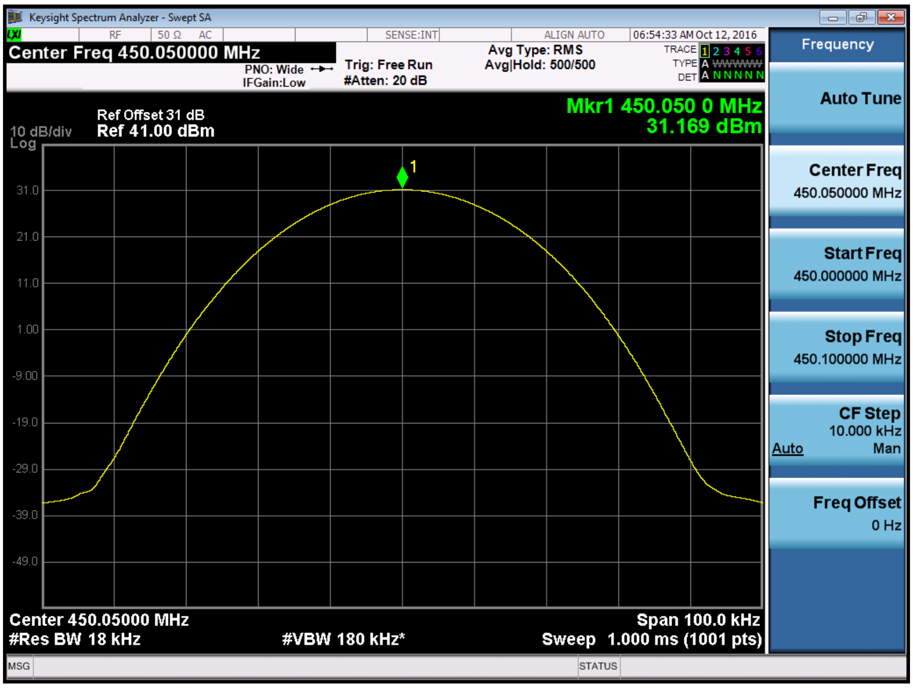
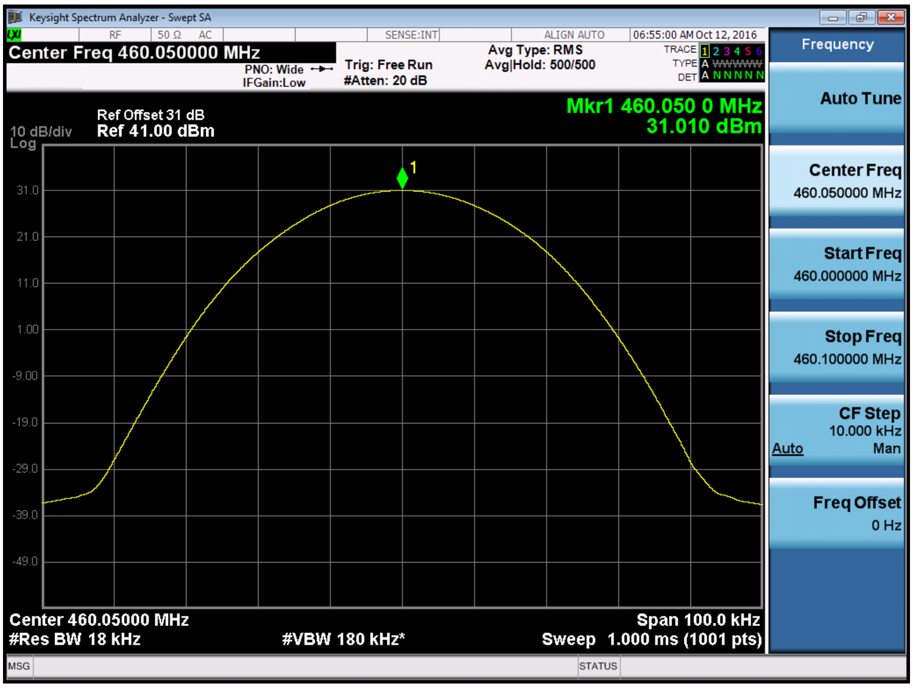
▣ TEST RESULTS

Fundamental

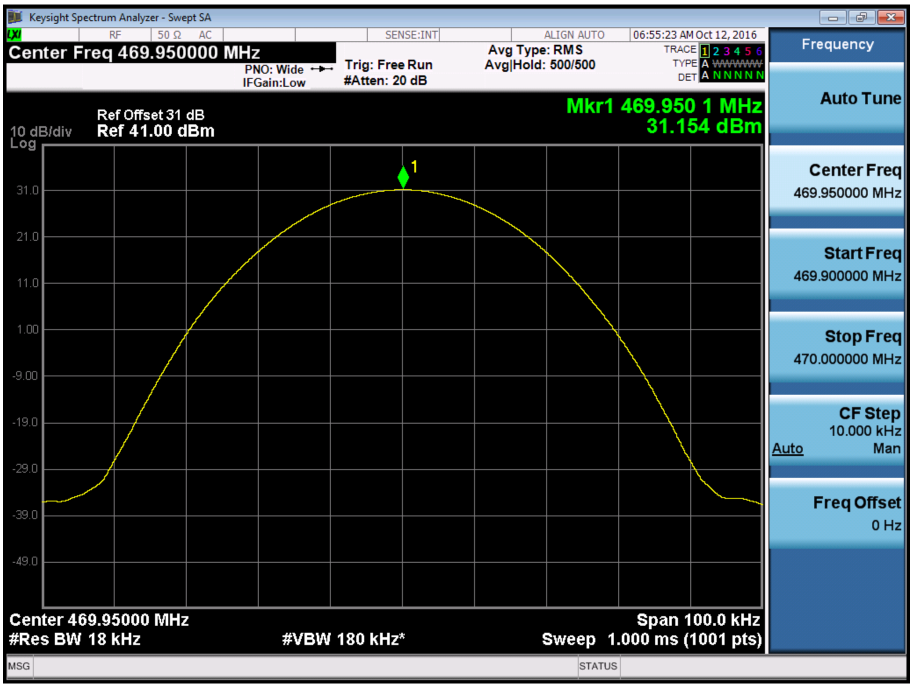
HIGH POWER_16K0F3E _450.05 MHz_Low



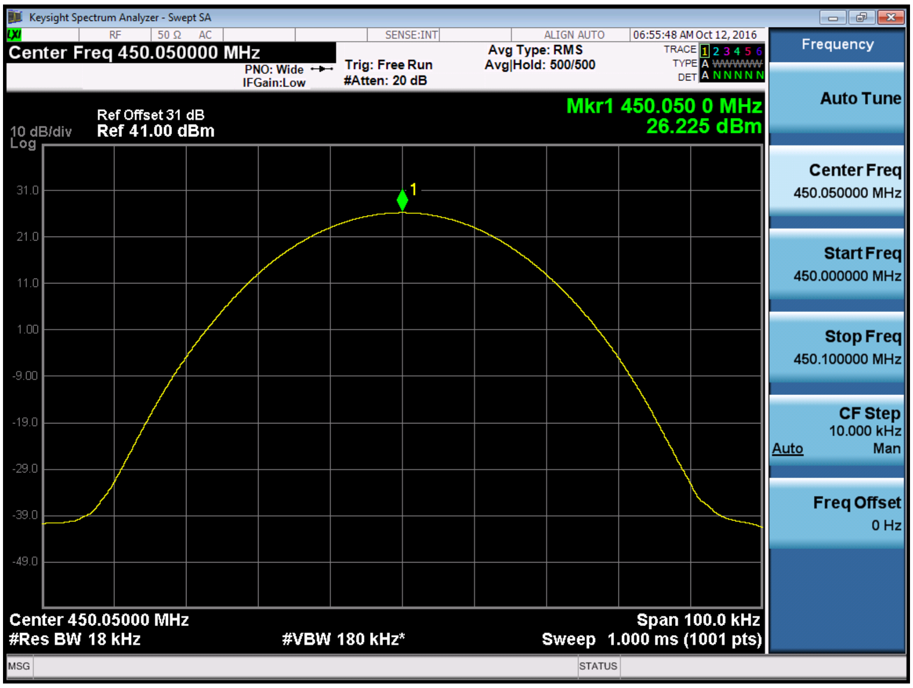
HIGH POWER_16K0F3E _460.05 MHz_Middle



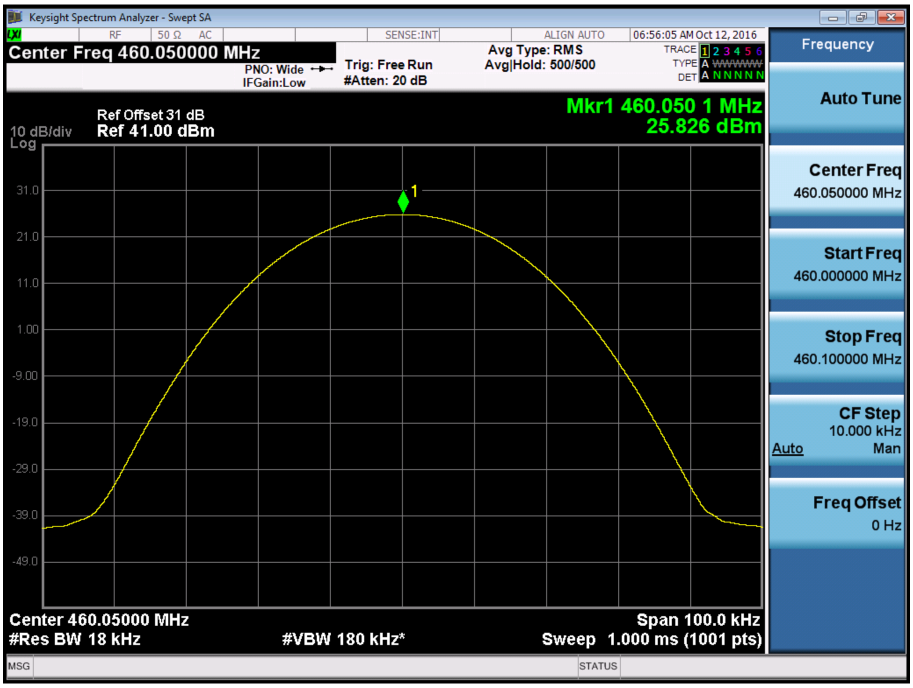
HIGH POWER_16K0F3E _469.95 MHz_High



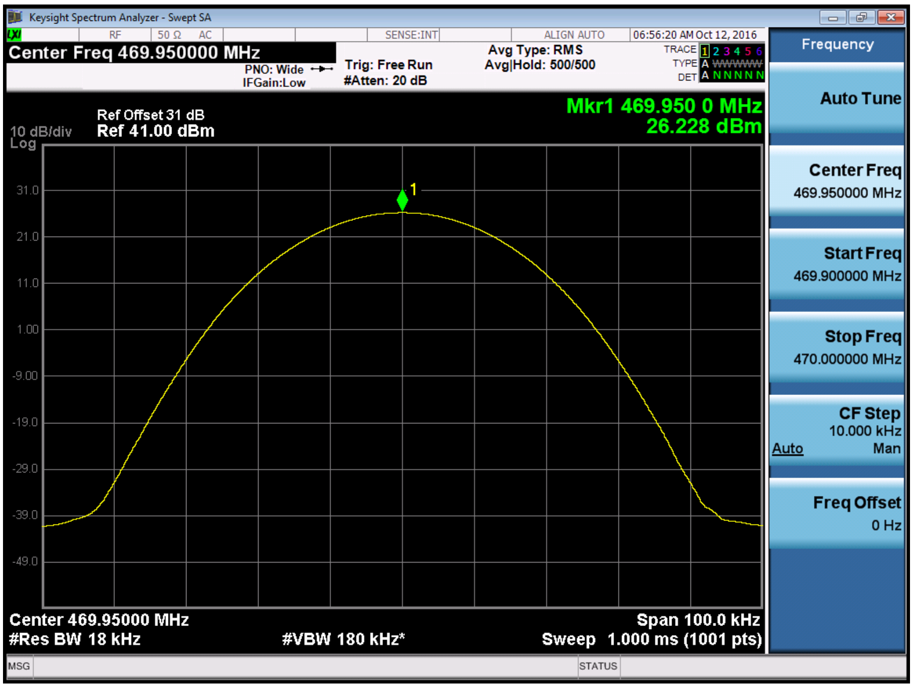
LOW POWER_16K0F3E _450.05 MHz_Low



LOW POWER_16K0F3E _460.05 MHz_Middle

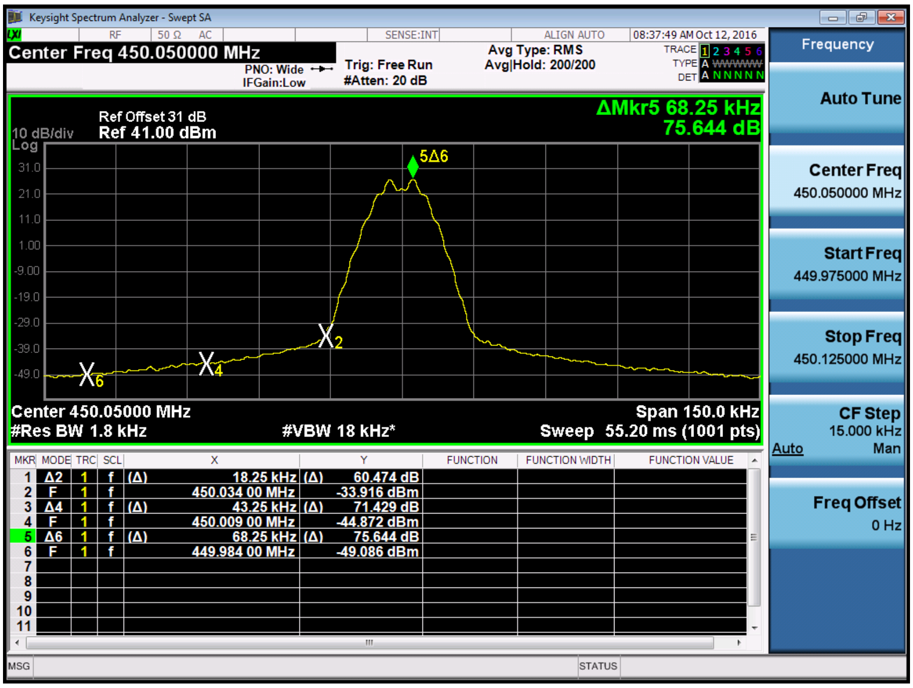


LOW POWER_16K0F3E _469.95 MHz_High

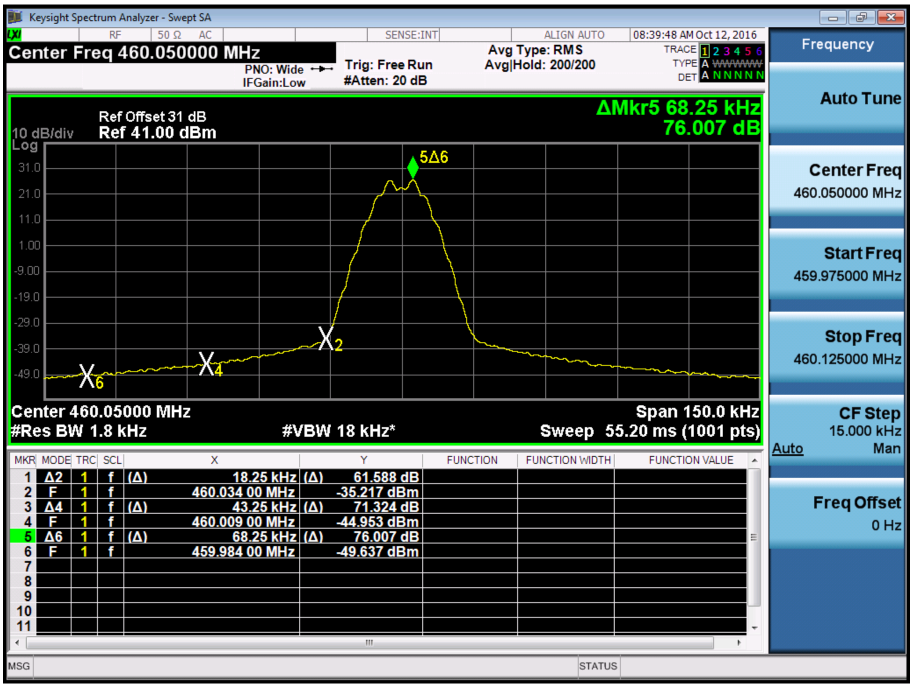


Delta Level(Lower)

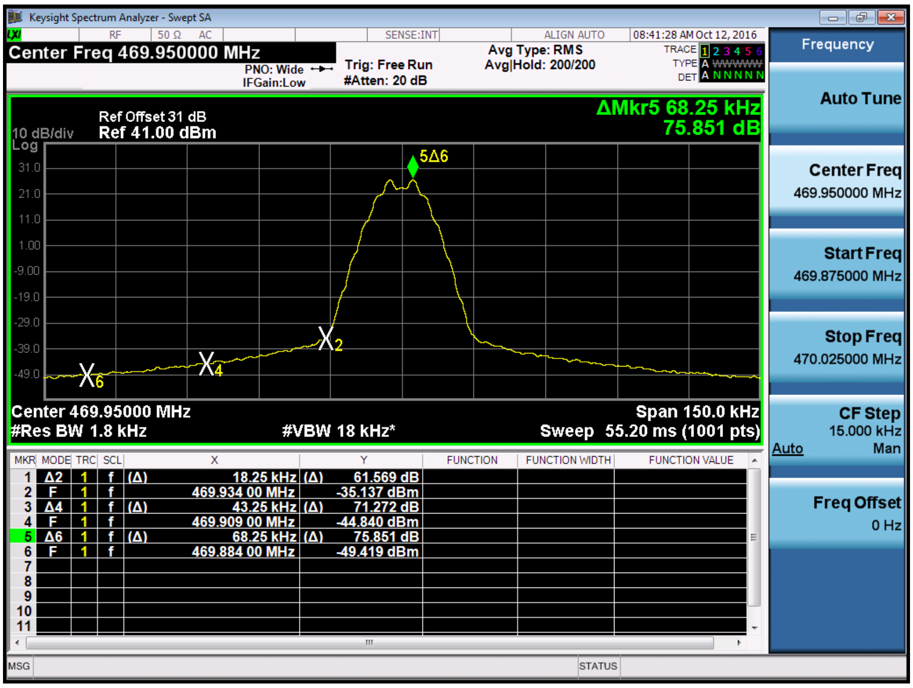
HIGH POWER_16K0F3E _450.05 MHz_Low



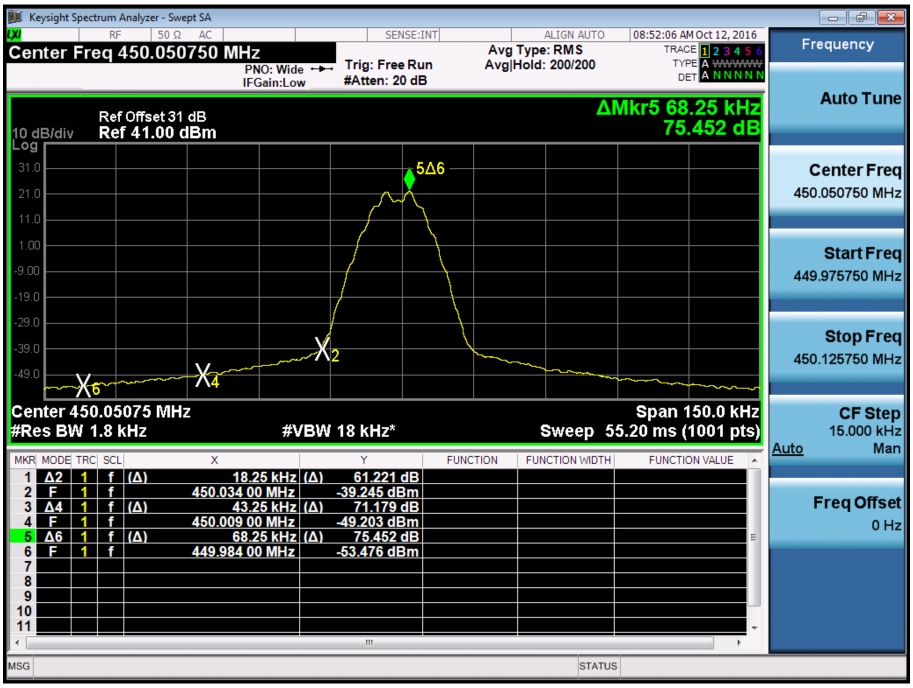
HIGH POWER_16K0F3E _460.05 MHz_Middle



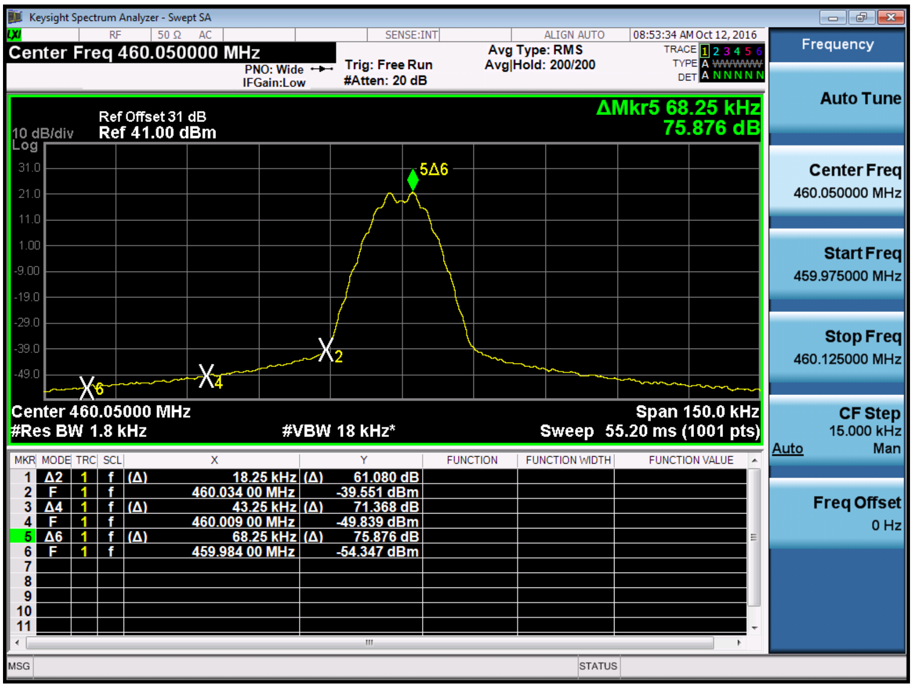
HIGH POWER_16K0F3E _469.95 MHz_High



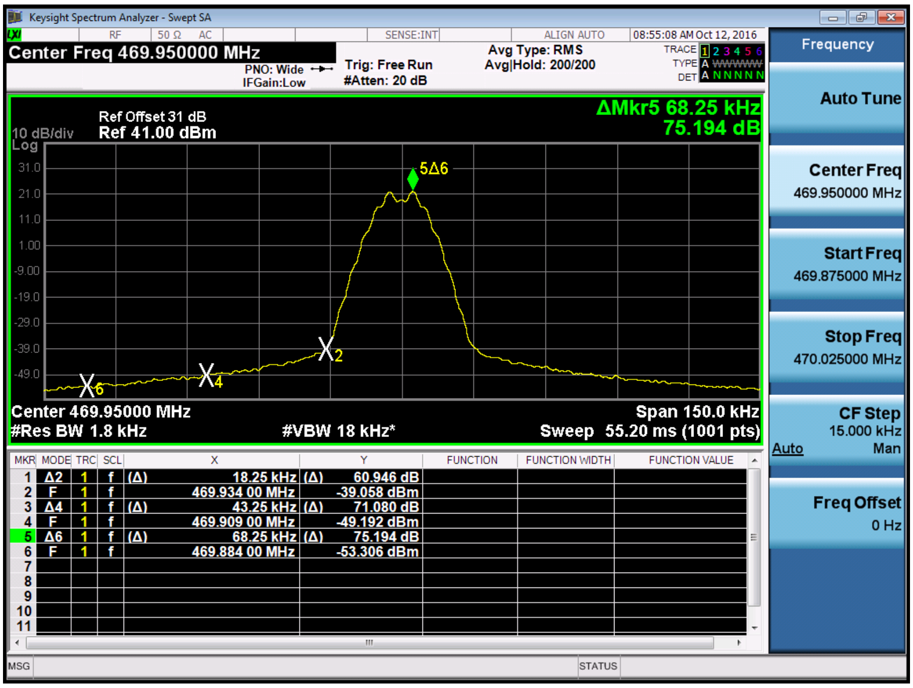
LOW POWER_16K0F3E _450.05 MHz_Low



LOW POWER_16K0F3E _460.05 MHz_Middle



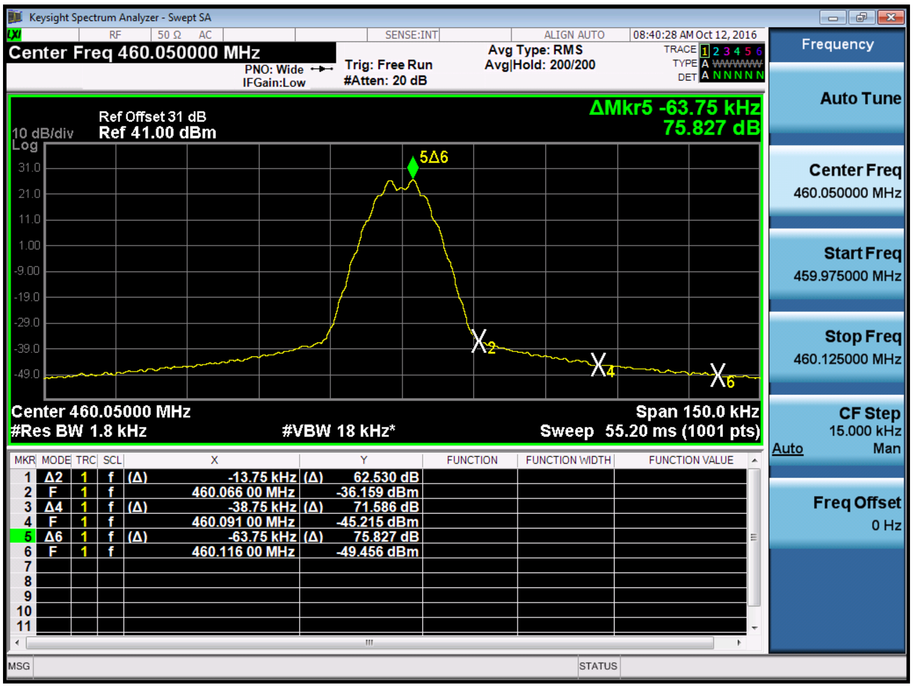
LOW POWER_16K0F3E _469.95 MHz_High



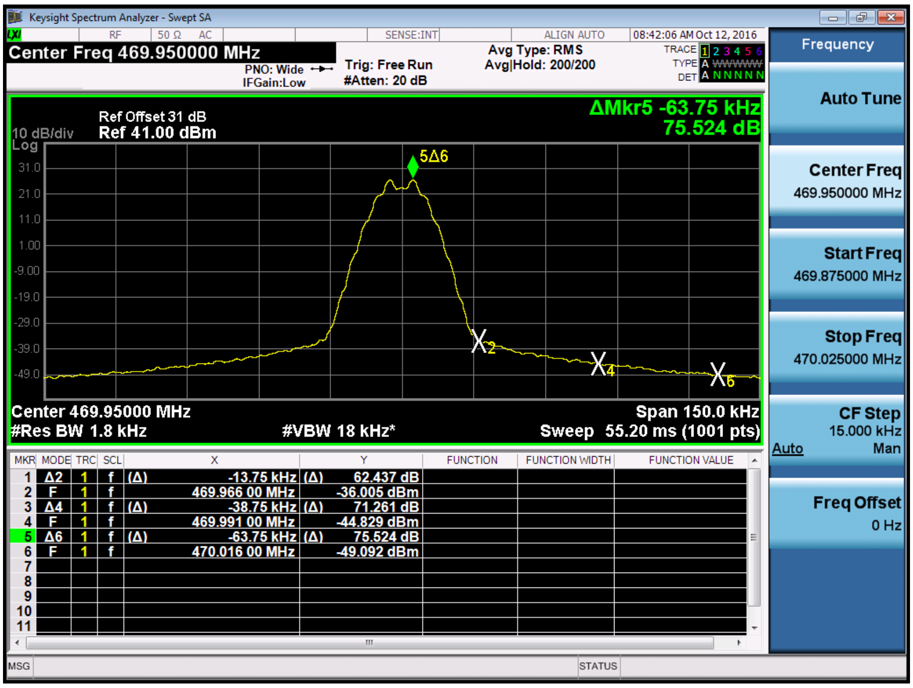
Delta Level(Upper)

HIGH POWER_16K0F3E _450.05 MHz_Low

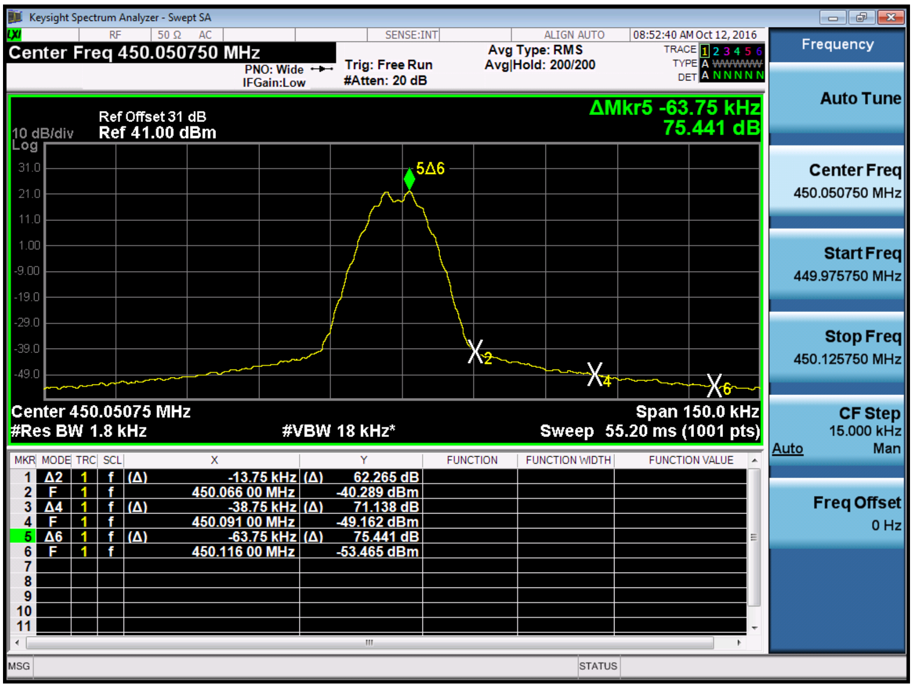
HIGH POWER_16K0F3E _460.05 MHz_Middle



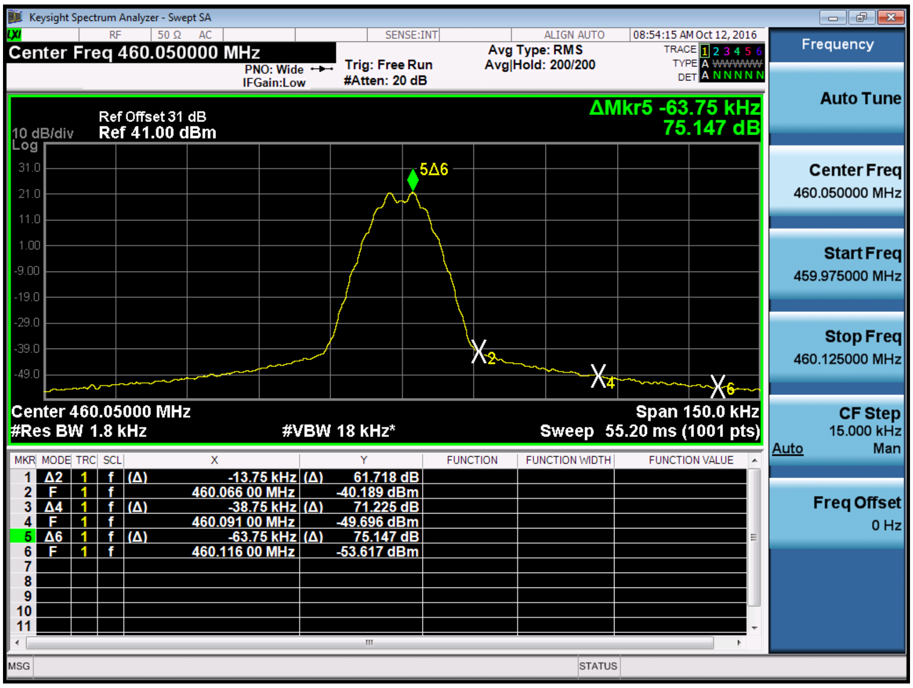
HIGH POWER_16K0F3E _469.95 MHz_High



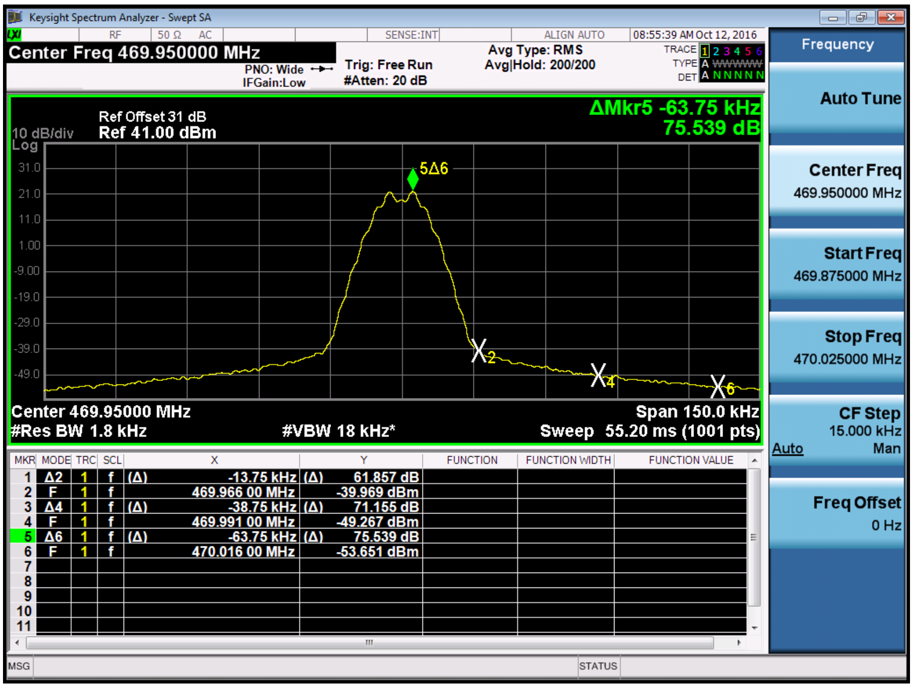
LOW POWER_16K0F3E _450.05 MHz_Low



LOW POWER_16K0F3E _460.05 MHz_Middle



LOW POWER_16K0F3E _469.95 MHz_High



8.8 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-D 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 timebase 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 timebase reference to the right for observing the transmitter turn-off transient.

l) Unkey the transmitter.

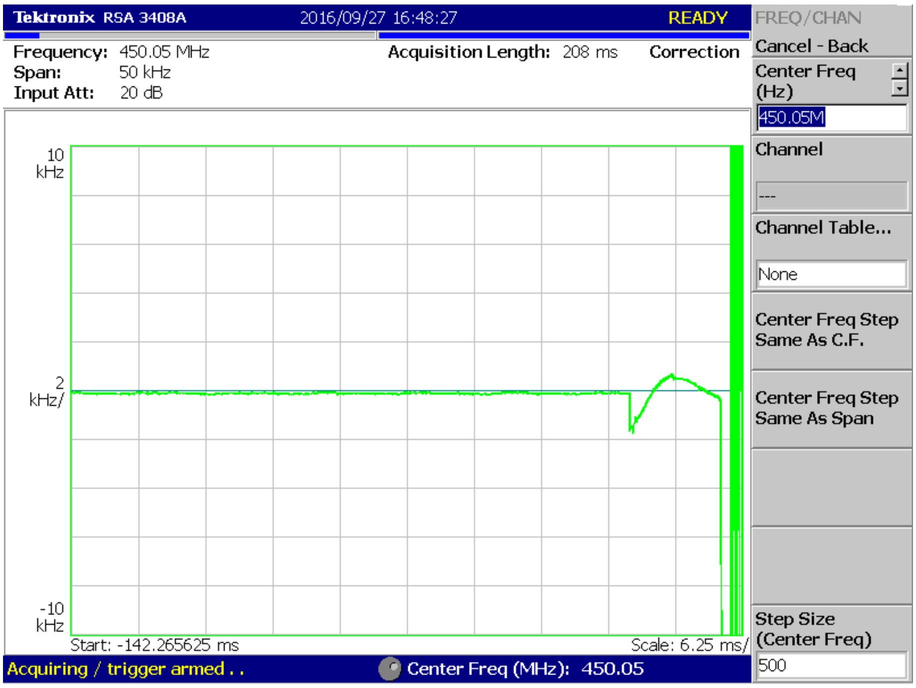
m) Observe the stored display of the modulation domain analyzer. The signal trace shall be maintained within the allowable limits during the period t_3.

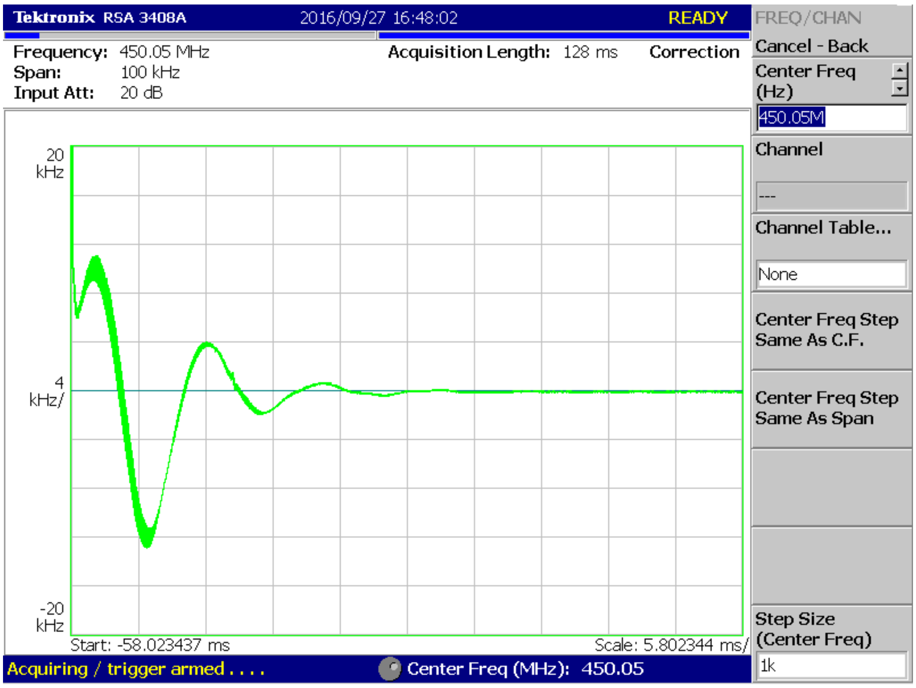
*Note :Digital test is no provision to configure the device with un-modulated carrier, hence test was performed with digital modulation on.

▣ TEST RESULTS

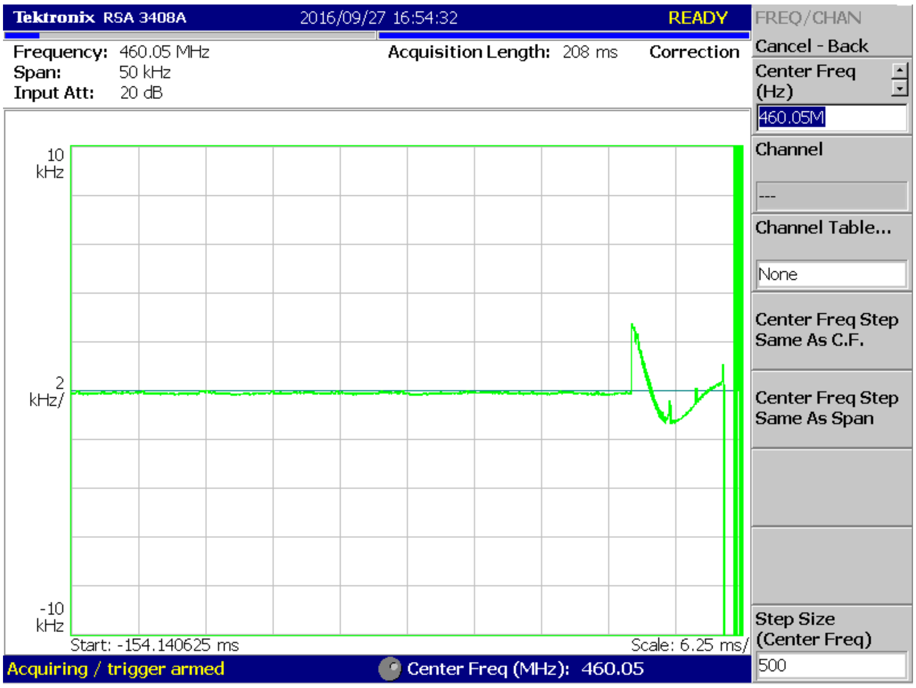
11K0F3E

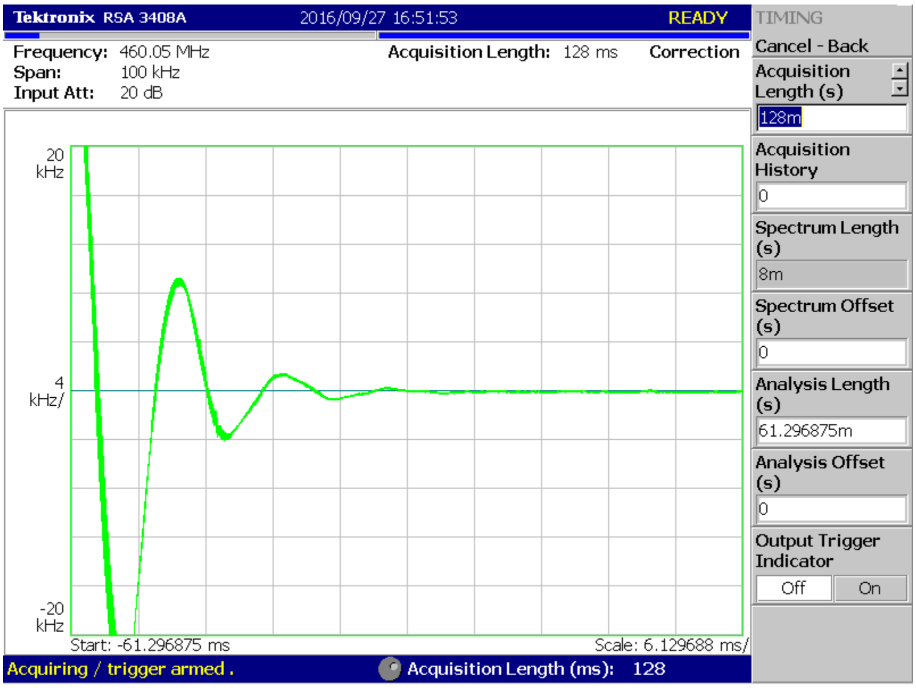
HIGH POWER_11K0F3E _450.05 MHz_Low



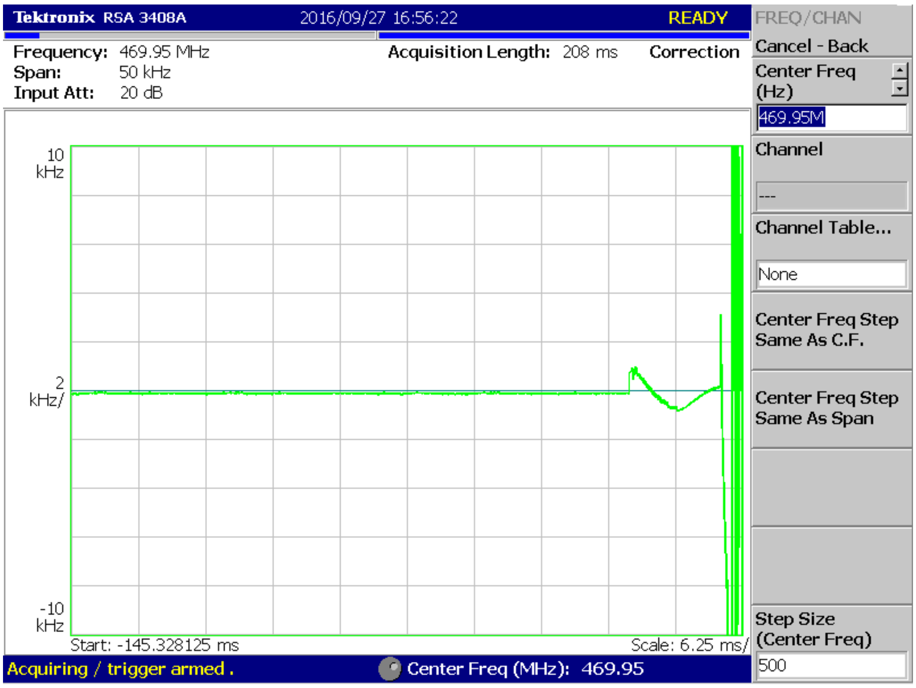


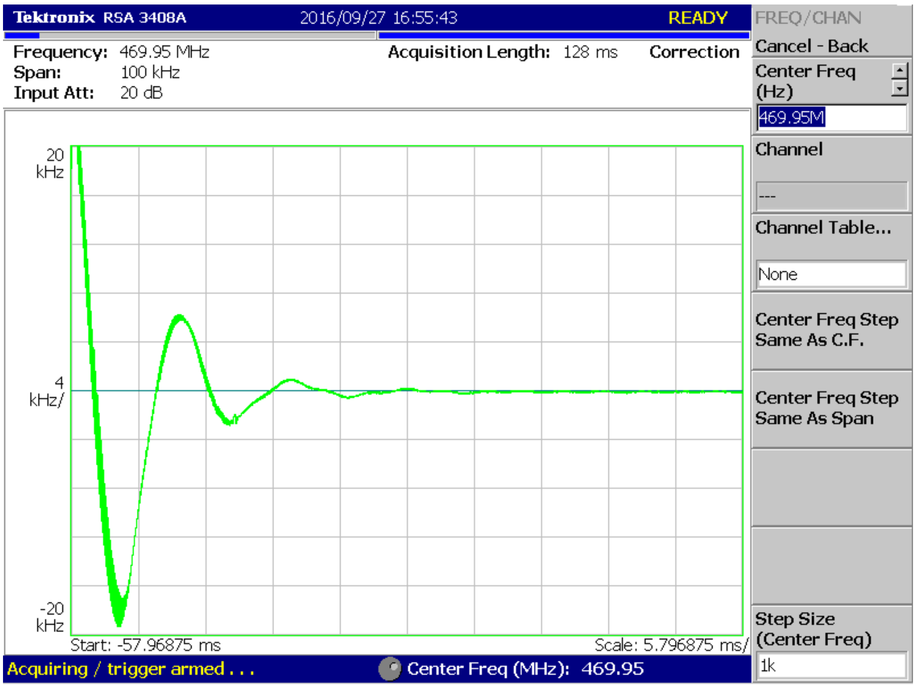
HIGH POWER_11K0F3E _460.05 MHz_Middle



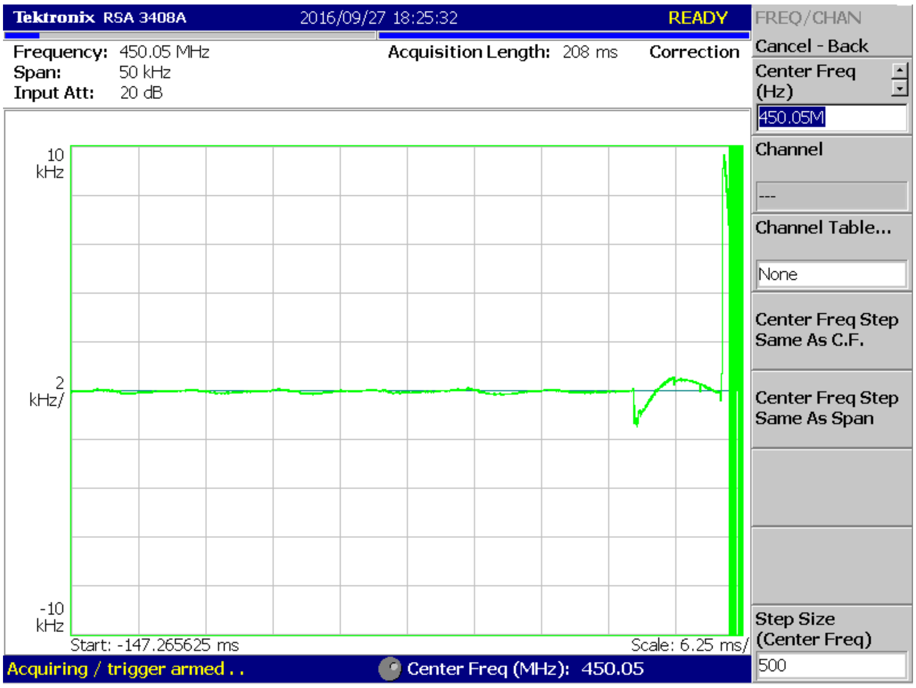


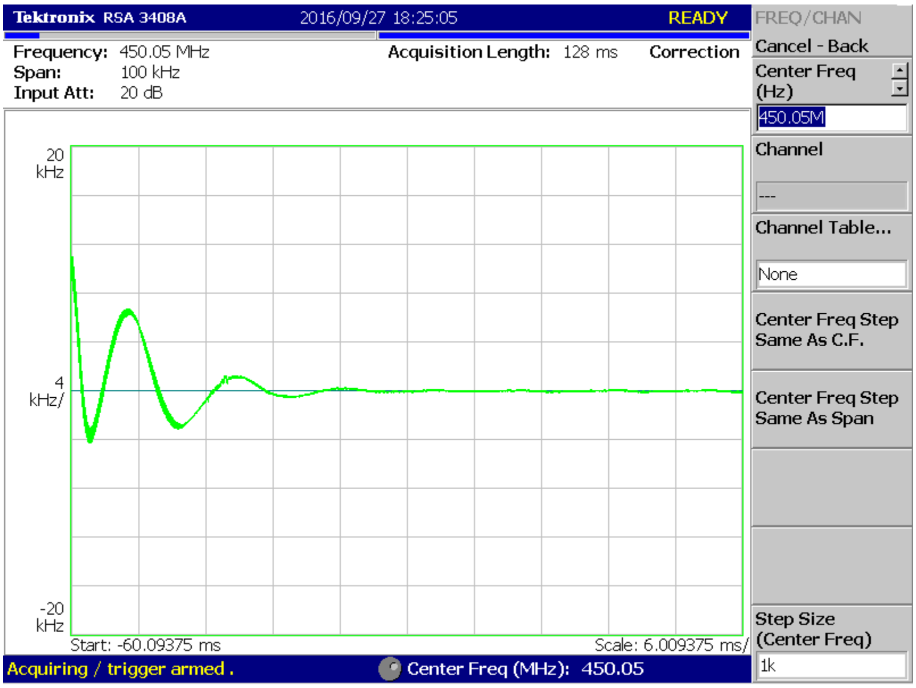
HIGH POWER_11K0F3E _469.95 MHz_High



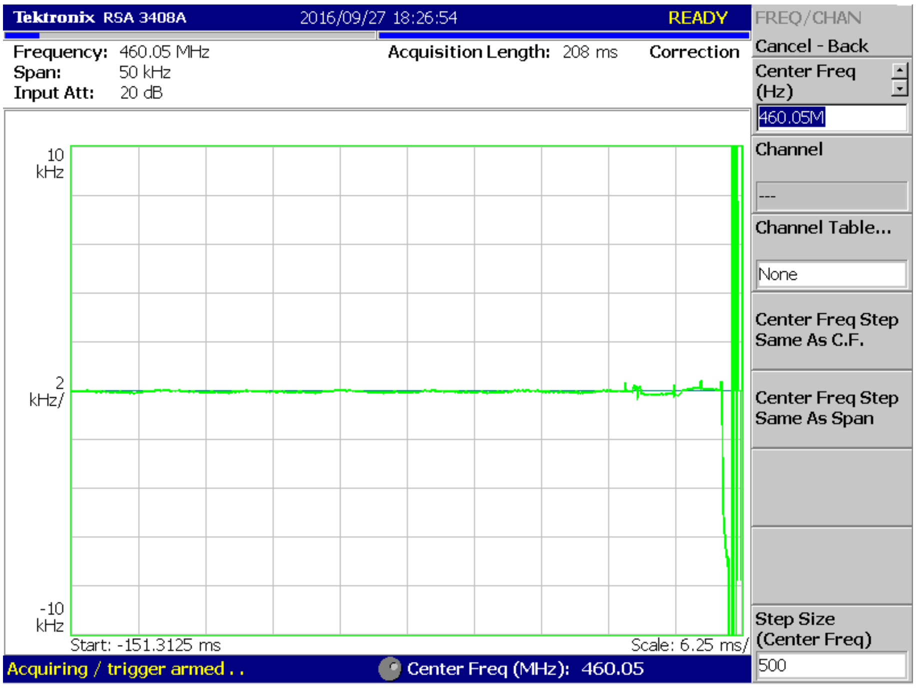


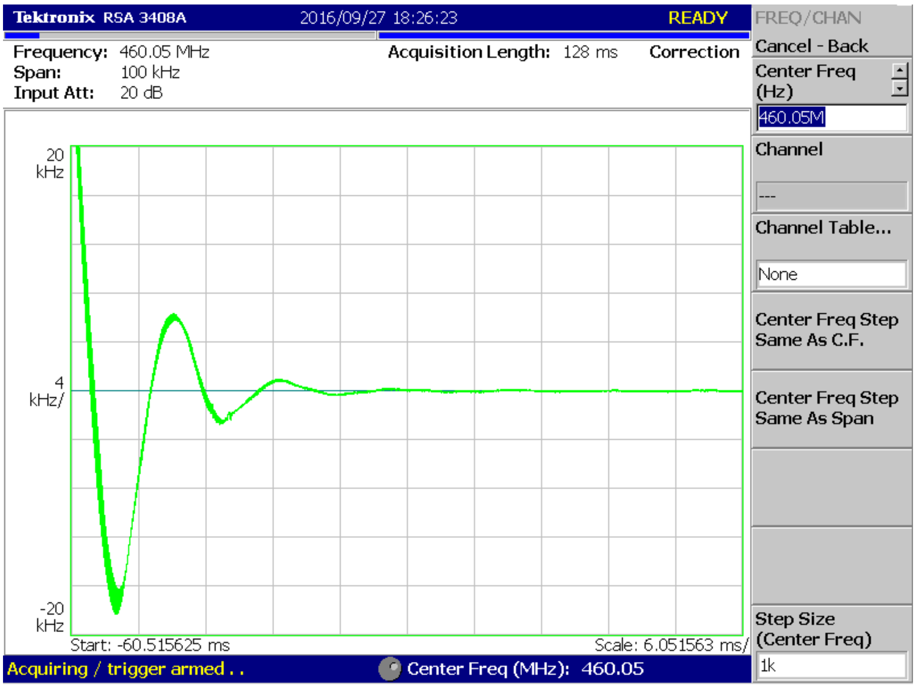
LOW POWER_11K0F3E _450.05 MHz_Low



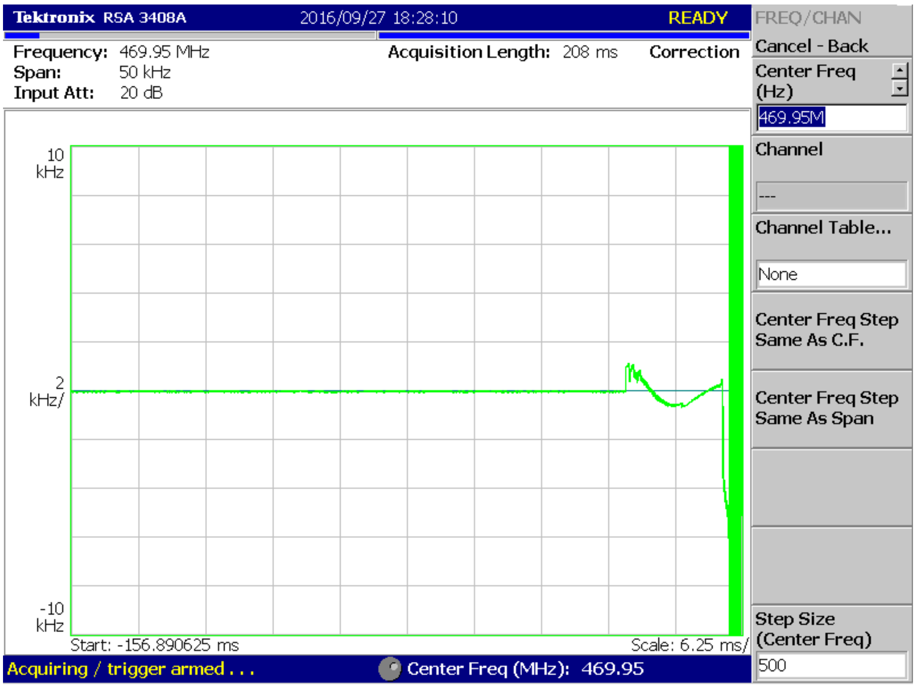


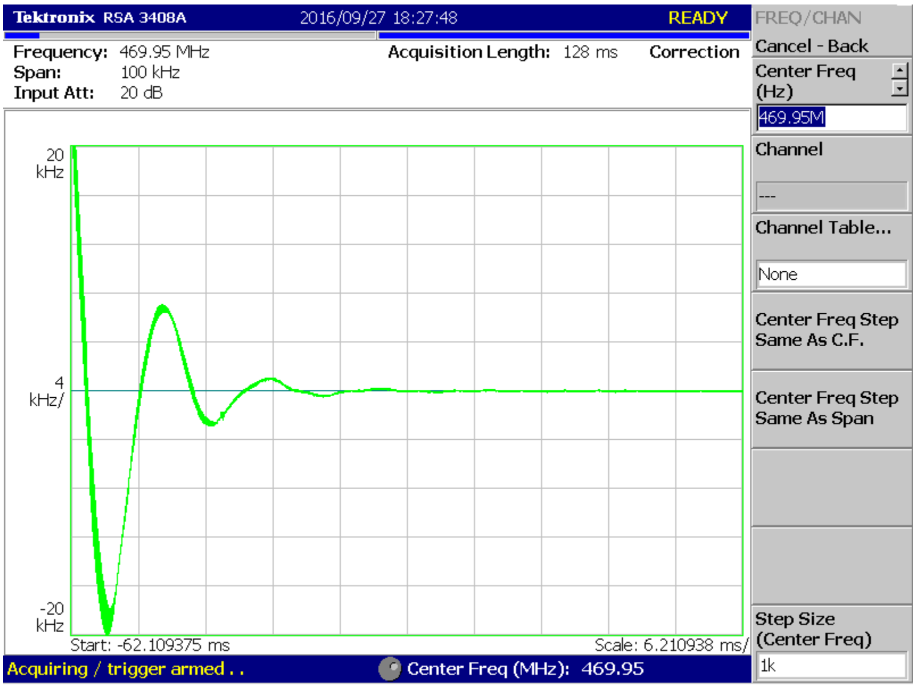
LOW POWER_11K0F3E _460.05 MHz_Middle





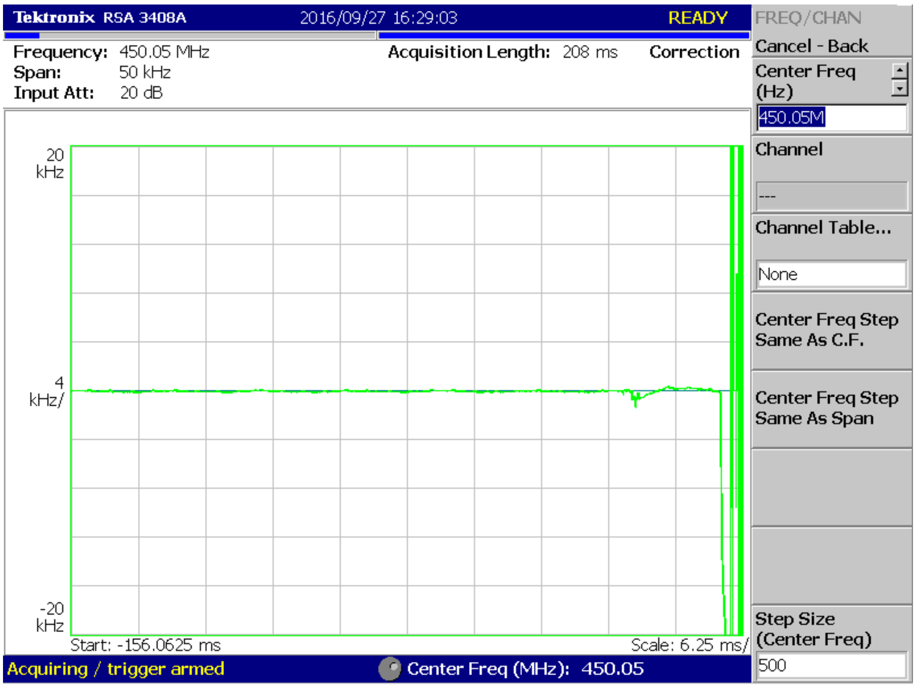
LOW POWER_11K0F3E _469.95 MHz_High

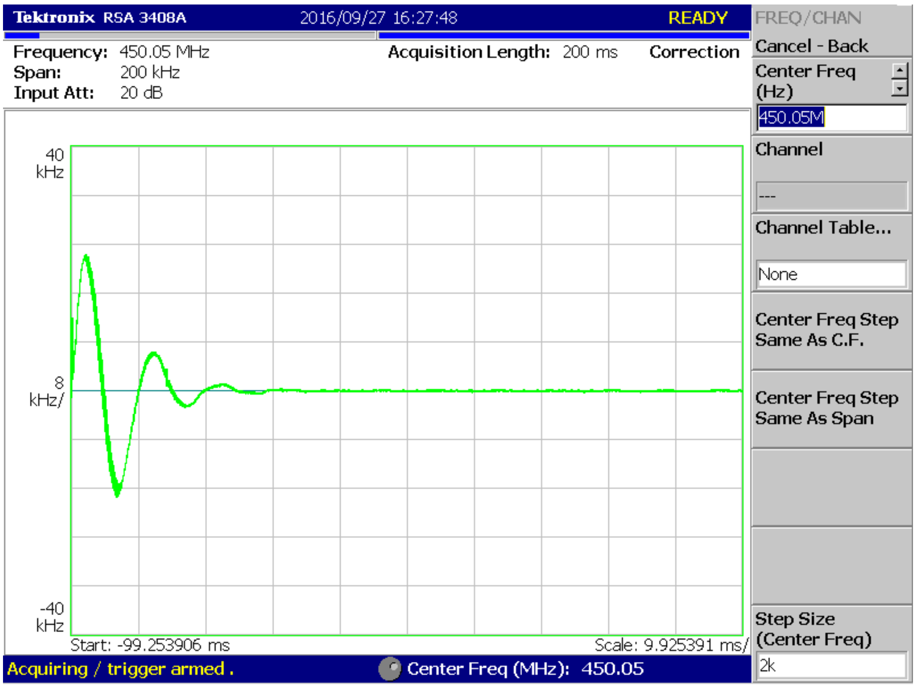




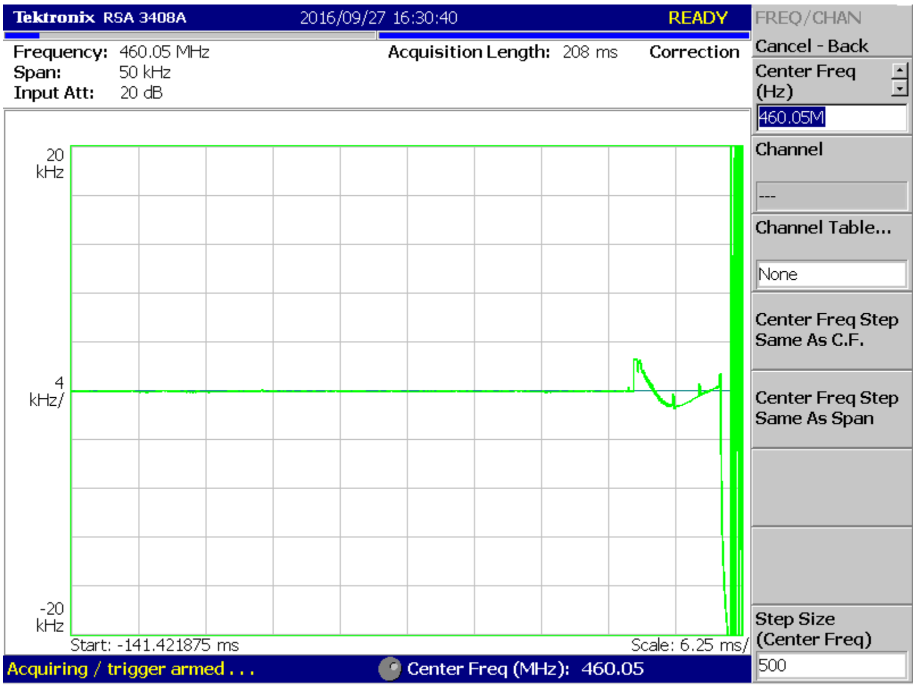
16K0F3E

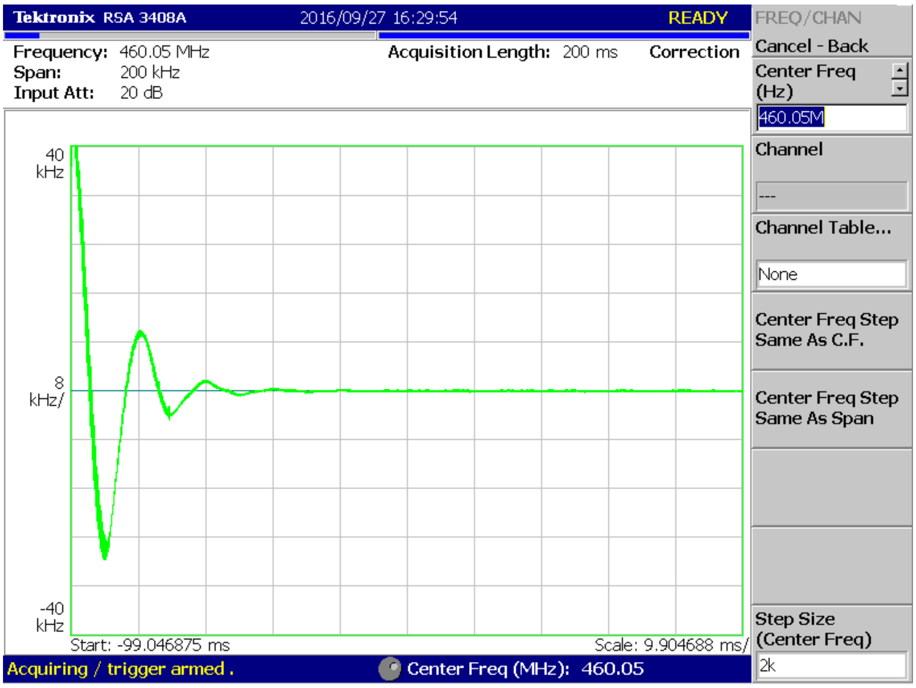
HIGH POWER_16K0F3E _450.05 MHz_Low



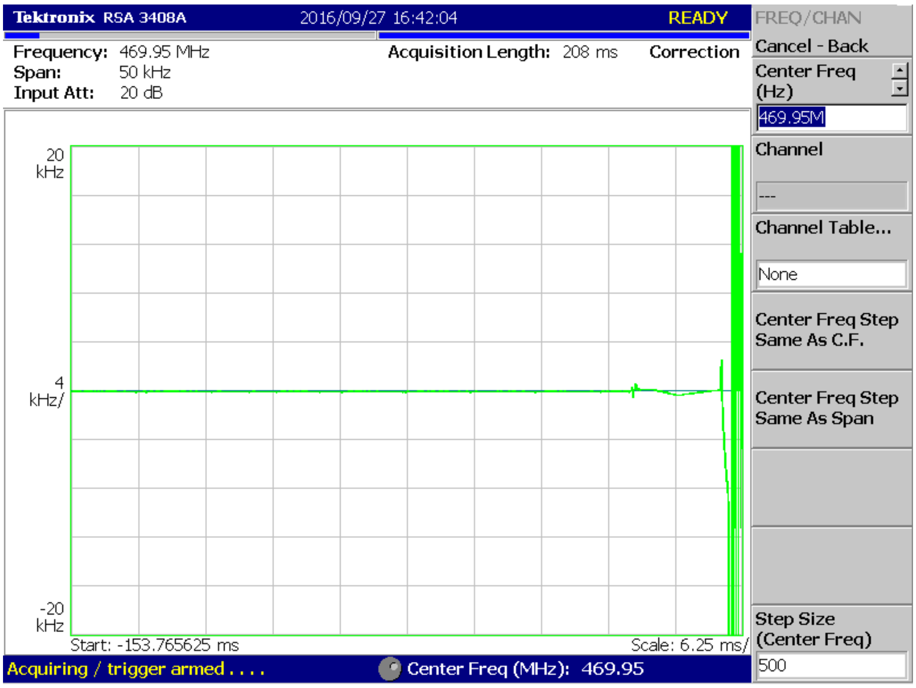


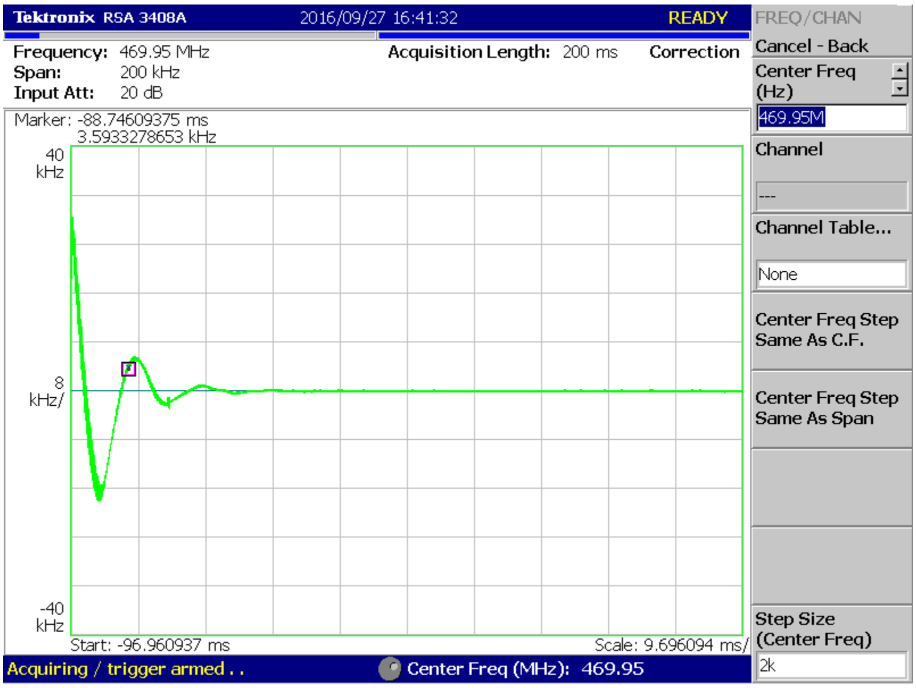
HIGH POWER_16K0F3E _460.05 MHz_Middle



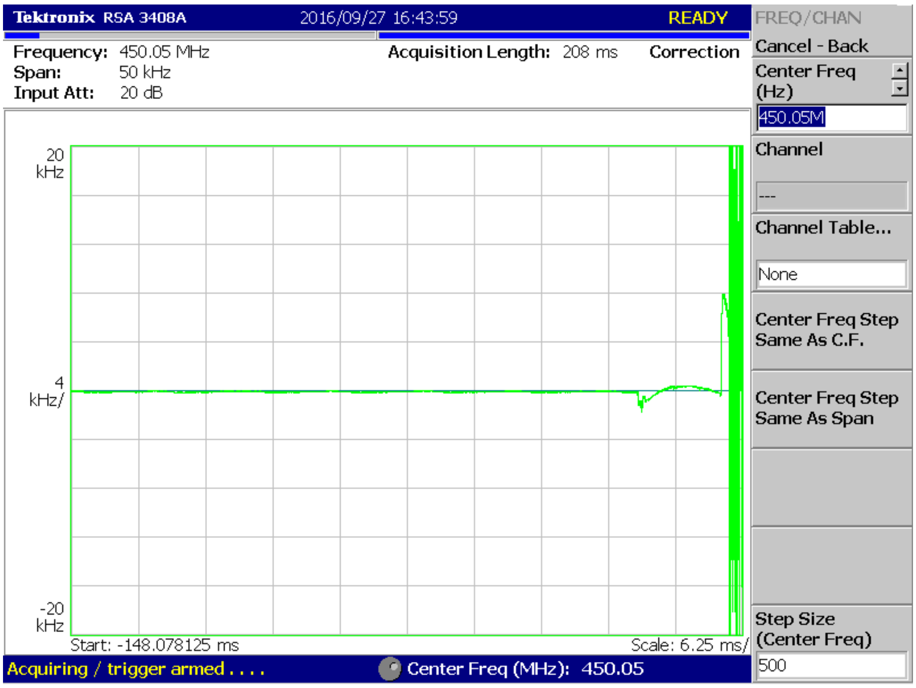


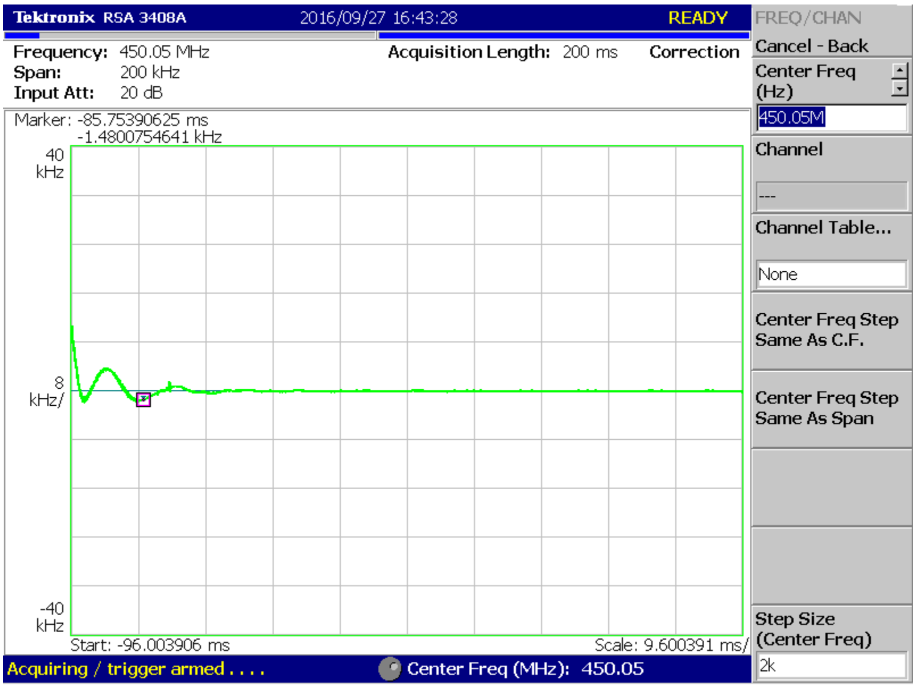
HIGH POWER_16K0F3E _469.95 MHz_High



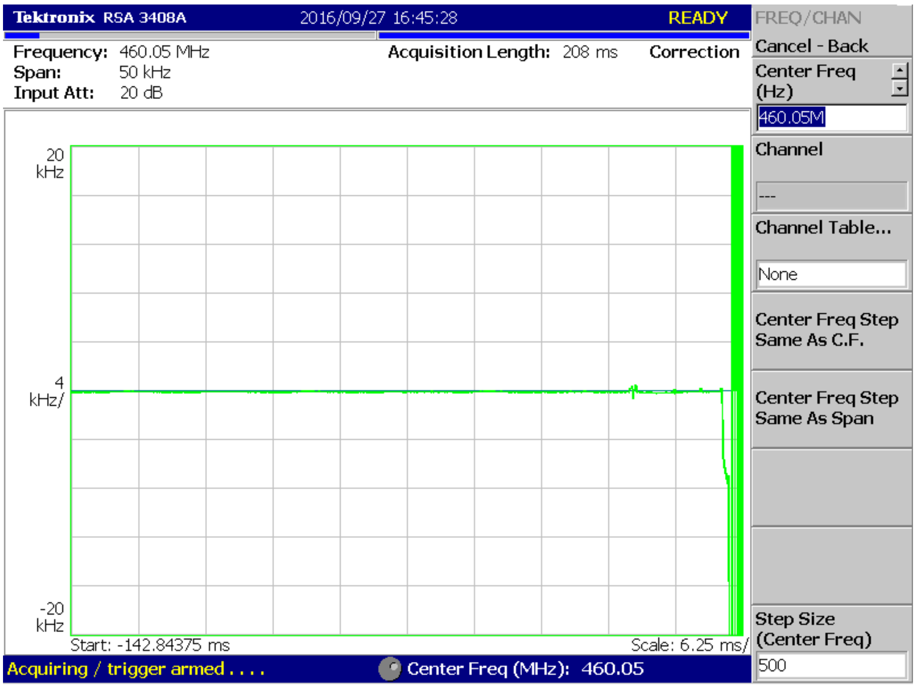


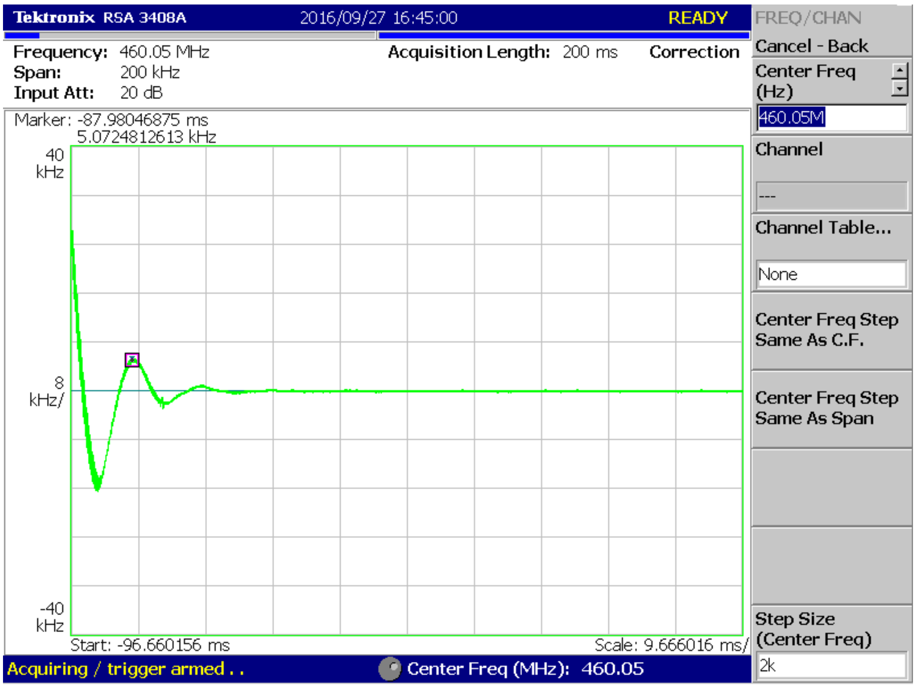
LOW POWER_16K0F3E _450.05 MHz_Low



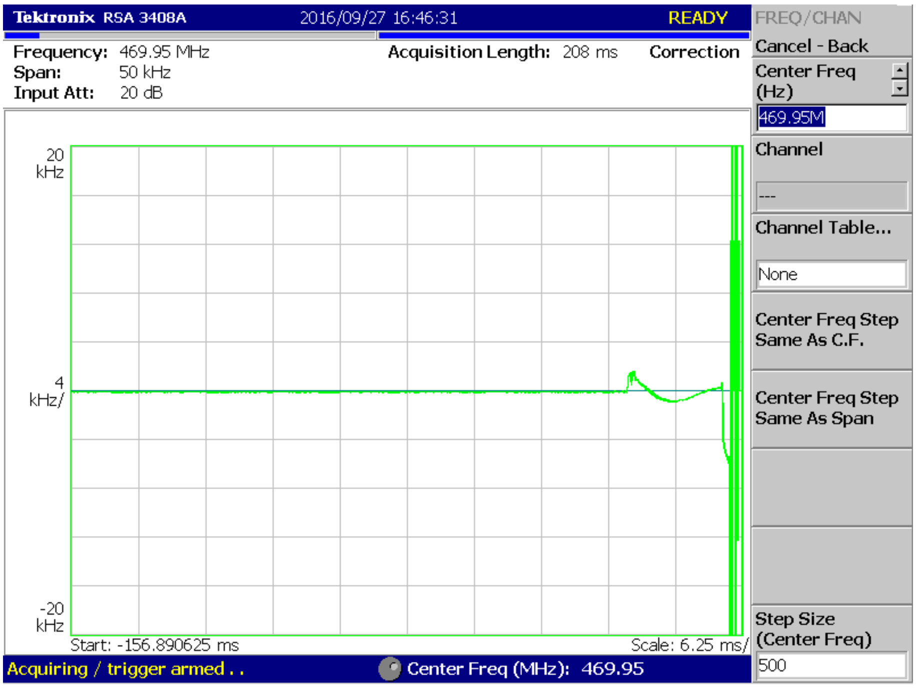


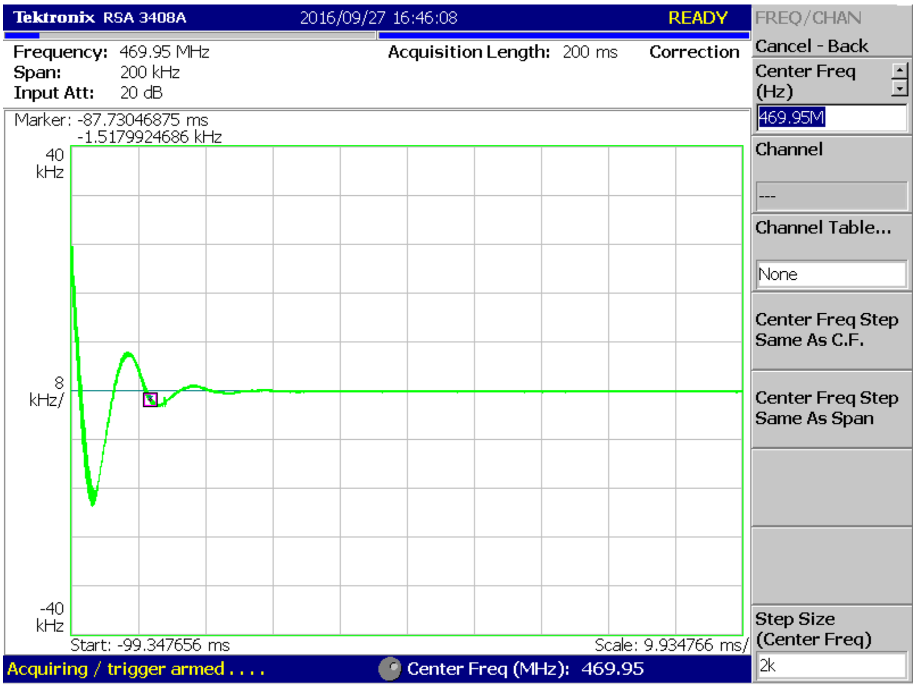
LOW POWER_16K0F3E _460.05 MHz_Middle





LOW POWER_16K0F3E _469.95 MHz_High



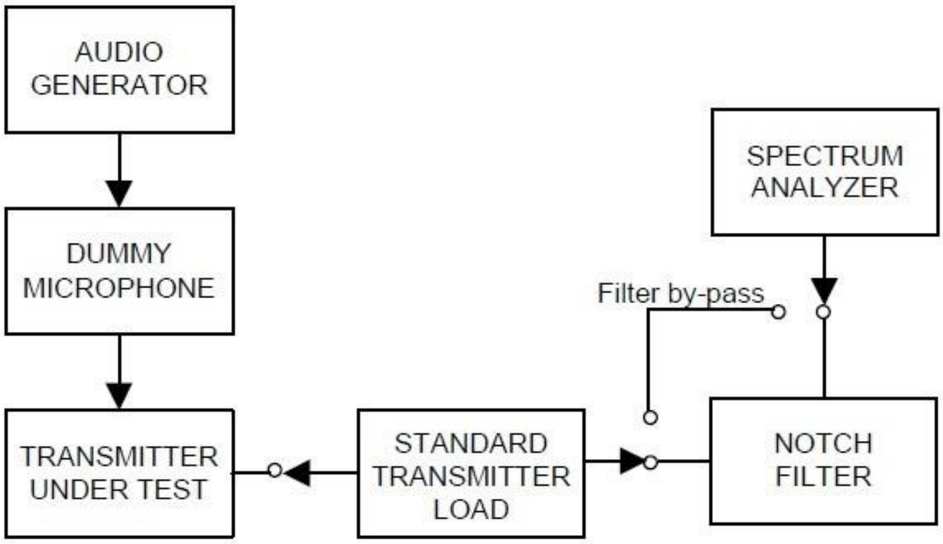


8.9 Unwanted Emissions : Conducted Spurious Emission

▣ **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-D Standard.

e) Connect the equipment as illustrated, with the notch filter by-passed.

f) 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.

g) 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.

h) 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.

e) Adjust the center frequency of the spectrum analyzer for incremental coverage of the range from:

1) 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) Insert the notch filter.

h) 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.

i) 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

11K0F3E

Frequency (MHz)	Channel	Power Mode	Spurious Frequency (MHz)	Correct Level (dBm)	Emission Level (dBc)	Limit (dBc)	Margin (dB)
450.05	Low	High Power	0.01	-46.590	-78.142	-51.552	26.590
			0.17	-48.714	-80.266	-51.552	28.714
			900.09	-26.094	-57.646	-51.552	6.094
			5427.99	-35.062	-66.614	-51.552	15.062
460.05	Middle		0.01	-45.267	-76.463	-51.196	25.267
			0.16	-48.921	-80.117	-51.196	28.921
			920.46	-31.108	-62.304	-51.196	11.108
			5361.48	-34.689	-65.885	-51.196	14.689
469.95	High		0.01	-46.578	-77.630	-51.052	26.578
			0.16	-49.186	-80.238	-51.052	29.186
			939.86	-42.601	-73.653	-51.052	22.601
			5479.00	-35.355	-66.407	-51.052	15.355
450.05	Low	Low Power	0.01	-44.769	-70.965	-46.196	24.769
			0.15	-49.130	-75.326	-46.196	29.130
			900.09	-25.634	-51.830	-46.196	5.634
			5412.99	-34.539	-60.735	-46.196	14.539
460.05	Middle		0.01	-47.423	-73.479	-46.056	27.423
			0.15	-45.984	-72.040	-46.056	25.984
			920.46	-31.653	-57.709	-46.056	11.653
			5409.99	-35.355	-61.411	-46.056	15.355
469.95	High		0.01	-46.138	-72.339	-46.201	26.138
			0.16	-50.379	-76.580	-46.201	30.379
			837.04	-50.091	-76.292	-46.201	30.091
			5453.49	-35.842	-62.043	-46.201	15.842

16K0F3E

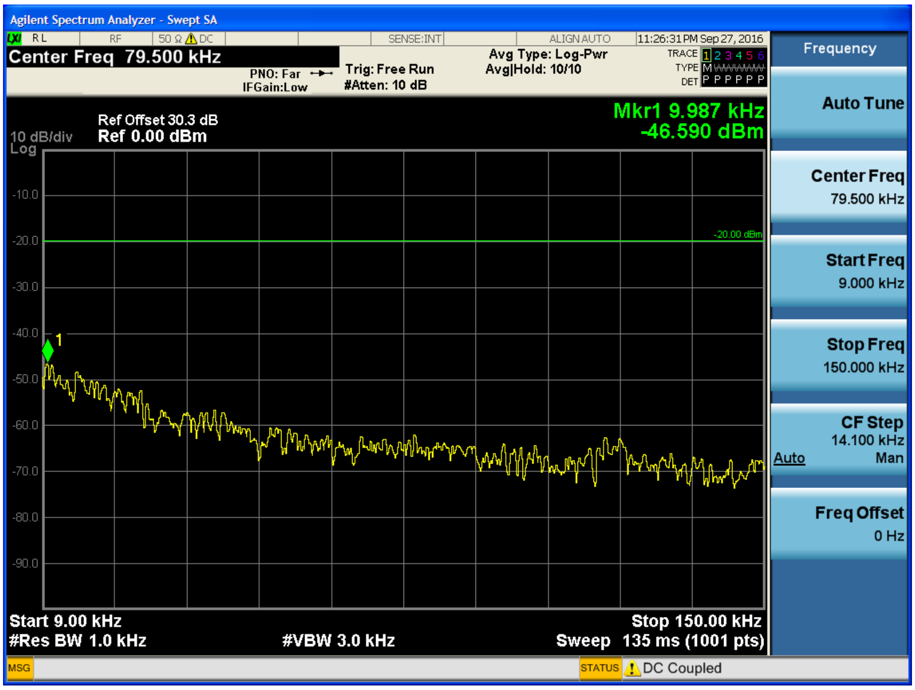
Frequency (MHz)	Channel	Power Mode	Spurious Frequency (MHz)	Correct Level (dBm)	Emission Level (dBc)	Limit (dBc)	Margin (dB)
450.05	Low	High Power	0.01	-46.725	-78.227	-51.502	26.725
			0.16	-49.144	-80.646	-51.502	29.144
			900.09	-26.651	-58.153	-51.502	6.651
			5442.49	-35.376	-66.878	-51.502	15.376
460.05	Middle		0.01	-46.360	-77.652	-51.292	26.360
			0.16	-48.054	-79.346	-51.292	28.054
			920.46	-31.155	-62.447	-51.292	11.155
			5492.00	-35.804	-67.096	-51.292	15.804
469.95	High		0.01	-46.653	-77.648	-50.995	26.653
			0.16	-49.950	-80.945	-50.995	29.950
			939.86	-42.156	-73.151	-50.995	22.156
			4865.43	-35.197	-66.192	-50.995	15.197
450.05	Low	Low Power	0.01	-45.778	-71.948	-46.170	25.778
			0.15	-47.185	-73.355	-46.170	27.185
			900.09	-25.691	-51.861	-46.170	5.691
			5493.00	-35.704	-61.874	-46.170	15.704
460.05	Middle		0.01	-46.553	-72.496	-45.943	26.553
			0.15	-47.340	-73.283	-45.943	27.340
			920.46	-31.490	-57.433	-45.943	11.490
			5118.46	-35.317	-61.260	-45.943	15.317
469.95	High		0.01	-46.247	-72.393	-46.146	26.247
			0.15	-46.504	-72.650	-46.146	26.504
			939.86	-47.423	-73.569	-46.146	27.423
			5429.49	-35.552	-61.698	-46.146	15.552

▣ TEST RESULTS

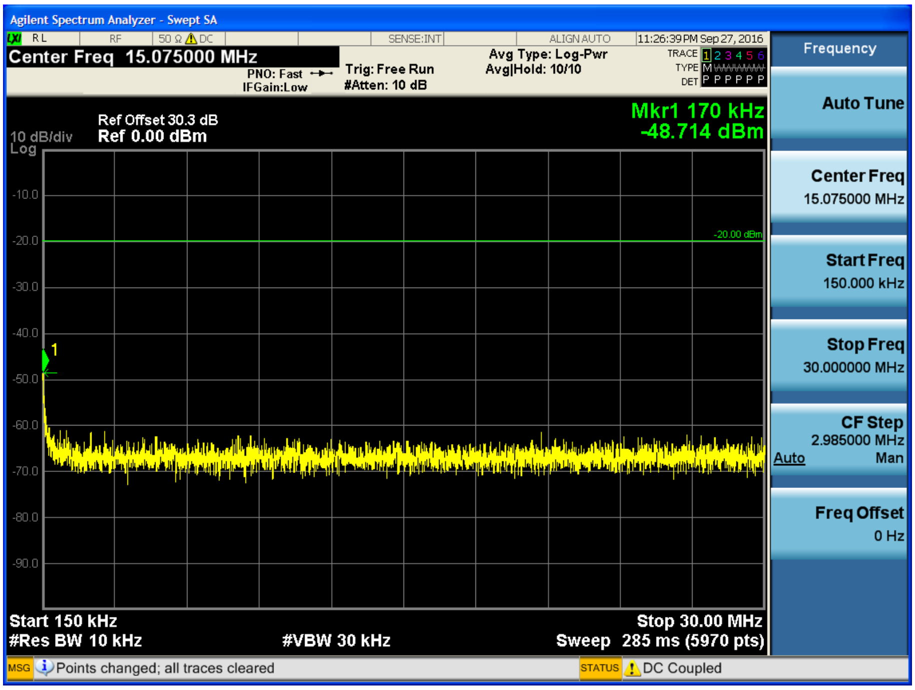
11K0F3E

HIGH POWER_11K0F3E _450.05 MHz_Low

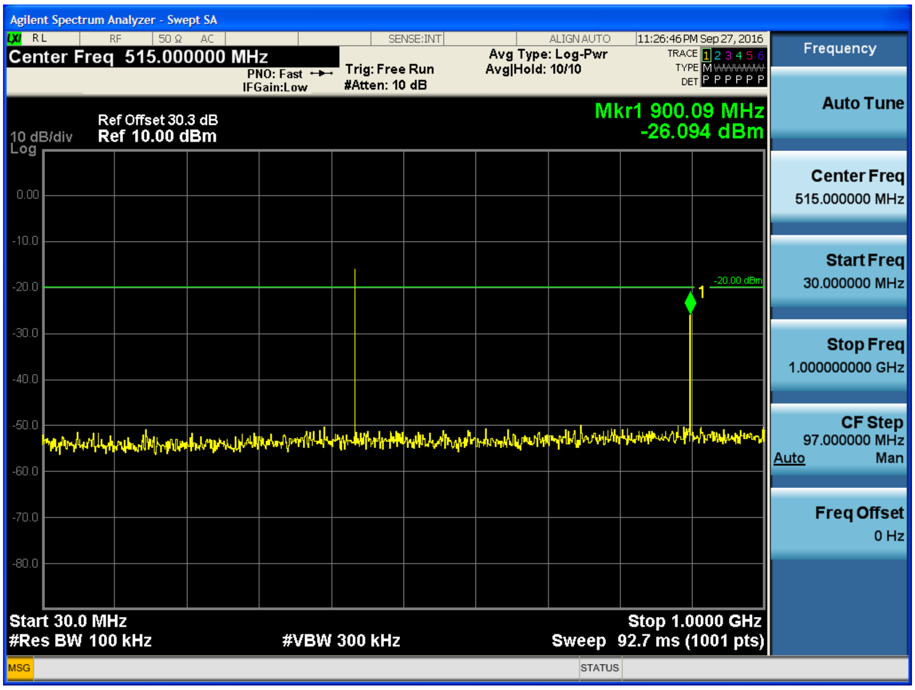
(9 kHz ~ 150 kHz)



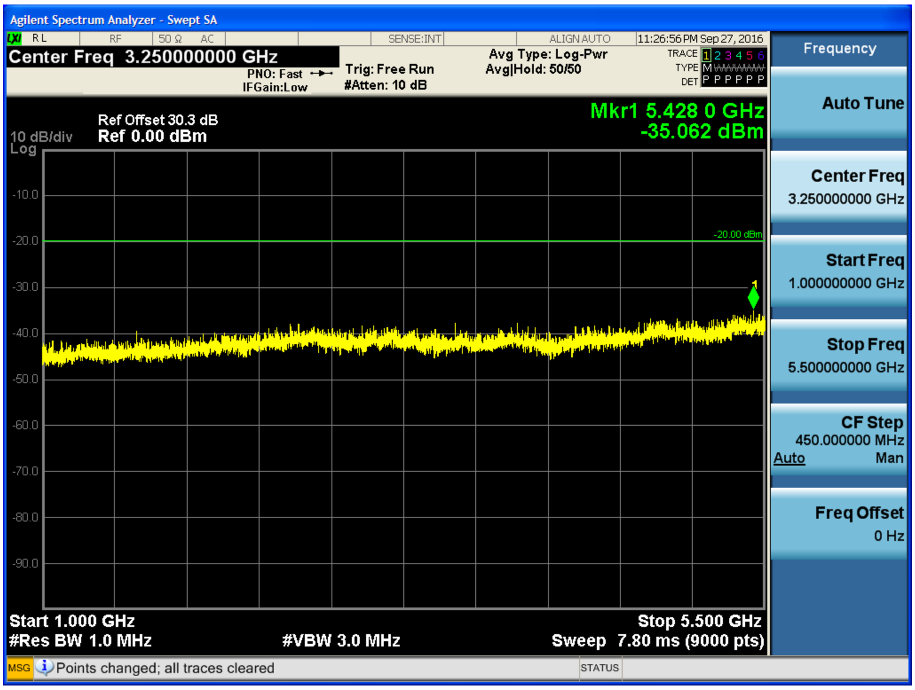
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

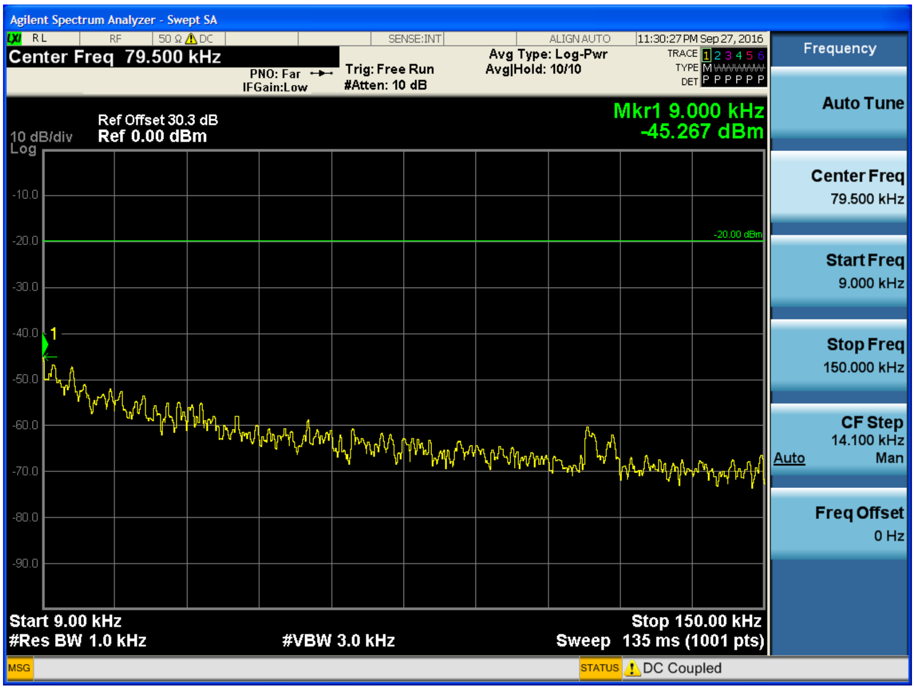


(1 GHz ~ 5.5 GHz)

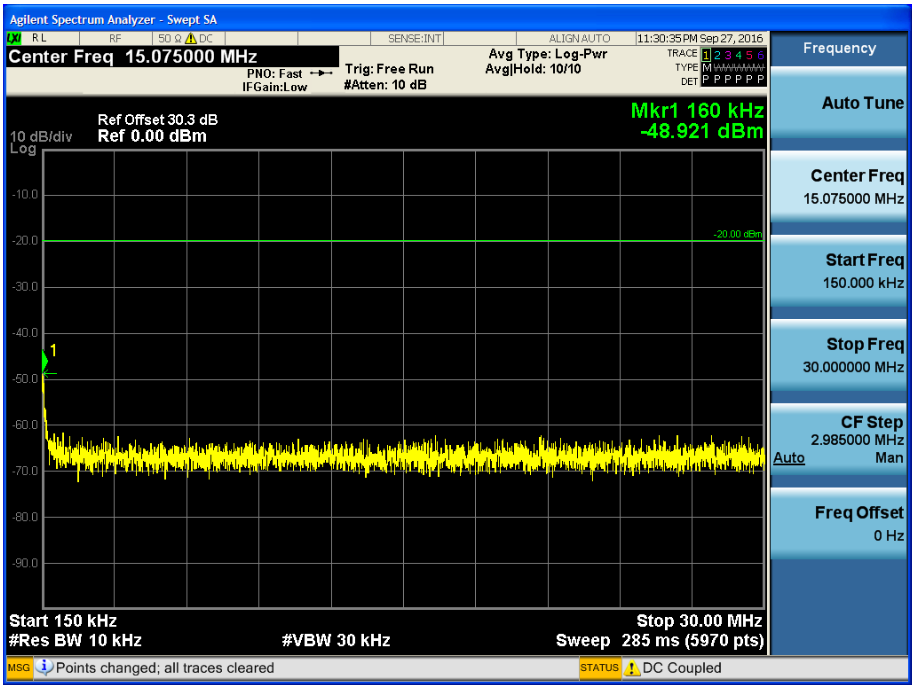


HIGH POWER_11K0F3E _460.05 MHz_Middle

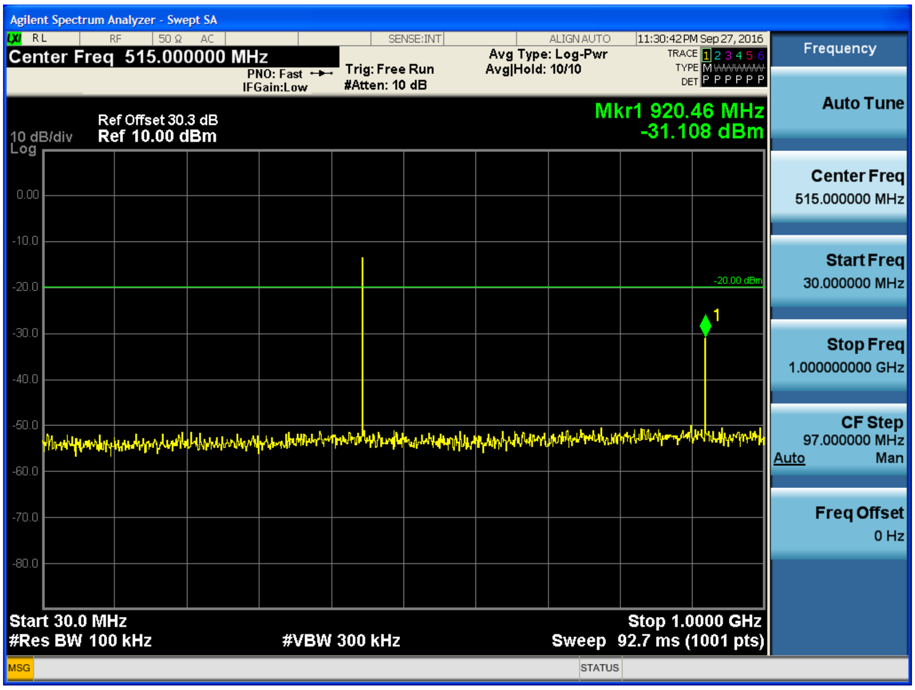
(9 kHz ~ 150 kHz)



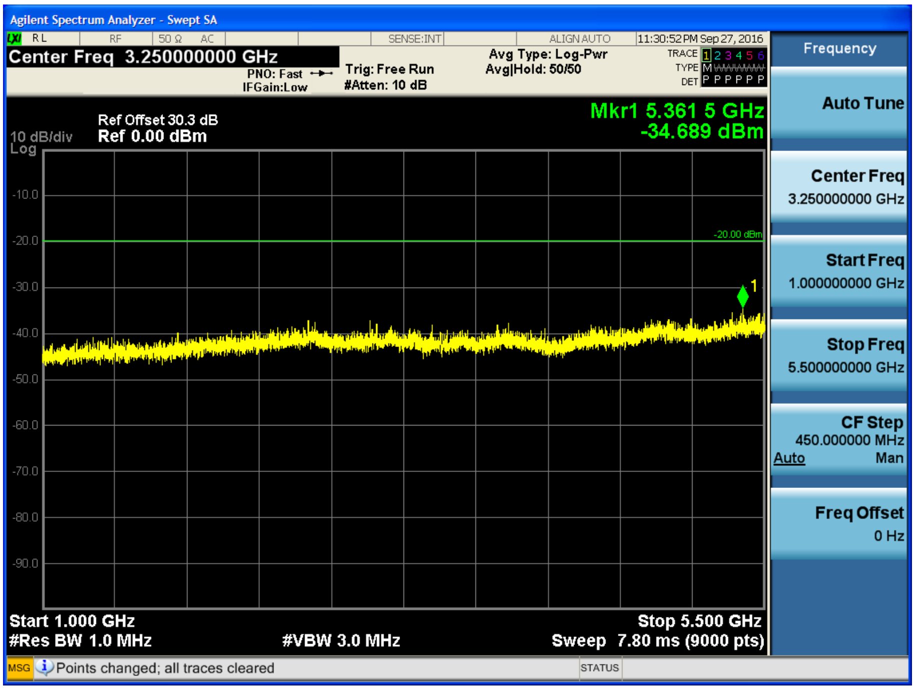
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

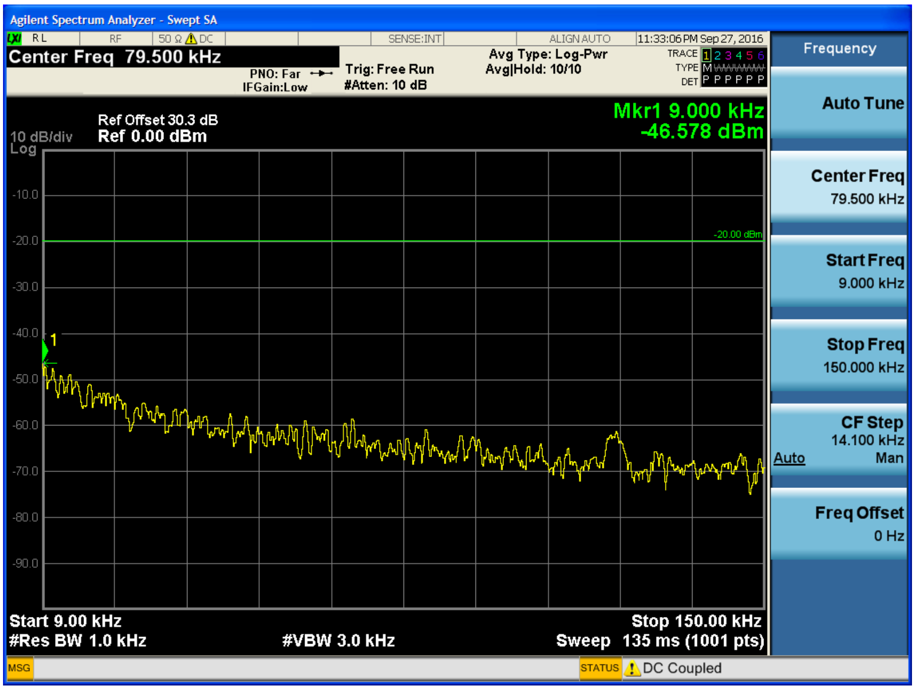


(1 GHz ~ 5.5 GHz)

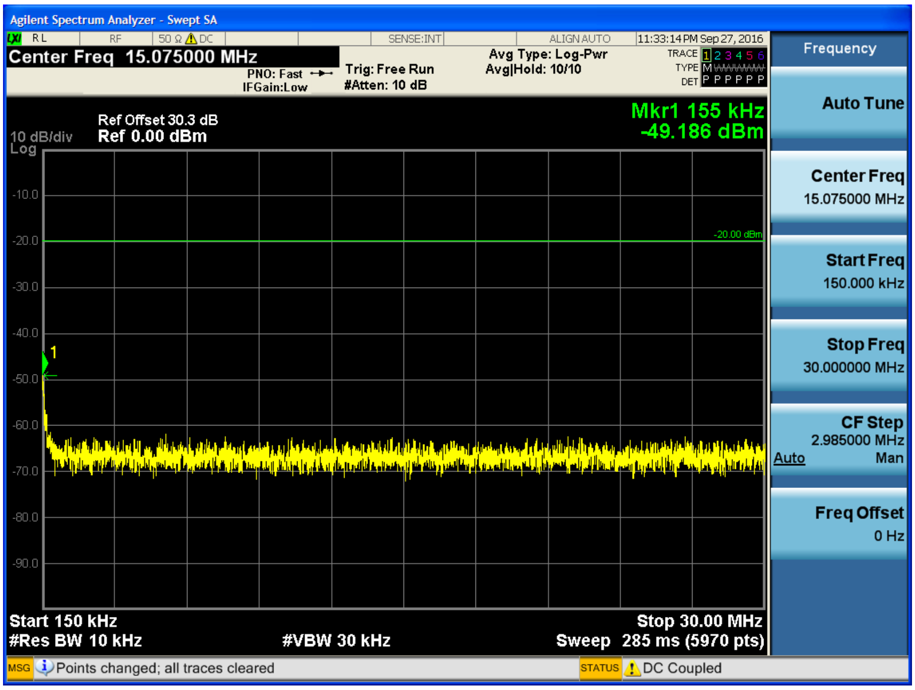


HIGH POWER_11K0F3E _469.95 MHz_High

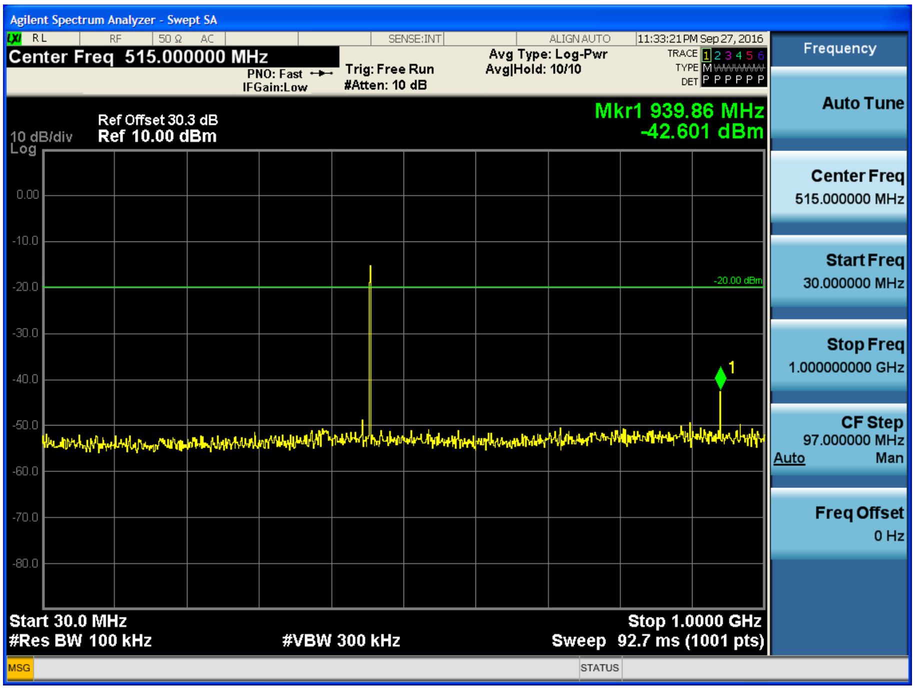
(9 kHz ~ 150 kHz)



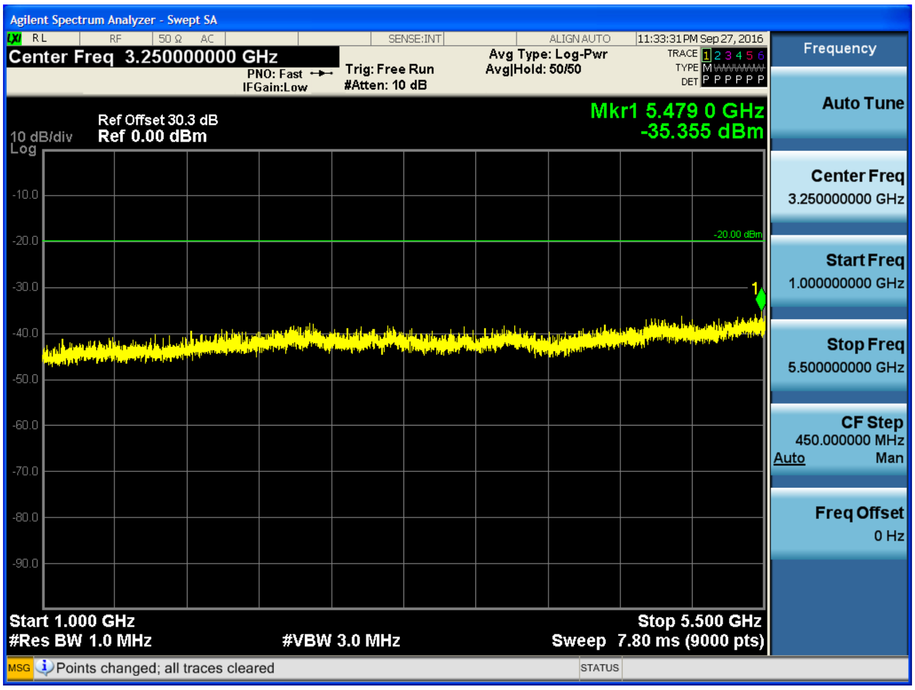
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

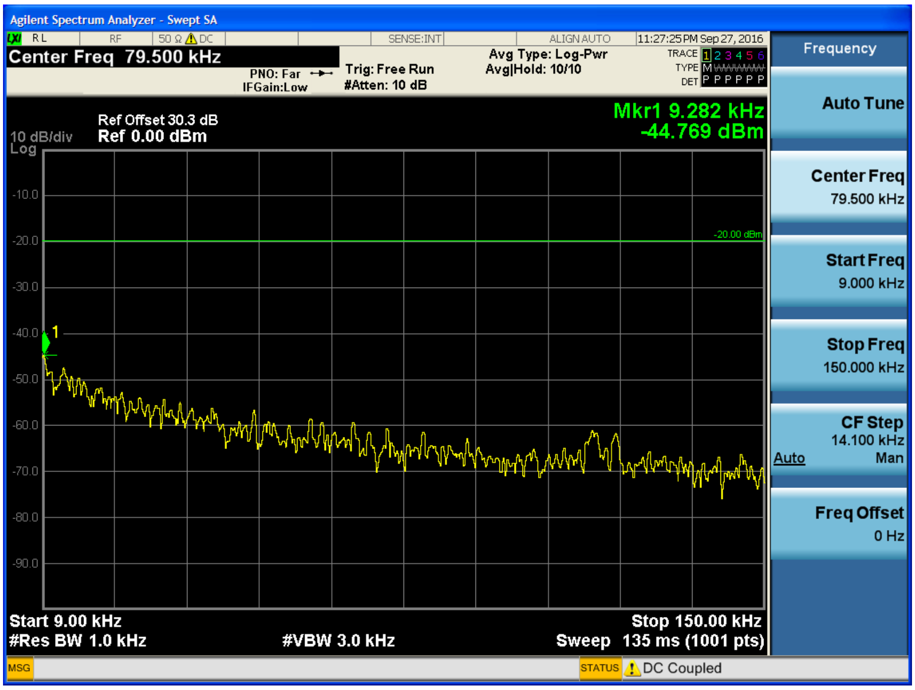


(1 GHz ~ 5.5 GHz)

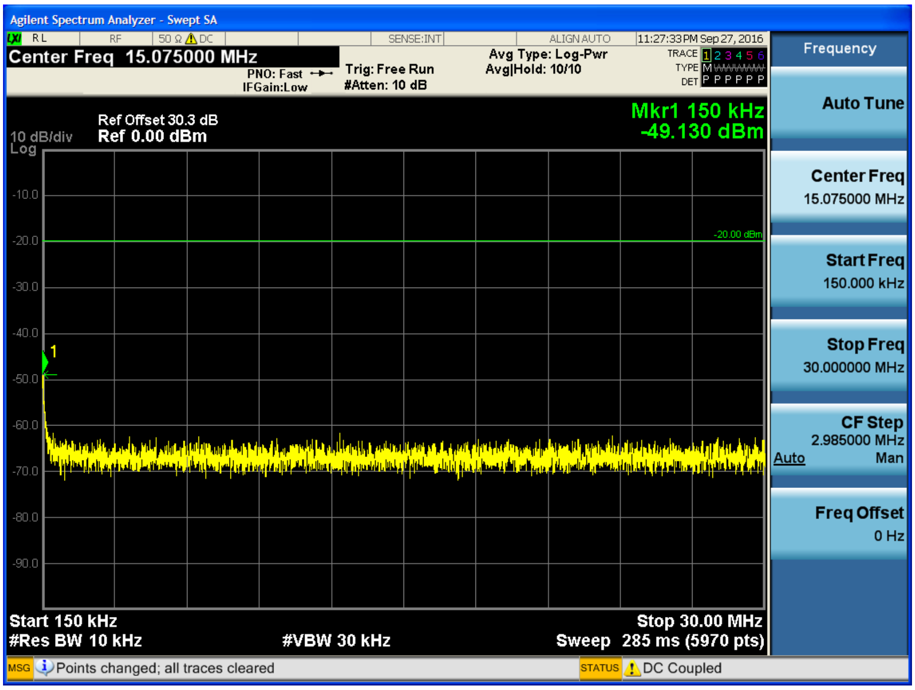


LOW POWER_11K0F3E _450.05 MHz_Low

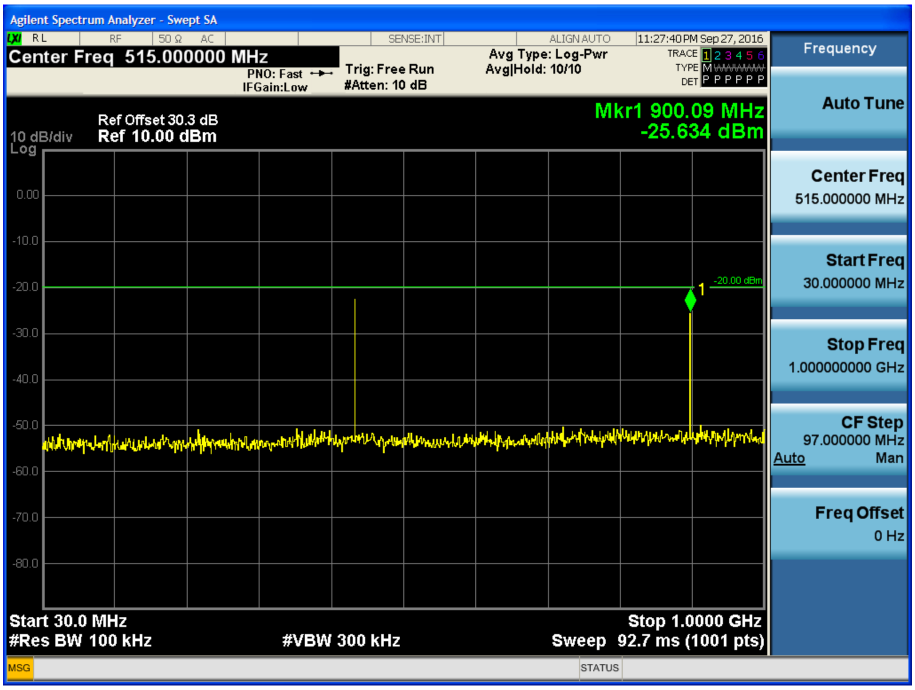
(9 kHz ~ 150 kHz)



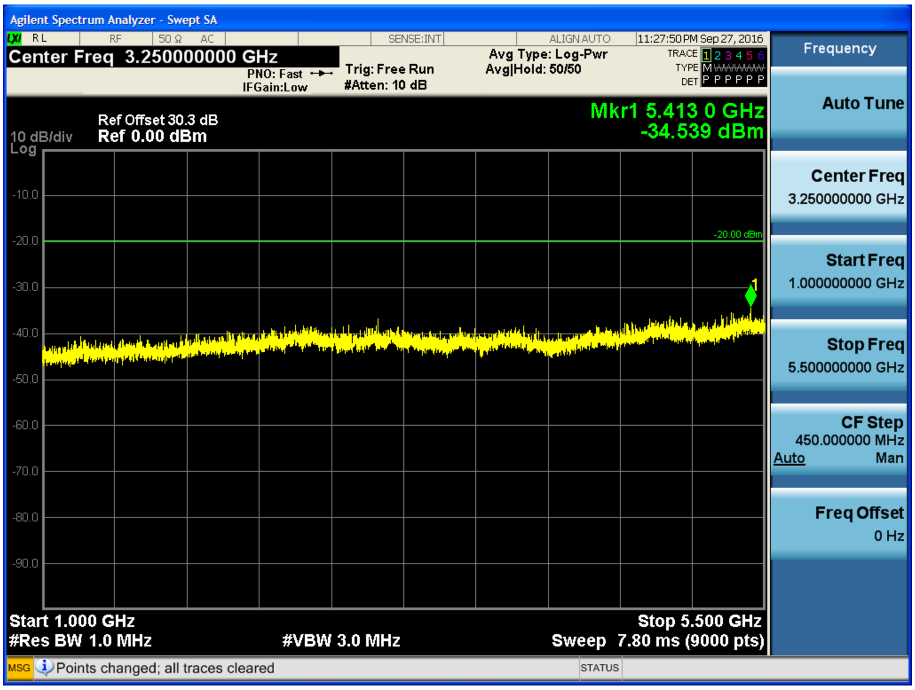
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

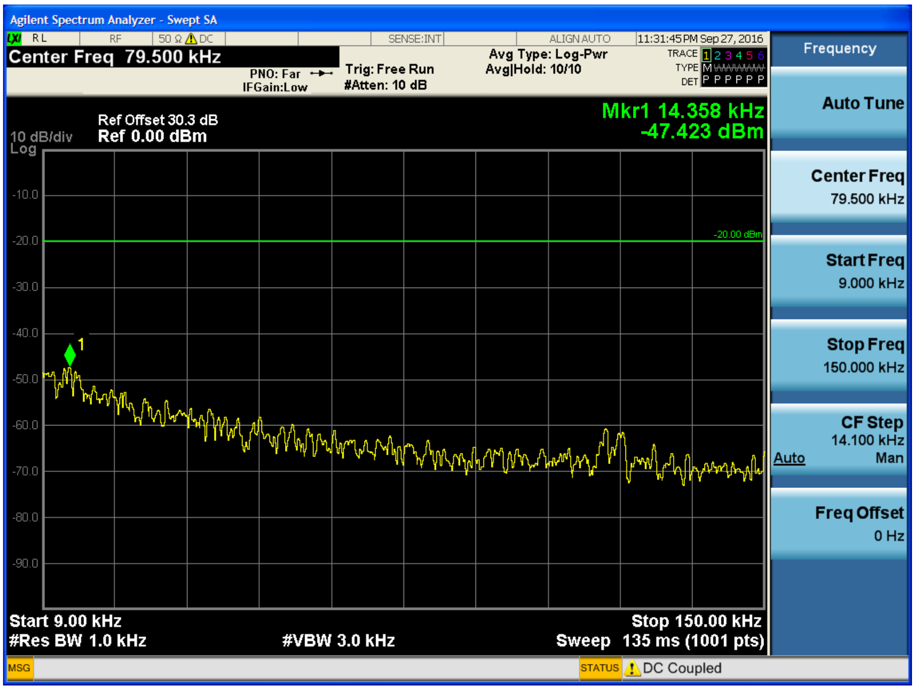


(1 GHz ~ 5.5 GHz)

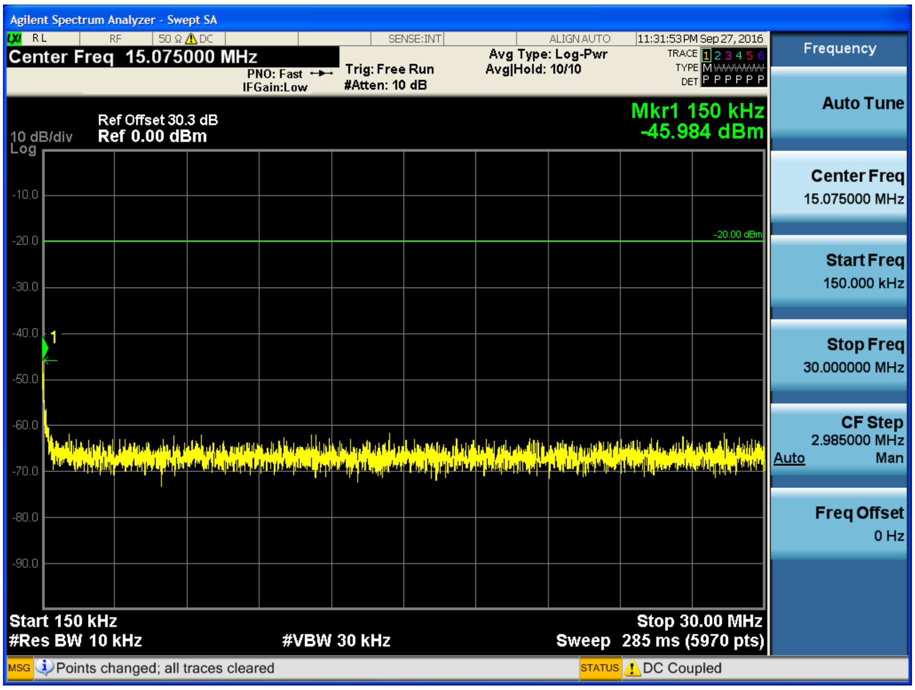


LOW POWER_11K0F3E _460.05 MHz_Middle

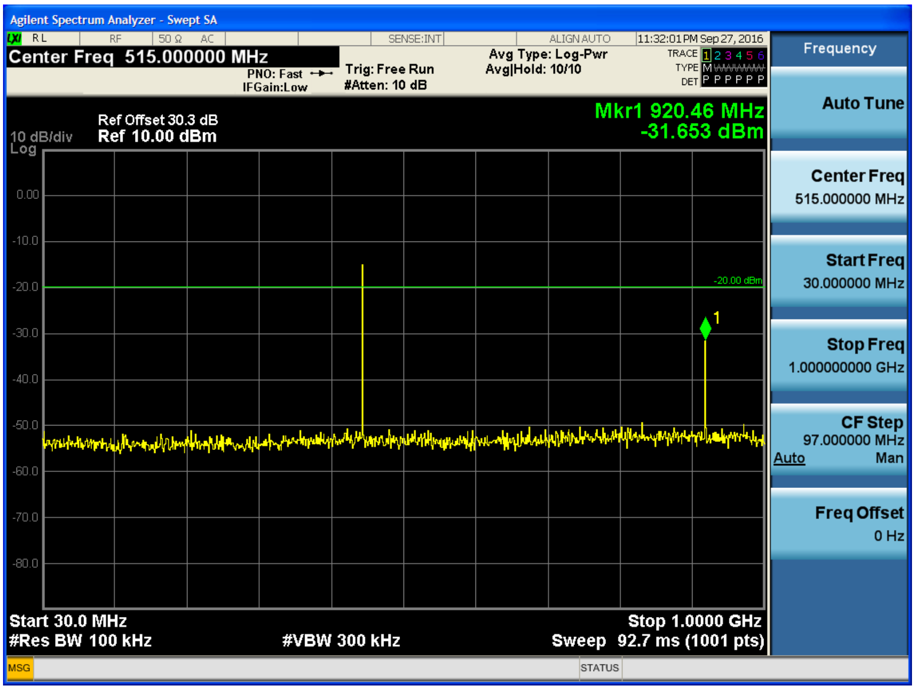
(9 kHz ~ 150 kHz)



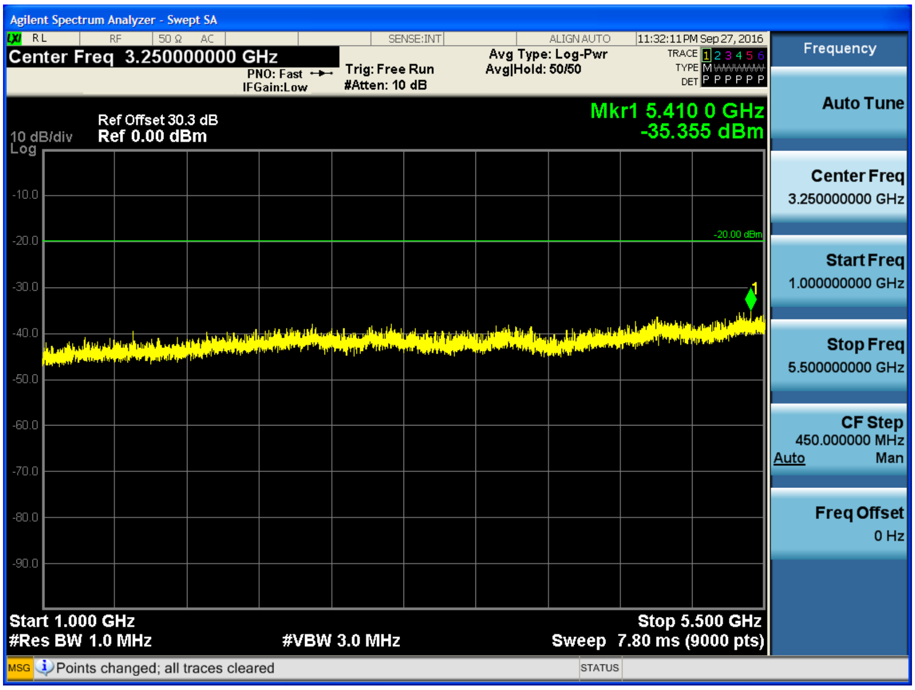
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

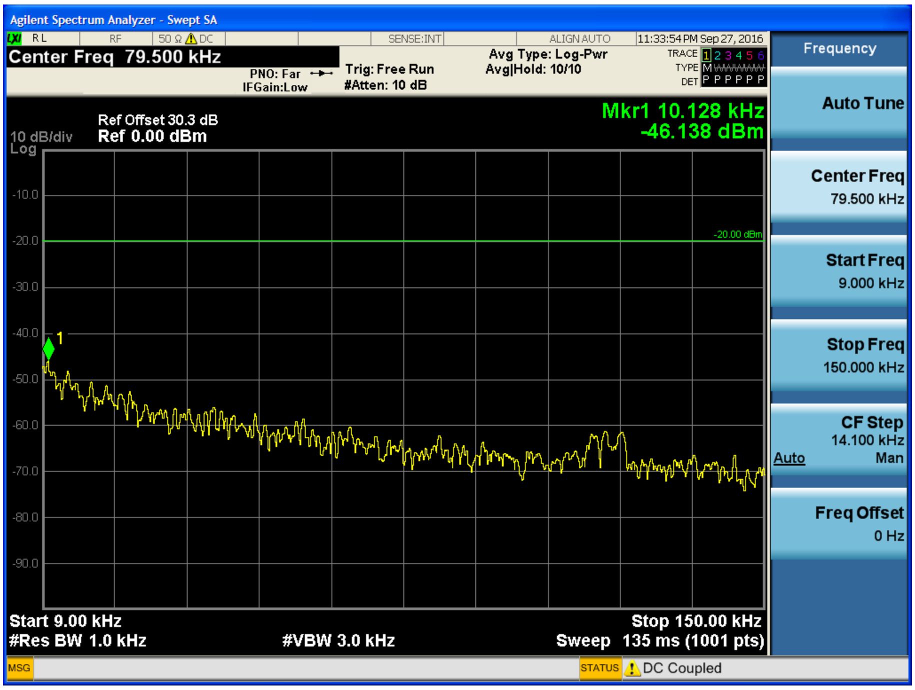


(1 GHz ~ 5.5 GHz)

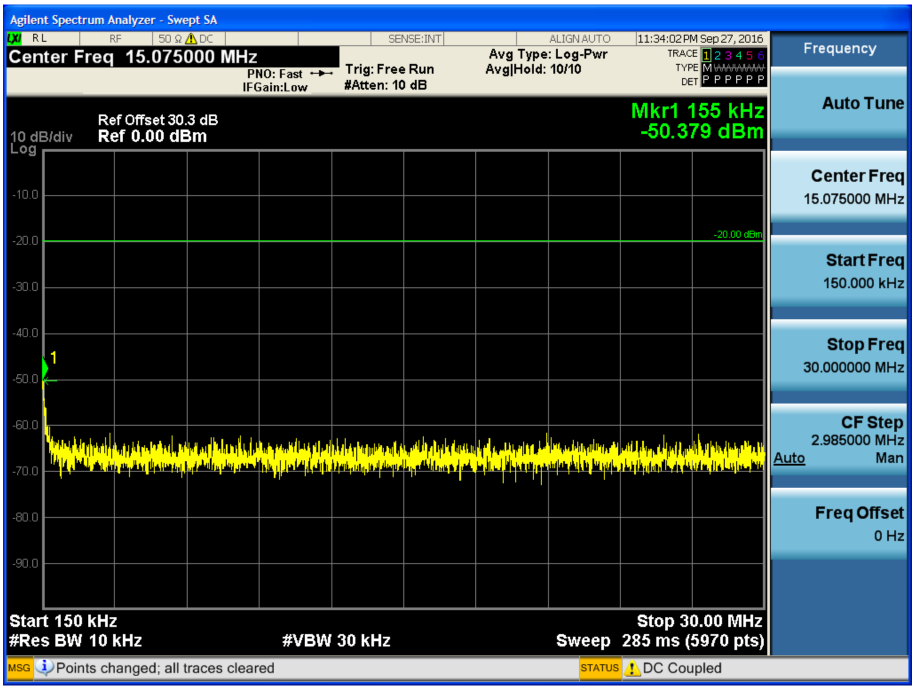


LOW POWER_11K0F3E _469.95 MHz_High

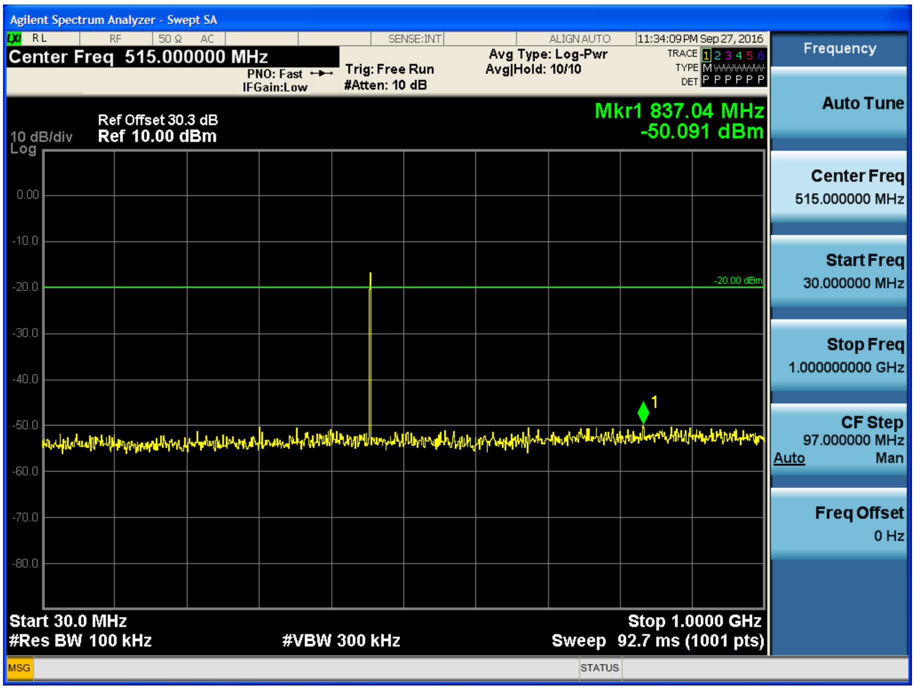
(9 kHz ~ 150 kHz)



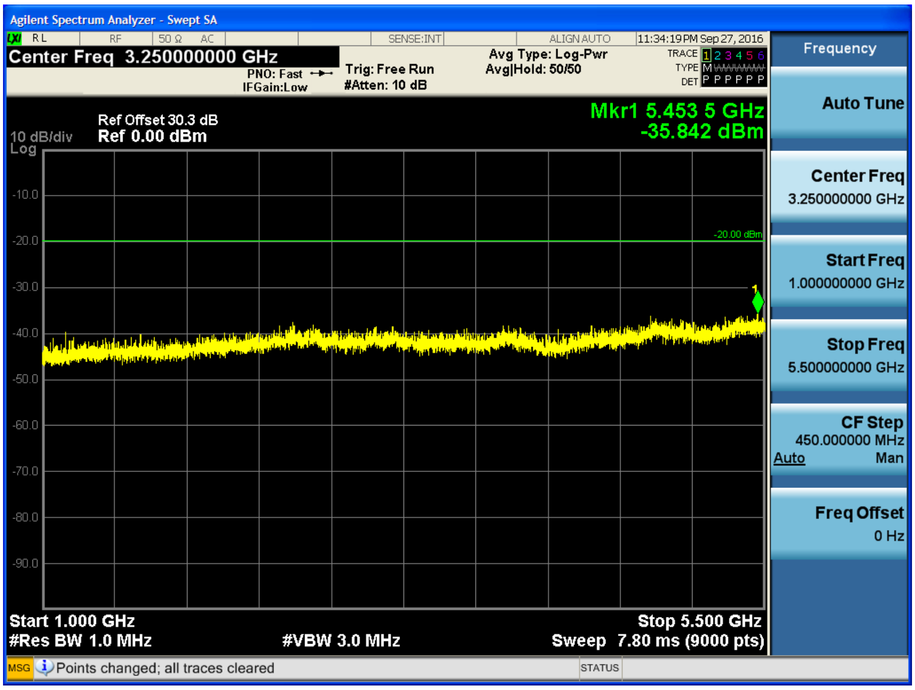
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)



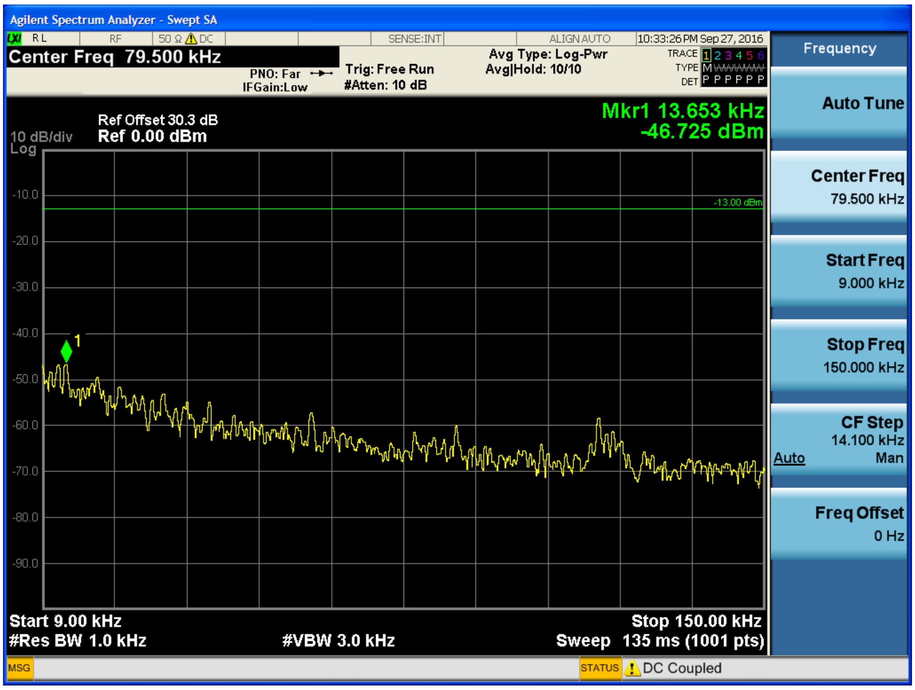
(1 GHz ~ 5.5 GHz)



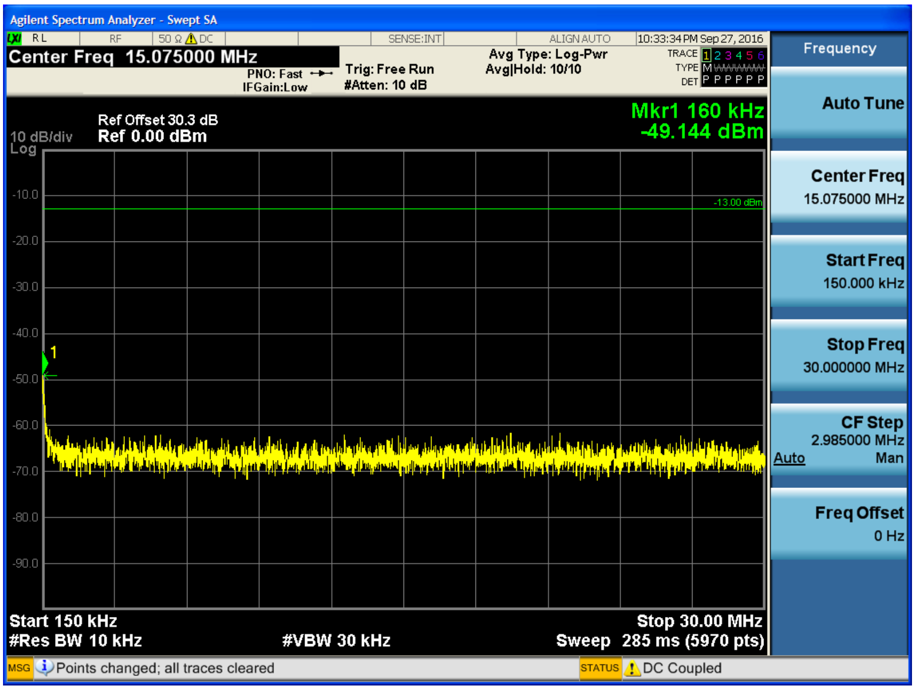
16K0F3E

HIGH POWER_16K0F3E _450.05 MHz_Low

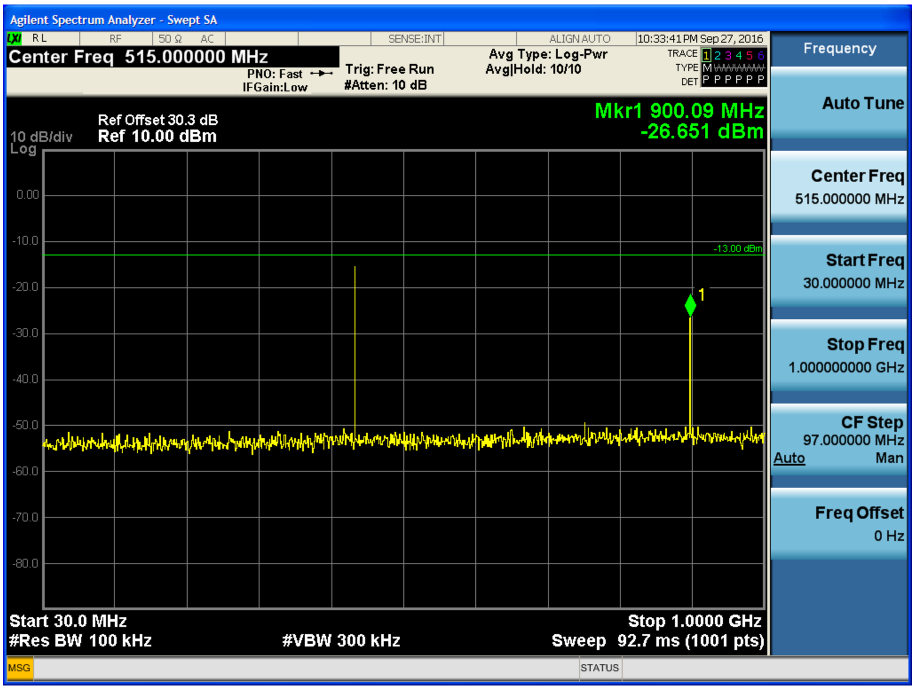
(9 kHz ~ 150 kHz)



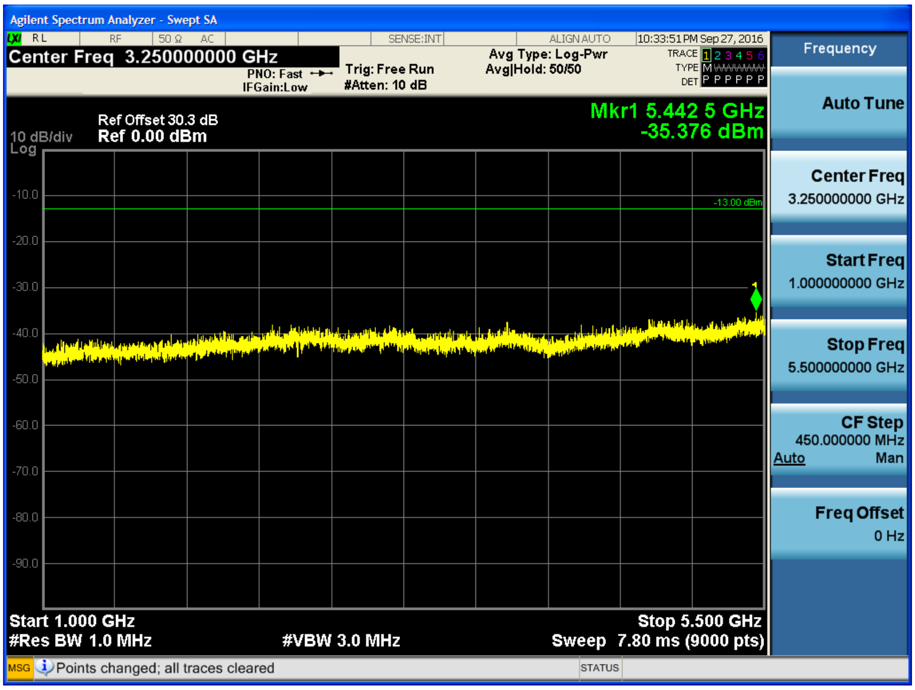
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

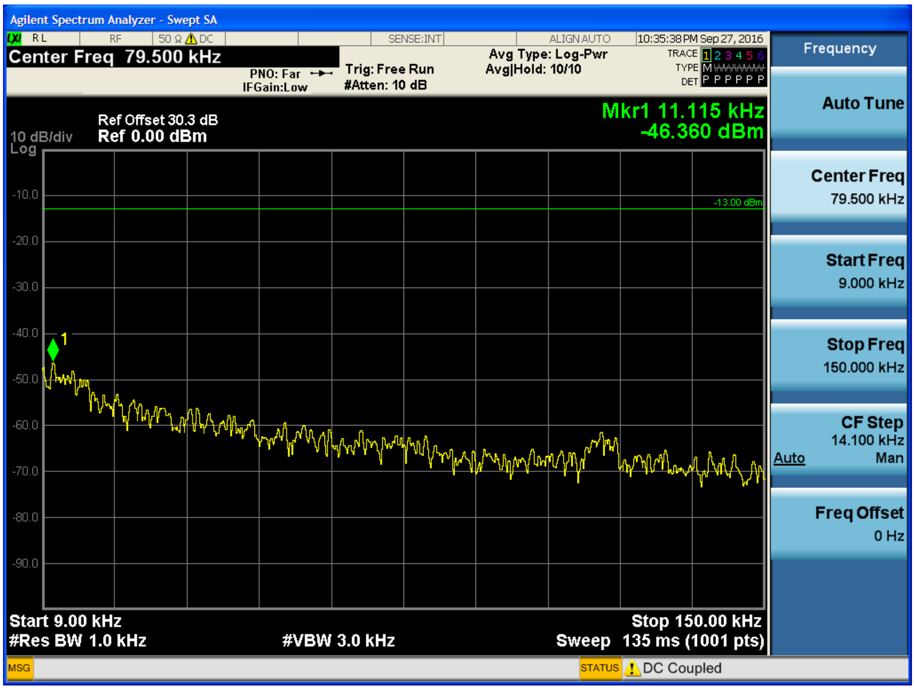


(1 GHz ~ 5.5 GHz)

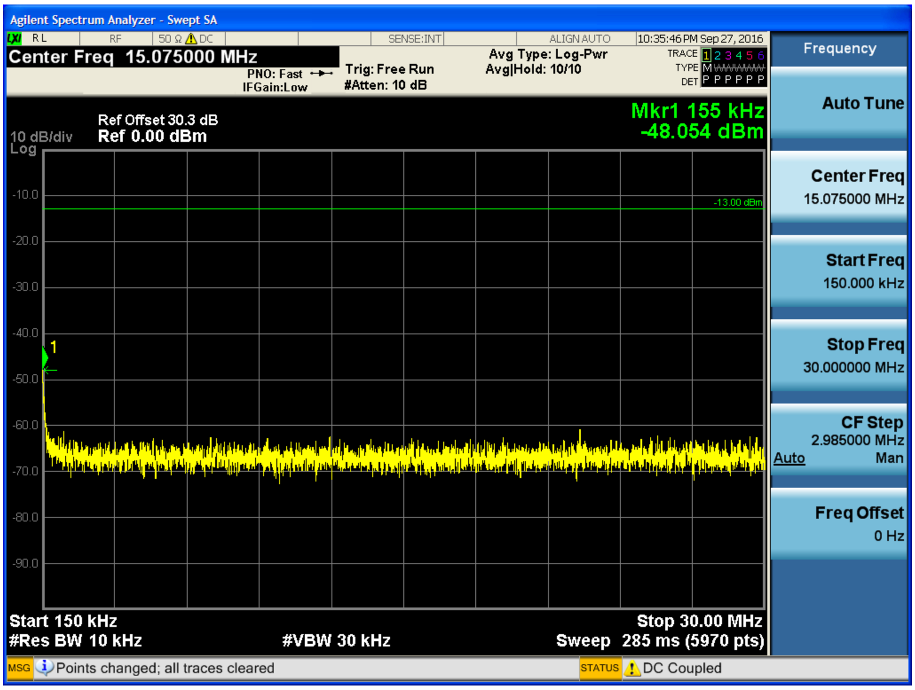


HIGH POWER_16K0F3E _460.05 MHz_Middle

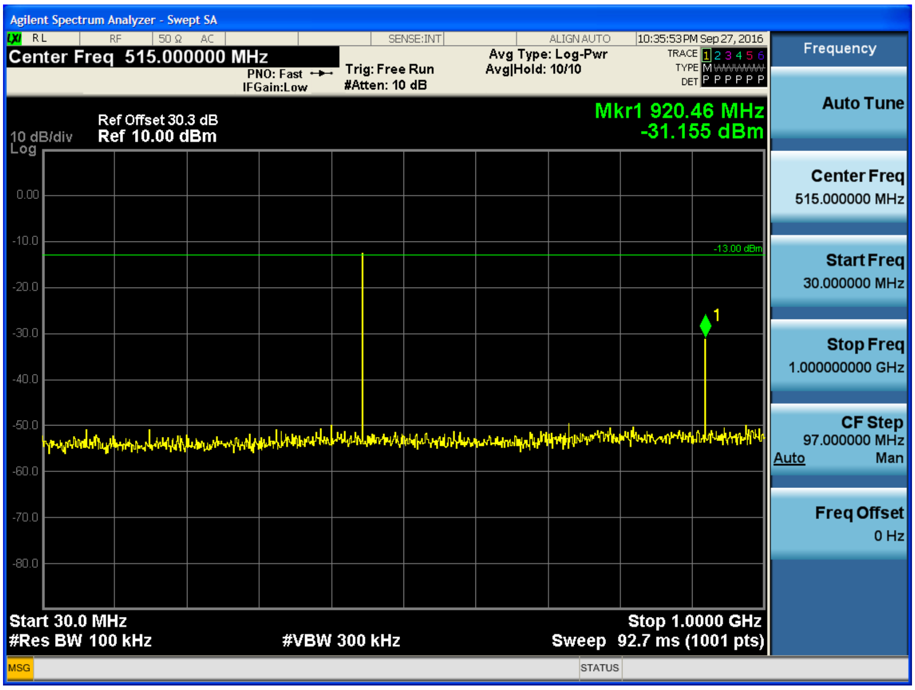
(9 kHz ~ 150 kHz)



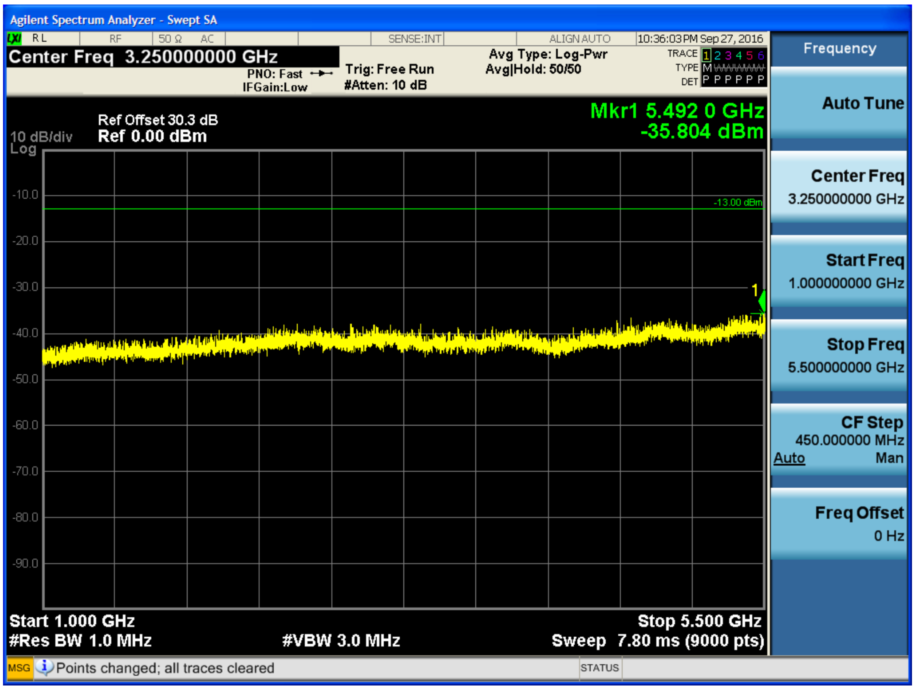
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

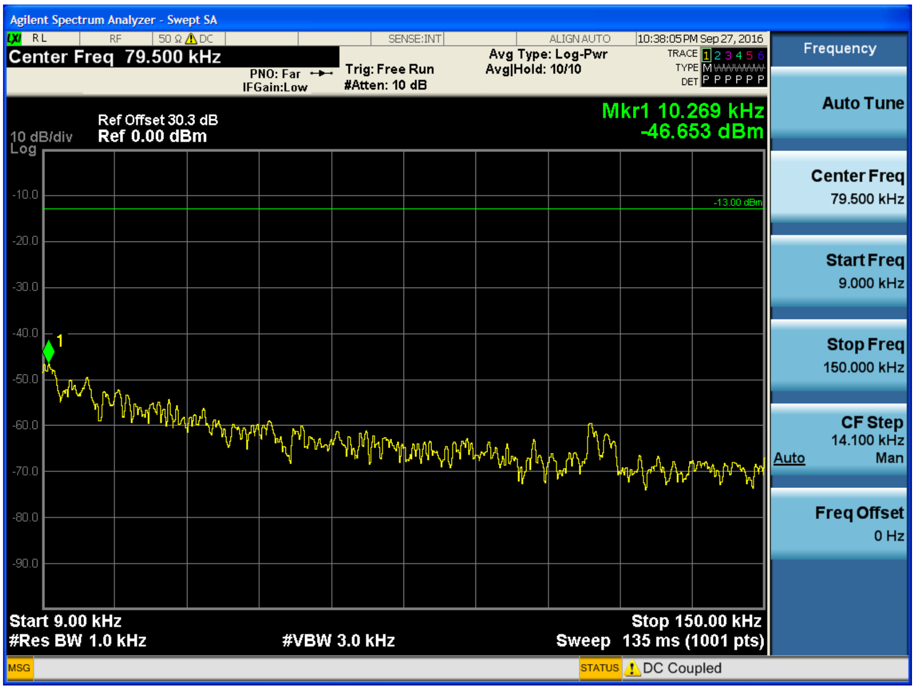


(1 GHz ~ 5.5 GHz)

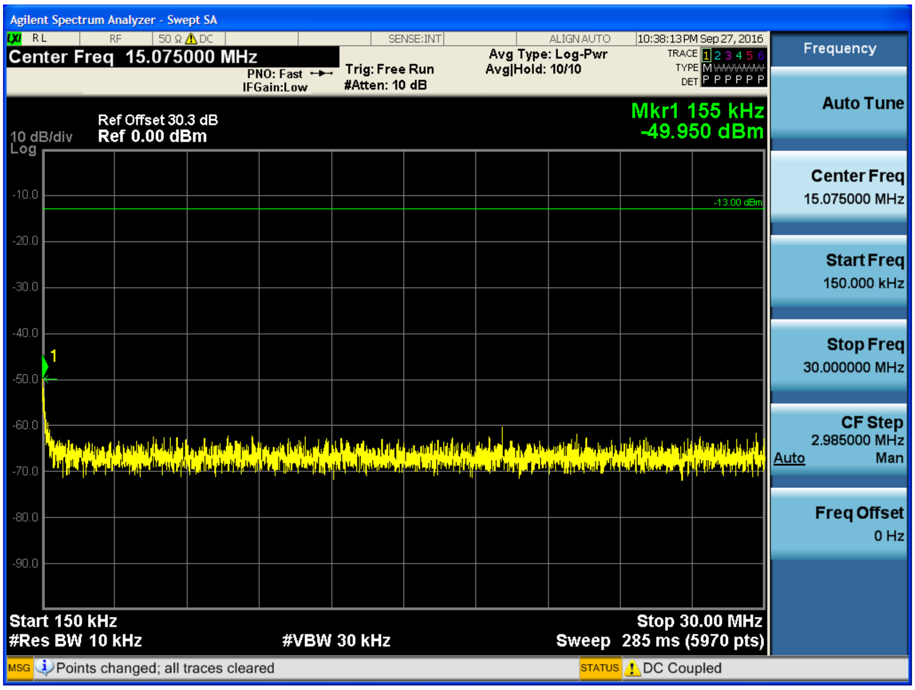


HIGH POWER_16K0F3E _469.95 MHz_High

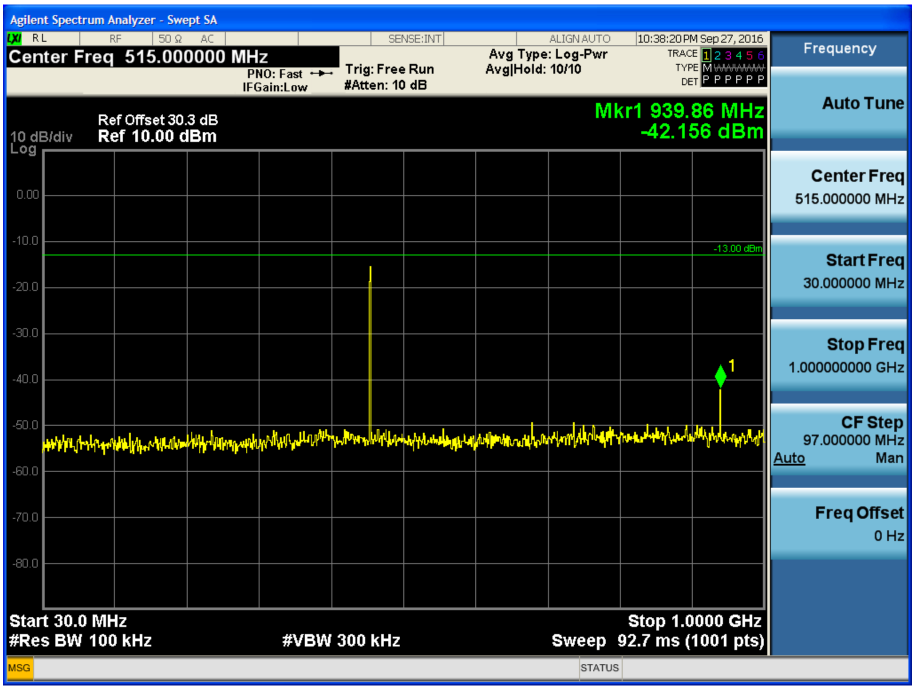
(9 kHz ~ 150 kHz)



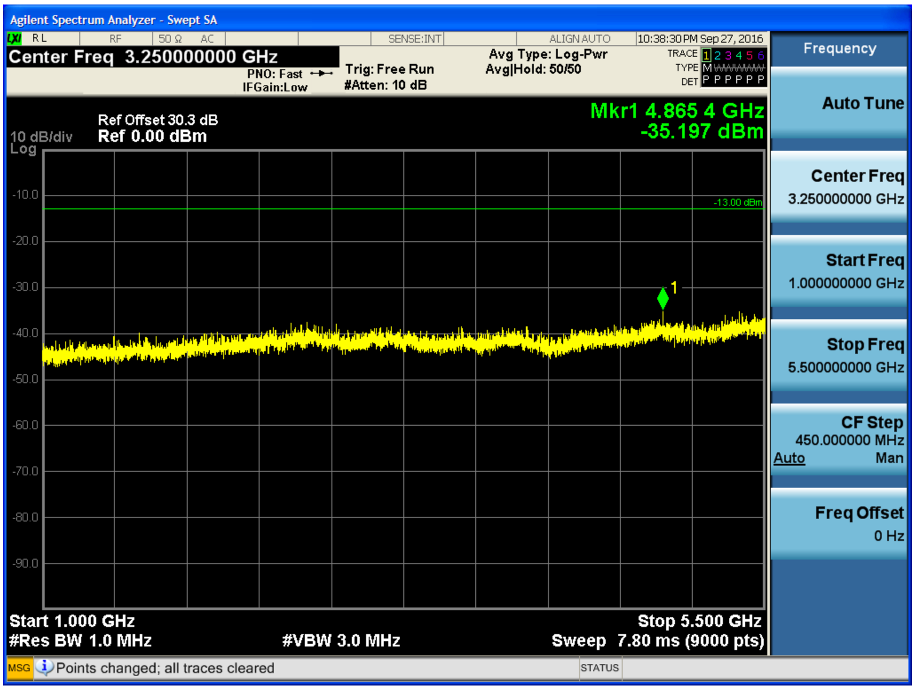
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

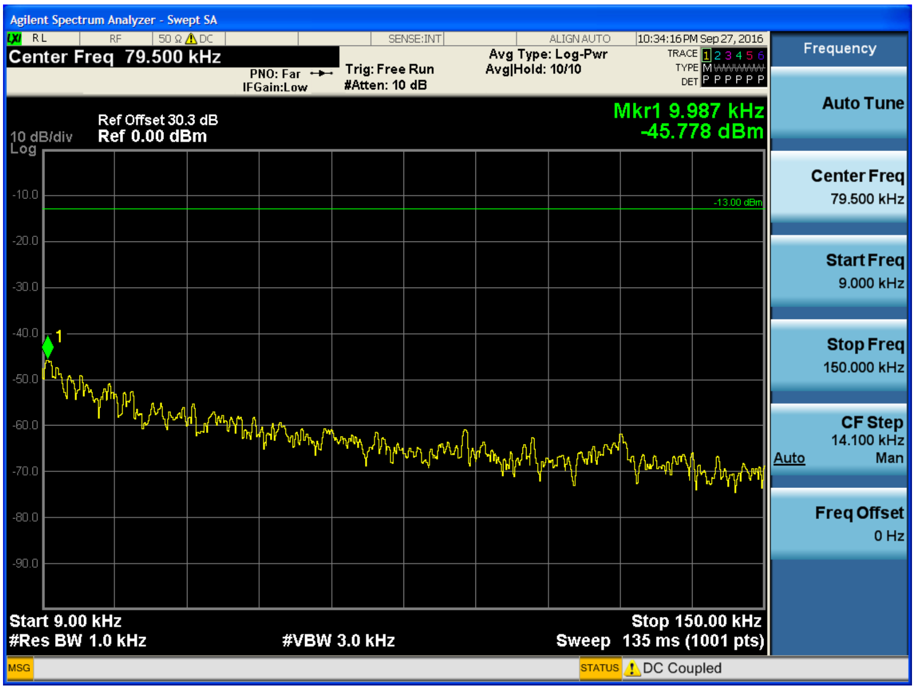


(1 GHz ~ 5.5 GHz)

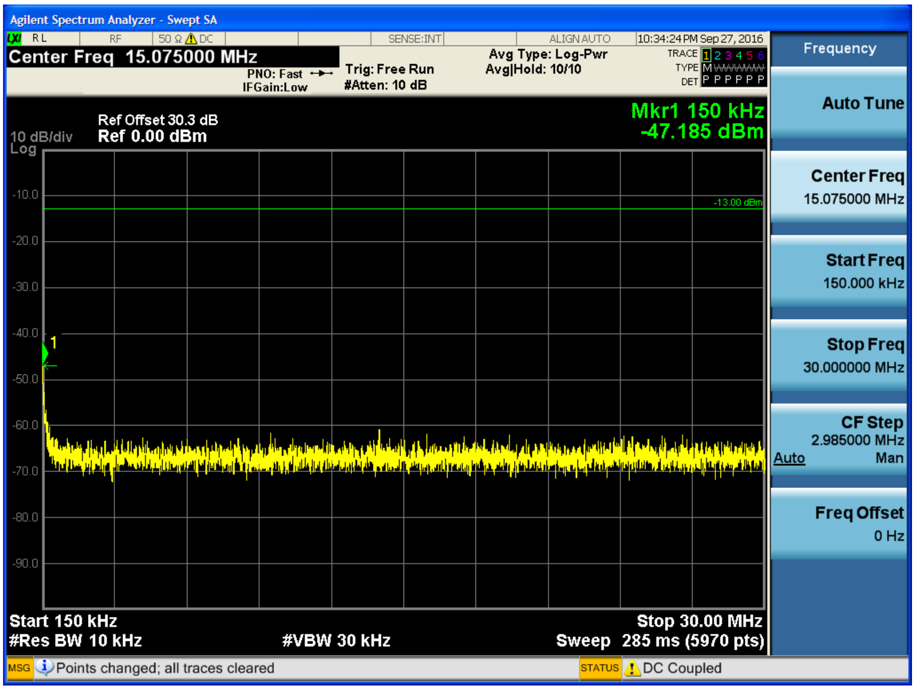


LOW POWER_16K0F3E _450.05 MHz_Low

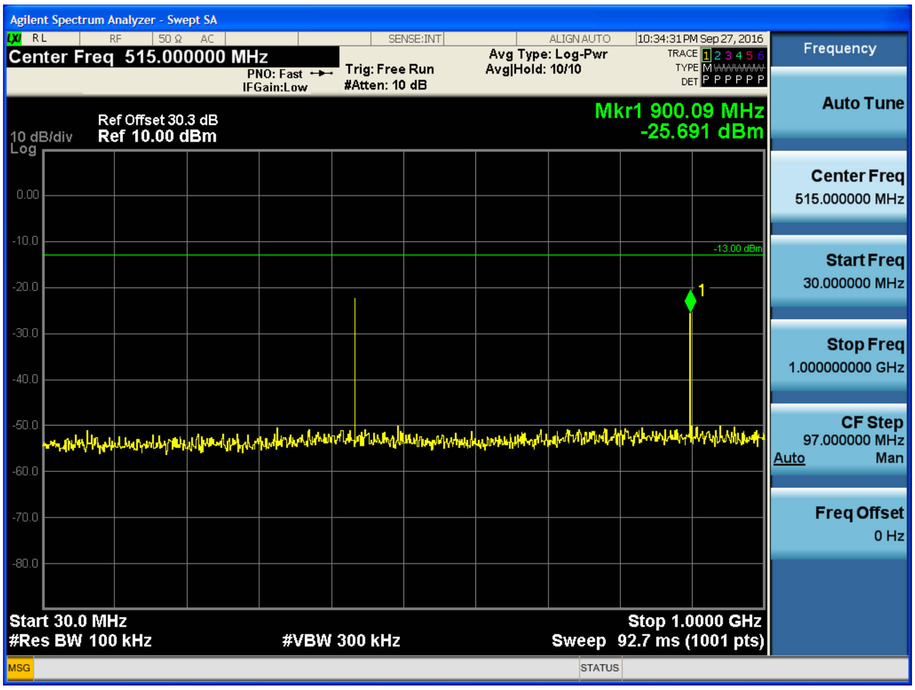
(9 kHz ~ 150 kHz)



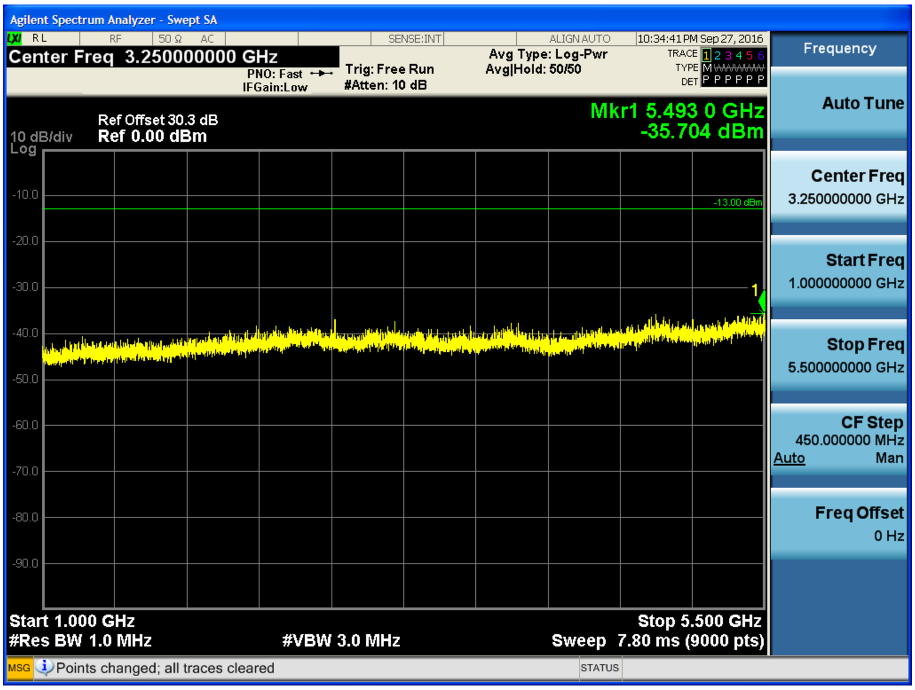
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

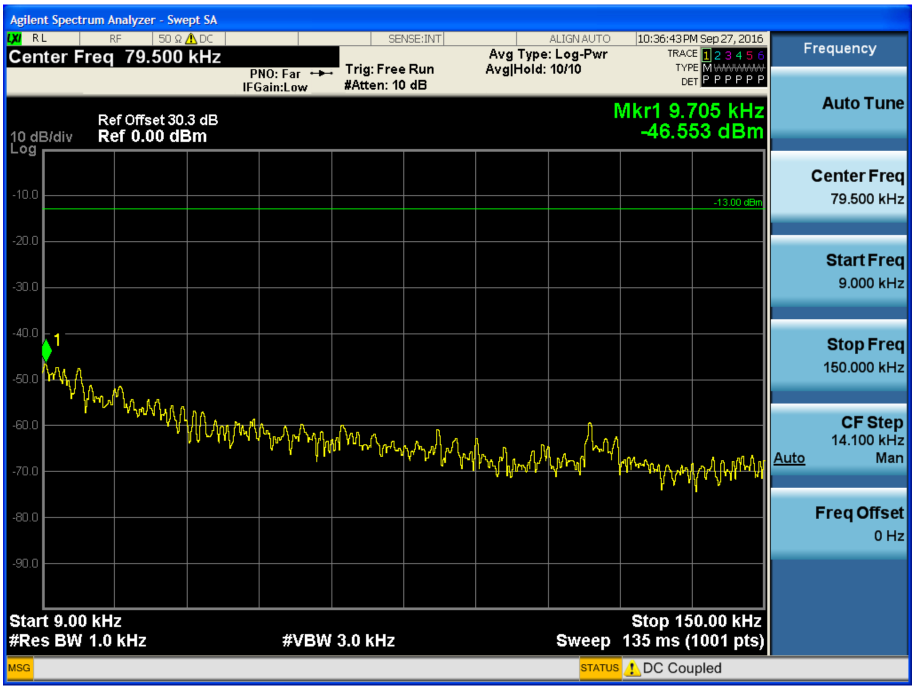


(1 GHz ~ 5.5 GHz)

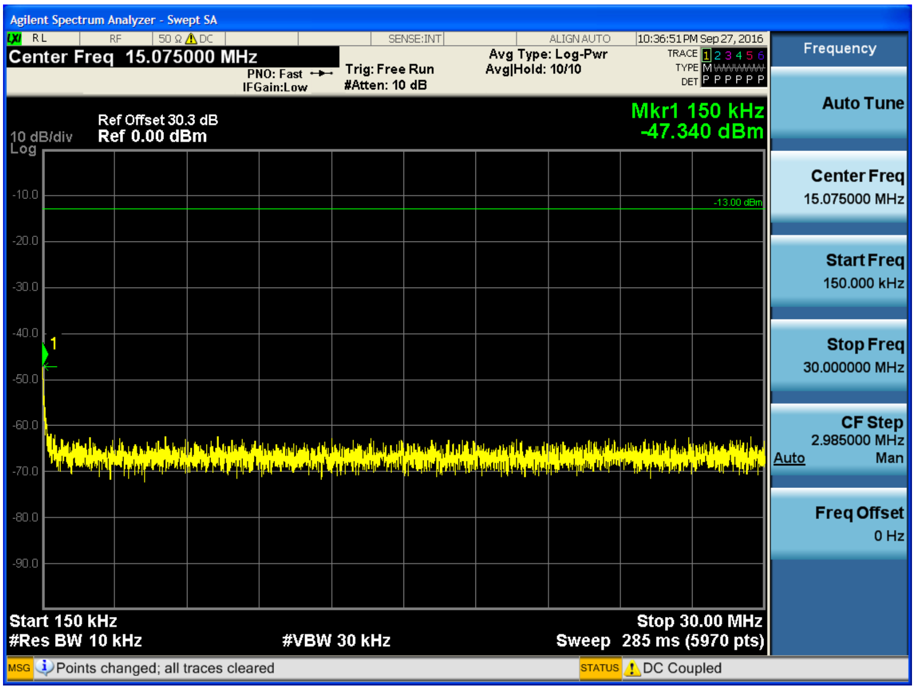


LOW POWER_16K0F3E _460.05 MHz_Middle

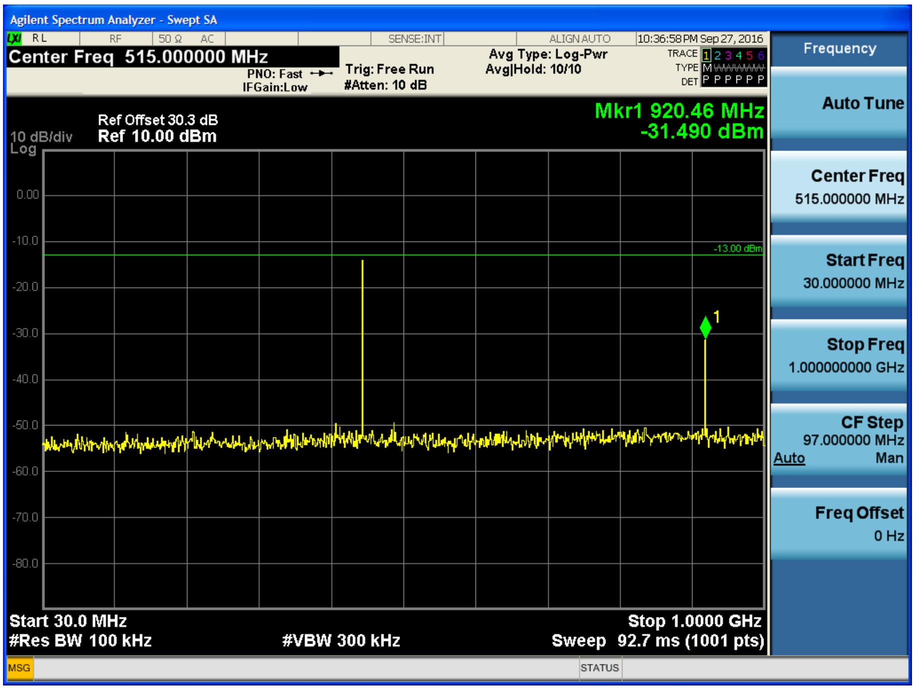
(9 kHz ~ 150 kHz)



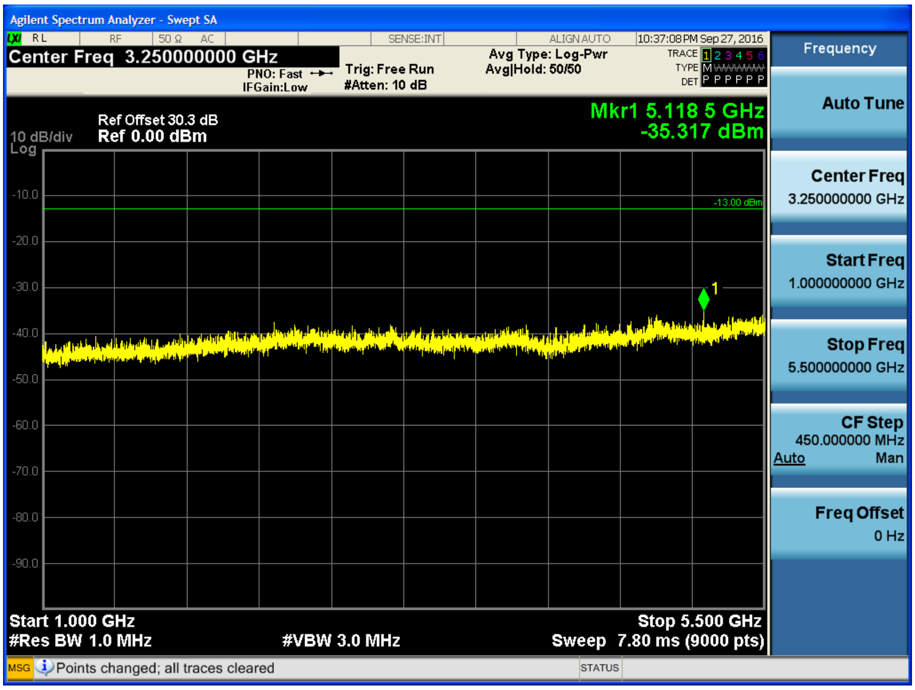
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)

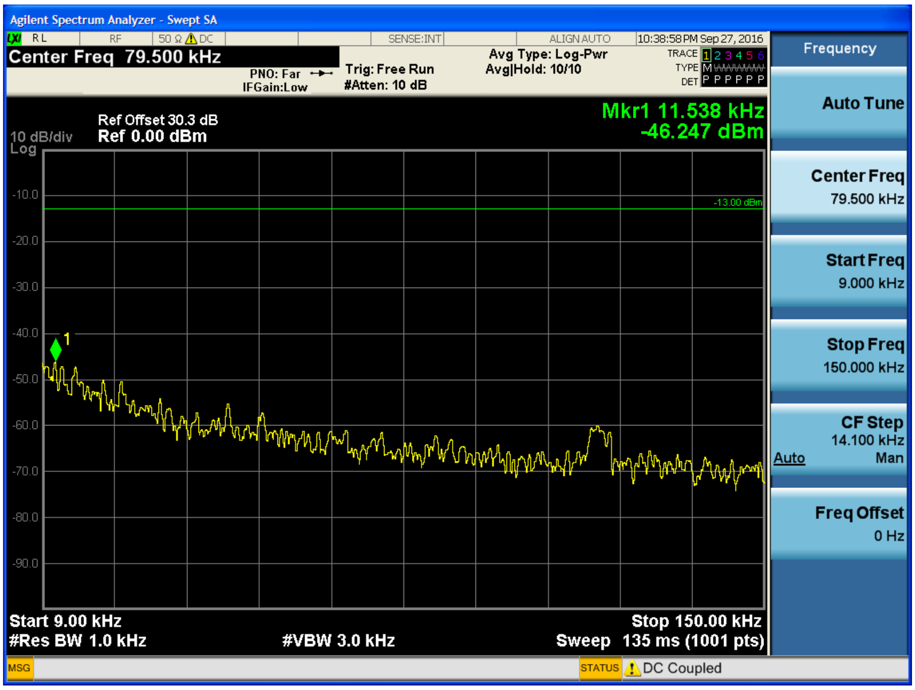


(1 GHz ~ 5.5 GHz)

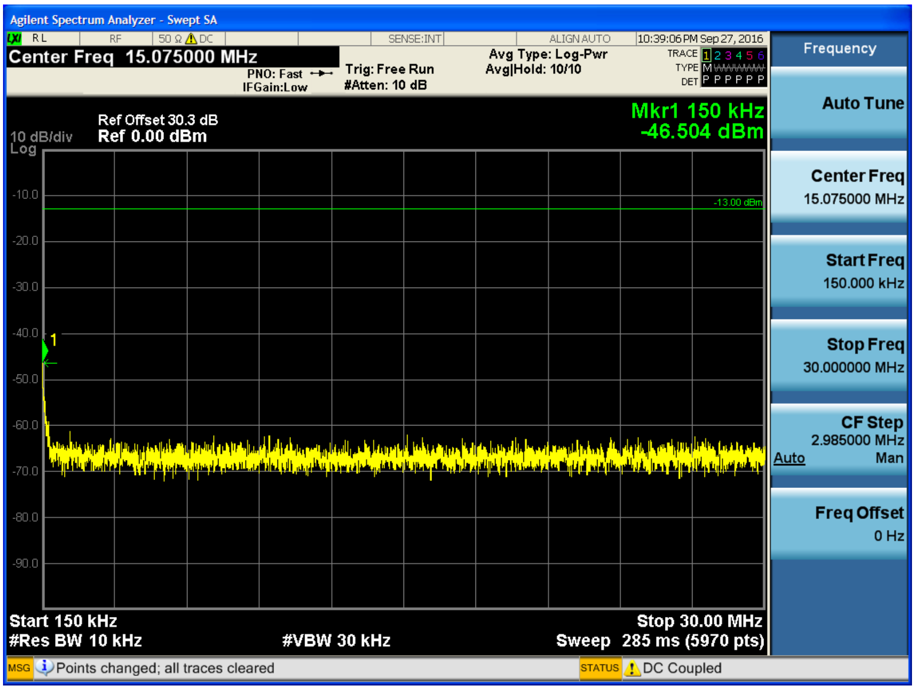


LOW POWER_16K0F3E _469.95 MHz_High

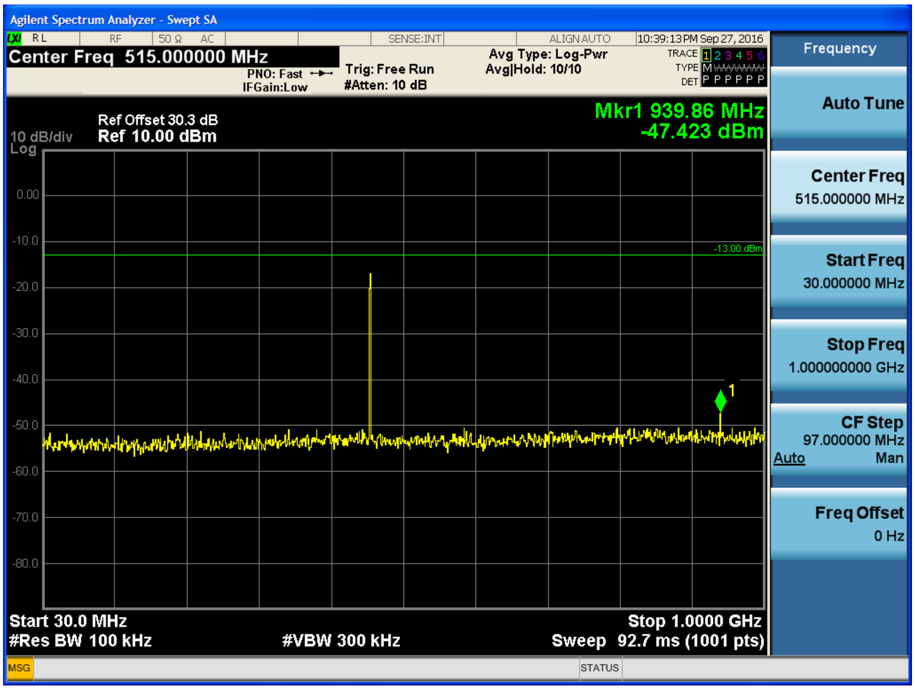
(9 kHz ~ 150 kHz)



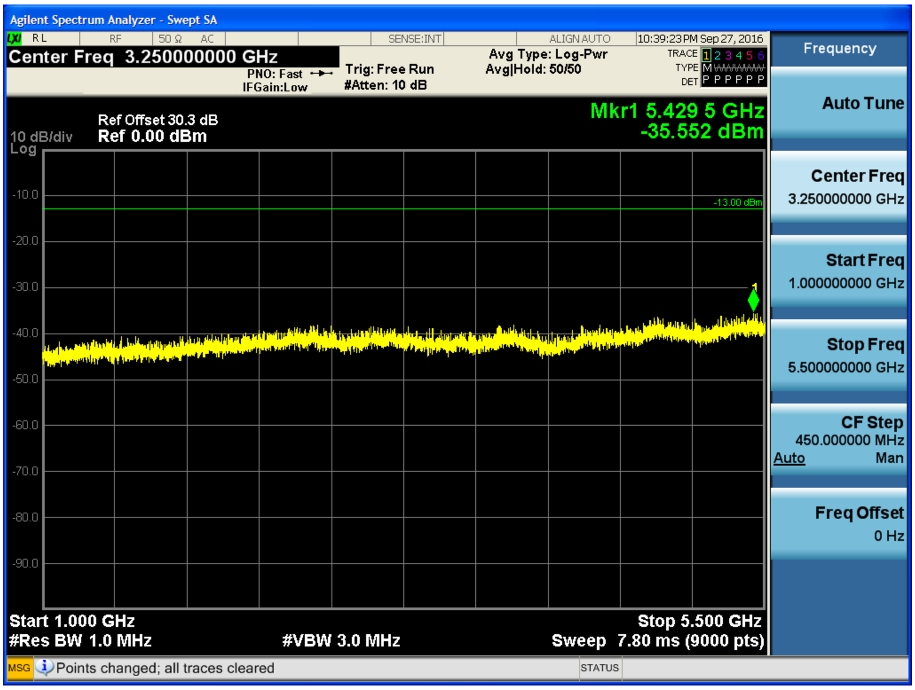
(150 kHz ~ 30 MHz)



(30 MHz ~ 1 GHz)



(1 GHz ~ 5.5 GHz)



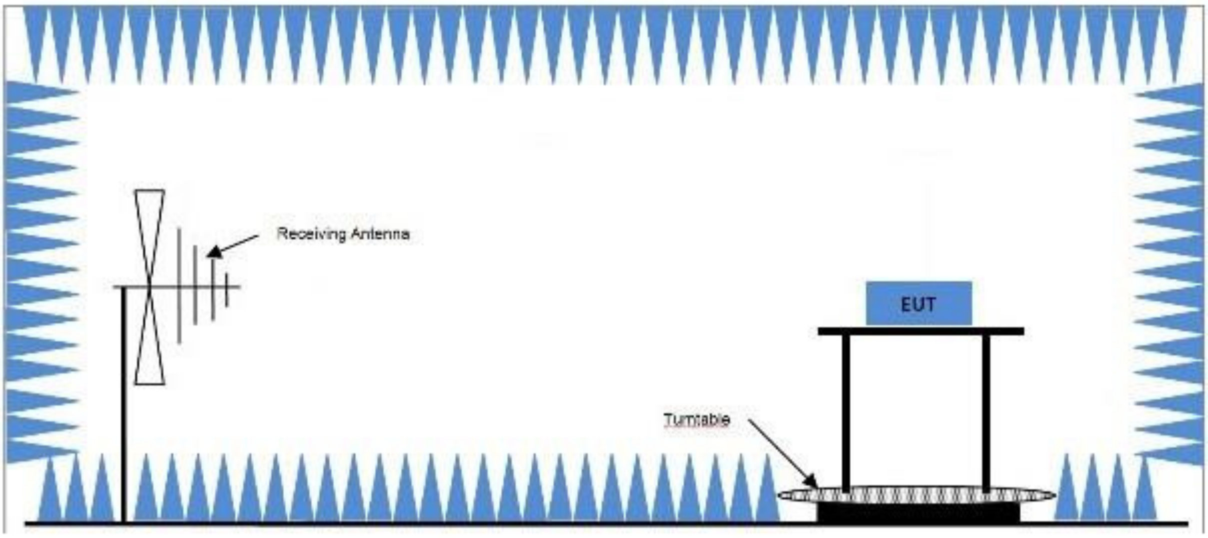
8.10 Unwanted Emissions : Radiated Spurious Emission

▣ Definition

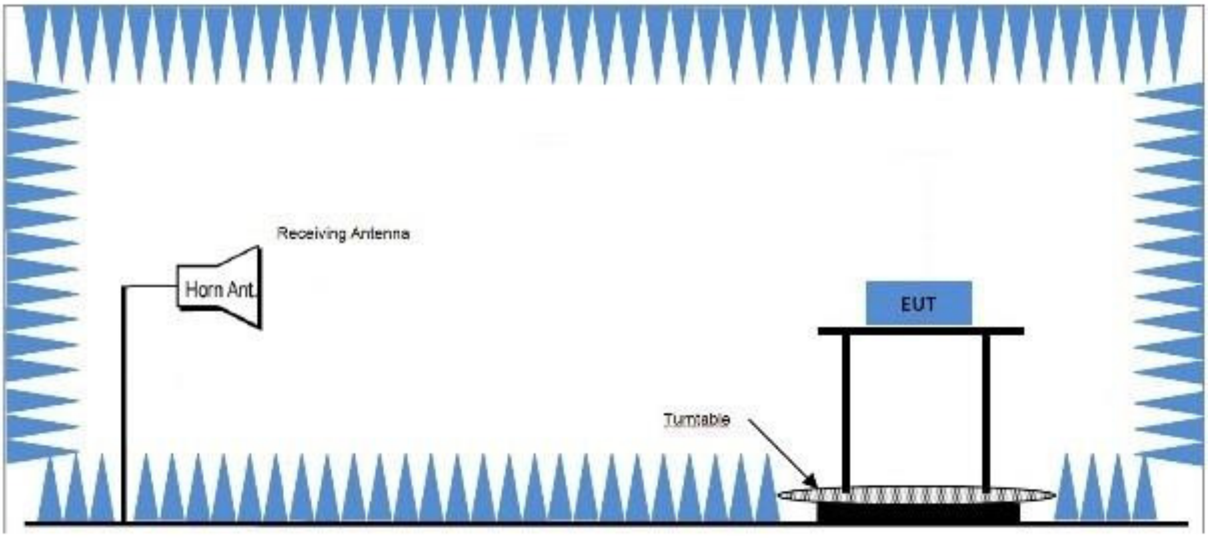
Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies that are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

▣ TEST CONFIGURATION

Below 30 MHz



Above 1 GHz



TEST PROCEDURE USED

According to 2.2.12 in TIA-603-D Standard.

a) Connect the equipment as illustrated.

b) 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 1GHz.

2) Video Bandwidth = 300 kHz for spurious emissions below 1 GHz, and 3 MHz for spurious emissions above 1 GHz.

3) Sweep Speed slow enough to maintain measurement calibration.

4) Detector Mode = Positive Peak.

c) Place the transmitter to be tested on the turntable in the standard test site, or an FCC listed site compliant with ANSI C63.4-2001 clause 5.4. The transmitter is transmitting into a nonradiating load that is placed on the turntable. The RF cable to this load should be of minimum length. For transmitters with integral antennas, the tests are to be run with the unit operating into the integral antenna.

d) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to±the test bandwidth (see 1.3.4.4).

e) Key the transmitter.

f) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Then the turntable should be rotated 360°to determine the maximum reading.

Repeat this procedure to obtain the highest possible reading. Record this maximum reading.

g) Repeat step f) for each spurious frequency with the test antenna polarized vertically.

h) Reconnect the equipment as illustrated.

i) Keep the spectrum analyzer adjusted as in step b).

j) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At the lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.

k) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

l) Repeat step k) with both antennas vertically polarized for each spurious frequency.

m) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps k) and l) by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:

Pd(dBm) = *Pg*(dBm) – *cable loss* (dB) + *antenna gain* (dB)

where:

*Pd*is the dipole equivalent power and

*Pg*is the generator output power into the substitution antenna.

n) The *Pd*levels record in step m) are the absolute levels of radiated spurious emissions in dBm.

The radiated spurious emissions in dB can be calculated by the following:

Radiated spurious emissions (dB) =

$10*\log_{10}$(TX power in watts/0.001)- *the levels in step m)*

▣LIMIT

Frequency Band (MHz)	Channel bandwidth (kHz)	Limit (dBm)
450.05 – 469.95	12.5	-20
	25	-13

▣ Operating Mode

EUT Type	Modulation	Battery	Test frequency (MHz)
Stand alone	11K0F3E	KNB-46L	450.05
			460.05
			469.95
	16K0F3E		450.05
			460.05
			469.95

Note

1. It is permissible to use other antennas provided they can be referenced to a dipole.
2. Worst case is red mark.

▣ TEST RESULTS

11K0F3E

Frequency [MHz] F1 : 450.05 Battery : KNB-46L						
Frequency (MHz)	**Reading [dBm]**	**Factor (dB)**	**Pol.**	**Result (dBm)**	**Limit (dBm)**	**Margin (dB)**
450.05	-6.06	27.26	Y-V	21.20	-	-
900.10	-68.73	33.10	Y-V	-35.63	-20.00	15.63
900.10	-68.51	33.10	Z-H	-35.41	-20.00	15.41
1800.20	-24.97	-4.25	Y-V	-29.22	-20.00	9.22
1800.20	-24.67	-4.25	Z-H	-28.92	-20.00	8.92

*Note :

1. Limit = P_{dBm} – (50+10 log (P_{watt})) = -20 dBm

Frequency [MHz] F1 : 460.05 Battery : KNB-46L						
Frequency (MHz)	**Reading [dBm]**	**Factor (dB)**	**Pol.**	**Result (dBm)**	**Limit (dBm)**	**Margin (dB)**
460.05	-6.26	27.14	X-H	20.88	-	-
920.10	-67.93	33.17	X-H	-34.76	-20.00	14.76
920.10	-66.21	33.17	Y-V	-33.04	-20.00	13.04
2300.25	-29.94	0.94	X-H	-29.00	-20.00	9.00
1380.15	-25.84	-3.61	Y-V	-29.45	-20.00	9.45

*Note :

1. Limit = P_{dBm} – (50+10 log (P_{watt})) = -20 dBm

Frequency [MHz] F1 : 469.95 Battery : KNB-46L						
Frequency (MHz)	**Reading [dBm]**	**Factor (dB)**	**Pol.**	**Result (dBm)**	**Limit (dBm)**	**Margin (dB)**
469.95	-2.10	27.16	X-H	25.06	-	-
1409.85	-25.64	-3.65	X-H	-29.29	-20.00	9.29
1409.85	-25.06	-3.65	Y-V	-28.71	-20.00	8.71
1409.85	-21.02	-3.65	X-H	-24.67	-20.00	4.67
1409.85	-20.59	-3.65	Y-V	-24.24	-20.00	4.24

*Note :

1. Limit = P_{dBm} – (50+10 log (P_{watt})) = -20 dBm

16K0F3E

Frequency [MHz] F1 : 450.05 Battery : KNB-46L						
Frequency (MHz)	**Reading [dBm]**	**Factor (dB)**	**Pol.**	**Result (dBm)**	**Limit (dBm)**	**Margin (dB)**
450.05	-6.83	27.26	Y-V	20.43	-	-
900.1	-68.48	33.10	Y-V	-35.38	-20.00	15.38
900.1	-68.26	33.10	Z-H	-35.16	-20.00	15.16
1800.2	-23.21	-4.25	Y-V	-27.46	-20.00	7.46
1800.2	-23.24	-4.25	Z-H	-27.49	-20.00	7.49

*Note :

1. Limit = $P_{dBm} - (43+10 \log (P_{watt})) = -13$ dBm
2. The Radiated Spurious Emission for 16K0F3E applied the worst limit.

Frequency [MHz] F1 : 460.05 Battery : KNB-46L						
Frequency (MHz)	**Reading [dBm]**	**Factor (dB)**	**Pol.**	**Result (dBm)**	**Limit (dBm)**	**Margin (dB)**
460.05	-6.65	27.14	Y-V	20.49	-	-
920.1	-65.92	33.17	Y-V	-32.75	-20.00	12.75
920.1	-65.60	33.17	Z-H	-32.43	-20.00	12.43
1840.2	-22.06	-4.34	X-H	-26.40	-20.00	6.40
1840.2	-23.32	-4.34	Y-V	-27.66	-20.00	7.66

*Note :

1. Limit = P_{dBm} – (43+10 log (P_{watt})) = -13 dBm
2. The Radiated Spurious Emission for 16K0F3E applied the worst limit.

Frequency [MHz] F1 : 469.95 Battery : KNB-46L						
Frequency (MHz)	**Reading [dBm]**	**Factor (dB)**	**Pol.**	**Result (dBm)**	**Limit (dBm)**	**Margin (dB)**
469.95	-2.61	27.16	Y-V	24.55	-	-
1409.85	-25.09	-3.65	Y-V	-28.74	-20.00	8.74
1409.85	-25.13	-3.65	Z-H	-28.78	-20.00	8.78
1409.85	-21.14	-3.65	X-H	-24.79	-20.00	4.79
1409.85	-20.90	-3.65	Y-V	-24.55	-20.00	4.55

*Note :

1. Limit = P_{dBm} – (43+10 log (P_{watt})) = -13 dBm
2. The Radiated Spurious Emission for 16K0F3E applied the worst limit.

8.11 Necessary Bandwidth Calculations

Modulation = 16K0F3E	
Maximum Modulation (M), kHz	3
Maximum Deviation (D), kHz	5
Constant Factor (K)	1
Necessary Bandwidth (BN), kHz	(2xM)+(2xDxK)
Necessary Bandwidth (BN), kHz	16.0

Modulation = 11K0F3E	
Maximum Modulation (M), kHz	3
Maximum Deviation (D), kHz	2.5
Constant Factor (K)	1
Necessary Bandwidth (BN), kHz	(2xM)+(2xDxK)
Necessary Bandwidth (BN), kHz	11.0

9. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Interval	Calibration Due	Serial No.
Agilent	N9020A/ SIGNAL ANALYZER	Annual	08/01/2017	MY50200666
Agilent	N1911A/Power Meter	Annual	03/11/2017	MY45100523
Agilent	N1921A /POWER SENSOR	Annual	03/11/2017	MY52260025
Hewlett Packard	8903B/Audio Analyzer	Annual	12/30/2016	3413A13913
Hewlett Packard	8901B/Modulation Analyzer	Annual	10/30/2016	3438A05231
Tektronix	RSA3408A/Real Time Spectrum Analyzer	Annual	09/09/2017	B010198
Agilent	8498A/30 dB Attenuator	Annual	10/28/2016	51162
EAGLE	230NFNM/Tuneable Notch Filter	Annual	10/14/2016	H00564-10
EAGLE	230NFNM/Tuneable Notch Filter	Annual	10/14/2016	H00564-9
Korea Engineering	KR-1005L / Temperature Chamber	Annual	10/27/2016	KRAC05063-3CH
CERNEX	AMPLIFIER_CBLU1183540B	Annual	06/16/2017	26822
Wainwright	WHKX10-900-1000-15000-40SS	Annual	08/04/2017	5
Hewlett Packard	E3632A / DC Power supply	Annual	07/12/2017	KR75305628
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	05/15/2017	1299
ROHDE&SCHWARZ	FSV40-N/Spectrum Analyzer	Annual	09/23/2017	101068-SZ
Inn-co GmbH	CT 0800/Turn table	N/A	N/A	CT0800/083
Inn-co GmbH	DE 3600 RH/Ant. Mast	N/A	N/A	-
Schwarzbeck	VULB 9160/ TRILOG Antenna	Biennial	10/10/2016	3368