

8.4.3. 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	2412	2.86	30.00	30	36	30.00
Mid	2437	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	2412	19.38	19.33	22.37	30.00	-7.63
Mid	2437	19.43	19.36	22.41	30.00	-7.59
High_11	2462	17.95	17.91	20.94	30.00	-9.06
High_12	2467	15.48	15.45	18.48	30.00	-11.52
High_13	2472	12.88	12.92	15.91	30.00	-14.09

8.4.4. 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.

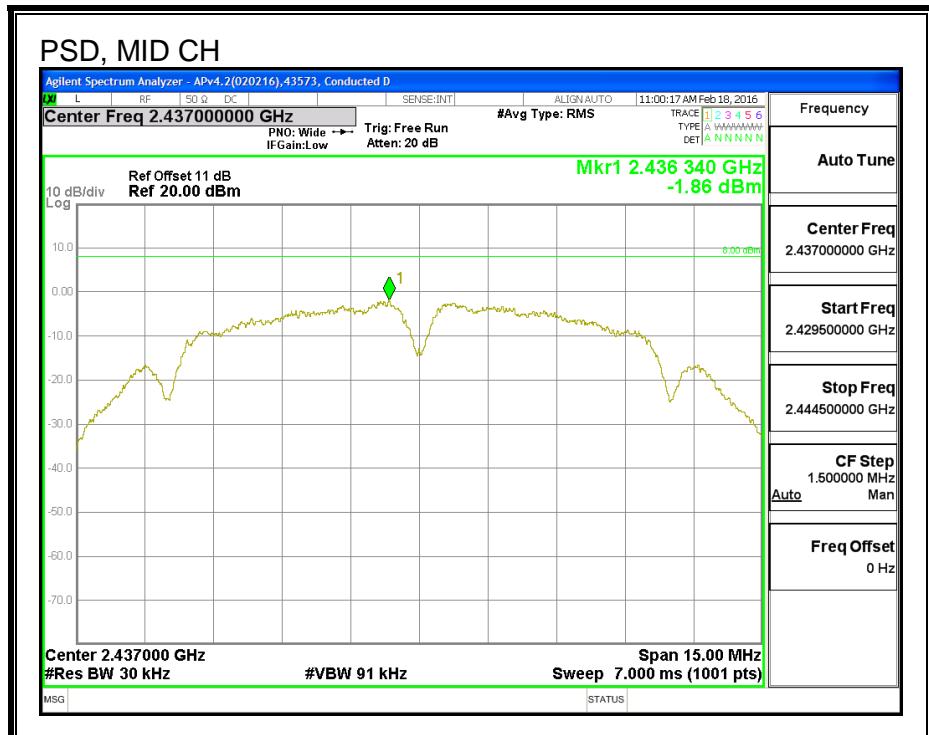
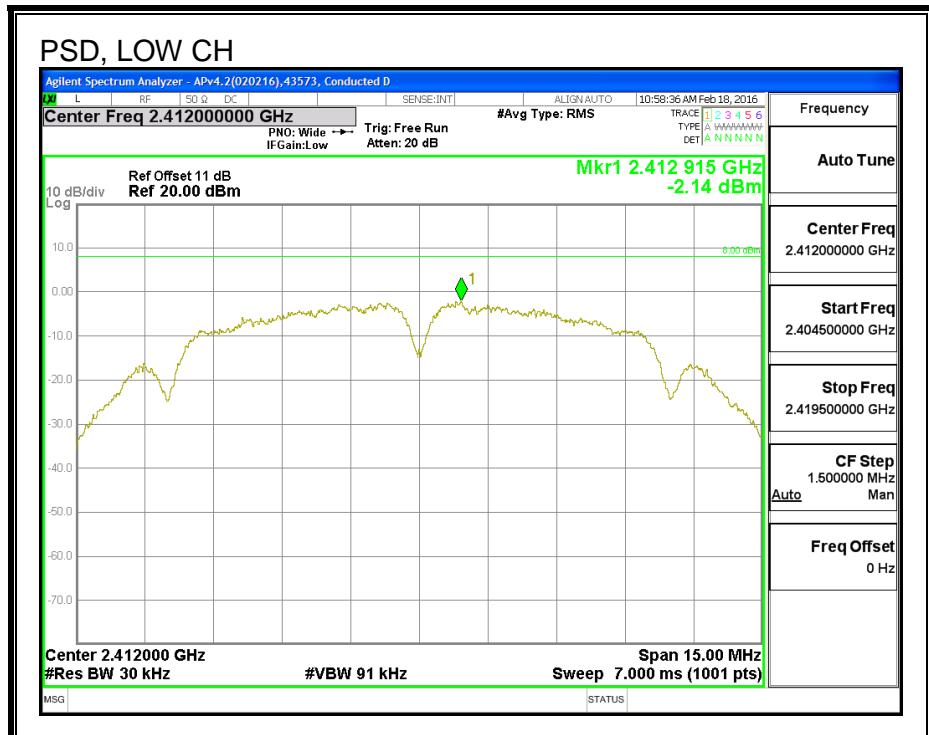
RESULTS

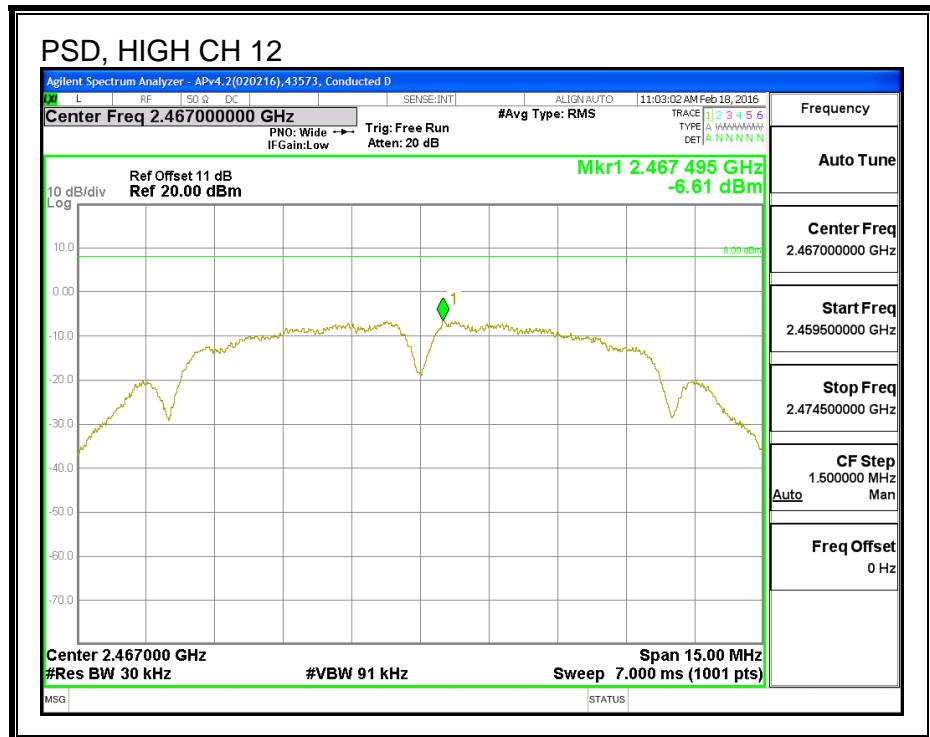
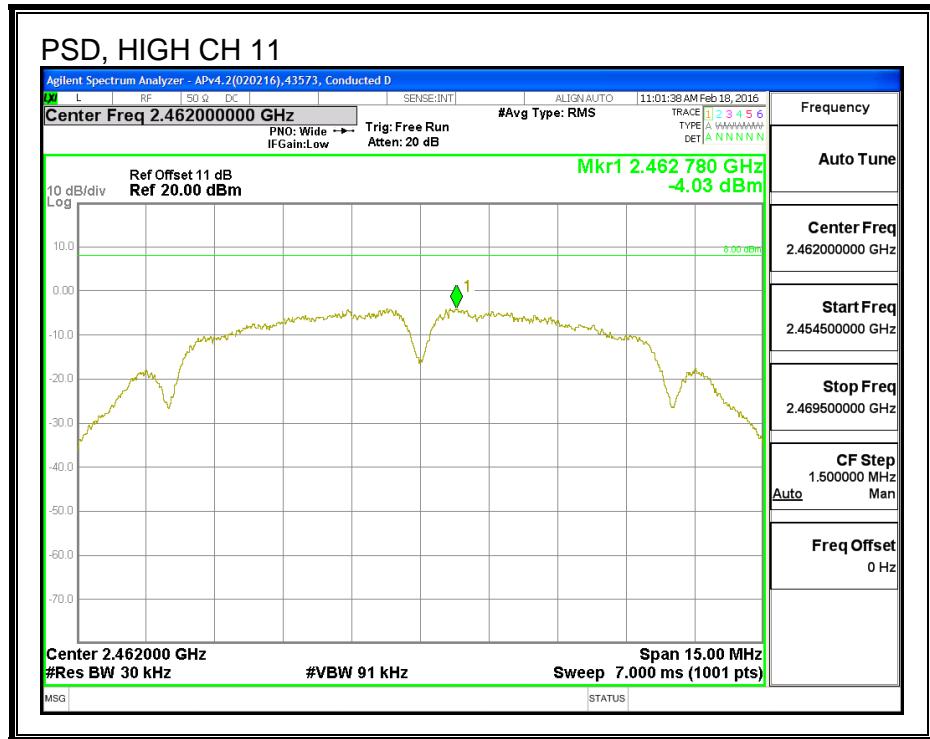
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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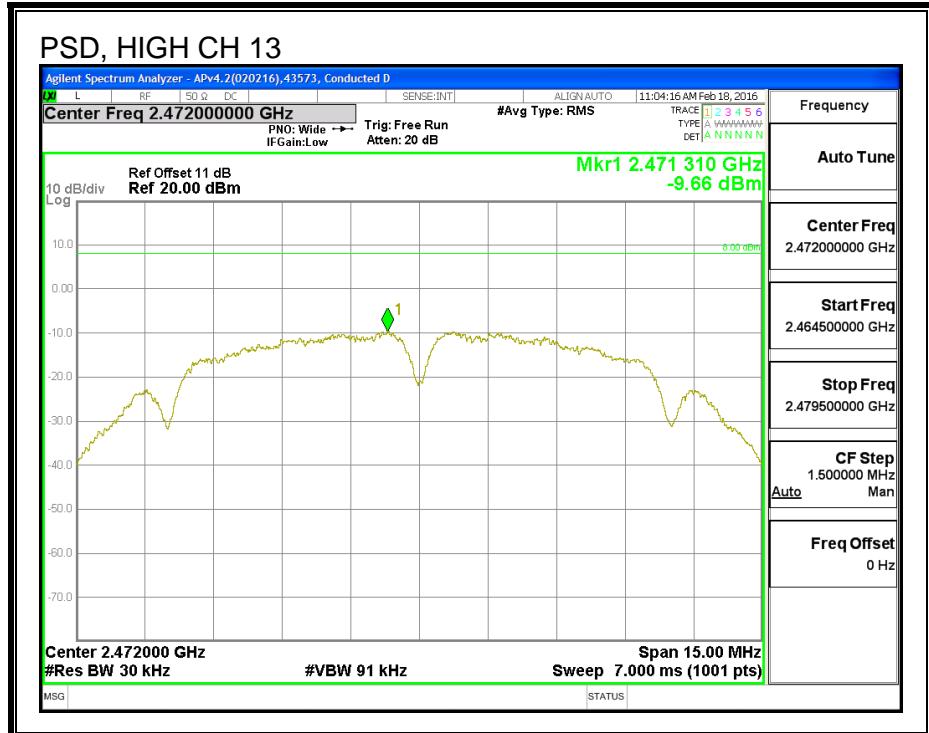
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-2.14	-2.51	0.69	8.0	-7.3
Mid	2437	-1.86	-2.78	0.71	8.0	-7.3
High_11	2462	-4.03	-2.38	-0.12	8.0	-8.1
High_12	2467	-6.61	-6.13	-3.35	8.0	-11.4
High_13	2472	-9.66	-9.02	-6.32	8.0	-14.3

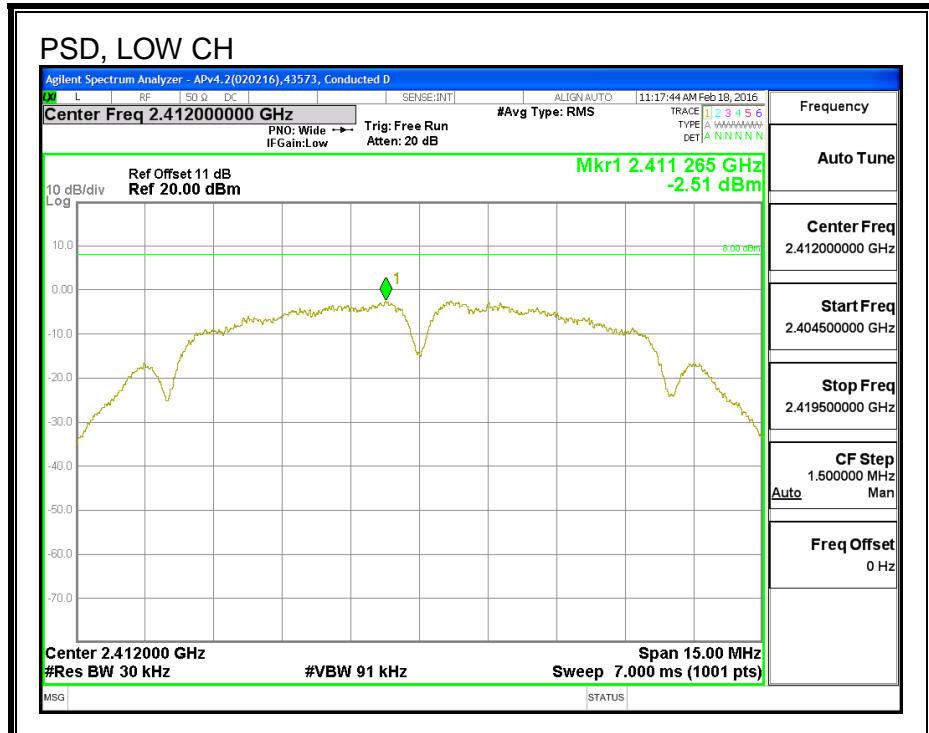
PSD, Chain 0

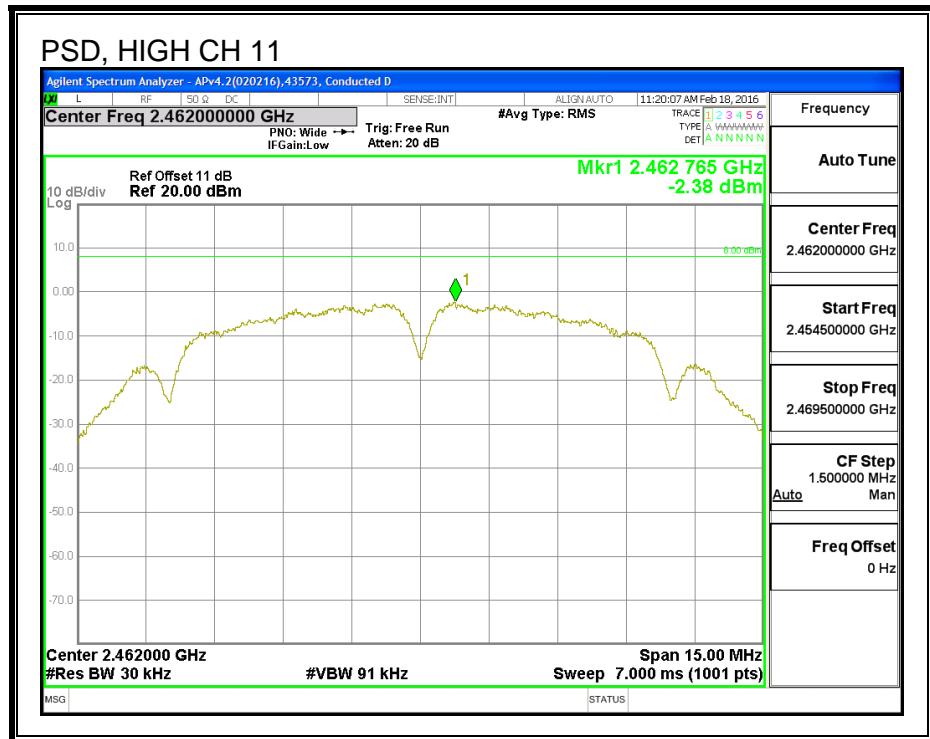
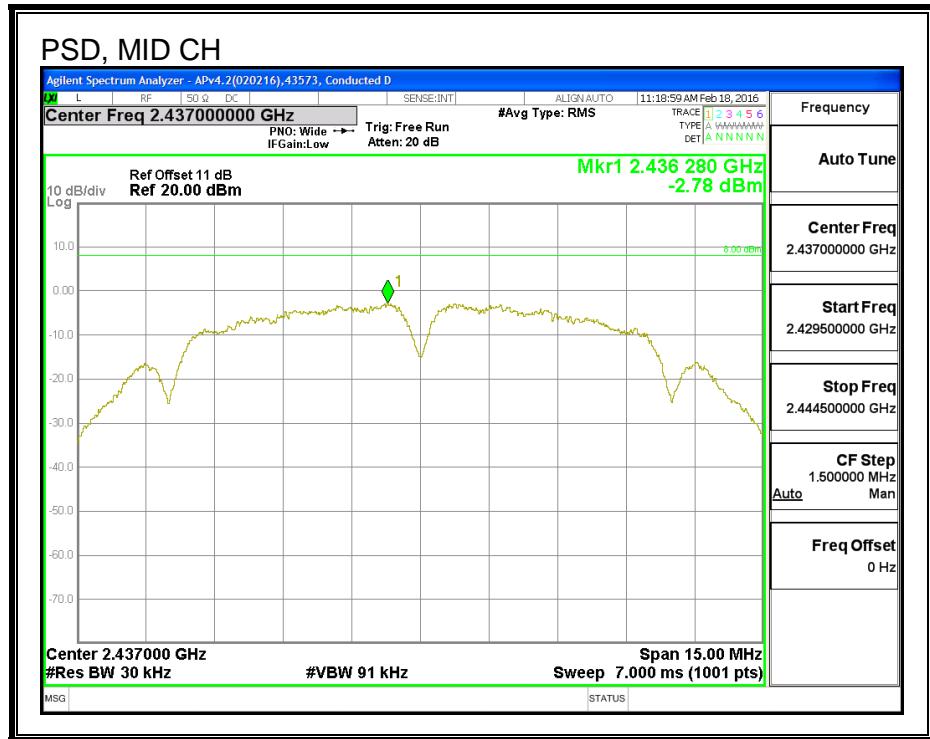


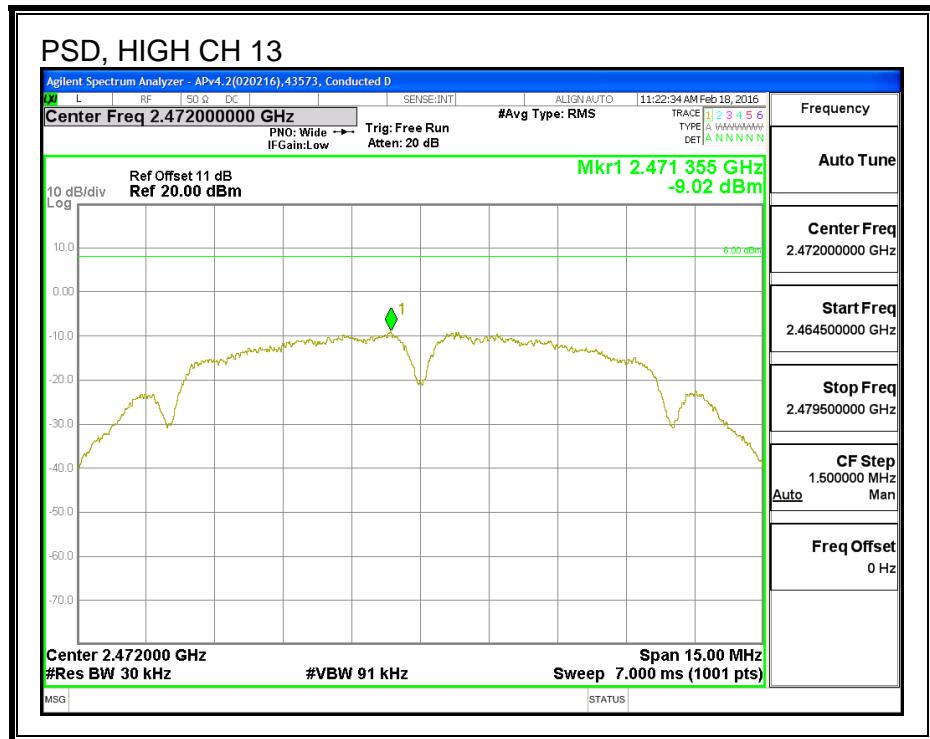
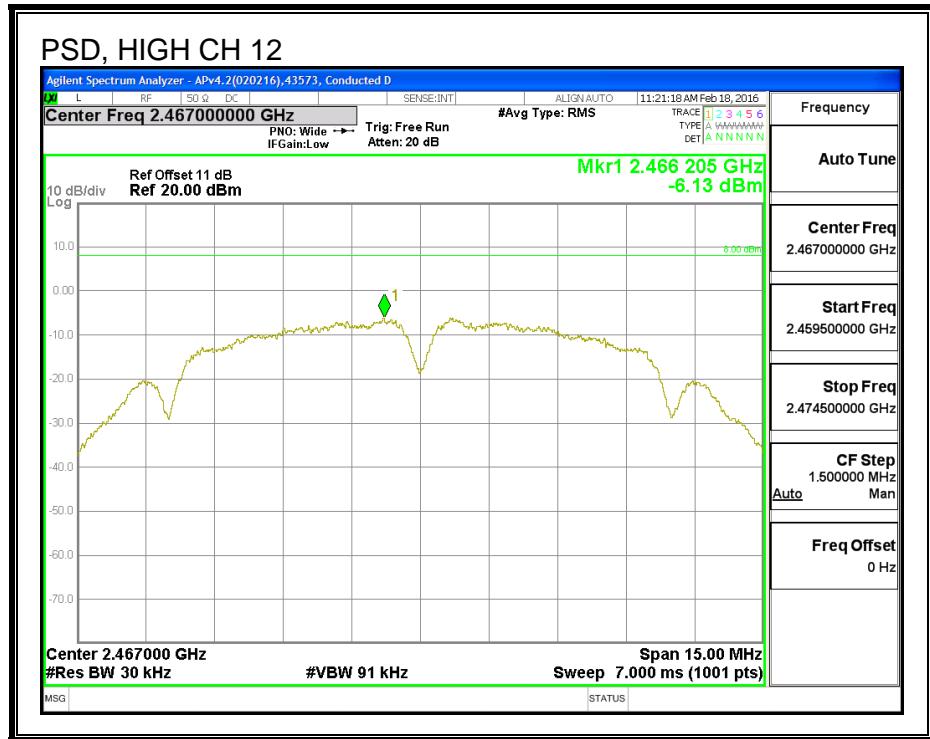




PSD, Chain 1







8.4.5. OUT-OF-BAND EMISSIONS

LIMITS

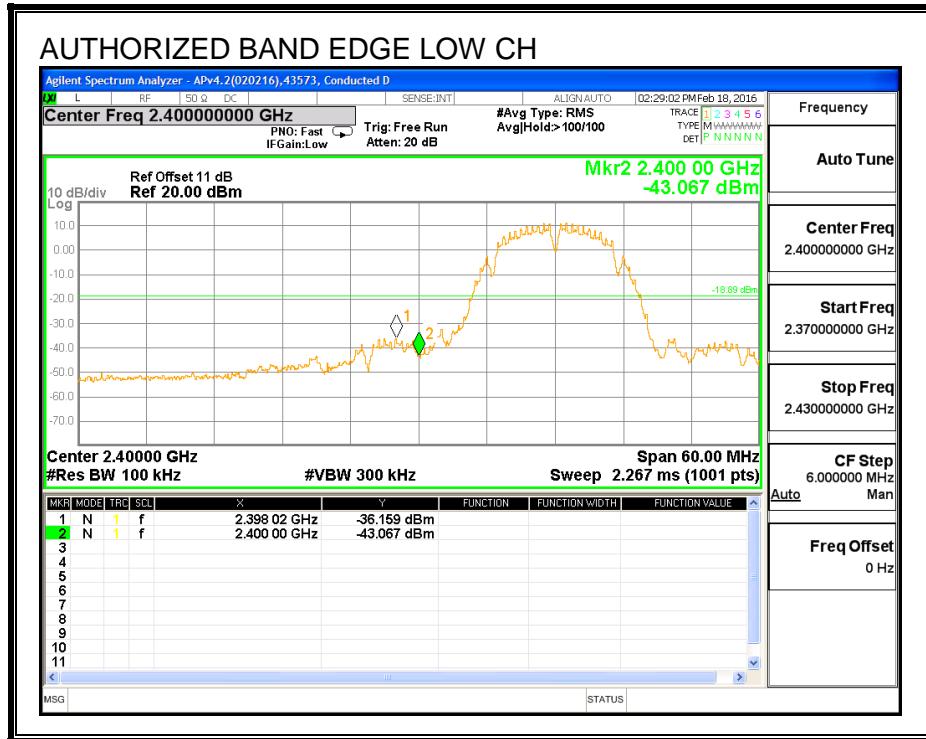
FCC §15.247 (d)

IC RSS-247 (5.5)

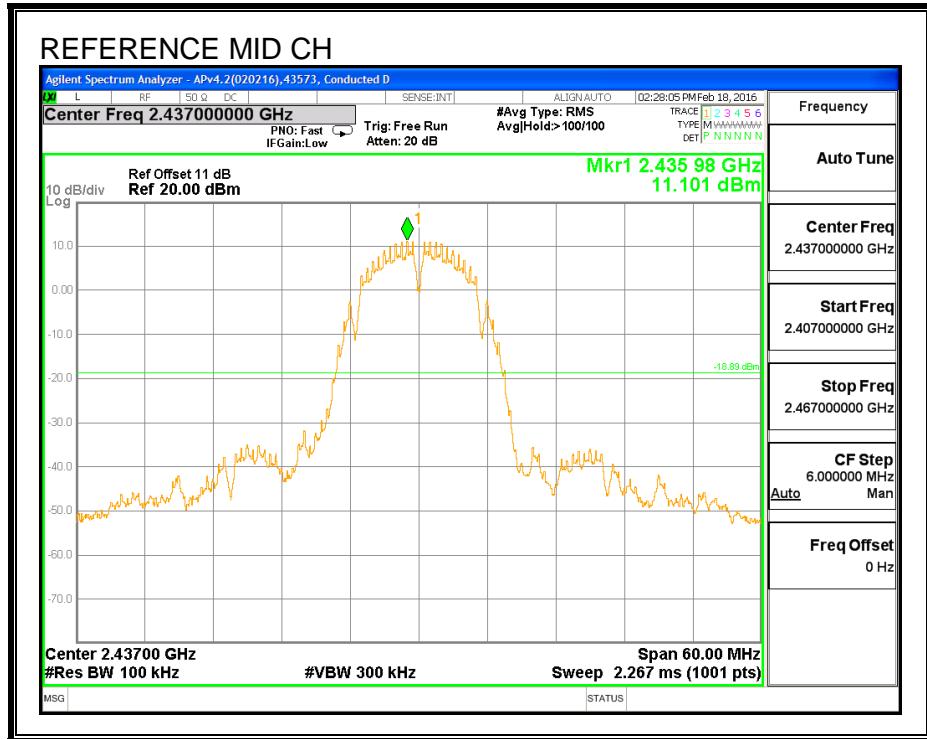
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

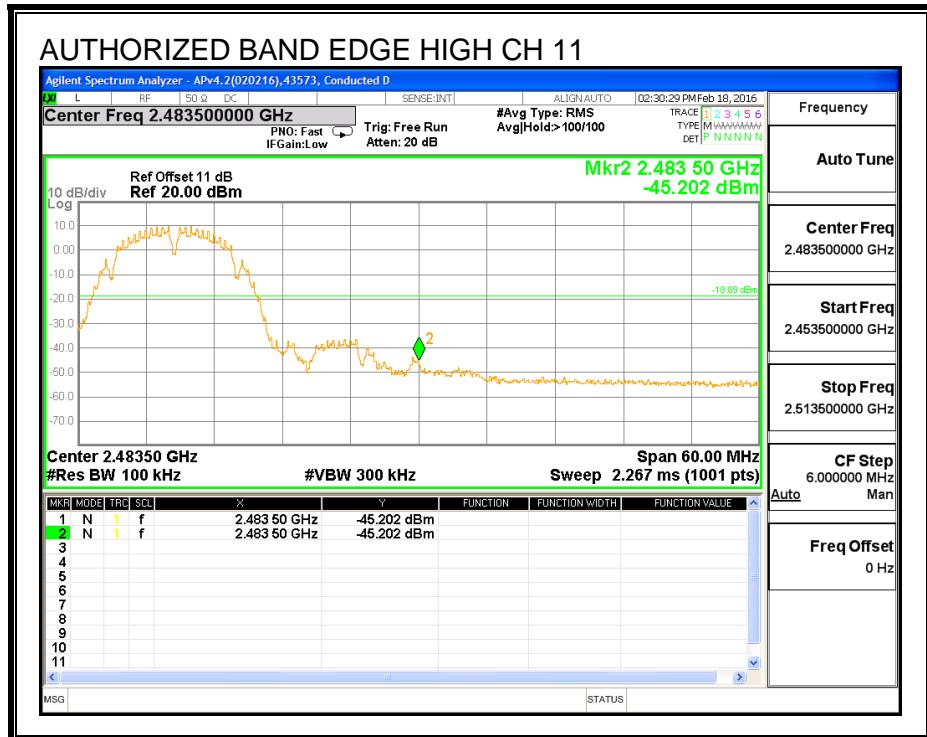
LOW CHANNEL BANDEDGE, Chain 0

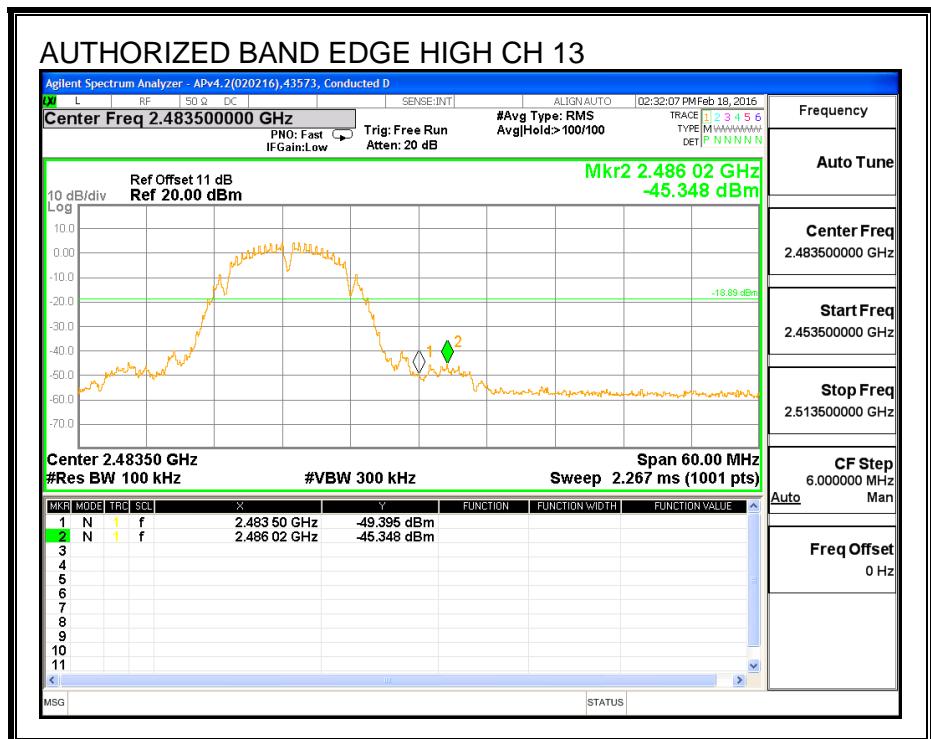
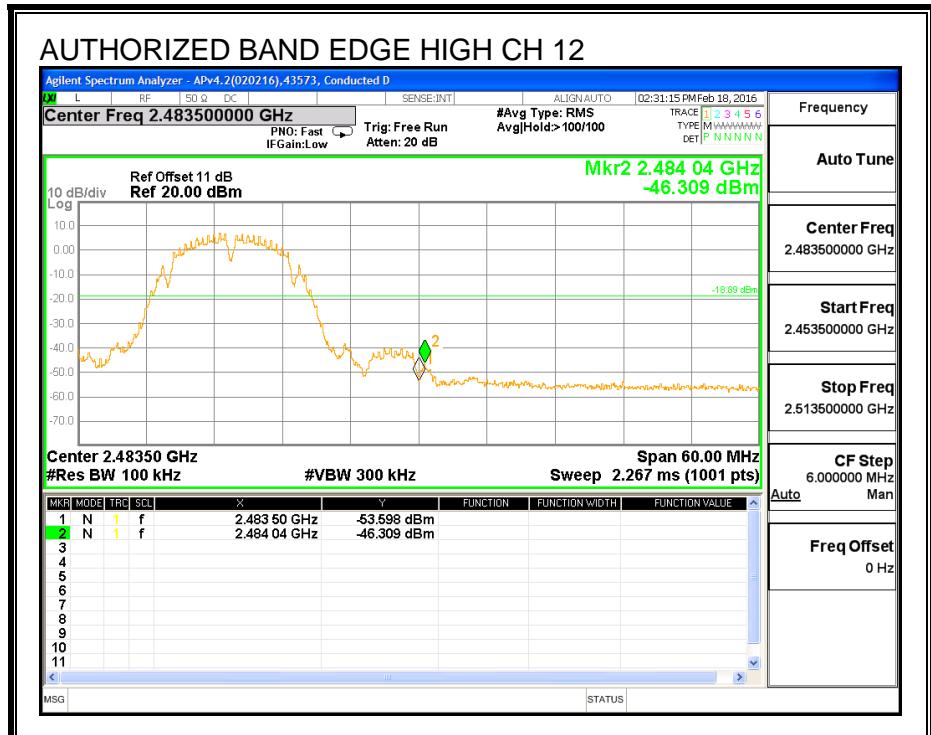


MID CHANNEL REFERENCE, Chain 0

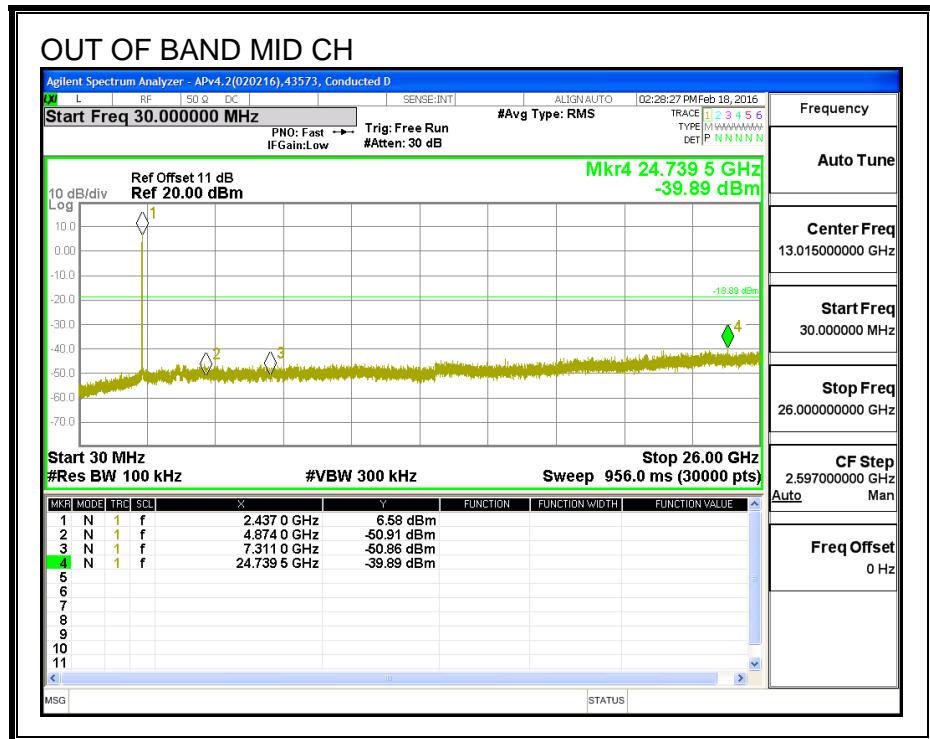
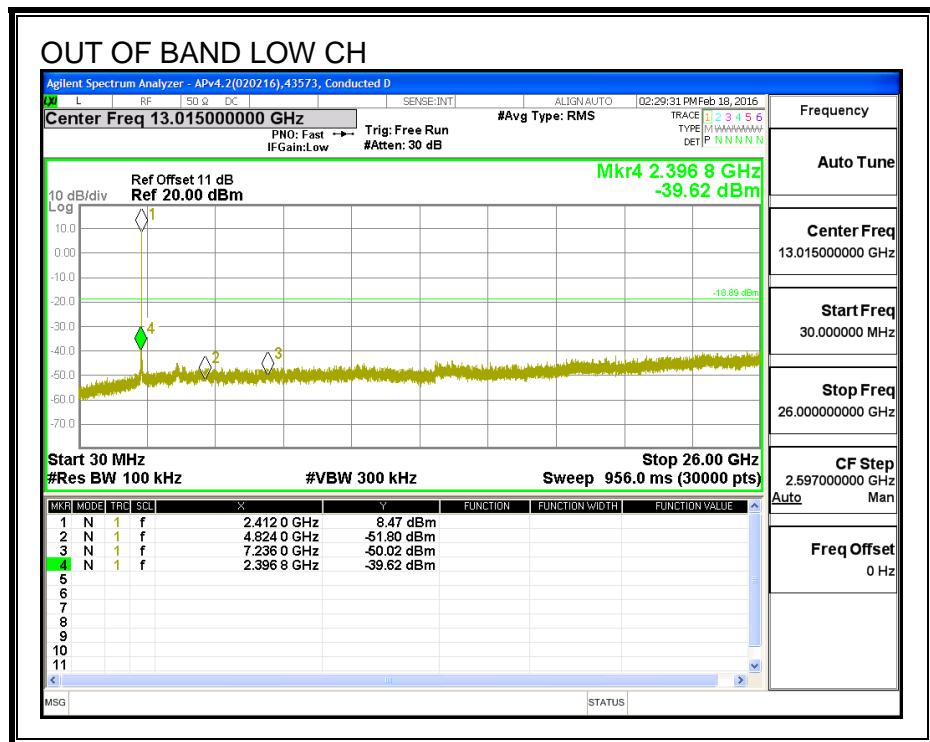


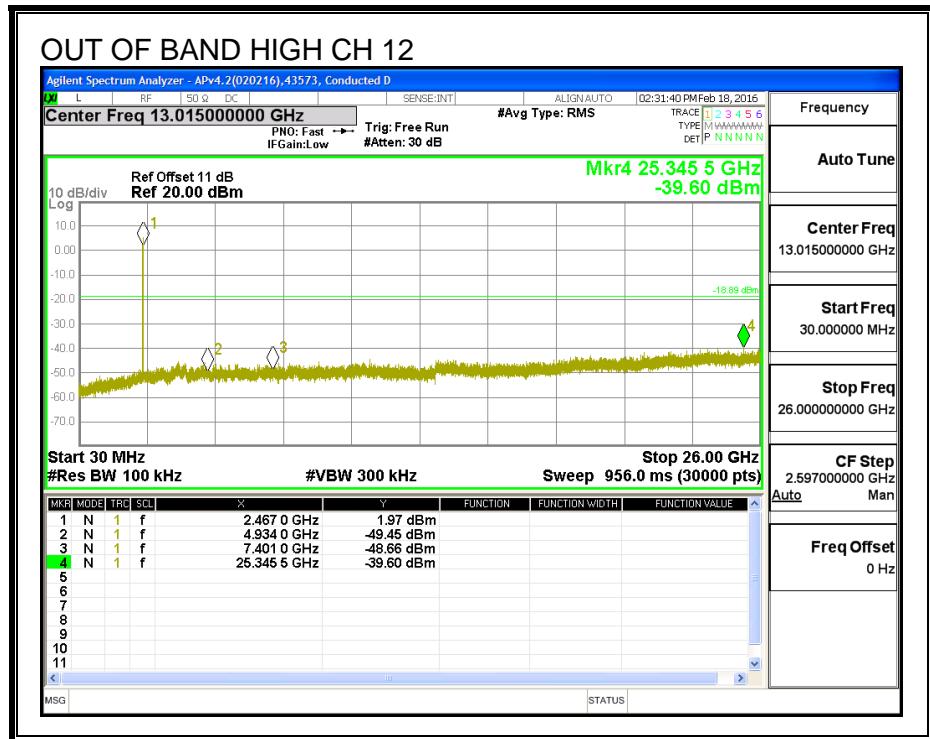
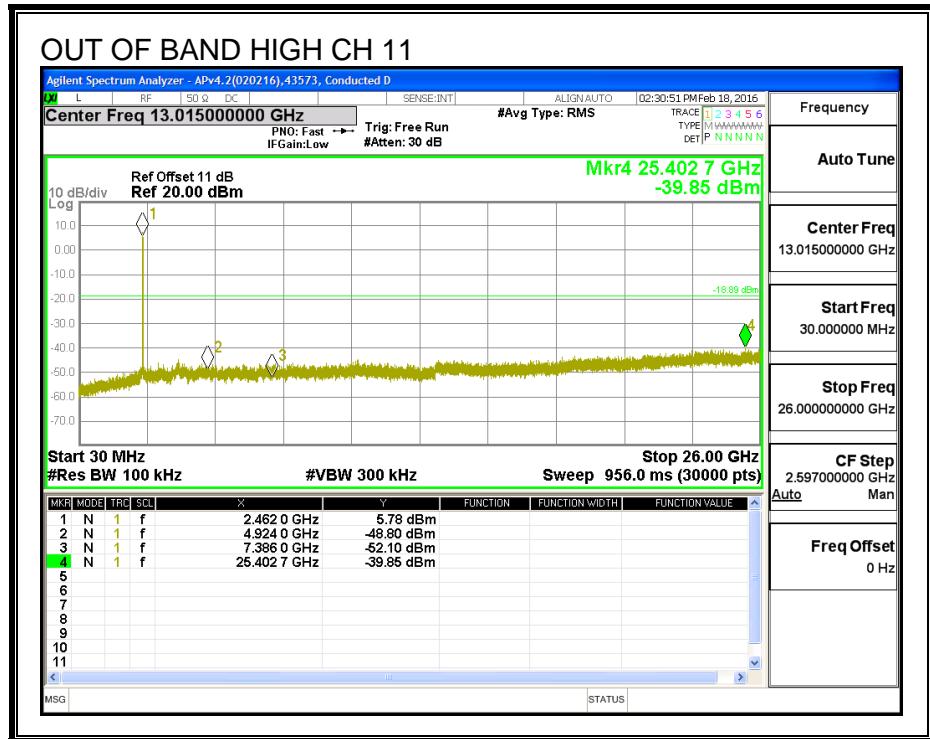
HIGH CHANNEL BANDEDGE, Chain 0

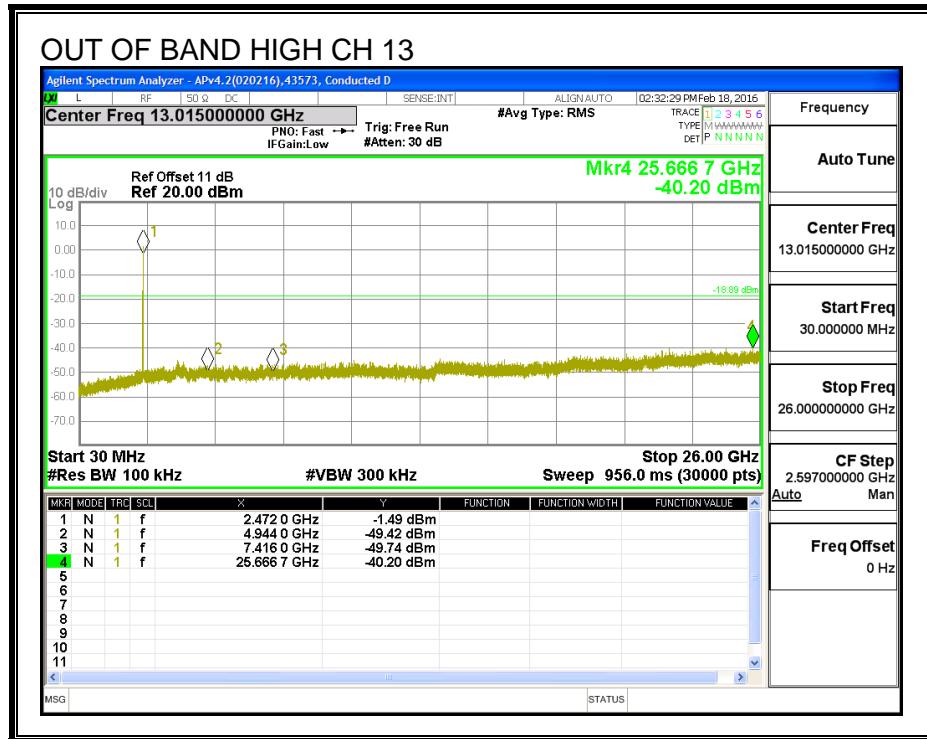




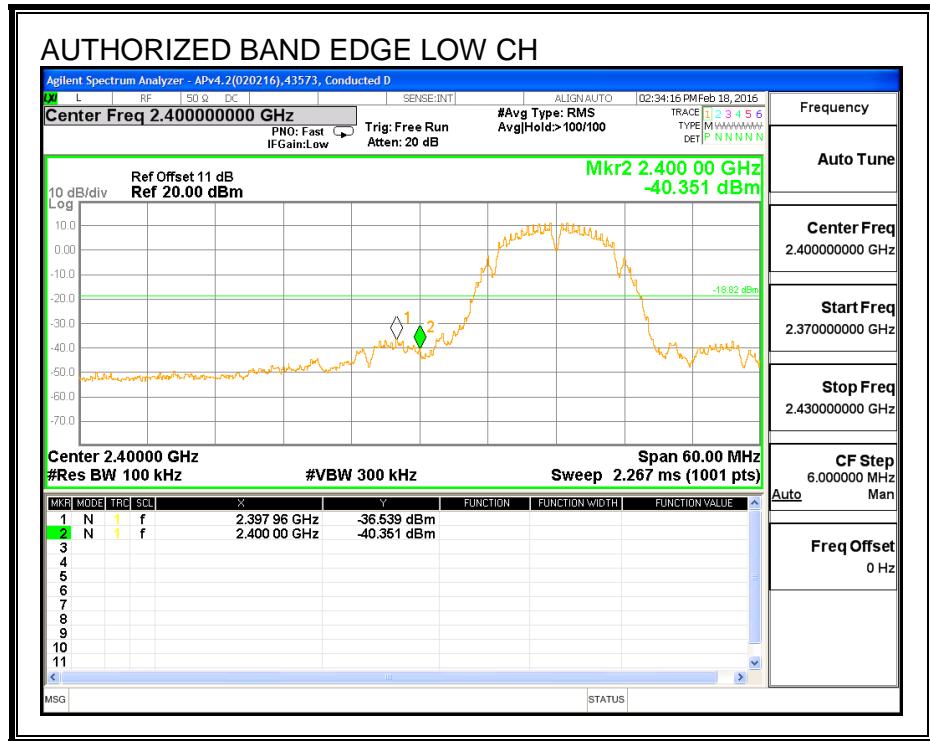
OUT-OF-BAND EMISSIONS, Chain 0



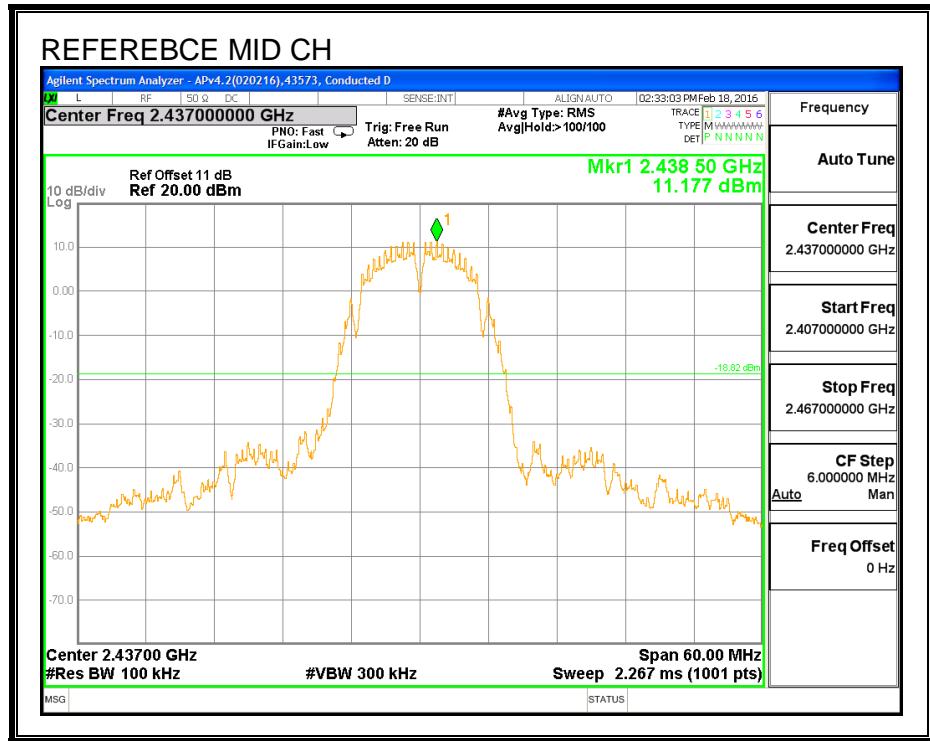




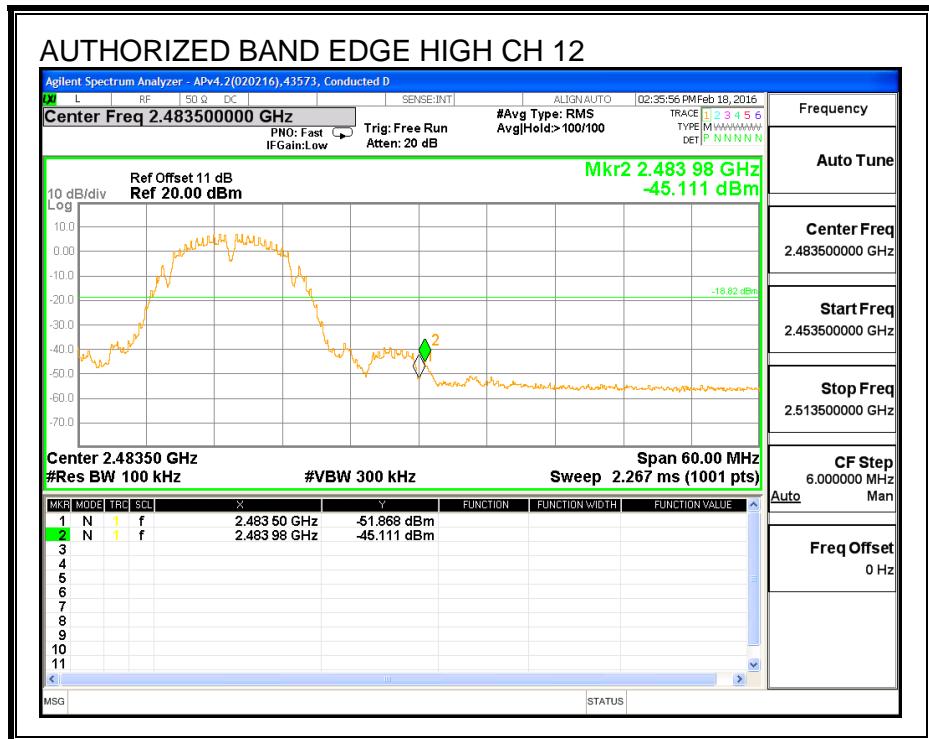
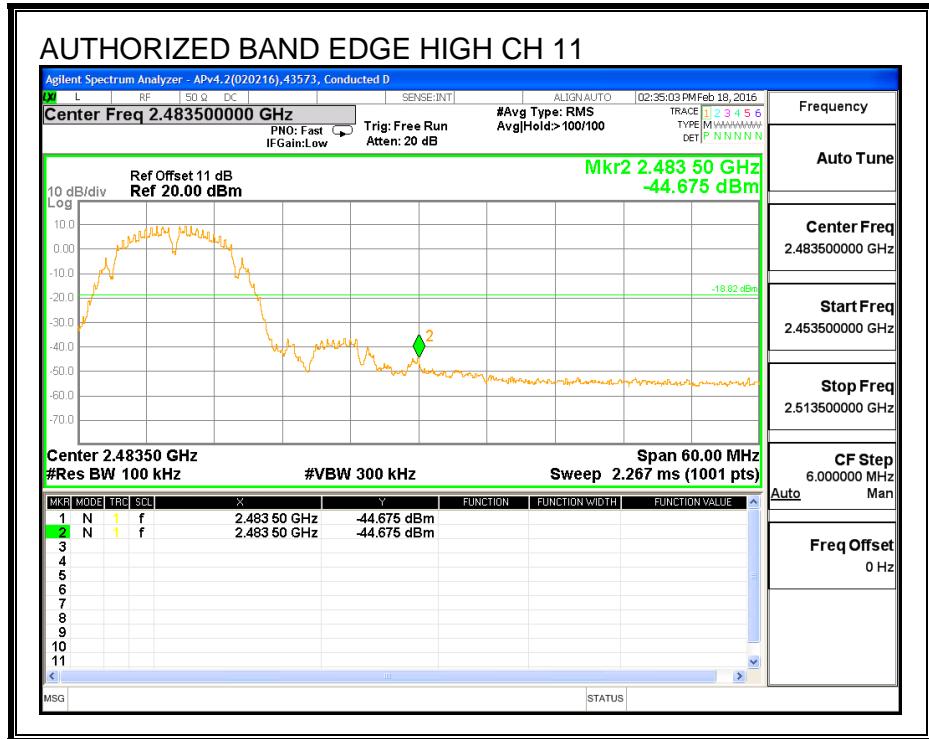
LOW CHANNEL BANDEDGE, Chain 1

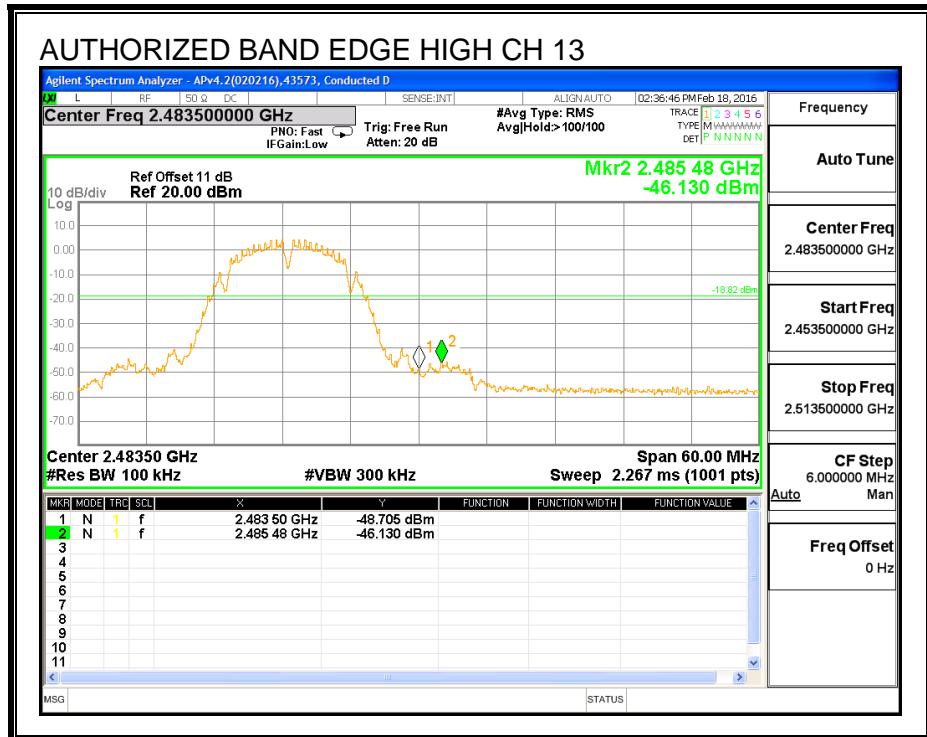


MID CHANNEL REFERENCE, Chain 1

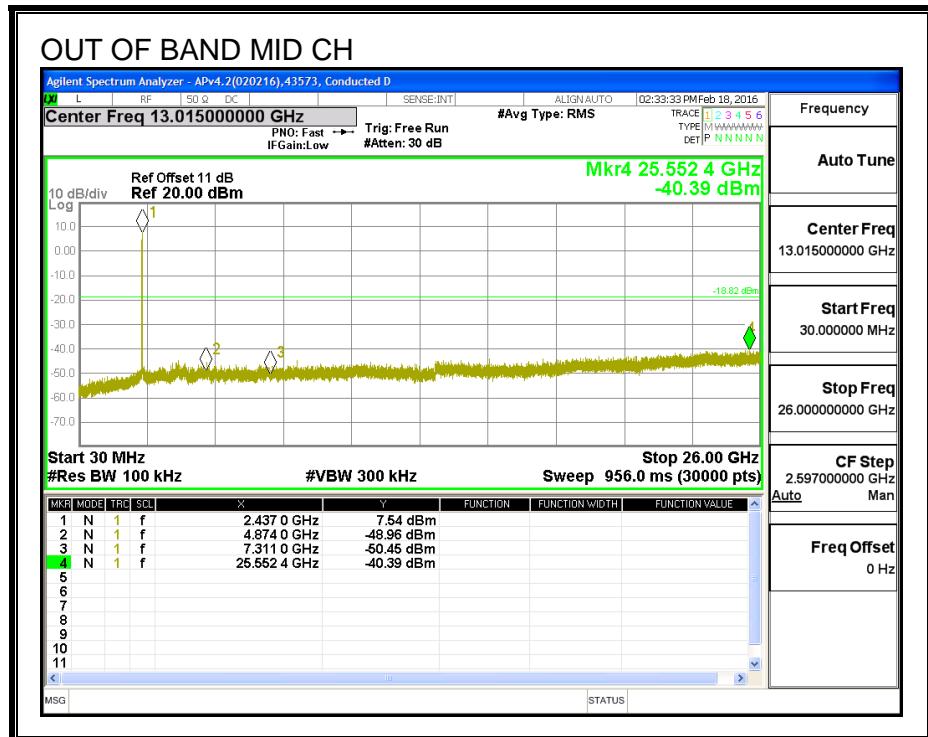
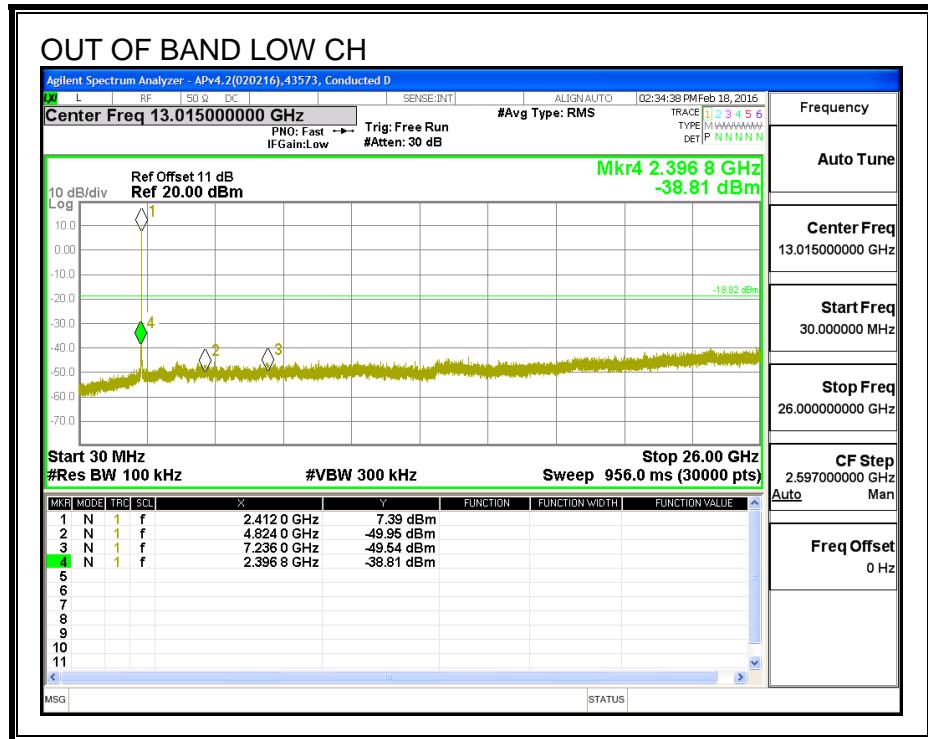


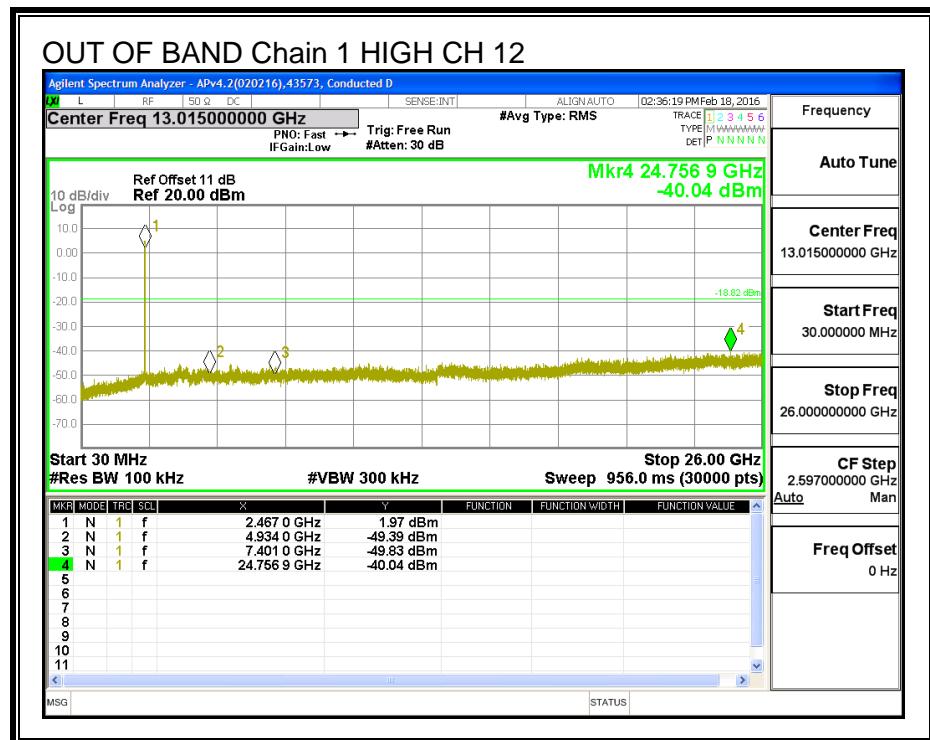
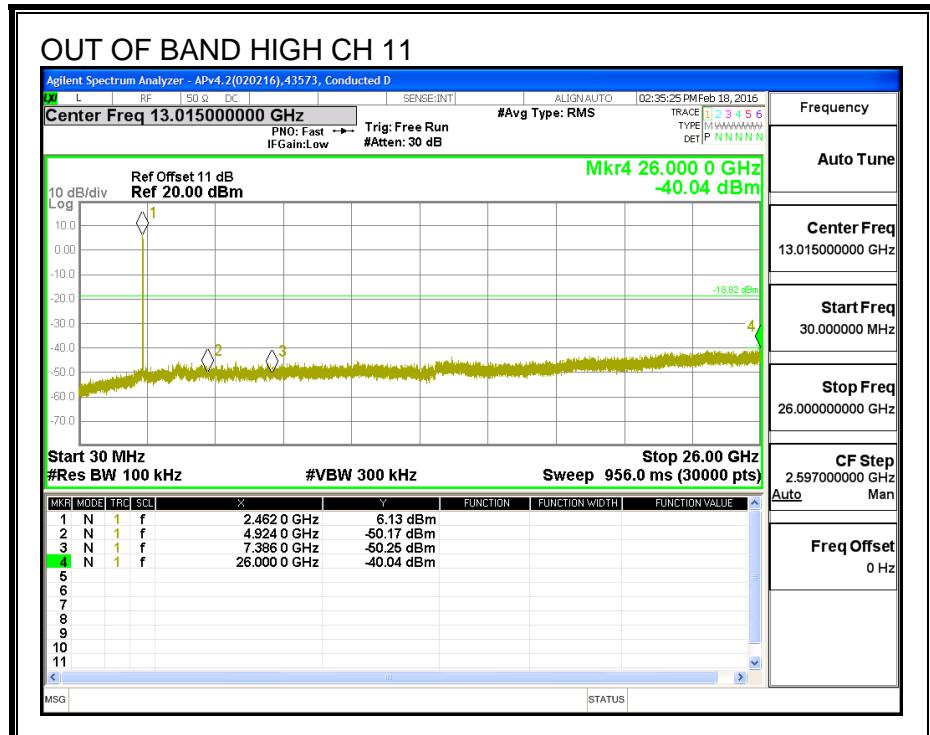
HIGH CHANNEL BANDEDGE, Chain 1

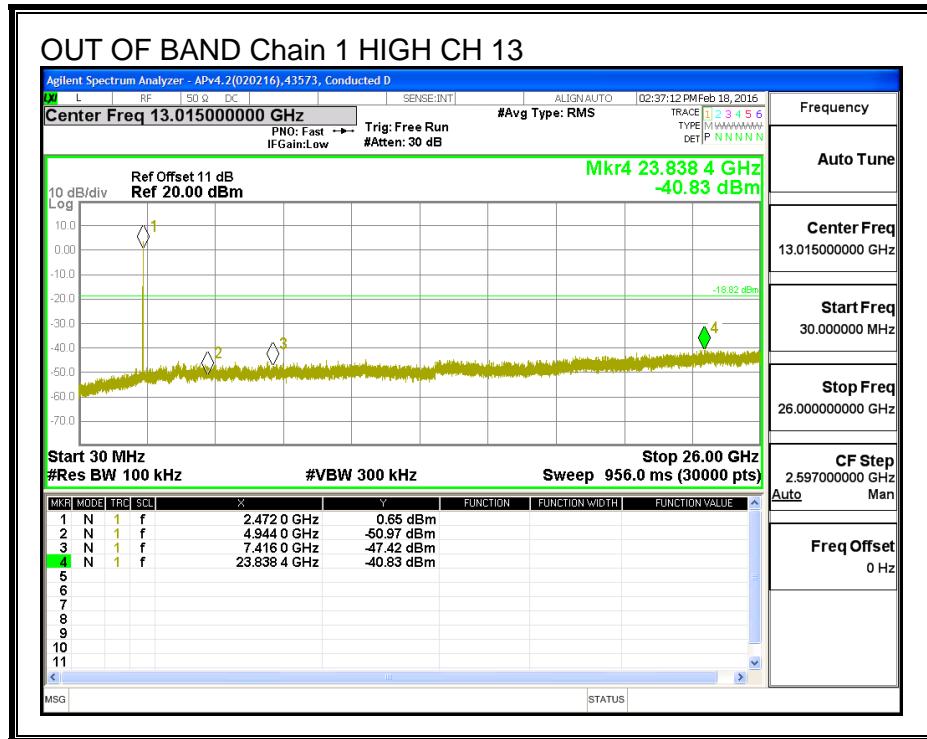




OUT-OF-BAND EMISSIONS, Chain 1







8.5. 802.11g SISO MODE IN THE 2.4 GHz BAND

Noted: Covered by 802.11n HT20 SISO MODE IN THE 2.4 GHz BAND

8.6. 802.11n HT20 SISO MODE IN THE 2.4 GHz BAND, CHAIN 0

8.6.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

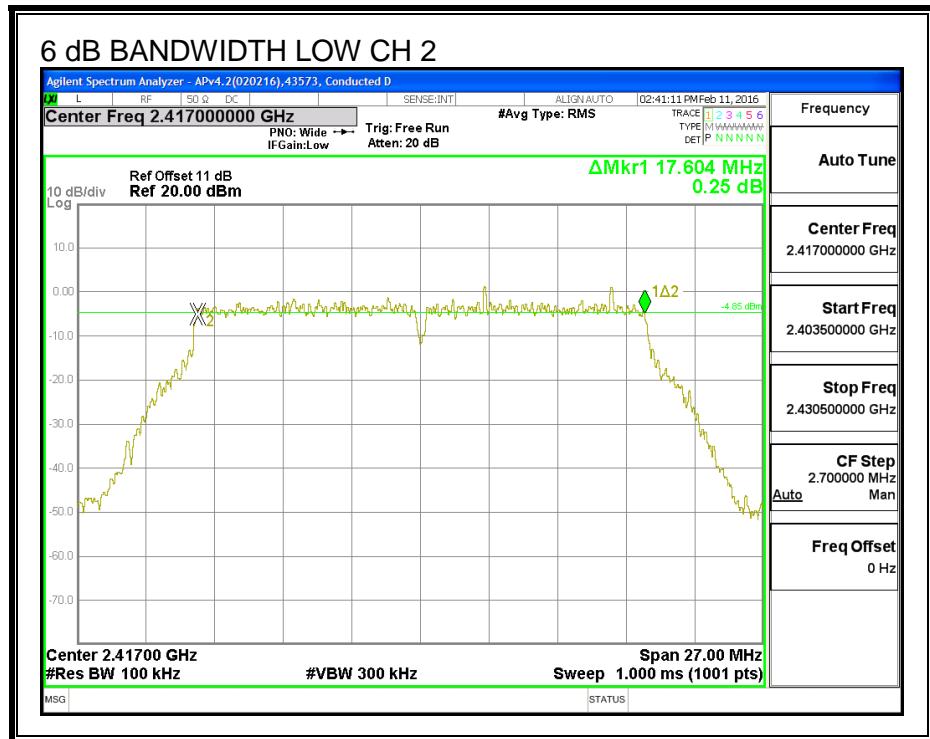
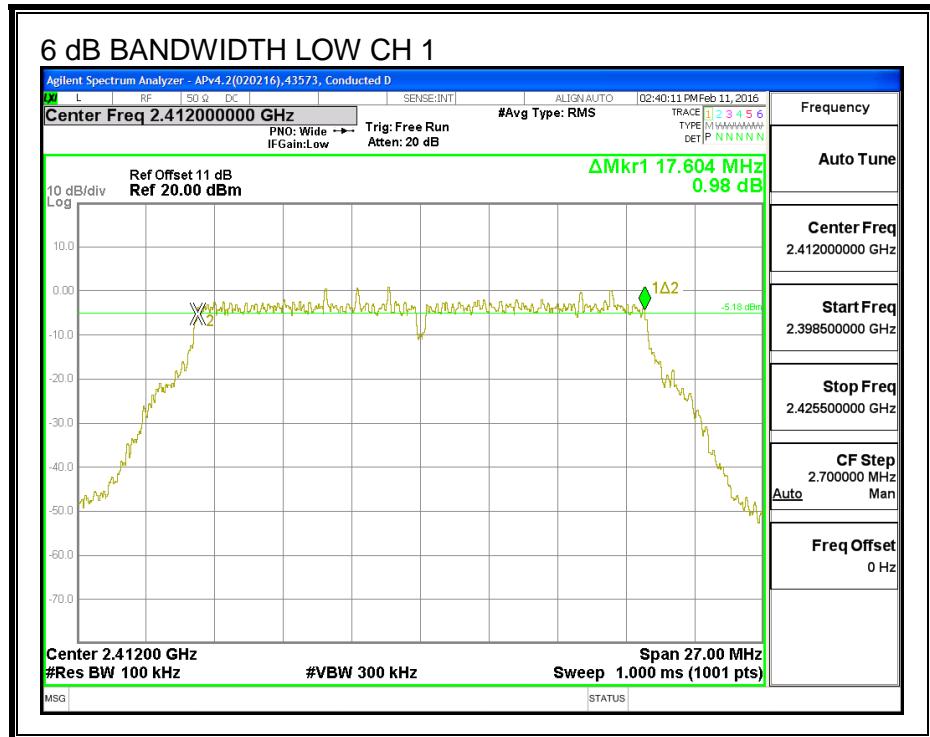
IC RSS-247 (5.2) (1)

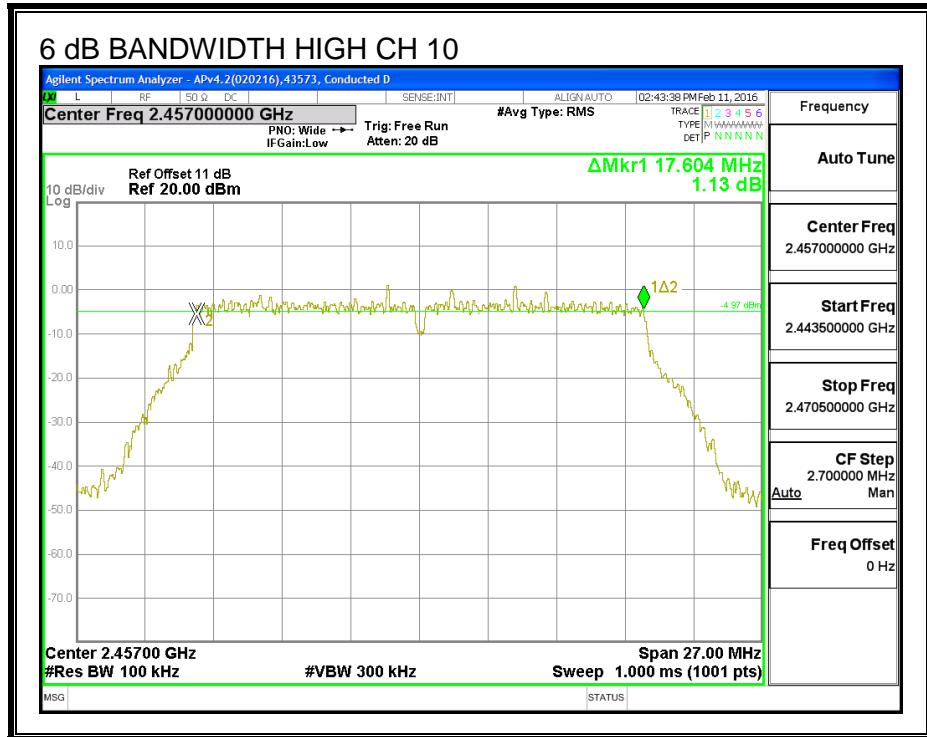
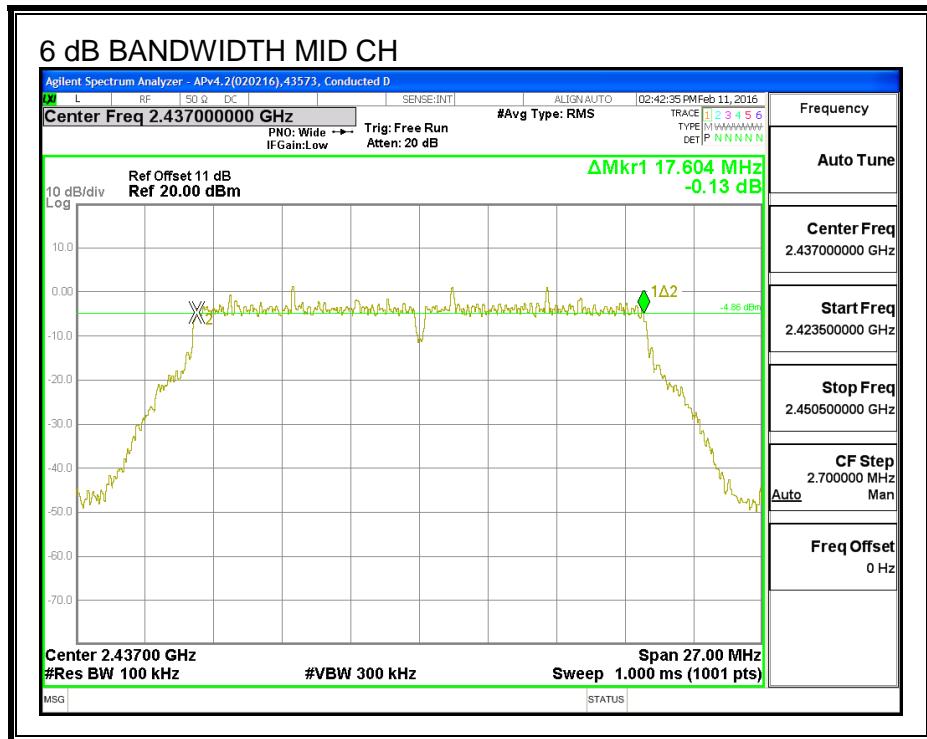
The minimum 6 dB bandwidth shall be at least 500 kHz.

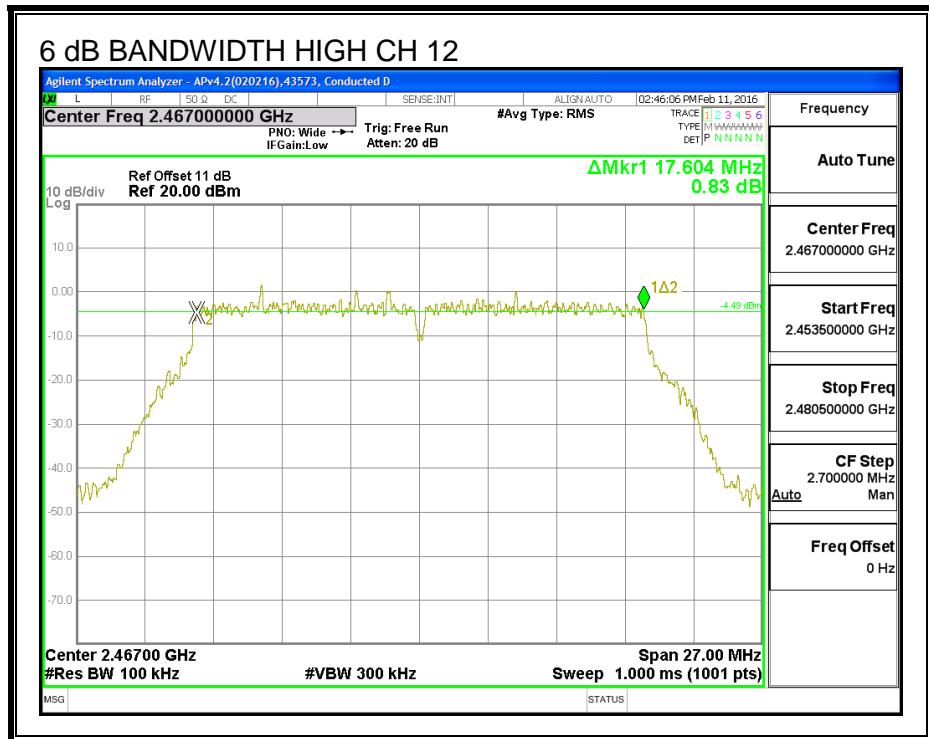
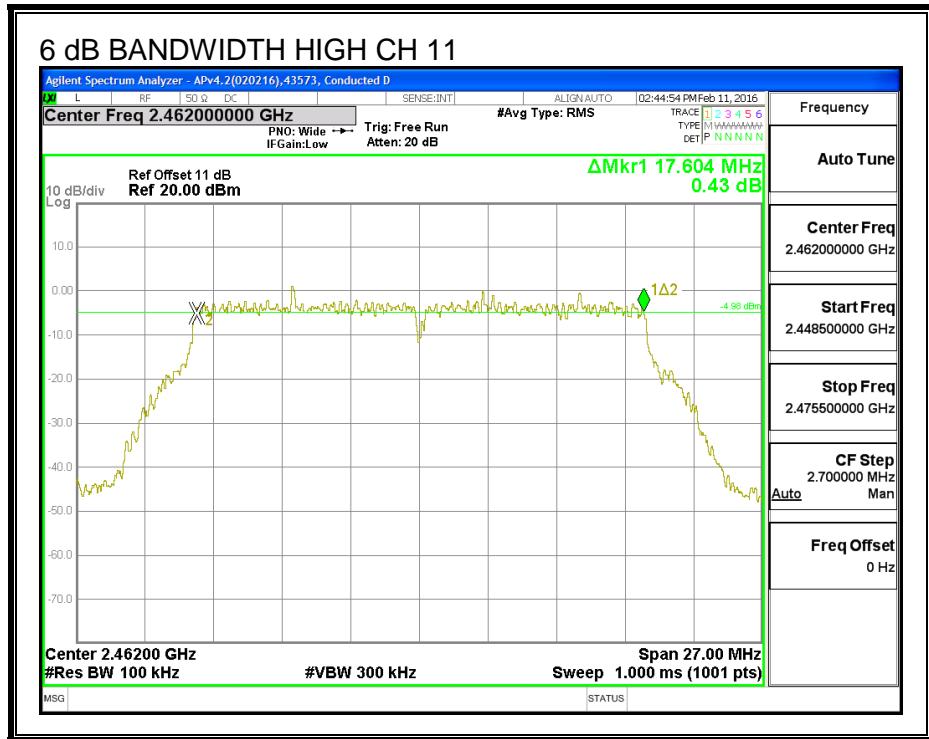
RESULTS

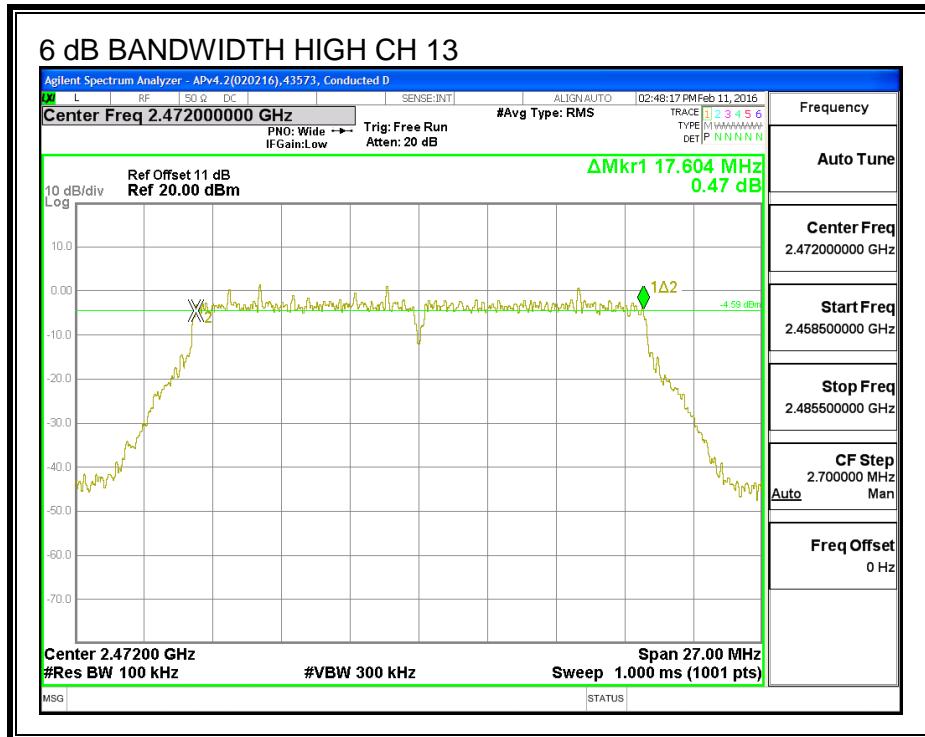
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low_1	2412	17.60	0.5
Low_2	2417	17.60	0.5
Mid_6	2437	17.60	0.5
High_10	2457	17.60	0.5
High_11	2462	17.60	0.5
High_12	2467	17.60	0.5
High_13	2472	17.60	0.5

6 dB BANDWIDTH









8.6.2. 99% BANDWIDTH

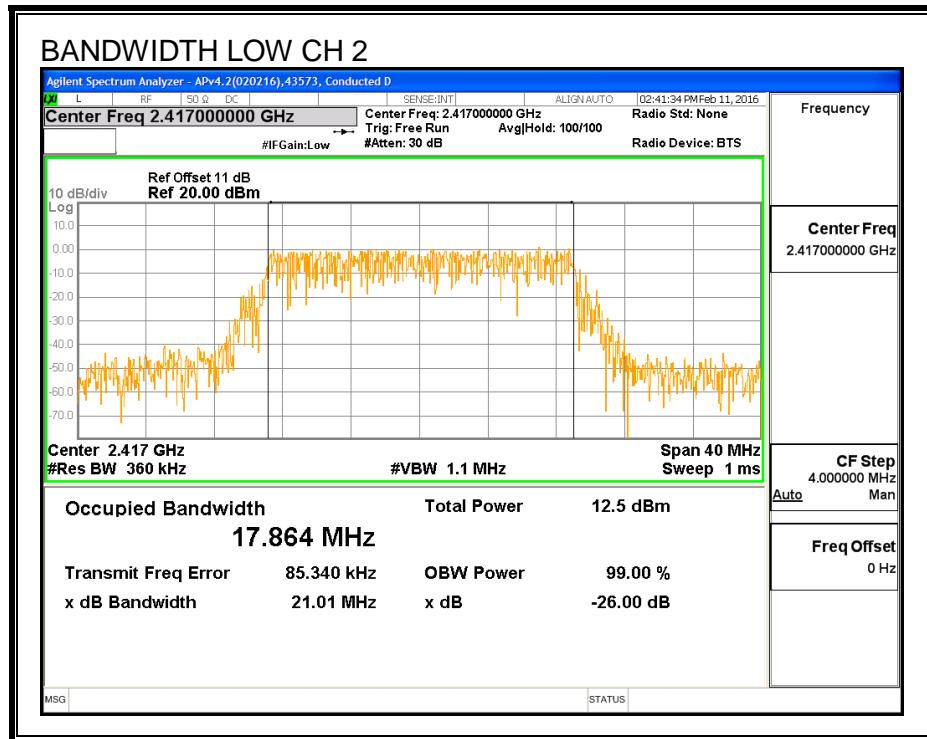
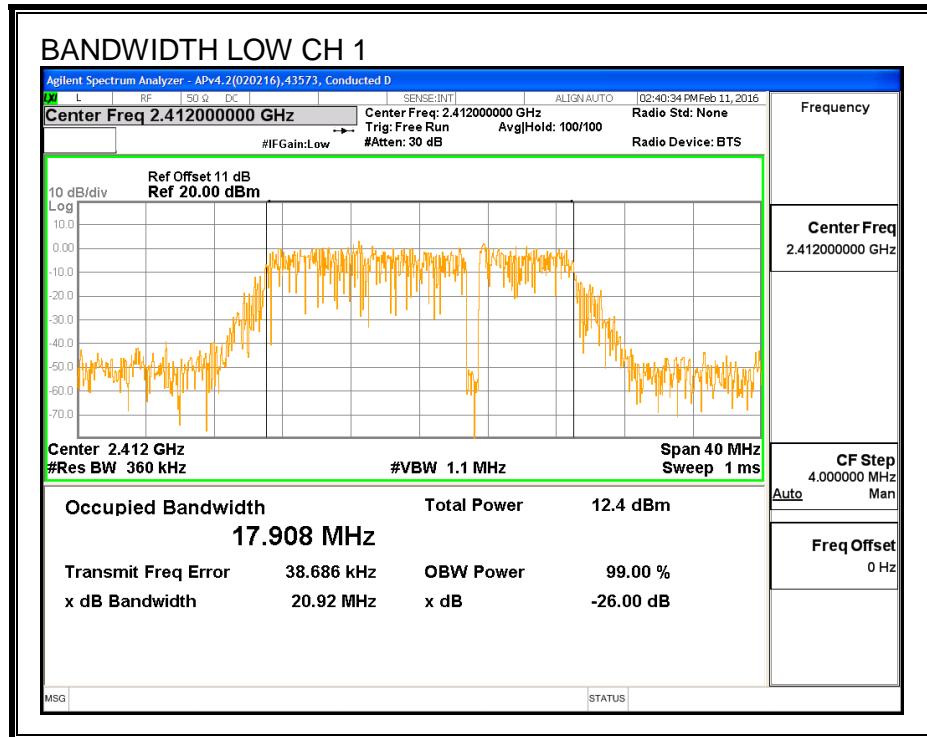
LIMITS

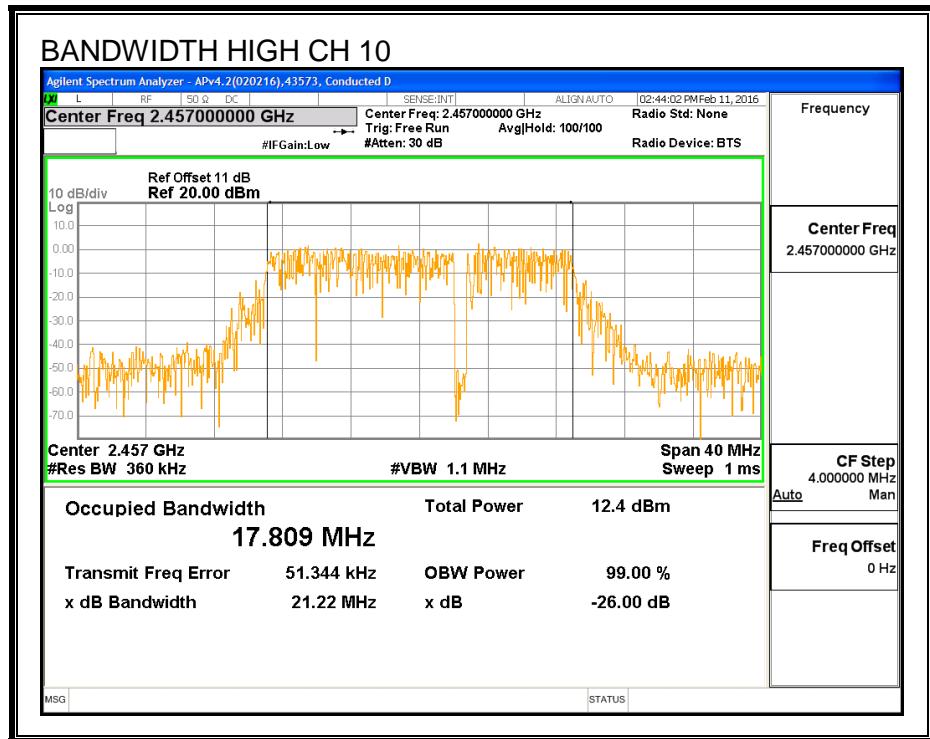
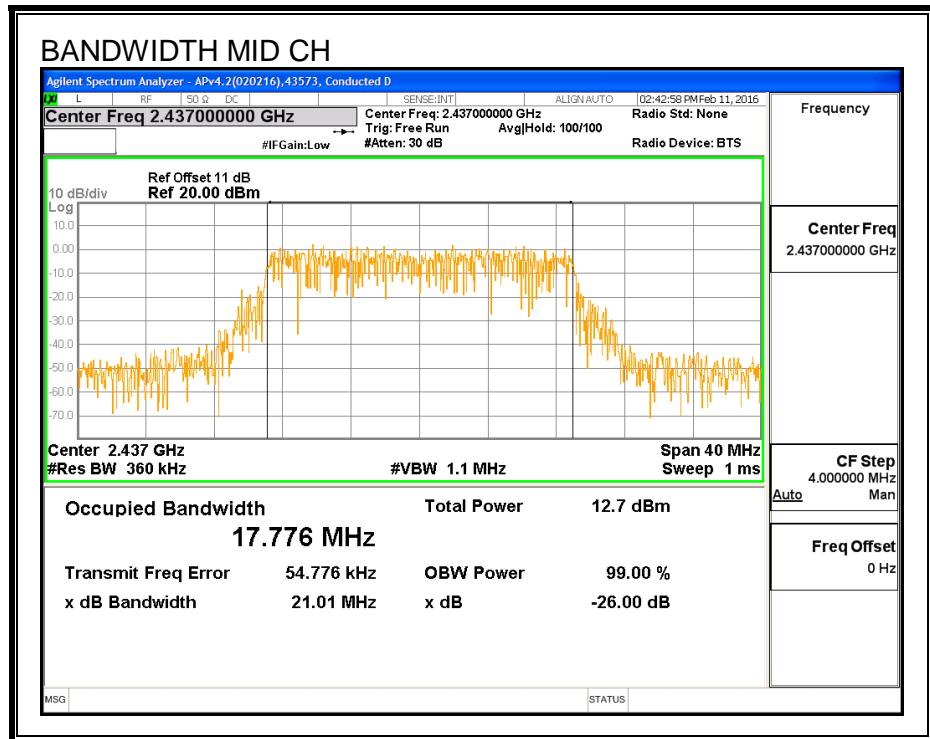
None; for reporting purposes only.

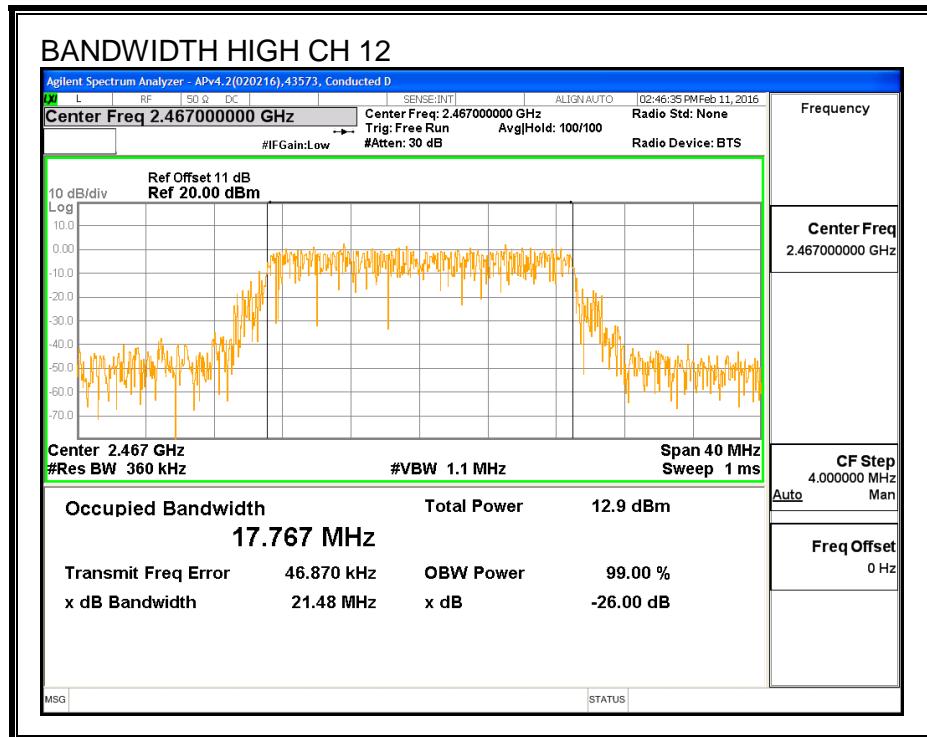
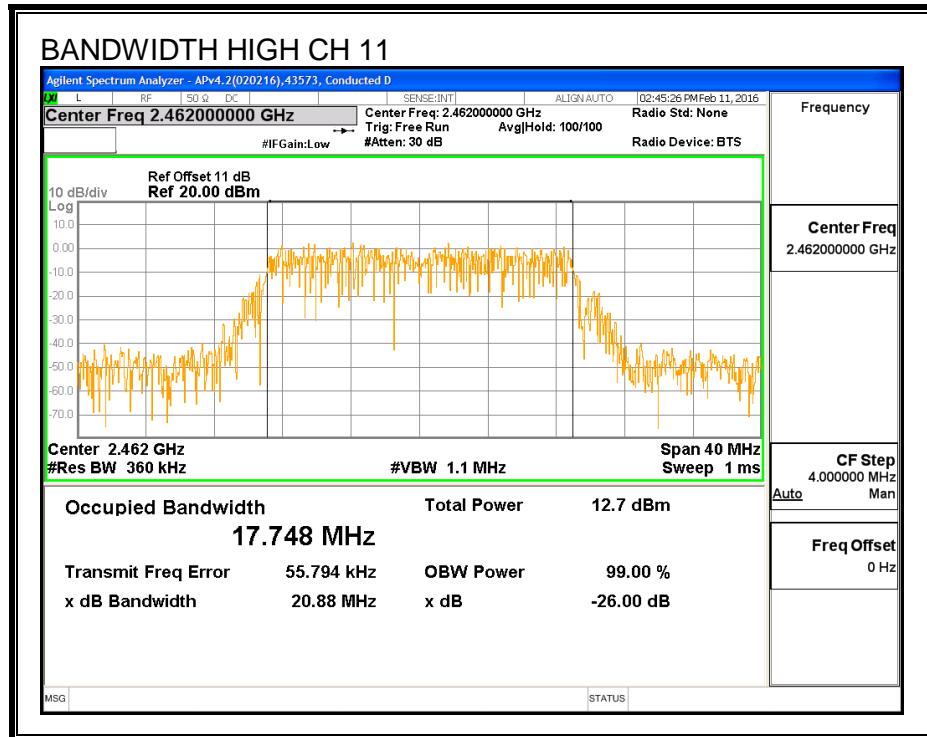
RESULTS

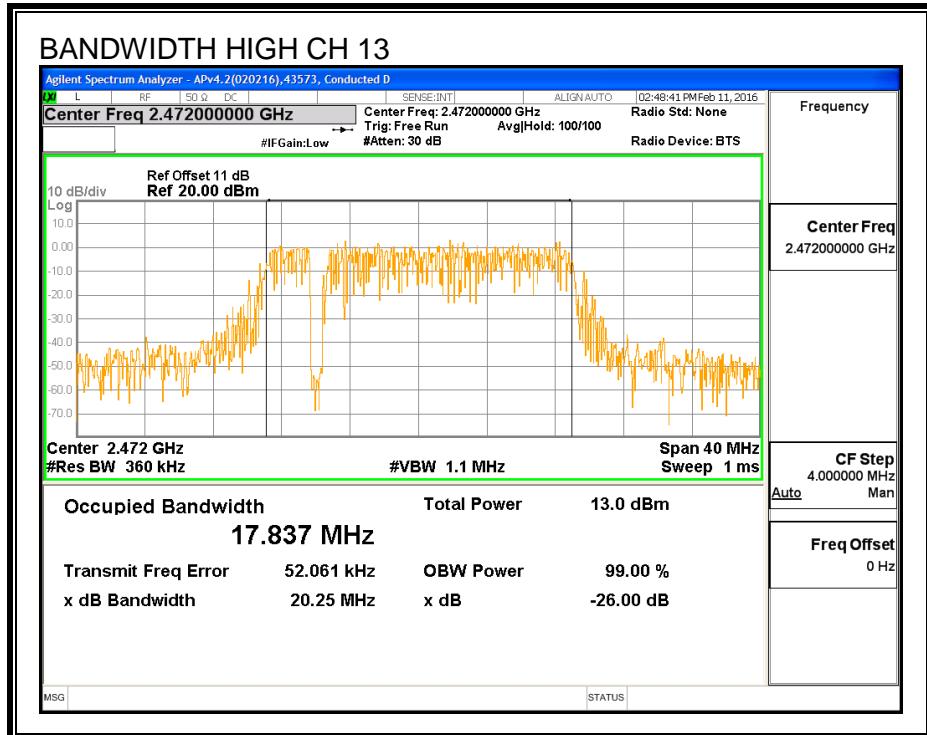
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low_1	2412	17.908
Low_2	2417	17.864
Mid_6	2437	17.776
High_10	2457	17.809
High_11	2462	17.748
High_12	2467	17.767
High_13	2472	17.837

99% BANDWIDTH









8.6.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (4)

For systems using digital modulation in the 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

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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	2.24	30.00	30	36	30.00
Low_2	2417	2.24	30.00	30	36	30.00
Mid_6	2437	2.24	30.00	30	36	30.00
High_10	2457	2.24	30.00	30	36	30.00
High_11	2462	2.24	30.00	30	36	30.00
High_12	2467	2.24	30.00	30	36	30.00
High_13	2472	2.24	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low_1	2412	15.32	15.32	30.00	-14.68
Low_2	2417	17.30	17.30	30.00	-12.70
Mid_6	2437	18.99	18.99	30.00	-11.01
High_10	2457	17.98	17.98	30.00	-12.02
High_11	2462	16.88	16.88	30.00	-13.12
High_12	2467	13.87	13.87	30.00	-16.13
High_13	2472	4.92	4.92	30.00	-25.08

8.6.4. 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.

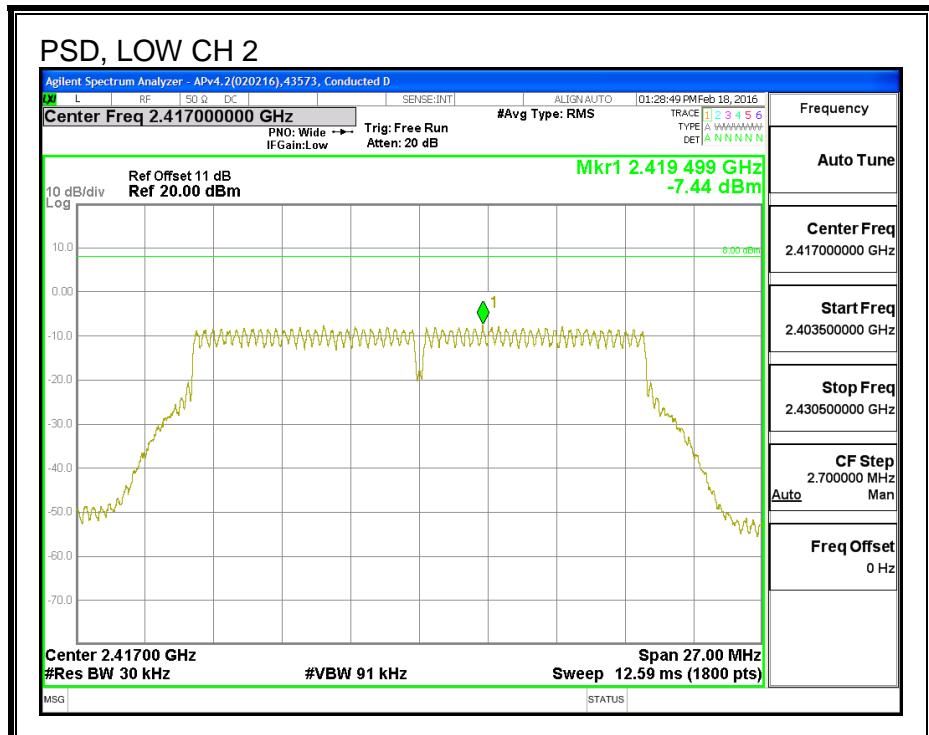
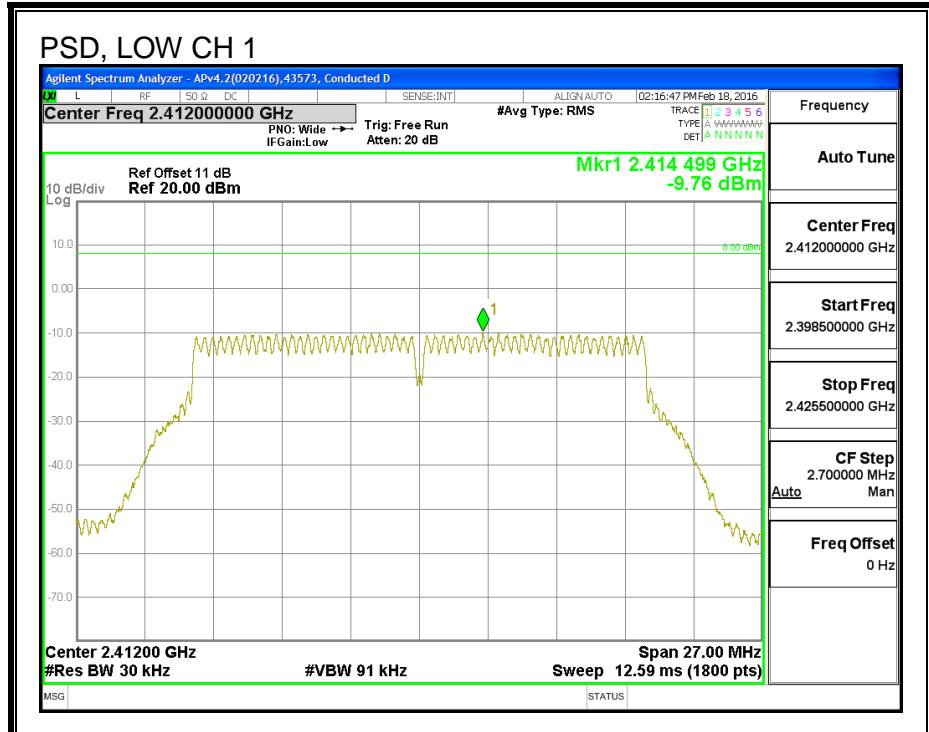
RESULTS

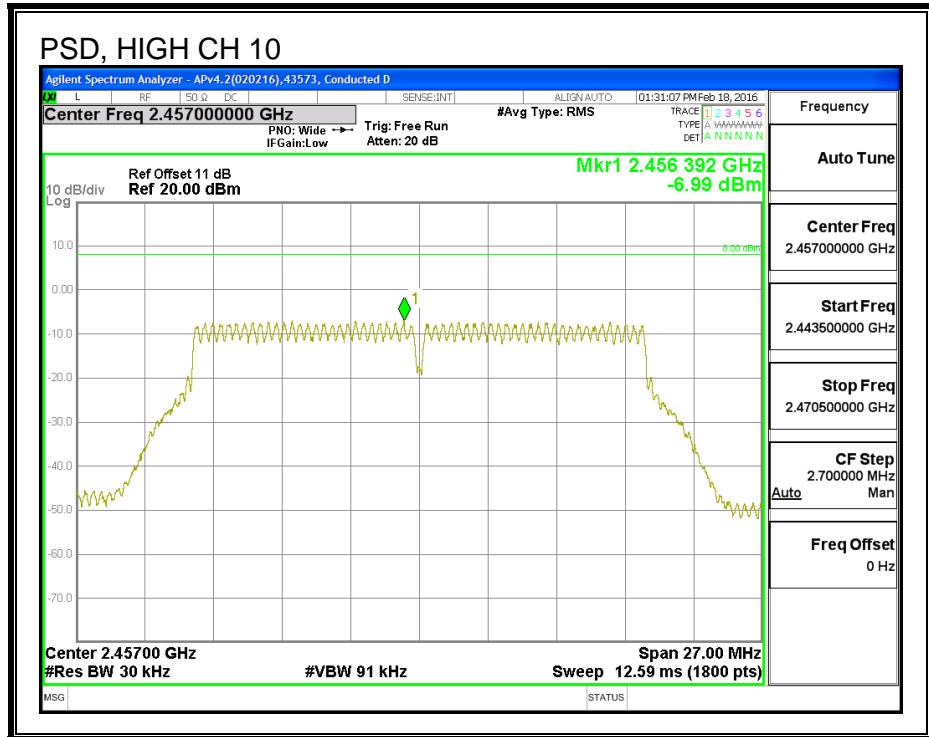
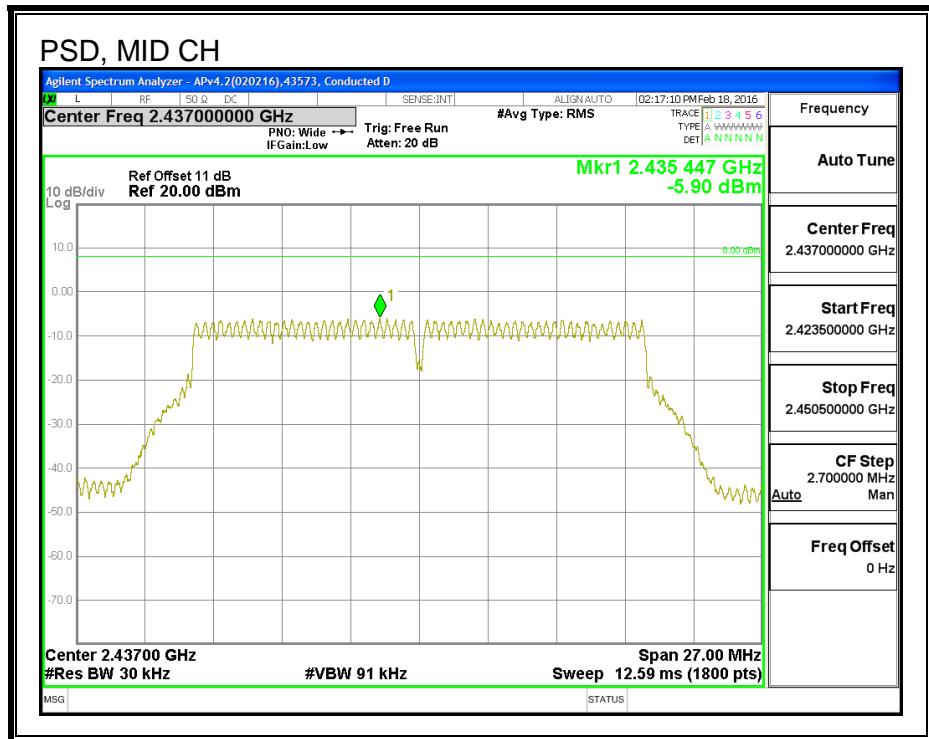
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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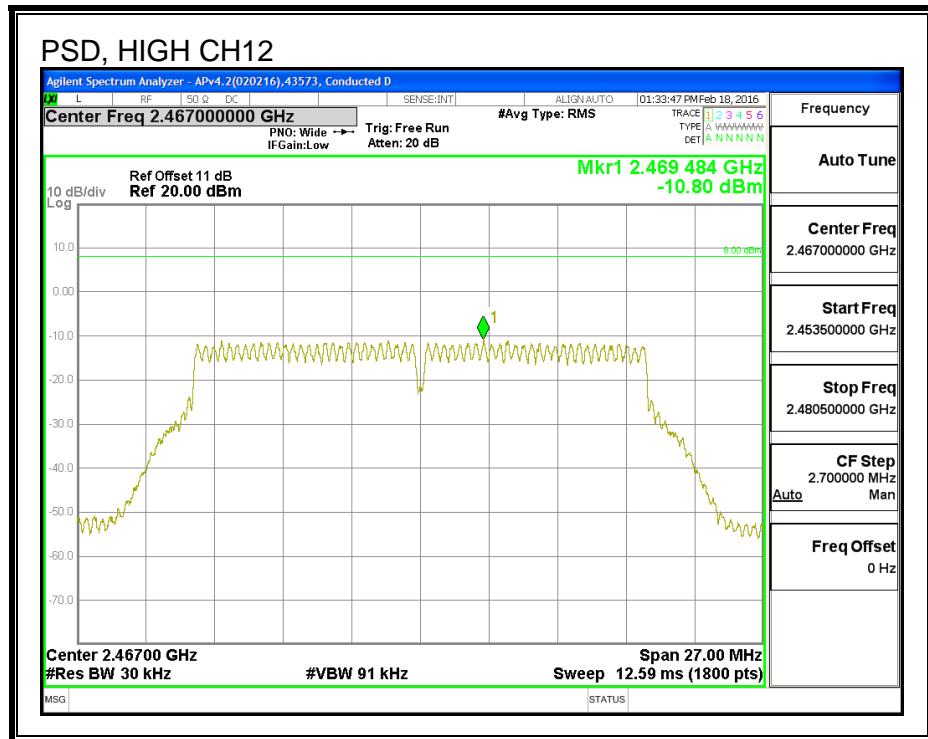
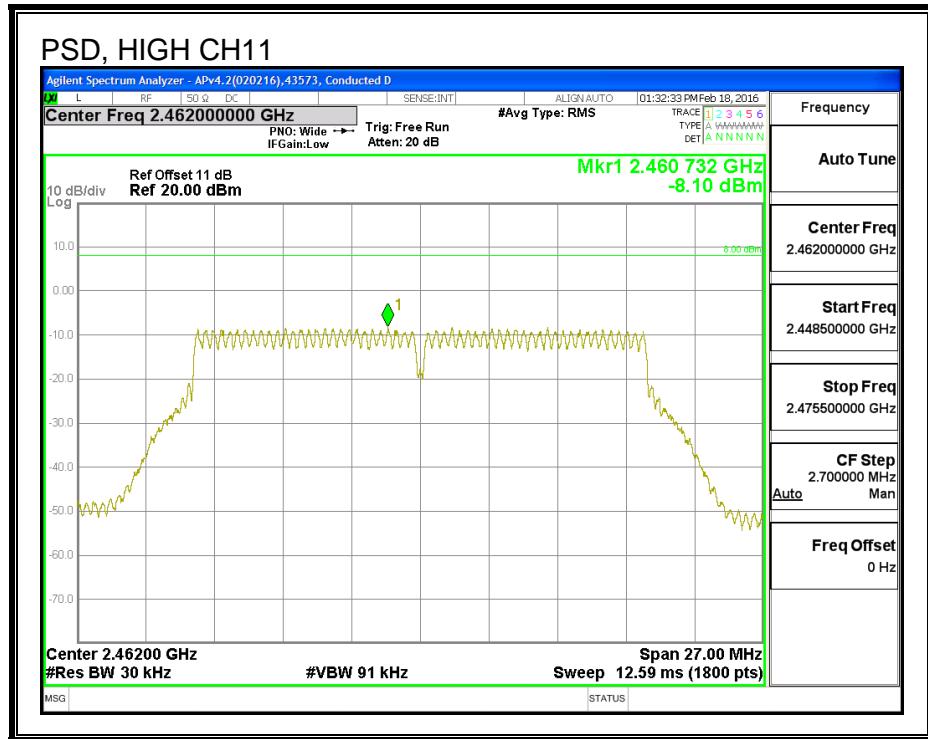
PSD Results

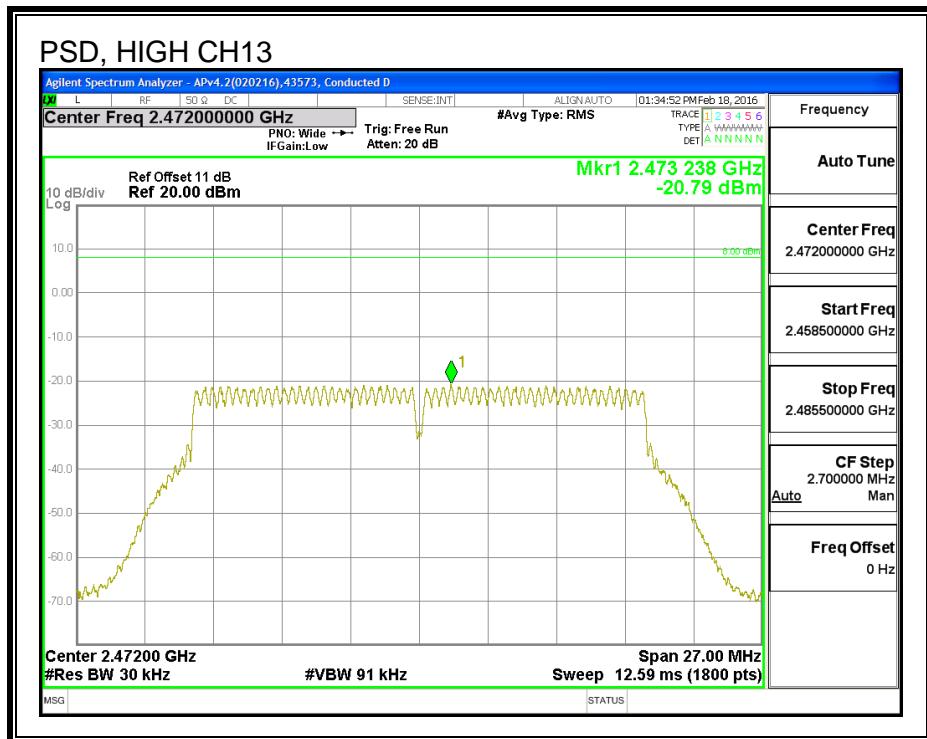
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-9.76	-9.76	8.0	-17.8
Low_2	2417	-7.44	-7.44	8.0	-15.4
Mid_6	2437	-5.90	-5.90	8.0	-13.9
High_10	2457	-6.99	-6.99	8.0	-15.0
High_11	2462	-8.10	-8.10	8.0	-16.1
High_12	2467	-10.80	-10.80	8.0	-18.8
High_13	2472	-20.79	-20.79	8.0	-28.8

PSD









8.6.5. OUT-OF-BAND EMISSIONS

LIMITS

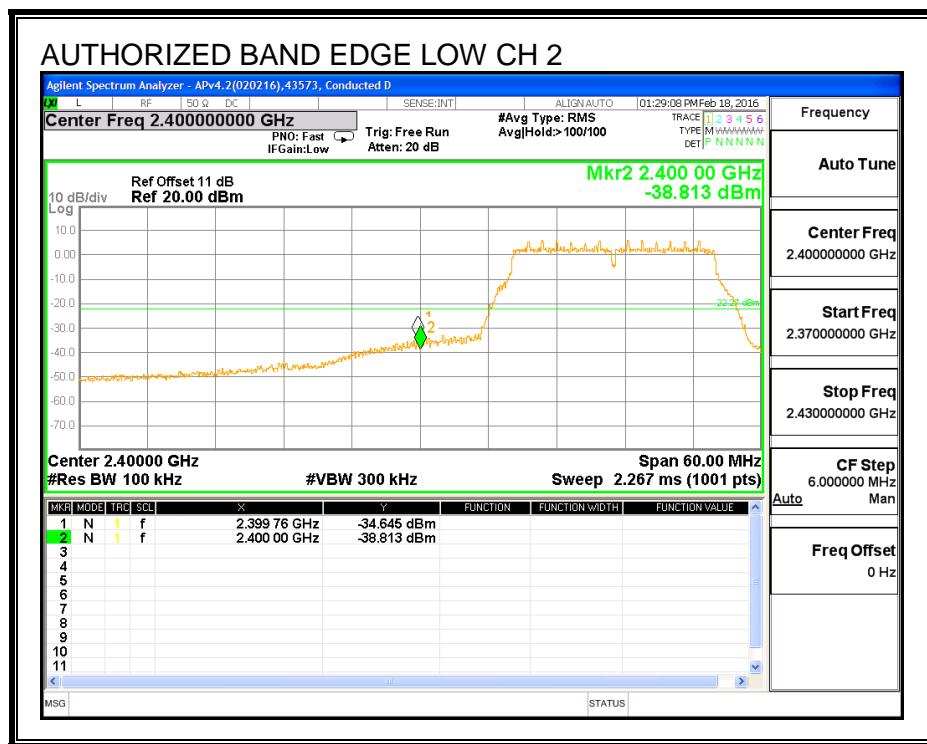
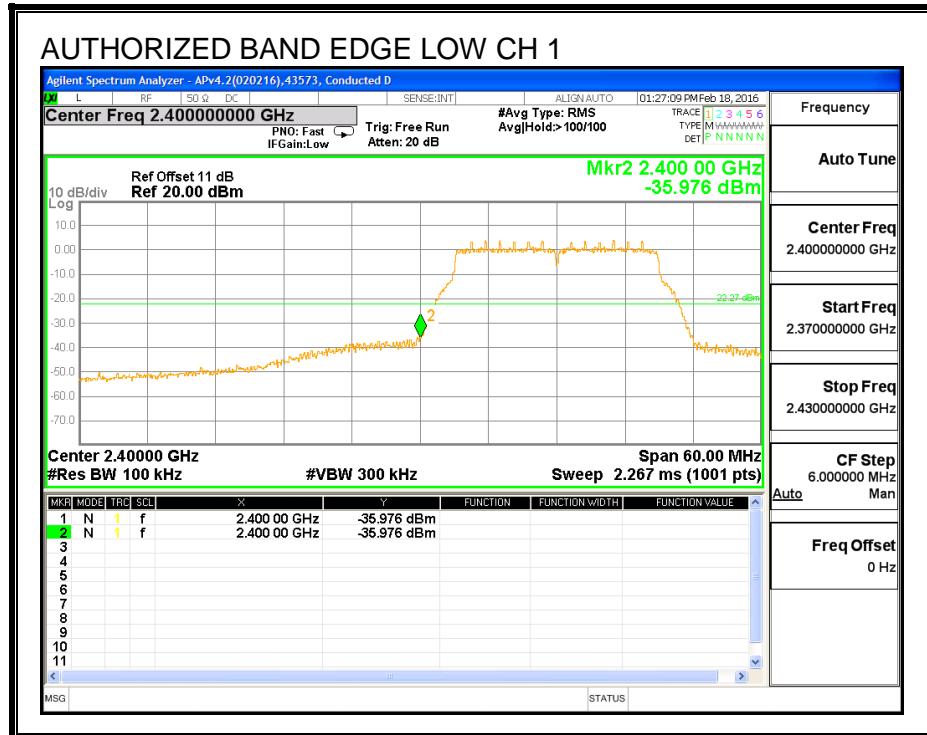
FCC §15.247 (d)

IC RSS-247 (5.5)

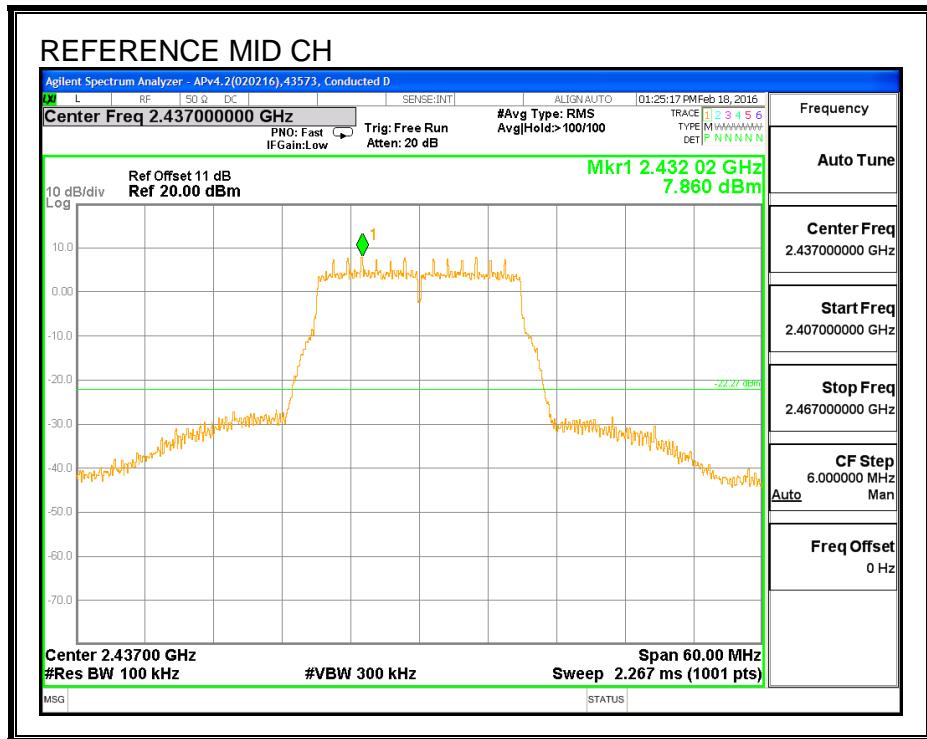
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

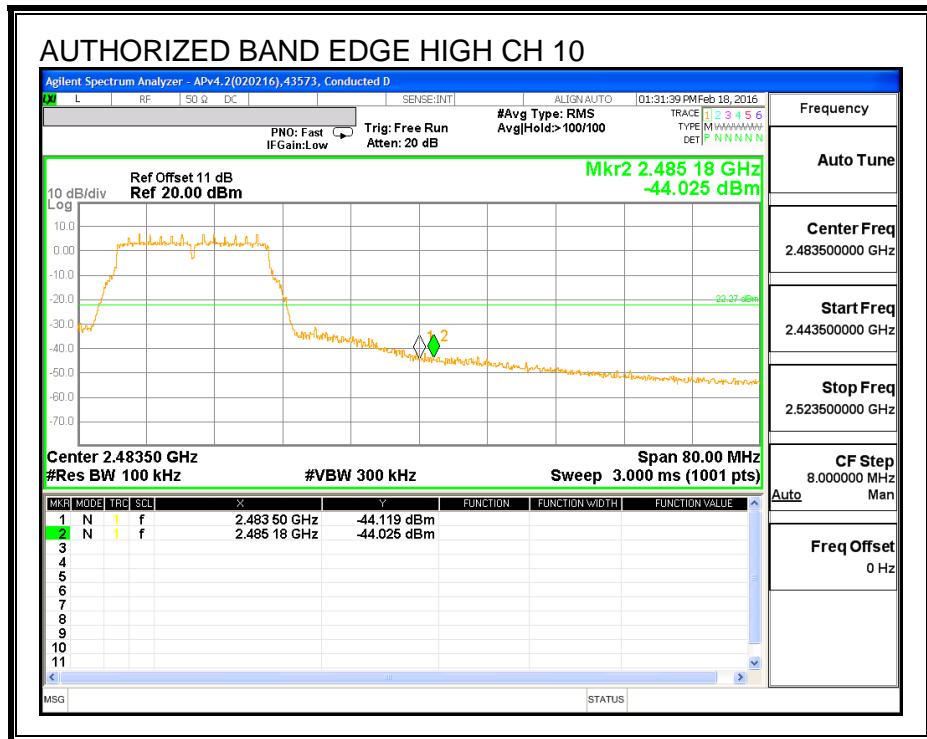
LOW CHANNEL BANDEDGE

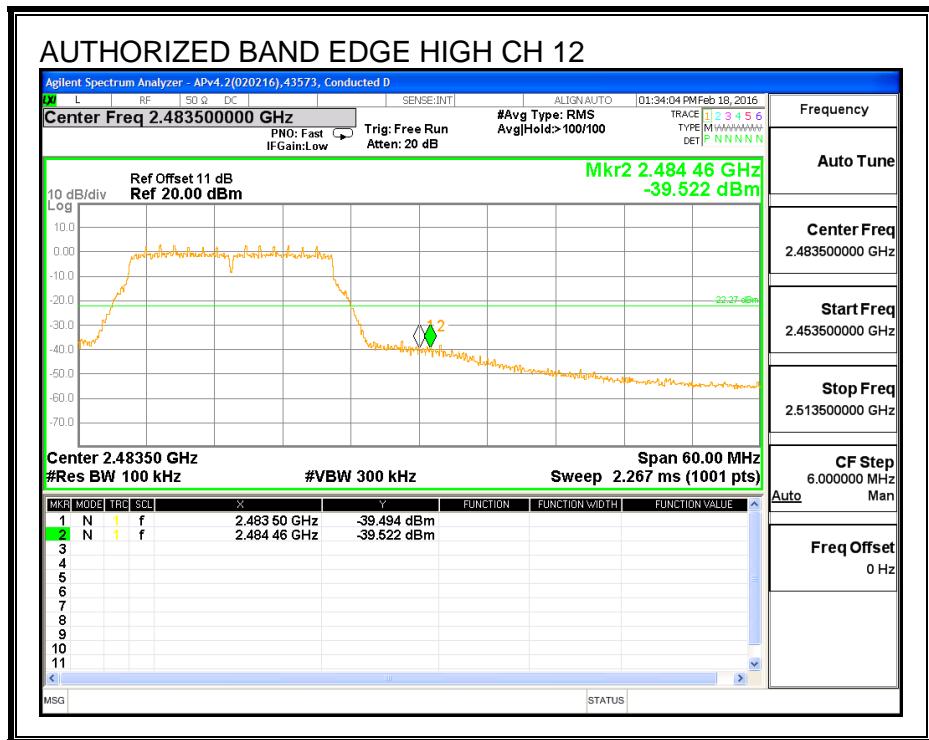
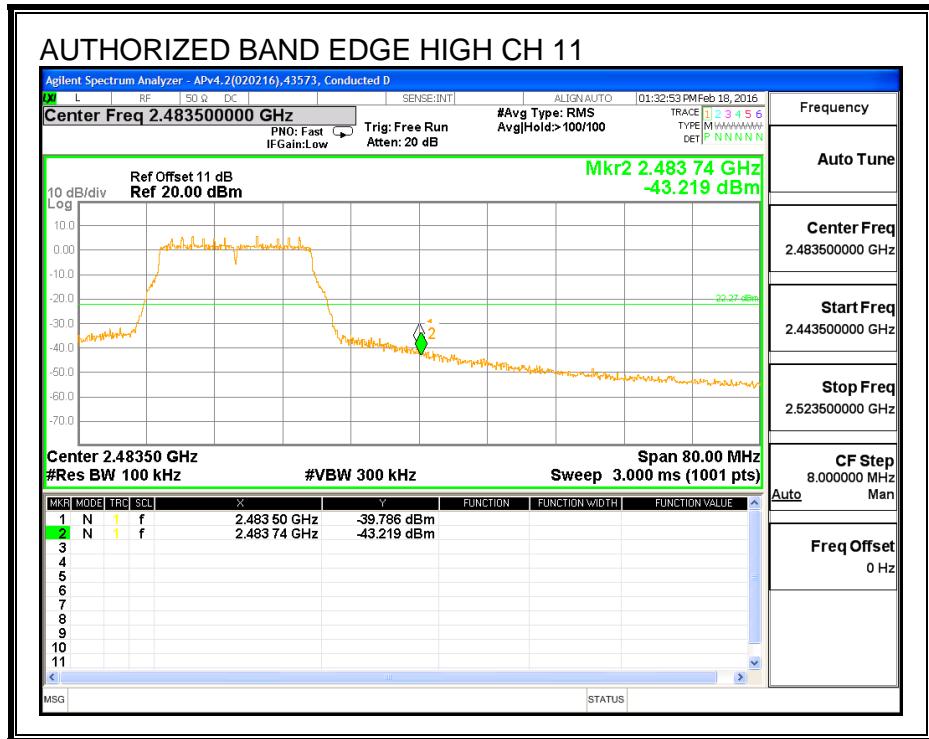


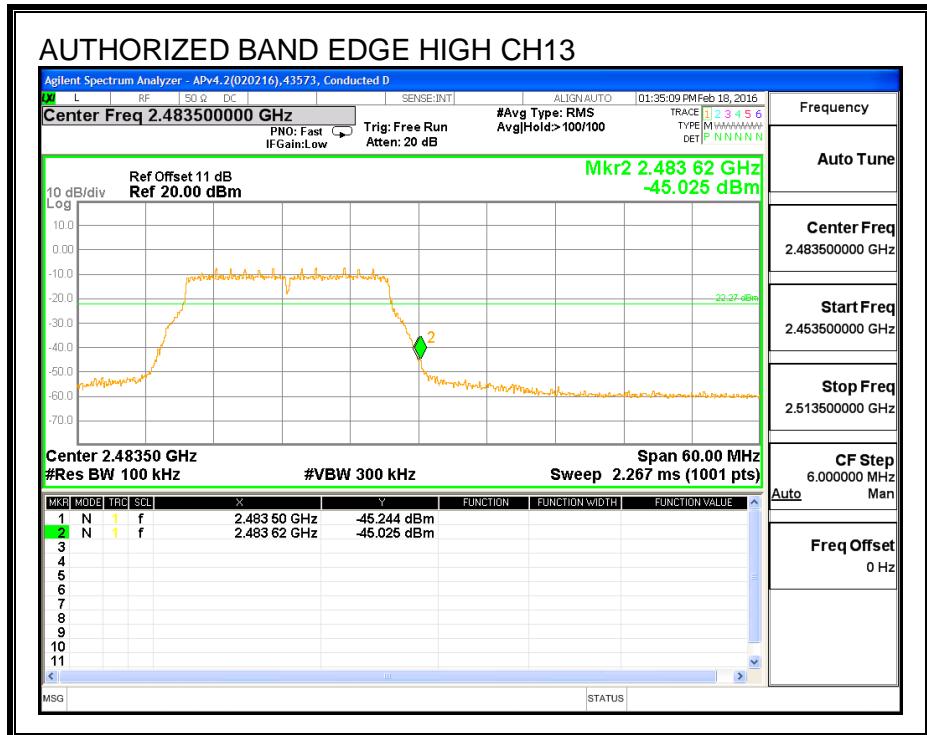
MID CHANNEL REFERENCE



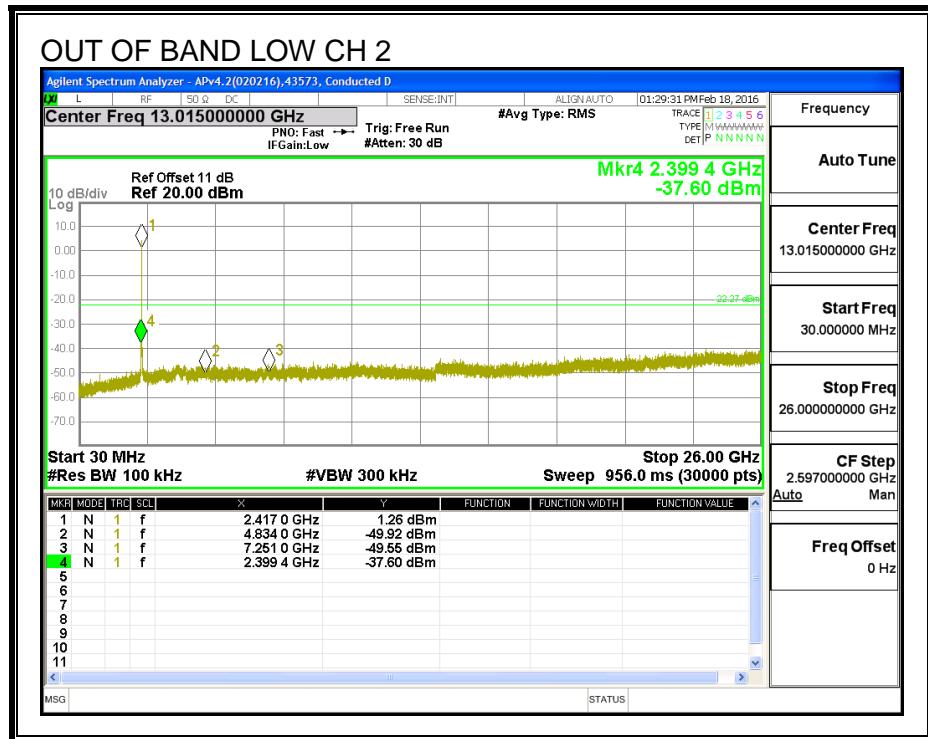
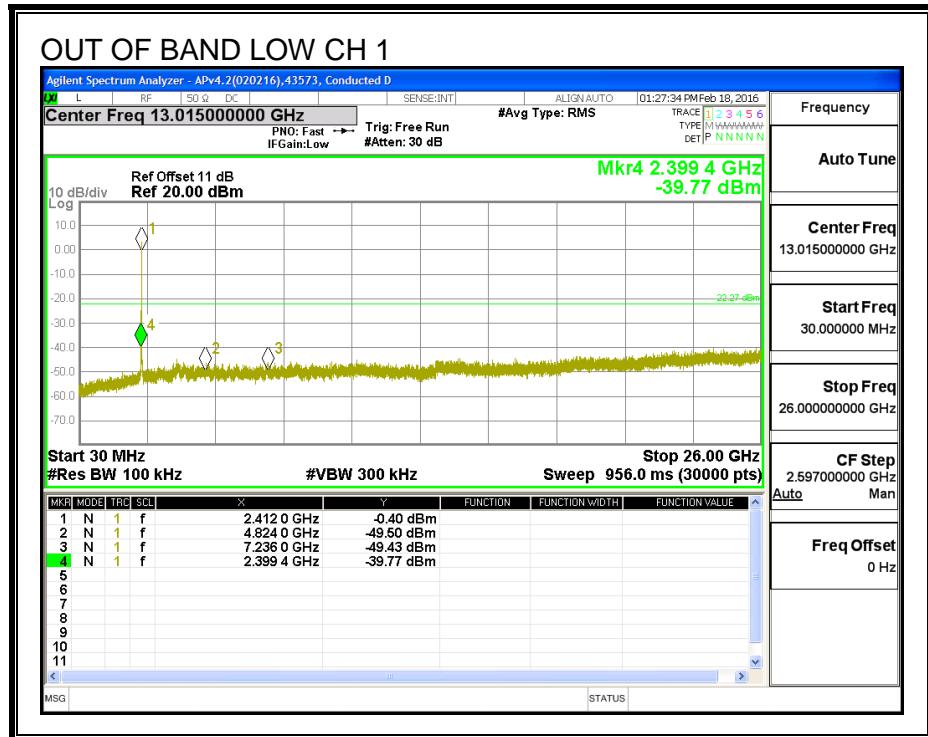
HIGH CHANNEL BANDEDGE

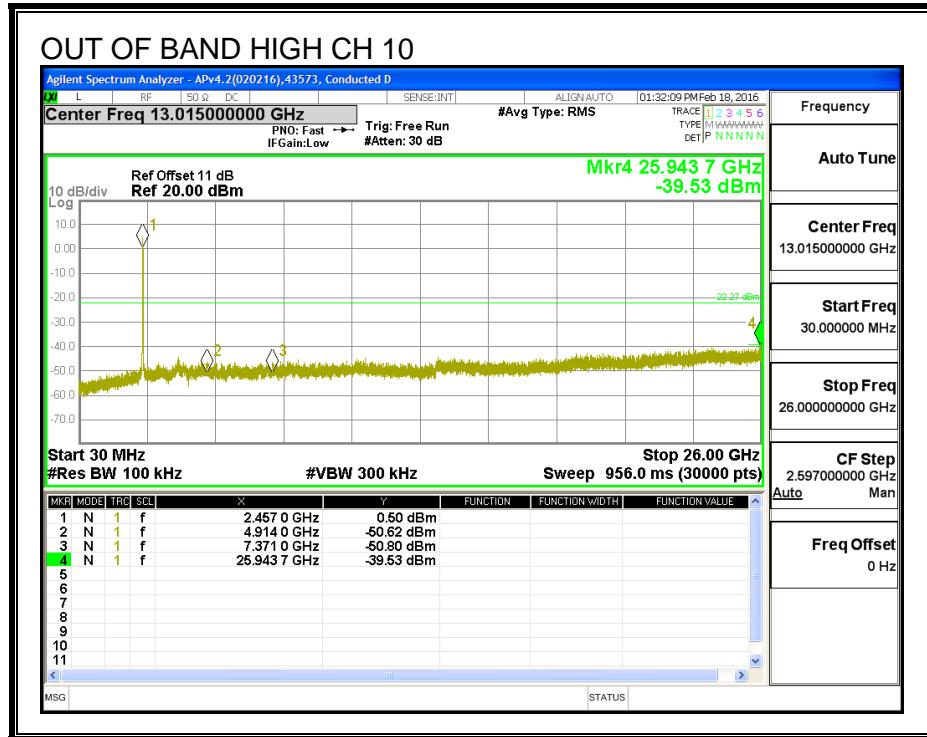
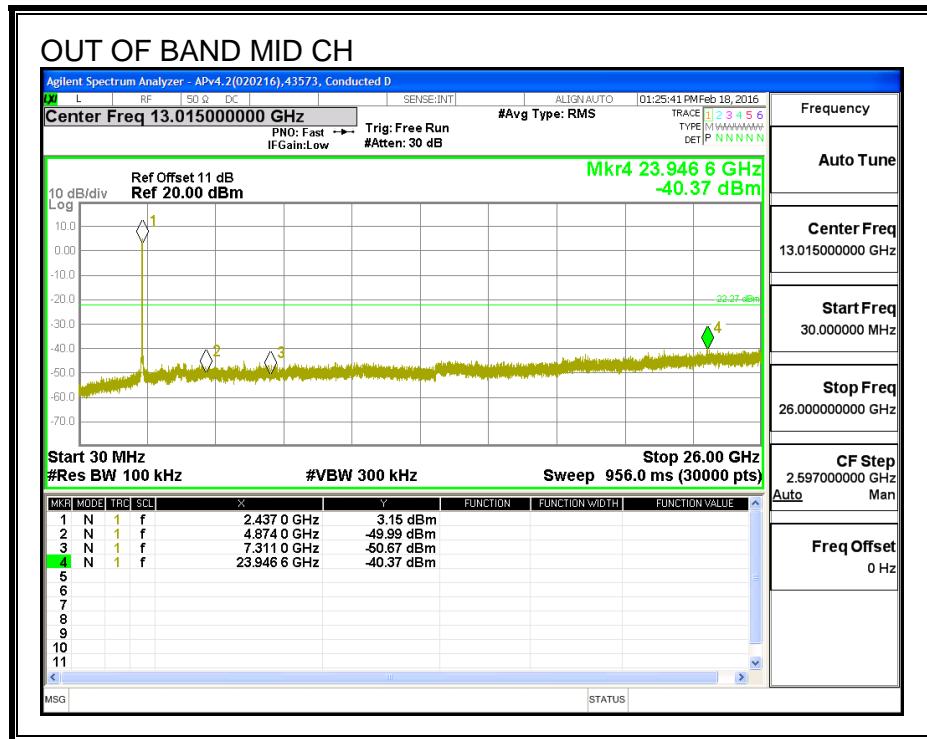


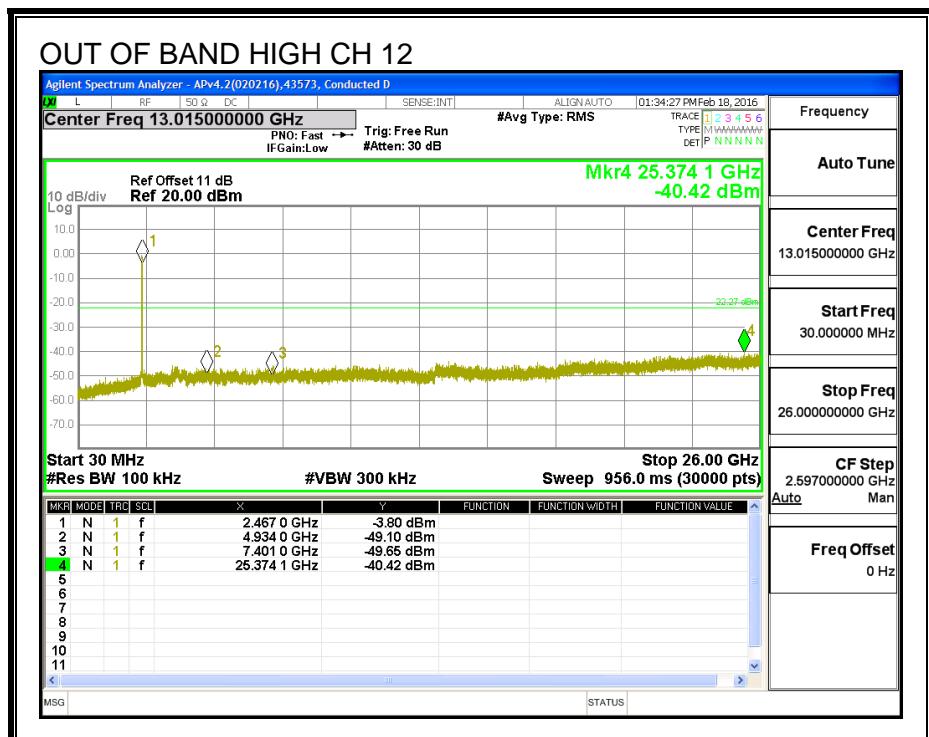
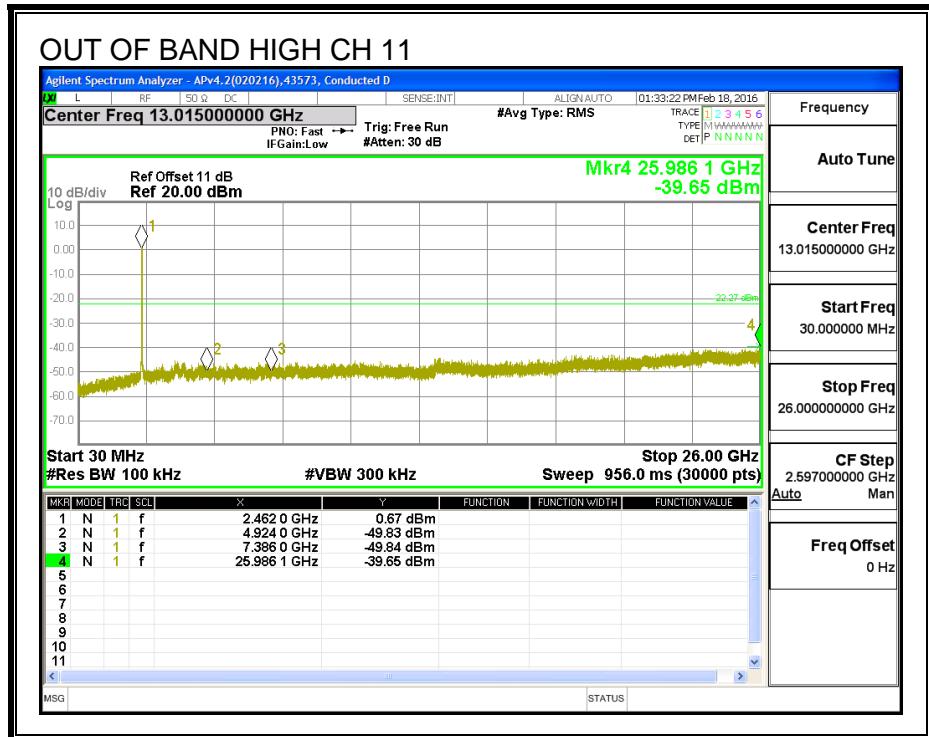


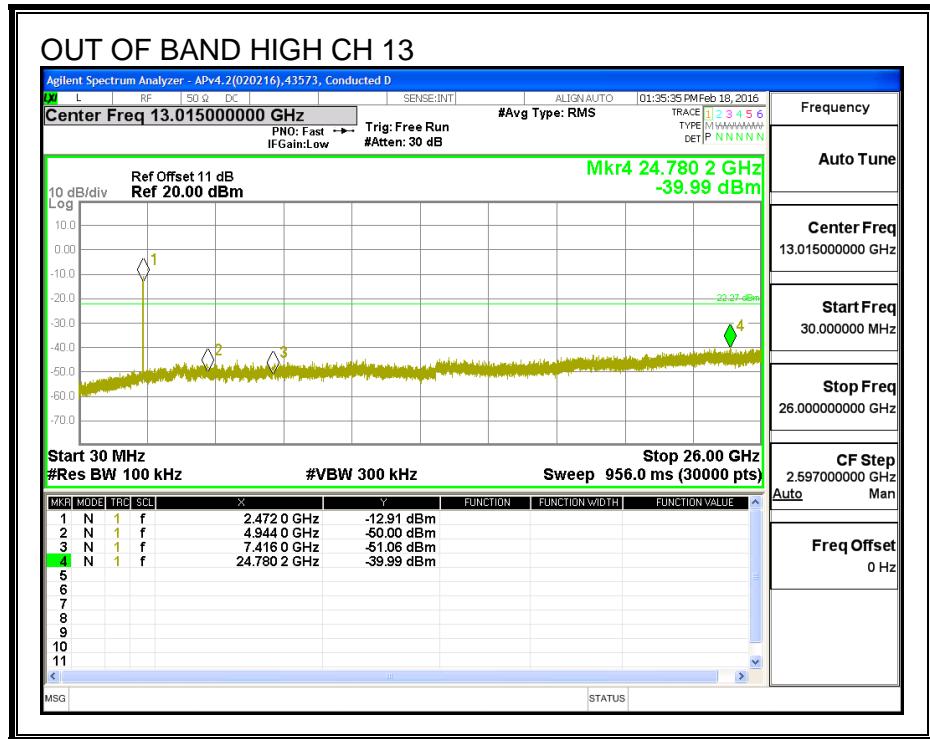


OUT-OF-BAND EMISSIONS









8.7. 802.11n HT20 SISO MODE IN THE 2.4 GHz BAND, CHAIN 1

8.7.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

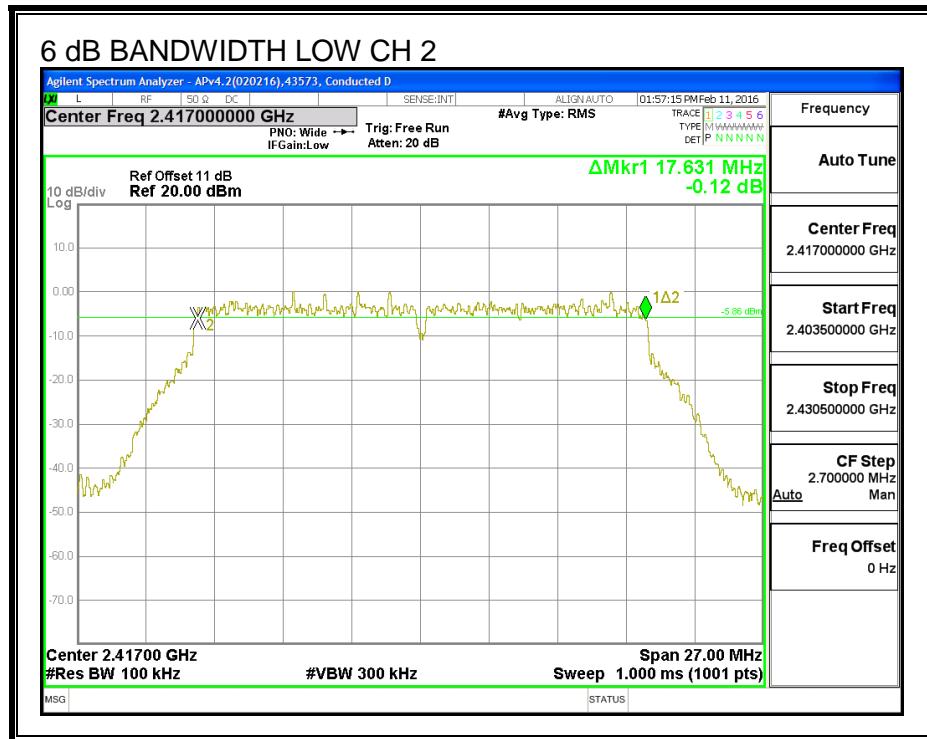
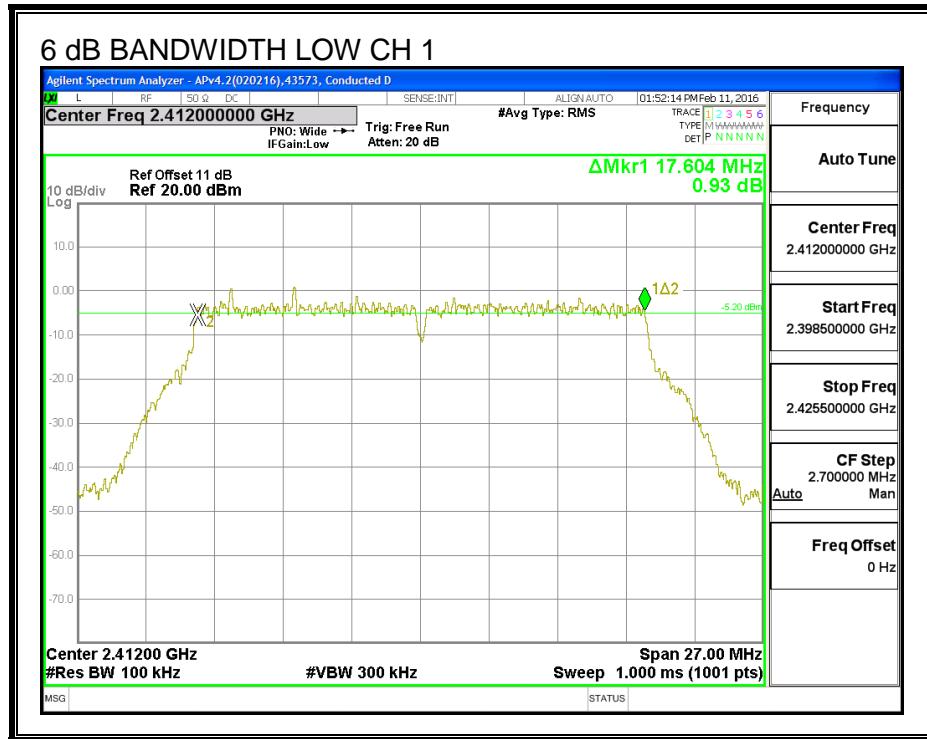
IC RSS-247 (5.2) (1)

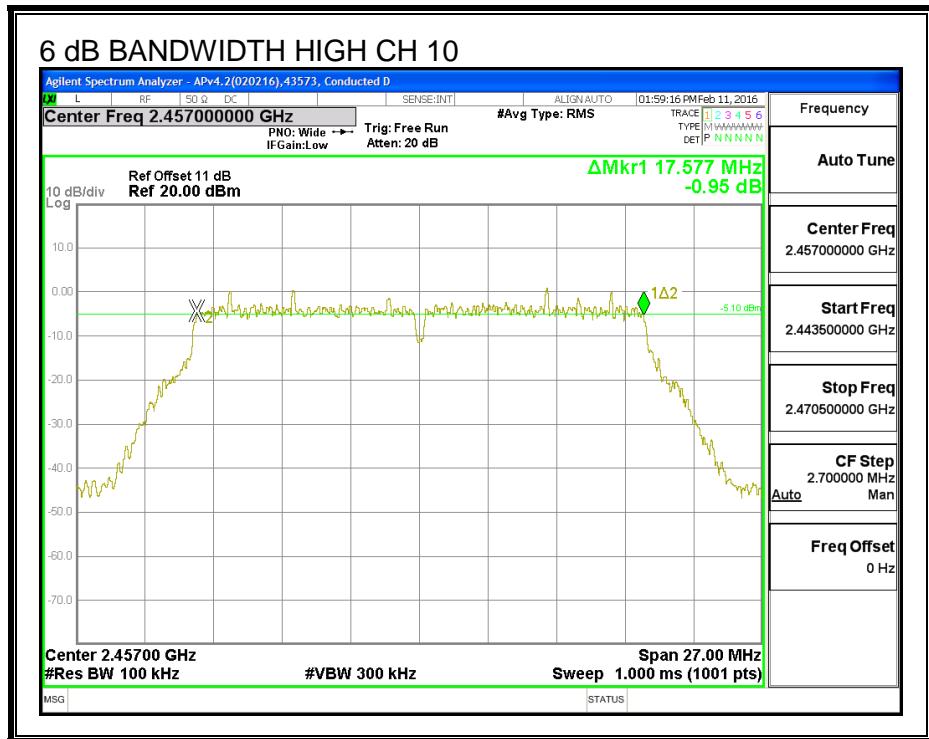
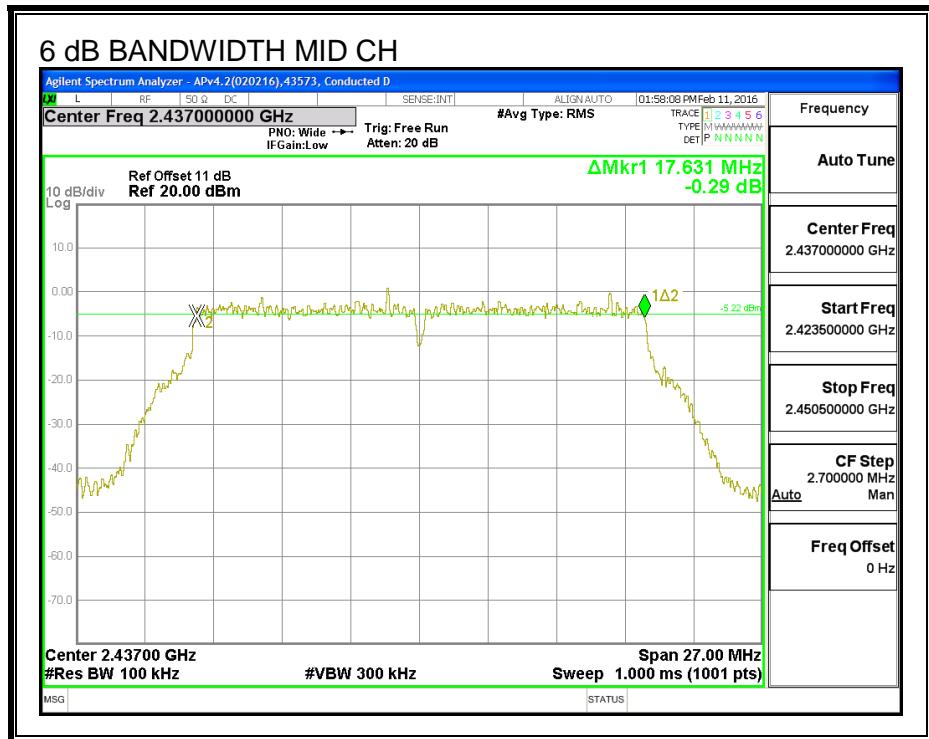
The minimum 6 dB bandwidth shall be at least 500 kHz.

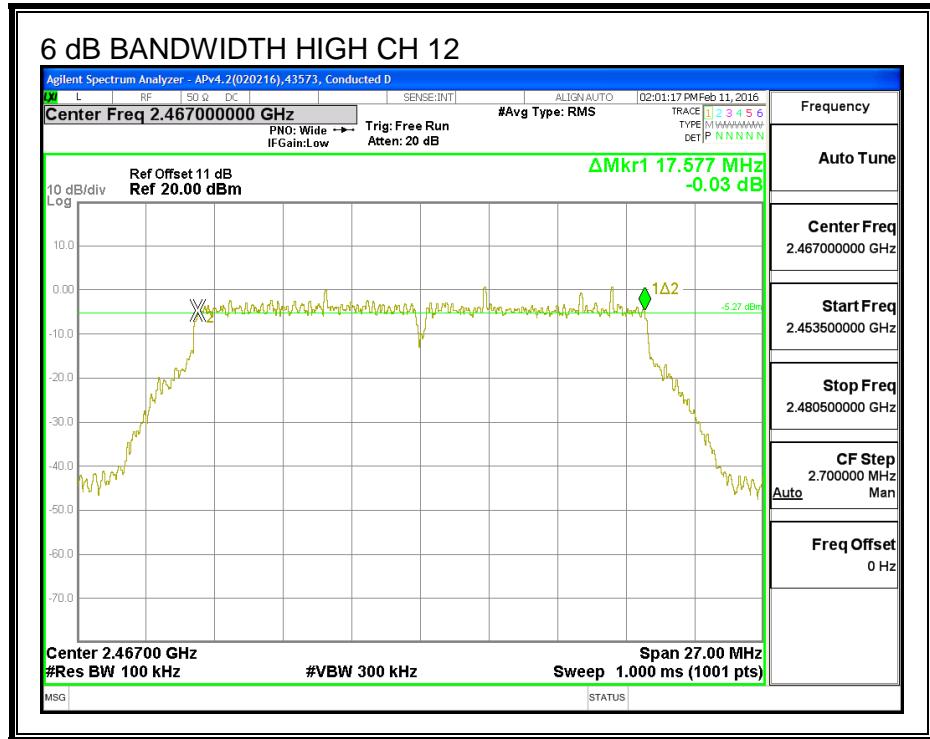
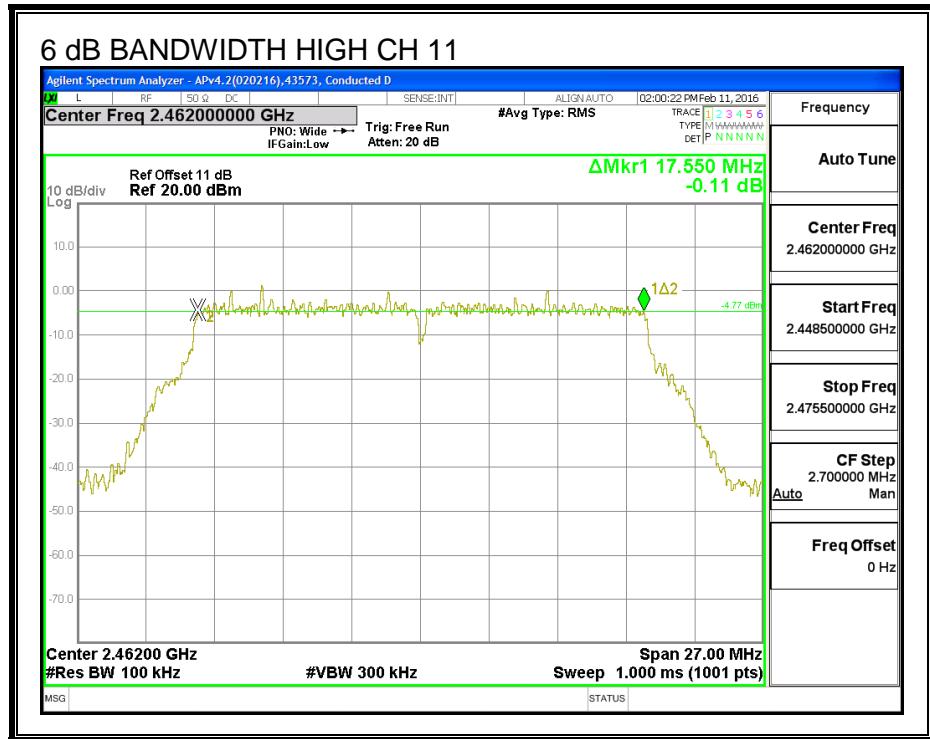
RESULTS

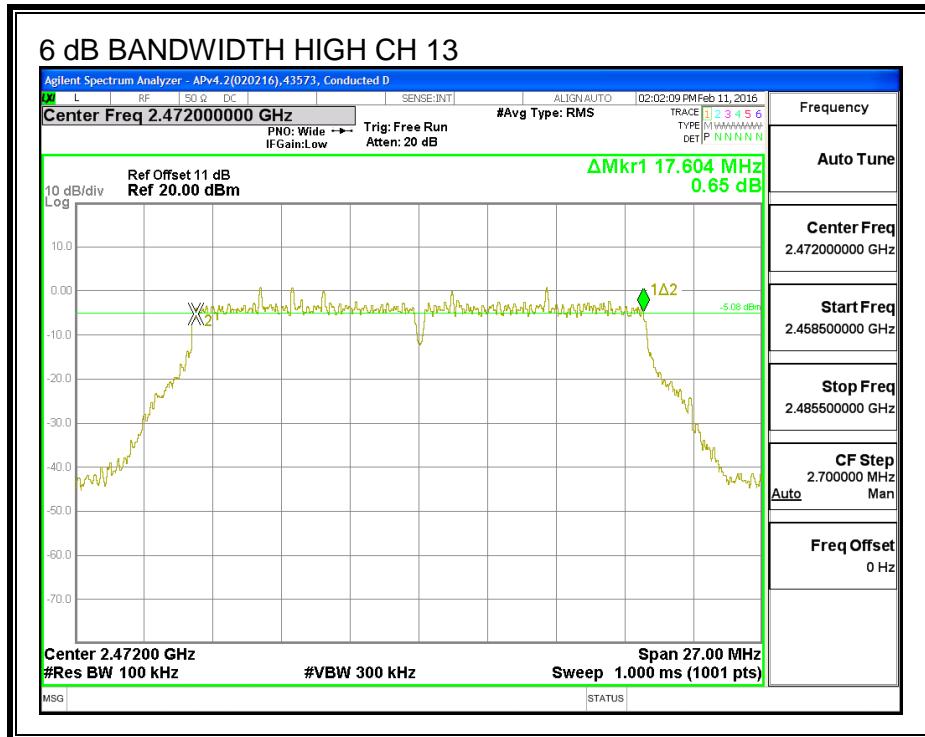
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low_1	2412	17.60	0.5
Low_2	2417	17.63	0.5
Mid_6	2437	17.63	0.5
High_10	2457	17.58	0.5
High_11	2462	17.55	0.5
High_12	2467	17.58	0.5
High_13	2472	17.60	0.5

6 dB BANDWIDTH









8.7.2. 99% BANDWIDTH

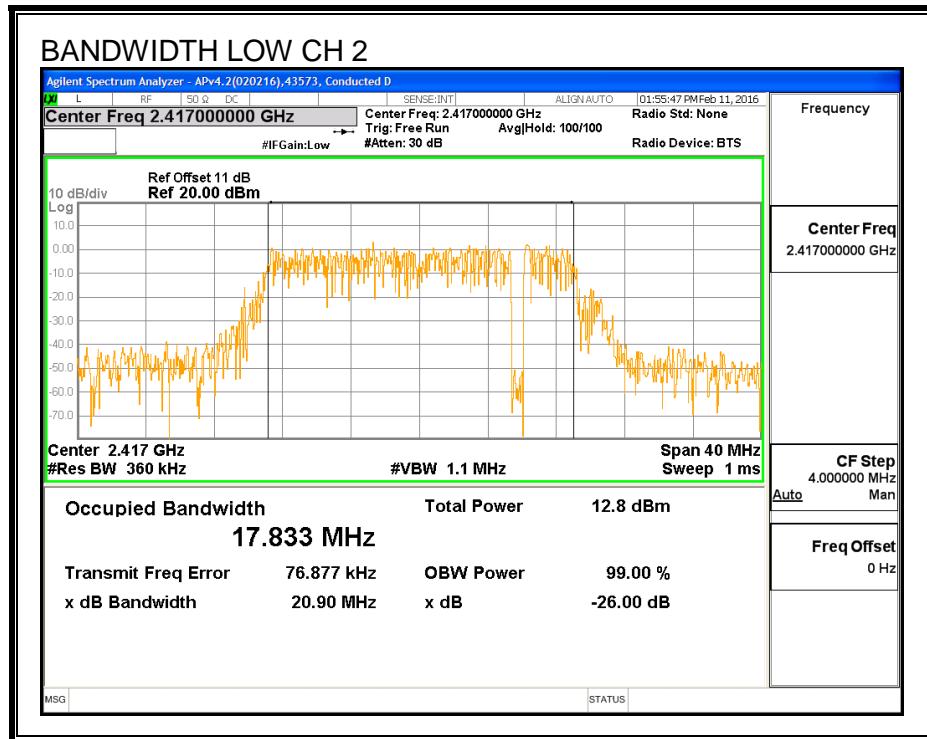
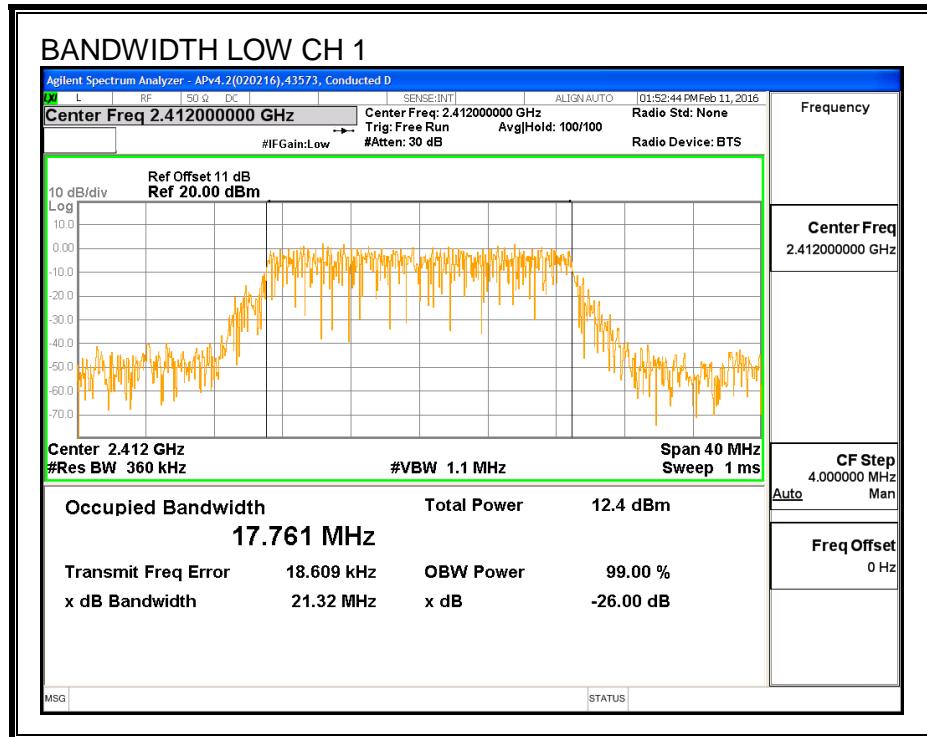
LIMITS

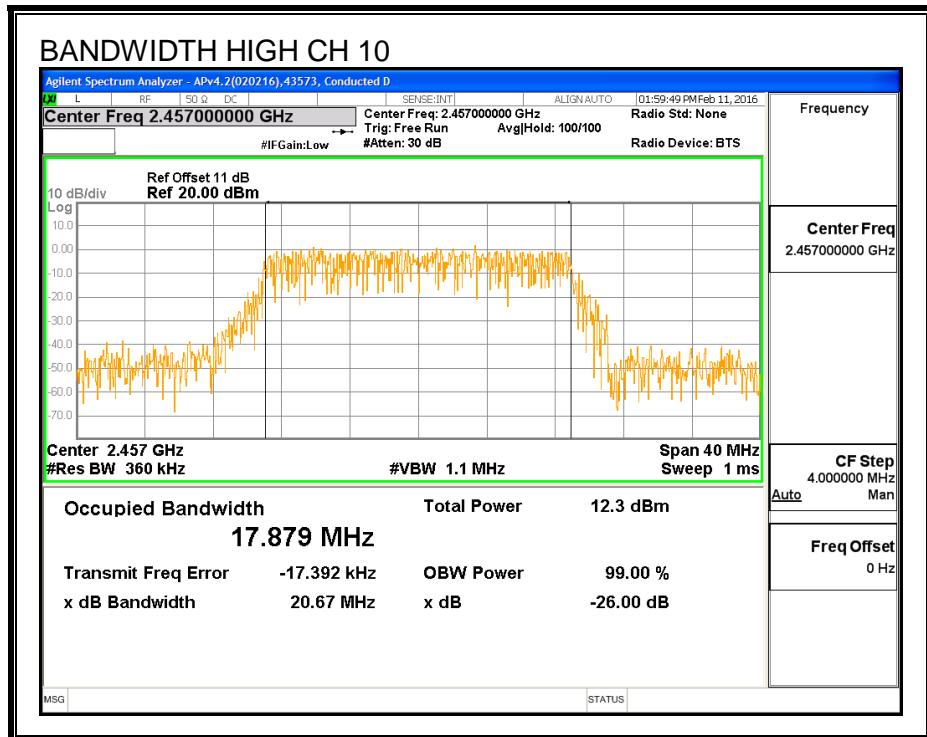
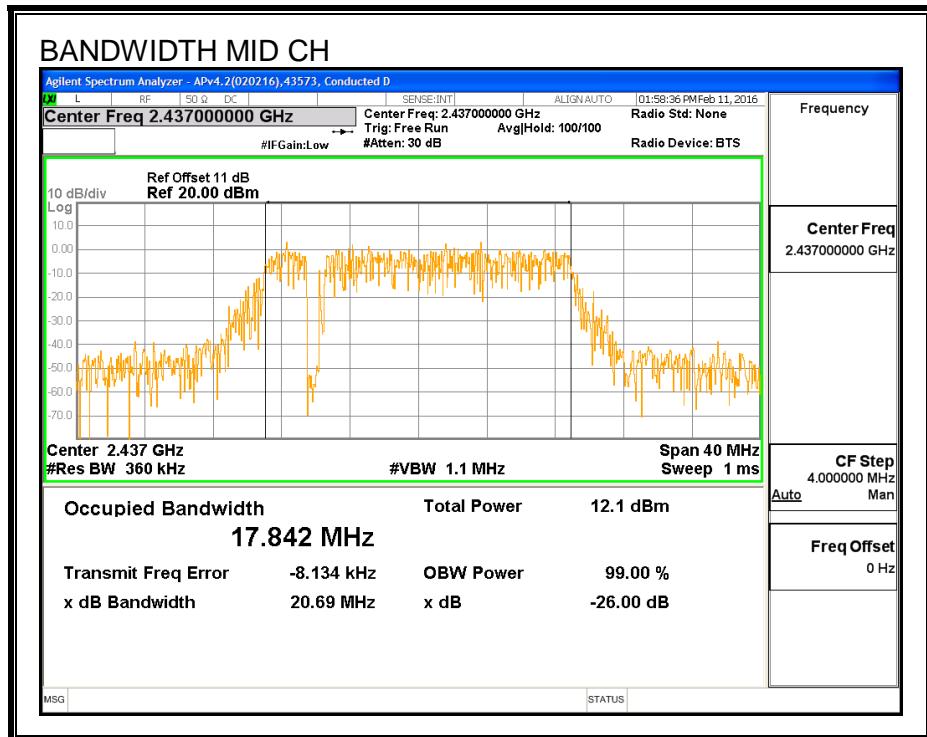
None; for reporting purposes only.

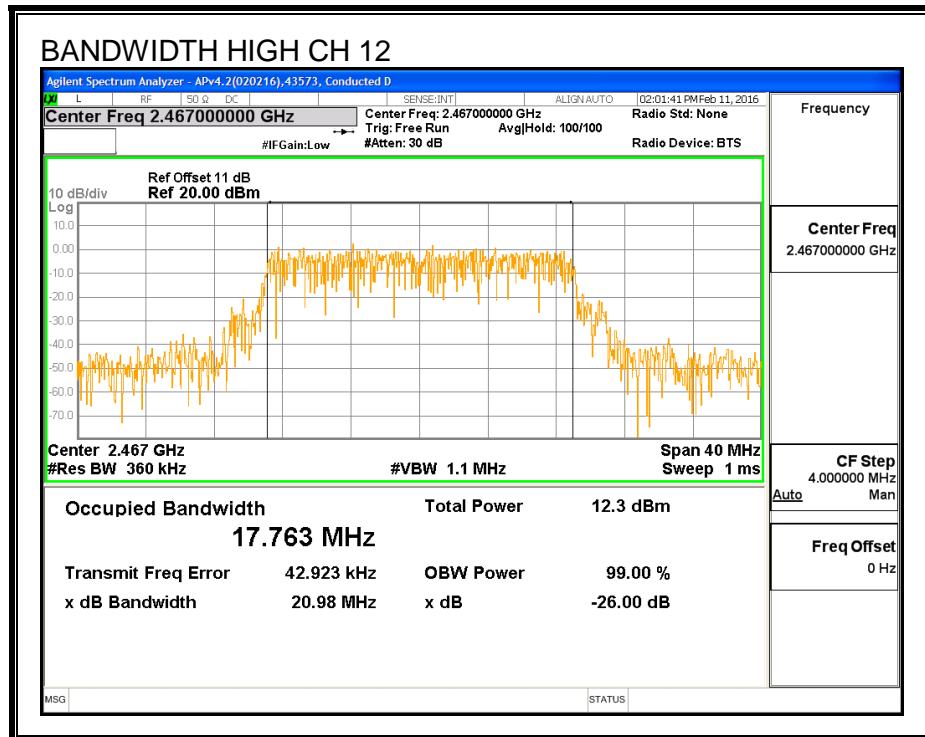
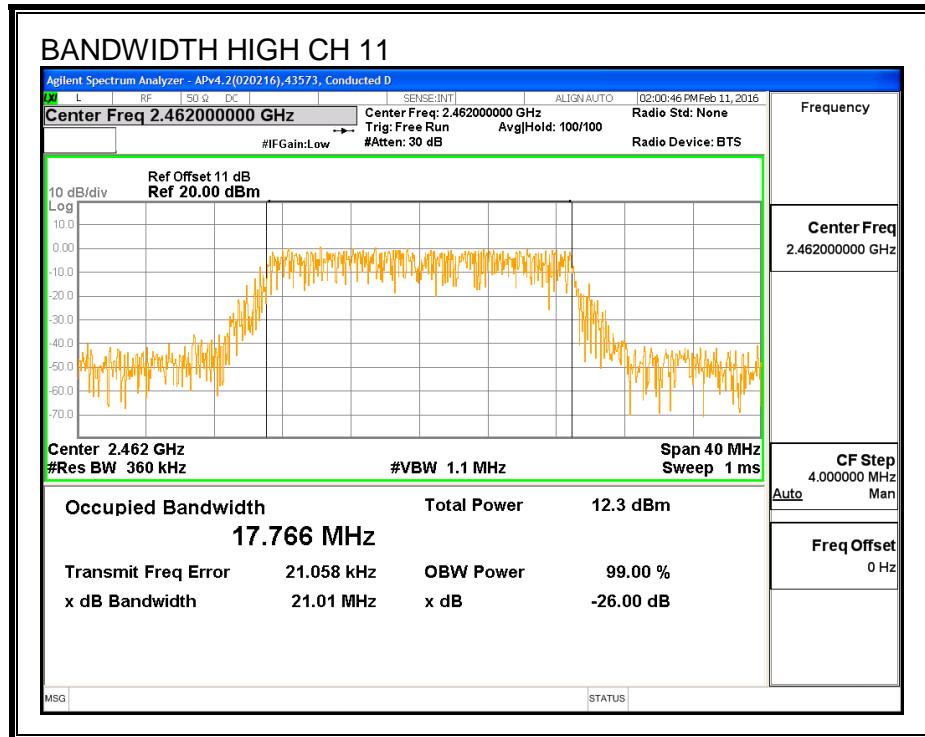
RESULTS

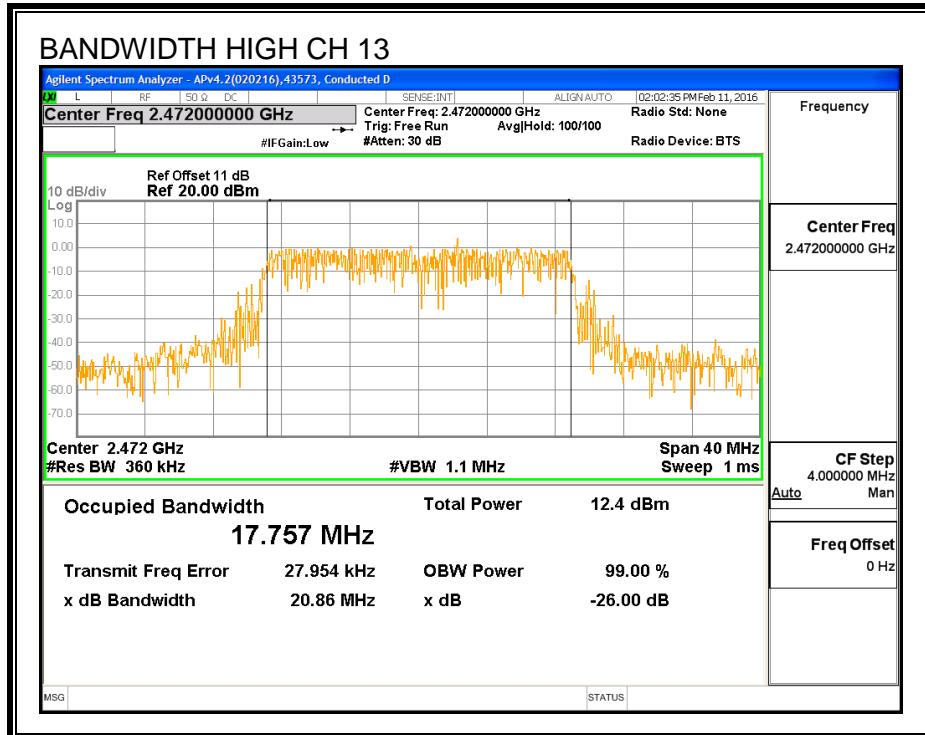
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low_1	2412	17.761
Low_2	2417	17.833
Mid_6	2437	17.842
High_10	2457	17.879
High_11	2462	17.766
High_12	2467	17.763
High_13	2472	17.757

99% BANDWIDTH









8.7.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (4)

For systems using digital modulation in the 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

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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	3.40	30.00	30	36	30.00
Low_2	2417	3.40	30.00	30	36	30.00
Mid_6	2437	3.40	30.00	30	36	30.00
High_10	2457	3.40	30.00	30	36	30.00
High_11	2462	3.40	30.00	30	36	30.00
High_12	2467	3.40	30.00	30	36	30.00
High_13	2472	3.40	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low_1	2412	15.29	15.29	30.00	-14.71
Low_2	2417	17.36	17.36	30.00	-12.64
Mid_6	2437	18.83	18.83	30.00	-11.17
High_10	2457	17.94	17.94	30.00	-12.06
High_11	2462	16.90	16.90	30.00	-13.10
High_12	2467	13.88	13.88	30.00	-16.12
High_13	2472	4.84	4.84	30.00	-25.16

8.7.4. 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.

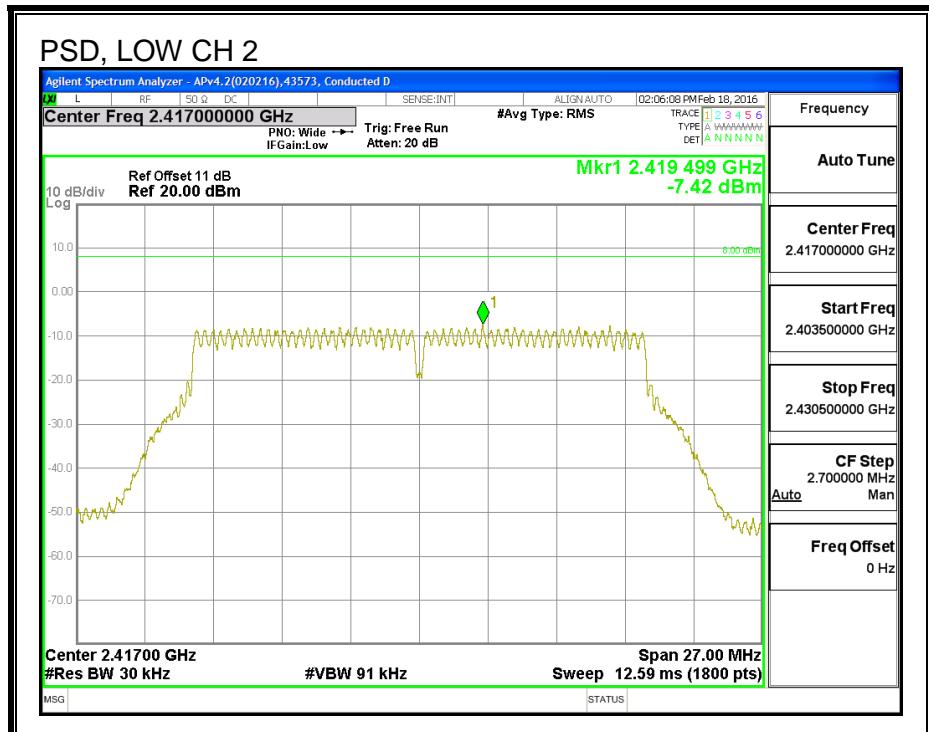
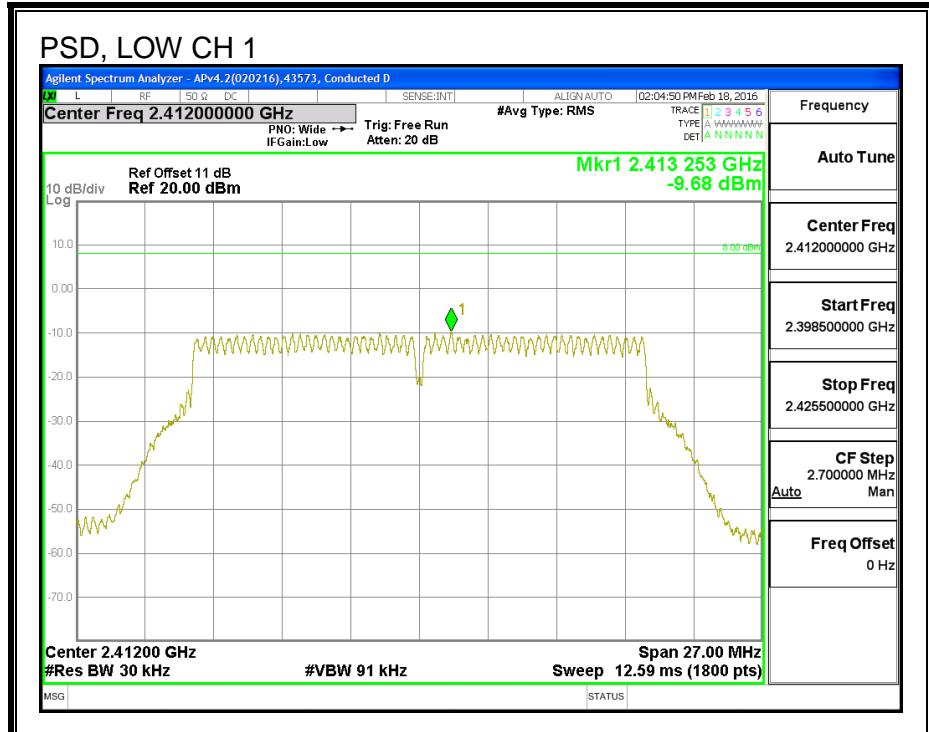
RESULTS

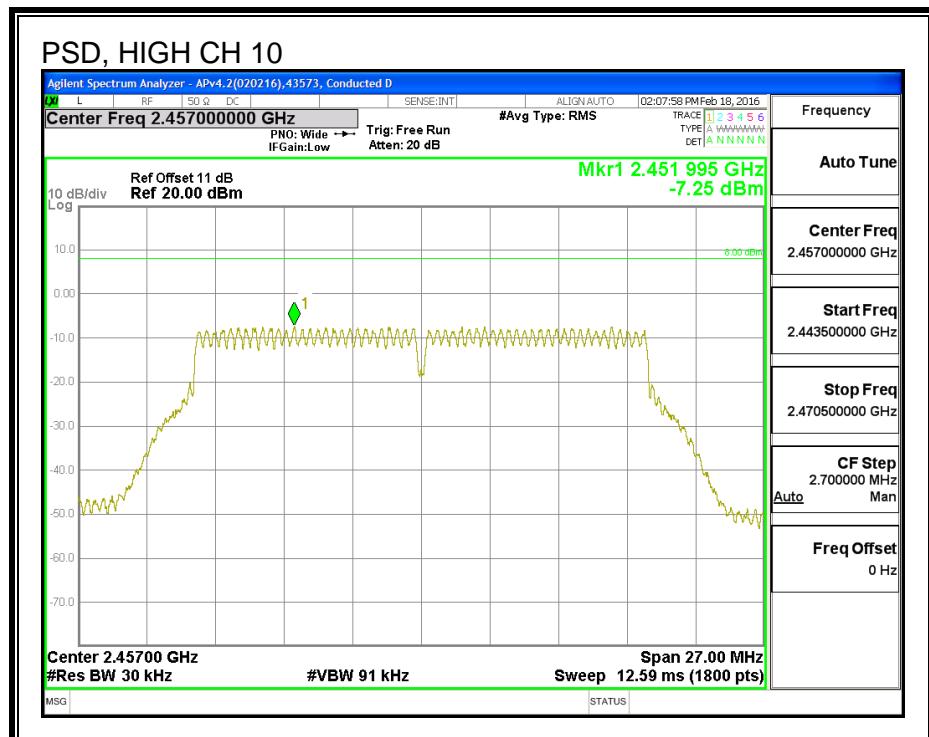
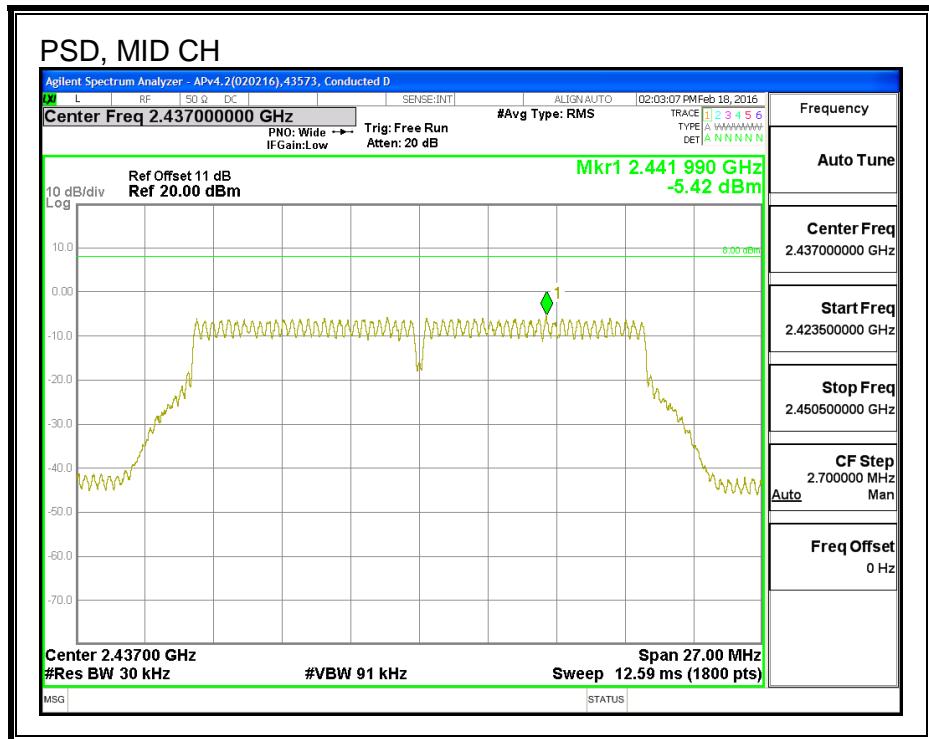
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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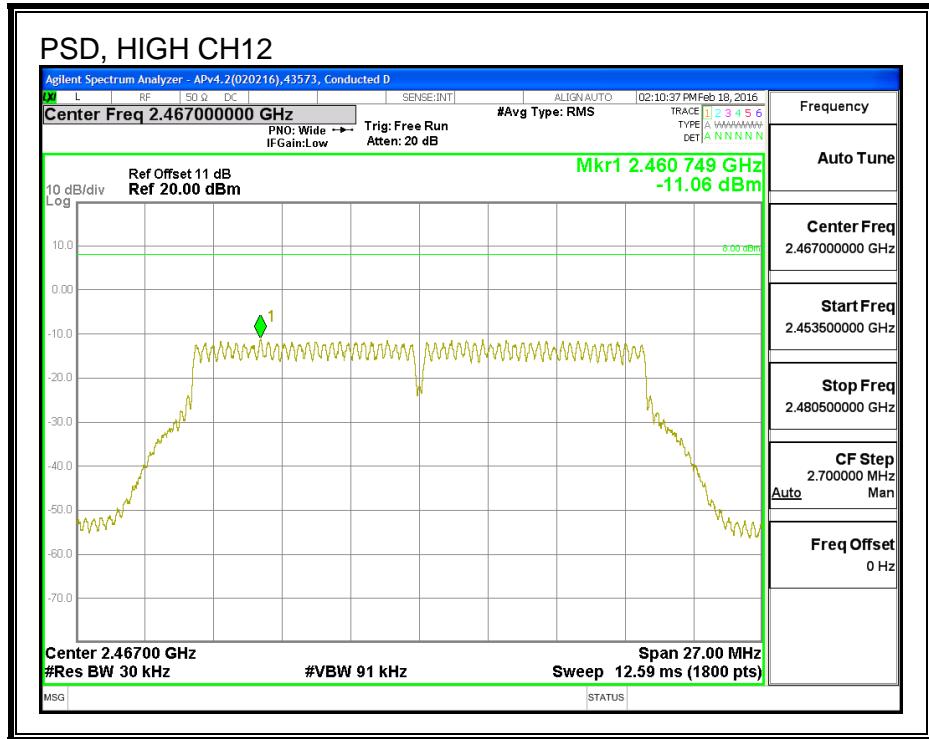
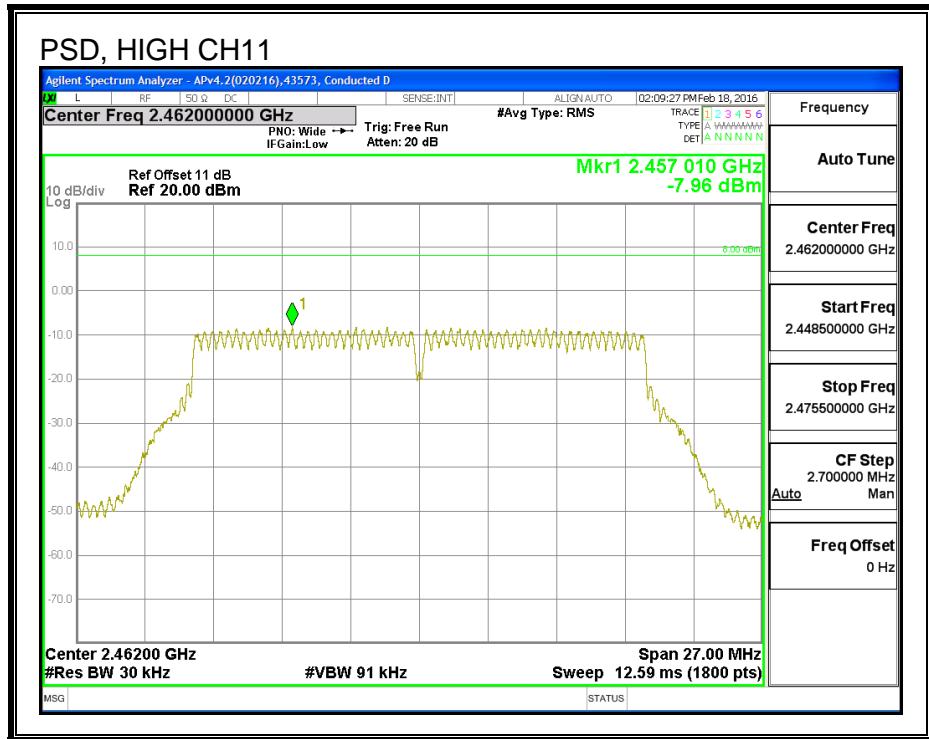
PSD Results

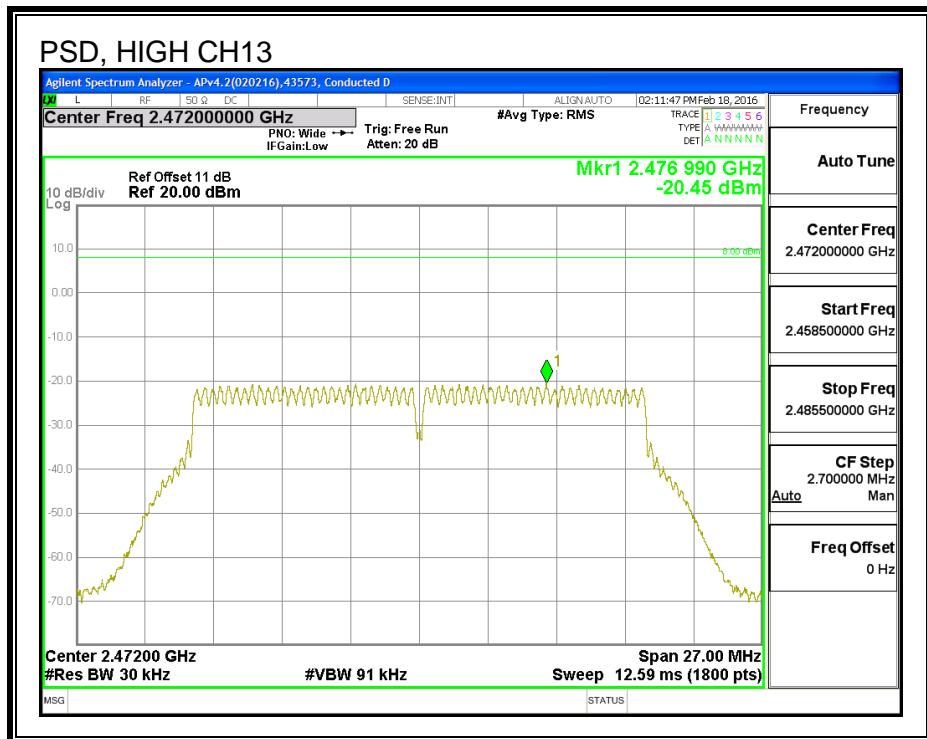
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-9.68	-9.68	8.0	-17.7
Low_2	2417	-7.42	-7.42	8.0	-15.4
Mid_6	2437	-5.42	-5.42	8.0	-13.4
High_10	2457	-7.25	-7.25	8.0	-15.3
High_11	2462	-7.96	-7.96	8.0	-16.0
High_12	2467	-11.06	-11.06	8.0	-19.1
High_13	2472	-20.45	-20.45	8.0	-28.5

PSD









8.7.5. OUT-OF-BAND EMISSIONS

LIMITS

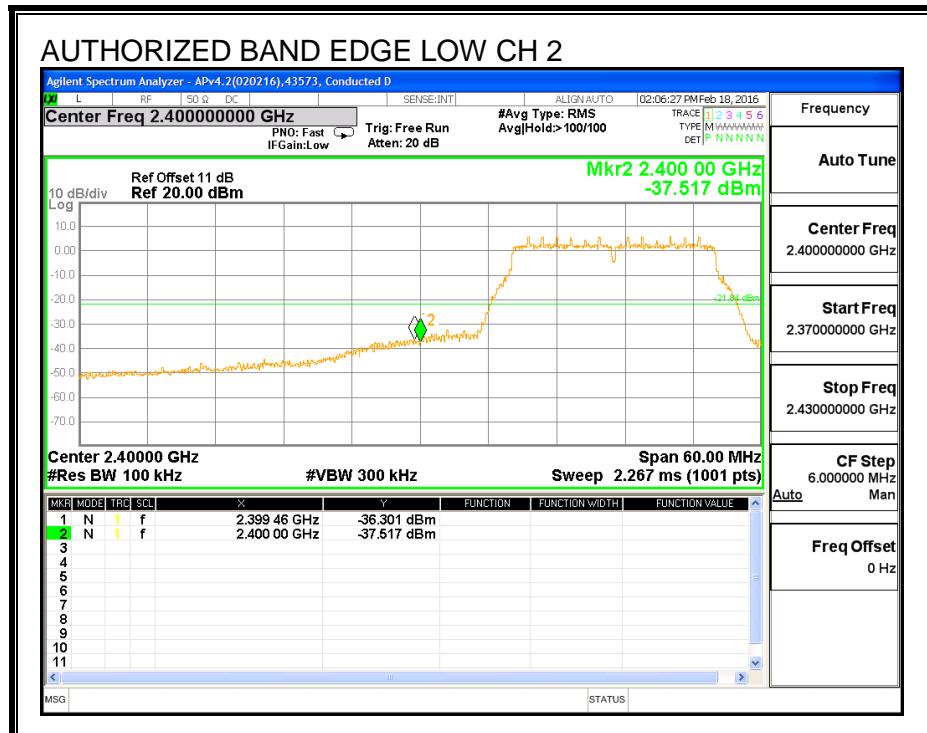
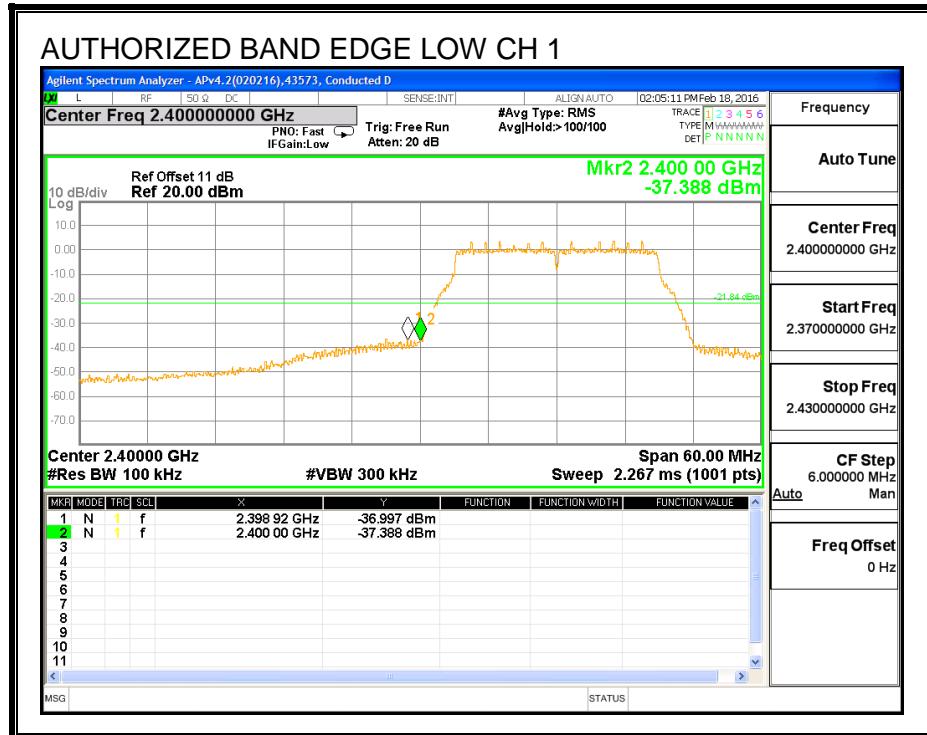
FCC §15.247 (d)

IC RSS-247 (5.5)

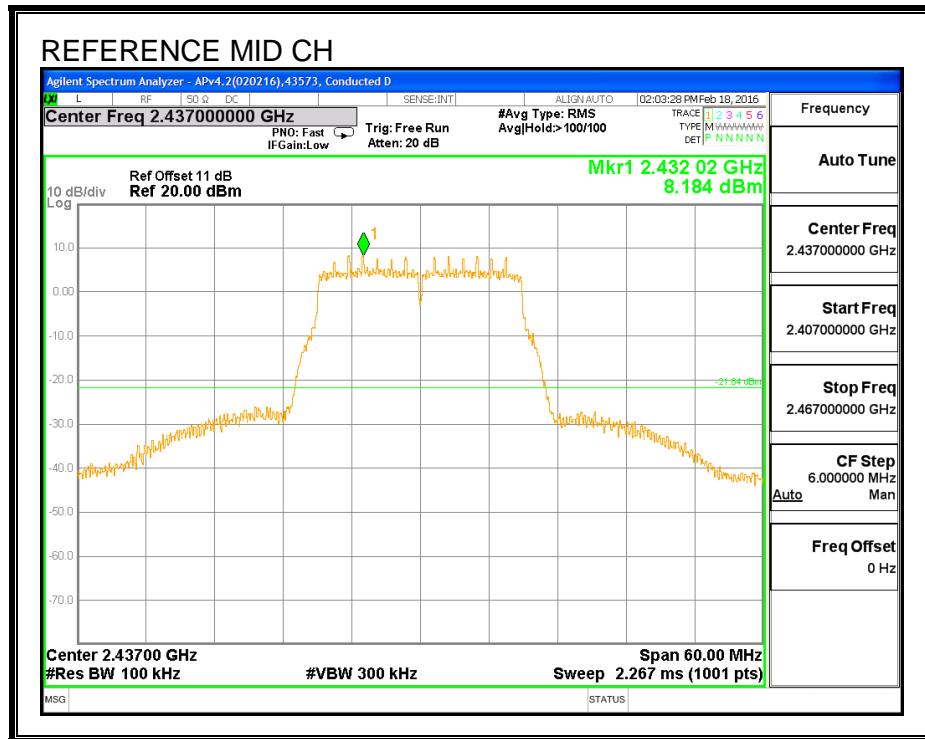
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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



MID CHANNEL REFERENCE



HIGH CHANNEL BANDEDGE

