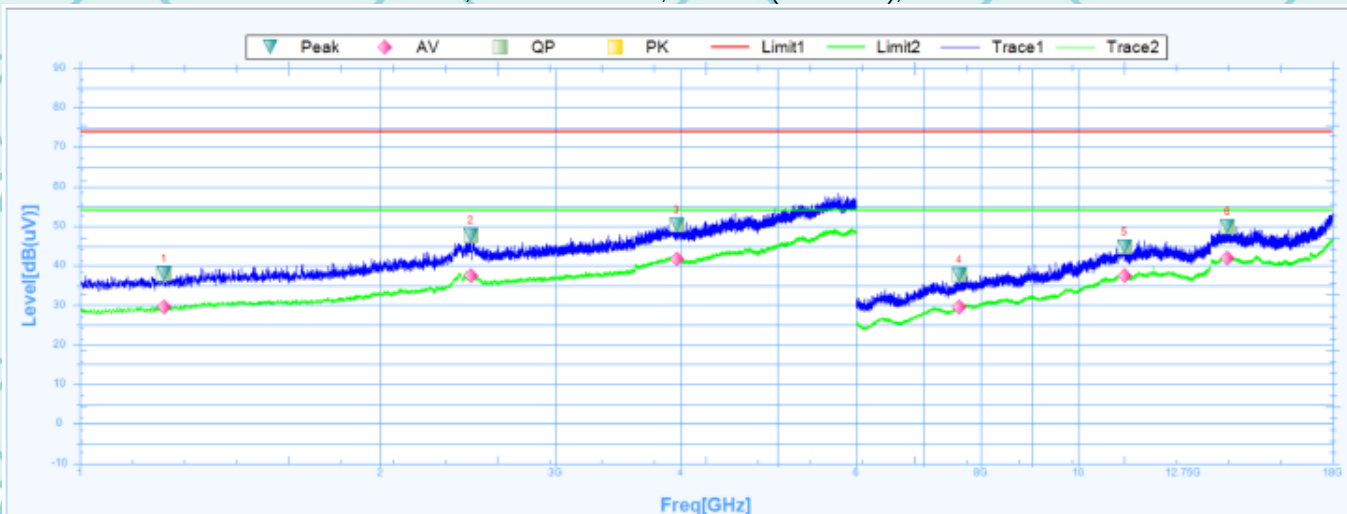


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11ax20, 1 GHz to 18 GHz, Channel (7095 MHz), ANT V



Suspected Data List										
NO.	Freq. [MHz]	Level [dB(uV)]	Factor [dB]	Reading [dB(uV)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1213.7500	37.93	24.45	13.48	74	-36.07	150	Vertical	PK	Pass
1	1213.7500	29.45	24.45	5	54	-24.55	150	Vertical	AV	Pass
2	2464.3750	47.58	27.48	20.1	74	-26.42	77	Vertical	PK	Pass
2	2464.3750	37.49	27.48	10.01	54	-16.51	77	Vertical	AV	Pass
3	3964.3750	50.33	29.61	20.72	74	-23.67	108.2	Vertical	PK	Pass
3	3964.3750	41.62	29.61	12.01	54	-12.38	108.2	Vertical	AV	Pass
4	7612.5000	37.74	7.96	29.78	74	-36.26	168.3	Vertical	PK	Pass
4	7612.5000	29.49	7.96	21.53	54	-24.51	168.3	Vertical	AV	Pass
5	11131.5000	44.72	15.83	28.89	74	-29.28	137.1	Vertical	PK	Pass
5	11131.5000	37.48	15.83	21.65	54	-16.52	137.1	Vertical	AV	Pass
6	14122.5000	49.85	19	30.85	74	-24.15	11.8	Vertical	PK	Pass
6	14122.5000	41.87	19	22.87	54	-12.13	11.8	Vertical	AV	Pass

Note:

1. All emissions not reported were more than 20dB below the specified limit or in the noise floor.
2. Emission Level= Reading Level+ Probe Factor +Cable Loss.
3. Data of measurement within this frequency range shown “-” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Note: Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

Corr. Factor (dB) = Attenuation factor + Cable loss

Level (dBμV) = Reading level (dBμV) + Corr. Factor (dB)

Limit (dBμV) = Limit stated in standard

Margin (dB) = Level (dBμV) – Limits (dBμV)

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7.3.8 RESTRICTED BANDS REQUIREMENTS

Test Result(Only recorded the worst case in the report):

Frequency	Reading	Correct Factor	Emission Level	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
802.11a(6Mbps) Test channel:36							
5925	68.59	-8.76	59.83	74	14.17	H	PK
5925	56.52	-8.76	47.76	54	6.24	H	AV
5925	68.69	-8.73	59.96	74	14.04	V	PK
5925	54.18	-8.73	45.45	54	8.55	V	AV
802.11a(6Mbps) Test channel:48							
7125	68.39	-8.76	59.63	74	14.37	H	PK
7125	56.62	-8.76	47.86	54	6.14	H	AV
7125	68.14	-8.73	59.41	74	14.59	V	PK
7125	55.79	-8.73	47.06	54	6.94	V	AV

Note: Freq. = Emission frequency in MHz

Reading level (dBuV) = Receiver reading

Corr. Factor (dB) = Attenuation factor + Cable loss

Level (dBuV) = Reading level (dBuV) + Corr. Factor (dB)

Limit (dBuV) = Limit stated in standard

Margin (dB) = Level (dBuV) – Limits (dBuV)

7.4 ANTENNA REQUIREMENTS

Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(N_{ANT}/N_{SS}=1)$ dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F2)f)i).

For PSD, the directional gain calculation is following F2)f)ii) of KDB 662911 D01 v02r01.

The directional gain "DG" is calculated as following table.

- (i) If all antennas have the same gain, G_{ANT} , Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,
 $Array\ Gain = 10 \log(N_{ANT}/N_{SS})$ dB.

- For power measurements on IEEE 802.11 devices,^{1,2}
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;
Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.
- For power measurements on all other devices:
Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB. The FCC may permit a lower array gain value based on analysis involving the specific cyclic delays, signal bandwidths, channelization, and antenna configurations used by the device. Contact the FCC through the Knowledge DataBase (www.fcc.gov/labhelp) for more information.

(ii) If antenna gains are not equal, the user may use either of the following methods to calculate directional gain, provided that each transmit antenna is driven by only one spatial stream:

- Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain; or,

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

<CDD Modes>	Ant1 (dBi)	Ant2 (dBi)	DG for power (dBi)	DG for PSD (dBi)
5925~7125MHz	2.97	2.73	2.97	5.86

Power limit reduction = Composite gain – 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, (min = 0)

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7.5 26DB & 99% OCCUPIED BANDWIDTH MEASUREMENT

7.5.1 LIMIT OF 26DB & 99% OCCUPIED BANDWIDTH

<FCC 14-30 CFR 15.407>

(a)(10) The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

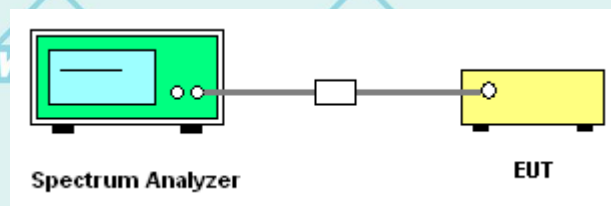
7.5.2 MEASURING INSTRUMENTS

See list of measuring equipment of this test report.

7.5.3 TEST PROCEDURES

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) $\geq 3 * RBW$.
8. Measure and record the results in the test report.

7.5.4 TEST SETUP

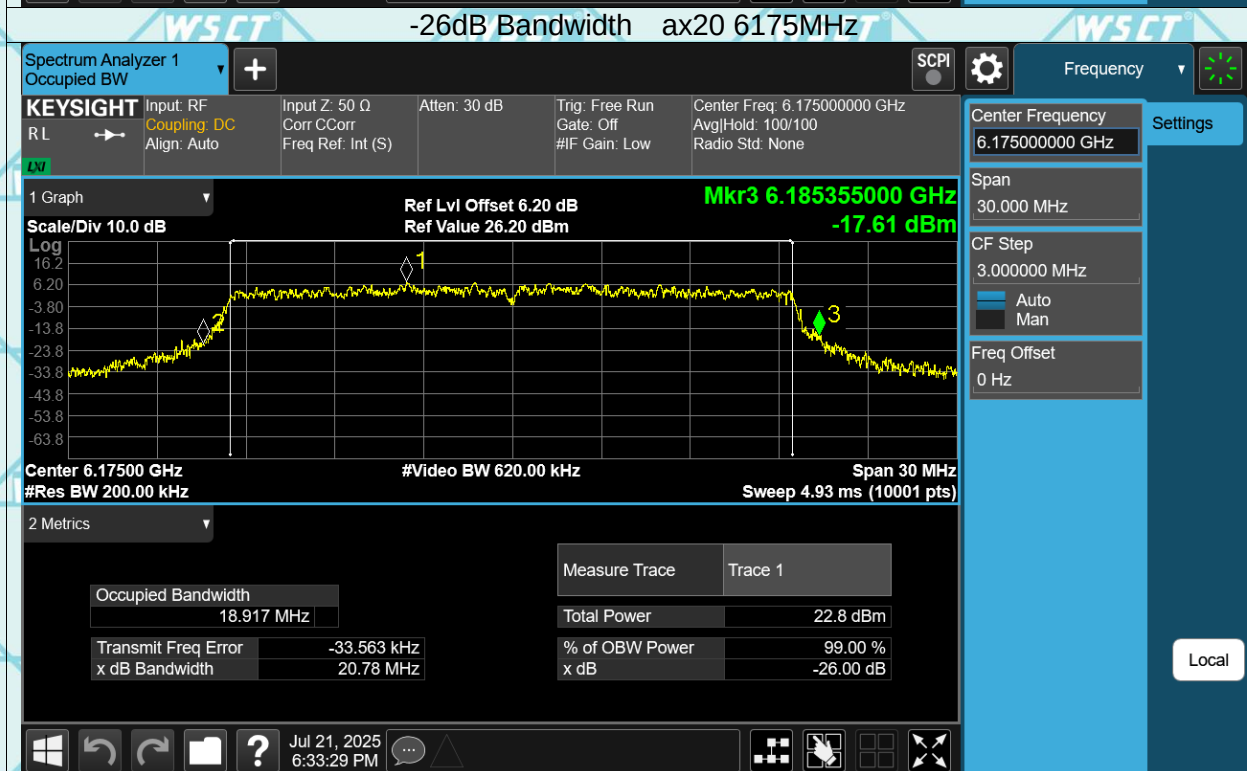
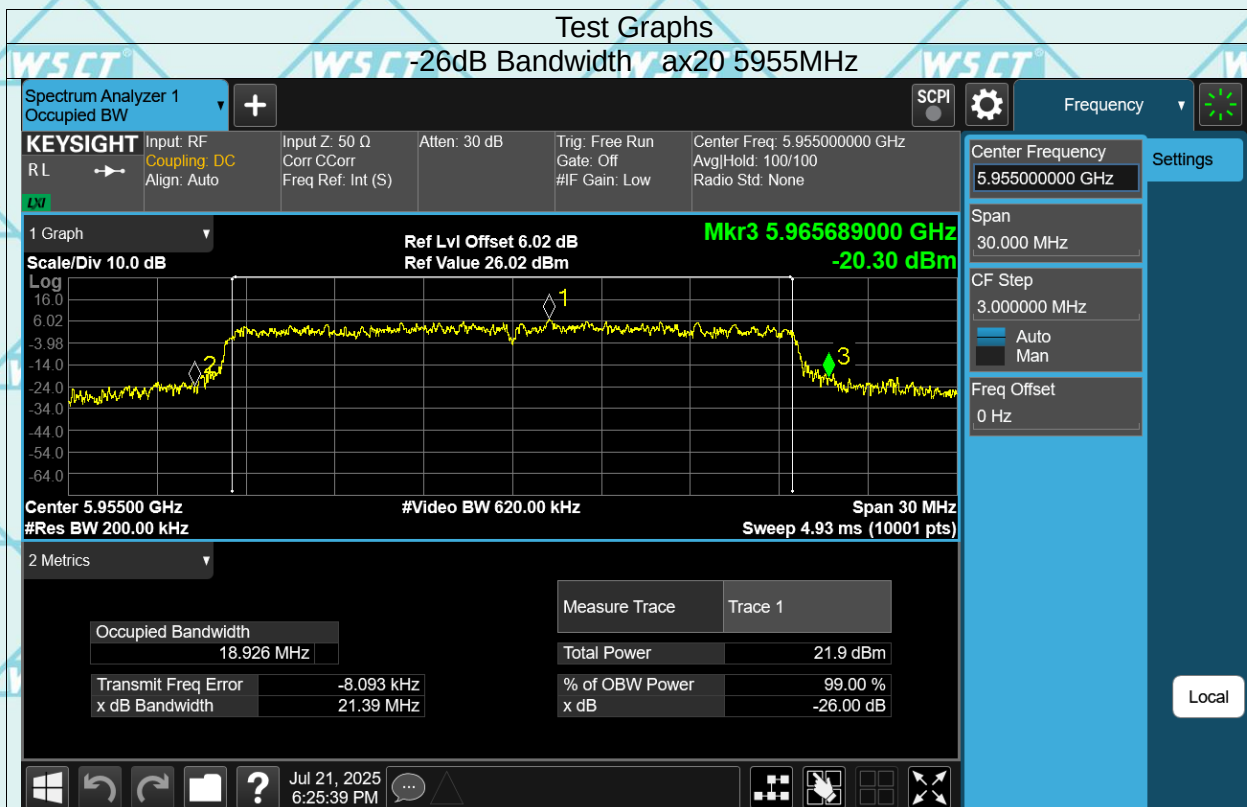


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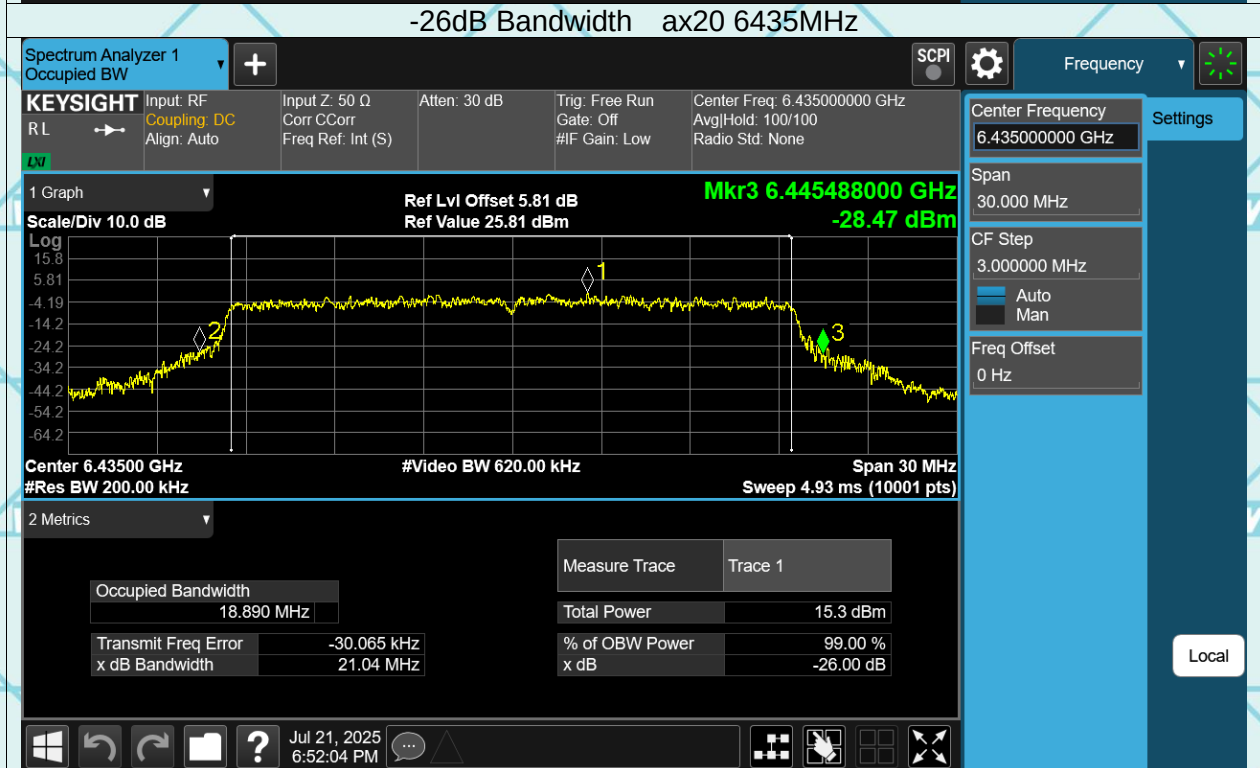
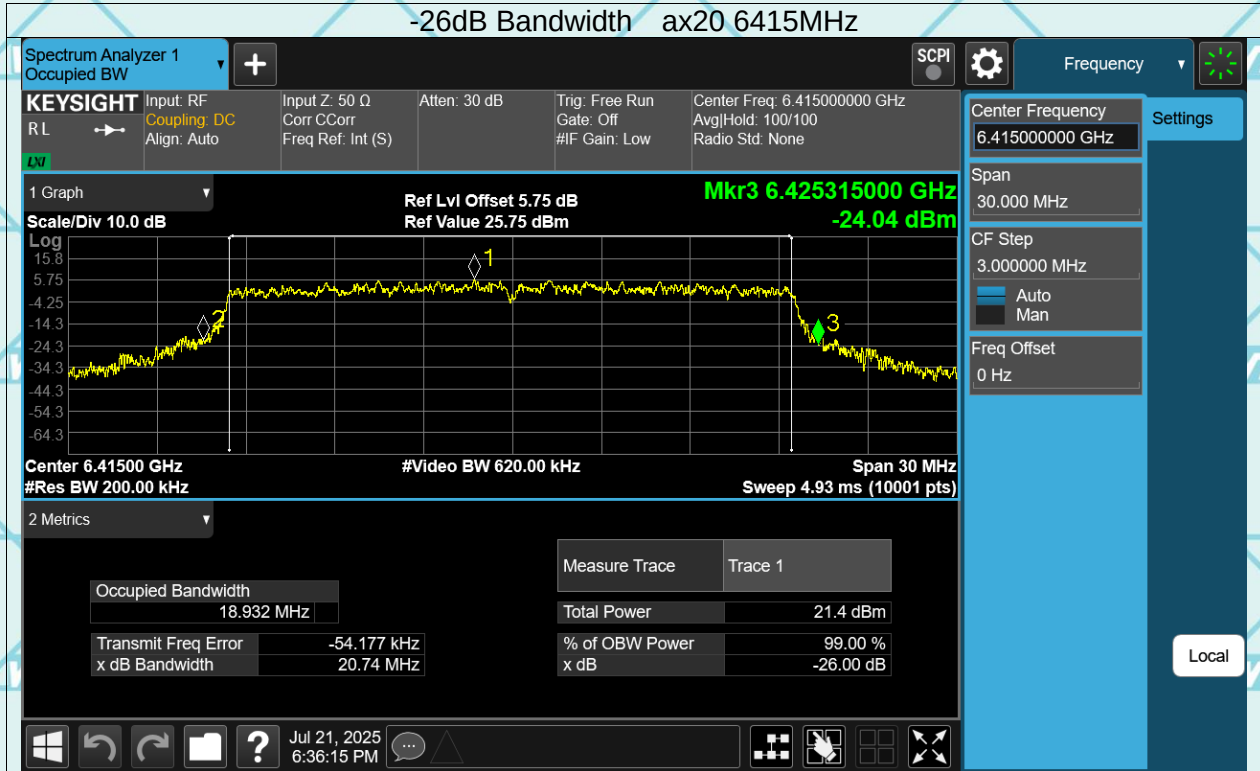
Test Result of 26dB & 99% Occupied Bandwidth

Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Verdict
ax20	5955	21.39	0.5	18.826	Pass
ax20	6175	20.78	0.5	18.917	Pass
ax20	6415	20.74	0.5	18.932	Pass
ax20	6435	21.04	0.5	18.890	Pass
ax20	6475	21.03	0.5	18.848	Pass
ax20	6515	21.03	0.5	18.935	Pass
ax20	6535	21.31	0.5	18.858	Pass
ax20	6695	21.24	0.5	18.903	Pass
ax20	6875	20.71	0.5	18.912	Pass
ax20	6895	20.76	0.5	18.902	Pass
ax20	6995	20.85	0.5	18.912	Pass
ax20	7095	22.04	0.5	18.954	Pass
ax40	5965	41.89	0.5	37.348	Pass
ax40	6165	39.32	0.5	37.469	Pass
ax40	6405	39.29	0.5	37.536	Pass
ax40	6445	39.54	0.5	37.644	Pass
ax40	6485	39.15	0.5	37.447	Pass
ax40	6525	39.62	0.5	37.664	Pass
ax40	6565	39.14	0.5	37.391	Pass
ax40	6685	39.22	0.5	37.567	Pass
ax40	6845	39.16	0.5	37.567	Pass
ax40	6885	40.95	0.5	37.613	Pass
ax40	6965	39.14	0.5	37.634	Pass
ax40	7085	48.61	0.5	37.629	Pass
ax80	5985	80.42	0.5	76.562	Pass
ax80	6145	79.86	0.5	77.187	Pass
ax80	6385	79.80	0.5	76.689	Pass
ax80	6465	79.77	0.5	76.694	Pass
ax80	6545	79.96	0.5	76.719	Pass
ax80	6625	79.73	0.5	76.583	Pass
ax80	6705	79.89	0.5	76.600	Pass
ax80	6865	79.97	0.5	77.212	Pass
ax80	6945	79.93	0.5	77.299	Pass
ax80	7025	89.89	0.5	77.084	Pass
ax160	6025	161.0	0.5	155.21	Pass
ax160	6185	160.9	0.5	155.30	Pass
ax160	6345	160.8	0.5	154.52	Pass
ax160	6505	160.9	0.5	154.67	Pass
ax160	6665	160.8	0.5	155.03	Pass
ax160	6825	161.0	0.5	155.25	Pass
ax160	6985	161.1	0.5	155.36	Pass

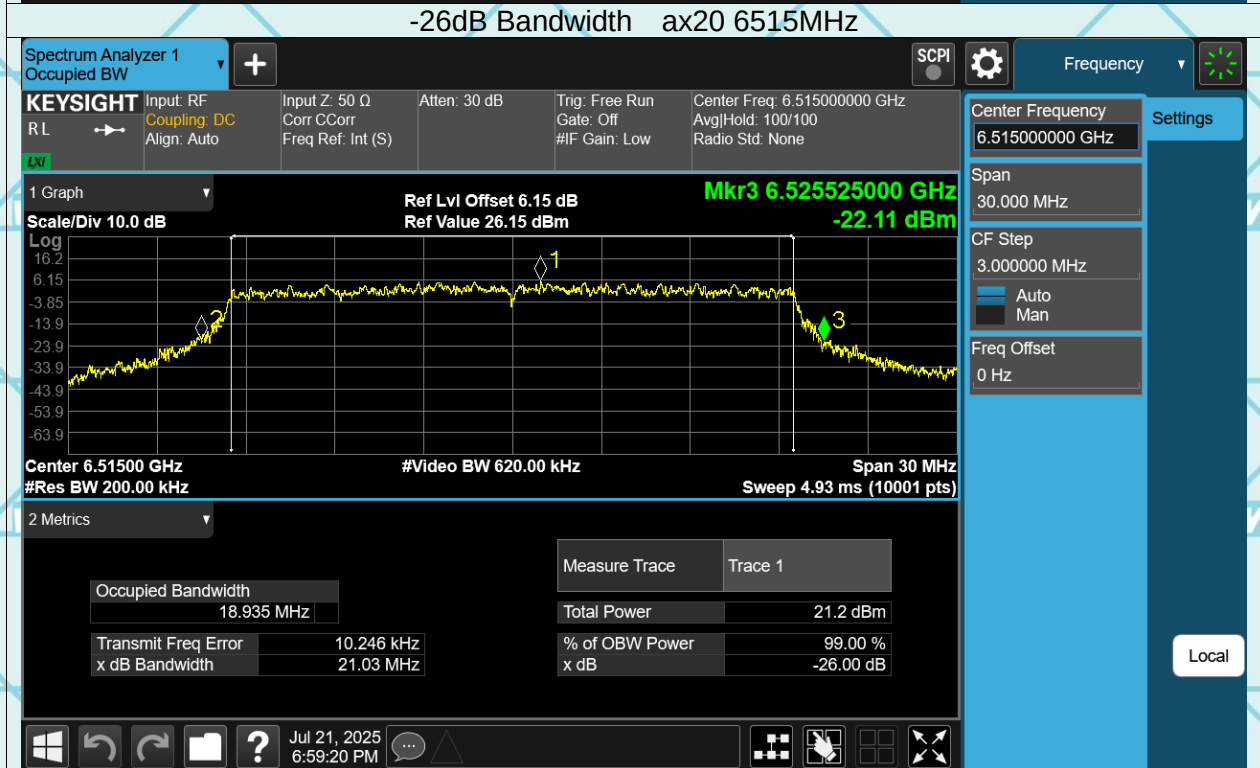
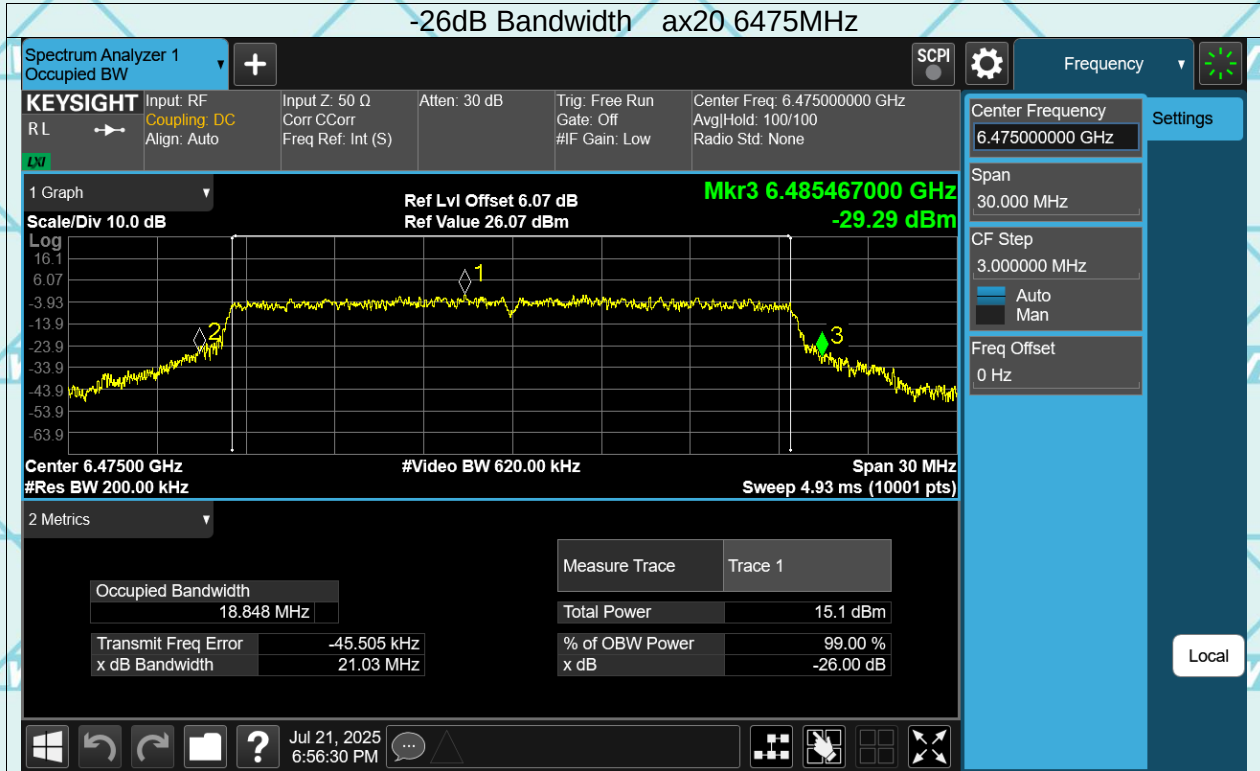
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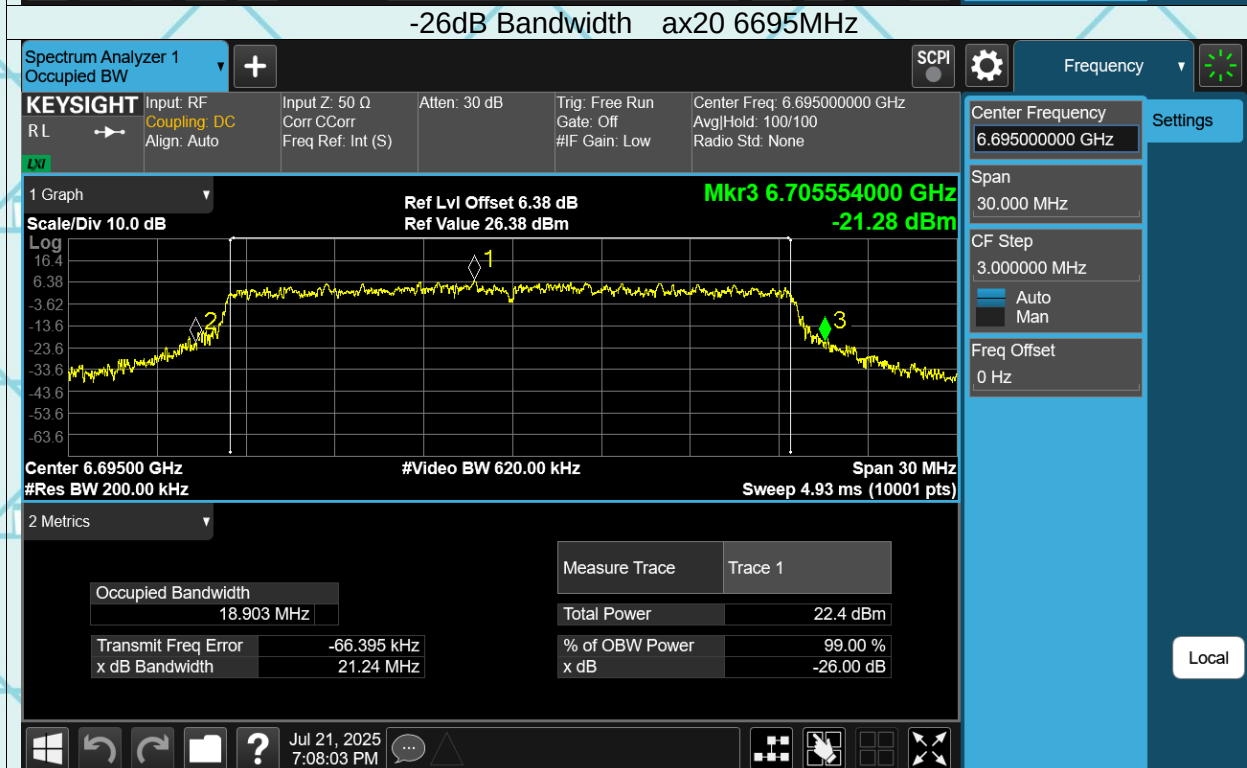
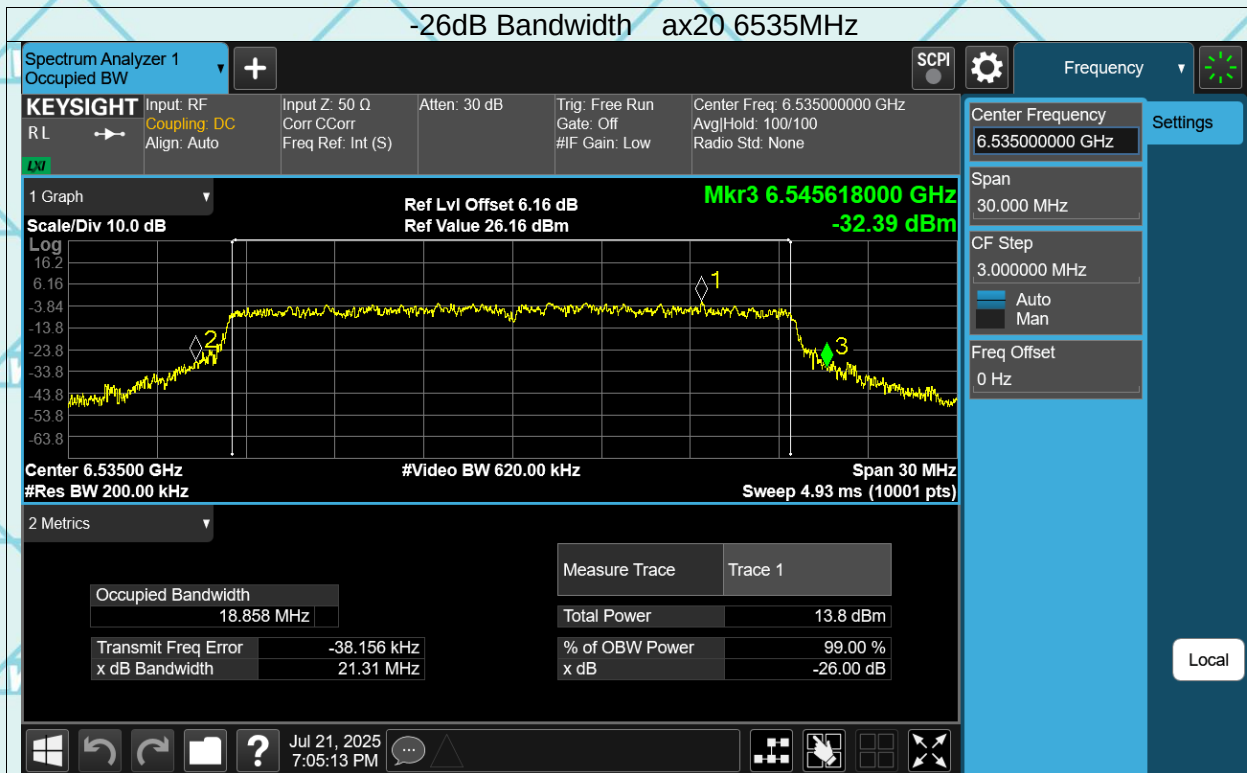
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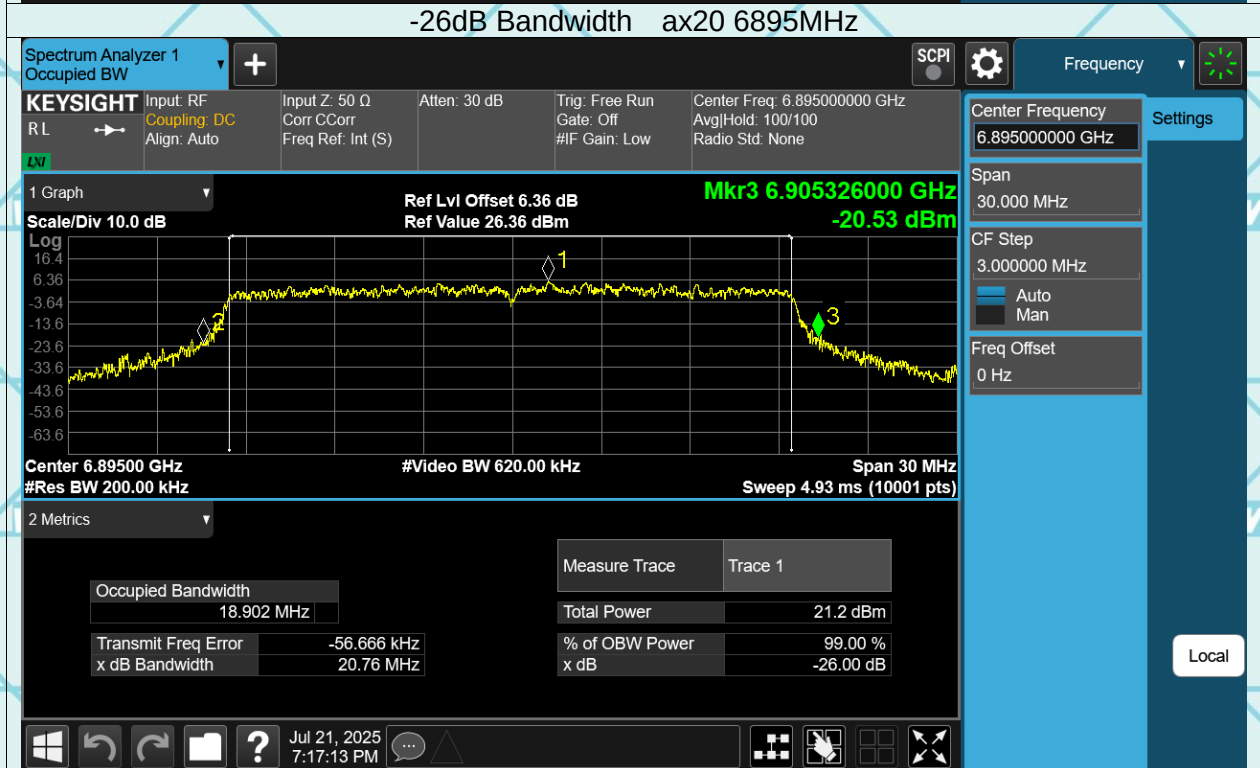
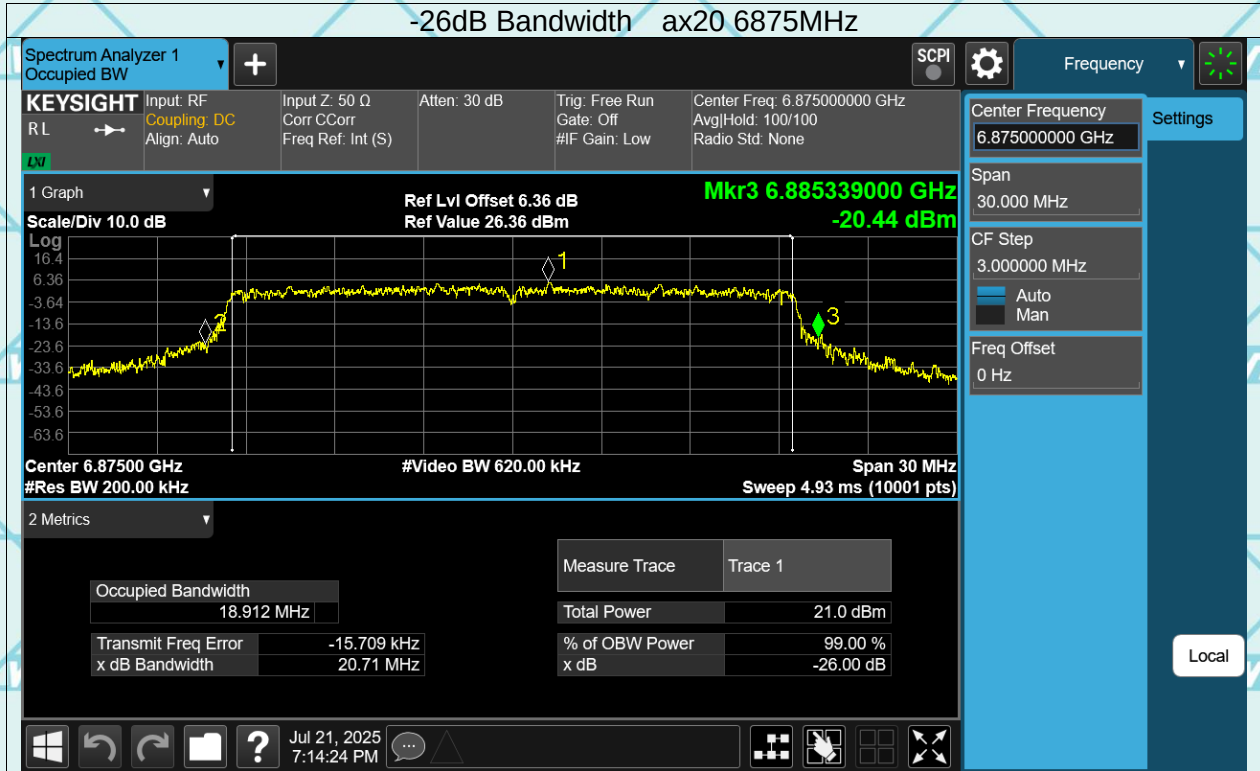
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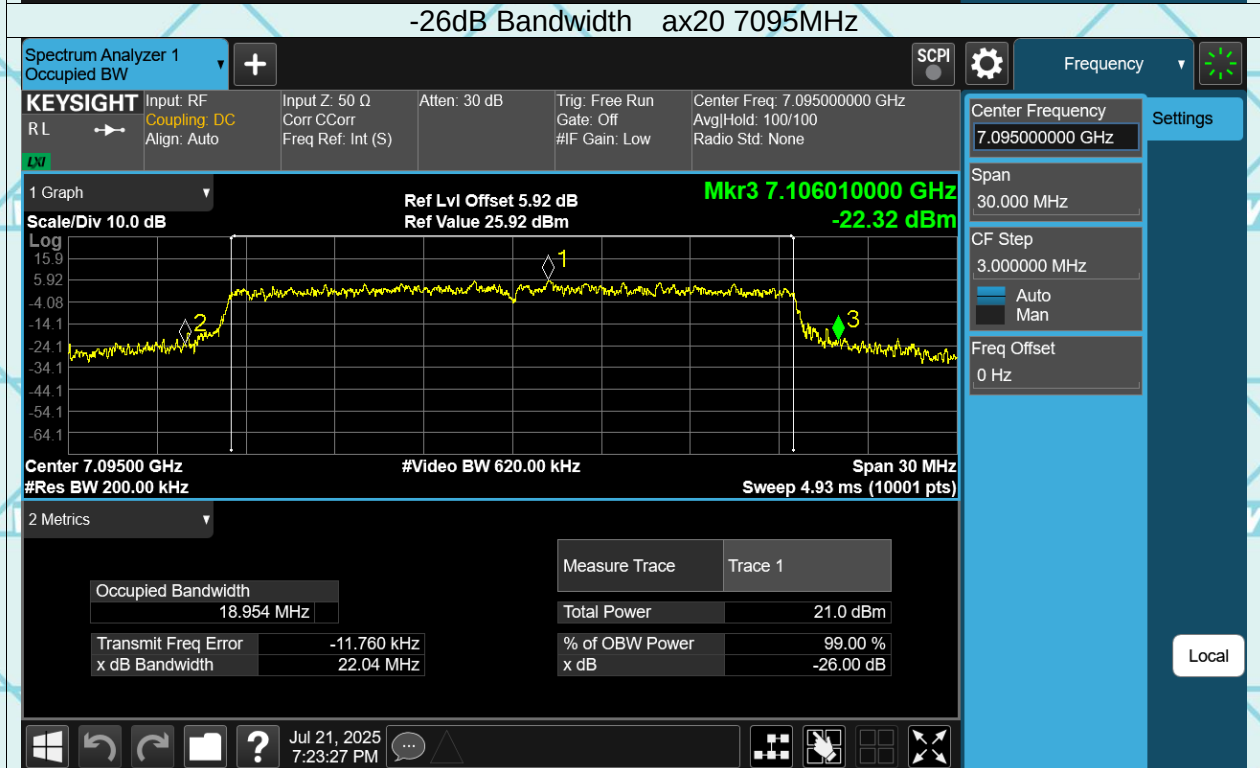
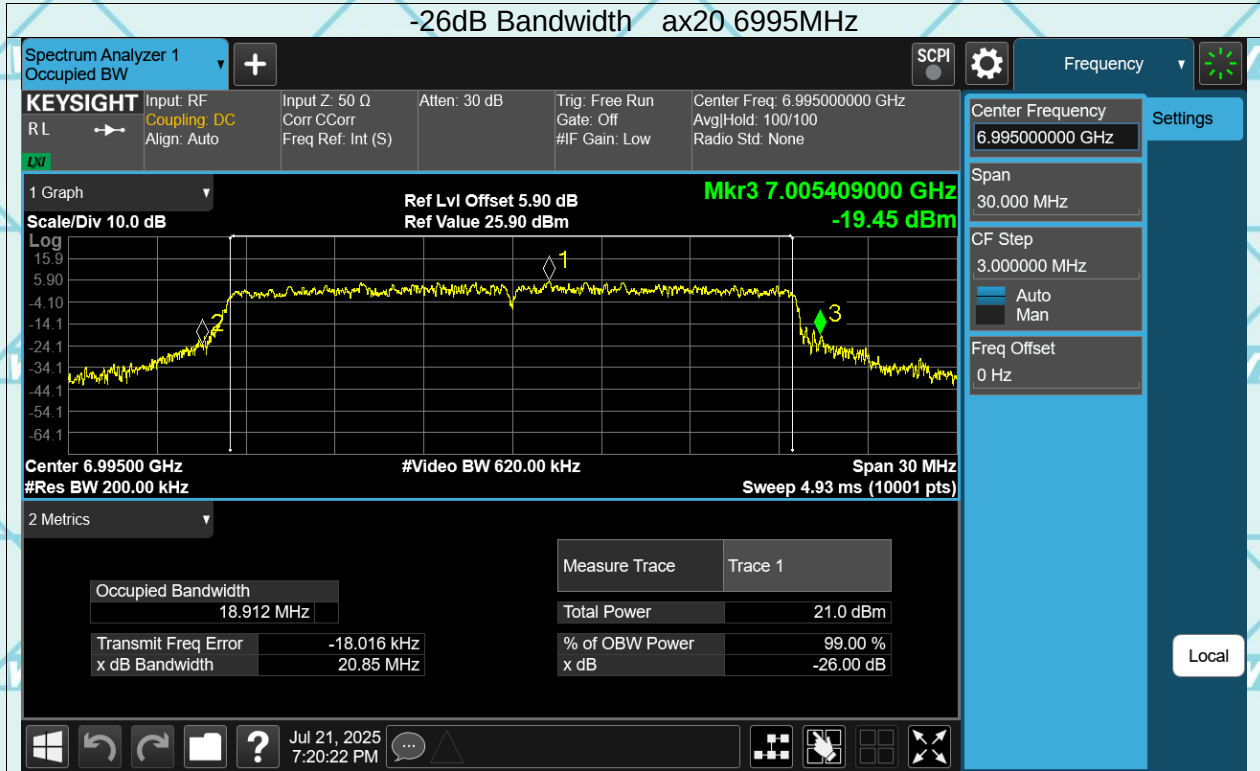
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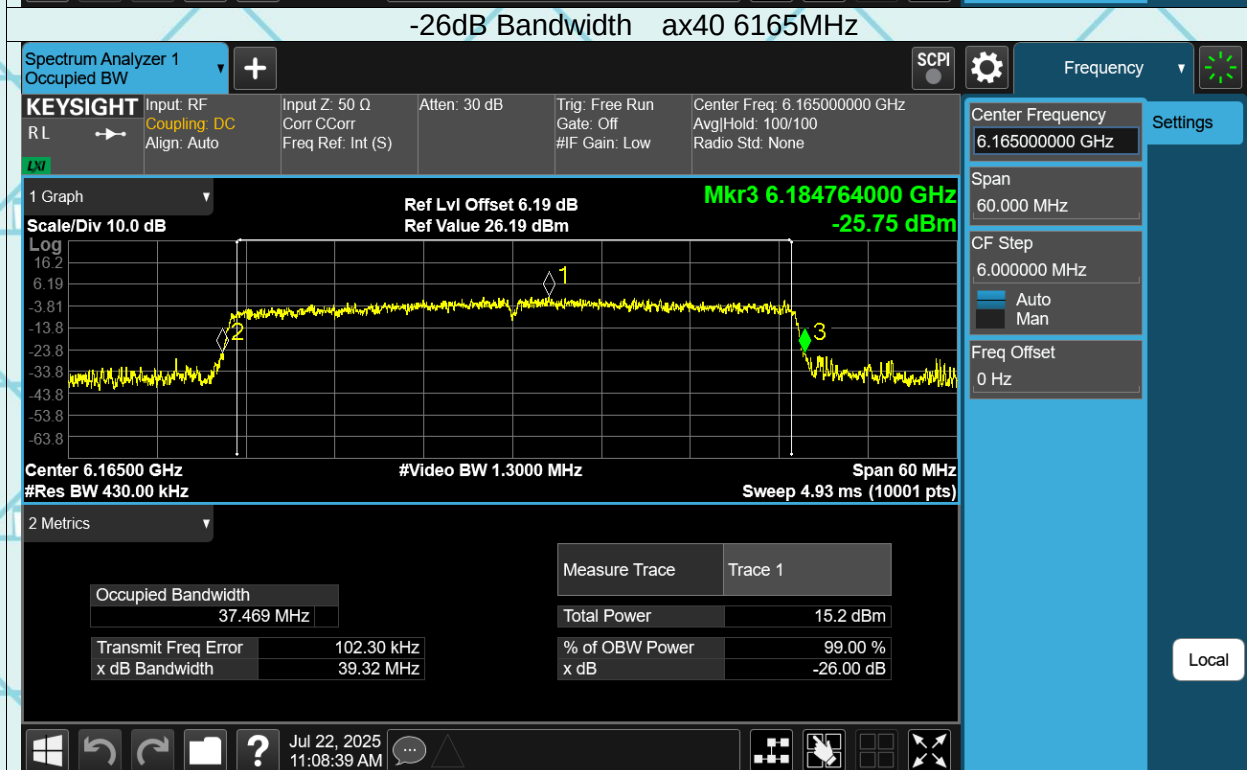
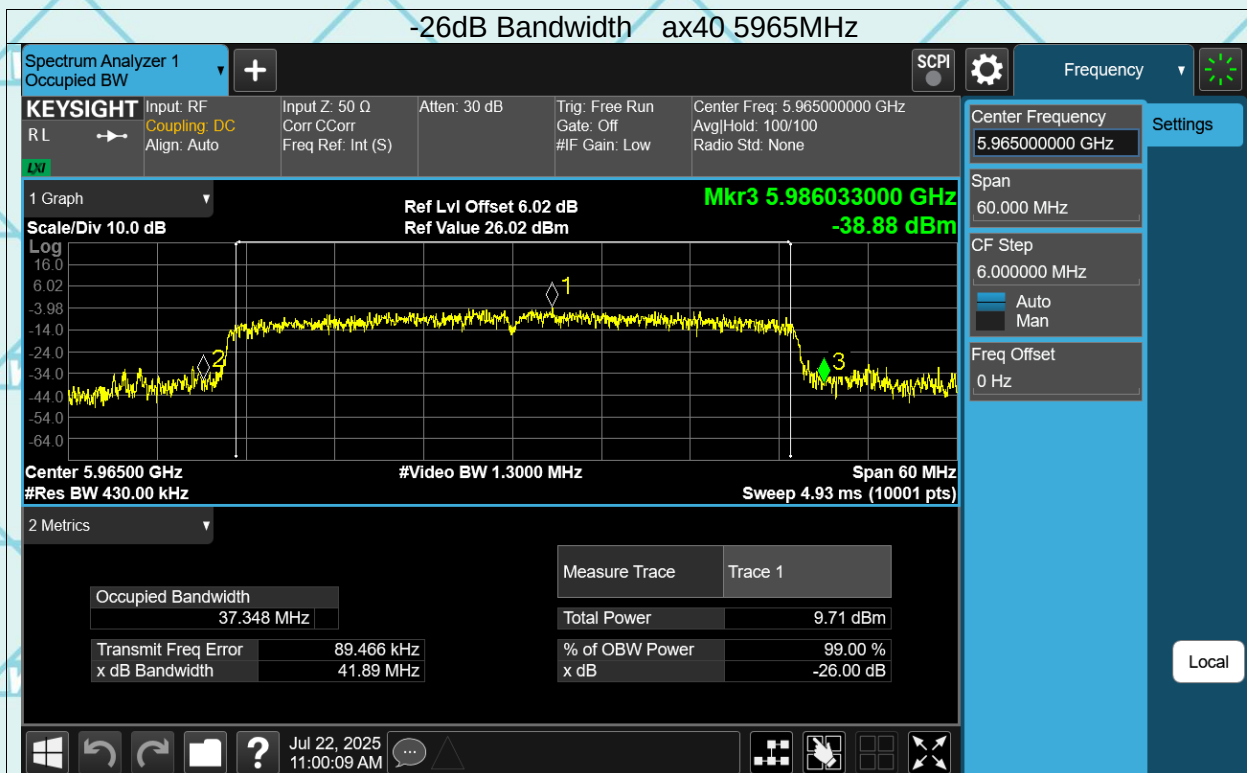
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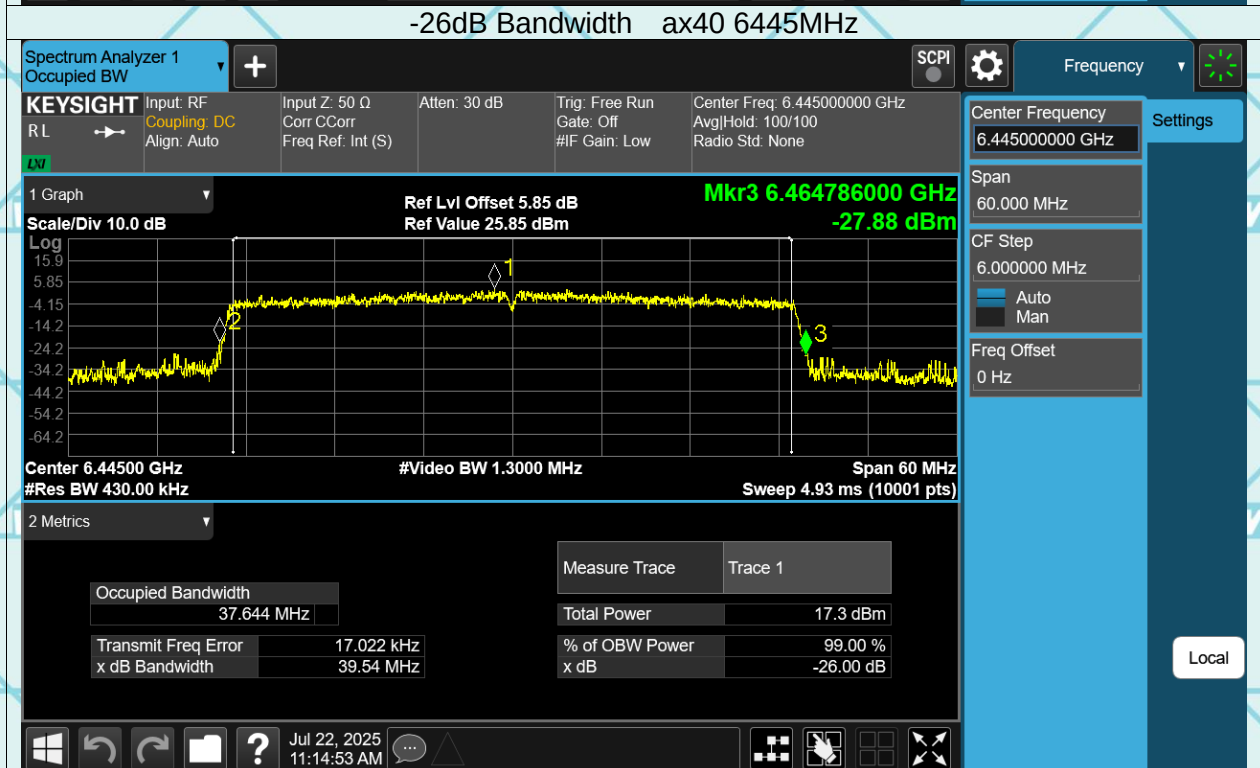
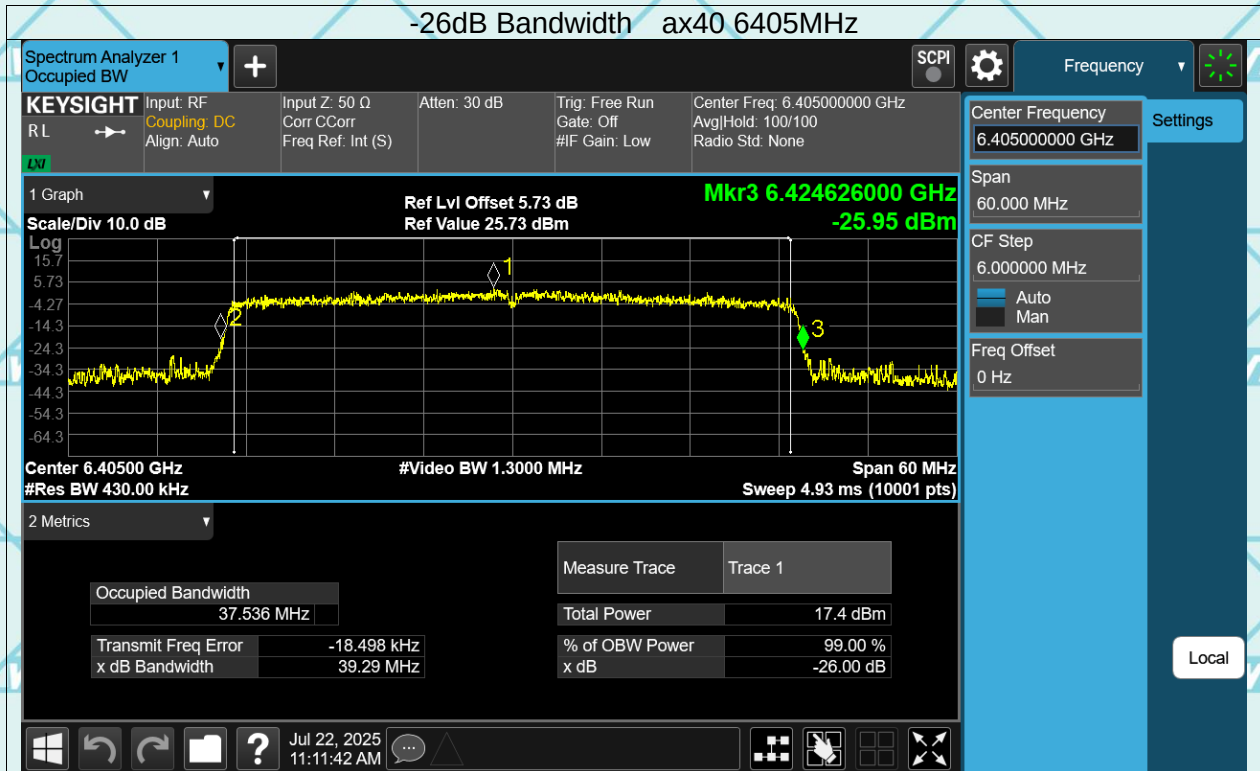
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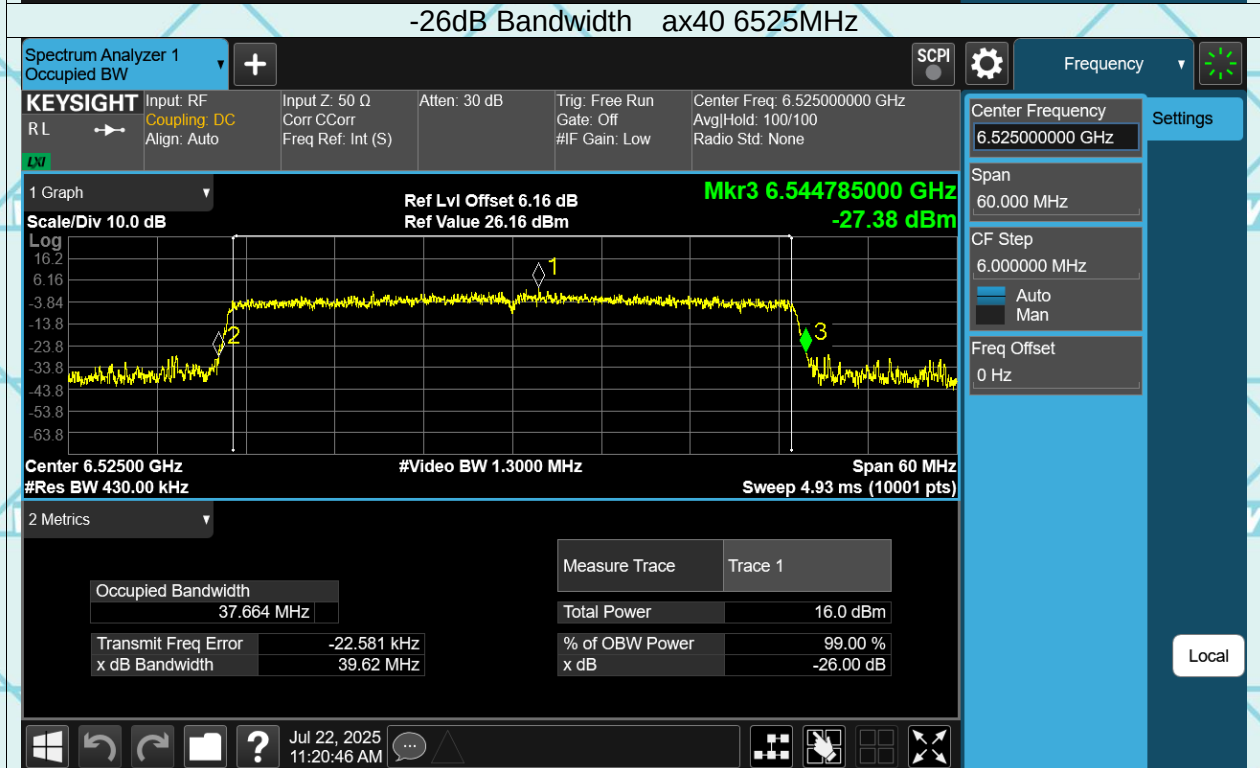
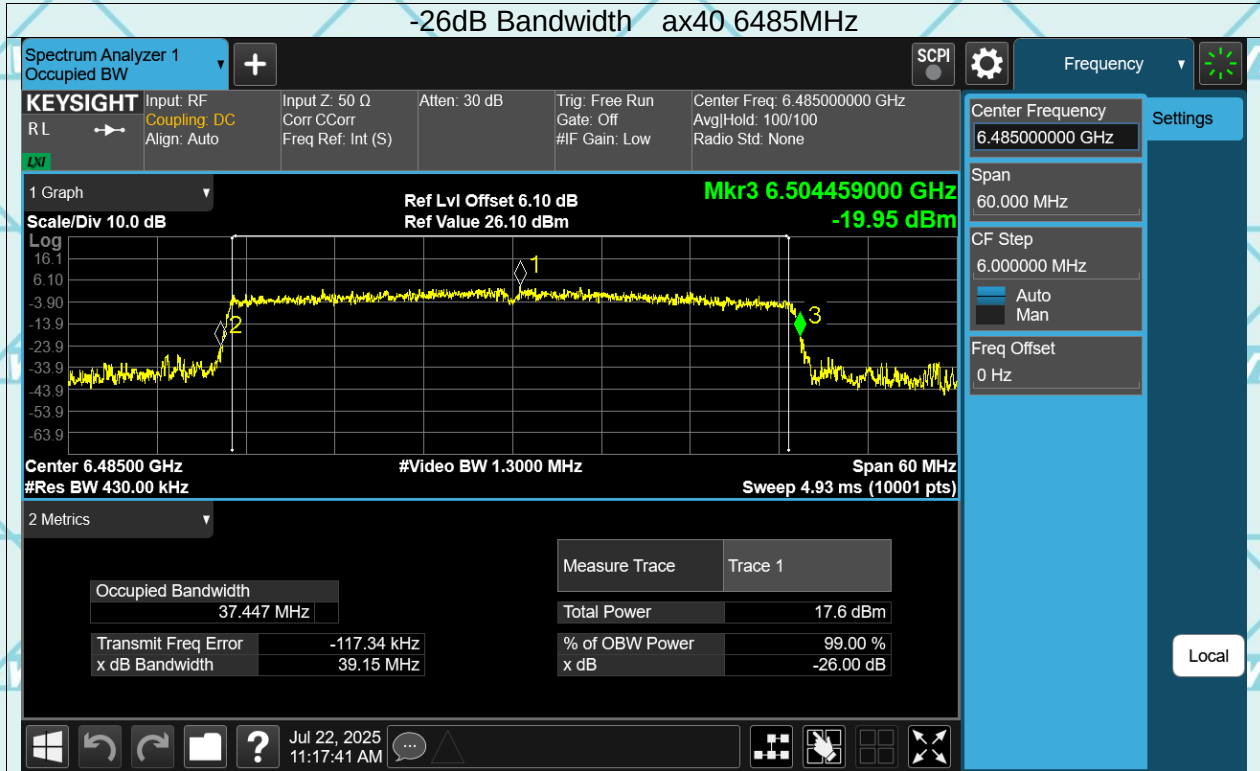
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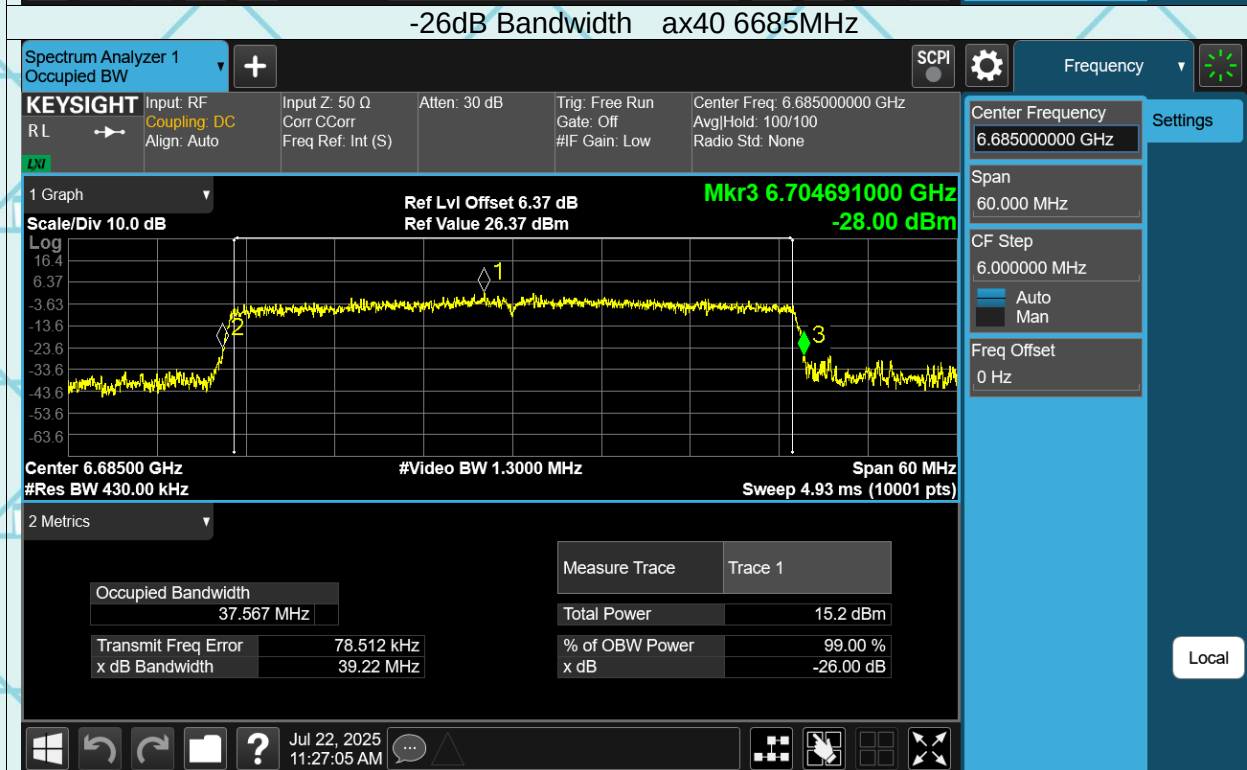
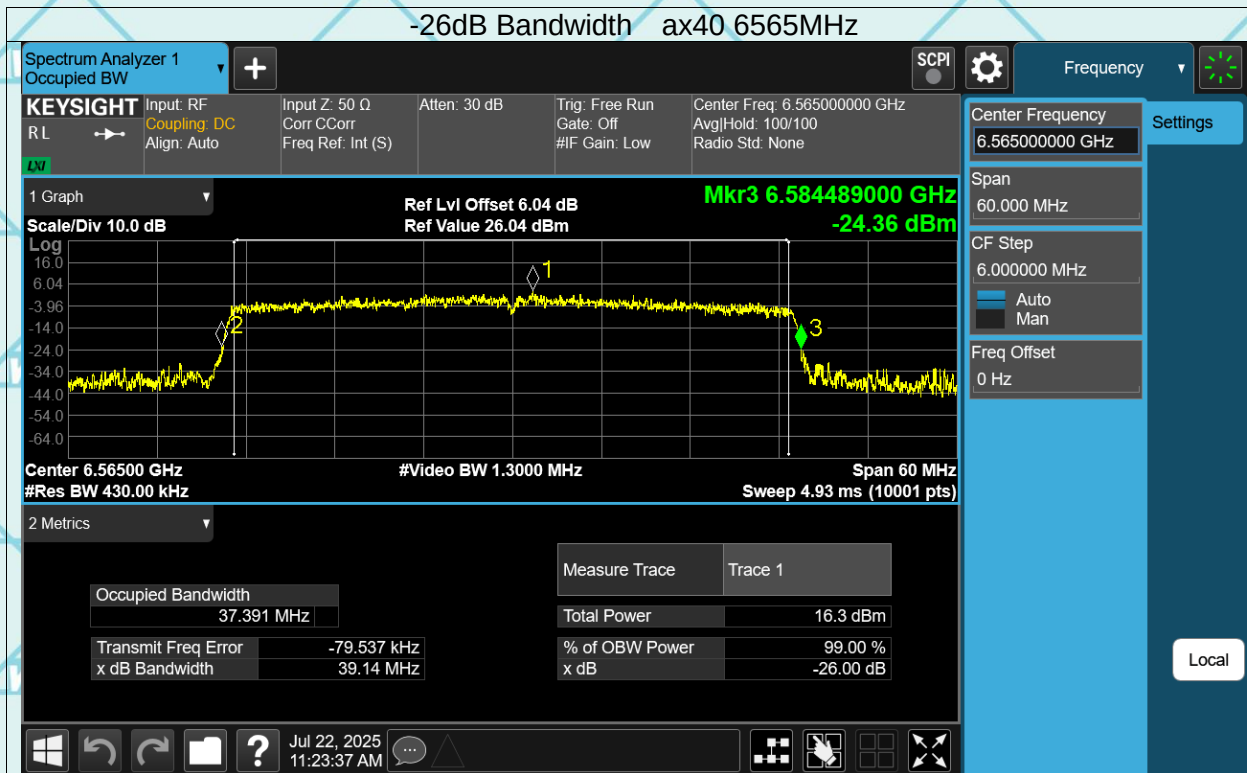
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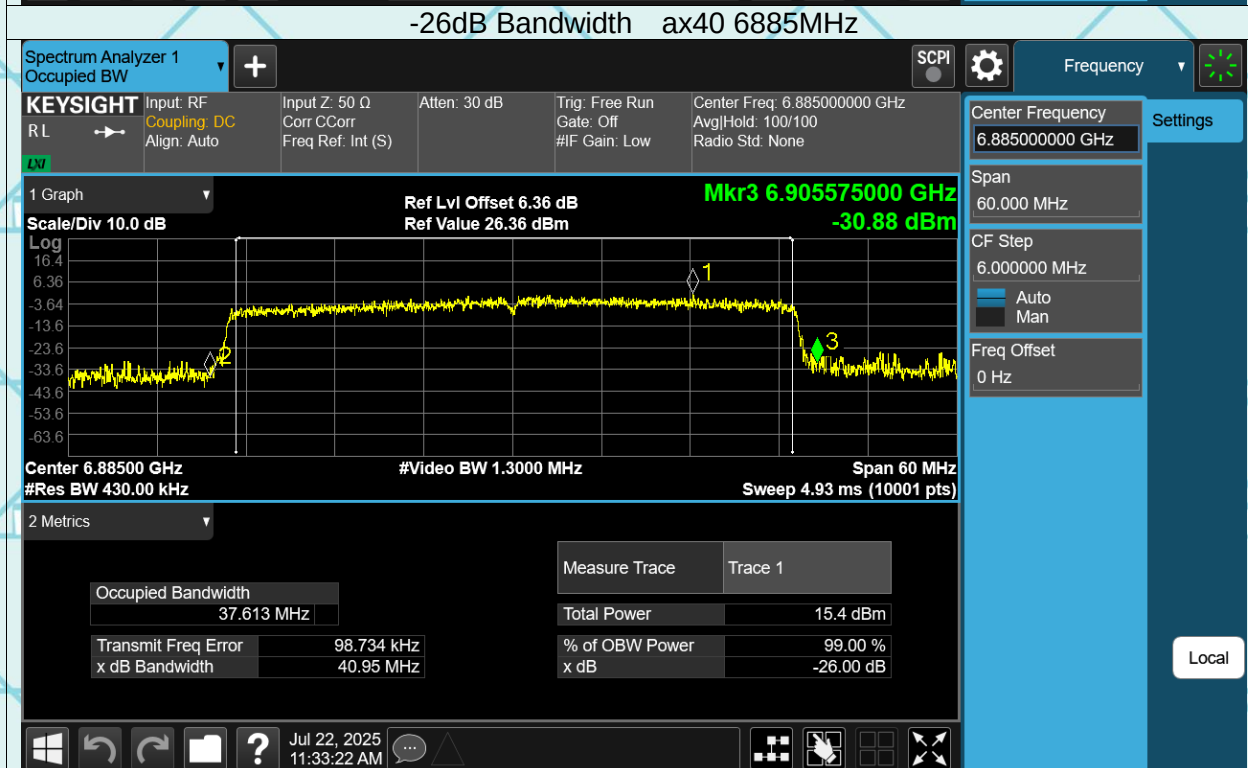
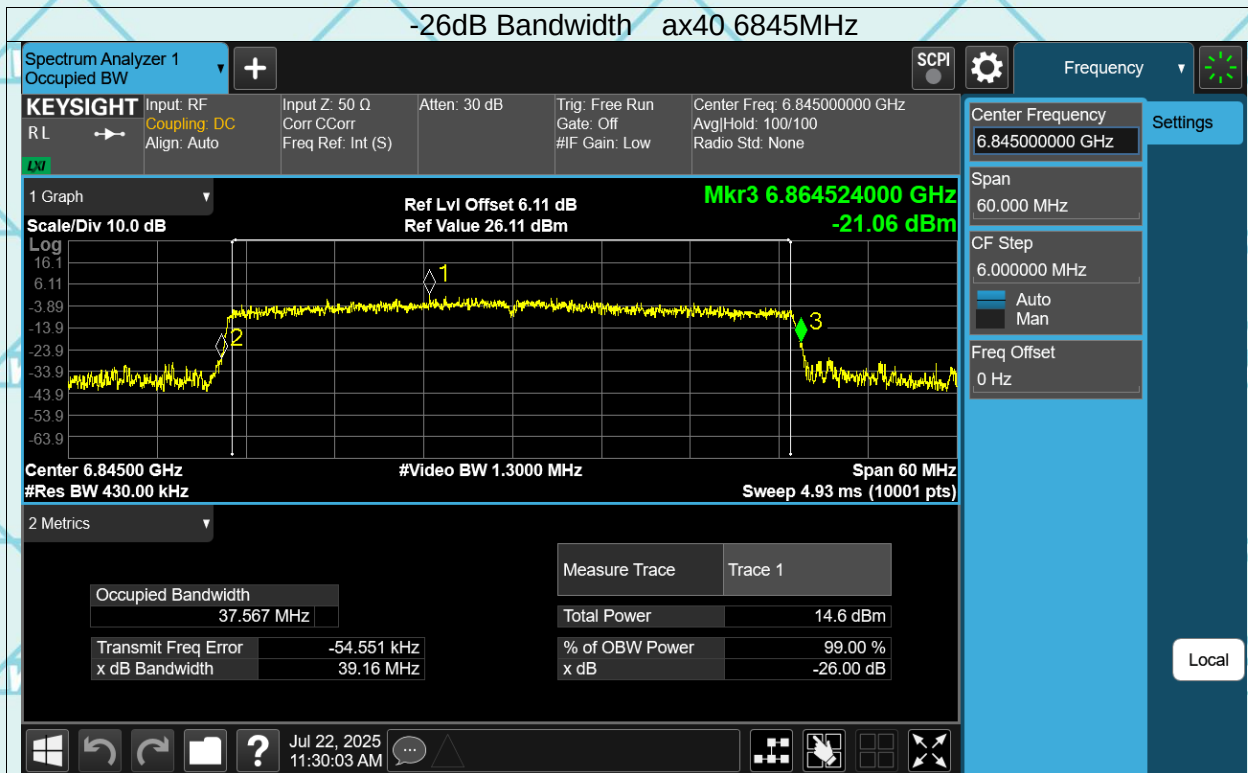
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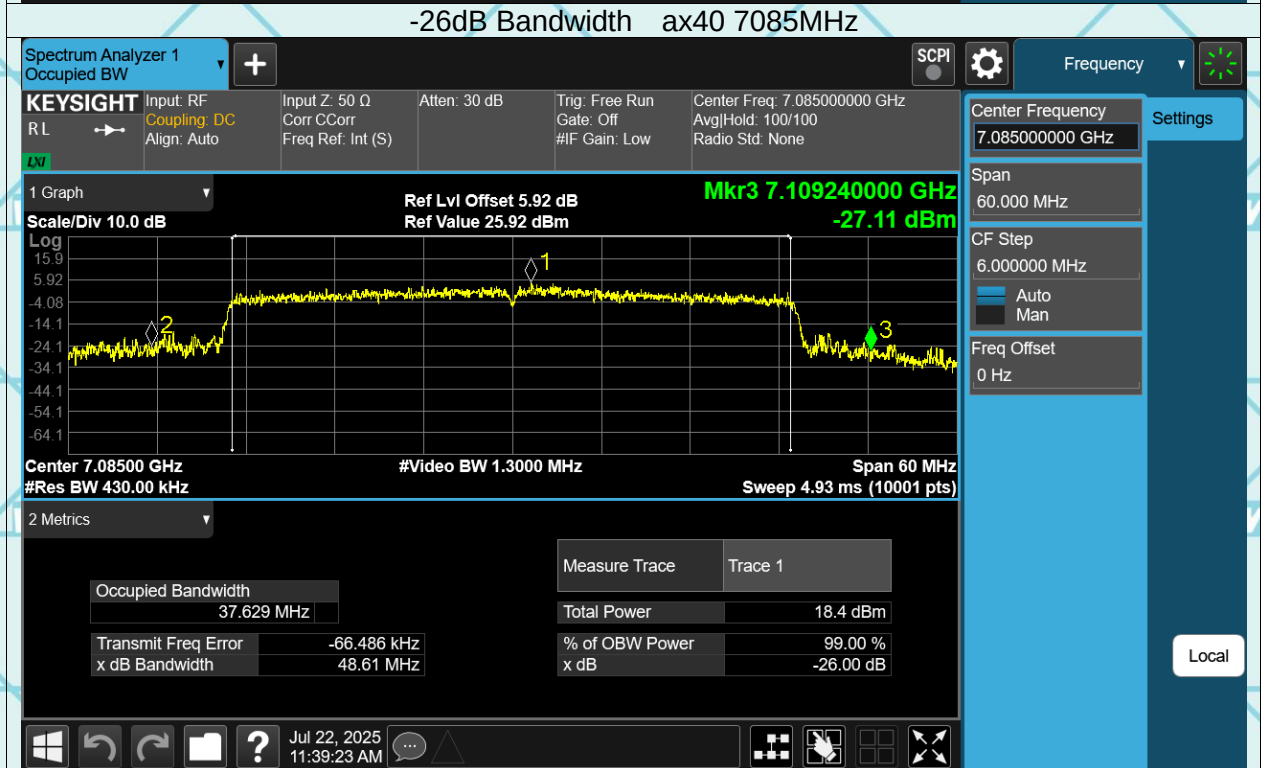
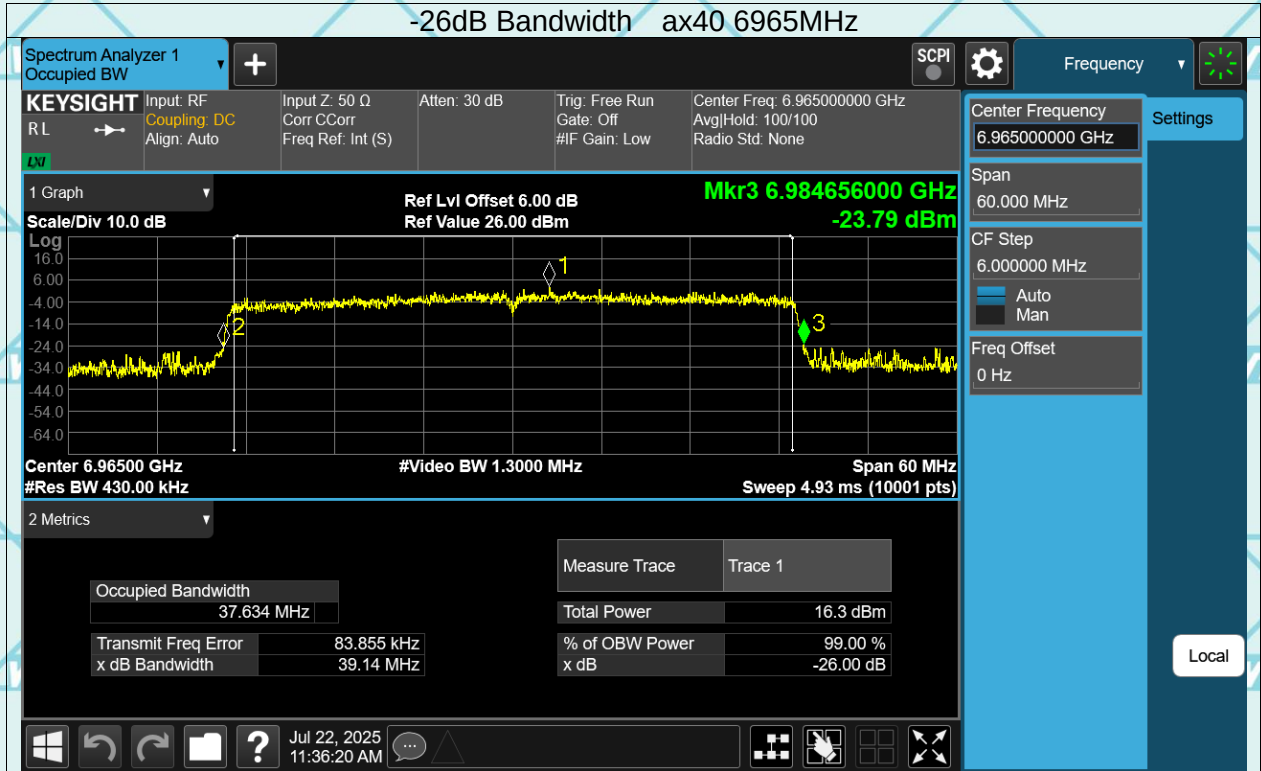
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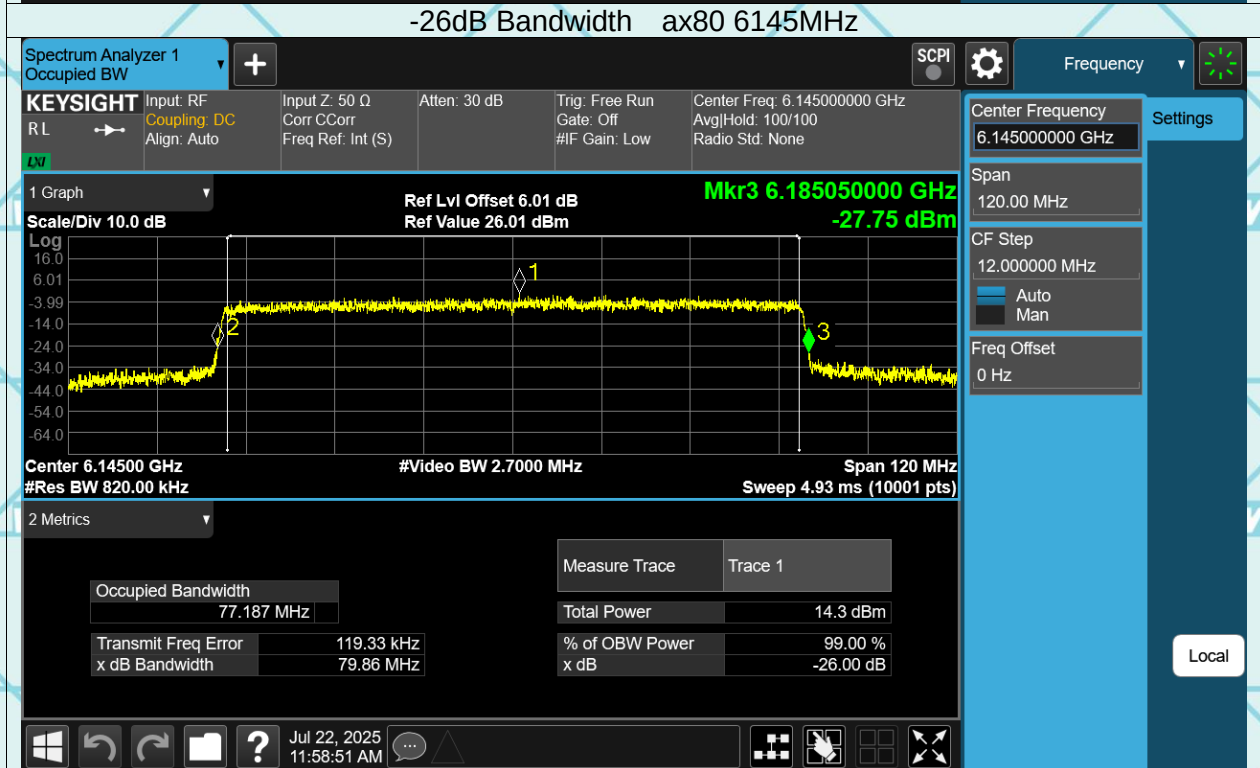
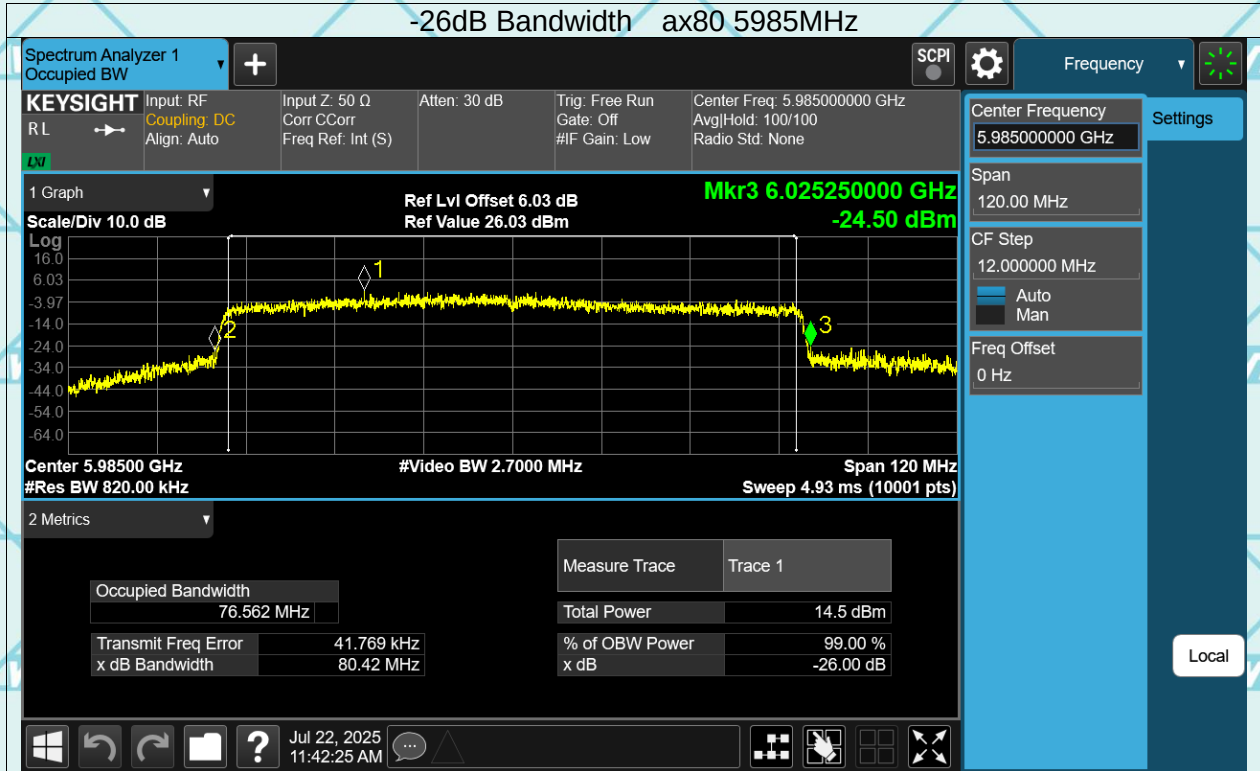
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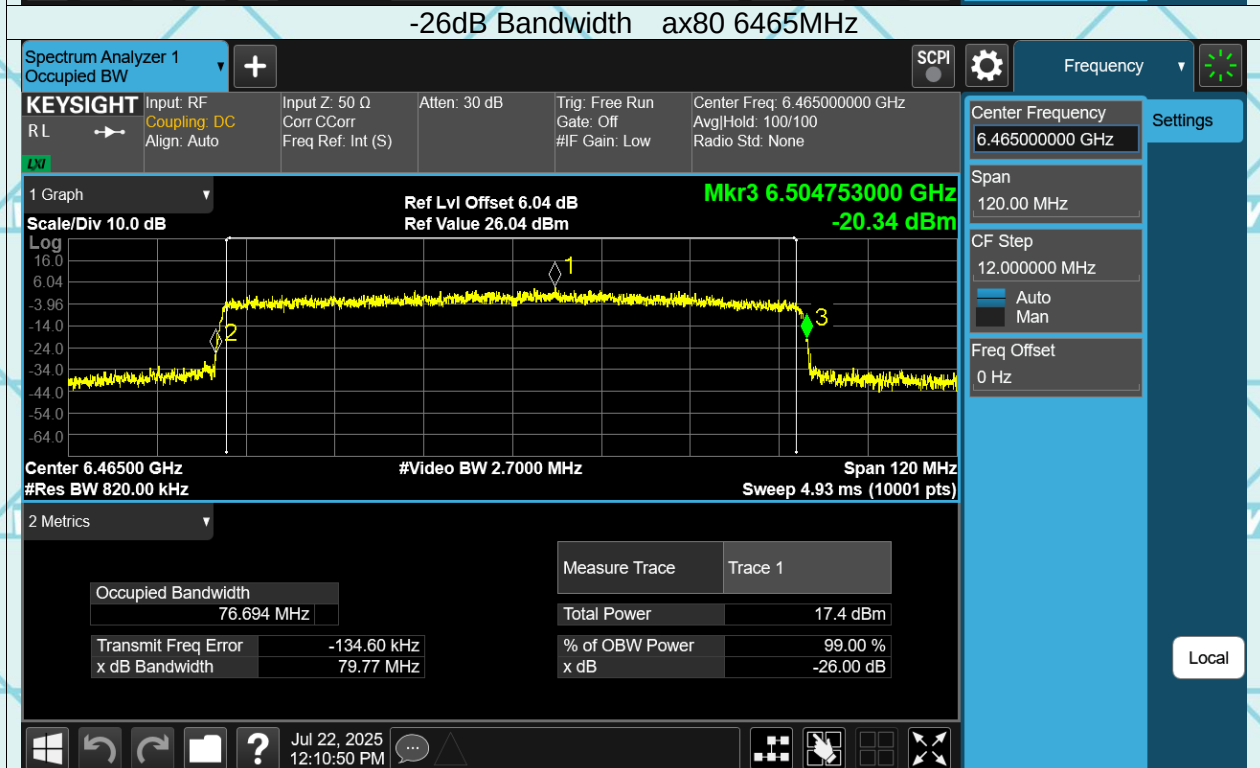
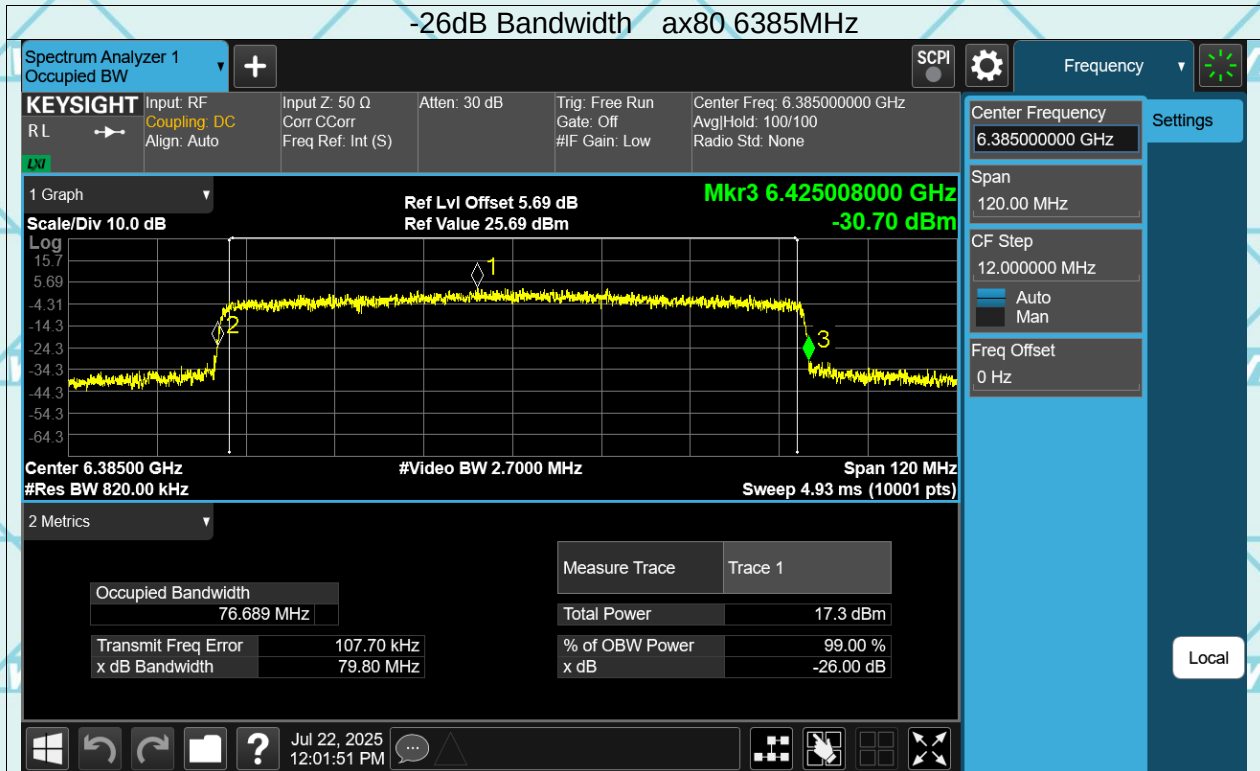
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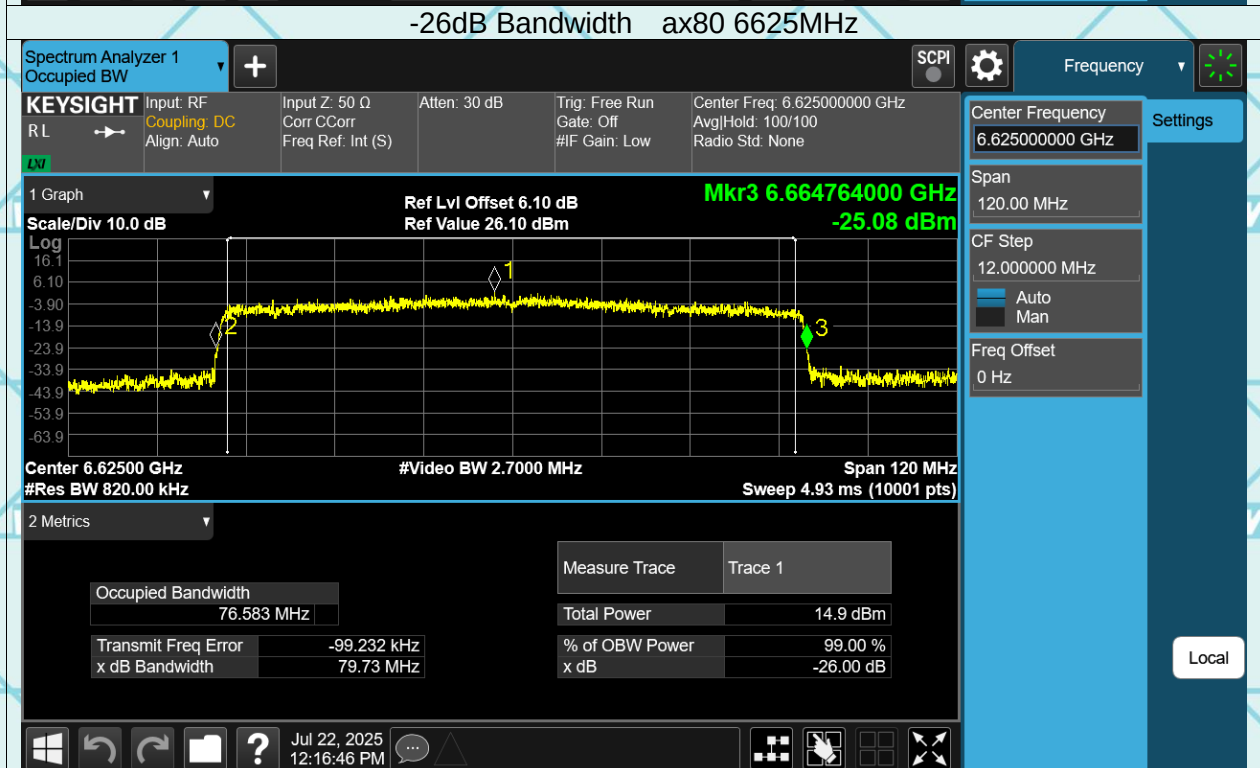
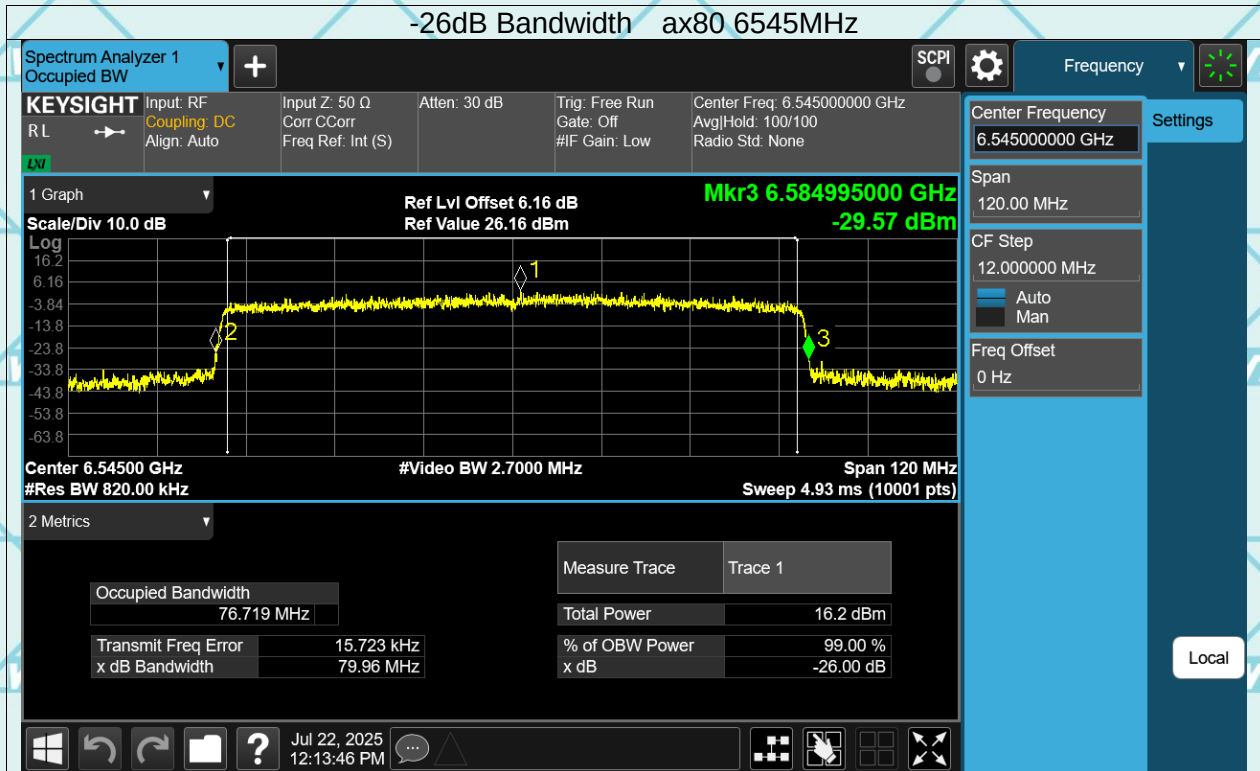
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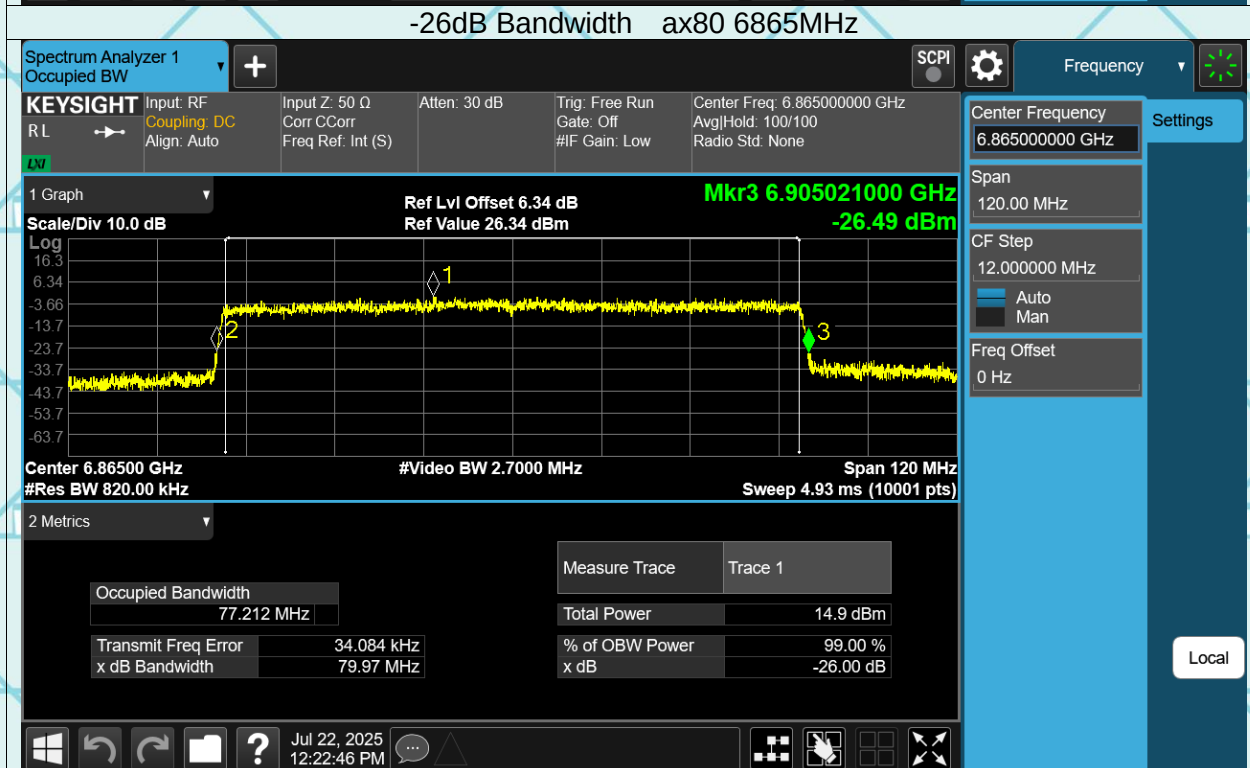
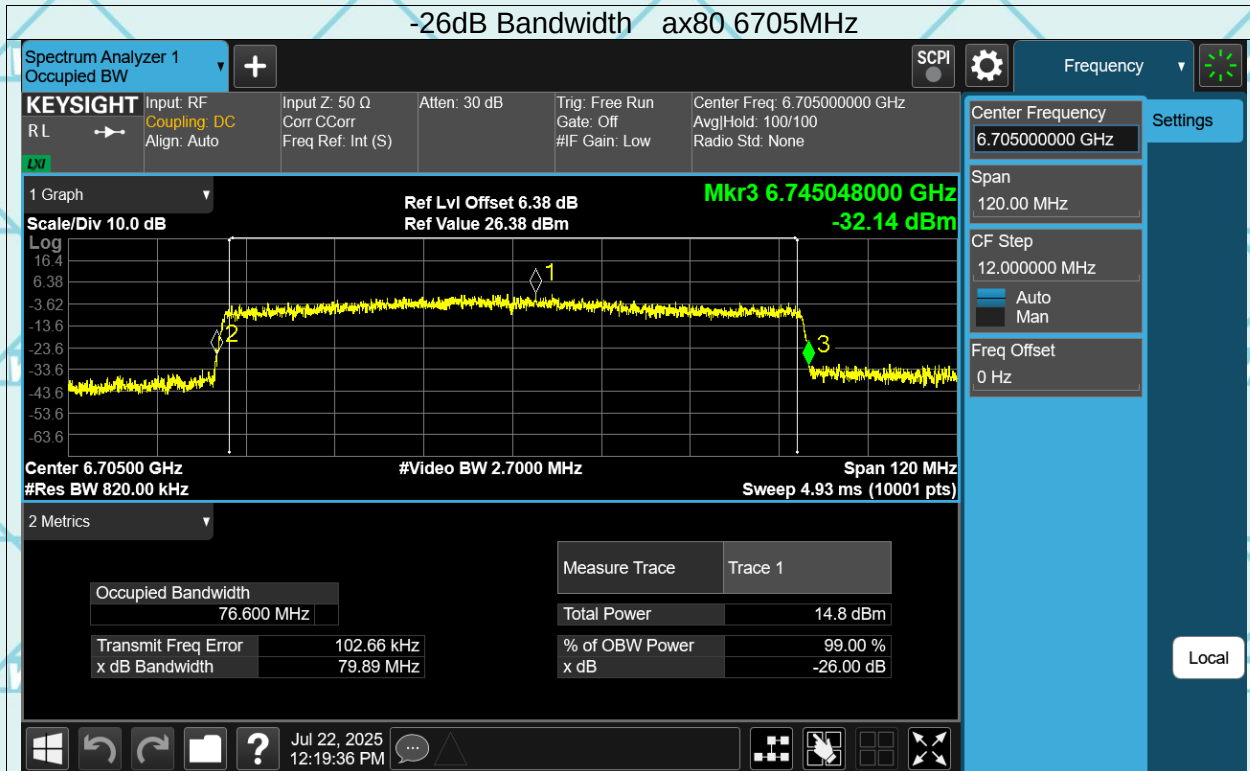
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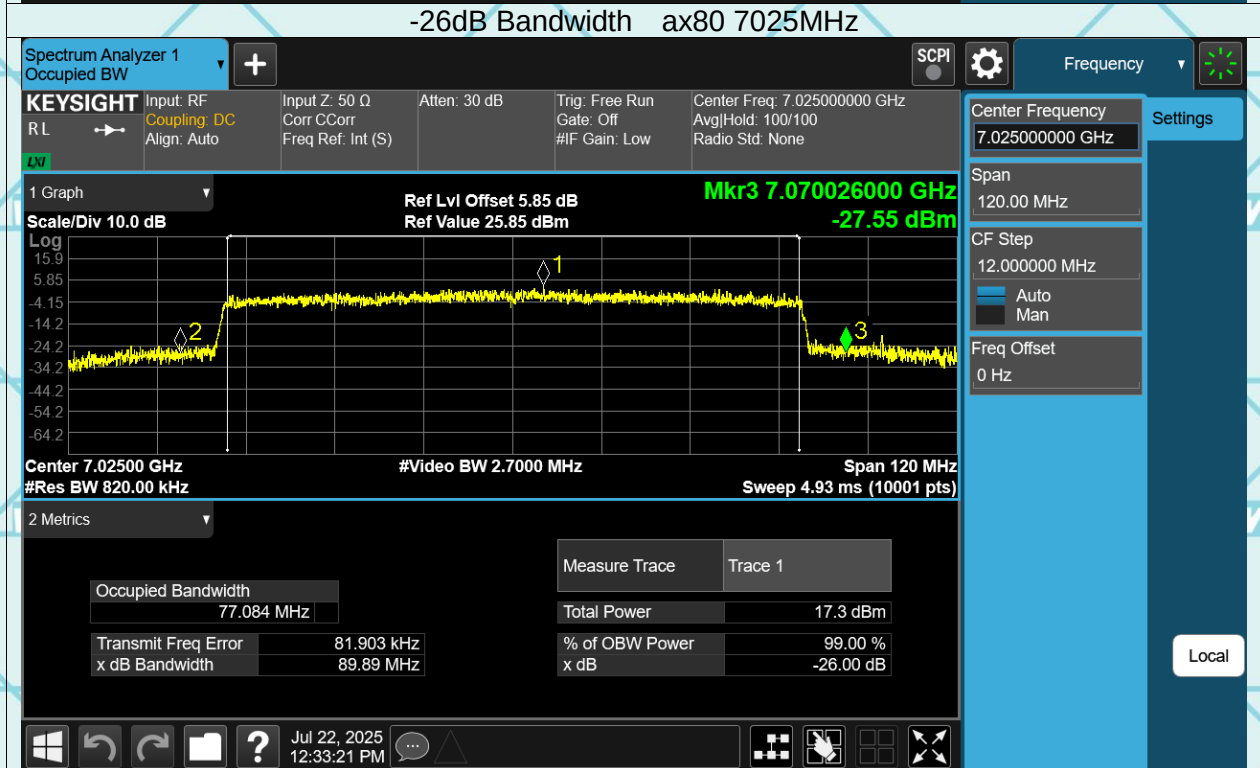
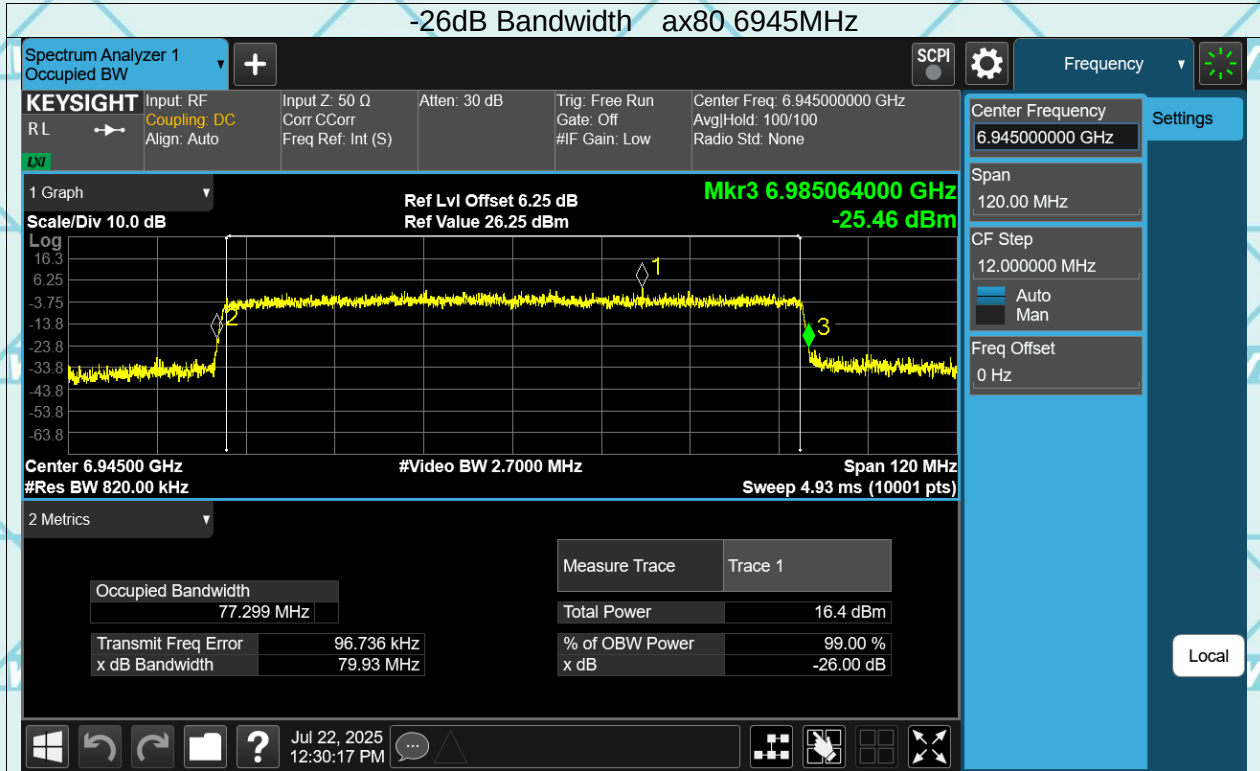
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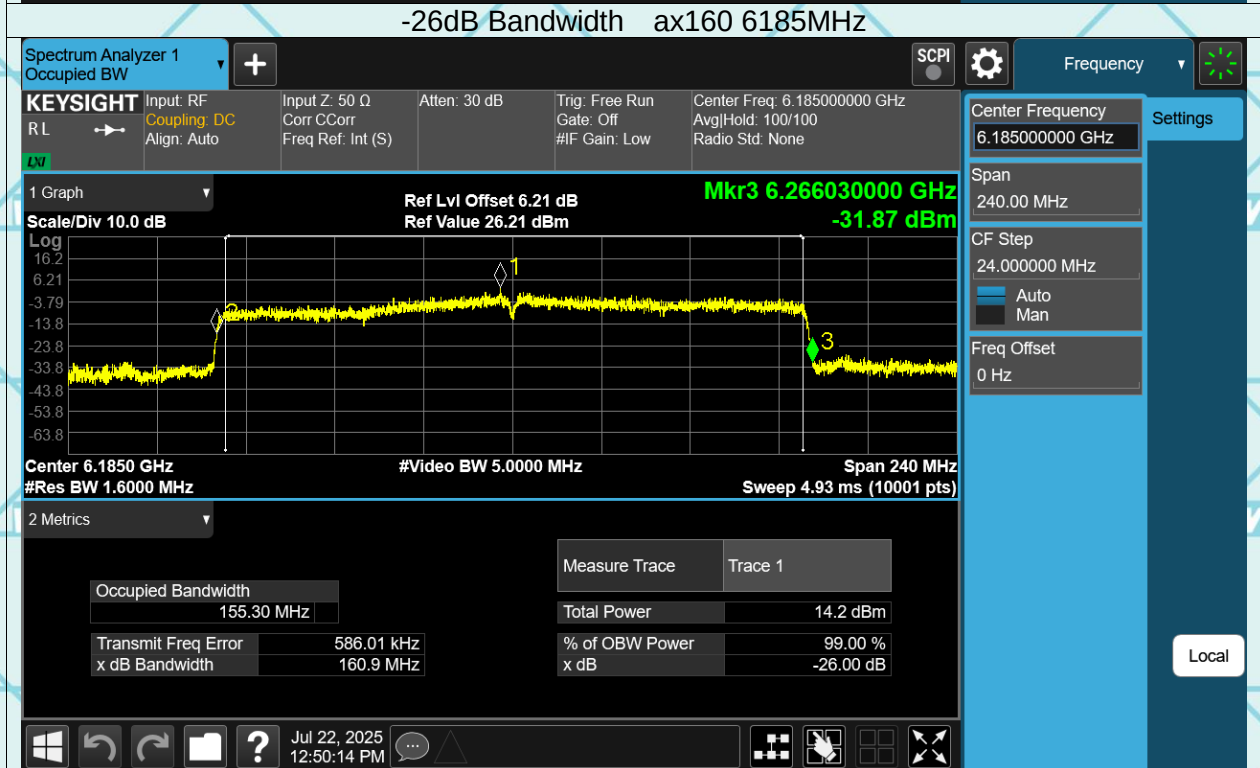
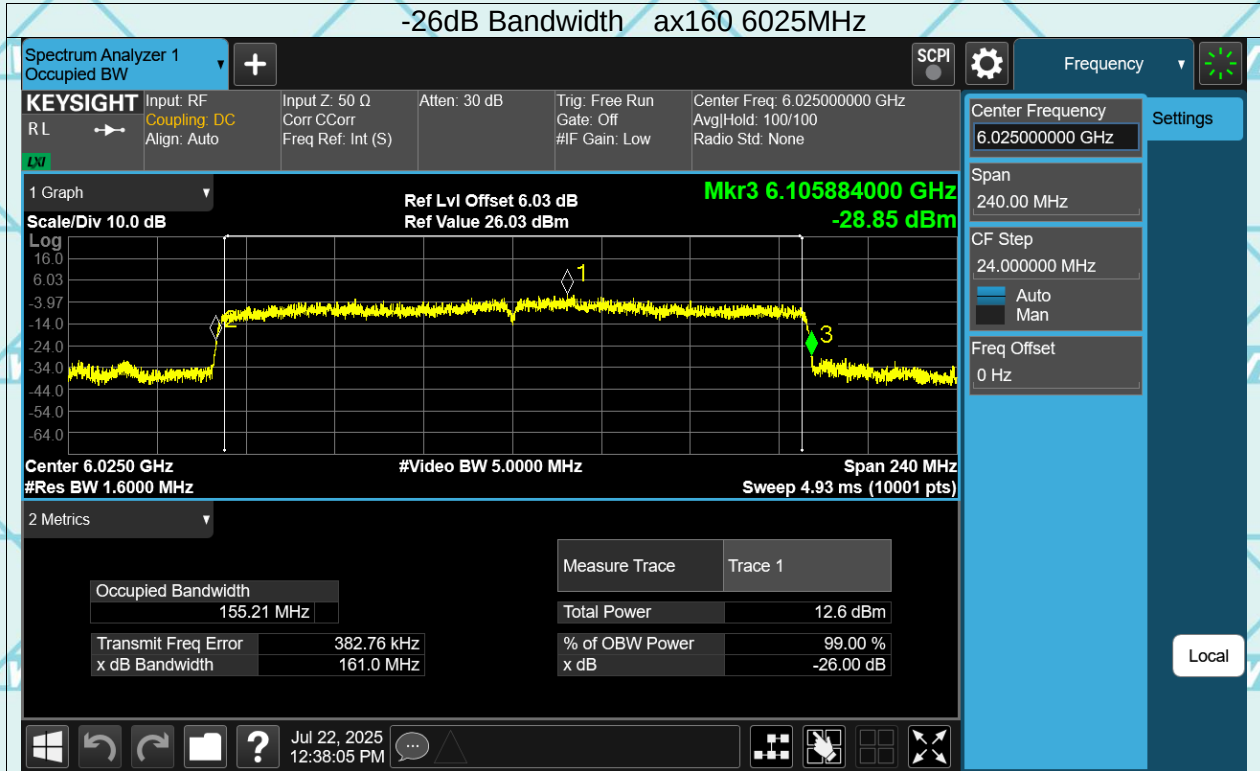
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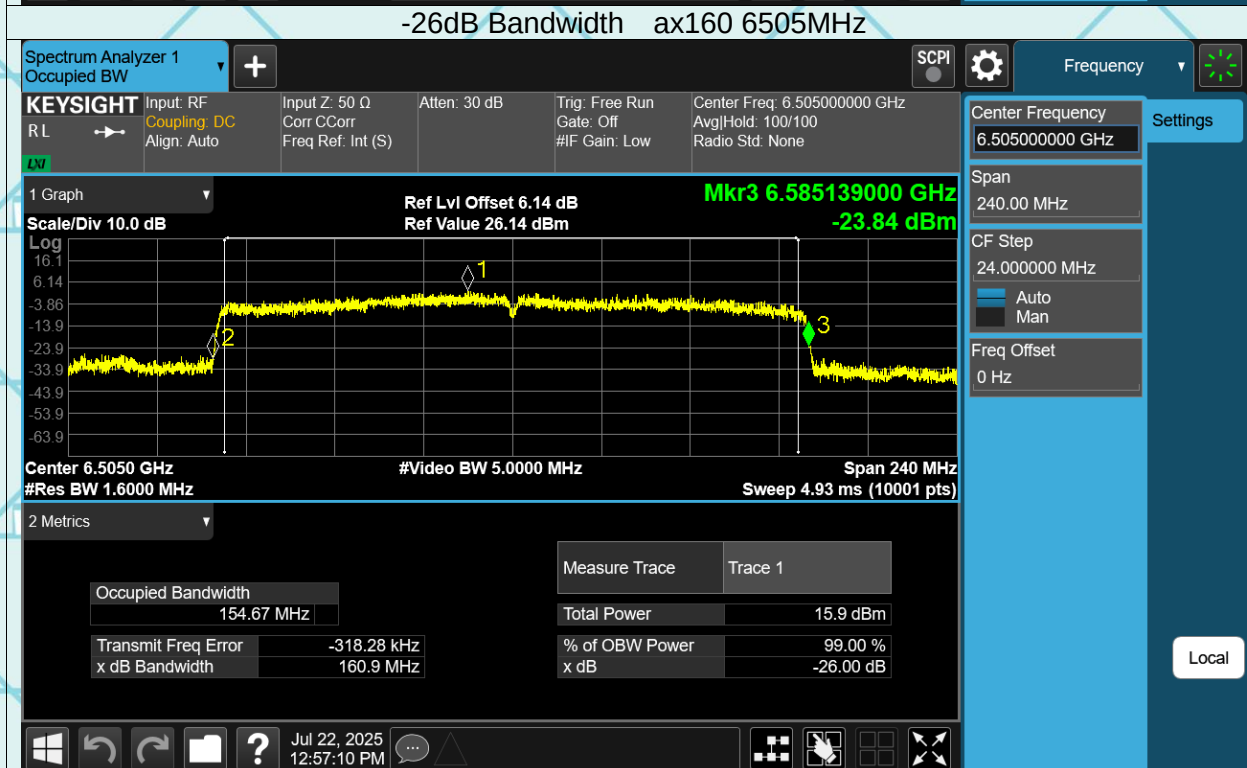
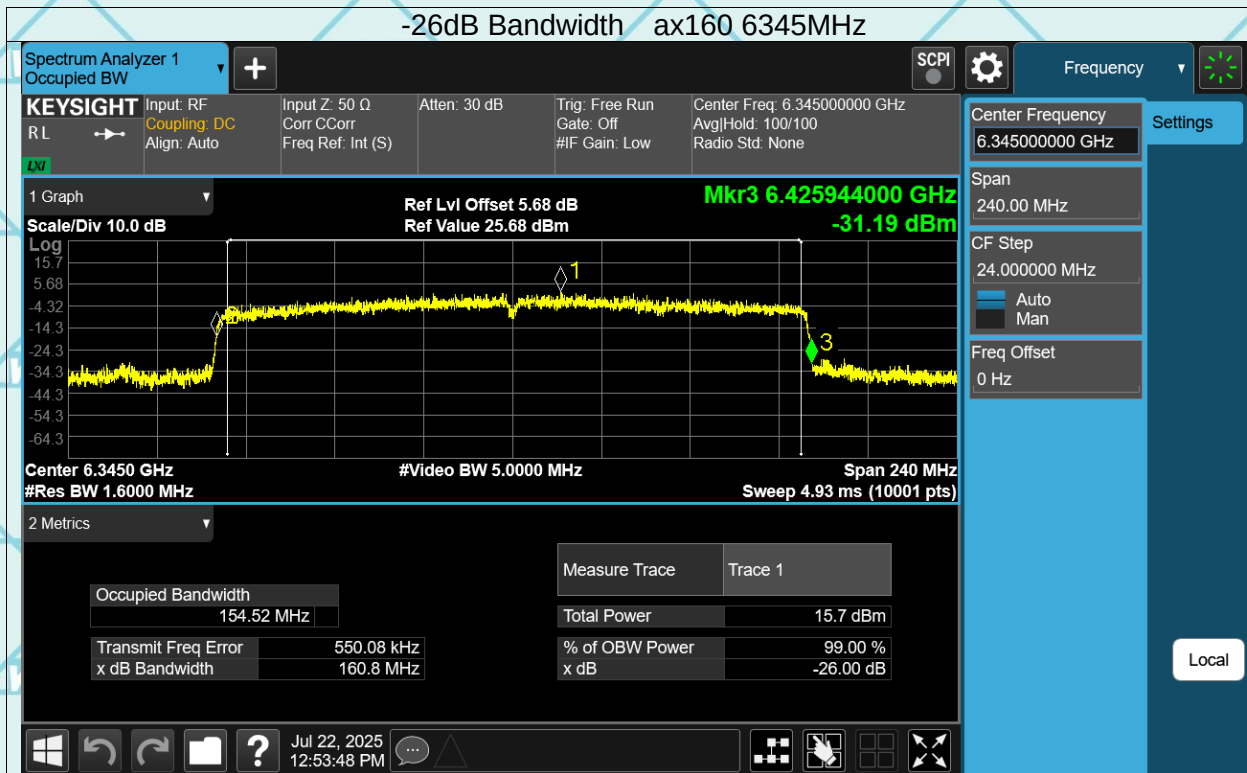
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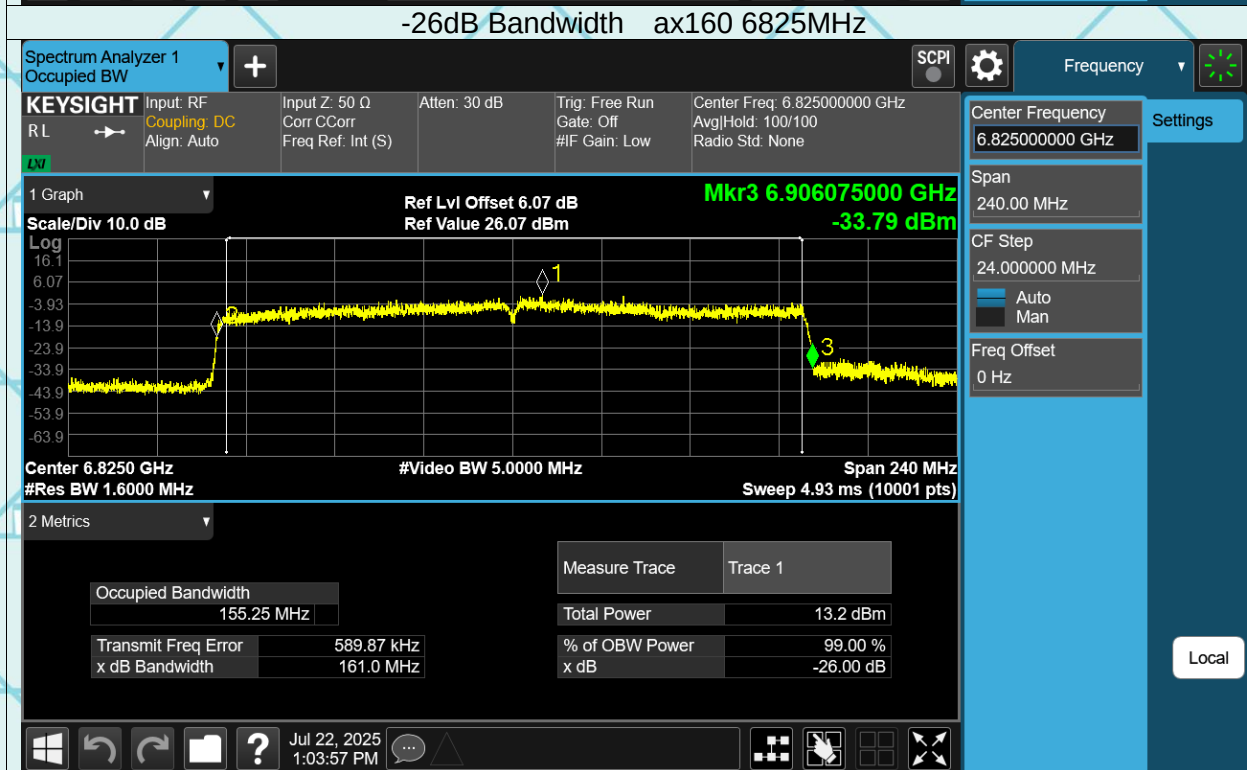
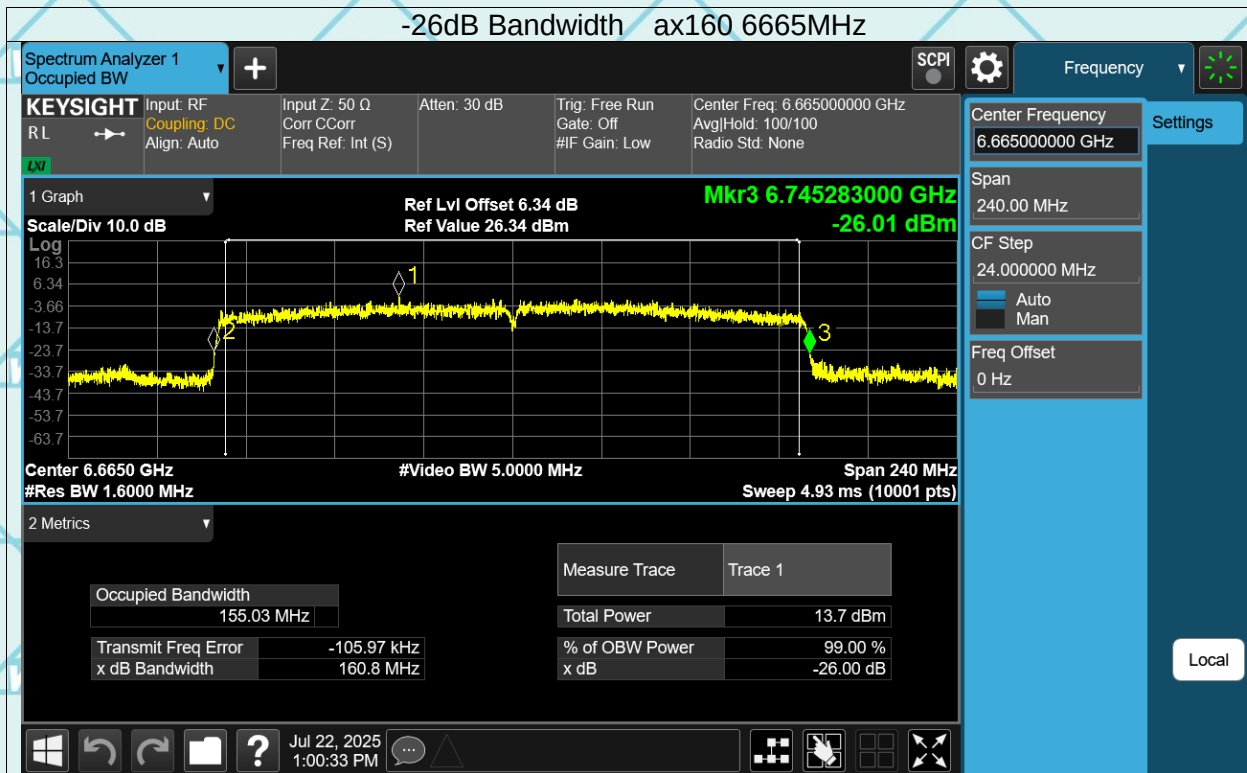
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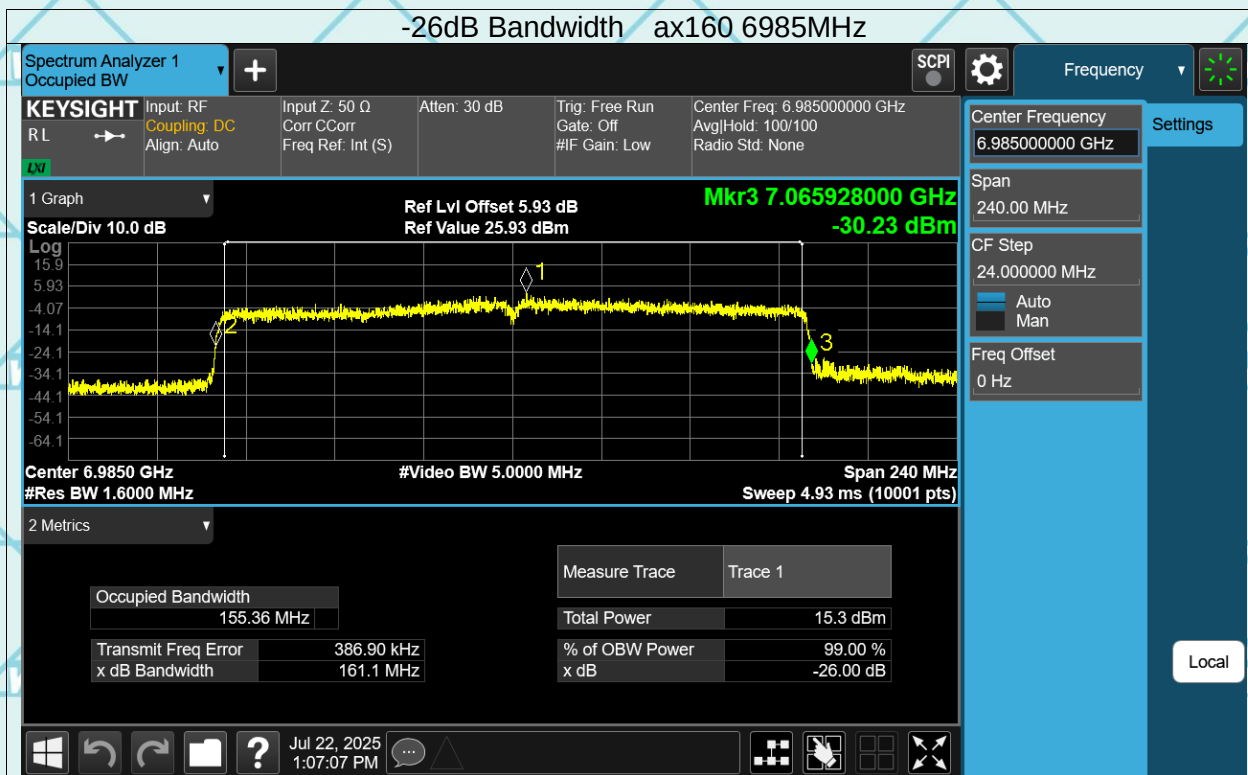
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Report No.: WSCT-ANAB-R&E250600047A-Wi-Fi3



Report No.: WSCT-ANAB-R&E250600047A-Wi-Fi3



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7.6 MAXIMUM CONDUCTED OUTPUT POWER AND FUNDAMENTAL MAXIMUM EIRP MEASUREMENT

7.6.1 LIMIT OF FUNDAMENTAL MAXIMUM EIRP

<FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm.

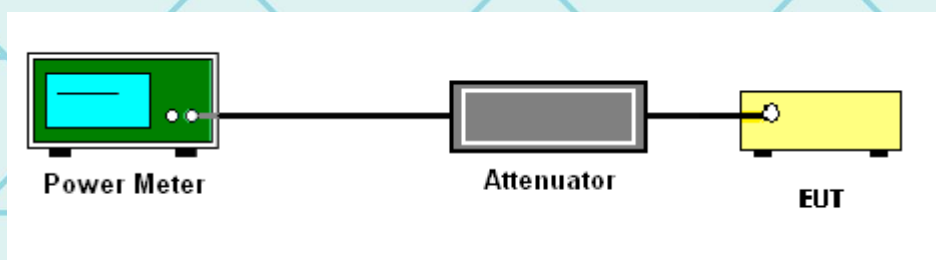
7.6.2 TEST PROCEDURES

The testing follows Method PM-G of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM-G (Measurement using a gated RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit at its maximum power control level.
3. Measure the average power of the transmitter.
4. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

7.6.3 TEST PROCEDURES



Report No.: WSCT-ANAB-R&E250600047A-Wi-Fi3

Test Result of Fundamental Maximum EIRP

ANT1

Mode	Frequency (MHz)	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Gain (dBi)	eirp Power	Limit (dBm)	Verdict
ax20	5955	4.75	5.03	9.78	2.97	12.75	24	Pass
ax20	6175	4.26	5.05	9.31	2.97	12.28	24	Pass
ax20	6415	-8.77	18.57	9.8	2.97	12.77	24	Pass
ax20	6435	4.64	5.06	9.7	2.97	12.67	24	Pass
ax20	6475	4.76	5.06	9.82	2.97	12.79	24	Pass
ax20	6515	2.97	5.03	8	2.97	10.97	24	Pass
ax20	6535	4.71	5.06	9.77	2.97	12.74	24	Pass
ax20	6695	4.73	5.03	9.76	2.97	12.73	24	Pass
ax20	6875	4.91	5.06	9.97	2.97	12.94	24	Pass
ax20	6895	4.76	5.03	9.79	2.97	12.76	24	Pass
ax20	6995	7.5	2.1	9.6	2.97	12.57	24	Pass
ax20	7095	10.13	0	10.13	2.97	13.1	24	Pass
ax40	5965	5.14	5.31	10.45	2.97	13.42	24	Pass
ax40	6165	5.45	5.26	10.71	2.97	13.68	24	Pass
ax40	6405	5.87	5.28	11.15	2.97	14.12	24	Pass
ax40	6445	4.91	5.36	10.27	2.97	13.24	24	Pass
ax40	6485	4.92	5.28	10.2	2.97	13.17	24	Pass
ax40	6525	5.41	5.28	10.69	2.97	13.66	24	Pass
ax40	6565	5.74	5.28	11.02	2.97	13.99	24	Pass
ax40	6685	5.69	5.36	11.05	2.97	14.02	24	Pass
ax40	6845	5.6	4.77	10.37	2.97	13.34	24	Pass
ax40	6885	10.64	0.11	10.75	2.97	13.72	24	Pass
ax40	6965	5.43	5.28	10.71	2.97	13.68	24	Pass
ax40	7085	5.84	5.28	11.12	2.97	14.09	24	Pass
ax80	5985	10.81	0	10.81	2.97	13.78	24	Pass
ax80	6145	11.06	0.09	11.15	2.97	14.12	24	Pass
ax80	6385	4.65	5.9	10.55	2.97	13.52	24	Pass
ax80	6465	4.59	5.9	10.49	2.97	13.46	24	Pass
ax80	6545	4.86	5.9	10.76	2.97	13.73	24	Pass
ax80	6625	4.79	5.9	10.69	2.97	13.66	24	Pass
ax80	6705	4.74	5.9	10.64	2.97	13.61	24	Pass
ax80	6865	1.75	9.03	10.78	2.97	13.75	24	Pass
ax80	6945	10.54	0	10.54	2.97	13.51	24	Pass
ax80	7025	5.13	5.9	11.03	2.97	14	24	Pass
ax160	6025	4.2	6.86	11.06	2.97	14.03	24	Pass
ax160	6185	11.17	0	11.17	2.97	14.14	24	Pass
ax160	6345	-1.25	12.04	10.79	2.97	13.76	24	Pass
ax160	6505	10.06	0.87	10.93	2.97	13.9	24	Pass
ax160	6665	10.48	0	10.48	2.97	13.45	24	Pass
ax160	6825	-5.63	16.8	11.17	2.97	14.14	24	Pass
ax160	6985	3.46	6.87	10.33	2.97	13.3	24	Pass

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ANT2

Mode	Frequency (MHz)	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Gain (dBi)	eirp Power	Limit (dBm)	Verdict
ax20	5955	10.46	1.01	11.47	2.73	14.2	24	Pass
ax20	6175	9.99	1.01	11	2.73	13.73	24	Pass
ax20	6415	10.96	1.23	12.19	2.73	14.92	24	Pass
ax20	6435	10.32	0.8	11.12	2.73	13.85	24	Pass
ax20	6475	10.92	0.8	11.72	2.73	14.45	24	Pass
ax20	6515	10.51	0.8	11.31	2.73	14.04	24	Pass
ax20	6535	10.54	0.8	11.34	2.73	14.07	24	Pass
ax20	6695	10.63	0.8	11.43	2.73	14.16	24	Pass
ax20	6875	10.35	0.8	11.15	2.73	13.88	24	Pass
ax20	6895	10.34	0.8	11.14	2.73	13.87	24	Pass
ax20	6995	10.22	0	10.22	2.73	12.95	24	Pass
ax20	7095	10.78	0	10.78	2.73	13.51	24	Pass
ax40	5965	10.89	0	10.89	2.73	13.62	24	Pass
ax40	6165	11.21	0	11.21	2.73	13.94	24	Pass
ax40	6405	11.23	0	11.23	2.73	13.96	24	Pass
ax40	6445	11.53	0	11.53	2.73	14.26	24	Pass
ax40	6485	11.4	1.61	13.01	2.73	15.74	24	Pass
ax40	6525	11.7	1.61	13.31	2.73	16.04	24	Pass
ax40	6565	11.77	1.61	13.38	2.73	16.11	24	Pass
ax40	6685	11.6	1.61	13.21	2.73	15.94	24	Pass
ax40	6845	11.13	1.61	12.74	2.73	15.47	24	Pass
ax40	6885	11.46	1.61	13.07	2.73	15.8	24	Pass
ax40	6965	10.9	1.54	12.44	2.73	15.17	24	Pass
ax40	7085	11.93	1.54	13.47	2.73	16.2	24	Pass
ax80	5985	11.65	0	11.65	2.73	14.38	24	Pass
ax80	6145	11.33	0	11.33	2.73	14.06	24	Pass
ax80	6385	11.77	0	11.77	2.73	14.5	24	Pass
ax80	6465	11.15	0.9	12.05	2.73	14.78	24	Pass
ax80	6545	11.88	0.9	12.78	2.73	15.51	24	Pass
ax80	6625	11.46	0.9	12.36	2.73	15.09	24	Pass
ax80	6705	11.35	0.9	12.25	2.73	14.98	24	Pass
ax80	6865	11.4	2.55	13.95	2.73	16.68	24	Pass
ax80	6945	11.48	2.55	14.03	2.73	16.76	24	Pass
ax80	7025	11.35	0	11.35	2.73	14.08	24	Pass
ax160	6025	11.87	2.18	14.05	2.73	16.78	24	Pass
ax160	6185	11.65	0	11.65	2.73	14.38	24	Pass
ax160	6345	11.57	0	11.57	2.73	14.3	24	Pass
ax160	6505	11.66	2.09	13.75	2.73	16.48	24	Pass
ax160	6665	11.28	0	11.28	2.73	14.01	24	Pass
ax160	6825	11.33	1.8	13.13	2.73	15.86	24	Pass
ax160	6985	11.66	0	11.66	2.73	14.39	24	Pass

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MIMO mode

Mode	Frequency (MHz)	Conducted Power (dBm)	eirp Power	Limit (dBm)	Verdict
ax20	5955	13.72	16.55	24	Pass
ax20	6175	13.25	16.08	24	Pass
ax20	6415	14.17	16.99	24	Pass
ax20	6435	13.48	16.31	24	Pass
ax20	6475	13.88	16.71	24	Pass
ax20	6515	12.97	15.78	24	Pass
ax20	6535	13.64	16.47	24	Pass
ax20	6695	13.69	16.51	24	Pass
ax20	6875	13.61	16.45	24	Pass
ax20	6895	13.53	16.36	24	Pass
ax20	6995	12.93	15.77	24	Pass
ax20	7095	13.48	16.32	24	Pass
ax40	5965	13.69	16.53	24	Pass
ax40	6165	13.98	16.82	24	Pass
ax40	6405	14.20	17.05	24	Pass
ax40	6445	13.96	16.79	24	Pass
ax40	6485	14.84	17.65	24	Pass
ax40	6525	15.20	18.02	24	Pass
ax40	6565	15.37	18.19	24	Pass
ax40	6685	15.27	18.10	24	Pass
ax40	6845	14.73	17.54	24	Pass
ax40	6885	15.07	17.89	24	Pass
ax40	6965	14.67	17.50	24	Pass
ax40	7085	15.46	18.28	24	Pass
ax80	5985	14.26	17.10	24	Pass
ax80	6145	14.25	17.10	24	Pass
ax80	6385	14.21	17.05	24	Pass
ax80	6465	14.35	17.18	24	Pass
ax80	6545	14.90	17.72	24	Pass
ax80	6625	14.62	17.44	24	Pass
ax80	6705	14.53	17.36	24	Pass
ax80	6865	15.66	18.47	24	Pass
ax80	6945	15.64	18.44	24	Pass
ax80	7025	14.20	17.05	24	Pass
ax160	6025	15.82	18.63	24	Pass
ax160	6185	14.43	17.27	24	Pass
ax160	6345	14.21	17.05	24	Pass
ax160	6505	15.58	18.39	24	Pass
ax160	6665	13.91	16.75	24	Pass
ax160	6825	15.27	18.09	24	Pass
ax160	6985	14.06	16.89	24	Pass

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ANT1

