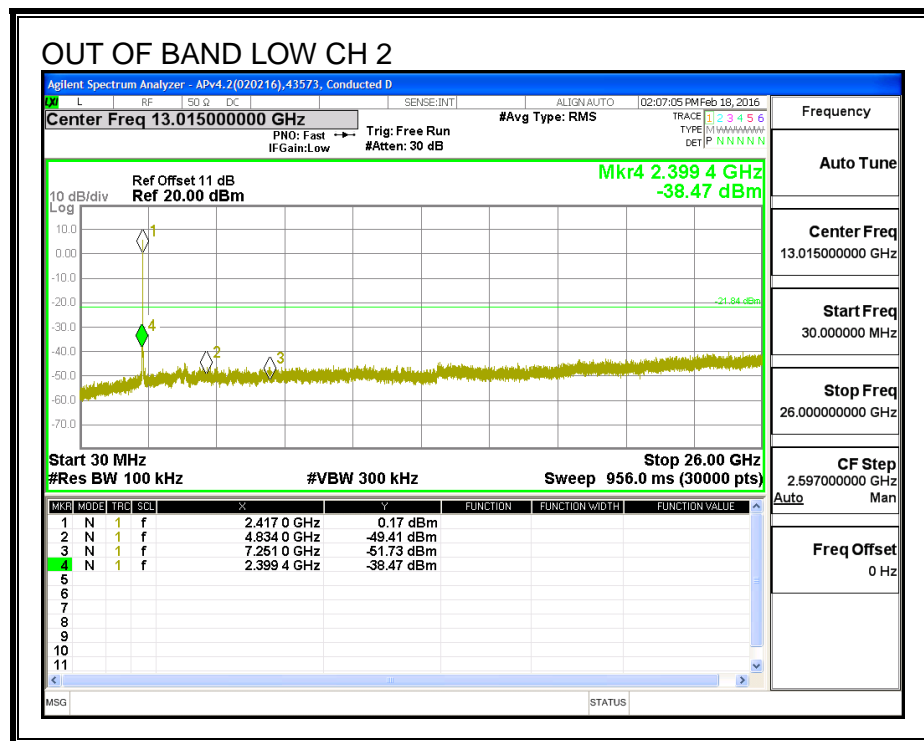
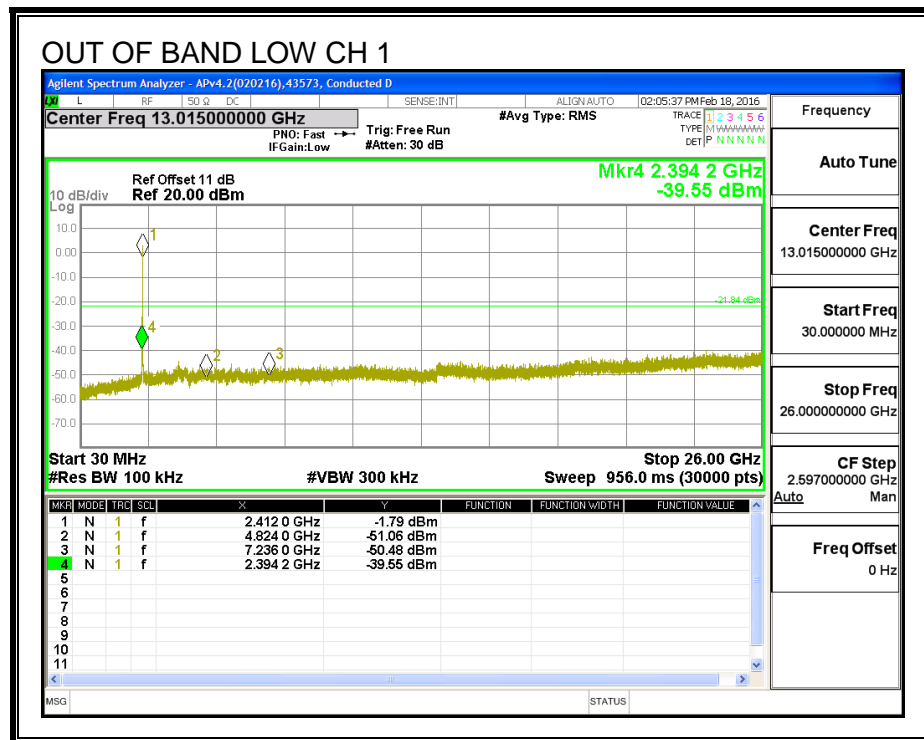
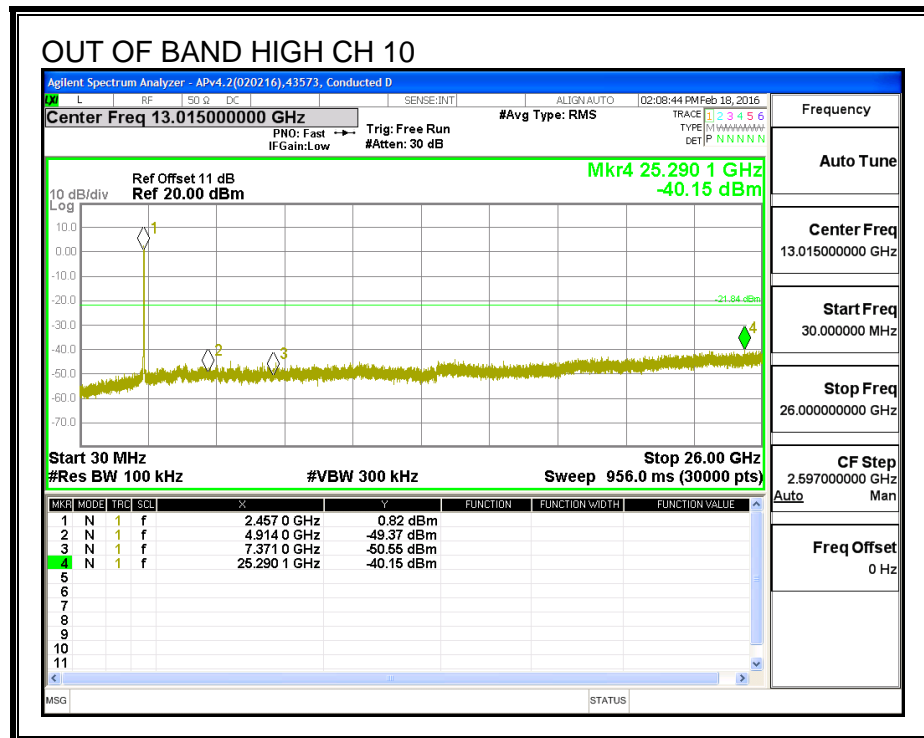
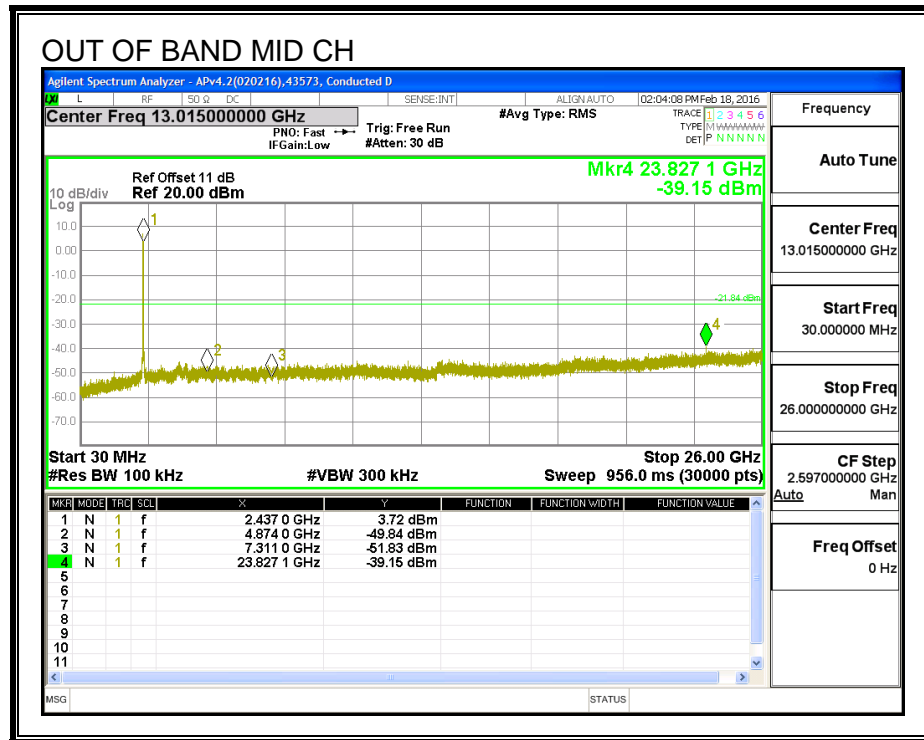
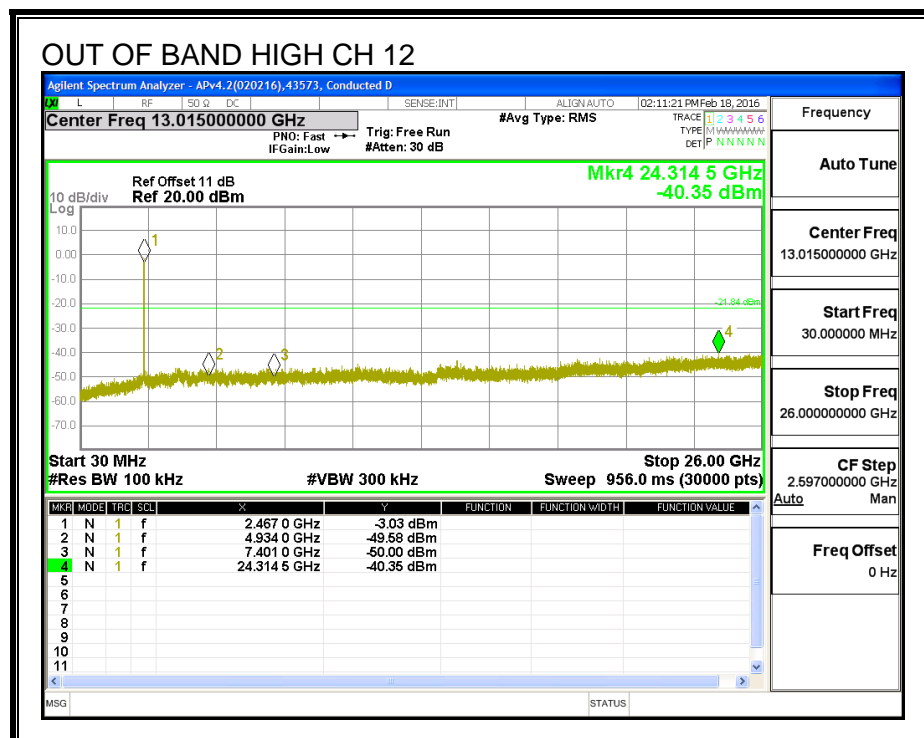
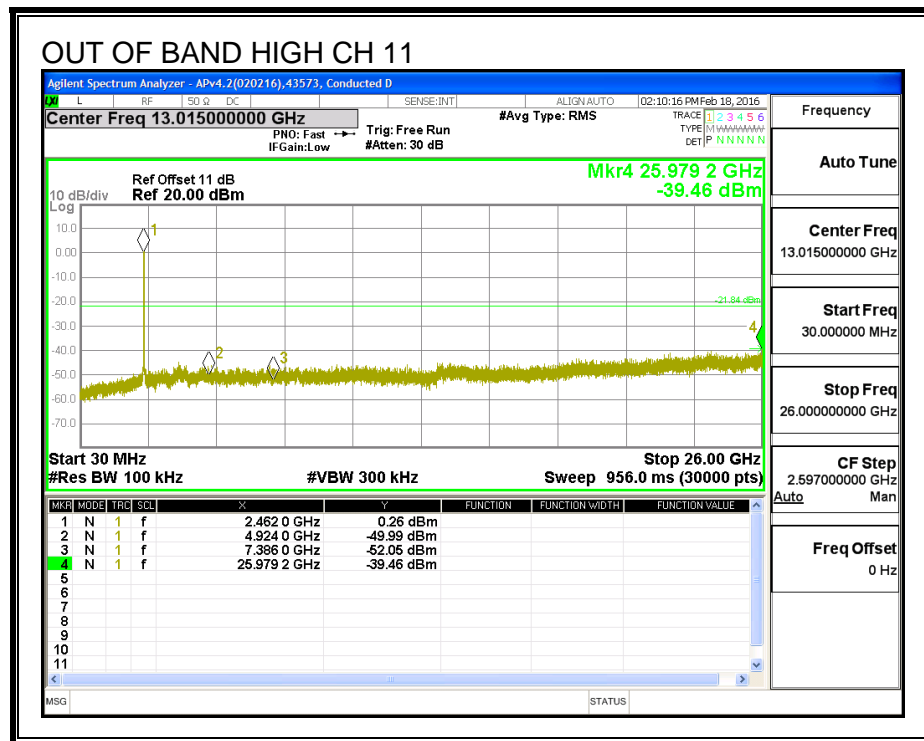
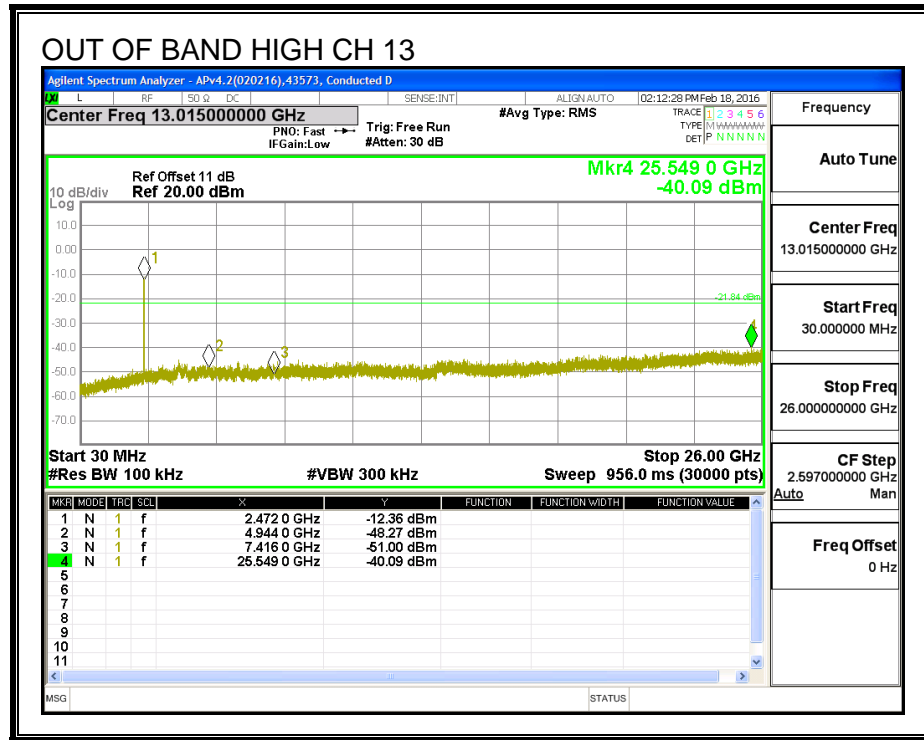


OUT-OF-BAND EMISSIONS









8.8. 802.11g 2Tx CDD MODE IN THE 2.4 GHz BAND

Noted: Covered by 802.11n HT20 2TX CDD MODE IN THE 2.4 GHz BAND

8.9. 802.11n HT20 2Tx CDD MODE IN THE 2.4 GHz BAND

8.9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

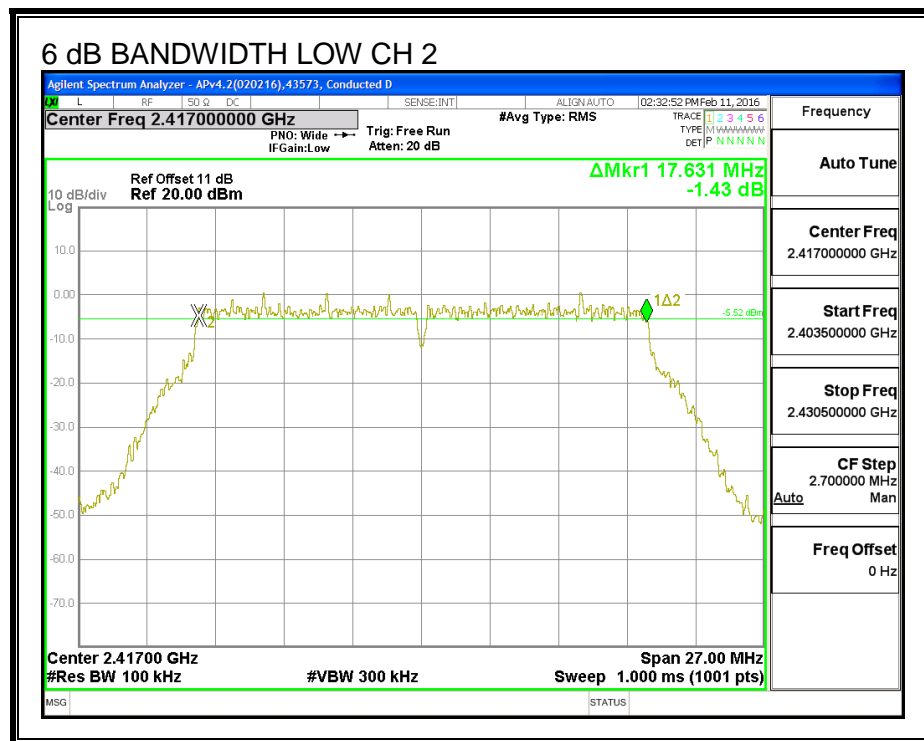
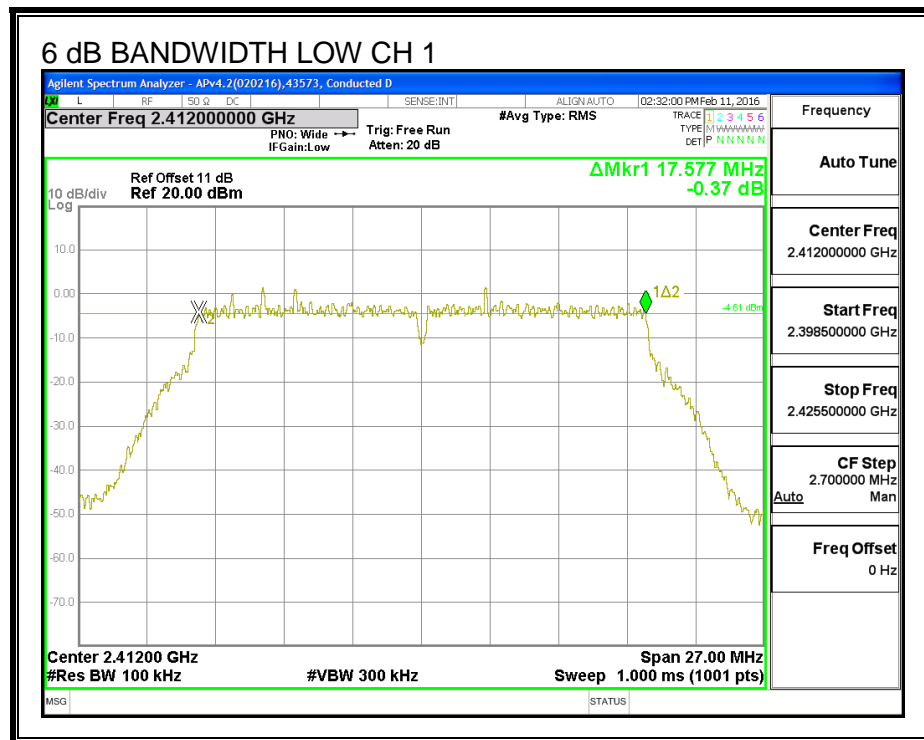
IC RSS-247 (5.2) (1)

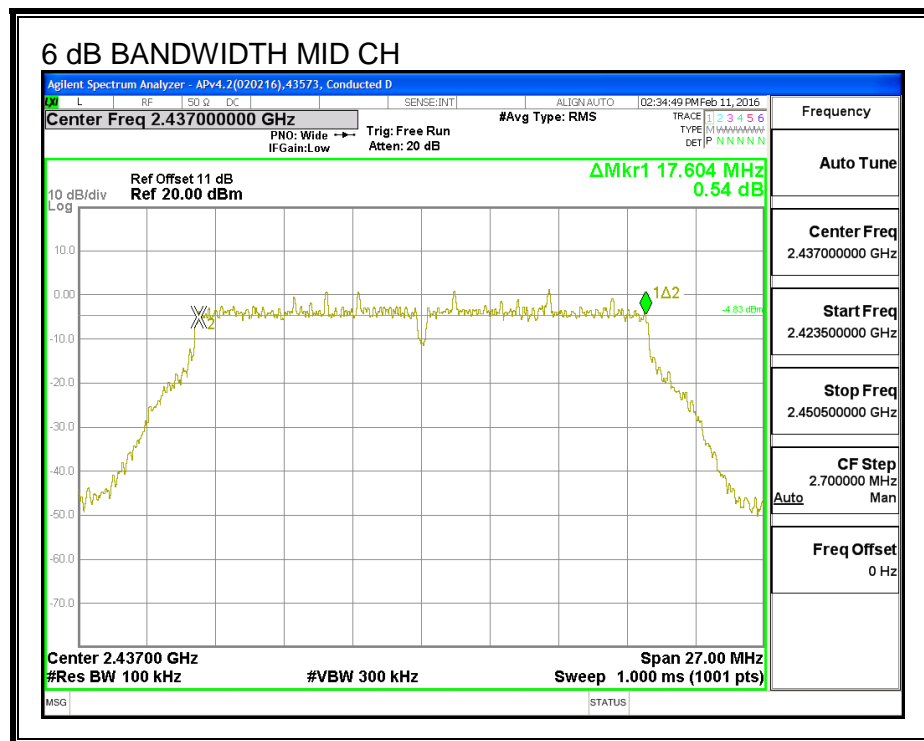
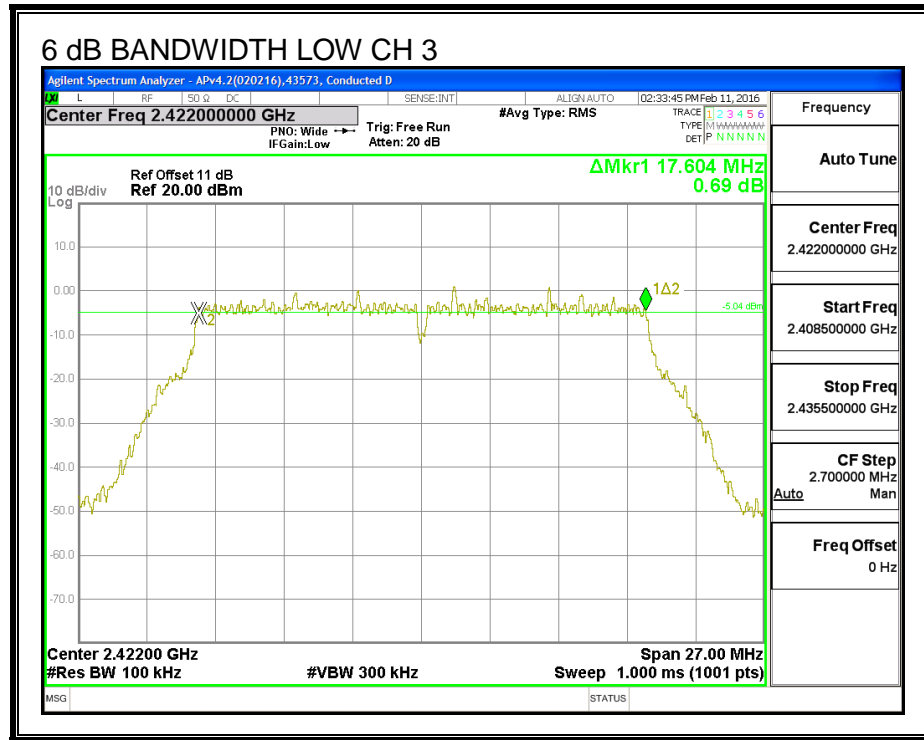
The minimum 6 dB bandwidth shall be at least 500 kHz.

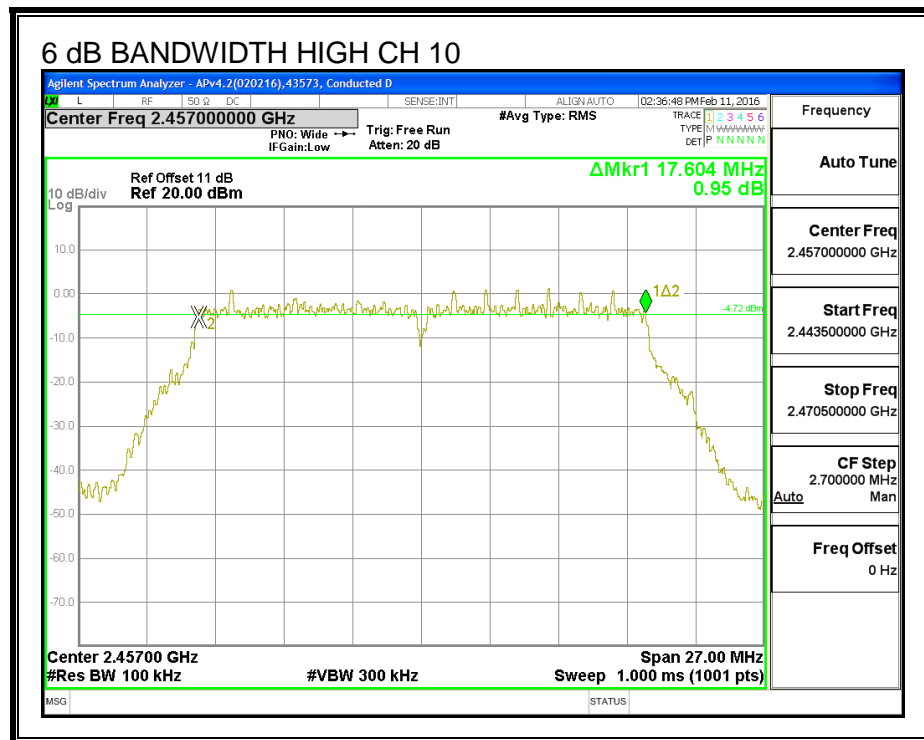
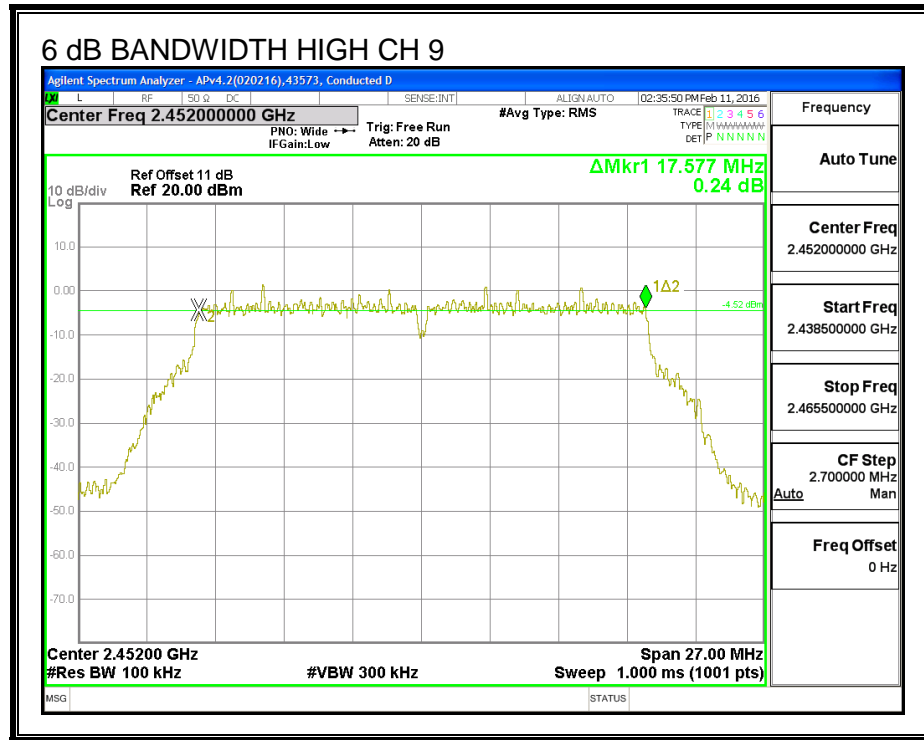
RESULTS

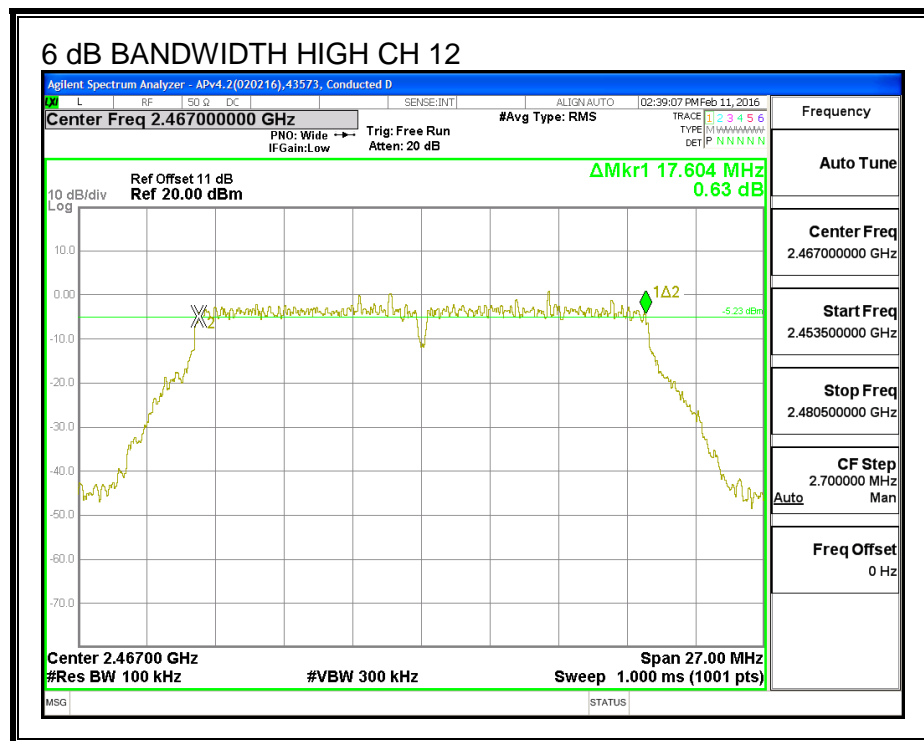
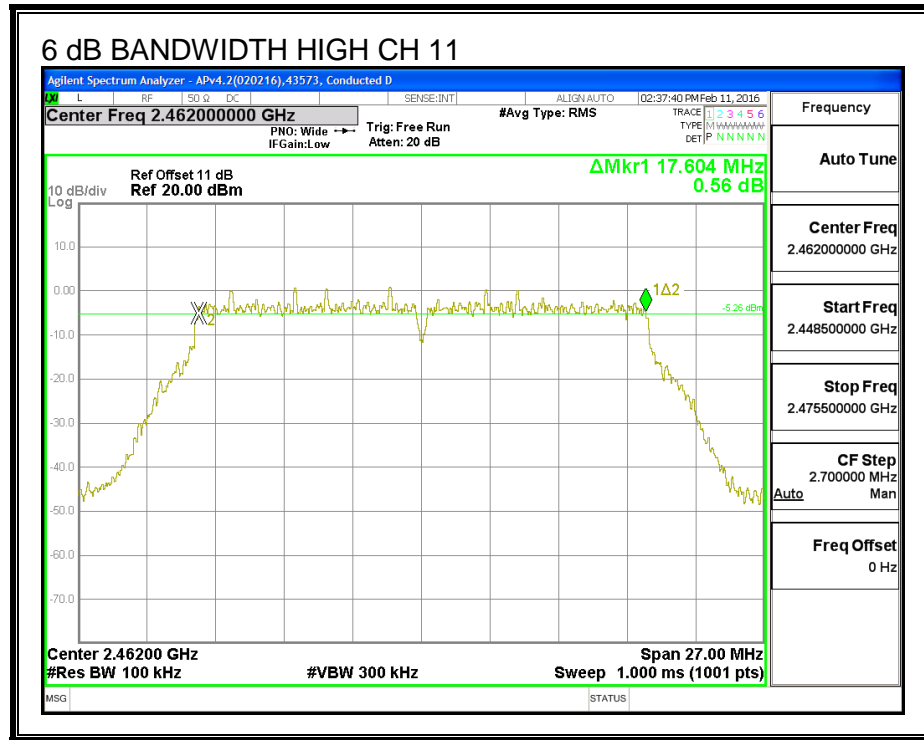
| Channel | Frequency (MHz) | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---------|--------------------|-----------------------------|-----------------------------|---------------------------|
| Low_1 | 2412 | 17.58 | 17.60 | 0.5 |
| Low_2 | 2417 | 17.63 | 17.63 | 0.5 |
| Low_3 | 2422 | 17.60 | 17.58 | 0.5 |
| Mid_6 | 2437 | 17.60 | 17.63 | 0.5 |
| High_9 | 2452 | 17.58 | 17.63 | 0.5 |
| High_10 | 2457 | 17.60 | 17.60 | 0.5 |
| High_11 | 2462 | 17.60 | 17.63 | 0.5 |
| High_12 | 2467 | 17.60 | 17.60 | 0.5 |
| High_13 | 2472 | 17.60 | 17.60 | 0.5 |

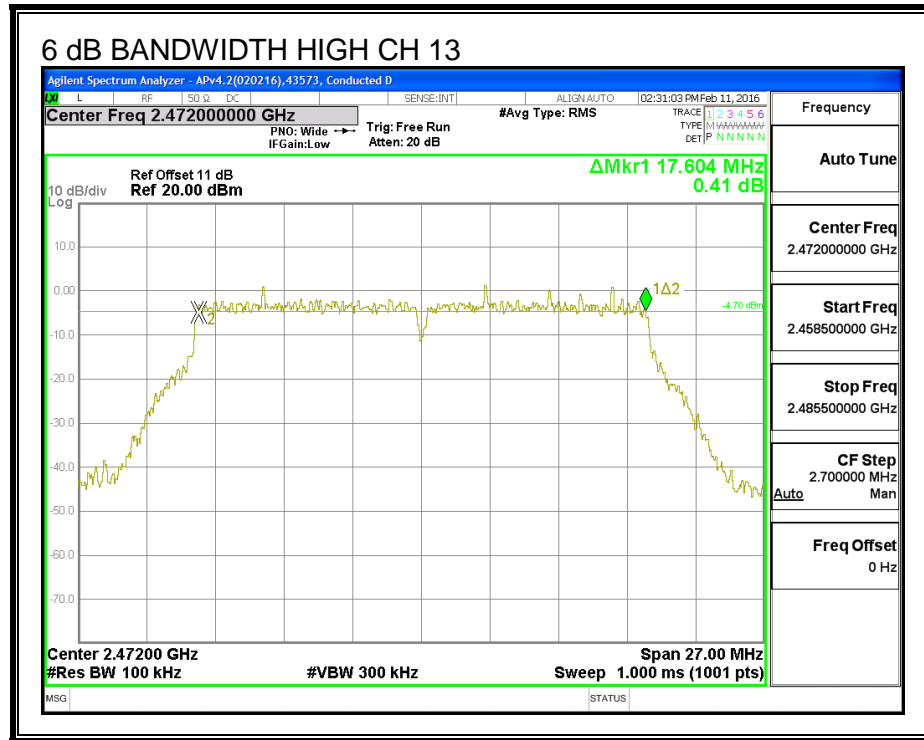
6 dB BANDWIDTH, Chain 0



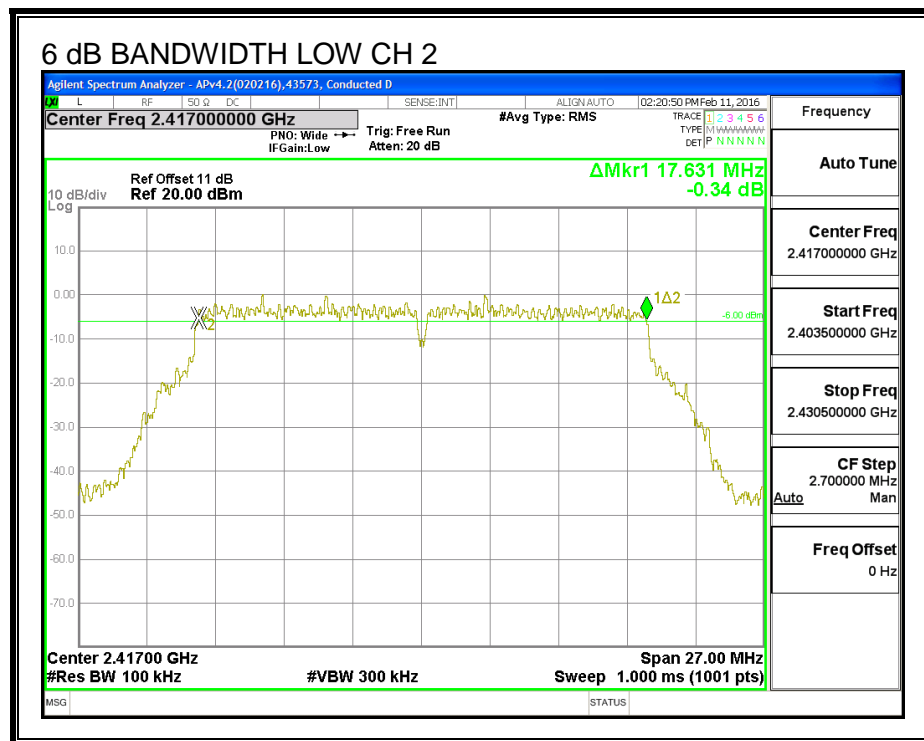
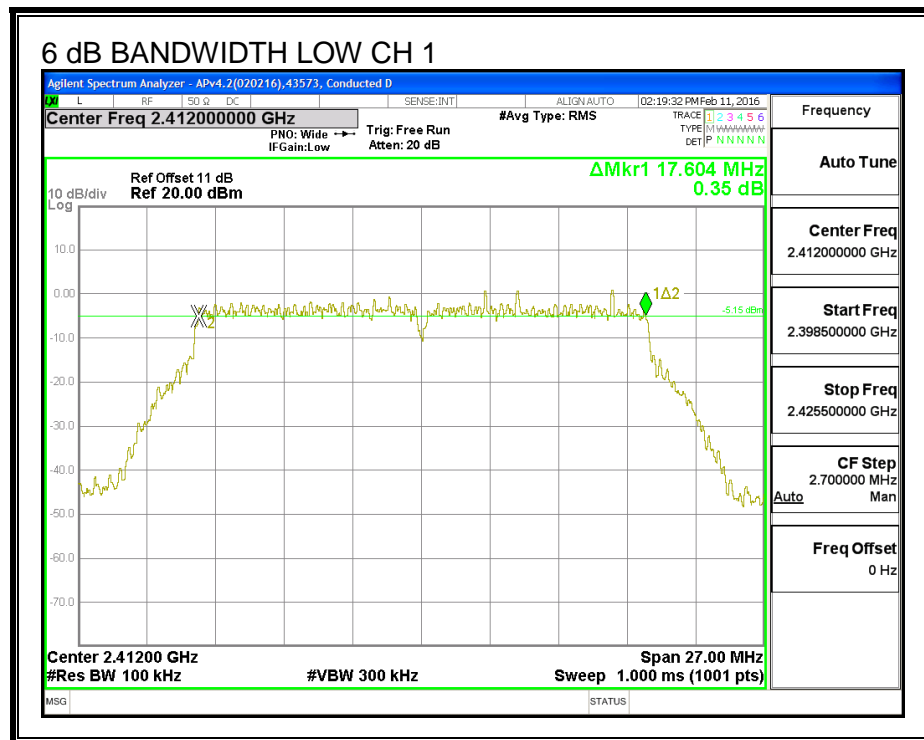


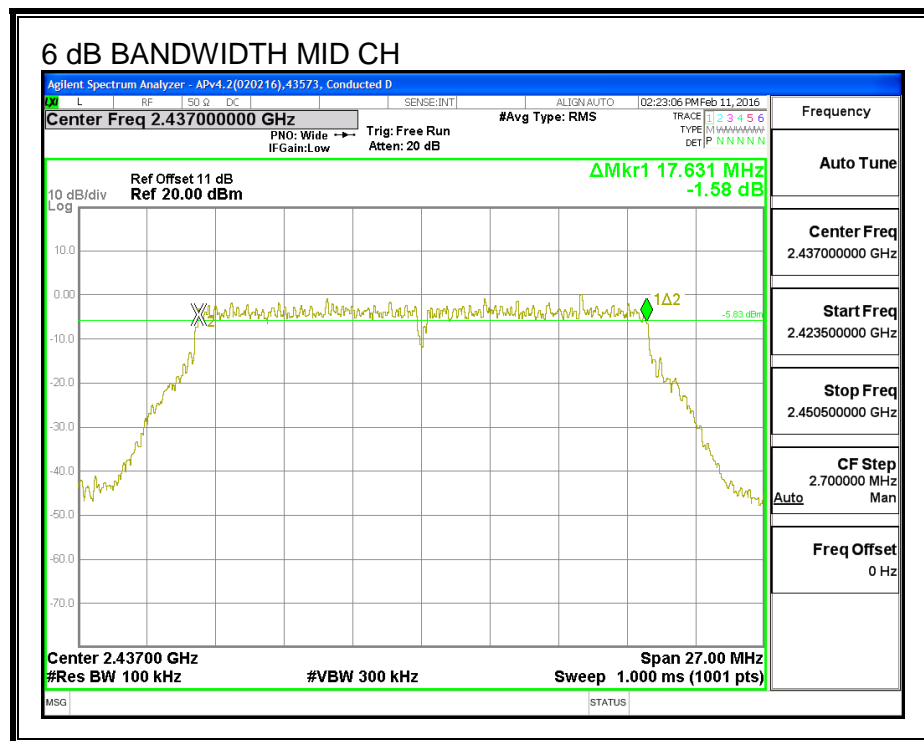
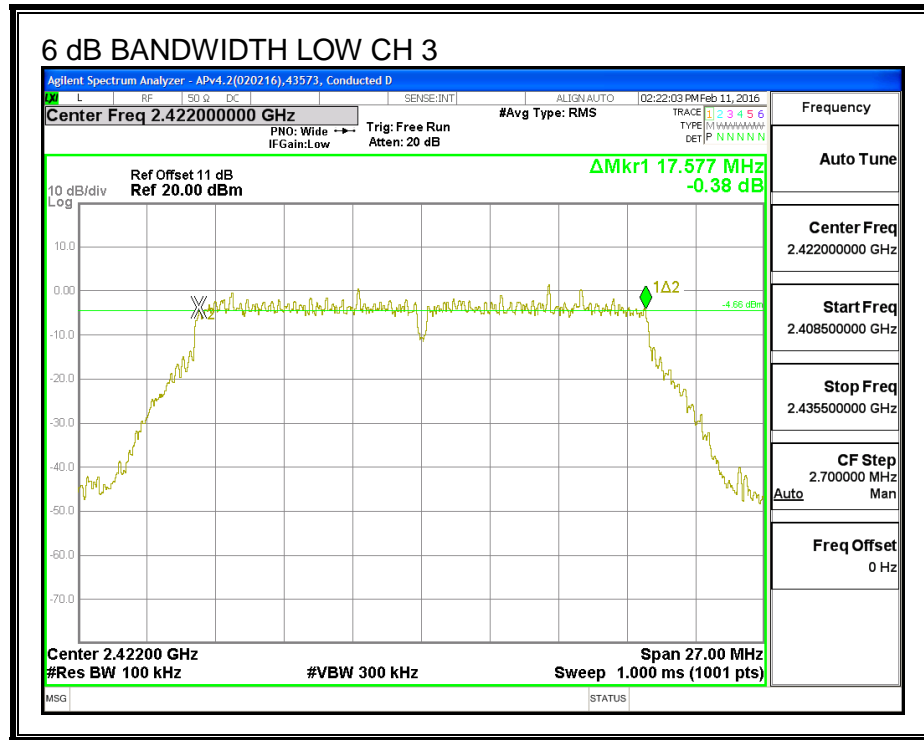


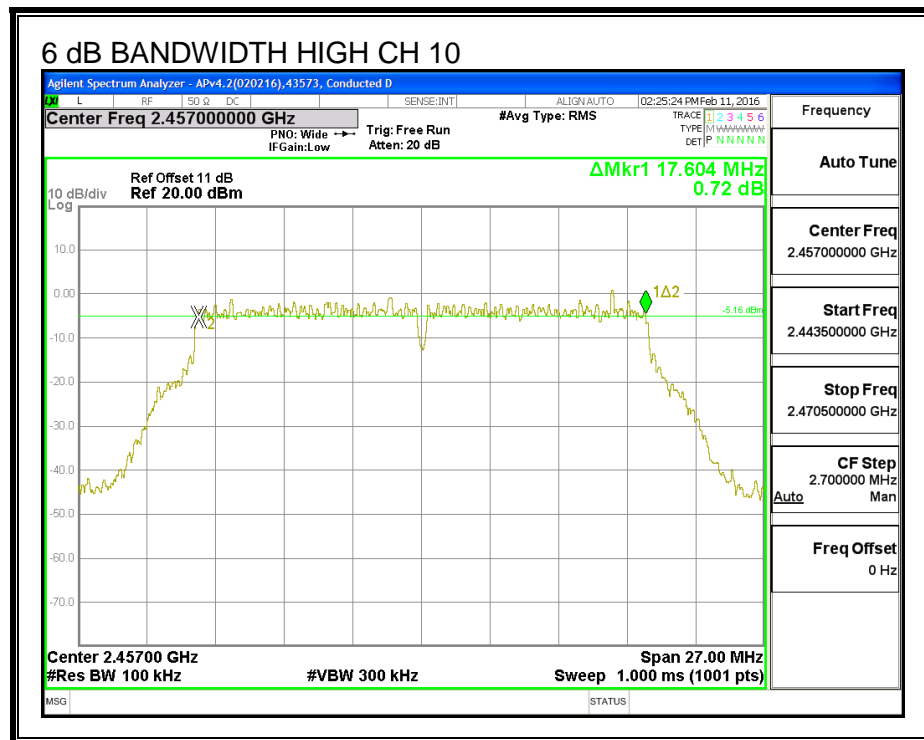
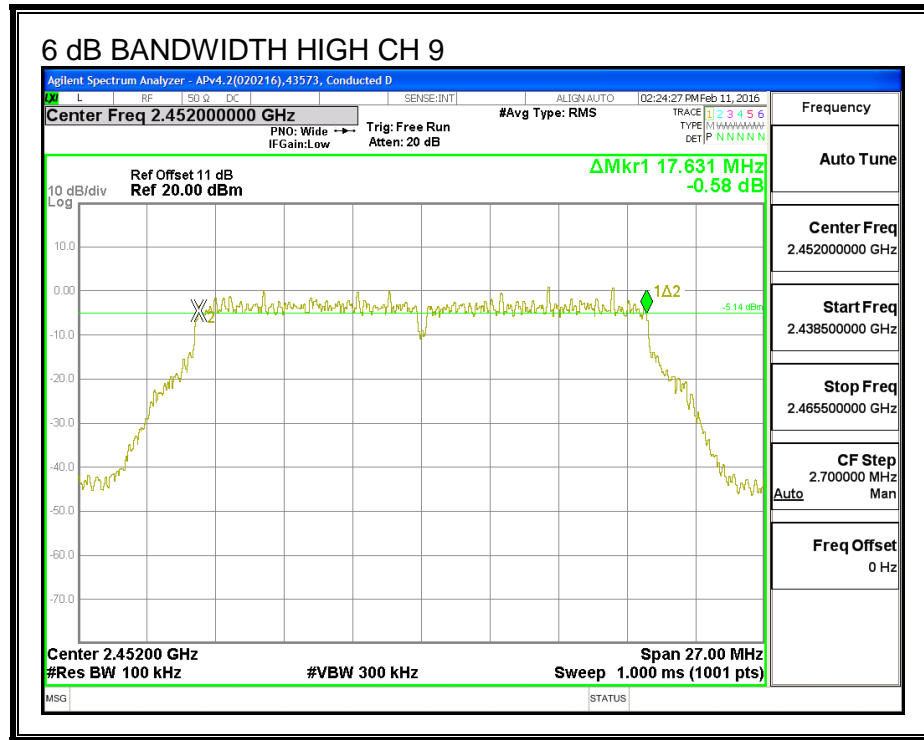


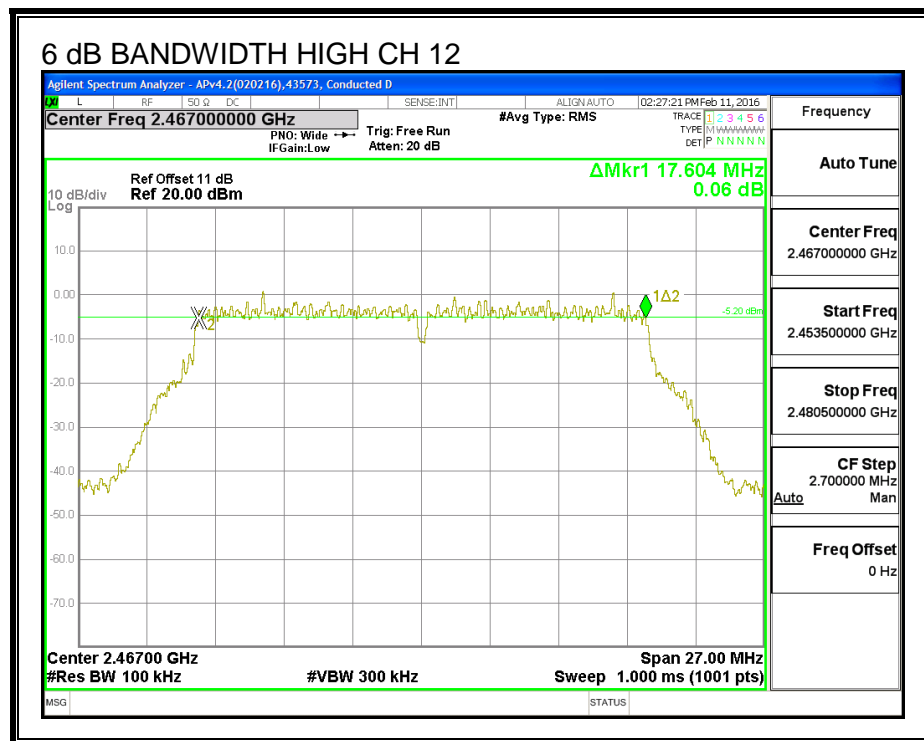
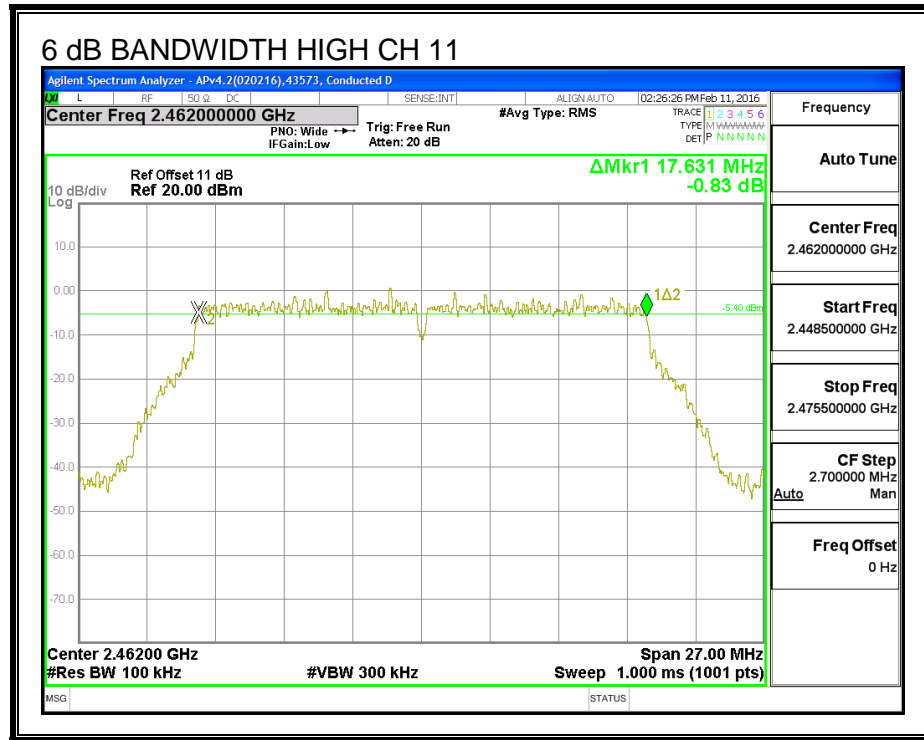


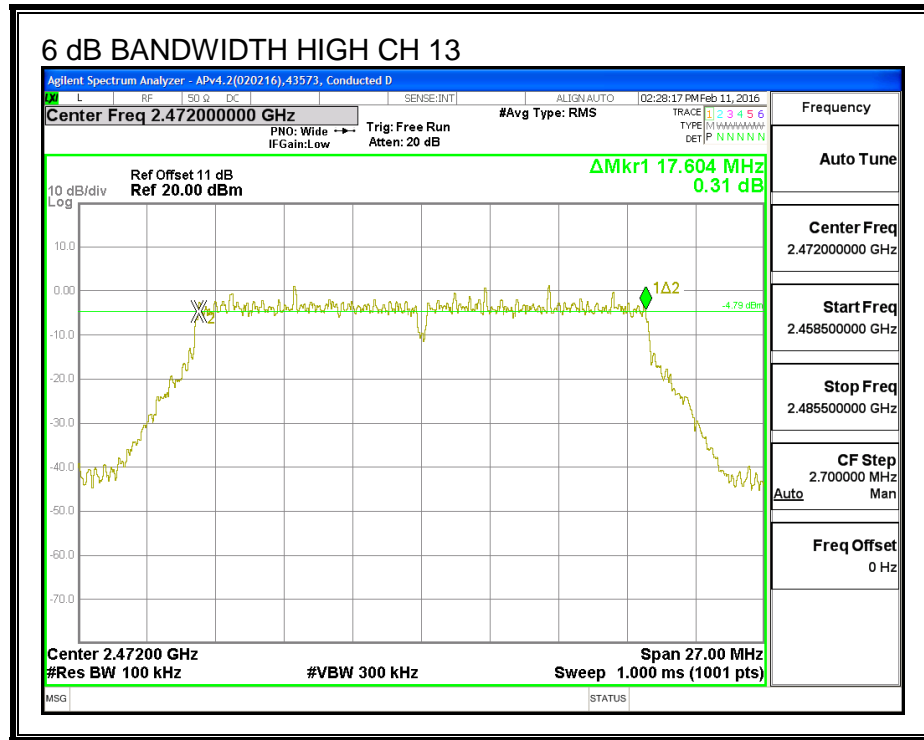
6 dB BANDWIDTH, Chain 1











8.9.2. 99% BANDWIDTH

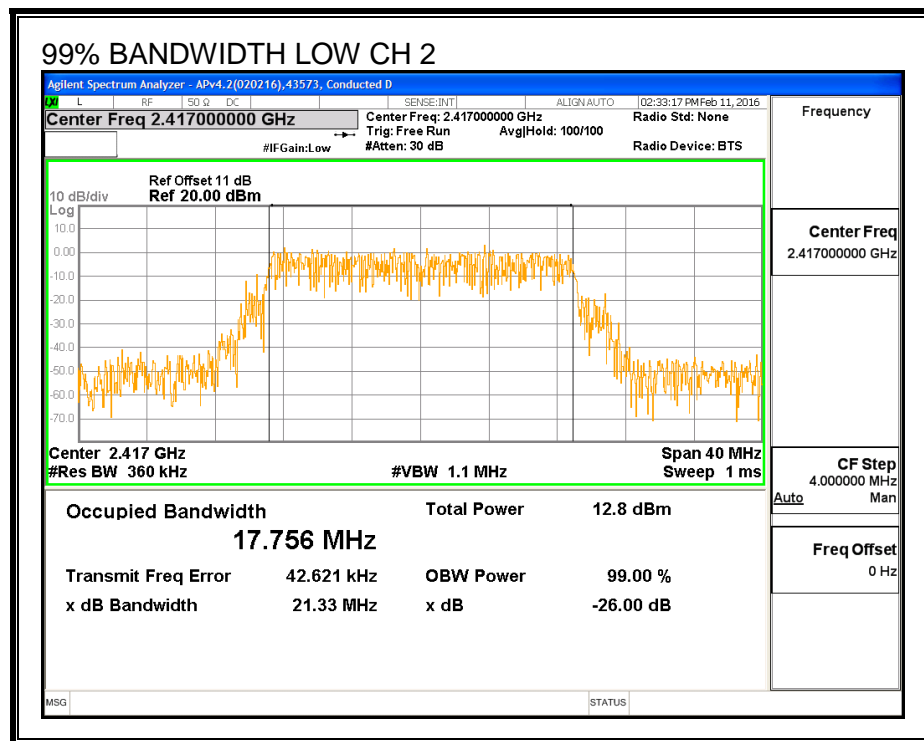
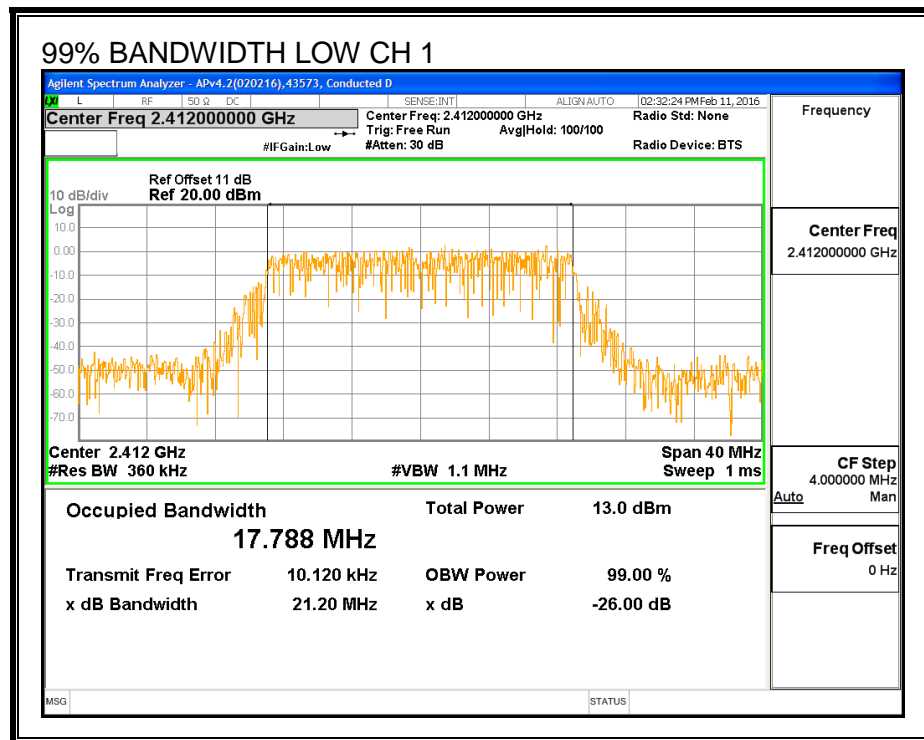
LIMITS

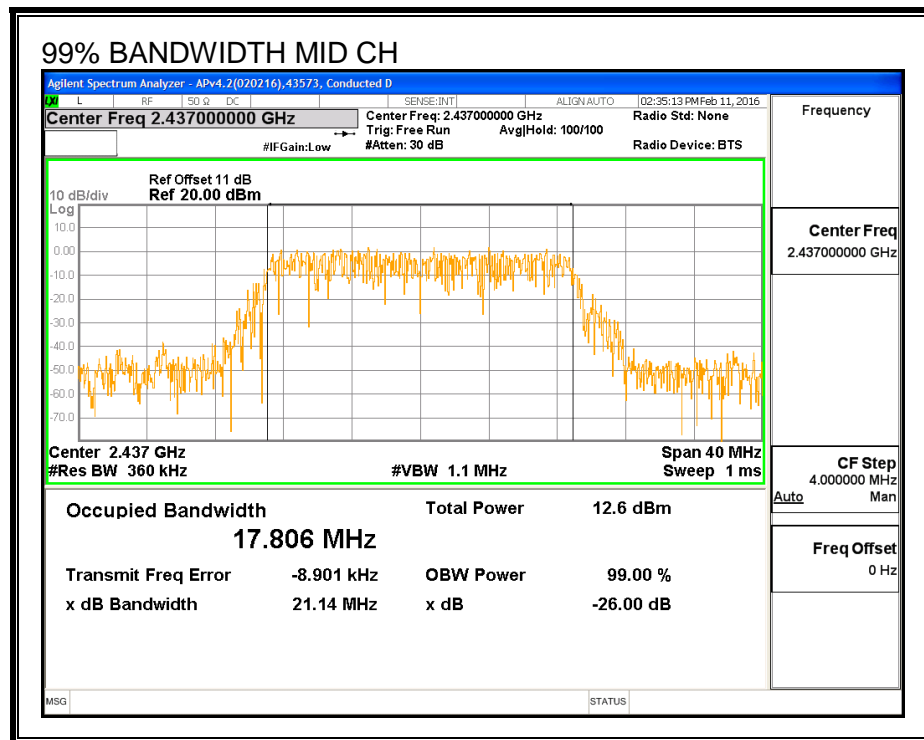
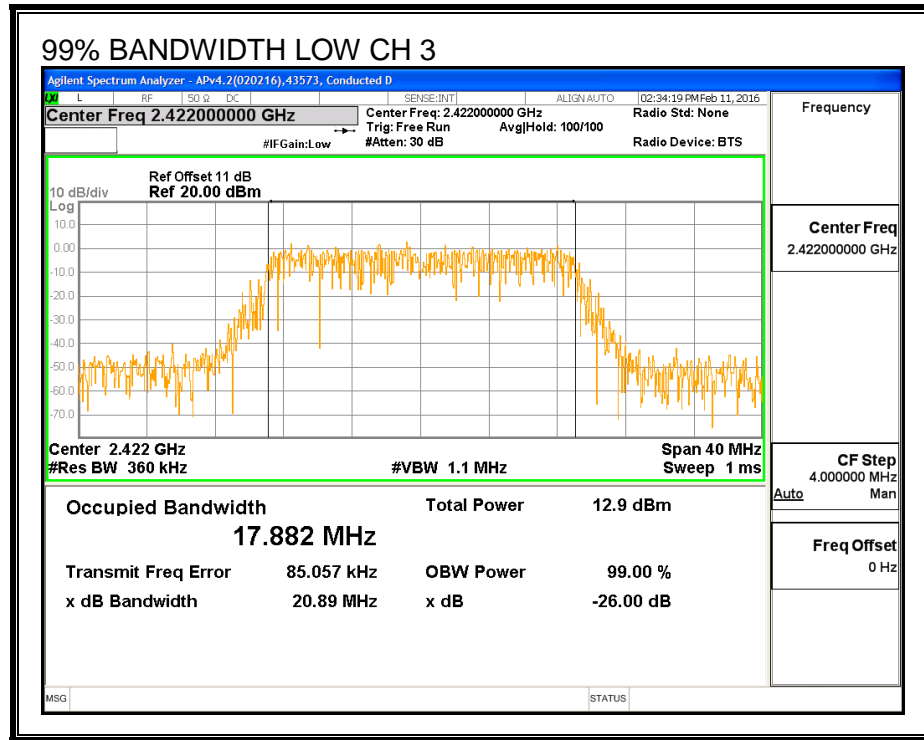
None; for reporting purposes only.

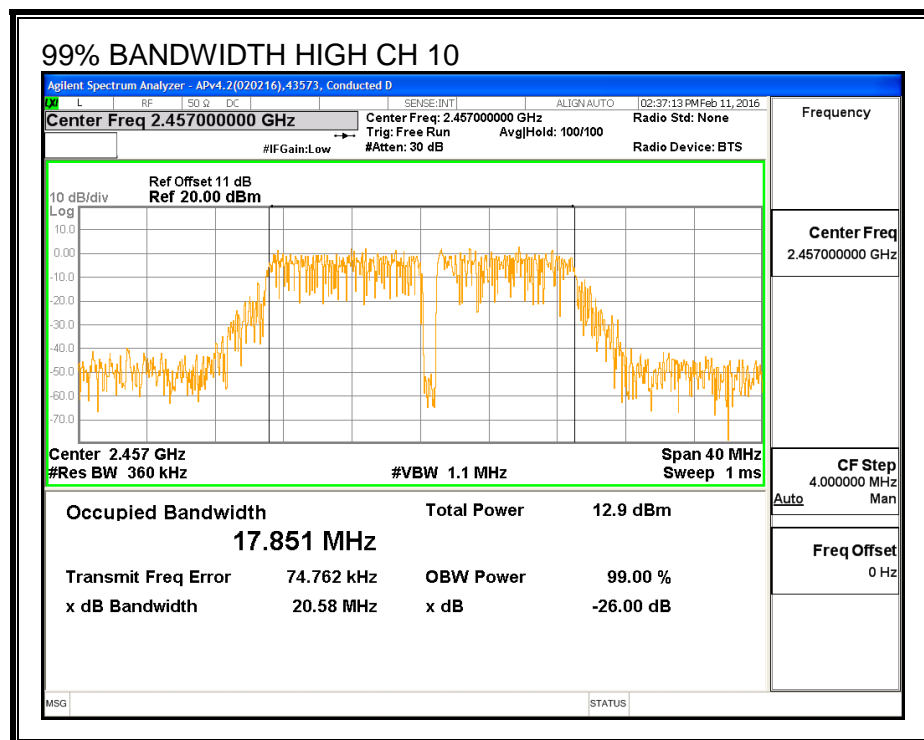
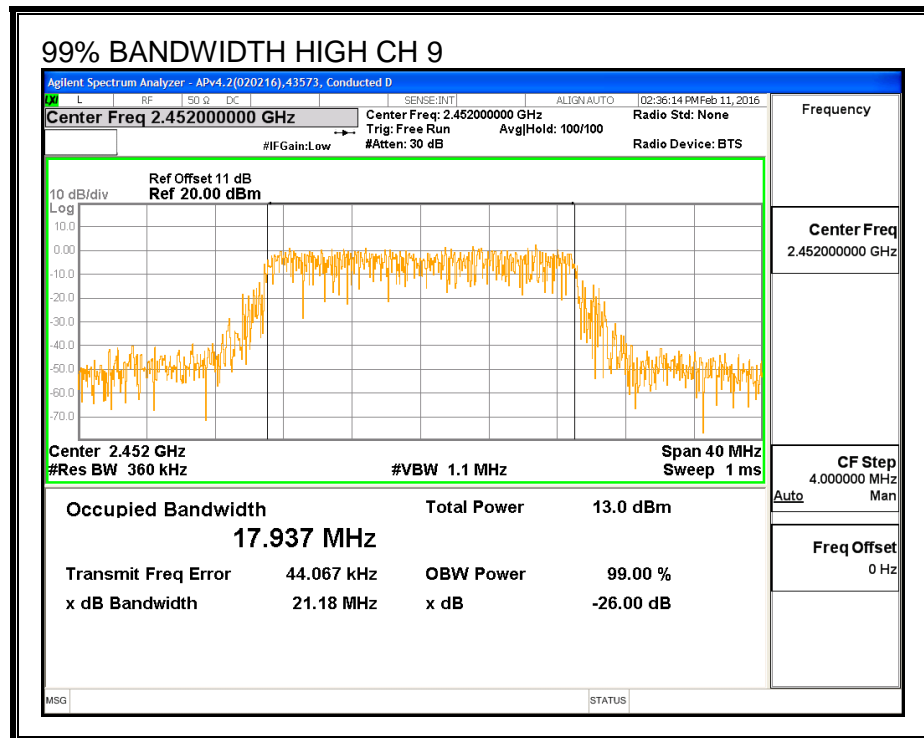
RESULTS

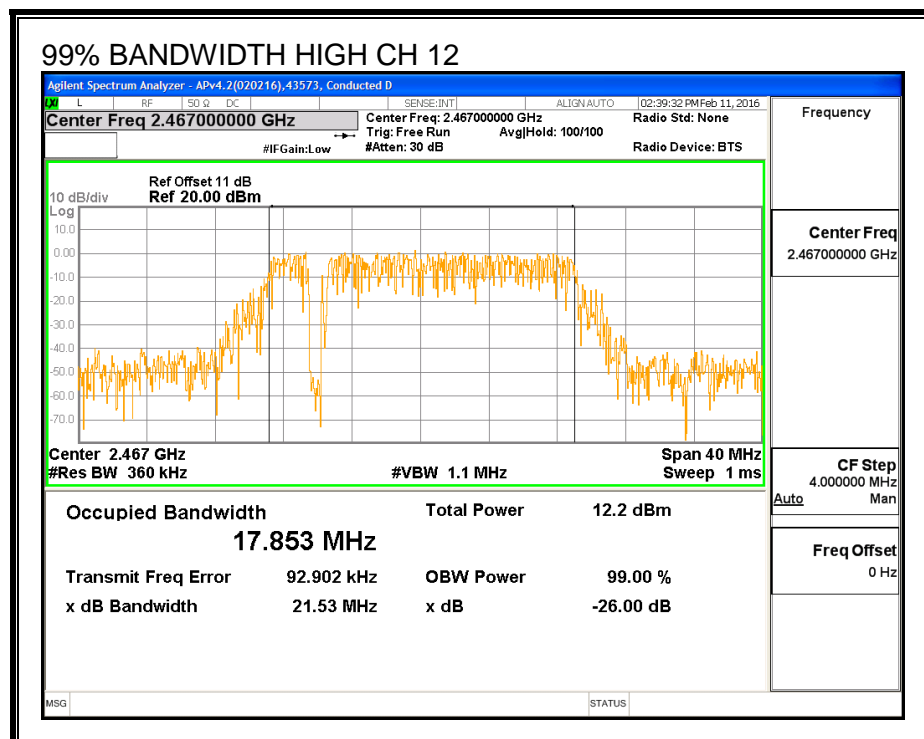
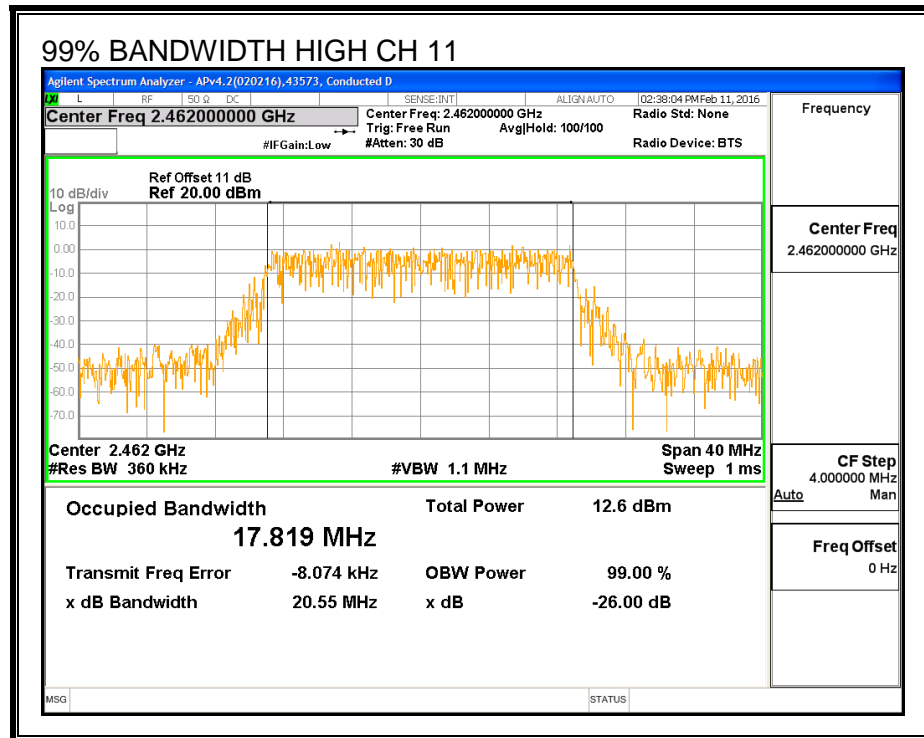
| Channel | Frequency (MHz) | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|---------|--------------------|----------------------------|----------------------------|
| Low_1 | 2412 | 17.788 | 17.969 |
| Low_2 | 2417 | 17.756 | 17.820 |
| Low_3 | 2422 | 17.882 | 17.851 |
| Mid_6 | 2437 | 17.806 | 17.782 |
| High_9 | 2452 | 17.937 | 17.854 |
| High_10 | 2457 | 17.851 | 17.750 |
| High_11 | 2462 | 17.819 | 17.817 |
| High_12 | 2467 | 17.853 | 17.790 |
| High_13 | 2472 | 17.850 | 17.776 |

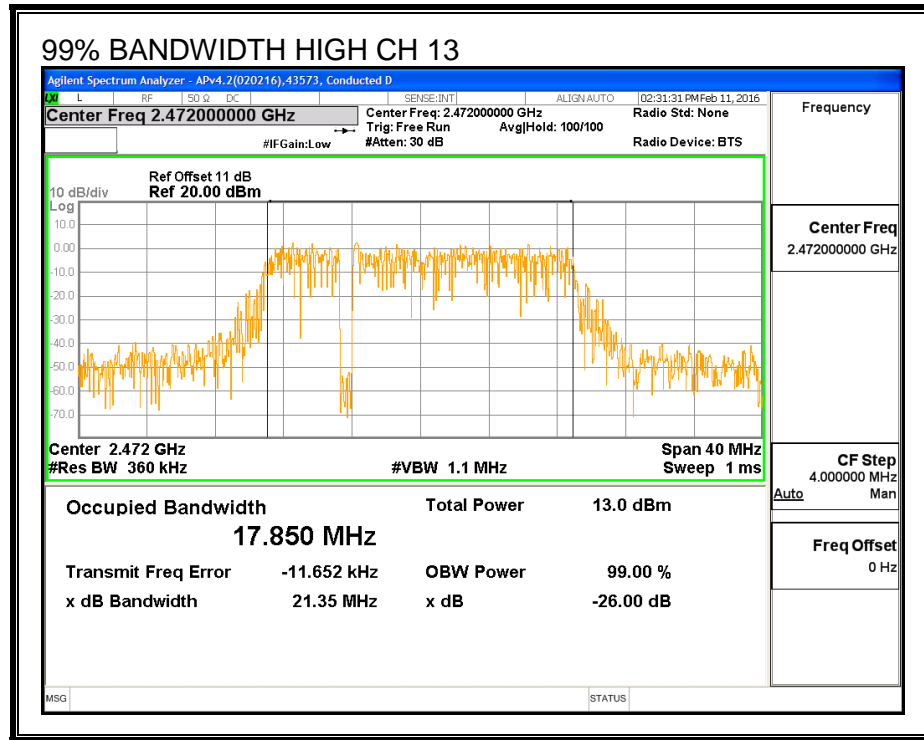
99% BANDWIDTH, Chain 0



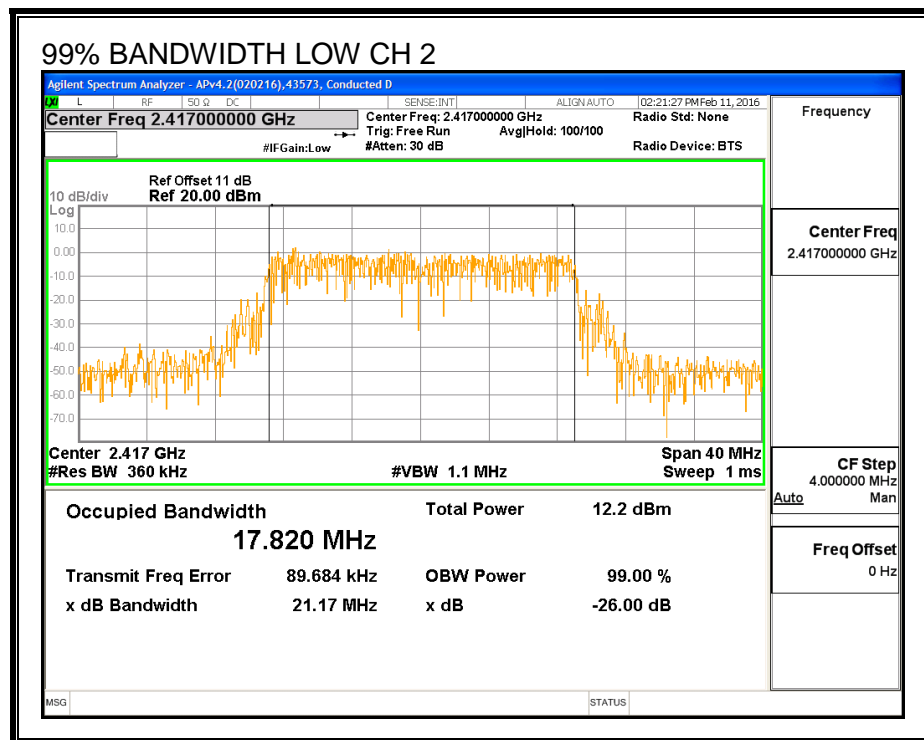
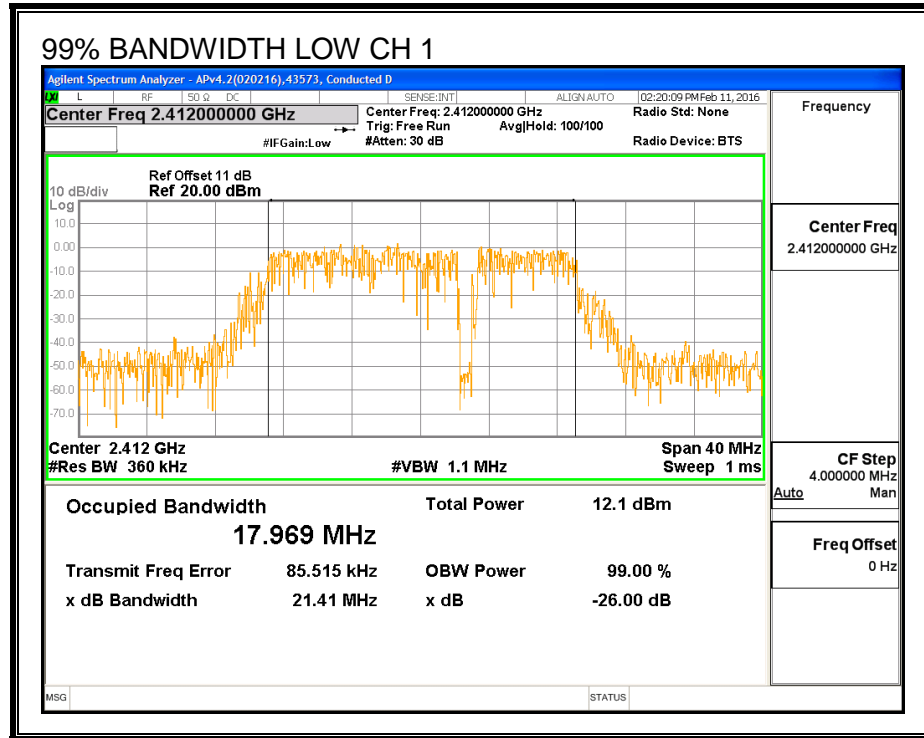


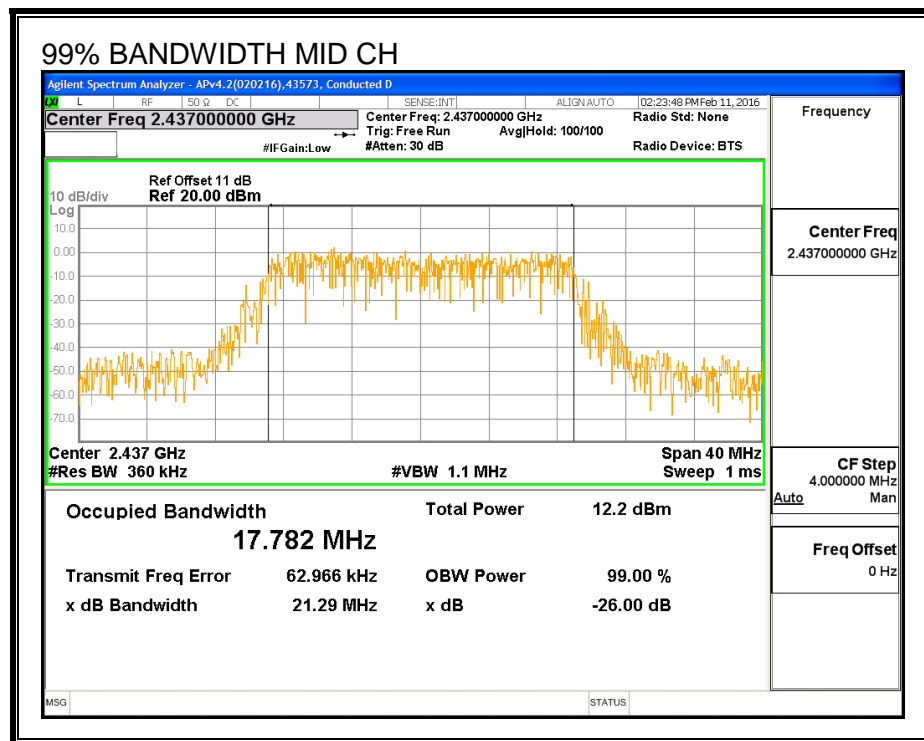
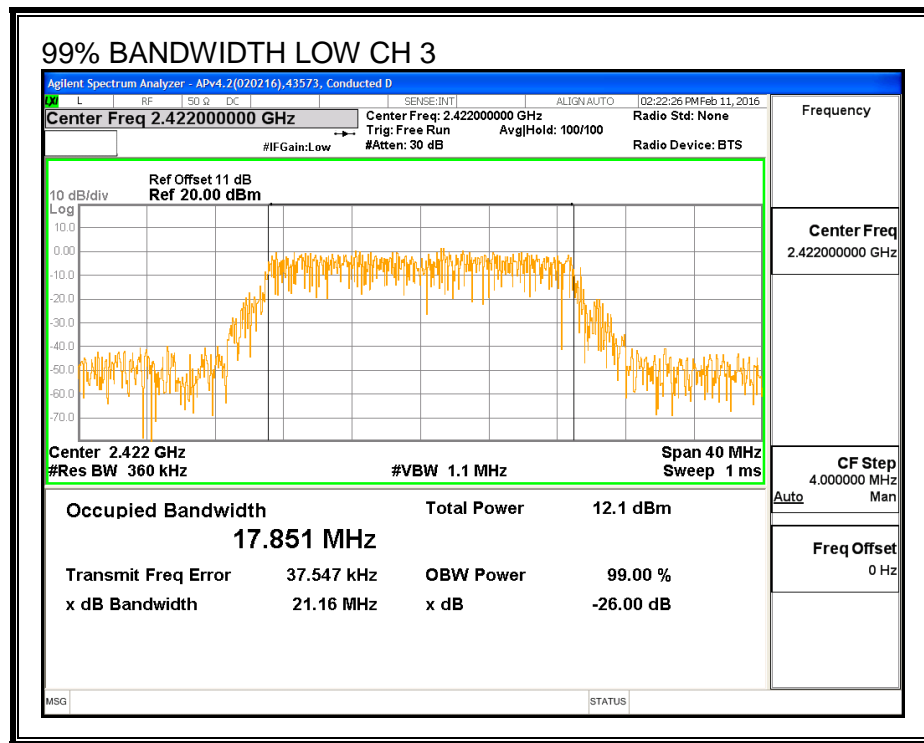


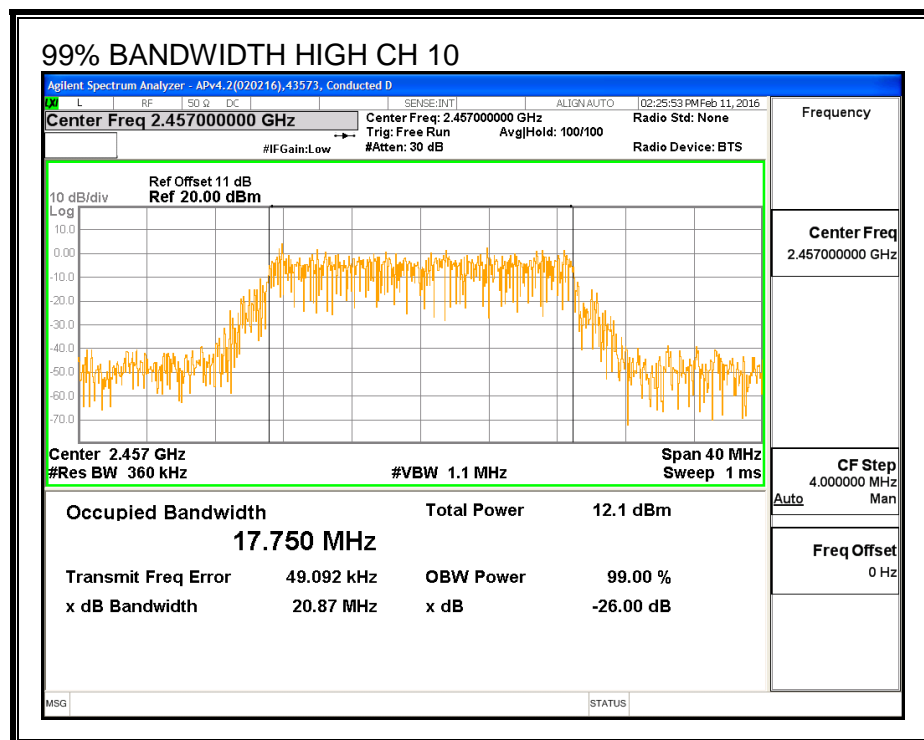
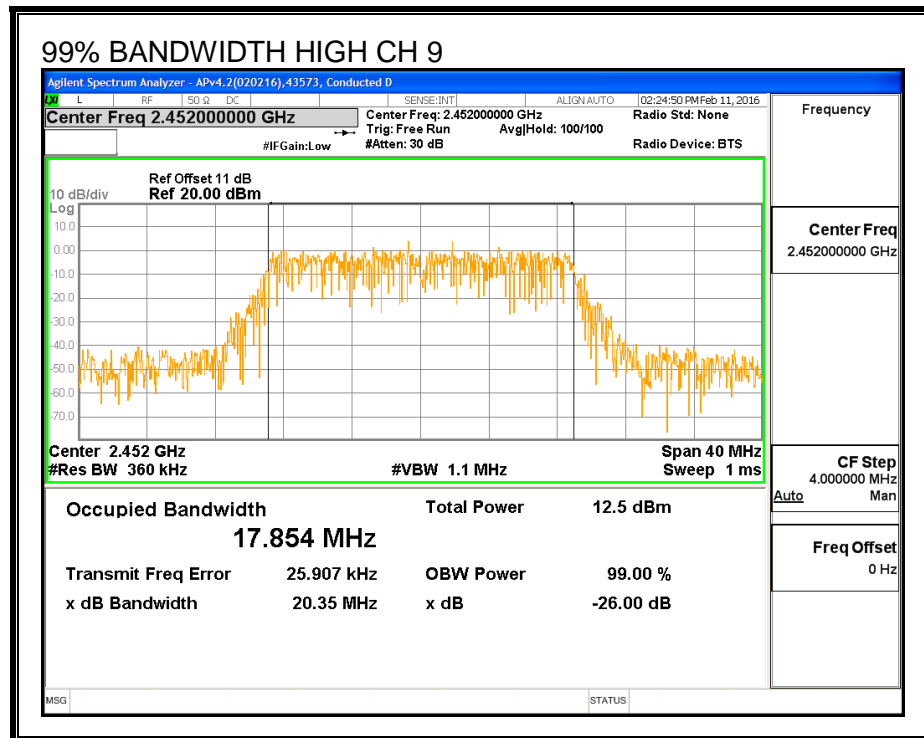


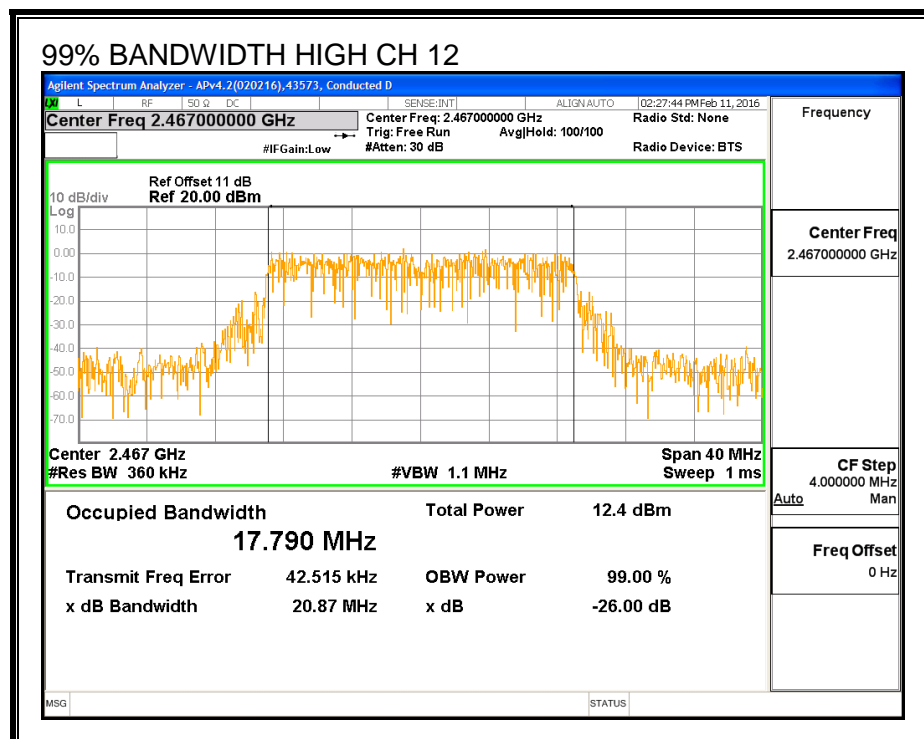
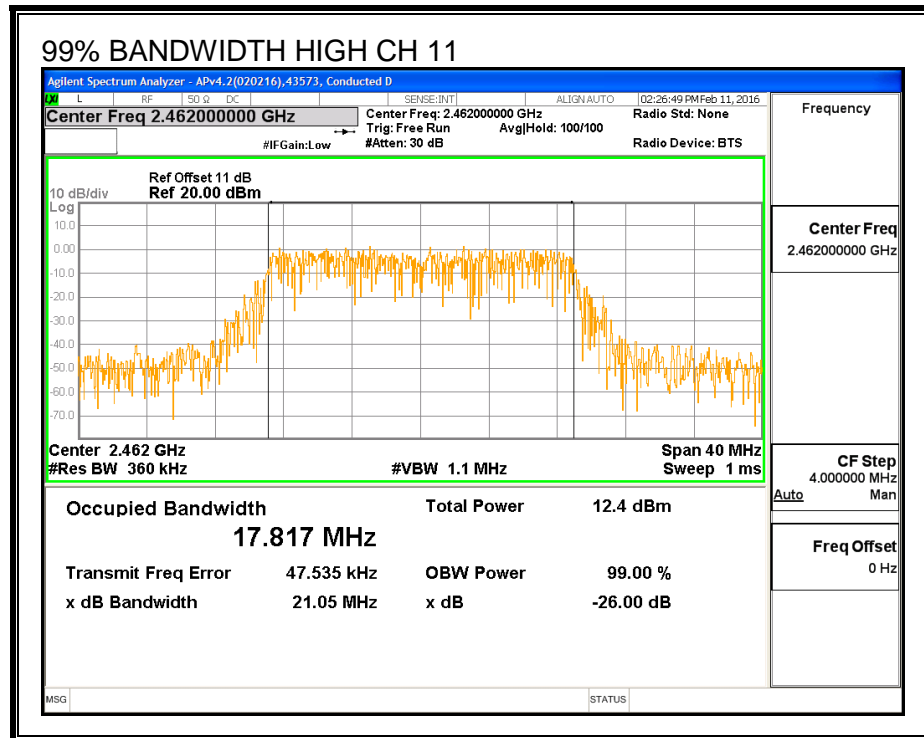


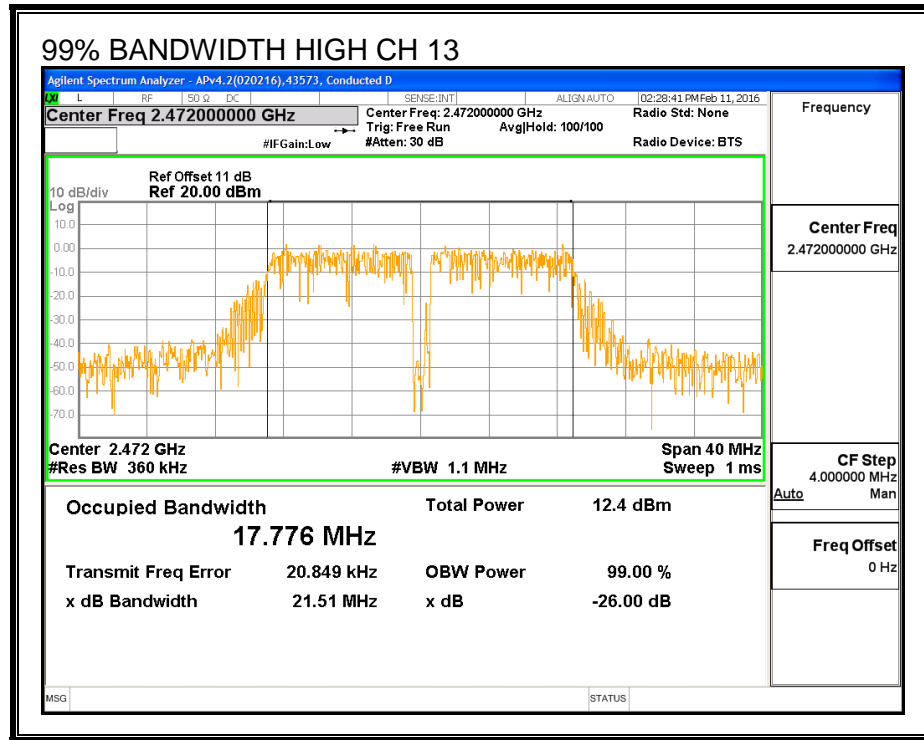
99% BANDWIDTH, Chain 1











8.9.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (4)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| 2.24 | 3.40 | 2.86 |

RESULTS

Limits

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---------|--------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|-----------------------|
| Low_1 | 2412 | 2.86 | 30.00 | 30 | 36 | 30.00 |
| Low_2 | 2417 | 2.86 | 30.00 | 30 | 36 | 30.00 |
| Low_3 | 2422 | 2.86 | 30.00 | 30 | 36 | 30.00 |
| Mid_6 | 2437 | 2.86 | 30.00 | 30 | 36 | 30.00 |
| High_9 | 2452 | 2.86 | 30.00 | 30 | 36 | 30.00 |
| High_10 | 2457 | 2.86 | 30.00 | 30 | 36 | 30.00 |
| High_11 | 2462 | 2.86 | 30.00 | 30 | 36 | 30.00 |
| High_12 | 2467 | 2.86 | 30.00 | 30 | 36 | 30.00 |
| High_13 | 2472 | 2.86 | 30.00 | 30 | 36 | 30.00 |

Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margi (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|---------------|
| Low_1 | 2412 | 12.92 | 13.00 | 15.97 | 30.00 | -14.03 |
| Low_2 | 2417 | 15.91 | 15.99 | 18.96 | 30.00 | -11.04 |
| Low_3 | 2422 | 18.88 | 18.84 | 21.87 | 30.00 | -8.13 |
| Mid_6 | 2437 | 18.91 | 18.88 | 21.91 | 30.00 | -8.09 |
| High_9 | 2452 | 18.84 | 18.86 | 21.86 | 30.00 | -8.14 |
| High_10 | 2457 | 16.88 | 16.90 | 19.90 | 30.00 | -10.10 |
| High_11 | 2462 | 11.93 | 11.92 | 14.94 | 30.00 | -15.06 |
| High_12 | 2467 | 8.92 | 8.90 | 11.92 | 30.00 | -18.08 |
| High_13 | 2472 | -0.02 | 0.00 | 3.00 | 30.00 | -27.00 |

8.9.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-247 (5.2) (2)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

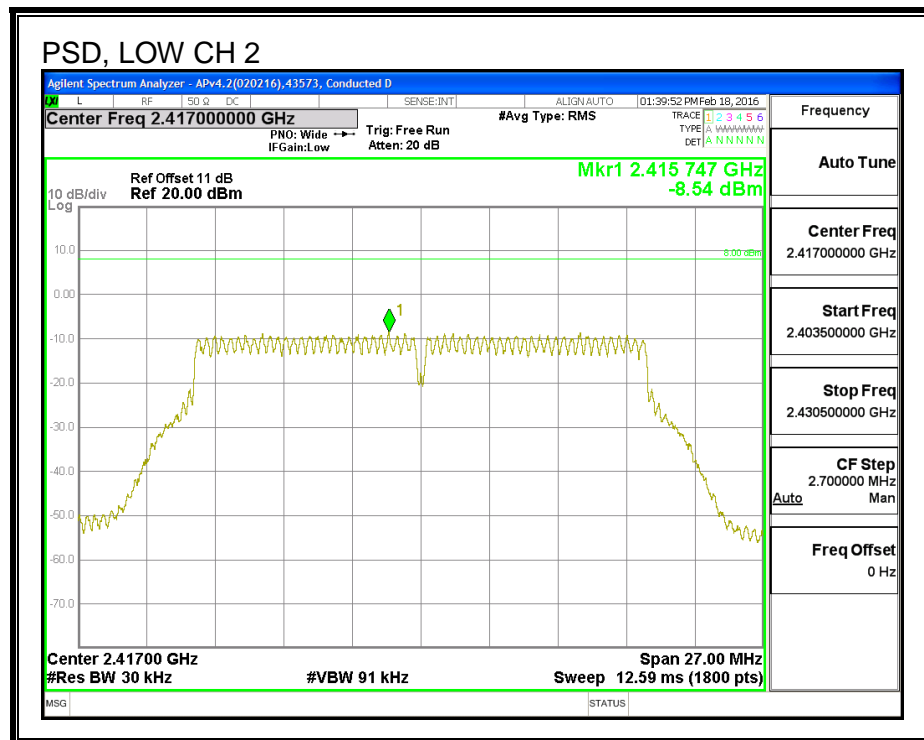
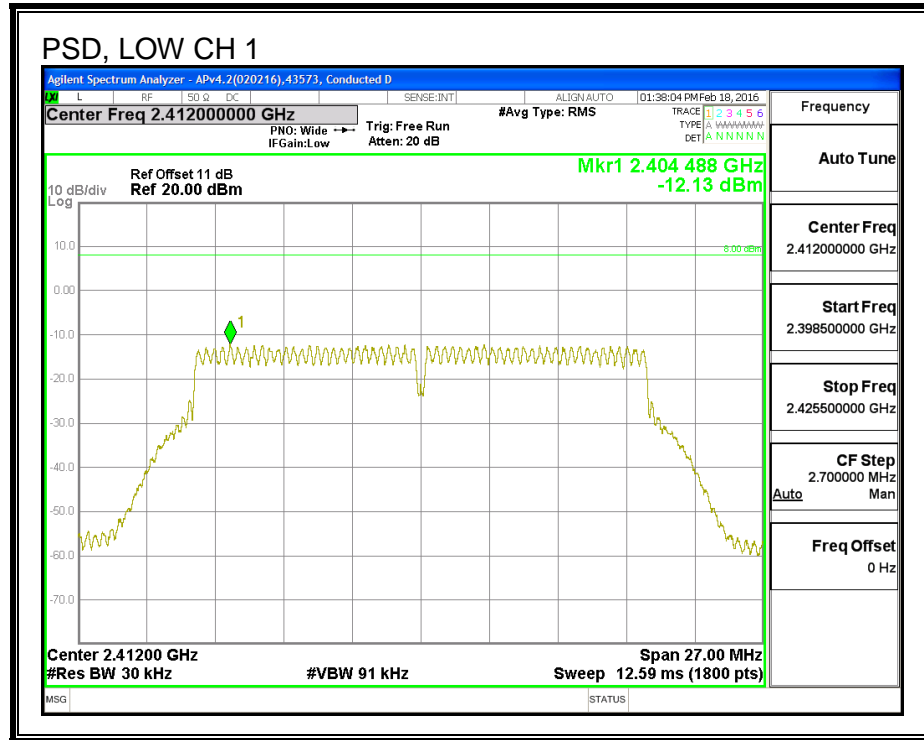
RESULTS

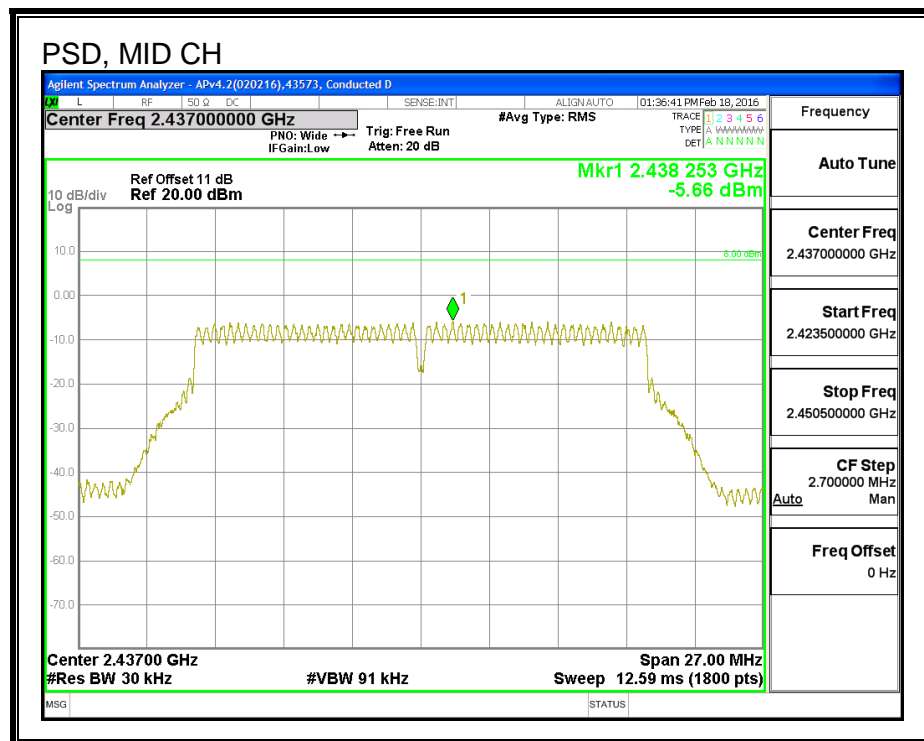
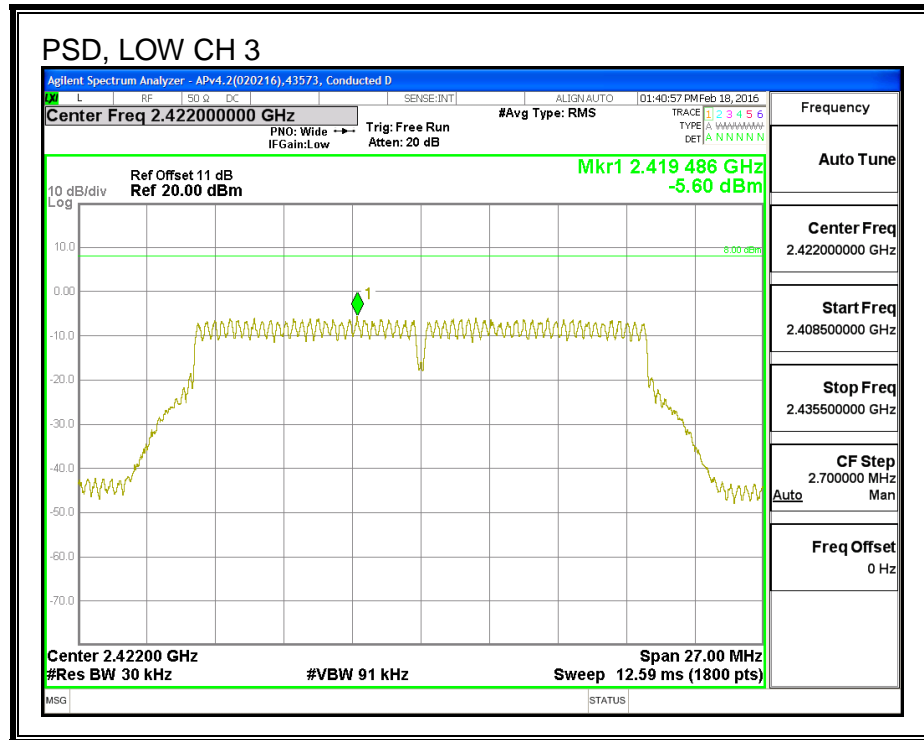
| | | |
|---------------------------|------|---|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|---------------------------|------|---|

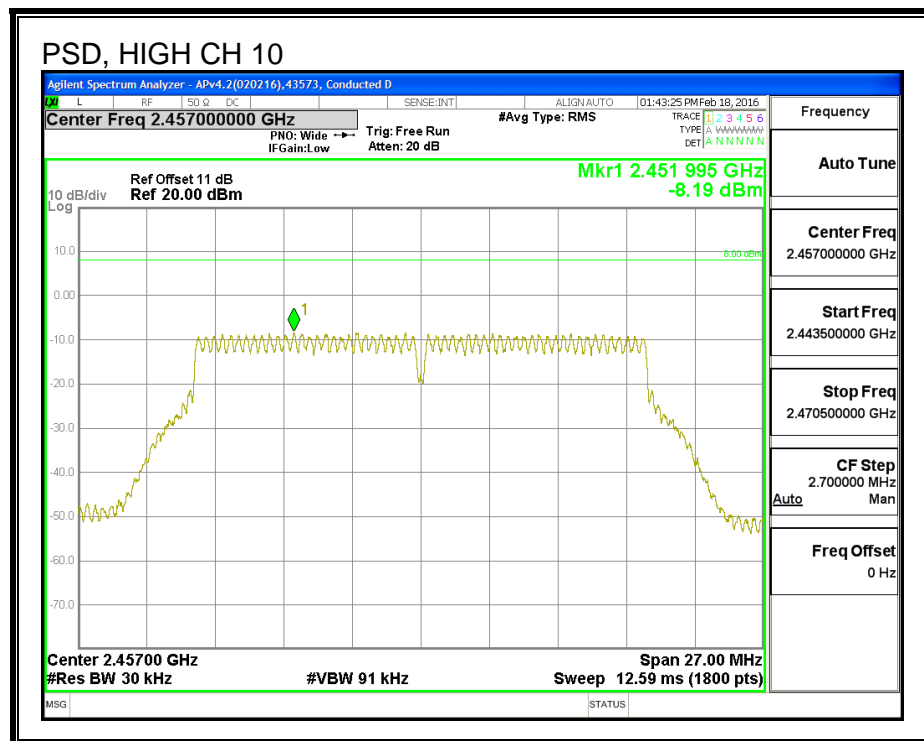
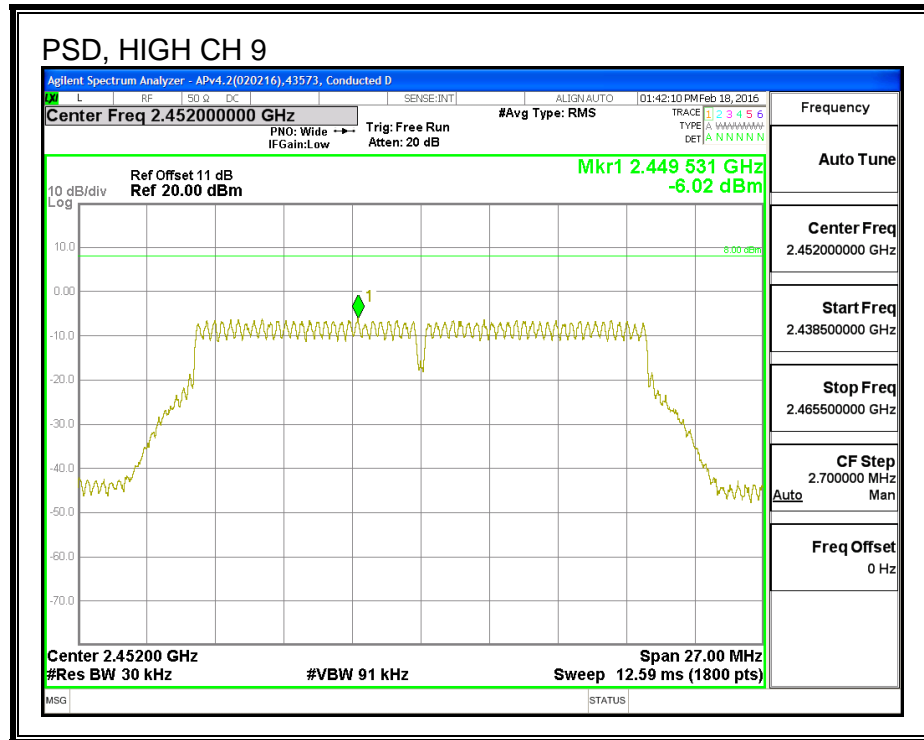
PSD Results

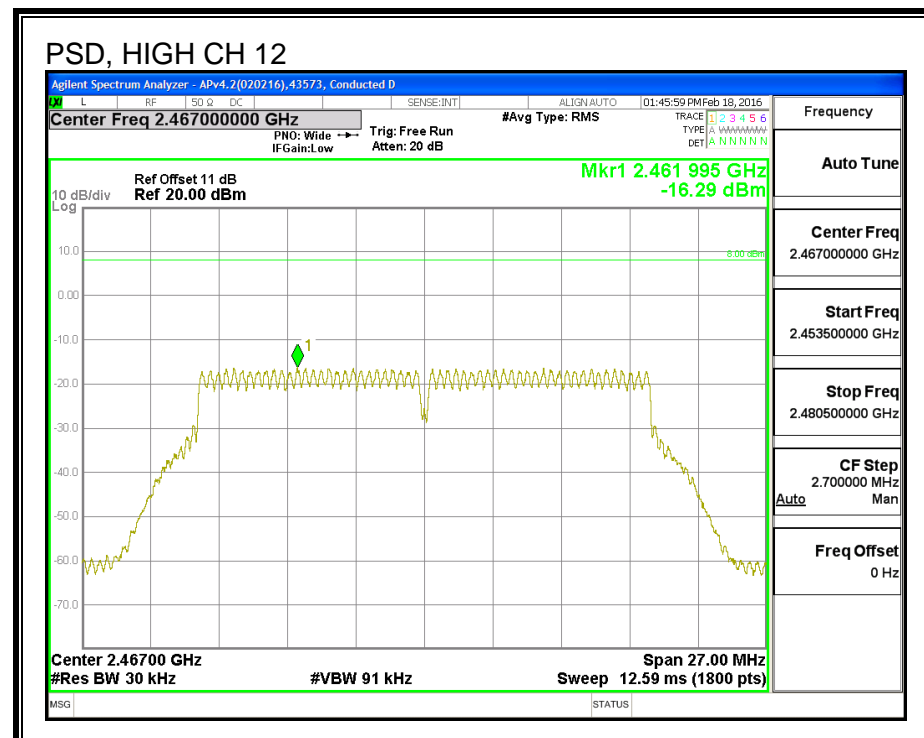
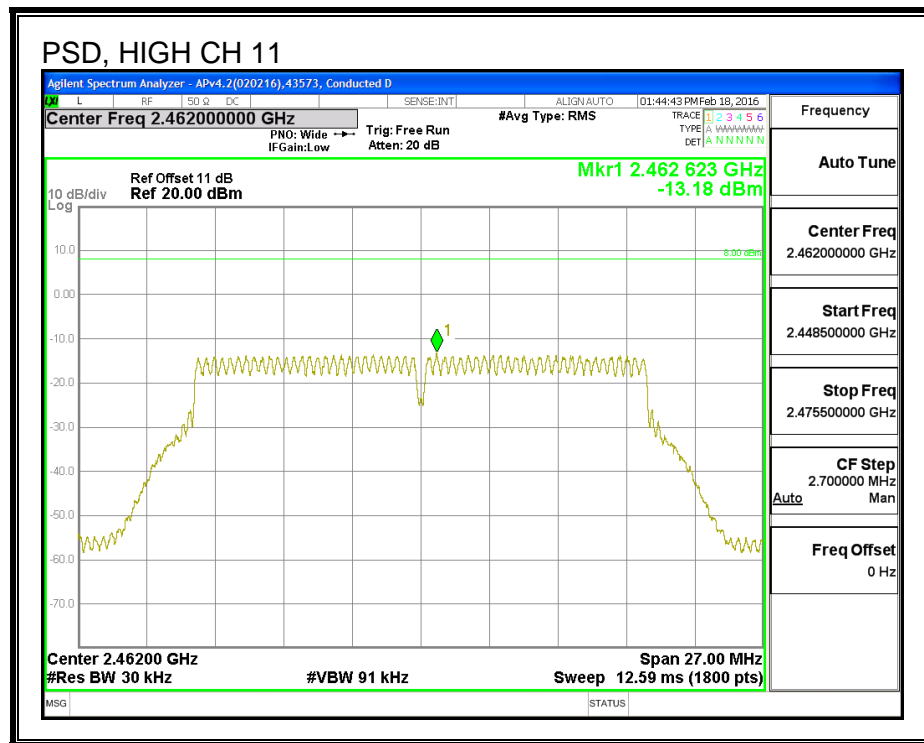
| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---------|--------------------|--------------------------|--------------------------|---------------------------------|----------------|----------------|
| Low_1 | 2412 | -12.13 | -12.21 | -9.16 | 8.0 | -17.2 |
| Low_2 | 2417 | -8.54 | -9.11 | -5.81 | 8.0 | -13.8 |
| Low_3 | 2422 | -5.60 | -6.50 | -3.02 | 8.0 | -11.0 |
| Mid_6 | 2437 | -5.66 | -6.50 | -3.05 | 8.0 | -11.0 |
| High_9 | 2452 | -6.02 | -6.04 | -3.02 | 8.0 | -11.0 |
| High_10 | 2457 | -8.19 | -8.45 | -5.31 | 8.0 | -13.3 |
| High_11 | 2462 | -13.18 | -14.07 | -10.59 | 8.0 | -18.6 |
| High_12 | 2467 | -16.29 | -16.99 | -13.62 | 8.0 | -21.6 |
| High_13 | 2472 | -24.73 | -24.29 | -21.49 | 8.0 | -29.5 |

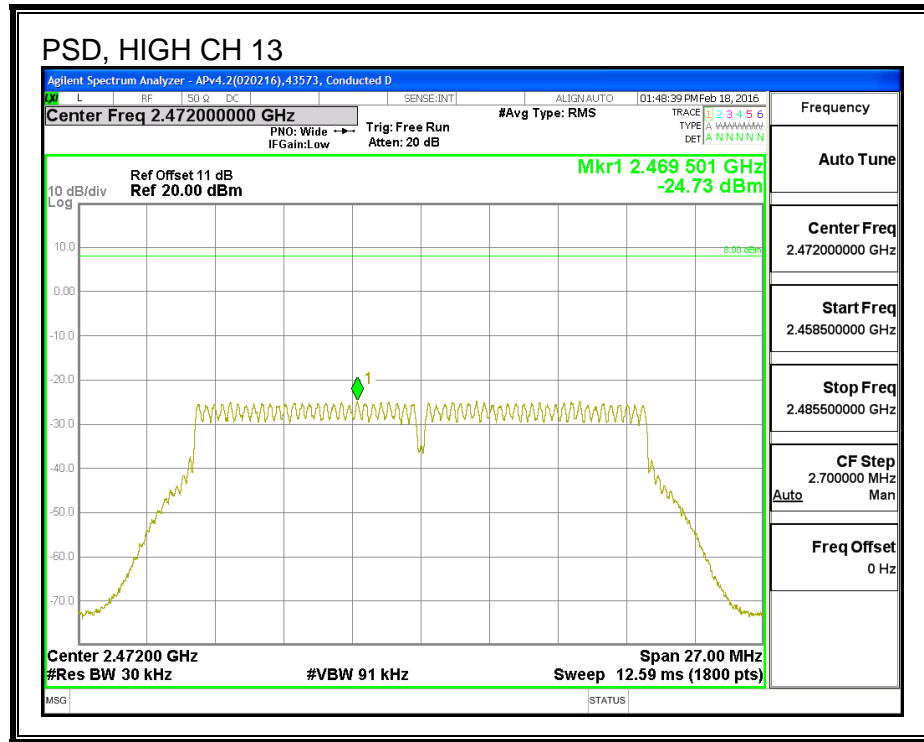
PSD, Chain 0



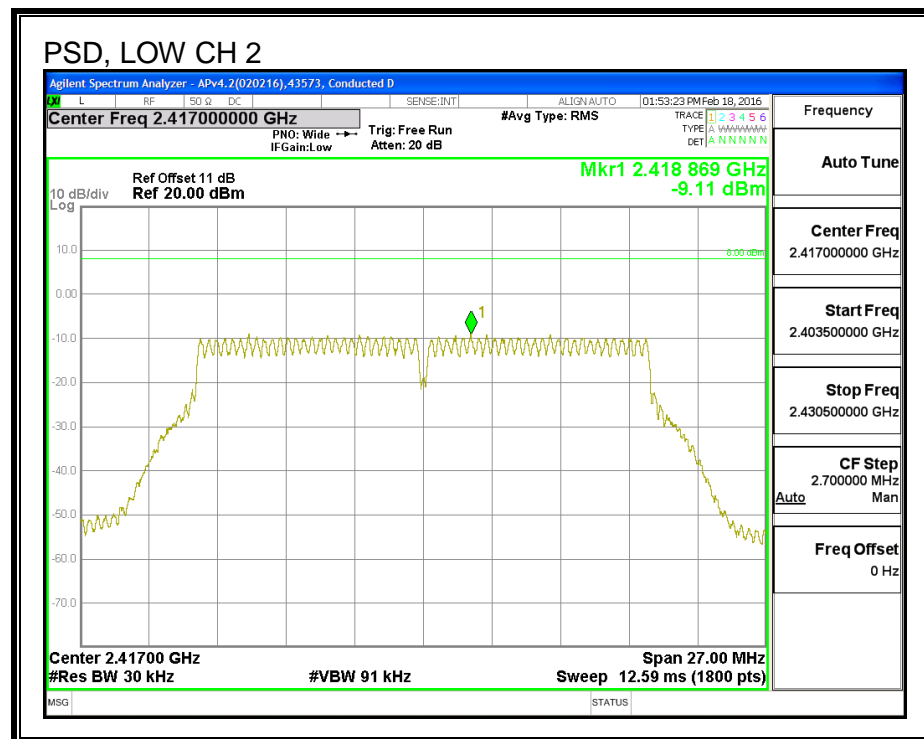
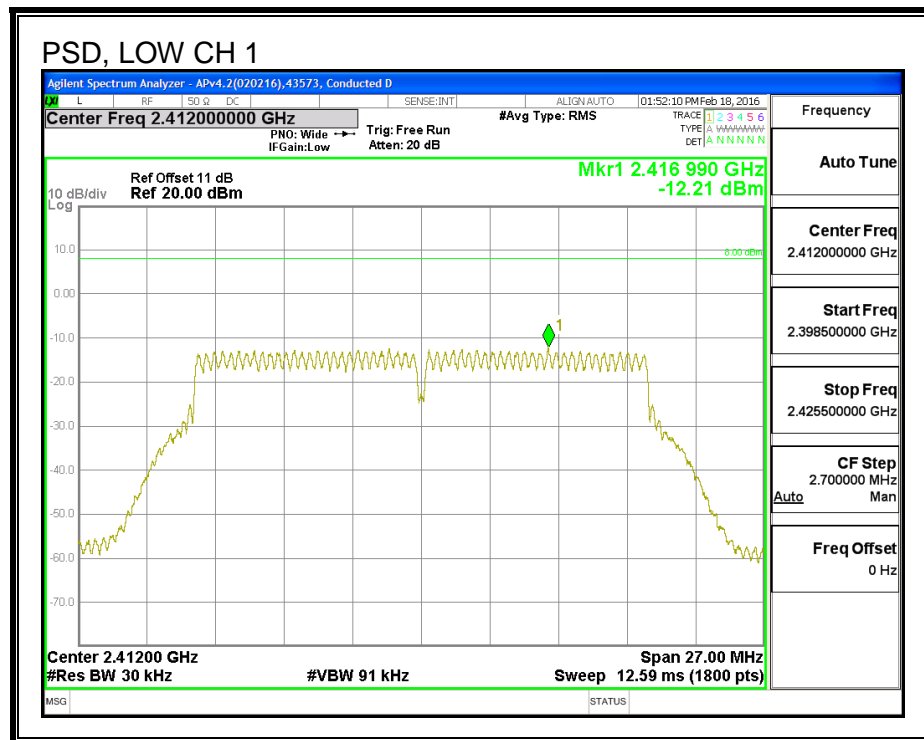


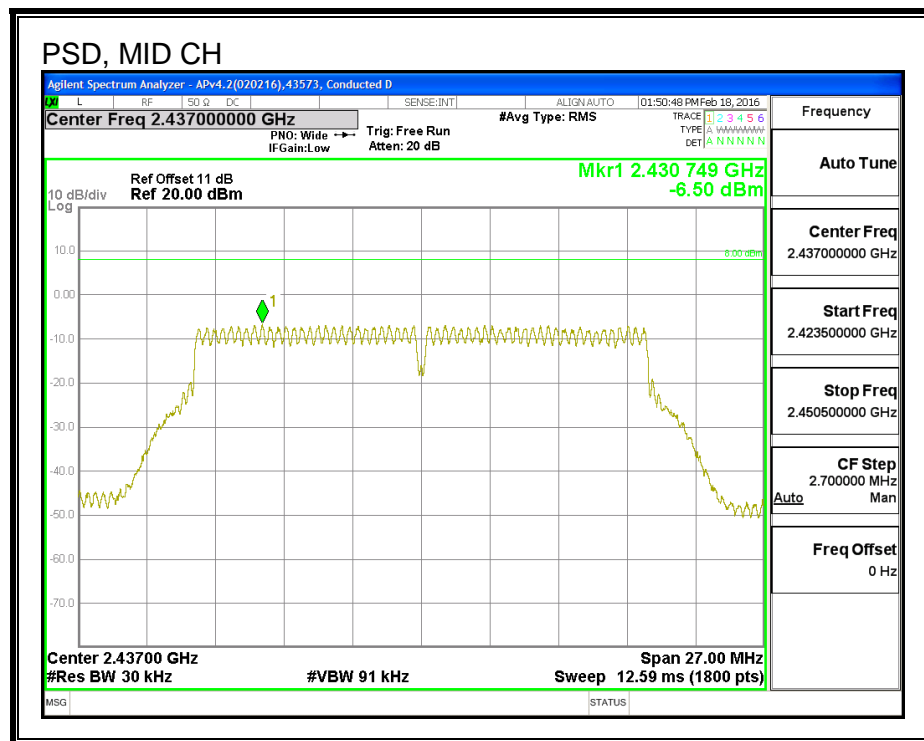
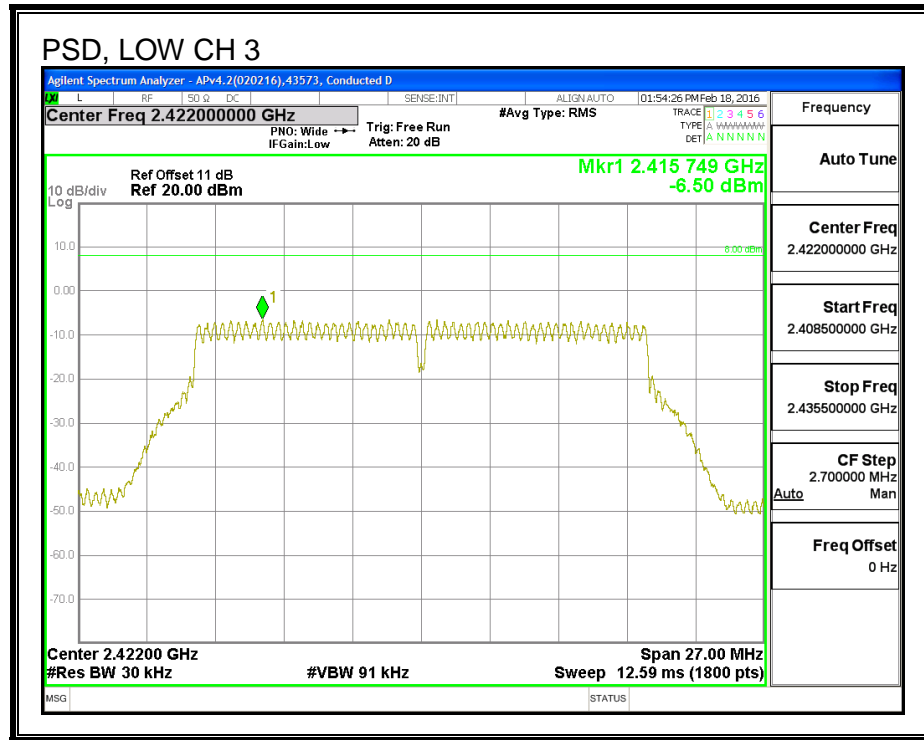


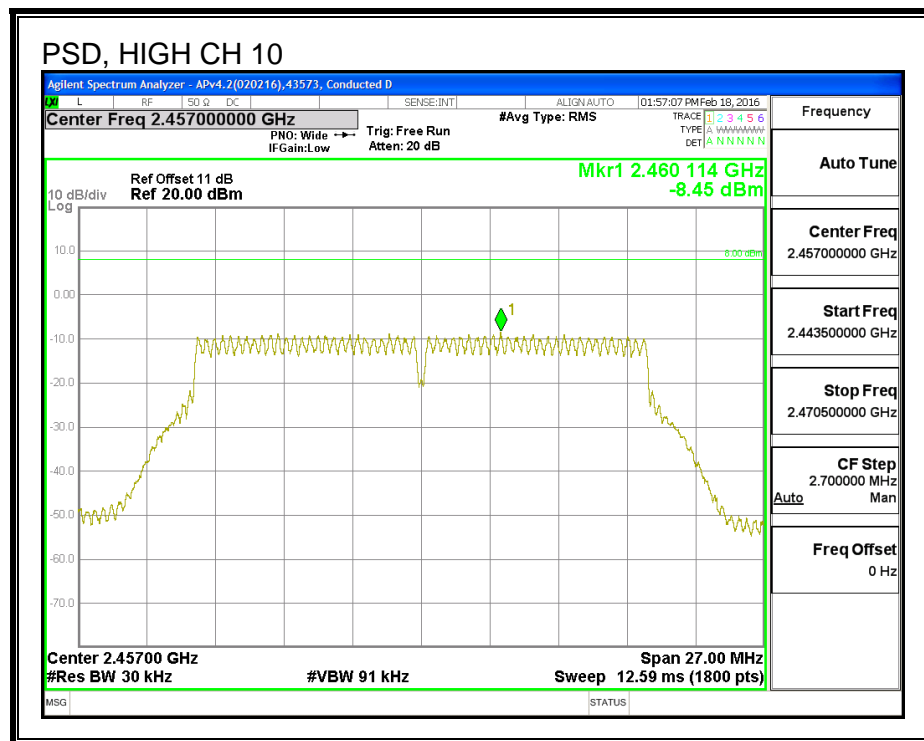
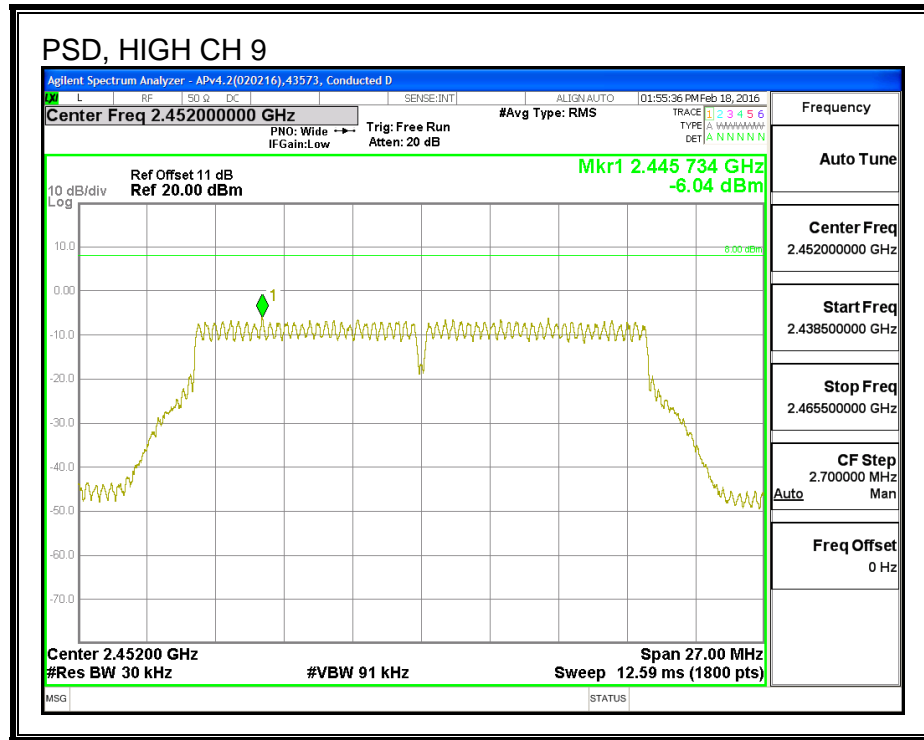


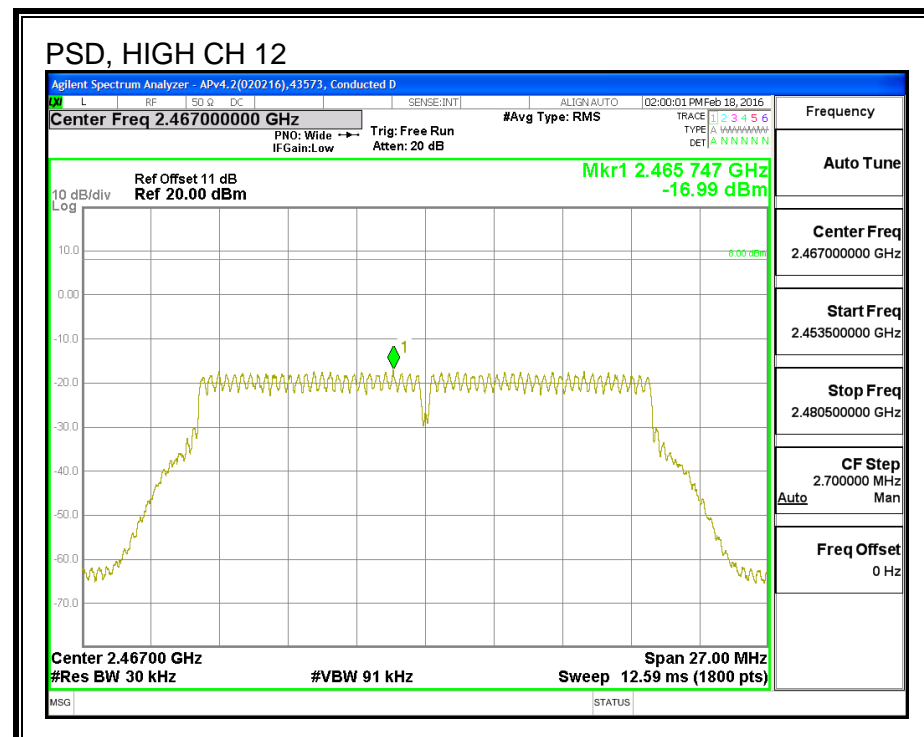
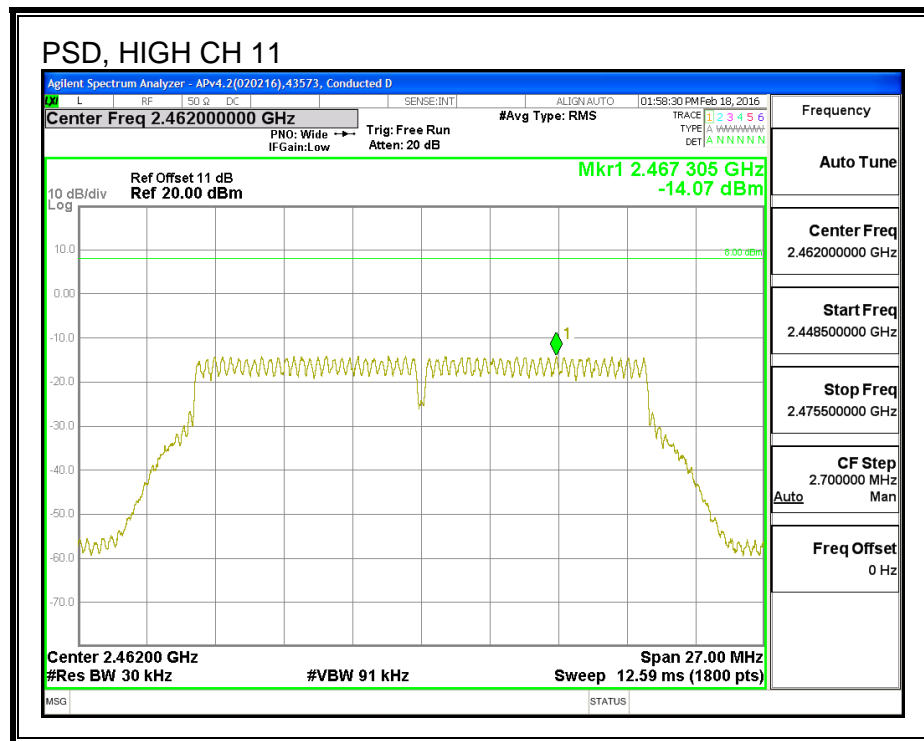


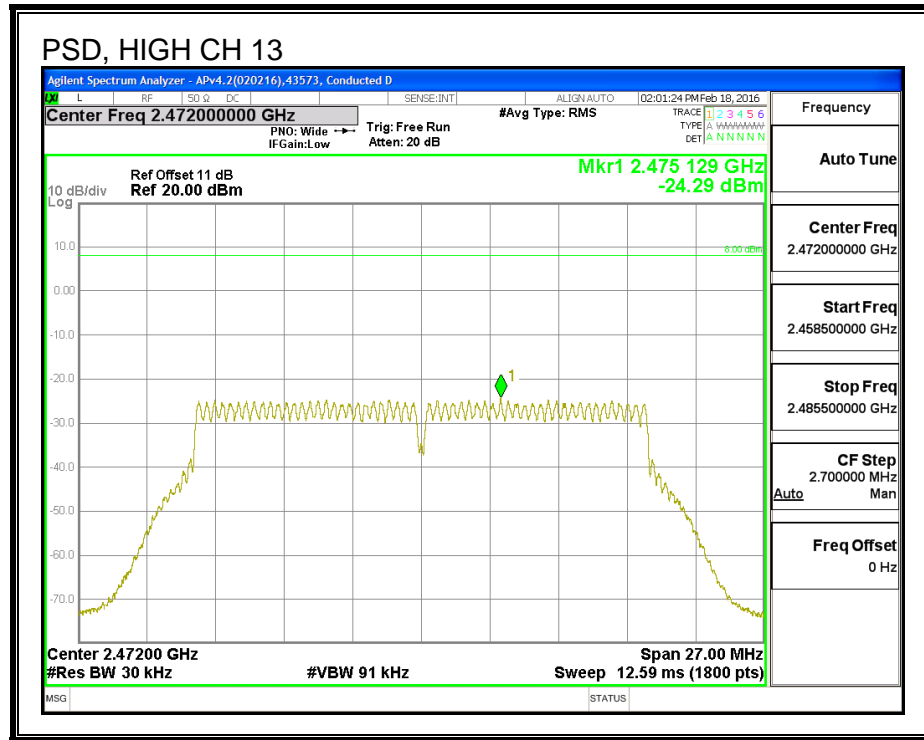
PSD, Chain 1











8.9.5. OUT-OF-BAND EMISSIONS

LIMITS

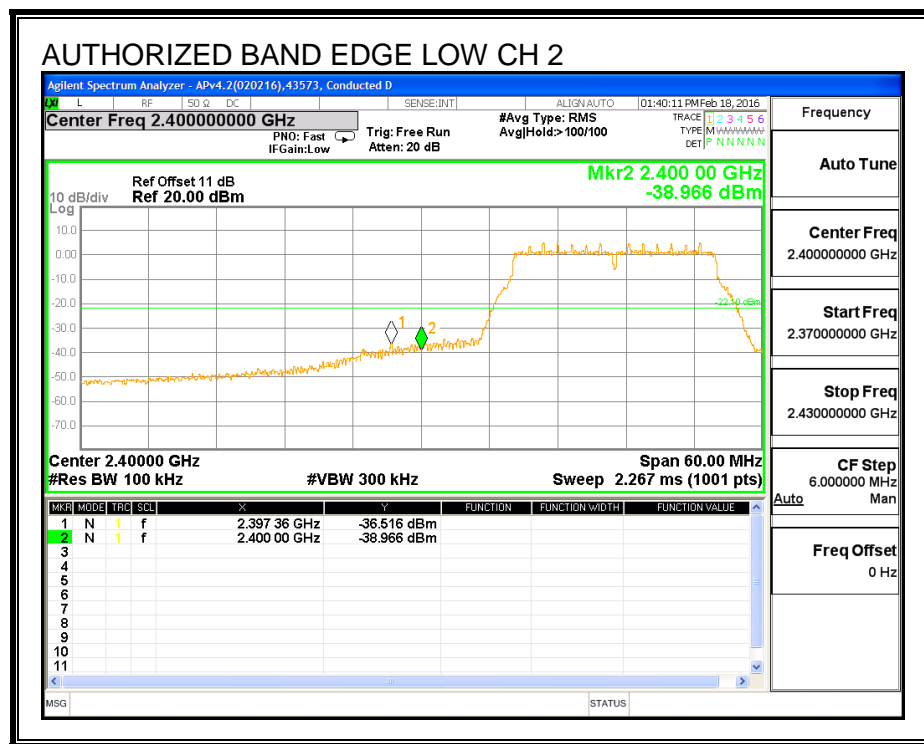
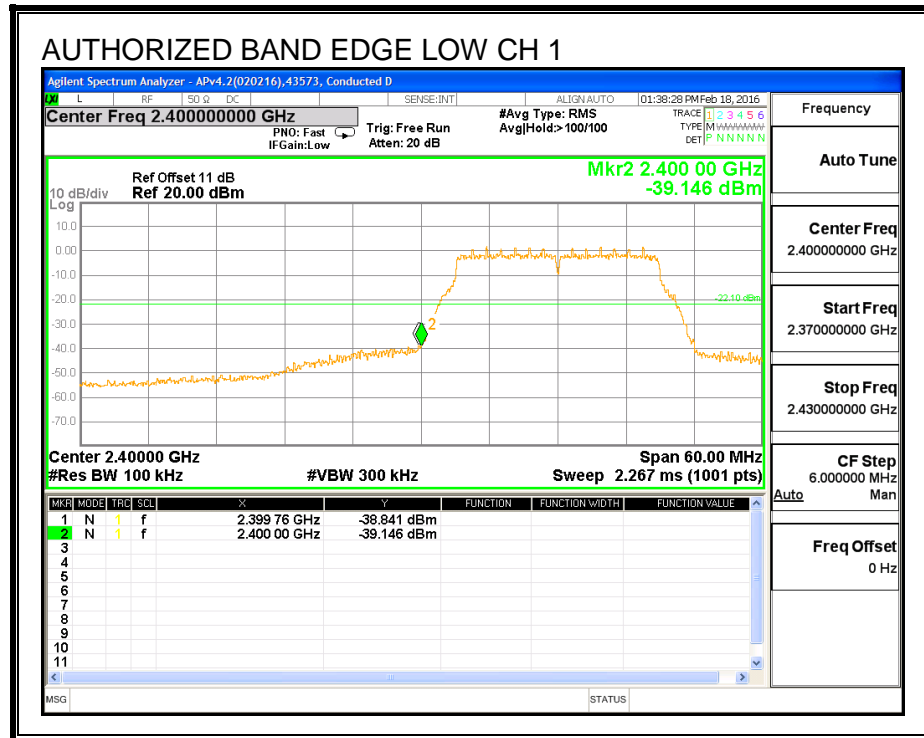
FCC §15.247 (d)

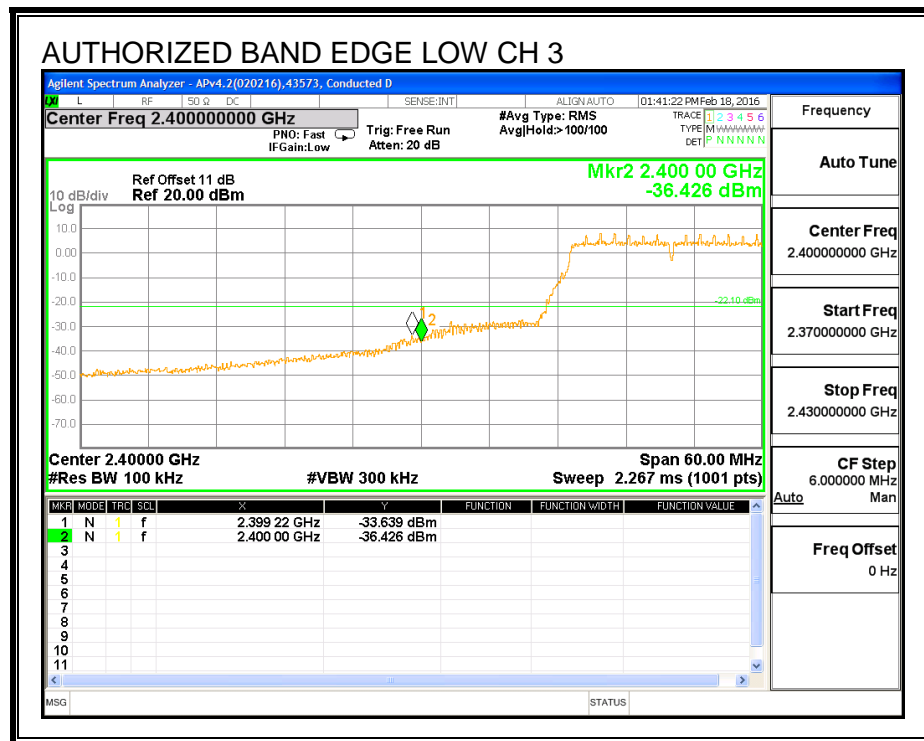
IC RSS-247 (5.5)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

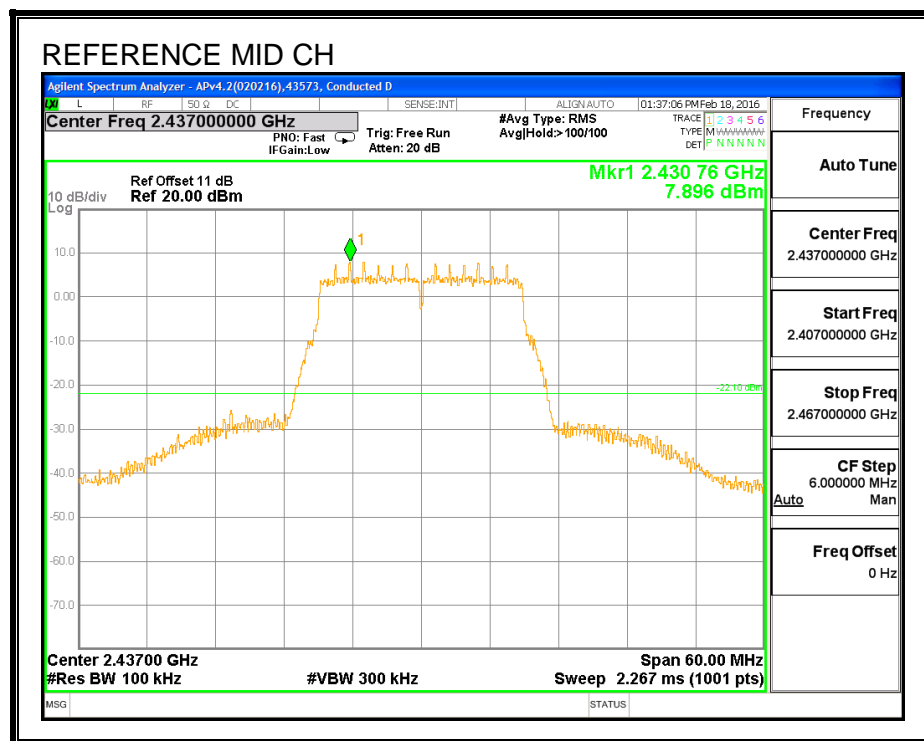
RESULTS

LOW CHANNEL BANDEDGE, Chain 0

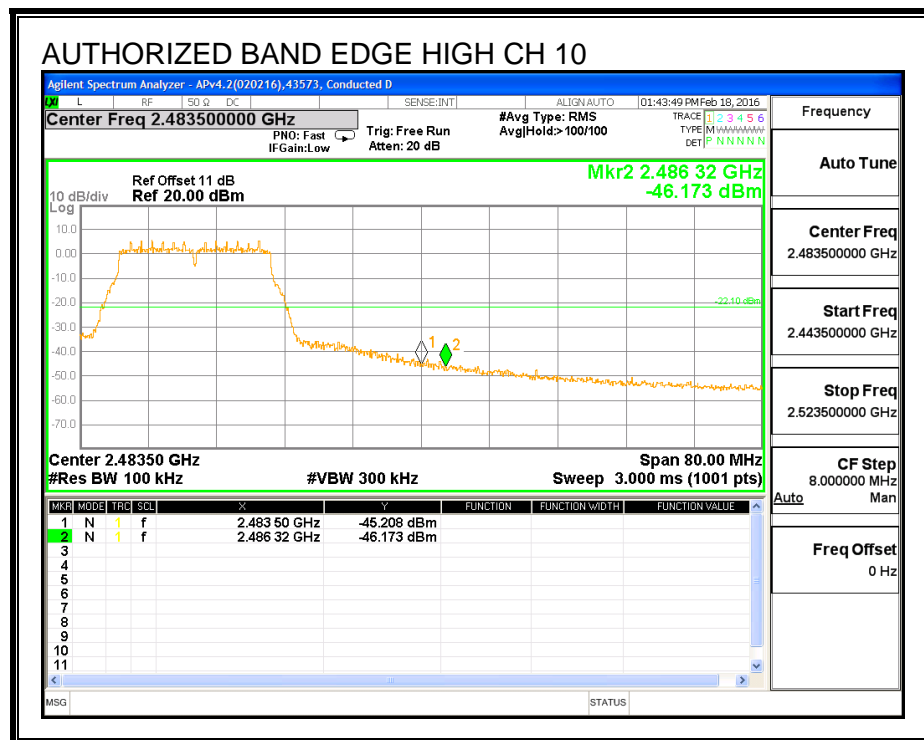
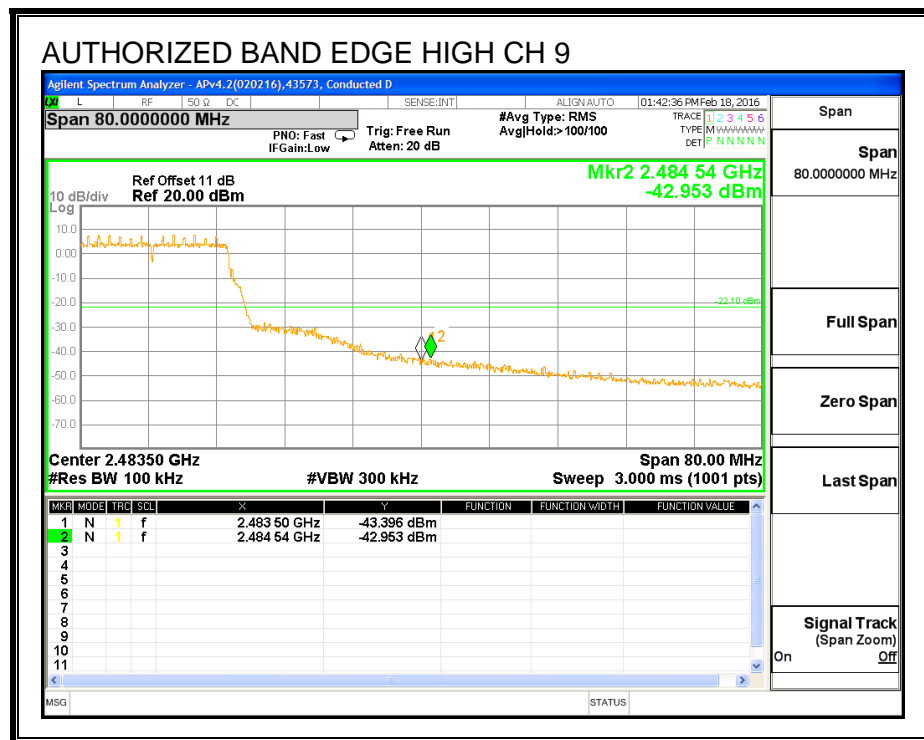


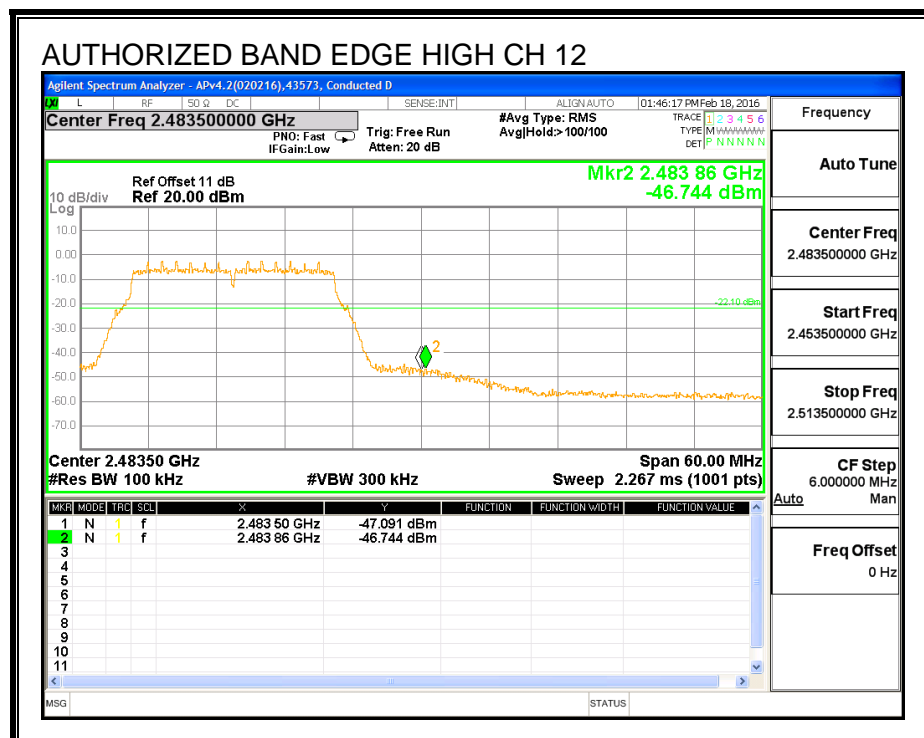
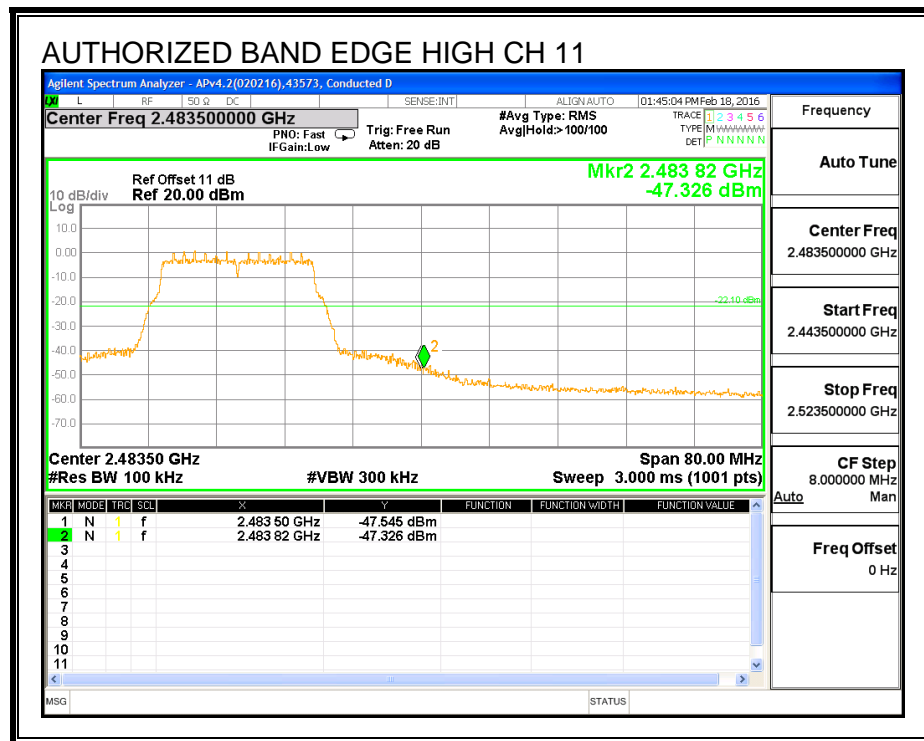


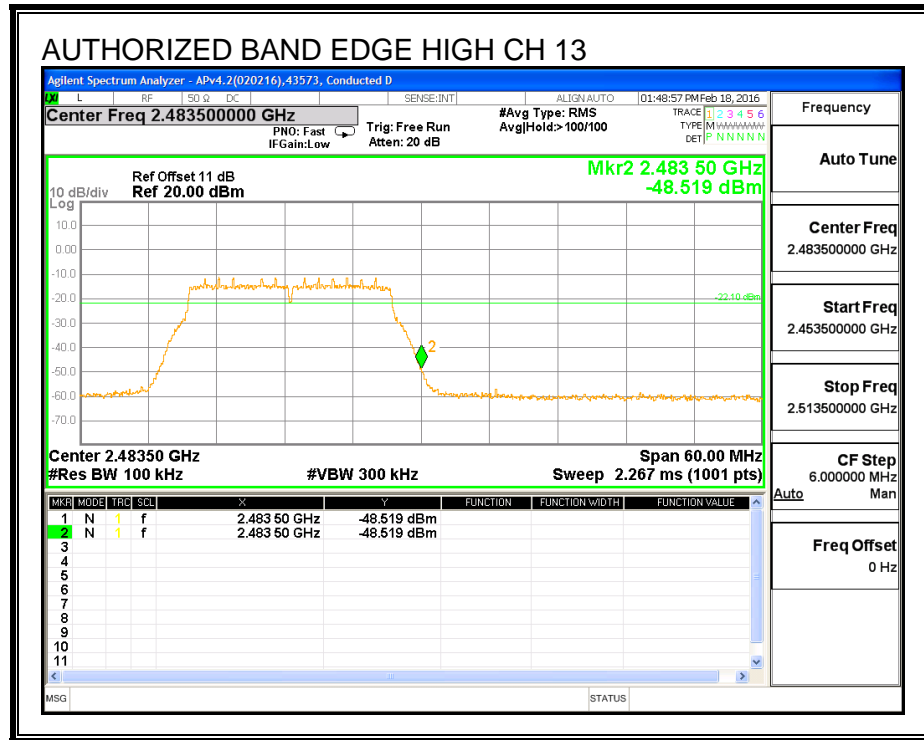
MID CHANNEL REFERENCE, Chain 0



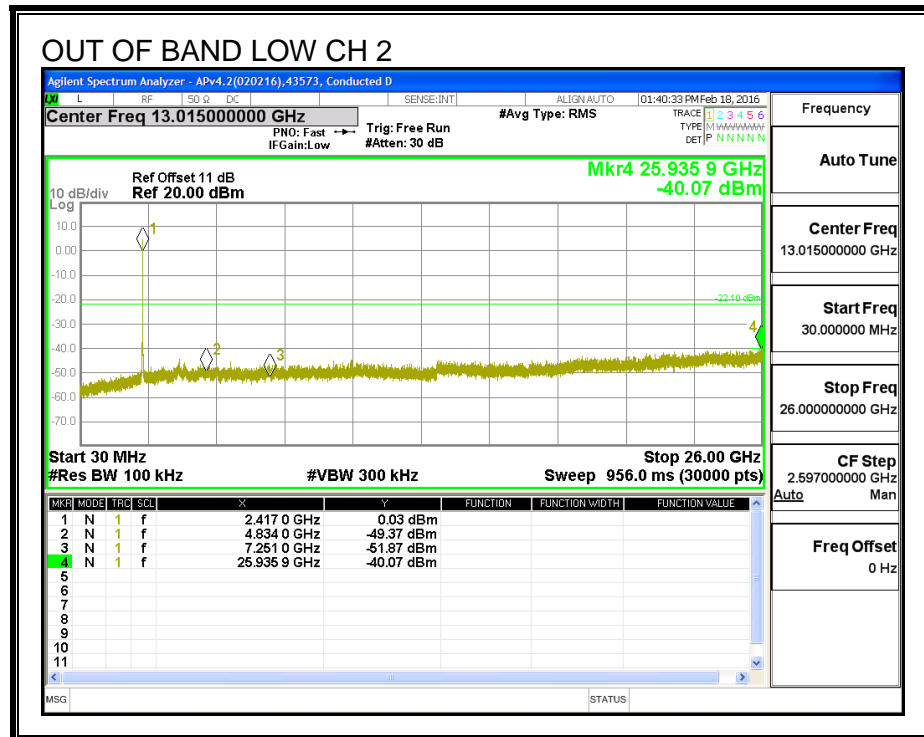
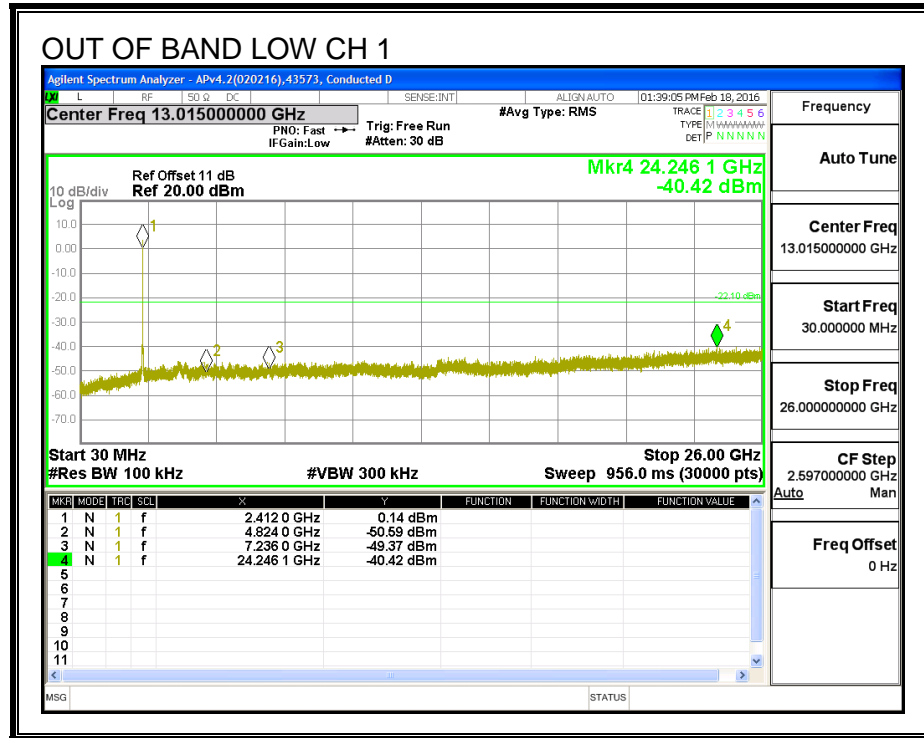
HIGH CHANNEL BANDEDGE, Chain 0

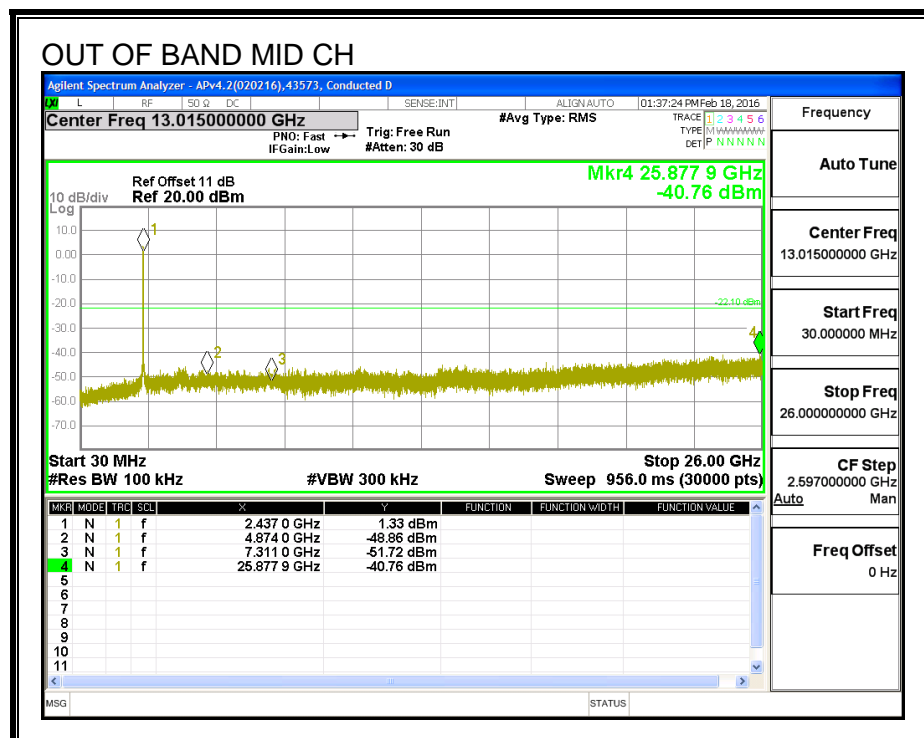
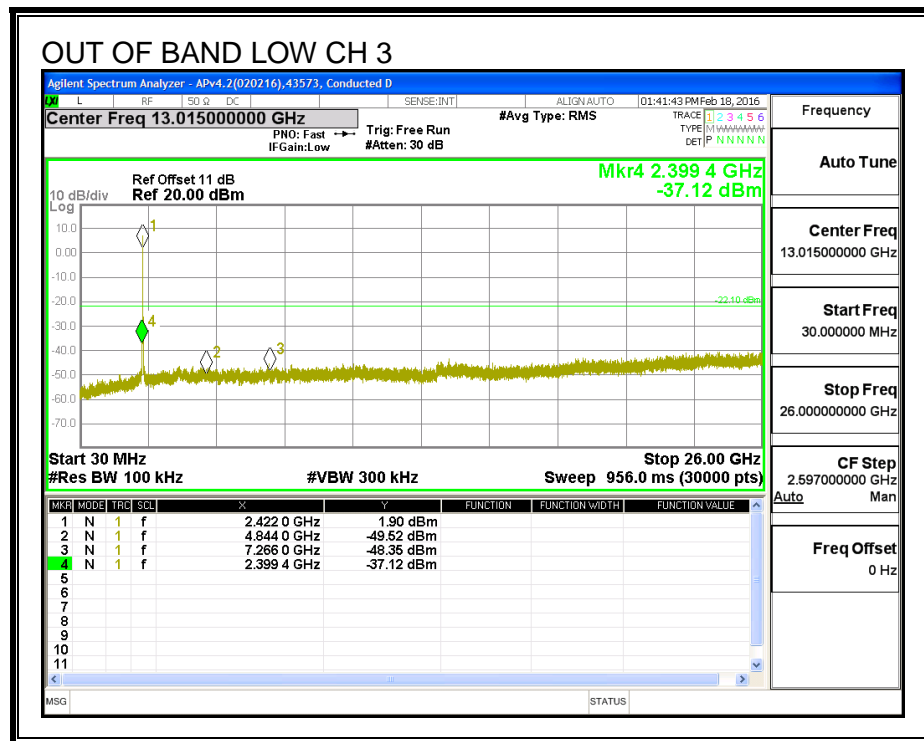


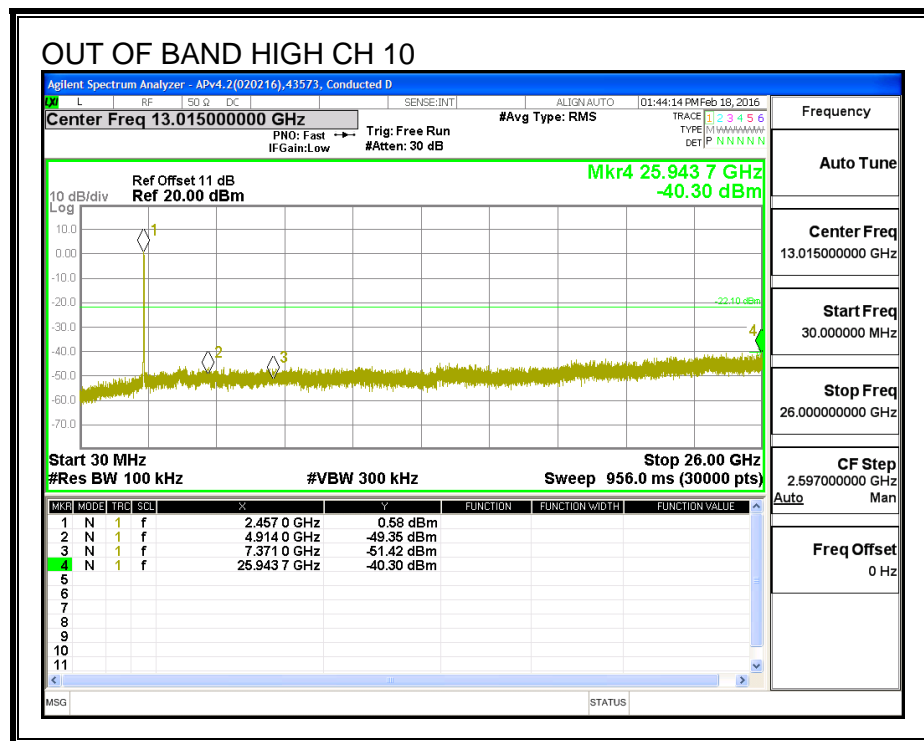
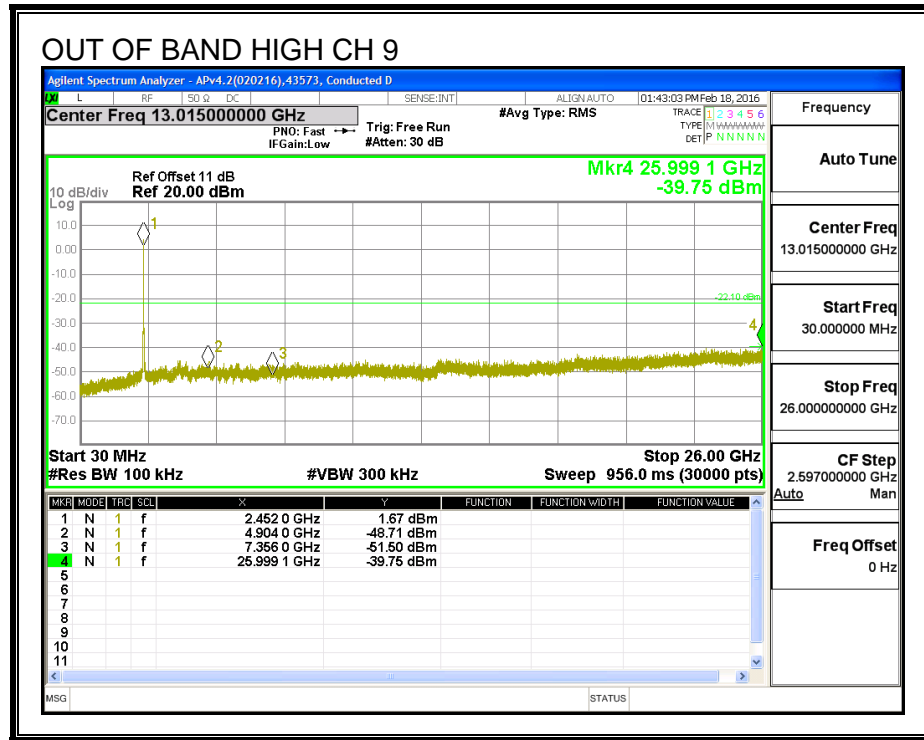


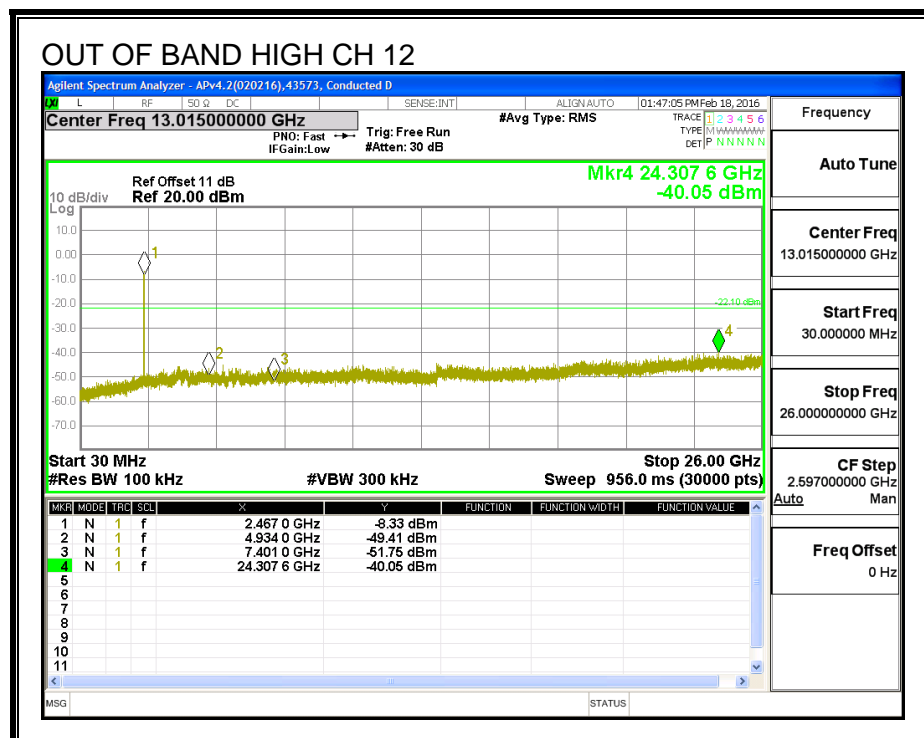
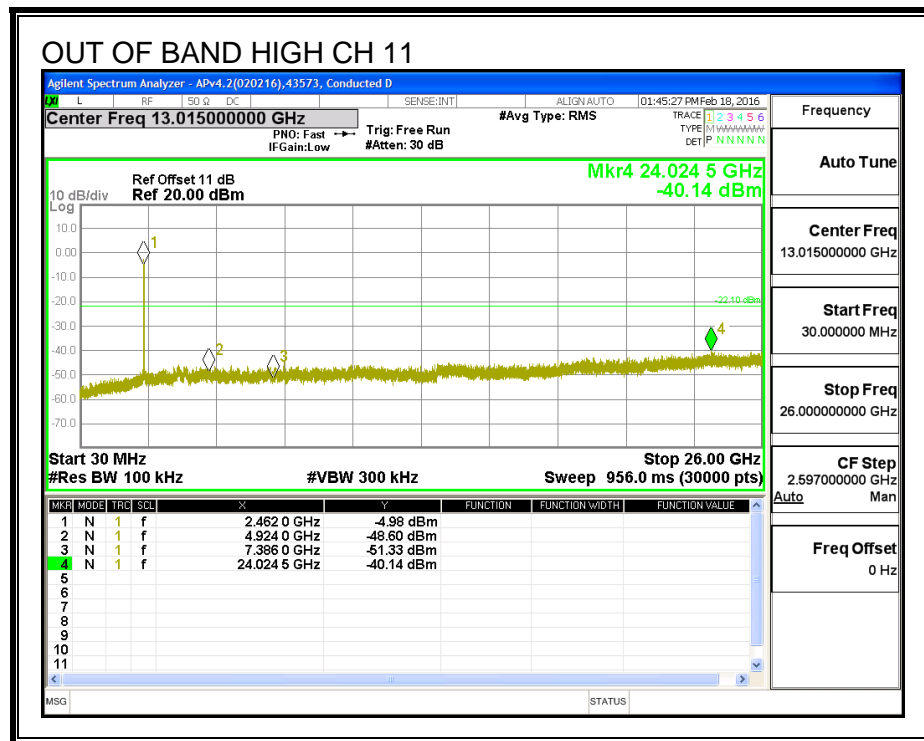


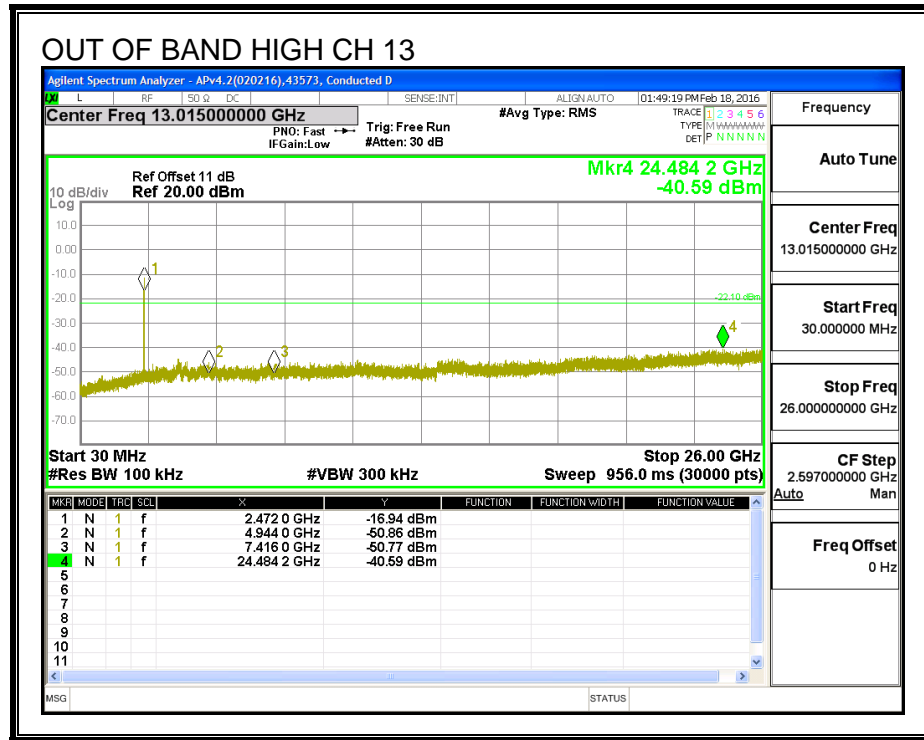
OUT-OF-BAND EMISSIONS, Chain 0



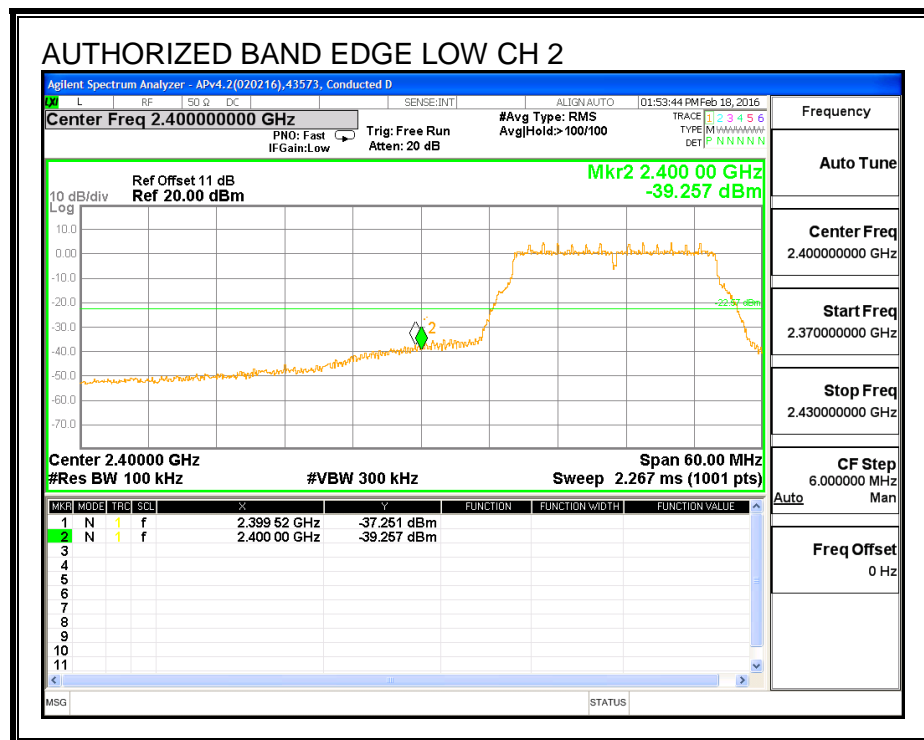
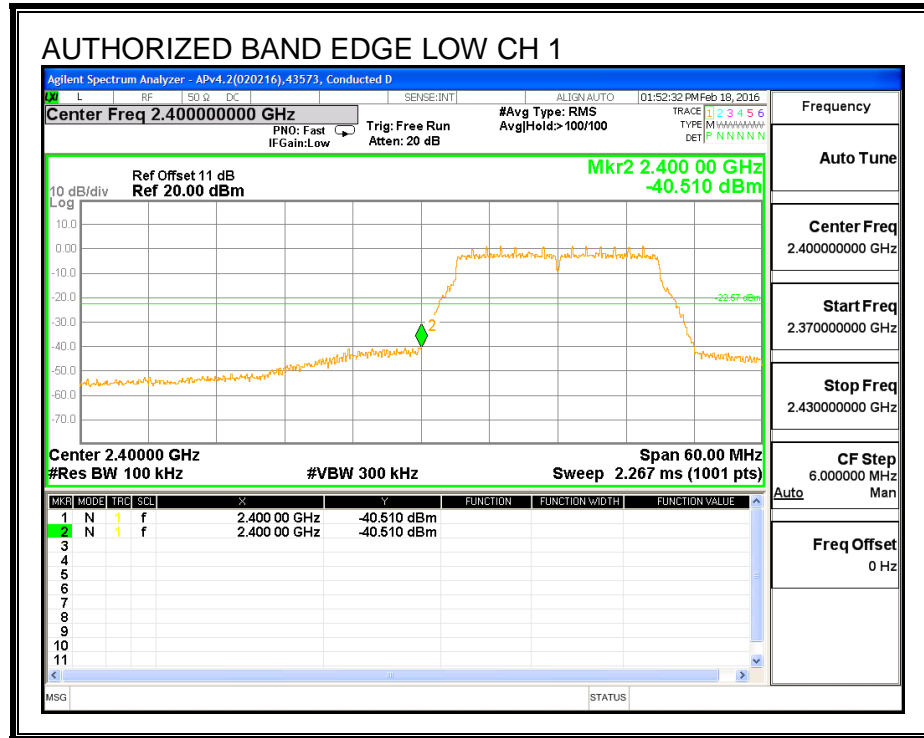


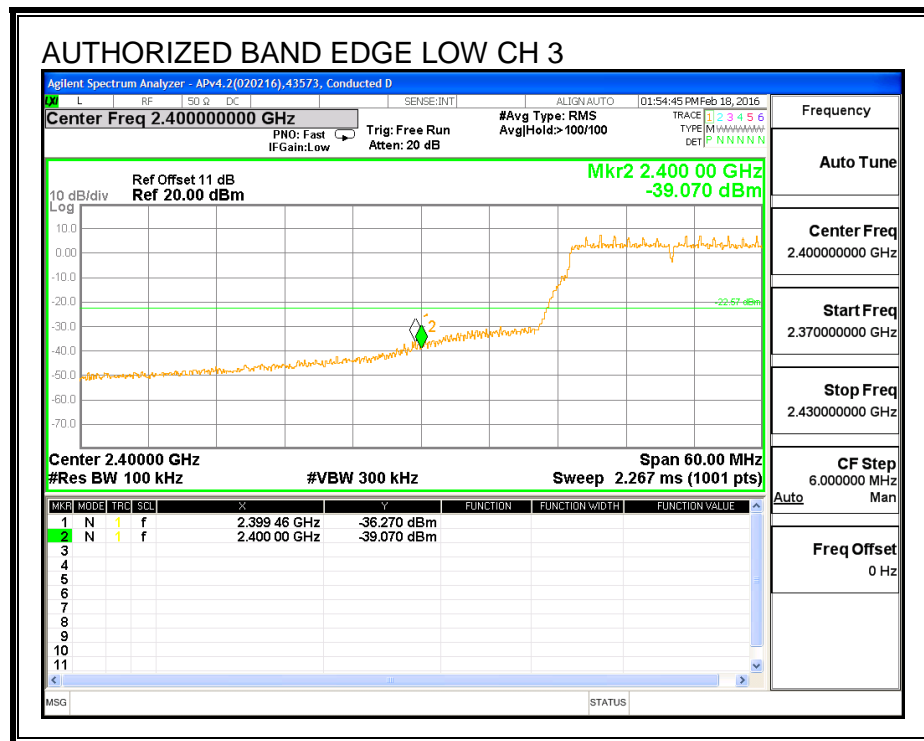




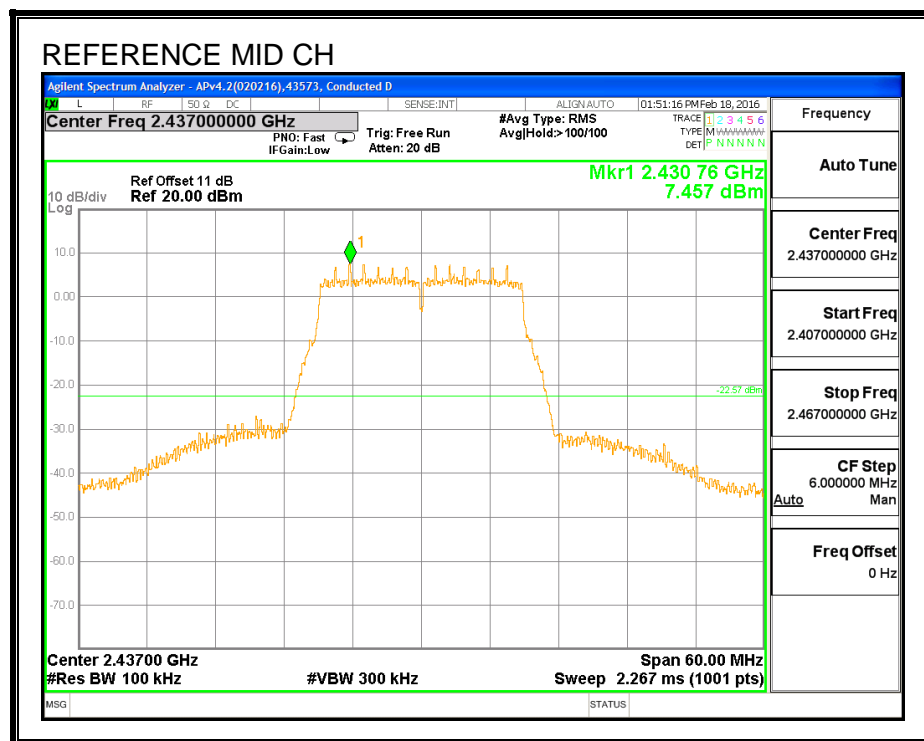


LOW CHANNEL BANDEDGE, Chain 1

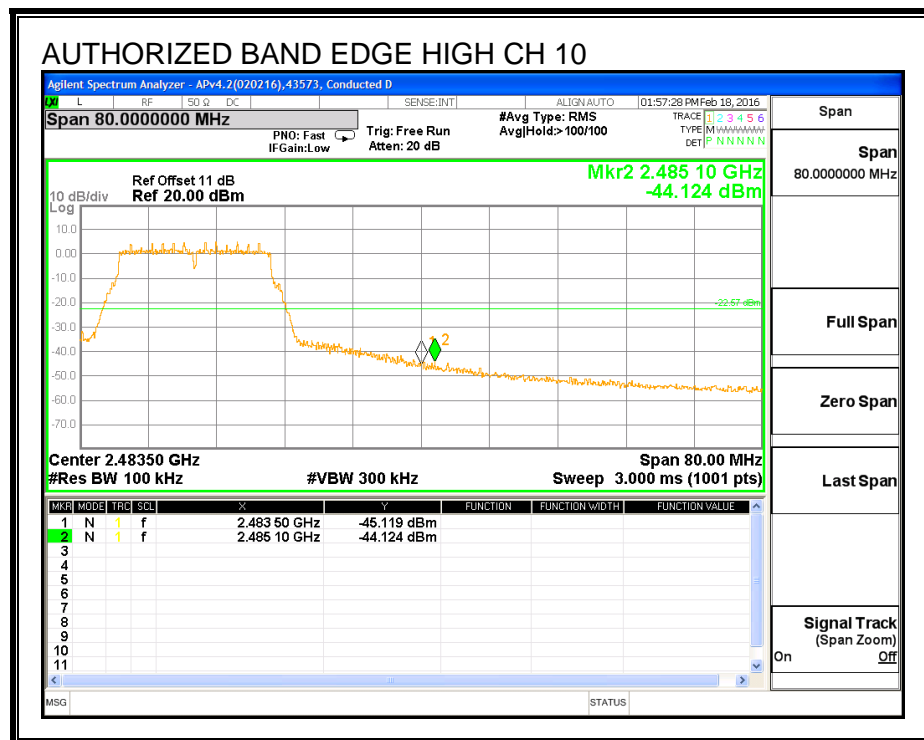
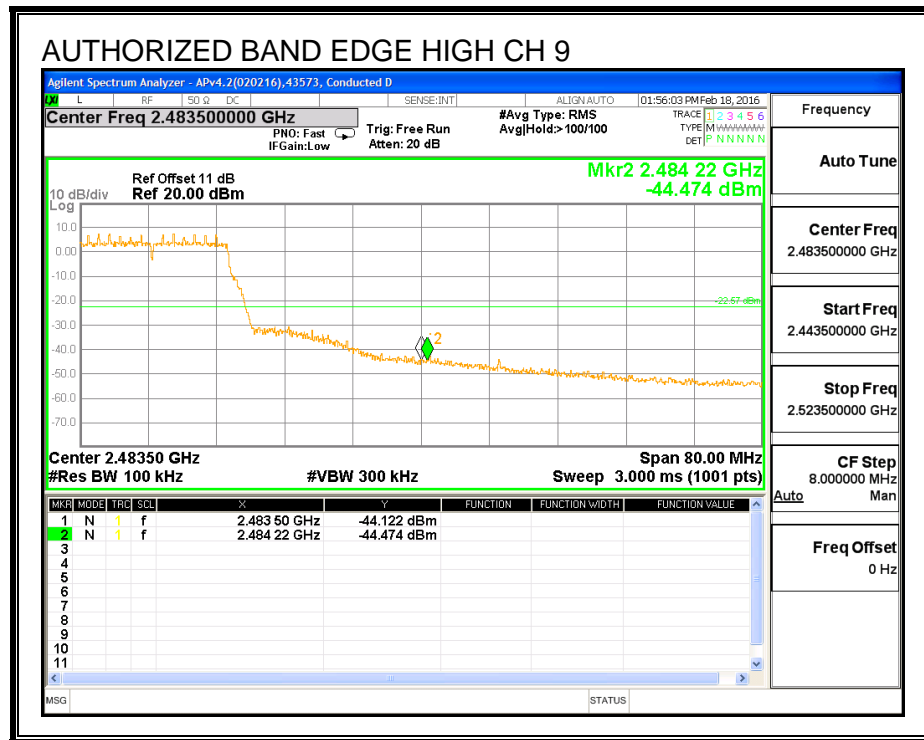


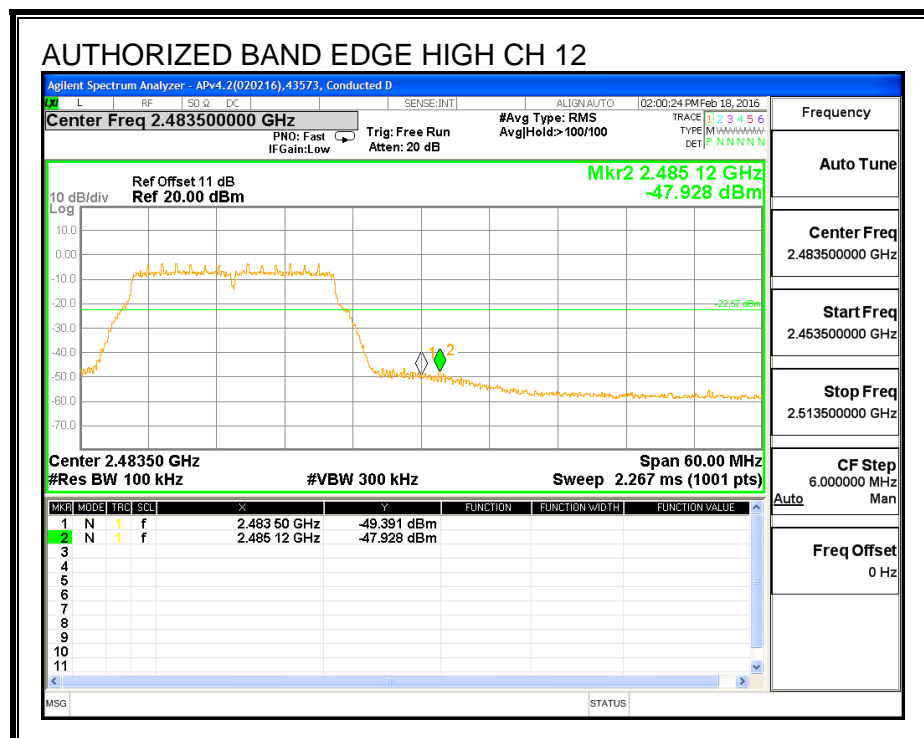
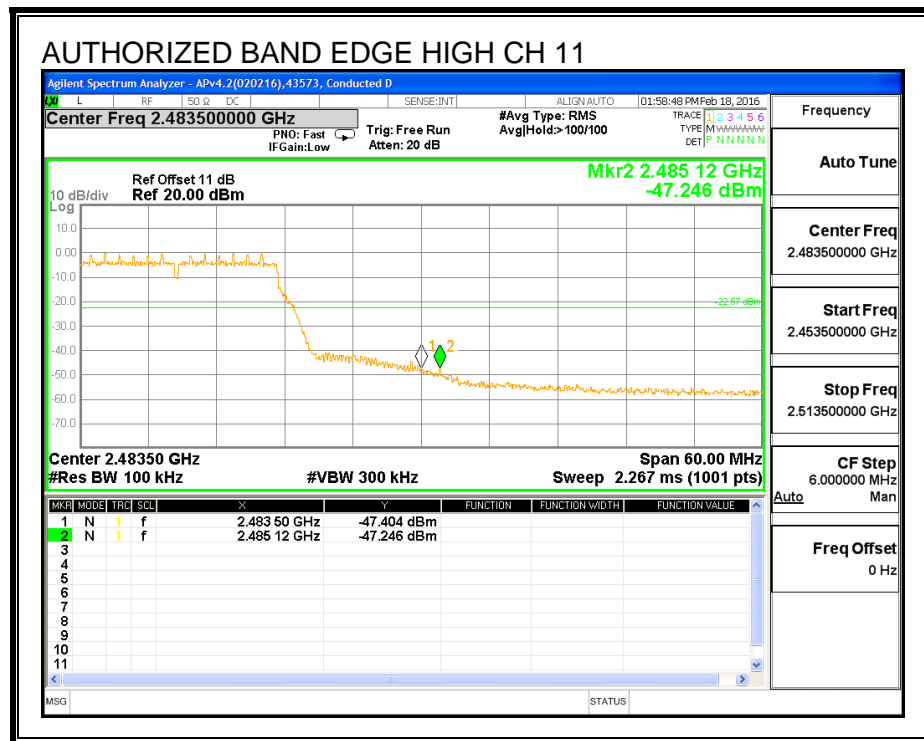


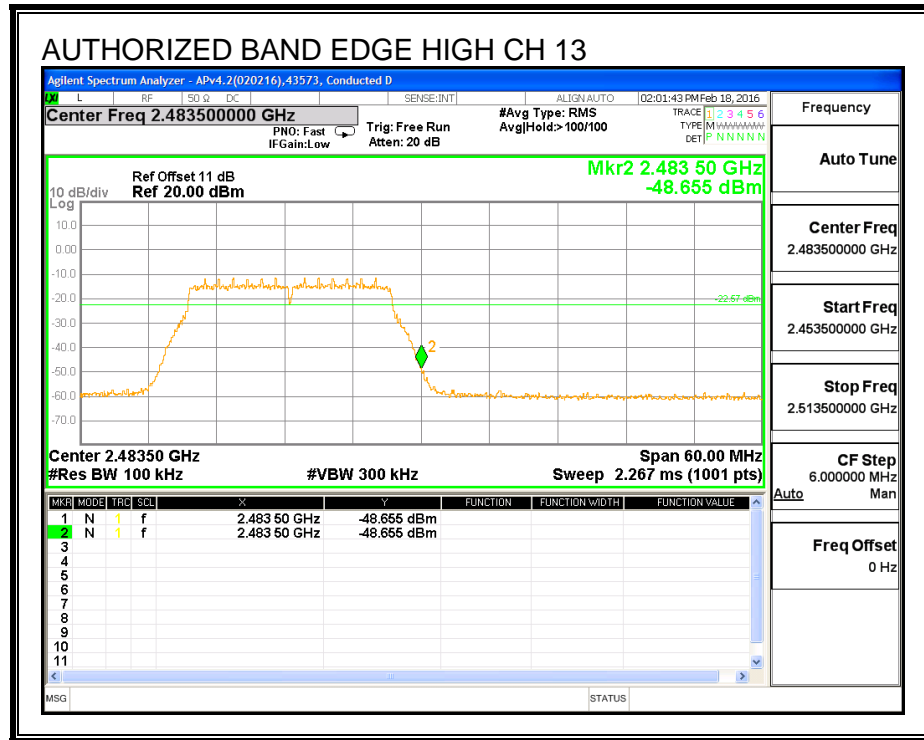
MID CHANNEL REFERENCE, Chain 1



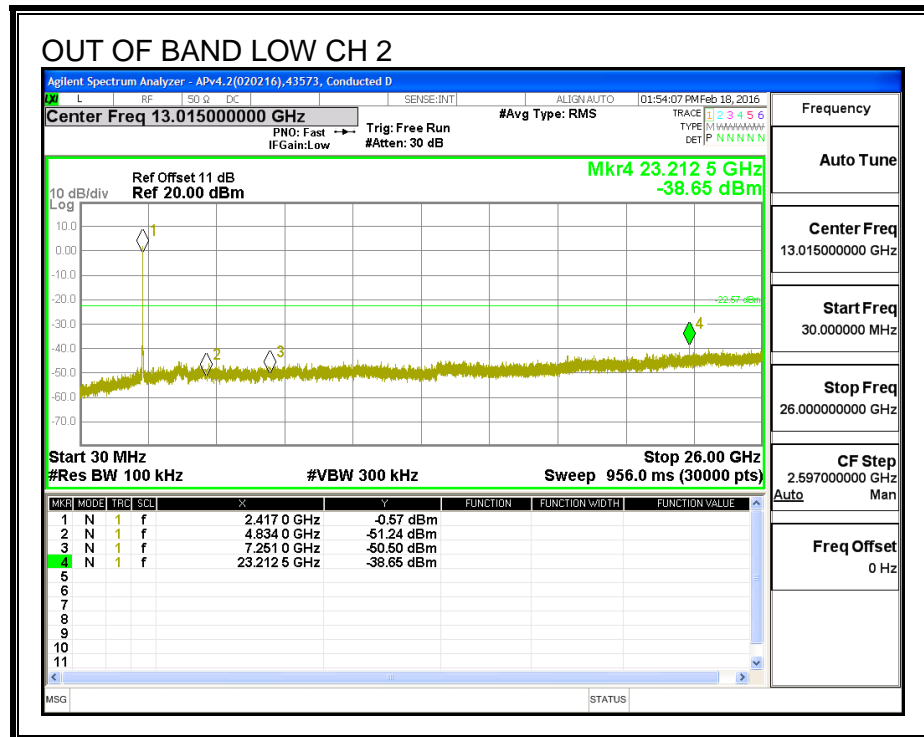
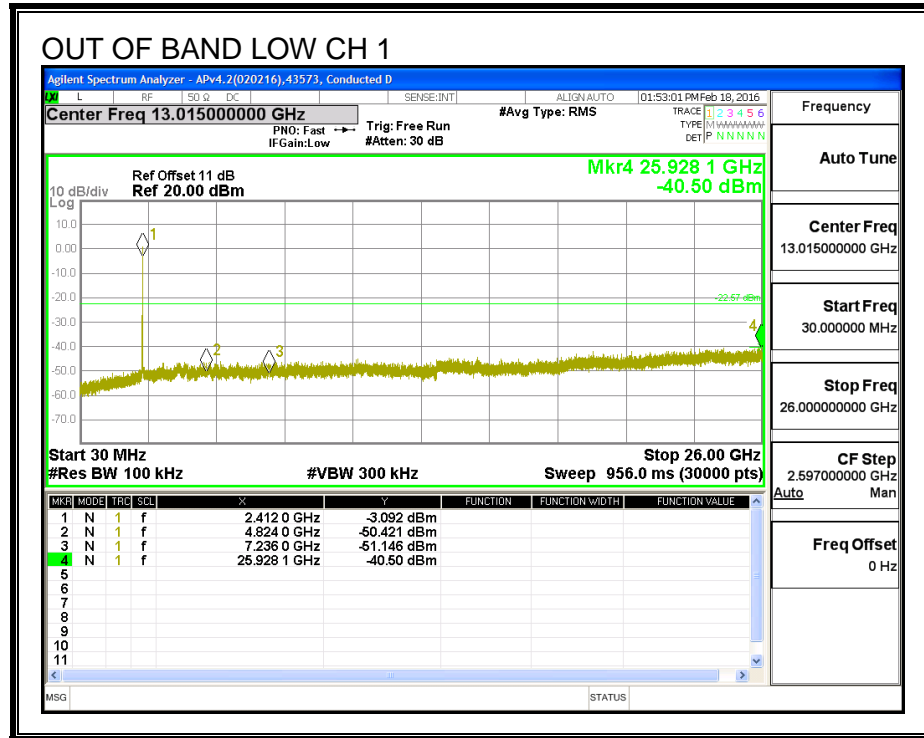
HIGH CHANNEL BANDEDGE, Chain 1

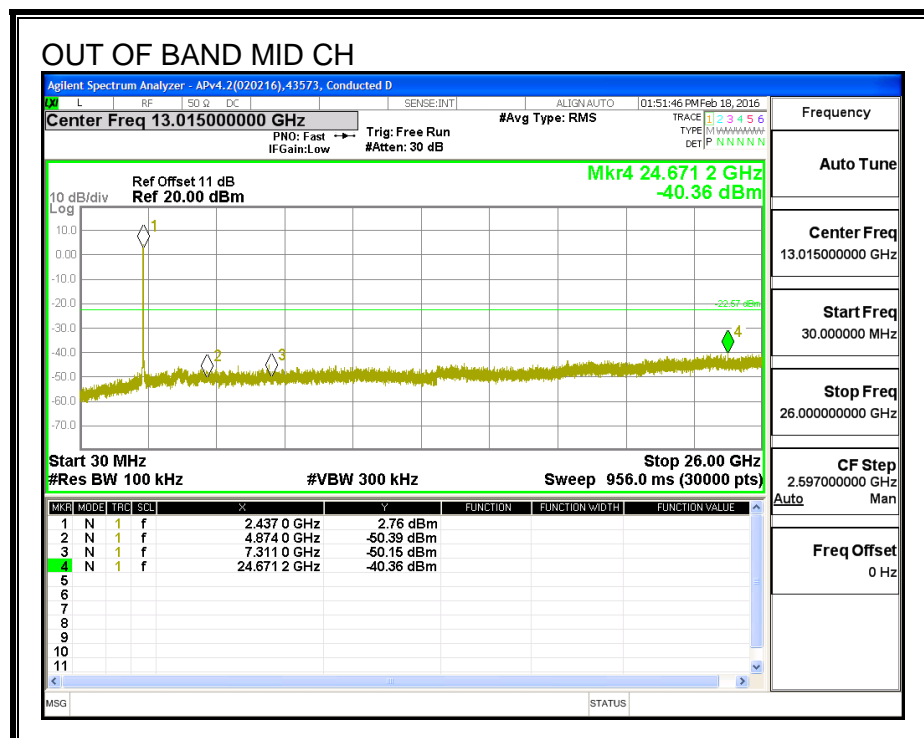
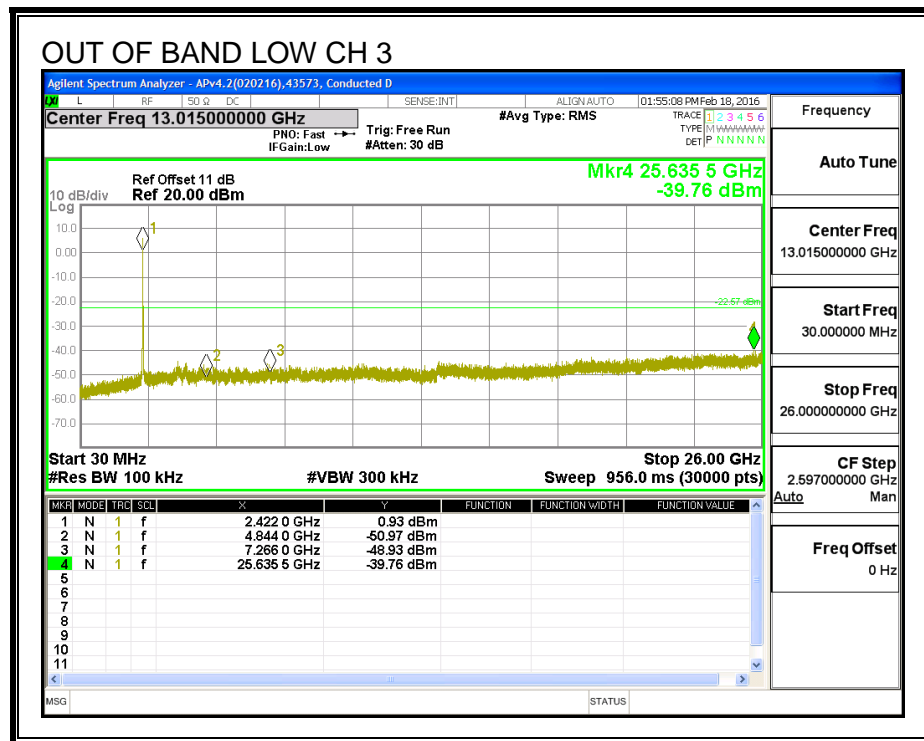


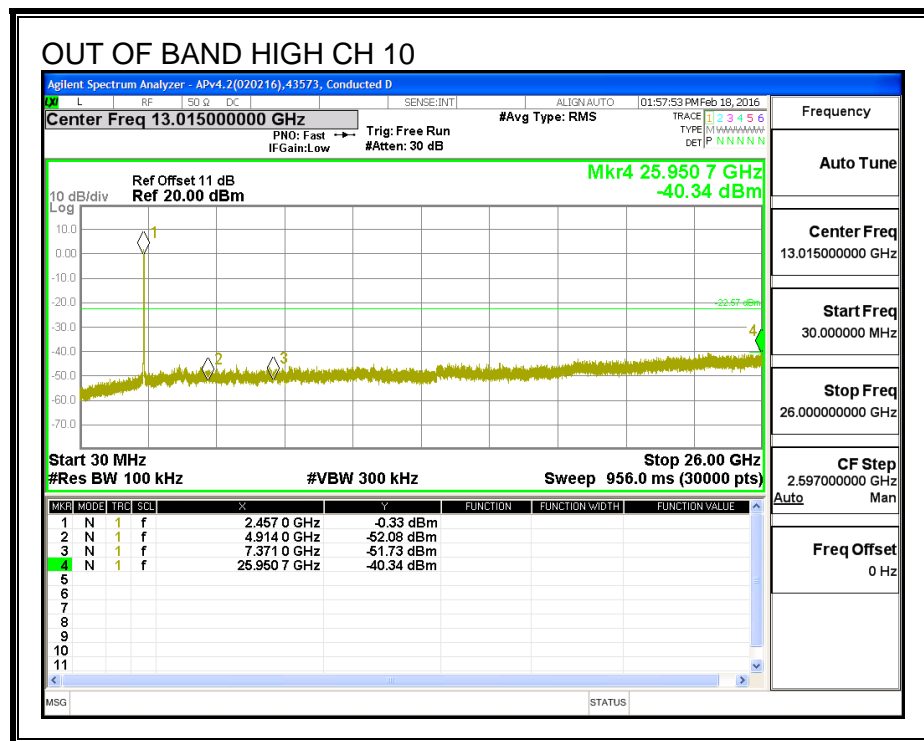
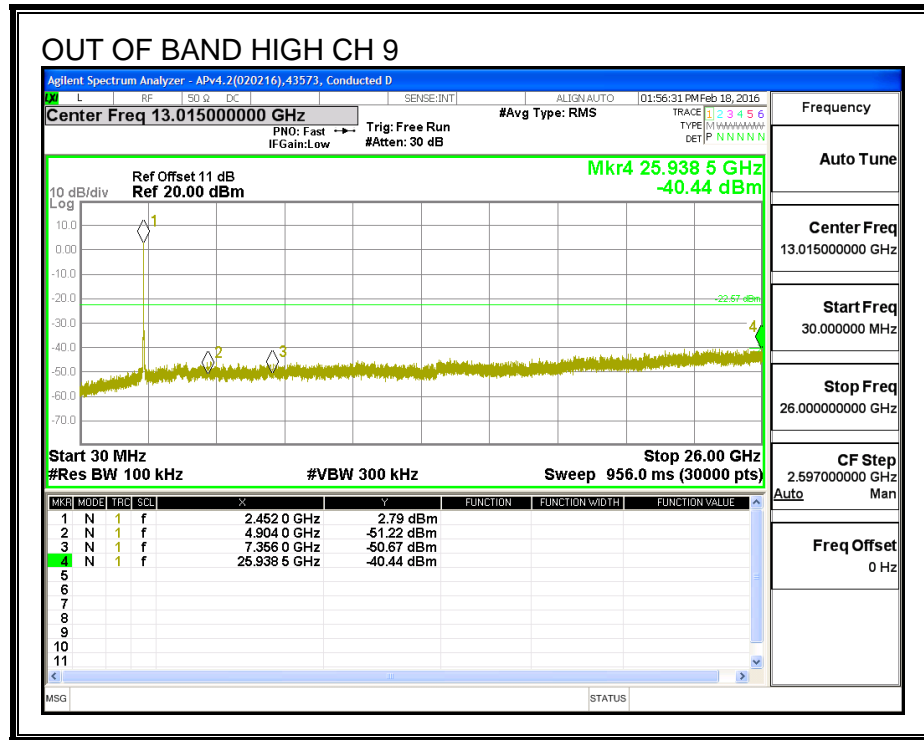


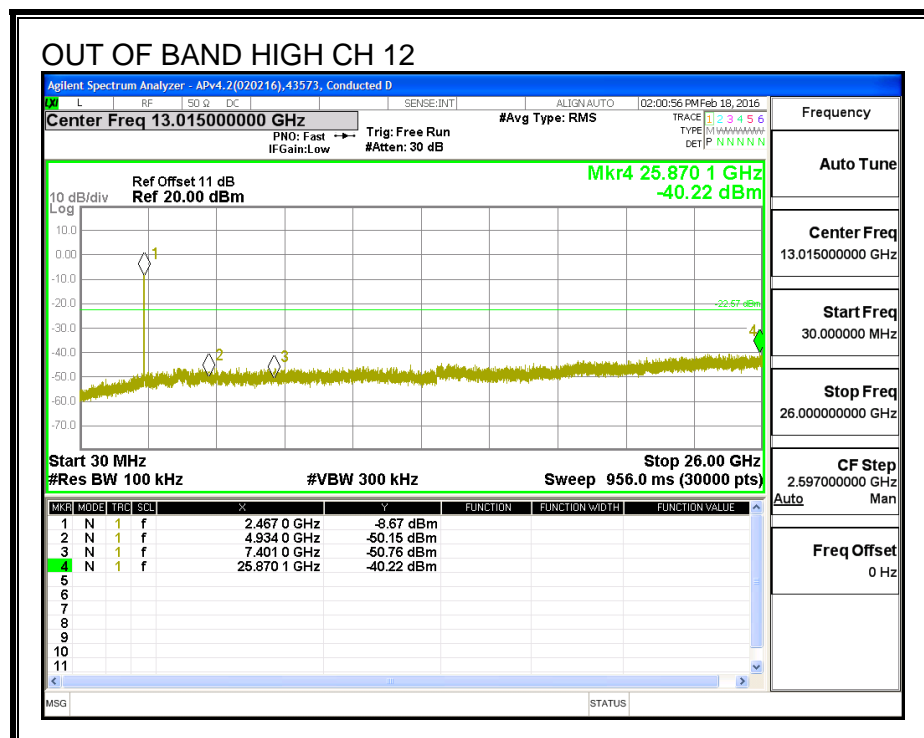
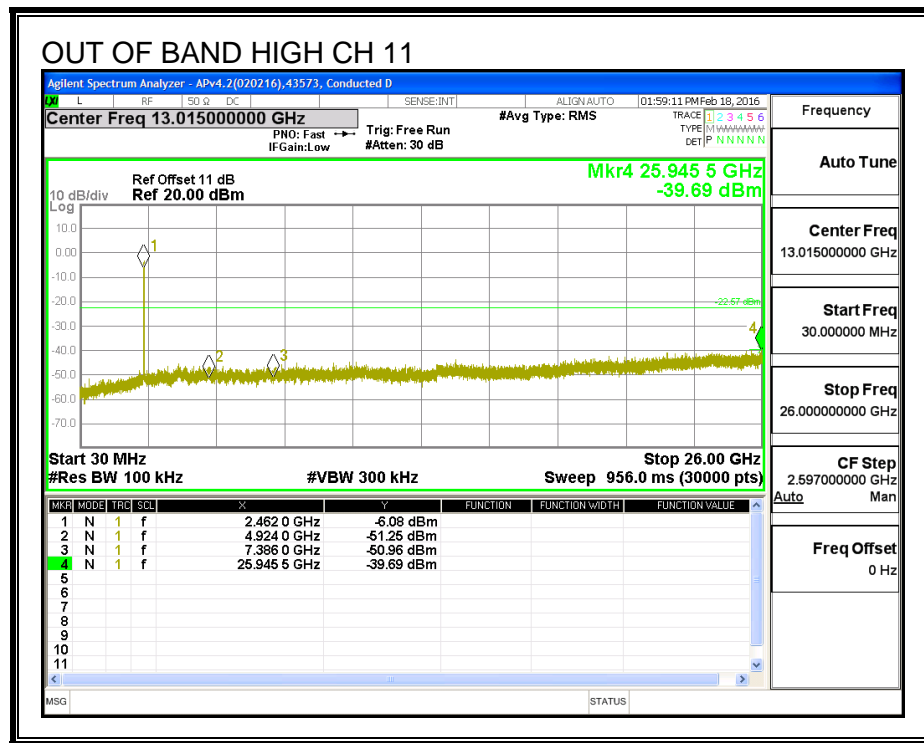


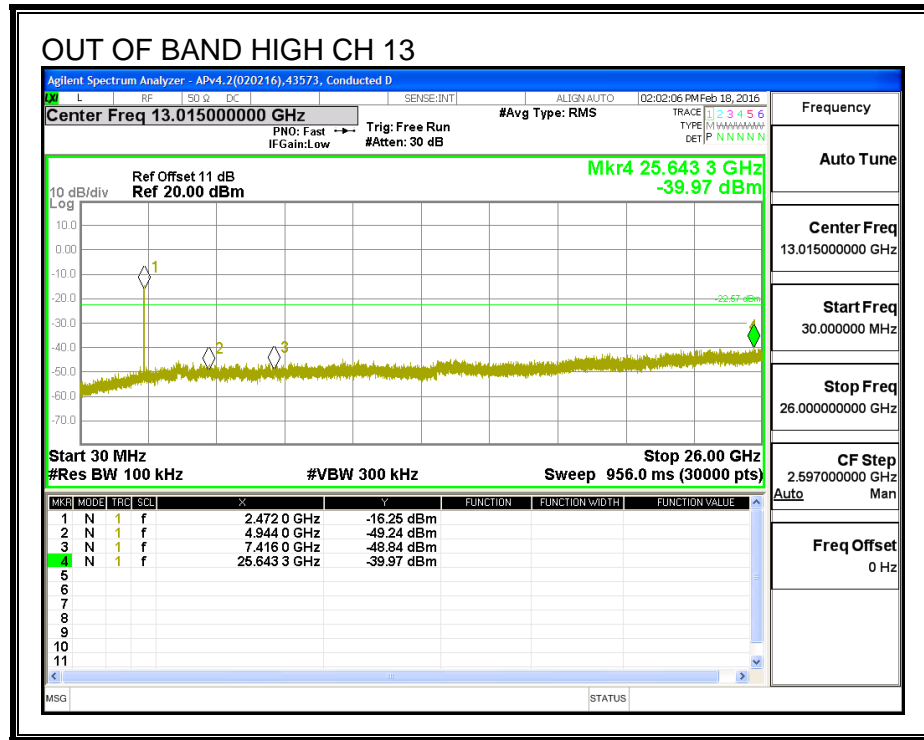
OUT-OF-BAND EMISSIONS, Chain 1











8.10. 802.11ac VHT20 BEAM FORMING MODE IN THE 2.4 GHz BAND

8.10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

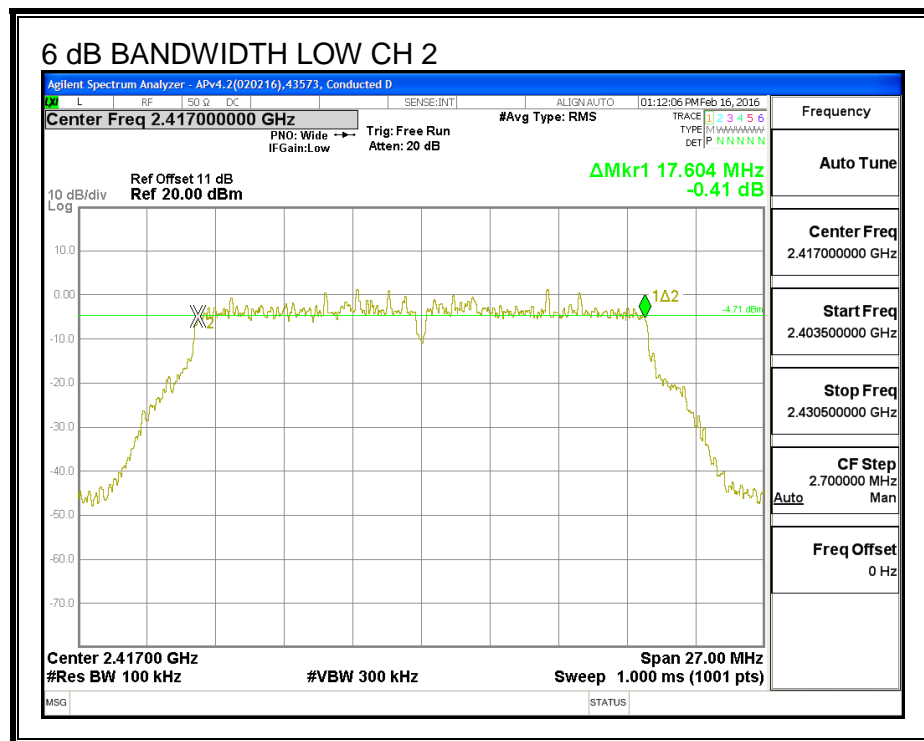
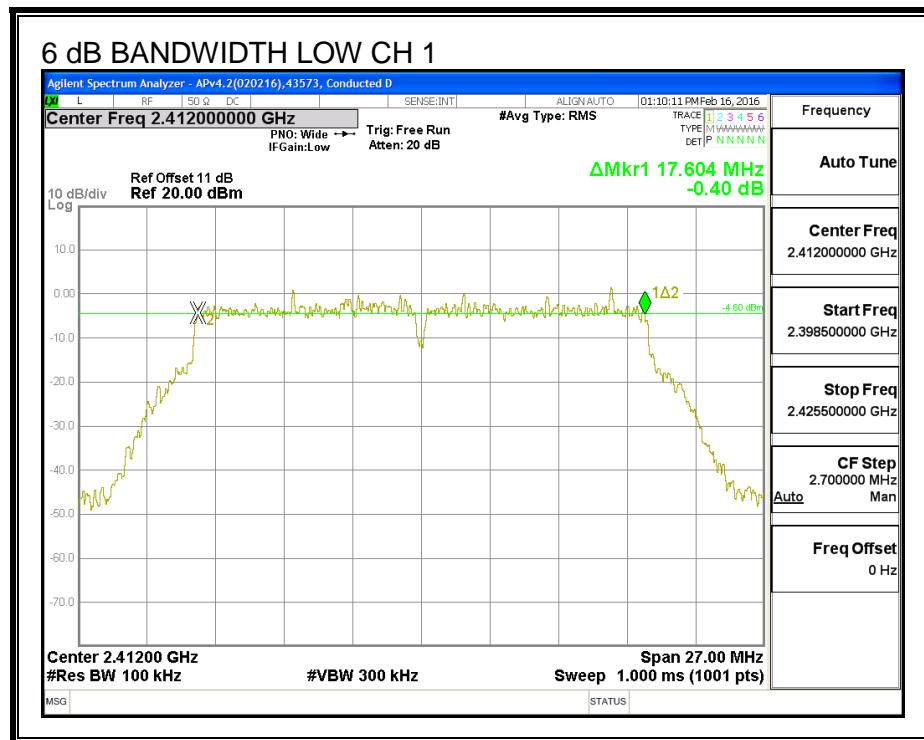
IC RSS-247 (5.2) (1)

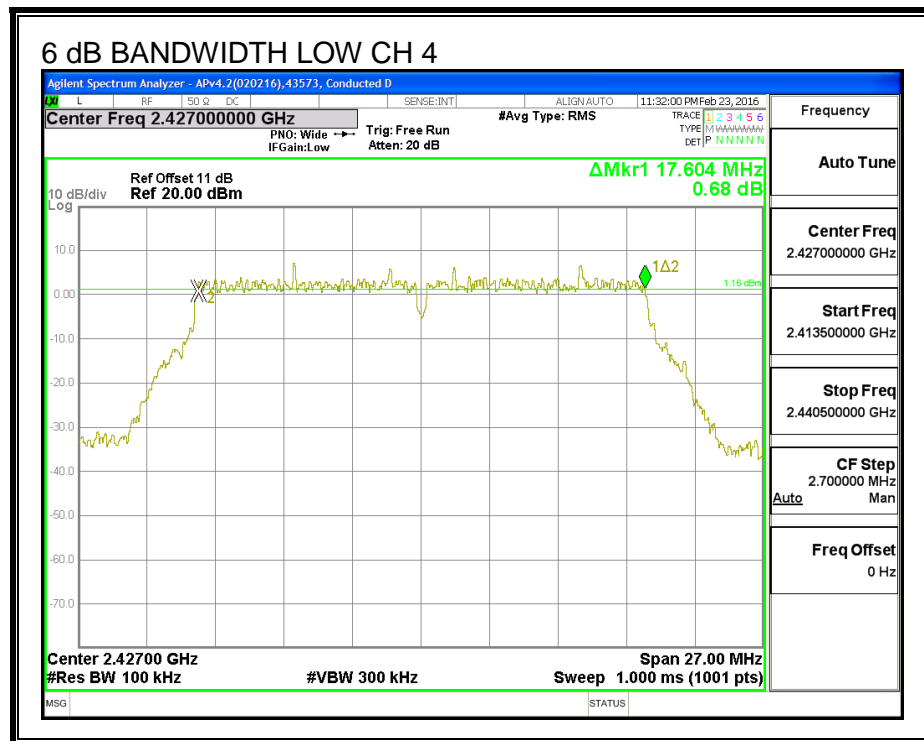
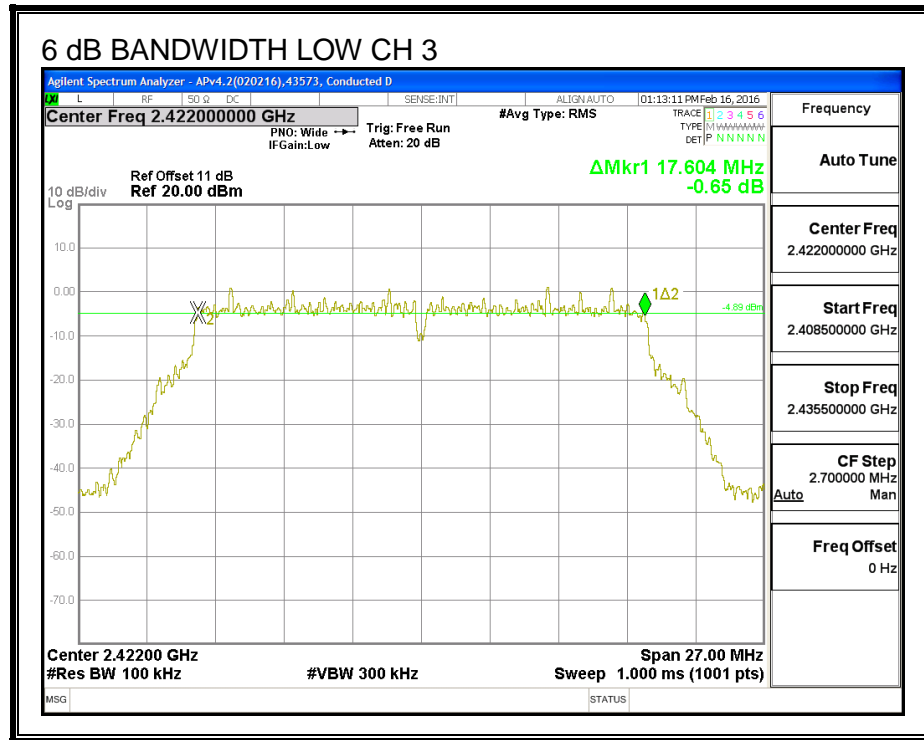
The minimum 6 dB bandwidth shall be at least 500 kHz.

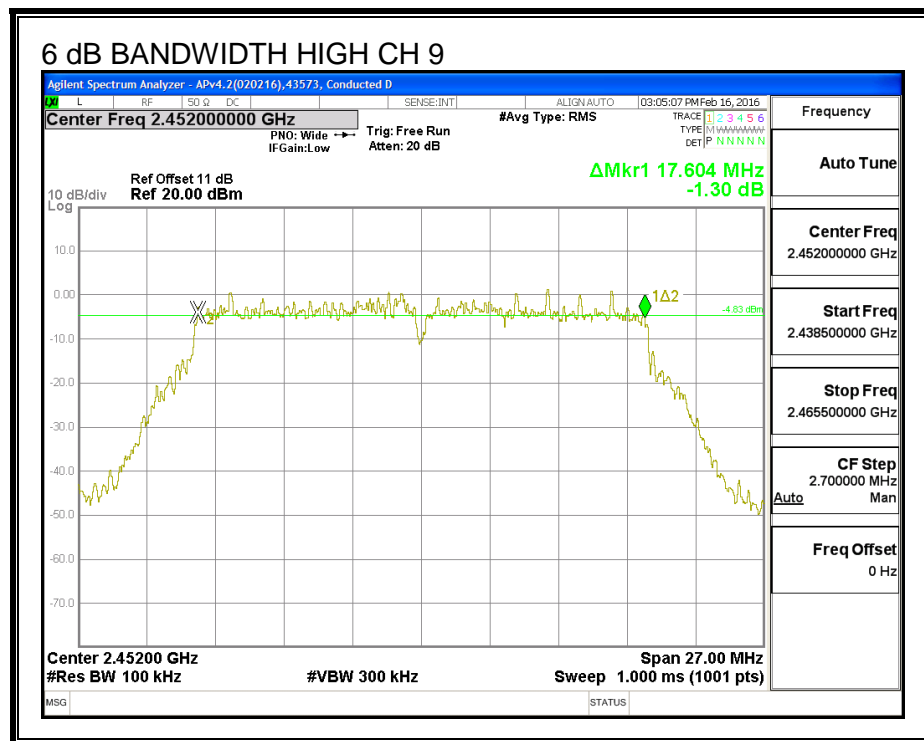
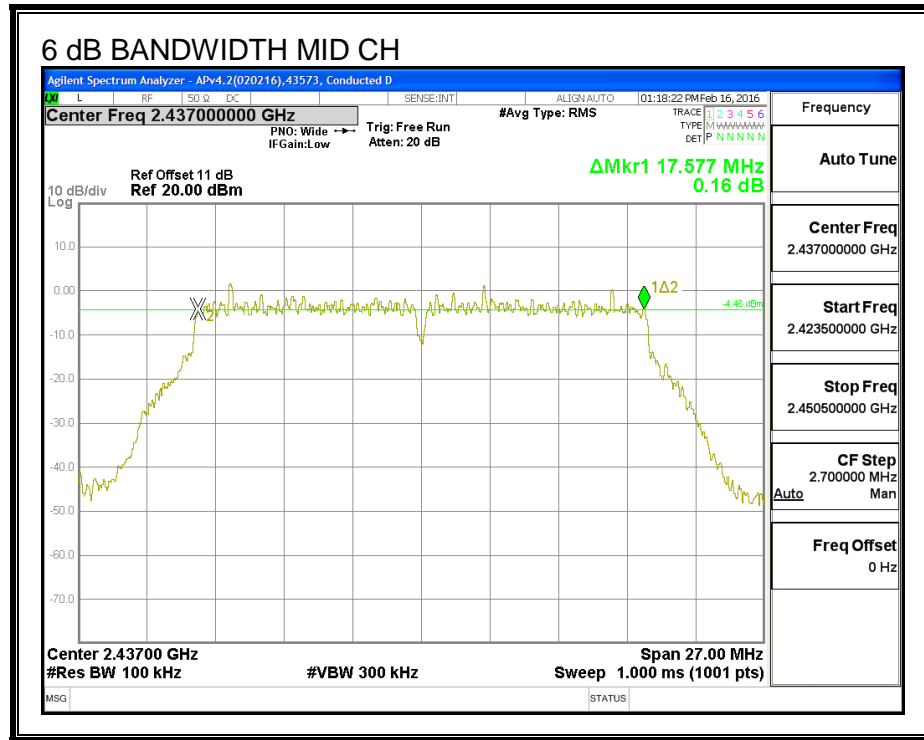
RESULTS

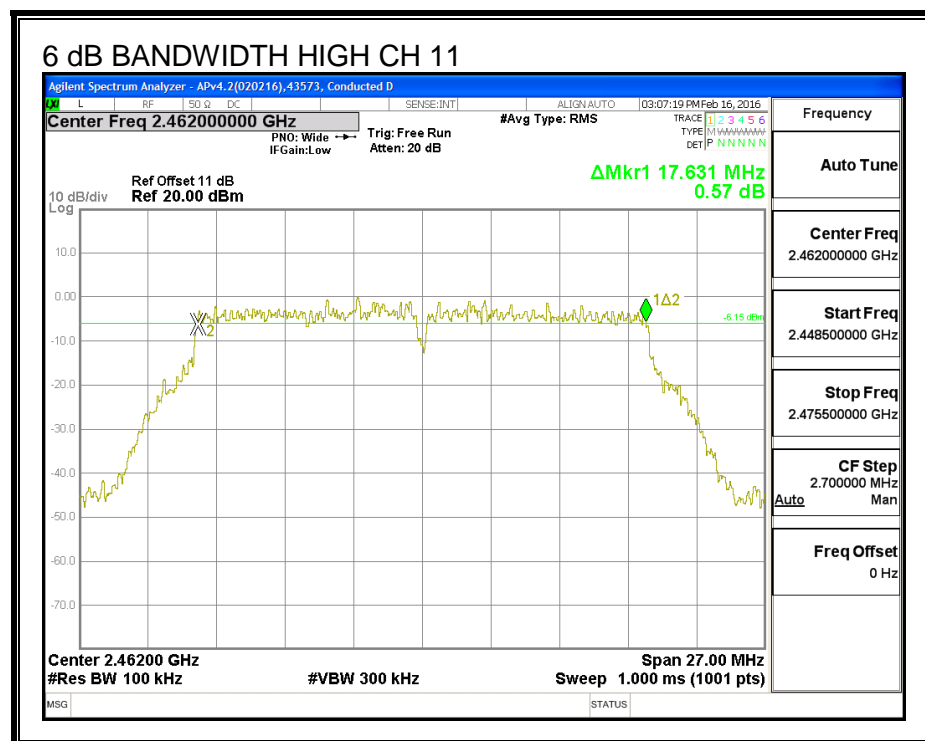
| Channel | Frequency (MHz) | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---------|--------------------|-----------------------------|-----------------------------|---------------------------|
| Low_1 | 2412 | 17.60 | 17.60 | 0.5 |
| Low_2 | 2417 | 17.60 | 17.66 | 0.5 |
| Low_3 | 2422 | 17.60 | 17.69 | 0.5 |
| Low_4 | 2427 | 17.60 | 17.63 | 0.5 |
| Mid_6 | 2437 | 17.58 | 17.63 | 0.5 |
| High_9 | 2452 | 17.60 | 17.69 | 0.5 |
| High_10 | 2457 | 17.63 | 17.63 | 0.5 |
| High_11 | 2462 | 17.63 | 17.60 | 0.5 |
| High_12 | 2467 | 17.60 | 17.60 | 0.5 |
| High_13 | 2472 | 17.66 | 17.60 | 0.5 |

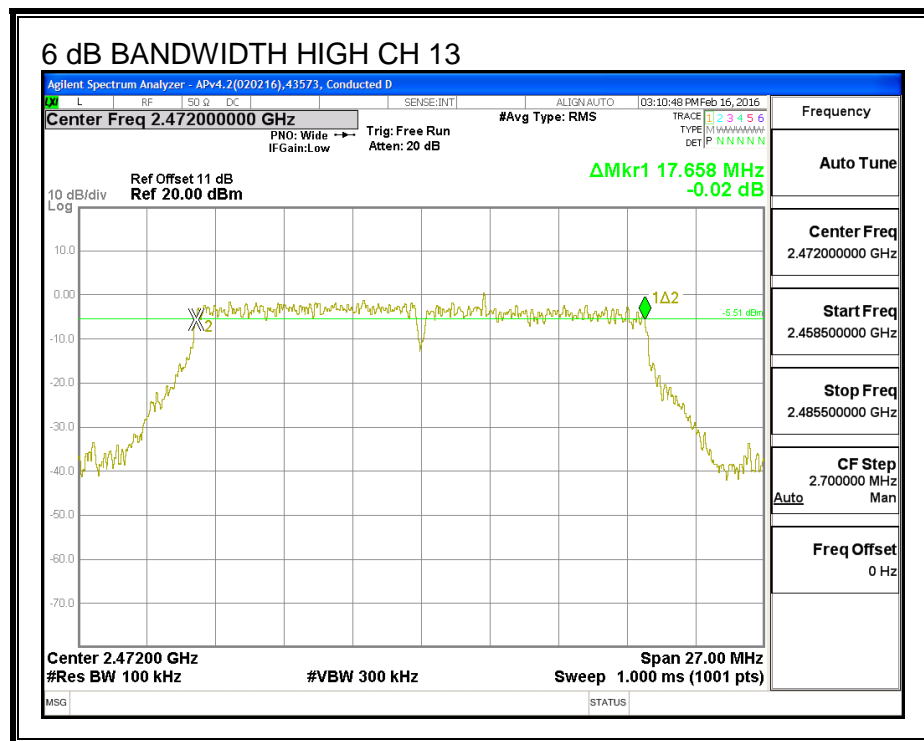
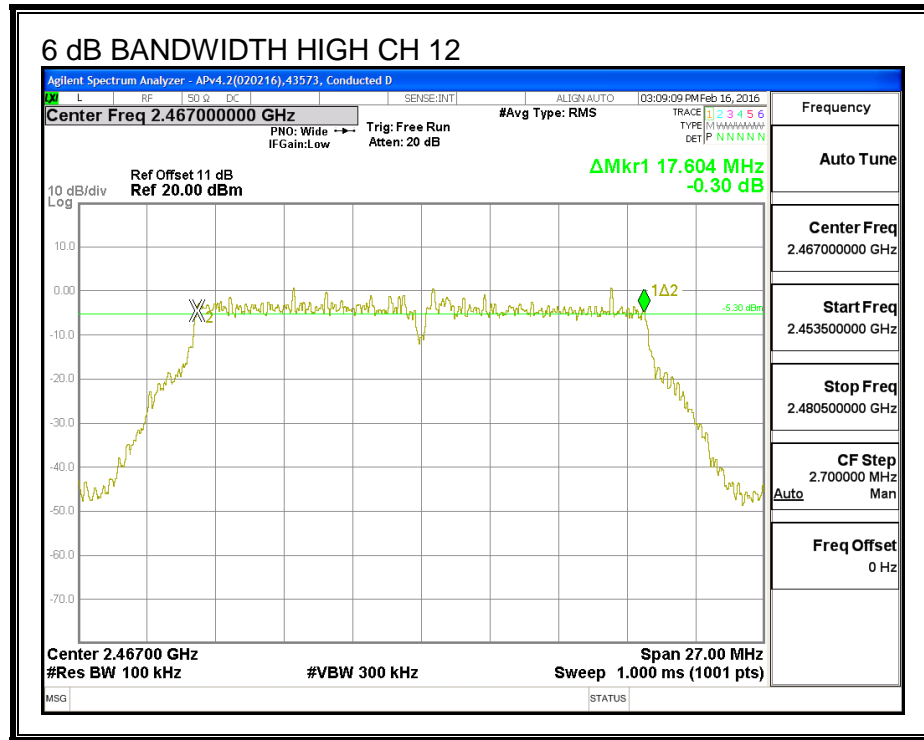
6 dB BANDWIDTH, Chain 0











6 dB BANDWIDTH, Chain 1

