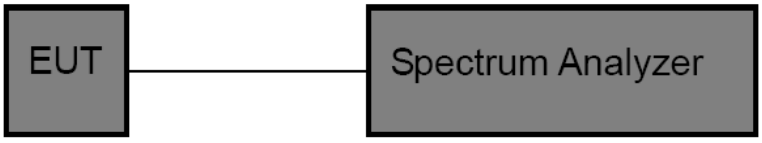
3.5. Bandwidth

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(2)/ RSS-247 5.2 a:

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

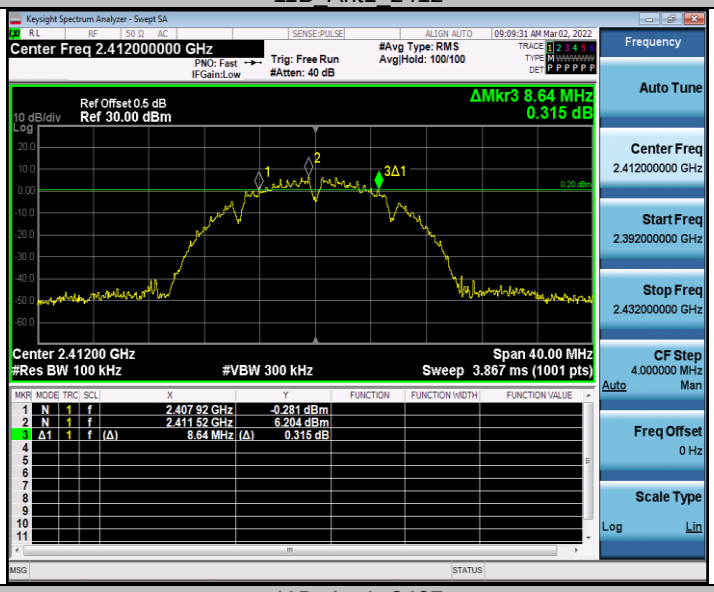
Please refer to the clause 2.4.

Test Results

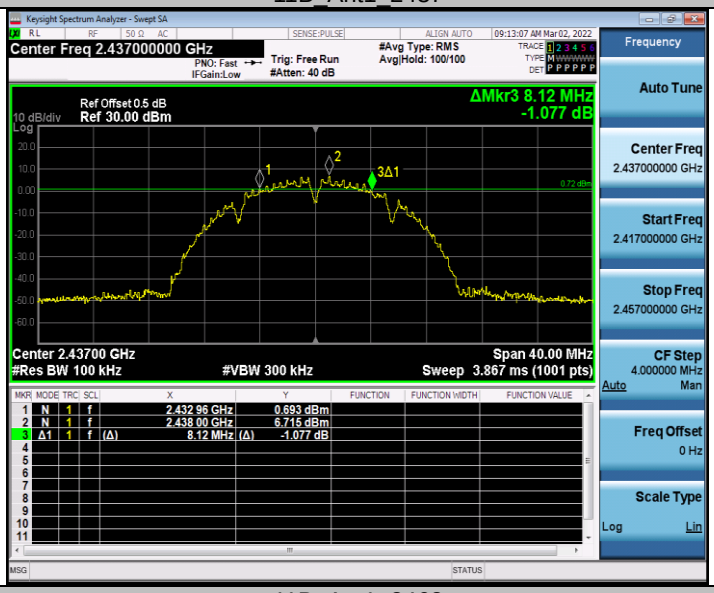
TestMode	Antenna	Channel	DTS BW [MHz]	OCB [MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.640	13.315	0.5	PASS
		2437	8.120	13.306	0.5	PASS
		2462	8.040	13.319	0.5	PASS
11G	Ant1	2412	16.440	17.152	0.5	PASS
		2437	16.440	17.096	0.5	PASS
		2462	16.400	17.105	0.5	PASS
11N20SISO	Ant1	2412	17.360	18.127	0.5	PASS
		2437	17.680	18.083	0.5	PASS
		2462	17.600	18.100	0.5	PASS

DTS Bandwidth:

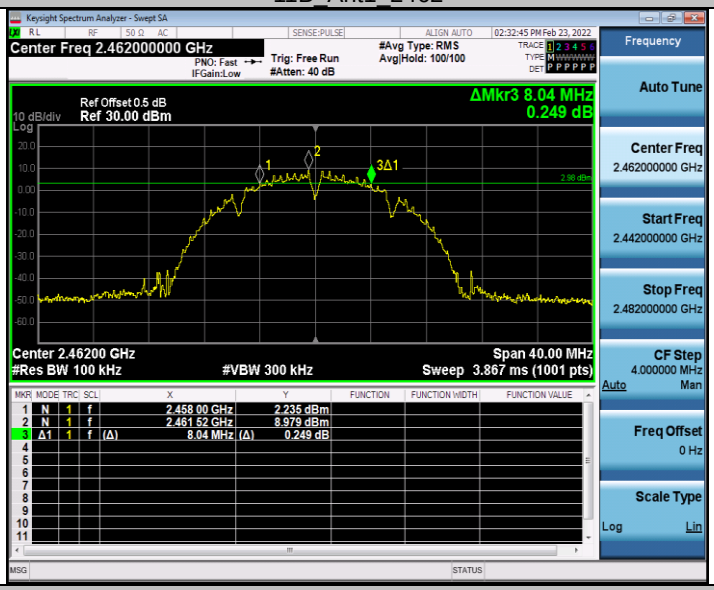
11B_Ant1_2412



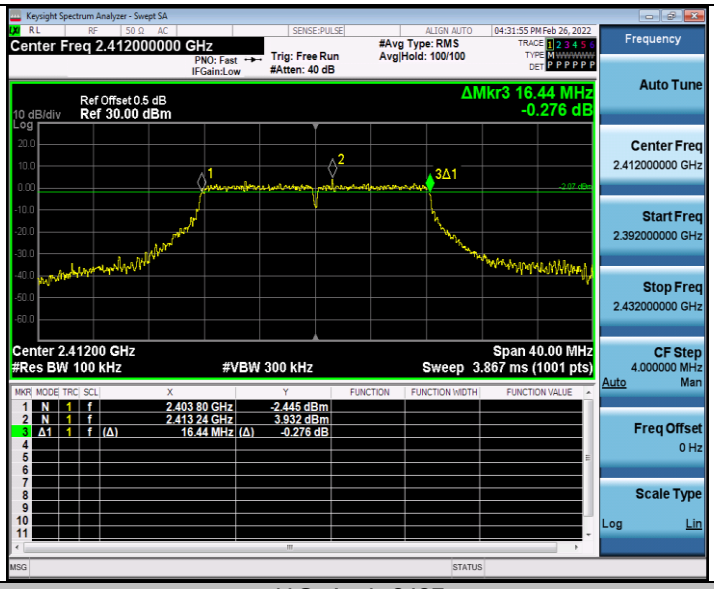
11B_Ant1_2437



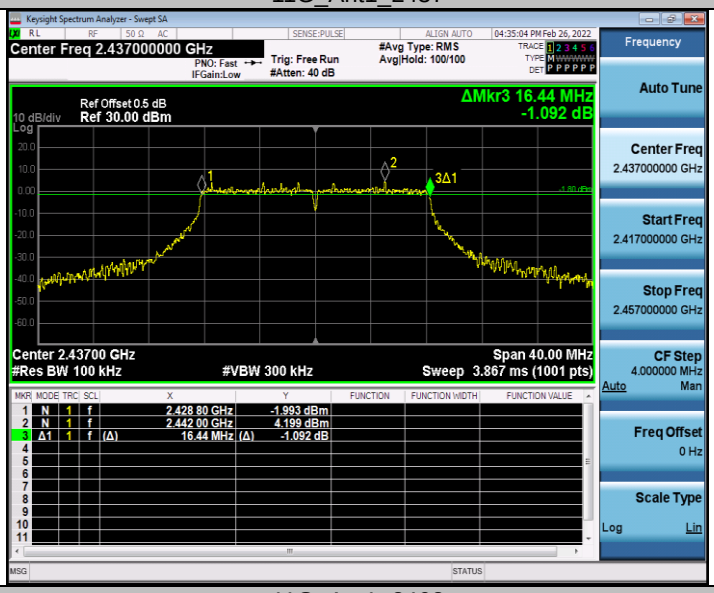
11B_Ant1_2462



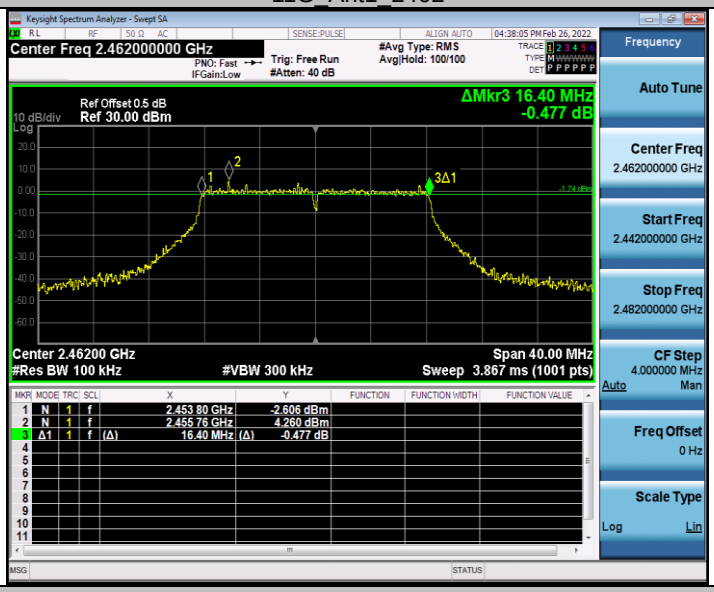
11G_Ant1_2412



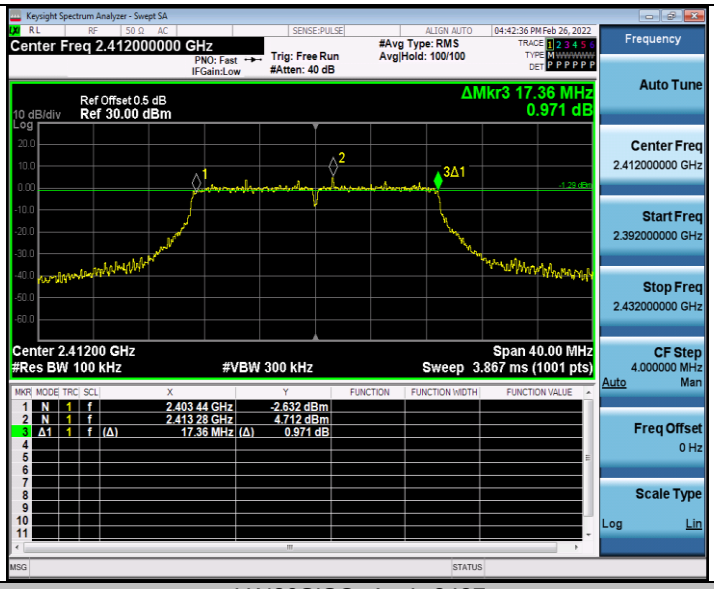
11G_Ant1_2437



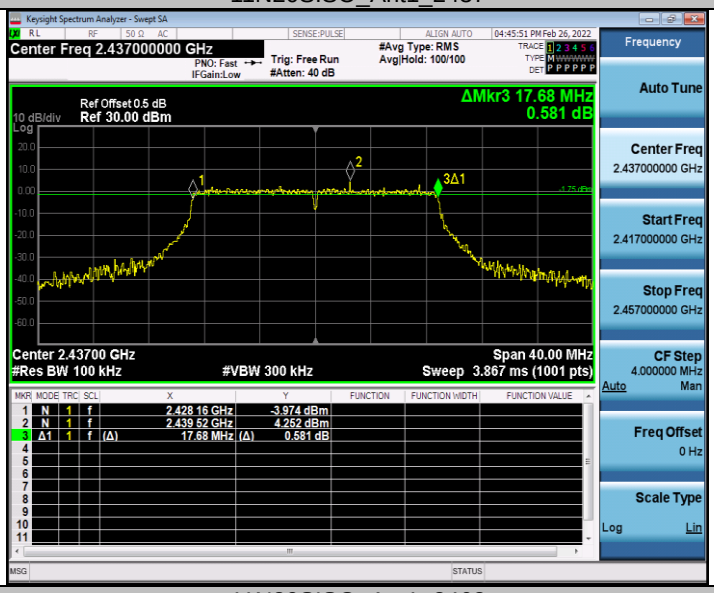
11G_Ant1_2462



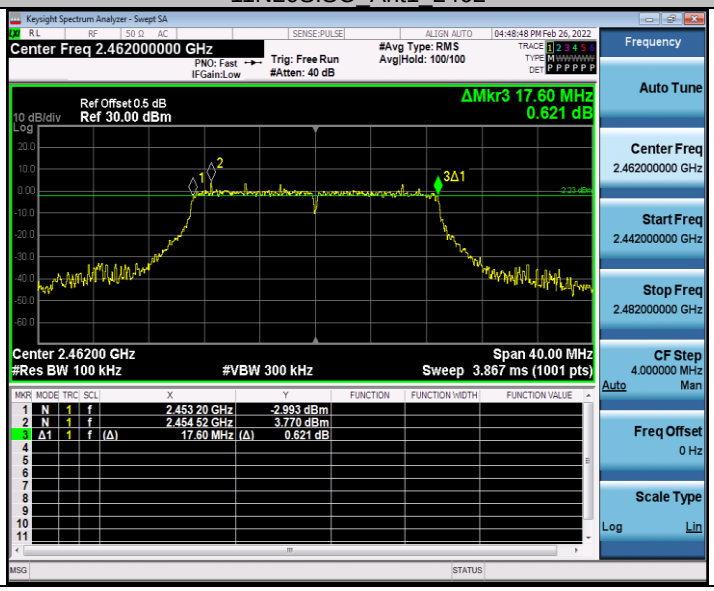
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437

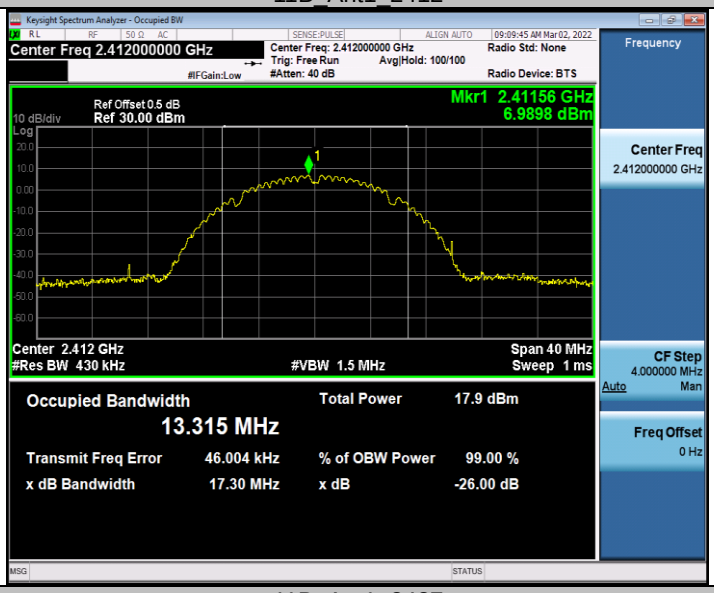


11N20SISO_Ant1_2462

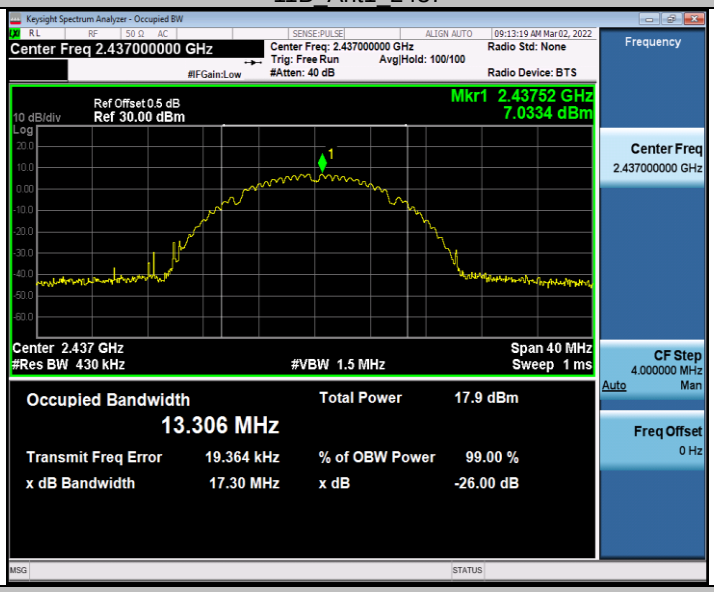


Occupied Channel Bandwidth:

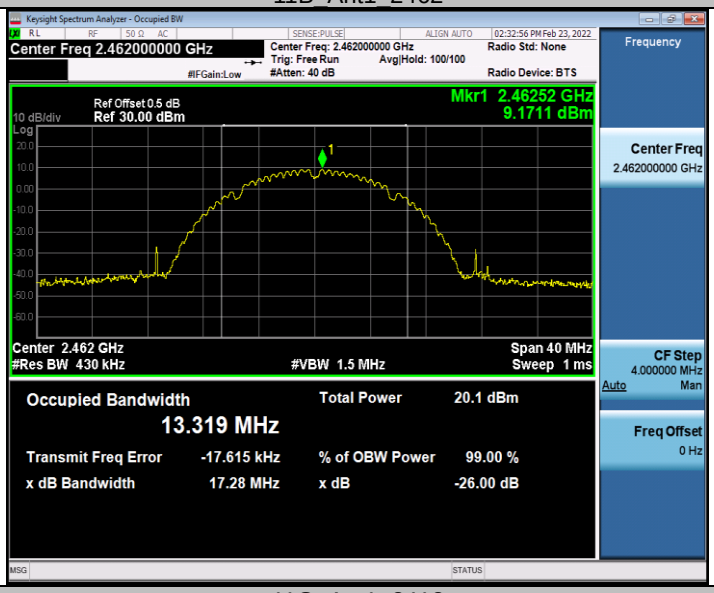
11B_Ant1_2412



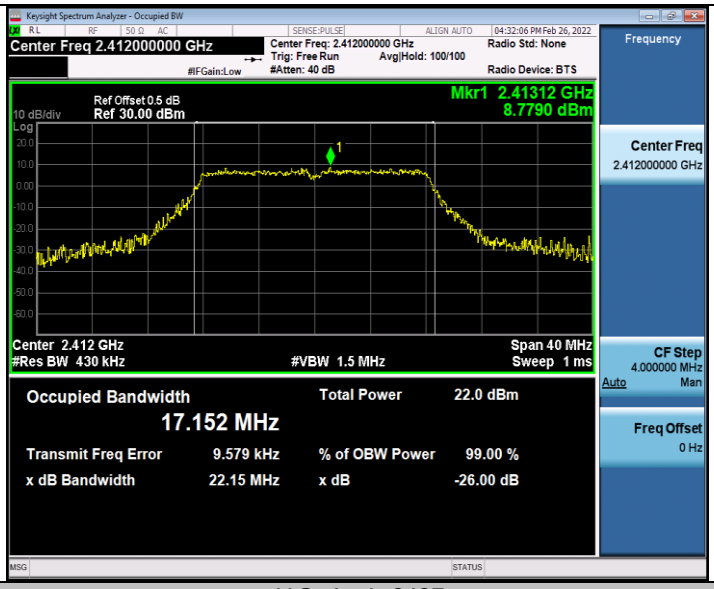
11B_Ant1_2437



11B_Ant1_2462

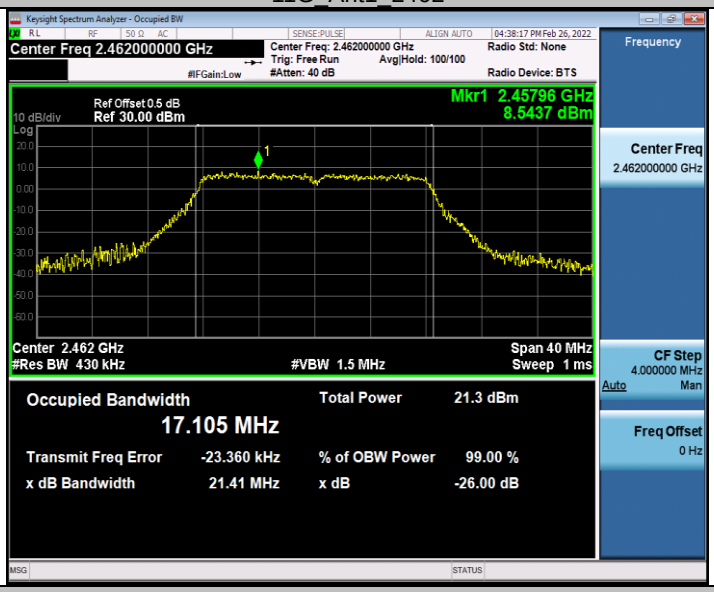


11G_Ant1_2412

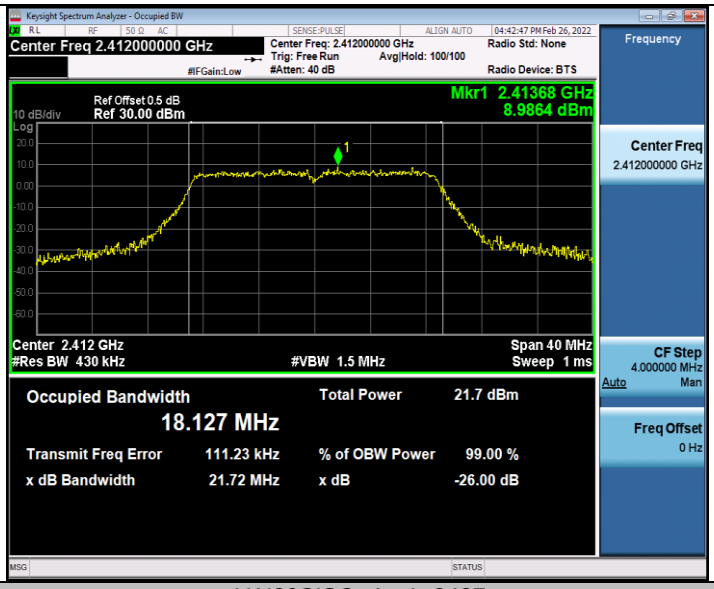


11G_Ant1_2437

11G_Ant1_2462

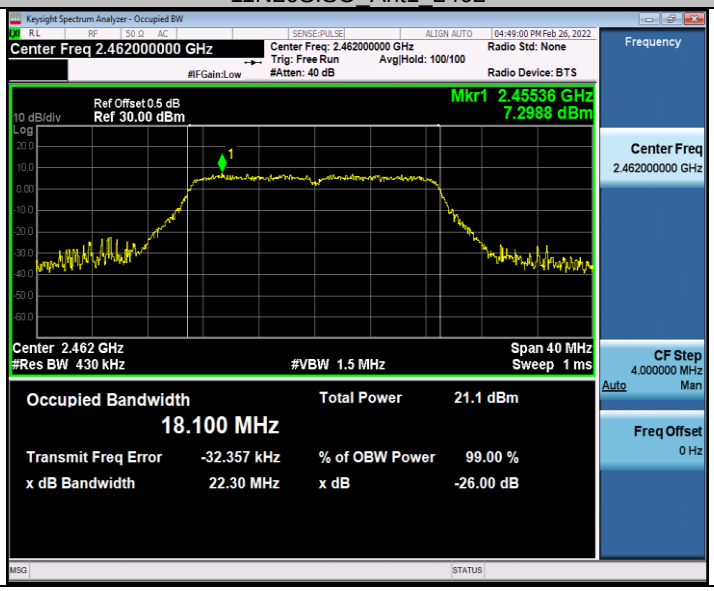


11N20SISO_Ant1_2412



11N20SISO_Ant1_2437

11N20SISO_Ant1_2462



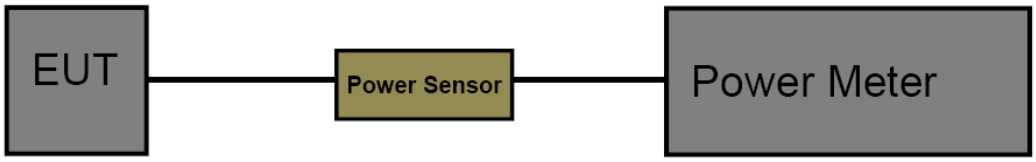
3.6. Peak Output Power

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3)/ RSS-247 5.4:

Section	Test Item	Limit	Frequency Range(MHz)
CFR 47 FCC 15.247(b)(3)	Maximum conducted output power	1 Watt or 30dBm	2400~2483.5
ISED RSS-247 5.4 d	EIRP	4 Watt or 36dBm	2400~2483.5

Test Configuration



Test Procedure

1. The maximum conducted output power may be measured using a broadband Peak RF power meter.
2. Peak 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.
   Record the measurement data.

Test Mode

Please refer to the clause 2.4.

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	17.41	<=30	PASS
		2437	17.42	<=30	PASS
		2462	19.83	<=30	PASS
11G	Ant1	2412	23.09	<=30	PASS
		2437	23.06	<=30	PASS
		2462	22.36	<=30	PASS
11N20SISO	Ant1	2412	22.72	<=30	PASS
		2437	22.92	<=30	PASS
		2462	22.19	<=30	PASS

Note: Test results increased RF cable loss by 0.5dB.

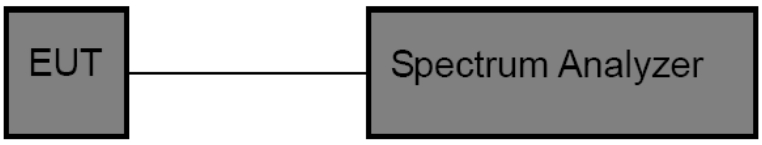
3.7. Power Spectral Density

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (e)/ RSS-247 5.2 b:

Test Item	Limit	Frequency Range(MHz)
Power Spectral Density	8dBm(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 the span to 1.5 times the DTS bandwidth.
Set the RBW to: 3 kHz
Set the VBW to: 10 kHz
Detector: Avg
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.

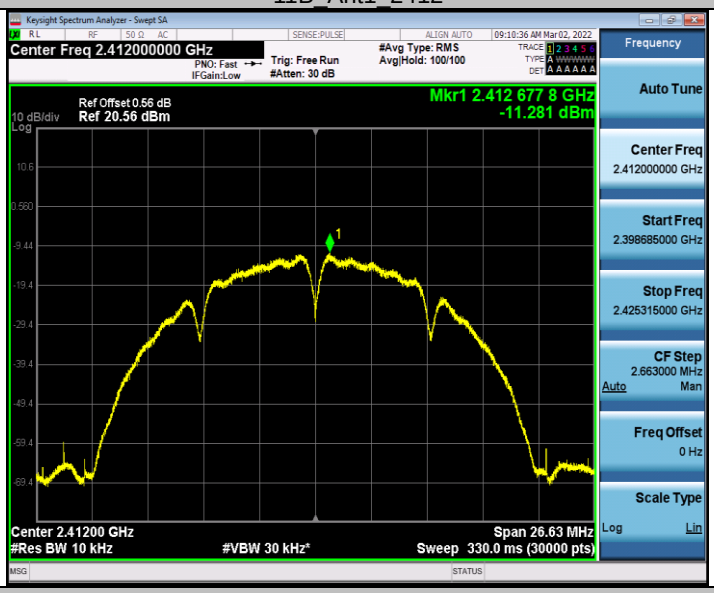
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-11.28	<=8	PASS
		2437	-10.86	<=8	PASS
		2462	-9.04	<=8	PASS
11G	Ant1	2412	-11.64	<=8	PASS
		2437	-11.67	<=8	PASS
		2462	-13.06	<=8	PASS
11N20SISO	Ant1	2412	-12.48	<=8	PASS
		2437	-11.62	<=8	PASS
		2462	-12.91	<=8	PASS

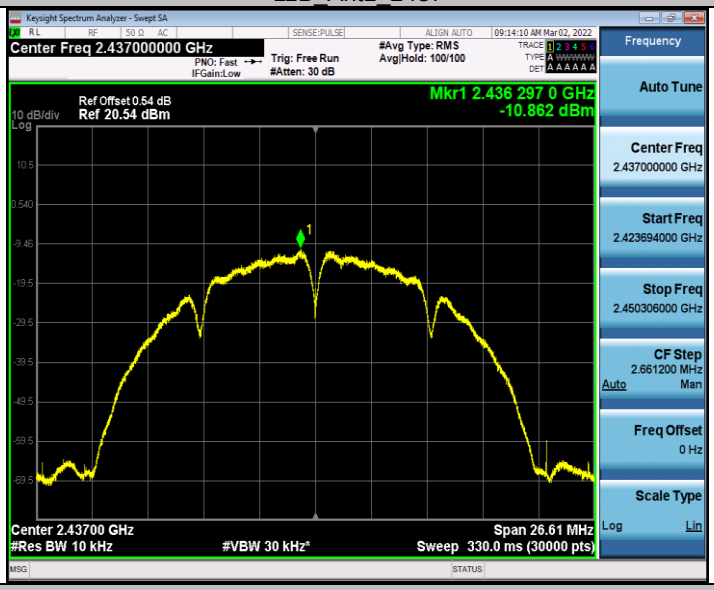
*Note: Duty Cycle Correction Factor = 10*log(1/duty cycle)*
The Duty Cycle Correction Factor is compensated in the graph.
MIMO = (MIMO)/2

Test Graphs:

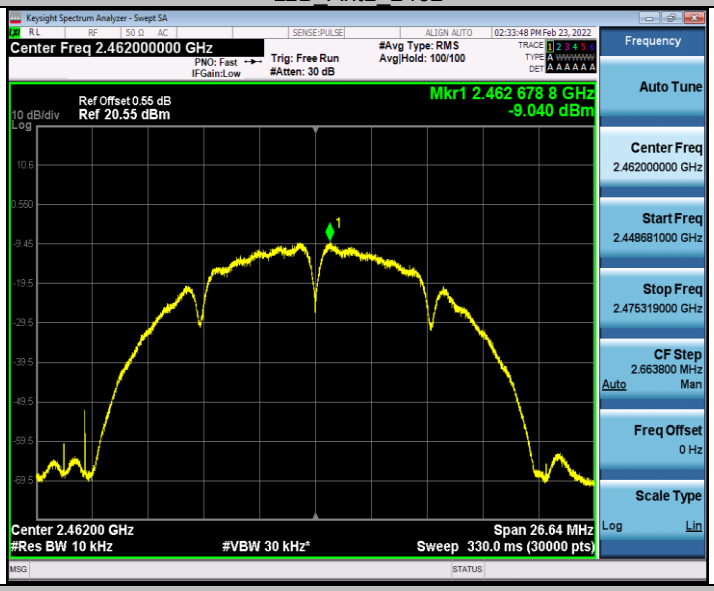
11B_Ant1_2412



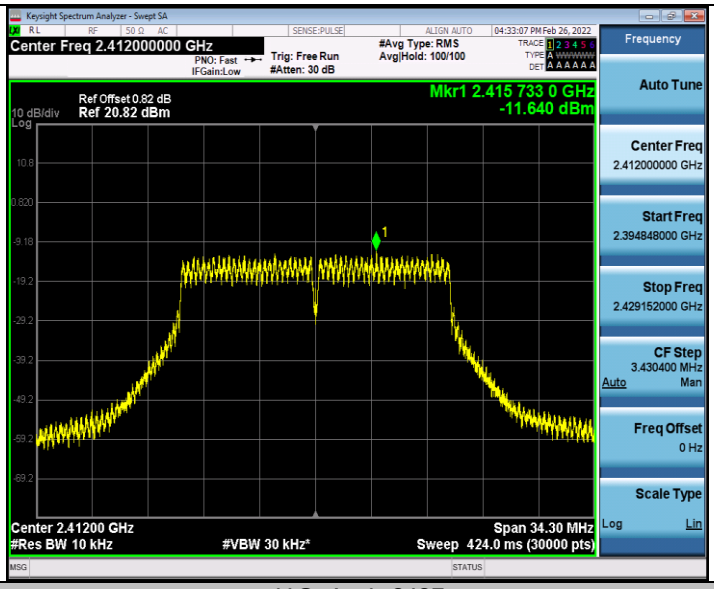
11B_Ant1_2437



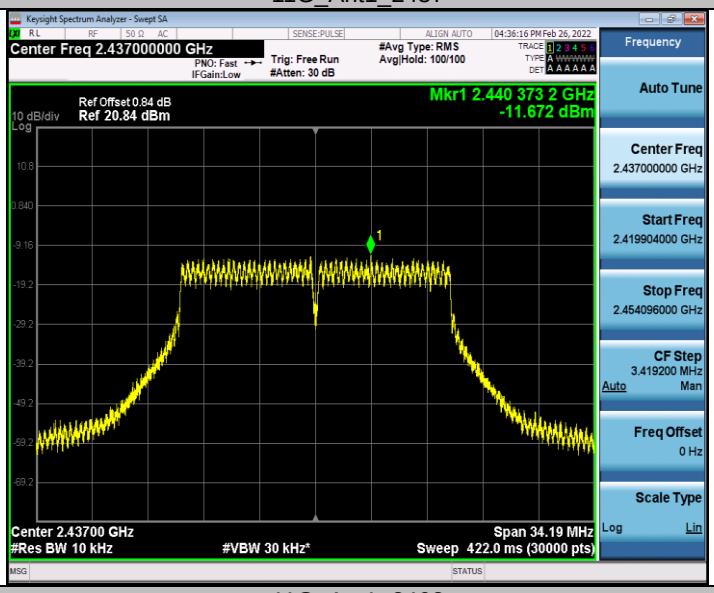
11B_Ant1_2462



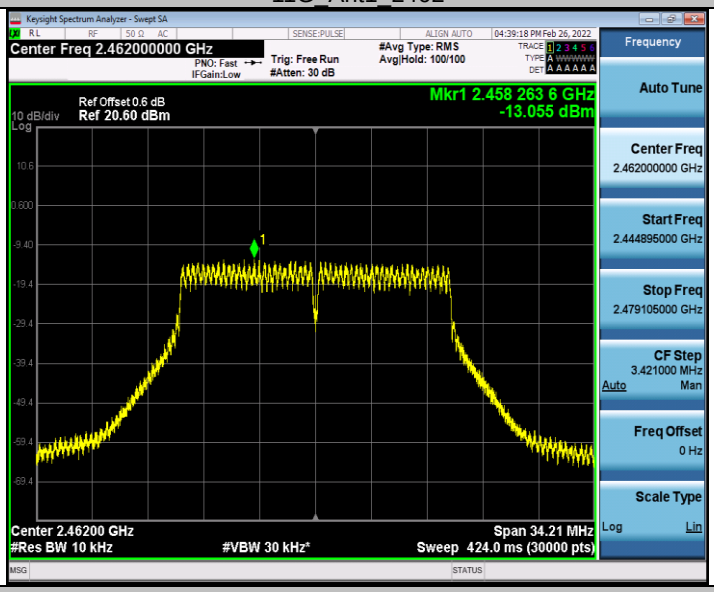
11G_Ant1_2412



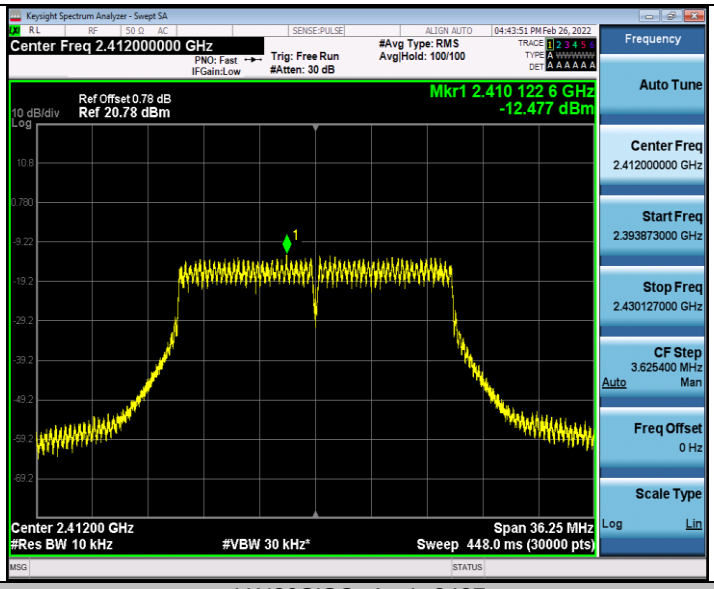
11G_Ant1_2437



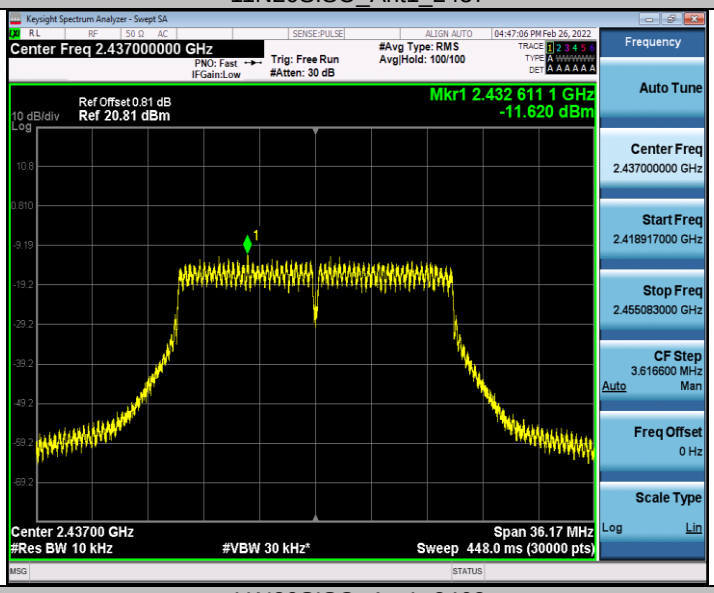
11G_Ant1_2462



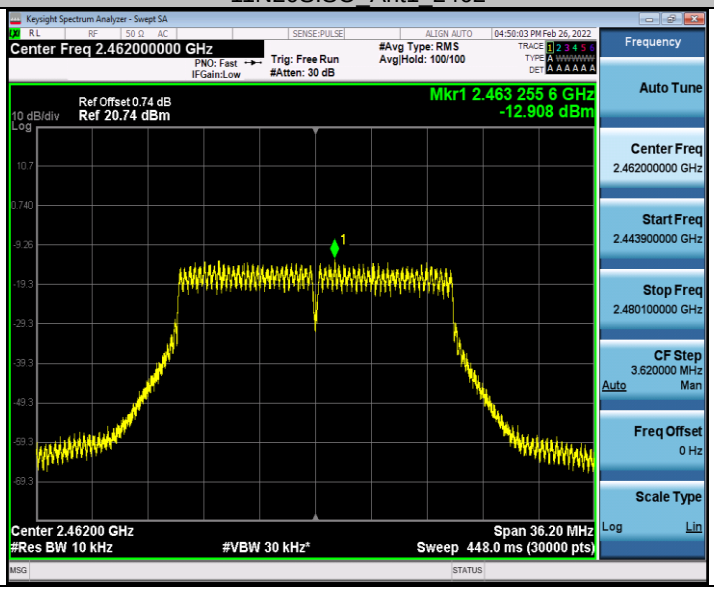
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



3.8. 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 less than 6dBi, please refer to the EUT internal photographs antenna photo.

**********THE END**********