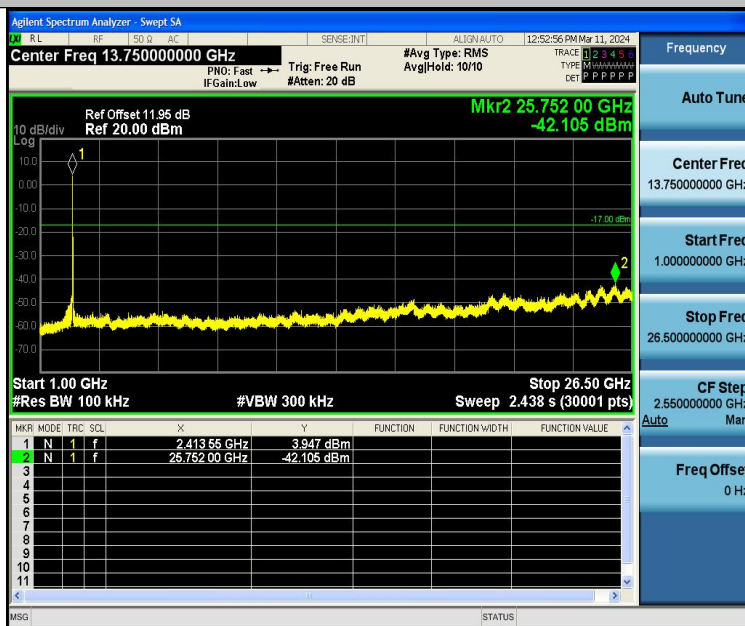




11N20SISO-Ant1-2412-30~1000-PASS



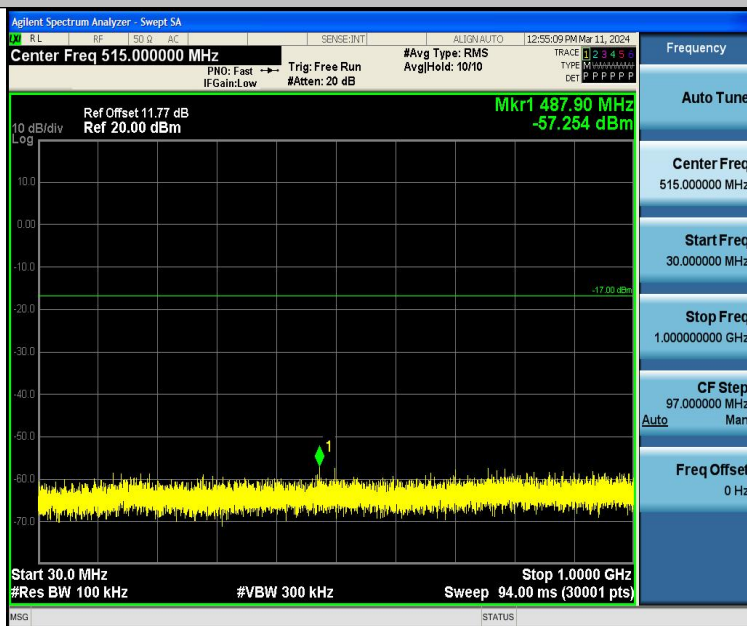
11N20SISO-Ant1-2412-1000~26500-PASS



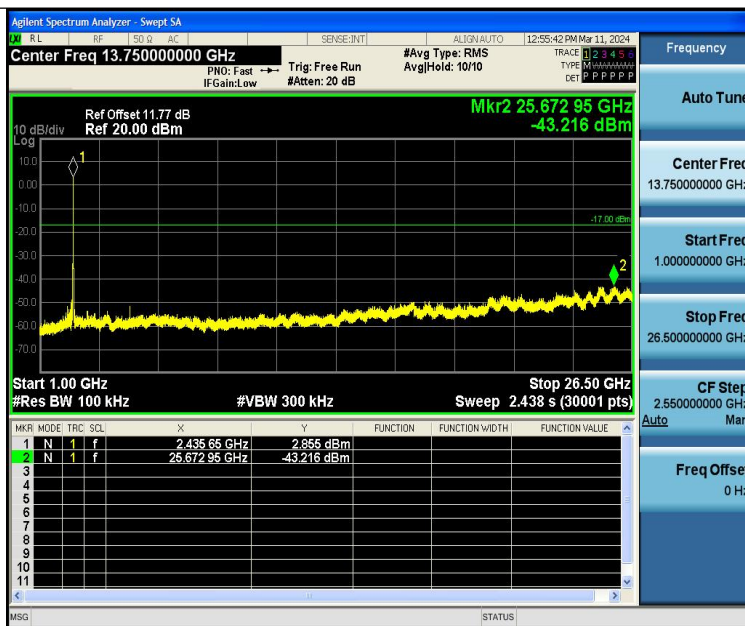
Report No.: PTC24010909703E-FC01



11N20SISO-Ant1-2437-0~Reference-PASS



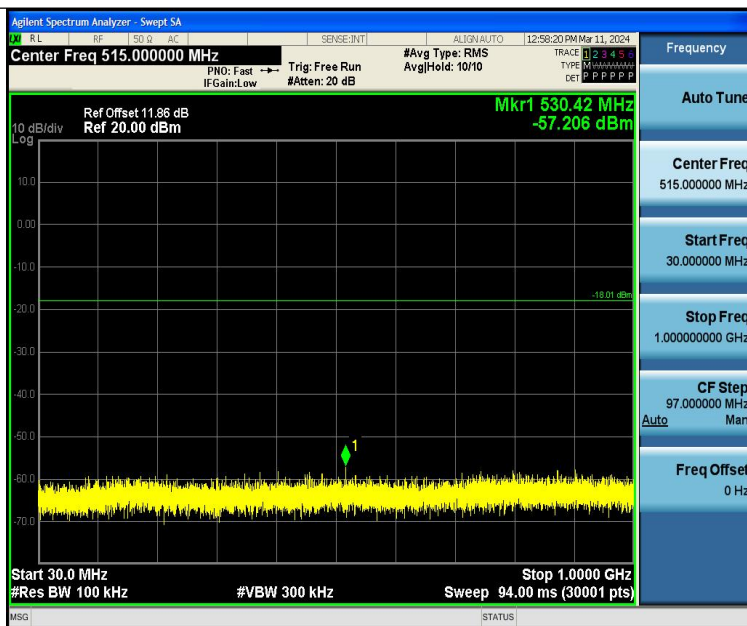
11N20SISO-Ant1-2437-30~1000-PASS



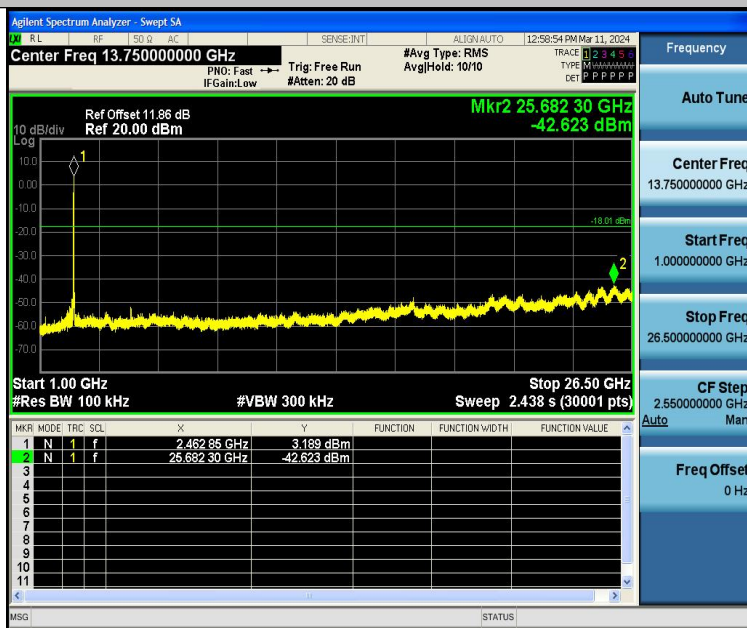
11N20SISO-Ant1-2437-1000~26500-PASS



11N20SISO-Ant1-2462-0~Reference-PASS



11N20SISO-Ant1-2462-30~1000-PASS



11N20SISO-Ant1-2462-1000~26500-PASS



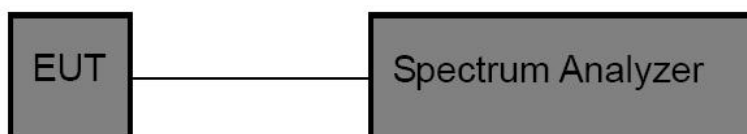
8 Band Edge Measurement

Test Requirement	: Section 15.247(d) In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
Test Method	: ANSI C63.10:2013
Test Limit	: Regulation 15.247 (d), 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

8.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
Detector function = peak, Trace = max hold

8.2 Test Setup

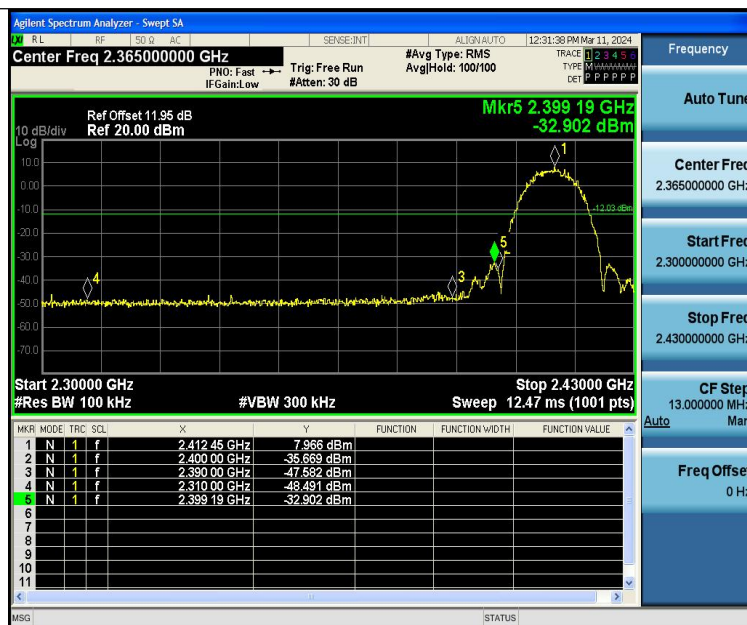




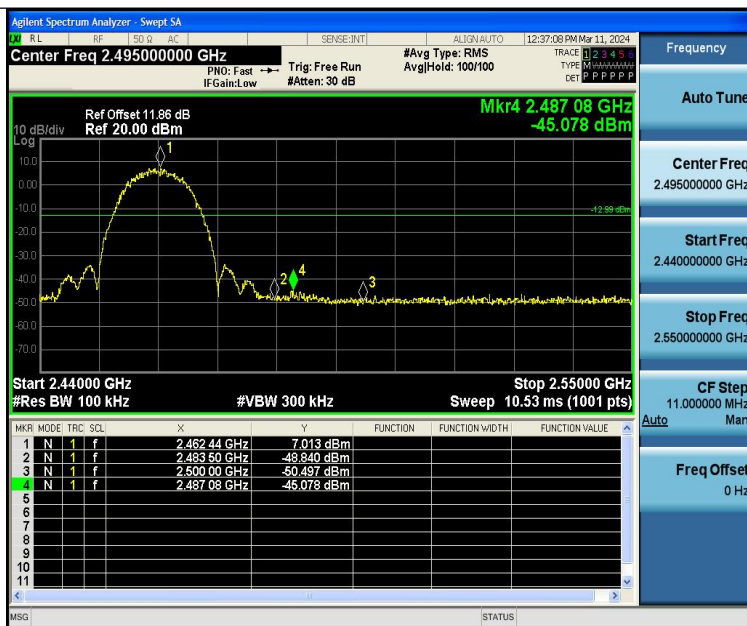
8.3 Test Result

Test Mode	Antenna	Ch Name	Frequency[MHz]	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	7.97	-32.9	≤-12.03	PASS
11B	Ant1	High	2462	7.01	-45.08	≤-12.99	PASS
11G	Ant1	Low	2412	5.37	-23.9	≤-14.64	PASS
11G	Ant1	High	2462	4.55	-42.32	≤-15.45	PASS
11N20SISO	Ant1	Low	2412	4.29	-25.83	≤-15.71	PASS
11N20SISO	Ant1	High	2462	3.60	-43.1	≤-16.4	PASS

Test Graphs



11B-Ant1-2412-PASS



11B-Ant1-2462-PASS



11G-Ant1-2412-PASS



11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2462-PASS



9 6dB Bandwidth Measurement

Test Requirement : FCC CFR47 Part 15 Section 15.247

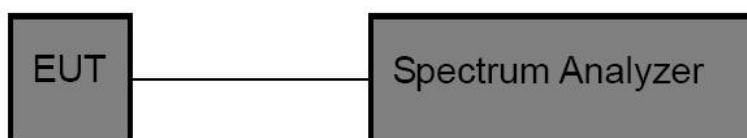
Test Method : ANSI C63.10:2013

Test Limit : Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

9.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

9.2 Test Setup



9.3 Test Result

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.440	2407.000	2417.440	0.5	PASS
11B	Ant1	2437	10.000	2431.800	2441.800	0.5	PASS
11B	Ant1	2462	9.520	2457.040	2466.560	0.5	PASS
11G	Ant1	2412	15.920	2404.120	2420.040	0.5	PASS
11G	Ant1	2437	16.280	2428.760	2445.040	0.5	PASS
11G	Ant1	2462	16.000	2453.800	2469.800	0.5	PASS
11N20SISO	Ant1	2412	15.720	2404.080	2419.800	0.5	PASS
11N20SISO	Ant1	2437	16.280	2428.840	2445.120	0.5	PASS
11N20SISO	Ant1	2462	16.240	2454.120	2470.360	0.5	PASS



Test Graphs



11B-Ant1-2412-PASS



11B-Ant1-2437-PASS



11B-Ant1-2462-PASS



11G-Ant1-2412-PASS



11G-Ant1-2437-PASS



11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2437-PASS



11N20SISO-Ant1-2462-PASS



10 Maximum Peak Output Power

Test Requirement : FCC CFR47 Part 15 Section 15.247

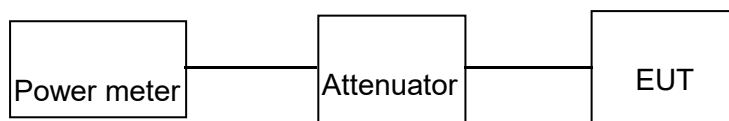
Test Method : ANSI C63.10:2013

Test Limit : Regulation 15.247 (b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.

10.1 Test Procedure

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 D01 15.247 Meas Guidance v05 section 8.3.1.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

10.2 Test Setup



10.3 Test Result

Test Mode	Antenna	Frequency[MHz]	Set Power	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	---	22.48	≤30.00	PASS
11B	Ant1	2437	---	22.86	≤30.00	PASS
11B	Ant1	2462	---	21.93	≤30.00	PASS
11G	Ant1	2412	---	22.52	≤30.00	PASS
11G	Ant1	2437	---	22.76	≤30.00	PASS
11G	Ant1	2462	---	21.77	≤30.00	PASS
11N20SISO	Ant1	2412	---	21.07	≤30.00	PASS
11N20SISO	Ant1	2437	---	21.46	≤30.00	PASS
11N20SISO	Ant1	2462	---	20.41	≤30.00	PASS



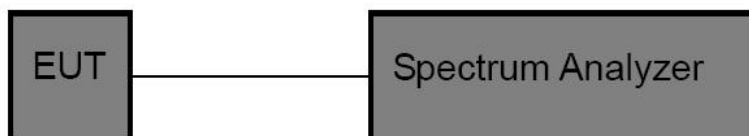
11 Power Spectral density

Test Requirement	: FCC CFR47 Part 15 Section 15.247
Test Method	: ANSI C63.10:2013
Test Limit	: Regulation 15.247(f) The power spectral density conducted from the intentional radiator to the antenna due to the digital modulation operation of the hybrid system, with the frequency hopping operation turned off, shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

11.1 Test Procedure

1. Connect the antenna port(s) to the spectrum analyzer input.
2. Configure the spectrum analyzer as shown below:
Center frequency=DTS channel center frequency
Span = 1.5 times the DTS bandwidth
RBW = 3KHz, VBW = 10KHz
Sweep time = auto couple
Detector = peak
Trace mode =max hold
3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter wave form on the spectrum analyzer.
4. Use the peak marker function to determine the maximum amplitude level within the RBW.
5. If measured value exceeds limit, reduce RBW(no less than 3KHz) and repeat.

11.2 Test Setup

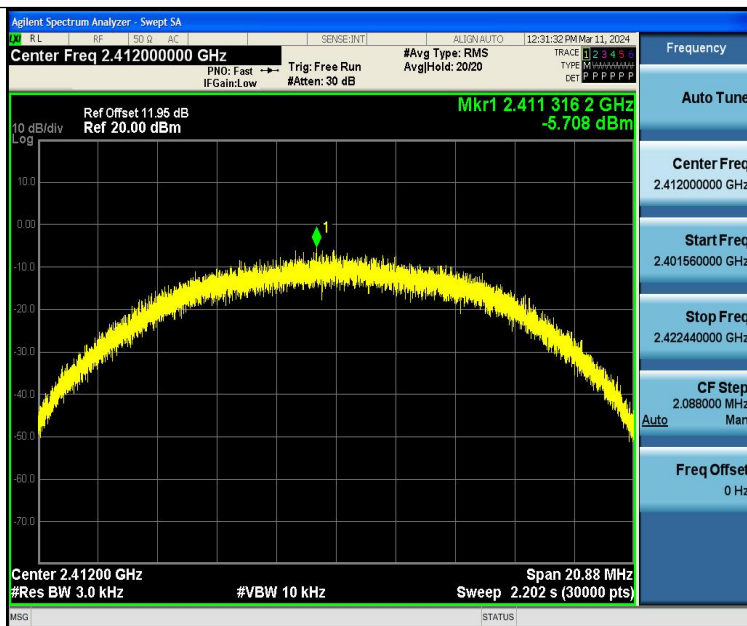


11.3 Test Result

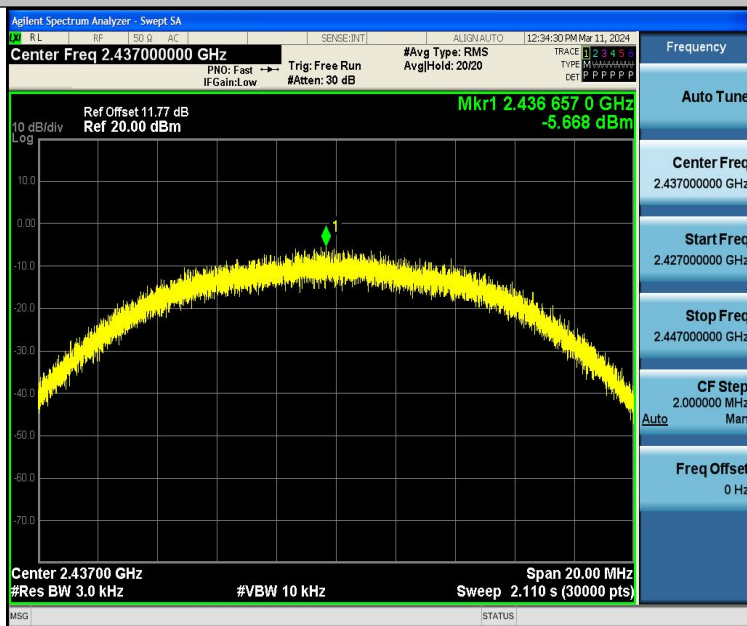
Test Mode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-5.71	≤8.00	PASS
11B	Ant1	2437	-5.67	≤8.00	PASS
11B	Ant1	2462	-6.82	≤8.00	PASS
11G	Ant1	2412	-8.98	≤8.00	PASS
11G	Ant1	2437	-9.31	≤8.00	PASS
11G	Ant1	2462	-10.4	≤8.00	PASS
11N20SISO	Ant1	2412	-10.57	≤8.00	PASS
11N20SISO	Ant1	2437	-10.32	≤8.00	PASS
11N20SISO	Ant1	2462	-10.46	≤8.00	PASS



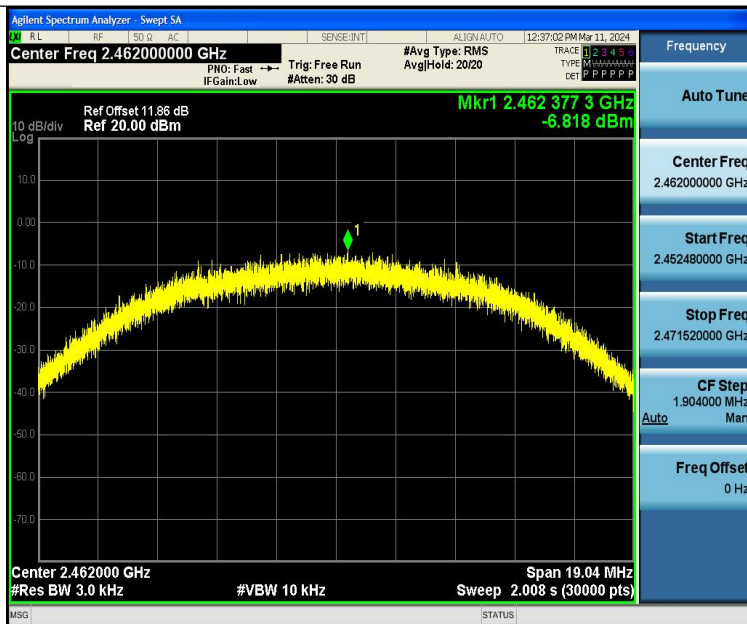
Test Graphs



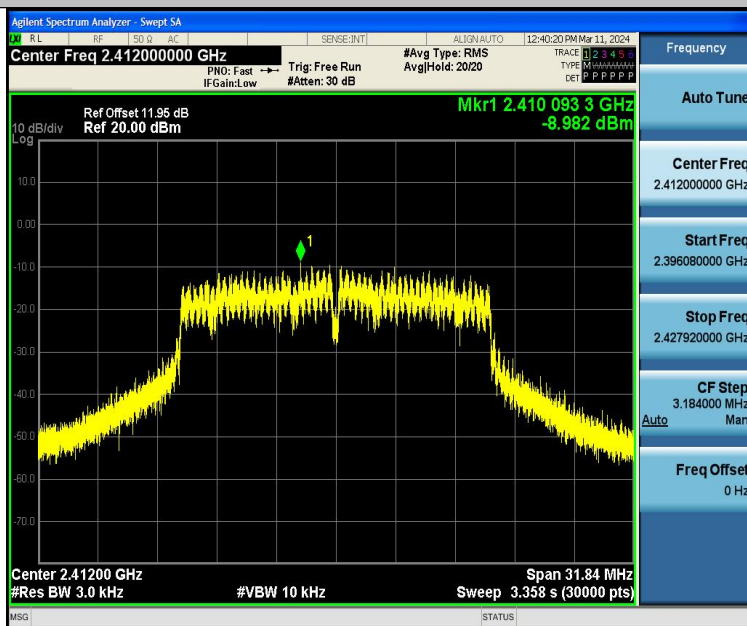
11B-Ant1-2412-PASS



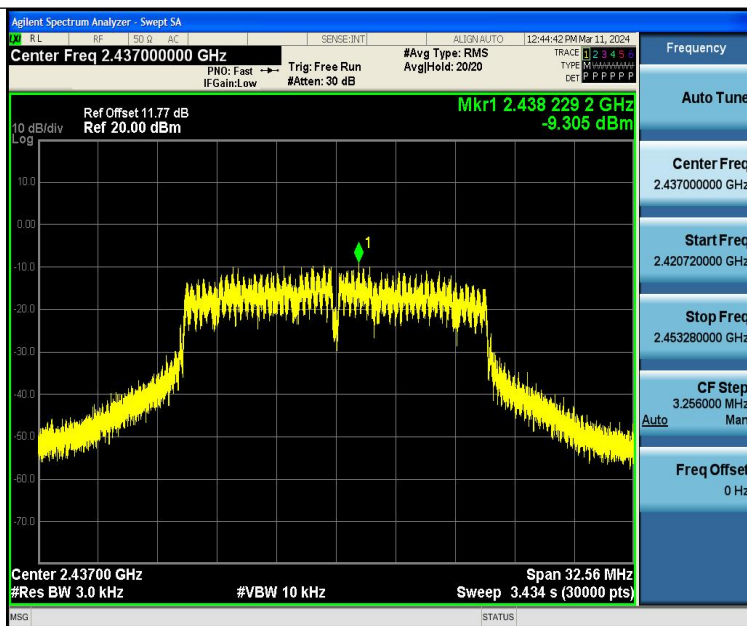
11B-Ant1-2437-PASS



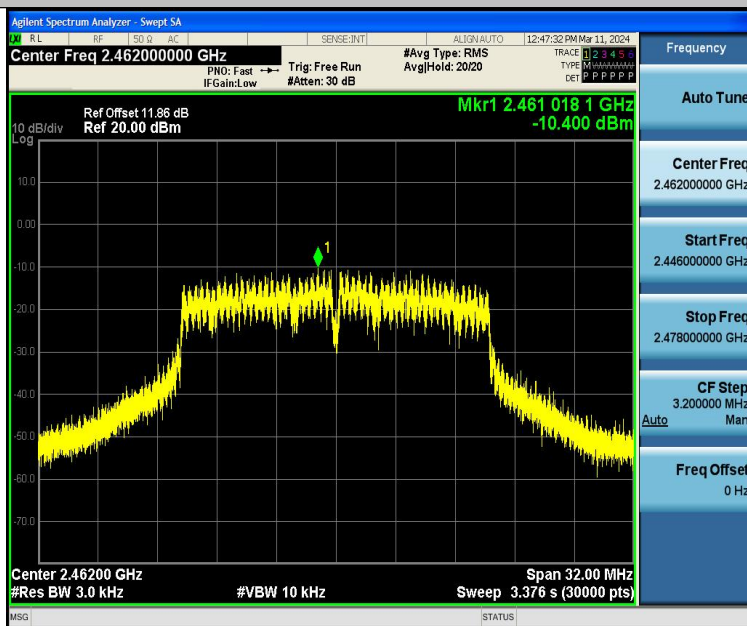
11B-Ant1-2462-PASS



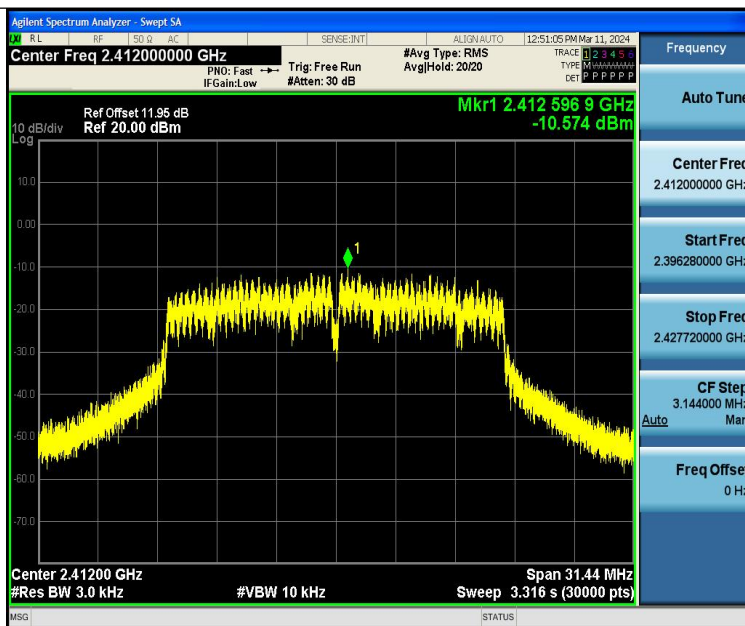
11G-Ant1-2412-PASS



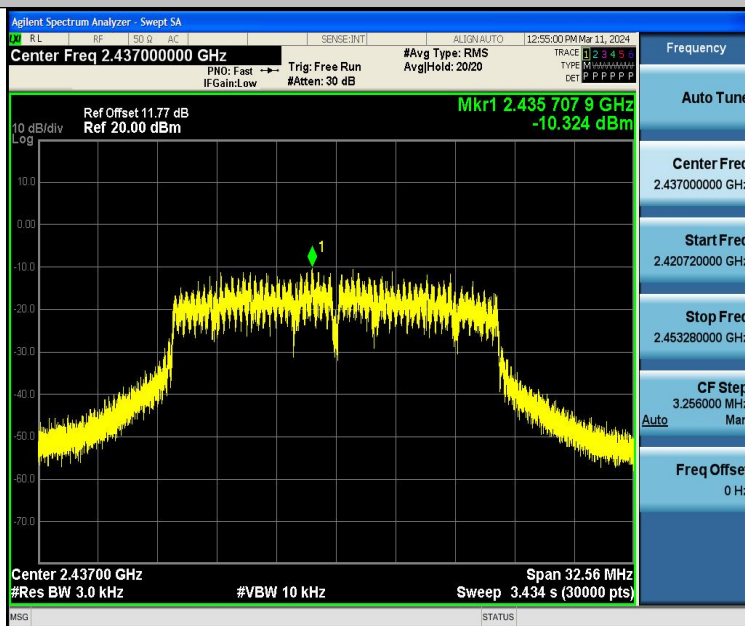
11G-Ant1-2437-PASS



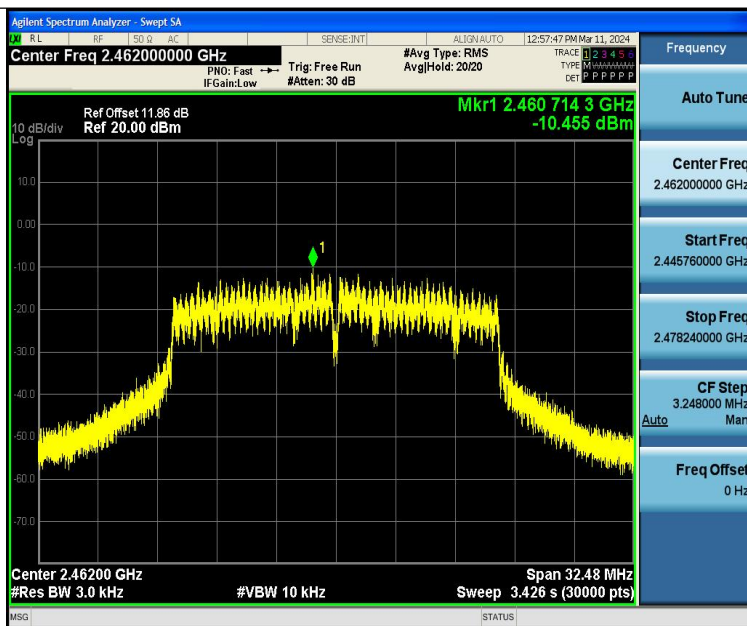
11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2437-PASS



11N20SISO-Ant1-2462-PASS



12 Antenna Application

12.1 Antenna Requirement

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2 Result

The EUT'S antenna, permanent attached antenna, is PIFA Antenna. The antenna's gain is 1.97 dBi and meets the requirement.

13 Test Setup

Conducted Emissions



Radiated Spurious Emissions From 30MHz-1000MHz

