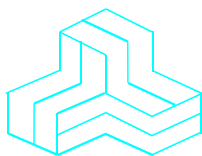


ENGINEERING TEST REPORT



RS-350 Backpack Radiation Detector

Model(s): RS-350

FCC ID: 2BHJ6-SDPAC

Applicant:

Radiation Solutions Inc

5875 Whittle Road

Mississauga, ON L4Z 2H4

Canada

In Accordance With

Part 15, Subpart C, Section 15.247

Digital Modulation Systems (DTS) Operating in 2400 – 2483.5 MHz Band

UltraTech's File No.: 24RASI045FCC15C247DTS

This Test report is Issued under the Authority of
Tri M. Luu
Vice President of Engineering
UltraTech Group of Labs

Date: November 11, 2024

Report Prepared by: Dan Huynh

Tested by: Angus Au

Issued Date: November 11, 2024

Test Dates:
September 26 - October 7, 2024

- The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.
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- This test report shall not be reproduced, except in full, without a written approval from UltraTech

UltraTech

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#0685
ISO/IEC 17065
Product Certification Body

0685



APEC TEL CA0001



1309



Innovation, Science and
Economic Development Canada

CA 0001/2049



AT-1945



SL2-IN-E-1119R



Korea KCC-RRR

CA0001

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File #: 24RASI045FCC15C247DTS

November 11, 2024

All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

EXHIBIT 1. INTRODUCTION

1.1. SCOPE

Reference:	FCC Part 15, Subpart C, Section 15.247
Title:	Code of Federal Regulations (CFR), Title 47 – Telecommunication, Part 15 – Radio Frequency Devices
Purpose of Test:	Class II Permissive Changes for integration of transmitter module into a portable host with new antenna type.
Test Procedures:	- ANSI C63.4 - ANSI C63.10
Environmental Classification:	☒ Commercial, industrial or business environment ☐ Residential environment

1.2. RELATED SUBMITTAL(S)/GRANT(S)

None.

1.3. NORMATIVE REFERENCES

Publication	Year	Title
47 CFR Parts 0-19	2024	Code of Federal Regulations (CFR), Title 47 – Telecommunication
ANSI C63.4	2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40 GHz
ANSI C63.10	2020	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
FCC, KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02	2019	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT INFORMATION

Applicant	
Name:	Radiation Solutions Inc
Address:	5875 Whittle Road Mississauga, ON L4Z 2H4 Canada

Manufacturer	
Name:	Radiation Solutions Inc
Address:	5875 Whittle Road Mississauga, ON L4Z 2H4 Canada

2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

Brand Name:	Radiation Solutions Inc
Product Name:	RS-350 Backpack Radiation Detector
Model(s):	RS-350
Serial Number:	Test Sample
Type of Equipment:	Digital Transmission System (DTS)
Input Power Supply Type:	AC main and Lithium Ion Battery
Primary User Functions of EUT:	The RS-350 Backpack Radiation Detector is a Human Portable Radiation Detector. It is a rugged, self-contained, fast deployable gamma and neutron radiation monitoring and detection system with radionuclide identification features.

2.3. EUT'S TECHNICAL SPECIFICATIONS

Transmitter	
Equipment Type:	Portable
Intended Operating Environment:	Commercial, industrial or business environment
Power Supply Requirement:	AC main 100 – 240V Lithium-Ion Battery 12V 7 Ah
RF Output Power Rating:	16.68 dBm, 0.04656 W (802.11b) 15.48 dBm, 0.03532 W (802.11g) 15.27 dBm, 0.03365 W (802.11n-20M) 15.14 dBm, 0.03266 W (802.11n-40M) 0.41 dBm, 0.00110 W (BLE 1M)
Operating Frequency Range:	2402 - 2480 MHz (Bluetooth, Version 4.1) 2412 - 2462 MHz (802.11b, 802.11g and 802.11n-20M) 2422 - 2452 MHz (802.11n-40M)
Number of Channels:	11 (802.11b, 802.11g and 802.11n-20M) and 7 (802.11n-40M)
RF Output Impedance:	50 Ω
Duty Cycle:	Continuous
Modulation Type(s):	GFSK [Bluetooth (Ver 4.1)] DSSS (CCK, DQPSK, DBPSK) [802.11b] OFDM-CCK (BPSK, QPSK, 16QAM, 64QAM) [802.11g] OFDM (BPSK, QPSK, 16QAM, 64QAM) [802.11n-20M and 802.11n-40M]
Antenna Connector Type:	Integral

2.4. ASSOCIATED ANTENNA DESCRIPTION

Manufacturer	Antenna Type	Part Number	Maximum Gain (dBi)
Molex	On-metal external Wi-Fi dual-band antenna	2158680011	1.8 (2.4 – 2.485 GHz) 5.5 (5.15 – 5.85 GHz)

2.5. LIST OF EUT'S PORTS

Port Number	EUT's Port Description	Number of Identical Ports	Connector Type	Cable Type (Shielded/Non-shielded)
1	Ethernet Port	1	RJ-45	Non-shielded
2	USB Port	1	USB	Shielded
3	Battery	2	Screw-on connector	Non-shielded
4	AC Power supply	1	3 Pin Circular Connector	Shielded
5	GPS Port	1	SMA Connector	Terminated

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2.6. ANCILLARY EQUIPMENT

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests:

Ancillary Equipment # 1	
Description:	Switching Power Supply/Charger
Brand name:	Xinsu Global
Model Name or Number:	XSG1464000
Connected to EUT's Port:	Battery Port

EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

3.1. CLIMATE TEST CONDITIONS

The climate conditions of the test environment are as follows:

Temperature:	21 to 23 °C
Humidity:	45 to 58%
Pressure:	102 kPa
Power Input Source:	120 VAC or 12 VDC

3.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TESTS

Operating Modes:	Each of lowest, middle and highest channel frequencies transmits continuously for tests which required the unit to operate in single channel mode.
Special Test Software:	Test software provided by the Applicant to operate the EUT at each channel frequency continuously and in the range of typical modes of operation.
Special Hardware Used:	N/A
Transmitter Test Antenna:	The EUT is tested with the antenna fitted in a manner typical of normal intended use as integral antenna equipment as described with the test results.

Transmitter Test Signals	
Frequency Band(s):	2412 MHz - 2462 MHz 2422 MHz - 2452 MHz
Frequency(ies) Tested: (Near lowest, near middle & near highest frequencies in the frequency range of operation.)	2412 MHz, 2437 MHz and 2462 MHz 2422 MHz, 2437 MHz and 2452 MHz
RF Power Output: (measured maximum output power at antenna terminals)	16.68 dBm, 0.04656 W (802.11b) 15.48 dBm, 0.03532 W (802.11g) 15.27 dBm, 0.03365 W (802.11n-20M) 15.14 dBm, 0.03266 W (802.11n-40M) 0.41 dBm, 0.00110 W (BLE 1M)
Normal Test Modulation:	DSS, OFDM-CCK and OFDM
Modulating Signal Source:	Internal

EXHIBIT 4. SUMMARY OF TEST RESULTS

4.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- AC Power Line Conducted Emissions were performed in UltraTech's shielded room, 24'(L) by 16'(W) by 8'(H).
- Radiated Emissions were performed at the Ultratech's 3-10 TDK Semi-Anechoic Chamber situated in the Town of Oakville, province of Ontario. This test site been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville 3-10 TDK Semi-Anechoic Chamber has been filed with ANAB File No.: AT-1945.

4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

FCC Section(s)	Test Requirements	Compliance (Yes/No)
15.203	Antenna requirements	Yes*
15.207(a)	AC Power Line Conducted Emissions	Yes
15.247(a)(2)	6 dB Bandwidth	N/A
15.247(b)(3)	Peak Conducted Output Power	Yes
15.247(d)	Band-Edge and RF Conducted Spurious Emissions at the Transmitter Antenna Terminal	--
15.247(d), 15.209 & 15.205	Band-Edge and Transmitter Spurious Radiated Emissions	Yes
15.247(e)	Power Spectral Density	N/A
15.247(i), 1.1307, 1.1310, 2.1091	RF Exposure	Yes*

*Refer to SAR test report.

4.3. MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES

None.

EXHIBIT 5. TEST DATA

5.1. POWER LINE CONDUCTED EMISSIONS [§15.207(a)]

5.1.1. Limit(s)

The equipment shall meet the limits of the following table:

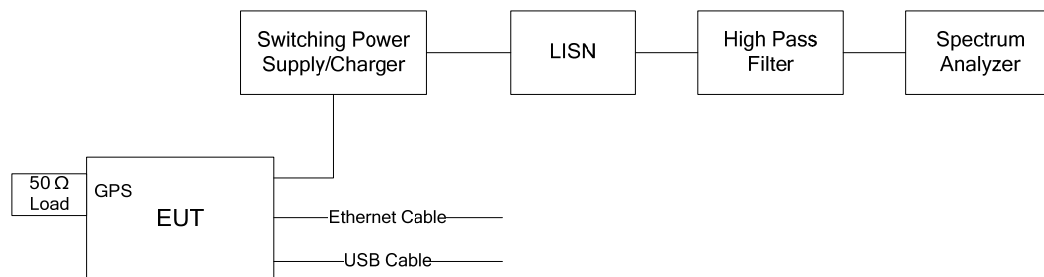
Frequency of emission (MHz)	Conducted Limits (dB μ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

*Decreases linearly with the logarithm of the frequency

5.1.2. Method of Measurements

ANSI C63.4

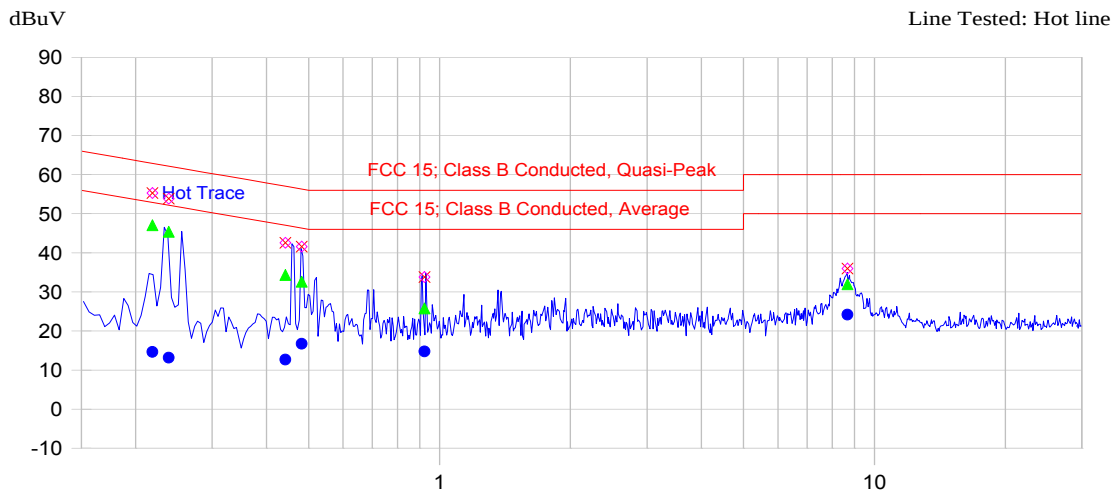
5.1.3. Test Arrangement



5.1.4. Test Data

Plot 5.1.4.1. Power Line Conducted Emissions, Tx Mode
Line Voltage: 120 VAC, 60 Hz; Line Tested: Hot Line

Current Graph

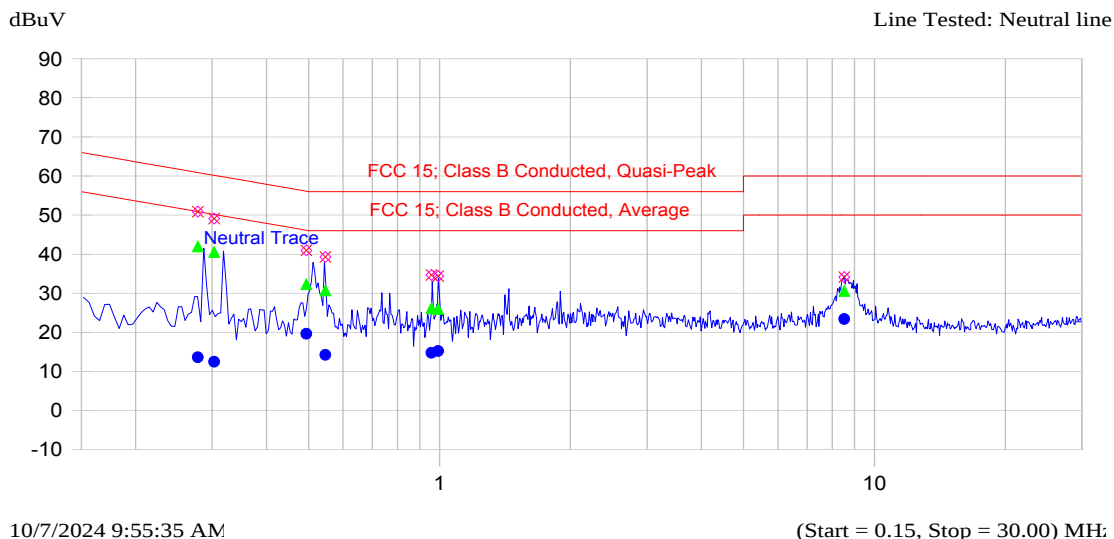


Current List

Frequency MHz	Peak dBuV	QP dBuV	QP-QP Limit dB	Avg dBuV	Avg-Avg Limit dB	Trace Name
0.219	55.3	47.1	-15.8	14.6	-38.2	Hot Trace
0.238	53.9	45.4	-16.8	13.2	-39.0	Hot Trace
0.442	42.6	34.3	-22.7	12.7	-34.3	Hot Trace
0.482	41.6	32.6	-23.7	16.7	-29.6	Hot Trace
0.923	33.8	25.8	-30.2	14.7	-31.3	Hot Trace
8.668	36.0	31.9	-28.1	24.2	-25.8	Hot Trace

Plot 5.1.4.2. Power Line Conducted Emissions, Tx Mode
Line Voltage: 120 VAC, 60 Hz; Line Tested: Neutral Line

Current Graph

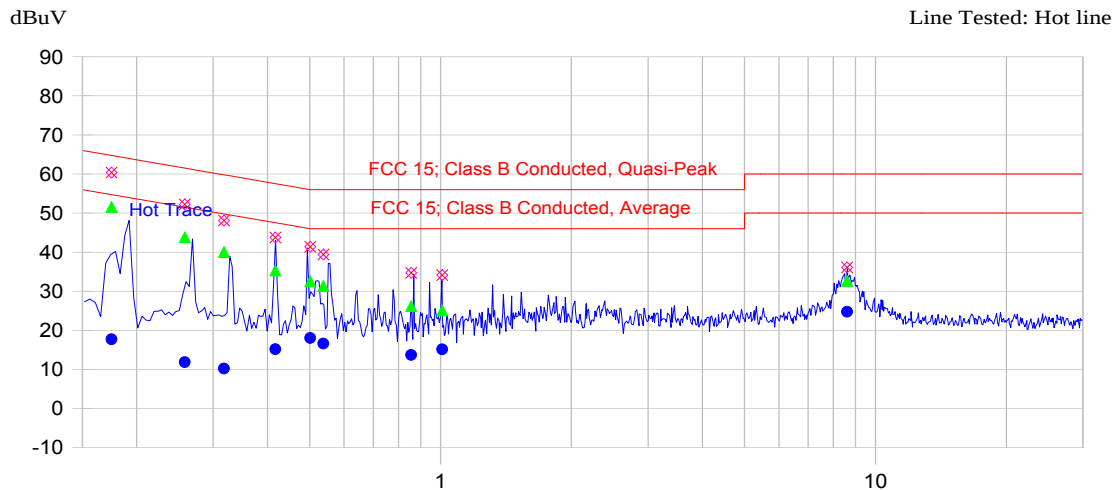


Current List

Frequency MHz	Peak dBuV	QP dBuV	QP-QP Limit dB	Avg dBuV	Avg-Avg Limit dB	Trace Name
0.278	50.9	42.0	-18.9	13.6	-37.3	Neutral Trace
0.303	49.1	40.5	-19.6	12.5	-37.7	Neutral Trace
0.493	41.0	32.3	-23.8	19.6	-26.5	Neutral Trace
0.546	39.3	30.7	-25.3	14.2	-31.8	Neutral Trace
0.958	34.6	26.2	-29.8	14.8	-31.2	Neutral Trace
0.993	34.4	26.0	-30.0	15.2	-30.8	Neutral Trace
8.520	34.1	30.6	-29.4	23.4	-26.6	Neutral Trace

Plot 5.1.4.3. Power Line Conducted Emissions, Rx Mode
Line Voltage: 120 VAC, 60 Hz; Line Tested: Hot Line

Current Graph

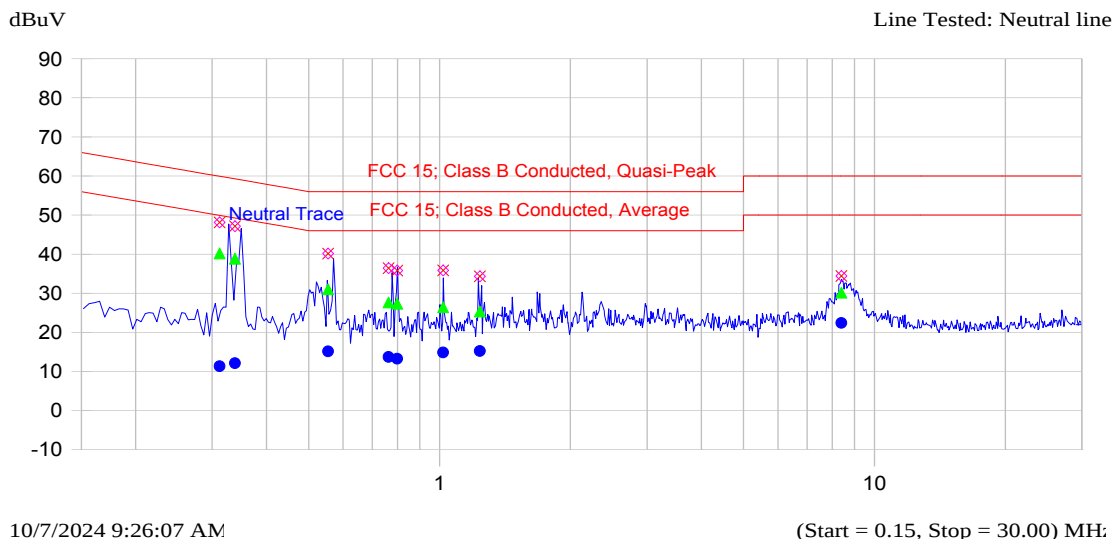


Current List

Frequency MHz	Peak dBuV	QP dBuV	QP-QP Limit dB	Avg dBuV	Avg-Avg Limit dB	Trace Name
0.175	60.3	51.5	-13.2	17.7	-37.0	Hot Trace
0.258	52.2	43.8	-17.7	11.9	-39.6	Hot Trace
0.317	48.1	40.0	-19.8	10.2	-39.6	Hot Trace
0.417	43.7	35.3	-22.2	15.2	-32.3	Hot Trace
0.502	41.4	32.5	-23.5	18.0	-28.0	Hot Trace
0.538	39.4	31.3	-24.7	16.6	-29.4	Hot Trace
0.856	34.7	26.2	-29.8	13.7	-32.3	Hot Trace
1.009	34.1	25.1	-30.9	15.1	-30.9	Hot Trace
8.607	36.1	32.6	-27.4	24.7	-25.3	Hot Trace

Plot 5.1.4.4. Power Line Conducted Emissions, Rx Mode
Line Voltage: 120 VAC, 60 Hz; Line Tested: Neutral Line

Current Graph



Current List

Frequency MHz	Peak dBuV	QP dBuV	QP-QP Limit dB	Avg dBuV	Avg-Avg Limit dB	Trace Name
0.312	48.1	40.2	-19.7	11.3	-38.6	Neutral Trace
0.339	47.2	38.8	-20.4	12.1	-37.1	Neutral Trace
0.554	40.1	31.0	-25.0	15.1	-30.9	Neutral Trace
0.763	36.4	27.6	-28.4	13.7	-32.3	Neutral Trace
0.800	35.8	27.3	-28.7	13.3	-32.7	Neutral Trace
1.018	35.8	26.4	-29.6	14.8	-31.2	Neutral Trace
1.237	34.3	25.3	-30.7	15.2	-30.8	Neutral Trace
8.394	34.4	30.1	-29.9	22.4	-27.6	Neutral Trace

5.3. MAXIMUM PEAK CONDUCTED OUTPUT POWER [§ 15.247(b)(3)]

5.3.1. Limit(s)

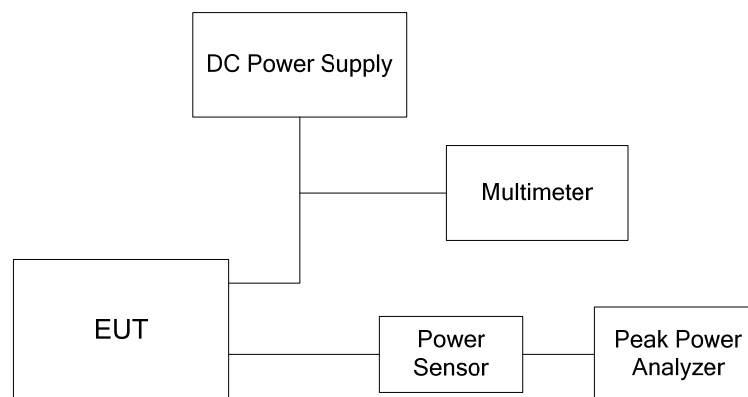
§15.247(b)(3): For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

§15.247(b)(4): The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.3.2. Method of Measurements

ANSI 63.10-2020, Section 12.4.3.1

5.3.3. Test Arrangement



5.3.4. Test Data

Wi-Fi Output Power							
Operating Mode	Frequency (MHz)	Max. Peak Output Power at Antenna Terminal		Max. Antenna Assembly Gain (dBi)	EIRP (dBm)	Max. Peak Conducted Output Power Limit (dBm)	EIRP Limit (dBm)
		(dBm)	(W)				
802.11b (highest data rate)	2412	16.57	0.04539	1.8	18.37	30	36
	2437	16.43	0.04395	1.8	18.23	30	36
	2462	16.68	0.04656	1.8	18.48	30	36
802.11g (highest data rate)	2412	15.07	0.03214	1.8	16.87	30	36
	2437	15.15	0.03273	1.8	16.95	30	36
	2462	15.48	0.03532	1.8	17.28	30	36
802.11n-20M (highest data rate)	2412	14.67	0.02931	1.8	16.47	30	36
	2437	14.78	0.03006	1.8	16.58	30	36
	2462	15.27	0.03365	1.8	17.07	30	36
802.11n-40M (highest data rate)	2422	14.53	0.02838	1.8	16.33	30	36
	2437	14.68	0.02938	1.8	16.48	30	36
	2452	15.14	0.03266	1.8	16.94	30	36

BLE Output Power							
Operating Mode	Frequency (MHz)	Max. Peak Output Power at Antenna Terminal		Max. Antenna Assembly Gain (dBi)	EIRP (dBm)	Max. Peak Conducted Output Power Limit (dBm)	EIRP Limit (dBm)
		(dBm)	(W)				
BLE 1M	2402	-0.22	0.00095	1.8	1.58	30	36
	2441	0.37	0.00109	1.8	2.17	30	36
	2480	0.41	0.00110	1.8	2.21	30	36

5.4. TRANSMITTER SPURIOUS RADIATED EMISSIONS AT 3 METERS [§§ 15.247(d), 15.209 & 15.205]

5.4.1. Limit

§ 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)).

Section 15.205(a) - Restricted Bands of Operation

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
¹ 0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	(²)
13.36–13.41.			

¹ Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.

² Above 38.6

Section 15.209(a) - Field Strength Limits within Restricted Frequency Bands

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2,400 / F (kHz)	300
0.490 - 1.705	24,000 / 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

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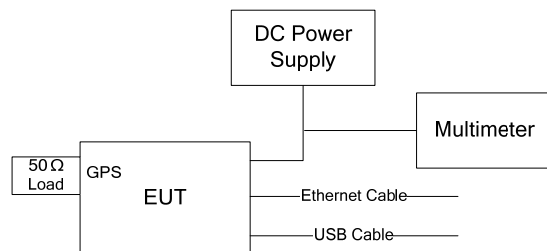
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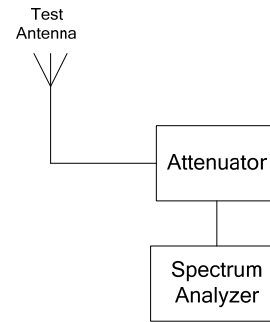
5.4.2. Method of Measurements

ANSI C63.10 and ANSI 63.4 procedures.

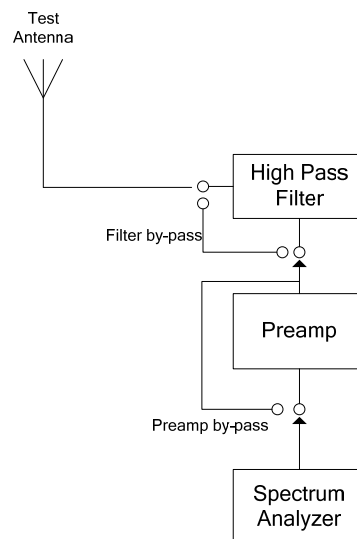
5.4.3. Test Arrangement



For Band-Edge



For Spurious and Harmonics



5.4.4. Test Data

Remark(s):

- All spurious emissions that are in excess of 20 dB below the specified limit shall be recorded.
- The following test data represent the worst-case derived from exploratory tests.

5.4.4.1. Spurious Radiated Emission

Operating Mode:		802.11b					
Fundamental Frequency:		2412 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2412.0	86.57	--	V	--	--	--	--
2412.0	85.90	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11b					
Fundamental Frequency:		2437.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2437.0	85.30	--	V	--	--	--	--
2437.0	85.41	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11b					
Fundamental Frequency:		2462.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2462.0	84.22	--	V	--	--	--	--
2462.0	84.47	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

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File #: 24RASI045FCC15C247DTS
November 11, 2024

All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

Operating Mode:		802.11g					
Fundamental Frequency:		2412.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2412.0	86.46	--	V	--	--	--	--
2412.0	89.72	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11g					
Fundamental Frequency:		2437.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2437.0	86.13	--	V	--	--	--	--
2437.0	87.97	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11g					
Fundamental Frequency:		2462.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2462.0	86.47	--	V	--	--	--	--
2462.0	86.40	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11n-20M					
Fundamental Frequency:		2412.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2412.0	88.68	--	V	--	--	--	--
2412.0	89.34	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11n-20M					
Fundamental Frequency:		2437.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2437.0	86.63	--	V	--	--	--	--
2437.0	87.52	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11n-20M					
Fundamental Frequency:		2462.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2462.0	85.31	--	V	--	--	--	--
2462.0	86.19	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11n-40M					
Fundamental Frequency:		2422.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2422.0	88.00	--	V	--	--	--	--
2422.0	88.31	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11n-40M					
Fundamental Frequency:		2437.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2437.0	87.34	--	V	--	--	--	--
2437.0	86.95	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		802.11n-40M					
Fundamental Frequency:		2452.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2452.0	86.26	--	V	--	--	--	--
2452.0	86.16	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		BLE 1M					
Fundamental Frequency:		2402.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2402.0	82.23	--	V	--	--	--	--
2402.0	82.69	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

*No spurious emissions detected.

Operating Mode:		BLE 1M					
Fundamental Frequency:		2441.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2441.0	81.37	--	V	--	--	--	--
2441.0	79.82	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

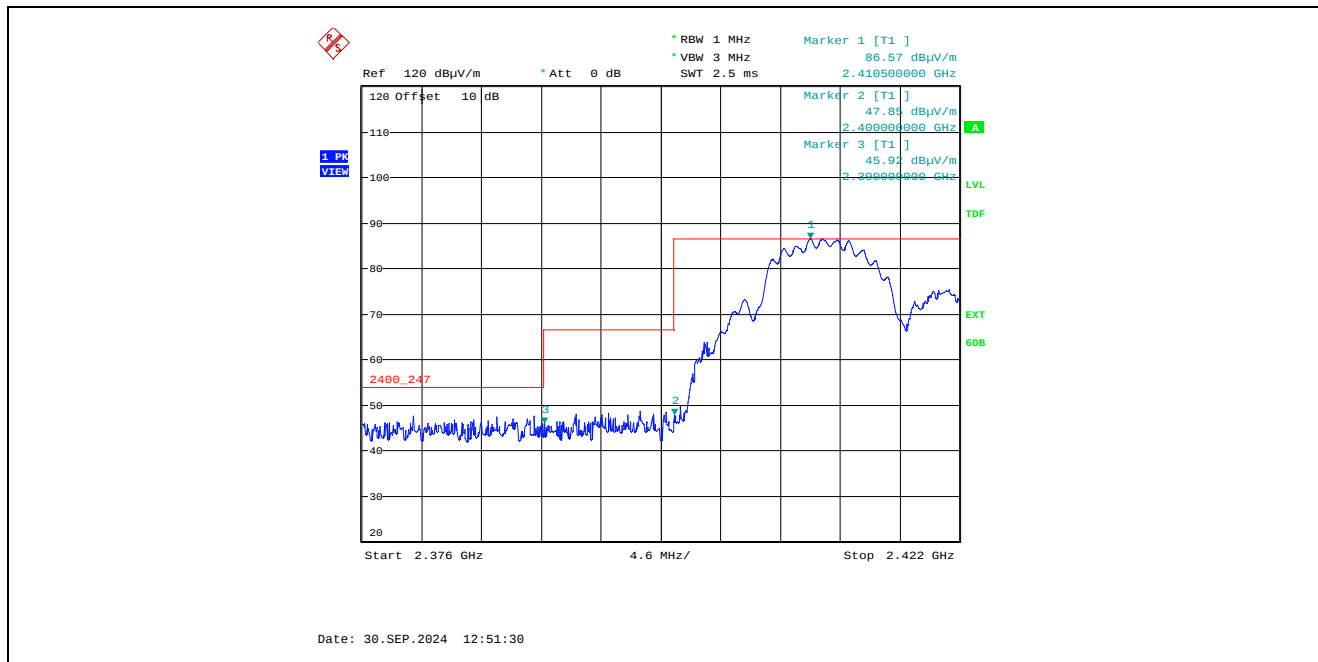
*No spurious emissions detected.

Operating Mode:		BLE 1M					
Fundamental Frequency:		2480.0 MHz					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2480.0	79.60	--	V	--	--	--	--
2480.0	76.69	--	H	--	--	--	--
30 - 25000	*	*	V/H	*	*	*	*

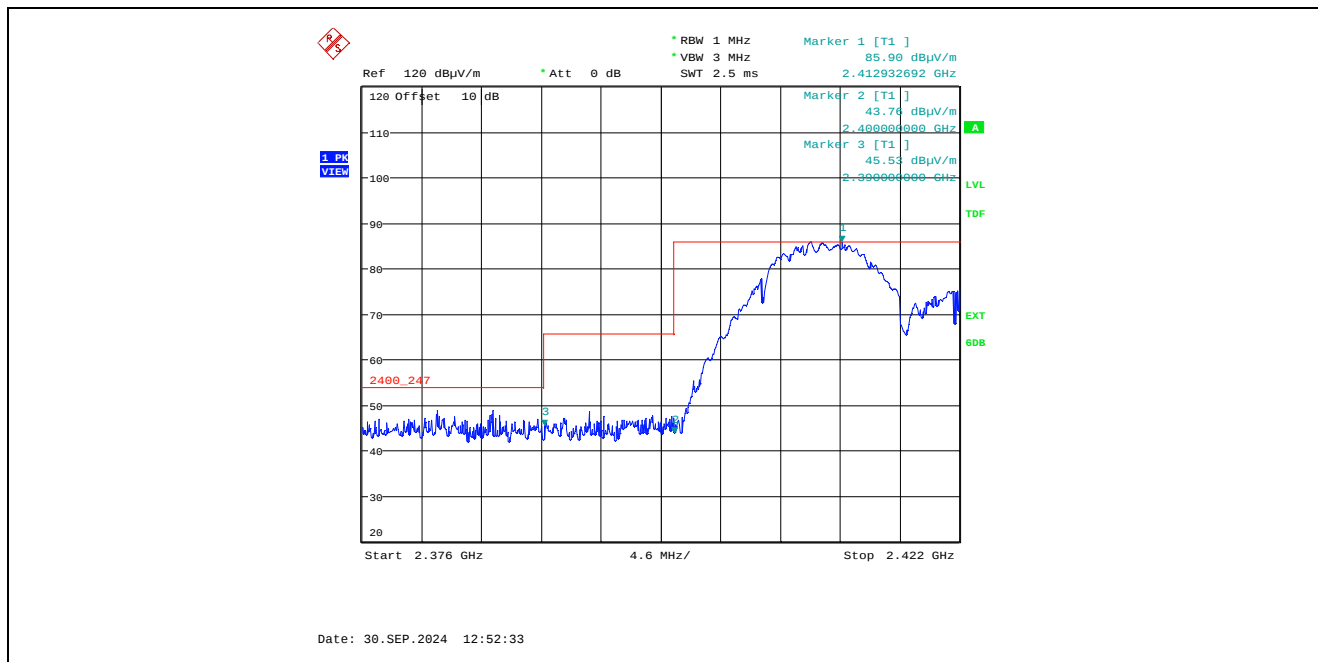
*No spurious emissions detected.

5.4.4.2. Band-Edge RF Radiated Emissions

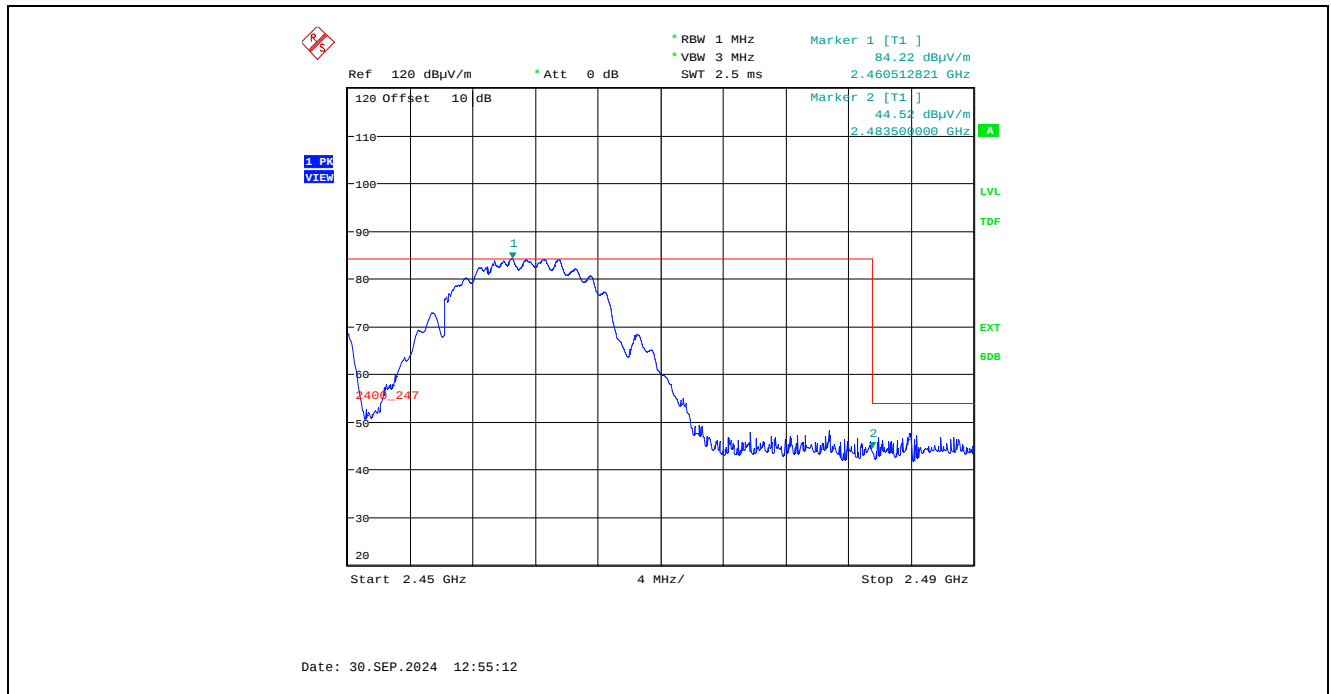
Plot 5.4.4.2.1. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
802.11b, Low End of Frequency Band, 2412 MHz



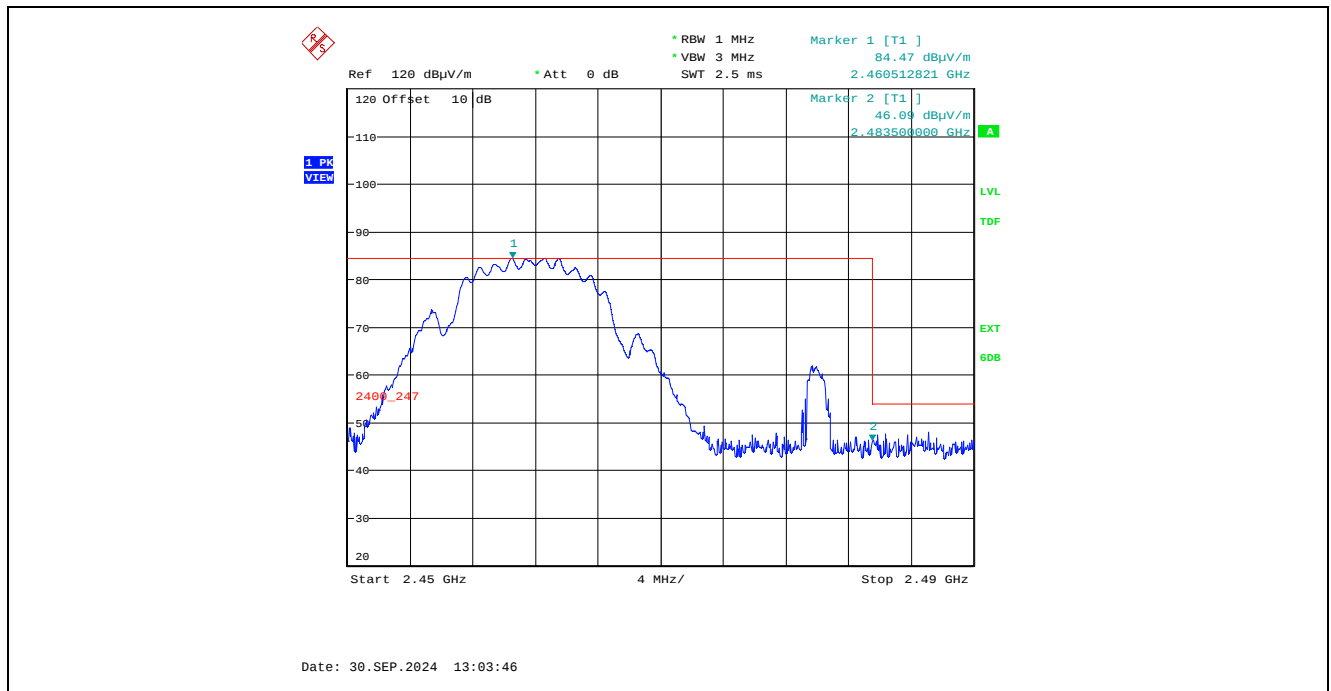
Plot 5.4.4.2.2. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
802.11b, Low End of Frequency Band, 2412 MHz



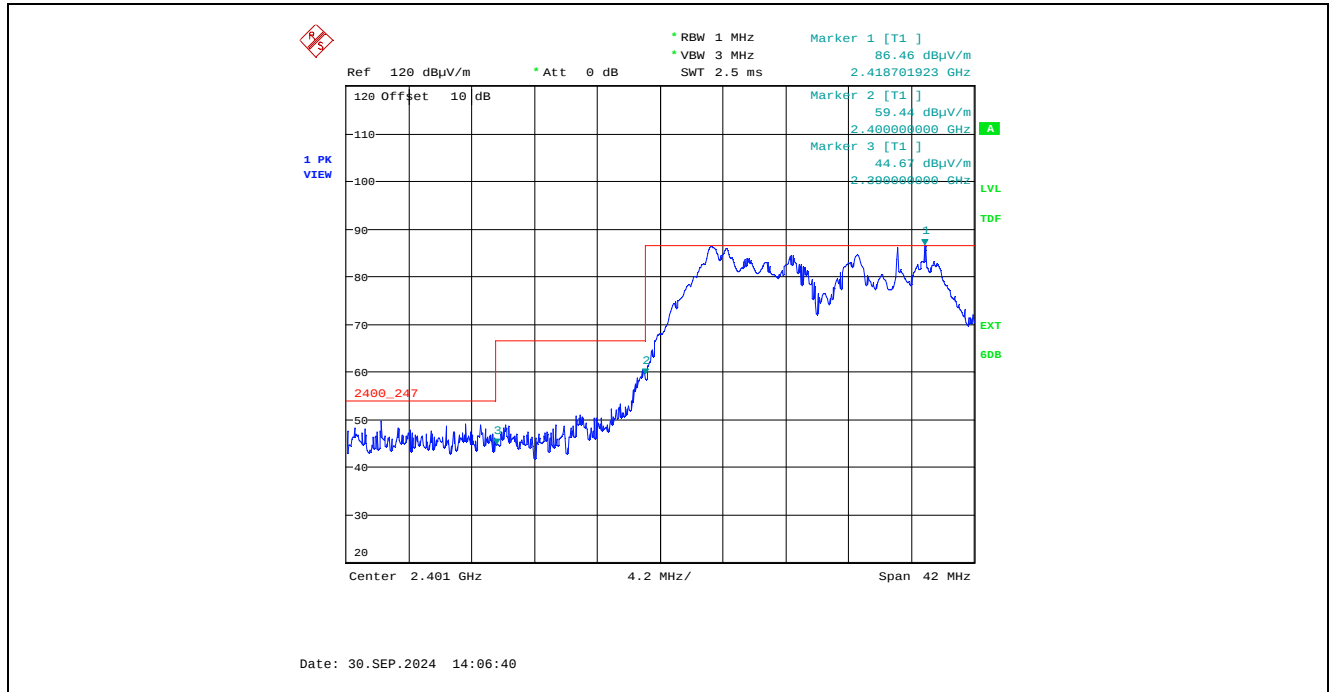
Plot 5.4.4.2.3. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
802.11b, High End of Frequency Band, 2462 MHz



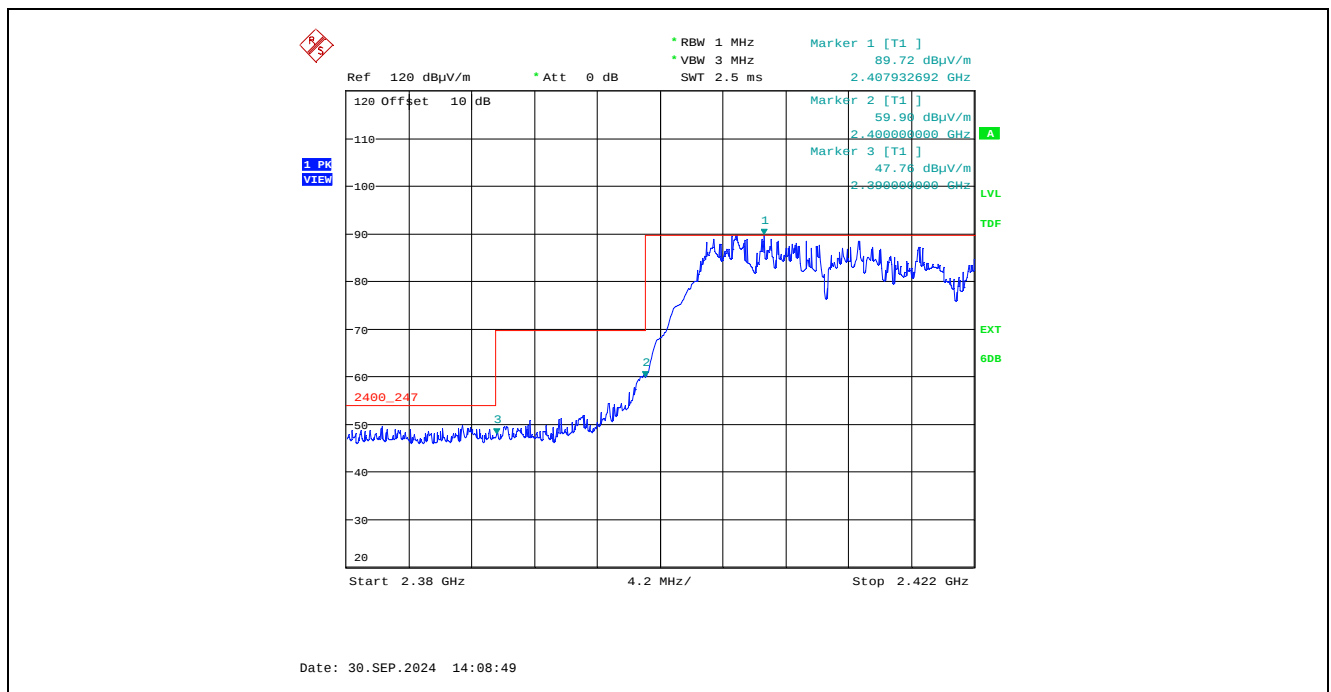
Plot 5.4.4.2.4. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
802.11b, High End of Frequency Band, 2462 MHz



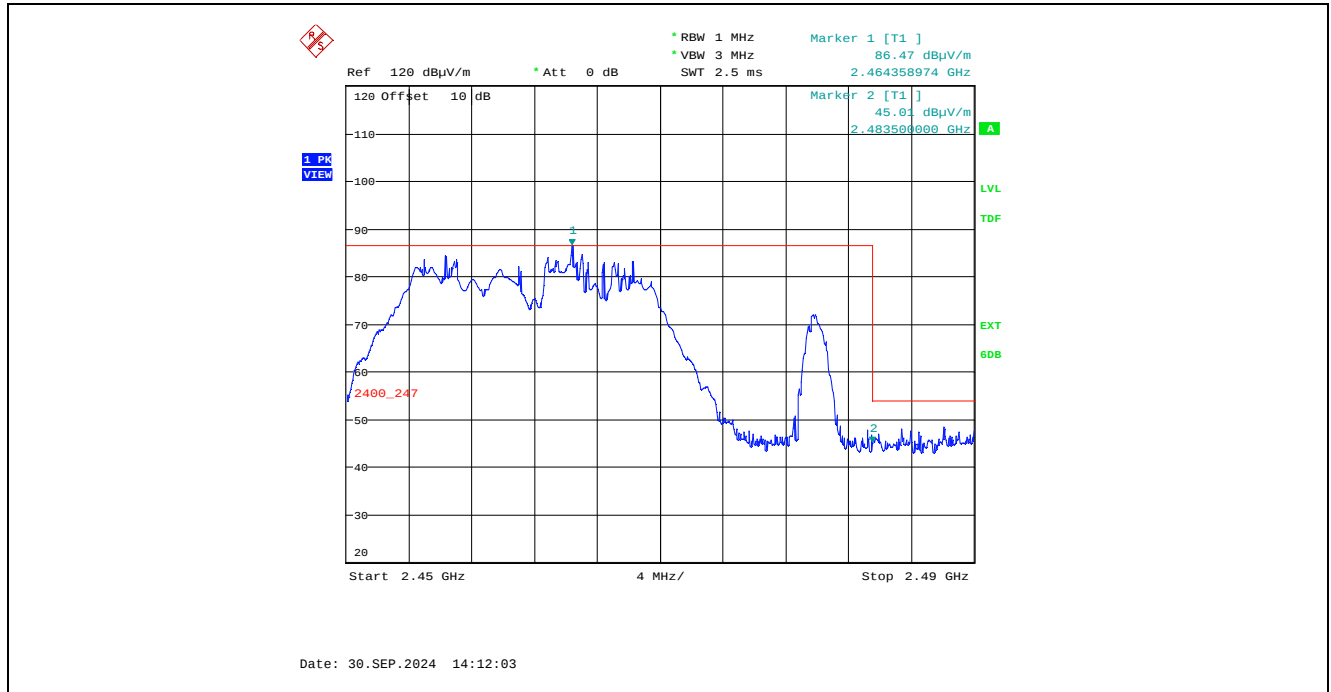
Plot 5.4.4.2.5. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
802.11g, Low End of Frequency Band, 2412 MHz



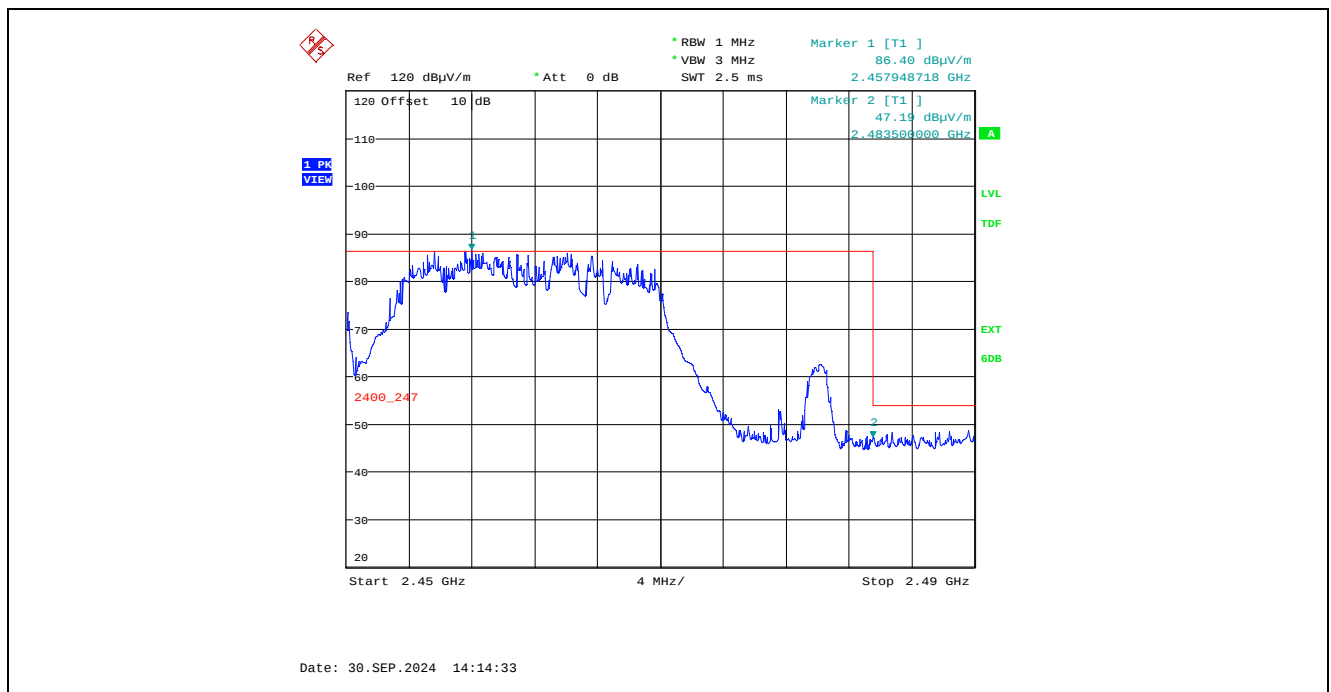
Plot 5.4.4.2.6. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
802.11g, Low End of Frequency Band, 2412 MHz



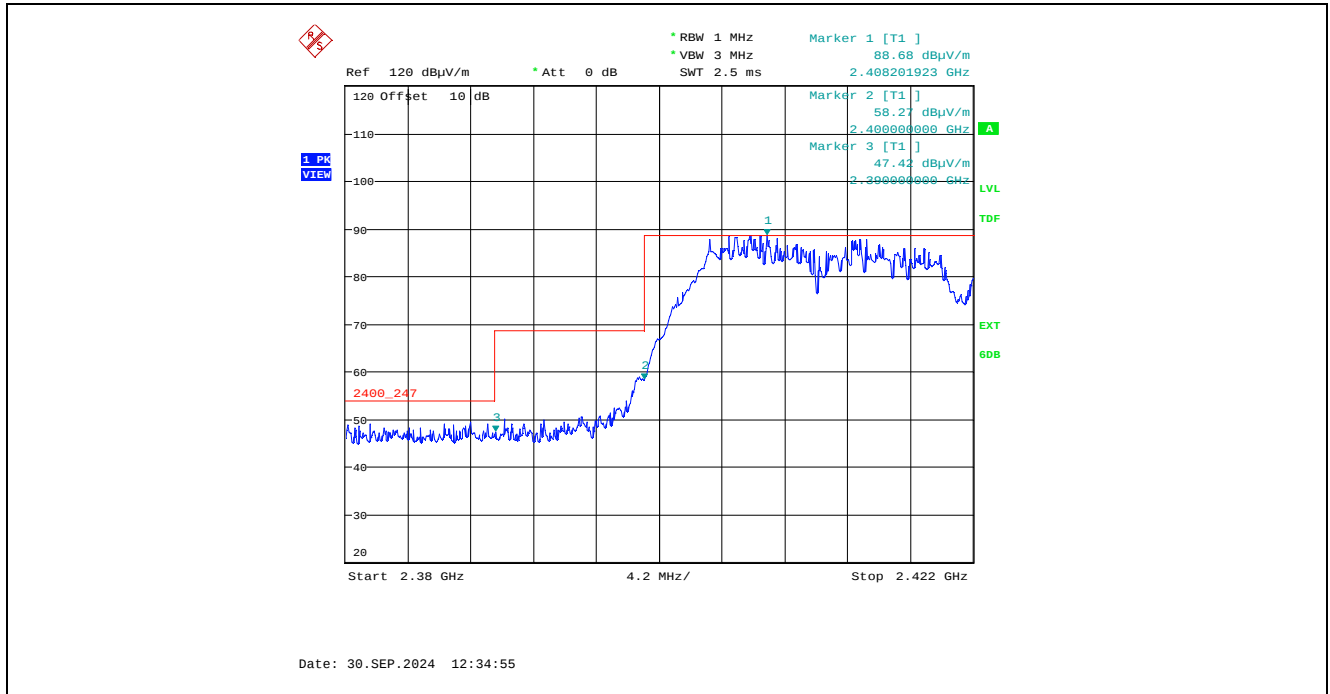
Plot 5.4.4.2.7. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
802.11g, High End of Frequency Band, 2462 MHz



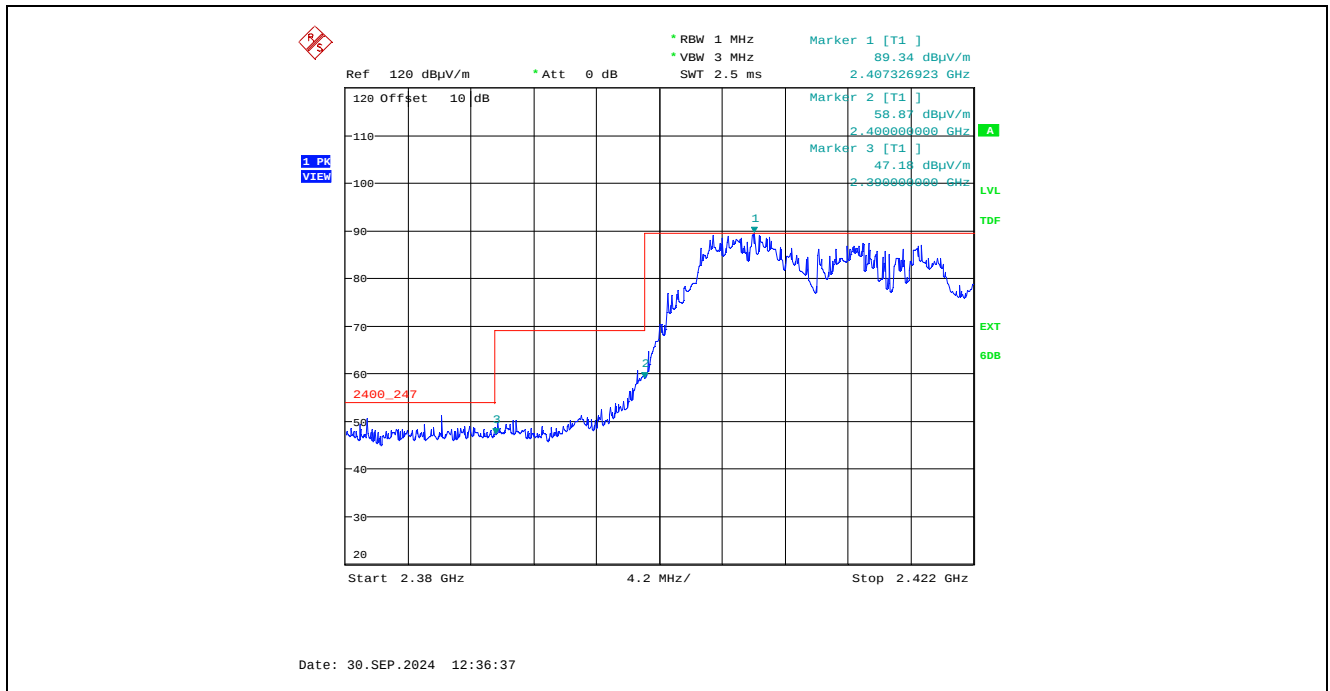
Plot 5.4.4.2.8. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
802.11g, High End of Frequency Band, 2462 MHz



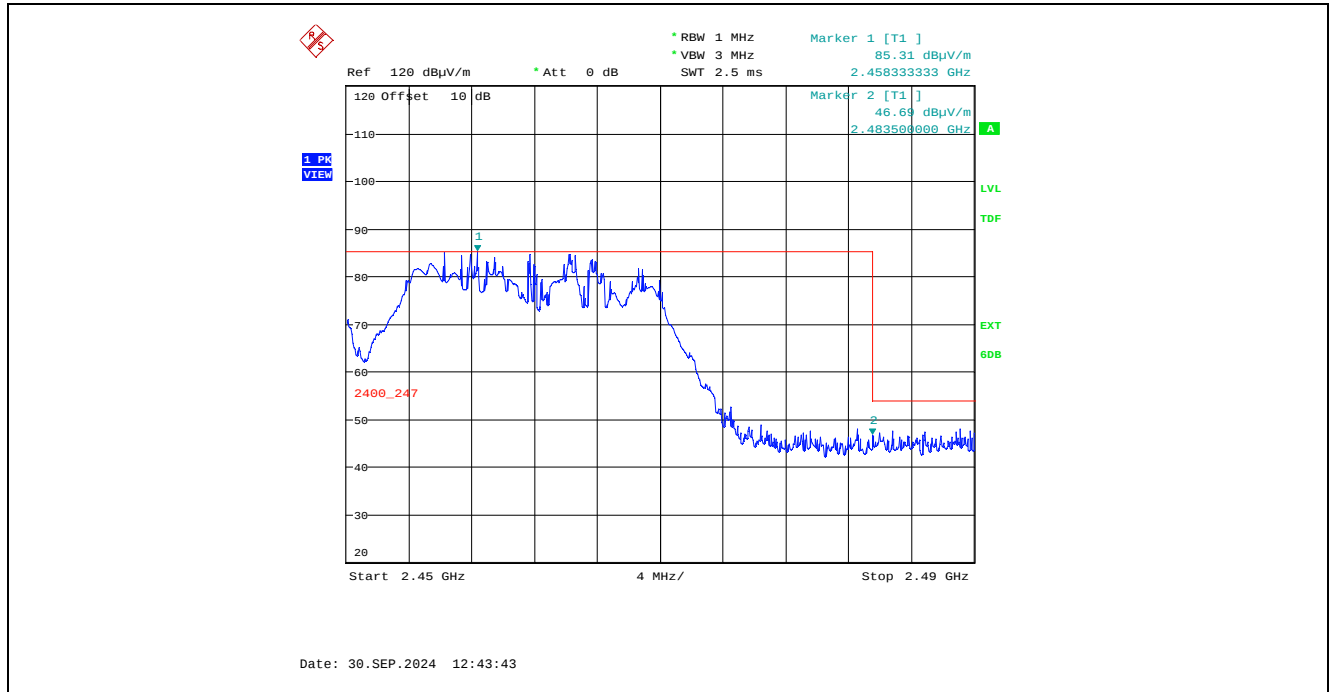
Plot 5.4.4.2.9. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
802.11n-20M, Low End of Frequency Band, 2412 MHz



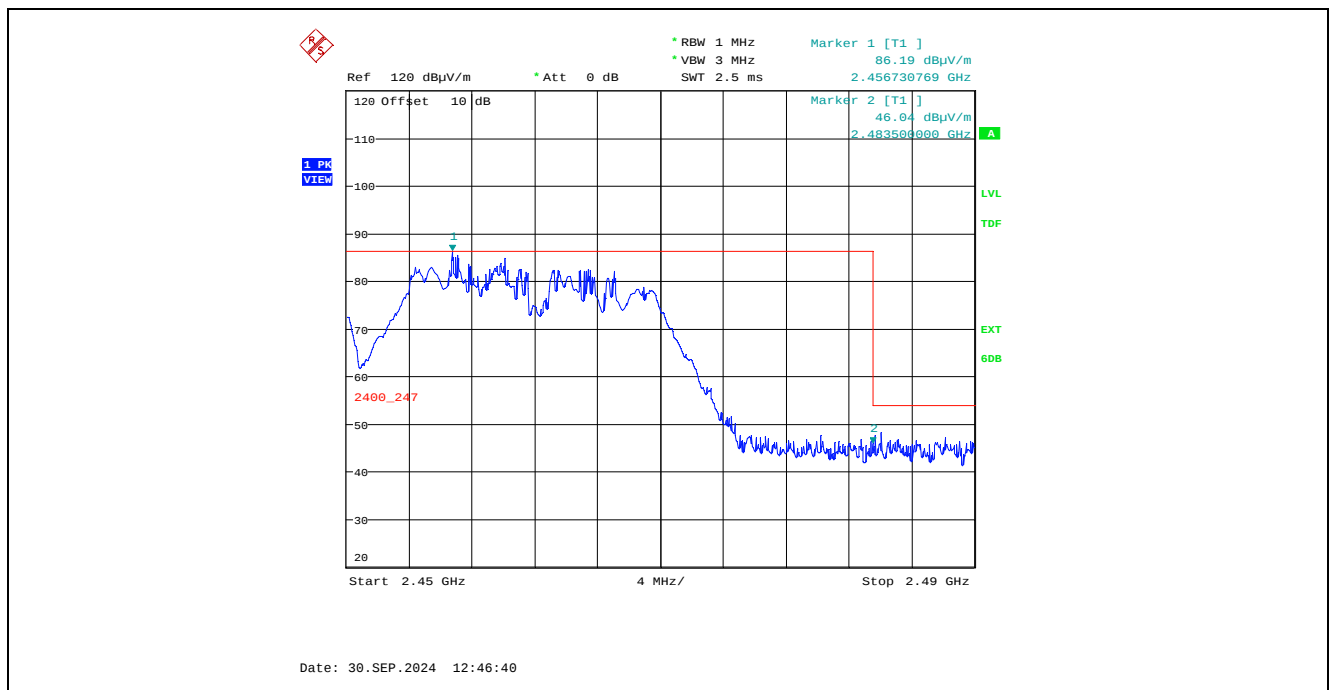
Plot 5.4.4.2.10. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
802.11n-20M, Low End of Frequency Band, 2412 MHz



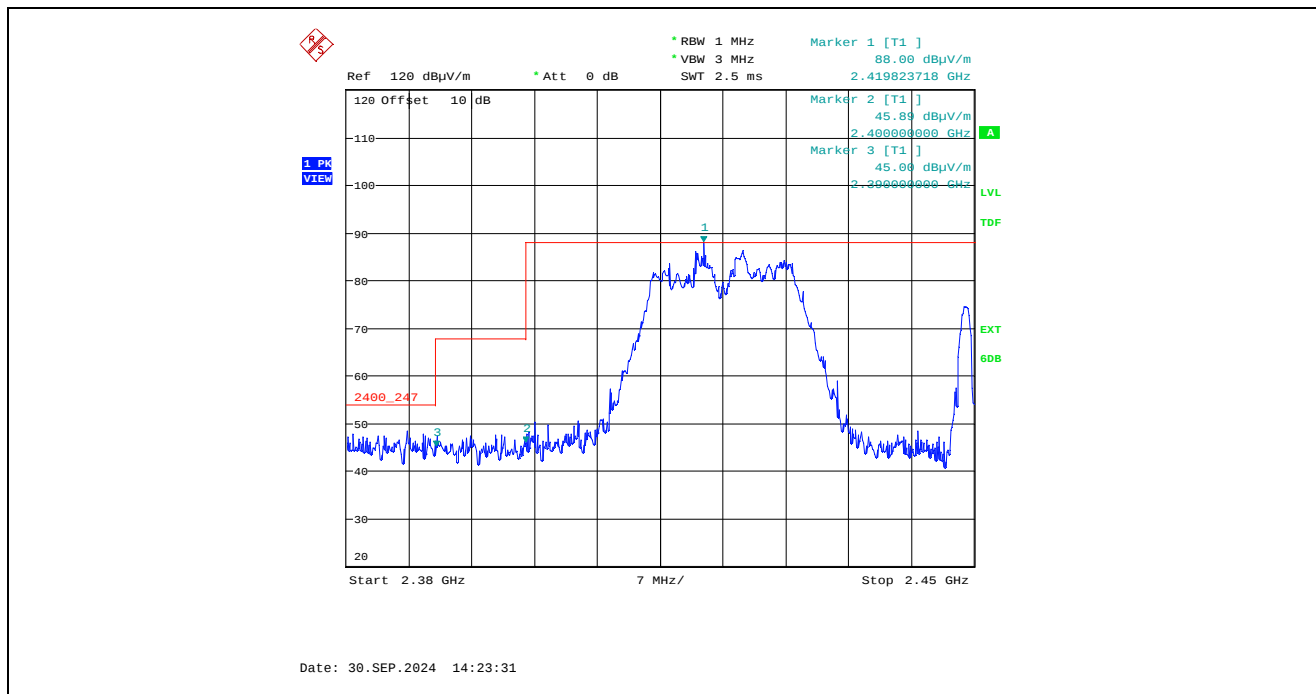
Plot 5.4.4.2.11. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
802.11n-20M, High End of Frequency Band, 2462 MHz



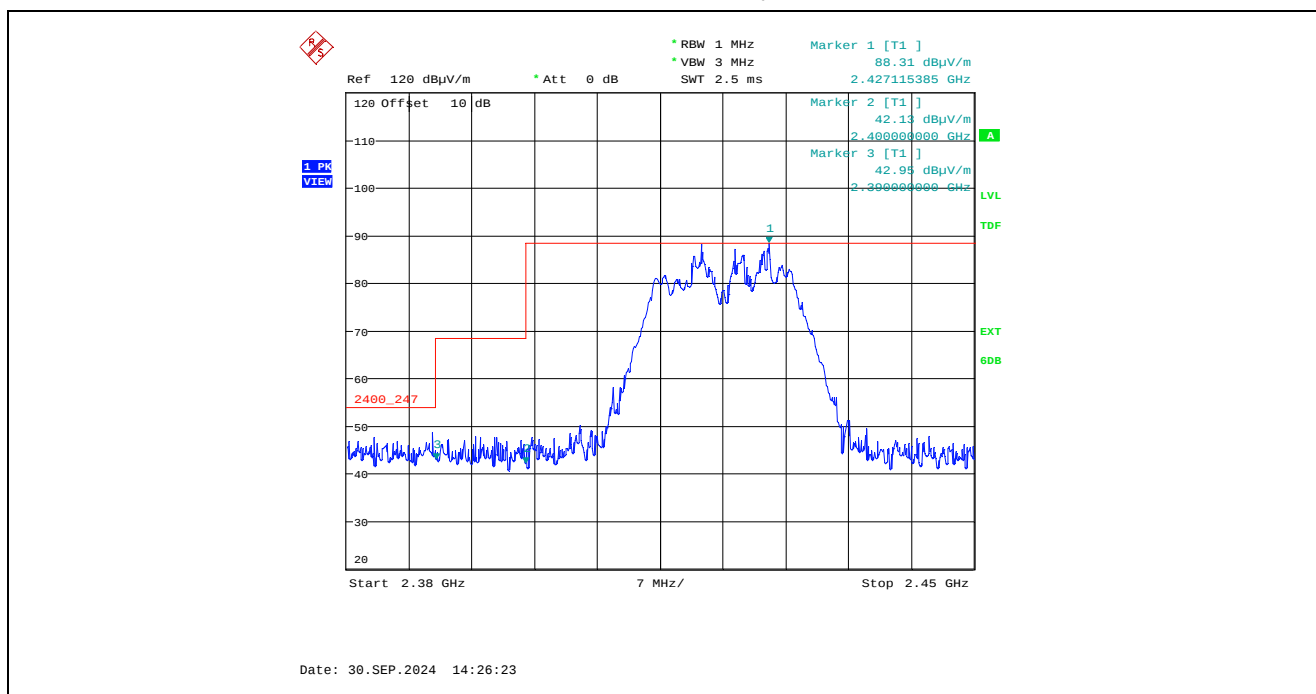
Plot 5.4.4.2.12. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
802.11n-20M, High End of Frequency Band, 2462 MHz



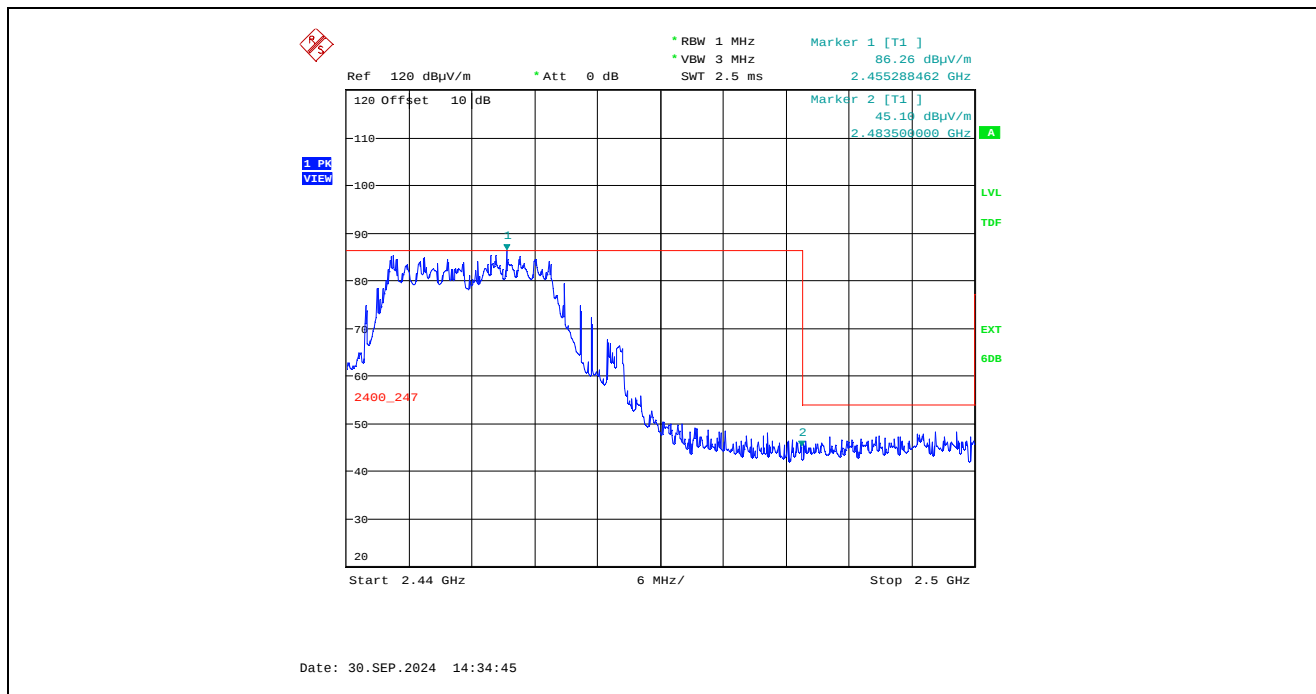
Plot 5.4.4.2.13. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
802.11n-40M, Low End of Frequency Band, 2422 MHz



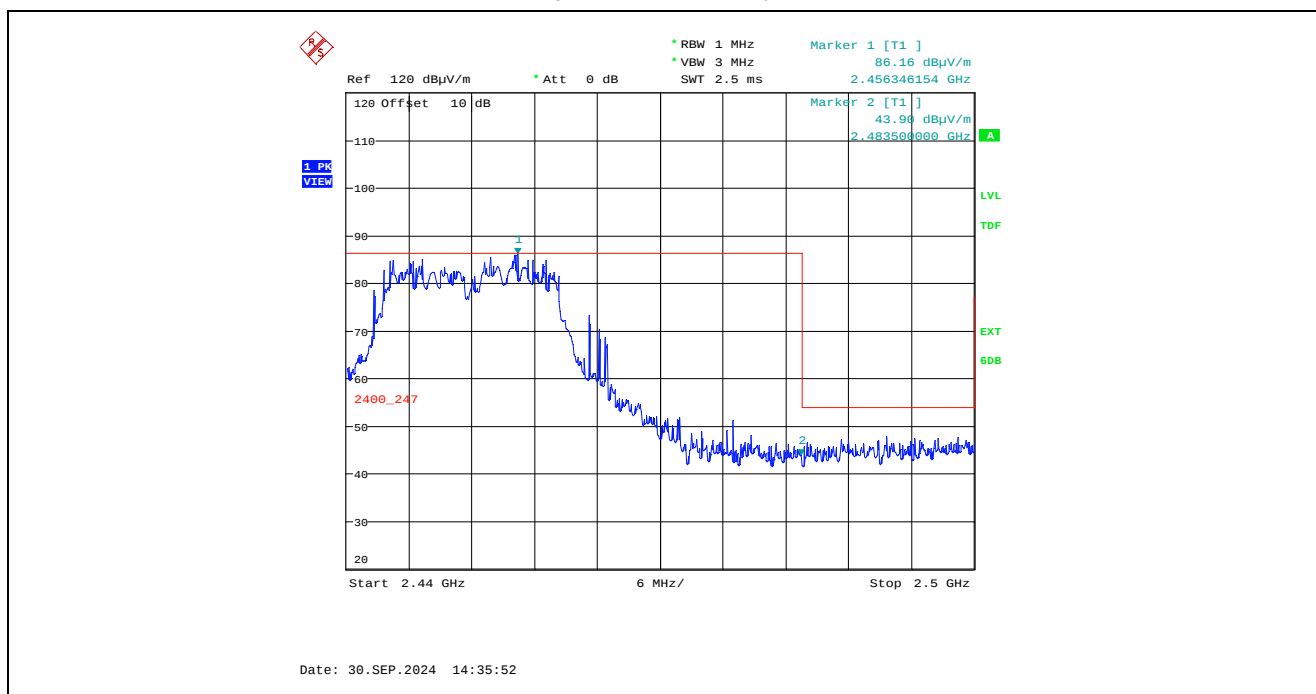
Plot 5.4.4.2.14. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
802.11n-40M, Low End of Frequency Band, 2412 MHz



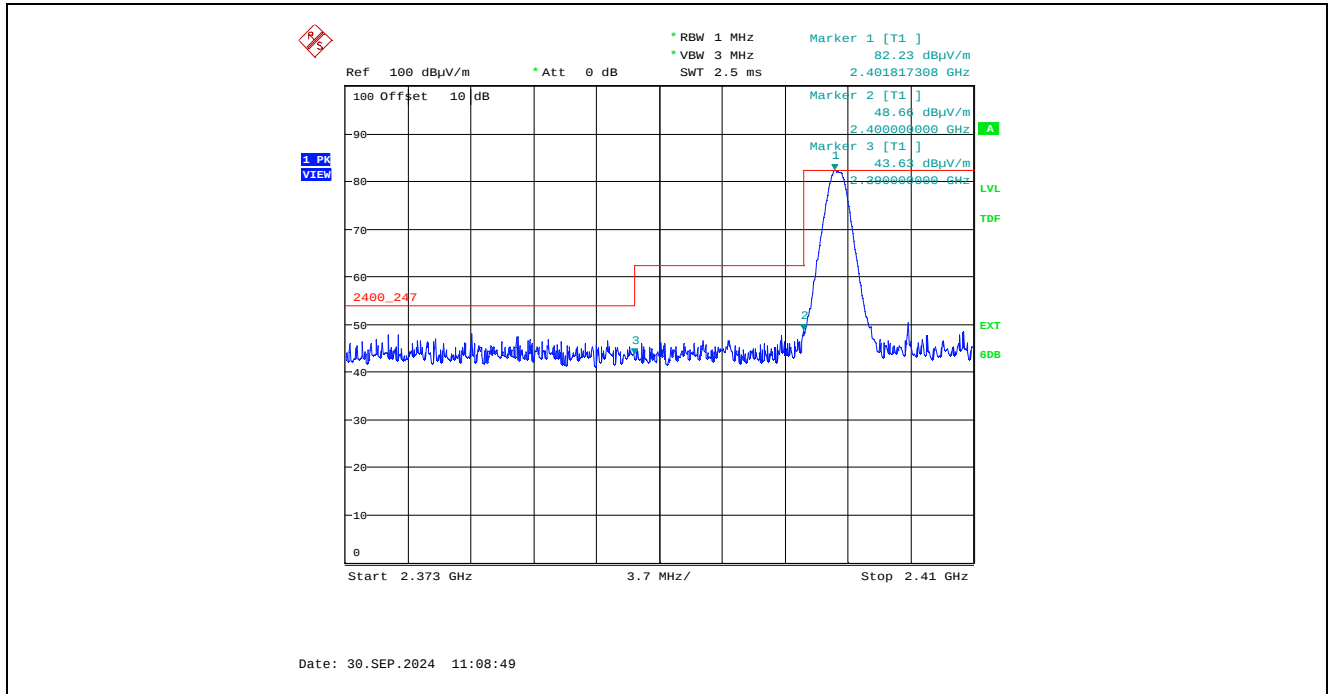
Plot 5.4.4.2.15. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
802.11n-40M, High End of Frequency Band, 2452 MHz



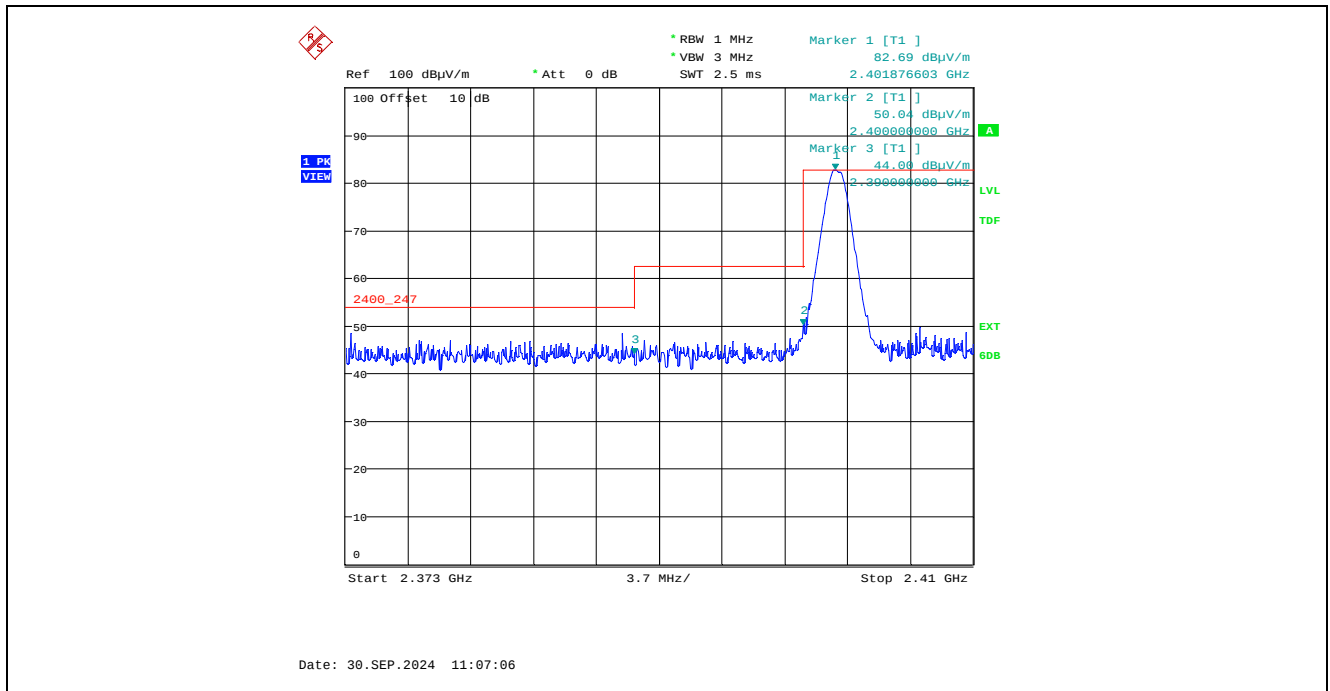
Plot 5.4.4.2.16. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
802.11n-40M, High End of Frequency Band, 2452 MHz



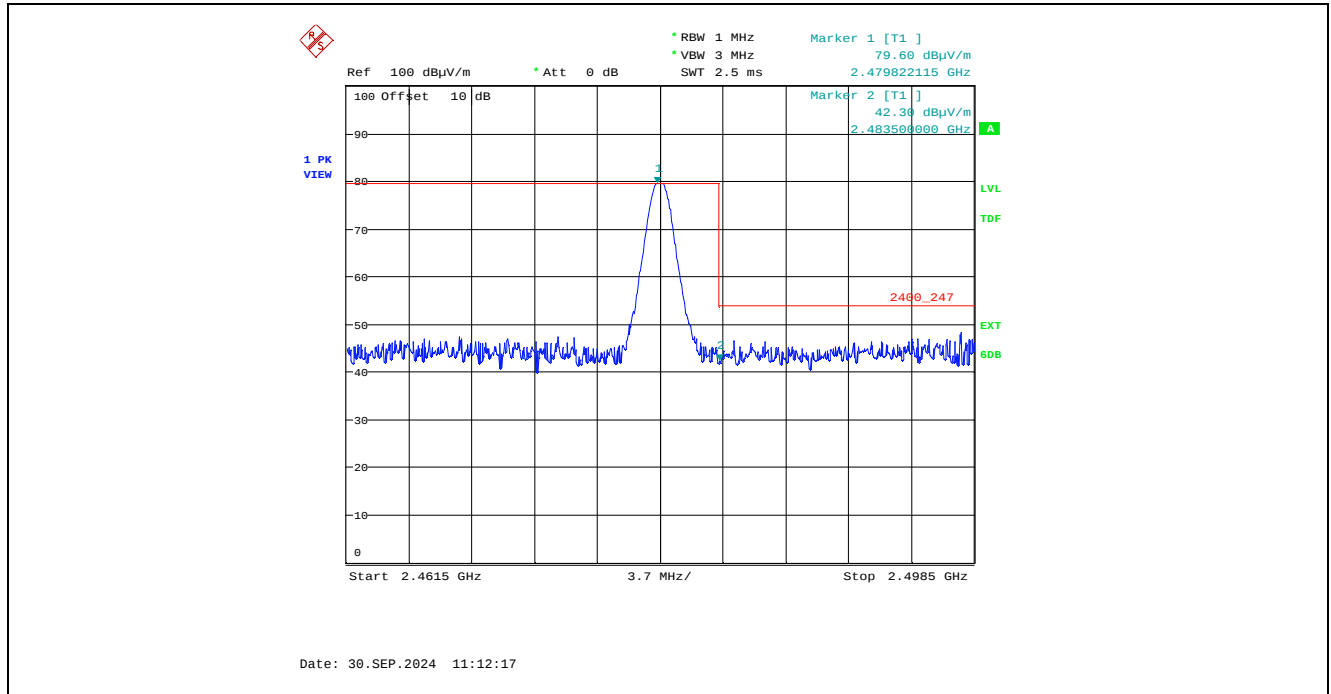
Plot 5.4.4.2.17. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
BLE 1M, Low End of Frequency Band, 2402 MHz



Plot 5.4.4.2.18. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
BLE 1M, Low End of Frequency Band, 2402 MHz



Plot 5.4.4.2.19. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
BLE 1M, High End of Frequency Band, 2480 MHz



Plot 5.4.4.2.20. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
BLE 1M, High End of Frequency Band, 2480 MHz

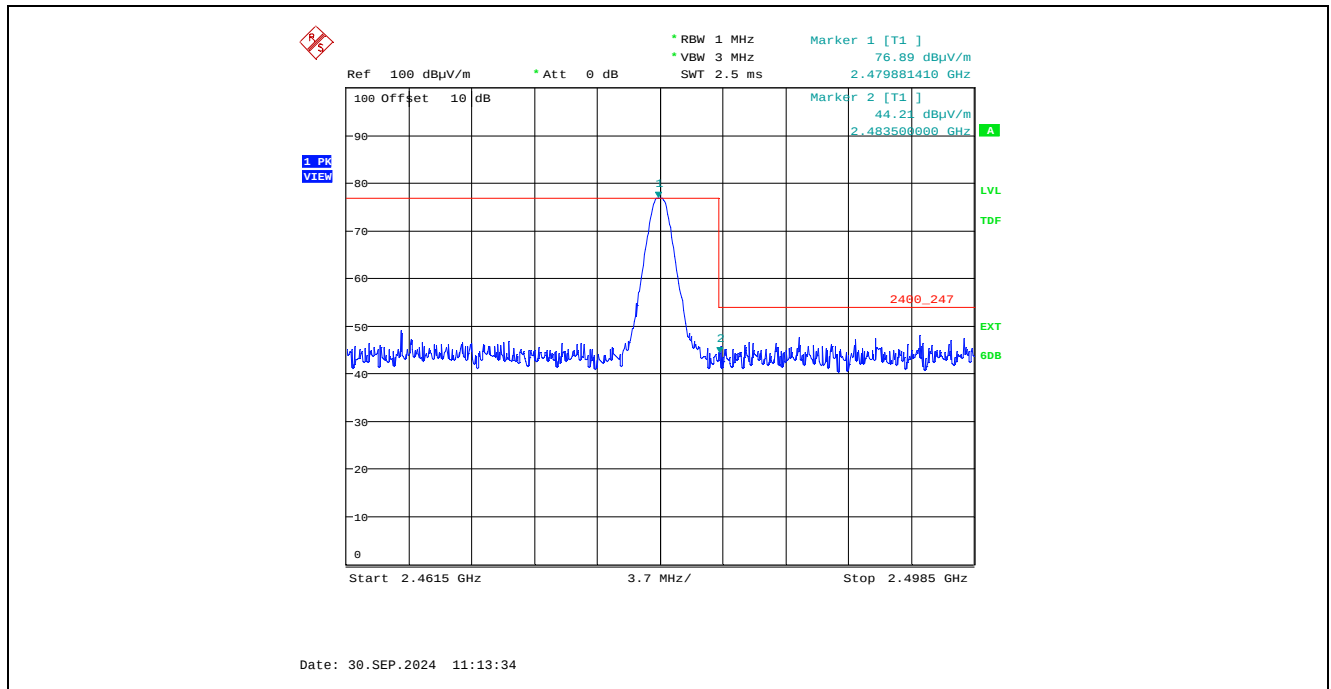


EXHIBIT 6. TEST EQUIPMENT LIST

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range	Cal. Due Date
Spectrum Analyzer	Agilent	E7401A	US40240432	9 kHz–22 GHz	06 Nov 2024
High Pass filter	Rohde & Schwarz	EZ-25	830164/007	Cut off 150kHz	12 Oct 2024*
LISN	NSLK 8127	NSLK 8127	8127276	9 kHz–30 MHz	11 Dec 2024
Multimeter	Fluke	8842A	5436283	-	28 Aug 2025
Spectrum Analyzer	Rohde & Schwarz	FSU26	200946	20Hz–26.5 GHz	26 Mar 2026
Attenuator	Pasternack	PE7024-10	3	DC–26.5 GHz	See Note 1
DC Power Supply	HQ Power	PS613U	-	0-30Vdc	See Note 1
Peak Power Analyzer	HP	8991A	3342A00657	0.5 - 40GHz	05 Sep 2026
Peak Power Sensor	HP	84814A	3205A00175	0.5 - 40GHz	05 Sep 2026
Horn Antenna	ETS	3115	9701-5061	1-18GHz	09 Aug 2026
EMI Receiver	Rohde & Schwarz	ESU40	100037	20Hz–40 GHz	18 Sep 2025
Biconilog Antenna	EMCO	3142C	00034792	26-2000MHz	16 Dec 2025
Preamp	Com-Power	PAM-118A	551016	500MHz-18GHz	20 Feb 2025
Preamp	Hewlett Packard	8449B	3003A00769	1000MHz-26.5GHz	08 Nov 2024
High Pass Filter	K & L	11SH10-1500/T8000	2	1.0 – 1.5GHz	See Note 1
Horn Antenna	EMCO	3115	5955	1GHz – 18 GHz	04 Nov 2024
Horn Antenna	EMCO	3160-09	118385	18 - 26.5 GHz	23 Feb 2025
Horn Antenna	EMCO	3160-10	102686	26.5 - 40 GHz	23 Feb 2025
Pre-Amplifier	Com-Power	PAM-840A	18050002	18 - 40 GHz	25 Oct 2024
Spectrum Analyzer	Rohde & Schwarz	FSEK30	100077	20Hz-40GHz	17 Jun 2025
Note 1: Internal Verification/Calibration Check					

* Equipment used before calibration due date.

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November 11, 2024

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EXHIBIT 7. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4-2 @ IEC:2003 and JCGM 100:2008 (GUM 1995) – Guide to the Expression of Uncertainty in Measurement.

Test Description	Expanded Uncertainty, K=2 for 95% Confidence Level
Power Line Conducted Emissions	± 2.62 dB
Conducted Output Power	± 0.62 dB
Transmitter Spurious Radiated Emissions	± 4.20 dB (30 MHz – 1 GHz)
	± 2.70 dB (1 - 18 GHz)
	± 3.11 dB (18 – 26.5 GHz)
Transmitter Radiated Band-edge Emissions	± 2.76 dB

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