7.2.5. Test Result

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	99%BW	Verdict
11B	Ant1	2412	9.080	2407.440	2416.520	0.5	13.546	PASS
		2437	9.120	2432.440	2441.560	0.5	13.298	PASS
		2462	9.080	2457.440	2466.520	0.5	13.682	PASS
11G	Ant1	2412	15.480	2404.080	2419.560	0.5	16.788	PASS
		2437	15.120	2429.440	2444.560	0.5	16.665	PASS
		2462	15.360	2454.200	2469.560	0.5	16.763	PASS
11N20SISO	Ant1	2412	15.120	2404.400	2419.520	0.5	17.403	PASS
		2437	15.120	2429.440	2444.560	0.5	17.335	PASS
		2462	15.160	2454.400	2469.560	0.5	17.435	PASS

Test Graphs of 6dB Bandwidth

11B_Ant1_2412

11B_Ant1_2437

11B_Ant1_2462

11G_Ant1_2412


11G_Ant1_2437


11G_Ant1_2462

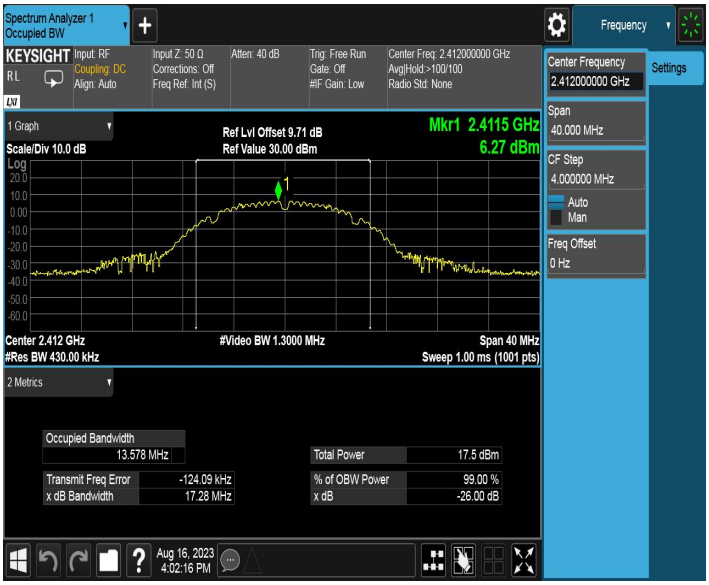
11N20SISO_Ant1_2412


11N20SISO_Ant1_2437

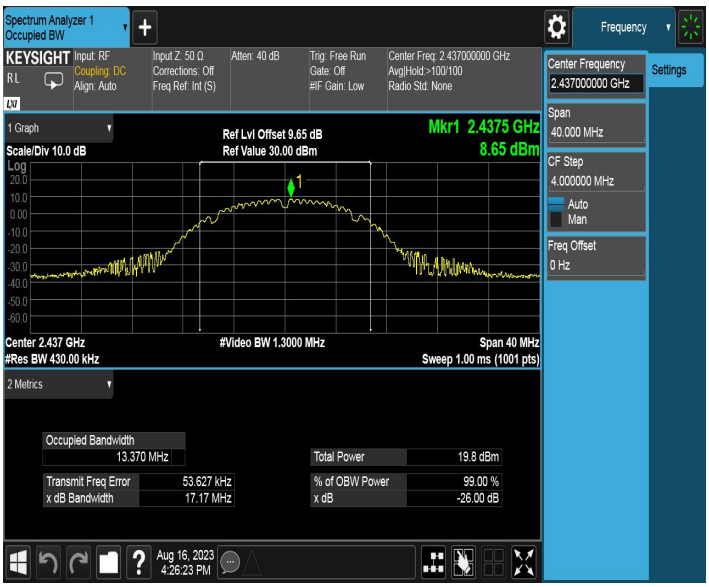
11N20SISO_Ant1_2462

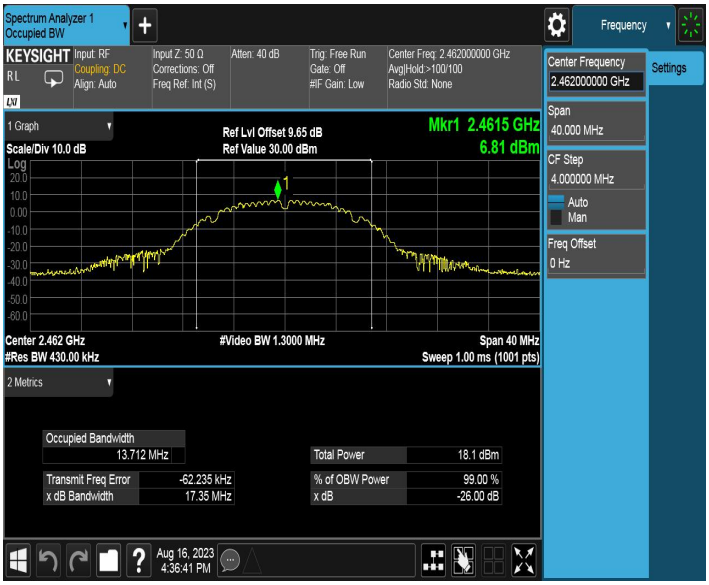
Test Graphs of Occupied Channel Bandwidth

11B_Ant1_2412

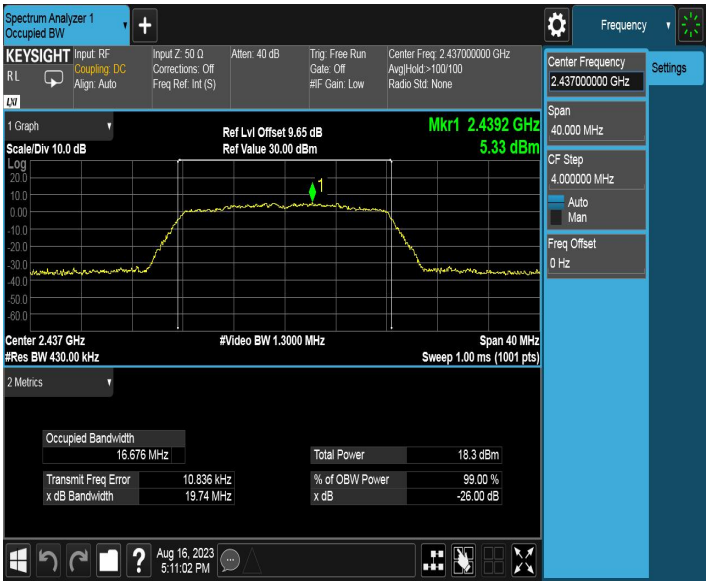


11B_Ant1_2437

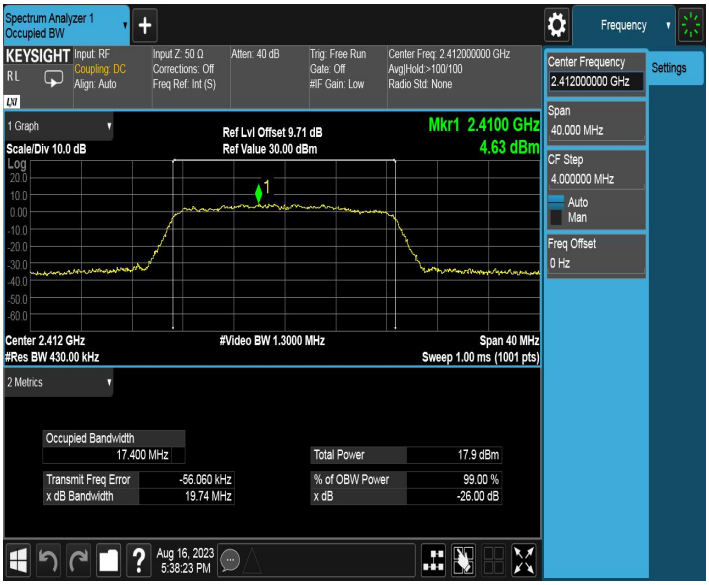
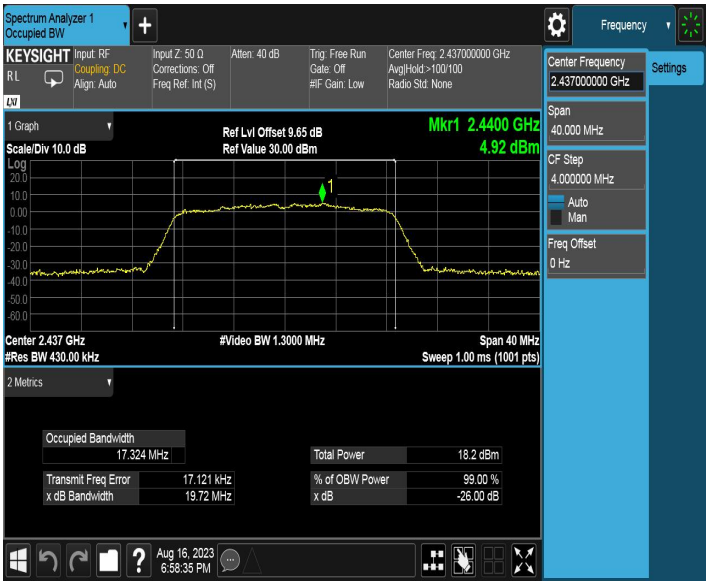


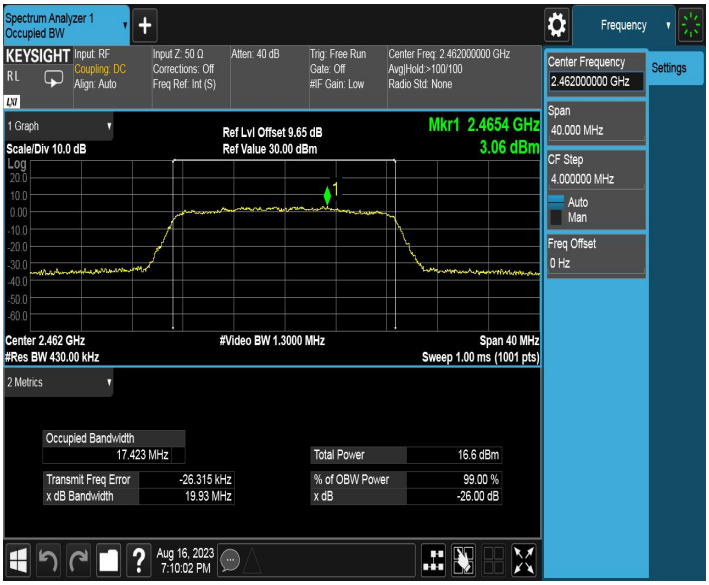
11B_Ant1_2462

11G_Ant1_2412


11G_Ant1_2437



11G_Ant1_2462

11N20SISO_Ant1_2412

11N20SISO_Ant1_2437


11N20SISO_Ant1_2462


7.3. Output Power Measurement

7.3.1. Test Limit

The maximum conducted output power is 1 Watt. And for antenna gain greater than 6dBi the limit shall reduce by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.3.2. Test Procedure Used

ANSI C63.10-2013 – Section 11.9.2.2.4

KDB 558074 D01 v05r02 – Section 8.3.2.2

7.3.3. Test Setting

1. Set span to at least 1.5 times the OBW..

2. Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.

3. Set VBW ≥ [3 × RBW].

4. Number of points in sweep ≥ [2 × span / RBW]. (This gives bin-to-bin spacing RBW / 2, so that narrowband signals are not lost between frequency bins.)

5.Sweep time = auto.

6. Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

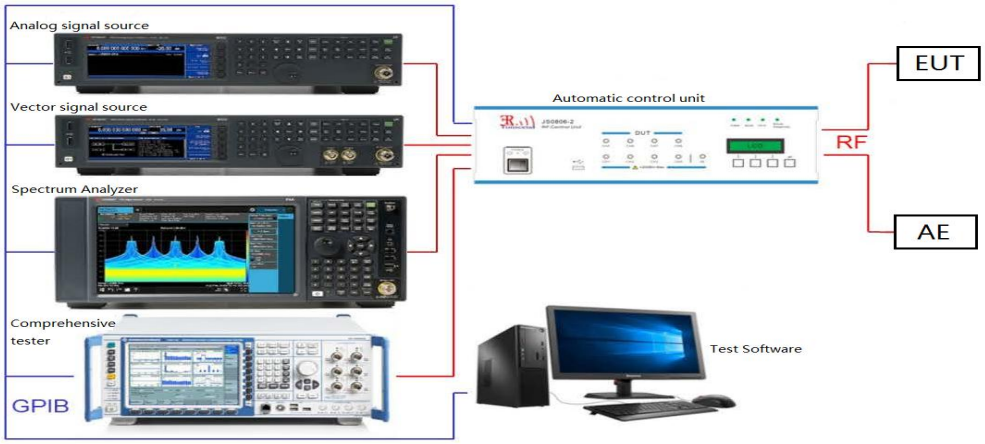
7. Do not use sweep triggering. Allow the sweep to “free run.”

8. Trace average at least 100 traces in power averaging (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.

9. 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, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum. 10Add [10 log (1 / D)], where D is the duty cycle, to the measured power 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%.

7.3.4. Test Setup



7.3.5. Test Result

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (yellow marker) for final test of each channel.

N_{TX}	Data Rate (Mbps)	
	802.11b	802.11g
1	1	6
1	2	9
1	5.5	12
1	11	18
1	--	24
1	--	36
1	--	48
1	--	54

N_{Tx}	MCS Index for 802.11n	Data Rate (Mbps)	
		20MHz Bandwidth	
		800ns GI	400ns GI
1	0	6.5	7.2
1	1	13.0	14.4
1	2	19.5	21.7
1	3	26.0	28.9
1	4	39.0	43.3
1	5	52.0	57.8
1	6	58.5	65.0
1	7	65.0	72.2

Note: Power output test was verified over all data rates of each mode shown as above, and then choose the maximum power output (yellow marker) for final test of each channel.

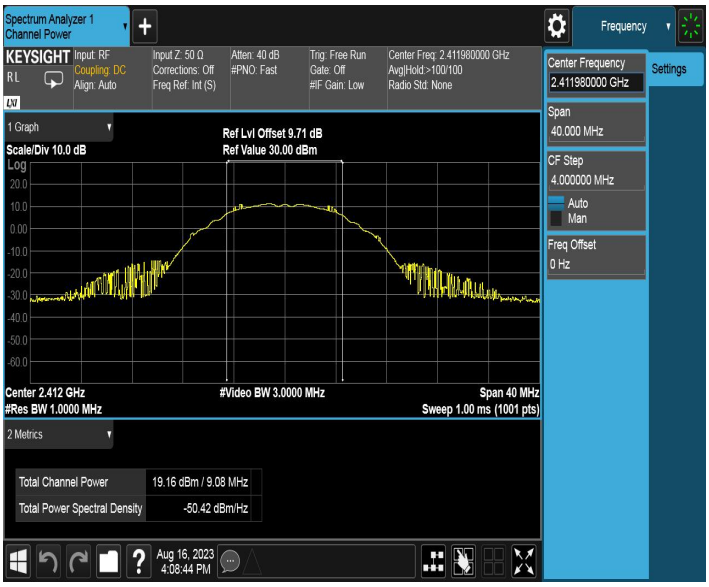
Test Result of Maximum conducted output power

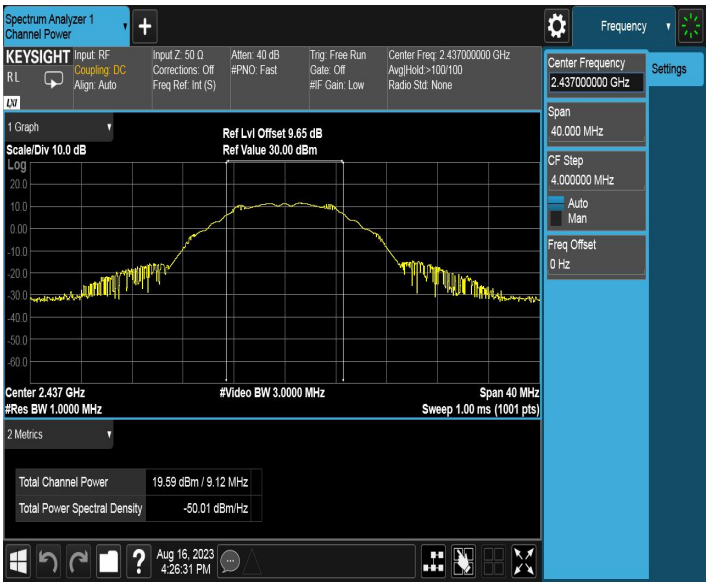
Test Mode	Antenna	Frequency[MHz]	Average power [dBm]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	18.11	1.06	19.17	≤30.00	PASS
		2437	18.53	1.06	19.59	≤30.00	PASS
		2462	16.70	1.06	17.76	≤30.00	PASS
11G	Ant1	2412	17.83	0.87	18.70	≤30.00	PASS
		2437	18.06	0.87	18.93	≤30.00	PASS
		2462	16.11	1.31	17.42	≤30.00	PASS
11N20SISO	Ant1	2412	17.19	1.35	18.54	≤30.00	PASS
		2437	17.91	0.92	18.83	≤30.00	PASS
		2462	16.29	0.92	17.21	≤30.00	PASS

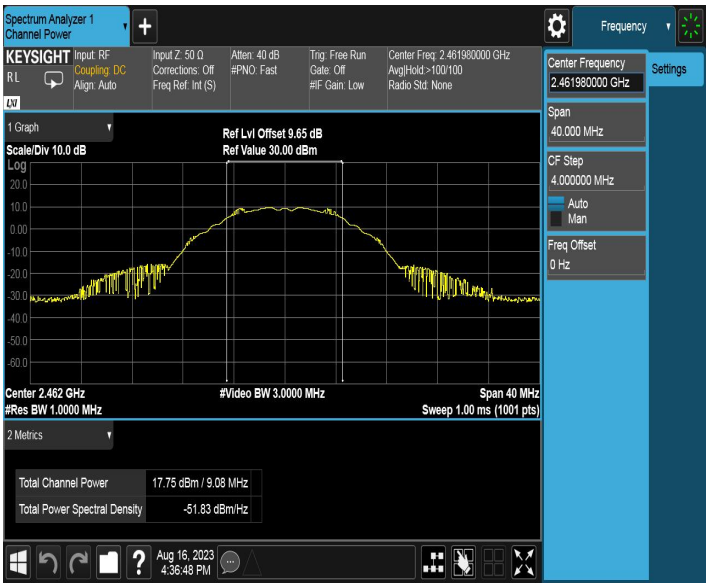
The Duty Cycle Factor is compensated in the Offset of graph.

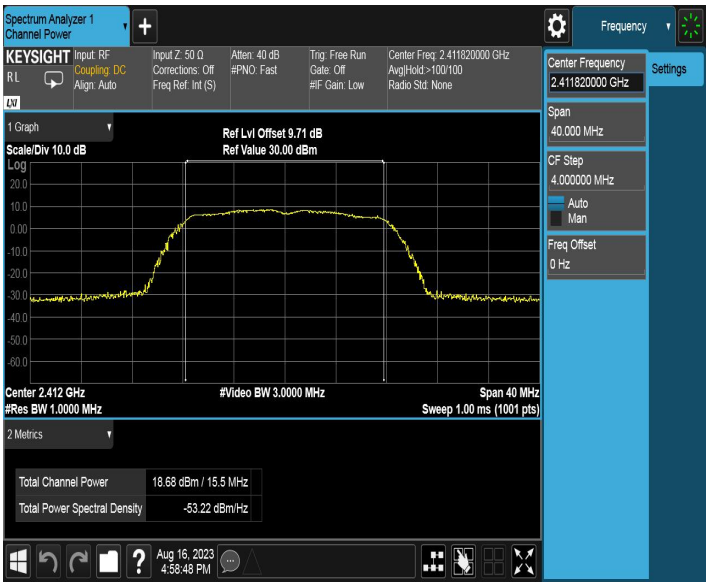
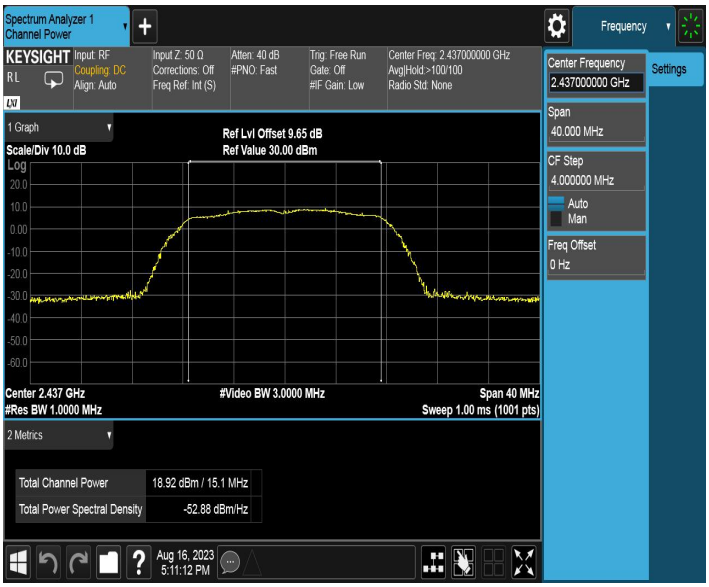
Test Graphs

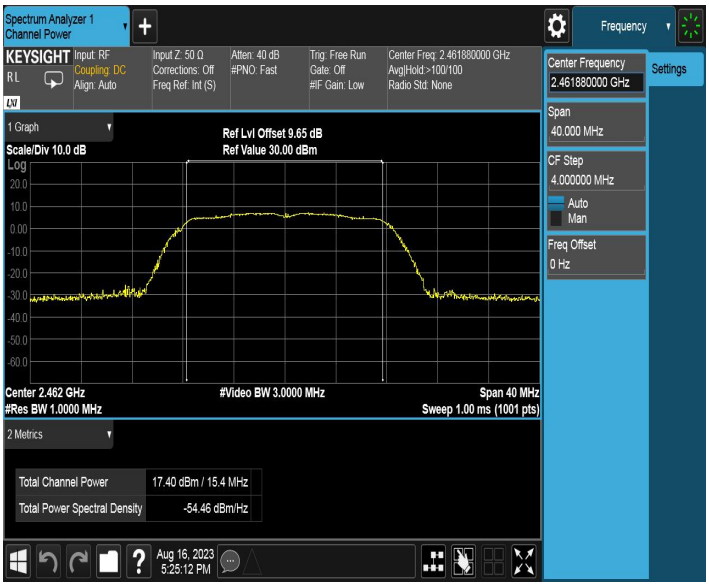
11B_Ant1_2412

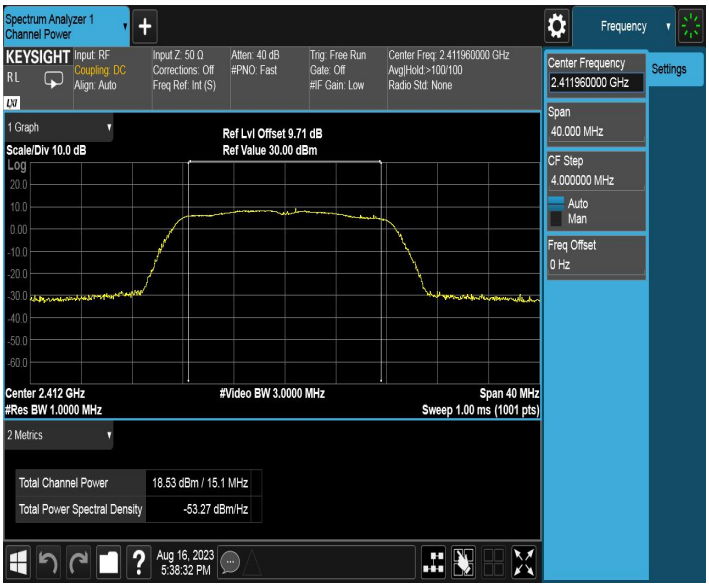


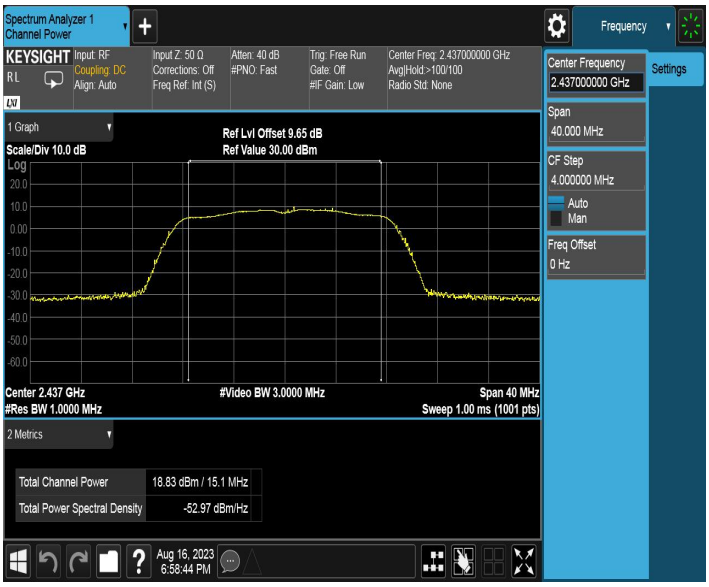
11B_Ant1_2437


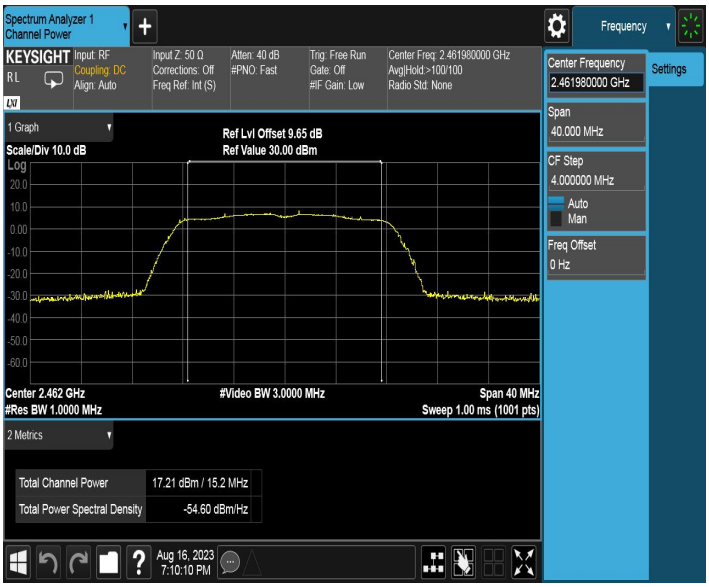
11B_Ant1_2462


11G_Ant1_2412

11G_Ant1_2437


11G_Ant1_2462


11N20SISO_Ant1_2412


11N20SISO_Ant1_2437


11N20SISO_Ant1_2462


7.4. Power Spectral Density Measurement

7.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band. And for antenna gain greater than 6dBi the limit shall reduce by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.4.2. Test Procedure Used

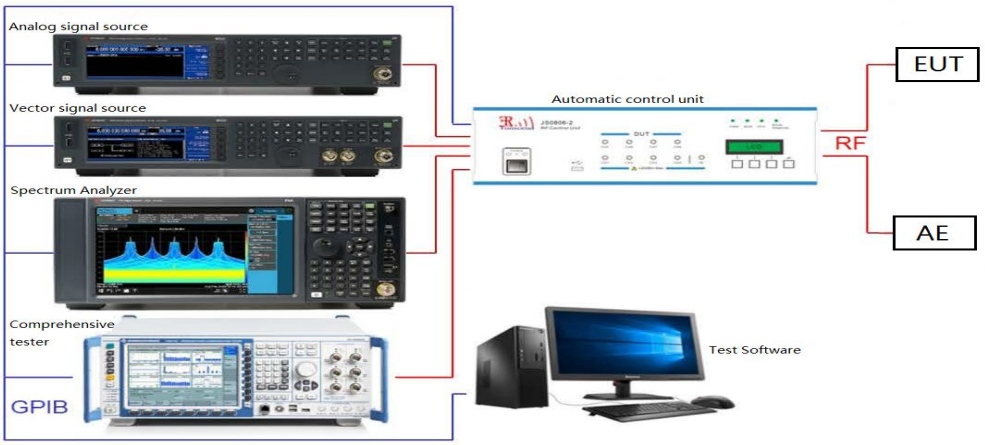
KDB 558074 D01 v05r02 - Section 8.4

ANSI C63.10 – Section 11.10.5

7.4.3. Test Setting

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the OBW.
3. Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ [3 × RBW].
5. Detector = power averaging (rms) or sample detector (when rms not available).
6. Ensure that the number of measurement points in the sweep ≥ [2 × span / RBW].
7. Sweep time = auto couple.
8. Do not use sweep triggering; allow sweep to “free run.”
9. Employ trace averaging (rms) mode over a minimum of 100 traces.
10. Use the peak marker function to determine the maximum amplitude level.
11. Add [10 log (1 / D)], where D is the duty cycle measured in step a), to the measured PSD to
12. If measured value exceeds requirement specified by regulatory agency, then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced)..

7.4.4. Test Setup

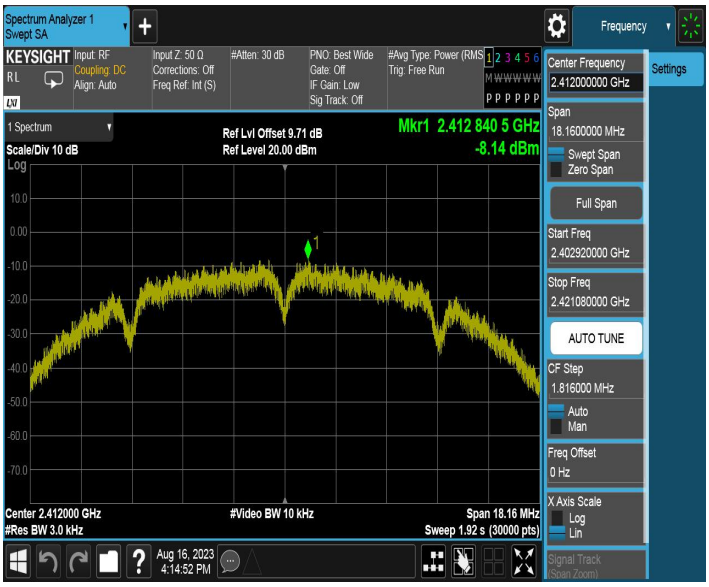


7.4.5. Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-8.14	≤8.00	PASS
		2437	-7.82	≤8.00	PASS
		2462	-9.66	≤8.00	PASS
11G	Ant1	2412	-13.37	≤8.00	PASS
		2437	-13.33	≤8.00	PASS
		2462	-13.61	≤8.00	PASS
11N20SISO	Ant1	2412	-13.23	≤8.00	PASS
		2437	-12.28	≤8.00	PASS
		2462	-14.73	≤8.00	PASS

Test Graphs

11B_Ant1_2412



11B_Ant1_2437


11B_Ant1_2462