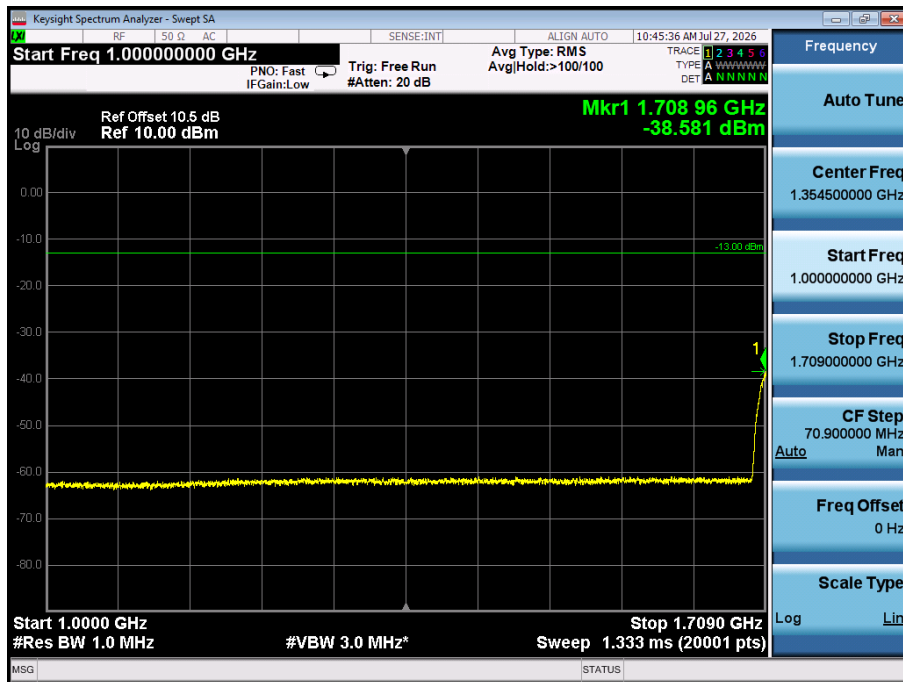
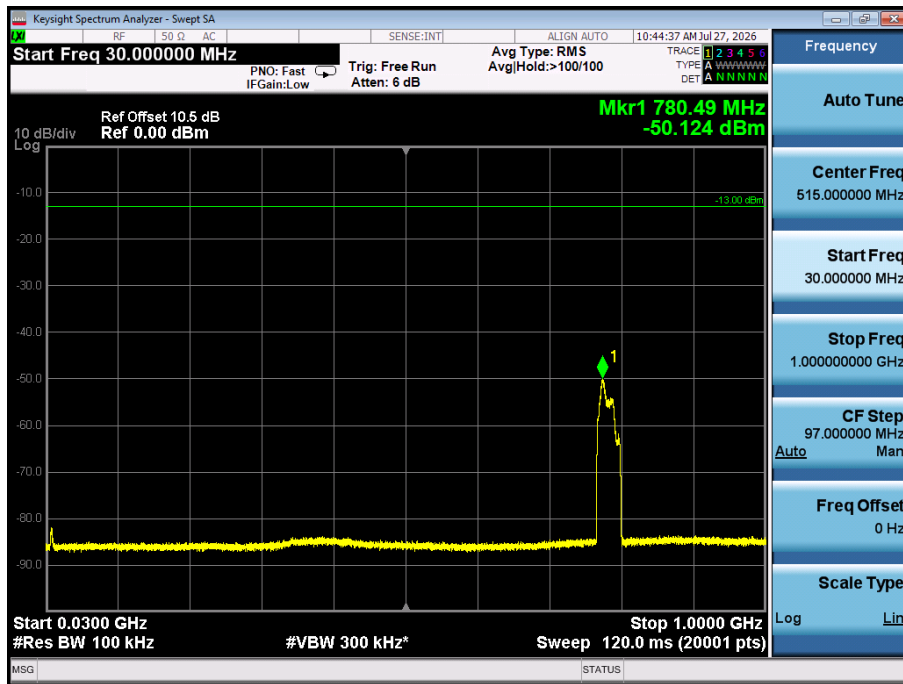
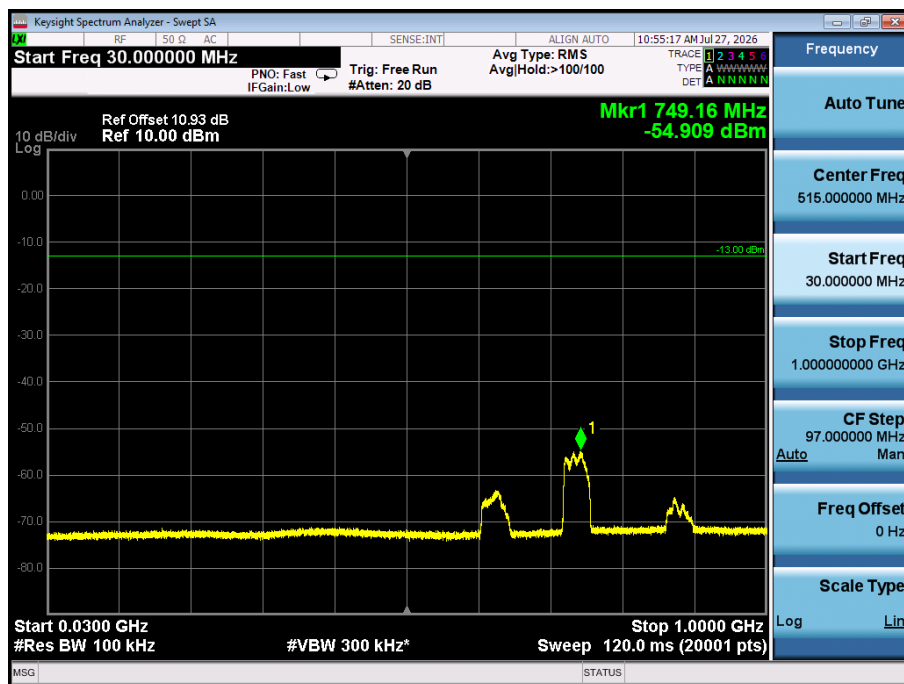


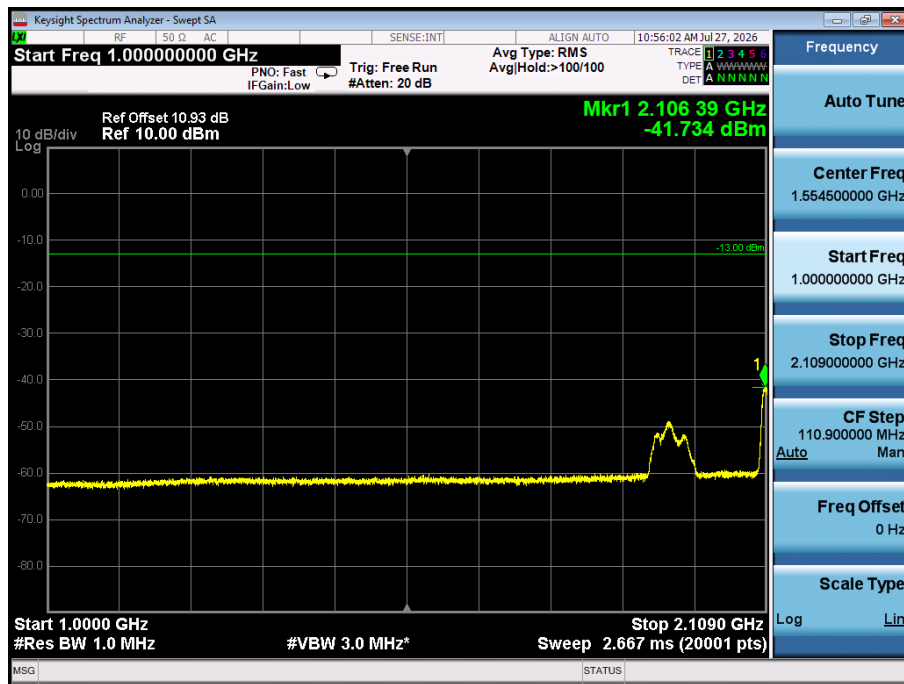
AWS Uplink



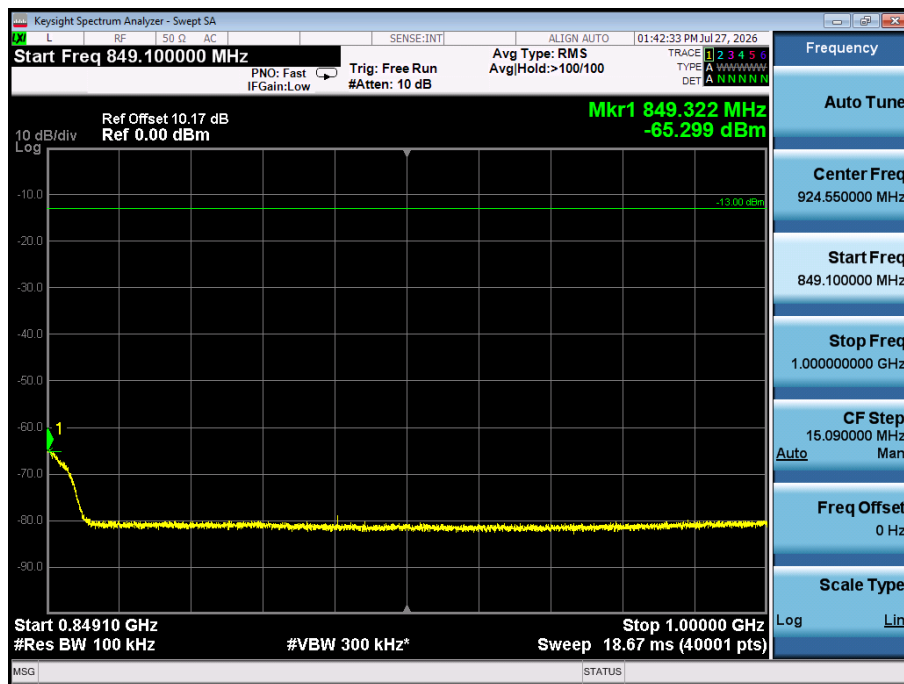
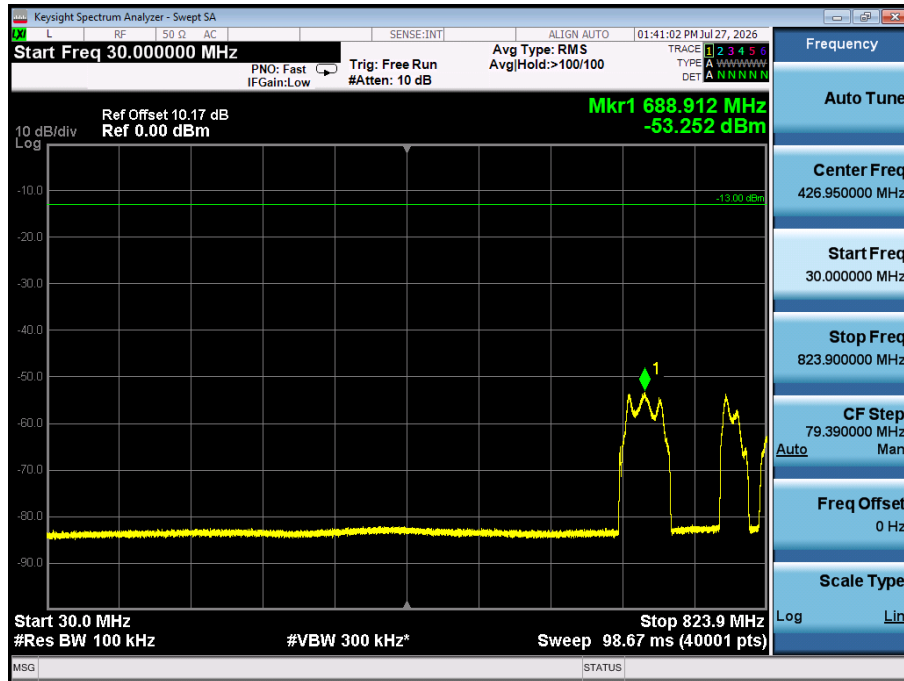


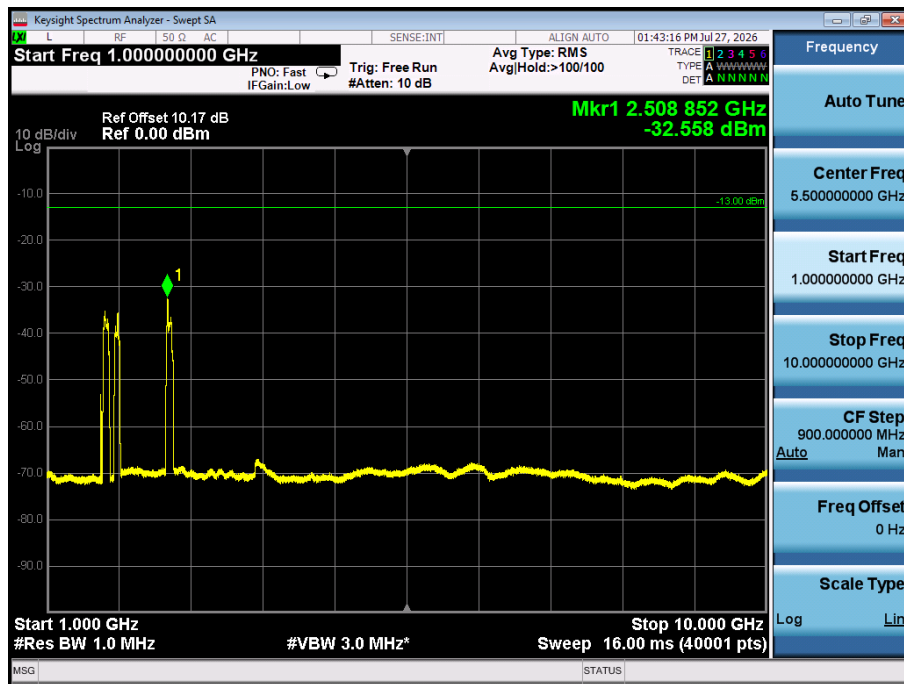
AWS Downlink



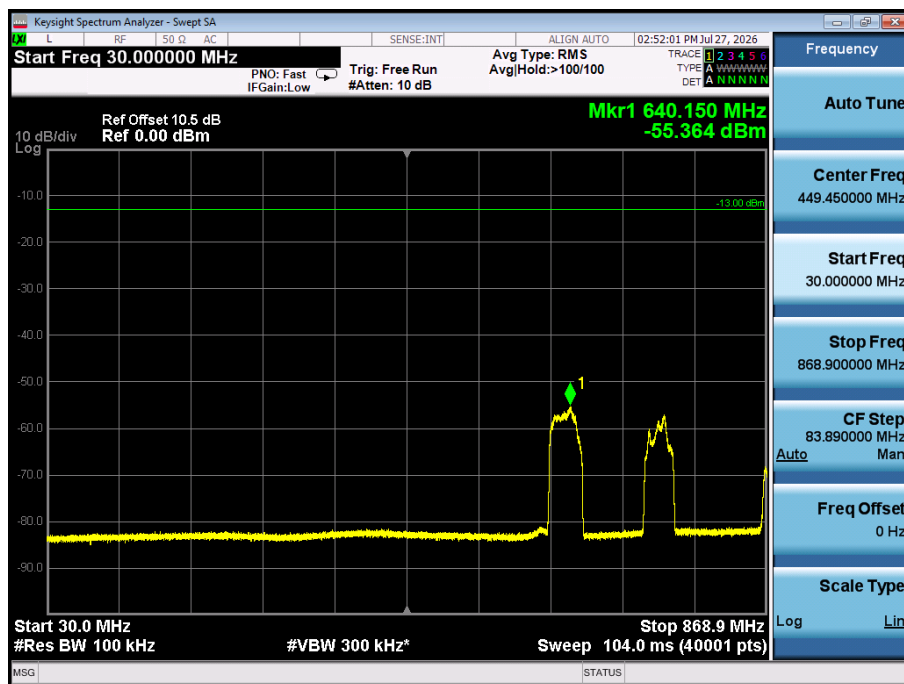


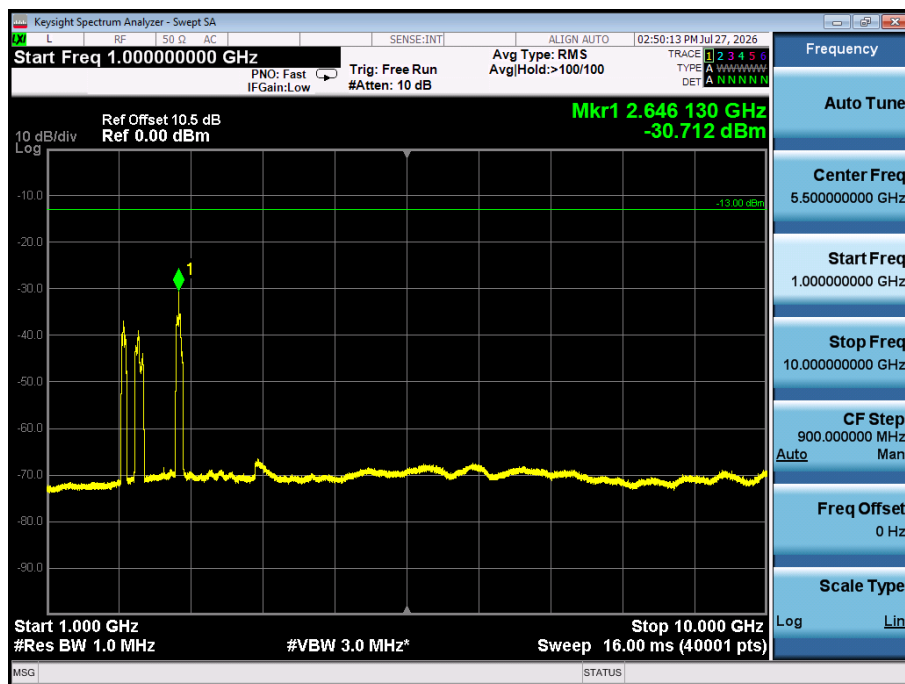
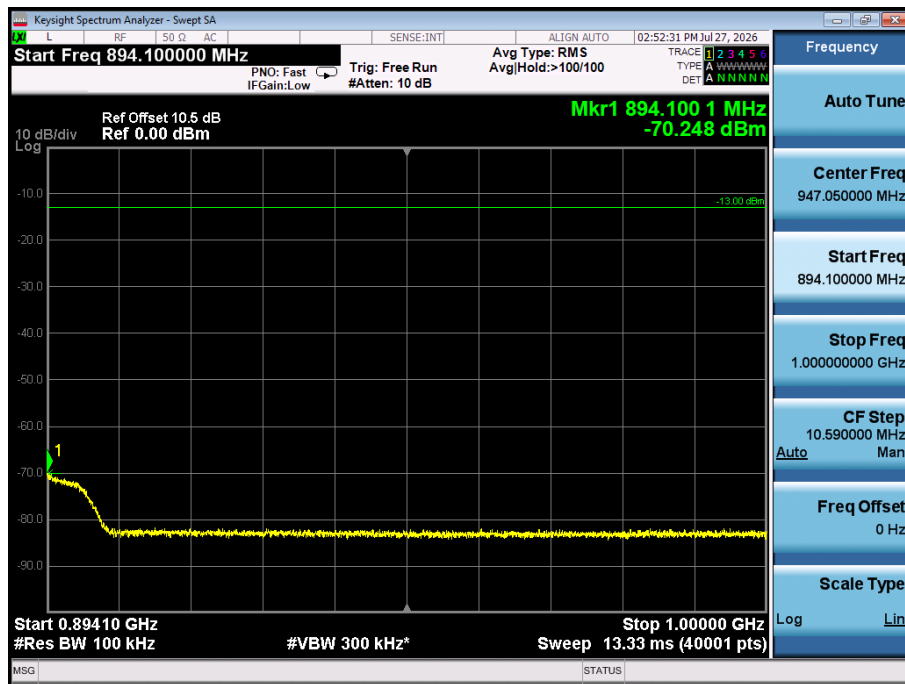
Cellular Uplink



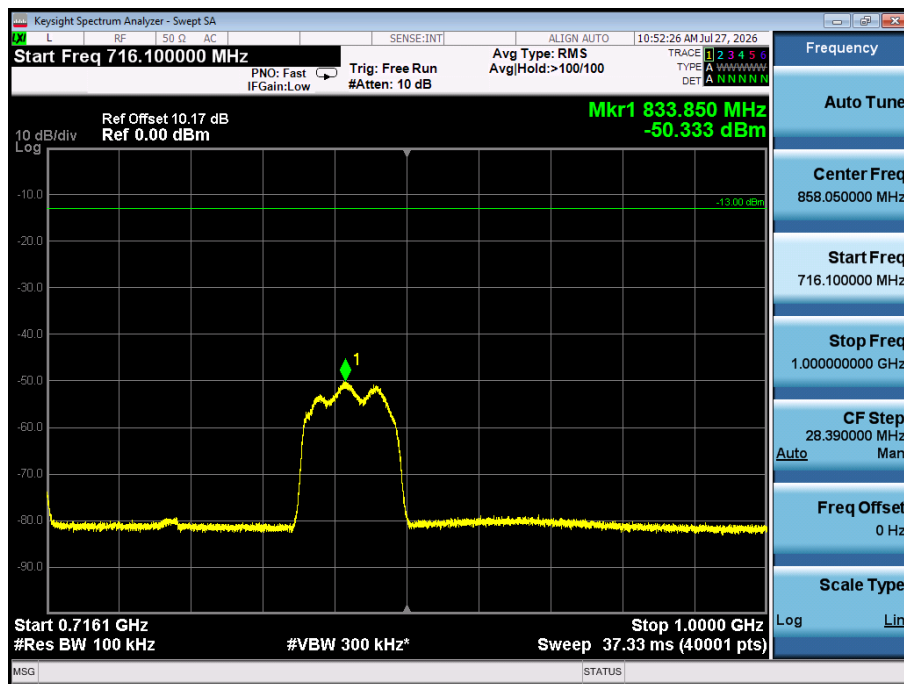
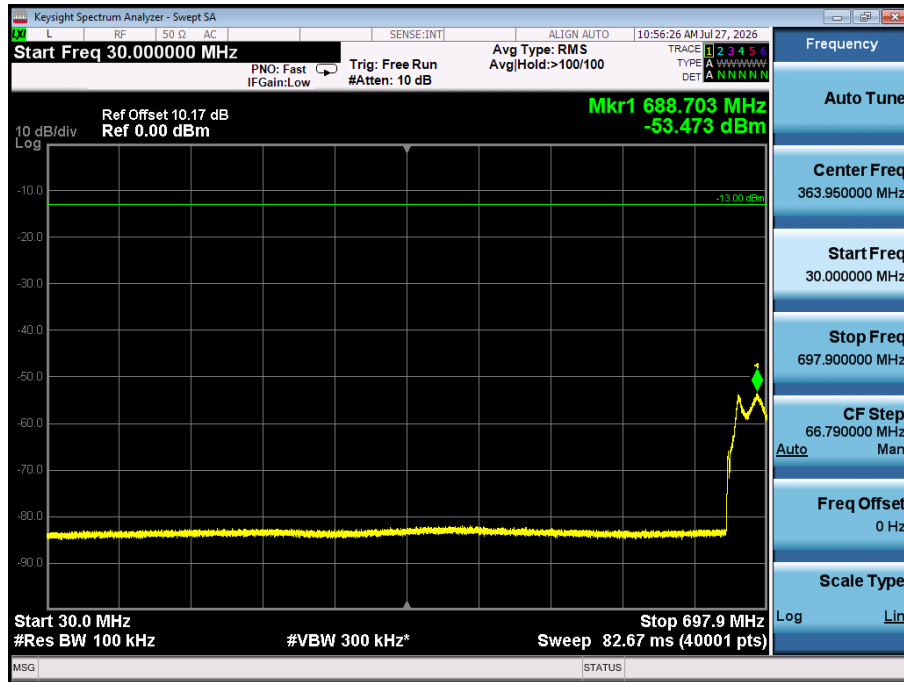


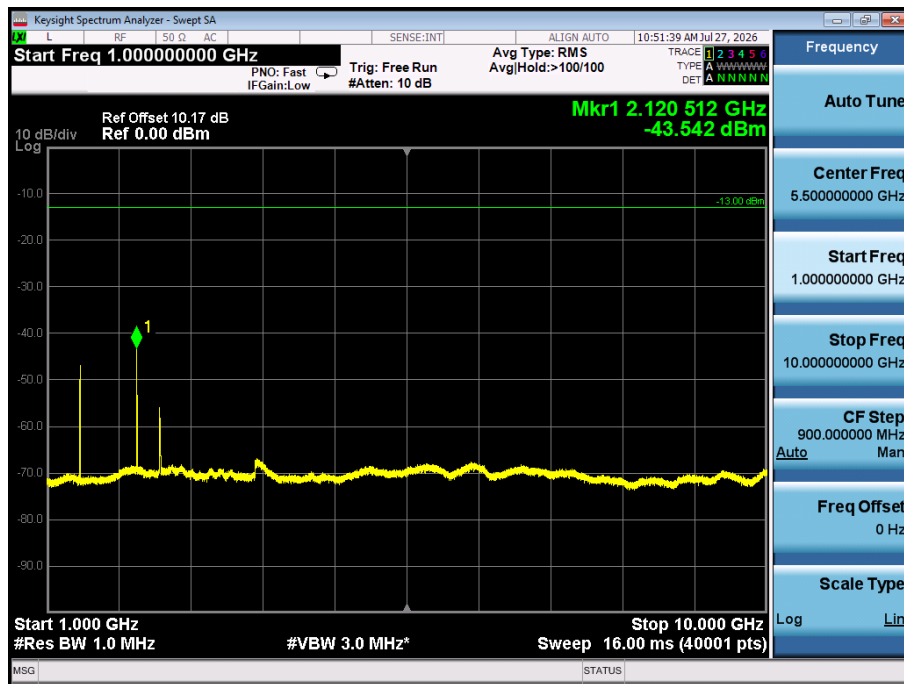
Cellular Downlink



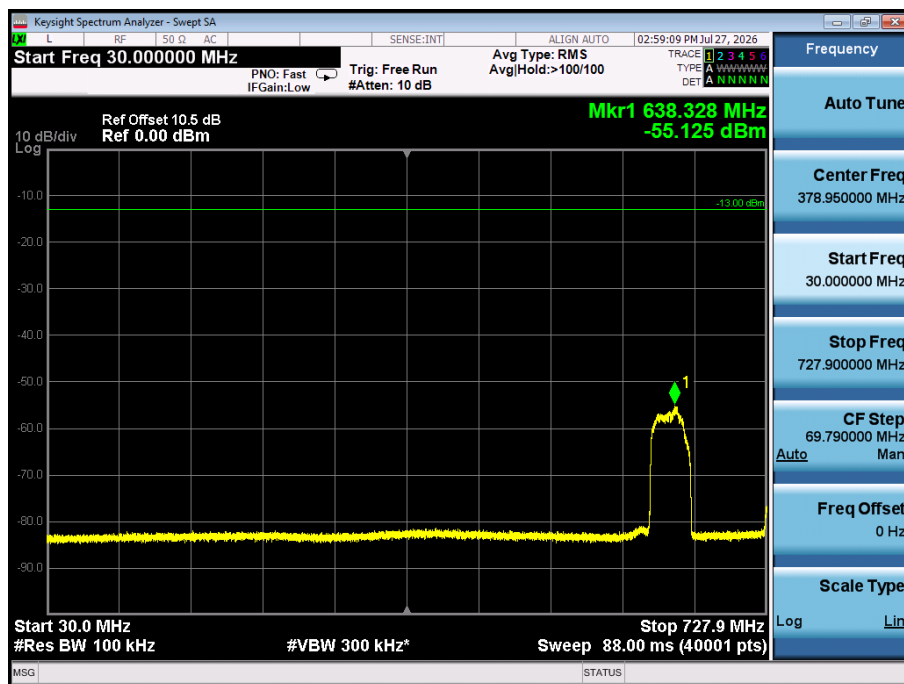


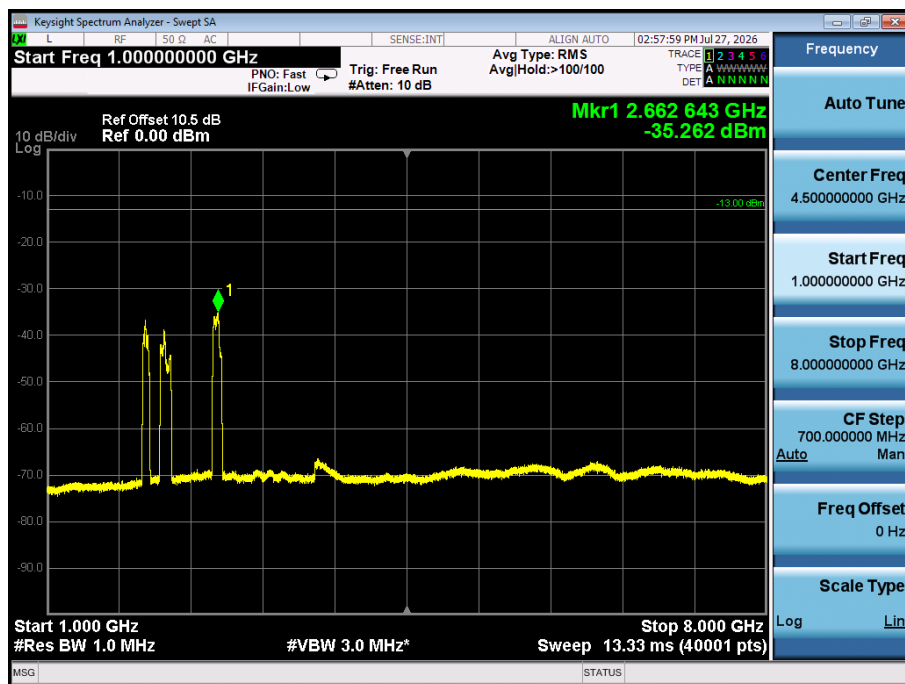
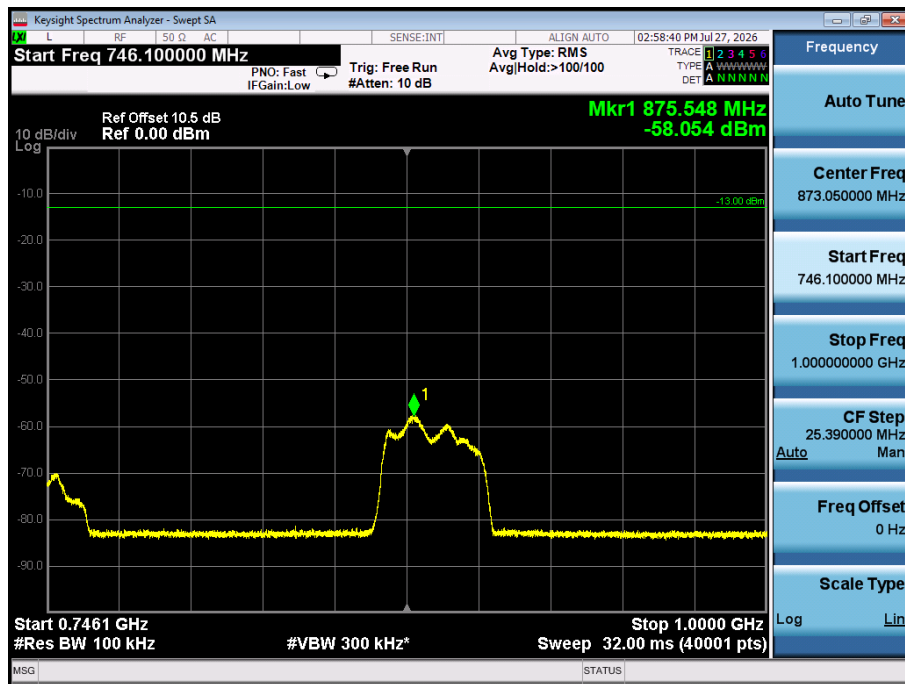
Lower700MHz Uplink



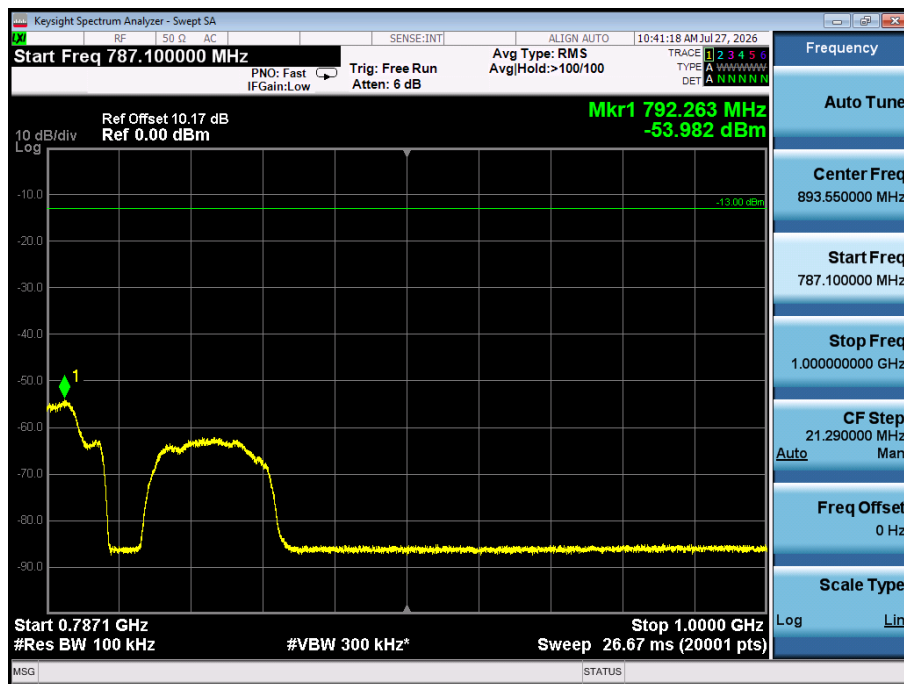
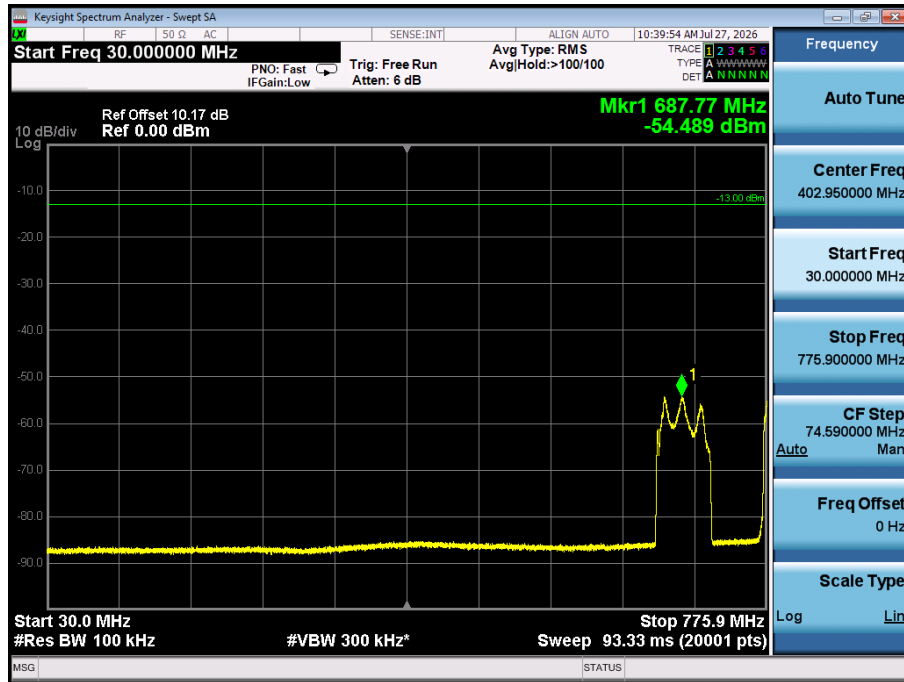


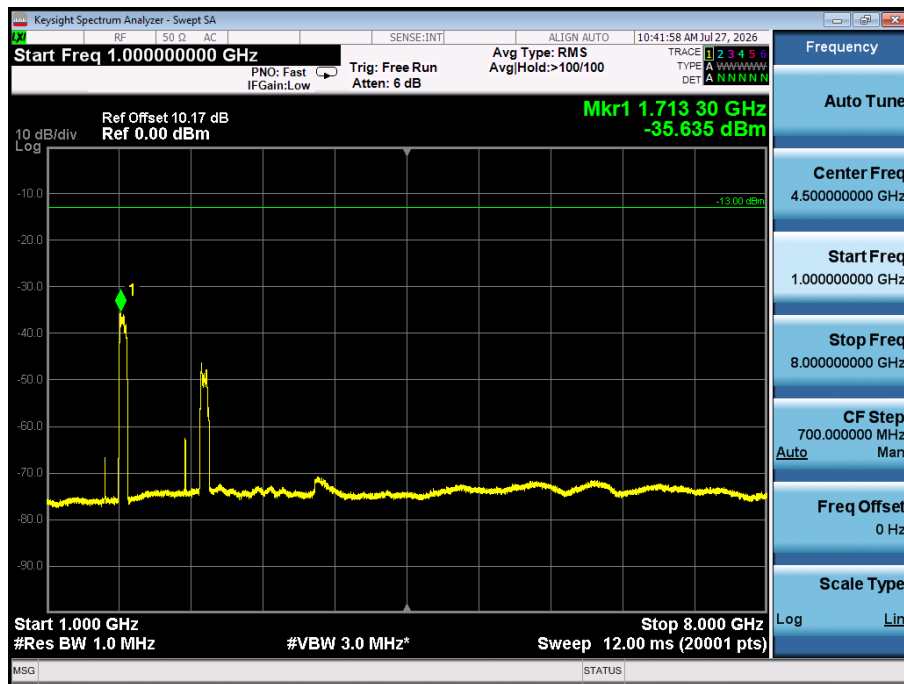
Lower700MHz Downlink



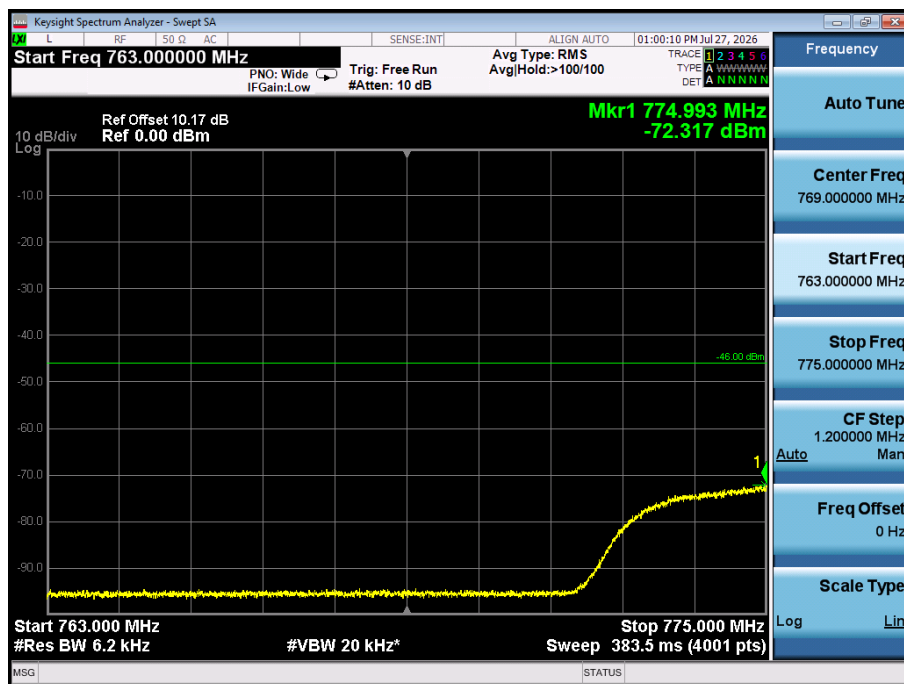


Upper700MHz Uplink

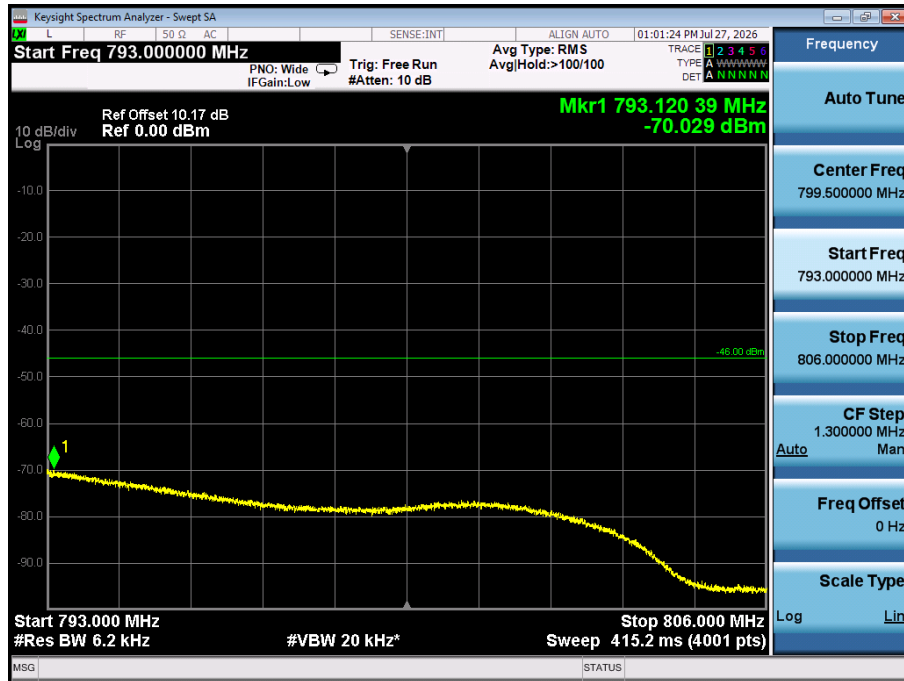




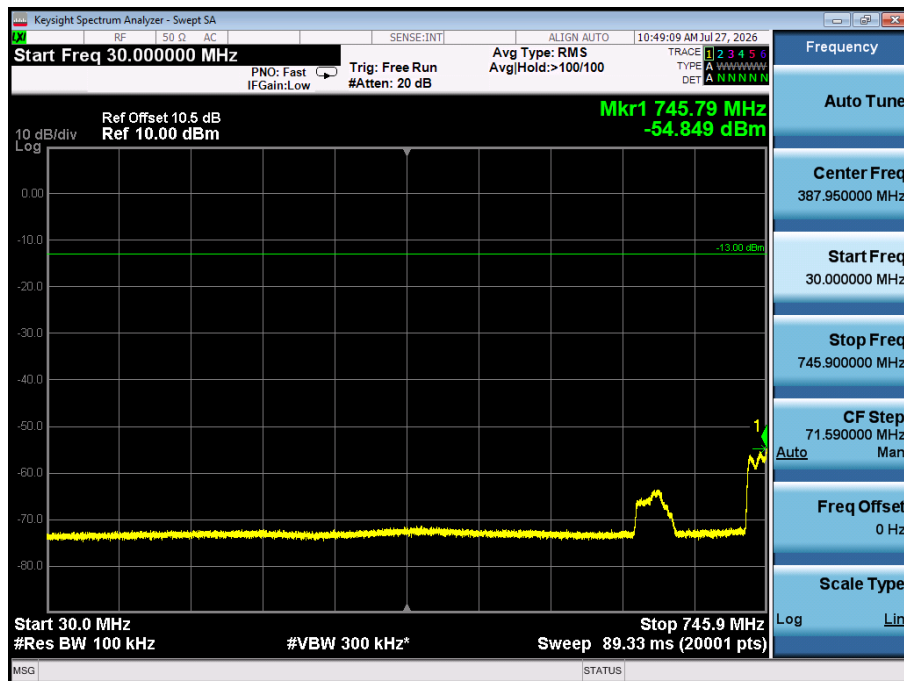
763~775MHz

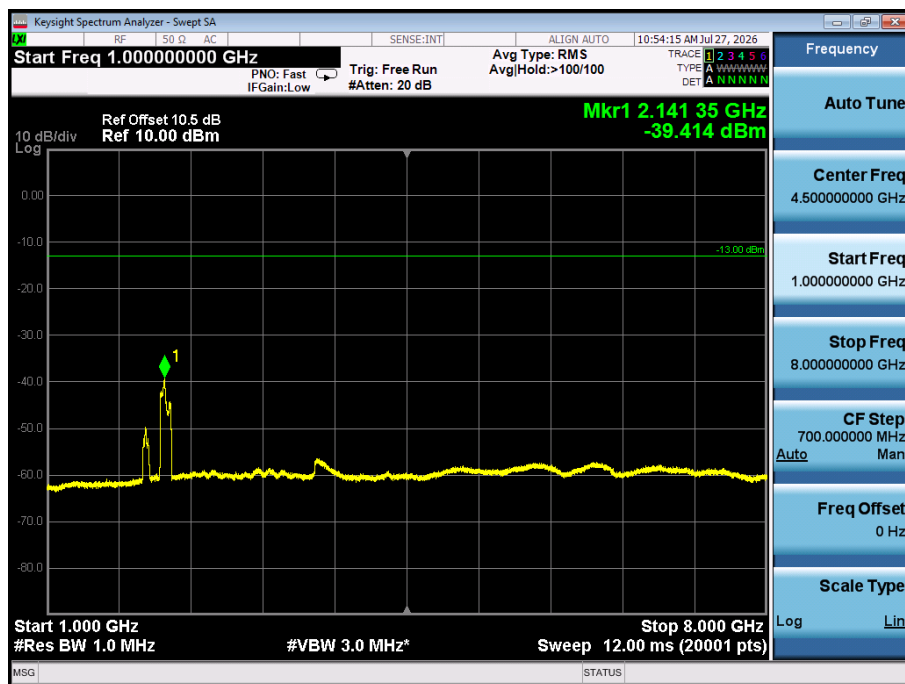
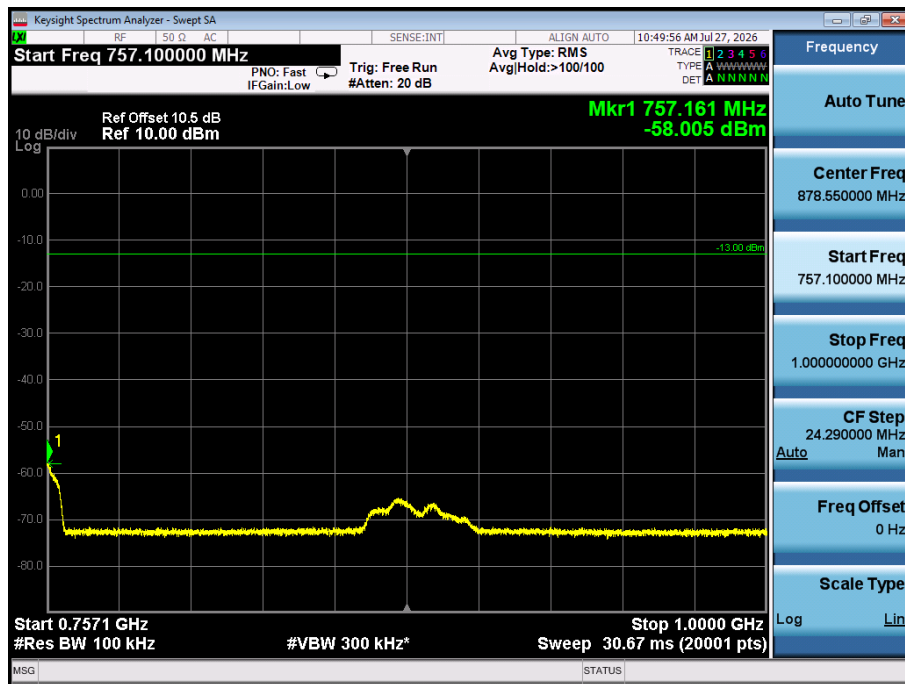


793~806MHz

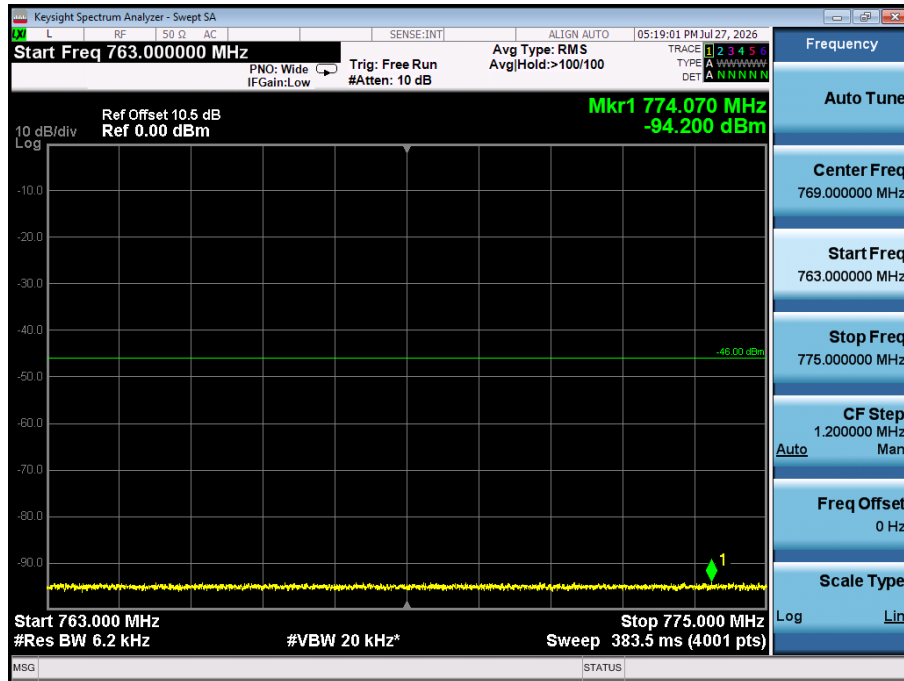


Upper700MHz Downlink

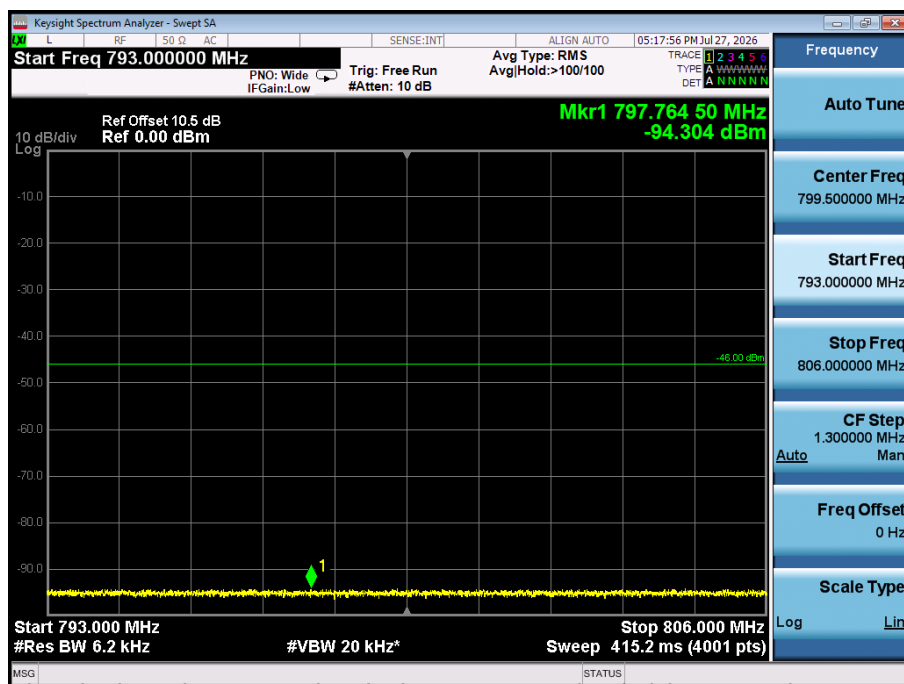




763~775MHz



793~806MHz



Note1: Path1 and Path2 have been tested, only the worst case (Path1) is reported.

Note2: Path1 is Outdoor + Indoor 1

Note3: Path2 is Outdoor + Indoor 2

Noise limits

Max Noise Power			
Frequency Band (MHz)	Measured dBm/MHz	Limit dBm/MHz	Result (dB)
PCS Uplink	-37.33	-37.01	PASS
AWS Uplink	-38.00	-37.73	PASS
Cellular Uplink	-44.46	-44.05	PASS
Lower700MHz Uplink	-51.66	-45.51	PASS
Upper700MHz Uplink	-45.50	-44.64	PASS
PCS Downlink	-37.44	-37.01	PASS
AWS Downlink	-38.72	-37.73	PASS
Cellular Downlink	-48.60	-44.05	PASS
Lower700MHz Downlink	-49.32	-45.51	PASS
Upper700MHz Downlink	-46.07	-44.64	PASS

Note: Fixed booster maximum noise power shall not exceed $-102.5 \text{ dBm/MHz} + 20 \log (F)$, where Frequency is the uplink mid-band frequency of the supported spectrum bands in MHz.

Variable Uplink Noise				
Operation Bands	RSSI dBm	Measured dBm/MHz	Limit dBm/MHz	Results
PCS	-72.3	-40.87	-37.01	PASS
	-70.3	-42.26	-37.01	PASS
	-67.3	-40.15	-37.01	PASS
	-64.3	-45.47	-38.70	PASS
	-61.3	-48.04	-41.70	PASS
	-58.3	-51.36	-44.70	PASS
AWS	-71.4	-41.58	-37.73	PASS
	-68.4	-40.12	-37.73	PASS
	-65.4	-43.37	-37.73	PASS
	-61.4	-48.44	-41.60	PASS
	-59.4	-50.69	-43.60	PASS
	-55.4	-53.27	-47.60	PASS
Cellular	-66.16	-45.85	-44.05	PASS
	-64.16	-47.26	-44.05	PASS
	-62.16	-49.07	-44.05	PASS

	-59.16	-51.31	-44.05	PASS
	-57.16	-52.96	-45.84	PASS
	-55.16	-55.17	-47.84	PASS
Lower700MHz	-73.16	-48.53	-45.51	PASS
	-70.16	-51.08	-45.51	PASS
	-65.16	-56.14	-45.51	PASS
	-61.16	-59.39	-45.51	PASS
	-57.16	-63.66	-45.84	PASS
	-55.16	-64.45	-47.84	PASS
Upper700MHz	-71.16	-47.05	-44.64	PASS
	-67.16	-50.91	-44.64	PASS
	-65.16	-53.47	-44.64	PASS
	-63.16	-54.32	-44.64	PASS
	-61.16	-56.18	-44.64	PASS
	-57.16	-60.69	-45.84	PASS

Note: According to the KDB 935210 D03 Signal Booster Measurements v04r04 APPENDIX D, when outside of RSSI Dependent limit (20.21.e.8.1.A.1), fixed booster maximum noise power shall not exceed $-102.5 \text{ dBm/MHz} + 20 \log (F)$. RSSI limit not exceed $-103 \text{ dBm/MHz-RSSI}$.

Variable Uplink Noise Timing

Operation Bands	Measured Sec	Limit Sec	Results
PCS	0.116	2	PASS
AWS	0.150	2	PASS
Cellular	0.043	2	PASS
Lower700MHz	0.010	2	PASS
Upper700MHz	0.230	2	PASS

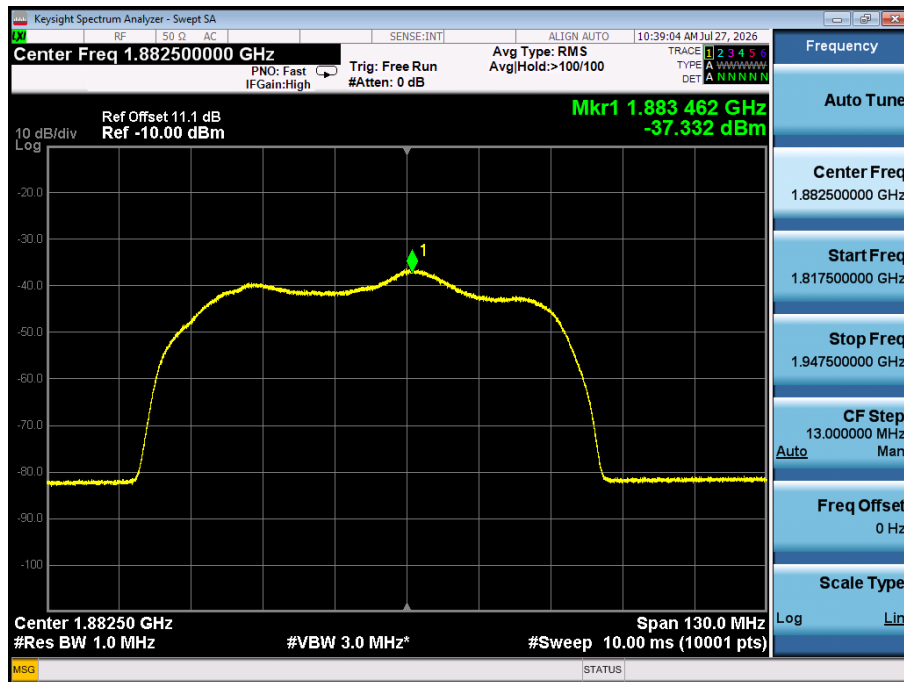
Note1: Path1 and Path2 have been tested, only the worst case (Path1) is reported.

Note2: Path1 is Outdoor + Indoor 1

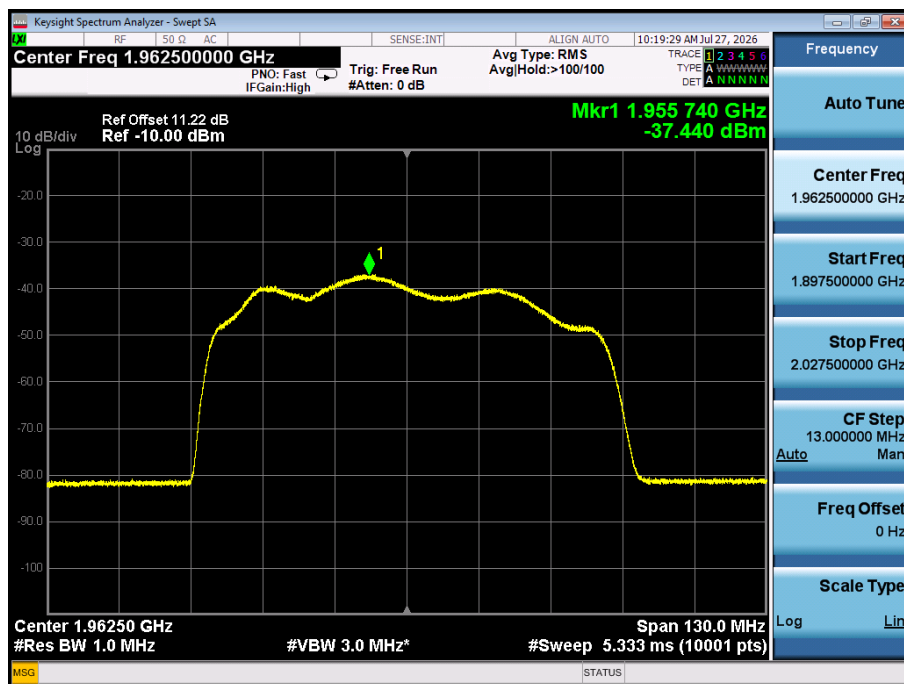
Note3: Path2 is Outdoor + Indoor 2

Test Plots

PCS

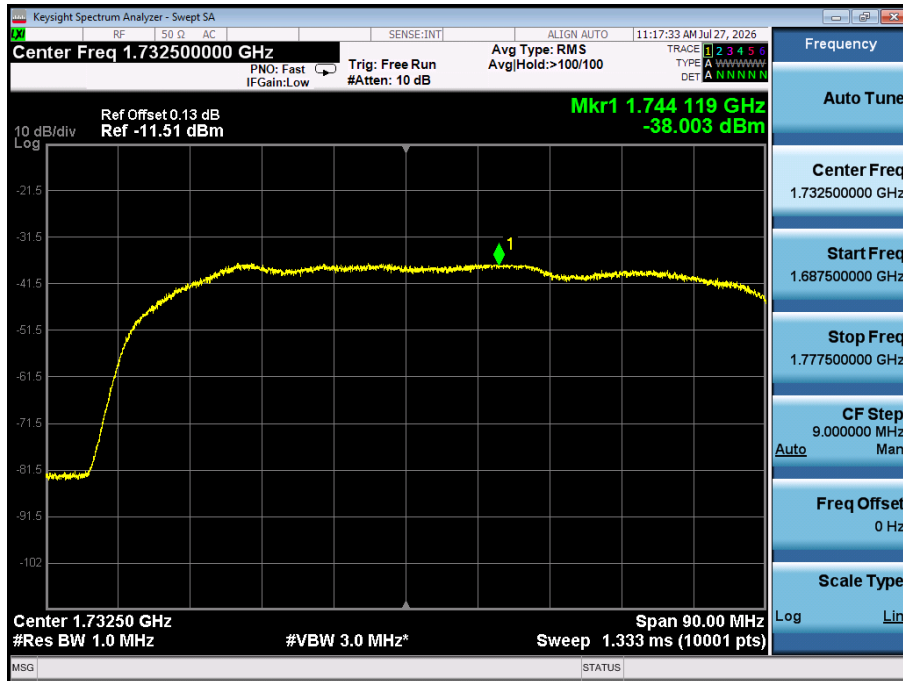


Uplink Noise

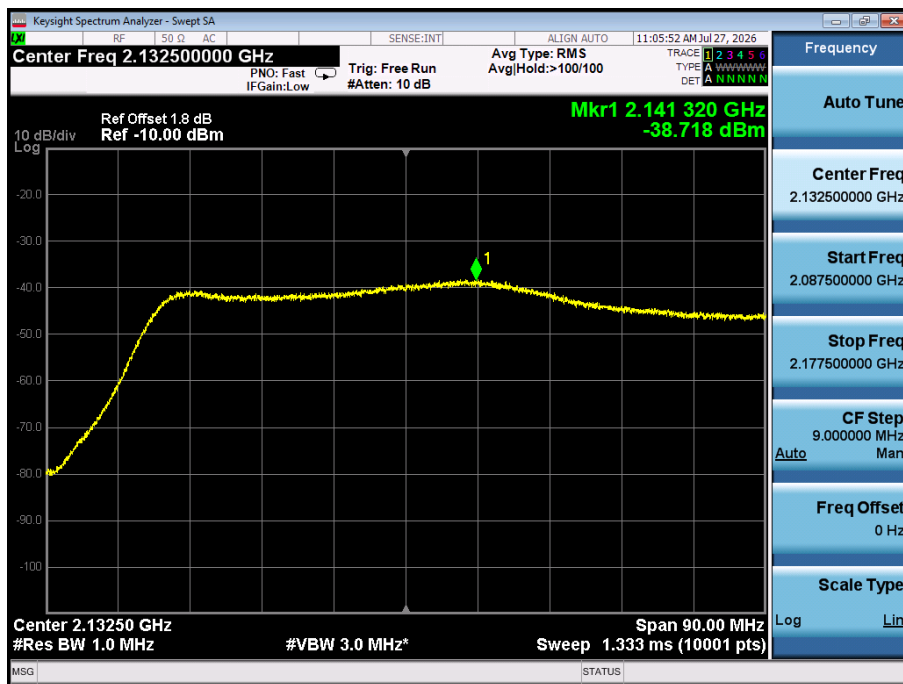


Downlink Noise

AWS

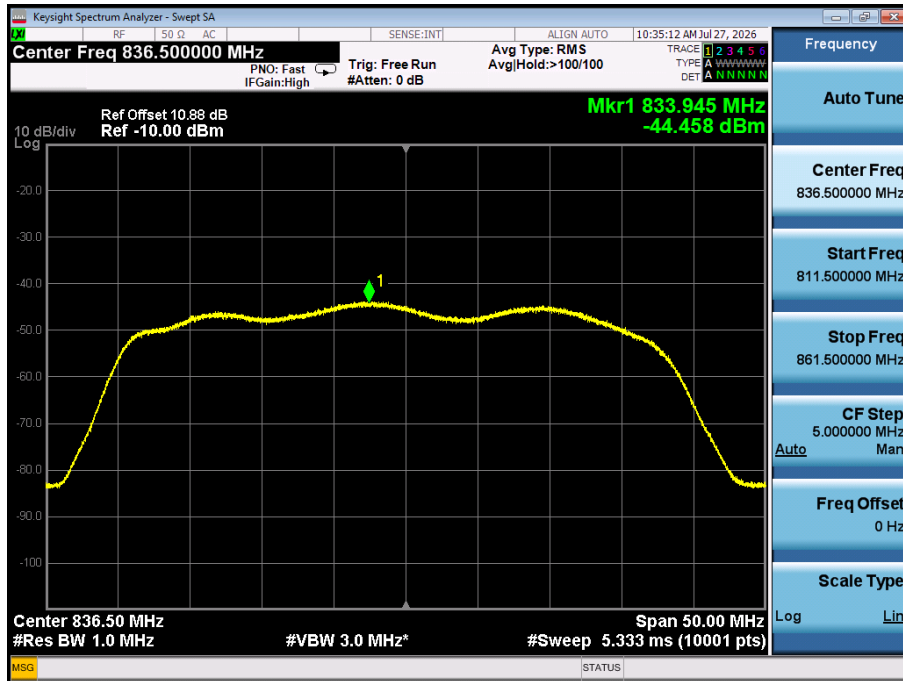


Uplink Noise

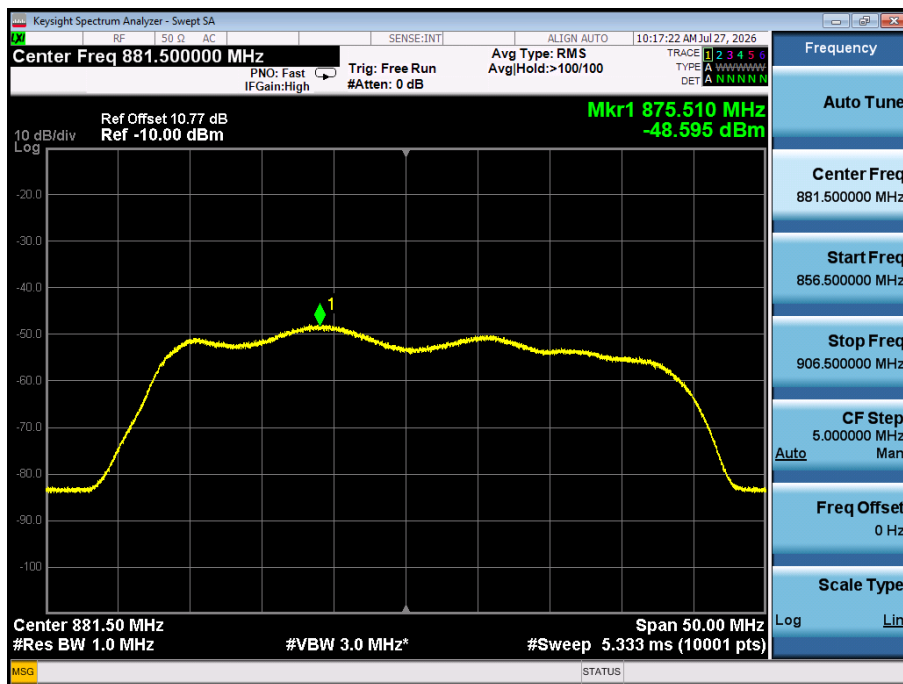


Downlink Noise

Cellular



Uplink Noise

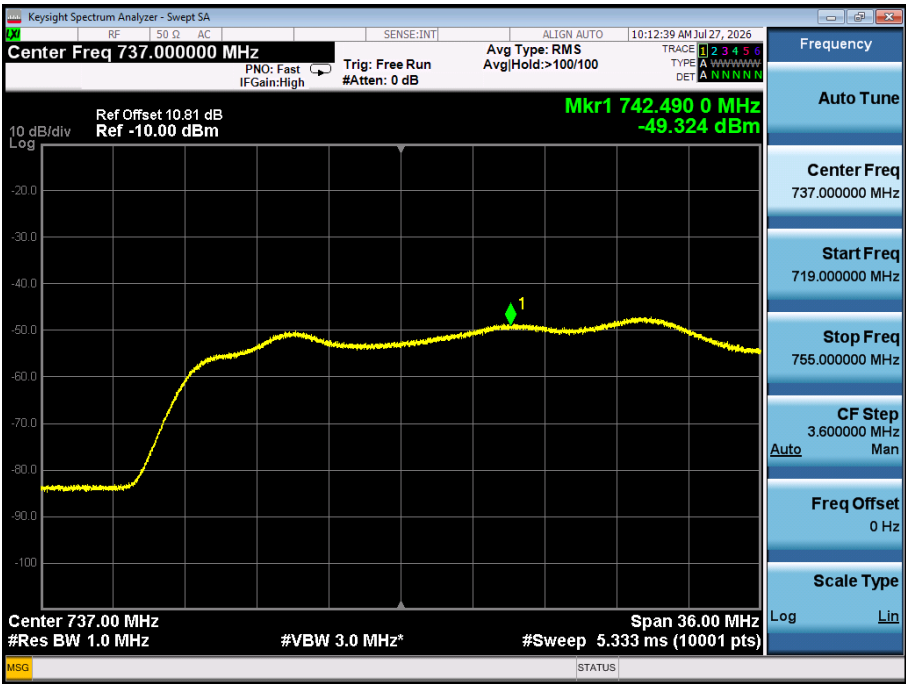


Downlink Noise

Lower700MHz

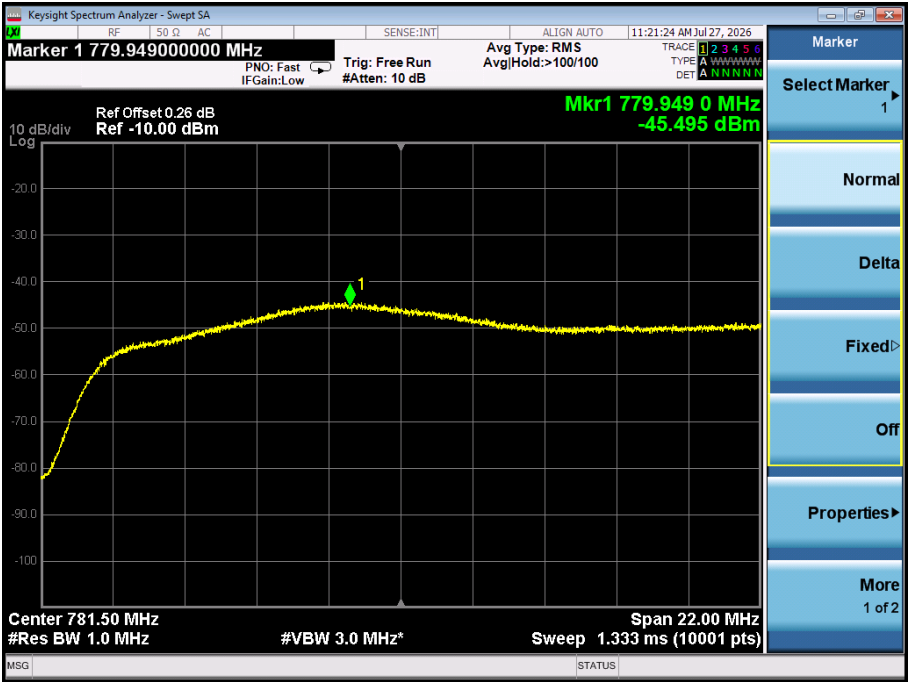


Uplink Noise



Downlink Noise

Upper700MHz



Uplink Noise



Downlink Noise

Variable Noise Timing Test Plots

PCS



AWS



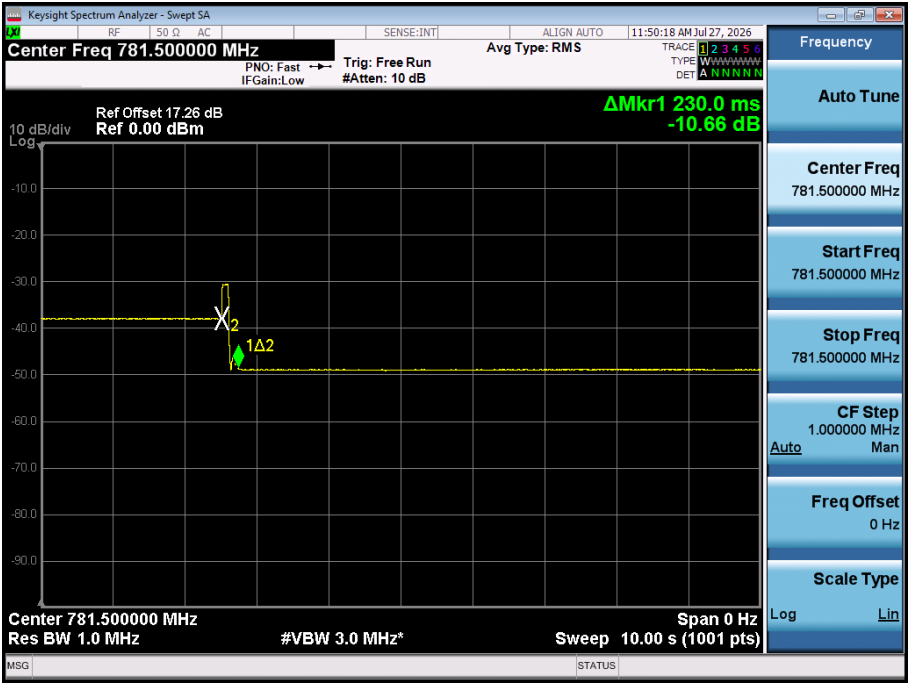
Cellular



Lower700MHz



Upper700MHz



Uplink inactivity

Operation Bands	Measured (s)	Limit (s)	Result
PCS	240.8	300.0	PASS
AWS	240.9	300.0	PASS
Cellular	240.2	300.0	PASS
Lower700MHz	240.2	300.0	PASS
Upper700MHz	240.2	300.0	PASS

Note1: Path1 and Path2 have been tested, only the worst case (Path1) is reported.

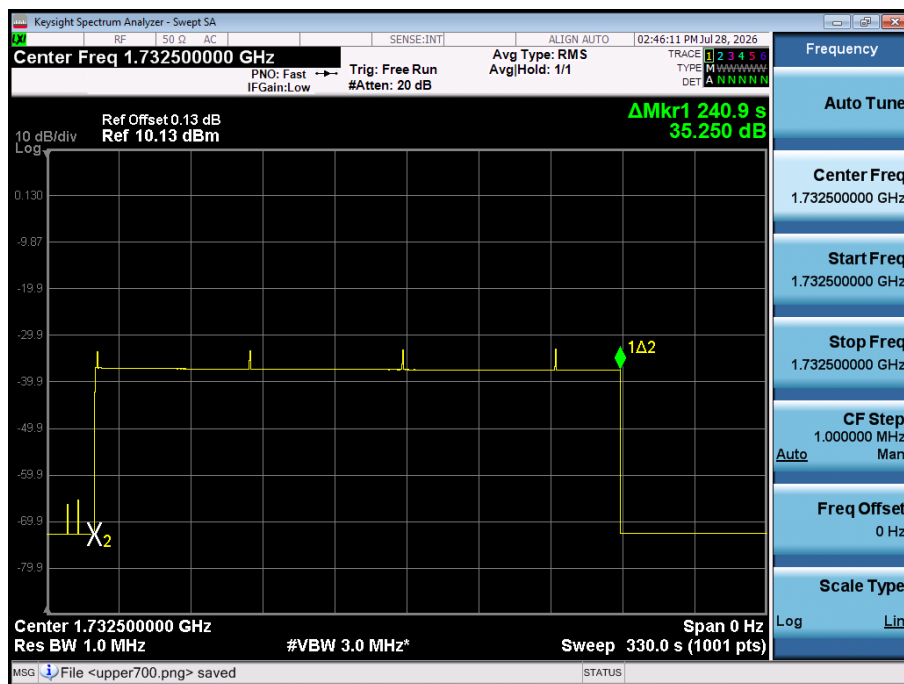
Note2: Path1 is Outdoor + Indoor 1

Note3: Path2 is Outdoor + Indoor 2

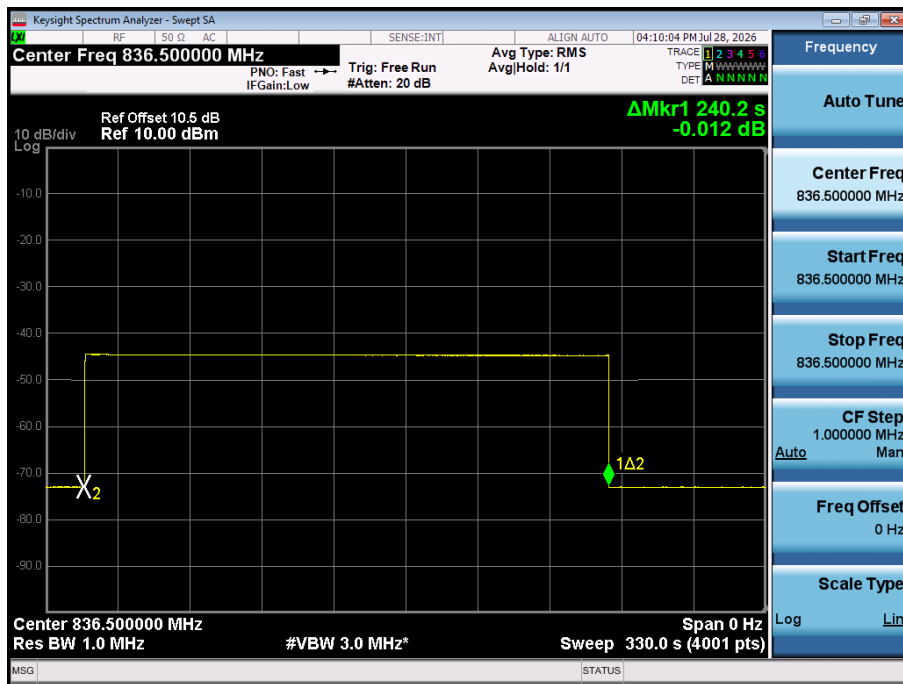
Test Plots PCS



AWS



Cellular



Lower700MHz



Upper700MHz



Variable booster gain and timing

Mobile station coupling loss (MSCL): the minimum coupling loss (in dB) between the wireless device and the input (server) port of the consumer booster. MSCL must be calculated or measured for each band of operation and provided in compliance test reports. MSCL includes the path loss from the wireless device, and the booster's server antenna gain and cable loss. The wireless device is assumed to be an isotropic (0 dBi) antenna reference. Minimum standoff distances from inside wireless devices to the booster's server antenna must be reasonable and specified by the manufacturer in customer provided installation manuals.

MSCL Calculation							
Operation Bands	Frequency (MHz)	Distance (m)	Path loss (dB)	Indoor Antenna Gain(dBi)	Indoor Cable Loss(dB)	Polarity Loss(dB)	MSCL (dB)
PCS	1850	2	43.86	7	6.17	3.01	46.04
AWS	1710	2	43.18	7	6.54	3.01	45.73
Cellular	824	2	36.84	6	4.41	3.01	38.26
Lower700 MHz	698	2	35.40	5	4.22	3.01	37.63
Upper700 MHz	776	2	36.32	5	4.22	3.01	38.55

Note: Path loss = $20\log f + 20\log d - 27.5$

Polarity loss = $20\log (1/\sin (45\deg))$ dB = 3.01dB

Variable booster gain							
Operation Band	RSSI (dBm)	Input Power (dBm)	Output Power (dBm)	Measured Gain (dB)	MSCL	Limit	Results
PCS	-76.3	-53.27	12.76	66.03	46.04	71.99	PASS
	-74.3	-53.27	11.53	64.80	46.04	71.99	PASS
	-70.3	-53.27	8.47	61.74	46.04	71.99	PASS
	-66.3	-53.27	7.69	60.96	46.04	71.99	PASS
	-62.3	-53.27	2.36	55.63	46.04	71.99	PASS
	-58.3	-53.27	-1.99	51.28	46.04	70.34	PASS
AWS	-74.3	-53.27	12.57	65.84	45.73	71.27	PASS
	-70.3	-53.27	10.12	63.39	45.73	71.27	PASS
	-66.3	-53.27	5.58	58.85	45.73	71.27	PASS
	-62.3	-53.27	0.27	53.54	45.73	71.27	PASS
	-60.3	-53.27	-1.63	51.64	45.73	71.27	PASS
	-56.3	-53.27	-5.38	47.89	45.73	68.03	PASS
Cellular	-66.15	-41.98	17.08	59.06	38.26	64.95	PASS
	-64.15	-41.98	16.06	58.04	38.26	64.95	PASS

	-60.15	-41.98	12.01	53.99	38.26	64.41	PASS
	-58.15	-41.98	10.37	52.35	38.26	62.41	PASS
	-54.15	-41.98	6.13	48.11	38.26	58.41	PASS
	-50.15	-41.98	2.18	44.16	38.26	54.41	PASS
Lower700MHz	-73.15	-43.44	13.83	57.27	37.63	63.49	PASS
	-70.15	-43.44	11.74	55.18	37.63	63.49	PASS
	-66.15	-43.44	8.85	52.29	37.63	63.49	PASS
	-62.15	-43.44	5.01	48.45	37.63	63.49	PASS
	-58.15	-43.44	0.82	44.26	37.63	61.78	PASS
	-54.15	-43.44	-2.91	40.53	37.63	57.78	PASS
Upper700MHz	-73.15	-42.27	13.25	55.52	38.55	64.36	PASS
	-70.15	-42.27	10.64	52.91	38.55	64.36	PASS
	-68.15	-42.27	9.59	51.86	38.55	64.36	PASS
	-63.15	-42.27	6.84	49.11	38.55	64.36	PASS
	-59.15	-42.27	2.79	45.06	38.55	63.70	PASS
	-55.15	-42.27	-1.86	40.41	38.55	59.70	PASS

Variable Uplink Gain Timing

Operation Band	Measured Sec	Limit Sec	Result
PCS	0.040	3.0	PASS
AWS	0.180	3.0	PASS
Cellular	0.025	3.0	PASS
Lower700MHz	0.010	3.0	PASS
Upper700MHz	0.025	3.0	PASS

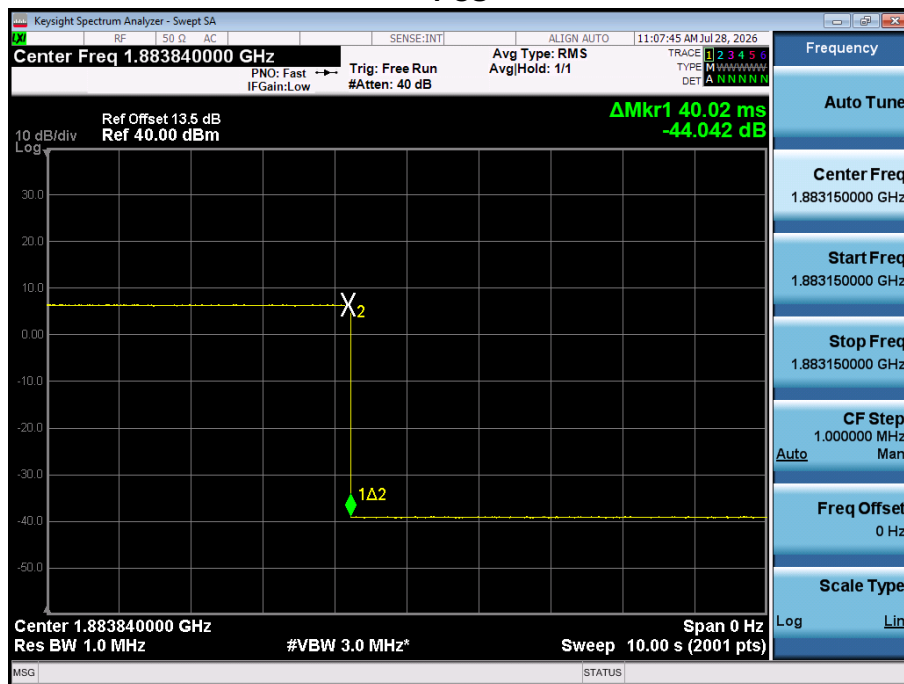
Note1: Path1 and Path2 have been tested, only the worst case (Path1) is reported.

Note2: Path1 is Outdoor + Indoor 1

Note3: Path2 is Outdoor + Indoor 2

Variable Uplink Gain Timing Test Plots

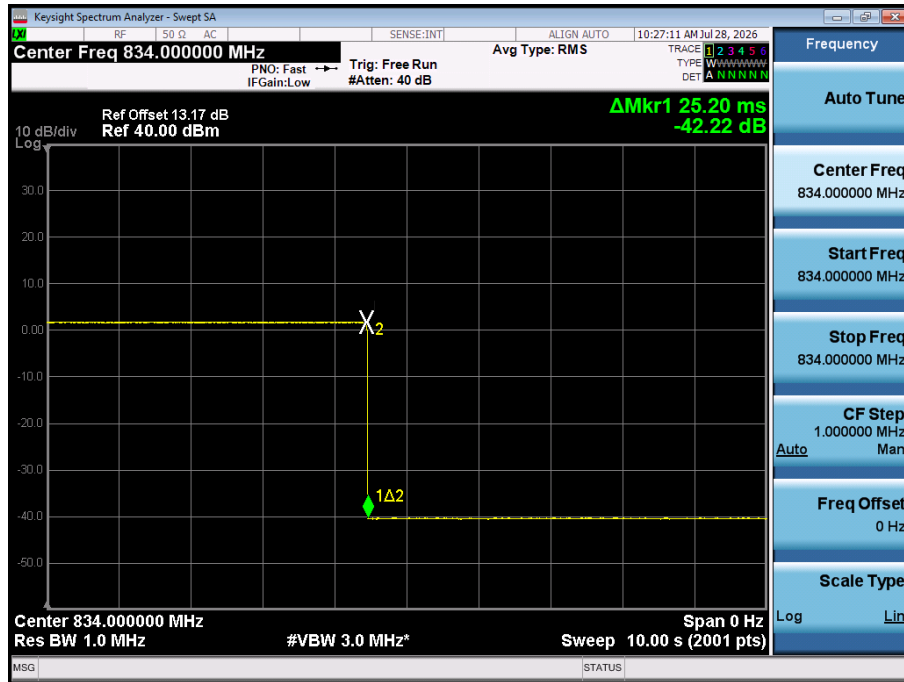
PCS



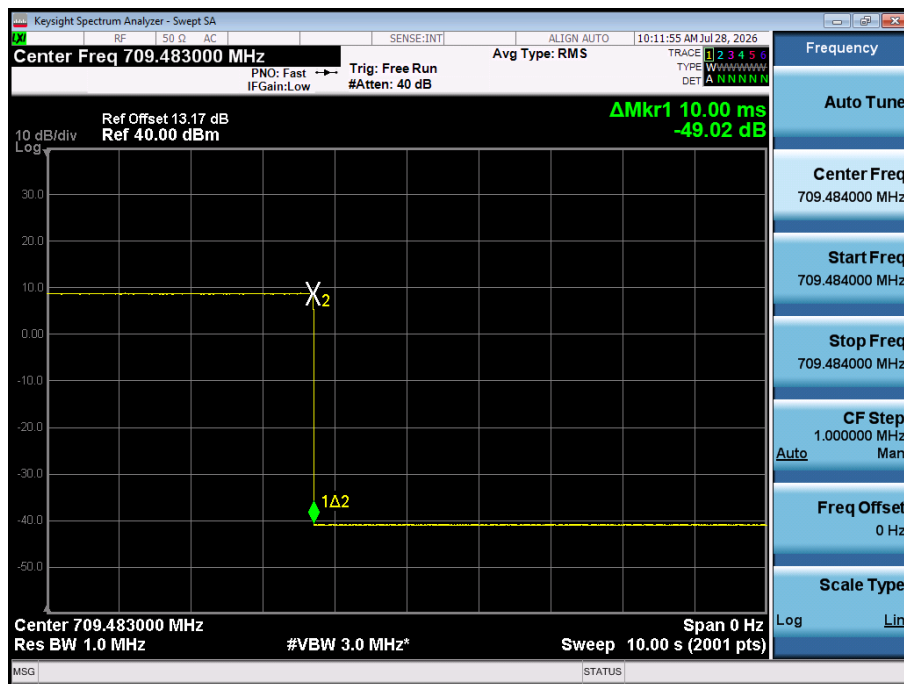
AWS



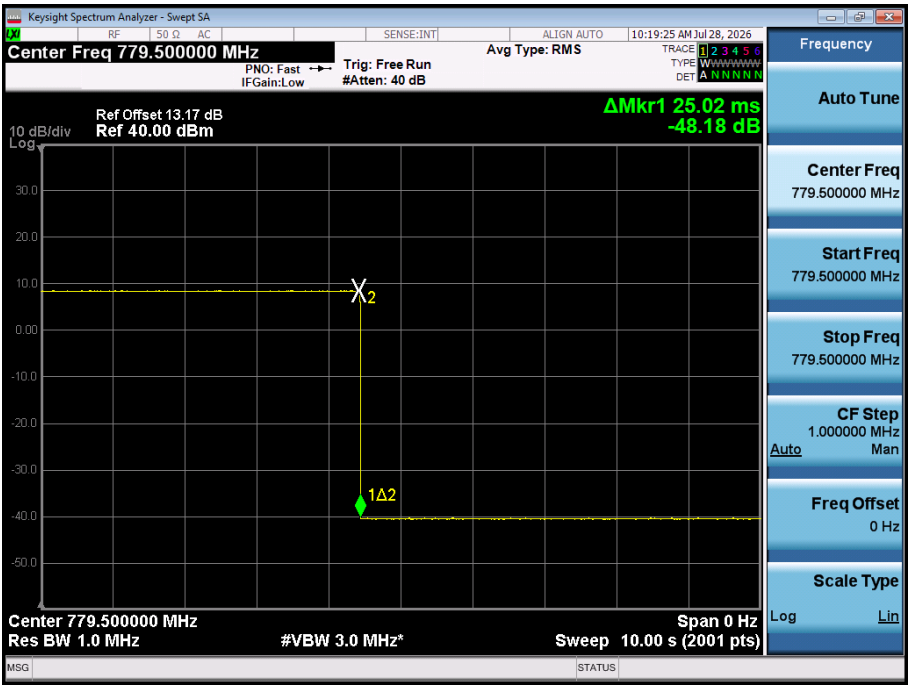
Cellular



Lower700MHz



Upper700MHz

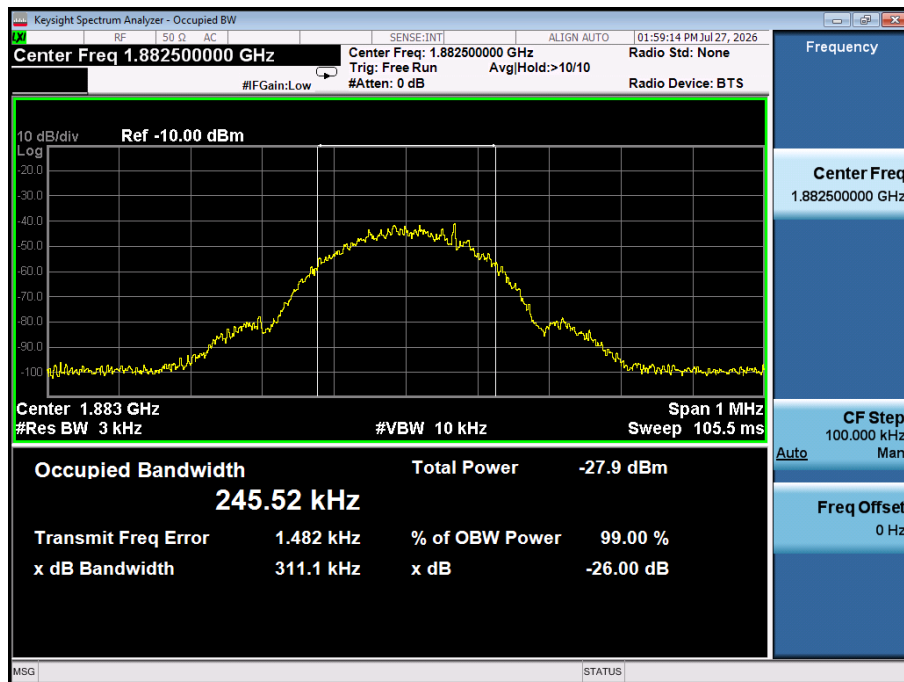


Occupied bandwidth

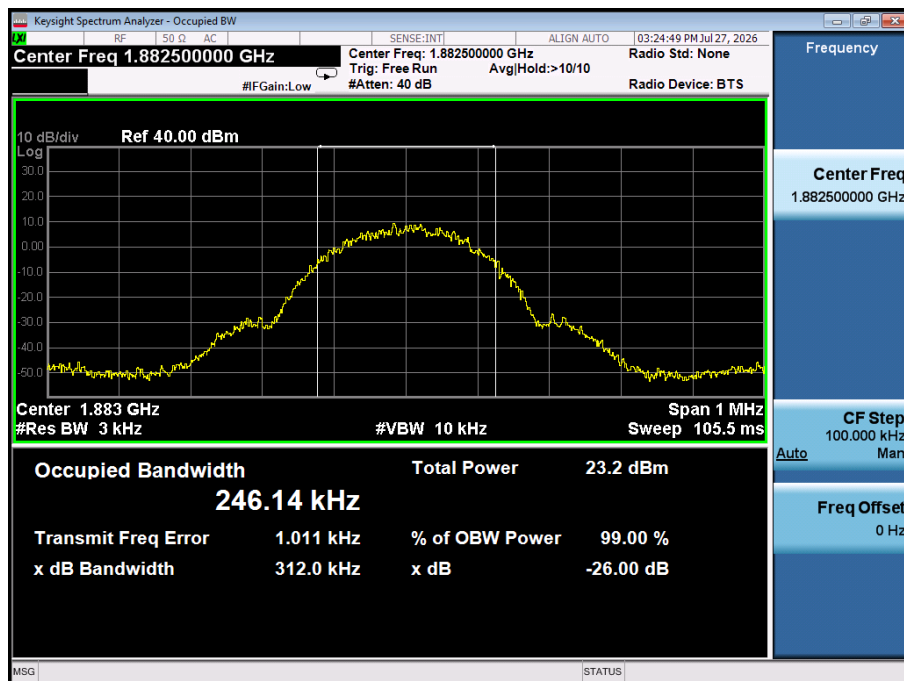
Operation Band		Signal Type	Input OBW [MHz]	Output OBW [MHz]	Results
Uplink	PCS	GSM	0.246	0.246	PASS
		CDMA	1.253	1.244	PASS
		LTE	4.516	4.512	PASS
	AWS	GSM	0.244	0.247	PASS
		CDMA	1.242	1.244	PASS
		LTE	4.517	4.515	PASS
	Cellular	GSM	0.245	0.246	PASS
		CDMA	1.242	1.245	PASS
		LTE	4.524	4.503	PASS
	Lower700M Hz	GSM	0.247	0.246	PASS
		CDMA	1.245	1.243	PASS
		LTE	4.525	4.485	PASS
	Upper700M Hz	GSM	0.245	0.245	PASS
		CDMA	1.241	1.271	PASS
		LTE	4.509	4.503	PASS
Downlink	PCS	GSM	0.244	0.245	PASS
		CDMA	1.246	1.246	PASS
		LTE	4.508	4.526	PASS
	AWS	GSM	0.246	0.248	PASS
		CDMA	1.244	1.244	PASS
		LTE	4.510	4.506	PASS
	Cellular	GSM	0.243	0.246	PASS
		CDMA	1.244	1.243	PASS
		LTE	4.509	4.554	PASS
	Lower700M Hz	GSM	0.244	0.247	PASS
		CDMA	1.246	1.250	PASS
		LTE	4.499	4.526	PASS
	Upper700M Hz	GSM	0.245	0.245	PASS
		CDMA	1.245	1.245	PASS
		LTE	4.515	4.503	PASS

Test Plots

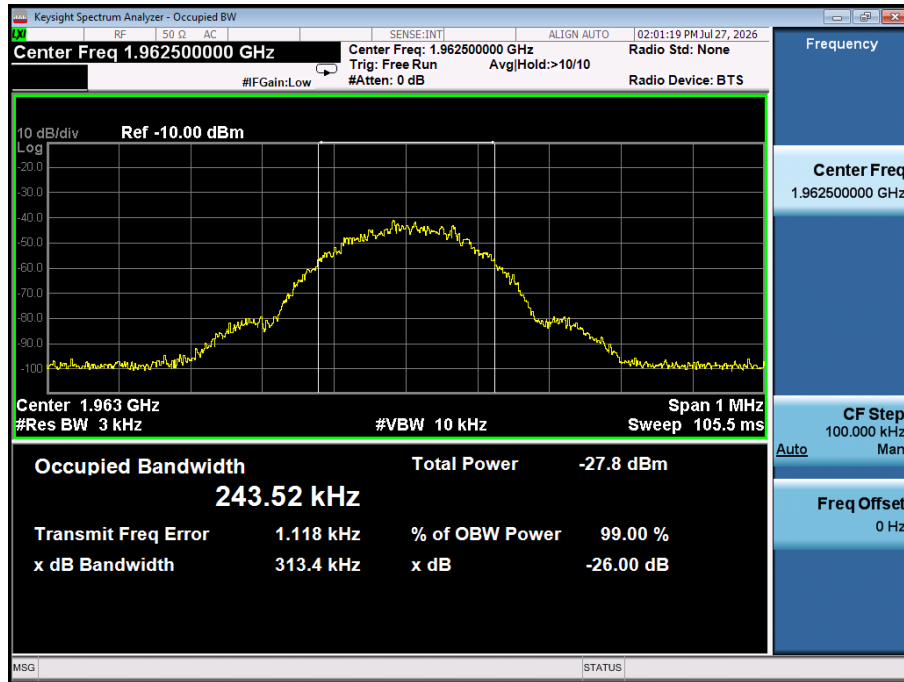
PCS GSM UL Input



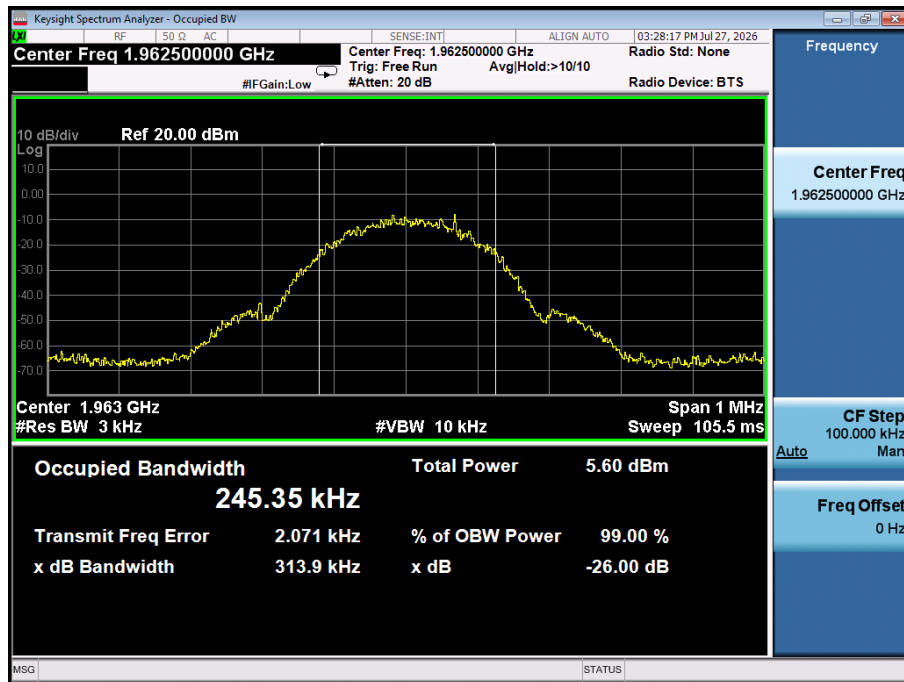
PCS GSM UL output



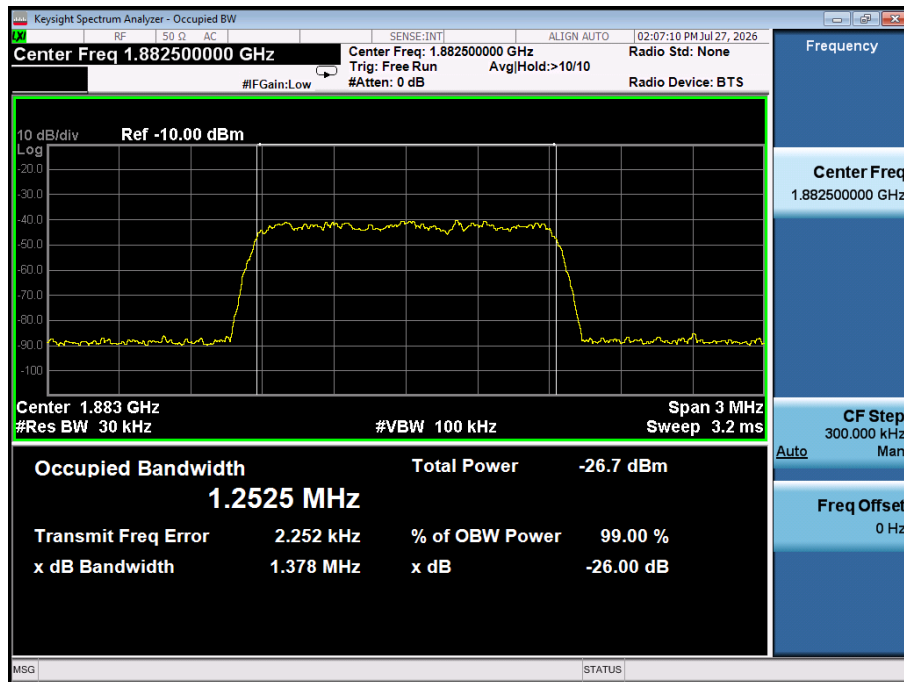
PCS GSM DL Input



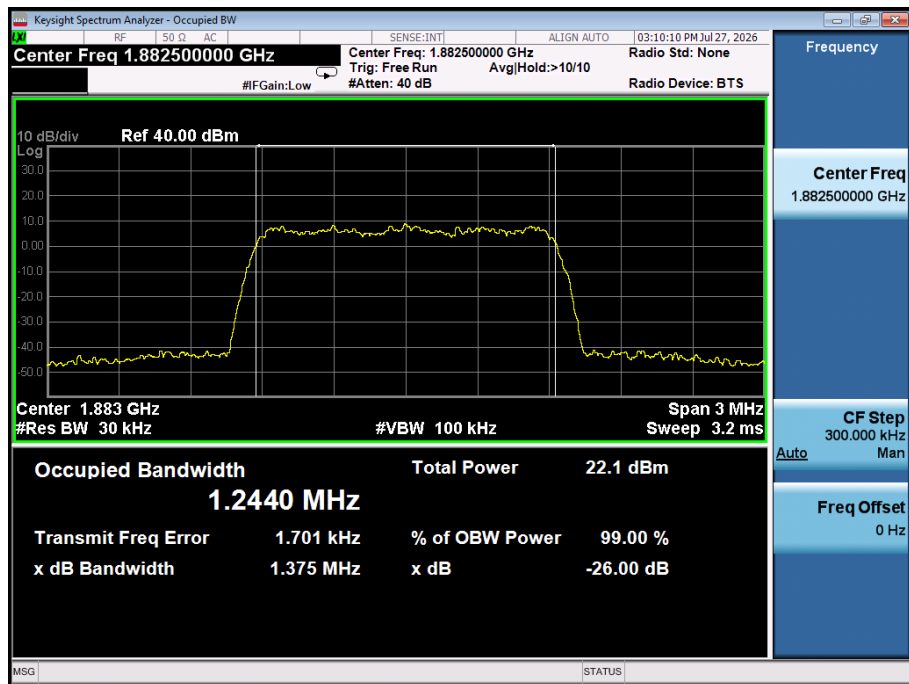
PCS GSM DL Output



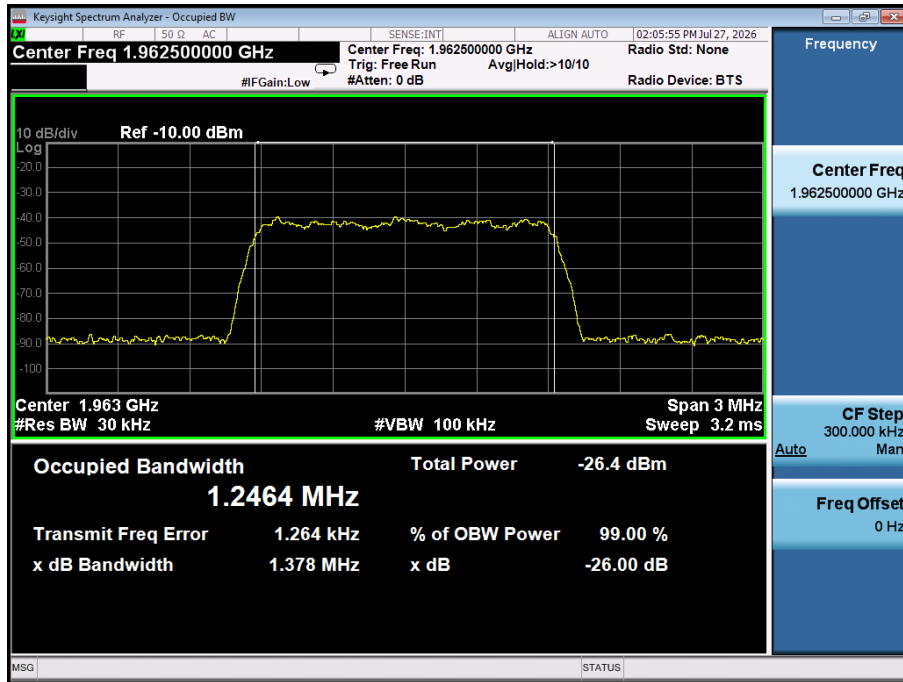
PCS CDMA UL Input



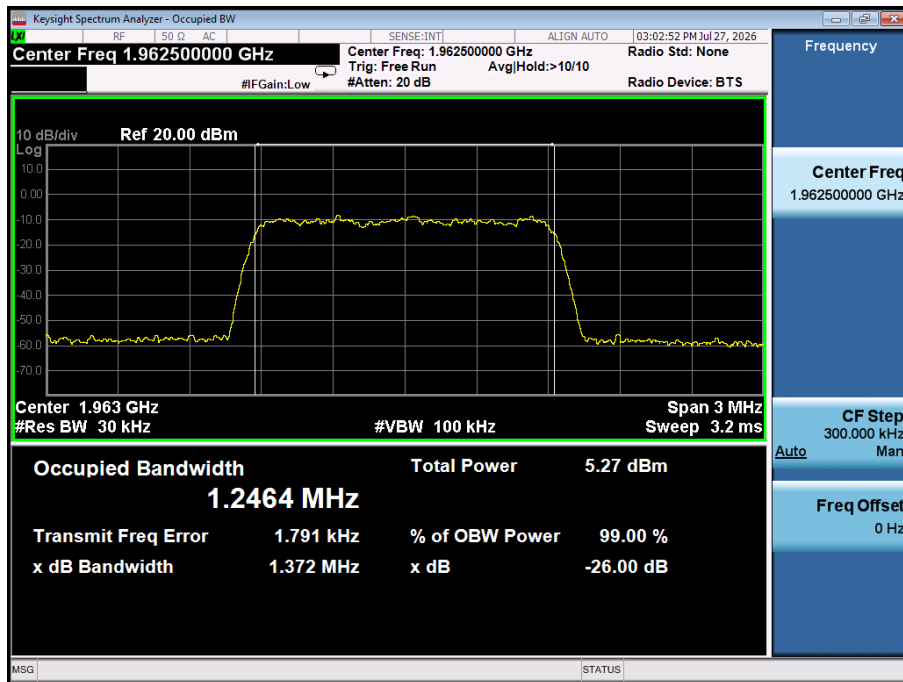
PCS CDMA UL output



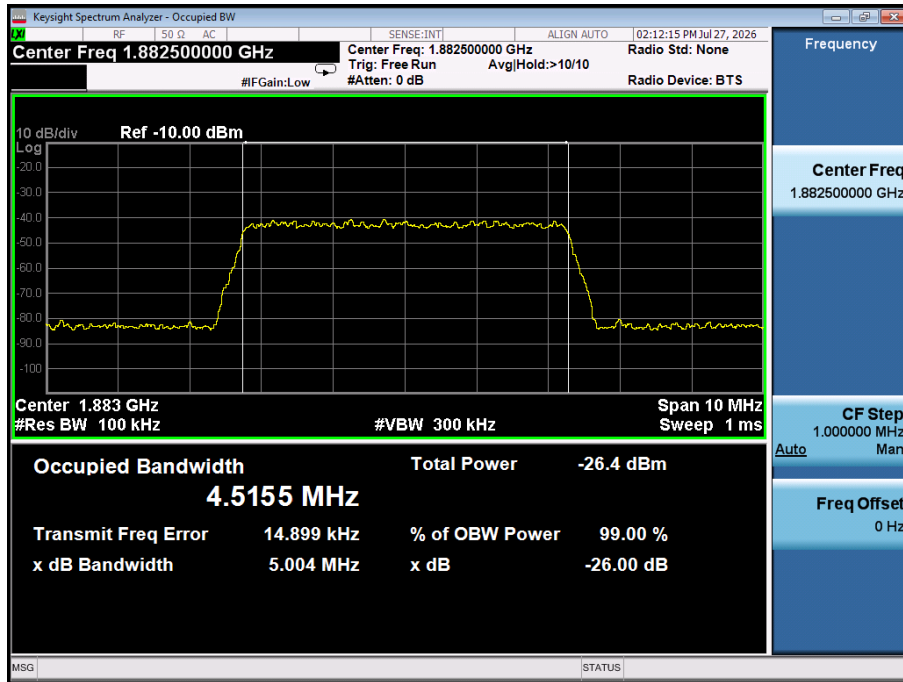
PCS CDMA DL Input



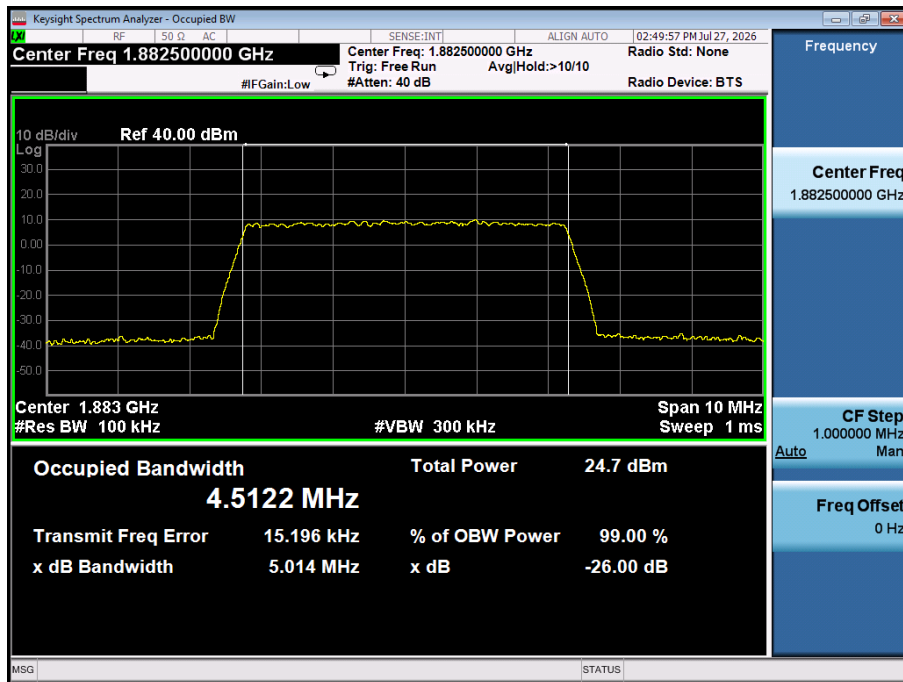
PCS CDMA DL Output



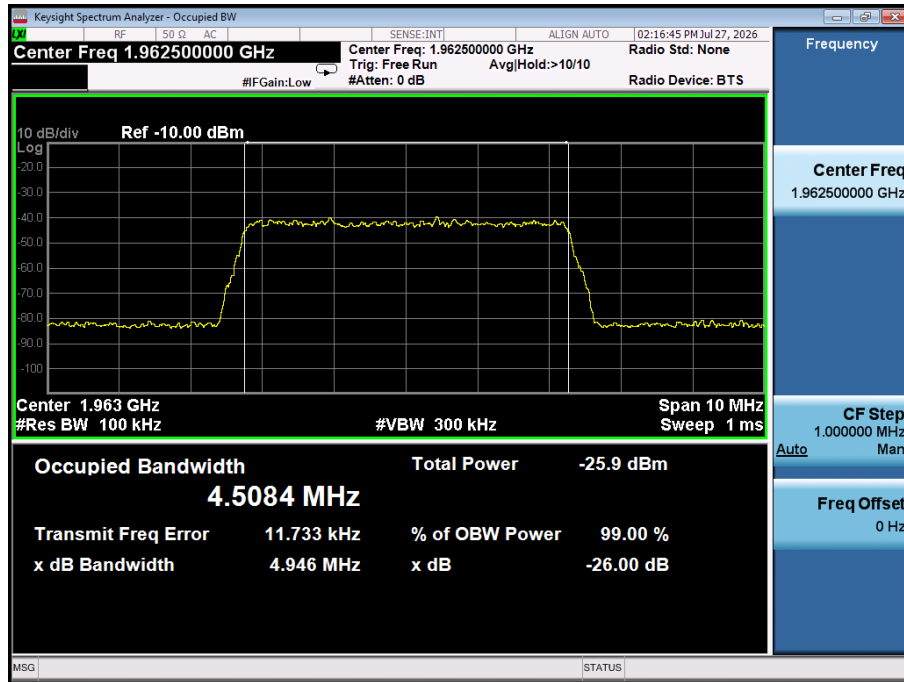
PCS LTE UL Input



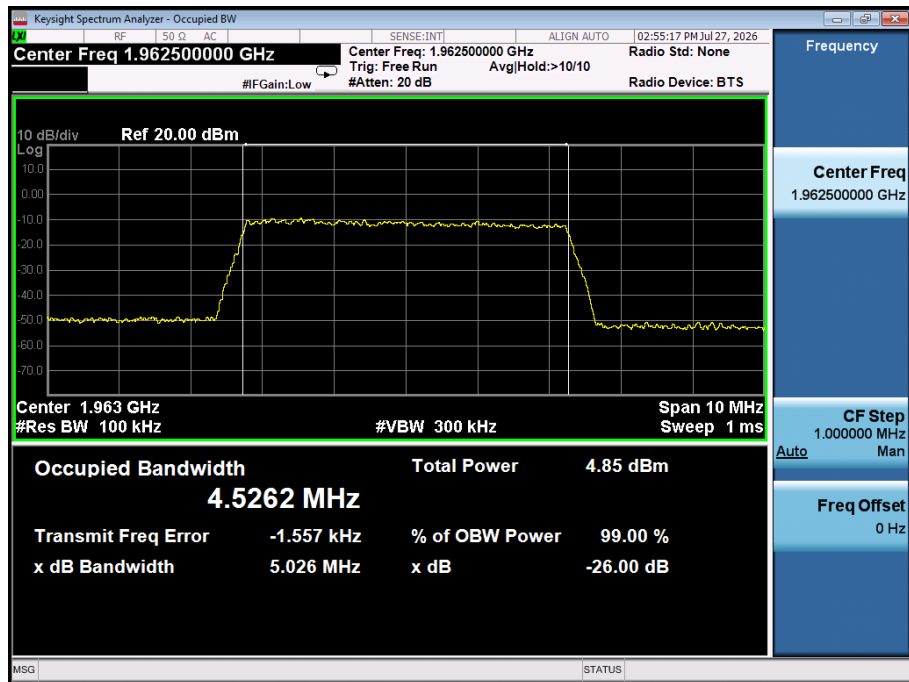
PCS LTE UL output



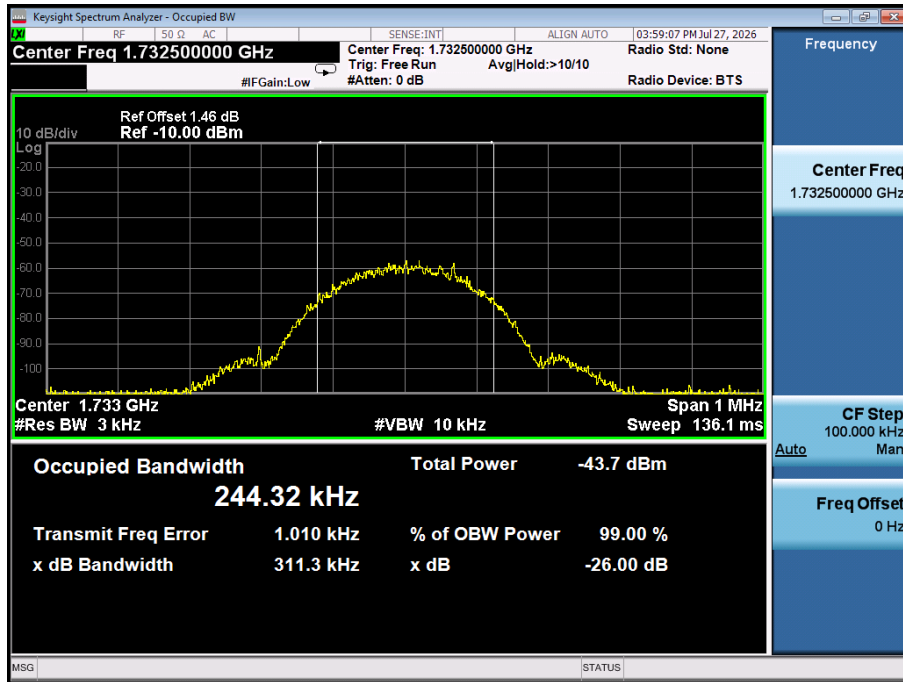
PCS LTE DL Input



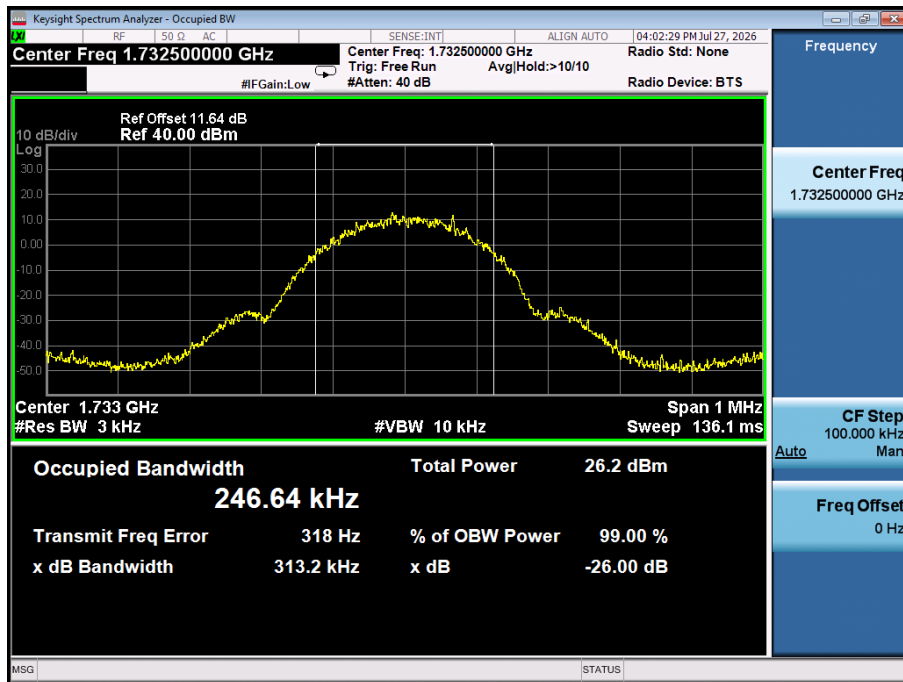
PCS LTE DL Output



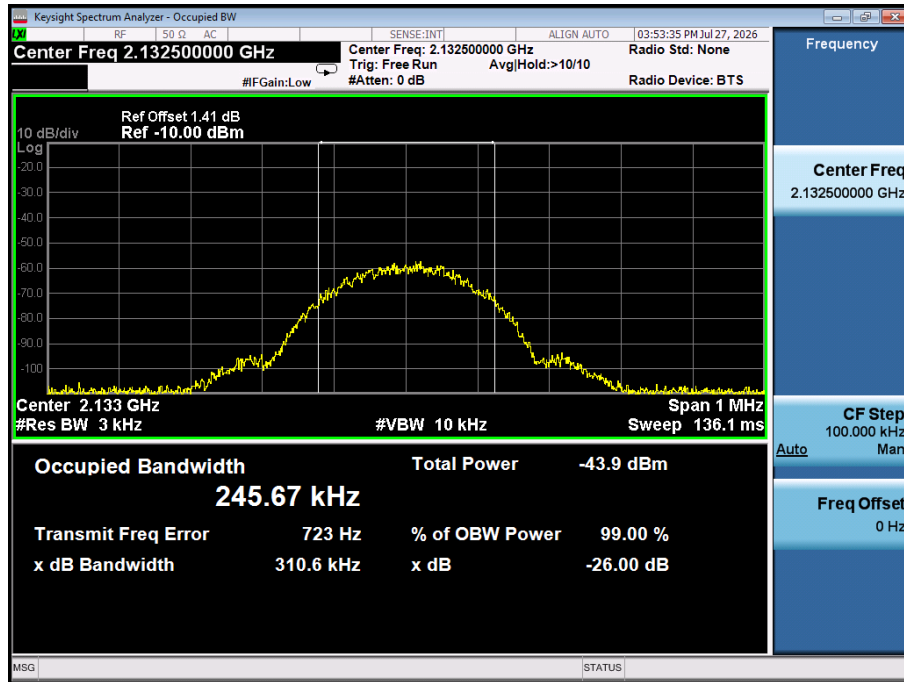
AWS GSM UL Input



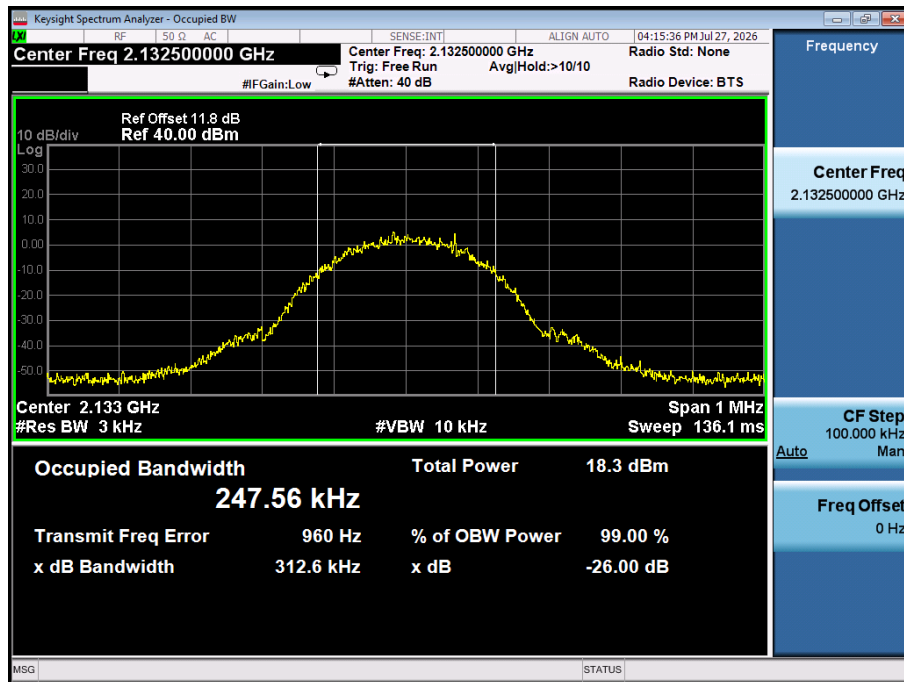
AWS GSM UL output



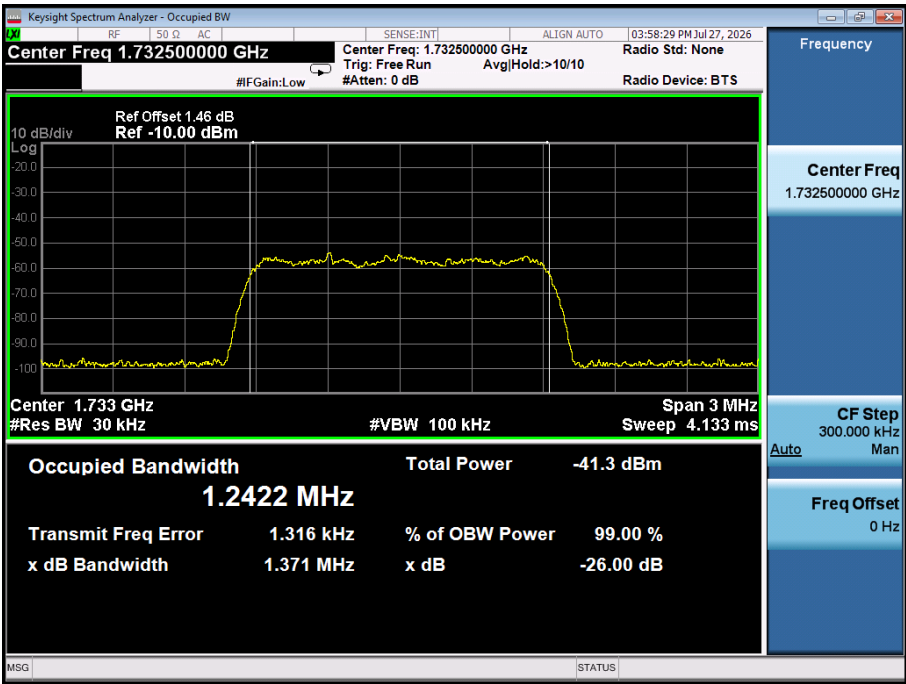
AWS GSM DL Input



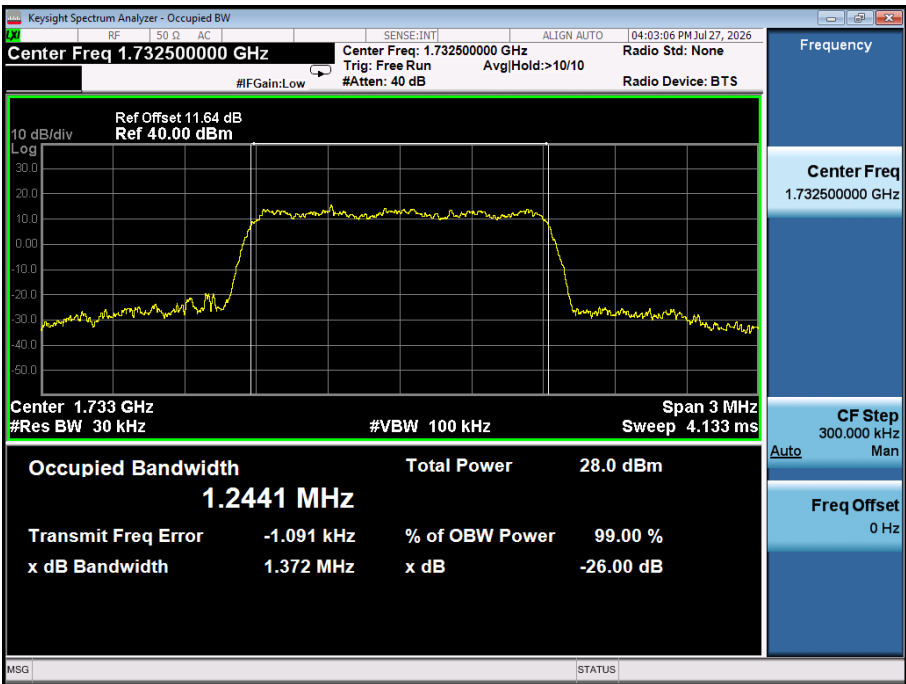
AWS GSM DL Output



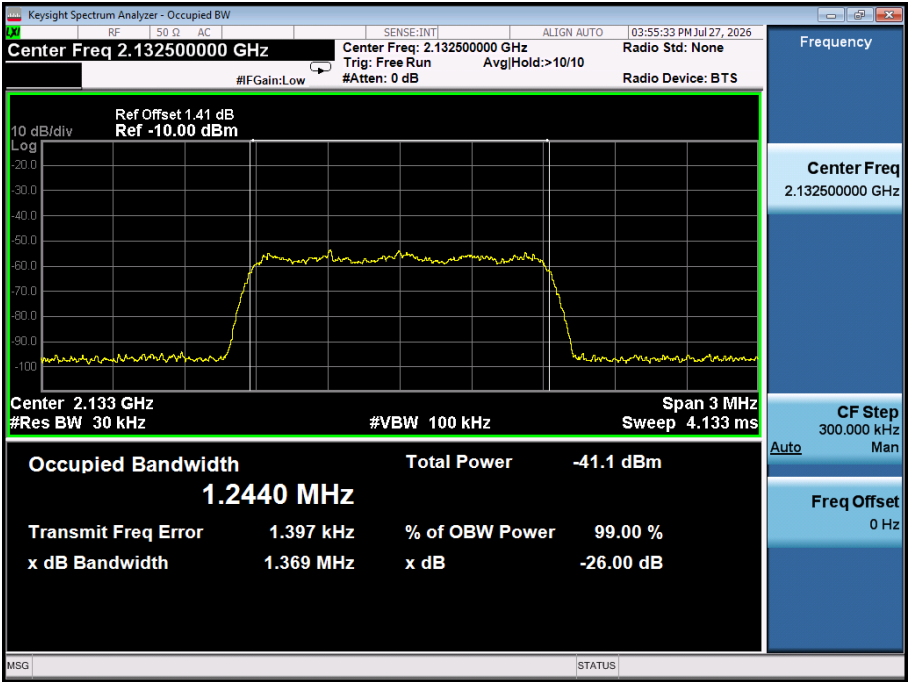
AWS CDMA UL Input



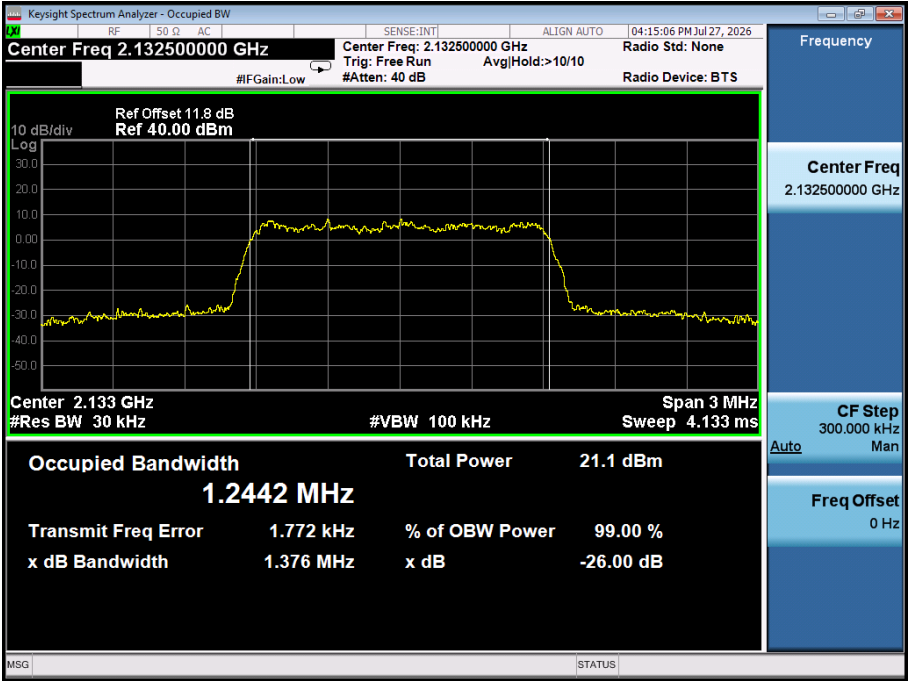
AWS CDMA UL output



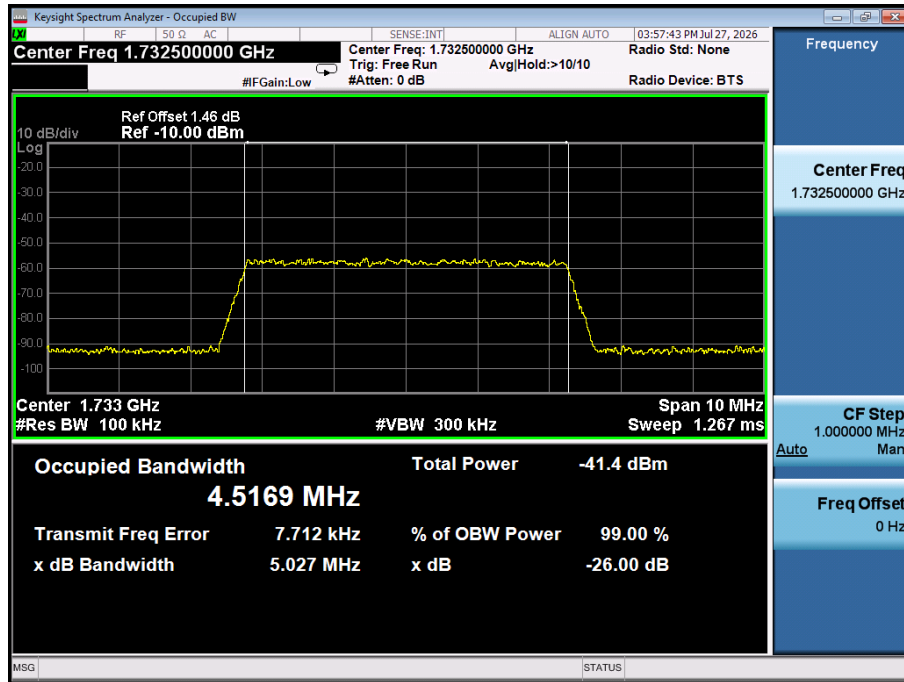
AWS CDMA DL Input



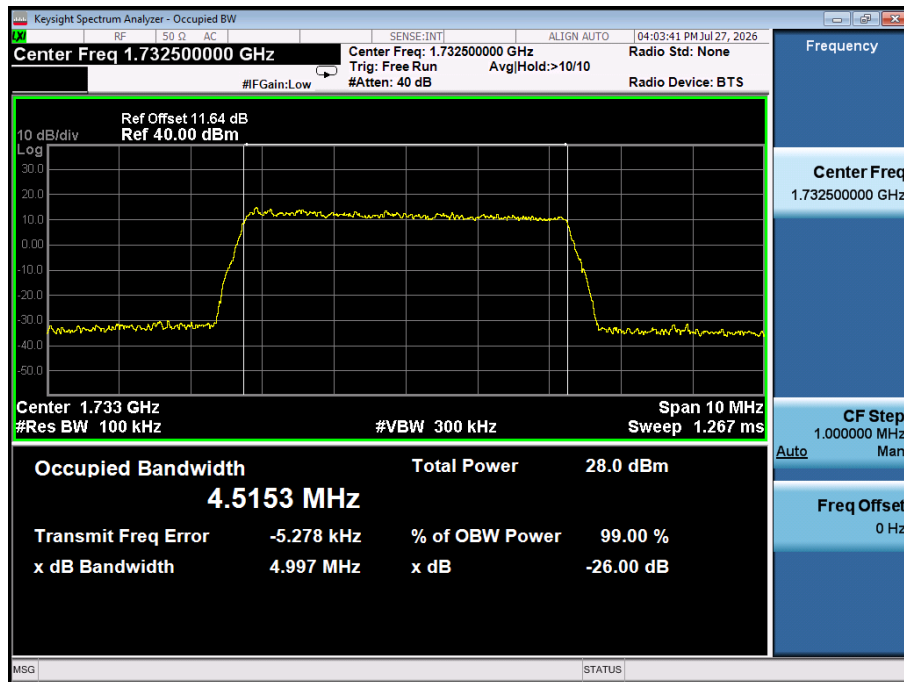
AWS CDMA DL Output



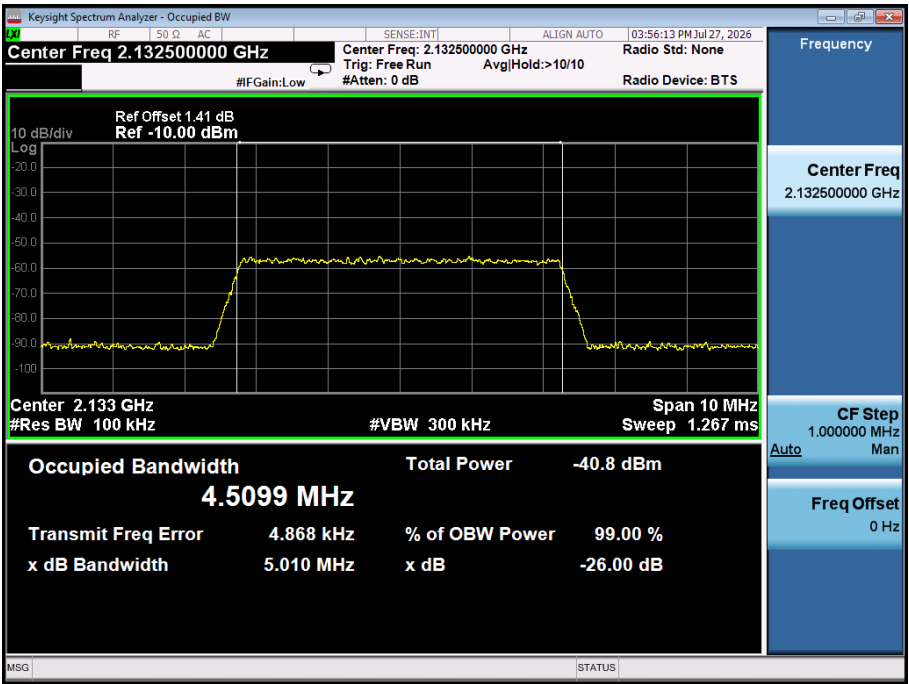
AWS LTE UL Input



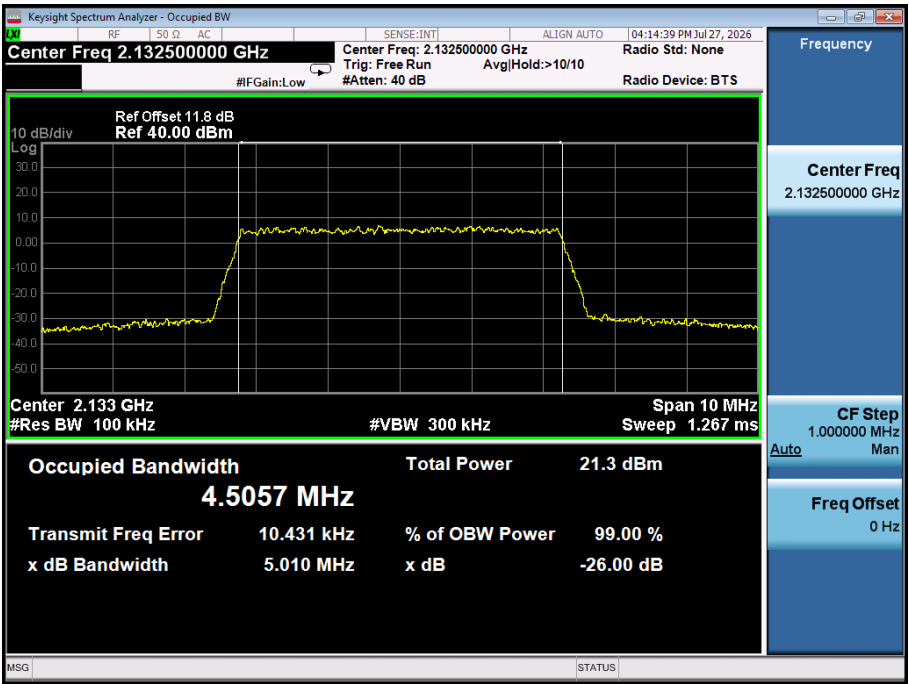
AWS LTE UL output



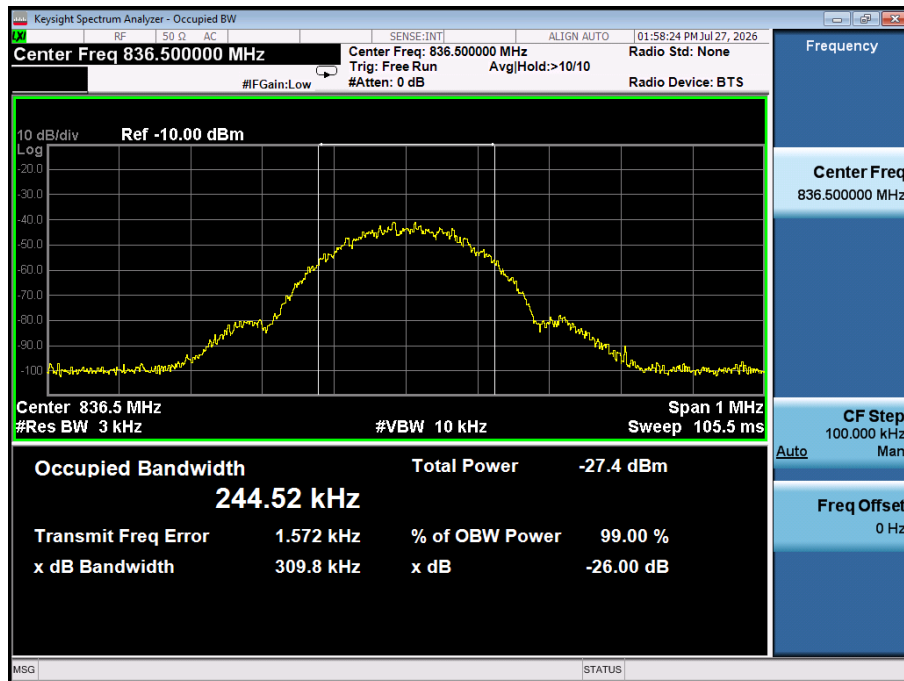
AWS LTE DL Input



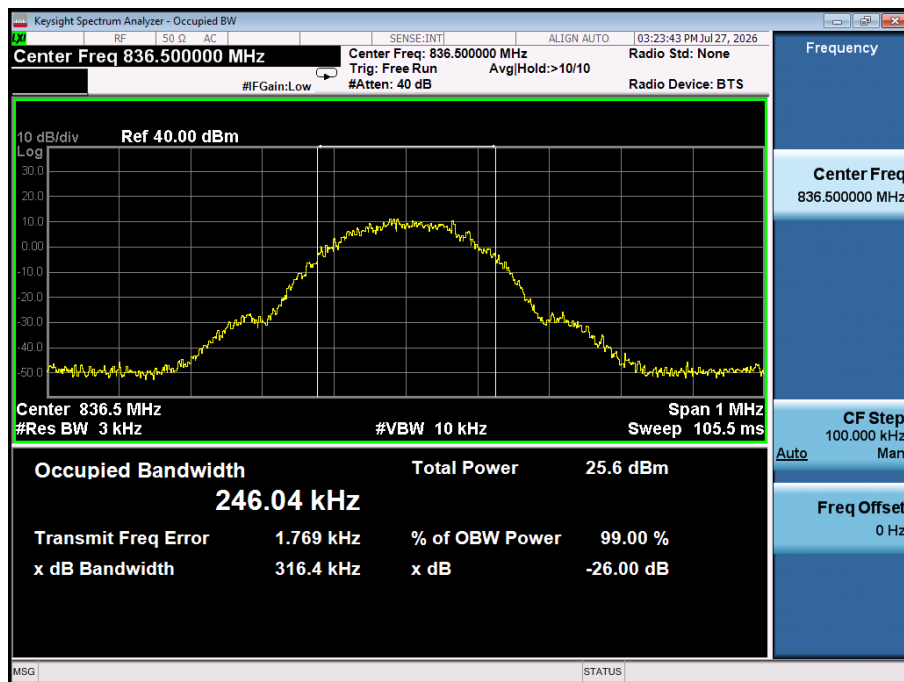
AWS LTE DL Output



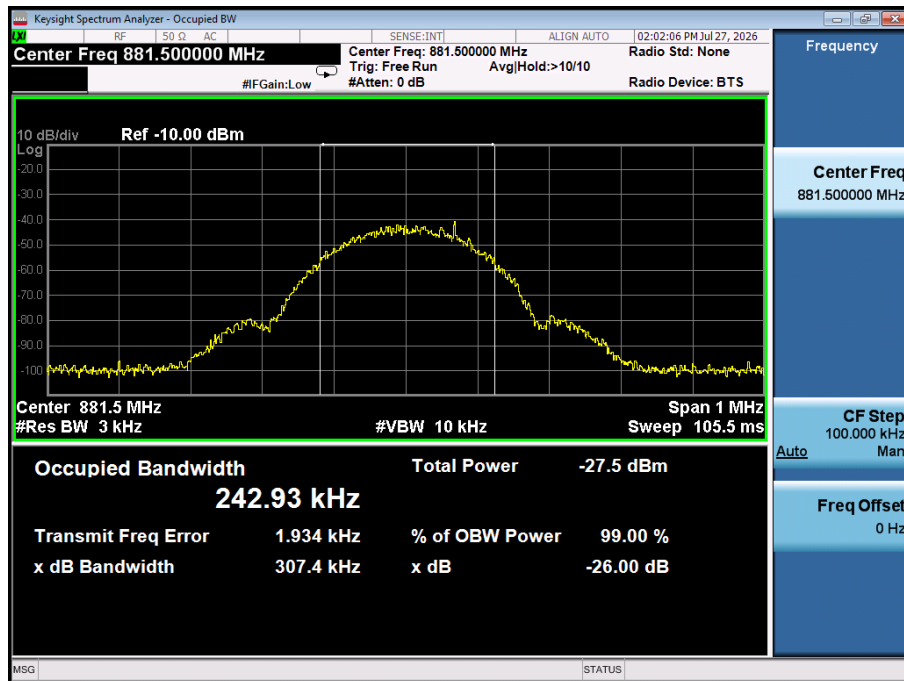
Cellular GSM UL Input



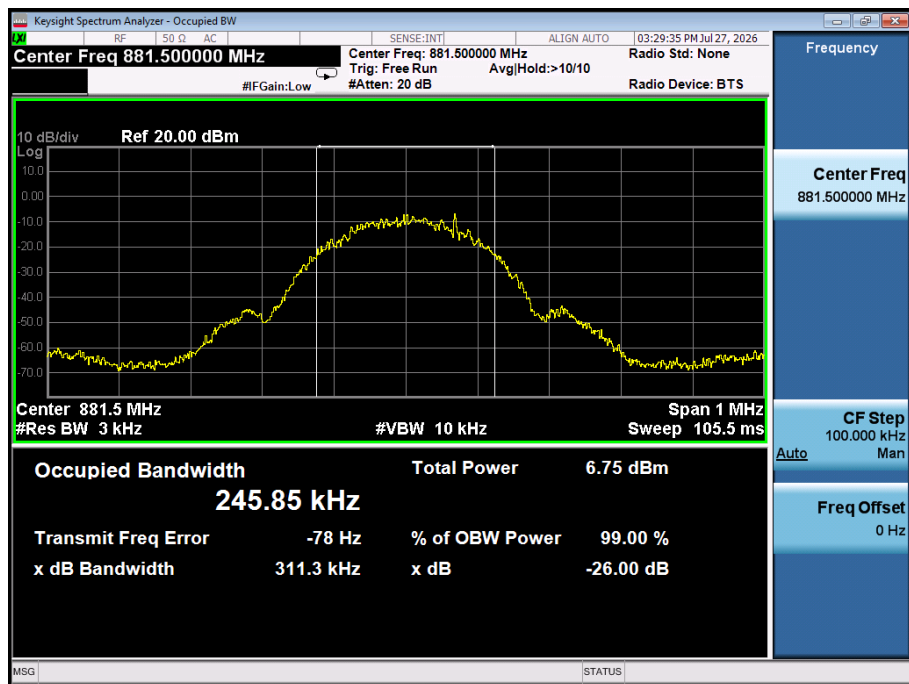
Cellular GSM UL output



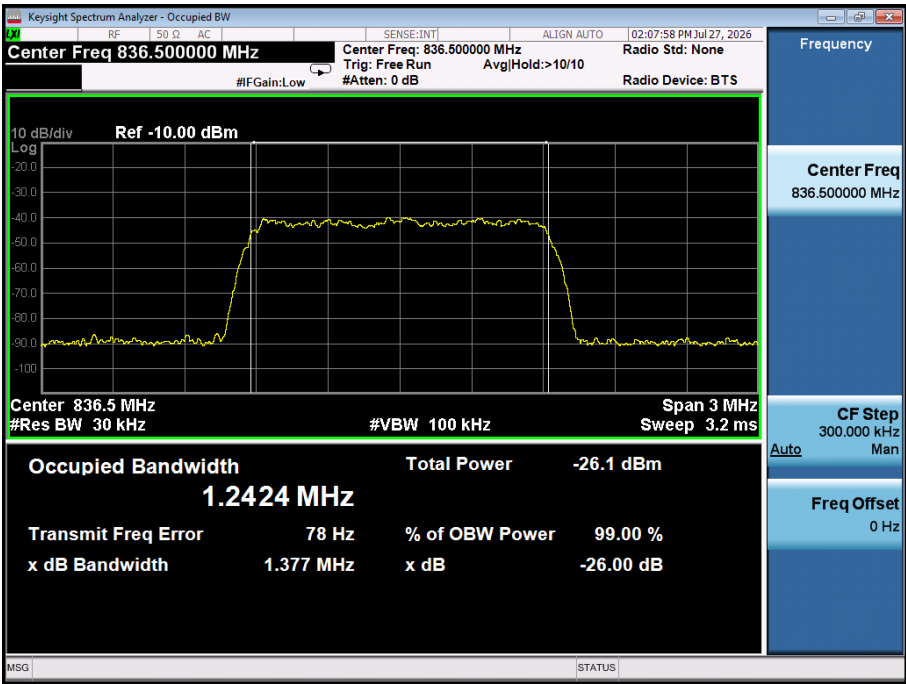
Cellular GSM DL Input



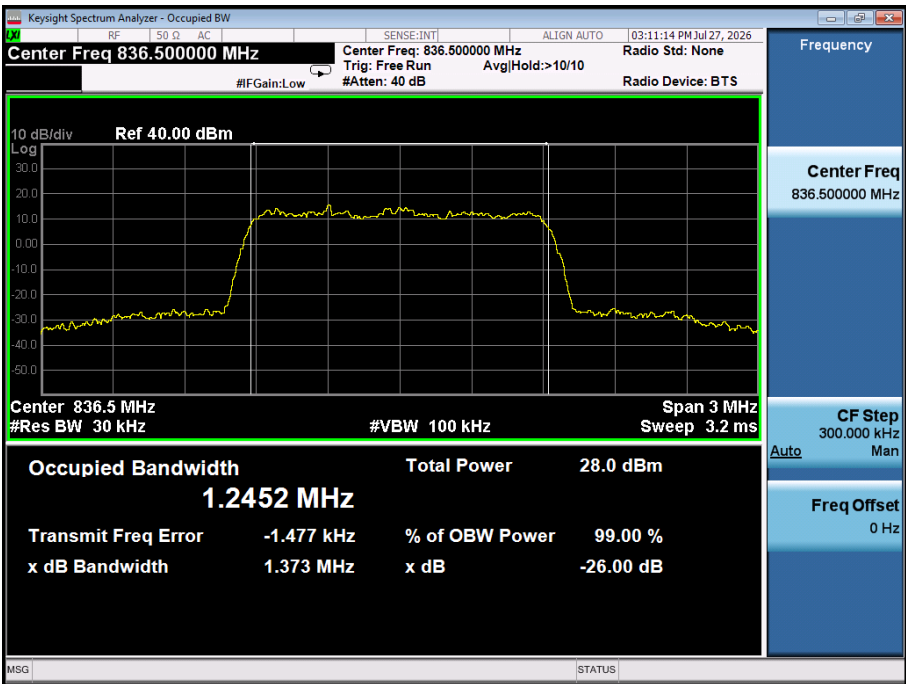
Cellular GSM DL Output



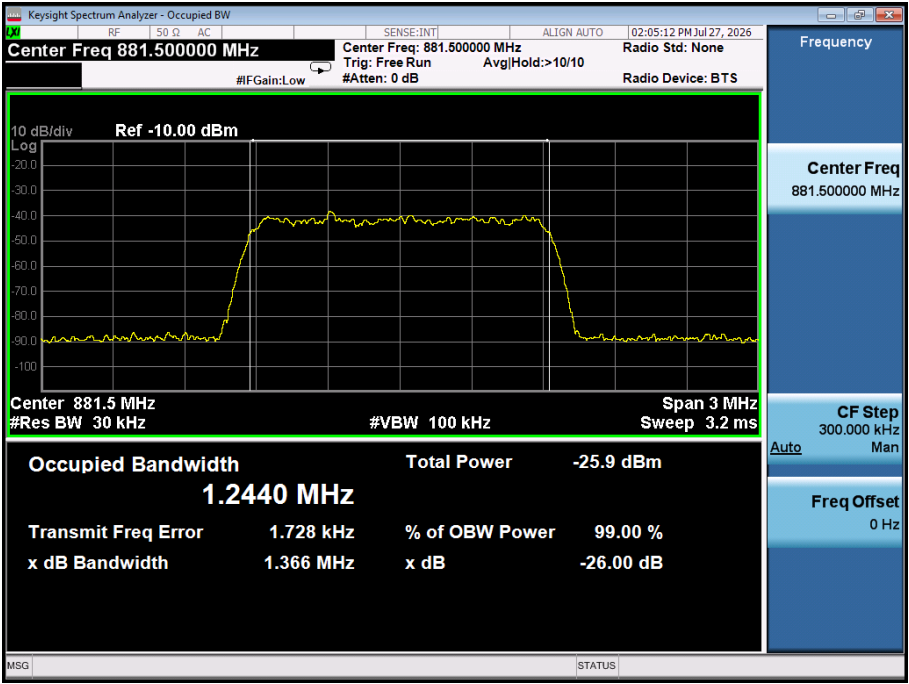
Cellular CDMA UL Input



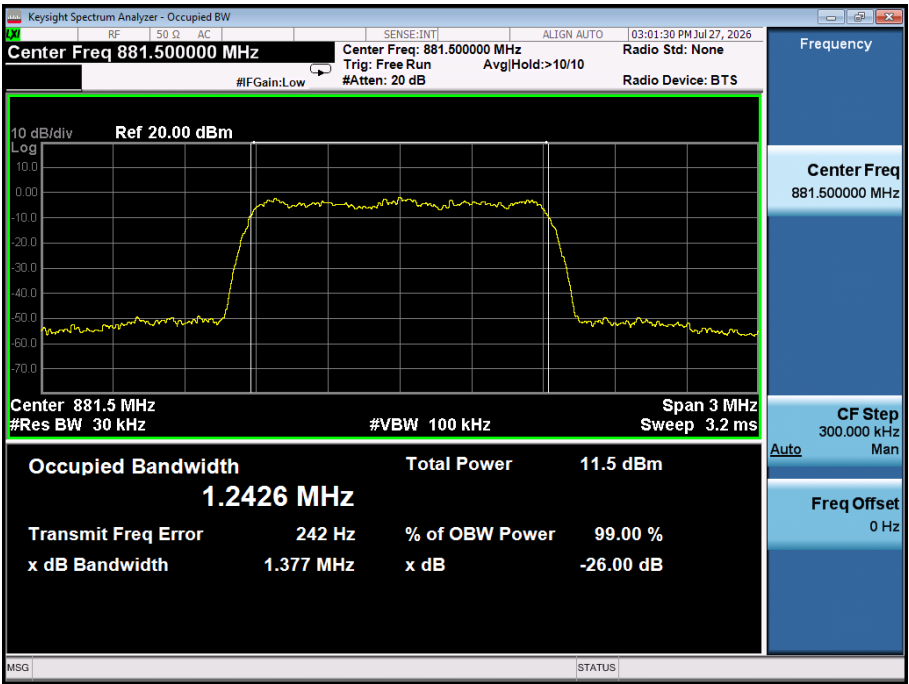
Cellular CDMA UL output



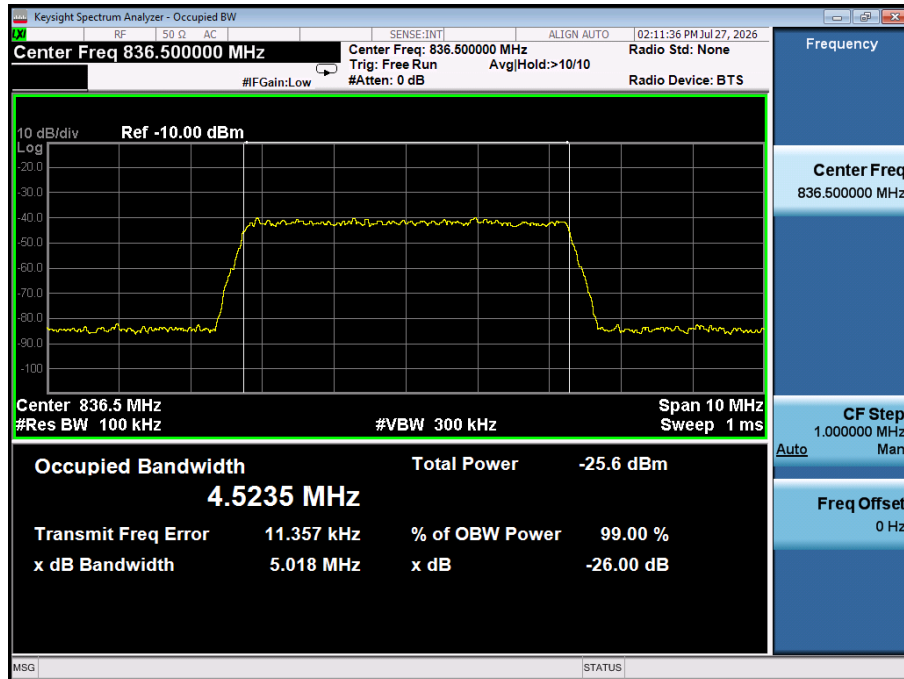
Cellular CDMA DL Input



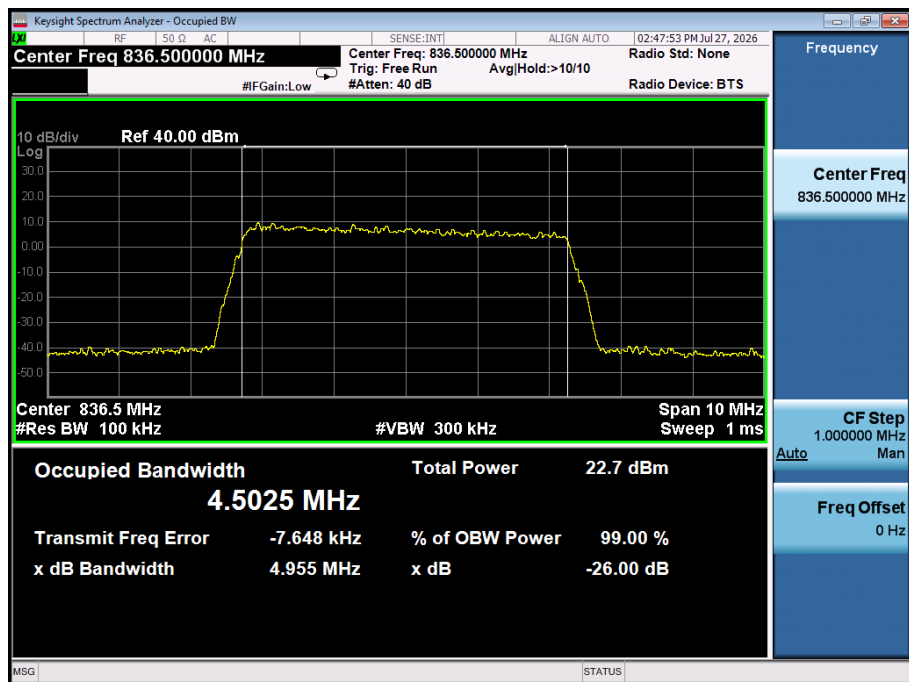
Cellular CDMA DL Output



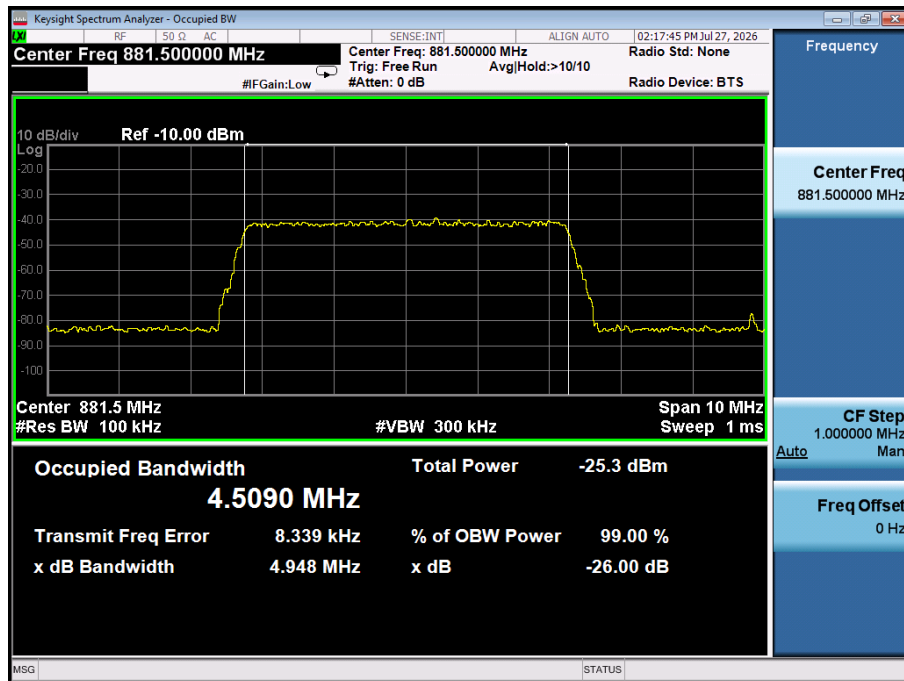
Cellular LTE UL Input



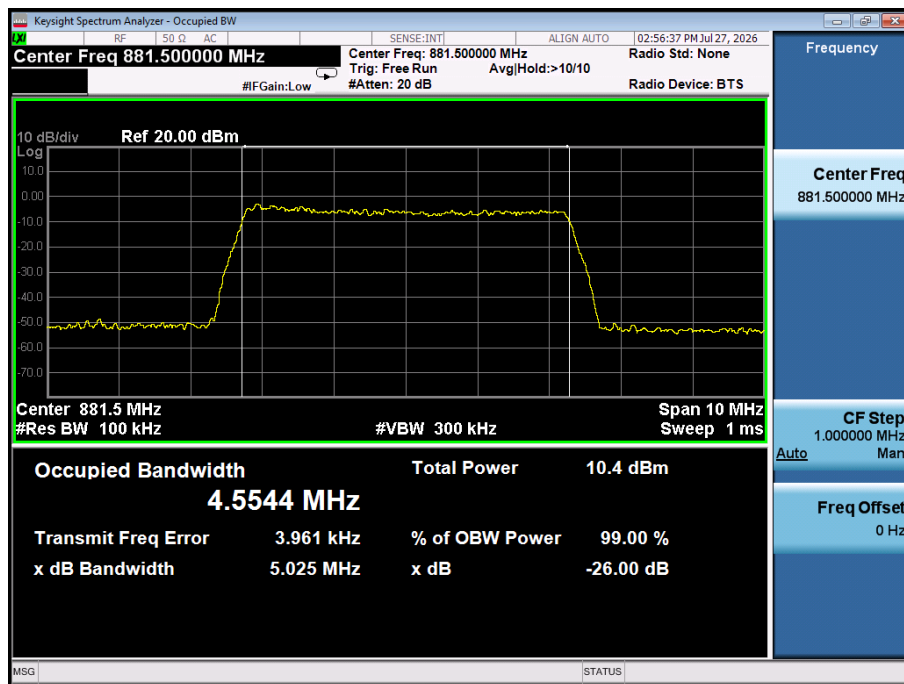
Cellular LTE UL output



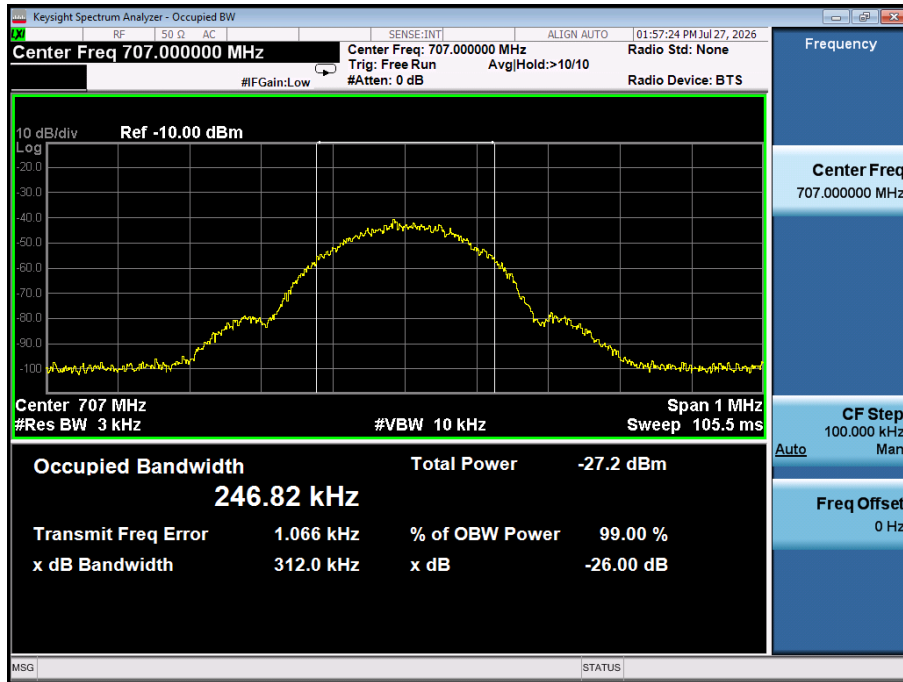
Cellular LTE DL Input



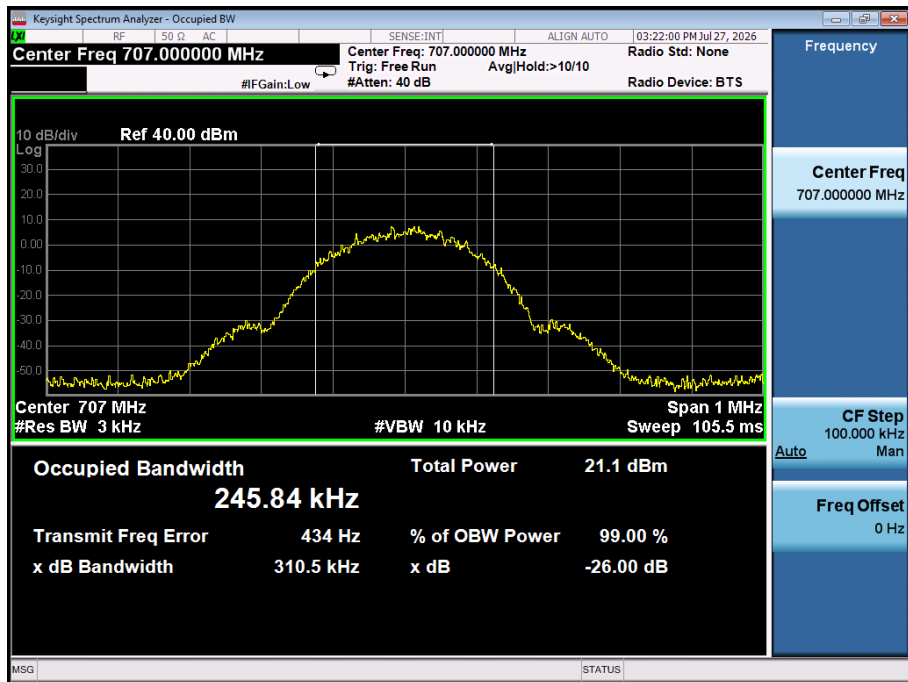
Cellular LTE DL Output



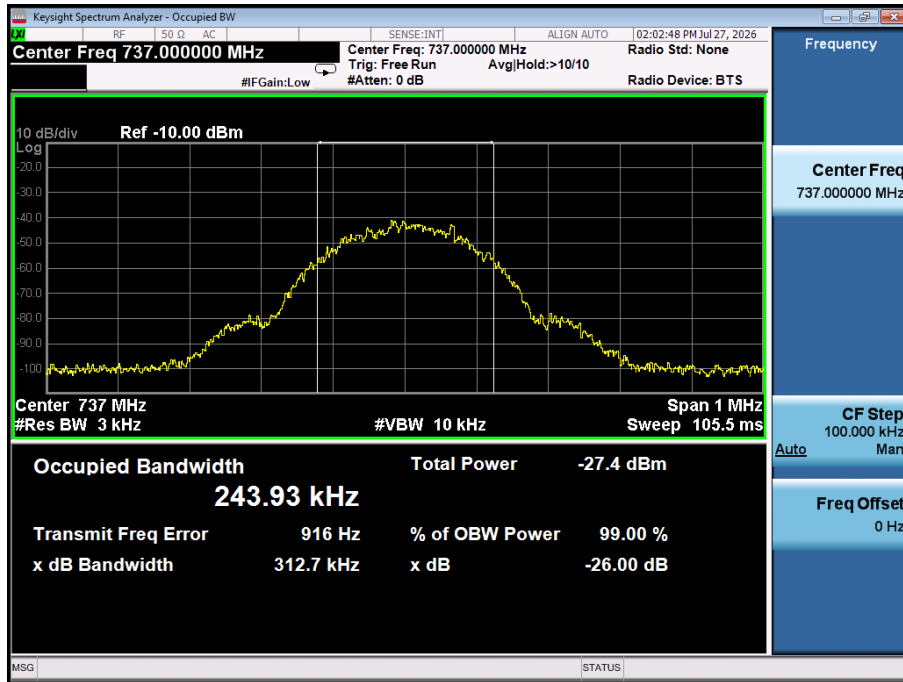
Lower700MHz GSM UL Input



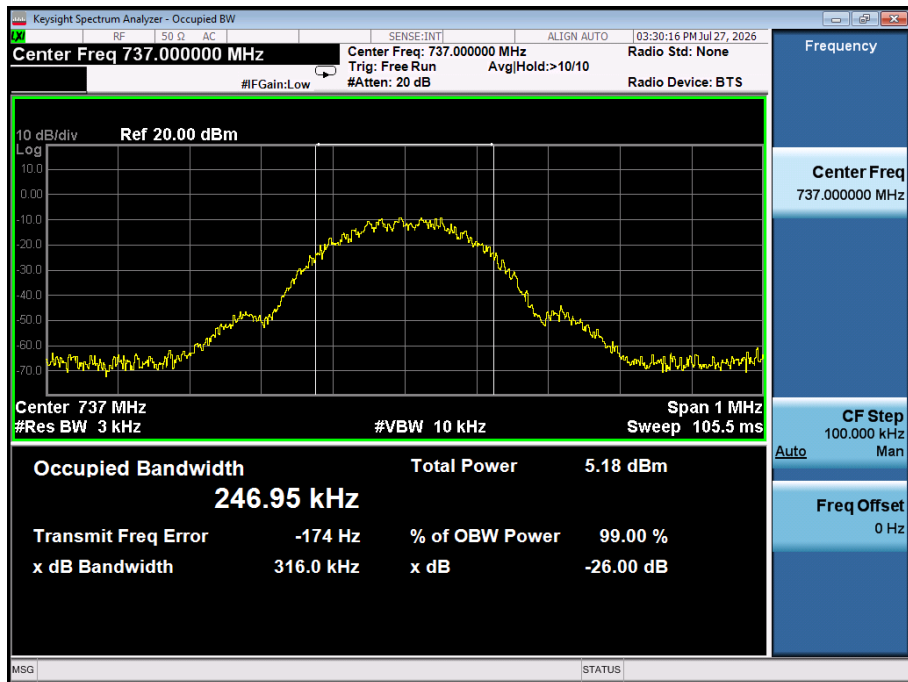
Lower700MHz GSM UL output



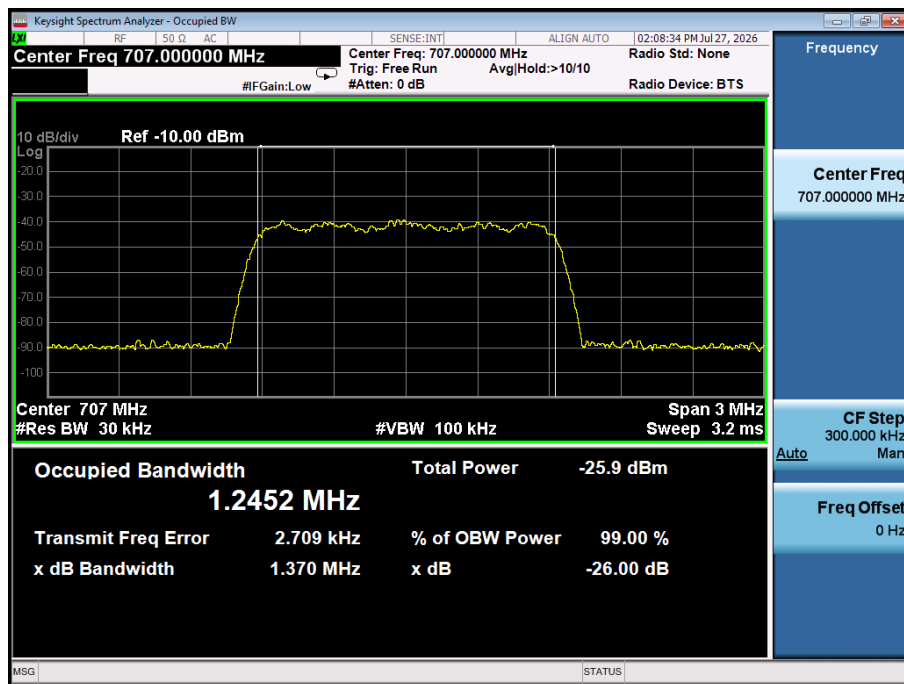
Lower700MHz GSM DL Input



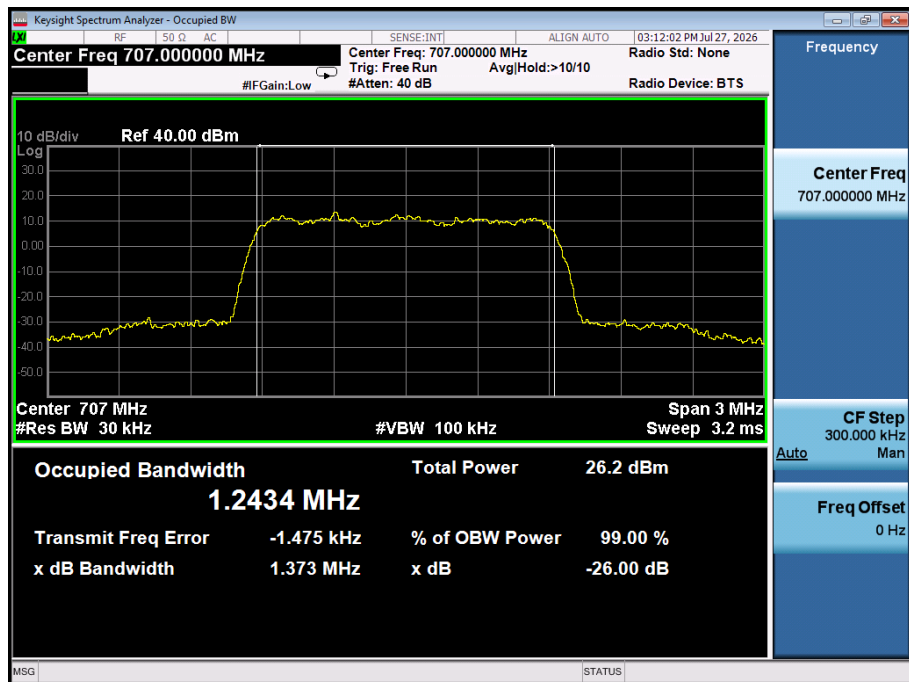
Lower700MHz GSM DL Output



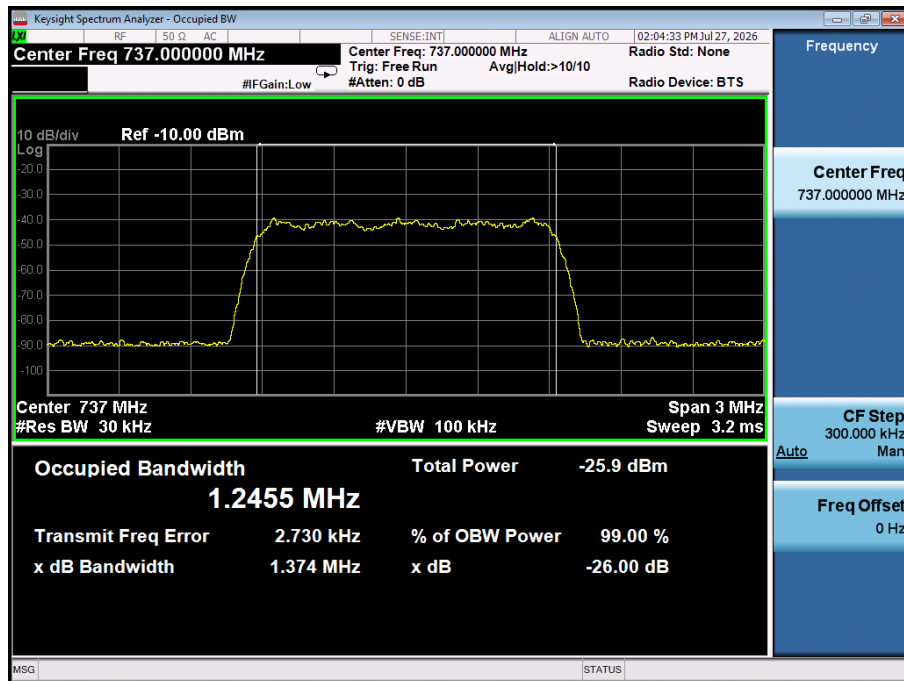
Lower700MHz CDMA UL Input



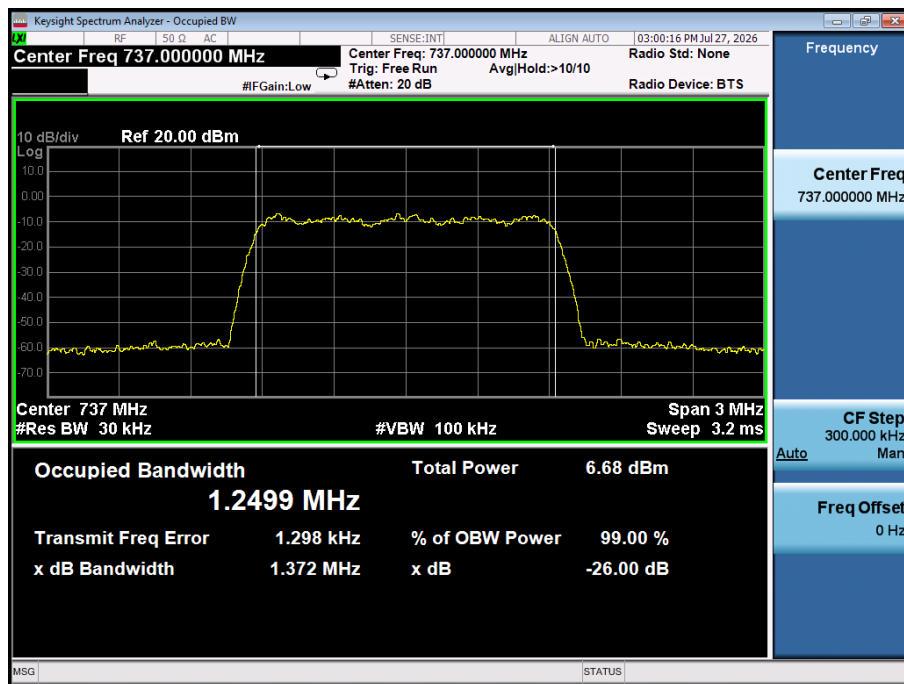
Lower700MHz CDMA UL output



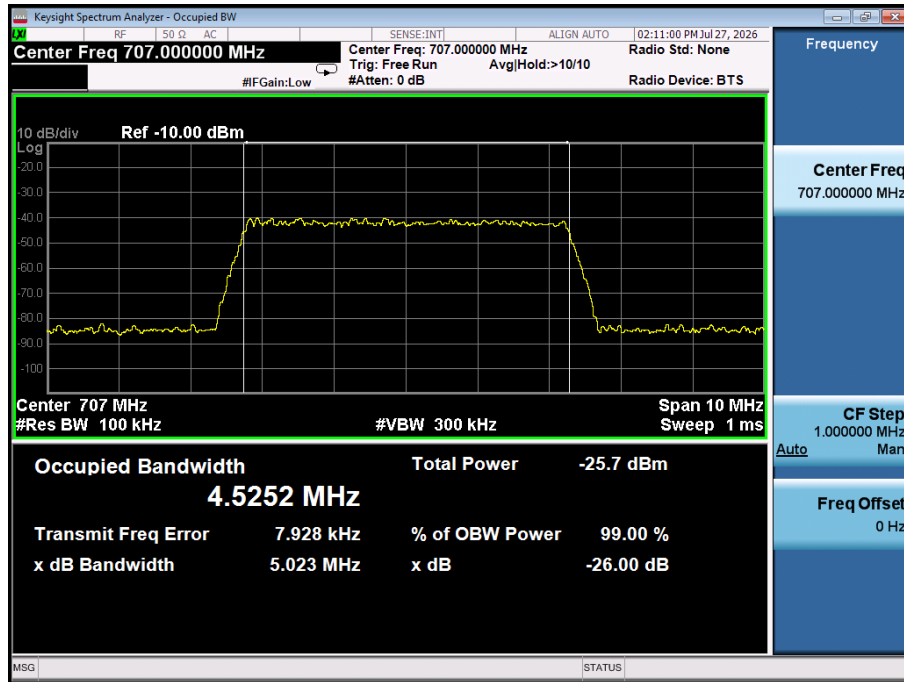
Lower700MHz CDMA DL Input



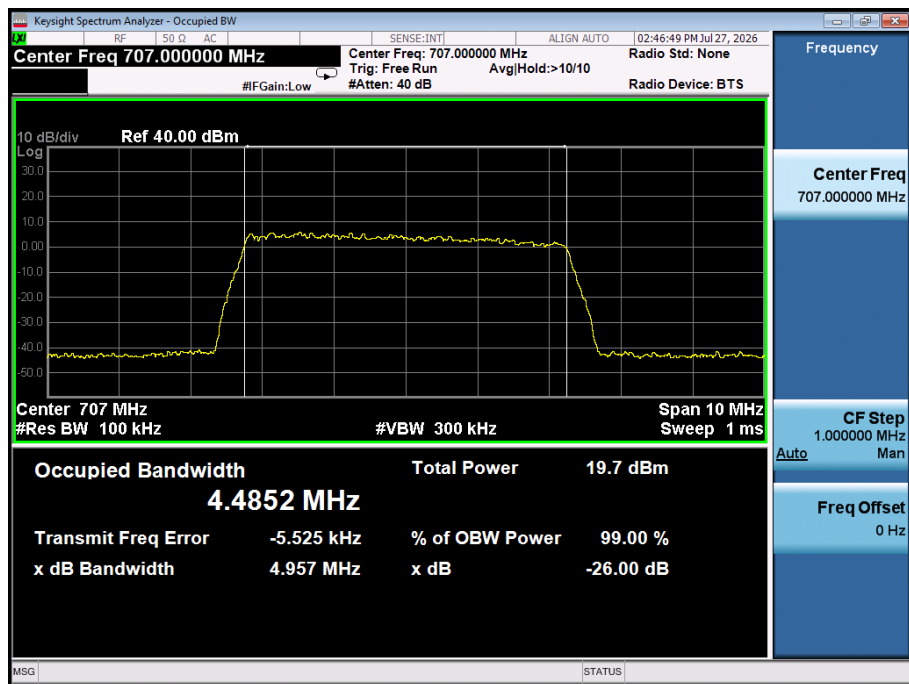
Lower700MHz CDMA DL Output



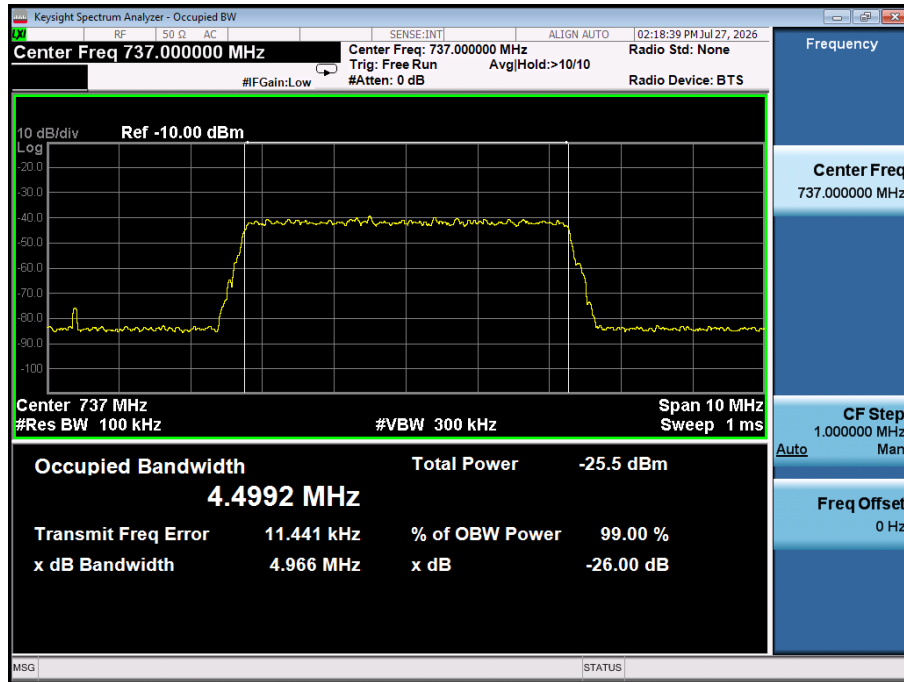
Lower700MHz LTE UL Input



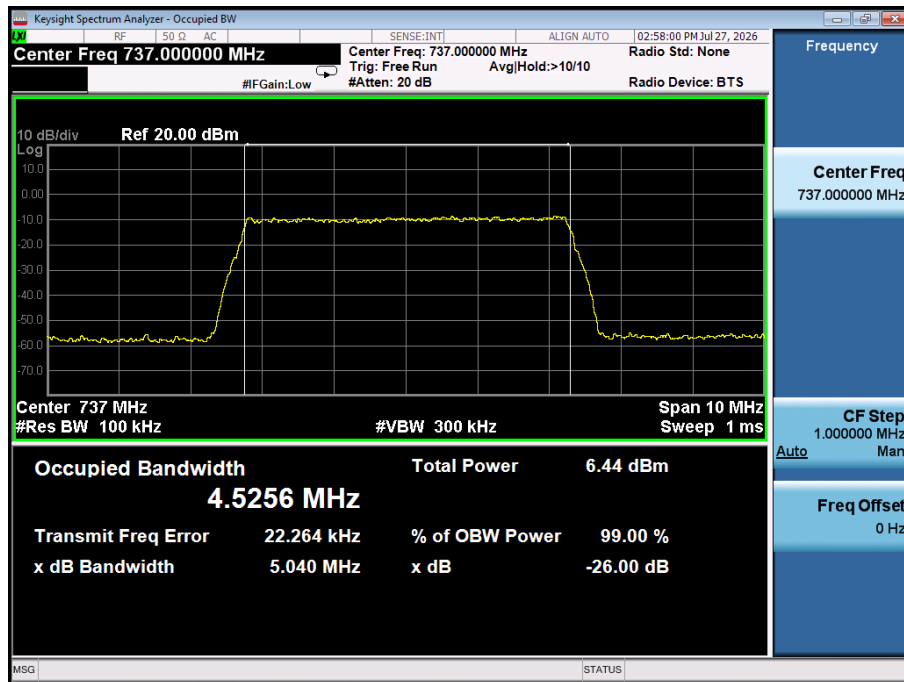
Lower700MHz LTE UL output



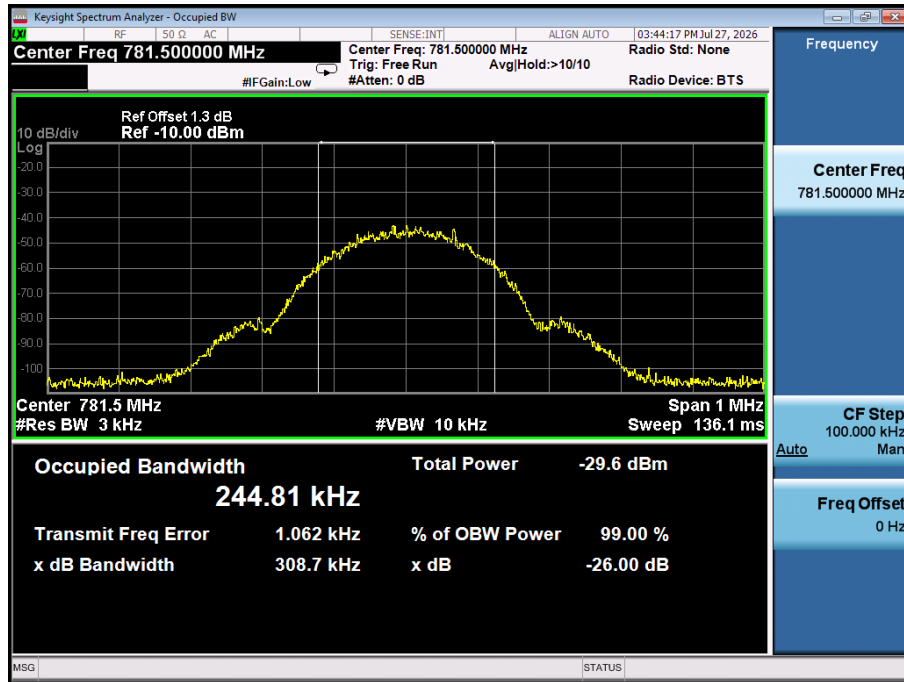
Lower700MHz LTE DL Input



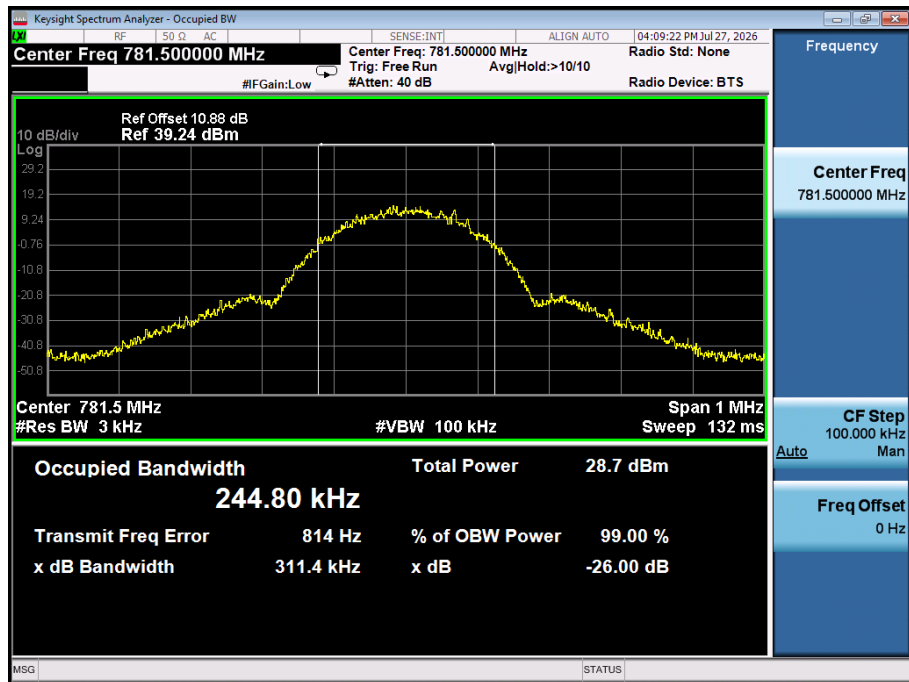
Lower700MHz LTE DL Output



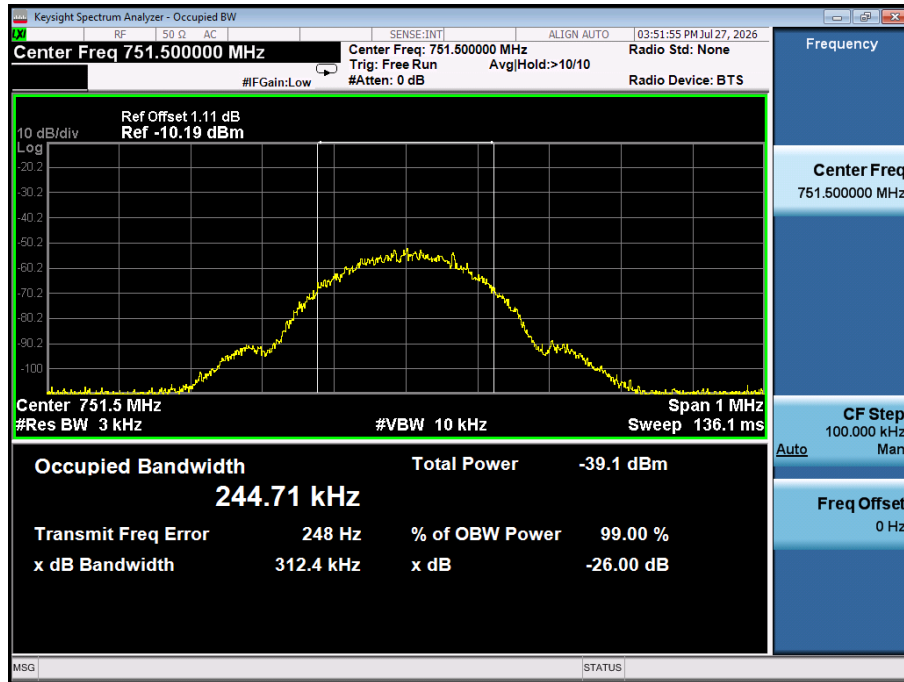
Upper700MHz GSM UL Input



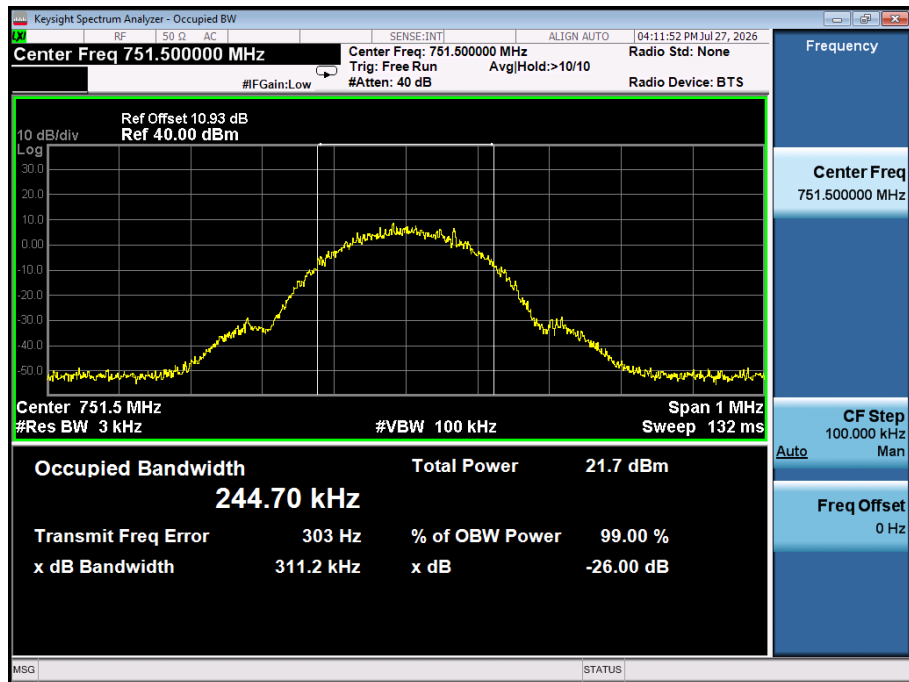
Upper700MHz GSM UL output



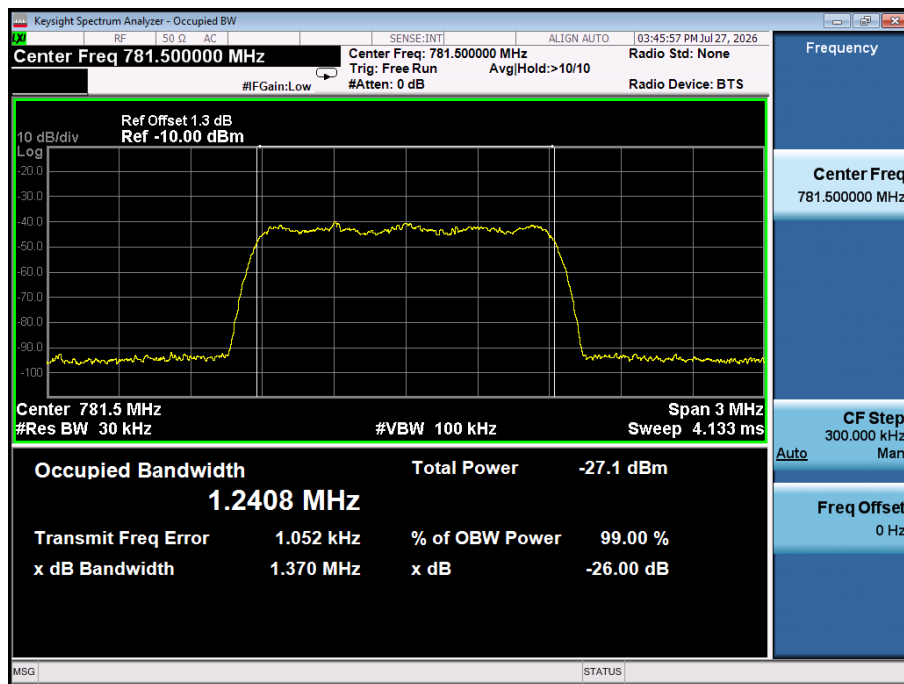
Upper700MHz GSM DL Input



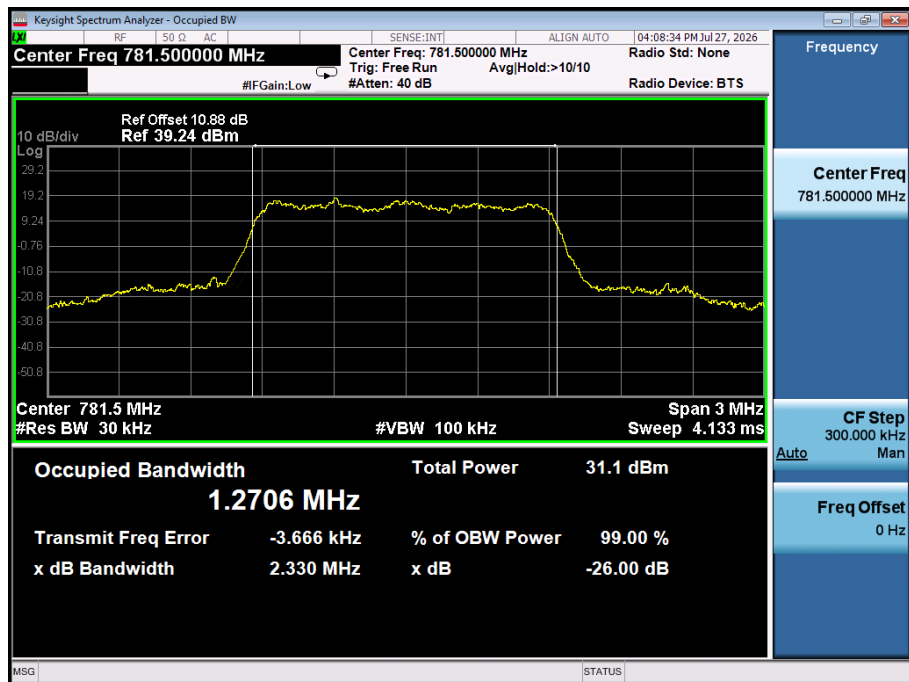
Upper700MHz GSM DL Output



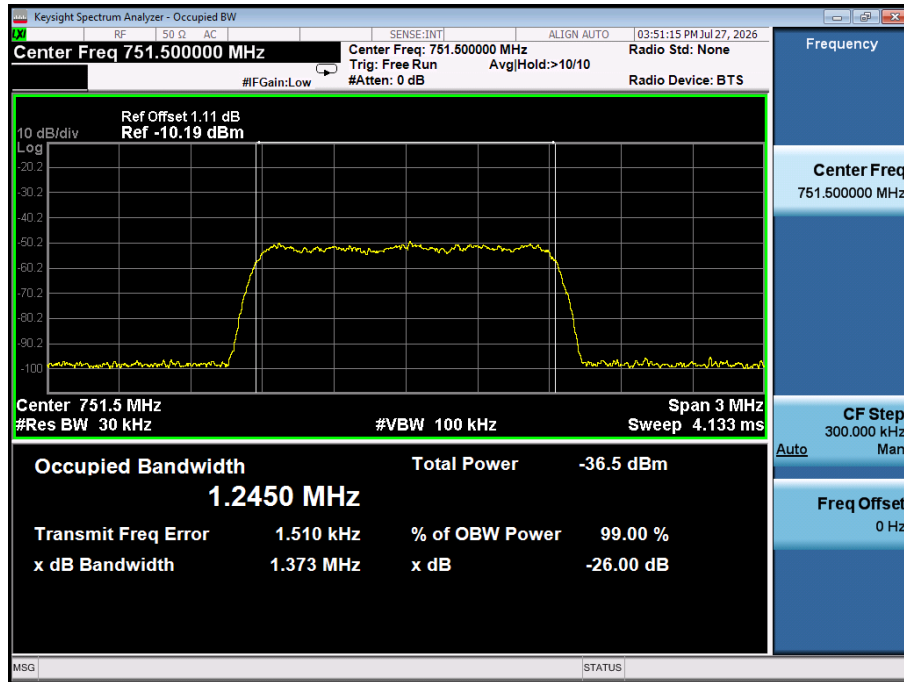
Upper700MHz CDMA UL Input



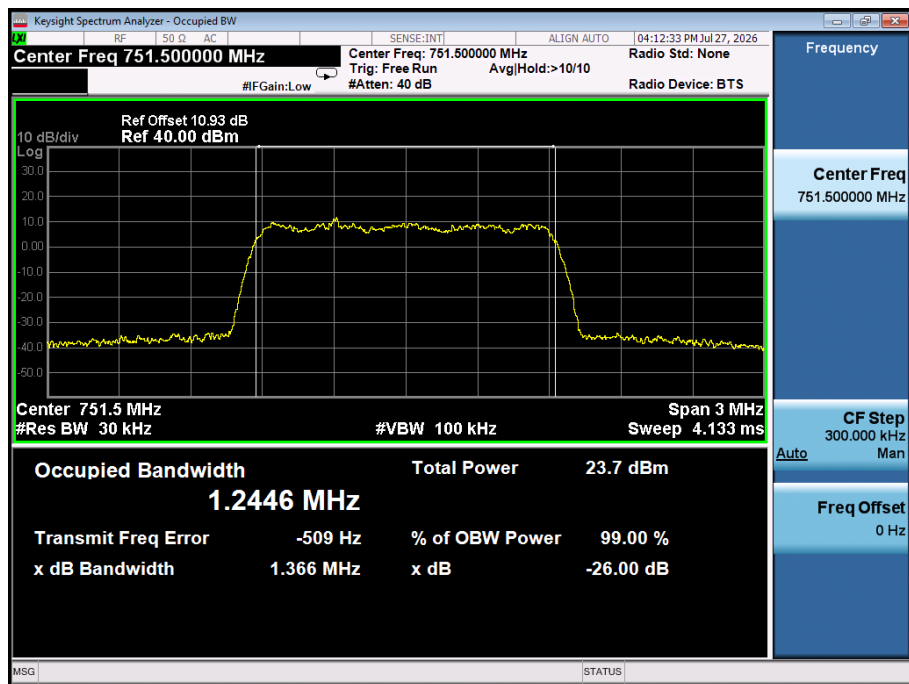
Upper700MHz CDMA UL output



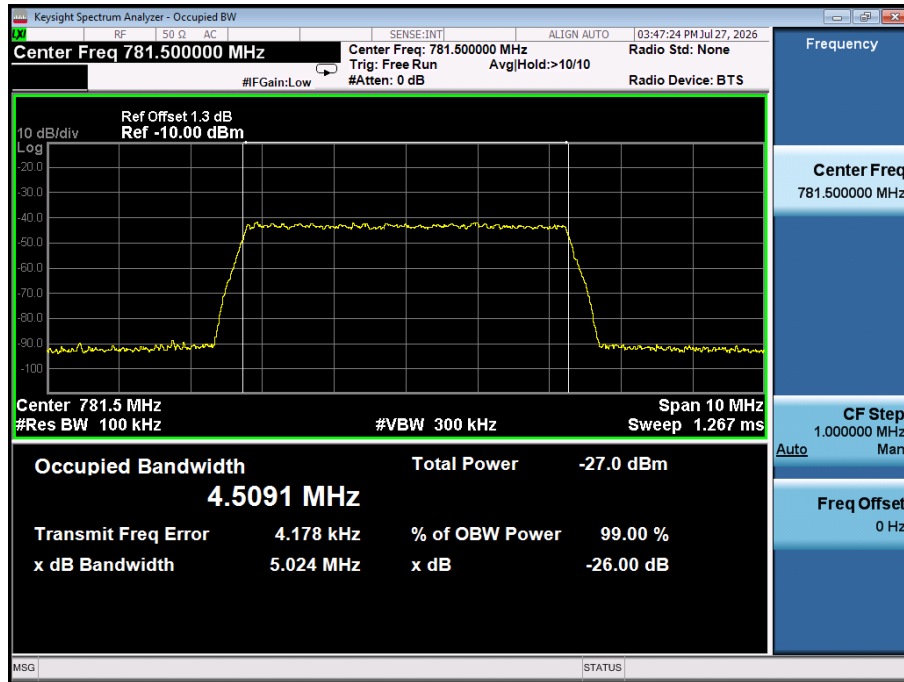
Upper700MHz CDMA DL Input



Upper700MHz CDMA DL Output



Upper700MHz LTE UL Input



Upper700MHz LTE UL output

