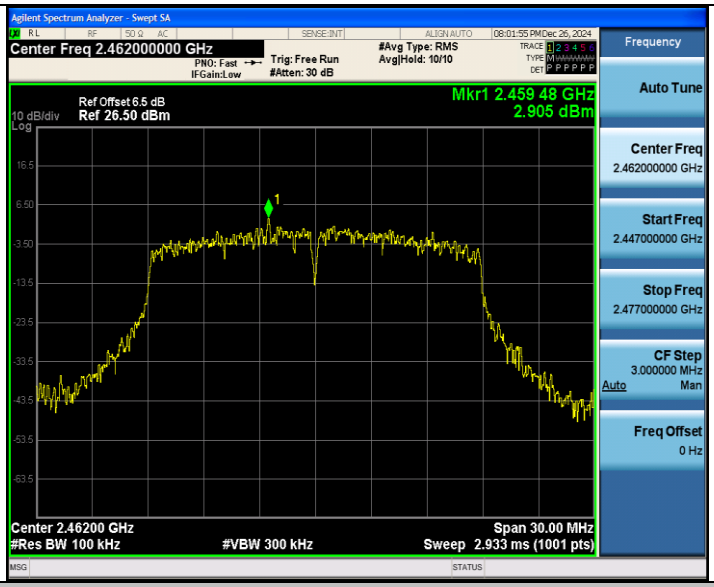
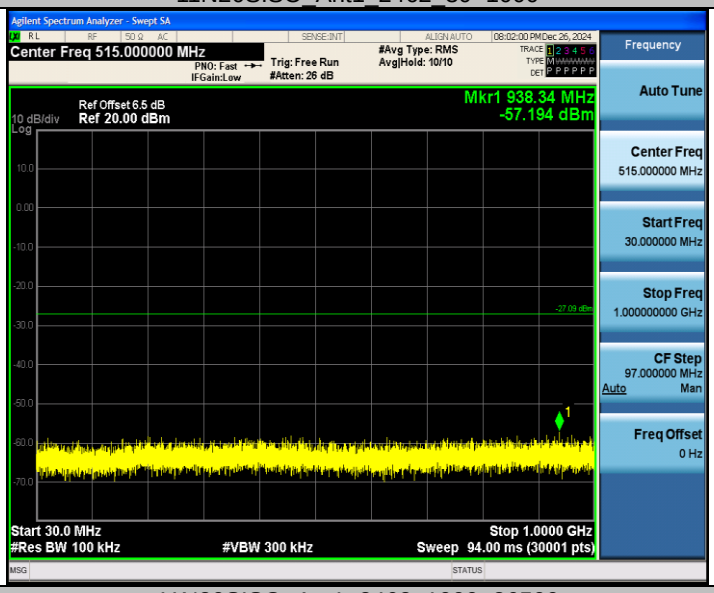
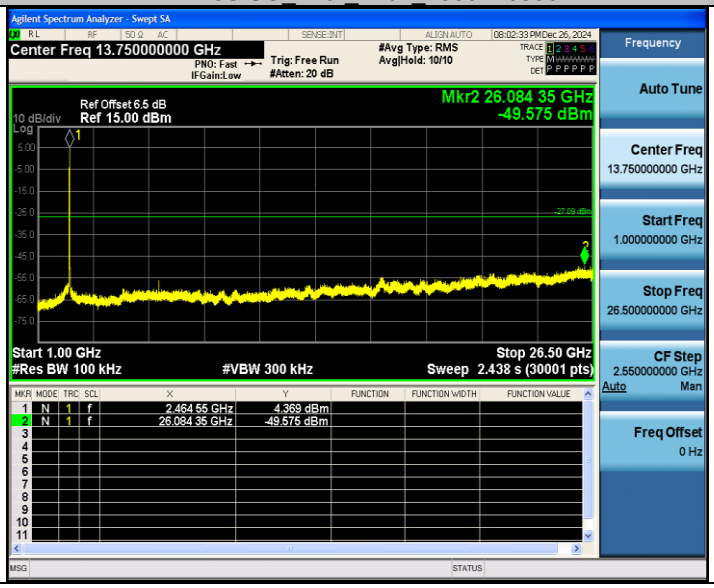


11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500



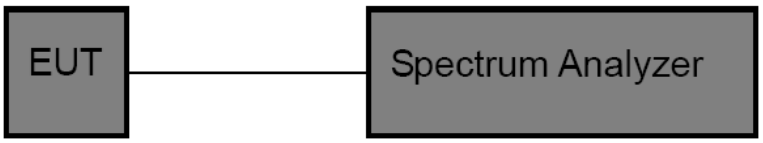
3.5. DTS Bandwidth

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(2)

Test Item	Limit	Frequency Range (MHz)
DTS Bandwidth	⩾500 kHz (6dB bandwidth)	2400~2483.5

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. DTS Spectrum Setting:
   (1) Set RBW = 100 kHz.
   (2) Set the video bandwidth (VBW) ≥ 3 RBW.
   (3) Detector = Peak.
   (4) Trace mode = Max hold.
   (5) Sweep = Auto couple.
   OCB Spectrum Setting:
   (1) Set RBW = 1% ~ 5% occupied bandwidth.
   (2) Set the video bandwidth (VBW) ≥ 3 RBW.
   (3) Detector = Peak.
   (4) Trace mode = Max hold.
   (5) Sweep = Auto couple.

NOTE: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

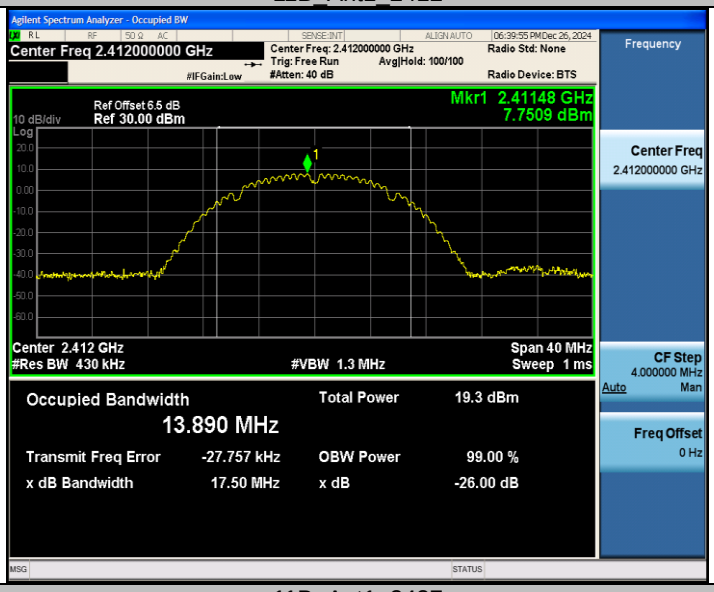
Please refer to the clause 2.4.

Test Result

Test Mode	Antenna	Frequency (MHz)	99% Bandwidth (MHz)	DTS Bandwidth (MHz)	Limit (MHz)	Verdict
802.11b	Ant1	2412	13.890	9.040	≥0.5	Pass
		2437	14.005	9.600	≥0.5	Pass
		2462	13.861	9.480	≥0.5	Pass
802.11g	Ant1	2412	16.526	15.400	≥0.5	Pass
		2437	16.549	14.840	≥0.5	Pass
		2462	16.532	14.640	≥0.5	Pass
802.11n(HT20)	Ant1	2412	17.673	14.200	≥0.5	Pass
		2437	17.582	14.200	≥0.5	Pass
		2462	17.587	14.080	≥0.5	Pass

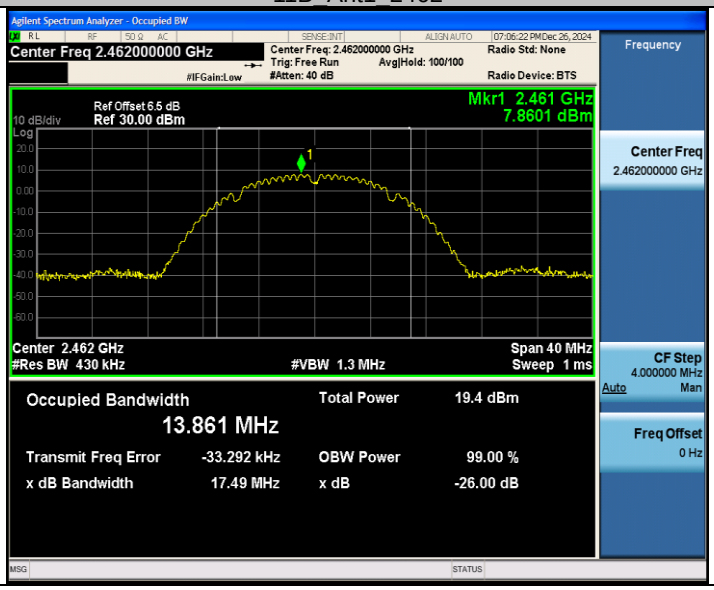
99% Bandwidth:

11B_Ant1_2412

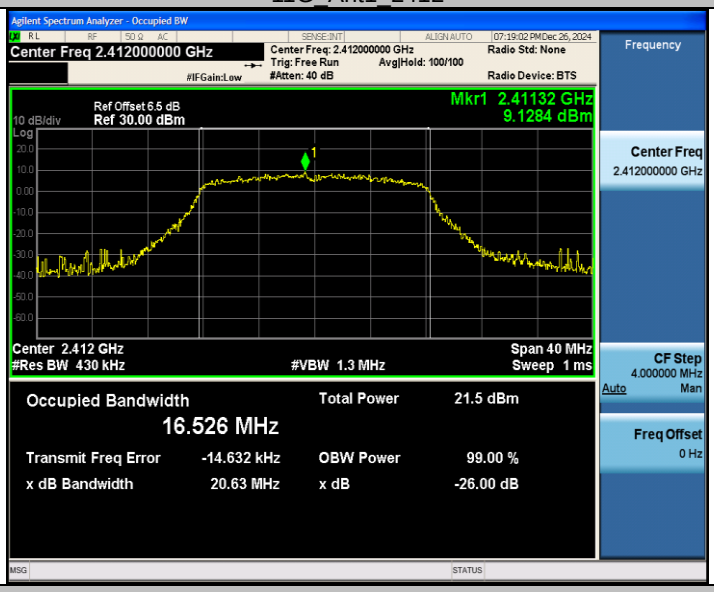


11B_Ant1_2437

11B_Ant1_2462



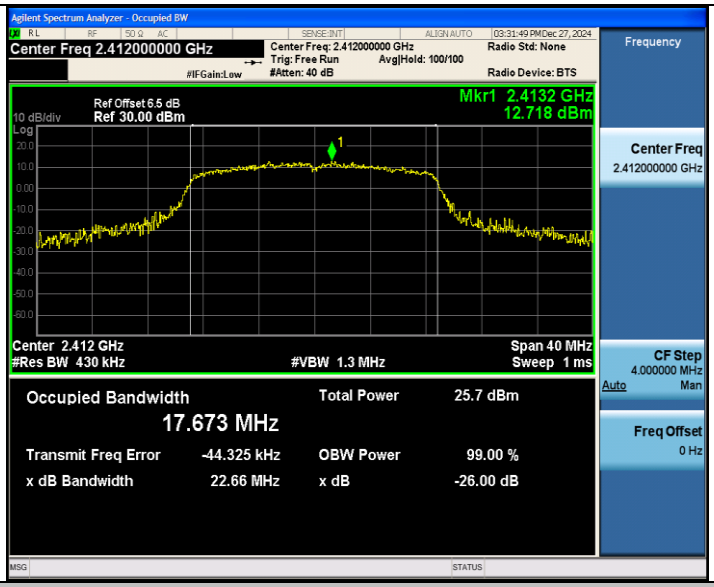
11G_Ant1_2412



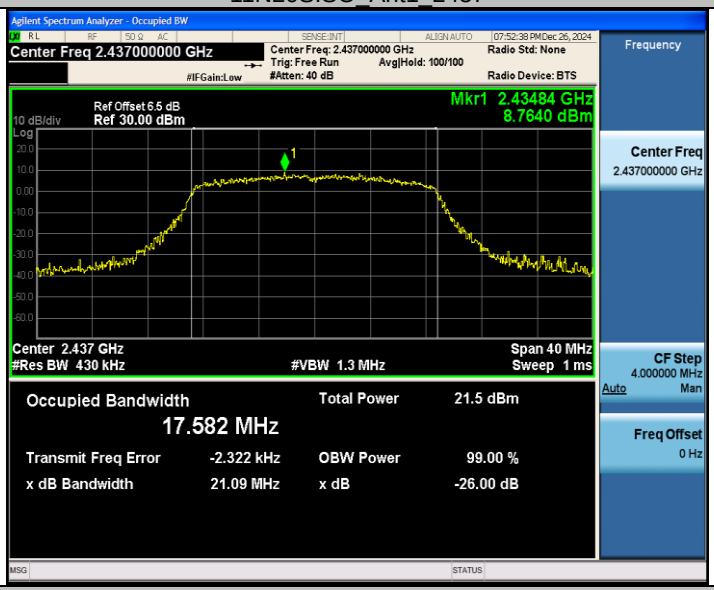
11G_Ant1_2437

11G_Ant1_2462

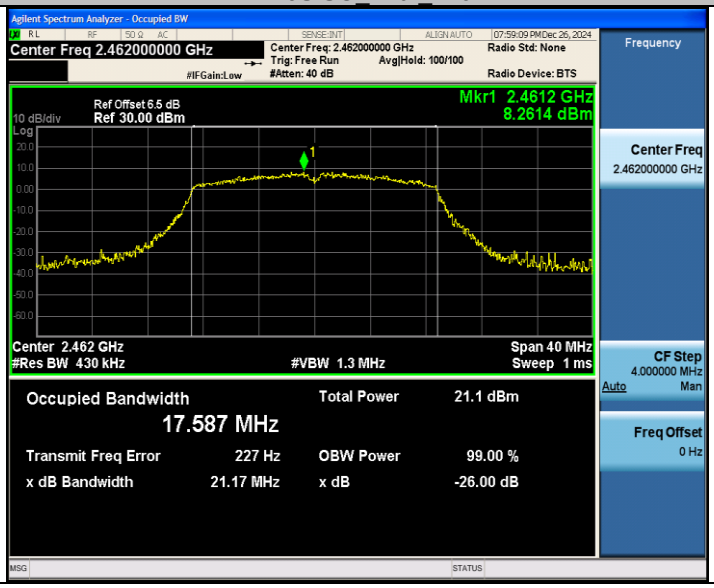
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437

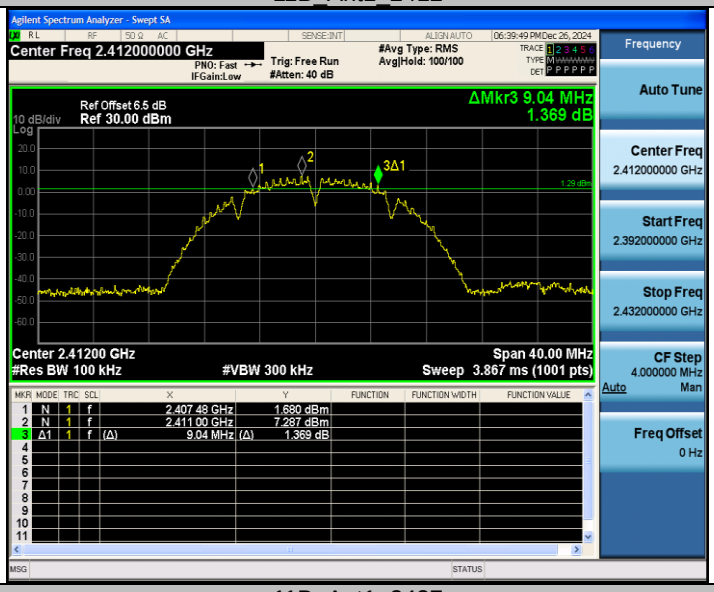


11N20SISO_Ant1_2462

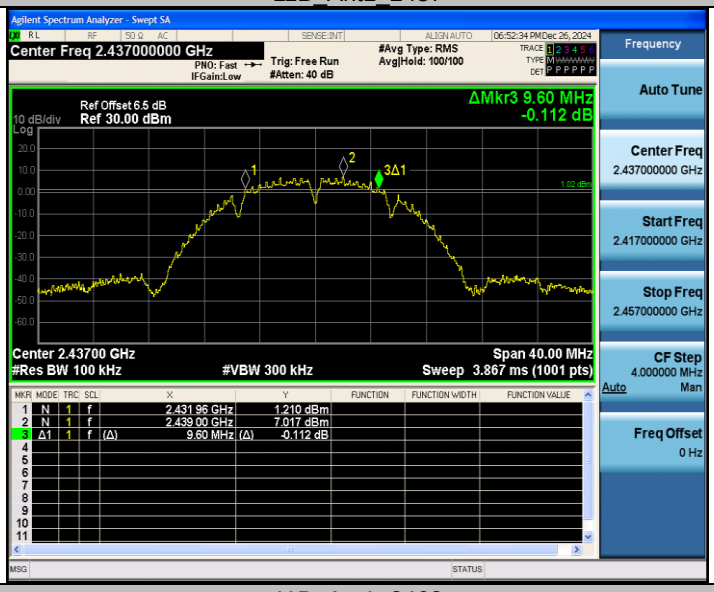


DTS Bandwidth:

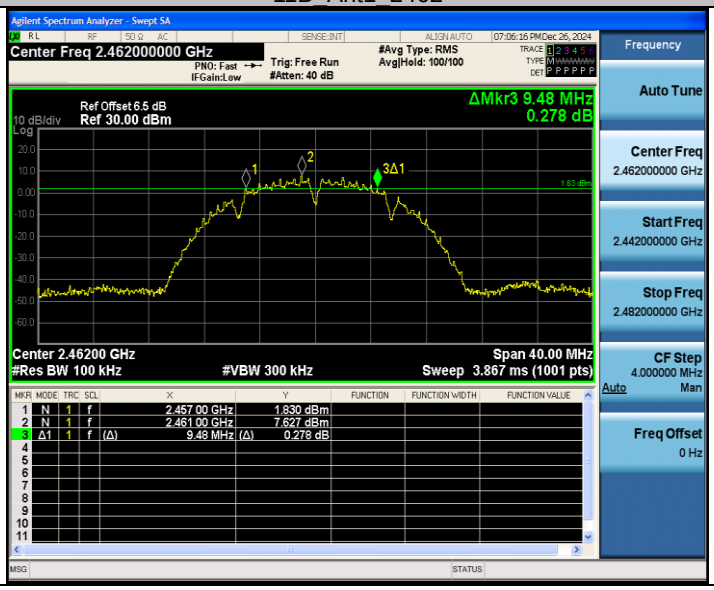
11B_Ant1_2412



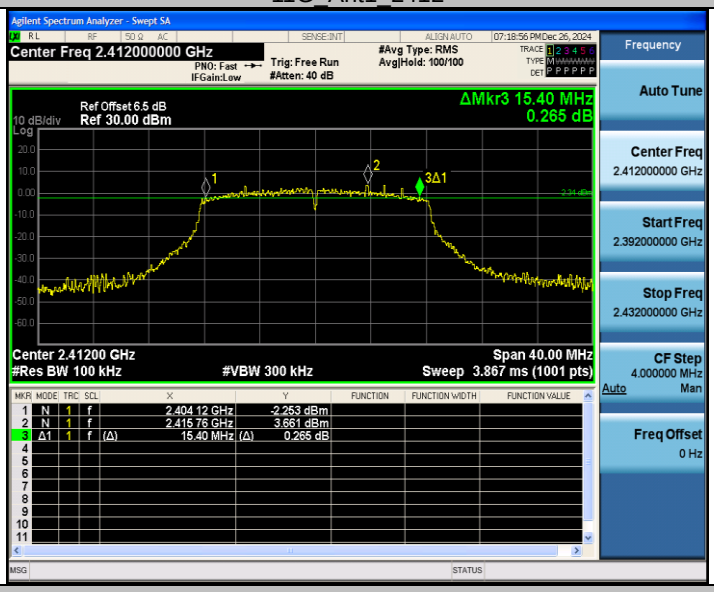
11B_Ant1_2437



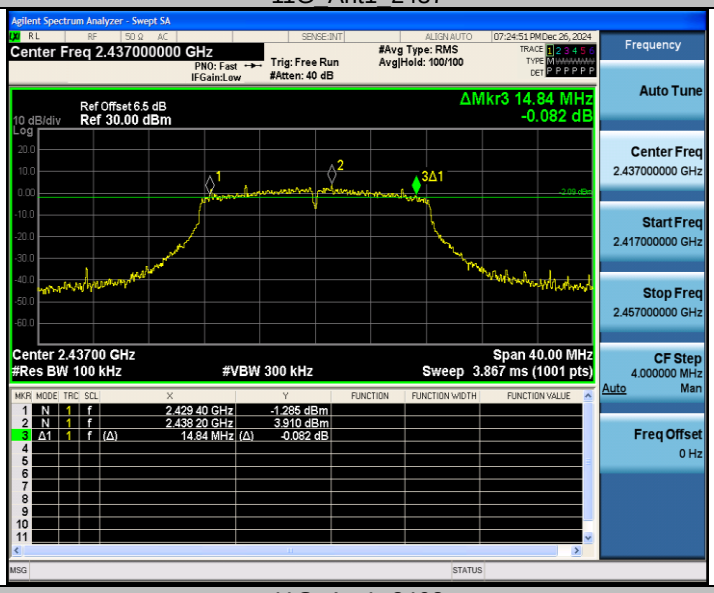
11B_Ant1_2462



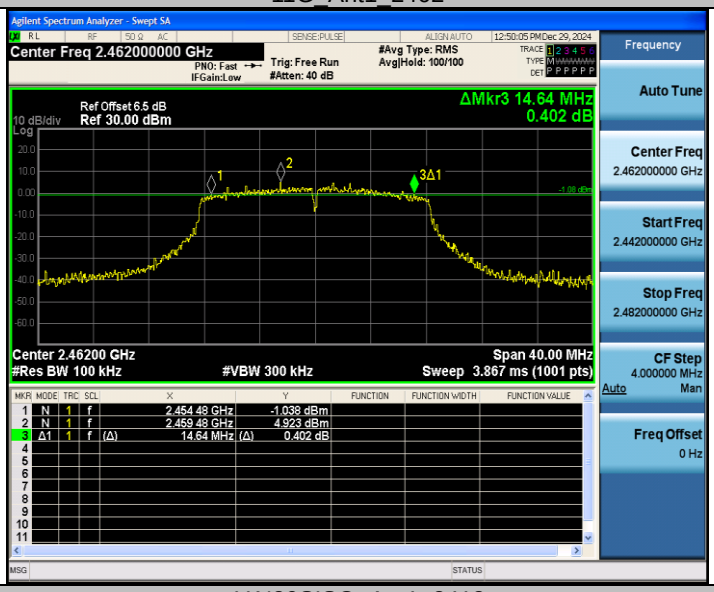
11G_Ant1_2412



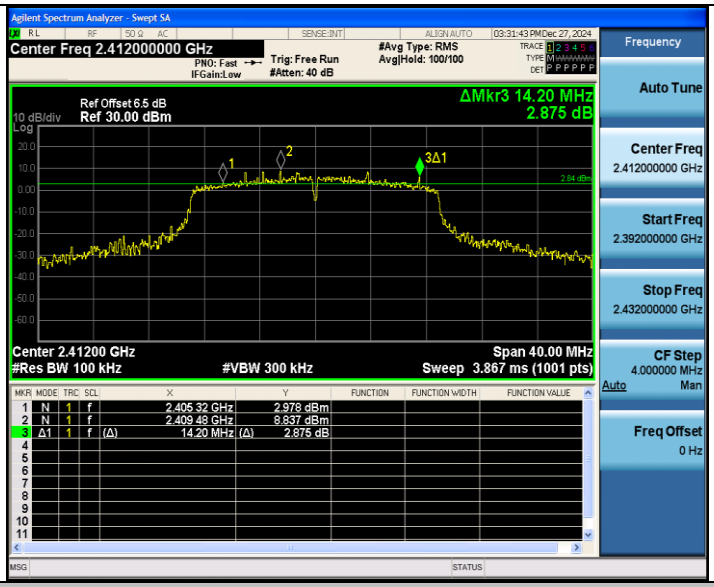
11G_Ant1_2437



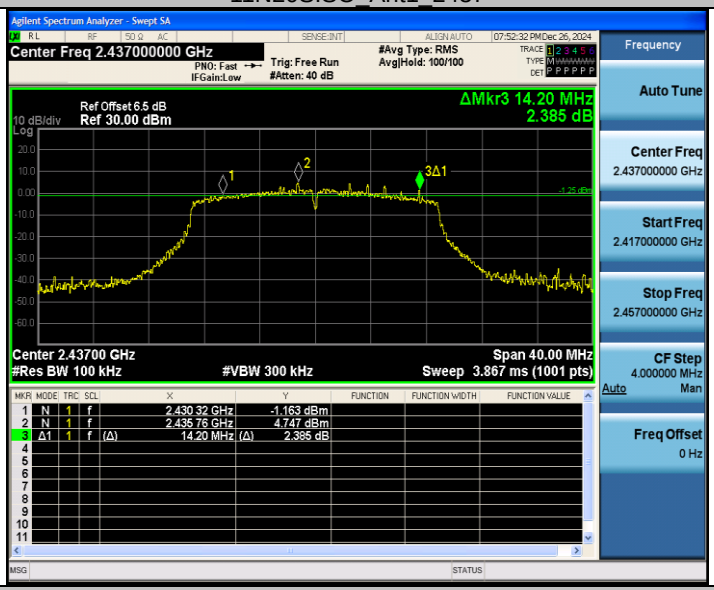
11G_Ant1_2462



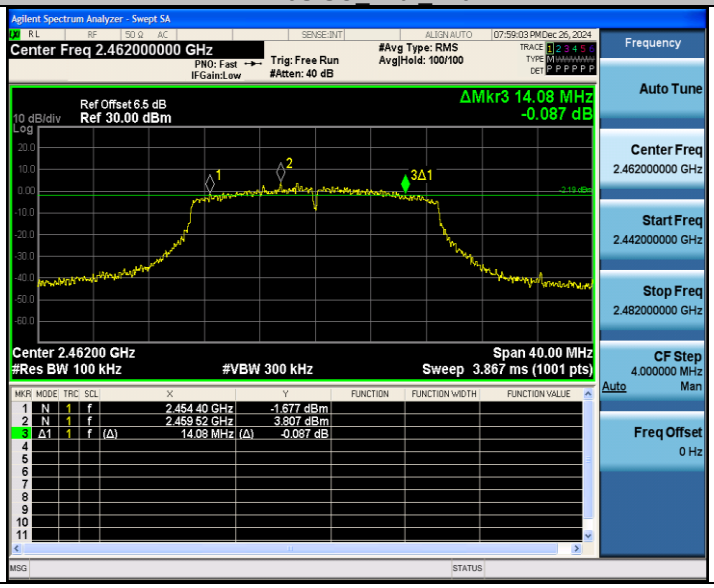
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



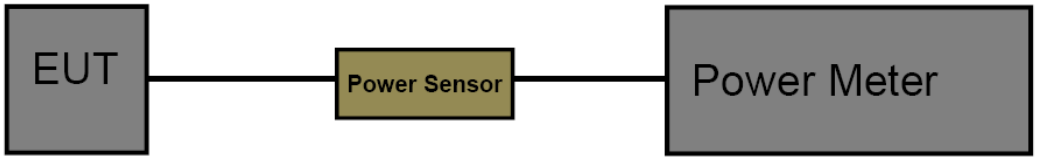
3.6. Maximum Conducted Output Power

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3)

Section	Test Item	Limit	Frequency Range (MHz)
FCC CFR 47 Part15.247 (b)(3)	Maximum Conducted Output Power	1 Watt or 30dBm	2400~2483.5

Test Configuration



Test Procedure

1. The maximum conducted output power may be measured using a broadband RF power meter.
2. Power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor.
3. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.
4. Record the measurement data.

Test Mode

Please refer to the clause 2.4.

Test Result

Test Mode	Antenna	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)	Verdict
802.11b	Ant1	2412	16.85	≤30	Pass
		2437	16.97	≤30	Pass
		2462	16.90	≤30	Pass
802.11g	Ant1	2412	16.40	≤30	Pass
		2437	16.12	≤30	Pass
		2462	16.17	≤30	Pass
802.11n(HT20)	Ant1	2412	15.92	≤30	Pass
		2437	15.88	≤30	Pass
		2462	15.38	≤30	Pass

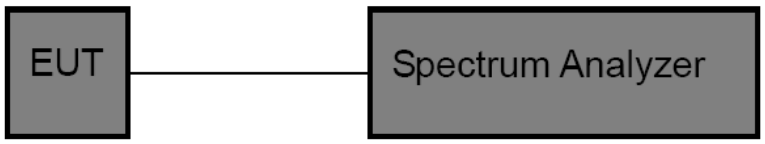
3.7. Power Spectral Density

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (e)

Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	8 dBm (in any 3 kHz)	2400~2483.5

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
3. Spectrum Setting:
   Set analyzer center frequency to DTS channel center frequency.
   Set span to at least 1.5 times the OBW.
   Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
   Set VBW ≥ [3 × RBW].
   Detector = power averaging (rms) or sample detector (when rms not available).
   Ensure that the number of measurement points in the sweep ≥ [2 × span / RBW].
   Sweep time = auto couple.
   Employ trace averaging (rms) mode over a minimum of 100 traces.
   Use the peak marker function to determine the maximum amplitude level.
   If the measured value exceeds requirement, 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).

Test Mode

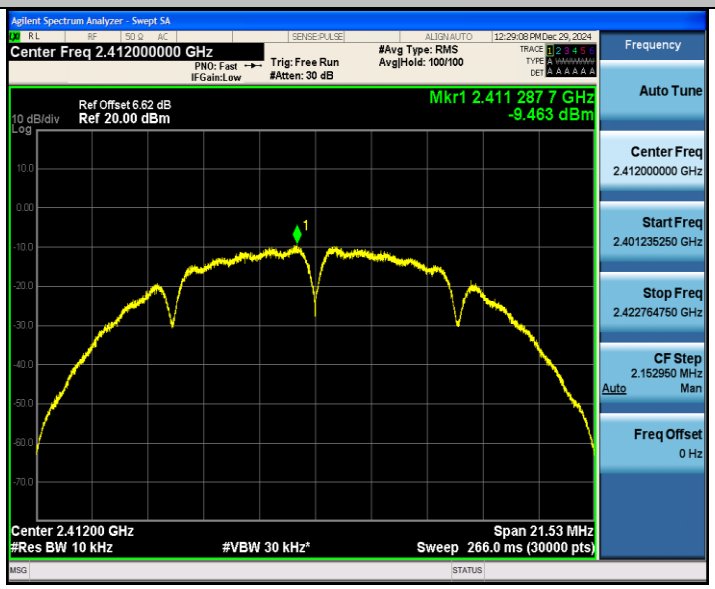
Please refer to the clause 2.4.

Test Result

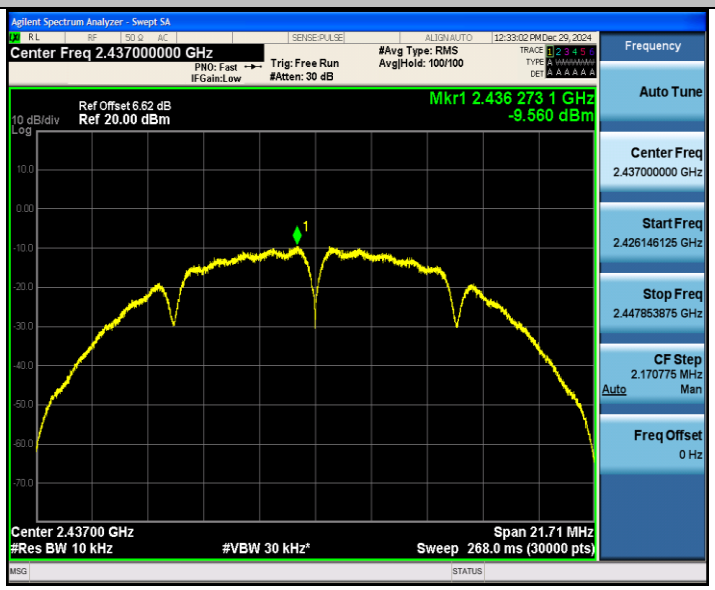
Test Mode	Antenna	Frequency (MHz)	Power Spectral Density (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
802.11b	Ant1	2412	-9.46	≤8	Pass
		2437	-9.56	≤8	Pass
		2462	-9.79	≤8	Pass
802.11g	Ant1	2412	-9.93	≤8	Pass
		2437	-10.72	≤8	Pass
		2462	-10.14	≤8	Pass
802.11n(HT20)	Ant1	2412	-11.43	≤8	Pass
		2437	-11.33	≤8	Pass
		2462	-10.89	≤8	Pass

Test plot as follows:

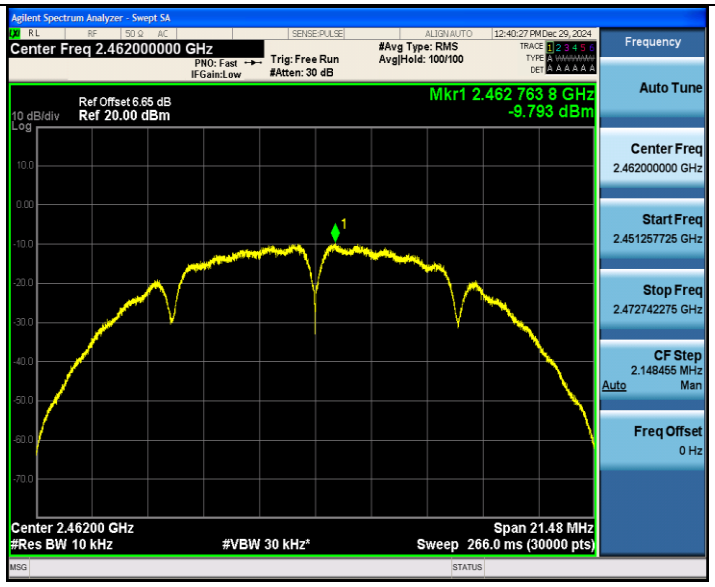
11B_Ant1_2412



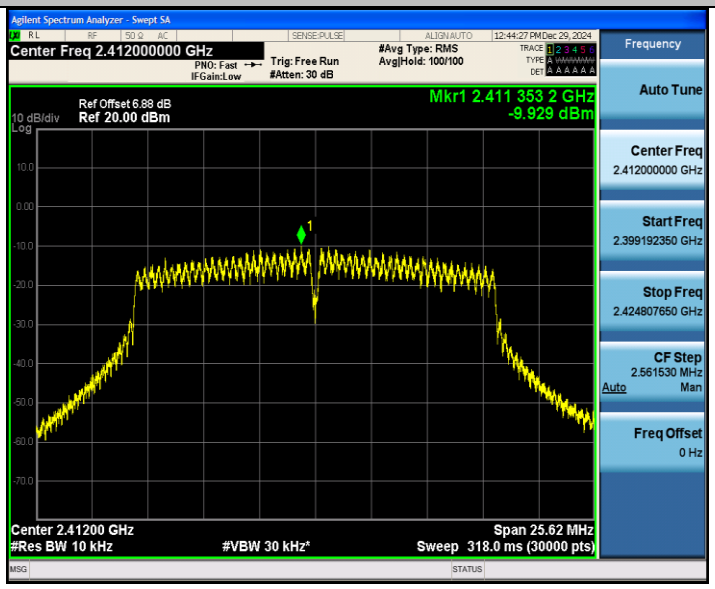
11B_Ant1_2437



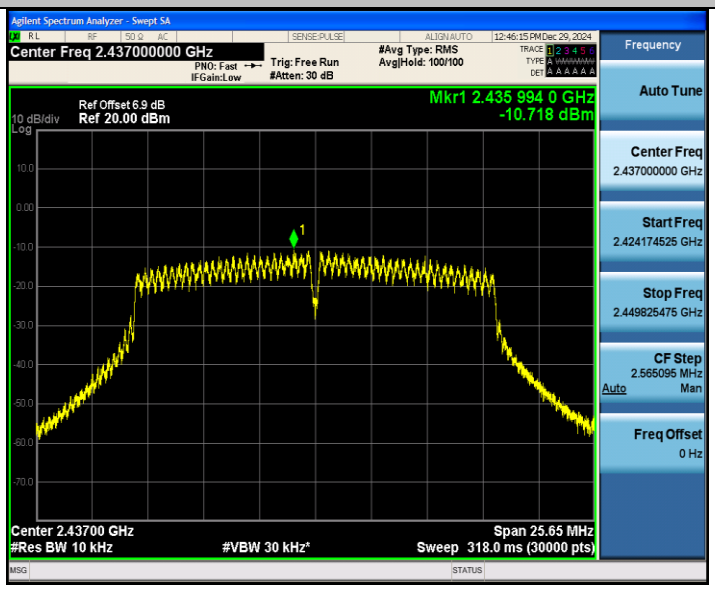
11B_Ant1_2462

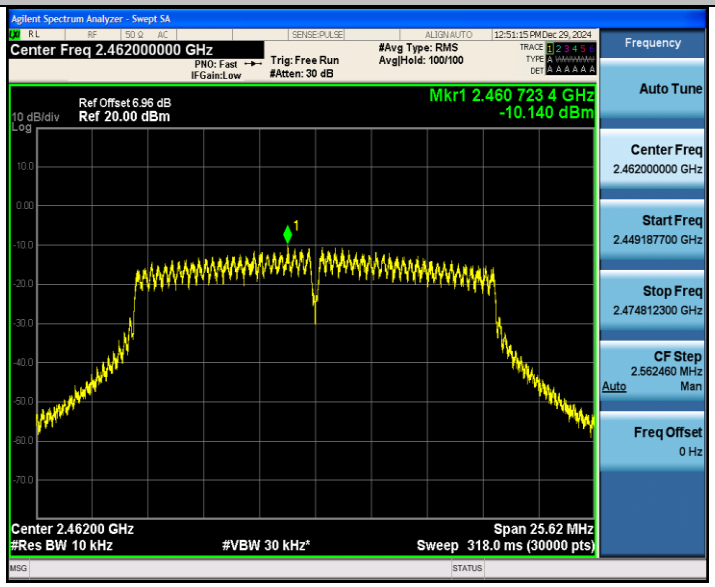
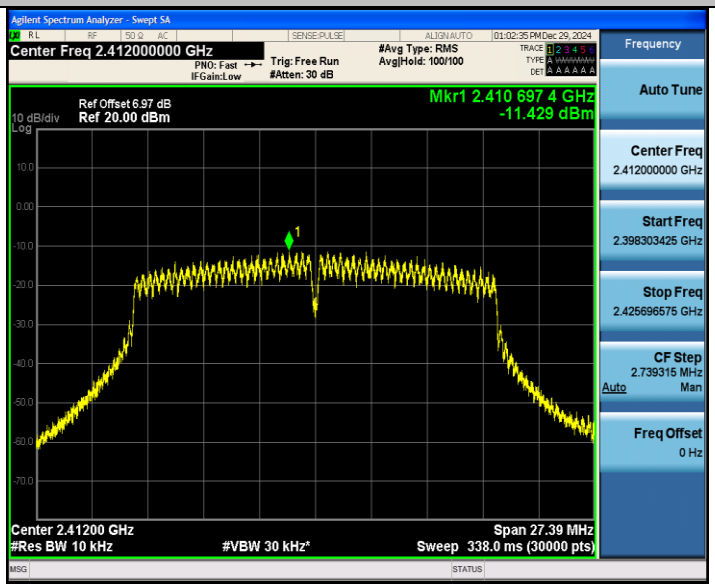


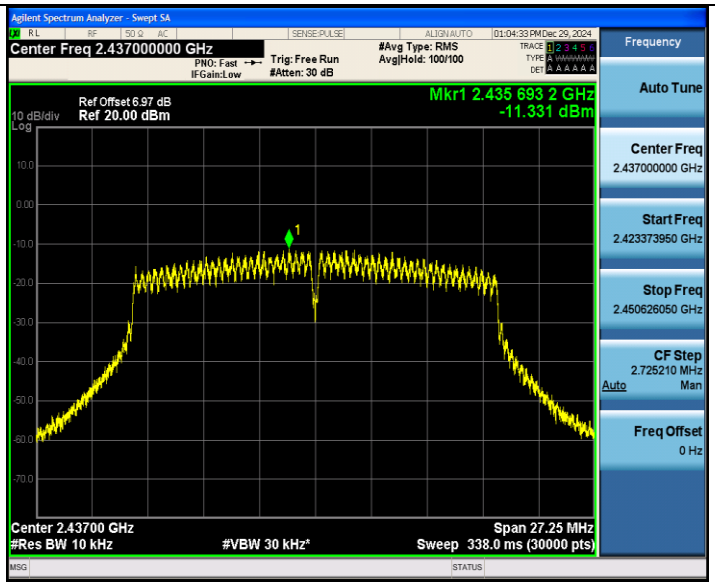
11G_Ant1_2412



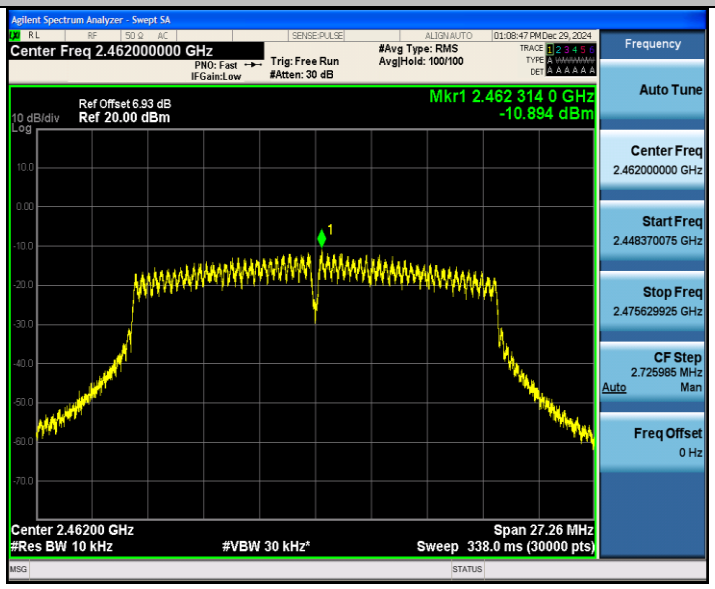
11G_Ant1_2437



11G_Ant1_2462

11N20SISO_Ant1_2412

11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

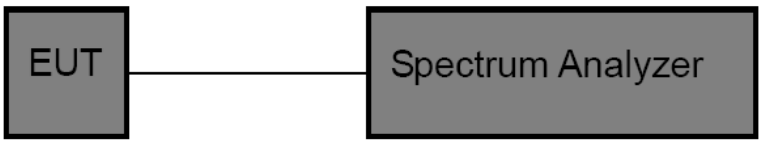


3.8. Duty Cycle

Limit

None, for report purposes only.

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
3. Spectrum Setting:

Set analyzer center frequency to test channel center frequency.
Set the span to 0Hz.
Set the RBW to 8MHz.
Set the VBW to 8MHz.
Detector: Peak.
Sweep time: Auto.
Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

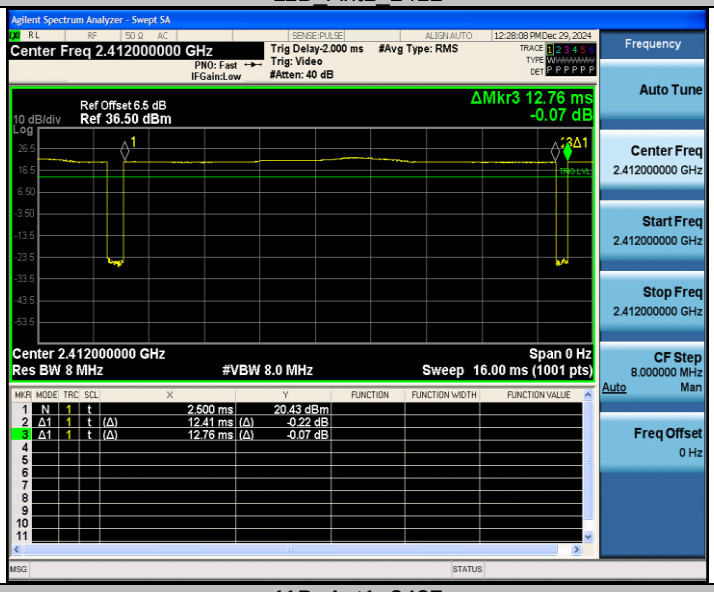
Please refer to the clause 2.4.

Test Result

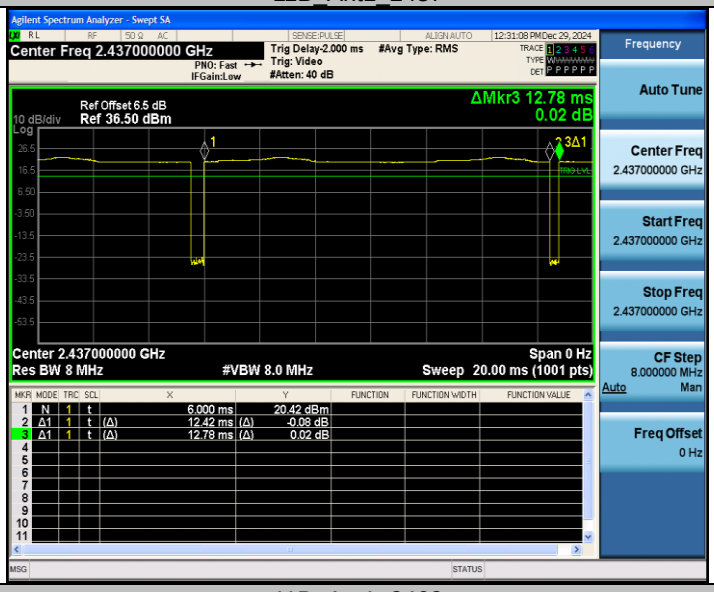
Test Mode	Antenna	Frequency (MHz)	Transmission Duration (ms)	Transmission Period (ms)	Duty Cycle (%)	1/T Minimum VBW (kHz)	Final Setting for VBW (kHz)
802.11b	Ant1	2412	12.41	12.76	97.26	0.08	1
		2437	12.42	12.78	97.18	0.08	1
		2462	12.42	12.86	96.58	0.08	1
802.11g	Ant1	2412	2.06	2.25	91.56	0.49	1
		2437	2.06	2.26	91.15	0.49	1
		2462	2.07	2.30	90.00	0.48	1
802.11n(HT20)	Ant1	2412	1.92	2.14	89.72	0.52	1
		2437	1.92	2.14	89.72	0.52	1
		2462	1.92	2.12	90.57	0.52	1

Test plot as follows:

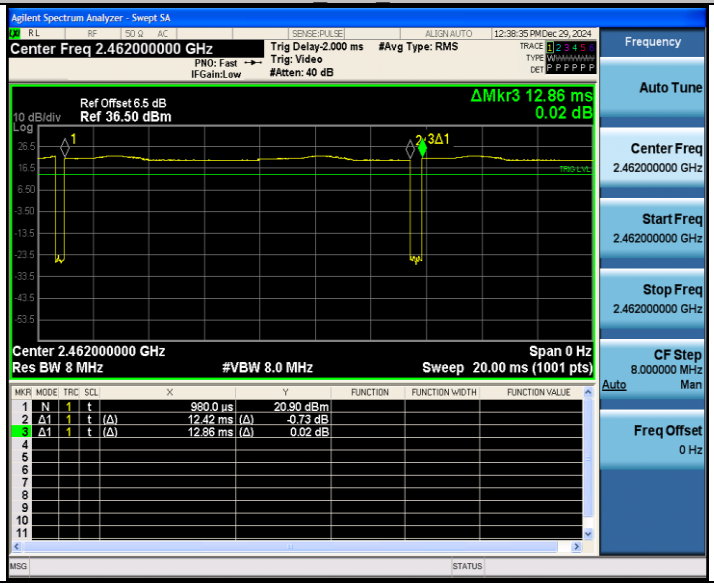
11B_Ant1_2412



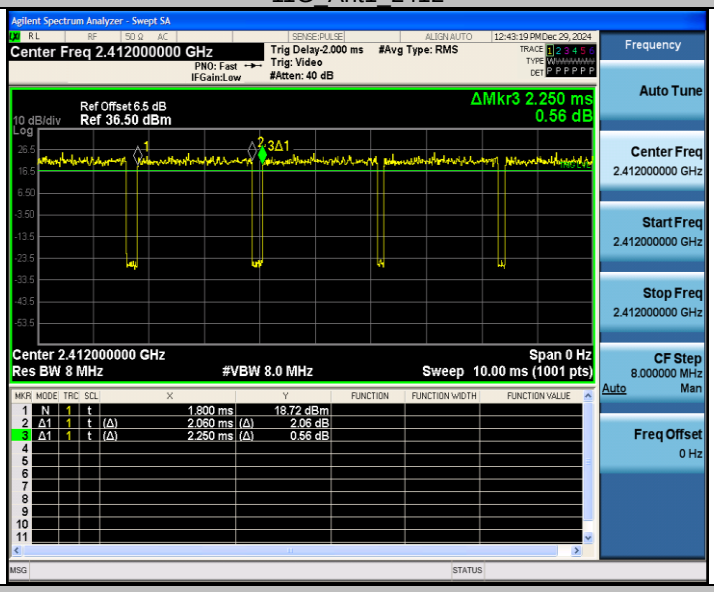
11B_Ant1_2437



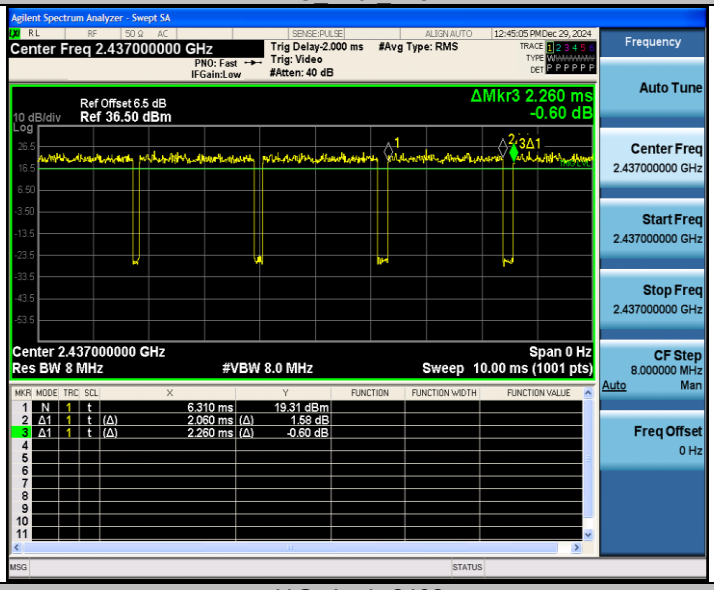
11B_Ant1_2462



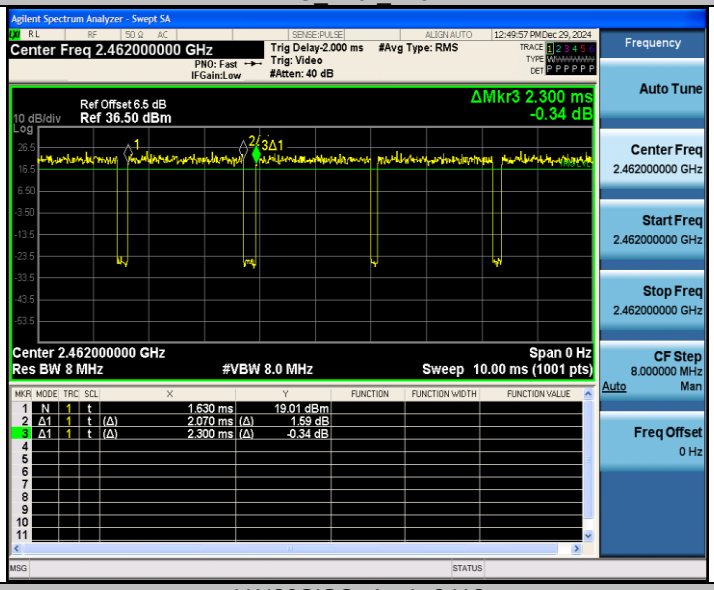
11G_Ant1_2412



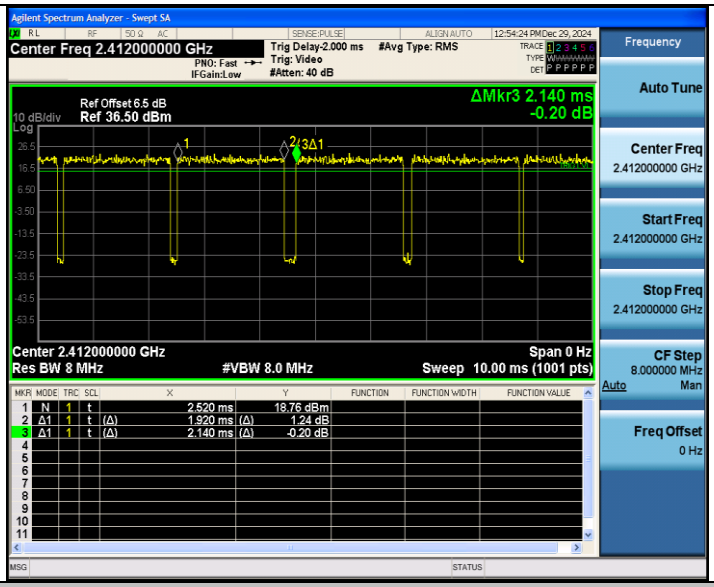
11G_Ant1_2437



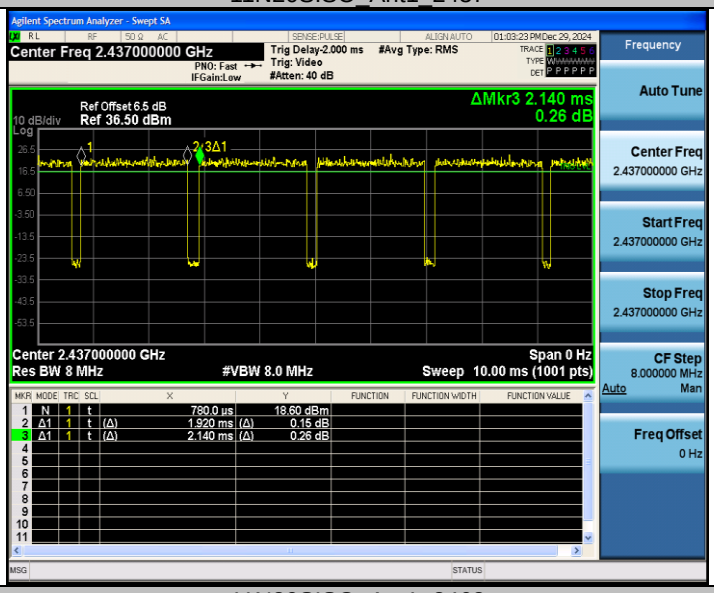
11G_Ant1_2462



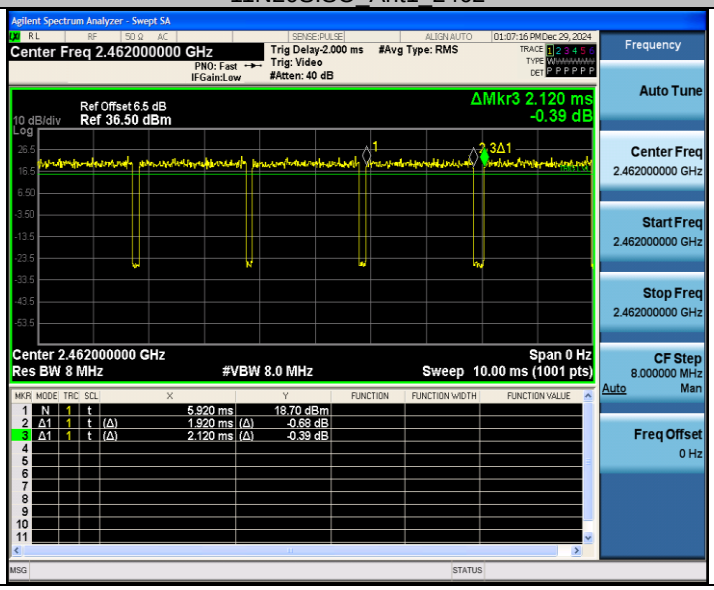
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



3.9. Antenna Requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C 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. The use of a permanently attached antenna or of antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i)
(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna is less than 6dBi, please refer to the EUT internal photographs antenna photo.

**************************THE END OF REPORT*************************