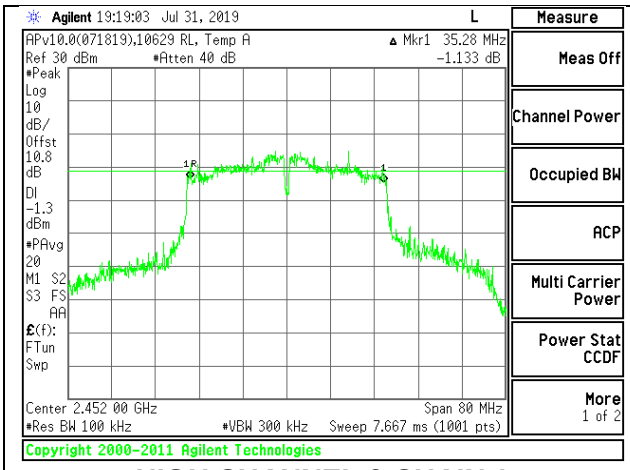
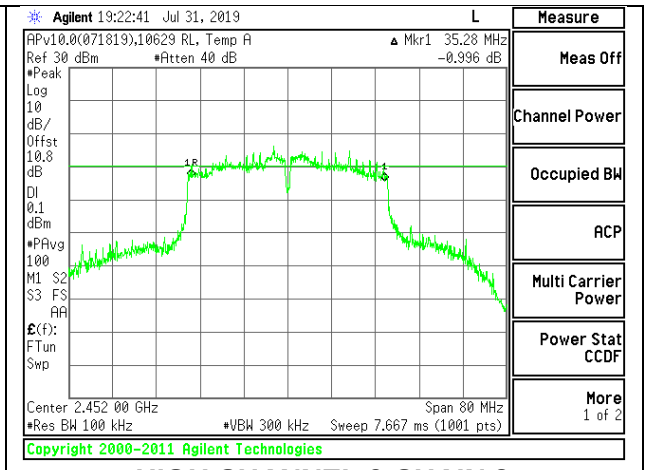
HIGH CHANNEL 9



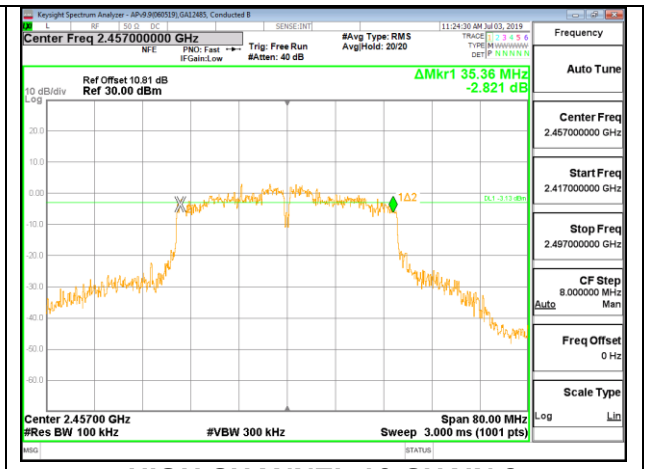
HIGH CHANNEL 9 CHAIN 1



HIGH CHANNEL 9 CHAIN 2

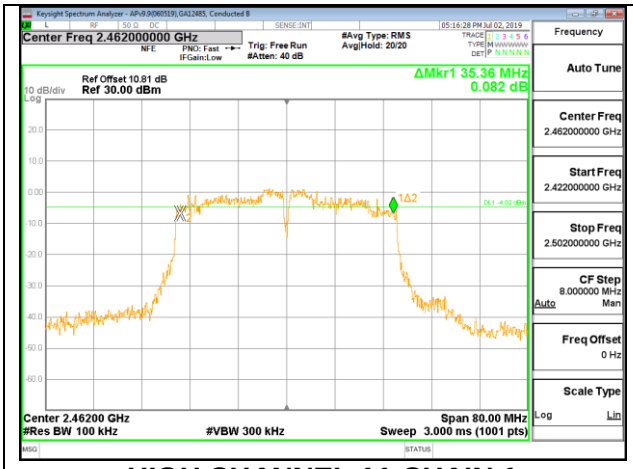
HIGH CHANNEL 10

HIGH CHANNEL 10 CHAIN 1

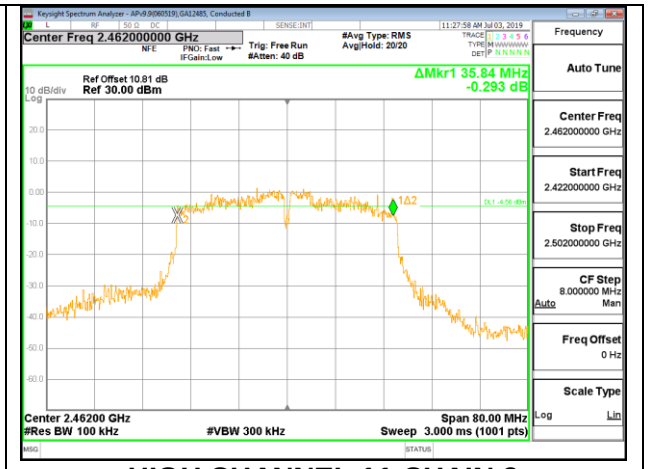


HIGH CHANNEL 10 CHAIN 2

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 1



HIGH CHANNEL 11 CHAIN 2

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8.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

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

The transmitter output is connected to a power meter. The cable assembly insertion loss was entered as an offset in the power meter to allow for a gated average reading of power.

DIRECTIONAL ANTENNA GAIN

For 2 TX:

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting CDD in all MIMO modes. The directional gains are as follows:

Band (GHz)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.4	0.60	1.20	0.91	3.92

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RESULTS

8.4.1. 802.11b MODE

2TX Chain 1 + Chain 2 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	0.91	30.00	36	30.00
Low 2	2417	0.91	30.00	36	30.00
Mid 6	2437	0.91	30.00	36	30.00
High 10	2457	0.91	30.00	36	30.00
High 11	2462	0.91	30.00	36	30.00
High 12	2467	0.91	30.00	36	30.00
High 13	2472	0.91	30.00	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)	Margin (dB)
Low 1	2412	17.12	16.84	19.99	30.00	-10.01
Low 2	2417	18.95	18.86	21.92	30.00	-8.08
Mid 6	2437	18.97	18.89	21.94	30.00	-8.06
High 10	2457	18.93	19.03	21.99	30.00	-8.01
High 11	2462	16.94	17.12	20.04	30.00	-9.96
High 12	2467	12.90	12.90	15.91	30.00	-14.09
High 13	2472	13.14	13.05	16.11	30.00	-13.89

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8.4.2. 802.11g MODE

2TX Chain 1 + Chain 2 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	0.91	30.00	36	30.00
Low 2	2417	0.91	30.00	36	30.00
Mid 6	2437	0.91	30.00	36	30.00
High 10	2457	0.91	30.00	36	30.00
High 11	2462	0.91	30.00	36	30.00
High 12	2467	0.91	30.00	36	30.00
High 13	2472	0.91	30.00	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)	Margin (dB)
Low 1	2412	17.04	17.15	20.11	30.00	-9.89
Low 2	2417	18.81	18.76	21.80	30.00	-8.20
Mid 6	2437	19.05	19.01	22.04	30.00	-7.96
High 10	2457	18.92	18.92	21.93	30.00	-8.07
High 11	2462	16.38	16.59	19.50	30.00	-10.50
High 12	2467	13.03	13.02	16.04	30.00	-13.96
High 13	2472	10.36	10.51	13.45	30.00	-16.55

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8.4.3. 802.11n HT20 MODE

2TX Chain 1 + Chain 2 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	0.91	30.00	36	30.00
Low 2	2417	0.91	30.00	36	30.00
Mid 6	2437	0.91	30.00	36	30.00
High 10	2457	0.91	30.00	36	30.00
High 11	2462	0.91	30.00	36	30.00
High 12	2467	0.91	30.00	36	30.00
High 13	2472	0.91	30.00	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)	Margin (dB)
Low 1	2412	16.99	17.03	20.02	30.00	-9.98
Low 2	2417	19.01	18.97	22.00	30.00	-8.00
Mid 6	2437	18.81	18.80	21.82	30.00	-8.18
High 10	2457	19.12	18.82	21.98	30.00	-8.02
High 11	2462	16.79	16.93	19.87	30.00	-10.13
High 12	2467	12.82	12.83	15.84	30.00	-14.16
High 13	2472	12.72	13.03	15.89	30.00	-14.11

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8.4.4. 802.11n HT40 MODE

2TX Chain 1 + Chain 2 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	0.91	30.00	36	30.00
Low 4	2427	0.91	30.00	36	30.00
Low 5	2432	0.91	30.00	36	30.00
Mid 6	2437	0.91	30.00	36	30.00
High 7	2442	0.91	30.00	36	30.00
High 8	2447	0.91	30.00	36	30.00
High 9	2452	0.91	30.00	36	30.00
High 10	2457	0.91	30.00	36	30.00
High 11	2462	0.91	30.00	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)	Margin (dB)
Low 3	2422	13.65	12.88	16.29	30.00	-13.71
Low 4	2427	15.22	14.33	17.81	30.00	-12.19
Low 5	2432	16.27	15.48	18.90	30.00	-11.10
Mid 6	2437	16.92	16.01	19.50	30.00	-10.50
High 7	2442	16.45	15.62	19.07	30.00	-10.93
High 8	2447	15.04	14.41	17.75	30.00	-12.25
High 9	2452	14.08	13.23	16.69	30.00	-13.31
High 10	2457	13.86	13.02	16.47	30.00	-13.53
High 11	2462	6.48	6.01	9.26	30.00	-20.74

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8.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

RSS-247 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

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8.5.1. 802.11b MODE

2TX Chain 1 + Chain 2 CDD MODE

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

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-4.31	-4.67	-1.48	8.0	-9.5
Low 2	2417	-2.59	-3.22	0.12	8.0	-7.9
Mid 6	2437	-2.71	-3.14	0.09	8.0	-7.9
High 10	2457	-2.24	-3.00	0.41	8.0	-7.6
High 11	2462	-5.13	-4.70	-1.90	8.0	-9.9
High 12	2467	-8.89	-9.24	-6.05	8.0	-14.1
High 13	2472	-8.58	-8.93	-5.74	8.0	-13.7

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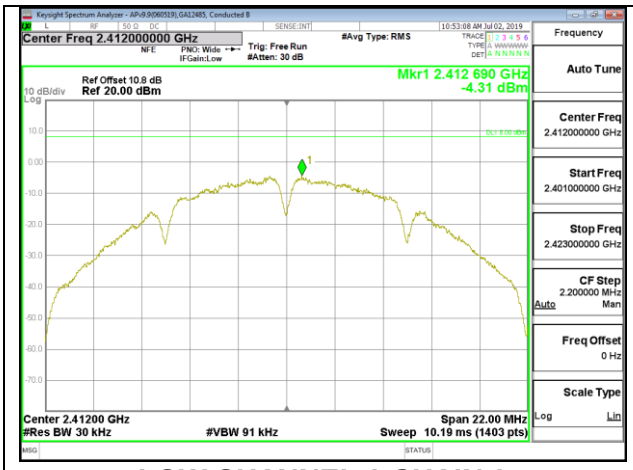
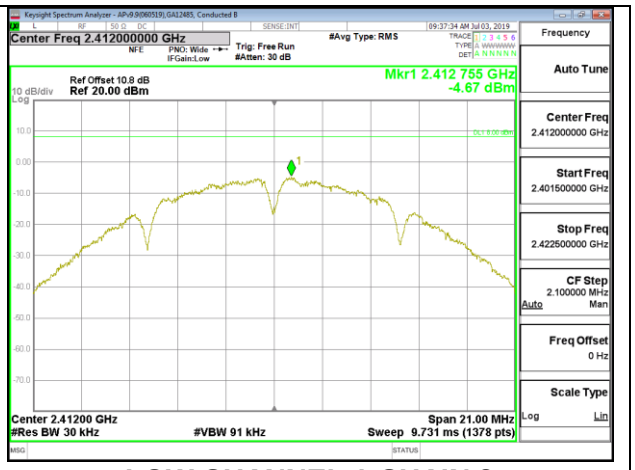
LOW CHANNEL 1

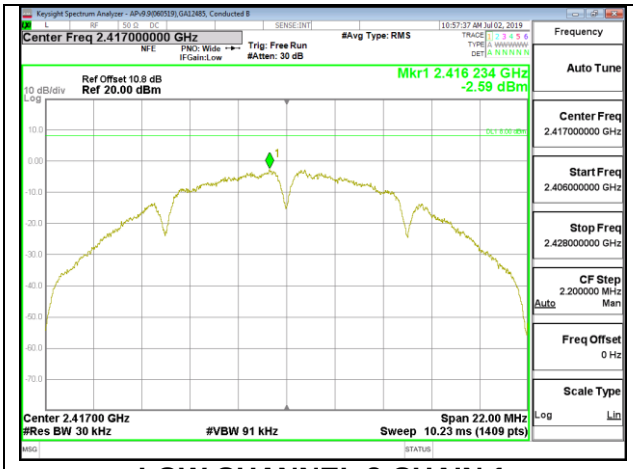


LOW CHANNEL 1 CHAIN 1



LOW CHANNEL 1 CHAIN 2

LOW CHANNEL 2



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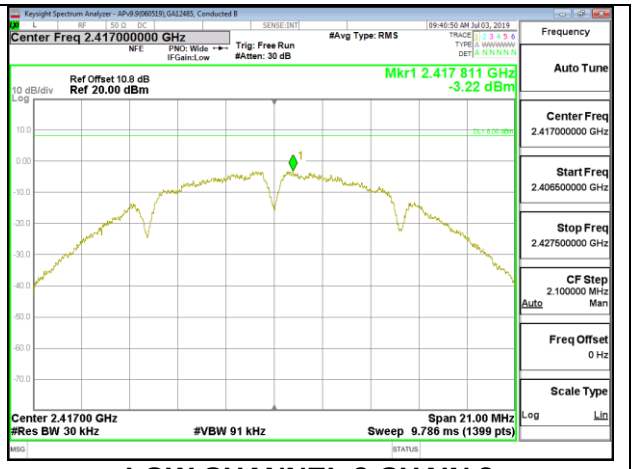
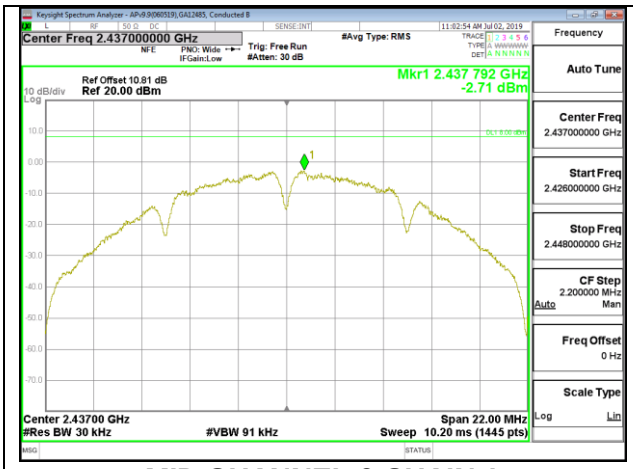


LOW CHANNEL 2 CHAIN 2

MID CHANNEL 6



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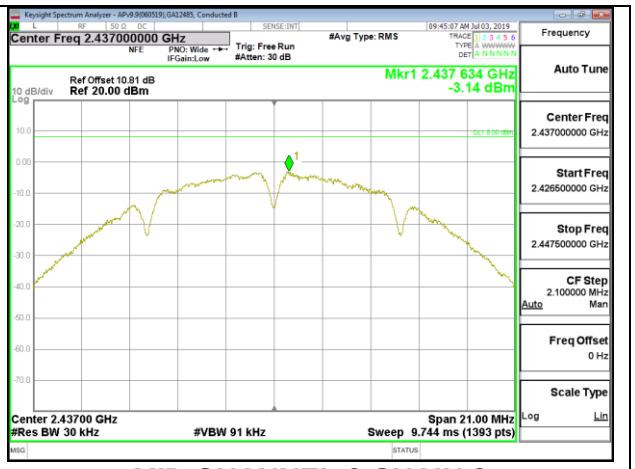

MID CHANNEL 6 CHAIN 2

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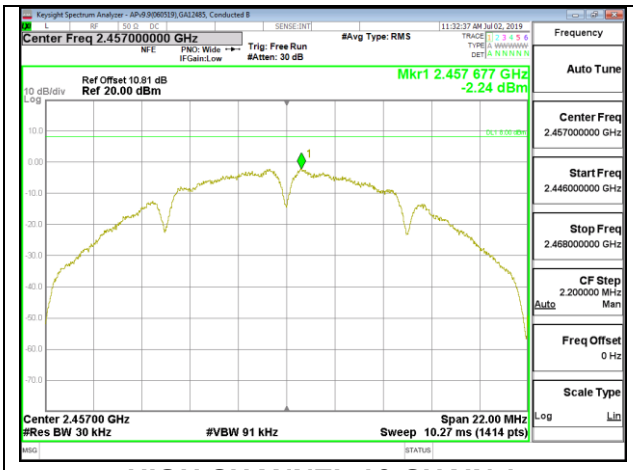
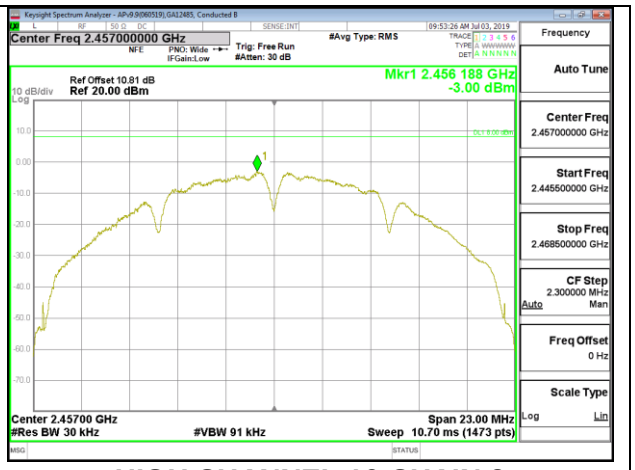
HIGH CHANNEL 10



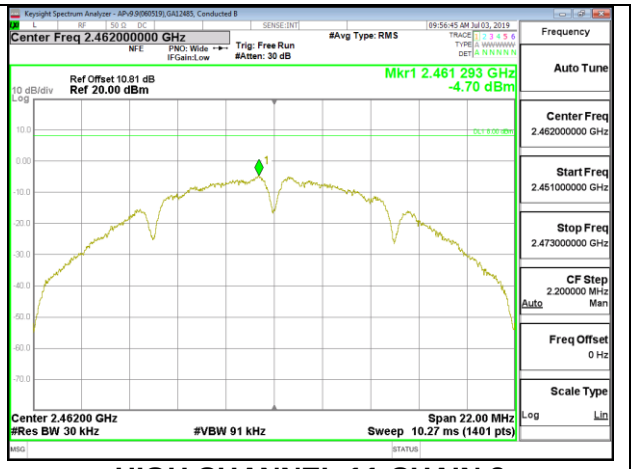
HIGH CHANNEL 10 CHAIN 1



HIGH CHANNEL 10 CHAIN 2

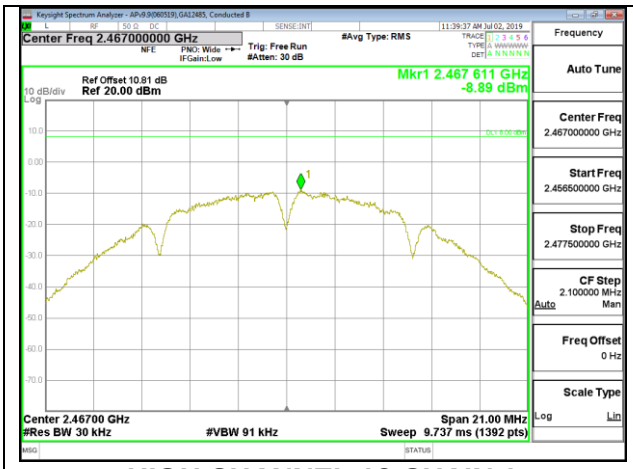
HIGH CHANNEL 11

HIGH CHANNEL 11 CHAIN 1

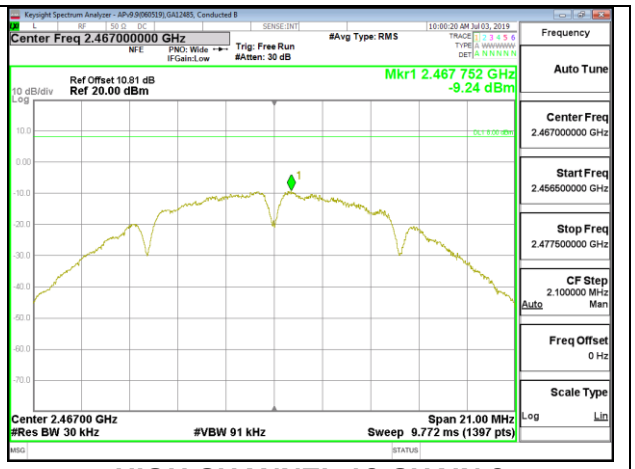


HIGH CHANNEL 11 CHAIN 2

HIGH CHANNEL 12



HIGH CHANNEL 12 CHAIN 1



HIGH CHANNEL 12 CHAIN 2

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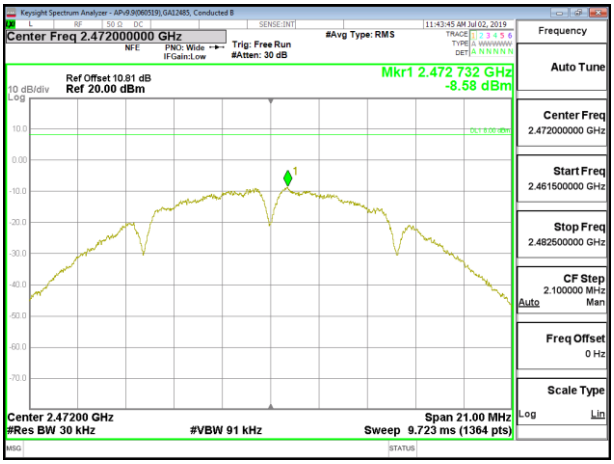
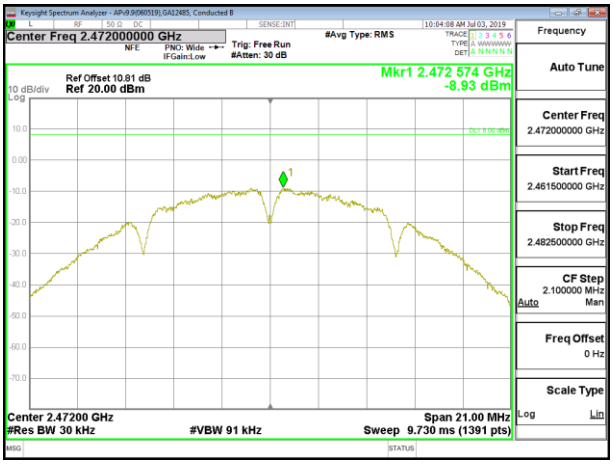
HIGH CHANNEL 13



HIGH CHANNEL 13 CHAIN 1



HIGH CHANNEL 13 CHAIN 2

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8.5.2. 802.11g MODE

2TX Chain 1 + Chain 2 CDD MODE

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

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-4.99	-5.35	-2.16	8.0	-10.2
Low 2	2417	-3.55	-3.23	-0.38	8.0	-8.4
Mid 6	2437	-3.19	-3.49	-0.33	8.0	-8.3
High 10	2457	-3.97	-4.08	-1.01	8.0	-9.0
High 11	2462	-5.83	-5.53	-2.67	8.0	-10.7
High 12	2467	-9.41	-9.25	-6.32	8.0	-14.3
High 13	2472	-9.40	-8.56	-5.95	8.0	-13.9

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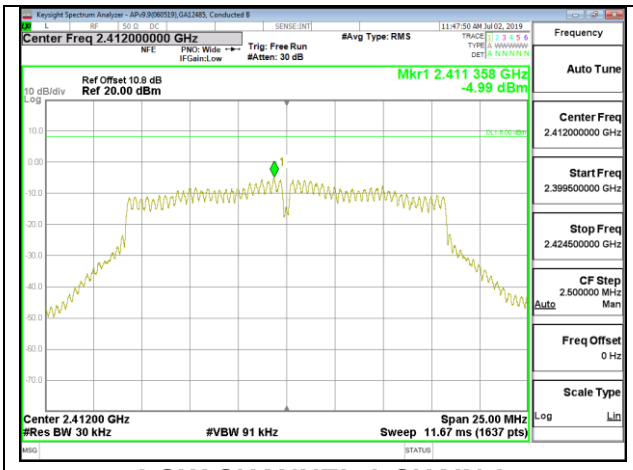
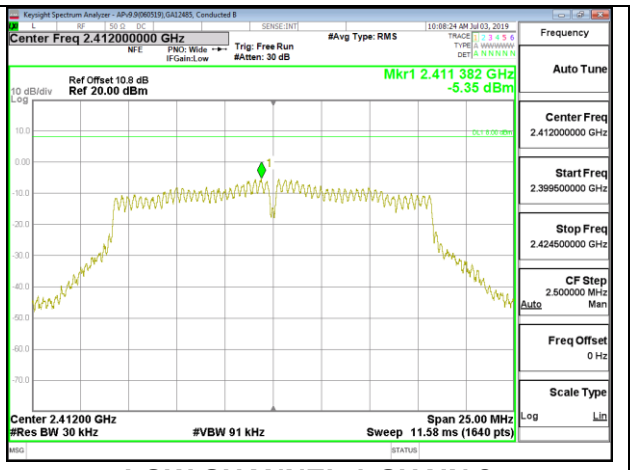
LOW CHANNEL 1

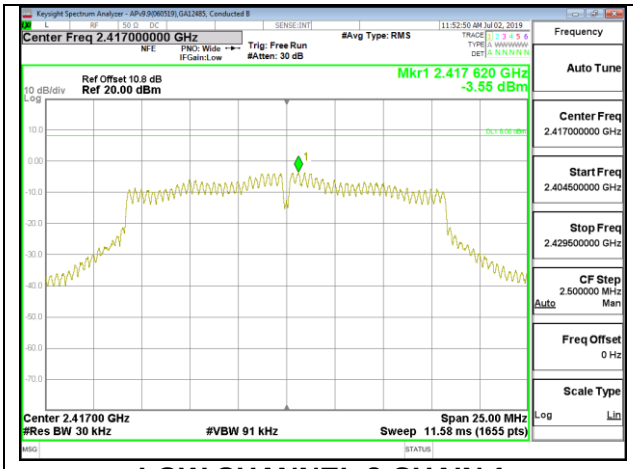


LOW CHANNEL 1 CHAIN 1

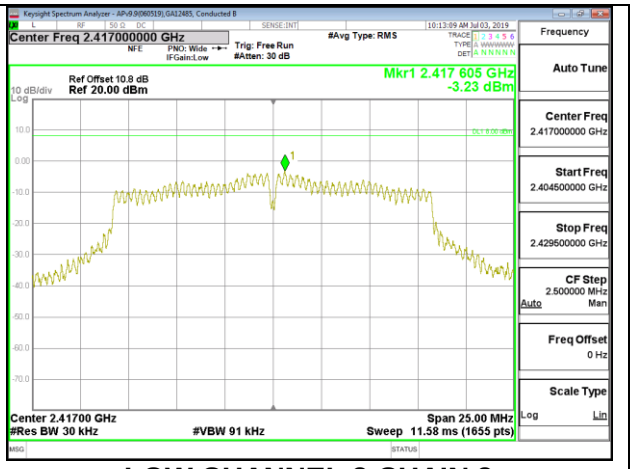


LOW CHANNEL 1 CHAIN 2

LOW CHANNEL 2

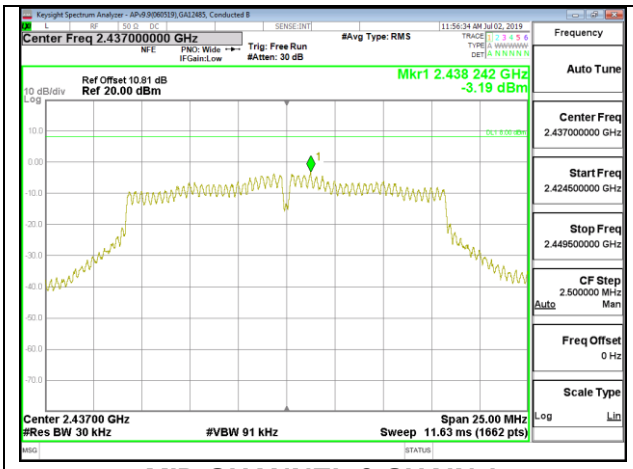


LOW CHANNEL 2 CHAIN 1

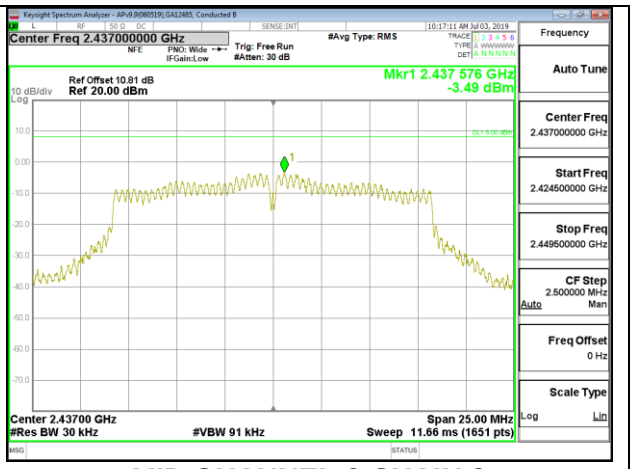


LOW CHANNEL 2 CHAIN 2

MID CHANNEL 6



MID CHANNEL 6 CHAIN 1



MID CHANNEL 6 CHAIN 2

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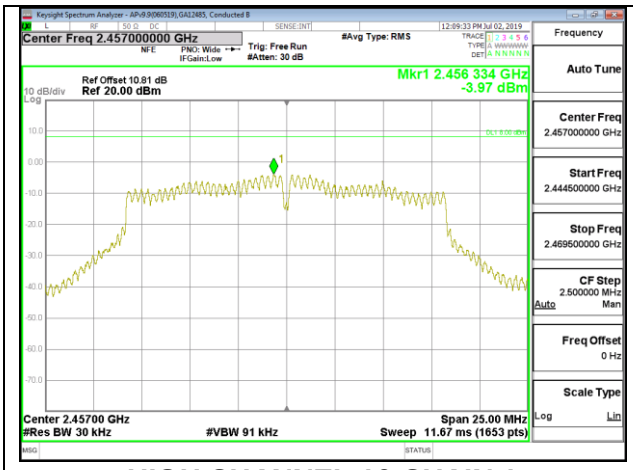
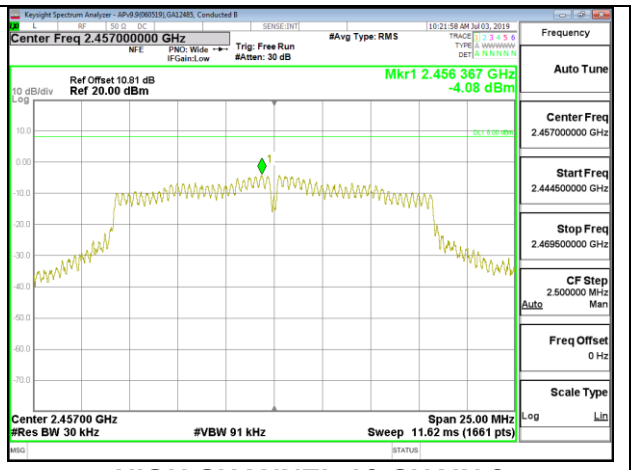
HIGH CHANNEL 10

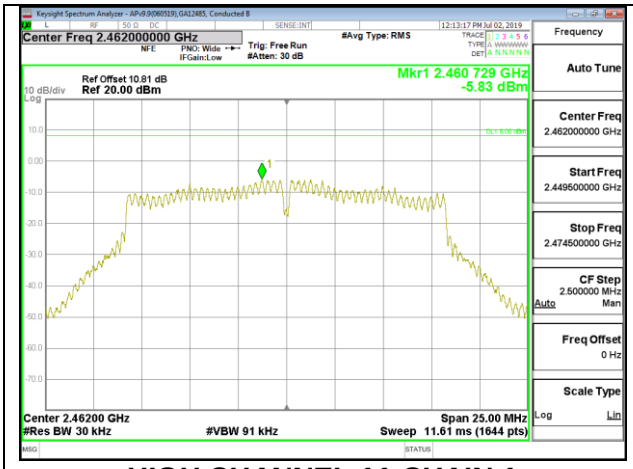


HIGH CHANNEL 10 CHAIN 1

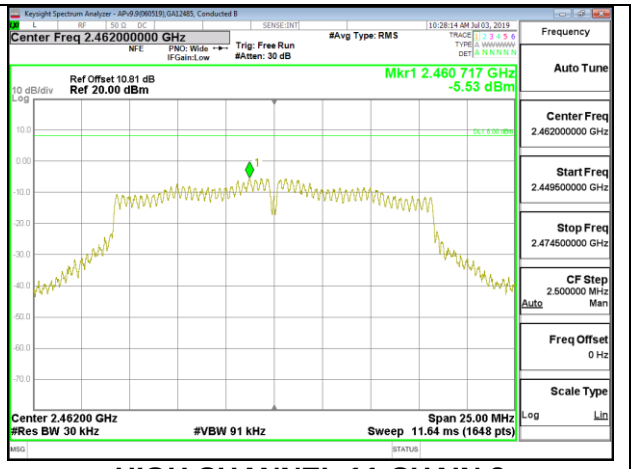


HIGH CHANNEL 10 CHAIN 2

HIGH CHANNEL 11

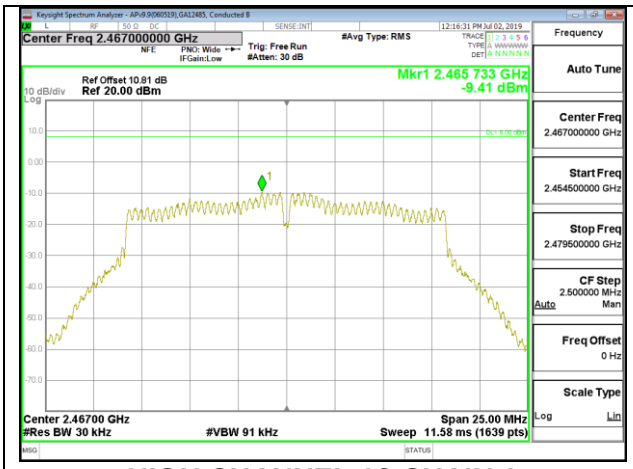


HIGH CHANNEL 11 CHAIN 1

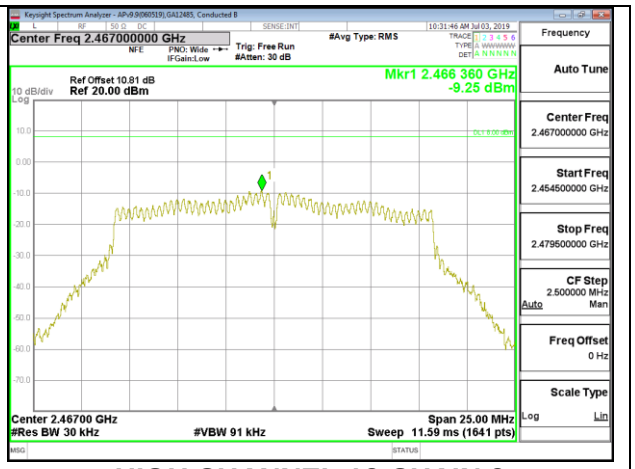


HIGH CHANNEL 11 CHAIN 2

HIGH CHANNEL 12



HIGH CHANNEL 12 CHAIN 1



HIGH CHANNEL 12 CHAIN 2

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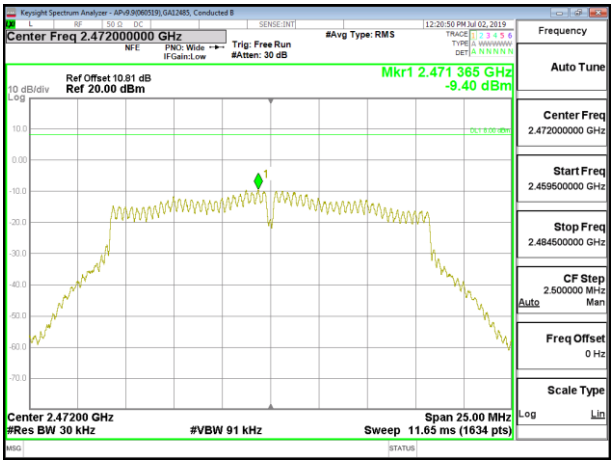
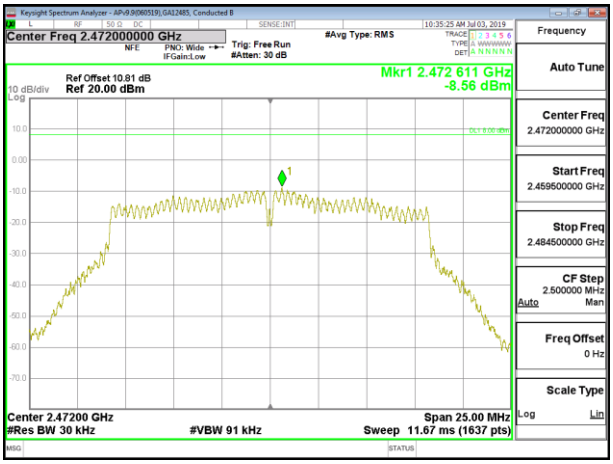
HIGH CHANNEL 13



HIGH CHANNEL 13 CHAIN 1



HIGH CHANNEL 13 CHAIN 2

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8.5.3. 802.11n HT20 MODE

2TX Chain 1 + Chain 2 CDD MODE

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

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-5.39	-4.88	-2.12	8.0	-10.1
Low 2	2417	-3.41	-4.25	-0.80	8.0	-8.8
Mid 6	2437	-3.96	-3.88	-0.91	8.0	-8.9
High 10	2457	-3.87	-4.27	-1.06	8.0	-9.1
High 11	2462	-6.09	-5.55	-2.80	8.0	-10.8
High 12	2467	-10.31	-10.02	-7.15	8.0	-15.2
High 13	2472	-9.74	-9.80	-6.76	8.0	-14.8

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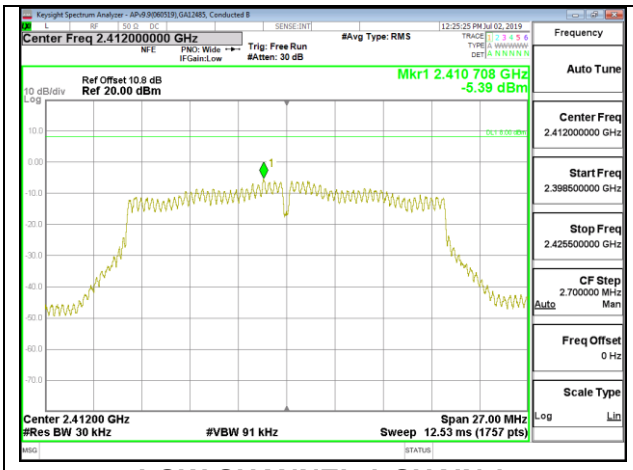
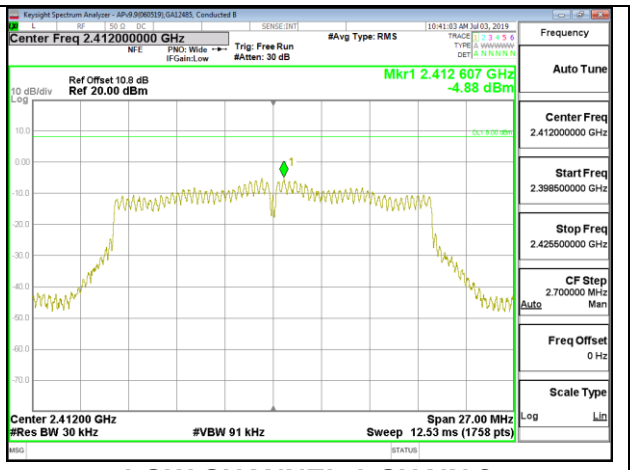
LOW CHANNEL 1

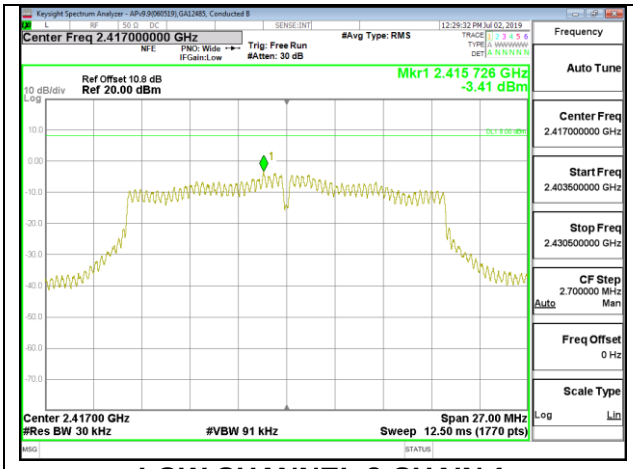


LOW CHANNEL 1 CHAIN 1

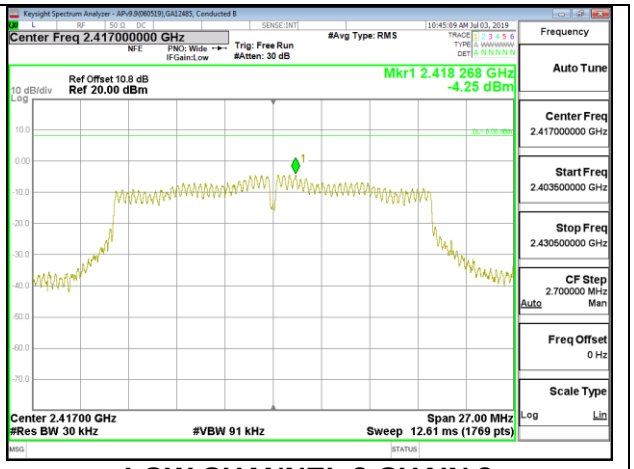


LOW CHANNEL 1 CHAIN 2

LOW CHANNEL 2

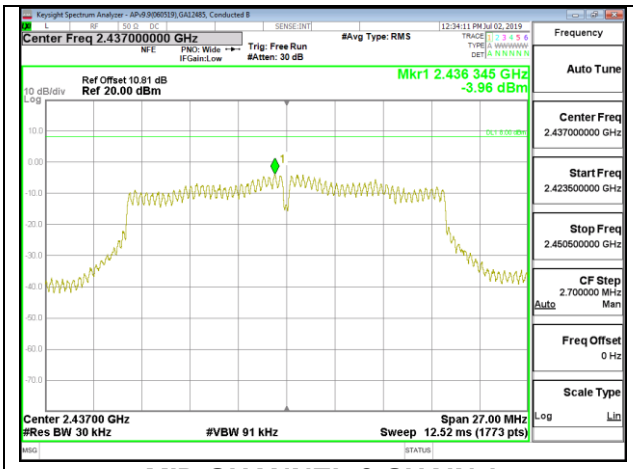


LOW CHANNEL 2 CHAIN 1

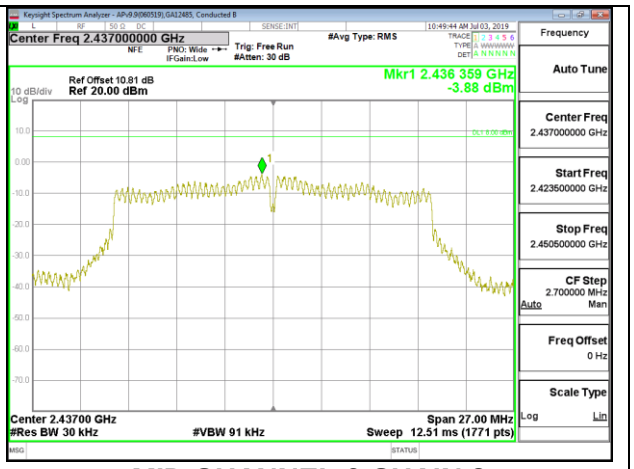


LOW CHANNEL 2 CHAIN 2

MID CHANNEL 6



MID CHANNEL 6 CHAIN 1



MID CHANNEL 6 CHAIN 2

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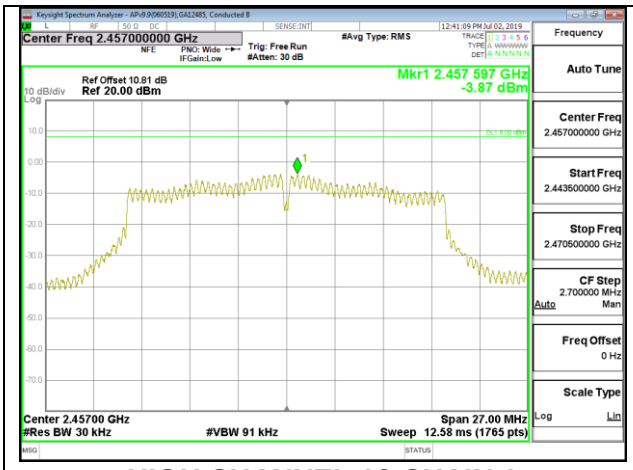
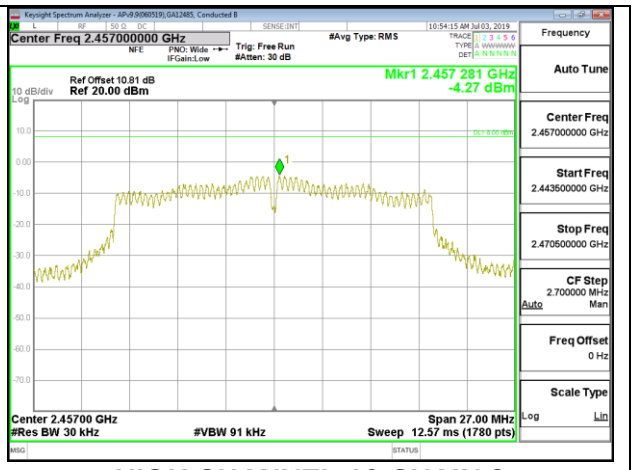
HIGH CHANNEL 10

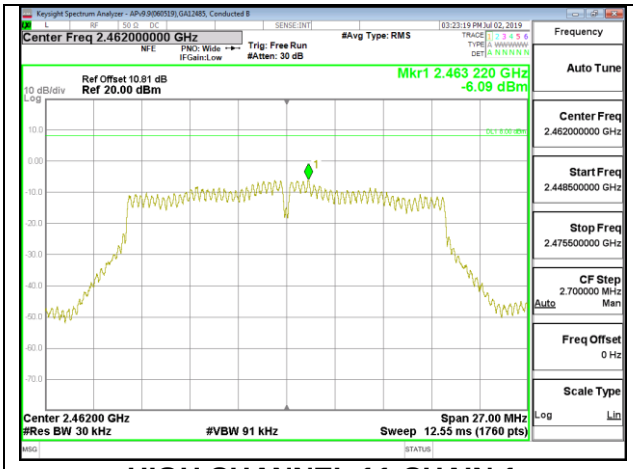


HIGH CHANNEL 10 CHAIN 1

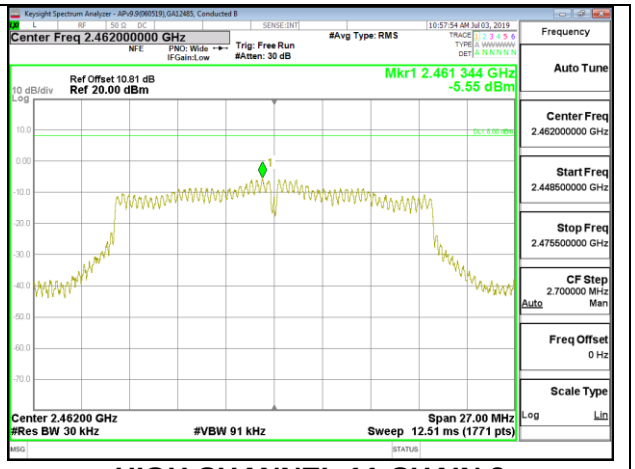


HIGH CHANNEL 10 CHAIN 2

HIGH CHANNEL 11

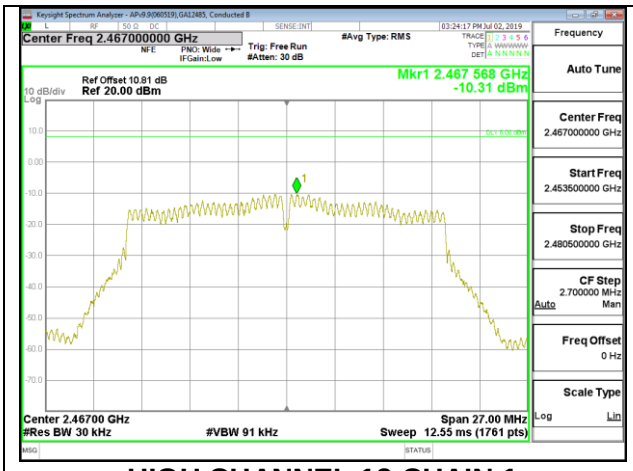


HIGH CHANNEL 11 CHAIN 1

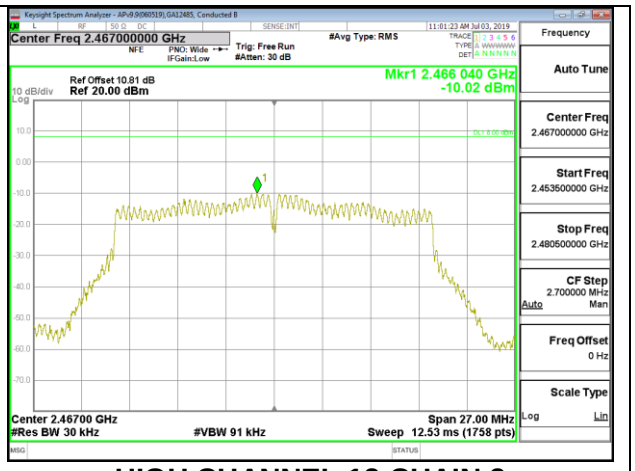


HIGH CHANNEL 11 CHAIN 2

HIGH CHANNEL 12



HIGH CHANNEL 12 CHAIN 1



HIGH CHANNEL 12 CHAIN 2

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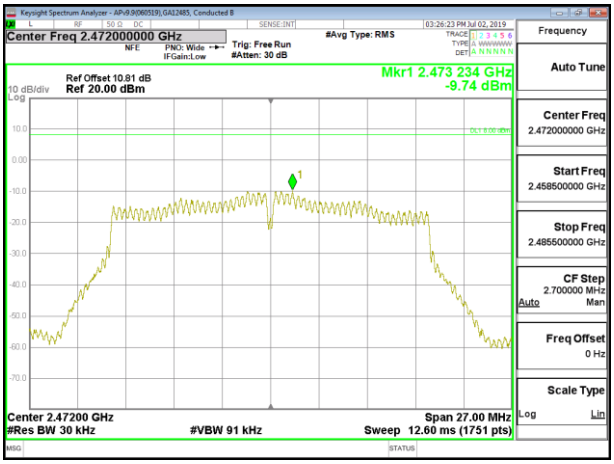
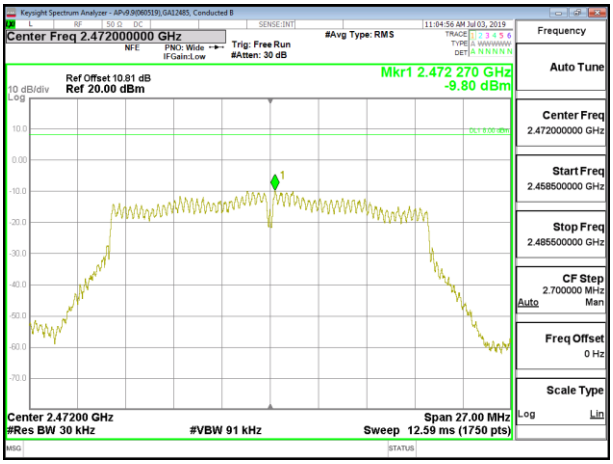
HIGH CHANNEL 13



HIGH CHANNEL 13 CHAIN 1



HIGH CHANNEL 13 CHAIN 2

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8.5.4. 802.11n HT40 MODE

2TX Chain 1 + Chain 2 CDD MODE

Duty Cycle CF (dB)	0.23	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-11.560	-11.349	-8.21	8.0	-16.2
Low 4	2427	-9.286	-9.291	-6.05	8.0	-14.0
Low 5	2432	-8.475	-8.374	-5.18	8.0	-13.2
Mid 6	2437	-8.521	-8.069	-5.05	8.0	-13.0
High 7	2442	-8.612	-8.715	-5.42	8.0	-13.4
High 8	2447	-9.356	-10.011	-6.43	8.0	-14.4
High 9	2452	-10.306	-10.793	-7.30	8.0	-15.3
High 10	2457	-10.900	-10.844	-7.63	8.0	-15.6
High 11	2462	-18.089	-18.238	-14.92	8.0	-22.9

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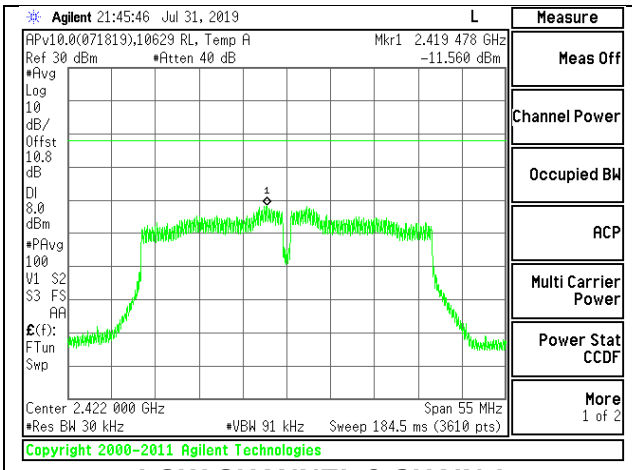
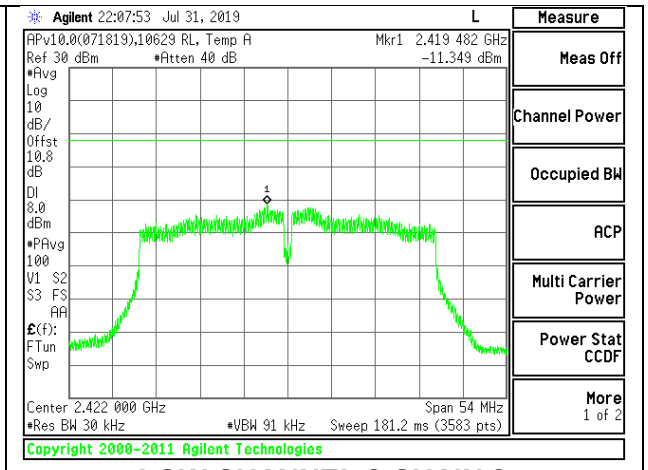
LOW CHANNEL 3

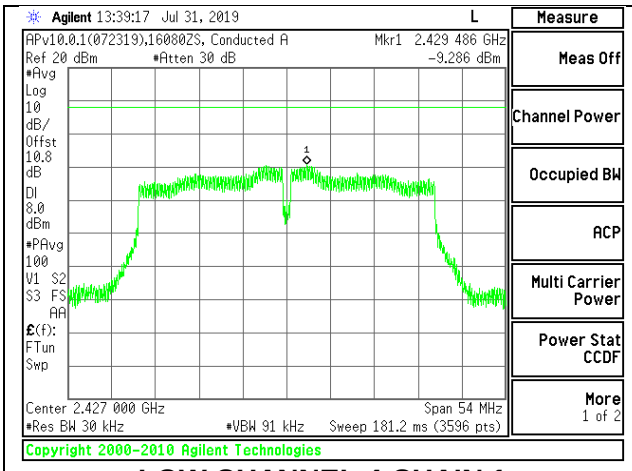


LOW CHANNEL 3 CHAIN 1

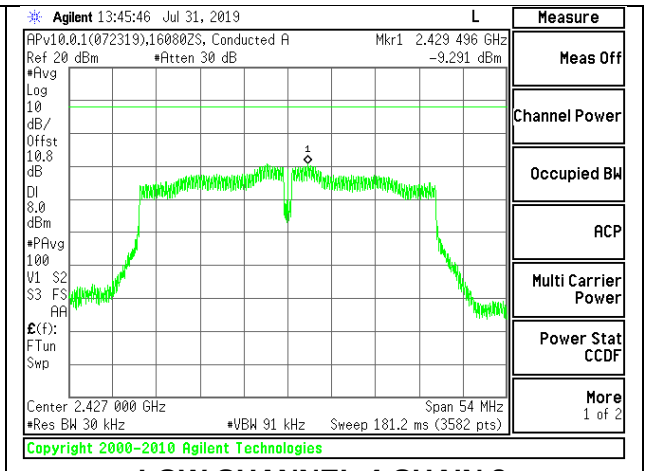


LOW CHANNEL 3 CHAIN 2

LOW CHANNEL 4

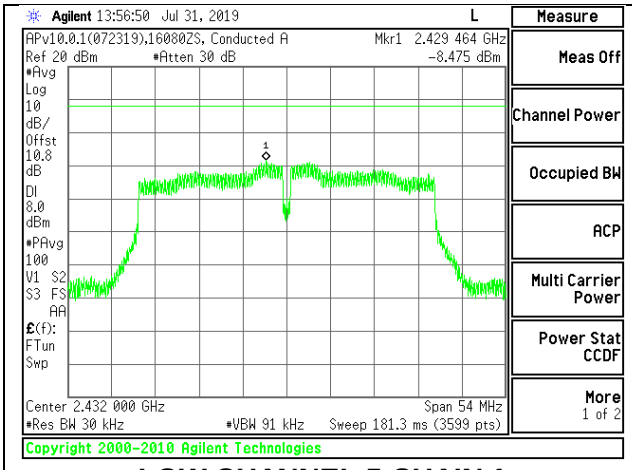


LOW CHANNEL 4 CHAIN 1

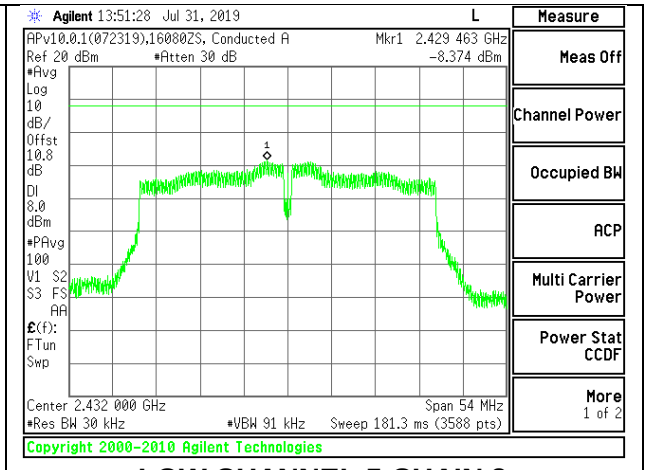


LOW CHANNEL 4 CHAIN 2

LOW CHANNEL 5



LOW CHANNEL 5 CHAIN 1



LOW CHANNEL 5 CHAIN 2

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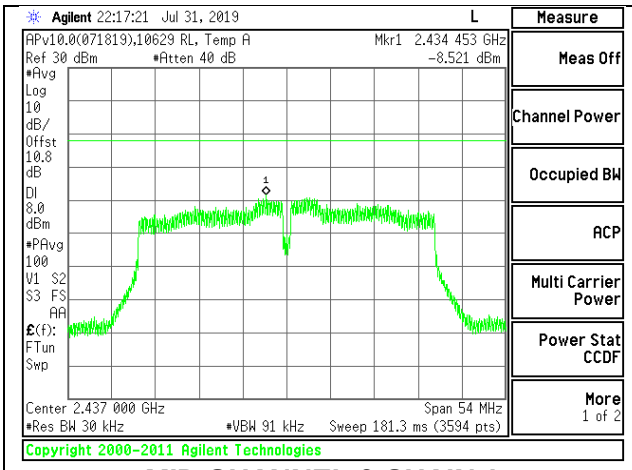
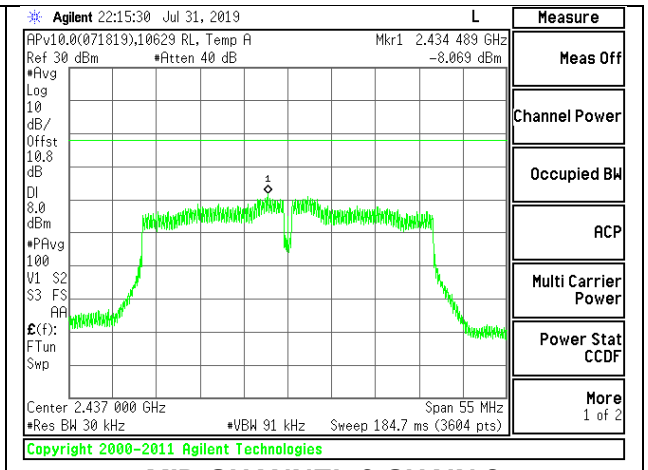
MID CHANNEL 6

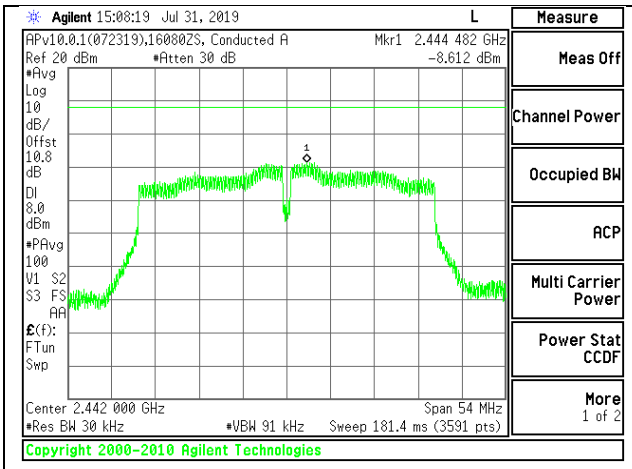


MID CHANNEL 6 CHAIN 1

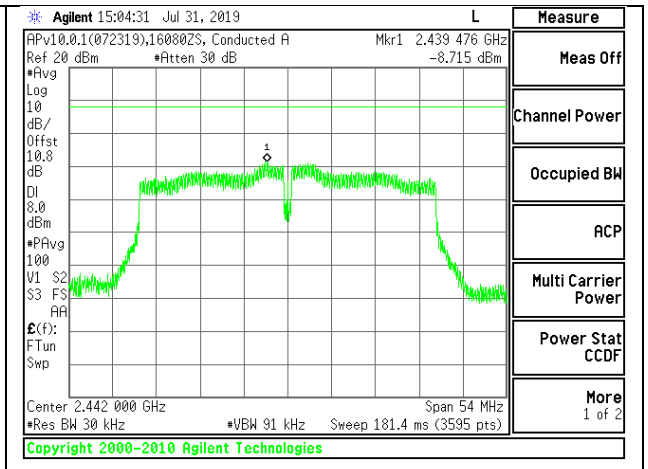


MID CHANNEL 6 CHAIN 2

HIGH CHANNEL 7

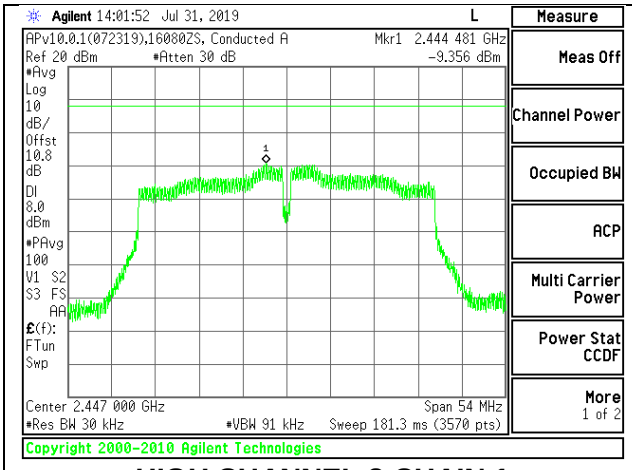


HIGH CHANNEL 7 CHAIN 1

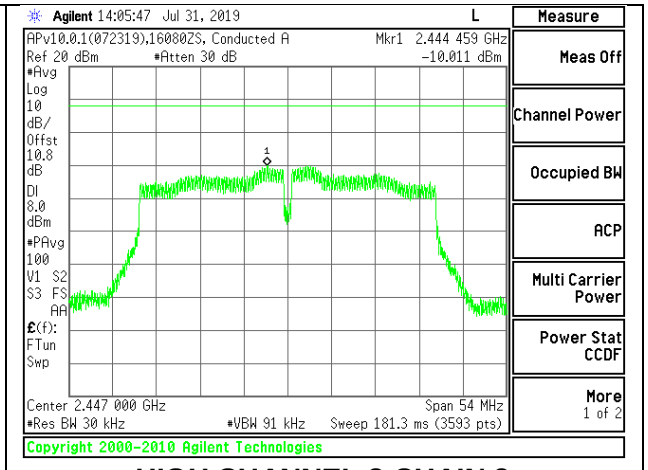


HIGH CHANNEL 7 CHAIN 2

HIGH CHANNEL 8



HIGH CHANNEL 8 CHAIN 1



HIGH CHANNEL 8 CHAIN 2

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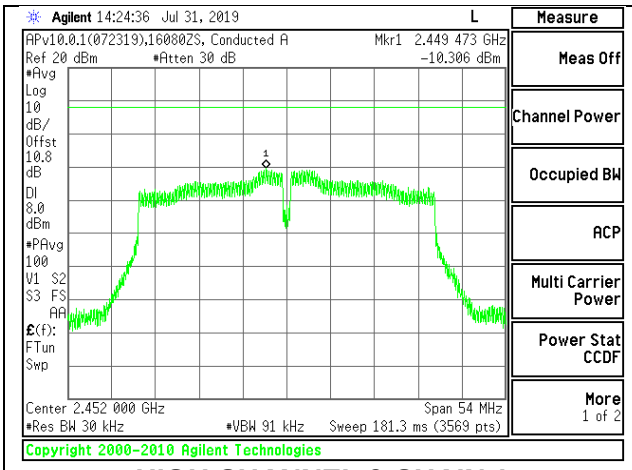
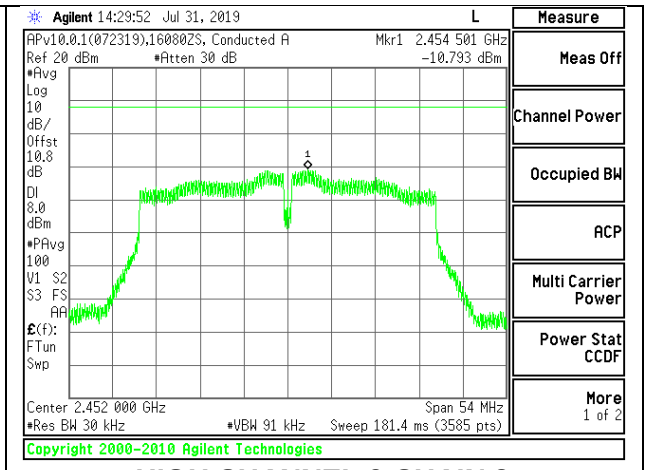
HIGH CHANNEL 9

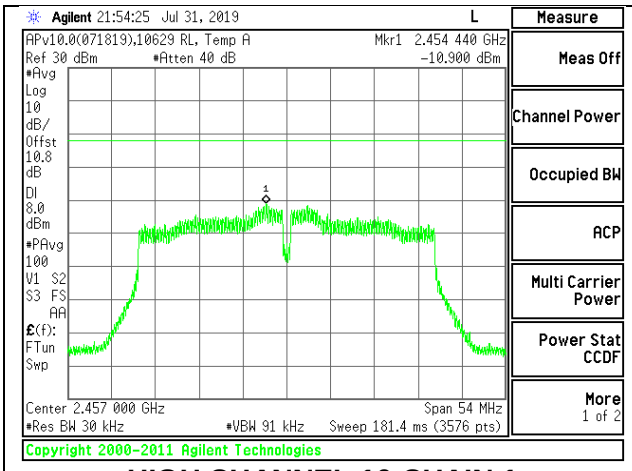


HIGH CHANNEL 9 CHAIN 1

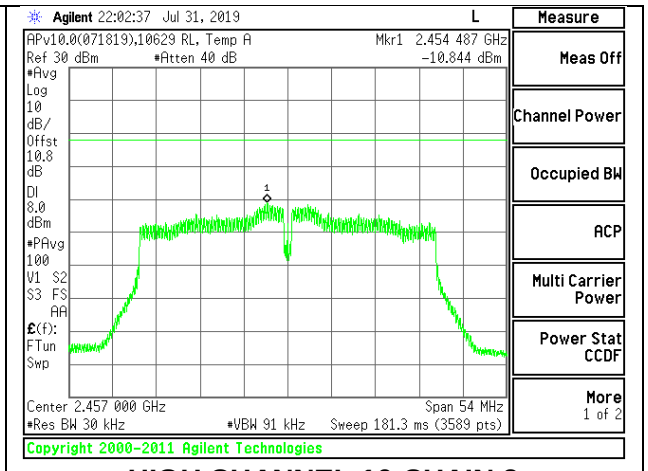


HIGH CHANNEL 9 CHAIN 2

HIGH CHANNEL 10

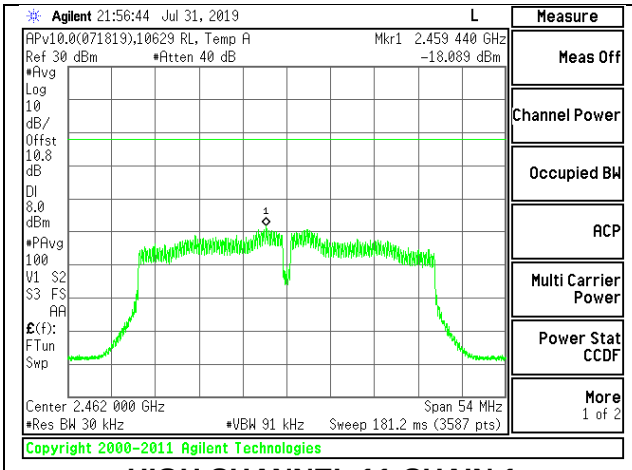


HIGH CHANNEL 10 CHAIN 1

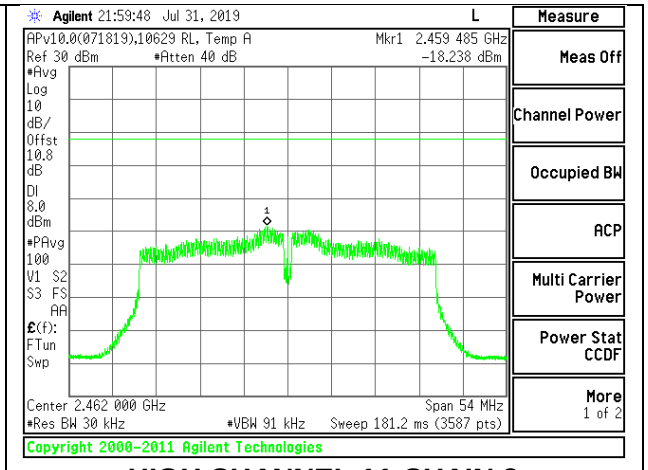


HIGH CHANNEL 10 CHAIN 2

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 1



HIGH CHANNEL 11 CHAIN 2

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8.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

RSS-247 5.5

Output power was measured based on the use of average measurement, therefore the required attenuation is 30 dB.

RESULTS

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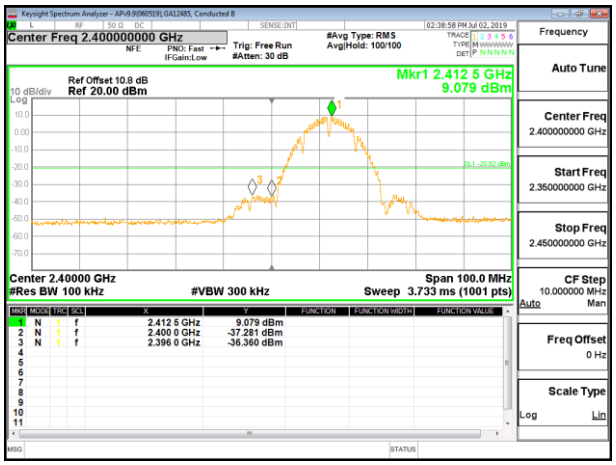
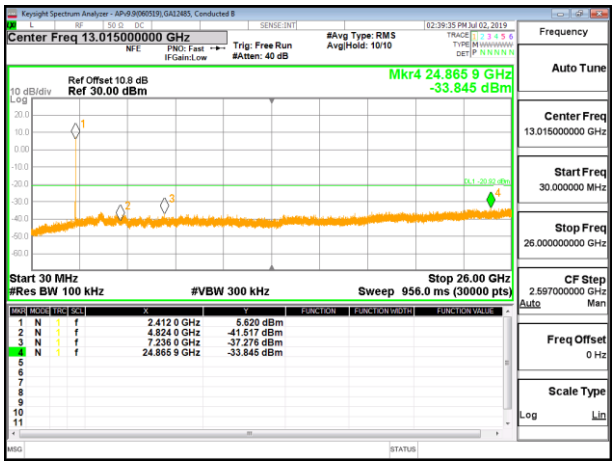
8.6.1. 802.11b MODE

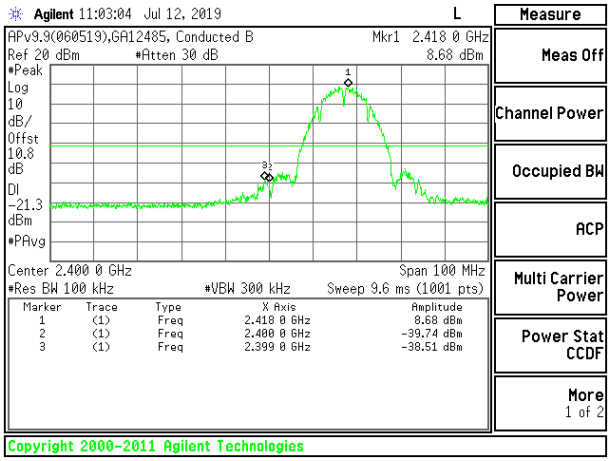
2TX Chain 1 + Chain 2 CDD MODE



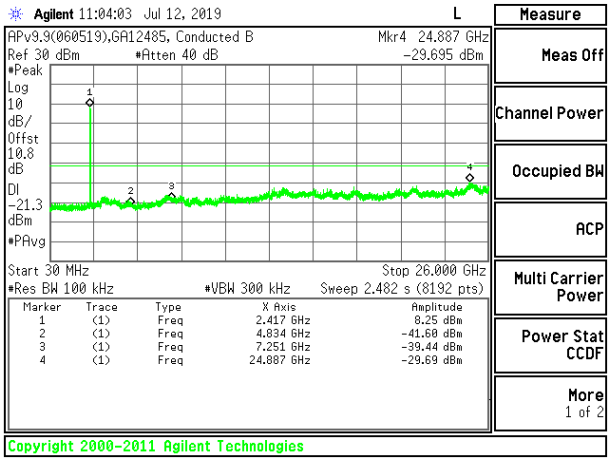
LOW CHANNEL 1 BANDEDGE CHAIN 1



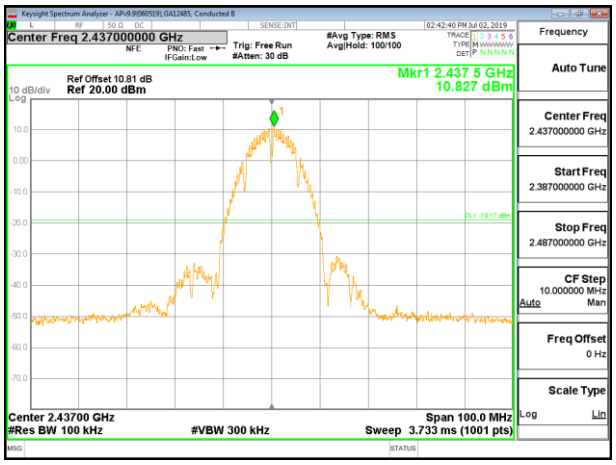
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



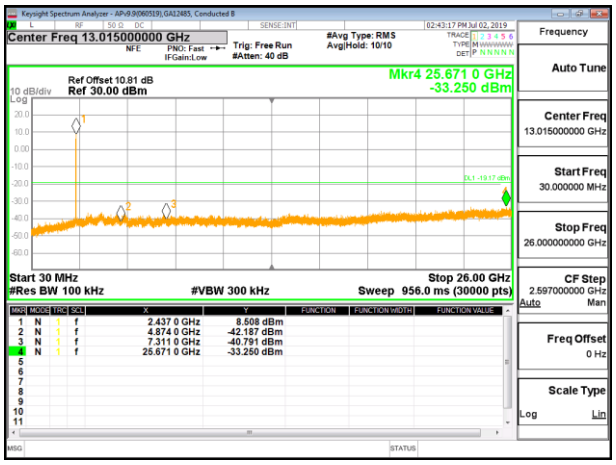
LOW CHANNEL 2 BANDEDGE CHAIN 1



OUT-OF-BAND LOW CHANNEL 2 CHAIN 1



IN-BAND REFERENCE LEVEL CHAIN 1



OUT-OF-BAND MID CHANNEL CHAIN 1

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