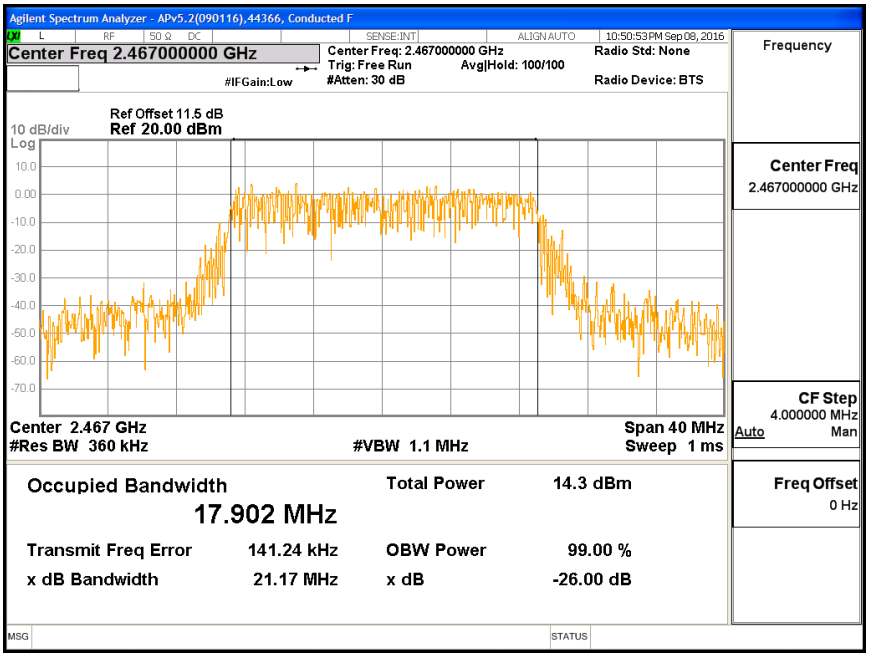
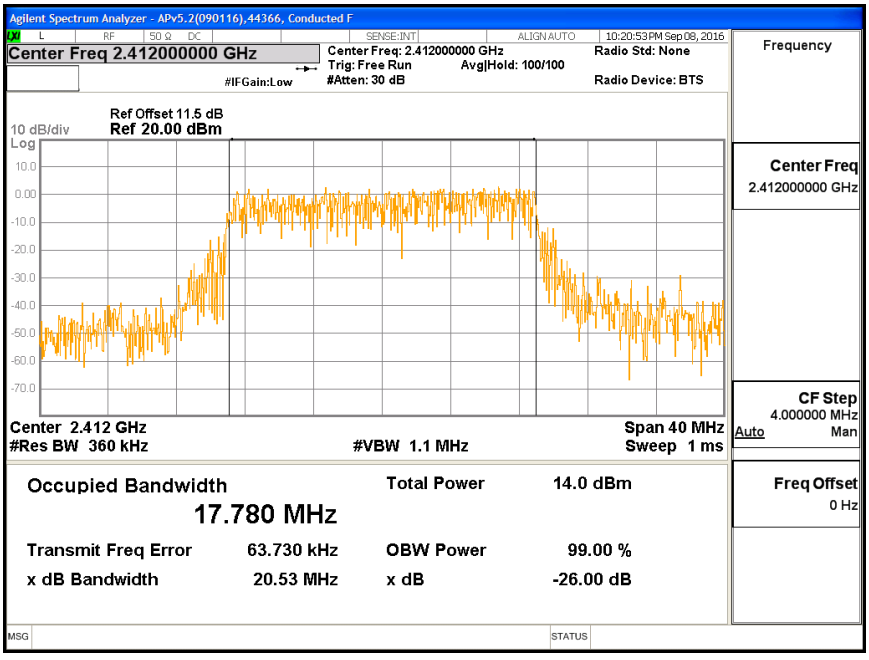
99% BANDWIDTH HIGH CH 12

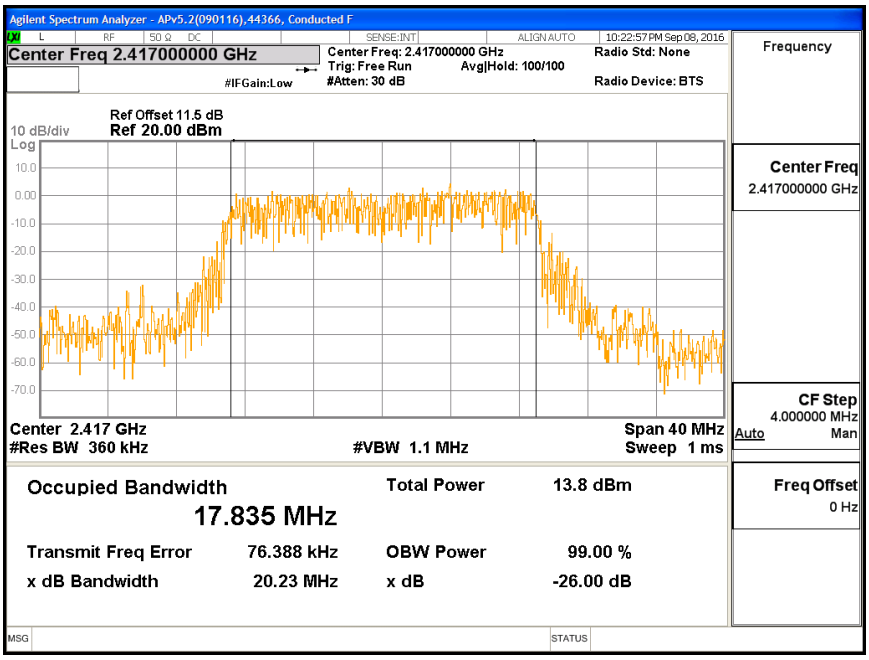


99% BANDWIDTH, Chain 2

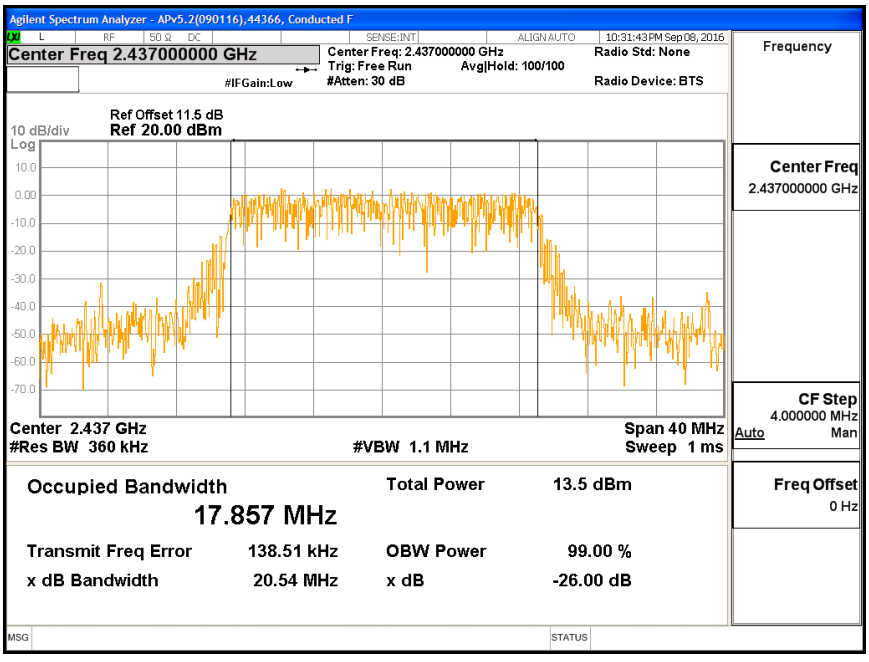
99% BANDWIDTH LOW CH 1



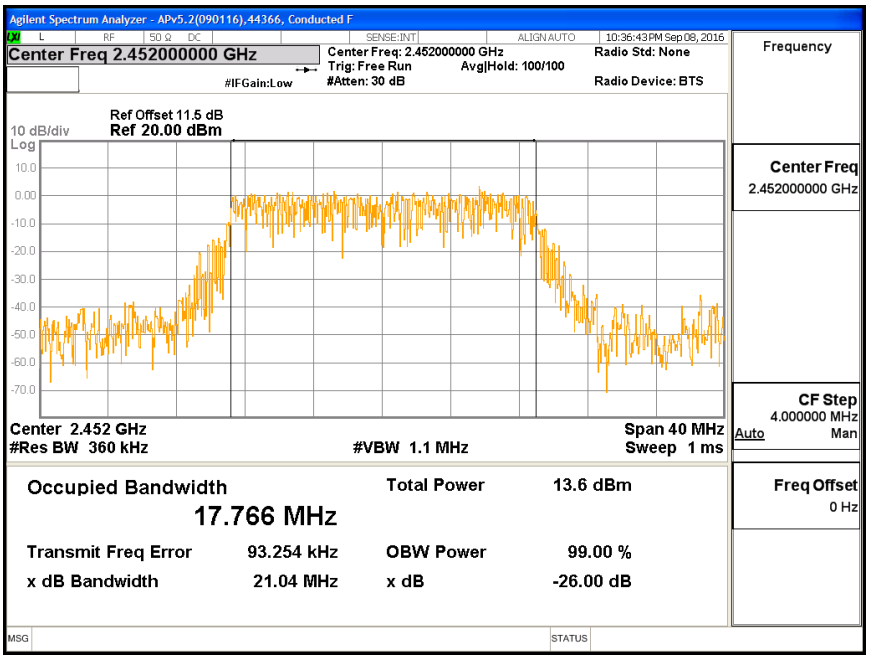
99% BANDWIDTH LOW CH 2



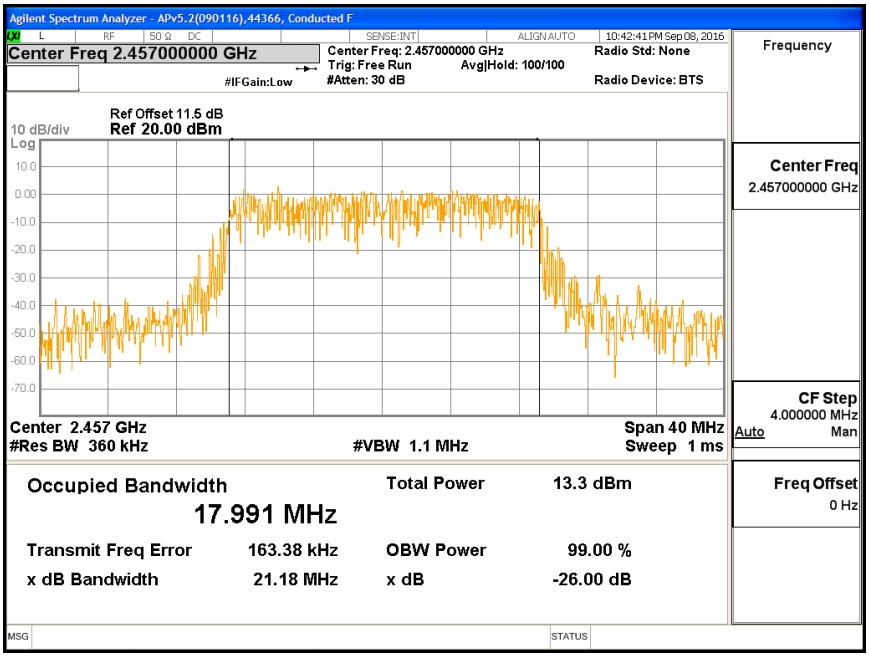
99% BANDWIDTH MID CH



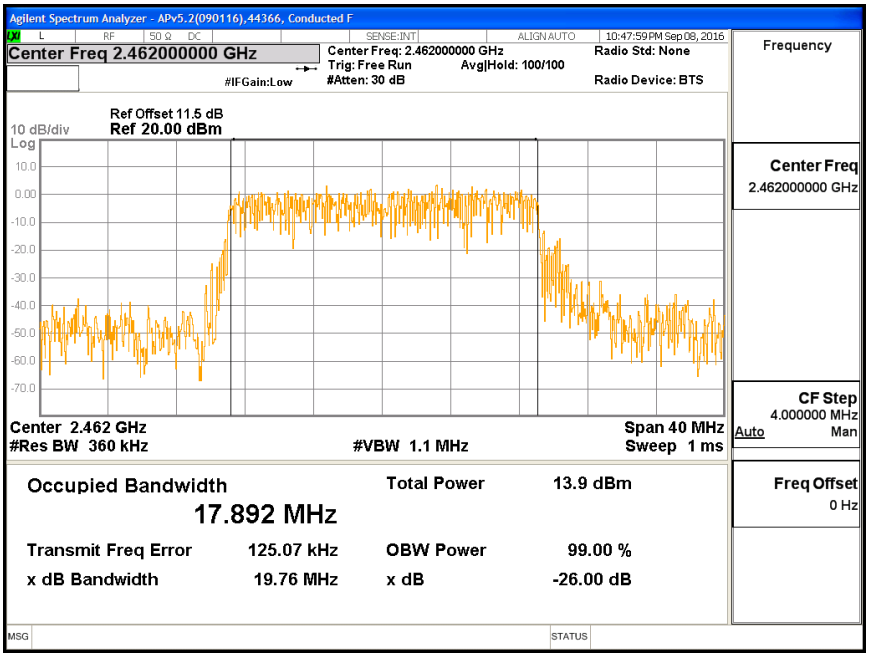
99% BANDWIDTH HIGH CH 9



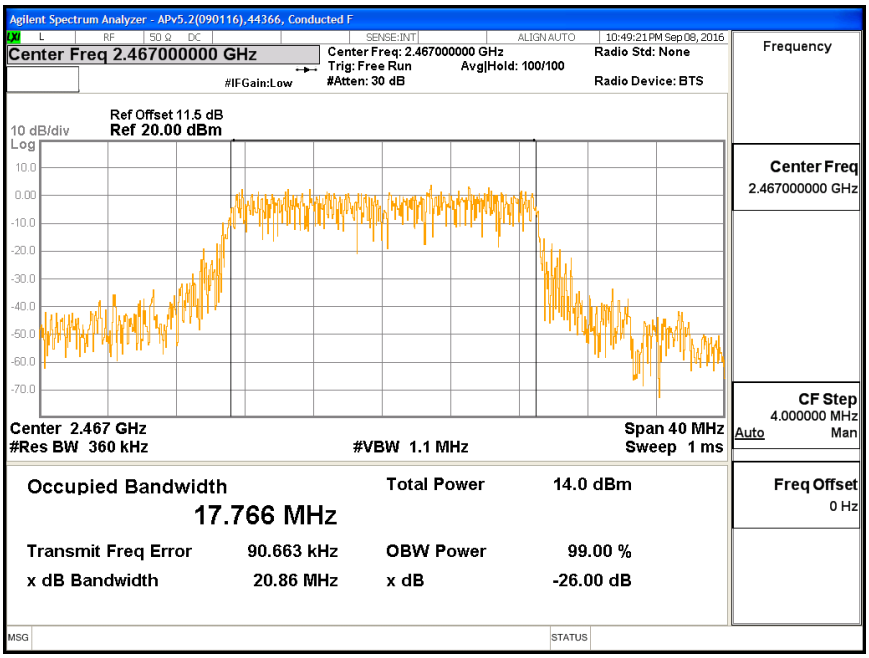
99% BANDWIDTH HIGH CH 10



99% BANDWIDTH HIGH CH 11



99% BANDWIDTH HIGH CH 12



8.23.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 2 Power (dBm)	Total Power (dBm)
Low_1	2412	9.96	9.83	12.91
Low_2	2417	14.91	14.86	17.90
Mid	2437	16.45	16.37	19.42
High_9	2452	14.91	14.91	17.92
High_10	2457	12.81	12.79	15.81
High_11	2462	9.48	9.42	12.46
High_12	2467	-0.61	-0.65	2.38

8.23.4. 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.

DIRECTIONAL ANTENNA GAIN

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

Chain 0 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.1	2.1	5.1

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	5.11	30.00	30	36	30.00
Low_2	2417	5.11	30.00	30	36	30.00
Mid	2437	5.11	30.00	30	36	30.00
High_9	2452	5.11	30.00	30	36	30.00
High_10	2457	5.11	30.00	30	36	30.00
High_11	2462	5.11	30.00	30	36	30.00
High_12	2467	5.11	30.00	30	36	30.00

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

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low_1	2412	12.65	12.63	15.65	30.00	-14.35
Low_2	2417	18.08	18.09	21.10	30.00	-8.90
Mid	2437	19.03	19.11	22.08	30.00	-7.92
High_9	2452	17.61	17.54	20.59	30.00	-9.41
High_10	2457	15.87	15.69	18.79	30.00	-11.21
High_11	2462	12.17	12.11	15.15	30.00	-14.85
High_12	2467	2.51	2.38	5.46	30.00	-24.54

8.23.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-247 (5.2) (2)

For digitally modulated systems, the power spectral density conducted form 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.

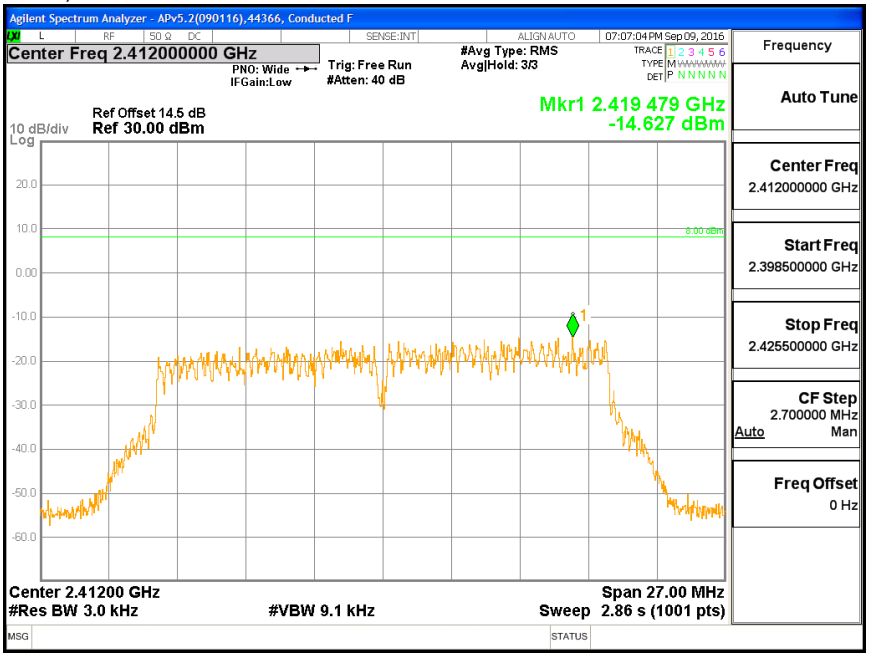
RESULTS

PSD Results

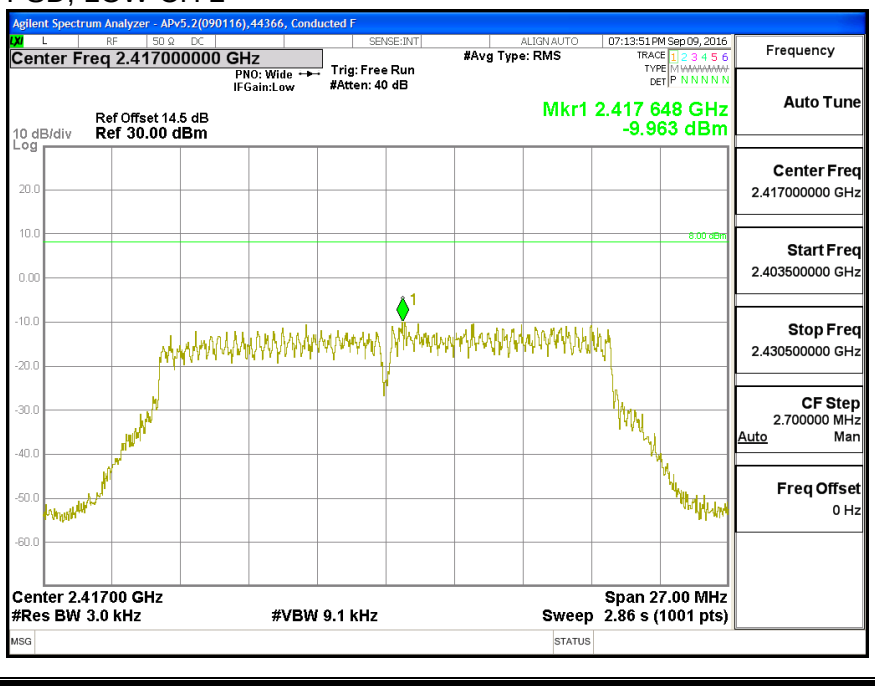
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-14.63	-14.61	-11.61	8.0	-19.6
Low_2	2417	-9.96	-9.71	-6.82	9.0	-15.8
Mid	2437	-9.06	-8.97	-6.00	8.0	-14.0
High_9	2452	-10.26	-9.77	-7.00	8.0	-15.0
High_10	2457	-11.70	-12.08	-8.88	8.0	-16.9
High_11	2462	-15.85	-15.92	-12.88	8.0	-20.9
High_12	2467	-24.67	-24.52	-21.58	8.0	-29.6

PSD, Chain 0

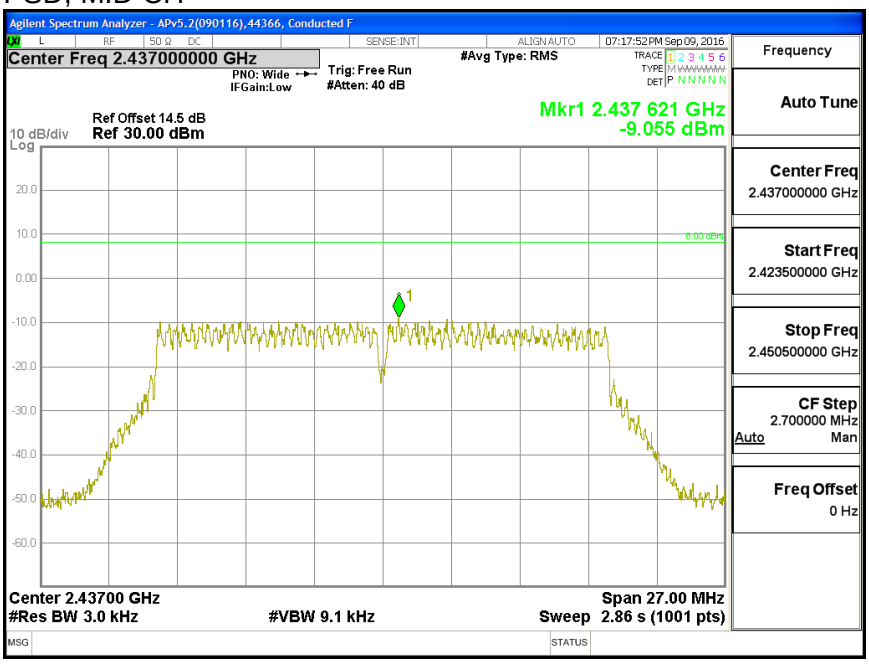
PSD, LOW CH 1



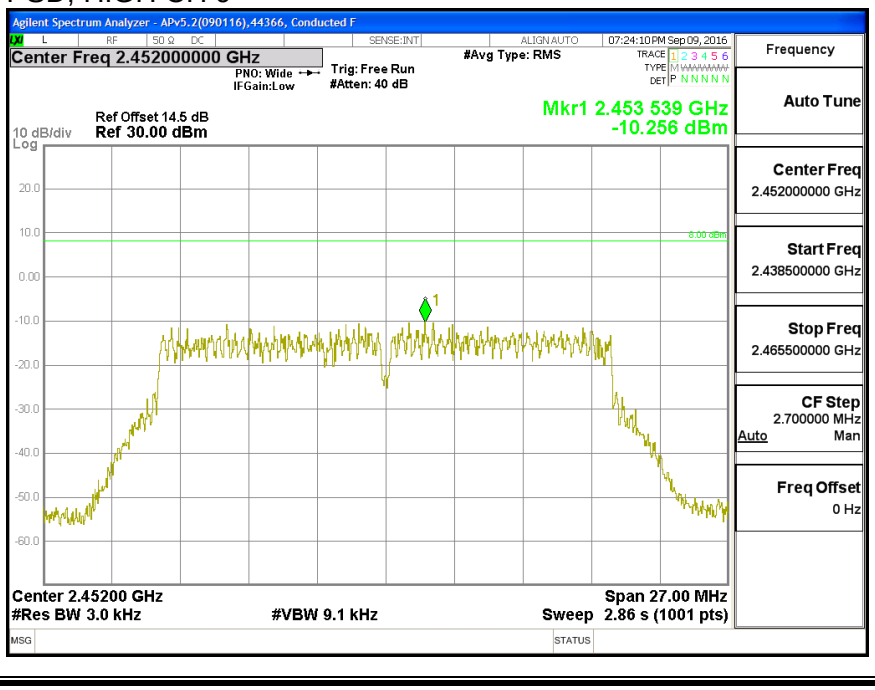
PSD, LOW CH 2



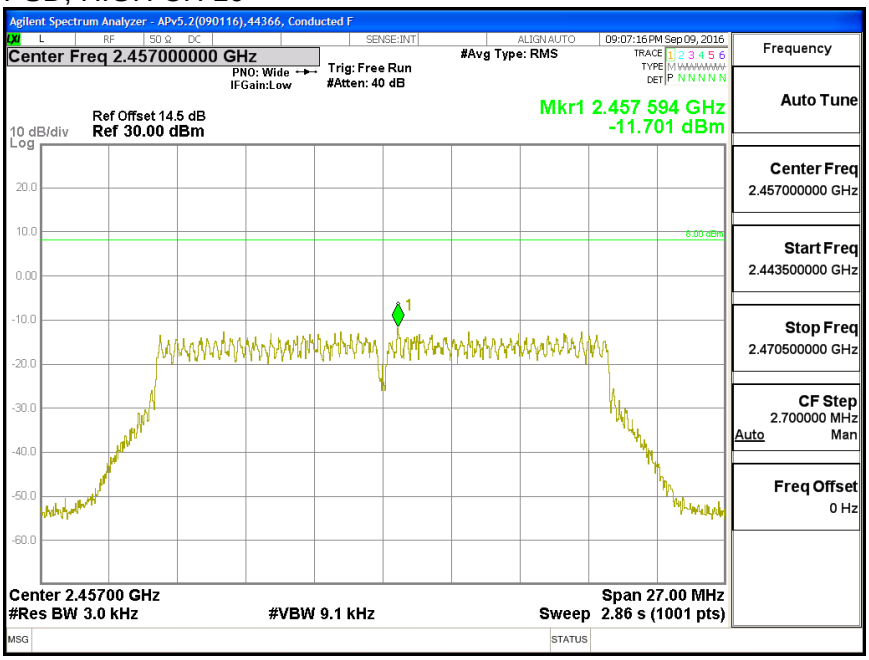
PSD, MID CH



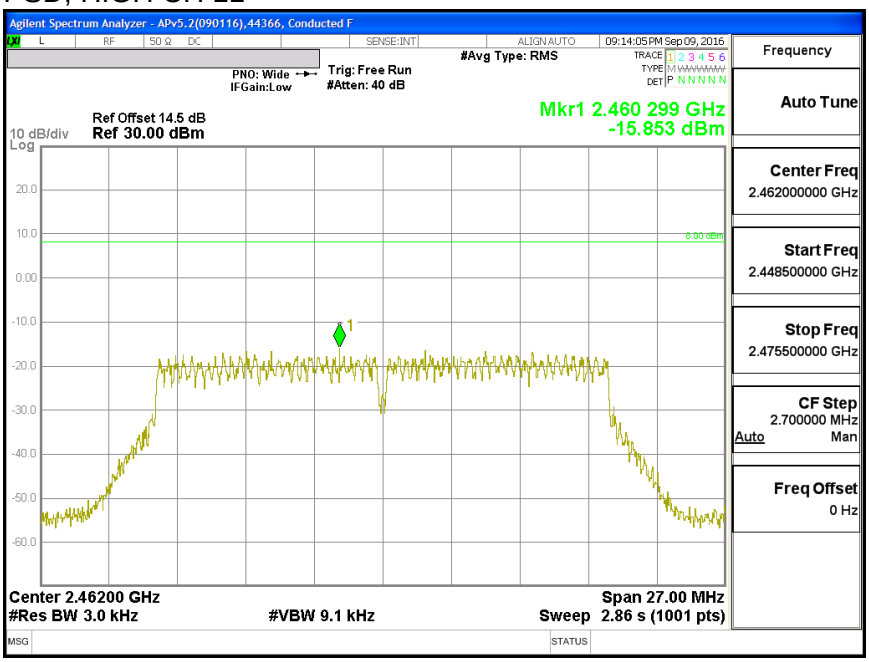
PSD, HIGH CH 9



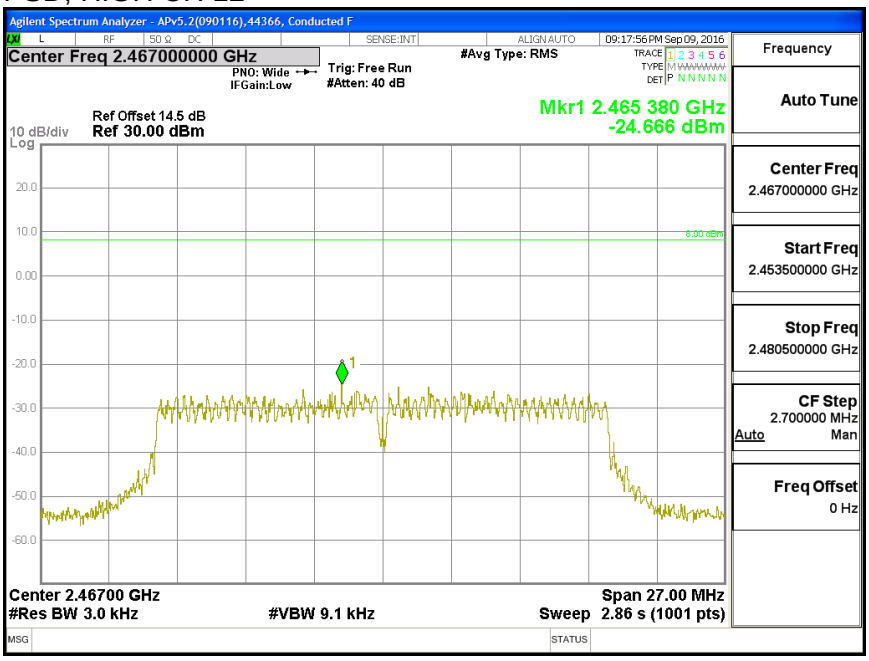
PSD, HIGH CH 10



PSD, HIGH CH 11

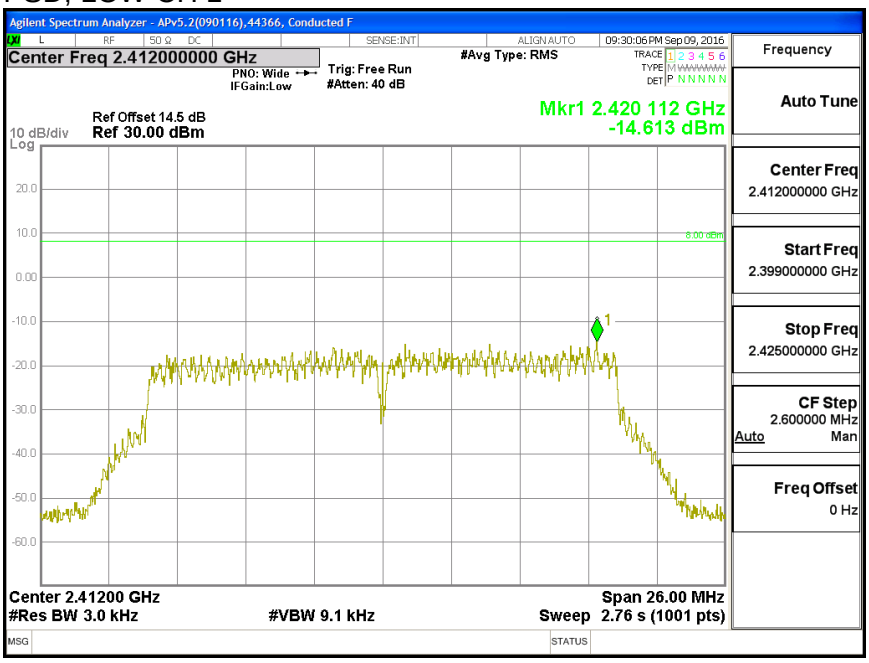


PSD, HIGH CH 12

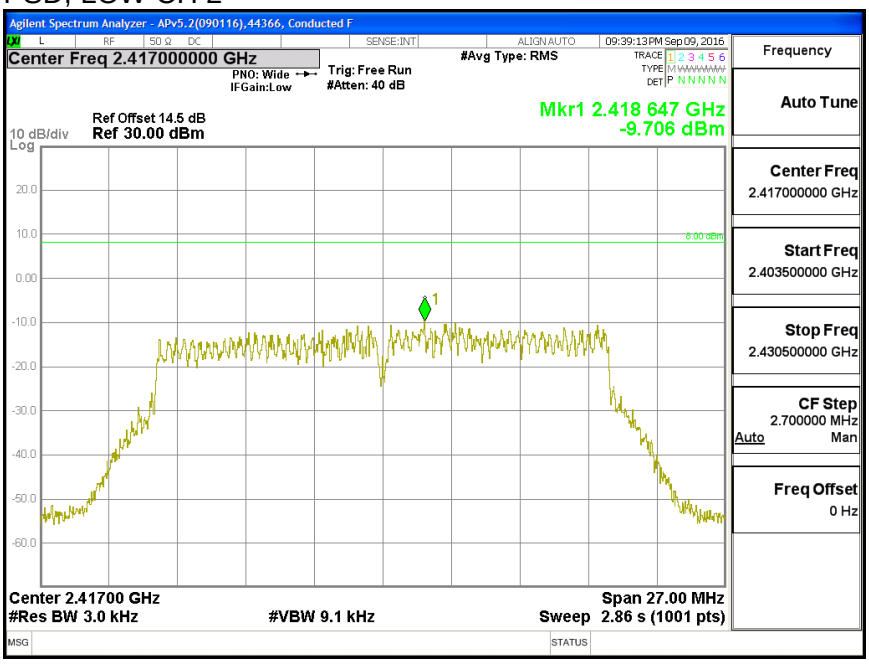


PSD, Chain 2

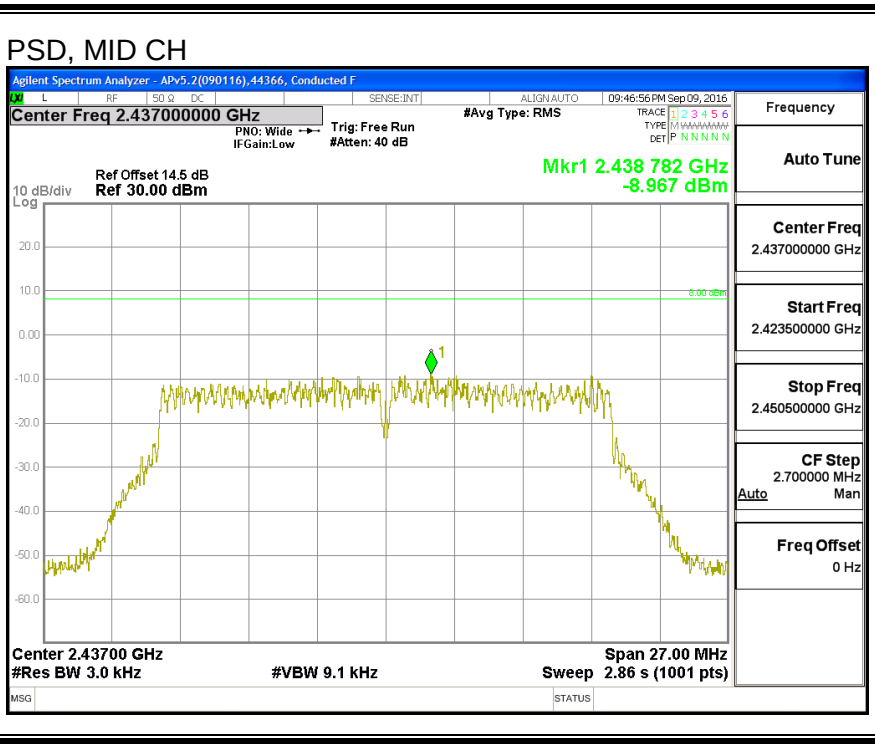
PSD, LOW CH 1



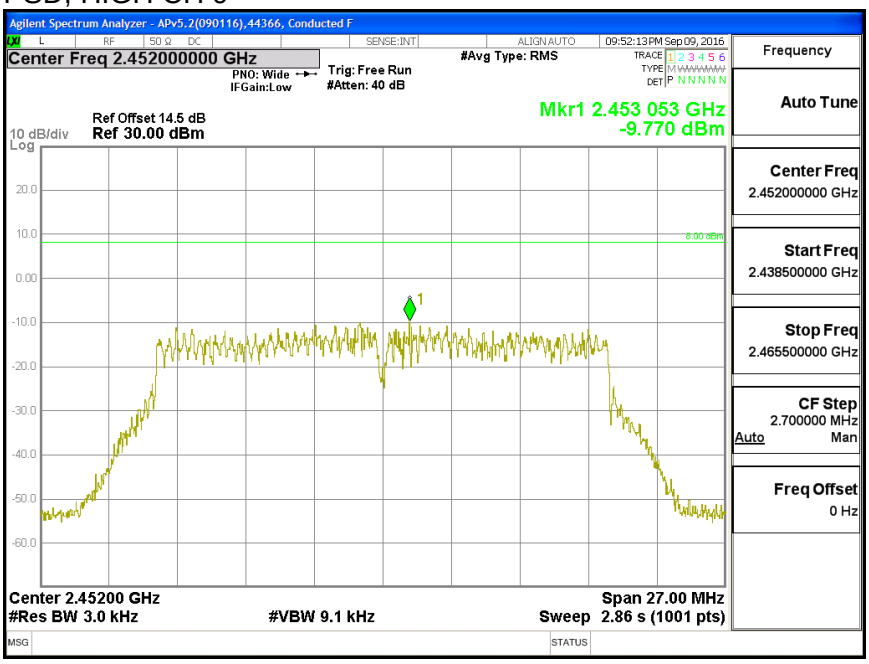
PSD, LOW CH 2



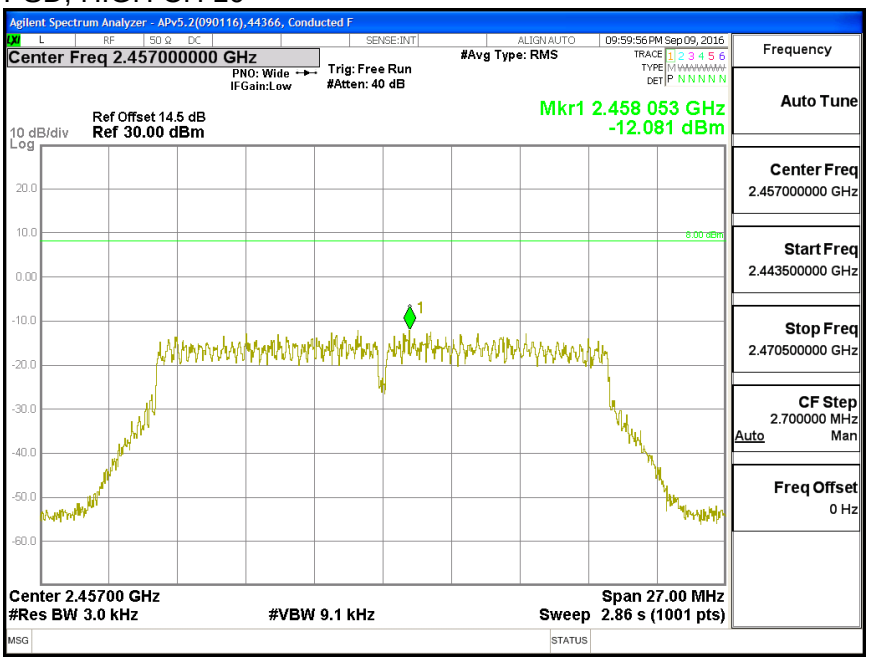
PSD, MID CH



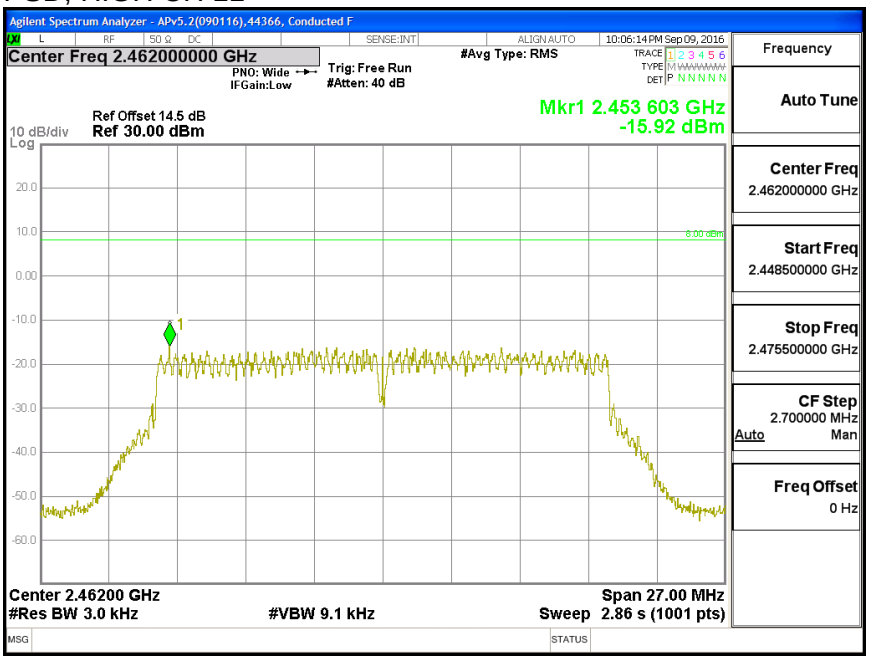
PSD, HIGH CH 9



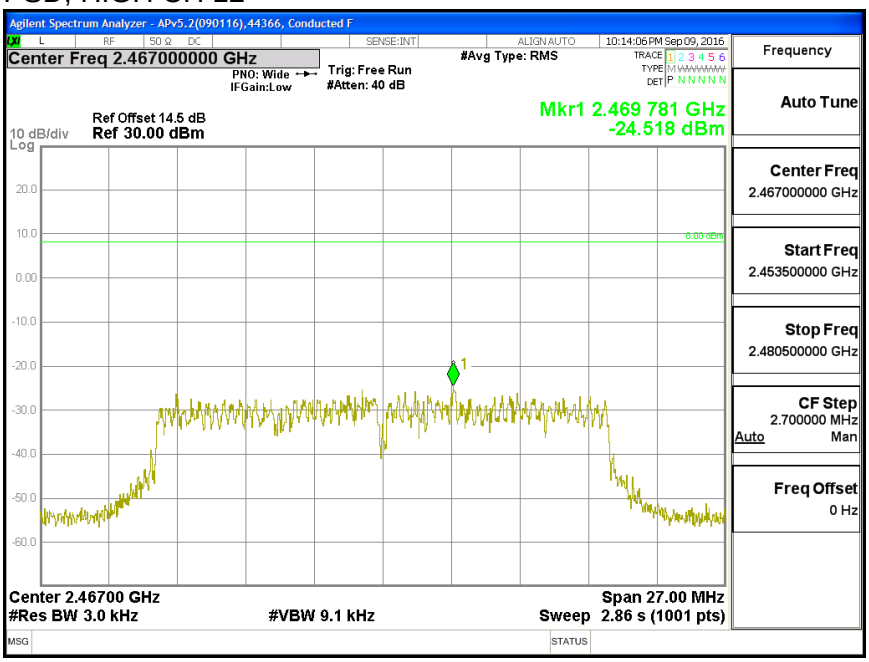
PSD, HIGH CH 10



PSD, HIGH CH 11



PSD, HIGH CH 12



8.23.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

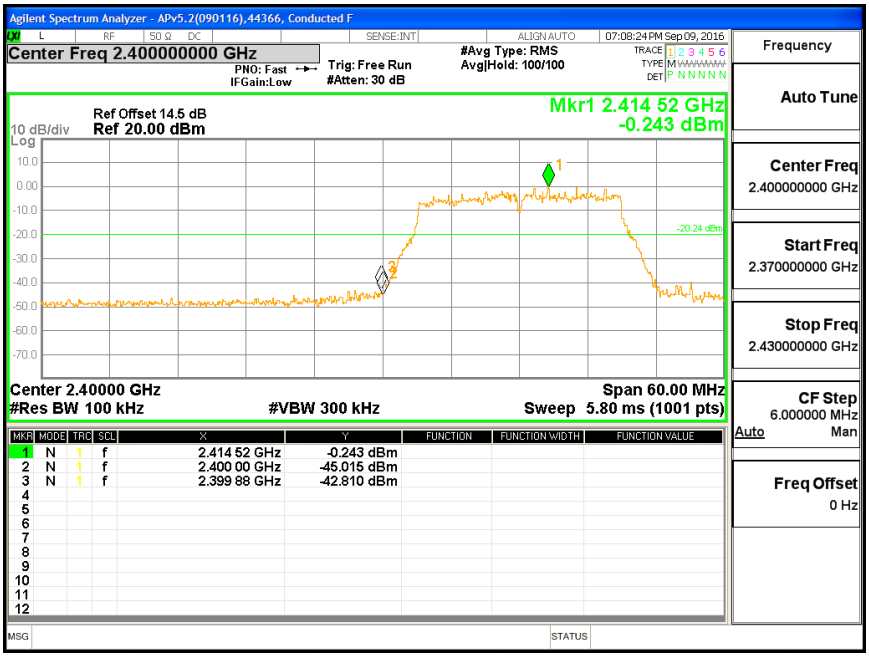
IC RSS-247 (5.5)

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.

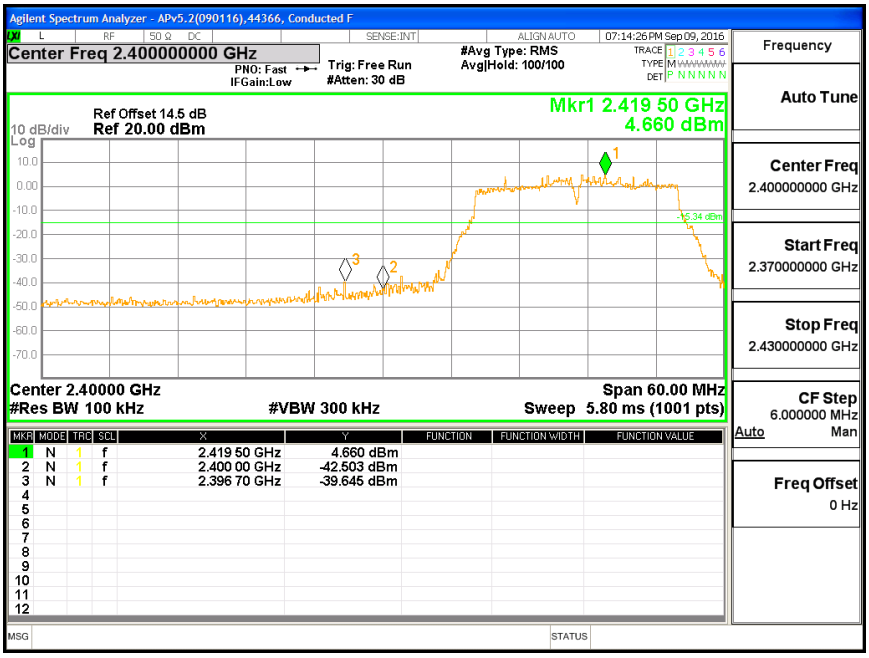
RESULTS

LOW CHANNEL BANDEDGE, Chain 0

AUTHORIZED BAND EDGE LOW CH 1

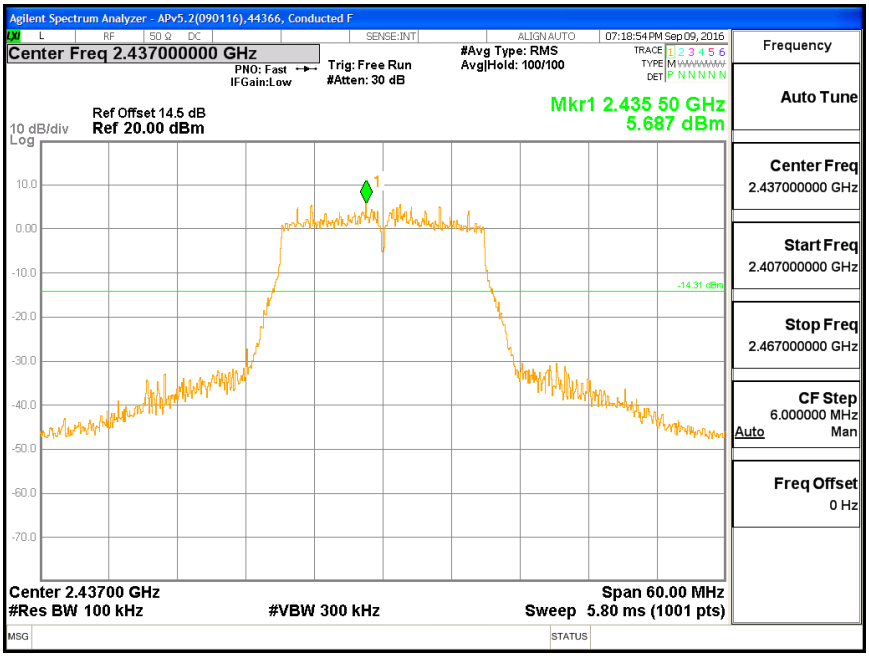


AUTHORIZED BAND EDGE LOW CH 2



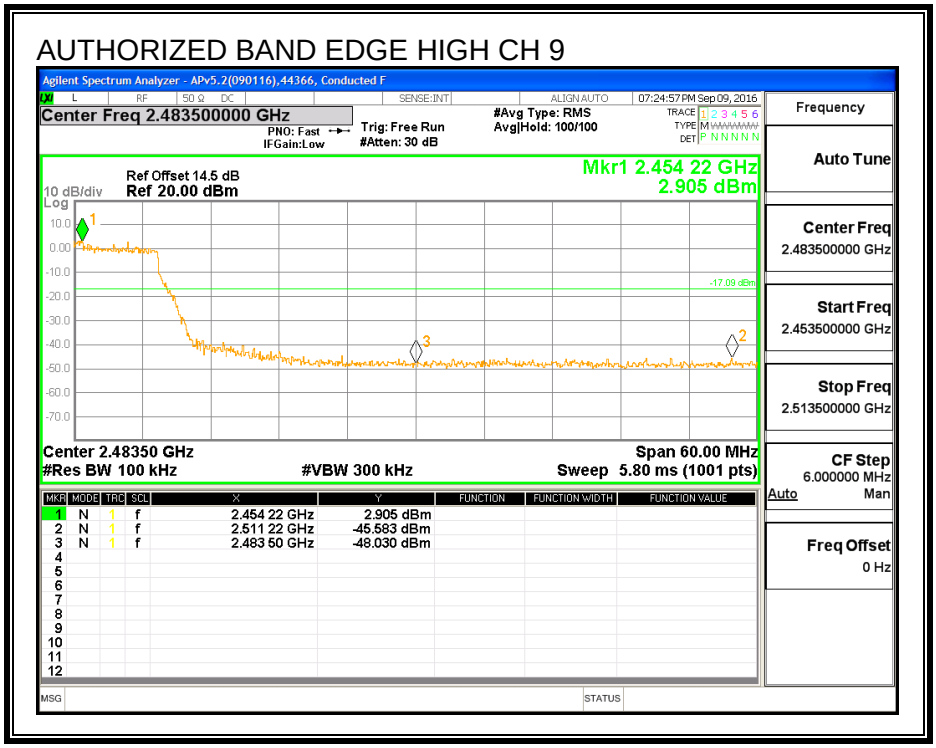
MID CHANNEL REFERENCE, Chain 0

REFERENCE MID CH

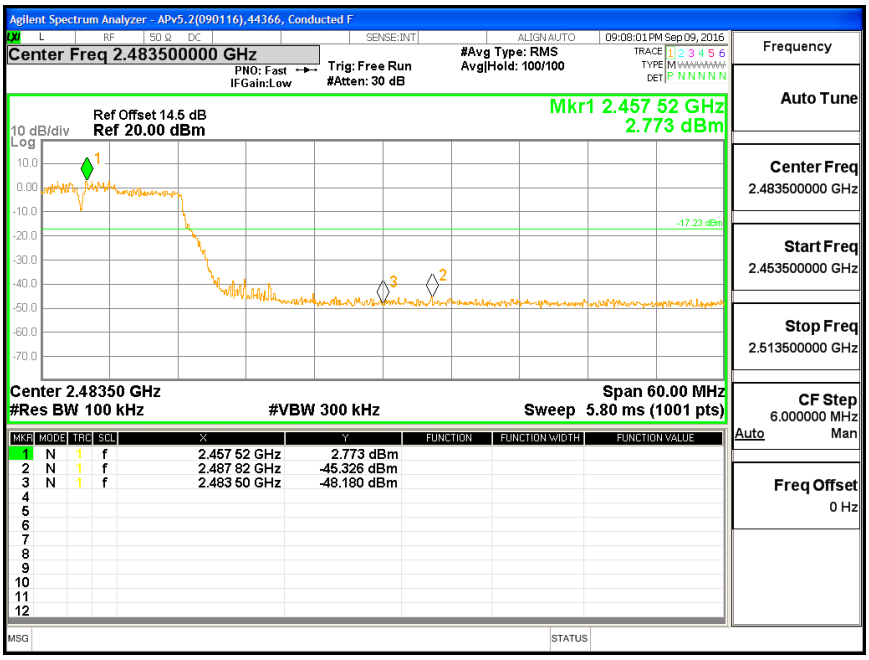


HIGH CHANNEL BANDEDGE, Chain 0

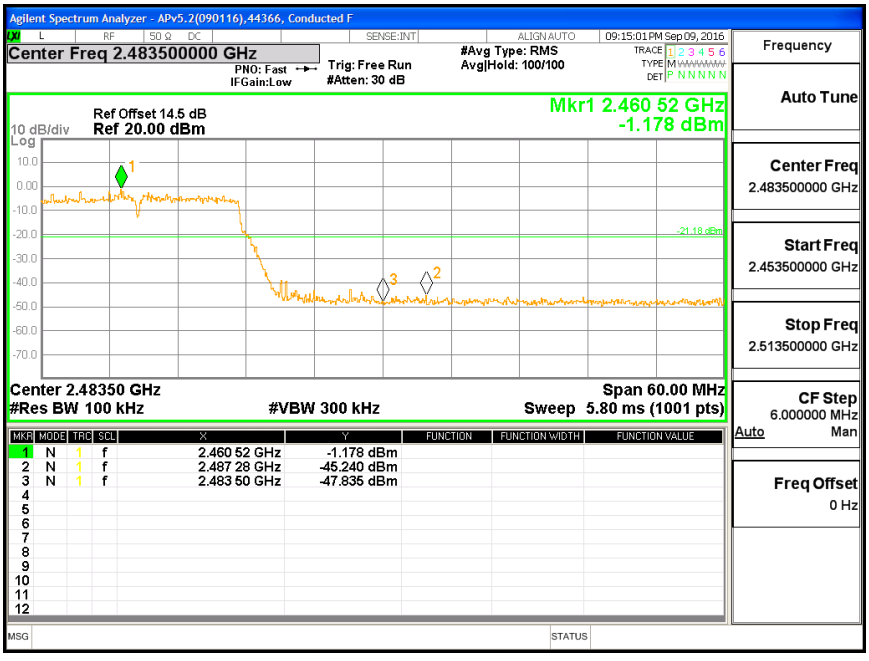
AUTHORIZED BAND EDGE HIGH CH 9



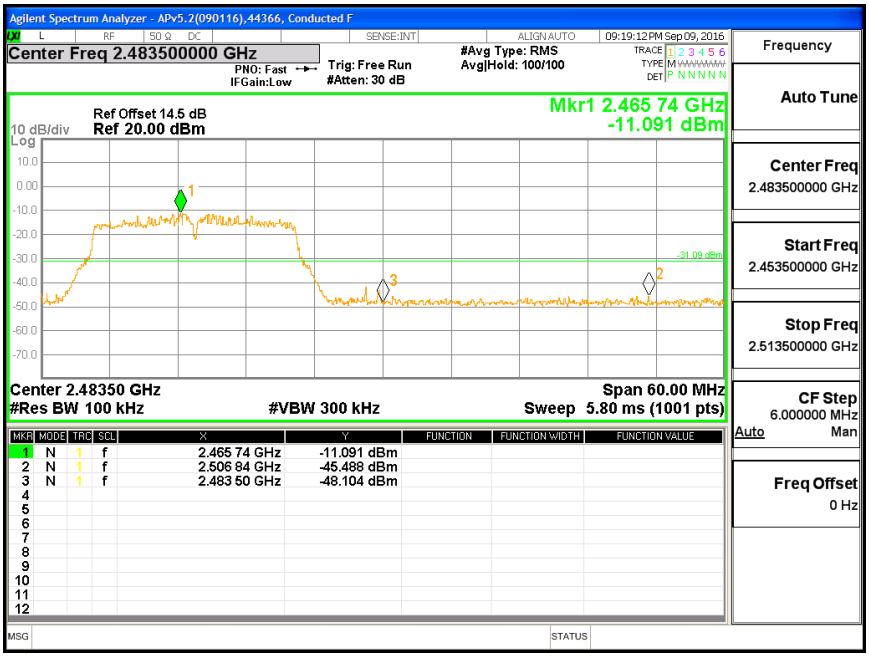
AUTHORIZED BAND EDGE HIGH CH 10



AUTHORIZED BAND EDGE HIGH CH 11

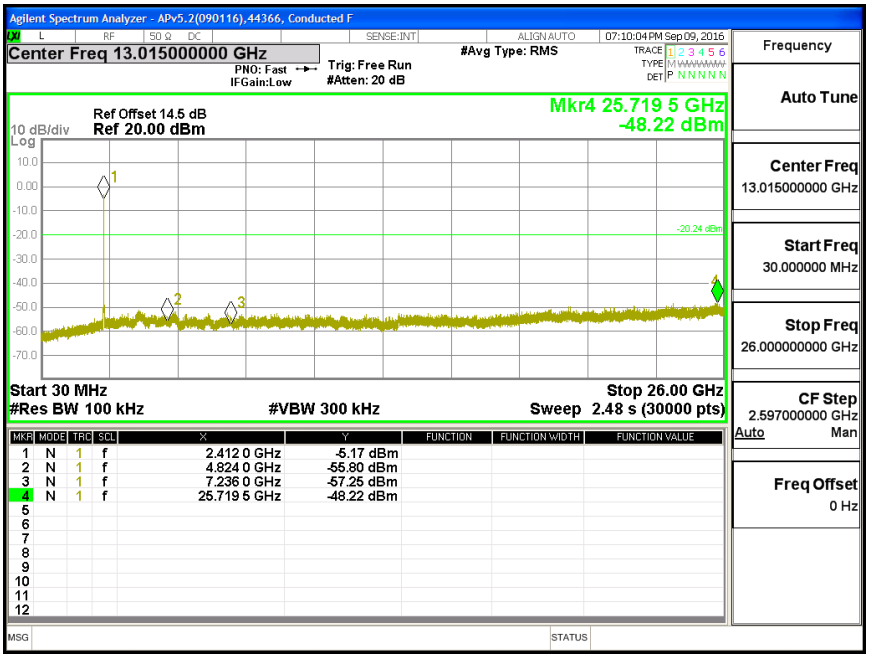


AUTHORIZED BAND EDGE HIGH CH 12

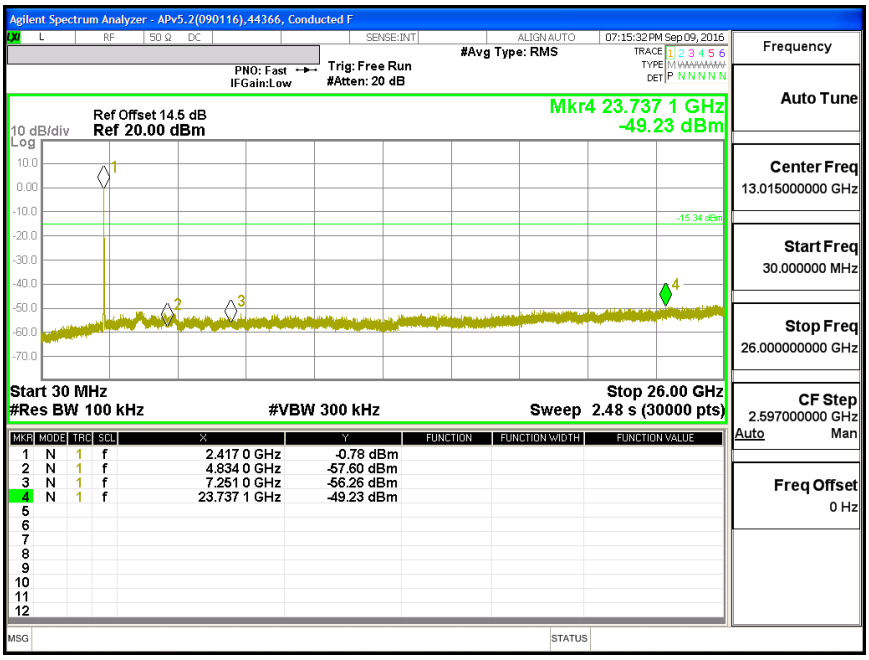


OUT-OF-BAND EMISSIONS, Chain 0

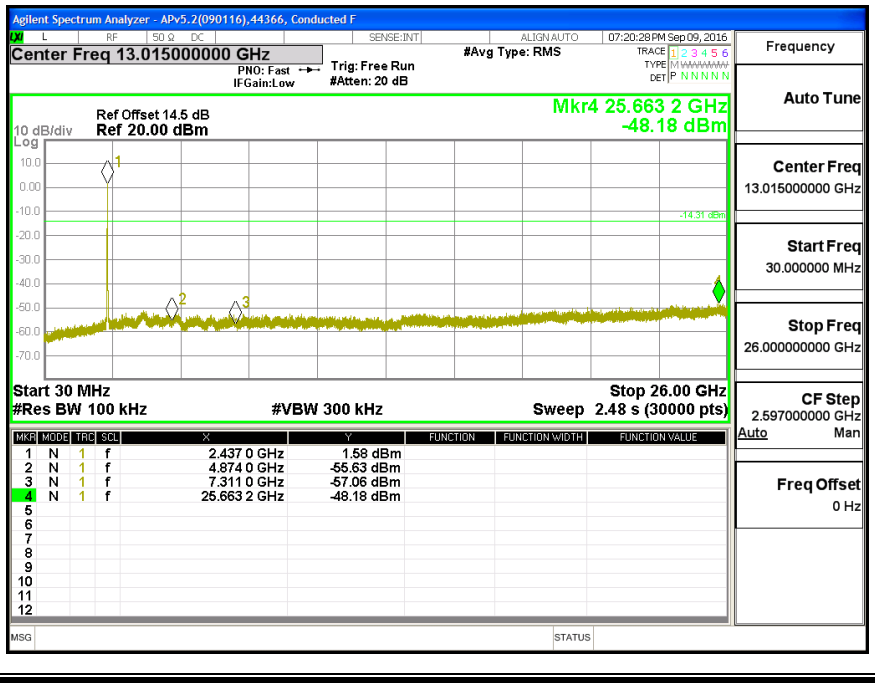
OUT OF BAND LOW CH 1



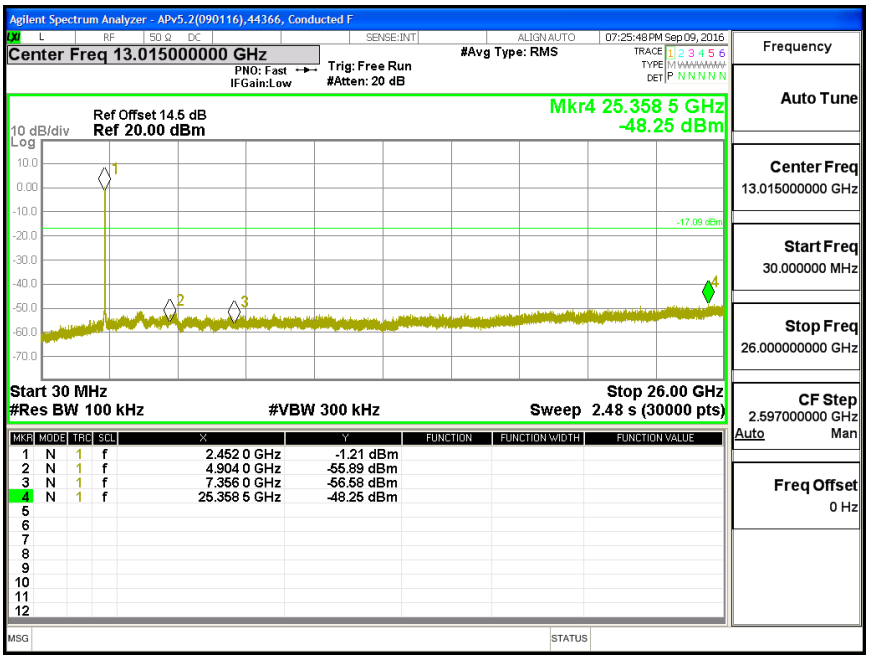
OUT OF BAND LOW CH 2



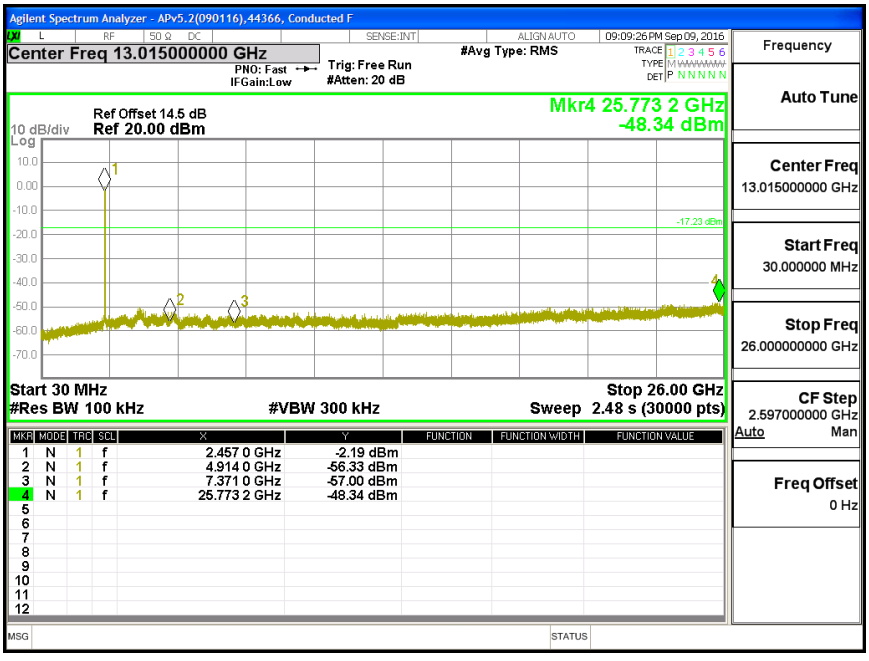
OUT OF BAND MID CH



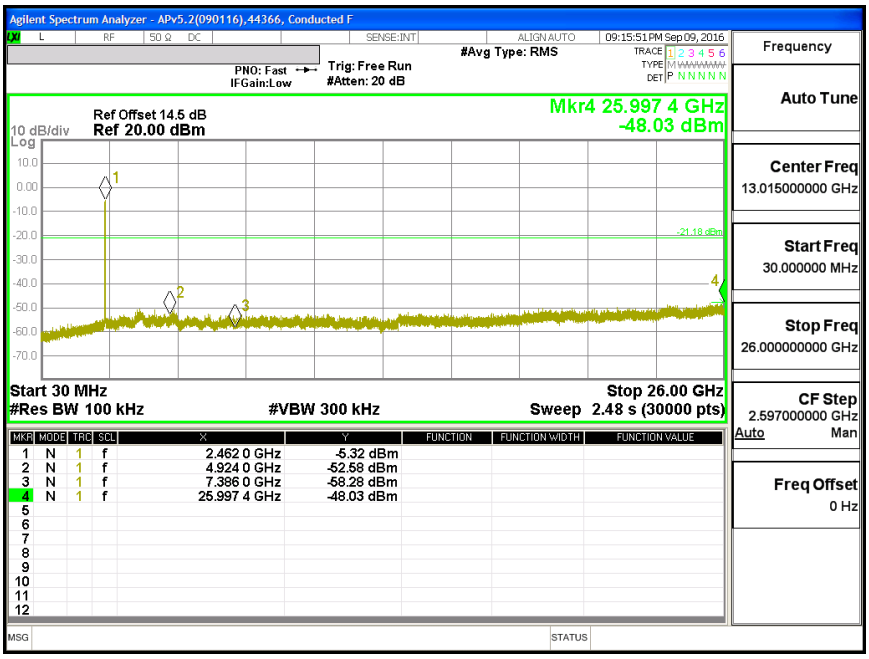
OUT OF BAND HIGH CH 9



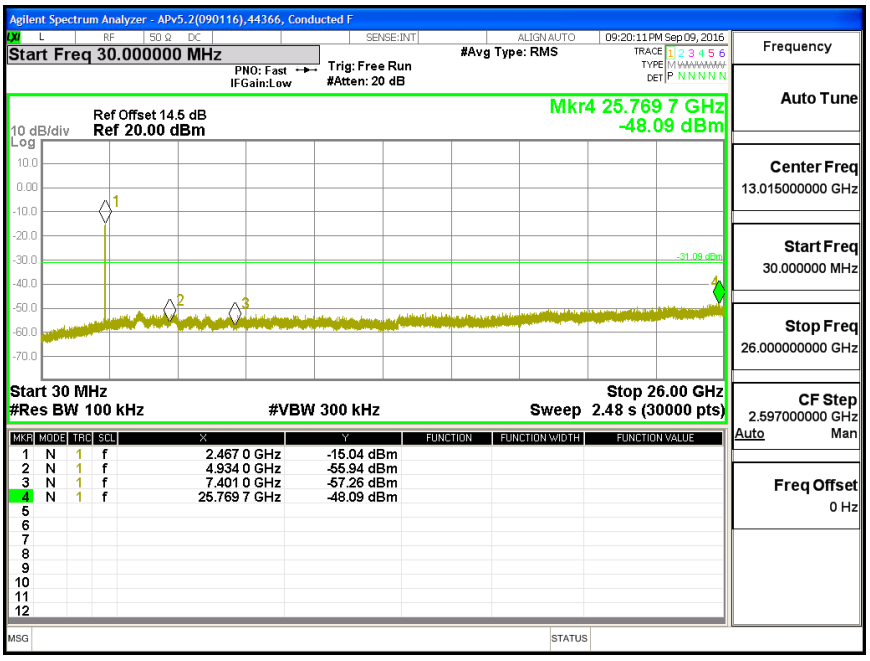
OUT OF BAND HIGH CH 10



OUT OF BAND HIGH CH 11

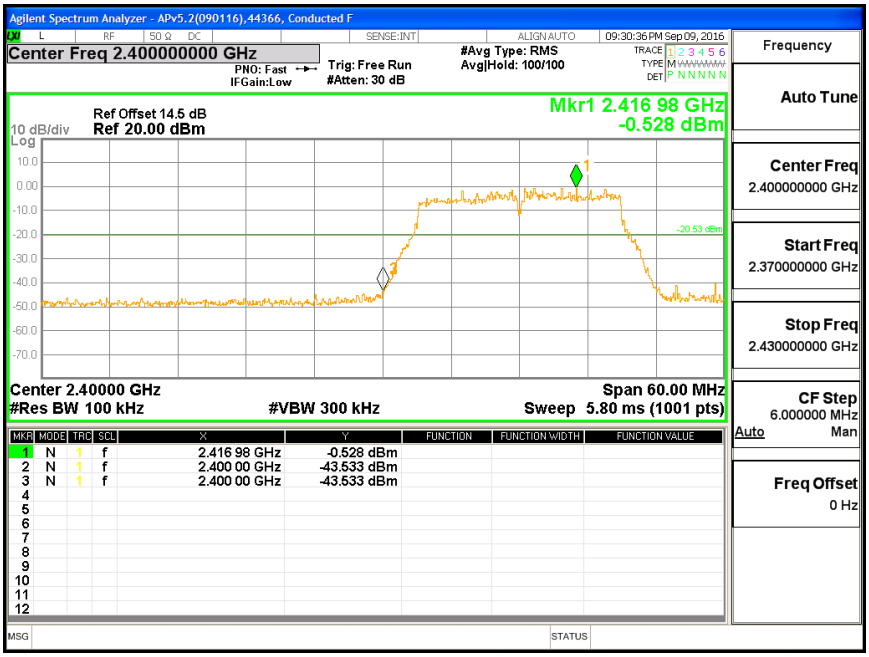


OUT OF BAND HIGH CH 12

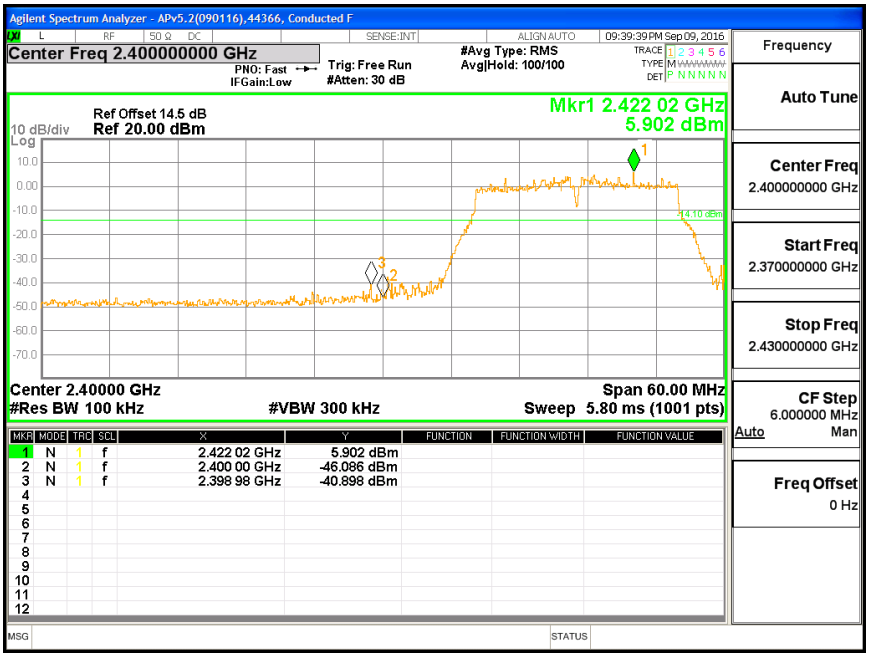


LOW CHANNEL BANDEDGE, Chain 2

AUTHORIZED BAND EDGE LOW CH 1

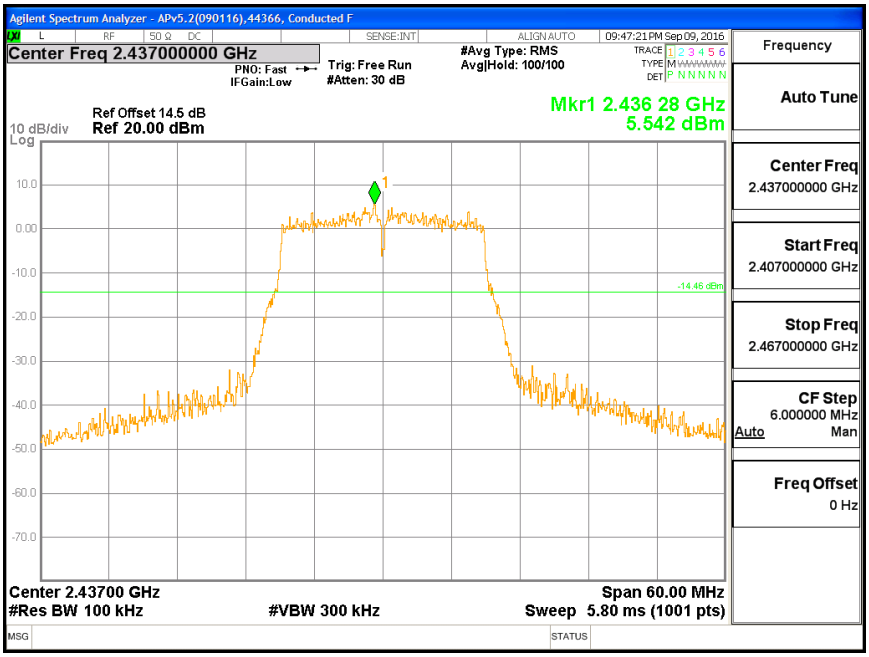


AUTHORIZED BAND EDGE LOW CH 2



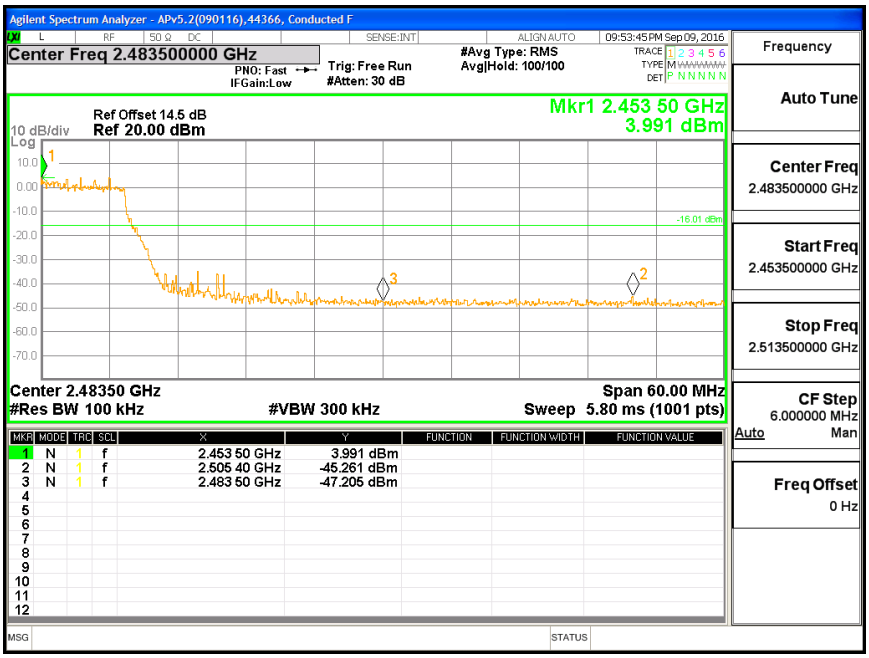
MID CHANNEL REFERENCE, Chain 2

REFEREBCE MID CH

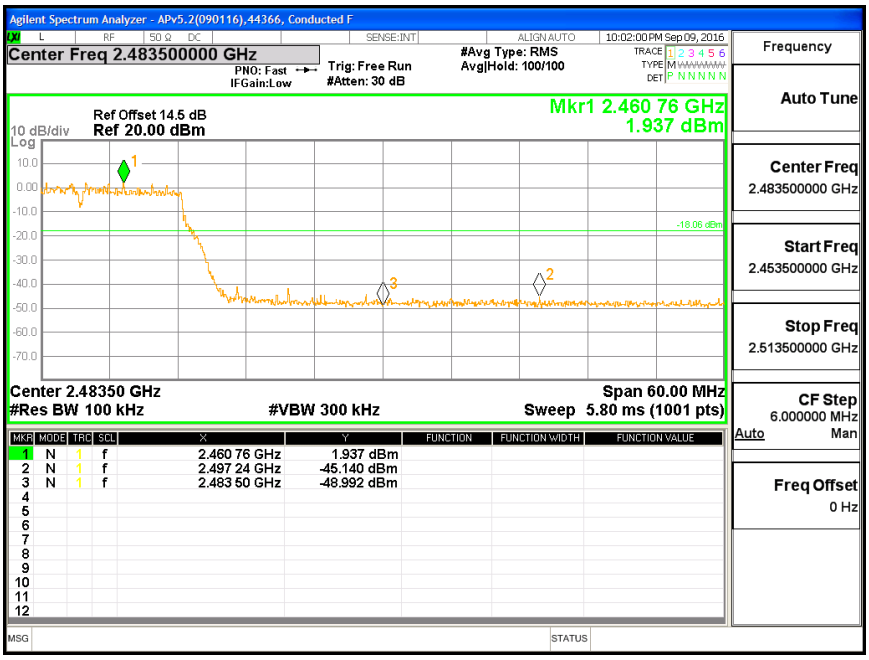


HIGH CHANNEL BANDEDGE, Chain 2

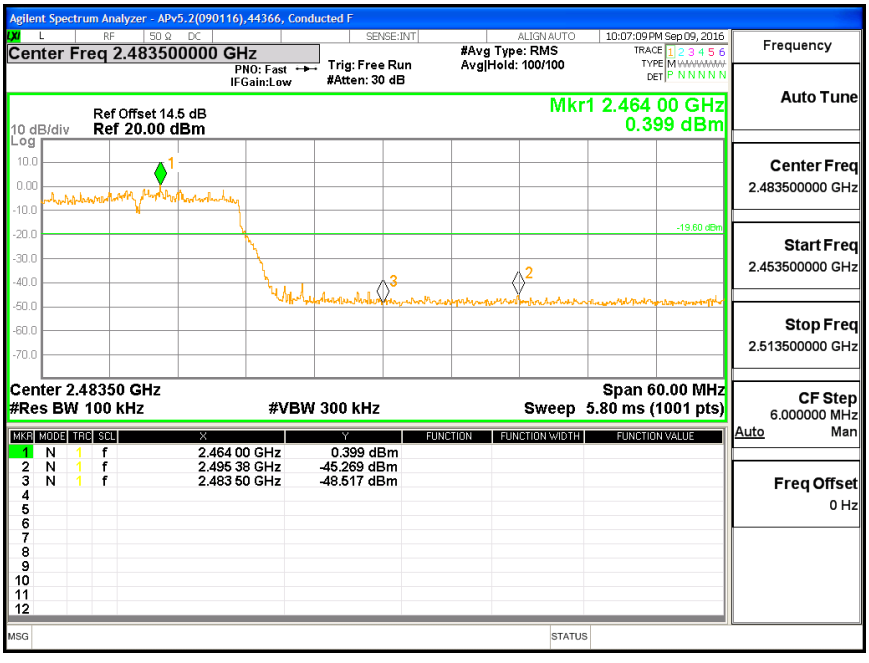
AUTHORIZED BAND EDGE HIGH CH 9



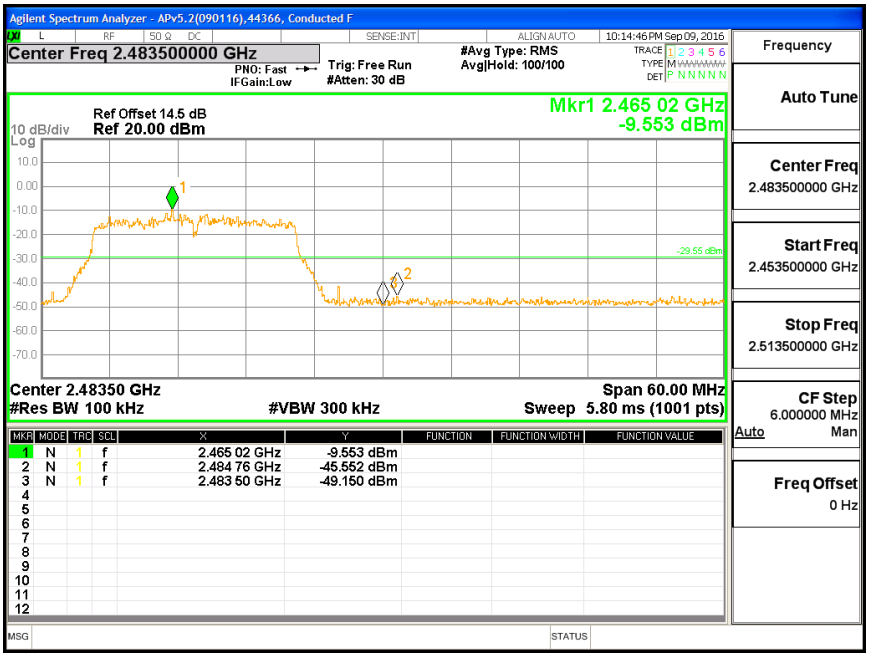
AUTHORIZED BAND EDGE HIGH CH 10



AUTHORIZED BAND EDGE HIGH CH 11

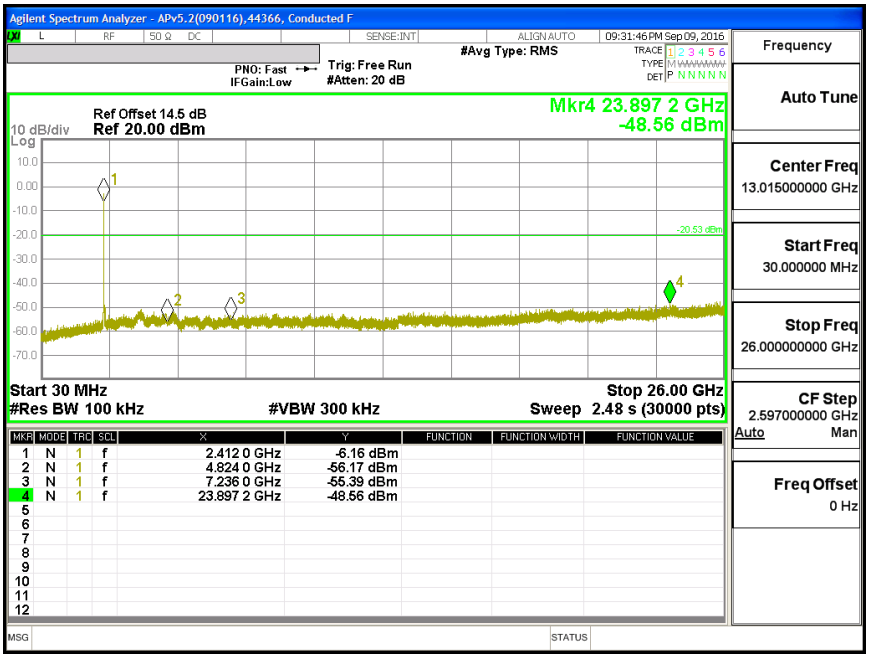


AUTHORIZED BAND EDGE HIGH CH 12

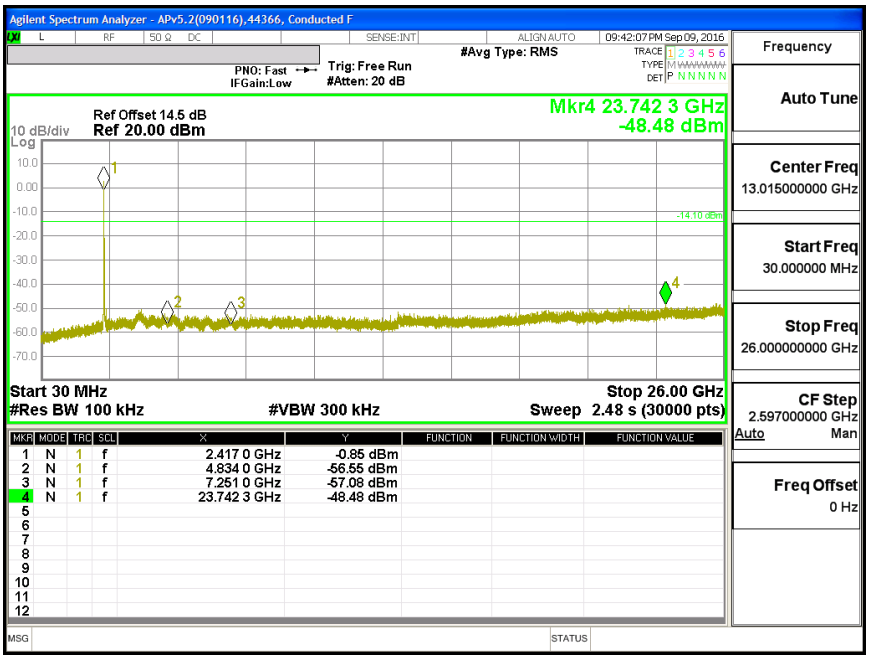


OUT-OF-BAND EMISSIONS, Chain 2

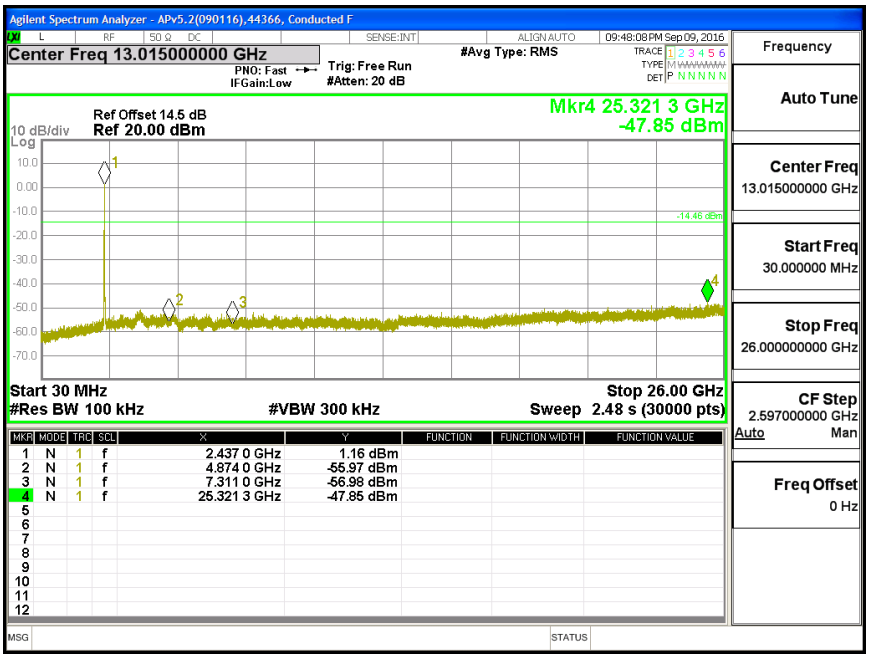
OUT OF BAND LOW CH 1



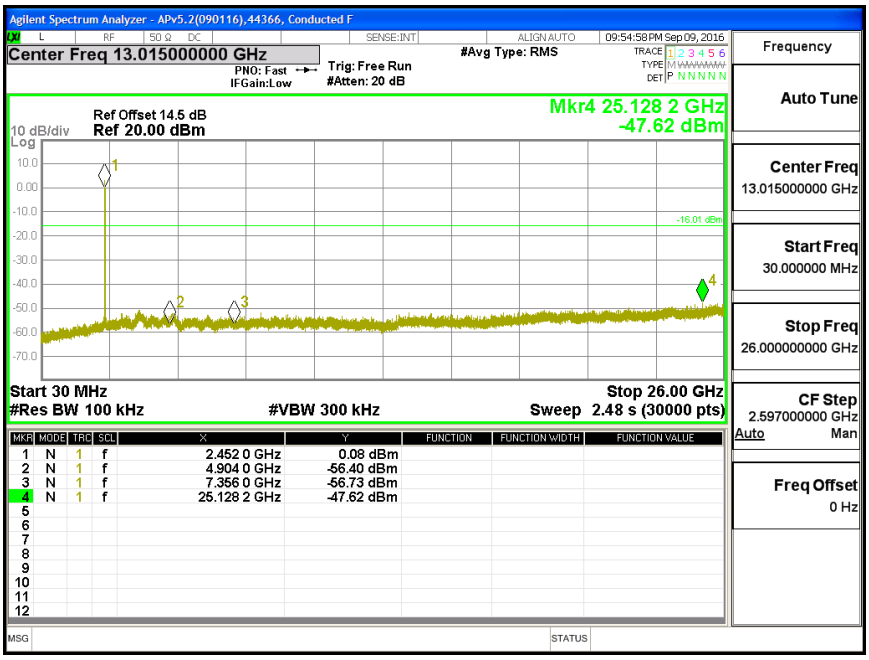
OUT OF BAND LOW CH 2



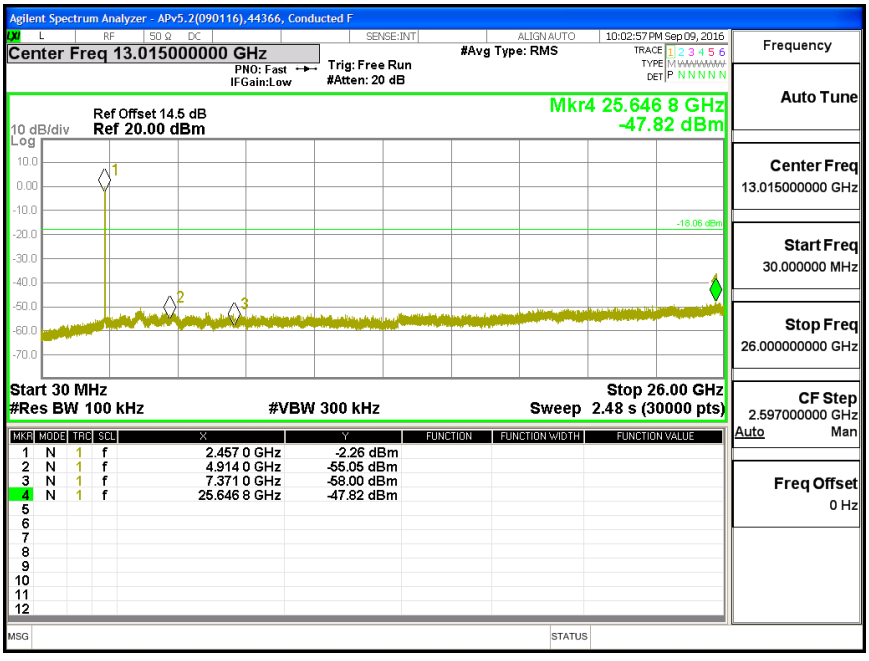
OUT OF BAND MID CH



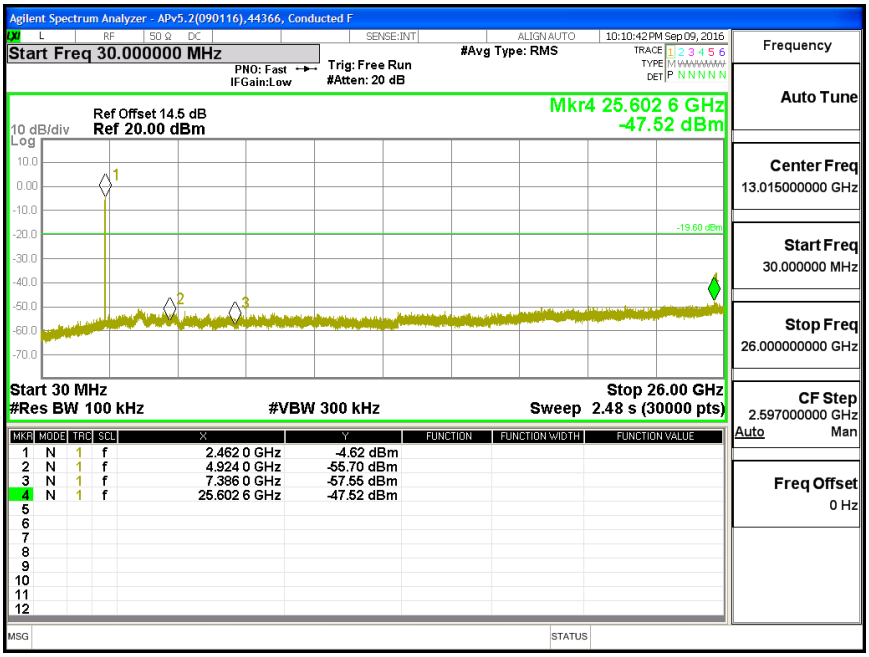
OUT OF BAND HIGH CH 9



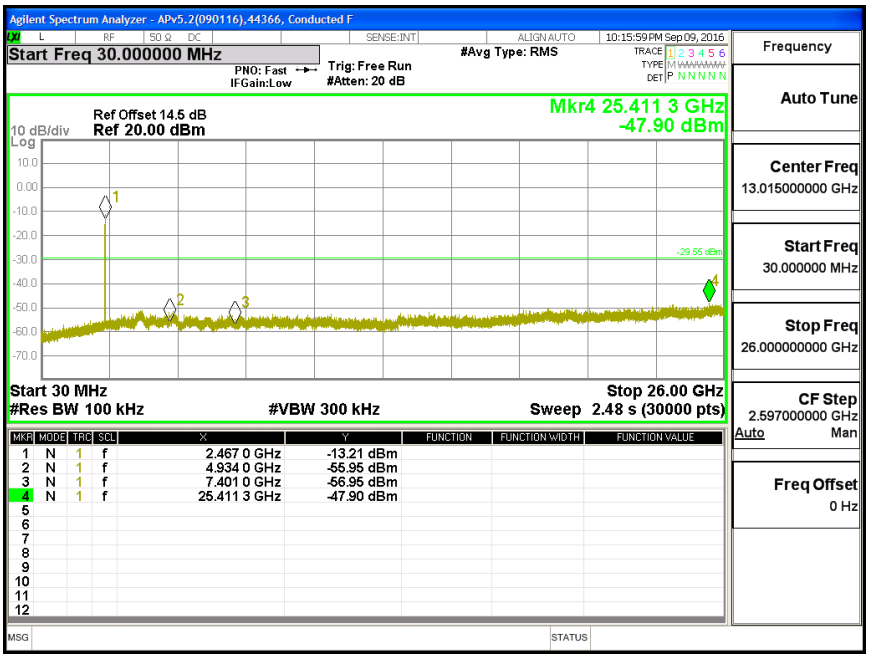
OUT OF BAND HIGH CH 10



OUT OF BAND Chain 1 HIGH CH 11



OUT OF BAND Chain 1 HIGH CH 12



8.24. 802.11n 2Tx BEAM FORMING MODE IN THE 2.4 GHZ BAND, CHAIN 1+2

8.24.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 (5.2) (1)

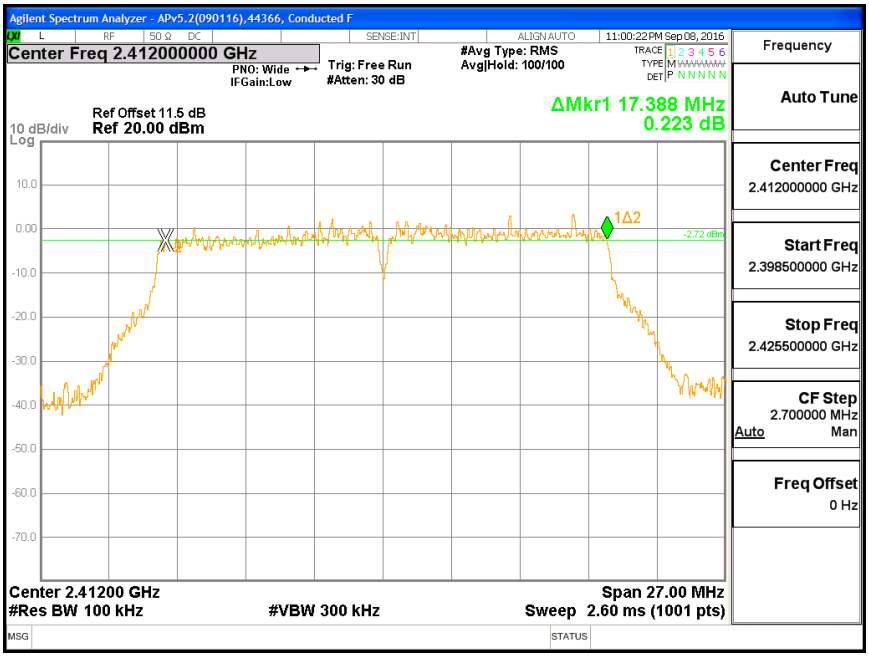
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

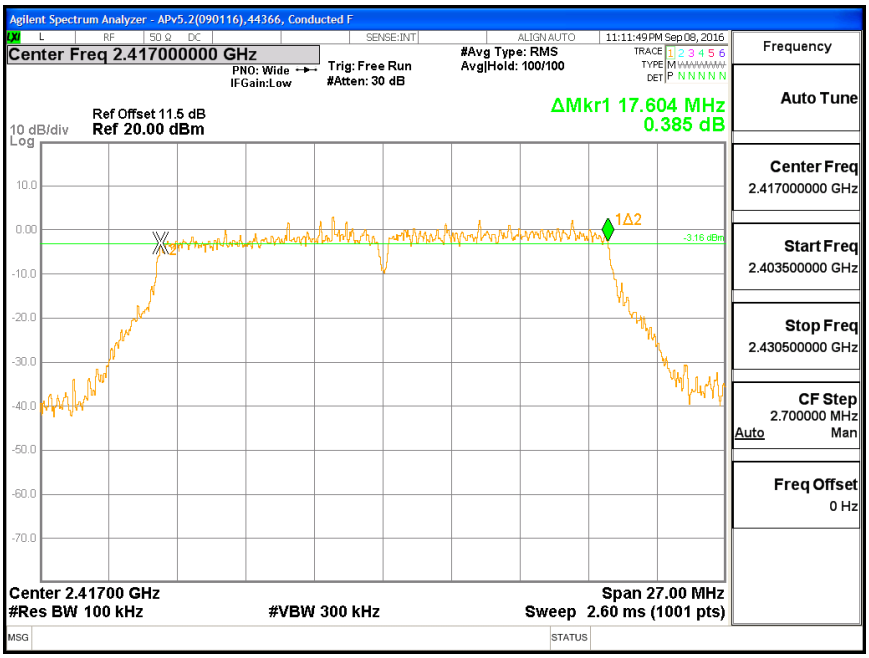
Channel	Frequency (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low_1	2412	17.388	17.658	0.5
Low_2	2417	17.604	17.631	0.5
Mid	2437	17.631	17.550	0.5
High_9	2452	17.604	17.631	0.5
High_10	2457	17.550	17.604	0.5
High_11	2462	17.577	17.604	0.5
High_12	2467	17.604	17.631	0.5

6 dB BANDWIDTH, Chain 1

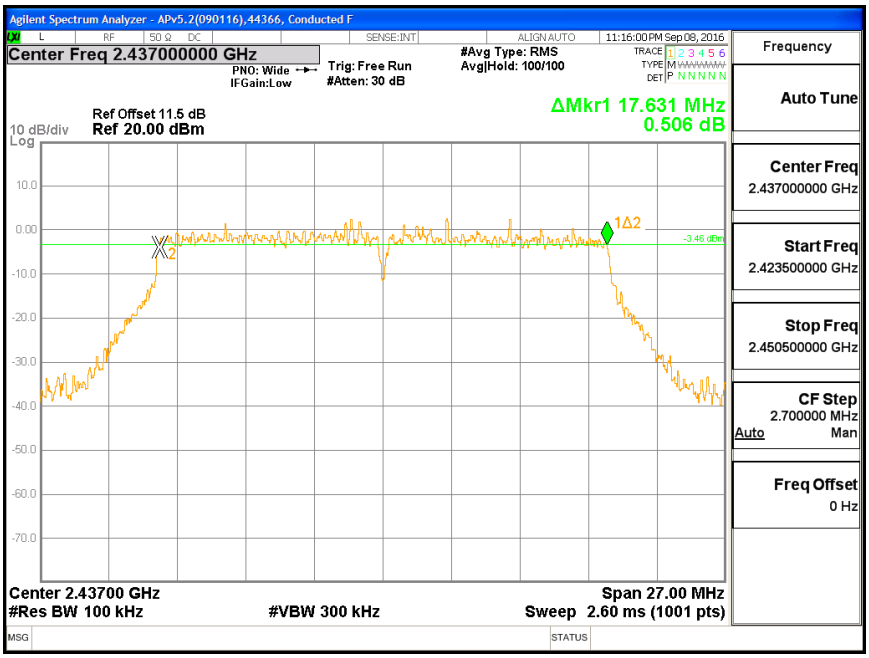
6 dB BANDWIDTH LOW CH 1



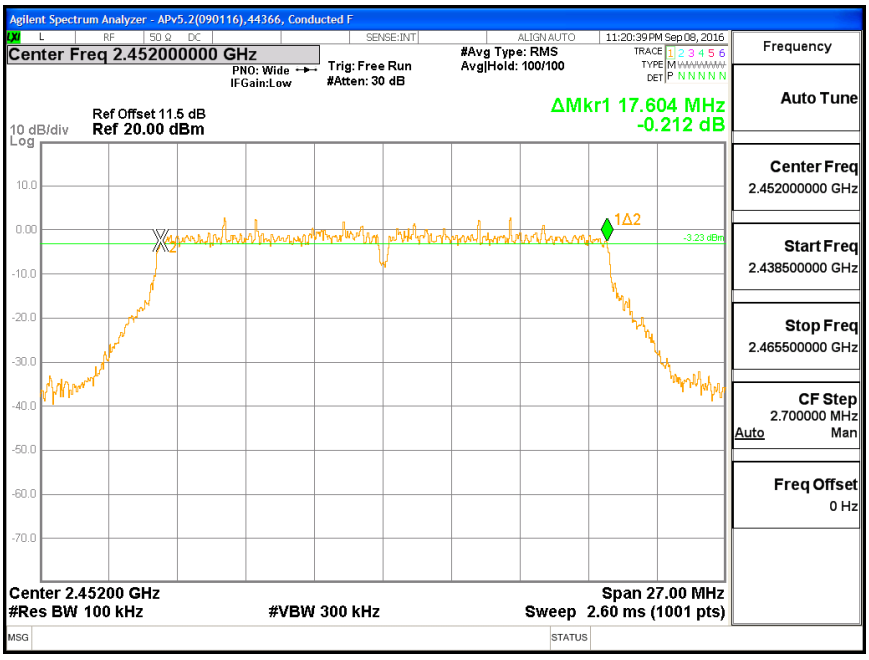
6 dB BANDWIDTH LOW CH 2



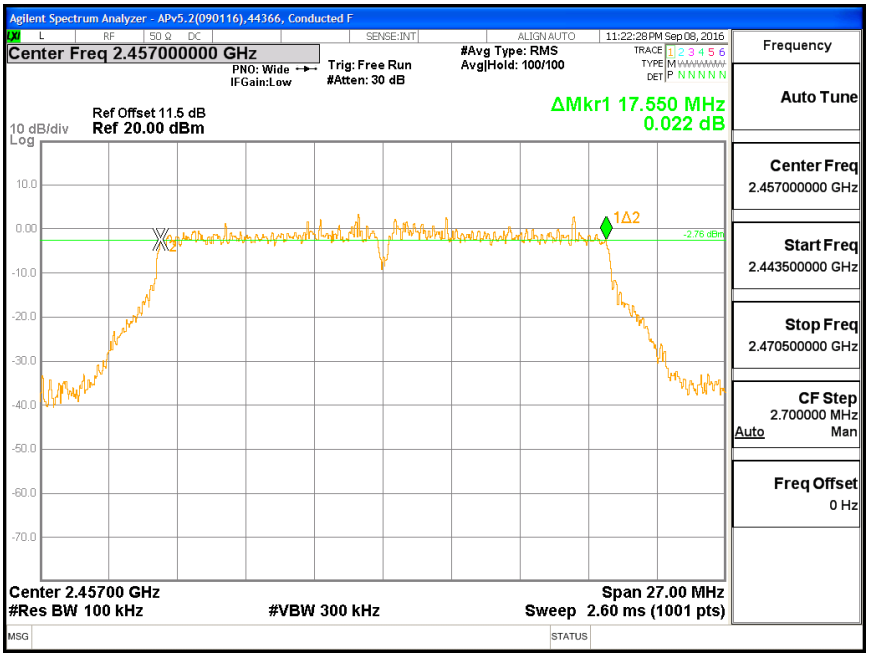
6 dB BANDWIDTH MID CH



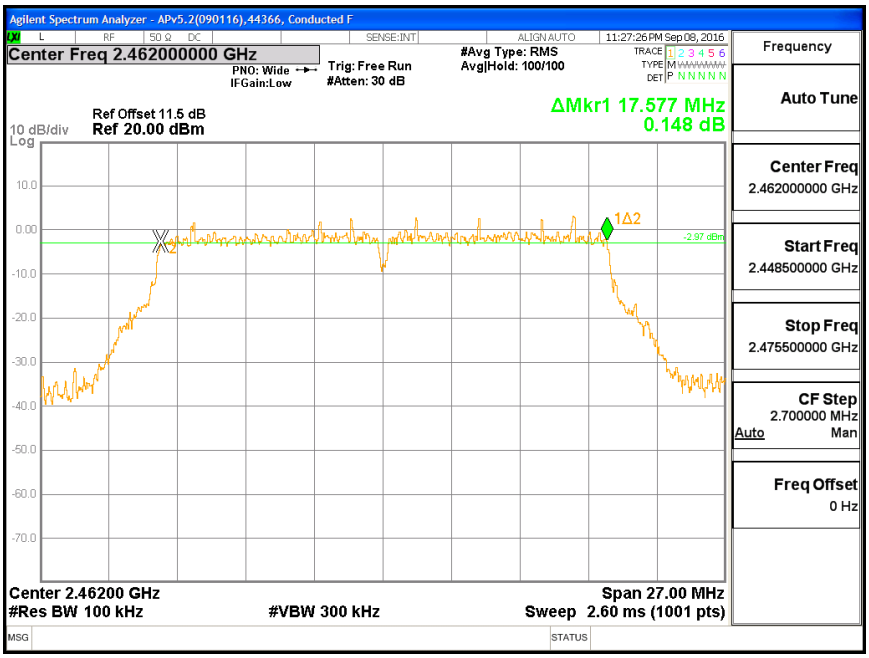
6 dB BANDWIDTH HIGH CH 9

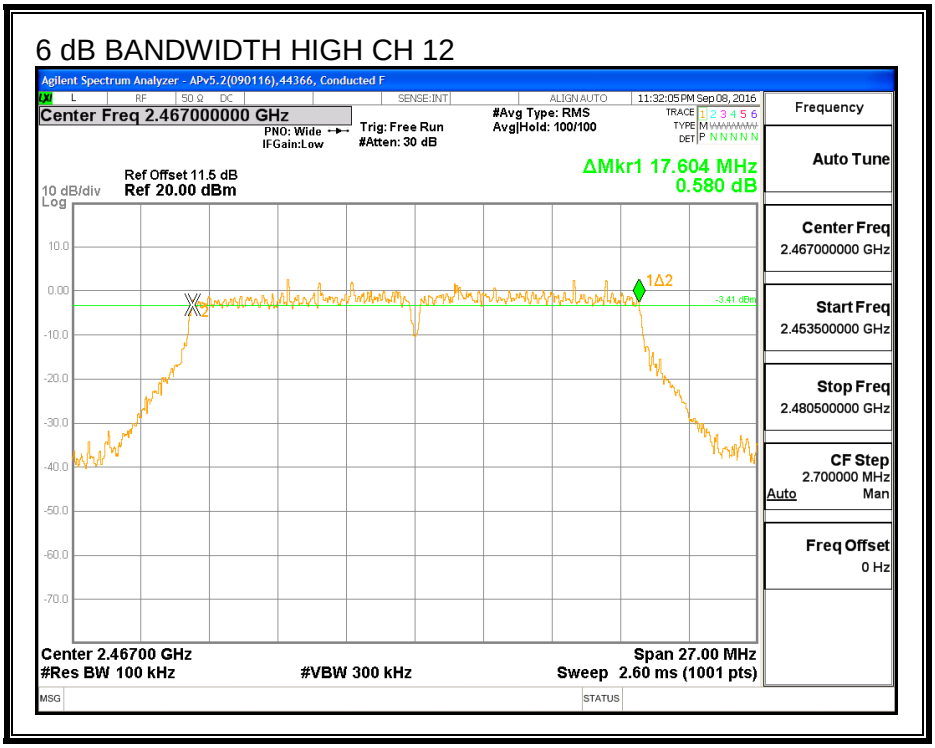


6 dB BANDWIDTH HIGH CH 10

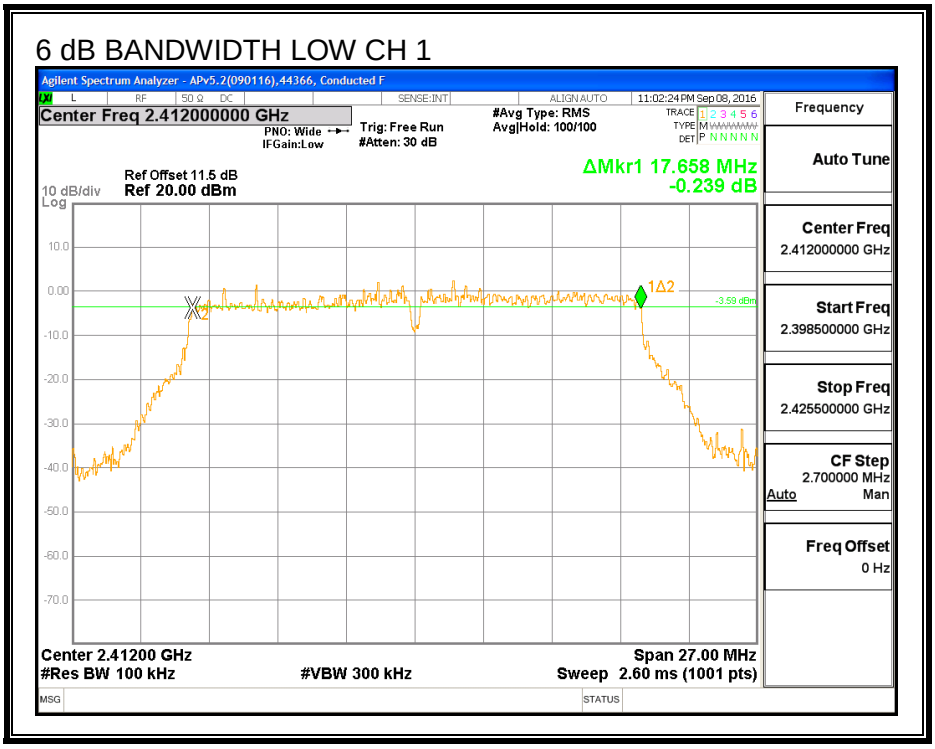


6 dB BANDWIDTH HIGH CH 11

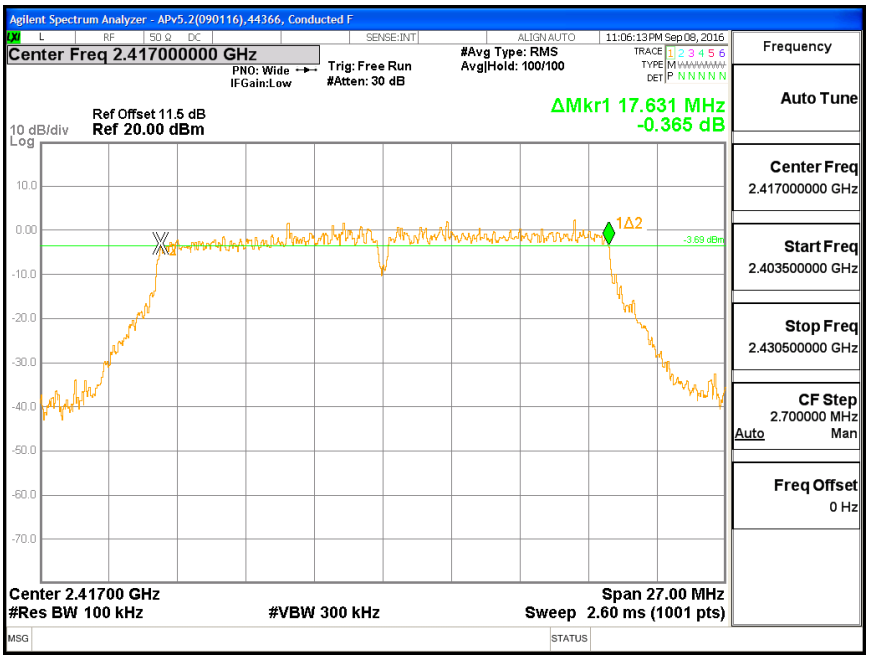




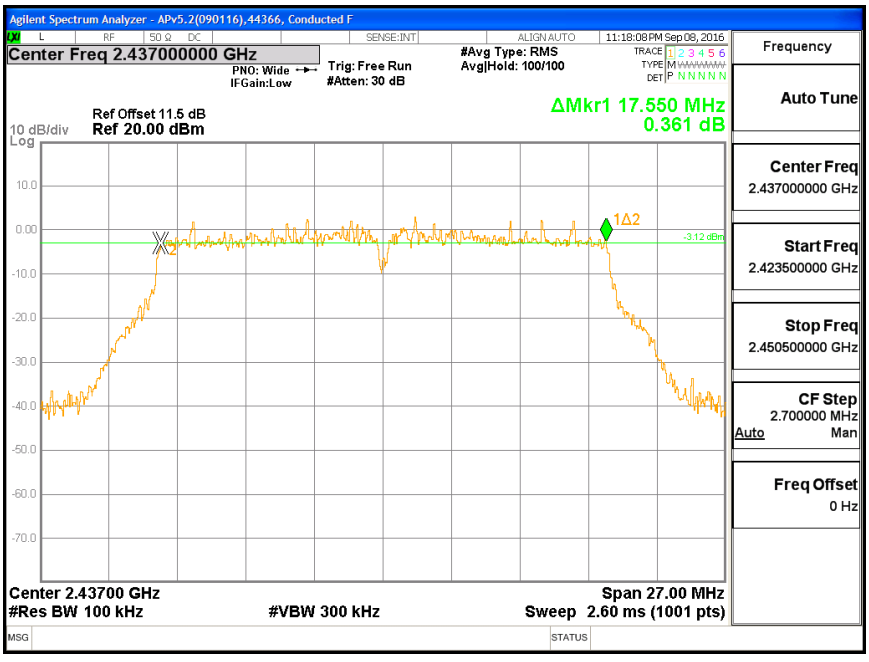
6 dB BANDWIDTH, Chain 2



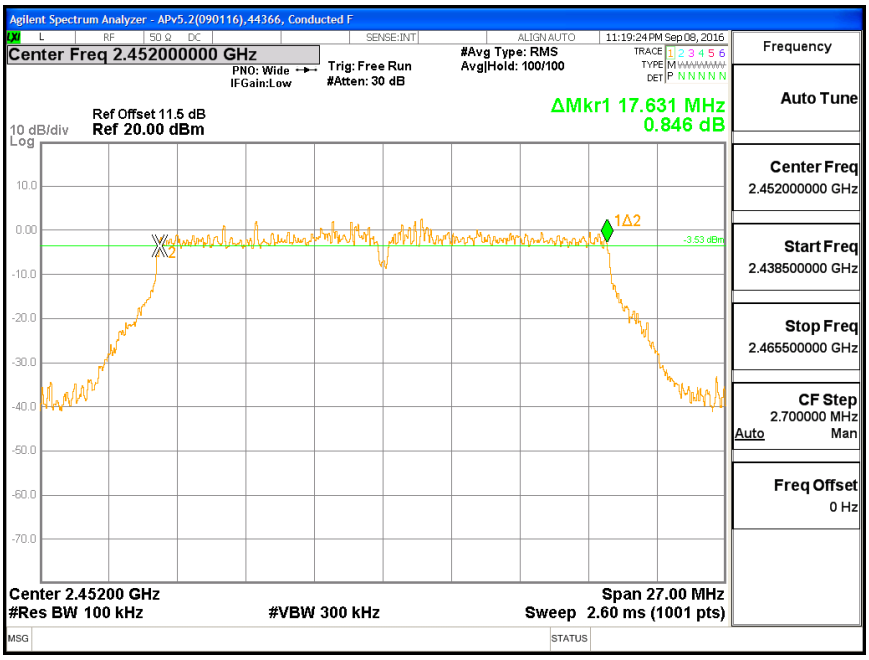
6 dB BANDWIDTH LOW CH 2



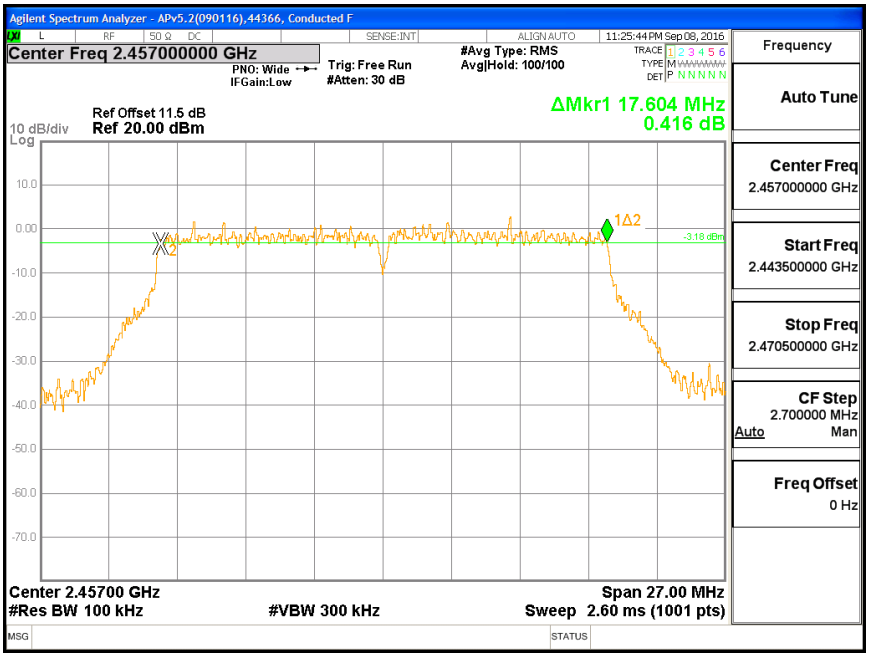
6 dB BANDWIDTH MID CH



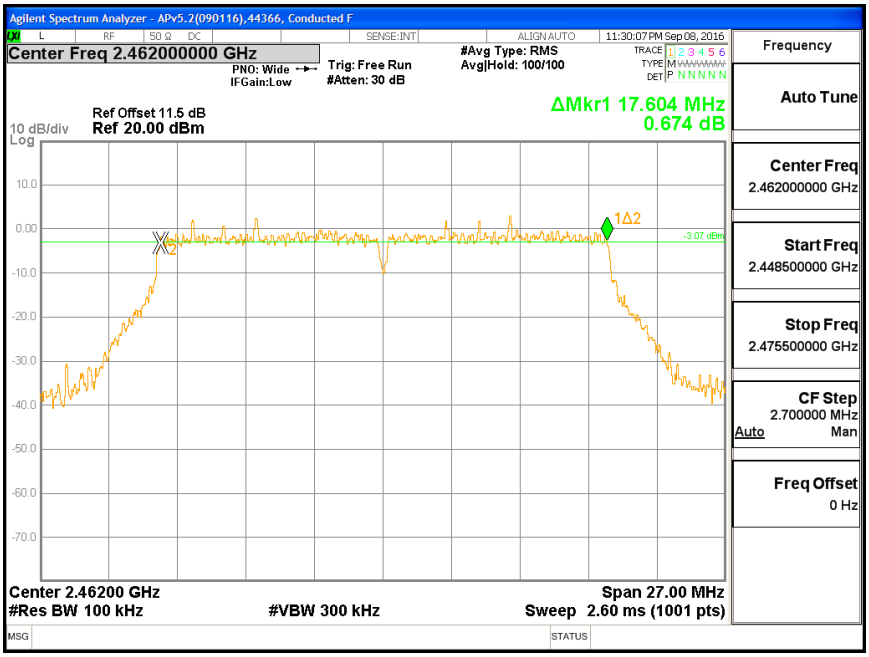
6 dB BANDWIDTH HIGH CH 9



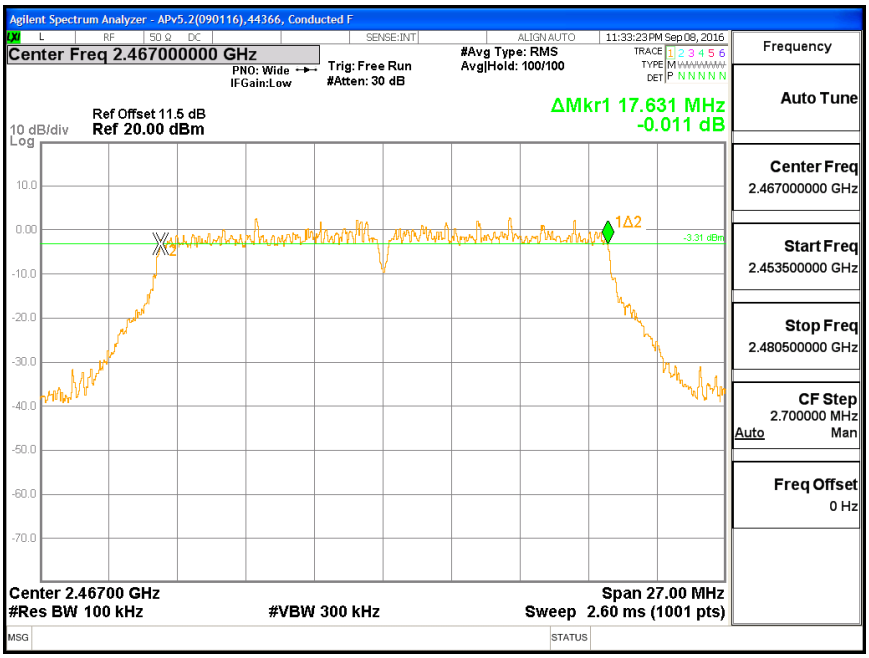
6 dB BANDWIDTH HIGH CH 10



6 dB BANDWIDTH HIGH CH 11



6 dB BANDWIDTH HIGH CH 12



8.24.2. 99% BANDWIDTH

LIMITS

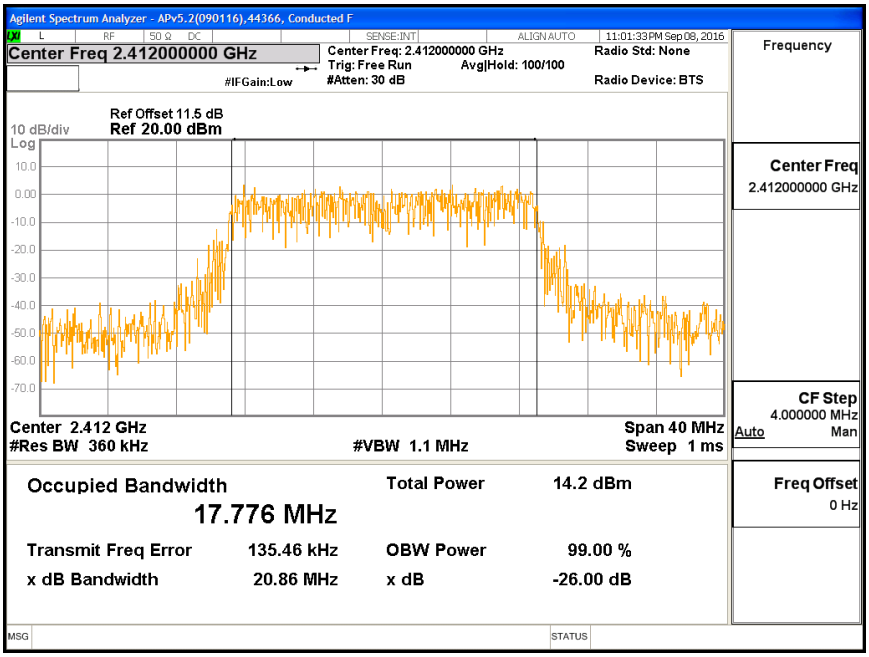
None; for reporting purposes only.

RESULTS

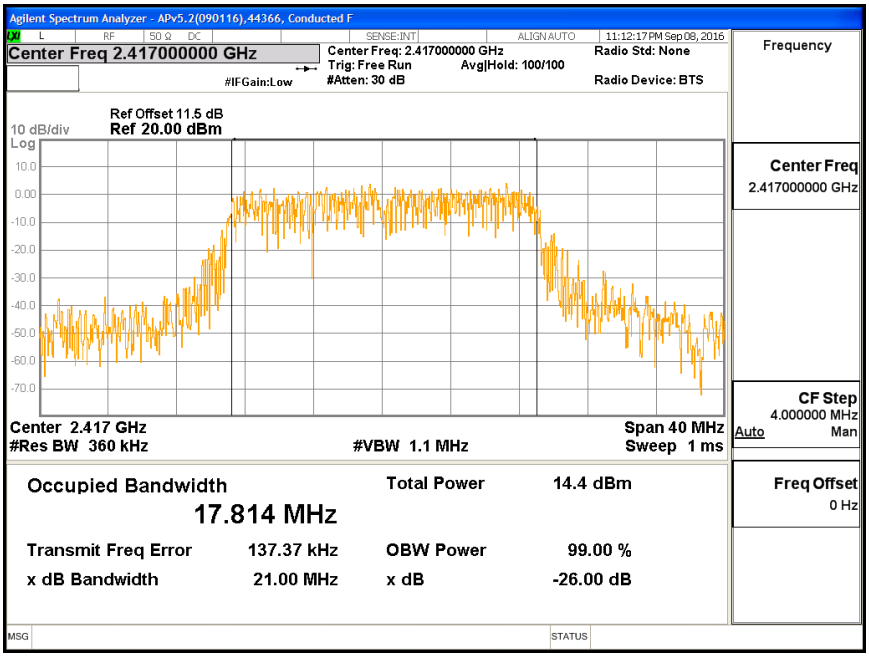
Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low_1	2412	17.776	17.850
Low_2	2417	17.814	17.821
Mid	2437	17.763	17.904
High_9	2452	17.781	17.815
High_10	2457	17.805	17.849
High_11	2462	17.805	17.739
High_12	2467	17.819	17.715

99% BANDWIDTH, Chain 1

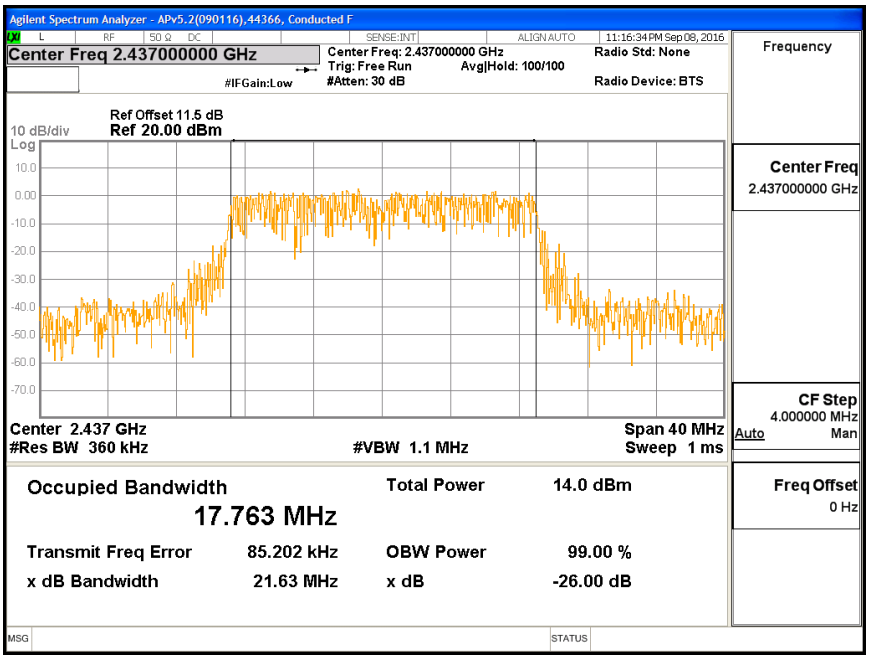
99% BANDWIDTH LOW CH 1



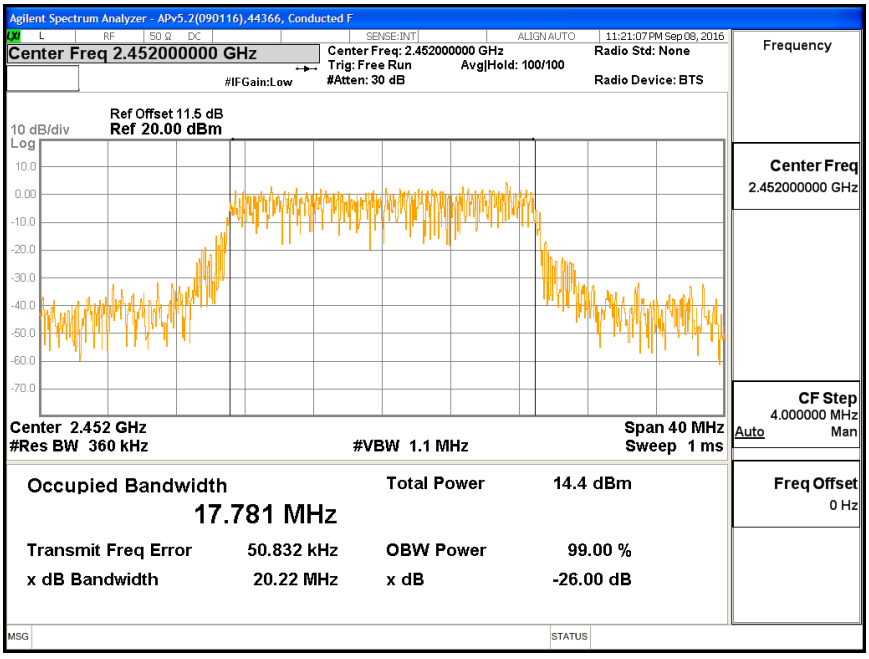
99% BANDWIDTH LOW CH 2



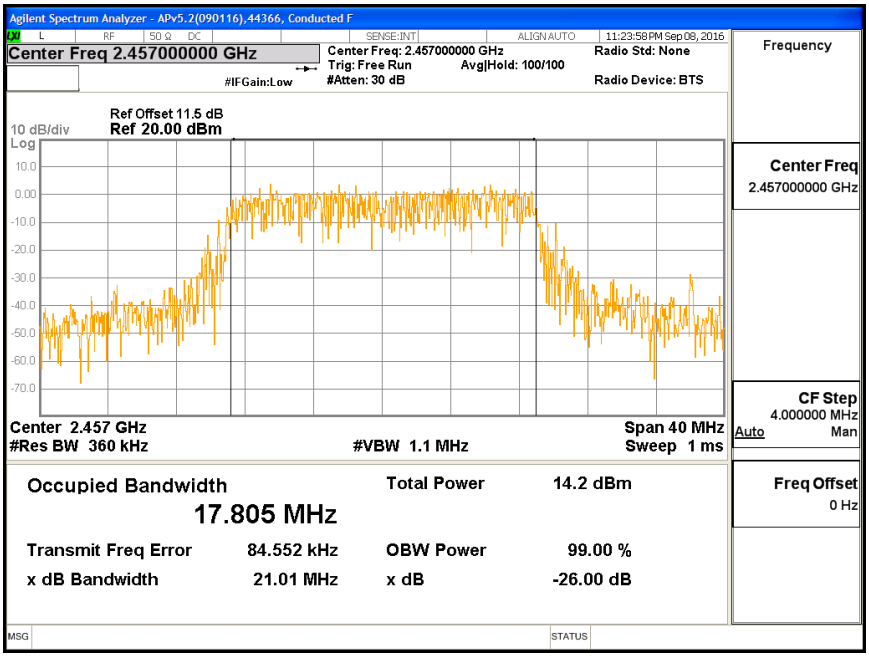
99% BANDWIDTH MID CH



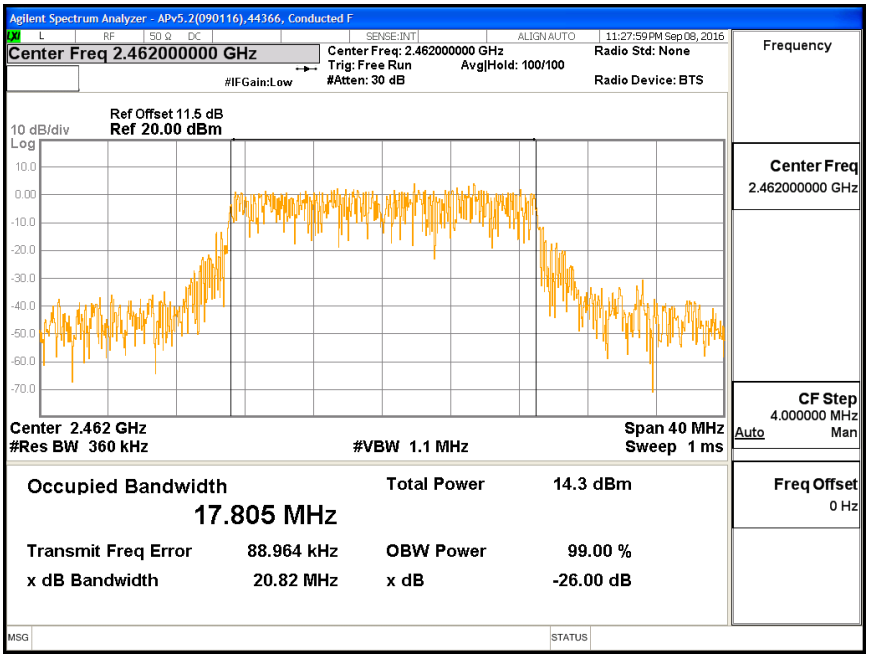
99% BANDWIDTH HIGH CH 9



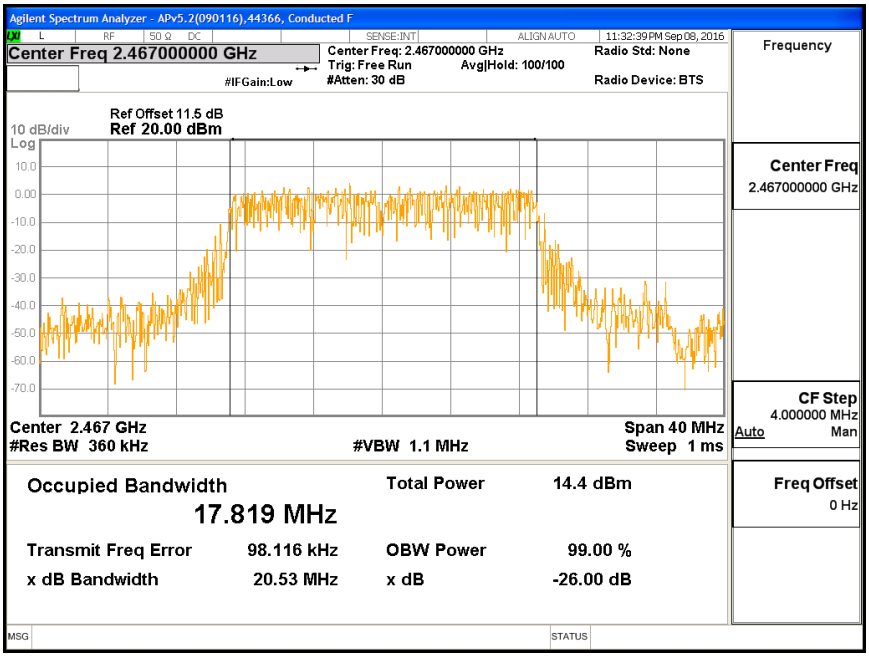
99% BANDWIDTH HIGH CH 10



99% BANDWIDTH HIGH CH 11

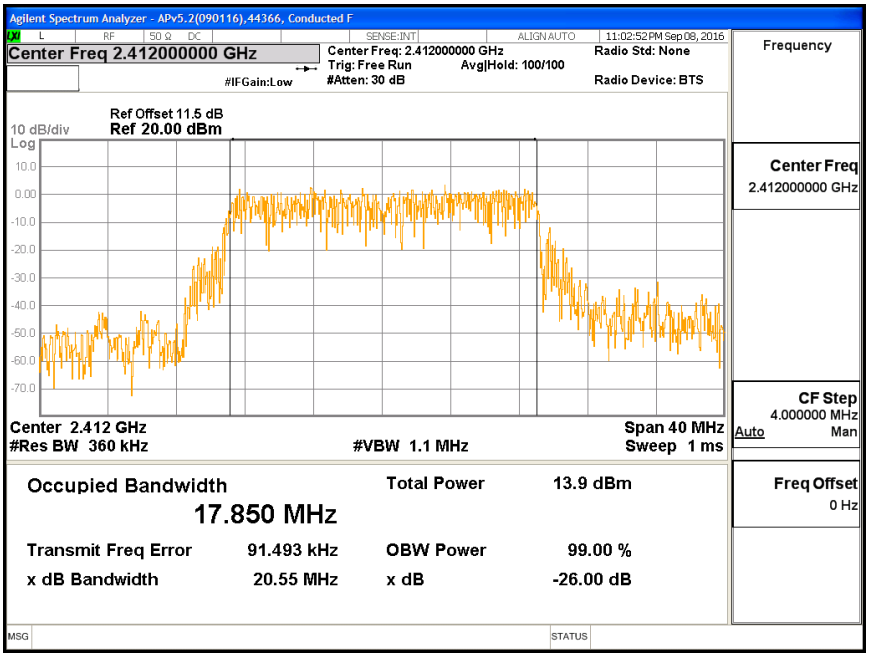


99% BANDWIDTH HIGH CH 12

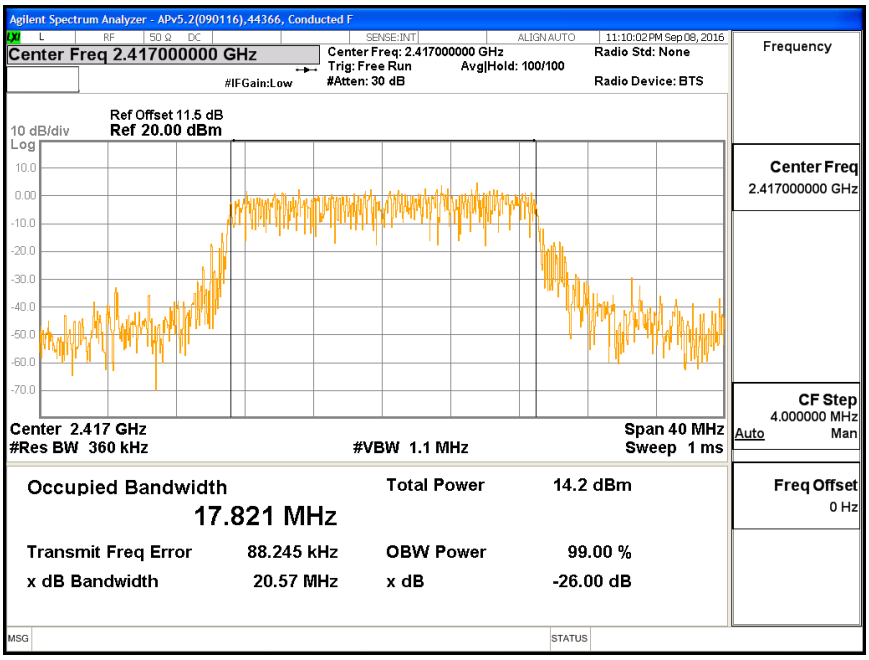


99% BANDWIDTH, Chain 2

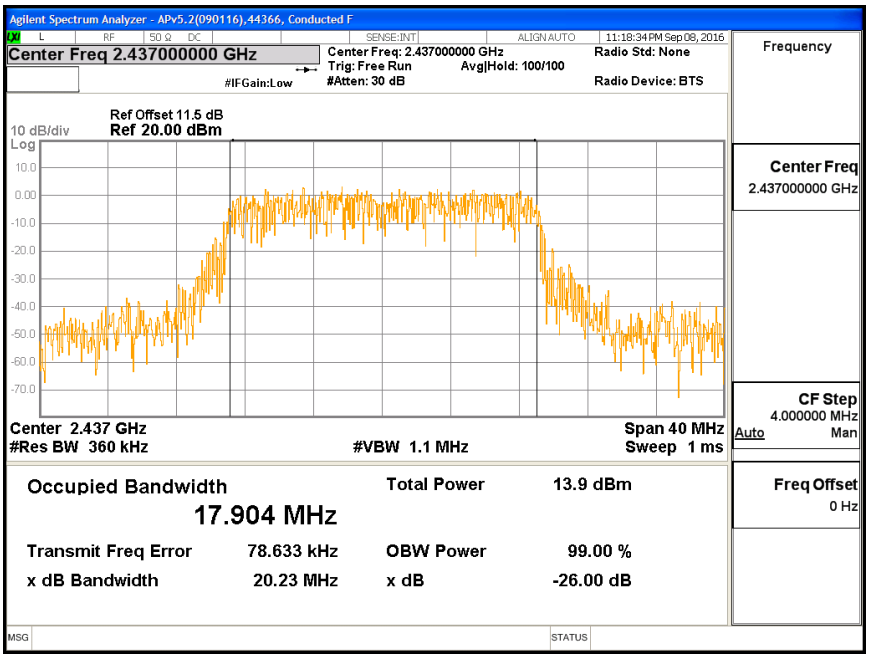
99% BANDWIDTH LOW CH 1



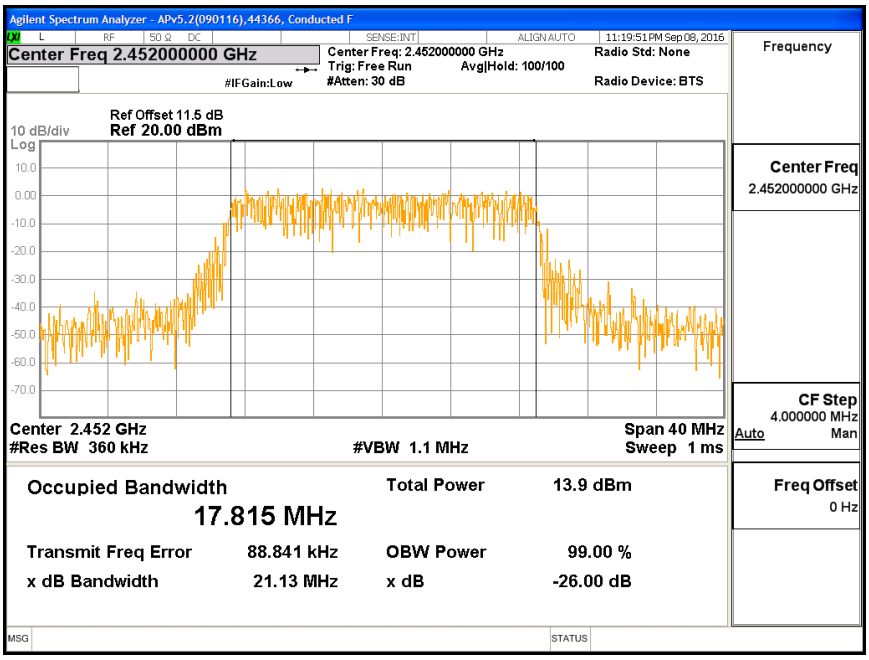
99% BANDWIDTH LOW CH 2



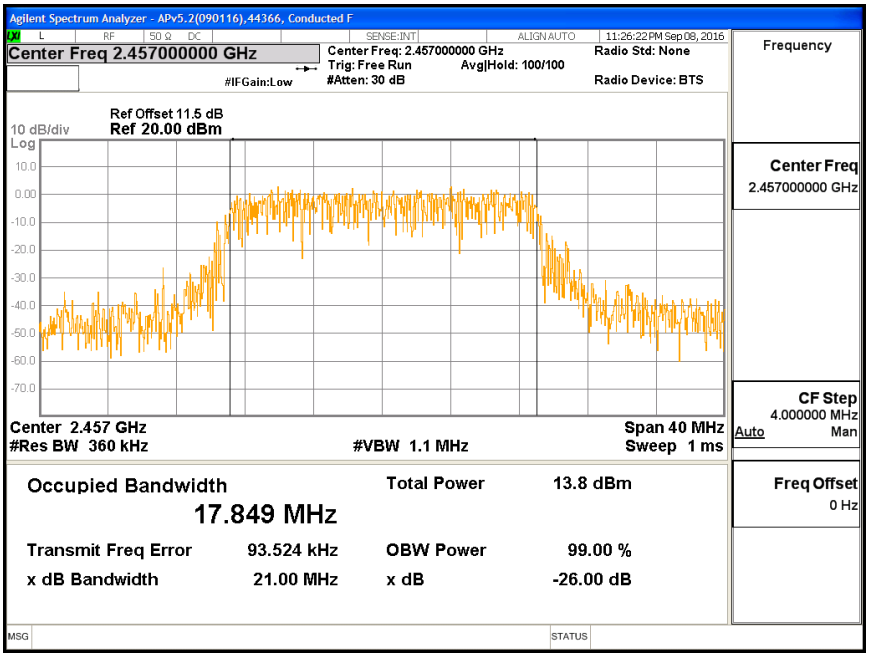
99% BANDWIDTH MID CH



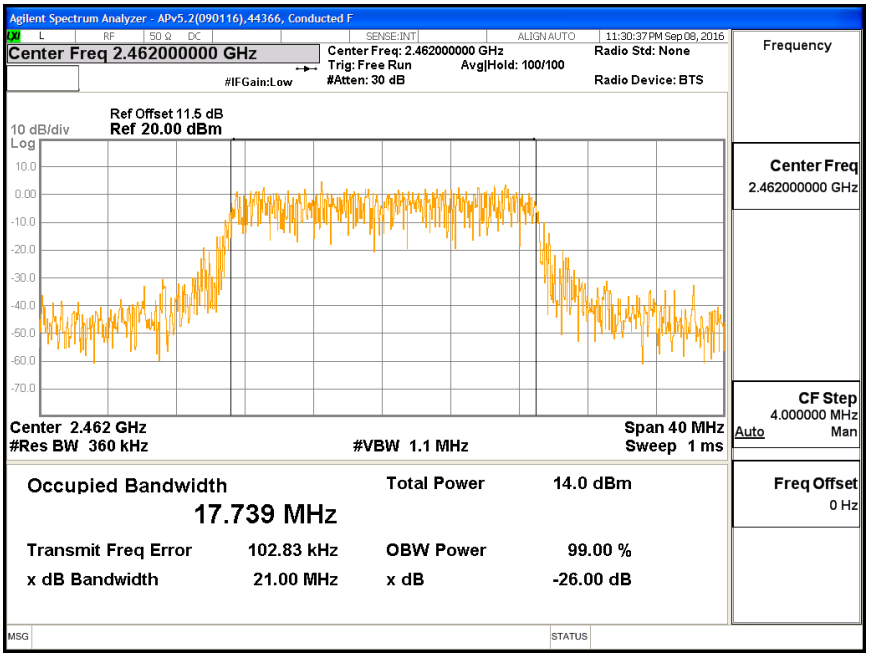
99% BANDWIDTH HIGH CH 9



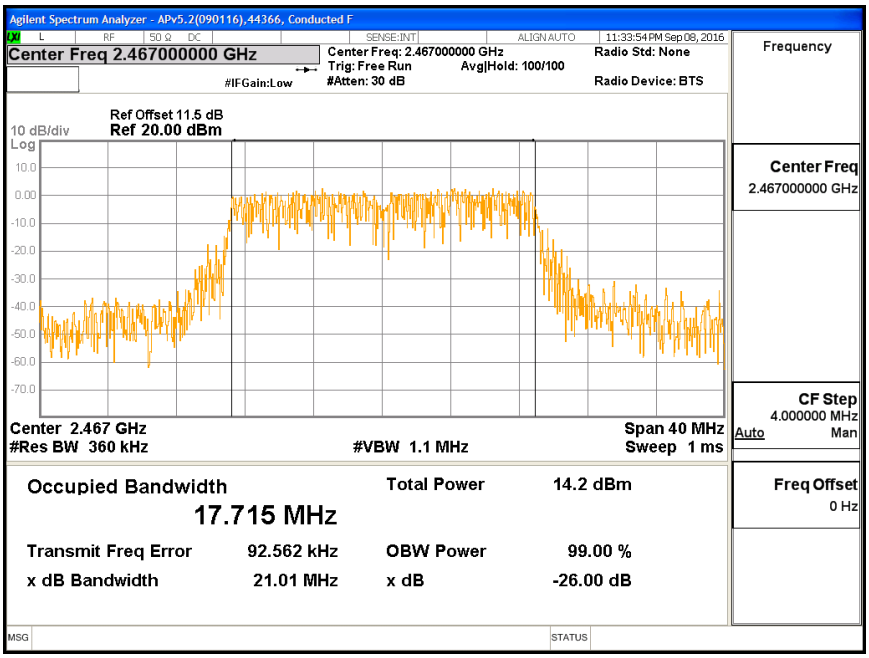
99% BANDWIDTH HIGH CH 10



99% BANDWIDTH HIGH CH 11



99% BANDWIDTH HIGH CH 12



8.24.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Total Power (dBm)
Low_1	2412	9.92	9.90	12.92
Low_2	2417	14.99	14.88	17.95
Mid	2437	16.40	16.38	19.40
High_9	2452	14.88	14.84	17.87
High_10	2457	12.90	12.78	15.85
High_11	2462	9.49	9.41	12.46
High_12	2467	-0.68	-0.62	2.36

8.24.4. 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.

DIRECTIONAL ANTENNA GAIN

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

Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
3.3	2.1	5.7

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	5.73	30.00	30	36	30.00
Low_2	2417	5.73	30.00	30	36	30.00
Mid	2437	5.73	30.00	30	36	30.00
High_9	2452	5.73	30.00	30	36	30.00
High_10	2457	5.73	30.00	30	36	30.00
High_11	2462	5.73	30.00	30	36	30.00
High_12	2467	5.73	30.00	30	36	30.00

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

Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low_1	2412	13.32	13.13	16.24	30.00	-13.76
Low_2	2417	17.71	17.68	20.71	30.00	-9.29
Mid	2437	19.45	19.43	22.45	30.00	-7.55
High_9	2452	17.75	17.64	20.71	30.00	-9.29
High_10	2457	15.95	15.80	18.89	30.00	-11.11
High_11	2462	12.35	12.27	15.32	30.00	-14.68
High_12	2467	2.28	2.37	5.34	30.00	-24.66

8.24.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-247 (5.2) (2)

For digitally modulated systems, the power spectral density conducted form 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.

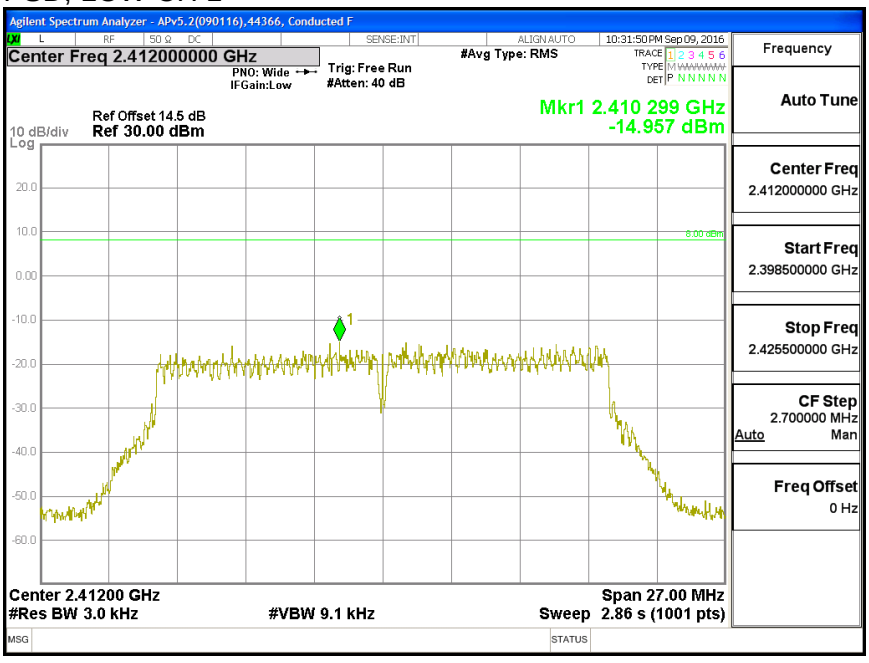
RESULTS

PSD Results

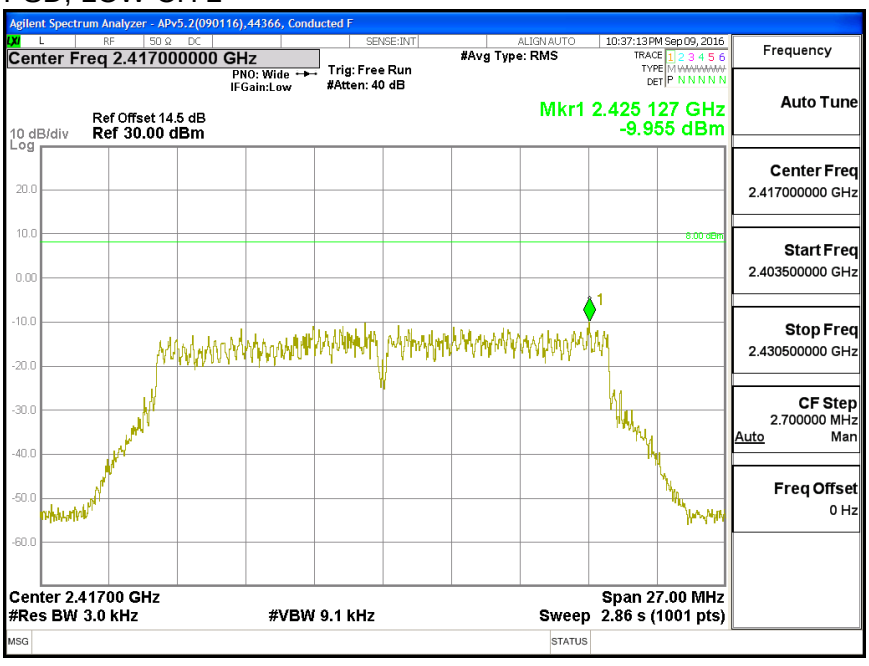
Channel	Frequency (MHz)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-14.96	-15.41	-12.16	8.0	-20.2
Low_2	2417	-9.96	-10.25	-7.09	9.0	-16.1
Mid	2437	-8.69	-9.02	-5.84	8.0	-13.8
High_9	2452	-9.74	-10.36	-7.03	8.0	-15.0
High_10	2457	-12.07	-12.86	-9.43	8.0	-17.4
High_11	2462	-15.76	-16.10	-12.91	8.0	-20.9
High_12	2467	-25.37	-25.24	-22.29	8.0	-30.3

PSD, Chain 1

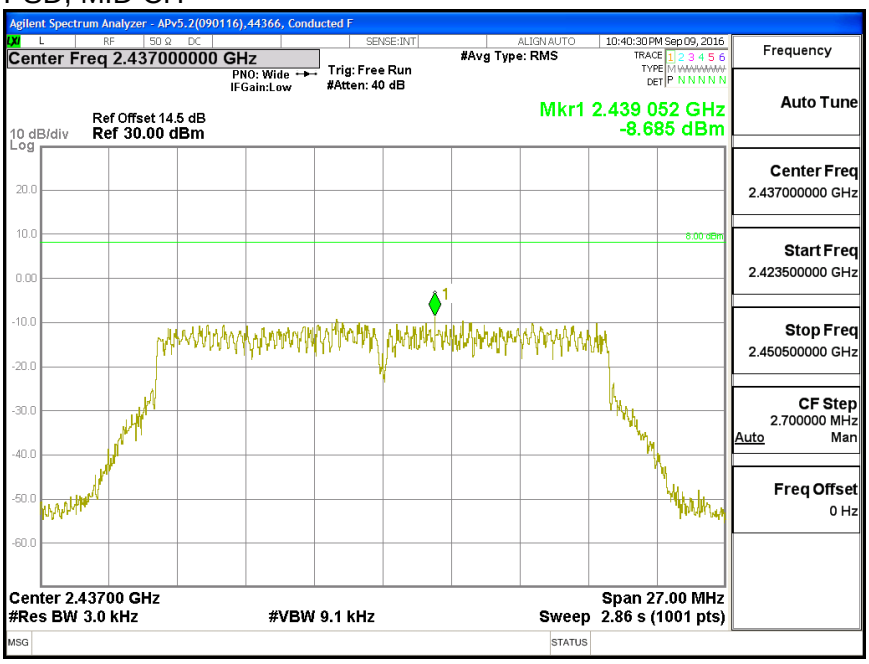
PSD, LOW CH 1



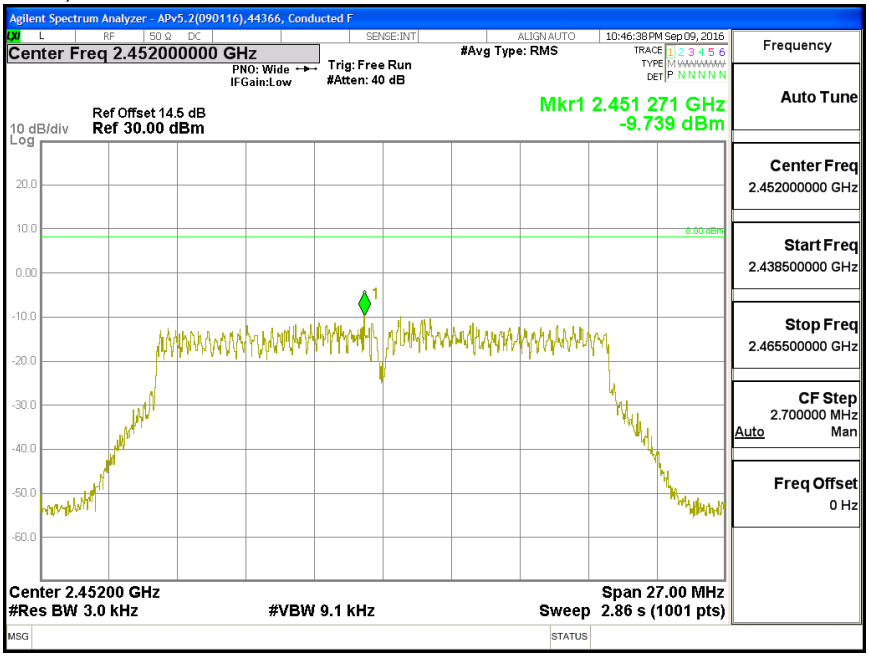
PSD, LOW CH 2



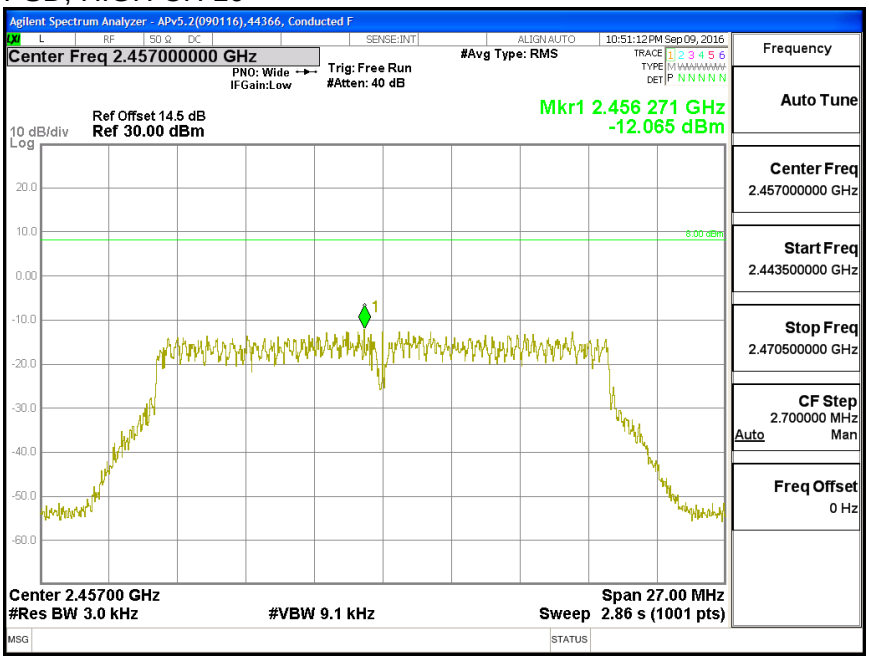
PSD, MID CH



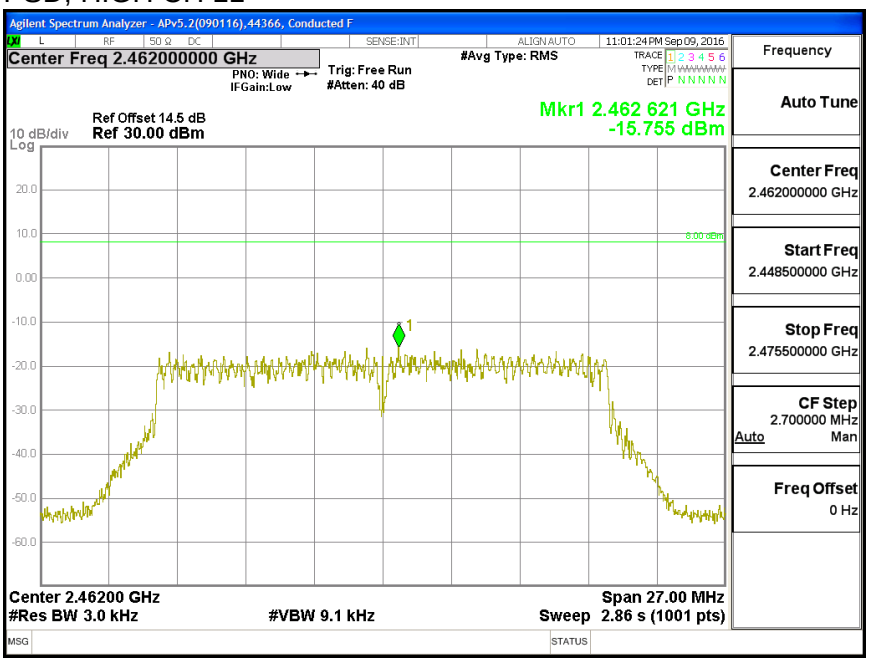
PSD, HIGH CH 9



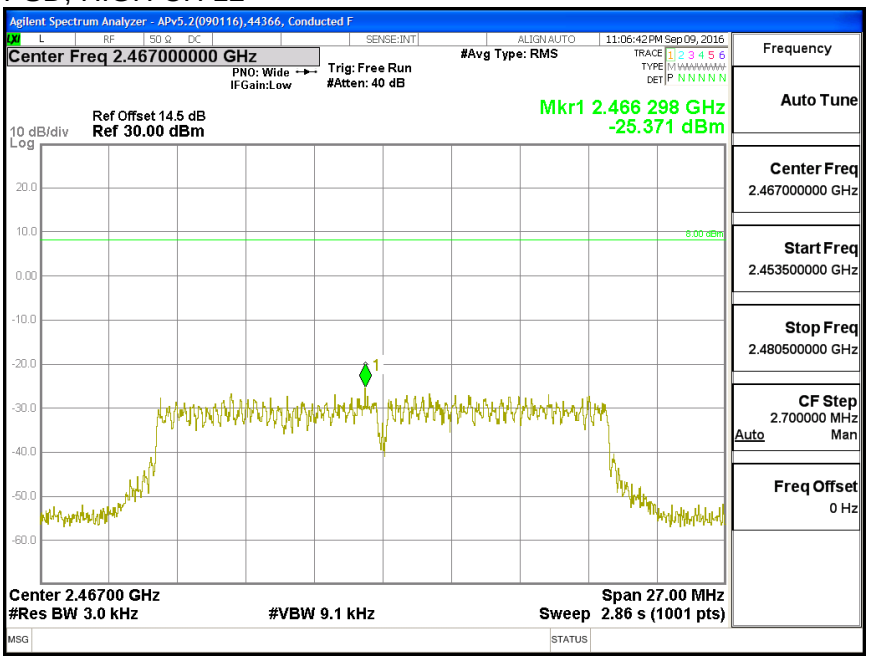
PSD, HIGH CH 10



PSD, HIGH CH 11

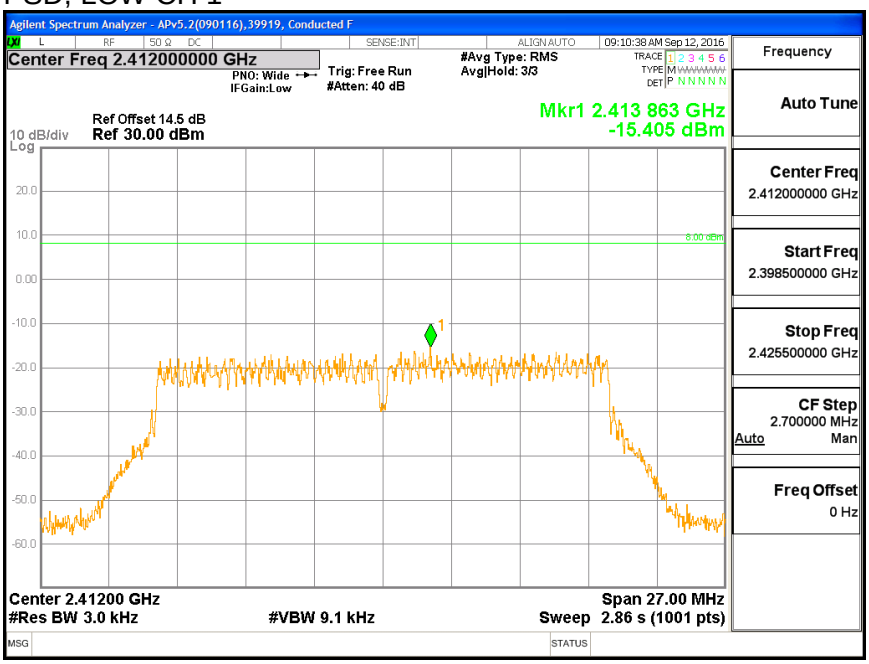


PSD, HIGH CH 12

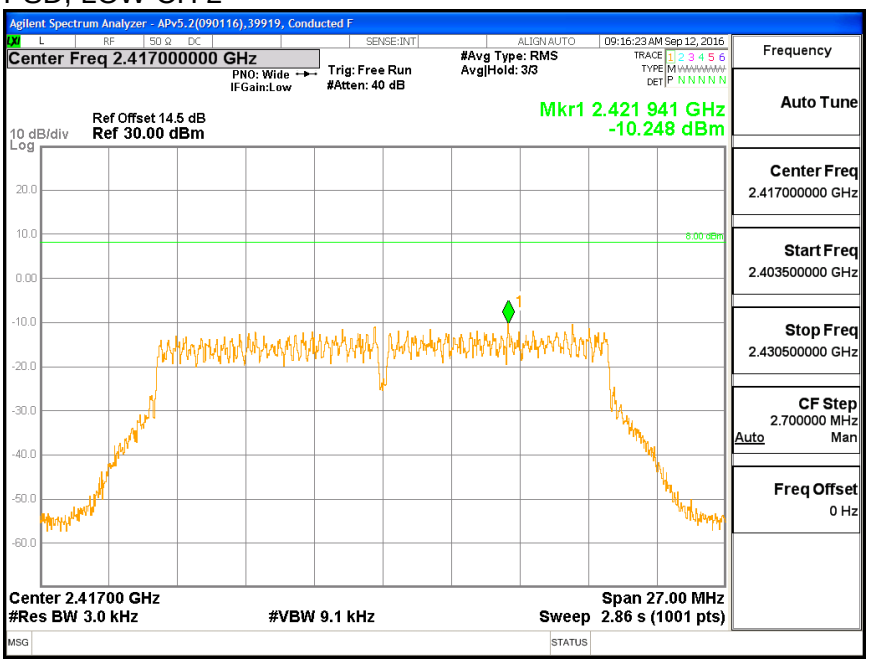


PSD, Chain 2

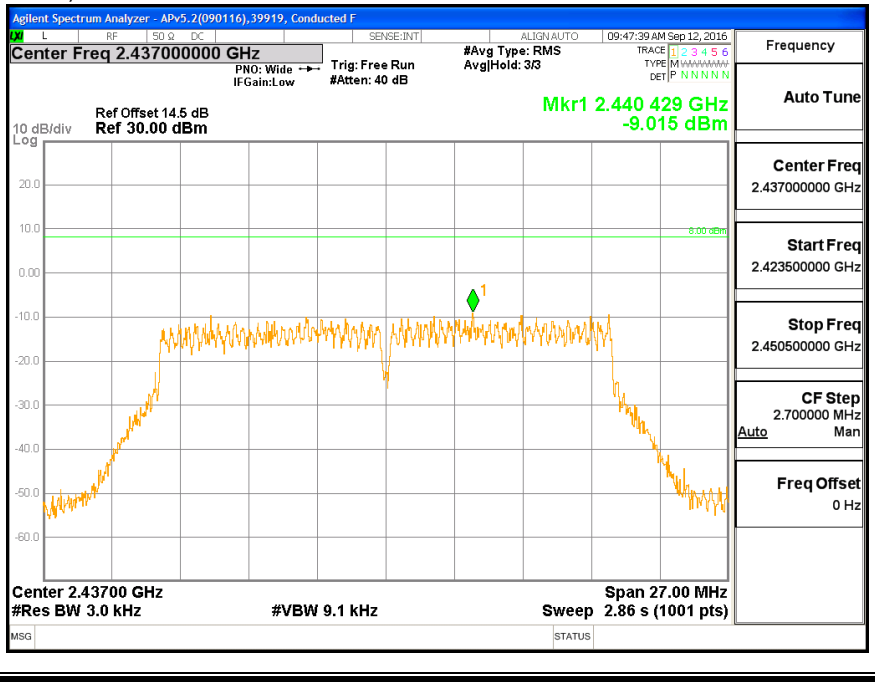
PSD, LOW CH 1



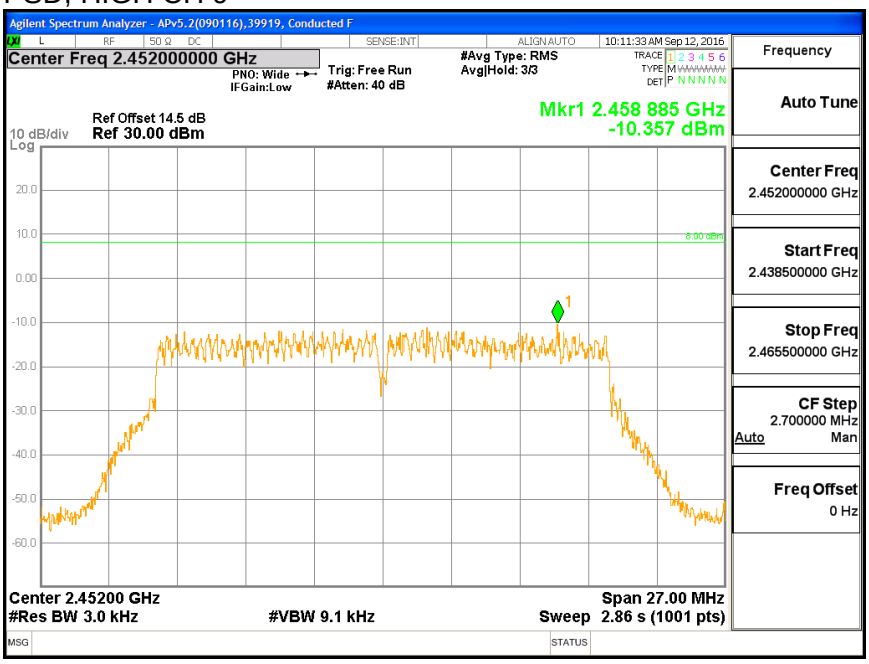
PSD, LOW CH 2



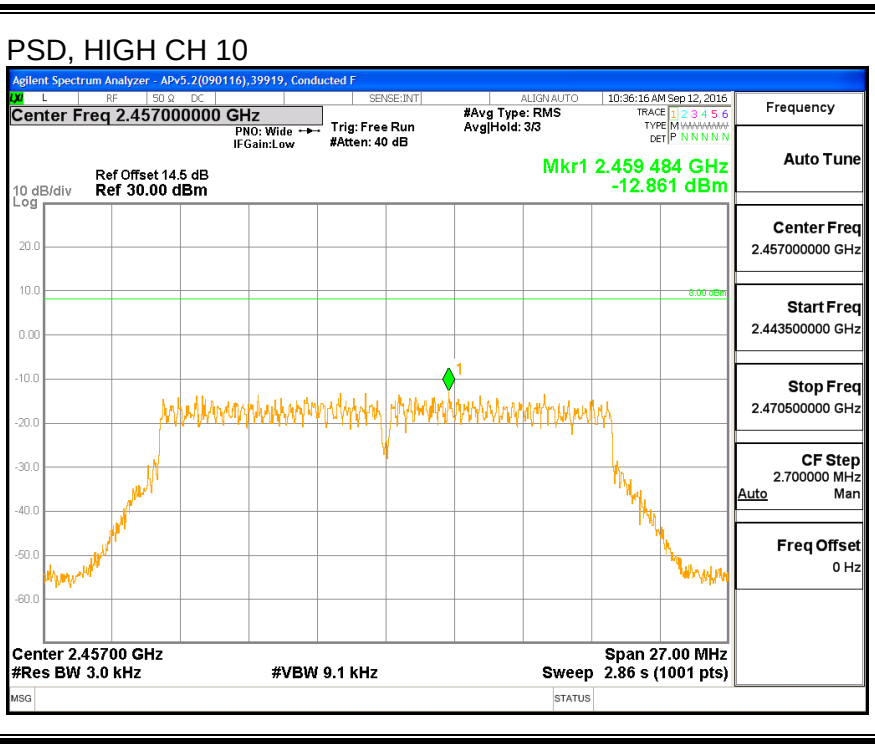
PSD, MID CH



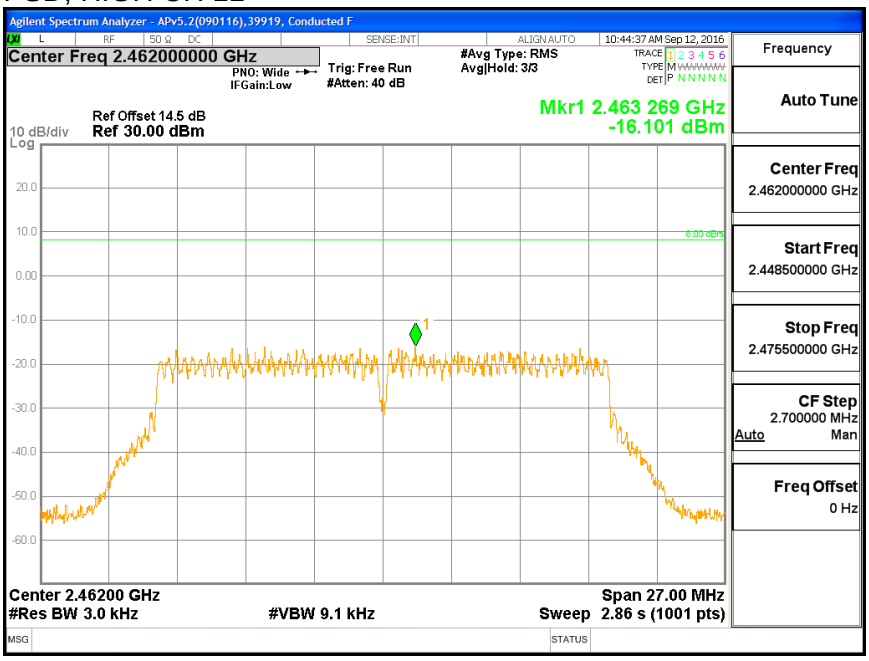
PSD, HIGH CH 9



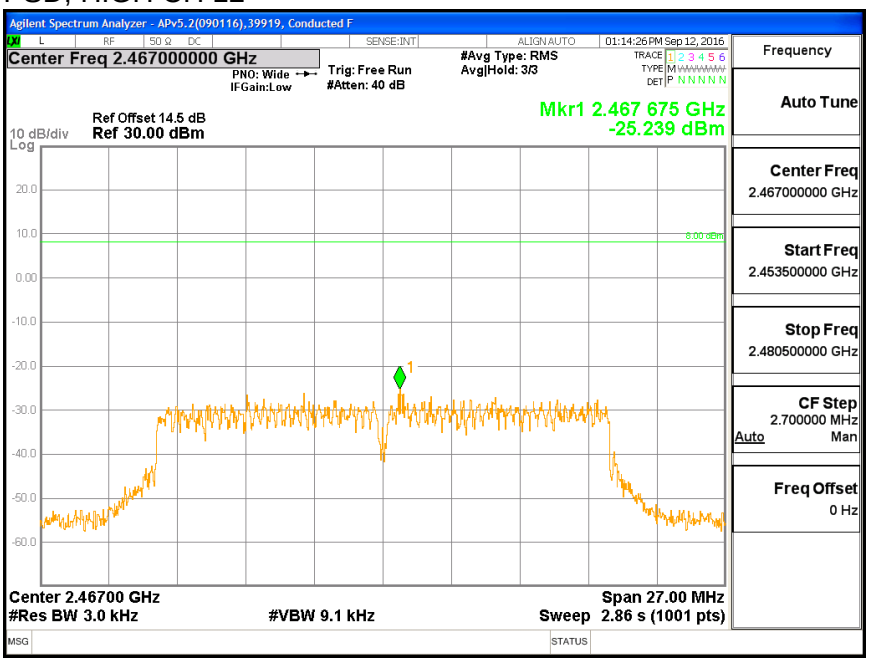
PSD, HIGH CH 10



PSD, HIGH CH 11



PSD, HIGH CH 12



8.24.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

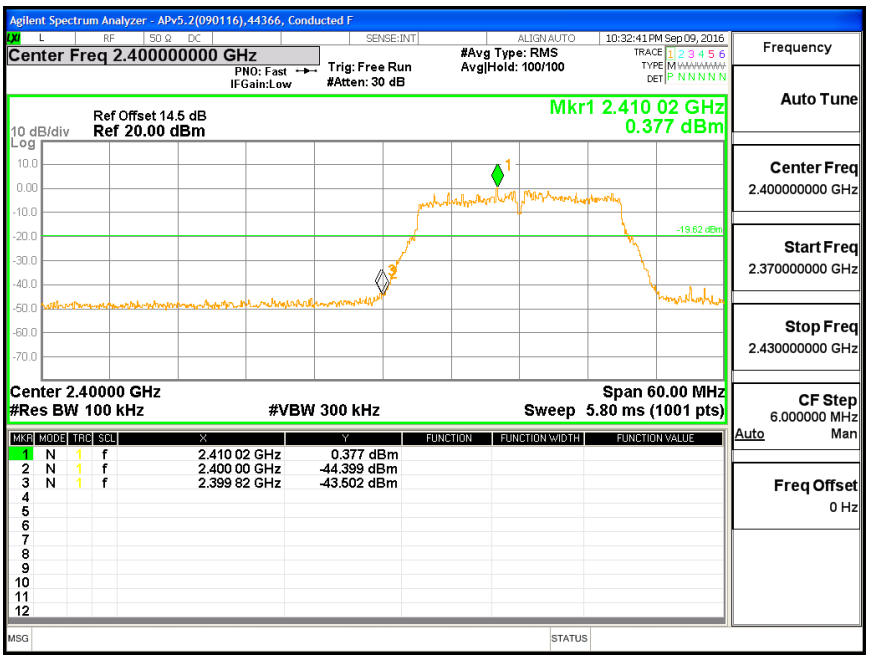
IC RSS-247 (5.5)

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.

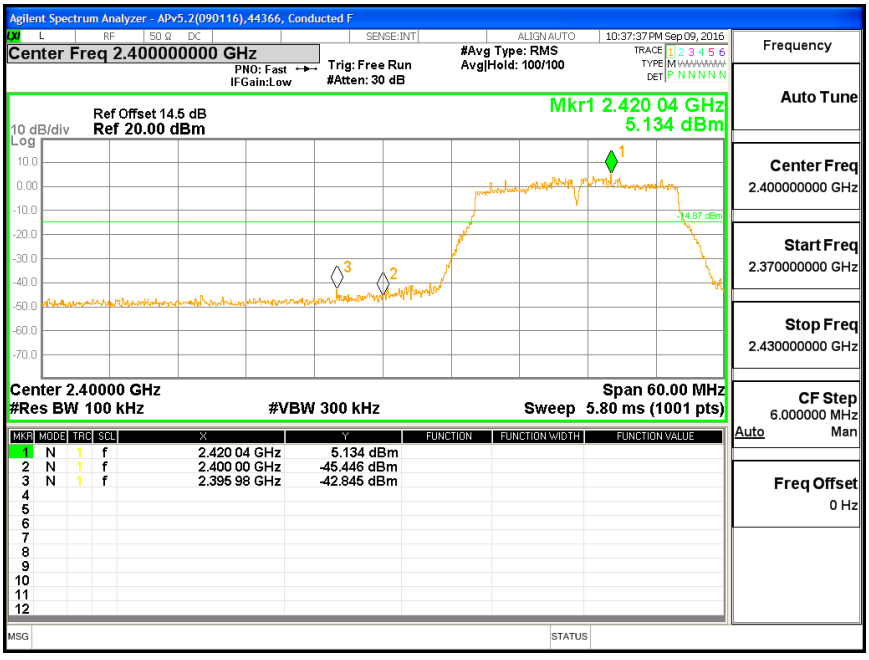
RESULTS

LOW CHANNEL BANDEDGE, Chain 1

AUTHORIZED BAND EDGE LOW CH 1

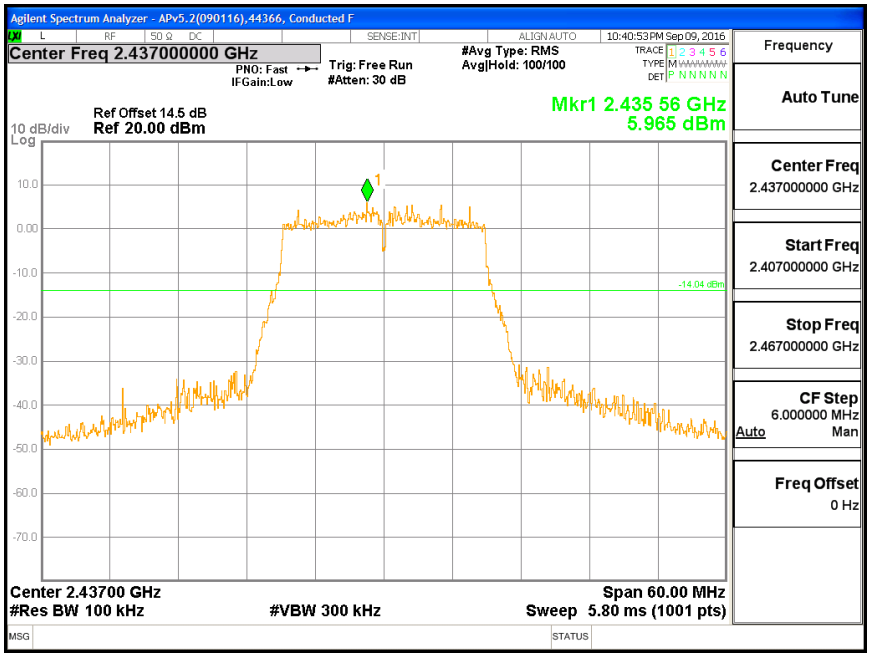


AUTHORIZED BAND EDGE LOW CH 2



MID CHANNEL REFERENCE, Chain 1

REFERENCE MID CH



HIGH CHANNEL BANDEDGE, Chain 1

AUTHORIZED BAND EDGE HIGH CH 9