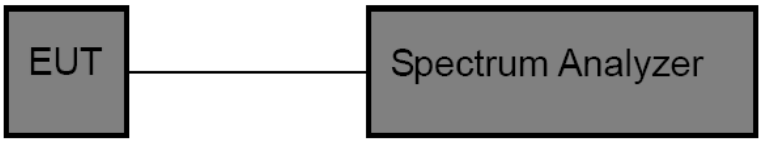
3.5. DTS Bandwidth

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

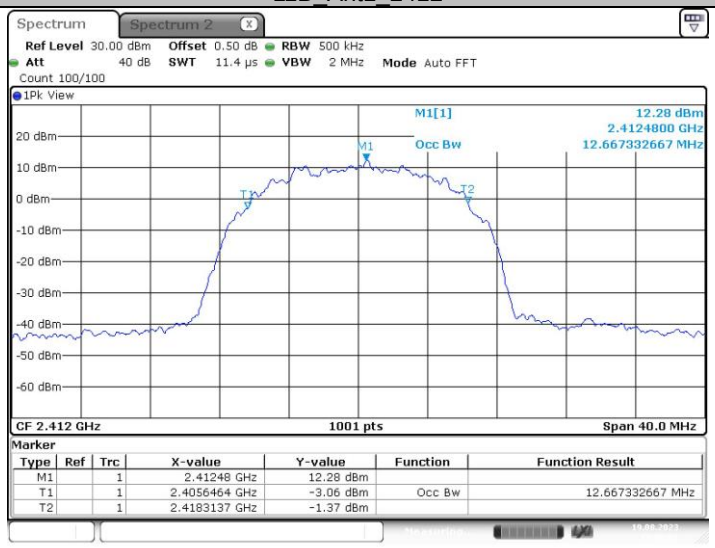
Please refer to the clause 2.4.

Test Result

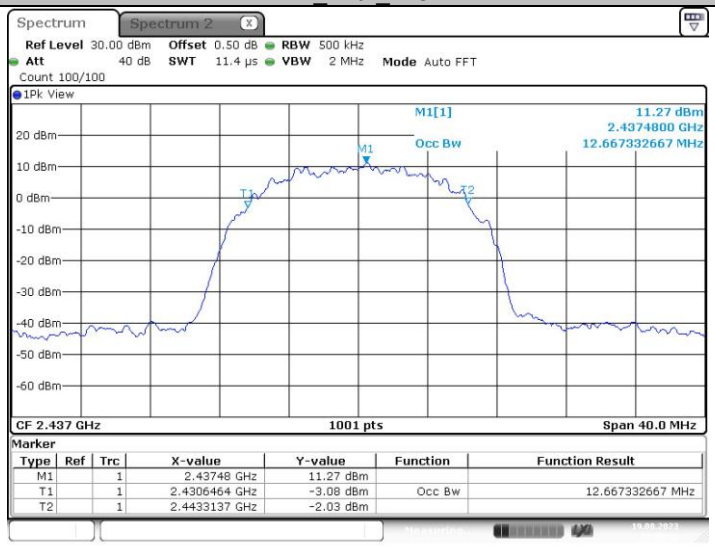
Test Mode	Antenna	Channel	OCB [MHz]	DTS BW [MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.667	8.80	0.5	PASS
		2437	12.667	10.04	0.5	PASS
		2462	12.707	9.08	0.5	PASS
11G	Ant1	2412	16.144	15.80	0.5	PASS
		2437	16.144	15.80	0.5	PASS
		2462	16.104	15.80	0.5	PASS
11N20SISO	Ant1	2412	16.623	15.84	0.5	PASS
		2437	16.583	15.80	0.5	PASS
		2462	16.623	16.08	0.5	PASS
11N40SISO	Ant1	2422	35.485	34.72	0.5	PASS
		2437	35.564	35.04	0.5	PASS
		2452	35.405	35.04	0.5	PASS

Occupied Bandwidth:

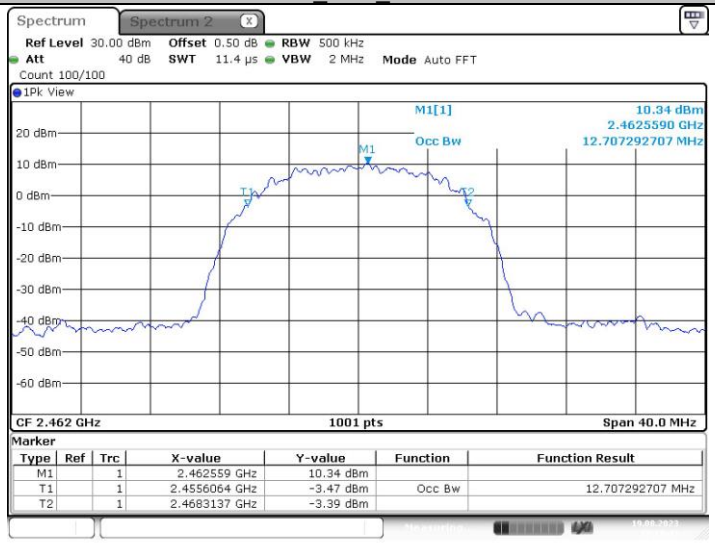
11B_Ant1_2412



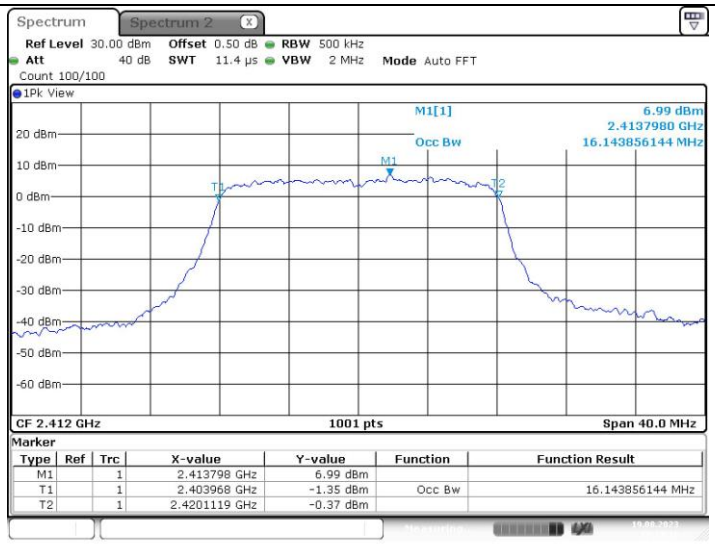
11B_Ant1_2437



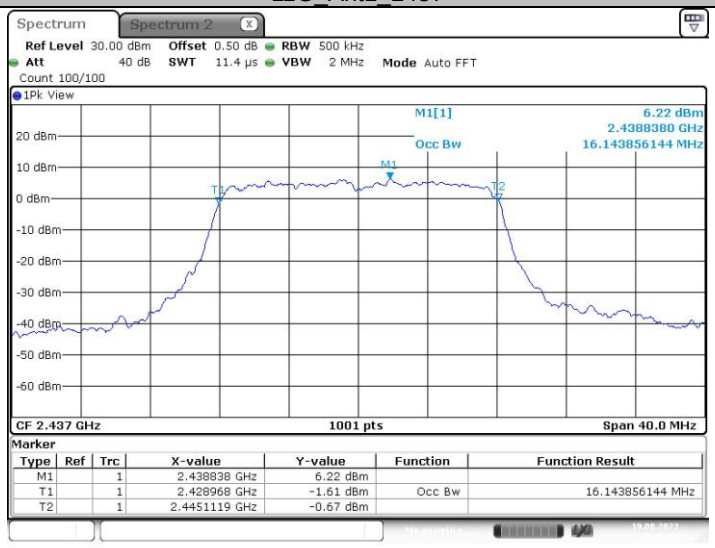
11B_Ant1_2462



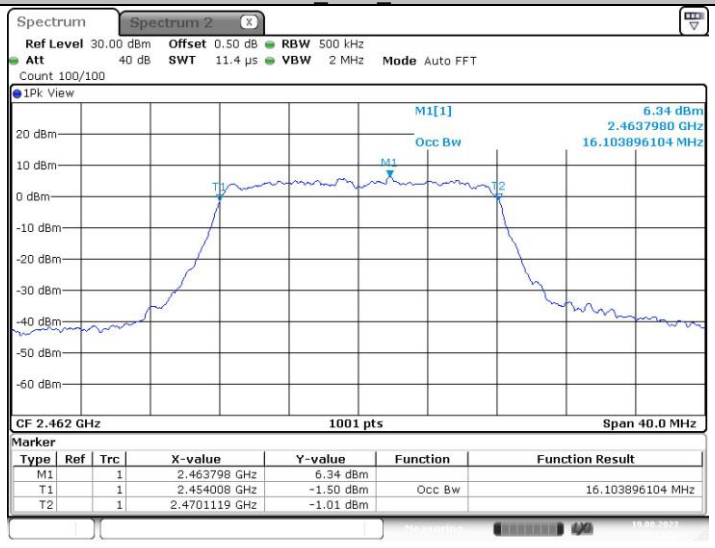
11G_Ant1_2412



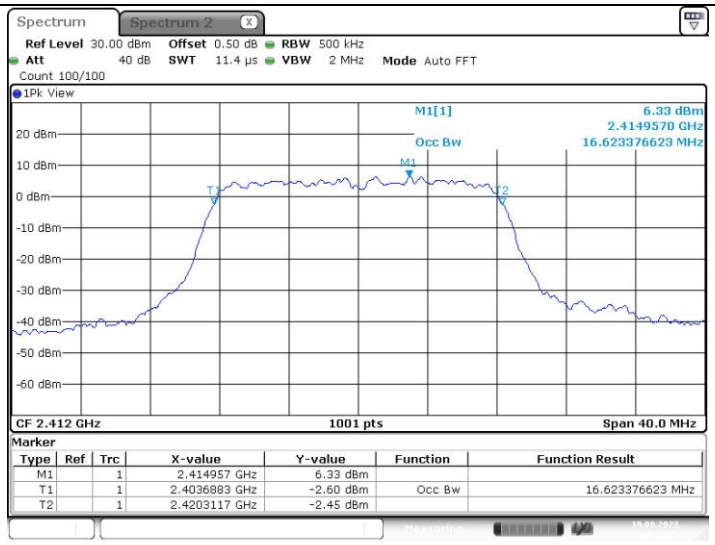
11G_Ant1_2437



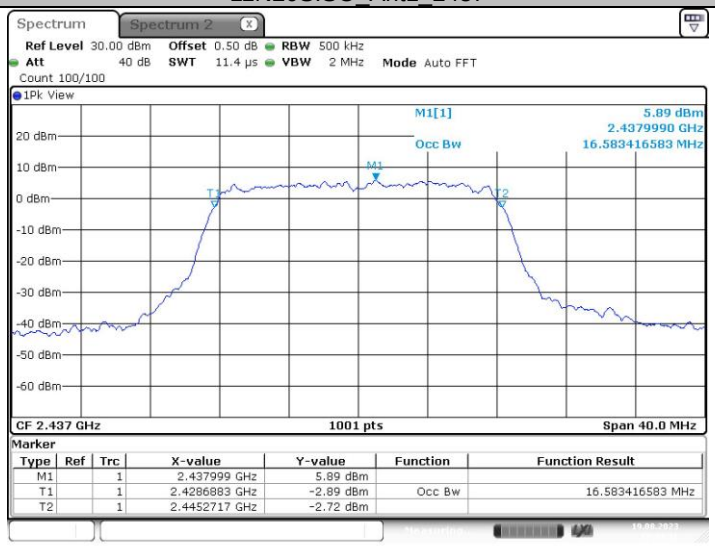
11G_Ant1_2462



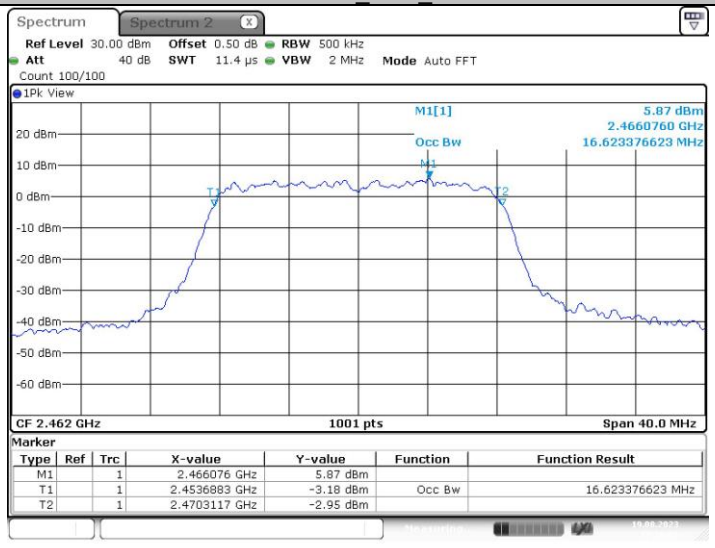
11N20SISO_Ant1_2412



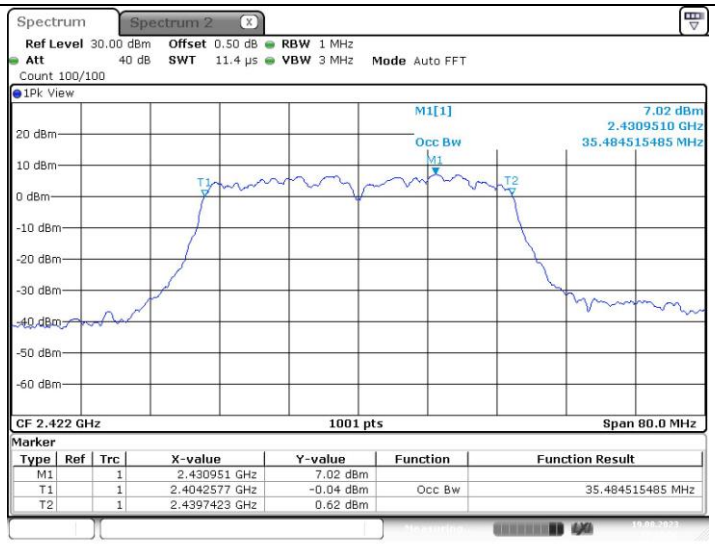
11N20SISO_Ant1_2437



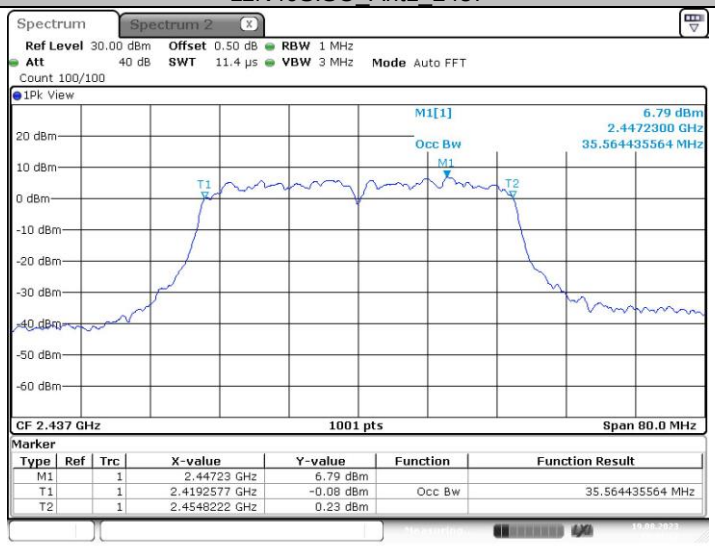
11N20SISO_Ant1_2462



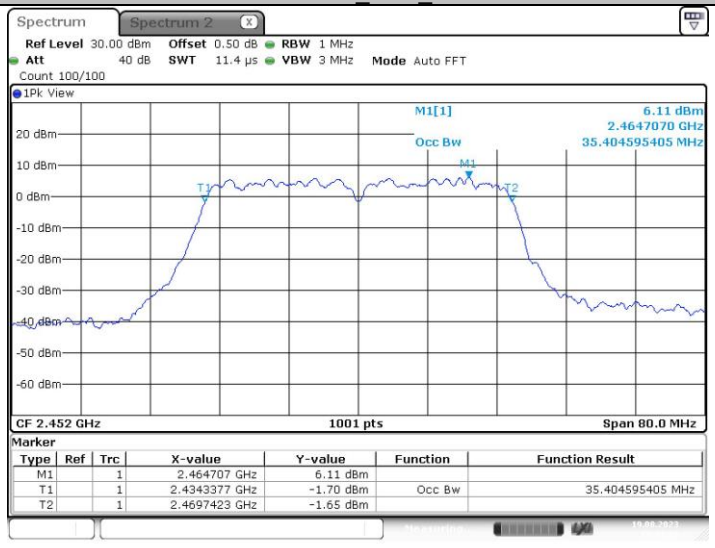
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437

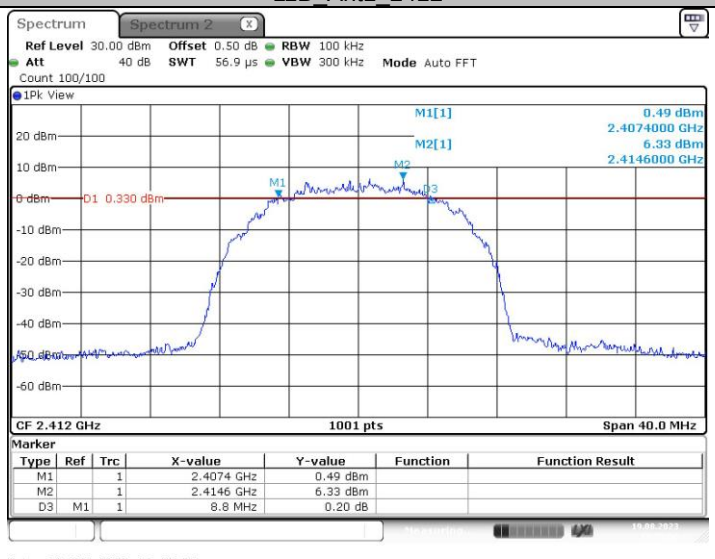


11N40SISO_Ant1_2452

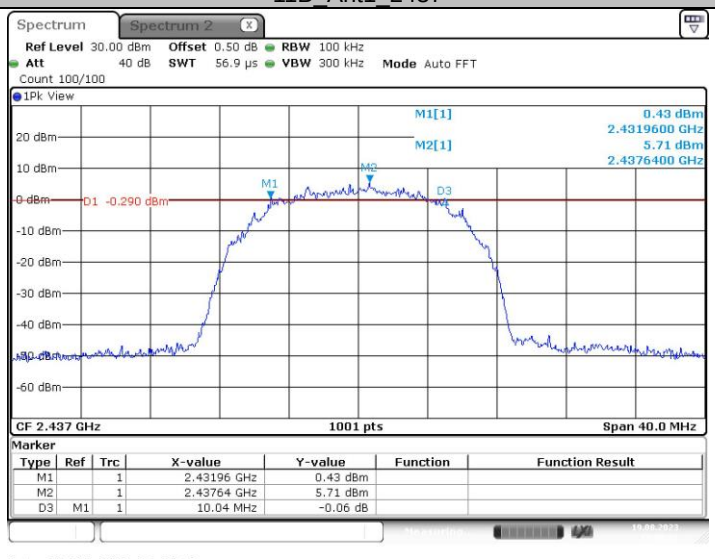


DTS Bandwidth:

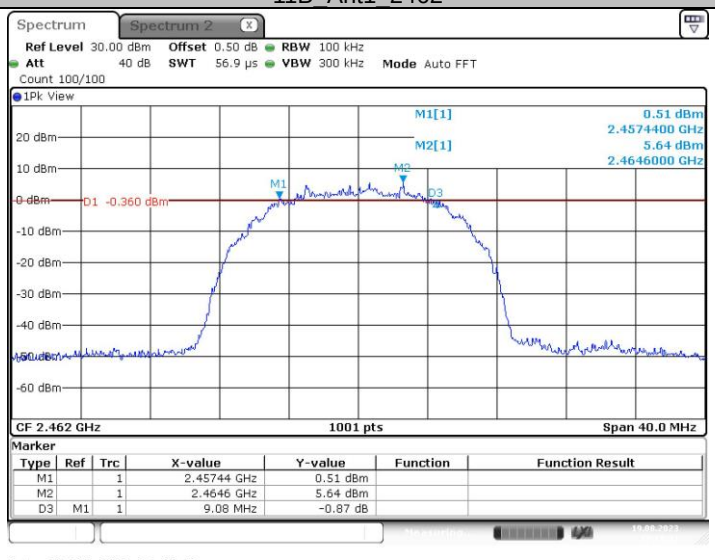
11B_Ant1_2412



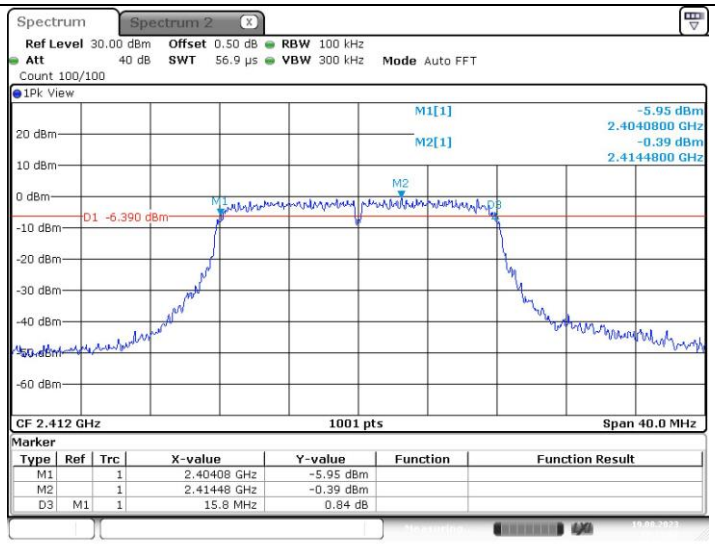
11B_Ant1_2437



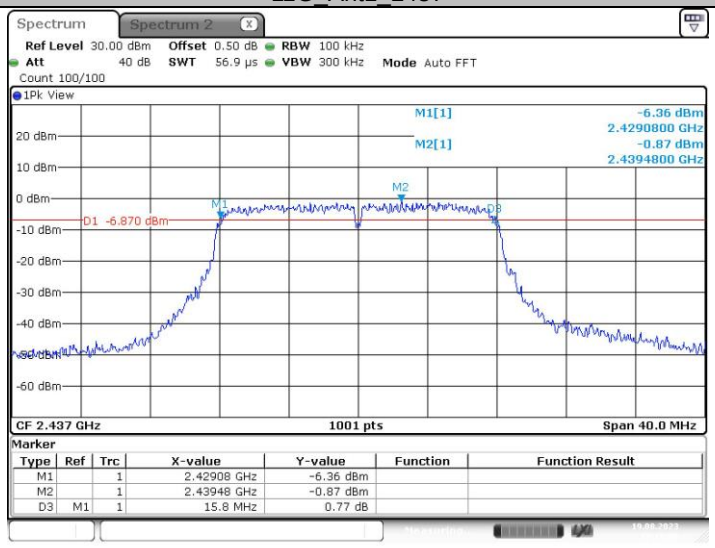
11B_Ant1_2462



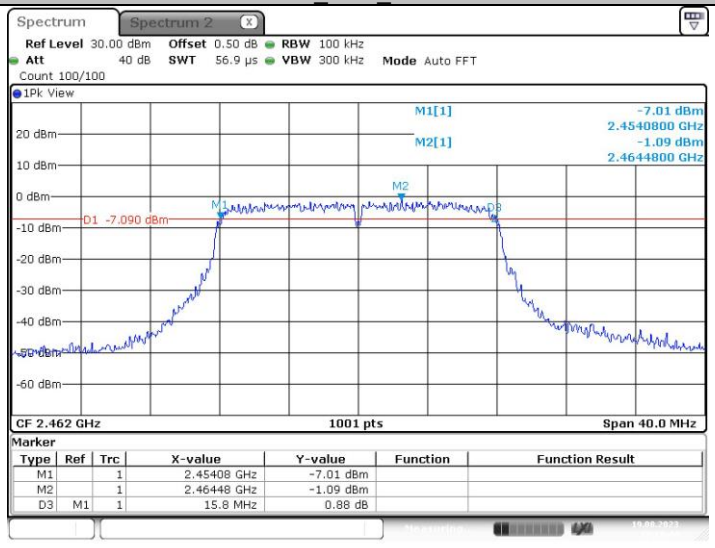
11G_Ant1_2412



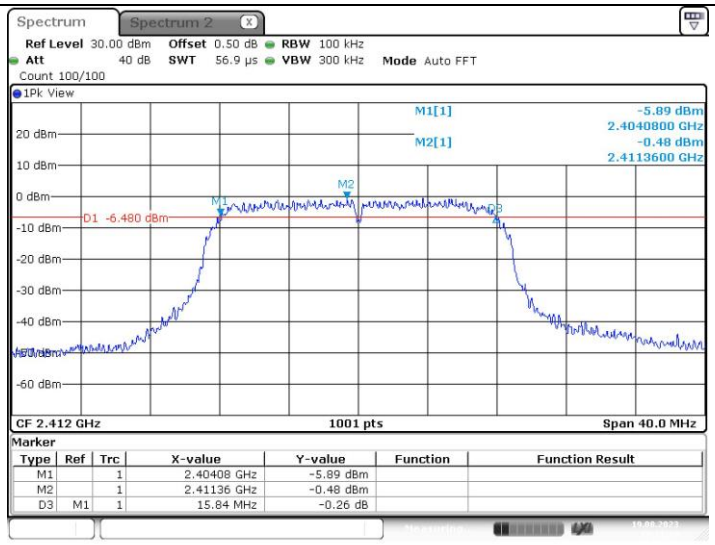
11G_Ant1_2437



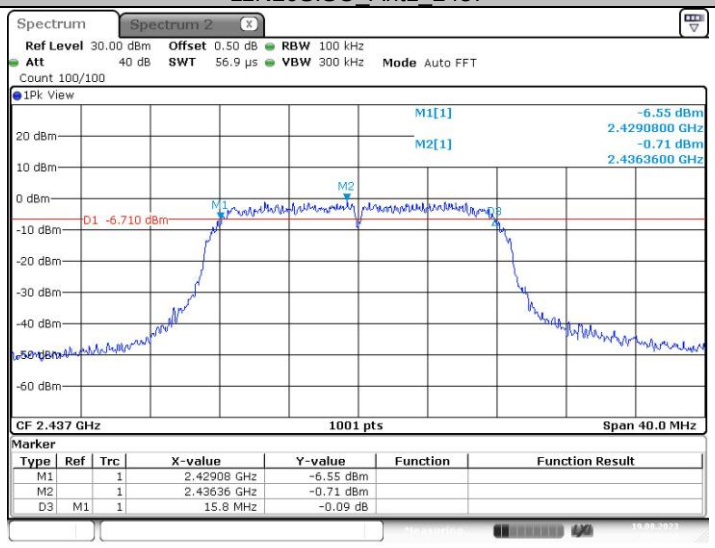
11G_Ant1_2462



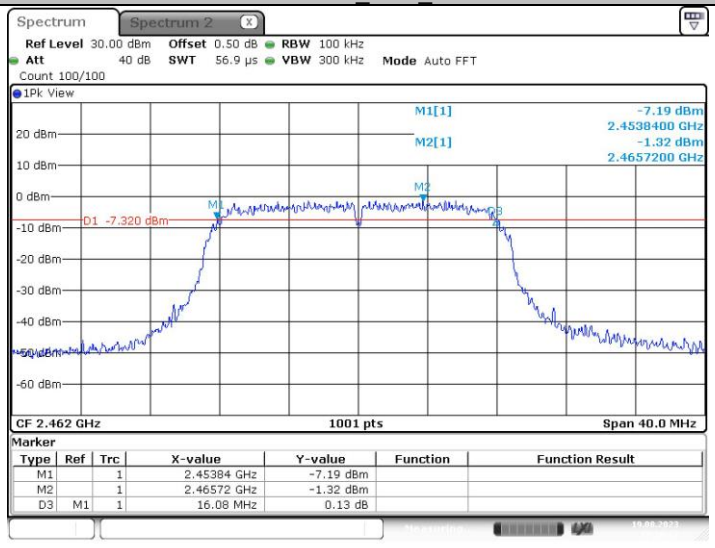
11N20SISO_Ant1_2412



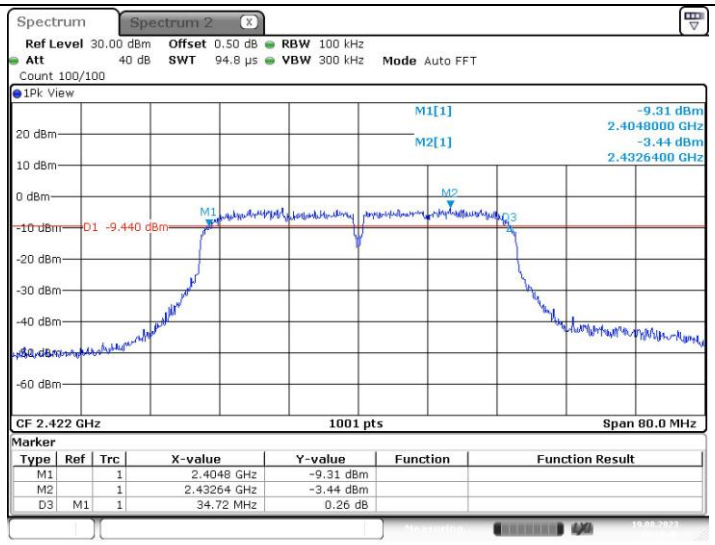
11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

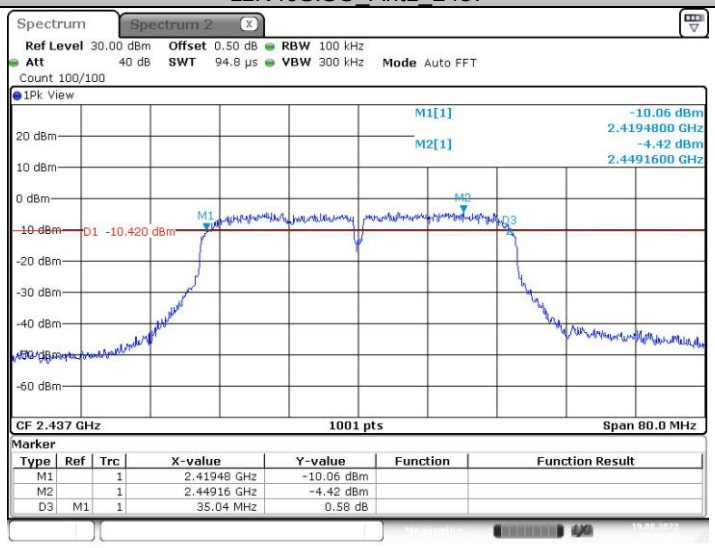


11N40SISO_Ant1_2422



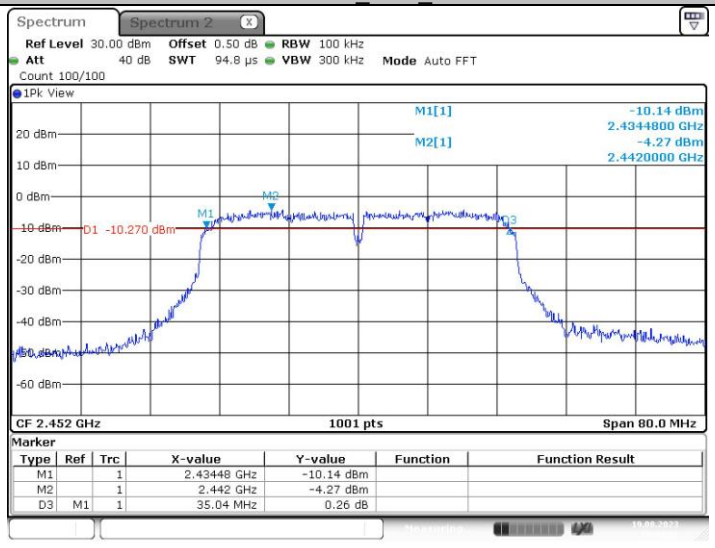
Date: 19.AUG.2023 17:28:40

11N40SISO_Ant1_2437



Date: 19.AUG.2023 17:31:06

11N40SISO_Ant1_2452



Date: 19.AUG.2023 17:33:22

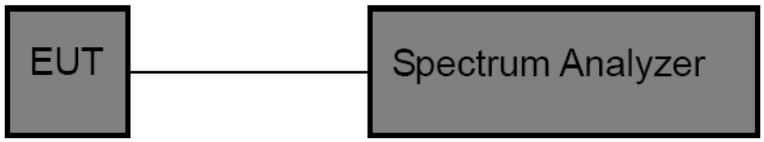
3.6. Peak Output Power

Limit

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

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
ISED RSS-247 5.4 d	EIRP	4 Watt or 36dBm	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. Spectrum Setting:
   (1) Set RBW ≥ DTS Bandwidth.
   (2) Set VBW ≥ 3*RBW.
   (3) Set Span ≥ 3*RBW.
   (4) Sweep time = Auto couple.
   (5) Detector = Peak.
   (6) Trace mode = Max hold.
   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.

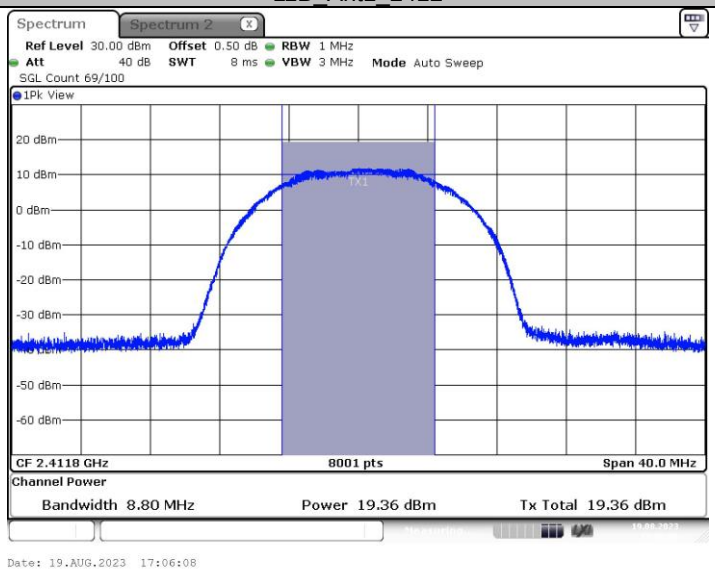
Test Result

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	19.36	≤30	PASS
		2437	19.09	≤30	PASS
		2462	18.65	≤30	PASS
11G	Ant1	2412	18.40	≤30	PASS
		2437	17.94	≤30	PASS
		2462	17.74	≤30	PASS
11N20SISO	Ant1	2412	18.21	≤30	PASS
		2437	17.81	≤30	PASS
		2462	17.56	≤30	PASS
11N40SISO	Ant1	2422	18.63	≤30	PASS
		2437	18.20	≤30	PASS
		2452	18.24	≤30	PASS

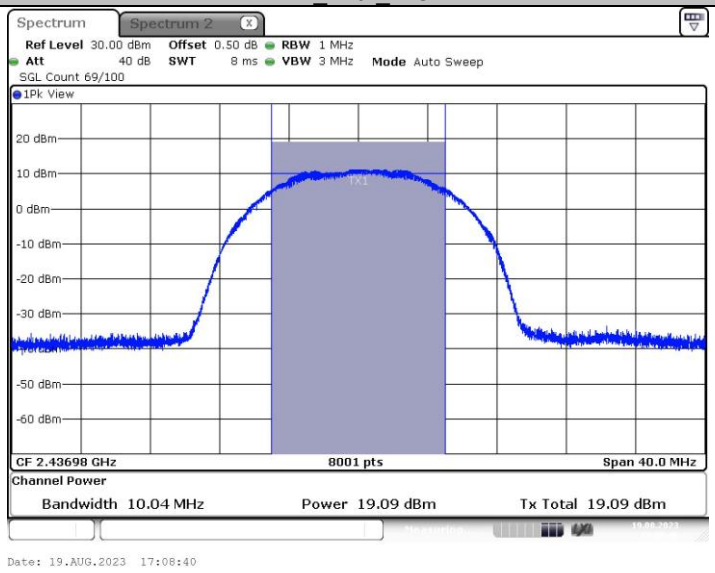
Test Mode	Antenna	Channel	Result[dBm]	EIRP[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	19.36	22.18	≤30	PASS
		2437	19.09	21.91	≤30	PASS
		2462	18.65	21.47	≤30	PASS
11G	Ant1	2412	18.40	21.22	≤30	PASS
		2437	17.94	20.76	≤30	PASS
		2462	17.74	20.56	≤30	PASS
11N20SISO	Ant1	2412	18.21	21.03	≤30	PASS
		2437	17.81	20.63	≤30	PASS
		2462	17.56	20.38	≤30	PASS
11N40SISO	Ant1	2422	18.63	21.45	≤30	PASS
		2437	18.20	21.02	≤30	PASS
		2452	18.24	21.06	≤30	PASS

Test Graphs:

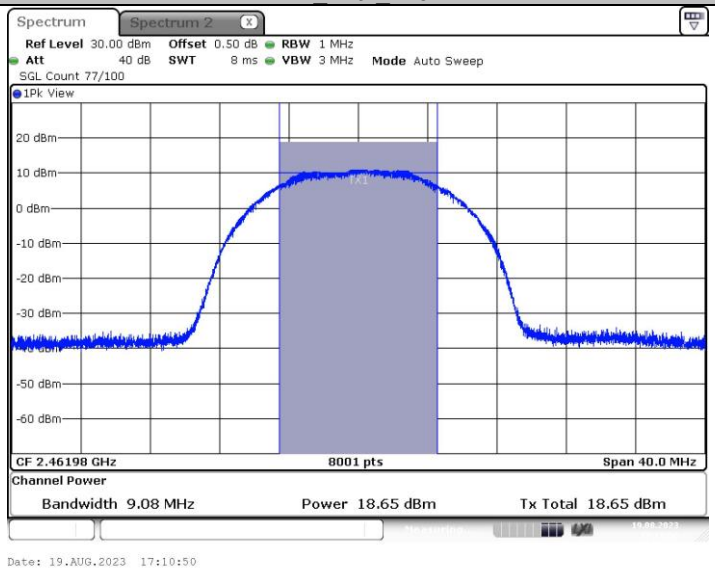
11B_Ant1_2412



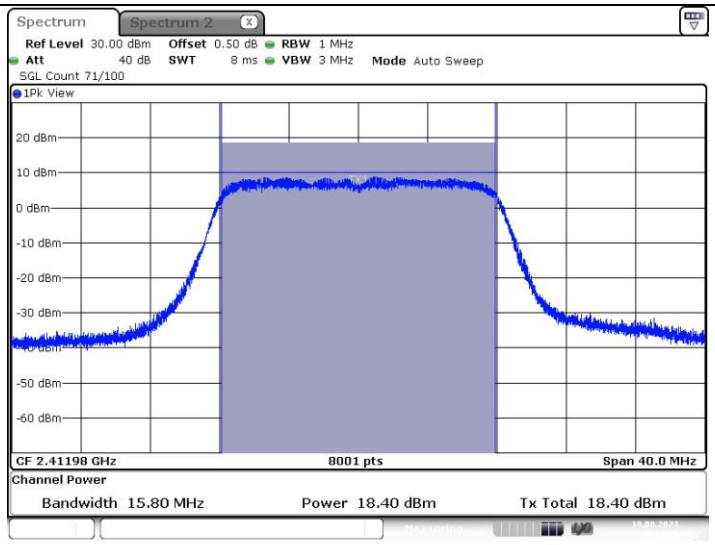
11B_Ant1_2437



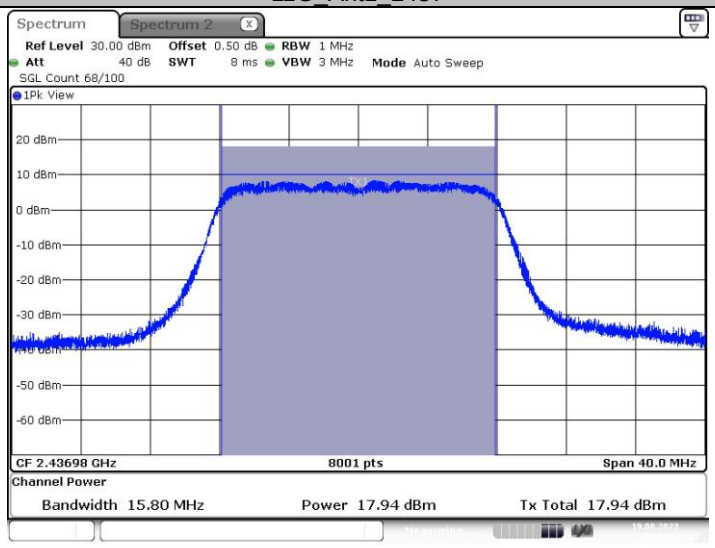
11B_Ant1_2462



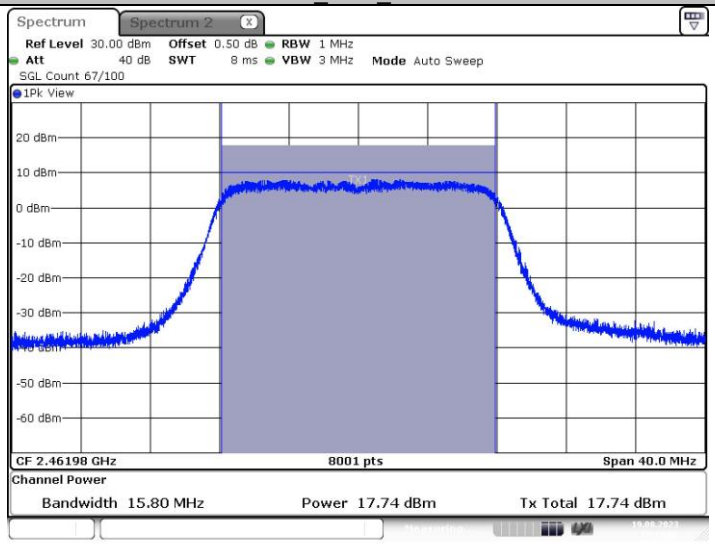
11G_Ant1_2412



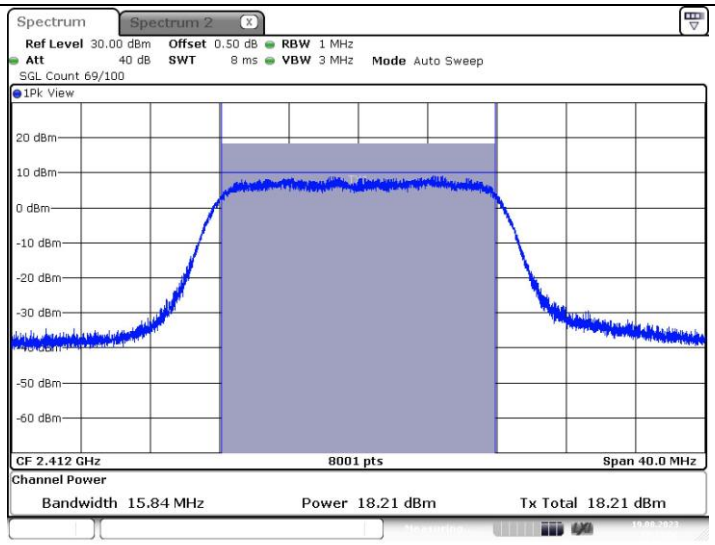
11G_Ant1_2437



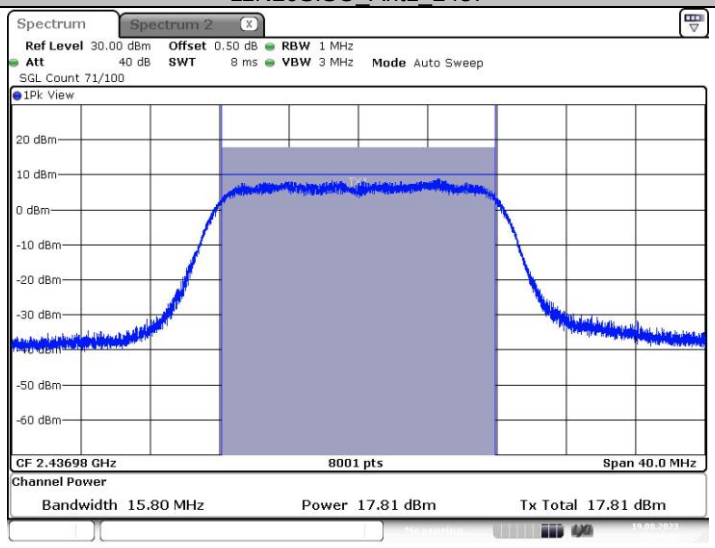
11G_Ant1_2462



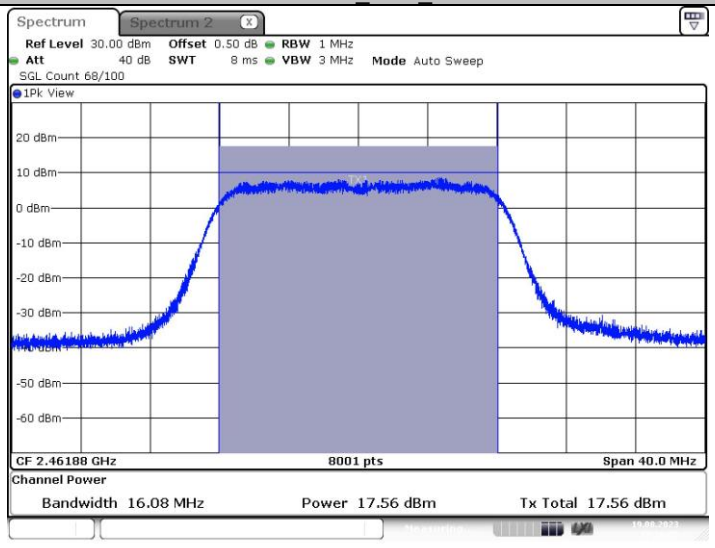
11N20SISO_Ant1_2412



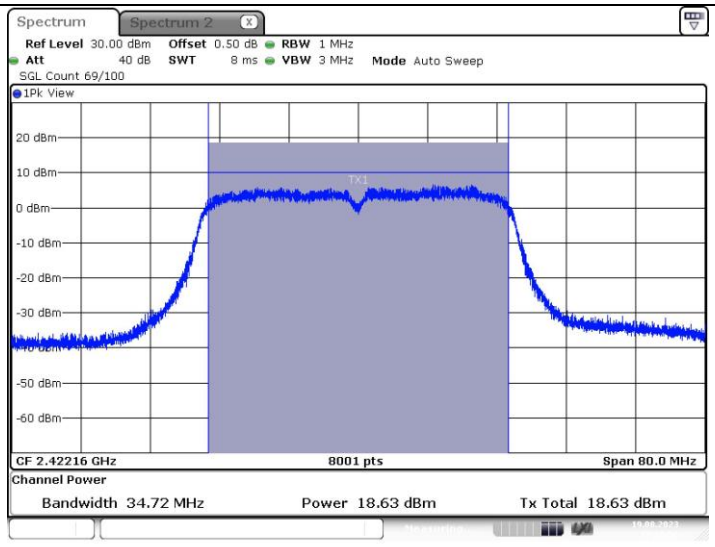
11N20SISO_Ant1_2437



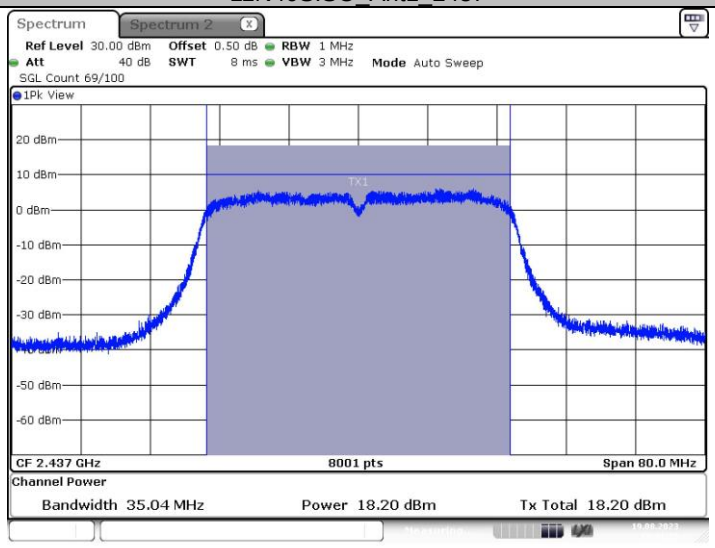
11N20SISO_Ant1_2462



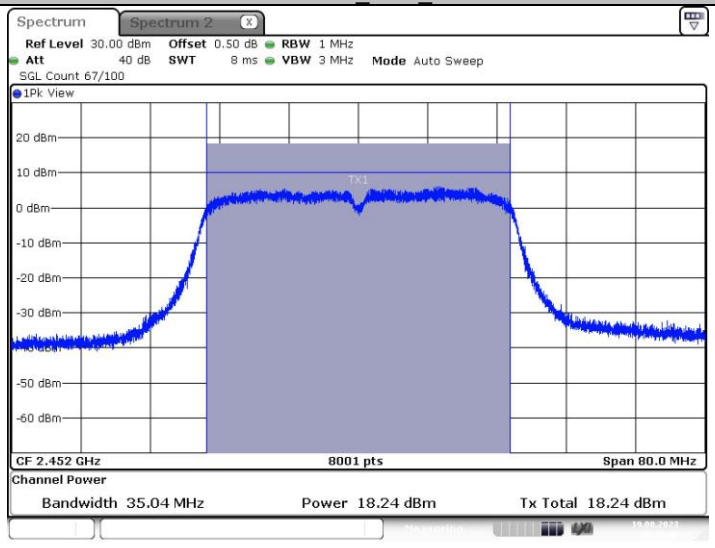
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



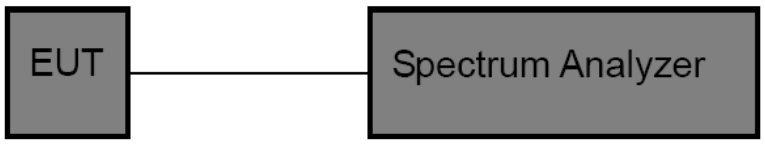
3.7. Power Spectral Density

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	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 the span to 1.5 times the DTS bandwidth.
Set the RBW to: 3 kHz.
Set the VBW to: 10 kHz.
Detector: peak.
Sweep time: auto.

Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

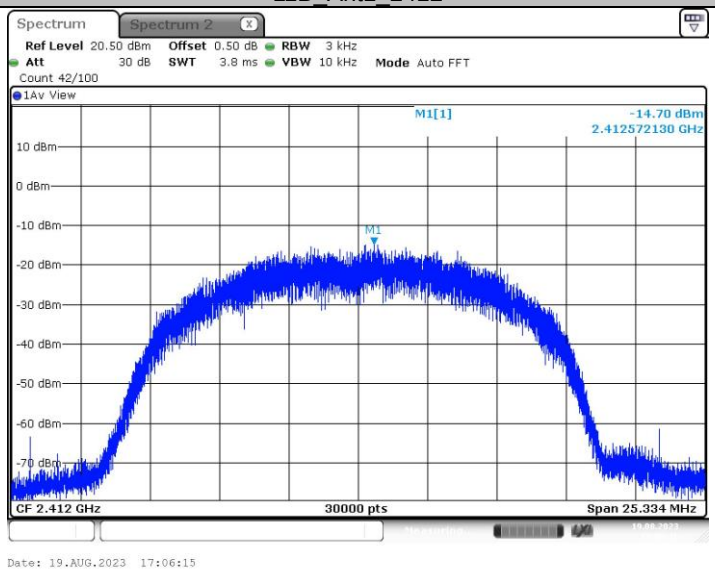
Please refer to the clause 2.4.

Test Result

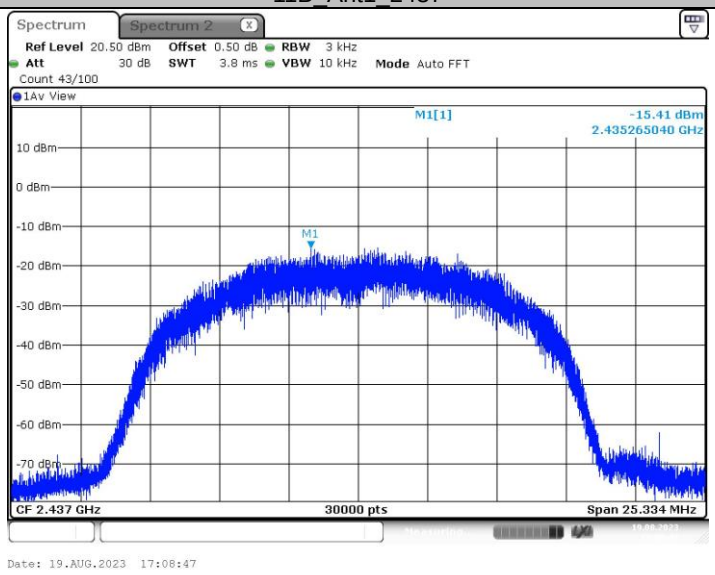
Test Mode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-14.70	≤8	PASS
		2437	-15.41	≤8	PASS
		2462	-16.00	≤8	PASS
11G	Ant1	2412	-19.58	≤8	PASS
		2437	-20.02	≤8	PASS
		2462	-19.83	≤8	PASS
11N20SISO	Ant1	2412	-19.74	≤8	PASS
		2437	-20.87	≤8	PASS
		2462	-21.26	≤8	PASS
11N40SISO	Ant1	2422	-22.51	≤8	PASS
		2437	-22.20	≤8	PASS
		2452	-23.38	≤8	PASS

Test Graphs:

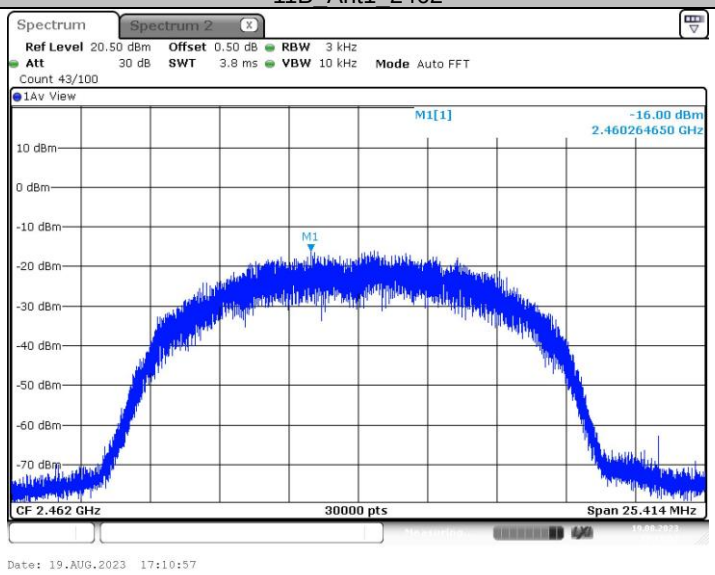
11B_Ant1_2412



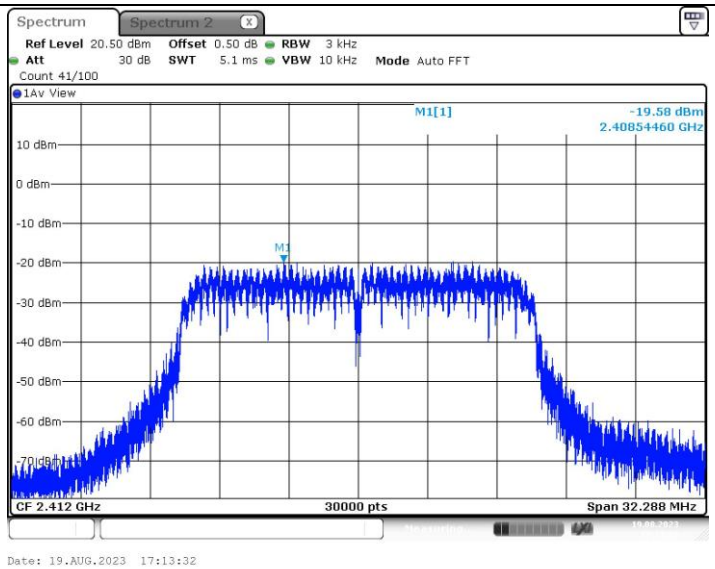
11B_Ant1_2437



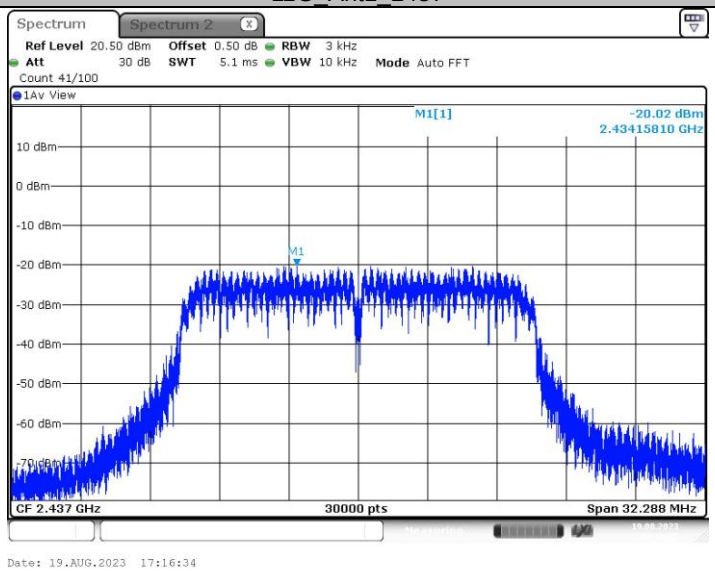
11B_Ant1_2462



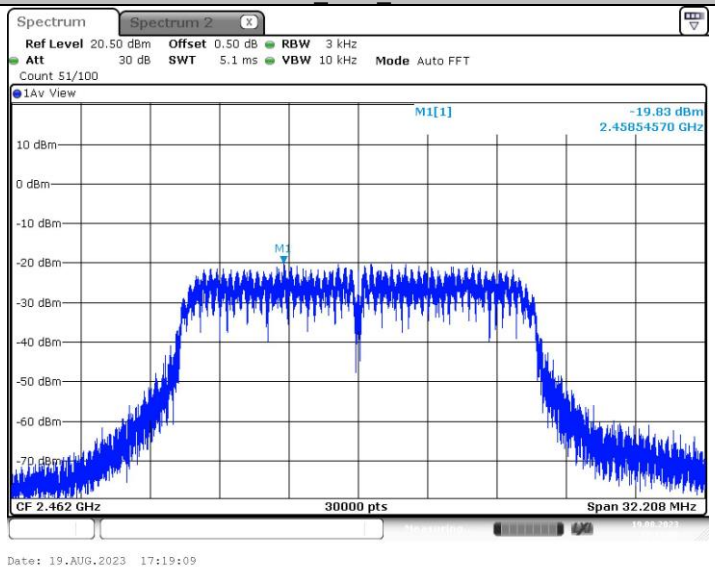
11G_Ant1_2412



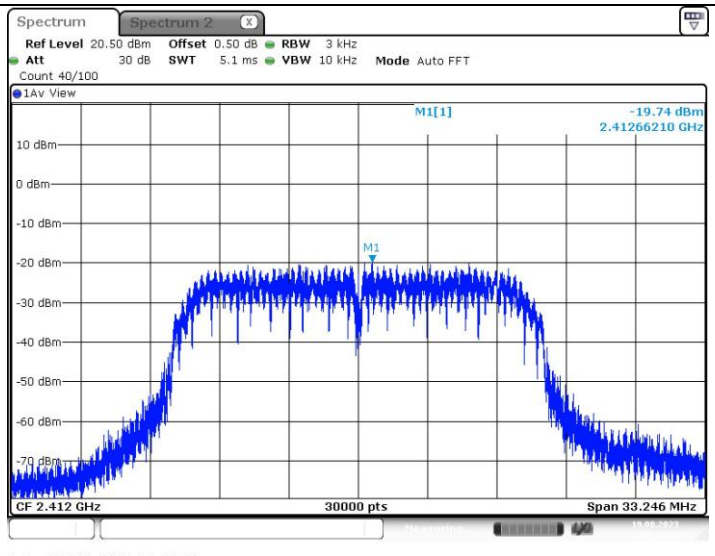
11G_Ant1_2437



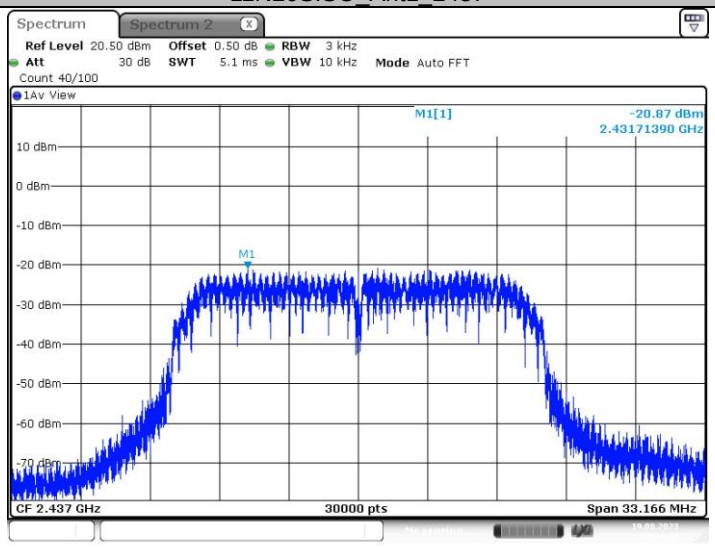
11G_Ant1_2462



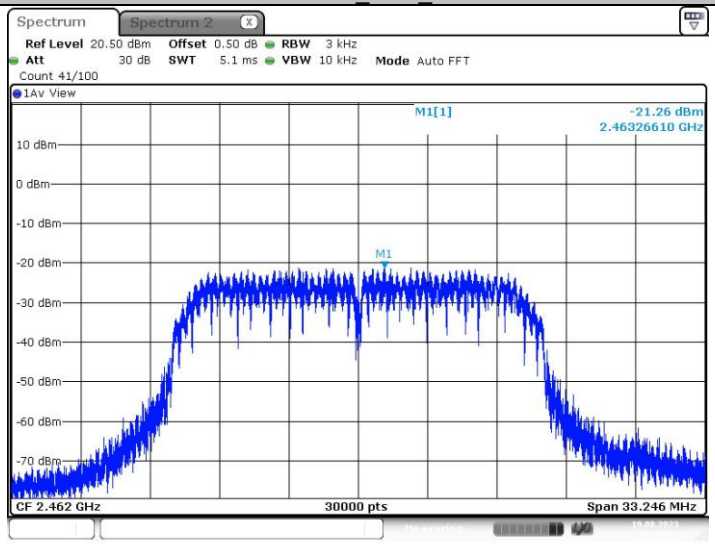
11N20SISO_Ant1_2412



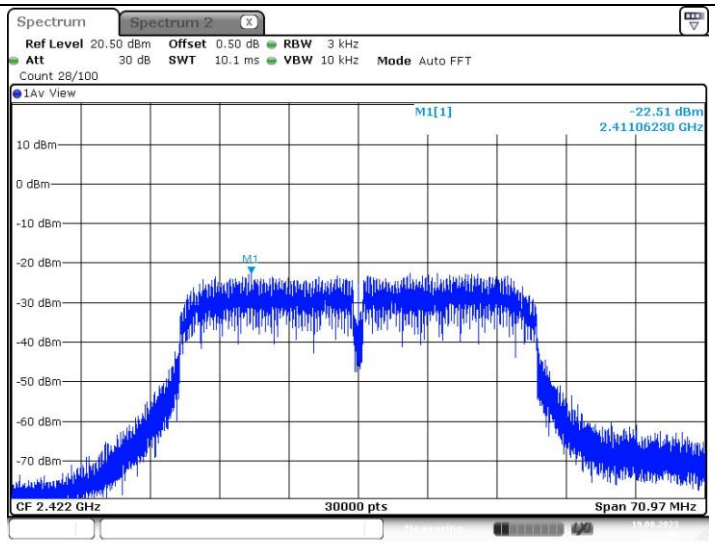
11N20SISO_Ant1_2437



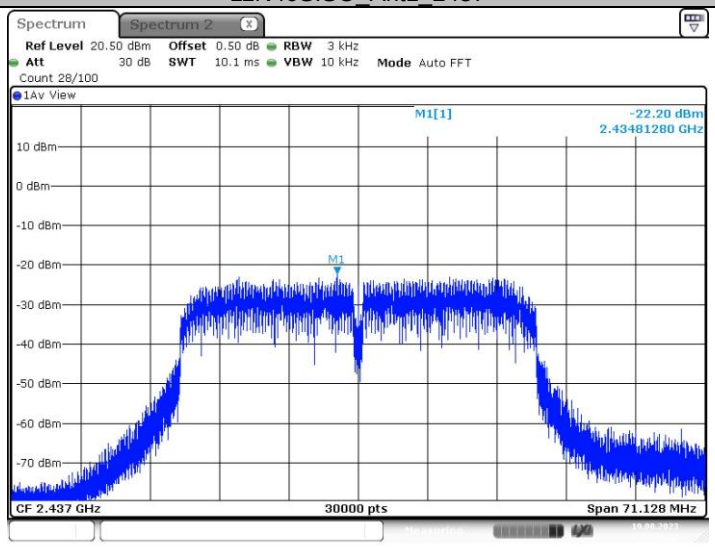
11N20SISO_Ant1_2462



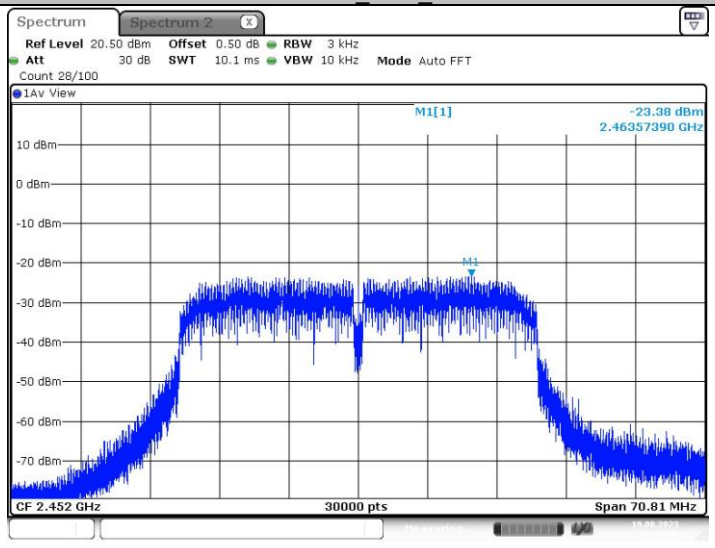
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

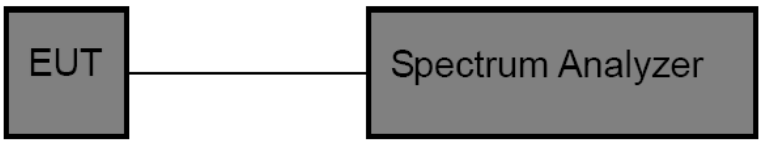


3.8. Duty Cycle

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 10MHz.
Set the VBW to 10MHz.
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.

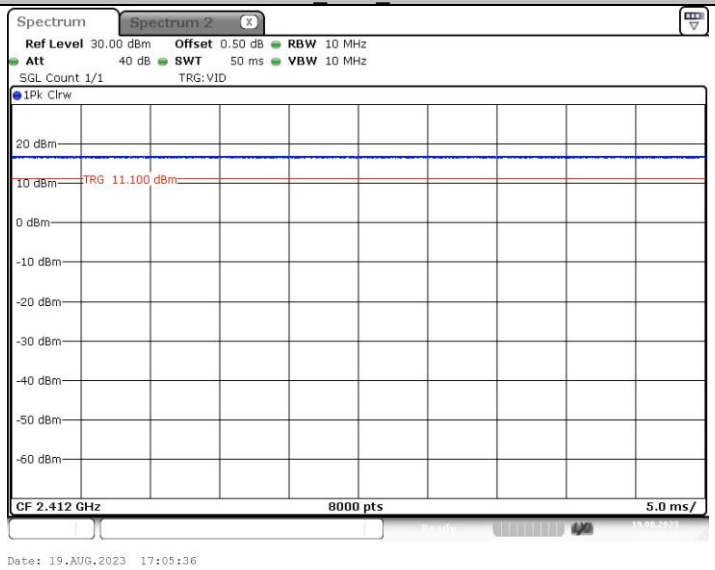
Test Result

Test Mode	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T Minimum VBW (kHz)	Final Setting for VBW (kHz)
11B	2412	50.00	50.00	100.00	/	0.01
	2437	50.00	50.00	100.00	/	0.01
	2462	50.00	50.00	100.00	/	0.01
11G	2412	50.00	50.00	100.00	/	0.01
	2437	50.00	50.00	100.00	/	0.01
	2462	50.00	50.00	100.00	/	0.01
11N20SISO	2412	50.00	50.00	100.00	/	0.01
	2437	50.00	50.00	100.00	/	0.01
	2462	50.00	50.00	100.00	/	0.01
11N40SISO	2422	50.00	50.00	100.00	/	0.01
	2437	50.00	50.00	100.00	/	0.01
	2452	50.00	50.00	100.00	/	0.01

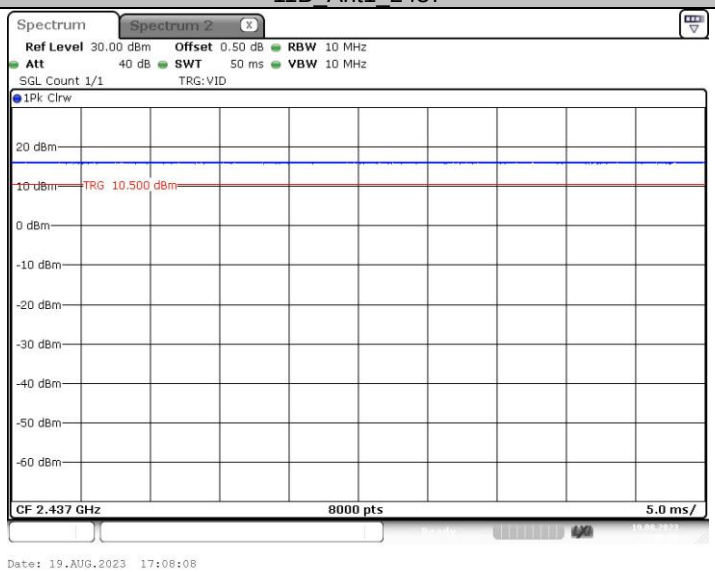
Note: Duty Cycle>98%, VBW=10Hz

Test Graphs:

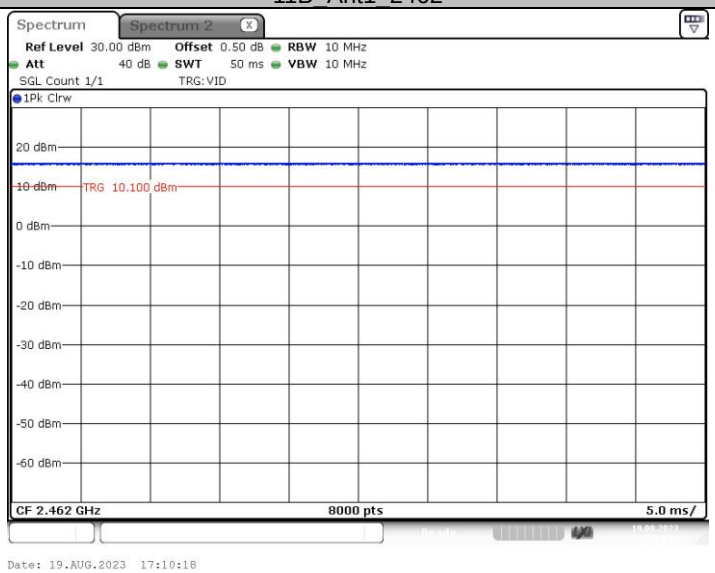
11B_Ant1_2412



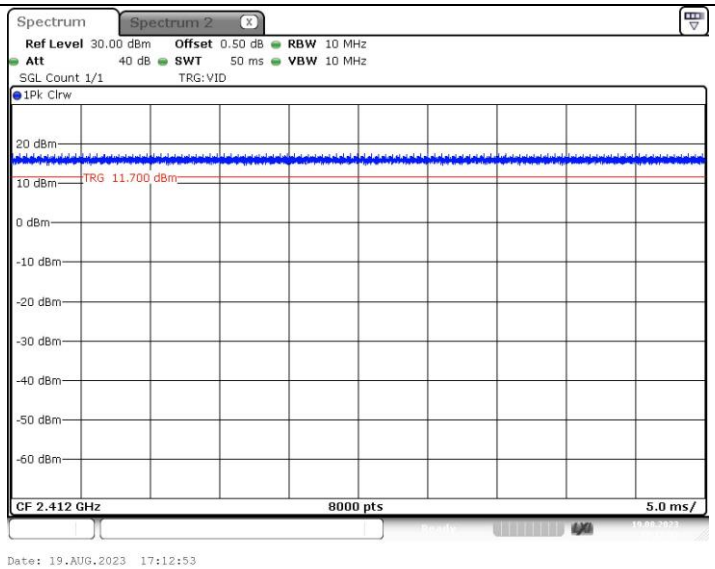
11B_Ant1_2437



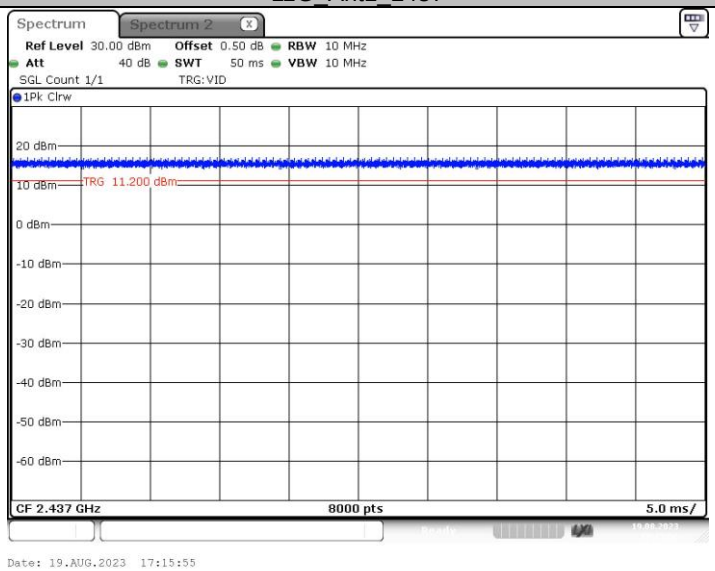
11B_Ant1_2462



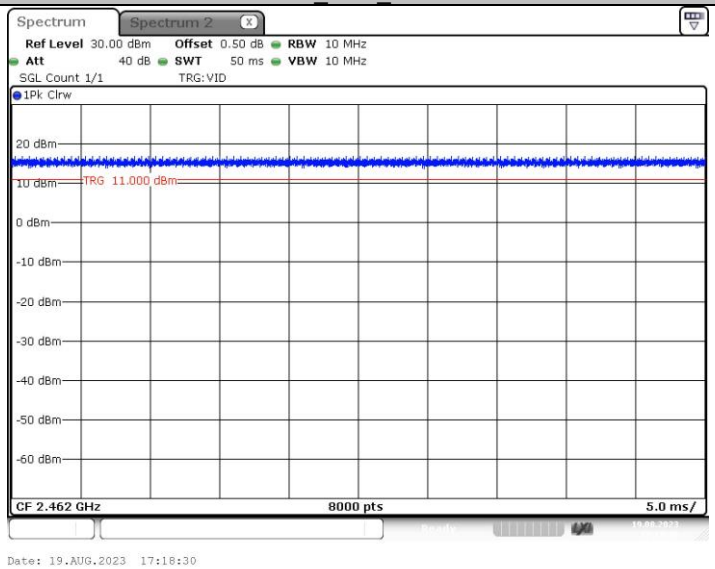
11G_Ant1_2412



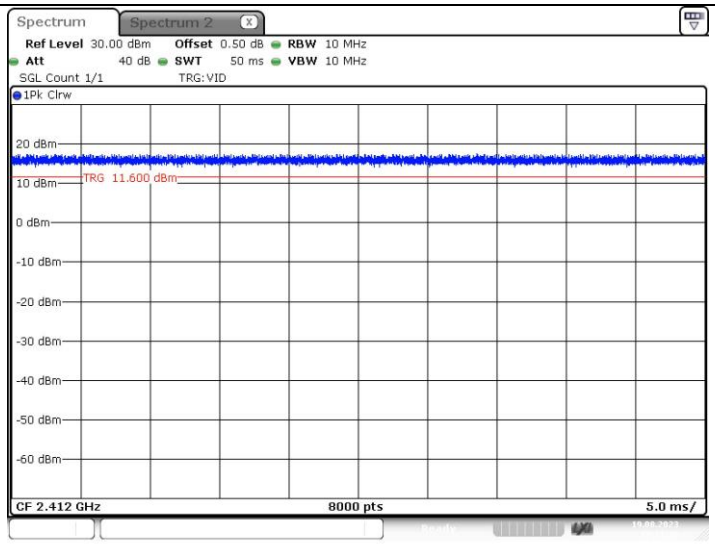
11G_Ant1_2437



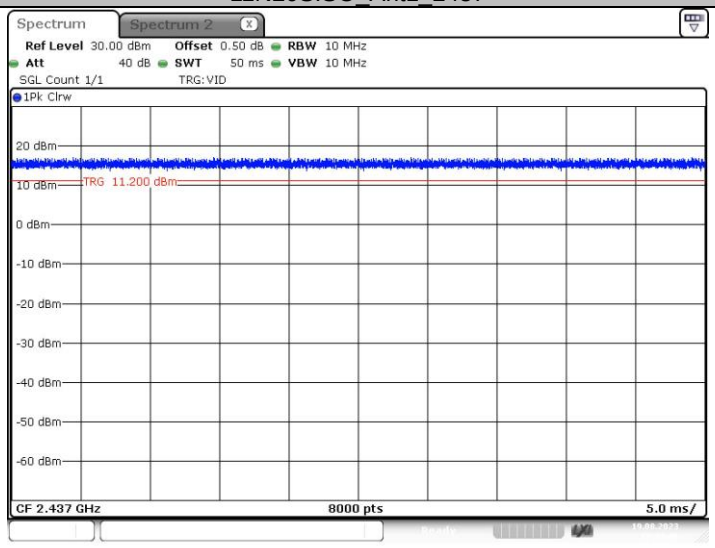
11G_Ant1_2462



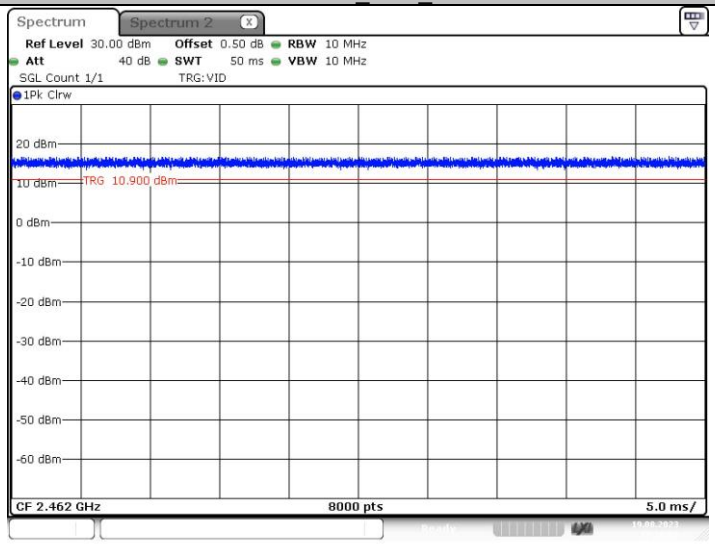
11N20SISO_Ant1_2412



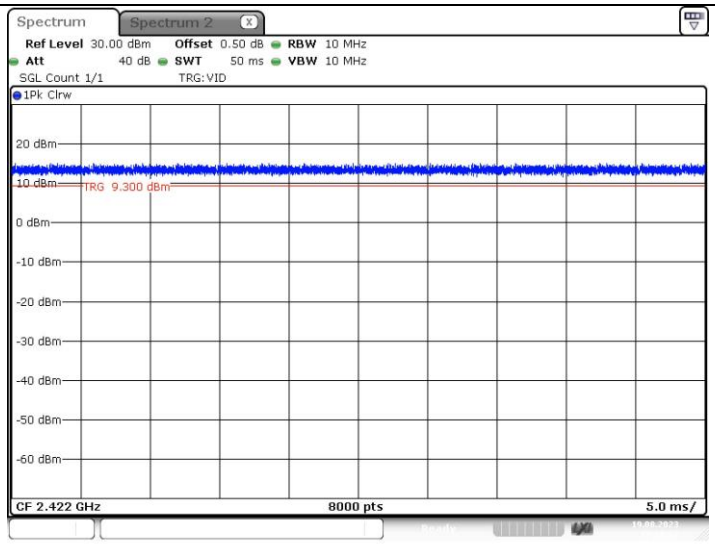
11N20SISO_Ant1_2437



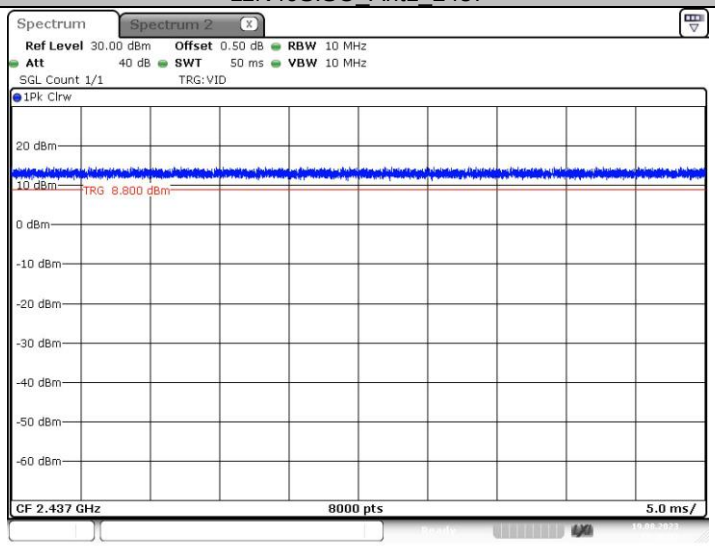
11N20SISO_Ant1_2462



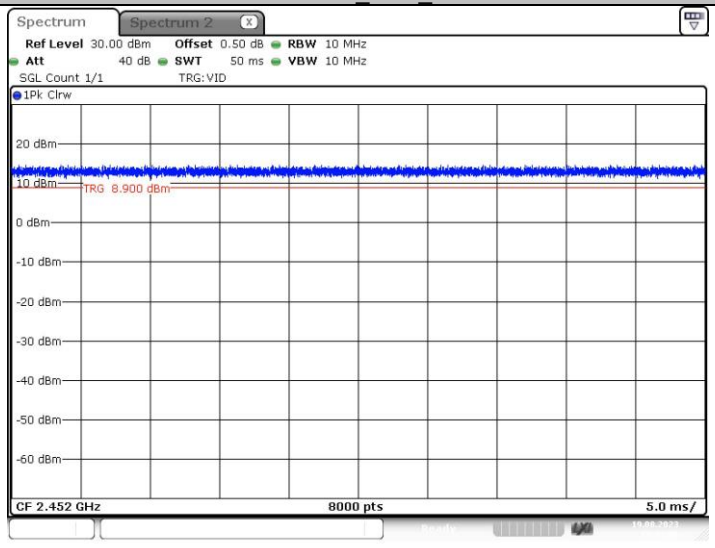
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



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*************************