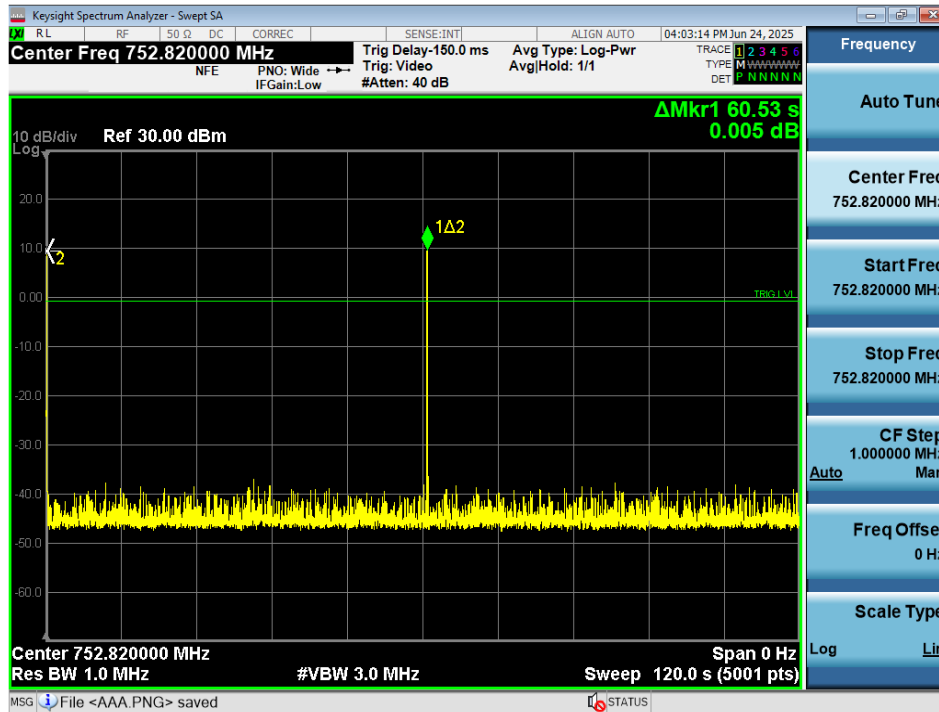
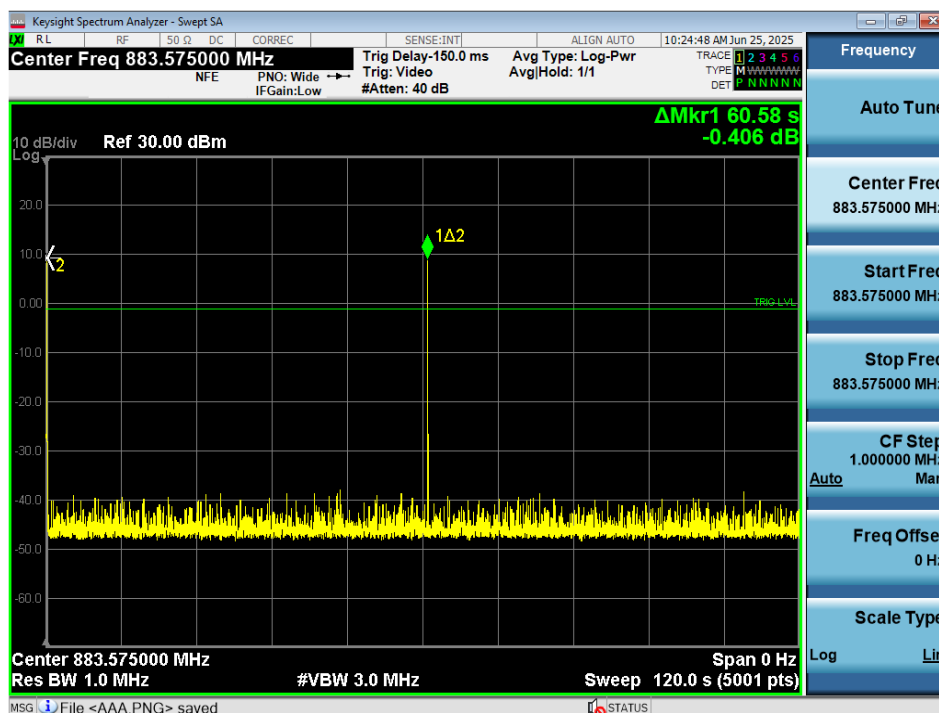


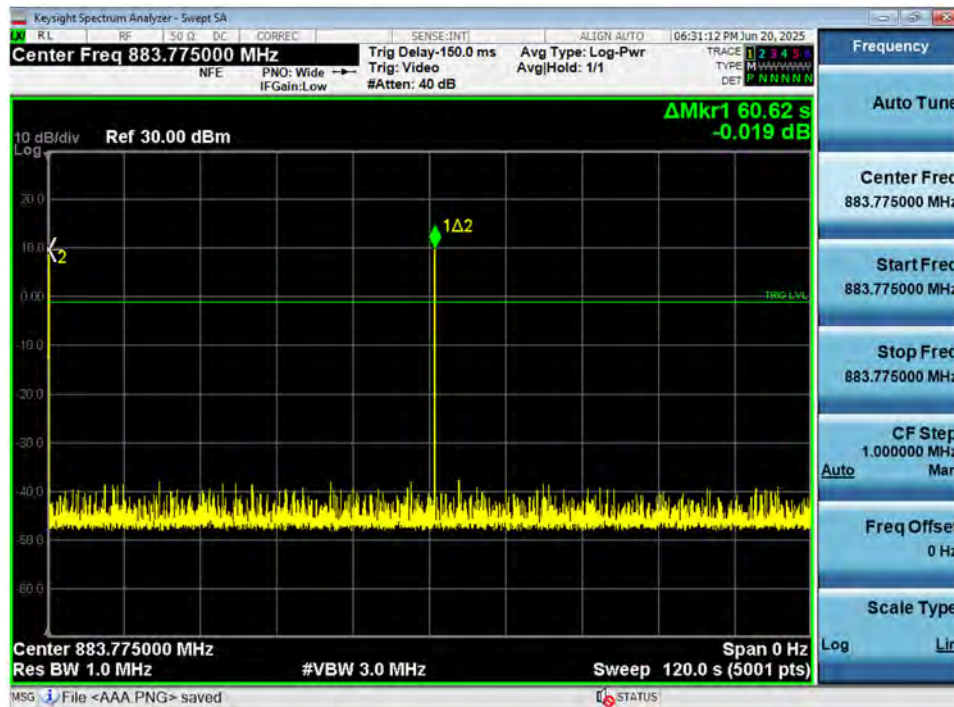
Oscillation Restart Time / Upper 700 MHz / Downlink / ANT 1



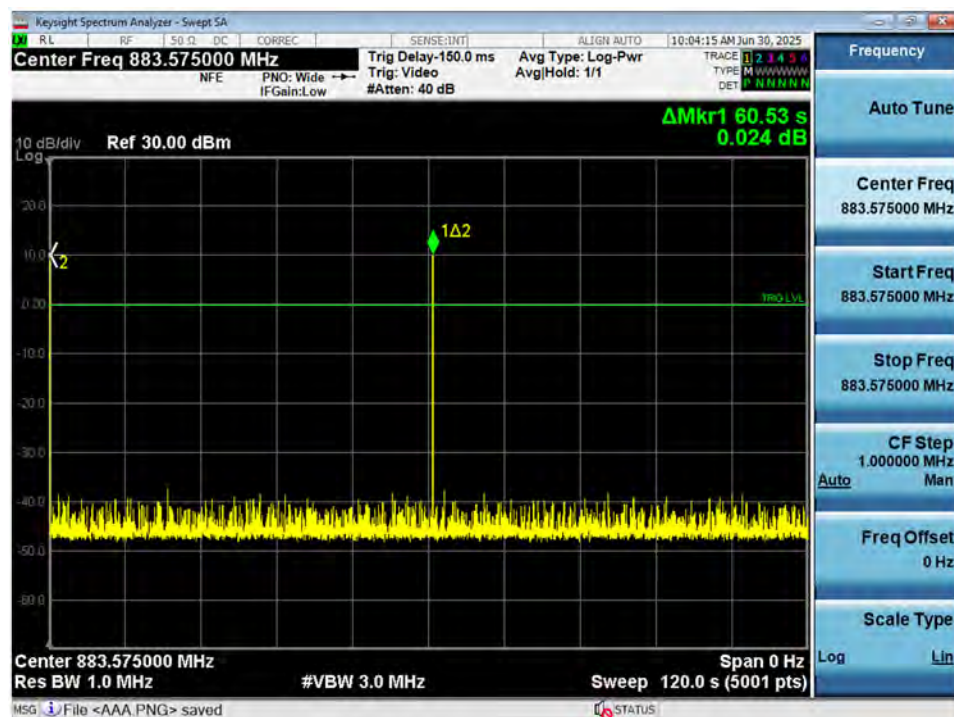
Oscillation Restart Time / Cellular / Downlink / ANT 1



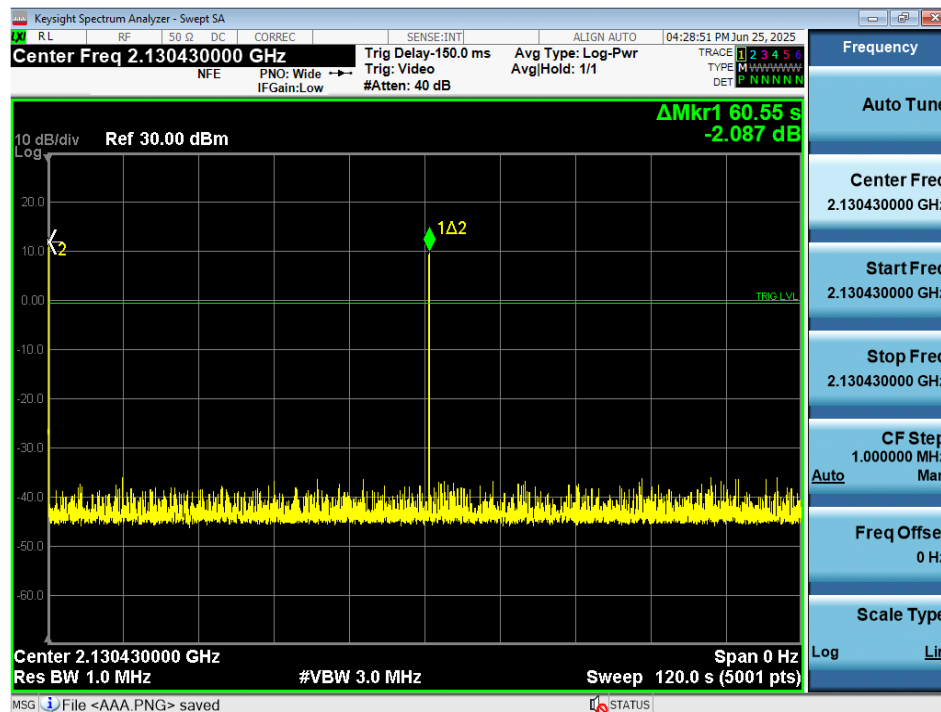
Oscillation Restart Time / Cellular / Downlink / ANT 2



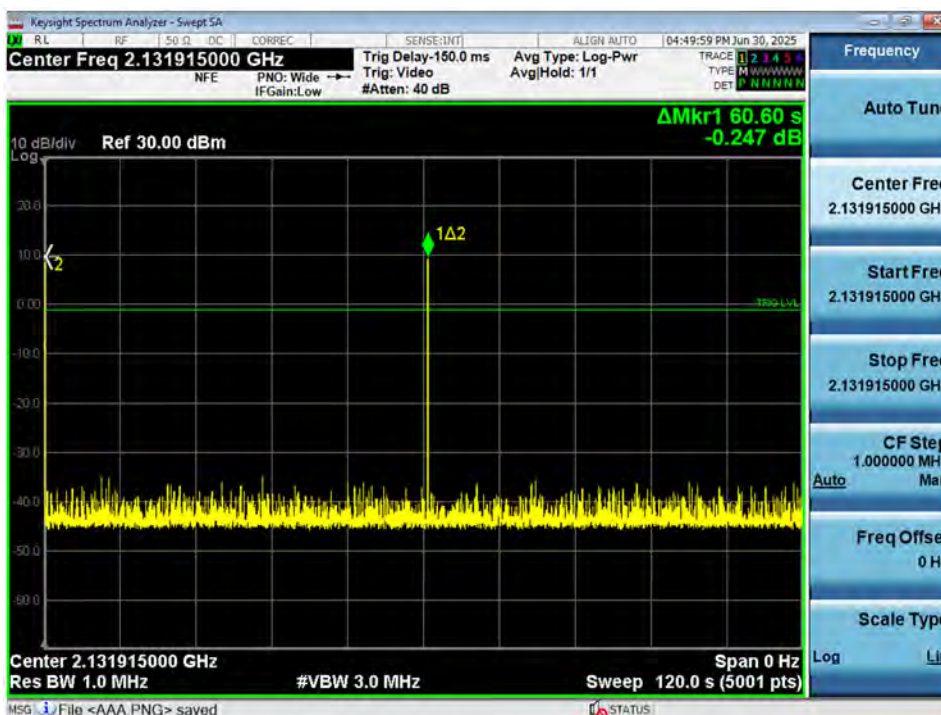
Oscillation Restart Time / Cellular / Downlink / ANT 3



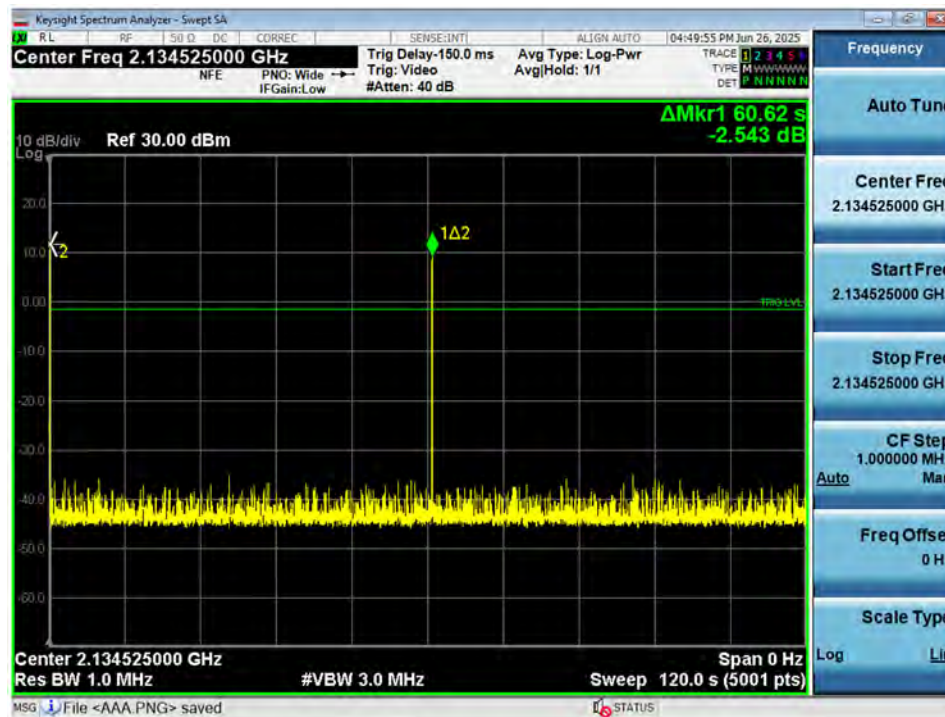
Oscillation Restart Time / AWS-1 / Downlink / ANT 1



Oscillation Restart Time / AWS-1 / Downlink / ANT 2



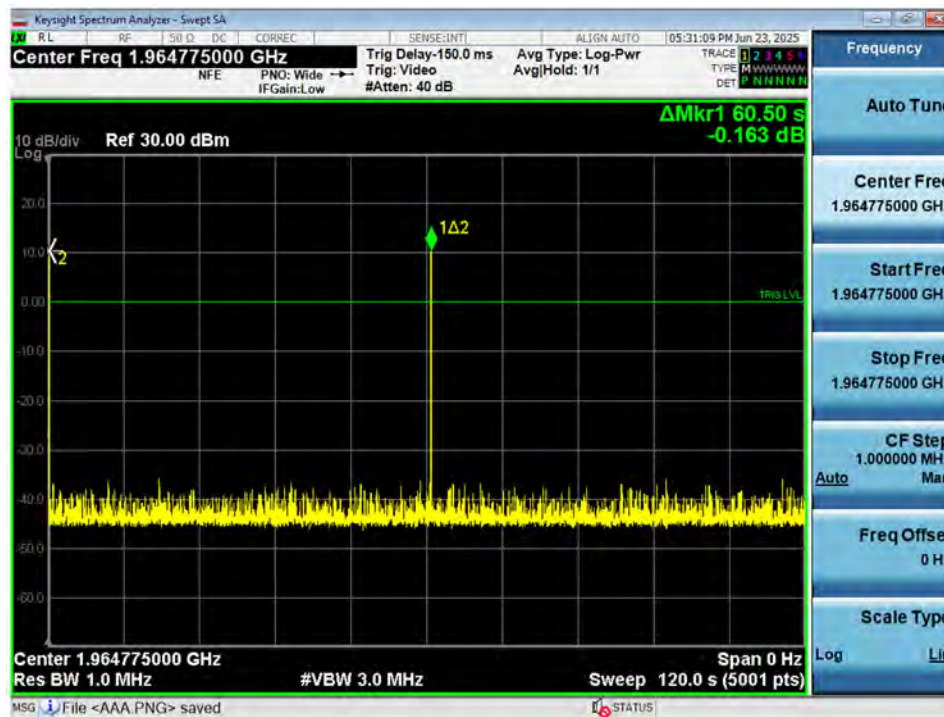
Oscillation Restart Time / AWS-1 / Downlink / ANT 3



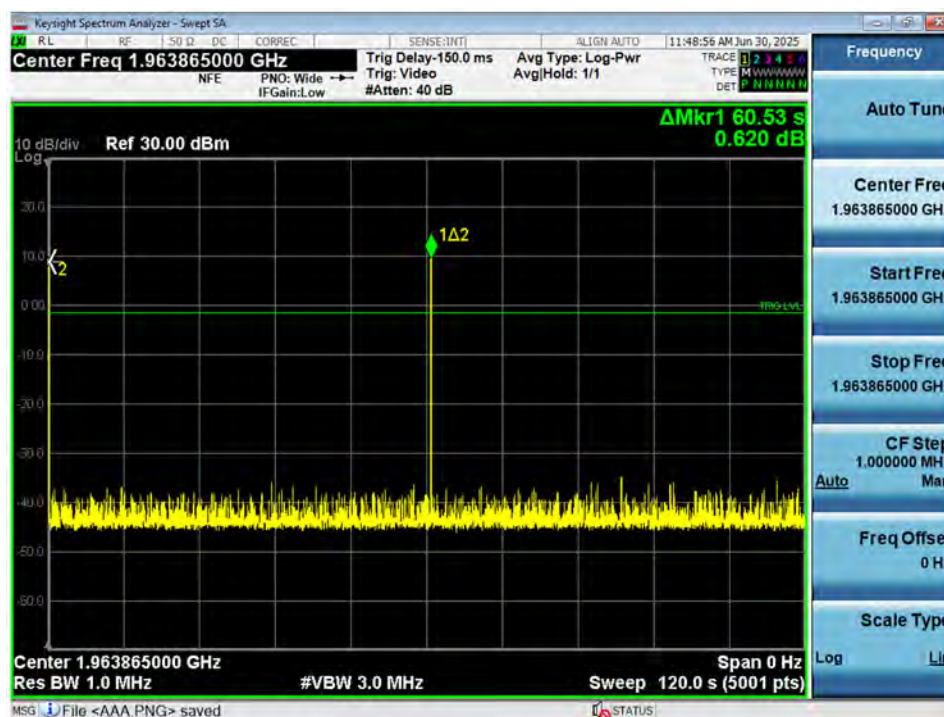
Oscillation Restart Time / Broadband PCS / Downlink / ANT 1



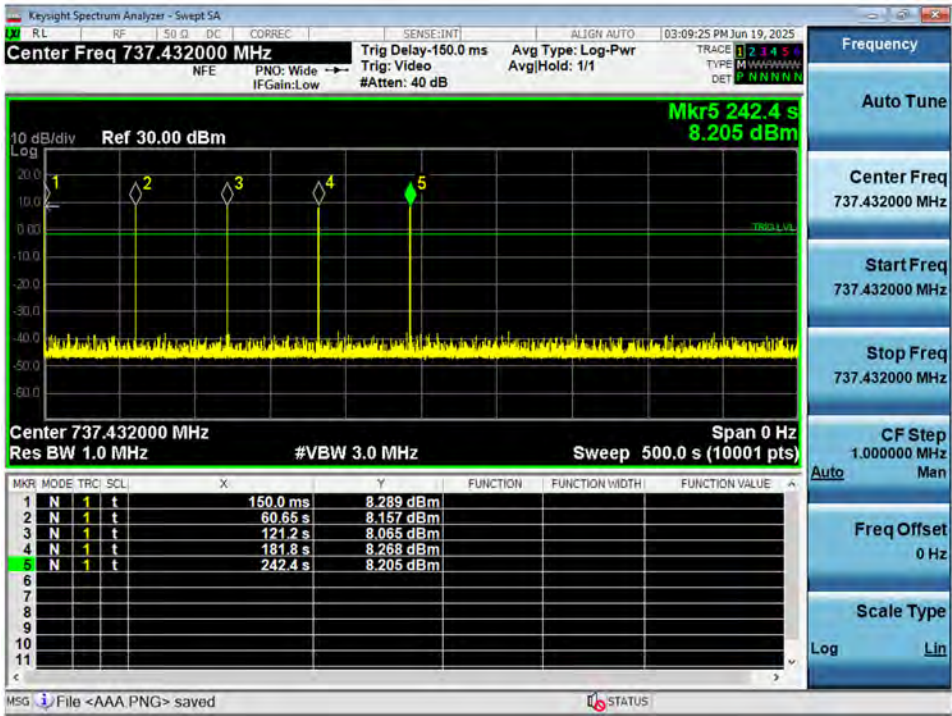
Oscillation Restart Time / Broadband PCS / Downlink / ANT 2



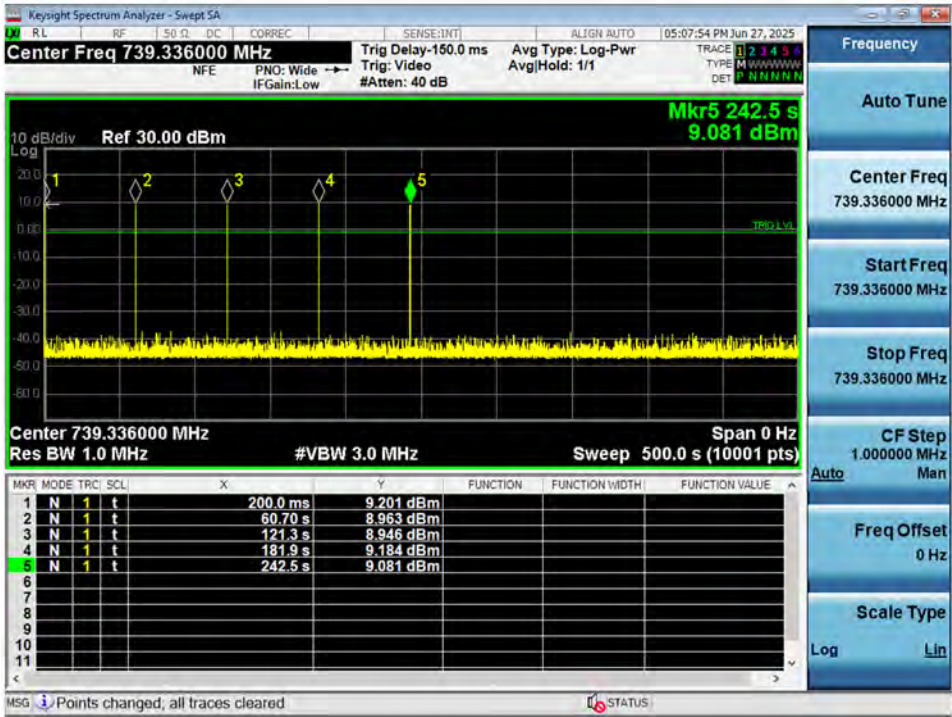
Oscillation Restart Time / Broadband PCS / Downlink / ANT 3



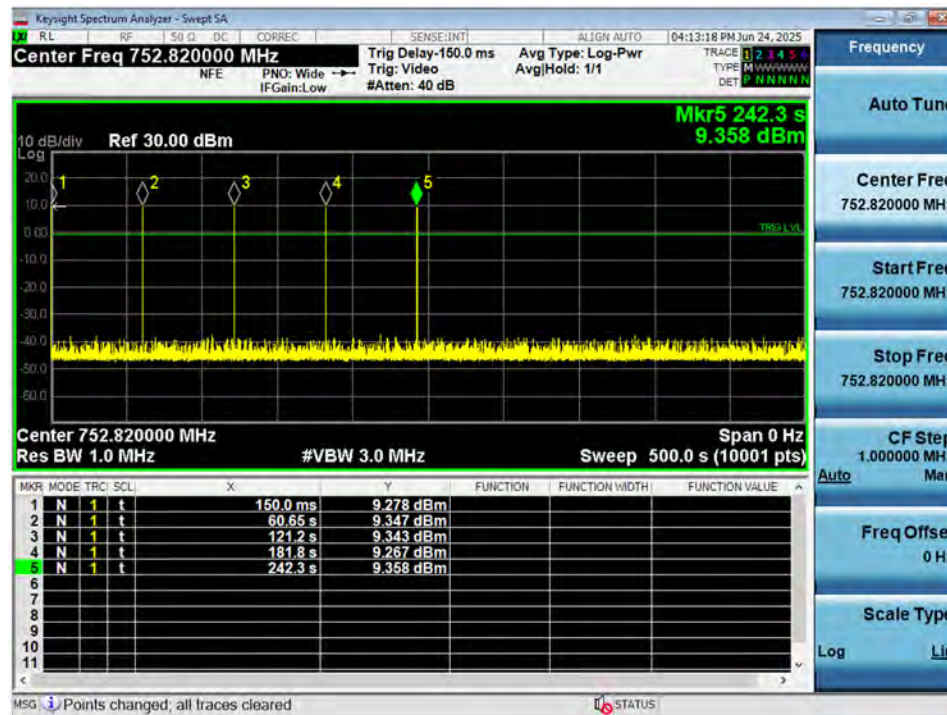
Number of Oscillation Restart / Lower 700 MHz / Downlink / ANT 2



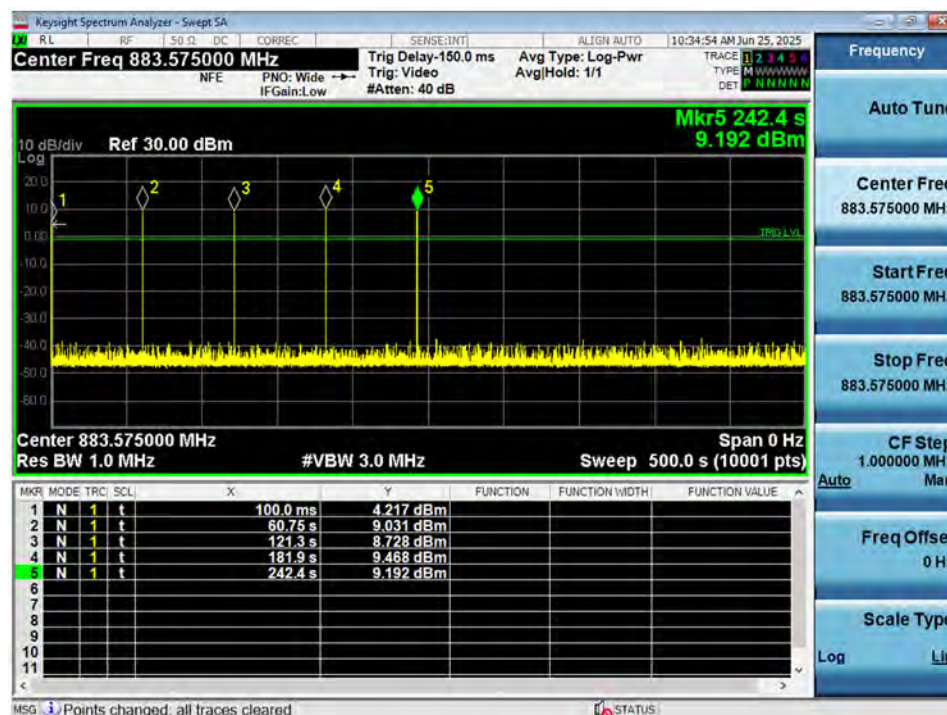
Number of Oscillation Restart / Lower 700 MHz / Downlink / ANT 3



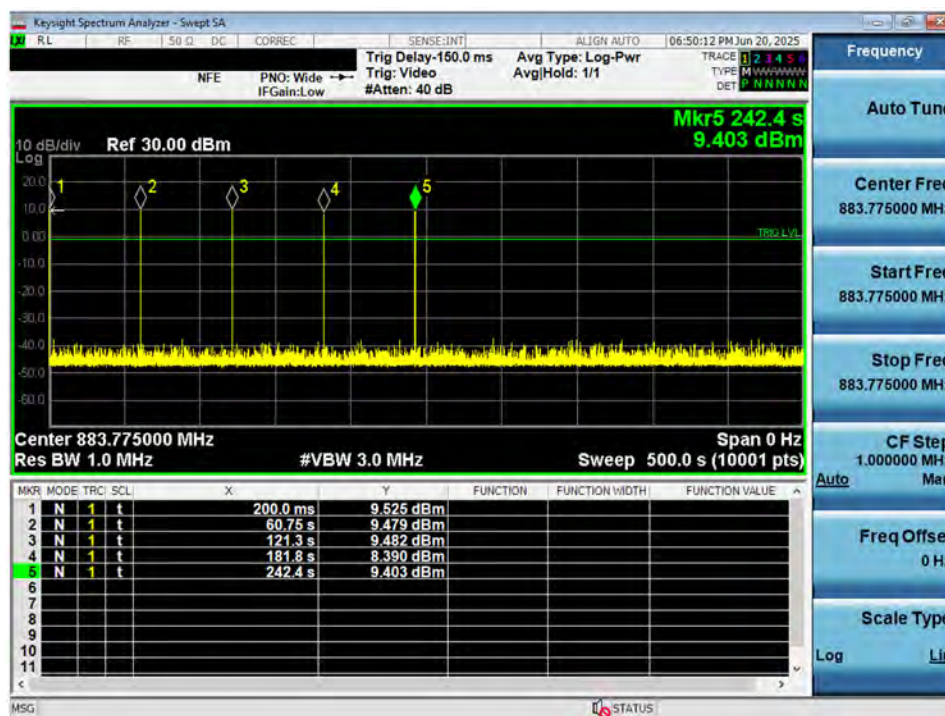
Number of Oscillation Restart / Upper 700 MHz / Downlink / ANT 1



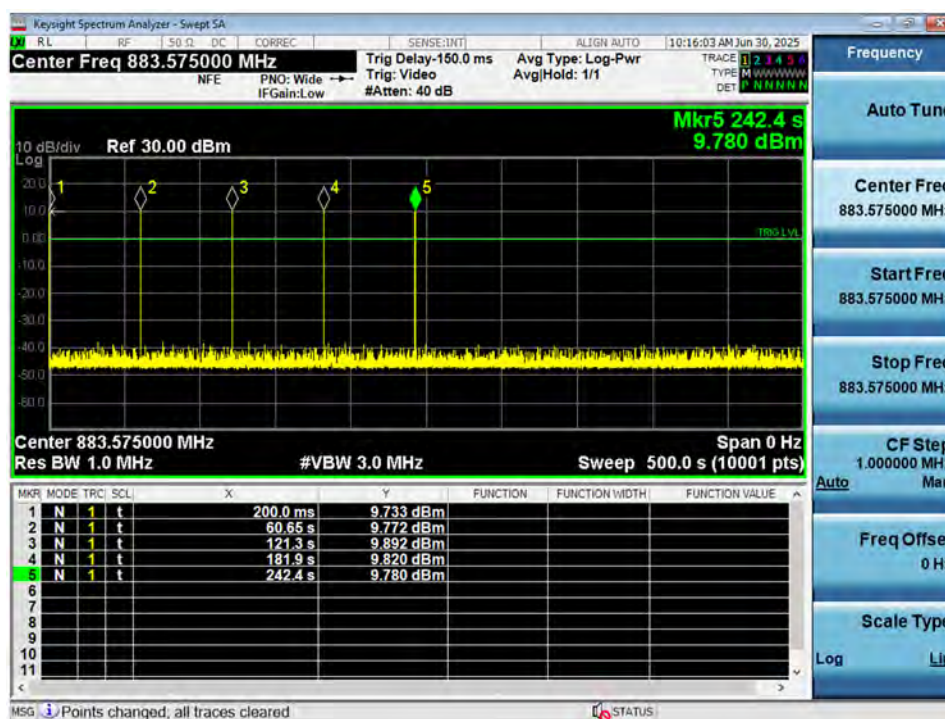
Number of Oscillation Restart / Cellular / Downlink / ANT 1



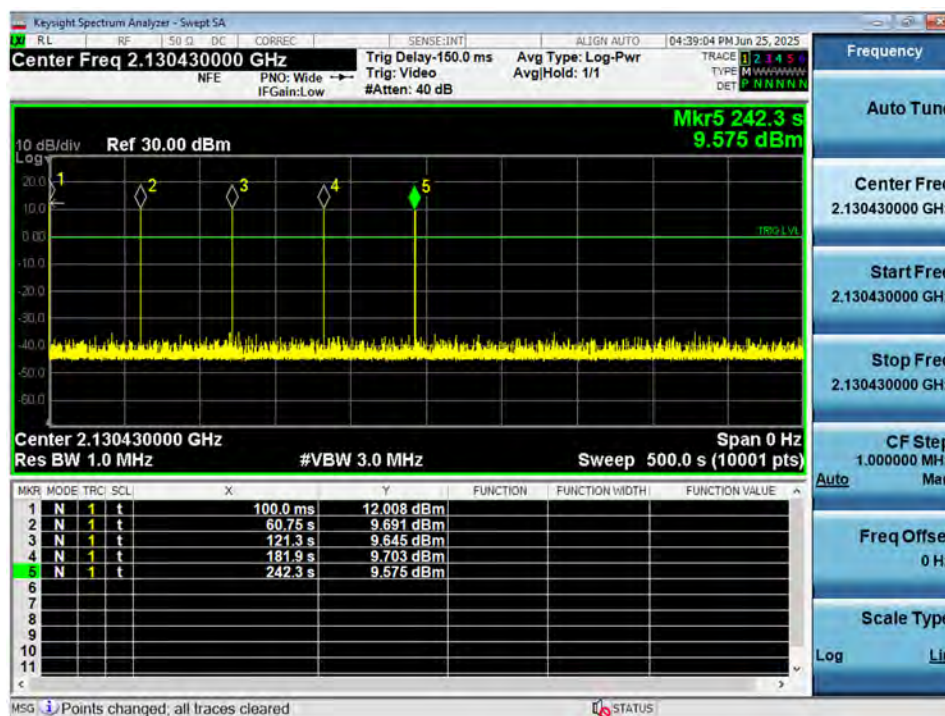
Number of Oscillation Restart / Cellular / Downlink / ANT 2



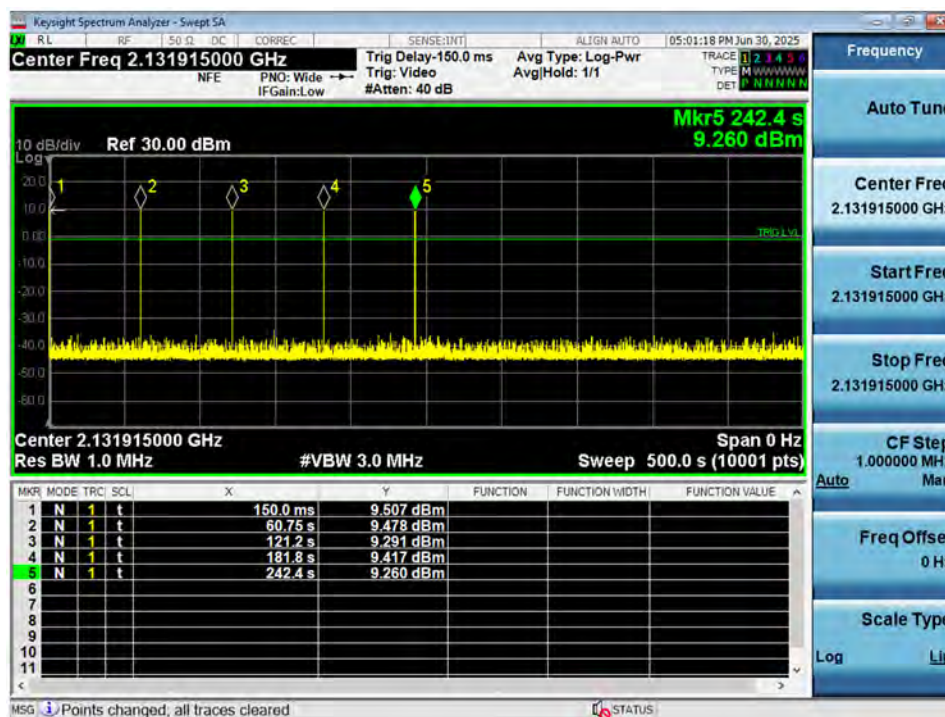
Number of Oscillation Restart / Cellular / Downlink / ANT 3



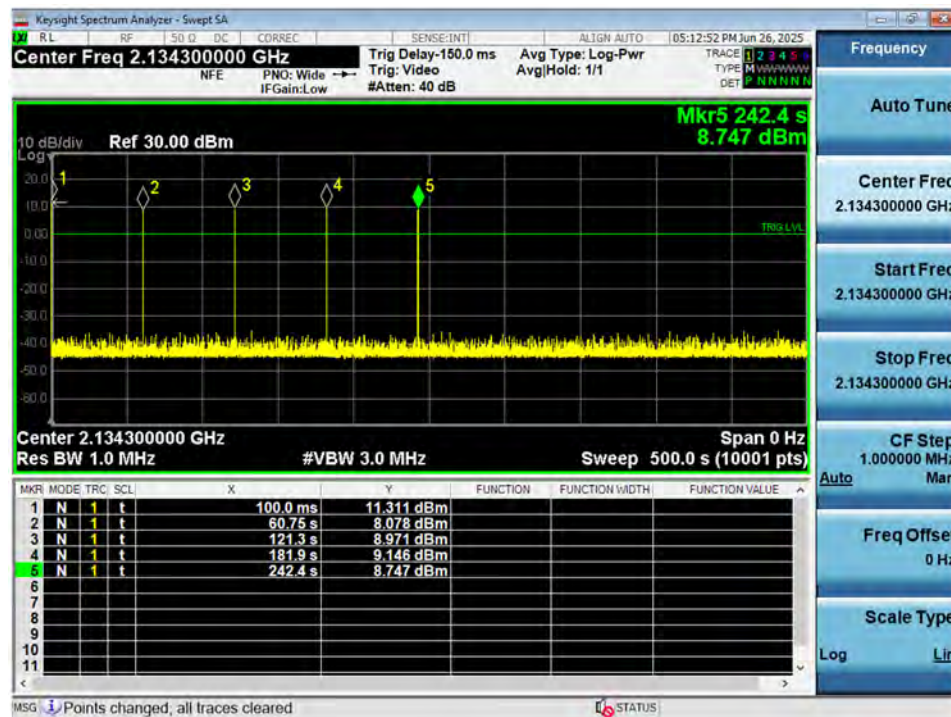
Number of Oscillation Restart / AWS-1 / Downlink / ANT 1



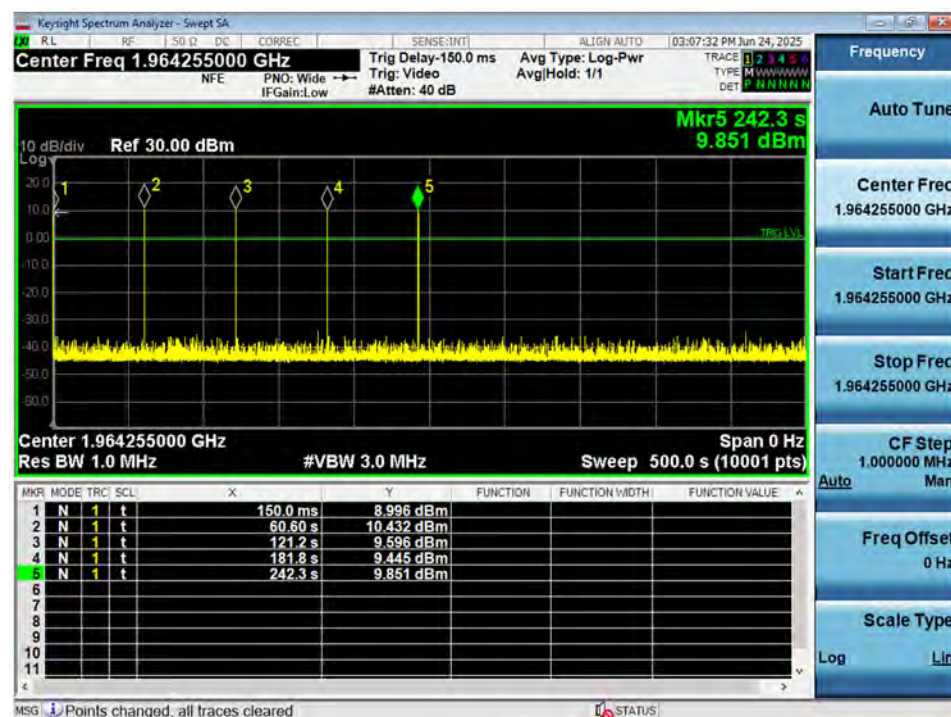
Number of Oscillation Restart / AWS-1 / Downlink / ANT 2



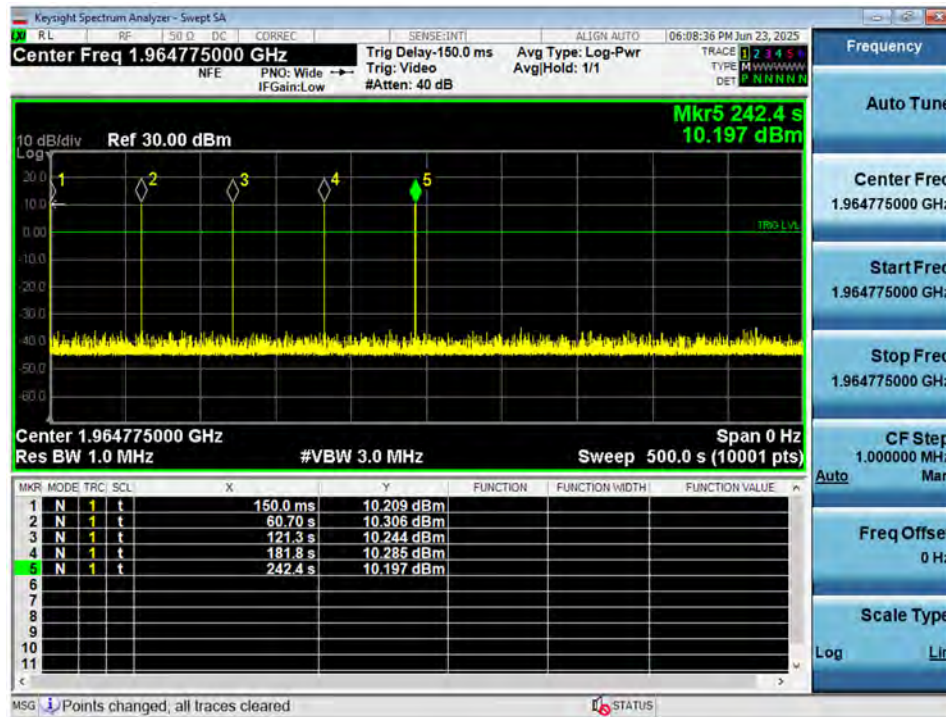
Number of Oscillation Restart / AWS-1 / Downlink / ANT 3



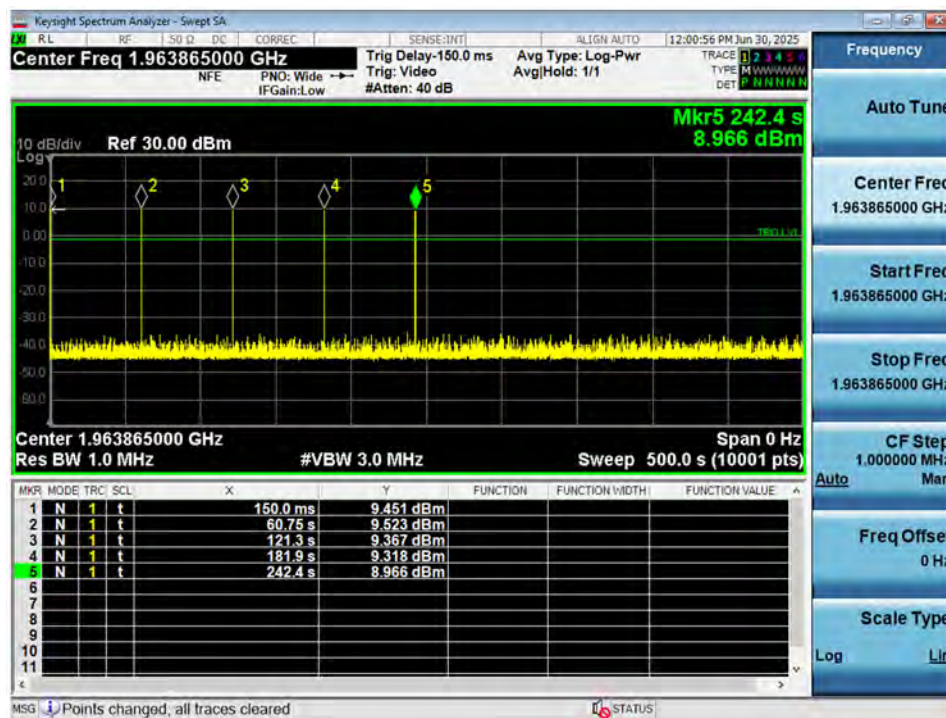
Number of Oscillation Restart / Broadband PCS / Downlink / ANT 1



Number of Oscillation Restart / Broadband PCS / Downlink / ANT 2



Number of Oscillation Restart / Broadband PCS / Downlink / ANT 3



5.13. RADIATED SPURIOUS EMISSIONS

Test Requirements:

§ 2.1053 Measurements required: Field strength of spurious radiation.

- (a) Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of §2.1049, as appropriate. For equipment operating on frequencies below 890 MHz, an open field test is normally required, with the measuring instrument antenna located in the far-field at all test frequencies. In the event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurements will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from halfwave dipole antennas.
- (b) The measurements specified in paragraph (a) of this section shall be made for the following equipment:
 - (1) Those in which the spurious emissions are required to be 60 dB or more below the mean power of the transmitter.
 - (2) All equipment operating on frequencies higher than 25 MHz.
 - (3) All equipment where the antenna is an integral part of, and attached directly to the transmitter.
 - (4) Other types of equipment as required, when deemed necessary by the Commission.

Test Procedures:

Measurements were in accordance with the test methods section 7.13 of KDB 935210 D04 v02r04

- a) Place the EUT on an OATS or semi-anechoic chamber turntable 3 m from the receiving antenna.²¹
- b) Connect the EUT to the test equipment as shown in Figure 13 beginning with the uplink output (donor port).
- c) Set the signal generator for the center frequency of the operational band under test with the power level set at PIN from measurement results per 7.2 with CW or other narrowband signal.
- d) Measure the radiated spurious emissions from the EUT from lowest to the highest frequencies as specified in Section 2.1057. Maximize the radiated emissions using the procedures described in ANSI C63.26.
- e) Capture the peak emissions plots using a peak detector with Max-Hold for inclusion in the test report. Tabular data is acceptable in lieu of spectrum analyzer plots.
- f) Repeat 7.13c) to 7.13e) for all uplink and downlink operational bands.

Notes:

- 1. The limit is based on the '-13 dBm' spurious emission test.
- 2. We have done horizontal and vertical polarization in detecting antenna.
- 3. Measure distance = 3 m
- 4. The amplitude of the spurious domain emission attenuated by more than 20 dB over the permissible value was not recorded according to ANSI C63.26, clause 5.1.1., c).
- 5. Test data were only the worst case.
- 6. Among the data of simultaneous and single band emission conditions, the single emission condition is the worst.
- 7. The R.S.E. test was performed with the certified Wi-Fi (WLAN) module and LTE module operating simultaneously.

Test Result:

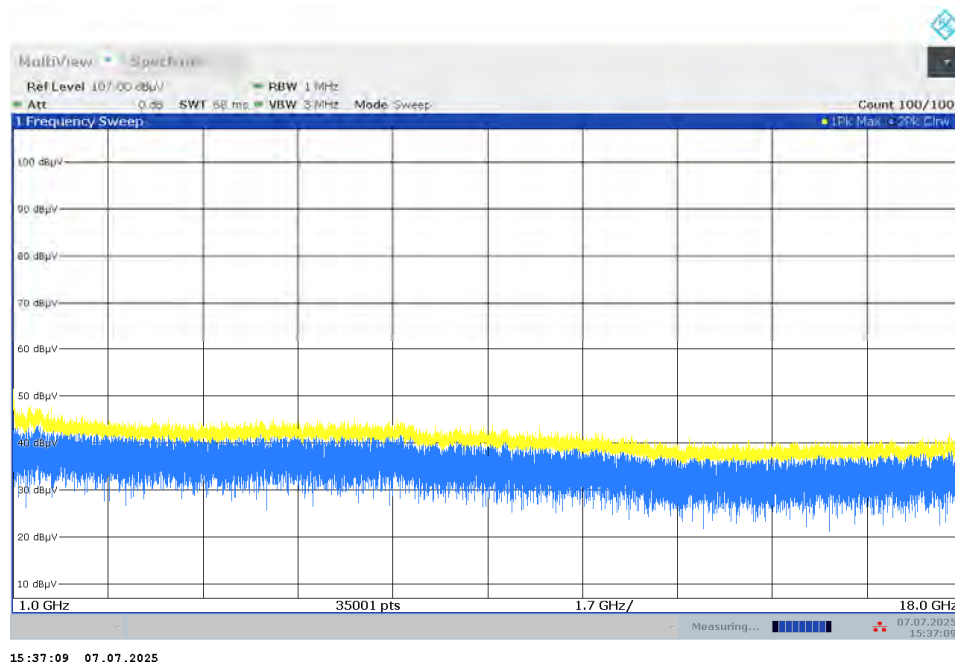
Test Band	Signal	Frequency (MHz)	Measured Level (dB μ V)	Ant. Factor (dB/m)	A.G.+C.L. +H.P.F. (dB)	Pol.	Measured Power (dBm)	Result (dBm/m)
-----------	--------	--------------------	-----------------------------------	-----------------------	------------------------------	------	----------------------------	-------------------

No critical peaks found

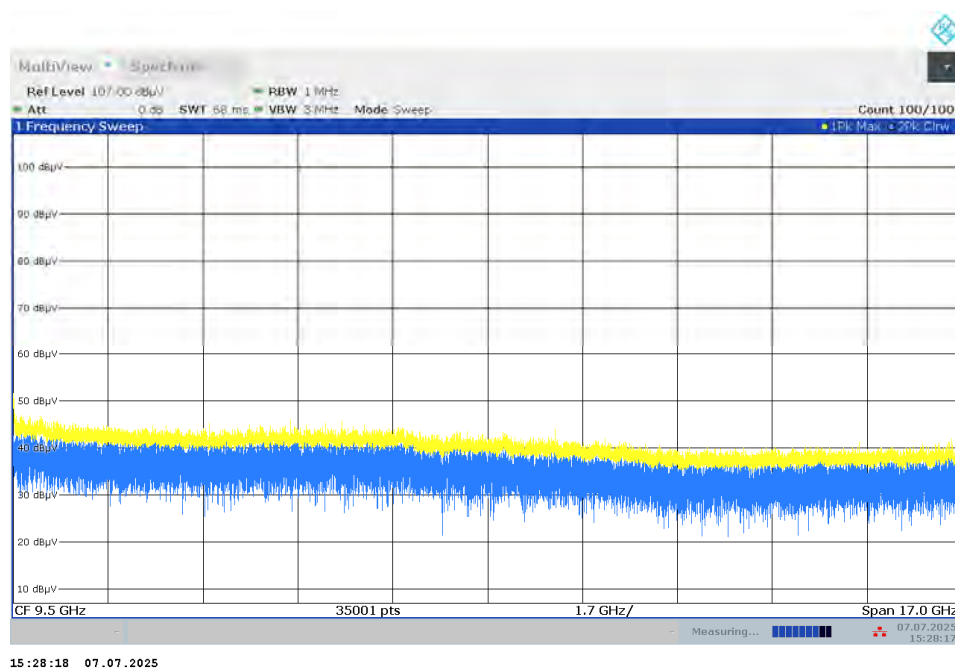
C.L.: Cable Loss / A.G.: Amp. Gain / H.P.F.: High Pass Filter

Plot data of radiated spurious emissions

Uplink



Downlink



Note : Only the worst case plots for Radiated Spurious Emissions.

5.14. OUT-OF-BAND GAIN LIMITS

Test Requirement:**§ 20.21(e)(9)(i)(E) Out of Band Gain Limits.**

- (1) A frequency selective booster shall have the following minimum attenuation referenced to the gain in the center of the pass band of the booster:
 - (i) -20 dB at the band edge, where band edge is the end of the licensee's allocated spectrum,
 - (ii) -30 dB at 1 MHz offset from band edge,
 - (iii) -40 dB at 5 MHz offset from band edge.
- (2) A frequency selective booster having maximum gain greater than 80 dB (referenced to the center of the pass band) shall limit the out of band gain to 60 dB at 0.2 MHz offset from the band edge, and 45 dB at 1 MHz offset from the band edge, where band edge is the end of the licensee's allocated spectrum.

Test Procedures:

Measurements were in accordance with the test methods section 7.15.1 of KDB 935210 D04 v02r04.

- a) Connect the EUT to the test equipment as shown in Figure 2 or Figure 3, as appropriate.
- b) Set the signal generator to transmit a CW signal at the center of the authorized licensee's spectrum block(s), with output power level set to that as determined in 7.1.2.
- c) Set the spectrum analyzer RBW = 100 kHz, VBW ≥ 300 kHz, set the center frequency to the center of the authorized spectrum block, then measure the output power of the generated signal.
- d) With the power setting of the signal generator remaining unchanged, measure the output power level of the generated signal at a frequency offset in accordance with Section 20.21(e)(9)(i)(E).
- e) Connect the RF signal output of the signal generator to the booster, then measure the output signal at the center of the authorized spectrum block and at the frequency offset as determined in 7.15.1d).
- f) Compute out-of-band gain by subtracting the power measured in 7.15.1e) from the power measured in 7.15.1d). The computed out-of-band gain must be below the reference gain in the center of the band, as specified in Section 20.21(e)(9)(i)(E).
- g) Repeat 7.15.1a) through 7.15.1f) for all uplink and down link operational bands.

Notes:

1. The EUT was configured with the gain set to the maximum and the bandwidth set to the minimum (5 MHz).
2. The EUT operated in test mode and was configured according to Figure 2 and 3 of KDB 935210 D04.

Test Results:

Tabulated Result of Uplink Out-of-band gain

ANT	Band	Offset (MHz)	Input Power (dBm)	Output Power (dBm)	Limit (dB)	Gain (dB)
1	Upper 700 MHz	Center Frequency	-77.9	21.267	-	99.17
		- 5		-50.730	69.17	27.17
		- 1		-52.757	45.00	25.14
		- 0.2		-50.697	60.00	27.20
		0 (Low Band Edge)		-36.602	79.17	41.30
		0 (High Band Edge)		-38.134	79.17	39.77
		+ 0.2		-51.820	60.00	26.08
		+ 1		-52.845	45.00	25.06
		+ 5		-51.798	69.17	26.10
	Cellular	Center Frequency	-78.3	21.313	-	99.61
		- 5		-51.197	69.61	27.10
		- 1		-52.421	45.00	25.88
		- 0.2		-51.431	60.00	26.87
		0 (Low Band Edge)		-43.434	79.61	34.87
		0 (High Band Edge)		-32.371	79.61	45.93
		+ 0.2		-52.886	60.00	25.41
		+ 1		-51.108	45.00	27.19
		+ 5		-49.484	69.61	28.82
	AWS-1	Center Frequency	-78.2	21.422	-	99.62
		- 5		-50.382	69.62	27.82
		- 1		-51.014	45.00	27.19
		- 0.2		-51.097	60.00	27.10
		0 (Low Band Edge)		-34.864	79.62	43.34
		0 (High Band Edge)		-39.524	79.62	38.68
		+ 0.2		-50.906	60.00	27.29
		+ 1		-49.637	45.00	28.56
		+ 5		-49.863	69.62	28.34
	Broadband PCS	Center Frequency	-77.8	21.195	-	99.00
		- 5		-47.046	69.00	30.75
		- 1		-49.865	45.00	27.94
		- 0.2		-49.919	60.00	27.88
		0 (Low Band Edge)		-45.291	79.00	32.51
		0 (High Band Edge)		-32.653	79.00	45.15
		+ 0.2		-48.498	60.00	29.30
		+ 1		-50.094	45.00	27.71
		+ 5		-50.760	69.00	27.04

ANT	Band	Offset (MHz)	Input Power (dBm)	Output Power (dBm)	Limit (dB)	Gain (dB)
2	Lower 700 MHz	Center Frequency	-77.7	21.335	-	99.07
		- 5		-52.549	69.07	25.18
		- 1		-52.294	45.00	25.44
		- 0.2		-50.967	60.00	26.76
		0 (Low Band Edge)		-42.105	79.07	35.63
		0 (High Band Edge)		-33.333	79.07	44.40
		+ 0.2		-52.515	60.00	25.22
		+ 1		-52.273	45.00	25.46
		+ 5		-52.245	69.07	25.49
	Cellular	Center Frequency	-78.0	21.153	-	99.15
		- 5		-51.544	69.15	26.46
		- 1		-51.696	45.00	26.30
		- 0.2		-52.071	60.00	25.93
		0 (Low Band Edge)		-44.272	79.15	33.73
		0 (High Band Edge)		-31.925	79.15	46.08
		+ 0.2		-51.727	60.00	26.27
		+ 1		-51.360	45.00	26.64
		+ 5		-51.360	69.15	26.64
	AWS-1	Center Frequency	-77.3	20.013	-	97.28
		- 5		-50.013	67.28	27.26
		- 1		-50.748	45.00	26.52
		- 0.2		-50.355	60.00	26.92
		0 (Low Band Edge)		-36.008	77.28	41.26
		0 (High Band Edge)		-38.979	77.28	38.29
		+ 0.2		-52.214	60.00	25.06
		+ 1		-50.666	45.00	26.60
		+ 5		-50.691	67.28	26.58
	Broadband PCS	Center Frequency	-78.4	21.307	-	99.71
		- 5		-48.910	69.71	29.49
		- 1		-50.185	45.00	28.22
		- 0.2		-50.334	60.00	28.07
		0 (Low Band Edge)		-43.371	79.71	35.03
		0 (High Band Edge)		-30.683	79.71	47.72
		+ 0.2		-50.464	60.00	27.94
		+ 1		-49.320	45.00	29.08
		+ 5		-49.970	69.71	28.43

ANT	Band	Offset (MHz)	Input Power (dBm)	Output Power (dBm)	Limit (dB)	Gain (dB)
1	Lower 700 MHz	Center Frequency	-77.5	21.535	-	99.04
		- 5		-52.354	69.04	25.15
		- 1		-52.284	45.00	25.22
		- 0.2		-51.910	60.00	25.59
		0 (Low Band Edge)		-41.518	79.04	35.98
		0 (High Band Edge)		-32.247	79.04	45.25
		+ 0.2		-51.530	60.00	25.97
		+ 1		-52.118	45.00	25.38
		+ 5		-53.300	69.04	24.20
	Cellular	Center Frequency	-78.0	21.158	-	99.16
		- 5		-51.222	69.16	26.78
		- 1		-51.389	45.00	26.61
		- 0.2		-52.114	60.00	25.89
		0 (Low Band Edge)		-44.989	79.16	33.01
		0 (High Band Edge)		-32.165	79.16	45.84
		+ 0.2		-51.598	60.00	26.40
		+ 1		-51.557	45.00	26.44
		+ 5		-53.429	69.16	24.57
	AWS-1	Center Frequency	-77.9	21.796	-	99.70
		- 5		-51.140	69.70	26.76
		- 1		-50.339	45.00	27.56
		- 0.2		-50.436	60.00	27.46
		0 (Low Band Edge)		-35.073	79.70	42.83
		0 (High Band Edge)		-38.852	79.70	39.05
		+ 0.2		-50.148	60.00	27.75
		+ 1		-50.669	45.00	27.23
		+ 5		-50.297	69.70	27.60
	Broadband PCS	Center Frequency	-79.6	21.101	-	100.69
		- 5		-49.663	70.69	29.93
		- 1		-50.987	45.00	28.60
		- 0.2		-50.848	60.00	28.74
		0 (Low Band Edge)		-46.558	80.69	33.03
		0 (High Band Edge)		-31.656	80.69	47.93
		+ 0.2		-49.446	60.00	30.14
		+ 1		-48.281	45.00	31.31
		+ 5		-49.919	70.69	29.67

Tabulated Result of Downlink Out-of-band gain

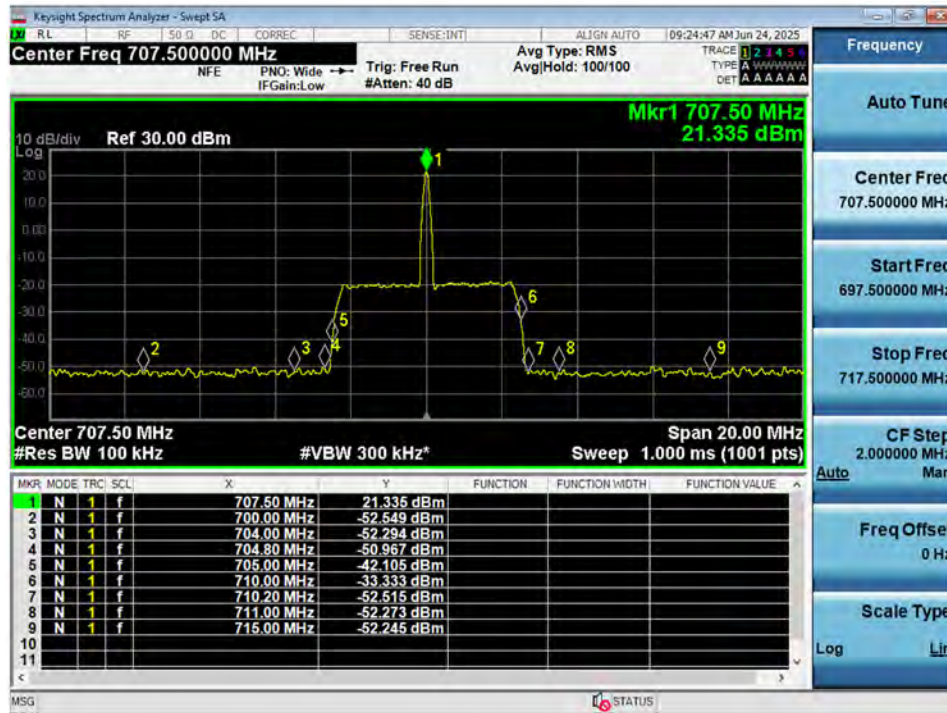
ANT	Band	Offset (MHz)	Input Power (dBm)	Output Power (dBm)	Limit (dB)	Gain (dB)
1	Upper 700 MHz	Center Frequency	-90.9	7.237	-	98.14
		- 5		-66.244	68.14	24.66
		- 1		-60.444	45.00	30.46
		- 0.2		-54.433	60.00	36.47
		0 (Low Band Edge)		-31.139	78.14	59.76
		0 (High Band Edge)		-28.134	78.14	62.77
		+ 0.2		-50.109	60.00	40.79
		+ 1		-60.652	45.00	30.25
		+ 5		-71.266	68.14	19.63
	Cellular	Center Frequency	-91.4	6.731	-	98.13
		- 5		-68.413	68.13	22.99
		- 1		-62.244	45.00	29.16
		- 0.2		-47.065	60.00	44.34
		0 (Low Band Edge)		-25.340	78.13	66.06
		0 (High Band Edge)		-30.374	78.13	61.03
		+ 0.2		-53.538	60.00	37.86
		+ 1		-61.265	45.00	30.14
		+ 5		-68.170	68.13	23.23
	AWS-1	Center Frequency	-92.0	5.572	-	97.58
		- 5		-68.191	67.58	23.82
		- 1		-61.013	45.00	31.00
		- 0.2		-56.762	60.00	35.25
		0 (Low Band Edge)		-32.717	77.58	59.29
		0 (High Band Edge)		-22.915	77.58	69.10
		+ 0.2		-42.194	60.00	49.82
		+ 1		-61.646	45.00	30.36
		+ 5		-68.582	67.58	23.43
	Broadband PCS	Center Frequency	-90.2	6.734	-	96.94
		- 5		-66.274	66.94	23.94
		- 1		-62.079	45.00	28.13
		- 0.2		-53.243	60.00	36.97
		0 (Low Band Edge)		-31.334	76.94	58.88
		0 (High Band Edge)		-32.372	76.94	57.84
		+ 0.2		-54.670	60.00	35.54
		+ 1		-60.183	45.00	30.03
		+ 5		-68.430	66.94	21.78

ANT	Band	Offset (MHz)	Input Power (dBm)	Output Power (dBm)	Limit (dB)	Gain (dB)
2	Lower 700 MHz	Center Frequency	-90.5	7.169	-	97.67
		- 5		-68.479	67.67	22.02
		- 1		-60.880	45.00	29.62
		- 0.2		-54.182	60.00	36.32
		0 (Low Band Edge)		-31.529	77.67	58.97
		0 (High Band Edge)		-29.011	77.67	61.49
		+ 0.2		-50.901	60.00	39.60
		+ 1		-60.077	45.00	30.42
		+ 5		-69.854	67.67	20.65
	Cellular	Center Frequency	-90.5	7.385	-	97.84
		- 5		-69.708	67.84	20.74
		- 1		-62.245	45.00	28.21
		- 0.2		-51.267	60.00	39.18
		0 (Low Band Edge)		-29.587	77.84	60.86
		0 (High Band Edge)		-31.347	77.84	59.10
		+ 0.2		-54.298	60.00	36.15
		+ 1		-62.293	45.00	28.16
		+ 5		-68.517	67.84	21.93
	AWS-1	Center Frequency	-90.8	7.094	-	97.90
		- 5		-68.673	67.90	22.14
		- 1		-63.412	45.00	27.40
		- 0.2		-58.065	60.00	32.75
		0 (Low Band Edge)		-36.348	77.90	54.46
		0 (High Band Edge)		-26.296	77.90	64.51
		+ 0.2		-45.499	60.00	45.31
		+ 1		-63.322	45.00	27.49
		+ 5		-69.136	67.90	21.67
	Broadband PCS	Center Frequency	-90.6	6.568	-	97.17
		- 5		-66.164	67.17	24.44
		- 1		-62.229	45.00	28.37
		- 0.2		-51.702	60.00	38.90
		0 (Low Band Edge)		-30.483	77.17	60.12
		0 (High Band Edge)		-31.036	77.17	59.56
		+ 0.2		-53.154	60.00	37.45
		+ 1		-61.642	45.00	28.96
		+ 5		-69.300	67.17	21.30

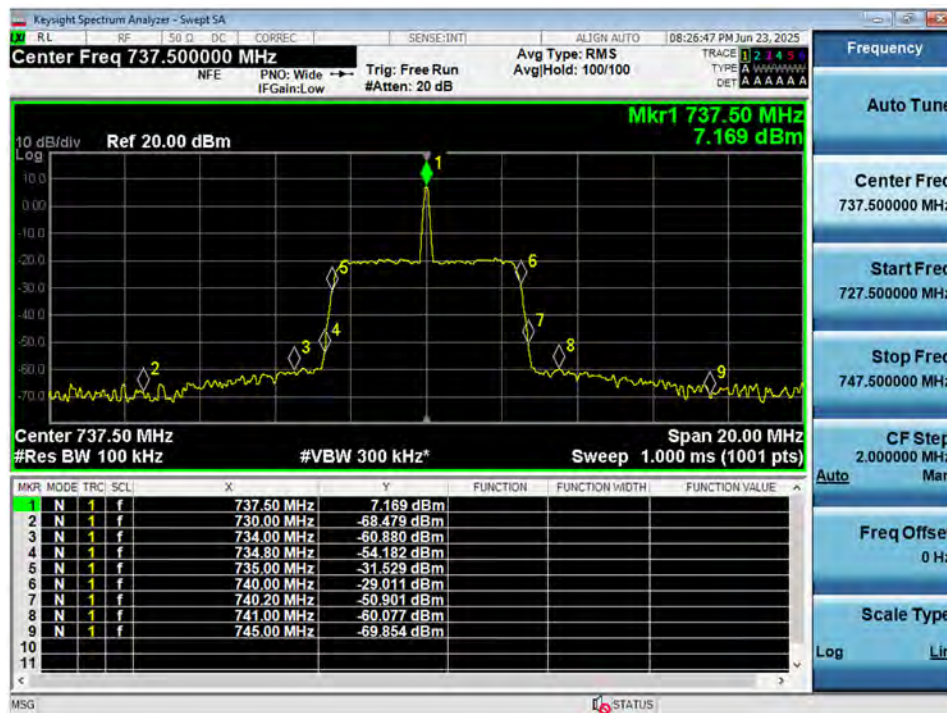
ANT	Band	Offset (MHz)	Input Power (dBm)	Output Power (dBm)	Limit (dB)	Gain (dB)
1	Lower 700 MHz	Center Frequency	-91.0	7.091	-	98.06
		- 5		-67.245	68.06	23.73
		- 1		-61.581	45.00	29.39
		- 0.2		-52.726	60.00	38.24
		0 (Low Band Edge)		-30.874	78.06	60.10
		0 (High Band Edge)		-28.770	78.06	62.20
		+ 0.2		-50.067	60.00	40.90
		+ 1		-60.134	45.00	30.84
		+ 5		-67.377	68.06	23.59
	Cellular	Center Frequency	-91	7.055	98.06	-
		- 5		-67.503	23.50	68.06
		- 1		-62.593	28.41	45.00
		- 0.2		-48.903	42.10	60.00
		0 (Low Band Edge)		-26.766	64.23	78.06
		0 (High Band Edge)		-30.987	60.01	78.06
		+ 0.2		-53.489	37.51	60.00
		+ 1		-60.640	30.36	45.00
		+ 5		-67.644	23.36	68.06
	AWS-1	Center Frequency	-90.9	7.331	-	98.23
		- 5		-69.102	68.23	21.80
		- 1		-60.494	45.00	30.41
		- 0.2		-57.289	60.00	33.61
		0 (Low Band Edge)		-35.432	78.23	55.47
		0 (High Band Edge)		-27.743	78.23	63.16
		+ 0.2		-44.652	60.00	46.25
		+ 1		-59.715	45.00	31.19
		+ 5		-69.146	68.23	21.75
	Broadband PCS	Center Frequency	-89.7	6.606	-	96.31
		- 5		-68.700	66.31	21.00
		- 1		-61.732	45.00	27.97
		- 0.2		-52.523	60.00	37.18
		0 (Low Band Edge)		-31.941	76.31	57.76
		0 (High Band Edge)		-31.196	76.31	58.50
		+ 0.2		-53.659	60.00	36.04
		+ 1		-59.900	45.00	29.80
		+ 5		-68.235	66.31	21.47

Plot data of Out-of-band gain

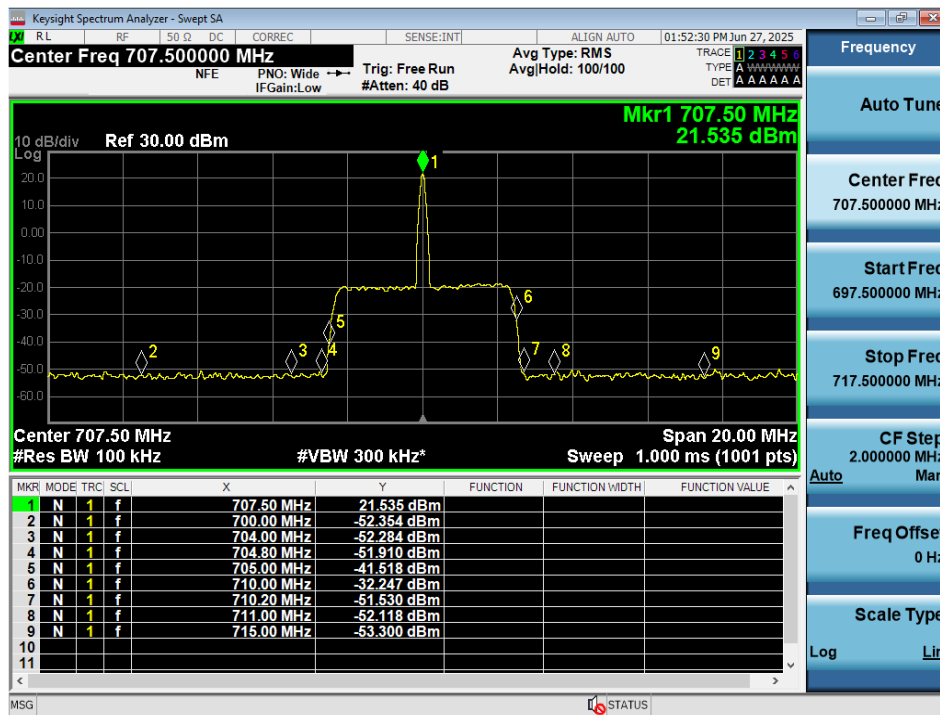
Out-of-band gain / Lower 700 MHz / Uplink / ANT 2



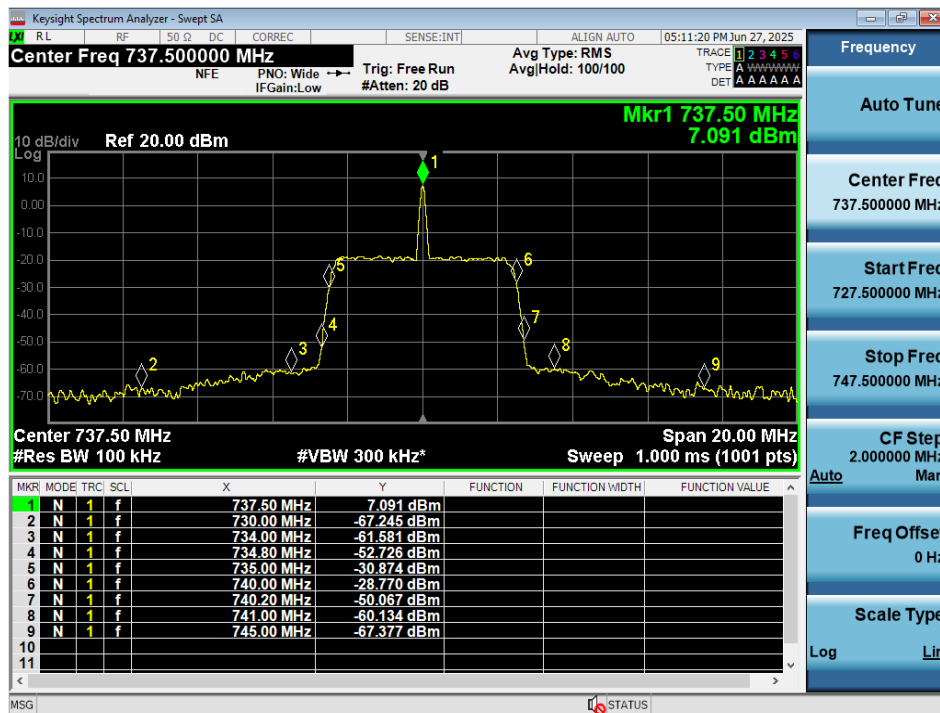
Out-of-band gain / Lower 700 MHz / Downlink / ANT 2



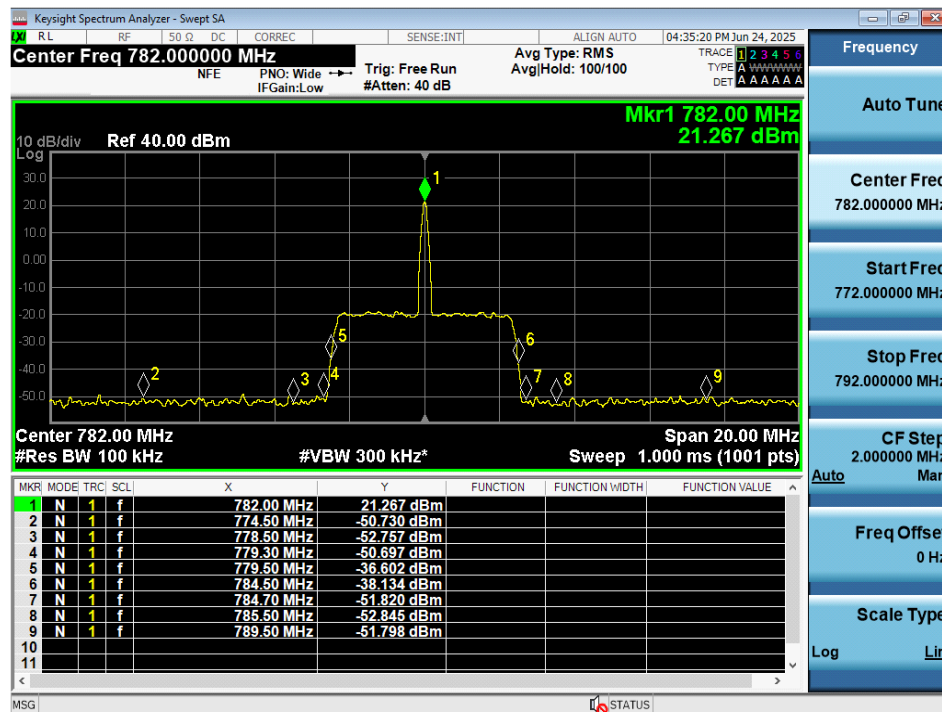
Out-of-band gain / Lower 700 MHz / Uplink / ANT 3



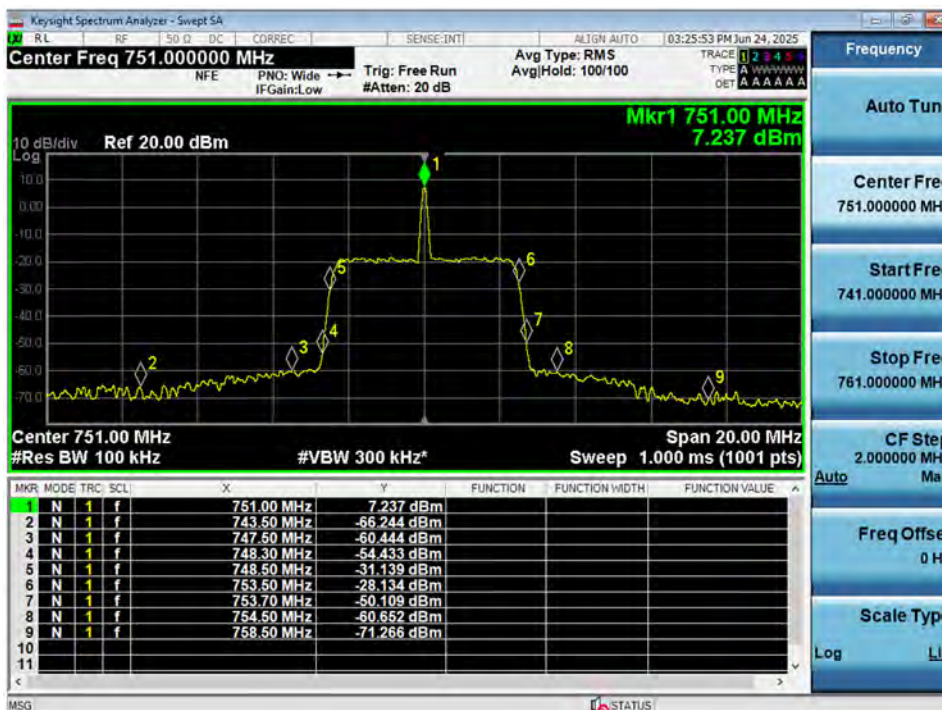
Out-of-band gain / Lower 700 MHz / Downlink / ANT 3



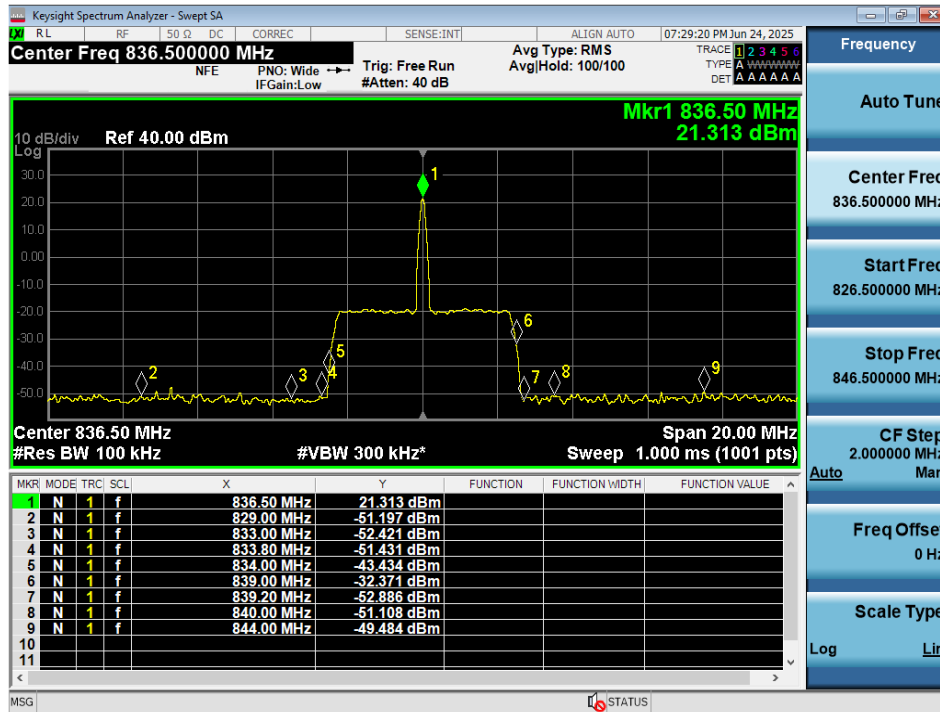
Out-of-band gain / Upper 700 MHz / Uplink / ANT 1



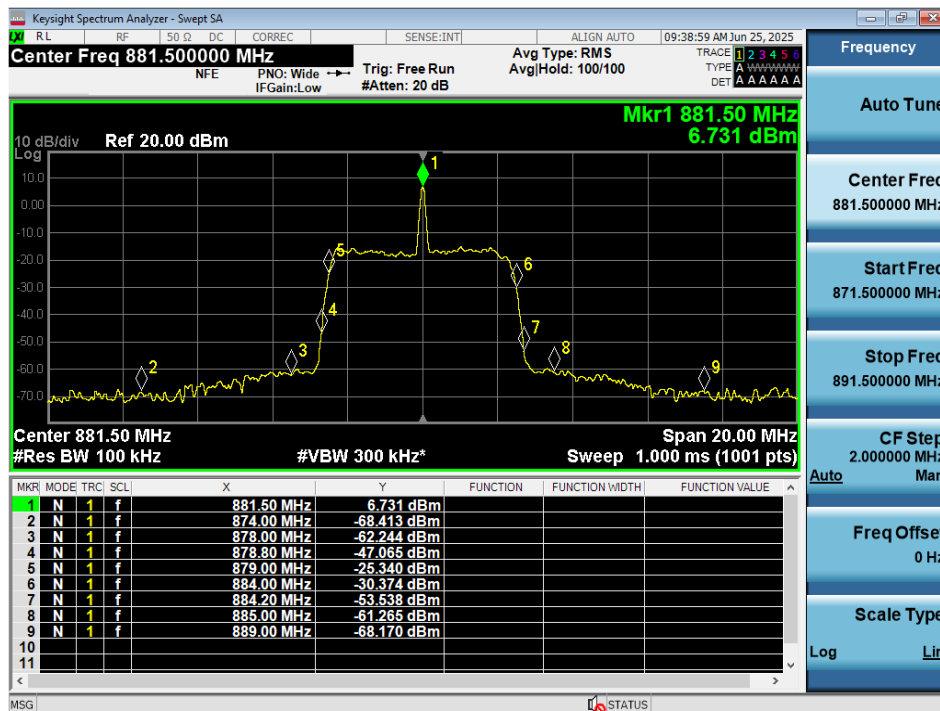
Out-of-band gain / Upper 700 MHz / Downlink / ANT 1



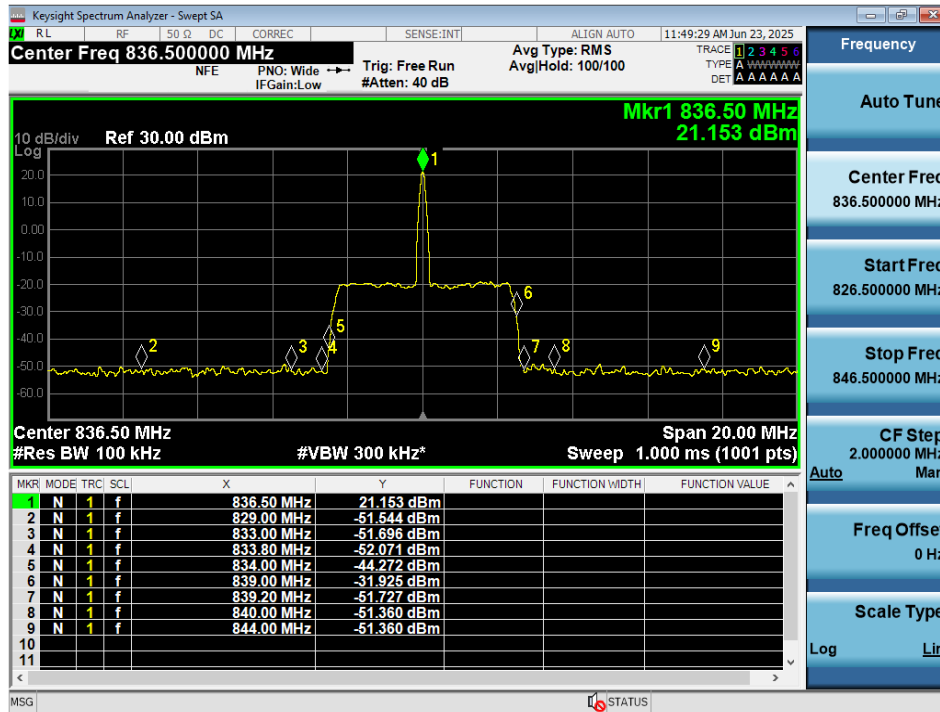
Out-of-band gain / Cellular / Uplink / ANT 1



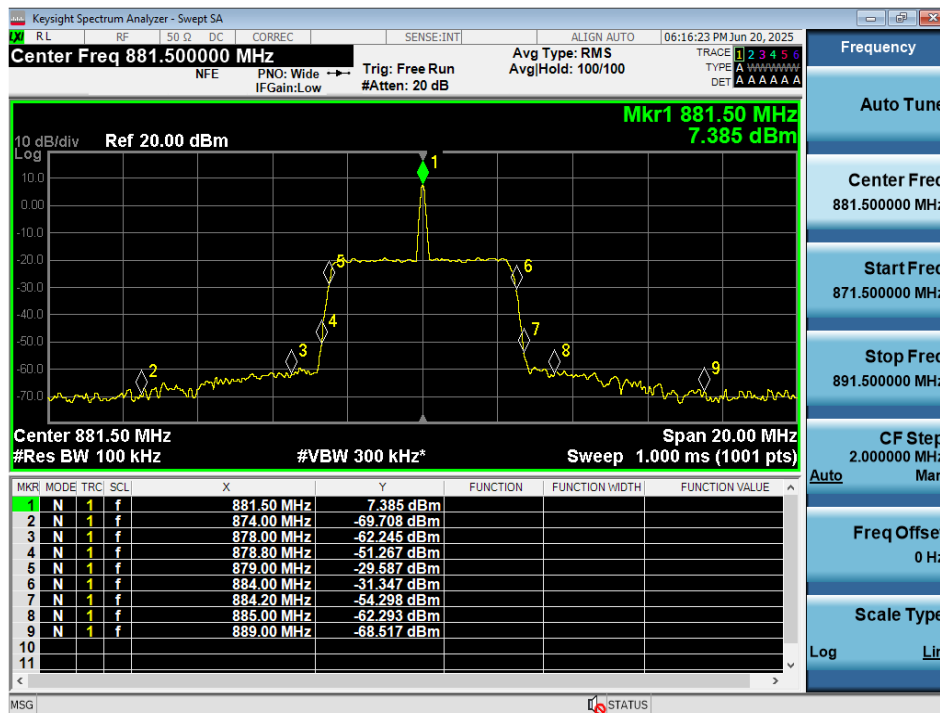
Out-of-band gain / Cellular / Downlink / ANT 1



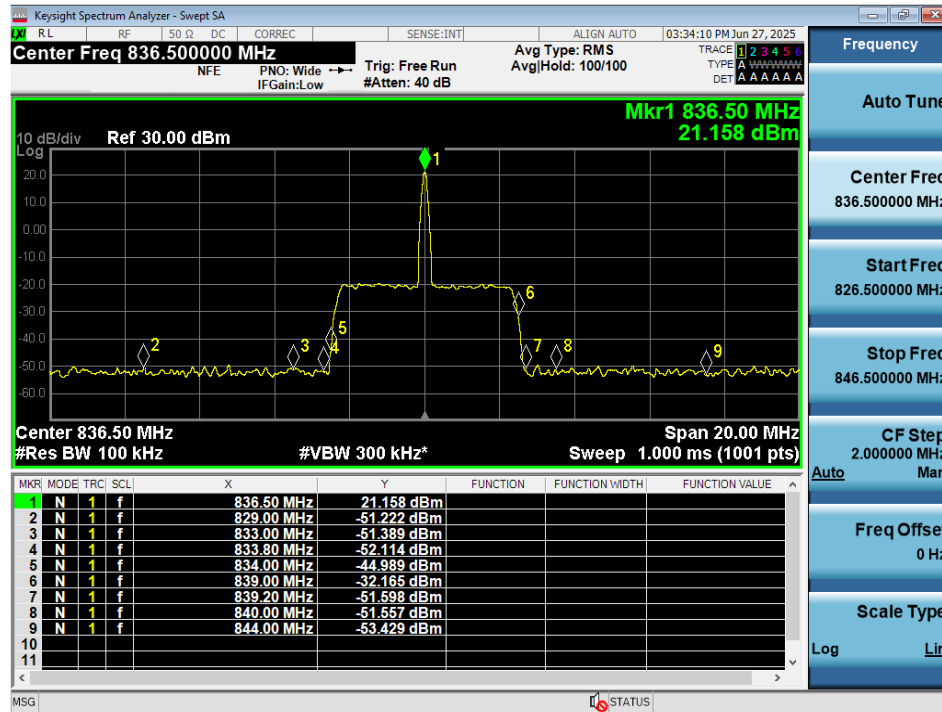
Out-of-band gain / Cellular / Uplink / ANT 2



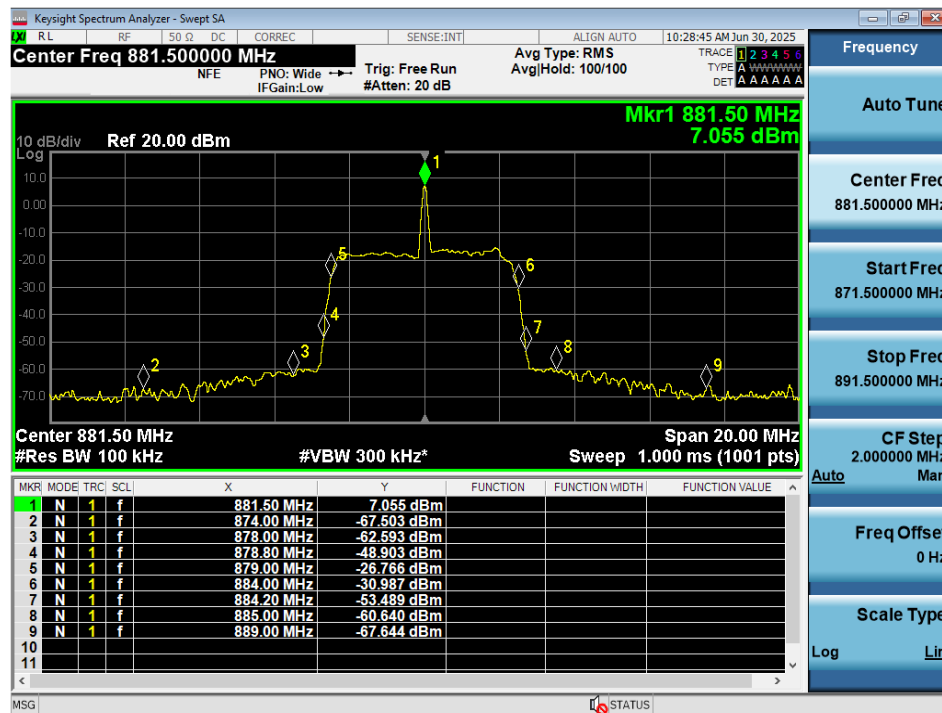
Out-of-band gain / Cellular / Downlink / ANT 2



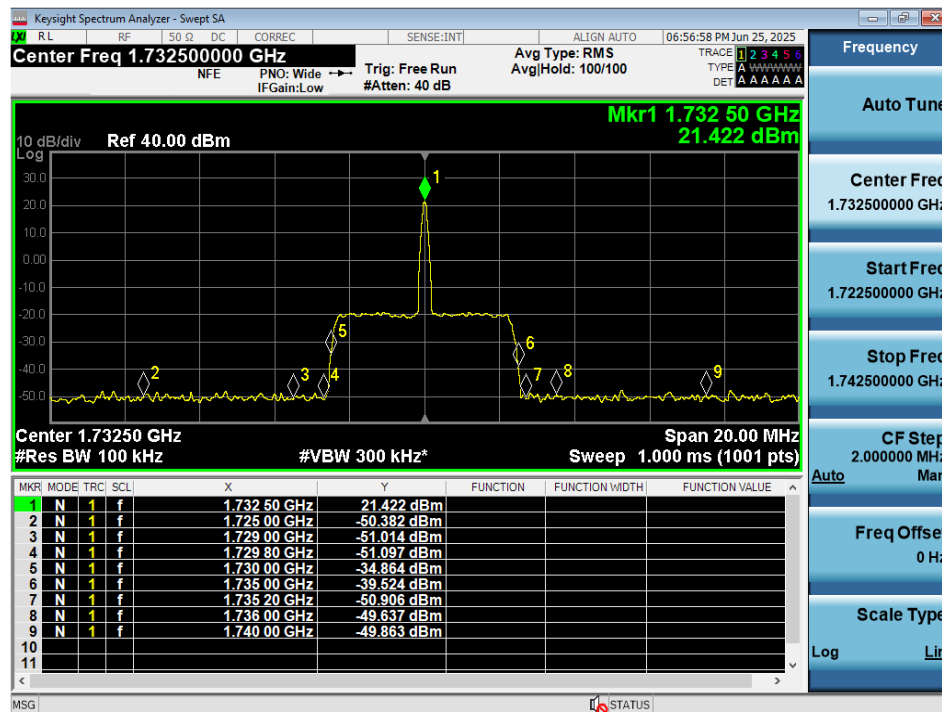
Out-of-band gain / Cellular / Uplink / ANT 3



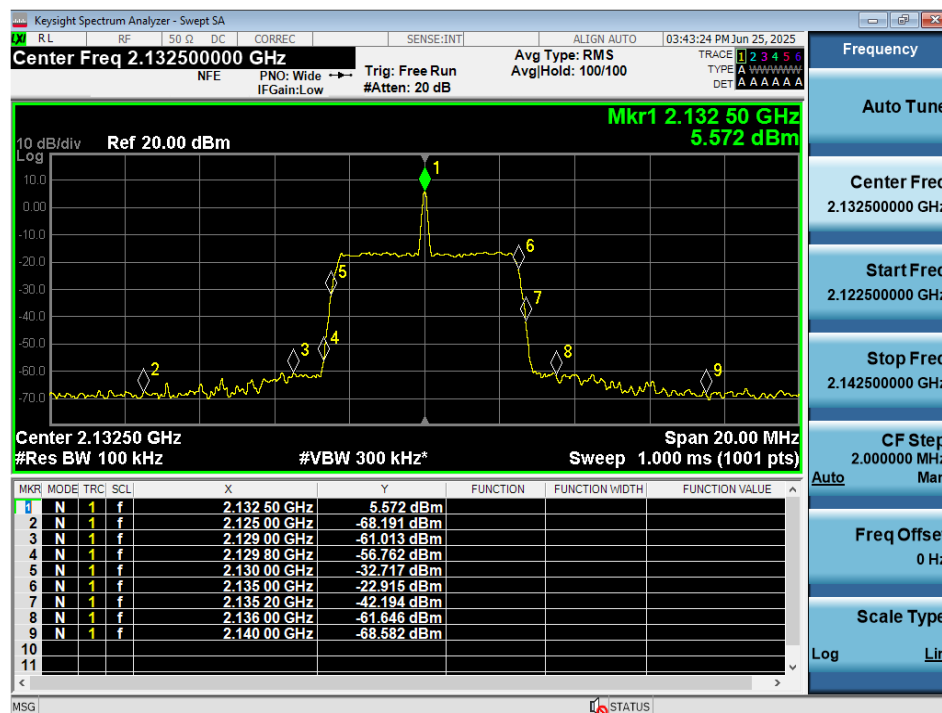
Out-of-band gain / Cellular / Downlink / ANT 3



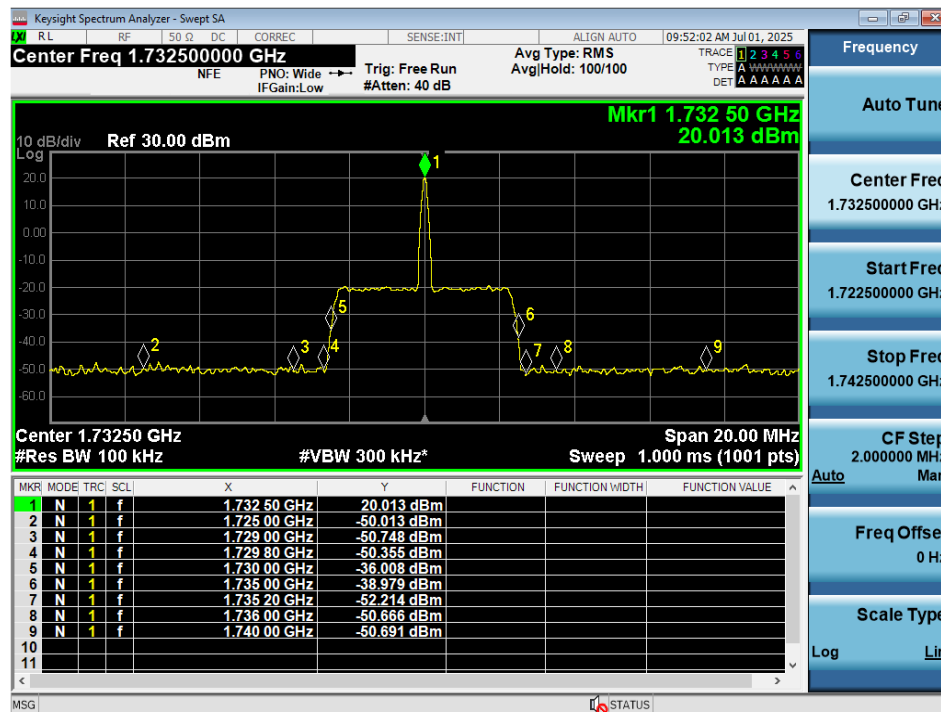
Out-of-band gain / AWS-1 / Uplink / ANT 1



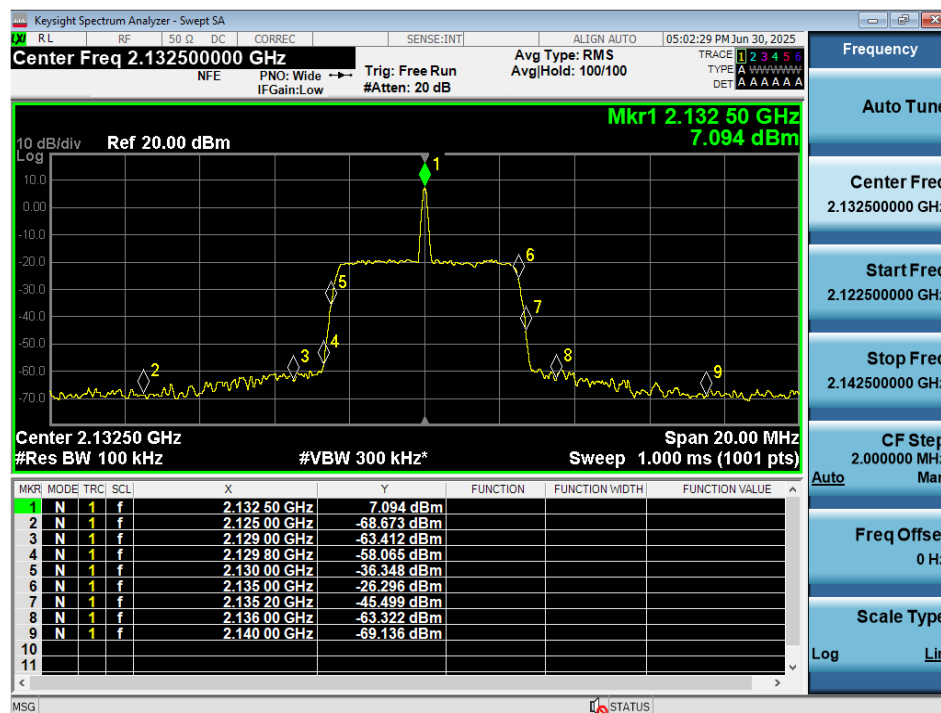
Out-of-band gain / AWS-1 / Downlink / ANT 1



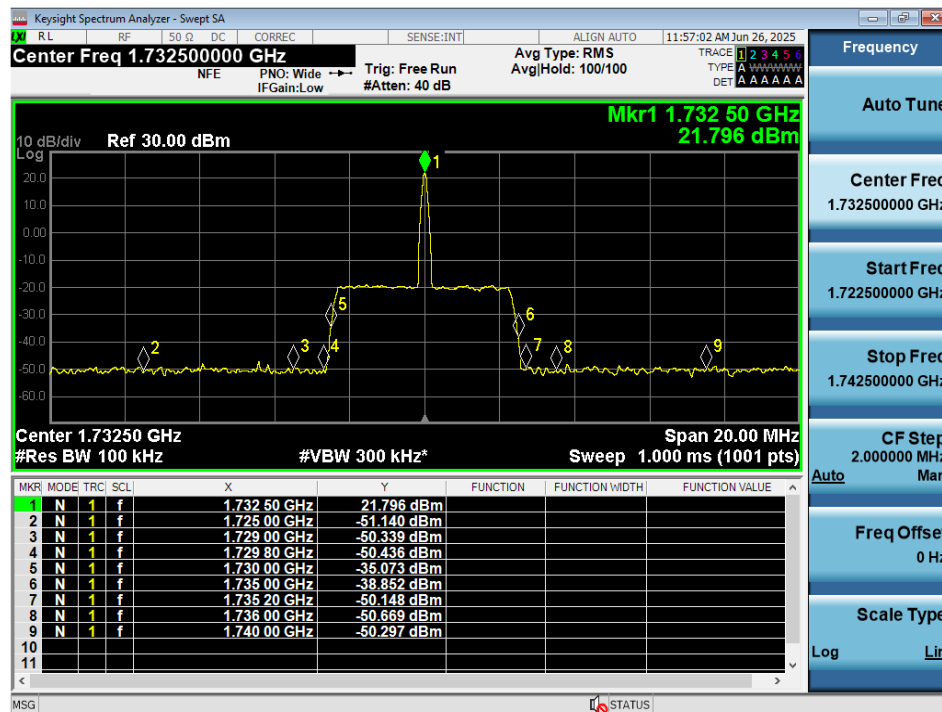
Out-of-band gain / AWS-1 / Uplink / ANT 2



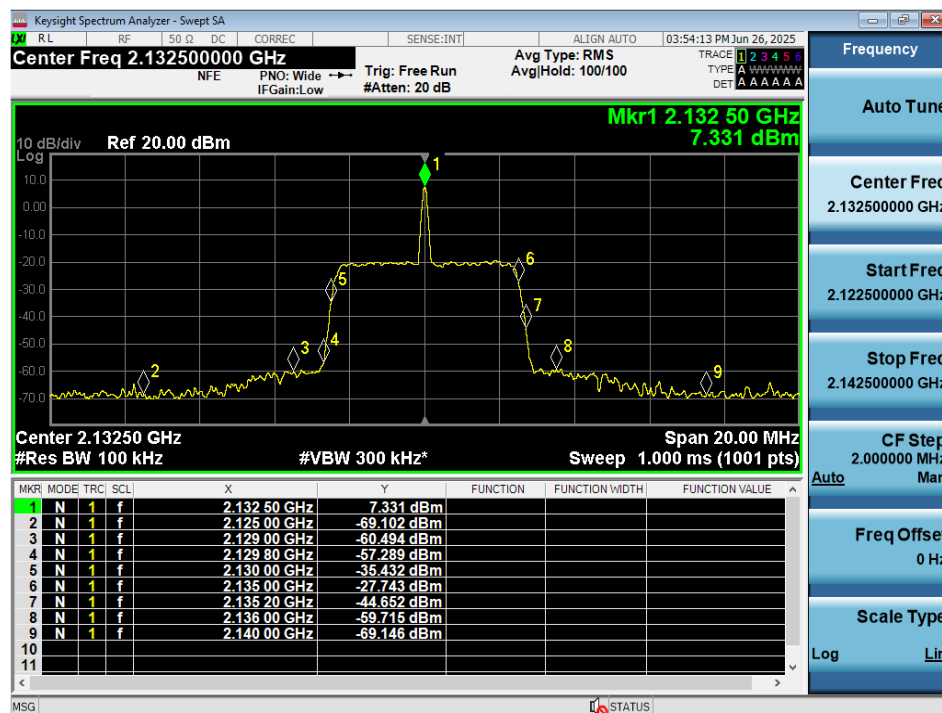
Out-of-band gain / AWS-1 / Downlink / ANT 2



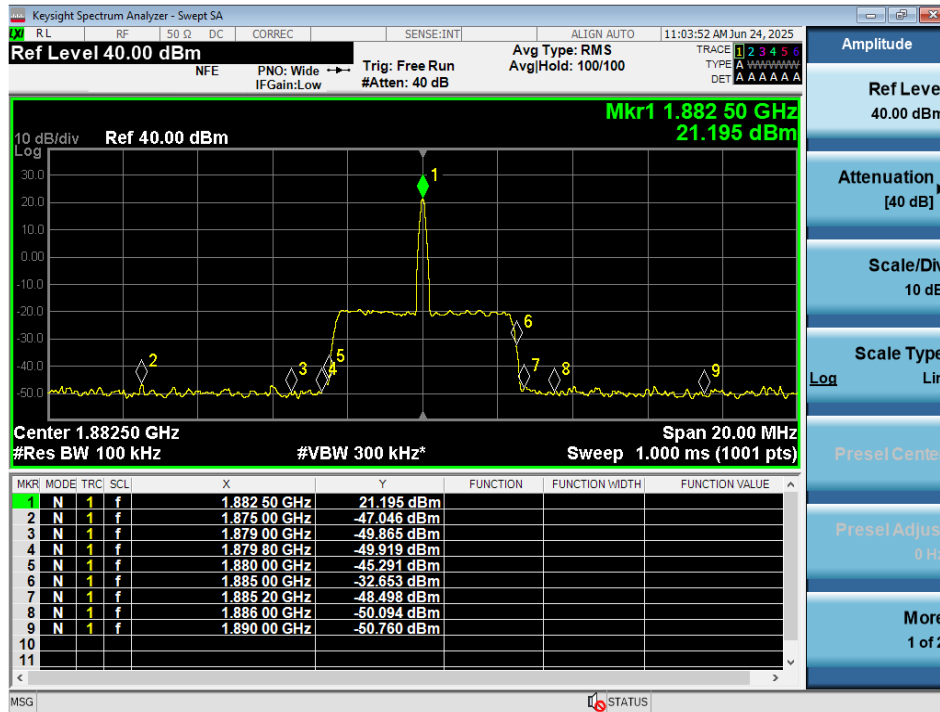
Out-of-band gain / AWS-1 / Uplink / ANT 3



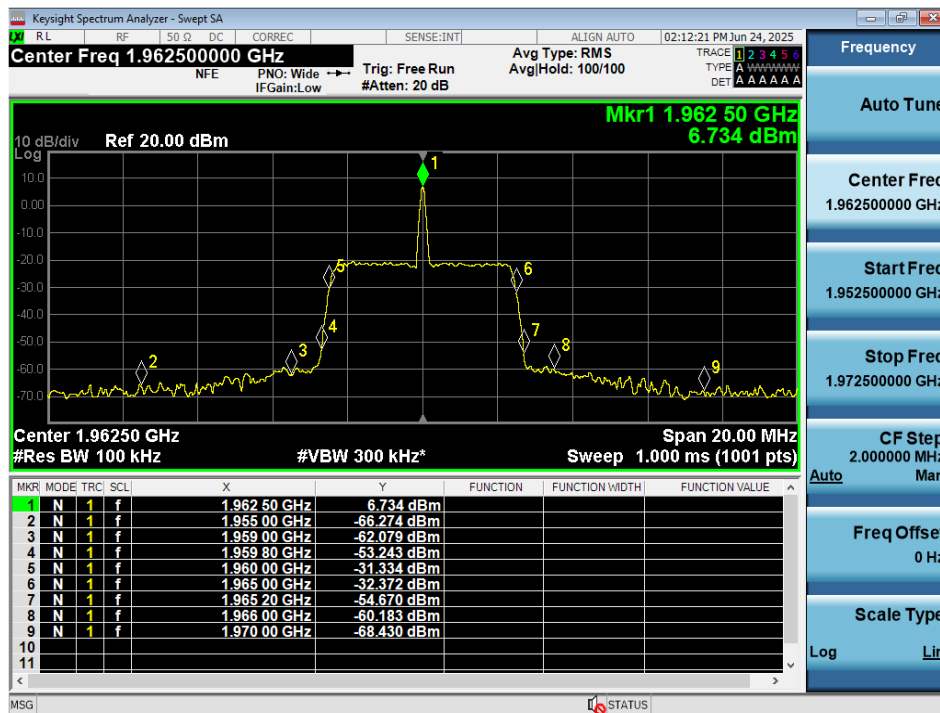
Out-of-band gain / AWS-1 / Downlink / ANT 3



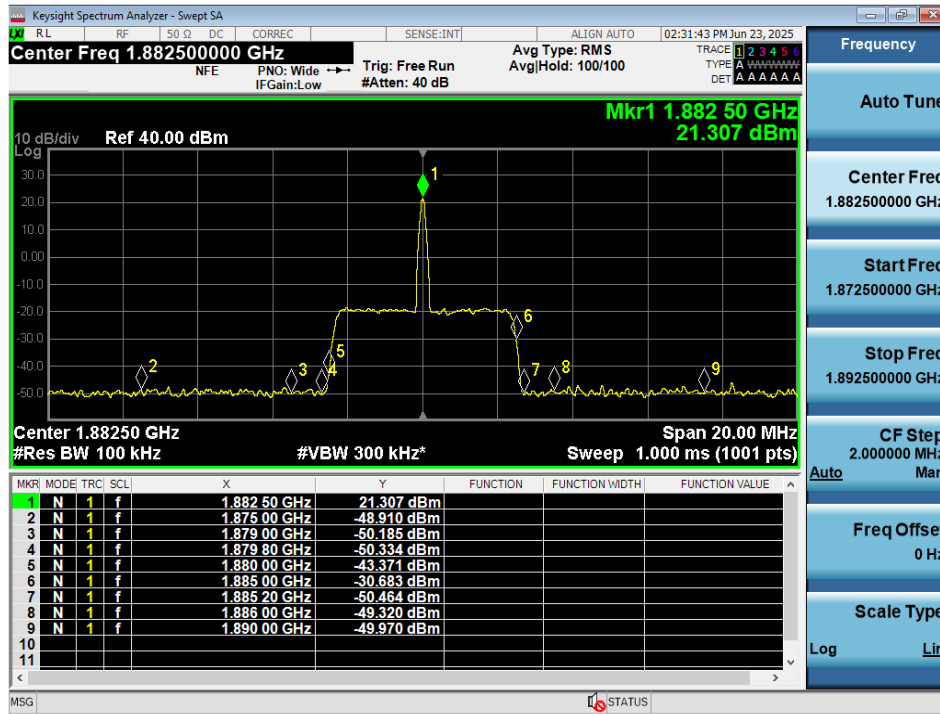
Out-of-band gain / Broadband PCS / Uplink / ANT 1



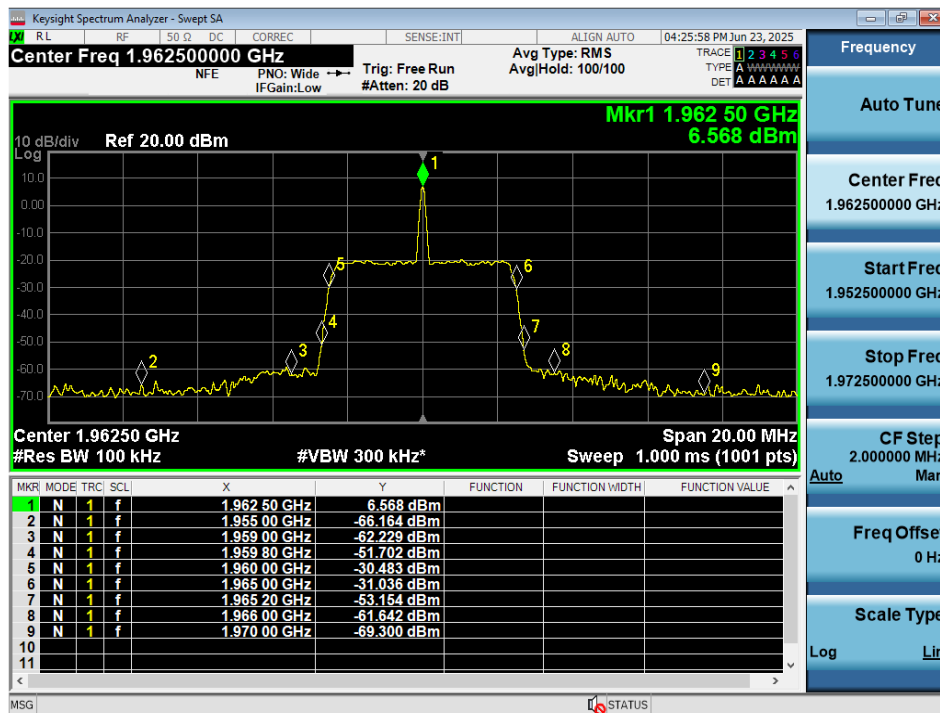
Out-of-band gain / Broadband PCS / Downlink / ANT 1



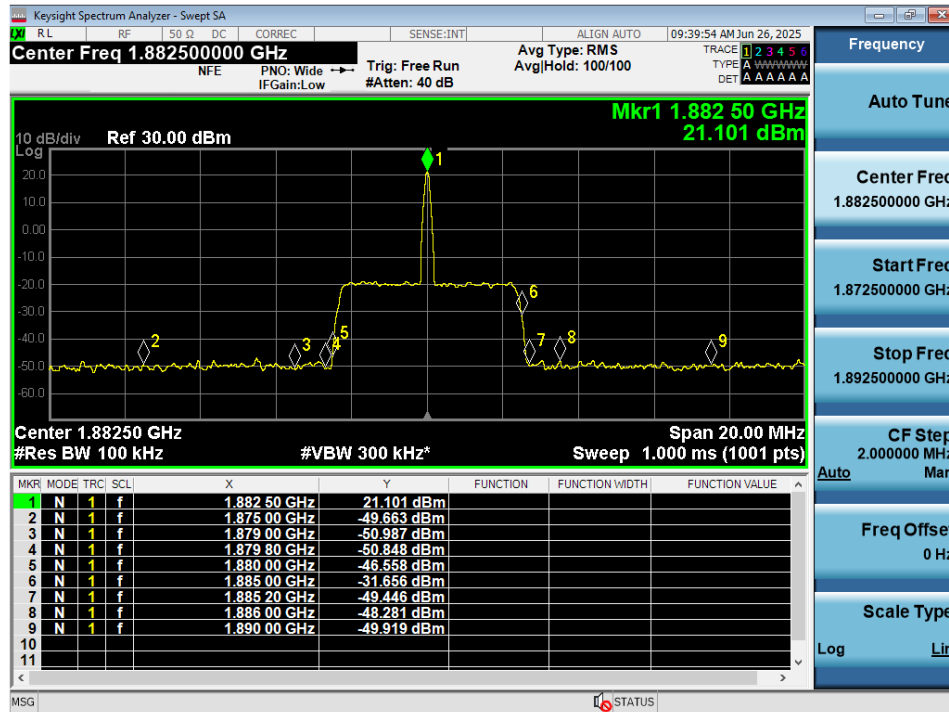
Out-of-band gain / Broadband PCS / Uplink / ANT 2



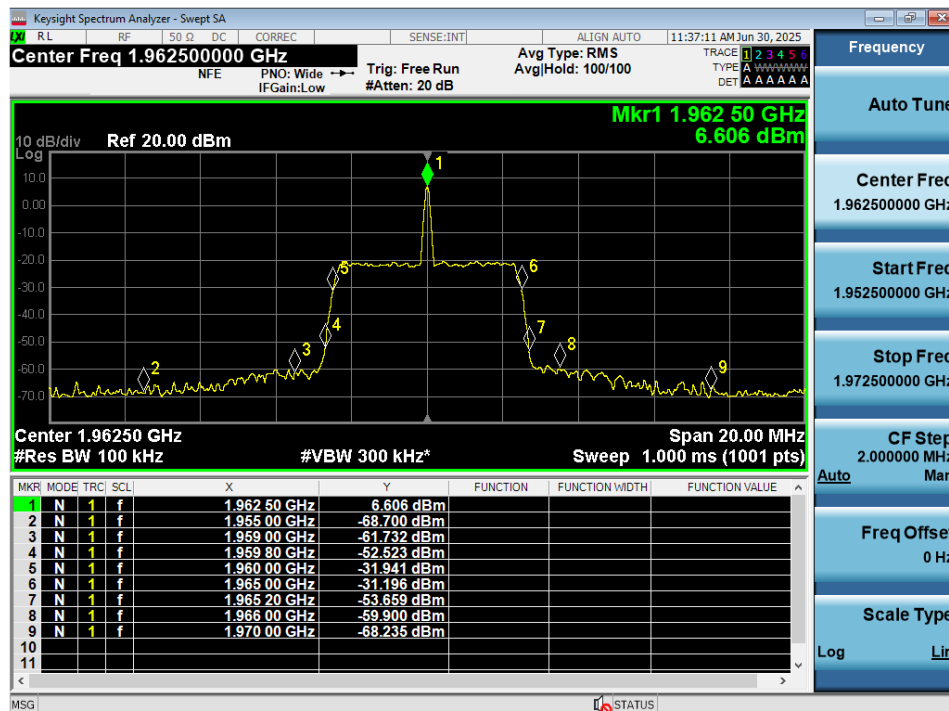
Out-of-band gain / Broadband PCS / Downlink / ANT 2



Out-of-band gain / Broadband PCS / Uplink / ANT 3



Out-of-band gain / Broadband PCS / Downlink / ANT 3



5.15. FREQUENCY STABILITY

Test Requirements:

§ 2.1055 Measurements required: Frequency stability.

- (a) The frequency stability shall be measured with variation of ambient temperature as follows:
 - (1) From -30° to $+50^{\circ}$ centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.
- (d) Click to open paragraph tools The frequency stability shall be measured with variation of primary supply voltage as follows:
 - (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

Test Procedures:

Measurements were in accordance with the test methods section 7.16 of KDB 935210 D04 v02r04.

- a) Configure the booster to operate in normal mode as shown in Figure 1, with nominal supply voltage and at room temperature.
- b) Set the EUT center frequency to the center of the CMRS band under test, and set the applicable spectrum analyzer to the same frequency, with RBW = 100 Hz, and VBW = RBW.
- c) Configure the base station simulator or signal generator (as appropriate) to inject a CW tone, centered within the CMRS band under test, into the booster port. The booster does not need to be at maximum gain for this test.
- d) Measure the frequency of the CW tone at the output port of the booster.
- e) Document the frequency deviation at the output relative to the input of the booster.
- f) Repeat 7.16a) to 7.16e) for primary supply variations of 85% of nominal supply voltage, as well as for 115% of nominal supply voltage.
- g) Repeat 7.16a) to 7.16f) for all uplink and downlink CMRS bands.
- h) Set the primary supply voltage to its nominal level.
- i) Place the EUT in an environmental chamber with the temperature set to 50°C , then allow the temperature of the EUT to stabilize.
- j) Measure the frequency of the CW tone at the output port of the booster.
- k) Document the frequency deviation at the output relative to the input of the booster.
- l) Reduce the environmental chamber temperature in steps of 10°C down to -30°C , while repeating 7.16j) and 7.16k) at each temperature step.
- m) Repeat 7.16i) through 7.16l) for all uplink and downlink CMRS bands.

Test Results(Uplink):
Reference: 220 VAC at 20°C

Band: Lower 700 MHz

Frequency: 707.5 MHz

-ANT 2--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	707 500 007	6.886	0.000	0.00000
	-30	707 500 012	4.757	-2.129	-0.00301
	-20	707 500 014	6.673	-0.213	-0.00030
	-10	707 500 014	6.919	0.033	0.00005
	0	707 500 012	5.192	-1.694	-0.00239
	+10	707 500 011	3.932	-2.954	-0.00418
	+30	707 500 007	0.381	-6.505	-0.00919
	+40	707 500 011	4.340	-2.546	-0.00360
	+50	707 500 007	0.509	-6.377	-0.00901
115 %	+20	707 500 016	8.730	1.844	0.00261
85 %	+20	707 500 010	3.458	-3.428	-0.00484

-ANT 3--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	707 500 007	7.293	0.000	0.00000
	-30	707 500 015	7.728	0.435	0.00061
	-20	707 500 008	0.607	-6.686	-0.00945
	-10	707 500 011	3.886	-3.407	-0.00482
	0	707 500 016	9.094	1.801	0.00255
	+10	707 500 009	1.556	-5.737	-0.00811
	+30	707 500 008	0.849	-6.444	-0.00911
	+40	707 500 012	4.731	-2.562	-0.00362
	+50	707 500 008	0.842	-6.451	-0.00912
115 %	+20	707 500 012	5.139	-2.154	-0.00304
85 %	+20	707 500 017	9.457	2.164	0.00306

Band: Upper 700 MHz

Frequency: 782 MHz

-ANT 1--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	782 000 008	8.296	0.000	0.00000
	-30	782 000 008	0.197	-8.099	-0.01029
	-20	782 000 010	1.619	-6.677	-0.00848
	-10	782 000 013	4.541	-3.754	-0.00477
	0	782 000 018	9.385	1.089	0.00138
	+10	782 000 010	1.655	-6.640	-0.00844
	+30	782 000 010	2.028	-6.268	-0.00796
	+40	782 000 013	5.160	-3.136	-0.00398
	+50	782 000 009	0.790	-7.506	-0.00954
115 %	+20	782 000 014	5.866	-2.430	-0.00309
85 %	+20	782 000 017	8.491	0.196	0.00025

Band: Cellular

Frequency: 836.5 MHz

-ANT 1--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	836 500 004	4.059	0.000	0.00000
	-30	836 500 013	9.105	5.046	0.00603
	-20	836 500 012	7.522	3.463	0.00414
	-10	836 500 009	4.521	0.462	0.00055
	0	836 500 007	2.850	-1.209	-0.00145
	+10	836 500 006	2.058	-2.001	-0.00239
	+30	836 500 013	8.969	4.910	0.00587
	+40	836 500 009	4.746	0.687	0.00082
	+50	836 500 004	0.152	-3.907	-0.00467
115 %	+20	836 500 006	1.568	-2.491	-0.00298
85 %	+20	836 500 007	2.470	-1.588	-0.00190

-ANT 2--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	836 500 008	8.049	0.000	0.00000
	-30	836 500 012	3.554	-4.495	-0.00537
	-20	836 500 014	5.622	-2.427	-0.00290
	-10	836 500 009	1.384	-6.665	-0.00797
	0	836 500 008	0.034	-8.015	-0.00958
	+10	836 500 016	7.861	-0.188	-0.00022
	+30	836 500 013	5.231	-2.818	-0.00337
	+40	836 500 013	4.835	-3.214	-0.00384
	+50	836 500 015	6.755	-1.294	-0.00155
115 %	+20	836 500 015	7.159	-0.890	-0.00106
85 %	+20	836 500 017	9.227	1.178	0.00141

-ANT 3--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	836 500 003	3.434	0.000	0.00000
	-30	836 500 005	2.051	-1.383	-0.00165
	-20	836 500 005	1.450	-1.984	-0.00237
	-10	836 500 008	4.732	1.298	0.00155
	0	836 500 010	6.238	2.804	0.00335
	+10	836 500 004	1.034	-2.399	-0.00287
	+30	836 500 005	1.164	-2.270	-0.00271
	+40	836 500 004	0.146	-3.288	-0.00393
	+50	836 500 009	5.727	2.293	0.00274
115 %	+20	836 500 005	1.911	-1.523	-0.00182
85 %	+20	836 500 008	4.936	1.502	0.00180

Band: AWS-1

Frequency: 1732.5 MHz

-ANT 1--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1732 500 003	3.336	0.000	0.00000
	-30	1732 500 007	3.691	0.355	0.00020
	-20	1732 500 008	4.695	1.358	0.00078
	-10	1732 500 010	7.126	3.790	0.00219
	0	1732 500 012	8.864	5.527	0.00319
	+10	1732 500 004	1.086	-2.250	-0.00130
	+30	1732 500 007	4.030	0.693	0.00040
	+40	1732 500 003	0.107	-3.229	-0.00186
	+50	1732 500 005	1.513	-1.823	-0.00105
115 %	+20	1732 500 004	0.292	-3.044	-0.00176
85 %	+20	1732 500 003	0.037	-3.299	-0.00190

-ANT 2--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1732 500 010	9.750	0.000	0.00000
	-30	1732 500 016	6.639	-3.111	-0.00180
	-20	1732 500 015	4.863	-4.887	-0.00282
	-10	1732 500 019	9.570	-0.180	-0.00010
	0	1732 500 018	8.642	-1.108	-0.00064
	+10	1732 500 018	8.165	-1.585	-0.00091
	+30	1732 500 010	0.157	-9.593	-0.00554
	+40	1732 500 015	5.646	-4.104	-0.00237
	+50	1732 500 013	2.827	-6.923	-0.00400
115 %	+20	1732 500 017	7.217	-2.533	-0.00146
85 %	+20	1732 500 018	8.722	-1.028	-0.00059

-ANT 3--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1732 500 009	8.590	0.000	0.00000
	-30	1732 500 012	3.887	-4.703	-0.00271
	-20	1732 500 014	5.326	-3.264	-0.00188
	-10	1732 500 009	0.292	-8.299	-0.00479
	0	1732 500 012	3.777	-4.814	-0.00278
	+10	1732 500 010	1.851	-6.740	-0.00389
	+30	1732 500 014	5.420	-3.171	-0.00183
	+40	1732 500 017	8.573	-0.017	-0.00001
	+50	1732 500 016	7.028	-1.563	-0.00090
115 %	+20	1732 500 013	4.118	-4.473	-0.00258
85 %	+20	1732 500 018	9.515	0.925	0.00053

Band: Broadband PCS

Frequency: 1882.5 MHz

-ANT 1--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1882 500 003	2.547	0.000	0.00000
	-30	1882 500 007	4.785	2.237	0.00119
	-20	1882 500 007	4.585	2.037	0.00108
	-10	1882 500 008	5.950	3.402	0.00181
	0	1882 500 005	2.213	-0.335	-0.00018
	+10	1882 500 009	6.699	4.151	0.00221
	+30	1882 500 008	5.235	2.687	0.00143
	+40	1882 500 006	3.417	0.870	0.00046
	+50	1882 500 005	2.327	-0.221	-0.00012
115 %	+20	1882 500 011	8.527	5.980	0.00318
85 %	+20	1882 500 009	6.066	3.519	0.00187

-ANT 2--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1882 500 000	0.020	0.000	0.00000
	-30	1882 500 003	2.501	2.481	0.00132
	-20	1882 500 003	2.774	2.753	0.00146
	-10	1882 500 004	4.338	4.317	0.00229
	0	1882 500 000	0.160	0.140	0.00007
	+10	1882 500 010	9.488	9.467	0.00503
	+30	1882 500 009	8.974	8.953	0.00476
	+40	1882 500 004	4.288	4.268	0.00227
	+50	1882 500 009	9.231	9.211	0.00489
115 %	+20	1882 500 006	5.602	5.582	0.00297
85 %	+20	1882 500 002	1.659	1.639	0.00087

-ANT 3--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1882 500 008	8.490	0.000	0.00000
	-30	1882 500 010	1.299	-7.191	-0.00382
	-20	1882 500 011	2.394	-6.096	-0.00324
	-10	1882 500 011	2.244	-6.246	-0.00332
	0	1882 500 016	7.645	-0.845	-0.00045
	+10	1882 500 011	2.309	-6.181	-0.00328
	+30	1882 500 013	4.588	-3.902	-0.00207
	+40	1882 500 011	2.888	-5.602	-0.00298
	+50	1882 500 009	0.866	-7.624	-0.00405
115 %	+20	1882 500 013	4.868	-3.622	-0.00192
85 %	+20	1882 500 010	1.951	-6.540	-0.00347

Test Results(Downlink):
Reference: 220 VAC at 20°C

Band: Lower 700 MHz

Frequency: 737.5 MHz

-ANT 2--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	737 500 004	3.973	0.000	0.00000
	-30	737 500 004	0.335	-3.638	-0.00493
	-20	737 500 006	2.028	-1.945	-0.00264
	-10	737 500 013	8.585	4.612	0.00625
	0	737 500 005	0.672	-3.301	-0.00448
	+10	737 500 010	5.853	1.880	0.00255
	+30	737 500 014	9.823	5.850	0.00793
	+40	737 500 006	2.015	-1.959	-0.00266
	+50	737 500 009	4.997	1.024	0.00139
115 %	+20	737 500 012	7.982	4.009	0.00544
85 %	+20	737 500 009	5.119	1.146	0.00155

-ANT 3--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	737 500 000	0.127	0.000	0.00000
	-30	737 500 009	9.187	9.059	0.01228
	-20	737 500 005	4.412	4.285	0.00581
	-10	737 500 004	3.798	3.670	0.00498
	0	737 500 003	2.682	2.554	0.00346
	+10	737 500 007	6.432	6.305	0.00855
	+30	737 500 009	9.239	9.112	0.01236
	+40	737 500 004	3.712	3.584	0.00486
	+50	737 500 003	2.984	2.857	0.00387
115 %	+20	737 500 003	2.620	2.492	0.00338
85 %	+20	737 500 008	7.462	7.334	0.00994

Band: Upper 700 MHz

Frequency: 751 MHz

-ANT 1--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	751 000 005	5.134	0.000	0.00000
	-30	751 000 014	8.802	3.668	0.00488
	-20	751 000 011	6.157	1.023	0.00136
	-10	751 000 010	4.896	-0.237	-0.00032
	0	751 000 015	9.978	4.844	0.00645
	+10	751 000 010	5.075	-0.059	-0.00008
	+30	751 000 012	6.679	1.545	0.00206
	+40	751 000 006	1.001	-4.132	-0.00550
	+50	751 000 014	8.858	3.724	0.00496
115 %	+20	751 000 014	8.930	3.796	0.00505
85 %	+20	751 000 006	0.666	-4.468	-0.00595

Band: Cellular

Frequency: 881.5 MHz

-ANT 1--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	881 500 000	0.129	0.000	0.00000
	-30	881 500 010	9.437	9.308	0.01056
	-20	881 500 001	0.399	0.270	0.00031
	-10	881 500 006	6.346	6.217	0.00705
	0	881 500 002	2.274	2.145	0.00243
	+10	881 500 006	5.583	5.454	0.00619
	+30	881 500 002	1.793	1.665	0.00189
	+40	881 500 000	0.357	0.228	0.00026
	+50	881 500 010	9.863	9.735	0.01104
115 %	+20	881 500 008	7.664	7.535	0.00855
85 %	+20	881 500 004	3.911	3.783	0.00429

-ANT 2--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	881 500 008	7.579	0.000	0.00000
	-30	881 500 014	6.090	-1.489	-0.00169
	-20	881 500 011	3.060	-4.519	-0.00513
	-10	881 500 012	4.133	-3.445	-0.00391
	0	881 500 014	6.898	-0.681	-0.00077
	+10	881 500 013	5.439	-2.140	-0.00243
	+30	881 500 016	8.477	0.898	0.00102
	+40	881 500 012	4.331	-3.248	-0.00368
	+50	881 500 009	1.663	-5.915	-0.00671
115 %	+20	881 500 015	7.825	0.247	0.00028
85 %	+20	881 500 010	2.014	-5.565	-0.00631

-ANT 3--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	881 500 001	1.151	0.000	0.00000
	-30	881 500 006	5.129	3.978	0.00451
	-20	881 500 010	8.852	7.701	0.00874
	-10	881 500 002	1.252	0.101	0.00011
	0	881 500 009	8.194	7.042	0.00799
	+10	881 500 009	8.151	7.000	0.00794
	+30	881 500 005	3.482	2.331	0.00264
	+40	881 500 006	4.357	3.206	0.00364
	+50	881 500 006	4.971	3.820	0.00433
115 %	+20	881 500 003	2.195	1.044	0.00118
85 %	+20	881 500 006	5.180	4.029	0.00457

Band: AWS-1

Frequency: 2132.5 MHz

-ANT 1--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	2132 500 003	2.798	0.000	0.00000
	-30	2132 500 011	8.086	5.288	0.00248
	-20	2132 500 003	0.036	-2.762	-0.00130
	-10	2132 500 006	3.009	0.211	0.00010
	0	2132 500 006	2.708	-0.090	-0.00004
	+10	2132 500 006	3.359	0.561	0.00026
	+30	2132 500 004	0.887	-1.911	-0.00090
	+40	2132 500 006	2.836	0.038	0.00002
	+50	2132 500 007	4.691	1.893	0.00089
115 %	+20	2132 500 009	6.444	3.646	0.00171
85 %	+20	2132 500 006	3.684	0.886	0.00042

-ANT 2--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	2132 500 001	0.906	0.000	0.00000
	-30	2132 500 007	6.563	5.657	0.00265
	-20	2132 500 005	4.216	3.310	0.00155
	-10	2132 500 010	8.738	7.832	0.00367
	0	2132 500 003	2.295	1.389	0.00065
	+10	2132 500 011	9.991	9.085	0.00426
	+30	2132 500 009	7.654	6.748	0.00316
	+40	2132 500 008	7.376	6.470	0.00303
	+50	2132 500 004	2.902	1.996	0.00094
115 %	+20	2132 500 010	9.447	8.541	0.00401
85 %	+20	2132 500 007	5.921	5.015	0.00235

-ANT 3--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	2132 500 005	4.663	0.000	0.00000
	-30	2132 500 010	5.641	0.978	0.00046
	-20	2132 500 014	9.420	4.757	0.00223
	-10	2132 500 009	4.140	-0.523	-0.00025
	0	2132 500 007	2.770	-1.893	-0.00089
	+10	2132 500 012	7.674	3.010	0.00141
	+30	2132 500 007	2.836	-1.828	-0.00086
	+40	2132 500 010	5.457	0.794	0.00037
	+50	2132 500 011	6.094	1.431	0.00067
115 %	+20	2132 500 005	0.374	-4.290	-0.00201
85 %	+20	2132 500 011	6.350	1.687	0.00079

Band: Broadband PCS

Frequency: 1962.5 MHz

-ANT 1--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1962 500 001	1.164	0.000	0.00000
	-30	1962 500 005	3.827	2.662	0.00136
	-20	1962 500 003	1.864	0.700	0.00036
	-10	1962 500 005	3.701	2.537	0.00129
	0	1962 500 003	2.054	0.890	0.00045
	+10	1962 500 007	6.138	4.974	0.00253
	+30	1962 500 010	9.162	7.998	0.00408
	+40	1962 500 007	5.358	4.193	0.00214
	+50	1962 500 006	5.083	3.918	0.00200
115 %	+20	1962 500 010	9.325	8.160	0.00416
85 %	+20	1962 500 011	9.626	8.462	0.00431

-ANT 2--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1962 500 007	7.262	0.000	0.00000
	-30	1962 500 008	1.113	-6.149	-0.00313
	-20	1962 500 013	5.712	-1.551	-0.00079
	-10	1962 500 009	1.415	-5.847	-0.00298
	0	1962 500 010	2.558	-4.704	-0.00240
	+10	1962 500 013	5.704	-1.558	-0.00079
	+30	1962 500 015	8.154	0.892	0.00045
	+40	1962 500 012	4.826	-2.436	-0.00124
	+50	1962 500 017	9.808	2.546	0.00130
115 %	+20	1962 500 012	5.012	-2.251	-0.00115
85 %	+20	1962 500 014	6.893	-0.369	-0.00019

-ANT 3--

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	1962 500 007	6.501	0.000	0.00000
	-30	1962 500 013	6.384	-0.117	-0.00006
	-20	1962 500 009	2.014	-4.487	-0.00229
	-10	1962 500 014	7.739	1.238	0.00063
	0	1962 500 013	6.064	-0.437	-0.00022
	+10	1962 500 012	5.181	-1.320	-0.00067
	+30	1962 500 016	9.822	3.321	0.00169
	+40	1962 500 016	9.295	2.794	0.00142
	+50	1962 500 011	4.259	-2.242	-0.00114
115 %	+20	1962 500 010	3.456	-3.045	-0.00155
85 %	+20	1962 500 013	6.435	-0.066	-0.00003

6. Annex A_EUT AND TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2507-FC096-P