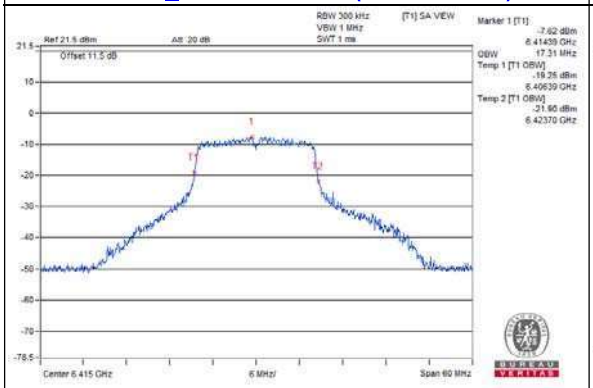
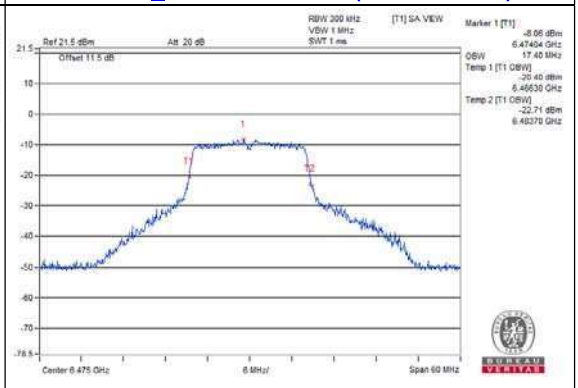
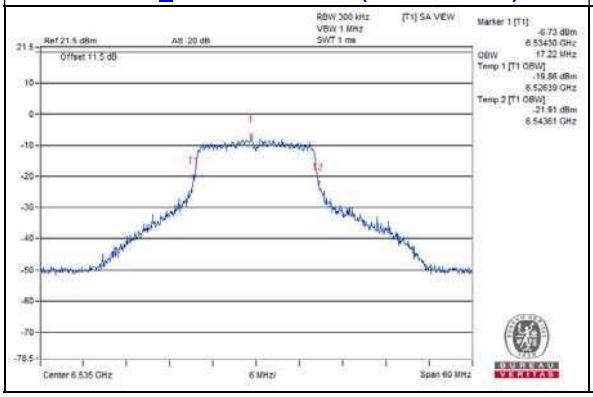
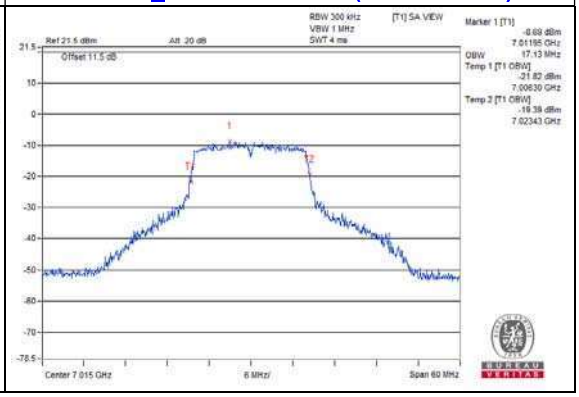
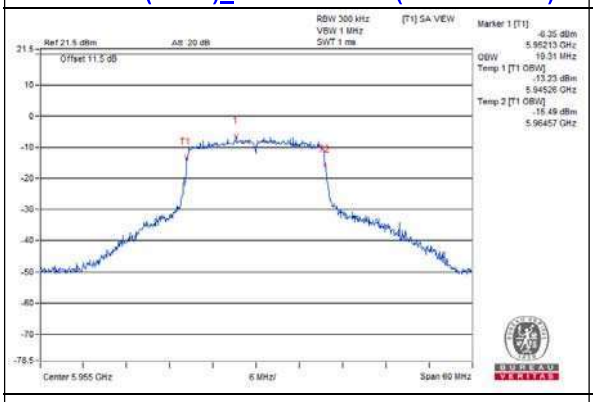
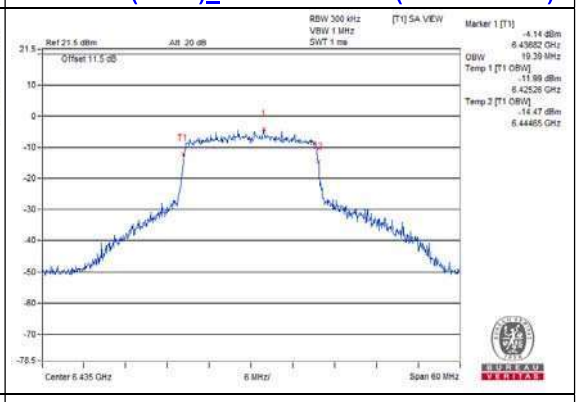
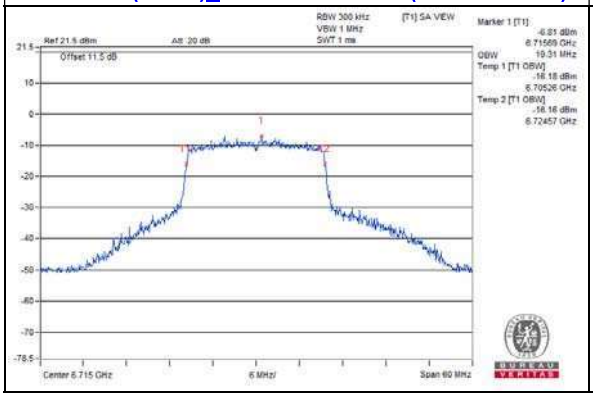
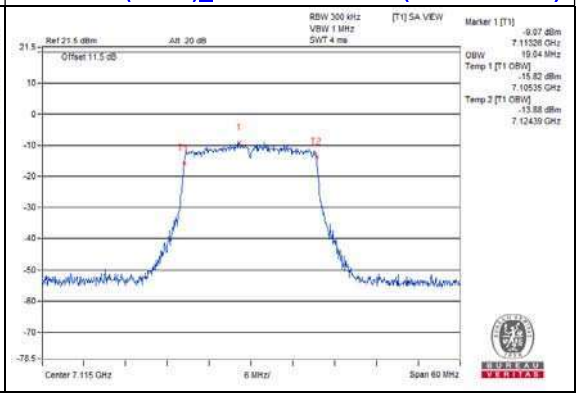
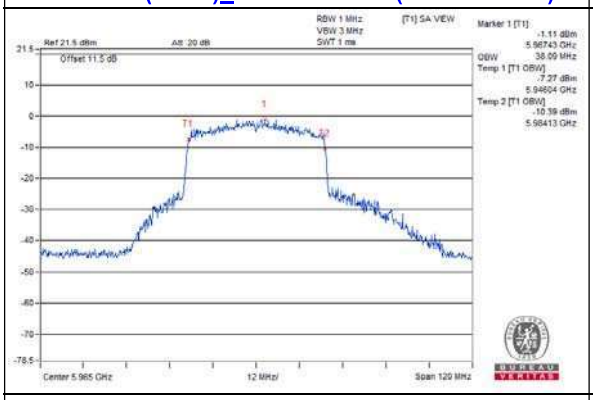
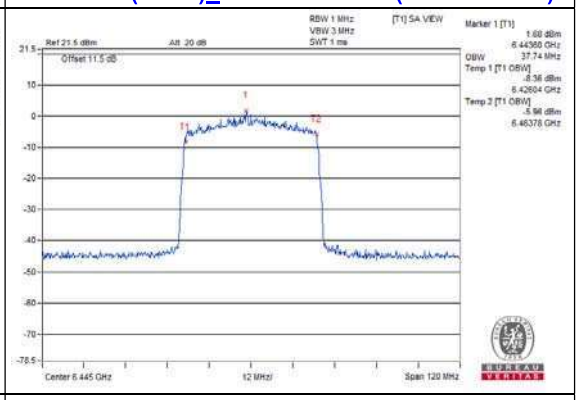
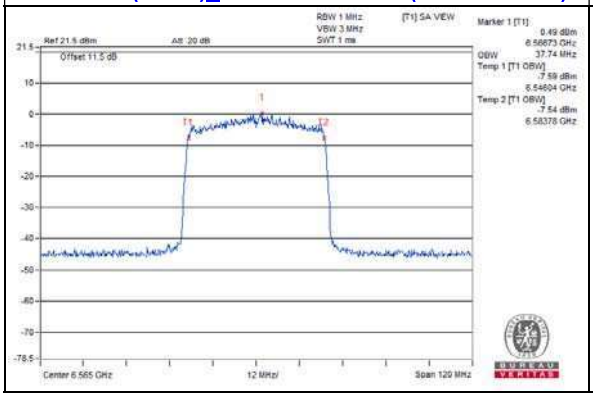
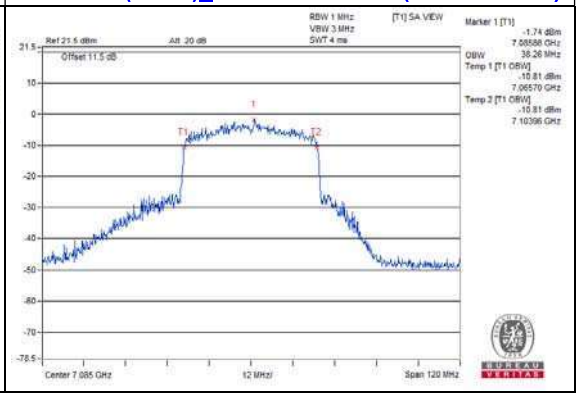
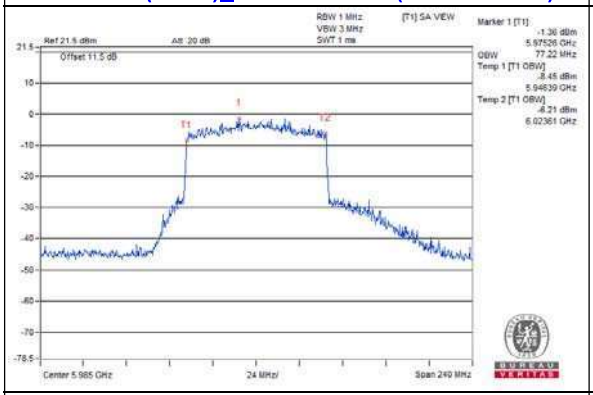
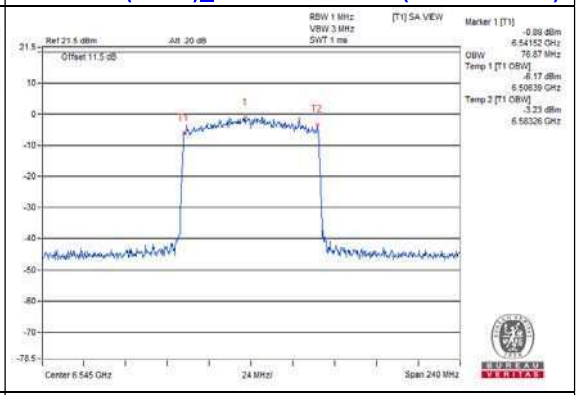
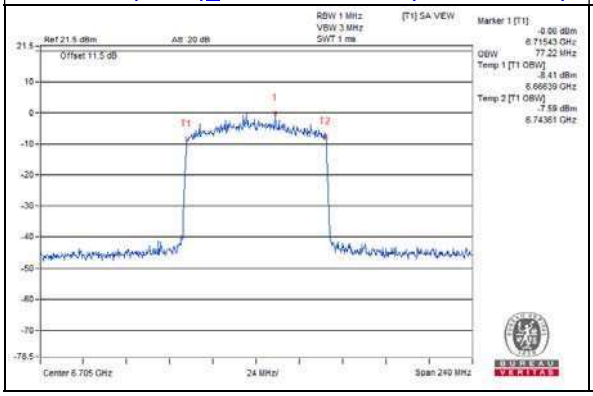
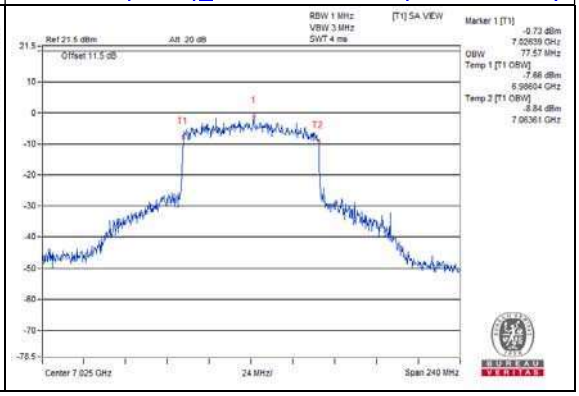
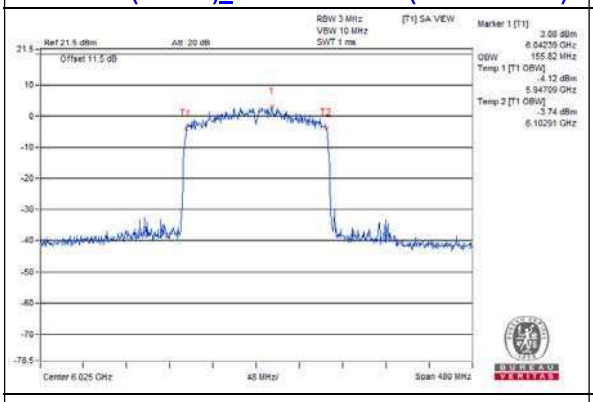
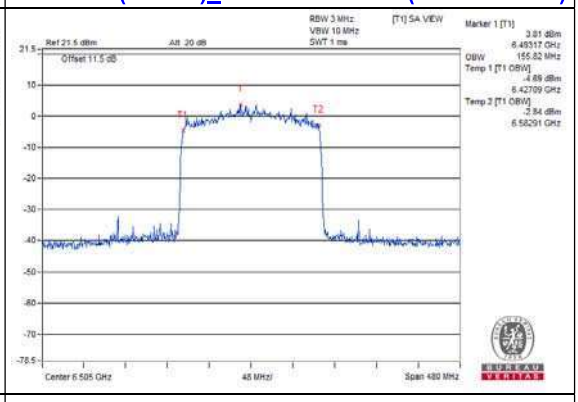
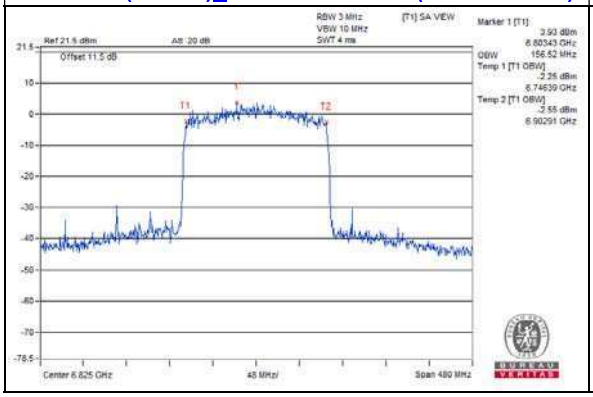
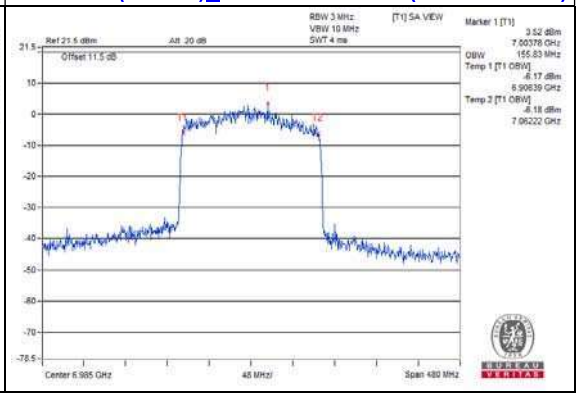
Spectrum Plot of Max. Value	
802.11a_Chain 0 / CH93 (U-NII-5 Band)	**802.11a_Chain 1 / CH105 (U-NII-6 Band)**
	
802.11a_Chain 0 / CH117 (U-NII-7 Band)	**802.11a_Chain 1 / CH213 (U-NII-8 Band)**
	

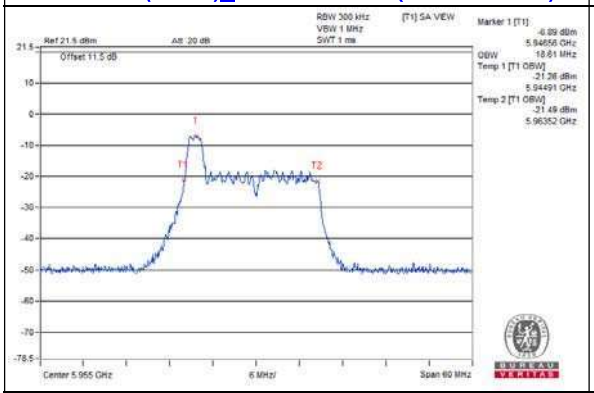
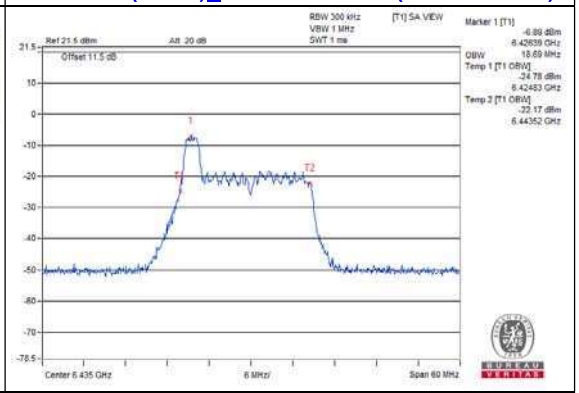
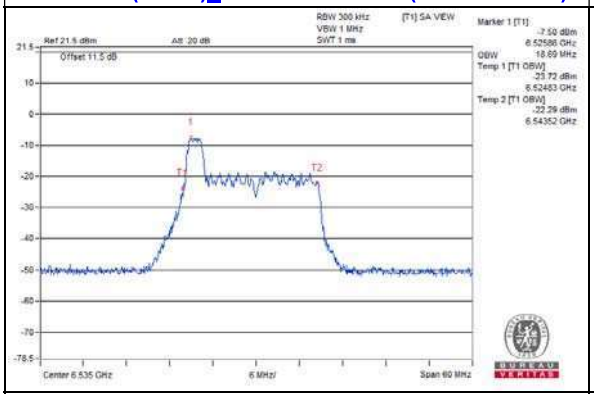
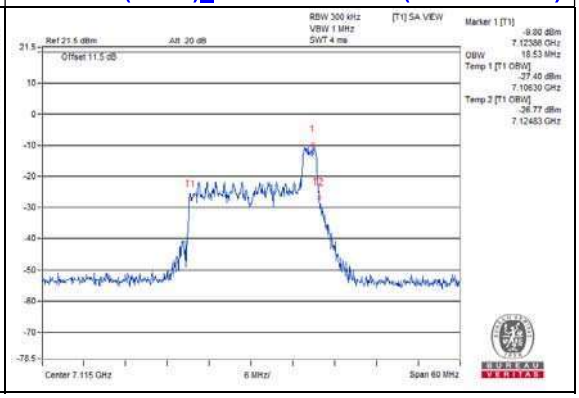
Spectrum Plot of Max. Value	
802.11ax (HE20)_Chain 1 / CH1 (U-NII-5 Band)	**802.11ax (HE20)_Chain 0 / CH97 (U-NII-6 Band)**
	
802.11ax (HE20)_Chain 0 / CH153 (U-NII-7 Band)	**802.11ax (HE20)_Chain 0 / CH213 (U-NII-8 Band)**
	

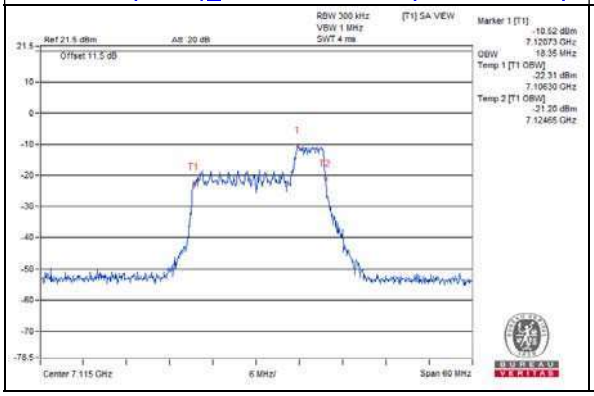
Spectrum Plot of Max. Value	
802.11ax (HE40)_Chain 0 / CH3 (U-NII-5 Band)	**802.11ax (HE40)_Chain 0 / CH99 (U-NII-6 Band)**
	
802.11ax (HE40)_Chain 0 / CH123 (U-NII-7 Band)	**802.11ax (HE40)_Chain 0 / CH227 (U-NII-8 Band)**
	

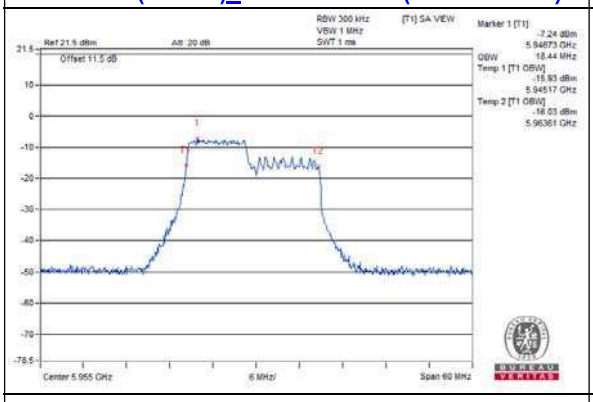
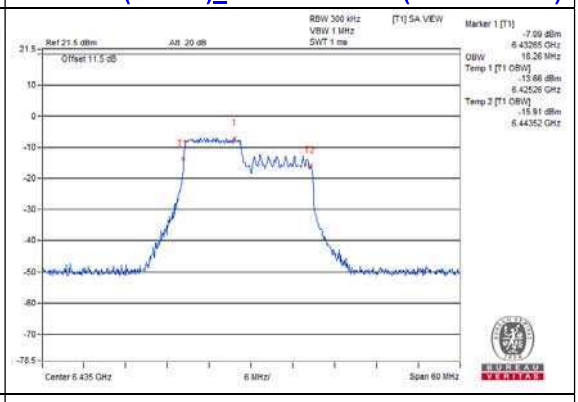
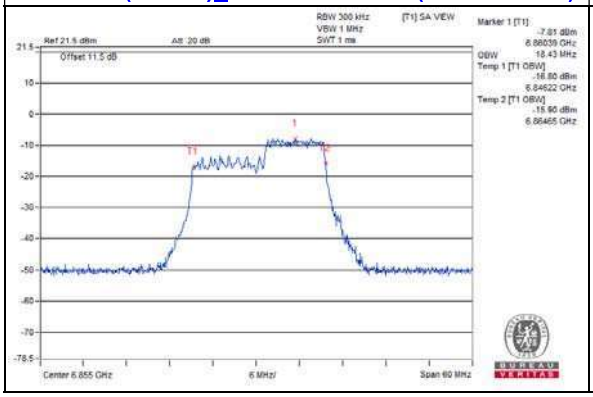
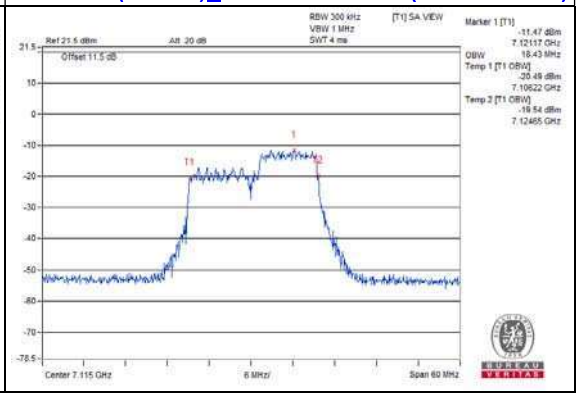
Spectrum Plot of Max. Value	
802.11ax (HE80)_Chain 0 / CH7 (U-NII-5 Band)	**802.11ax (HE80)_Chain 0 / CH119 (U-NII-6 Band)**
	
802.11ax (HE80)_Chain 0 / CH151 (U-NII-7 Band)	**802.11ax (HE80)_Chain 1 / CH215 (U-NII-8 Band)**
	

Spectrum Plot of Max. Value	
802.11ax (HE160)_Chain 0 / CH15 (U-NII-5 Band)	**802.11ax (HE160)_Chain 0 / CH111 (U-NII-6 Band)**
	
802.11ax (HE160)_Chain 0 / CH175 (U-NII-7 Band)	**802.11ax (HE160)_Chain 0 / CH207 (U-NII-8 Band)**
	

20MHz Preamble

Spectrum Plot of Max. Value	
802.11ax (RU26)_Chain 0 / CH1 (U-NII-5 Band)	**802.11ax (RU26)_Chain 0 / CH97 (U-NII-6 Band)**
	
802.11ax (RU26)_Chain 0 / CH117 (U-NII-7 Band)	**802.11ax (RU26)_Chain 0 / CH233 (U-NII-8 Band)**
	

Spectrum Plot of Max. Value	
802.11ax (RU52)_Chain 0 / CH233 (U-NII-8 Band)	
	

Spectrum Plot of Max. Value	
802.11ax (RU106)_Chain 0 / CH1 (U-NII-5 Band)	**802.11ax (RU106)_Chain 0 / CH97 (U-NII-6 Band)**
	
802.11ax (RU106)_Chain 0 / CH181 (U-NII-7 Band)	**802.11ax (RU106)_Chain 0 / CH233 (U-NII-8 Band)**
	

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		Chain0	Chain1	Limit (MHz)
1	5955	28.15	26.65	320
45	6175	29.44	27.2	320
93	6415	29.43	28.28	320
97	6435	29.63	26.49	320
105	6475	29.84	29.4	320
113	6515	28.82	27.93	320
117	6535	27.74	26.33	320
153	6715	29.31	26.36	320
181	6855	27.69	27.1	320
185	6875	29.12	25.99	320
213	7015	28.25	26.46	320
233	7115	21.17	20.72	320

802.11ax (HE20)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		Chain0	Chain1	Limit (MHz)
1	5955	34.88	28.43	320
45	6175	28.04	29.64	320
93	6415	28.19	27.76	320
97	6435	29.32	25.95	320
105	6475	28.42	27.01	320
113	6515	28.14	26.68	320
117	6535	25.08	27.21	320
153	6715	26.08	26.38	320
181	6855	27.65	28.86	320
185	6875	28.17	27.44	320
213	7015	30.95	27.63	320
233	7115	22.4	22.4	320

802.11ax (HE40)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		Chain0	Chain1	Limit (MHz)
3	5965	47.69	50.63	320
43	6165	40.46	40.13	320
91	6405	40.58	40.24	320
99	6445	40.35	40.43	320
107	6485	40.45	40.23	320
115	6525	40.4	40.33	320
123	6565	40.37	40.38	320
155	6725	40.32	40.38	320
179	6845	40.37	40.4	320
187	6885	40.41	40.41	320
211	7005	40.32	40.12	320
227	7085	52.86	52.56	320

802.11ax (HE80)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		Chain0	Chain1	Limit (MHz)
7	5985	83.06	86.66	320
39	6145	80.54	80.42	320
87	6385	80.35	80.45	320
103	6465	80.52	80.34	320
119	6545	80.37	80.45	320
135	6625	80.49	80.34	320
151	6705	80.44	80.72	320
167	6785	80.42	80.54	320
183	6865	80.55	80.52	320
199	6945	80.44	80.29	320
215	7025	117.06	118.62	320

802.11ax (HE160)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		Chain0	Chain1	Limit (MHz)
15	6025	164.08	164.52	320
47	6185	164.24	164.16	320
79	6345	164.11	164.23	320
111	6505	164.3	164.31	320
143	6665	163.97	163.86	320
175	6825	164.34	164.38	320
207	6985	163.98	164.22	320

20MHz Preamble

802.11ax (RU26)

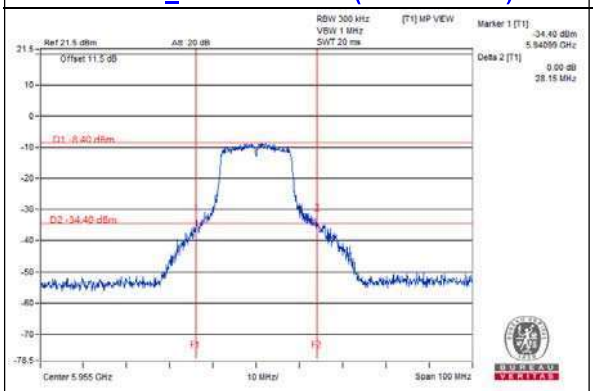
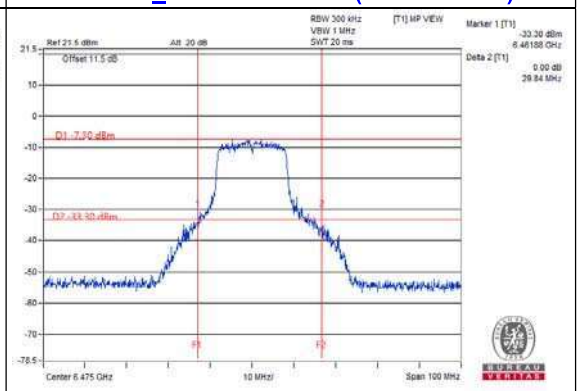
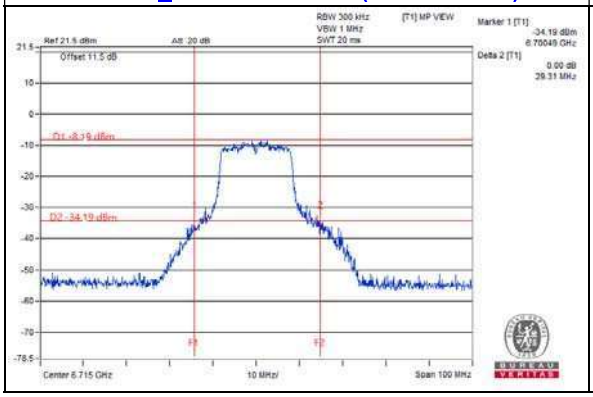
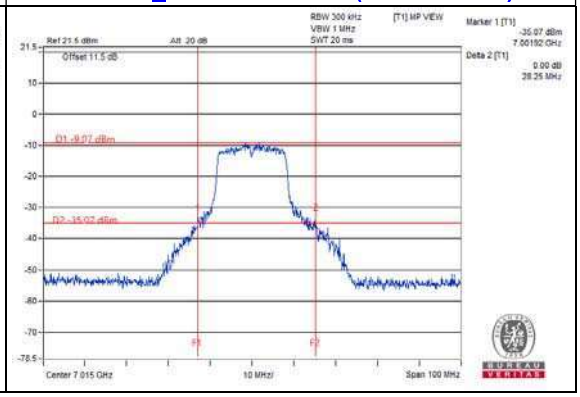
RU Configuration	Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
			Chain 0	Chain 1	Limit (MHz)
26/0	1	5955	20.24	20.65	320
26/8	93	6415	20.32	20.54	320
26/0	97	6435	20.47	20.7	320
26/0	117	6535	20.35	20.77	320
26/8	181	6855	20.06	20.95	320
26/8	233	7115	20.26	20.65	320

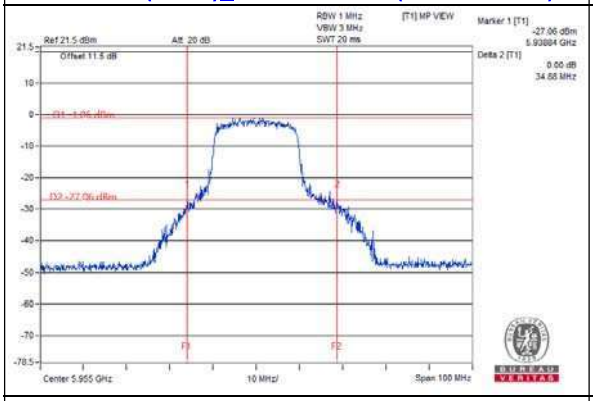
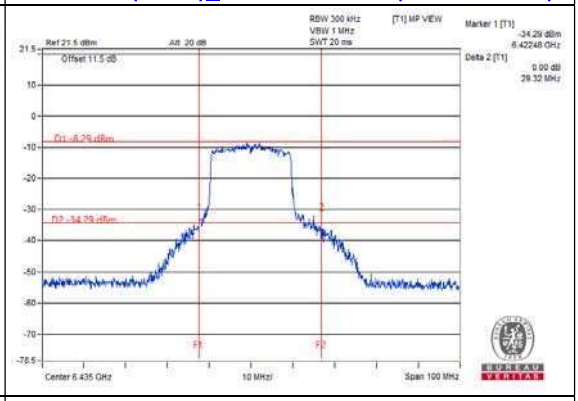
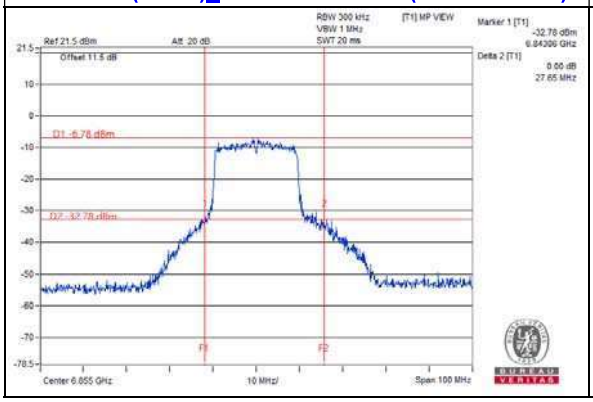
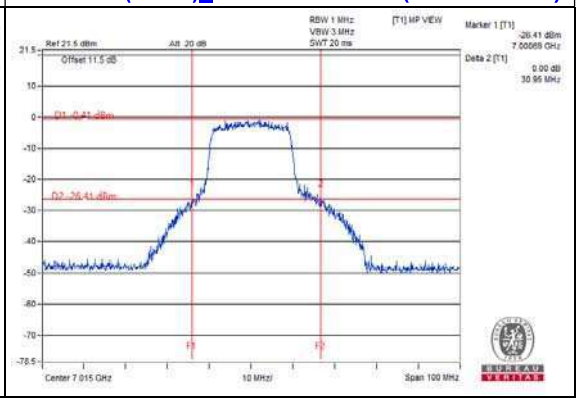
802.11ax (RU52)

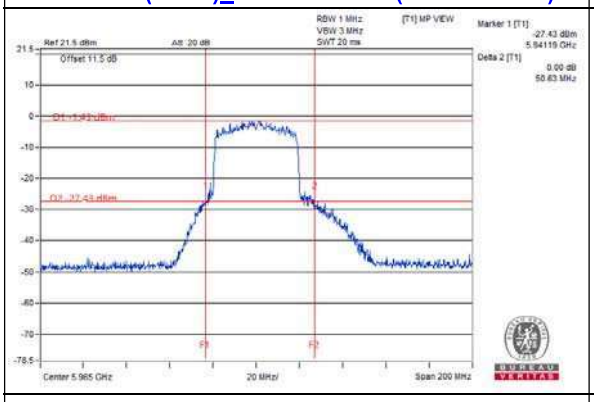
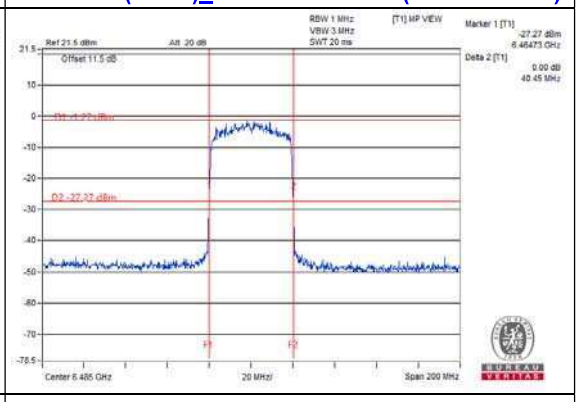
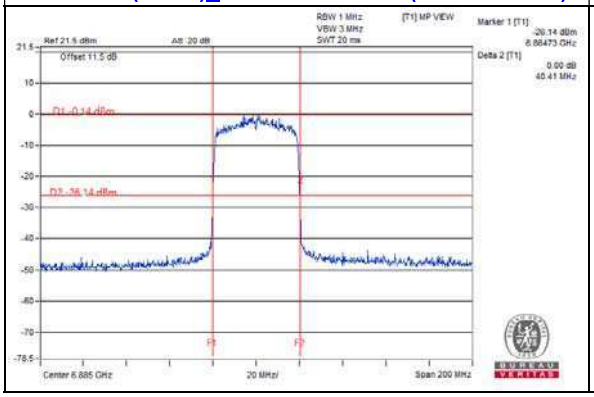
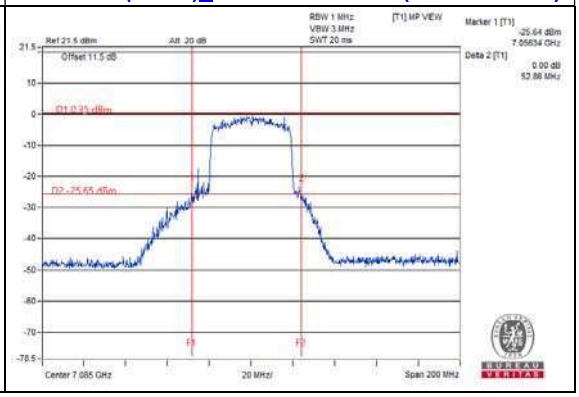
RU Configuration	Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
			Chain 0	Chain 1	Limit (MHz)
52/40	233	7115	20.4	21.07	320

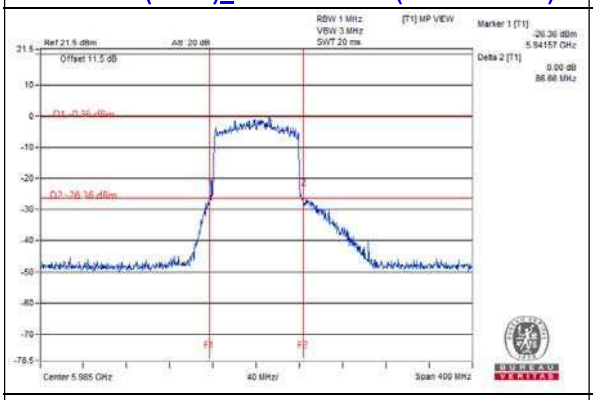
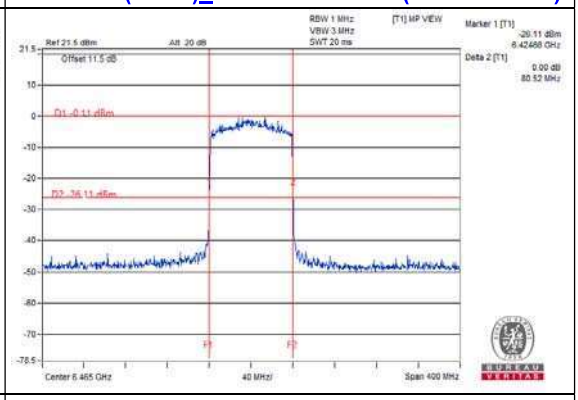
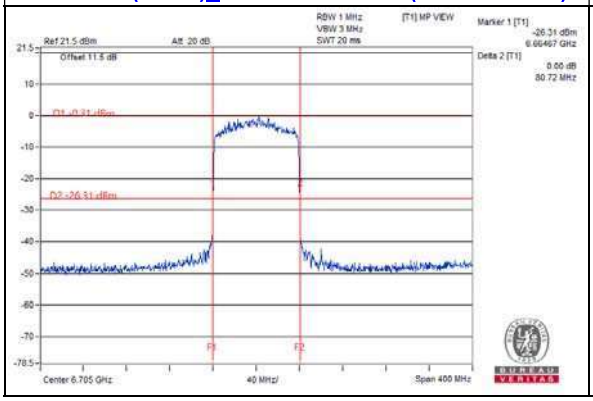
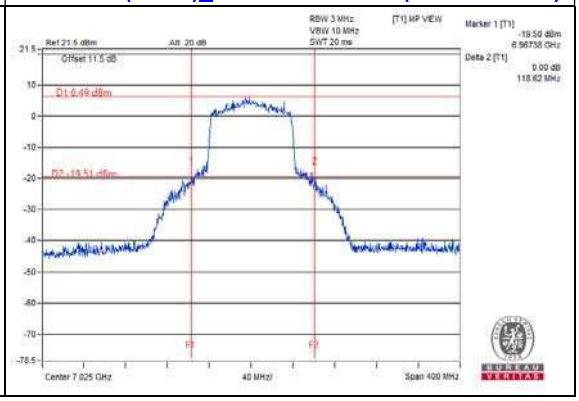
802.11ax (RU106)

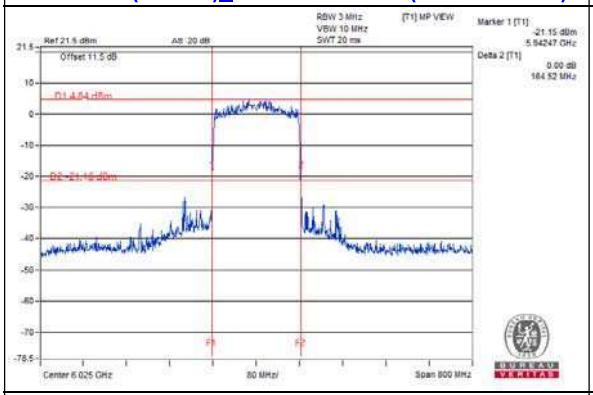
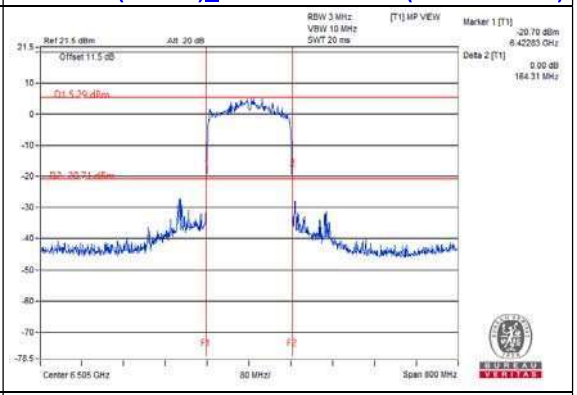
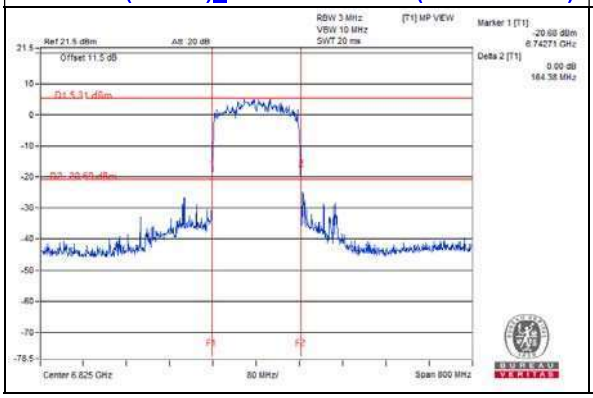
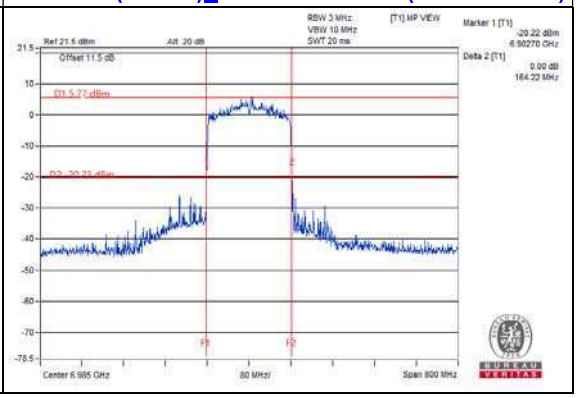
RU Configuration	Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
			Chain 0	Chain 1	Limit (MHz)
106/53	1	5955	20.31	21.67	320
106/54	93	6415	21.03	21.25	320
106/53	97	6435	20.71	21.02	320
106/53	117	6535	20.75	21.48	320
106/54	181	6855	20.81	21.41	320
106/54	233	7115	20.43	21.35	320

Spectrum Plot of Max. Value	
802.11a_Chain 0 / CH45 (U-NII-5 Band)	**802.11a_Chain 0 / CH105 (U-NII-6 Band)**
	
802.11a_Chain 0 / CH153 (U-NII-7 Band)	**802.11a_Chain 0 / CH213 (U-NII-8 Band)**
	

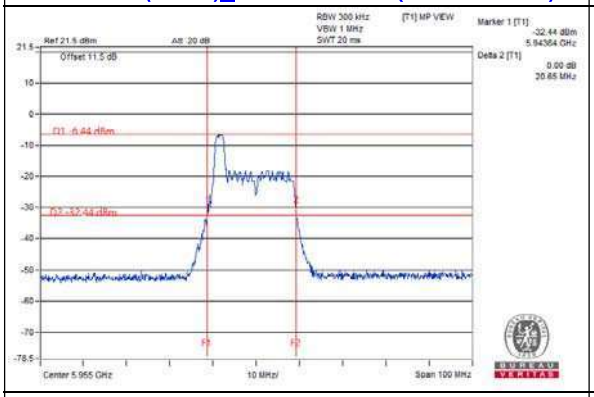
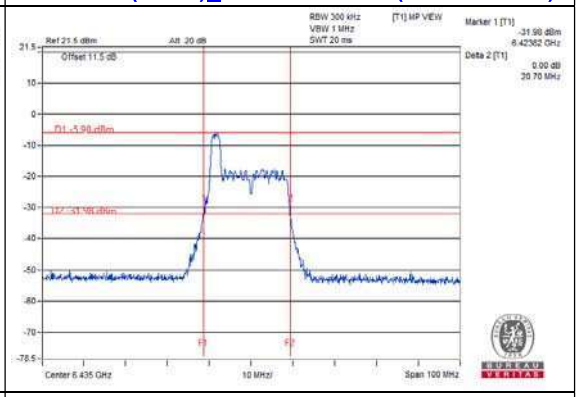
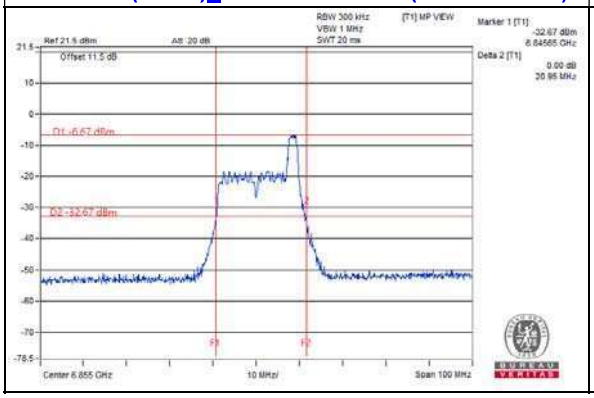
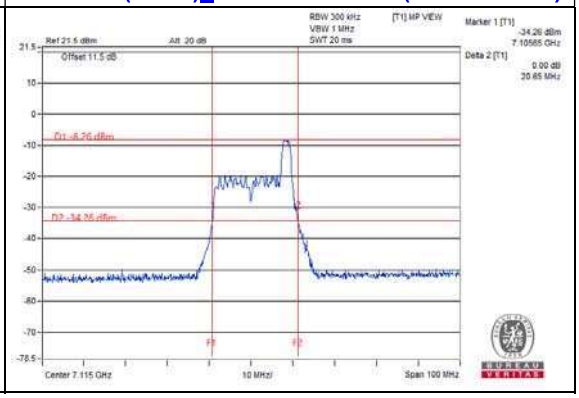
Spectrum Plot of Max. Value	
802.11ax (HE20)_Chain 0 / CH1 (U-NII-5 Band)	**802.11ax (HE20)_Chain 0 / CH97 (U-NII-6 Band)**
	
802.11ax (HE20)_Chain 1 / CH181 (U-NII-7 Band)	**802.11ax (HE20)_Chain 0 / CH213 (U-NII-8 Band)**
	

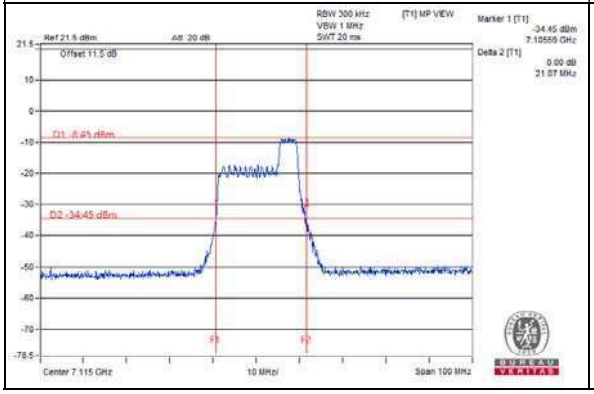
Spectrum Plot of Max. Value	
802.11ax (HE40)_Chain 1 / CH3 (U-NII-5 Band)	802.11ax (HE40)_Chain 0 / CH107 (U-NII-6 Band)
	
802.11ax (HE40)_Chain 0 / CH187 (U-NII-7 Band)	802.11ax (HE40)_Chain 0 / CH227 (U-NII-8 Band)
	

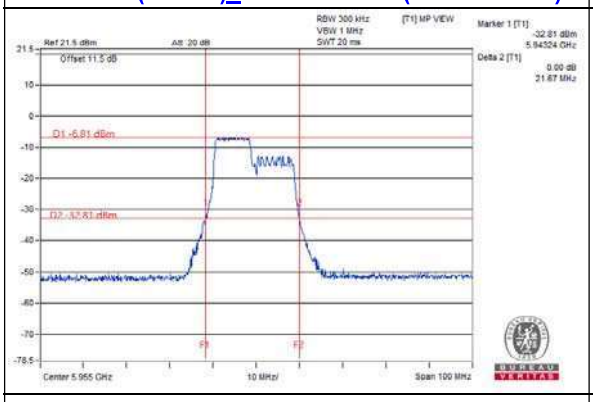
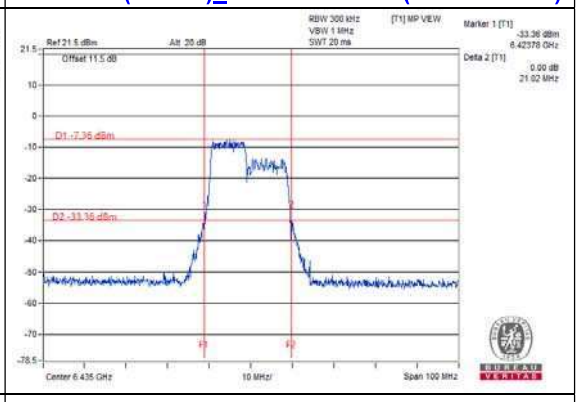
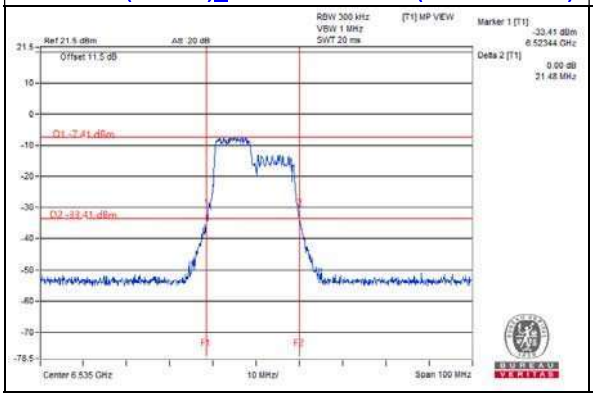
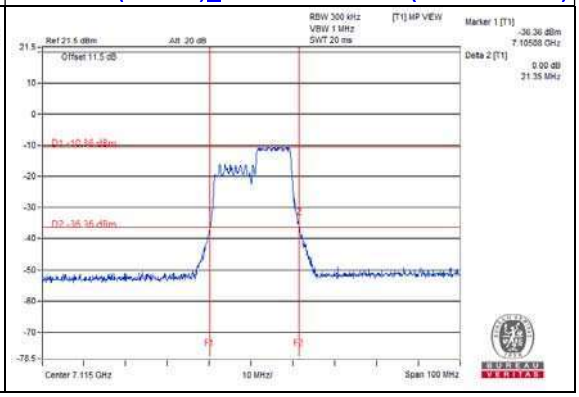
Spectrum Plot of Max. Value	
802.11ax (HE80)_Chain 1 / CH7 (U-NII-5 Band)	**802.11ax (HE80)_Chain 0 / CH103 (U-NII-6 Band)**
	
802.11ax (HE80)_Chain 1 / CH151 (U-NII-7 Band)	**802.11ax (HE80)_Chain 1 / CH215 (U-NII-8 Band)**
	

Spectrum Plot of Max. Value	
802.11ax (HE160)_Chain 1 / CH15 (U-NII-5 Band)	**802.11ax (HE160)_Chain 1 / CH111 (U-NII-6 Band)**
	
802.11ax (HE160)_Chain 1 / CH175 (U-NII-7 Band)	**802.11ax (HE160)_Chain 1 / CH207 (U-NII-8 Band)**
	

20MHz Preamble

Spectrum Plot of Max. Value	
802.11ax (RU26)_Chain 1 / CH1 (U-NII-5 Band)	802.11ax (RU26)_Chain 1 / CH97 (U-NII-6 Band)
	
802.11ax (RU26)_Chain 1 / CH181 (U-NII-7 Band)	802.11ax (RU26)_Chain 1 / CH233 (U-NII-8 Band)
	

Spectrum Plot of Max. Value	
802.11ax (RU52)_Chain 1 / CH233 (U-NII-8 Band)	
	

Spectrum Plot of Max. Value	
802.11ax (RU106)_Chain 1 / CH1 (U-NII-5 Band)	**802.11ax (RU106)_Chain 1 / CH97 (U-NII-6 Band)**
	
802.11ax (RU106)_Chain 1 / CH117 (U-NII-7 Band)	**802.11ax (RU106)_Chain 1 / CH233 (U-NII-8 Band)**
	

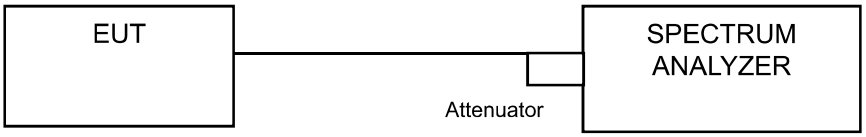
4.6 Peak Power Spectral Density Measurement

4.6.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category	Limit
		Peak Power Density (EIRP)
U-NII-5 U-NII-6 U-NII-7 U-NII-8	Client Devices (controlled of an indoor AP)	-1 dBm/MHz

4.6.2 Test Setup

For Conducted Method



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

Using method SA-2

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz
c. Sweep time = auto, trigger set to “free run”.
d. Detector = RMS
e. Trace average at least 100 traces in power averaging mode.
f. Record the max value and add 10 log (1/duty cycle)

4.6.5 EUT Operating Condition

Same as Item 4.3.6.

4.6.6 Test Results

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1						
1	5955	-12.81	-12.31	0.26	-9.28	7.77	-1.51	-1.00	Pass
45	6175	-12.26	-12.05	0.26	-8.88	7.77	-1.11	-1.00	Pass
93	6415	-12.68	-11.82	0.26	-8.96	7.77	-1.19	-1.00	Pass
97	6435	-12.88	-11.56	0.26	-8.90	7.30	-1.60	-1.00	Pass
105	6475	-11.92	-11.54	0.26	-8.45	7.30	-1.15	-1.00	Pass
113	6515	-12.01	-11.68	0.26	-8.57	7.30	-1.27	-1.00	Pass
117	6535	-12.05	-11.98	0.26	-8.74	7.62	-1.12	-1.00	Pass
153	6715	-12.18	-11.69	0.26	-8.66	7.62	-1.04	-1.00	Pass
181	6855	-12.00	-11.81	0.26	-8.63	7.62	-1.01	-1.00	Pass
185	6875	-11.80	-11.63	0.26	-8.44	7.10	-1.34	-1.00	Pass
213	7015	-11.11	-12.52	0.26	-8.48	7.10	-1.38	-1.00	Pass
233	7115	-11.29	-11.65	0.26	-8.19	7.10	-1.09	-1.00	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. U-NII-5: Directional gain = 4.76dBi + 10log(2) = 7.77dBi

3. U-NII-6: Directional gain = 4.29dBi + 10log(2) = 7.3dBi

4. U-NII-7: Directional gain = 4.61dBi + 10log(2) = 7.62dBi

5. U-NII-8: Directional gain = 4.09dBi + 10log(2) = 7.1dBi

6. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1						
1	5955	-12.53	-12.32	0.51	-8.91	7.77	-1.14	-1.00	Pass
45	6175	-12.55	-12.38	0.51	-8.95	7.77	-1.18	-1.00	Pass
93	6415	-12.54	-12.43	0.51	-8.97	7.77	-1.20	-1.00	Pass
97	6435	-11.93	-11.98	0.51	-8.44	7.30	-1.14	-1.00	Pass
105	6475	-11.87	-12.26	0.51	-8.54	7.30	-1.24	-1.00	Pass
113	6515	-11.94	-11.99	0.51	-8.45	7.30	-1.15	-1.00	Pass
117	6535	-12.94	-12.45	0.51	-9.17	7.62	-1.55	-1.00	Pass
153	6715	-11.86	-12.80	0.51	-8.79	7.62	-1.17	-1.00	Pass
181	6855	-11.43	-13.70	0.51	-8.90	7.62	-1.28	-1.00	Pass
185	6875	-11.65	-11.82	0.51	-8.22	7.10	-1.12	-1.00	Pass
213	7015	-11.13	-12.61	0.51	-8.29	7.10	-1.19	-1.00	Pass
233	7115	-12.04	-11.62	0.51	-8.31	7.10	-1.21	-1.00	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. U-NII-5: Directional gain = 4.76dBi + 10log(2) = 7.77dBi

3. U-NII-6: Directional gain = 4.29dBi + 10log(2) = 7.3dBi

4. U-NII-7: Directional gain = 4.61dBi + 10log(2) = 7.62dBi

5. U-NII-8: Directional gain = 4.09dBi + 10log(2) = 7.1dBi

6. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1						
3	5965	-12.75	-12.25	0.51	-8.97	7.77	-1.20	-1.00	Pass
43	6165	-11.80	-12.98	0.51	-8.83	7.77	-1.06	-1.00	Pass
91	6405	-12.66	-12.22	0.51	-8.91	7.77	-1.14	-1.00	Pass
99	6445	-11.96	-11.88	0.51	-8.40	7.30	-1.10	-1.00	Pass
107	6485	-12.36	-12.46	0.51	-8.89	7.30	-1.59	-1.00	Pass
115	6525	-12.35	-12.00	0.51	-8.65	7.62	-1.03	-1.00	Pass
123	6565	-12.52	-12.06	0.51	-8.76	7.62	-1.14	-1.00	Pass
155	6725	-11.99	-12.62	0.51	-8.77	7.62	-1.15	-1.00	Pass
179	6845	-12.21	-12.74	0.51	-8.95	7.62	-1.33	-1.00	Pass
187	6885	-11.65	-11.74	0.51	-8.17	7.10	-1.07	-1.00	Pass
211	7005	-12.78	-11.64	0.51	-8.65	7.10	-1.55	-1.00	Pass
227	7085	-12.29	-11.74	0.51	-8.48	7.10	-1.38	-1.00	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. U-NII-5: Directional gain = 4.76dBi + 10log(2) = 7.77dBi

3. U-NII-6: Directional gain = 4.29dBi + 10log(2) = 7.3dBi

4. U-NII-7: Directional gain = 4.61dBi + 10log(2) = 7.62dBi

5. U-NII-8: Directional gain = 4.09dBi + 10log(2) = 7.1dBi

6. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1						
7	5985	-13.76	-13.00	0.99	-9.36	7.77	-1.59	-1.00	Pass
39	6145	-12.77	-12.86	0.99	-8.81	7.77	-1.04	-1.00	Pass
87	6385	-13.24	-12.85	0.99	-9.04	7.77	-1.27	-1.00	Pass
103	6465	-12.90	-12.27	0.99	-8.57	7.30	-1.27	-1.00	Pass
119	6545	-13.04	-12.92	0.99	-8.98	7.62	-1.36	-1.00	Pass
135	6625	-12.76	-12.76	0.99	-8.76	7.62	-1.14	-1.00	Pass
151	6705	-12.88	-12.49	0.99	-8.68	7.62	-1.06	-1.00	Pass
167	6785	-12.85	-12.87	0.99	-8.86	7.62	-1.24	-1.00	Pass
183	6865	-13.23	-13.18	0.99	-9.20	7.62	-1.58	-1.00	Pass
199	6945	-12.43	-12.45	0.99	-8.44	7.10	-1.34	-1.00	Pass
215	7025	-13.19	-12.28	0.99	-8.71	7.10	-1.61	-1.00	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. U-NII-5: Directional gain = 4.76dBi + 10log(2) = 7.77dBi
3. U-NII-6: Directional gain = 4.29dBi + 10log(2) = 7.3dBi
4. U-NII-7: Directional gain = 4.61dBi + 10log(2) = 7.62dBi
5. U-NII-8: Directional gain = 4.09dBi + 10log(2) = 7.1dBi
6. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE160)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1						
15	6025	-13.73	-13.41	1.73	-8.83	7.77	-1.06	-1.00	Pass
47	6185	-13.61	-14.68	1.73	-9.37	7.77	-1.60	-1.00	Pass
79	6345	-13.00	-14.30	1.73	-8.86	7.77	-1.09	-1.00	Pass
111	6505	-13.25	-13.27	1.73	-8.52	7.30	-1.22	-1.00	Pass
143	6665	-13.48	-13.56	1.73	-8.78	7.62	-1.16	-1.00	Pass
175	6825	-13.75	-13.19	1.73	-8.72	7.62	-1.10	-1.00	Pass
207	6985	-12.67	-13.45	1.73	-8.30	7.10	-1.20	-1.00	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. U-NII-5: Directional gain = 4.76dBi + 10log(2) = 7.77dBi
3. U-NII-6: Directional gain = 4.29dBi + 10log(2) = 7.3dBi
4. U-NII-7: Directional gain = 4.61dBi + 10log(2) = 7.62dBi
5. U-NII-8: Directional gain = 4.09dBi + 10log(2) = 7.1dBi
6. Refer to section 3.3 for duty cycle spectrum plot.

20MHz Preamble

802.11ax (RU26)

RU Configuration	Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass / Fail
			Chain 0	Chain 1						
26/0	1	5955	-13.97	-12.90	1.27	-9.13	7.77	-1.36	-1.00	Pass
26/8	93	6415	-13.48	-13.01	1.27	-8.96	7.77	-1.19	-1.00	Pass
26/0	97	6435	-13.17	-13.02	1.27	-8.82	7.30	-1.52	-1.00	Pass
26/0	117	6535	-12.85	-13.16	1.27	-8.73	7.62	-1.11	-1.00	Pass
26/8	181	6855	-13.17	-13.45	1.27	-9.03	7.62	-1.41	-1.00	Pass
26/8	233	7115	-15.23	-14.60	1.27	-10.63	7.10	-3.53	-1.00	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. U-NII-5: Directional gain = 4.76dBi + 10log(2) = 7.77dBi

3. U-NII-6: Directional gain = 4.29dBi + 10log(2) = 7.3dBi

4. U-NII-7: Directional gain = 4.61dBi + 10log(2) = 7.62dBi

5. U-NII-8: Directional gain = 4.09dBi + 10log(2) = 7.1dBi

6. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (RU52)

RU Configuration	Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass / Fail
			Chain 0	Chain 1						
52/40	233	7115	-16.95	-16.40	1.51	-12.15	7.10	-5.05	-1.00	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. U-NII-8: Directional gain = 4.09dBi + 10log(2) = 7.1dBi

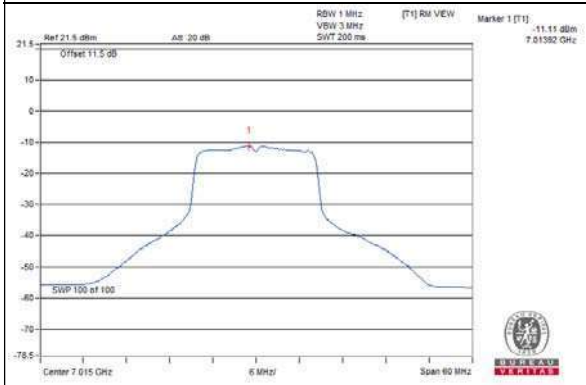
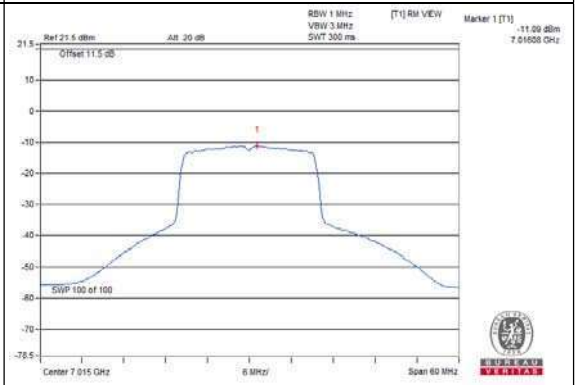
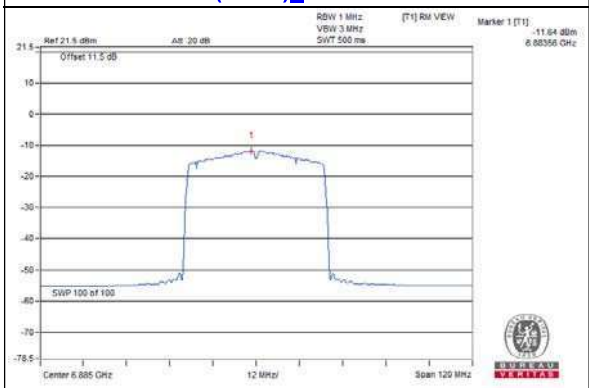
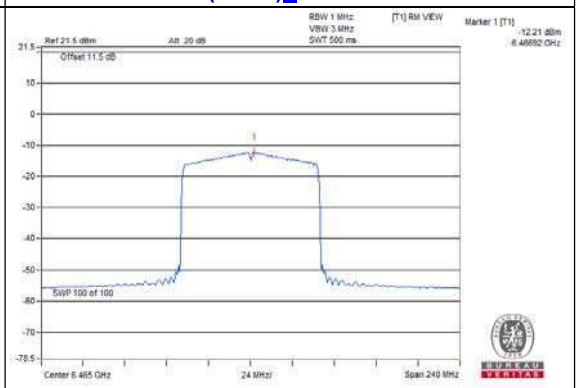
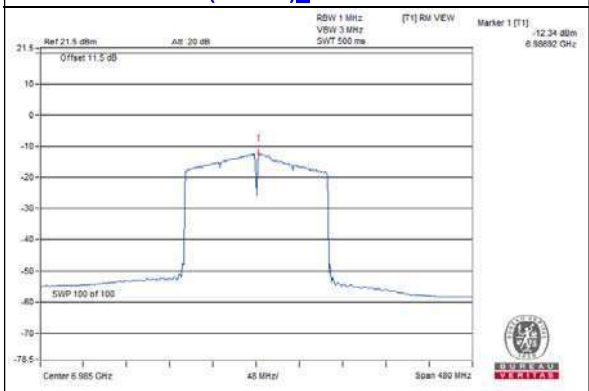
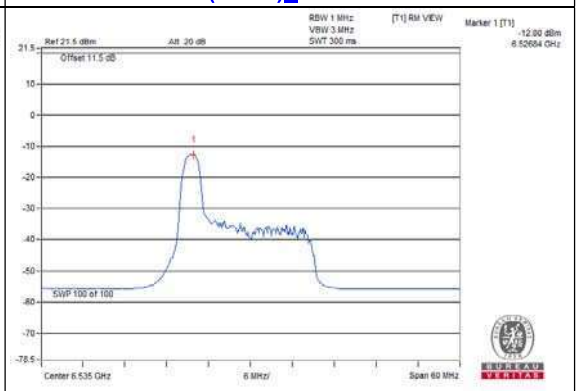
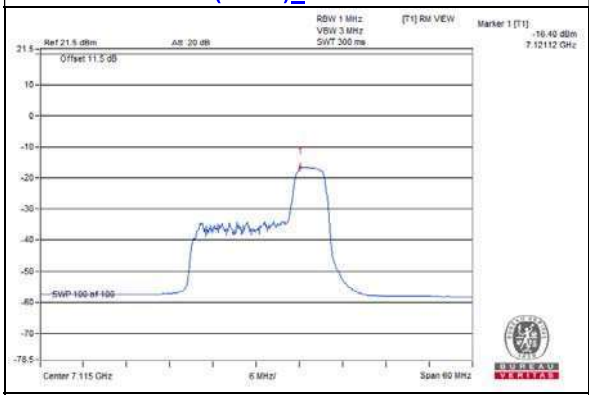
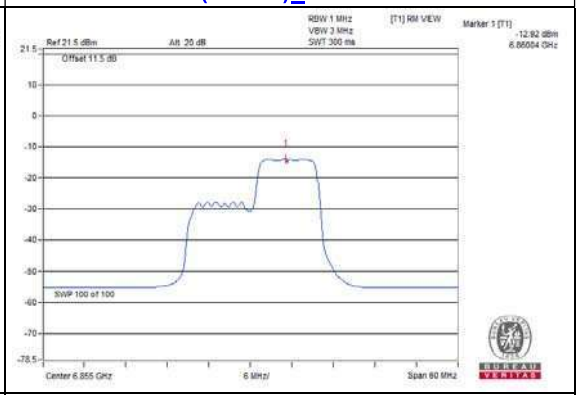
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (RU106)

RU Configuration	Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass / Fail
			Chain 0	Chain 1						
106/53	1	5955	-13.91	-13.44	1.74	-8.92	7.77	-1.15	-1.00	Pass
106/54	93	6415	-14.07	-13.78	1.74	-9.17	7.77	-1.40	-1.00	Pass
106/53	97	6435	-13.07	-13.81	1.74	-8.67	7.30	-1.37	-1.00	Pass
106/53	117	6535	-14.28	-13.21	1.74	-8.96	7.62	-1.34	-1.00	Pass
106/54	181	6855	-14.11	-12.98	1.74	-8.76	7.62	-1.14	-1.00	Pass
106/54	233	7115	-17.54	-17.69	1.74	-12.86	7.10	-5.76	-1.00	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. U-NII-5: Directional gain = 4.76dBi + 10log(2) = 7.77dBi
3. U-NII-6: Directional gain = 4.29dBi + 10log(2) = 7.3dBi
4. U-NII-7: Directional gain = 4.61dBi + 10log(2) = 7.62dBi
5. U-NII-8: Directional gain = 4.09dBi + 10log(2) = 7.1dBi
6. Refer to section 3.3 for duty cycle spectrum plot.

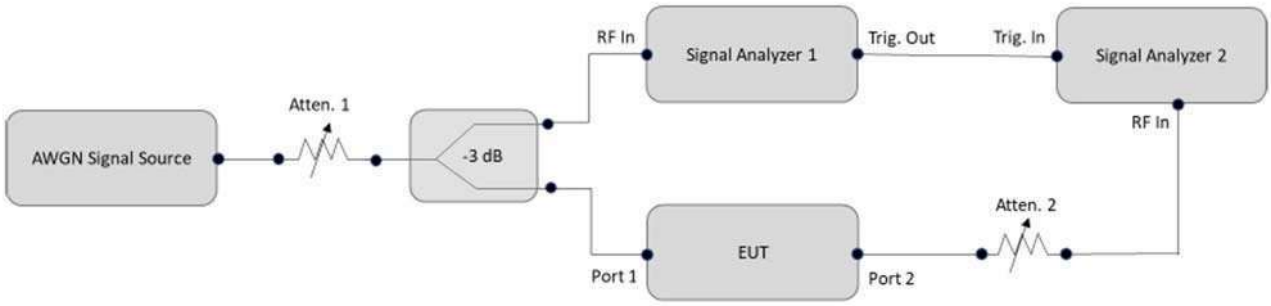
Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH213	802.11ax (HE20)_Chain 0 / CH213
	
802.11ax (HE40)_Chain 0 / CH187	802.11ax (HE80)_Chain 1 / CH103
	
802.11ax (HE160)_Chain 0 / CH207	802.11ax (RU26)_Chain 0 / CH117
	
802.11ax (RU52)_Chain 1 / CH233	802.11ax (RU106)_Chain 1 / CH181
	

4.7 Contention Based Protocol Measurement

4.7.1 Limits of Contention Based Protocol Measurement

Unlicensed indoor low-power devices must detect co-channel radio frequency power that is at least -62 dBm (The threshold is referenced to a 0 dBi antenna gain.) or lower. Additionally, indoor low-power devices must detect co-channel energy with 90% or greater certainty.

4.7.2 Test Setup



4.7.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSW8	101497	Nov 10, 2020	Nov 09, 2021
Spectrum Analyzer R&S	FSV40	101516	Mar. 08, 2021	Mar. 07, 2022
MXG X-Series RF Vector Signal Generator Agilent	N5182B	MY59100182	Apr. 10, 2020	Apr. 09, 2021
N5182BU KEYSIGHT	N5182BX07	MY59360203	Dec. 10, 2020	Dec. 09, 2021
Power Splitter/combiner Mini-Circuits	ZFRSC-123-S+	F698501347_01	Jan. 27, 2021	Jan. 26, 2022

NOTE: 1. The test was performed in Femtocell room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: Mar. 31, 2021

4.7.4 Test Procedure

a. Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
b. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters (set as following section 4.7.5 EUT operating condition).

c. Determine number of times detection threshold test as following table,

If	Number of Tests	Placement of Incumbent Transmission
$BW_{EUT} \leqq BW_{Inc}$	Once	Same as EUT transmission
$BW_{Inc} < BW_{EUT} \leqq 2xBW_{Inc}$	Once	Contained within BW_{EUT}
$2xBW_{Inc} < BW_{EUT} \leqq 4xBW_{Inc}$	Twice. (Incumbent transmission is contained within BW_{EUT})	Closely to the lower edge and upper edge of the EUT Channel
$BW_{EUT} > 4xBW_{Inc}$	Three times	Closely to the lower edge ,in the middle and upper edge of the EUT Channel

d. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use step c table to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
e. Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT.
f. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
g. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
h. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
i. Refer to step c table to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step d, choose a different center frequency for the AWGN signal and repeat the process.
j.

4.7.5 EUT Operating Condition

Set the EUT to transmit with a constant duty cycle and relative operating parameters which including power level, operating frequency,modulation and bandwidth.

4.7.6 Test Results

For U-NII-5 band

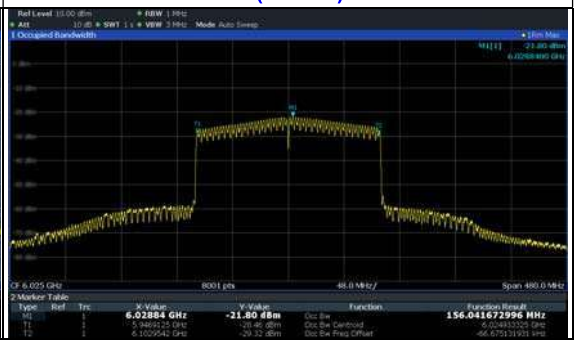
Contention Based Protocol Measurement									
Measurement Mode :	Conducted measurement			**The Incumbent Signal(AWGN) Level(dBm) :**			-62	at the antenna connector	
Device Type :	Indoor Client			**Antenna Gain(dBi) :**			0		
Operation Mode	**Channel Bandwidth (MHz)**	**Channel Number**	**Channel Frequency (MHz)**	**AWGN Signal Frequency (MHz)**	**Number of Times**	**Number of Detected**	**Detection Rate**	**Minimum Limit**	**Pass/Fail**
802.11ax	20	1	5955	5955	10	10	100%	90%	Pass
	160	15	6025	5950	10	10	100%	90%	Pass
				6025	10	10	100%	90%	Pass
				6100	10	10	100%	90%	Pass
Result	Complied								

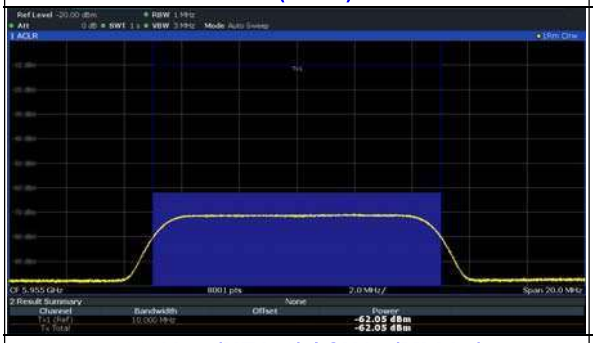
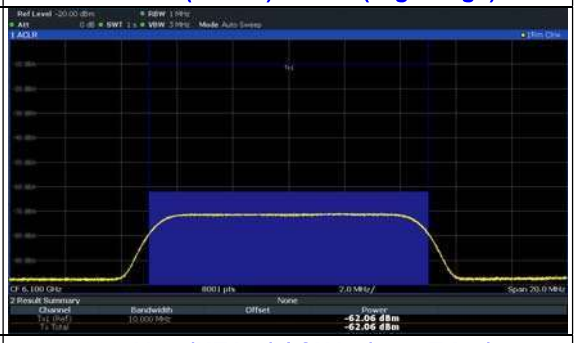
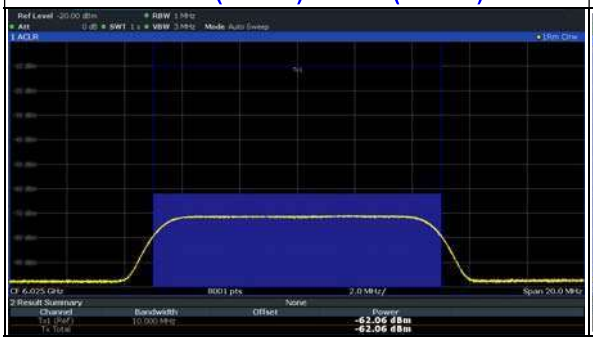
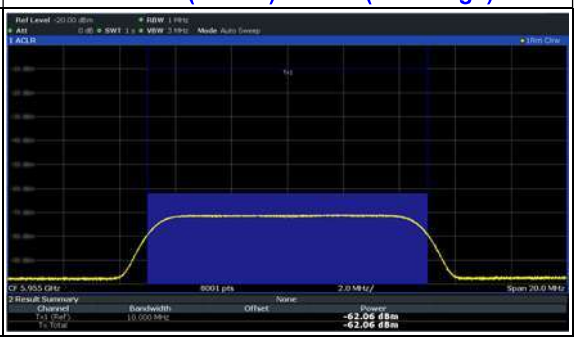
Lowest Interference (AWGN) Level Check							
Operation Band	**Operation Mode**	**Channel Bandwidth (MHz)**	**Channel Number**	**Channel Frequency (MHz)**	**AWGN Signal Frequency (MHz)**	**Threshold Level (dBm)**	**EUT Status**
U-NII 5	802.11ax	20	1	5955	5955	-64	Start transmitting
		160	15	6025	5950	-63	Start transmitting
					6025	-63	Start transmitting
					6100	-63	Start transmitting

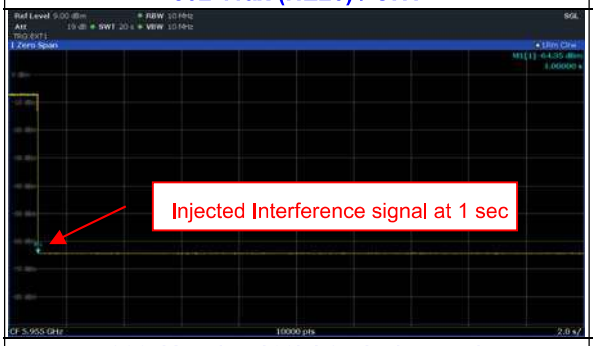
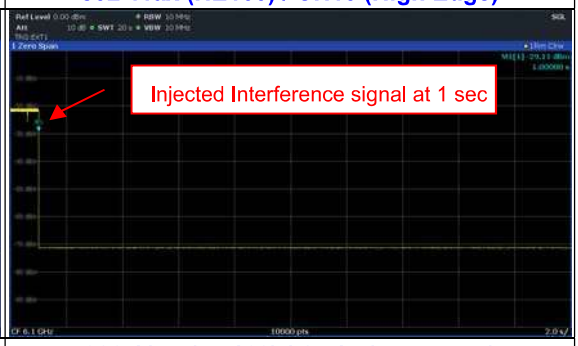
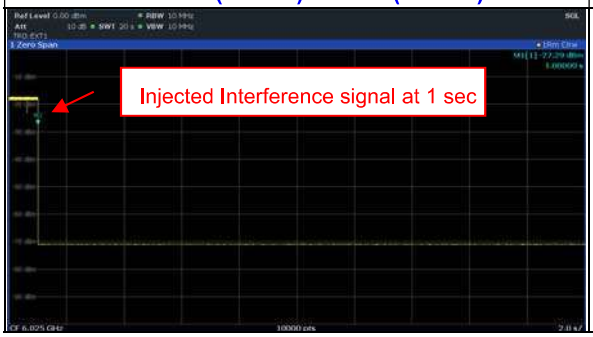
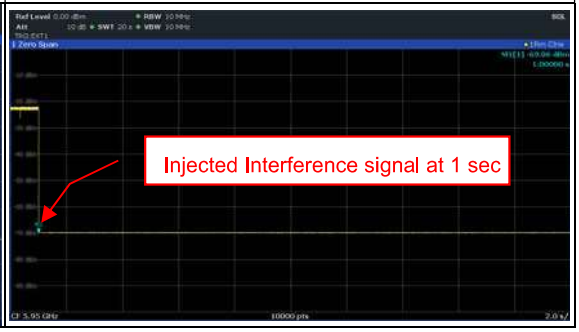
Plots of EUT Tx waveform

802.11ax (HE20) / CH1

802.11ax (HE160) / CH15



Plots of Incumbent signal(AWGN) Level	
802.11ax (HE20) / CH1	**802.11ax (HE160) / CH15 (High Edge)**
	
802.11ax (HE160) / CH15 (Middle)	**802.11ax (HE160) / CH15 (Low Edge)**
	

Plots of EUT ceased transmission in the time domain	
802.11ax (HE20) / CH1	**802.11ax (HE160) / CH15 (High Edge)**
	
802.11ax (HE160) / CH15 (Middle)	**802.11ax (HE160) / CH15 (Low Edge)**
	

For U-NII-6 band

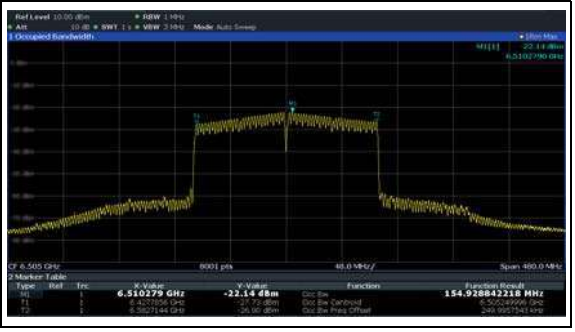
Contention Based Protocol Measurement									
Measurement Mode :	Conducted measurement			**The Incumbent Signal(AWGN) Level(dBm) :**			-62	at the antenna connector	
Device Type :	Indoor Client			**Antenna Gain(dBi) :**			0		
Operation Mode	**Channel Bandwidth (MHz)**	**Channel Number**	**Channel Frequency (MHz)**	**AWGN Signal Frequency (MHz)**	**Number of Times**	**Number of Detected**	**Detection Rate**	**Minimum Limit**	**Pass/Fail**
802.11ax	20	97	6435	6435	10	10	100%	90%	Pass
	160	111	6505	6430	10	10	100%	90%	Pass
				6505	10	10	100%	90%	Pass
				6580	10	10	100%	90%	Pass
Result	Complied								

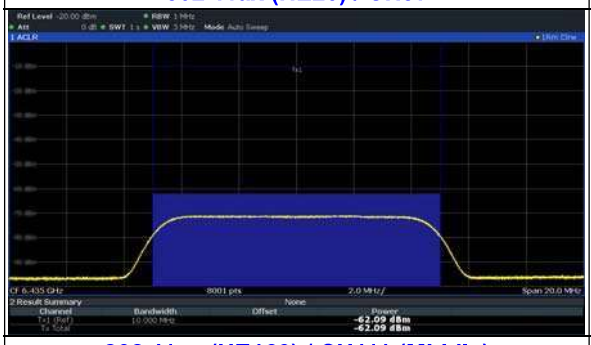
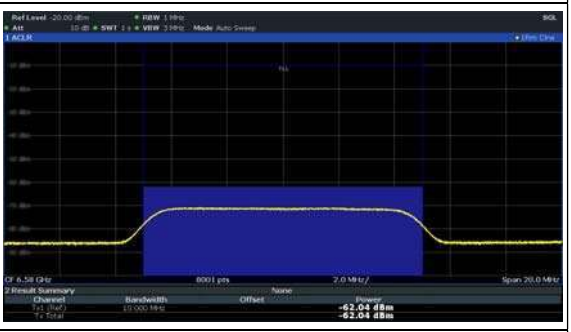
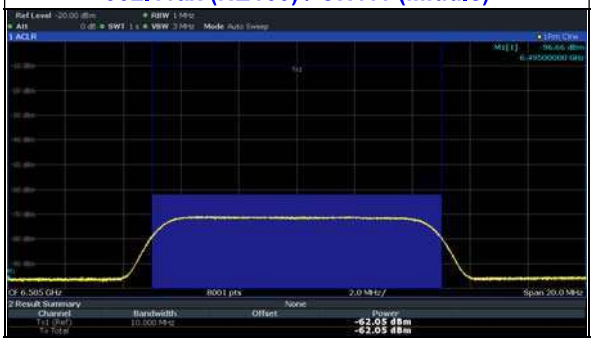
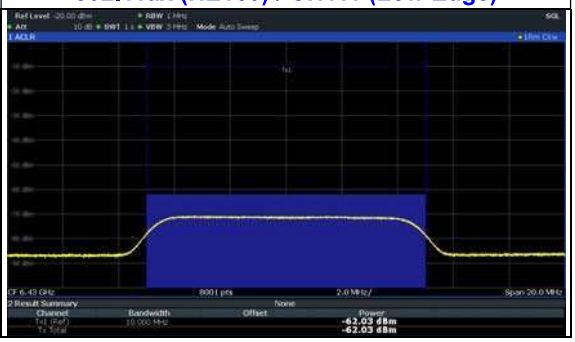
Lowest Interference (AWGN) Level Check							
Operation Band	**Operation Mode**	**Channel Bandwidth (MHz)**	**Channel Number**	**Channel Frequency (MHz)**	**AWGN Signal Frequency (MHz)**	**Threshold Level (dBm)**	**EUT Status**
U-NII 6	802.11ax	20	97	6435	6435	-64	Start transmitting
		160	111	6505	6430	-63	Start transmitting
					6505	-63	Start transmitting
					6580	-63	Start transmitting

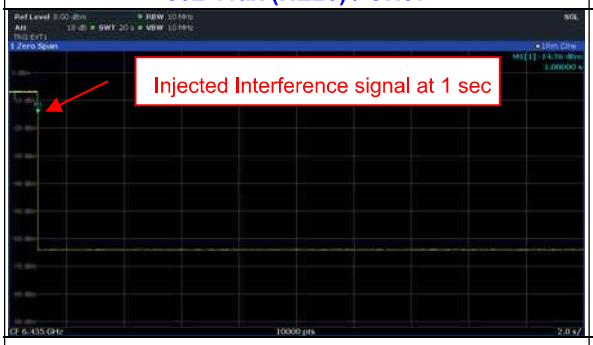
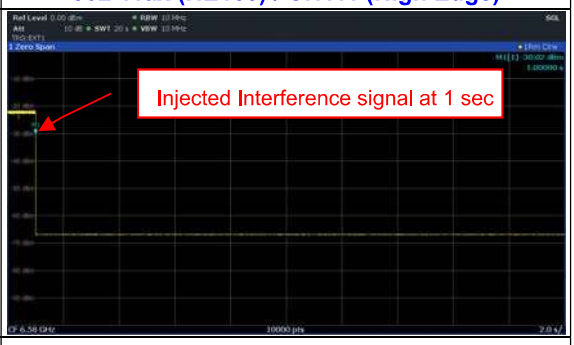
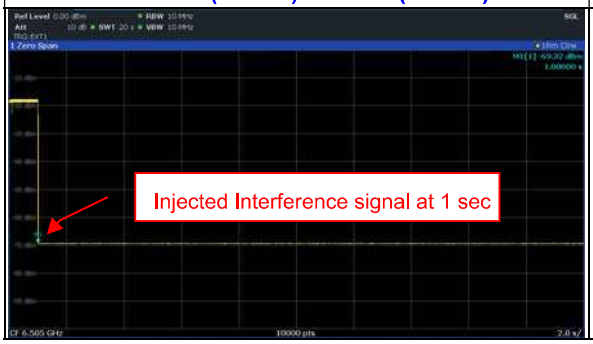
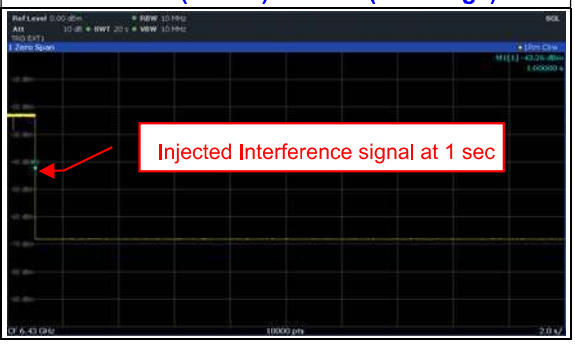
Plots of EUT Tx waveform

802.11ax (HE20) / CH97

802.11ax (HE160) / CH111



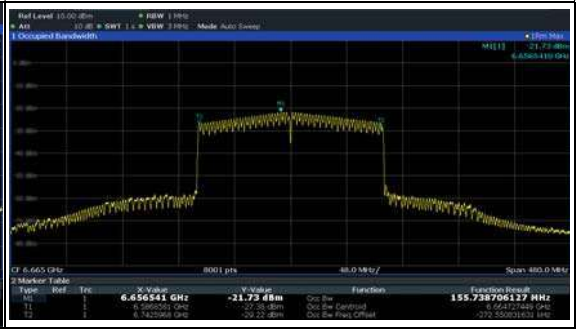
Plots of Incumbent signal(AWGN) Level	
802.11ax (HE20) / CH97	**802.11ax (HE160) / CH111 (High Edge)**
	
802.11ax (HE160) / CH111 (Middle)	**802.11ax (HE160) / CH111 (Low Edge)**
	

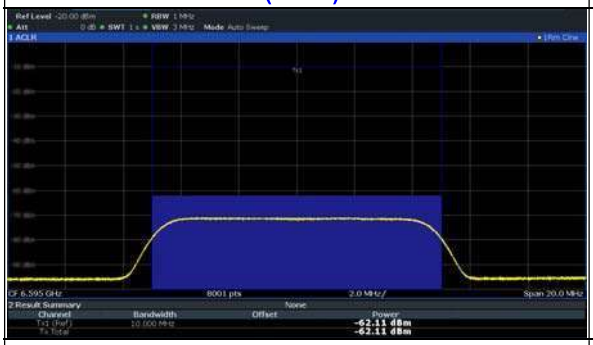
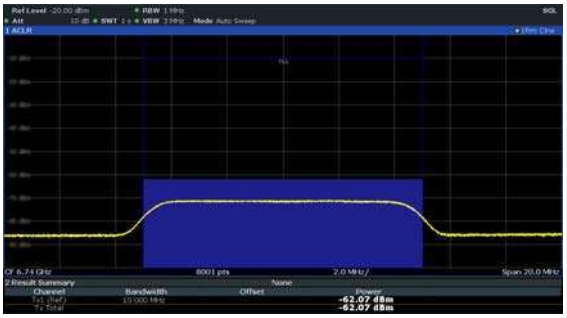
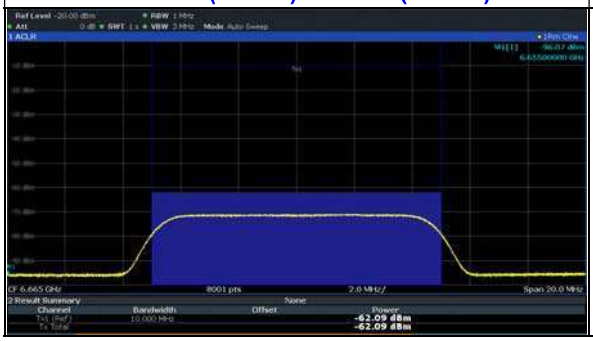
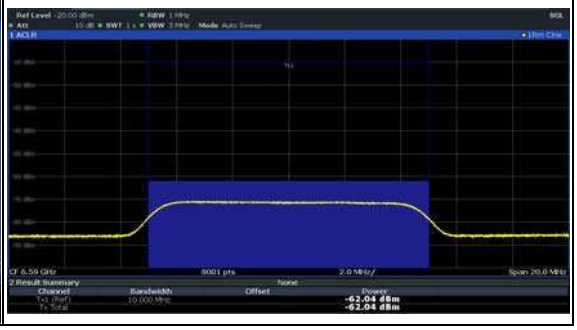
Plots of EUT ceased transmission in the time domain	
802.11ax (HE20) / CH97	**802.11ax (HE160) / CH111 (High Edge)**
	
802.11ax (HE160) / CH111 (Middle)	**802.11ax (HE160) / CH111 (Low Edge)**
	

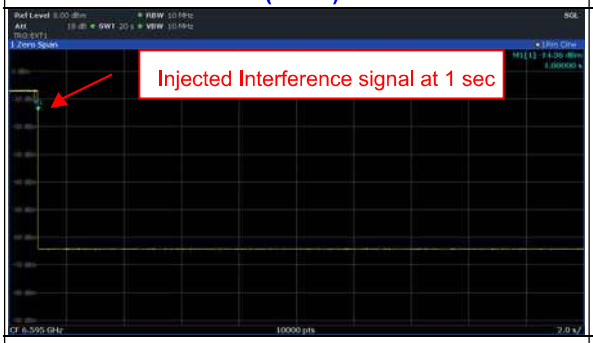
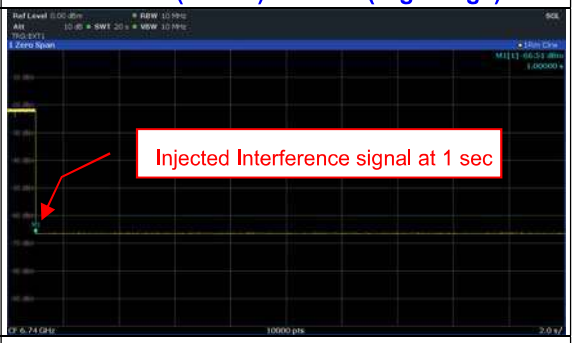
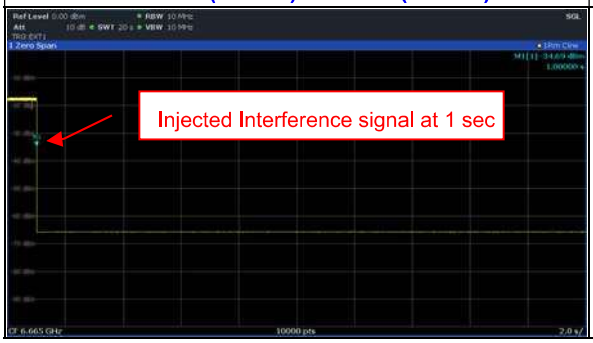
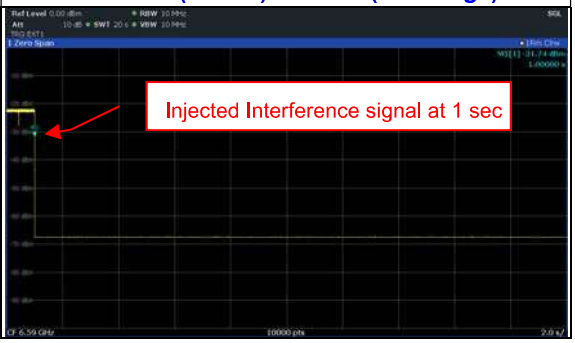
For U-NII-7 band

Contention Based Protocol Measurement									
Measurement Mode :	Conducted measurement			**The Incumbent Signal(AWGN) Level(dBm) :**			-62	at the antenna connector	
Device Type :	Indoor Client			**Antenna Gain(dBi) :**			0		
Operation Mode	**Channel Bandwidth (MHz)**	**Channel Number**	**Channel Frequency (MHz)**	**AWGN Signal Frequency (MHz)**	**Number of Times**	**Number of Detected**	**Detection Rate**	**Minimum Limit**	**Pass/Fail**
802.11ax	20	129	6595	6595	10	10	100%	90%	Pass
	160	143	6665	6590	10	10	100%	90%	Pass
				6665	10	10	100%	90%	Pass
				6740	10	10	100%	90%	Pass
Result	Complied								

Lowest Interference (AWGN) Level Check							
Operation Band	**Operation Mode**	**Channel Bandwidth (MHz)**	**Channel Number**	**Channel Frequency (MHz)**	**AWGN Signal Frequency (MHz)**	**Threshold Level (dBm)**	**EUT Status**
U-NII 7	802.11ax	20	129	6595	6595	-64	Start transmitting
		160	143	6665	6590	-63	Start transmitting
					6665	-63	Start transmitting
					6740	-63	Start transmitting

Plots of EUT Tx waveform	
802.11ax (HE20) / CH129	**802.11ax (HE160) / CH143**
	

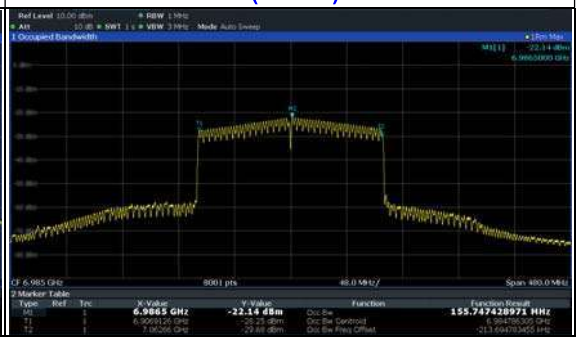
Plots of Incumbent signal(AWGN) Level	
802.11ax (HE20) / CH129	**802.11ax (HE160) / CH143 (High Edge)**
	
802.11ax (HE160) / CH151 (Middle)	**802.11ax (HE160) / CH143 (Low Edge)**
	

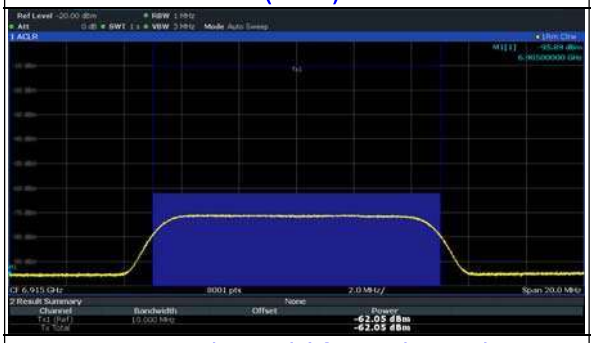
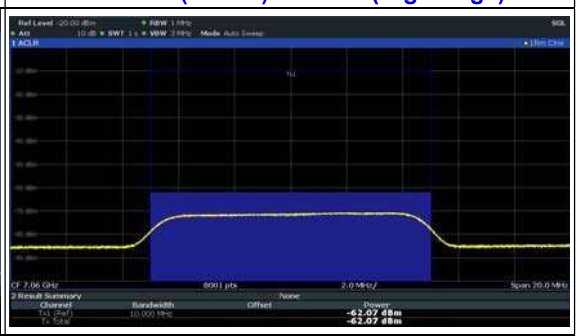
Plots of EUT ceased transmission in the time domain	
802.11ax (HE20) / CH129	**802.11ax (HE160) / CH143 (High Edge)**
	
802.11ax (HE160) / CH143 (Middle)	**802.11ax (HE160) / CH143 (Low Edge)**
	

For U-NII-8 band

Contention Based Protocol Measurement									
Measurement Mode :	Conducted measurement			**The Incumbent Signal(AWGN) Level(dBm) :**			-62	at the antenna connector	
Device Type :	Indoor Client			**Antenna Gain(dBi) :**			0		
Operation Mode	**Channel Bandwidth (MHz)**	**Channel Number**	**Channel Frequency (MHz)**	**AWGN Signal Frequency (MHz)**	**Number of Times**	**Number of Detected**	**Detection Rate**	**Minimum Limit**	**Pass/Fail**
802.11ax	20	193	6915	6915	10	10	100%	90%	Pass
	160	207	6985	6910	10	10	100%	90%	Pass
				6985	10	10	100%	90%	Pass
				7060	10	10	100%	90%	Pass
Result	Complied								

Lowest Interference (AWGN) Level Check							
Operation Band	**Operation Mode**	**Channel Bandwidth (MHz)**	**Channel Number**	**Channel Frequency (MHz)**	**AWGN Signal Frequency (MHz)**	**Threshold Level (dBm)**	**EUT Status**
U-NII 8	802.11ax	20	193	6915	6915	-64	Start transmitting
		160	207	6985	6910	-63	Start transmitting
					6985	-63	Start transmitting
					7060	-63	Start transmitting

Plots of EUT Tx waveform	
802.11ax (HE20) / CH193	**802.11ax (HE160) / CH207**
	

Plots of Incumbent signal(AWGN) Level	
802.11ax (HE20) / CH193	**802.11ax (HE160) / CH207 (High Edge)**
	
802.11ax (HE160) / CH207 (Middle)	**802.11ax (HE160) / CH207 (Low Edge)**