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CERTIFICATION TEST REPORT

Manufacturer:	**Tury Ind.E.comLTDA** **Av. Dr. José Fornari, 1700 – Ferrazópolis** **São Bernardo do Campo – SP** **CEP 09790-400 - SP - BRAZIL**
Applicant:	**Monarch Tracking LLC** **401 Crossroads Street, Suite 1** **Laredo, Texas 78045 USA**
Product Name:	**Guardian-i**
Product Description:	The product is an electronic controller of the TPS signal, installed between the accelerator pedal and the vehicle's ECU. It enables acceleration blocking in security situations, such as anti-theft or anti-robbery functions, and also acts as an acceleration limiter, contributing to fuel economy or valet mode control. Function activation is performed through external digital inputs, such as GPS trackers. The module also features Bluetooth connectivity, allowing configuration and remote control via mobile application.
Operating Voltage/Freq. of EUT During Testing:	5VDC
Model:	**Guardian I**
FCC ID:	**2BQGN001**
Testing Commenced:	**2025-05-19**
Testing Ended:	**2025-05-20**
Summary of Test Results:	**In Compliance** The EUT complies with the EMC requirements when manufactured identically as the unit tested in this report, including any required modifications and/or manufacturer's statement. Any changes to the design or build of this unit subsequent to this testing may deem it non-compliant.

Standards:

- **FCC Part 15 Subpart C, Section 15.249**
- **FCC Part 15 Subpart C, Section 15.215(c) – Additional provisions to the general radiated emission limitations**
- **FCC Part 15 Subpart A, Section 15.31(e) – Measurement Standards**

Evaluation Conducted by:

Erik Tobin, EMC Engineer

Report Reviewed by:

Ken Littell, Vice President of Operations

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1 ADMINISTRATIVE INFORMATION

1.1 Measurement Location:

F2 Labs in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD.

1.2 Measurement Procedure:

All measurements were performed according to the 2013 version of ANSI C63.10 and recommended FCC procedure of measurement under Section 15.249. A list of the measurement equipment can be found in Section 6.

1.3 Uncertainty Budget:

The uncertainty in EMC measurements arises from several factors which affect the results, some associated with environmental conditions in the measurement room, the test equipment being used, and the measurement techniques adopted.

The measurement uncertainty budgets detailed below are calculated from the test and calibration data and are expressed with a 95% confidence factor using a coverage factor of k=2. The Uncertainty for a laboratory is referred to as *U*lab. For Radiated and Conducted Emissions, the Expanded Uncertainty is compared to the *U*cispr values to determine if a specific margin is required to deem compliance.

*U*lab

Measurement Range	Combined Uncertainty	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	2.54dB	5.07dB
Radiated Emissions <1 GHz @ 10m	2.55dB	5.09dB
Radiated Emissions 1 GHz to 2.7 GHz	1.81dB	3.62dB
Radiated Emissions 2.7 GHz to 18 GHz	1.55dB	3.10dB
AC Power Line Conducted Emissions, 150kHz to 30 MHz	1.38dB	2.76dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	1.66dB	3.32dB

*U*cispr

Measurement Range	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	5.2dB
Radiated Emissions <1 GHz @ 10m	5.2dB
Radiated Emissions 1 GHz to 2.7 GHz	Under Consideration
Radiated Emissions 2.7 GHz to 18 GHz	Under Consideration
AC Power Line Conducted Emissions, 150kHz to 30 MHz	3.6dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	4.0dB

If *U*lab is less than or equal to *U*cispr, then:
- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If *U*lab is greater than *U*cispr in table 1, then:
- compliance is deemed to occur if no measured disturbance, increased by (*U*lab – *U*cispr), exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance, increased by (*U*lab – *U*cispr), exceeds the disturbance limit.

Note: Only measurements listed in the tables above that relate to tests included in this Test Report are applicable.

1.4 Document History:

Document Number	Description	Issue Date	Approved By
F2X34524-01E	First Issue	2025-06-20	K. Littell

2 SUMMARY OF TEST RESULTS / MODIFICATIONS

Test Name	Standard(s)	Results
99% Occupied Bandwidth	CFR 47 Part 15.215(c)	Complies
-20dB Occupied Bandwidth	CFR 47 Part 15.215(c)	Complies
Field Strength of Emissions	CFR 47 Part 15.249(a)(d)	Complies
Variation of the Input Power	CFR 47 Part 15.31(e)	Complies*
Conducted Emissions	CFR 47 Part 15.207(a)	N/A

**Complies by using new batteries.*

Modifications Made to the Equipment
None

3 TABLE OF MEASURED RESULTS

Test		Low Channel 2402 MHz	Mid Channel 2440 MHz	High Channel 2480 MHz
Average Field Strength of Fundamental	1Mbps	77.3 dBµV/m, 7.328 mV/m	78.5 dBµV/m, 8.414 mV/m	77.7 dBµV/m, 7.674 mV/m
	2Mbps	77.2 dBµV/m, 7.244 mV/m	78.6 dBµV/m, 8.511 mV/m	78.2 dBµV/m, 8.128 mV/m
	125 kbps	77.1 dBµV/m, 7.161 mV/m	78.7 dBµV/m, 8.610 mV/m	78.1 dBµV/m, 8.035 mV/m
	500 kbps	76.9 dBµV/m, 6.998 mV/m	78.4 dBµV/m, 8.318 mV/m	78.0 dBµV/m, 7.943 mV/m
Average Limit for Fundamental		50 millivolts/meter (93.97 dBµV/m)	50 millivolts/meter (93.97 dBµV/m)	50 millivolts/meter (93.97 dBµV/m)
Peak Field Strength of Fundamental	1Mbps	94.7 dBµV/m 54.325 mV/m	95.9 dBµV/m 62.373 mV/m	95.1 dBµV/m 56.885 mV/m
	2Mbps	94.6 dBµV/m 53.703 mV/m	96.0 dBµV/m 63.096 mV/m	95.6 dBµV/m 60.256 mV/m
	125 kbps	94.5 dBµV/m 53.088 mV/m	96.2 dBµV/m 64.565 mV/m	95.5 dBµV/m 59.566 mV/m
	500 kbps	94.3 dBµV/m 51.880 mV/m	95.8 dBµV/m 61.66 mV/m	95.5 dBµV/m 59.566 mV/m
Peak Limit for Fundamental		113.97 dBµV/m	113.97 dBµV/m	113.97 dBµV/m
-20dB Occupied Bandwidth	1Mbps	984.3 kHz	1070.8 kHz	1070.8 kHz
	2Mbps	1066.9 kHz	1066.9 kHz	1066.9 kHz
	125 kbps	1068.8 kHz	1068.9 kHz	1072.7 kHz
	500 kbps	1078.4 kHz	1066.9 kHz	1070.8 kHz
99% Occupied Bandwidth	1Mbps	1.067 kHz	1.058 kHz	1.016 kHz
	2Mbps	1.506 kHz	1.202 kHz	1.034 kHz
	125 kbps	1.37 kHz	1.144 kHz	1.024 kHz
	500 kbps	1.351 kHz	1.154 kHz	1.024 kHz

The -20dB bandwidth of the emission shall be contained within the frequency band designated in the rule section under which the equipment is operated.

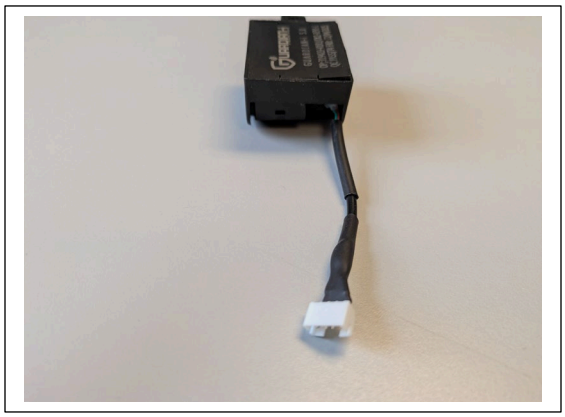
4 ENGINEERING STATEMENT

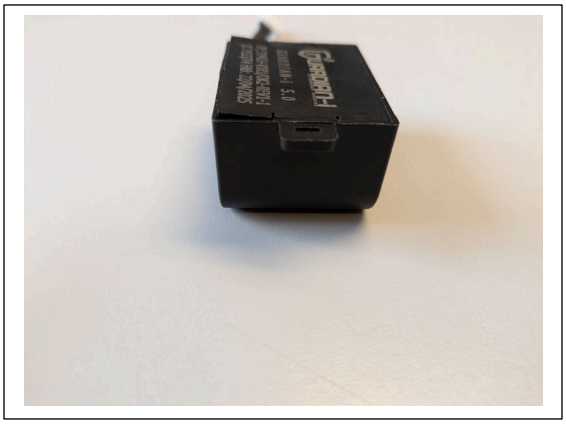
This report has been prepared on behalf of Monarch Tracking LLC to provide documentation for the testing described herein. This equipment has been tested and found to comply with part 15.249 of the FCC Rules using ANSI C63.10 2013 standard. The test results found in this test report relate only to the items tested.

5 EUT INFORMATION AND DATA

5.1 Equipment Under Test:

Product: Guardian-I Security Device
Model: Guardian I
Serial No.: Guardian 5.0
FCC ID: 2BQGN001





5.2 Trade Name:

Guardian i

5.3 Power Supply:

USB

5.4 Applicable Rules:

CFR 47, Part 15.249, subpart C

5.6 Antenna:

Custom PCB Trace, 2.0dBi Gain

5.7 Accessories:

Device	Manufacturer	Model Number	Serial Number
Laptop	Dell	P1426	None Specified
Accessory Software Version:		BlueNRG GUI v4.7.1	

5.8 Test Item Condition:

The equipment to be tested was received in good condition.

5.9 Testing Algorithm:

EUT was powered via USB connection, set to low, mid, high channels with data rates 1Mbps, 2Mbps, 125 kbps and 500 kbps. Device was transmitting in three different channels (low, mid and high).

6 LIST OF MEASUREMENT INSTRUMENTATION

Equipment Type	Asset Number	Manufacturer	Model	Serial Number	Calibration Due Date
Shielded Chamber	CL166-E	Albatross Projects	B83117-DF435-T261	US140023	2026-05-07
Receiver	CL151	Rohde & Schwarz	ESU40	100319	2026-04-09
Receiver	CL204	Rohde & Schwarz	ESR7	101714	2026-04-08
Low Loss Cable Set	CL315 / CL318	Fairview Microwave	FMC0202914-72/FMC0202914-240	None Spec.	2026-04-09
Horn Antenna	CL333	ETS Lindgren	DRHA18G	J203061349	2025-06-30
Horn Antenna 18-26.5 GHz	CL114	A.H. Systems, Inc.	SAS-572	237	2026-01-09
Pre-Amplifier	CL153	Keysight Tech.	83006A	MY39500791	2025-12-04
Pre-Amplifier	CL284	A.H. Systems, Inc.	PAM-0101	131	2026-04-08
Active 18” Loop Antenna	CL163-Loop	A.H. Systems, Inc.	EHA-52B	100	2026-04-01
Antenna, JB3 Combination	CL175	Sunol Sciences	JB3	A030315	2025-09-18
Software:	Tile Version 3.4.B.3		Software Verified: 2025-05-19 to 2025-05-20		
Software:	EMC 32, Version 8.53.0		Software Verified: 2025-05-19 to 2025-05-20		
Temp/Hum Rec	CL293	Thermpro	TP50	1	2025-05-31

7 OCCUPIED BANDWIDTH

7.1 Requirements:

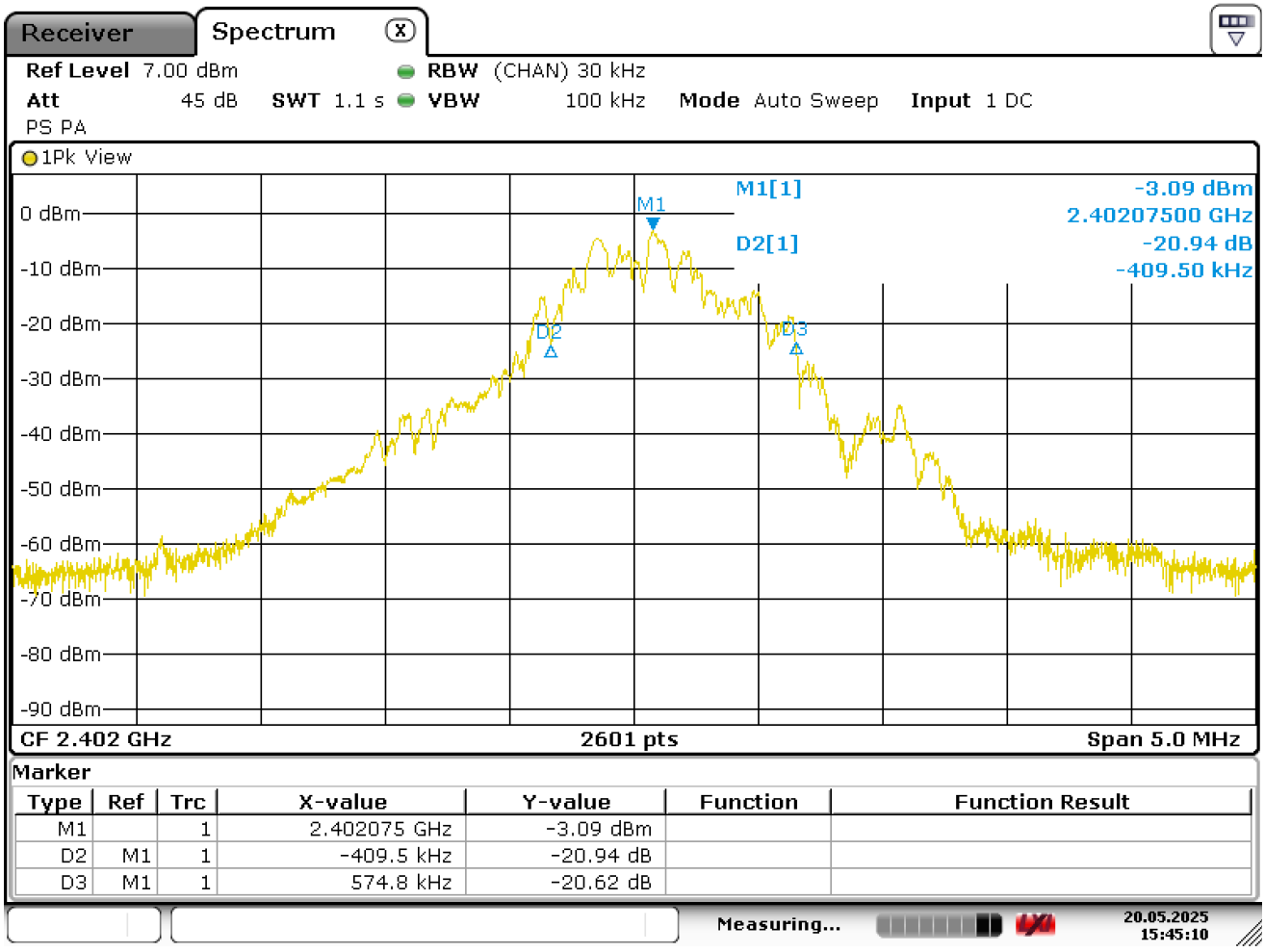
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the -20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

Bandwidth measurements were made at the low (2.402 GHz), mid (2.440 GHz) and upper (2.480 GHz) frequencies. The bandwidth was measured using the analyzer's marker function.

7.2 Occupied Bandwidth Test Data

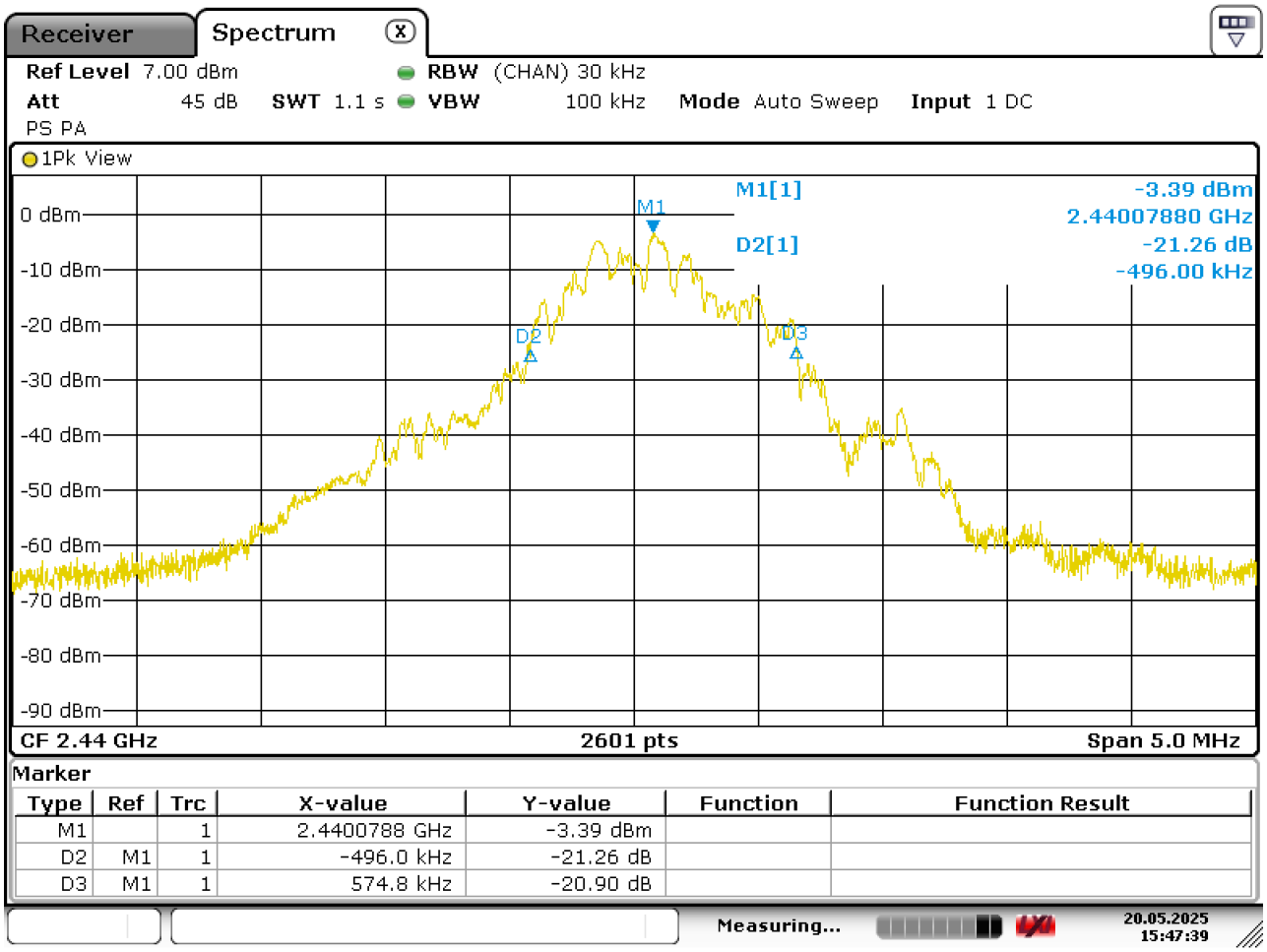
Test Date(s):	2025-05-20	Test Engineer(s):	E. Tobin
Standards:	CFR 47 Part 15.215(c)	Air Temperature:	20.3ºC
		Relative Humidity:	41%

1Mbps: -20dB, Low Channel



Date: 20.MAY.2025 15:45:10

1Mbps: -20dB, Mid Channel



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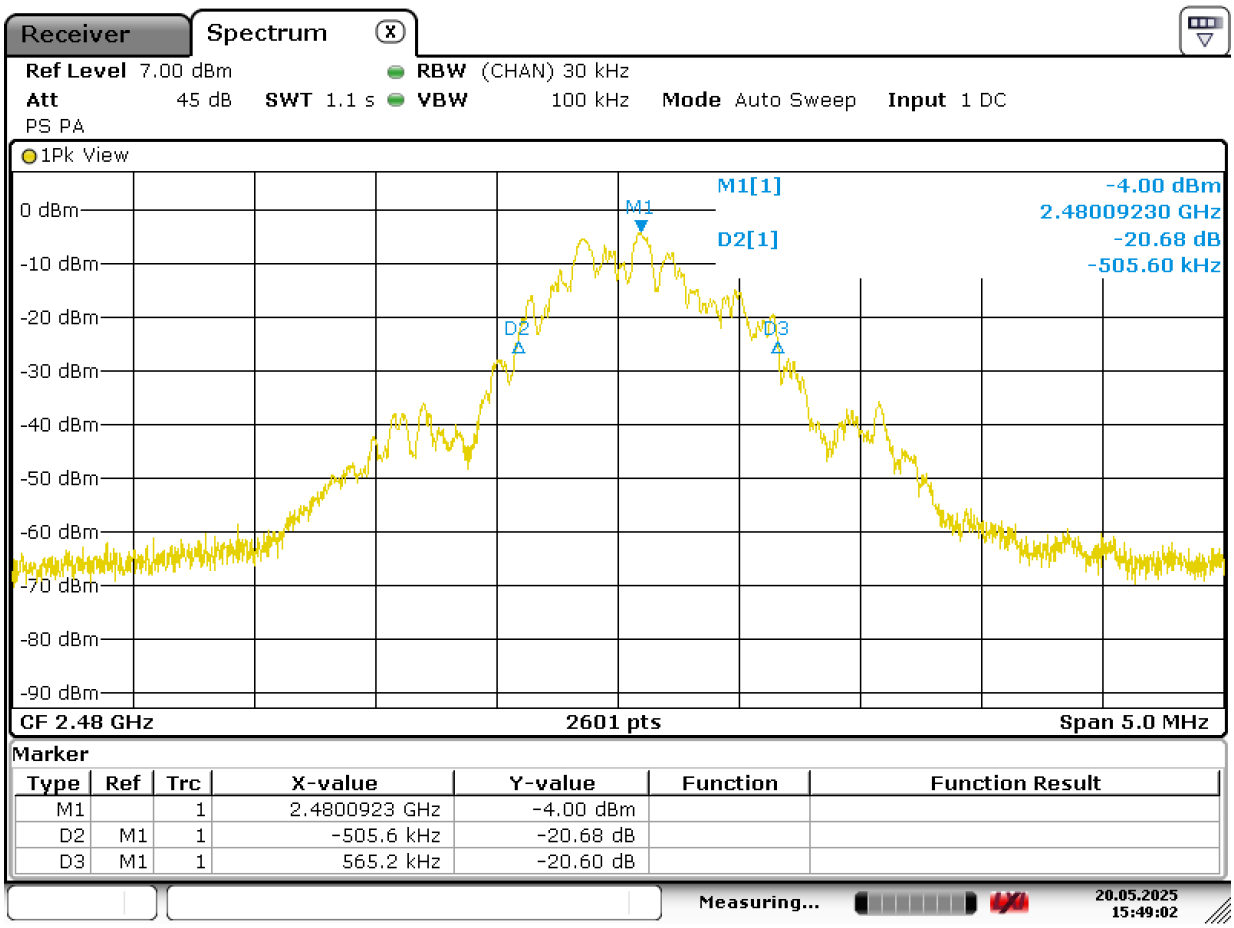
1Mbps: -20dB, High Channel



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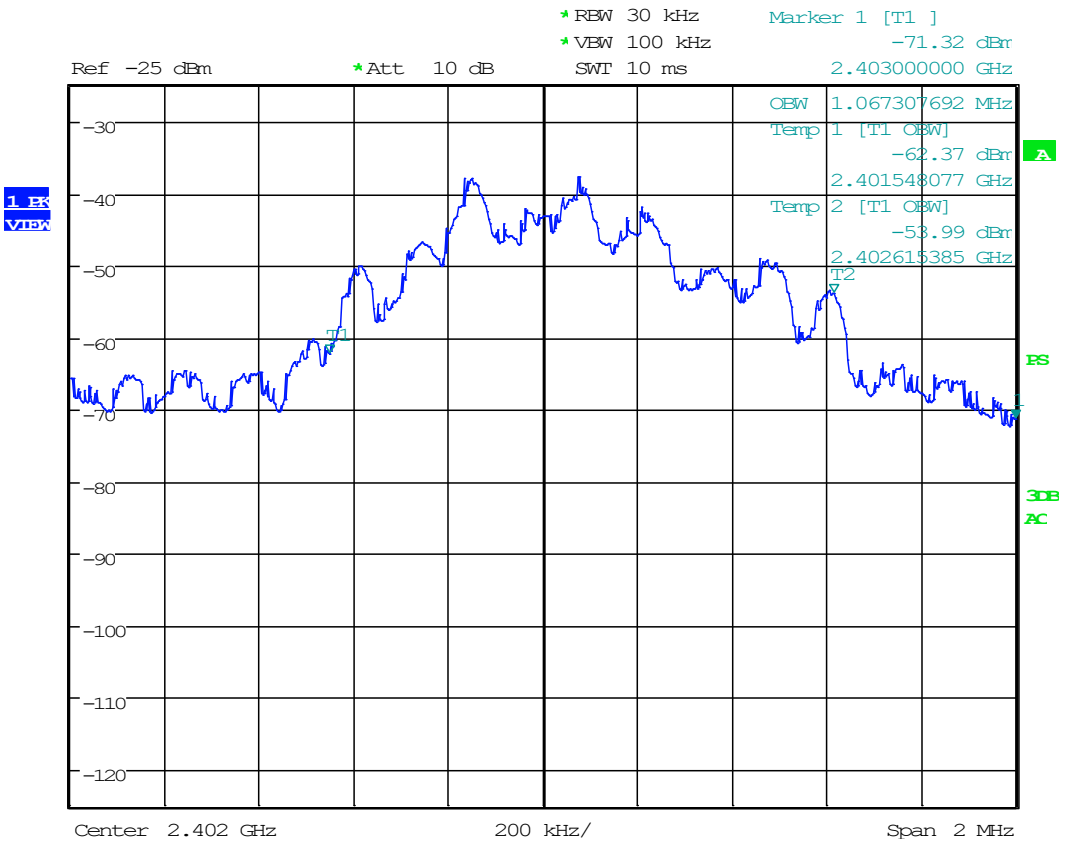
1Mbps: 99%, Low Channel



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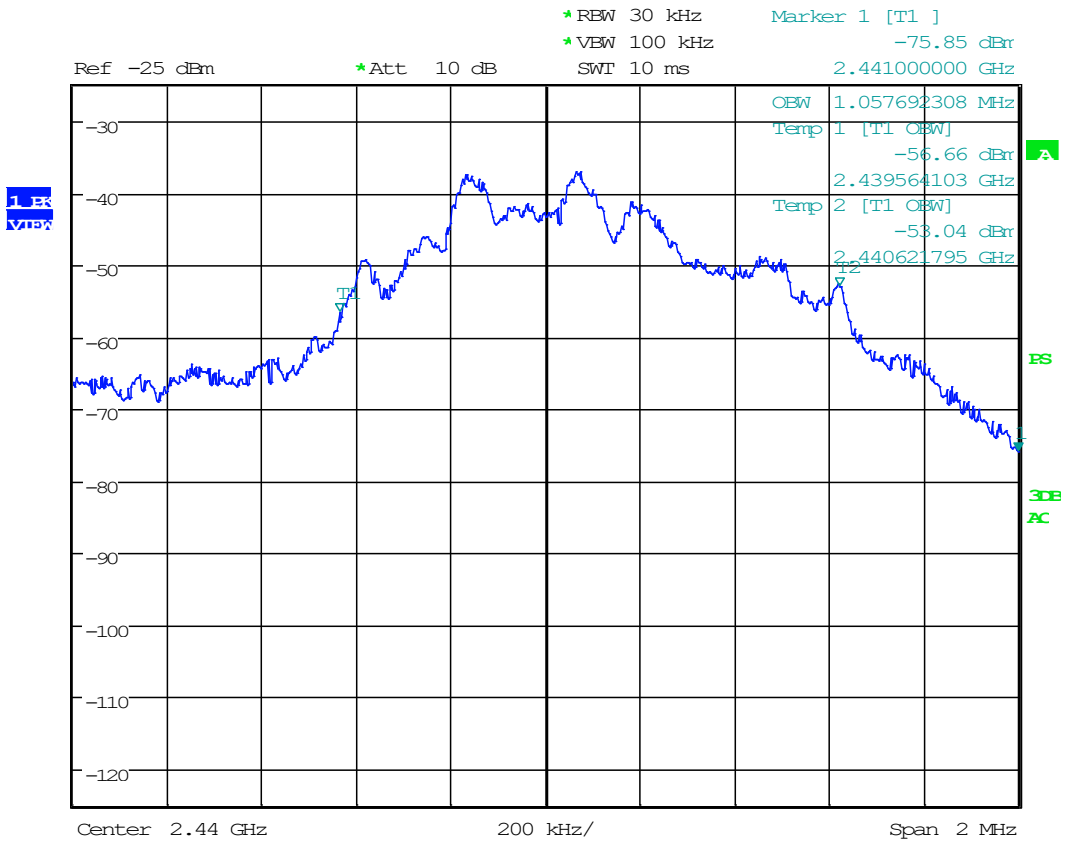
1Mbps: 99%, Mid Channel



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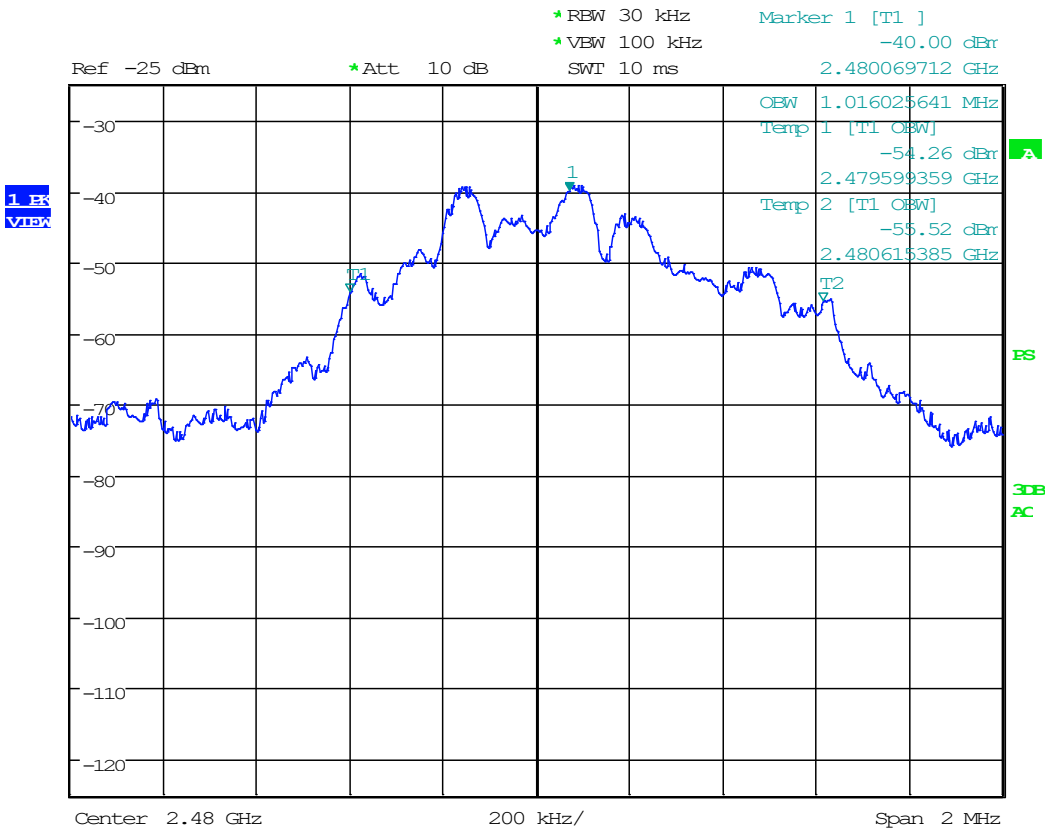
1Mbps: 99%, High Channel



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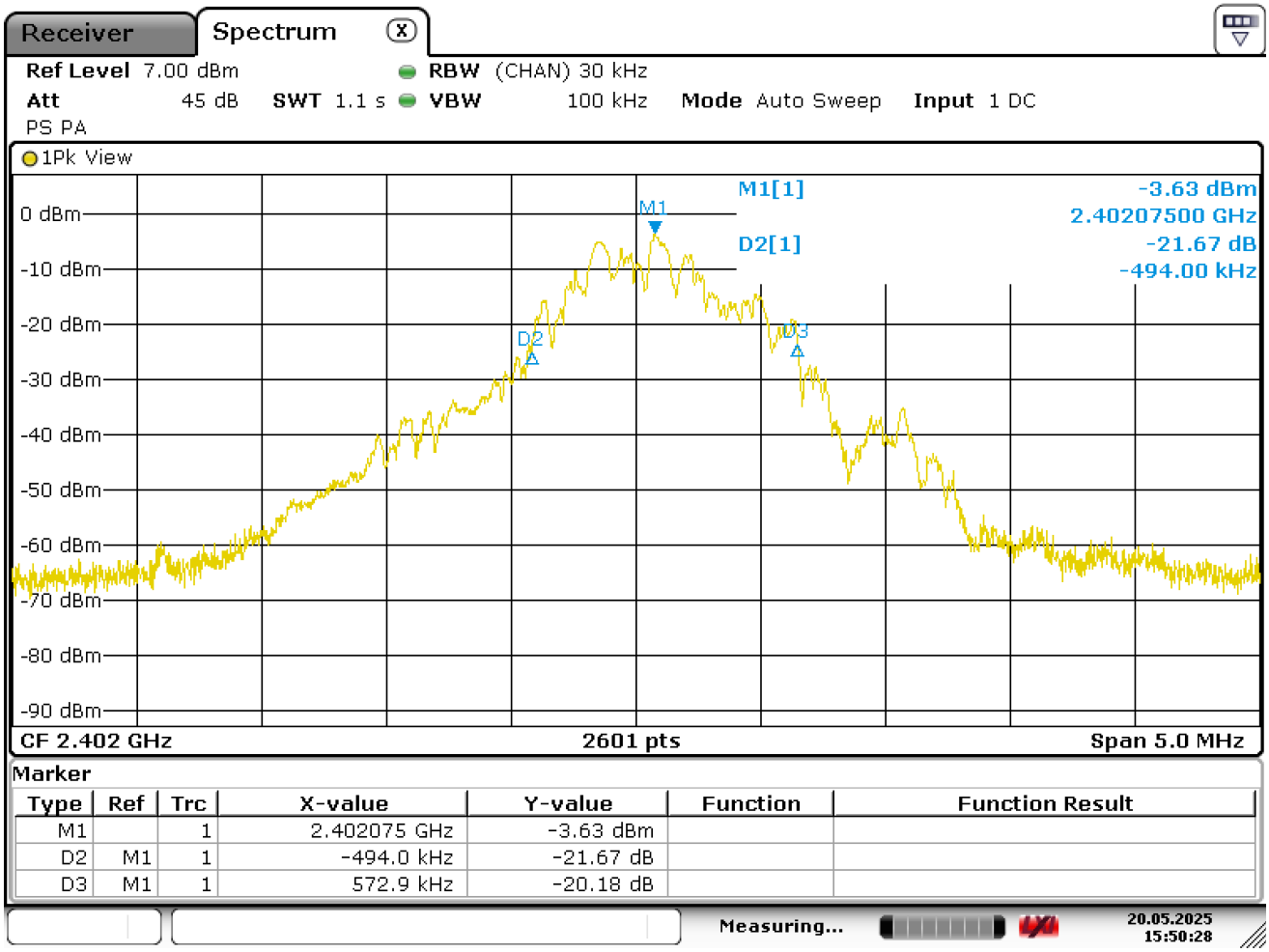
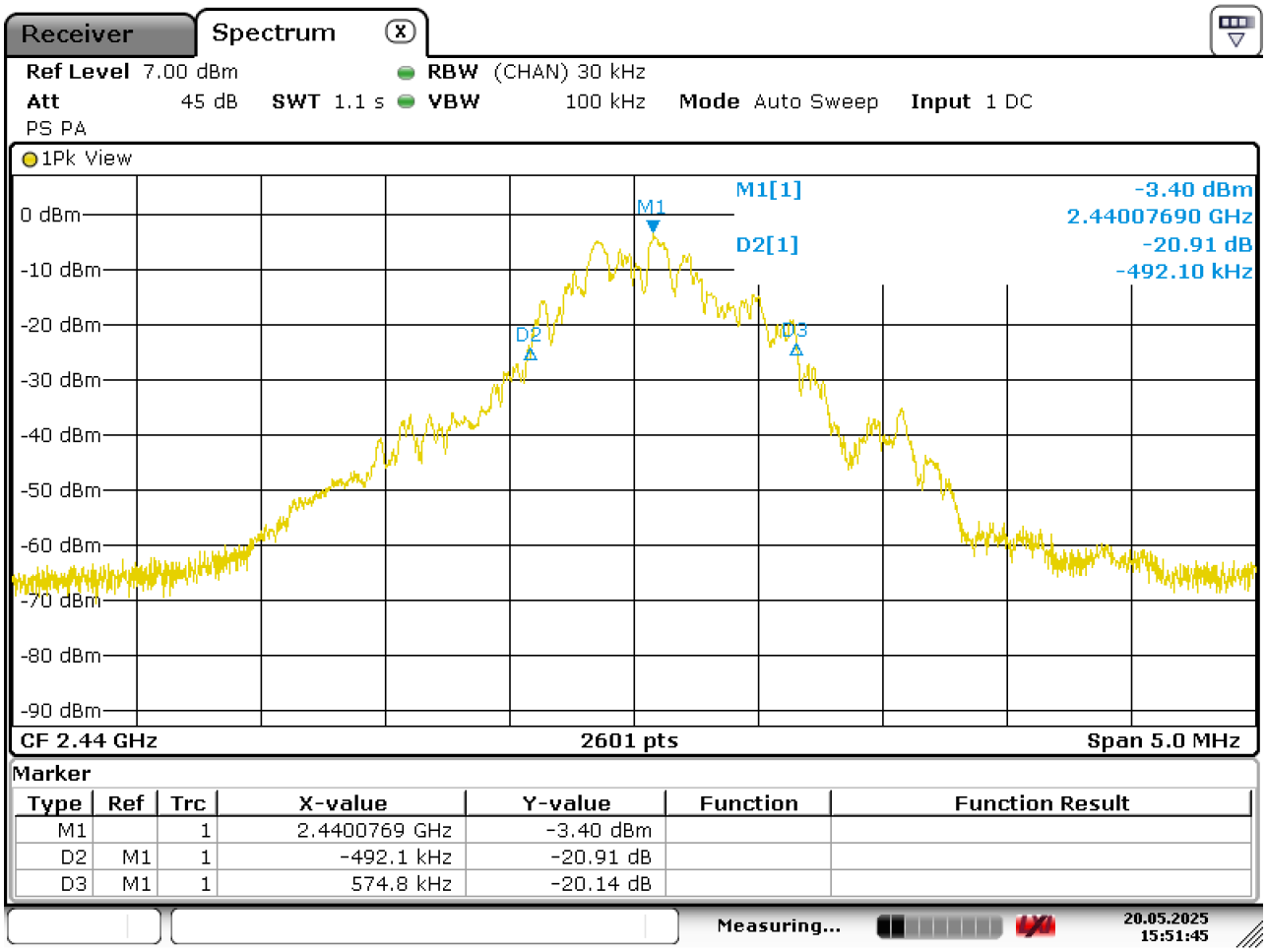
2Mbps: -20dB, Low Channel



Date: 20.MAY.2025 15:50:28

2Mbps: -20dB, Mid Channel



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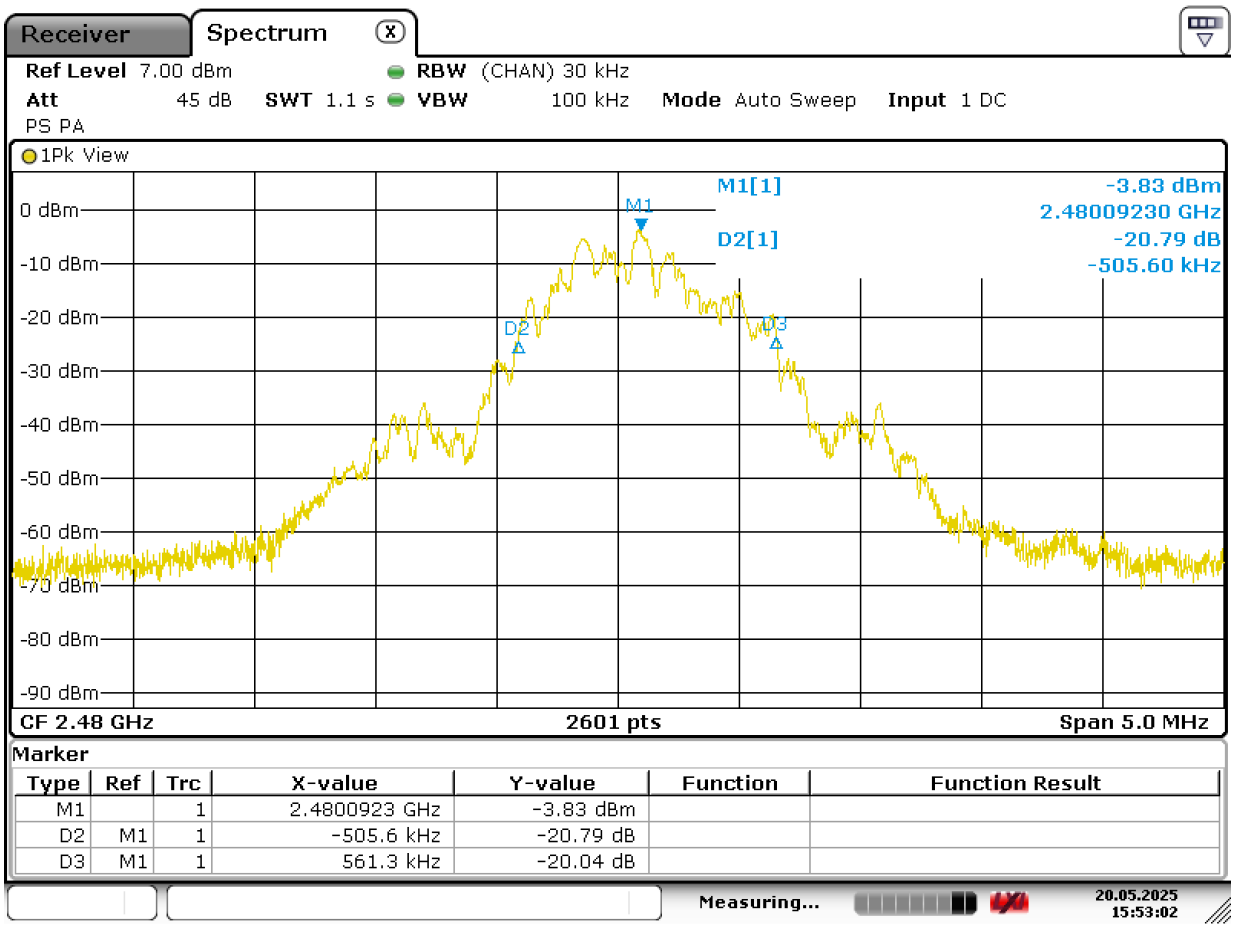
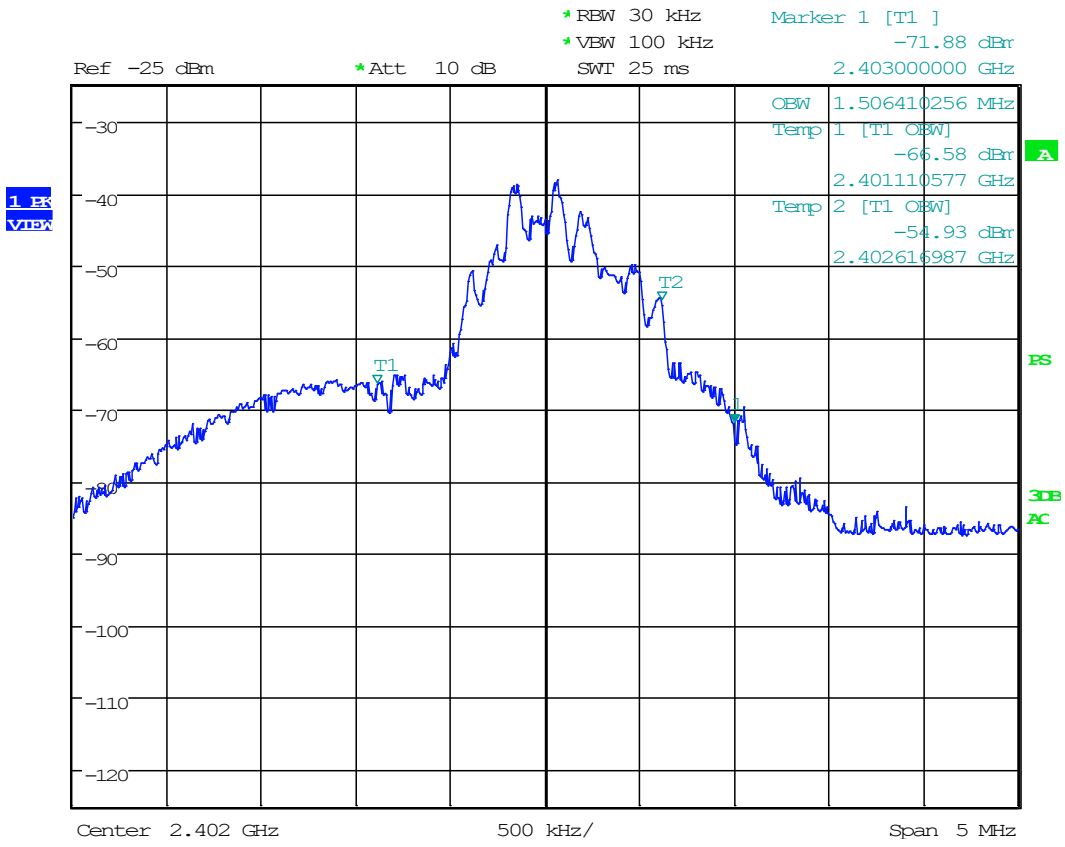
2Mbps: -20dB, High Channel



Date: 20.MAY.2025 15:53:02

2Mbps: 99%, Low Channel



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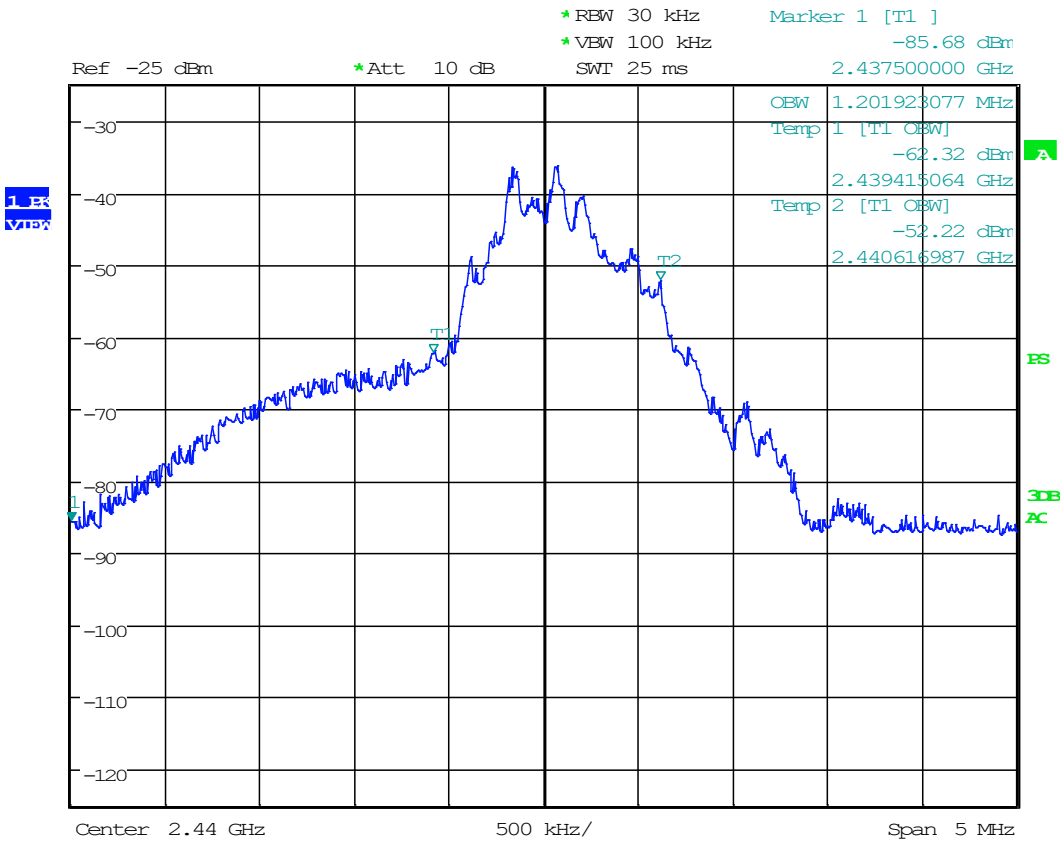
2Mbps: 99%, Mid Channel



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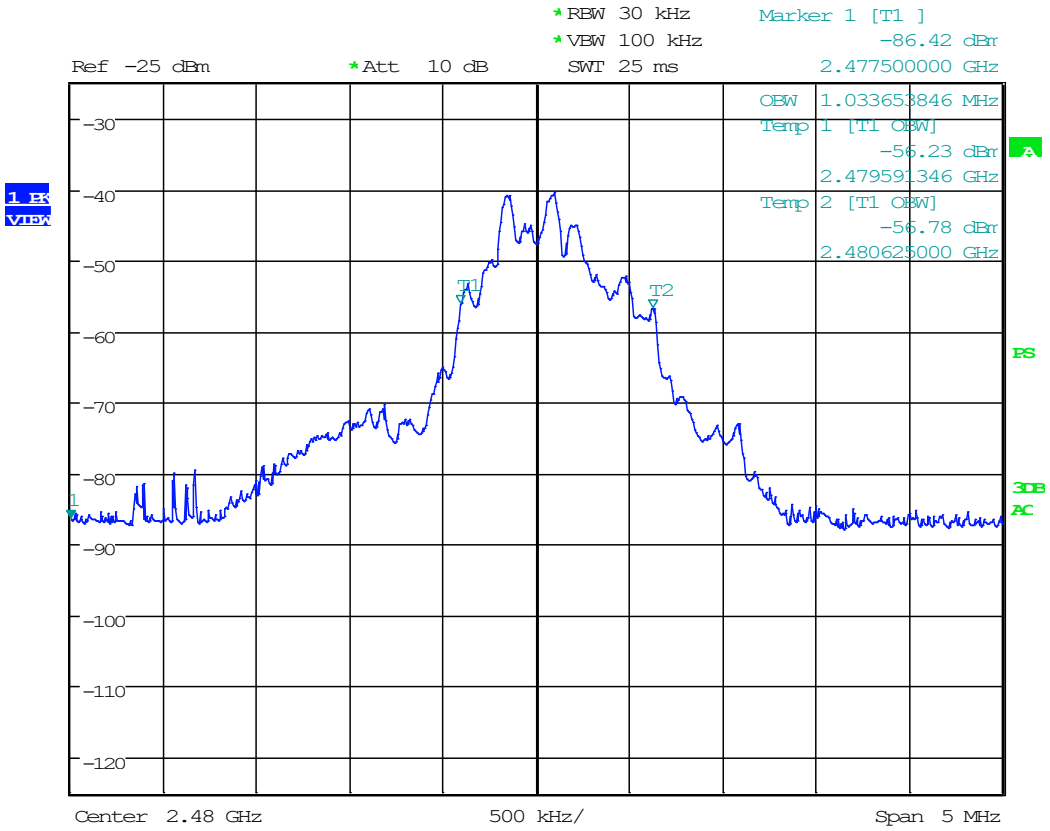
2Mbps: 99%, High Channel



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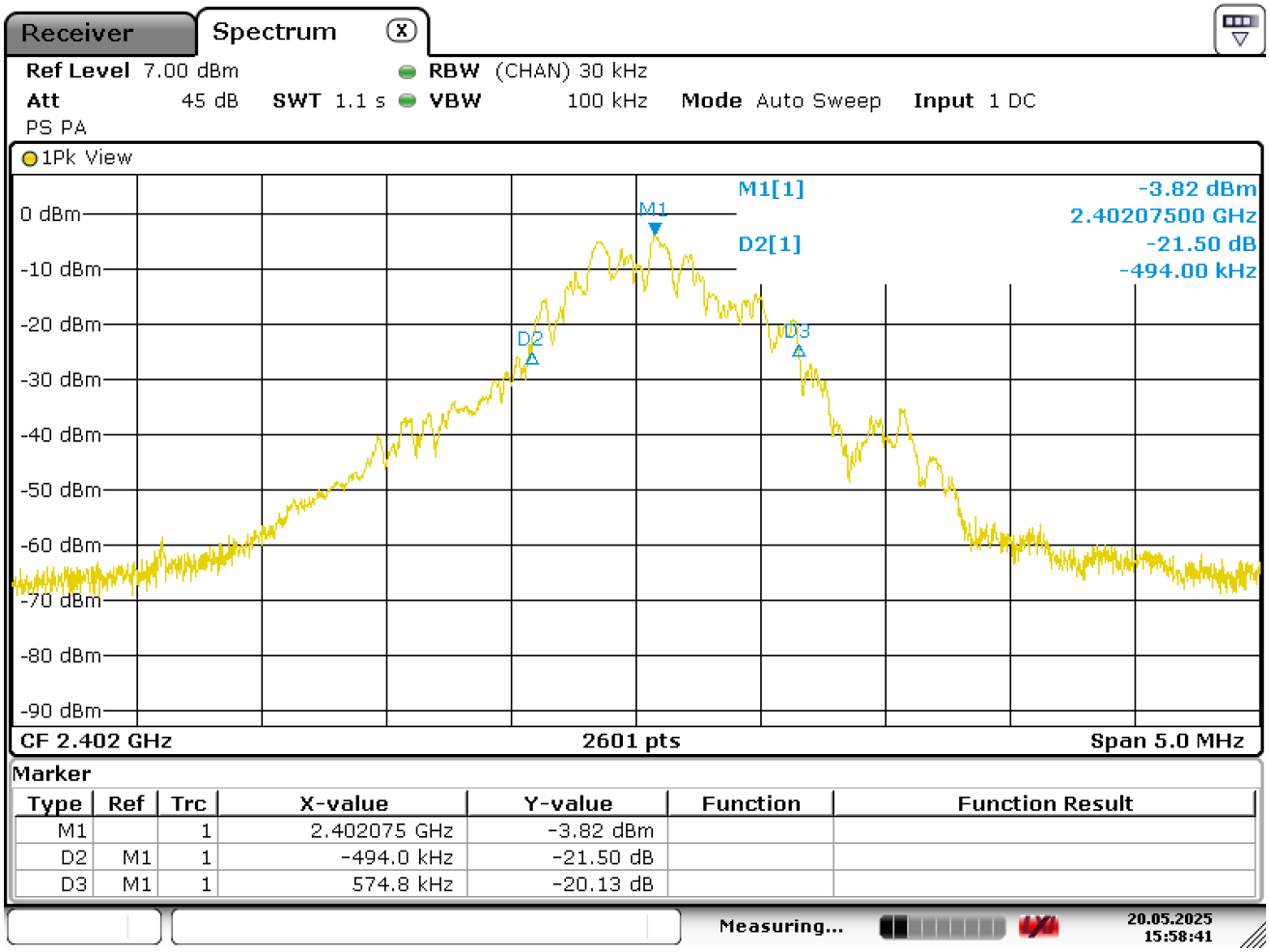
125 kbps: -20dB, Low Channel



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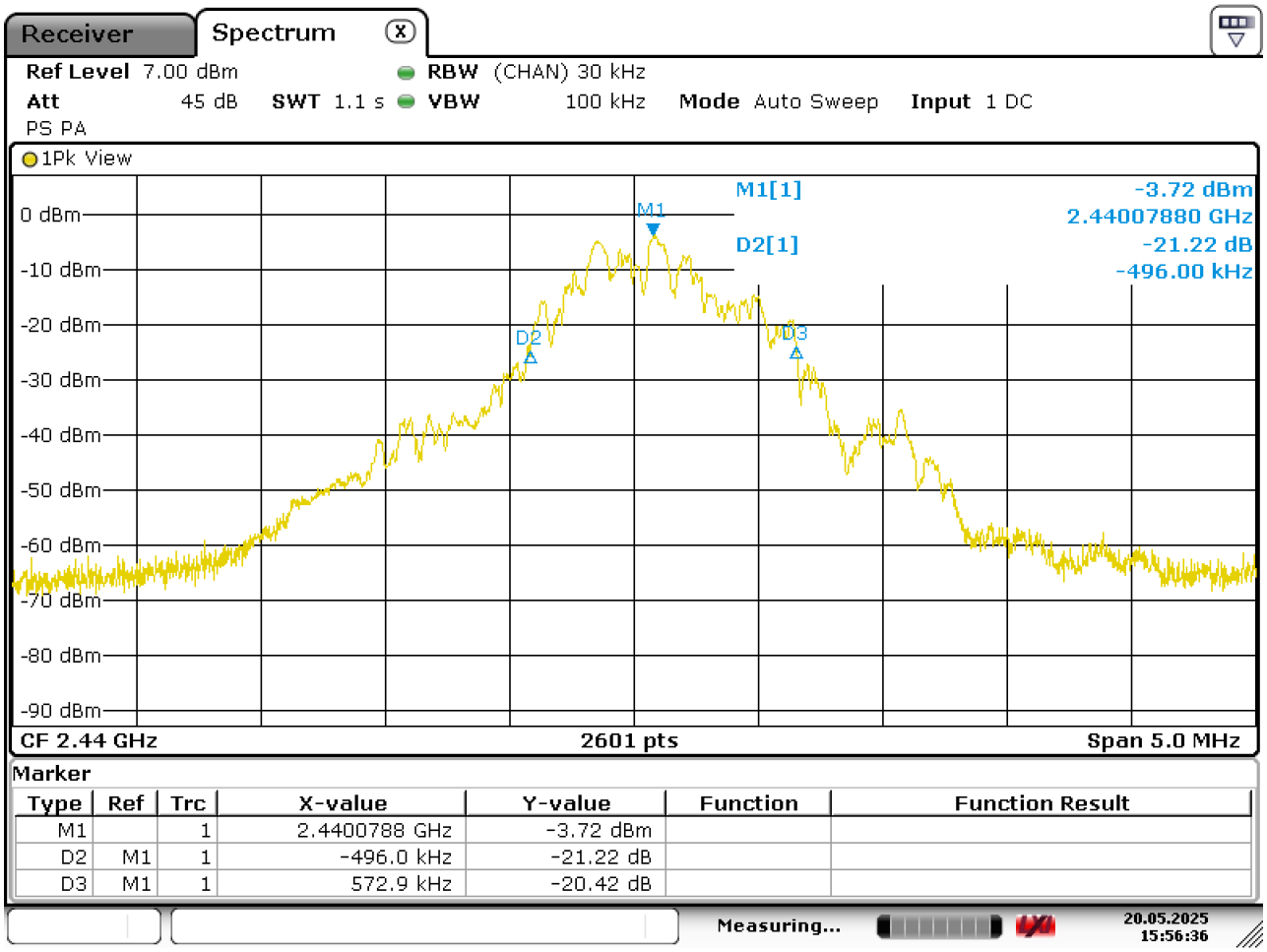
125 kbps: -20dB, Mid Channel



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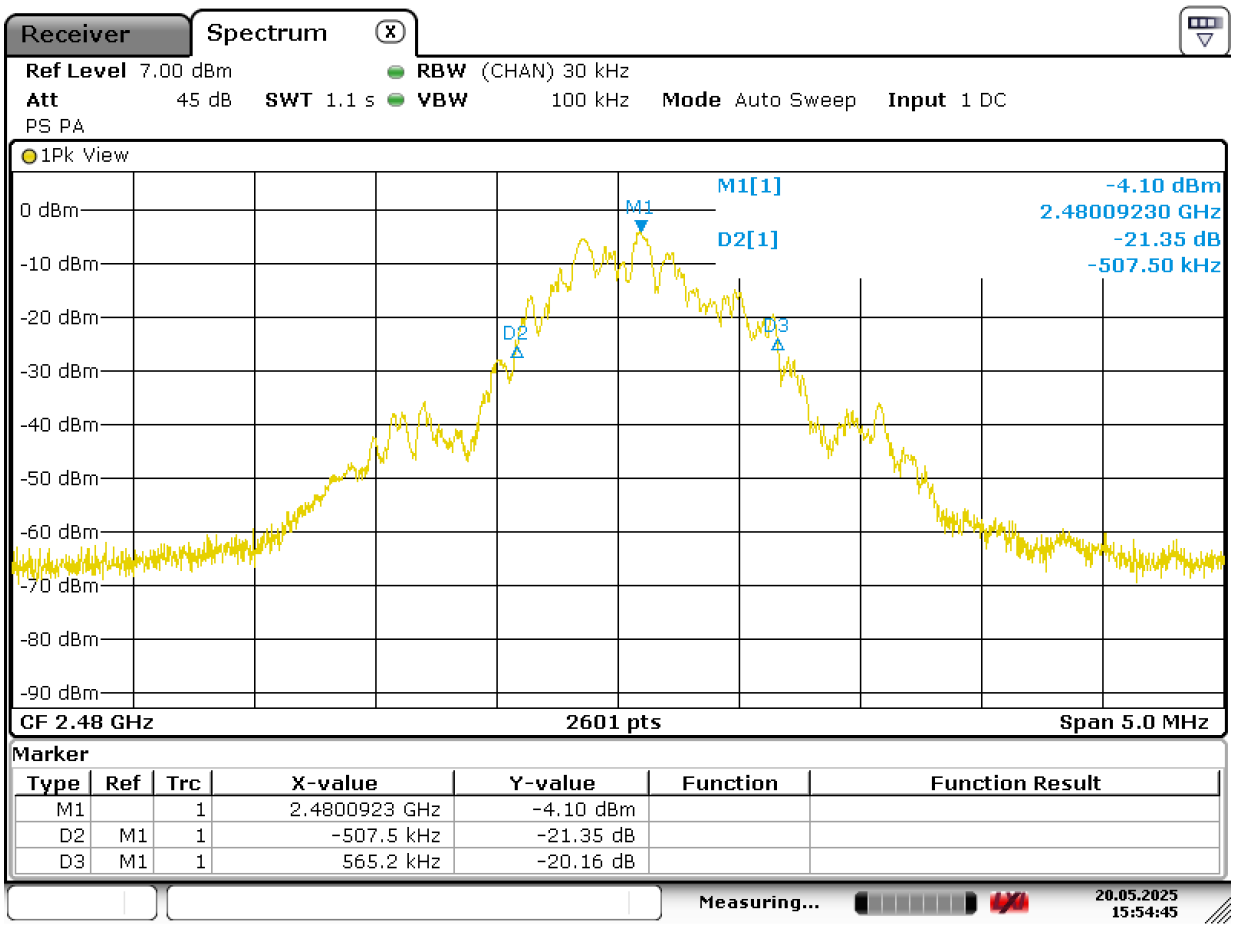
125 kbps: -20dB, High Channel



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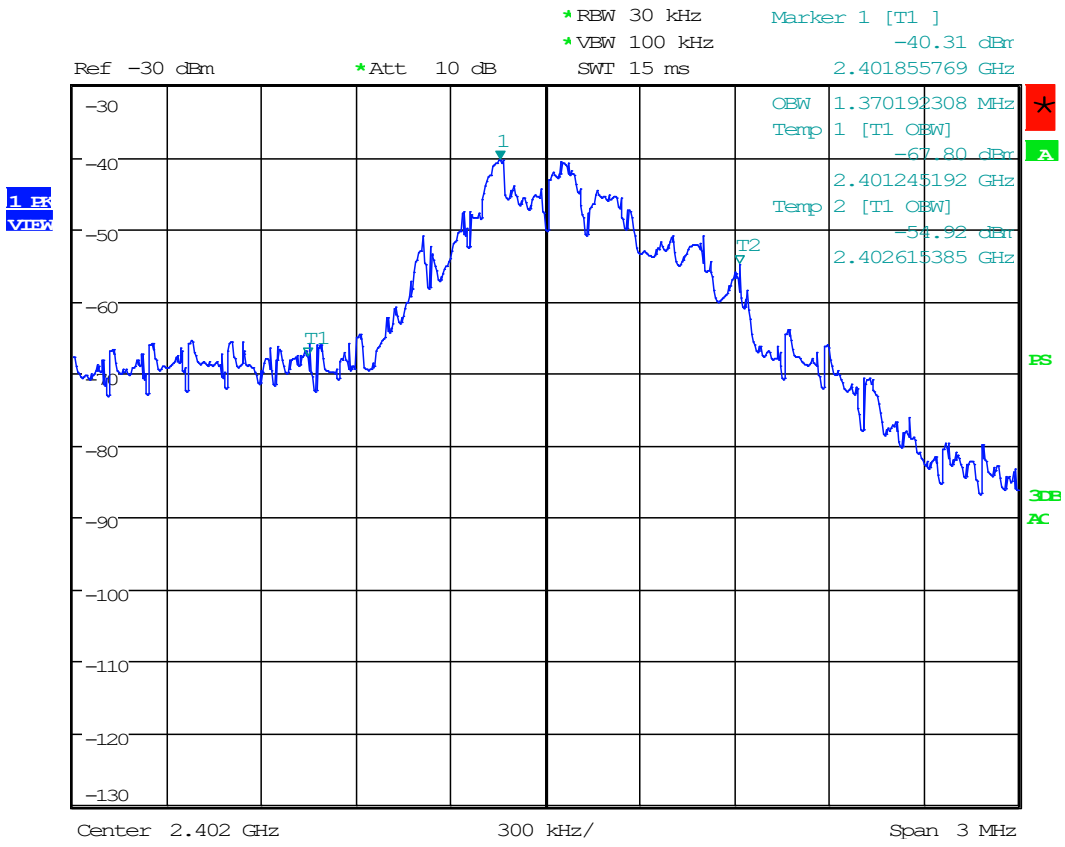
125 kbps: 99%, Low Channel



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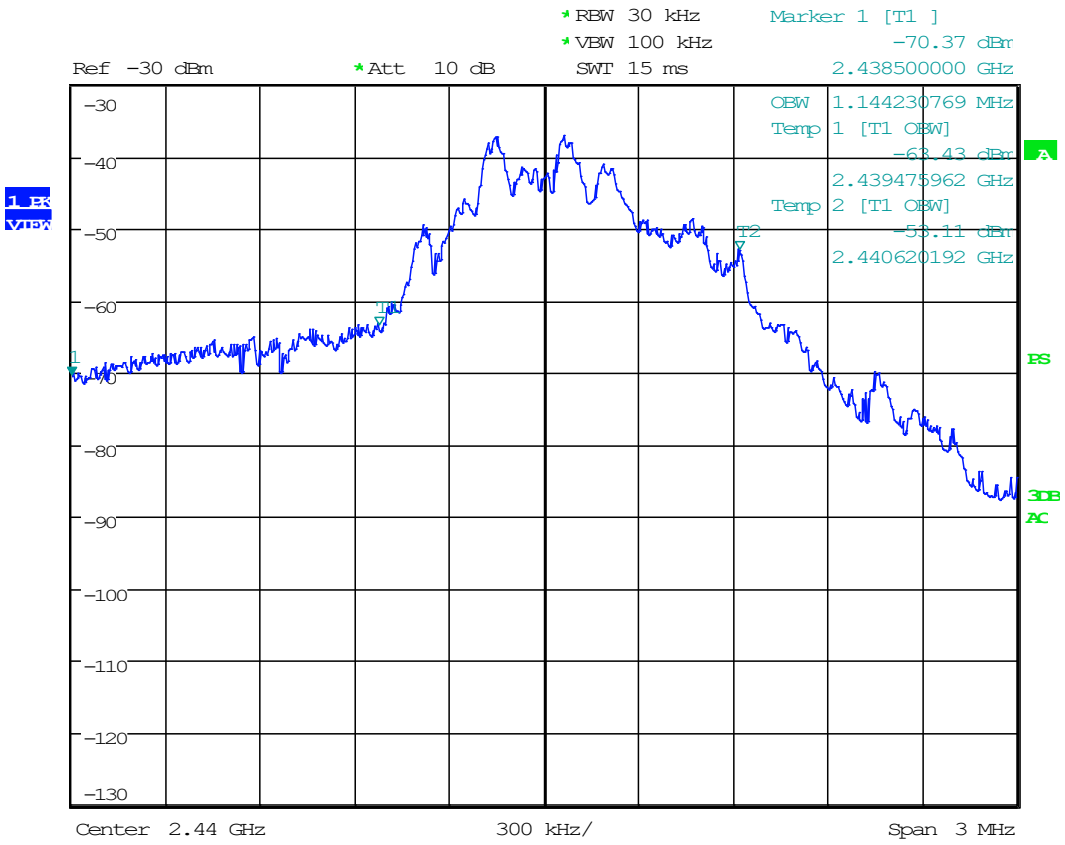
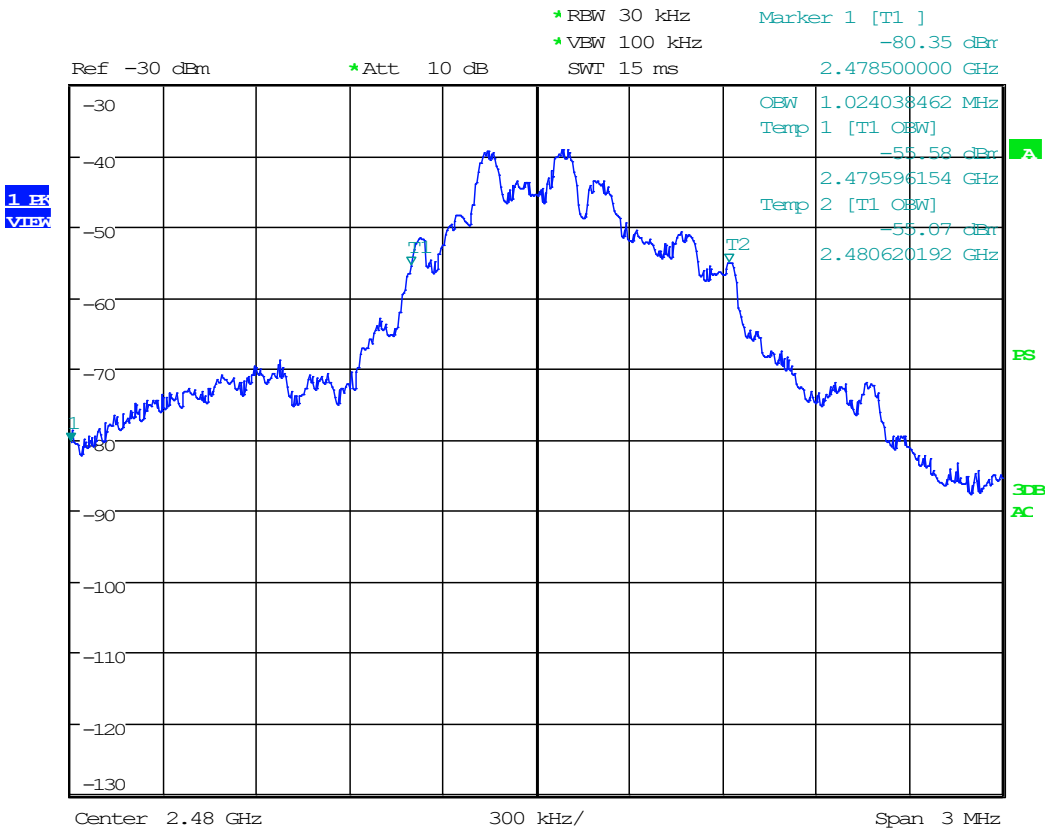
125 kbps: 99%, Mid Channel



Date: 20.MAY.2025 10:16:45

125 kbps: 99%, High Channel



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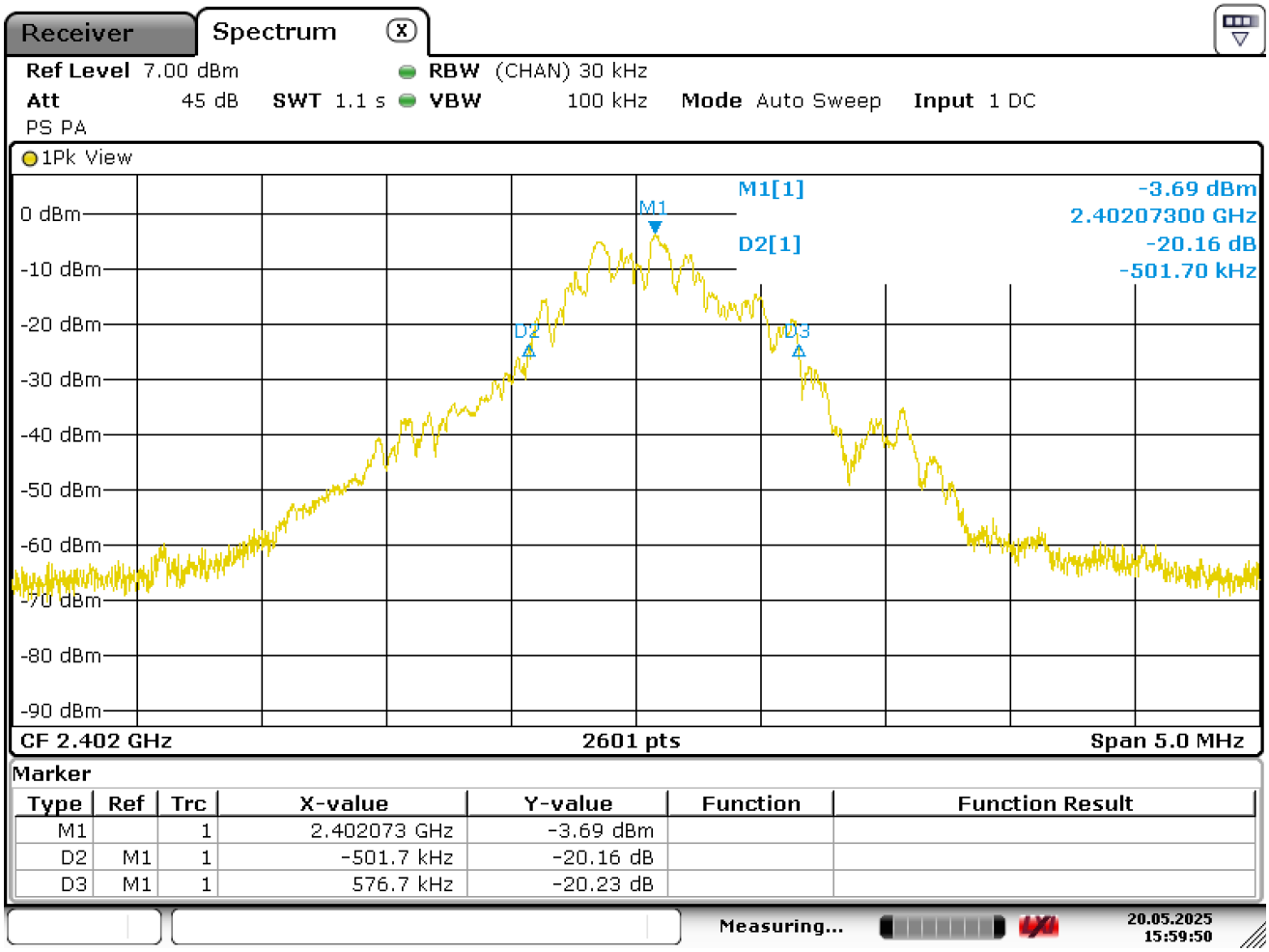
500 kbps: -20dB, Low Channel



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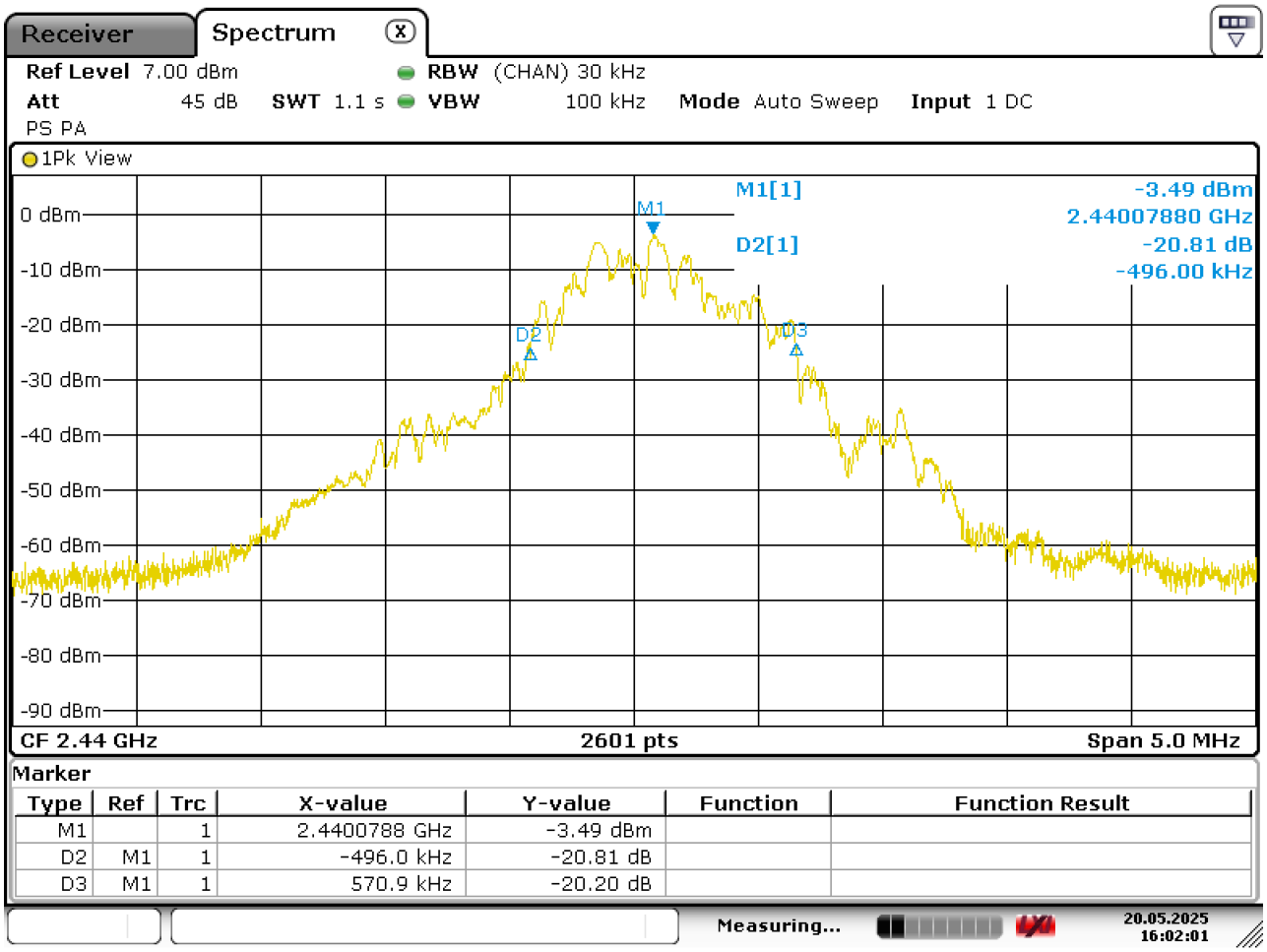
500 kbps: -20dB, Mid Channel



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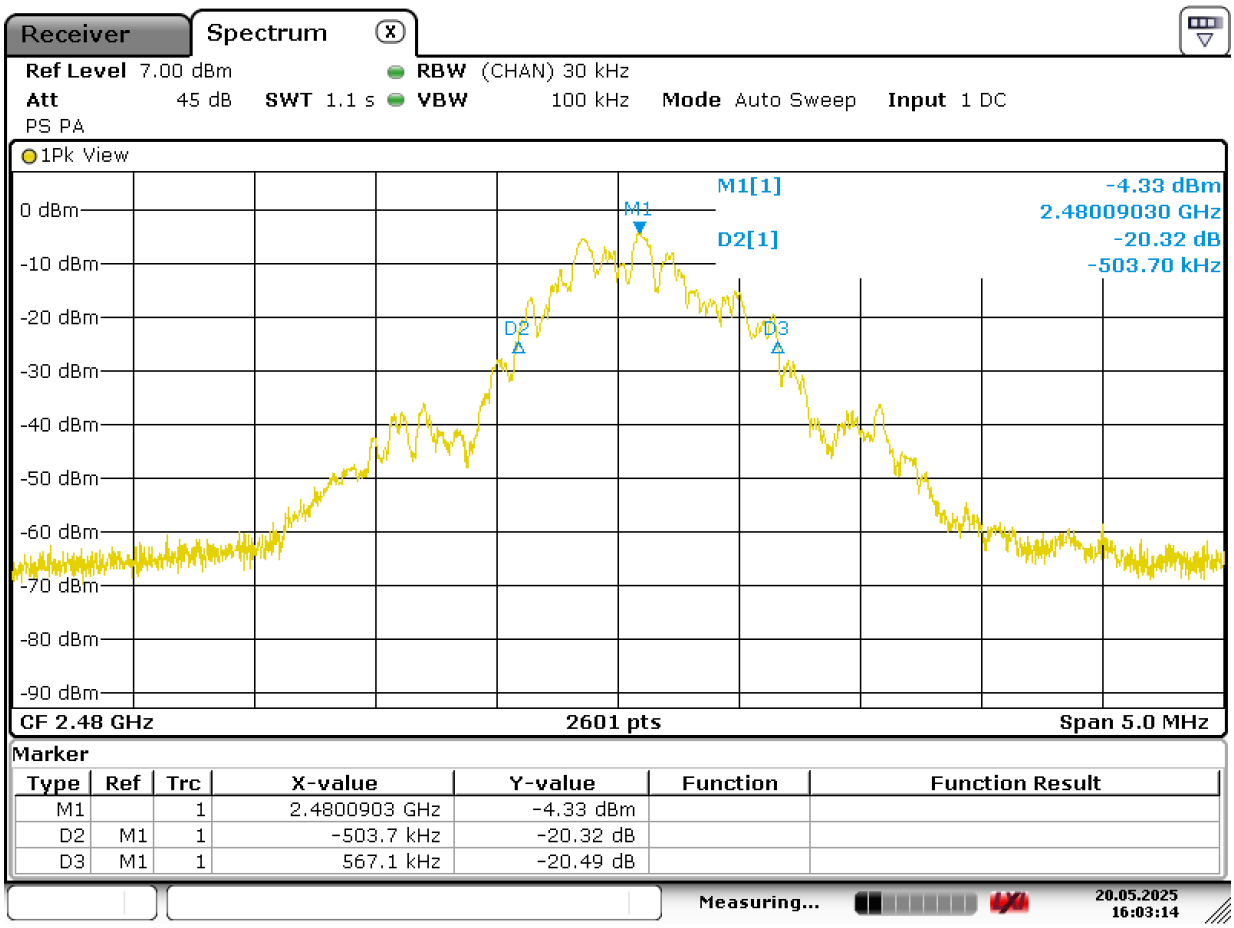
500 kbps: -20dB, High Channel



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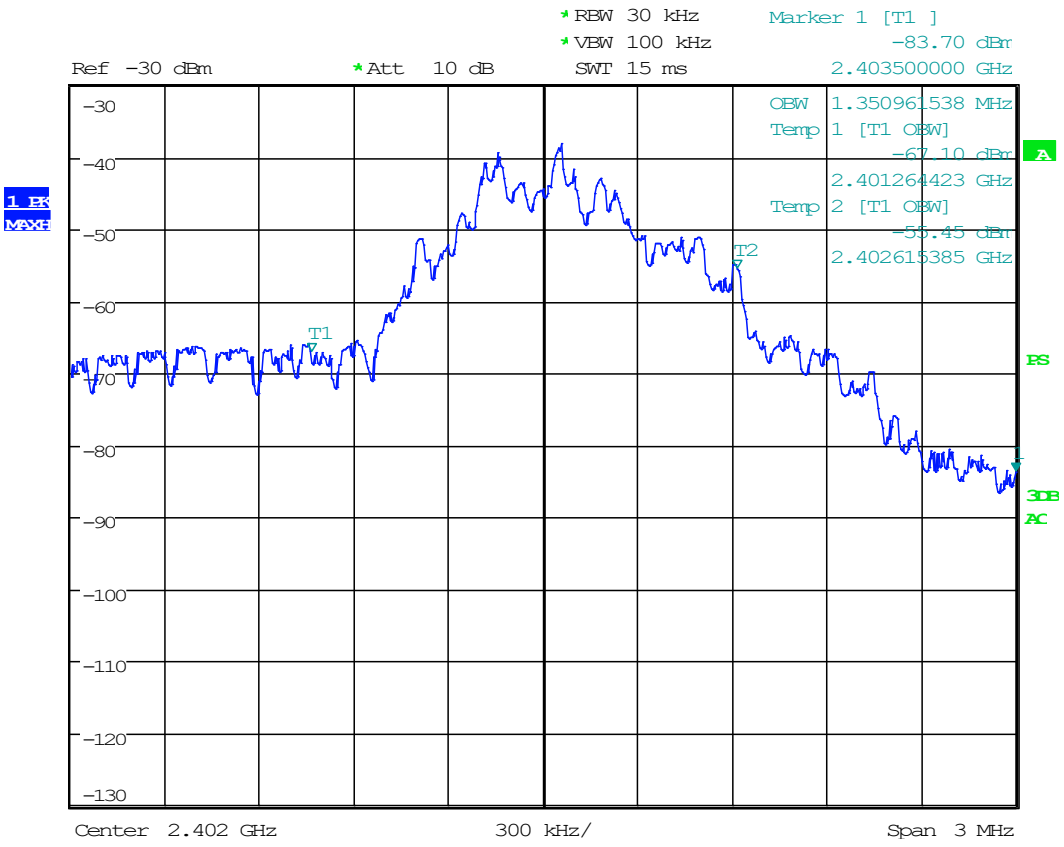
500 kbps: 99%, Low Channel



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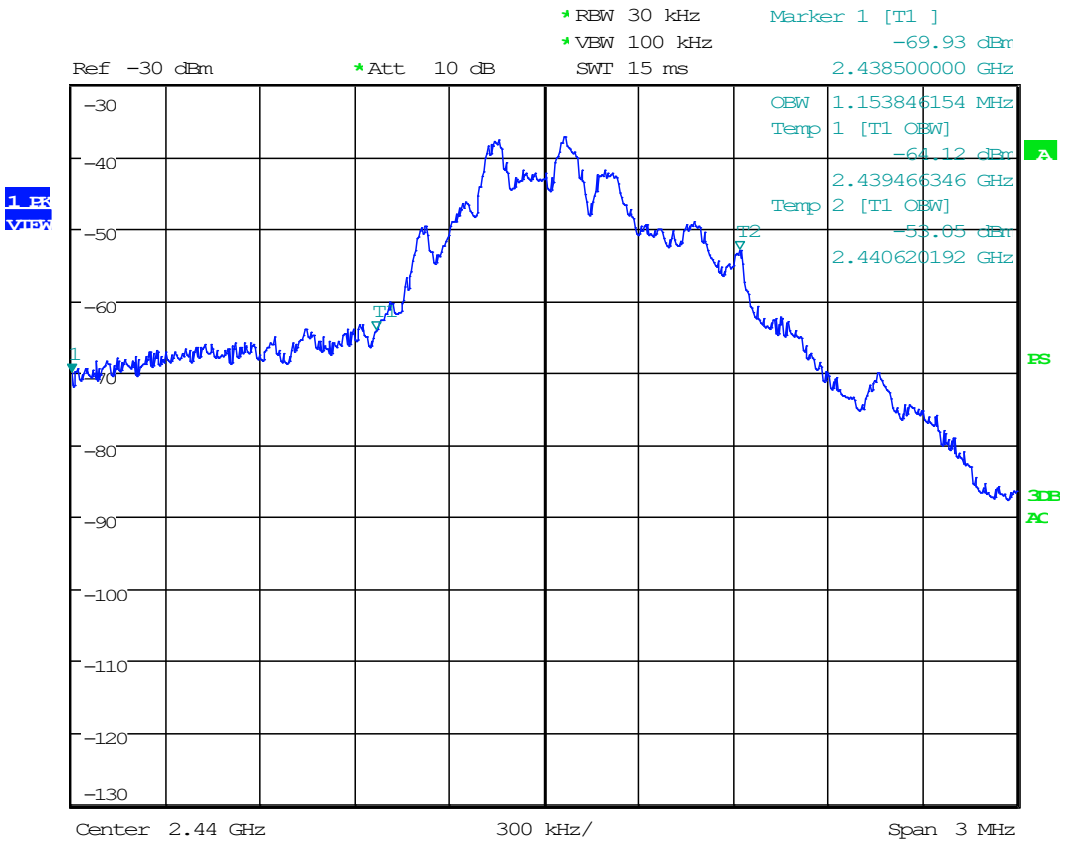
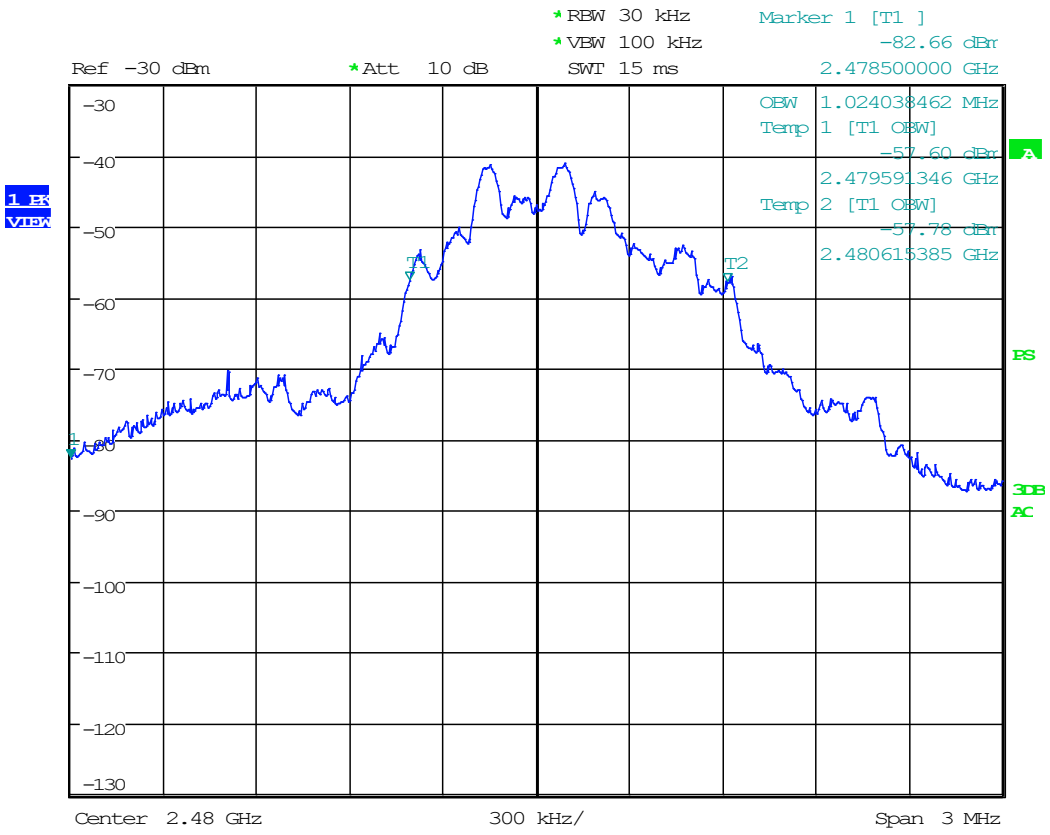
500 kbps: 99%, Mid Channel



Date: 20.MAY.2025 10:22:19

500 kbps: 99%, High Channel



Date: 20.MAY.2025 10:23:33

8 FIELD STRENGTH OF EMISSIONS FROM INTENTIONAL RADIATORS

(a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

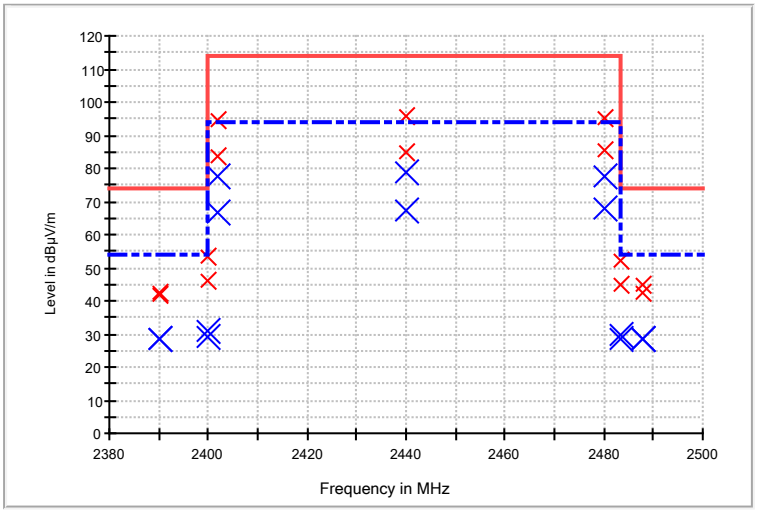
NOTE: During the pre-scan evaluation, the EUT was rotated in all possible directions to find the maximum emissions. The orthogonal position that showed the highest emissions was used. The antenna was raised between 1 and 4 meters and the EUT turntable was rotated 360 degrees to maximize the emissions.

8.1 Test Data - Field Strength of Emissions from Intentional Radiators

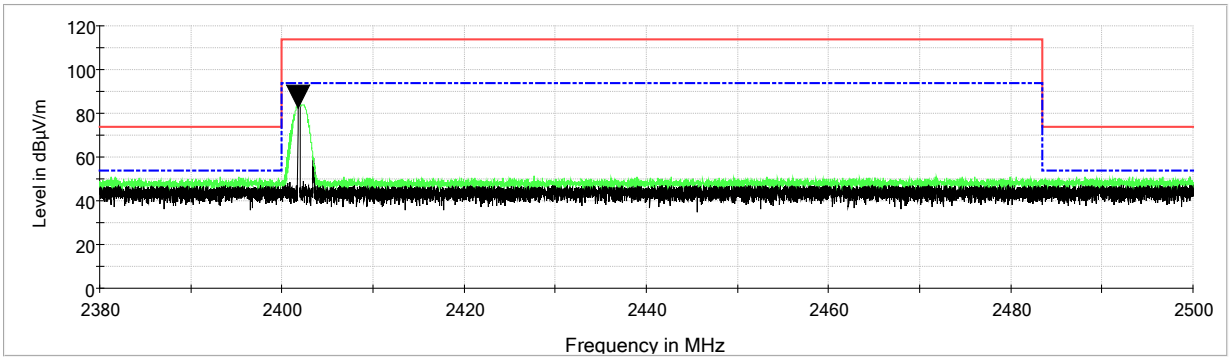
Test Date(s):	2025-05-19	Test Engineer(s):	E. Tobin
Standards:	CFR 47 Part 15.249(a)	Air Temperature:	20.5ºC
		Relative Humidity:	38%

Band Edge and Field Strength of the Fundamentals: 1Mpbs

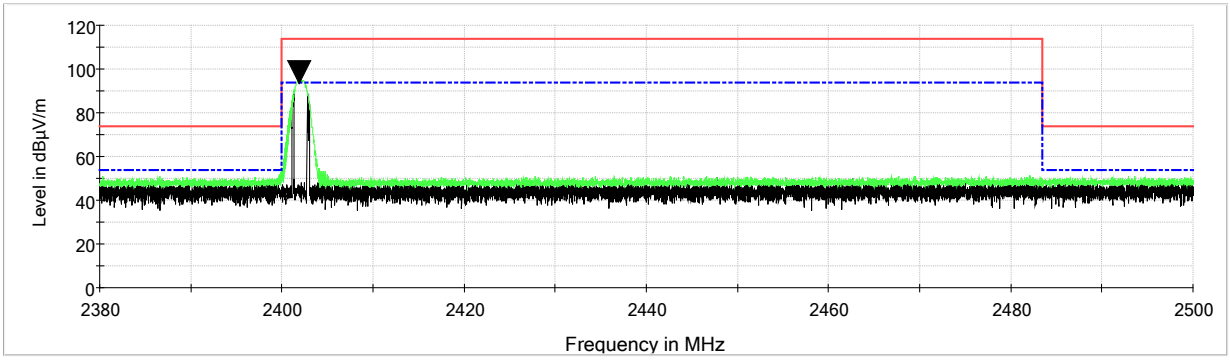
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2390.000000	42.1	28.4	1000.000	180.0	V	190.0	4.0	25.6	54.0	
2390.000000	42.0	28.5	1000.000	160.0	H	165.0	4.0	25.5	54.0	
2400.000000	53.3	30.8	1000.000	160.0	H	165.0	4.0	23.2	54.0	
2400.000000	45.9	29.0	1000.000	180.0	V	190.0	4.0	25.0	54.0	
2402.000000	83.8	66.4	1000.000	180.0	V	190.0	4.0	27.6	94.0	
2402.000000	94.7	77.3	1000.000	160.0	H	165.0	4.0	16.7	94.0	
2440.000000	84.8	67.4	1000.000	100.0	V	105.0	4.2	26.6	94.0	
2440.000000	95.9	78.5	1000.000	100.0	H	160.0	4.2	15.5	94.0	
2480.000000	85.2	67.8	1000.000	100.0	V	101.0	4.3	26.2	94.0	
2480.000000	95.1	77.7	1000.000	100.0	H	160.0	4.3	16.3	94.0	
2483.500000	44.8	28.8	1000.000	100.0	V	101.0	4.3	25.2	54.0	
2483.500000	51.9	29.6	1000.000	100.0	H	160.0	4.3	24.4	54.0	
2488.000000	42.7	28.7	1000.000	100.0	V	101.0	4.4	25.3	54.0	
2488.000000	45.0	28.8	1000.000	100.0	H	160.0	4.4	25.2	54.0	



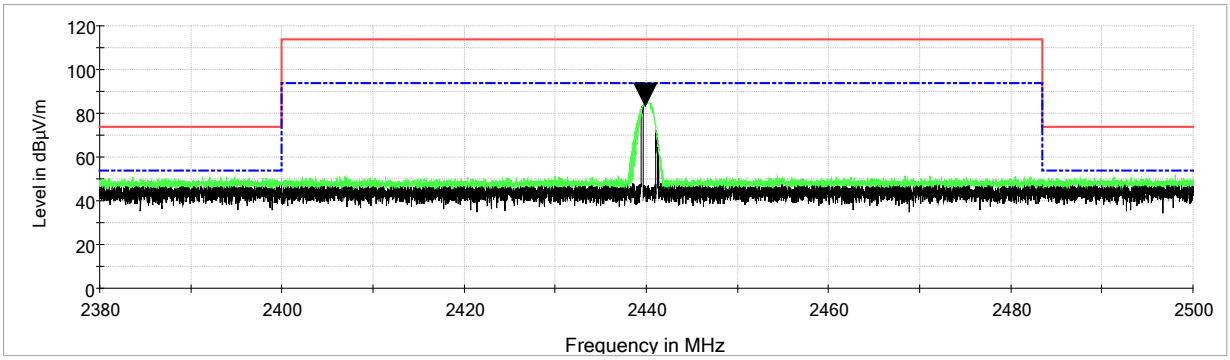
Band Edges, 1Mbps: Low Channel – Vertical



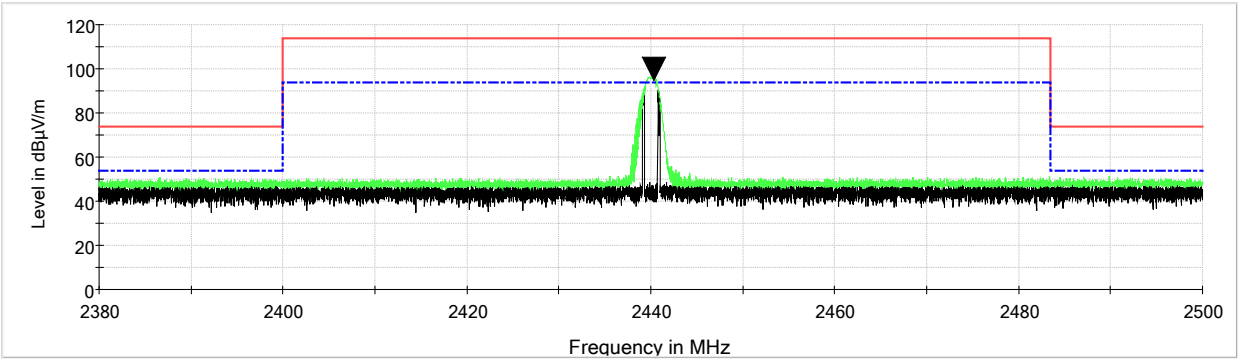
Band Edges, 1Mbps: Low Channel – Horizontal



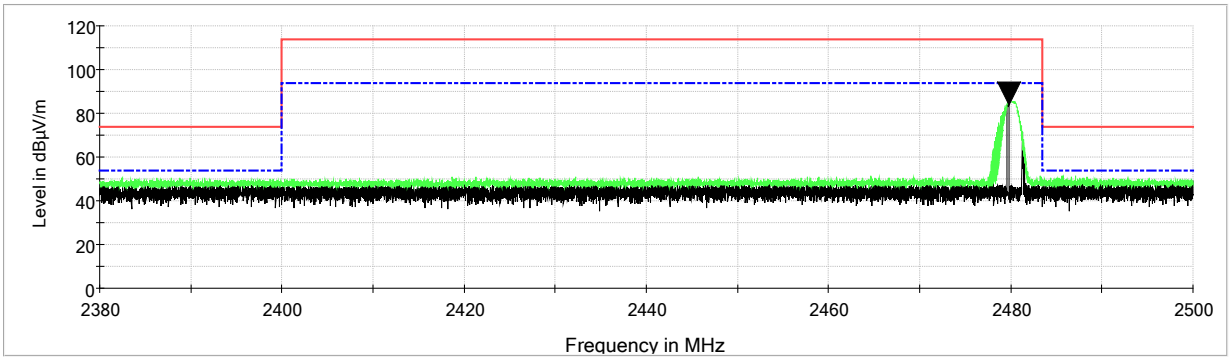
Band Edges, 1Mbps: Mid Channel – Vertical



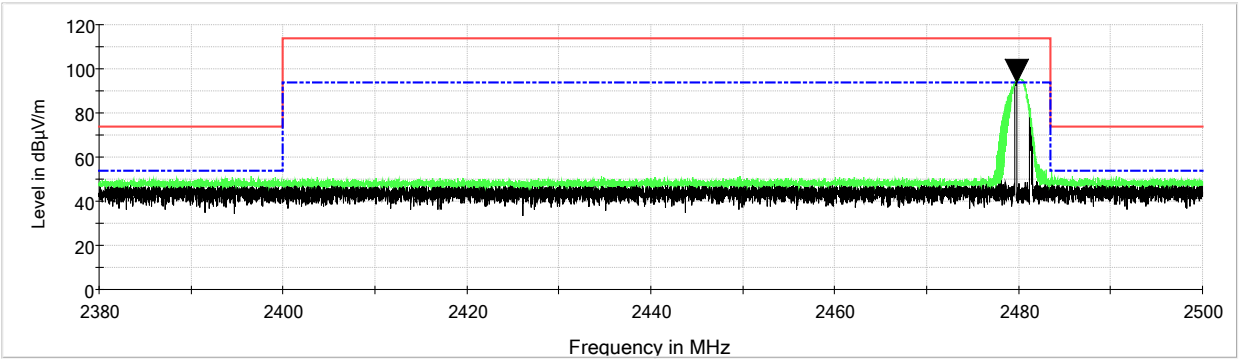
Band Edges, 1Mbps: Mid Channel – Horizontal



Band Edges, 1Mbps: High Channel – Vertical

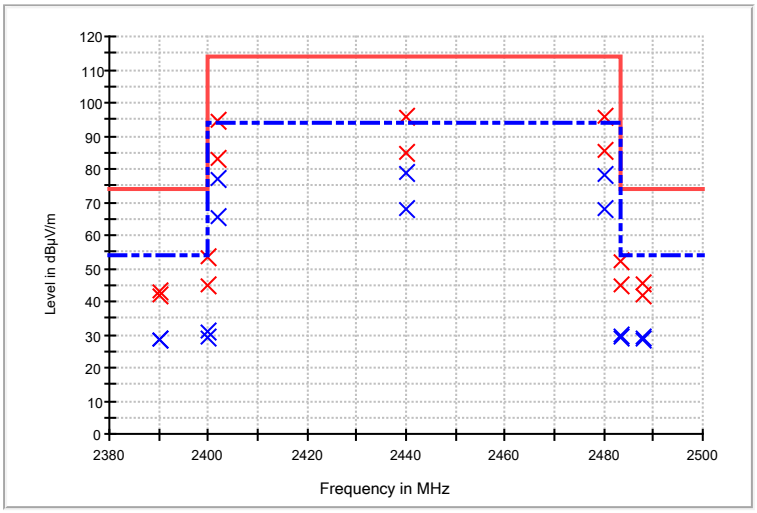


Band Edges, 1Mbps: High Channel – Horizontal

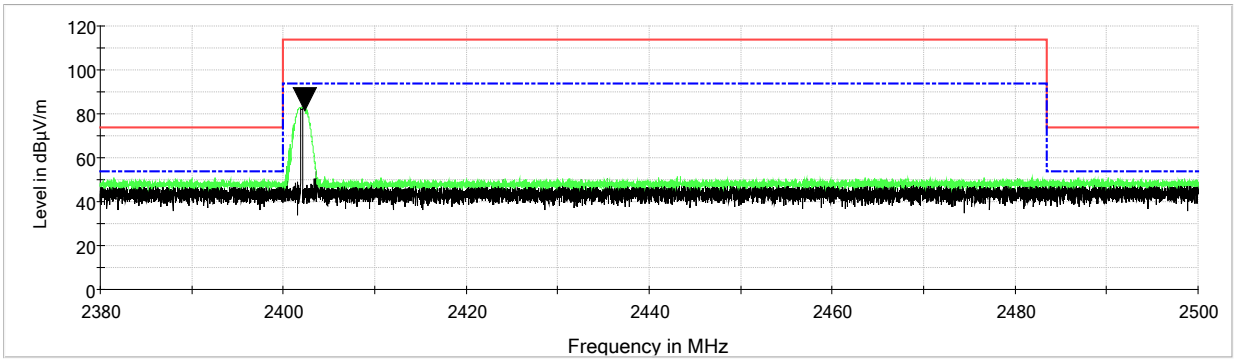


Band Edge and Field Strength of the Fundamentals: 2Mpbs

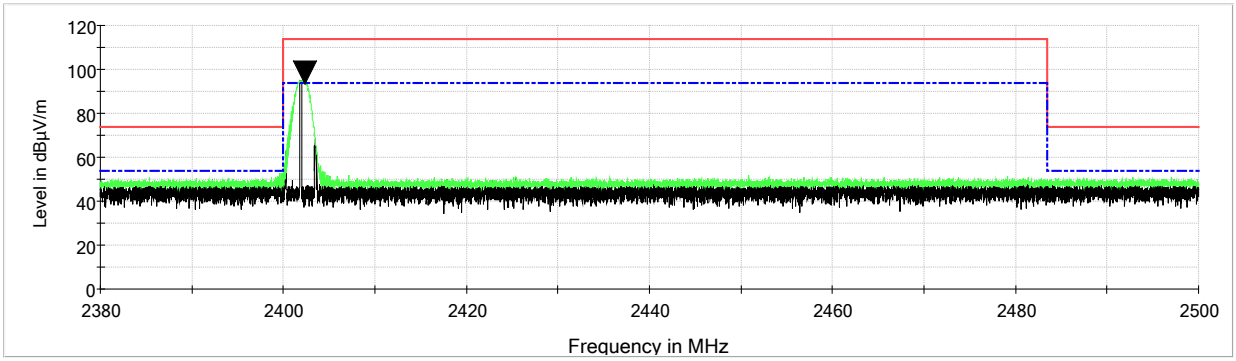
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2390.000000	41.9	28.6	1000.000	180.0	V	190.0	4.0	25.4	54.0	
2390.000000	43.0	28.6	1000.000	160.0	H	165.0	4.0	25.4	54.0	
2400.000000	53.3	30.9	1000.000	160.0	H	165.0	4.0	23.1	54.0	
2400.000000	45.0	29.1	1000.000	180.0	V	190.0	4.0	24.9	54.0	
2402.000000	82.9	65.5	1000.000	180.0	V	190.0	4.0	28.5	94.0	
2402.000000	94.6	77.2	1000.000	160.0	H	165.0	4.0	16.8	94.0	
2440.000000	85.0	67.7	1000.000	100.0	V	105.0	4.2	26.3	94.0	
2440.000000	96.0	78.6	1000.000	100.0	H	160.0	4.2	15.4	94.0	
2480.000000	95.6	78.2	1000.000	100.0	H	160.0	4.3	15.8	94.0	
2480.000000	85.4	68.0	1000.000	100.0	V	101.0	4.3	26.0	94.0	
2483.500000	51.9	29.7	1000.000	100.0	H	160.0	4.3	24.3	54.0	
2483.500000	44.7	28.8	1000.000	100.0	V	101.0	4.3	25.2	54.0	
2488.000000	42.1	28.7	1000.000	100.0	V	101.0	4.4	25.3	54.0	
2488.000000	45.3	28.9	1000.000	100.0	H	160.0	4.4	25.1	54.0	



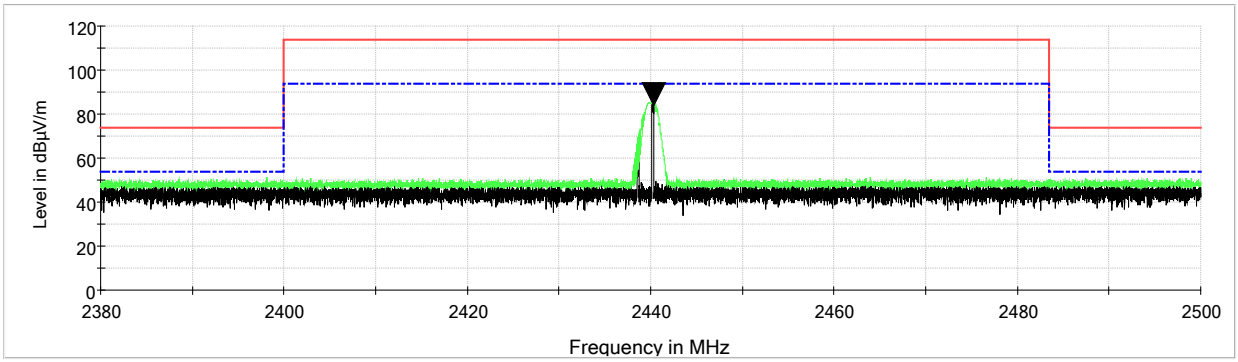
Band Edges, 2Mbps: Low Channel – Vertical



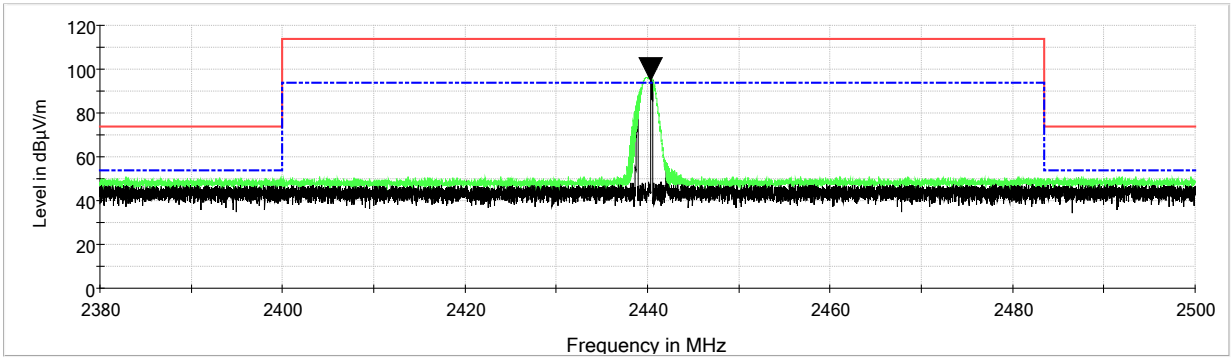
Band Edges, 2Mbps: Low Channel – Horizontal



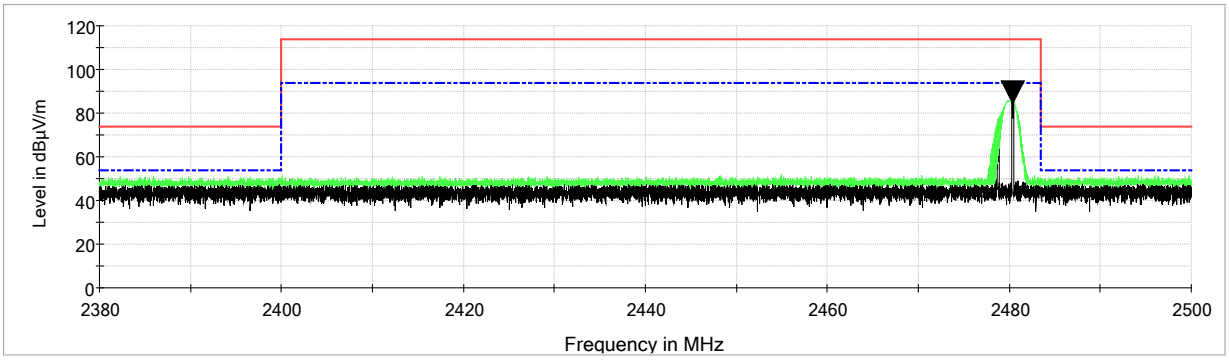
Band Edges, 2Mbps: Mid Channel – Vertical



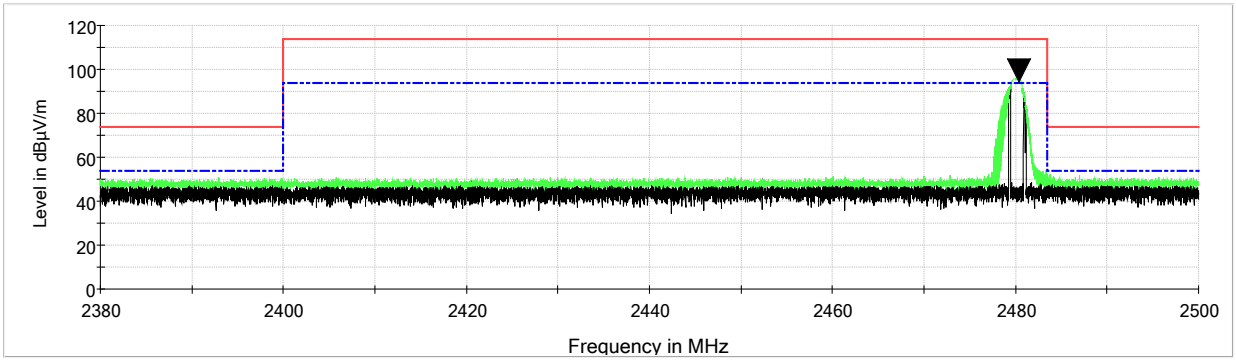
Band Edges, 2Mbps: Mid Channel – Horizontal



Band Edges, 2Mbps: High Channel – Vertical

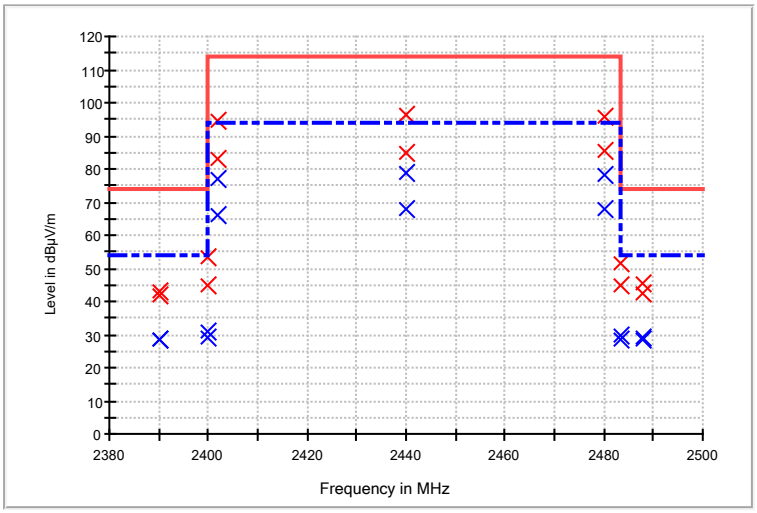


Band Edges, 2Mbps: High Channel – Horizontal

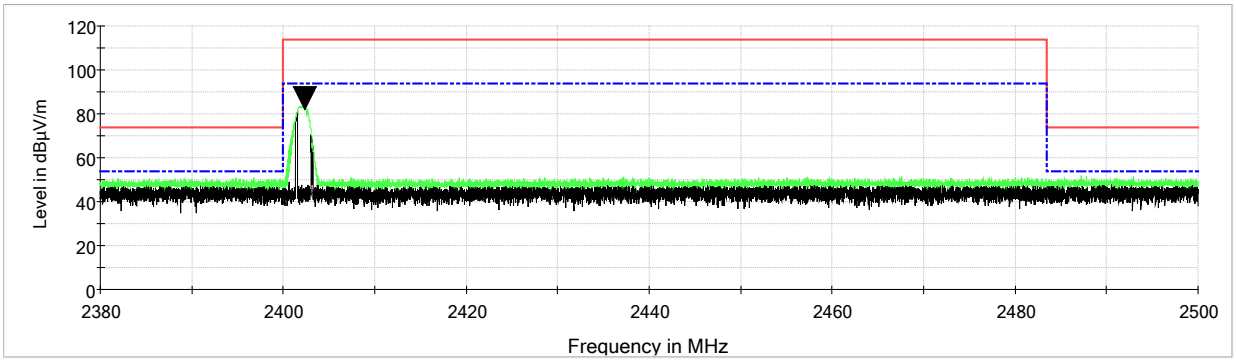


Band Edge and Field Strength of the Fundamentals: 125 kbps

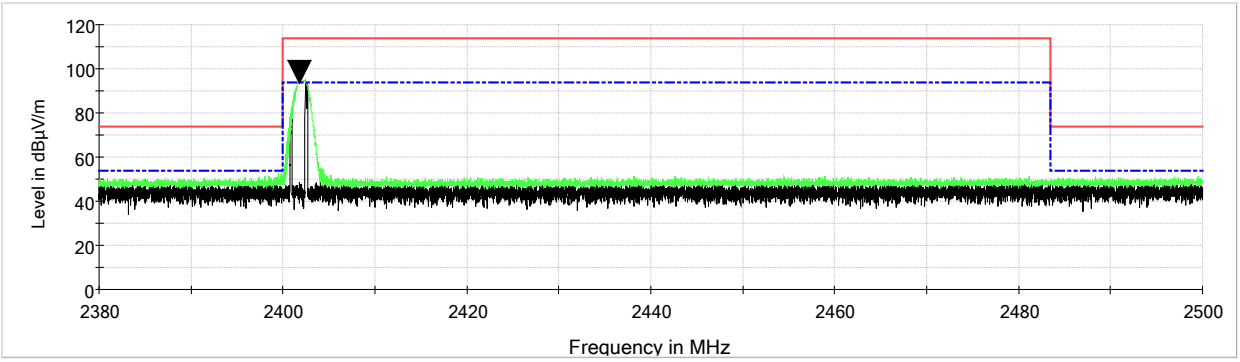
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2390.000000	43.2	28.5	1000.000	165.0	H	165.0	4.0	25.5	54.0	
2390.000000	41.8	28.7	1000.000	180.0	V	190.0	4.0	25.3	54.0	
2400.000000	44.8	29.1	1000.000	180.0	V	190.0	4.0	24.9	54.0	
2400.000000	53.1	30.8	1000.000	165.0	H	165.0	4.0	23.2	54.0	
2402.000000	94.5	77.1	1000.000	165.0	H	165.0	4.0	16.9	94.0	
2402.000000	83.2	65.9	1000.000	180.0	V	190.0	4.0	28.1	94.0	
2440.000000	96.2	78.7	1000.000	100.0	H	160.0	4.2	15.3	94.0	
2440.000000	85.0	67.6	1000.000	100.0	V	105.0	4.2	26.4	94.0	
2480.000000	85.3	67.8	1000.000	100.0	V	101.0	4.3	26.2	94.0	
2480.000000	95.5	78.1	1000.000	100.0	H	160.0	4.3	15.9	94.0	
2483.500000	44.8	28.8	1000.000	100.0	V	101.0	4.3	25.2	54.0	
2483.500000	51.6	29.7	1000.000	100.0	H	160.0	4.3	24.3	54.0	
2488.000000	45.4	28.8	1000.000	100.0	H	160.0	4.4	25.2	54.0	
2488.000000	42.6	28.7	1000.000	100.0	V	101.0	4.4	25.3	54.0	



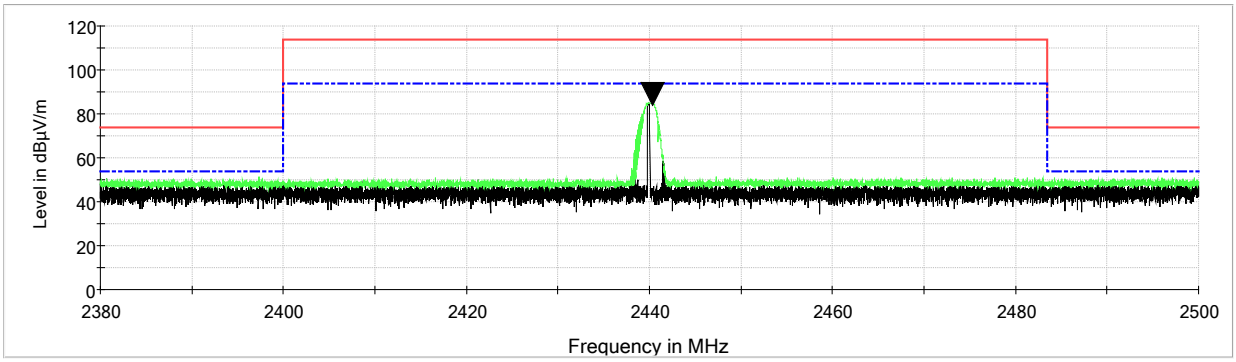
Band Edges, 125 kbps: Low Channel – Vertical



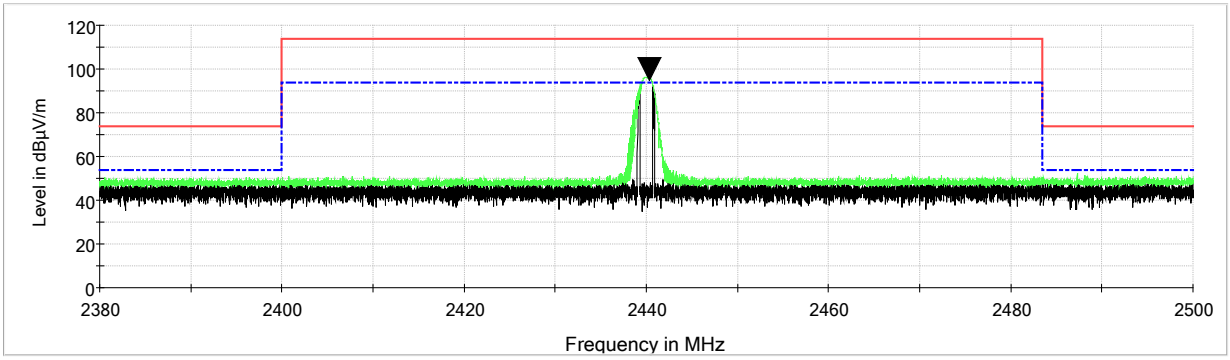
Band Edges, 125 kbps: Low Channel – Horizontal



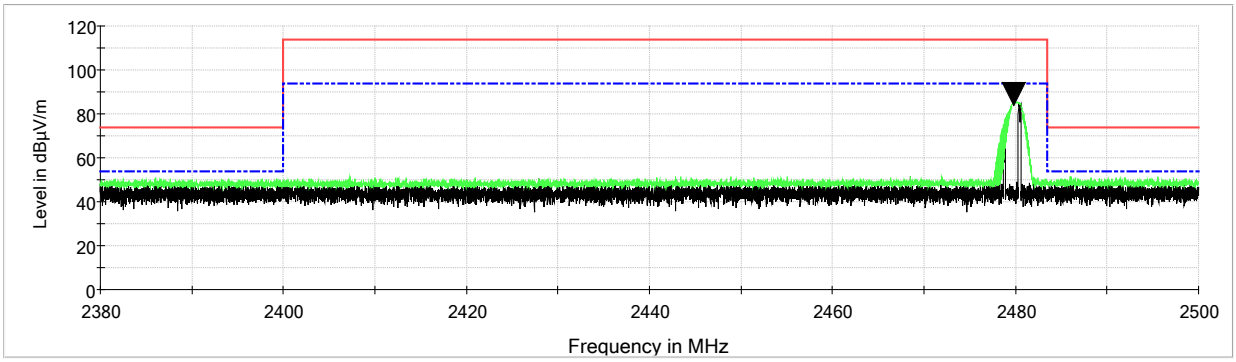
Band Edges, 125 kbps: Mid Channel – Vertical



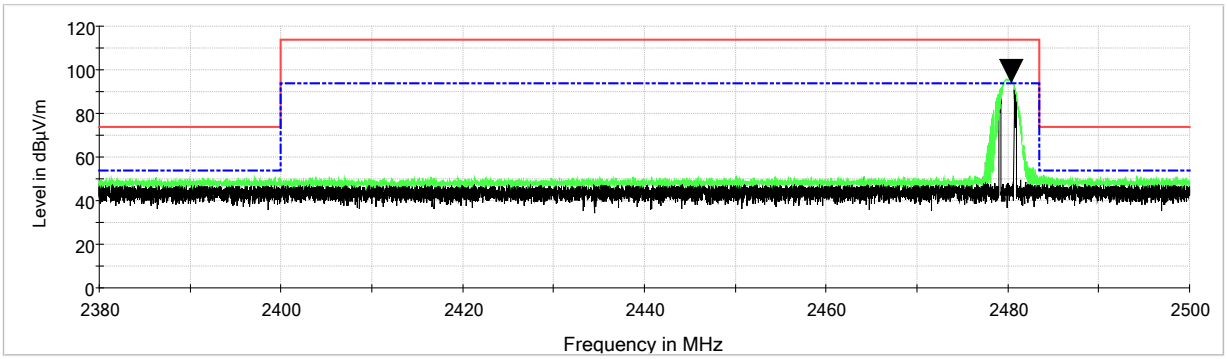
Band Edges, 125 kbps: Mid Channel – Horizontal



Band Edges, 125 kbps: High Channel – Vertical

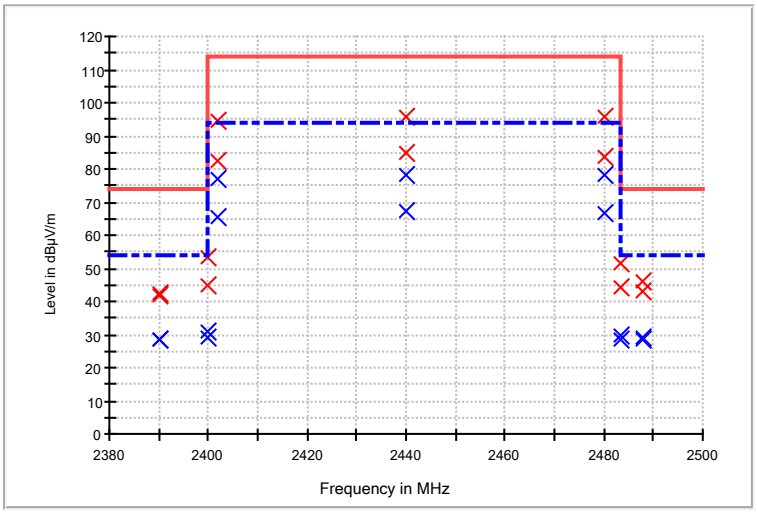


Band Edges, 125 kbps: High Channel – Horizontal

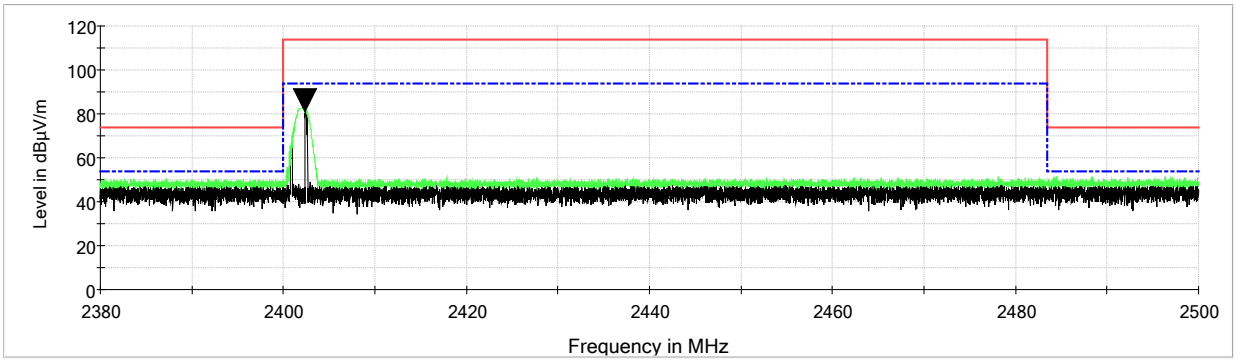


Band Edge and Field Strength of the Fundamentals: 500 kbps

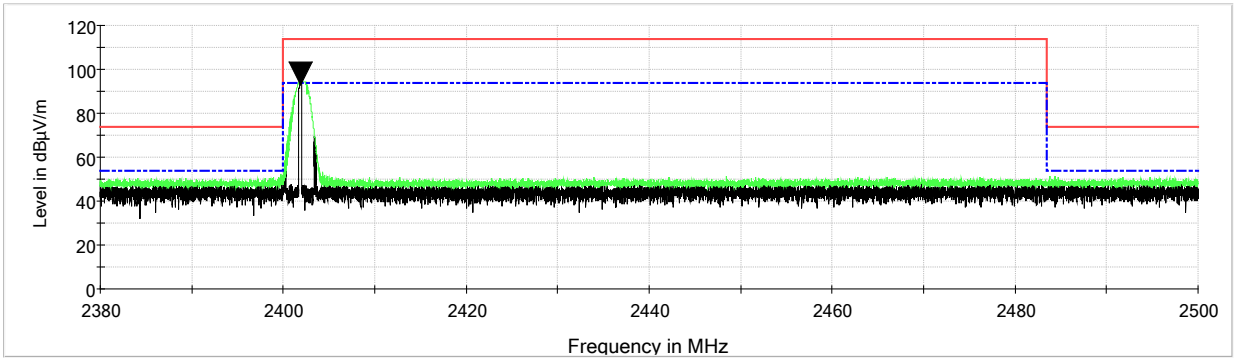
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2390.000000	41.8	28.5	1000.000	180.0	V	190.0	4.0	25.5	54.0	
2390.000000	42.2	28.5	1000.000	160.0	H	165.0	4.0	25.5	54.0	
2400.000000	53.1	30.7	1000.000	160.0	H	165.0	4.0	23.3	54.0	
2400.000000	45.0	28.9	1000.000	180.0	V	190.0	4.0	25.1	54.0	
2402.000000	94.3	76.9	1000.000	160.0	H	165.0	4.0	17.1	94.0	
2402.000000	82.5	65.2	1000.000	180.0	V	190.0	4.0	28.8	94.0	
2440.000000	84.9	67.5	1000.000	100.0	V	105.0	4.2	26.5	94.0	
2440.000000	95.8	78.4	1000.000	100.0	H	160.0	4.2	15.6	94.0	
2480.000000	95.5	78.0	1000.000	100.0	H	160.0	4.3	16.0	94.0	
2480.000000	83.8	66.4	1000.000	100.0	V	101.0	4.3	27.6	94.0	
2483.500000	51.5	29.6	1000.000	100.0	H	160.0	4.3	24.4	54.0	
2483.500000	44.5	28.7	1000.000	100.0	V	101.0	4.3	25.3	54.0	
2488.000000	42.8	28.7	1000.000	100.0	V	101.0	4.4	25.3	54.0	
2488.000000	46.2	28.8	1000.000	100.0	H	160.0	4.4	25.2	54.0	



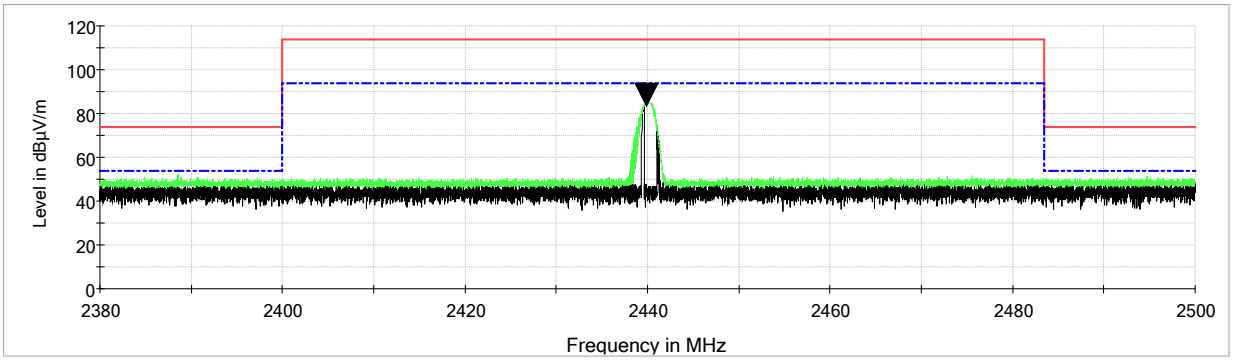
Band Edges, 500 kbps: Low Channel – Vertical



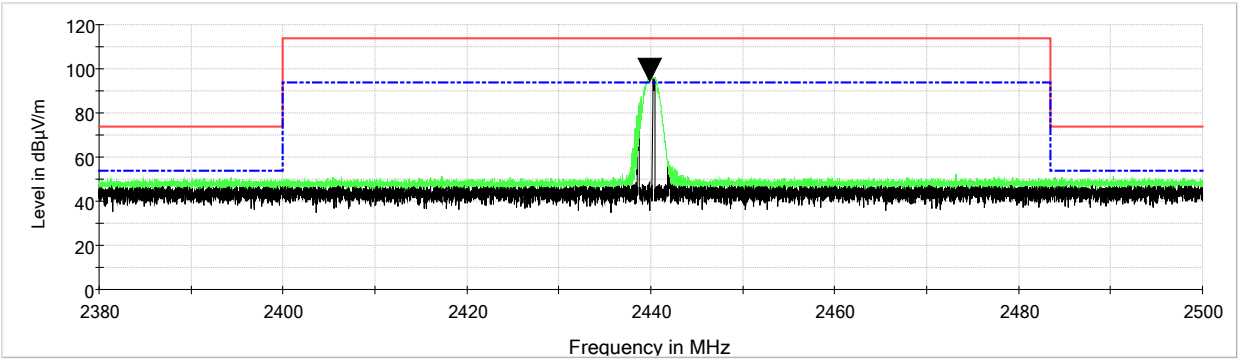
Band Edges, 500 kbps: Low Channel – Horizontal



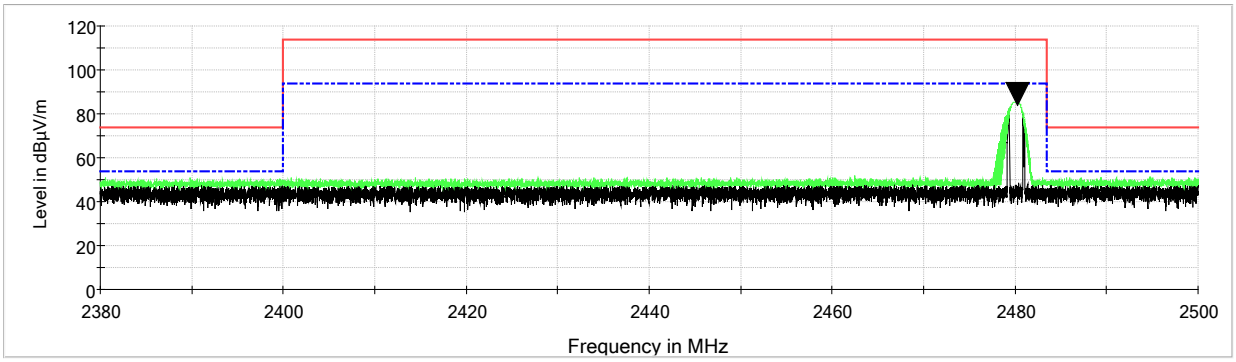
Band Edges, 500 kbps: Mid Channel – Vertical



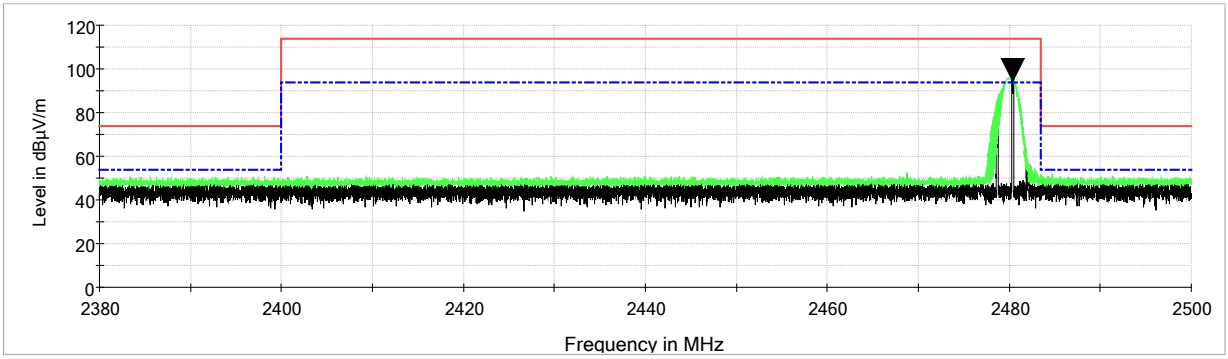
Band Edges, 500 kbps: Mid Channel – Horizontal



Band Edges, 500 kbps: High Channel – Vertical



Band Edges, 500 kbps: High Channel – Horizontal



8.2 Test Data – Spurious Emissions

Notes: Plots are peak, max hold pre-scan data included only to determine what frequencies to investigate and measure. During the pre-scan evaluation, the EUT was rotated in all possible directions to find the maximum emissions. The orthogonal position that showed the highest emissions was used. At some frequencies, no emissions from the EUT were measurable over the ambient noise floor. The readings did not change with EUT on and EUT off.

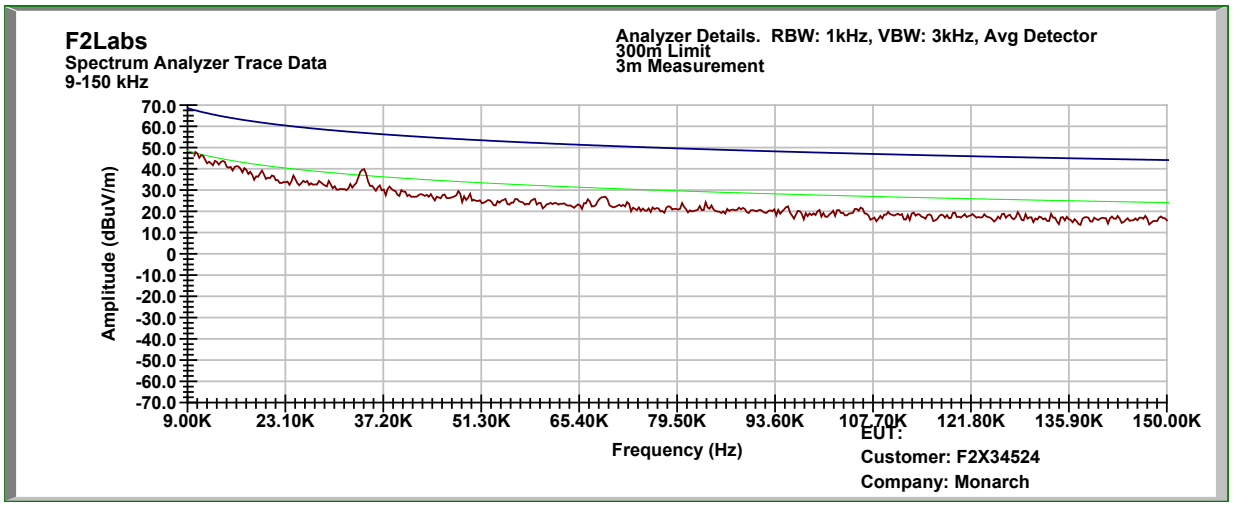
At least 6 of the highest frequencies were measured per ANSI 63.4 in a 3-meter anechoic chamber. Frequencies below 1 GHz were measured using a quasi-peak detector. The antenna was raised between 1 and 4 meters and the EUT turntable was rotated 360 degrees to maximize the emissions. Some of the frequencies did not change with the EUT on or off. At those frequencies, the test distance was shortened to 1 meter and still no emissions from the EUT were visible or over the ambient or limit. Frequencies were scanned from 9kHz to 26 GHz and the highest emissions are listed below.

In the following plots, the black line indicates ambient noise and the red line indicates the measurement with the EUT on. Emissions to be found by the EUT were measured and listed in tables below.

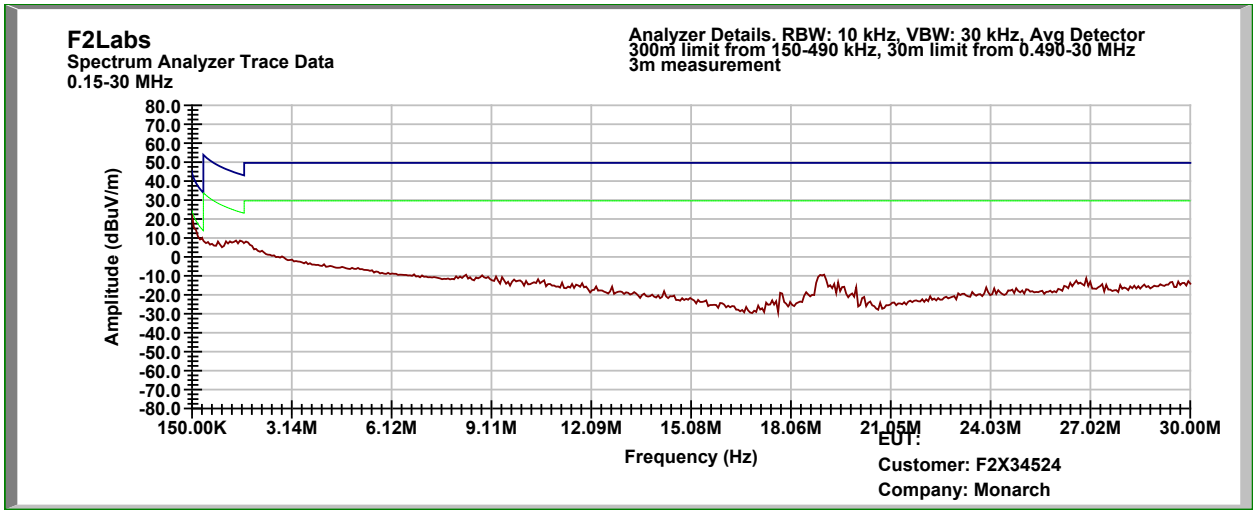
Test Date(s):	2025-05-19	Test Engineer(s):	E. Tobin
Standards:	CFR 47 Part 15.249(d) / Part 15.209	Air Temperature:	20.5ºC
		Relative Humidity:	38%

Note: All modes were scanned and the following graphs represent Mid Channel, determined to be worst case mode.

Characterization Scan, 9 kHz to 150 kHz



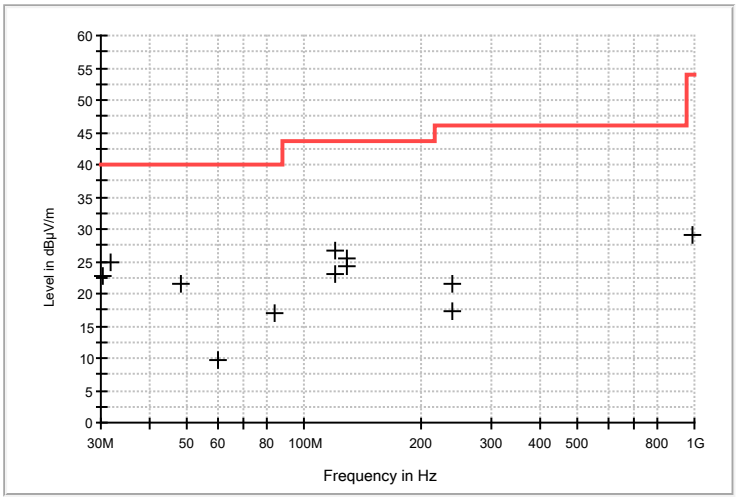
Characterization Scan, 150 kHz to 30 MHz



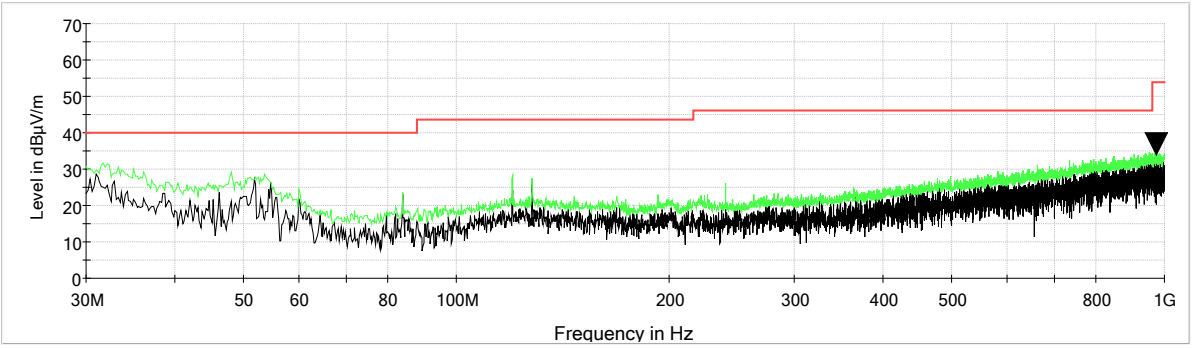
Measurements, 30 MHz to 1000 MHz

Note: Chart below includes data from all three channels.

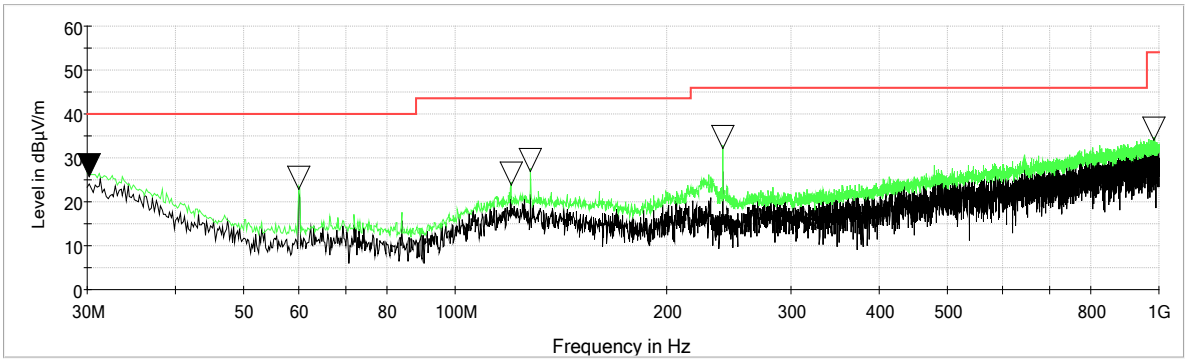
Frequency (MHz)	Ant. Pol.	Ant. Height (cm)	Azimuth (degrees)	Reading (dBµV)	Corr. Factors (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.194000	H	150.00	0.00	41.8	-19.2	22.60	40.0	-17.4
31.746000	V	150.00	0.00	45.3	-20.4	24.90	40.0	-15.1
48.042000	V	150.00	9.00	52.6	-31.2	21.40	40.0	-18.6
59.876000	H	150.00	357.00	42.2	-32.4	9.80	40.0	-30.2
83.932000	V	150.00	353.00	49.5	-32.4	17.10	40.0	-22.9
120.016000	H	150.00	9.00	48.7	-25.7	23.00	43.5	-20.5
120.016000	V	150.00	14.00	52.3	-25.7	26.60	43.5	-16.9
127.970000	H	150.00	341.00	50.9	-25.5	25.40	43.5	-18.1
127.970000	V	150.00	351.00	49.8	-25.5	24.30	43.5	-19.2
239.908000	H	150.00	8.00	48.2	-26.8	21.40	46.0	-24.6
239.908000	V	150.00	8.00	44.1	-26.8	17.30	46.0	-28.7
984.092000	H	150.00	354.00	40.6	-11.6	29.00	54.0	-25.0



30 MHz to 1000 MHz, Vertical



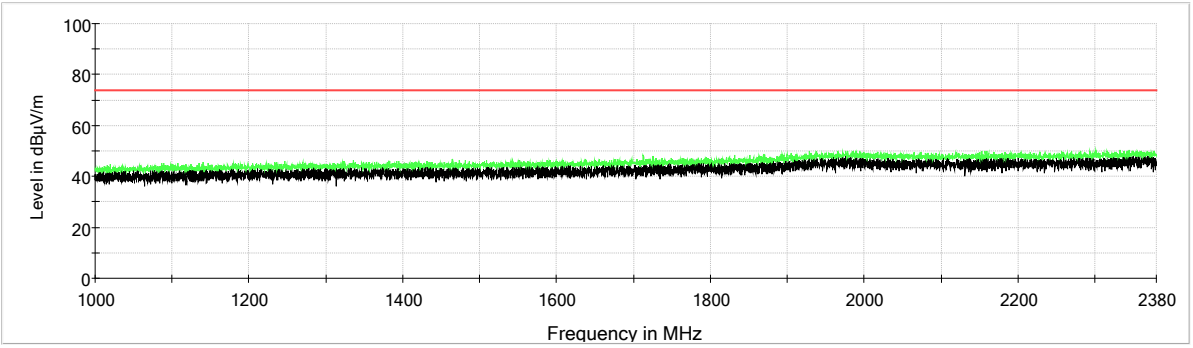
30 MHz to 1000 MHz, Horizontal



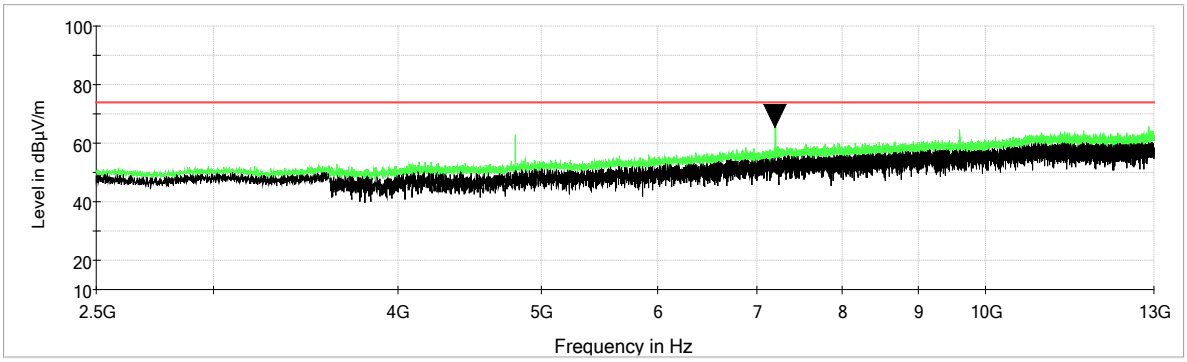
125 kbps, Measurements, 1 GHz to 26 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
4804.000000	65.5	46.7	1000.000	150.0	V	0.0	7.2	7.3	54.0	
4804.000000	67.2	48.8	1000.000	150.0	H	0.0	7.2	5.2	54.0	
7206.000000	68.7	48.5	1000.000	150.0	V	264.0	12.1	5.5	54.0	
7206.000000	69.6	49.5	1000.000	150.0	H	4.0	12.1	4.5	54.0	
9608.000000	64.3	45.4	1000.000	150.0	V	342.0	14.6	8.6	54.0	
9608.000000	62.9	44.6	1000.000	150.0	H	304.0	14.6	9.4	54.0	
12010.000000	57.0	44.0	1000.000	150.0	V	358.0	16.8	10.0	54.0	
12010.000000	57.8	44.0	1000.000	150.0	H	358.0	16.8	10.0	54.0	
13492.500000	58.5	45.3	1000.000	150.0	H	22.0	18.0	8.7	54.0	
13492.500000	58.1	45.3	1000.000	150.0	V	307.0	18.0	8.7	54.0	
14538.500000	58.3	44.9	1000.000	150.0	V	246.0	17.6	9.1	54.0	
14538.500000	58.4	44.9	1000.000	150.0	H	70.0	17.6	9.1	54.0	
17096.500000	64.1	50.4	1000.000	150.0	V	184.0	22.8	3.6	54.0	
17096.500000	63.4	50.3	1000.000	150.0	H	133.0	22.8	3.7	54.0	

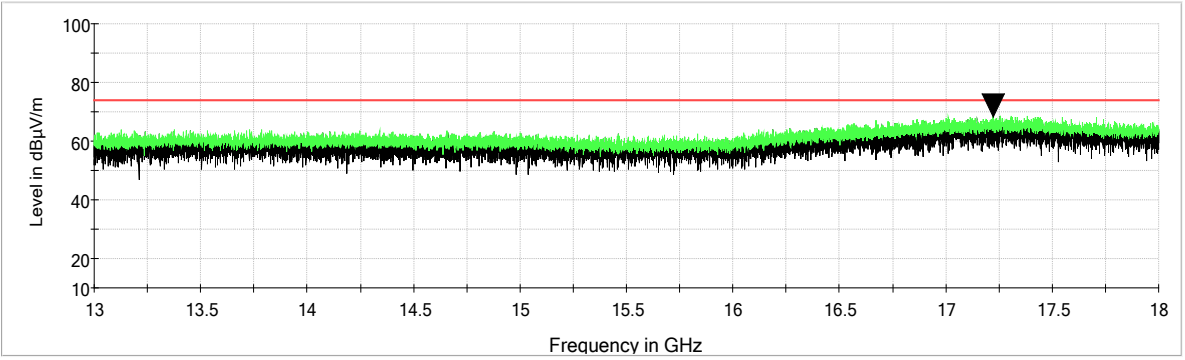
1 GHz to 2.38 GHz, Vertical



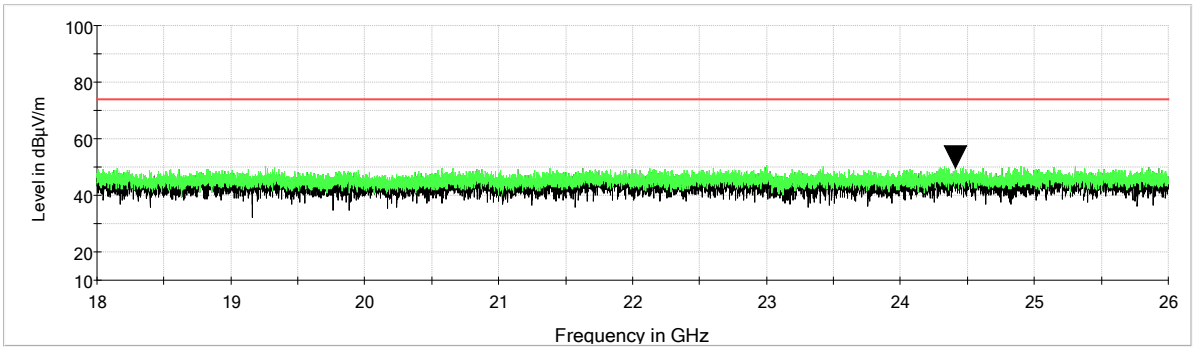
2.5 GHz to 13 GHz, Vertical



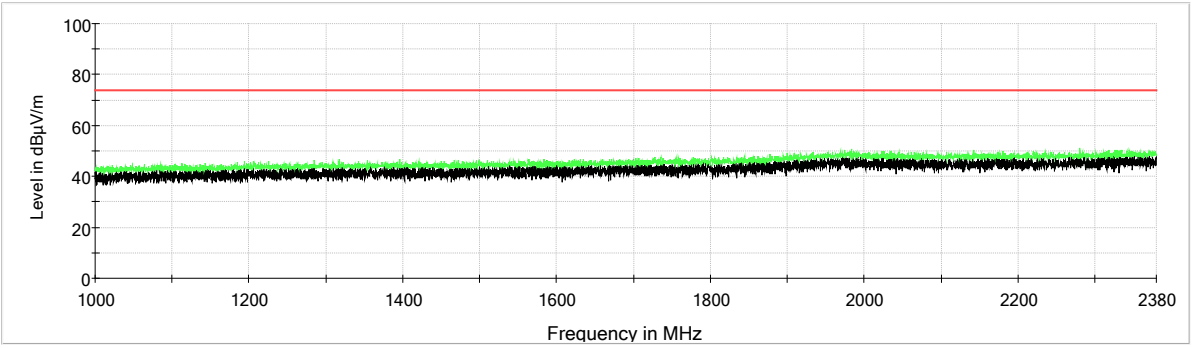
13 GHz to 18 GHz, Vertical



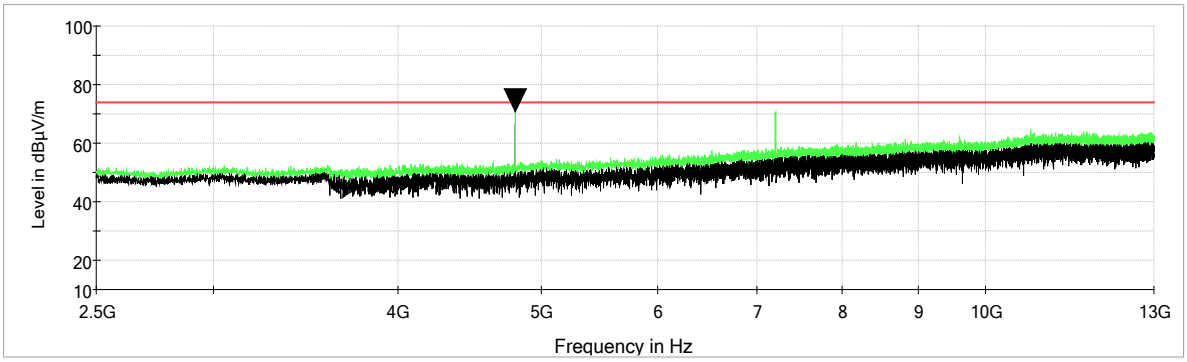
18 GHz to 26 GHz, Vertical



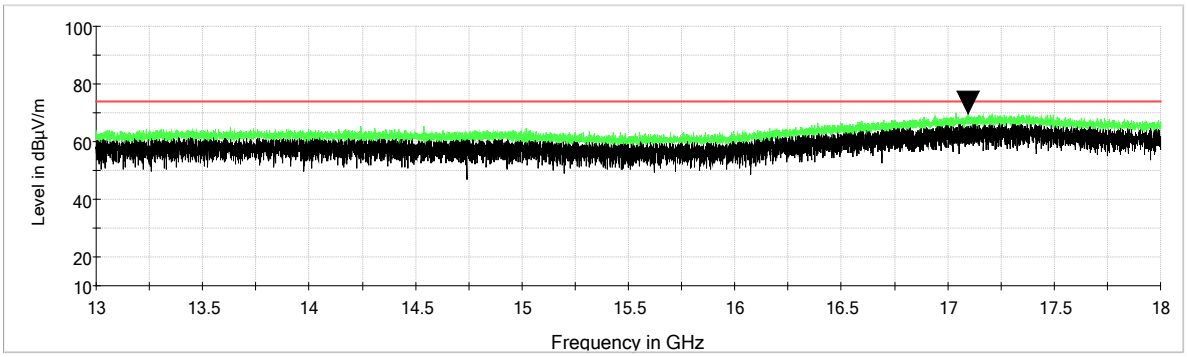
1 GHz to 2.38 GHz, Horizontal



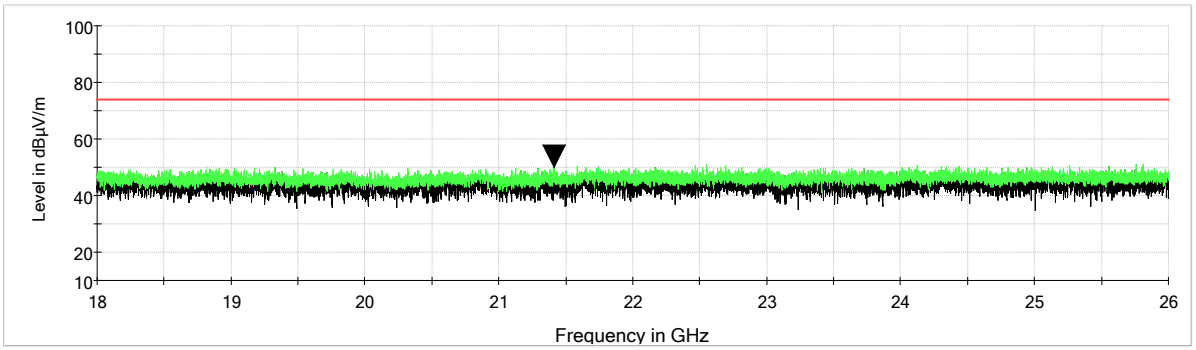
2.5 GHz to 13 GHz, Horizontal



13 GHz to 18 GHz, Horizontal



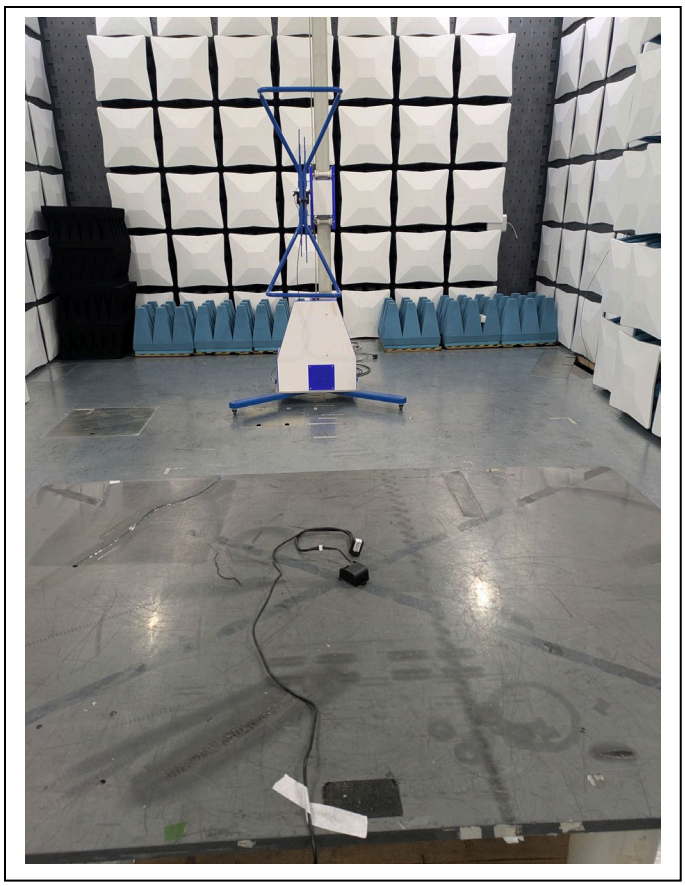
18 GHz to 26 GHz, Horizontal



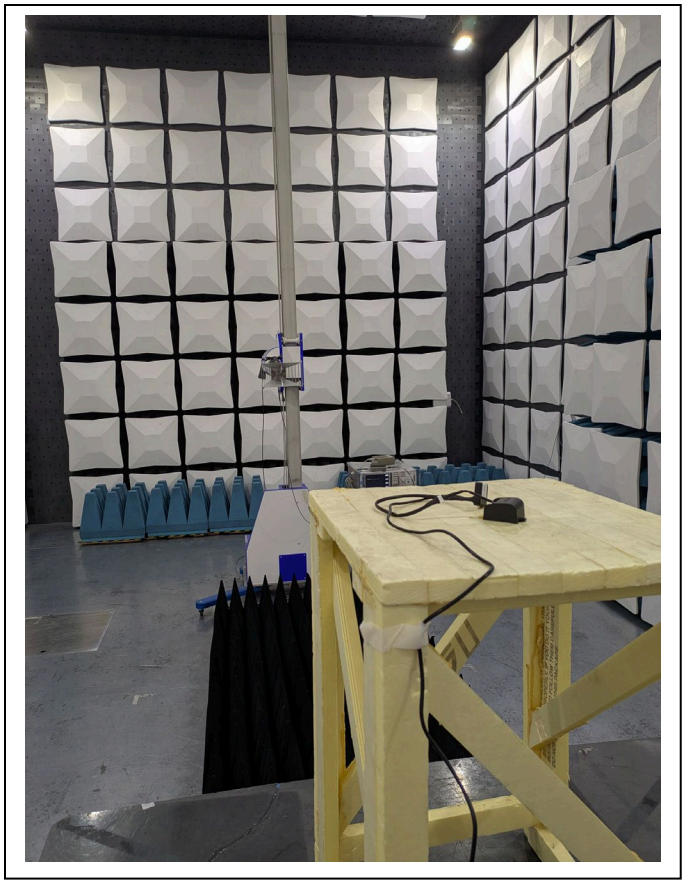
9 PHOTOGRAPHS - TEST SETUPS

Radiated Emissions: 9kHz to 30 MHz

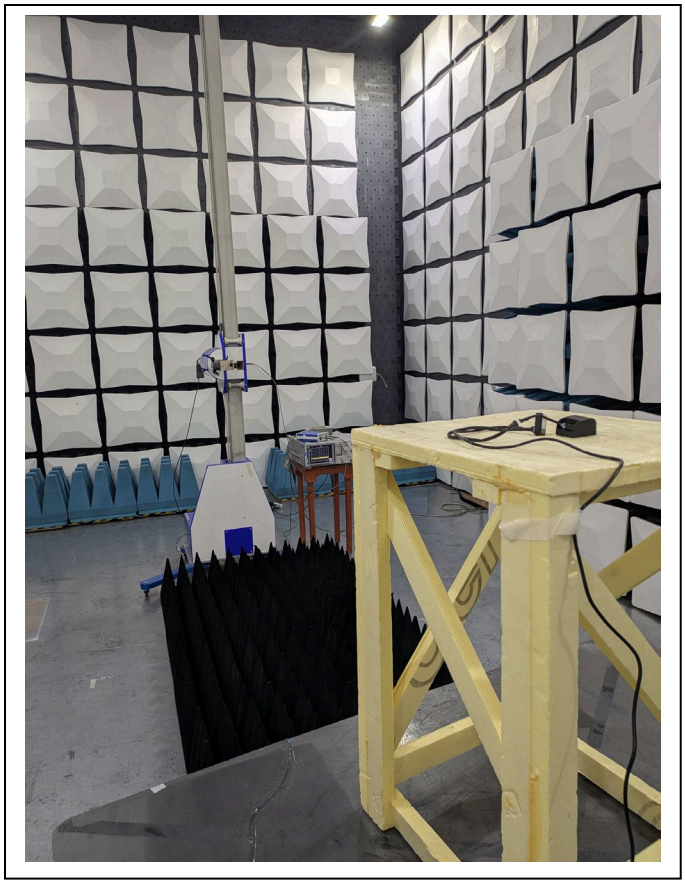
Radiated Emissions: 30 MHz to 1000 MHz



Radiated Emissions: 1 GHz to 18 GHz



Radiated Emissions: 18 GHz to 26 GHz



Conducted, Occupied Bandwidth