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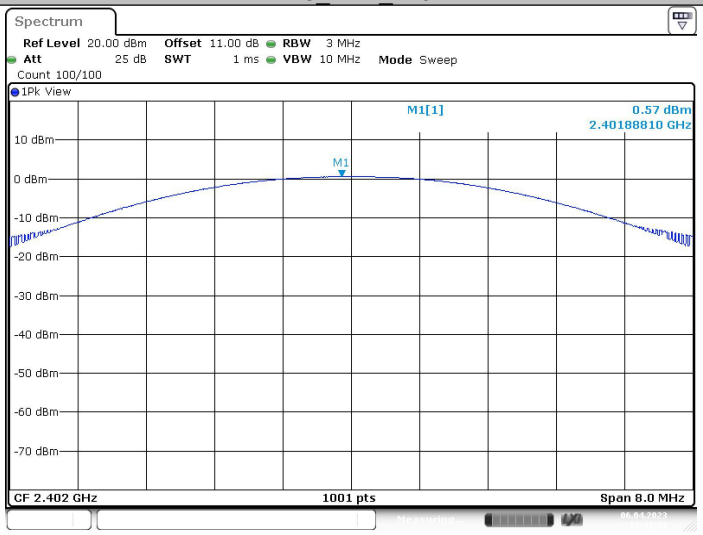

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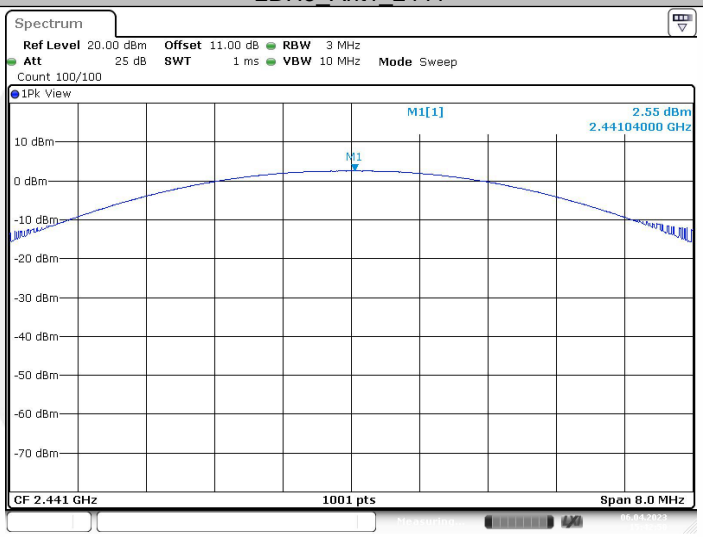

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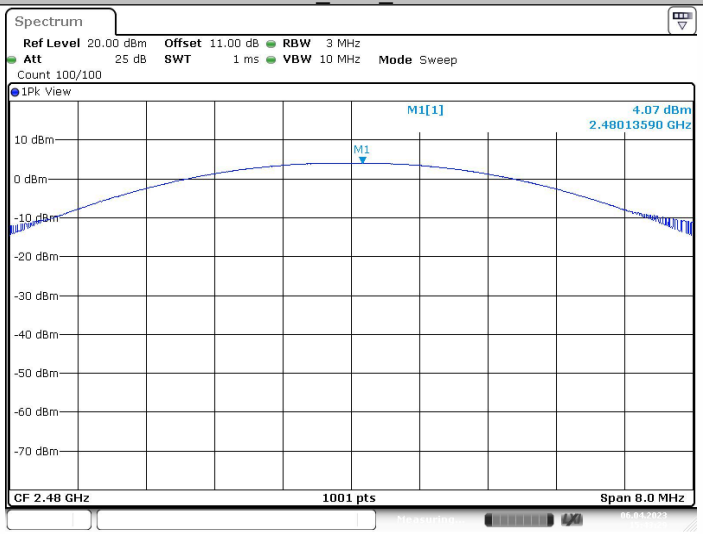

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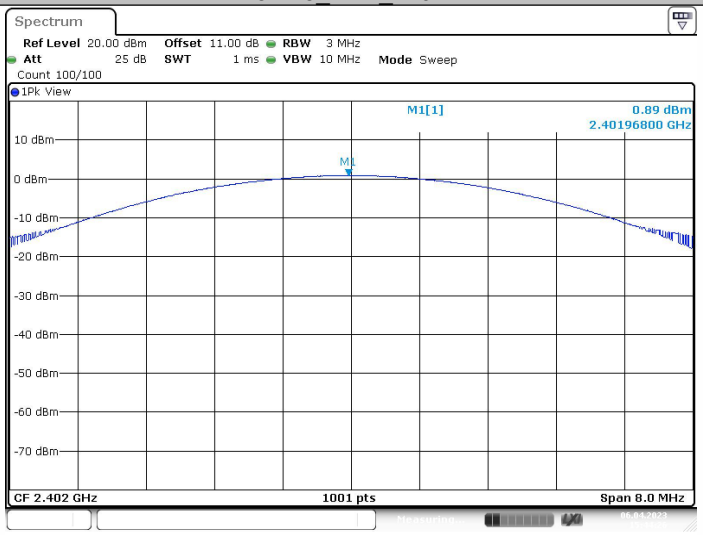

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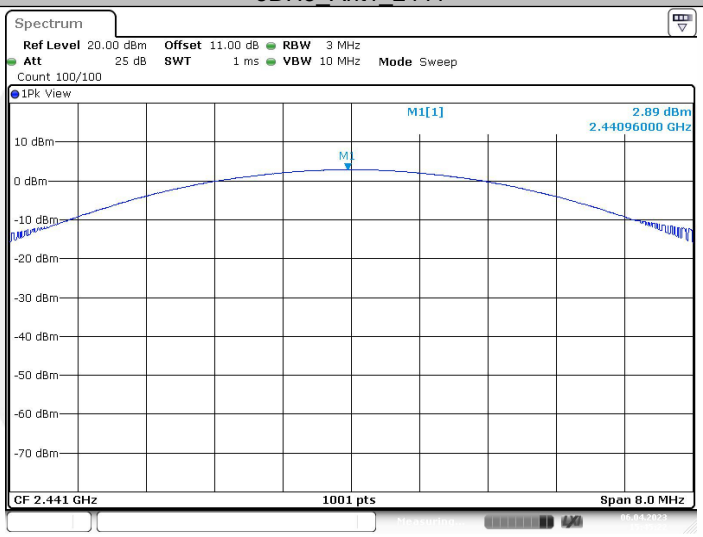

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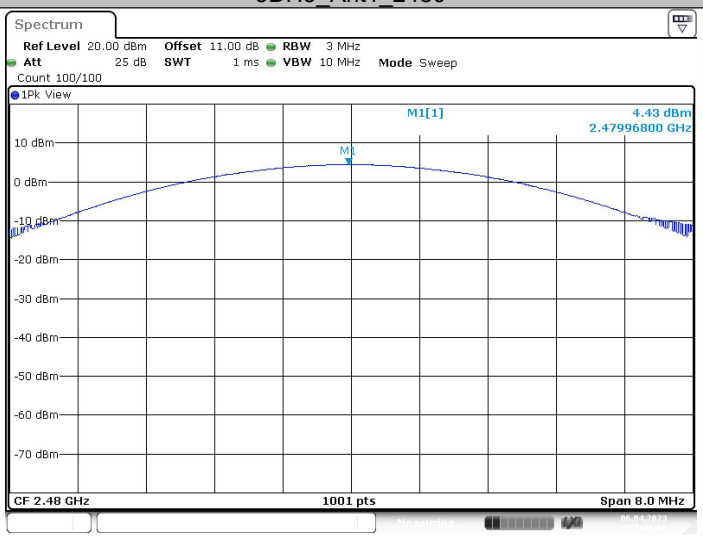

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9.6 CONDUCTED SUPRIOUS EMISSION

9.6.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02

9.6.2 Conformance Limit

According to FCC Part 15.247(d):
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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, provided the transmitter demonstrates compliance with the peak conducted power limits.

9.6.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.6.4 Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer

- **Reference level measurement**

Establish a reference level by using the following procedure:
Set instrument center frequency to DSS channel center frequency.
Set Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel.
Set the RBW = 100 kHz. Set the VBW ≥ 3 x RBW.
Set Detector = peak. Set Sweep time = auto couple.
Set Trace mode = max hold. Allow trace to fully stabilize.
Use the peak marker function to determine the maximum Maximum conduceted level.
Note that the channel found to contain the maximum conduceted level can be used to establish the reference level.

- **Band-edge Compliance of RF Conducted Emissions**

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation
Set RBW ≥ 1% of the span=100kHz Set VBW ≥ RBW
Set Sweep = auto Set Detector function = peak Set Trace = max hold
Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section.
Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

- **Conduceted Spurious RF Conducted Emission**

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.(30MHz to 25GHz). Set RBW = 100 kHz Set VBW ≥ RBW
Set Sweep = auto Set Detector function = peak Set Trace = max hold
Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

9.6.5 Test Results

Bluetooth (GFSK, pi/4-DQPSK, 8DPSK) mode have been tested, and the worst result(GFSK) was report as below:

Band edge measurements

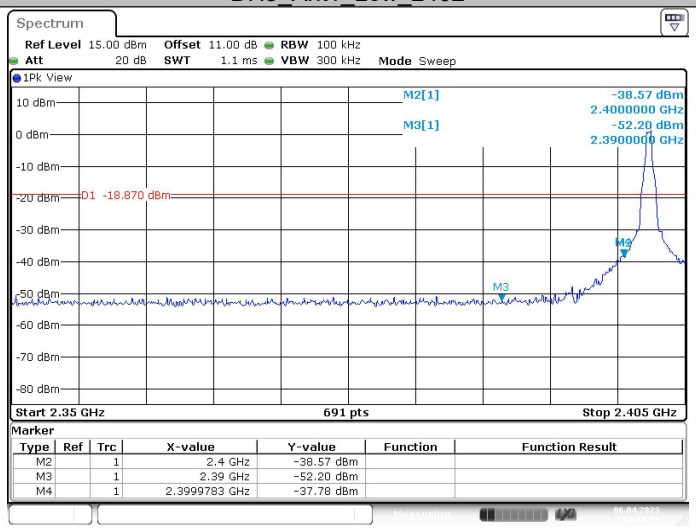
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	1.13	-37.78	≤-18.87	PASS
		High	2480	5.59	-38.05	≤-14.41	PASS
		Low	Hop_2402	2.14	-50.73	≤-17.86	PASS
		High	Hop_2480	5.53	-49.52	≤-14.47	PASS
2DH5	Ant1	Low	2402	-1.89	-40.39	≤-21.89	PASS
		High	2480	1.38	-42.02	≤-18.62	PASS
3DH5	Ant1	Low	2402	-1.68	-40.19	≤-21.68	PASS
		High	2480	1.56	-42.04	≤-18.44	PASS

Conducted Spurious Emission

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	30~1000	1.13	-49.29	≤-18.87	PASS
			1000~26500	1.13	-44.97	≤-18.87	PASS
		2441	30~1000	3.54	-49.07	≤-16.46	PASS
			1000~26500	3.54	-45.21	≤-16.46	PASS
		2480	30~1000	5.59	-48.78	≤-14.41	PASS
			1000~26500	5.59	-45.16	≤-14.41	PASS
2DH5	Ant1	2402	30~1000	-1.89	-49.66	≤-21.89	PASS
			1000~26500	-1.89	-45.67	≤-21.89	PASS
		2441	30~1000	0.03	-48.91	≤-19.97	PASS
			1000~26500	0.03	-45.46	≤-19.97	PASS
		2480	30~1000	1.38	-49.68	≤-18.62	PASS
			1000~26500	1.38	-45.07	≤-18.62	PASS
3DH5	Ant1	2402	30~1000	-1.68	-49.15	≤-21.68	PASS
			1000~26500	-1.68	-44.89	≤-21.68	PASS
		2441	30~1000	0.22	-48.46	≤-19.78	PASS
			1000~26500	0.22	-44.07	≤-19.78	PASS
		2480	30~1000	1.56	-49.35	≤-18.44	PASS
			1000~26500	1.56	-44.9	≤-18.44	PASS

Band edge measurements

DH5_Ant1_Low_2402



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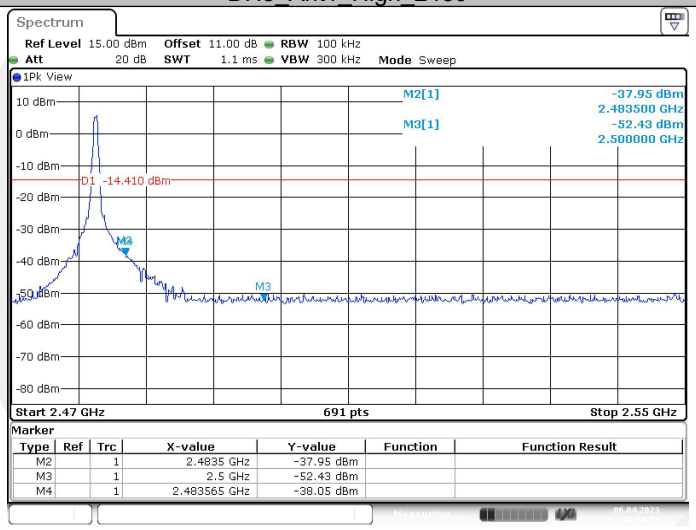

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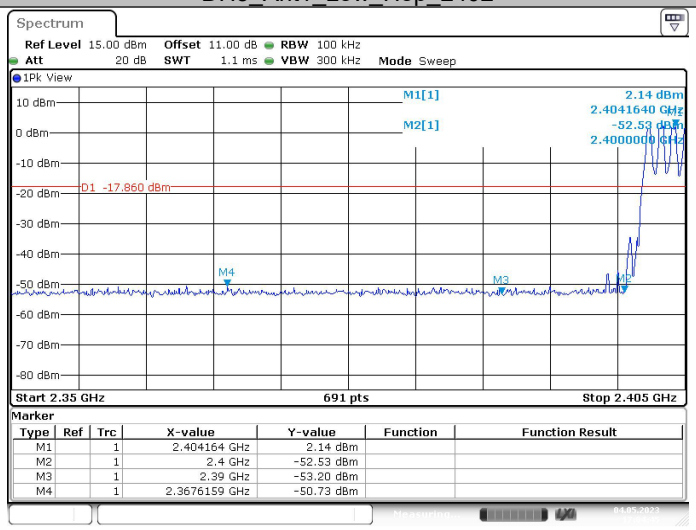

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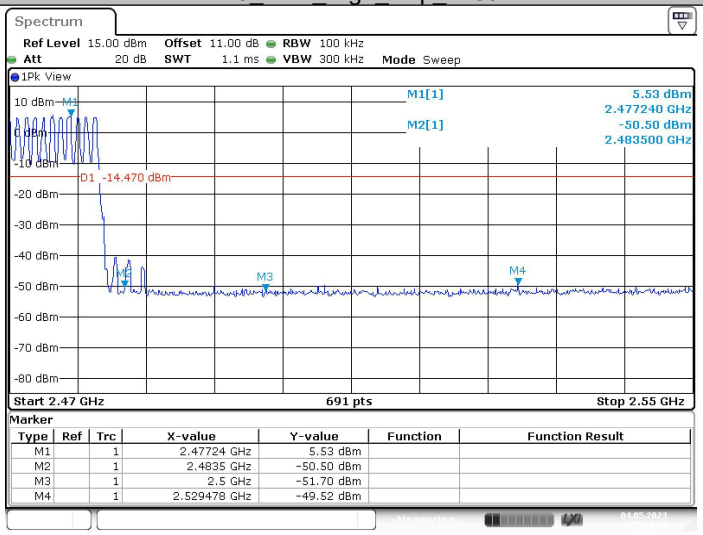

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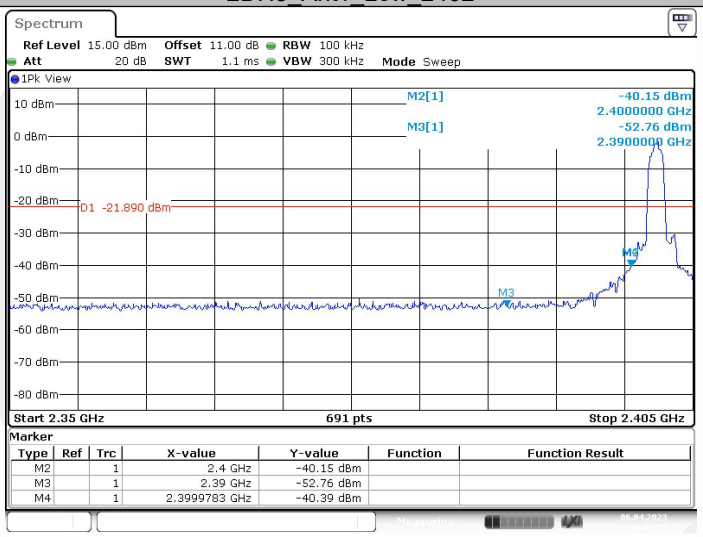

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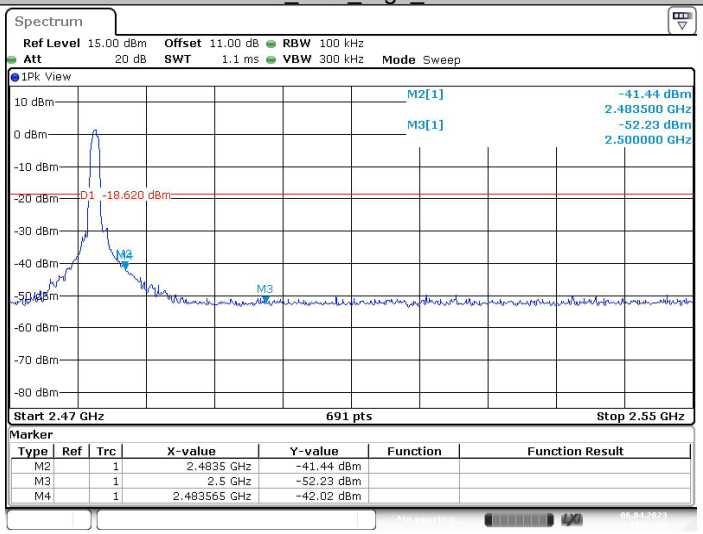

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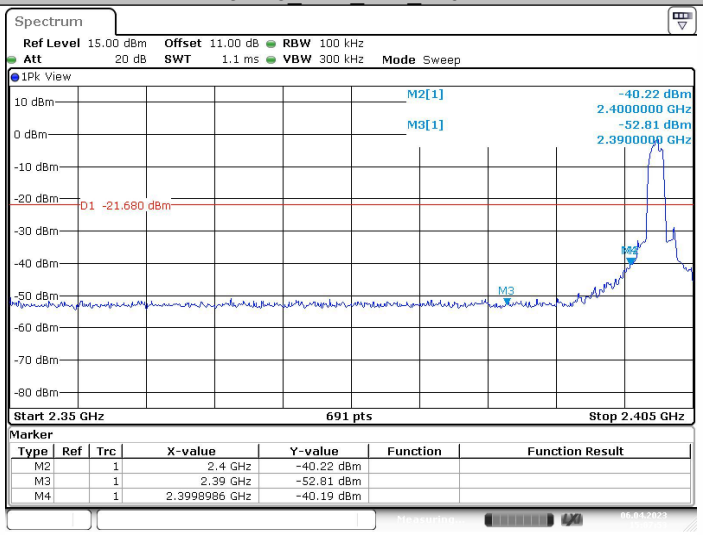

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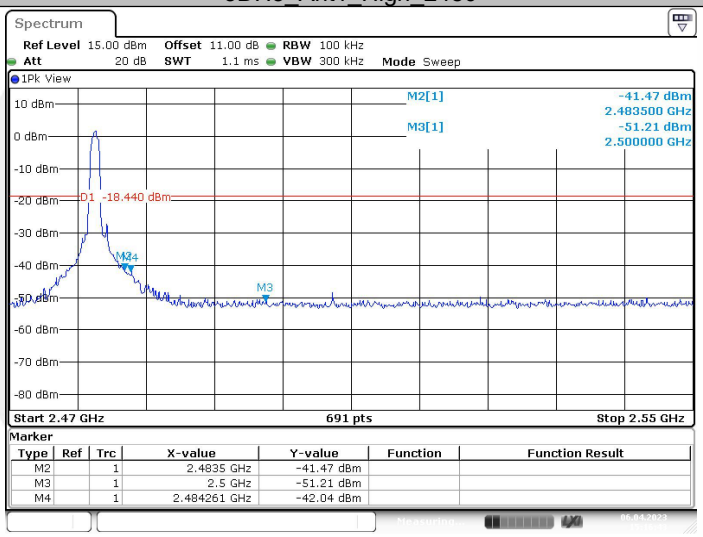

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Conducted Spurious Emission

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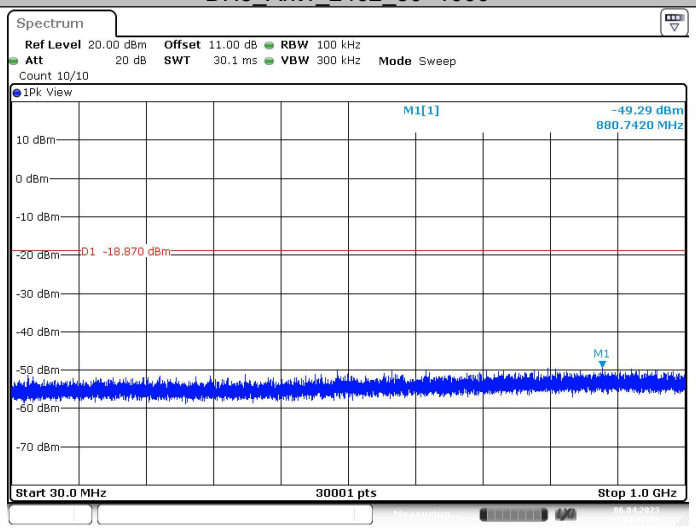

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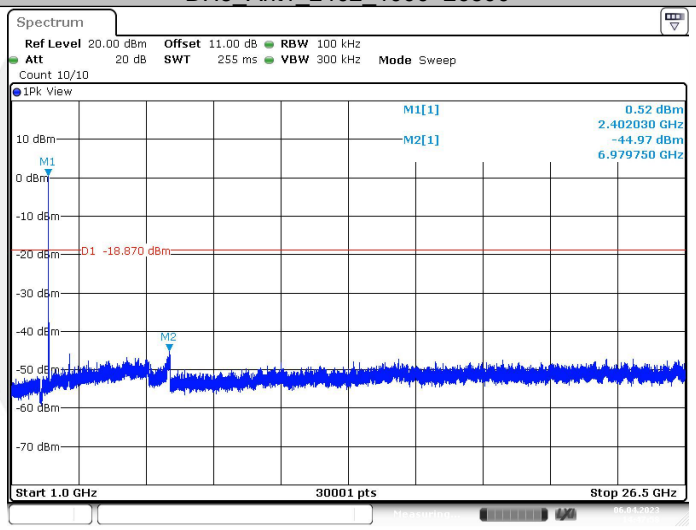

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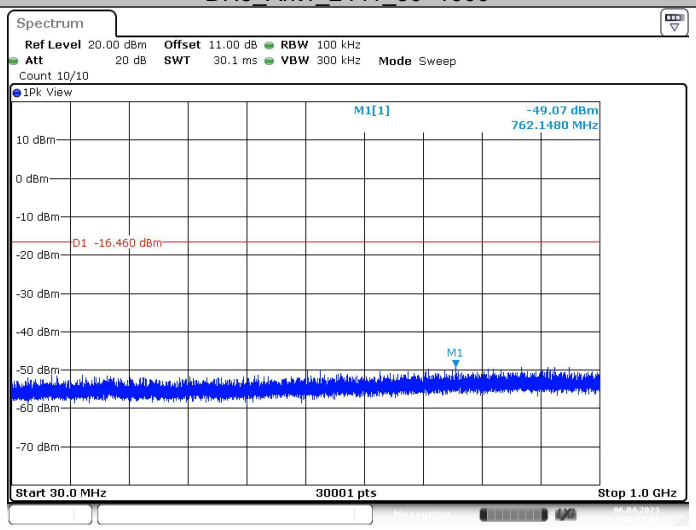

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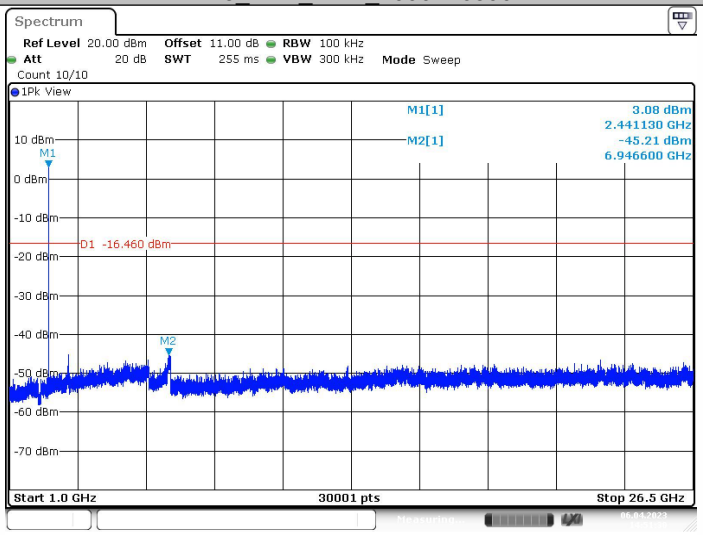

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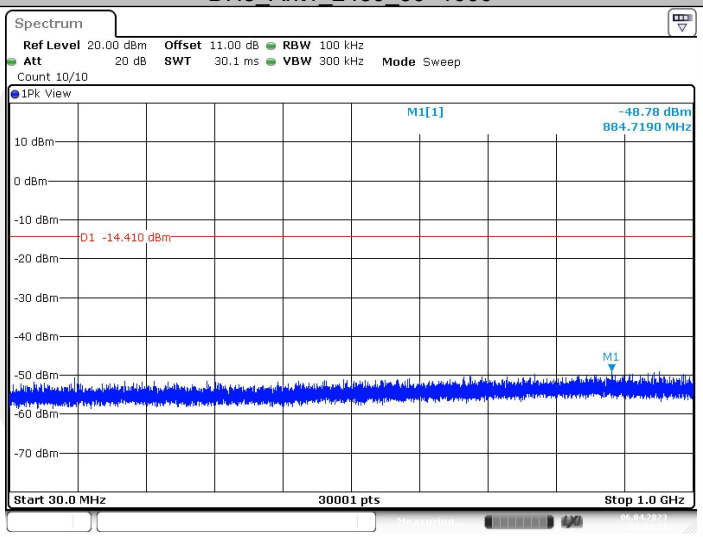

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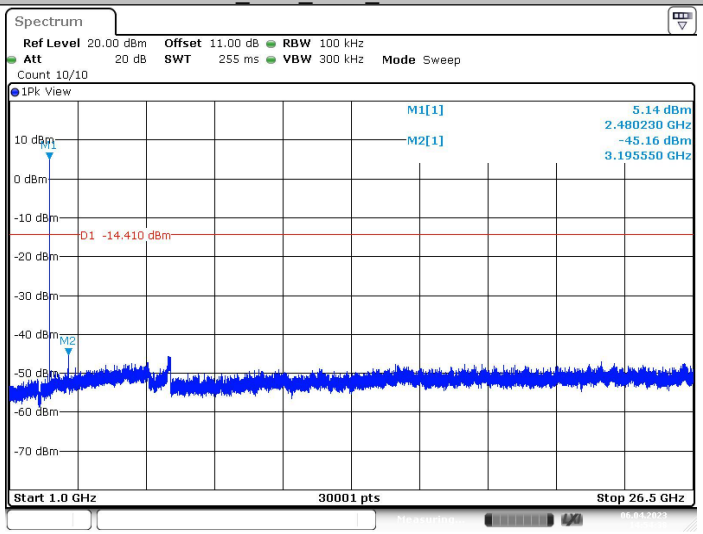

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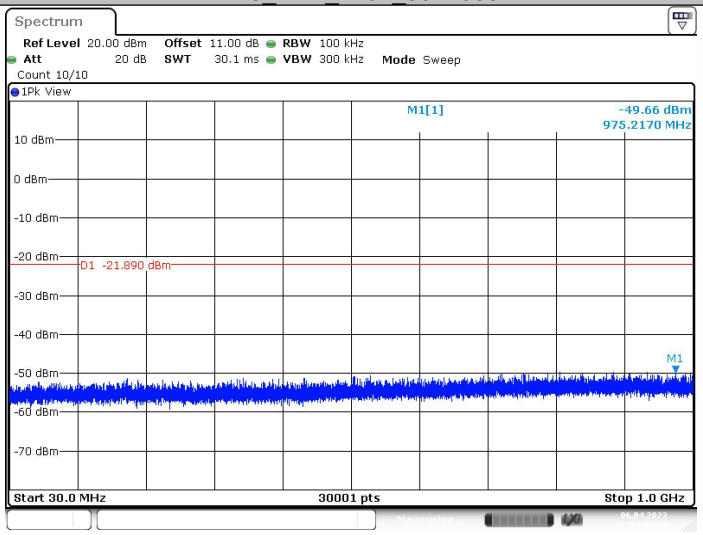

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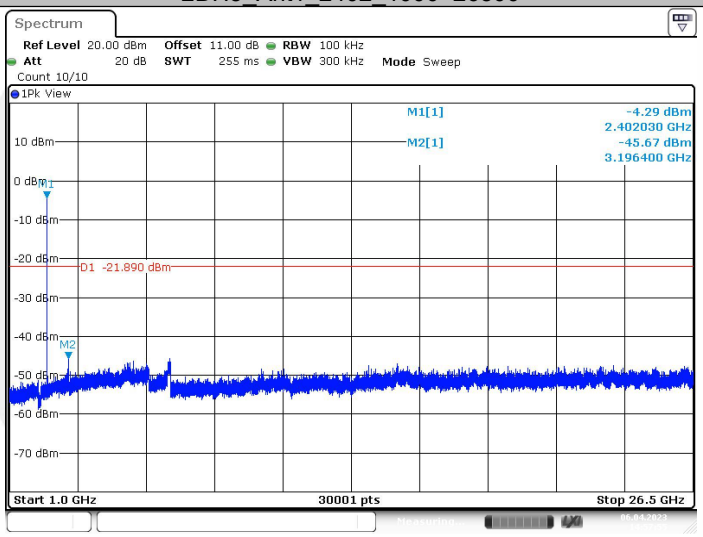

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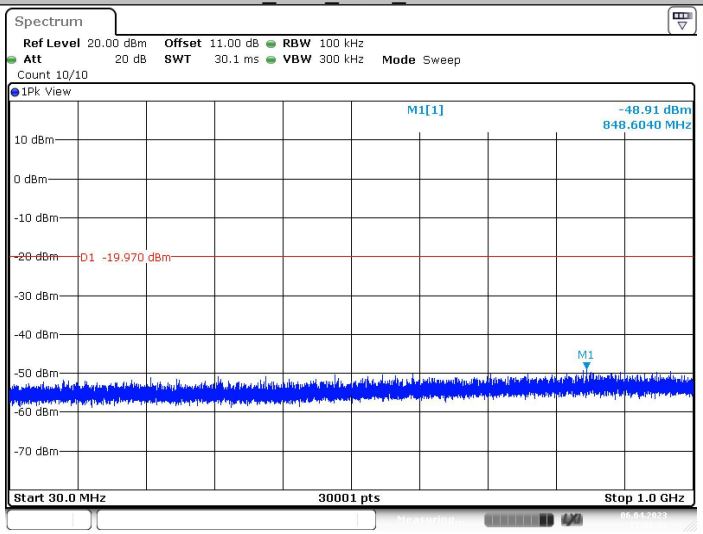

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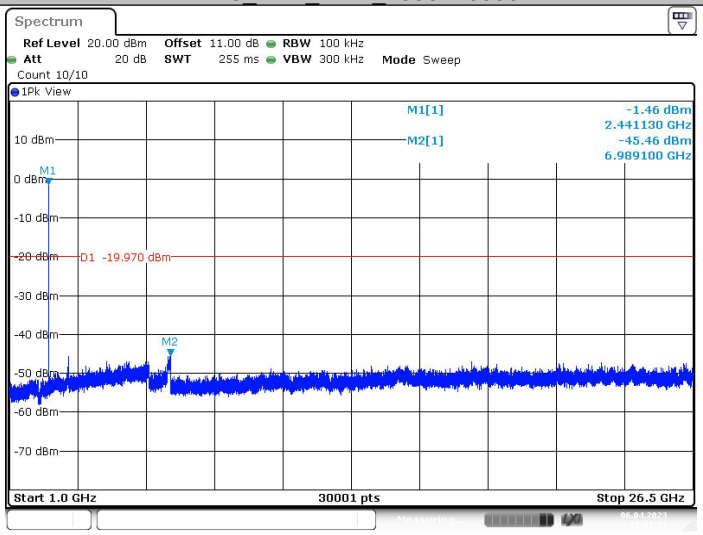

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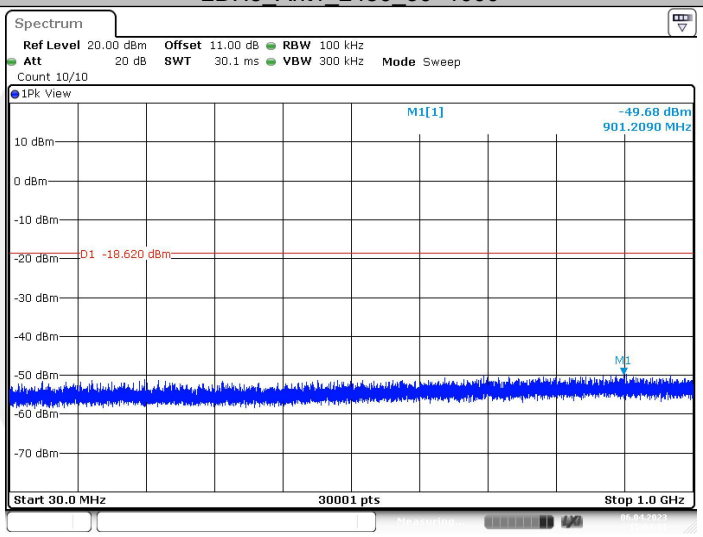

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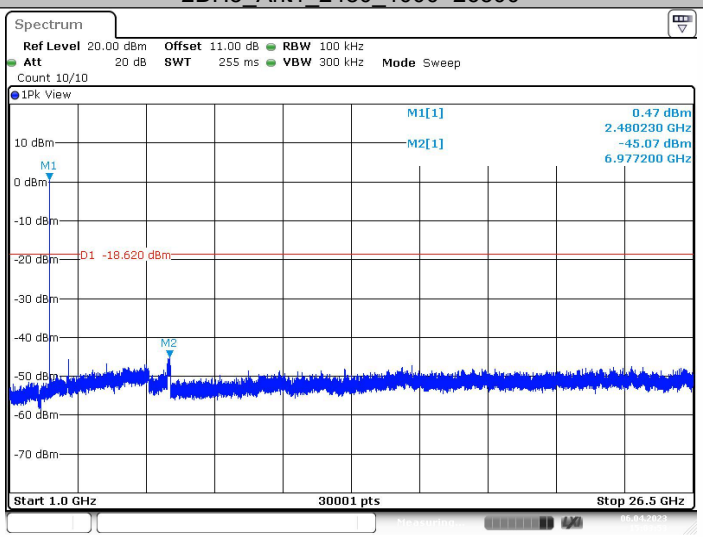

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