

FCC Part 15.247
RSS-247, ISSUE 3, August 2023
RSS-GEN, ISSUE 5, February 2021 Amendment 2
TEST REPORT

For

Fortinet, Inc.

909 Kifer Road, Sunnyvale, CA 94086, USA

FCC ID: TVE-FON780B
IC: 7280B-FON780B

Report Type: Original Report	Product Type: FortiFone 780B
Report Producer : <u>Coco Lin</u>	
Report Number : <u>RXZ250213056RF01</u>	
Report Date : <u>2025-05-26</u>	
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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RXZ250213056	RXZ250213056RF01	2025-05-26	Original Report	Coco Lin

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1 General Information

1.1 Product Description for Equipment under Test (EUT)

Applicant	Fortinet, Inc.
	909 Kifer Road, Sunnyvale, CA 94086, USA
Brand(Trade) Name	FORTINET
Product (Equipment) / PMN	FortiFone 780B
Main Model Name	FON-780B
HVIN	FON-780B
Series Model Name (Only FCC)	FON-780Bxxxxxxxx, FortiFone 780Bxxxxxxxx, FORTIFONE 780Bxxxxxxxx (where “x” can be used as “0-9”, or“A-Z”,or“_”, or blank for software changes or marketing purpose only)
Frequency Range	IEEE 802.11b/ g/ n HT20 Mode: 2412 ~ 2462 MHz IEEE 802.11n HT40 Mode: 2422 ~ 2452 MHz BLE(1M)/ BLE(2M): 2402 ~ 2480 MHz
Maximum Conducted Peak Output Power	IEEE 802.11b Mode: 18.08 dBm IEEE 802.11g Mode: 23.14 dBm IEEE 802.11n HT20 Mode: 23.35 dBm IEEE 802.11n HT40 Mode: 23.04 dBm BLE(1M) Mode : 6.57 dBm BLE(2M) Mode : 6.71 dBm
Modulation Technique	IEEE 802.11b Mode: DSSS IEEE 802.11g Mode: OFDM IEEE 802.11n HT20 Mode: OFDM IEEE 802.11n HT40 Mode: OFDM BLE(1M)/ BLE(2M) Mode : GFSK
Power Operation (Voltage Range)	12Vdc from Adapter, 48Vdc from POE
Sample Received Date	2025/03/24

*All measurement and test data in this report was gathered from production sample serial number:

RXZ250213056-1 (Assigned by BACL, New Taipei Laboratory).

1.2 Objective

This report is prepared on behalf of *Fortinet, Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communication Commission's rules and RSS-247, Issue 3, August 2023, RSS-Gen, Issue 5, February 2021 Amendment 2 of the Innovation, Science and Economic Development Canada.

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 and KDB 558074 D01 15.247 Meas Guidance v05r02. And RSS-247, Issue 3, August 2023, RSS-Gen, Issue 5, February 2021 Amendment 2 of the Innovation, Science and Economic Development Canada.

1.4 Statement

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

1. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory).
2. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. 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.
5. 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
Power Spectral Density, conducted		+/- 0.60 dB
Occupied 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 ℃
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
AC Line Conducted Emissions	2025/5/5	19.2	46	Sean
Radiation Spurious Emissions	2025/4/16~2025/5/23	23.3~24.6	57~68	Nick
Duty Cycle	2025/4/16~2025/5/21	25.9	47	Jing
Conducted Spurious Emissions	2025/4/16~2025/5/21	25.5~26.7	44~57	Jing
Emission Bandwidth	2025/4/16~2025/5/21	25.5~26.7	44~57	Jing
Maximum Output Power	2025/4/16~2025/5/21	25.5~26.7	44~57	Jing
100 kHz Bandwidth of Frequency Band Edge	2025/4/16~2025/5/21	25.5~26.7	44~57	Jim
Power Spectral Density	2025/4/16~2025/5/21	25.5~26.7	44~57	Jing

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.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: TW3732.

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory)

2 System Test Configuration

2.1 Description of Test Configuration

For WIFI 2.4GHz mode, there are totally 11 channels.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

For 802.11 b/g/n HT20 Modes were tested with channel 1, 6 and 11.

For 802.11n HT40 Mode were tested with channel 3, 6 and 9.

For BLE mode, there are totally 40 channels.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2442
1	2404	--	--
2	2406	--	--
3	2408	37	2476
--	--	38	2478
19	2440	39	2480

For BLE Modes were tested with channel 0, 19 and 39.

2.2 Equipment Modifications

No modification was made to the EUT.

2.3 EUT Exercise Software

The test software was used “adb v1.0.41”

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

Test Frequency		Low	Middle	High
Power Level Setting	802.11b Mode	13	13	13
	802.11g Mode	12	12	12
	802.11n HT20 Mode	12	12	12
	802.11n HT40 Mode	10	10	10
	BLE 1M	default	default	default
	BLE 2M	default	default	default

The worst case data rates are as follows:

802.11b: 1Mbps

802.11g: 6Mbps

802.11n HT20: MCS0

802.11n HT40: MCS0

BLE 1M : 1 Mbps

BLE 1M : 2 Mbps

2.4 Support Equipment List and Details

Description	Manufacturer	Model Number
NB	DELL	E6410
POE Adapter	Cisco	SB-PWR-INJ2
Adapter	Zhuzhou Dachuan Electronic Technology Co., Ltd	DCT18W120150US-A0

2.5 External Cable List and Details

Description	Manufacturer	Model Number
USB Cable	BACL	1.5m
RJ-45 Cable	BACL	8m
RJ-45 Cable	BACL	8m
RJ-11 Cable	BACL	1m
RJ-11 Cable	Dongguan Haoyu Yong Industrial Co., Ltd.	4C2.8mP+P B019#

2.6 Test Mode

Pre-scan

AC Line Conducted Emissions and Radiated Spurious Emissions

Mode 1: FON-780B + Adapter

Mode 2: FON-780B + POE

Worst case is the Mode 1: FON-780B + Adapter

Mode 1: FON-780B + Adapter tested all measure item.

Mode 2: FON-780B + POE test Below 1GHz Radiated Spurious Emissions and AC Line Conducted Emissions.

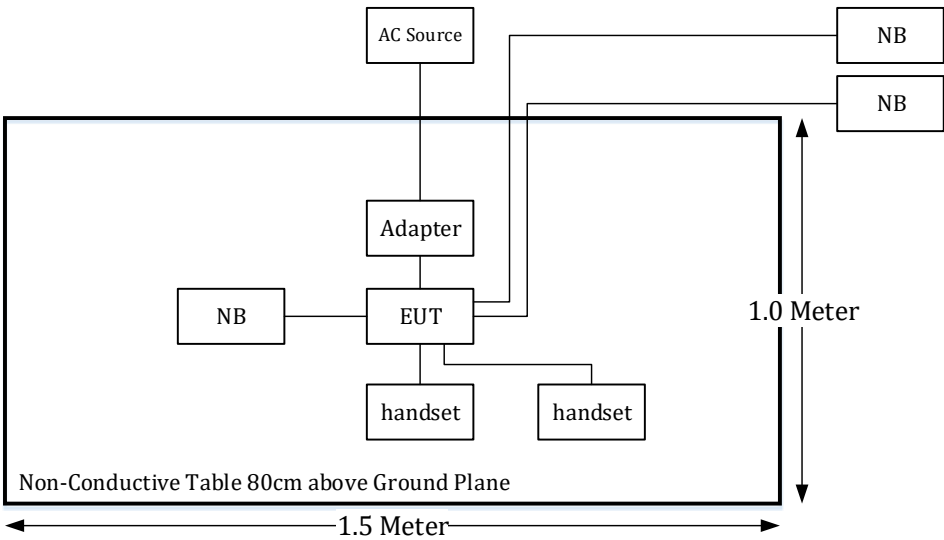
2.7 Block Diagram of Test Setup

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

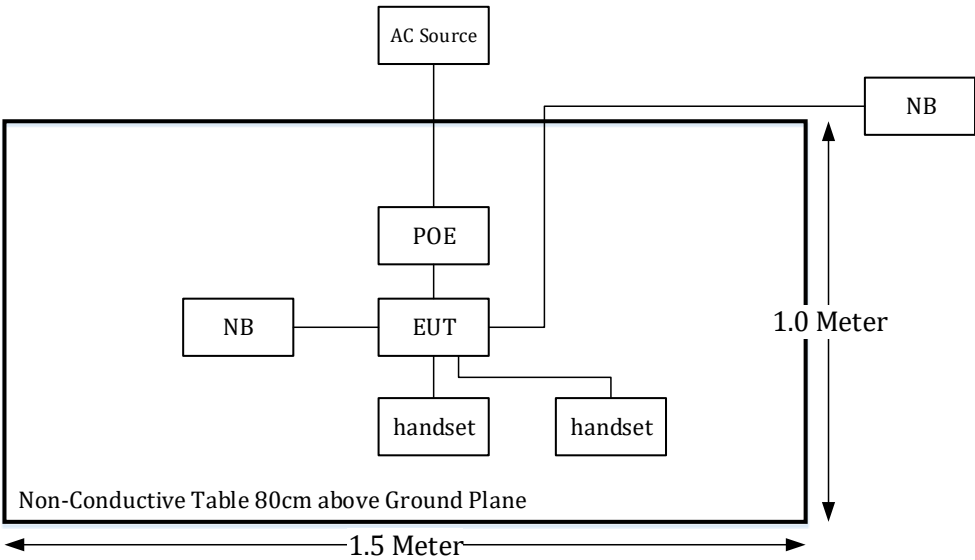
Radiation:

Below 1GHz

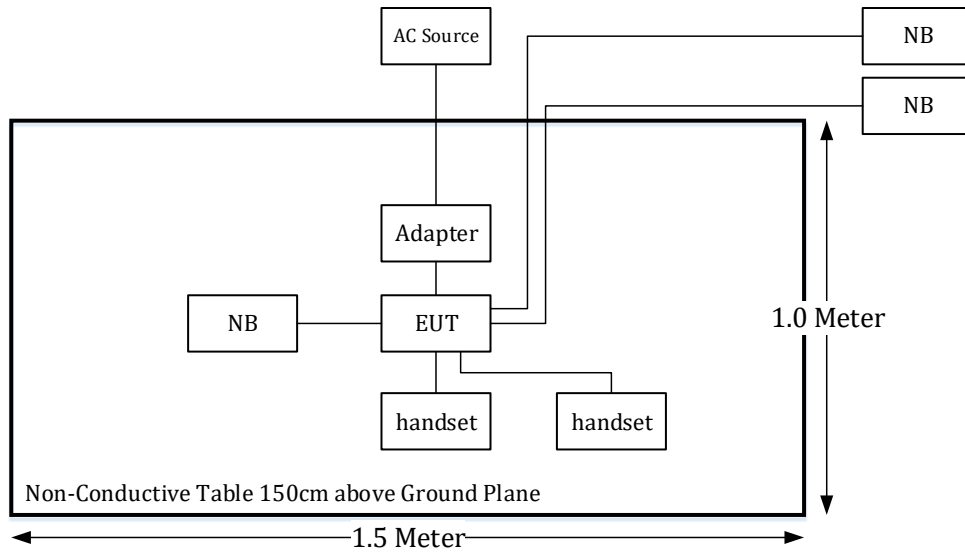
Adapter:



POE:

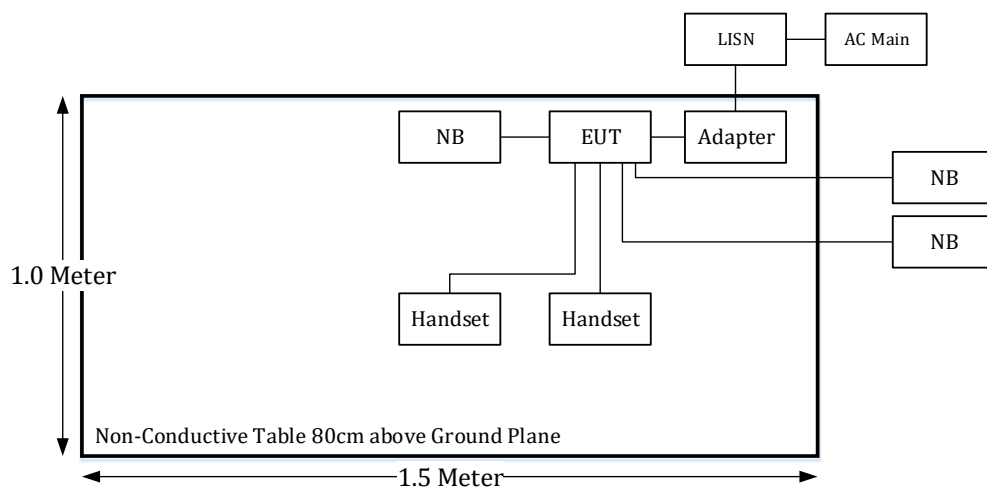


Above 1GHz:

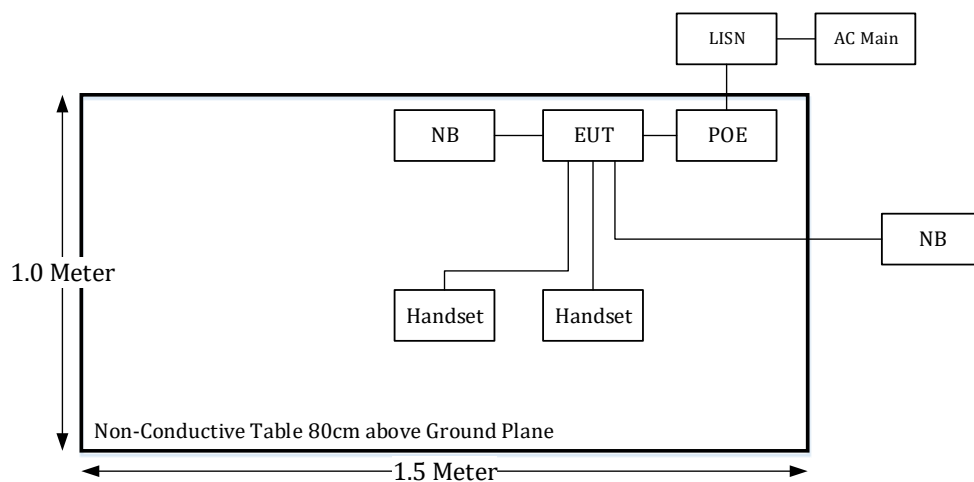


Conduction:

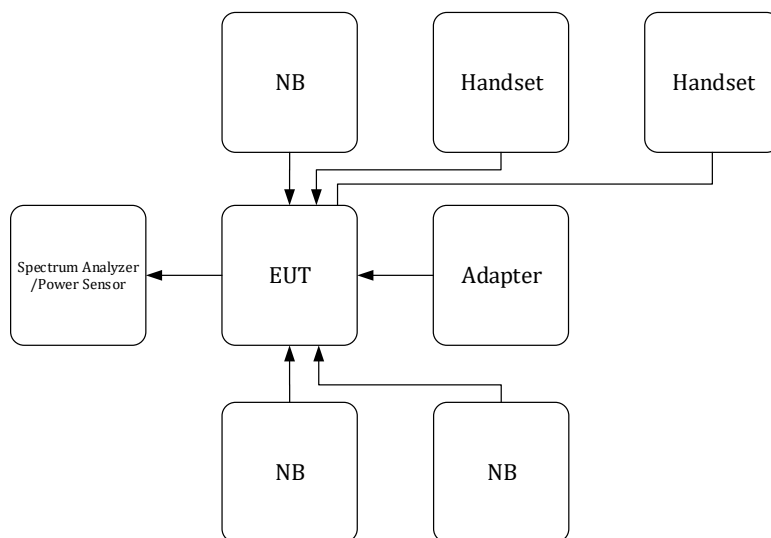
Adapter:



POE:



Conducted:



2.8 Duty Cycle

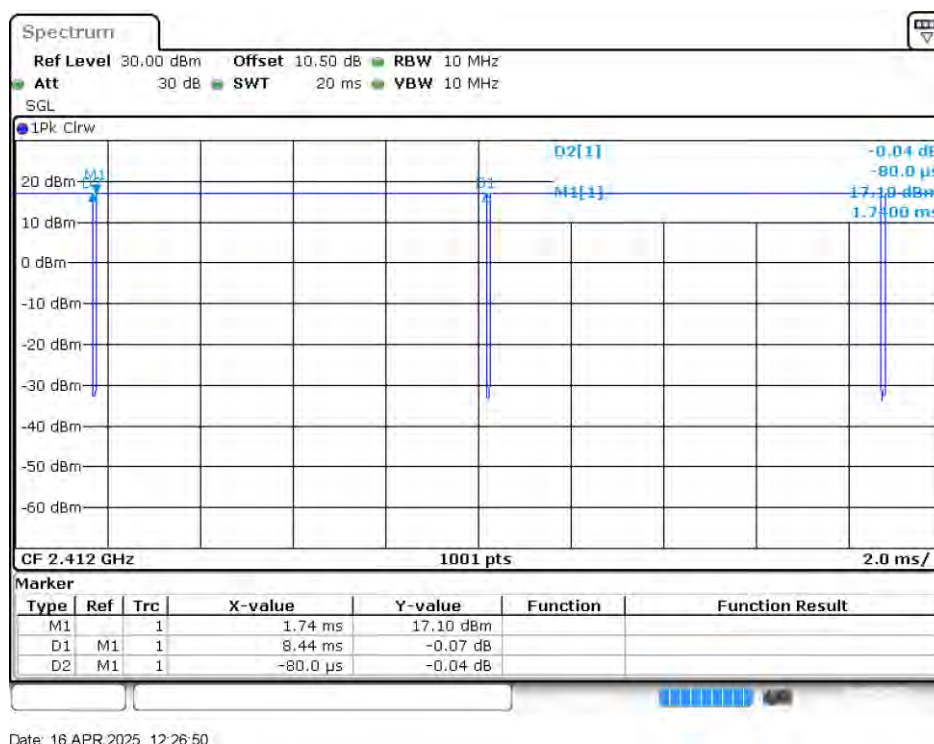
The duty cycle as below:

Radio Mode	On Time (ms)	Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T (kHz)	1/T VBW setting (kHz)
802.11b	8.44	0.08	99	0.04	/	0.01
802.11g	1.375	0.13	91	0.41	0.73	1
802.11n20	1.28	0.125	91	0.41	0.78	1
802.11n40	0.616	0.07	90	0.46	1.62	2
BLE(1M)	0.388	0.236	62	2.08	2.58	3
BLE(2M)	1.064	0.806	57	2.44	0.94	1

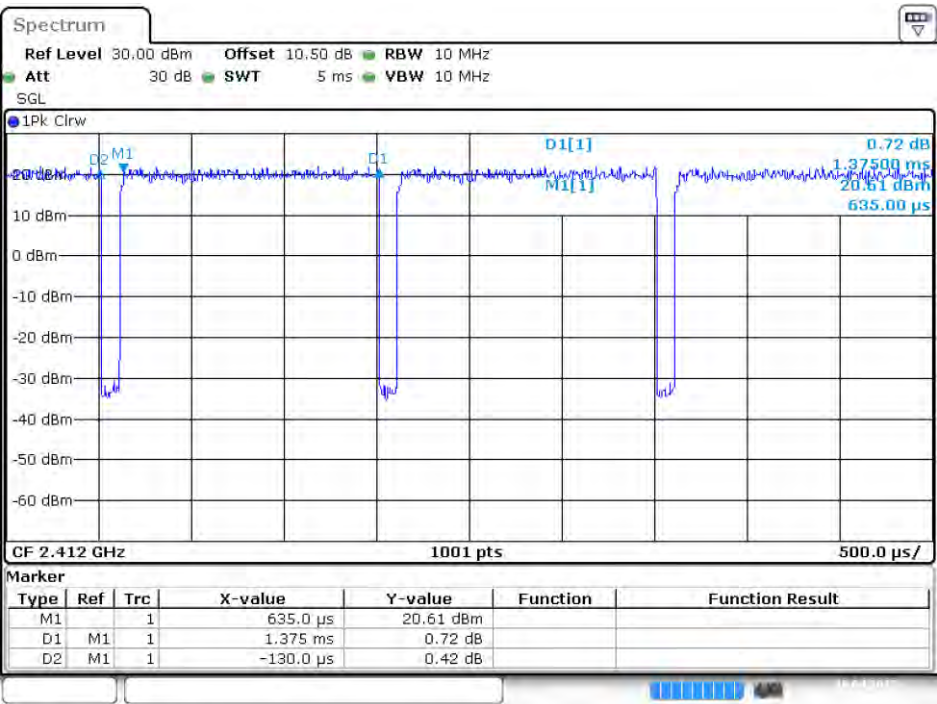
Note: Duty Factor = $10 \cdot \log(1/\text{duty cycle})$

Please refer to the following plots.

B Mode

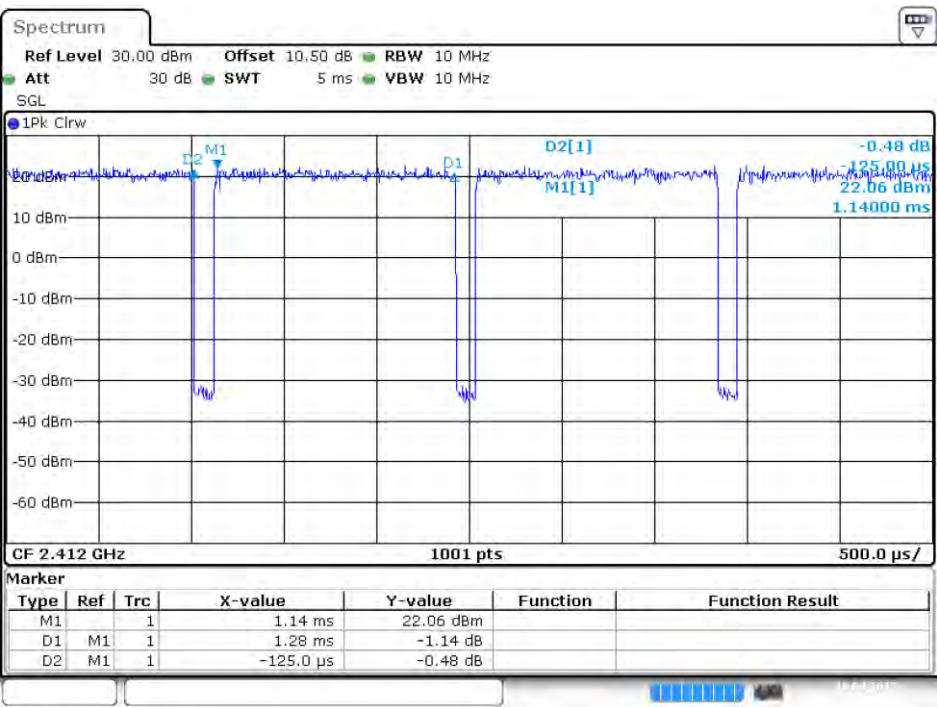


G Mode



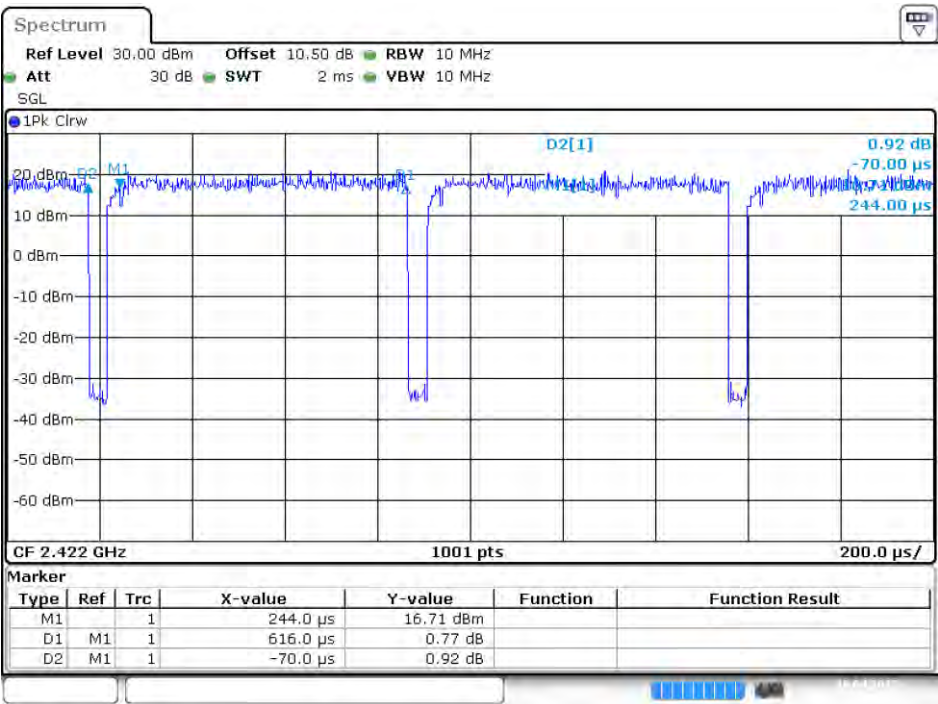
Date: 16 APR 2025 12:31:49

N20 Mode



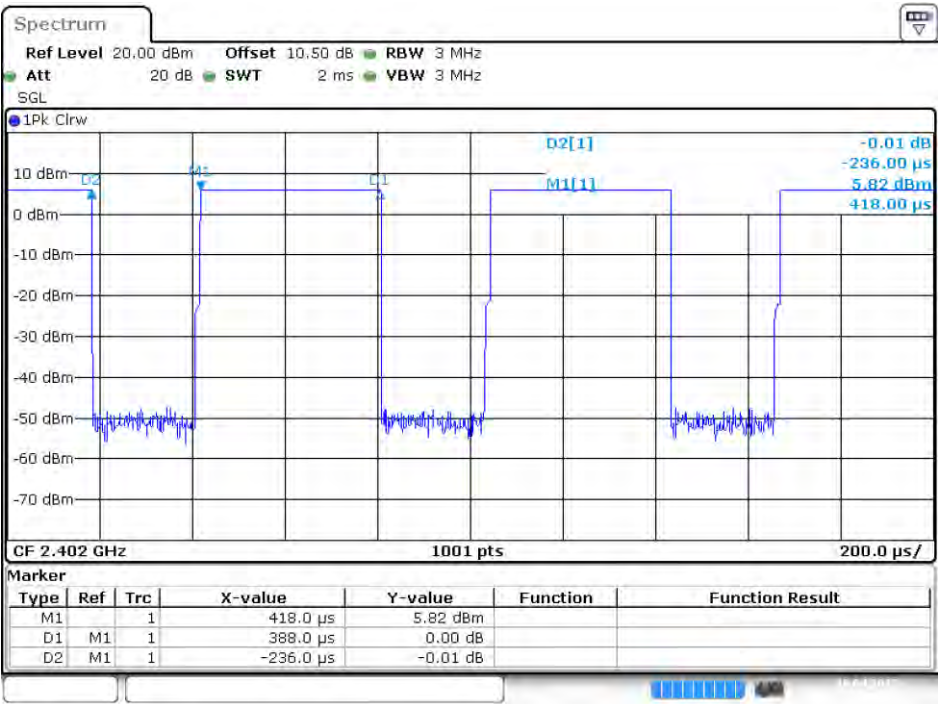
Date: 16 APR 2025 12:34:56

N40 Mode



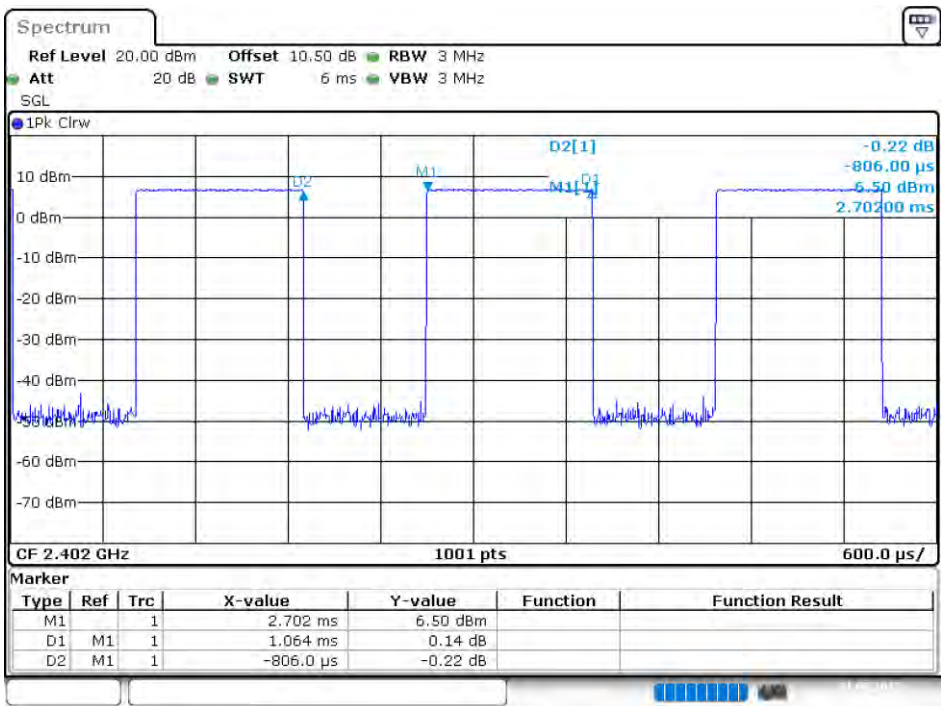
Date: 16 APR 2025 12:43:36

BLE(1M) Mode



Date: 16 APR 2025 16:09:25

BLE(2M) Mode



Date: 21.MAY.2025 10:04:22

3 Summary of Test Results

Rules	Description of Test	Results
FCC §15.203 RSS-Gen §6.8	Antenna Requirement	Compliance
FCC §15.207(a) RSS-Gen §8.8	AC Line Conducted Emissions	Compliance
FCC §15.205, §15.209, §15.247(d) RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10	Spurious Emissions	Compliance
FCC §15.247(a)(2) RSS-247 §5.2(a) RSS-Gen §6.7	Emission Bandwidth	Compliance
FCC §15.247(b)(3) RSS-247 §5.4(d)	Maximum Peak Output Power	Compliance
FCC §15.247(d) RSS-247 §5.5	100 kHz Bandwidth of Frequency Band Edge	Compliance
FCC §15.247(e) RSS-247 §5.2(b)	Power Spectral Density	Compliance

4 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conduction Room (CON-A)					
LISN	Rohde & Schwarz	ENV216	101612	2025/2/17	2026/2/17
EMI Test Receiver	Rohde & Schwarz	ESW8	100947	2024/5/24	2025/5/24
RF Cable	EMEC	EM-CB5D	1	2024/6/5	2025/6/5
Software	AUDIX	E3	V9.150826k	N.C.R	N.C.R
Radiation 3M Room (966-A)					
Active Loop Antenna	ETS-Lindgren	6502	35796	2025/3/27	2026/3/27
Bilog Antenna with 6 dB Attenuator	SUNOL SCIENCES & MINI-CIRCUITS	JB6/UNAT-6+	A050115/1554 2_01	2025/1/16	2026/1/16
Horn Antenna	A.H. system	SAS-571	1020	2024/5/21	2025/5/21
Horn Antenna	ETS-Lindgren	3115	40736	2025/5/6	2026/5/6
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	2025/4/10	2026/4/10
Preamplifier	BACL	BACL-1313-A18 40	4011511	2025/2/12	2026/2/12
Spectrum Analyzer	Rohde & Schwarz	FSV40	101939	2025/3/27	2026/3/27
EMI Test Receiver	Rohde & Schwarz(R&S)	ESR3	102099	2024/6/24	2025/6/24
Microflex Cable	UTIFLEX	UFB197C-1-2362 -70U-70U	225757-001	2024/12/20	2025/12/20
Coaxial Cable	UTIFLEX	UFB311A-Q-144 0-300300	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-07-15-0 44	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
Power Sensor	Boonton	RTP5006	11037	2024/5/21	2025/5/21
Attenuator	MCL	BW-S10W5+	1419	2025/3/6	2026/3/6

***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 & RSS-GEN §6.8 – 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.

According to RSS-Gen 6.8:

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

This radio transmitter [enter the device's ISSED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

5.2 Antenna Information

Manufacturer	Model	Type	Antenna Gain	Impedance
Dongguan YiJia Electronics Communication Technology Co.,Ltd.	YJL01.106.071.302A	FPC Antenna	4.1 dBi	50Ω

Unit uses a unique coupling to the intentional radiator.

Result: Compliance

6 FCC §15.207(a) & RSS-GEN §8.8 – AC Line Conducted Emissions

6.1 Applicable Standard

According to §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

According to RSS-GEN §8.8

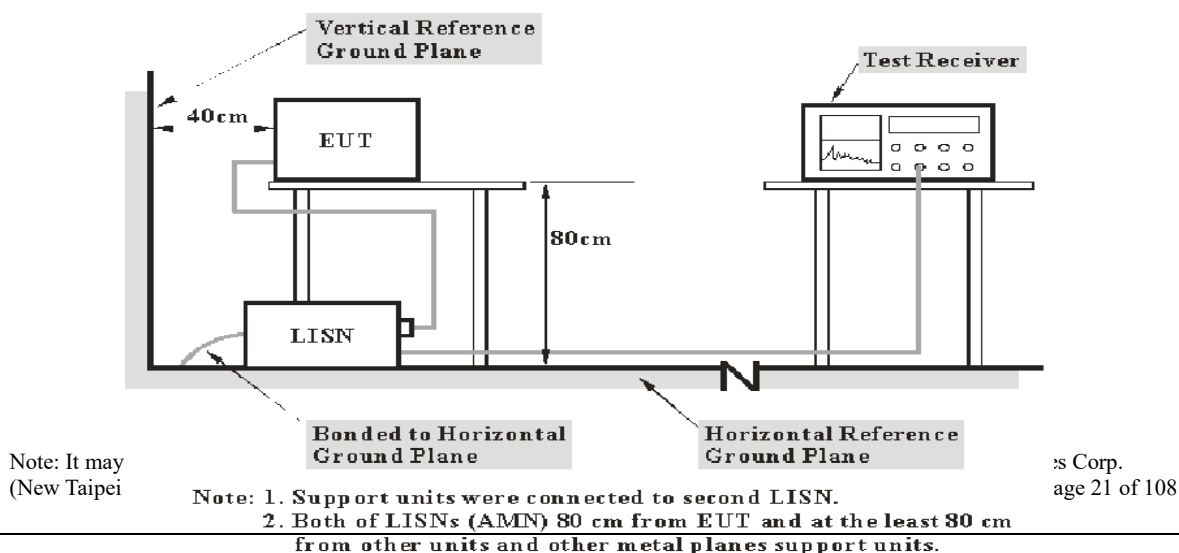
Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in table 4, as measured using a 50 μ H / 50 Ω line impedance stabilization network. This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 ^{Note 1}	56 to 46 ^{Note 1}
0.5-5	56	46
5-30	60	50

Note 1: Decreases with the logarithm of the frequency.

6.2 EUT Setup



The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 and RSS-GEN limits.

6.3 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150kHz to 30MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations

Frequency Range	IF B/W
150kHz – 30MHz	9kHz

6.4 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

6.5 Corrected Factor & Over Limit Calculation

The factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

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

$$\text{Over Limit} = \text{Result} - \text{Limit Line}$$

6.6 Test Results

Test Mode: Transmitting

Main: AC120 V, 60 Hz

WIFI 2.4G

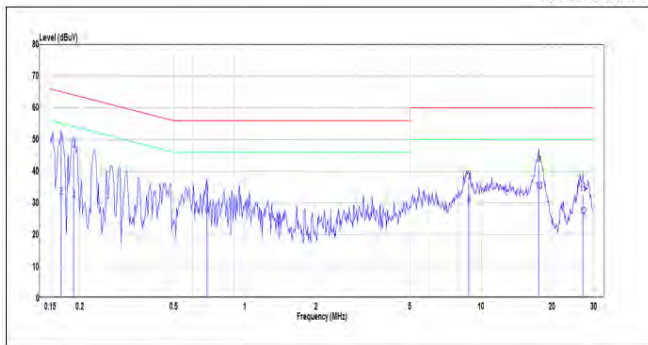
(Worst case is 802.11n HT20 mode, low channel)

Adapter:

Line	Neutral
------	---------

Description: 2.4G,RBW:9kHz/VBW:30kHz

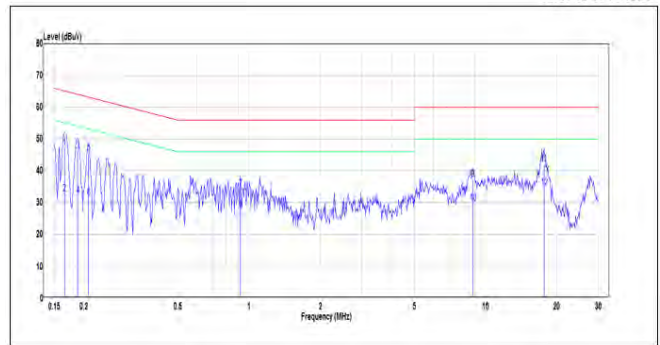
2023-05-05 15:50:29



No.	Frequency	Reading	Correct Factor	Result	Limit	Over limit	Remark	Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.167	38.37	10.09	48.46	65.12	-16.66	QP	Line
2	0.167	21.84	10.09	31.92	55.12	-23.20	Average	Line
3	0.188	36.53	10.17	46.70	64.11	-17.40	QP	Line
4	0.188	20.47	10.17	30.64	54.11	-23.46	Average	Line
5	0.690	23.01	10.46	33.47	56.00	-22.53	QP	Line
6	0.690	15.66	10.46	26.12	46.00	-19.88	Average	Line
7	8.869	25.72	10.61	36.33	60.00	-23.67	QP	Line
8	8.869	18.76	10.61	29.38	50.00	-20.62	Average	Line
9	17.568	31.44	10.77	42.21	60.00	-17.79	QP	Line
10	17.568	22.90	10.77	33.67	50.00	-16.33	Average	Line
11	26.984	21.99	10.78	32.77	60.00	-27.23	QP	Line
12	26.984	14.78	10.78	25.56	50.00	-24.44	Average	Line

Description: 2.4G,RBW:9kHz/VBW:30kHz

2023-05-05 16:11:58



No.	Frequency	Reading	Correct Factor	Result	Limit	Over limit	Remark	Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.166	37.18	10.04	47.23	65.16	-17.94	QP	Neutral
2	0.166	22.67	10.04	32.71	55.16	-22.45	Average	Neutral
3	0.188	36.06	10.13	46.19	64.11	-17.91	QP	Neutral
4	0.188	21.98	10.13	32.11	54.11	-21.99	Average	Neutral
5	0.209	35.31	10.19	45.50	63.23	-17.73	QP	Neutral
6	0.209	21.27	10.19	31.46	53.23	-21.77	Average	Neutral
7	0.918	23.92	10.45	34.36	56.00	-21.64	QP	Neutral
8	0.918	17.28	10.45	27.73	46.00	-18.27	Average	Neutral
9	8.822	26.76	10.58	37.34	60.00	-22.66	QP	Neutral
10	8.822	19.17	10.58	29.76	50.00	-20.24	Average	Neutral
11	17.661	31.36	10.72	42.08	60.00	-17.92	QP	Neutral
12	17.661	24.06	10.72	34.78	50.00	-15.22	Average	Neutral

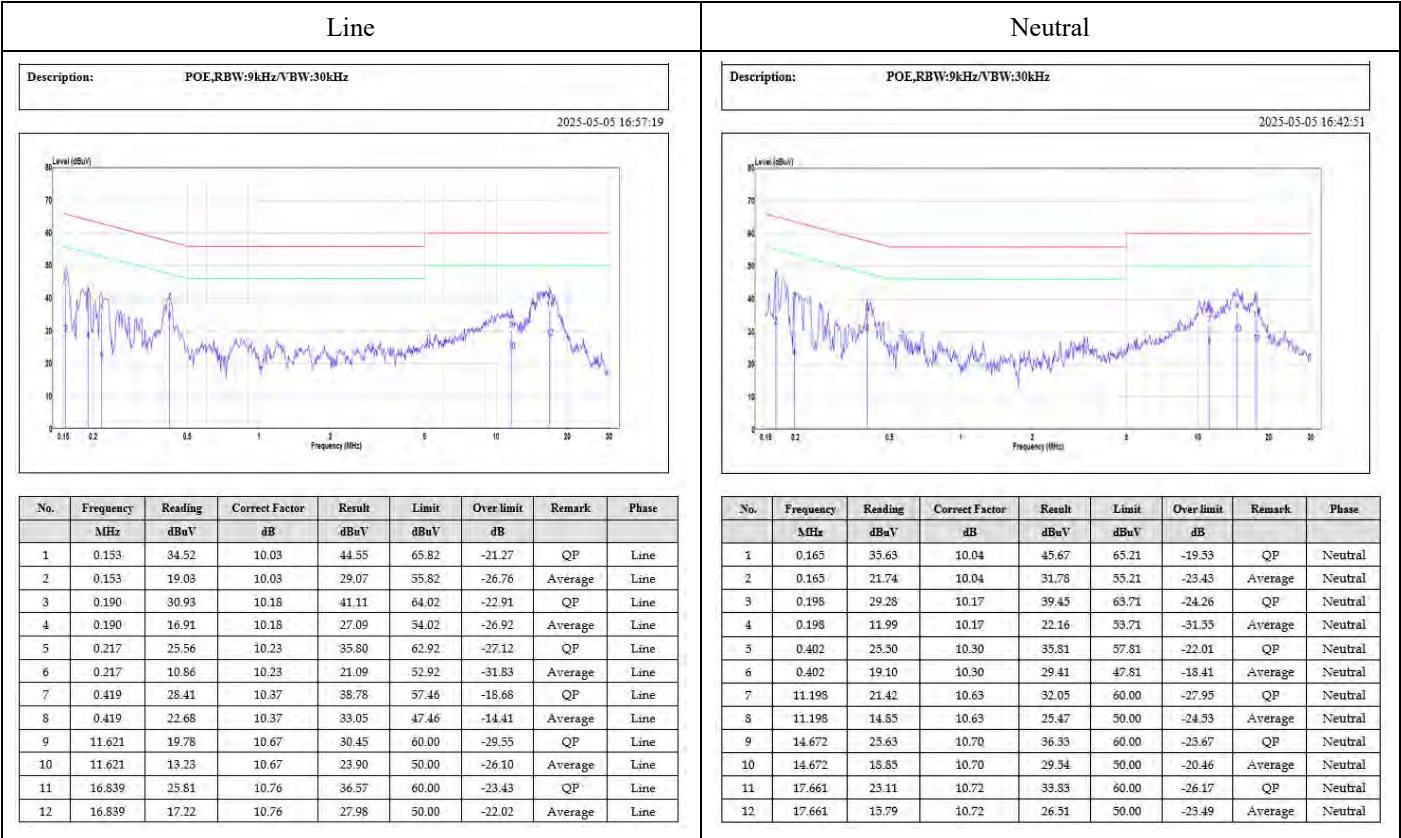
Note:

Result = Reading + Factor

Over Limit = Result - Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

POE:



Note:

Result = Reading + Factor

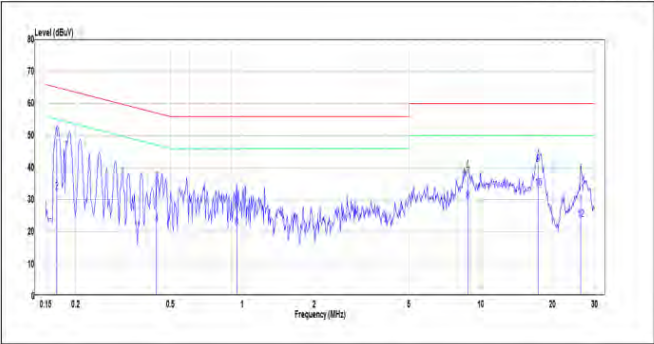
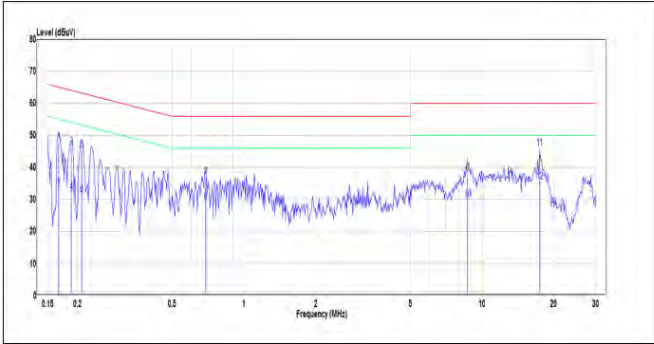
Over Limit = Result – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

BLE

(Worst case is BLE 2M mode, Low Channel)

Adapter:

Line									Neutral								
<div> <div>Description: BLE,RBW:9kHz/VBW:30kHz</div> <div>2025-05-05 15:44:49</div>  </div>									<div> <div>Description: BLE,RBW:9kHz/VBW:30kHz</div> <div>2025-05-05 16:04:31</div>  </div>								
No.	Frequency	Reading	Correct Factor	Result	Limit	Over limit	Remark	Phase	No.	Frequency	Reading	Correct Factor	Result	Limit	Over limit	Remark	Phase
	MHz	dBuV	dB	dBuV	dBuV	dB				MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.167	39.09	10.09	49.18	65.12	-15.94	QP	Line	1	0.167	37.79	10.05	47.84	65.12	-17.28	QP	Neutral
2	0.167	22.57	10.09	32.66	55.12	-22.46	Average	Line	2	0.167	23.29	10.05	33.34	55.12	-21.78	Average	Neutral
3	0.437	23.77	10.38	34.15	57.11	-22.96	QP	Line	3	0.188	36.17	10.13	46.31	64.11	-17.80	QP	Neutral
4	0.437	12.27	10.38	22.65	47.11	-24.46	Average	Line	4	0.188	22.11	10.13	32.24	54.11	-21.87	Average	Neutral
5	0.948	18.75	10.49	29.24	56.00	-26.76	QP	Line	5	0.208	35.23	10.19	45.42	63.27	-17.85	QP	Neutral
6	0.948	10.71	10.49	21.20	46.00	-24.80	Average	Line	6	0.208	21.22	10.19	31.40	53.27	-21.87	Average	Neutral
7	8.822	26.67	10.61	37.29	60.00	-22.71	QP	Line	7	0.690	26.61	10.41	37.02	56.00	-18.98	QP	Neutral
8	8.822	19.20	10.61	29.81	50.00	-20.19	Average	Line	8	0.690	18.87	10.41	29.28	46.00	-16.72	Average	Neutral
9	17.383	30.39	10.77	41.15	60.00	-18.85	QP	Line	9	8.683	27.15	10.58	37.73	60.00	-22.27	QP	Neutral
10	17.383	22.93	10.77	33.70	50.00	-16.30	Average	Line	10	8.683	19.35	10.58	29.93	50.00	-20.07	Average	Neutral
11	26.278	21.06	10.78	31.84	60.00	-28.16	QP	Line	11	17.475	35.16	10.72	45.87	60.00	-14.13	QP	Neutral
12	26.278	13.11	10.78	23.89	50.00	-26.11	Average	Line	12	17.475	24.76	10.72	35.47	50.00	-14.53	Average	Neutral

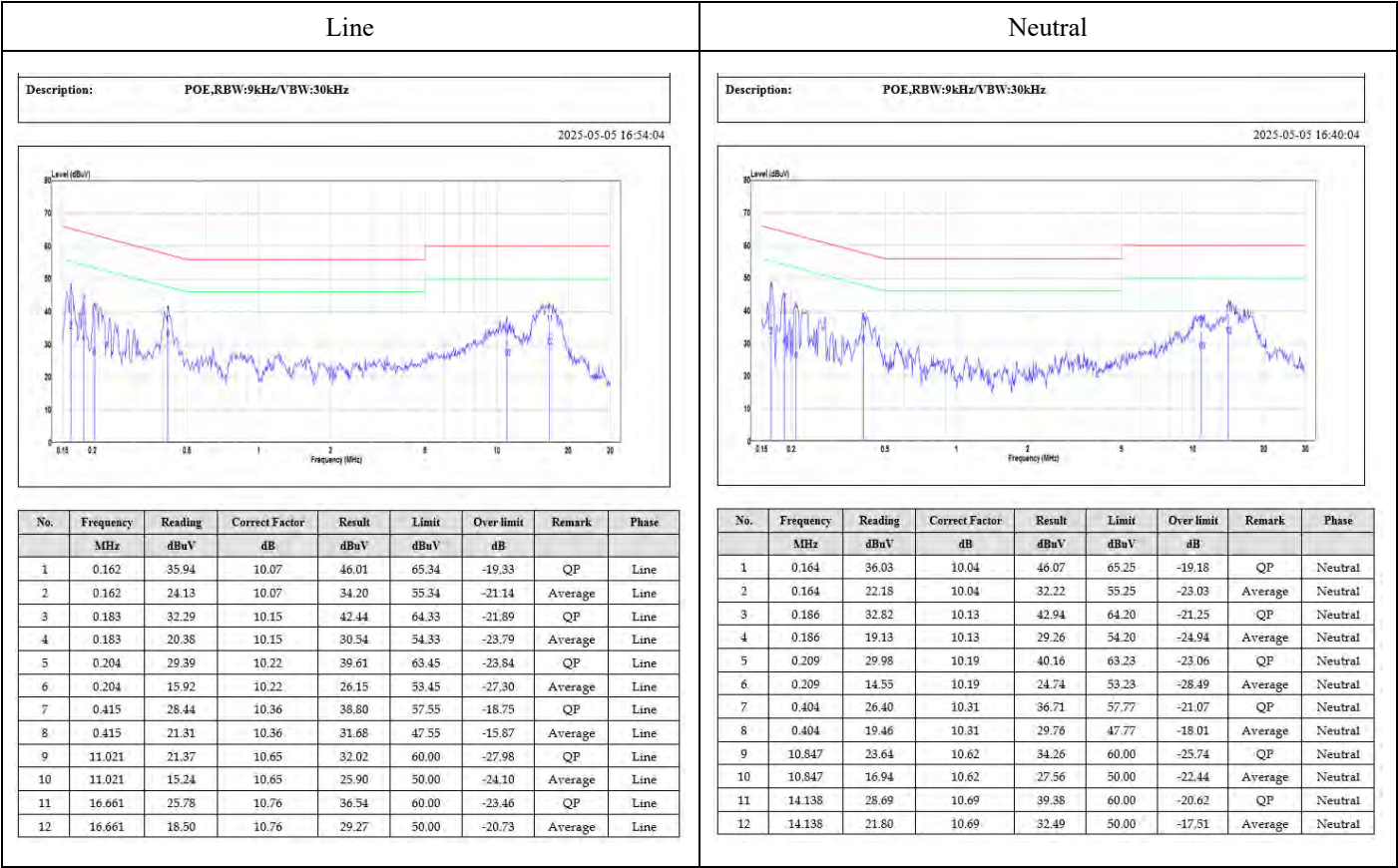
Note:

Result = Reading + Factor

Over Limit = Result – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

POE:



Note:

Result = Reading + Factor

Over Limit = Result – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

7 FCC §15.209, §15.205, §15.247(d) & RSS-247 §5.5, RSS-GEN §8.9, §8.10 – Spurious Emissions

7.1 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 RSS-Gen 8.10,

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

- (a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).
- (b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.
- (c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

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) and RSS-GEN §8.9: 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.

As per RSS-GEN §8.9: Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

Table 5 – General field strength limits at frequencies above 30 MHz

Frequency (MHz)	Field Strength (μV/m at 3 m)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

Table 6 – General field strength limits at frequencies below 30 MHz

Frequency (MHz)	Field Strength (H-Field) (μA/m)	Measurement distance (m)
9 - 490 kHz ^{Note 1}	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

Note 2: The limit was added 51.5dB to convert the limit from dBuA/m to dBuV/m.

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

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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).

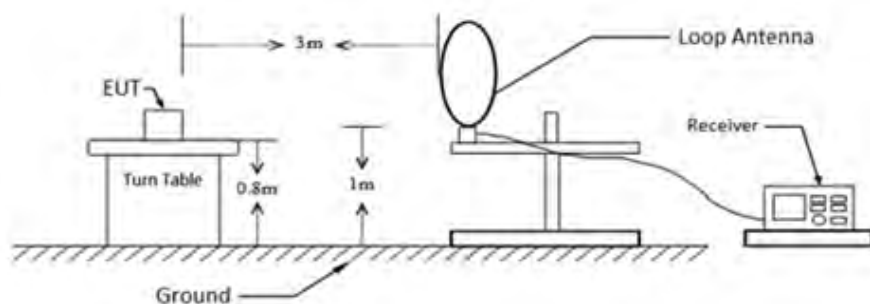
As per FCC §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the 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).

As per RSS-247 5.5,

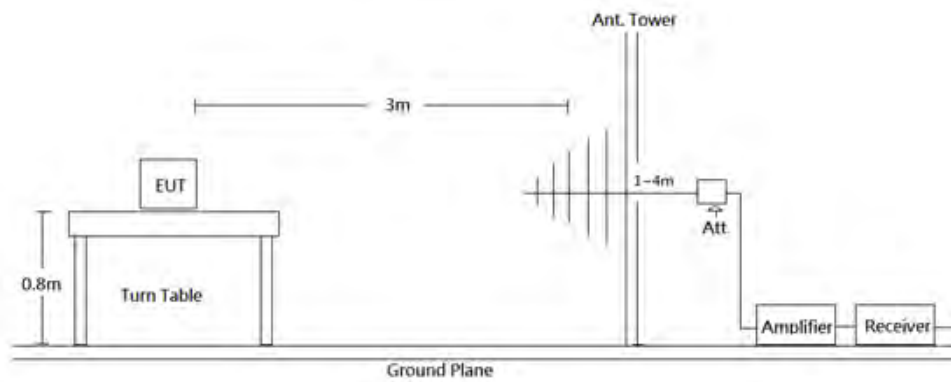
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

7.2 EUT Setup

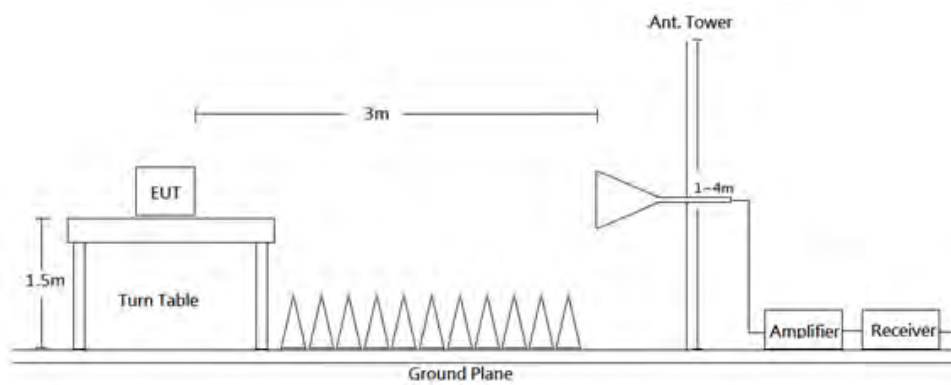
9kHz-30MHz:



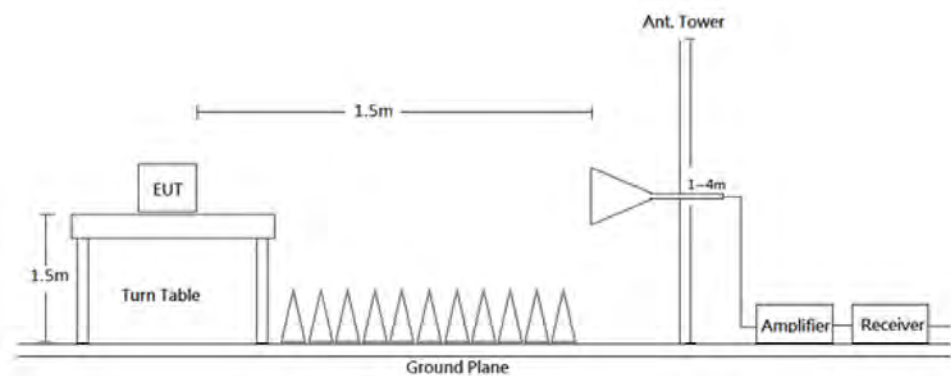
30MHz-1GHz:



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, FCC 15.247 and RSS-Gen, RSS-247 Limits.

7.3 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	Duty cycle	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	100 kHz	300 kHz	/	QP	QP
Above 1 GHz	Pre-scan :				
	1 MHz	3 MHz	/	PK	PK
	1 MHz	1 kHz	>98%	Ave	PK
	1 MHz	$\geq 1/\text{Ton}$, not less than 1 kHz	<98%	Ave	PK
	Final measurement for emission identified during pre-scan :				
	1 MHz	3 MHz	/	PK	PK
	1 MHz	10 Hz	>98%	Ave	PK
	1 MHz	$\geq 1/\text{Ton}$	<98%	Ave	PK

Note: T is minimum transmission duration

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.

7.4 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.

7.5 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:

$$\text{Correct Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Level} - \text{Limit}$$

7.6 Test Results

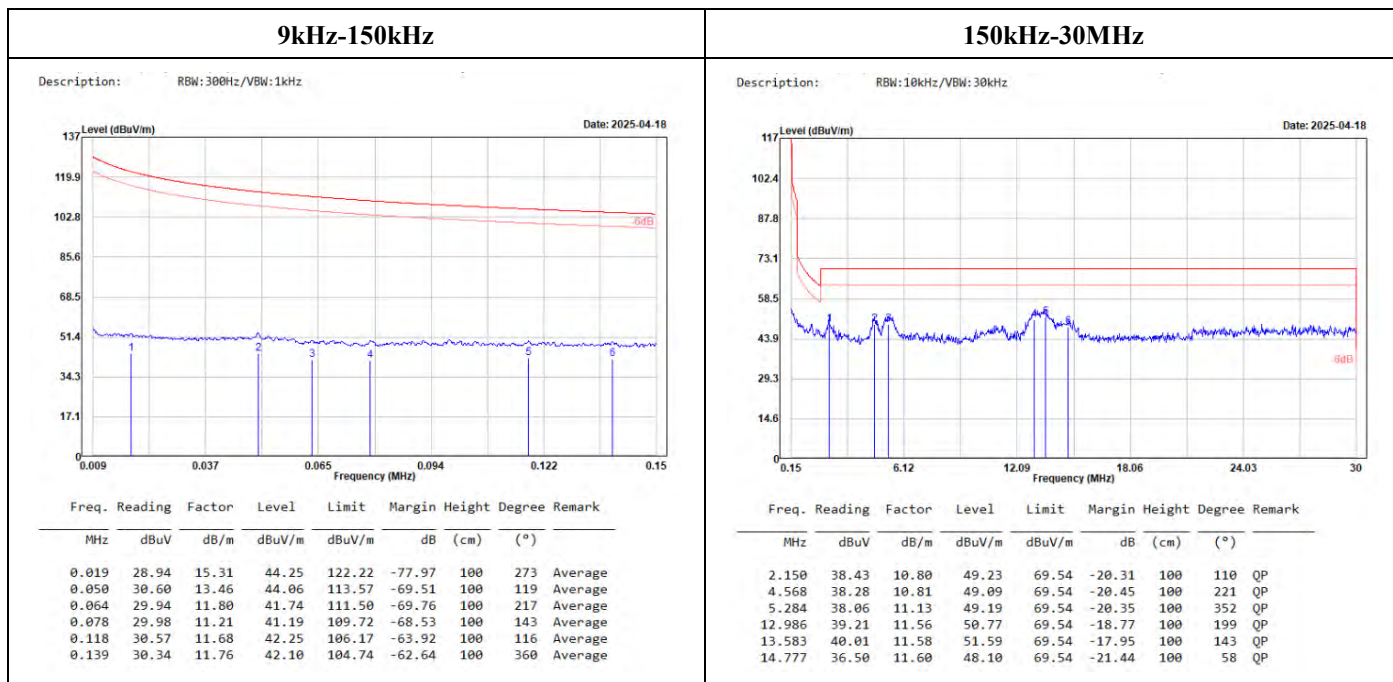
Test Mode: Transmitting

(Use Y axis test)

WIFI 2.4G

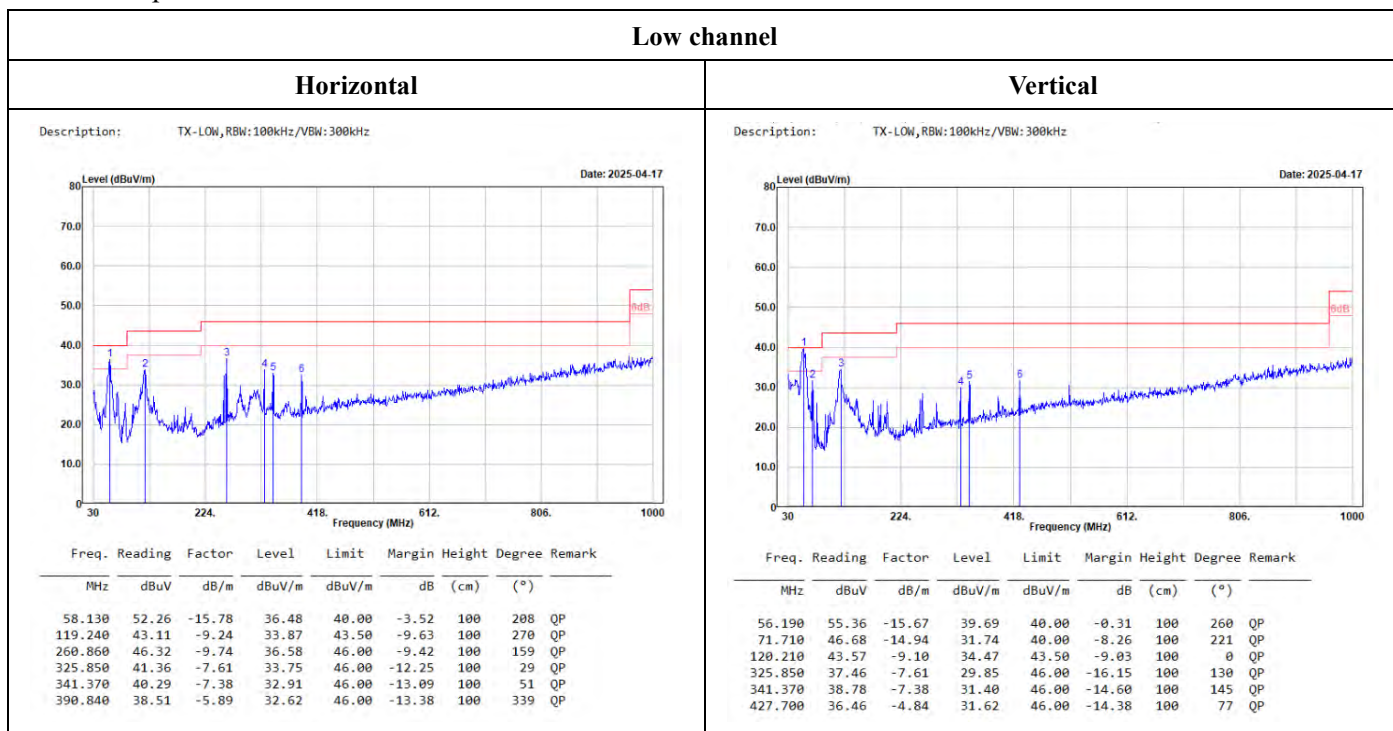
9kHz-30MHz: (Worst case is 802.11n HT20 mode low channel)

(Pre-scan using three directional polarities, worst case as parallel.)



30MHz-1GHz: (Worst case is 802.11n HT20 mode)

Adapter Mode:



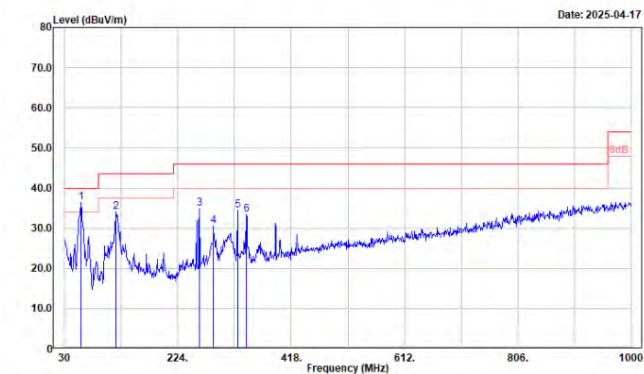
Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

(New Taipei Laboratory)

Middle channel

Horizontal

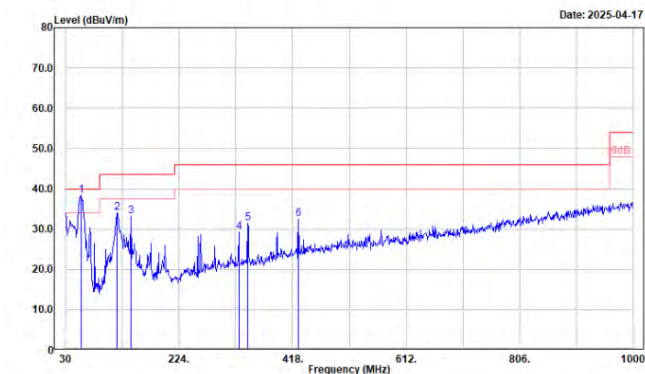
Description: TX-Middle, RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
58.130	52.18	-15.78	36.40	40.00	-3.60	100	204	QP
117.300	43.25	-9.30	33.95	43.50	-9.55	100	286	QP
260.860	44.71	-9.74	34.97	46.00	-11.03	100	150	QP
285.110	38.78	-8.26	30.52	46.00	-15.48	100	352	QP
325.850	42.08	-7.61	34.47	46.00	-11.53	100	45	QP
341.370	40.74	-7.38	33.36	46.00	-12.64	100	54	QP

Vertical

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

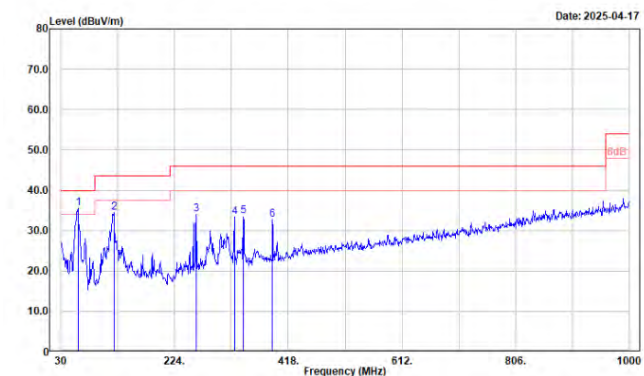


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
57.160	53.99	-15.62	38.37	40.00	-1.63	100	287	QP
118.270	43.33	-9.29	34.04	43.50	-9.46	100	23	QP
141.550	42.42	-9.31	33.11	43.50	-10.39	100	112	QP
325.850	36.89	-7.61	29.28	46.00	-16.72	100	165	QP
341.370	38.77	-7.38	31.39	46.00	-14.61	100	151	QP
427.700	37.44	-4.84	32.60	46.00	-13.40	100	161	QP

High channel

Horizontal

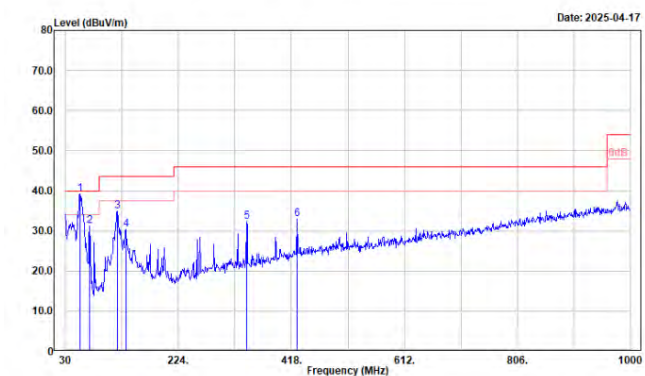
Description: TX-High, RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
59.100	51.23	-15.66	35.57	40.00	-4.43	100	196	QP
120.210	43.51	-9.10	34.41	43.50	-9.09	100	274	QP
260.860	43.86	-9.74	34.12	46.00	-11.88	100	155	QP
325.850	41.03	-7.61	33.42	46.00	-12.58	100	34	QP
341.370	40.88	-7.38	33.50	46.00	-12.50	100	40	QP
390.840	38.61	-5.89	32.72	46.00	-13.28	100	343	QP

Vertical

Description: 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)	(°)	
55.220	55.05	-15.77	39.28	40.00	-0.72	100	289	QP
71.710	46.13	-14.94	31.19	40.00	-8.81	100	132	QP
119.240	44.09	-9.24	34.85	43.50	-8.65	100	230	QP
133.790	39.36	-9.00	30.36	43.50	-13.14	100	230	QP
341.370	39.65	-7.38	32.27	46.00	-13.73	100	178	QP
427.700	37.69	-4.84	32.85	46.00	-13.15	100	171	QP

Level = Reading + Factor.

Margin = Level - Limit.

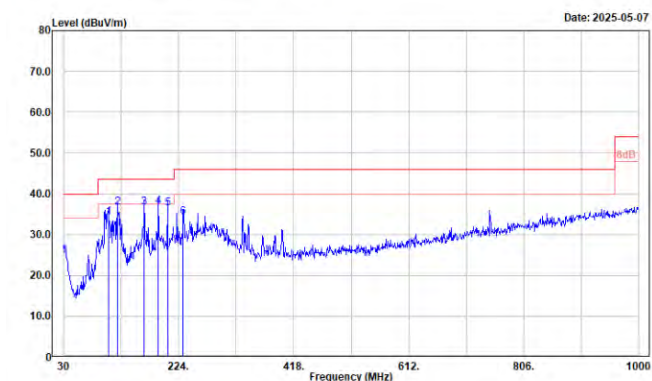
Factor = Antenna Factor + Cable Loss - Amplifier Gain.

POE:

Low channel

Horizontal

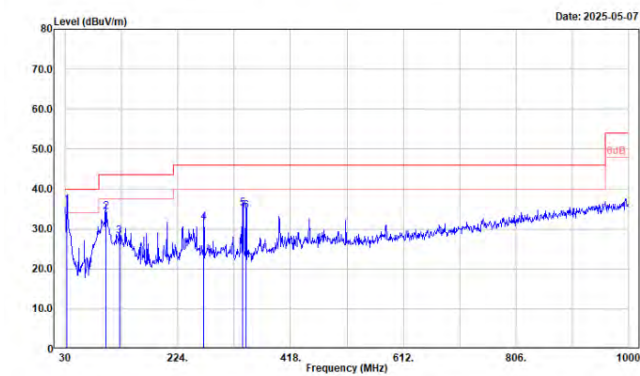
Description: TX-LOW, RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
105.660	45.55	-11.20	34.35	43.50	-9.15	100	72	QP
120.210	45.82	-9.10	36.72	43.50	-6.78	100	60	QP
165.800	46.97	-10.35	36.62	43.50	-6.88	100	213	QP
190.050	48.09	-11.13	36.96	43.50	-6.54	100	353	QP
205.570	47.65	-11.21	36.44	43.50	-7.06	100	341	QP
231.760	45.05	-10.83	34.22	46.00	-11.78	100	228	QP

Vertical

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

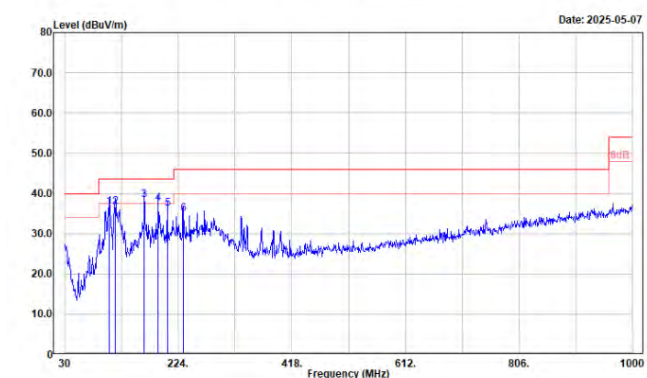


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
32.910	40.70	-4.65	36.05	40.00	-3.95	100	127	QP
99.840	47.01	-12.85	34.16	43.50	-9.34	100	293	QP
123.120	37.20	-8.98	28.22	43.50	-15.28	100	156	QP
268.620	40.36	-8.76	31.60	46.00	-14.40	100	35	QP
335.550	42.53	-7.40	35.13	46.00	-10.87	100	341	QP
341.370	41.86	-7.38	34.48	46.00	-11.52	100	360	QP

Middle channel

Horizontal

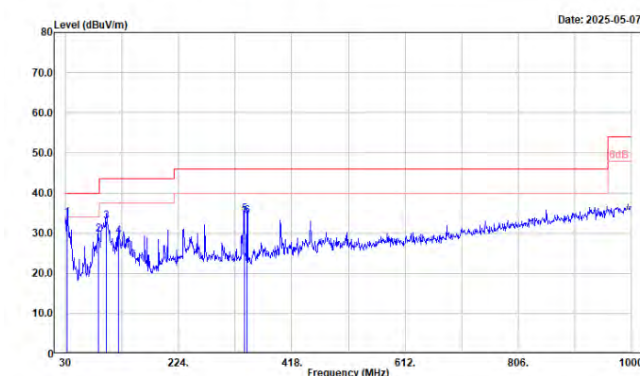
Description: TX-Middle, RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
106.630	47.61	-11.04	36.57	43.50	-6.93	100	82	QP
116.330	46.23	-9.51	36.72	43.50	-6.78	100	74	QP
165.800	48.80	-10.35	38.45	43.50	-5.05	100	214	QP
190.050	48.56	-11.13	37.43	43.50	-6.07	100	358	QP
205.570	47.47	-11.21	36.26	43.50	-7.24	100	356	QP
232.730	45.75	-10.79	34.96	46.00	-11.04	100	218	QP

Vertical

Description: 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)	(°)	
32.910	38.51	-4.65	33.86	40.00	-6.14	100	120	QP
86.260	45.38	-15.71	29.67	40.00	-10.33	100	250	QP
99.840	45.75	-12.85	32.90	43.50	-10.60	100	274	QP
120.210	38.35	-9.10	29.25	43.50	-14.25	100	43	QP
336.520	42.10	-7.41	34.69	46.00	-11.31	100	339	QP
341.370	41.68	-7.38	34.30	46.00	-11.70	100	331	QP

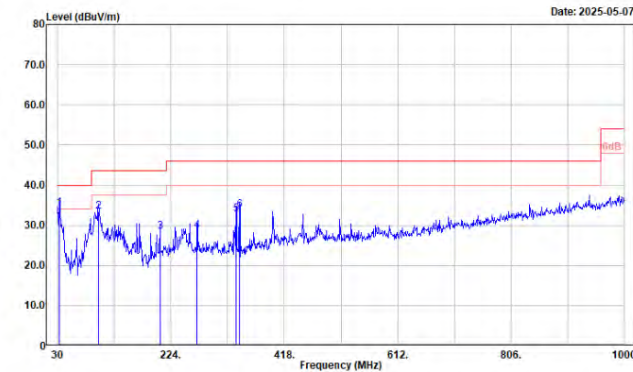
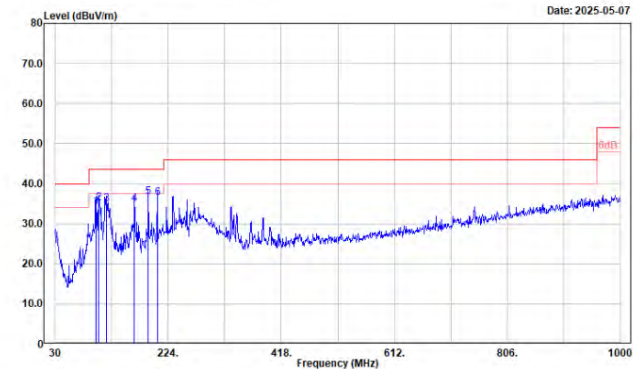
High channel

Horizontal

Vertical

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

Description: 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	47.04	-12.85	34.19	43.50	-9.31	100	98	QP
104.690	46.44	-11.37	35.07	43.50	-8.43	100	74	QP
118.270	44.17	-9.29	34.88	43.50	-8.62	100	90	QP
165.800	45.26	-10.35	34.91	43.50	-8.59	100	219	QP
190.050	47.75	-11.13	36.62	43.50	-6.88	100	345	QP
205.570	47.57	-11.21	36.36	43.50	-7.14	100	348	QP

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
32.910	38.81	-4.65	34.16	40.00	-5.84	100	129	QP
99.840	46.15	-12.85	33.30	43.50	-10.20	100	279	QP
205.570	39.66	-11.21	28.45	43.50	-15.05	100	336	QP
268.620	37.31	-8.76	28.55	46.00	-17.45	100	302	QP
335.550	40.13	-7.40	32.73	46.00	-13.27	100	0	QP
341.370	41.16	-7.38	33.78	46.00	-12.22	100	360	QP

Level = Reading + Factor.

Margin = Level - Limit.

Factor = Antenna Factor + Cable Loss - Amplifier Gain.

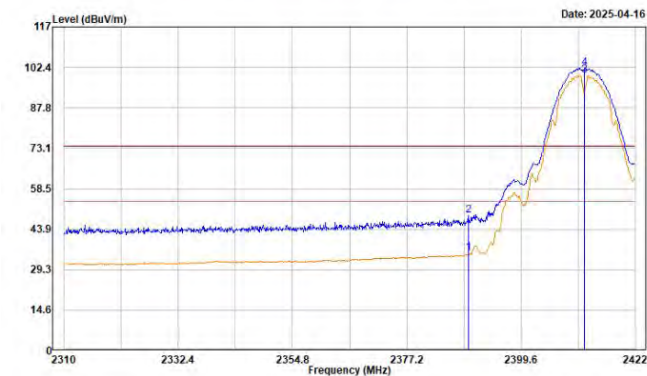
Band-Edge:

802.11b Mode

Low channel

Horizontal

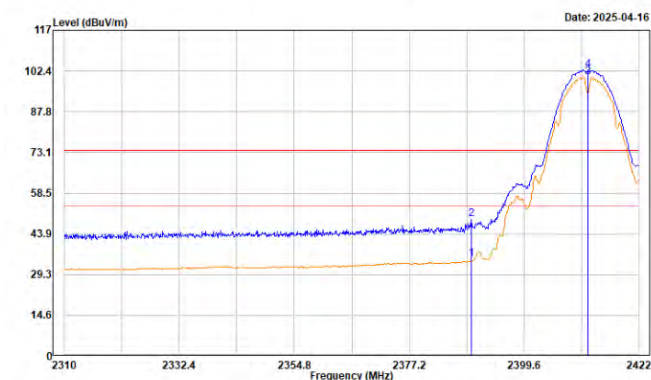
Description: B-TX-2412, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2389.296	46.05	-10.70	35.35	54.00	-18.65	118	238	Average
2389.296	59.50	-10.70	48.80	74.00	-25.20	118	238	Peak
2412.000	110.17	-10.63	99.54			118	238	Average
2412.000	112.64	-10.63	102.01			118	238	Peak

Vertical

Description: B-TX-2412, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz

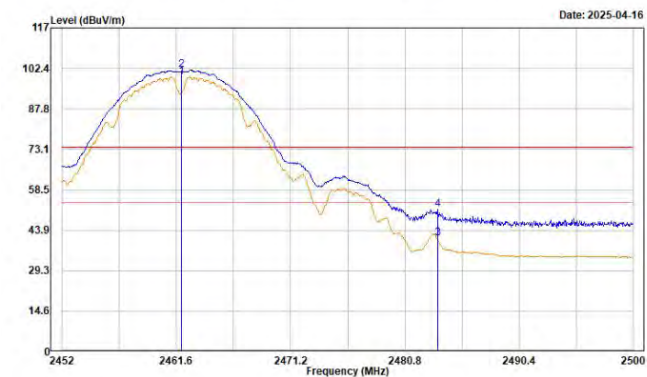


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2389.296	45.70	-10.70	35.00	54.00	-19.00	134	87	Average
2389.296	59.70	-10.70	49.00	74.00	-25.00	134	87	Peak
2412.000	110.86	-10.63	100.23			134	87	Average
2412.000	113.35	-10.63	102.72			134	87	Peak

High channel

Horizontal

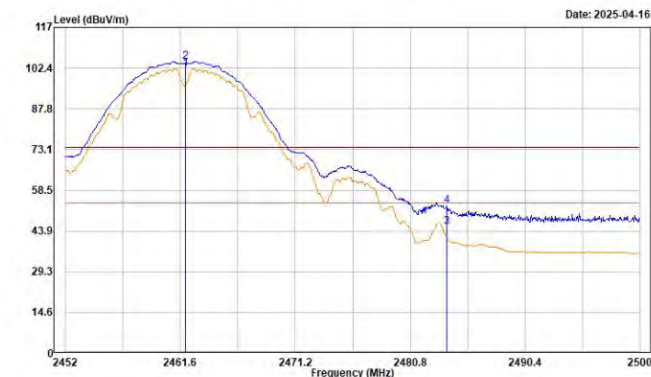
Description: B-TX-2462, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2462.000	109.62	-10.45	99.17			206	194	Average
2462.000	112.14	-10.45	101.69			206	194	Peak
2483.536	51.19	-10.17	41.02	54.00	-12.98	206	194	Average
2483.536	61.62	-10.17	51.45	74.00	-22.55	206	194	Peak

Vertical

Description: B-TX-2462, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



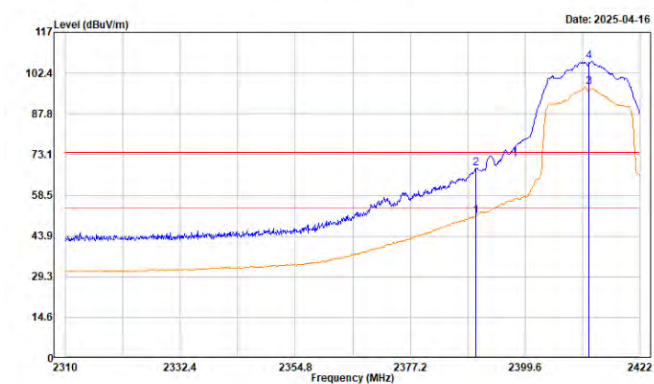
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2462.000	112.66	-10.45	102.21			133	68	Average
2462.000	115.14	-10.45	104.69			133	68	Peak
2483.872	55.36	-10.16	45.20	54.00	-8.80	133	68	Average
2483.872	63.25	-10.16	53.09	74.00	-20.91	133	68	Peak

802.11g Mode

Low channel

Horizontal

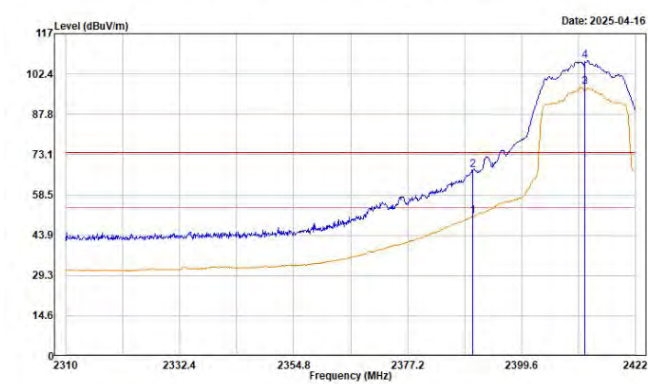
Description: G-TX-2412, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2389.968	61.74	-10.70	51.04	54.00	-2.96	116	236	Average
2389.968	78.93	-10.70	68.23	74.00	-5.77	116	236	Peak
2412.000	107.83	-10.63	97.20			116	236	Average
2412.000	117.19	-10.63	106.56			116	236	Peak

Vertical

Description: G-TX-2412, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz

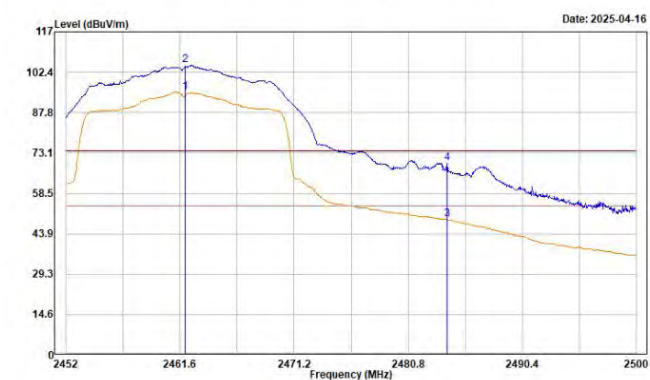


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2389.968	61.42	-10.70	50.72	54.00	-3.28	162	67	Average
2389.968	78.23	-10.70	67.53	74.00	-6.47	162	67	Peak
2412.000	108.26	-10.63	97.63			162	67	Average
2412.000	117.75	-10.63	107.12			162	67	Peak

High channel

Horizontal

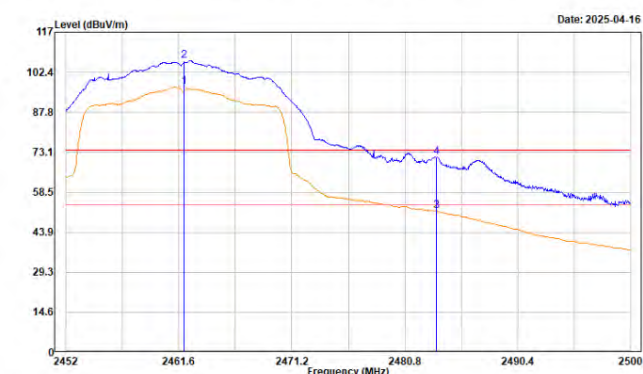
Description: G-TX-2462, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2462.000	105.71	-10.45	95.26			204	196	Average
2462.000	115.27	-10.45	104.82			204	196	Peak
2484.064	59.37	-10.16	49.21	54.00	-4.79	204	196	Average
2484.064	79.49	-10.16	69.33	74.00	-4.67	204	196	Peak

Vertical

Description: G-TX-2462, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



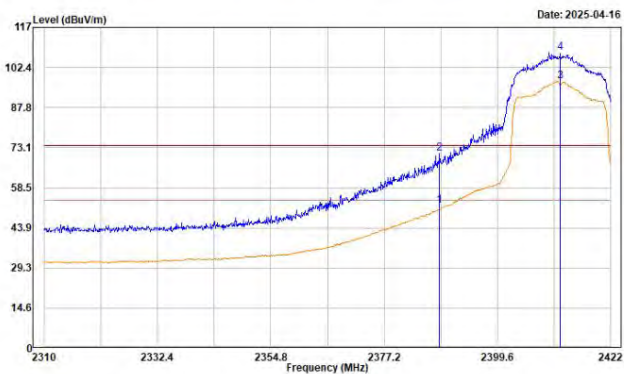
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2462.000	107.45	-10.45	97.00			262	161	Average
2462.000	116.96	-10.45	106.51			262	161	Peak
2483.500	61.78	-10.17	51.61	54.00	-2.39	262	161	Average
2483.500	81.57	-10.17	71.40	74.00	-2.60	262	161	Peak

802.11n HT20 Mode

Low channel

Horizontal

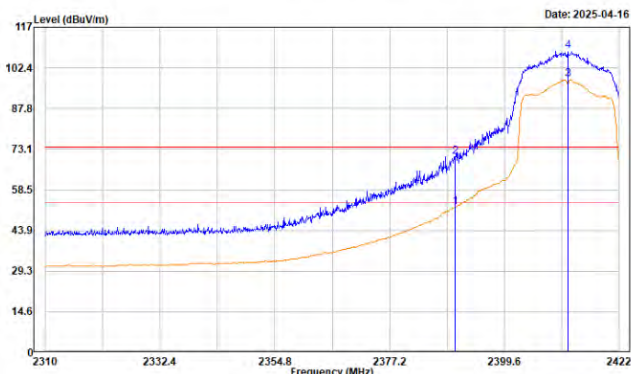
Description: N20-TX-2412, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2388.176	62.84	-10.71	52.13	54.00	-1.87	121	236	Average
2388.176	81.86	-10.71	71.15	74.00	-2.85	121	236	Peak
2412.000	107.93	-10.63	97.30			121	236	Average
2412.000	118.45	-10.63	107.82			121	236	Peak

Vertical

Description: N20-TX-2412, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz

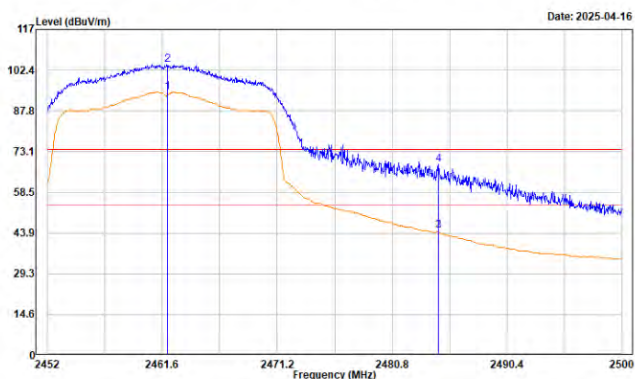


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2389.968	62.98	-10.70	52.28	54.00	-1.72	103	67	Average
2389.968	81.24	-10.70	70.54	74.00	-3.46	103	67	Peak
2412.000	108.77	-10.63	98.14			103	67	Average
2412.000	119.11	-10.63	108.48			103	67	Peak

High channel

Horizontal

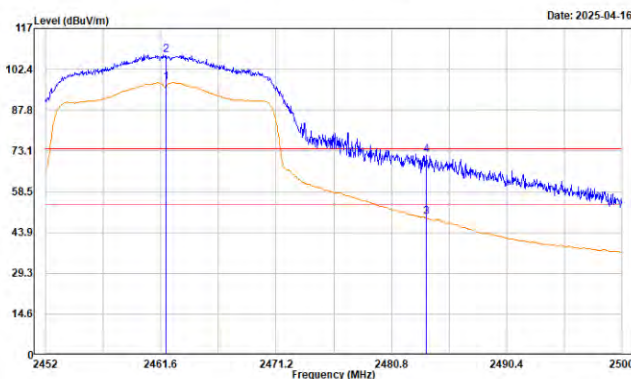
Description: N20-TX-2462, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2462.000	104.87	-10.45	94.42			212	195	Average
2462.000	114.91	-10.45	104.46			212	195	Peak
2484.688	54.86	-10.15	44.71	54.00	-9.29	212	195	Average
2484.688	78.71	-10.15	68.56	74.00	-5.44	212	195	Peak

Vertical

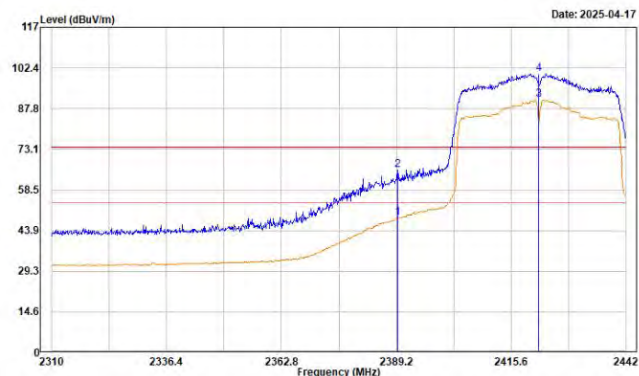
Description: N20-TX-2462, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2462.000	108.10	-10.45	97.65			127	67	Average
2462.000	117.91	-10.45	107.46			127	67	Peak
2483.728	59.59	-10.17	49.42	54.00	-4.58	127	67	Average
2483.728	81.84	-10.17	71.67	74.00	-2.33	127	67	Peak

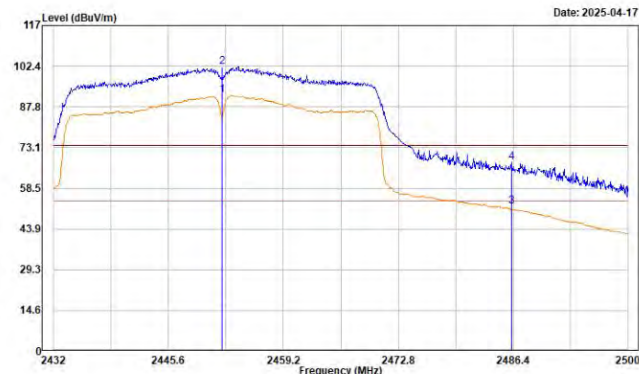
Low channel

Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2389.464	59.30	-10.70	48.60	54.00	-5.40	171	65	Average
2389.464	76.26	-10.70	65.56	74.00	-8.44	171	65	Peak
2422.000	101.48	-10.62	90.86			171	65	Average
2422.000	110.88	-10.62	100.26			171	65	Peak

Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2452.000	102.43	-10.57	91.86			156	65	Average
2452.000	112.59	-10.57	102.02			156	65	Peak
2486.196	62.23	-10.14	52.09	54.00	-1.91	156	65	Average
2486.196	77.94	-10.14	67.80	74.00	-6.20	156	65	Peak

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain.}$$

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1GHz-18GHz:

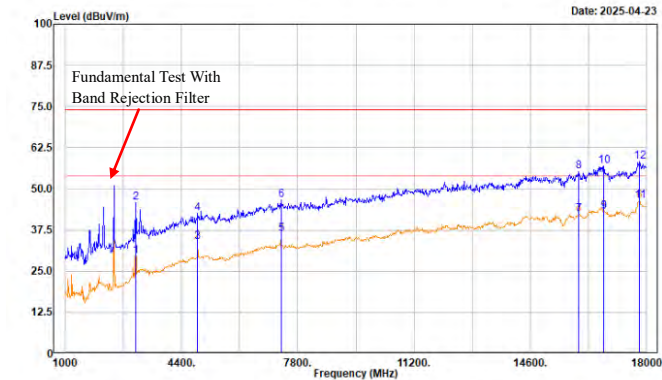
(802.11b mode worst case is middle channel)

Horizontal

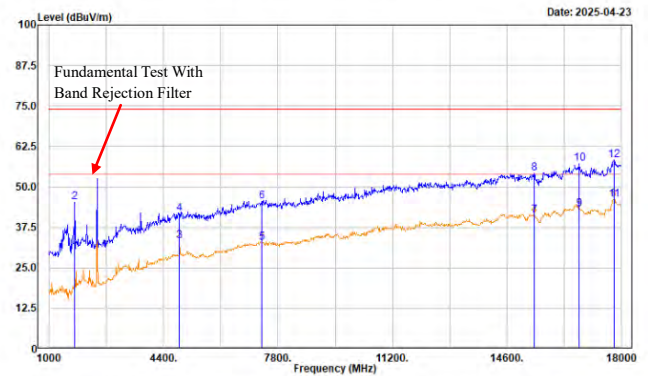
Vertical

Description: B-TX-2437, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz

Description: B-TX-2437, 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)	(°)	
3074.000	37.17	-7.67	29.50	54.00	-24.50	150	116	Average
3074.000	53.46	-7.67	45.79	74.00	-28.21	150	116	Peak
4874.000	36.80	-3.05	33.75	54.00	-20.25	202	85	Average
4874.000	45.66	-3.05	42.61	74.00	-31.39	202	85	Peak
7311.000	34.31	1.88	36.19	54.00	-17.81	142	250	Average
7311.000	44.72	1.88	46.60	74.00	-27.40	142	250	Peak
16028.000	31.90	10.38	42.28	54.00	-11.72	150	161	Average
16028.000	44.78	10.38	55.16	74.00	-18.84	150	161	Peak
16759.000	30.95	12.20	43.15	54.00	-10.85	150	327	Average
16759.000	44.66	12.20	56.86	74.00	-17.14	150	327	Peak
17796.000	32.53	13.72	46.25	54.00	-7.75	150	59	Average
17796.000	44.55	13.72	58.27	74.00	-15.73	150	59	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
1765.000	43.65	-13.90	29.75	54.00	-24.25	150	220	Average
1765.000	59.12	-13.90	45.22	74.00	-28.78	150	220	Peak
4874.000	36.39	-3.05	33.34	54.00	-20.66	206	161	Average
4874.000	44.76	-3.05	41.71	74.00	-32.29	206	161	Peak
7311.000	30.85	1.88	32.73	54.00	-21.27	145	18	Average
7311.000	43.66	1.88	45.54	74.00	-28.46	145	18	Peak
15416.000	31.60	9.48	41.08	54.00	-12.92	150	333	Average
15416.000	44.83	9.48	54.31	74.00	-19.69	150	333	Peak
16759.000	30.94	12.20	43.14	54.00	-10.86	150	112	Average
16759.000	44.93	12.20	57.13	74.00	-16.87	150	112	Peak
17779.000	32.47	13.65	46.12	54.00	-7.88	150	260	Average
17779.000	44.52	13.65	58.17	74.00	-15.83	150	260	Peak

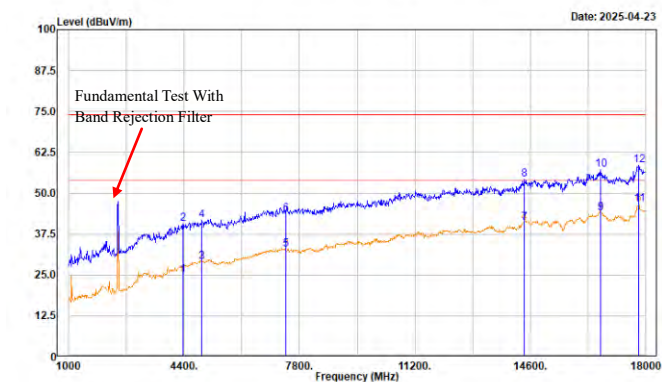
(802.11g mode worst case is high channel)

Horizontal

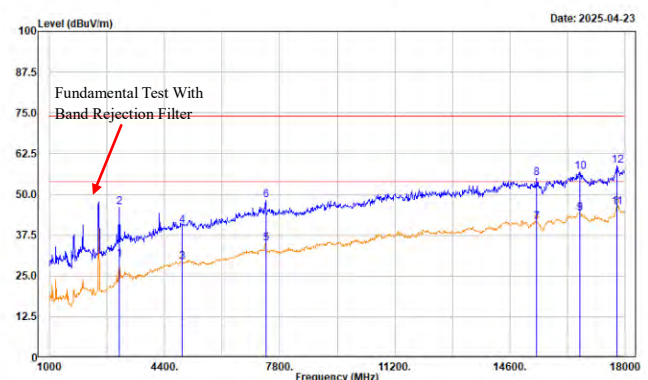
Vertical

Description: G-TX-2462, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz

Description: G-TX-2462, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:1kHz

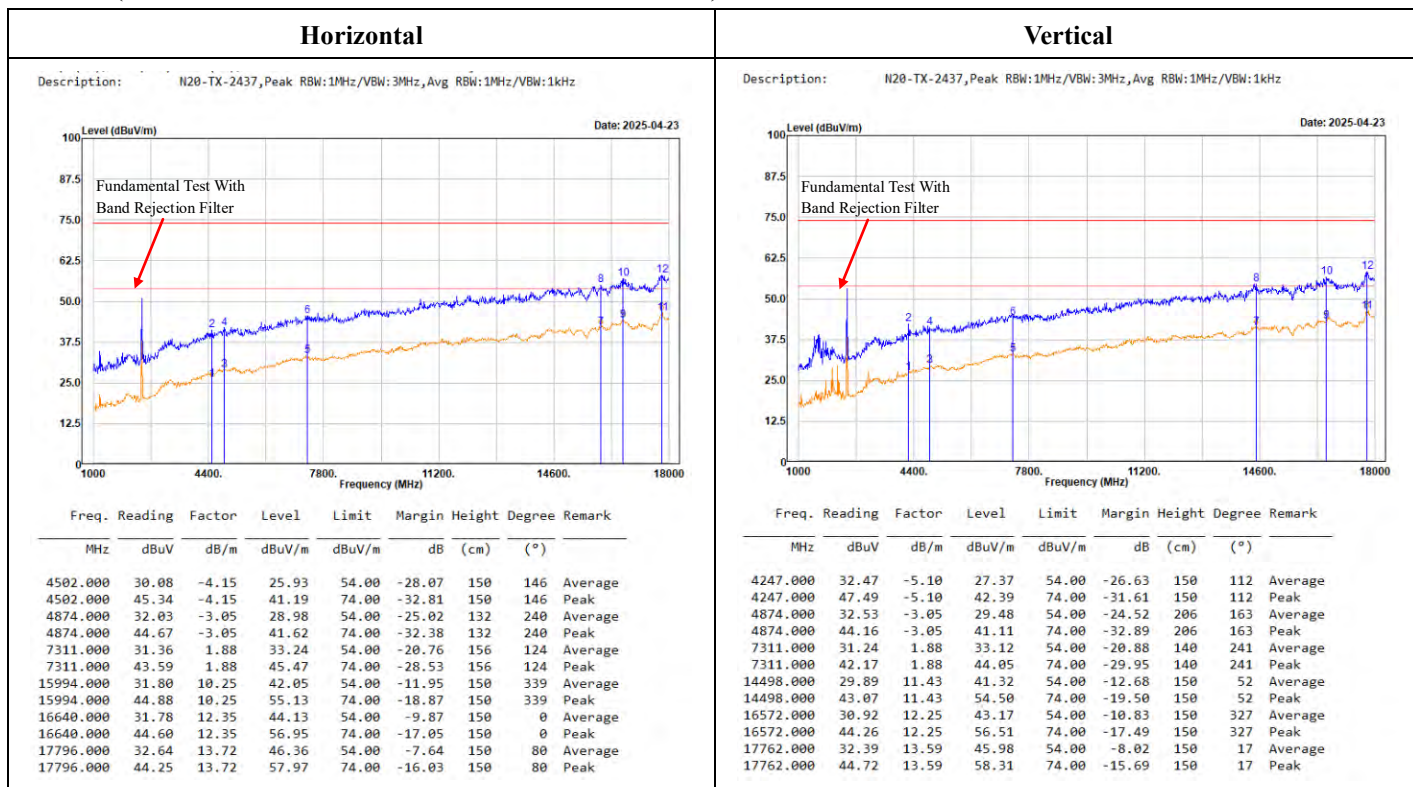


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4366.000	29.50	-4.60	24.90	54.00	-29.10	150	101	Average
4366.000	45.22	-4.60	40.62	74.00	-33.38	150	101	Peak
4924.000	32.02	-2.97	29.05	54.00	-24.95	102	220	Average
4924.000	44.63	-2.97	41.66	74.00	-32.34	102	220	Peak
7386.000	31.33	1.40	32.73	54.00	-21.27	159	97	Average
7386.000	42.36	1.40	43.76	74.00	-30.24	159	97	Peak
14430.000	29.69	11.36	41.05	54.00	-12.95	150	162	Average
14430.000	42.74	11.36	54.10	74.00	-19.90	150	162	Peak
16674.000	31.62	12.38	44.00	54.00	-10.00	150	315	Average
16674.000	44.75	12.38	57.13	74.00	-16.87	150	315	Peak
17796.000	33.01	13.72	46.73	54.00	-7.27	150	24	Average
17796.000	44.82	13.72	58.54	74.00	-15.46	150	24	Peak

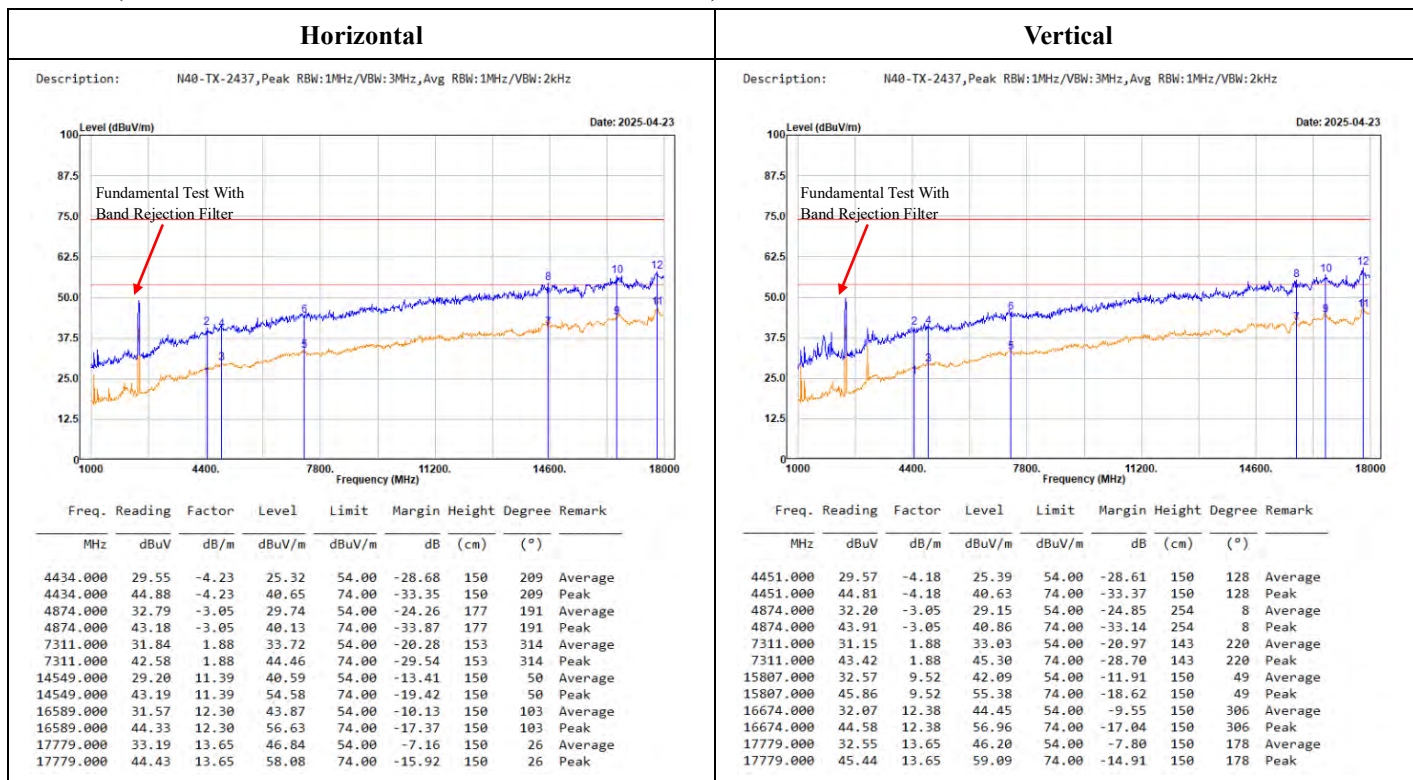


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3057.000	38.02	-7.82	30.20	54.00	-23.80	150	129	Average
3057.000	53.97	-7.82	46.15	74.00	-27.85	150	129	Peak
4924.000	32.26	-2.97	29.29	54.00	-24.71	229	83	Average
4924.000	43.48	-2.97	40.51	74.00	-33.49	229	83	Peak
7386.000	33.50	1.40	34.90	54.00	-19.10	148	273	Average
7386.000	46.96	1.40	48.36	74.00	-25.64	148	273	Peak
15399.000	31.77	9.59	41.36	54.00	-12.64	150	167	Average
15399.000	45.49	9.59	55.08	74.00	-18.92	150	167	Peak
16674.000	31.73	12.38	44.11	54.00	-9.89	150	327	Average
16674.000	44.45	12.38	56.83	74.00	-17.17	150	327	Peak
17762.000	32.42	13.59	46.01	54.00	-7.99	150	13	Average
17762.000	45.21	13.59	58.80	74.00	-15.20	150	13	Peak

(802.11n HT20 mode worst case is middle channel)



(802.11n HT40 mode worst case is middle channel)



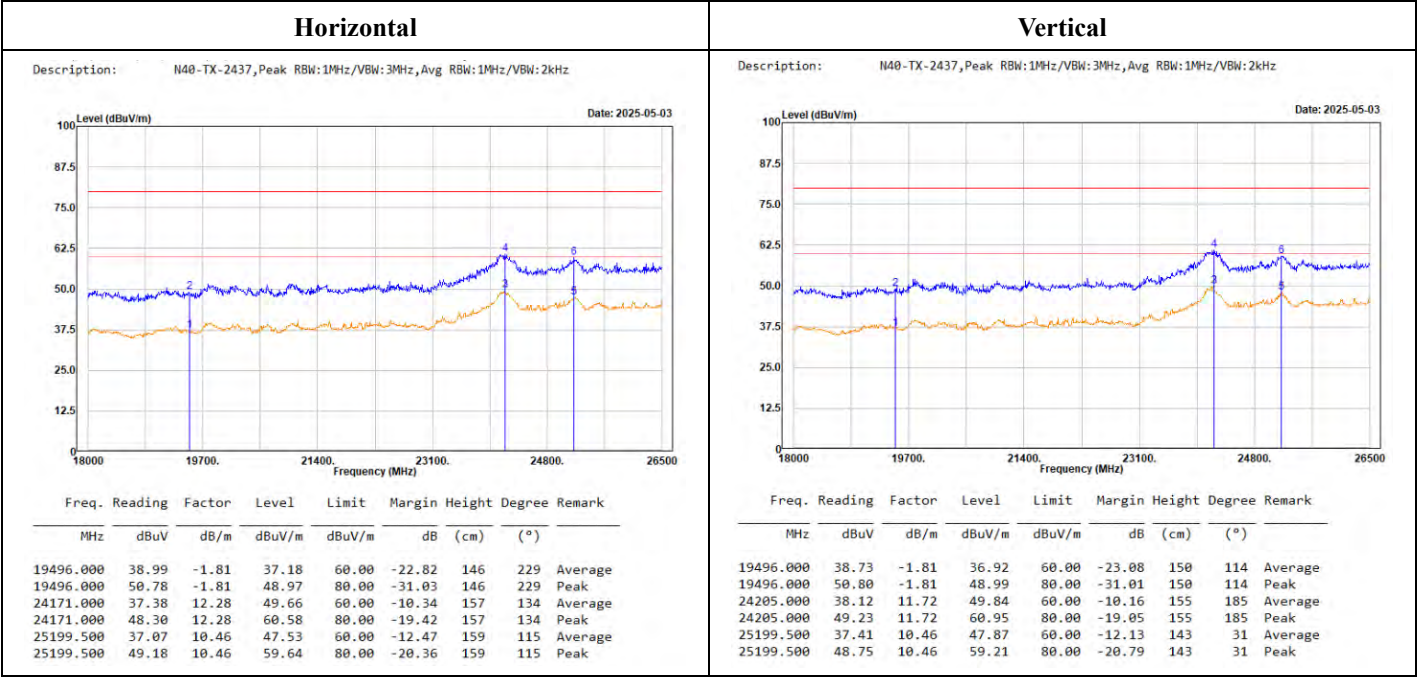
Level = Reading + Factor.

Margin = Level - Limit.

Factor = Antenna Factor + Cable Loss - Amplifier Gain.

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.
(New Taipei Laboratory)

18GHz-26.5GHz:
(worst case is 802.11n HT40 mode Middle channel)



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 1.5 meter:
Conversion factor = $20 \log (1.5\text{m}/3\text{m}) = 6 \text{ dB}$,
Average Limit = $54+6 = 60 \text{ dBuV/m}@1.5\text{m}$, Peak Limit = $60+20 = 80 \text{ dBuV/m}@1.5\text{m}$

Above 1GHz

802.11b Mode:

Low channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
1714.000	44.80	-14.32	30.48	54.00	-23.52	150	49	Average	3074.000	36.55	-7.67	28.88	54.00	-25.12	150	123	Average
1714.000	60.09	-14.32	45.77	74.00	-28.23	150	49	Peak	3074.000	52.67	-7.67	45.00	74.00	-29.00	150	123	Peak
4824.000	32.33	-3.44	28.89	54.00	-25.11	114	236	Average	4824.000	33.93	-3.44	30.49	54.00	-23.51	177	83	Average
4824.000	43.62	-3.44	40.18	74.00	-33.82	114	236	Peak	4824.000	44.85	-3.44	41.41	74.00	-32.59	177	83	Peak
7236.000	31.17	1.85	33.02	54.00	-20.98	159	145	Average	7236.000	33.21	1.85	35.06	54.00	-18.94	141	203	Average
7236.000	42.90	1.85	44.75	74.00	-29.25	159	145	Peak	7236.000	44.55	1.85	46.40	74.00	-27.60	141	203	Peak
14651.000	29.68	11.35	41.03	54.00	-12.97	150	96	Average	15739.000	32.27	9.18	41.45	54.00	-12.55	150	183	Average
14651.000	43.31	11.35	54.66	74.00	-19.34	150	96	Peak	15739.000	45.79	9.18	54.97	74.00	-19.03	150	183	Peak
16657.000	31.90	12.36	44.26	54.00	-9.74	150	177	Average	16708.000	31.32	12.37	43.69	54.00	-10.31	150	301	Average
16657.000	44.09	12.36	56.45	74.00	-17.55	150	177	Peak	16708.000	44.74	12.37	57.11	74.00	-16.89	150	301	Peak
17745.000	32.31	13.52	45.83	54.00	-8.17	150	315	Average	17796.000	32.51	13.72	46.23	54.00	-7.77	150	21	Average
17745.000	44.54	13.52	58.06	74.00	-15.94	150	315	Peak	17796.000	45.28	13.72	59.00	74.00	-15.00	150	21	Peak

Middle channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3074.000	37.17	-7.67	29.50	54.00	-24.50	150	116	Average	1765.000	43.65	-13.90	29.75	54.00	-24.25	150	220	Average
3074.000	53.46	-7.67	45.79	74.00	-28.21	150	116	Peak	1765.000	59.12	-13.90	45.22	74.00	-28.78	150	220	Peak
4874.000	36.80	-3.05	33.75	54.00	-20.25	202	85	Average	4874.000	36.39	-3.05	33.34	54.00	-20.66	206	161	Average
4874.000	45.66	-3.05	42.61	74.00	-31.39	202	85	Peak	4874.000	44.76	-3.05	41.71	74.00	-32.29	206	161	Peak
7311.000	34.31	1.88	36.19	54.00	-17.81	142	250	Average	7311.000	30.85	1.88	32.73	54.00	-21.27	145	18	Average
7311.000	44.72	1.88	46.60	74.00	-27.40	142	250	Peak	7311.000	43.66	1.88	45.54	74.00	-28.46	145	18	Peak
16028.000	31.90	10.38	42.28	54.00	-11.72	150	161	Average	15416.000	31.60	9.48	41.08	54.00	-12.92	150	333	Average
16028.000	44.78	10.38	55.16	74.00	-18.84	150	161	Peak	15416.000	44.83	9.48	54.31	74.00	-19.69	150	333	Peak
16759.000	30.95	12.20	43.15	54.00	-10.85	150	327	Average	16759.000	30.94	12.20	43.14	54.00	-10.86	150	112	Average
16759.000	44.66	12.20	56.86	74.00	-17.14	150	327	Peak	16759.000	44.93	12.20	57.13	74.00	-16.87	150	112	Peak
17796.000	32.53	13.72	46.25	54.00	-7.75	150	59	Average	17779.000	32.47	13.65	46.12	54.00	-7.88	150	260	Average
17796.000	44.55	13.72	58.27	74.00	-15.73	150	59	Peak	17779.000	44.52	13.65	58.17	74.00	-15.83	150	260	Peak

High channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4179.000	31.83	-5.39	26.44	54.00	-27.56	150	128	Average	3074.000	39.98	-7.67	32.31	54.00	-21.69	150	137	Average
4179.000	47.56	-5.39	42.17	74.00	-31.83	150	128	Peak	3074.000	55.59	-7.67	47.92	74.00	-26.08	150	137	Peak
4924.000	31.43	-2.97	28.46	54.00	-25.54	188	193	Average	4924.000	38.00	-2.97	35.03	54.00	-18.97	211	100	Average
4924.000	45.57	-2.97	42.60	74.00	-31.40	188	193	Peak	4924.000	46.12	-2.97	43.15	74.00	-30.85	211	100	Peak
7386.000	27.06	1.40	28.46	54.00	-25.54	157	37	Average	7386.000	31.54	1.40	32.94	54.00	-21.06	146	244	Average
7386.000	43.85	1.40	45.25	74.00	-28.75	157	37	Peak	7386.000	44.28	1.40	45.68	74.00	-28.32	146	244	Peak
15416.000	25.66	9.48	35.14	54.00	-18.86	150	185	Average	14549.000	29.49	11.39	40.88	54.00	-13.12	150	64	Average
15416.000	45.03	9.48	54.51	74.00	-19.49	150	185	Peak	14549.000	42.50	11.39	53.89	74.00	-20.11	150	64	Peak
16623.000	28.89	12.34	41.23	54.00	-12.77	150	338	Average	16691.000	31.35	12.39	43.74	54.00	-10.26	150	318	Average
16623.000	44.76	12.34	57.10	74.00	-16.90	150	338	Peak	16691.000	44.73	12.39	57.12	74.00	-16.88	150	318	Peak
17762.000	30.24	13.59	43.83	54.00	-10.17	150	93	Average	17762.000	32.51	13.59	46.10	54.00	-7.90	150	36	Average
17762.000	44.73	13.59	58.32	74.00	-15.68	150	93	Peak	17762.000	45.14	13.59	58.73	74.00	-15.27	150	36	Peak

Note:

Level = Reading + Factor.

Margin = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

802.11g Mode:

Low channel																	
Horizontal									Vertical								
Freq. Reading Factor Level Limit Margin Height Degree Remark									Freq. Reading Factor Level Limit Margin Height Degree Remark								
MHz dBuV dB/m dBuV/m dBuV/m dB (cm) (°)									MHz dBuV dB/m dBuV/m dBuV/m dB (cm) (°)								
3907.000	31.00	-6.35	24.65	54.00	-29.35	150	86	Average	4264.000	32.32	-5.01	27.31	54.00	-26.69	150	59	Average
3907.000	46.11	-6.35	39.76	74.00	-34.24	150	86	Peak	4264.000	47.74	-5.01	42.73	74.00	-31.27	150	59	Peak
4824.000	32.25	-3.44	28.81	54.00	-25.19	141	235	Average	4824.000	32.47	-3.44	29.03	54.00	-24.97	238	158	Average
4824.000	42.74	-3.44	39.30	74.00	-34.70	141	235	Peak	4824.000	44.82	-3.44	41.38	74.00	-32.62	238	158	Peak
7236.000	30.75	1.85	32.60	54.00	-21.40	157	132	Average	7236.000	31.06	1.85	32.91	54.00	-21.09	141	101	Average
7236.000	42.47	1.85	44.32	74.00	-29.68	157	132	Peak	7236.000	42.74	1.85	44.59	74.00	-29.41	141	101	Peak
15705.000	32.23	8.99	41.22	54.00	-12.78	150	7	Average	14379.000	29.93	11.22	41.15	54.00	-12.85	150	222	Average
15705.000	45.76	8.99	54.75	74.00	-19.25	150	7	Peak	14379.000	42.48	11.22	53.70	74.00	-20.30	150	222	Peak
16725.000	31.09	12.31	43.40	54.00	-10.60	150	334	Average	16657.000	31.66	12.36	44.02	54.00	-9.98	150	309	Average
16725.000	44.86	12.31	57.17	74.00	-16.83	150	334	Peak	16657.000	44.55	12.36	56.91	74.00	-17.09	150	309	Peak
17949.000	30.21	14.46	44.67	54.00	-9.33	150	192	Average	17745.000	32.30	13.52	45.82	54.00	-8.18	150	44	Average
17949.000	43.59	14.46	58.05	74.00	-15.95	150	192	Peak	17745.000	45.31	13.52	58.83	74.00	-15.17	150	44	Peak

Middle channel																	
Horizontal									Vertical								
Freq. Reading Factor Level Limit Margin Height Degree Remark									Freq. Reading Factor Level Limit Margin Height Degree Remark								
MHz dBuV dB/m dBuV/m dBuV/m dB (cm) (°)									MHz dBuV dB/m dBuV/m dBuV/m dB (cm) (°)								
4383.000	29.35	-4.47	24.88	54.00	-29.12	150	77	Average	4247.000	32.46	-5.10	27.36	54.00	-26.64	150	68	Average
4383.000	45.17	-4.47	40.70	74.00	-33.30	150	77	Peak	4247.000	49.27	-5.10	44.17	74.00	-29.83	150	68	Peak
4874.000	32.41	-3.05	29.36	54.00	-24.64	174	194	Average	4874.000	32.54	-3.05	29.49	54.00	-24.51	206	158	Average
4874.000	44.19	-3.05	41.14	74.00	-32.86	174	194	Peak	4874.000	45.59	-3.05	42.54	74.00	-31.46	206	158	Peak
7311.000	31.79	1.88	33.67	54.00	-20.33	155	264	Average	7311.000	31.34	1.88	33.22	54.00	-20.78	145	244	Average
7311.000	42.07	1.88	43.95	74.00	-30.05	155	264	Peak	7311.000	42.09	1.88	43.97	74.00	-30.03	145	244	Peak
14736.000	29.48	11.33	40.81	54.00	-13.19	150	149	Average	14447.000	29.91	11.38	41.29	54.00	-12.71	150	113	Average
14736.000	43.07	11.33	54.40	74.00	-19.60	150	149	Peak	14447.000	43.03	11.38	54.41	74.00	-19.59	150	113	Peak
16640.000	31.80	12.35	44.15	54.00	-9.85	150	307	Average	16453.000	31.09	11.81	42.90	54.00	-11.10	150	308	Average
16640.000	44.29	12.35	56.64	74.00	-17.36	150	307	Peak	16453.000	44.33	11.81	56.14	74.00	-17.86	150	308	Peak
17779.000	32.65	13.65	46.30	54.00	-7.70	150	1	Average	17796.000	32.40	13.72	46.12	54.00	-7.88	150	29	Average
17779.000	44.32	13.65	57.97	74.00	-16.03	150	1	Peak	17796.000	44.66	13.72	58.38	74.00	-15.62	150	29	Peak

High channel																	
Horizontal									Vertical								
Freq. Reading Factor Level Limit Margin Height Degree Remark									Freq. Reading Factor Level Limit Margin Height Degree Remark								
MHz dBuV dB/m dBuV/m dBuV/m dB (cm) (°)									MHz dBuV dB/m dBuV/m dBuV/m dB (cm) (°)								
4366.000	29.50	-4.60	24.90	54.00	-29.10	150	101	Average	3057.000	38.02	-7.82	30.20	54.00	-23.80	150	129	Average
4366.000	45.22	-4.60	40.62	74.00	-33.38	150	101	Peak	3057.000	53.97	-7.82	46.15	74.00	-27.85	150	129	Peak
4924.000	32.02	-2.97	29.05	54.00	-24.95	102	220	Average	4924.000	32.26	-2.97	29.29	54.00	-24.71	229	83	Average
4924.000	44.63	-2.97	41.66	74.00	-32.34	102	220	Peak	4924.000	43.48	-2.97	40.51	74.00	-33.49	229	83	Peak
7386.000	31.33	1.40	32.73	54.00	-21.27	159	97	Average	7386.000	33.50	1.40	34.90	54.00	-19.10	148	273	Average
7386.000	42.36	1.40	43.76	74.00	-30.24	159	97	Peak	7386.000	46.96	1.40	48.36	74.00	-25.64	148	273	Peak
14430.000	29.69	11.36	41.05	54.00	-12.95	150	162	Average	15399.000	31.77	9.59	41.36	54.00	-12.64	150	167	Average
14430.000	42.74	11.36	54.10	74.00	-19.90	150	162	Peak	15399.000	45.49	9.59	55.08	74.00	-18.92	150	167	Peak
16674.000	31.62	12.38	44.00	54.00	-10.00	150	315	Average	16674.000	31.73	12.38	44.11	54.00	-9.89	150	327	Average
16674.000	44.75	12.38	57.13	74.00	-16.87	150	315	Peak	16674.000	44.45	12.38	56.83	74.00	-17.17	150	327	Peak
17796.000	33.01	13.72	46.73	54.00	-7.27	150	24	Average	17762.000	32.42	13.59	46.01	54.00	-7.99	150	13	Average
17796.000	44.82	13.72	58.54	74.00	-15.46	150	24	Peak	17762.000	45.21	13.59	58.80	74.00	-15.20	150	13	Peak

Note:
Level = Reading + Factor.
Margin = Level – Limit.
Factor = Antenna Factor + Cable Loss – Amplifier Gain.

802.11n HT20 Mode:

Low channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4366.000	29.68	-4.60	25.08	54.00	-28.92	150	133	Average	4451.000	30.06	-4.18	25.88	54.00	-28.12	150	104	Average
4366.000	44.84	-4.60	40.24	74.00	-33.76	150	133	Peak	4451.000	45.09	-4.18	40.91	74.00	-33.09	150	104	Peak
4824.000	31.88	-3.44	28.44	54.00	-25.56	116	236	Average	4824.000	32.00	-3.44	28.56	54.00	-25.44	258	156	Average
4824.000	43.26	-3.44	39.82	74.00	-34.18	116	236	Peak	4824.000	43.92	-3.44	40.48	74.00	-33.52	258	156	Peak
7236.000	30.79	1.85	32.64	54.00	-21.36	152	71	Average	7236.000	30.81	1.85	32.66	54.00	-21.34	143	248	Average
7236.000	41.66	1.85	43.51	74.00	-30.49	152	71	Peak	7236.000	42.92	1.85	44.77	74.00	-29.23	143	248	Peak
14447.000	30.05	11.38	41.43	54.00	-12.57	150	196	Average	14753.000	29.53	11.34	40.87	54.00	-13.13	150	46	Average
14447.000	43.69	11.38	55.07	74.00	-18.93	150	196	Peak	14753.000	43.49	11.34	54.83	74.00	-19.17	150	46	Peak
16453.000	31.08	11.81	42.89	54.00	-11.11	150	347	Average	16657.000	31.80	12.36	44.16	54.00	-9.84	150	337	Average
16453.000	44.33	11.81	56.14	74.00	-17.86	150	347	Peak	16657.000	44.00	12.36	56.36	74.00	-17.64	150	337	Peak
17949.000	30.05	14.46	44.51	54.00	-9.49	150	30	Average	17779.000	32.26	13.65	45.91	54.00	-8.09	150	81	Average
17949.000	43.76	14.46	58.22	74.00	-15.78	150	30	Peak	17779.000	45.34	13.65	58.99	74.00	-15.01	150	81	Peak

Middle channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4502.000	30.08	-4.15	25.93	54.00	-28.07	150	146	Average	4247.000	32.47	-5.10	27.37	54.00	-26.63	150	112	Average
4502.000	45.34	-4.15	41.19	74.00	-32.81	150	146	Peak	4247.000	47.49	-5.10	42.39	74.00	-31.61	150	112	Peak
4874.000	32.03	-3.05	28.98	54.00	-25.02	132	240	Average	4874.000	32.53	-3.05	29.48	54.00	-24.52	206	163	Average
4874.000	44.67	-3.05	41.62	74.00	-32.38	132	240	Peak	4874.000	44.16	-3.05	41.11	74.00	-32.89	206	163	Peak
7311.000	31.36	1.88	33.24	54.00	-20.76	156	124	Average	7311.000	31.24	1.88	33.12	54.00	-20.88	140	241	Average
7311.000	43.59	1.88	45.47	74.00	-28.53	156	124	Peak	7311.000	42.17	1.88	44.05	74.00	-29.95	140	241	Peak
15994.000	31.80	10.25	42.05	54.00	-11.95	150	339	Average	14498.000	29.89	11.43	41.32	54.00	-12.68	150	52	Average
15994.000	44.88	10.25	55.13	74.00	-18.87	150	339	Peak	14498.000	43.07	11.43	54.50	74.00	-19.50	150	52	Peak
16640.000	31.78	12.35	44.13	54.00	-9.87	150	0	Average	16572.000	30.92	12.25	43.17	54.00	-10.83	150	327	Average
16640.000	44.60	12.35	56.95	74.00	-17.05	150	0	Peak	16572.000	44.26	12.25	56.51	74.00	-17.49	150	327	Peak
17796.000	32.64	13.72	46.36	54.00	-7.64	150	80	Average	17762.000	32.39	13.59	45.98	54.00	-8.02	150	17	Average
17796.000	44.25	13.72	57.97	74.00	-16.03	150	80	Peak	17762.000	44.72	13.59	58.31	74.00	-15.69	150	17	Peak

High channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4383.000	29.56	-4.47	25.09	54.00	-28.91	150	147	Average	3074.000	38.55	-7.67	30.88	54.00	-23.12	150	188	Average
4383.000	45.21	-4.47	40.74	74.00	-33.26	150	147	Peak	3074.000	53.96	-7.67	46.29	74.00	-27.71	150	188	Peak
4924.000	32.02	-2.97	29.05	54.00	-24.95	130	218	Average	4924.000	32.53	-2.97	29.56	54.00	-24.44	192	102	Average
4924.000	43.44	-2.97	40.47	74.00	-33.53	130	218	Peak	4924.000	44.23	-2.97	41.26	74.00	-32.74	192	102	Peak
7386.000	31.11	1.40	32.51	54.00	-21.49	159	179	Average	7386.000	30.97	1.40	32.37	54.00	-21.63	144	253	Average
7386.000	42.86	1.40	44.26	74.00	-29.74	159	179	Peak	7386.000	42.31	1.40	43.71	74.00	-30.29	144	253	Peak
15314.000	31.09	9.70	40.79	54.00	-13.21	150	303	Average	14464.000	30.00	11.38	41.38	54.00	-12.62	150	79	Average
15314.000	44.75	9.70	54.45	74.00	-19.55	150	303	Peak	14464.000	42.53	11.38	53.91	74.00	-20.09	150	79	Peak
16640.000	32.67	12.35	45.02	54.00	-8.98	150	99	Average	16385.000	31.48	11.44	42.92	54.00	-11.08	150	307	Average
16640.000	44.81	12.35	57.16	74.00	-16.84	150	99	Peak	16385.000	45.53	11.44	56.97	74.00	-17.03	150	307	Peak
17745.000	32.61	13.52	46.13	54.00	-7.87	150	55	Average	17966.000	30.18	14.52	44.70	54.00	-9.30	150	37	Average
17745.000	45.21	13.52	58.73	74.00	-15.27	150	55	Peak	17966.000	43.68	14.52	58.20	74.00	-15.80	150	37	Peak

Note:

Level = Reading + Factor.

Margin = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

802.11n HT40 Mode:

Low channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4468.000	29.80	-4.18	25.62	54.00	-28.38	150	104	Average	4298.000	29.33	-4.85	24.48	54.00	-29.52	150	237	Average
4468.000	44.93	-4.18	40.75	74.00	-33.25	150	104	Peak	4298.000	45.26	-4.85	40.41	74.00	-33.59	150	237	Peak
4844.000	32.39	-3.31	29.08	54.00	-24.92	179	193	Average	4844.000	32.70	-3.31	29.39	54.00	-24.61	266	160	Average
4844.000	45.73	-3.31	42.42	74.00	-31.58	179	193	Peak	4844.000	44.91	-3.31	41.60	74.00	-32.40	266	160	Peak
7266.000	31.45	1.93	33.38	54.00	-20.62	152	214	Average	7266.000	31.87	1.93	33.80	54.00	-20.20	141	74	Average
7266.000	43.54	1.93	45.47	74.00	-28.53	152	214	Peak	7266.000	42.87	1.93	44.80	74.00	-29.20	141	74	Peak
14430.000	30.18	11.36	41.54	54.00	-12.46	150	305	Average	14702.000	30.17	11.33	41.50	54.00	-12.50	150	106	Average
14430.000	43.42	11.36	54.78	74.00	-19.22	150	305	Peak	14702.000	42.87	11.33	54.20	74.00	-19.80	150	106	Peak
16606.000	31.58	12.33	43.91	54.00	-10.09	150	3	Average	16691.000	31.56	12.39	43.95	54.00	-10.05	150	35	Average
16606.000	44.15	12.33	56.48	74.00	-17.52	150	3	Peak	16691.000	44.54	12.39	56.93	74.00	-17.07	150	35	Peak
17932.000	30.03	14.40	44.43	54.00	-9.57	150	66	Average	17779.000	32.90	13.65	46.55	54.00	-7.45	150	310	Average
17932.000	43.06	14.40	57.46	74.00	-16.54	150	66	Peak	17779.000	45.35	13.65	59.00	74.00	-15.00	150	310	Peak

Middle channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4434.000	29.55	-4.23	25.32	54.00	-28.68	150	209	Average	4451.000	29.57	-4.18	25.39	54.00	-28.61	150	128	Average
4434.000	44.88	-4.23	40.65	74.00	-33.35	150	209	Peak	4451.000	44.81	-4.18	40.63	74.00	-33.37	150	128	Peak
4874.000	32.79	-3.05	29.74	54.00	-24.26	177	191	Average	4874.000	32.20	-3.05	29.15	54.00	-24.85	254	8	Average
4874.000	43.18	-3.05	40.13	74.00	-33.87	177	191	Peak	4874.000	43.91	-3.05	40.86	74.00	-33.14	254	8	Peak
7311.000	31.84	1.88	33.72	54.00	-20.28	153	314	Average	7311.000	31.15	1.88	33.03	54.00	-20.97	143	220	Average
7311.000	42.58	1.88	44.46	74.00	-29.54	153	314	Peak	7311.000	43.42	1.88	45.30	74.00	-28.70	143	220	Peak
14549.000	29.20	11.39	40.59	54.00	-13.41	150	50	Average	15807.000	32.57	9.52	42.09	54.00	-11.91	150	49	Average
14549.000	43.19	11.39	54.58	74.00	-19.42	150	50	Peak	15807.000	45.86	9.52	55.38	74.00	-18.62	150	49	Peak
16589.000	31.57	12.30	43.87	54.00	-10.13	150	103	Average	16674.000	32.07	12.38	44.45	54.00	-9.55	150	306	Average
16589.000	44.33	12.30	56.63	74.00	-17.37	150	103	Peak	16674.000	44.58	12.38	56.96	74.00	-17.04	150	306	Peak
17779.000	33.19	13.65	46.84	54.00	-7.16	150	26	Average	17779.000	32.55	13.65	46.20	54.00	-7.80	150	178	Average
17779.000	44.43	13.65	58.08	74.00	-15.92	150	26	Peak	17779.000	45.44	13.65	59.09	74.00	-14.91	150	178	Peak

High channel																	
Horizontal									Vertical								
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4434.000	29.54	-4.23	25.31	54.00	-28.69	150	37	Average	3074.000	33.35	-7.67	25.68	54.00	-28.32	150	165	Average
4434.000	45.16	-4.23	40.93	74.00	-33.07	150	37	Peak	3074.000	48.84	-7.67	41.17	74.00	-32.83	150	165	Peak
4904.000	32.28	-2.84	29.44	54.00	-24.56	179	192	Average	4904.000	31.82	-2.84	28.98	54.00	-25.02	246	11	Average
4904.000	43.63	-2.84	40.79	74.00	-33.21	179	192	Peak	4904.000	43.60	-2.84	40.76	74.00	-33.24	246	11	Peak
7356.000	31.38	1.62	33.00	54.00	-21.00	158	289	Average	7356.000	31.34	1.62	32.96	54.00	-21.04	147	238	Average
7356.000	43.60	1.62	45.22	74.00	-28.78	158	289	Peak	7356.000	44.29	1.62	45.91	74.00	-28.09	147	238	Peak
15365.000	32.05	9.64	41.69	54.00	-12.31	150	62	Average	14413.000	30.11	11.34	41.45	54.00	-12.55	150	355	Average
15365.000	44.52	9.64	54.16	74.00	-19.84	150	62	Peak	14413.000	43.26	11.34	54.60	74.00	-19.40	150	355	Peak
16402.000	31.67	11.51	43.18	54.00	-10.82	150	303	Average	16623.000	32.16	12.34	44.50	54.00	-9.50	150	111	Average
16402.000	44.56	11.51	56.07	74.00	-17.93	150	303	Peak	16623.000	44.31	12.34	56.65	74.00	-17.35	150	111	Peak
17762.000	33.04	13.59	46.63	54.00	-7.37	150	125	Average	17779.000	33.03	13.65	46.68	54.00	-7.32	150	88	Average
17762.000	45.37	13.59	58.96	74.00	-15.04	150	125	Peak	17779.000	46.33	13.65	59.98	74.00	-14.02	150	88	Peak

Note:

Level = Reading + Factor.

Margin = Level – Limit.

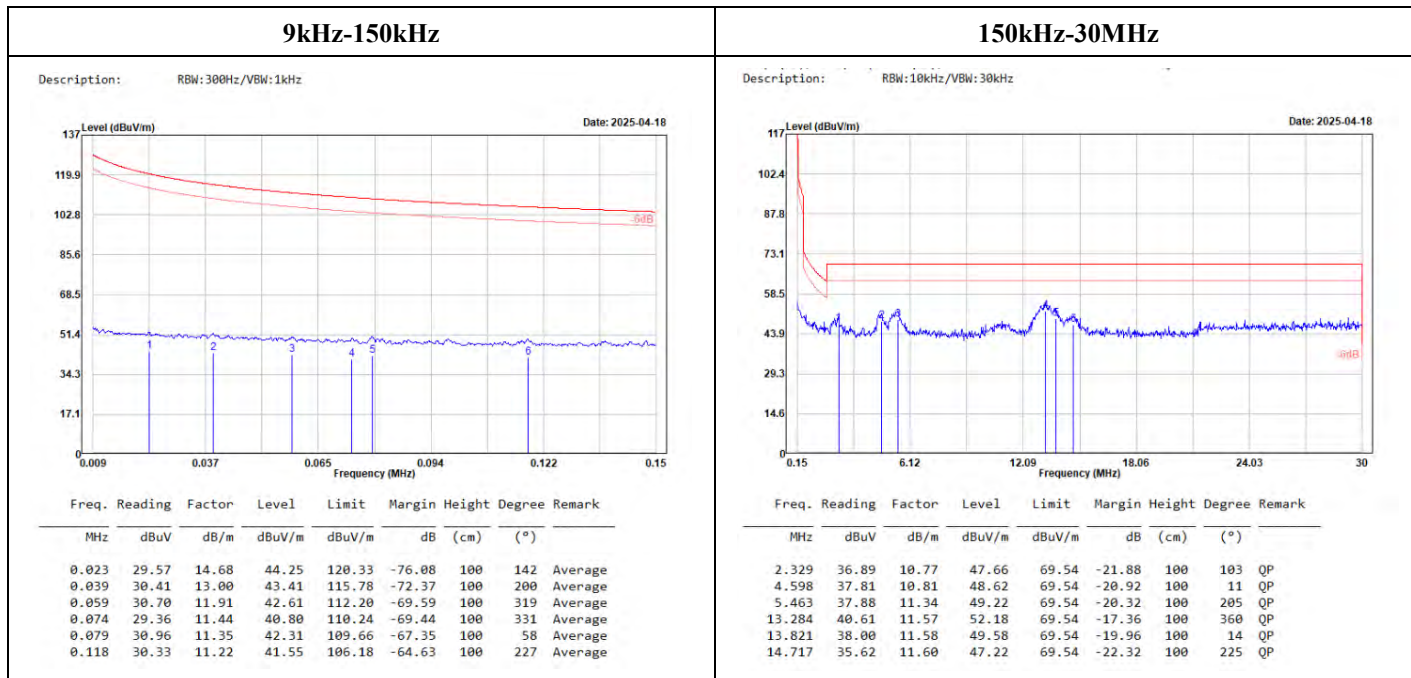
Factor = Antenna Factor + Cable Loss – Amplifier Gain.

BLE Mode

9kHz-30MHz:

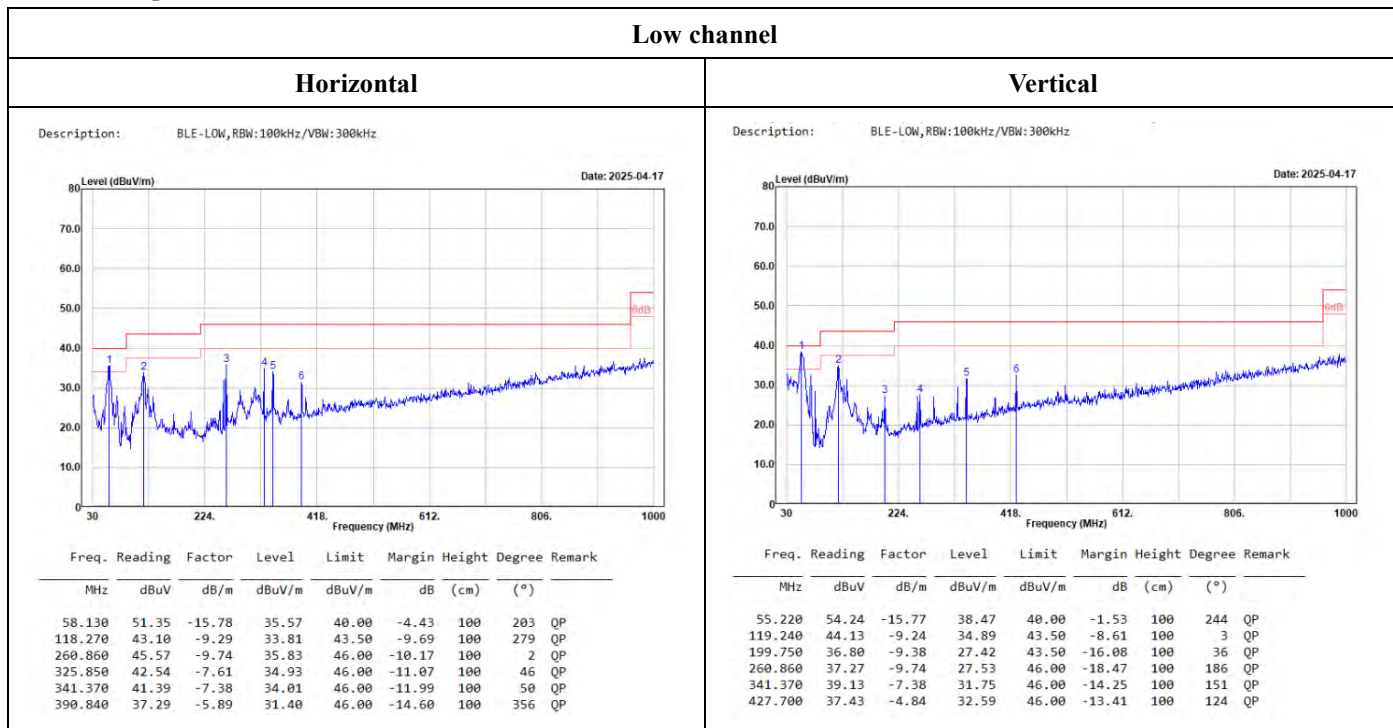
(Worst case is BLE 2M, low channel)

(Pre-scan using three directional polarities, worst case as parallel.)



30MHz-1GHz:

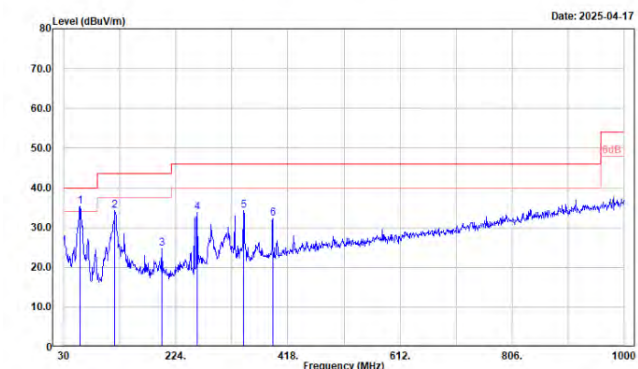
Adapter Mode:



Middle channel

Horizontal

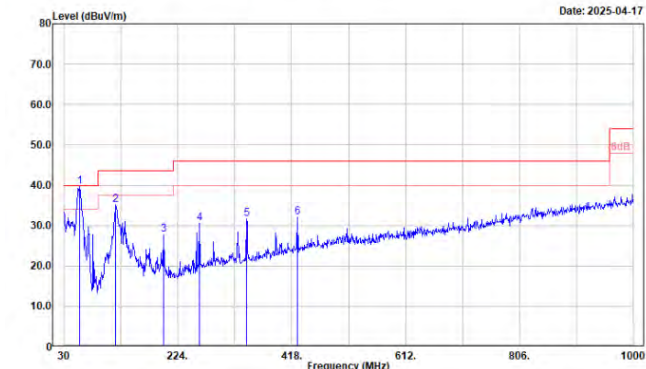
Description: BLE-Middle, RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
58.130	51.09	-15.78	35.31	40.00	-4.69	100	235	QP
118.270	43.58	-9.29	34.29	43.50	-9.21	100	277	QP
199.750	34.05	-9.38	24.67	43.50	-18.83	100	357	QP
260.860	43.63	-9.74	33.89	46.00	-12.11	100	151	QP
341.370	41.56	-7.38	34.18	46.00	-11.82	100	229	QP
391.810	38.05	-5.85	32.20	46.00	-13.80	100	342	QP

Vertical

Description: BLE-Middle, RBW:100kHz/VBW:300kHz

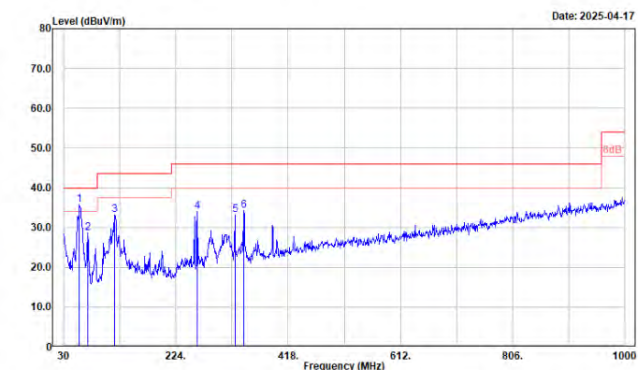


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
57.160	55.25	-15.62	39.63	40.00	-0.37	100	255	QP
118.270	44.32	-9.29	35.03	43.50	-8.47	100	240	QP
199.750	37.10	-9.38	27.72	43.50	-15.78	100	222	QP
260.860	40.25	-9.74	30.51	46.00	-15.49	100	236	QP
341.370	39.04	-7.38	31.66	46.00	-14.34	100	111	QP
427.700	36.97	-4.84	32.13	46.00	-13.87	100	123	QP

High channel

Horizontal

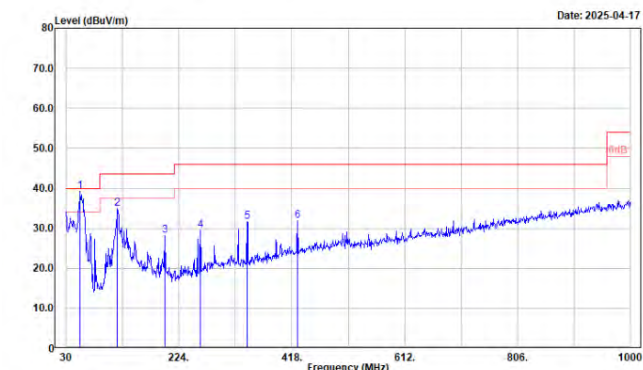
Description: BLE-High, RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
57.160	51.48	-15.62	35.86	40.00	-4.14	100	164	QP
71.710	43.52	-14.94	28.58	40.00	-11.42	100	130	QP
117.300	42.43	-9.30	33.13	43.50	-10.37	100	249	QP
260.860	43.87	-9.74	34.13	46.00	-11.87	100	130	QP
325.850	40.84	-7.61	33.23	46.00	-12.77	100	52	QP
341.370	41.63	-7.38	34.25	46.00	-11.75	100		

Vertical

Description: BLE-High, RBW:100kHz/VBW:300kHz



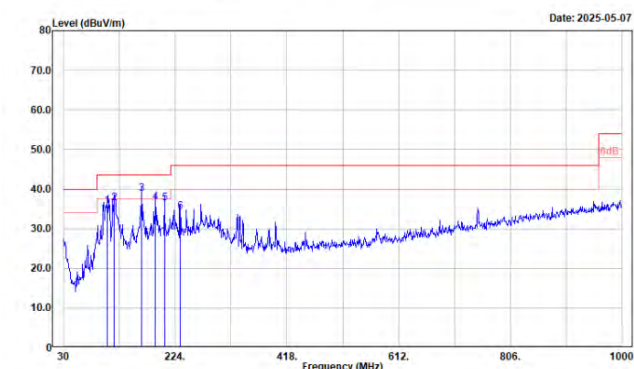
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
54.250	54.81	-15.65	39.16	40.00	-0.84	100	293	QP
118.270	44.15	-9.29	34.86	43.50	-8.64	100	19	QP
199.750	37.50	-9.38	28.12	43.50	-15.38	100	1	QP
260.860	39.15	-9.74	29.41	46.00	-16.59	100	252	QP
341.370	39.14	-7.38	31.76	46.00	-14.24	100	138	QP
427.700	36.78	-4.84	31.94	46.00	-14.06	100	84	QP

POE Mode:

Low channel

Horizontal

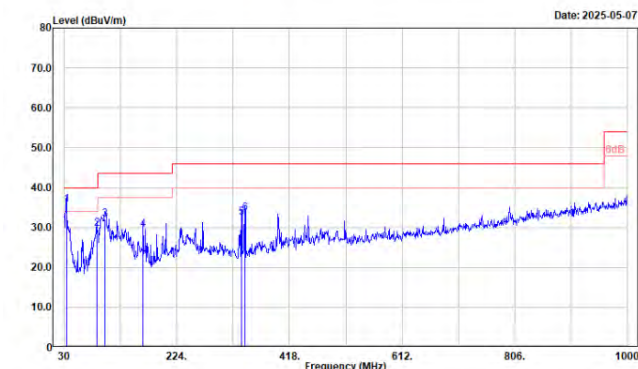
Description: BLE-TX-LOW, RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
106.630	46.81	-11.04	35.77	43.50	-7.73	100	94	QP
118.270	45.00	-9.29	36.51	43.50	-6.99	100	97	QP
165.800	49.12	-10.35	38.77	43.50	-4.73	100	224	QP
190.050	47.84	-11.13	36.71	43.50	-6.79	100	360	QP
205.570	47.55	-11.21	36.34	43.50	-7.16	100	358	QP
232.730	45.09	-10.79	34.30	46.00	-11.70	100	182	QP

Vertical

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

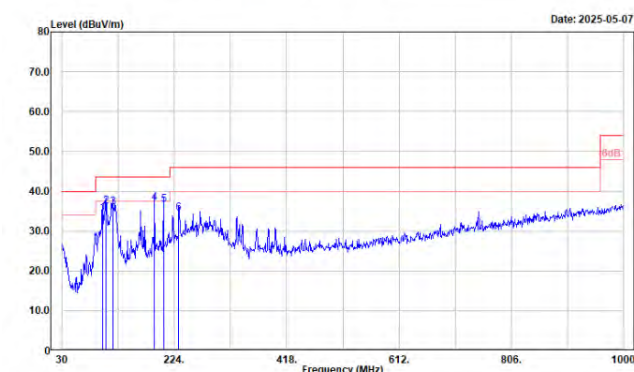


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
33.880	40.83	-5.08	35.75	40.00	-4.25	100	128	QP
86.260	45.34	-15.71	29.63	40.00	-10.37	100	60	QP
99.840	44.84	-12.85	31.99	43.50	-11.51	100	331	QP
165.800	39.76	-10.35	29.41	43.50	-14.09	100	240	QP
335.550	39.86	-7.40	32.46	46.00	-13.54	100	0	QP
341.370	40.88	-7.38	33.50	46.00	-12.50	100	324	QP

Middle channel

Horizontal

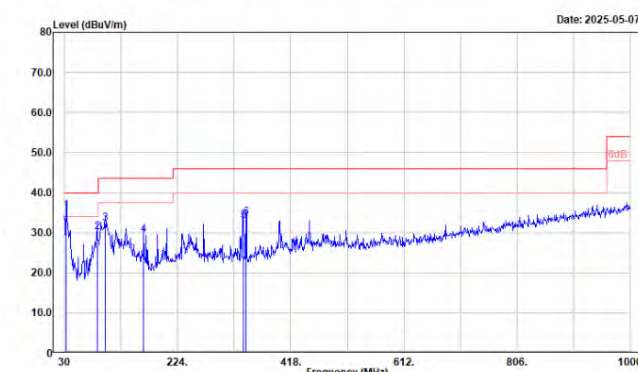
Description: BLE-TX-Middle, RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
99.840	47.30	-12.85	34.45	43.50	-9.05	100	109	QP
105.660	47.50	-11.20	36.30	43.50	-7.20	100	67	QP
117.300	45.35	-9.30	36.05	43.50	-7.45	100	109	QP
190.050	48.19	-11.13	37.06	43.50	-6.44	100	348	QP
205.570	47.75	-11.21	36.54	43.50	-6.96	100	344	QP
231.760	45.24	-10.83	34.41	46.00	-11.59	100	228	QP

Vertical

Description: BLE-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)	(°)	
32.910	40.26	-4.65	35.61	40.00	-4.39	100	75	QP
86.260	45.94	-15.71	30.23	40.00	-9.77	100	276	QP
99.840	45.12	-12.85	32.27	43.50	-11.23	100	338	QP
165.800	39.85	-10.35	29.50	43.50	-14.00	100	257	QP
336.520	40.47	-7.41	33.06	46.00	-12.94	100	353	QP
341.370	41.23	-7.38	33.85	46.00	-12.15	100	0	QP

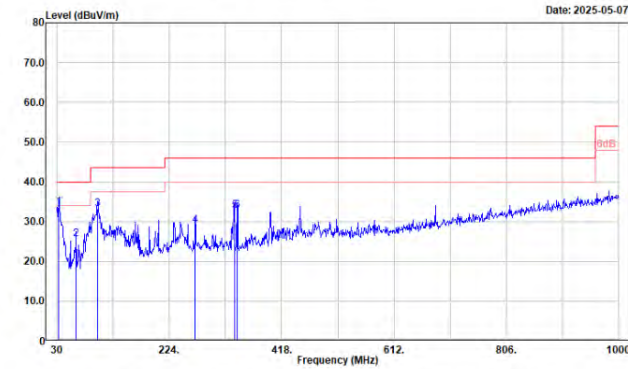
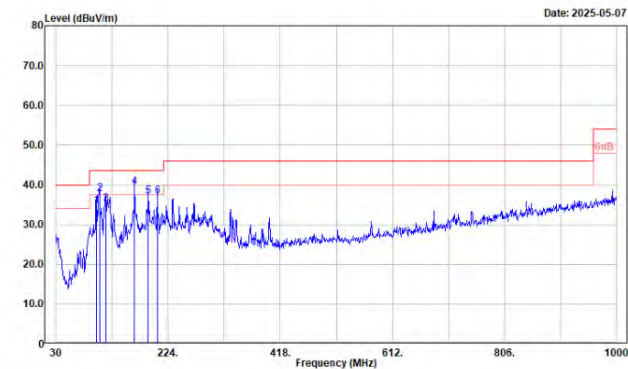
High channel

Horizontal

Vertical

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

Description: BLE-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	47.63	-12.85	34.78	43.50	-8.72	100	75	QP
105.660	48.89	-11.20	37.69	43.50	-5.81	100	79	QP
116.330	44.73	-9.51	35.22	43.50	-8.28	100	213	QP
165.800	49.85	-10.35	39.50	43.50	-4.00	100	213	QP
190.050	48.24	-11.13	37.11	43.50	-6.39	100	353	QP
205.570	48.19	-11.21	36.98	43.50	-6.52	100	349	QP

Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
32.910	38.23	-4.65	33.58	40.00	-6.42	100	139	QP
62.980	40.98	-15.47	25.51	40.00	-14.49	100	2	QP
99.840	46.02	-12.85	33.17	43.50	-10.33	100	301	QP
268.620	37.83	-8.76	29.07	46.00	-16.93	100	39	QP
336.520	40.16	-7.41	32.75	46.00	-13.25	100	3	QP
341.370	40.03	-7.38	32.65	46.00	-13.35	100	0	QP

Level = Reading + Factor.
Margin = Level - Limit.
Factor = Antenna Factor + Cable Loss - Amplifier Gain.

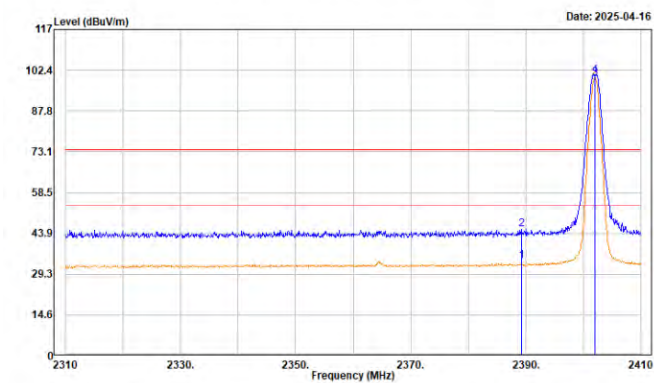
Band-Edge:

BLE 1M

Low channel

Horizontal

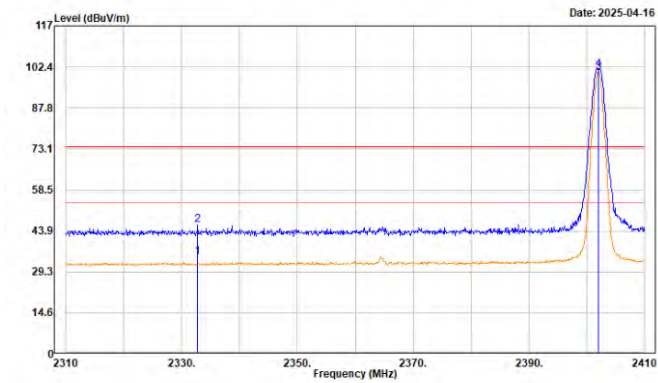
Description: BLE_1M-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:3kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2389.200	44.52	-10.70	33.82	54.00	-20.18	118	234	Average
2389.200	56.12	-10.70	45.42	74.00	-28.58	118	234	Peak
2402.000	110.28	-10.63	99.65			118	234	Average
2402.000	111.30	-10.63	100.67			118	234	Peak

Vertical

Description: BLE_1M-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:3kHz

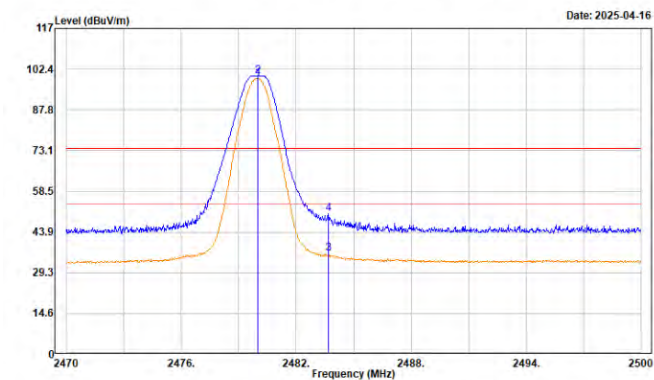


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2332.800	45.73	-11.09	34.64	54.00	-19.36	248	17	Average
2332.800	56.94	-11.09	45.85	74.00	-28.15	248	17	Peak
2402.000	111.09	-10.63	100.46			248	17	Average
2402.000	112.12	-10.63	101.49			248	17	Peak

High channel

Horizontal

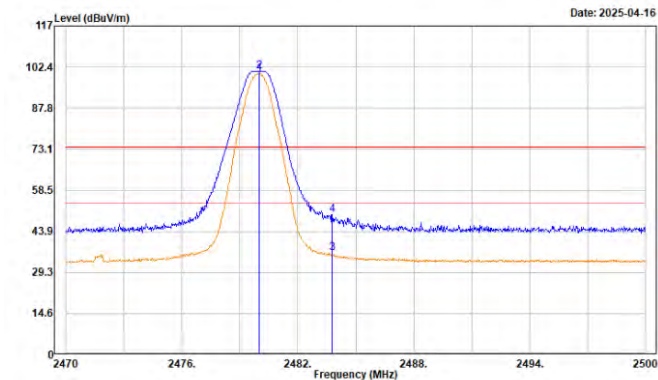
Description: BLE_1M-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:3kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	109.18	-10.22	98.96			255	211	Average
2480.000	110.20	-10.22	99.98			255	211	Peak
2483.680	46.44	-10.17	36.27	54.00	-17.73	255	211	Average
2483.680	60.47	-10.17	50.30	74.00	-23.70	255	211	Peak

Vertical

Description: BLE_1M-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:3kHz



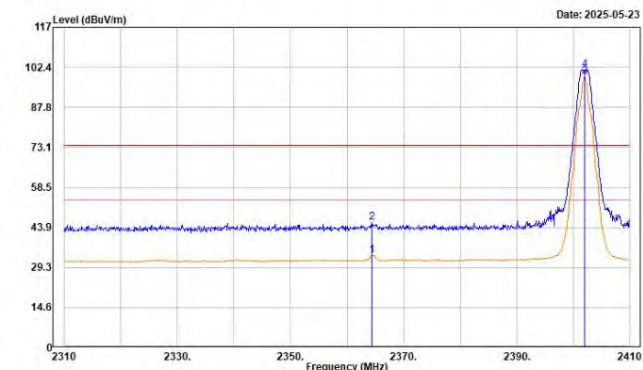
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	110.13	-10.22	99.91			265	208	Average
2480.000	111.13	-10.22	100.91			265	208	Peak
2483.800	46.17	-10.16	36.01	54.00	-17.99	265	208	Average
2483.800	59.95	-10.16	49.79	74.00	-24.21	265	208	Peak

BLE 2M

Low channel

Horizontal

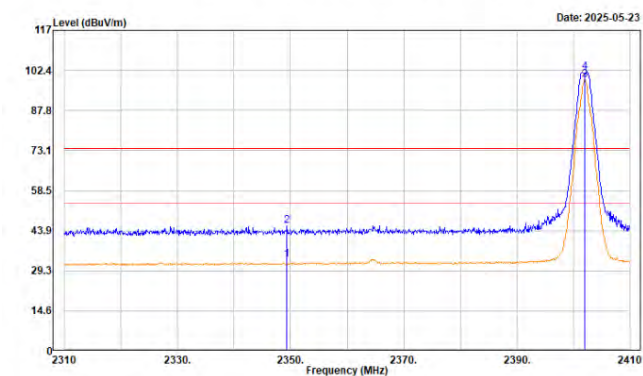
Description: BLE_2M-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2364.400	44.64	-10.88	33.76	54.00	-20.24	138	196	Average
2364.400	56.64	-10.88	45.76	74.00	-28.24	138	196	Peak
2402.000	109.41	-10.63	98.78			138	196	Average
2402.000	112.19	-10.63	101.56			138	196	Peak

Vertical

Description: BLE_2M-TX-2402,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz

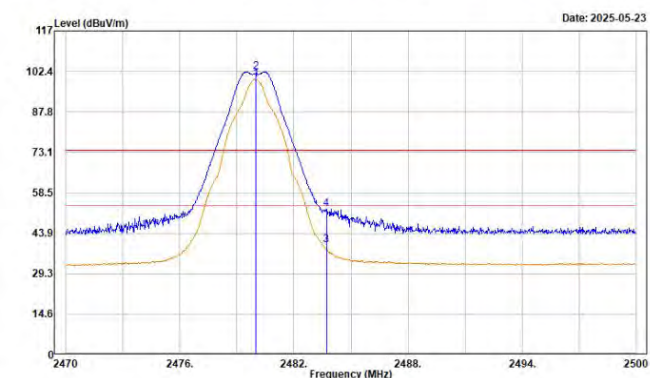


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2349.400	44.35	-10.97	33.38	54.00	-20.62	183	165	Average
2349.400	56.65	-10.97	45.68	74.00	-28.32	183	165	Peak
2402.000	109.54	-10.63	98.91			183	165	Average
2402.000	112.35	-10.63	101.72			183	165	Peak

High channel

Horizontal

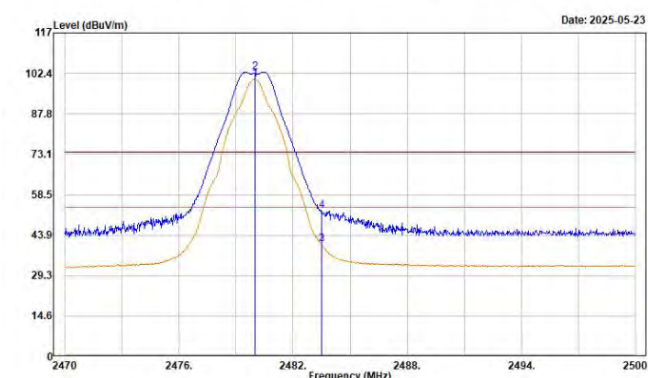
Description: BLE_2M-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	109.69	-10.22	99.47			174	201	Average
2480.000	112.35	-10.22	102.13			174	201	Peak
2483.710	49.92	-10.17	39.75	54.00	-14.25	174	201	Average
2483.710	62.87	-10.17	52.70	74.00	-21.30	174	201	Peak

Vertical

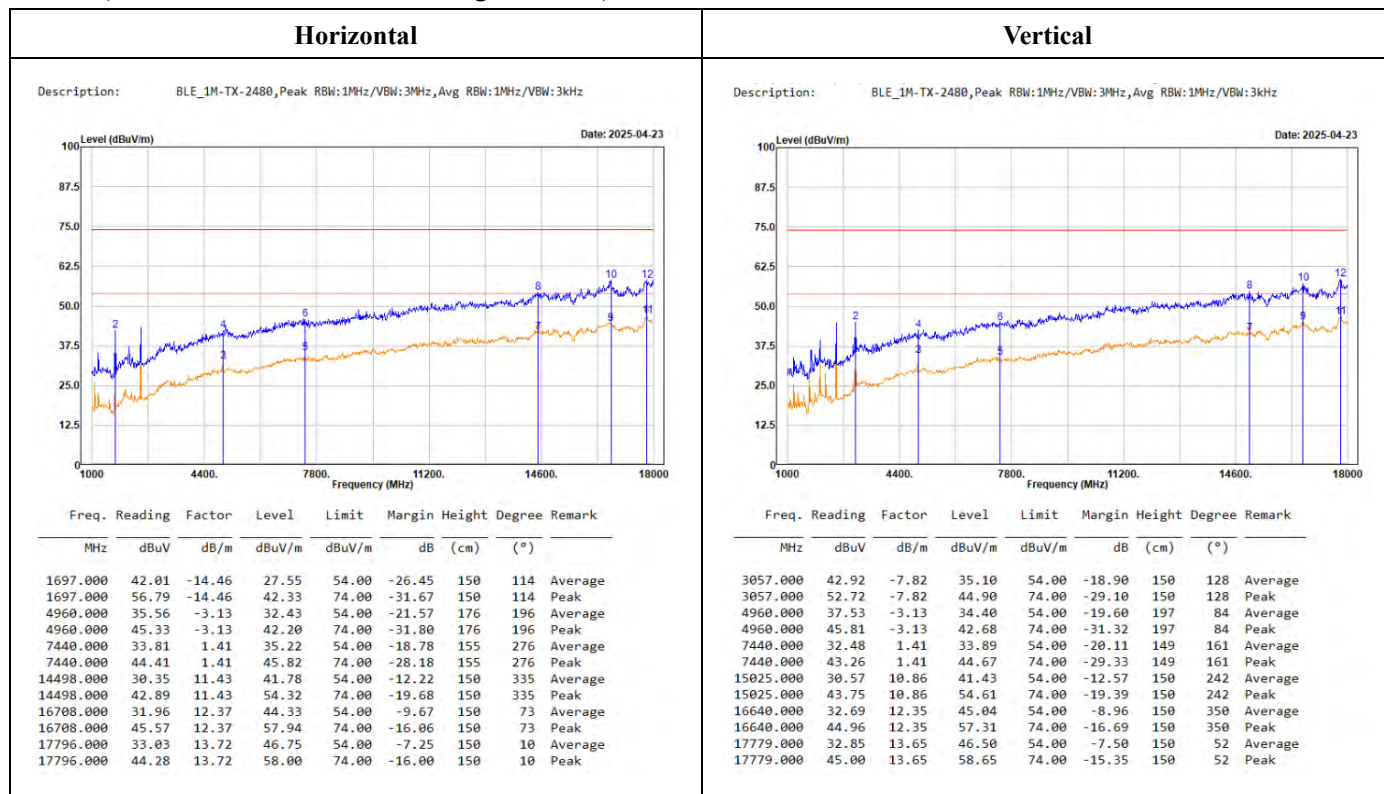
Description: BLE_2M-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:1kHz



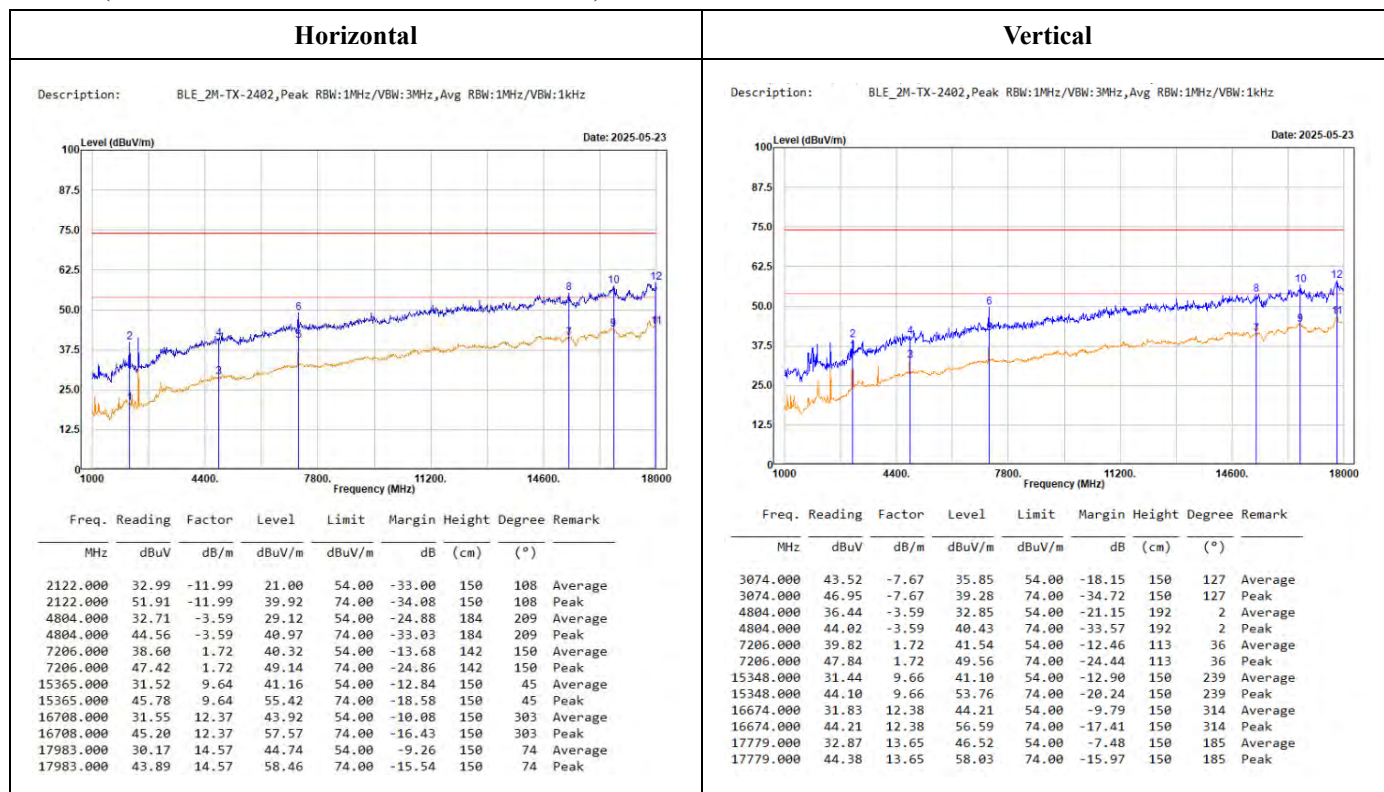
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2480.000	110.40	-10.22	100.18			138	81	Average
2480.000	113.07	-10.22	102.85			138	81	Peak
2483.500	50.79	-10.17	40.62	54.00	-13.38	138	81	Average
2483.500	62.81	-10.17	52.64	74.00	-21.36	138	81	Peak

1GHz-18GHz:

(BLE 1M mode worst case is high channel)



(BLE 2M mode worst case is low channel)



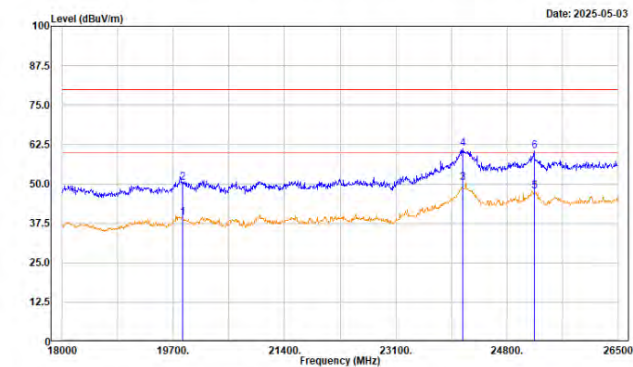
Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.
(New Taipei Laboratory)

18GHz-26.5GHz:

(Worst case is BLE 1M, high channel)

Horizontal

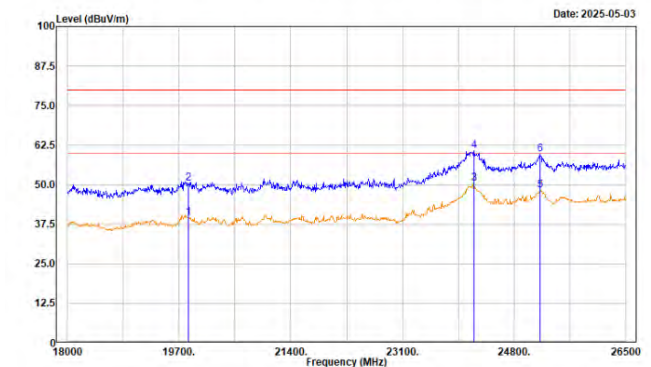
Description: BLE_1M-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:3kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
19840.000	39.84	-0.54	39.30	60.00	-20.70	158	289	Average
19840.000	50.98	-0.54	50.44	80.00	-29.56	158	289	Peak
24128.500	37.36	13.05	50.41	60.00	-9.59	144	224	Average
24128.500	48.10	13.05	61.15	80.00	-18.85	144	224	Peak
25216.500	37.41	10.28	47.69	60.00	-12.31	149	360	Average
25216.500	50.27	10.28	60.55	80.00	-19.45	149	360	Peak

Vertical

Description: BLE_1M-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:3kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
19840.000	40.06	-0.54	39.52	60.00	-20.48	140	159	Average
19840.000	50.96	-0.54	50.42	80.00	-29.58	140	159	Peak
24128.500	38.32	11.98	50.30	60.00	-9.70	148	80	Average
24128.500	48.79	11.98	60.77	80.00	-19.23	148	80	Peak
25191.000	37.84	10.34	48.18	60.00	-11.82	145	237	Average
25191.000	49.18	10.34	59.52	80.00	-20.48	145	237	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 1.5 meter:

Conversion factor = $20 \log(1.5\text{m}/3\text{m}) = 6 \text{ dB}$,Average Limit = $54+6 = 60 \text{ dBuV/m}@1.5\text{m}$, Peak Limit = $60+20 = 80 \text{ dBuV/m}@1.5\text{m}$

Above 1GHz

BLE 1M Mode:

Low channel																	
Horizontal								Vertical									
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3839.000	35.02	-6.89	28.13	54.00	-25.87	150	168	Average	3074.000	37.83	-7.67	30.16	54.00	-23.84	150	230	Average
3839.000	45.76	-6.89	38.87	74.00	-35.13	150	168	Peak	3074.000	46.71	-7.67	39.04	74.00	-34.96	150	230	Peak
4804.000	33.07	-3.59	29.48	54.00	-24.52	116	233	Average	4804.000	32.42	-3.59	28.83	54.00	-25.17	233	158	Average
4804.000	43.56	-3.59	39.97	74.00	-34.03	116	233	Peak	4804.000	44.03	-3.59	40.44	74.00	-33.56	233	158	Peak
7206.000	33.20	1.72	34.92	54.00	-19.08	158	99	Average	7206.000	31.46	1.72	33.18	54.00	-20.82	145	67	Average
7206.000	42.84	1.72	44.56	74.00	-29.44	158	99	Peak	7206.000	45.62	1.72	47.34	74.00	-26.66	145	67	Peak
15042.000	31.36	10.80	42.16	54.00	-11.84	150	107	Average	15739.000	33.71	9.18	42.89	54.00	-11.11	150	103	Average
15042.000	43.59	10.80	54.39	74.00	-19.61	150	107	Peak	15739.000	45.27	9.18	54.45	74.00	-19.55	150	103	Peak
16606.000	32.33	12.33	44.66	54.00	-9.34	150	44	Average	16606.000	32.04	12.33	44.37	54.00	-9.63	150	308	Average
16606.000	44.40	12.33	56.73	74.00	-17.27	150	44	Peak	16606.000	44.30	12.33	56.63	74.00	-17.37	150	308	Peak
17779.000	32.65	13.65	46.30	54.00	-7.70	150	314	Average	17779.000	32.52	13.65	46.17	54.00	-7.83	150	35	Average
17779.000	45.06	13.65	58.71	74.00	-15.29	150	314	Peak	17779.000	44.36	13.65	58.01	74.00	-15.99	150	35	Peak

Middle channel																	
Horizontal								Vertical									
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
3261.000	32.81	-6.62	26.19	54.00	-27.81	150	109	Average	3057.000	42.54	-7.82	34.72	54.00	-19.28	150	147	Average
3261.000	45.64	-6.62	39.02	74.00	-34.98	150	109	Peak	3057.000	52.23	-7.82	44.41	74.00	-29.59	150	147	Peak
4880.000	33.18	-2.99	30.19	54.00	-23.81	138	236	Average	4880.000	34.55	-2.99	31.56	54.00	-22.44	196	83	Average
4880.000	44.04	-2.99	41.05	74.00	-32.95	138	236	Peak	4880.000	45.00	-2.99	42.01	74.00	-31.99	196	83	Peak
7320.000	31.40	1.84	33.24	54.00	-20.76	156	176	Average	7320.000	31.22	1.84	33.06	54.00	-20.94	143	220	Average
7320.000	42.57	1.84	44.41	74.00	-29.59	156	176	Peak	7320.000	44.15	1.84	45.99	74.00	-28.01	143	220	Peak
14362.000	29.90	11.13	41.03	54.00	-12.97	150	324	Average	14855.000	29.97	11.12	41.09	54.00	-12.91	150	197	Average
14362.000	43.83	11.13	54.96	74.00	-19.04	150	324	Peak	14855.000	43.52	11.12	54.64	74.00	-19.36	150	197	Peak
16521.000	31.04	12.15	43.19	54.00	-10.81	150	87	Average	16759.000	31.91	12.20	44.11	54.00	-9.89	150	349	Average
16521.000	44.59	12.15	56.74	74.00	-17.26	150	87	Peak	16759.000	44.08	12.20	56.28	74.00	-17.72	150	349	Peak
17796.000	32.62	13.72	46.34	54.00	-7.66	150	40	Average	17745.000	32.18	13.52	45.70	54.00	-8.30	150	30	Average
17796.000	44.60	13.72	58.32	74.00	-15.68	150	40	Peak	17745.000	44.78	13.52	58.30	74.00	-15.70	150	30	Peak

High channel																	
Horizontal								Vertical									
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
1697.000	42.01	-14.46	27.55	54.00	-26.45	150	114	Average	3057.000	42.92	-7.82	35.10	54.00	-18.90	150	128	Average
1697.000	56.79	-14.46	42.33	74.00	-31.67	150	114	Peak	3057.000	52.72	-7.82	44.90	74.00	-29.10	150	128	Peak
4960.000	35.56	-3.13	32.43	54.00	-21.57	176	196	Average	4960.000	37.53	-3.13	34.40	54.00	-19.60	197	84	Average
4960.000	45.33	-3.13	42.20	74.00	-31.80	176	196	Peak	4960.000	45.81	-3.13	42.68	74.00	-31.32	197	84	Peak
7440.000	33.81	1.41	35.22	54.00	-18.78	155	276	Average	7440.000	32.48	1.41	33.89	54.00	-20.11	149	161	Average
7440.000	44.41	1.41	45.82	74.00	-28.18	155	276	Peak	7440.000	43.26	1.41	44.67	74.00	-29.33	149	161	Peak
14498.000	30.35	11.43	41.78	54.00	-12.22	150	335	Average	15025.000	30.57	10.86	41.43	54.00	-12.57	150	242	Average
14498.000	42.89	11.43	54.32	74.00	-19.68	150	335	Peak	15025.000	43.75	10.86	54.61	74.00	-19.39	150	242	Peak
16708.000	31.96	12.37	44.33	54.00	-9.67	150	73	Average	16640.000	32.69	12.35	45.04	54.00	-8.96	150	350	Average
16708.000	45.57	12.37	57.94	74.00	-16.06	150	73	Peak	16640.000	44.96	12.35	57.31	74.00	-16.69	150	350	Peak
17796.000	33.03	13.72	46.75	54.00	-7.25	150	10	Average	17779.000	32.85	13.65	46.50	54.00	-7.50	150	52	Average
17796.000	44.28	13.72	58.00	74.00	-16.00	150	10	Peak	17779.000	45.00	13.65	58.65	74.00	-15.35	150	52	Peak

Note:

Level = Reading + Factor.

Margin = Level - Limit.

Factor = Antenna Factor + Cable Loss - Amplifier Gain.

BLE 2M Mode:

Low channel																	
Horizontal								Vertical									
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2122.000	32.99	-11.99	21.00	54.00	-33.00	150	108	Average	3074.000	43.52	-7.67	35.85	54.00	-18.15	150	127	Average
2122.000	51.91	-11.99	39.92	74.00	-34.08	150	108	Peak	3074.000	46.95	-7.67	39.28	74.00	-34.72	150	127	Peak
4804.000	32.71	-3.59	29.12	54.00	-24.88	184	209	Average	4804.000	36.44	-3.59	32.85	54.00	-21.15	192	2	Average
4804.000	44.56	-3.59	40.97	74.00	-33.03	184	209	Peak	4804.000	44.02	-3.59	40.43	74.00	-33.57	192	2	Peak
7206.000	38.60	1.72	40.32	54.00	-13.68	142	150	Average	7206.000	39.82	1.72	41.54	54.00	-12.46	113	36	Average
7206.000	47.42	1.72	49.14	74.00	-24.86	142	150	Peak	7206.000	47.84	1.72	49.56	74.00	-24.44	113	36	Peak
15365.000	31.52	9.64	41.16	54.00	-12.84	150	45	Average	15348.000	31.44	9.66	41.10	54.00	-12.90	150	239	Average
15365.000	45.78	9.64	55.42	74.00	-18.58	150	45	Peak	15348.000	44.10	9.66	53.76	74.00	-20.24	150	239	Peak
16708.000	31.55	12.37	43.92	54.00	-10.08	150	303	Average	16674.000	31.83	12.38	44.21	54.00	-9.79	150	314	Average
16708.000	45.20	12.37	57.57	74.00	-16.43	150	303	Peak	16674.000	44.21	12.38	56.59	74.00	-17.41	150	314	Peak
17983.000	30.17	14.57	44.74	54.00	-9.26	150	74	Average	17779.000	32.87	13.65	46.52	54.00	-7.48	150	185	Average
17983.000	43.89	14.57	58.46	74.00	-15.54	150	74	Peak	17779.000	44.38	13.65	58.03	74.00	-15.97	150	185	Peak

Middle channel																	
Horizontal								Vertical									
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4366.000	32.59	-4.60	27.99	54.00	-26.01	150	68	Average	1714.000	34.99	-14.32	20.67	54.00	-33.33	150	124	Average
4366.000	45.29	-4.60	40.69	74.00	-33.31	150	68	Peak	1714.000	62.54	-14.32	48.22	74.00	-25.78	150	124	Peak
4880.000	32.17	-2.99	29.18	54.00	-24.82	157	206	Average	4880.000	37.91	-2.99	34.92	54.00	-19.08	174	1	Average
4880.000	44.62	-2.99	41.63	74.00	-32.37	157	206	Peak	4880.000	48.04	-2.99	45.05	74.00	-28.95	174	1	Peak
7320.000	35.55	1.84	37.39	54.00	-16.61	136	151	Average	7320.000	38.37	1.84	40.21	54.00	-13.79	113	34	Average
7320.000	45.57	1.84	47.41	74.00	-26.59	136	151	Peak	7320.000	47.93	1.84	49.77	74.00	-24.23	113	34	Peak
15688.000	32.49	8.97	41.46	54.00	-12.54	150	5	Average	15960.000	31.88	10.06	41.94	54.00	-12.06	150	187	Average
15688.000	46.32	8.97	55.29	74.00	-18.71	150	5	Peak	15960.000	45.65	10.06	55.71	74.00	-18.29	150	187	Peak
16623.000	32.11	12.34	44.45	54.00	-9.55	150	132	Average	16606.000	31.53	12.33	43.86	54.00	-10.14	150	311	Average
16623.000	43.83	12.34	56.17	74.00	-17.83	150	132	Peak	16606.000	44.24	12.33	56.57	74.00	-17.43	150	311	Peak
17949.000	29.88	14.46	44.34	54.00	-9.66	150	335	Average	17813.000	32.45	13.79	46.24	54.00	-7.76	150	247	Average
17949.000	43.56	14.46	58.02	74.00	-15.98	150	335	Peak	17813.000	45.65	13.79	59.44	74.00	-14.56	150	247	Peak

High channel																	
Horizontal								Vertical									
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark	Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
4689.000	32.23	-3.31	28.92	54.00	-25.08	150	324	Average	4434.000	32.29	-4.23	28.06	54.00	-25.94	150	124	Average
4689.000	43.90	-3.31	40.59	74.00	-33.41	150	324	Peak	4434.000	45.26	-4.23	41.03	74.00	-32.97	150	124	Peak
4960.000	39.05	-3.13	35.92	54.00	-18.08	218	40	Average	4960.000	38.95	-3.13	35.82	54.00	-18.18	161	358	Average
4960.000	48.39	-3.13	45.26	74.00	-28.74	218	40	Peak	4960.000	49.64	-3.13	46.51	74.00	-27.49	161	358	Peak
7440.000	35.11	1.41	36.52	54.00	-17.48	209	33	Average	7440.000	32.31	1.41	33.72	54.00	-20.28	132	26	Average
7440.000	44.77	1.41	46.18	74.00	-27.82	209	33	Peak	7440.000	44.48	1.41	45.89	74.00	-28.11	132	26	Peak
14736.000	29.87	11.33	41.20	54.00	-12.80	150	147	Average	14413.000	29.73	11.34	41.07	54.00	-12.93	150	225	Average
14736.000	42.84	11.33	54.17	74.00	-19.83	150	147	Peak	14413.000	44.09	11.34	55.43	74.00	-18.57	150	225	Peak
16555.000	31.06	12.22	43.28	54.00	-10.72	150	286	Average	16368.000	31.24	11.35	42.59	54.00	-11.41	150	174	Average
16555.000	44.44	12.22	56.66	74.00	-17.34	150	286	Peak	16368.000	45.13	11.35	56.48	74.00	-17.52	150	174	Peak
17762.000	32.61	13.59	46.20	54.00	-7.80	150	197	Average	17779.000	32.76	13.65	46.41	54.00	-7.59	150	10	Average
17762.000	45.03	13.59	58.62	74.00	-15.38	150	197	Peak	17779.000	44.66	13.65	58.31	74.00	-15.69	150	10	Peak

Note:

Level = Reading + Factor.

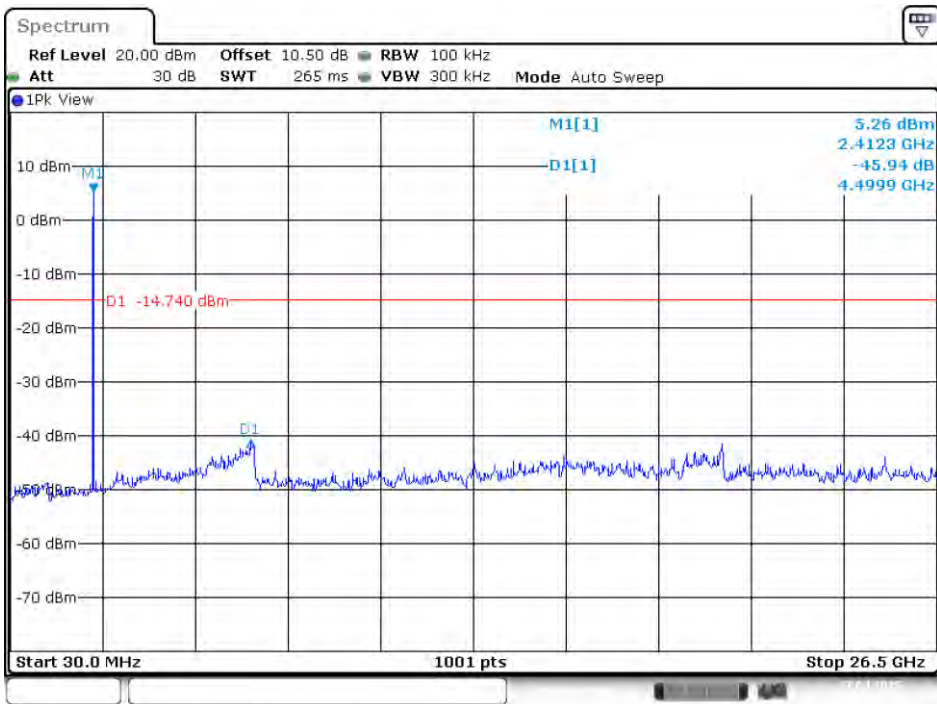
Margin = Level - Limit.

Factor = Antenna Factor + Cable Loss - Amplifier Gain.

Conducted Spurious Emissions:

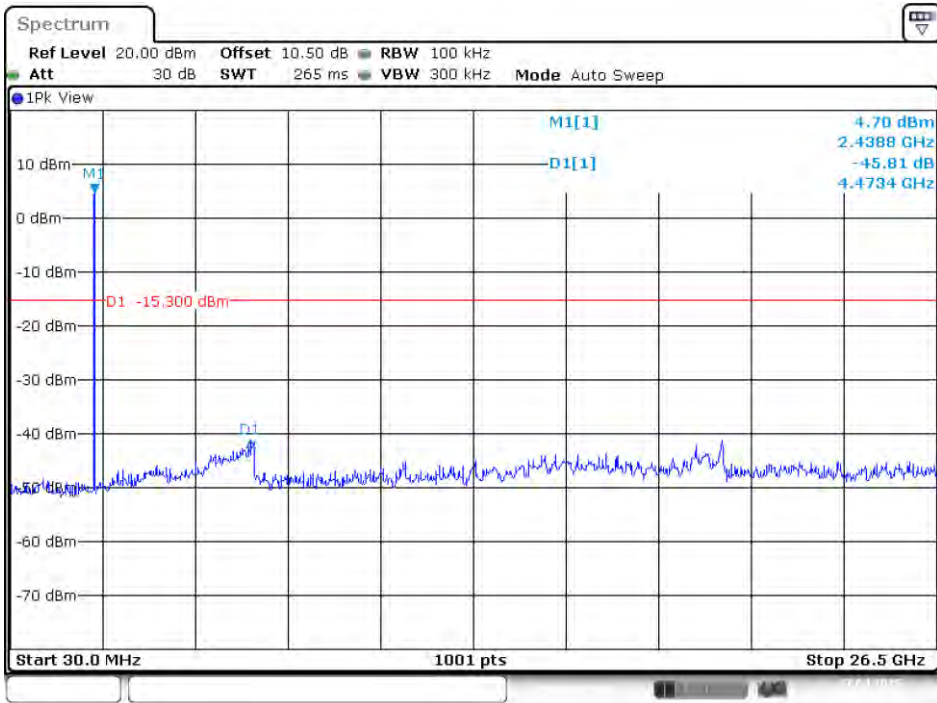
Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B Mode				
Low	2412	45.94	≥ 20	PASS
Mid	2437	45.81	≥ 20	PASS
High	2462	44.27	≥ 20	PASS
G Mode				
Low	2412	42.70	≥ 20	PASS
Mid	2437	40.77	≥ 20	PASS
High	2462	41.70	≥ 20	PASS
N20 Mode				
Low	2412	41.84	≥ 20	PASS
Mid	2437	41.01	≥ 20	PASS
High	2462	40.96	≥ 20	PASS
N40 Mode				
Low	2422	38.25	≥ 20	PASS
Mid	2437	37.75	≥ 20	PASS
High	2452	35.96	≥ 20	PASS
BLE(1M) Mode				
Low	2402	45.17	≥ 20	PASS
Mid	2440	44.01	≥ 20	PASS
High	2480	42.20	≥ 20	PASS
BLE(2M) Mode				
Low	2402	46.14	≥ 20	PASS
Mid	2440	42.92	≥ 20	PASS
High	2480	42.31	≥ 20	PASS

B Mode
Low Channel



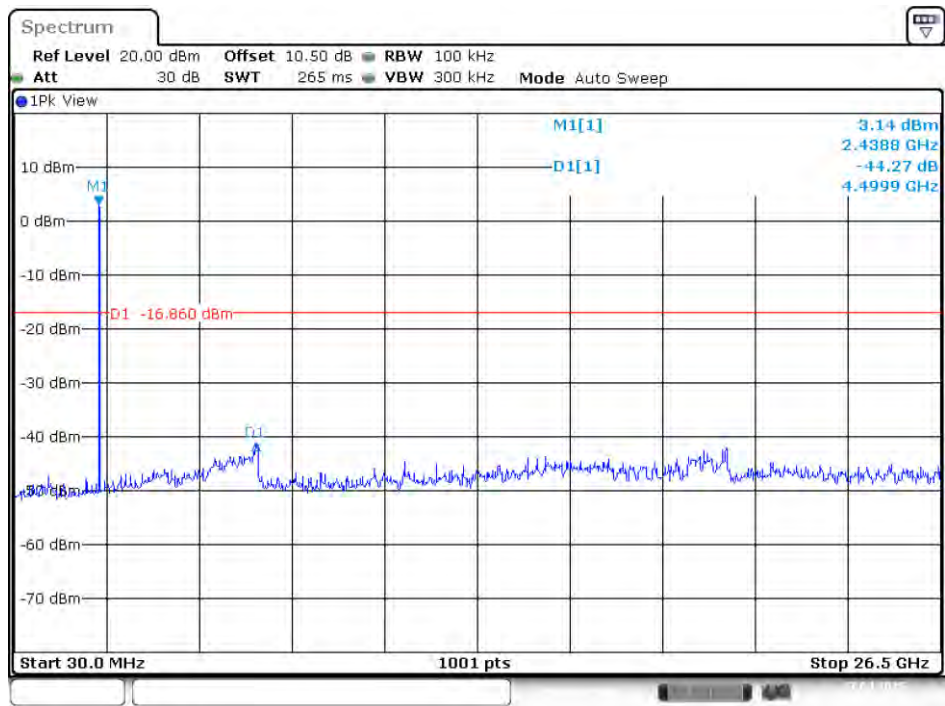
Date: 17.APR.2025 10:48:07

Middle Channel



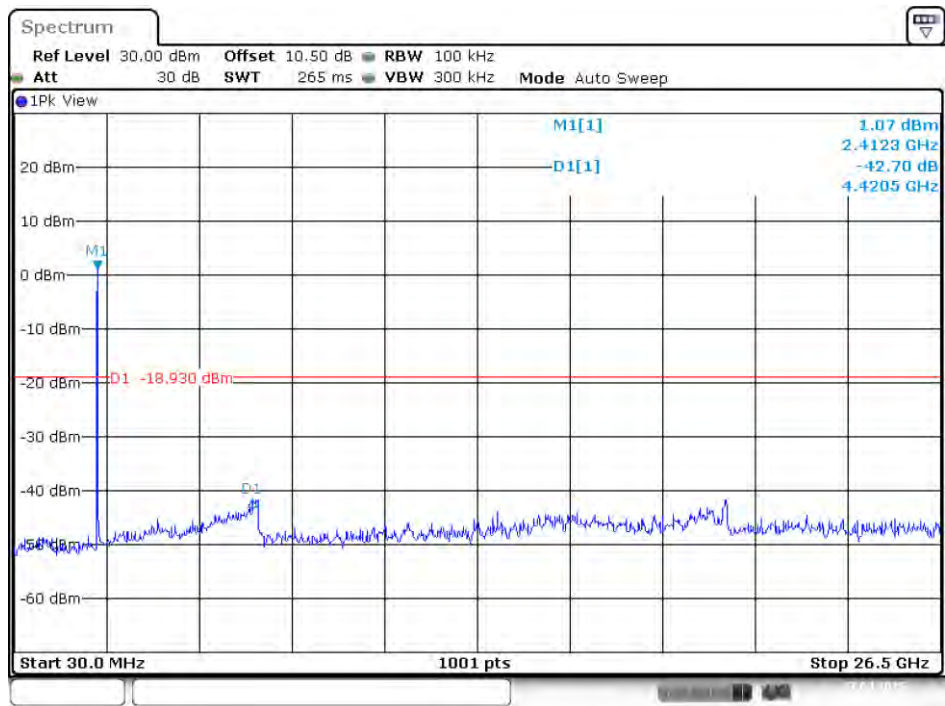
Date: 17.APR.2025 10:54:50

High Channel



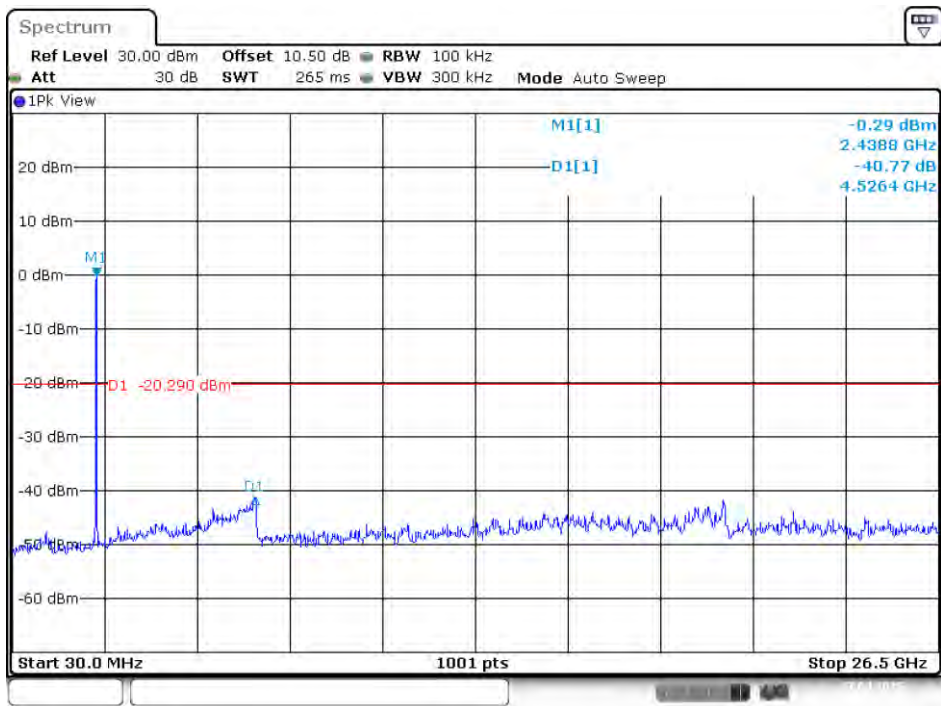
Date: 17.APR.2025 10:57:47

G Mode
Low Channel



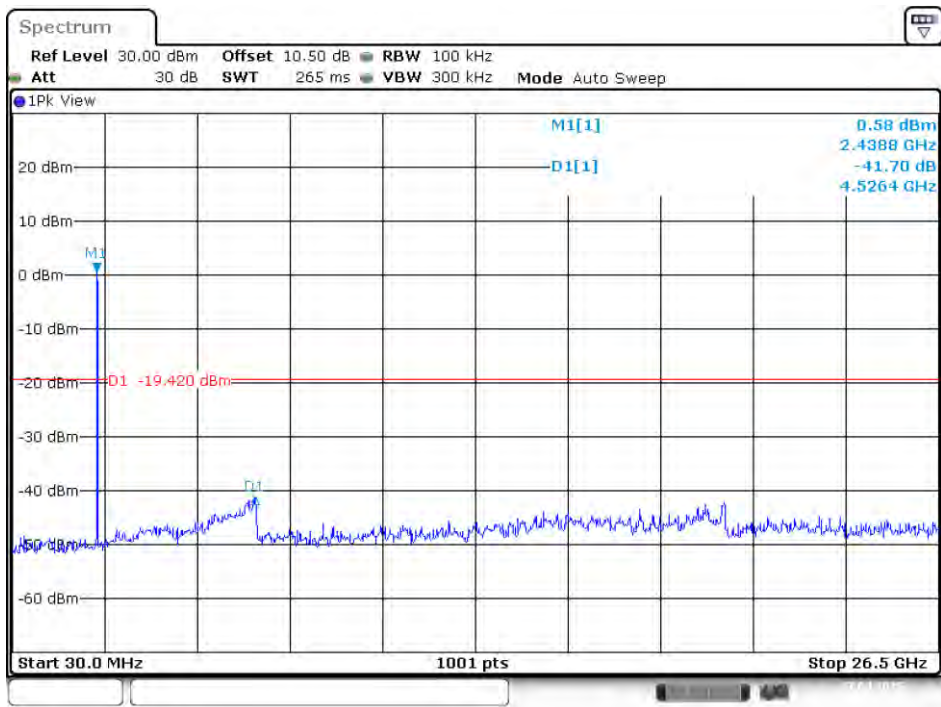
Date: 17.APR.2025 11:01:40

Middle Channel



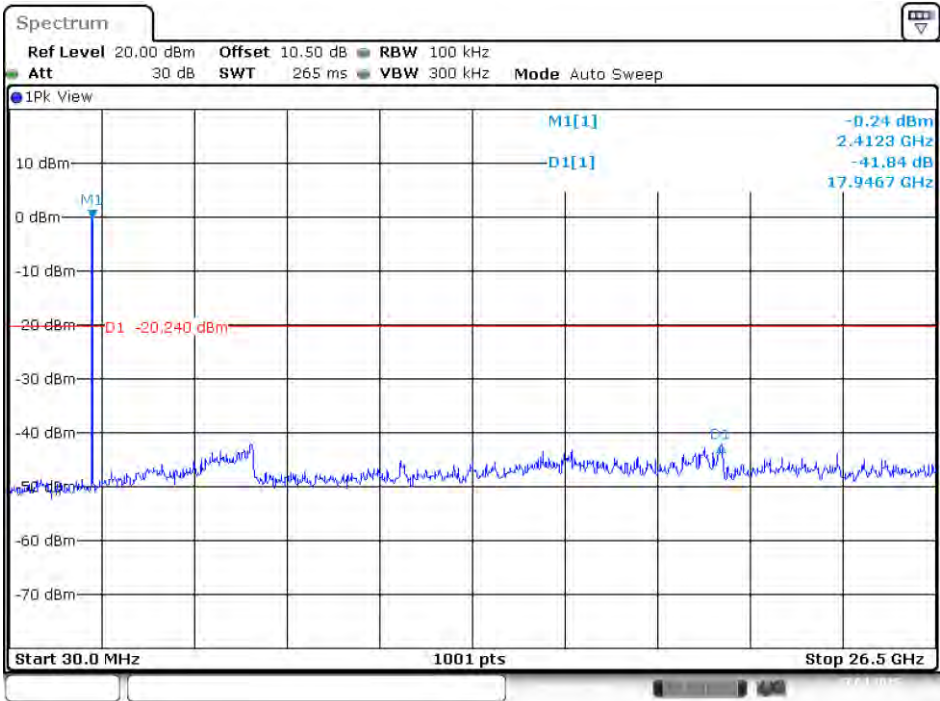
Date: 17.APR.2025 11:08:32

High Channel



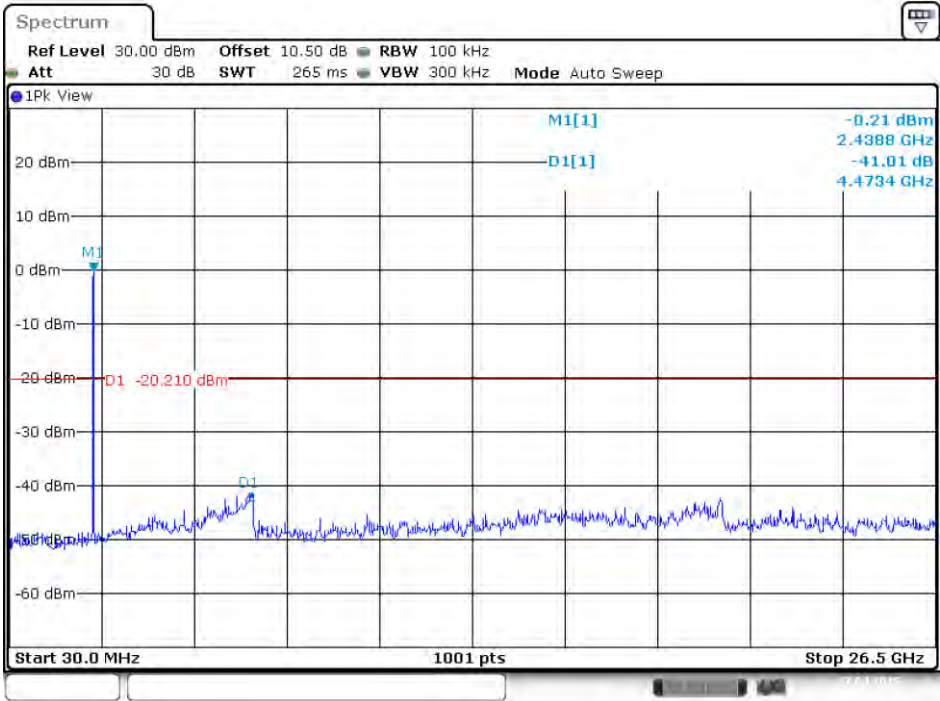
Date: 17.APR.2025 11:10:53

N20 Mode
Low Channel



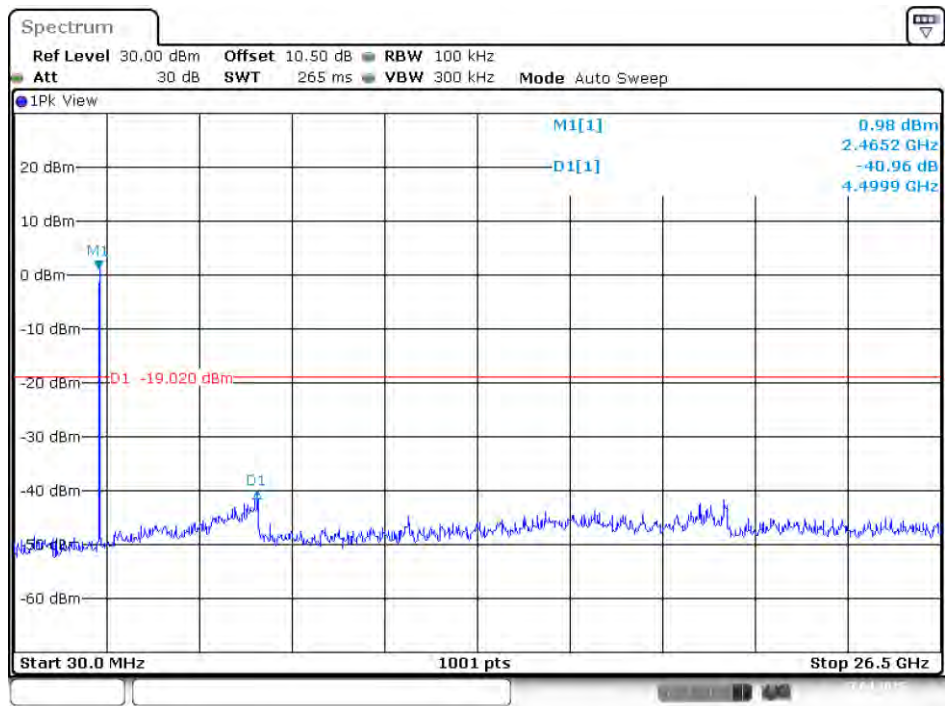
Date: 17.APR.2025 11:25:38

Middle Channel



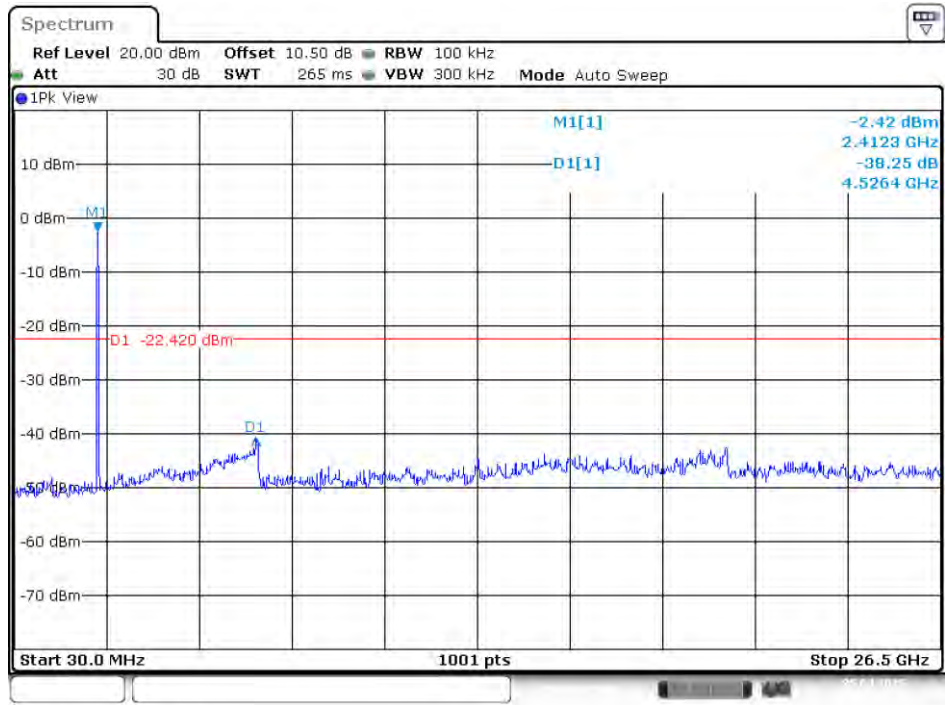
Date: 17.APR.2025 11:28:28

High Channel



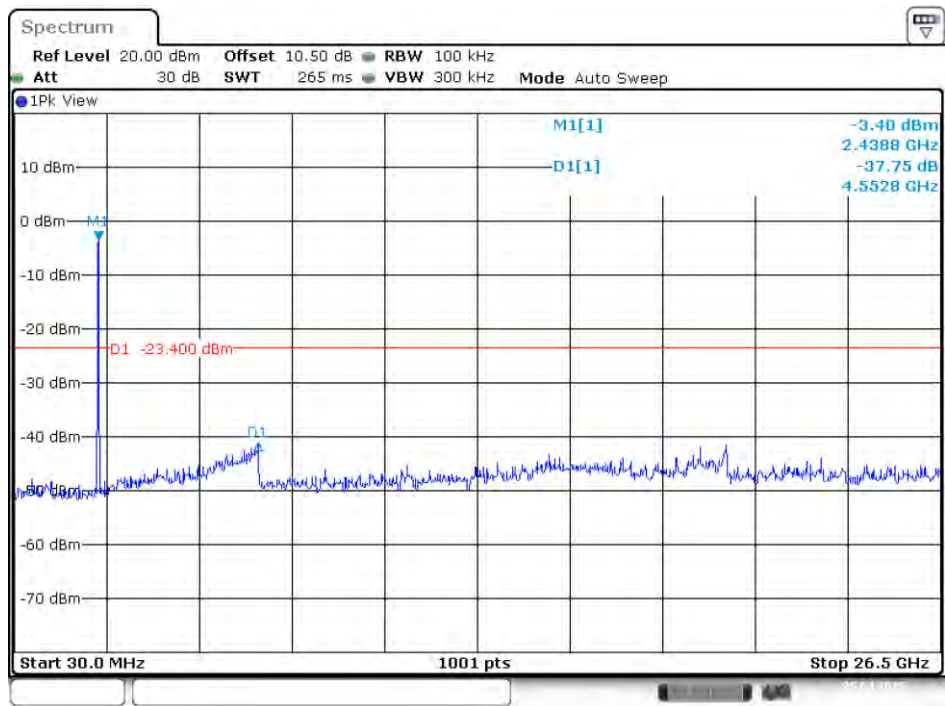
Date: 17.APR.2025 11:31:59

N40 Mode
Low Channel



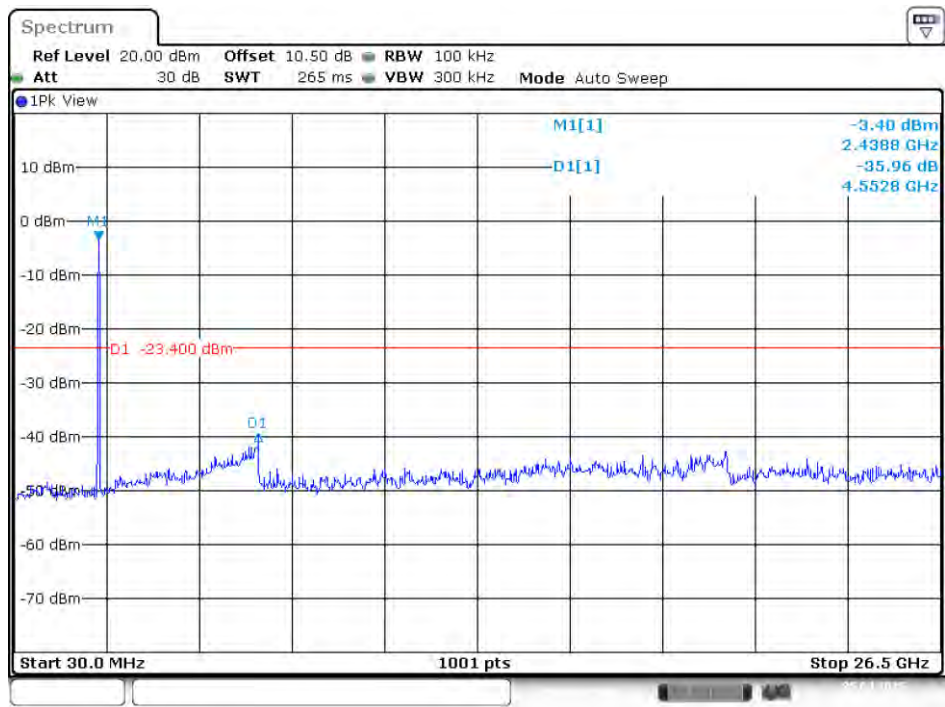
Date: 25.APR.2025 12:21:32

Middle Channel



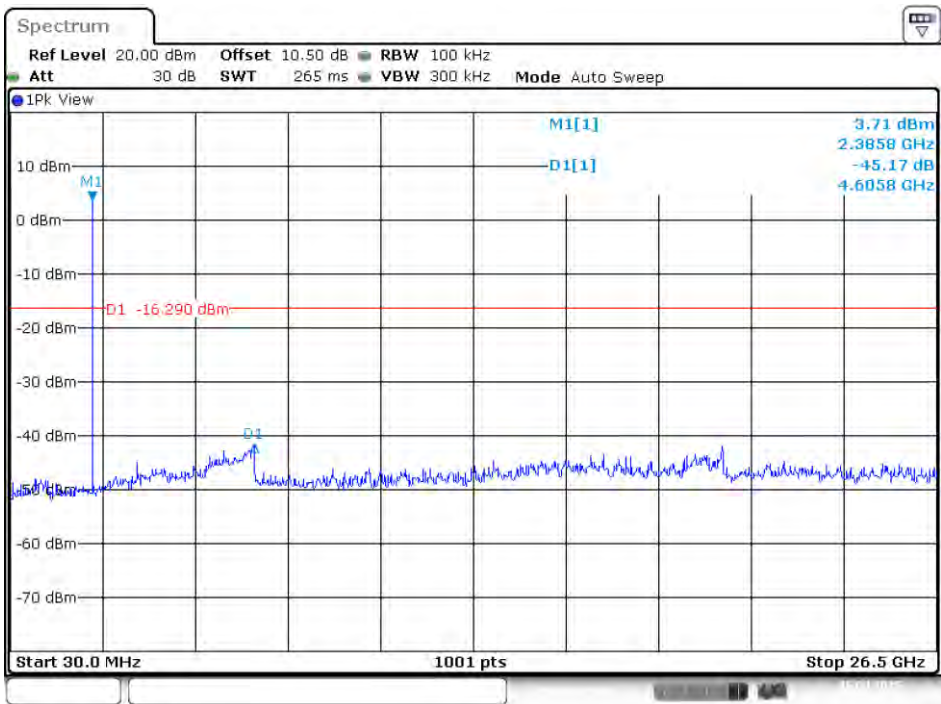
Date: 25 APR.2025 12:23:43

High Channel



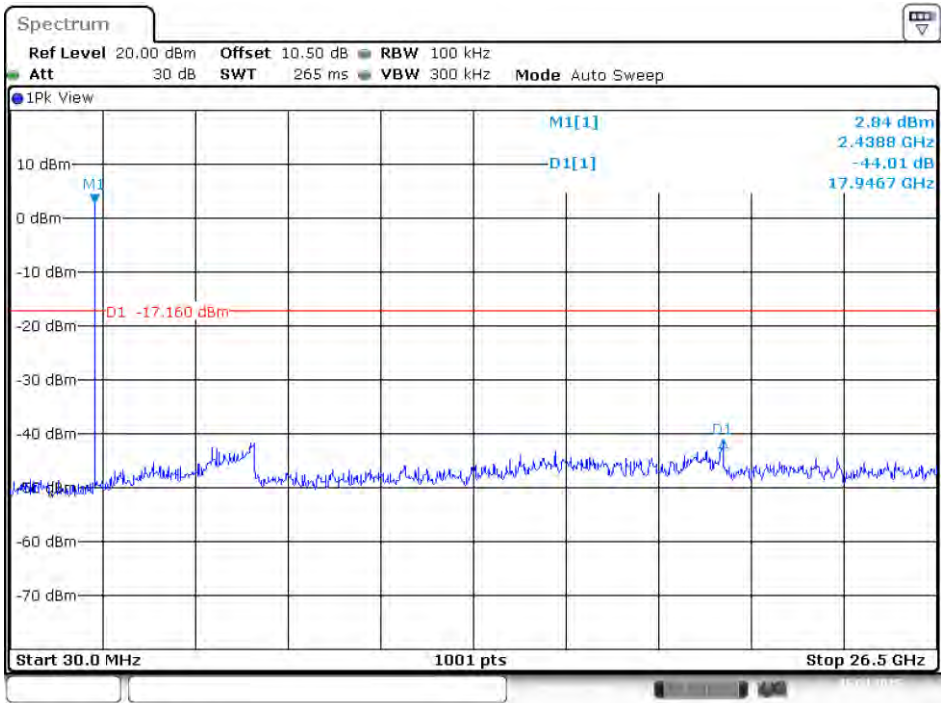
Date: 25 APR.2025 12:26:18

BLE(1M) Mode
Low Channel



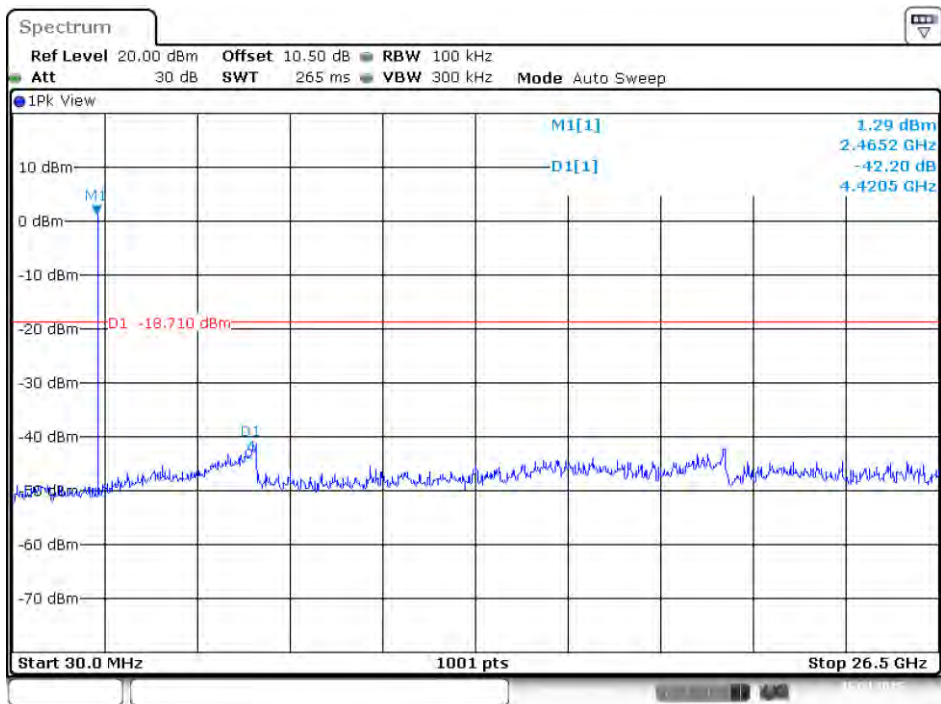
Date: 16 APR.2025 16:45:13

Middle Channel



Date: 16 APR.2025 16:46:44

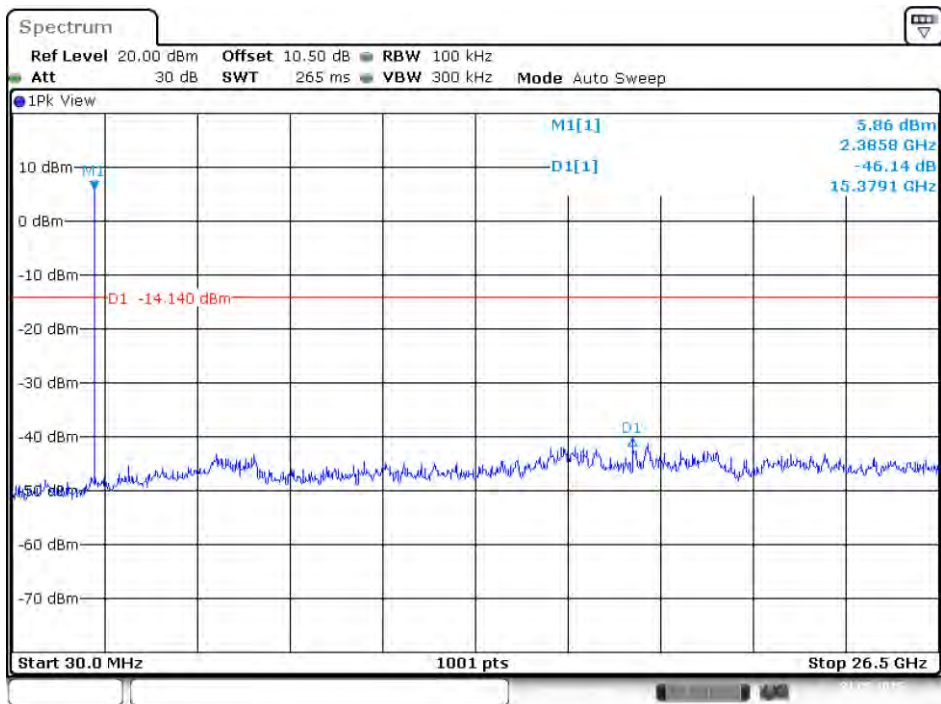
High Channel



Date: 16.APR.2025 16:48:47

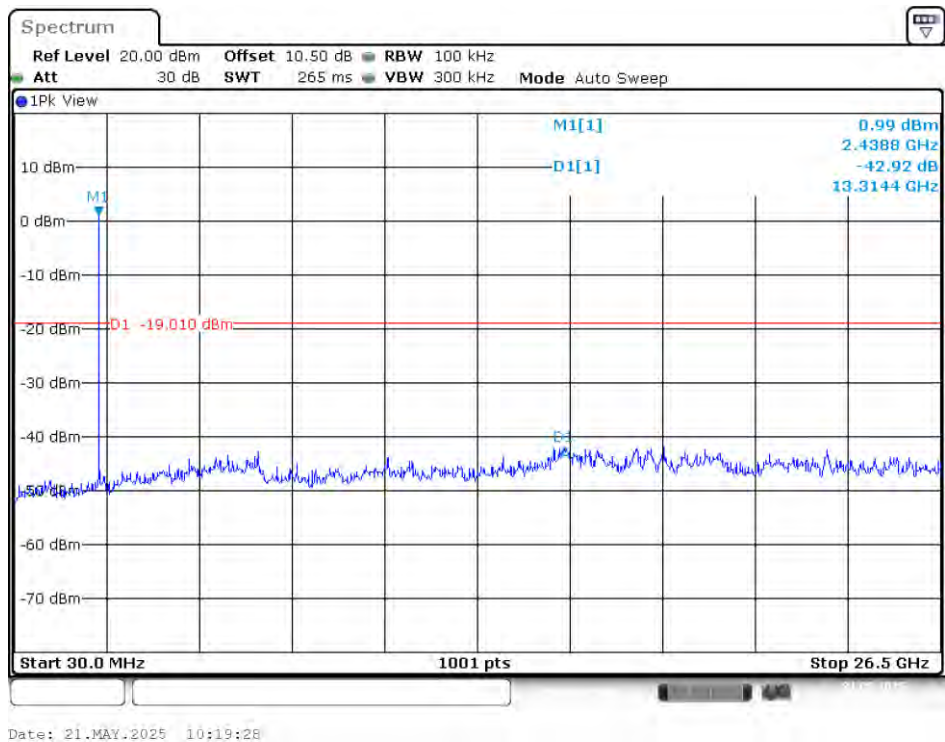
BLE(2M) Mode

Low Channel

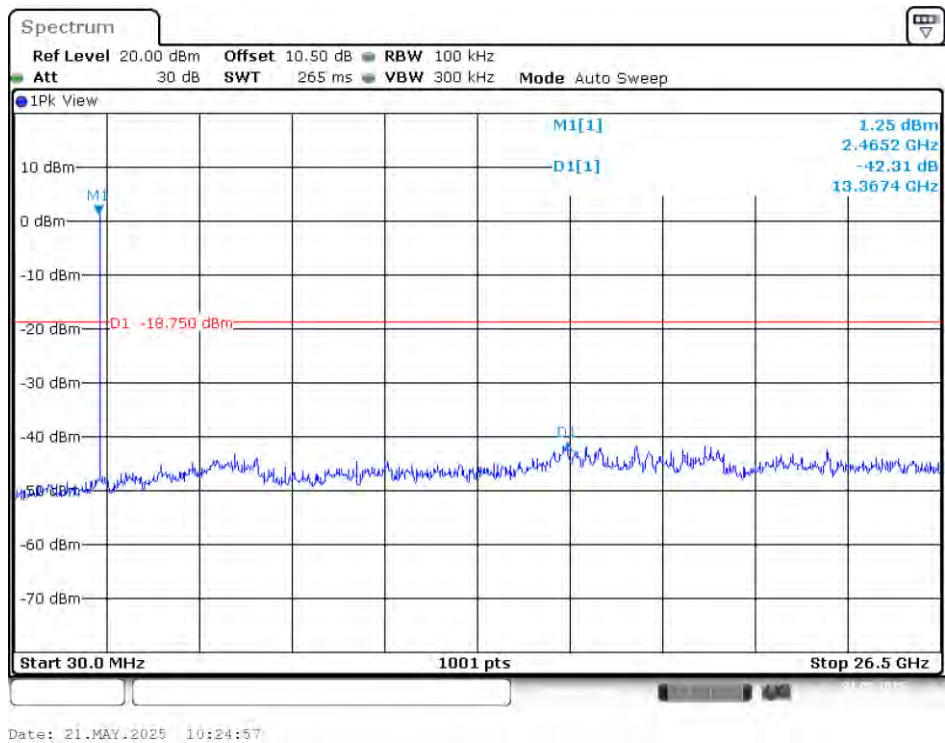


Date: 21.MAY.2025 10:13:44

Middle Channel



High Channel



8 FCC §15.247(a)(2) & RSS-247 §5.2(a), RSS-GEN §6.7 – 6 dB Emission Bandwidth & Occupied Bandwidth

8.1 Applicable Standard

According to FCC §15.247(a)(2).

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

According to RSS-247 §5.2 (a)

The minimum 6 dB bandwidth shall be 500 kHz.

According to RSS-GEN §6.7

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

8.2 Test Procedure

According to ANSI C63.10-2013, section 11.8

The steps for the first option are as follows:

- a) Set RBW = 100 kHz.
- b) Set the VBW $\geq [3 \times \text{RBW}]$.
- c) Detector = peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

According to ANSI C63.10-2013 Section 6.9.3

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).

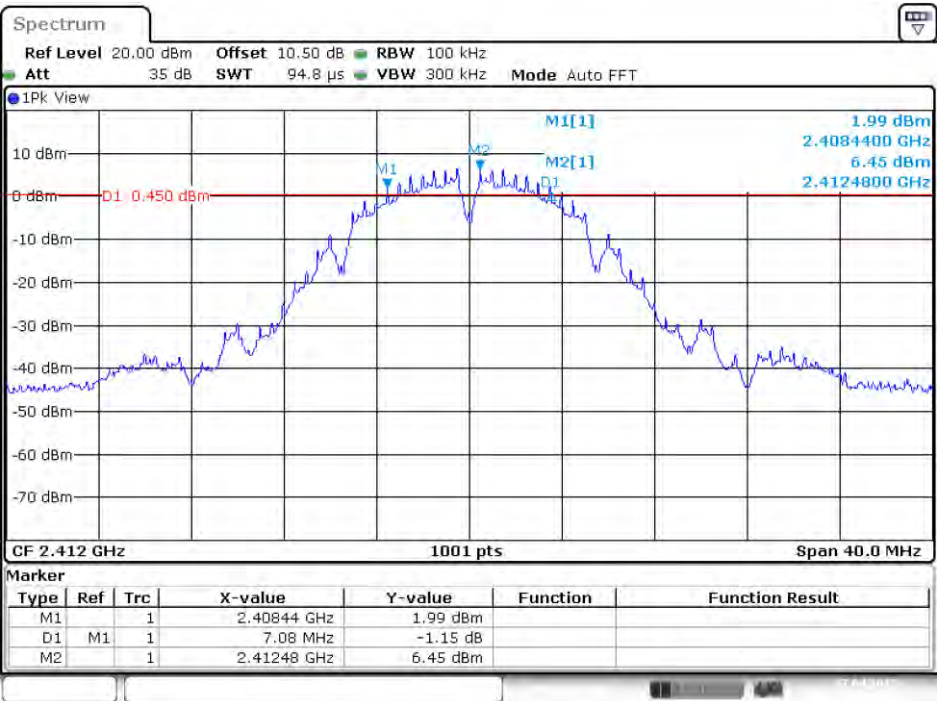
8.3 Test Results

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (kHz)	Result
B Mode					
Low	2412	7.08	11.19	> 500	PASS
Middle	2437	7.08	11.35	> 500	PASS
High	2462	7.08	11.63	> 500	PASS
G Mode					
Low	2412	15.52	16.38	> 500	PASS
Middle	2437	15.76	16.38	> 500	PASS
High	2462	15.20	16.38	> 500	PASS
N20 Mode					
Low	2412	16.04	17.50	> 500	PASS
Middle	2437	16.52	17.54	> 500	PASS
High	2462	15.48	17.42	> 500	PASS
N40 Mode					
Low	2422	35.20	36.04	> 500	PASS
Middle	2437	35.20	35.96	> 500	PASS
High	2452	35.20	36.04	> 500	PASS
BLE(1M) Mode					
Low	2402	0.74	1.05	> 500	PASS
Middle	2440	0.74	1.05	> 500	PASS
High	2480	0.74	1.05	> 500	PASS
BLE(2M) Mode					
Low	2402	1.12	2.07	> 500	PASS
Middle	2440	1.12	2.07	> 500	PASS
High	2480	1.13	2.07	> 500	PASS

Please refer to the following plots

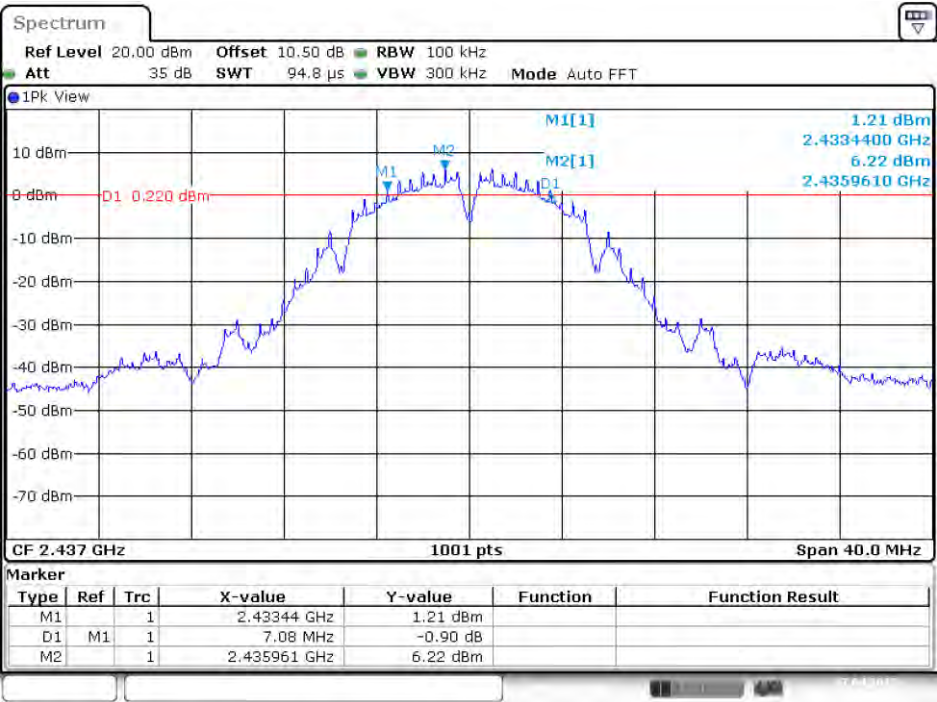
6 dB Emission Bandwidth

B Mode
Low Channel



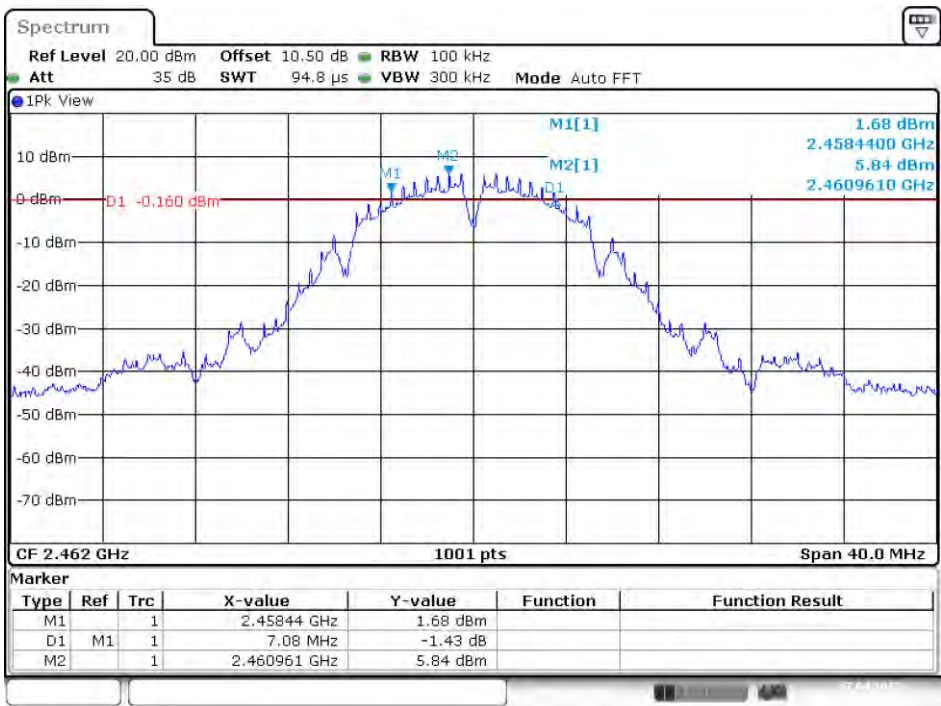
Date: 17.APR.2025 10:47:26

Middle Channel



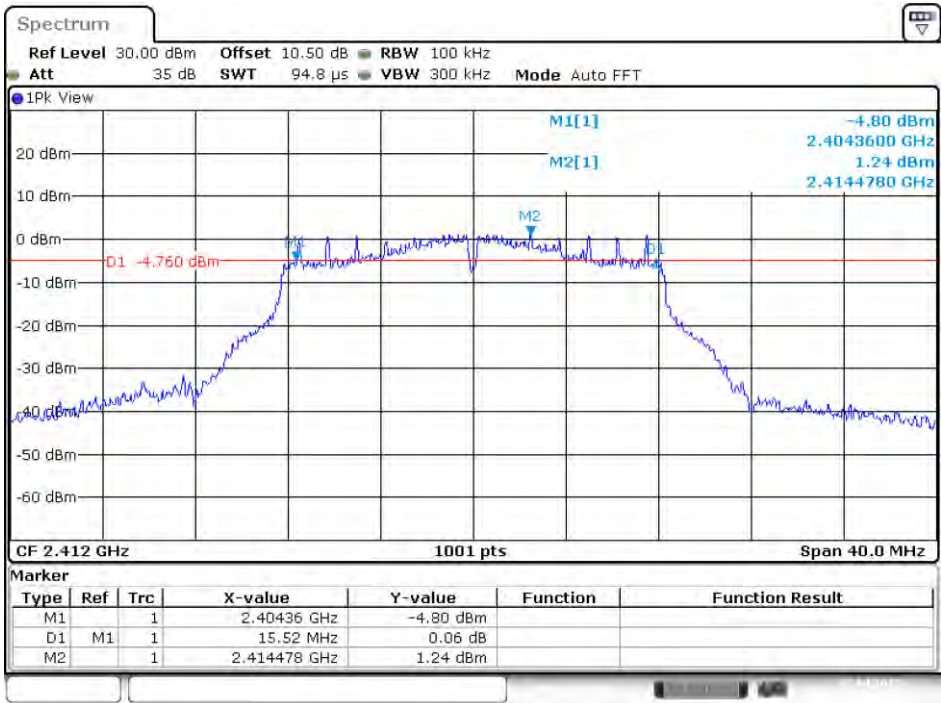
Date: 17.APR.2025 10:54:26

High Channel



Date: 17.APR.2025 10:57:07

G Mode
Low Channel



Date: 17.APR.2025 11:01:00