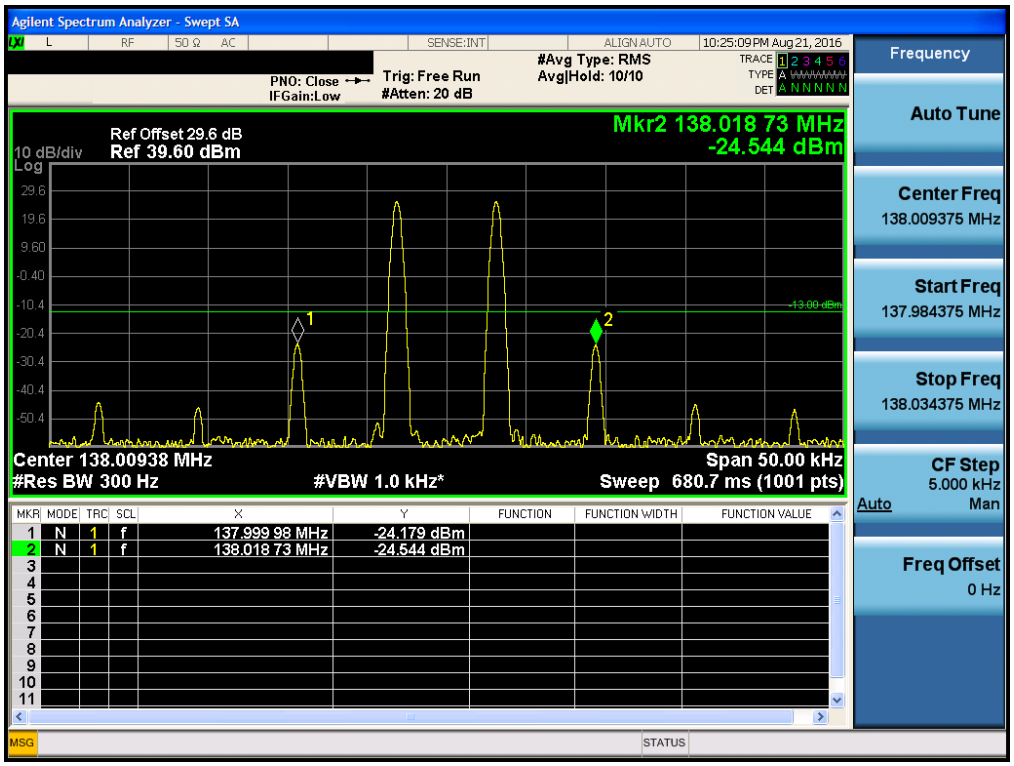
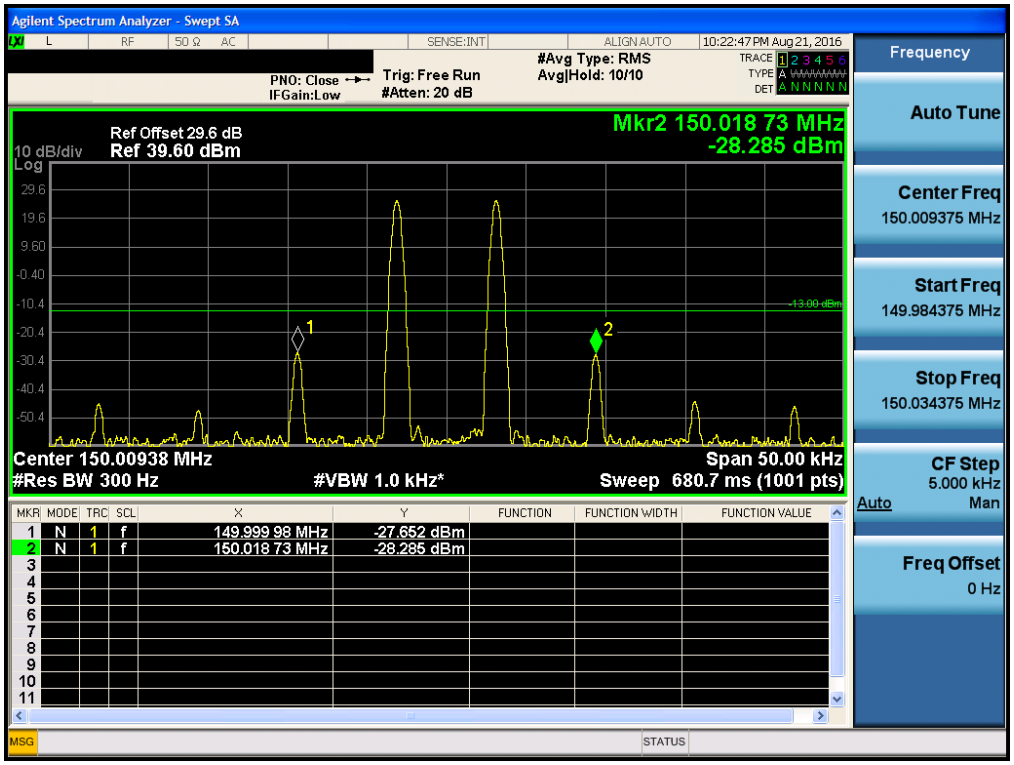
Intermodulation Spurious Emissions for FCC

VHF(APCO25)

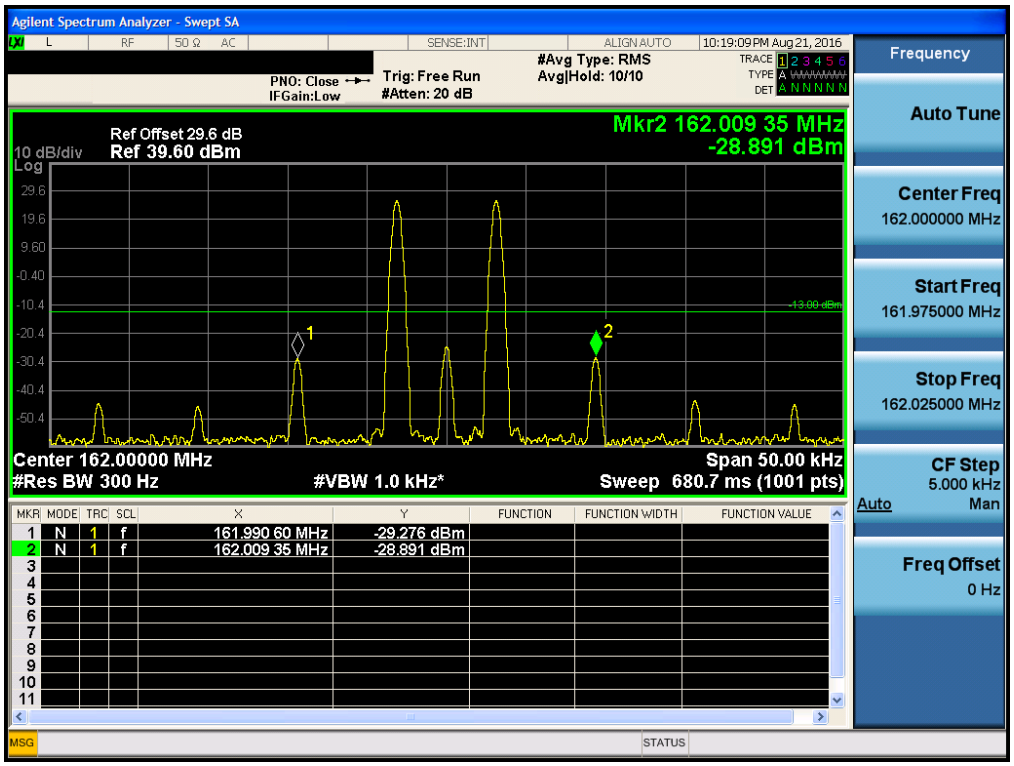
[Downlink 138.5 MHz]



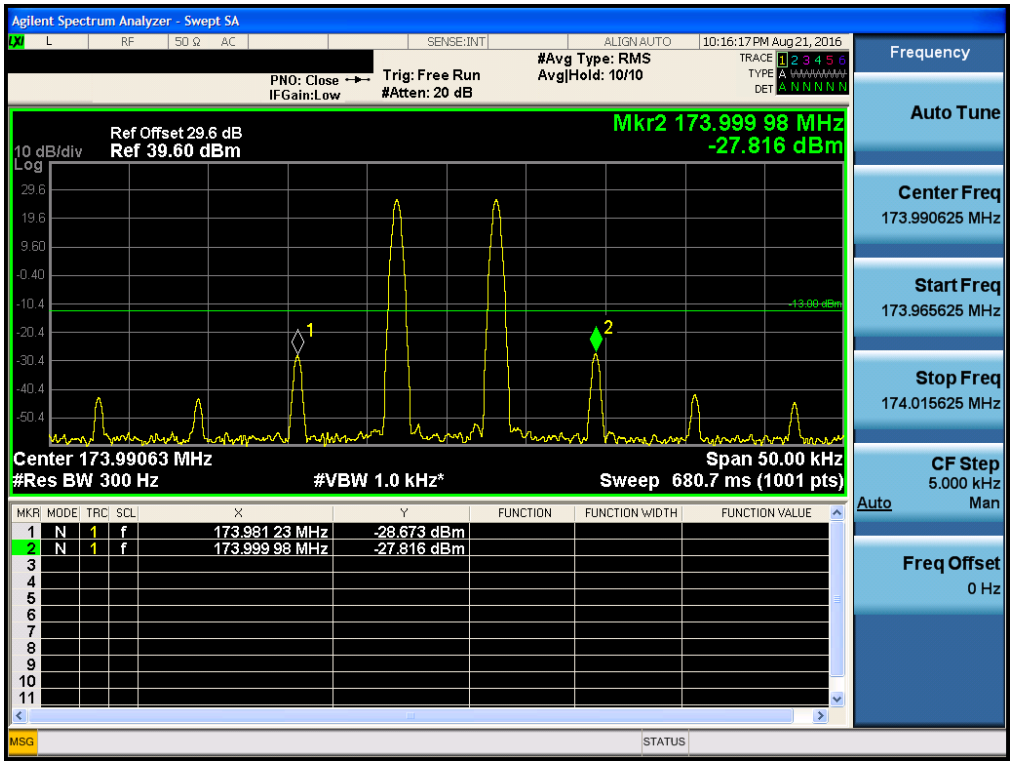
[Downlink 150.5 MHz]



[Downlink 162.0 MHz]

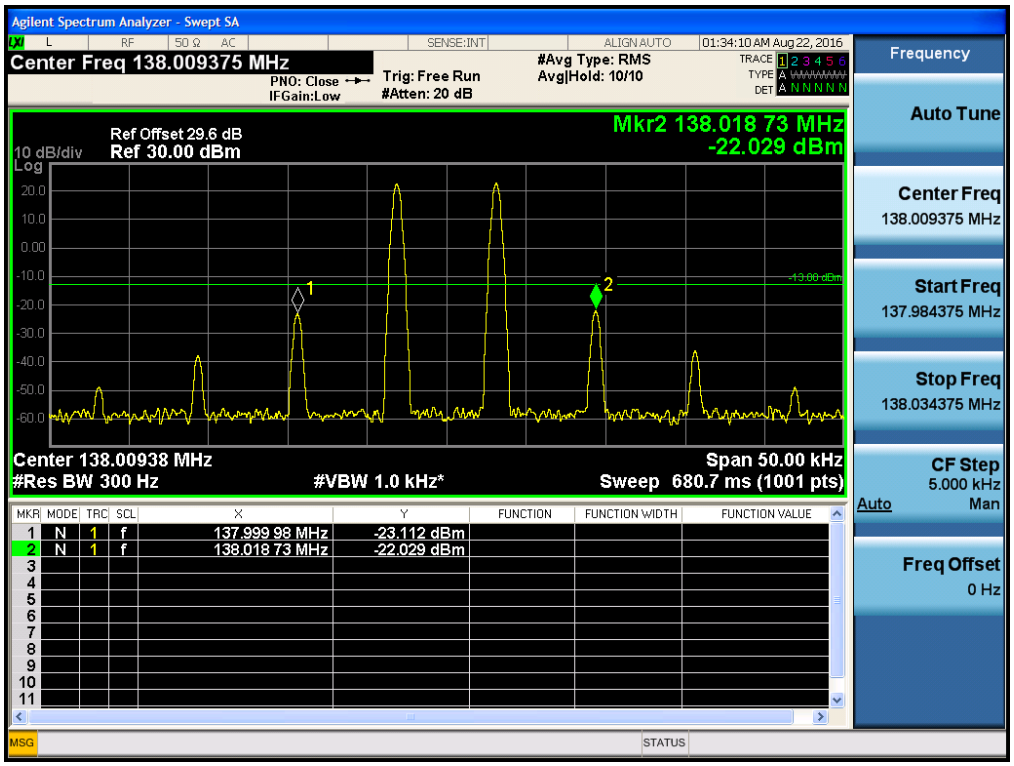


[Downlink 173.5 MHz]



VHF(APCO25)

[Uplink 138.5 MHz]



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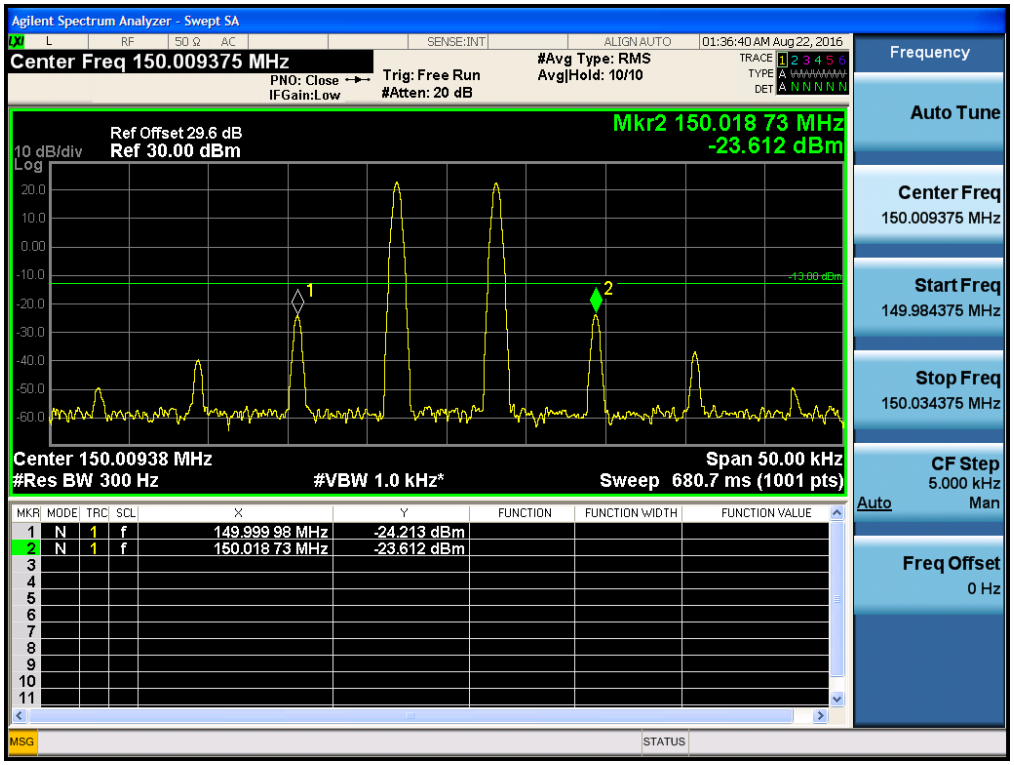

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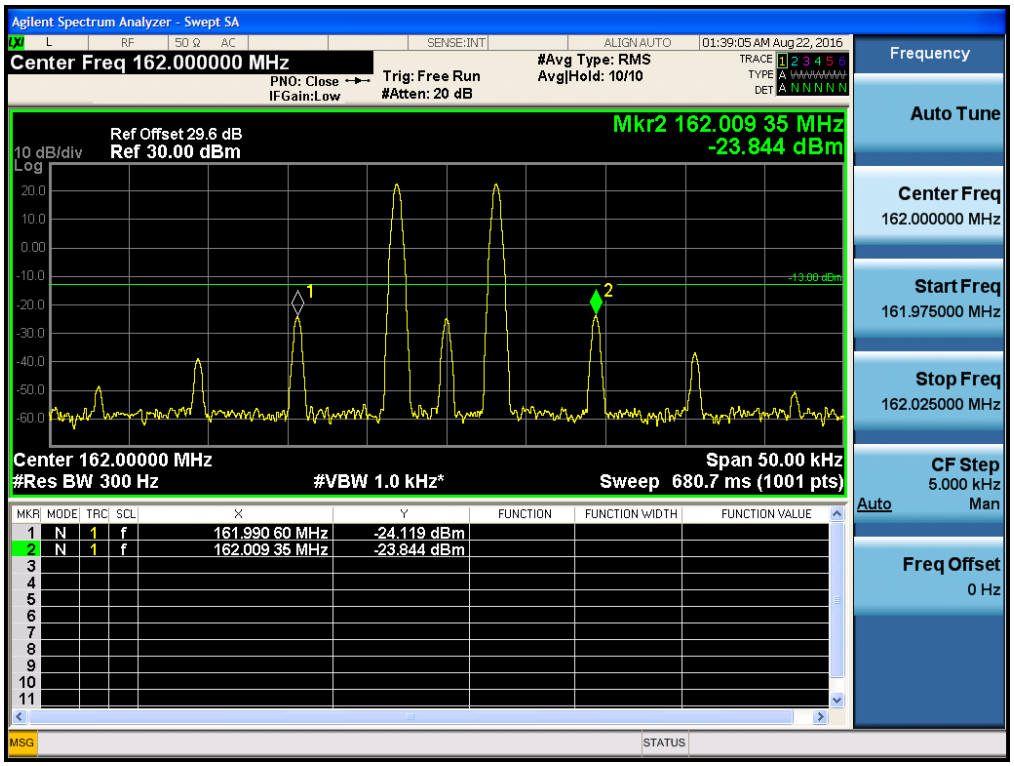

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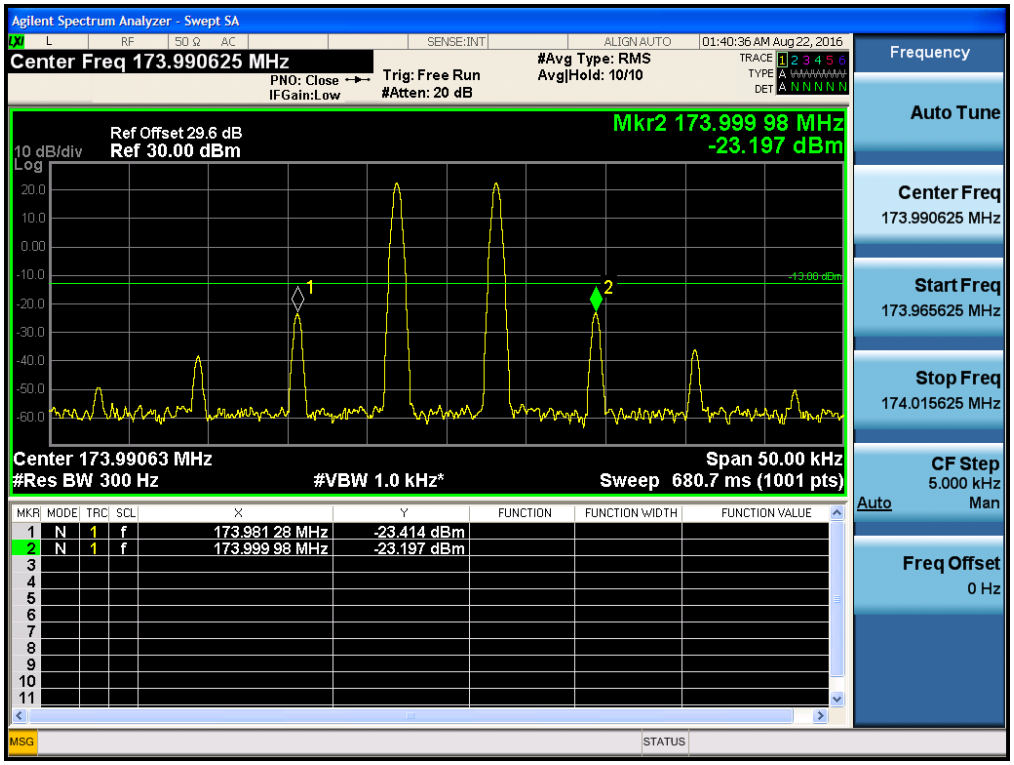
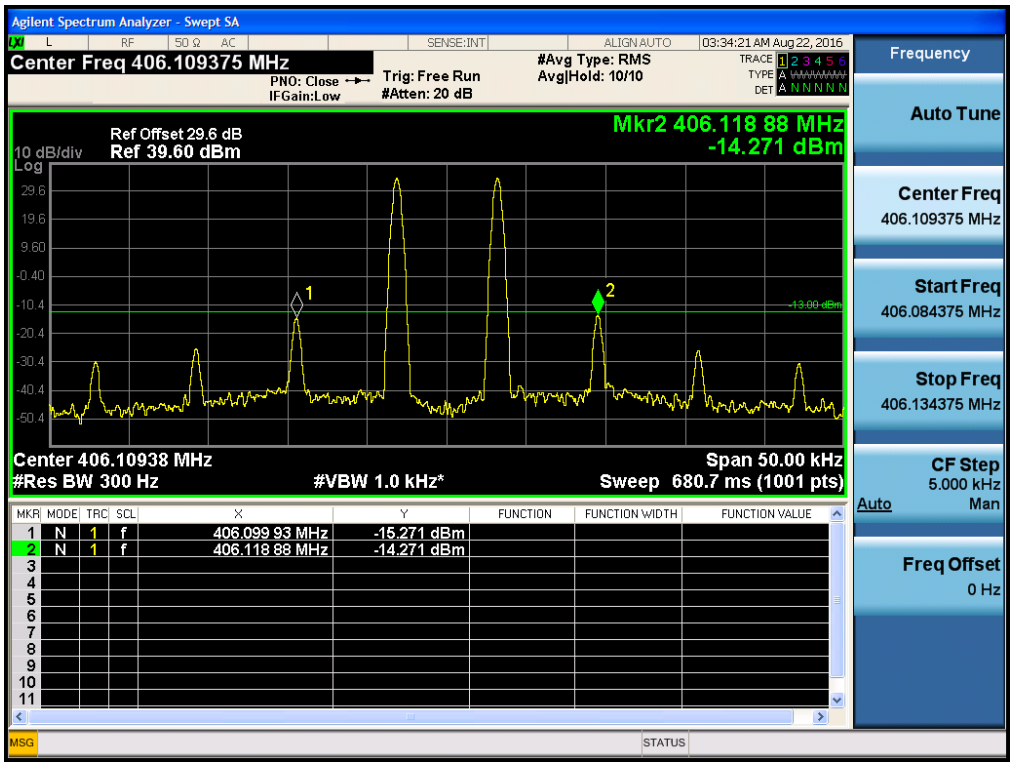
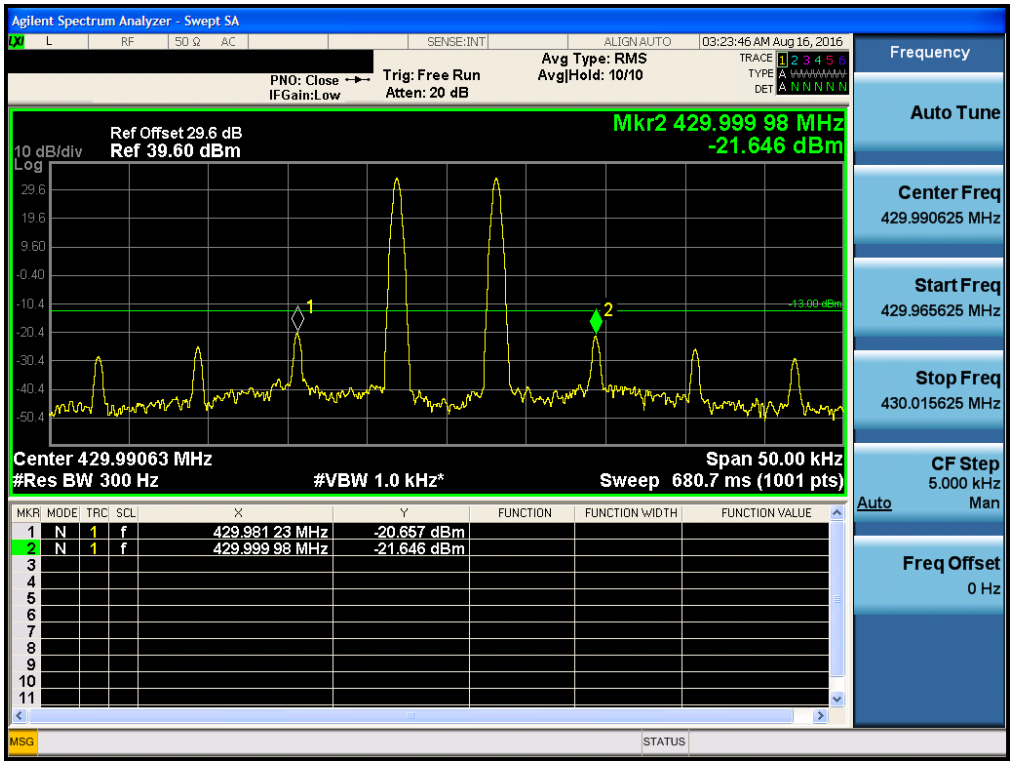


UHF(APCO25)

[Downlink 406.6 MHz]



[Downlink 429.5 MHz]



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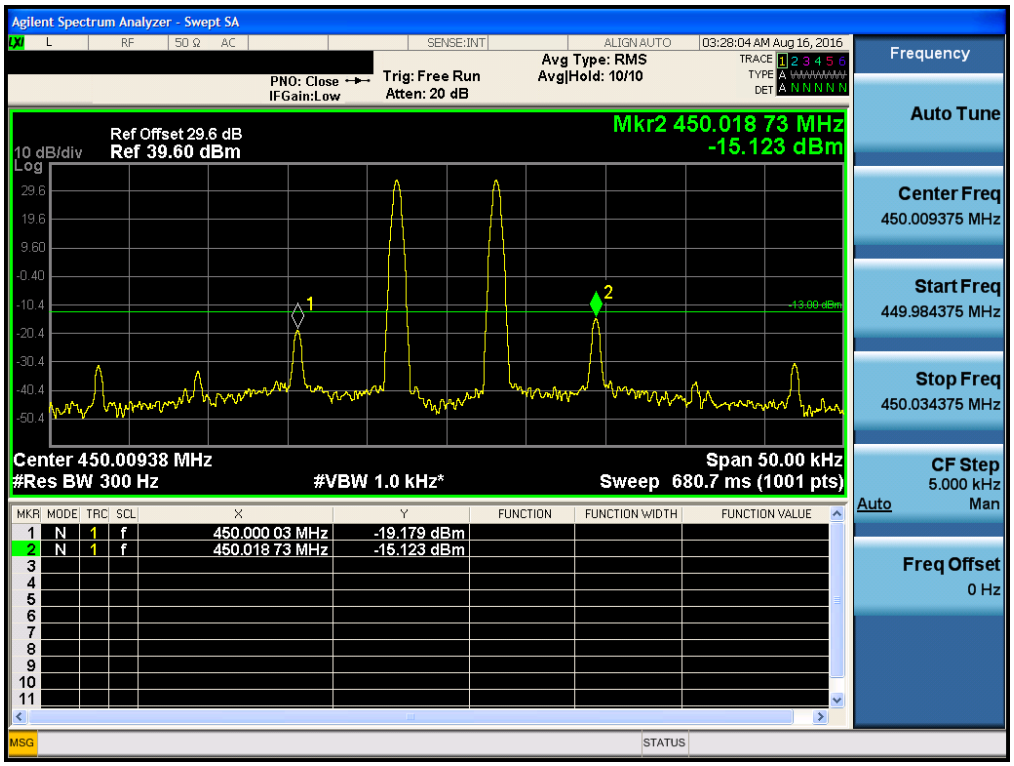

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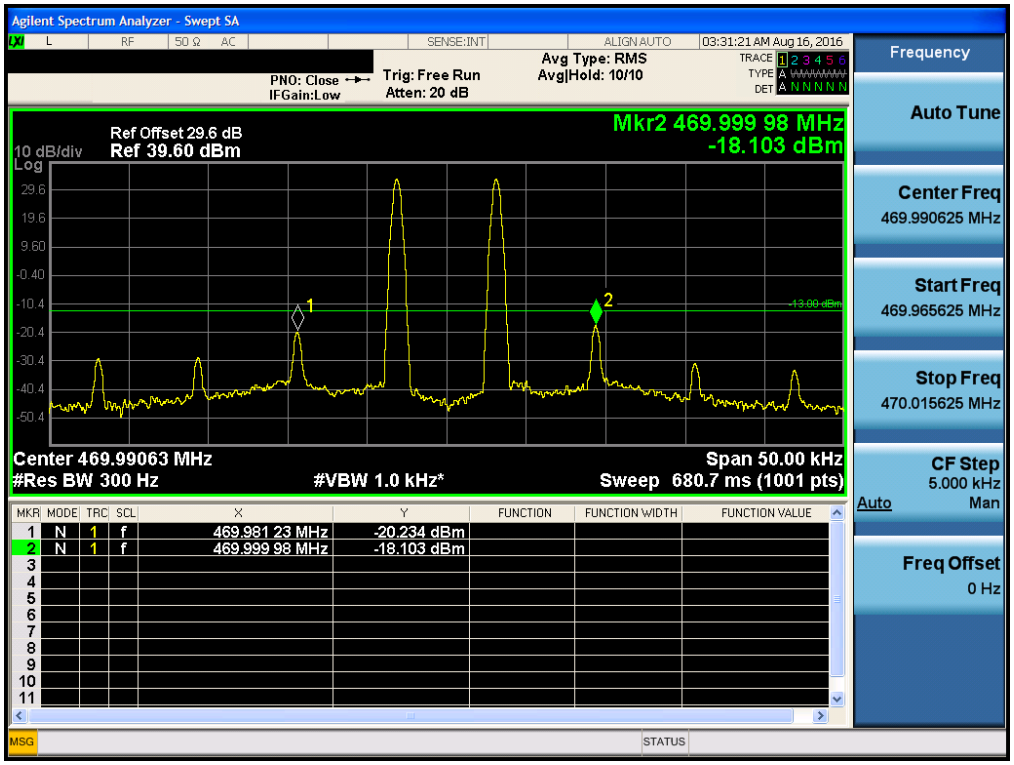
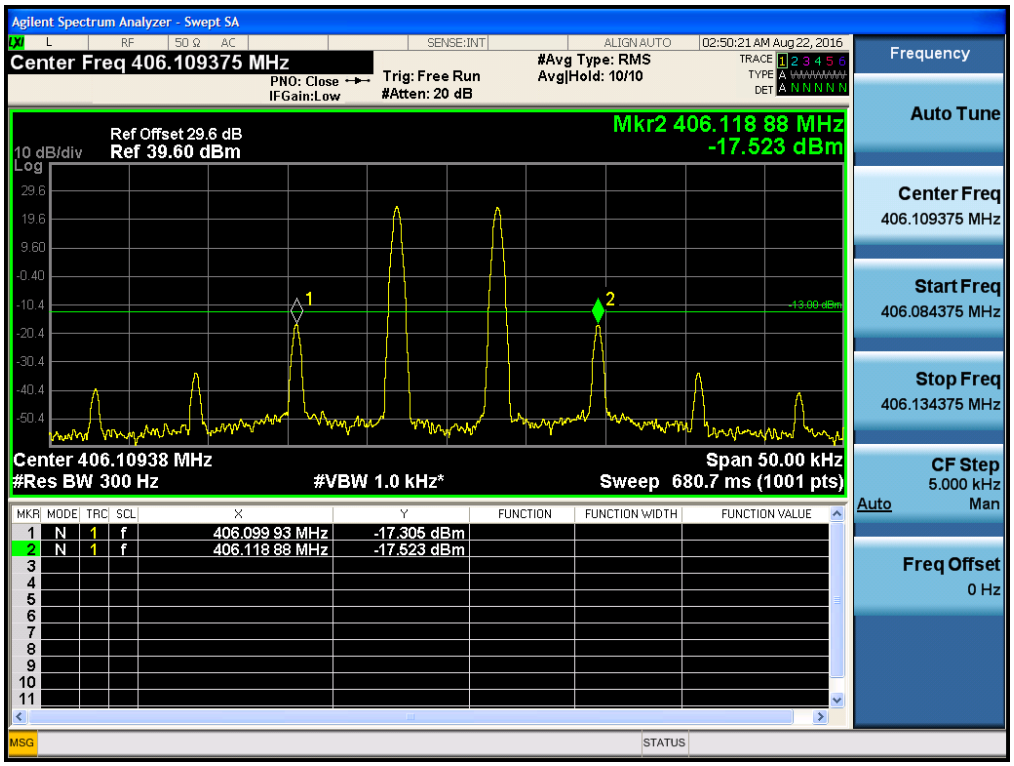


UHF(APCO25)

[Uplink 406.6 MHz]



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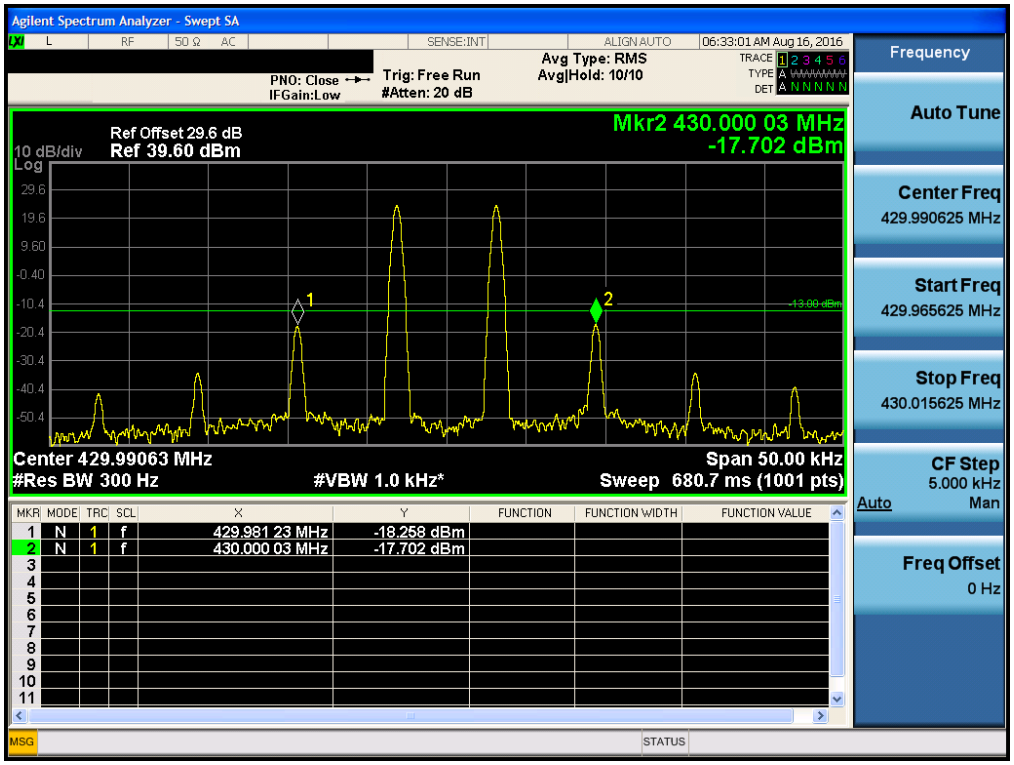
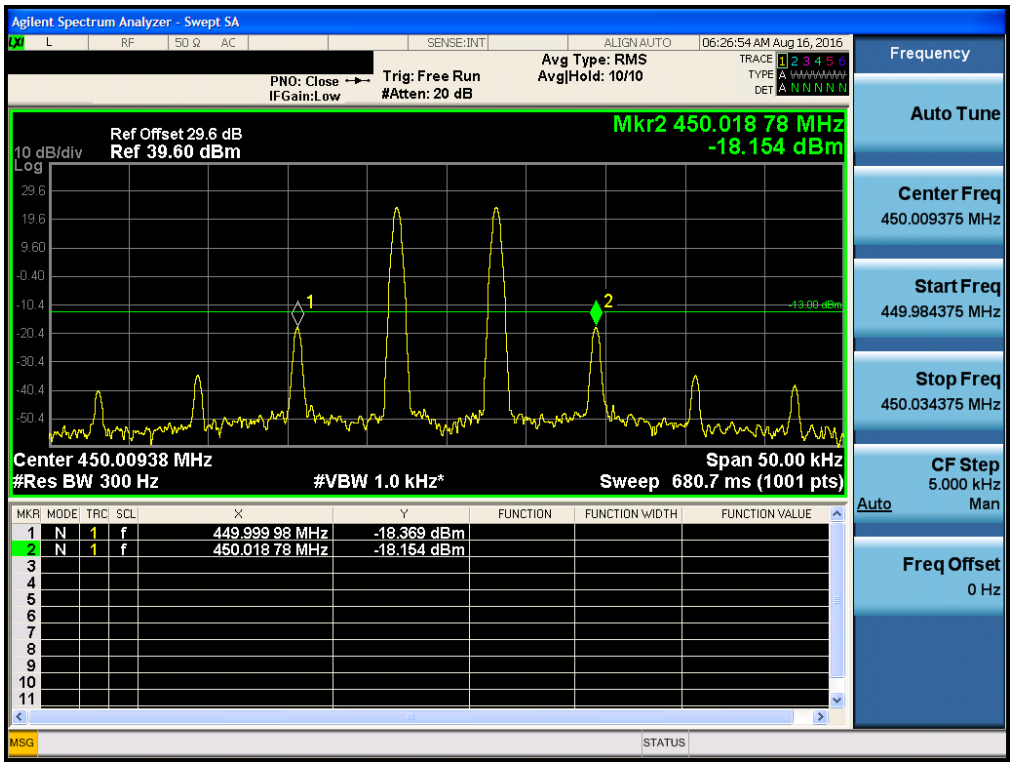
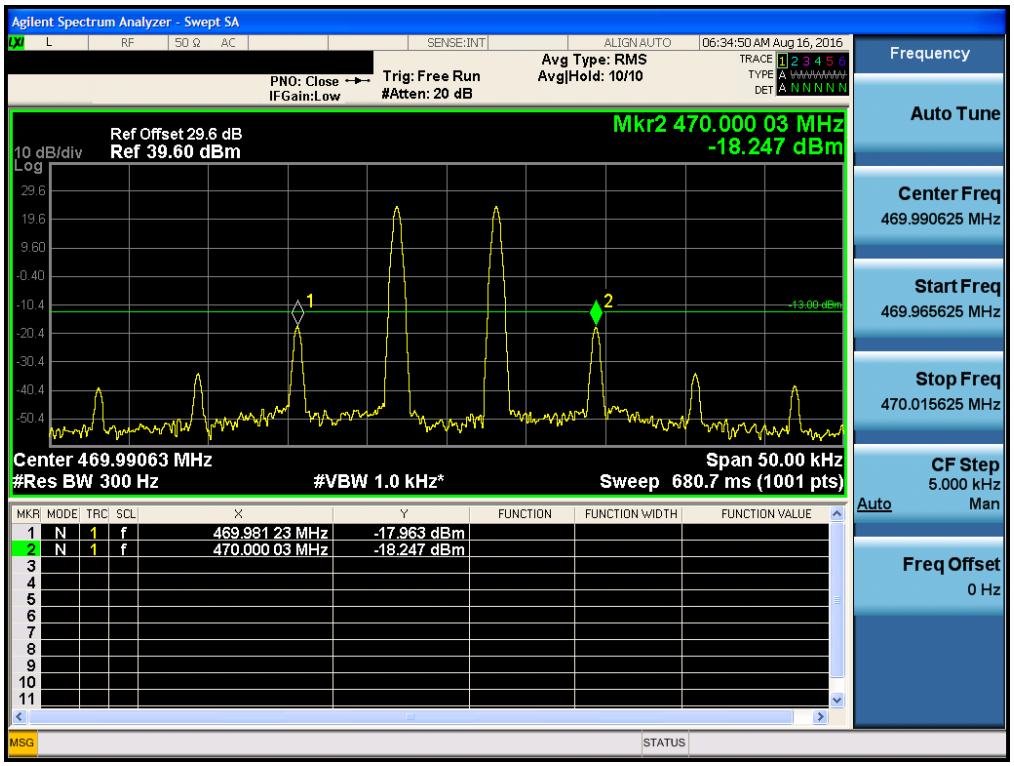


[Uplink 450.5 MHz]

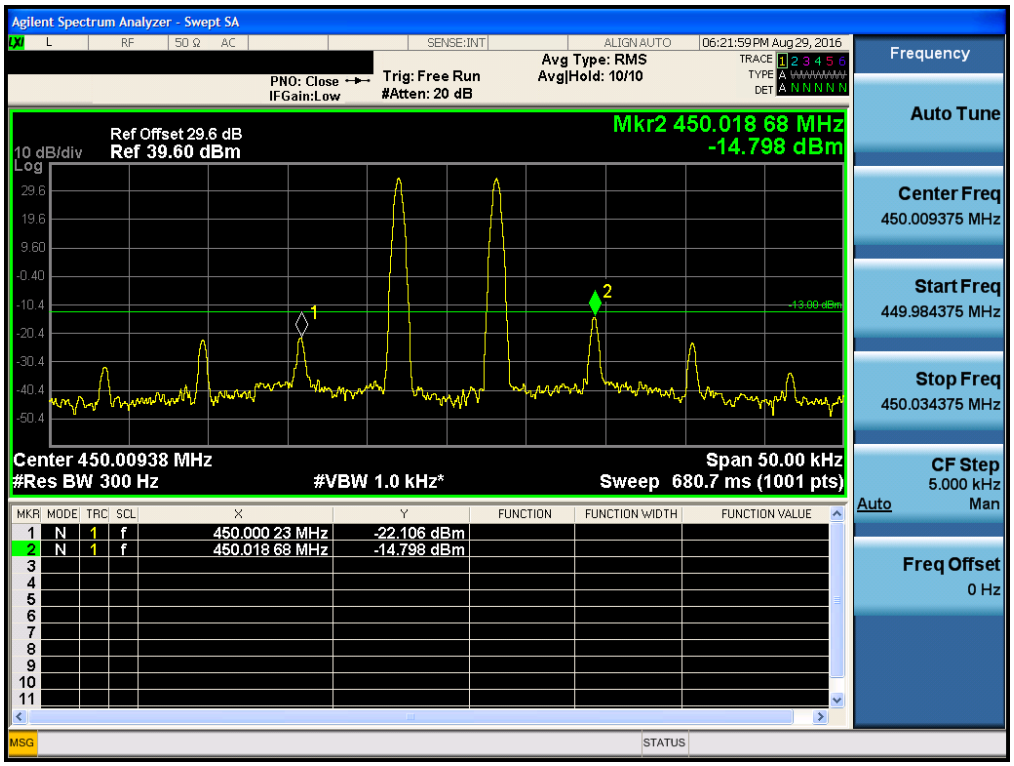


[Uplink 469.5 MHz]

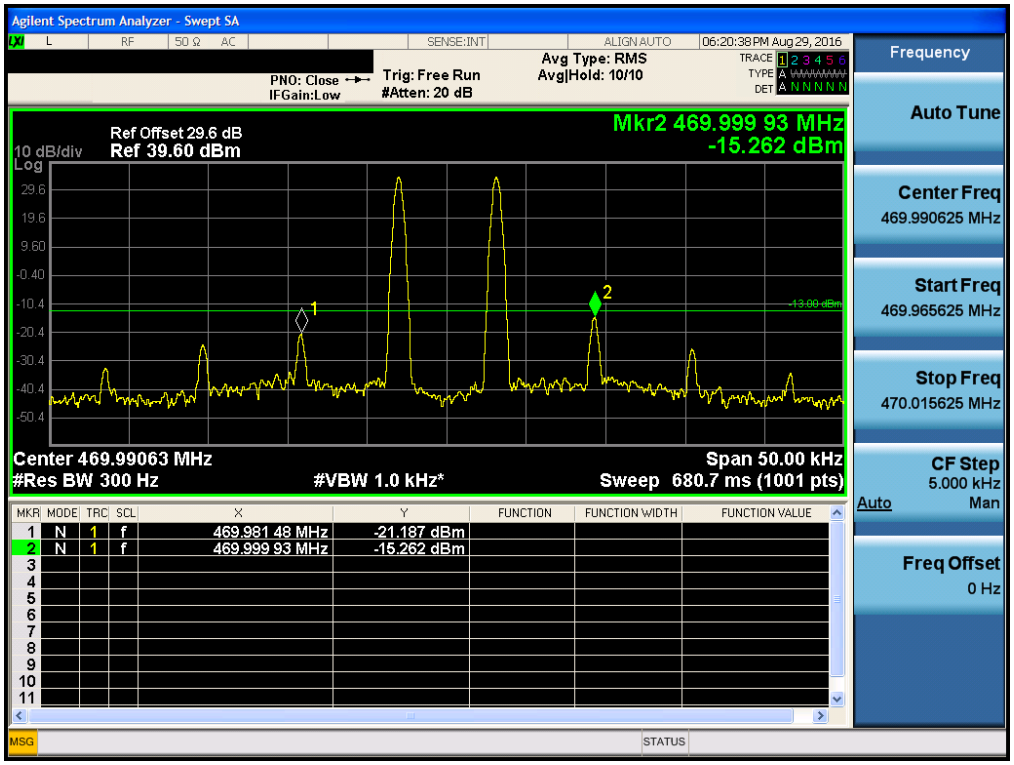


UHF(LMR450)

[Downlink 450.5 MHz]



[Downlink 469.5 MHz]



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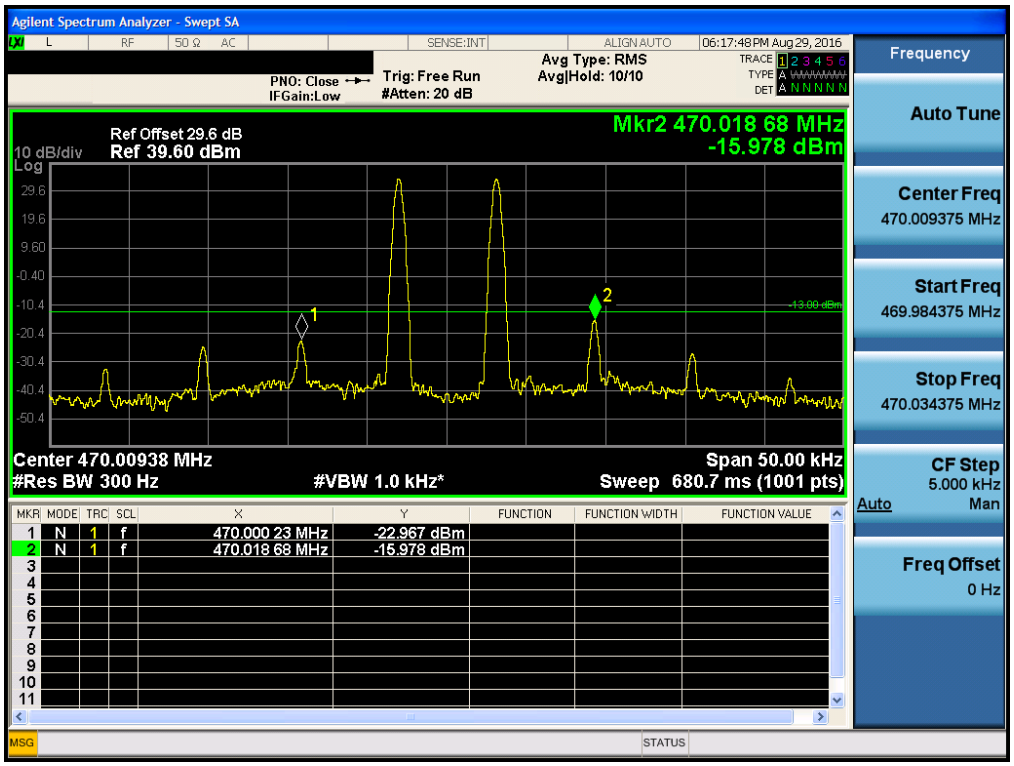
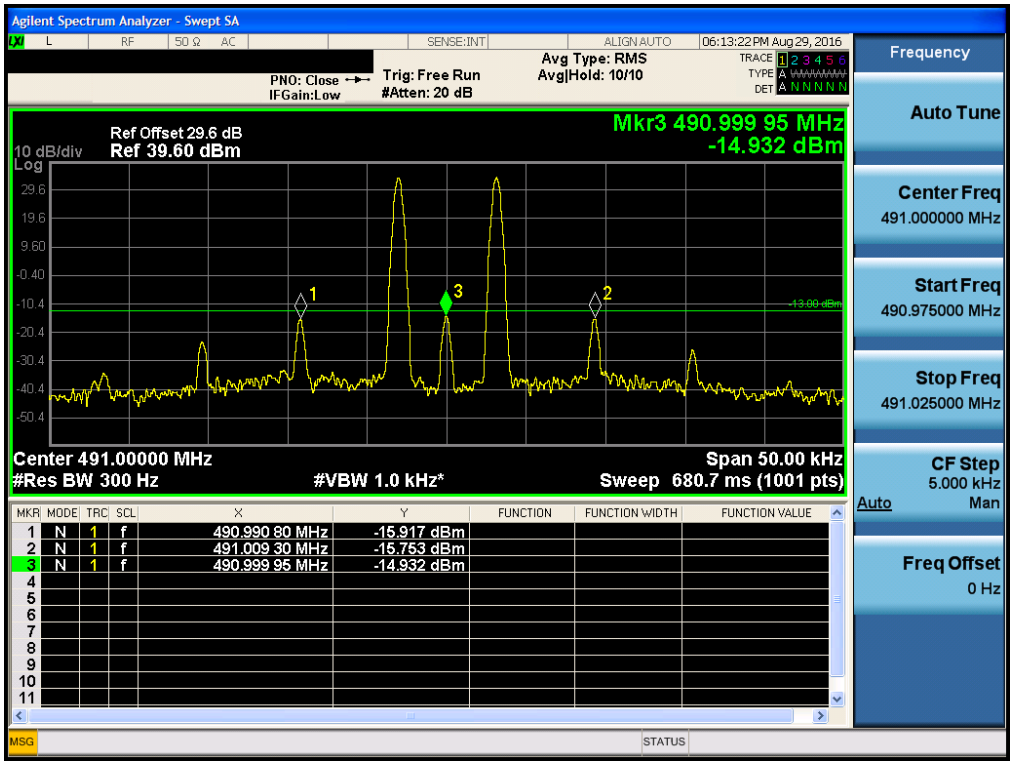
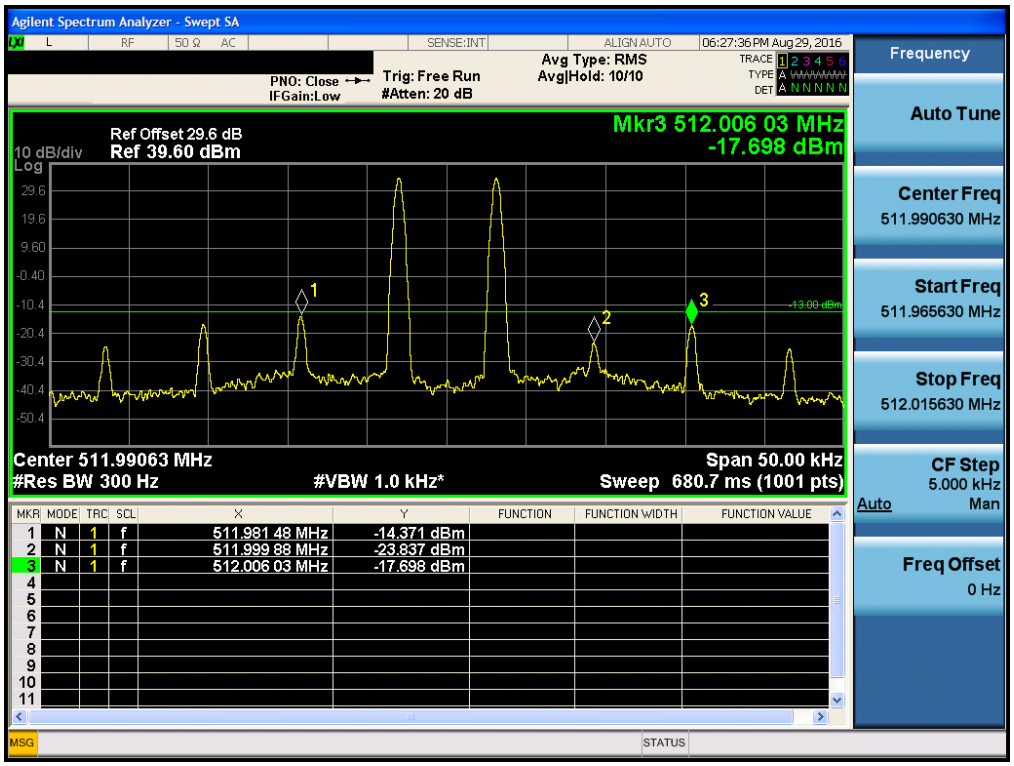


[Downlink 491.0 MHz]

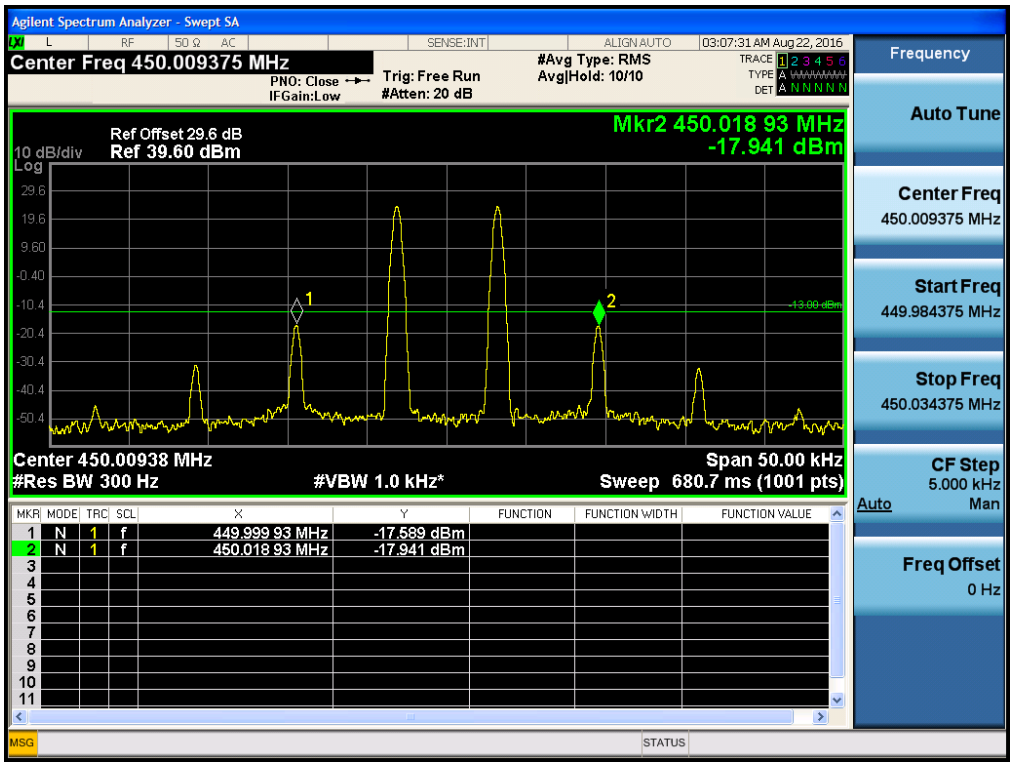


[Downlink 511.5 MHz]



UHF(LMR450)

[Uplink 450.5 MHz]



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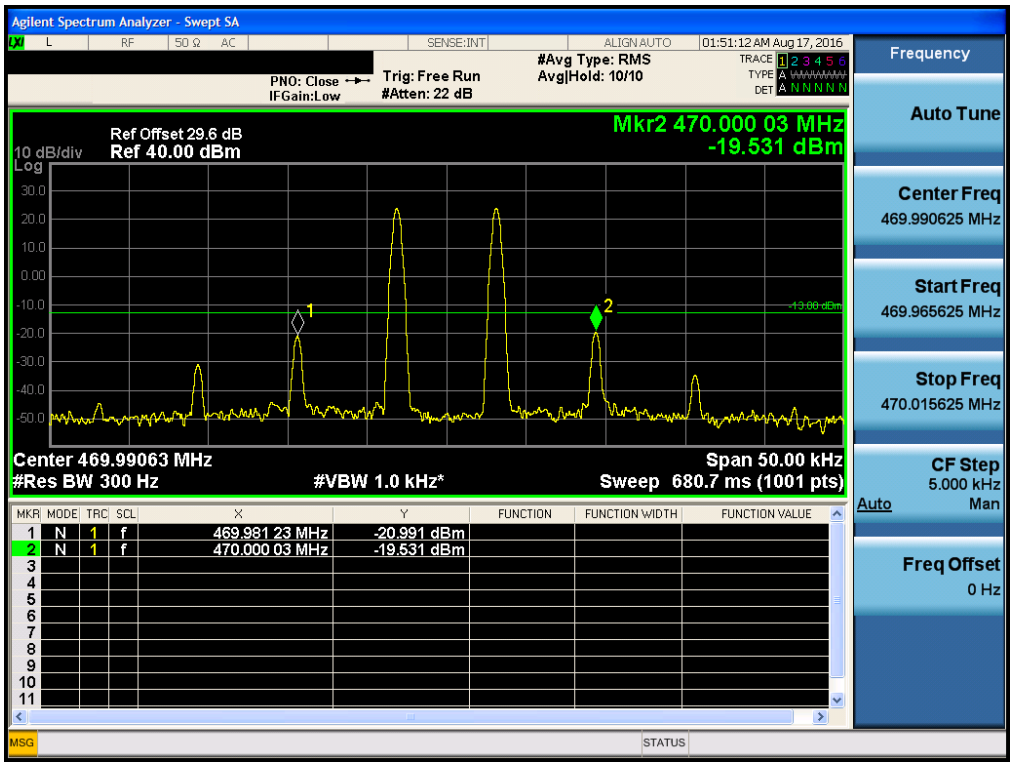

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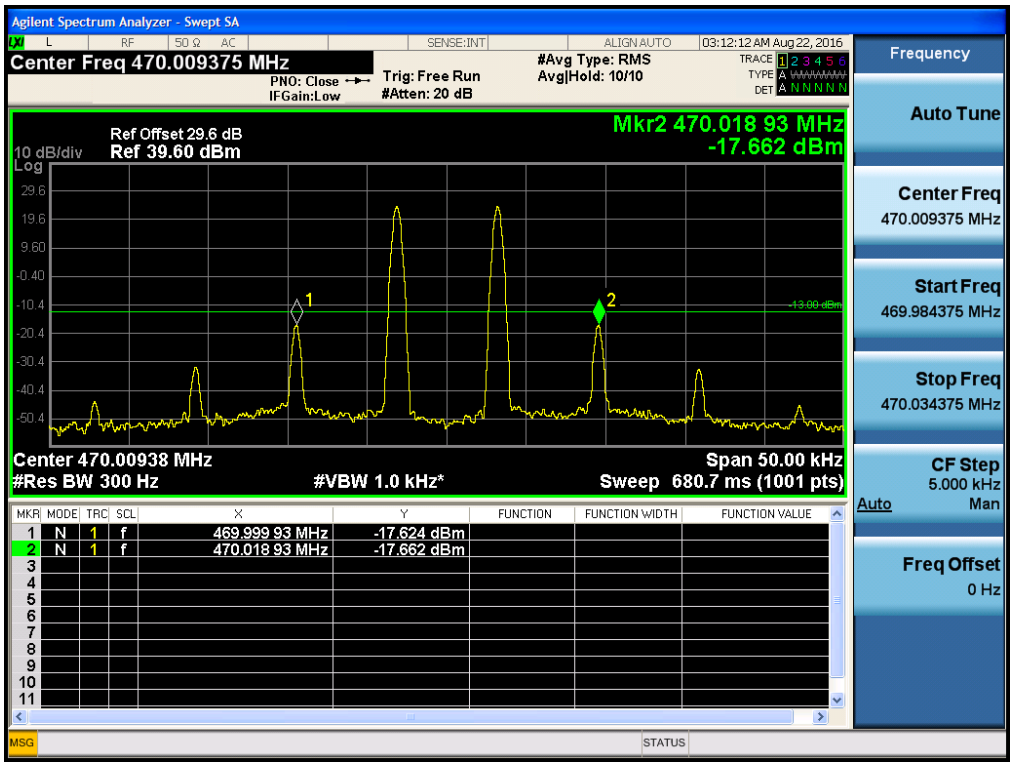

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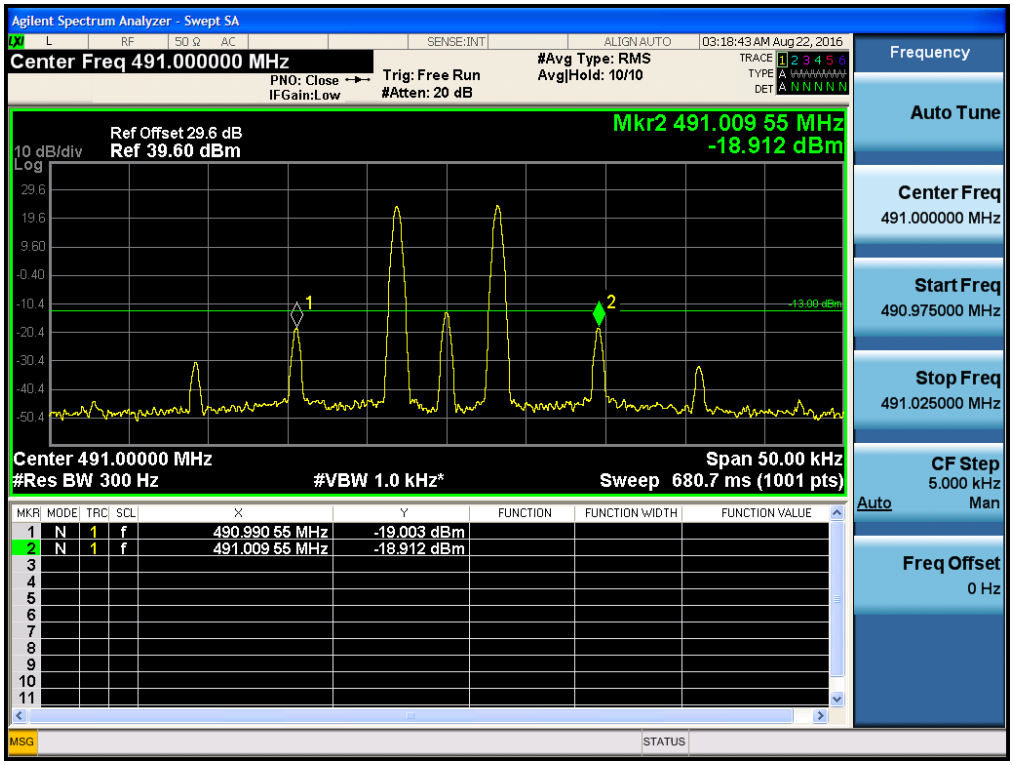

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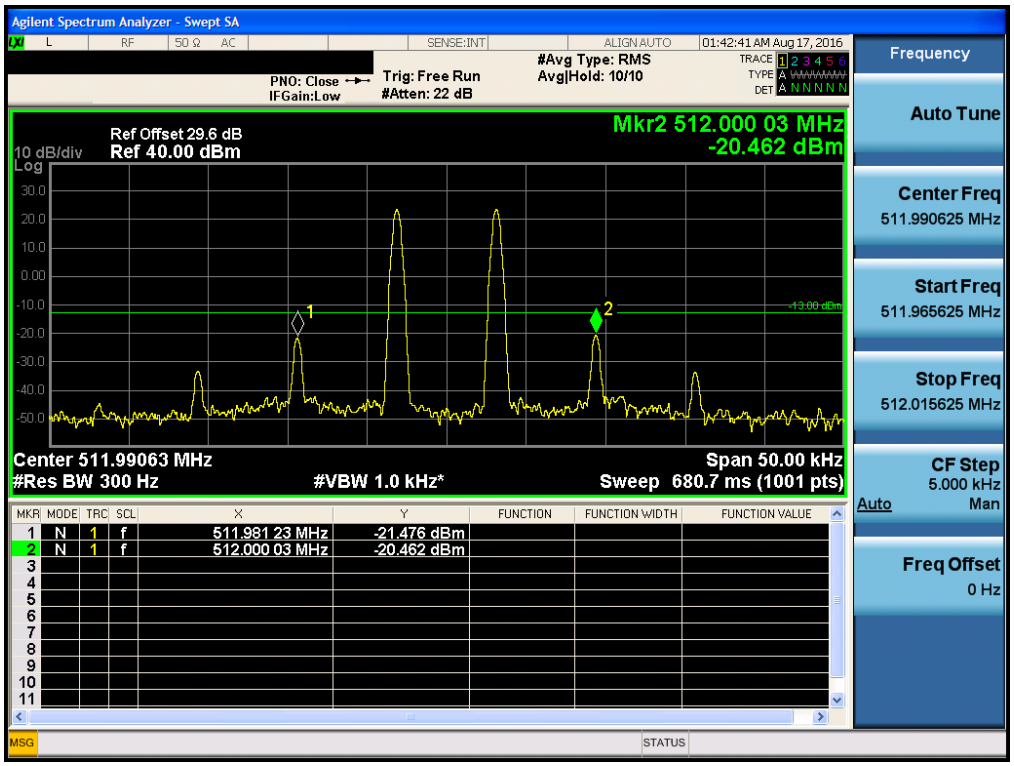
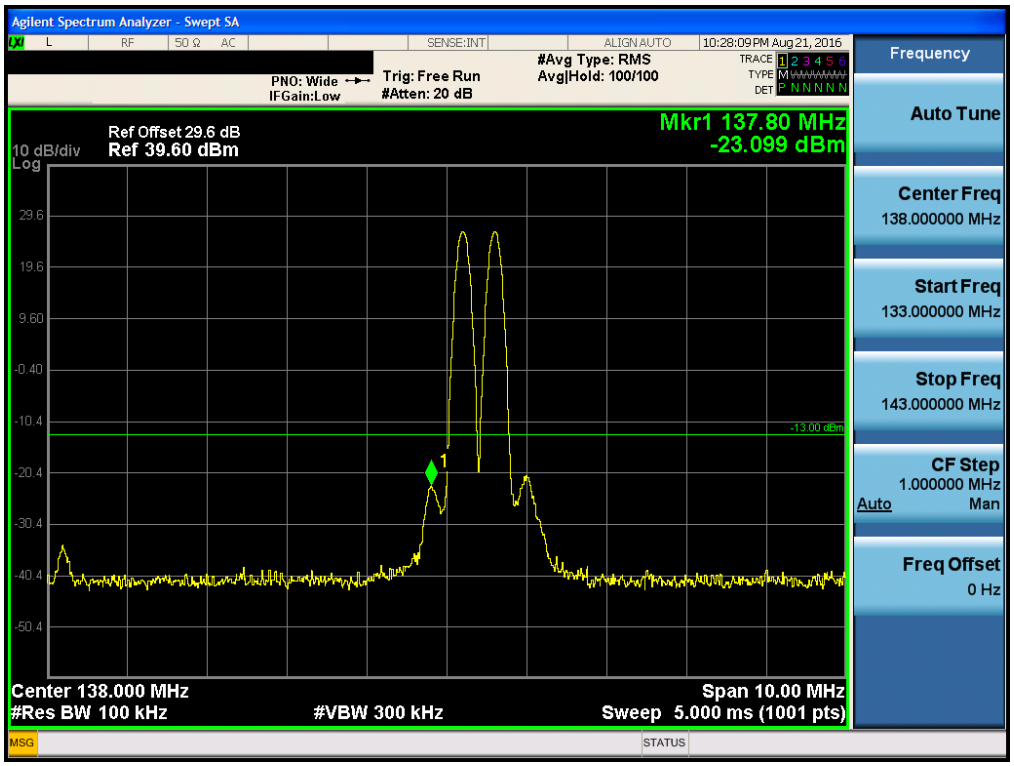


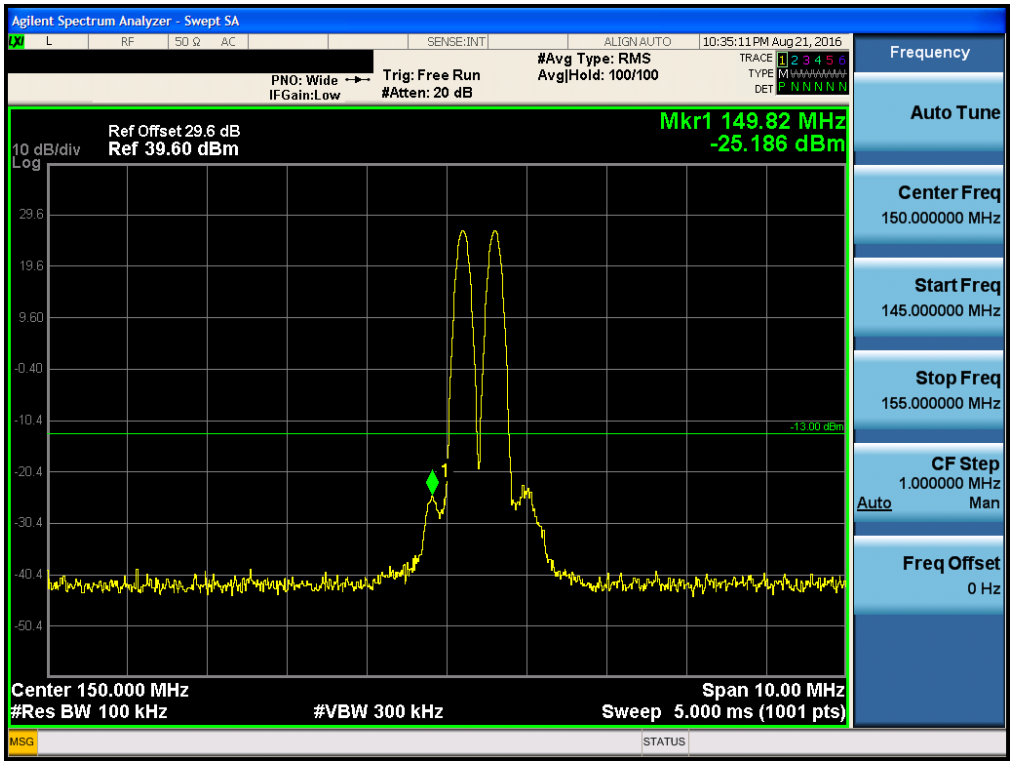
Intermodulation Spurious Emissions for IC

VHF(APCO25)

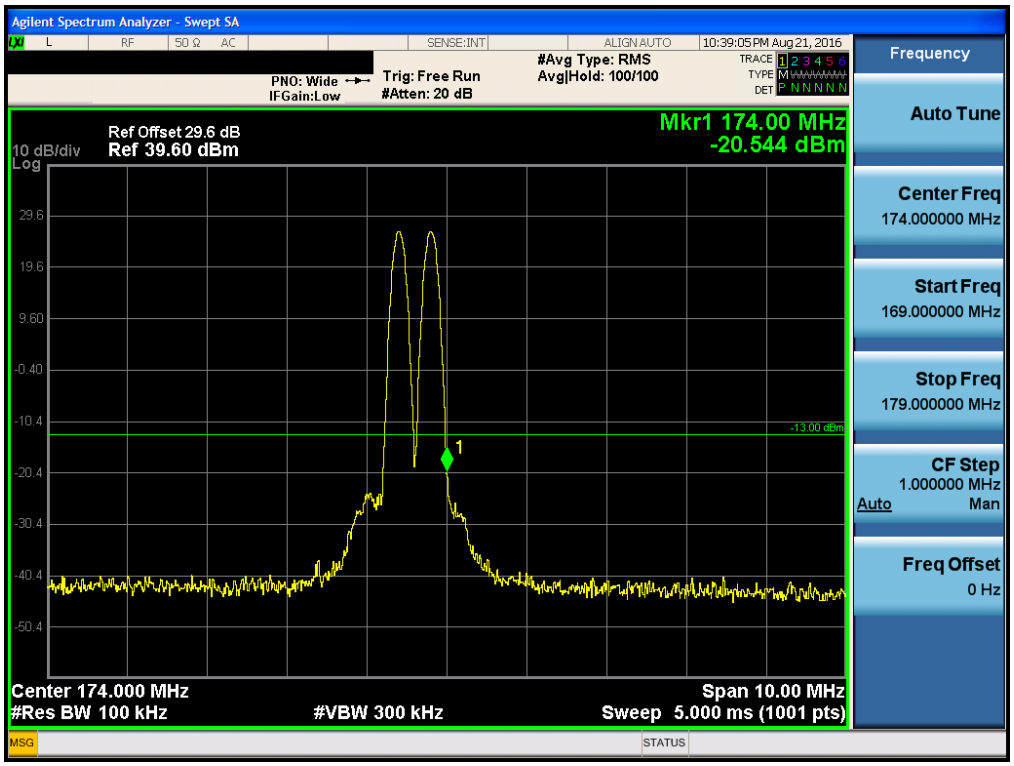
[Downlink 138.5 MHz]



[Downlink 150.5 MHz]

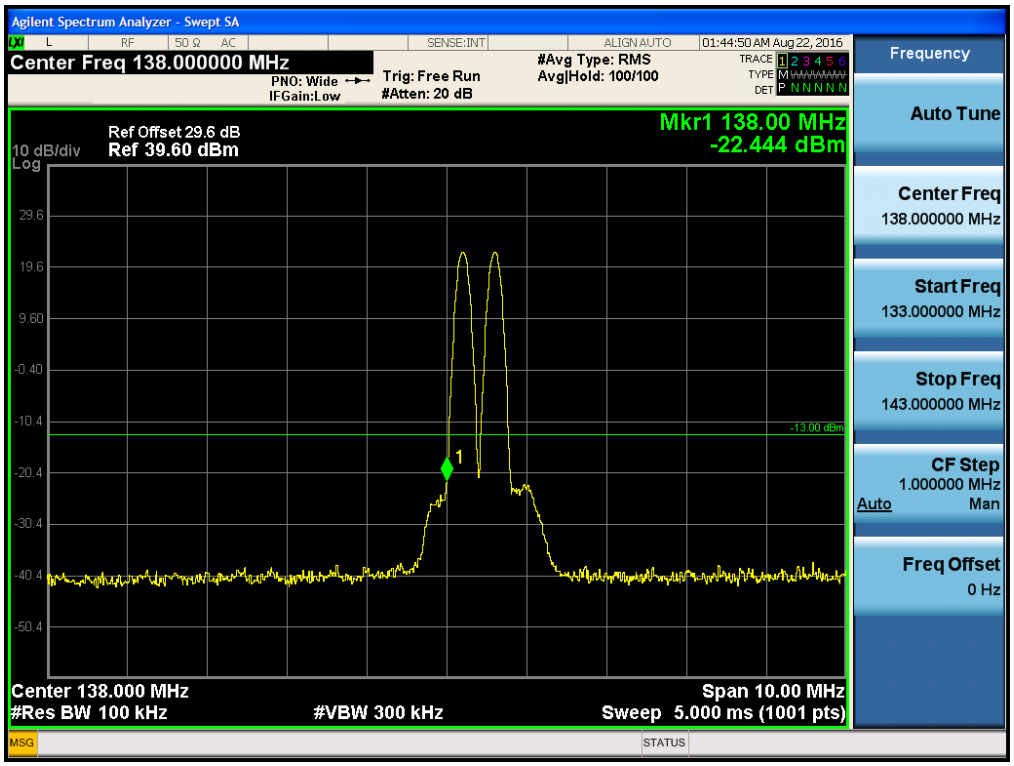


[Downlink 173.5 MHz]



VHF(APCO25)

[Uplink 138.5 MHz]



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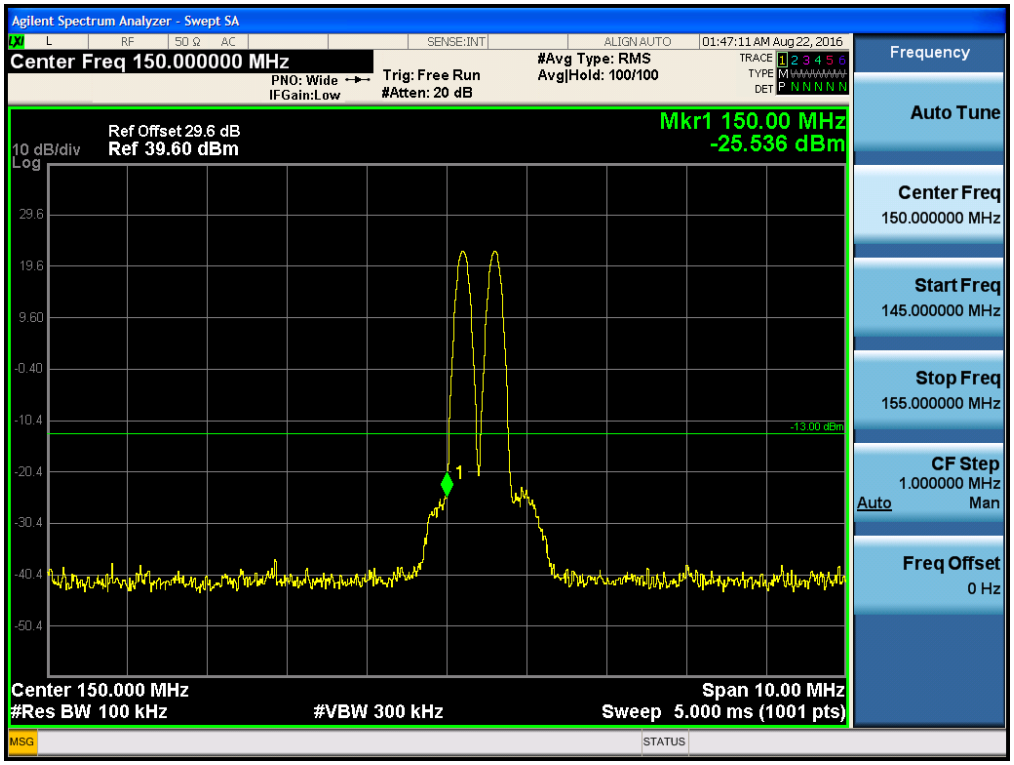

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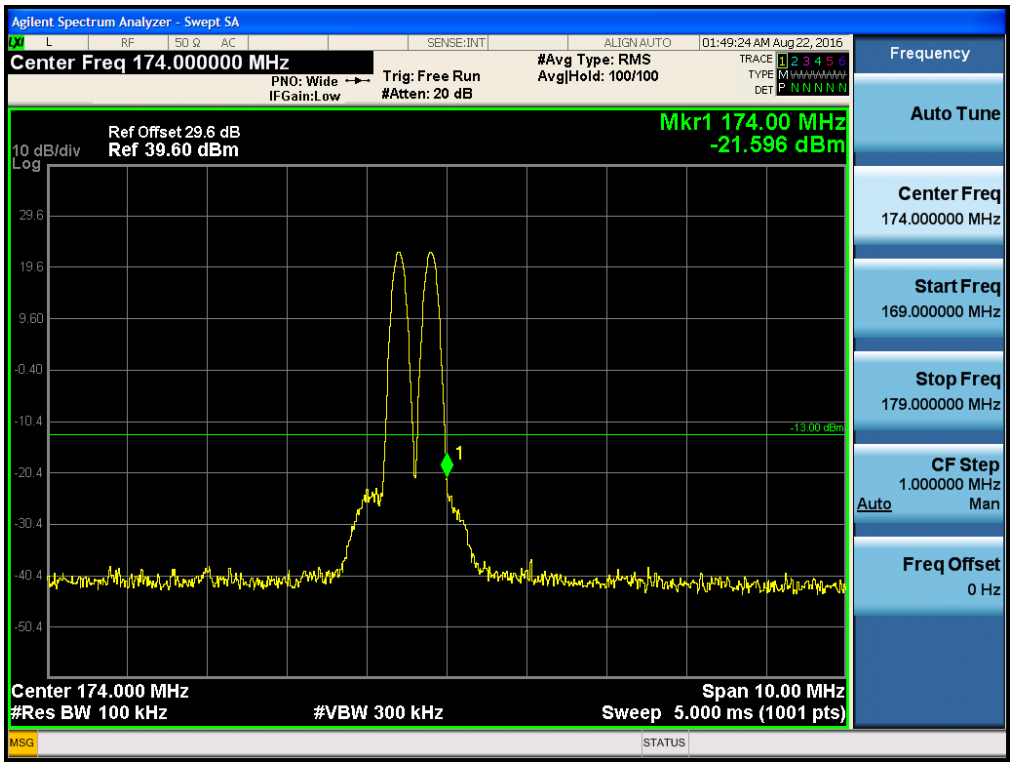
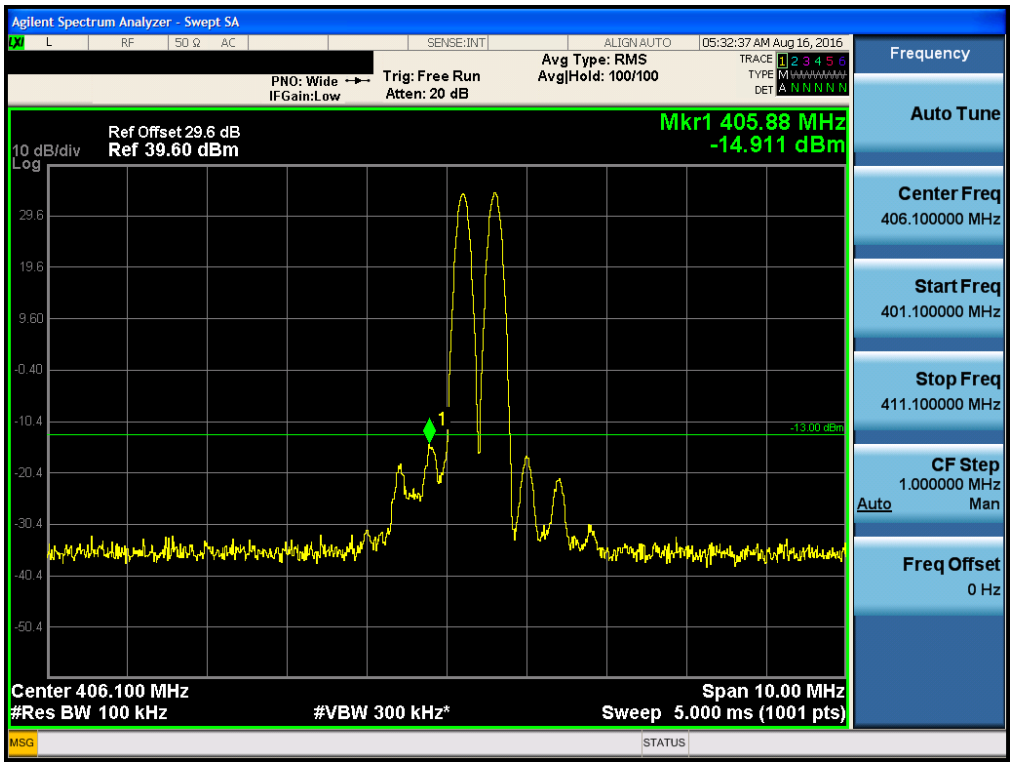


UHF(APCO25)

[Downlink 406.6 MHz]



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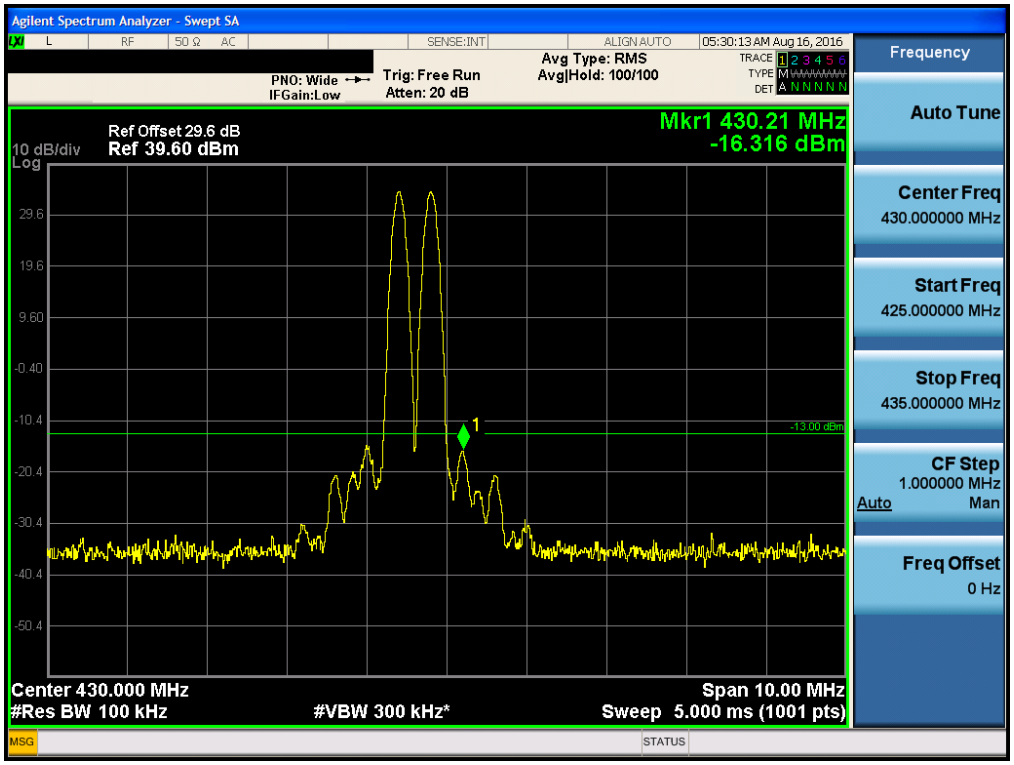
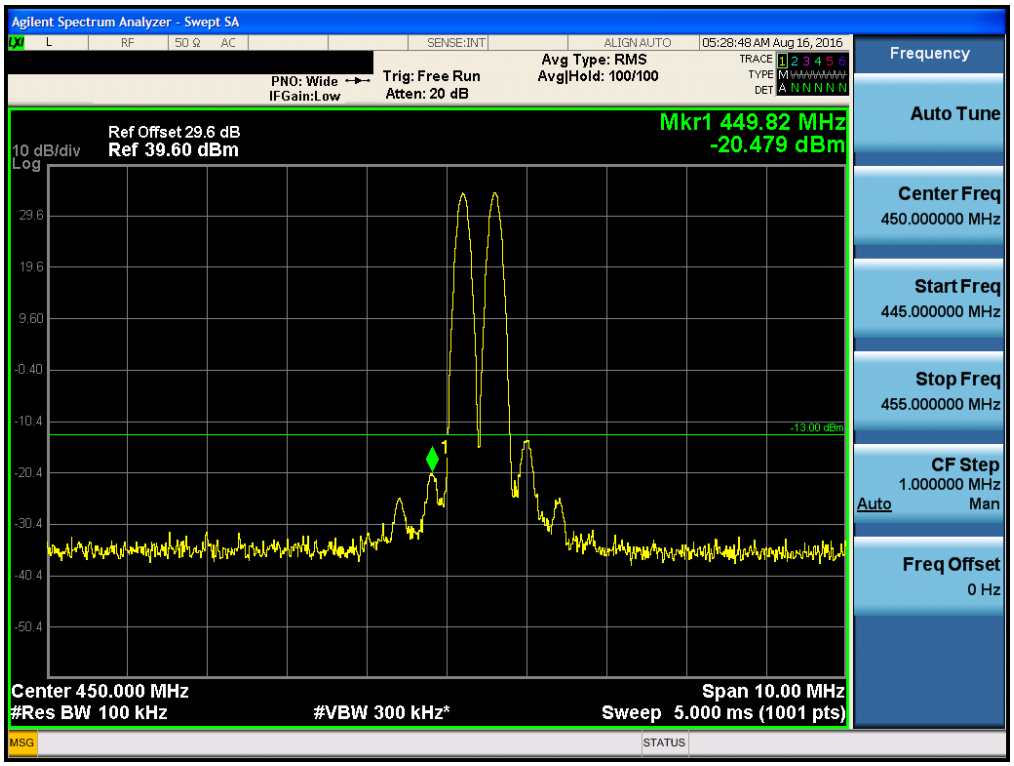


[Downlink 450.5 MHz]



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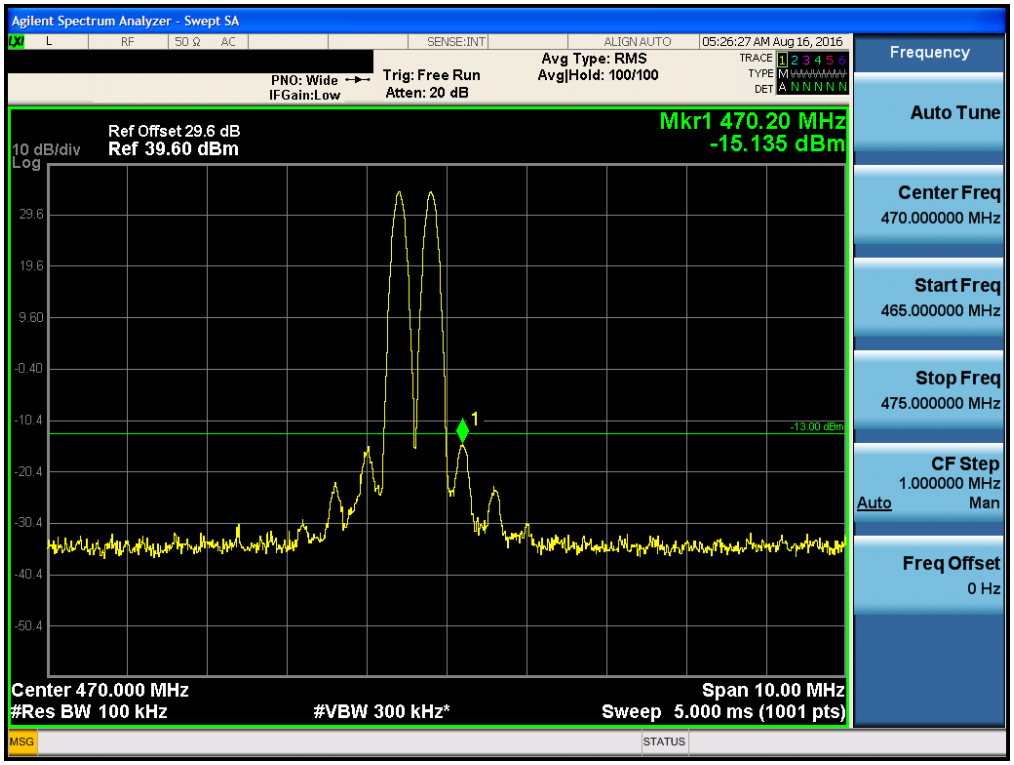
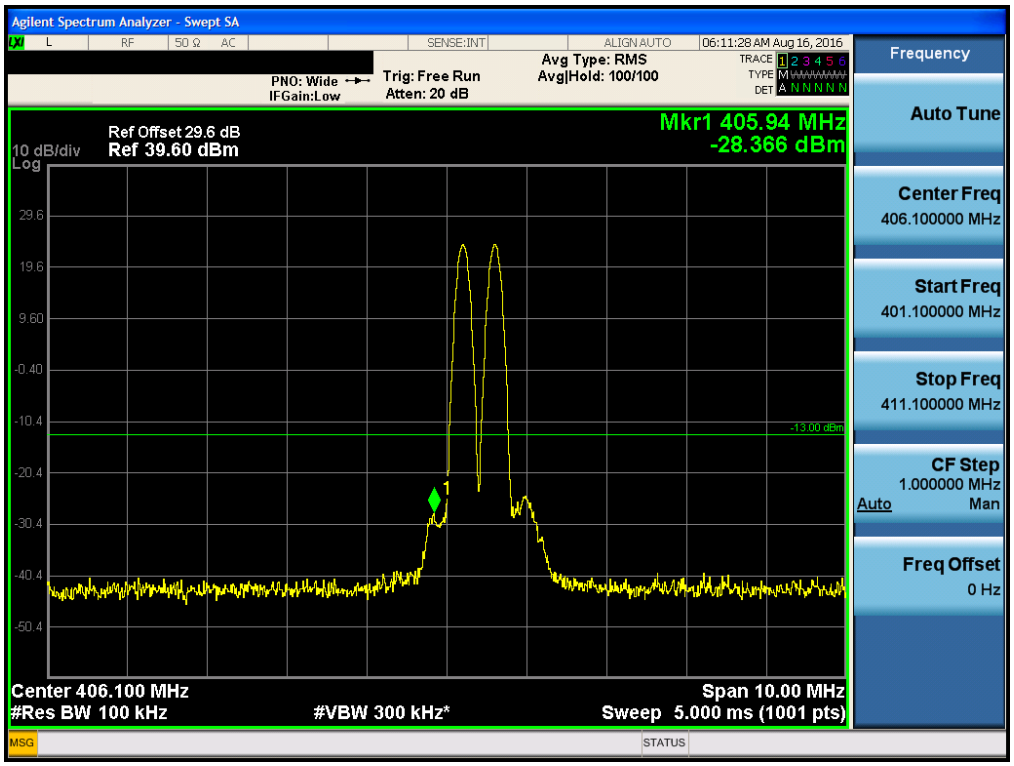
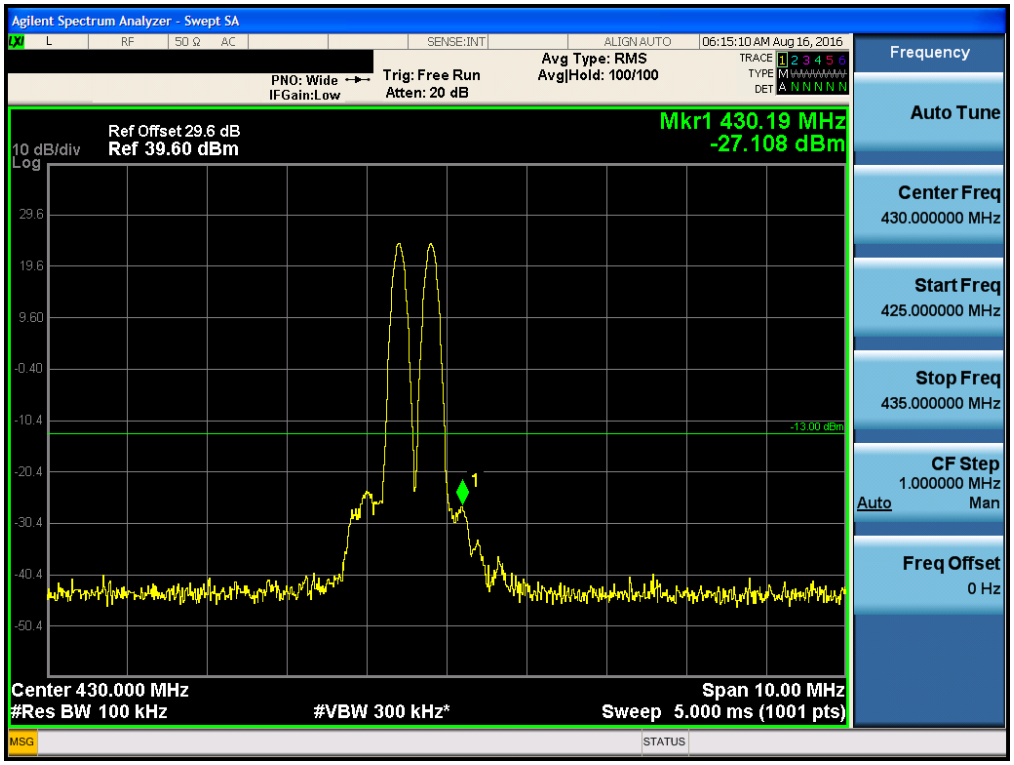


UHF(APCO25)

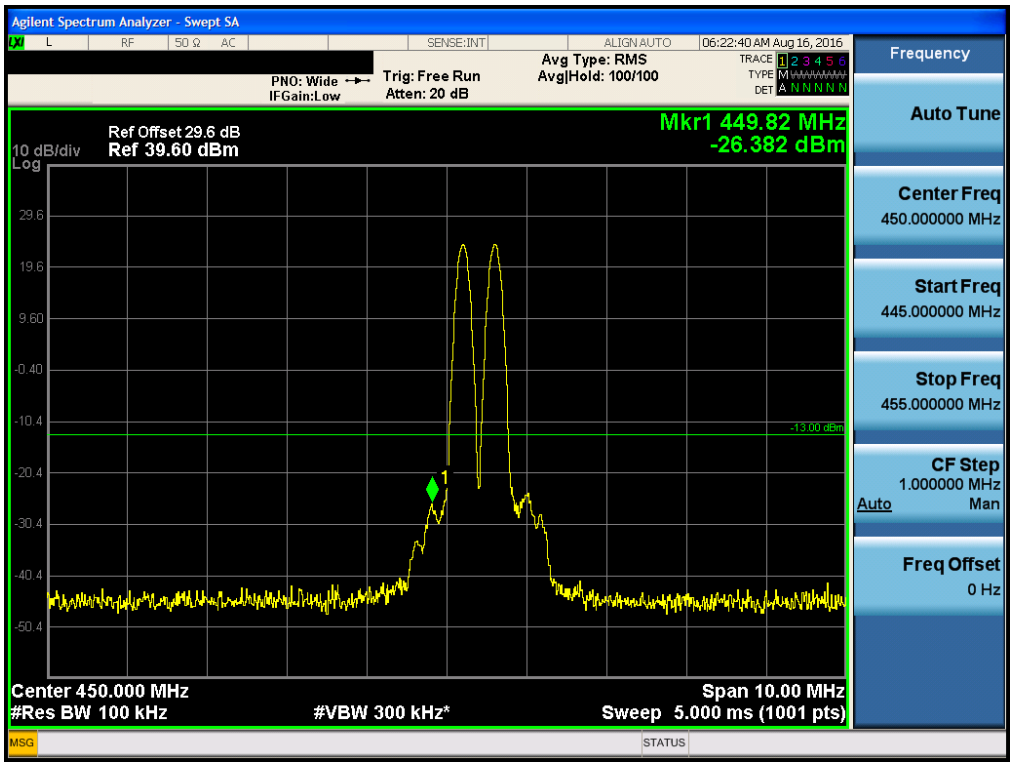
[Uplink 406.6 MHz]



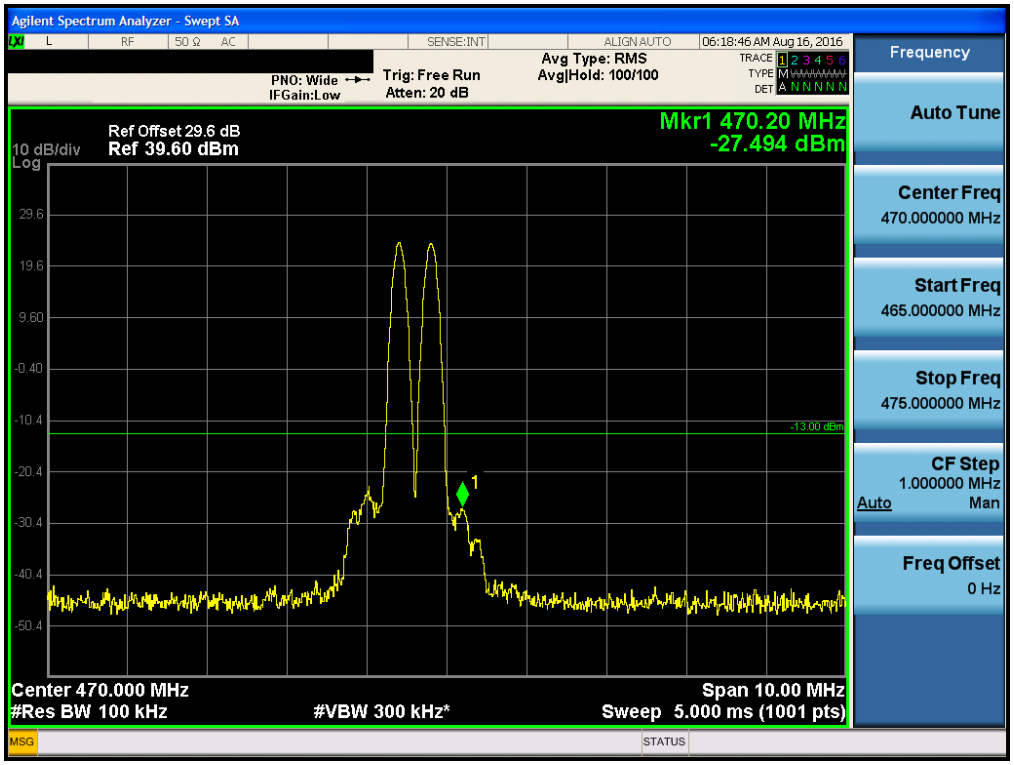
[Uplink 429.5 MHz]



[Uplink 450.5 MHz]

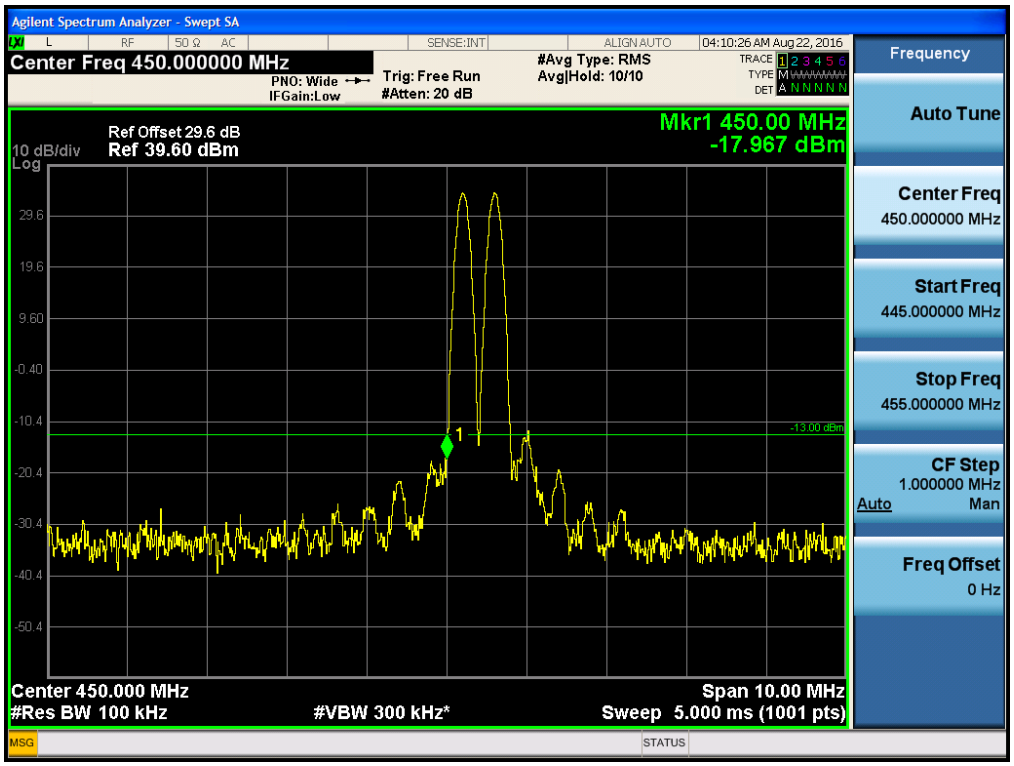


[Uplink 469.5 MHz]

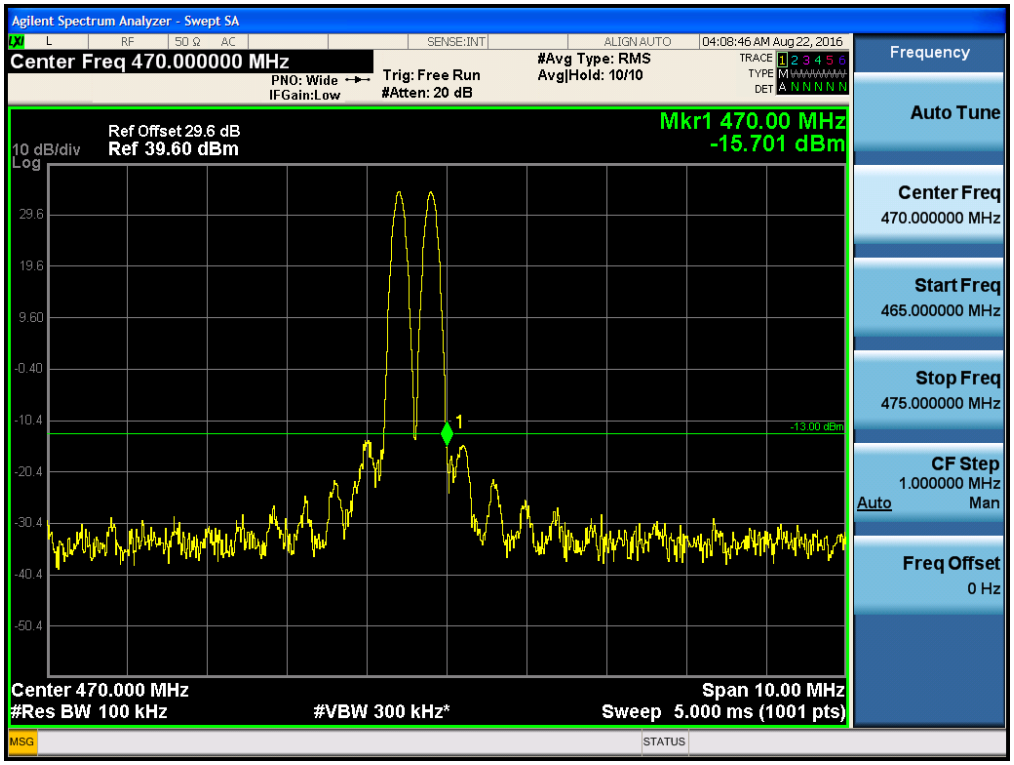


UHF(LMR450)

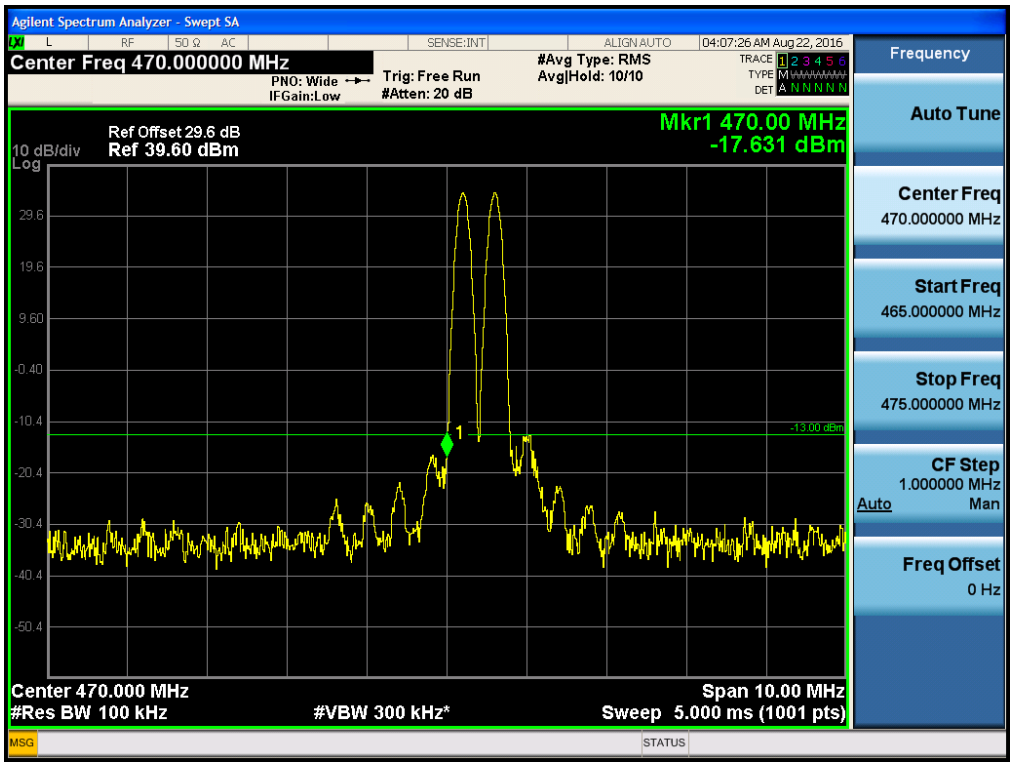
[Downlink 450.5 MHz]



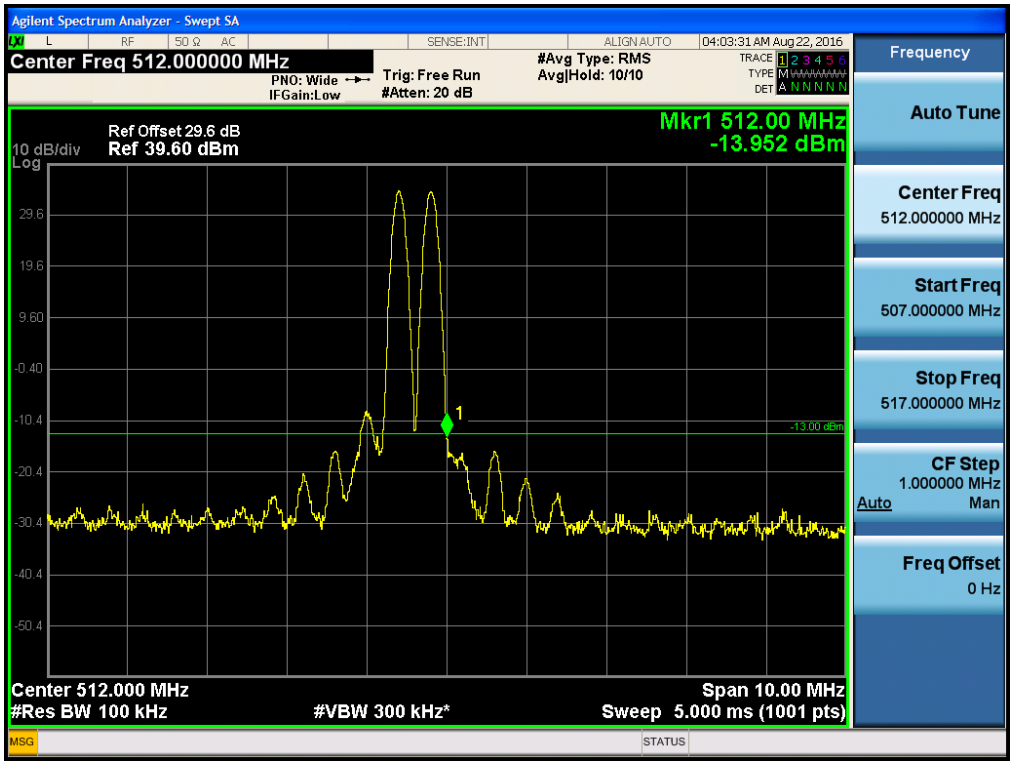
[Downlink 469.5 MHz]



[Downlink 470.5 MHz]

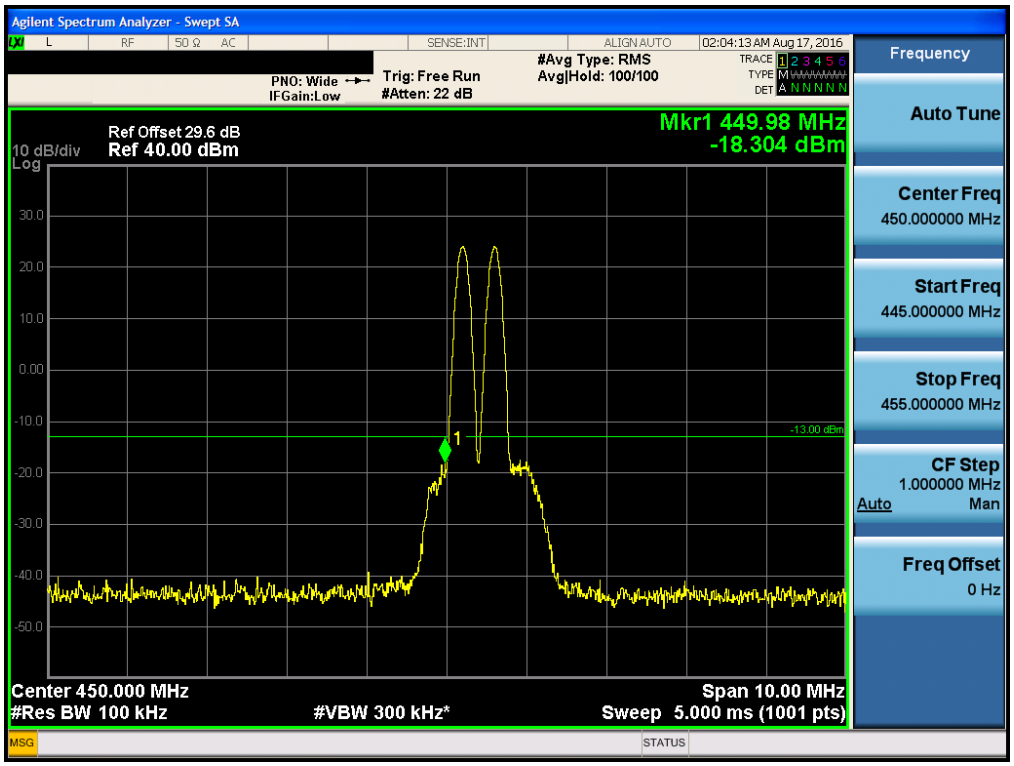


[Downlink 511.5 MHz]

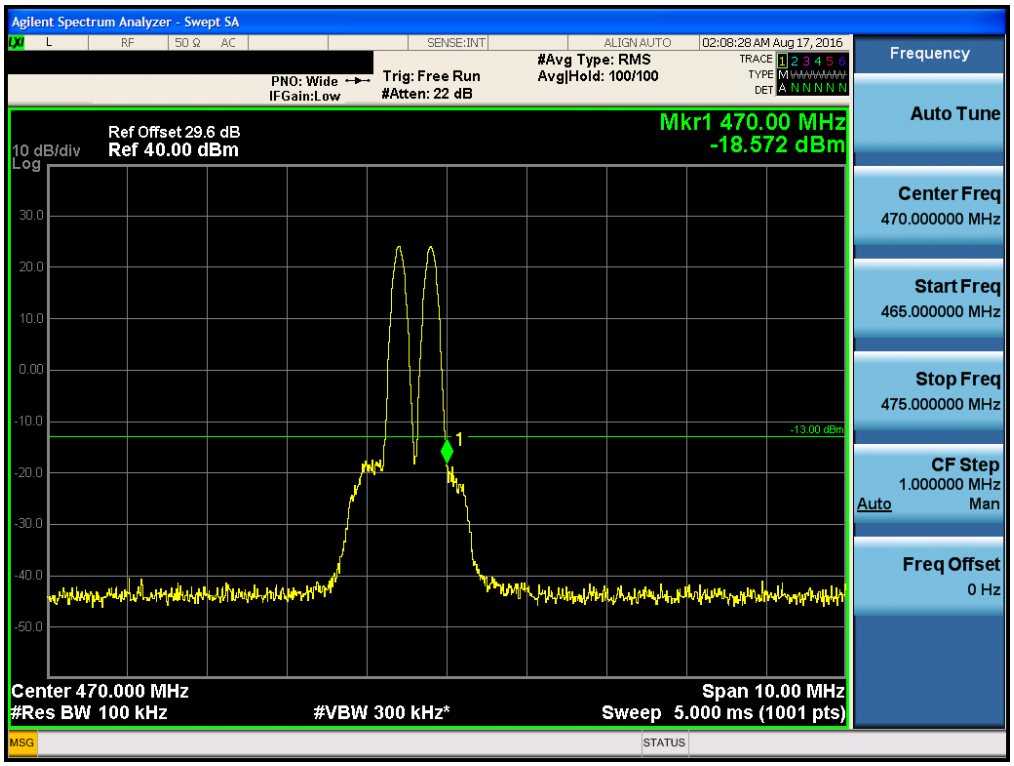


UHF(LMR450)

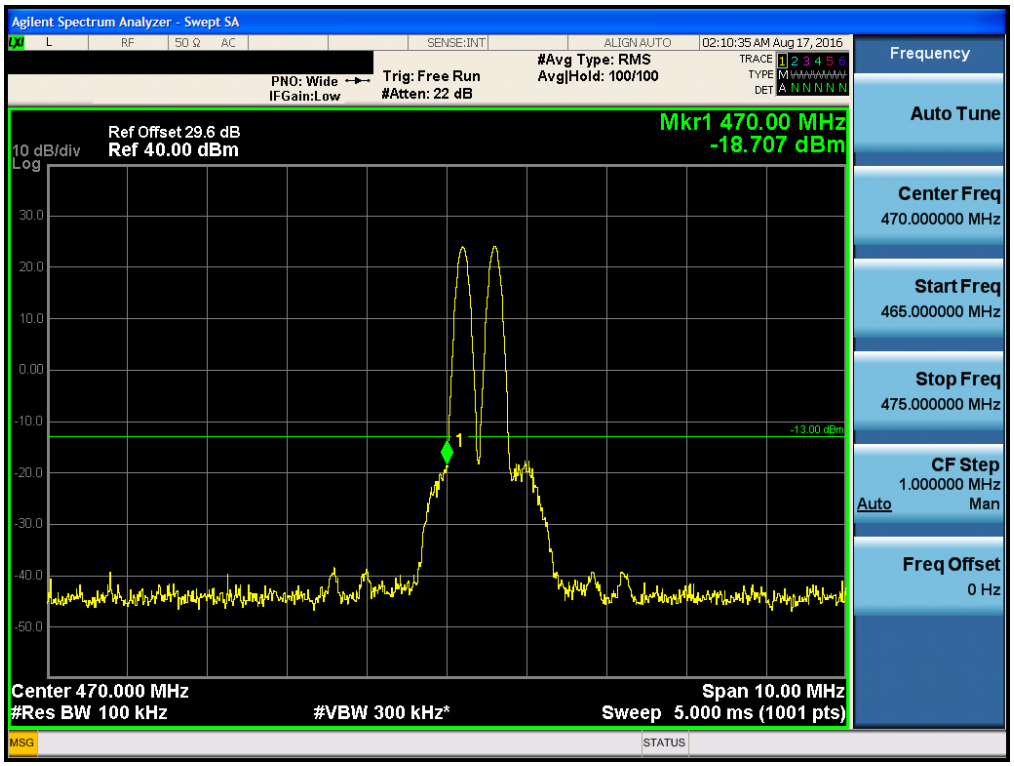
[Uplink 450.5 MHz]



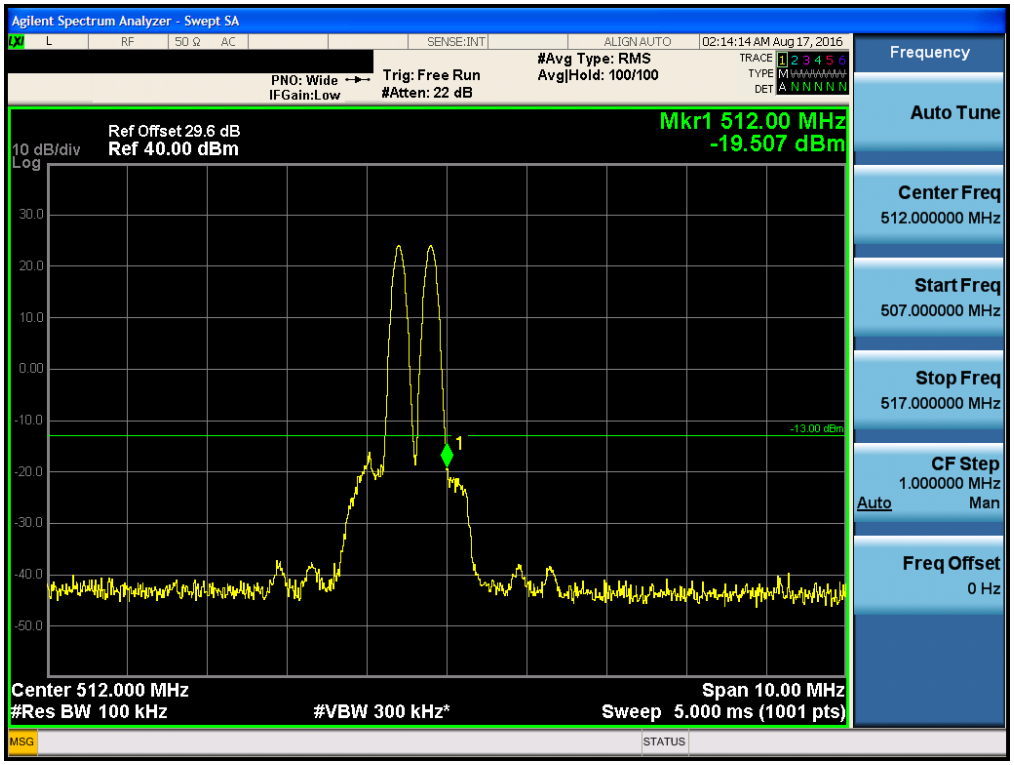
[Uplink 469.5 MHz]



[Uplink 470.5 MHz]



[Uplink 511.5 MHz]



10. RADIATED SPURIOUS EMISSIONS

Test Requirement(s):

§ 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.

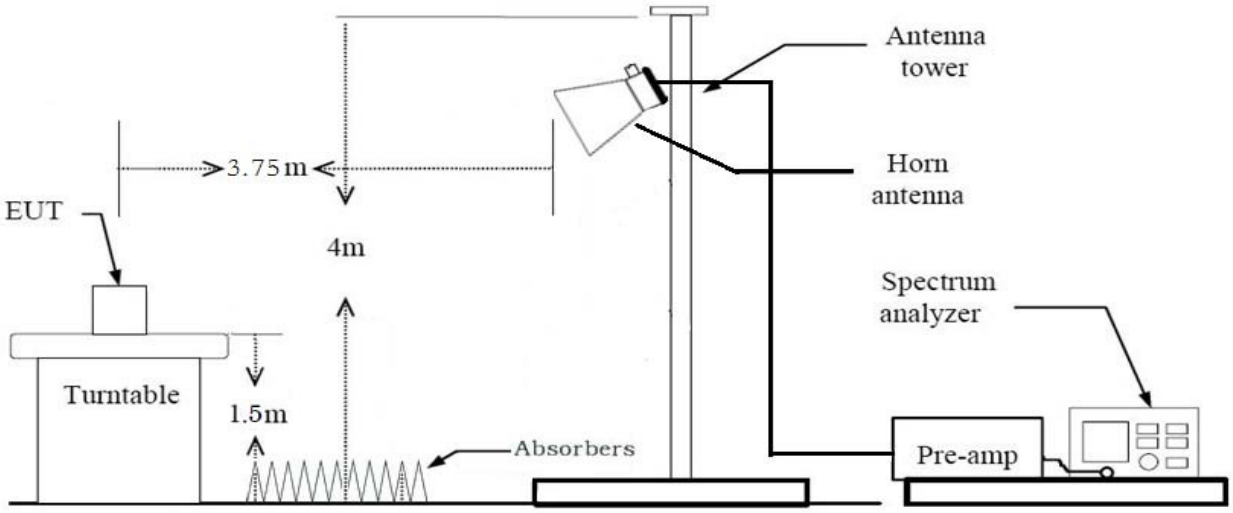
Test Procedures:

As required by 47 CFR 2.1053, *field strength of radiated spurious measurements* were made in accordance with the procedures of ANSI/TIA-603-C-2004 "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards".

Radiated emission measurements were performed inside a 3 meter semi-anechoic chamber.

The EUT was set at a distance of 3m from the receiving antenna. The EUT's RF ports were terminated to 50ohm load. The EUT was set to transmit at the low, mid and high channels of the transmitter frequency range at its maximum power level. The EUT was rotated about 360and the receiving antenna scanned from 1-3m in order to capture the maximum emission. A calibrated antenna source was positioned in place of the EUT and the previously recorded signal was duplicated. The maximum EIRP of the emission was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried. out with the receiving antenna in both vertical and horizontal polarization. Harmonic emissions up to the 10th or 40GHz, whichever was the lesser, were investigated.

Radiated Spurious Emissions Test Setup



Note :

1. According to SVSWR requirement in ANSI 63.4-2014, We performed the radiated test at 3.75 m distance from center of turn table. So, we applied the distance factor(reference distance : 3 m).
2. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Test Result:

VHF

[Downlink]

Freq.(MHz)	Measured Level [dBuV/m]	Measured Power [dBm]	Ant. Factor [dB/m]	C.L [dB]	D.F. [dB]	Pol.	Result [dBm]
324.00	21.84	-73.36	18.3	0.53	1.96	H	-52.57
820.00	40.13	-55.07	26.9	1.26	1.96	V	-24.95

* C.L.: Cable Loss / D.F.: Distance Factor (3.75 m)

UHF

[Downlink]

Freq.(MHz)	Measured Level [dBuV/m]	Measured Power [dBm]	Ant. Factor [dB/m]	C.L [dB]	A.G. [dB]	D.F. [dB]	Pol.	Result [dBm]
820.00	28.95	-66.25	26.9	1.26	-	1.96	V	-36.13
1,632.00	62.40	-32.80	25.2	2.12	45.92	1.96	H	-49.41

* C.L.: Cable Loss / A.G.: Amp Gain / D.F.: Distance Factor (3.75 m)

Notes:

1. Input signal is the CW signal.
2. We have done all kinds of power lines. Test datas were only the worst case.
3. We have done horizontal and vertical polarization in detecting antenna.