FCC Part 15.247

TEST REPORT

For

ASUSTeK COMPUTER INC.

1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

FCC ID: MSQ-AISSENS-100AW

Report Type:	**Product Type:**
Original Report	Vibration Sensor

Report Producer : Coco Lin

Report Number : RXZ250210040RF02

Report Date : 2025-03-18

Reviewed By: Andy Shih

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RXZ250210040	RXZ250210040RF02	2025-03-18	Original Report	Coco Lin

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1. General Information

1.1. Product Description for Equipment under Test (EUT)

Applicant	ASUSTeK COMPUTER INC.
	1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
Brand(Trade) Name	ASUS
Product (Equipment)	Vibration Sensor
Main Model Name	AISSENS 100AW
Series Model Name	N/A
Frequency Range	2402 ~ 2480 MHz
Maximum Conducted Peak Output Power	BR(GFSK) Mode: 11.99 dBm EDR(π/4-DQPSK) Mode: 14.16 dBm EDR(8DPSK) Mode: 14.66 dBm
Modulation Technique	BR Mode: GFSK EDR Mode: π/4-DQPSK, 8DPSK
Transmit Data Rate	BR(GFSK) Mode: 1 Mbps EDR(π/4-DQPSK) Mode: 2 Mbps EDR(8DPSK) Mode: 3 Mbps
Power Operation (Voltage Range)	☒ DC Type ☒ Battery 3.6V ☐ DC Power Supply ☐ External from USB Cable ☐ External DC Adapter
Received Date	2025/02/12

*All measurement and test data in this report was gathered from production sample serial number: RXZ250210040-1 (Assigned by BACL, New Taipei Laboratory).

1.2. Objective

This report is prepared on behalf of *ASUSTeK COMPUTER INC.* in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communication Commission's rules.

1.3. Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

1.4. Statement

Decision Rule: No, (The test results do not include MU judgment)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
The determination of the test results does not require consideration of the uncertainty of the measurement, unless the assessment is required by customer agreement, regulation or standard document specification.
Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is not responsible for the authenticity of the information provided by the applicant that affects the test results.

1.5. Measurement Uncertainty

Parameter		Uncertainty
AC Mains		+/- 3.02 dB
RF output power, conducted		+/- 0.57 dB
Emission Bandwidth		+/- 0.09 %
Unwanted Emissions, conducted		+/- 1.09 dB
Emissions, radiated	9 kHz~30 MHz	+/- 3.20 dB
	30 MHz~1 GHz	+/- 3.30 dB
	1 GHz~18 GHz	+/- 5.14 dB
	18 GHz~40 GHz	+/- 4.75 dB
Temperature		+/- 0.76 °C
Humidity		+/- 0.41 %

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

1.6. Environmental Conditions

Test Site	Test Date	Temperature (℃)	Relative Humidity (%)	Test Engineer
Radiation Spurious Emissions	2025/2/12~2025/2/19	18.5~21.6	62~68	Nick
Conducted Spurious Emissions	2025/2/12	22.5	54	Sean
20 dB Emission Bandwidth	2025/2/12	22.5	54	Sean
Channel Separation Test	2025/2/12	22.5	54	Sean
Time of Occupancy	2025/2/12	22.5	54	Sean
Quantity of hopping channel	2025/2/12	22.5	54	Sean
Maximum Output Power	2025/2/12	22.5	54	Sean
100 kHz Bandwidth of Frequency Band Edge	2025/2/12	22.5	54	Sean

1.7. Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) to collect test data is located on

☒70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 221, Taiwan, R.O.C.

Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3732) and the FCC designation No.TW3732 under the Mutual Recognition Agreement (MRA) in FCC Test.

2. System Test Configuration

2.1. Description of Test Configuration

For BT mode, 79 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	40	2442
1	2403	--	--
2	2404	76	2478
3	2405	77	2479
--	--	78	2480
39	2441	/	/

For BT Modes were tested with channel 0, 39 and 78.

2.2. Equipment Modifications

No modification was made to the EUT.

2.3. EUT Exercise Software

The test software was used “EspRFTestTool_v3.6”

The system was configured for testing in engineering mode, which was provided by Applicant.

Test Frequency		Low	Middle	High
Power Level Setting	GFSK	7	7	7
	π/4-DQPSK	7	7	7
	8DPSK	7	7	7

2.4. Test Mode

Full System (model: AISSENS 100AW) for all test item.

2.5. Support Equipment List and Details

Description	Manufacturer	Model Number
NB	DELL	E6410
Fixture	Waveshare	FT232

2.6. External Cable List and Details

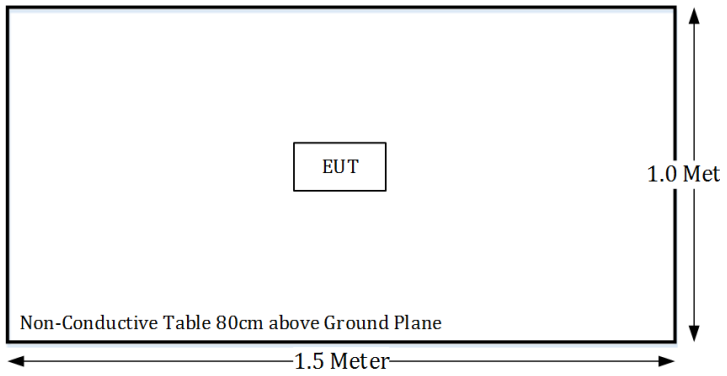
Description	Manufacturer	Cable length
4-pin data cable	BACL	0.5m

2.7. Block Diagram of Test Setup

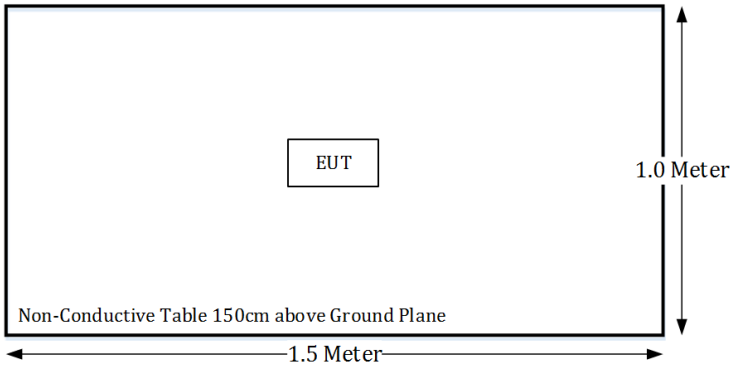
See test photographs attached in annex setup photos for the actual connections between EUT and support equipment.

Radiation:

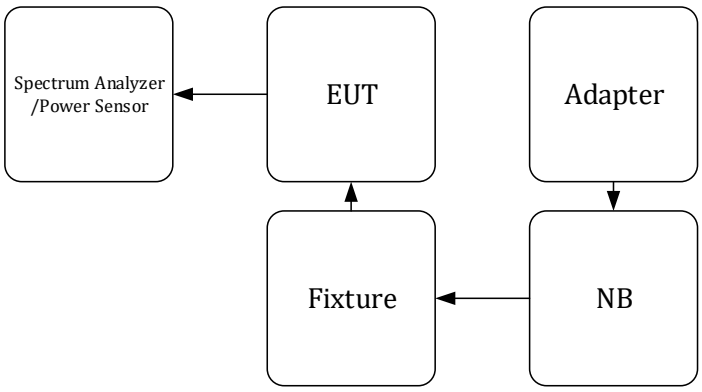
Below 1GHz:



Above 1GHz:



Conducted:



3. Summary of Test Results

FCC Rules	Description of Test	Results
§15.203	Antenna Requirement	Compliance
§15.207(a)	AC Line Conducted Emissions	Not applicable
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247(a)(1)	20 dB Emission Bandwidth	Compliance
§15.247 (a)(1)	Channel Separation Test	Compliance
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliance
§15.247(b)(1)	Maximum Peak Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance

Not applicable: Device only supports battery.

4. Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Radiation 3M Room (966-A)					
Active Loop Antenna	ETS-Lindgren	6502	35796	2024/3/27	2025/3/27
Bilog Antenna with 6 dB Attenuator	SUNOL SCIENCES & MINI-CIRCUITS	JB6/UNAT-6+	A050115/15542_01	2025/1/16	2026/1/16
Double Ridged Guide Horn Antenna	A.H. system	SAS-571	1020	2024/5/21	2025/5/21
Horn Antenna	ETS-Lindgren	3116	62638	2024/8/30	2025/8/30
Preamplifier	Sonoma	310N	130602	2024/6/18	2025/6/18
Preamplifier	Channel	ERA-100M-18G-01D1748	EC2300051	2024/3/29	2025/3/29
Preamplifier	BACL	BACL-1313-A1840	4011511	2025/2/12	2026/2/12
EMI Test Receiver	Rohde & Schwarz(R&S)	ESR3	102099	2024/6/24	2025/6/24
Spectrum Analyzer	Rohde & Schwarz	FSV40	101939	2024/3/27	2025/3/27
Microflex Cable	UTIFLEX	UFB197C-1-2362-70U-70U	225757-001	2024/12/20	2025/12/20
Coaxial Cable	UTIFLEX	UFB311A-Q-1440-300300	220490-006	2024/12/20	2025/12/20
Coaxial Cable	COMMATE	PEWC	8Dr	2024/12/20	2025/12/20
Cable	EMC	EMC105-SM-SM-10000	201003	2024/12/20	2025/12/20
Coaxial Cable	JUNFLON	J12J102248-00-B-5	AUG-07-15-044	2024/12/20	2025/12/20
Coaxial Cable	ROSNOL	K1K50-UP0264-K1K50-450CM	160309-1	2025/1/21	2026/1/21
Microflex Cable	ROSNOL	K1K50-UP0264-K1K50-80CM	160309-2	2025/1/21	2026/1/21
Band-stop filter	Woken	STI15-9831	STI15-9831-1	2024/10/19	2025/10/19
High-pass filter	XINGBOKEJI	XBLBQ-GTA54	200108-3-2	2024/10/19	2025/10/19
Software	AUDIX	E3	18621a	N.C.R	N.C.R
Conducted Room					
Spectrum Analyzer	Rohde & Schwarz(R&S)	FSV40	101204	2024/5/30	2025/5/30
Cable	UTIFLEX	UFA210A	9435	2024/10/1	2025/10/1
Real-Time Peak Power Sensor	Boonton	RTP5006	11037	2024/5/21	2025/5/21
Attenuator	MCL	BW-S10W5+	1419	2024/2/23	2025/2/23

***Statement of Traceability:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Institute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements.

5. FCC §15.203 – Antenna Requirements

5.1. Applicable Standard

According to § 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 an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited.

5.2. Antenna Information

Manufacturer	Model	Type	Antenna Gain
INPAQ TECHNOLOGY CO., LTD.	ACA-3216-A2-MC-S	Chip	0.5 dBi

Antenna was permanently attached to the unit.

Result: Compliance

6. FCC §15.209, §15.205 , §15.247(d) – Spurious Emissions

6.1. Applicable Standard

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1MHz.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	608 – 614	4. 5 – 5. 15
0.495 – 0.505	16.69475 – 16.69525	960 – 1240	5. 35 – 5. 46
2.1735 – 2.1905	16.80425 – 16.80475	1300 – 1427	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1435 – 1626.5	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1645.5 – 1646.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1660 – 1710	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1718.8 – 1722.2	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	2200 – 2300	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2310 – 2390	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2483.5 – 2500	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2690 – 2900	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	3260 – 3267	22.01 – 23.12
8.41425 – 8.41475	162.0125 –167.17	3.332 – 3.339	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3 3458 – 3 358	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3.600 – 4.400	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4		Above 38.6
13.36 – 13.41	399.9 – 410		

As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

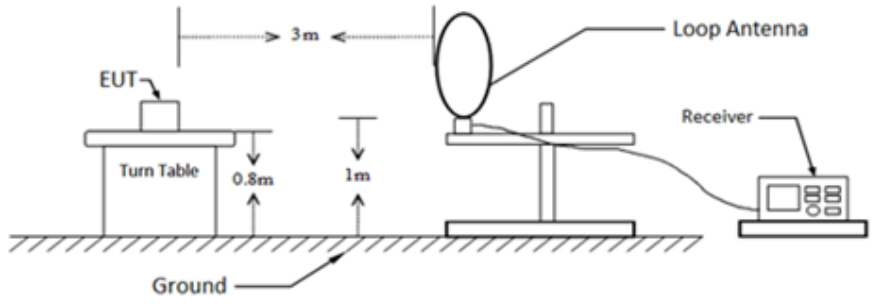
According to ANSI C63.10-2013, section 5.3.3

Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field, and the emissions to be measured can be detected by the measurement equipment (see 4.3.4). Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. Measurements from 18 GHz to 40 GHz are typically made at distances significantly less than 3 m from the EUT. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade of distance (inverse of linear distance for field-strength measurements or inverse of linear distance-squared for power-density measurements).

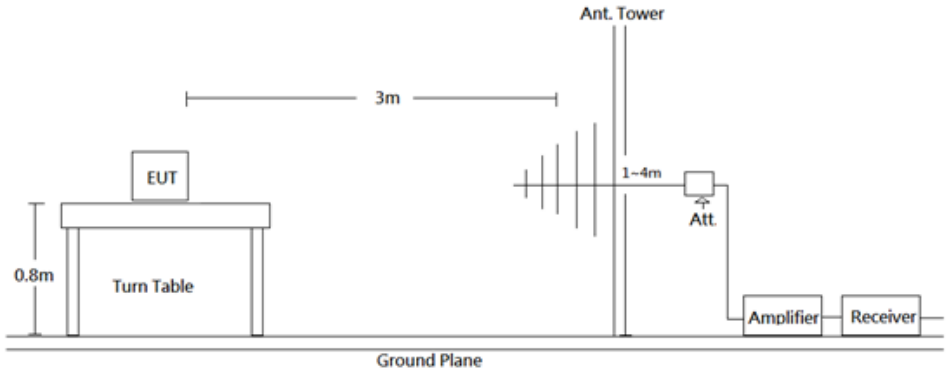
As per FCC §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c).

6.2. EUT Setup

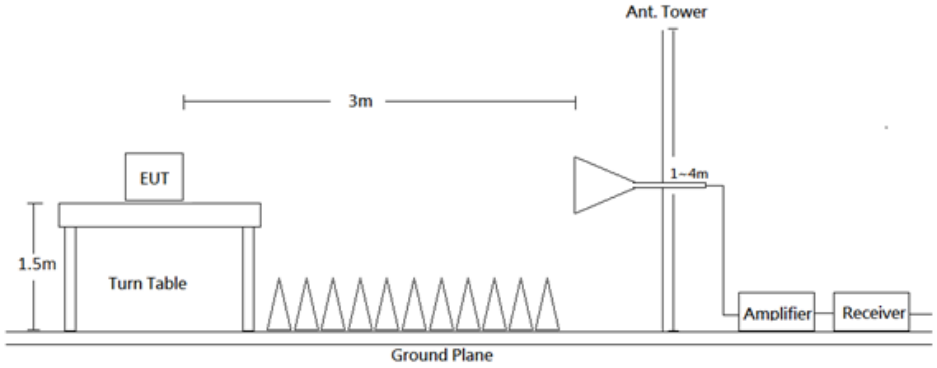
9kHz-30MHz:



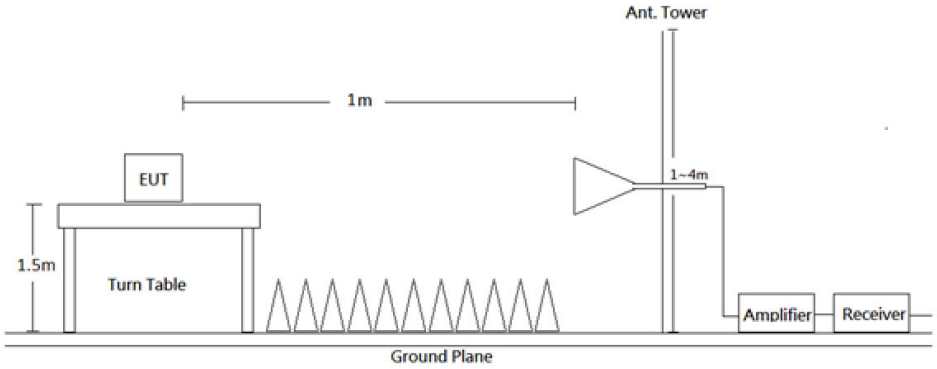
30MHz-1GHz:



1-18 GHz:



18-26.5 GHz:



Radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC Part 15.209 and FCC 15.247 Limits.

6.3. EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 26.5 GHz. During the radiated emission test, the EMI test receiver was set with the following configurations measurement method 6.3 in ANSI C63.10.

Frequency Range	RBW	VBW	Measurement method	Detector
9 kHz - 150 kHz	200 Hz/300 Hz	1 kHz	QP/AV	QP/AV
150 kHz - 30 MHz	9 kHz/10 kHz	30 kHz	QP/AV	QP/AV
30-1000 MHz	120 kHz	300 kHz	QP	QP
Above 1 GHz	Pre-scan :			
	1 MHz	3 MHz	PK	PK
	1 MHz	1 kHz	Ave	PK
	Final measurement for emission identified during pre-scan :			
	1 MHz	3 MHz	PK	PK
	1 MHz	10 Hz	Ave	PK

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

6.4. Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in Quasi-peak and average detector mode from 9 kHz to 30 MHz, Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

6.5. Corrected Factor & Margin Calculation

The Correct Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Level – Limit

6.6. Results

Test Mode: Transmitting

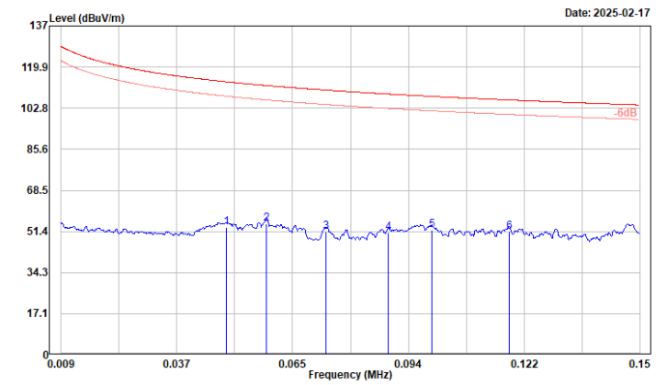
(Pre-scan with three orthogonal axis, and worse case as Z axis.)

9kHz-30MHz:

(Worst case is EDR(8DPSK) mode, low channel)

9kHz-150kHz

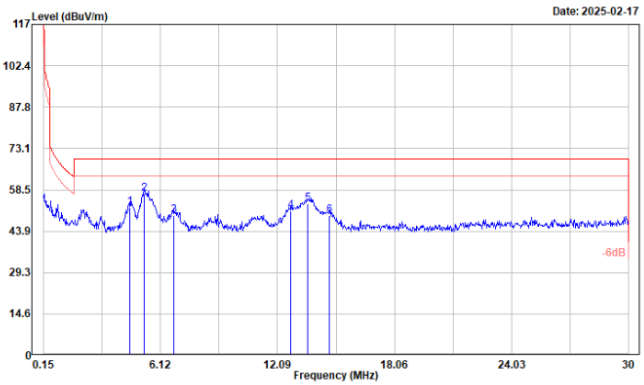
Description: RBW:300Hz/VBW:1KHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
0.049	40.41	12.63	53.04	113.77	-60.73	100	245	Average
0.059	42.77	11.87	54.64	112.18	-57.54	100	32	Average
0.074	39.76	11.45	51.21	110.27	-59.06	100	143	Average
0.089	39.48	11.32	50.80	108.64	-57.84	100	65	Average
0.099	40.92	11.14	52.06	107.67	-55.61	100	301	QP
0.118	40.17	11.21	51.38	106.16	-54.78	100	188	Average

150kHz-30MHz

Description: RBW:10kHz/VBW:30kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4.568	41.60	10.65	52.25	69.54	-17.29	100	225	QP
5.284	45.97	11.01	56.98	69.54	-12.56	100	120	QP
6.807	37.86	11.75	49.61	69.54	-19.93	100	44	QP
12.777	39.51	11.54	51.05	69.54	-18.49	100	74	QP
13.642	42.00	11.55	53.55	69.54	-15.99	100	340	QP
14.747	38.00	11.58	49.58	69.54	-19.96	100	185	QP

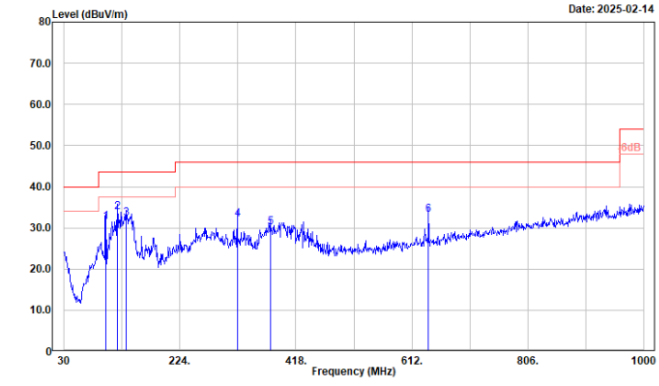
30MHz-1GHz:

(worst case is EDR(8DPSK) mode)

Low channel

Horizontal

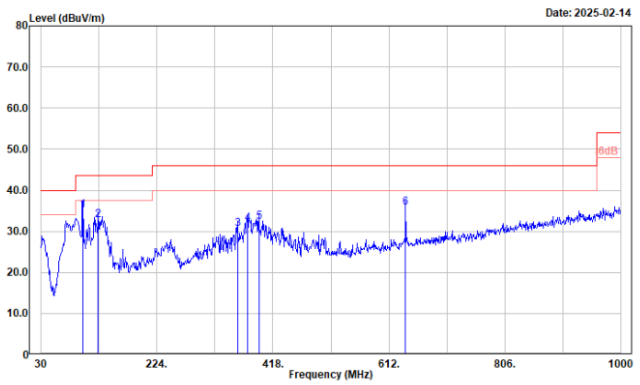
Description: BT-TX-LOW,RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
99.840	44.23	-12.85	31.38	43.50	-12.12	109	115	QP
119.240	43.05	-9.24	33.81	43.50	-9.69	114	0	QP
133.790	41.36	-9.00	32.36	43.50	-11.14	121	153	QP
320.030	40.01	-7.84	32.17	46.00	-13.83	103	157	QP
375.320	36.62	-6.56	30.06	46.00	-15.94	105	165	QP
640.130	33.91	-0.80	33.11	46.00	-12.89	141	55	QP

Vertical

Description: BT-TX-LOW,RBW:100kHz/VBW:300kHz

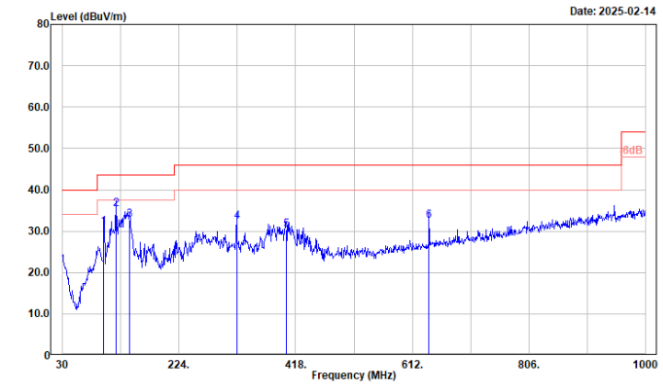


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
99.840	48.05	-12.85	35.20	43.50	-8.30	100	28	QP
126.030	41.57	-8.85	32.72	43.50	-10.78	103	111	QP
358.830	37.65	-7.06	30.59	46.00	-15.41	119	175	QP
375.320	38.39	-6.56	31.83	46.00	-14.17	140	190	QP
394.720	37.96	-5.71	32.25	46.00	-13.75	114	190	QP
640.130	36.52	-0.80	35.72	46.00	-10.28	125	130	QP

Middle channel

Horizontal

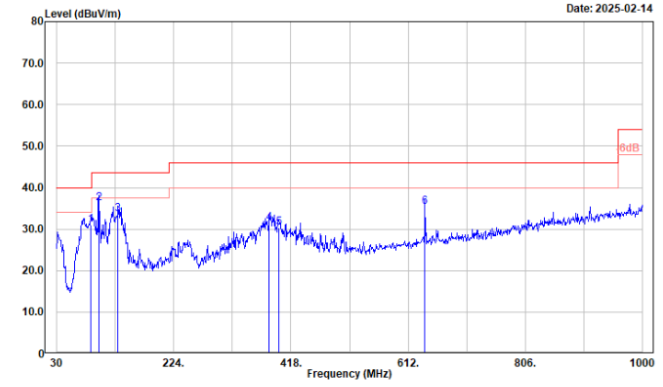
Description: BT-TX-Middle,RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
98.870	44.22	-13.15	31.07	43.50	-12.43	135	86	QP
119.240	44.51	-9.24	35.27	43.50	-8.23	117	156	QP
141.550	42.00	-9.31	32.69	43.50	-10.81	129	156	QP
320.030	40.22	-7.84	32.38	46.00	-13.62	102	144	QP
402.480	35.94	-5.57	30.37	46.00	-15.63	100	140	QP
640.130	33.42	-0.80	32.62	46.00	-13.38	141	66	QP

Vertical

Description: BT-TX-Middle,RBW:100kHz/VBW:300kHz

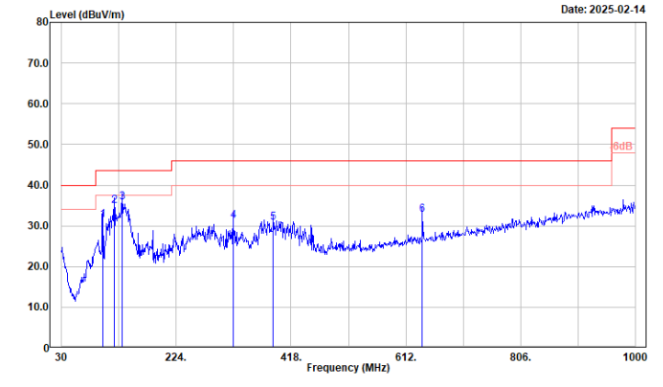


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
86.260	46.65	-15.71	30.94	40.00	-9.06	105	35	QP
99.840	49.06	-12.85	36.21	43.50	-7.29	131	21	QP
131.850	42.75	-9.09	33.66	43.50	-9.84	100	3	QP
382.110	37.79	-6.26	31.53	46.00	-14.47	145	209	QP
397.630	35.95	-5.64	30.31	46.00	-15.69	129	185	QP
640.130	36.13	-0.80	35.33	46.00	-10.67	104	140	QP

High channel

Horizontal

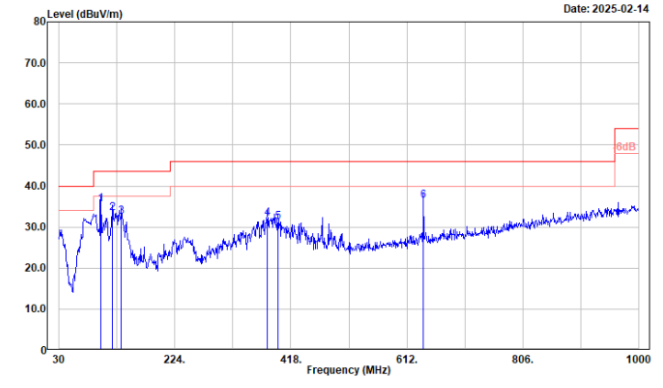
Description: BT-TX-High,RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
99.840	44.27	-12.85	31.42	43.50	-12.08	109	100	QP
119.240	44.11	-9.24	34.87	43.50	-8.63	117	171	QP
132.820	44.89	-9.03	35.86	43.50	-7.64	100	54	QP
320.030	38.98	-7.84	31.14	46.00	-14.86	134	147	QP
387.930	36.75	-6.02	30.73	46.00	-15.27	122	147	QP
640.130	33.54	-0.80	32.74	46.00	-13.26	105	54	QP

Vertical

Description: BT-TX-High,RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
99.840	48.40	-12.85	35.55	43.50	-7.95	113	28	QP
119.240	42.52	-9.24	33.28	43.50	-10.22	120	64	QP
134.760	41.69	-9.08	32.61	43.50	-10.89	141	101	QP
379.200	38.45	-6.38	32.07	46.00	-13.93	100	182	QP
396.660	36.90	-5.67	31.23	46.00	-14.77	135	189	QP
640.130	37.22	-0.80	36.42	46.00	-9.58	101	136	QP

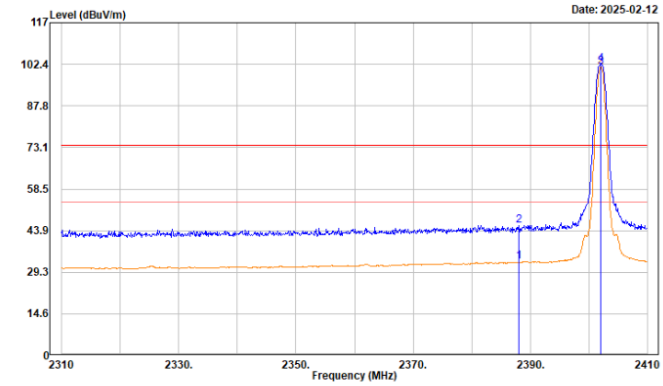
Band-Edge:

BR (GFSK) Mode

Low channel

Horizontal

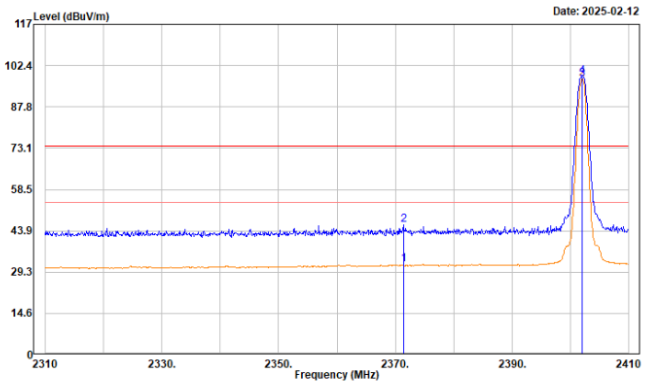
Description: BT_1DH5-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2388.100	43.82	-10.85	32.97	54.00	-21.03	300	203	Average
2388.100	56.63	-10.85	45.78	74.00	-28.22	300	203	Peak
2402.000	112.34	-10.78	101.56			300	203	Average
2402.000	113.09	-10.78	102.31			300	203	Peak

Vertical

Description: BT_1DH5-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz

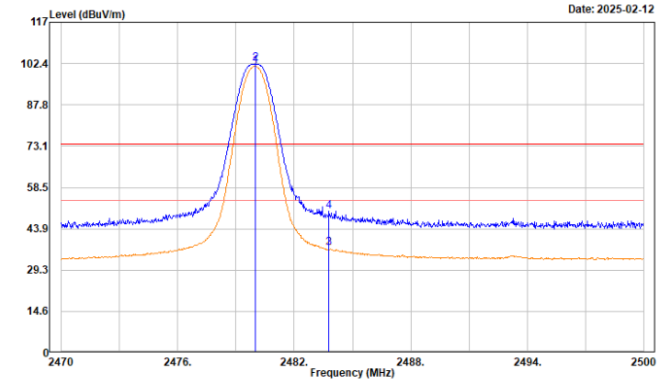


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2371.400	43.00	-10.97	32.03	54.00	-21.97	136	3	Average
2371.400	56.86	-10.97	45.89	74.00	-28.11	136	3	Peak
2402.000	108.51	-10.78	97.73			136	3	Average
2402.000	109.31	-10.78	98.53			136	3	Peak

High channel

Horizontal

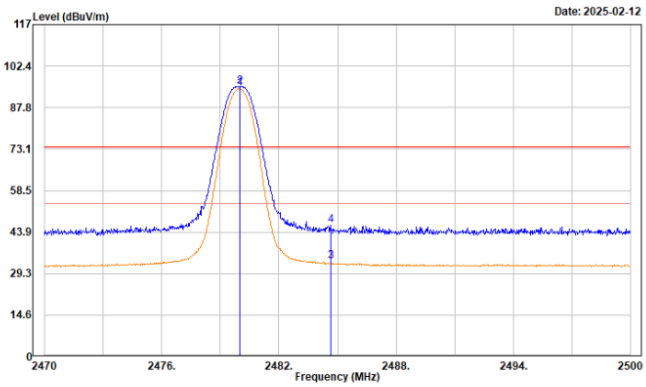
Description: BT_1DH5-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	111.85	-10.37	101.48			108	156	Average
2480.000	112.63	-10.37	102.26			108	156	Peak
2483.800	47.34	-10.31	37.03	54.00	-16.97	108	156	Average
2483.800	60.32	-10.31	50.01	74.00	-23.99	108	156	Peak

Vertical

Description: BT_1DH5-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



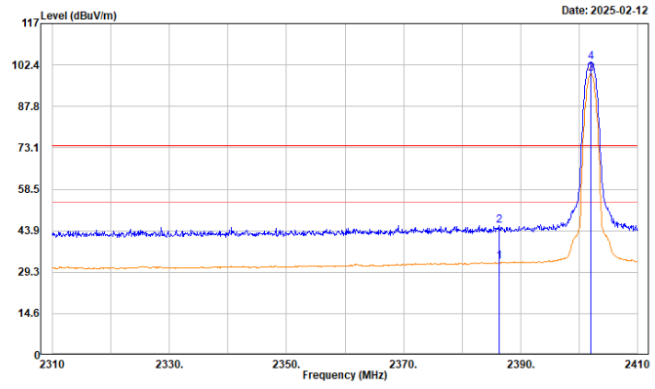
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	104.75	-10.37	94.38			120	356	Average
2480.000	105.54	-10.37	95.17			120	356	Peak
2484.640	43.92	-10.30	33.62	54.00	-20.38	120	356	Average
2484.640	56.46	-10.30	46.16	74.00	-27.84	120	356	Peak

EDR (π/4-DQPSK) Mode

Low channel

Horizontal

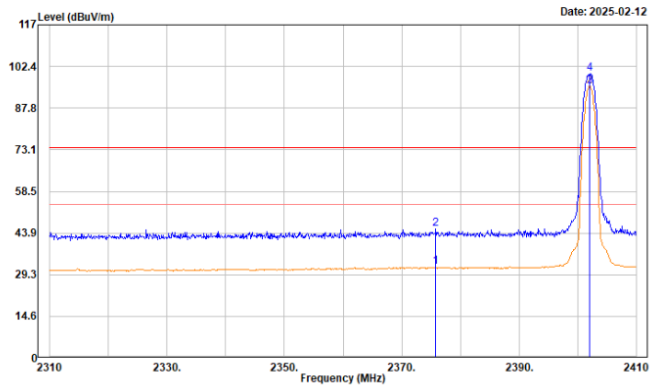
Description: BT_2DH5-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2386.300	43.70	-10.86	32.84	54.00	-21.16	301	201	Average
2386.300	56.47	-10.86	45.61	74.00	-28.39	301	201	Peak
2402.000	110.10	-10.78	99.32			301	201	Average
2402.000	114.24	-10.78	103.46			301	201	Peak

Vertical

Description: BT_2DH5-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz

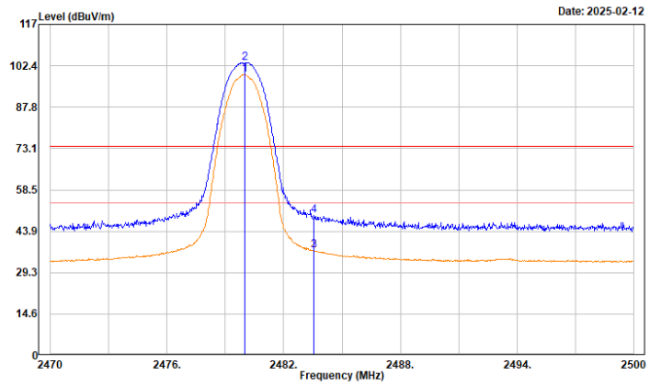


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2375.800	42.96	-10.94	32.02	54.00	-21.98	133	4	Average
2375.800	56.29	-10.94	45.35	74.00	-28.65	133	4	Peak
2402.000	106.37	-10.78	95.59			133	4	Average
2402.000	110.55	-10.78	99.77			133	4	Peak

High channel

Horizontal

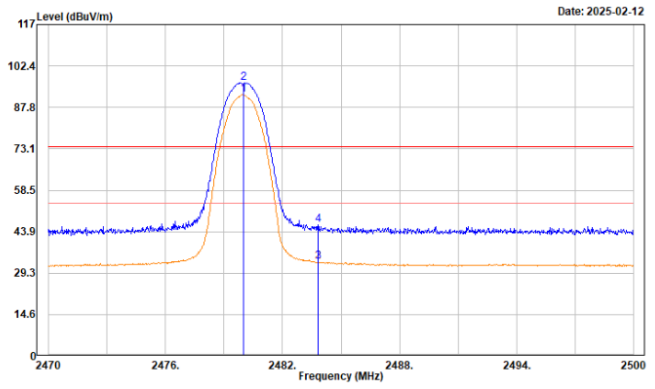
Description: BT_2DH5-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	109.64	-10.37	99.27			111	158	Average
2480.000	113.79	-10.37	103.42			111	158	Peak
2483.560	47.36	-10.32	37.04	54.00	-16.96	111	158	Average
2483.560	59.84	-10.32	49.52	74.00	-24.48	111	158	Peak

Vertical

Description: BT_2DH5-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



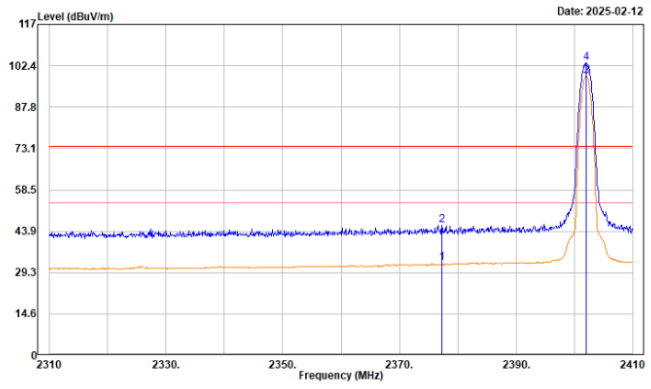
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	102.60	-10.37	92.23			123	355	Average
2480.000	106.74	-10.37	96.37			123	355	Peak
2483.830	43.74	-10.31	33.43	54.00	-20.57	123	355	Average
2483.830	56.54	-10.31	46.23	74.00	-27.77	123	355	Peak

EDR (8DPSK) Mode

Low channel

Horizontal

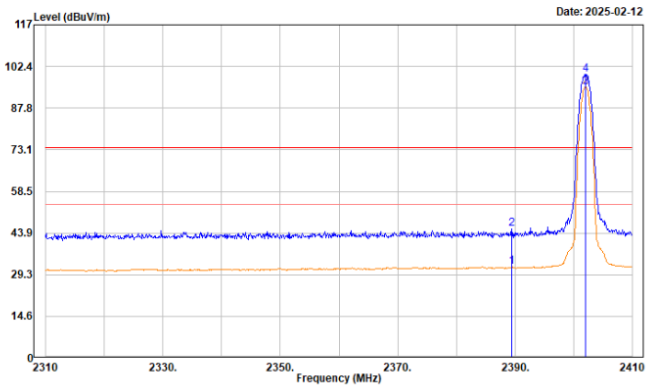
Description: BT_3DH5-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2377.300	43.74	-10.93	32.81	54.00	-21.19	340	203	Average
2377.300	56.81	-10.93	45.88	74.00	-28.12	340	203	Peak
2402.000	109.54	-10.78	98.76			340	203	Average
2402.000	114.06	-10.78	103.28			340	203	Peak

Vertical

Description: BT_3DH5-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz

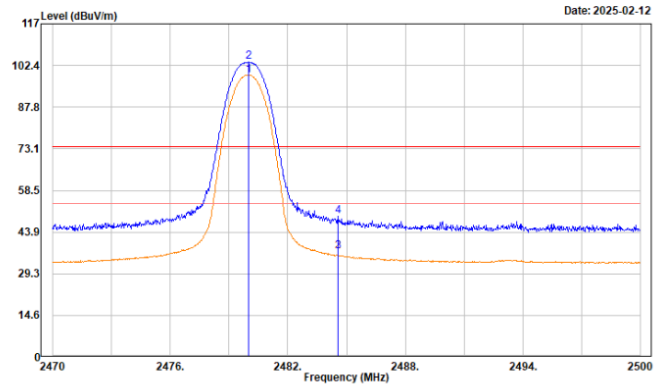


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2389.400	42.81	-10.84	31.97	54.00	-22.03	144	4	Average
2389.400	56.07	-10.84	45.23	74.00	-28.77	144	4	Peak
2402.000	105.91	-10.78	95.13			144	4	Average
2402.000	110.43	-10.78	99.65			144	4	Peak

High channel

Horizontal

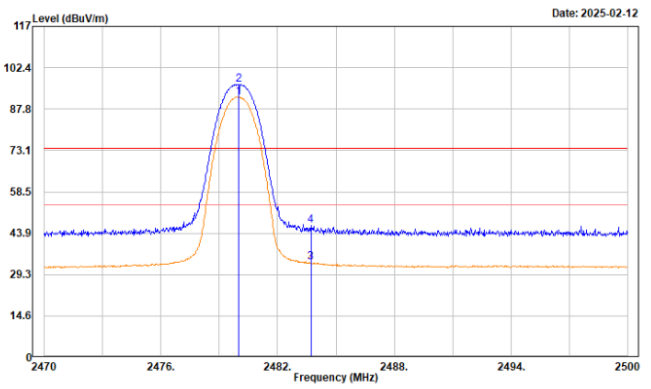
Description: BT_3DH5-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	109.37	-10.37	99.00			110	160	Average
2480.000	113.91	-10.37	103.54			110	160	Peak
2484.550	47.48	-10.31	37.17	54.00	-16.83	110	160	Average
2484.550	59.74	-10.31	49.43	74.00	-24.57	110	160	Peak

Vertical

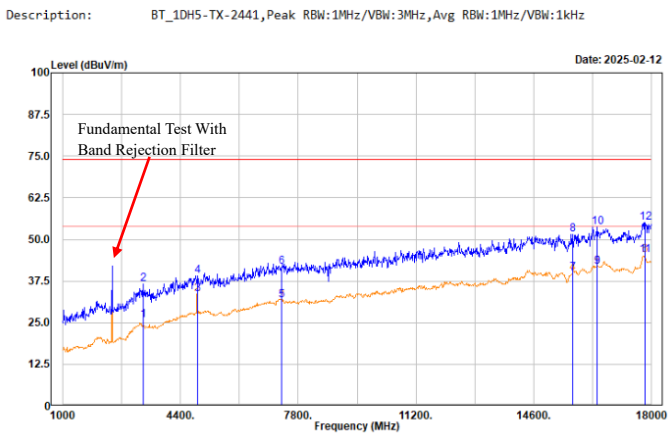
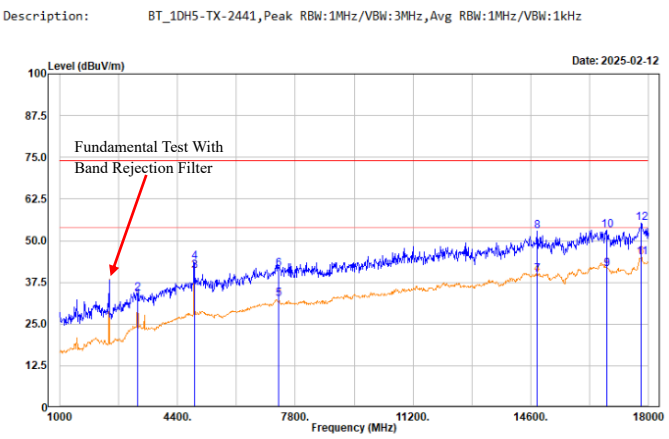
Description: BT_3DH5-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	102.33	-10.37	91.96			120	357	Average
2480.000	106.82	-10.37	96.45			120	357	Peak
2483.710	43.84	-10.32	33.52	54.00	-20.48	120	357	Average
2483.710	57.05	-10.32	46.73	74.00	-27.27	120	357	Peak

1GHz-18GHz:

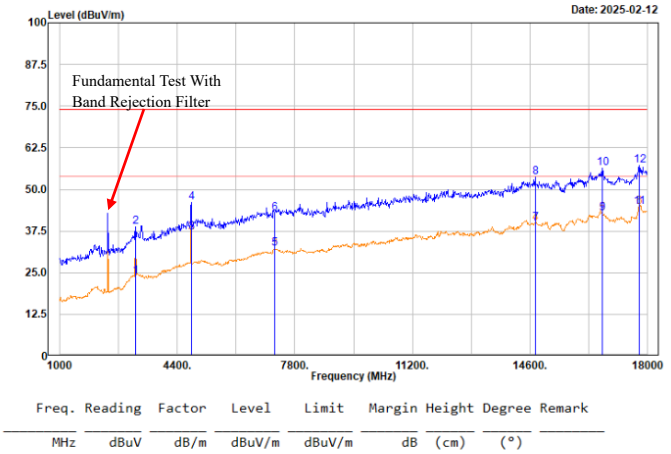
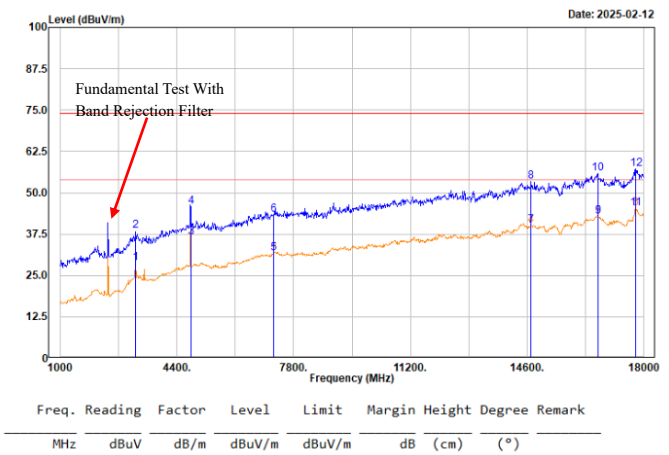
(BR (GFSK) mode worst case is middle channel)

Horizontal	Vertical
	

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3312.000	33.11	-7.30	25.81	54.00	-28.19	150	118	Average
3312.000	43.88	-7.30	36.58	74.00	-37.42	150	118	Peak
4882.000	37.31	-3.79	33.52	54.00	-20.48	149	345	Average
4882.000	42.80	-3.79	39.01	74.00	-34.99	149	345	Peak
7323.000	30.95	0.81	31.76	54.00	-22.24	100	241	Average
7323.000	40.93	0.81	41.74	74.00	-32.26	100	241	Peak
15722.000	31.48	8.44	39.92	54.00	-14.08	150	29	Average
15722.000	43.18	8.44	51.62	74.00	-22.38	150	29	Peak
16436.000	30.44	11.36	41.80	54.00	-12.20	150	173	Average
16436.000	42.38	11.36	53.74	74.00	-20.26	150	173	Peak
17813.000	32.04	13.24	45.28	54.00	-8.72	150	290	Average
17813.000	41.86	13.24	55.10	74.00	-18.90	150	290	Peak

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3244.000	39.31	-6.97	32.34	54.00	-21.66	150	225	Average
3244.000	41.08	-6.97	34.11	74.00	-39.89	150	225	Peak
4882.000	44.62	-3.79	40.83	54.00	-13.17	107	53	Average
4882.000	47.40	-3.79	43.61	74.00	-30.39	107	53	Peak
7323.000	31.70	0.81	32.51	54.00	-21.49	102	128	Average
7323.000	40.67	0.81	41.48	74.00	-32.52	102	128	Peak
14787.000	29.10	10.74	39.84	54.00	-14.16	150	339	Average
14787.000	42.02	10.74	52.76	74.00	-21.24	150	339	Peak
16810.000	29.99	11.58	41.57	54.00	-12.43	150	6	Average
16810.000	41.59	11.58	53.17	74.00	-20.83	150	6	Peak
17796.000	31.81	13.16	44.97	54.00	-9.03	150	179	Average
17796.000	42.14	13.16	55.30	74.00	-18.70	150	179	Peak

(EDR (π/4-DQPSK) mode worst case is low channel)

Horizontal	Vertical
	

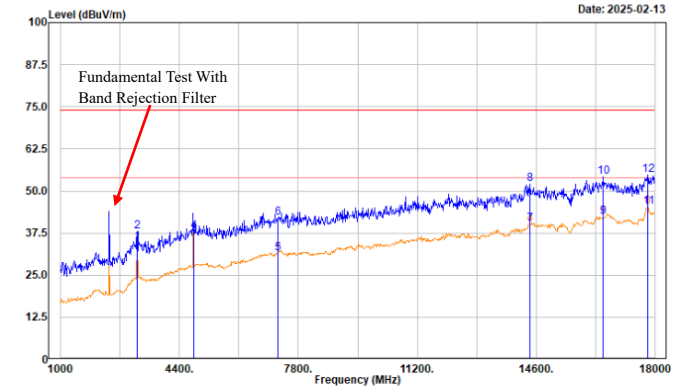
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	31.33	-7.35	23.98	54.00	-30.02	150	2	Average
3193.000	46.21	-7.35	38.86	74.00	-35.14	150	2	Peak
4804.000	41.59	-4.40	37.19	54.00	-16.81	208	343	Average
4804.000	50.48	-4.40	46.08	74.00	-27.92	208	343	Peak
7206.000	31.51	0.68	32.19	54.00	-21.81	109	180	Average
7206.000	42.08	0.68	42.76	74.00	-31.24	109	180	Peak
14753.000	29.16	10.76	39.92	54.00	-14.08	150	221	Average
14753.000	42.90	10.76	53.66	74.00	-20.34	150	221	Peak
16691.000	30.90	11.96	42.86	54.00	-11.14	150	151	Average
16691.000	44.30	11.96	56.26	74.00	-17.74	150	151	Peak
17762.000	31.80	13.03	44.83	54.00	-9.17	150	44	Average
17762.000	44.04	13.03	57.07	74.00	-16.93	150	44	Peak

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	36.07	-7.35	28.72	54.00	-25.28	150	122	Average
3193.000	45.87	-7.35	38.52	74.00	-35.48	150	122	Peak
4804.000	40.96	-4.40	36.56	54.00	-17.44	157	328	Average
4804.000	50.12	-4.40	45.72	74.00	-28.28	157	328	Peak
7206.000	30.93	0.68	31.61	54.00	-22.39	108	206	Average
7206.000	42.61	0.68	43.29	74.00	-30.71	108	206	Peak
14719.000	29.35	10.78	40.13	54.00	-13.87	150	5	Average
14719.000	42.55	10.78	53.33	74.00	-20.67	150	5	Peak
16657.000	30.87	11.95	42.82	54.00	-11.18	150	193	Average
16657.000	43.94	11.95	55.89	74.00	-18.11	150	193	Peak
17762.000	32.18	13.03	45.21	54.00	-8.79	150	259	Average
17762.000	44.26	13.03	57.29	74.00	-16.71	150	259	Peak

(EDR (8DPSK) mode worst case is low channel)

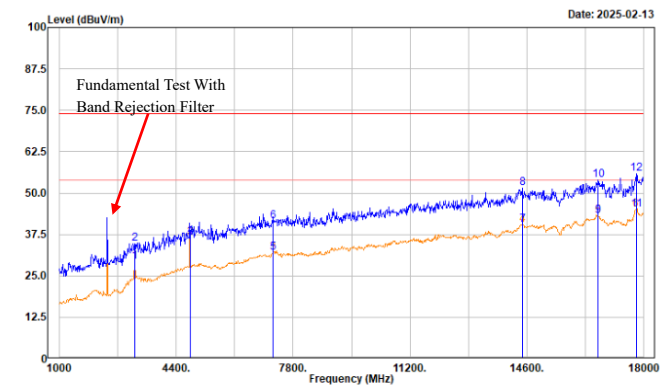
Horizontal	Vertical

Description: BT_3DH5-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	41.94	-7.35	34.59	54.00	-19.41	150	133	Average
3193.000	45.40	-7.35	38.05	74.00	-35.95	150	133	Peak
4804.000	41.61	-4.40	37.21	54.00	-16.79	105	348	Average
4804.000	42.42	-4.40	38.02	74.00	-35.98	105	348	Peak
7206.000	30.89	0.68	31.57	54.00	-22.43	119	169	Average
7206.000	41.20	0.68	41.88	74.00	-32.12	119	169	Peak
14430.000	29.26	10.93	40.19	54.00	-13.81	150	200	Average
14430.000	41.22	10.93	52.15	74.00	-21.85	150	200	Peak
16521.000	30.47	11.80	42.27	54.00	-11.73	150	5	Average
16521.000	42.43	11.80	54.23	74.00	-19.77	150	5	Peak
17796.000	32.08	13.16	45.24	54.00	-8.76	150	67	Average
17796.000	41.71	13.16	54.87	74.00	-19.13	150	67	Peak

Description: BT_3DH5-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



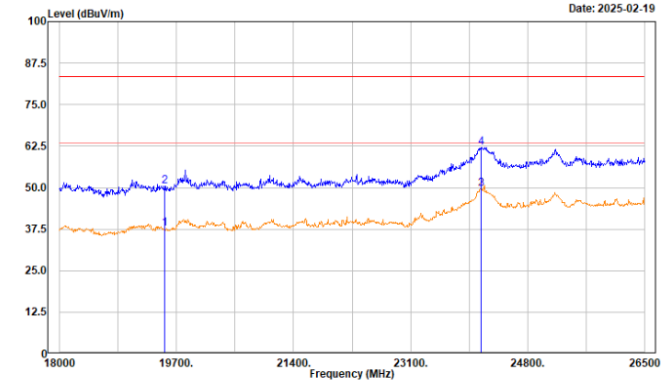
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	36.52	-7.35	29.17	54.00	-24.83	150	222	Average
3193.000	42.15	-7.35	34.80	74.00	-39.20	150	222	Peak
4804.000	40.92	-4.40	36.52	54.00	-17.48	180	334	Average
4804.000	41.39	-4.40	36.99	74.00	-37.01	180	334	Peak
7206.000	31.17	0.68	31.85	54.00	-22.15	125	172	Average
7206.000	40.72	0.68	41.40	74.00	-32.60	125	172	Peak
14464.000	29.40	10.96	40.36	54.00	-13.64	150	77	Average
14464.000	40.44	10.96	51.40	74.00	-22.60	150	77	Peak
16674.000	31.13	11.96	43.09	54.00	-10.91	150	108	Average
16674.000	42.04	11.96	54.00	74.00	-20.00	150	108	Peak
17779.000	31.96	13.09	45.05	54.00	-8.95	150	1	Average
17779.000	42.77	13.09	55.86	74.00	-18.14	150	1	Peak

18GHz-26.5GHz:

(BR (GFSK) mode worst case is middle channel)

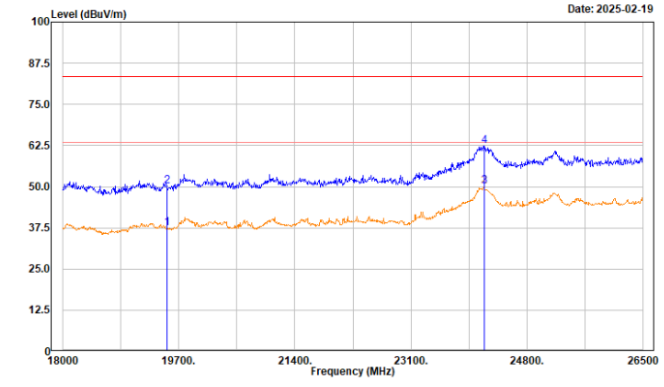
Horizontal	Vertical

Description: BT_1DH5-TX-2441,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
19528.000	39.37	-1.81	37.56	63.50	-25.94	150	360	Average
19528.000	52.30	-1.81	50.49	83.50	-33.01	150	360	Peak
24120.000	36.38	13.19	49.57	63.50	-13.93	150	272	Average
24120.000	48.94	13.19	62.13	83.50	-21.37	150	272	Peak

Description: BT_1DH5-TX-2441,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
19528.000	39.20	-1.81	37.39	63.50	-26.11	150	235	Average
19528.000	52.03	-1.81	50.22	83.50	-33.28	150	235	Peak
24171.000	37.90	12.28	50.18	63.50	-13.32	150	143	Average
24171.000	50.08	12.28	62.36	83.50	-21.14	150	143	Peak

Level = Reading + Factor.

Margin = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

For 18-26.5GHz Convert the test distance limit of 3 meters to a limit of 1 meter:

Conversion factor = 20 log (1m/3m) = 9.5 dB,

Average Limit = 54+9.5 = 63.50 dBuV/m@1m , Peak Limit = 63.50+20 = 83.50 dBuV/m@1m

Above 1GHz

BR (GFSK)

Low channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	34.84	-7.35	27.49	54.00	-26.51	150	57	Average
3193.000	43.67	-7.35	36.32	74.00	-37.68	150	57	Peak
4804.000	31.74	-4.40	27.34	54.00	-26.66	254	344	Average
4804.000	44.60	-4.40	40.20	74.00	-33.80	254	344	Peak
7206.000	31.00	0.68	31.68	54.00	-22.32	105	198	Average
7206.000	39.43	0.68	40.11	74.00	-33.89	105	198	Peak
14498.000	29.17	11.01	40.18	54.00	-13.82	150	206	Average
14498.000	41.35	11.01	52.36	74.00	-21.64	150	206	Peak
16691.000	30.80	11.96	42.76	54.00	-11.24	150	15	Average
16691.000	42.69	11.96	54.65	74.00	-19.35	150	15	Peak
17728.000	31.05	12.88	43.93	54.00	-10.07	150	102	Average
17728.000	42.16	12.88	55.04	74.00	-18.96	150	102	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3482.000	34.94	-7.96	26.98	54.00	-27.02	150	132	Average
3482.000	43.61	-7.96	35.65	74.00	-38.35	150	132	Peak
4804.000	42.55	-4.40	38.15	54.00	-15.85	162	50	Average
4804.000	45.32	-4.40	40.92	74.00	-33.08	162	50	Peak
7206.000	30.93	0.68	31.61	54.00	-22.39	100	104	Average
7206.000	39.62	0.68	40.30	74.00	-33.70	100	104	Peak
15416.000	31.05	8.72	39.77	54.00	-14.23	150	217	Average
15416.000	43.45	8.72	52.17	74.00	-21.83	150	217	Peak
16623.000	31.36	11.94	43.30	54.00	-10.70	150	331	Average
16623.000	41.74	11.94	53.68	74.00	-20.32	150	331	Peak
17796.000	31.42	13.16	44.58	54.00	-9.42	150	19	Average
17796.000	43.24	13.16	56.40	74.00	-17.60	150	19	Peak

Middle channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3312.000	33.11	-7.30	25.81	54.00	-28.19	150	118	Average
3312.000	43.88	-7.30	36.58	74.00	-37.42	150	118	Peak
4882.000	37.31	-3.79	33.52	54.00	-20.48	149	345	Average
4882.000	42.80	-3.79	39.01	74.00	-34.99	149	345	Peak
7323.000	30.95	0.81	31.76	54.00	-22.24	100	241	Average
7323.000	40.93	0.81	41.74	74.00	-32.26	100	241	Peak
15722.000	31.48	8.44	39.92	54.00	-14.08	150	29	Average
15722.000	43.18	8.44	51.62	74.00	-22.38	150	29	Peak
16436.000	30.44	11.36	41.80	54.00	-12.20	150	173	Average
16436.000	42.38	11.36	53.74	74.00	-20.26	150	173	Peak
17813.000	32.04	13.24	45.28	54.00	-8.72	150	290	Average
17813.000	41.86	13.24	55.10	74.00	-18.90	150	290	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3244.000	39.31	-6.97	32.34	54.00	-21.66	150	225	Average
3244.000	41.08	-6.97	34.11	74.00	-39.89	150	225	Peak
4882.000	44.62	-3.79	40.83	54.00	-13.17	107	53	Average
4882.000	47.40	-3.79	43.61	74.00	-30.39	107	53	Peak
7323.000	31.70	0.81	32.51	54.00	-21.49	102	128	Average
7323.000	40.67	0.81	41.48	74.00	-32.52	102	128	Peak
14787.000	29.10	10.74	39.84	54.00	-14.16	150	339	Average
14787.000	42.02	10.74	52.76	74.00	-21.24	150	339	Peak
16810.000	29.99	11.58	41.57	54.00	-12.43	150	6	Average
16810.000	41.59	11.58	53.17	74.00	-20.83	150	6	Peak
17796.000	31.81	13.16	44.97	54.00	-9.03	150	179	Average
17796.000	42.14	13.16	55.30	74.00	-18.70	150	179	Peak

High channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3295.000	40.29	-7.27	33.02	54.00	-20.98	150	241	Average
3295.000	47.72	-7.27	40.45	74.00	-33.55	150	241	Peak
4960.000	44.12	-3.95	40.17	54.00	-13.83	112	303	Average
4960.000	47.67	-3.95	43.72	74.00	-30.28	112	303	Peak
7440.000	30.87	0.42	31.29	54.00	-22.71	100	195	Average
7440.000	42.35	0.42	42.77	74.00	-31.23	100	195	Peak
16062.000	30.66	9.99	40.65	54.00	-13.35	150	76	Average
16062.000	43.47	9.99	53.46	74.00	-20.54	150	76	Peak
16708.000	30.36	11.93	42.29	54.00	-11.71	150	289	Average
16708.000	43.27	11.93	55.20	74.00	-18.80	150	289	Peak
17779.000	31.68	13.09	44.77	54.00	-9.23	150	114	Average
17779.000	43.75	13.09	56.84	74.00	-17.16	150	114	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3295.000	42.20	-7.27	34.93	54.00	-19.07	150	152	Average
3295.000	48.46	-7.27	41.19	74.00	-32.81	150	152	Peak
4960.000	42.78	-3.95	38.83	54.00	-15.17	244	306	Average
4960.000	49.07	-3.95	45.12	74.00	-28.88	244	306	Peak
7440.000	30.62	0.42	31.04	54.00	-22.96	129	16	Average
7440.000	43.83	0.42	44.25	74.00	-29.75	129	16	Peak
14396.000	29.14	10.87	40.01	54.00	-13.99	150	209	Average
14396.000	42.76	10.87	53.63	74.00	-20.37	150	209	Peak
16657.000	31.03	11.95	42.98	54.00	-11.02	150	60	Average
16657.000	45.55	11.95	57.50	74.00	-16.50	150	60	Peak
17796.000	32.07	13.16	45.23	54.00	-8.77	150	170	Average
17796.000	44.57	13.16	57.73	74.00	-16.27	150	170	Peak

Note:

Level = Reading + Factor.

Margin = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

EDR (π/4-DQPSK)

Low channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	31.33	-7.35	23.98	54.00	-30.02	150	2	Average
3193.000	46.21	-7.35	38.86	74.00	-35.14	150	2	Peak
4804.000	41.59	-4.40	37.19	54.00	-16.81	208	343	Average
4804.000	50.48	-4.40	46.08	74.00	-27.92	208	343	Peak
7206.000	31.51	0.68	32.19	54.00	-21.81	109	180	Average
7206.000	42.08	0.68	42.76	74.00	-31.24	109	180	Peak
14753.000	29.16	10.76	39.92	54.00	-14.08	150	221	Average
14753.000	42.90	10.76	53.66	74.00	-20.34	150	221	Peak
16691.000	30.90	11.96	42.86	54.00	-11.14	150	151	Average
16691.000	44.30	11.96	56.26	74.00	-17.74	150	151	Peak
17762.000	31.80	13.03	44.83	54.00	-9.17	150	44	Average
17762.000	44.04	13.03	57.07	74.00	-16.93	150	44	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	36.07	-7.35	28.72	54.00	-25.28	150	122	Average
3193.000	45.87	-7.35	38.52	74.00	-35.48	150	122	Peak
4804.000	40.96	-4.40	36.56	54.00	-17.44	157	328	Average
4804.000	50.12	-4.40	45.72	74.00	-28.28	157	328	Peak
7206.000	30.93	0.68	31.61	54.00	-22.39	108	206	Average
7206.000	42.61	0.68	43.29	74.00	-30.71	108	206	Peak
14719.000	29.35	10.78	40.13	54.00	-13.87	150	5	Average
14719.000	42.55	10.78	53.33	74.00	-20.67	150	5	Peak
16657.000	30.87	11.95	42.82	54.00	-11.18	150	193	Average
16657.000	43.94	11.95	55.89	74.00	-18.11	150	193	Peak
17762.000	32.18	13.03	45.21	54.00	-8.79	150	259	Average
17762.000	44.26	13.03	57.29	74.00	-16.71	150	259	Peak

Middle channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3244.000	34.13	-6.97	27.16	54.00	-26.84	150	233	Average
3244.000	48.82	-6.97	41.85	74.00	-32.15	150	233	Peak
4882.000	40.87	-3.79	37.08	54.00	-16.92	149	347	Average
4882.000	47.88	-3.79	44.09	74.00	-29.91	149	347	Peak
7323.000	30.87	0.81	31.68	54.00	-22.32	104	184	Average
7323.000	42.44	0.81	43.25	74.00	-30.75	104	184	Peak
14838.000	29.20	10.57	39.77	54.00	-14.23	150	41	Average
14838.000	42.15	10.57	52.72	74.00	-21.28	150	41	Peak
16657.000	31.05	11.95	43.00	54.00	-11.00	150	288	Average
16657.000	43.35	11.95	55.30	74.00	-18.70	150	288	Peak
17762.000	32.10	13.03	45.13	54.00	-8.87	150	99	Average
17762.000	43.68	13.03	56.71	74.00	-17.29	150	99	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3244.000	39.73	-6.97	32.76	54.00	-21.24	150	250	Average
3244.000	47.14	-6.97	40.17	74.00	-33.83	150	250	Peak
4882.000	41.82	-3.79	38.03	54.00	-15.97	105	54	Average
4882.000	48.40	-3.79	44.61	74.00	-29.39	105	54	Peak
7323.000	32.13	0.81	32.94	54.00	-21.06	113	60	Average
7323.000	43.02	0.81	43.83	74.00	-30.17	113	60	Peak
14345.000	28.12	10.58	38.70	54.00	-15.30	150	144	Average
14345.000	44.05	10.58	54.63	74.00	-19.37	150	144	Peak
16691.000	30.42	11.96	42.38	54.00	-11.62	150	349	Average
16691.000	42.86	11.96	54.82	74.00	-19.18	150	349	Peak
17847.000	30.64	13.44	44.08	54.00	-9.92	150	111	Average
17847.000	43.44	13.44	56.88	74.00	-17.12	150	111	Peak

High channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3295.000	39.99	-7.27	32.72	54.00	-21.28	150	353	Average
3295.000	47.76	-7.27	40.49	74.00	-33.51	150	353	Peak
4960.000	41.93	-3.95	37.98	54.00	-16.02	112	304	Average
4960.000	49.20	-3.95	45.25	74.00	-28.75	112	304	Peak
7440.000	30.87	0.42	31.29	54.00	-22.71	101	260	Average
7440.000	42.73	0.42	43.15	74.00	-30.85	101	260	Peak
15756.000	31.59	8.64	40.23	54.00	-13.77	150	10	Average
15756.000	44.36	8.64	53.00	74.00	-21.00	150	10	Peak
16521.000	30.24	11.80	42.04	54.00	-11.96	150	123	Average
16521.000	44.07	11.80	55.87	74.00	-18.13	150	123	Peak
17779.000	31.82	13.09	44.91	54.00	-9.09	150	200	Average
17779.000	44.49	13.09	57.58	74.00	-16.42	150	200	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3295.000	41.70	-7.27	34.43	54.00	-19.57	150	26	Average
3295.000	47.59	-7.27	40.32	74.00	-33.68	150	26	Peak
4960.000	40.60	-3.95	36.65	54.00	-17.35	245	307	Average
4960.000	47.76	-3.95	43.81	74.00	-30.19	245	307	Peak
7440.000	30.74	0.42	31.16	54.00	-22.84	100	348	Average
7440.000	42.30	0.42	42.72	74.00	-31.28	100	348	Peak
15790.000	31.36	8.84	40.20	54.00	-13.80	150	202	Average
15790.000	44.36	8.84	53.20	74.00	-20.80	150	202	Peak
16691.000	30.88	11.96	42.84	54.00	-11.16	150	105	Average
16691.000	43.56	11.96	55.52	74.00	-18.48	150	105	Peak
17745.000	31.43	12.94	44.37	54.00	-9.63	150	98	Average
17745.000	44.52	12.94	57.46	74.00	-16.54	150	98	Peak

Note:

Level = Reading + Factor.

Margin = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

EDR (8DPSK)

Low channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	41.94	-7.35	34.59	54.00	-19.41	150	133	Average
3193.000	45.40	-7.35	38.05	74.00	-35.95	150	133	Peak
4804.000	41.61	-4.40	37.21	54.00	-16.79	105	348	Average
4804.000	42.42	-4.40	38.02	74.00	-35.98	105	348	Peak
7206.000	30.89	0.68	31.57	54.00	-22.43	119	169	Average
7206.000	41.20	0.68	41.88	74.00	-32.12	119	169	Peak
14430.000	29.26	10.93	40.19	54.00	-13.81	150	200	Average
14430.000	41.22	10.93	52.15	74.00	-21.85	150	200	Peak
16521.000	30.47	11.80	42.27	54.00	-11.73	150	5	Average
16521.000	42.43	11.80	54.23	74.00	-19.77	150	5	Peak
17796.000	32.08	13.16	45.24	54.00	-8.76	150	67	Average
17796.000	41.71	13.16	54.87	74.00	-19.13	150	67	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3193.000	36.52	-7.35	29.17	54.00	-24.83	150	222	Average
3193.000	42.15	-7.35	34.80	74.00	-39.20	150	222	Peak
4804.000	40.92	-4.40	36.52	54.00	-17.48	180	334	Average
4804.000	41.39	-4.40	36.99	74.00	-37.01	180	334	Peak
7206.000	31.17	0.68	31.85	54.00	-22.15	125	172	Average
7206.000	40.72	0.68	41.40	74.00	-32.60	125	172	Peak
14464.000	29.40	10.96	40.36	54.00	-13.64	150	77	Average
14464.000	40.44	10.96	51.40	74.00	-22.60	150	77	Peak
16674.000	31.13	11.96	43.09	54.00	-10.91	150	108	Average
16674.000	42.04	11.96	54.00	74.00	-20.00	150	108	Peak
17779.000	31.96	13.09	45.05	54.00	-8.95	150	1	Average
17779.000	42.77	13.09	55.86	74.00	-18.14	150	1	Peak

Middle channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3380.000	31.17	-7.57	23.60	54.00	-30.40	150	306	Average
3380.000	49.39	-7.57	41.82	74.00	-32.18	150	306	Peak
4882.000	42.55	-3.79	38.76	54.00	-15.24	247	335	Average
4882.000	46.93	-3.79	43.14	74.00	-30.86	247	335	Peak
7323.000	31.00	0.81	31.81	54.00	-22.19	151	161	Average
7323.000	41.84	0.81	42.65	74.00	-31.35	151	161	Peak
15824.000	31.84	8.95	40.79	54.00	-13.21	150	221	Average
15824.000	42.62	8.95	51.57	74.00	-22.43	150	221	Peak
16691.000	30.80	11.96	42.76	54.00	-11.24	150	79	Average
16691.000	41.93	11.96	53.89	74.00	-20.11	150	79	Peak
17745.000	31.52	12.94	44.46	54.00	-9.54	150	30	Average
17745.000	42.65	12.94	55.59	74.00	-18.41	150	30	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3244.000	34.12	-6.97	27.15	54.00	-26.85	150	9	Average
3244.000	43.73	-6.97	36.76	74.00	-37.24	150	9	Peak
4882.000	35.07	-3.79	31.28	54.00	-22.72	157	49	Average
4882.000	41.88	-3.79	38.09	74.00	-35.91	157	49	Peak
7323.000	31.55	0.81	32.36	54.00	-21.64	193	194	Average
7323.000	39.61	0.81	40.42	74.00	-33.58	193	194	Peak
14447.000	29.26	10.95	40.21	54.00	-13.79	150	240	Average
14447.000	41.68	10.95	52.63	74.00	-21.37	150	240	Peak
16793.000	30.19	11.61	41.80	54.00	-12.20	150	355	Average
16793.000	42.74	11.61	54.35	74.00	-19.65	150	355	Peak
17796.000	31.77	13.16	44.93	54.00	-9.07	150	134	Average
17796.000	42.21	13.16	55.37	74.00	-18.63	150	134	Peak

High channel

Horizontal

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3295.000	37.91	-7.27	30.64	54.00	-23.36	150	127	Average
3295.000	43.19	-7.27	35.92	74.00	-38.08	150	127	Peak
4960.000	41.73	-3.95	37.78	54.00	-16.22	110	304	Average
4960.000	40.13	-3.95	36.18	74.00	-37.82	110	304	Peak
7440.000	30.96	0.42	31.38	54.00	-22.62	197	229	Average
7440.000	41.74	0.42	42.16	74.00	-31.84	197	229	Peak
14413.000	29.35	10.90	40.25	54.00	-13.75	150	88	Average
14413.000	41.79	10.90	52.69	74.00	-21.31	150	88	Peak
16640.000	31.39	11.95	43.34	54.00	-10.66	150	167	Average
16640.000	41.84	11.95	53.79	74.00	-20.21	150	167	Peak
17830.000	30.72	13.35	44.07	54.00	-9.93	150	8	Average
17830.000	42.71	13.35	56.06	74.00	-17.94	150	8	Peak

Vertical

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3295.000	39.60	-7.27	32.33	54.00	-21.67	150	208	Average
3295.000	43.39	-7.27	36.12	74.00	-37.88	150	208	Peak
4960.000	36.63	-3.95	32.68	54.00	-21.32	240	312	Average
4960.000	47.50	-3.95	43.55	74.00	-30.45	240	312	Peak
7440.000	31.21	0.42	31.63	54.00	-22.37	107	42	Average
7440.000	42.36	0.42	42.78	74.00	-31.22	107	42	Peak
14498.000	29.22	11.01	40.23	54.00	-13.77	150	102	Average
14498.000	40.92	11.01	51.93	74.00	-22.07	150	102	Peak
16606.000	30.58	11.94	42.52	54.00	-11.48	150	93	Average
16606.000	42.66	11.94	54.60	74.00	-19.40	150	93	Peak
17796.000	31.91	13.16	45.07	54.00	-8.93	150	267	Average
17796.000	42.70	13.16	55.86	74.00	-18.14	150	267	Peak

Note:

Level = Reading + Factor.

Margin = Level – Limit.

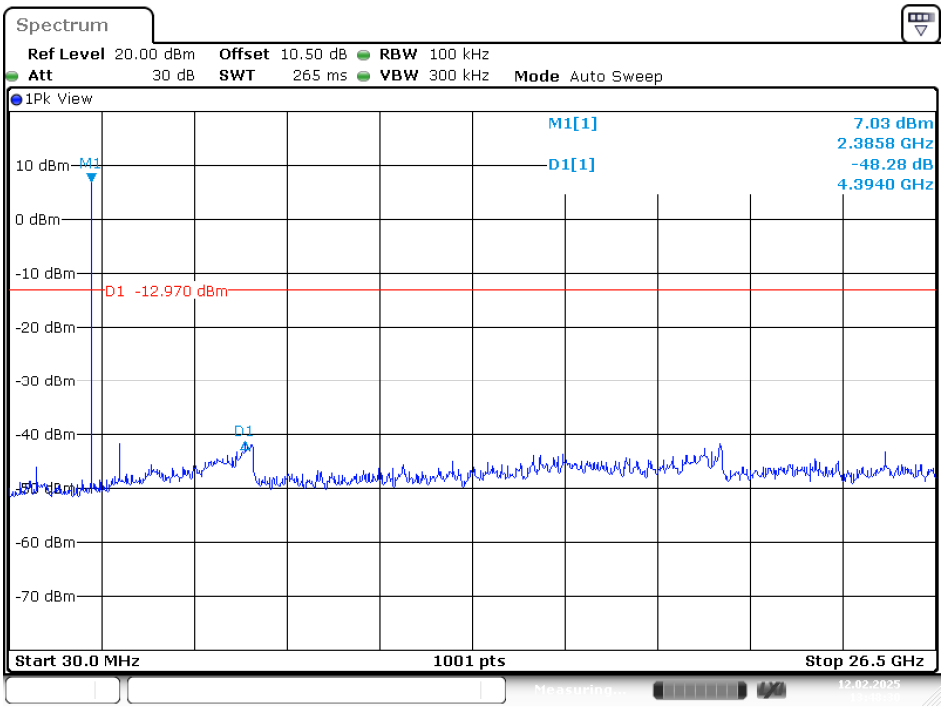
Factor = Antenna Factor + Cable Loss – Amplifier Gain.

Conducted Spurious Emissions:

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
BR Mode (GFSK)				
Low	2402	48.28	≥ 20	PASS
Mid	2441	51.21	≥ 20	PASS
High	2480	50.39	≥ 20	PASS
EDR Mode (π/4-DQPSK):				
Low	2402	46.76	≥ 20	PASS
Mid	2441	48.91	≥ 20	PASS
High	2480	48.32	≥ 20	PASS
EDR Mode (8DPSK):				
Low	2402	44.09	≥ 20	PASS
Mid	2441	47.45	≥ 20	PASS
High	2480	48.57	≥ 20	PASS

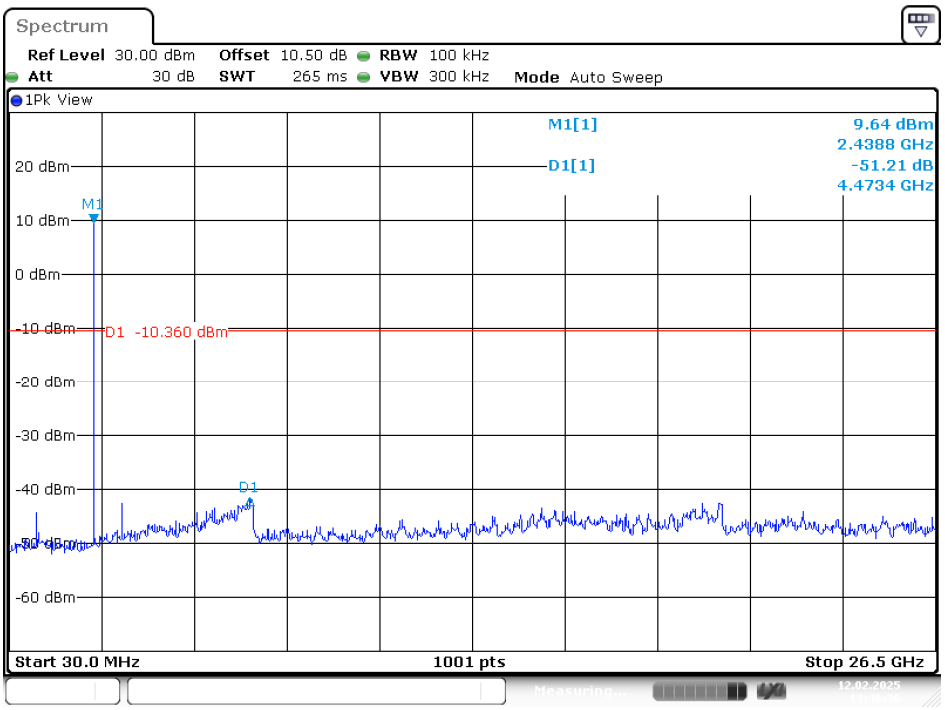
BR Mode (GFSK)

Low Channel



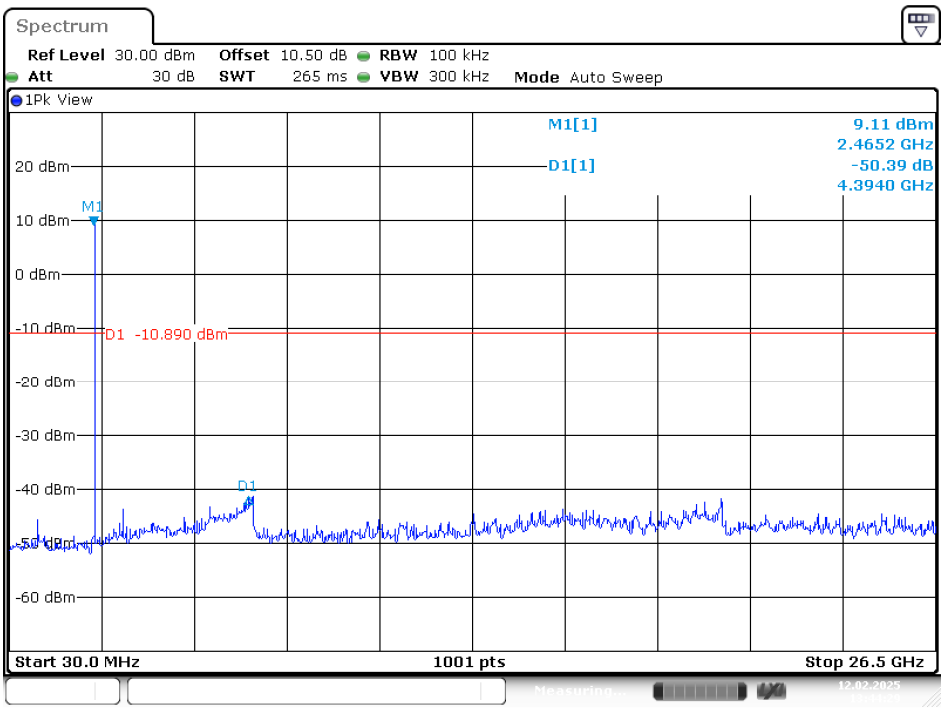
Date: 12.FEB.2025 13:48:30

Middle Channel



Date: 12.FEB.2025 13:46:36

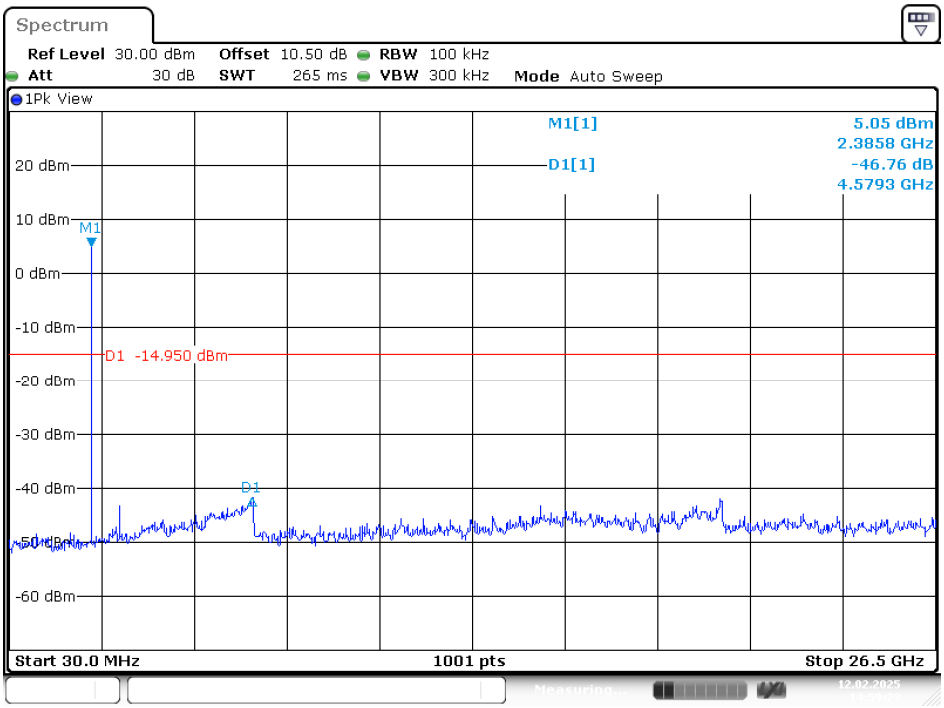
High Channel



Date: 12.FEB.2025 13:44:30

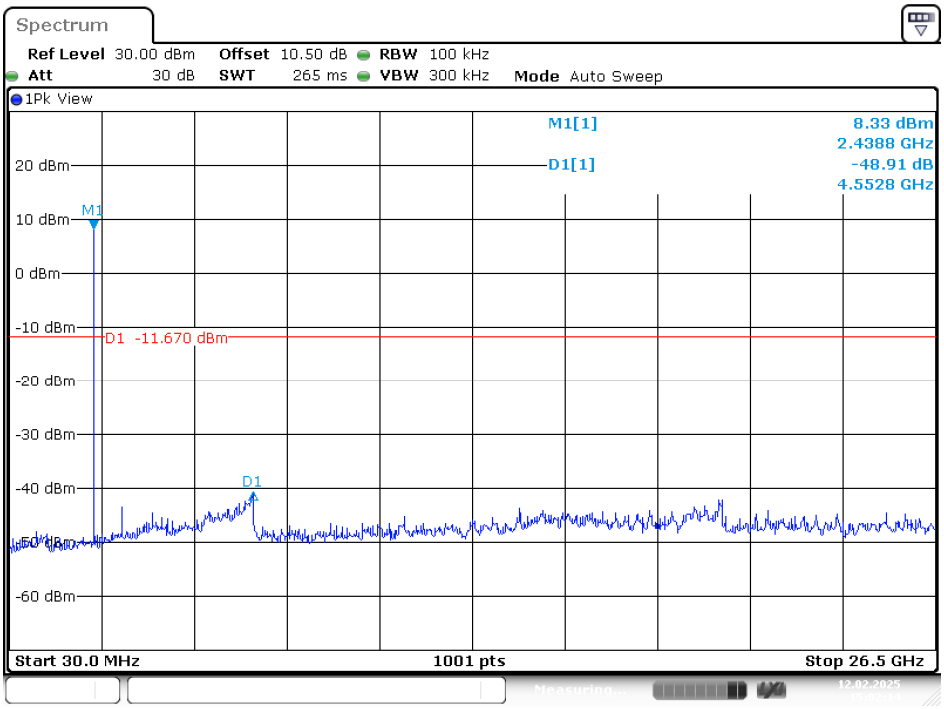
EDR Mode (π/4-DQPSK)

Low Channel



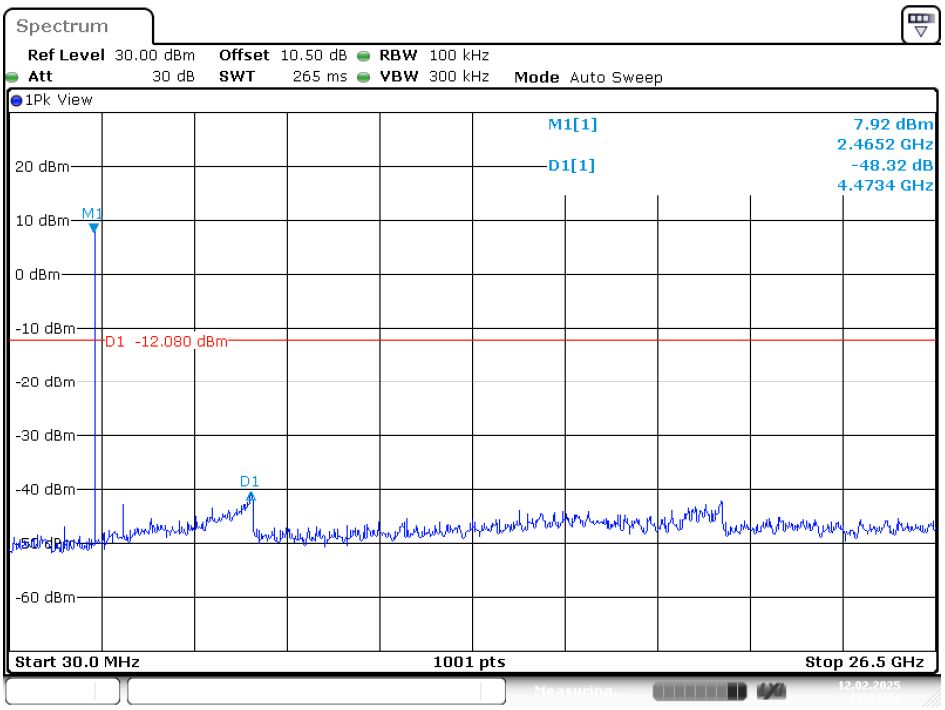
Date: 12.FEB.2025 14:59:24

Middle Channel



Date: 12.FEB.2025 15:02:14

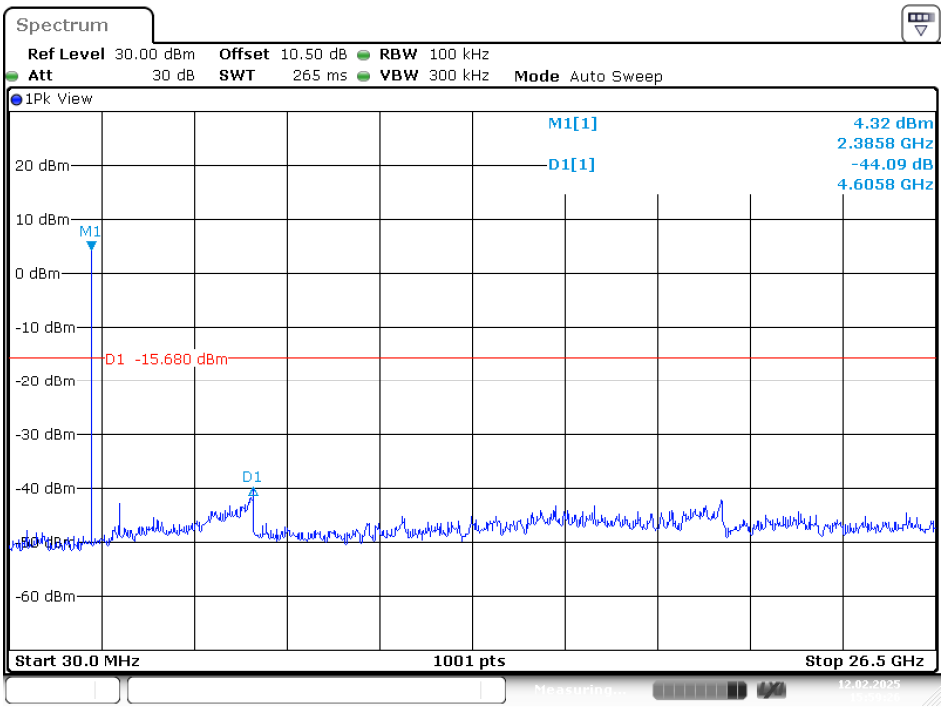
High Channel



Date: 12.FEB.2025 15:04:25

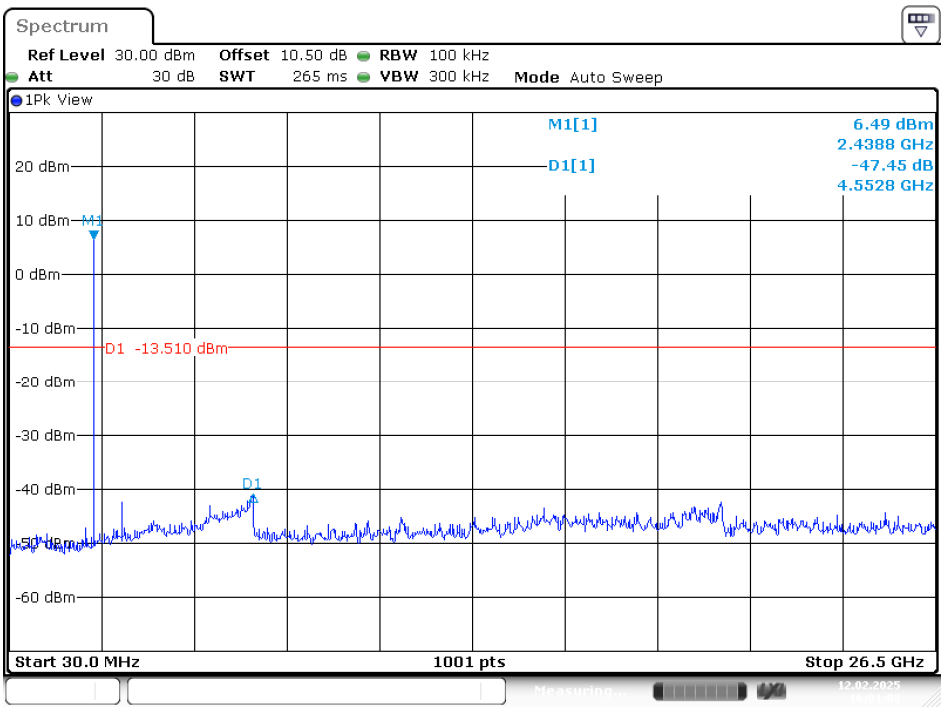
EDR Mode (8DPSK)

Low Channel



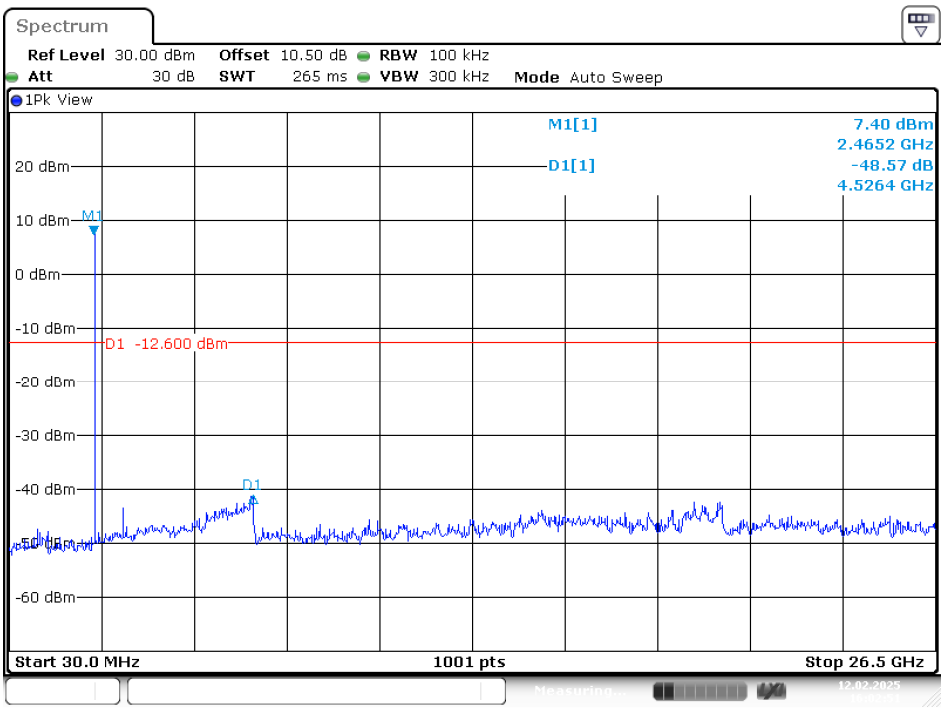
Date: 12.FEB.2025 15:59:27

Middle Channel



Date: 12.FEB.2025 16:01:03

High Channel



Date: 12.FEB.2025 16:02:51

7. FCC §15.247(a)(1) – 20 dB Emission Bandwidth

7.1. Applicable Standard

According to FCC §15.247(a) (1) the maximum 20 dB bandwidth of the hopping channel shall be presented.

7.2. Test Procedure

According to ANSI C63.10-2013, section 6.9.2

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.

3 Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.

4. Repeat above procedures until all frequencies measured were complete.

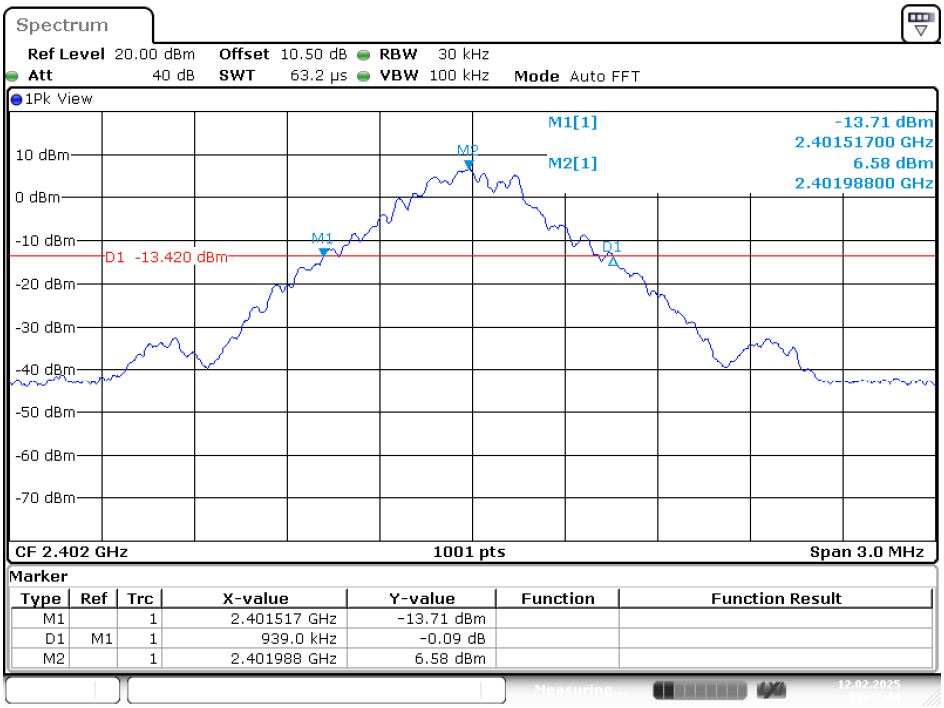
7.3. Test Results

Channel	Frequency (MHz)	20 dBc BW (MHz)
BR Mode (GFSK)		
Low	2402	0.94
Middle	2441	0.94
High	2480	0.95
EDR Mode (π/4-DQPSK)		
Low	2402	1.33
Middle	2441	1.33
High	2480	1.33
EDR Mode (8DPSK)		
Low	2402	1.31
Middle	2441	1.31
High	2480	1.31

Please refer to the following plots

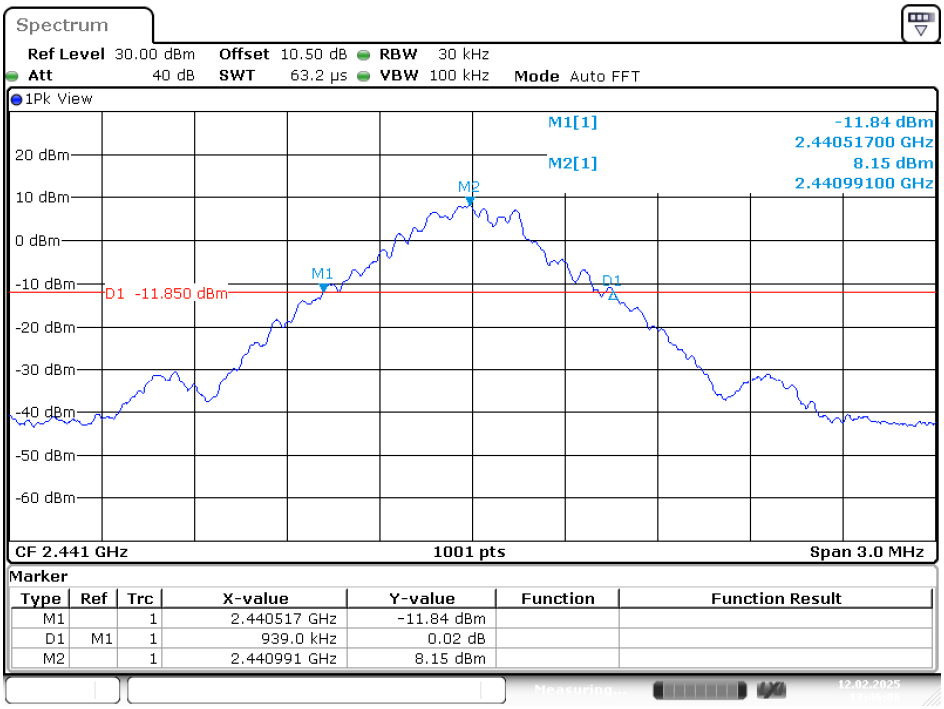
BR Mode (GFSK)

Low Channel



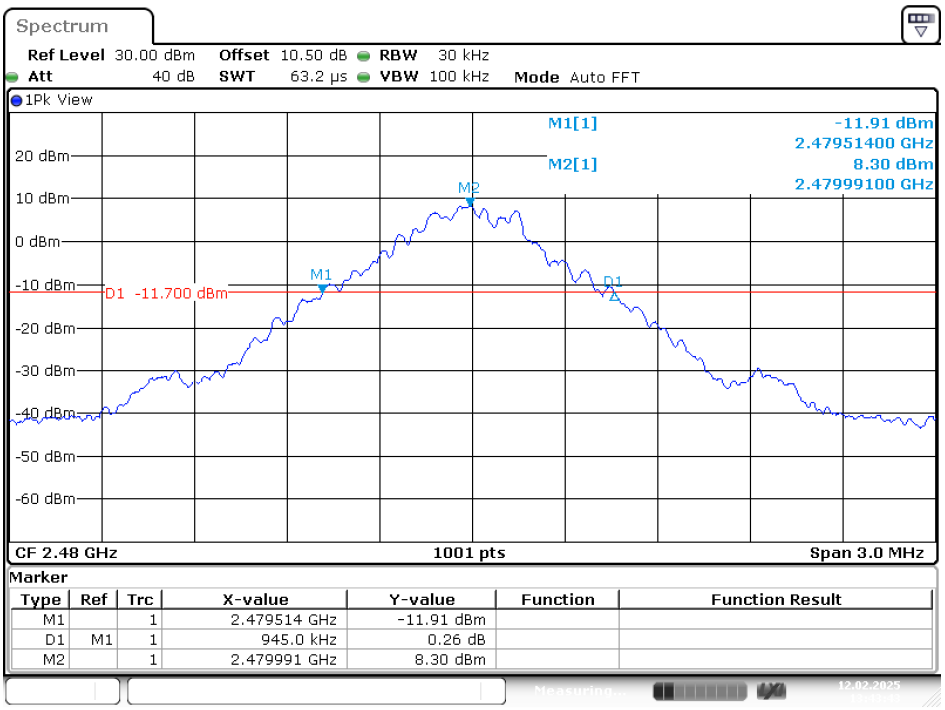
Date: 12.FEB.2025 13:47:44

Middle Channel



Date: 12.FEB.2025 13:46:06

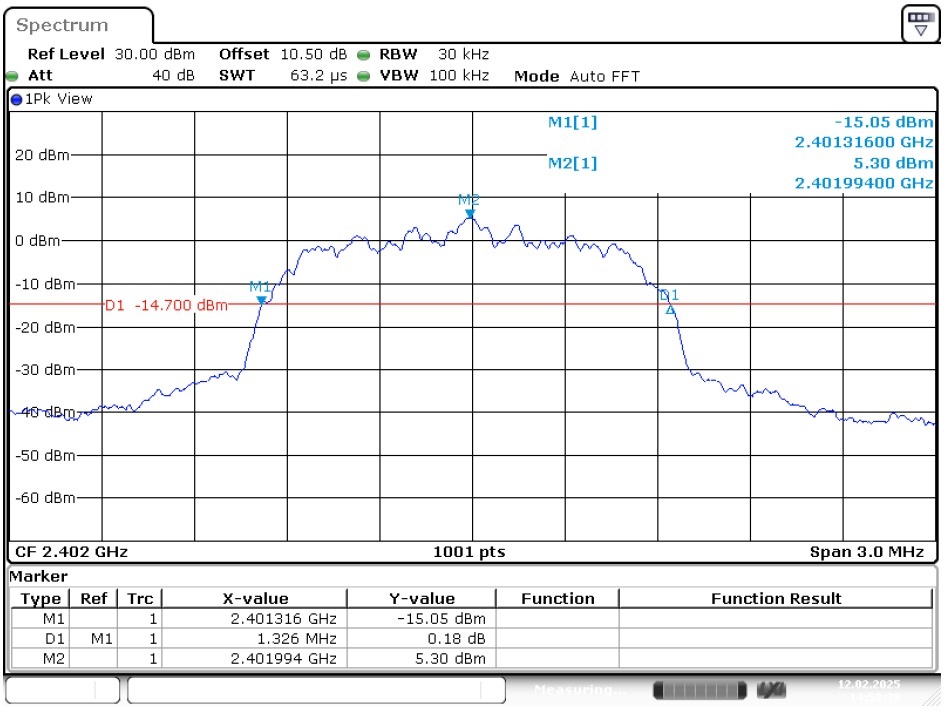
High Channel



Date: 12.FEB.2025 13:43:43

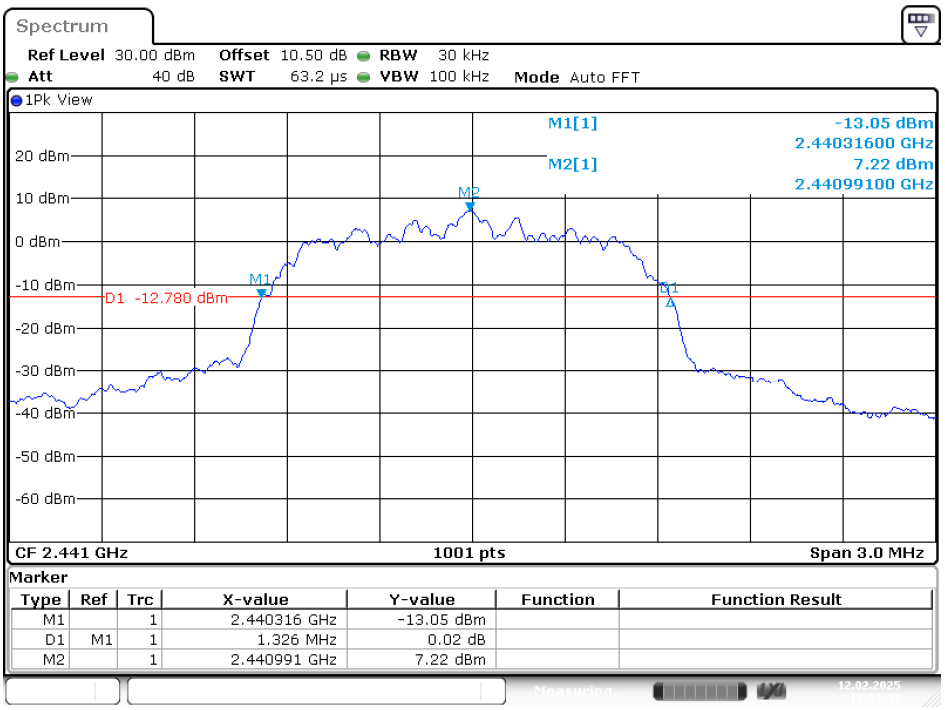
EDR Mode (π/4-DQPSK)

Low Channel



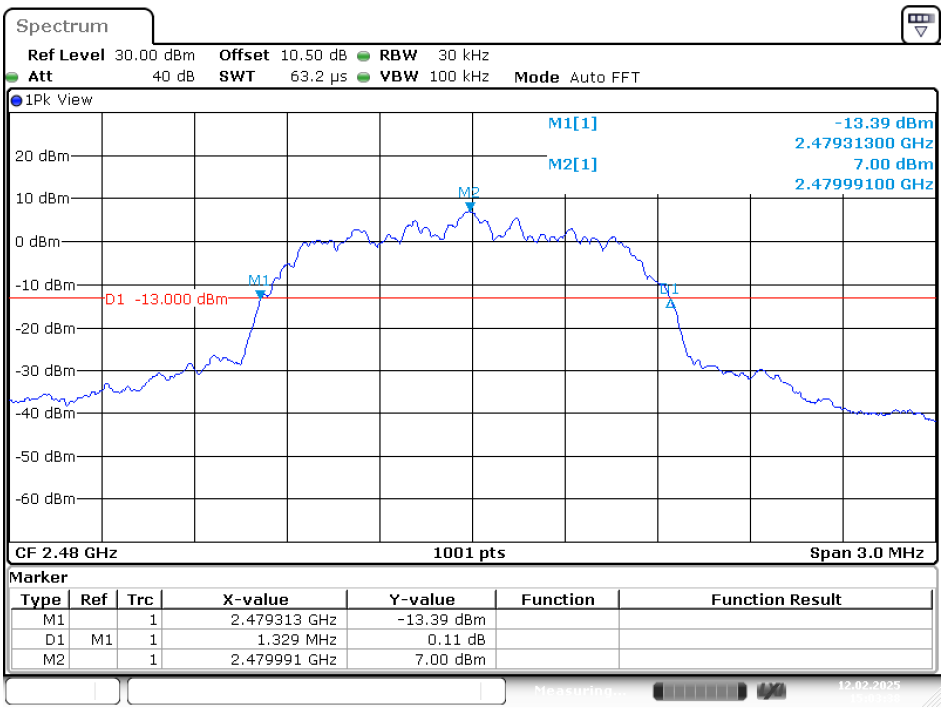
Date: 12.FEB.2025 14:58:38

Middle Channel



Date: 12.FEB.2025 15:01:43

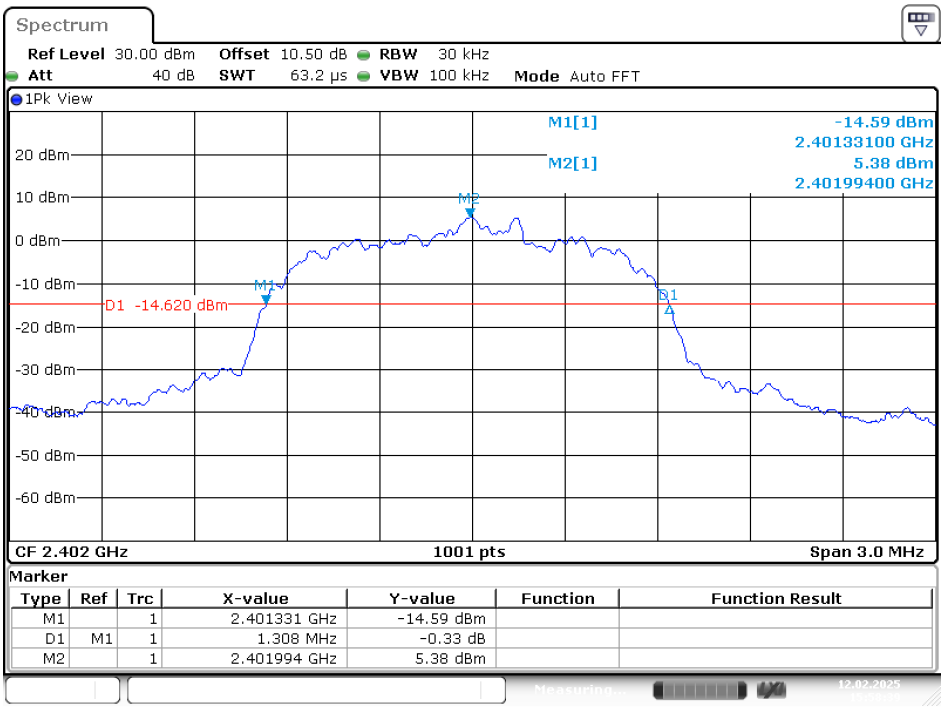
High Channel



Date: 12.FEB.2025 15:03:38

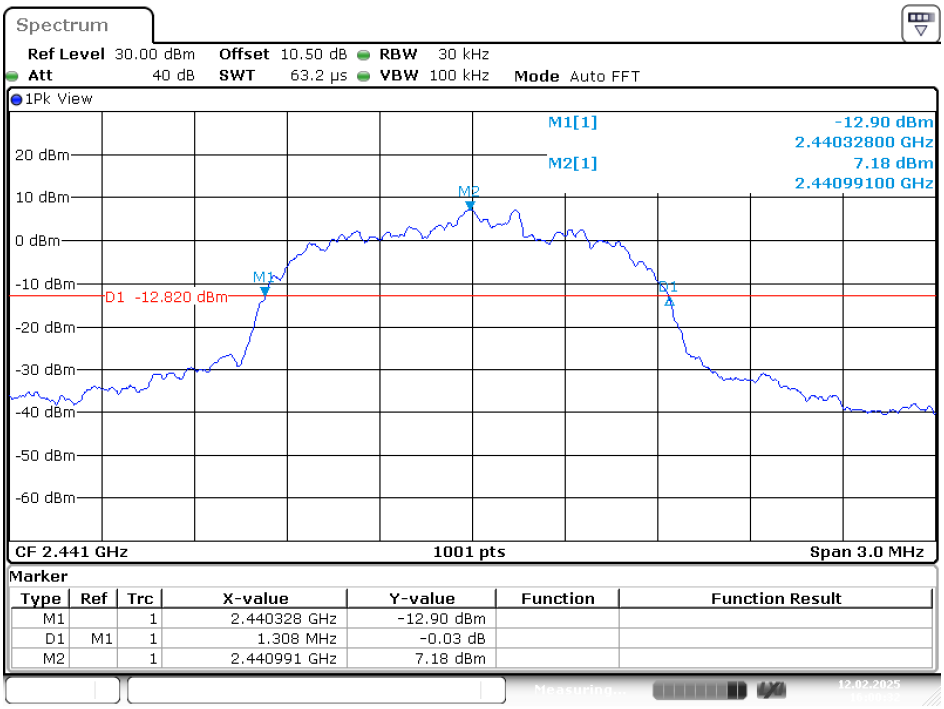
EDR Mode (8DPSK)

Low Channel



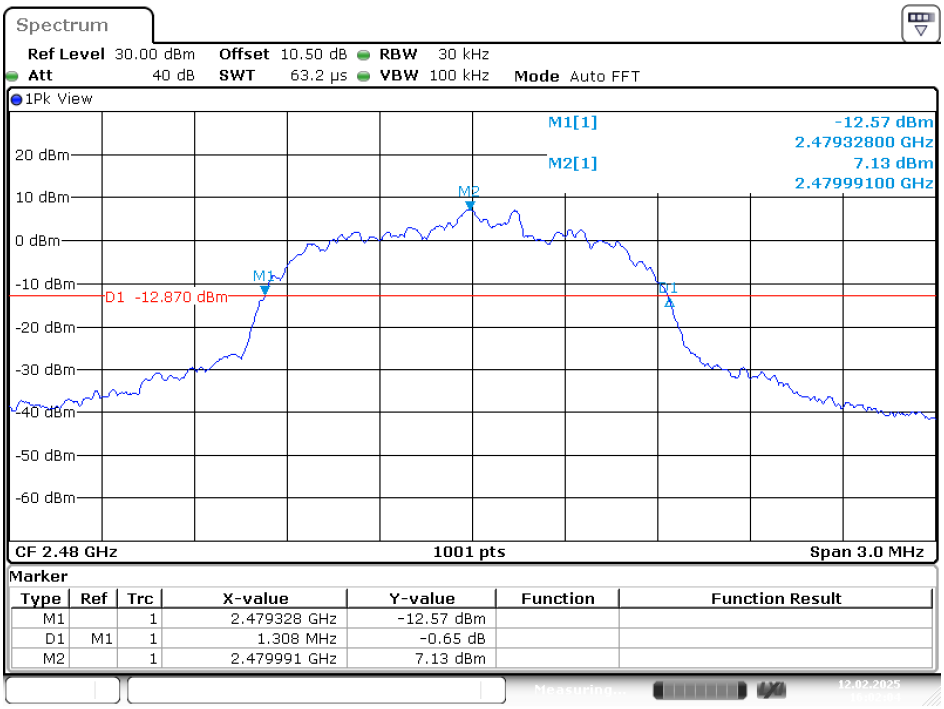
Date: 12.FEB.2025 15:58:40

Middle Channel



Date: 12.FEB.2025 16:00:33

High Channel



Date: 12.FEB.2025 16:02:05

8. FCC §15.247(a)(1) – Channel Separation Test

8.1. Applicable Standard

According to FCC §15.247(a) (1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

8.2. Test Procedure

According to ANSI C63.10-2013, section 7.8.2

1. Set the EUT in transmitting mode, max hold the channel.
2. Set the adjacent channel of the EUT and max hold another trace.
3. Measure the channel separation.

8.3. Test Results

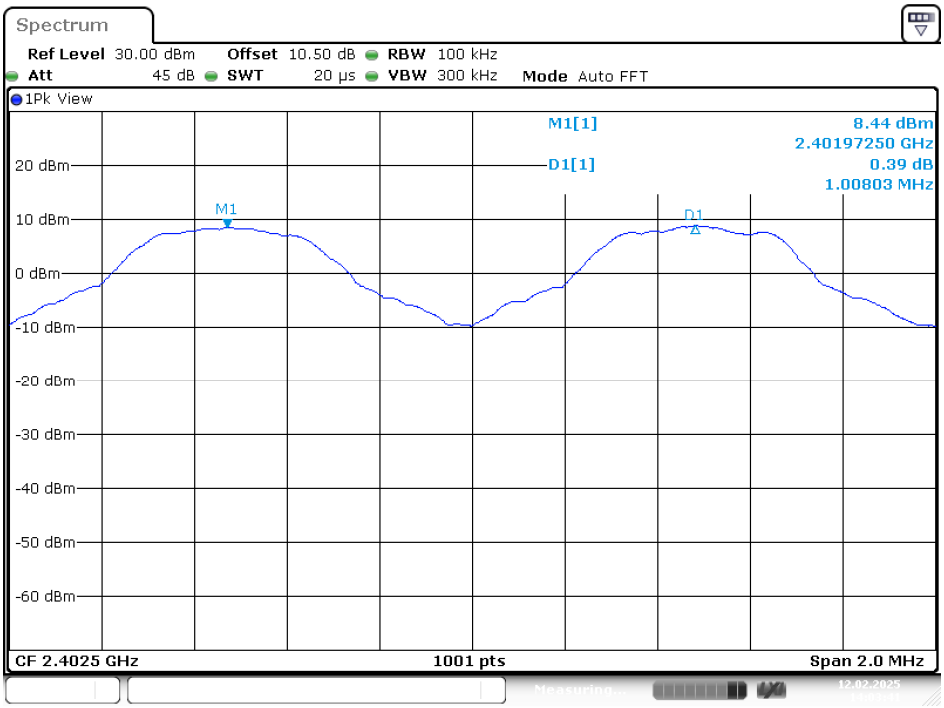
Channel	Channel Separation (MHz)	20 dBc BW (MHz)	Two-thirds of the 20 dB bandwidth (MHz)	Channel Separation Limit	Result
BR Mode (GFSK)					
Low	1.01	0.94	0.67	>two-thirds of the 20 dB bandwidth	Compliance
Middle	1.00	0.94	0.67	>two-thirds of the 20 dB bandwidth	Compliance
High	0.99	0.95	0.66	>two-thirds of the 20 dB bandwidth	Compliance

Note: Only the BDR (GFSK) mode result is reported since EDR (π/4-DQPSK) and EDR (8DPSK) modes have the exact same channel plan, and the limit is the maximum 20dB bandwidth *2/3.

Please refer to the following worst case plots.

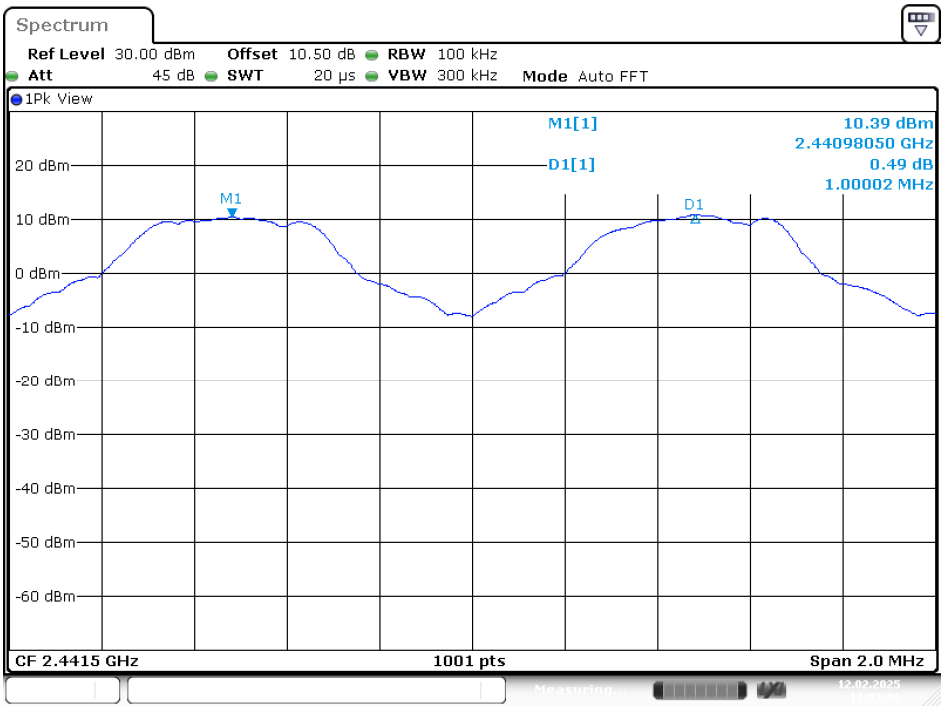
BR Mode (GFSK)

Low Channel



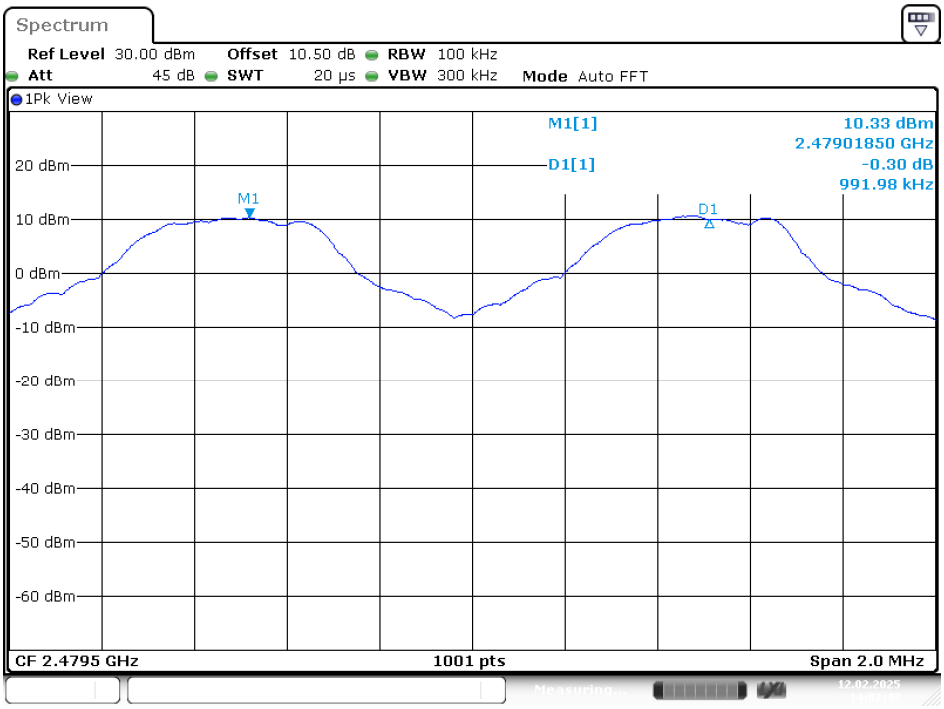
Date: 12.FEB.2025 14:03:41

Middle Channel



Date: 12.FEB.2025 14:03:06

High Channel



Date: 12.FEB.2025 14:02:44

9. FCC§15.247(a)(1)(iii) –Time of Occupancy (Dwell Time)

9.1. Applicable Standard

According to FCC §15.247(a) (1) (iii).

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

9.2. Test Procedure

According to ANSI C63.10-2013, section 7.8.4

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel RBW ≤ channel spacing and where possible RBW should be set >> 1/T, where T is the expected dwell time per channel Sweep = as necessary to capture the entire dwell time per hopping channel Detector function = peak Trace = max hold

Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time.

Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements.

Determine the number of hops over the sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation:

(Number of hops in the period specified in the requirements) = (number of hops on spectrum analyzer) x (period specified in the requirements / analyzer sweep time)

The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified. If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation.

9.3. Test Results

BR mode (GFSK)						
Mode	**Pulse Time (ms)**	**Hopping Number**	**Period Time (s)**	**Total of Dwell (ms)**	**Limit (ms)**	**Result**
DH1	0.375	320	31.6	120.00	<400	PASS
DH3	1.632	180	31.6	293.76	<400	PASS
DH5	2.87	130	31.6	373.10	<400	PASS
EDR mode (π/4-DQPSK)						
Mode	**Pulse Time (ms)**	**Hopping Number**	**Period Time (s)**	**Total of Dwell (ms)**	**Limit (ms)**	**Result**
2DH1	0.388	320	31.6	124.16	<400	PASS
2DH3	1.638	160	31.6	262.08	<400	PASS
2DH5	2.885	120	31.6	346.20	<400	PASS
EDR mode (8DPSK)						
Mode	**Pulse Time (ms)**	**Hopping Number**	**Period Time (s)**	**Total of Dwell (ms)**	**Limit (ms)**	**Result**
3DH1	0.388	320	31.6	124.16	<400	PASS
3DH3	1.638	190	31.6	311.22	<400	PASS
3DH5	2.885	130	31.6	375.05	<400	PASS

Note 1: A period time = 0.4*79 = 31.6 (s), Total of Dwell=Pulse Time * Hopping Number

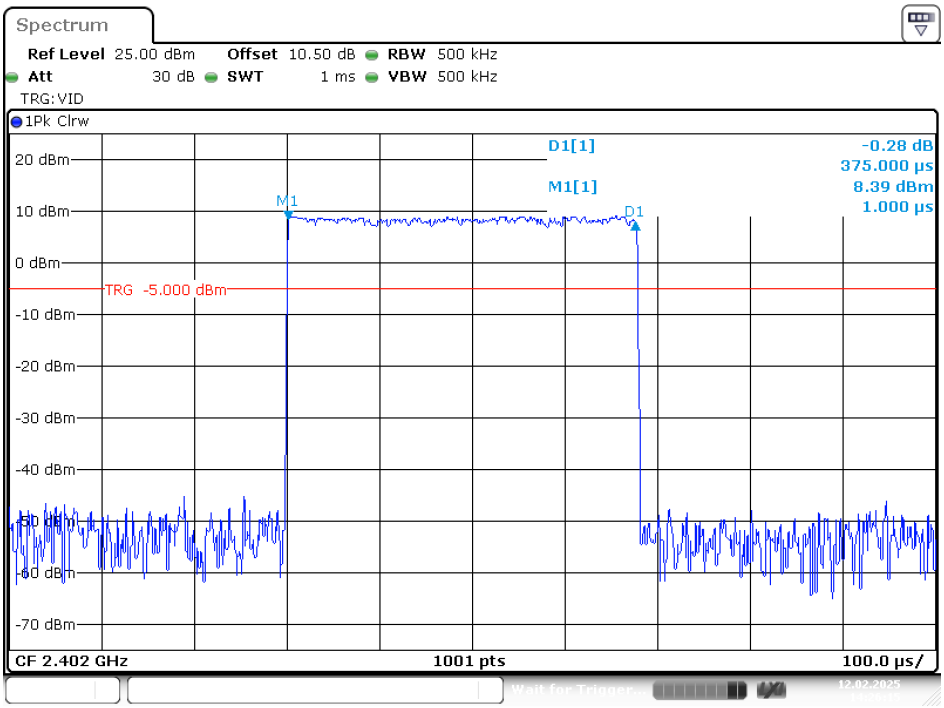
Note 2: Hopping Number = Hopping Number/10 * 10

Note 3: Hopping Number/10 = Total of highest signals in 3.16s. (Second high signals were other channel)

Please refer to the following plots

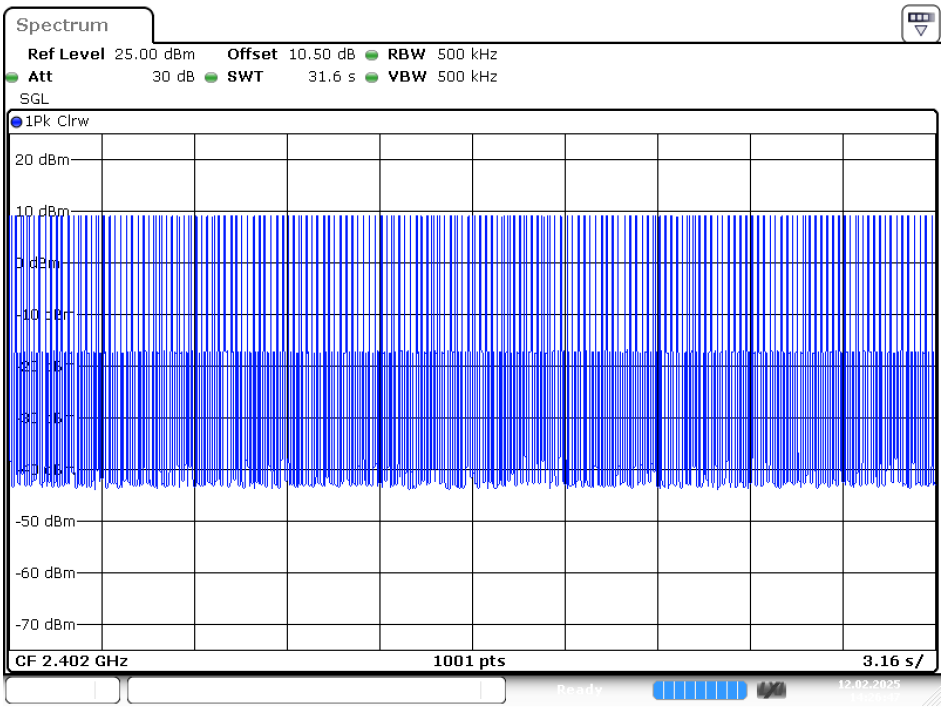
BR Mode (GFSK)

DH1: Pulse Width



Date: 12.FEB.2025 14:26:15

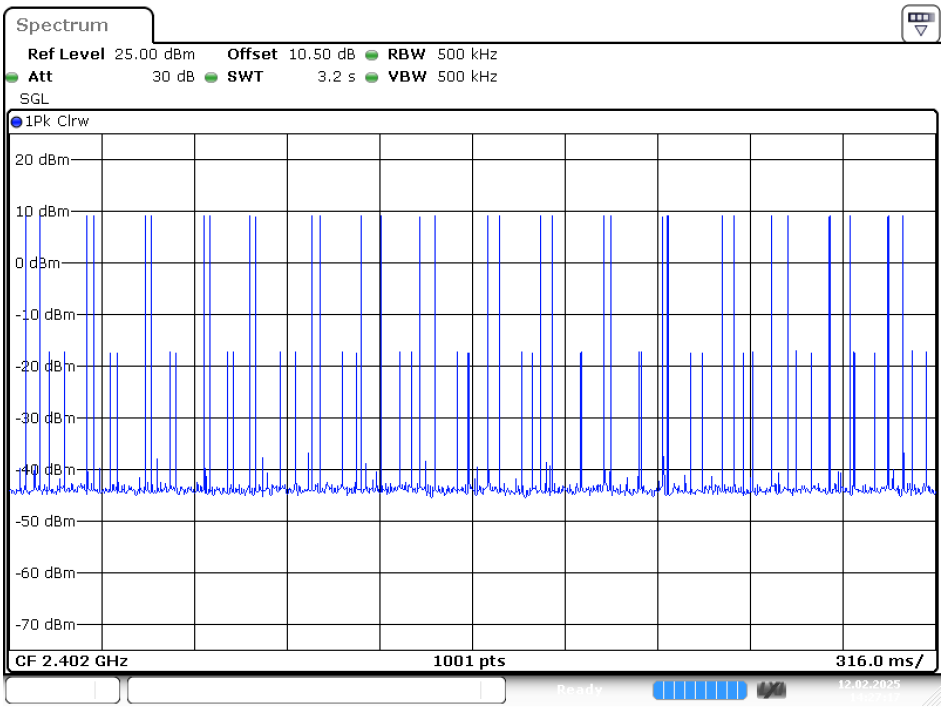
DH1: Hopping Number



Date: 12.FEB.2025 14:26:48

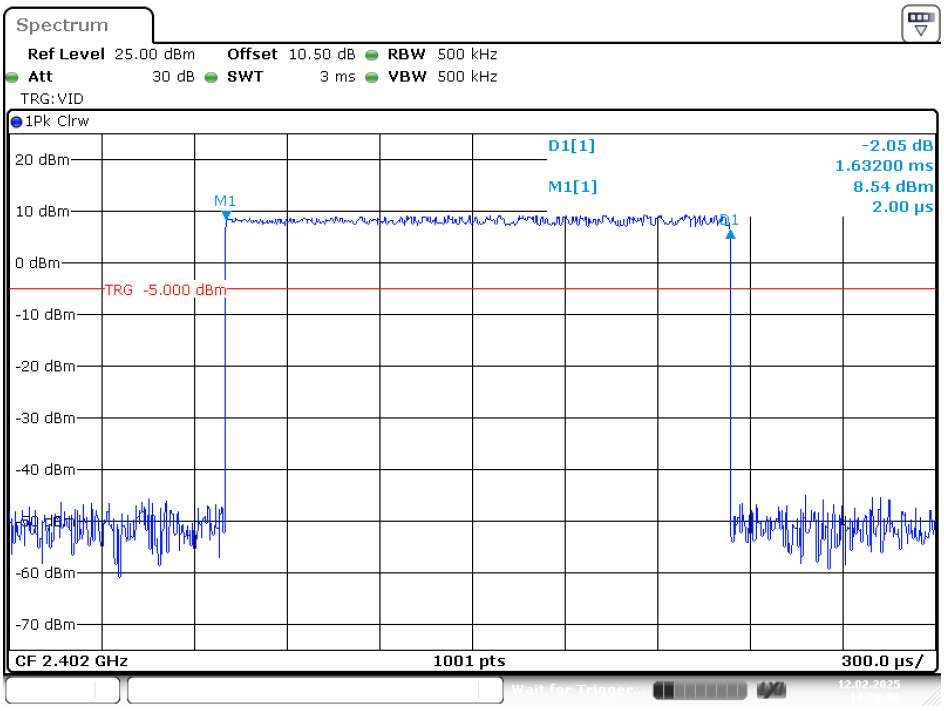
DH1: Hopping Number /10

(Hopping Number = 32 in 1/10 period of highest signals, Second High signals were other channel)



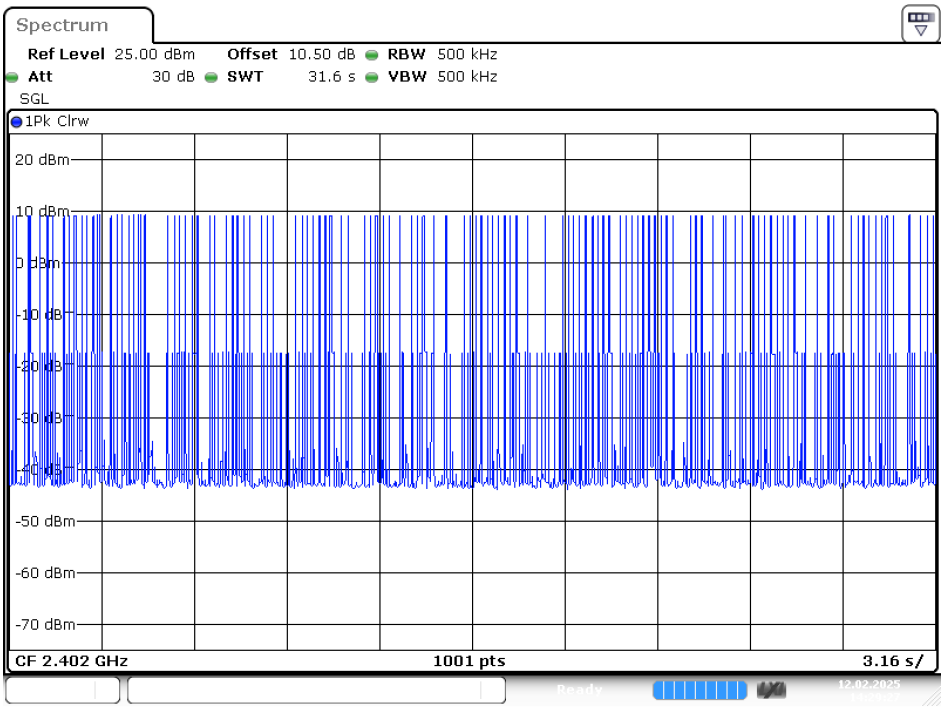
Date: 12.FEB.2025 14:27:17

DH3: Pulse Width



Date: 12.FEB.2025 14:28:56

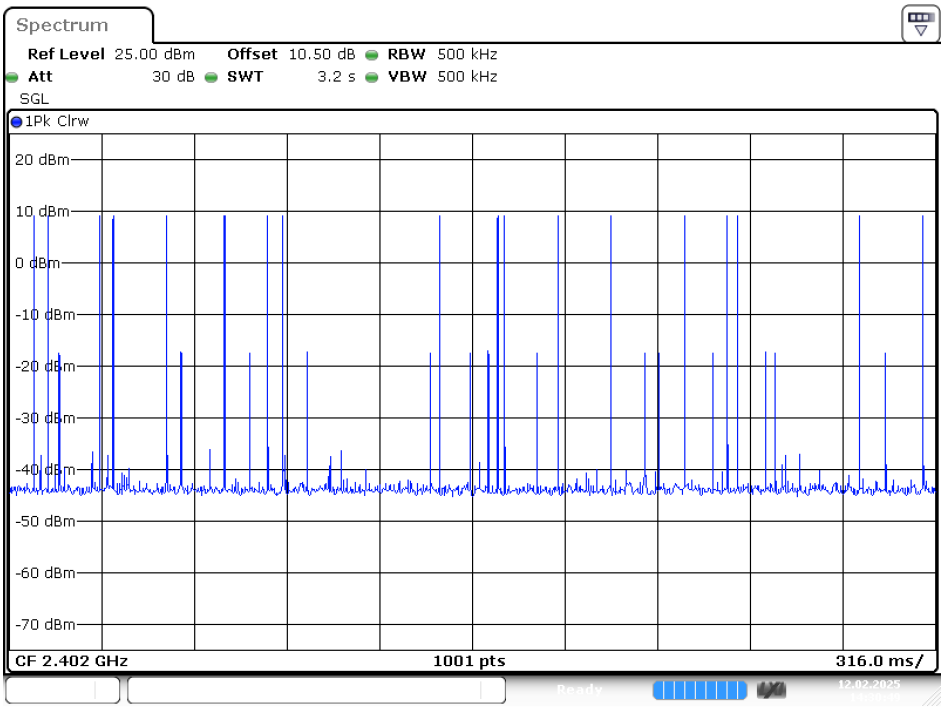
DH3: Hopping Number



Date: 12.FEB.2025 14:29:28

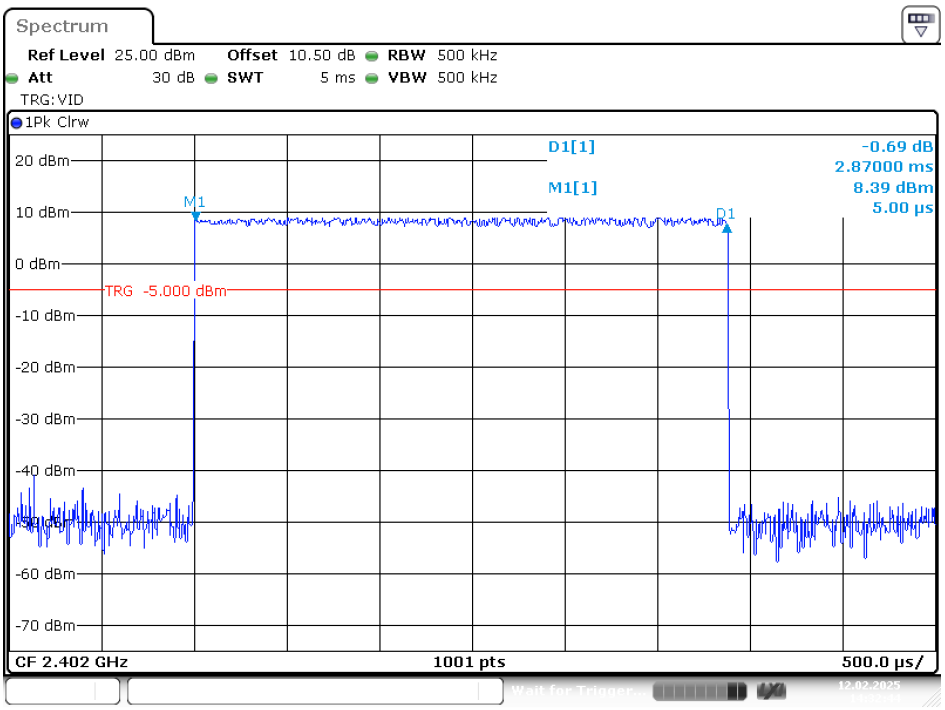
DH3: Hopping Number /10

(Hopping Number = 18 in 1/10 period of highest signals, Second High signals were other channel)



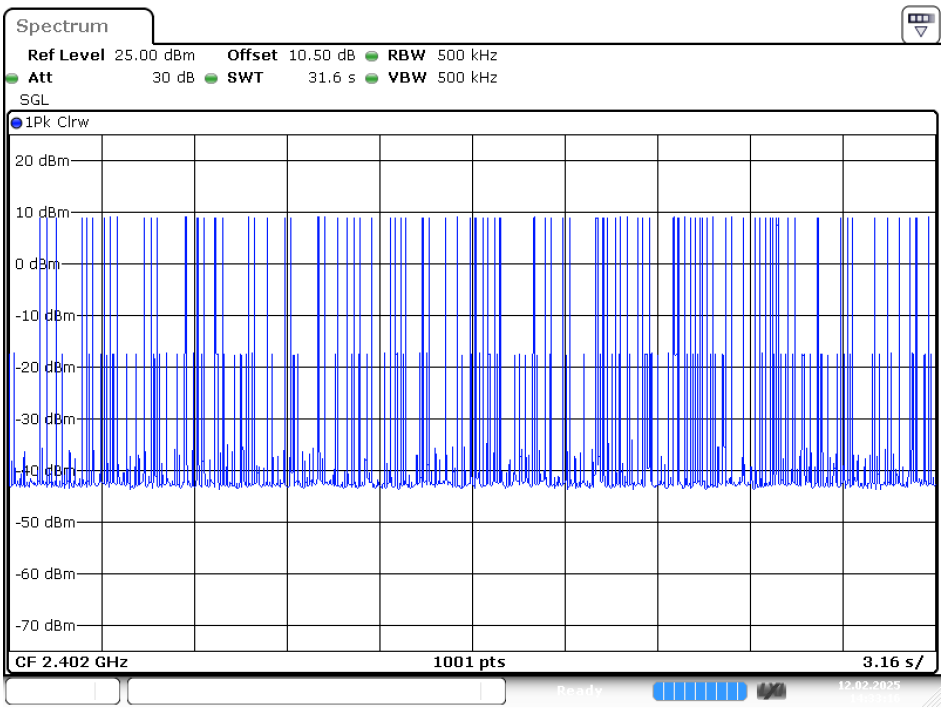
Date: 12.FEB.2025 14:30:49

DH5: Pulse Width



Date: 12.FEB.2025 14:32:44

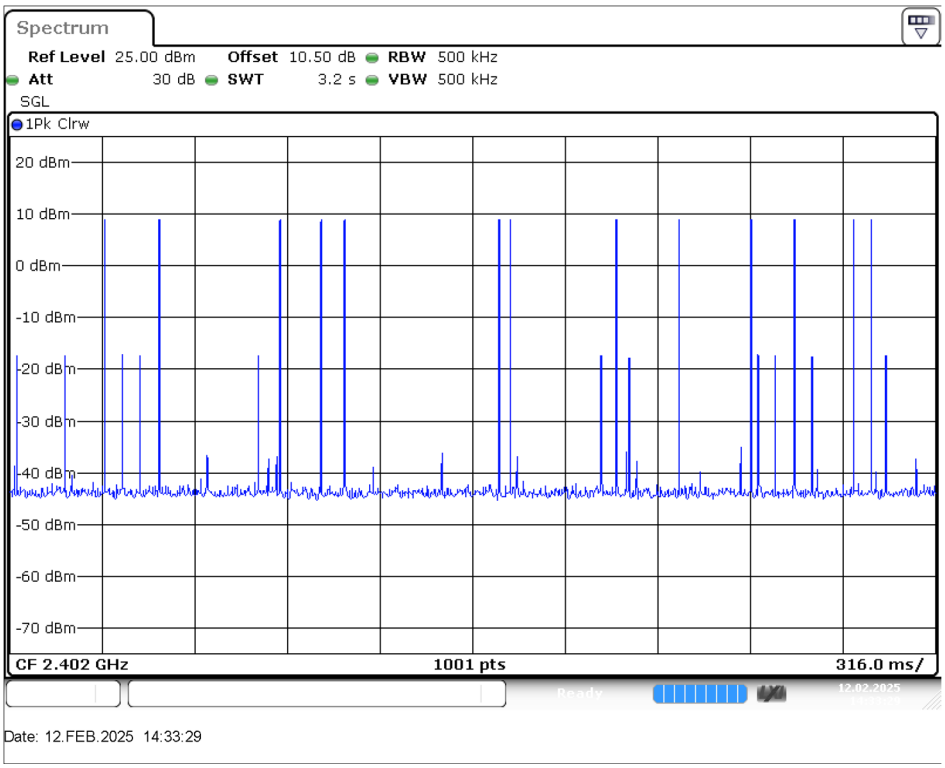
DH5: Hopping Number



Date: 12.FEB.2025 14:33:16

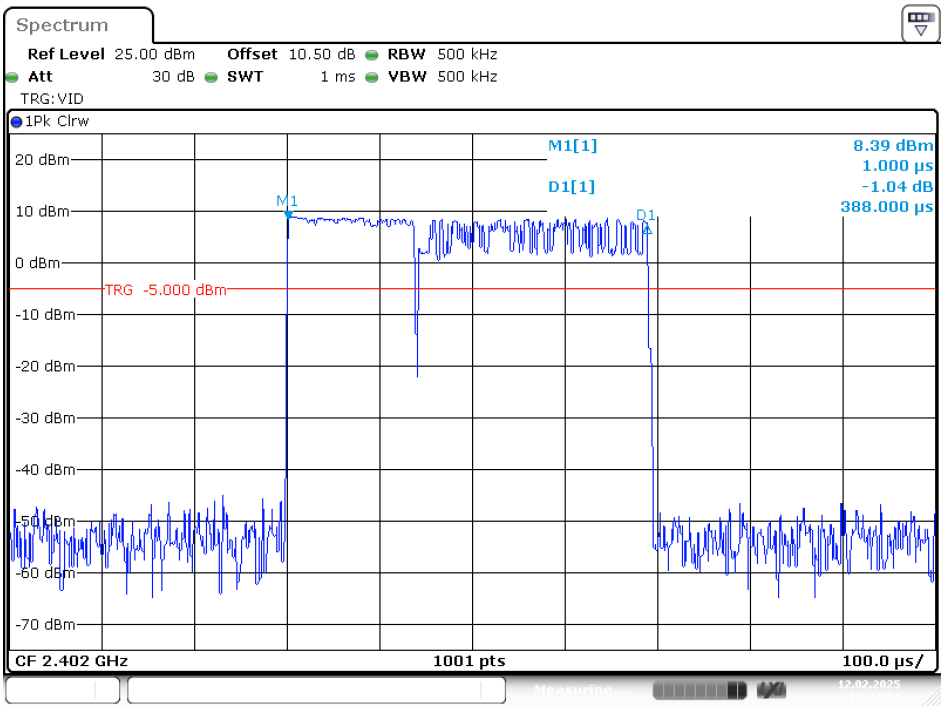
DH5: Hopping Number /10

(Hopping Number = 13 in 1/10 period of highest signals, Second High signals were other channel)

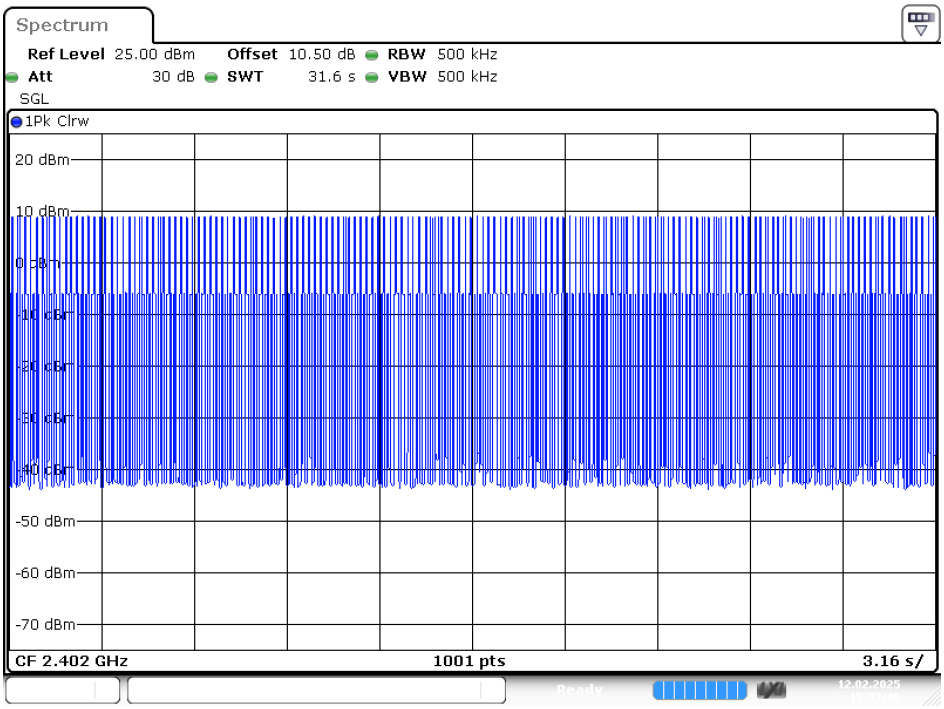


EDR Mode (π/4-DQPSK)

2DH1: Pulse Width



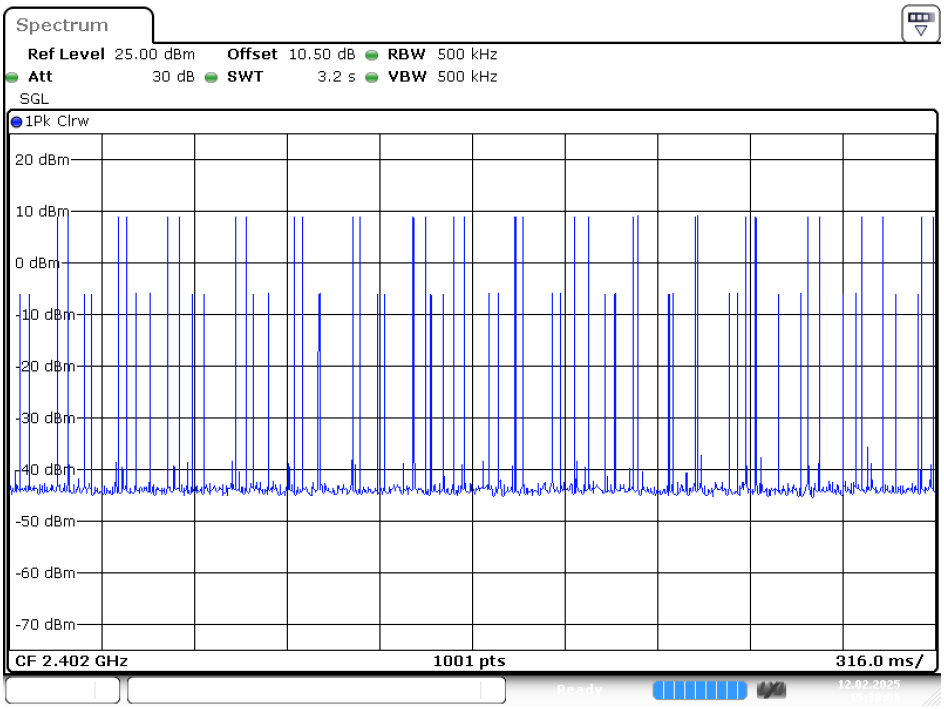
2DH1: Hopping Number



Date: 12.FEB.2025 15:37:46

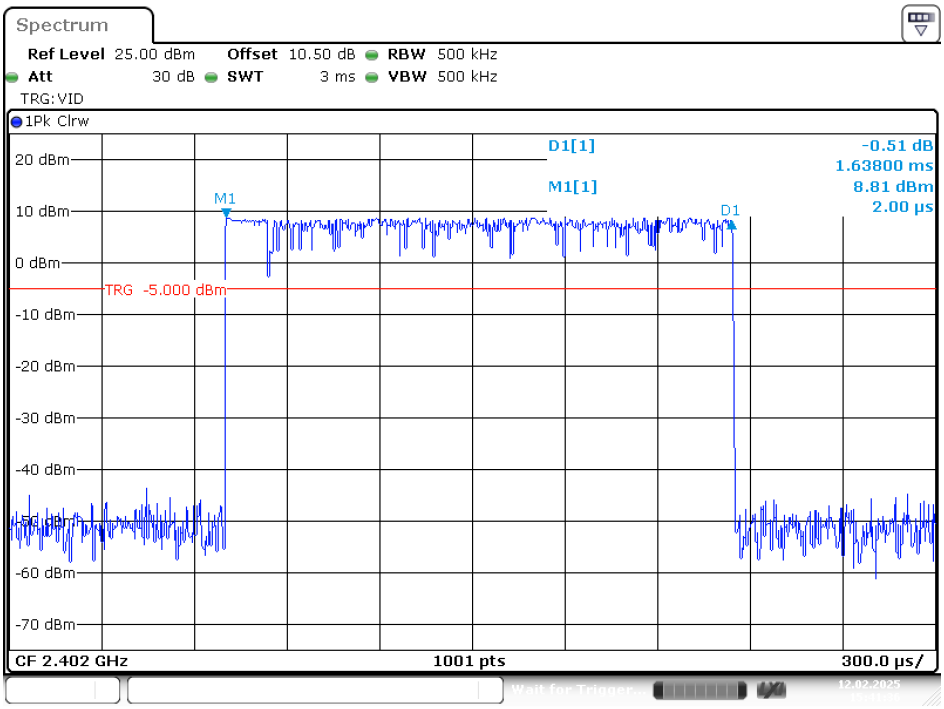
2DH1: Hopping Number /10

(Hopping Number = 32 in 1/10 period of highest signals, Second High signals were other channel)



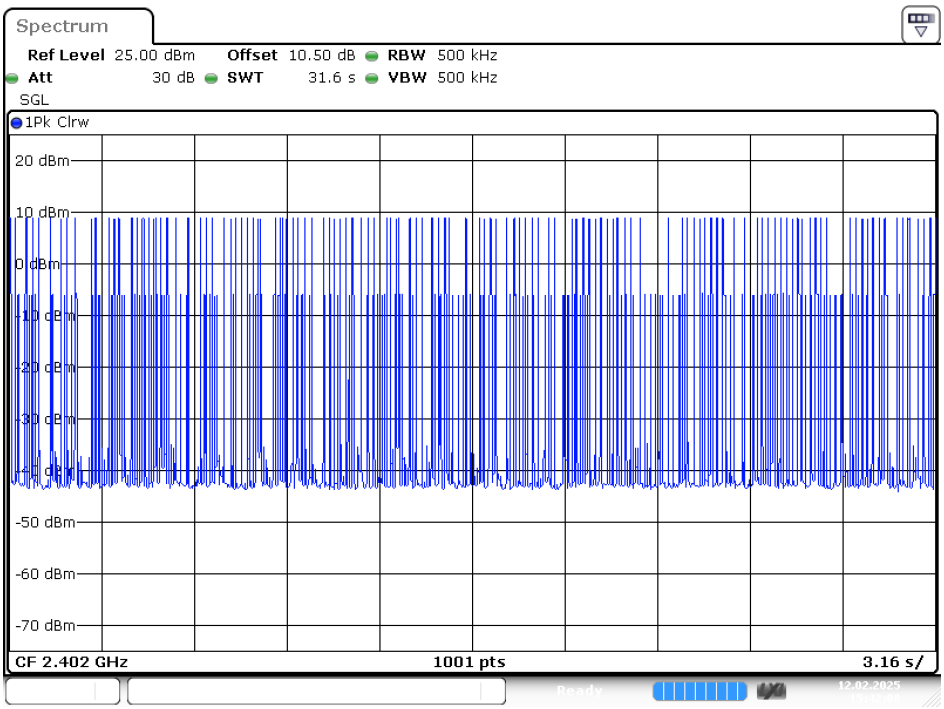
Date: 12.FEB.2025 15:38:07

2DH3: Pulse Width



Date: 12.FEB.2025 15:41:36

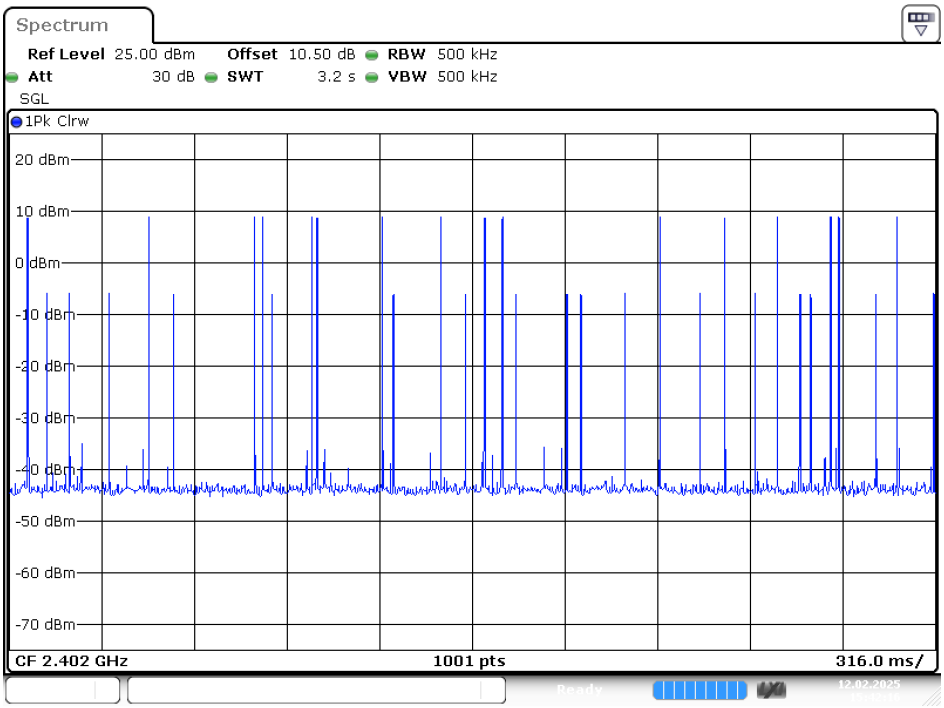
2DH3: Hopping Number



Date: 12.FEB.2025 15:42:08

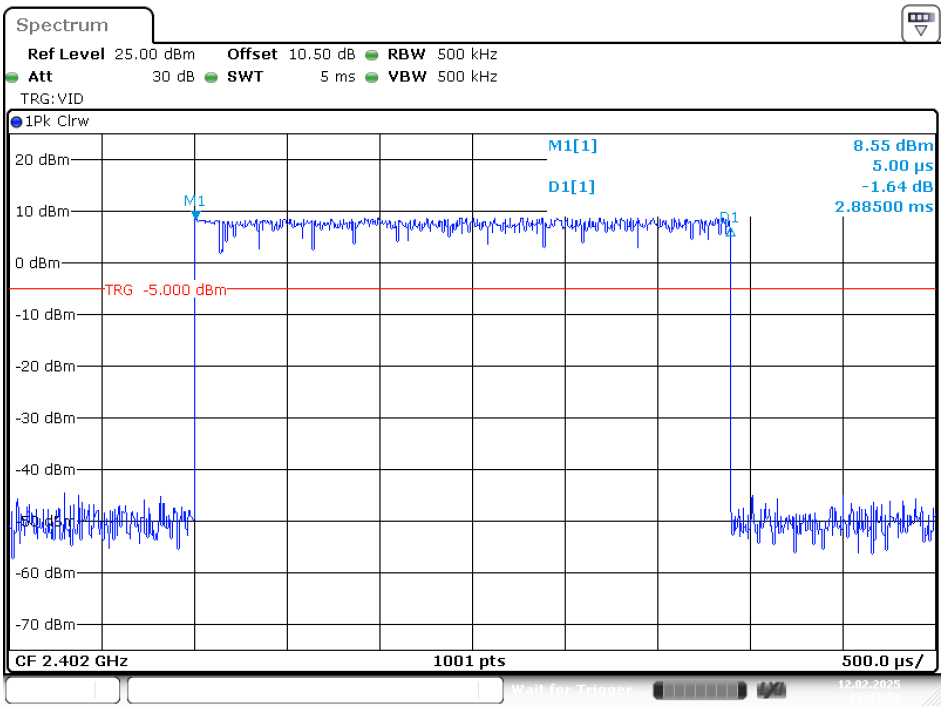
2DH3: Hopping Number /10

(Hopping Number = 16 in 1/10 period of highest signals, Second High signals were other channel)



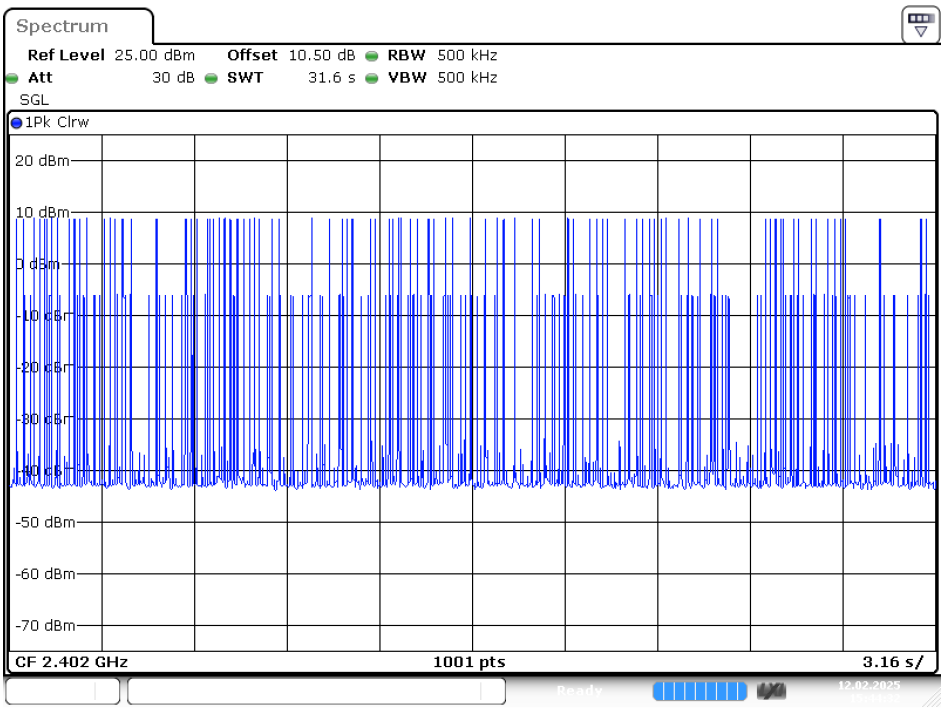
Date: 12.FEB.2025 15:42:16

2DH5: Pulse Width



Date: 12.FEB.2025 15:44:00

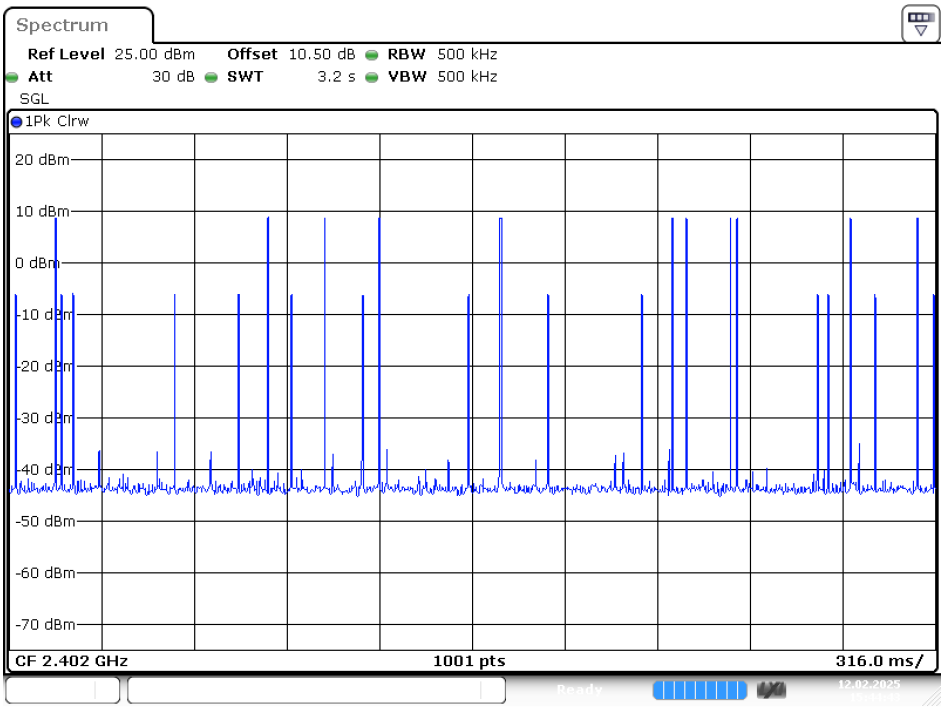
2DH5: Hopping Number



Date: 12.FEB.2025 15:44:32

2DH5: Hopping Number /10

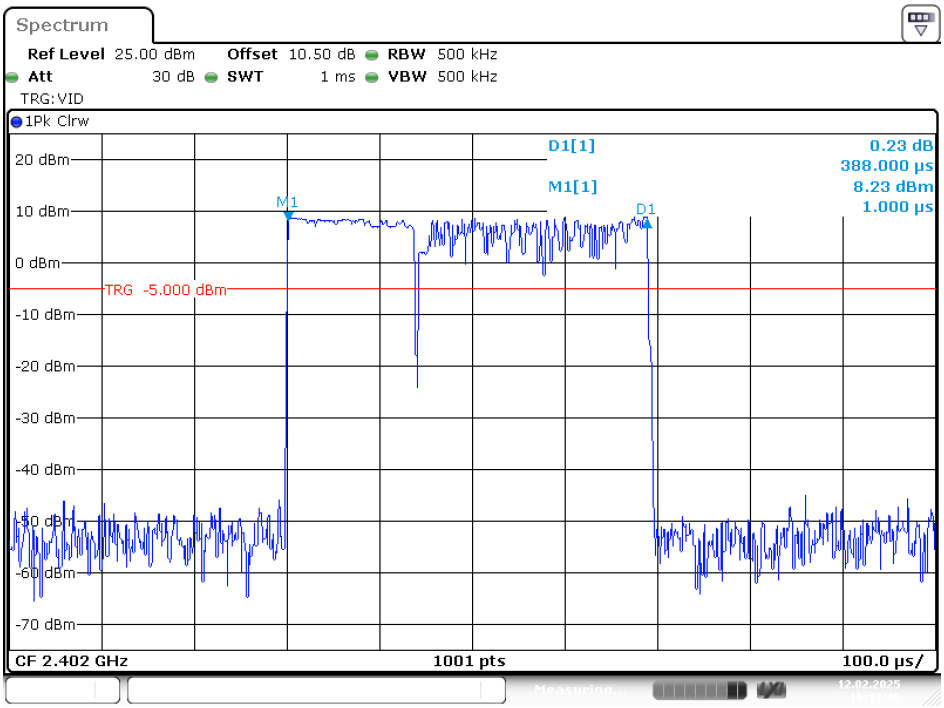
(Hopping Number = 12 in 1/10 period of highest signals, Second High signals were other channel)



Date: 12.FEB.2025 15:44:43

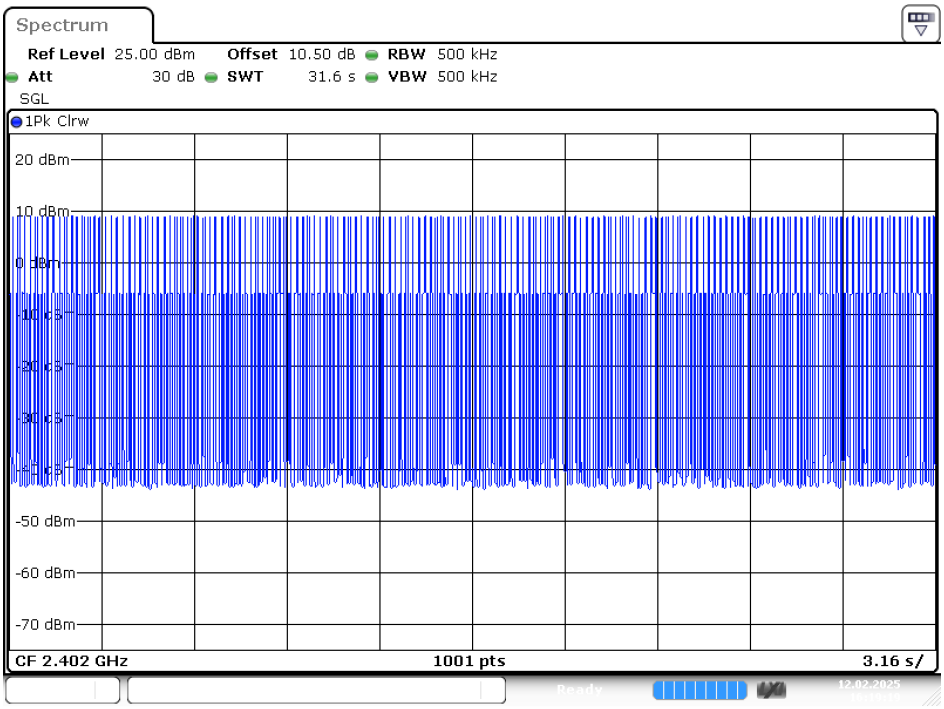
EDR Mode (8DPSK)

3DH1: Pulse Width



Date: 12.FEB.2025 16:18:46

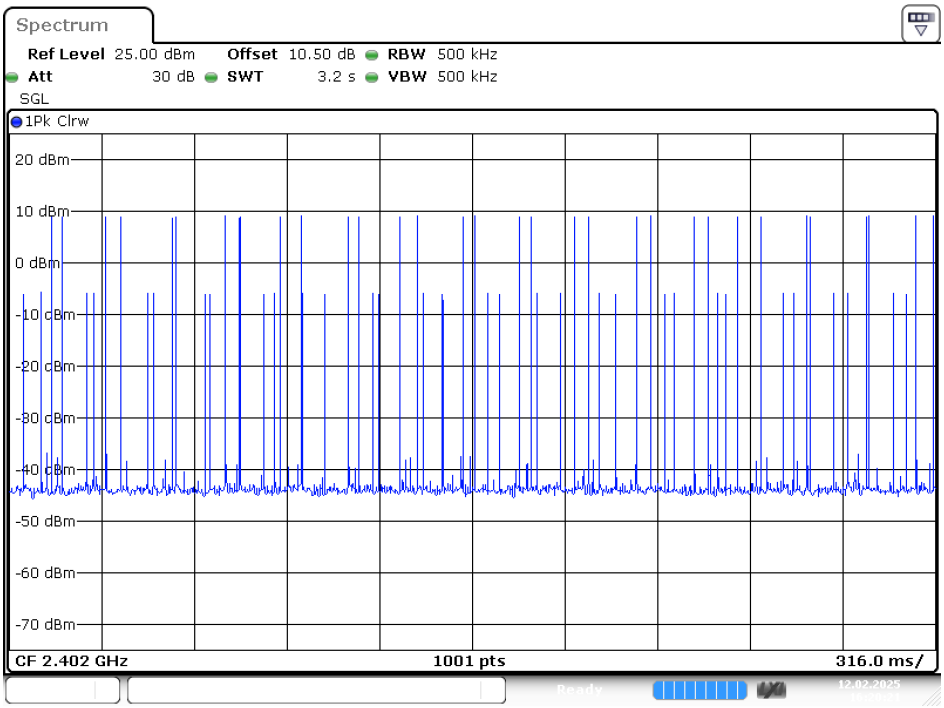
3DH1: Hopping Number



Date: 12.FEB.2025 16:19:19

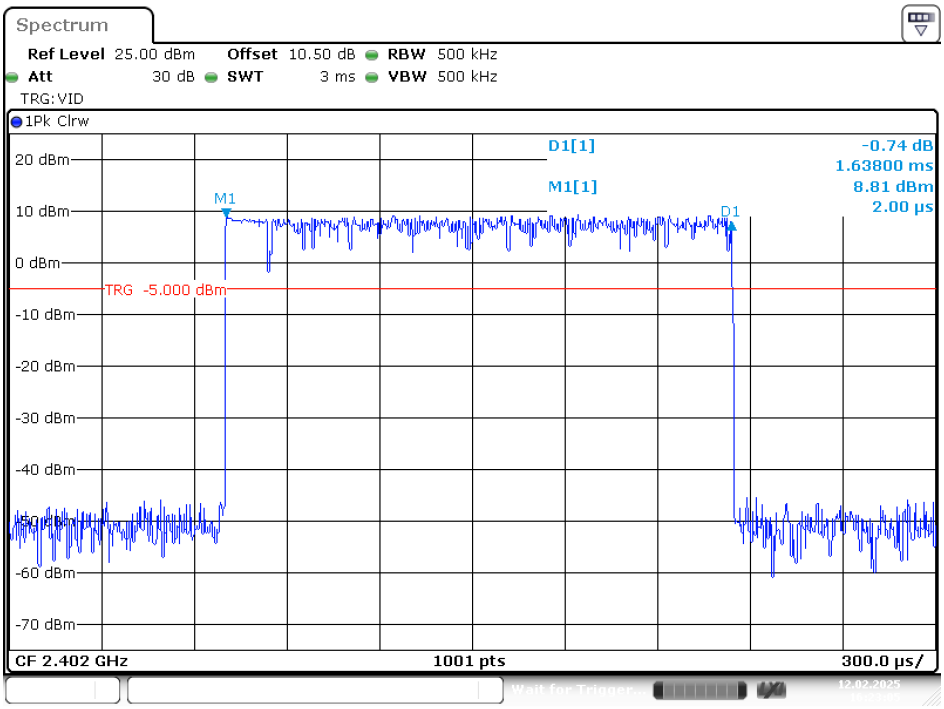
3DH1: Hopping Number /10

(Hopping Number = 32 in 1/10 period of highest signals, Second High signals were other channel)



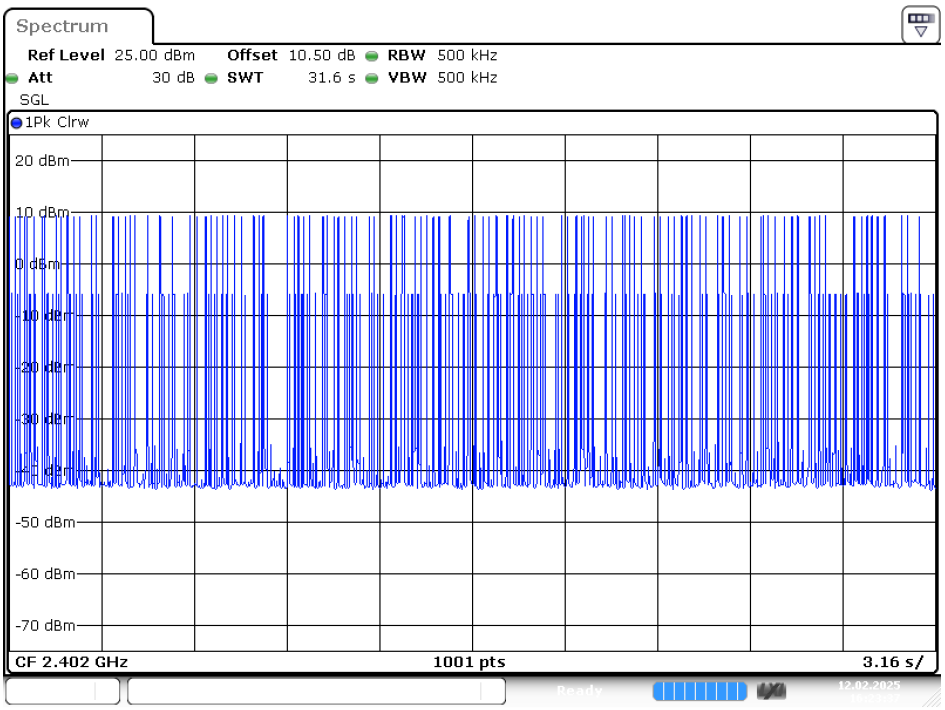
Date: 12.FEB.2025 16:20:22

3DH3: Pulse Width



Date: 12.FEB.2025 16:23:05

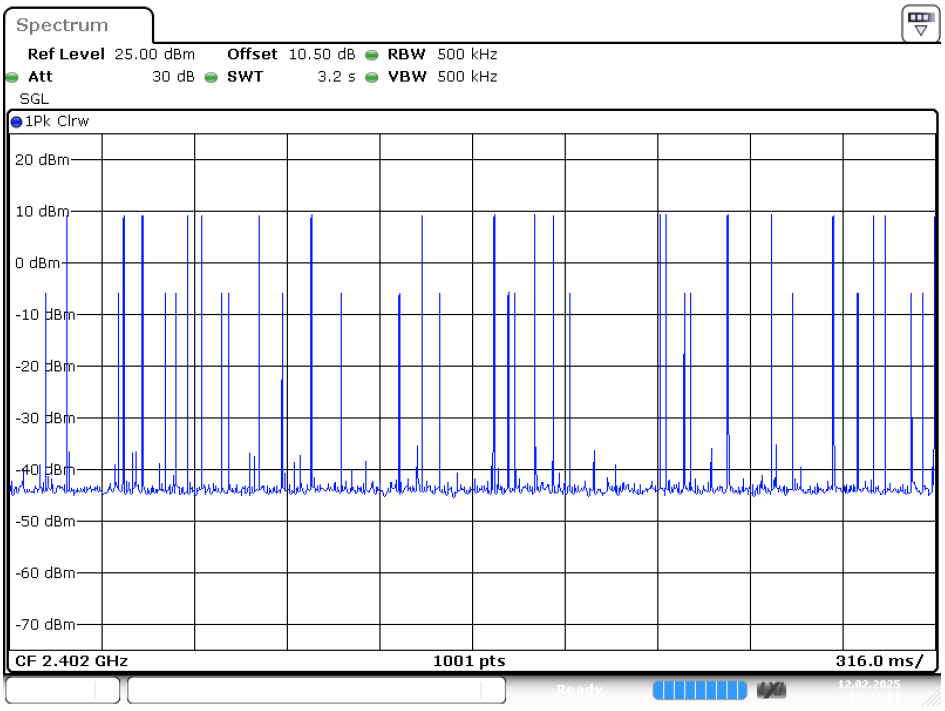
3DH3: Hopping Number



Date: 12.FEB.2025 16:23:37

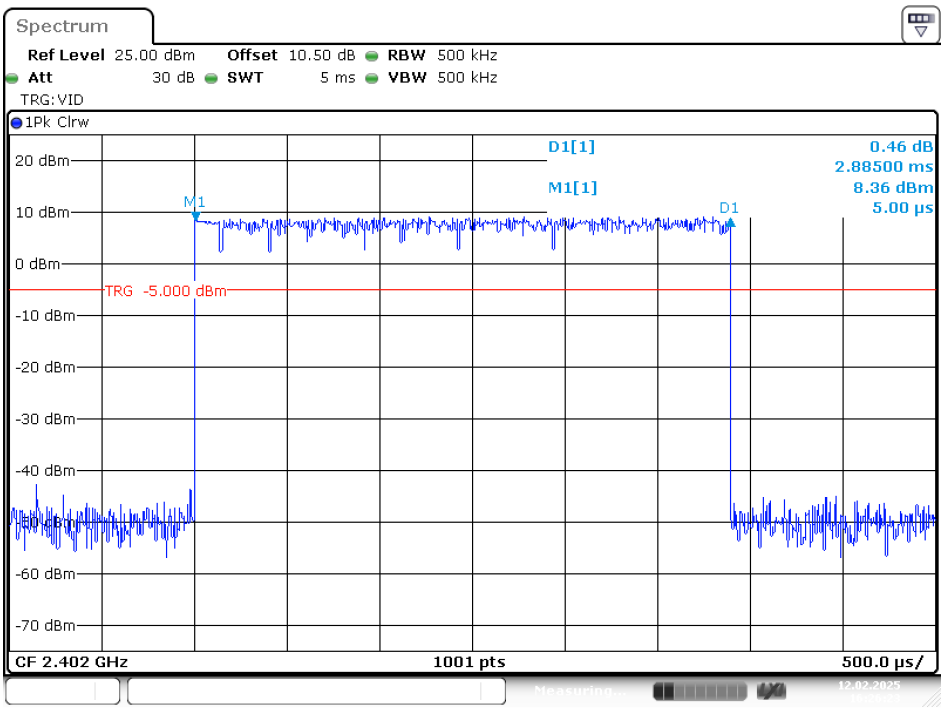
3DH3: Hopping Number /10

(Hopping Number = 19 in 1/10 period of highest signals, Second High signals were other channel)



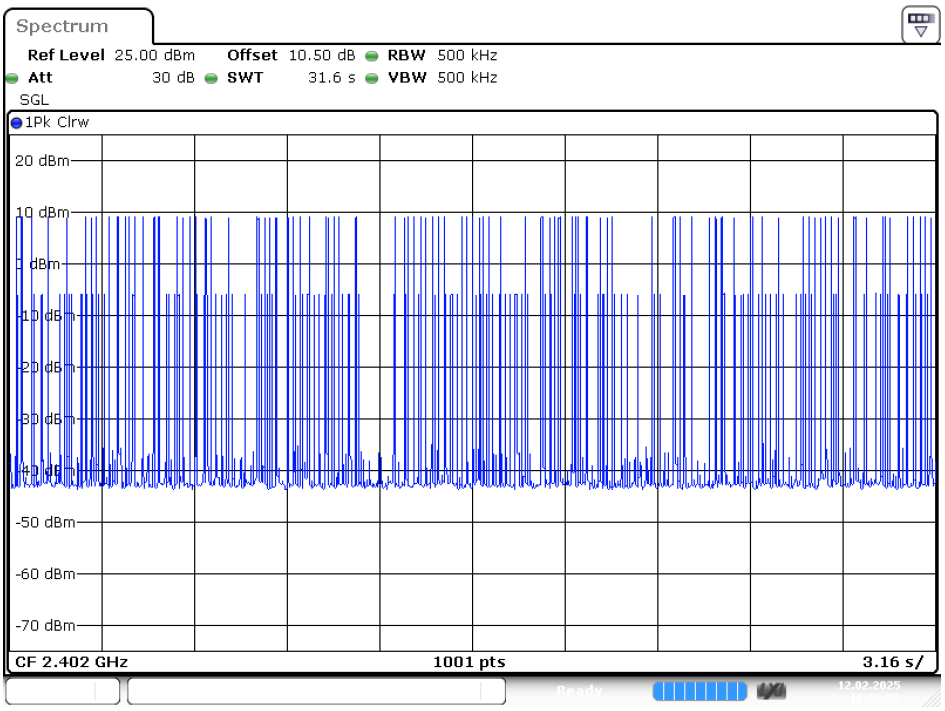
Date: 12.FEB.2025 16:24:02

3DH5: Pulse Width



Date: 12.FEB.2025 16:26:24

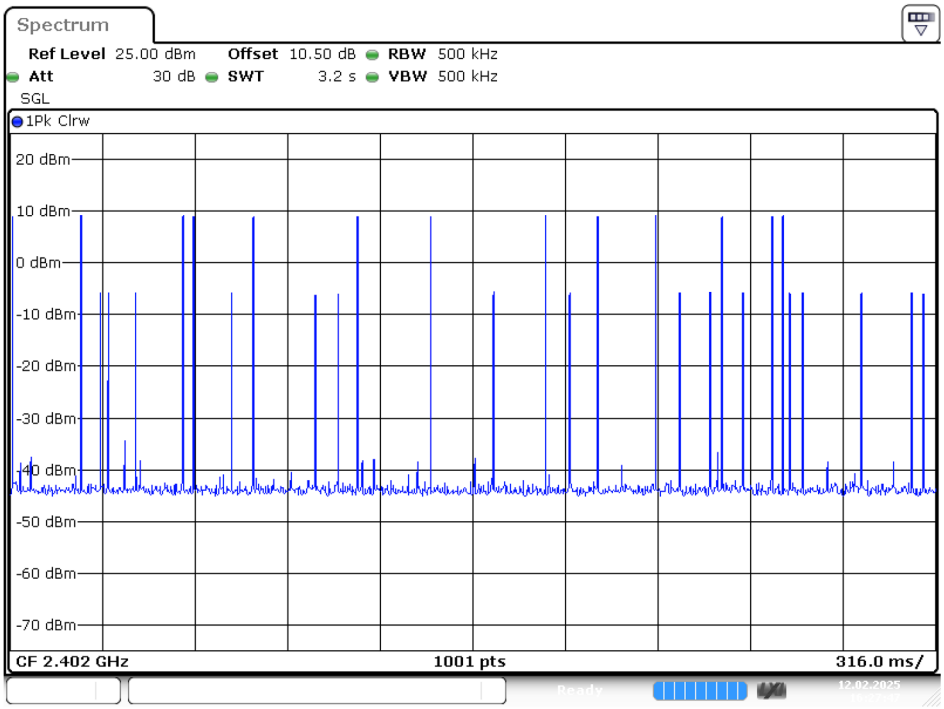
3DH5: Hopping Number



Date: 12.FEB.2025 16:26:56

3DH5: Hopping Number /10

(Hopping Number = 13 in 1/10 period of highest signals, Second High signals were other channel)



Date: 12.FEB.2025 16:27:47

10. FCC §15.247(a)(1)(iii) –Quantity of hopping channel Test

10.1. Applicable Standard

According to FCC §15.247(a) (1) (iii).

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

10.2. Test Procedure

According to ANSI C63.10-2013, section 7.8.3

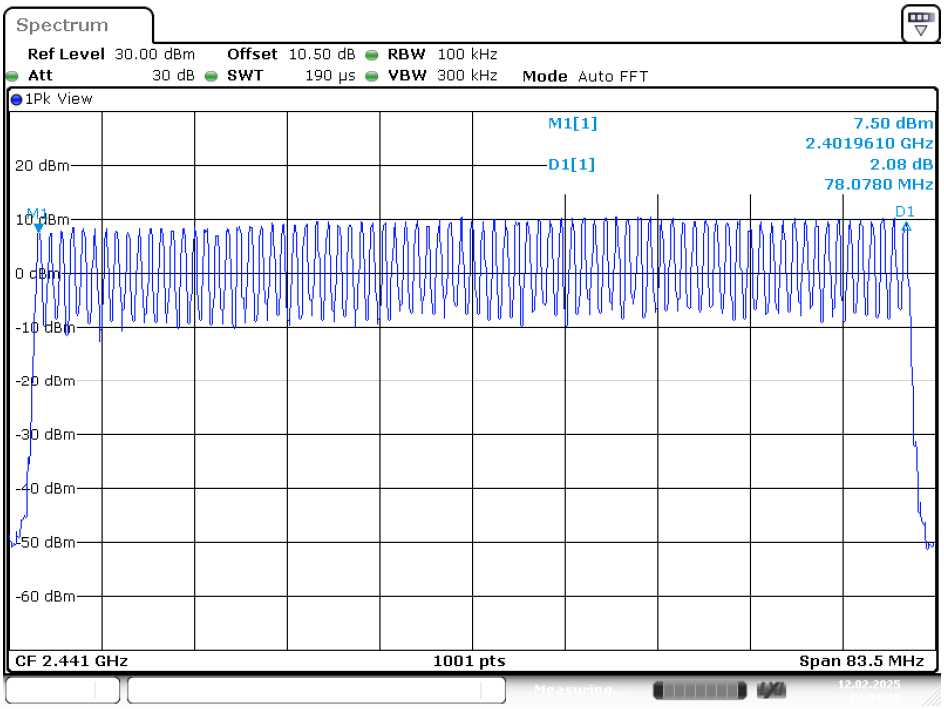
1. The EUT shall have its hopping function enabled.
2. Set the EUT in hopping mode from first channel to last.
3. By using the Max-Hold function record the Quantity of the channel.

10.3. Test Results

Mode	Frequency Range (MHz)	Number of Hopping Channel (CH)	Limit (CH)	Result
GFSK	2402-2480	79	>15	Compliance
π/4-DQPSK	2402-2480	79	>15	Compliance
8DPSK	2402-2480	79	>15	Compliance

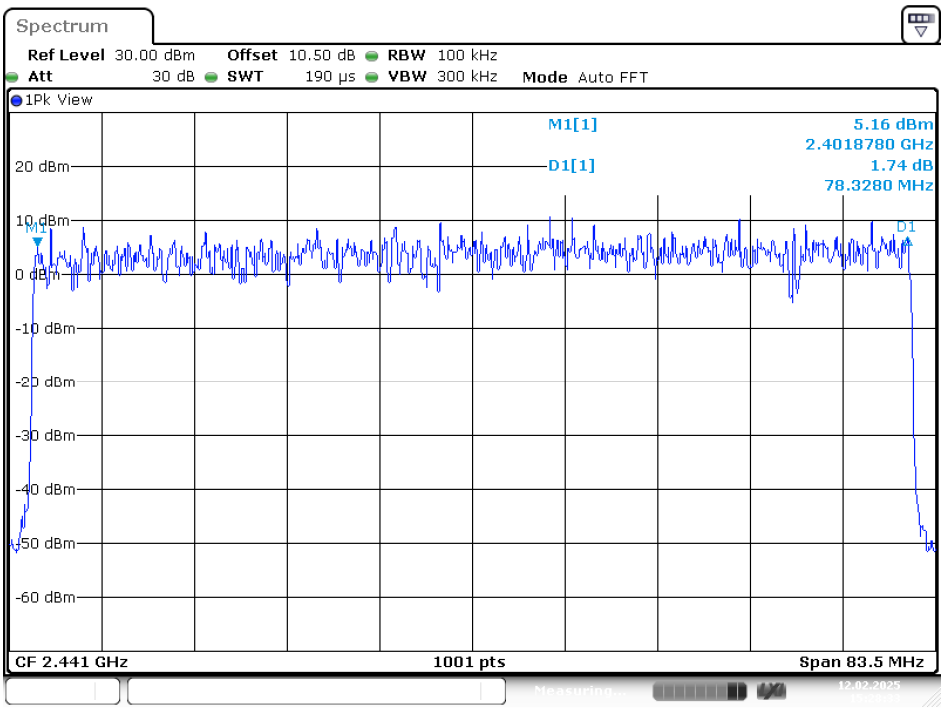
Please refer to the following plots

BR Mode (GFSK)



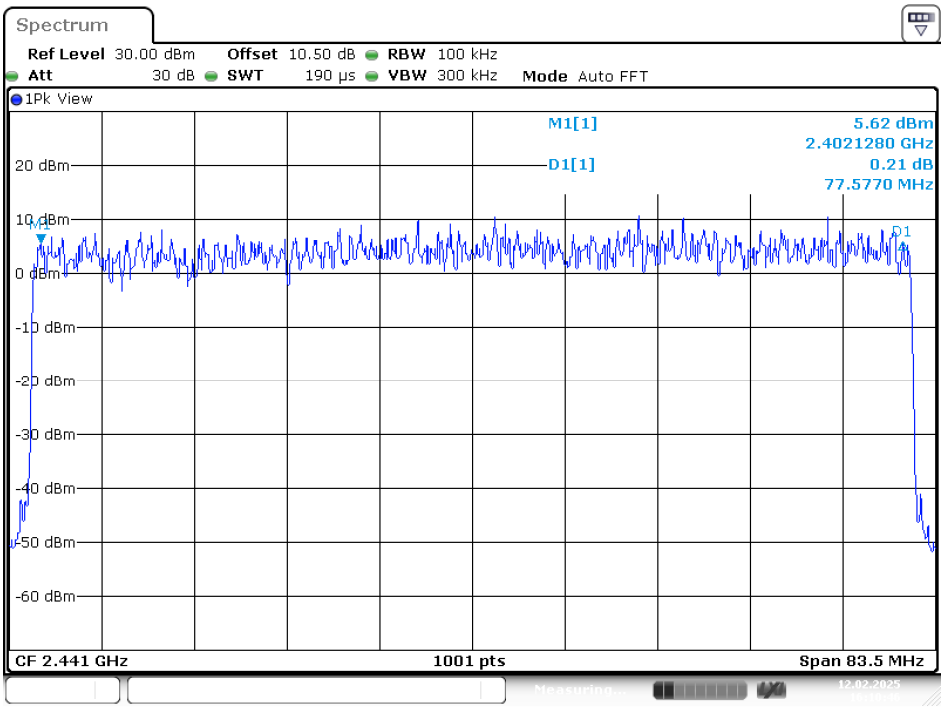
Date: 12.FEB.2025 14:04:19

EDR Mode (π/4-DQPSK)



Date: 12.FEB.2025 15:28:34

EDR Mode (8DPSK)



Date: 12.FEB.2025 16:10:47

11. FCC §15.247(b)(1) – Maximum Output Power

11.1. Applicable Standard

According to FCC §15.247(b) (1).

Frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725- 5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

11.2. Test Procedure

According to ANSI C63.10-2013, section 7.8.5

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to measuring equipment.

11.3. Test Results

Conducted Peak Output Power

Channel	Frequency (MHz)	Conducted Peak Output Power		Limit (W)	Result
		(dBm)	(W)		
BR Mode (GFSK)					
Low	2402	10.87	0.012	0.125	Compliance
Middle	2441	11.27	0.013	0.125	Compliance
High	2480	11.99	0.016	0.125	Compliance
EDR Mode (π/4-DQPSK)					
Low	2402	13.17	0.021	0.125	Compliance
Middle	2441	13.37	0.022	0.125	Compliance
High	2480	14.16	0.026	0.125	Compliance
EDR Mode (8DPSK)					
Low	2402	13.61	0.023	0.125	Compliance
Middle	2441	13.92	0.025	0.125	Compliance
High	2480	14.66	0.029	0.125	Compliance

12. FCC §15.247(d) – 100 kHz Bandwidth of Frequency Band Edge

12.1. Applicable Standard

According to FCC §15.247(d), in any 100 kHz bandwidth outside the frequency bands 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 or a radiated measurement. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emissions limits specified in §15.209(a) see §15.205(c).

12.2. Test Procedure

According to ANSI C63.10-2013, section 7.8.6

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.

RBW = 100 kHz VBW = 300 kHz

Sweep time = auto couple

Detector function = peak Trace = max hold

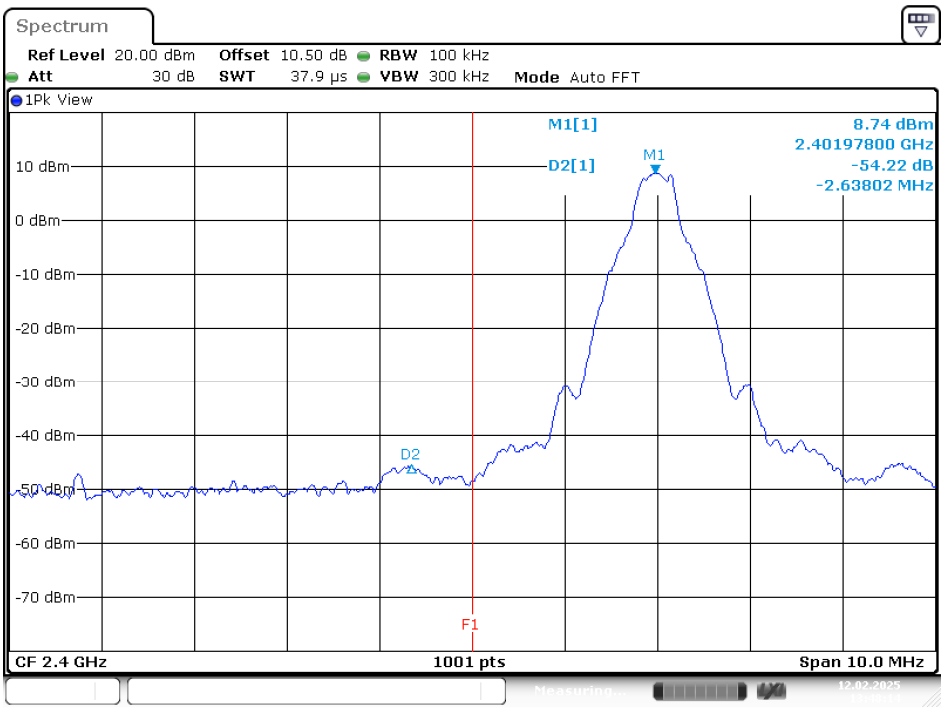
12.3. Test Results

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
BR Mode (GFSK)				
Low	2402	54.22	≥ 20	PASS
High	2480	58.46	≥ 20	PASS
BR Hopping Mode (GFSK)				
Low	2402-2480	56.36	≥ 20	PASS
High	2402-2480	57.94	≥ 20	PASS
EDR Mode (π/4-DQPSK)				
Low	2402	54.51	≥ 20	PASS
High	2480	58.00	≥ 20	PASS
EDR Hopping Mode (π/4-DQPSK)				
Low	2402-2480	54.30	≥ 20	PASS
High	2402-2480	56.82	≥ 20	PASS
EDR Mode (8DPSK)				
Low	2402	54.51	≥ 20	PASS
High	2480	58.35	≥ 20	PASS
EDR Hopping Mode (8DPSK)				
Low	2402-2480	54.49	≥ 20	PASS
High	2402-2480	56.24	≥ 20	PASS

Please refer to the following plots.

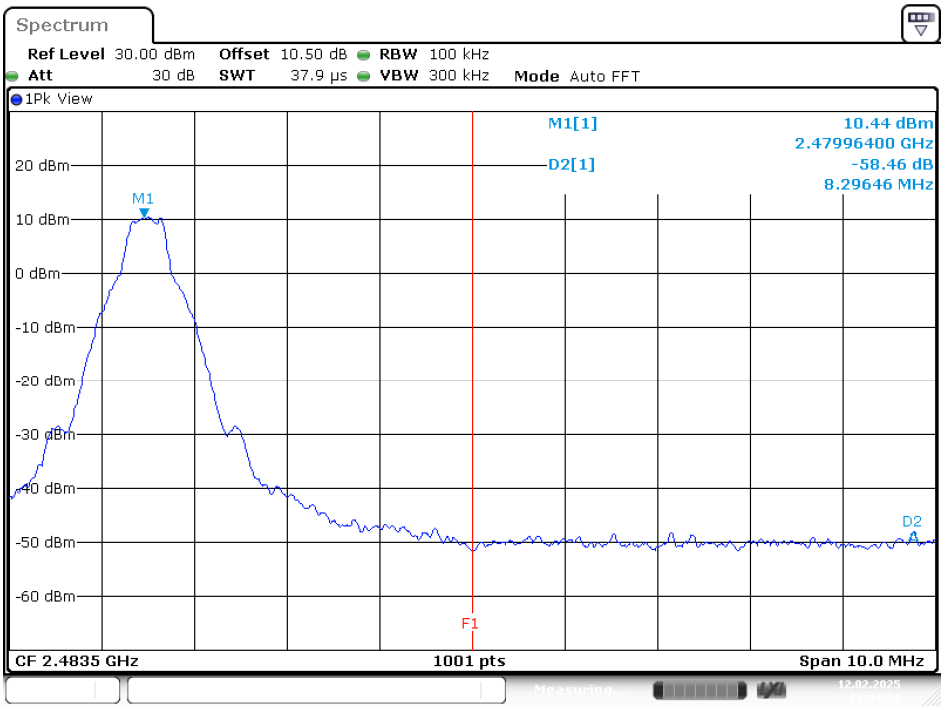
BR Mode (GFSK)

Band Edge, CH Low



Date: 12.FEB.2025 13:48:15

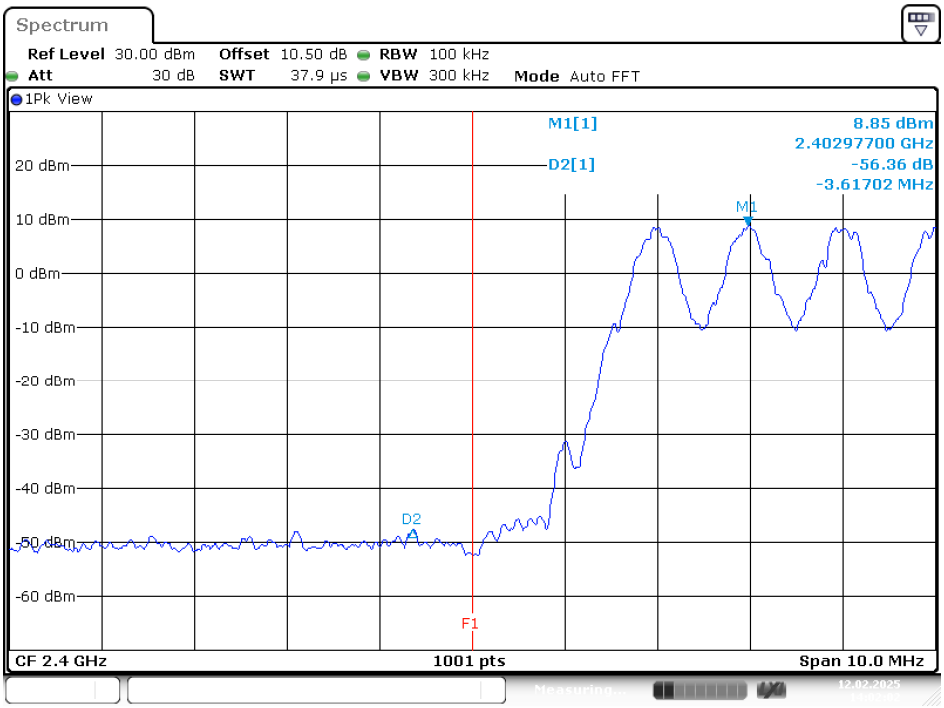
Band Edge, CH High



Date: 12.FEB.2025 13:44:14

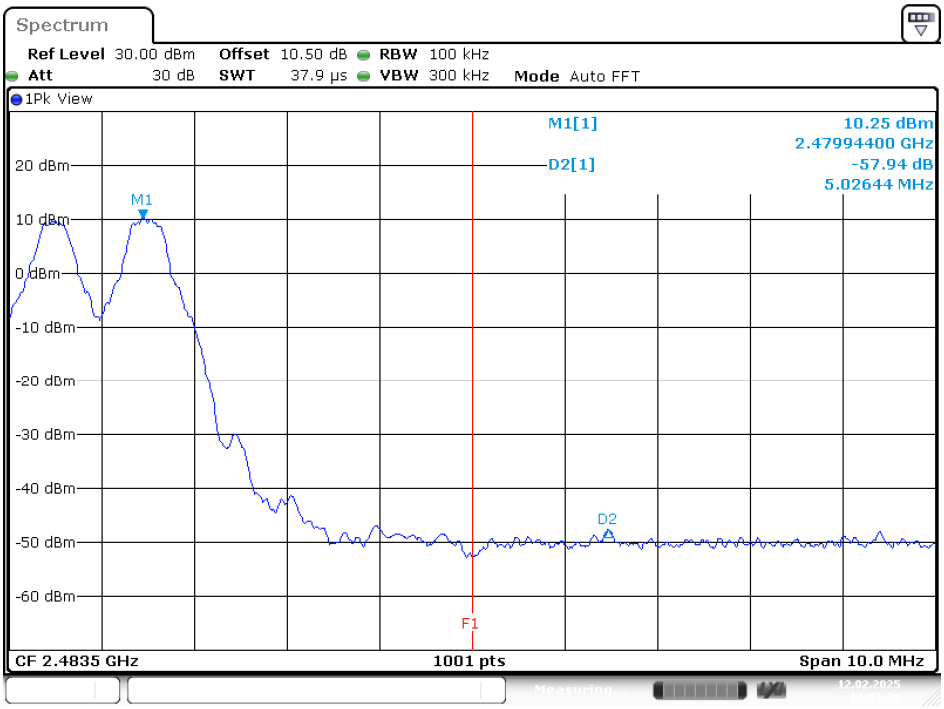
BR Hopping Mode (GFSK)

Band Edge, CH Low



Date: 12.FEB.2025 14:02:02

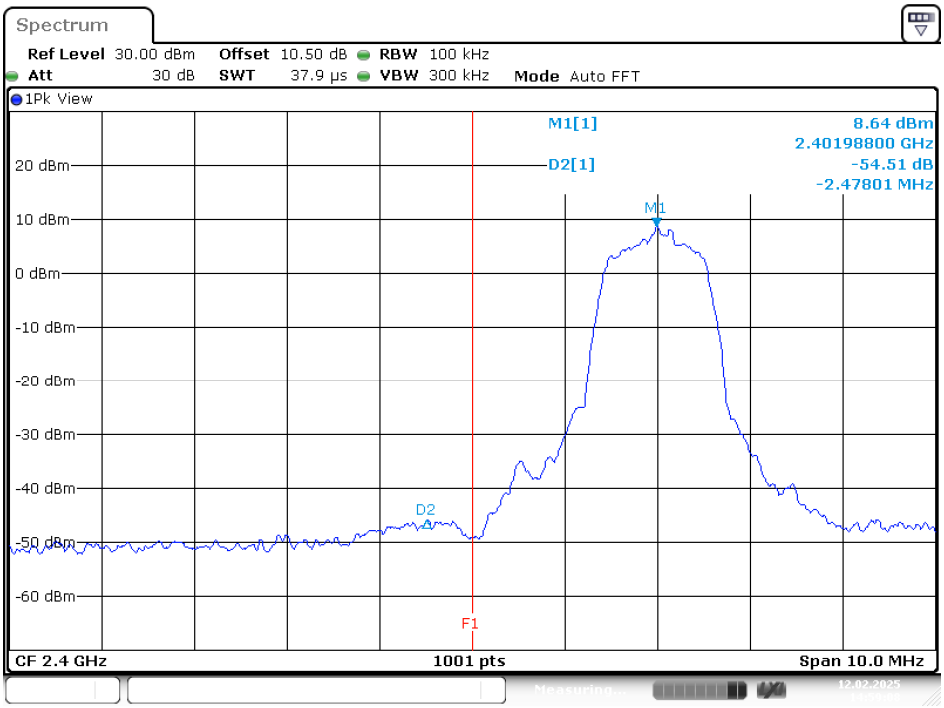
Band Edge, CH High



Date: 12.FEB.2025 14:02:28

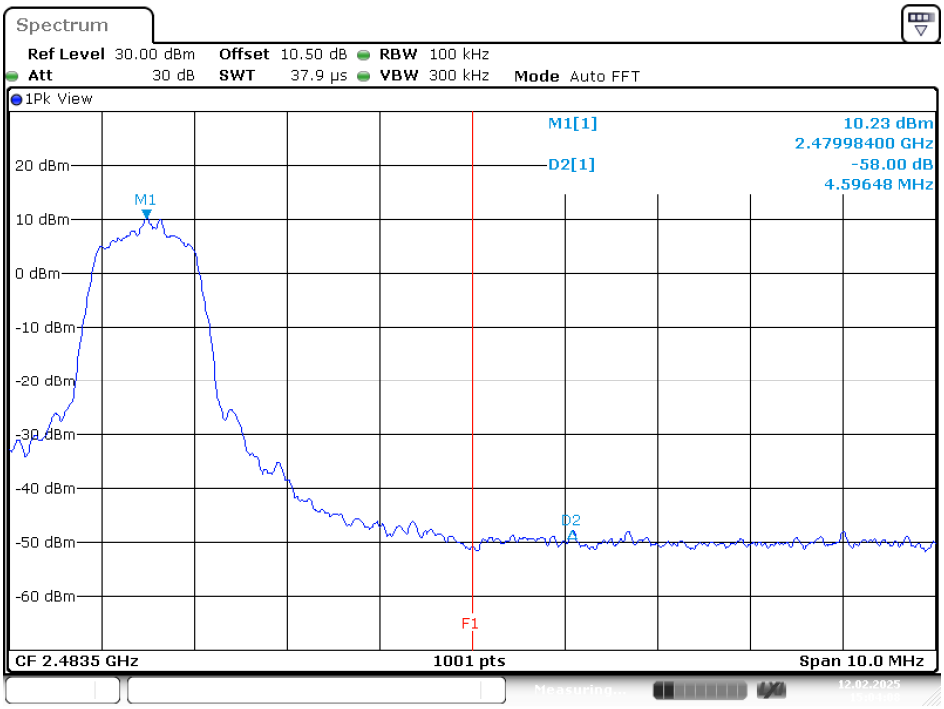
EDR Mode (π/4-DQPSK)

Band Edge, CH Low



Date: 12.FEB.2025 14:59:08

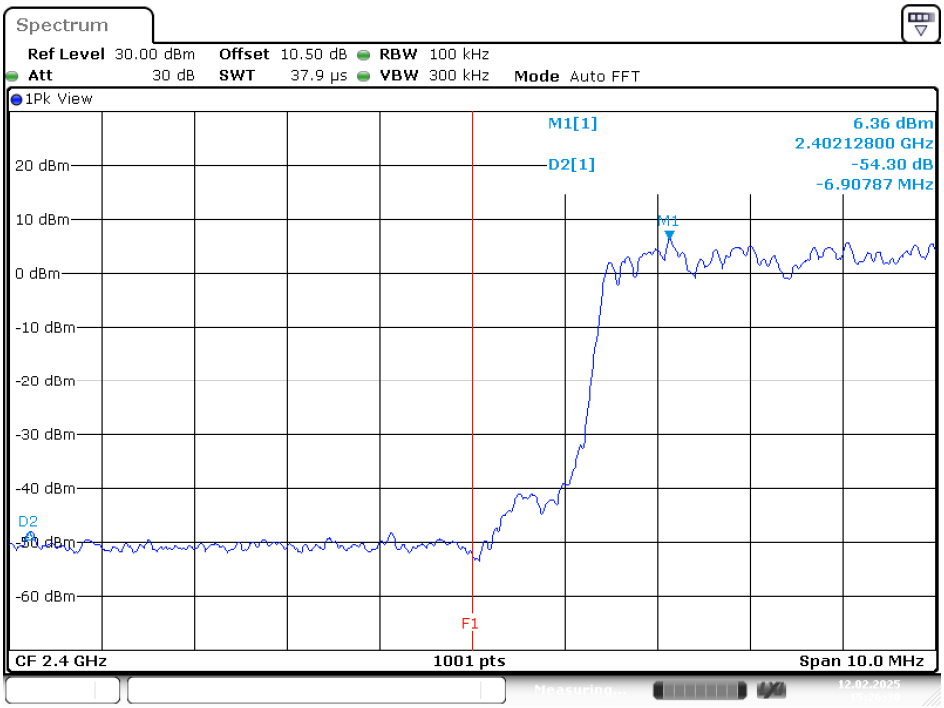
Band Edge, CH High



Date: 12.FEB.2025 15:04:09

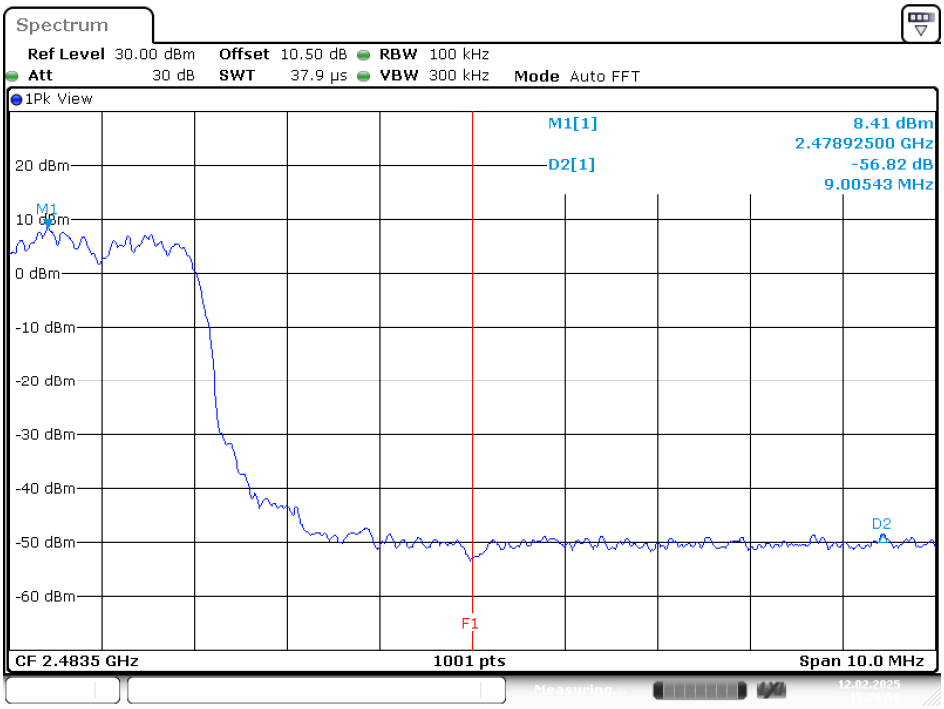
EDR Hopping Mode (π/4-DQPSK)

Band Edge, CH Low



Date: 12.FEB.2025 15:26:30

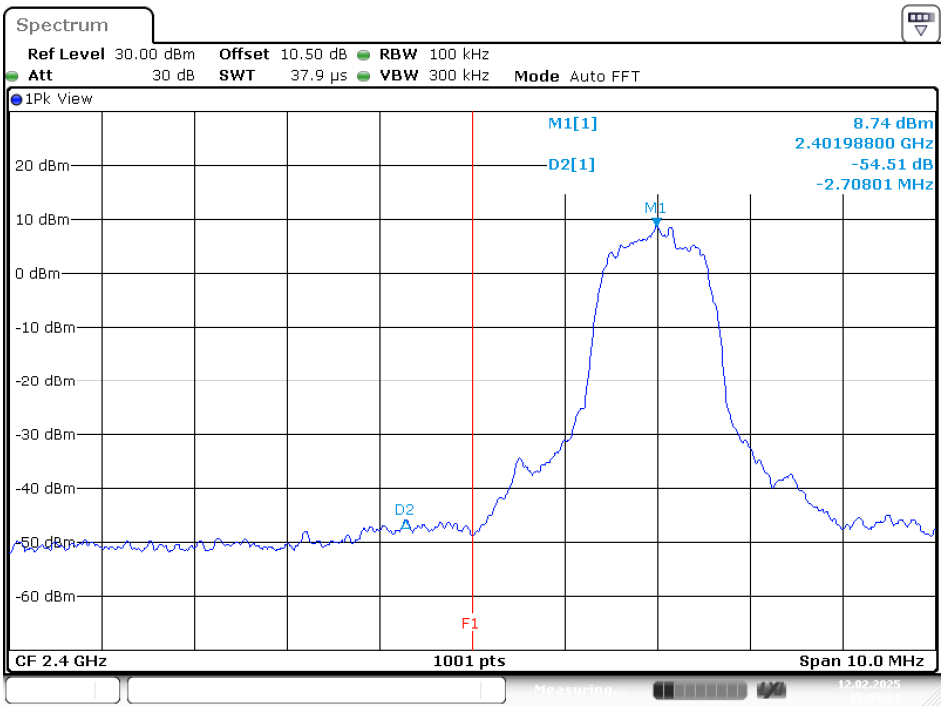
Band Edge, CH High



Date: 12.FEB.2025 15:26:51

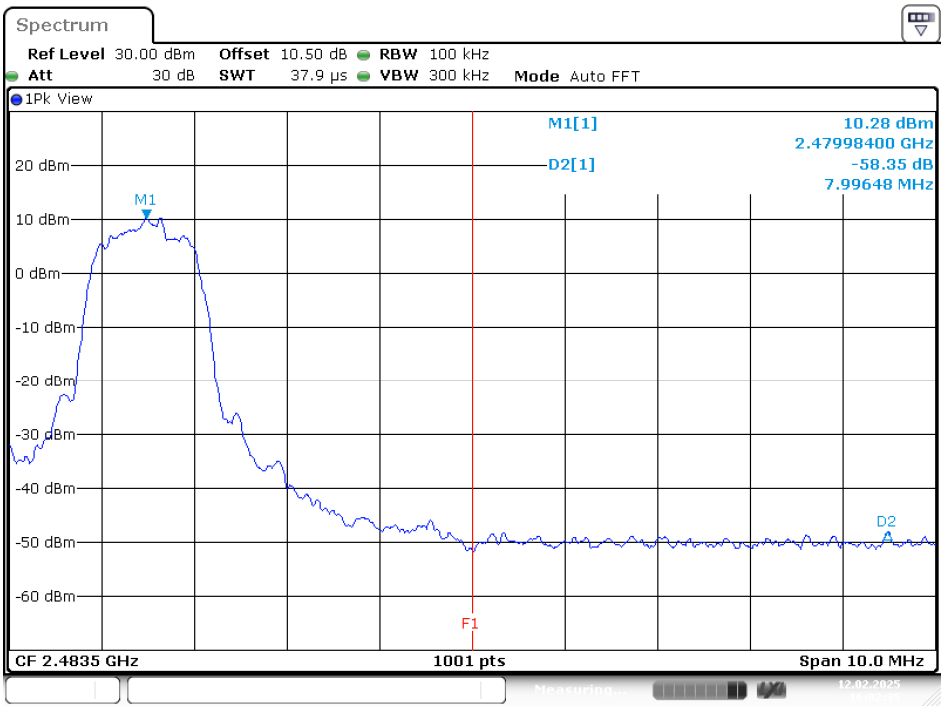
EDR Mode (8DPSK)

Band Edge, CH Low



Date: 12.FEB.2025 15:59:11

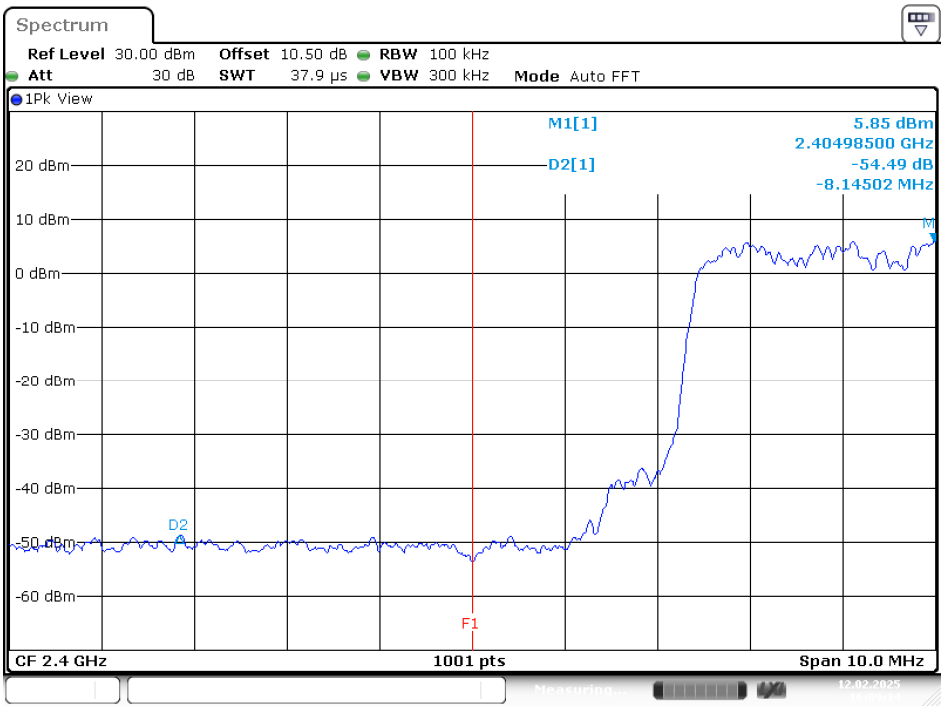
Band Edge, CH High



Date: 12.FEB.2025 16:02:35

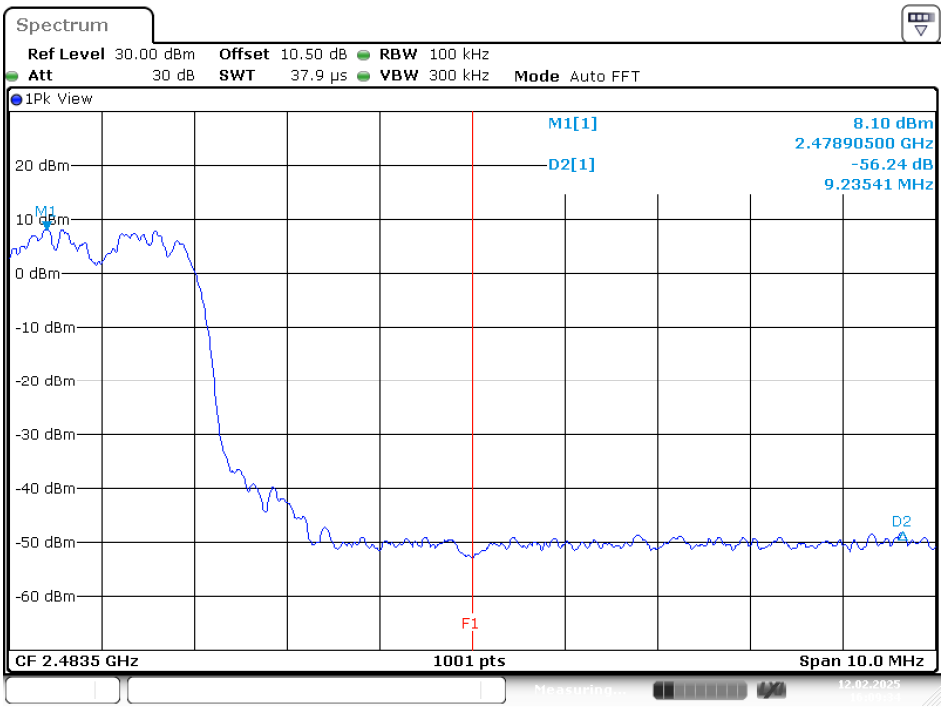
EDR Hopping Mode (8DPSK)

Band Edge, CH Low



Date: 12.FEB.2025 16:09:14

Band Edge, CH High



Date: 12.FEB.2025 16:09:35

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