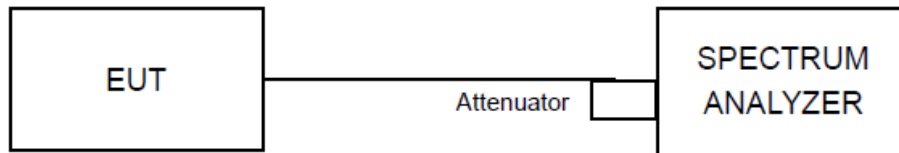


4.2 Minimum 6dB Bandwidth

4.2.1 Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz

4.2.2 Test Setup



4.2.3 Test Procedures

The EUT was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” for compliance to FCC 47CFR 15.247 requirements (clause 8.2).

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW ≥ 3 · RBW, peak detector with maximum hold) is implemented by the instrumentation function.

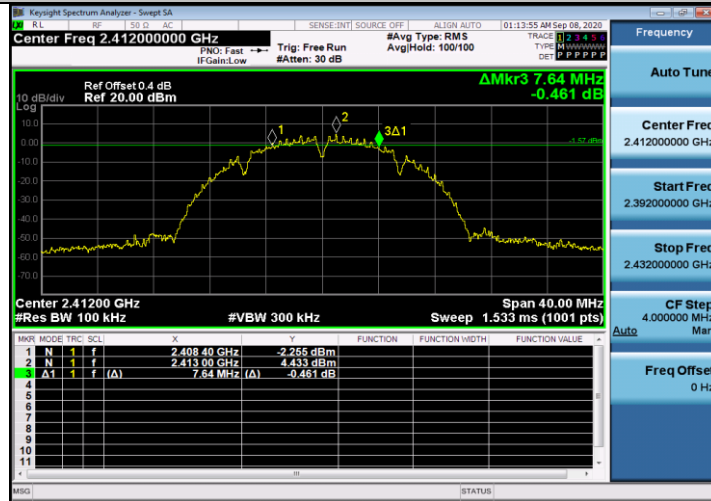
4.2.4 Deviation of Test Standard

No deviation.

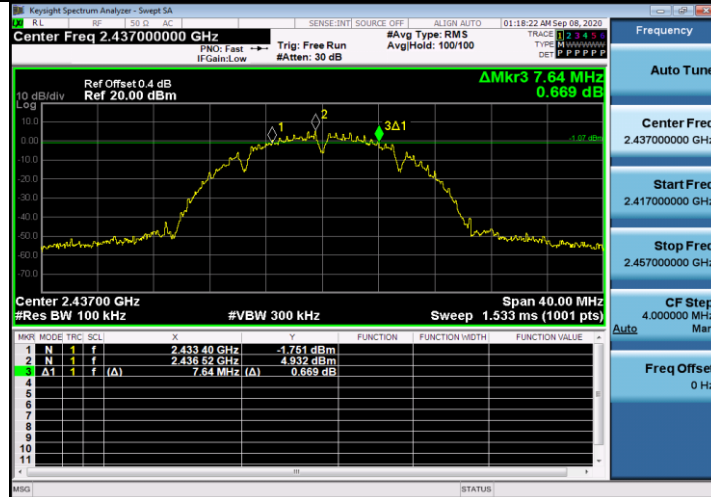
4.2.5 Test Results

Test Mode	Antenna	Channel [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
802.11b	Ant1	2412	7.640	2408.400	2416.040	≥ 0.5	PASS
		2437	7.640	2433.400	2441.040	≥ 0.5	PASS
		2462	8.120	2457.920	2466.040	≥ 0.5	PASS
802.11g	Ant1	2412	16.440	2403.760	2420.200	≥ 0.5	PASS
		2437	16.400	2428.800	2445.200	≥ 0.5	PASS
		2462	16.400	2453.800	2470.200	≥ 0.5	PASS
802.11n (HT20)	Ant1	2412	17.680	2403.160	2420.840	≥ 0.5	PASS
		2437	17.640	2428.160	2445.800	≥ 0.5	PASS
		2462	17.160	2453.400	2470.560	≥ 0.5	PASS
802.11n (HT40)	Ant1	2422	34.800	2405.040	2439.840	≥ 0.5	PASS
		2437	35.280	2419.400	2454.680	≥ 0.5	PASS
		2452	35.520	2434.080	2469.600	≥ 0.5	PASS

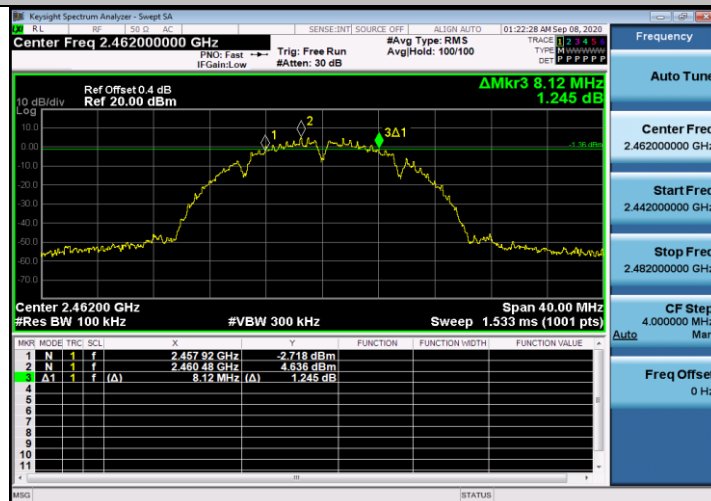
802.11b_Ant1_2412



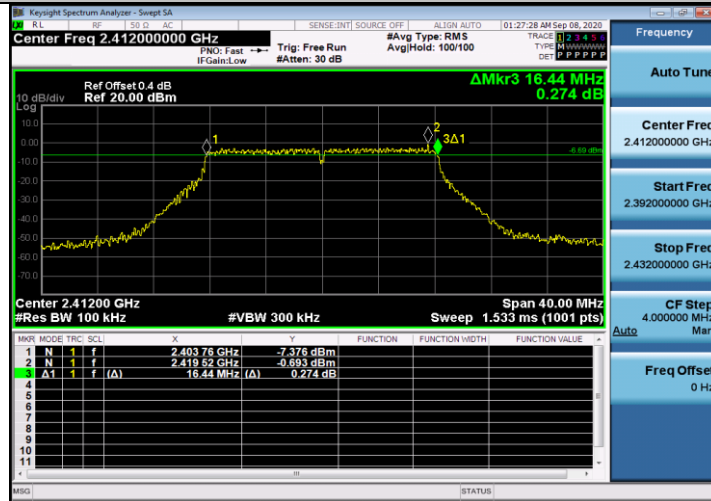
802.11b_Ant1_2437



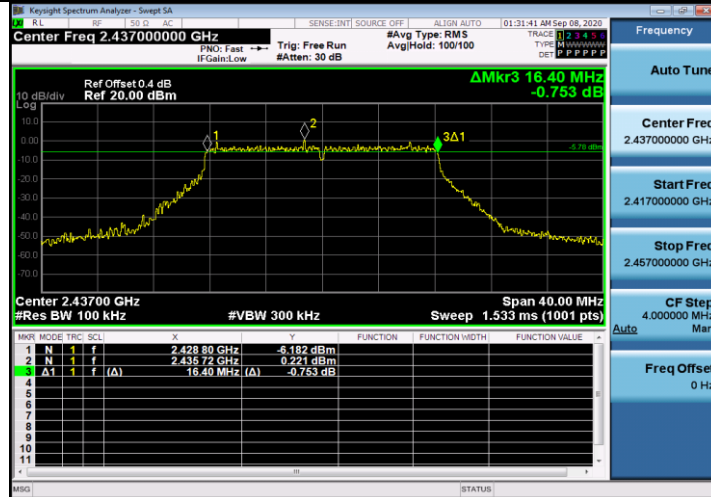
802.11b_Ant1_2462



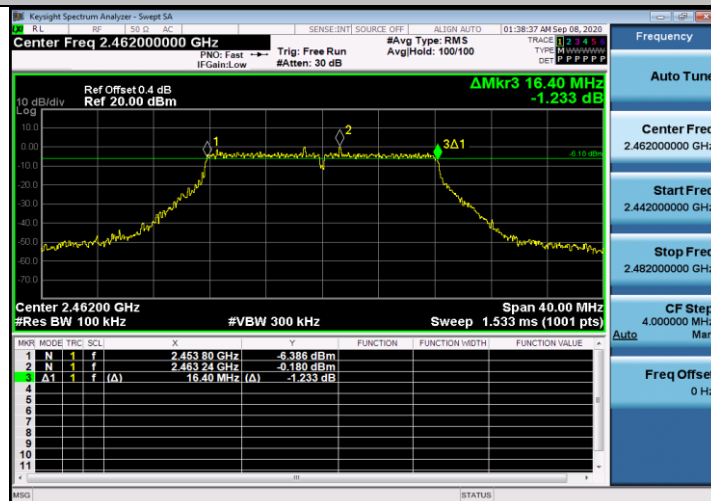
802.11g_Ant1_2412



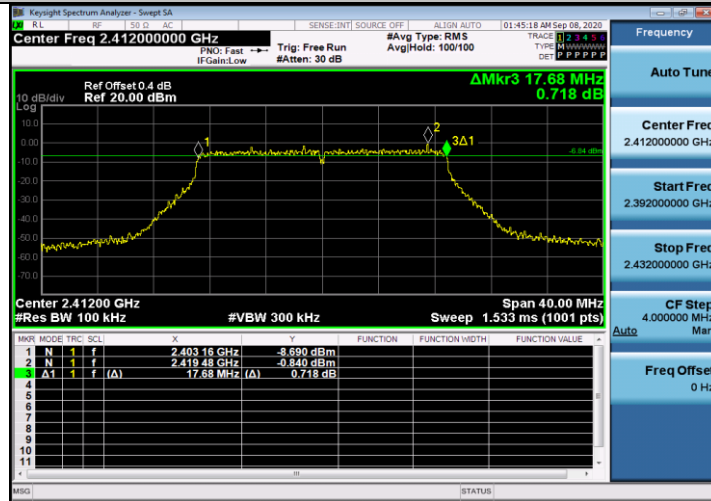
802.11g_Ant1_2437



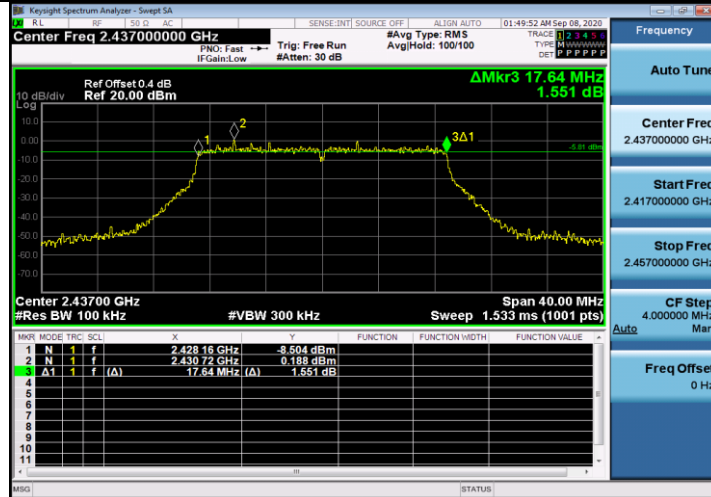
802.11g_Ant1_2462



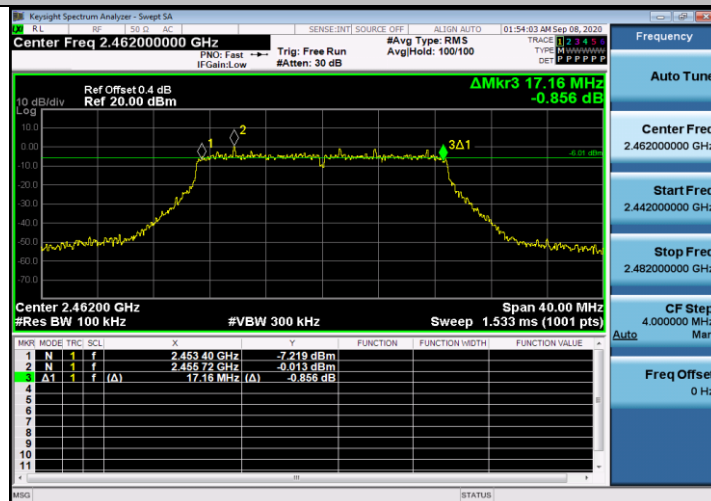
802.11n (HT20)_Ant1_2412



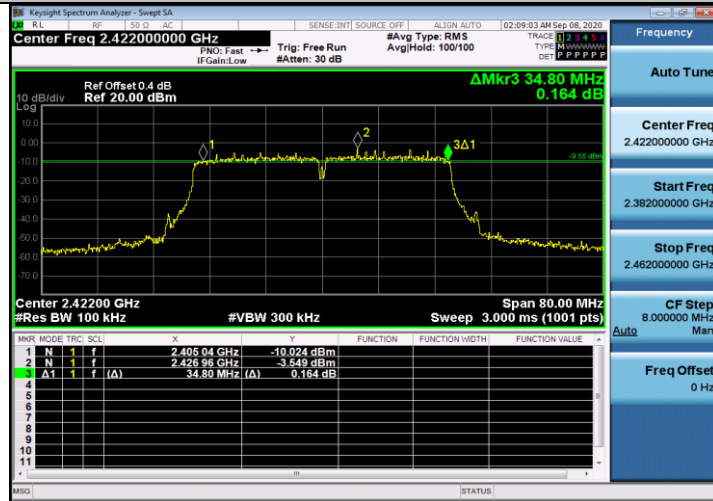
802.11n (HT20)_Ant1_2437



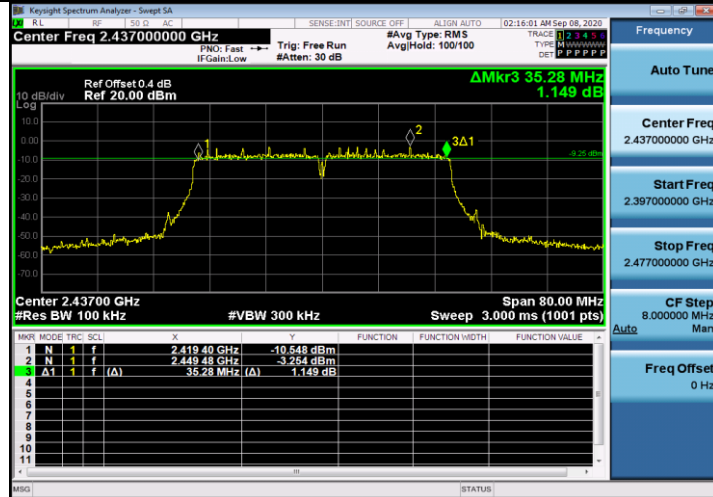
802.11n (HT20)_Ant1_2462



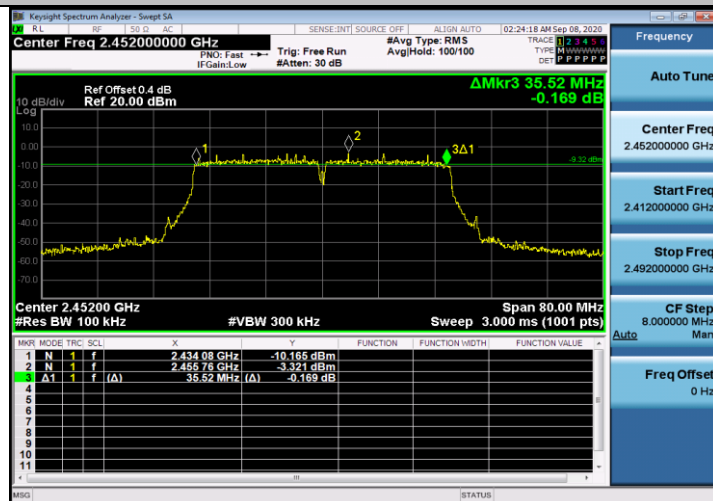
802.11n (HT40)_Ant1_2422



802.11n (HT40)_Ant1_2437



802.11n (HT40)_Ant1_2452

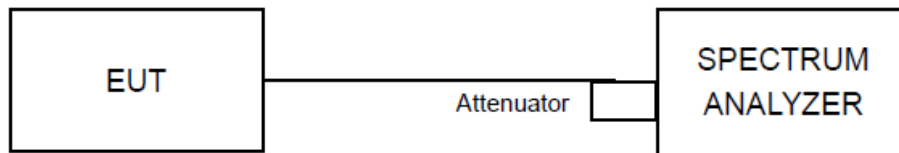


4.3 Conducted Output Power

4.3.1 Limit

For systems using digital modulation in the 2400 – 2483.5 MHz bands: 1 Watt (30 dBm)

4.3.2 Test Setup



4.3.3 Test Procedures

The EUT was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” for compliance to FCC 47CFR 15.247 requirements (clause 9.2.2.4).

- a) Measure the duty cycle, x , of the transmitter output signal as described in Section 6.0.
- b) Set span to at least 1.5 OBW.
- c) Set RBW = 1 % to 5 % of the OBW, not to exceed 1 MHz.
- d) Set VBW ≥ 3 RBW.
- e) Number of points in sweep ≥ 2 span / RBW. (This gives bin-to-bin spacing $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)
- f) Sweep time = auto.
- g) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- h) Do not use sweep triggering. Allow the sweep to “free run”.
- i) Trace average at least 100 traces in power averaging (i.e., RMS) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the on and off periods of the transmitter.
- j) Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
- k) Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on- and off-times of the transmission). For example, add $10 \log (1/0.25) = 6$ dB if the duty cycle is 25 %.

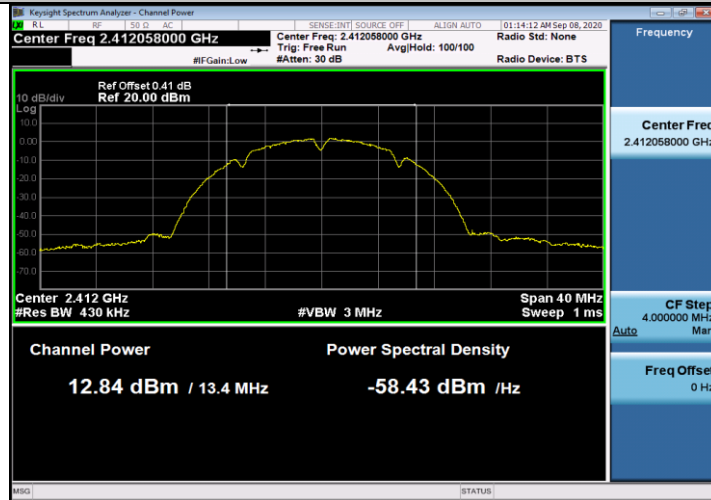
4.3.4 Deviation of Test Standard

No deviation.

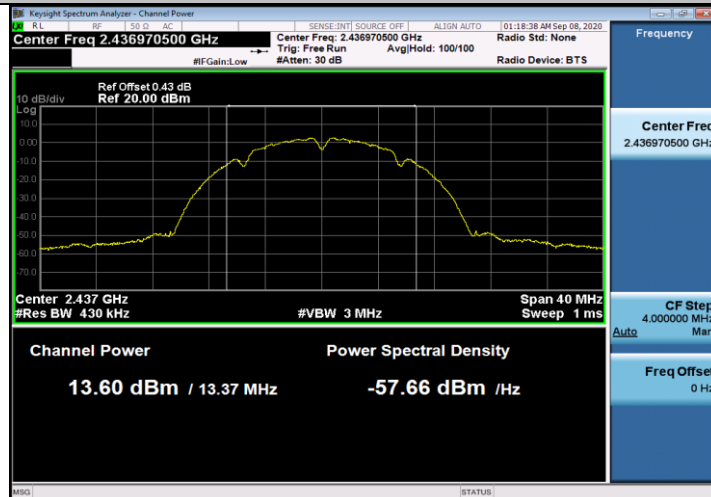
4.3.5 Test Results

Test Mode	Antenna	Channel [MHz]	Level [dBm]	10log(1/x) Factor[dB]	Power [dBm]	Limit [dBm]	Verdict
802.11b	Ant1	2412	12.84	0.02	12.86	<=30	PASS
		2437	13.60	0.03	13.63	<=30	PASS
		2462	13.52	0.06	13.58	<=30	PASS
802.11g	Ant1	2412	11.42	0.10	11.52	<=30	PASS
		2437	11.91	0.19	12.10	<=30	PASS
		2462	11.74	0.28	12.02	<=30	PASS
802.11n (HT20)	Ant1	2412	11.20	0.24	11.44	<=30	PASS
		2437	11.62	0.26	11.88	<=30	PASS
		2462	11.06	0.13	11.19	<=30	PASS
802.11n (HT40)	Ant1	2422	10.62	0.25	10.87	<=30	PASS
		2437	11.33	0.62	11.95	<=30	PASS
		2452	11.11	0.44	11.55	<=30	PASS

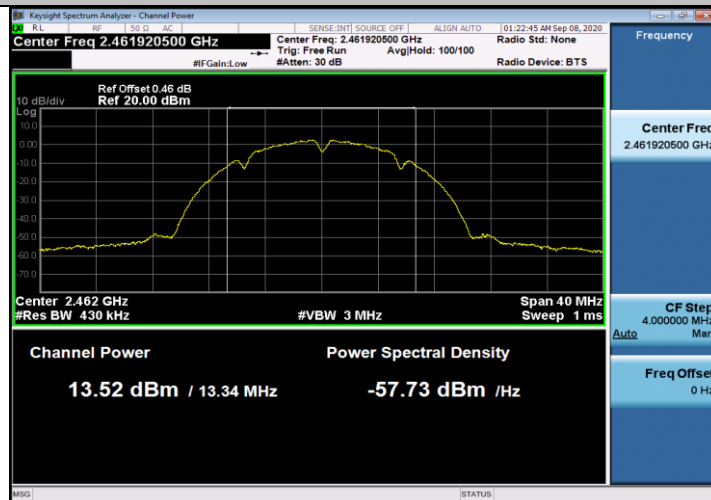
802.11b_Ant1_2412



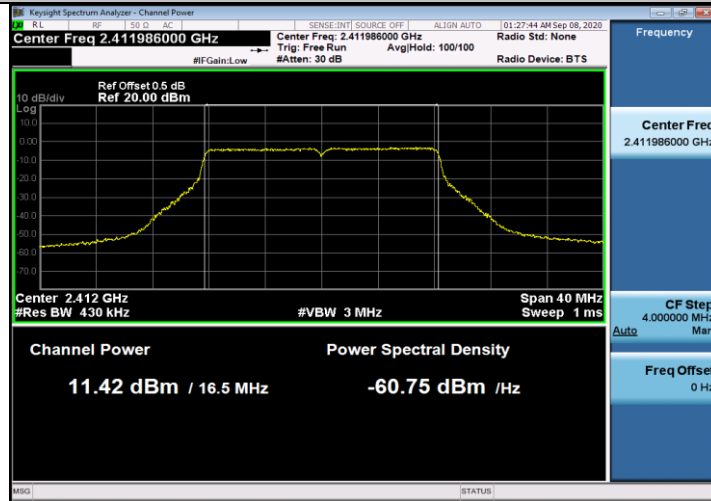
802.11b_Ant1_2437



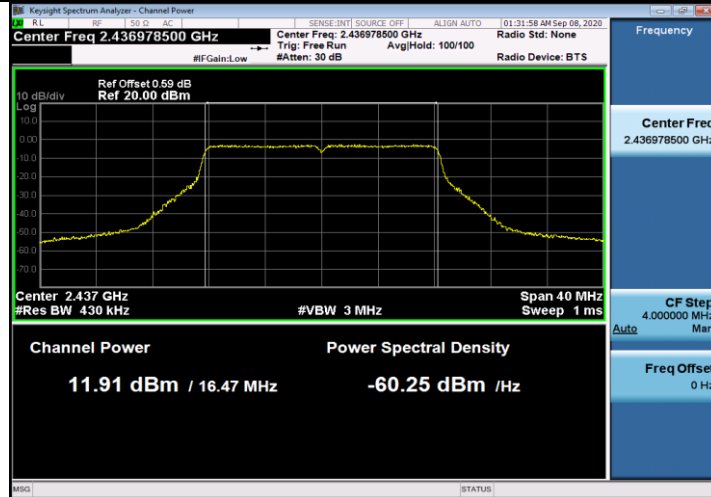
802.11b_Ant1_2462



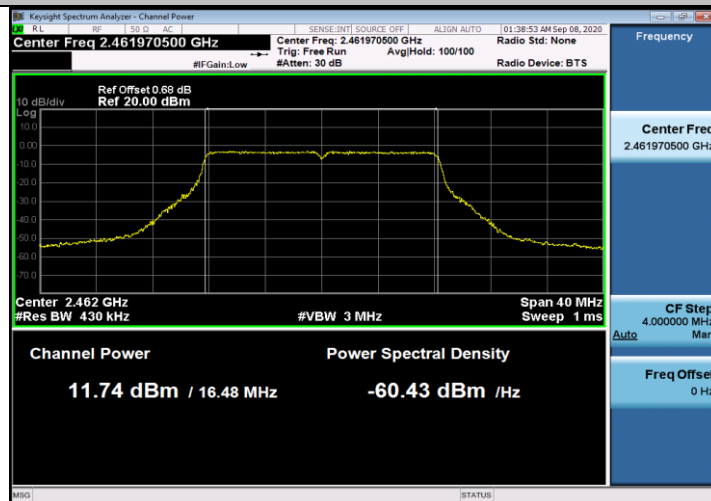
802.11g_Ant1_2412



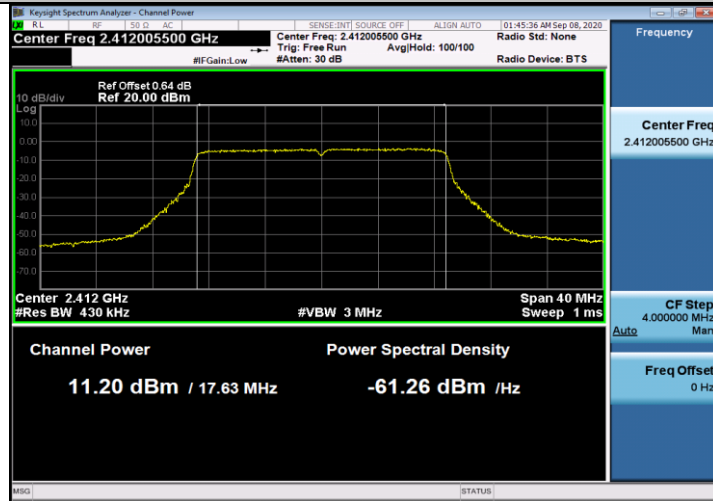
802.11g_Ant1_2437



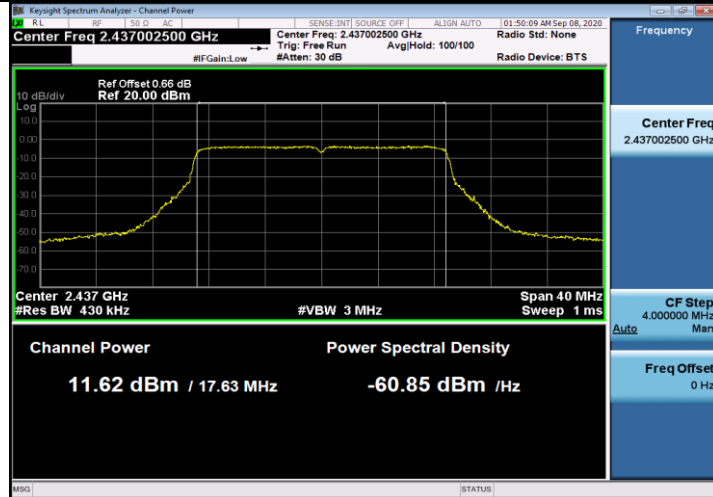
802.11g_Ant1_2462



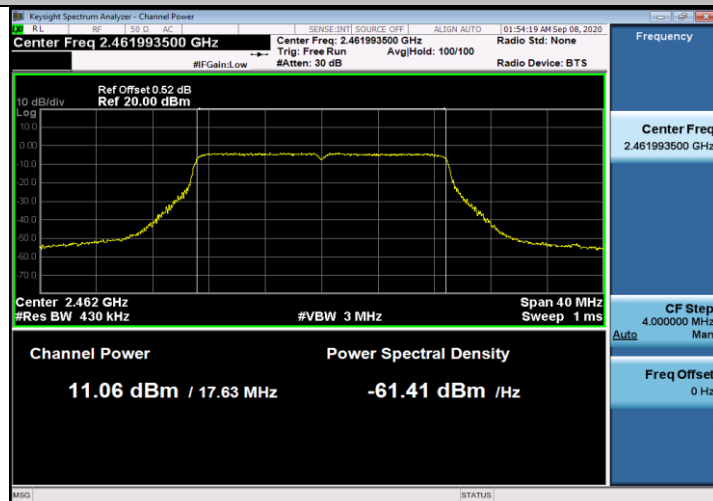
802.11n (HT20)_Ant1_2412



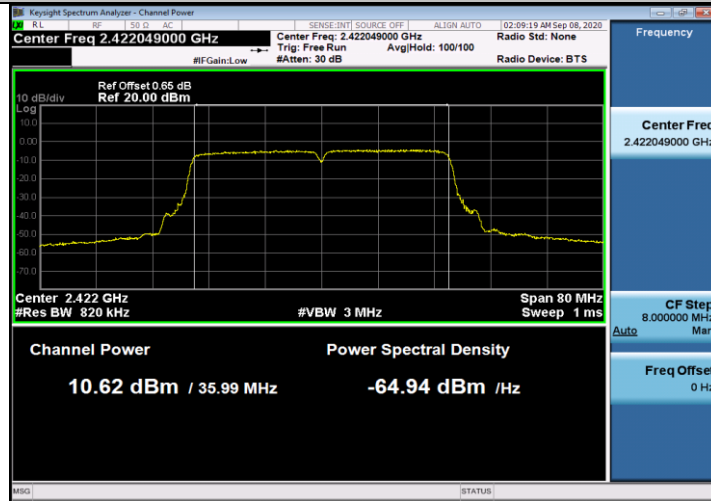
802.11n (HT20)_Ant1_2437



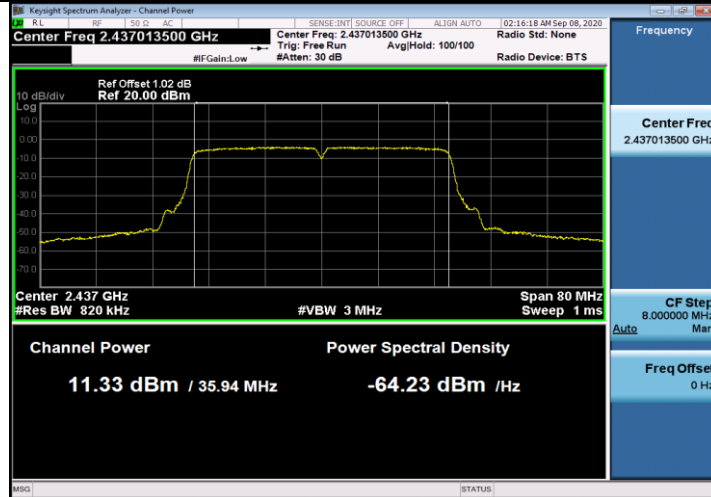
802.11n (HT20)_Ant1_2462



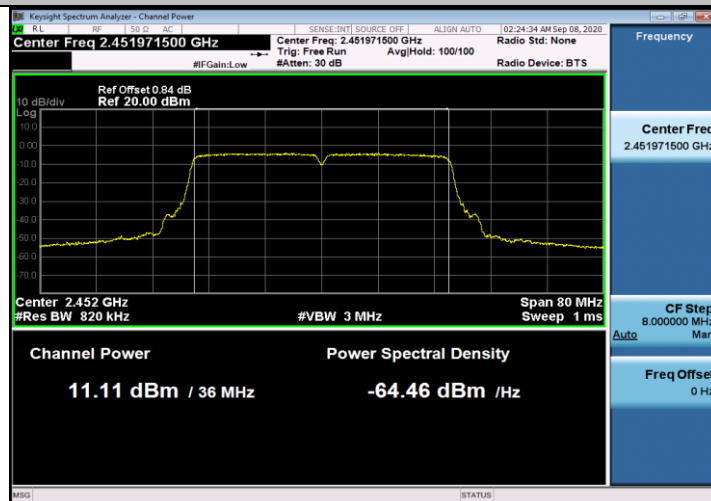
802.11n (HT40)_Ant1_2422



802.11n (HT40)_Ant1_2437



802.11n (HT40)_Ant1_2452

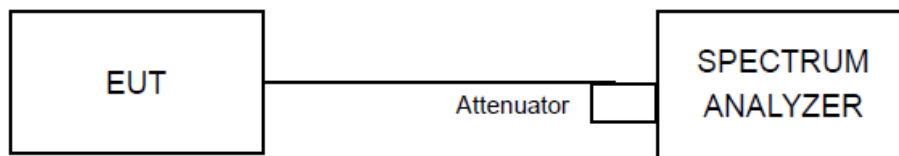


4.4 Power Spectral Density

4.4.1 Limit

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz band.

4.4.2 Test Setup



4.4.3 Test Procedures

The power output per FCC § 15.247(e) was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” (clause 10.5) for compliance to FCC 47CFR 15.247 requirements.

- Measure the duty cycle (x) of the transmitter output signal.
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \text{ RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \text{ span/RBW}$.
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to “free run”.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.
- Add $10 \log (1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.
- If resultant value exceeds the limit, then reduce RBW (no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span in order to meet the minimum measurement point requirement as the RBW is reduced).

4.4.4 Deviation of Test Standard

No deviation.

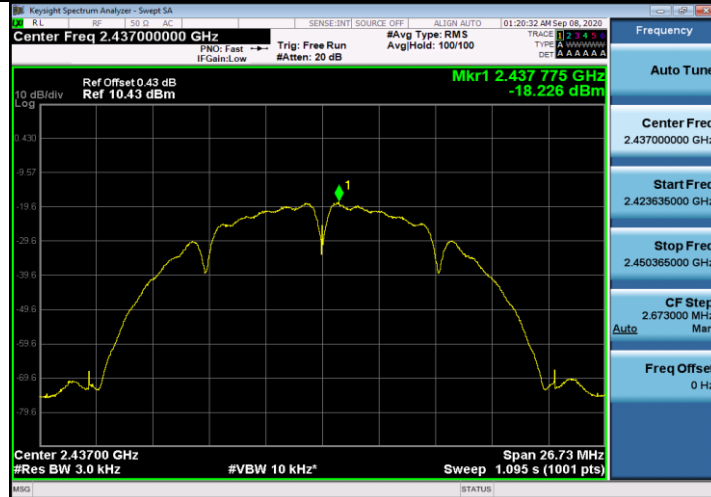
4.4.5 Test Results

Test Mode	Antenna	Channel [MHz]	Level [dBm/3kHz]	10log(1/x) Factor[dB]	PSD [dBm/3kHz]	Limit[dBm/3kHz]	Verdict
802.11b	Ant1	2412	-19.48	0.02	-19.46	<=8	PASS
		2437	-18.23	0.03	-18.20	<=8	PASS
		2462	-18.62	0.06	-18.56	<=8	PASS
802.11g	Ant1	2412	-23.47	0.10	-23.37	<=8	PASS
		2437	-22.61	0.19	-22.42	<=8	PASS
		2462	-22.65	0.28	-22.37	<=8	PASS
802.11n (HT20)	Ant1	2412	-23.57	0.24	-23.33	<=8	PASS
		2437	-22.94	0.26	-22.68	<=8	PASS
		2462	-23.81	0.13	-23.68	<=8	PASS
802.11n (HT40)	Ant1	2422	-26.95	0.25	-26.7	<=8	PASS
		2437	-26.13	0.62	-25.51	<=8	PASS
		2452	-26.82	0.44	-26.38	<=8	PASS

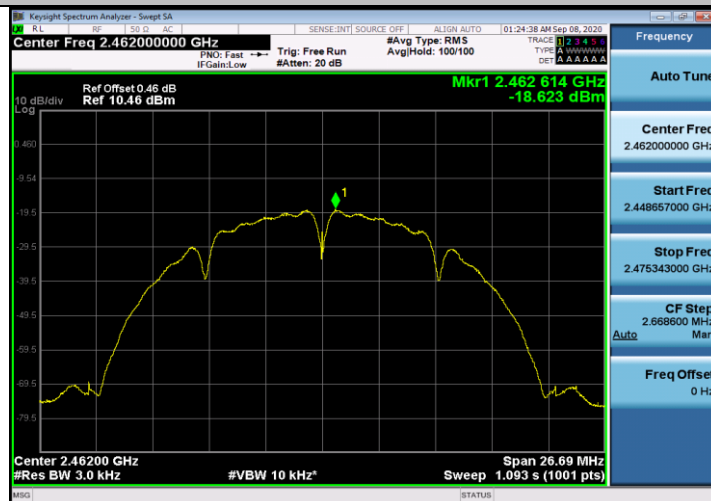
802.11b_Ant1_2412



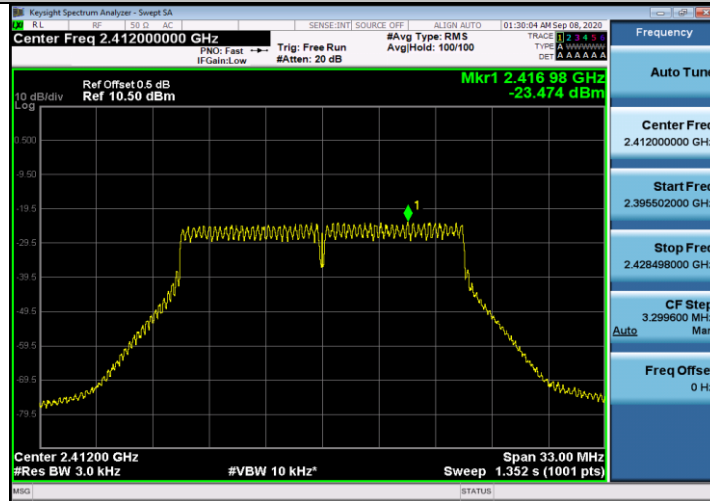
802.11b_Ant1_2437



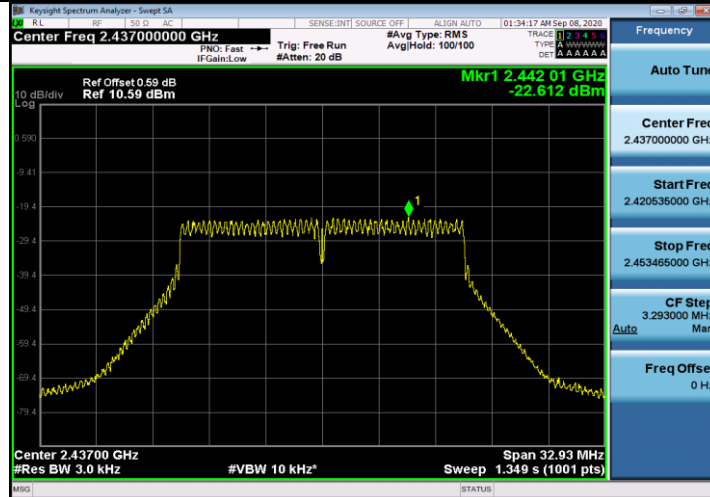
802.11b_Ant1_2462



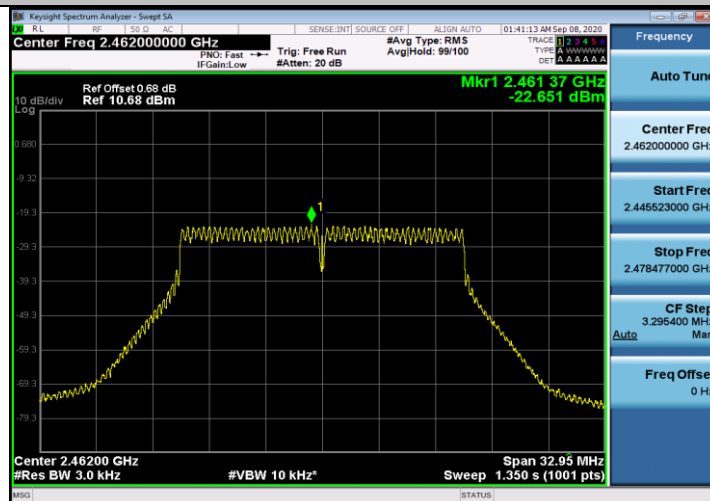
802.11g_Ant1_2412



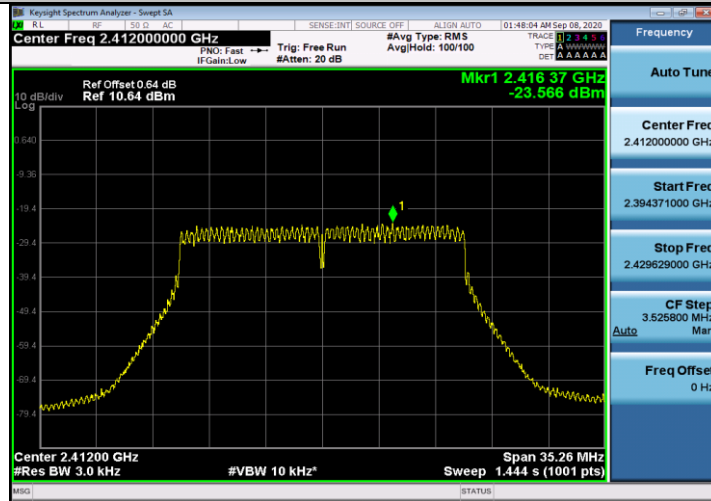
802.11g_Ant1_2437



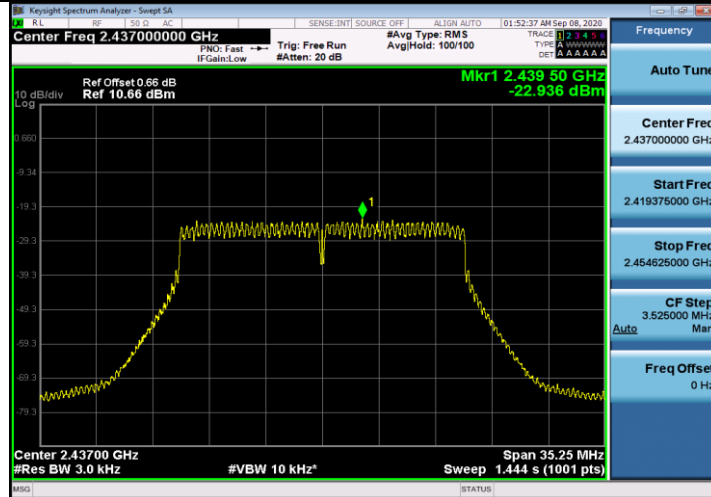
802.11g_Ant1_2462



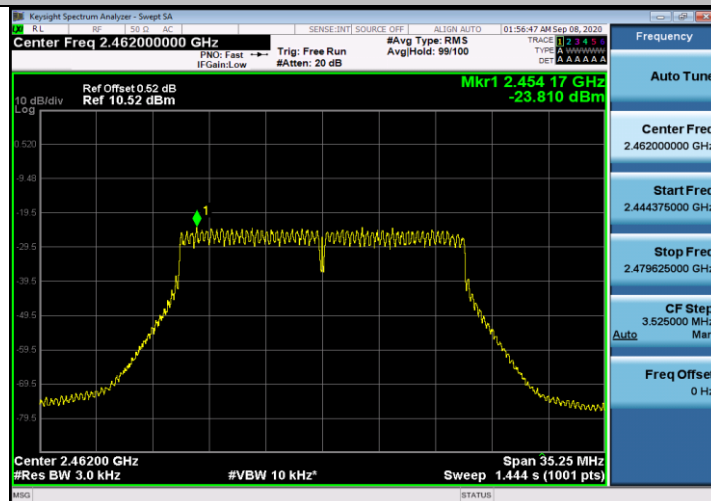
802.11n (HT20)_Ant1_2412



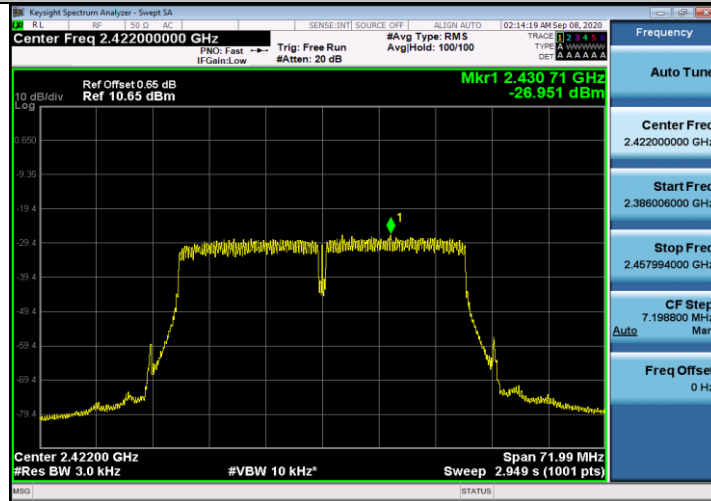
802.11n (HT20)_Ant1_2437



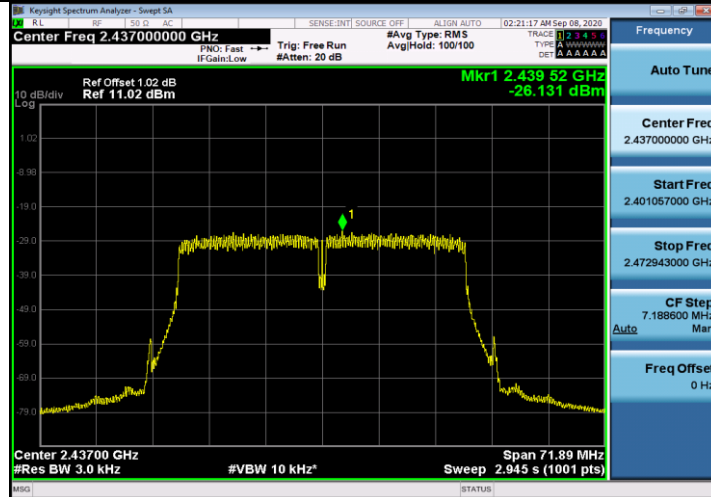
802.11n (HT20)_Ant1_2462



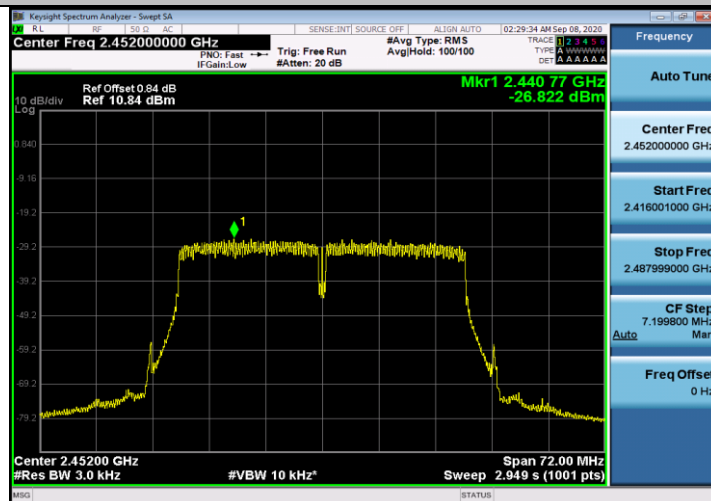
802.11n (HT40)_Ant1_2422



802.11n (HT40)_Ant1_2437



802.11n (HT40)_Ant1_2452

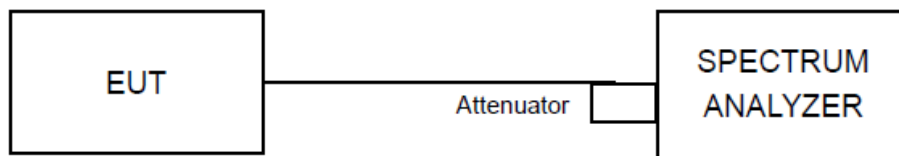


4.5 Conducted Band Edges Measurement

4.5.1 Limit

Below 30 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

4.5.2 Test Setup



4.5.3 Test Procedures

The EUT was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” (clause 11.0) for compliance to FCC 47CFR 15.247 requirements.

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.5.4 Deviation of Test Standard

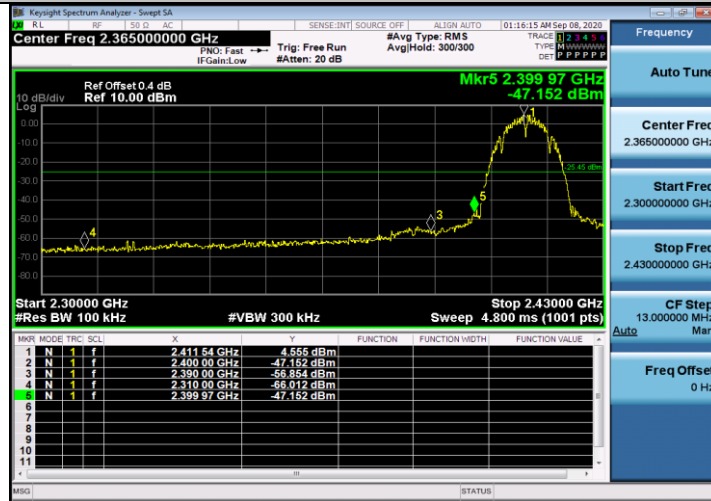
No deviation.

4.5.5 Test Results

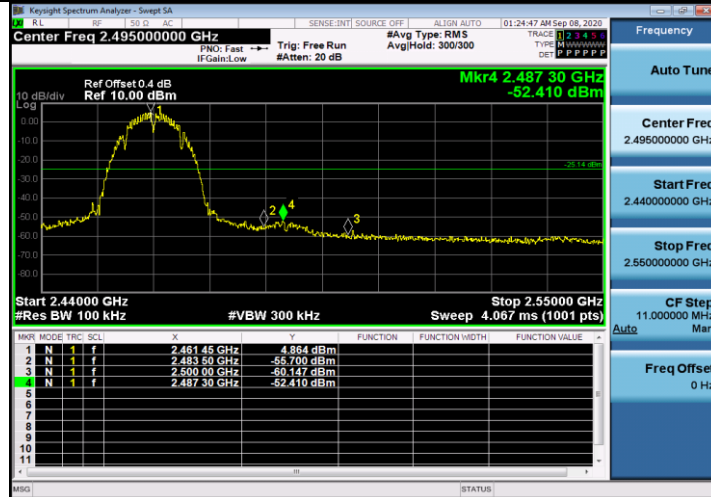
Test Mode	Antenna	ChName	Channel [MHz]	RefLevel [dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
802.11b	Ant1	Low	2412	4.56	-47.15	<=-25.45	PASS
		High	2462	4.86	-52.41	<=-25.14	PASS
802.11g	Ant1	Low	2412	-0.67	-40.23	<=-30.67	PASS
		High	2462	0.29	-53.63	<=-29.71	PASS
802.11n (HT20)	Ant1	Low	2412	-0.44	-41.27	<=-30.44	PASS
		High	2462	-0.15	-54.46	<=-30.15	PASS
802.11n (HT40)	Ant1	Low	2422	-3.57	-41.35	<=-33.57	PASS
		High	2452	-3.47	-53.29	<=-33.47	PASS



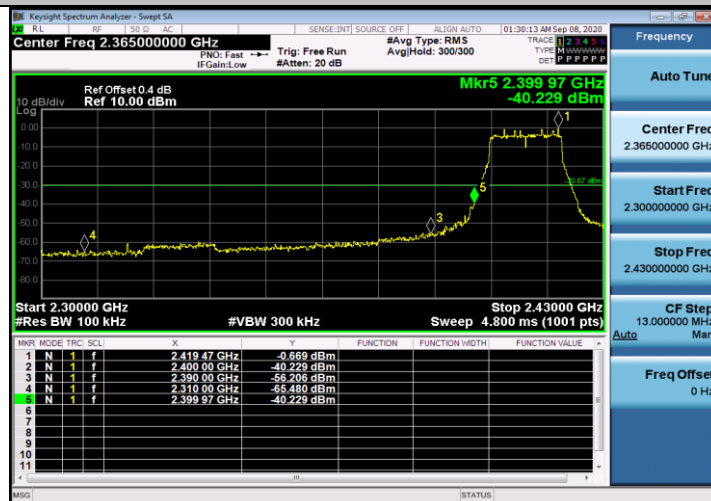
802.11b_Ant1_Low_2412



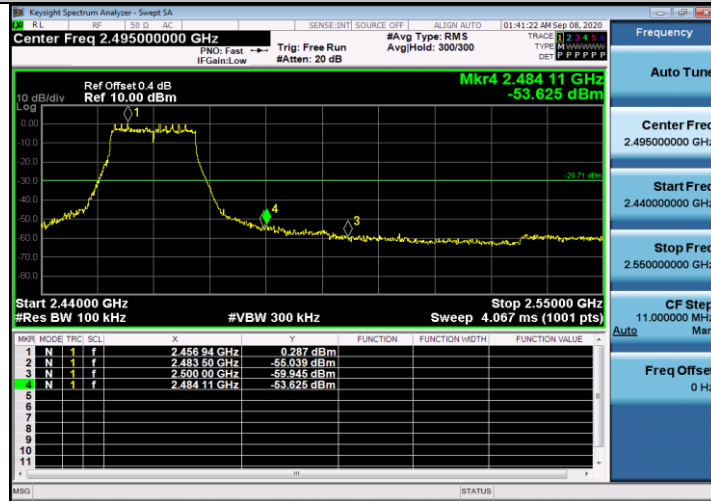
802.11b_Ant1_High_2462



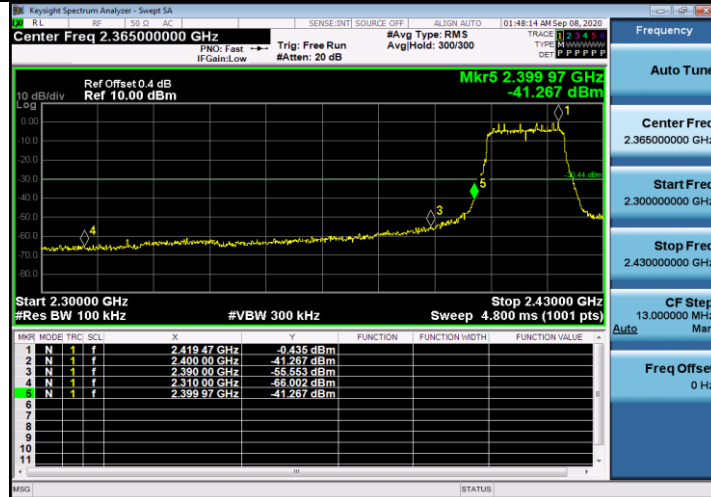
802.11g_Ant1_Low_2412



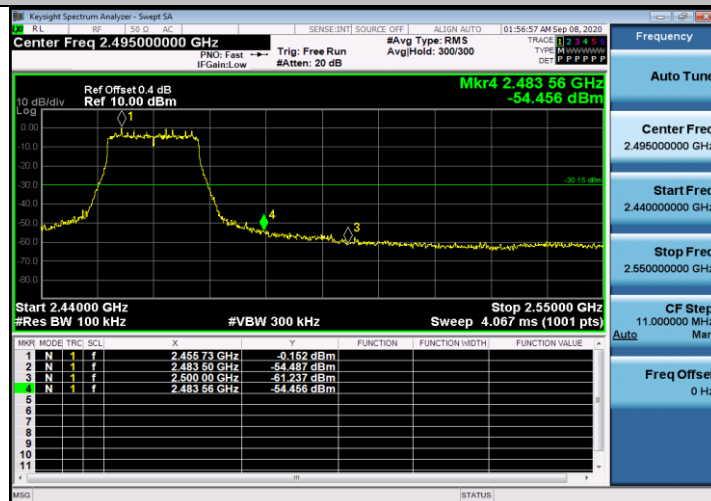
802.11g_Ant1_High_2462



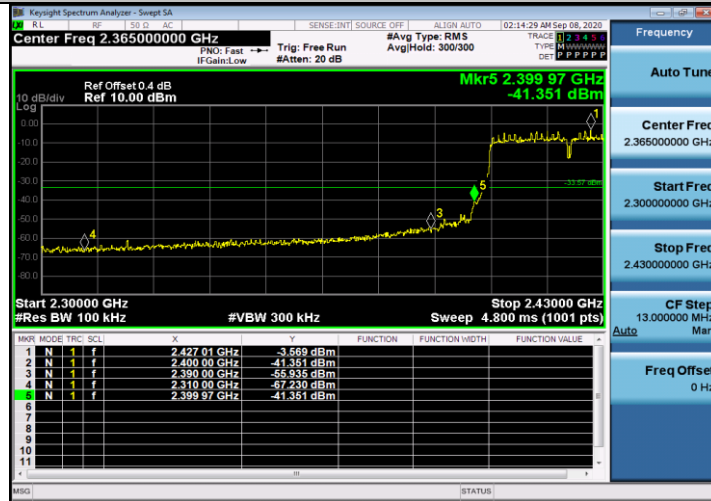
802.11n (HT20)_Ant1_Low_2412



802.11n (HT20)_Ant1_High_2462



802.11n (HT40)_Ant1_Low_2422



802.11n (HT40)_Ant1_High_2452

