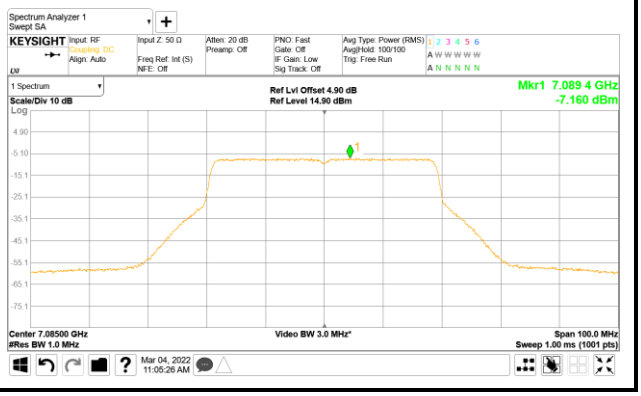
Mode: 802.11ax-HE40	
ANT A (AUX) Port	
U-NII Band 7	U-NII Band 8
	
	
	

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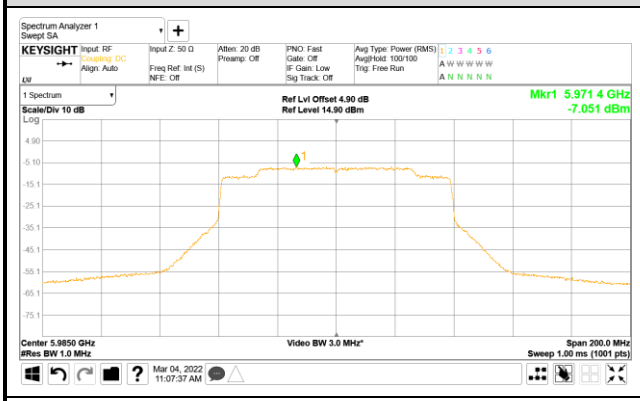
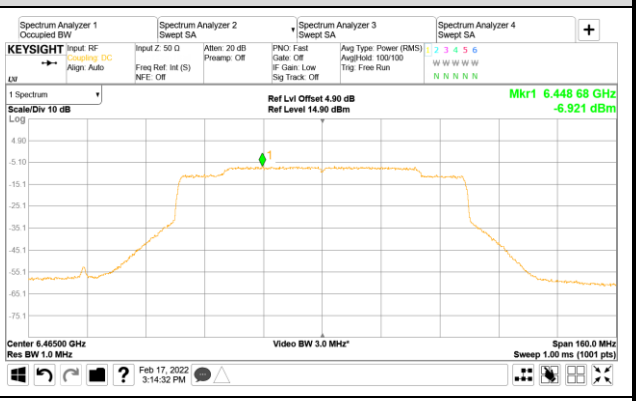
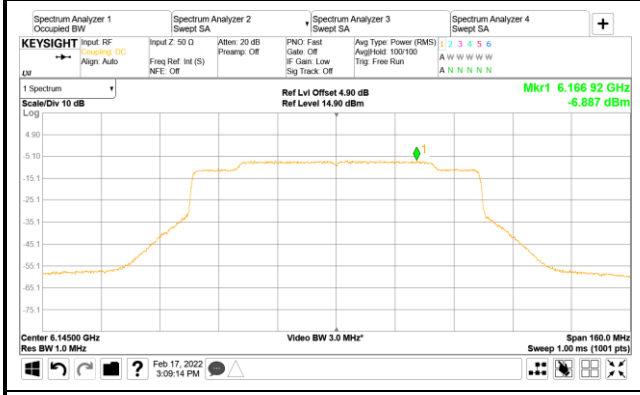
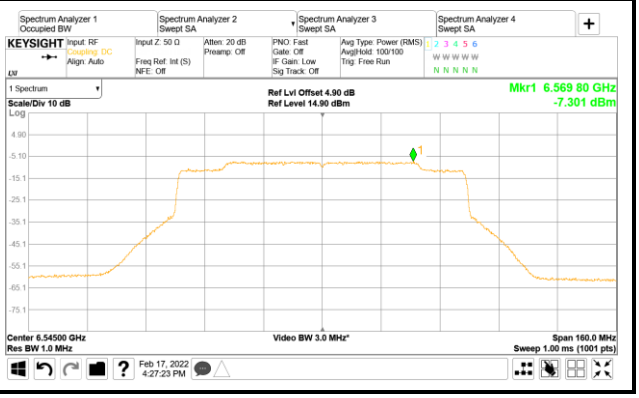
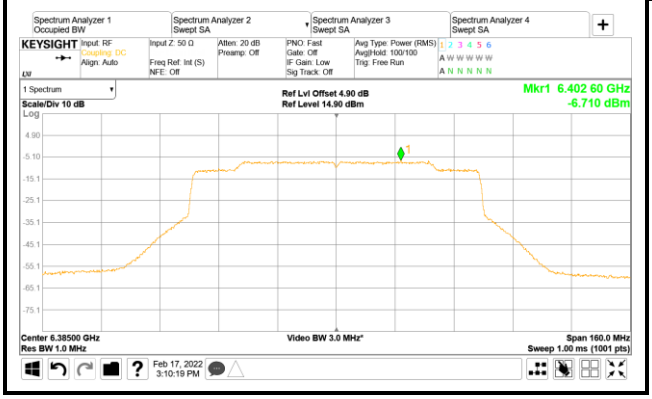
Mode: 802.11ax-HE80	
ANT A (AUX) Port	
U-NII Band 5	U-NII Band 6
	
	
	

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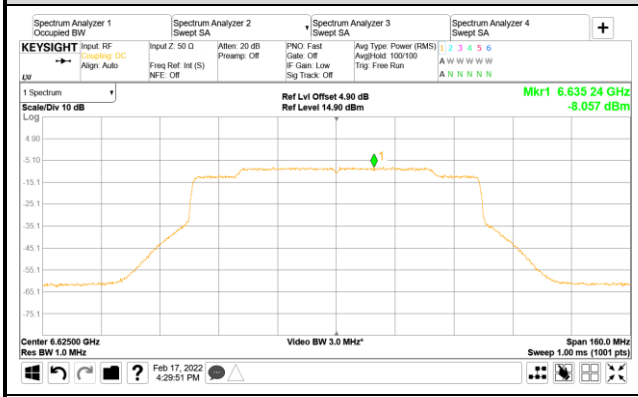
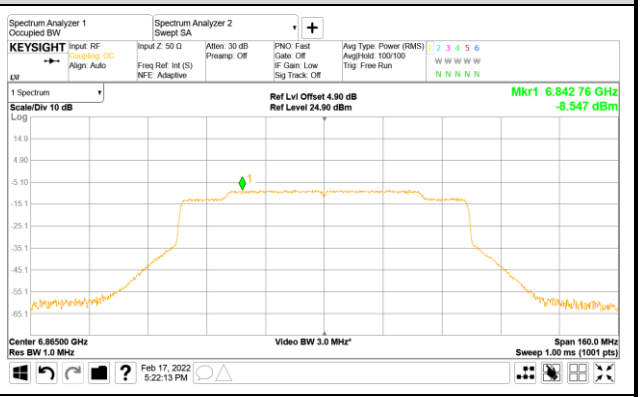
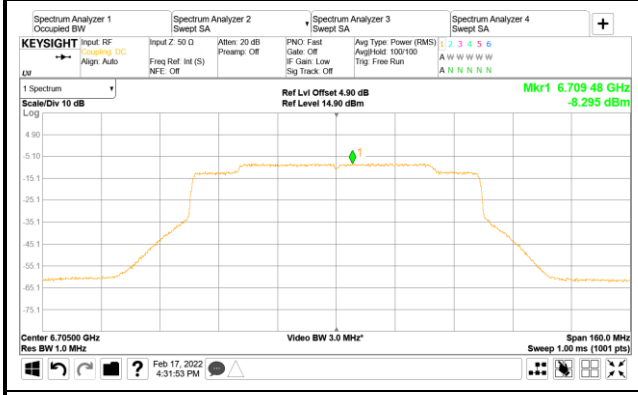
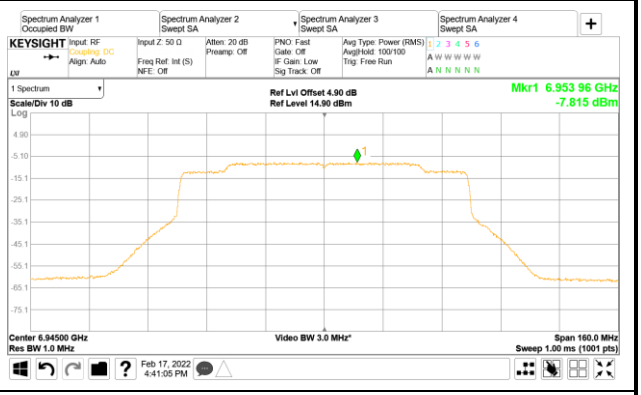
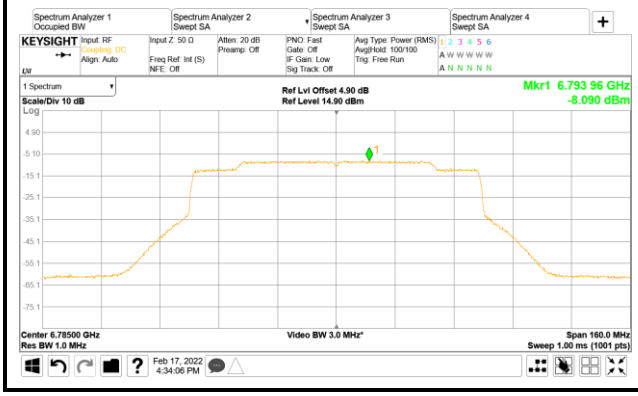
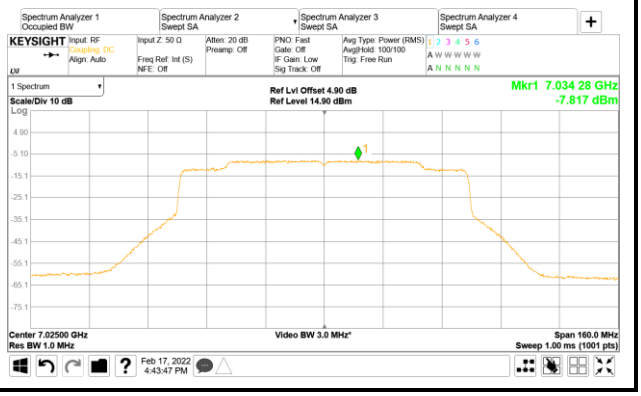
Mode: 802.11ax-HE80	
ANT A (AUX) Port	
U-NII Band 7	U-NII Band 8
	
	
	

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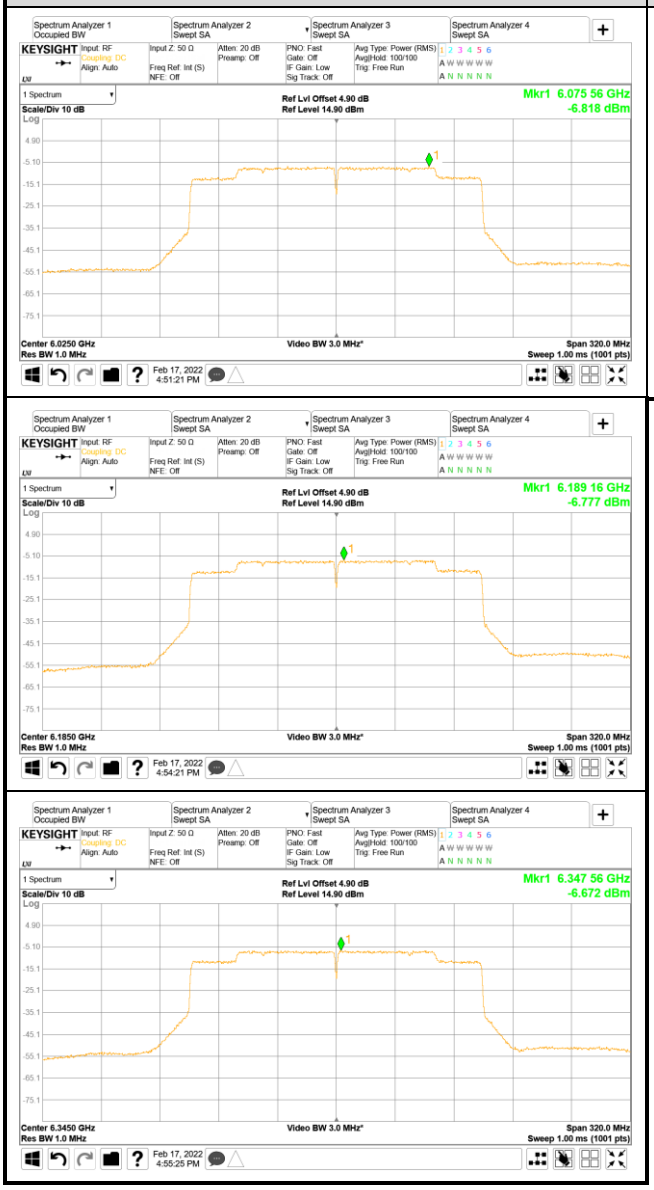
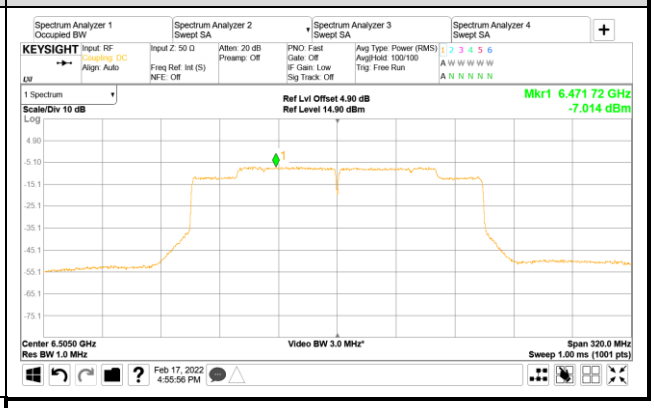
Mode: 802.11ax-HE160	
ANT A (AUX) Port	
U-NII Band 5	U-NII Band 6





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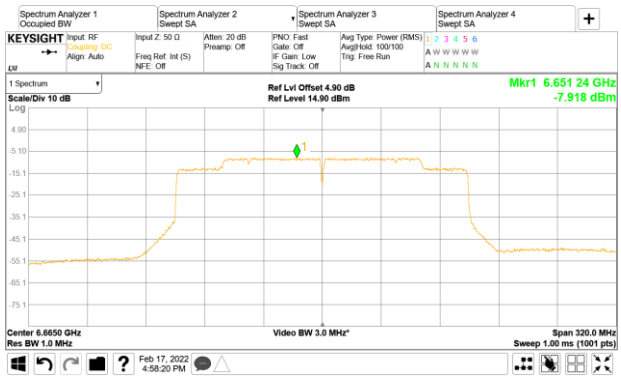
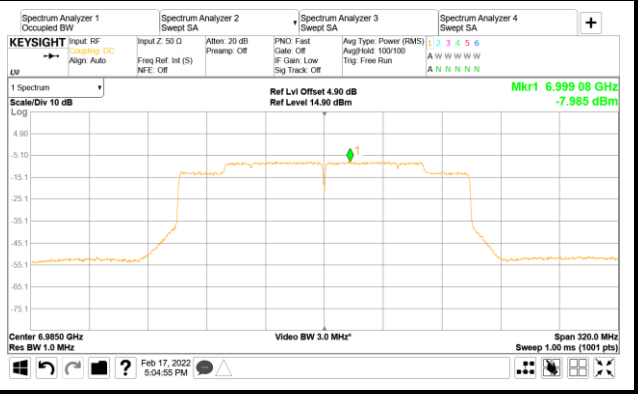
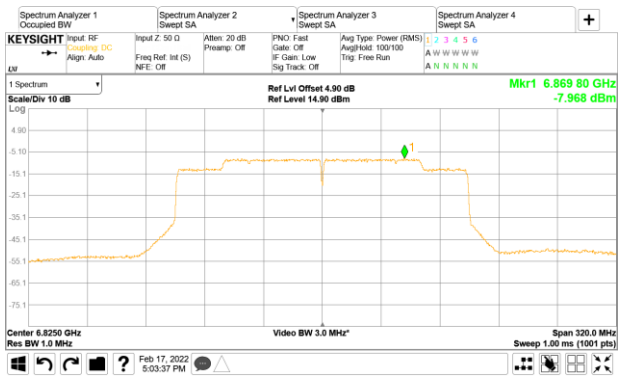
Mode: 802.11ax-HE160	
ANT A (AUX) Port	
U-NII Band 7	U-NII Band 8







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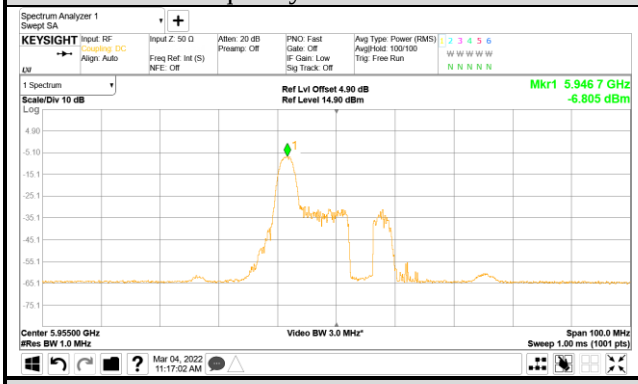
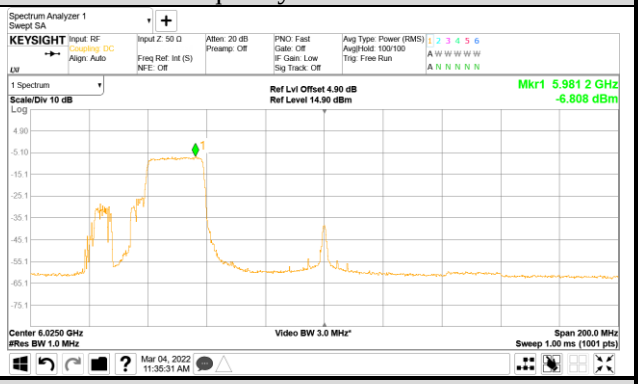
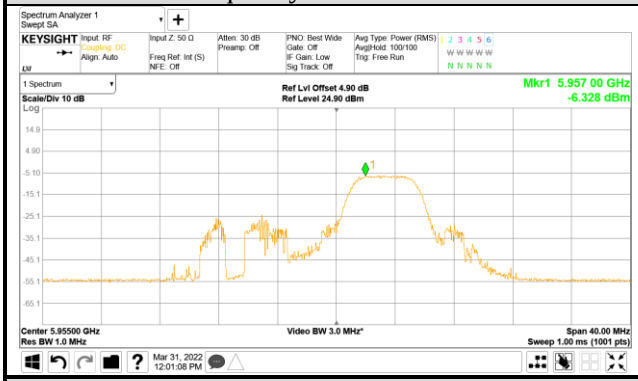
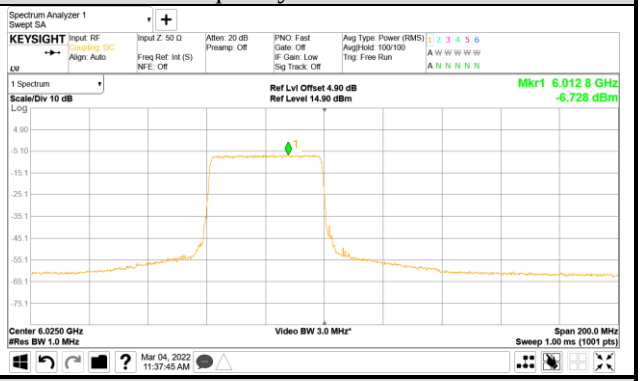
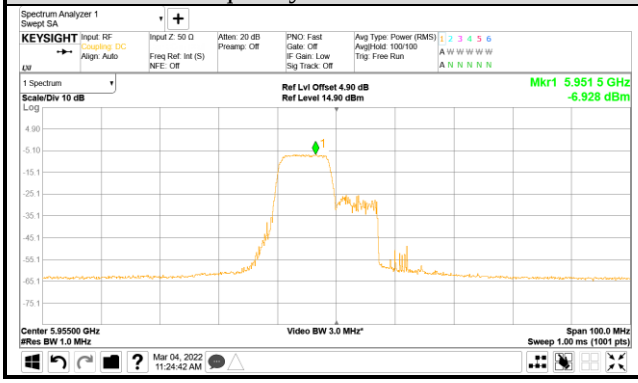
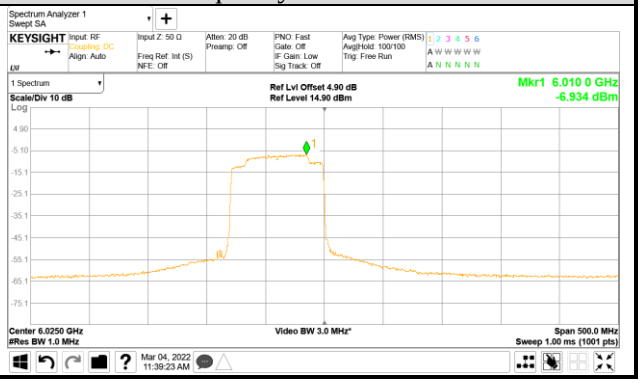
- OFDMA Modulation

ANT A (AUX) Port	
Tones: 26T	Tones: 242T
RU Index: 0	RU Index: 62
Mode: 802.11ax-HE20	Mode: 802.11ax-HE160
Centre Frequency: 5955MHz	Centre Frequency: 6025MHz
	
Tones: 52T	Tones: 484T
RU Index: 37	RU Index: 66
Mode: 802.11ax-HE20	Mode: 802.11ax-HE160
Centre Frequency: 5955MHz	Centre Frequency: 6025MHz
	
Tones: 106T	Tones: 996T
RU Index: 53	RU Index: 67
Mode: 802.11ax-HE20	Mode: 802.11ax-HE160
Centre Frequency: 5955MHz	Centre Frequency: 6025MHz
	

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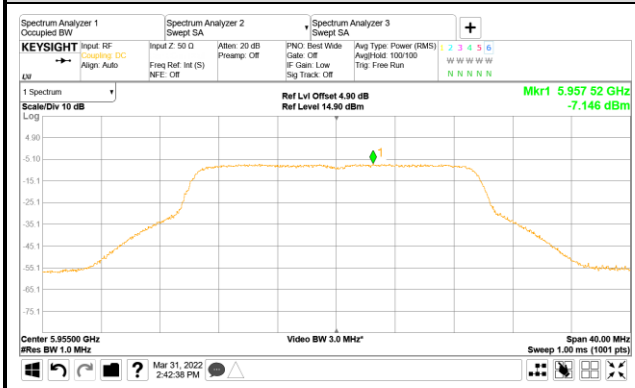
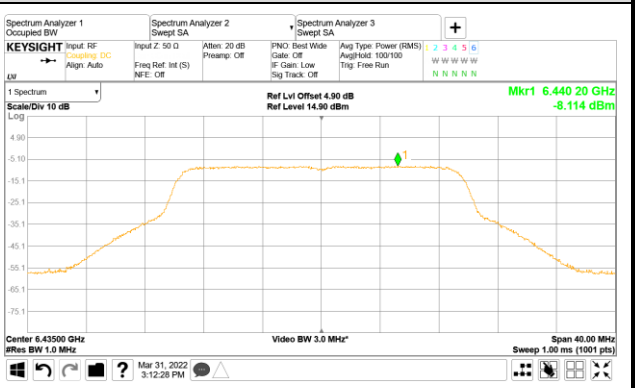
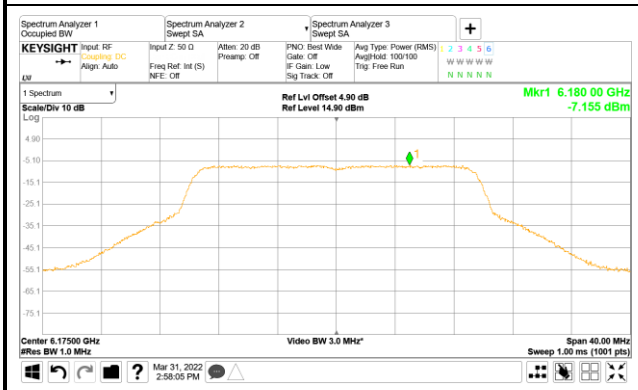
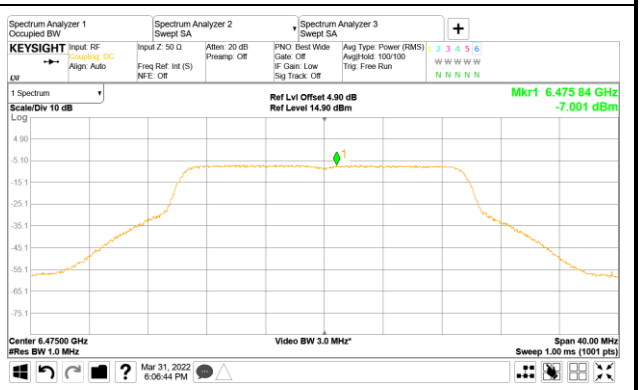
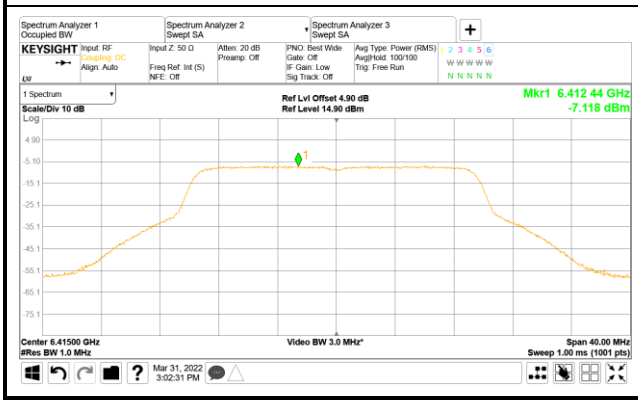
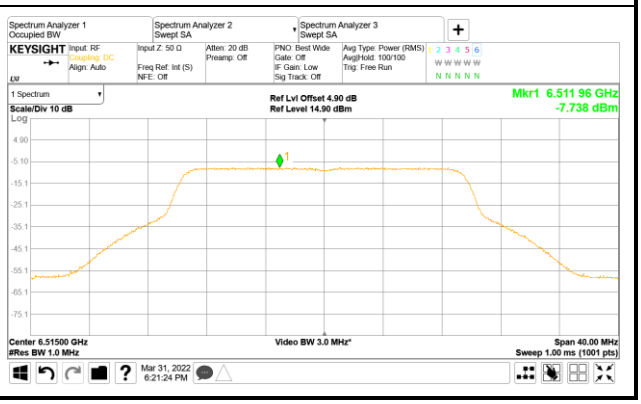
- OFDM Modulation

Mode: 802.11ax-HE20	
ANT B (Main) Port	
U-NII Band 5	U-NII Band 6
	
	
	

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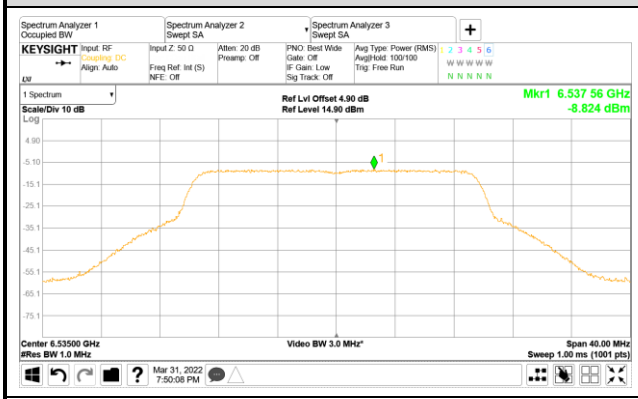
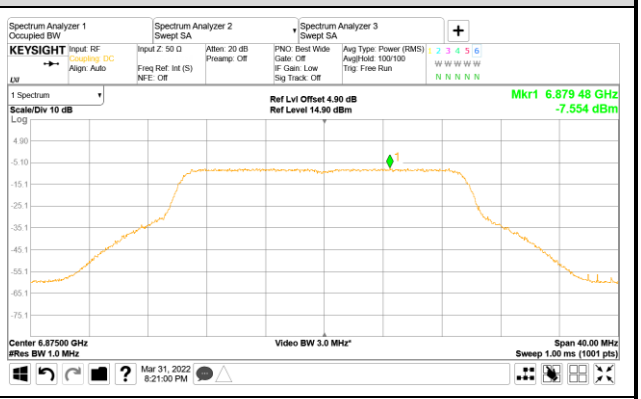
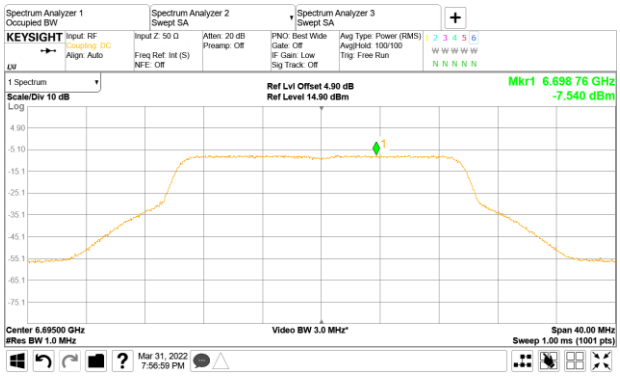
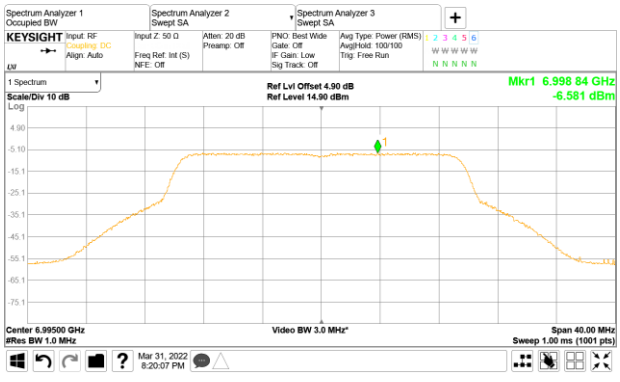
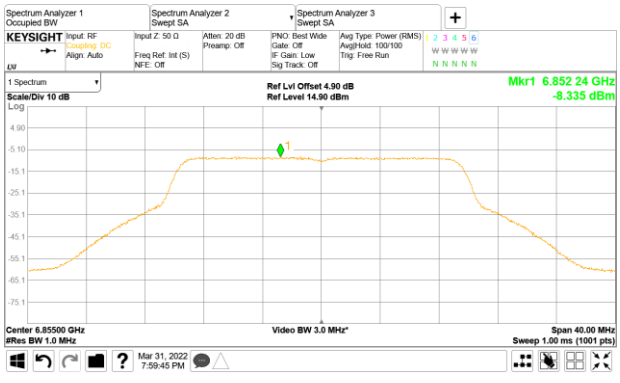
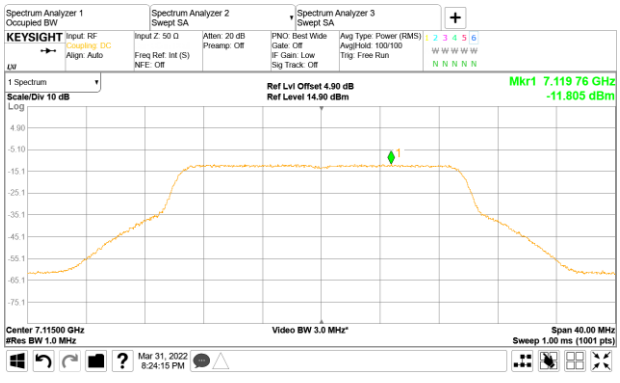
Mode: 802.11ax-HE20	
ANT B (Main) Port	
U-NII Band 7	U-NII Band 8
	
	
	

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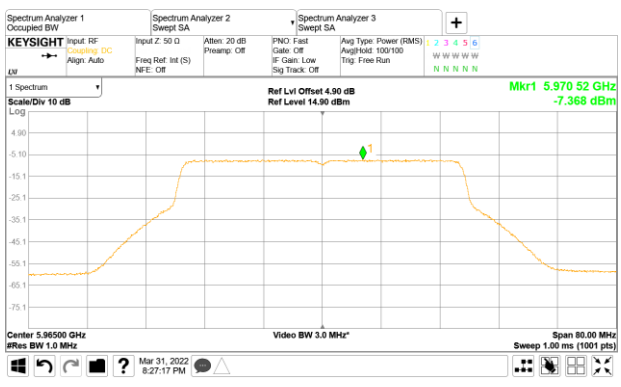
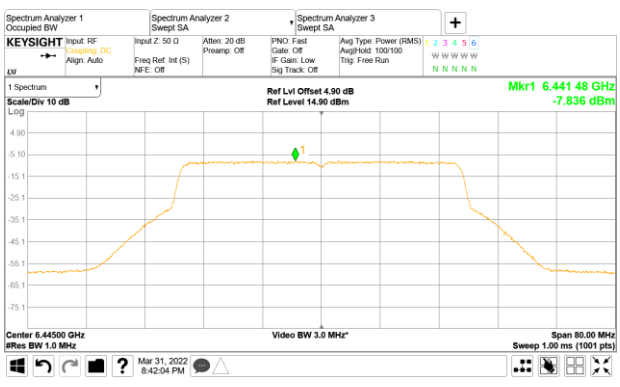
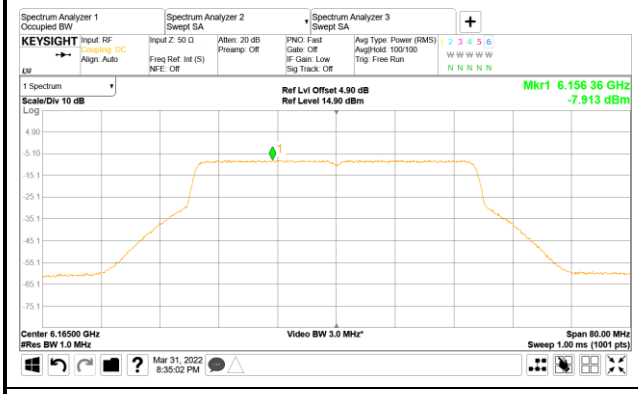
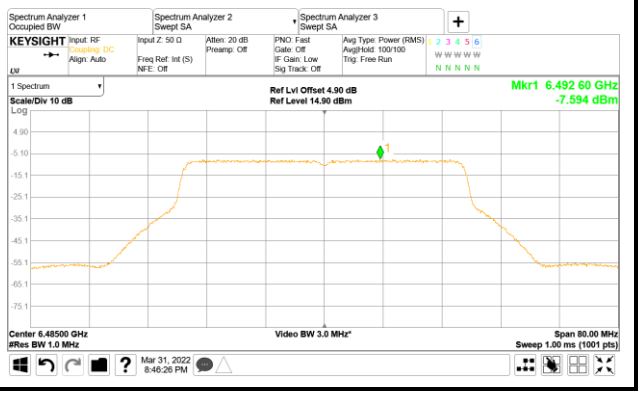
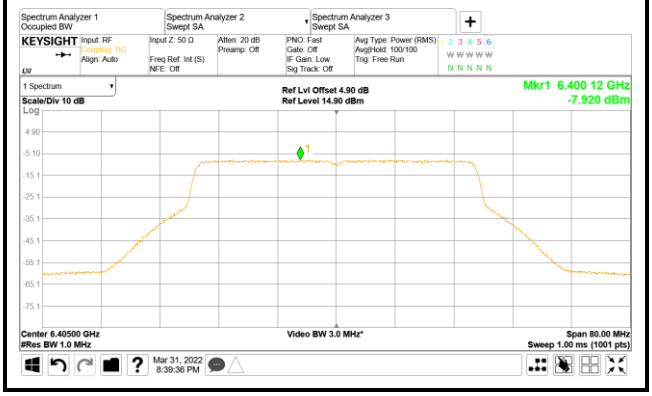
Mode: 802.11ax-HE40	
ANT B (Main) Port	
U-NII Band 5	U-NII Band 6











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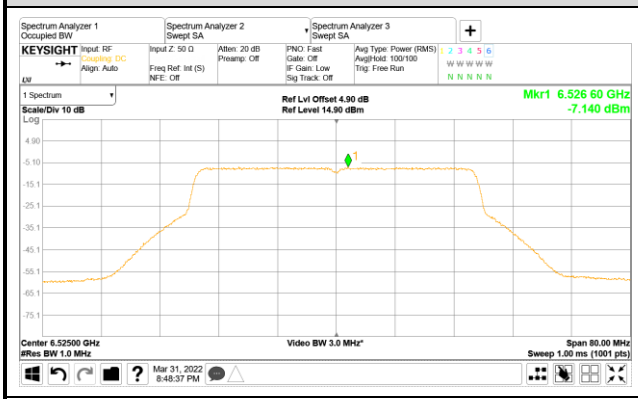
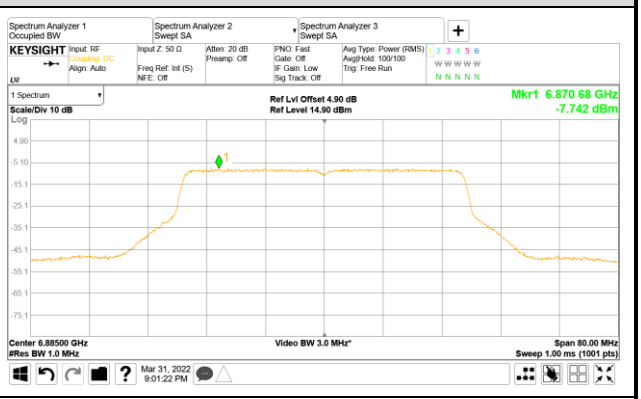
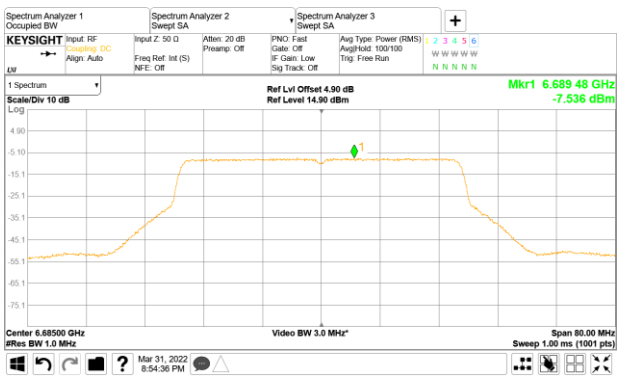
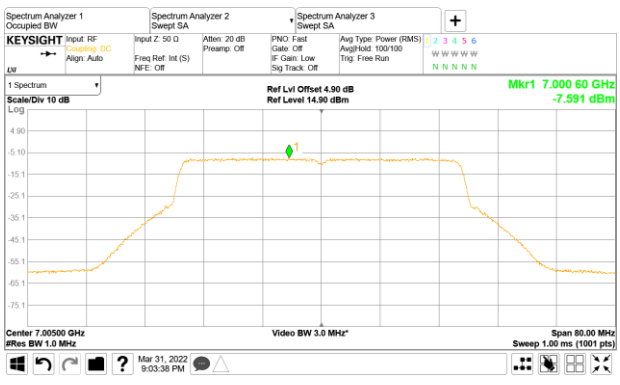
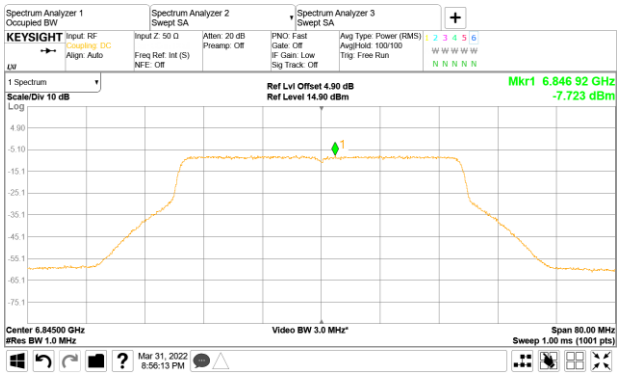
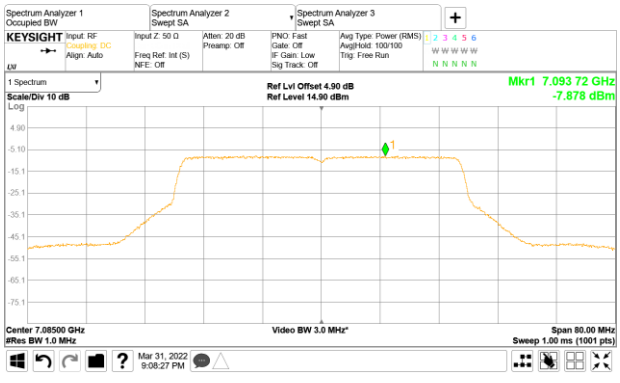
Mode: 802.11ax-HE40	
ANT B (Main) Port	
U-NII Band 7	U-NII Band 8
	
	
	

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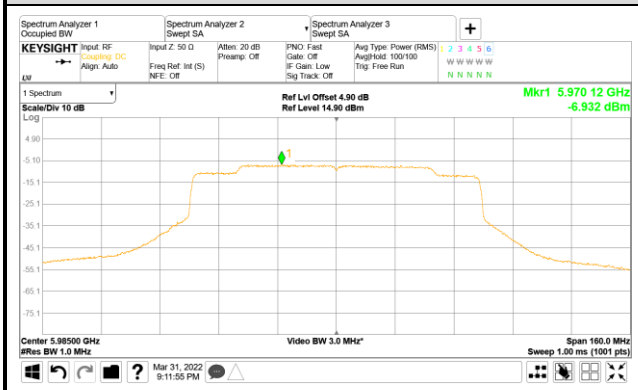
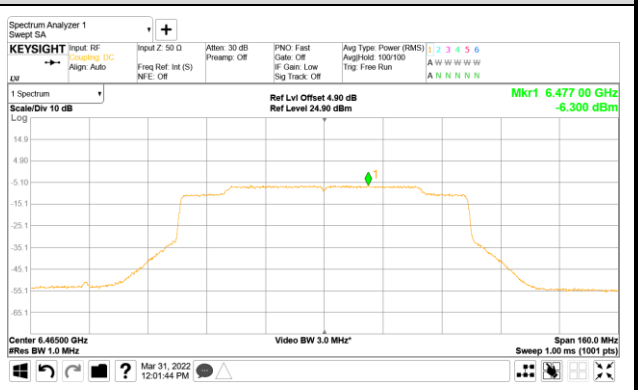
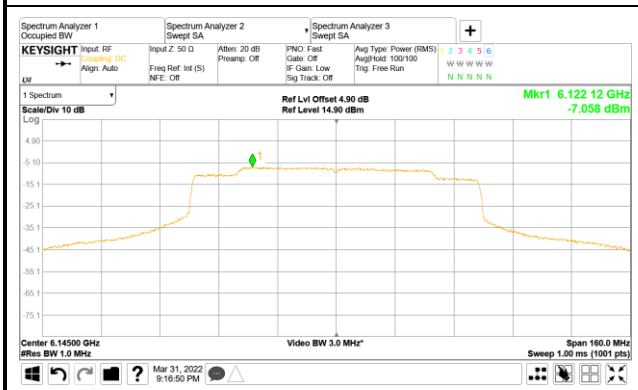
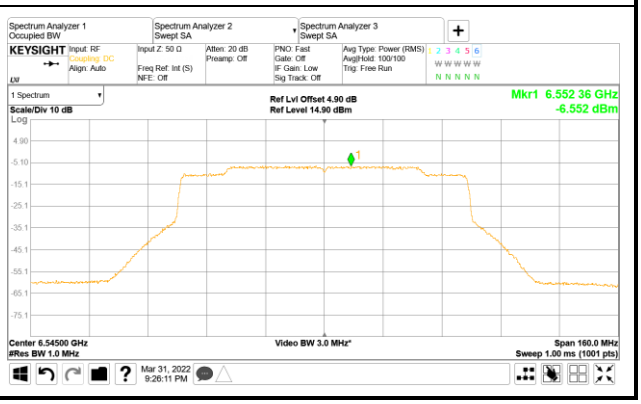
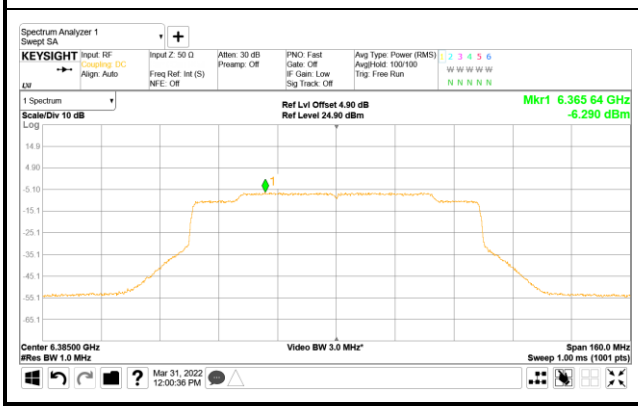
Mode: 802.11ax-HE80	
ANT B (Main) Port	
U-NII Band 5	U-NII Band 6
	
	
	

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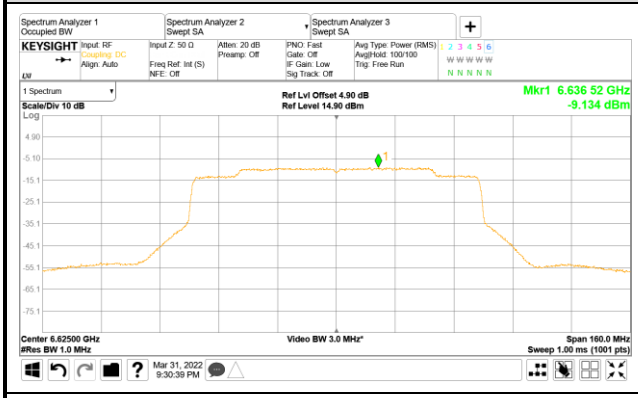
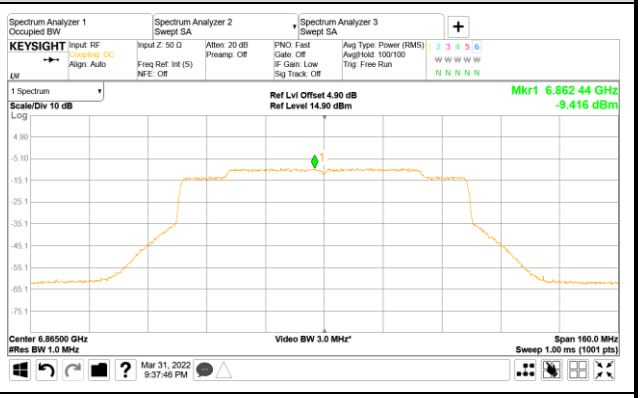
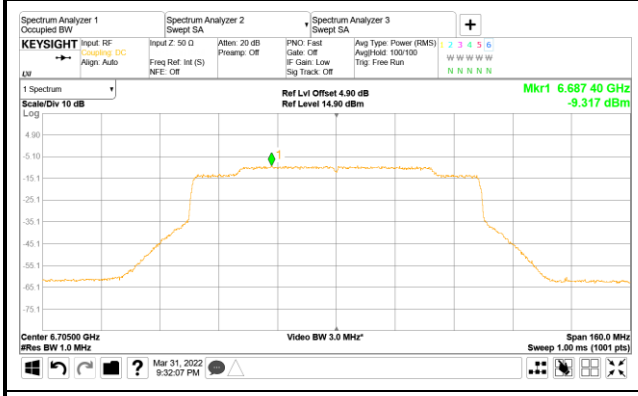
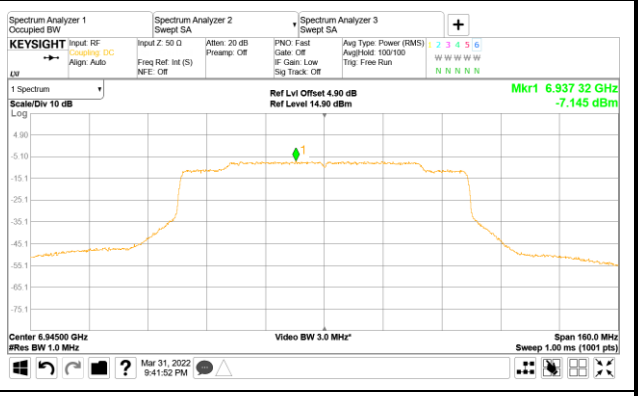
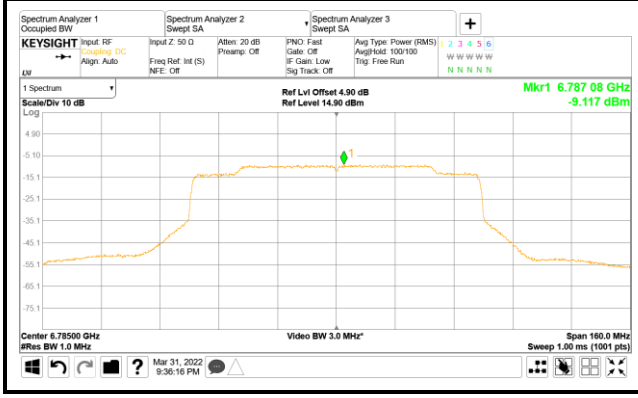
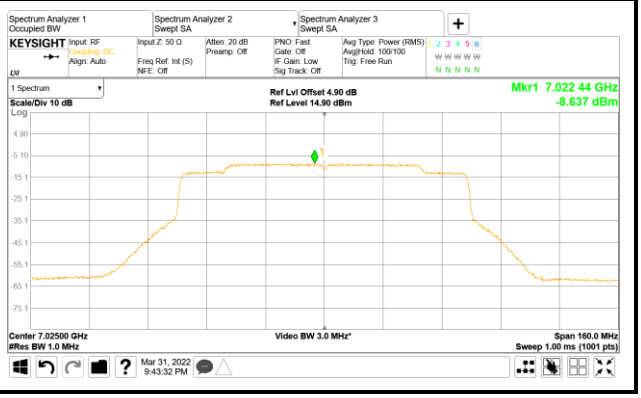
Mode: 802.11ax-HE80	
ANT B (Main) Port	
U-NII Band 7	U-NII Band 8
	
	
	

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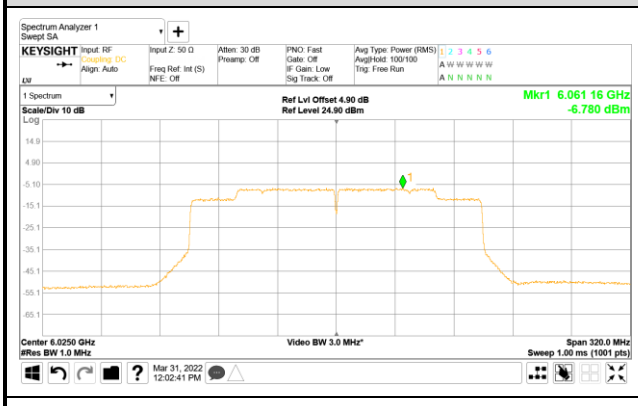
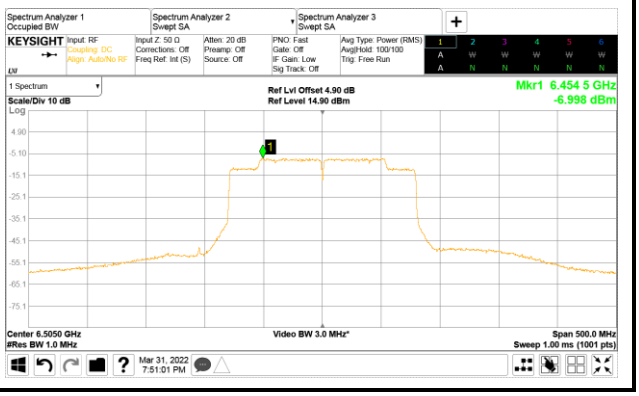
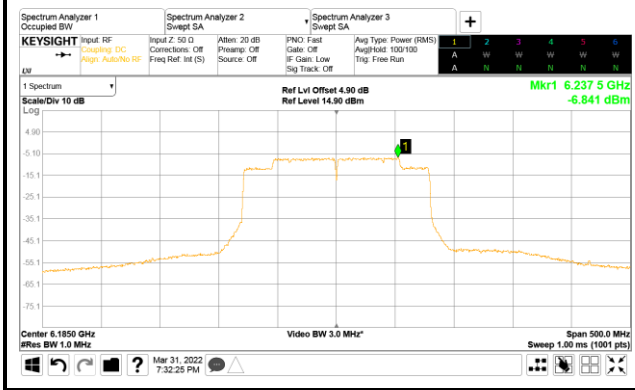
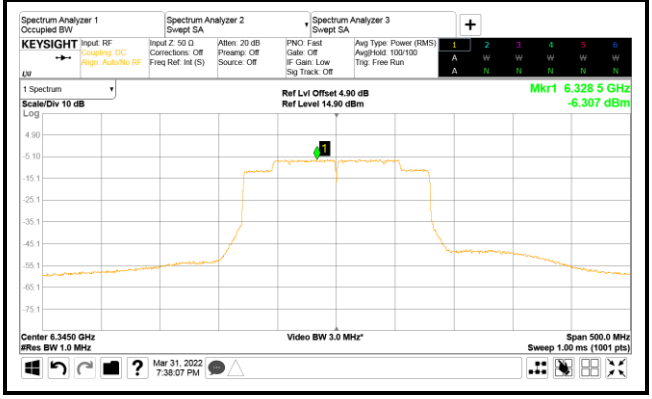
Mode: 802.11ax-HE160	
ANT B (Main) Port	
U-NII Band 5	U-NII Band 6
	
	
	

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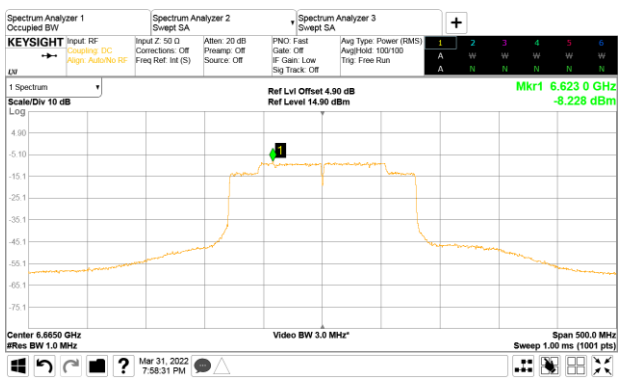
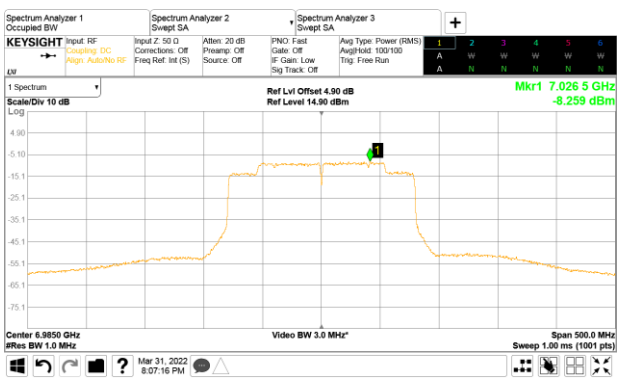
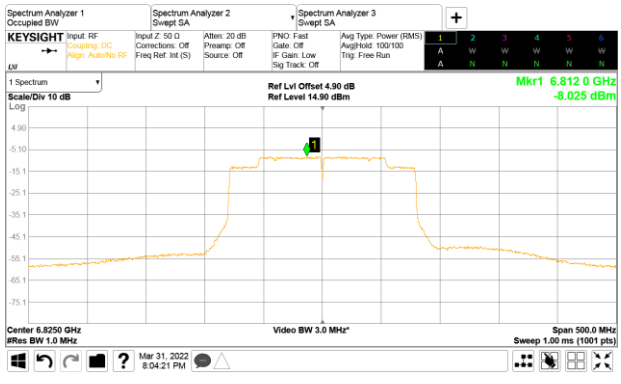
Mode: 802.11ax-HE160	
ANT B (Main) Port	
U-NII Band 7	U-NII Band 8
	
	

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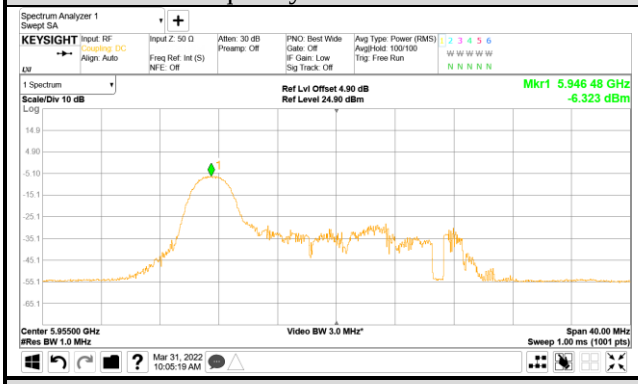
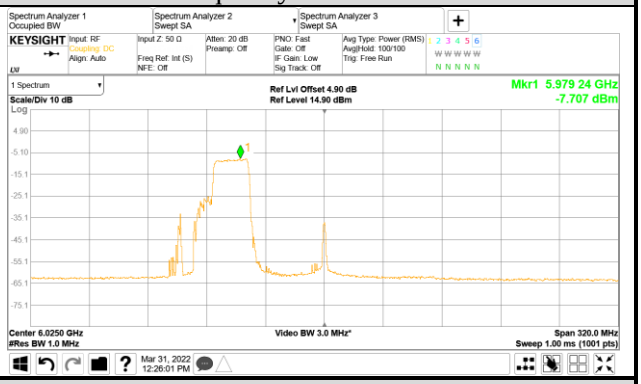
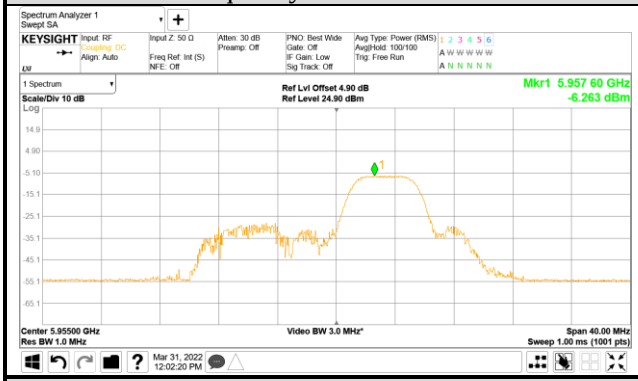
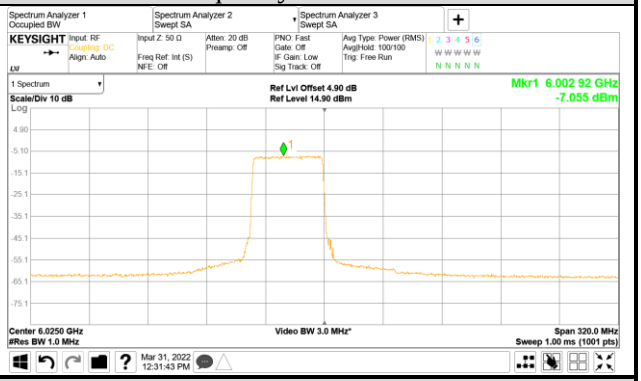
- OFDMA Modulation

ANT B (Main) Port	
Tones: 26T	Tones: 242T
RU Index: 0	RU Index: 62
Mode: 802.11ax-HE20	Mode: 802.11ax-HE160
Centre Frequency: 5955MHz	Centre Frequency: 6025MHz
	
Tones: 52T	Tones: 484T
RU Index: 37	RU Index: 66
Mode: 802.11ax-HE20	Mode: 802.11ax-HE160
Centre Frequency: 5955MHz	Centre Frequency: 6025MHz
	
Tones: 106T	Tones: 996T
RU Index: 53	RU Index: 67
Mode: 802.11ax-HE20	Mode: 802.11ax-HE160
Centre Frequency: 5955MHz	Centre Frequency: 6025MHz