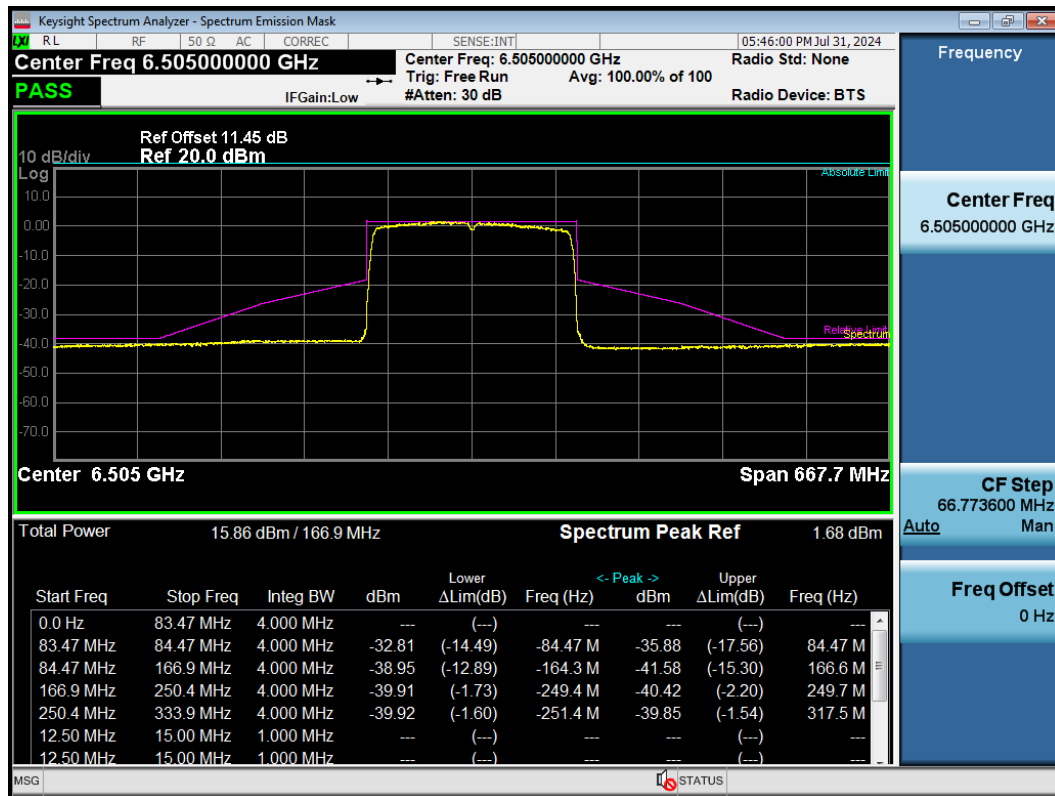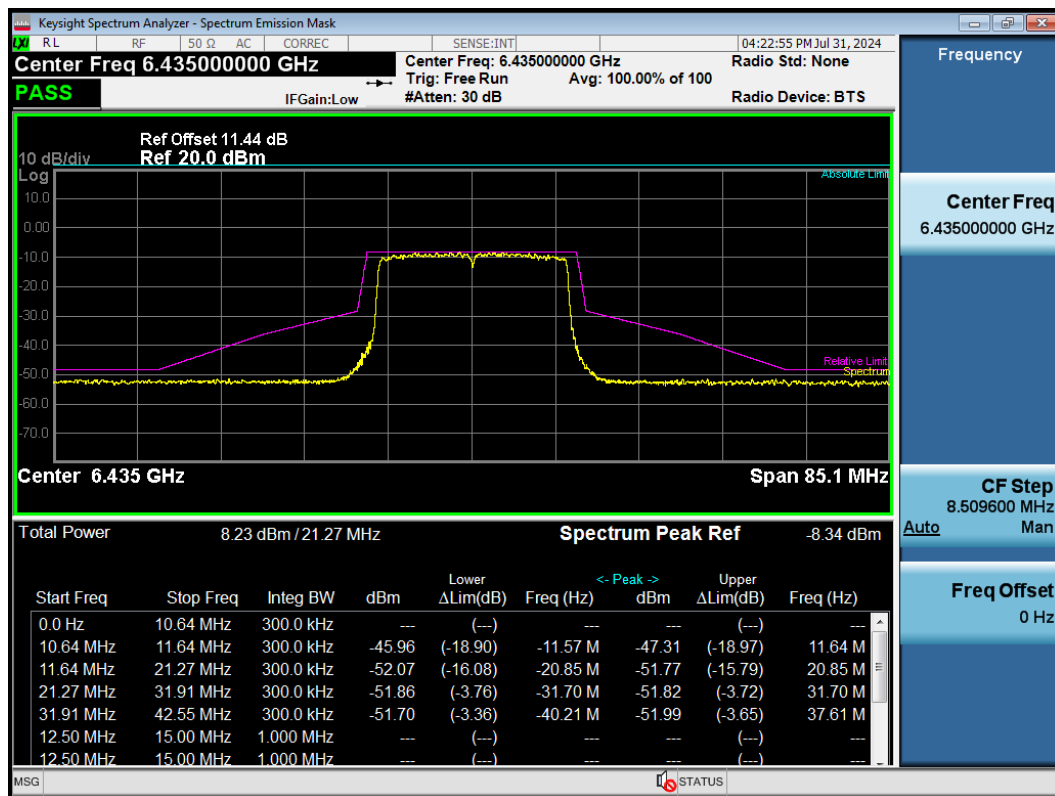**U-NII-6**

Power spectral mask 802.11ax HE160 6505MHz

Power spectral mask 802.11ax HE20 6435MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 236 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

Power spectral mask 802.11ax HE20 6475MHz

Power spectral mask 802.11ax HE20 6515MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 237 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.
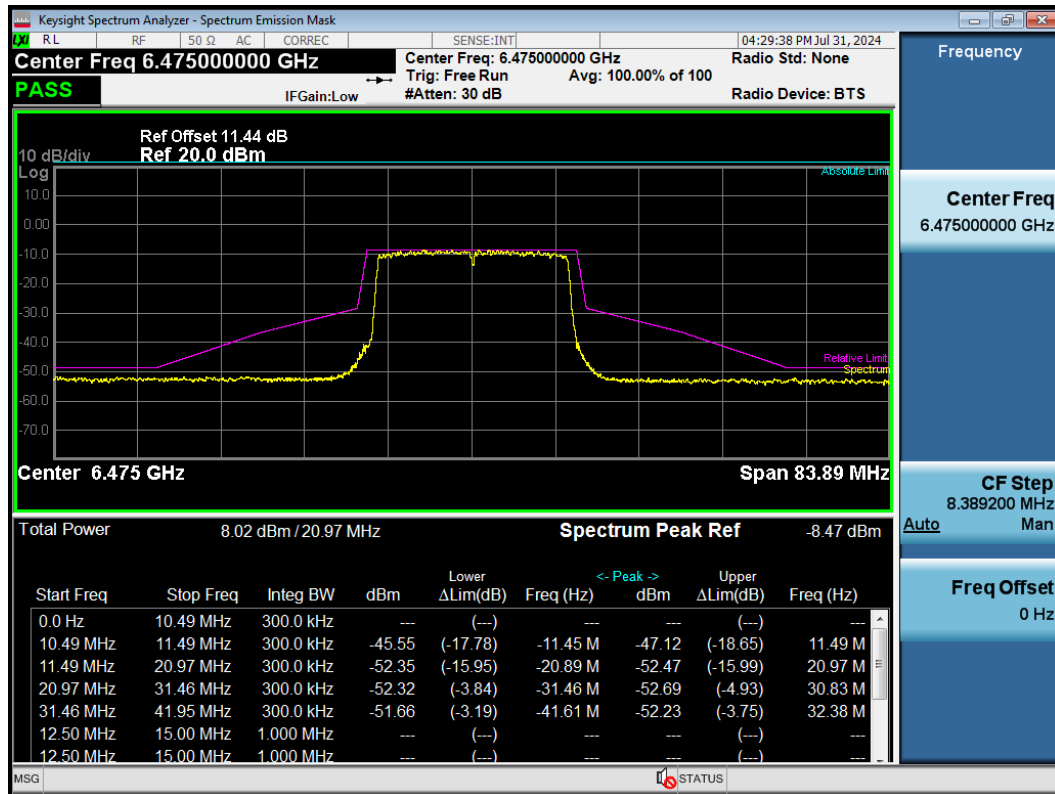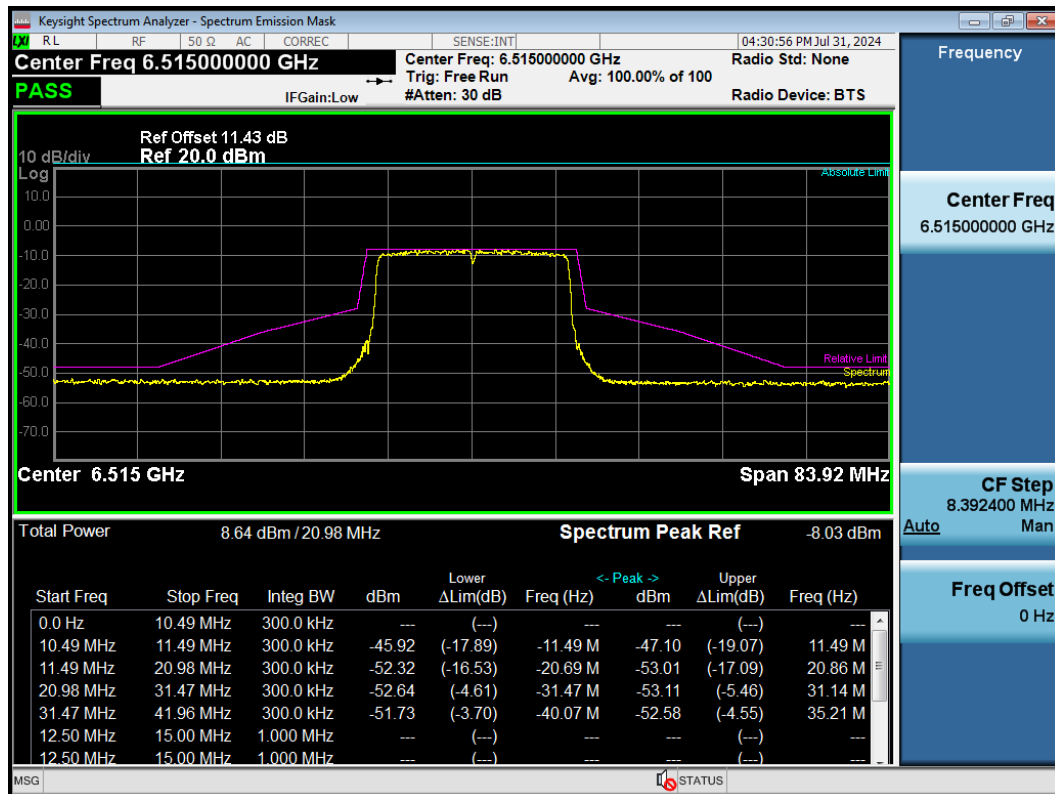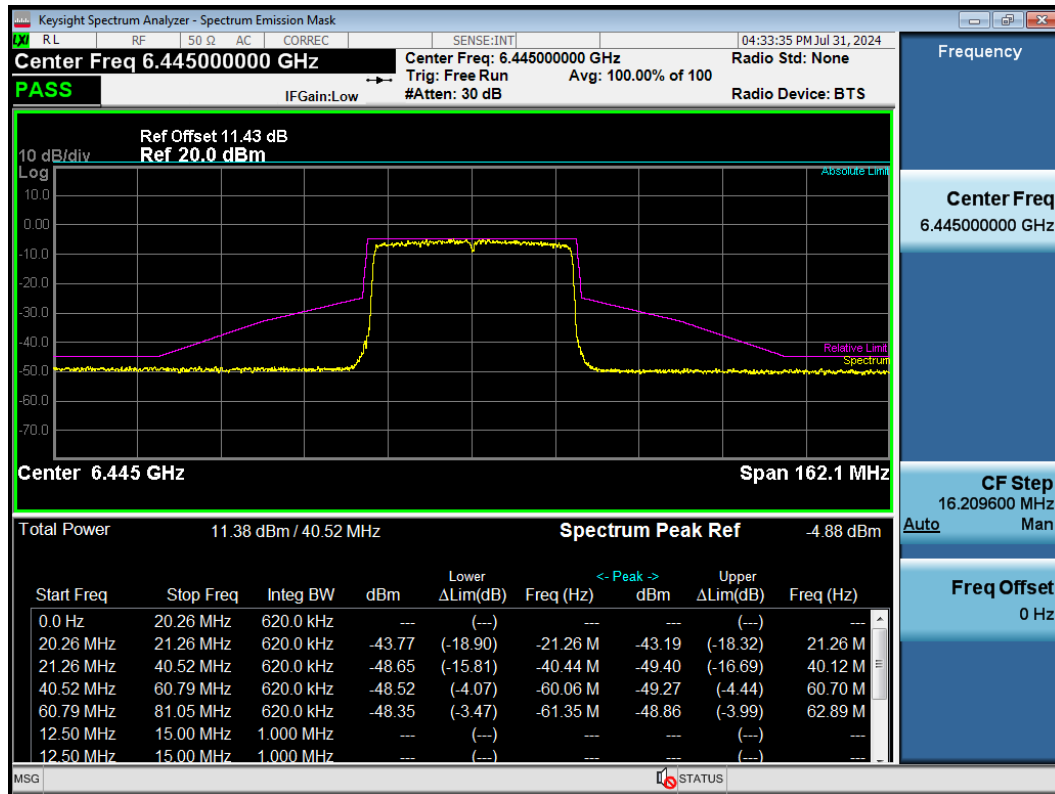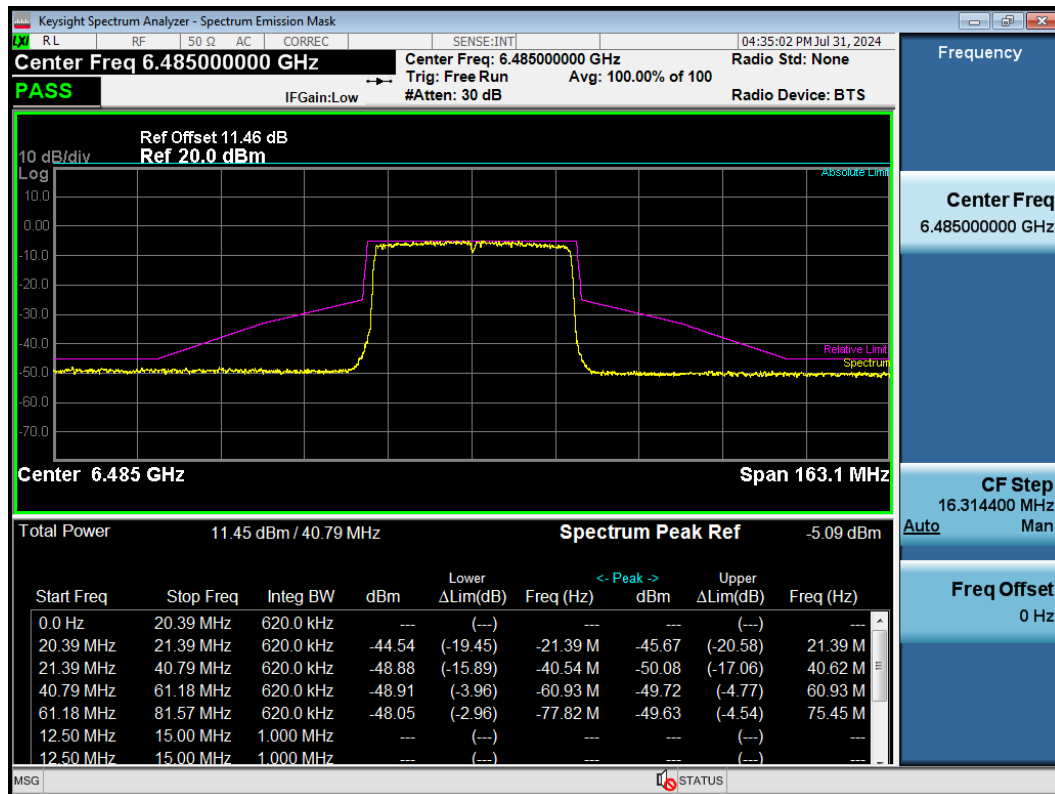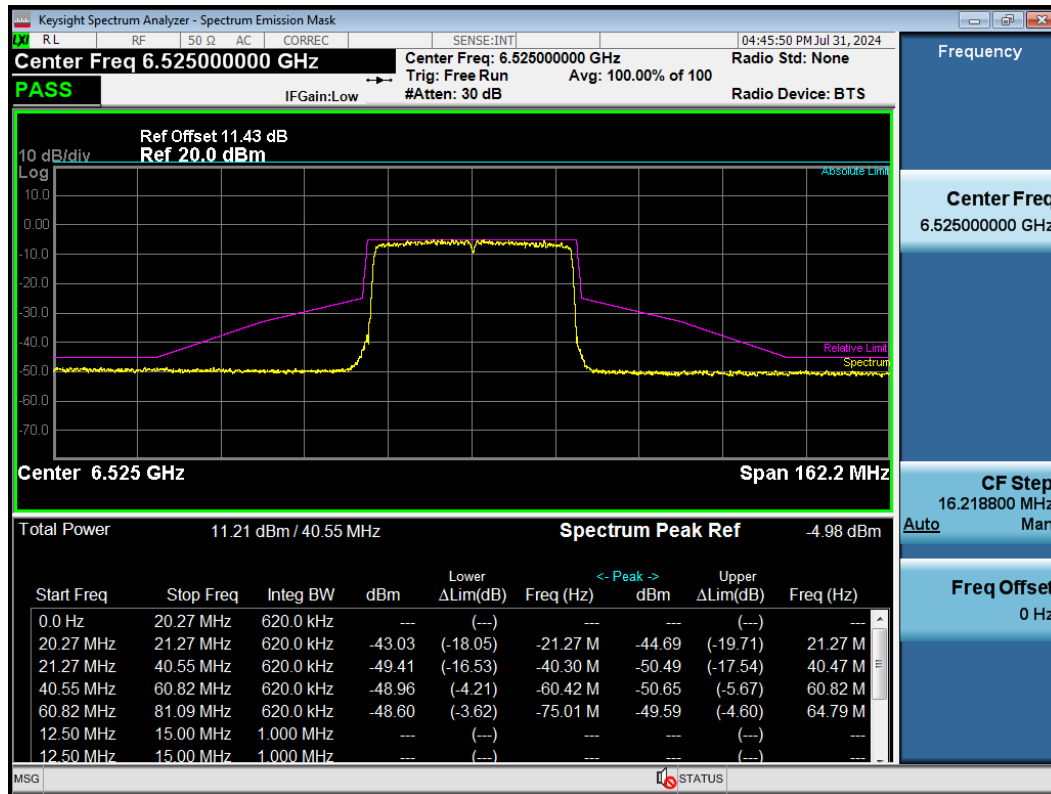
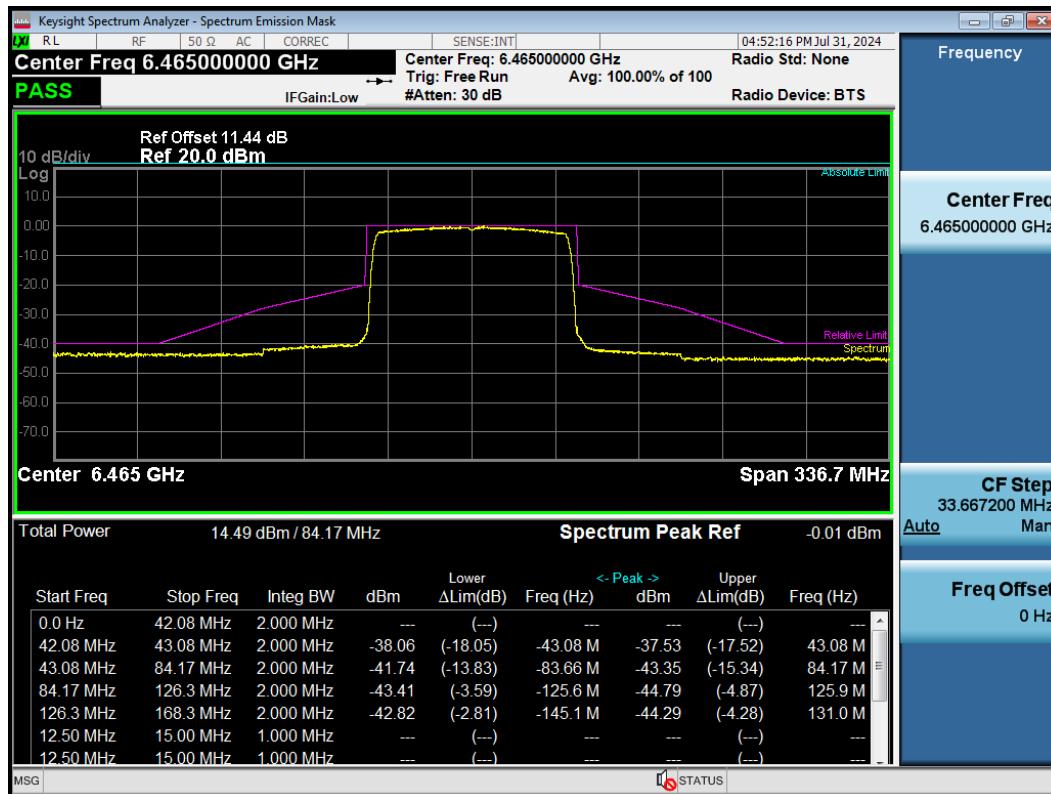Power spectral mask 802.11ax HE40 6445MHz

Power spectral mask 802.11ax HE40 6485MHz

Power spectral mask 802.11ax HE40 6525MHz

Power spectral mask 802.11ax HE80 6465MHz
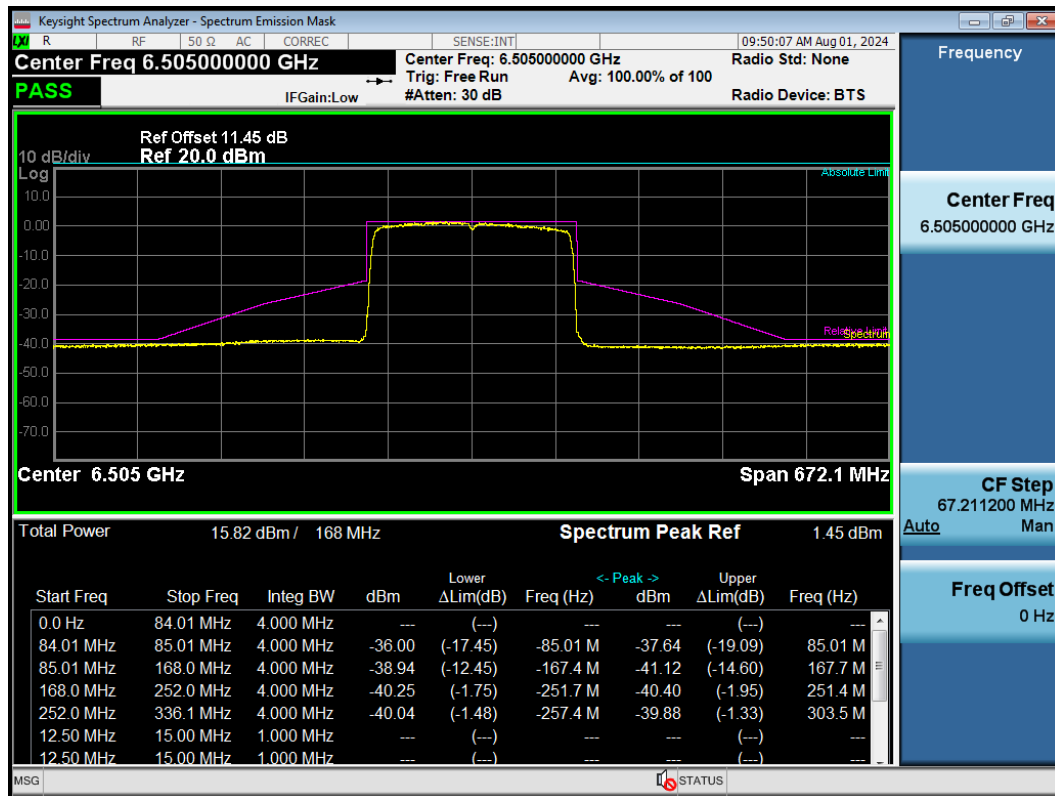
Power spectral mask 802.11ax HE80 6545MHz
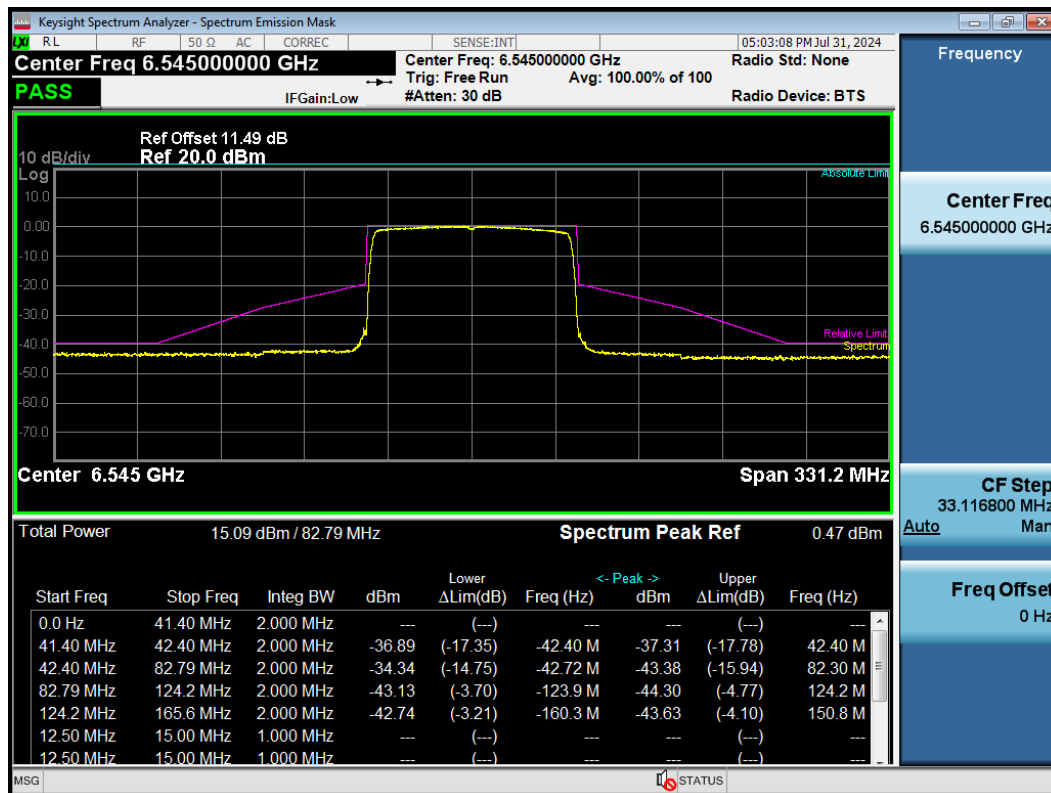
U-NII-7

Power spectral mask 802.11ax HE160 6505MHz

Power spectral mask 802.11ax HE160 6665MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 241 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

Power spectral mask 802.11ax HE160 6825MHz

Power spectral mask 802.11ax HE20 6535MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 242 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.
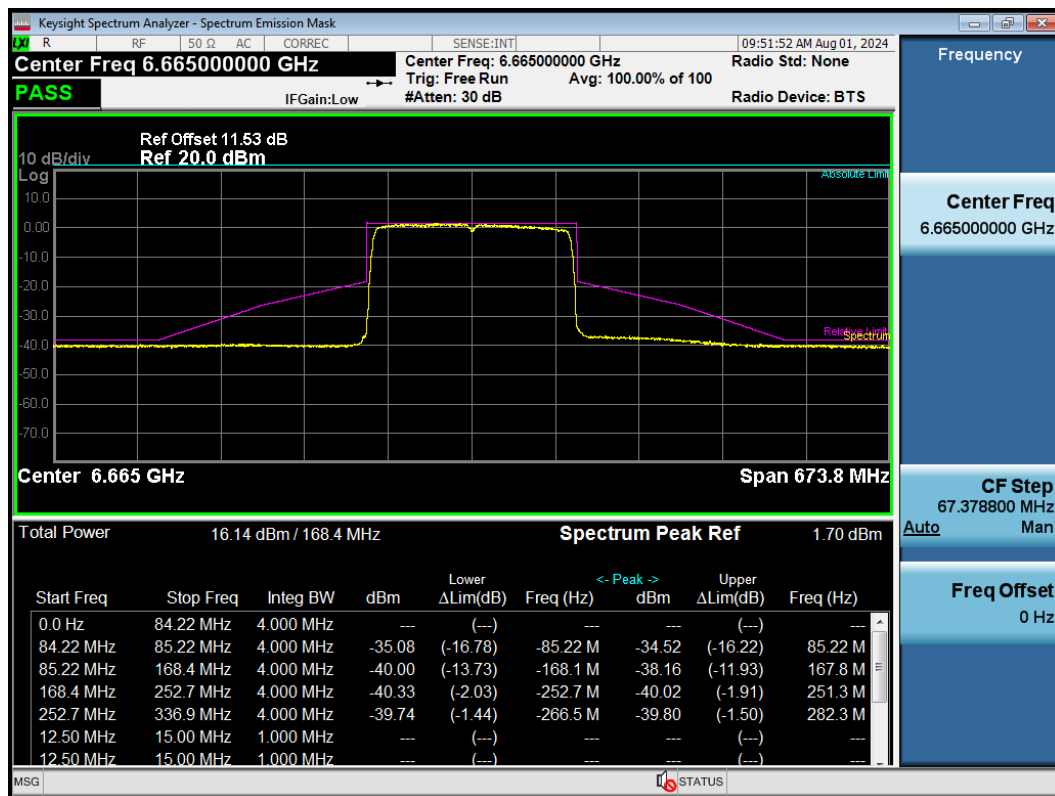
Power spectral mask 802.11ax HE20 6695MHz

Power spectral mask 802.11ax HE20 6855MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 243 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

Power spectral mask 802.11ax HE20 6875MHz

Power spectral mask 802.11ax HE40 6525MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 244 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.
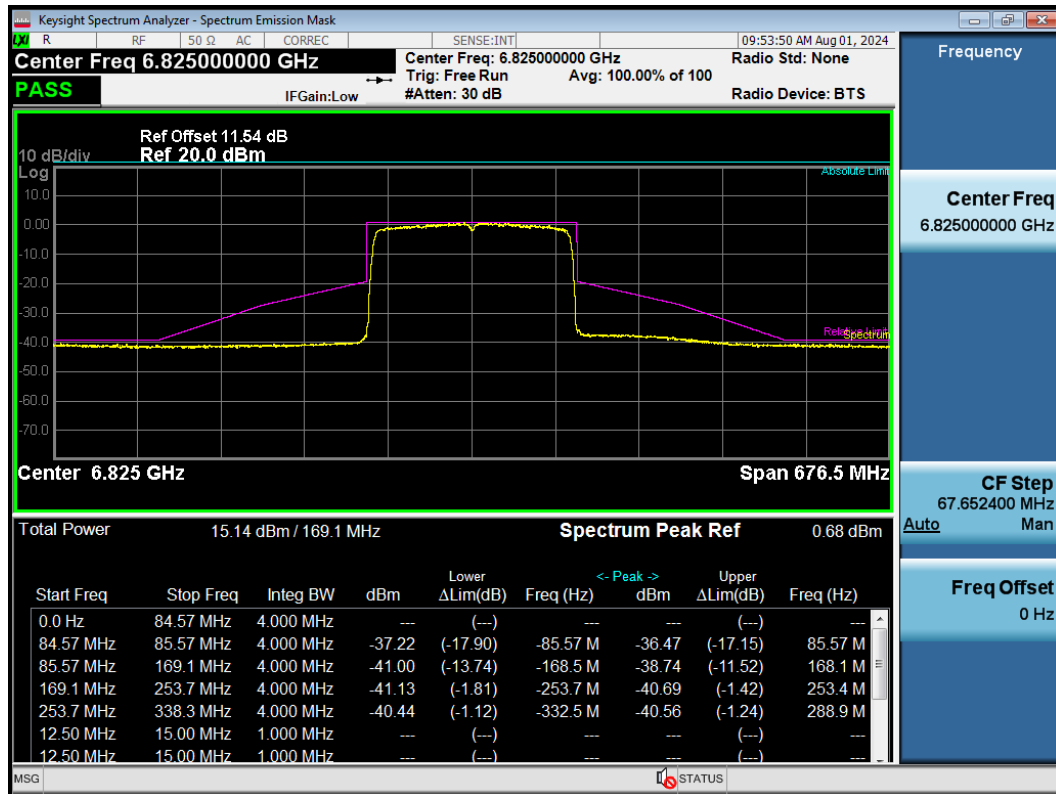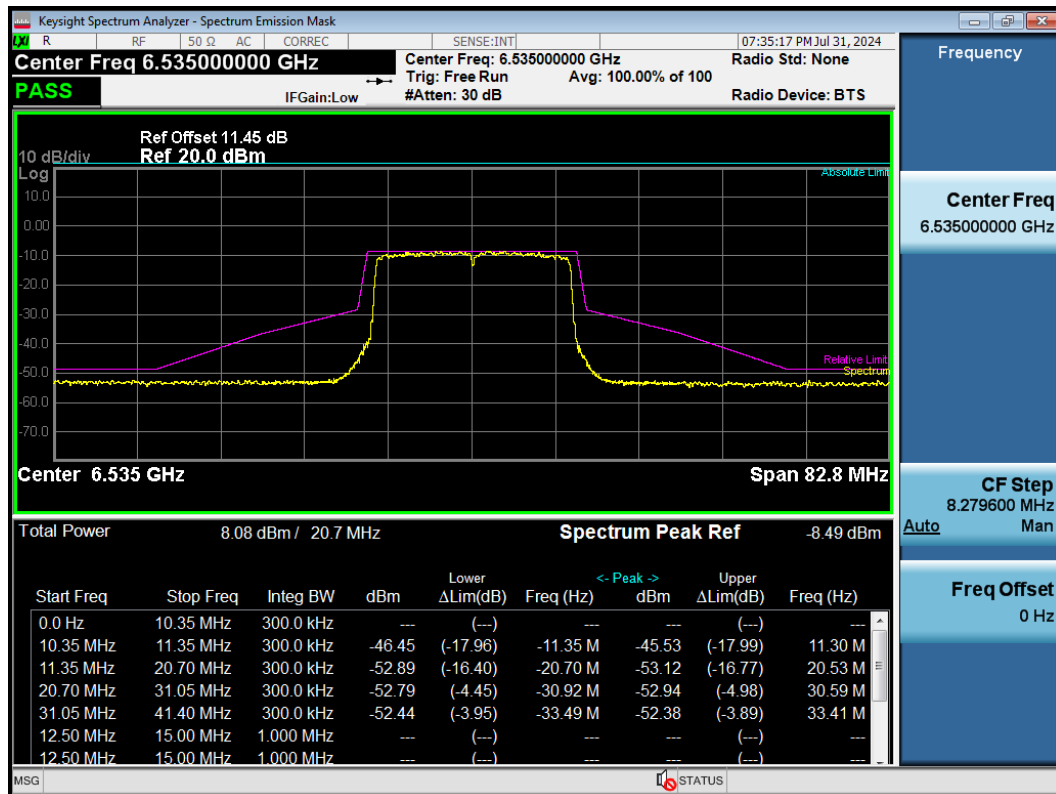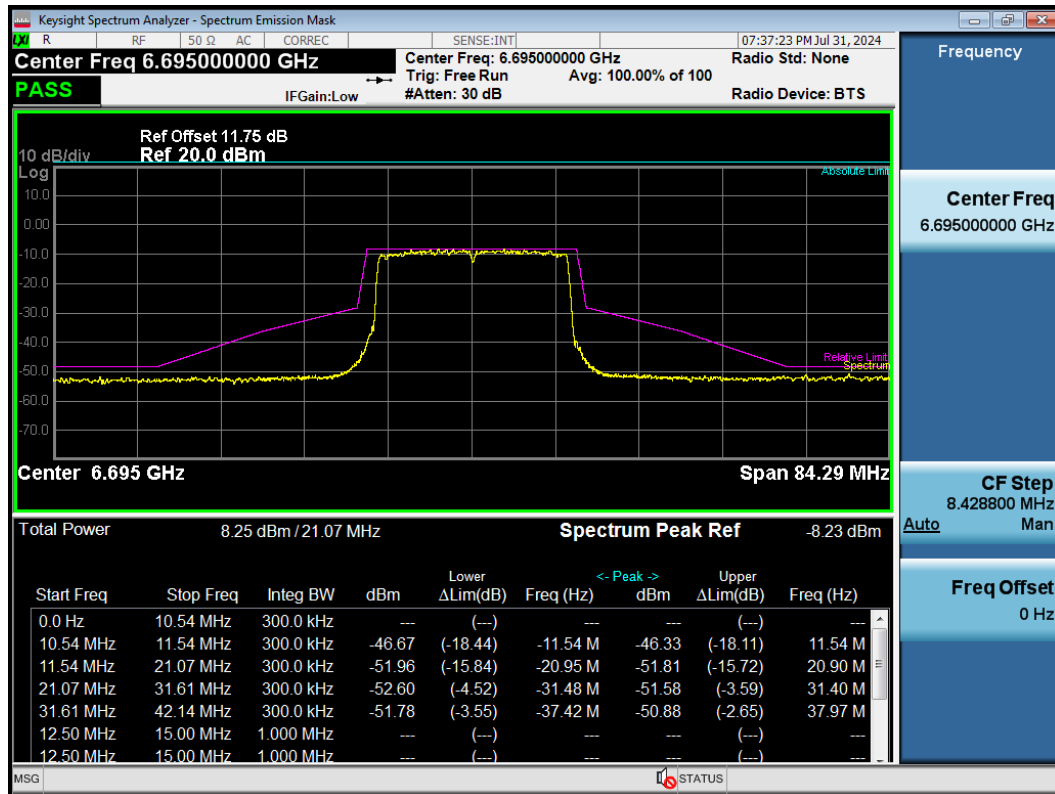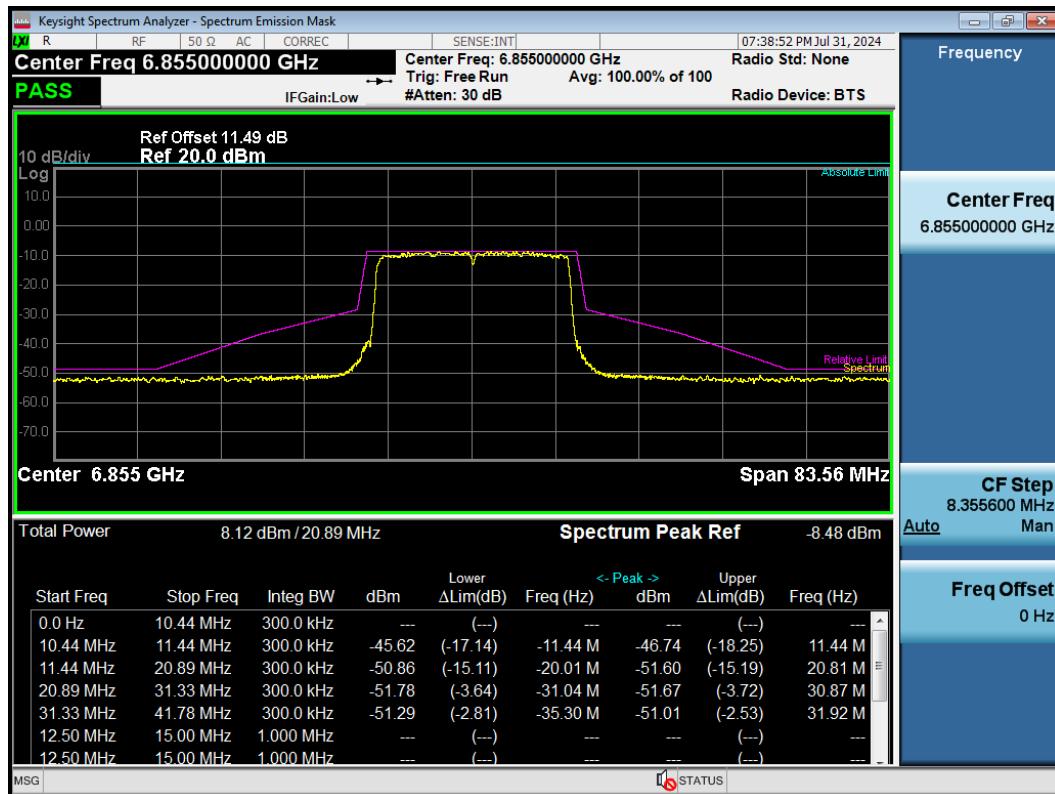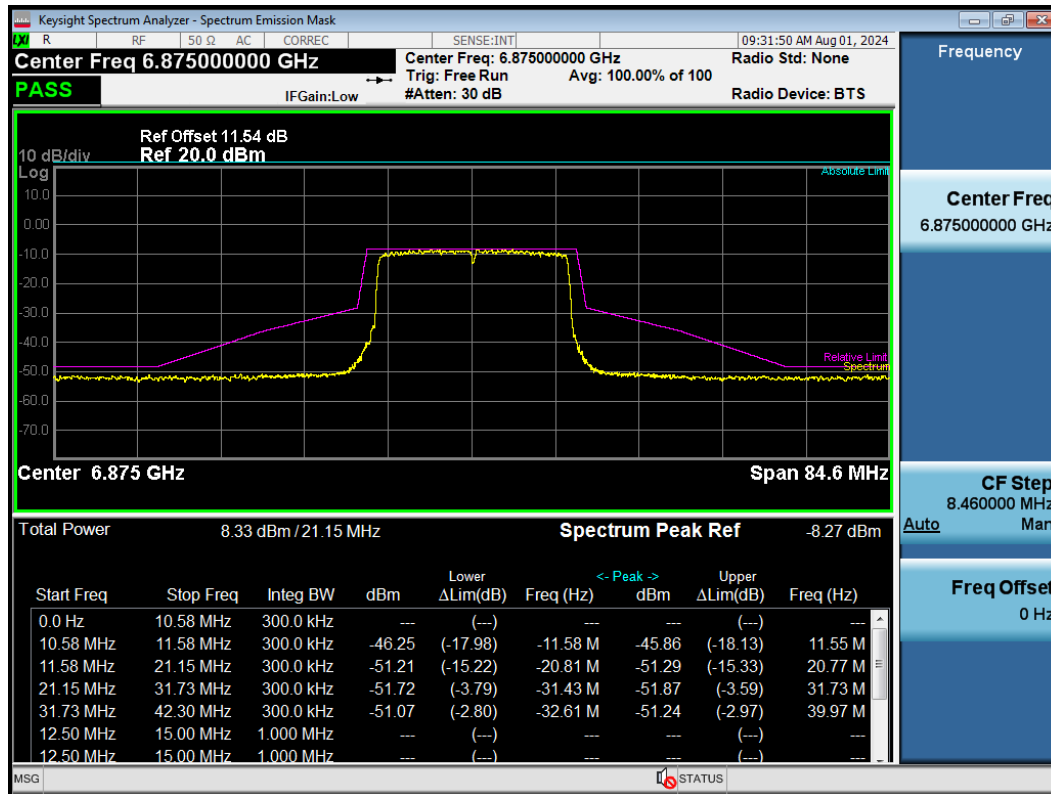
Power spectral mask 802.11ax HE40 6565MHz

Power spectral mask 802.11ax HE40 6685MHz

Power spectral mask 802.11ax HE40 6845MHz

Power spectral mask 802.11ax HE40 6885MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 246 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

Power spectral mask 802.11ax HE80 6545MHz

Power spectral mask 802.11ax HE80 6625MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 247 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.
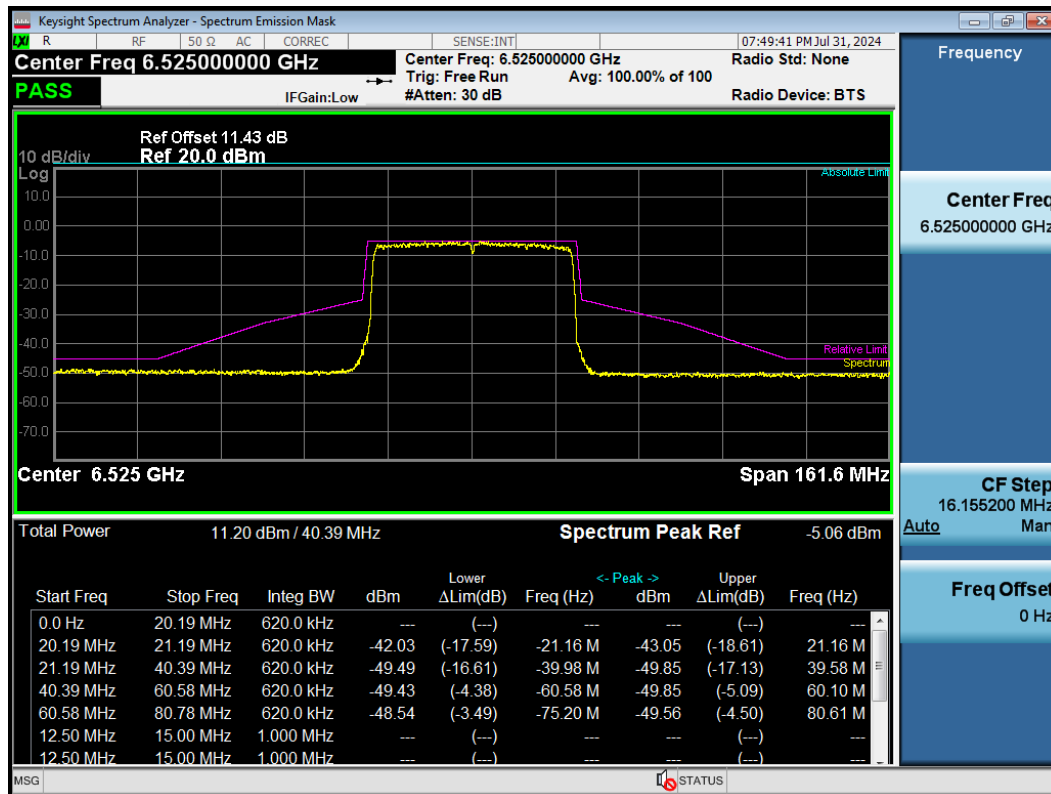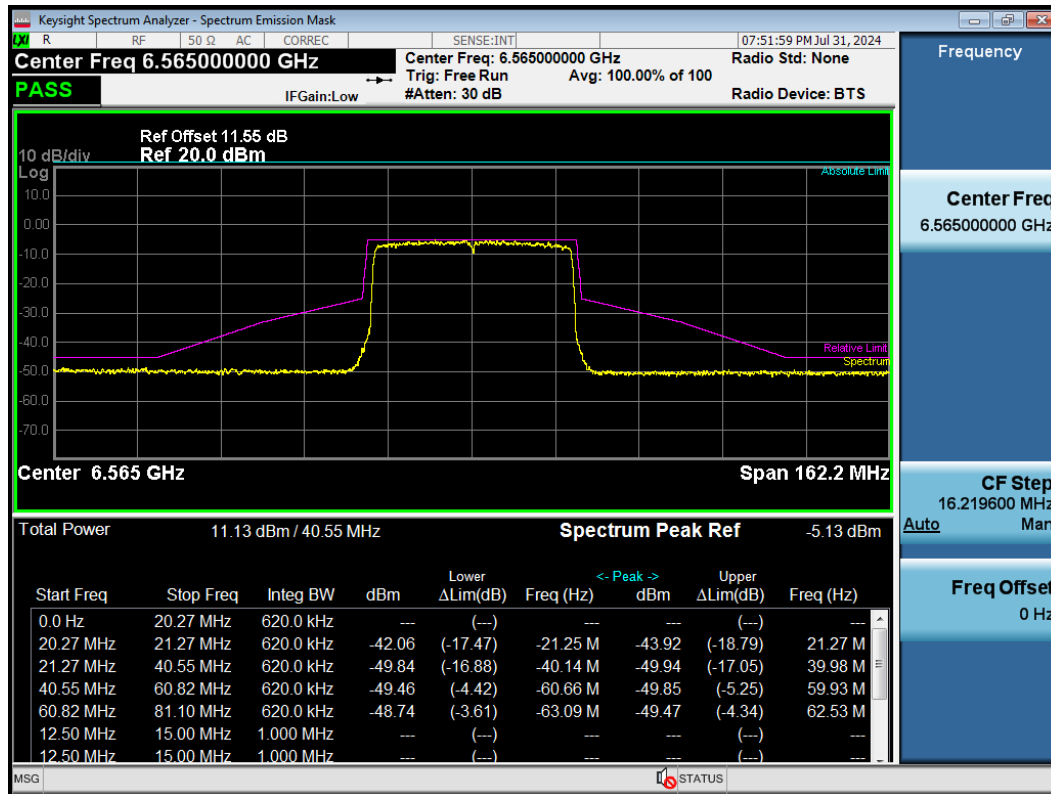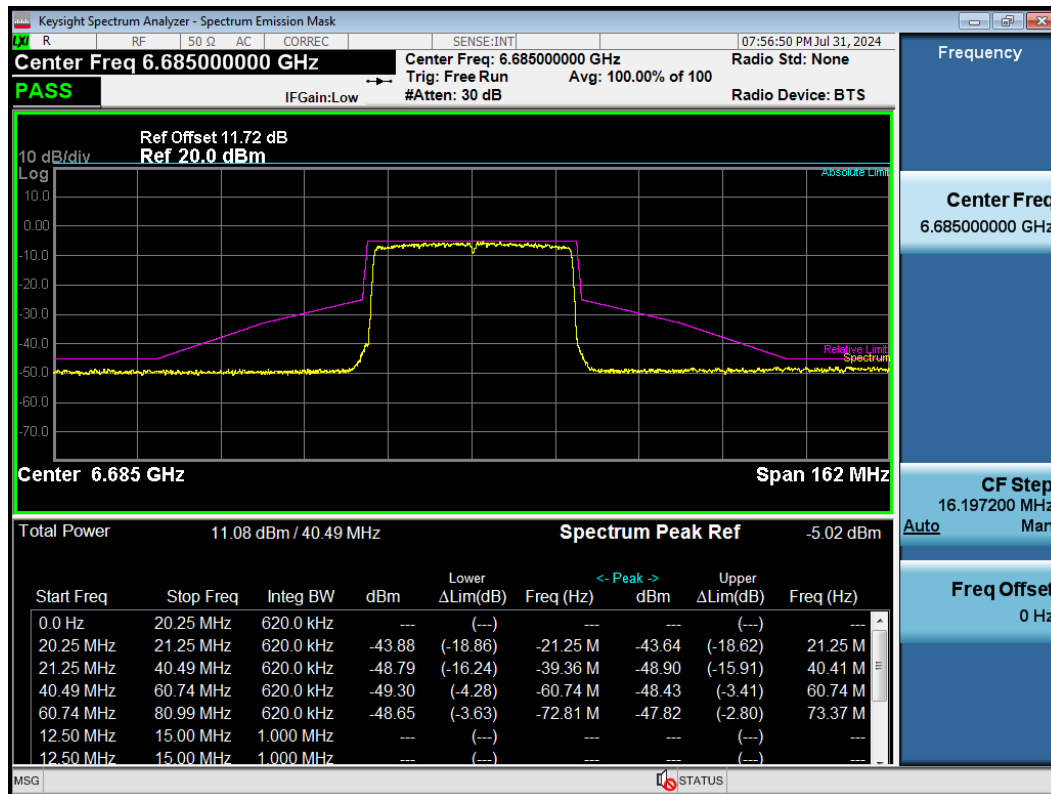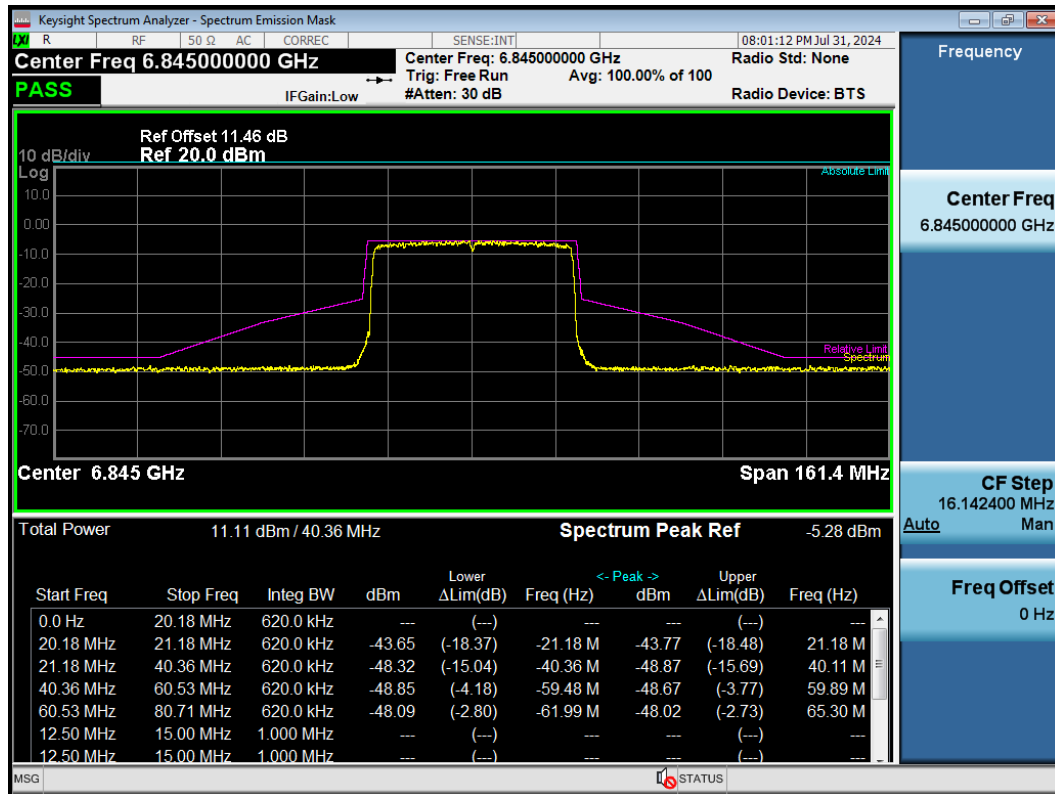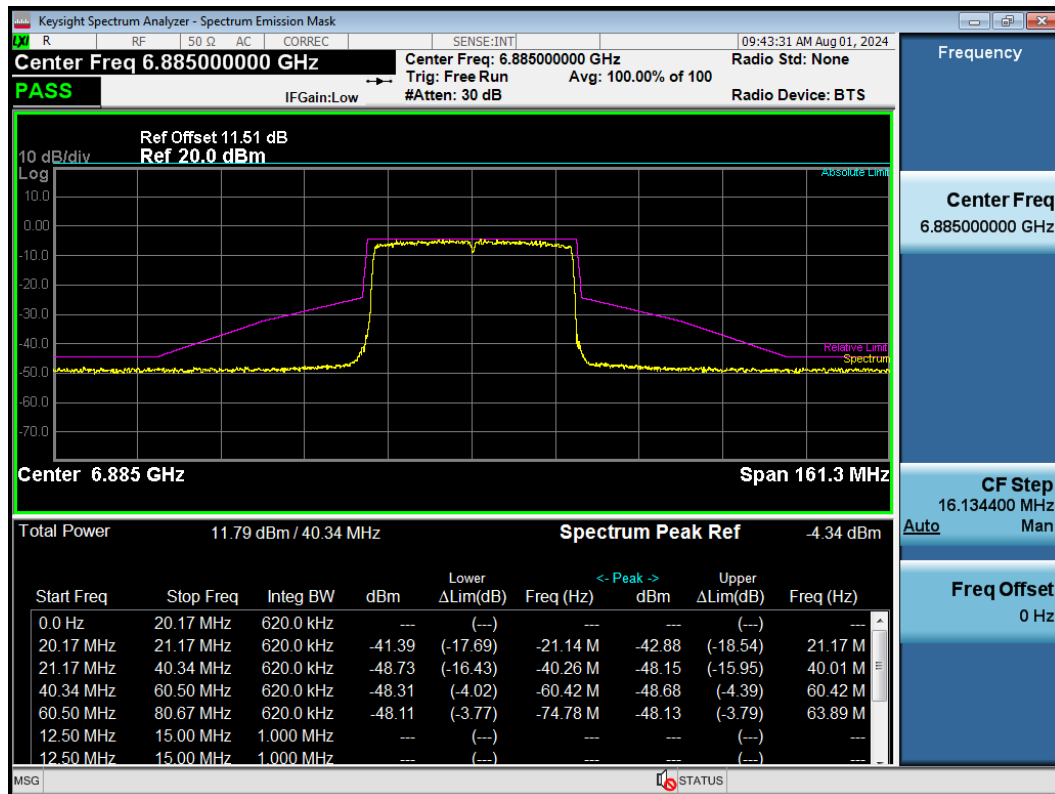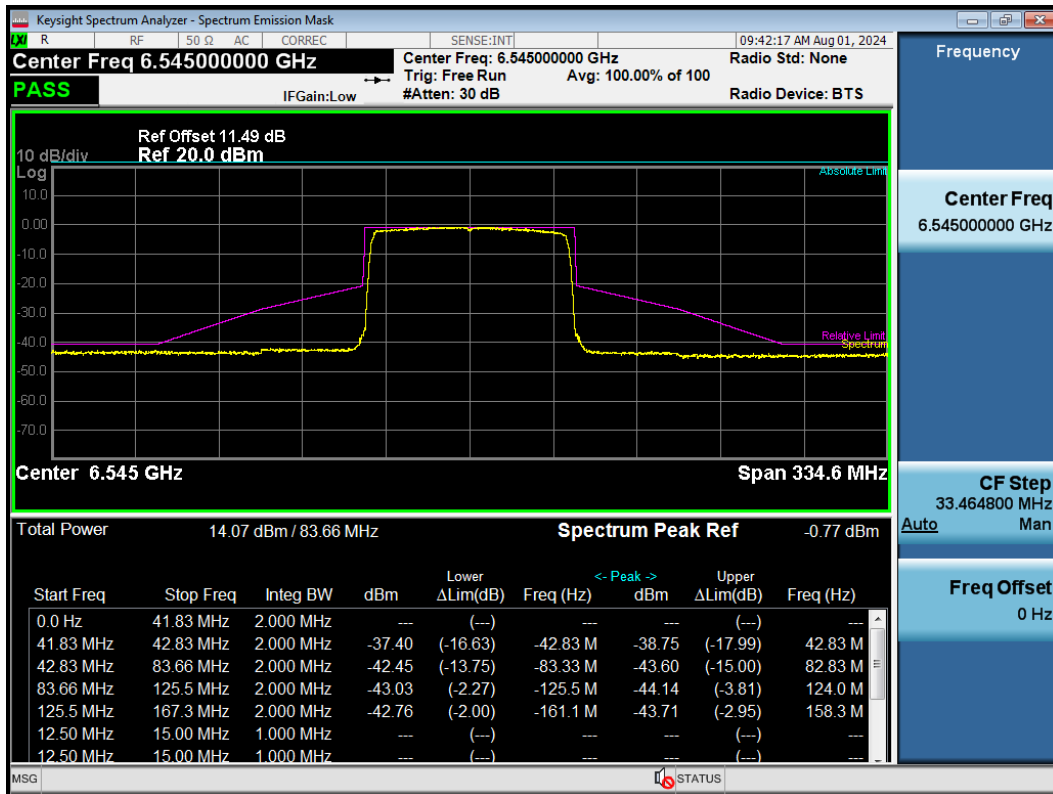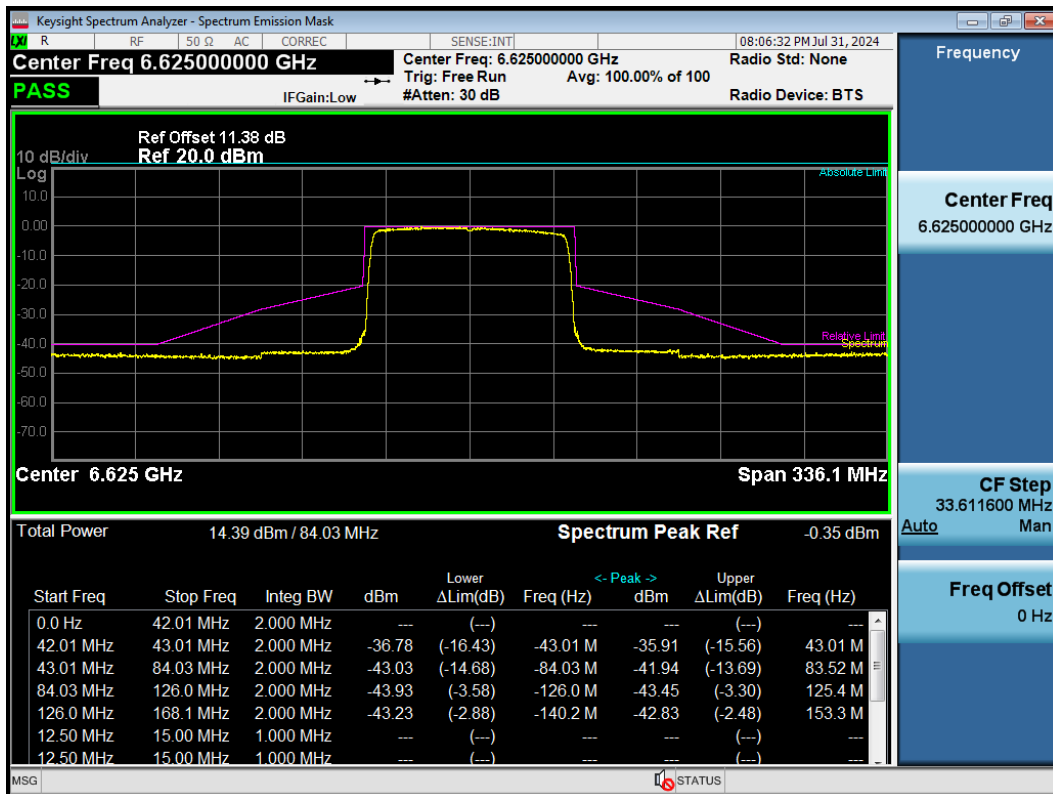
Power spectral mask 802.11ax HE80 6705MHz

Power spectral mask 802.11ax HE80 6785MHz

Power spectral mask 802.11ax HE80 6865MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 249 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

U-NII-8

Power spectral mask 802.11ax HE160 6825MHz

Power spectral mask 802.11ax HE160 6985MHz

Eurofins TA Technology (Shanghai) Co., Ltd. **TA-MB-01-059R** **Page 250 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

Power spectral mask 802.11ax HE20 6875MHz

Power spectral mask 802.11ax HE20 6895MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 251 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.
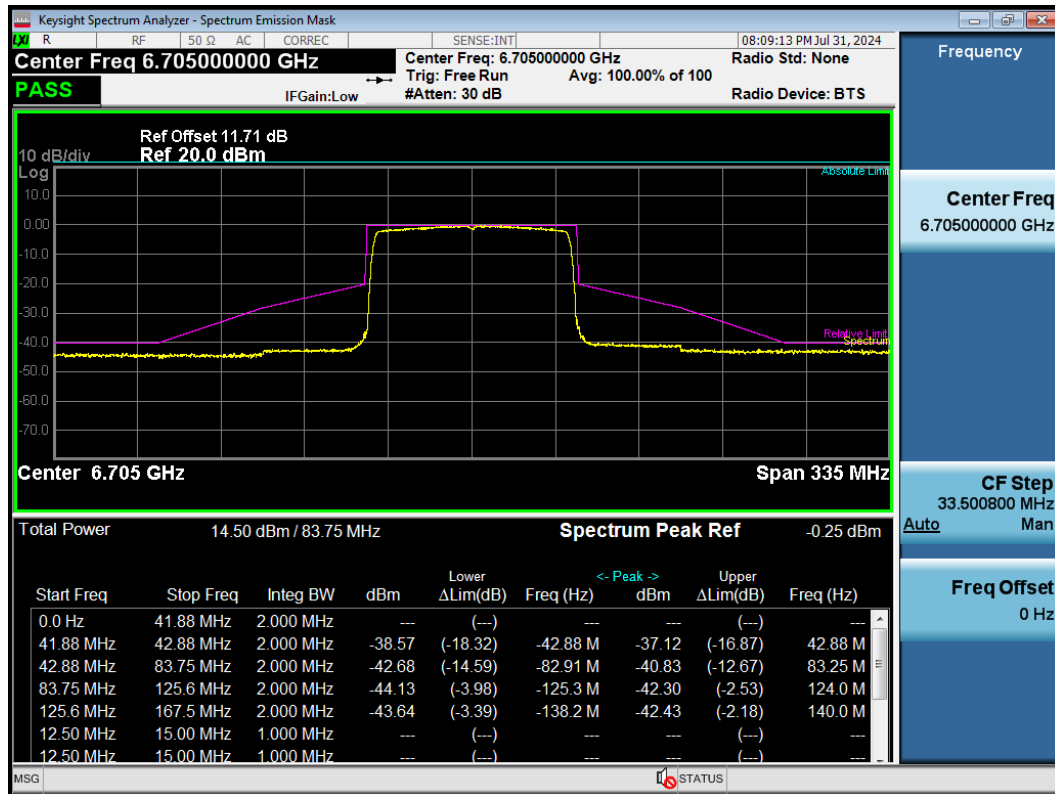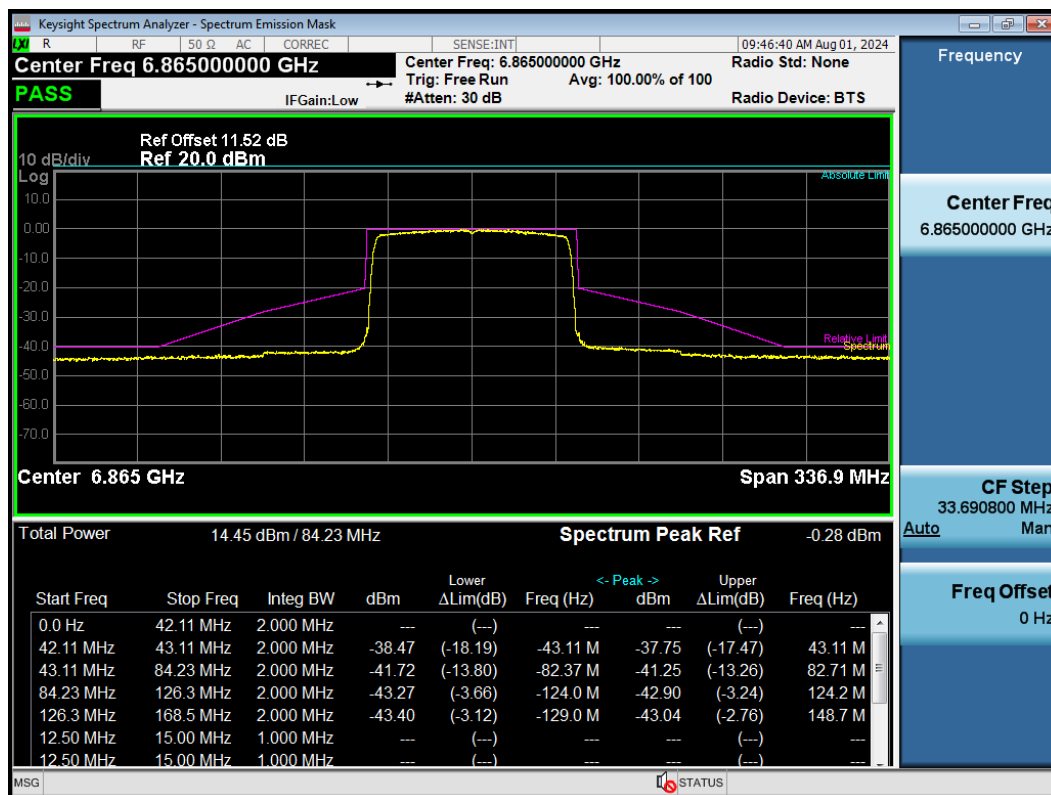
Power spectral mask 802.11ax HE20 6995MHz

Power spectral mask 802.11ax HE20 7095MHz

Power spectral mask 802.11ax HE40 6885MHz

Power spectral mask 802.11ax HE40 6965MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 253 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

Power spectral mask 802.11ax HE40 7085MHz

Power spectral mask 802.11ax HE80 6865MHz

Power spectral mask 802.11ax HE80 6945MHz

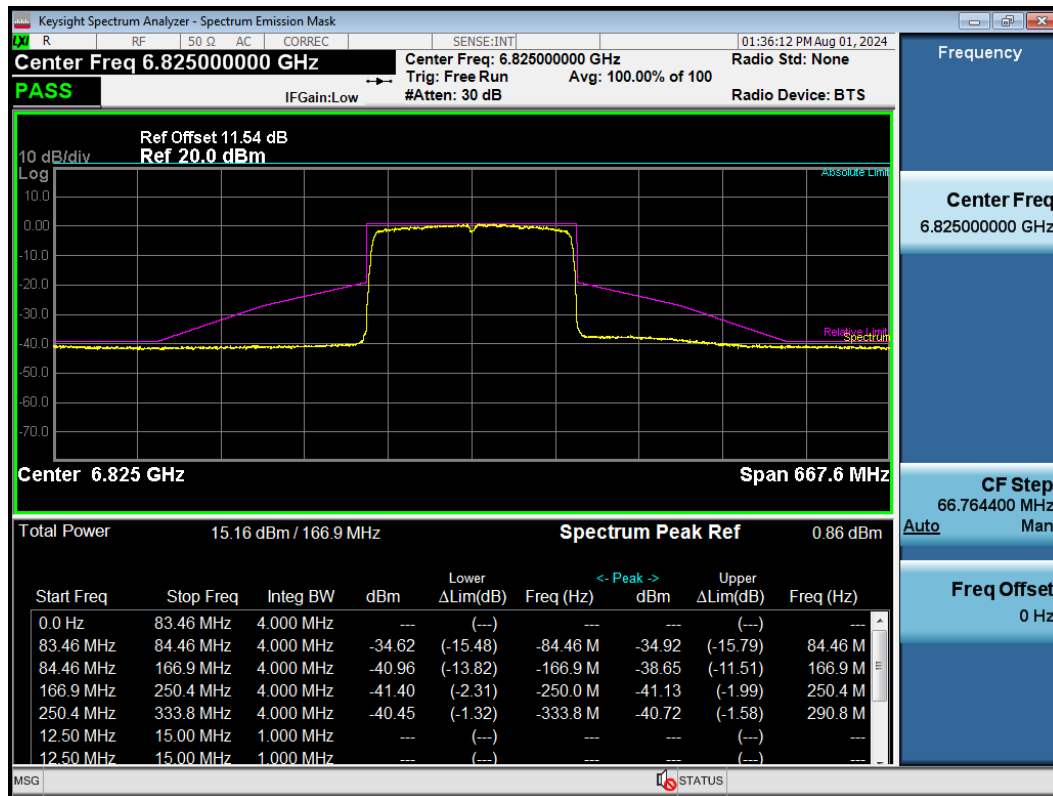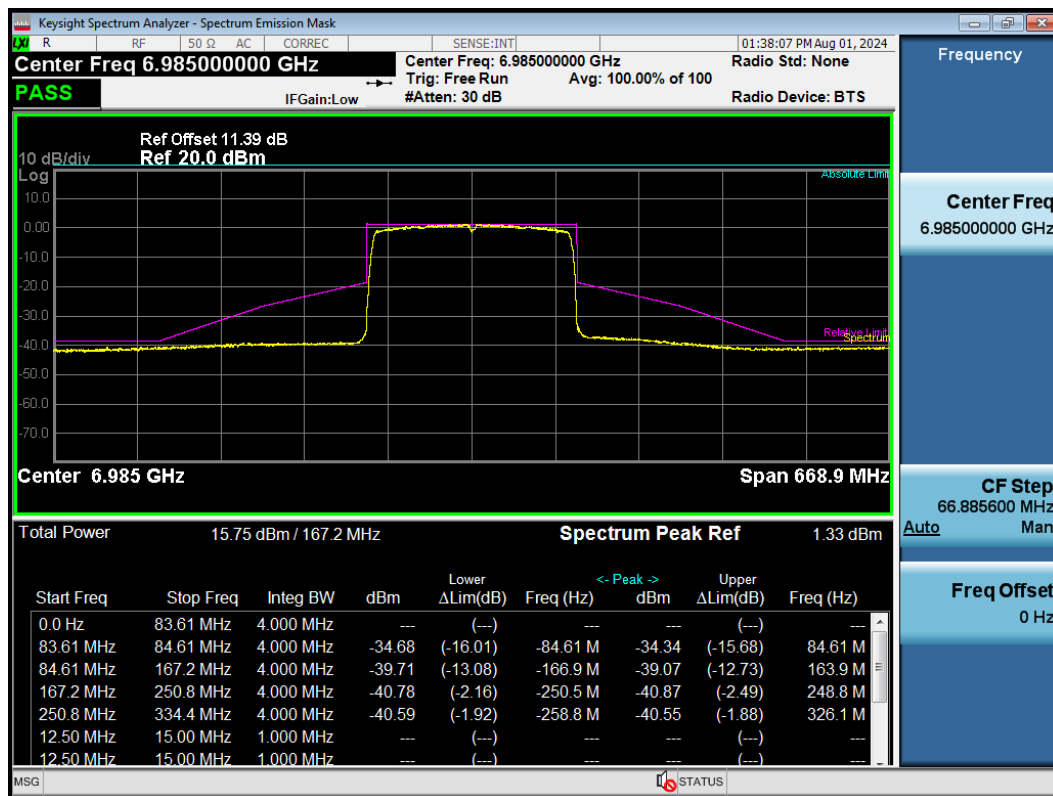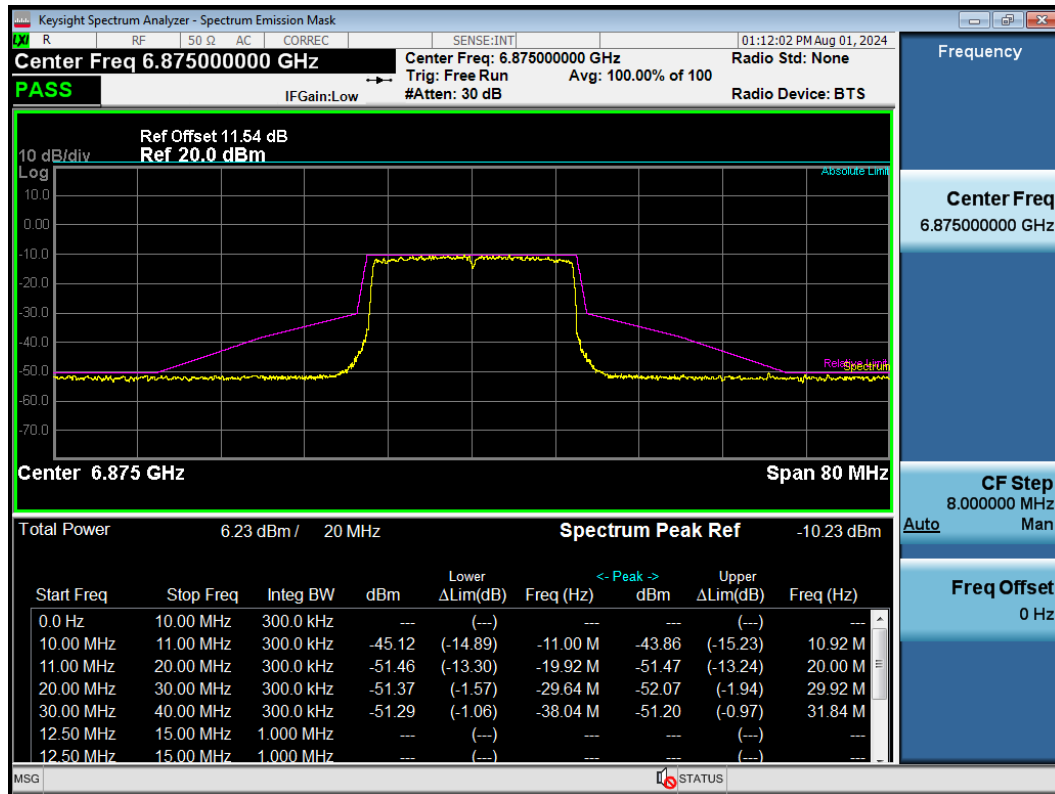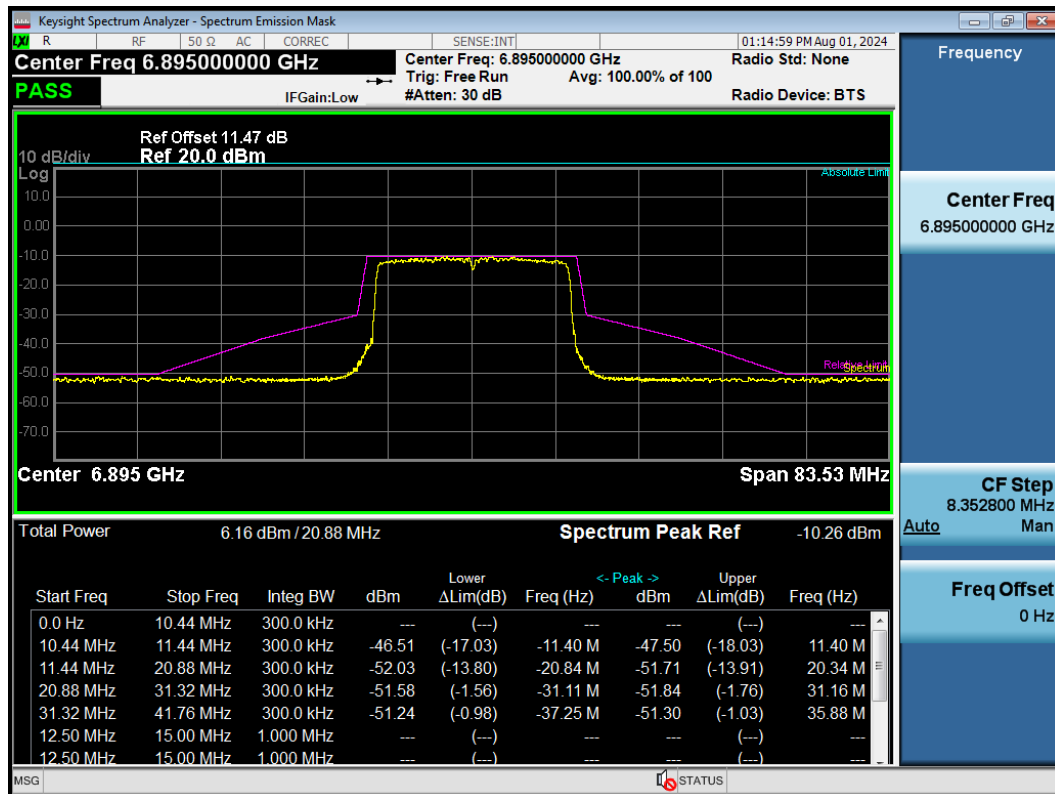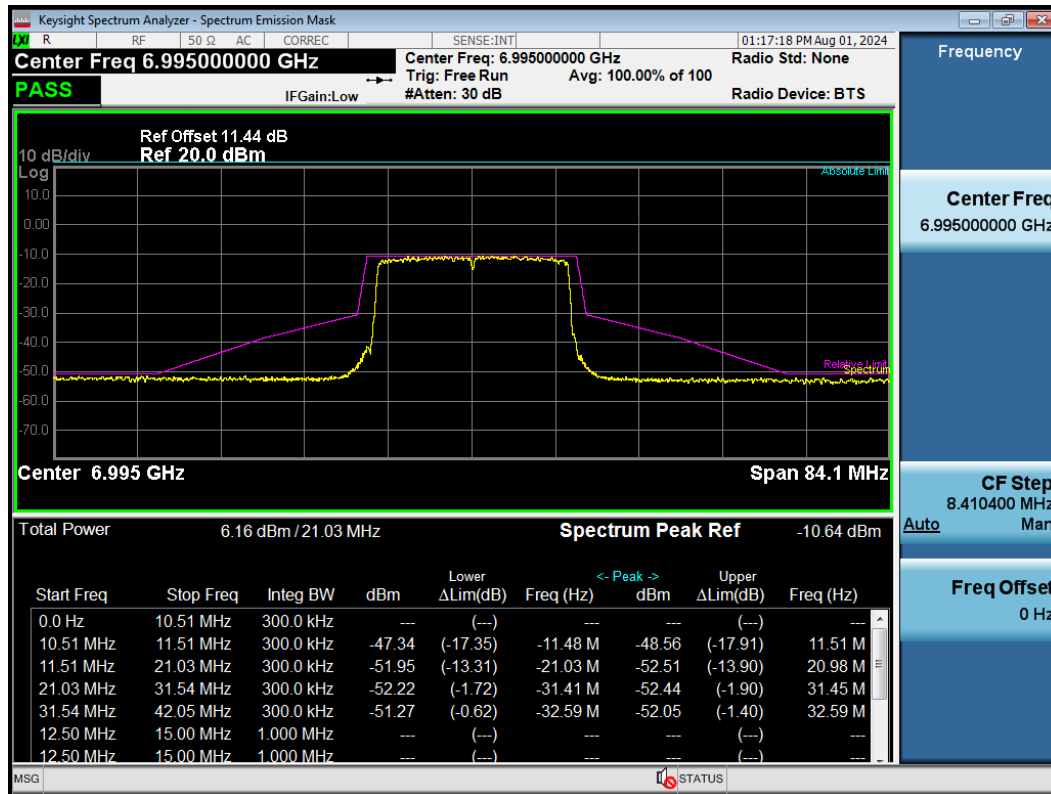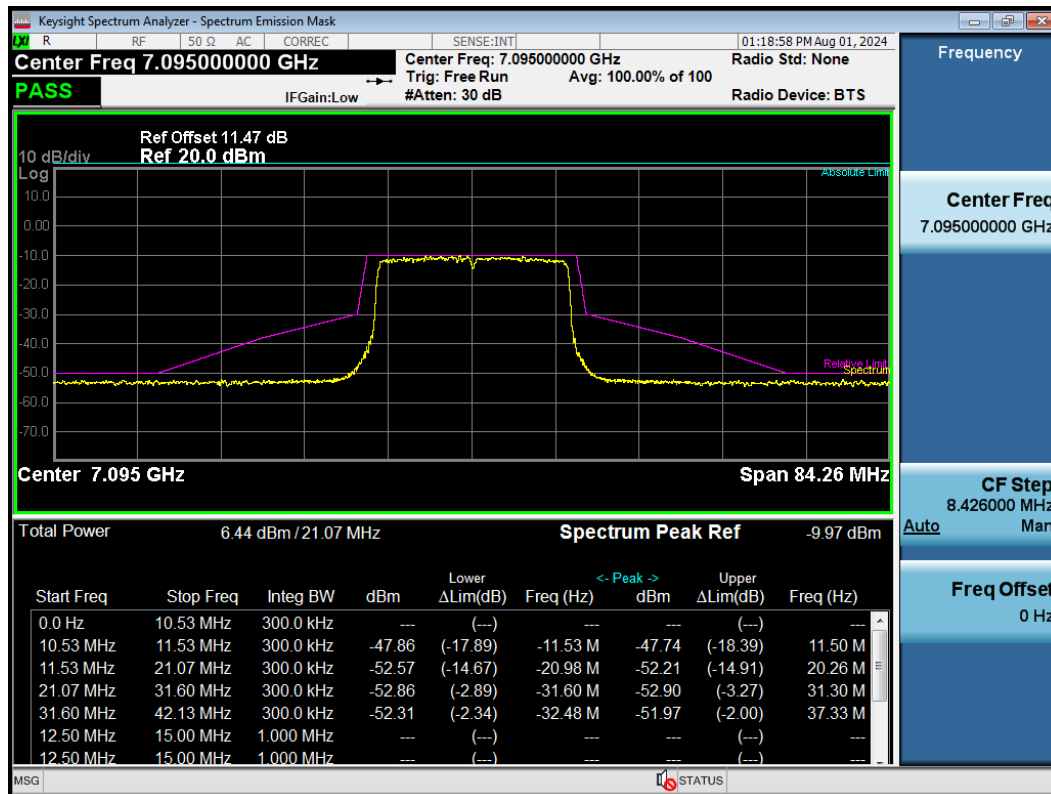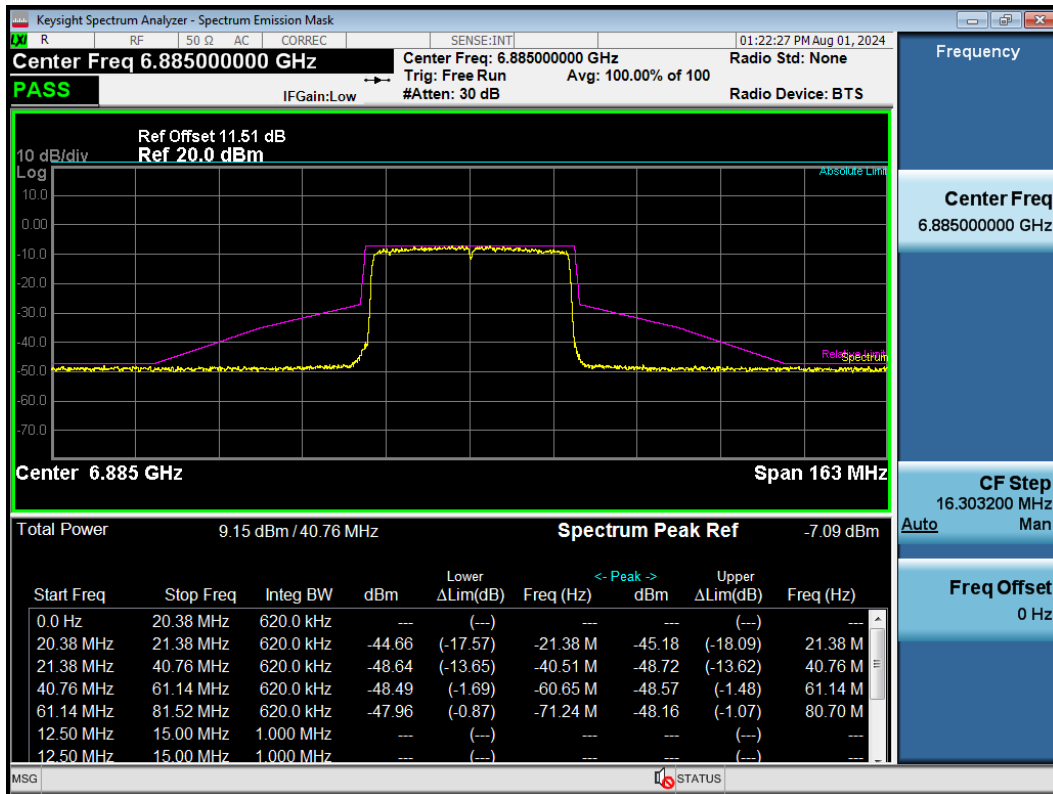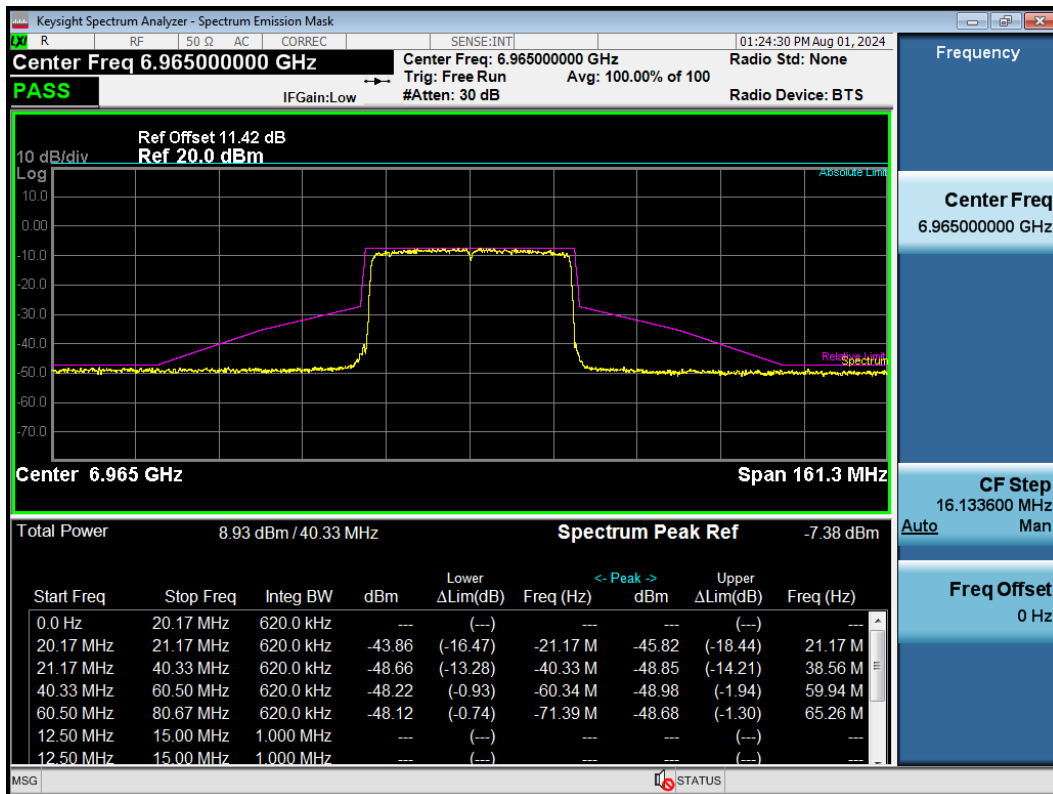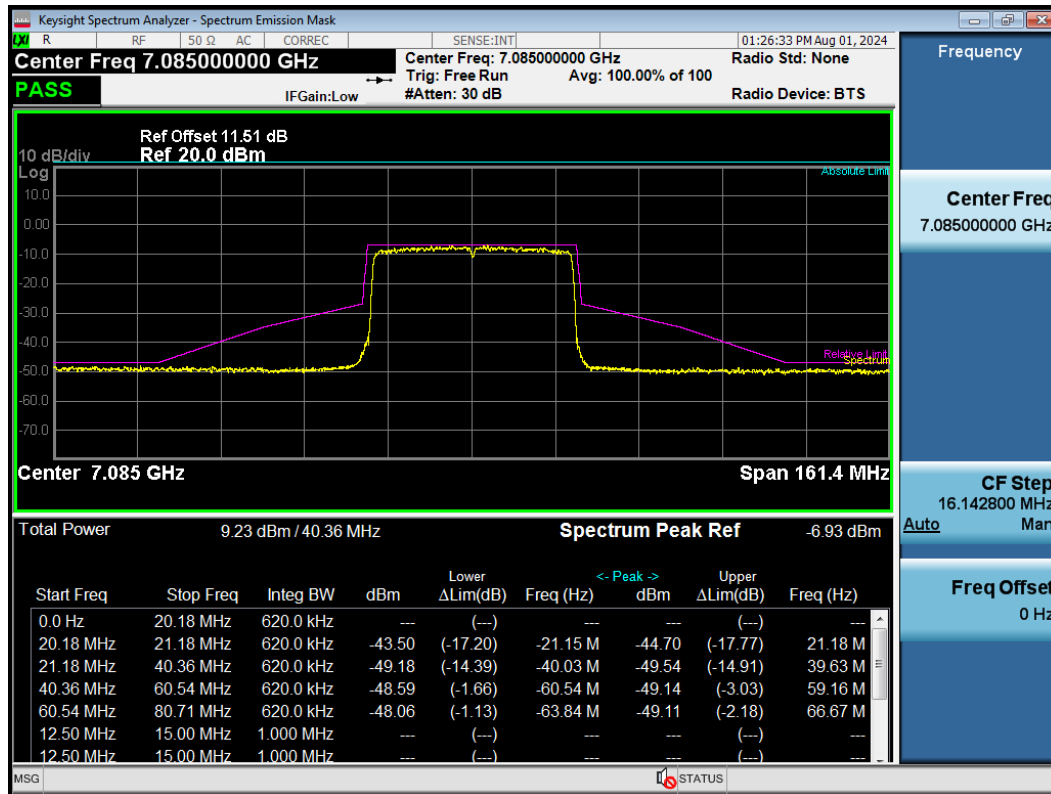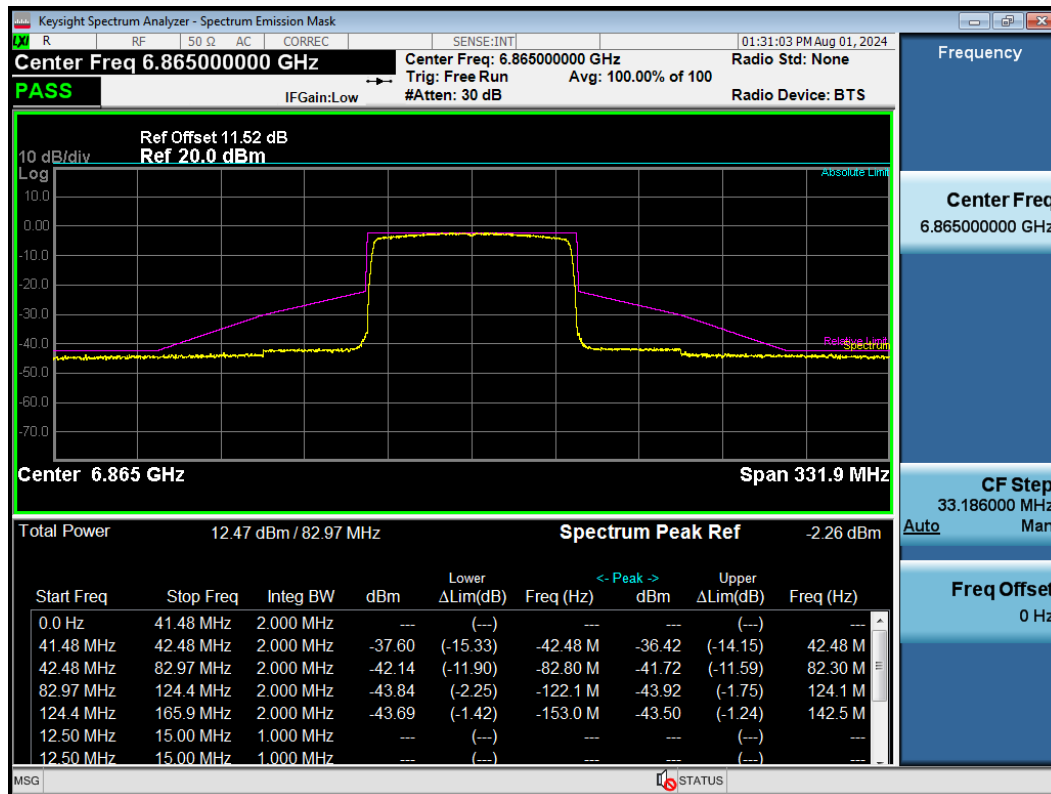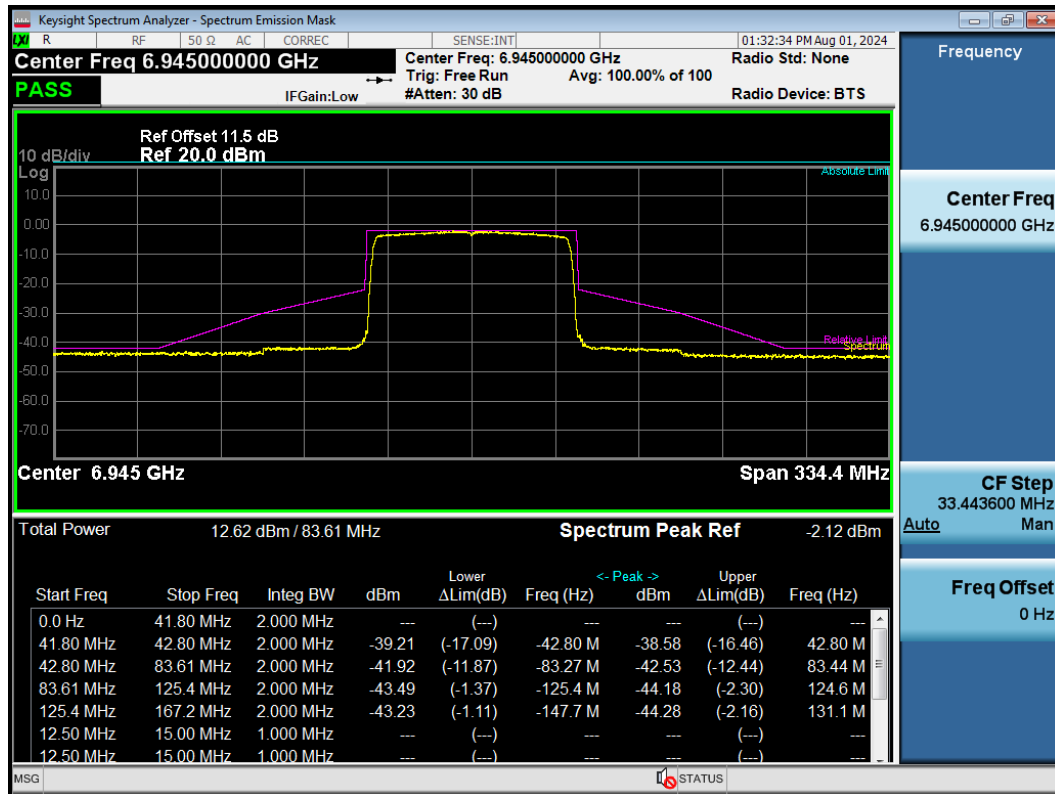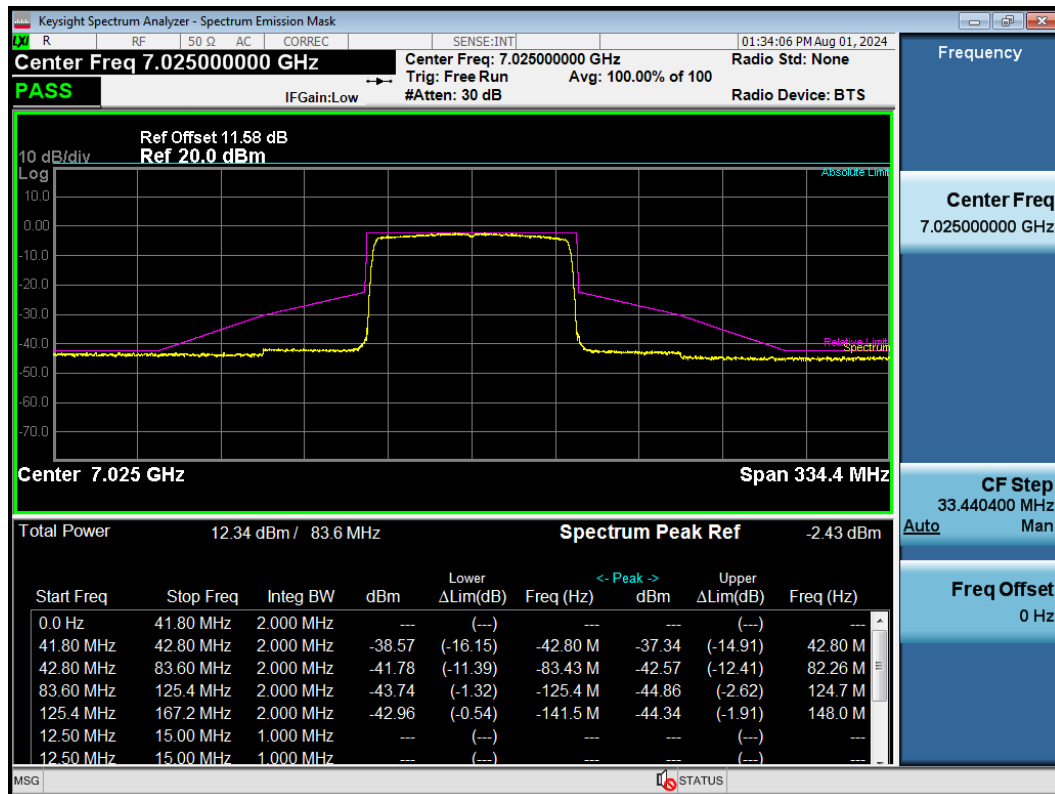Power spectral mask 802.11ax HE80 7025MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 255 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

5.6. Contention-Based Protocol

Ambient Condition

| Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

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 o 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
$BW_{Inc} < BW_{EUT} \leqq 2 \times BW_{Inc}$	Once	Contained within BW_{EUT}
$2 \times BW_{Inc} < BW_{EUT} \leqq 4 \times BW_{Inc}$	Twice. (Incumbent transmission is contained within BW_{EUT})	Closely to the lower edge and upper edge of the EUT Channel
$BW_{EUT} > 4 \times BW_{Inc}$	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.

Test Setup
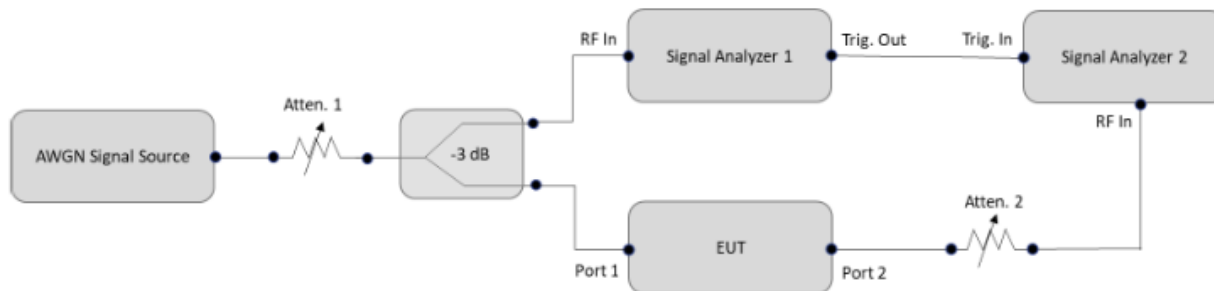
Limits

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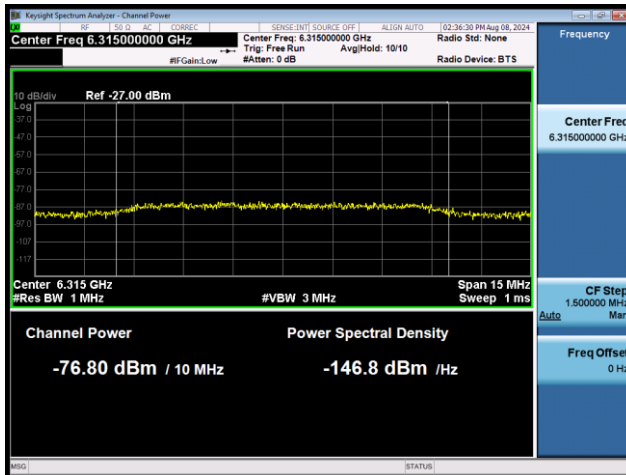
Test Results:

U-NII-5

|														
Wi-Fi CBP														
Mode	**EUT Frequency**	**BW EUT**	**AWGN Signal Frequency**	**Bw INC**	**state**	**Injected (AWGN) Power**	**Ant. Gain**	**path loss**	**Detection Power**	**Detection Limit**	**Success no./Trial no.**	**Detection Probility (%)**	**Limt**	**Verdict**
	[MHz]	[MHz]	[MHz]	[MHz]		[dBm]	[dBi]	[dB]	[dBm]	[dBm]				pass/fail
802.11ax (HE20)	CH 73/ 6315	20	6315	10	OFF	-62.00	0.2	-14.60	-76.80	-62	10/10	100	90%	pass
					Minimal	-64.00	0.2	-14.60	-78.80	-62	--	--	--	pass
					ON	-70.50	0.2	-14.60	-85.30	-62	--	--	--	pass
802.11ax (HE160)	CH 47/ 6185	160	6110	10	OFF	-57.00	0.2	-14.33	-71.53	-62	10/10	100	90%	pass
					Minimal	-62.00	0.2	-14.33	-76.53	-62	--	--	--	pass
					ON	-64.00	0.2	-14.33	-78.53	-62	--	--	--	pass
			6185	10	OFF	-55.50	0.2	-14.27	-69.97	-62	10/10	100	90%	pass
					Minimal	-58.00	0.2	-14.27	-72.47	-62	--	--	--	pass
					ON	-59.00	0.2	-14.27	-73.47	-62	--	--	--	pass
			6260	10	OFF	-54.00	0.2	-14.60	-68.80	-62	10/10	100	90%	pass
					Minimal	-61.50	0.2	-14.60	-76.30	-62	--	--	--	pass
					ON	-63.00	0.2	-14.60	-77.80	-62	--	--	--	pass

Note：

1) OFF = AWGN level at which no transmission is detected, consistently for a minimum period of 10 seconds

2) Minimal: AWGN level at which the system begins to trigger the transmission switch-off, albeit not being kept off consistently

3) ON = AWGN level at which no impact on the transmission is detected, consistently for a minimum period of 10 seconds

4) Detection Level = Injected AWGN Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)
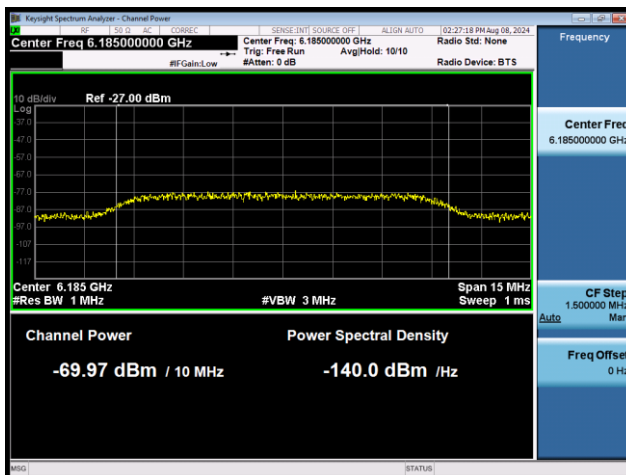
Photos of Detection Power

802.11ax (HE20) CH73
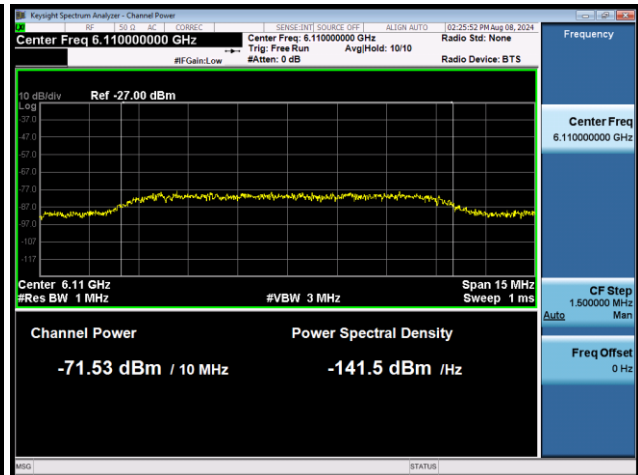
802.11ax (HE160) CH47 Low Edge 6110MHz

802.11ax (HE160) CH47 Low Edge 6185MHz

802.11ax (HE160) CH47 Low Edge 6260MHz

Photos of EUT ceased transmission
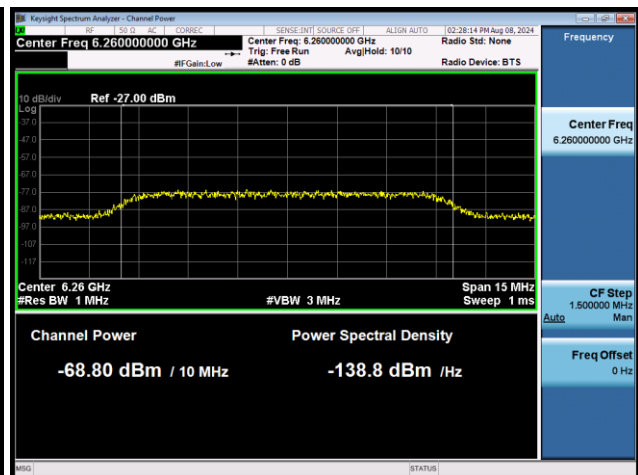

802.11ax (HE20) CH73

802.11ax (HE160) CH47 Low Edge 6110MHz

802.11ax (HE160) CH47 Low Edge 6185MHz

802.11ax (HE160) CH47 Low Edge 6260MHz

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 260 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

U-NII-6

Wi-Fi CBP

Mode	EUT Frequency	BW EUT	AWGN Signal Frequency	Bw INC	state	Injected (AWGN) Power	Ant. Gain	path loss	Detection Power	Detection Limit	Success no./Trial no.	Detection Probility (%)	Limt	Verdict
		[MHz]	[MHz]	[MHz]		[dBm]	[dBi]	[dB]	[dBm]	[dBm]				pass/fail
802.11ax (HE20)	CH101/ 6455	20	6455	10	OFF	-62.50	0.5	-14.41	-77.41	-62	10/10	100	90%	pass
					Minimal	-67.00	0.5	-14.41	-81.91	-62	--	--	--	pass
					ON	-69.00	0.5	-14.41	-83.91	-62	--	--	--	pass
802.11ax (HE160)	CH111/ 6505	160	6430	10	OFF	-60.50	0.5	-14.47	-75.47	-62	10/10	100	90%	pass
					Minimal	-61.50	0.5	-14.47	-76.47	-62	--	--	--	pass
					ON	-63.00	0.5	-14.47	-77.97	-62	--	--	--	pass
			6505	10	OFF	-55.50	0.5	-14.22	-70.22	-62	10/10	100	90%	pass
					Minimal	-58.00	0.5	-14.22	-72.72	-62	--	--	--	pass
					ON	-59.00	0.5	-14.22	-73.72	-62	--	--	--	pass
			6580	10	OFF	-57.00	0.5	-14.58	-72.08	-62	10/10	100	90%	pass
					Minimal	-62.00	0.5	-14.58	-77.08	-62	--	--	--	pass
					ON	-63.00	0.5	-14.58	-78.08	-62	--	--	--	pass

Note：

1) OFF = AWGN level at which no transmission is detected, consistently for a minimum period of 10 seconds

2) Minimal: AWGN level at which the system begins to trigger the transmission switch-off, albeit not being kept off consistently

3) ON = AWGN level at which no impact on the transmission is detected, consistently for a minimum period of 10 seconds

4) Detection Level = Injected AWGN Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)

Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 261 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

Photos of Detection Power

802.11ax (HE20) CH101

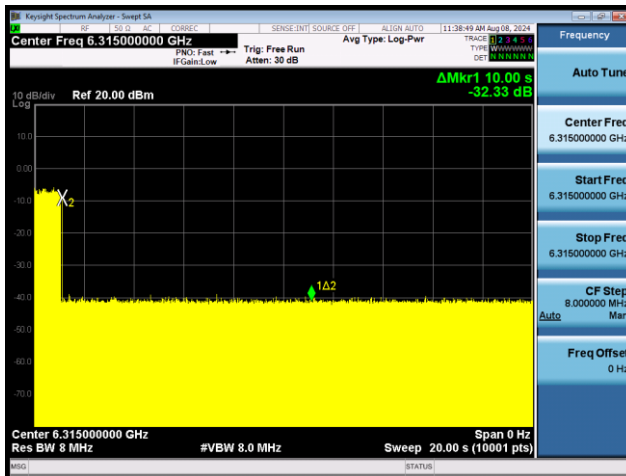802.11ax (HE80) CH111 Low Edge 6430MHz
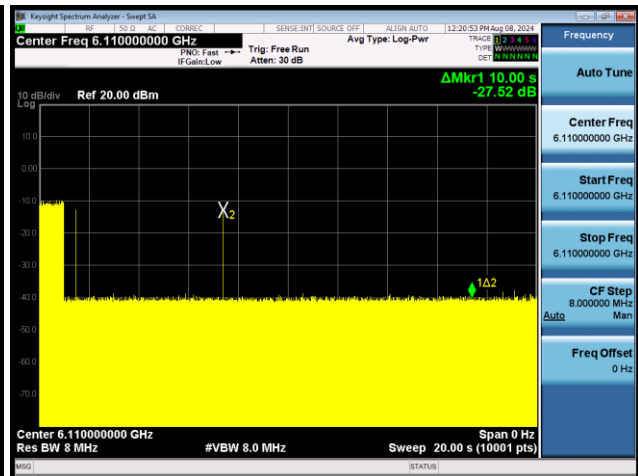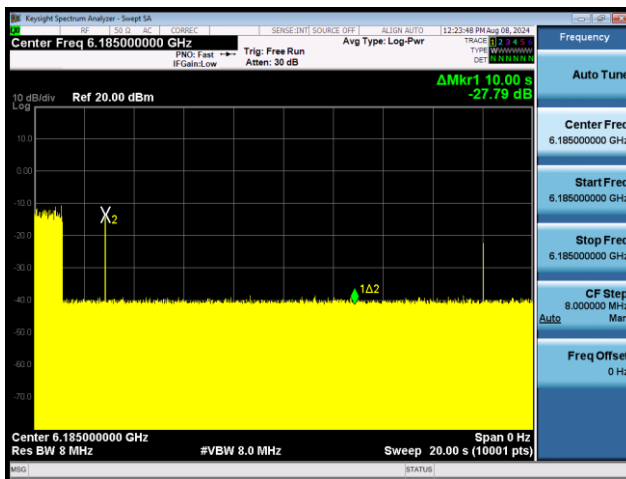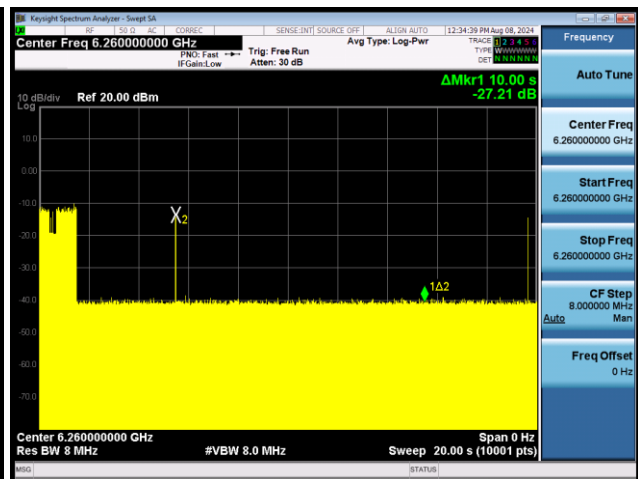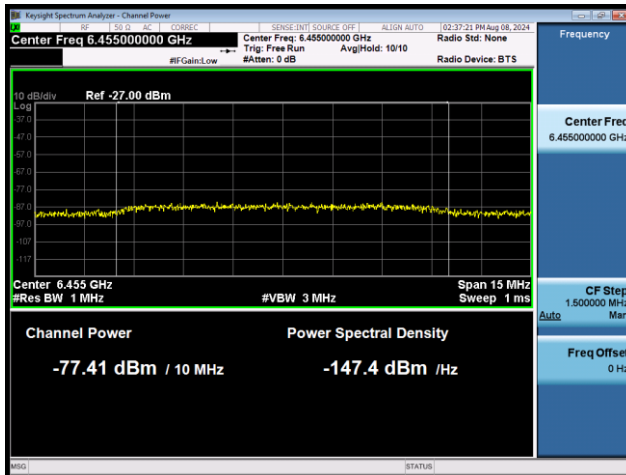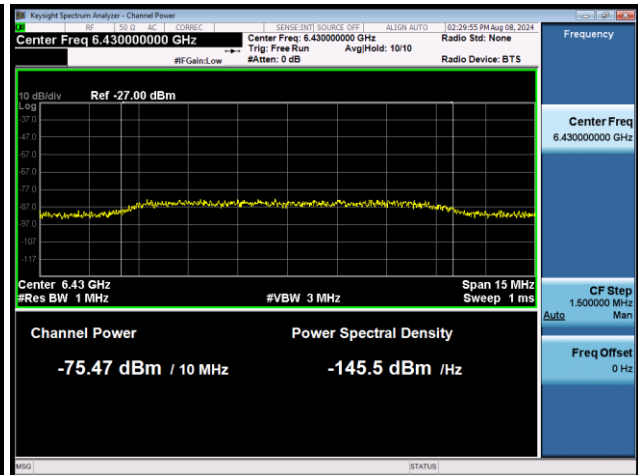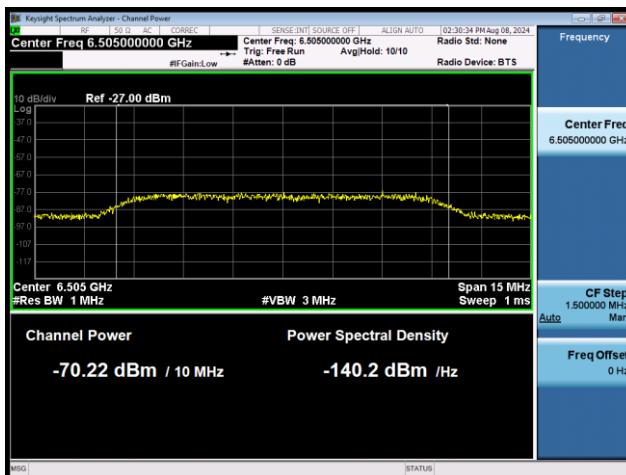

802.11ax (HE80) CH111 Low Edge 6505MHz

802.11ax (HE80) CH111 Low Edge 6580MHz

Photos of EUT ceased transmission
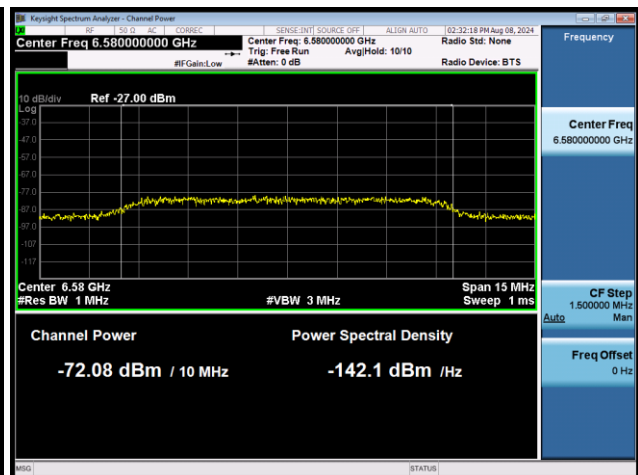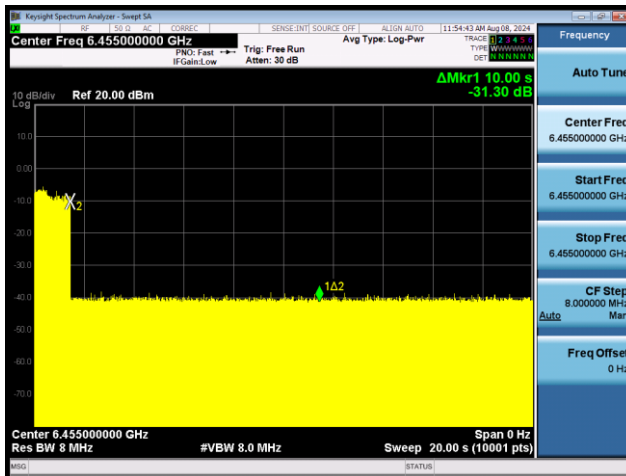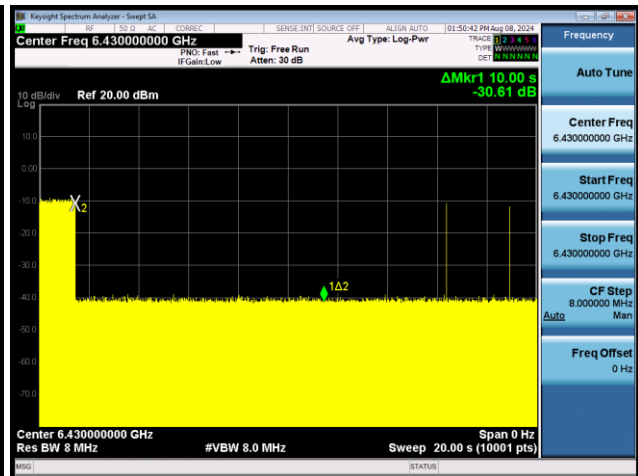

802.11ax (HE20) CH101

802.11ax (HE80) CH111 Low Edge 6430MHz

802.11ax (HE80) CH111 Low Edge 6505MHz

802.11ax (HE80) CH111 Low Edge 6580MHz
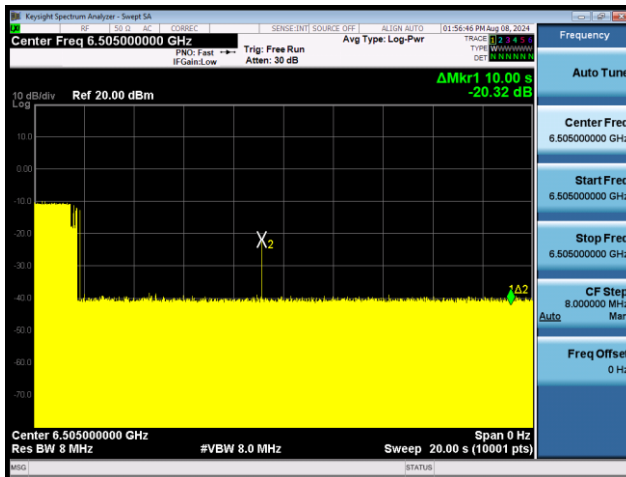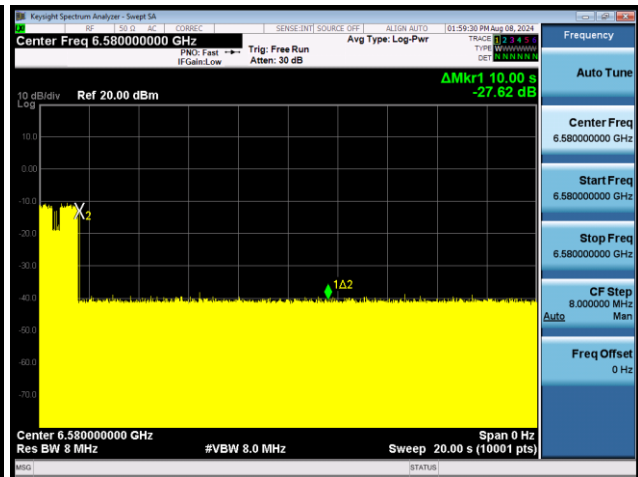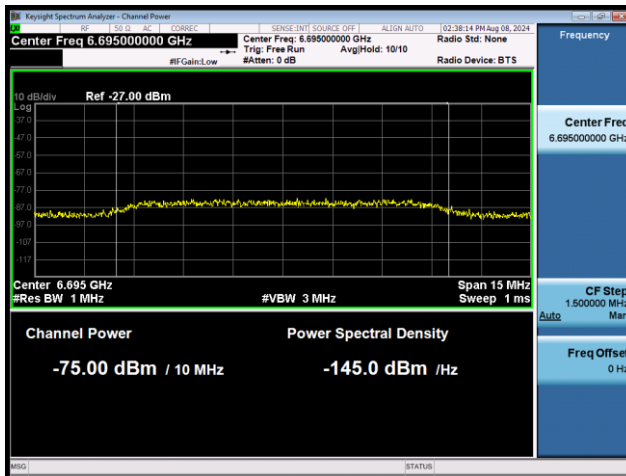
Eurofins TA Technology (Shanghai) Co., Ltd.   **TA-MB-01-059R**   **Page 263 of 381**

This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.

U-NII-7

Wi-Fi CBP														
Mode	**EUT Frequency**	**BW EUT**	**AWGN Signal Frequency**	**Bw INC**	**state**	**Injected (AWGN) Power**	**Ant. Gain**	**path loss**	**Detection Power**	**Detection Limit**	**Success no./Trial no.**	**Detection Probility (%)**	**Limt**	**Verdict**
	[MHz]	[MHz]	[MHz]	[MHz]		[dBm]	[dBi]	[dB]	[dBm]	[dBm]				pass/fail
802.11ax (HE20)	CH149/ 6695	20	6695	10	OFF	-59.50	0.5	-15.00	-75.00	-62	10/10	100	90%	pass
					Minimal	-66.00	0.5	-15.00	-81.50	-62	--	--	--	pass
					ON	-68.00	0.5	-15.00	-83.50	-62	--	--	--	pass
802.11ax (HE160)	CH143/ 6665	160	6590	10	OFF	-62.00	0.5	-14.54	-77.04	-62	10/10	100	90%	pass
					Minimal	-63.50	0.5	-14.54	-78.54	-62	--	--	--	pass
					ON	-64.50	0.5	-14.54	-79.54	-62	--	--	--	pass
			6665	10	OFF	-55.00	0.5	-14.87	-70.37	-62	10/10	100	90%	pass
					Minimal	-59.00	0.5	-14.87	-74.37	-62	--	--	--	pass
					ON	-60.00	0.5	-14.87	-75.37	-62	--	--	--	pass
			6740	10	OFF	-62.00	0.5	-14.73	-77.23	-62	10/10	100	90%	pass
					Minimal	-63.00	0.5	-14.73	-78.23	-62	--	--	--	pass
					ON	-64.00	0.5	-14.73	-79.23	-62	--	--	--	pass

Note：

1) OFF = AWGN level at which no transmission is detected, consistently for a minimum period of 10 seconds

2) Minimal: AWGN level at which the system begins to trigger the transmission switch-off, albeit not being kept off consistently

3) ON = AWGN level at which no impact on the transmission is detected, consistently for a minimum period of 10 seconds

4) Detection Level = Injected AWGN Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)
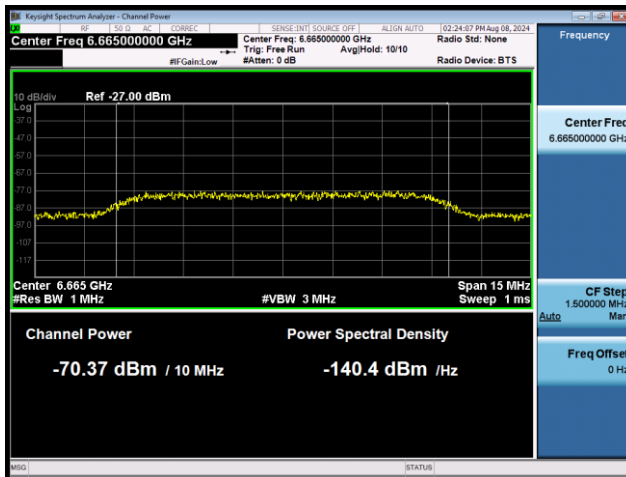
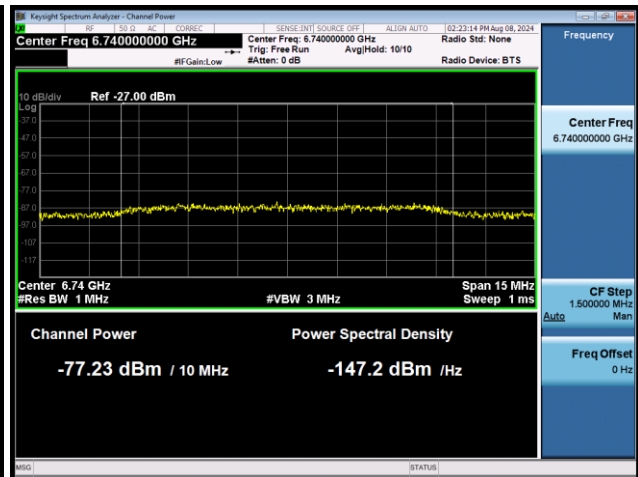## Photos of Detection Power

802.11ax (HE20) CH149
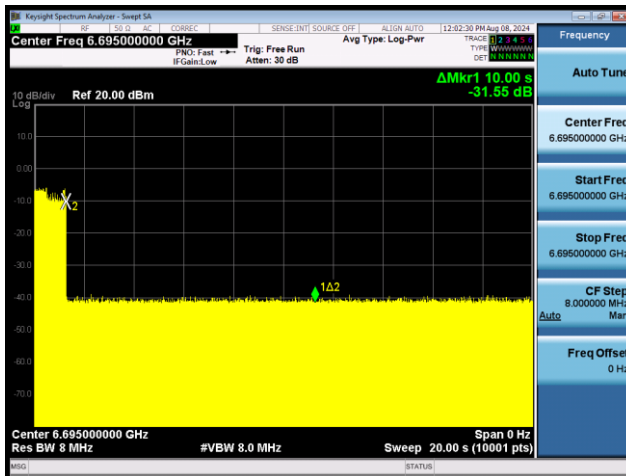

802.11ax (HE160) CH143 Low Edge 6590MHz

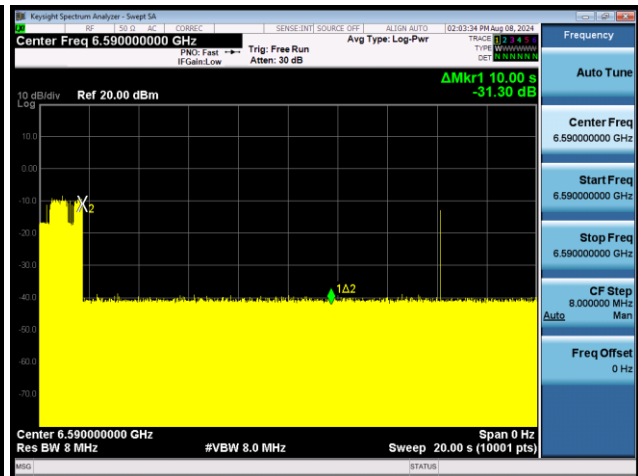802.11ax (HE160) CH143 Low Edge 6665MHz

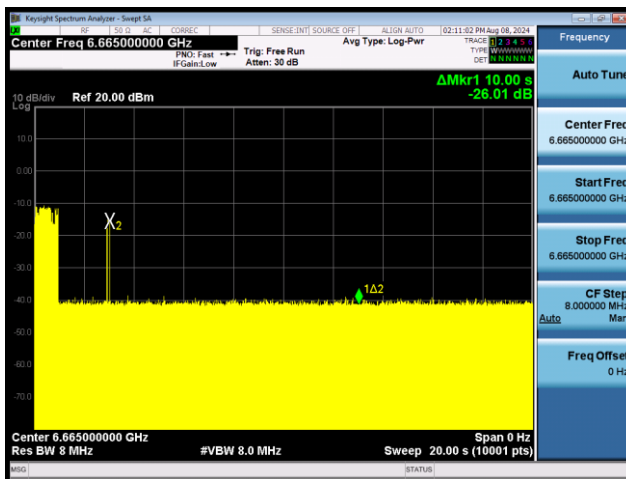802.11ax (HE160) CH143 Low Edge 6740MHz

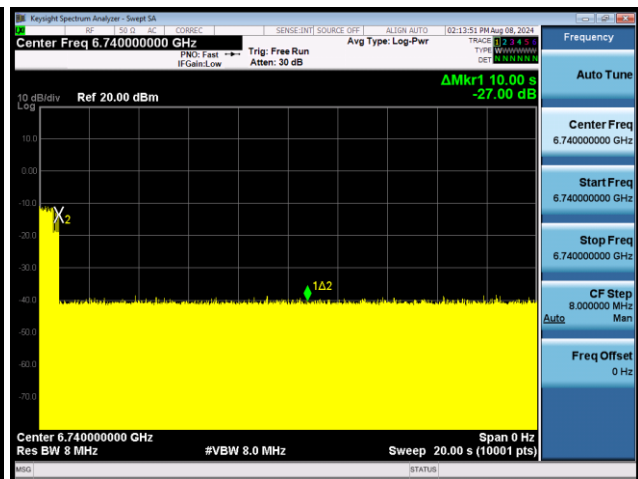Photos of EUT ceased transmission

802.11ax (HE20) CH149

802.11ax (HE160) CH143 Low Edge 6590MHz

802.11ax (HE160) CH143 Low Edge 6665MHz

802.11ax (HE160) CH143 Low Edge 6740MHz

U-NII-8

| Wi-Fi CBP														
Mode	EUT Frequency	BW EUT	AWGN Signal Frequency	Bw INC	state	Injected (AWGN) Power	Ant. Gain	path loss	Detection Power	Detection Limit	Success no./Trial no.	Detection Probility (%)	Limt	Verdict
	[MHz]	[MHz]	[MHz]	[MHz]		[dBm]	[dBi]	[dB]	[dBm]	[dBm]				pass/fail
802.11ax (HE20)	CH213/ 7015	20	7015	10	OFF	-61.00	3.2	-14.66	-78.86	-62	10/10	100	90%	pass
					Minimal	-67.00	3.2	-14.66	-84.86	-62	--	--	--	pass
					ON	-68.00	3.2	-14.66	-85.86	-62	--	--	--	pass
802.11ax (HE160)	CH207/ 6985	160	6910	10	OFF	-56.20	3.2	-14.80	-74.20	-62	10/10	100	90%	pass
					Minimal	-57.00	3.2	-14.80	-75.00	-62	--	--	--	pass
					ON	-58.00	3.2	-14.80	-76.00	-62	--	--	--	pass
			6985	10	OFF	-52.50	3.2	-15.23	-70.93	-62	10/10	100	90%	pass
					Minimal	-54.00	3.2	-15.23	-72.43	-62	--	--	--	pass
					ON	-55.00	3.2	-15.23	-73.43	-62	--	--	--	pass
			7060	10	OFF	-56.50	3.2	-14.25	-73.95	-62	10/10	100	90%	pass
					Minimal	-58.50	3.2	-14.25	-75.95	-62	--	--	--	pass
					ON	-59.00	3.2	-14.25	-76.45	-62	--	--	--	pass

Note：

1) OFF = AWGN level at which no transmission is detected, consistently for a minimum period of 10 seconds

2) Minimal: AWGN level at which the system begins to trigger the transmission switch-off, albeit not being kept off consistently

3) ON = AWGN level at which no impact on the transmission is detected, consistently for a minimum period of 10 seconds

4) Detection Level = Injected AWGN Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)
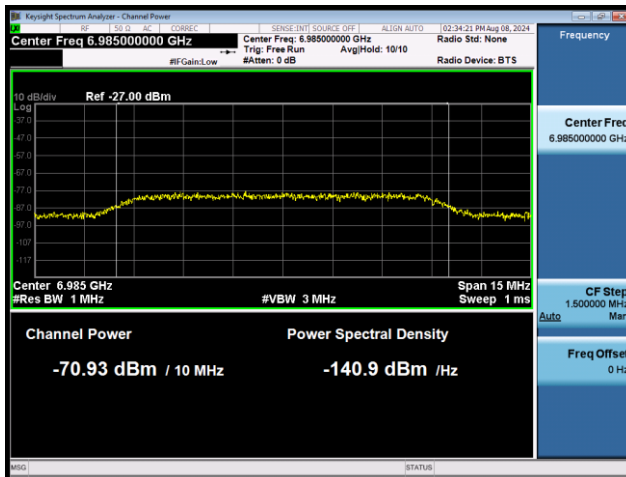
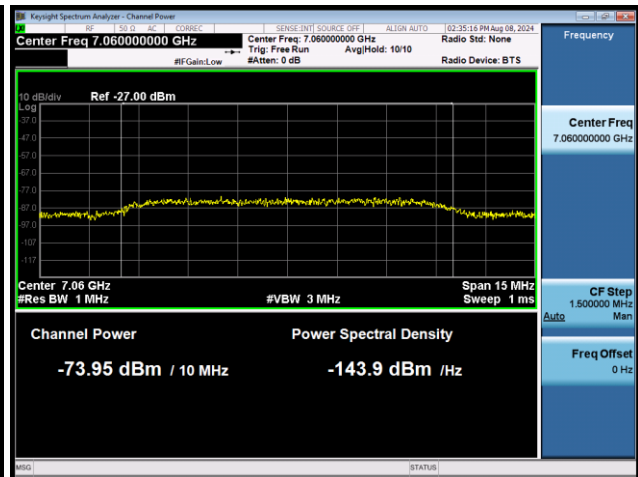Photos of Detection Power

802.11ax (HE20) CH213
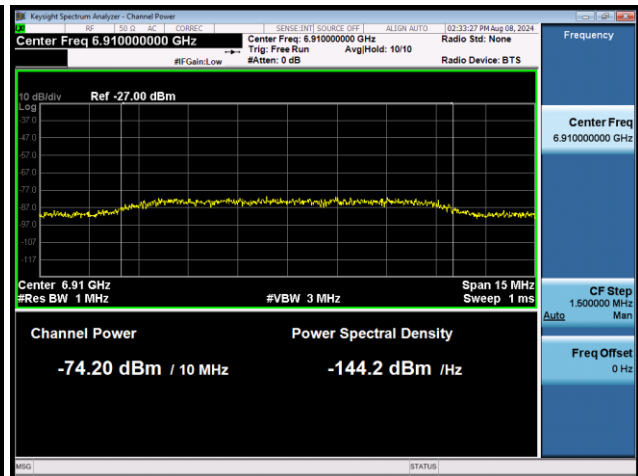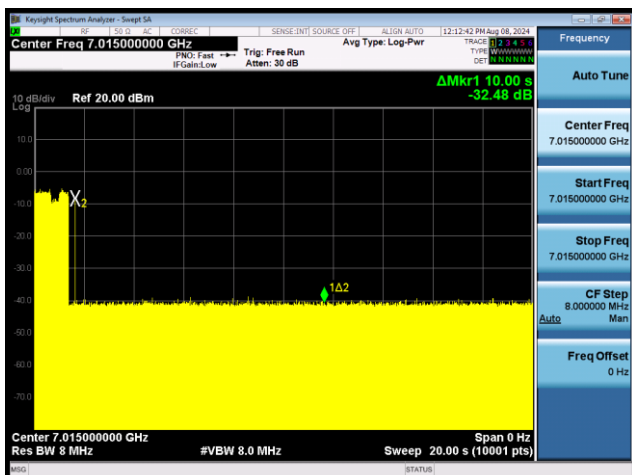

802.11ax (HE160) CH207 Low Edge 6910MHz

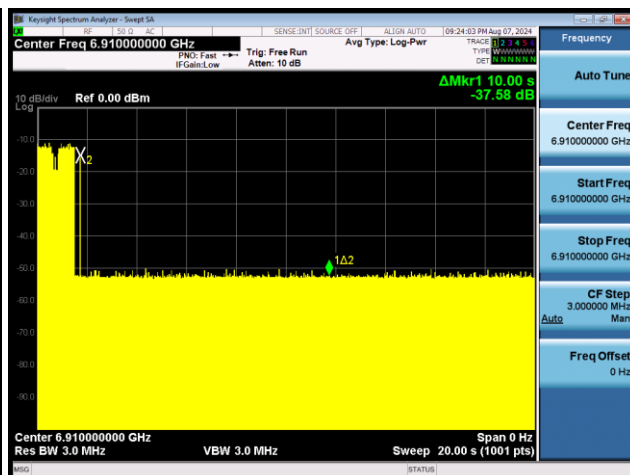802.11ax (HE160) CH207 Low Edge 6985MHz

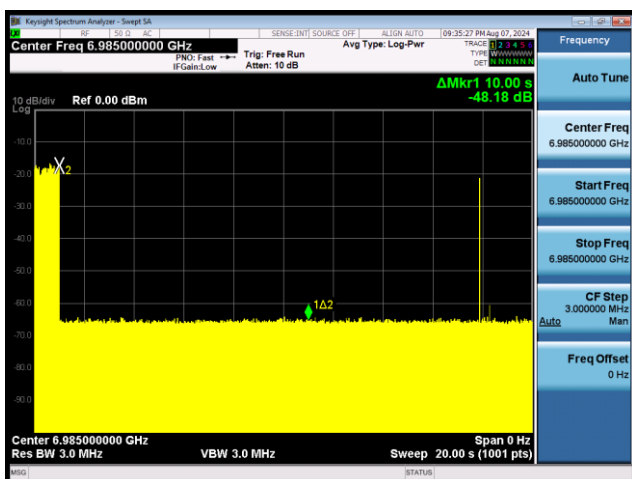802.11ax (HE160) CH207 Low Edge 7060MHz

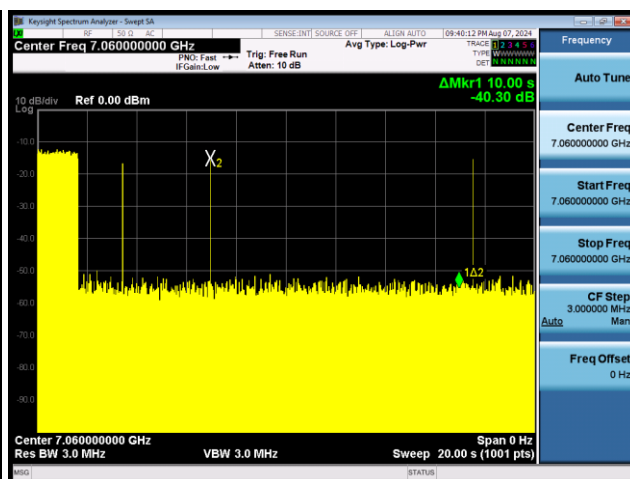Photos of EUT ceased transmission

802.11ax (HE20) CH213

802.11ax (HE160) CH207 Low Edge 6910MHz

802.11ax (HE160) CH207 Low Edge 6985MHz

802.11ax (HE160) CH207 Low Edge 7060MHz

5.7. Unwanted Emission

Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.10. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.
Sweep the whole frequency band range from 9kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.
Set the spectrum analyzer in the following:
9kHz~150 kHz
RBW=200Hz, VBW=1kHz/ Sweep=AUTO
150 kHz~30MHz
RBW=9KHz, VBW=30KHz,/ Sweep=AUTO
Below 1GHz
RBW=100kHz / VBW=300kHz / Sweep=AUTO
a) Peak emission levels are measured by setting the instrument as follows:
Above 1GHz
PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO
b) Average emission levels are measured by setting the instrument as follows:
Above 1GHz
AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO
c) Detector: The measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
e) Sweep time = auto.
f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific