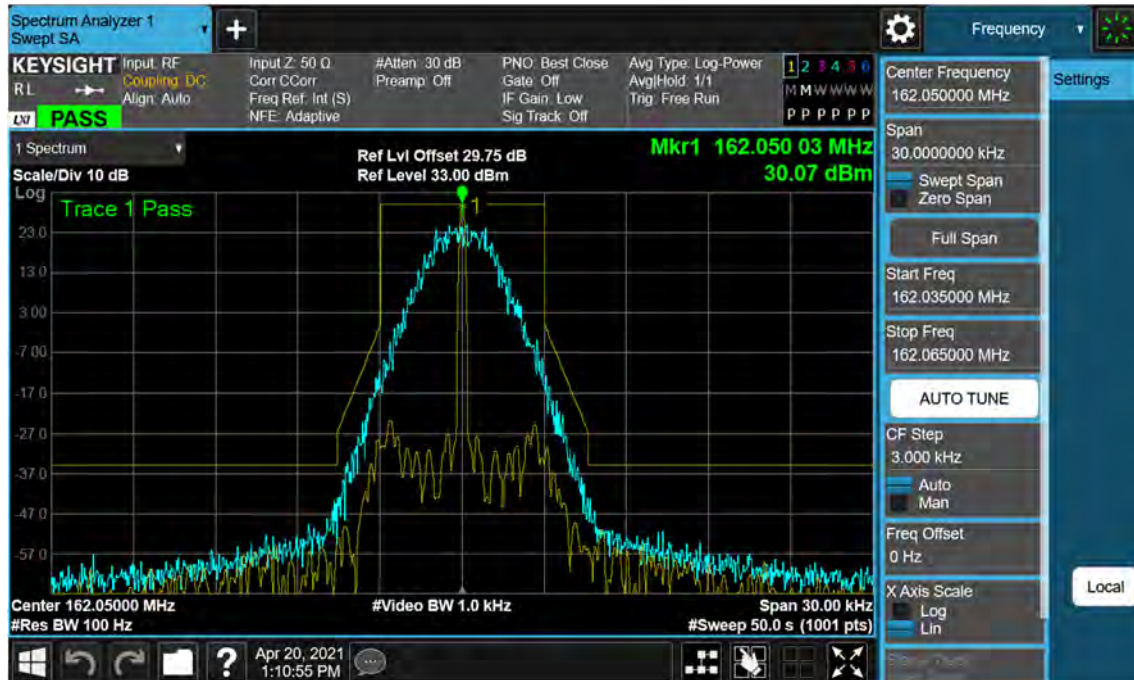
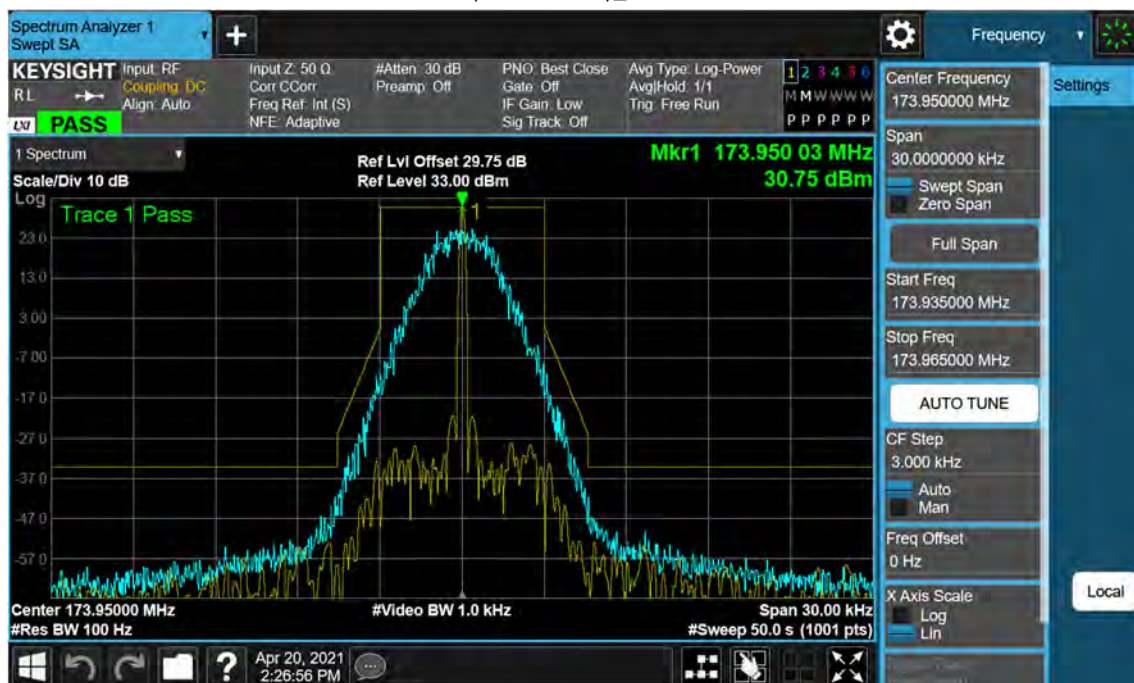


(162.05 MHz)_ Low

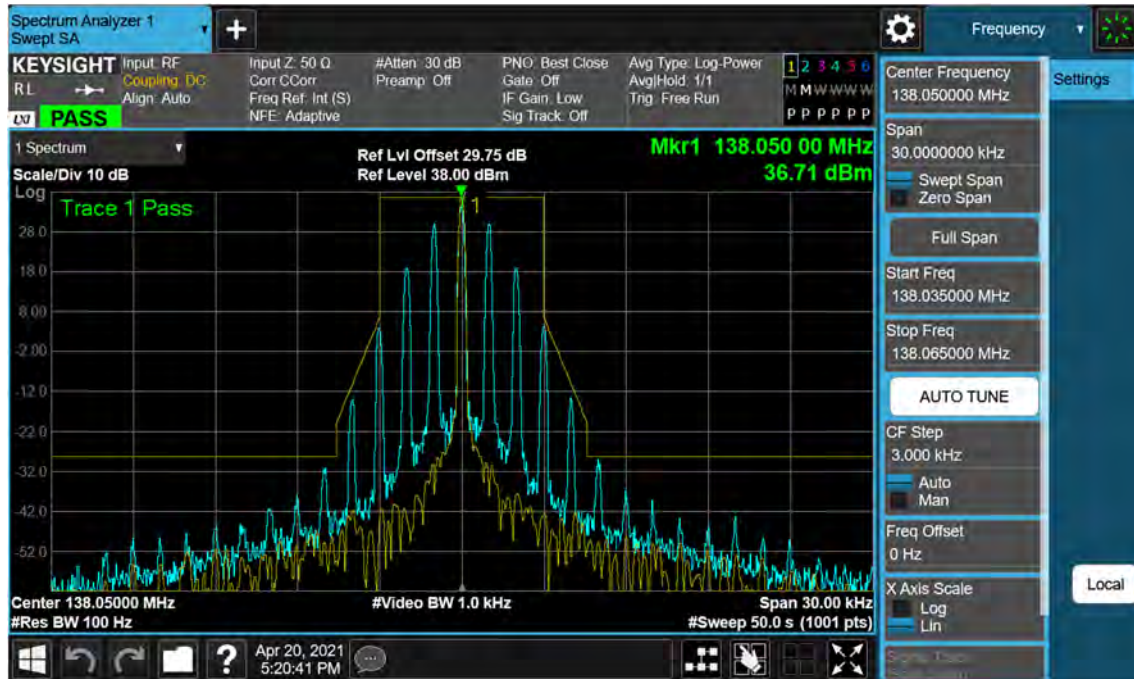


(173.95 MHz)_ Low

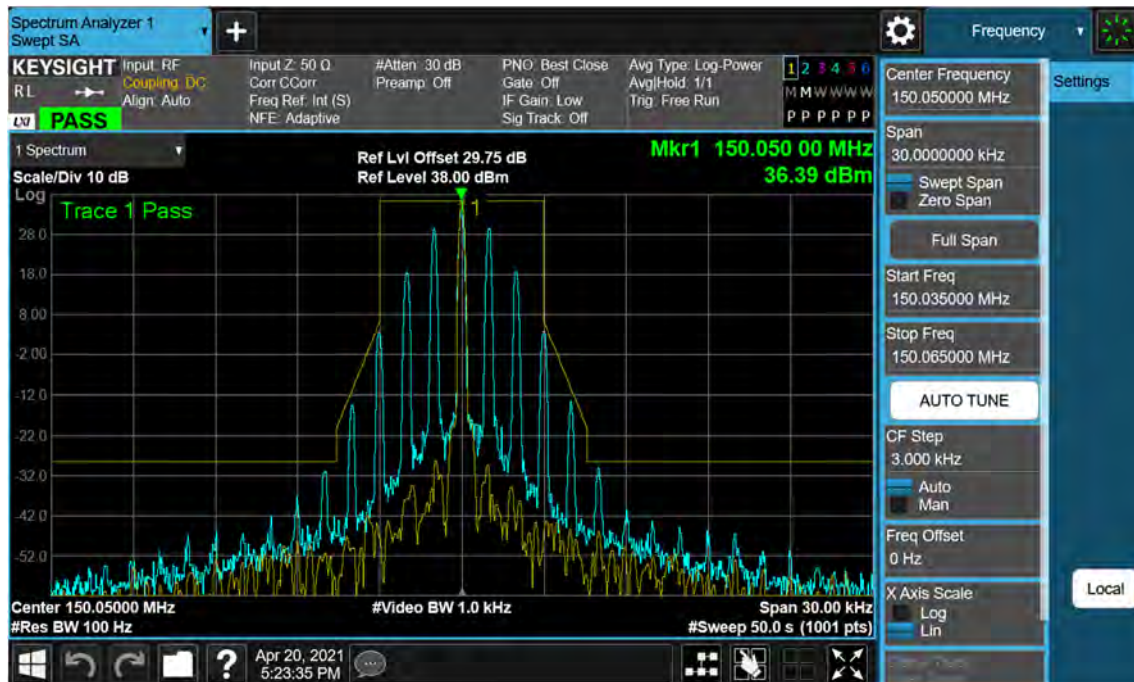


4K00F2D_FCC/ISED

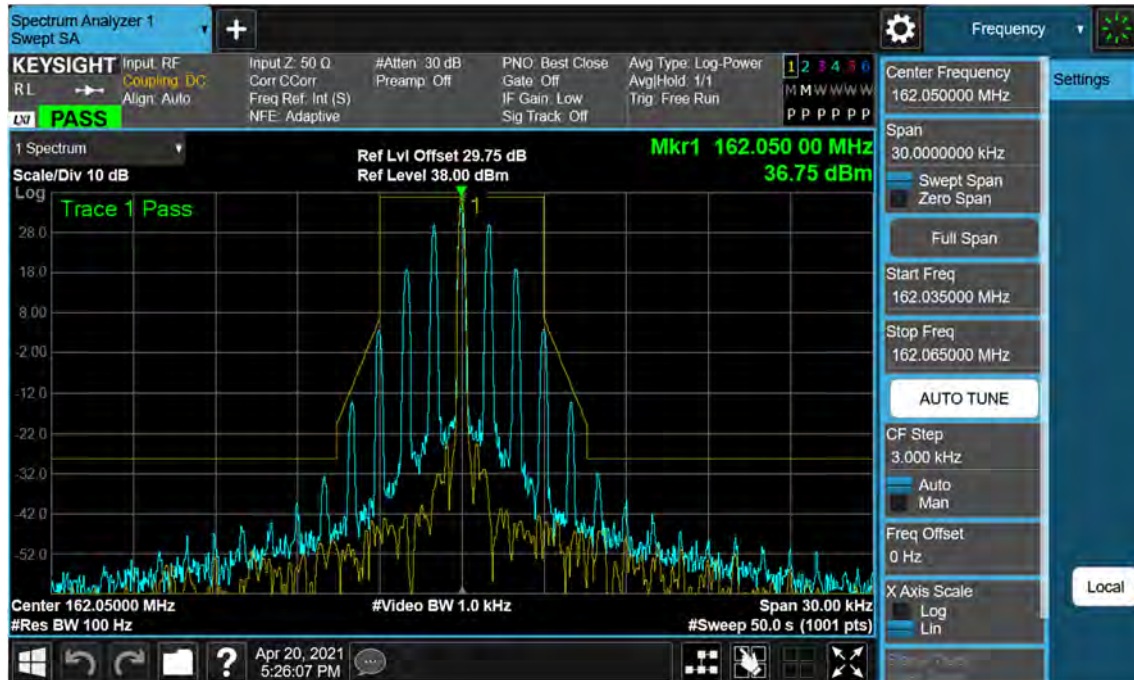
(138.05 MHz)_High



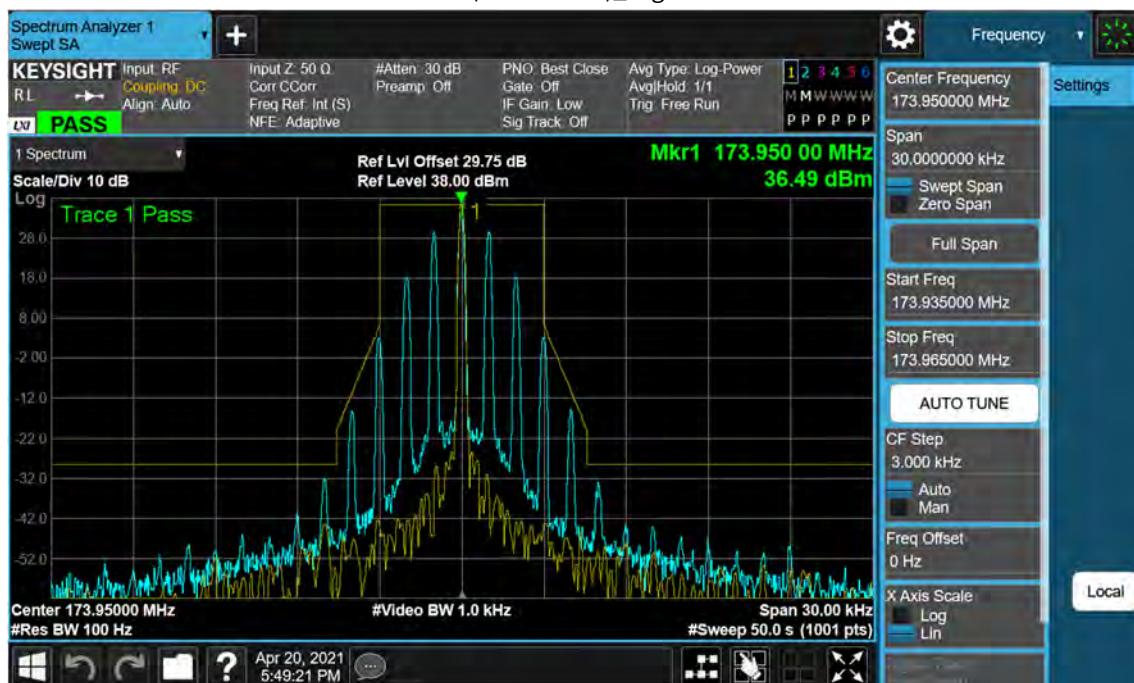
(150.05 MHz)_High



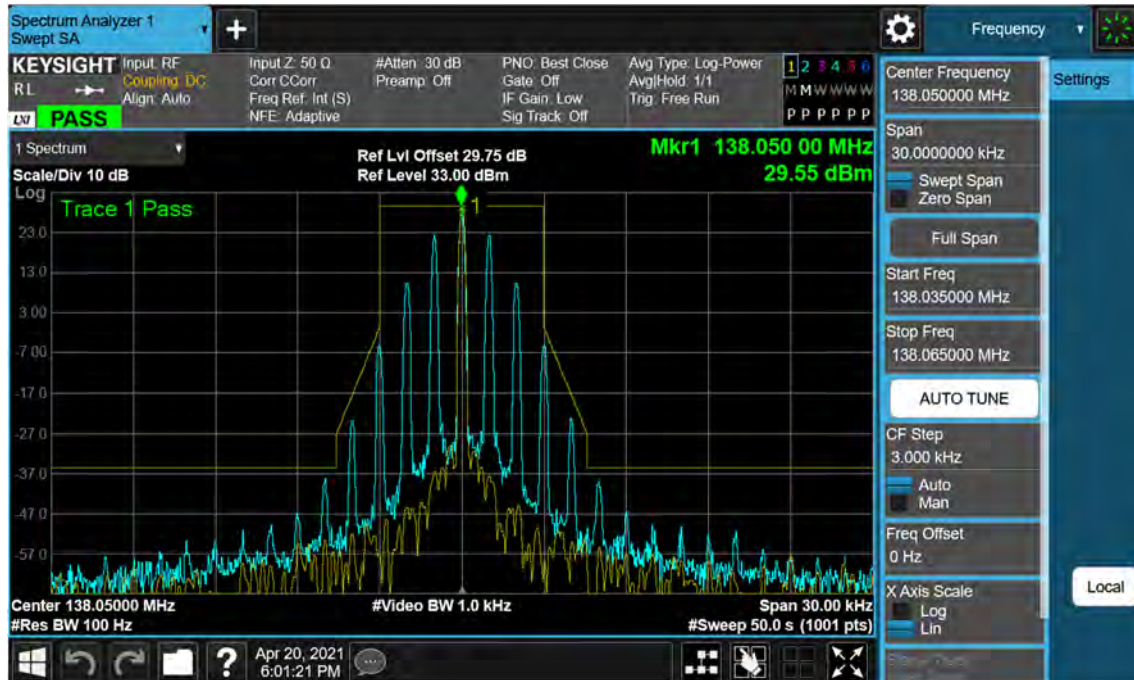
(162.05 MHz)_High



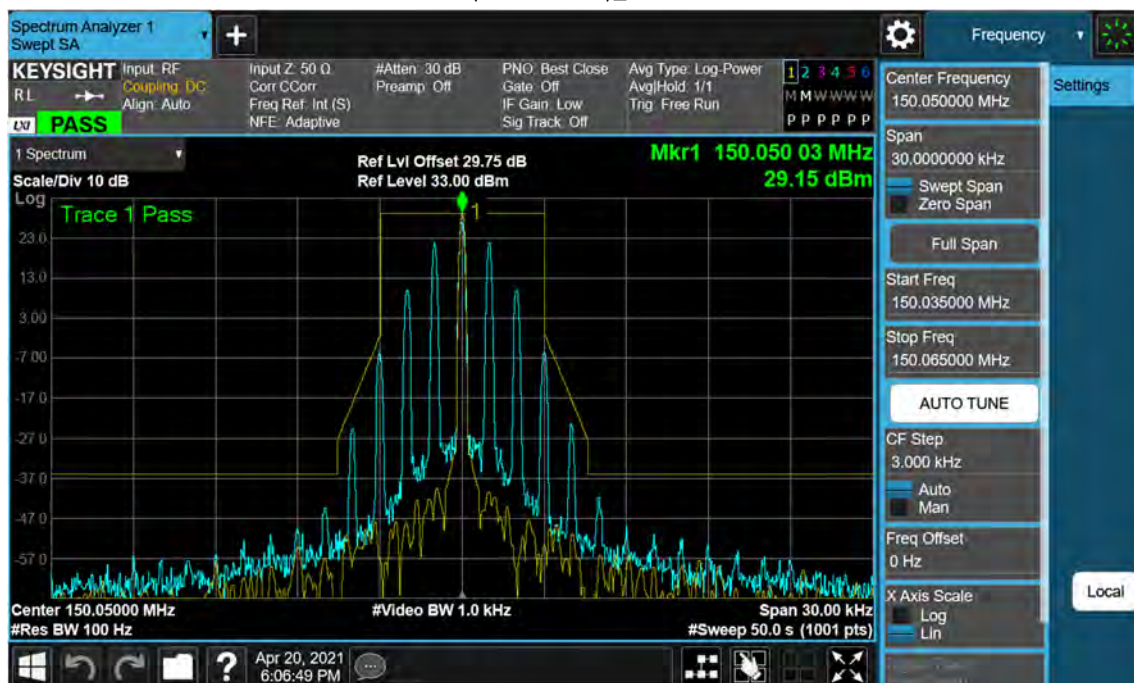
(173.95 MHz)_High



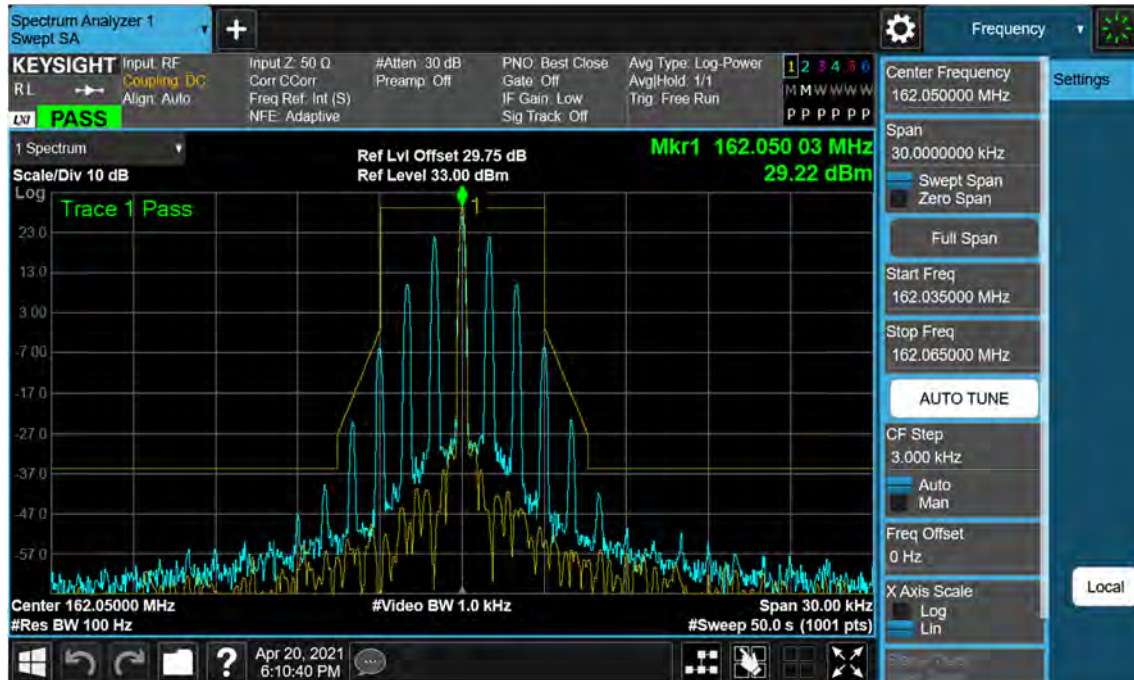
(138.05 MHz)_Low



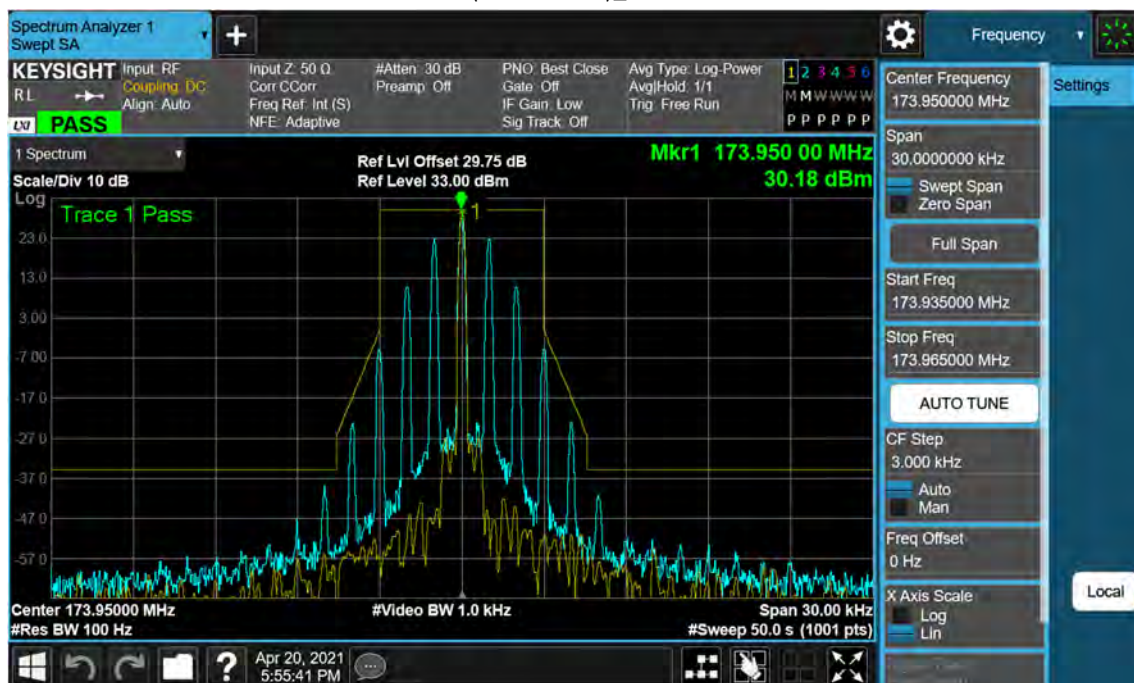
(150.05 MHz)_Low



(162.05 MHz)_ Low



(173.95 MHz)_ Low

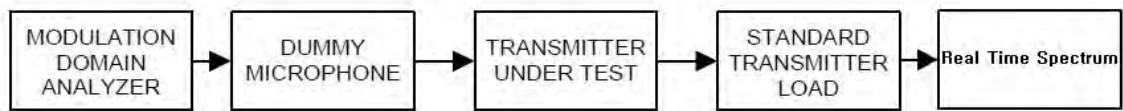


8.7 Transient Frequency Behavior

■ Definition

Transient frequency behavior is a measure of the difference, as a function in time, of the actual transmitter frequency to the assigned transmitter frequency when the transmitted RF output power is switched on or off.

■ TEST CONFIGURATION



■ TEST PROCEDURE

According to 2.2.19 in TIA-603-E Standard.

- a) Connect the equipment as illustrated.
- b) Connect the output of the standard transmitter load to the RF power meter.
Supply sufficient attenuation via the RF attenuator to provide a level that is approximately 40 dB below the maximum allowable input to the modulation domain analyzer.
- c) Unkey the transmitter.
- d) Disconnect the RF power meter and connect the modulation domain analyzer in its place.
Set the envelope trigger of the modulation domain analyzer to the minimum level that will trigger when the transmitter is keyed.
- e) Reduce the attenuation of the RF attenuator so that the input to the modulation domain analyzer is increased by 30 dB when the transmitter is keyed.
- f) Set the modulation domain analyzer to trigger on the rising edge of the waveform in order to capture a single-shot turn-on of the transmitter signal.
- g) Adjust the display of the modulation domain analyzer for proper viewing of the transmitter transient behavior. Set the time base reference to the left for observing the transmitter turn-on transient.
- h) Key the transmitter.
- i) Observe the stored display of the modulation domain analyzer.
The signal trace shall be maintained within the allowable limits during the periods t_1 and t_2 , and shall also remain within limits following t_2 .
- j) Adjust the modulation domain analyzer to trigger on the falling edge of the transmitter waveform in order to capture a single-shot turn-off transient of the transmitter signal.

- k) Adjust the display of the modulation domain analyzer for proper viewing of the transmitter transient behavior. Set the time base reference to the right for observing the transmitter turn-off transient.
- l) Unkey the transmitter.
- m) Observe the stored display of the modulation domain analyzer. The signal trace shall be maintained within the allowable limits during the period t_3 .

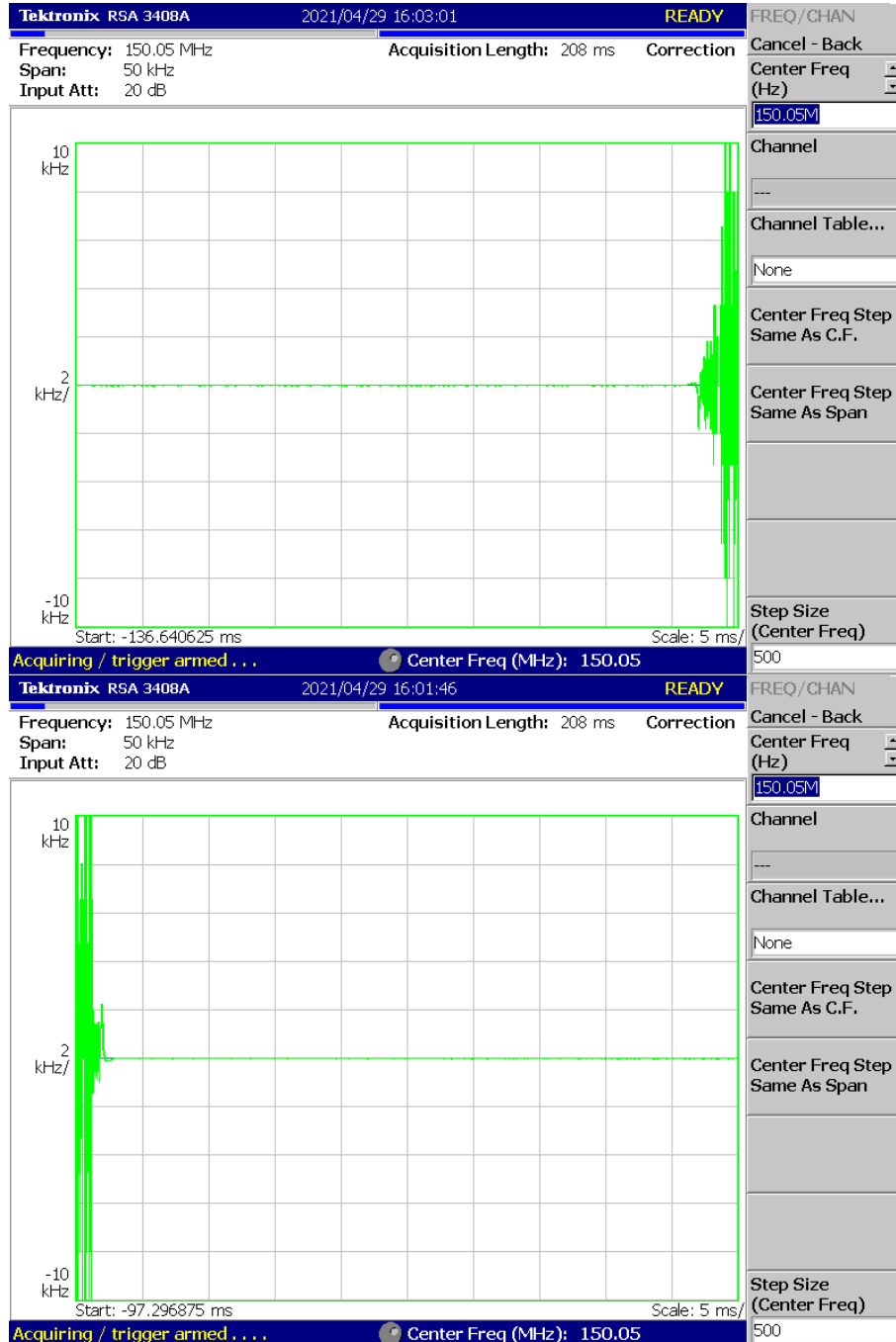
Plots of Transient Frequency Behavior

11K0F3E

(138.05 MHz)_High



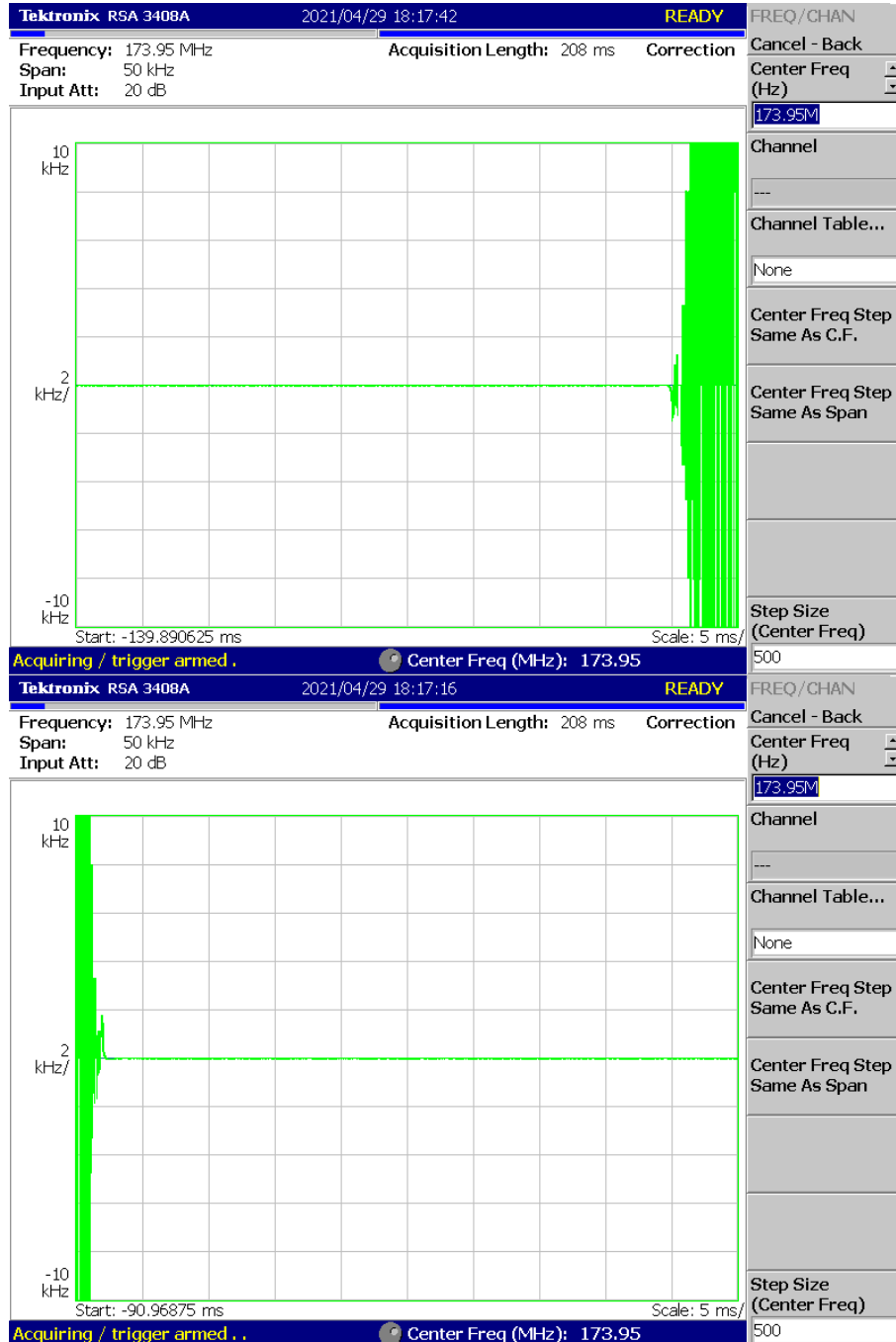
(150.05 MHz)_High



(162.05 MHz)_High



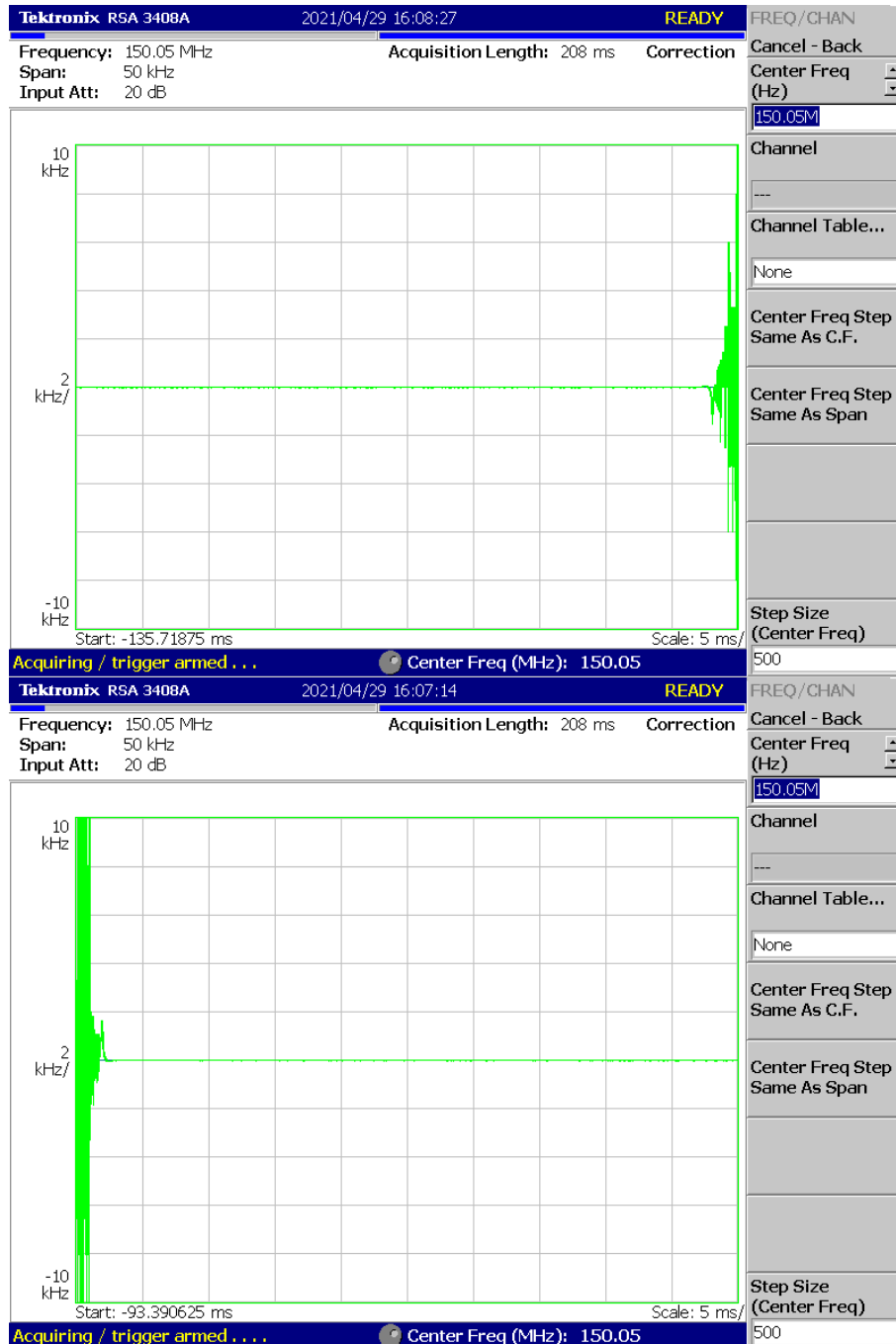
(173.95 MHz)_High



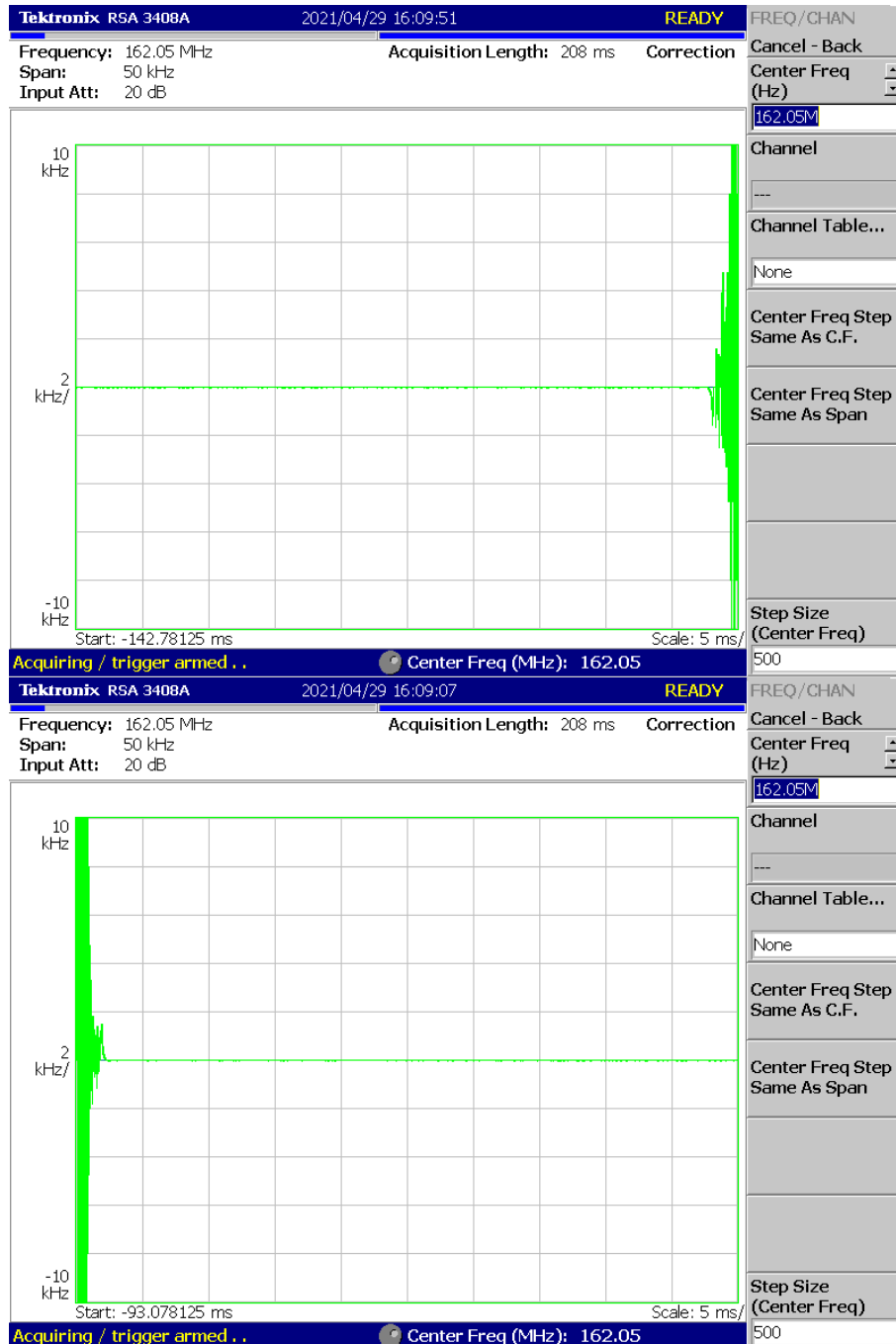
(138.05 MHz)_Low



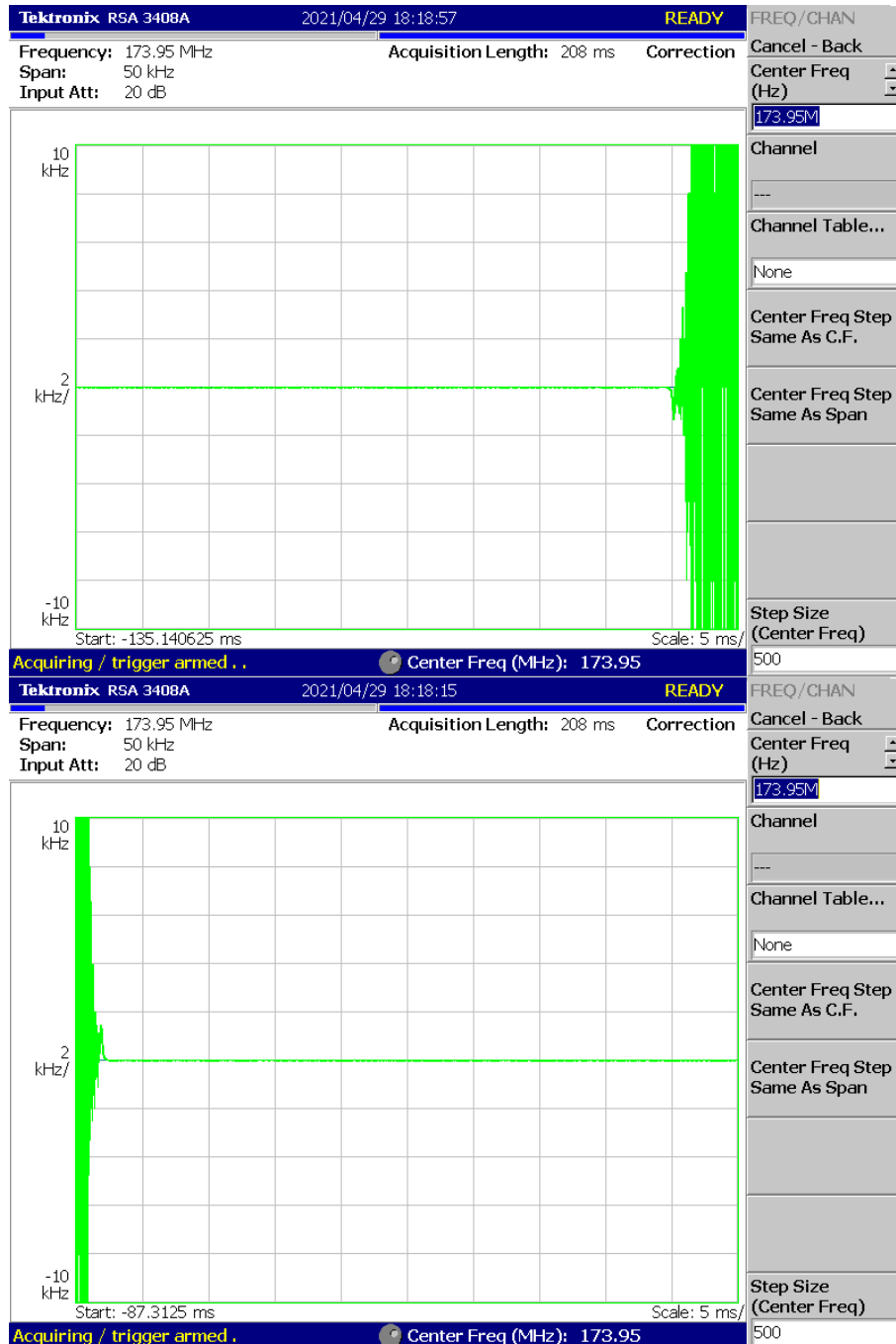
(150.05 MHz)_ Low



(162.05 MHz)_ Low

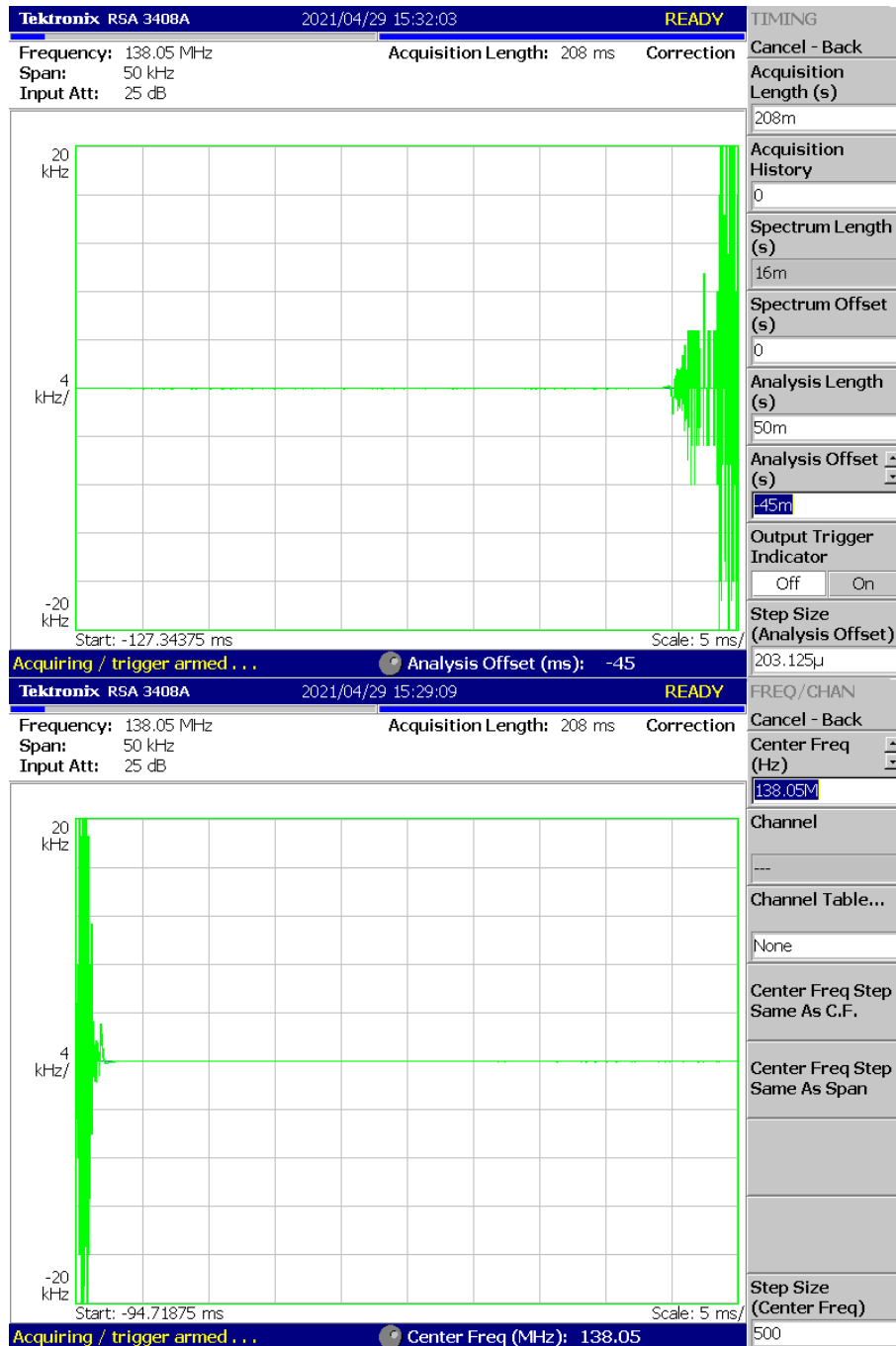


(173.95 MHz)_ Low

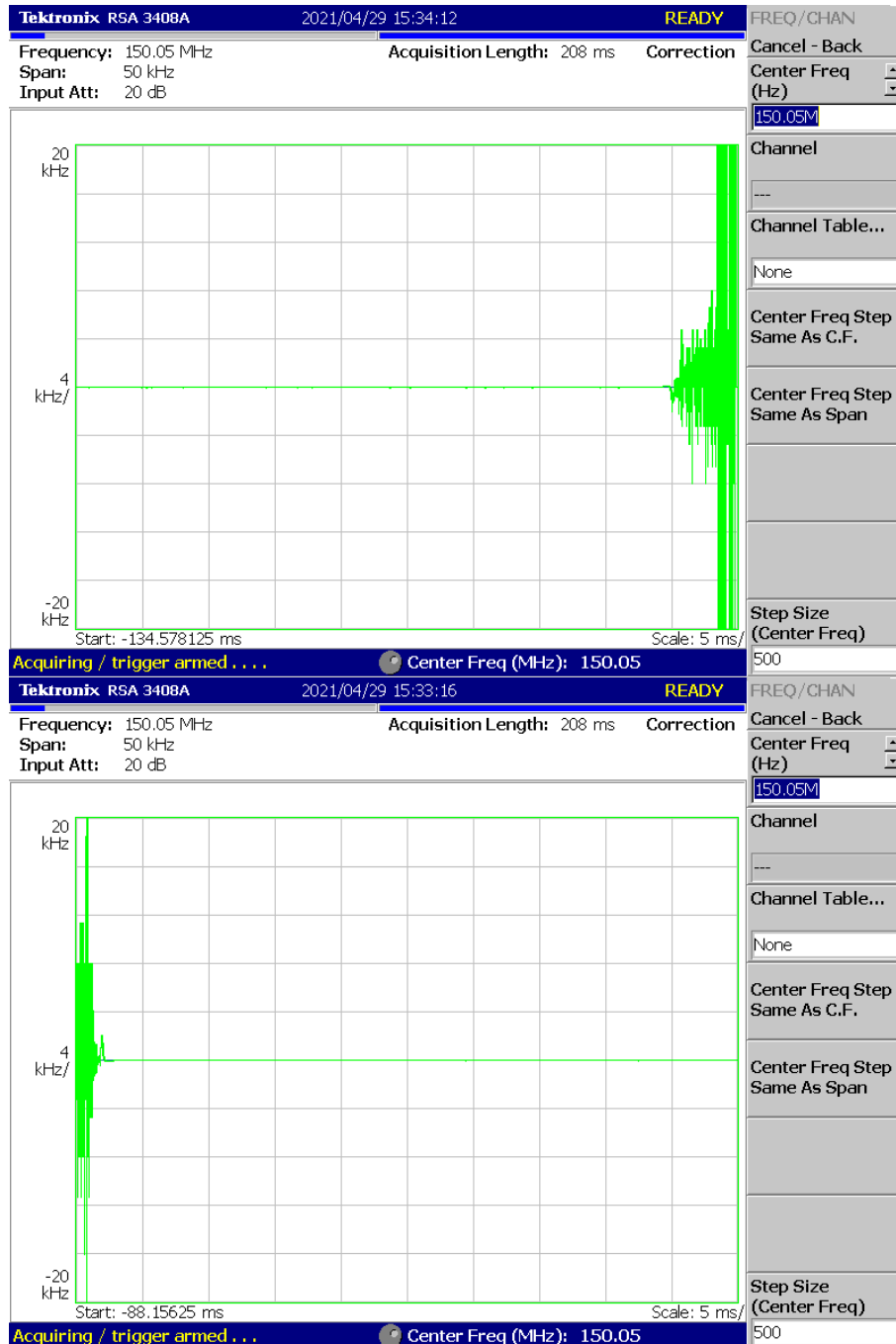


16K0F3E

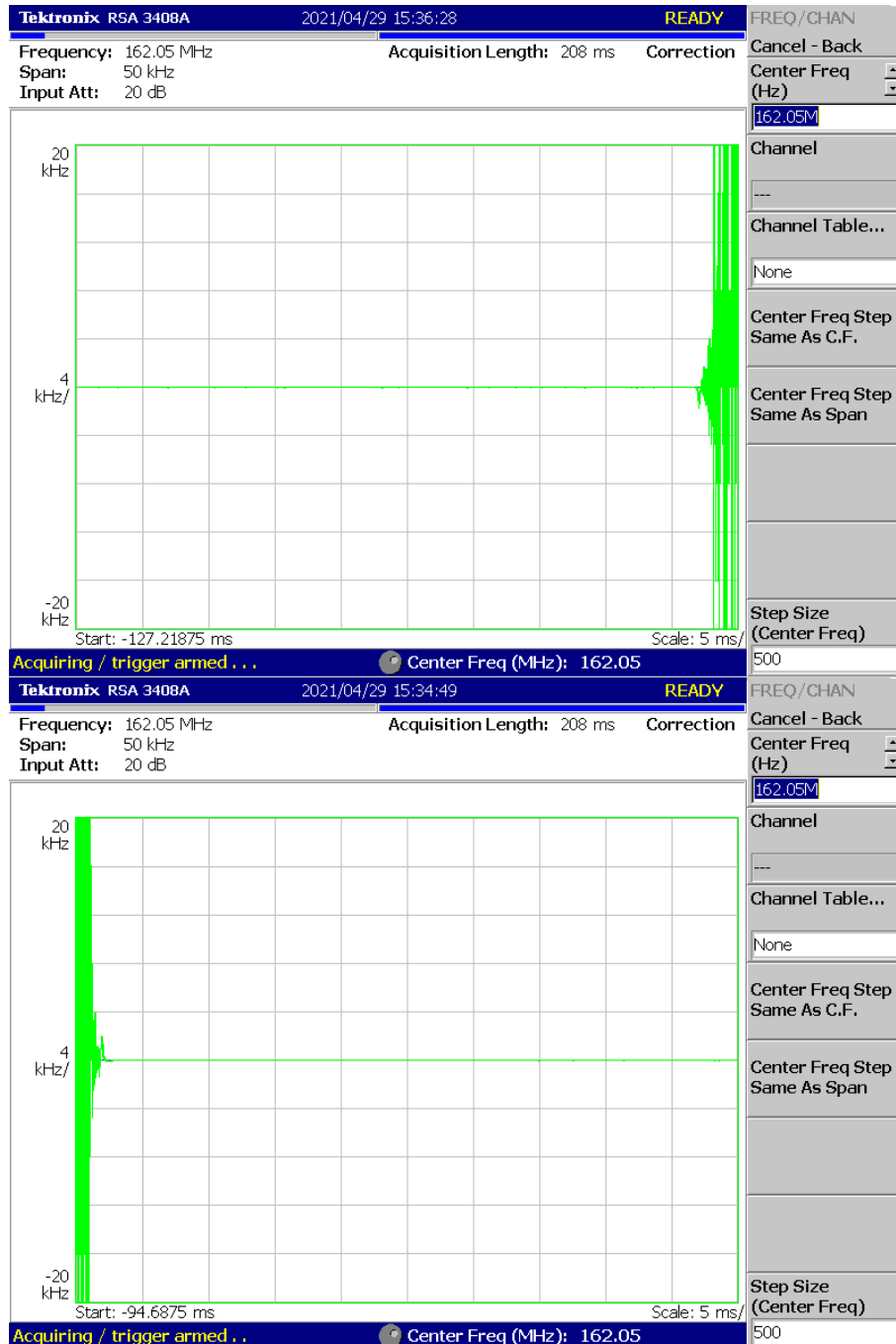
(138.05 MHz)_High



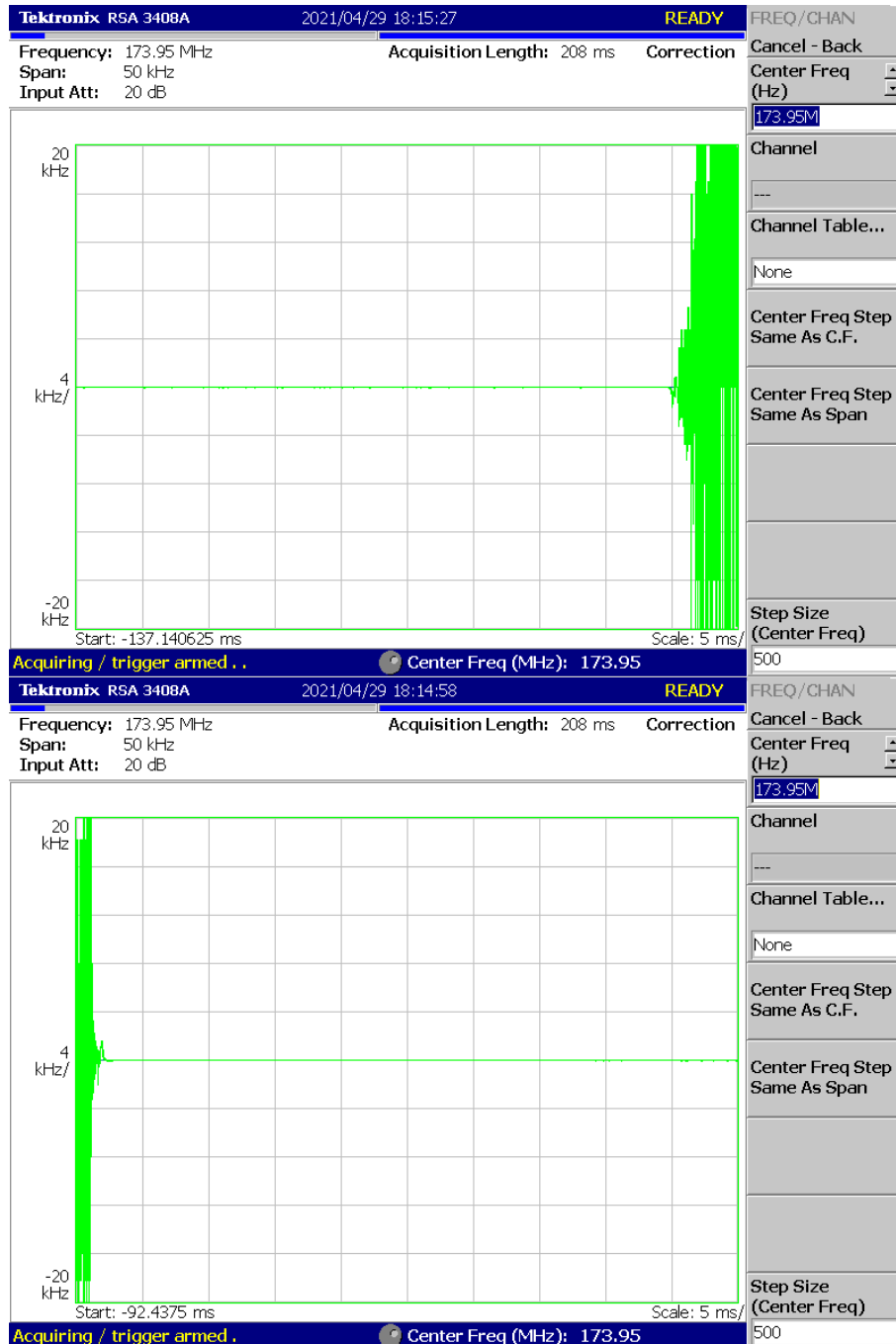
(150.05 MHz)_High



(162.05 MHz)_High



(173.95 MHz)_High



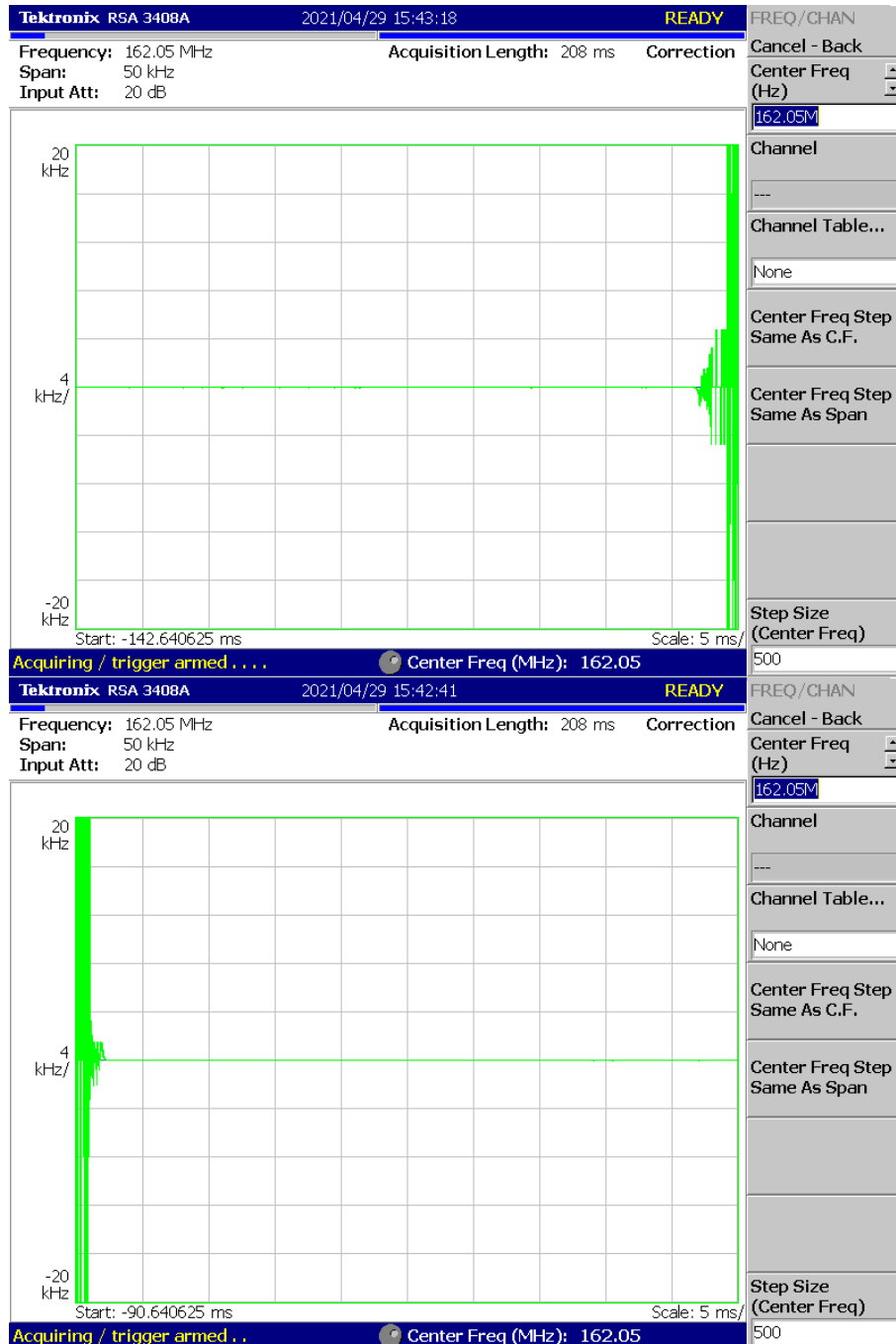
(138.05 MHz)_Low



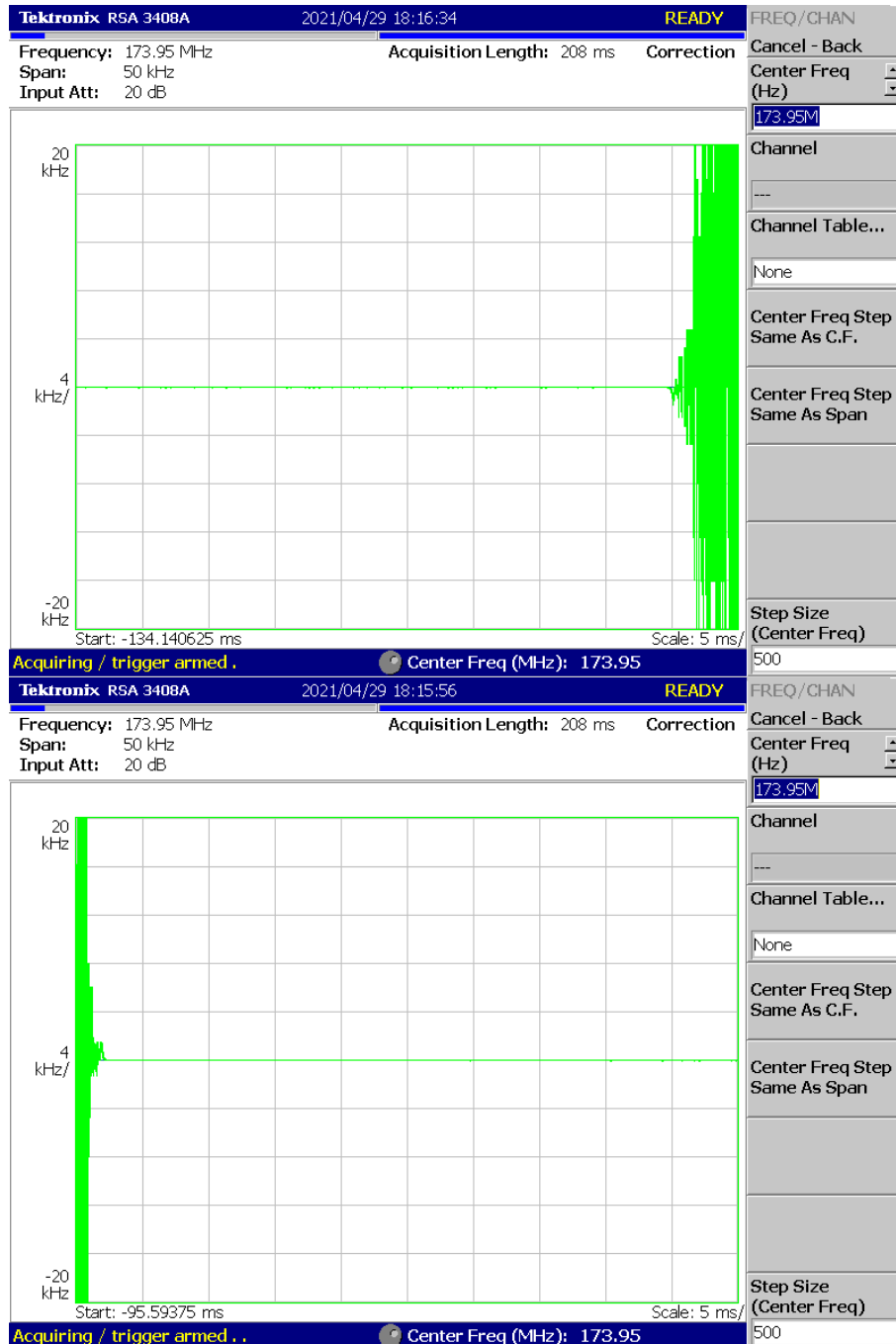
(150.05 MHz)_ Low



(162.05 MHz)_ Low

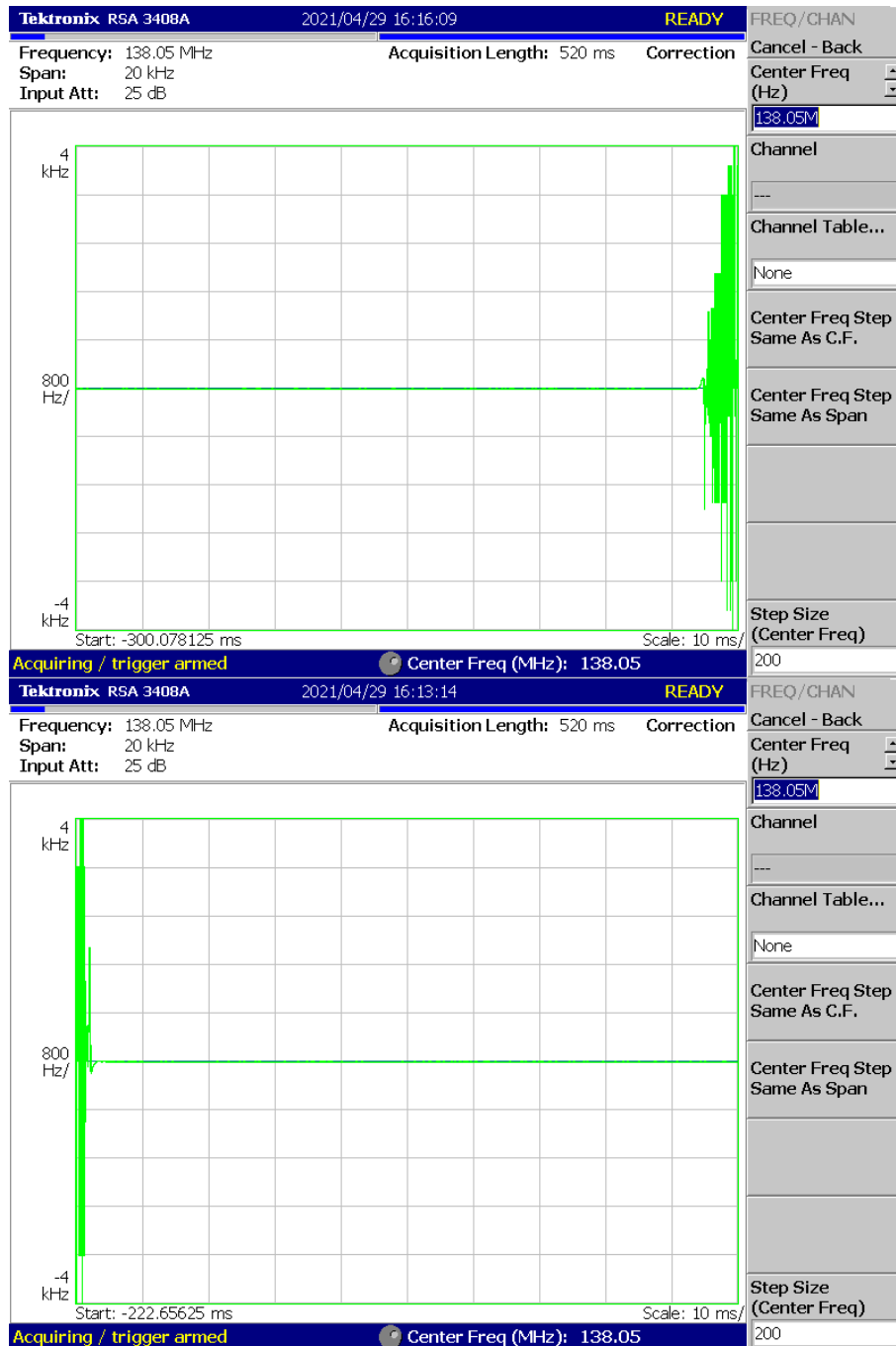


(173.95 MHz)_ Low

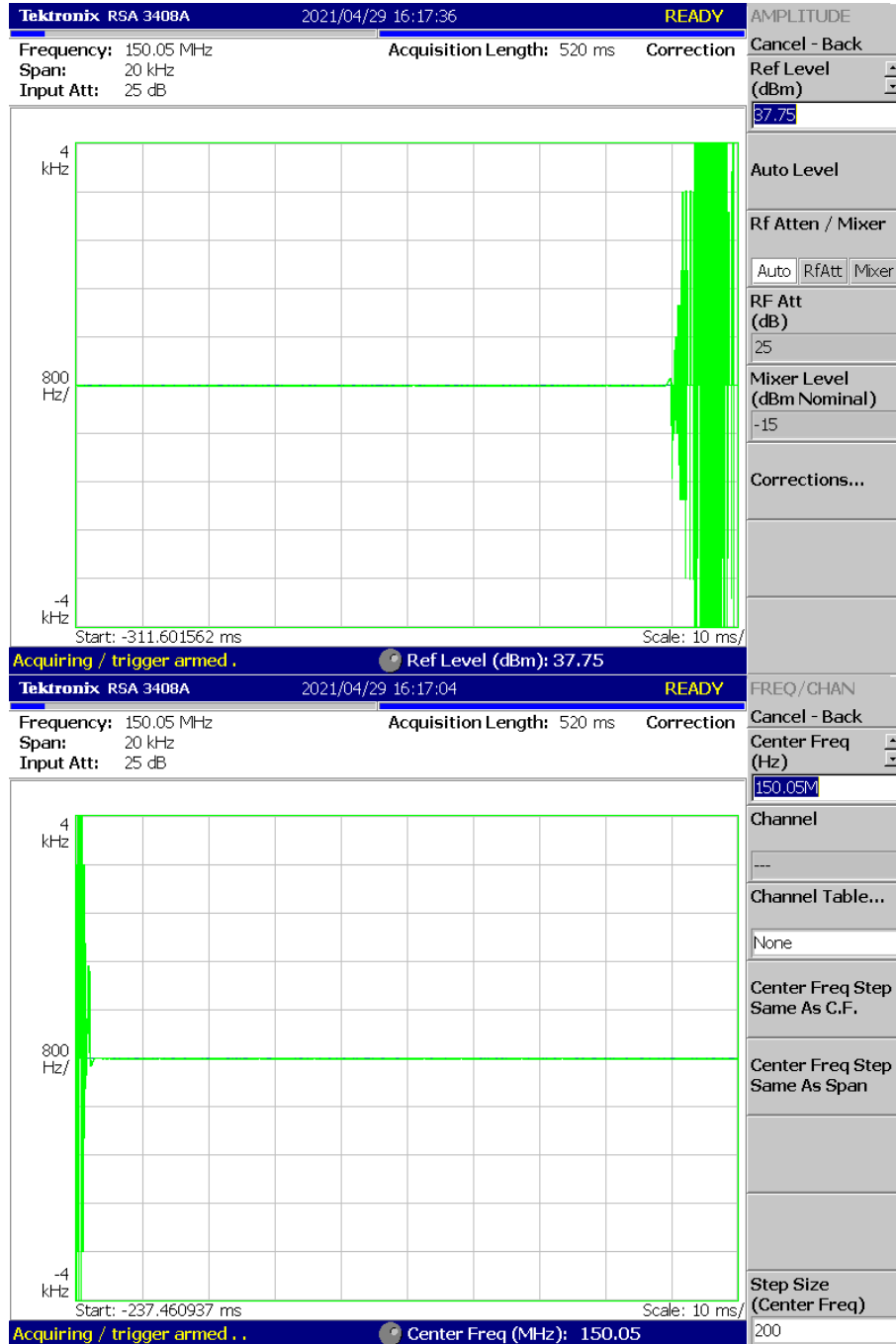


4K00F1E, 4K00F1D, 4K00F7W

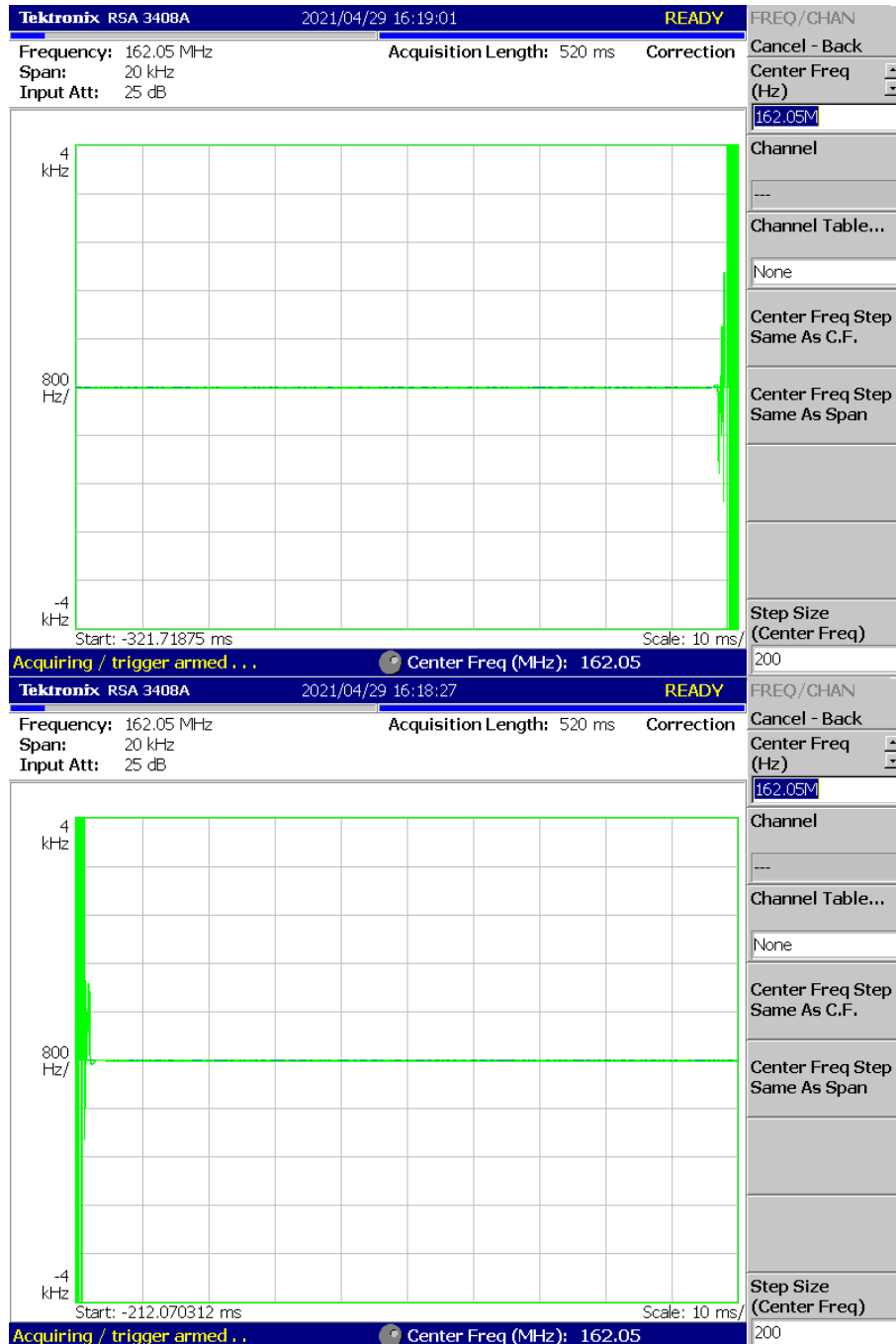
(138.05 MHz)_High



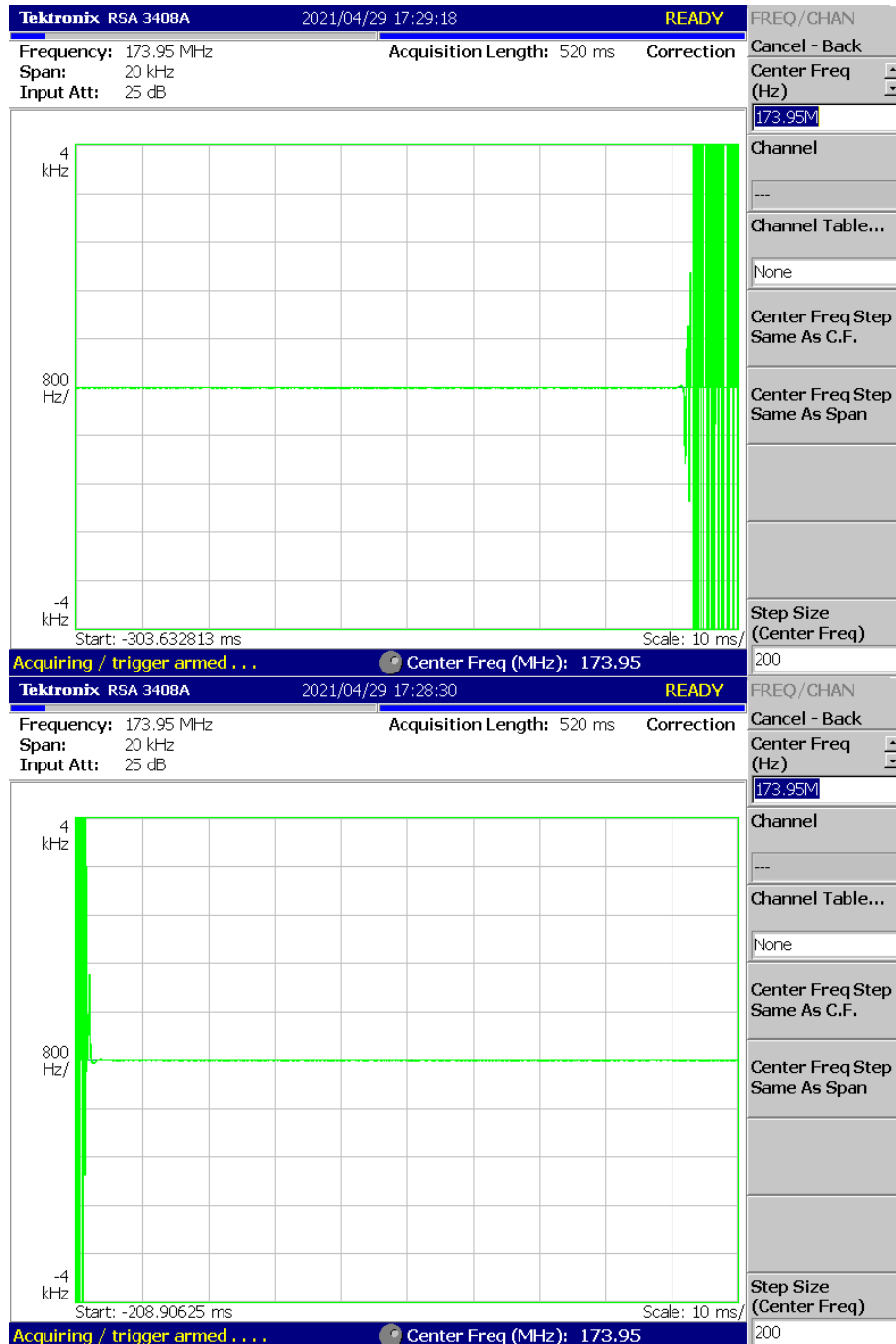
(150.05 MHz)_High



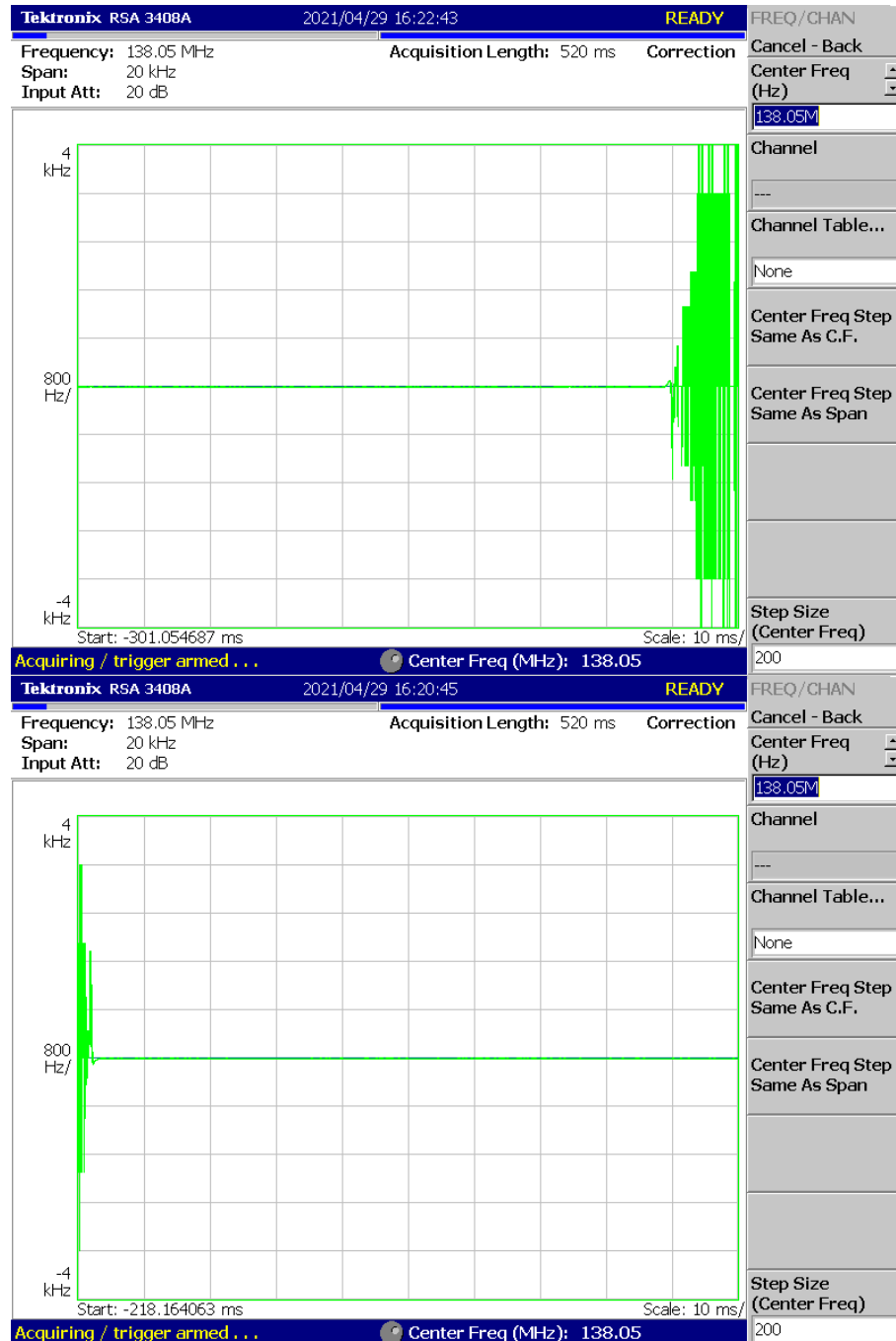
(162.05 MHz)_High



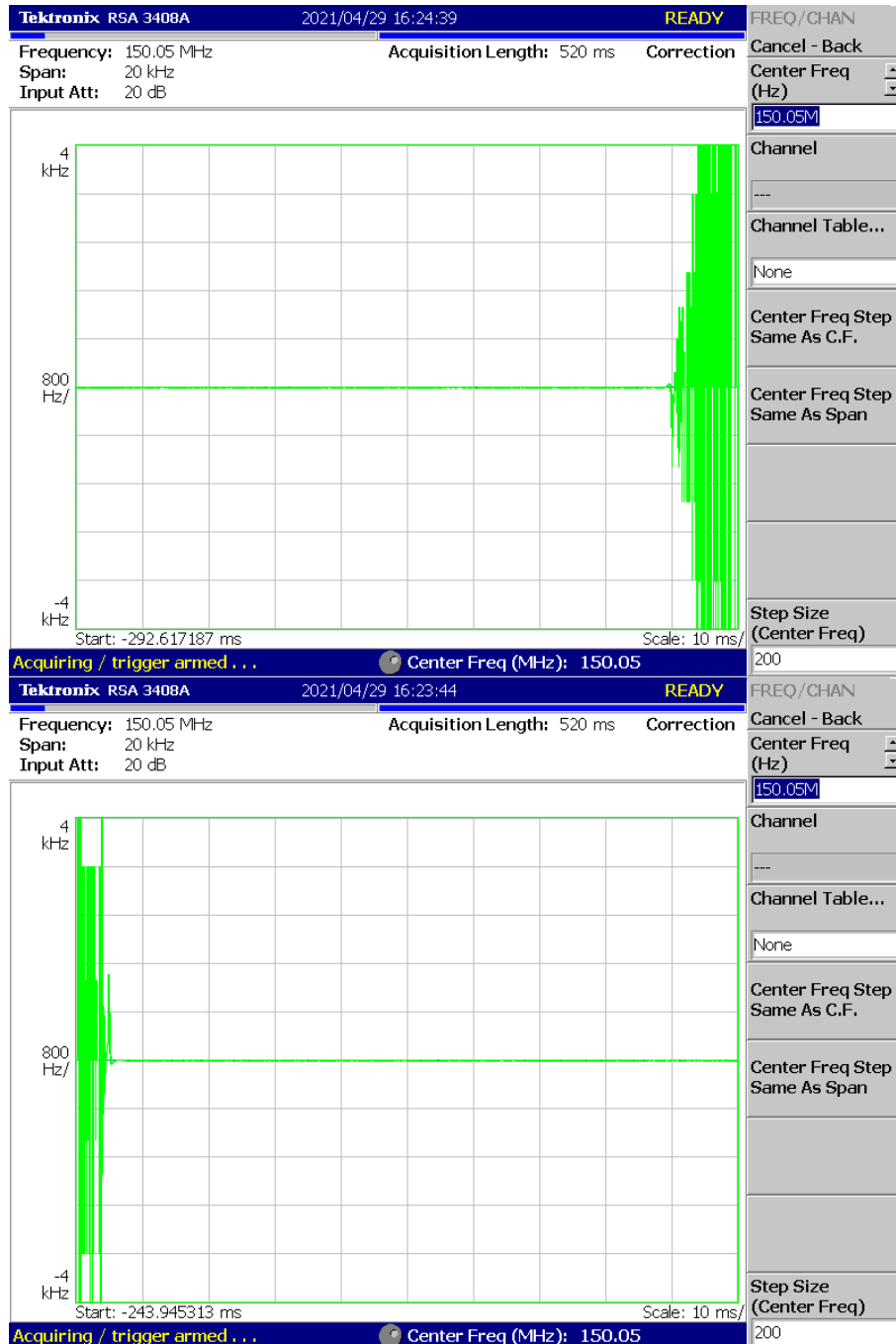
(173.95 MHz)_High



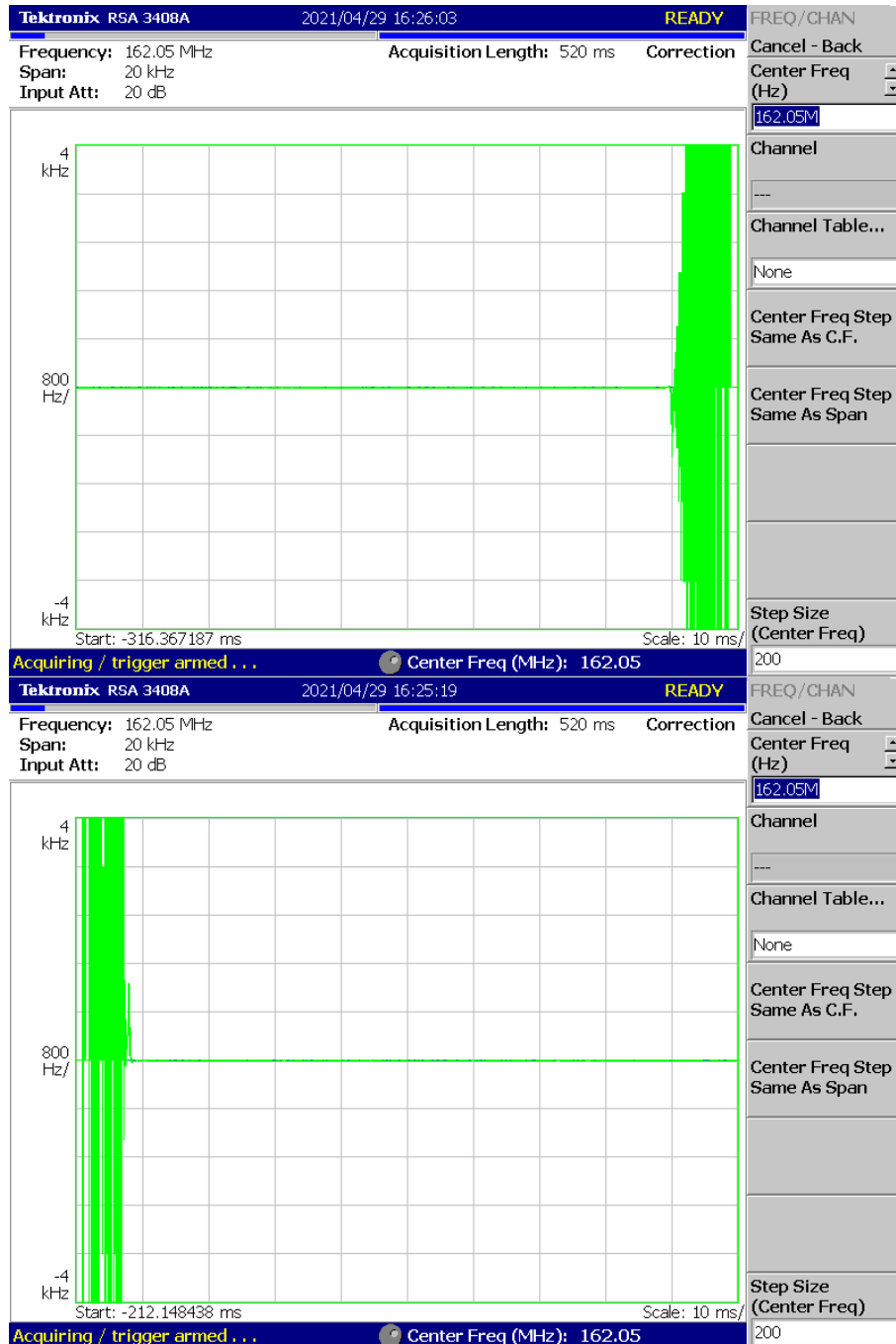
(138.05 MHz)_Low



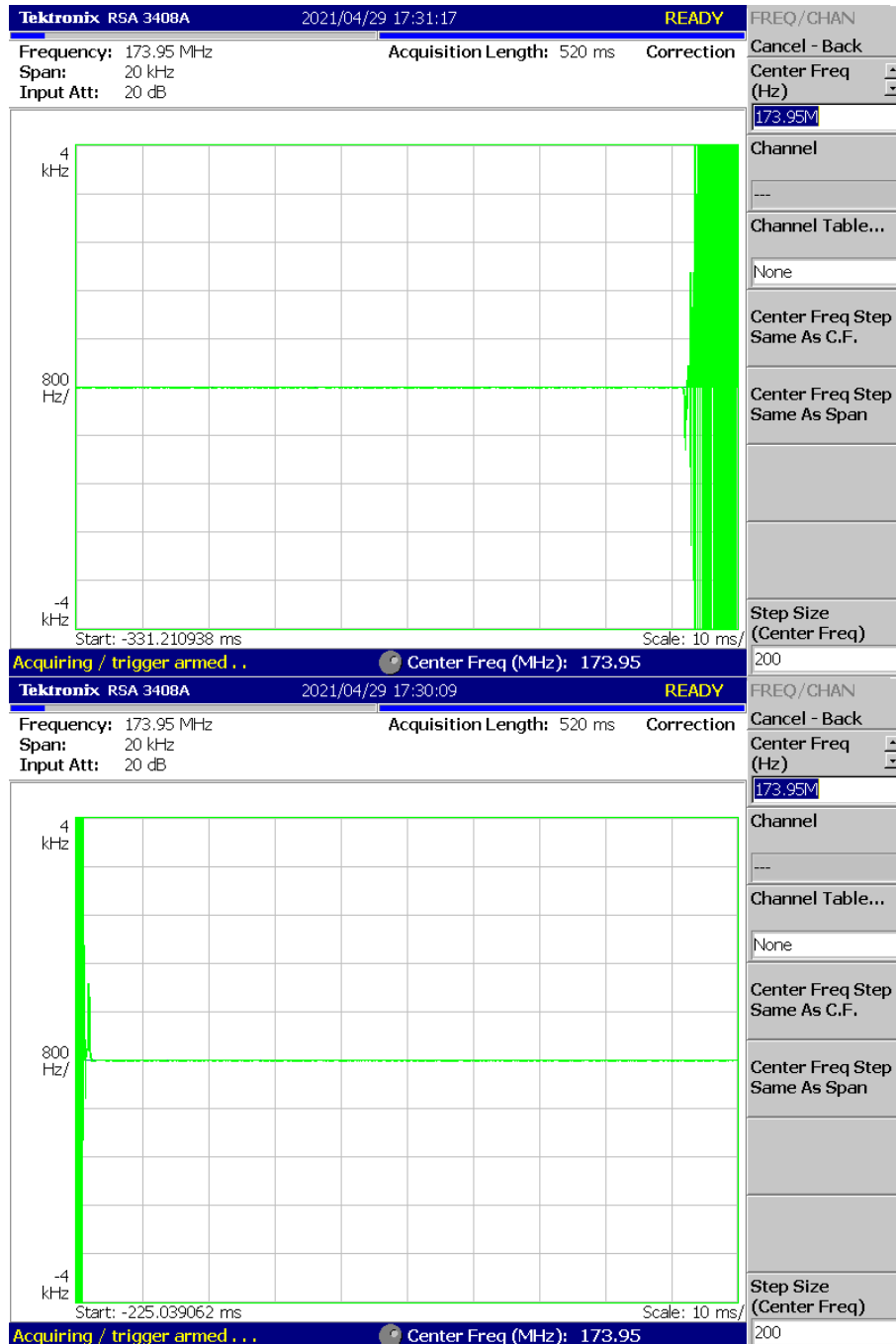
(150.05 MHz)_ Low



(162.05 MHz)_ Low



(173.95 MHz)_ Low

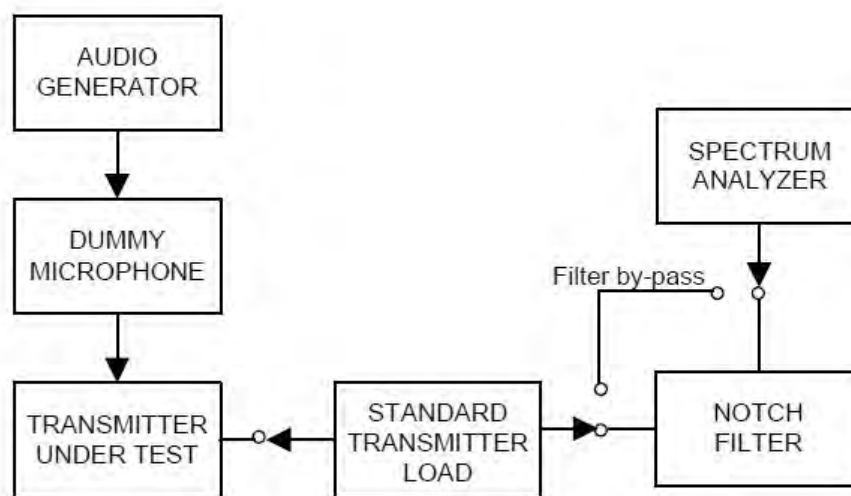


8.8 Unwanted Emissions : Conducted Spurious Emission

■ Definition

Conducted spurious emissions are emissions at the antenna terminals on a frequency or frequencies that are outside a band sufficient to ensure transmission of information of required quality for the class of communication desired.

■ TEST CONFIGURATION



■ TEST PROCEDURE

According to 2.2.13 in TIA-603-E Standard.

- Connect the equipment as illustrated, with the notch filter by-passed.
- Set the center frequency of the spectrum analyzer to the assigned transmitter frequency, key the transmitter, and set the level of the carrier to the full scale reference line.
- Modulate the transmitter with a 2500 Hz sine wave at an input level 16 dB greater than that necessary to produce 50% of rated system deviation. The input level shall be established at the frequency of maximum response of the audio modulation circuit.
- Adjust the spectrum analyzer for the following settings:
 - Resolution Bandwidth = 10 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1 GHz.
 - Video Bandwidth ≥ 3 times the resolution bandwidth.
 - Sweep Speed ≤ 2000 Hz per second.
 - Detector Mode = mean or average power.
- Adjust the center frequency of the spectrum analyzer for incremental coverage of the range from:
 - The lowest radio frequency generated in the equipment to the carrier frequency minus the test bandwidth (see 1.3.4.4).

- 2) The carrier frequency plus the test bandwidth to a frequency less than 2 times the carrier frequency.
- f) Record the frequencies and levels of spurious emissions from step e).
- g) Unkey the transmitter. Replace the transmitter under test with the signal generator and adjust the signal level to reproduce the frequencies and levels of every spurious emission recorded in step f). Record the signal generator levels in dBm.
- h) Insert the notch filter.
- i) Adjust the spectrum analyzer for the following settings:
 - 1) Resolution Bandwidth = 10 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1 GHz.
 - 2) Video Bandwidth ≥ 3 times the resolution bandwidth.
 - 3) Sweep Speed ≤ 2000 Hz per second.
 - 4) Detector Mode = mean or average power.
- j) Key the transmitter. Adjust the center frequency of the spectrum analyzer for incremental coverage of the range from a frequency equal to 2 times the carrier frequency and to the tenth harmonic of the carrier frequency.

TEST RESULTS

Type of Emission	Power	Test Frequency (MHz)	Measured Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)
16K0F3E (FCC)	High Power	150.05	0.12	-63.603	-13.000	50.603
			16.45	-55.334	-13.000	42.334
			450.15	-34.584	-13.000	21.584
			3069.65	-32.883	-13.000	19.883
		162.05	0.13	-62.874	-13.000	49.874
			12.28	-55.137	-13.000	42.137
			486.14	-35.589	-13.000	22.589
			3490.42	-33.284	-13.000	20.284
		173.95	0.01	-63.275	-13.000	50.275
			3.38	-54.642	-13.000	41.642
			521.84	-31.831	-13.000	18.831
			3693.83	-33.080	-13.000	20.080

Type of Emission	Power	Test Frequency (MHz)	Measured Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)
16K0F3E (ISED)	High Power	138.05	0.13	-49.755	-13.000	36.755
			0.26	-51.036	-13.000	38.036
			414.16	-27.292	-13.000	14.292
			9876.69	-35.879	-13.000	22.879
		150.05	0.13	-49.839	-13.000	36.839
			0.25	-52.432	-13.000	39.432
			450.15	-30.620	-13.000	17.620
			4061.50	-34.963	-13.000	21.963
		162.05	0.13	-49.682	-13.000	36.682
			0.86	-52.800	-13.000	39.800
			486.14	-32.016	-13.000	19.016
			9987.85	-35.968	-13.000	22.968
		173.95	0.12	-49.939	-13.000	36.939
			0.26	-51.481	-13.000	38.481
			521.84	-27.517	-13.000	14.517
			4000.30	-35.731	-13.000	22.731

Type of Emission	Power	Test Frequency (MHz)	Measured Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)
11K0F3E	High Power	138.05	0.01	-36.637	-20.000	16.637
			0.15	-36.713	-20.000	16.713
			414.16	-26.896	-20.000	6.896
			2221.81	-32.203	-20.000	12.203
		150.05	0.01	-35.775	-20.000	15.775
			0.17	-36.030	-20.000	16.030
			450.15	-29.208	-20.000	9.208
			7201.31	-31.611	-20.000	11.611
		162.05	0.01	-34.783	-20.000	14.783
			0.15	-37.222	-20.000	17.222
			486.14	-29.608	-20.000	9.608
			6592.88	-31.903	-20.000	11.903
		173.95	0.01	-34.139	-20.000	14.139
			0.17	-36.199	-20.000	16.199
			521.84	-26.557	-20.000	6.557
			6253.11	-32.187	-20.000	12.187

Type of Emission	Power	Test Frequency (MHz)	Measured Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)
8K30F1E, 8K30F1D, 8K30F7W	High Power	138.05	0.13	-49.104	-20.000	29.104
			0.86	-52.263	-20.000	32.263
			414.16	-26.840	-20.000	6.840
			9676.88	-35.809	-20.000	15.809
		150.05	0.13	-49.206	-20.000	29.206
			0.25	-51.378	-20.000	31.378
			450.15	-29.372	-20.000	9.372
			8907.35	-35.442	-20.000	15.442
		162.05	0.13	-49.208	-20.000	29.208
			0.86	-50.498	-20.000	30.498
			486.14	-31.005	-20.000	11.005
			5214.91	-36.411	-20.000	16.411
		173.95	0.13	-49.550	-20.000	29.550
			0.26	-51.245	-20.000	31.245
			521.84	-27.388	-20.000	7.388
			4044.85	-35.565	-20.000	15.565

Type of Emission	Power	Test Frequency (MHz)	Measured Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)
7K60FXD, 7K60FXE	High Power	138.05	0.13	-49.812	-20.000	29.812
			0.26	-51.661	-20.000	31.661
			414.16	-26.727	-20.000	6.727
			8911.40	-35.962	-20.000	15.962
		150.05	0.13	-49.025	-20.000	29.025
			0.24	-51.654	-20.000	31.654
			450.15	-29.038	-20.000	9.038
			3827.49	-34.704	-20.000	14.704
		162.05	0.13	-49.283	-20.000	29.283
			0.27	-51.036	-20.000	31.036
			486.14	-30.805	-20.000	10.805
			4033.15	-36.094	-20.000	16.094
		173.95	0.13	-49.304	-20.000	29.304
			0.26	-50.309	-20.000	30.309
			521.84	-27.272	-20.000	7.272
			3827.49	-35.280	-20.000	15.280

Type of Emission	Power	Test Frequency (MHz)	Measured Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)
4K00F1E, 4K00F1D, 4K00F7W	High Power	138.05	0.13	-49.018	-25.000	24.018
			0.25	-52.097	-25.000	27.097
			414.16	-26.787	-25.000	1.787
			9718.74	-35.805	-25.000	10.805
		150.05	0.13	-49.304	-25.000	24.304
			0.26	-51.537	-25.000	26.537
			450.15	-29.405	-25.000	4.405
			4024.60	-35.938	-25.000	10.938
		162.05	0.13	-48.962	-25.000	23.962
			0.25	-51.845	-25.000	26.845
			486.14	-31.072	-25.000	6.072
			9430.27	-36.159	-25.000	11.159
		173.95	0.12	-49.148	-25.000	24.148
			0.25	-51.786	-25.000	26.786
			521.84	-27.249	-25.000	2.249
			9162.51	-35.845	-25.000	10.845

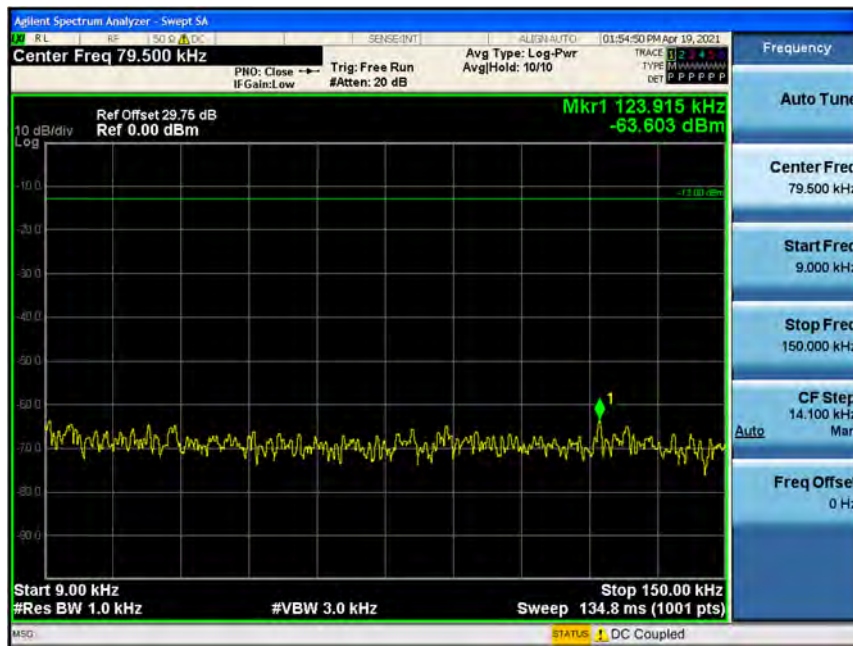
Type of Emission	Power	Test Frequency (MHz)	Measured Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)
4K00F2D	High Power	138.05	0.13	-49.349	-25.000	24.349
			0.26	-51.006	-25.000	26.006
			414.16	-27.312	-25.000	2.312
			9679.58	-35.356	-25.000	10.356
		150.05	0.13	-49.466	-25.000	24.466
			0.25	-51.939	-25.000	26.939
			450.15	-29.010	-25.000	4.010
			9134.16	-36.021	-25.000	11.021
		162.05	0.12	-49.451	-25.000	24.451
			0.86	-52.022	-25.000	27.022
			486.14	-31.372	-25.000	6.372
			9979.30	-34.856	-25.000	9.856
		173.95	0.13	-48.811	-25.000	23.811
			0.86	-51.733	-25.000	26.733
			521.84	-28.244	-25.000	3.244
			9086.90	-35.705	-25.000	10.705

Plots of Unwanted Emissions : Conducted Spurious Emission

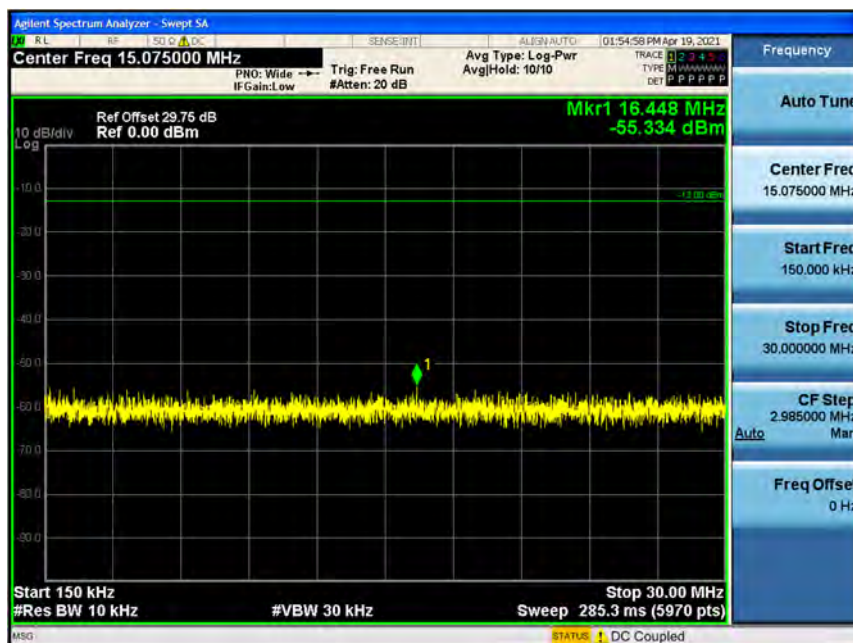
16K0F3E_FCC

(150.05 MHz)_High

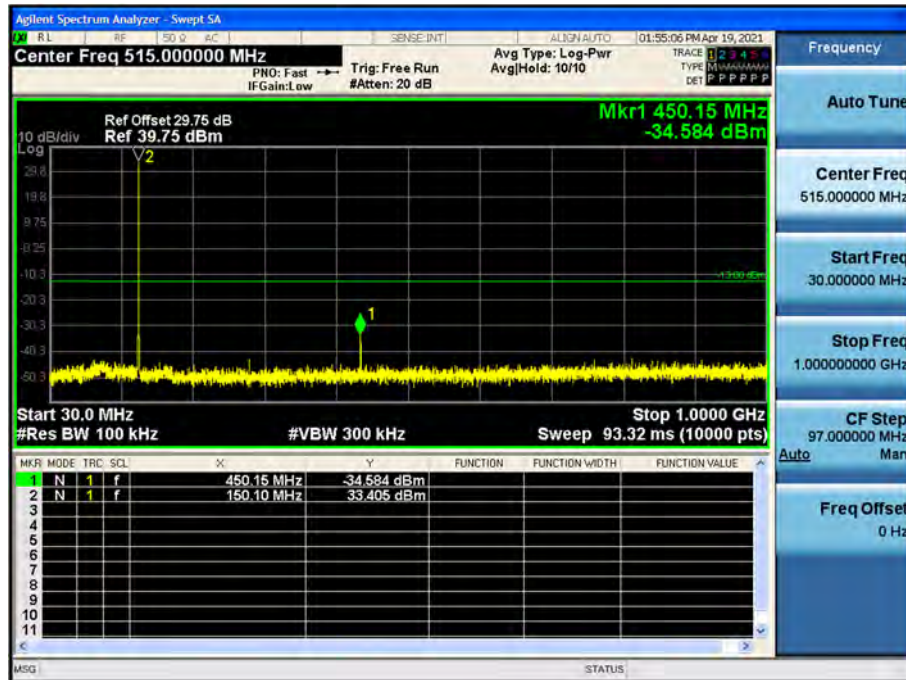
9 kHz~150 kHz



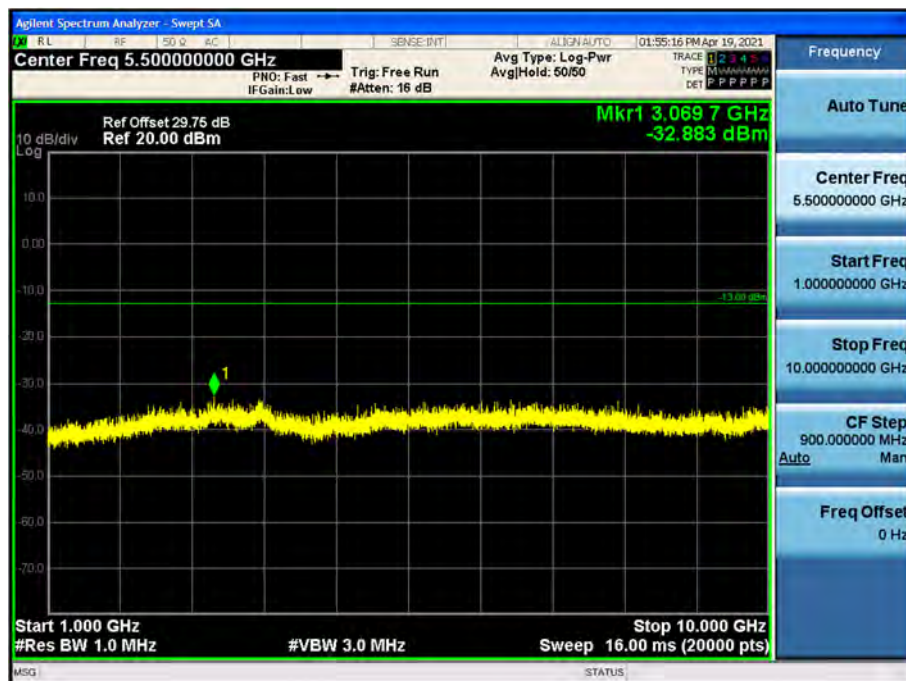
150 kHz~30 MHz



30 MHz~1 GHz

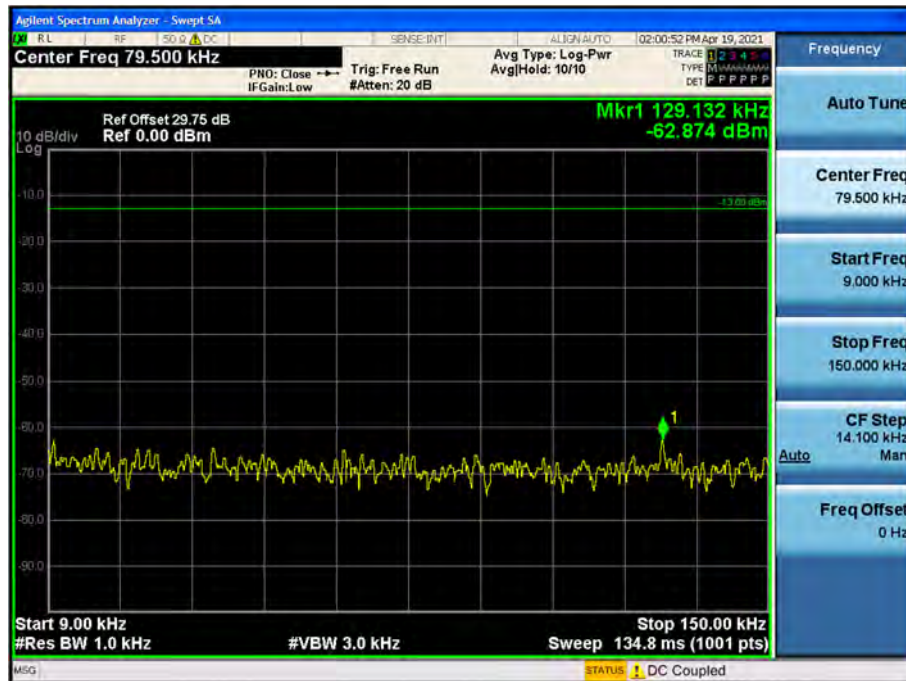


1 GHz~10 GHz

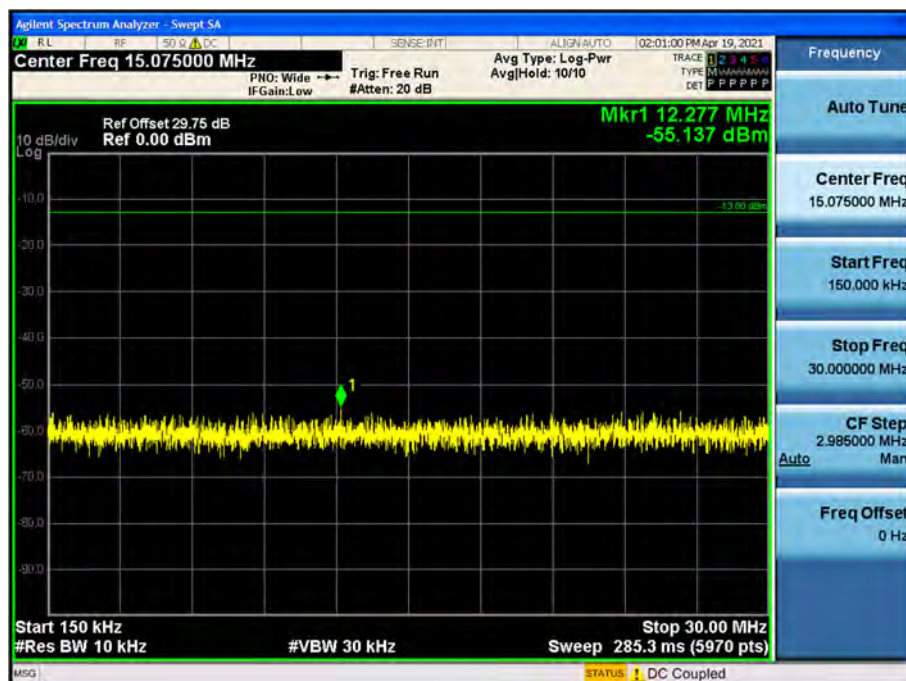


(162.05 MHz)_High

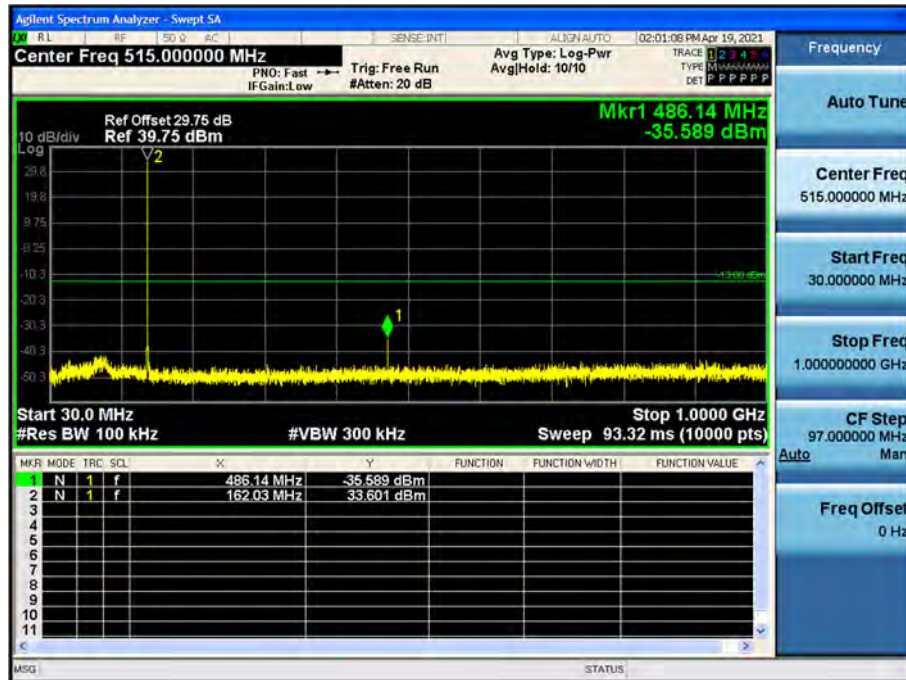
9 kHz~150 kHz



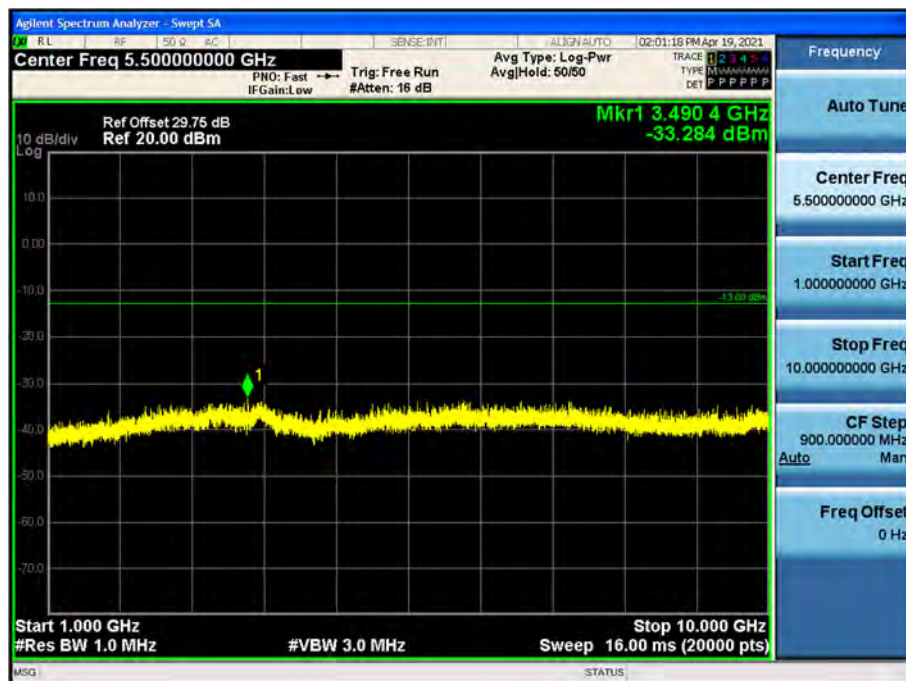
150 kHz~30 MHz



30 MHz~1 GHz

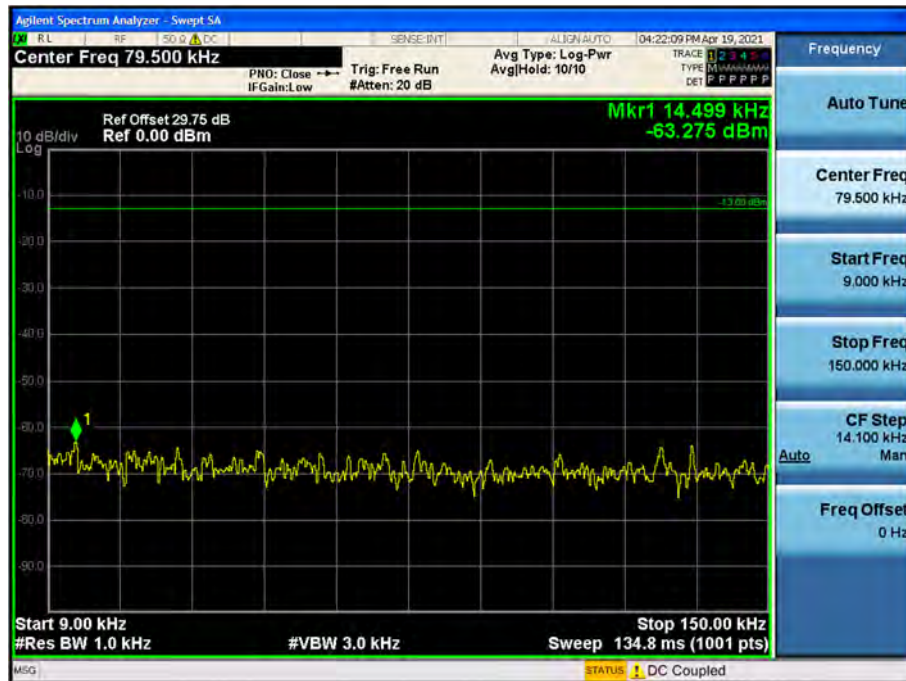


1 GHz~10 GHz

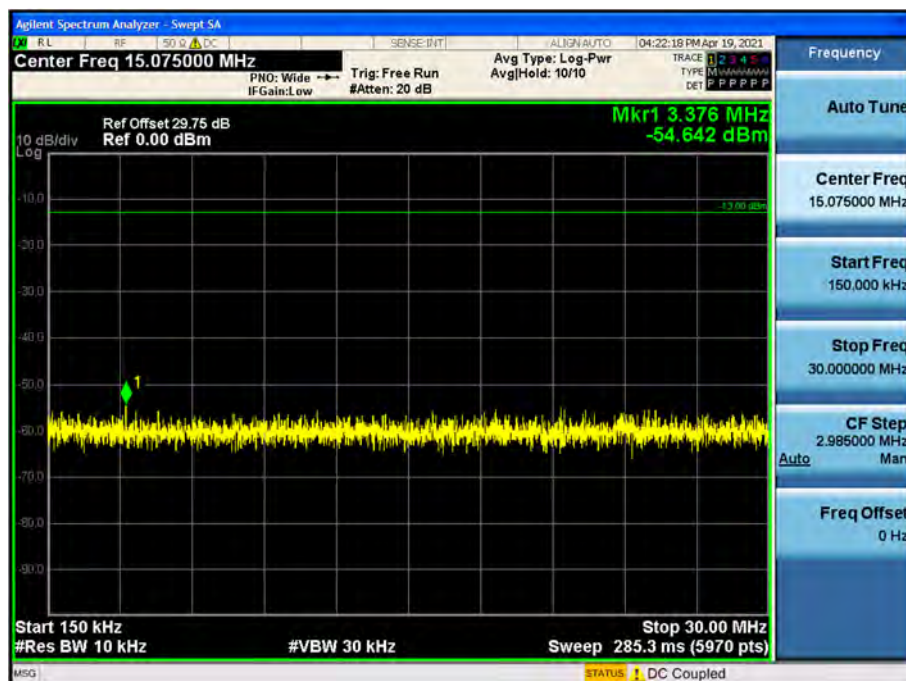


(173.95 MHz)_High

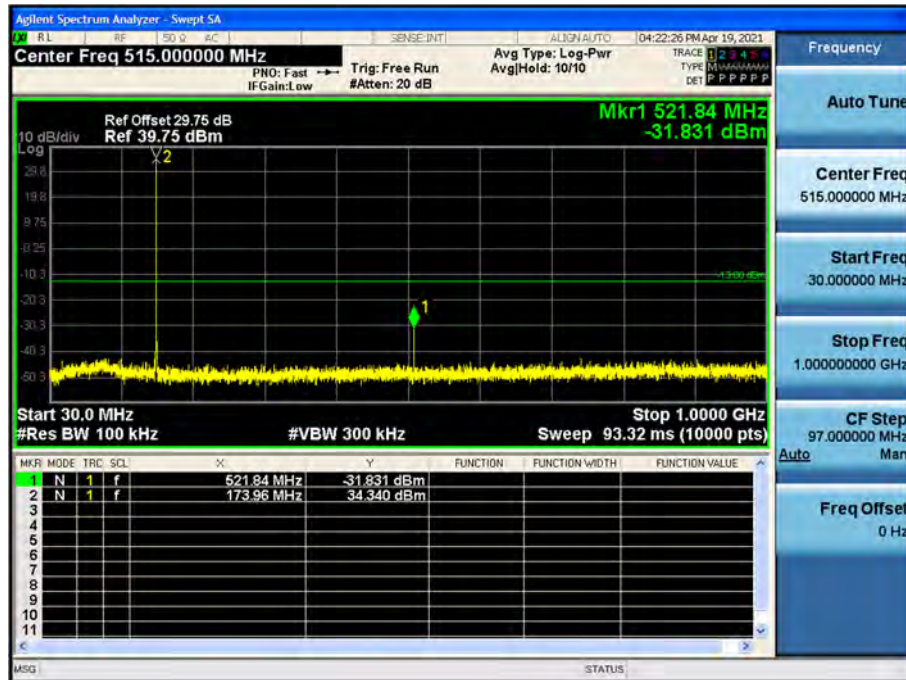
9 kHz~150 kHz



150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz



16K0F3E_ISED

(138.05 MHz)_High

9 kHz~150 kHz



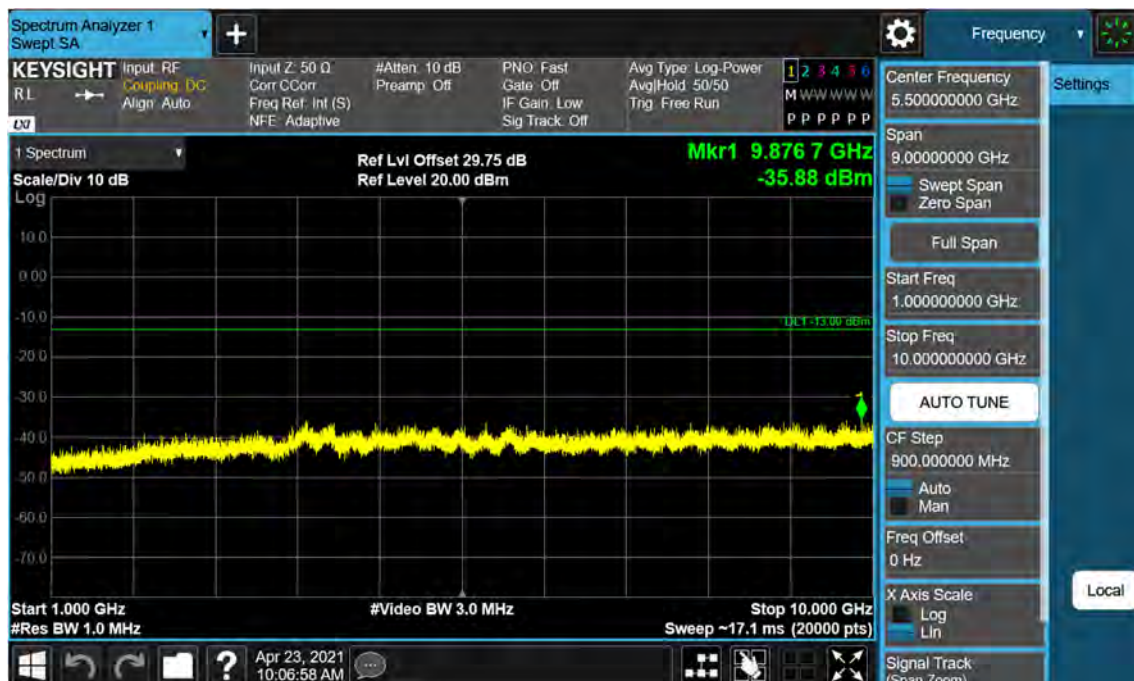
150 kHz~30 MHz



30 MHz~1 GHz

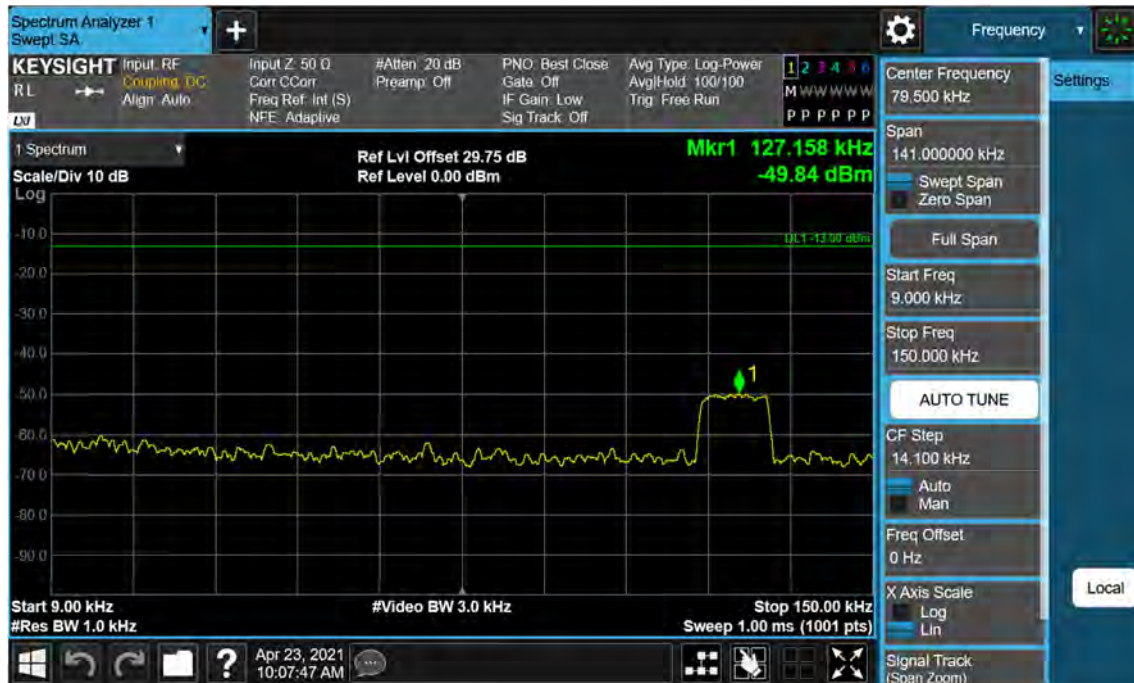


1 GHz~10 GHz



(150.05 MHz)_High

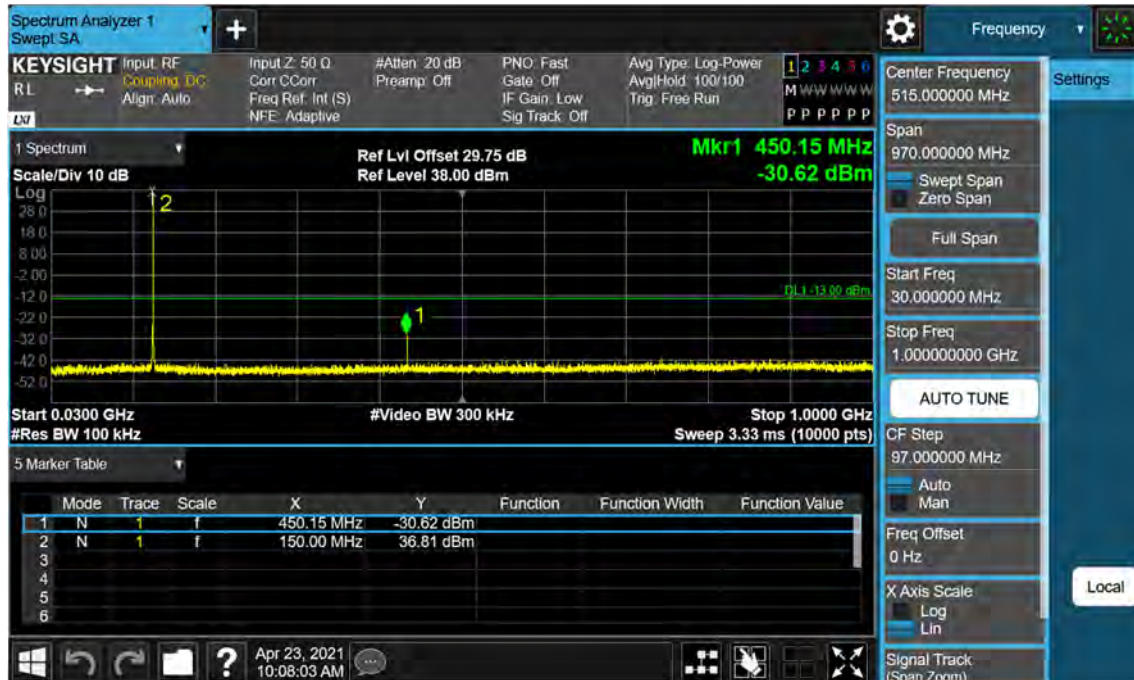
9 kHz~150 kHz



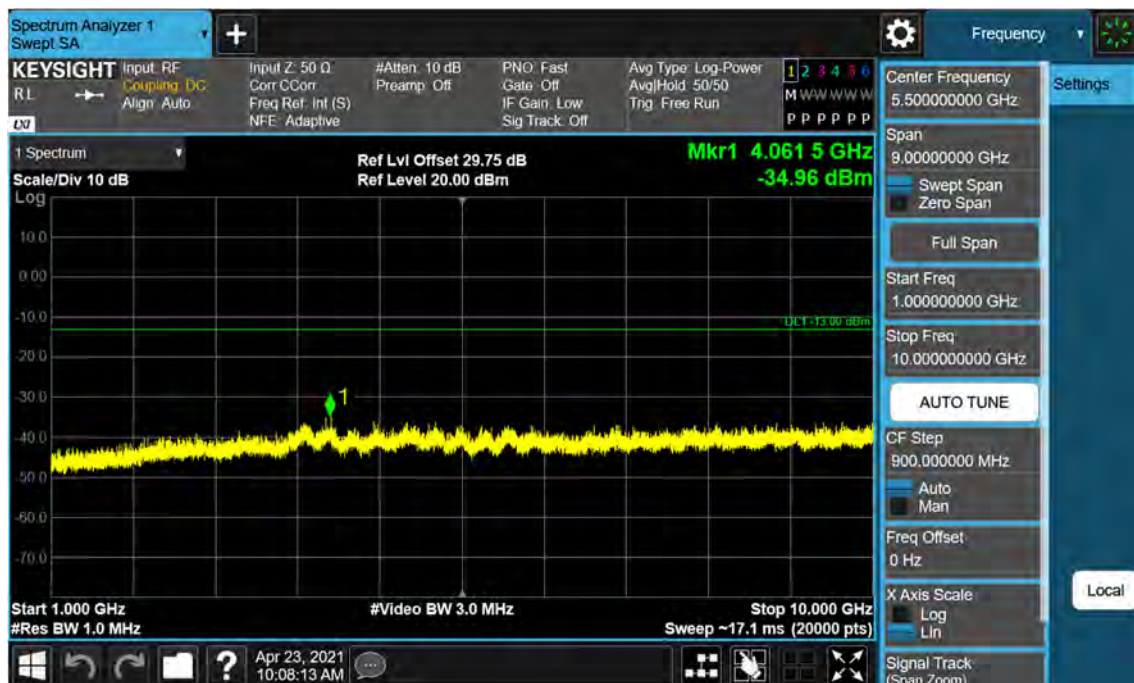
150 kHz~30 MHz



30 MHz~1 GHz

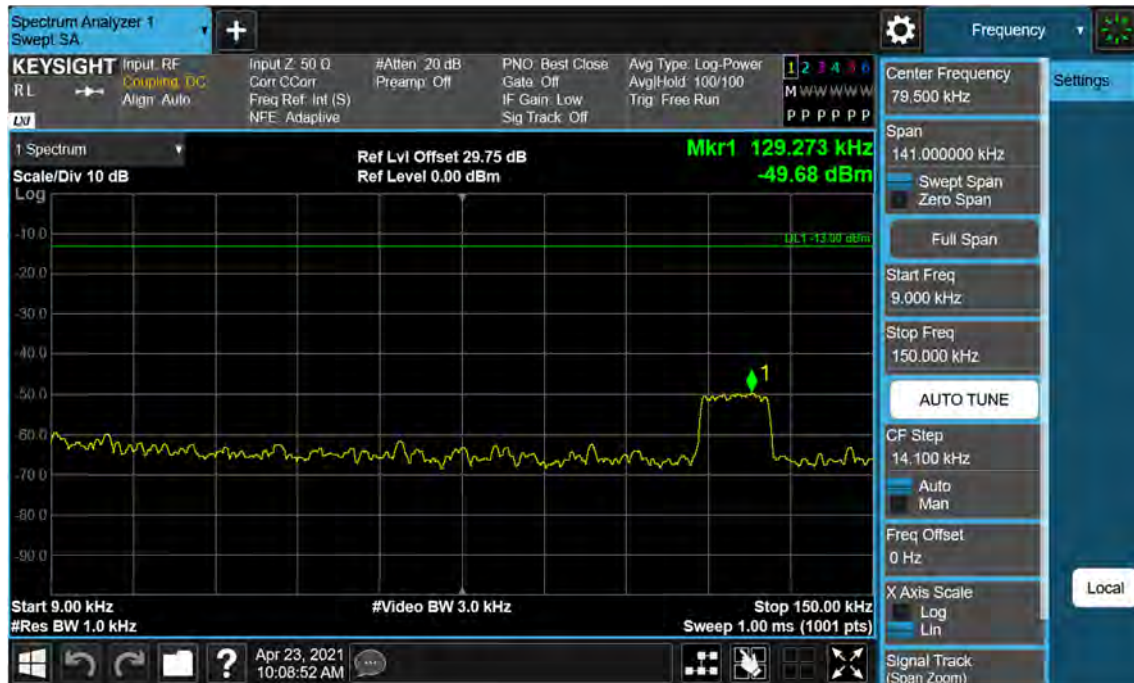


1 GHz~10 GHz

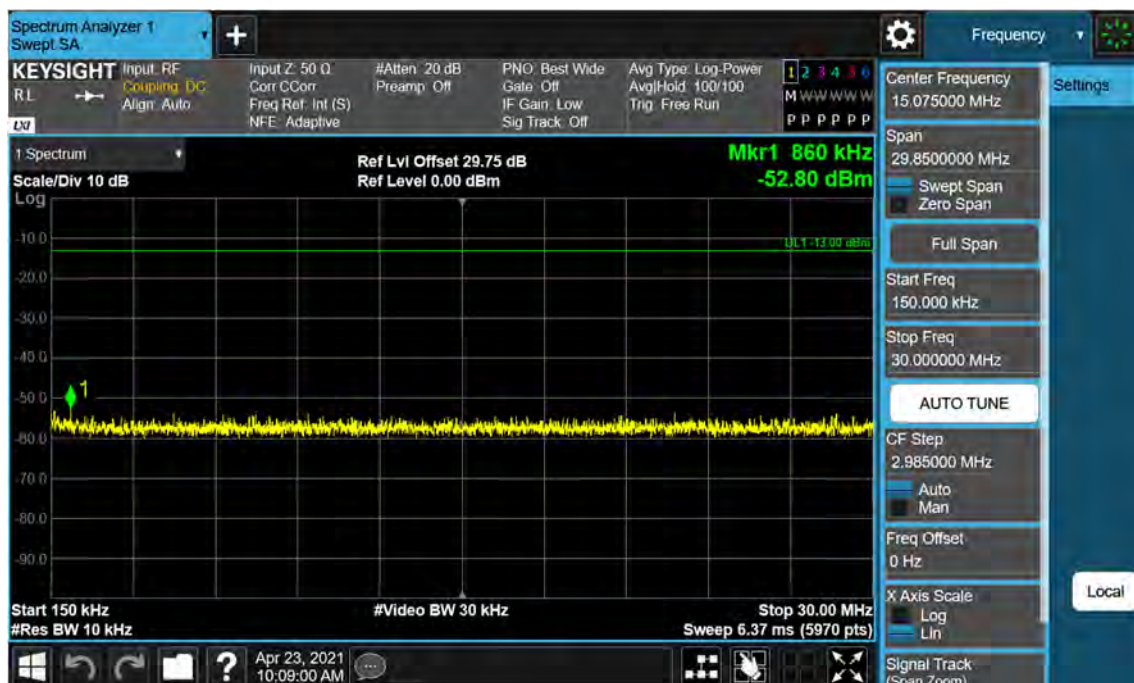


(162.05 MHz)_High

9 kHz~150 kHz



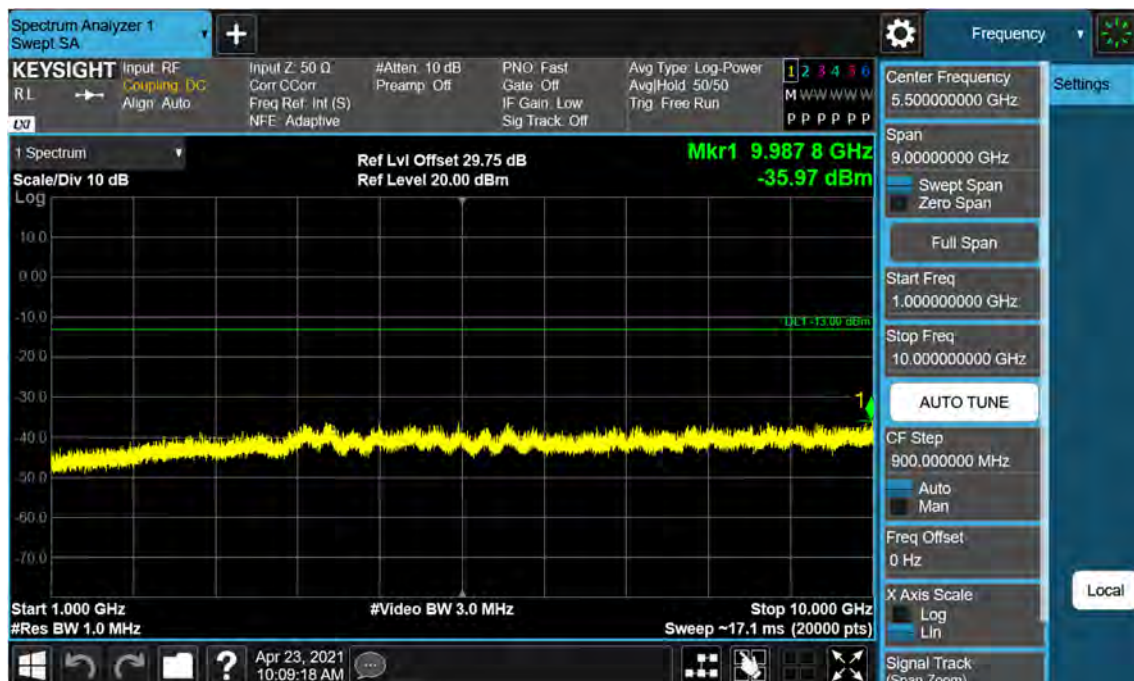
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

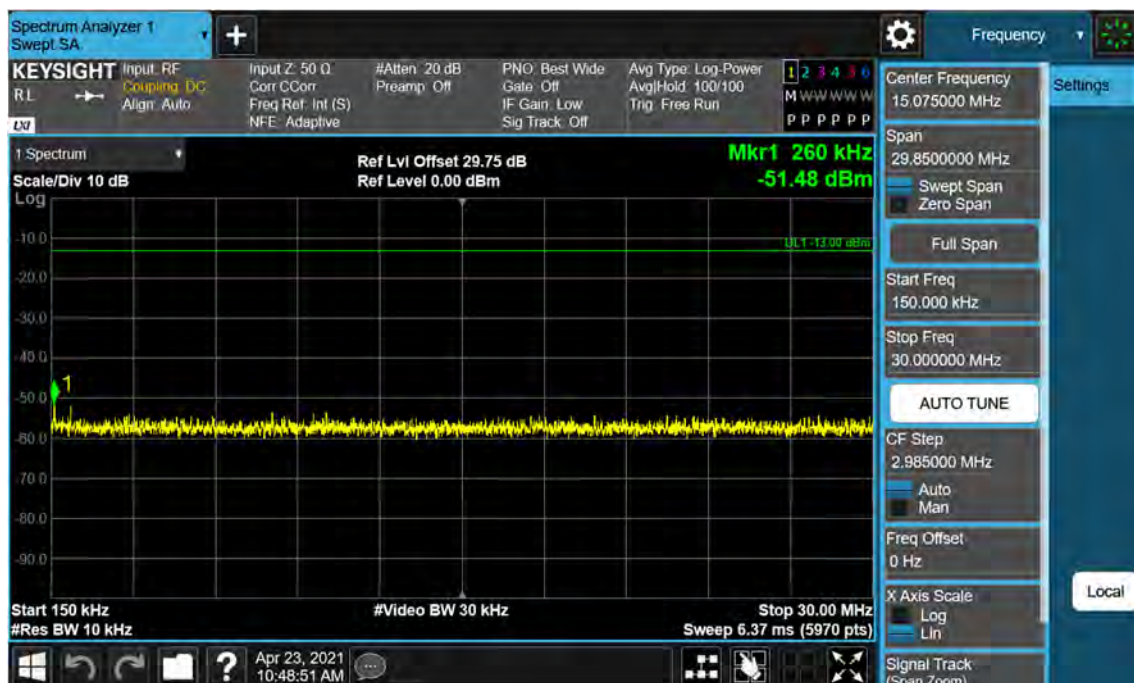


(173.95 MHz)_High

9 kHz~150 kHz



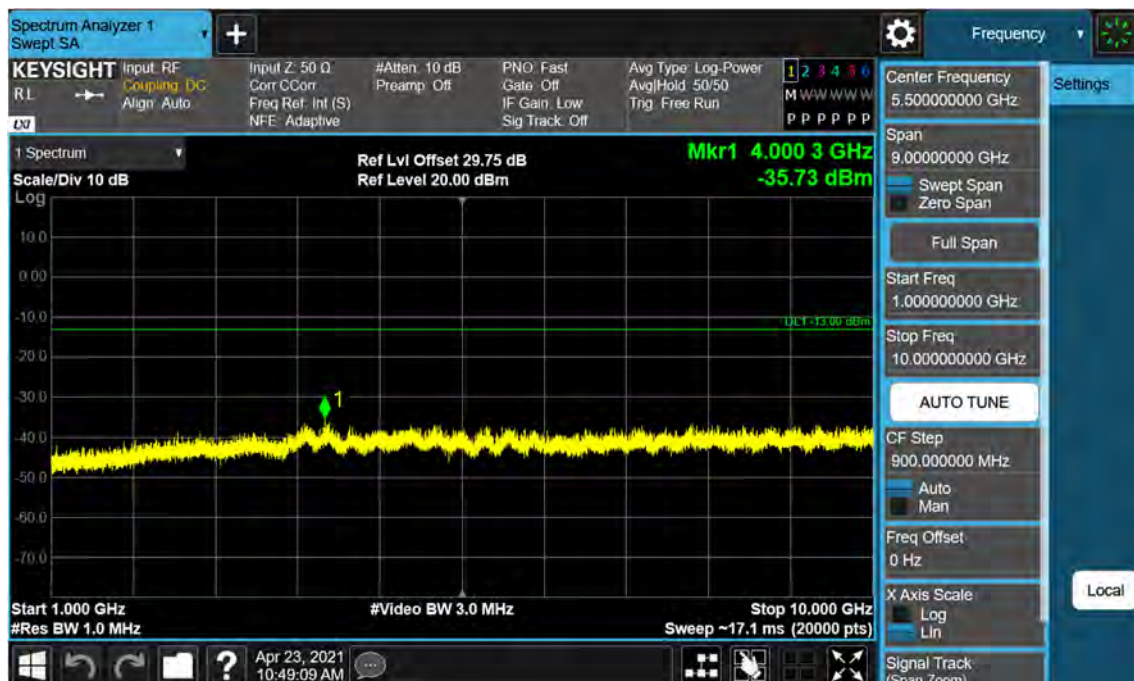
150 kHz~30 MHz



30 MHz~1 GHz



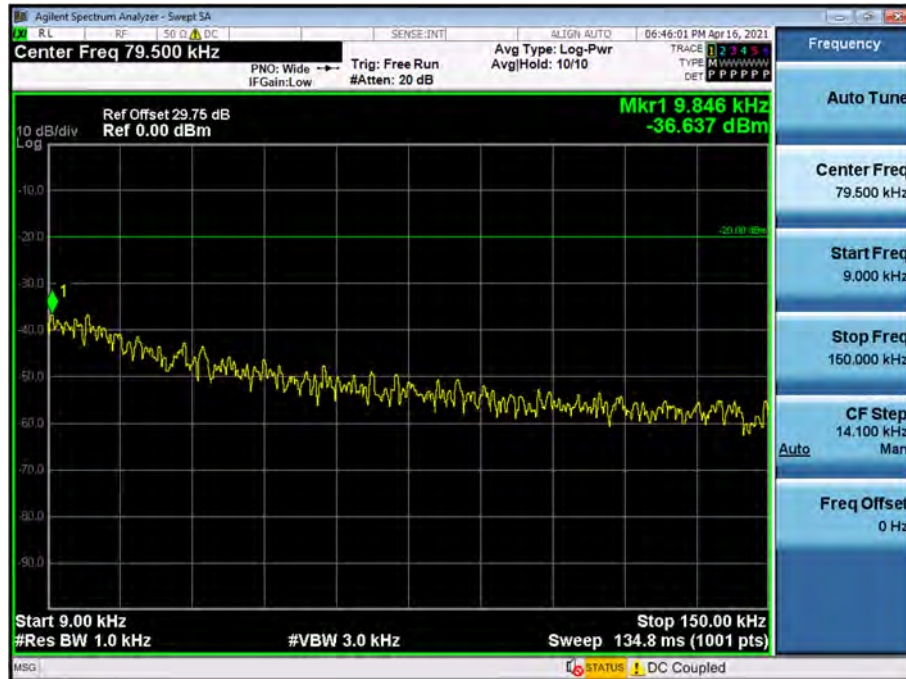
1 GHz~10 GHz



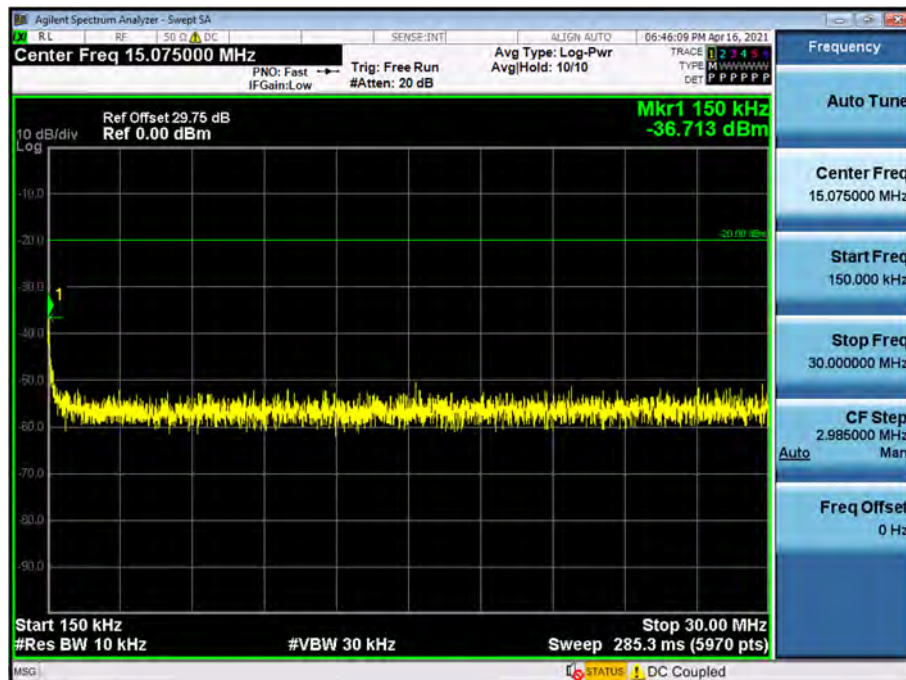
11K0F3E_FCC/ISED

(138.05 MHz)_High

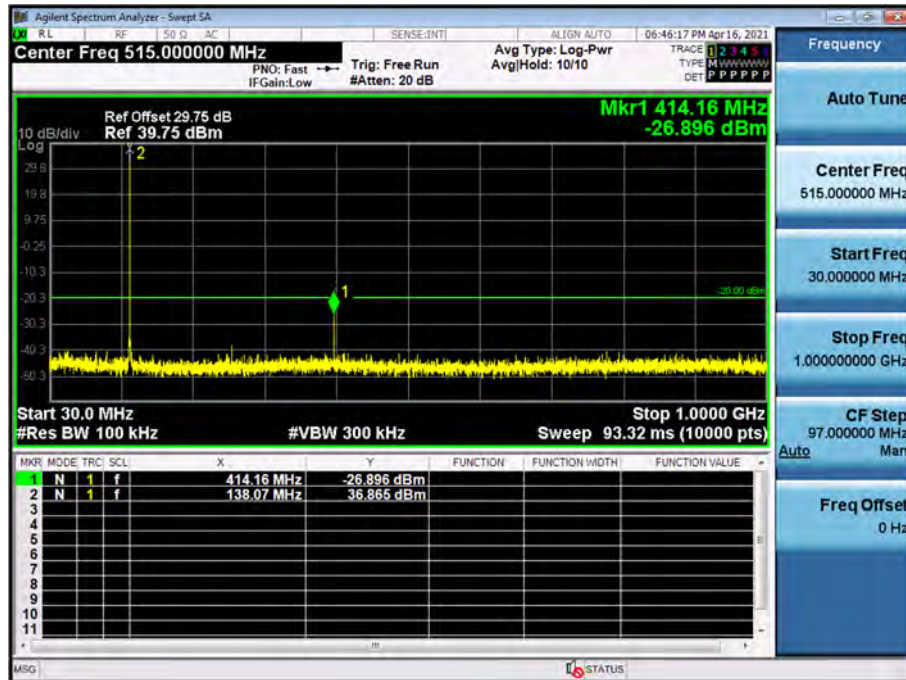
9 kHz~150 kHz



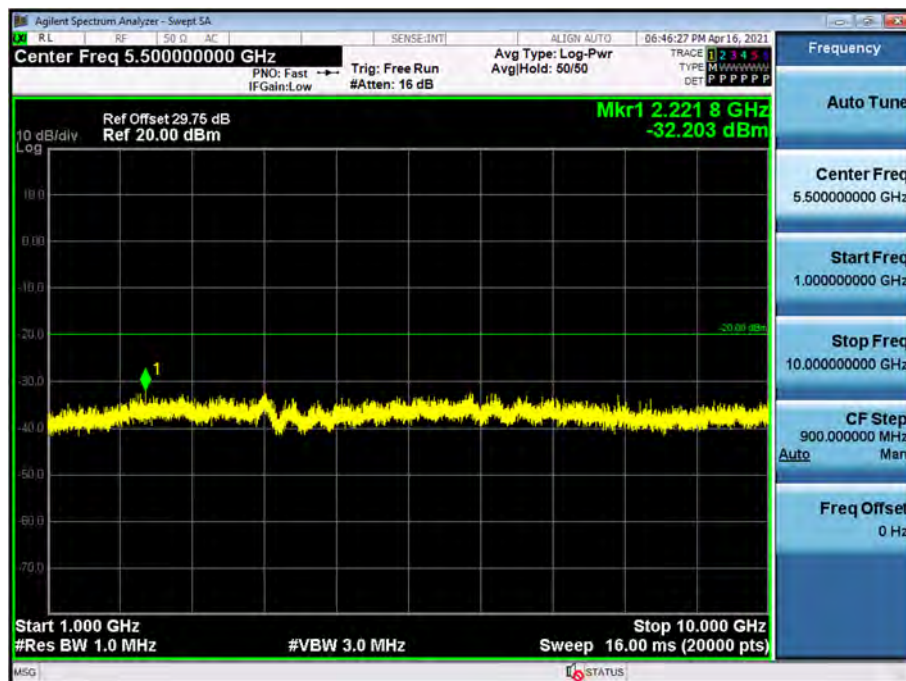
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

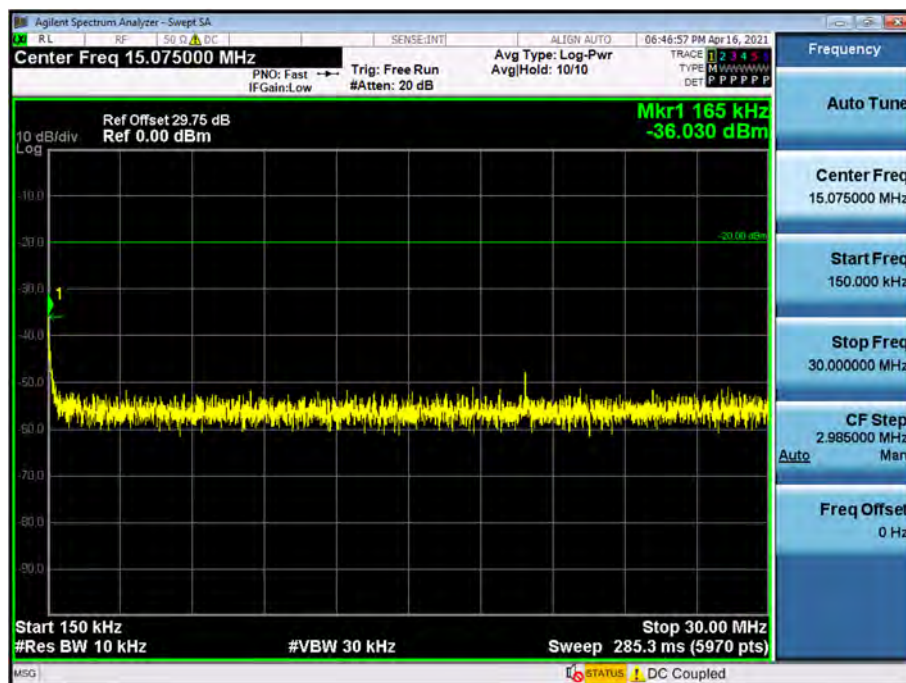


(150.05 MHz)_High

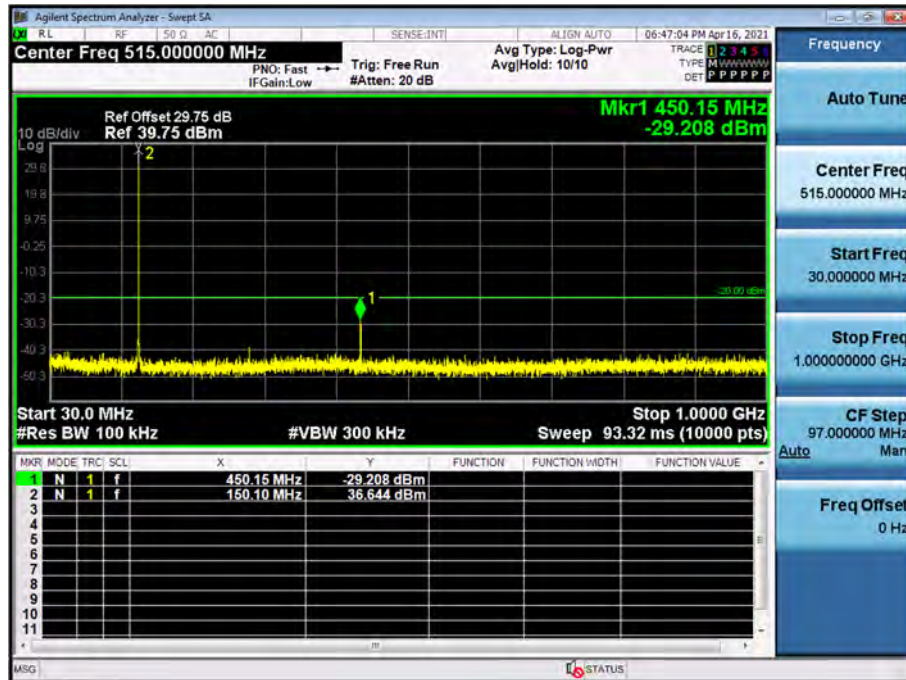
9 kHz~150 kHz



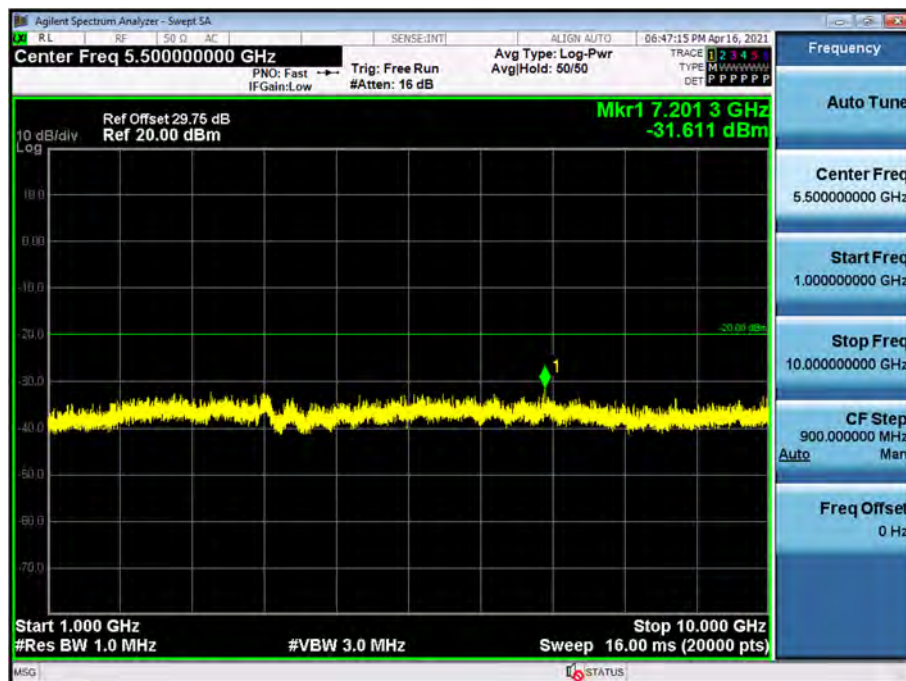
150 kHz~30 MHz



30 MHz~1 GHz

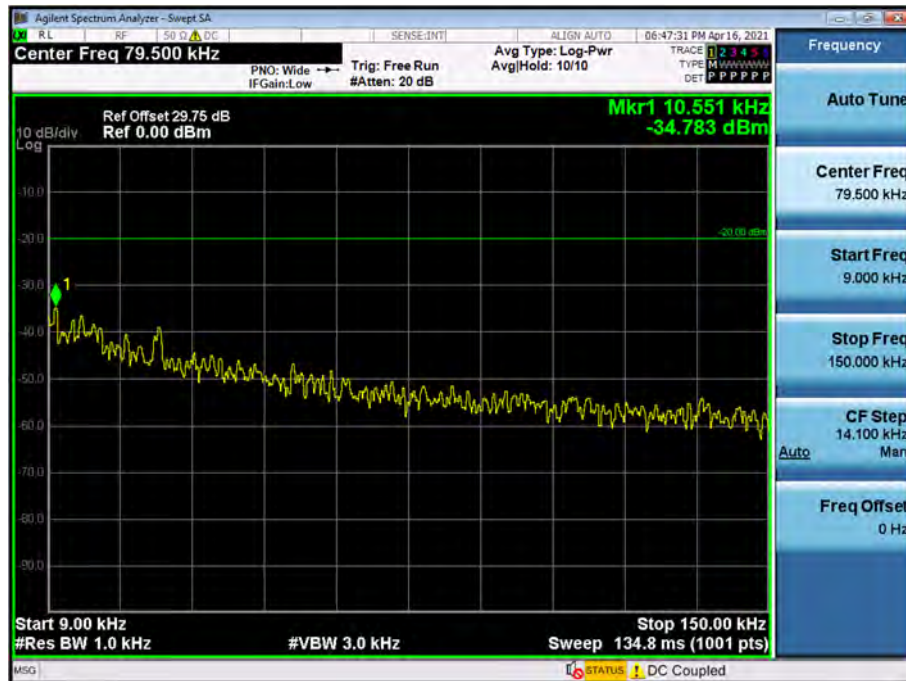


1 GHz~10 GHz

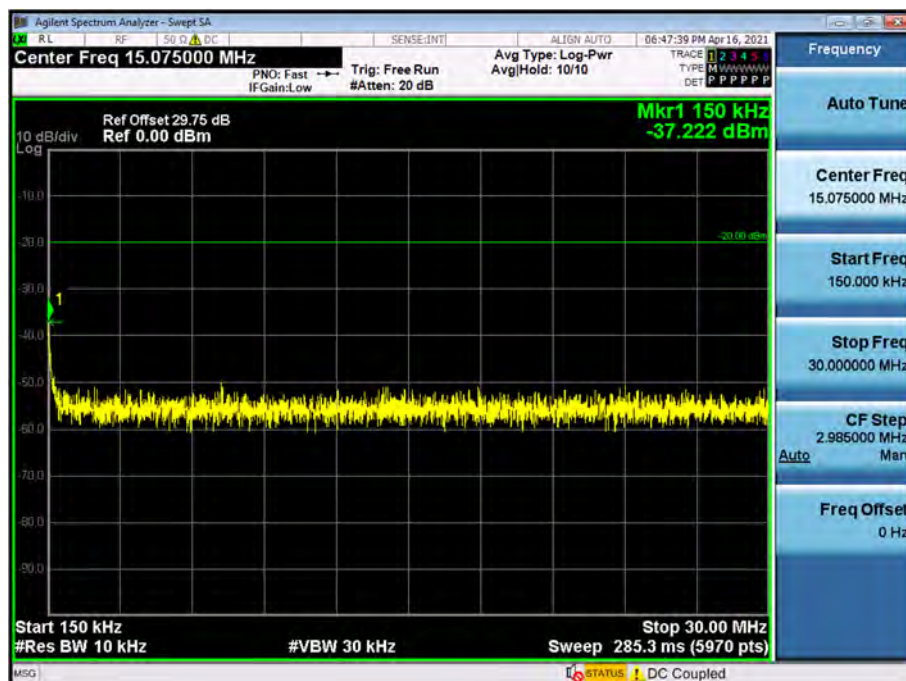


(162.05 MHz)_High

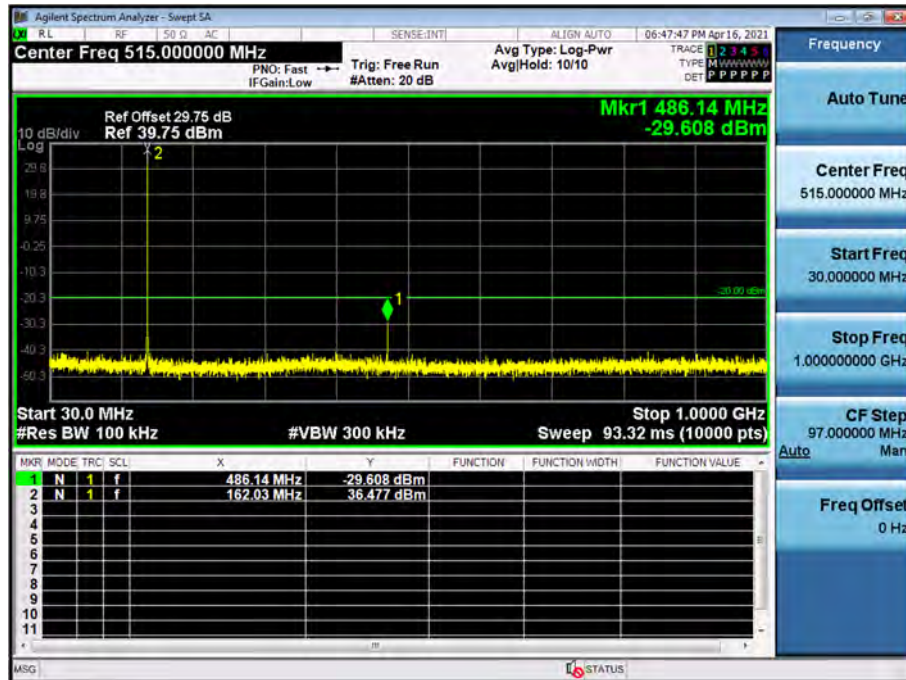
9 kHz~150 kHz



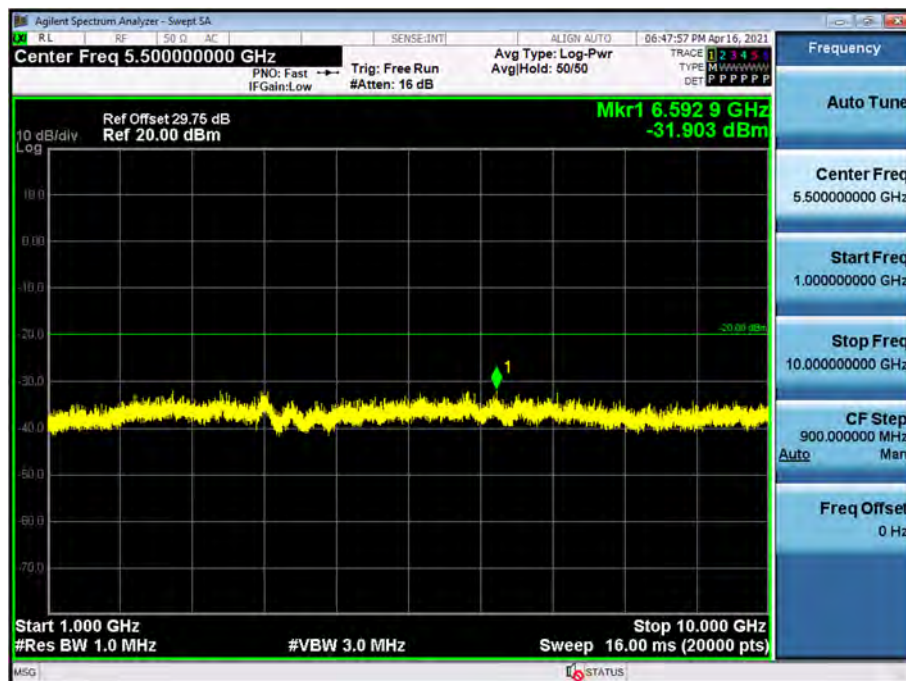
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

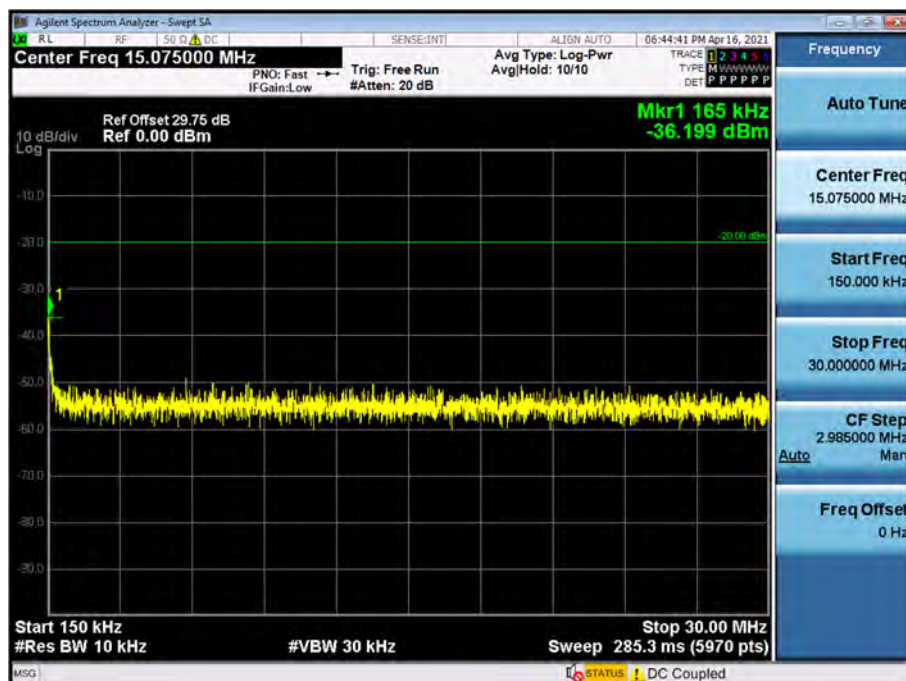


(173.95 MHz)_High

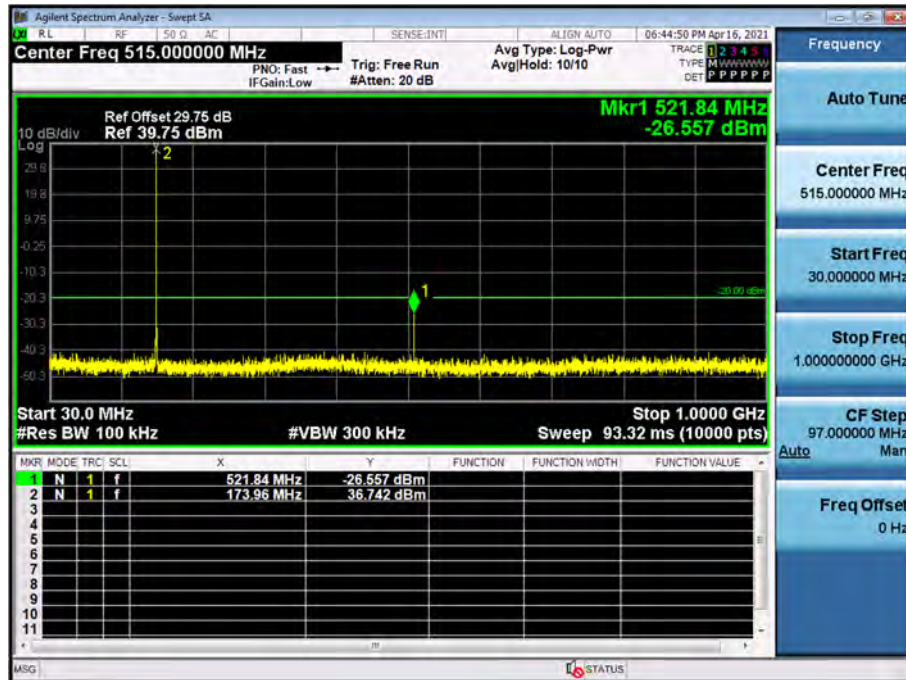
9 kHz~150 kHz



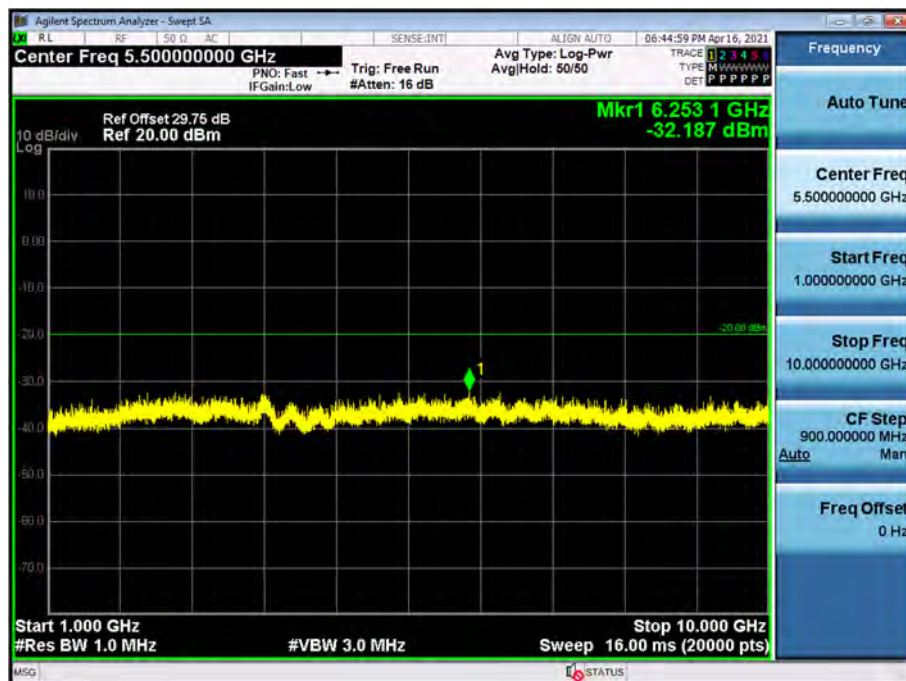
150 kHz~30 MHz



30 MHz~1 GHz



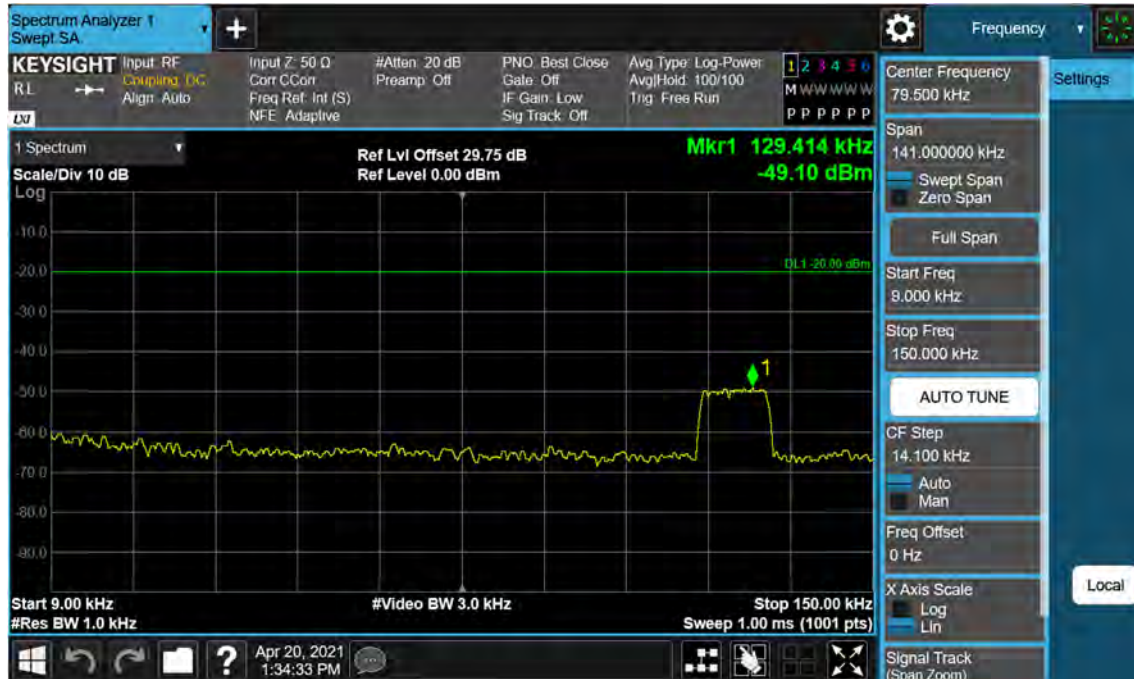
1 GHz~10 GHz



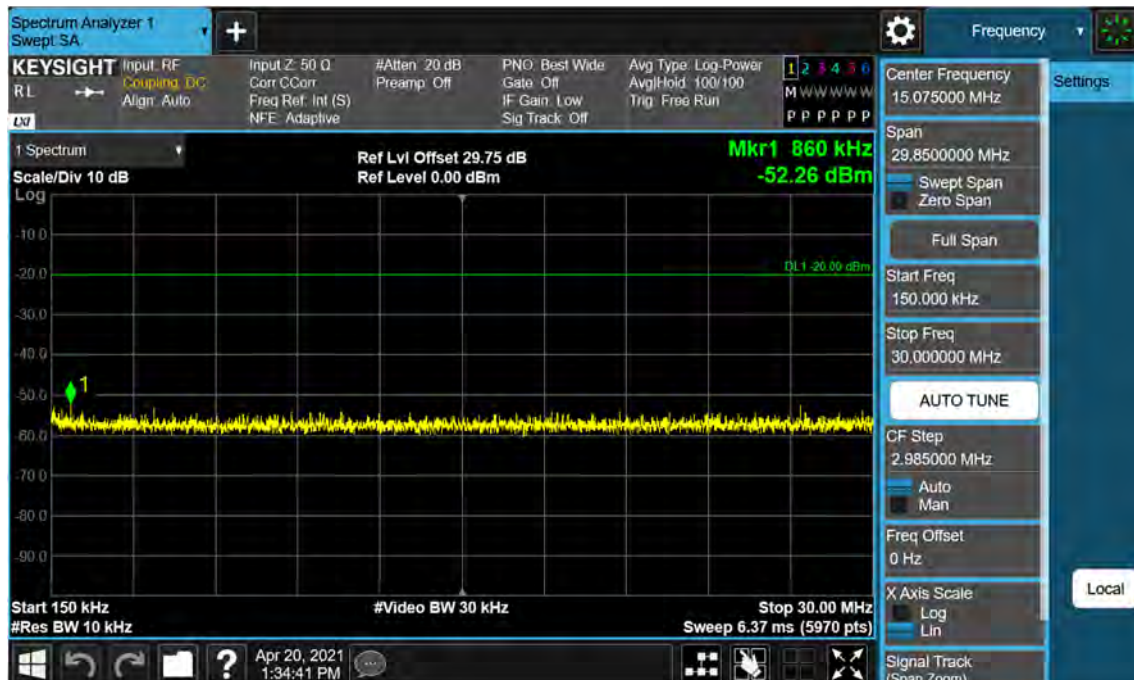
8K30F1E, 8K30F1D, 8K30F7W_FCC/ISED

(138.05 MHz)_High

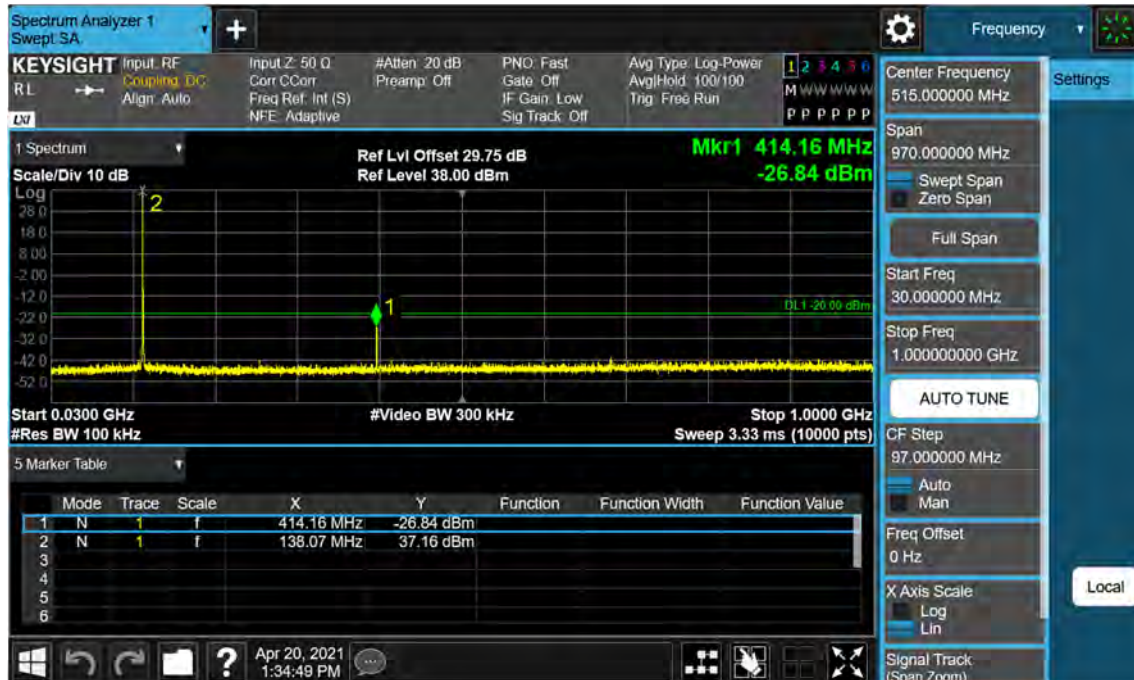
9 kHz~150 kHz



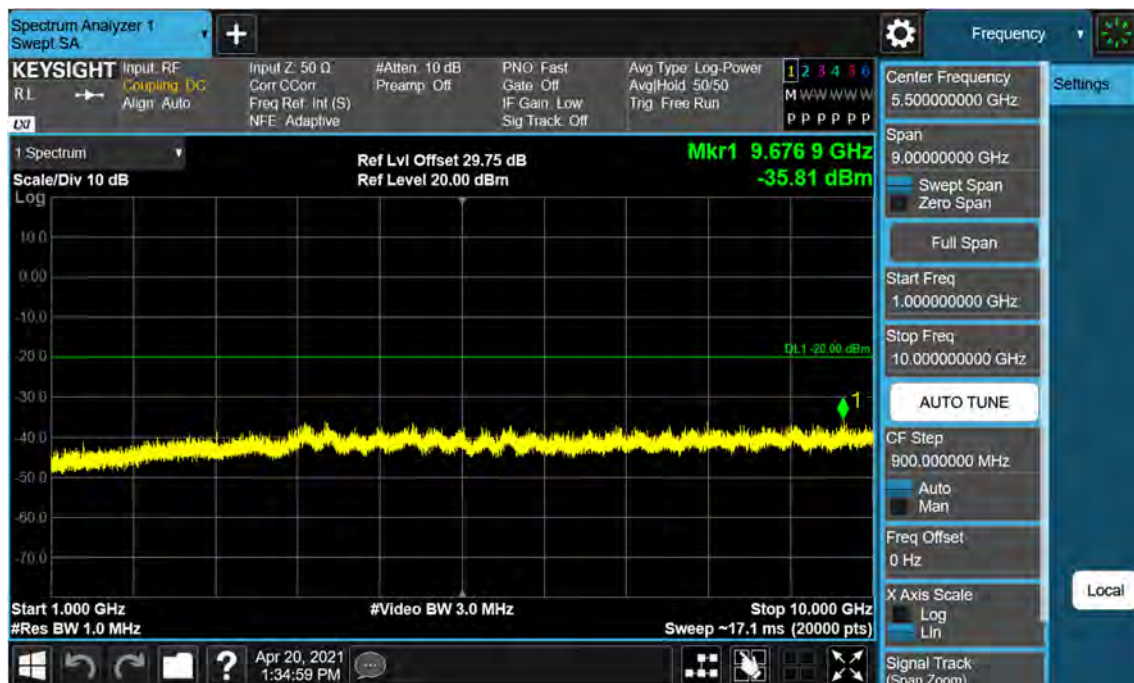
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

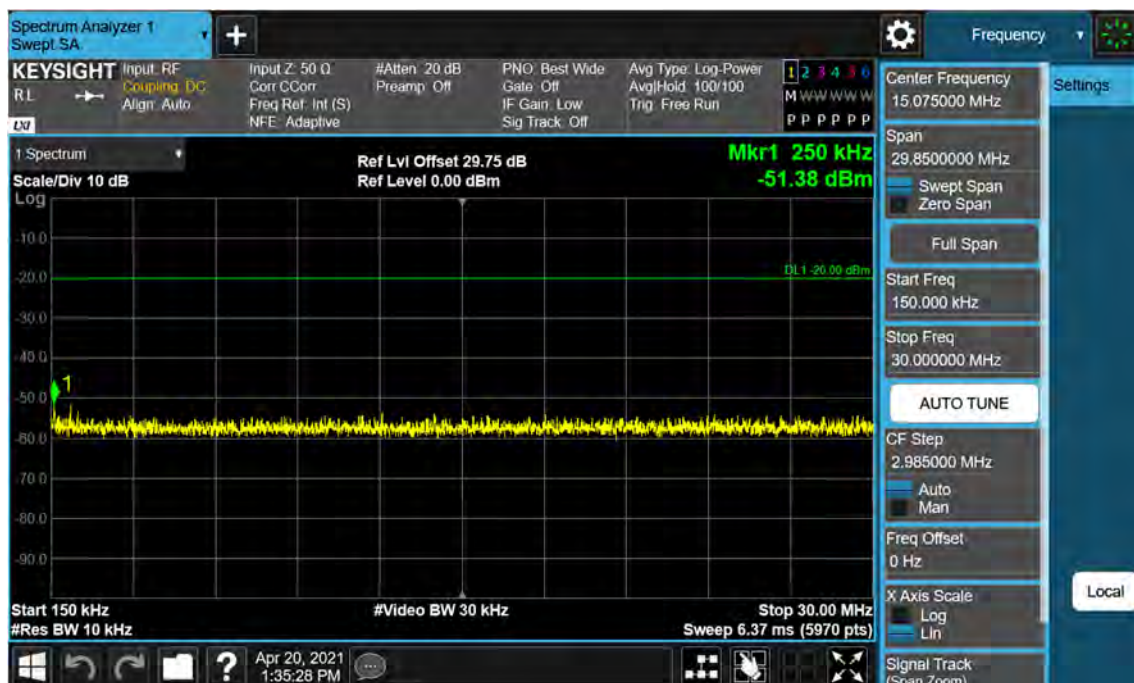


(150.05 MHz)_High

9 kHz~150 kHz



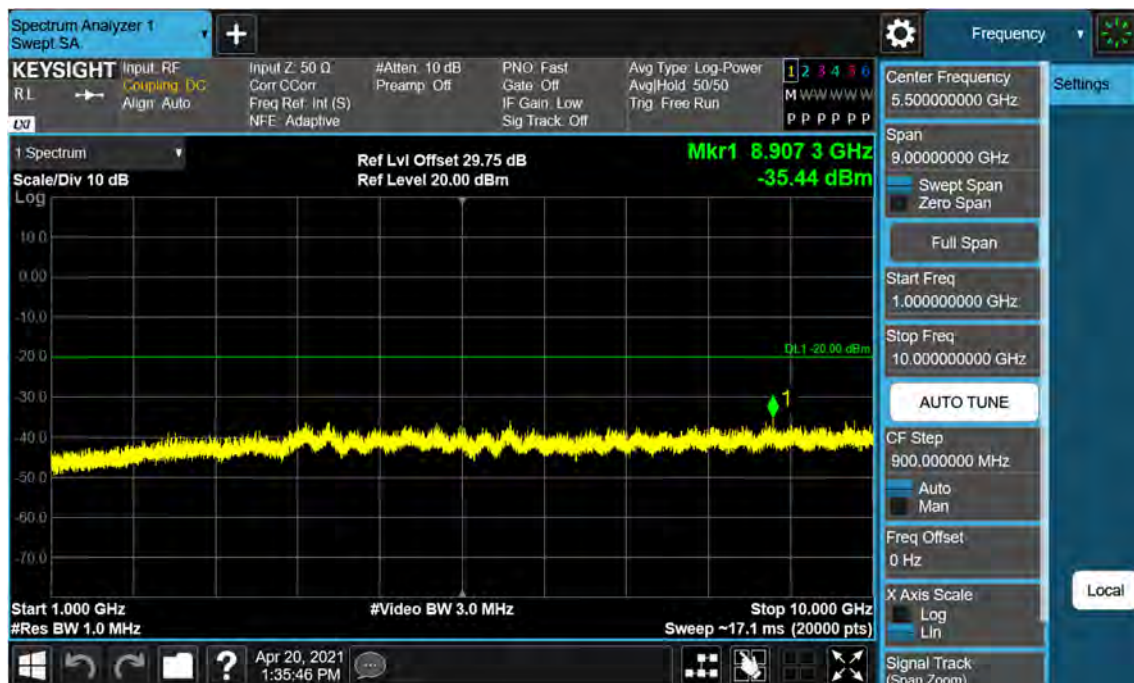
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

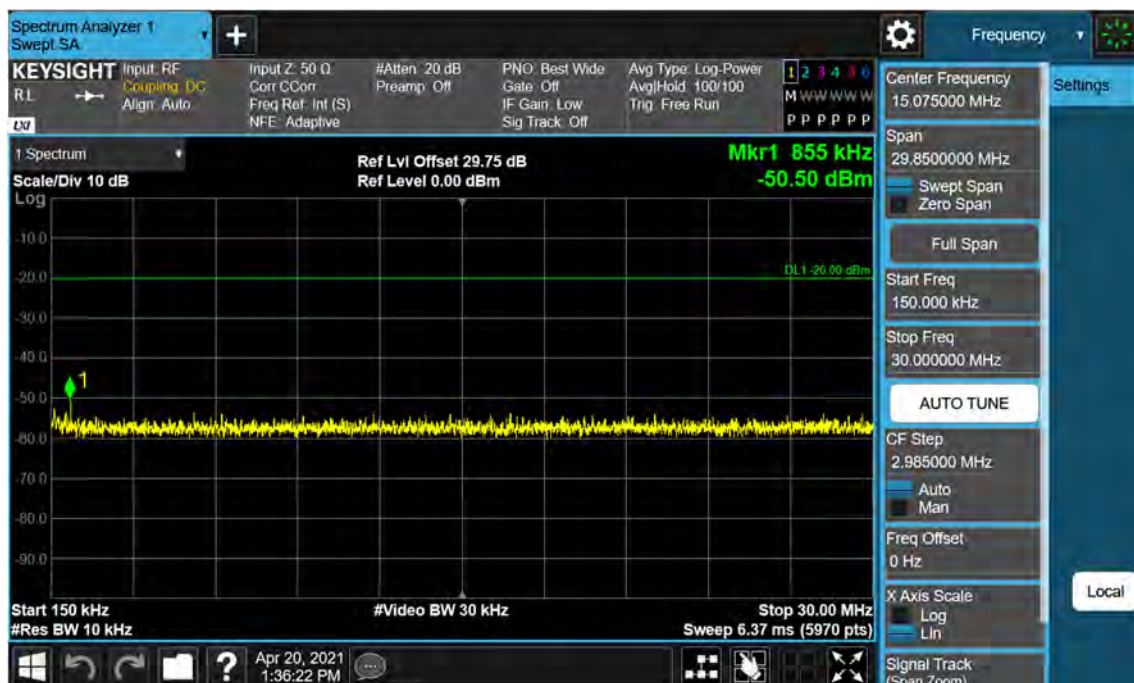


(162.05 MHz)_High

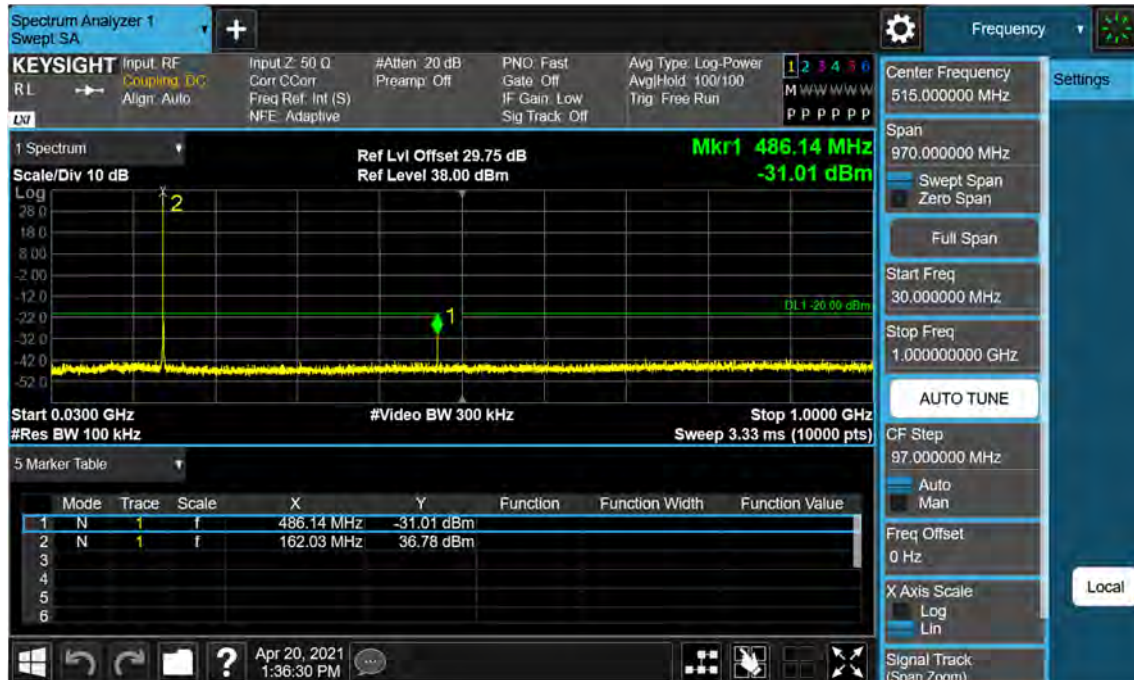
9 kHz~150 kHz



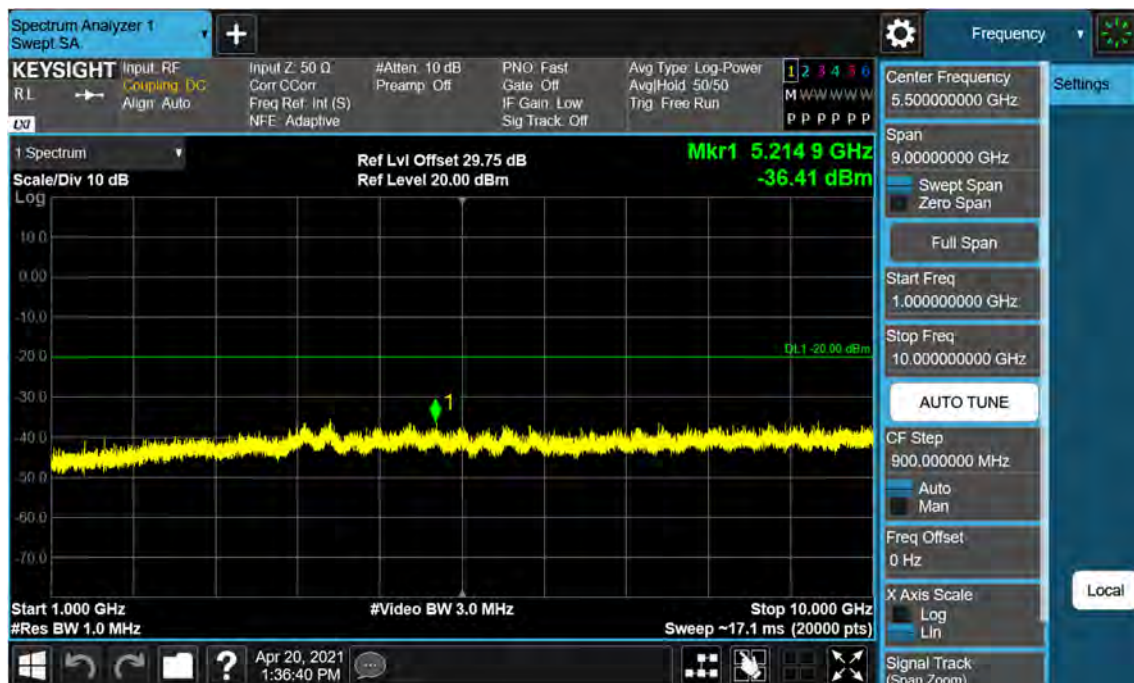
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

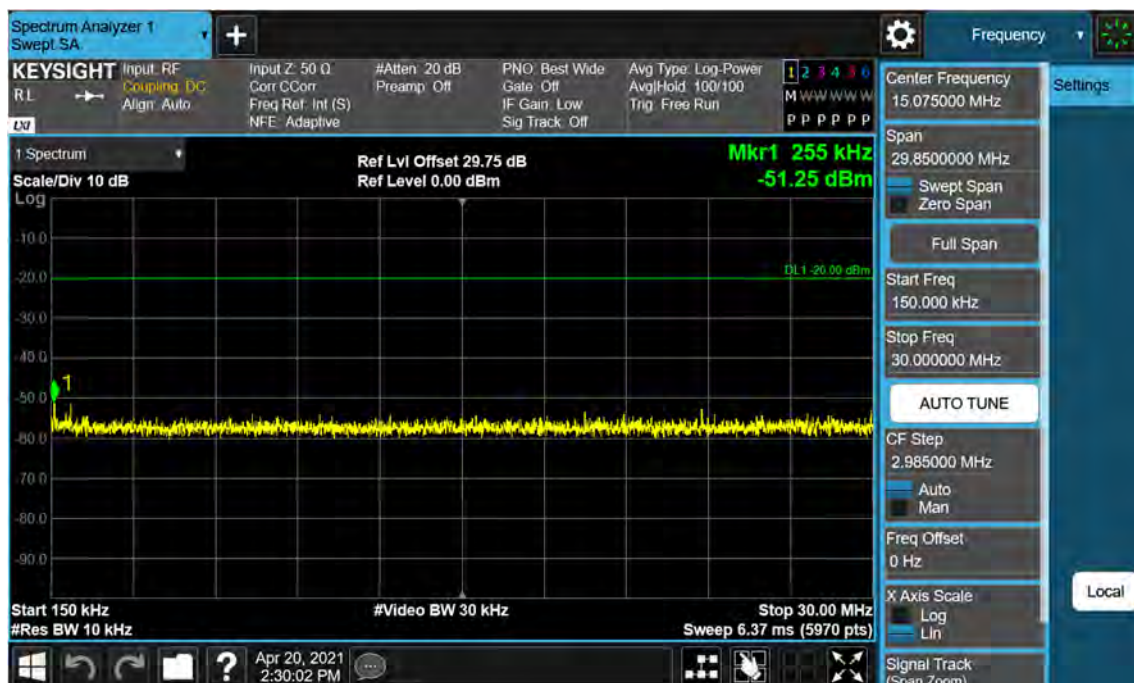


(173.95 MHz)_High

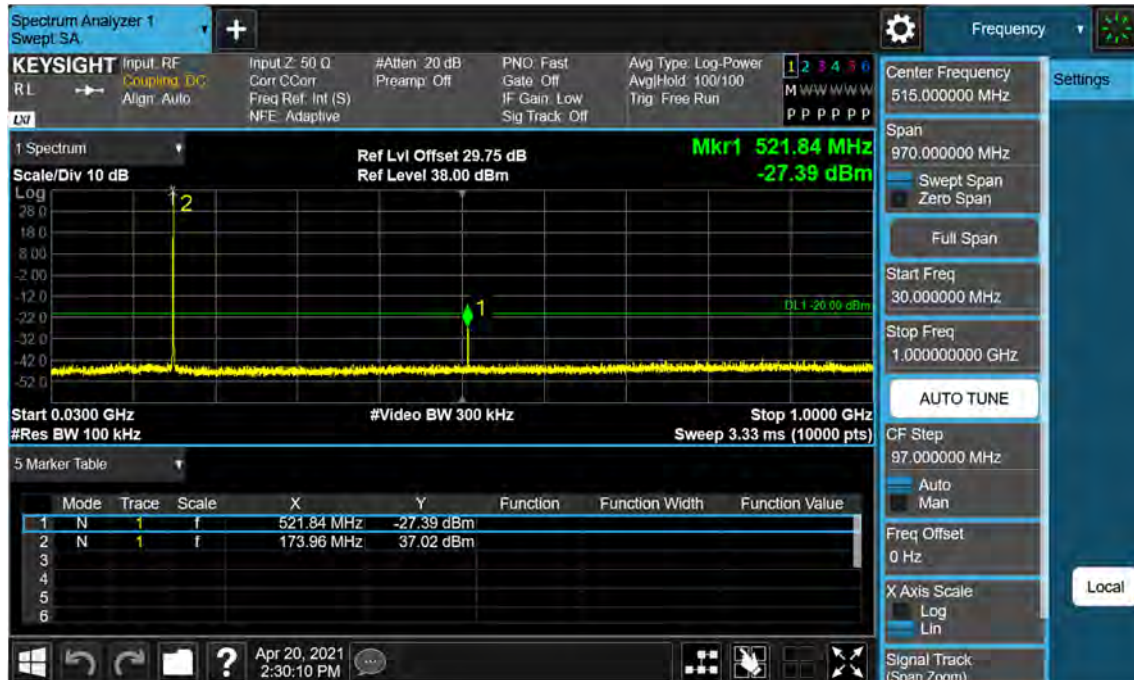
9 kHz~150 kHz



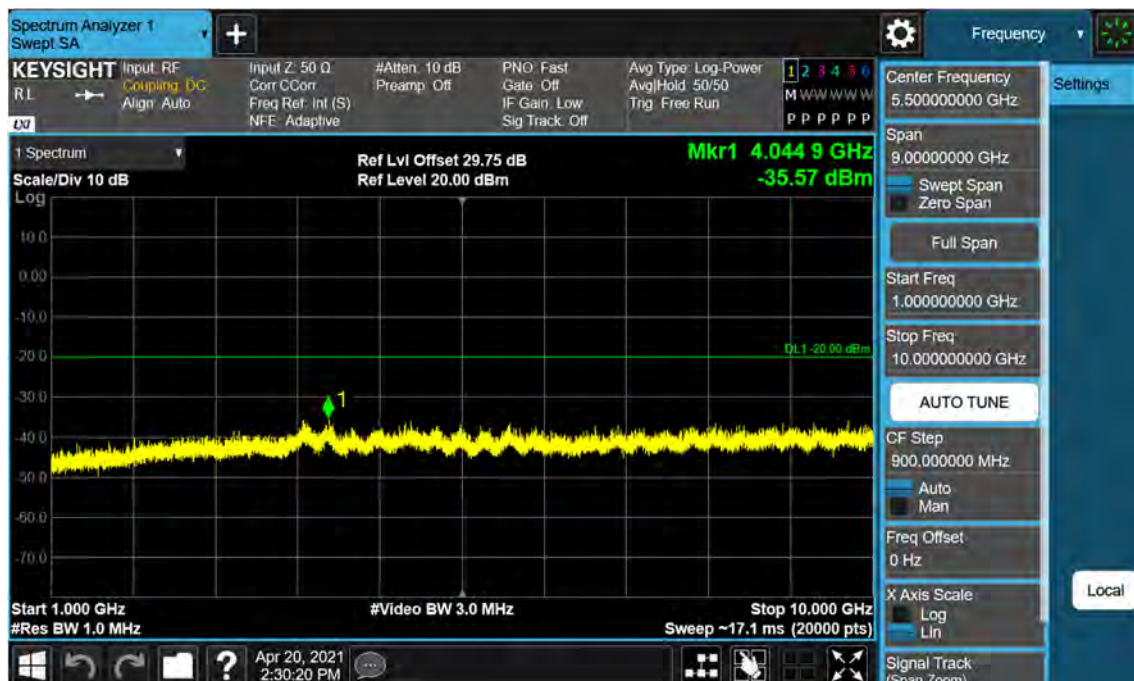
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz



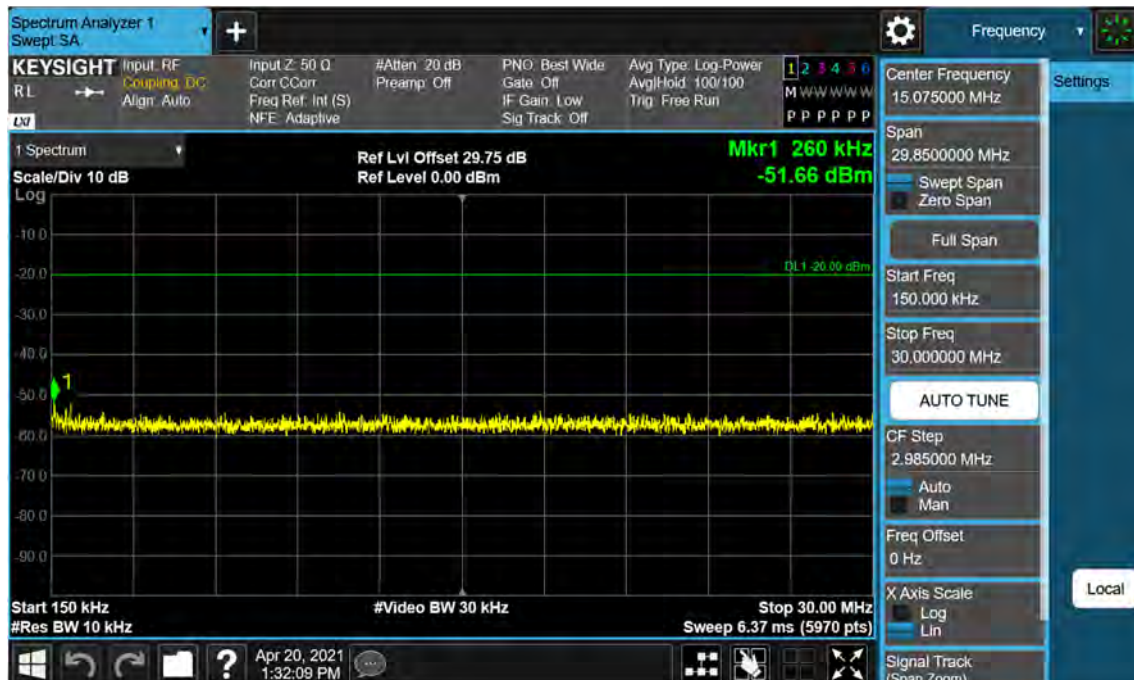
7K60FXD, 7K60FXE_FCC/ISED

(138.05 MHz)_High

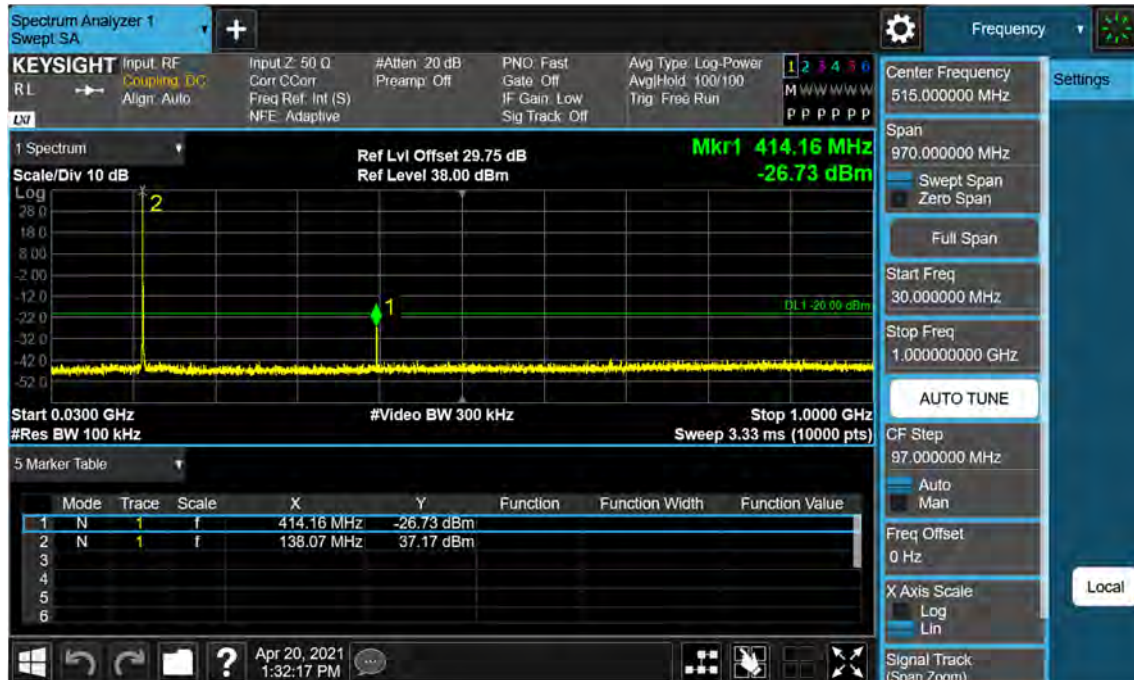
9 kHz~150 kHz



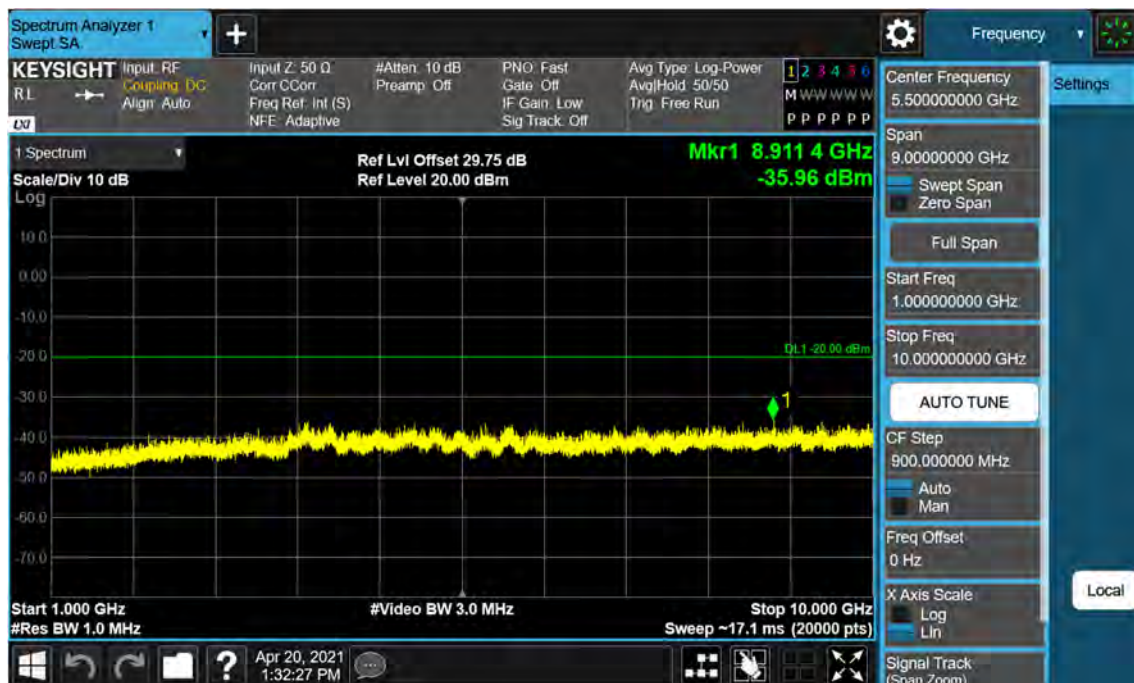
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz



(150.05 MHz)_High

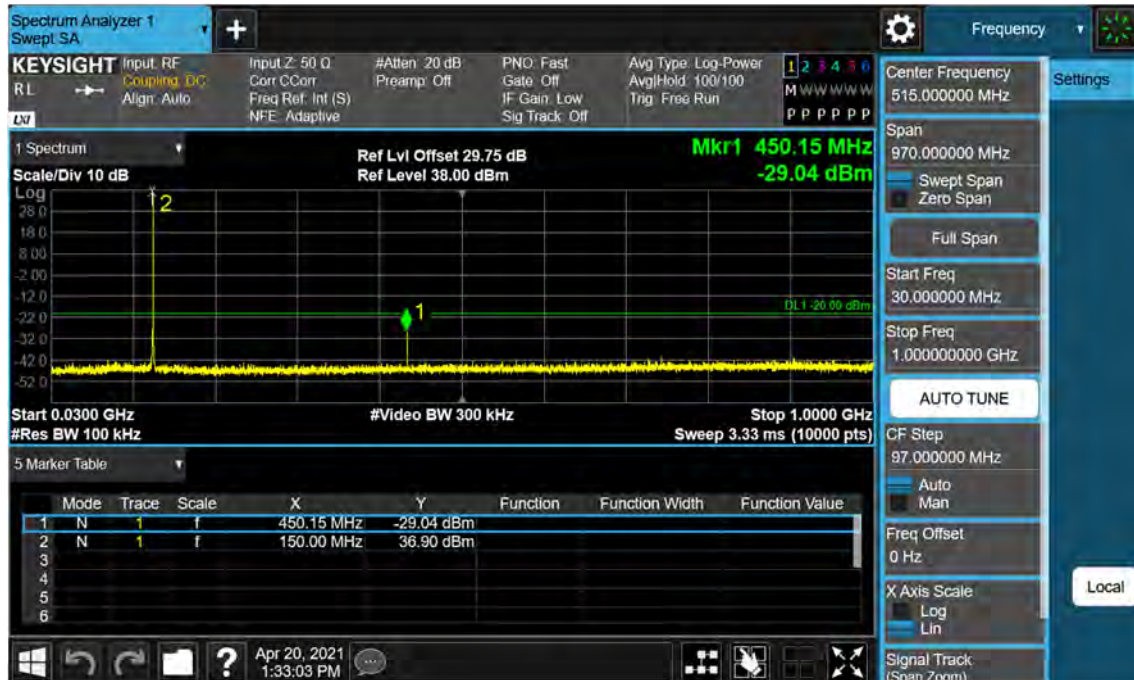
9 kHz~150 kHz



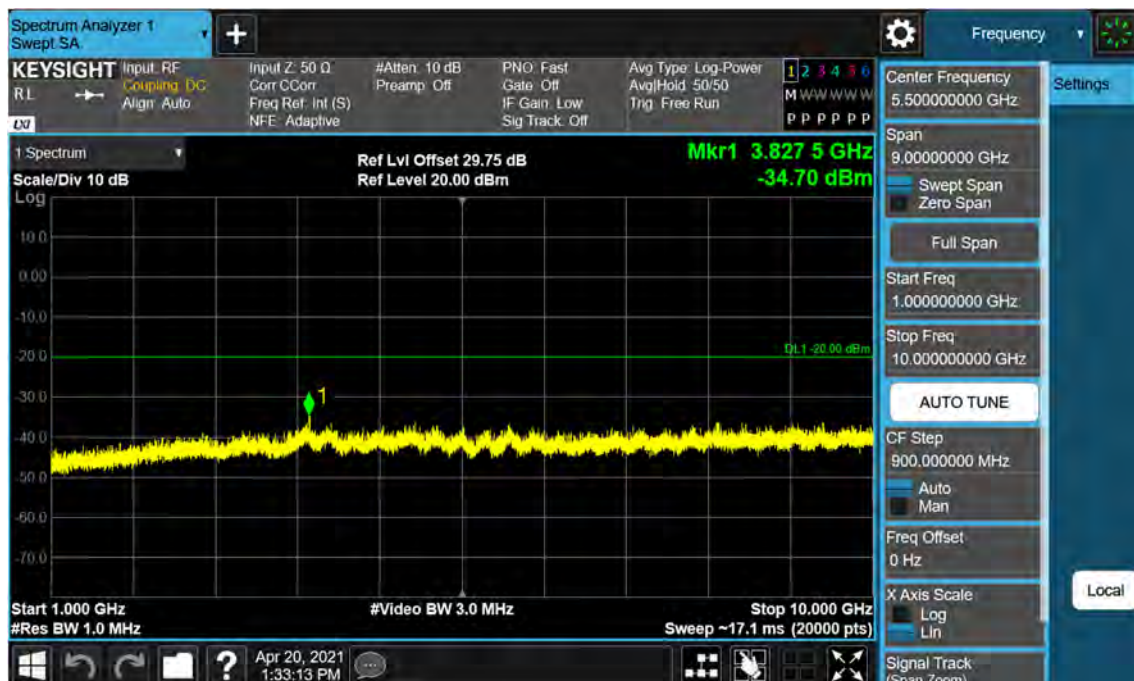
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

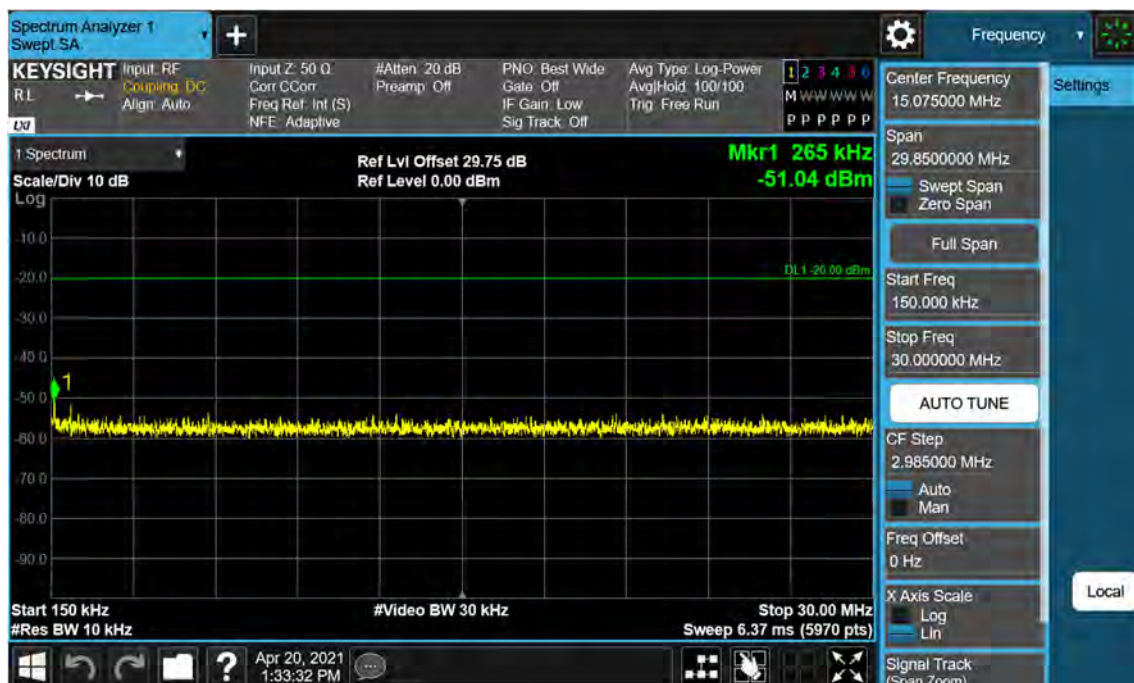


(162.05 MHz)_High

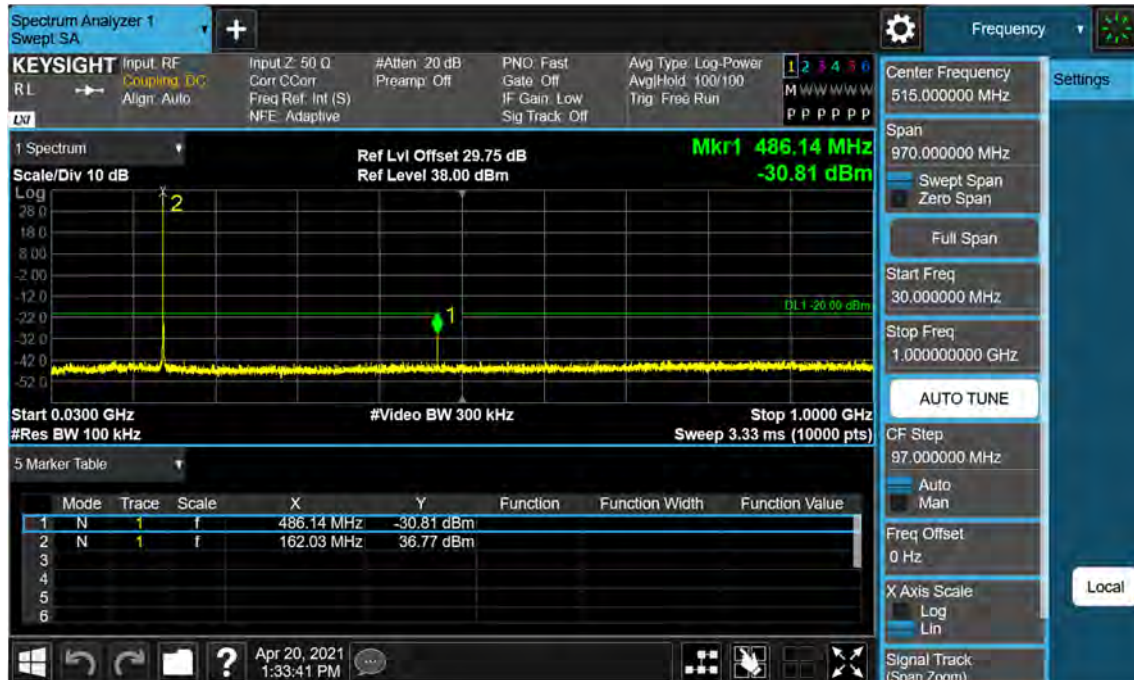
9 kHz~150 kHz



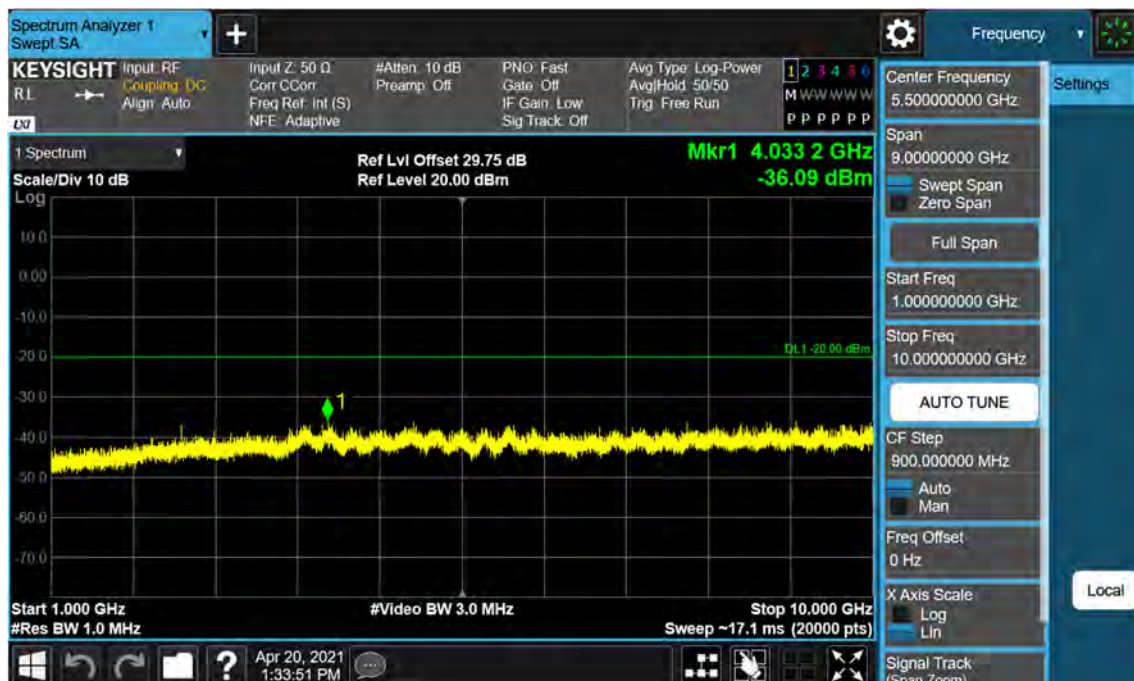
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

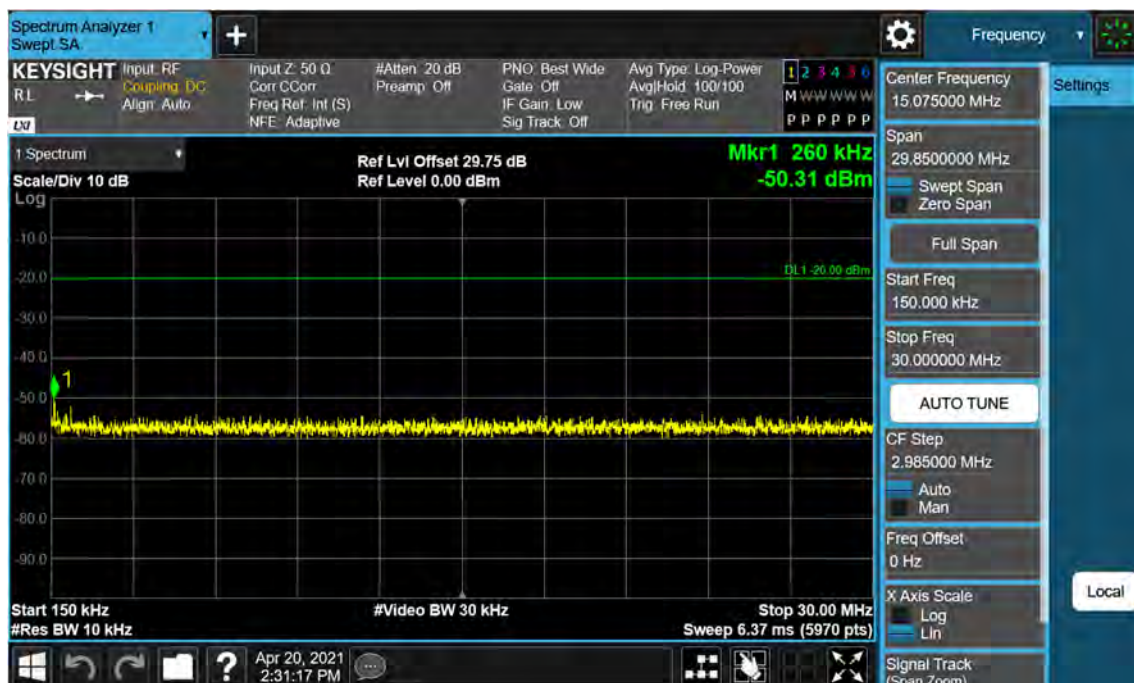


(173.95 MHz)_High

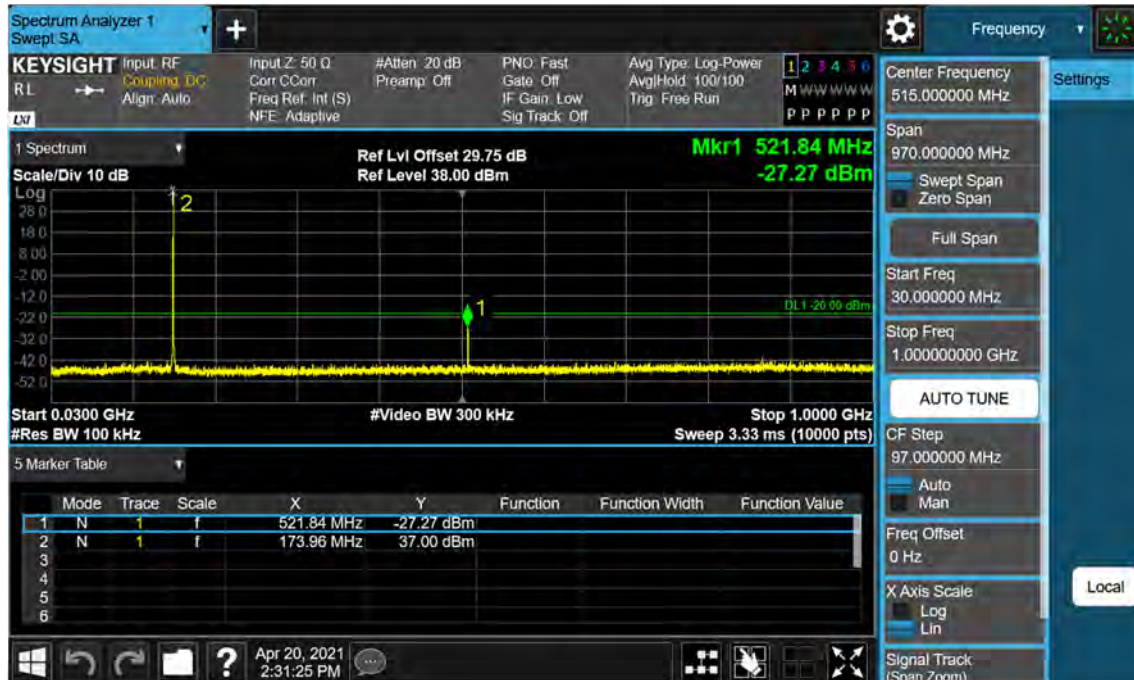
9 kHz~150 kHz



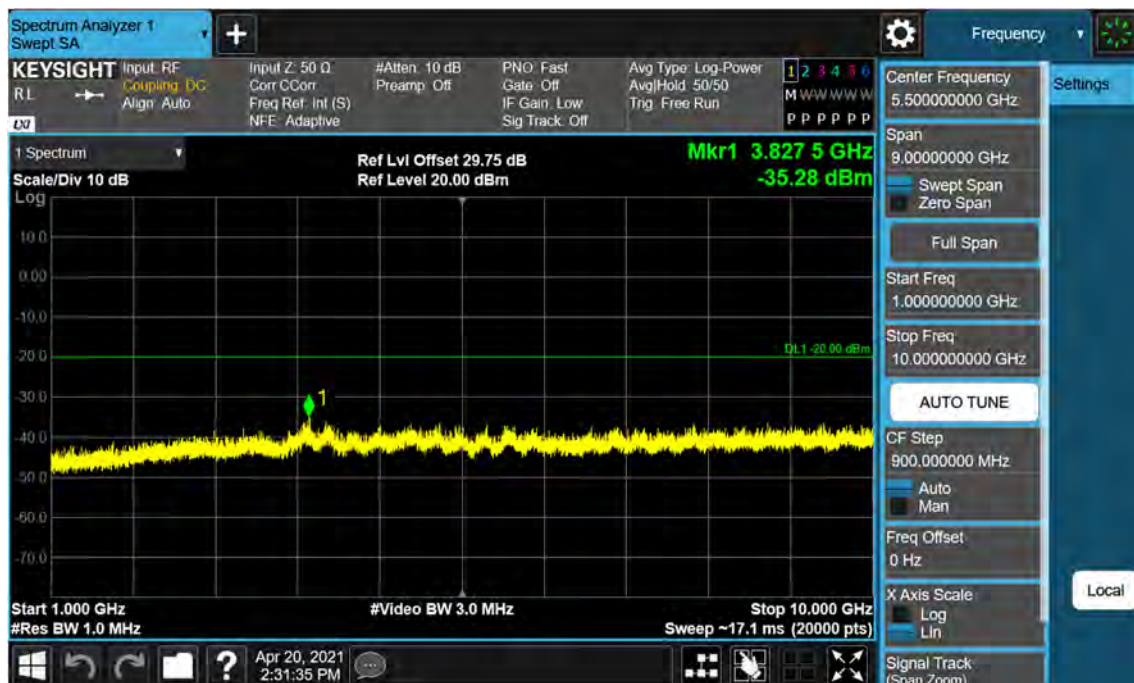
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz



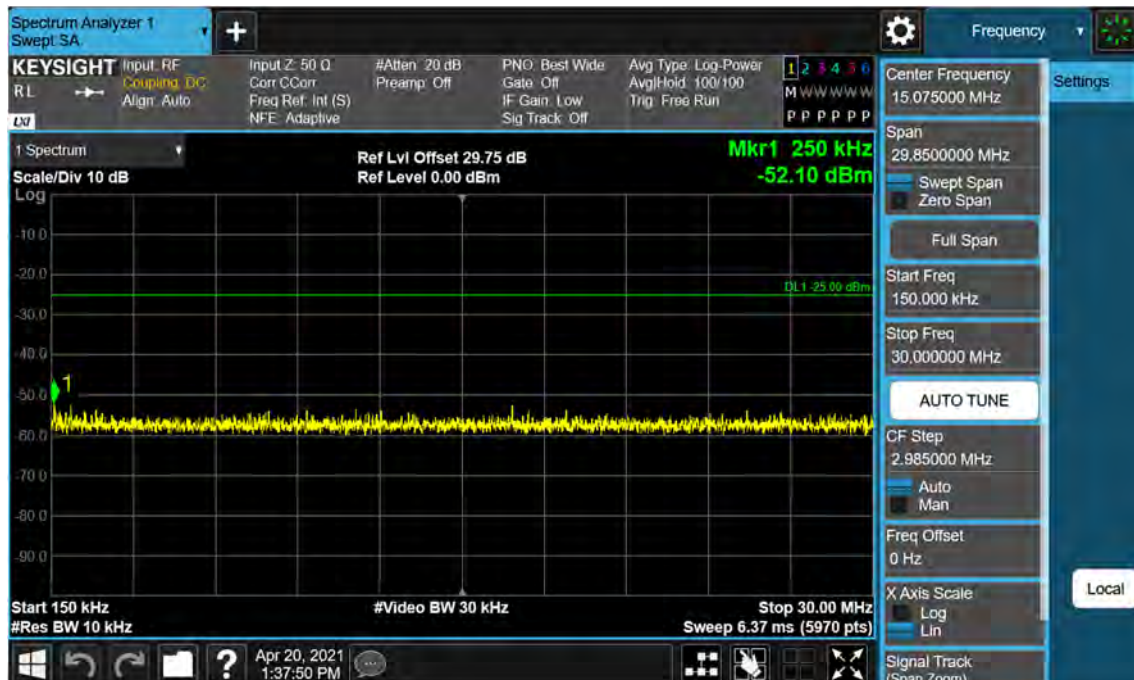
4K00F1E, 4K00F1D, 4K00F7W_FCC/ISED

(138.05 MHz)_High

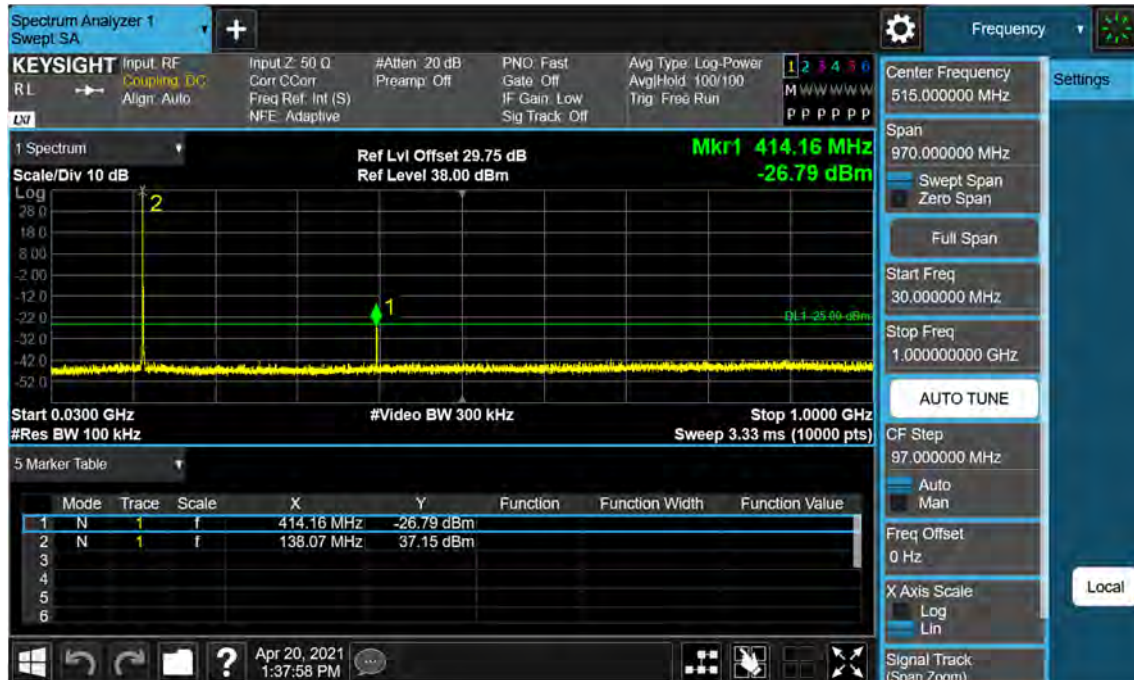
9 kHz~150 kHz



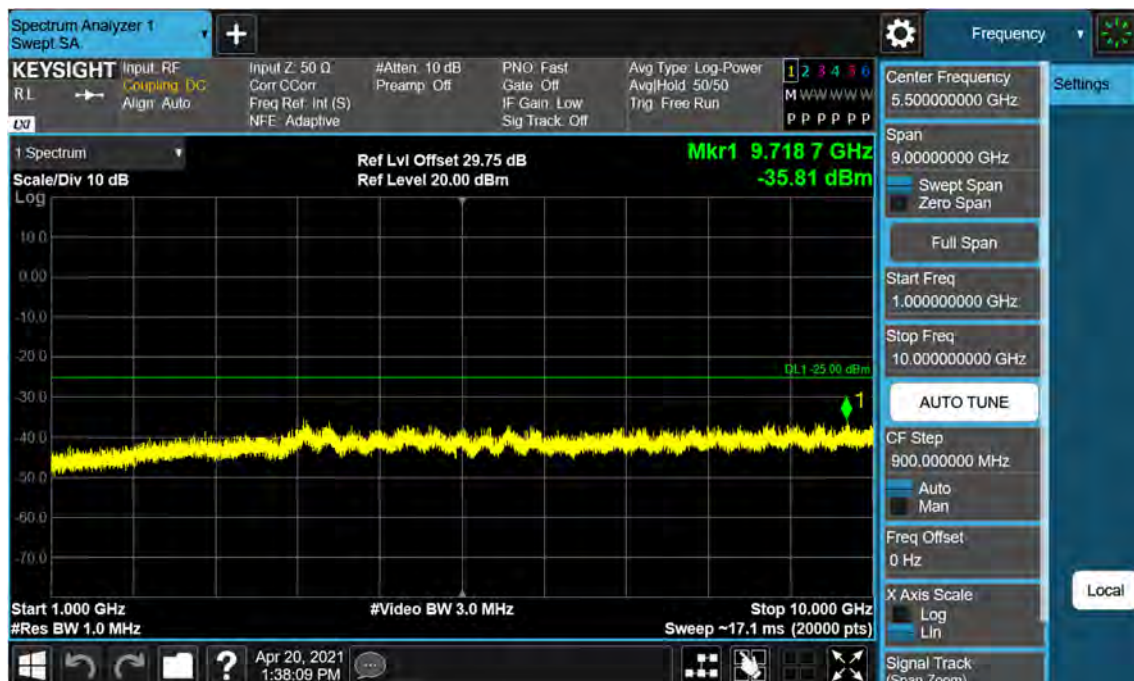
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz



(150.05 MHz)_High

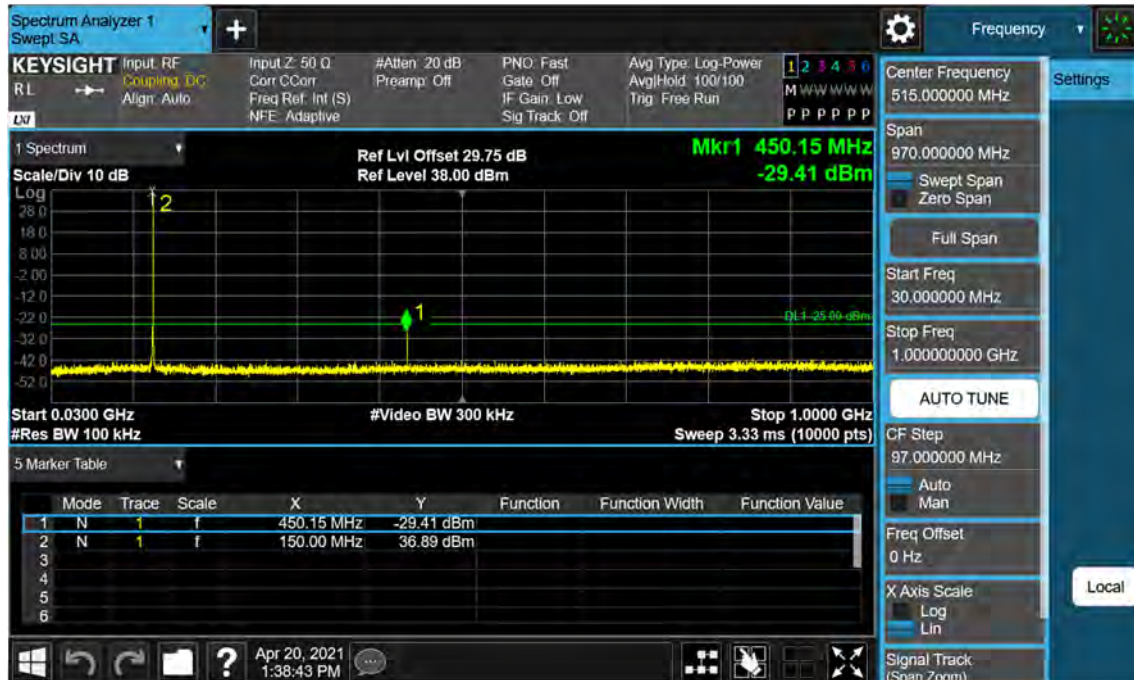
9 kHz~150 kHz



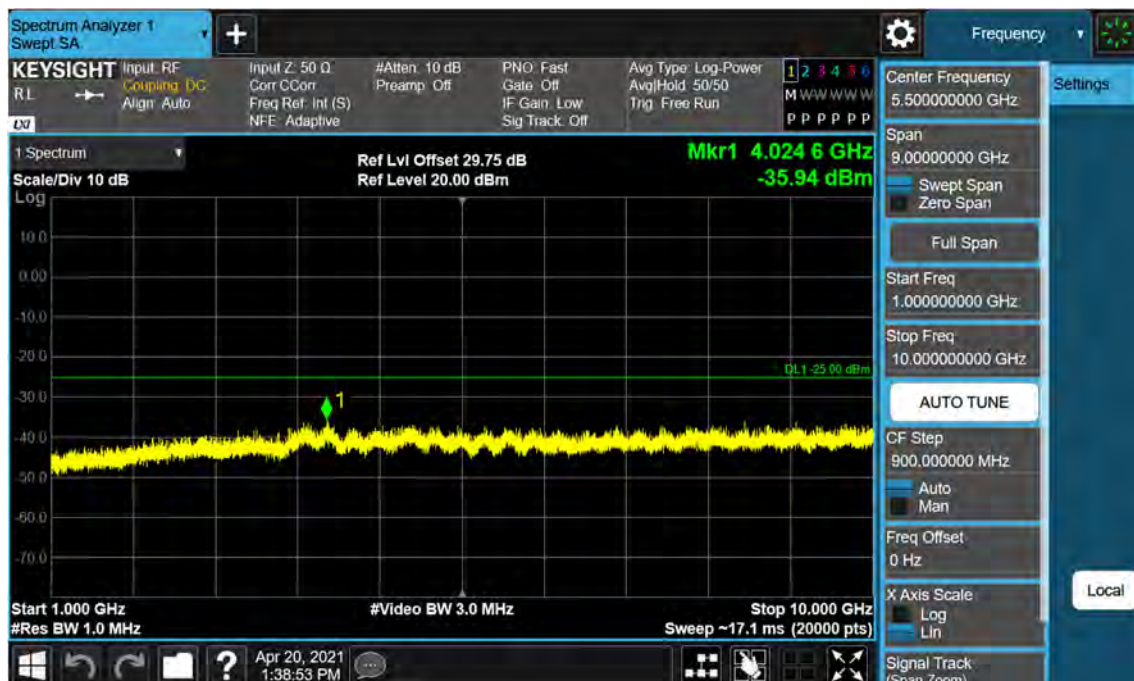
150 kHz~30 MHz



30 MHz~1 GHz

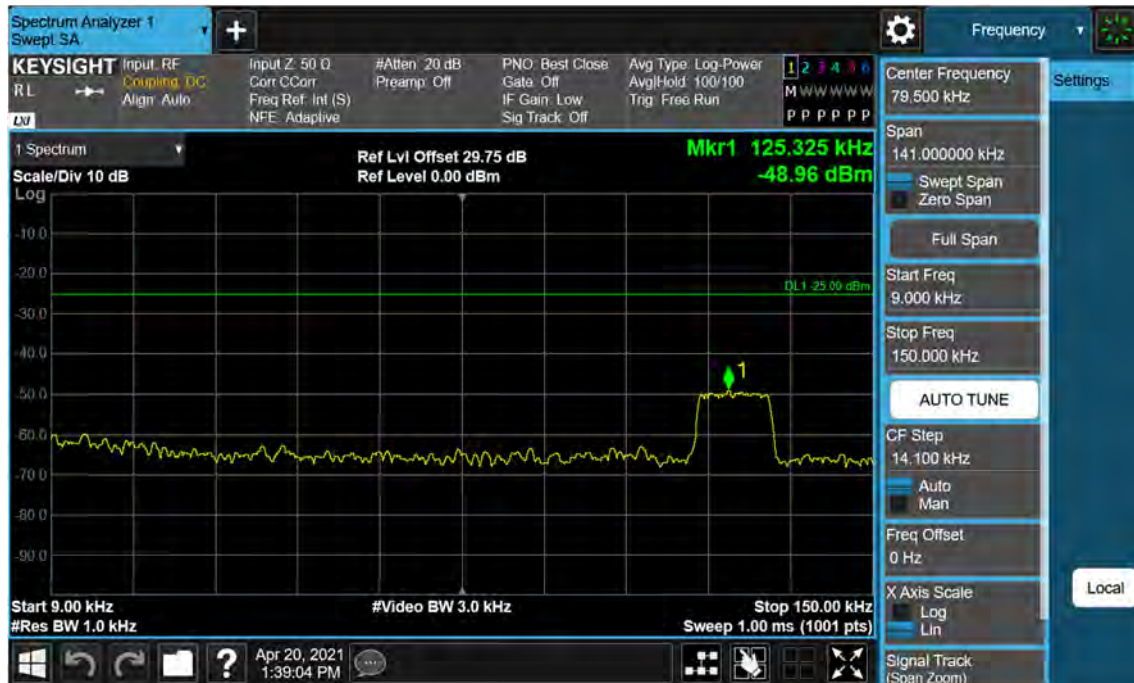


1 GHz~10 GHz



(162.05 MHz)_High

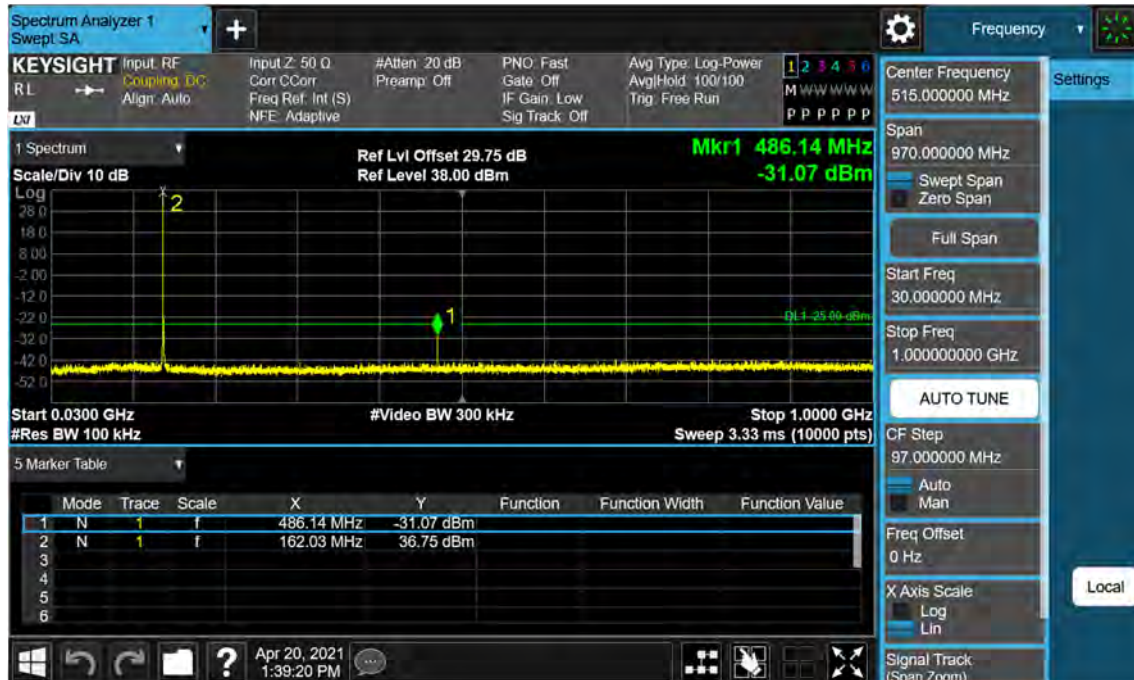
9 kHz~150 kHz



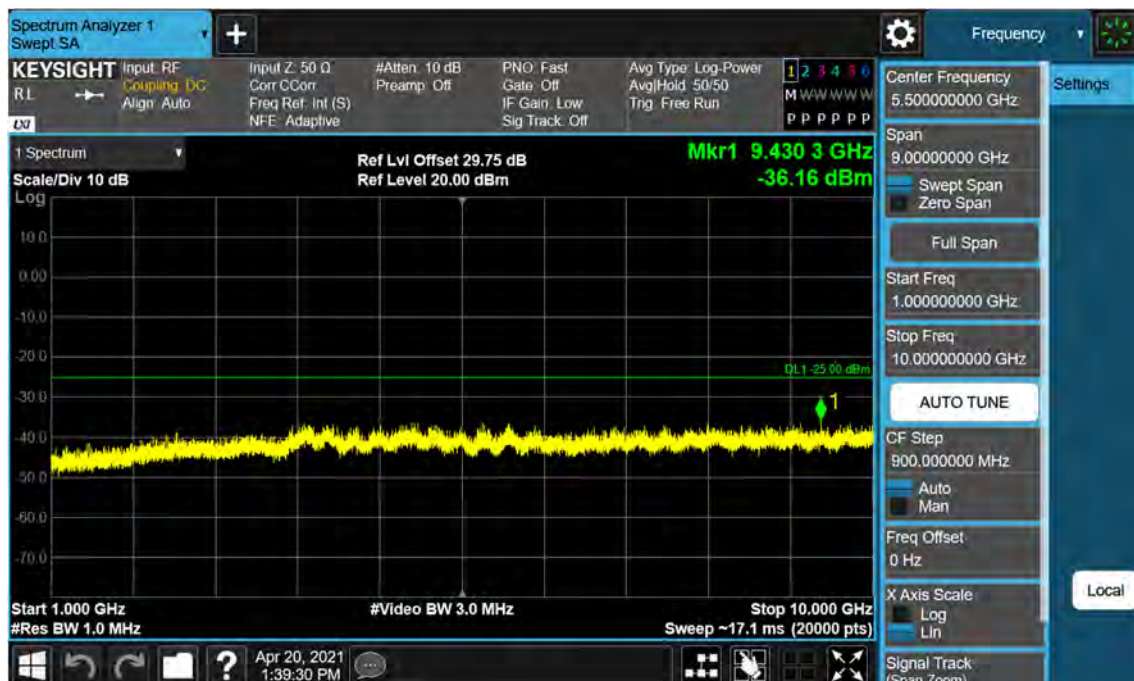
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

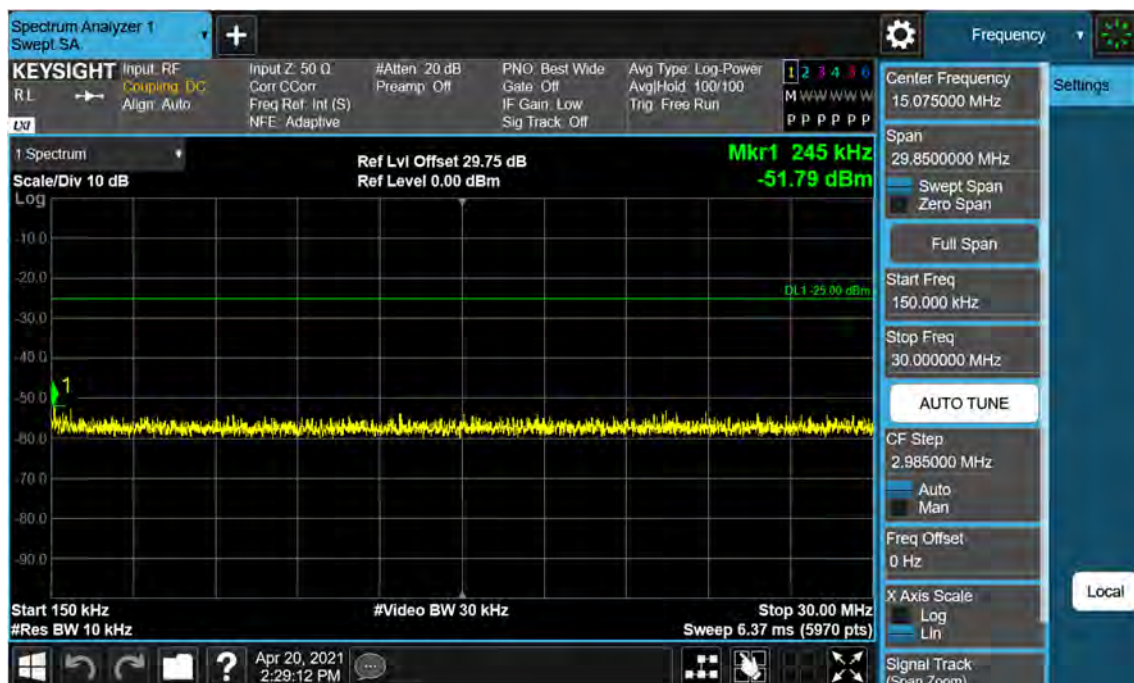


(173.95 MHz)_High

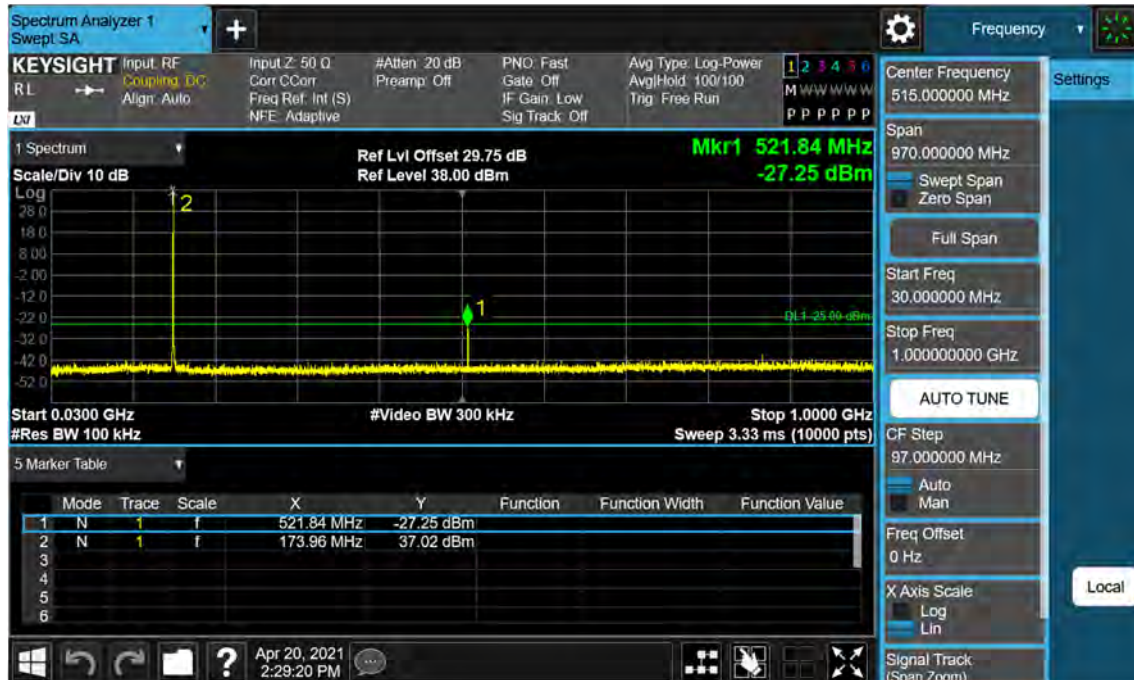
9 kHz~150 kHz



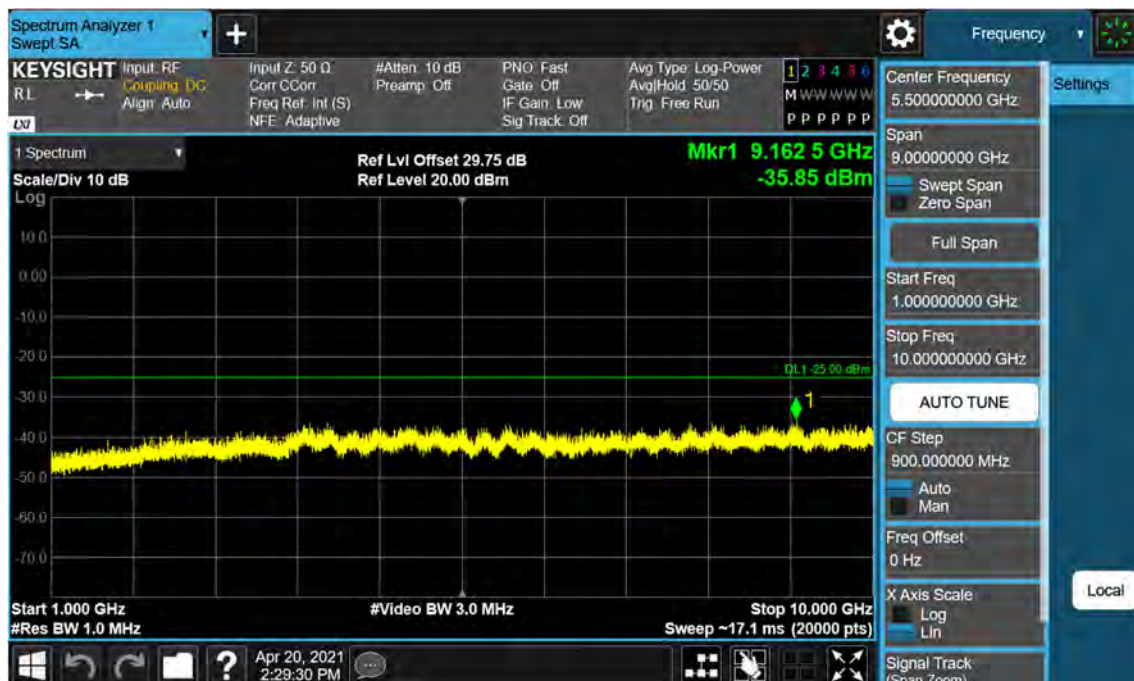
150 kHz~30 MHz



30 MHz~1 GHz



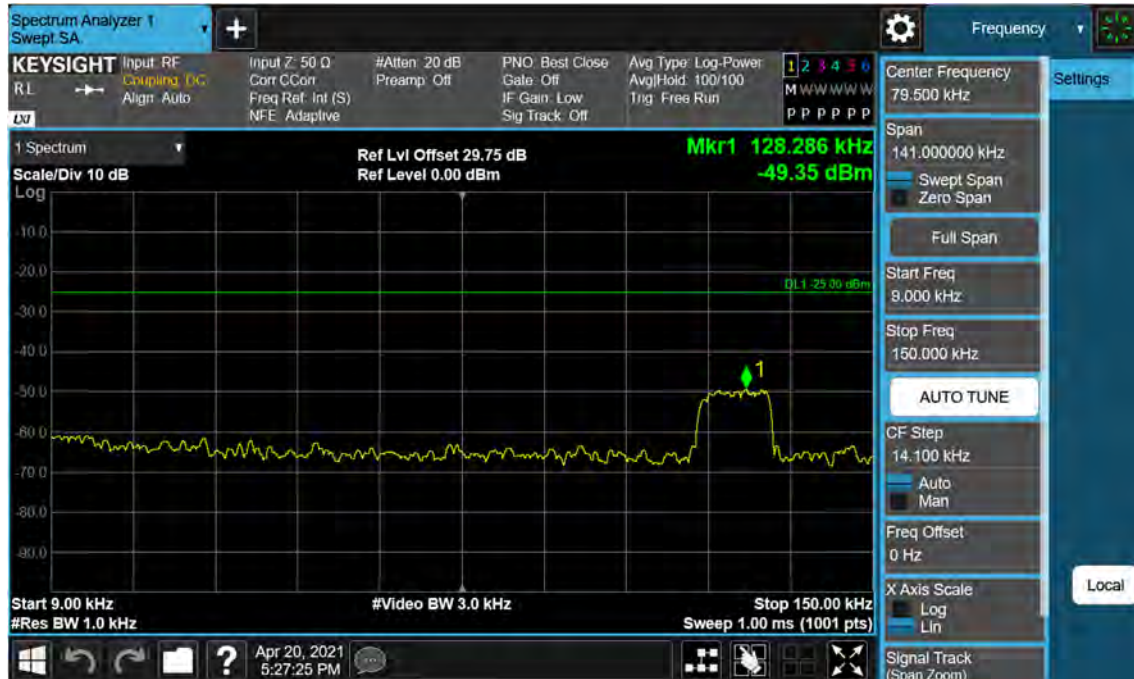
1 GHz~10 GHz



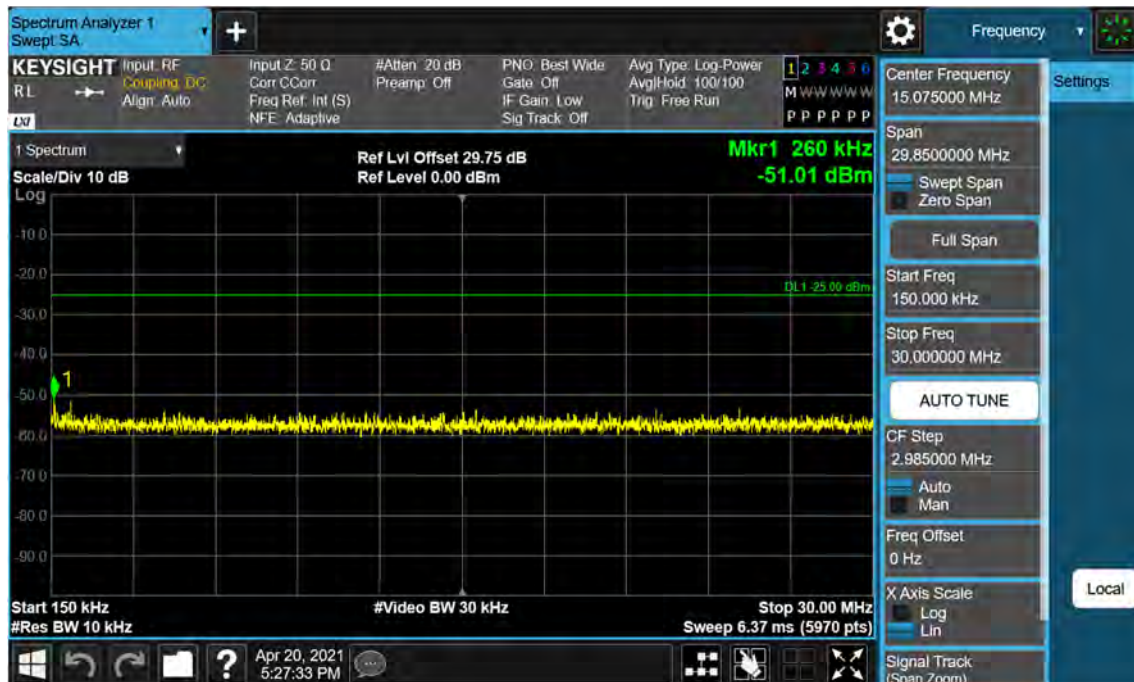
4K00F2D_FCC/ISED

(138.05 MHz)_High

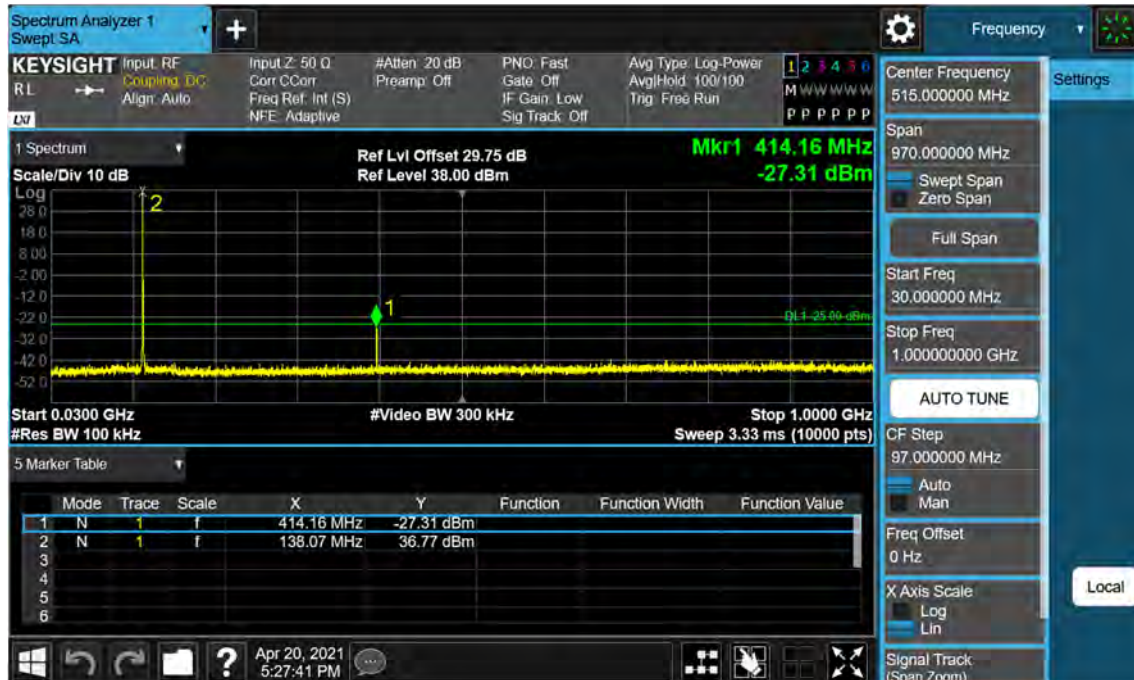
9 kHz~150 kHz



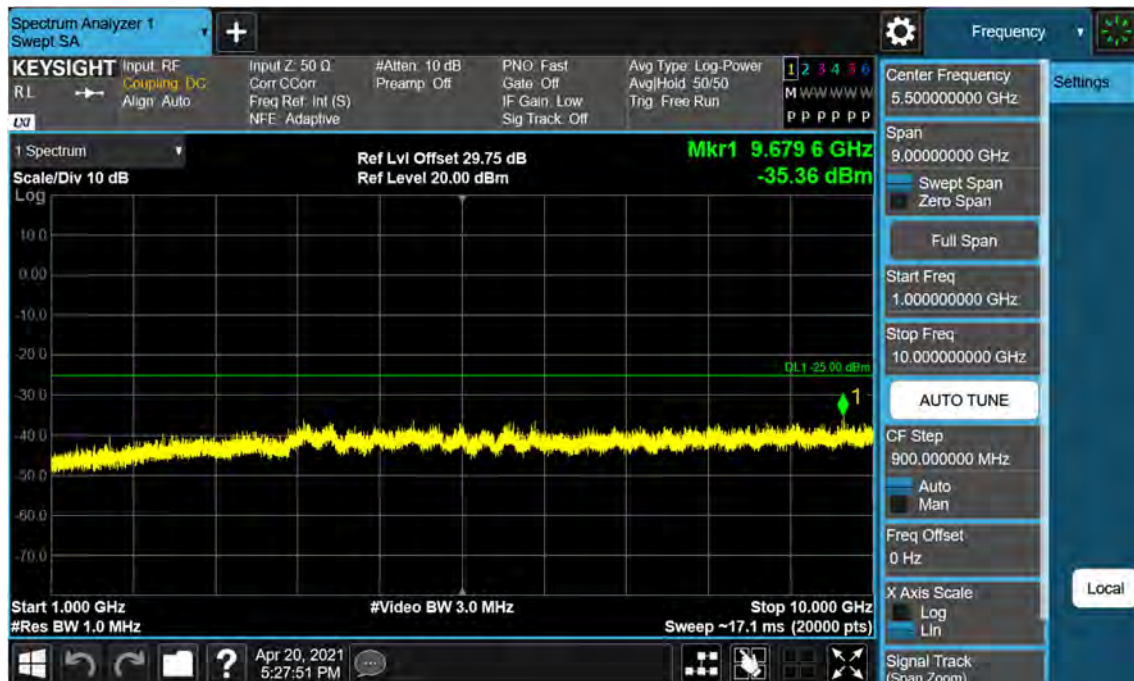
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz

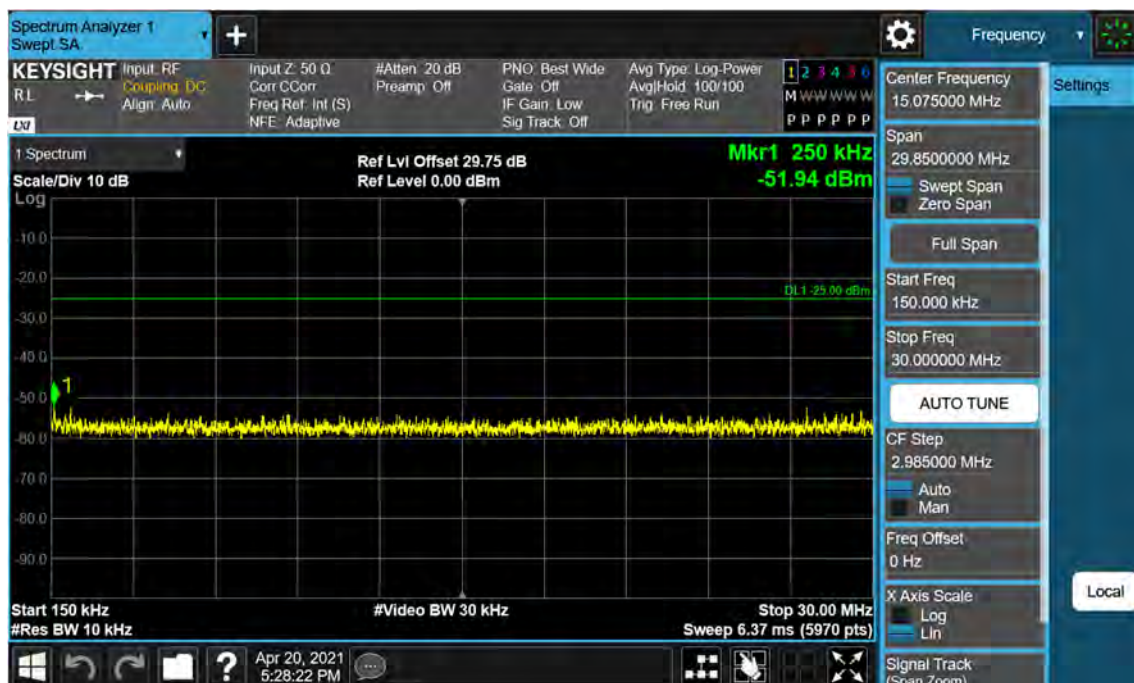


(150.05 MHz)_High

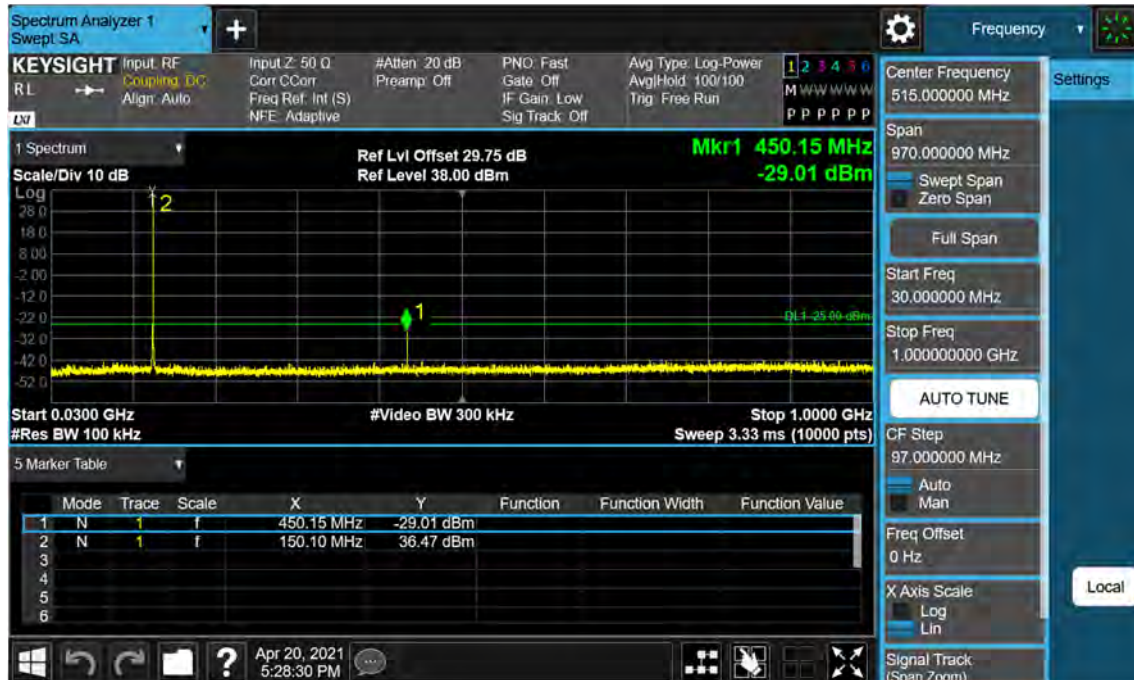
9 kHz~150 kHz



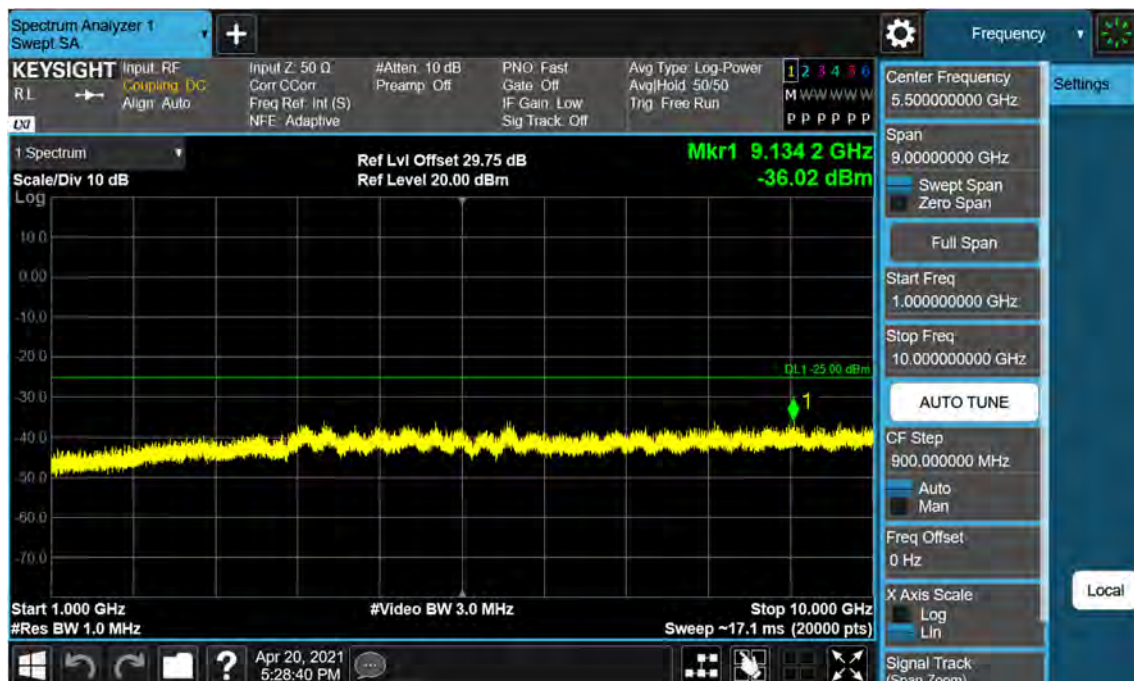
150 kHz~30 MHz



30 MHz~1 GHz

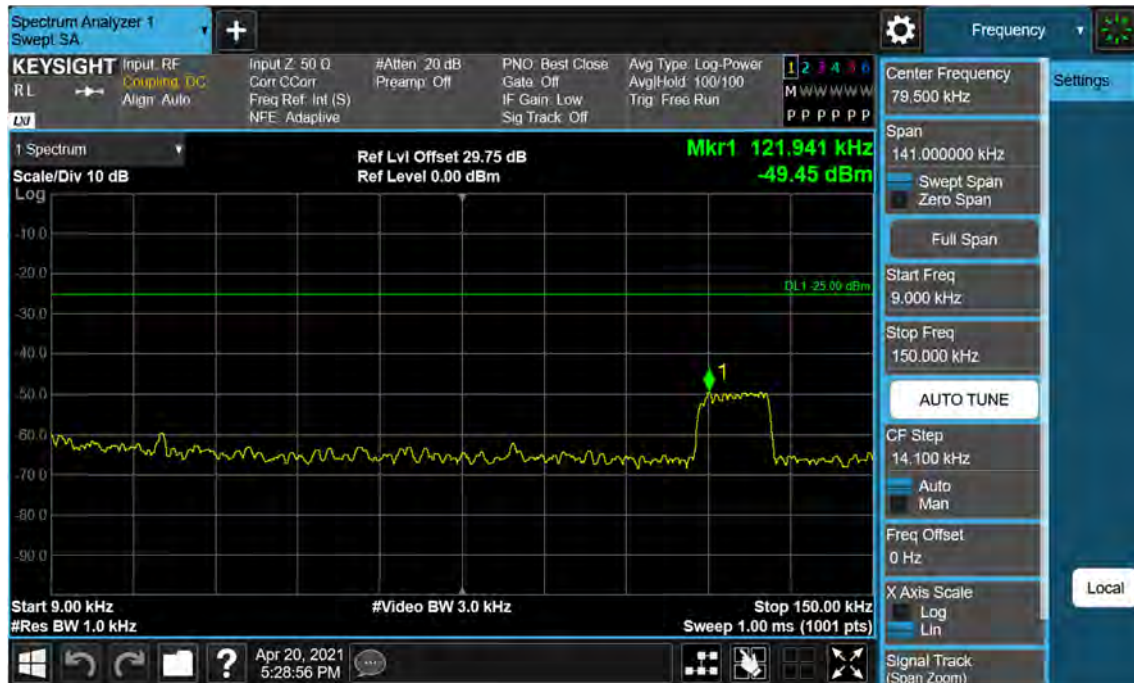


1 GHz~10 GHz

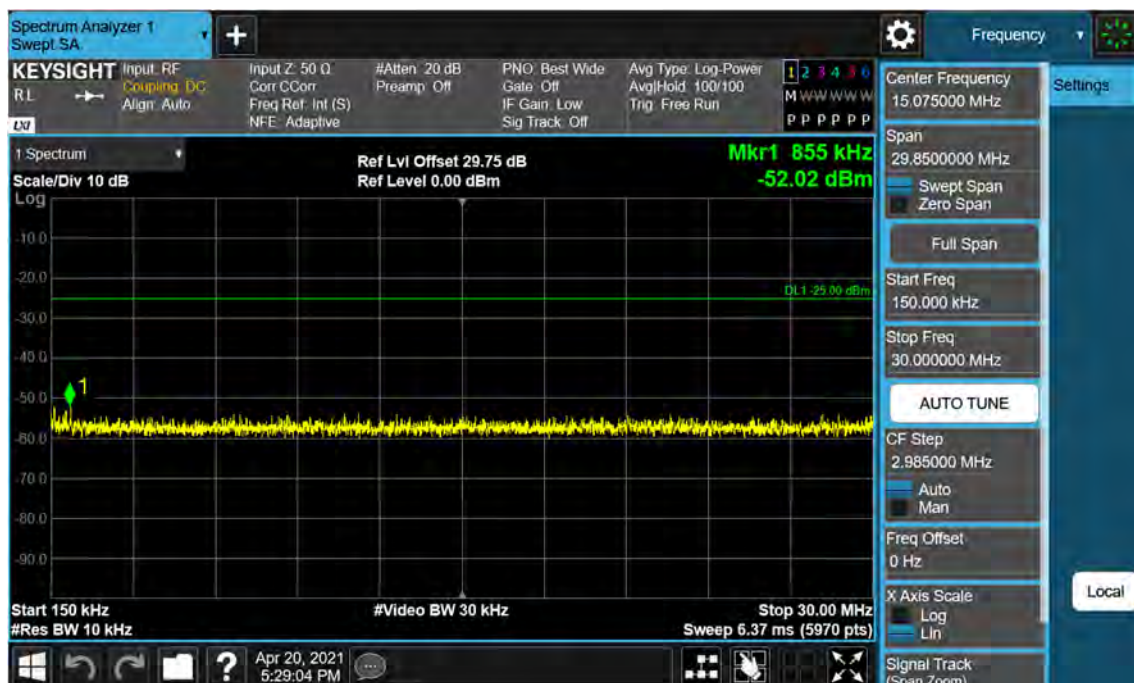


(162.05 MHz)_High

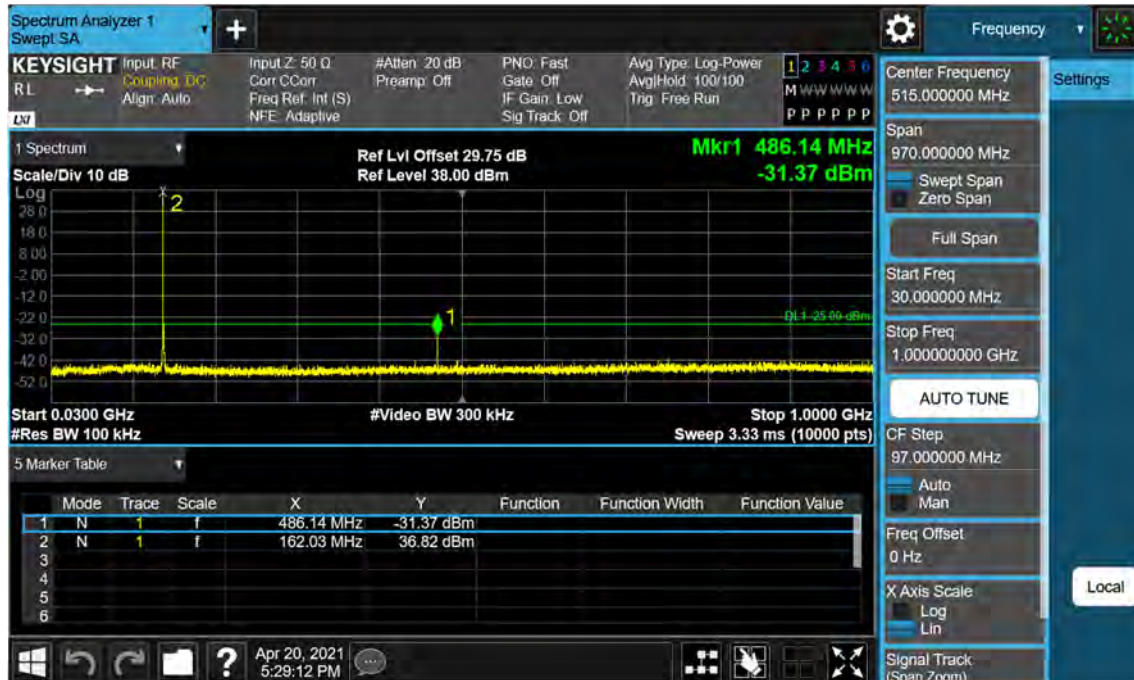
9 kHz~150 kHz



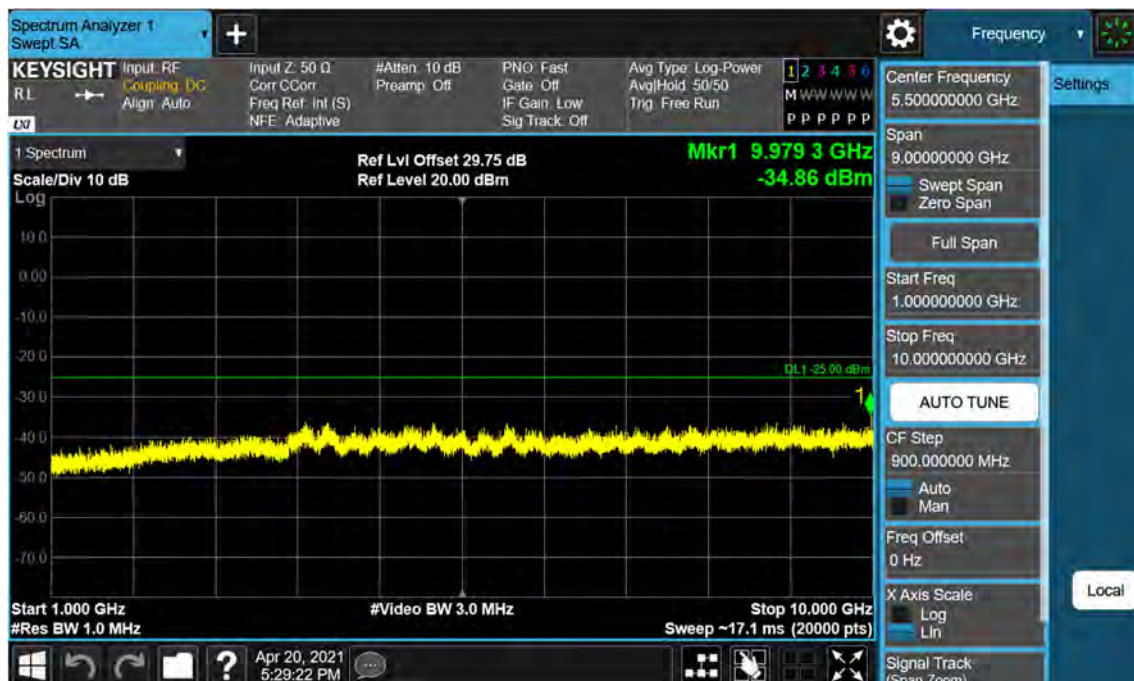
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz



(173.95 MHz)_High

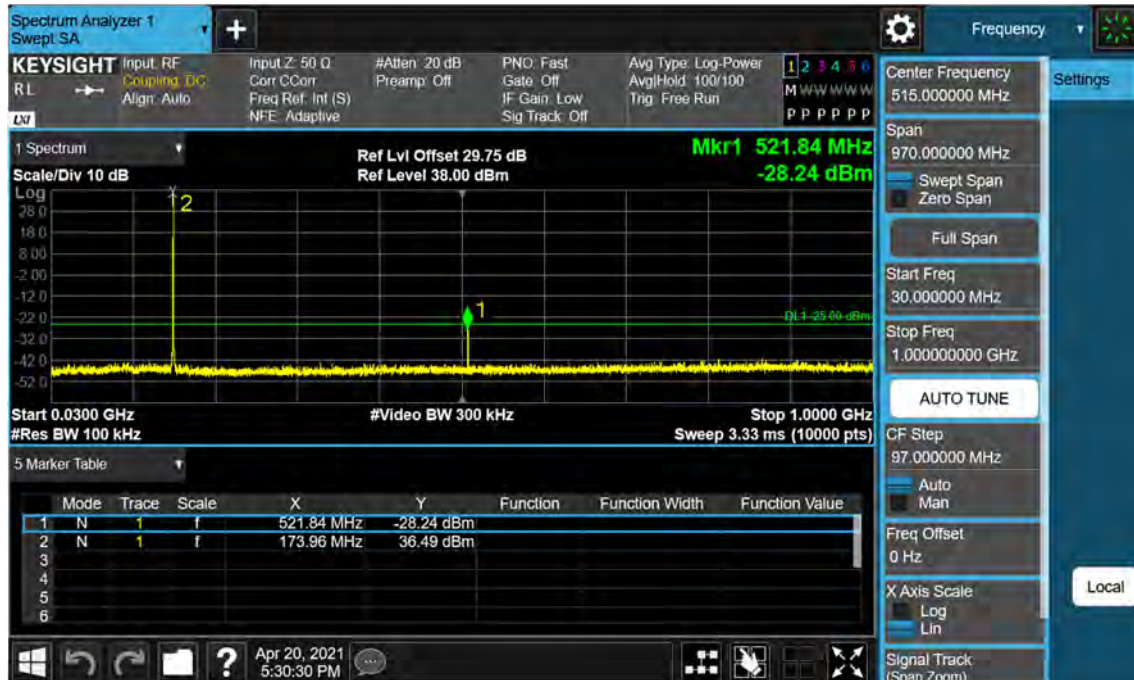
9 kHz~150 kHz



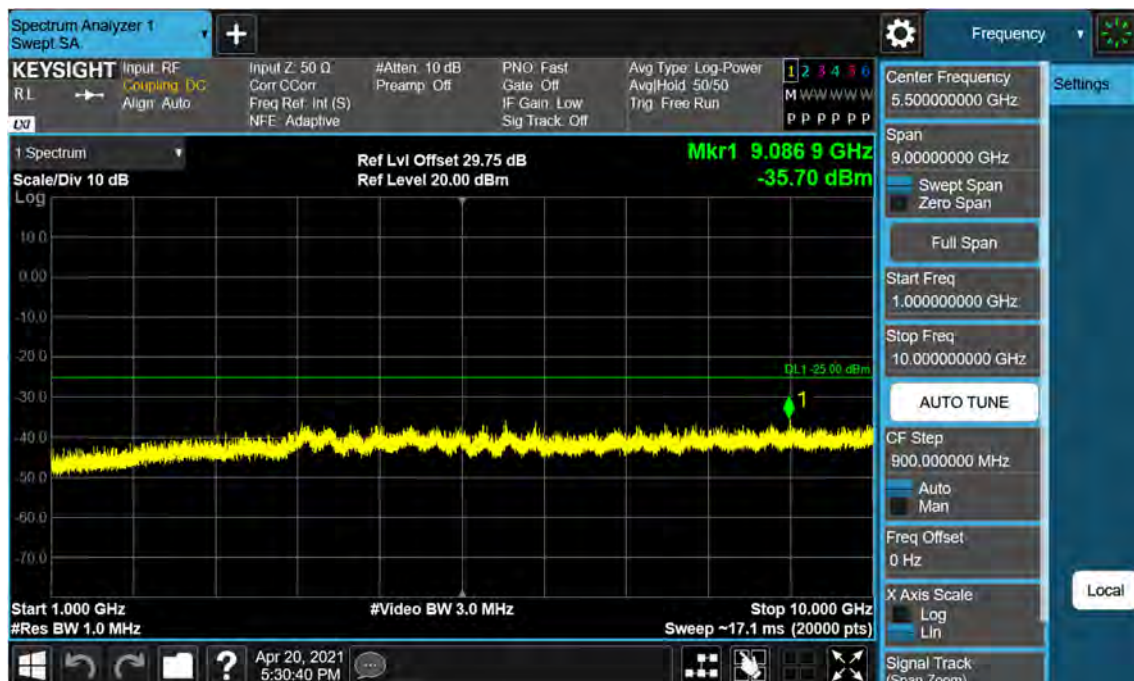
150 kHz~30 MHz



30 MHz~1 GHz



1 GHz~10 GHz



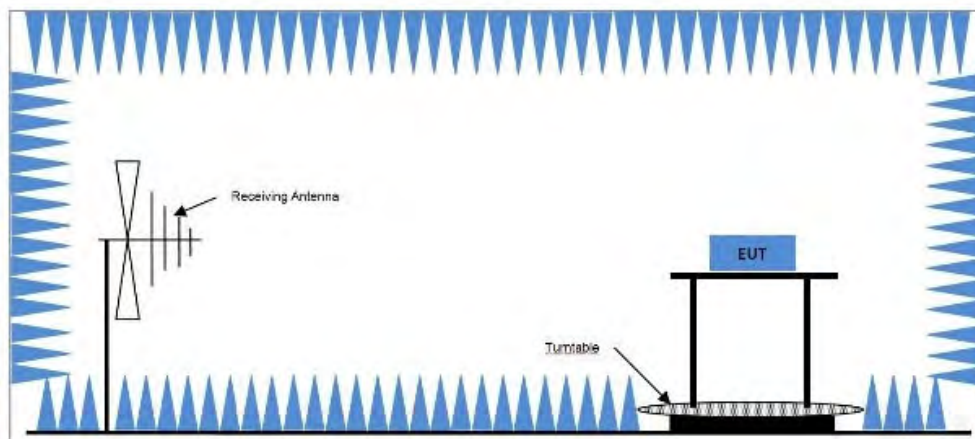
8.9 Unwanted Emissions : Radiated Spurious Emission

■ Definition

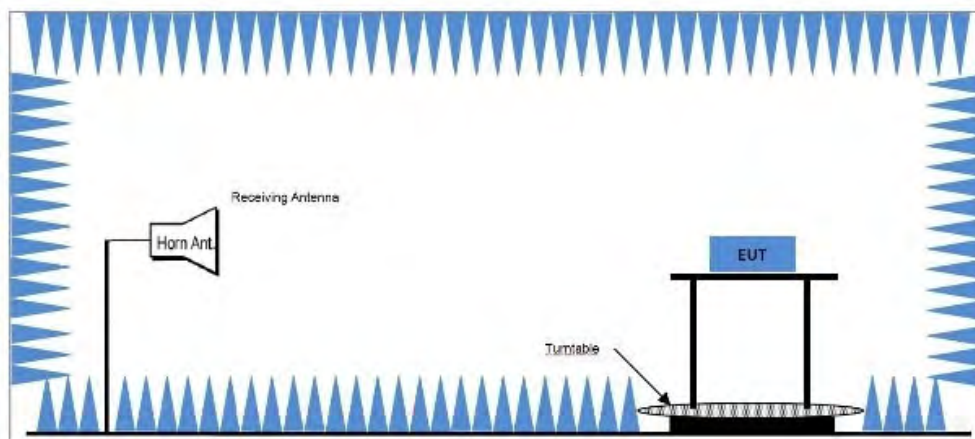
Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies that are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

■ TEST CONFIGURATION

Below 30 MHz



Above 1 GHz



TEST PROCEDURE USED

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA-603E-2016.

- a) The Resolution Bandwidth for scanning Radiated Emission below 1 GHz is 100 kHz with Video Bandwidth = 300 kHz and Resolution Bandwidth for above 1 GHz is 1 MHz with Video Bandwidth = 3 MHz.
 - b) Detector mode is peak.
 - c) In the fully-anechoic chamber, setup as illustrated above the DUT placed on the 2.5m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization.
The “Read Value” is the spectrum reading the maximum power value.
 - d) The substitution antenna is substituted for DUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be rotated vertical and horizontal polarization to find the maximum radiation power.
Record the power level of maximum radiation power from spectrum.
So, the measured Factor value = Ref level of S.G + TX cables loss – Substituted Antenna Gain.
- 4) Result(dBm) = “Reading” + Factor

TEST RESULTS

16K0F3E_FCC

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
150.05	300.10	V	-66.67	31.11	-35.56	-13.00	22.56	Peak
	450.15	H	-69.51	34.11	-35.40	-13.00	22.40	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
162.05	324.10	V	-66.12	31.39	-34.73	-13.00	21.73	Peak
	486.15	V	-72.56	34.75	-37.81	-13.00	24.81	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
173.95	347.90	V	-64.16	31.70	-32.46	-13.00	19.46	Peak
	521.85	V	-62.97	35.03	-27.94	-13.00	14.94	Peak

16K0F3E_I SED

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
138.05	276.10	V	-67.12	30.17	-36.95	-13.00	23.95	Peak
	414.15	H	-69.53	33.14	-36.39	-13.00	23.39	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
150.05	300.10	V	-66.44	31.11	-35.33	-13.00	22.33	Peak
	450.15	V	-72.89	34.11	-38.78	-13.00	25.78	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
162.05	324.10	V	-64.61	31.39	-33.22	-13.00	20.22	Peak
	486.15	V	-62.56	34.75	-27.81	-13.00	14.81	Peak
	810.25	H	-80.10	39.57	-40.54	-13.00	27.54	Peak
	1458.45	V	-70.15	34.31	-35.84	-13.00	22.84	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
173.95	347.90	V	-63.07	31.70	-31.37	-13.00	18.37	Peak
	521.85	V	-67.48	35.03	-32.45	-13.00	19.45	Peak

7K60FXD, 7K60FXE

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
138.05	276.10	H	-67.93	30.17	-37.76	-20.00	17.76	Peak
	414.15	H	-65.42	33.14	-32.28	-20.00	12.28	Peak
	1380.50	H	-79.04	34.71	-44.33	-20.00	24.33	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
150.05	300.10	V	-62.70	31.11	-31.59	-20.00	11.59	Peak
	450.15	V	-68.34	34.11	-34.23	-20.00	14.23	Peak
	1200.40	H	-69.23	34.26	-34.97	-20.00	14.97	Peak
	1500.50	H	-79.22	34.41	-44.81	-20.00	24.81	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
162.05	324.10	V	-60.44	31.39	-29.05	-20.00	9.05	Peak
	486.15	V	-60.08	34.75	-25.33	-20.00	5.33	Peak
	810.25	H	-83.27	39.57	-43.71	-20.00	23.71	Peak
	1134.35	V	-77.30	33.92	-43.38	-20.00	23.38	Peak
	1296.40	V	-68.82	34.78	-34.04	-20.00	14.04	Peak
	1620.50	H	-79.30	33.86	-45.44	-20.00	25.44	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
173.95	347.90	H	-65.53	31.70	-33.83	-20.00	13.83	Peak
	521.85	H	-63.59	35.03	-28.56	-20.00	8.56	Peak
	1739.50	V	-78.39	34.28	-44.11	-20.00	24.11	Peak

4K00F1E, 4K00F1D, 4K00F7W

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
138.05	276.10	V	-67.02	30.17	-36.85	-25.00	11.85	Peak
	414.15	H	-69.12	33.14	-35.98	-25.00	10.98	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
150.05	300.10	V	-66.44	31.11	-35.33	-25.00	10.33	Peak
	450.15	V	-72.69	34.11	-38.57	-25.00	13.57	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
162.05	324.10	V	-64.45	31.39	-33.06	-25.00	8.06	Peak
	486.15	V	-63.07	34.75	-28.32	-25.00	3.32	Peak

Test Frequency (MHz)	Measured Frequency (MHz)	Pol	Reading (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Detector
173.95	347.90	V	-62.63	31.70	-30.93	-25.00	5.93	Peak
	521.85	V	-67.10	35.03	-32.07	-25.00	7.07	Peak

8.10 Unwanted Emissions : Receiver Radiated Spurious Emission

Test Settings

ISED Rule(s)	RSS-Gen(7.0)
Chamber	Semi Anechoic Chamber
Operating conditions:	Under normal test conditions
Operation Mode:	Receive
Method of testing:	Radiated
S/A. Settings:	F < 1 GHz: RBW: 120 kHz, VBW: 300 kHz (Quasi-Peak) F > 1 GHz: RBW: 1 MHz, VBW: 1 MHz (Average)
Mode of operation:	Receive

Test Limit

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$ at 3 meters)
30 – 88	100
88 - 216	150
216 – 960	200
Above 960	500

Test Result

Frequency Range : 30 MHz ~ 1 GHz

Frequency	Reading	Ant. factor+Cable loss- Amp Gain	Ant. POL	Total	Limit	Margi n
MHz	dB μV	dB /m	(H/V)	dB $\mu\text{V}/\text{m}$	dB $\mu\text{V}/\text{m}$	dB

No Peak Found

Frequency Range : Above 1 GHz

Frequency	Reading	Ant. factor+Cable loss- Amp Gain	Ant. POL	Total	Limit	Margi n
MHz	dB μV	dB /m	(H/V)	dB $\mu\text{V}/\text{m}$	dB $\mu\text{V}/\text{m}$	dB

No Peak Found

8.11 Necessary Bandwidth Calculations

Modulation : 16K0F3E (Authorized Bandwidth 20 kHz)	
Maximum Modulation (M), kHz	3
Maximum Deviation (D), kHz	5
Constant Factor (K)	1
Necessary Bandwidth (BN), kHz	$(2 \times M) + (2 \times D \times K) = 16.0$
Modulation : 11K0F3E (Authorized Bandwidth 11.25 kHz)	
Maximum Modulation (M), kHz	3
Maximum Deviation (D), kHz	2.5
Constant Factor (K)	1
Necessary Bandwidth (BN), kHz	$(2 \times M) + (2 \times D \times K) = 11.0$
Modulation : 8K30F1E, 8K30F1D, 8K30F7W (4Level FSK / 9600bps, Authorized Bandwidth 11.25 kHz)	
Digital information rate (R), bps	9600
Maximum Deviation (D), kHz	3.391
Signaling States (S)	4
Numerical factor (K)	0.516
Necessary Bandwidth (BN), kHz	$(R / \log_2 S) + 2DK = 8.3$
Modulation : 4K00F1E, 4K00F1D, 4K00F7W (4Level FSK / 4800bps, Authorized Bandwidth 6 kHz)	
Digital information rate (R), bps	4800
Maximum Deviation (D), kHz	1.55
Signaling States (S)	4
Numerical factor (K)	0.516
Necessary Bandwidth (BN), kHz	$(R / \log_2 S) + 2DK = 4.0$
Modulation : 7K60FXD, 7K60FXE	
Digital information rate (R), bps	9600
Maximum Deviation (D), kHz	3.024
Signaling States (S)	4
Numerical factor (K)	0.463
Necessary Bandwidth (BN), kHz	$(R / \log_2 S) + 2DK = 7.6$
Modulation : 4K00F2D (CWID, Authorized Bandwidth 6 kHz)	
Maximum Modulation (M), kHz	0.8
Maximum Deviation (D), kHz	1.2
Numerical factor (K)	1
Necessary Bandwidth (BN), kHz	$(2 \times M) + (2 \times D \times K) = 4.0$

9. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Calibration Due	Serial No.
Agilent	N9020A/ Signal Analyzer	2020-11-17	Annual	2021-11-17	MY50200093
Agilent	N9030B / Signal Analyzer	2020-06-04	Annual	2021-06-04	MY55480167
Hewlett Packard	E3632A / DC Power Supply	2020-06-12	Annual	2021-06-12	KR75303960
Agilent	N1911A/Power Meter	2021-04-08	Annual	2022-04-08	MY45100523
Agilent	N1921A /POWER SENSOR	2021-04-08	Annual	2022-04-08	MY57820067
TEKTRONIX	RSA3408A/SPECTRUM ANALYZER	2020-08-21	Annual	2021-08-21	B010198
Hewlett Packard	8903B/Audio Analyzer	2020-09-18	Annual	2021-09-18	3413A13913
Hewlett Packard	8901B/Modulation Analyzer	2020-09-16	Annual	2021-09-16	3438A05231
Weinschel Associates	WA93-30-33 /30 dB Attenuator	2020-04-01	Annual	2021-04-01	0138
Hewlett Packard	8493C/ATTENUATOR(20dB)	2020-06-04	Annual	2021-06-04	17280
EAGLE	230NFM/Tuneable Notch Filter	2020-10-12	Annual	2021-10-12	H00564-9
EAGLE	230NFM/Tuneable Notch Filter	2020-10-12	Annual	2021-10-12	H00564-10
ESPEC	SU-642 / Chamber	2021-03-15	Annual	2022-03-15	0093008124
CERNEX	CBLU1183540B-01/AMP	2020-06-04	Annual	2021-06-04	26822
Wainwright	WHKX10-900-1000-15000/H.P.F	2020-07-13	Annual	2021-07-13	5
Rohde & Schwarz	Loop Antenna	2020-05-18	Biennial	2022-05-18	1513-175
Schwarzbeck	VULB9160/ Bilog Antenna	2021-03-03	Biennial	2023-03-03	3150
Schwarzbeck	VULB9160/ Bilog Antenna	2020-08-19	Biennial	2022-08-19	9160-3368
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	2019-08-29	Biennial	2021-08-29	147
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	2019-09-25	Biennial	2021-09-25	9120D-1298
REOHDE&SCHWARZ	FSV40-N /Spectrum Analyzer	2020-09-22	Annual	2021-09-22	101068-SZ
Inn-co GmbH	DE 3260/Turn table	N/A	N/A	N/A	N/A
EMERSON&CUMING	10m×5m×5m/ Full anechoic chamber	N/A	N/A	N/A	N/A

10. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2105-FI004-P