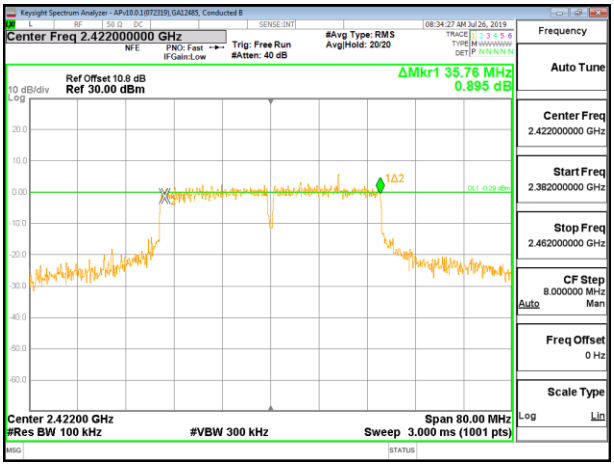
8.3.4. 802.11n HT40 MODE

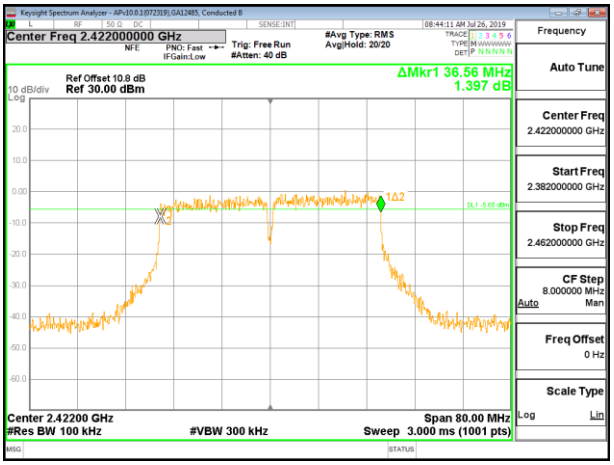
2TX Chain 0 + Chain 1 SDM MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 3	2422	35.76	36.56	0.5
Low 4	2427	36.56	36.48	0.5
Mid 6	2437	36.16	36.64	0.5
High 7	2442	36.48	35.36	0.5
High 8	2447	36.56	36.56	0.5
High 9	2452	36.48	36.64	0.5
High 10	2457	36.64	36.64	0.5
High 11	2462	36.64	36.48	0.5

LOW CHANNEL 3

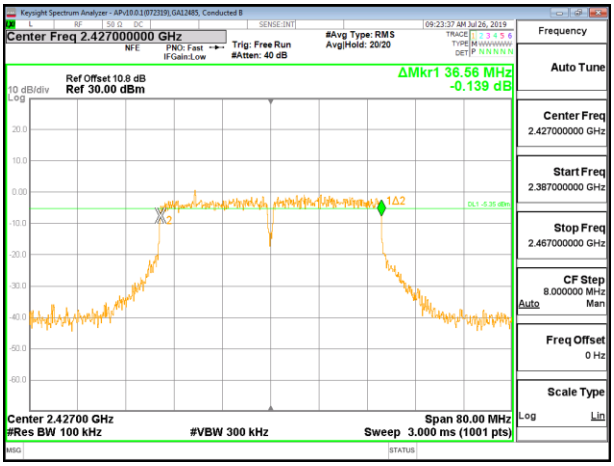


LOW CHANNEL 3 CHAIN 0

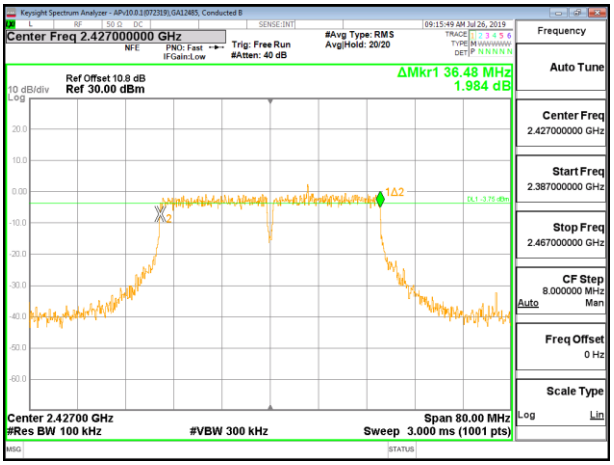


LOW CHANNEL 3 CHAIN 1

LOW CHANNEL 4

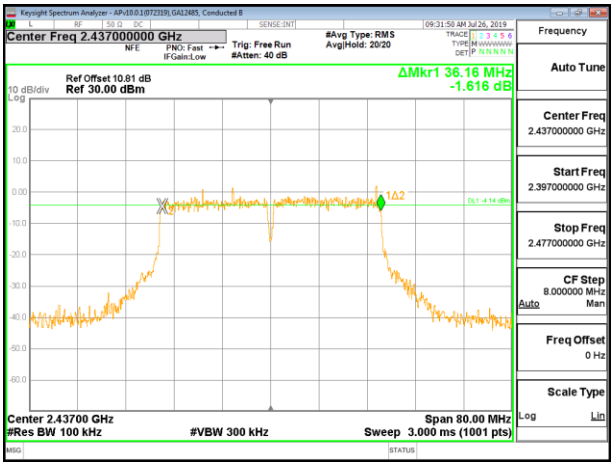


LOW CHANNEL 4 CHAIN 0

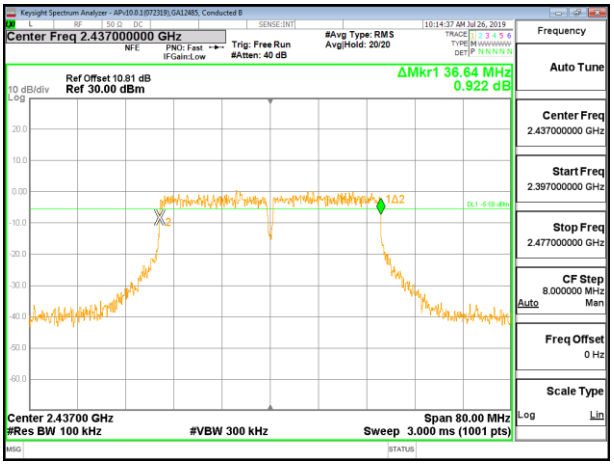


LOW CHANNEL 4 CHAIN 1

MID CHANNEL 6

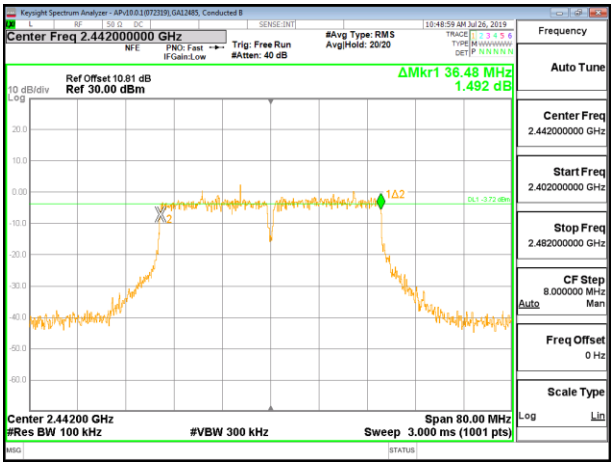


MID CHANNEL 6 CHAIN 0

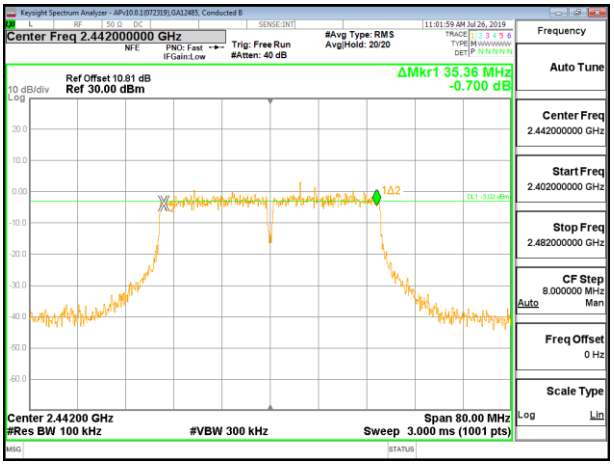


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 7

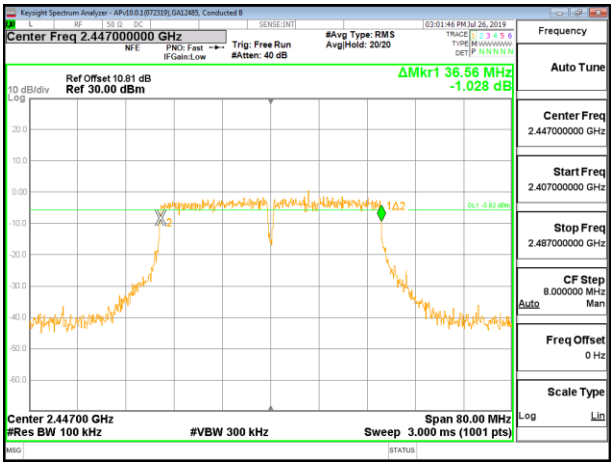


HIGH CHANNEL 7 CHAIN 0

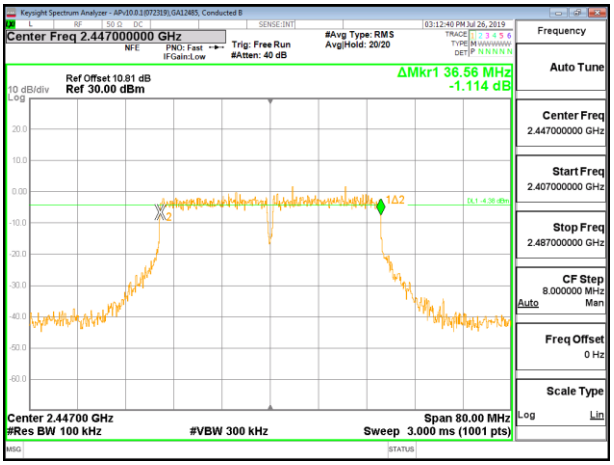


HIGH CHANNEL 7 CHAIN 1

HIGH CHANNEL 8

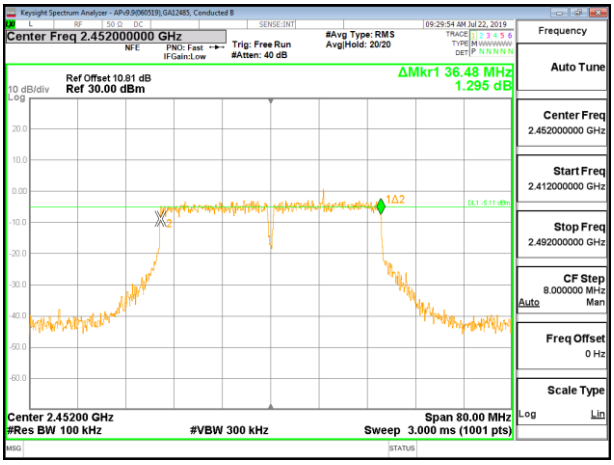


HIGH CHANNEL 8 CHAIN 0

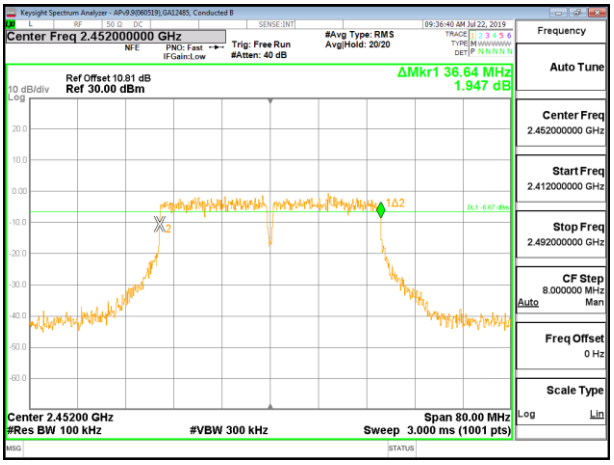


HIGH CHANNEL 8 CHAIN 1

HIGH CHANNEL 9

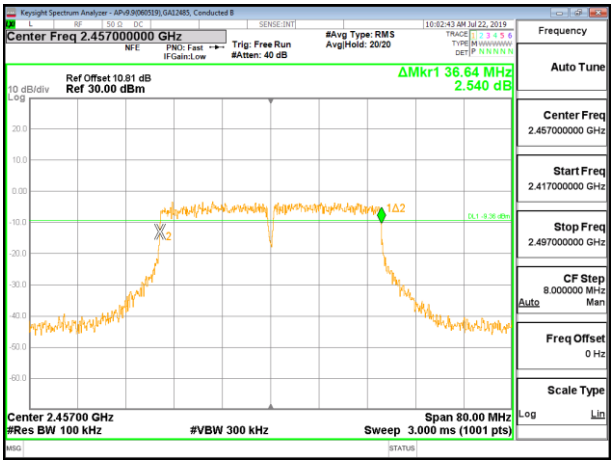


HIGH CHANNEL 9 CHAIN 0

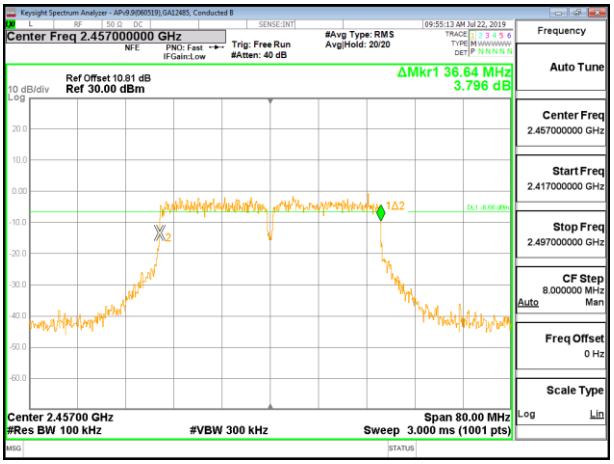


HIGH CHANNEL 9 CHAIN 1

HIGH CHANNEL 10

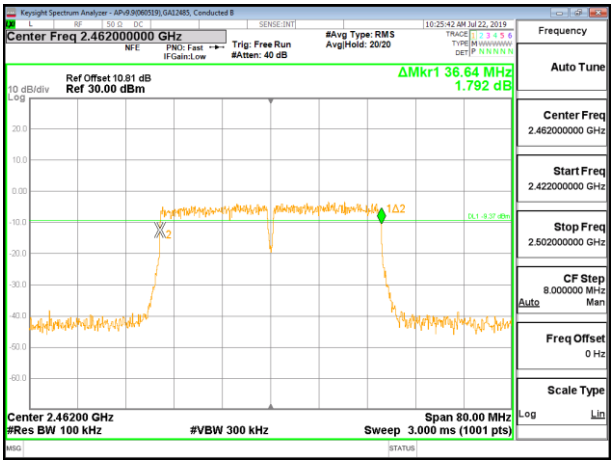


HIGH CHANNEL 10 CHAIN 0

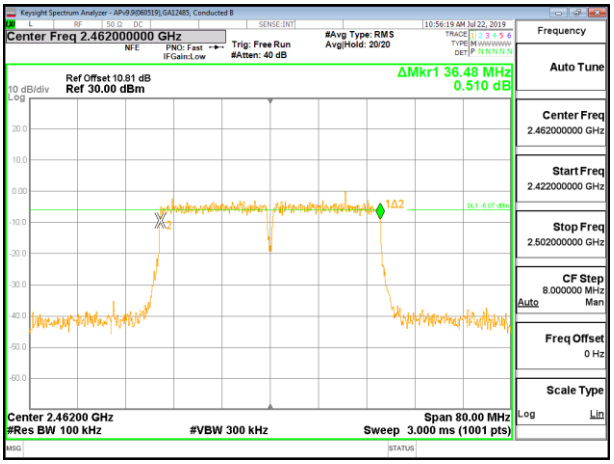


HIGH CHANNEL 10 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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 peak reading of power.

DIRECTIONAL ANTENNA GAIN

2 TX:

Tx chains are uncorrelated for power and PSD in SDM MIMO mode, and correlated for PSD in CDD MIMO mode. The directional gains are as follows:

Band (GHz)	Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.4	-2.20	1.60	0.10	2.92

RESULTS

8.4.1. 802.11b MODE

2TX Chain 0 + Chain 1 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	0.10	30.00	36	30.00
Mid 6	2437	0.10	30.00	36	30.00
High 11	2462	0.10	30.00	36	30.00
High 12	2467	0.10	30.00	36	30.00
High 13	2472	0.10	30.00	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)	Margin (dB)
Low 1	2412	20.91	21.27	24.10	30.00	-5.90
Mid 6	2437	21.02	21.45	24.25	30.00	-5.75
High 11	2462	21.06	21.14	24.11	30.00	-5.89
High 12	2467	20.97	21.22	24.11	30.00	-5.89
High 13	2472	20.16	20.40	23.29	30.00	-6.71

8.4.2. 802.11g MODE

2TX Chain 0 + Chain 1 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	0.10	30.00	36	30.00
Mid 6	2437	0.10	30.00	36	30.00
High 11	2462	0.10	30.00	36	30.00
High 12	2467	0.10	30.00	36	30.00
High 13	2472	0.10	30.00	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)	Margin (dB)
Low 1	2412	22.59	22.95	25.78	30.00	-4.22
Mid 6	2437	23.15	23.57	26.38	30.00	-3.62
High 11	2462	21.90	22.25	25.09	30.00	-4.91
High 12	2467	19.48	19.57	22.54	30.00	-7.46
High 13	2472	17.65	17.73	20.70	30.00	-9.30

8.4.3. 802.11n HT20 MODE

2TX Chain 0 + Chain 1 SDM MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	0.10	30.00	36	30.00
Low 2	2417	0.10	30.00	36	30.00
Mid 6	2437	0.10	30.00	36	30.00
High 10	2457	0.10	30.00	36	30.00
High 11	2462	0.10	30.00	36	30.00
High 12	2467	0.10	30.00	36	30.00
High 13	2472	0.10	30.00	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)	Margin (dB)
Low 1	2412	20.92	21.59	24.28	30.00	-5.72
Low 2	2417	23.08	23.31	26.21	30.00	-3.79
Mid 6	2437	22.97	23.54	26.27	30.00	-3.73
High 10	2457	22.73	22.95	25.85	30.00	-4.15
High 11	2462	20.18	20.31	23.26	30.00	-6.74
High 12	2467	18.42	18.80	21.62	30.00	-8.38
High 13	2472	17.31	17.43	20.38	30.00	-9.62

8.4.4. 802.11n HT40 MODE

2TX Chain 0 + Chain 1 SDM MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	0.10	30.00	36	30.00
Low 4	2427	0.10	30.00	36	30.00
Mid 6	2437	0.10	30.00	36	30.00
High 7	2442	0.10	30.00	36	30.00
High 8	2447	0.10	30.00	36	30.00
High 9	2452	0.10	30.00	36	30.00
High 10	2457	0.10	30.00	36	30.00
High 11	2462	0.10	30.00	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)	Margin (dB)
Low 3	2422	21.44	21.49	24.48	30.00	-5.52
Low 4	2427	21.72	21.95	24.85	30.00	-5.15
Mid 6	2437	21.76	21.88	24.83	30.00	-5.17
High 7	2442	21.53	21.79	24.67	30.00	-5.33
High 8	2447	21.02	21.55	24.30	30.00	-5.70
High 9	2452	20.88	21.06	23.98	30.00	-6.02
High 10	2457	19.97	20.12	23.06	30.00	-6.94
High 11	2462	19.75	20.05	22.91	30.00	-7.09

8.5. AVERAGE POWER

LIMITS

None; for reporting purposes only

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

RESULTS

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

8.5.1. 802.11b MODE

2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	18.79	19.14	21.98
Mid 6	2437	18.90	19.19	22.06
High 11	2462	18.82	19.01	21.93
High 12	2467	18.85	19.10	21.99
High 13	2472	18.01	18.29	21.16

8.5.2. 802.11g MODE

2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	18.36	18.56	21.47
Mid 6	2437	19.10	19.25	22.19
High 11	2462	17.52	17.67	20.61
High 12	2467	14.57	14.76	17.68
High 13	2472	12.38	12.72	15.56

8.5.3. 802.11n HT20 MODE

2TX Chain 0 + Chain 1 SDM MODE

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	16.30	16.46	19.39
Low 2	2417	18.85	19.01	21.94
Mid 6	2437	18.69	19.03	21.87
High 10	2457	18.42	18.51	21.48
High 11	2462	15.45	15.59	18.53
High 12	2467	13.47	13.83	16.66
High 13	2472	10.52	10.62	13.58

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

8.5.4. 802.11n HT40 MODE

2TX Chain 0 + Chain 1 SDM MODE

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	15.940	16.340	19.15
Low 4	2427	16.410	16.540	19.49
Mid 6	2437	16.580	16.740	19.67
High 7	2442	16.170	16.260	19.23
High 8	2447	15.980	16.350	19.18
High 9	2452	15.070	15.410	18.25
High 10	2457	14.520	14.870	17.71
High 11	2462	14.080	14.190	17.15

8.6. 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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

8.6.1. 802.11b MODE

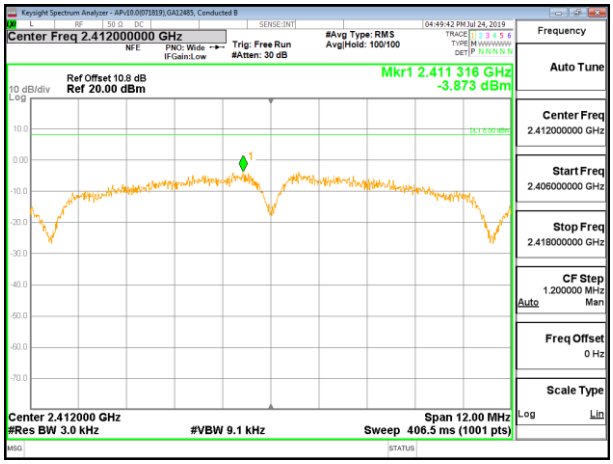
2TX Chain 0 + Chain 1 CDD MODE

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

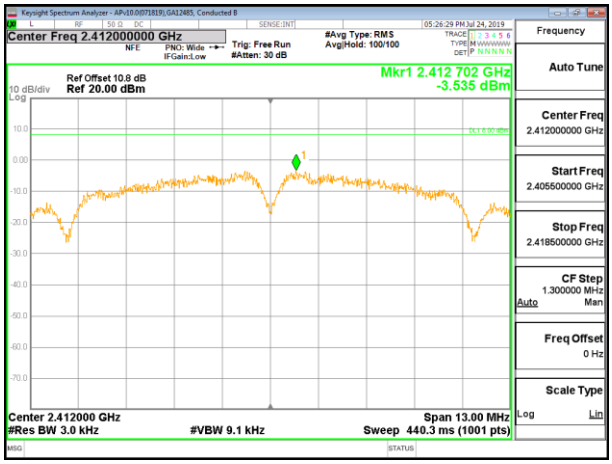
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Chain 1 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.87	-3.54	-0.69	8.0	-8.7
Mid 6	2437	-3.82	-3.45	-0.62	8.0	-8.6
High 11	2462	-3.98	-3.72	-0.84	8.0	-8.8
High 12	2467	-3.86	-3.55	-0.69	8.0	-8.7
High 13	2472	-5.48	-5.41	-2.43	8.0	-10.4

LOW CHANNEL 1

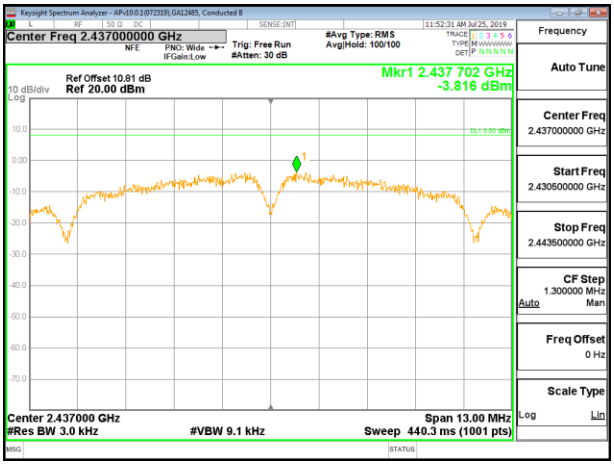


LOW CHANNEL 1 CHAIN 0

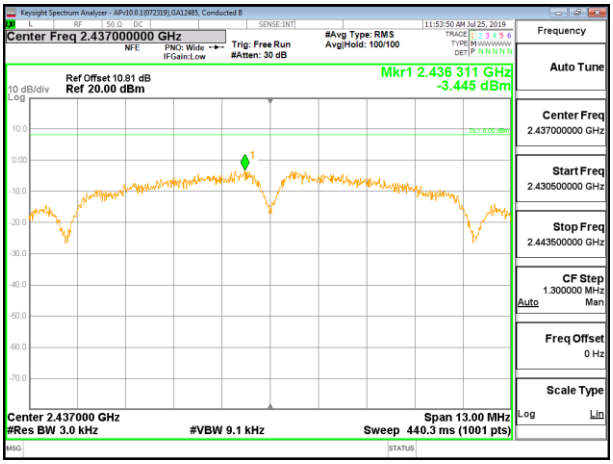


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6

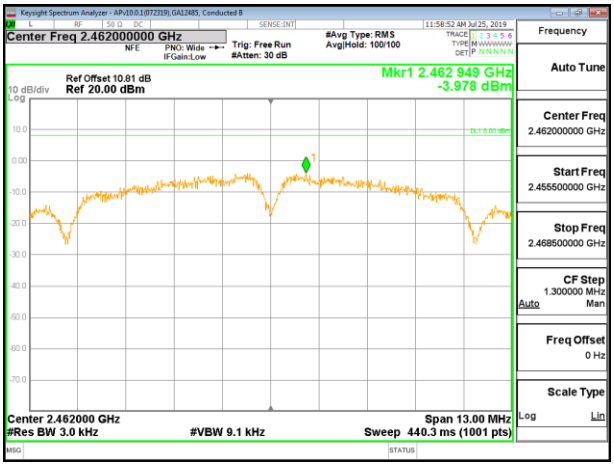


MID CHANNEL 6 CHAIN 0

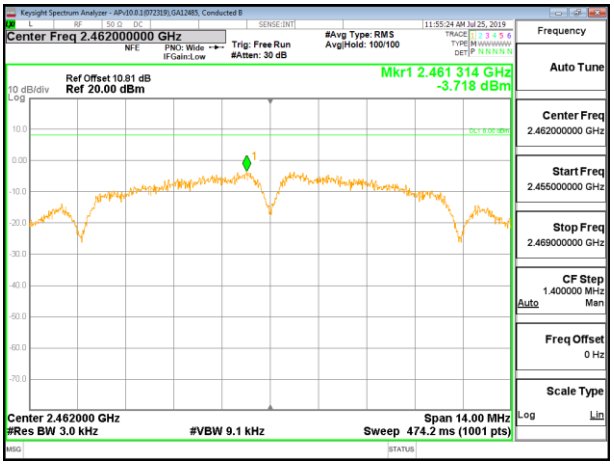


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 11

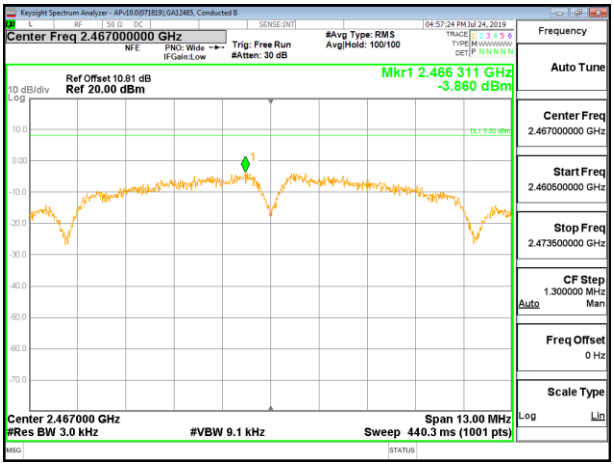


HIGH CHANNEL 11 CHAIN 0

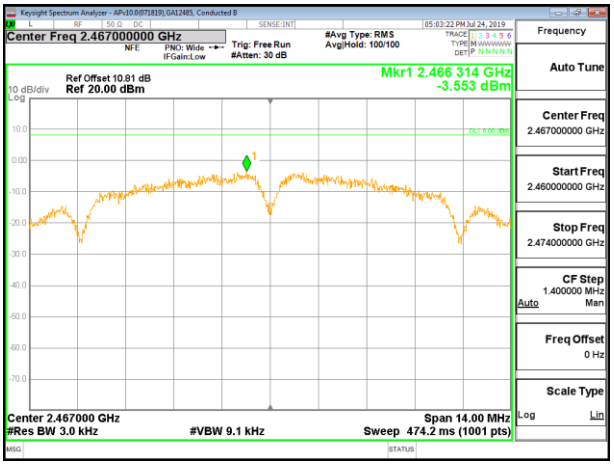


HIGH CHANNEL 11 CHAIN 1

HIGH CHANNEL 12

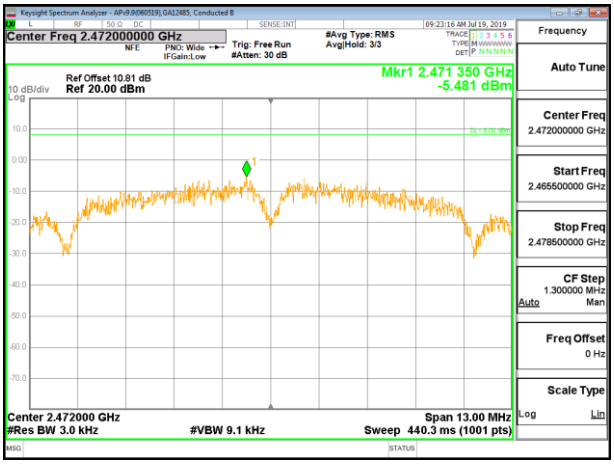


HIGH CHANNEL 12 CHAIN 0

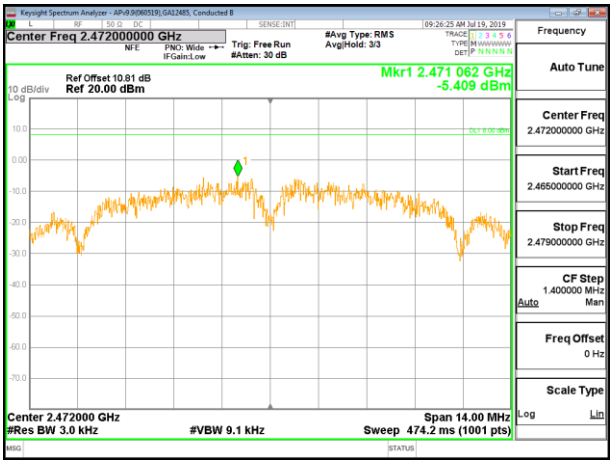


HIGH CHANNEL 12 CHAIN 1

HIGH CHANNEL 13



HIGH CHANNEL 13 CHAIN 0



HIGH CHANNEL 13 CHAIN 1

8.6.2. 802.11g MODE

2TX Chain 0 + Chain 1 CDD MODE

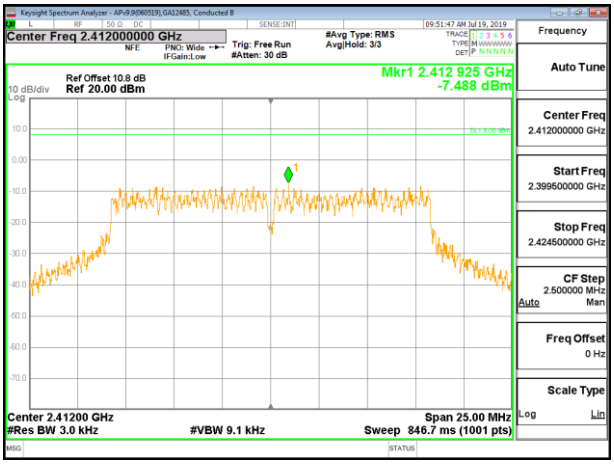
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD

PSD Results

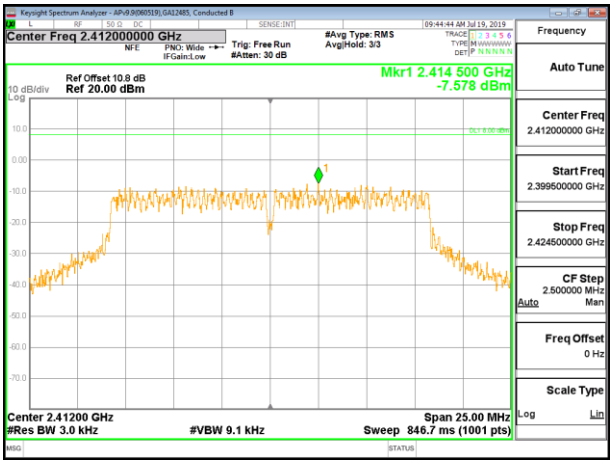
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Chain 1 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-7.49	-7.58	-4.52	8.0	-12.5
Mid 6	2437	-6.37	-6.58	-3.46	8.0	-11.5
High 11	2462	-7.90	-7.43	-4.65	8.0	-12.6
High 12	2467	-11.73	-11.17	-8.43	8.0	-16.4
High 13	2472	-13.28	-13.42	-10.34	8.0	-18.3

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

LOW CHANNEL 1

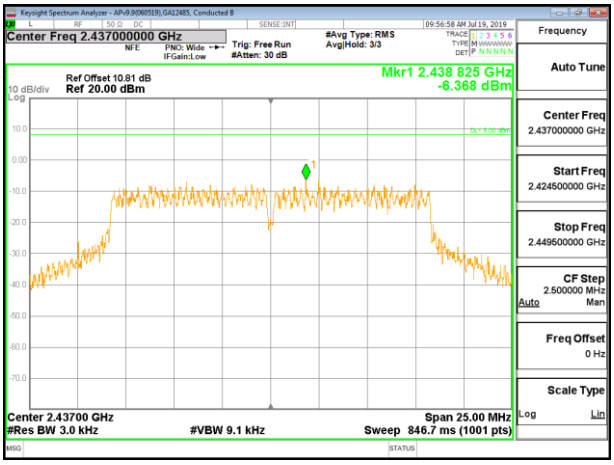


LOW CHANNEL 1 CHAIN 0

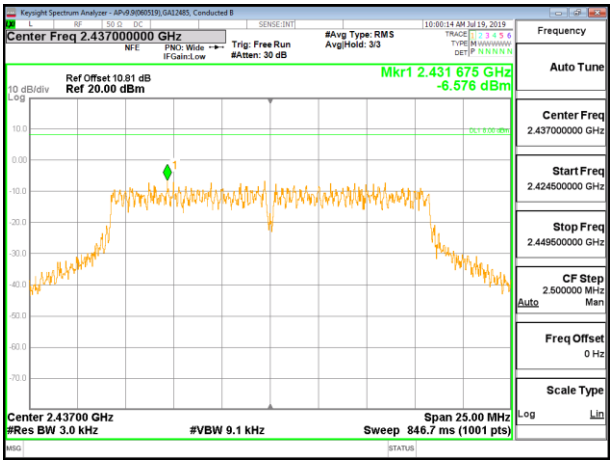


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6

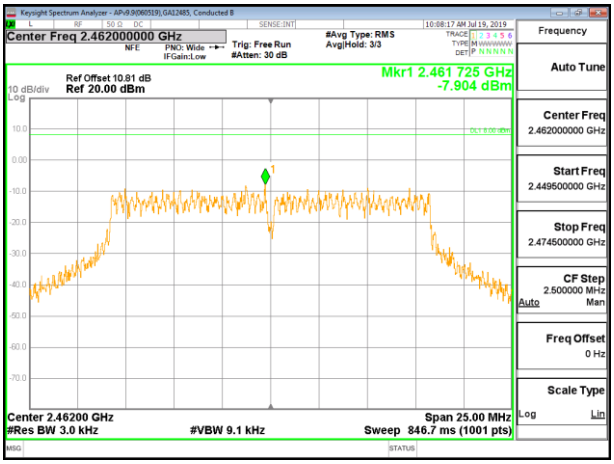


MID CHANNEL 6 CHAIN 0

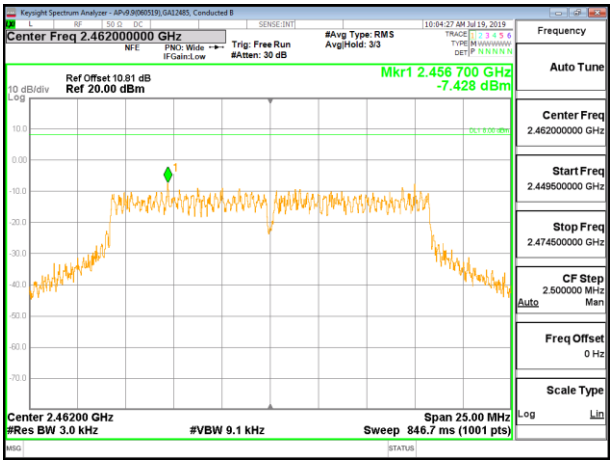


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 11

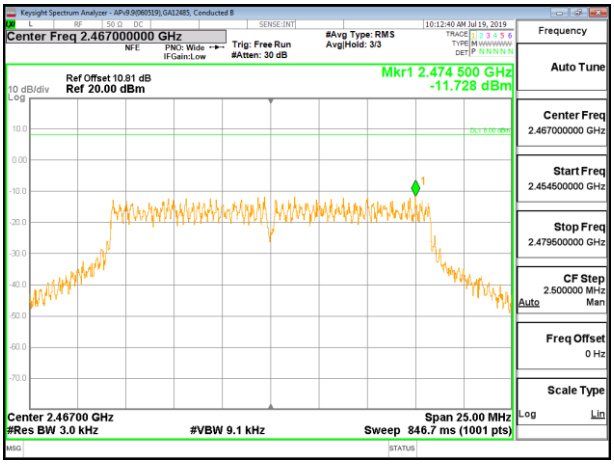


HIGH CHANNEL 11 CHAIN 0

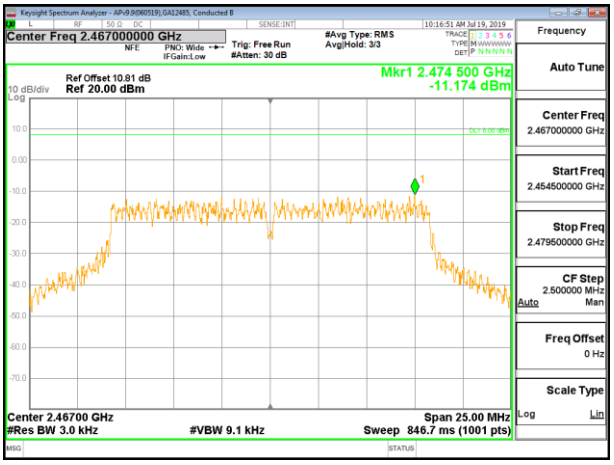


HIGH CHANNEL 11 CHAIN 1

HIGH CHANNEL 12

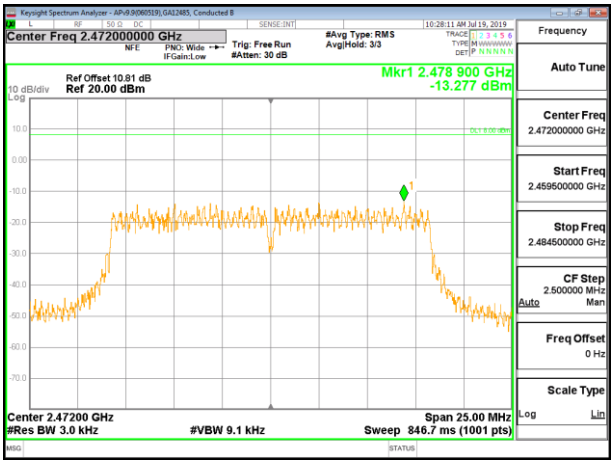


HIGH CHANNEL 12 CHAIN 0

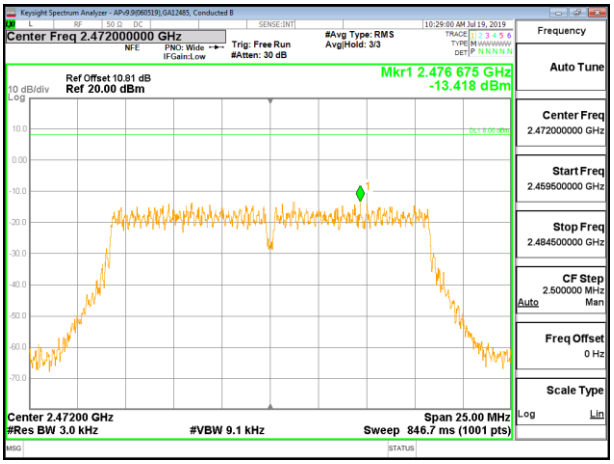


HIGH CHANNEL 12 CHAIN 1

HIGH CHANNEL 13



HIGH CHANNEL 13 CHAIN 0



HIGH CHANNEL 13 CHAIN 1

8.6.3. 802.11n HT20 MODE

2TX Chain 0 + Chain 1 SDM MODE

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

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Chain 1 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-9.60	-9.24	-6.40	8.0	-14.4
Low 2	2417	-5.18	-5.84	-2.48	8.0	-10.5
Mid 6	2437	-5.85	-5.61	-2.72	8.0	-10.7
High 10	2457	-5.85	-5.68	-2.75	8.0	-10.8
High 11	2462	-10.09	-10.96	-7.49	8.0	-15.5
High 12	2467	-11.85	-11.96	-8.89	8.0	-16.9
High 13	2472	-15.54	-15.77	-12.64	8.0	-20.6