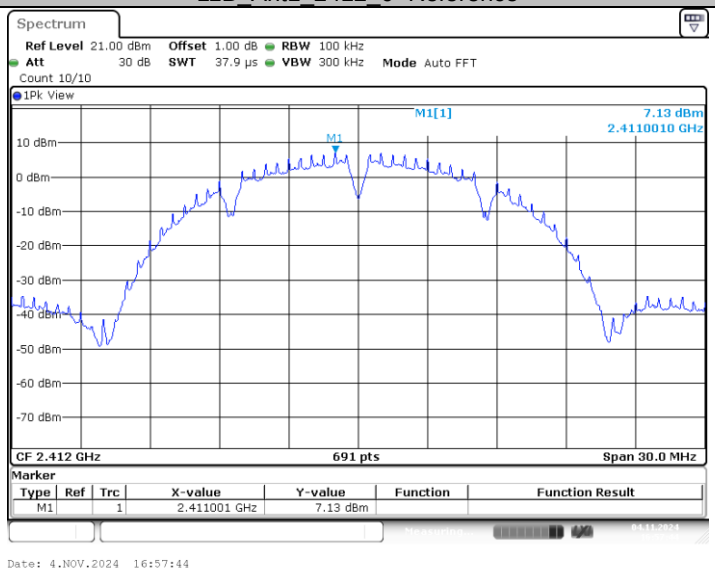
(2) Conducted Spurious Emissions Test

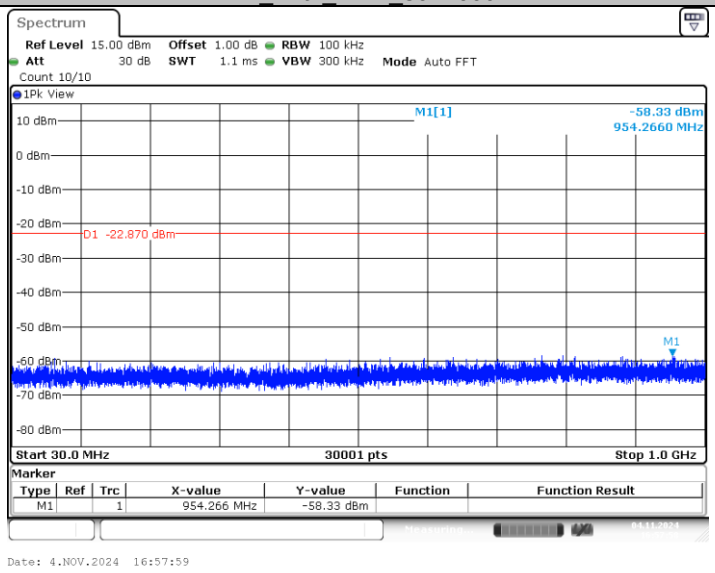
Test Mode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	7.13	7.13	---	PASS
			30~1000	7.13	-58.33	≤-22.87	PASS
			1000~26500	7.13	-48.46	≤-22.87	PASS
		2437	Reference	7.60	7.60	---	PASS
			30~1000	7.60	-58.72	≤-22.40	PASS
			1000~26500	7.60	-49.25	≤-22.40	PASS
		2462	Reference	7.03	7.03	---	PASS
			30~1000	7.03	-57.00	≤-22.97	PASS
			1000~26500	7.03	-49.83	≤-22.97	PASS
11G	Ant1	2412	Reference	5.44	5.44	---	PASS
			30~1000	5.44	-58.03	≤-24.56	PASS
			1000~26500	5.44	-50.87	≤-24.56	PASS
		2437	Reference	4.00	4.00	---	PASS
			30~1000	4.00	-57.55	≤-26.00	PASS
			1000~26500	4.00	-51.23	≤-26.00	PASS
		2462	Reference	4.02	4.02	---	PASS
			30~1000	4.02	-58.20	≤-25.98	PASS
			1000~26500	4.02	-51.02	≤-25.98	PASS
11N20SISO	Ant1	2412	Reference	4.32	4.32	---	PASS
			30~1000	4.32	-58.01	≤-25.68	PASS
			1000~26500	4.32	-51.35	≤-25.68	PASS
		2437	Reference	3.36	3.36	---	PASS
			30~1000	3.36	-57.84	≤-26.64	PASS
			1000~26500	3.36	-50.53	≤-26.64	PASS
		2462	Reference	3.87	3.87	---	PASS
			30~1000	3.87	-58.65	≤-26.13	PASS
			1000~26500	3.87	-50.00	≤-26.13	PASS
11N40SISO	Ant1	2422	Reference	1.23	1.23	---	PASS
			30~1000	1.23	-57.11	≤-28.77	PASS
			1000~26500	1.23	-50.73	≤-28.77	PASS
		2437	Reference	0.39	0.39	---	PASS
			30~1000	0.39	-57.52	≤-29.61	PASS
			1000~26500	0.39	-50.19	≤-29.61	PASS
		2452	Reference	0.51	0.51	---	PASS
			30~1000	0.51	-56.72	≤-29.49	PASS
			1000~26500	0.51	-49.42	≤-29.49	PASS

Test plot as follows:

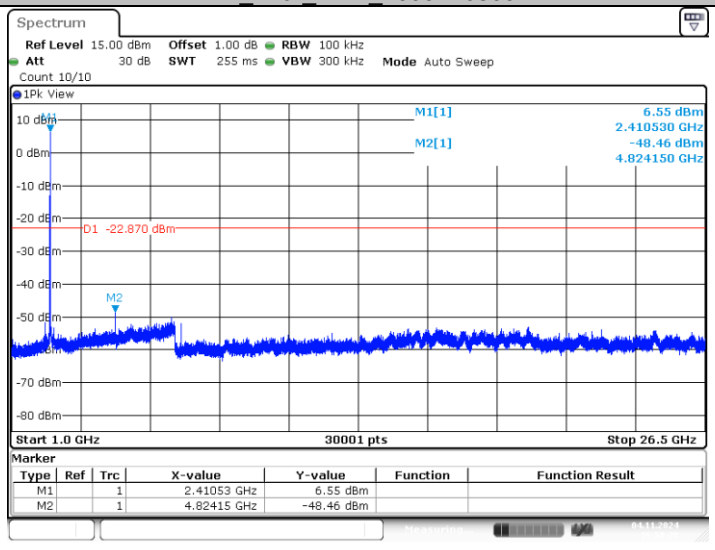
11B_Ant1_2412_0~Reference



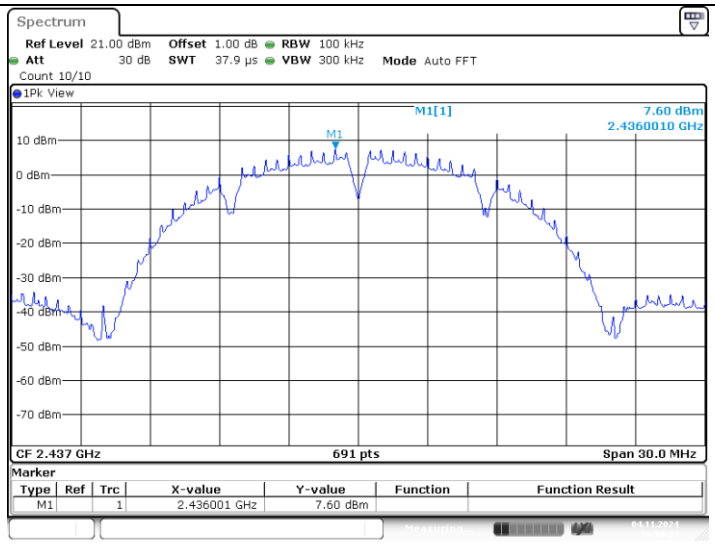
11B_Ant1_2412_30~1000



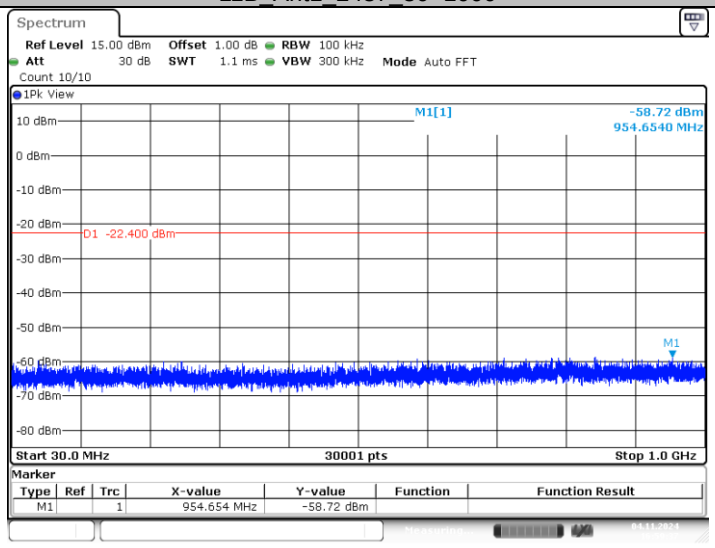
11B_Ant1_2412_1000~26500



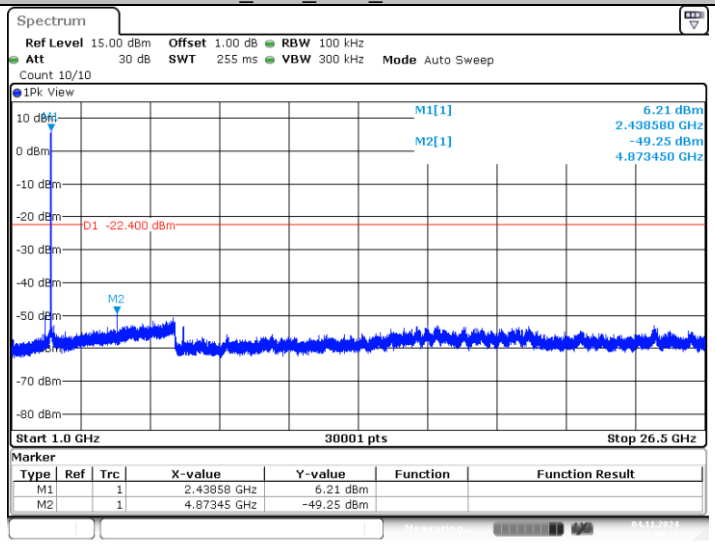
11B_Ant1_2437_0~Reference



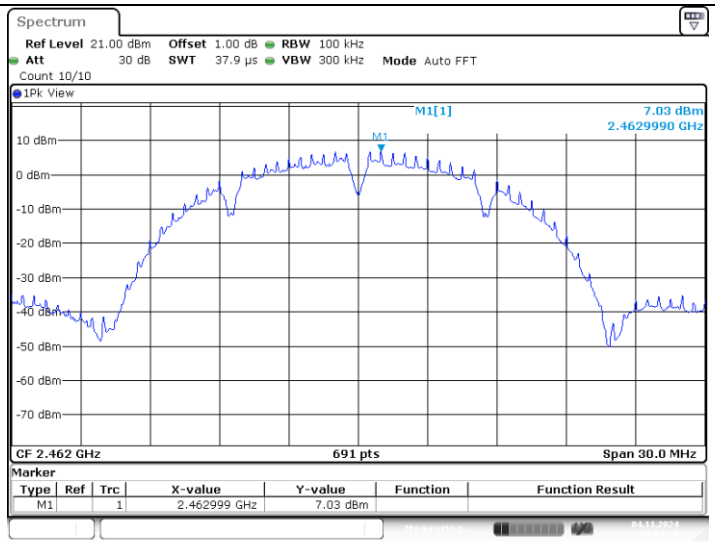
11B_Ant1_2437_30~1000



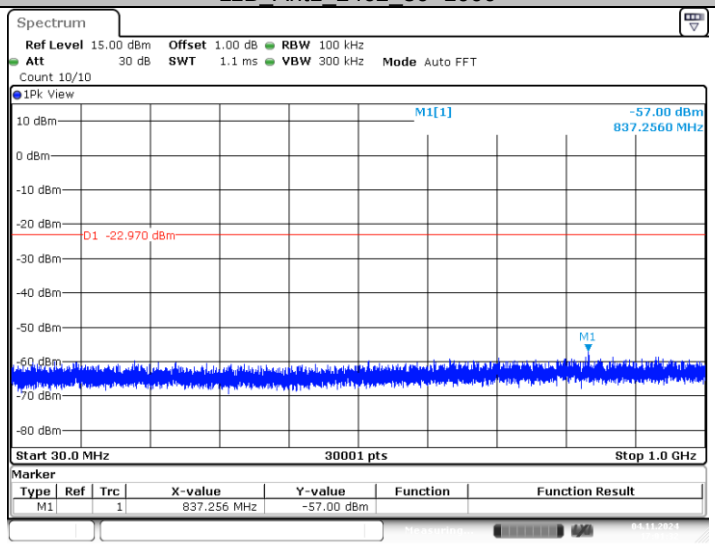
11B_Ant1_2437_1000~26500



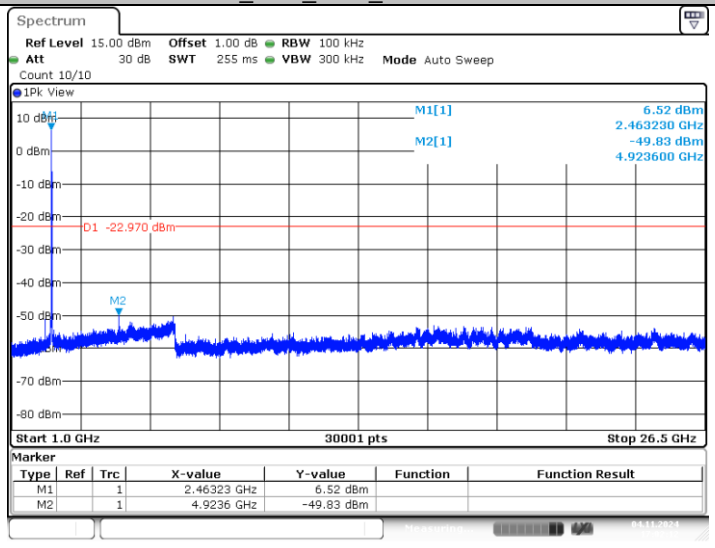
11B_Ant1_2462_0~Reference



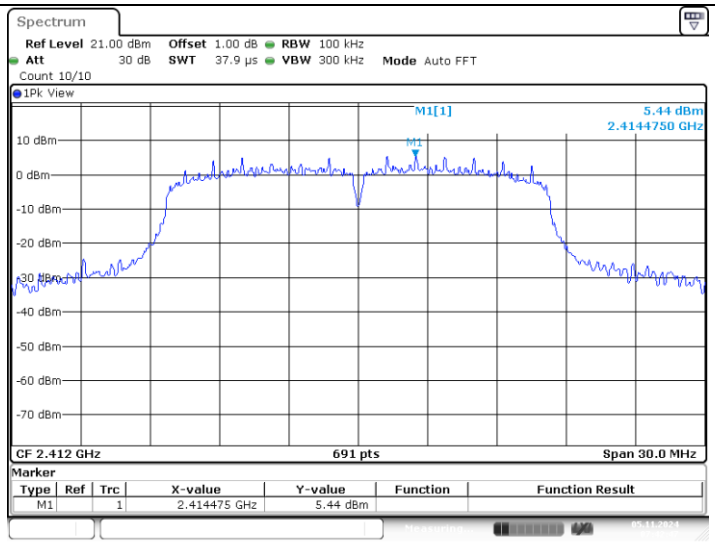
11B_Ant1_2462_30~1000



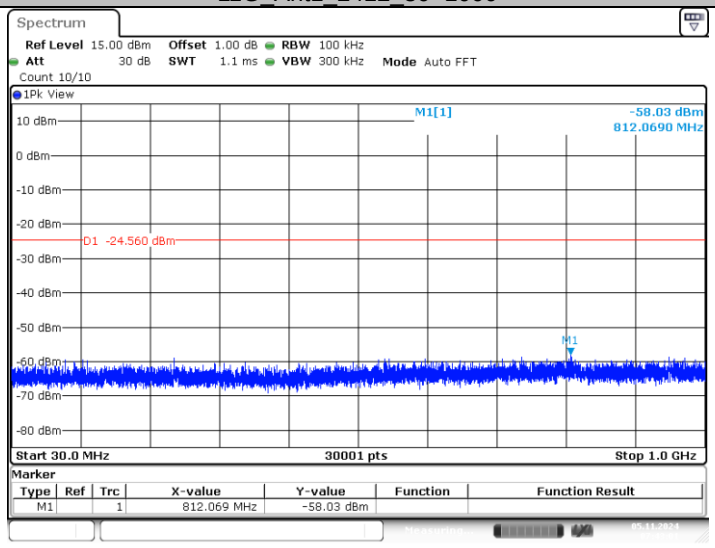
11B_Ant1_2462_1000~26500



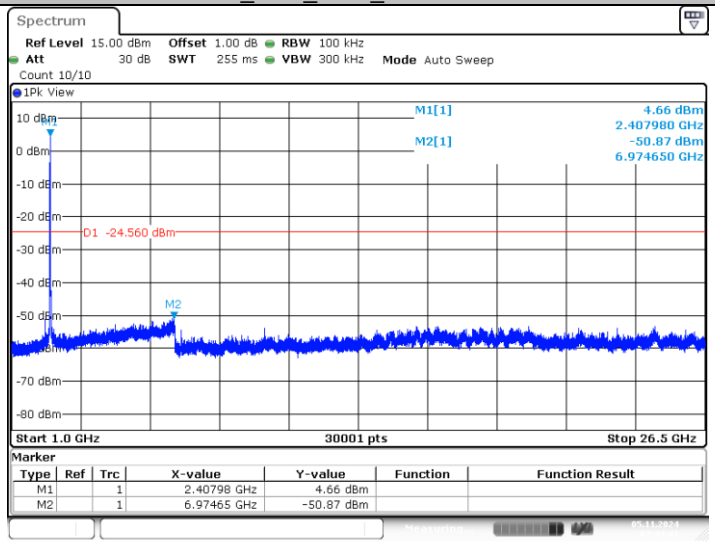
11G_Ant1_2412_0~Reference



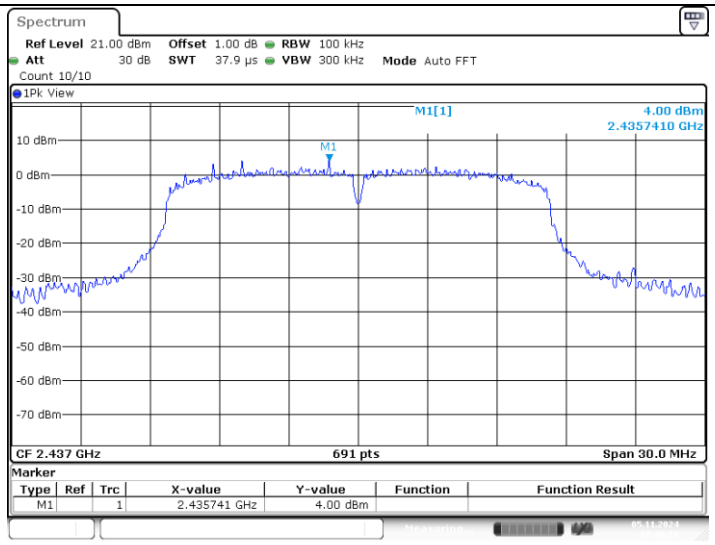
11G_Ant1_2412_30~1000



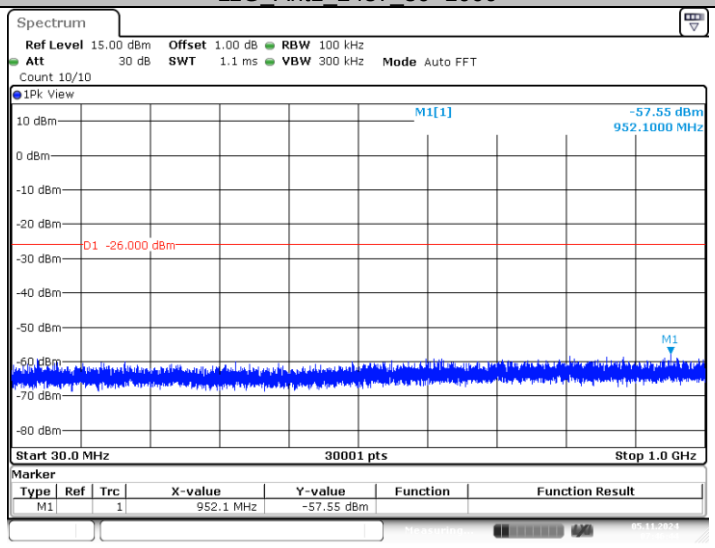
11G_Ant1_2412_1000~26500



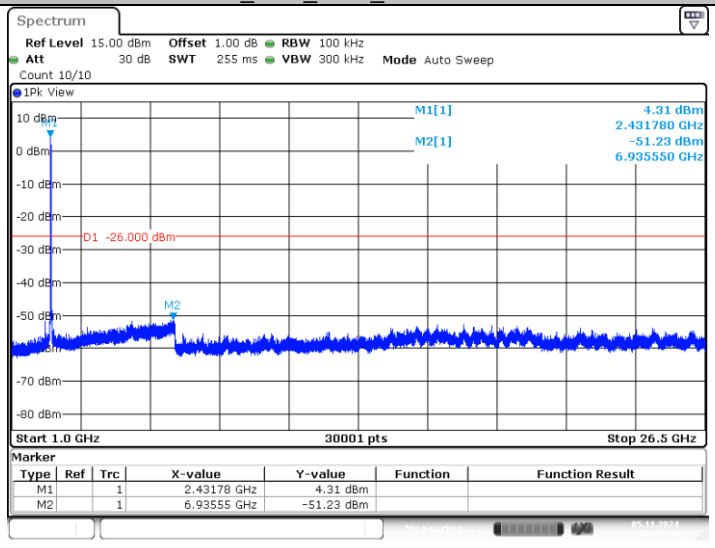
11G_Ant1_2437_0~Reference



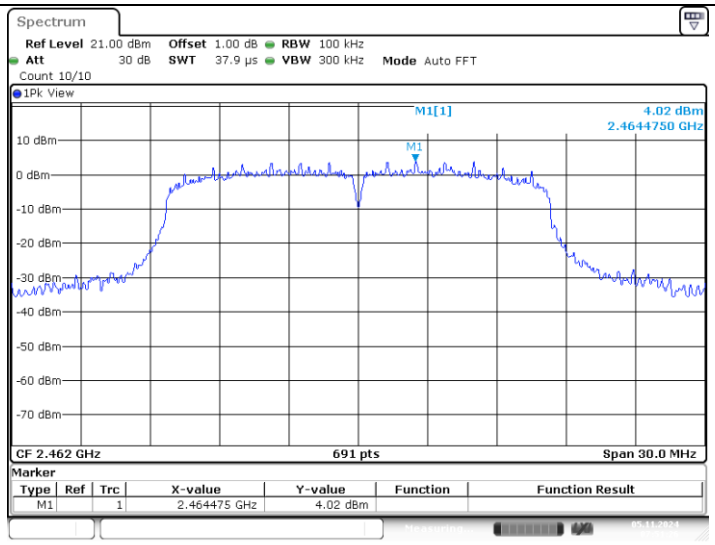
11G_Ant1_2437_30~1000



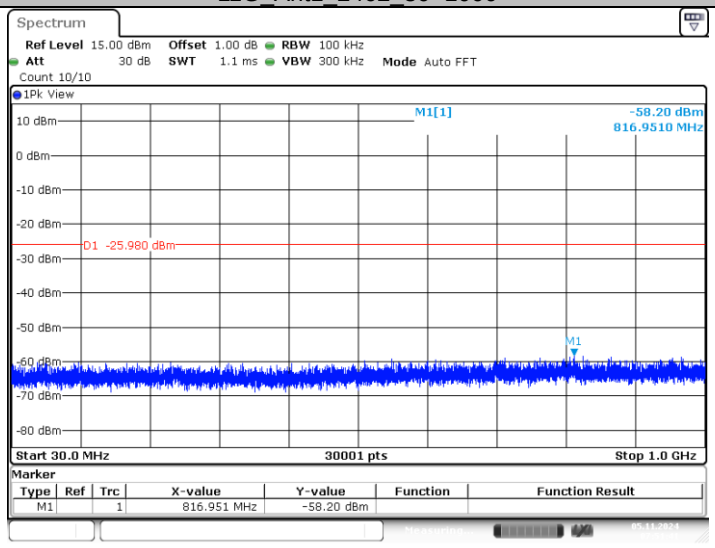
11G_Ant1_2437_1000~26500



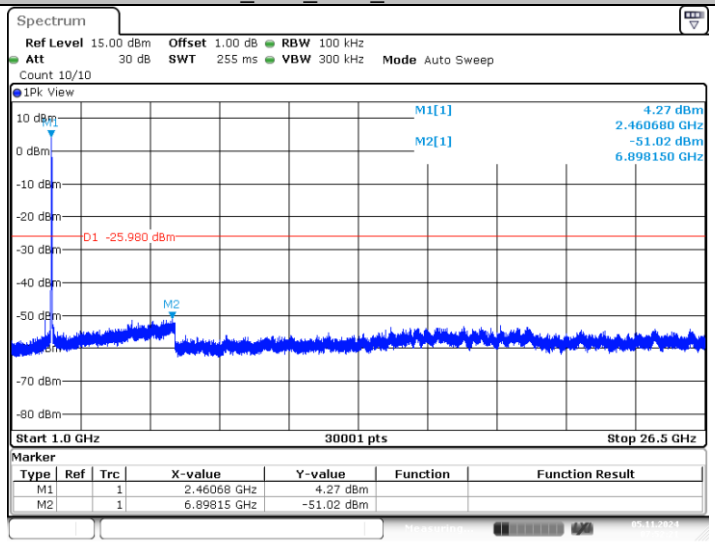
11G_Ant1_2462_0~Reference



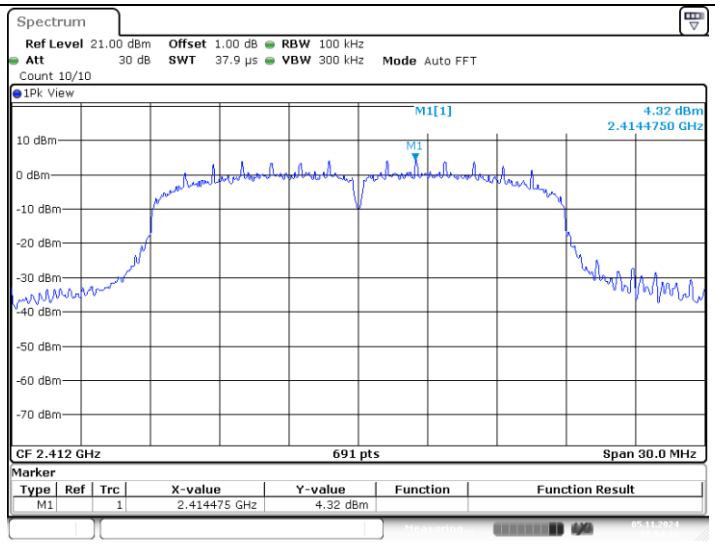
11G_Ant1_2462_30~1000



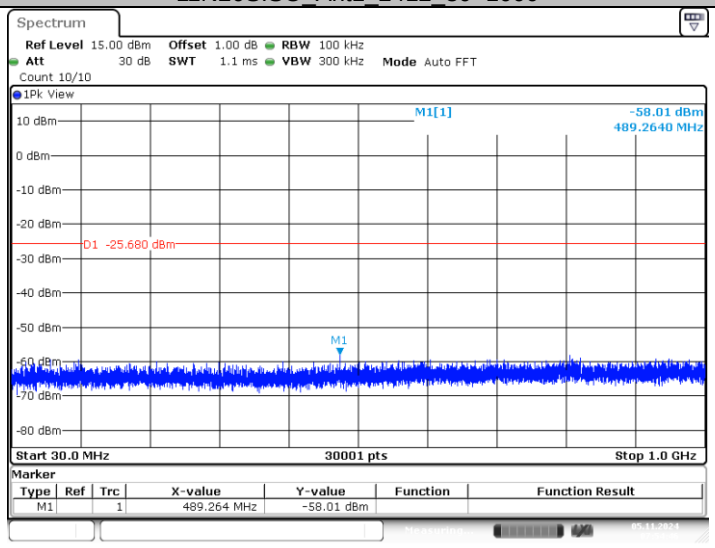
11G_Ant1_2462_1000~26500



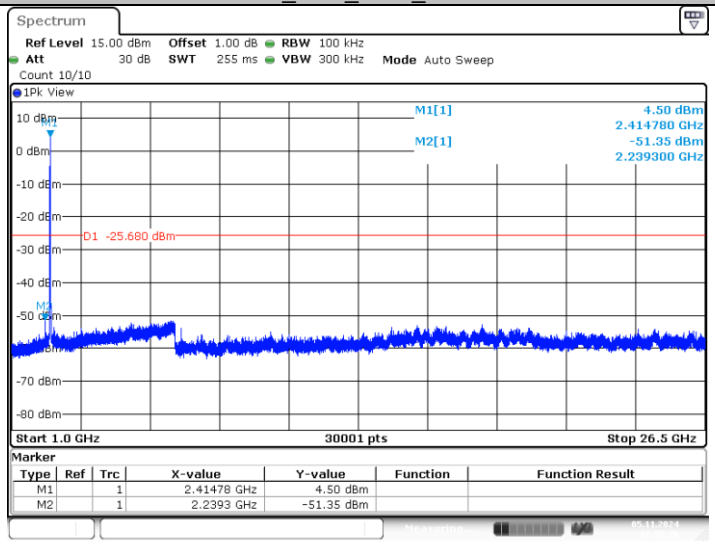
11N20SISO_Ant1_2412_0~Reference



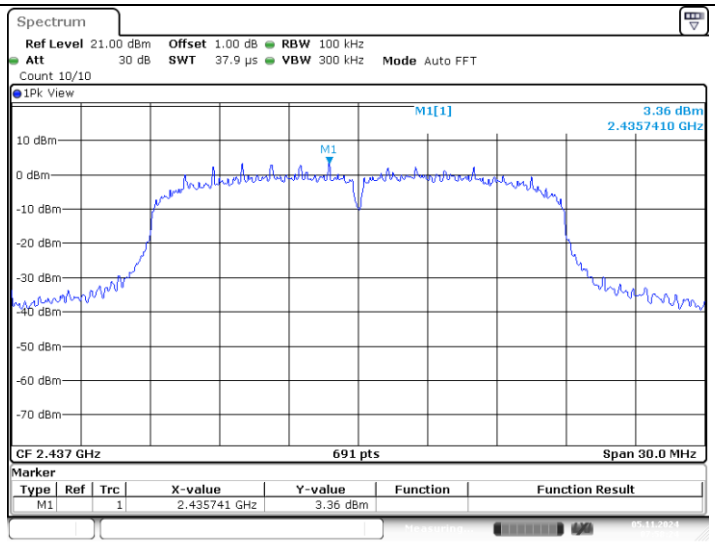
11N20SISO_Ant1_2412_30~1000



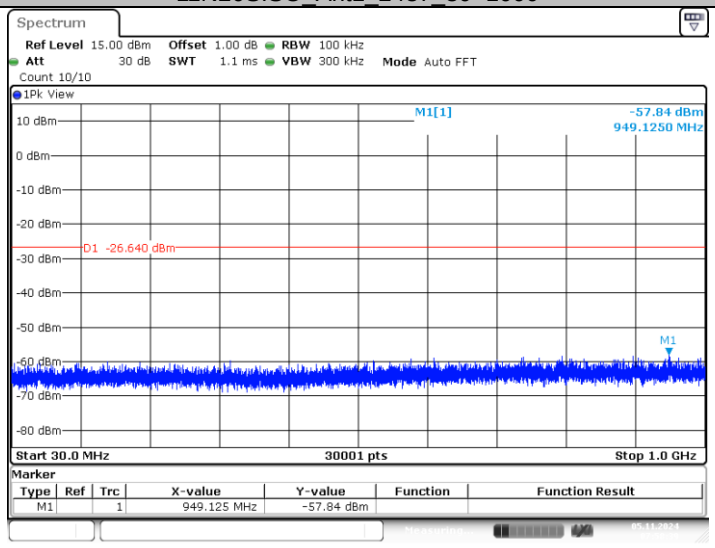
11N20SISO_Ant1_2412_1000~26500



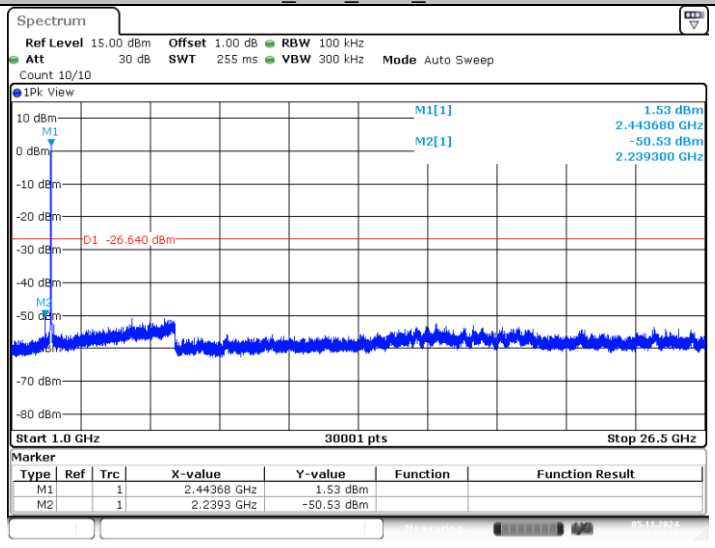
11N20SISO_Ant1_2437_0~Reference



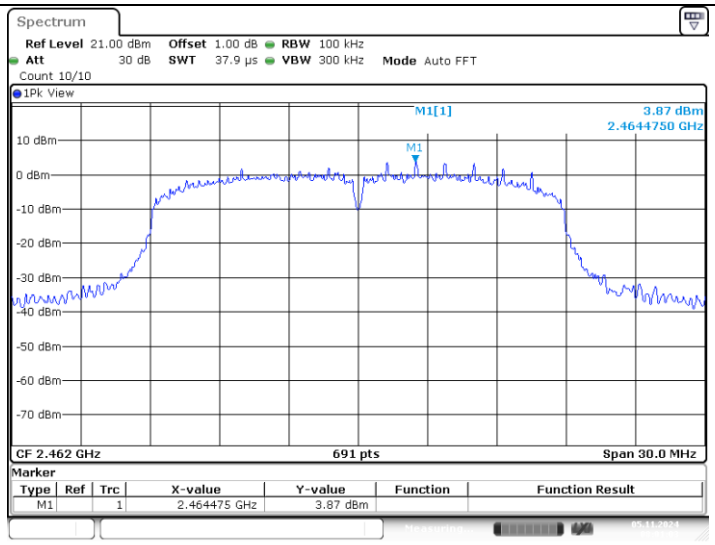
11N20SISO_Ant1_2437_30~1000



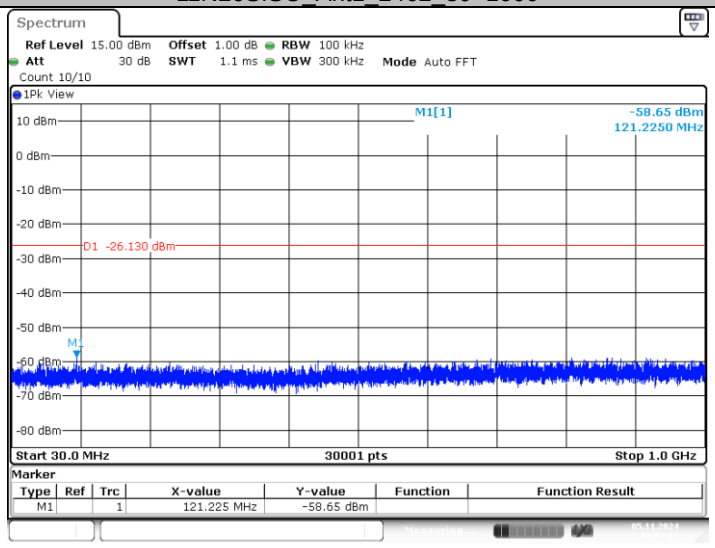
11N20SISO_Ant1_2437_1000~26500



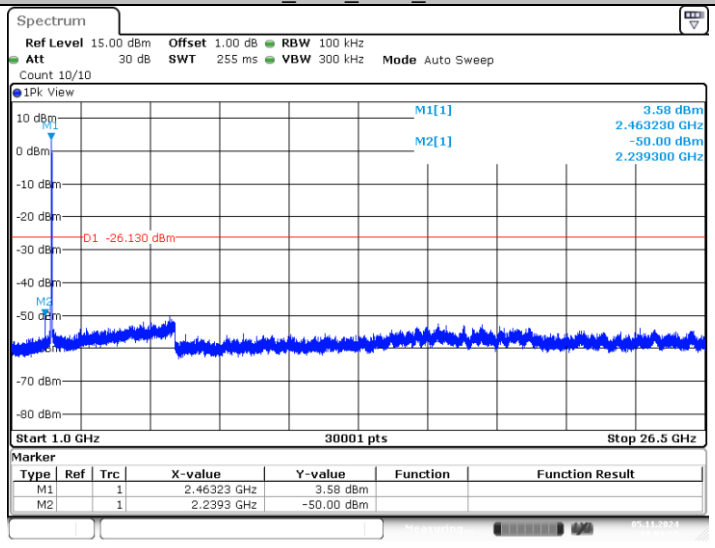
11N20SISO_Ant1_2462_0~Reference



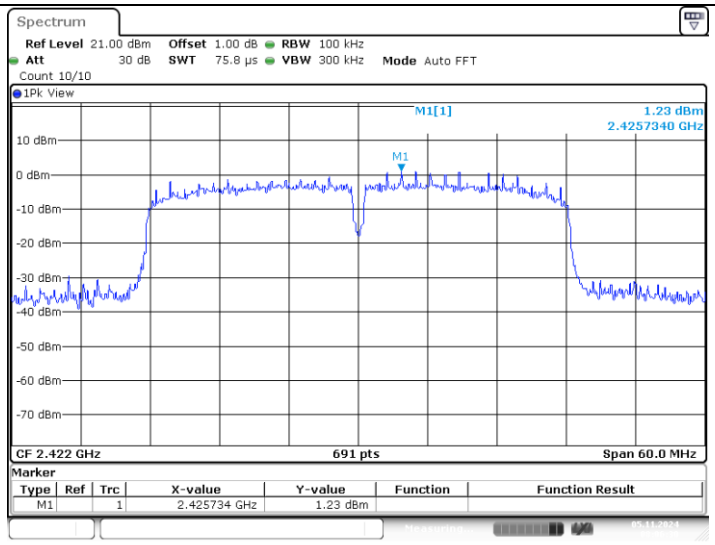
11N20SISO_Ant1_2462_30~1000



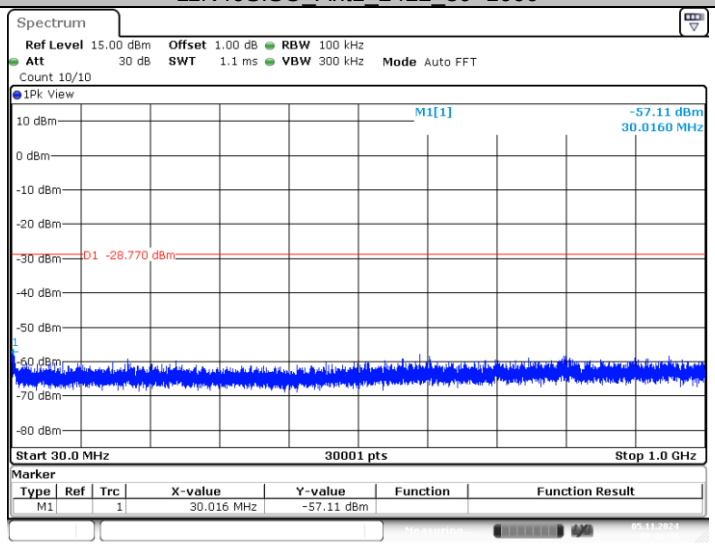
11N20SISO_Ant1_2462_1000~26500



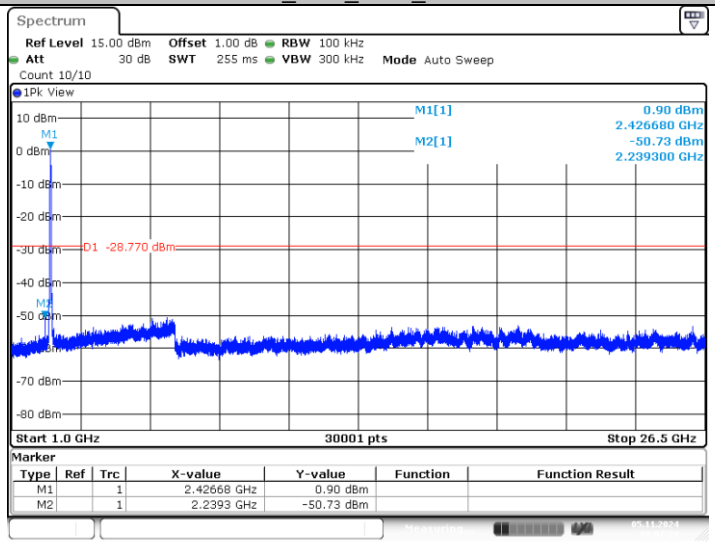
11N40SISO_Ant1_2422_0~Reference



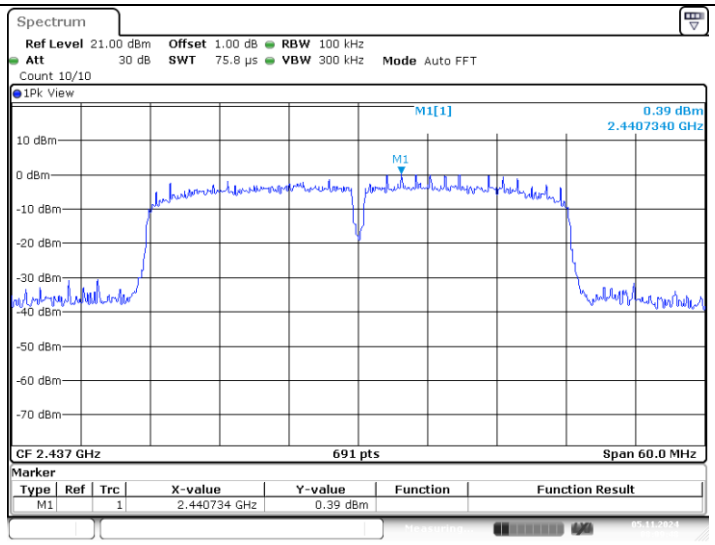
11N40SISO_Ant1_2422_30~1000



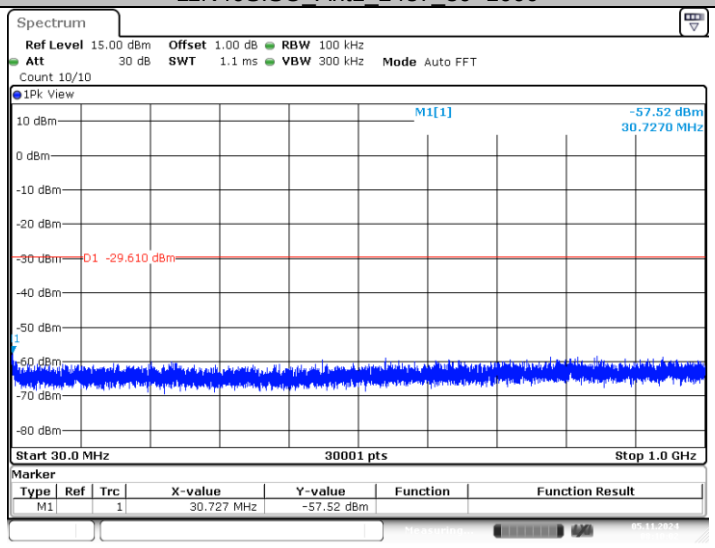
11N40SISO_Ant1_2422_1000~26500



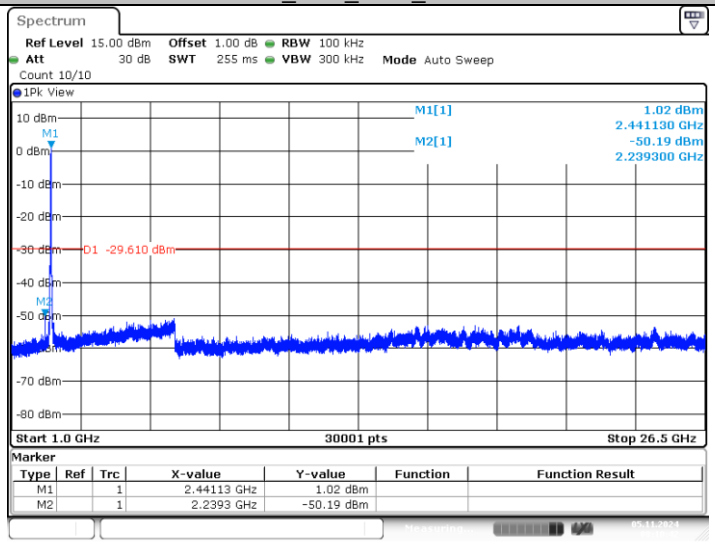
11N40SISO_Ant1_2437_0~Reference



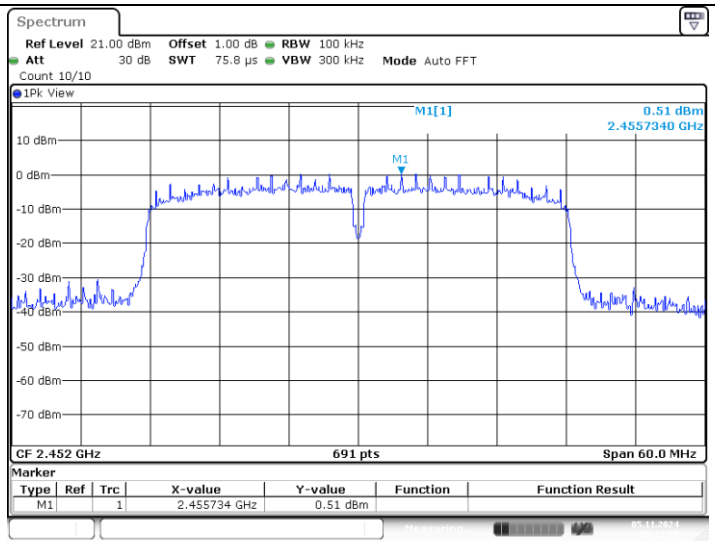
11N40SISO_Ant1_2437_30~1000



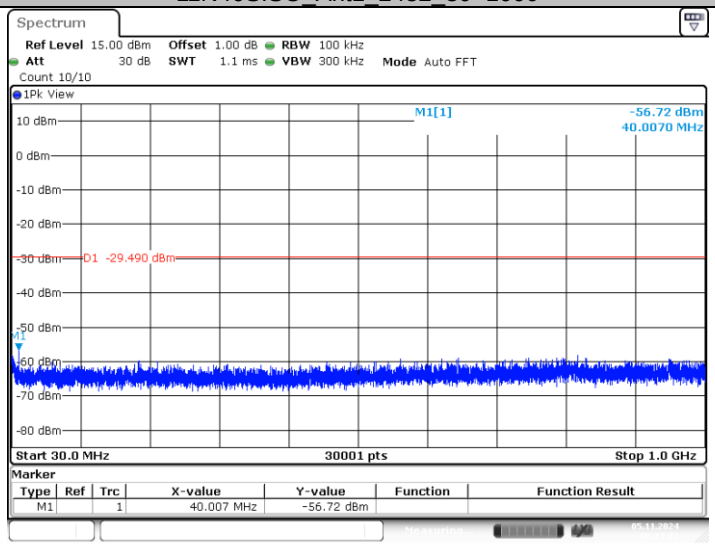
11N40SISO_Ant1_2437_1000~26500



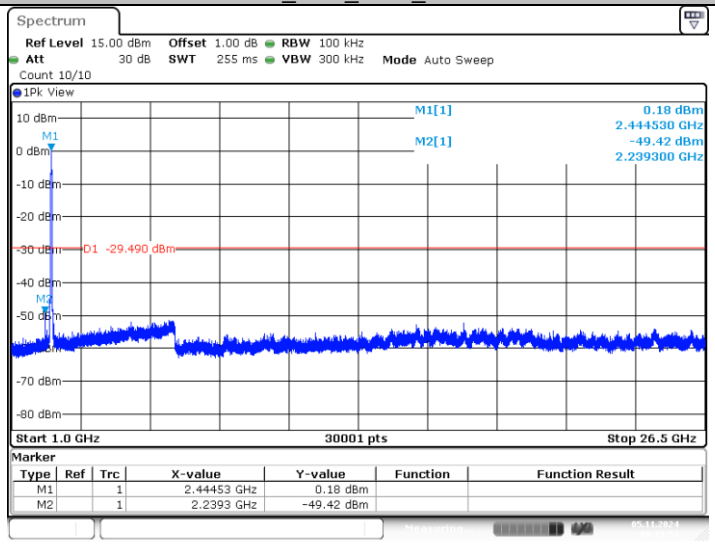
11N40SISO_Ant1_2452_0~Reference



11N40SISO_Ant1_2452_30~1000



11N40SISO_Ant1_2452_1000~26500



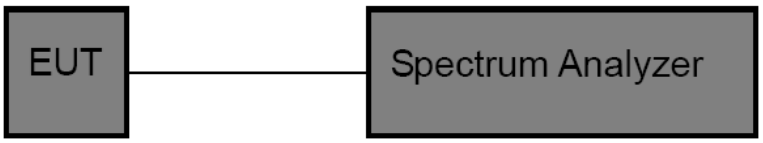
3.5. DTS Bandwidth

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

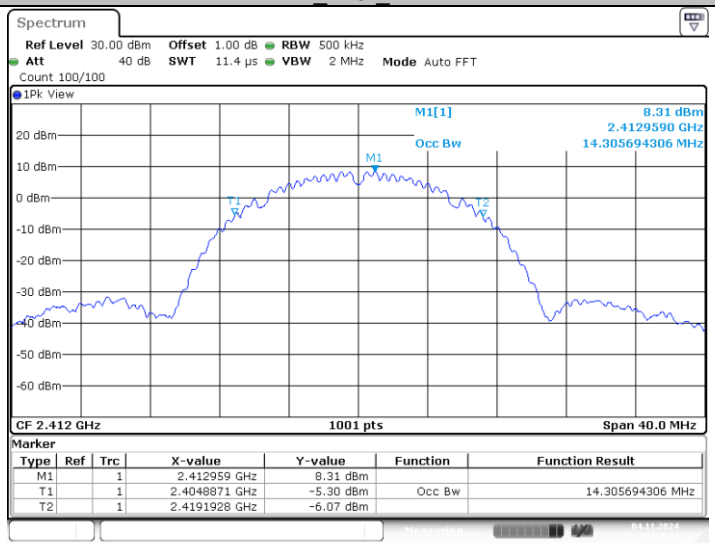
Please refer to the clause 2.4.

Test Result

Test Mode	Antenna	Frequency[MHz]	99% Bandwidth [MHz]	DTS Bandwidth [MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.306	9.08	0.5	PASS
		2437	14.306	10.00	0.5	PASS
		2462	14.306	10.04	0.5	PASS
11G	Ant1	2412	16.384	15.08	0.5	PASS
		2437	16.304	14.04	0.5	PASS
		2462	16.344	16.28	0.5	PASS
11N20SISO	Ant1	2412	17.263	13.88	0.5	PASS
		2437	17.343	16.32	0.5	PASS
		2462	17.383	13.84	0.5	PASS
11N40SISO	Ant1	2422	35.485	32.64	0.5	PASS
		2437	35.644	33.84	0.5	PASS
		2452	35.644	32.96	0.5	PASS

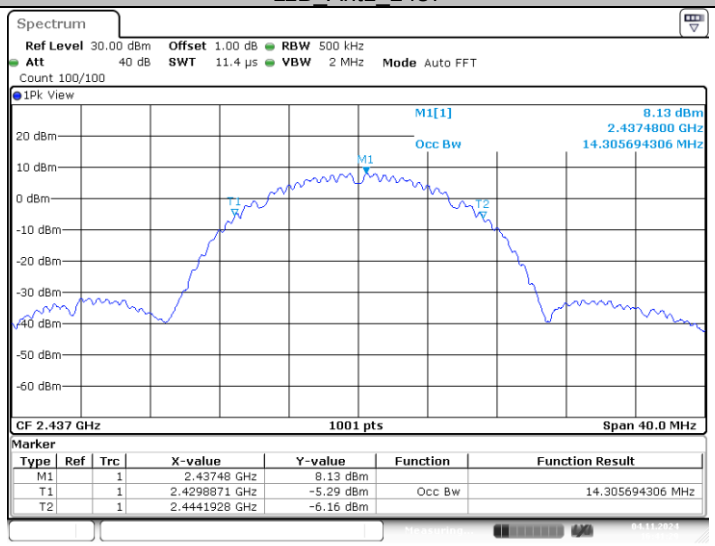
99% Bandwidth:

11B_Ant1_2412



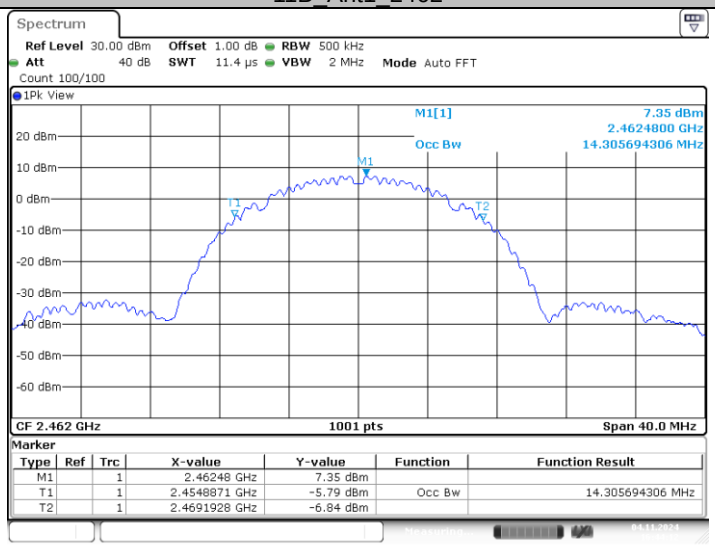
Date: 4.NOV.2024 16:37:33

11B_Ant1_2437



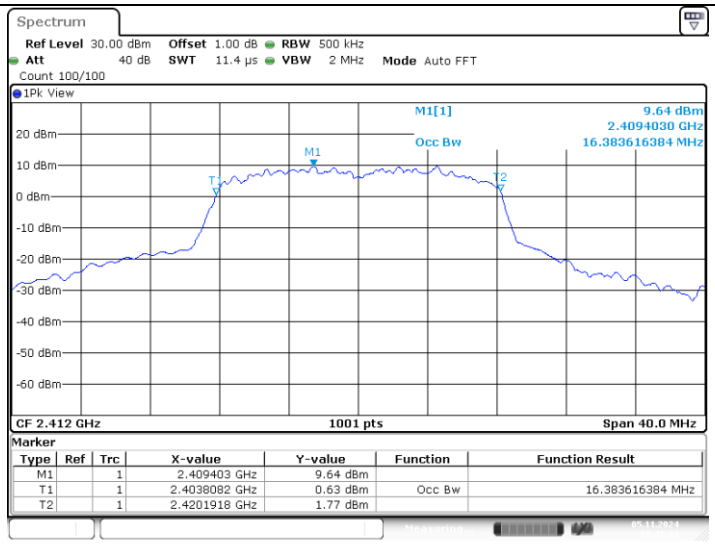
Date: 4.NOV.2024 16:41:28

11B_Ant1_2462

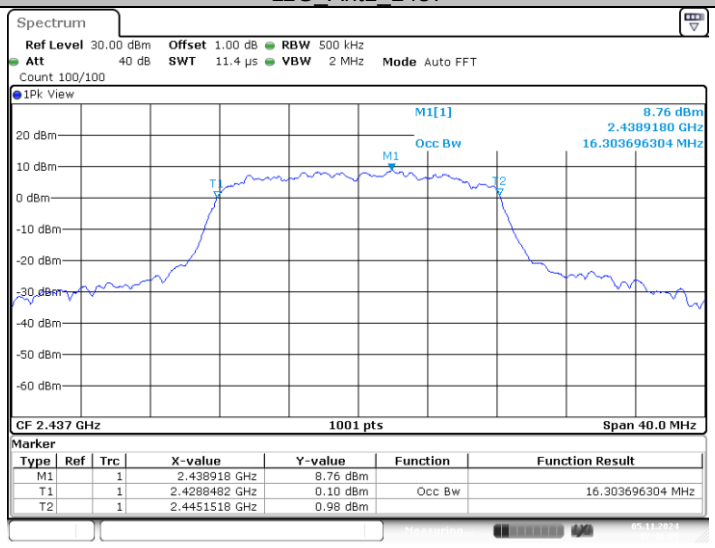


Date: 4.NOV.2024 16:44:12

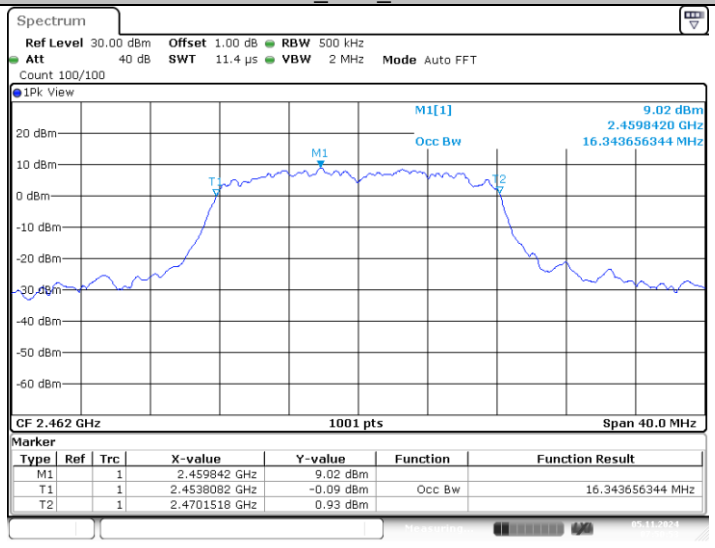
11G_Ant1_2412



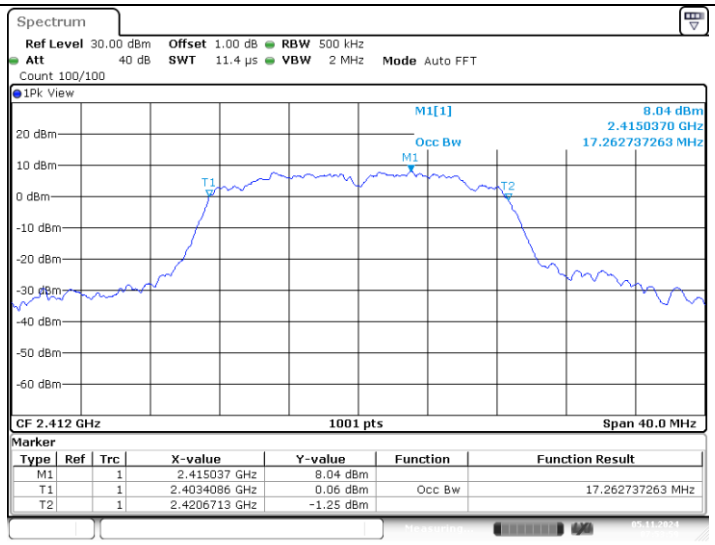
11G_Ant1_2437



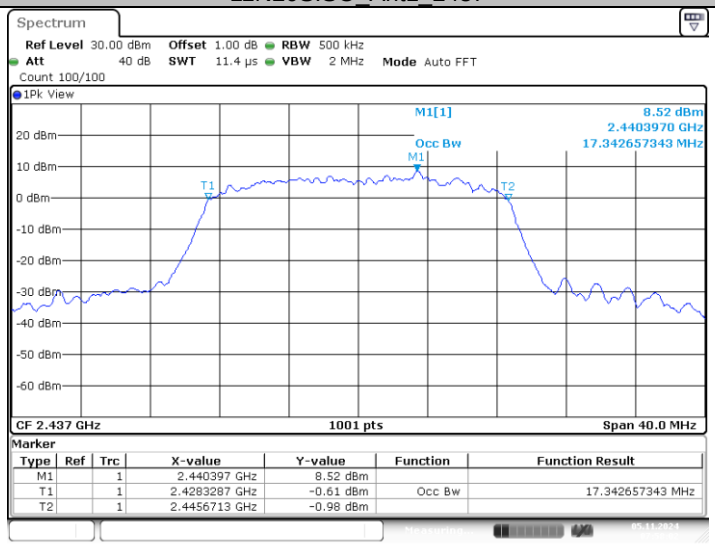
11G_Ant1_2462



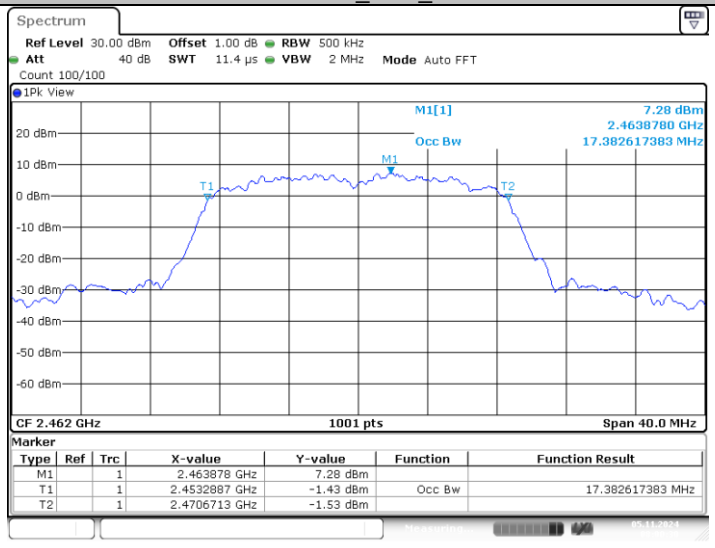
11N20SISO_Ant1_2412



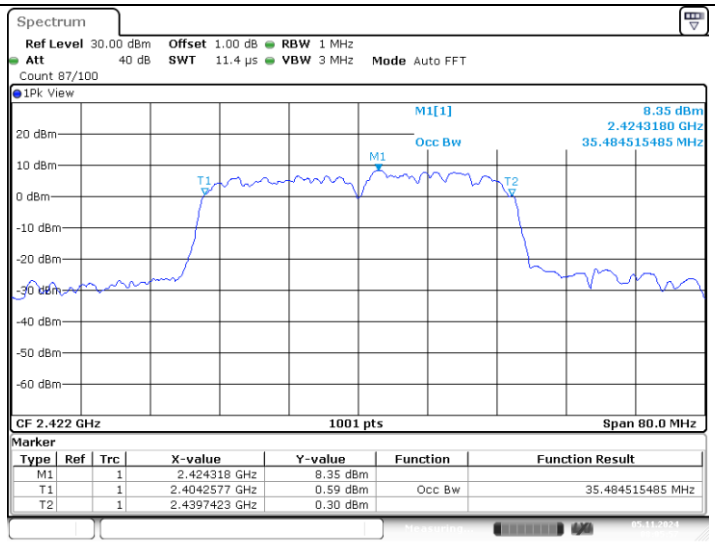
11N20SISO_Ant1_2437



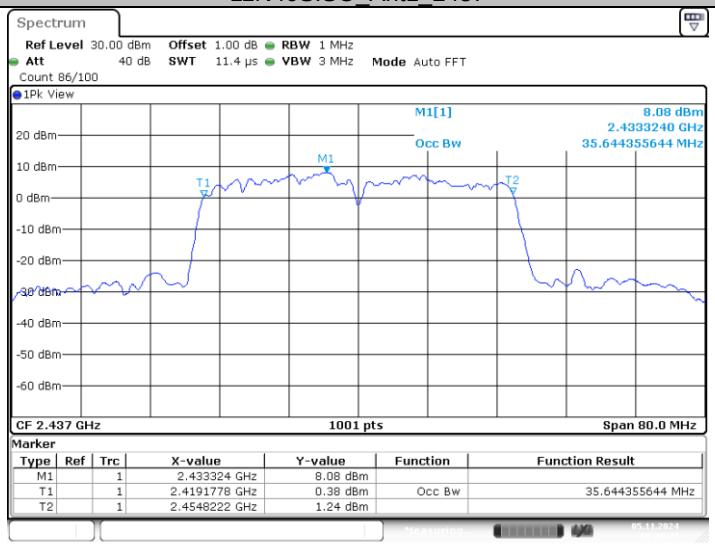
11N20SISO_Ant1_2462



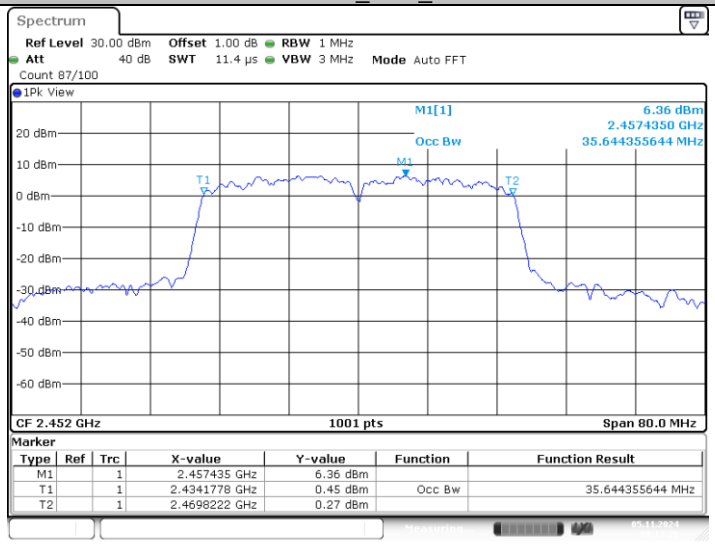
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437

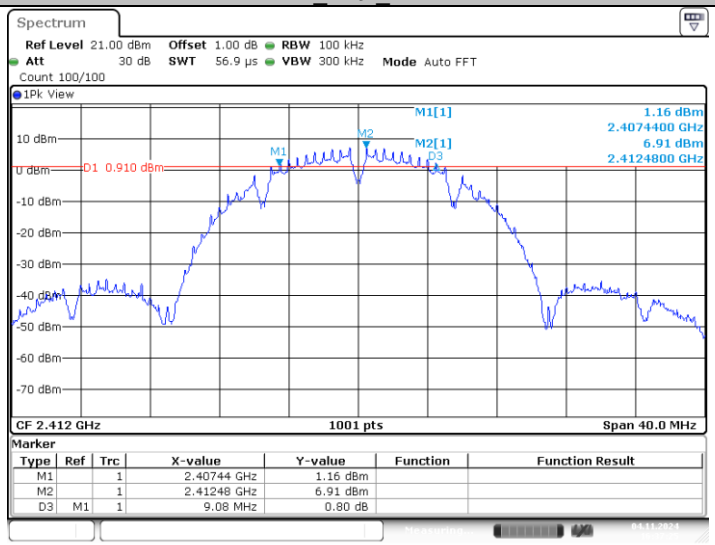


11N40SISO_Ant1_2452



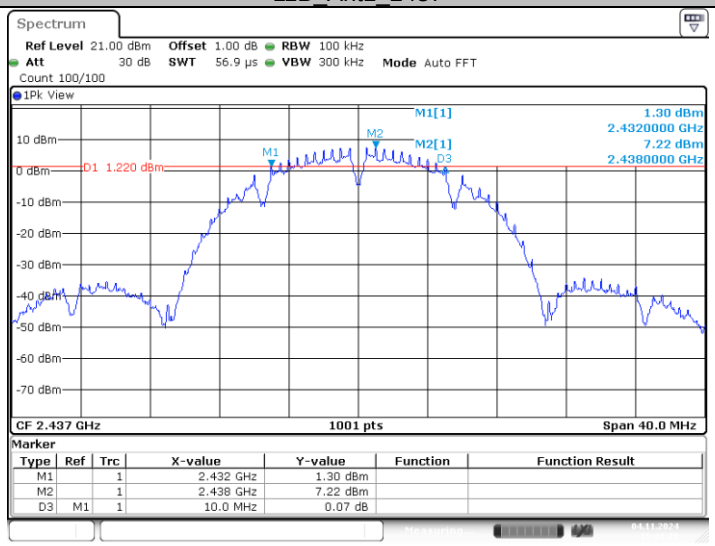
DTS Bandwidth:

11B_Ant1_2412



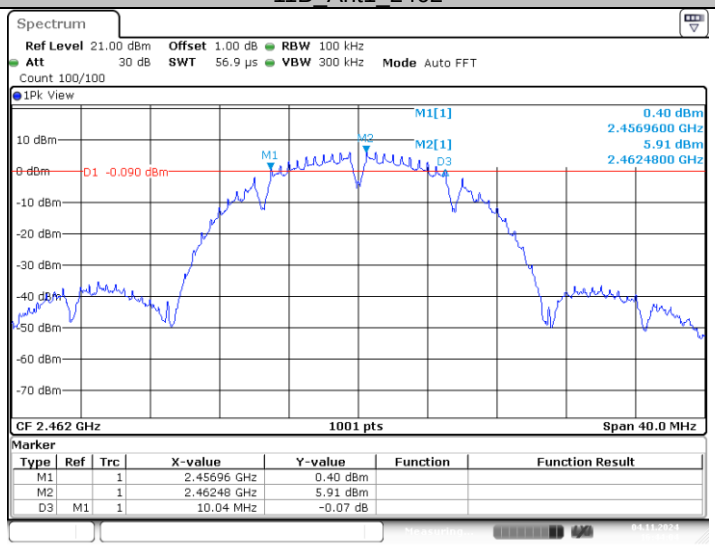
Date: 4.NOV.2024 16:37:24

11B_Ant1_2437



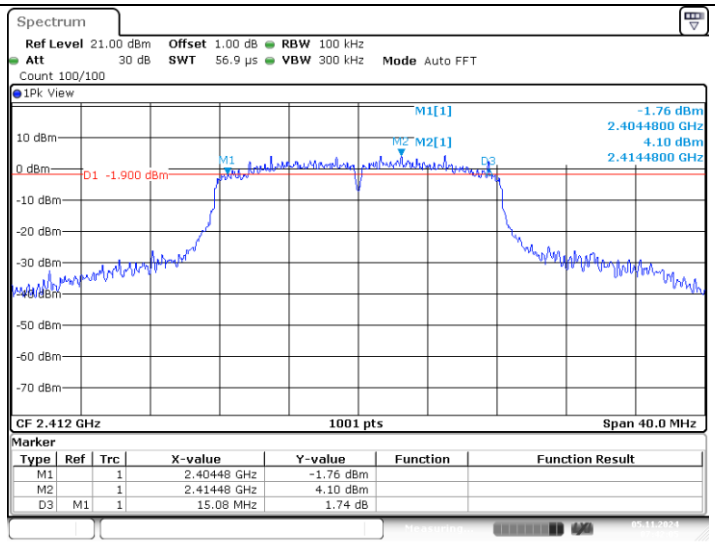
Date: 4.NOV.2024 16:41:20

11B_Ant1_2462

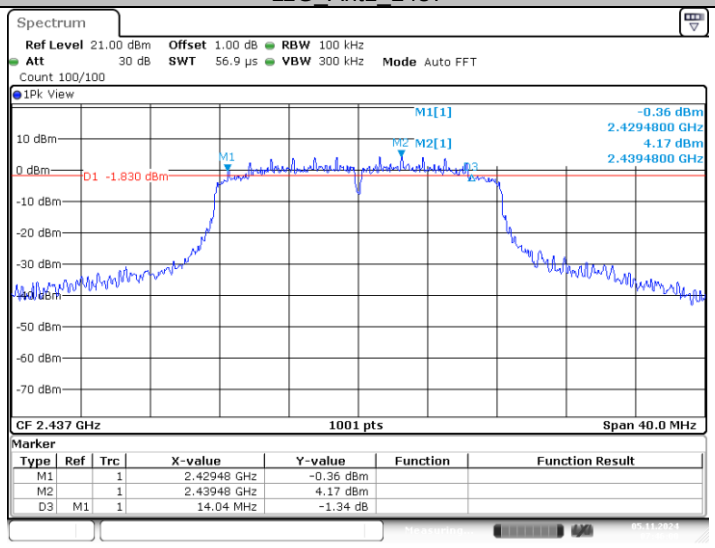


Date: 4.NOV.2024 16:44:04

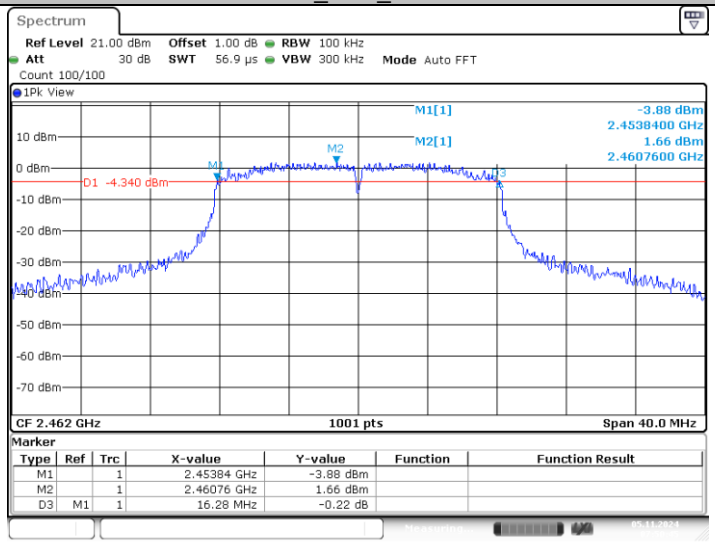
11G_Ant1_2412



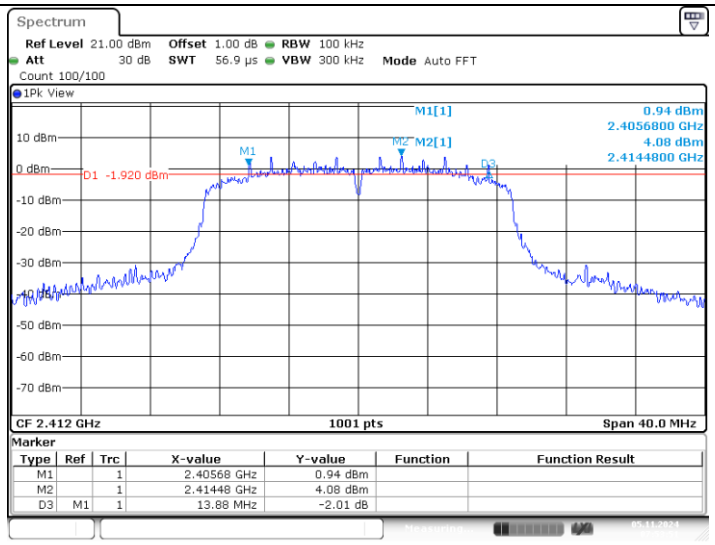
11G_Ant1_2437



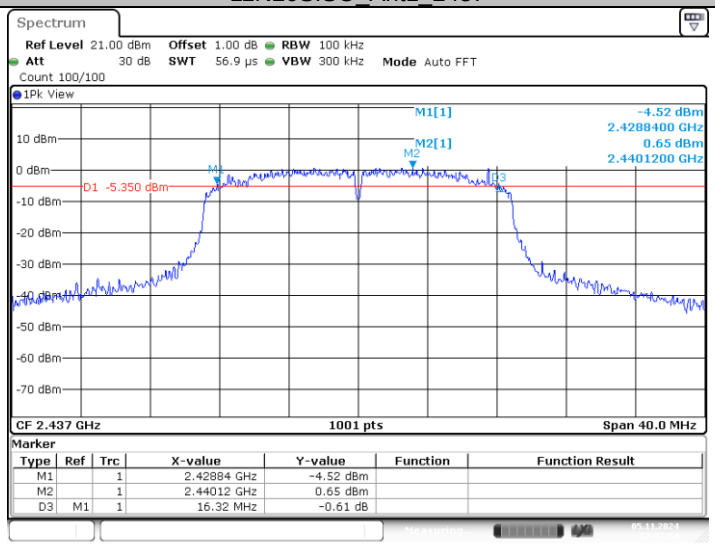
11G_Ant1_2462



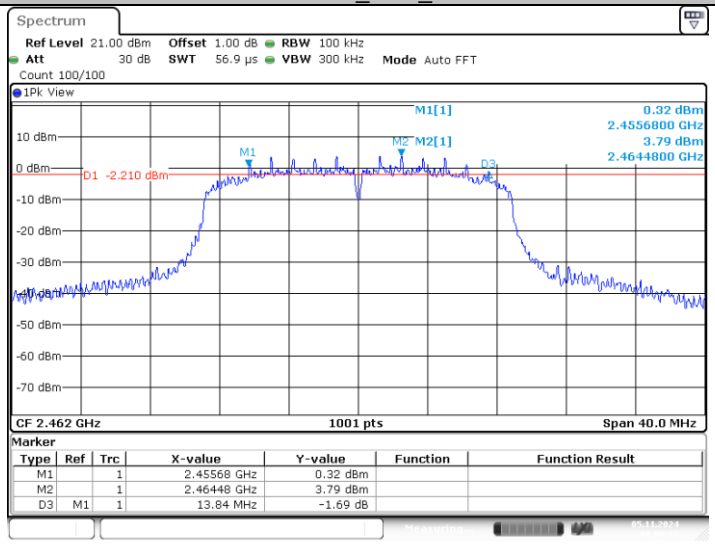
11N20SISO_Ant1_2412



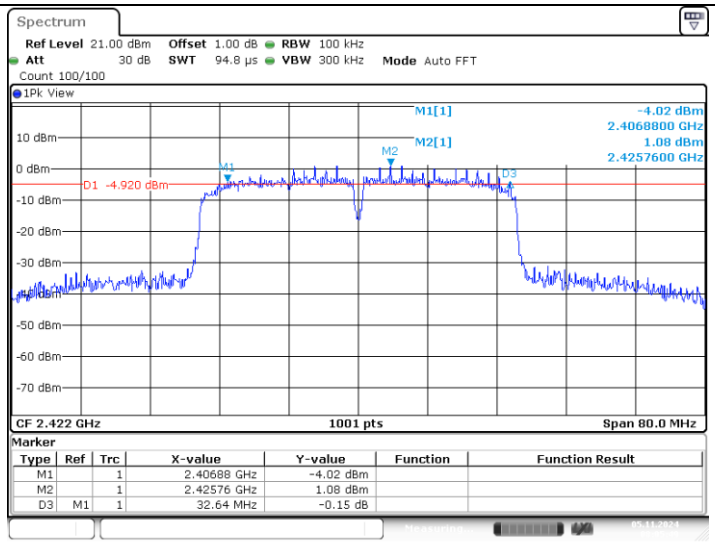
11N20SISO_Ant1_2437



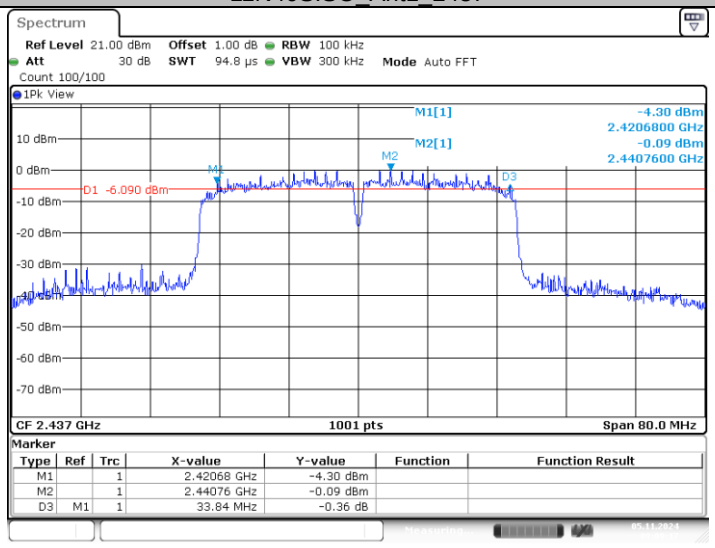
11N20SISO_Ant1_2462



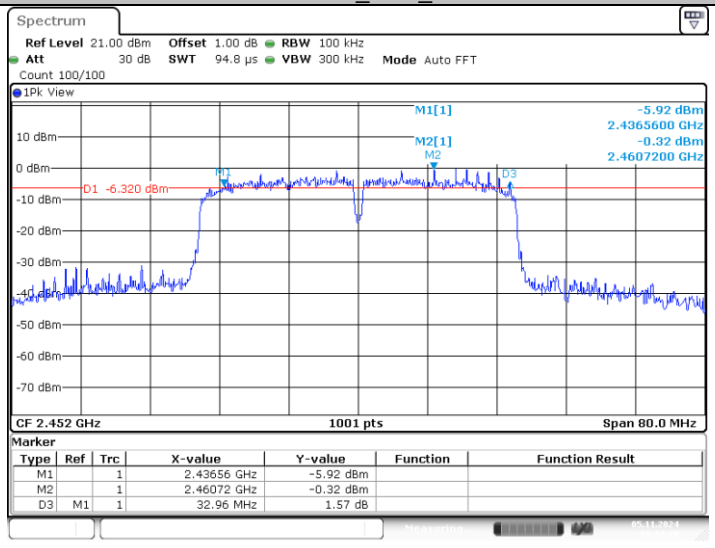
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



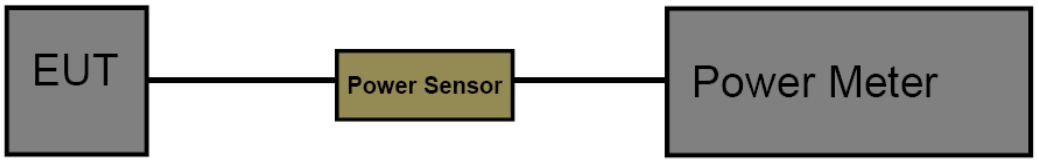
3.6. Peak Output Power

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	Maximum Conducted Output Power	1 Watt or 30dBm	2400~2483.5
	EIRP	4 Watt or 36dBm	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 AVG 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	Freq(MHz)	Average Output Power[dBm]	Average Power Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
11B	2412	17.483	≤30	19.883	≤36	PASS
	2437	17.866	≤30	20.266	≤36	PASS
	2462	17.434	≤30	19.834	≤36	PASS
11G	2412	16.893	≤30	19.293	≤36	PASS
	2437	16.119	≤30	18.519	≤36	PASS
	2462	16.543	≤30	18.943	≤36	PASS
11N20SISO	2412	15.679	≤30	18.079	≤36	PASS
	2437	15.279	≤30	17.679	≤36	PASS
	2462	15.397	≤30	17.797	≤36	PASS
11N40SISO	2422	15.899	≤30	18.299	≤36	PASS
	2437	15.535	≤30	17.935	≤36	PASS
	2452	15.596	≤30	17.996	≤36	PASS

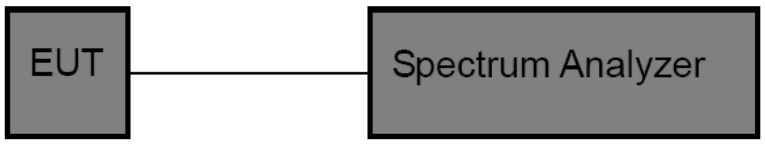
3.7. Power Spectral Density

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 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.

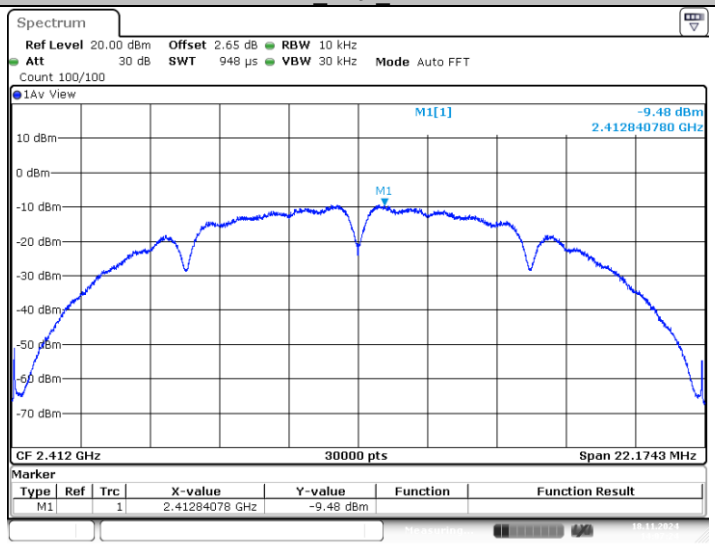
Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-9.48	≤8.00	PASS
		2437	-10.05	≤8.00	PASS
		2462	-10.72	≤8.00	PASS
11G	Ant1	2412	-11.50	≤8.00	PASS
		2437	-12.16	≤8.00	PASS
		2462	-11.96	≤8.00	PASS
11N20SISO	Ant1	2412	-12.71	≤8.00	PASS
		2437	-12.16	≤8.00	PASS
		2462	-13.60	≤8.00	PASS
11N40SISO	Ant1	2422	-14.09	≤8.00	PASS
		2437	-14.68	≤8.00	PASS
		2452	-15.91	≤8.00	PASS

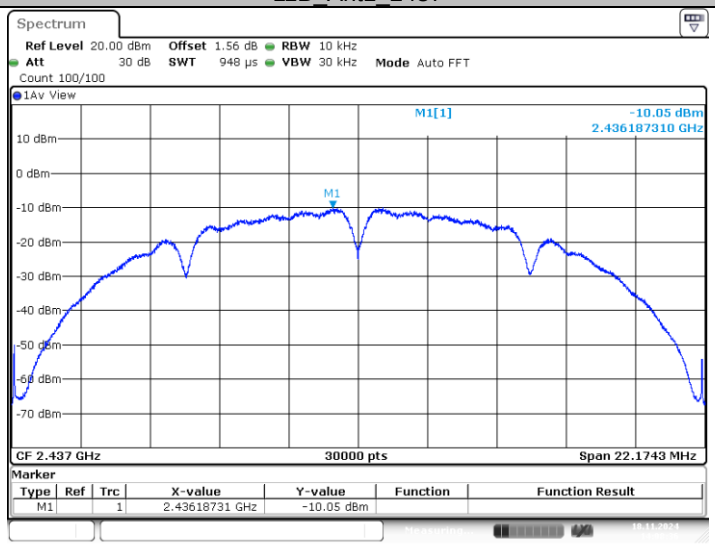
Note: The Power Spectral Density test results include duty cycle factor.

Test plot as follows:

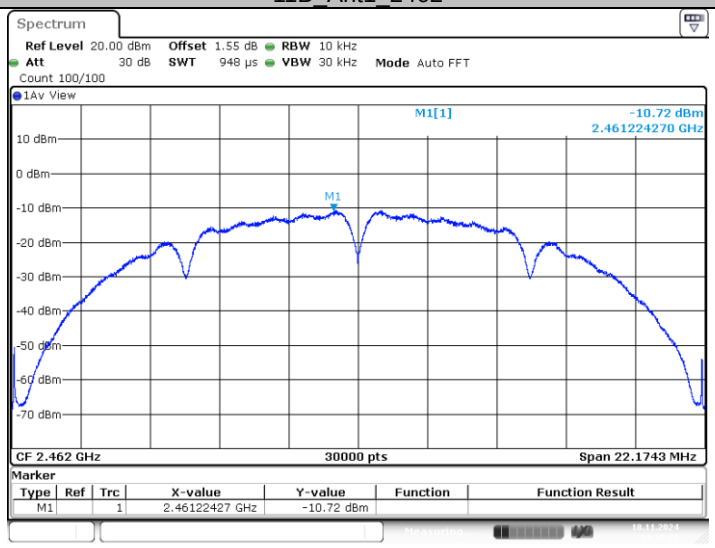
11B_Ant1_2412



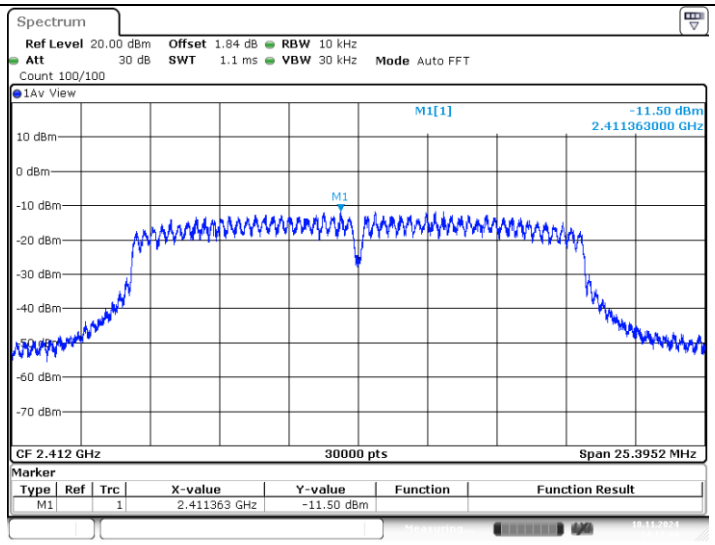
11B_Ant1_2437



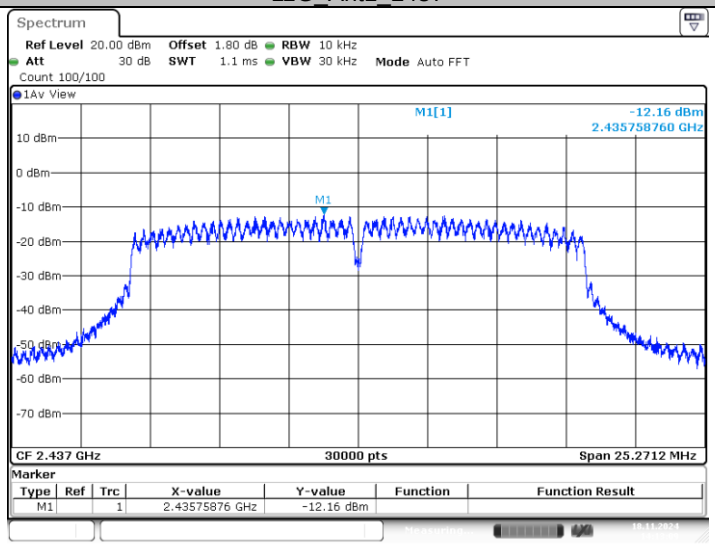
11B_Ant1_2462



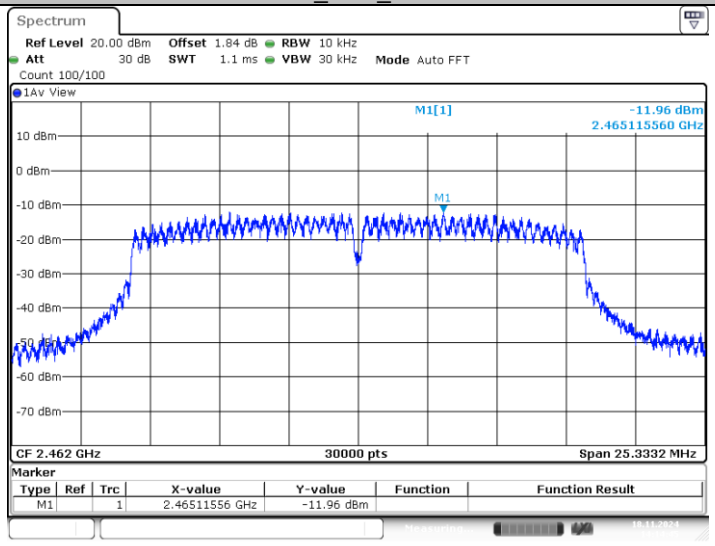
11G_Ant1_2412



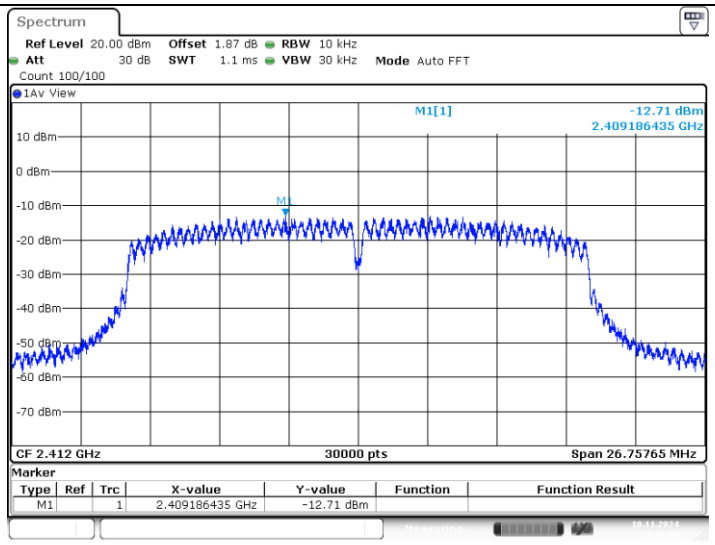
11G_Ant1_2437



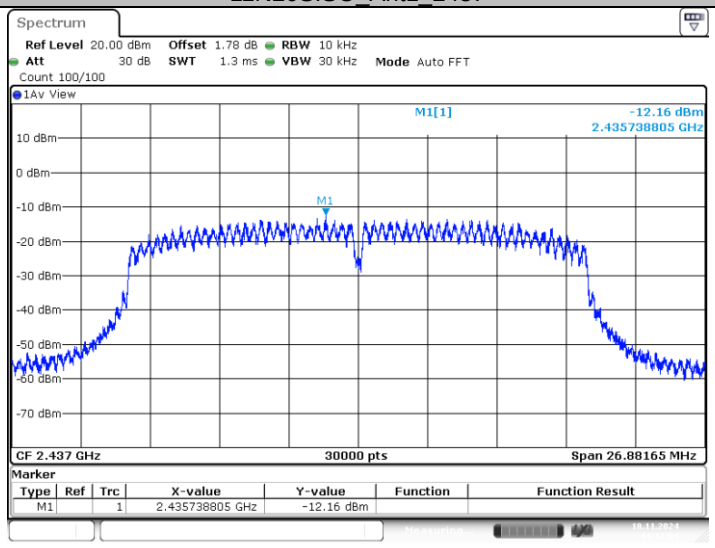
11G_Ant1_2462



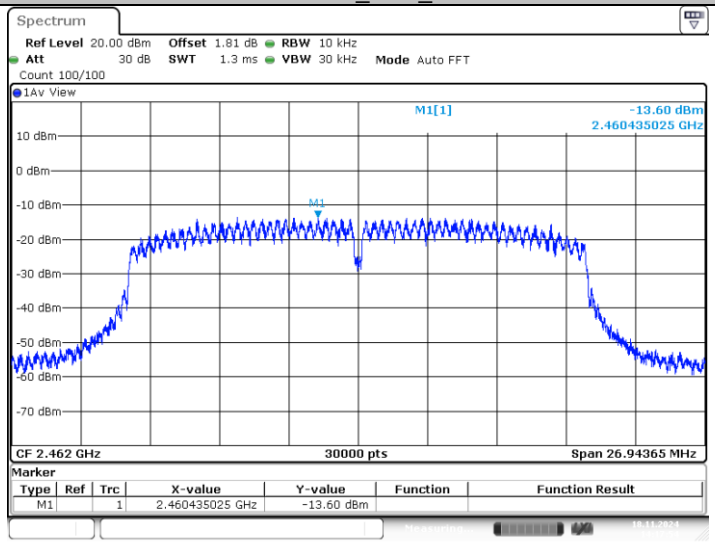
11N20SISO_Ant1_2412



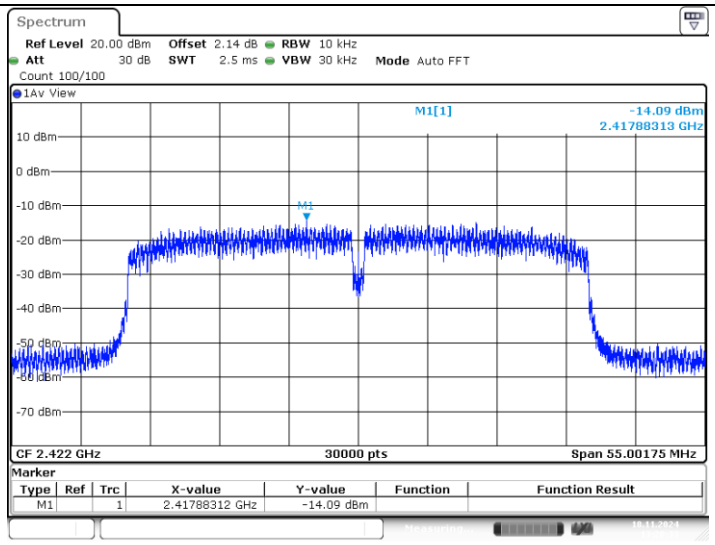
11N20SISO_Ant1_2437



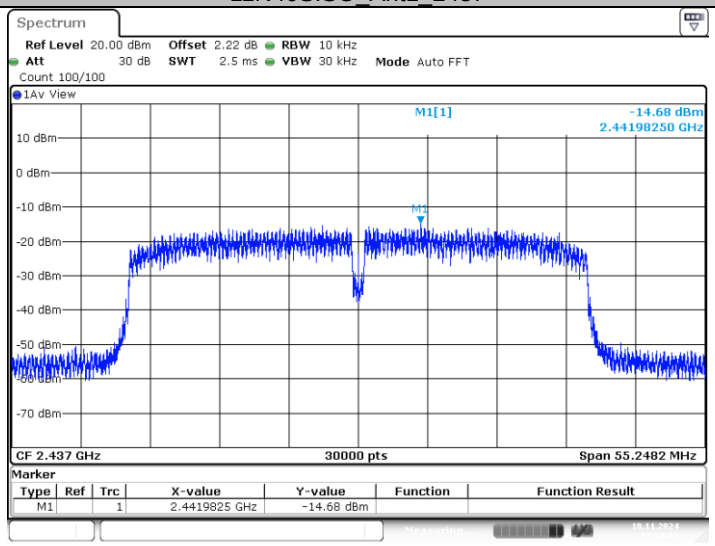
11N20SISO_Ant1_2462



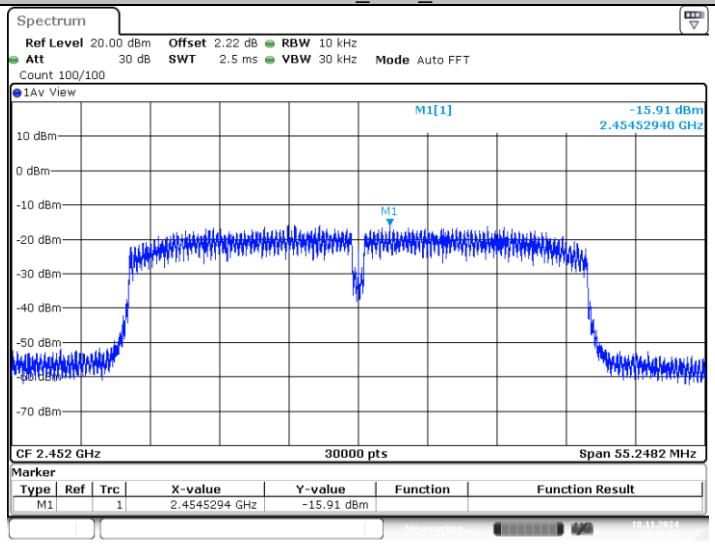
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

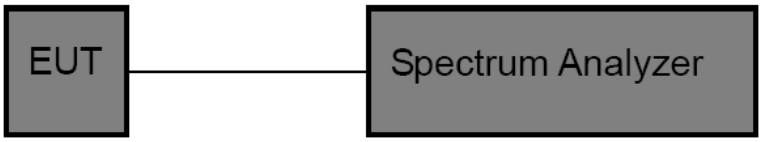


3.8. Duty Cycle

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

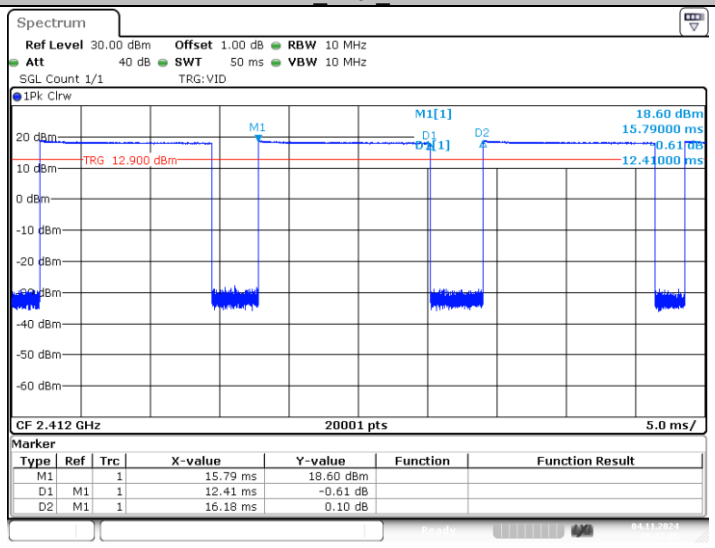
Please refer to the clause 2.4.

Test Result

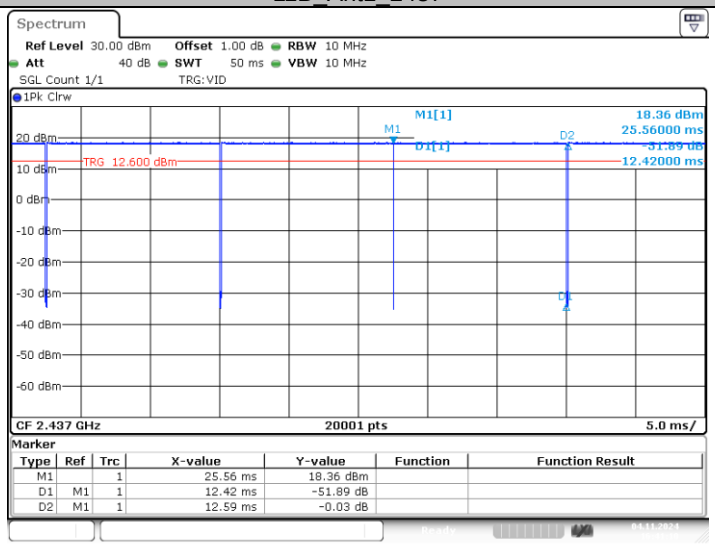
Test Mode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T Minimum VBW (kHz)	Final Setting for VBW (kHz)
11B	Ant1	2412	12.41	16.18	76.70	0.08	1
		2437	12.42	12.59	98.65	0.08	1
		2462	12.42	12.56	98.89	0.08	1
11G	Ant1	2412	2.06	2.23	92.38	0.49	1
		2437	2.07	2.22	93.24	0.48	1
		2462	2.06	2.23	92.38	0.49	1
11N20SISO	Ant1	2412	1.92	2.09	91.87	0.52	1
		2437	1.92	2.05	93.66	0.52	1
		2462	1.92	2.06	93.20	0.52	1
11N40SISO	Ant1	2422	0.95	1.10	86.36	1.05	3
		2437	0.94	1.11	84.68	1.06	3
		2452	0.95	1.12	84.82	1.05	3

Test plot as follows:

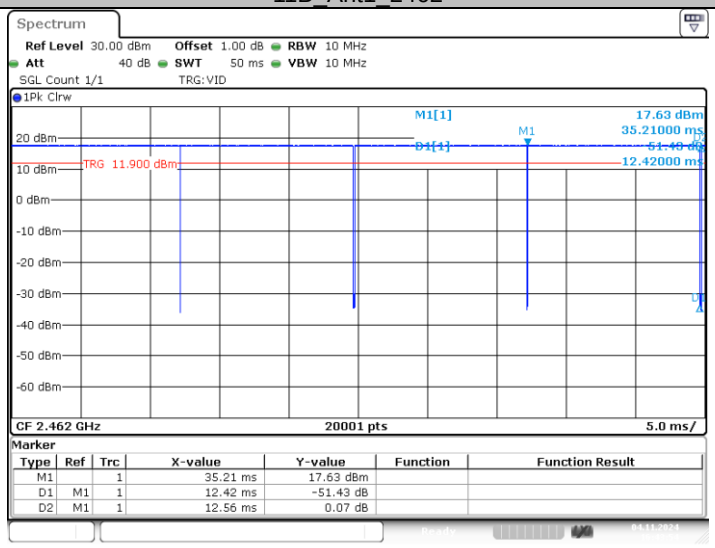
11B_Ant1_2412



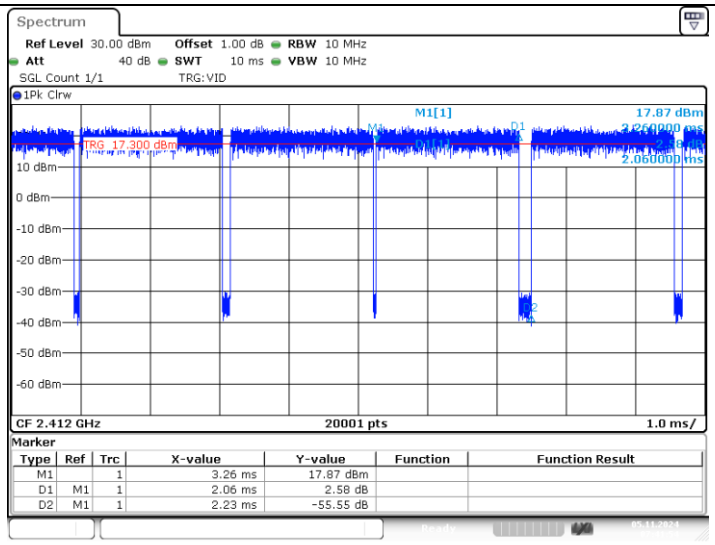
11B_Ant1_2437



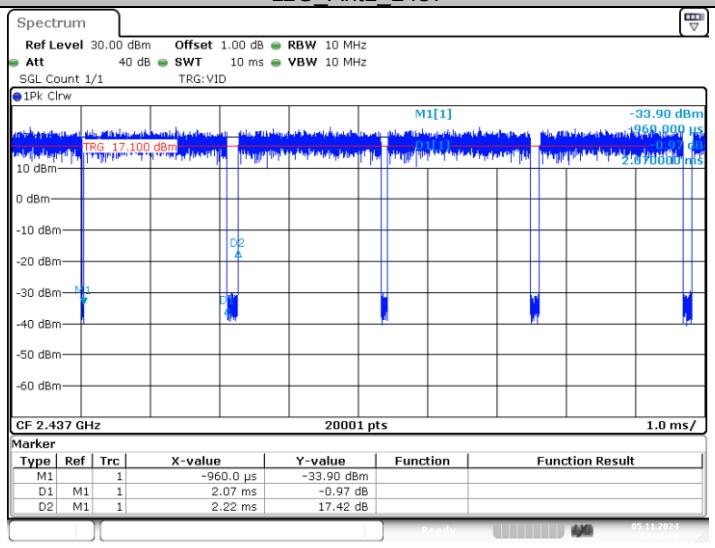
11B_Ant1_2462



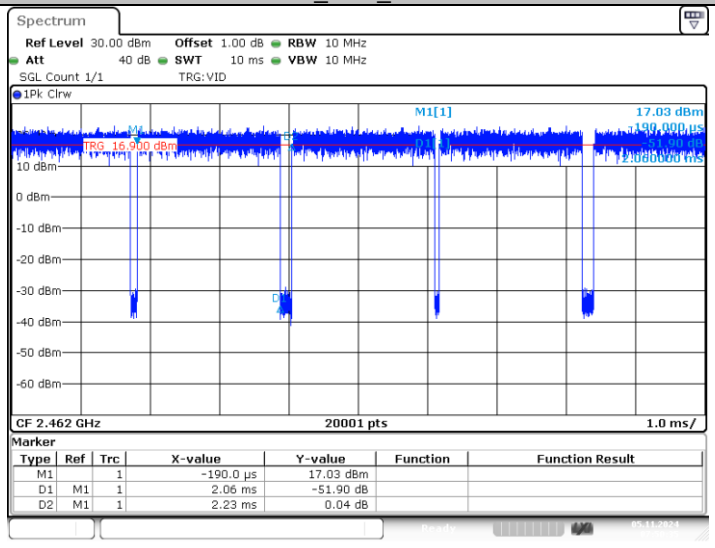
11G_Ant1_2412



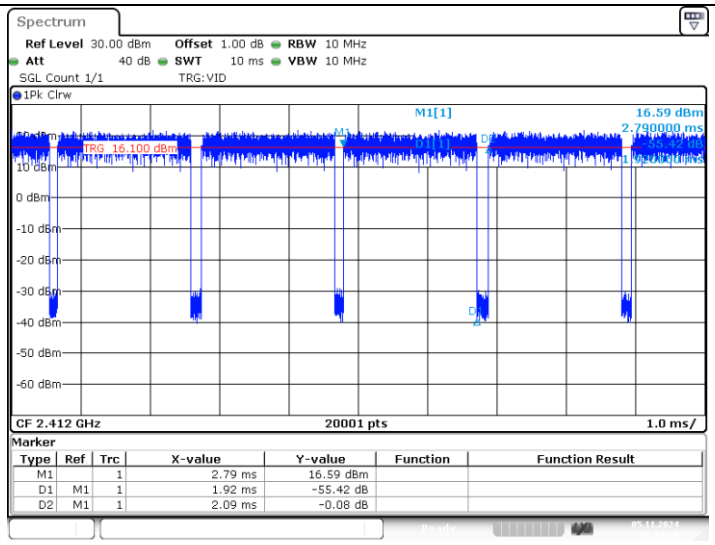
11G_Ant1_2437



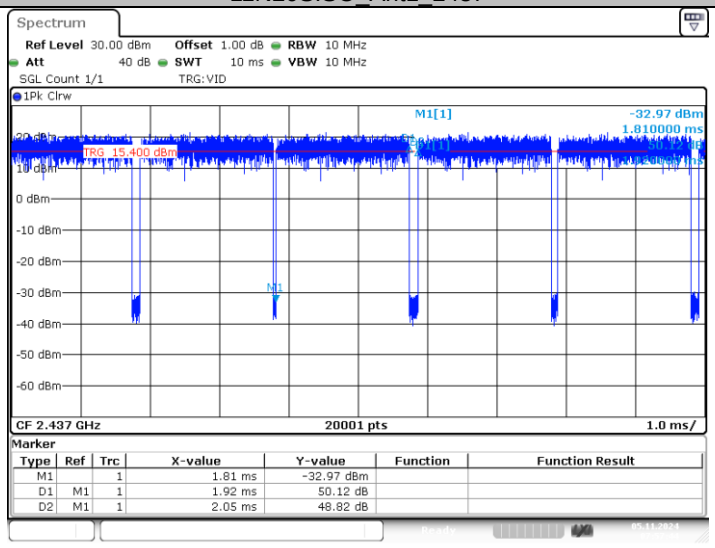
11G_Ant1_2462



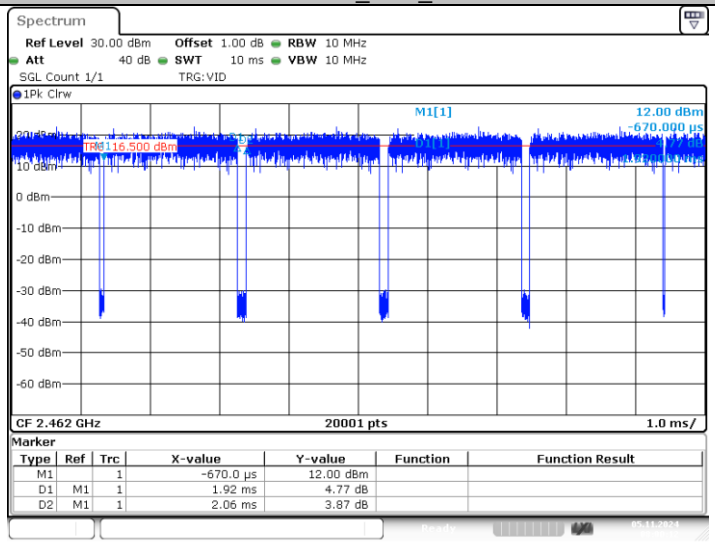
11N20SISO_Ant1_2412



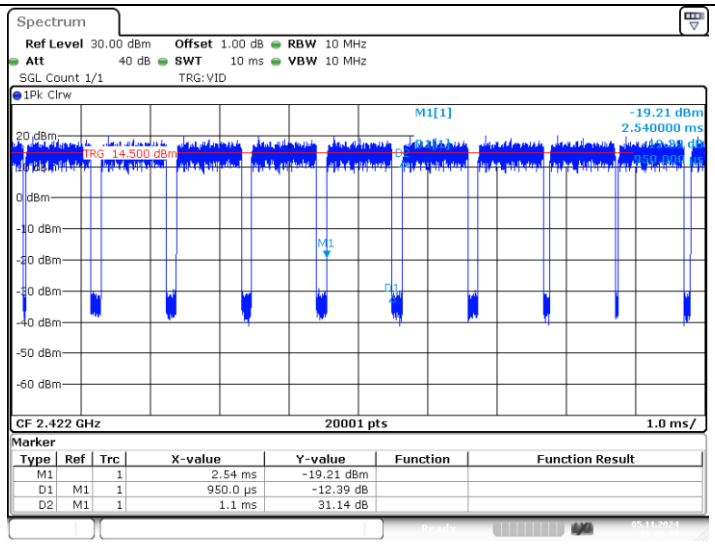
11N20SISO_Ant1_2437



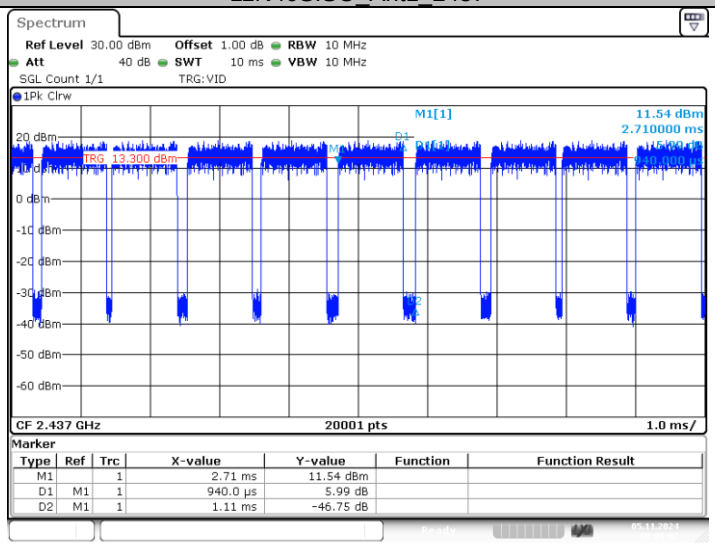
11N20SISO_Ant1_2462



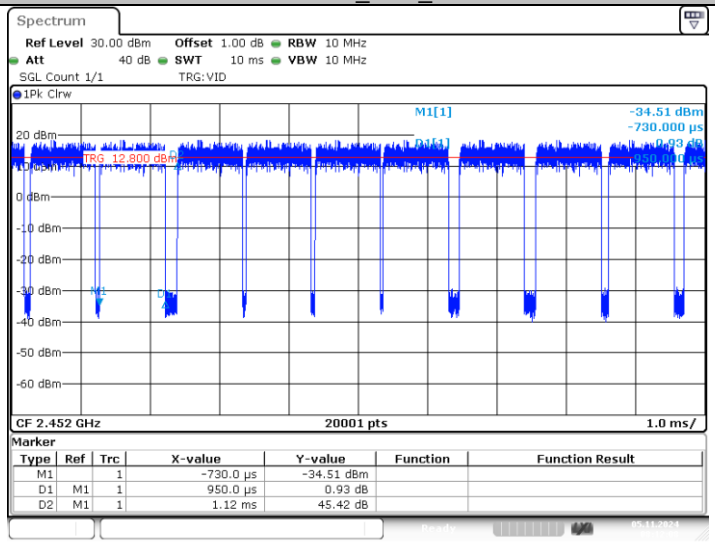
11N40SISO_Ant1_2422



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.

RSS-Gen Issue 5 Section 6.8
The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the licence-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. Licence-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power(e.i.r.p.) limits specified in the applicable standard (RSS) for licence-exempt apparatus.

Result

PASS.
The EUT has 1 antenna: a FPC Antenna for WIFI.
Note: ☒Antenna use a permanently attached antenna which is not replaceable.
☐Not using a standard antenna jack or electrical connector for antenna replacement.
☐The antenna has to be professionally installed (please provide method of installation).
Which in accordance to RSS-Gen 6.8, please refer to the internal photos.

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