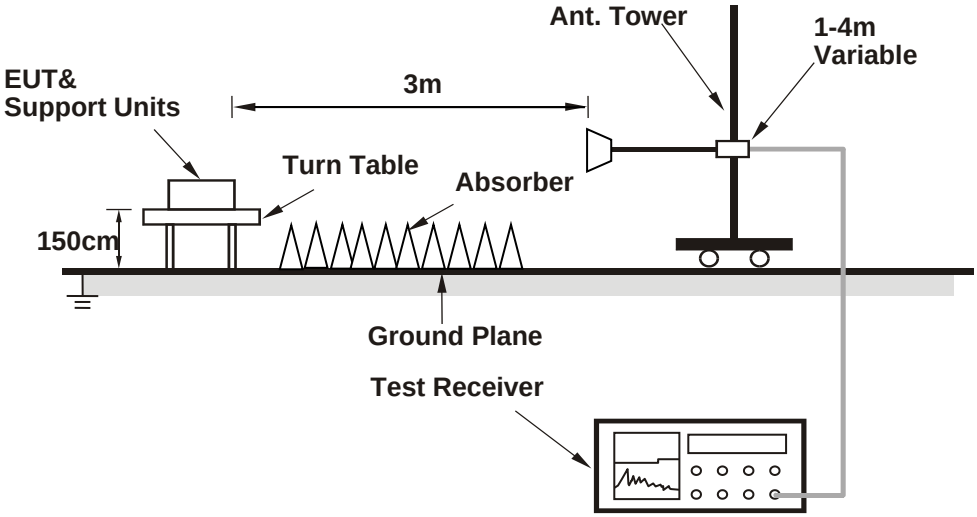
4.6 Peak Power Spectral Density Measurement

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	Indoor AP	5 dBm/MHz

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedures

a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP level.

e. Follow ANSI 63.10 and KDB 412172 D01 v01r01, EIRP Value (dBm) = Field Strength Value (dBμV/m) + Correction Factor @ 3m.

f. Correction Factor (dB) @ 3m = 20log(D) − 104.7; where D is the measurement distance @3m=-95.23dB

Note: Spectrum analyzer setting as below:

Method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep points ≥ [2 x span / RBW] (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
4. Sweep time = auto, trigger set to “free run”.
5. Trace average at least 100 traces in power averaging mode.
6. Record the max value

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Conditions

Same as 4.3.6.

4.6.7 Test Results

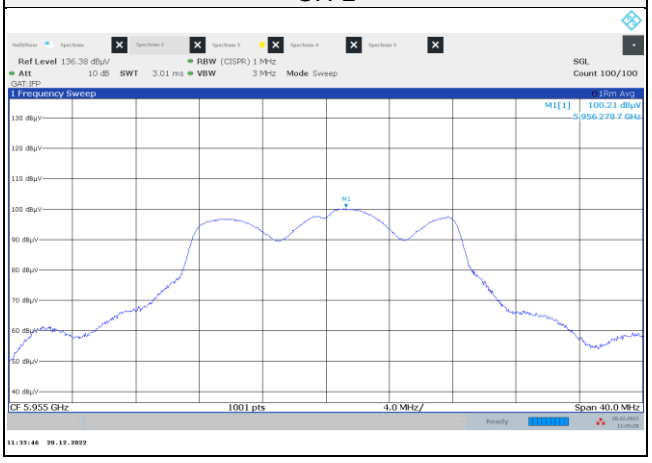
CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	100.21	-95.23	4.98	5	Pass
45	6175	100.19	-95.23	4.96	5	Pass
93	6415	100.13	-95.23	4.90	5	Pass
97	6435	100.18	-95.23	4.95	5	Pass
105	6475	100.17	-95.23	4.94	5	Pass
113	6515	100.15	-95.23	4.92	5	Pass
117	6535	100.16	-95.23	4.93	5	Pass
149	6695	100.07	-95.23	4.84	5	Pass
181	6855	100.17	-95.23	4.94	5	Pass
185	6875	100.12	-95.23	4.89	5	Pass
209	6995	100.05	-95.23	4.82	5	Pass
233	7115	96.79	-95.23	1.56	5	Pass

Spectrum Plot of Worst Value

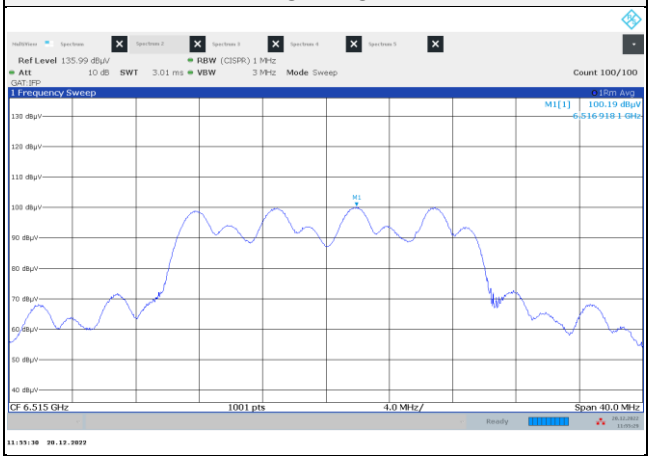
CH 1



802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	100.15	-95.23	4.92	5	Pass
45	6175	100.04	-95.23	4.81	5	Pass
93	6415	100.16	-95.23	4.93	5	Pass
97	6435	100.18	-95.23	4.95	5	Pass
105	6475	100.07	-95.23	4.84	5	Pass
113	6515	100.19	-95.23	4.96	5	Pass
117	6535	100.06	-95.23	4.83	5	Pass
149	6695	100.05	-95.23	4.82	5	Pass
181	6855	100.07	-95.23	4.84	5	Pass
185	6875	100.05	-95.23	4.82	5	Pass
209	6995	100.07	-95.23	4.84	5	Pass
233	7115	90.32	-95.23	-4.91	5	Pass

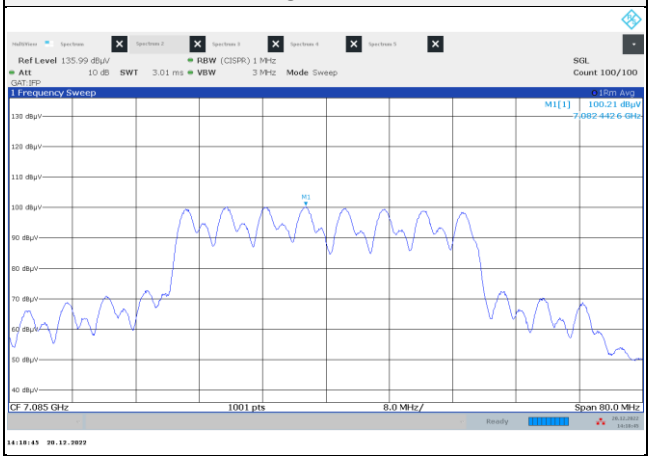
Spectrum Plot of Worst Value
CH 113



802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
3	5965	100.19	-95.23	4.96	5	Pass
43	6165	100.19	-95.23	4.96	5	Pass
91	6405	100.21	-95.23	4.98	5	Pass
99	6445	100.19	-95.23	4.96	5	Pass
107	6485	100.09	-95.23	4.86	5	Pass
115	6525	100.15	-95.23	4.92	5	Pass
123	6565	100.16	-95.23	4.93	5	Pass
155	6725	100.08	-95.23	4.85	5	Pass
179	6845	100.18	-95.23	4.95	5	Pass
187	6885	100.06	-95.23	4.83	5	Pass
211	7005	100.04	-95.23	4.81	5	Pass
227	7085	100.21	-95.23	4.98	5	Pass

Spectrum Plot of Worst Value
CH 227

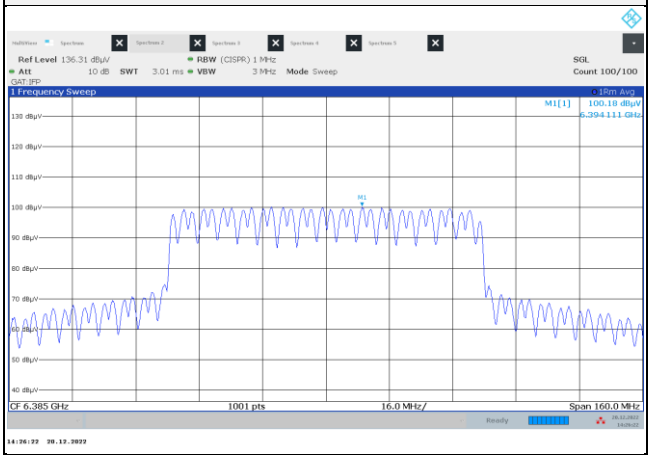


802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
7	5985	100.16	-95.23	4.93	5	Pass
39	6145	100.15	-95.23	4.92	5	Pass
87	6385	100.18	-95.23	4.95	5	Pass
103	6465	100.05	-95.23	4.82	5	Pass
119	6545	100.05	-95.23	4.82	5	Pass
151	6705	100.03	-95.23	4.80	5	Pass
183	6865	100.09	-95.23	4.86	5	Pass
199	6945	100.04	-95.23	4.81	5	Pass
215	7025	100.05	-95.23	4.82	5	Pass

Spectrum Plot of Worst Value

CH 87

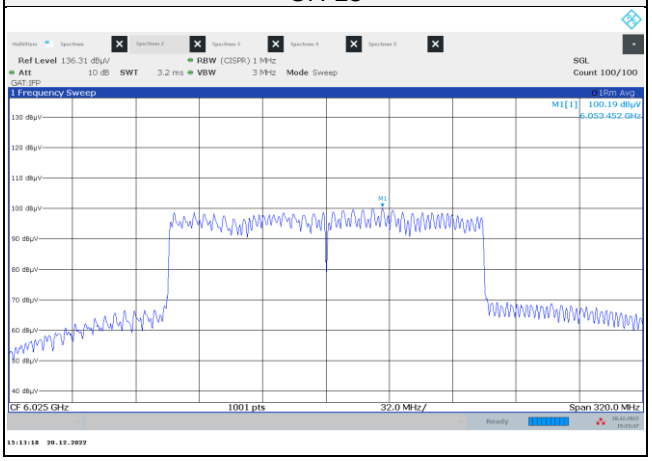


802.11ax (HE160)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
15	6025	100.19	-95.23	4.96	5	Pass
47	6185	100.05	-95.23	4.82	5	Pass
79	6345	100.08	-95.23	4.85	5	Pass
111	6505	100.06	-95.23	4.83	5	Pass
143	6665	100.04	-95.23	4.81	5	Pass
175	6825	100.05	-95.23	4.82	5	Pass
207	6985	100.04	-95.23	4.81	5	Pass

Spectrum Plot of Worst Value

CH 15



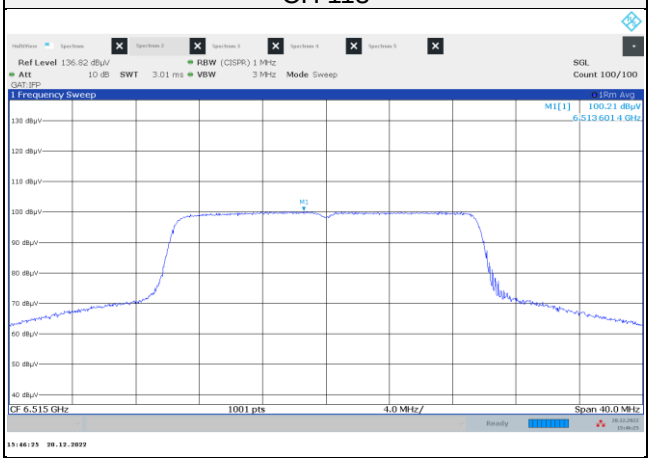
Beamforming Mode

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	100.12	-95.23	4.89	5	Pass
45	6175	100.18	-95.23	4.95	5	Pass
93	6415	100.15	-95.23	4.92	5	Pass
97	6435	100.19	-95.23	4.96	5	Pass
105	6475	100.18	-95.23	4.95	5	Pass
113	6515	100.21	-95.23	4.98	5	Pass
117	6535	100.12	-95.23	4.89	5	Pass
149	6695	100.08	-95.23	4.85	5	Pass
181	6855	100.05	-95.23	4.82	5	Pass
185	6875	100.05	-95.23	4.82	5	Pass
209	6995	100.12	-95.23	4.89	5	Pass
233	7115	83.75	-95.23	-11.48	5	Pass

Spectrum Plot of Worst Value

CH 113

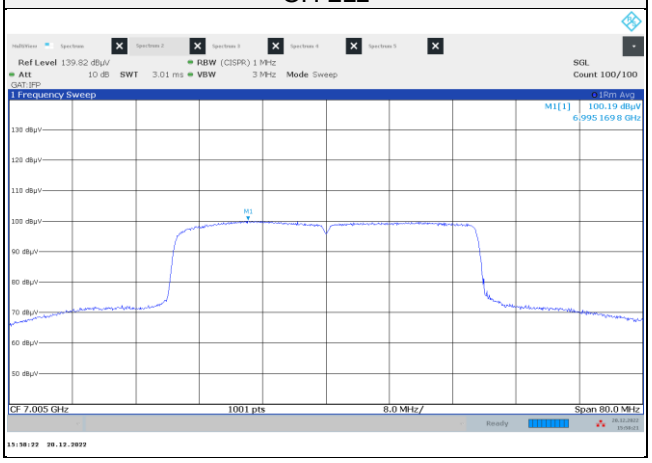


802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
3	5965	100.15	-95.23	4.92	5	Pass
43	6165	100.05	-95.23	4.82	5	Pass
91	6405	100.09	-95.23	4.86	5	Pass
99	6445	100.05	-95.23	4.82	5	Pass
107	6485	100.17	-95.23	4.94	5	Pass
115	6525	100.18	-95.23	4.95	5	Pass
123	6565	100.15	-95.23	4.92	5	Pass
155	6725	100.17	-95.23	4.94	5	Pass
179	6845	100.12	-95.23	4.89	5	Pass
187	6885	100.16	-95.23	4.93	5	Pass
211	7005	100.19	-95.23	4.96	5	Pass
227	7085	100.18	-95.23	4.95	5	Pass

Spectrum Plot of Worst Value

CH 211

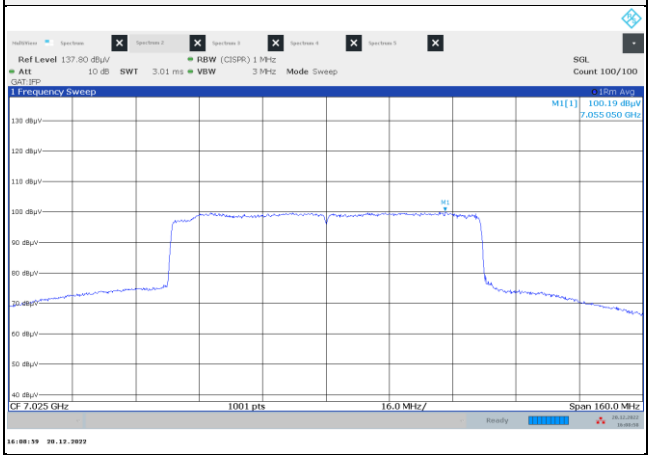


802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
7	5985	100.15	-95.23	4.92	5	Pass
39	6145	100.08	-95.23	4.85	5	Pass
87	6385	100.12	-95.23	4.89	5	Pass
103	6465	100.12	-95.23	4.89	5	Pass
119	6545	100.18	-95.23	4.95	5	Pass
151	6705	100.05	-95.23	4.82	5	Pass
183	6865	100.12	-95.23	4.89	5	Pass
199	6945	100.16	-95.23	4.93	5	Pass
215	7025	100.19	-95.23	4.96	5	Pass

Spectrum Plot of Worst Value

CH 215

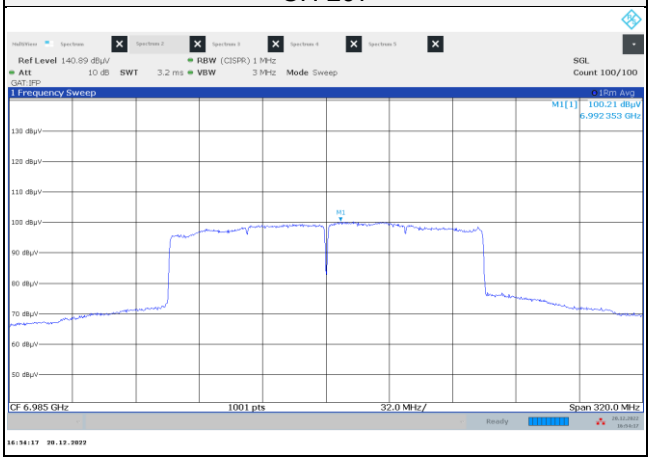


802.11ax (HE160)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
15	6025	100.19	-95.23	4.96	5	Pass
47	6185	100.18	-95.23	4.95	5	Pass
79	6345	100.15	-95.23	4.92	5	Pass
111	6505	100.15	-95.23	4.92	5	Pass
143	6665	100.15	-95.23	4.92	5	Pass
175	6825	100.04	-95.23	4.81	5	Pass
207	6985	100.21	-95.23	4.98	5	Pass

Spectrum Plot of Worst Value

CH 207

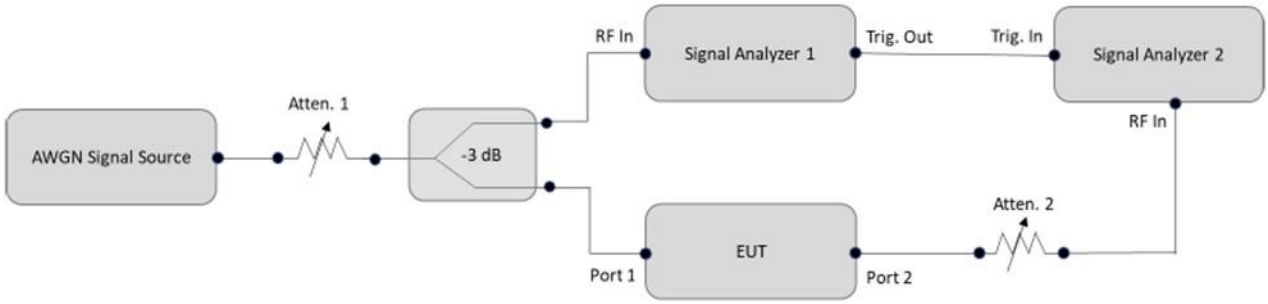


4.7 Contention Based Protocol Measurement

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	FSW	102023	2022/11/8	2023/11/7
Spectrum Analyzer R&S	FSV40	101516	2022/3/7	2023/3/6
MXG X-Series RF Vector Signal Generator Agilent	N5182B	MY59100182	2022/4/26	2023/4/25
N5182BU KEYSIGHT	N5182BX07	MY59360203	2022/4/26	2023/4/25
Power Splitter/combiner Mini-Circuits	ZFRSC-123-S+	F698501347_01	2022/1/26	2023/1/25

Notes: The test was performed in Oven room.

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.

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

CDD Mode

U-NII-5 Band:

Contention Based Protocol Measurement										
Operation Mode	Channel Bandwidth (MHz)	Channel Number	Channel Freq. (MHz)	Injected Signal (AWGN)		Antenna Gain (dBi)	Path Loss (dB) (Note 2)	Adjusted Power (dBm)	Detection Limit	EUT TX Status
				Freq. (MHz)	Power (dBm)					
802.11ax	20	45	6175	6175	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
	160	47	6185	6110	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
				6185	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
				6260	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON

Notes:

1. Adjusted Power (dBm) = Injected Signal (AWGN) Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)
2. Antenna gain values include all the applicable path losses.
3. The chain 5 was tested.

Contention Based Protocol Detection Probability															
Operation Mode	Channel Bandwidth (MHz)	AWGN Signal Freq. (MHz)	#01	#02	#03	#04	#05	#06	#07	#08	#09	#10	Detection Probability	Detection Limit	Test Result
802.11ax	20	6175	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
	160	6110	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6185	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6260	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass

U-NII-6 Band:

Contention Based Protocol Measurement										
Operation Mode	Channel Bandwidth (MHz)	Channel Number	Channel Freq. (MHz)	Injected Signal (AWGN)		Antenna Gain (dBi)	Path Loss (dB) (Note 2)	Adjusted Power (dBm)	Detection Limit	EUT TX Status
				Freq. (MHz)	Power (dBm)					
802.11ax	20	105	6475	6475	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
	160	111	6505	6430	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
				6505	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
				6580	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON

Notes:

1.Adjusted Power (dBm) = Injected Signal (AWGN) Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)

2.Antenna gain values include all the applicable path losses.

3.The chain 5 was tested.

Contention Based Protocol Detection Probability															
Operation Mode	Channel Bandwidth (MHz)	AWGN Signal Freq. (MHz)	#01	#02	#03	#04	#05	#06	#07	#08	#09	#10	Detection Probability	Detection Limit	Test Result
802.11ax	20	6475	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
	160	6430	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6505	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6580	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass

U-NII-7 Band:

Contention Based Protocol Measurement										
Operation Mode	Channel Bandwidth (MHz)	Channel Number	Channel Freq. (MHz)	Injected Signal (AWGN)		Antenna Gain (dBi)	Path Loss (dB) (Note 2)	Adjusted Power (dBm)	Detection Limit	EUT TX Status
				Freq. (MHz)	Power (dBm)					
802.11ax	20	149	6695	6695	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
	160	143	6665	6590	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
				6665	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
				6740	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON

Notes:

1. Adjusted Power (dBm) = Injected Signal (AWGN) Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)
2. Antenna gain values include all the applicable path losses.
3. The chain 5 was tested.

Contention Based Protocol Detection Probability															
Operation Mode	Channel Bandwidth (MHz)	AWGN Signal Freq. (MHz)	#01	#02	#03	#04	#05	#06	#07	#08	#09	#10	Detection Probability	Detection Limit	Test Result
802.11ax	20	6695	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
	160	6590	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6665	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6740	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass

U-NII-8 Band:

Contention Based Protocol Measurement										
Operation Mode	Channel Bandwidth (MHz)	Channel Number	Channel Freq. (MHz)	Injected Signal (AWGN)		Antenna Gain (dBi)	Path Loss (dB) (Note 2)	Adjusted Power (dBm)	Detection Limit	EUT TX Status
				Freq. (MHz)	Power (dBm)					
802.11ax	20	209	6995	6995	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
	160	207	6985	6910	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
				6985	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON
				7060	-58.6	3.4	0	-62	-62	OFF
					-70.6	3.4	0	-74	-62	Minimal
					-78.6	3.4	0	-82	-62	ON

Notes:

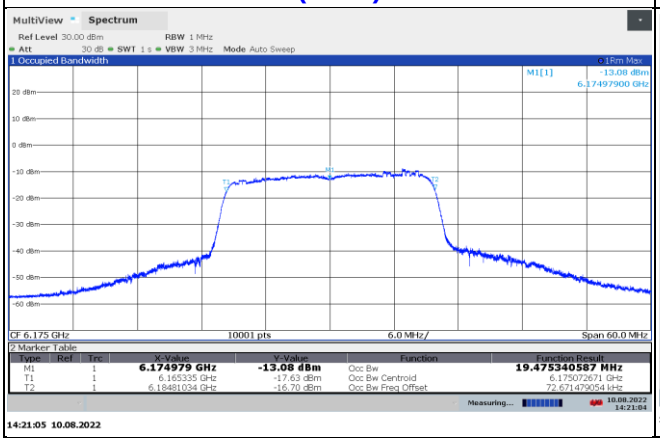
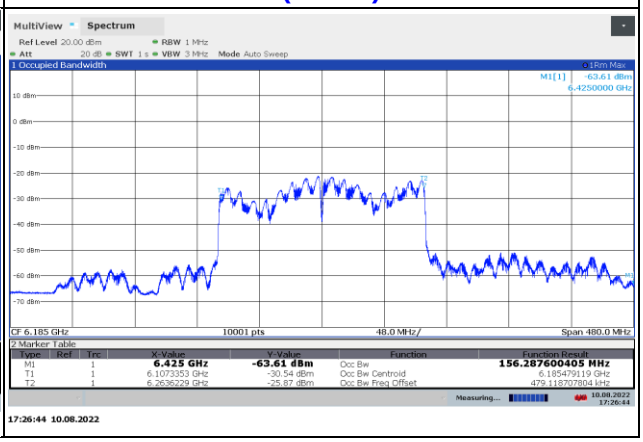
1.Adjusted Power (dBm) = Injected Signal (AWGN) Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)

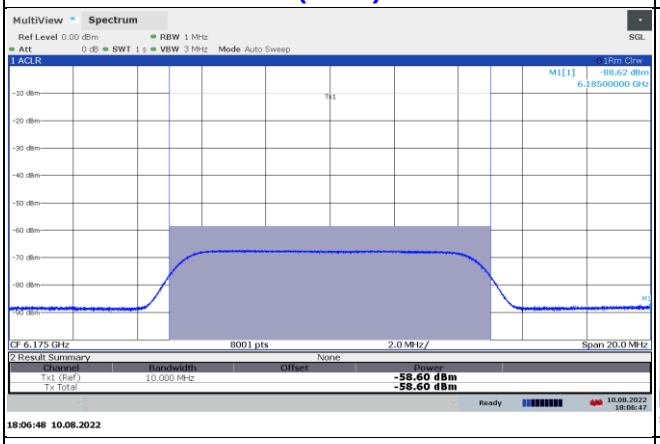
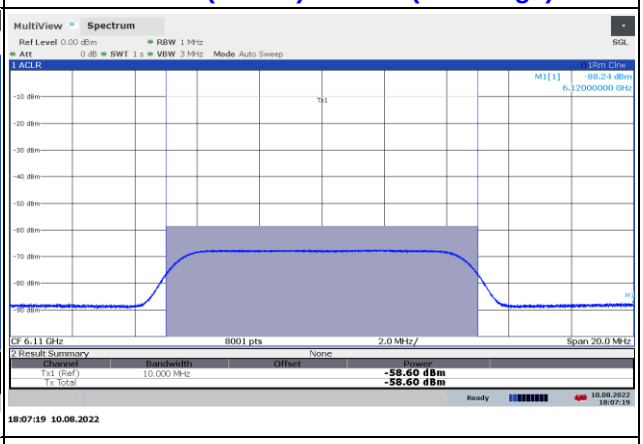
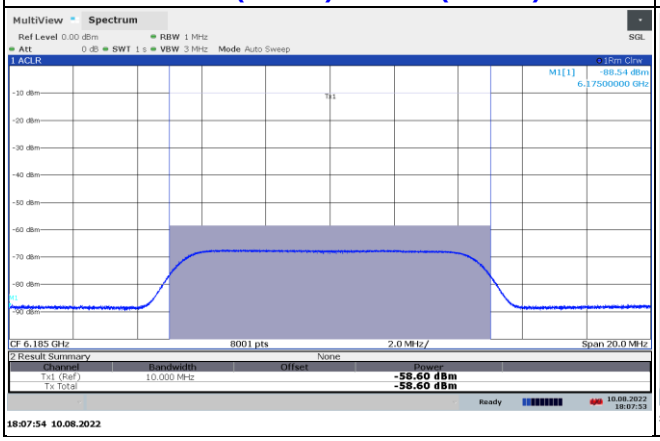
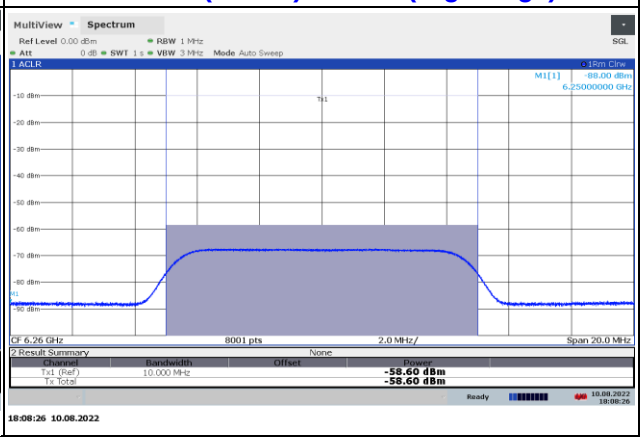
2.Antenna gain values include all the applicable path losses.

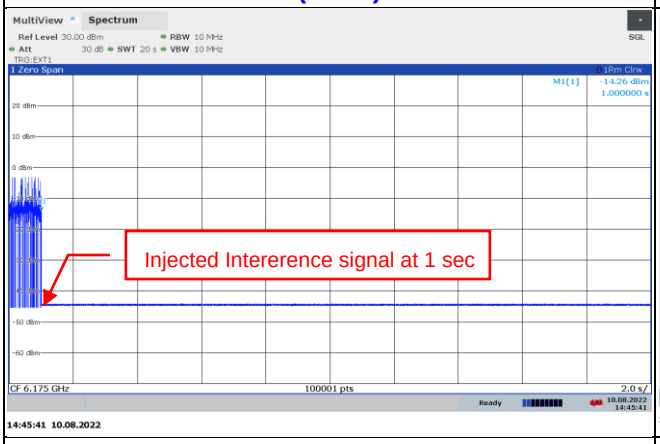
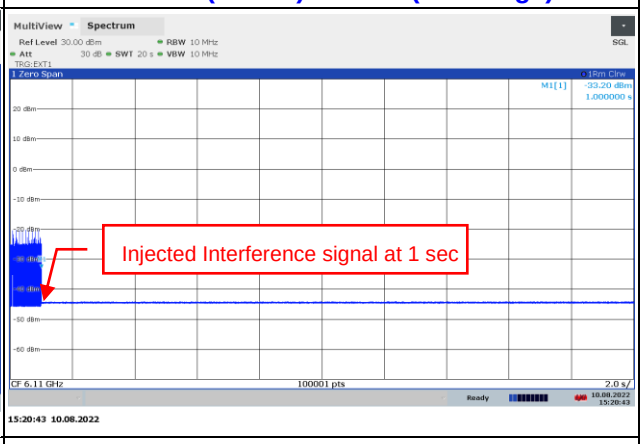
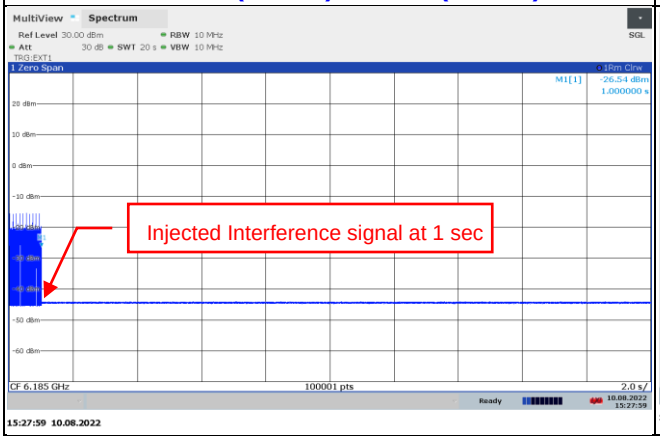
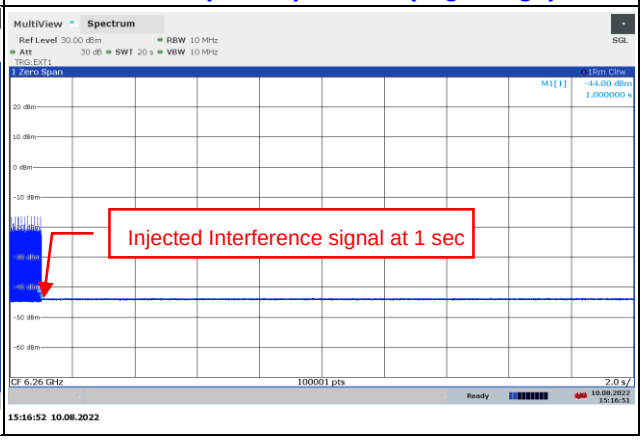
3.The chain 5 was tested.

Contention Based Protocol Detection Probability															
Operation Mode	Channel Bandwidth (MHz)	AWGN Signal Freq. (MHz)	#01	#02	#03	#04	#05	#06	#07	#08	#09	#10	Detection Probability	Detection Limit	Test Result
802.11ax	20	6995	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
	160	6910	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6985	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		7060	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass

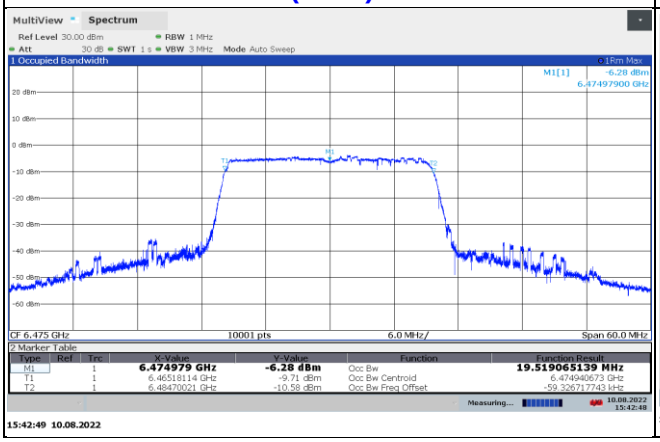
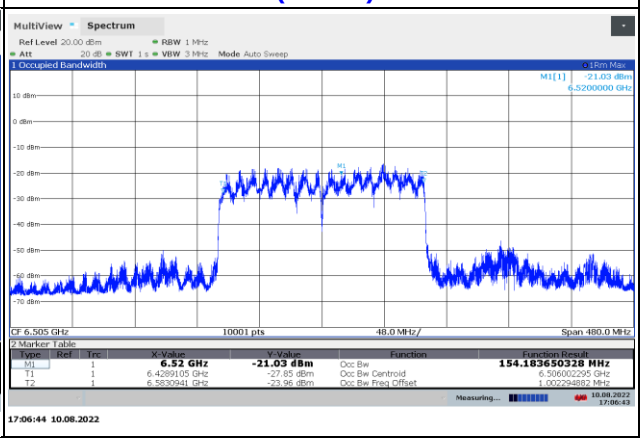
For U-NII-5 Band

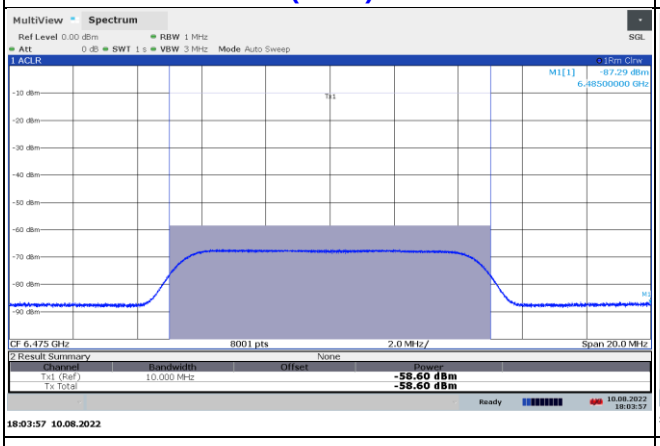
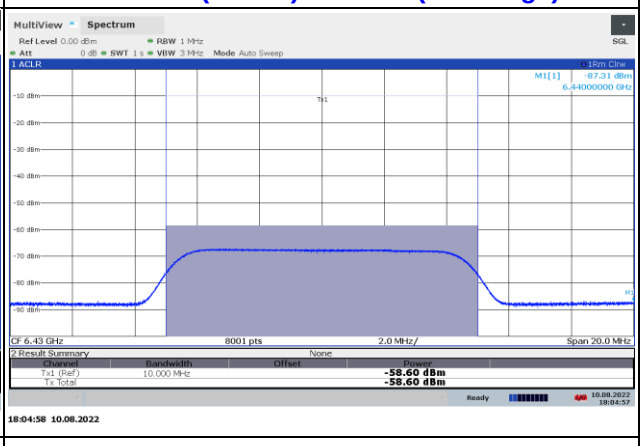
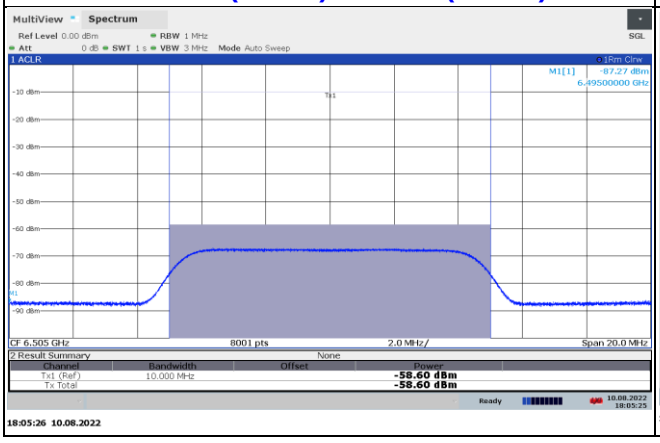
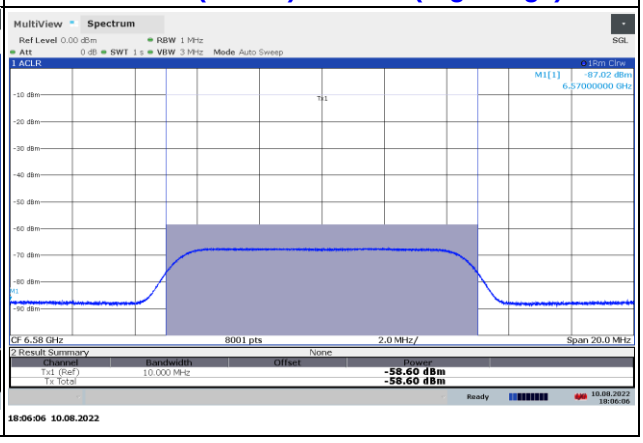
Plots of EUT Tx waveform	
802.11ax (HE20) / CH 45	**802.11ax (HE160) / CH 47**
	

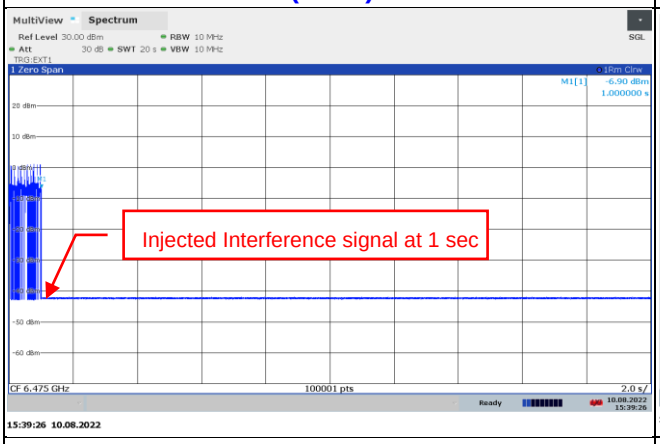
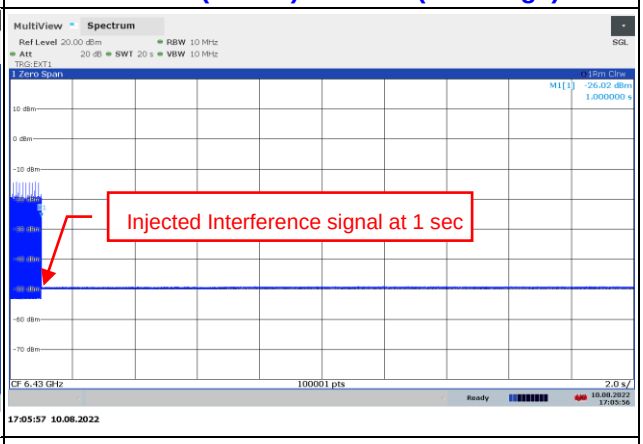
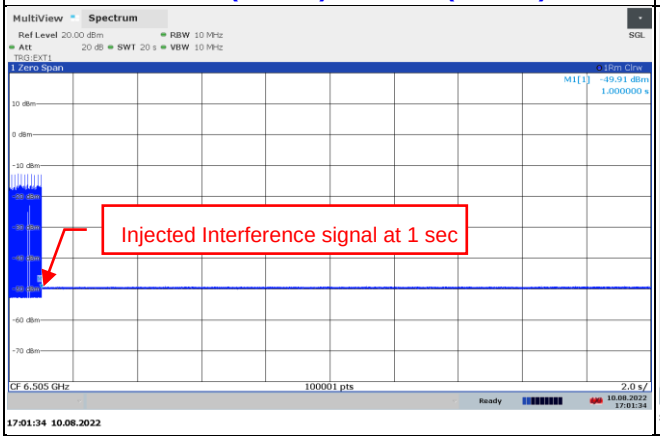
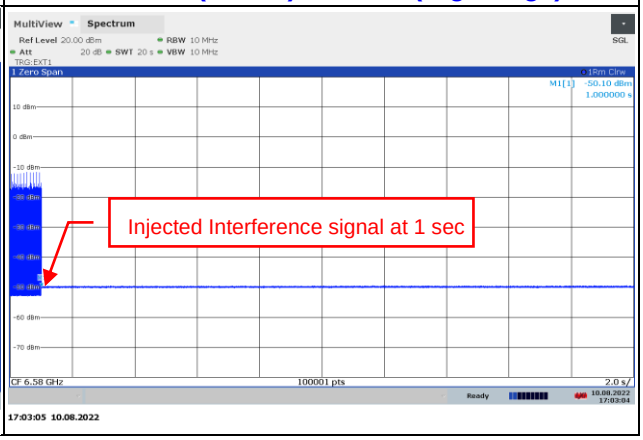
Plots of Incumbent signal (AWGN) Level	
802.11ax (HE20) / CH 45	**802.11ax (HE160) / CH 47 (Low Edge)**
	
802.11ax (HE160) / CH 47 (Middle)	**802.11ax (HE160) / CH 47 (High Edge)**
	

Plots of EUT ceased transmission in the time domain	
802.11ax (HE20) / CH 45	**802.11ax (HE160) / CH 47 (Low Edge)**
	
802.11ax (HE160) / CH 47 (Middle)	**802.11ax (HE160) / CH 47 (High Edge)**
	

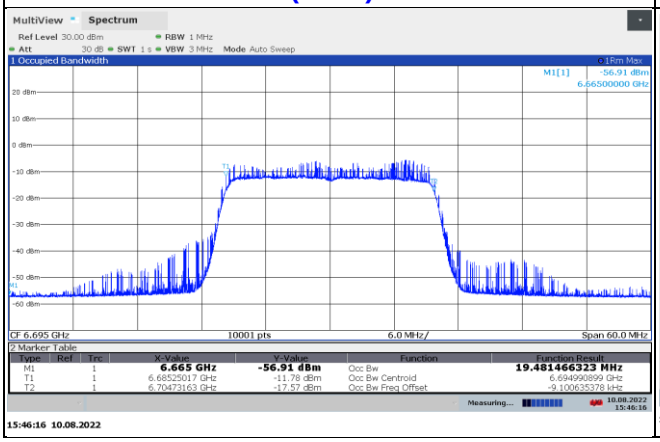
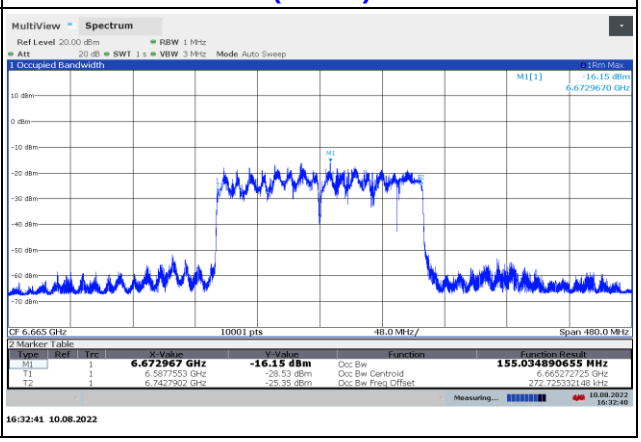
For U-NII-6 Band

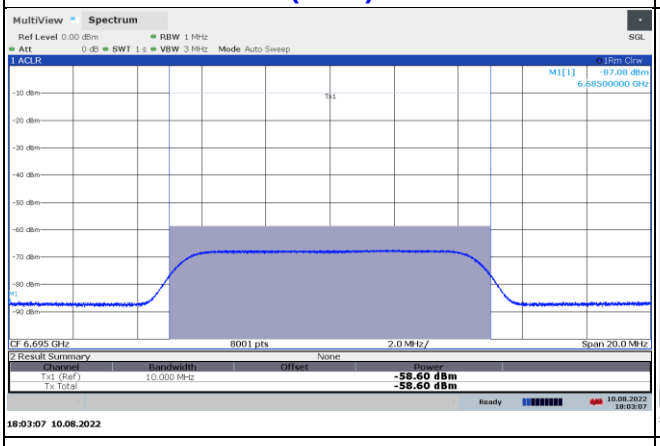
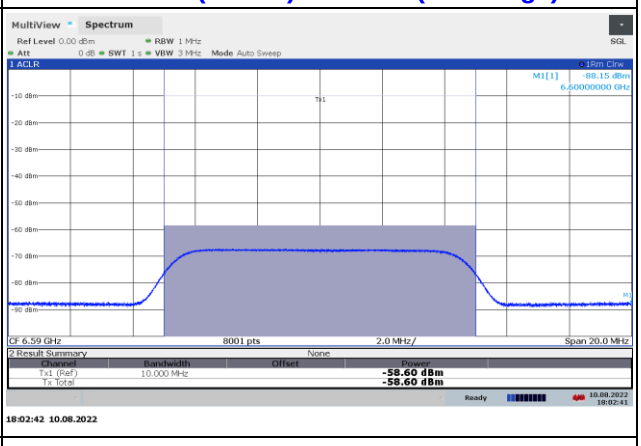
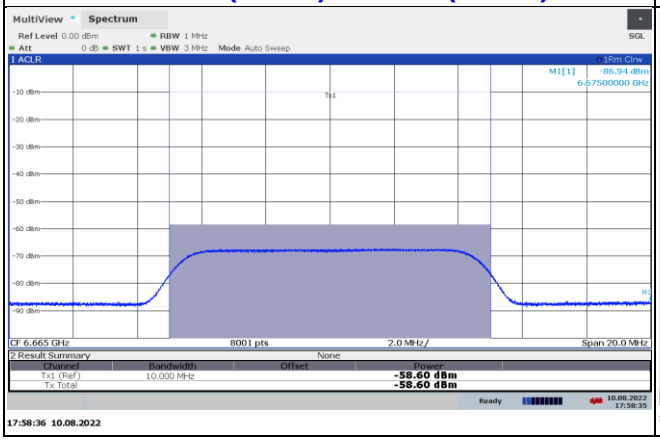
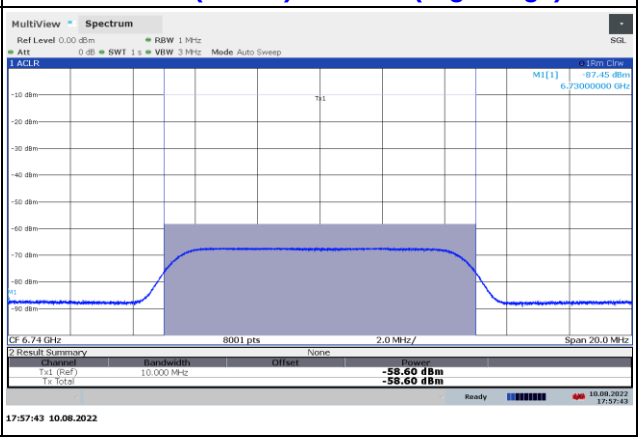
Plots of EUT Tx waveform	
802.11ax (HE20) / CH 105	**802.11ax (HE160) / CH 111**
	

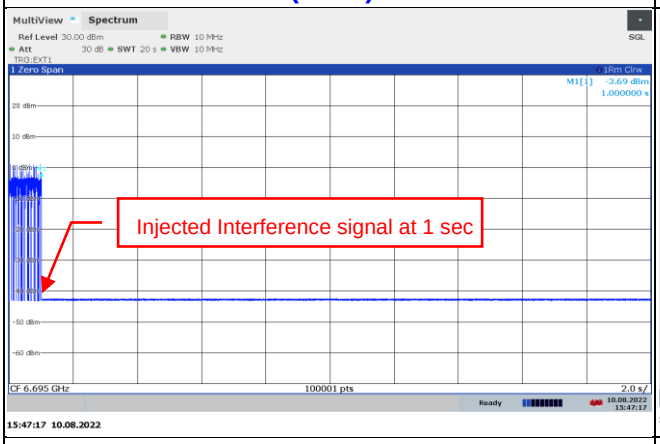
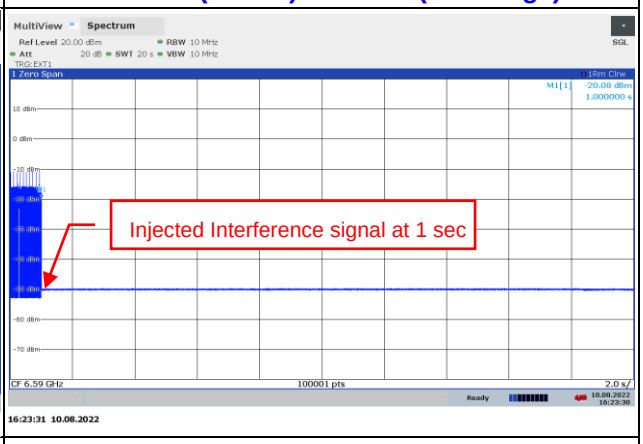
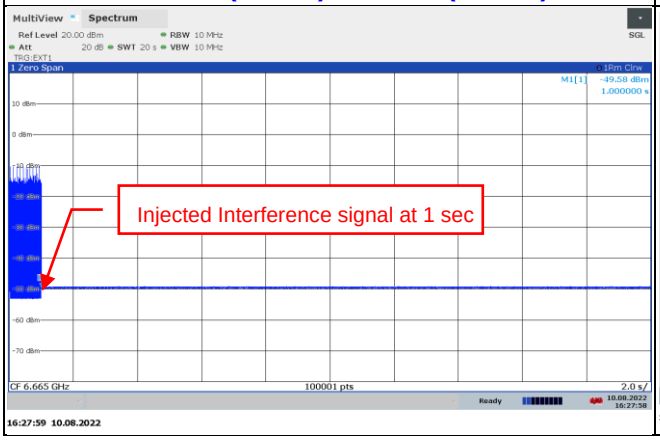
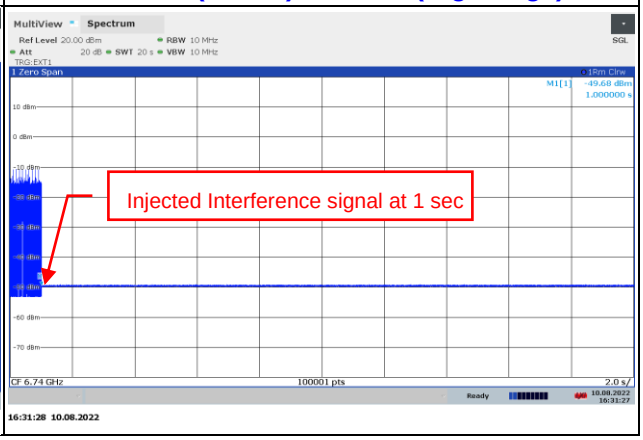
Plots of Incumbent signal (AWGN) Level	
802.11ax (HE20) / CH 105	**802.11ax (HE160) / CH 111 (Low Edge)**
	
802.11ax (HE160) / CH 111 (Middle)	**802.11ax (HE160) / CH 111 (High Edge)**
	

Plots of EUT ceased transmission in the time domain	
802.11ax (HE20) / CH 105	**802.11ax (HE160) / CH 111 (Low Edge)**
	
802.11ax (HE160) / CH 111 (Middle)	**802.11ax (HE160) / CH 111 (High Edge)**
	

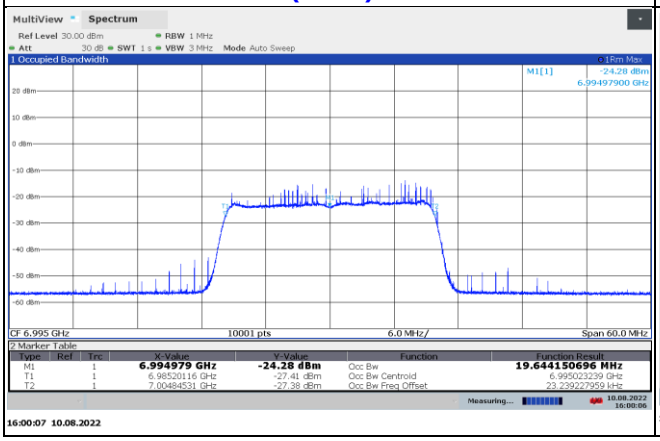
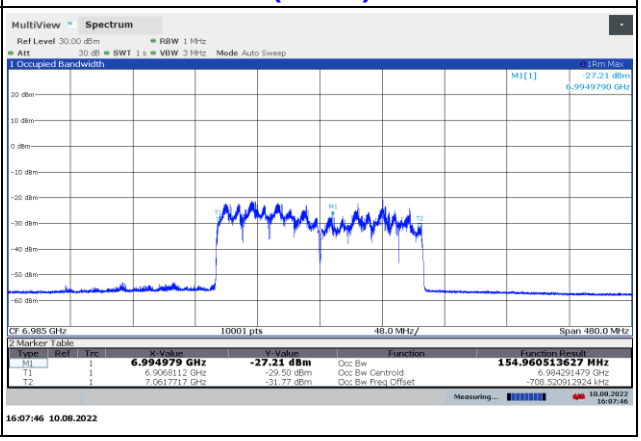
For U-NII-7 Band

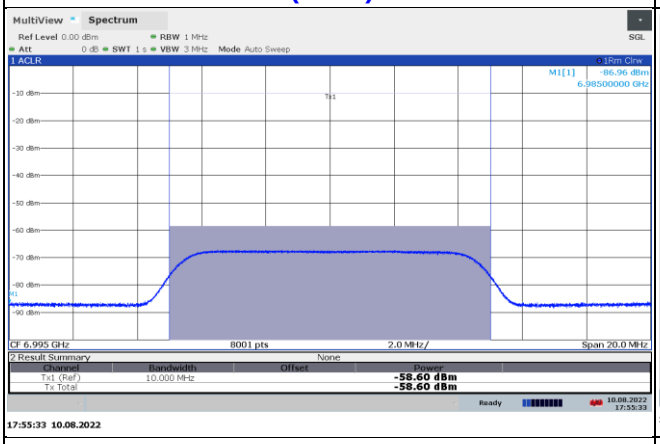
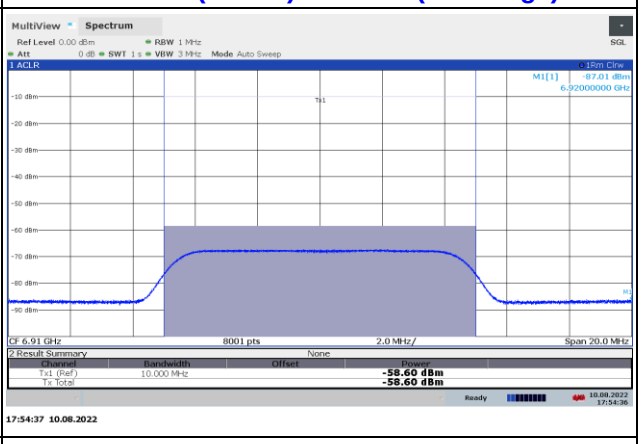
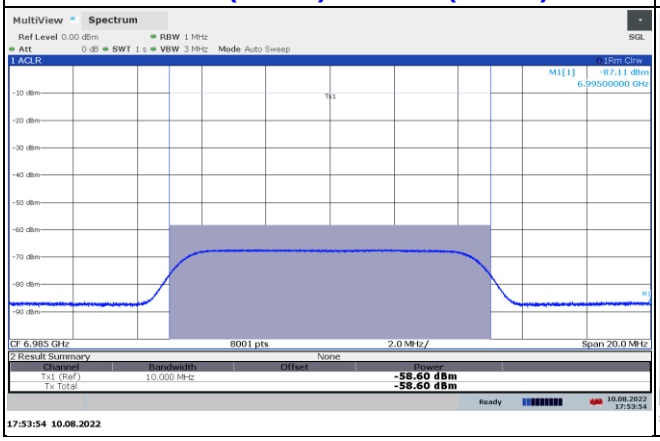
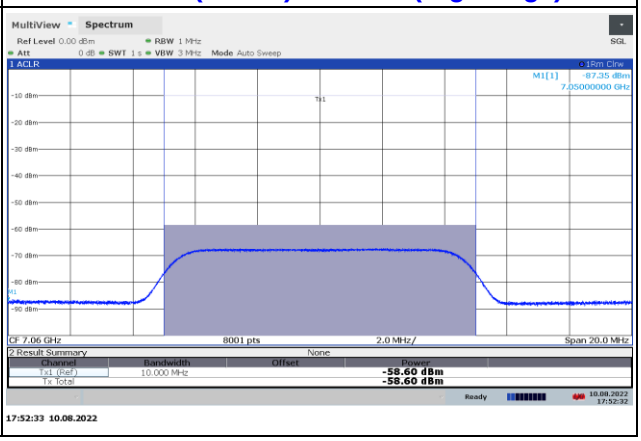
Plots of EUT Tx waveform	
802.11ax (HE20) / CH 149	**802.11ax (HE160) / CH 143**
	

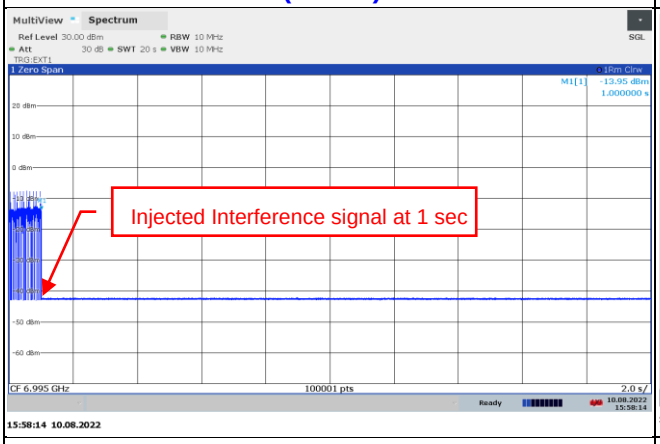
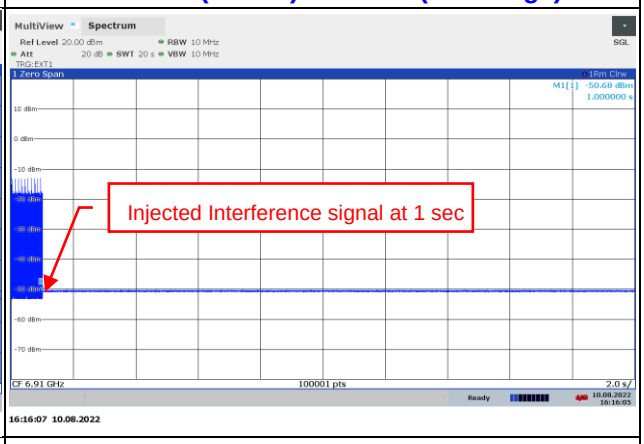
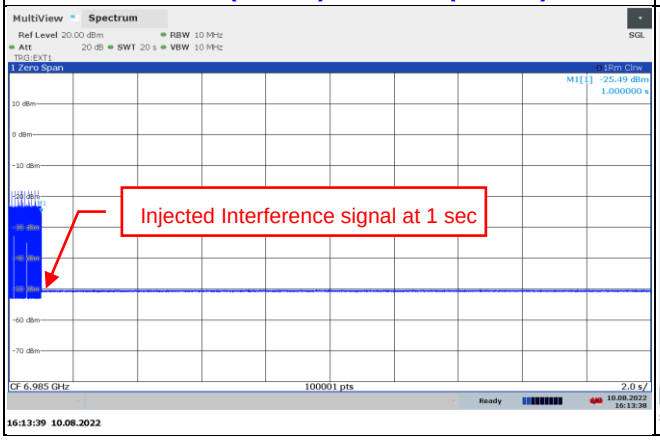
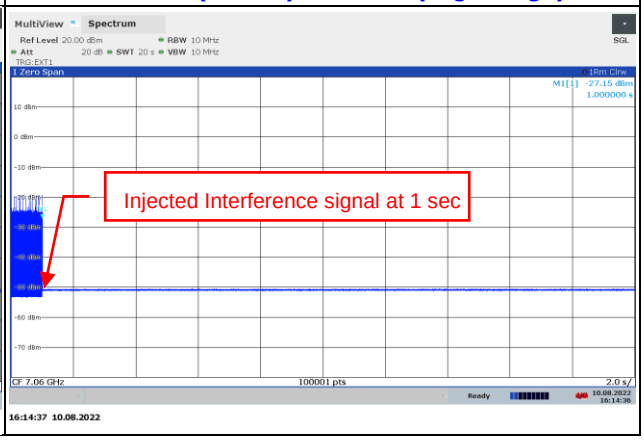
Plots of Incumbent signal (AWGN) Level	
802.11ax (HE20) / CH 149	**802.11ax (HE160) / CH 143 (Low Edge)**
	
802.11ax (HE160) / CH 143 (Middle)	**802.11ax (HE160) / CH 143 (High Edge)**
	

Plots of EUT ceased transmission in the time domain	
802.11ax (HE20) / CH 149	**802.11ax (HE160) / CH 143 (Low Edge)**
	
802.11ax (HE160) / CH 143 (Middle)	**802.11ax (HE160) / CH 143 (High Edge)**
	

For U-NII-8 Band

Plots of EUT Tx waveform	
802.11ax (HE20) / CH 209	**802.11ax (HE160) / CH 207**
	

Plots of Incumbent signal (AWGN) Level	
802.11ax (HE20) / CH 209	**802.11ax (HE160) / CH 207 (Low Edge)**
	
802.11ax (HE160) / CH 207 (Middle)	**802.11ax (HE160) / CH 207 (High Edge)**
	

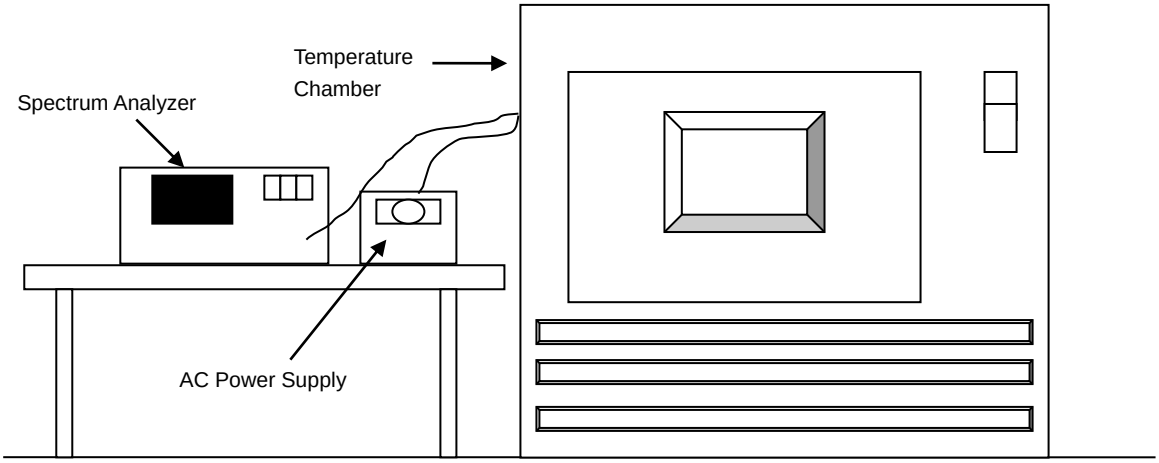
Plots of EUT ceased transmission in the time domain	
802.11ax (HE160) / CH 209	**802.11ax (HE160) / CH 207 (Low Edge)**
	
802.11ax (HE160) / CH 207 (Middle)	**802.11ax (HE160) / CH 207 (High Edge)**
	

4.8 Frequency Stability

4.8.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

4.8.2 Test Setup



4.8.3 Test Instruments

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	2022/9/16	2023/9/15
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	2022/5/30	2023/5/29
Three-phase coupling / decoupling network TESEQ	CDN 3063	4006	2022/3/8	2023/3/7
AC Power Supply Extech	CFW-105	E000603	NA	NA

Notes: The test was performed in Oven room.

4.8.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

e. Repeat step d with every 10 degrees reduction until the lowest temperature achieved.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.8.5 Deviation from Test Standard

No deviation.

4.8.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.8.7 Test Results

CDD Mode

Frequency Stability Versus Temp.									
Operating Frequency: 5955MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
40	120	5954.995	Pass	5954.9937	Pass	5954.996	Pass	5954.9949	Pass
30	120	5955.0049	Pass	5955.0001	Pass	5955.0041	Pass	5955.0041	Pass
20	120	5954.994	Pass	5954.9972	Pass	5954.9938	Pass	5954.9952	Pass
10	120	5955.007	Pass	5955.0106	Pass	5955.009	Pass	5955.0094	Pass
0	120	5954.9842	Pass	5954.984	Pass	5954.9833	Pass	5954.9794	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5955MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5954.9844	Pass	5954.9869	Pass	5954.9837	Pass	5954.986	Pass
	120	5954.994	Pass	5954.9972	Pass	5954.9938	Pass	5954.9952	Pass
	102	5955.0021	Pass	5954.9965	Pass	5954.9982	Pass	5955.0006	Pass

4.9 Operational Restrictions for 6 GHz U-NII Devices

4.9.1 Limits of Operational Restrictions for 6 GHz U-NII Devices

(1) Operation of indoor access points in the 5.925-7.125 GHz band is prohibited on oil platforms, cars, trains, boats, and aircraft, except that indoor access points are permitted to operate in the 5.925-6.425 GHz bands in large aircraft while flying above 10,000 feet.

(2) Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.

(3) Transmitters operating under indoor access points are limited to indoor locations.

(4) In the 5.925-7.125 GHz band, indoor access points must bear the following statement in a conspicuous location on the device and in the user's manual: FCC regulations restrict operation of this device to indoor use only. The operation of this device is prohibited on oil platforms, cars, trains, boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet.

(5) In the 5.925-7.125 GHz band, Access points may connect to other access points or subordinate devices.

(6) Indoor access points, operating in the 5.925-7.125 GHz band must employ a contention-based protocol.

4.9.2 Test Setup

N/A

4.9.3 Test Instruments

N/A

4.9.4 Test Procedure

N/A

4.9.5 Test Results

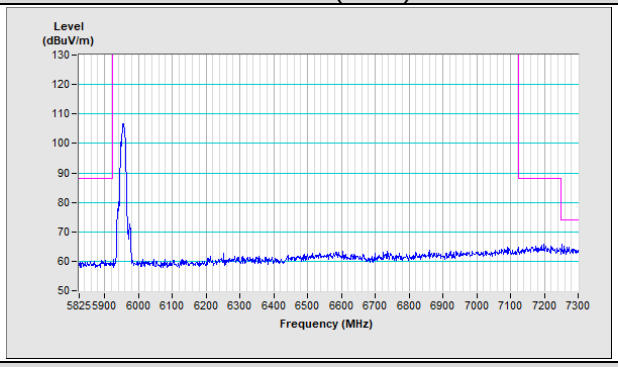
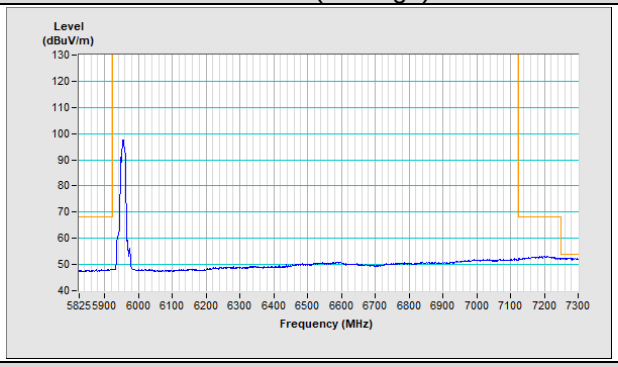
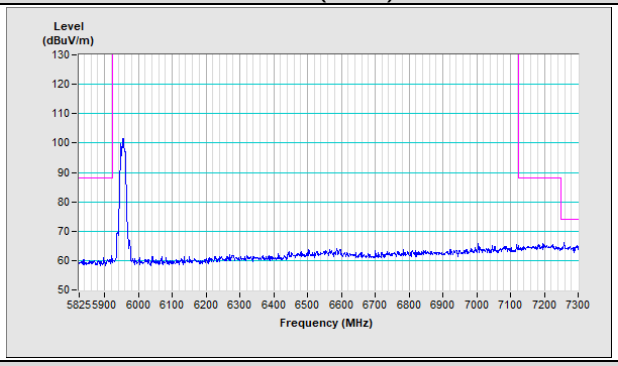
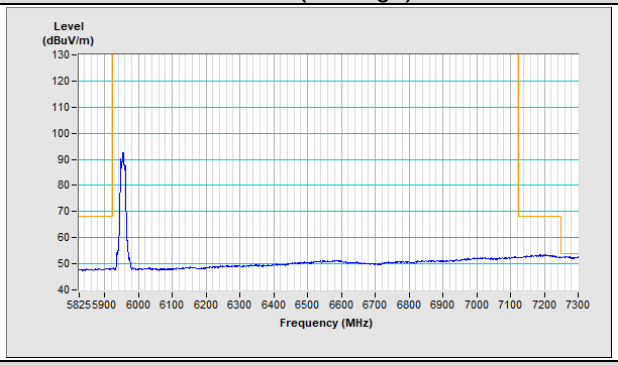
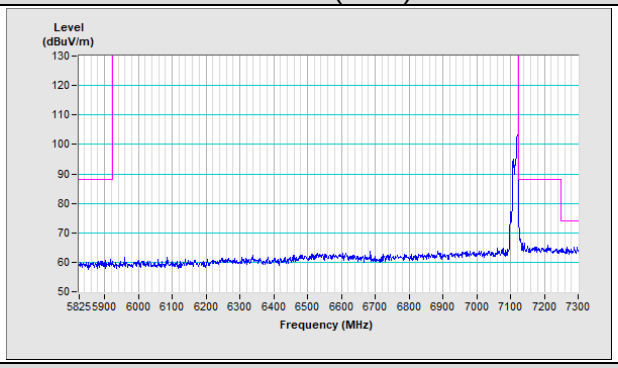
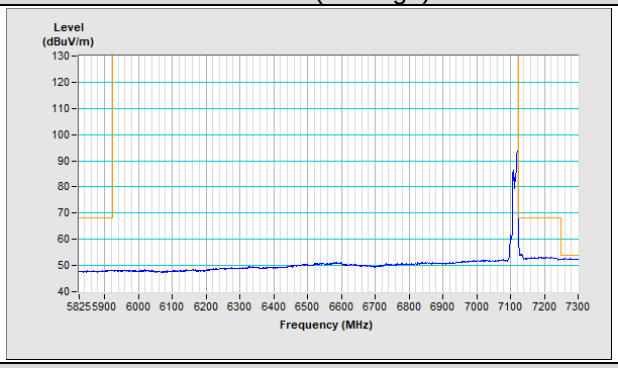
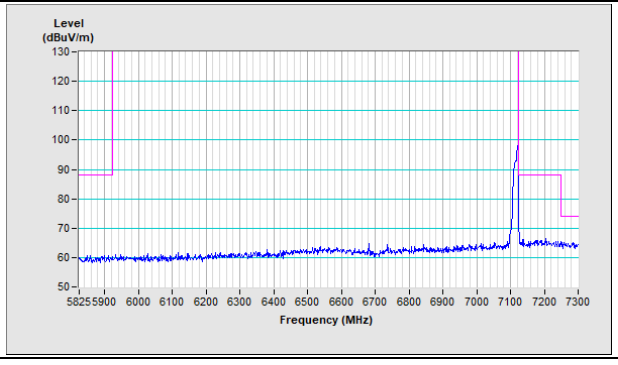
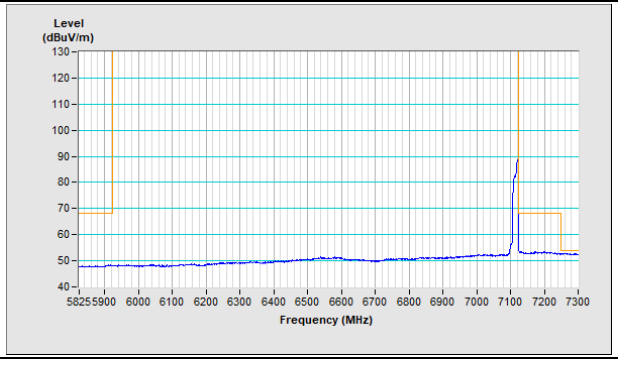
Device is an indoor AP, all restrictions are meet the §15.407 (d) requirements. Please refer to the Attestation letter exhibit supplied within this application.

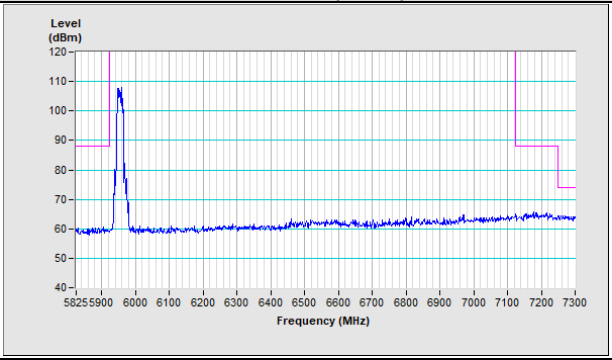
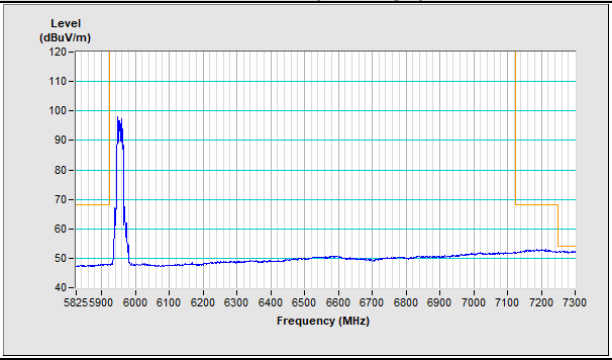
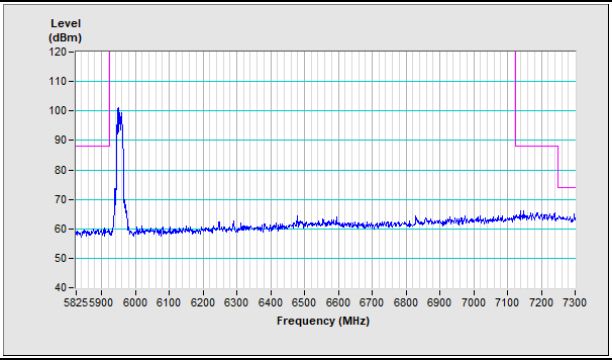
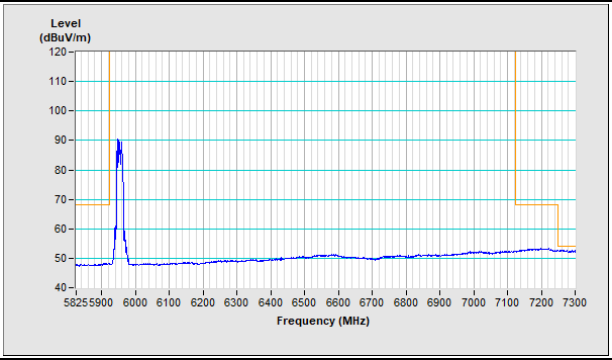
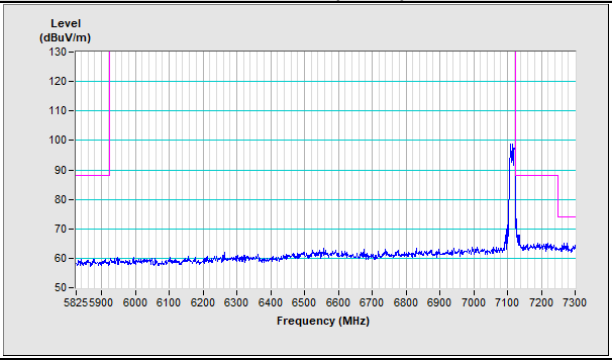
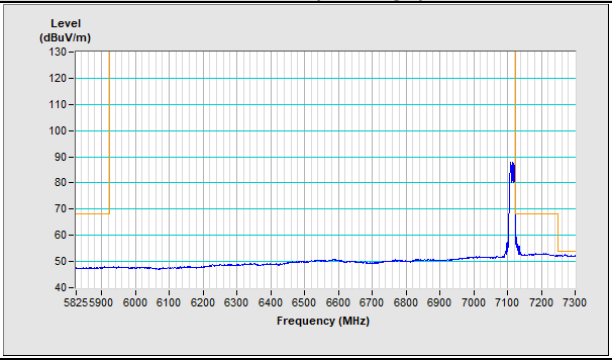
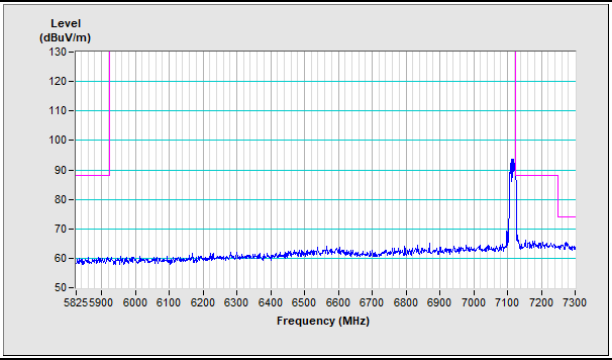
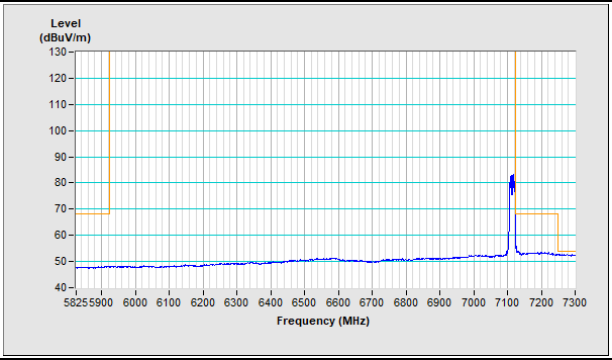
5 Pictures of Test Arrangements

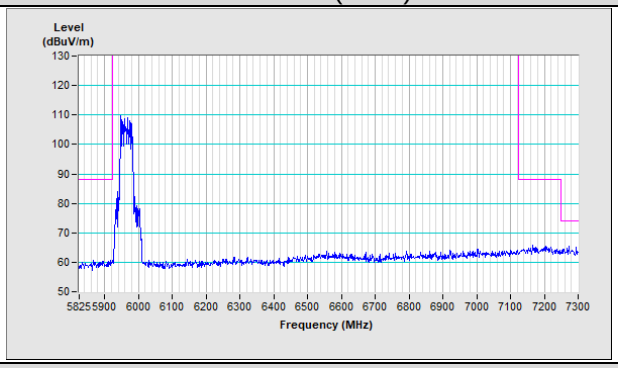
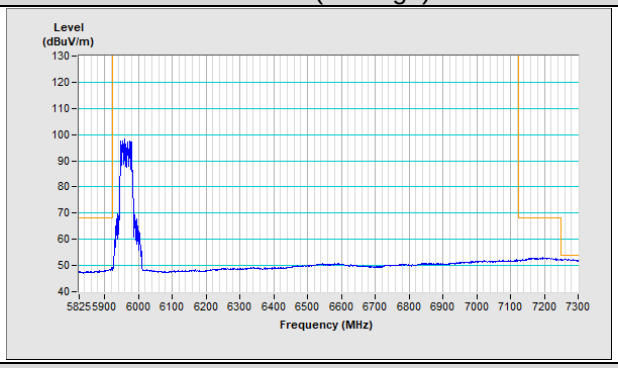
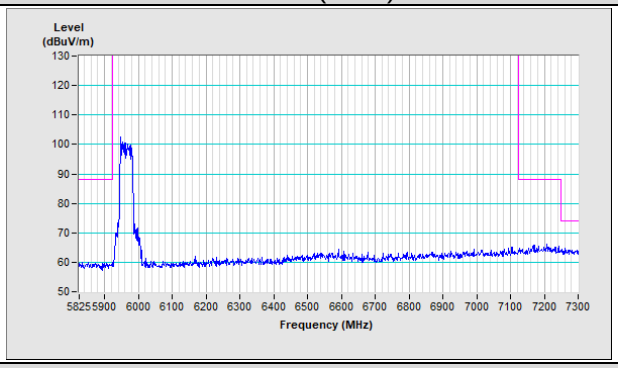
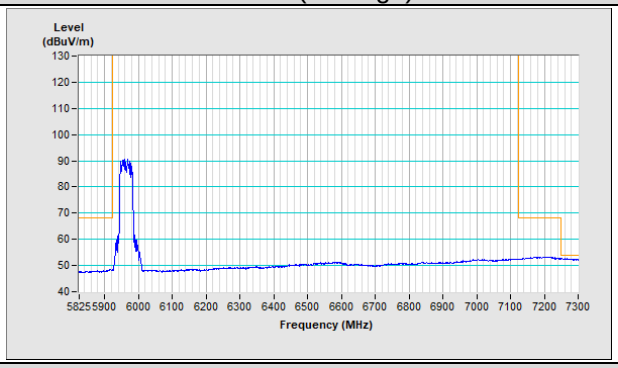
Please refer to the attached file (Test Setup Photo).

Annex A - Band Edge Measurement

CDD Mode

802.11a 6G Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11a 6G Channel 233	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11ax (HE20) Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ax (HE20) Channel 233	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11ax (HE40) Channel 3	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
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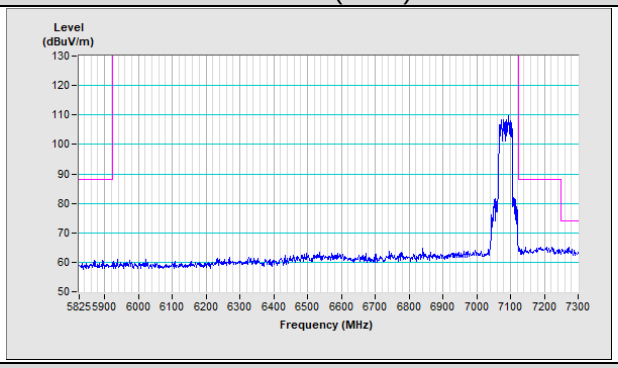
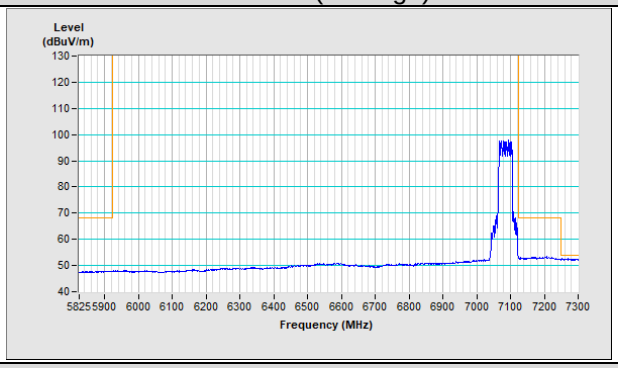
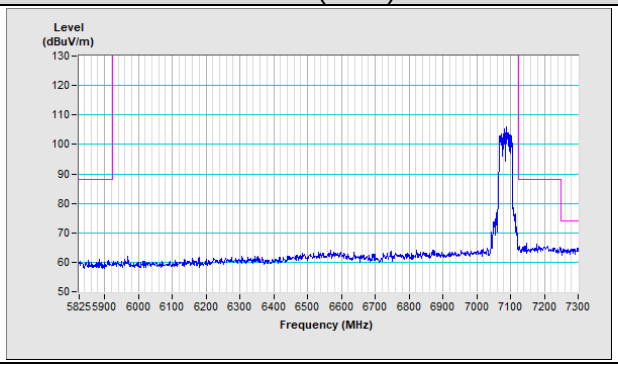
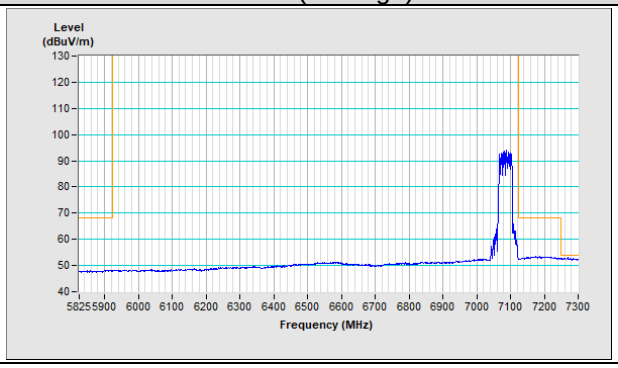
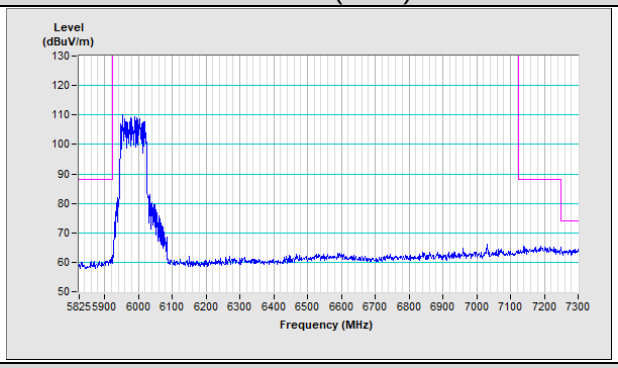
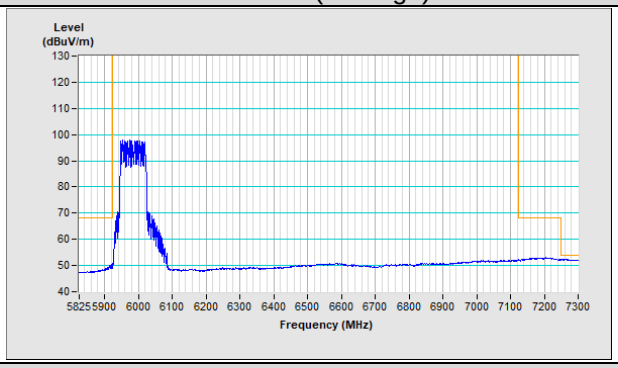
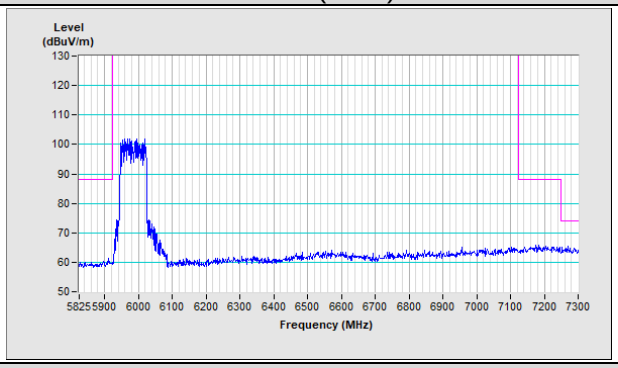
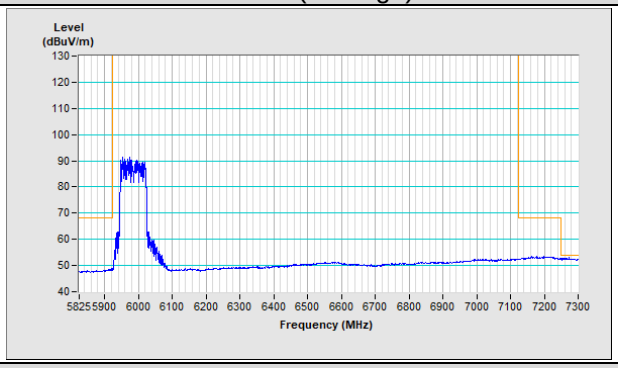
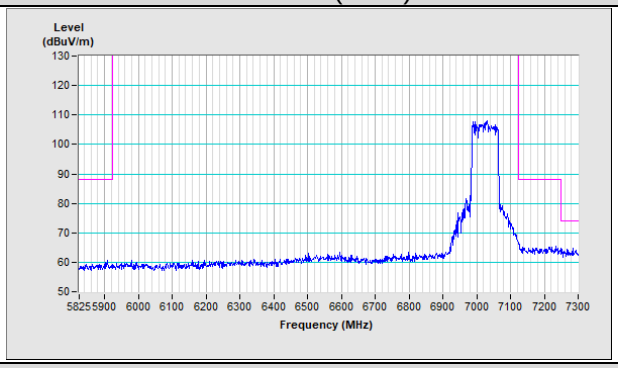
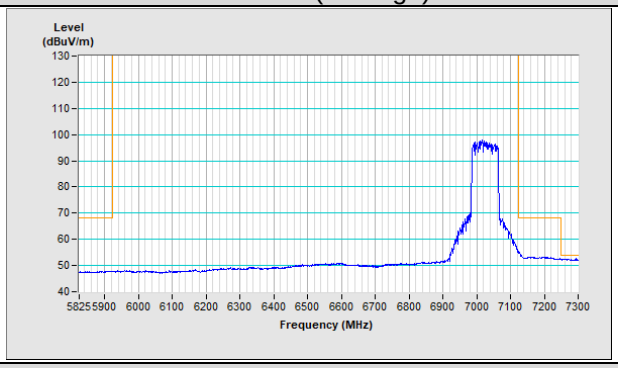
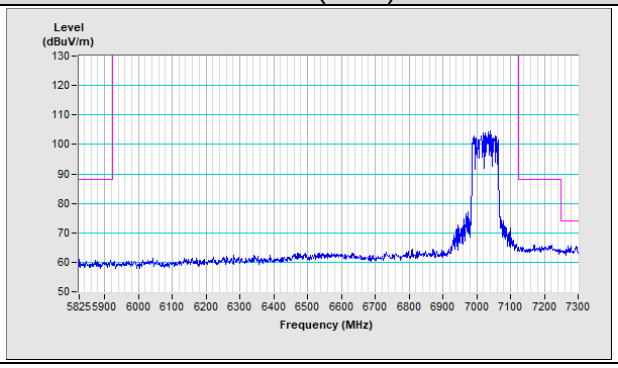
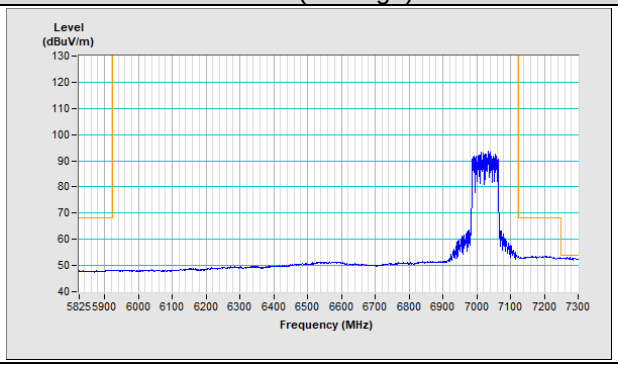
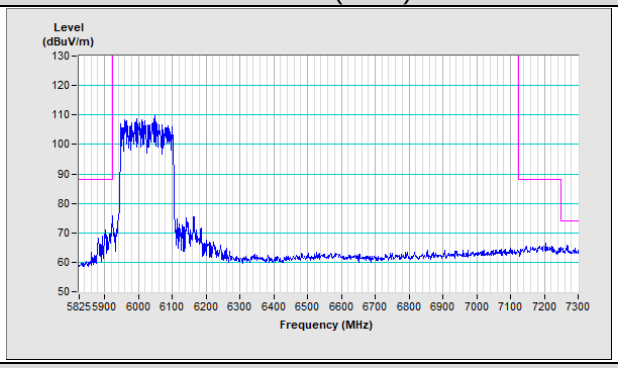
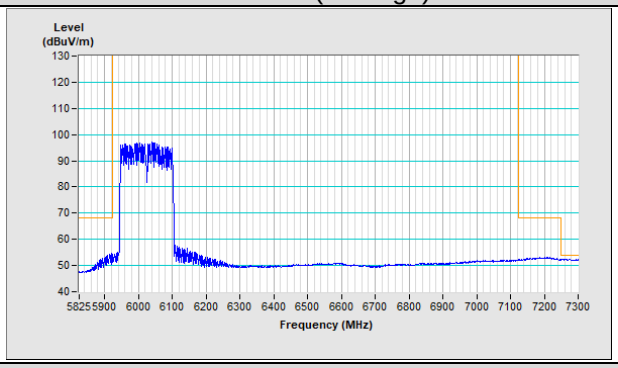
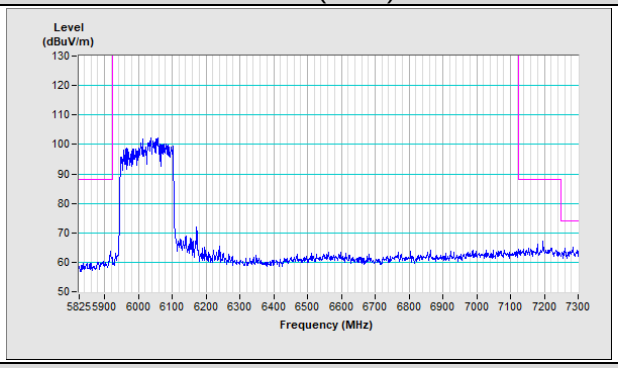
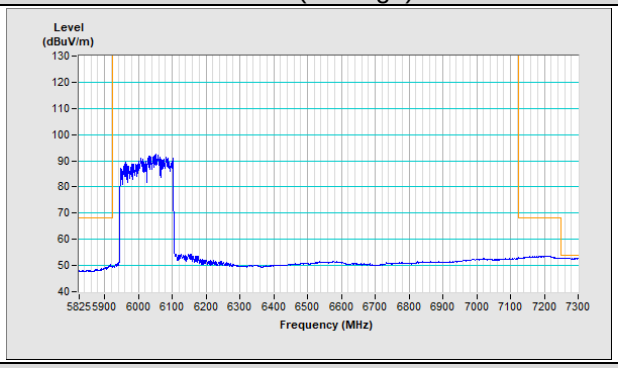
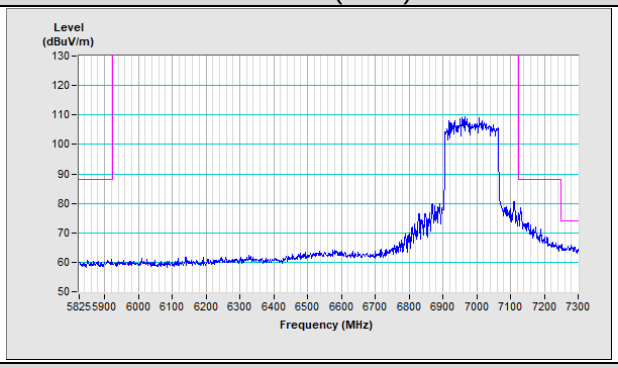
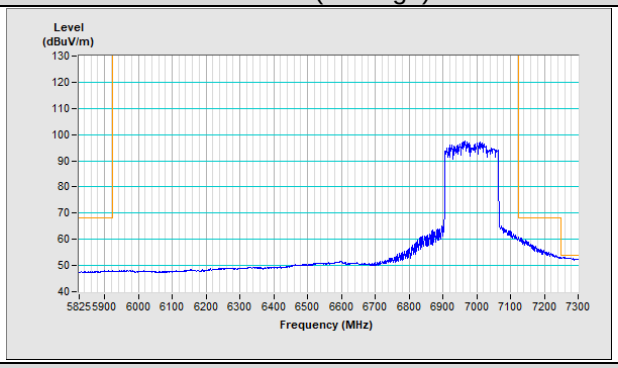
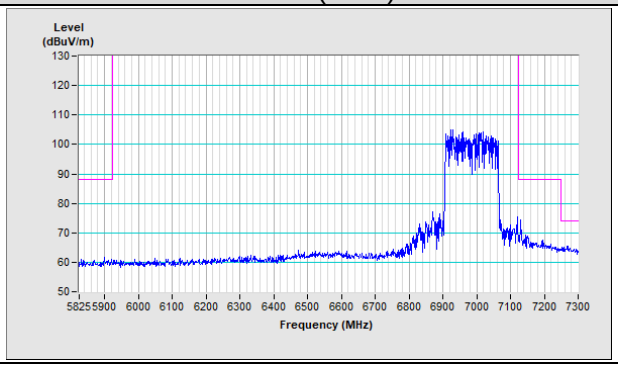
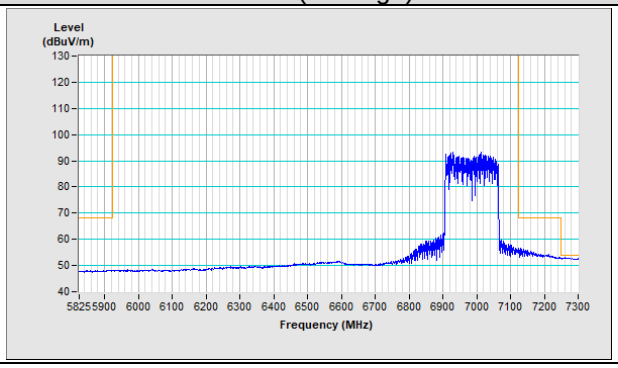
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11ax (HE80) Channel 7	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ax (HE80) Channel 215	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11ax (HE160) Channel 15	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ax (HE160) Channel 207	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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