FCC Part 15.247

TEST REPORT

For

Noorio Innovations Limited

Office 216 2nd Floor, Alpha House, 27-33 Nathan Road, Tsim Sha Tsui, Kowloon, Hong Kong

FCC ID: 2A6TG-T410

Report Type:	**Product Type:**
Original Report	Noorio cam T410

Report Producer : Coco Lin

Report Number : RLK231024082RF01

Report Date : 2024-03-06

Reviewed By: Rory Cheng

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RLK231024082	RLK231024082RF01	2024-03-06	Original Report	Coco Lin

TABLE OF CONTENTS

1 General Information

1.1 Product Description for Equipment under Test (EUT)

Applicant	Noorio Innovations Limited
	Office 216 2nd Floor, Alpha House, 27-33 Nathan Road, Tsim Sha Tsui, Kowloon, Hong Kong
Brand(Trade) Name	Noorio
Product (Equipment) / PMN	Noorio cam T410
Main Model Name	T410
Series Model Name	T420
Model Discrepancy	The model, T410 is the testing sample, and the final test data are shown on this test report. Please refer to the difference declaration letter provided by the manufacturer.
HVIN	T410、T420
Frequency Range	IEEE 802.11b/g / IEEE 802.11n HT20 Mode: 2412 ~ 2462 MHz
Conducted Peak Output Power	IEEE 802.11b Mode: 19.30 dBm IEEE 802.11g Mode: 24.14 dBm IEEE 802.11n HT20 Mode: 23.24 dBm
Modulation Technique	IEEE 802.11b Mode: DSSS IEEE 802.11g Mode: OFDM IEEE 802.11n HT20 Mode: OFDM
Power Operation (Voltage Range)	☒ AC 120V/60Hz ☒ Brand Name: Zhuzhou Dachuan Electronic Model: DCT10W050200US-C0 I/P: 100-240V~ 50/60Hz 0.3A O/P: 5.0V / 2.0A ☐ By AC Power Cord ☐ PoE:
Received Date	10/25/2023
Date of Test	11/06/2023~ 03/04/2024

*All measurement and test data in this report was gathered from production sample serial number: RLK231024082-01 (Assigned by BACL, Linkou Laboratory).

1.2 Objective

This report is prepared on behalf of Noorio Innovations Limited in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communication Commission's rules.
The objective is to determine compliance with FCC Part 15.247 rules for Output Power, Antenna Requirements, 6 dB Bandwidth, Power Spectral Density, 100 kHz Bandwidth of Band Edges Measurement, Conducted and Radiated Spurious Emissions.

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.

1.4 Statement

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
The determination of the test results does not require consideration of the uncertainty of the measurement, unless the assessment is required by customer agreement, regulation or standard document specification. Bay Area Compliance Laboratories Corp. (Linkou 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		±3.38 (dB)
RF output power, conducted		±3.74 (dB)
Power Spectral Density, conducted		±0.69 (dBm)
Occupied Bandwidth		±0.09 (%)
Unwanted Emissions, conducted		±1.13 (dB)
Emissions, radiated	9 kHz~30MHz	±2.57 (dB)
	30 MHz~1GHz	±5.34 (dB)
	1 GHz~18 GHz	±5.89 (dB)
	18 GHz~40 GHz	±5.52 (dB)
Temperature		±0.44 (%)
Humidity		±0.78 (℃)

1.6 Environmental Conditions

Test Site	Test Data	Temperature (℃)	Relative Humidity (%)	ATM Pressure (hPa)	Test Engineer
AC Line Conducted Emissions	2023/11/07	23.5	55	1010	Kevin
Radiation Spurious Emissions	2024/01/03~2024/03/04	18.1~19.1	62~64	1010	Bruce
Conducted Spurious Emissions	2023/11/6	23.7	56	1010	Kevin
Emission Bandwidth	2023/11/6	23.7	56	1010	Kevin
Maximum Output Power	2023/11/6	23.7	56	1010	Kevin
100 kHz Bandwidth of Frequency Band Edge	2023/11/6	23.7	56	1010	Kevin
Power Spectral Density	2023/11/6	23.7	56	1010	Kevin

1.7 Test Facility

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

☒ No.6, Wende 2Rd., Guishan Dist., Taoyuan City 33382, Taiwan (R.O.C.).

Bay Area Compliance Laboratories Corp. (Linkou Laboratory) Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3546) by Mutual Recognition Agreement (MRA). The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database.

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/n20 Modes were tested with channel 1, 6 and 11.

2.2 Equipment Modifications

No modification was made to the EUT.

2.3 EUT Exercise Software

The test software was used “SecureCRTPortable_v7.0.0”

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

Test Frequency		Low	Middle	High
Power Level Setting	802.11b Mode	16	16	16
	802.11g Mode	13	13	13
	802.11n HT20 Mode	12	12	12

The EUT was configured for testing in an engineering mode which was provided by the manufacturer. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations.

802.11b: 1Mbps

802.11g: 6Mbps

802.11n HT20: MCS0

2.4 Support Equipment List and Details

Description	Manufacturer	Model Number
Adapter	Zhuzhou Dachuan Electronic Technology Co., Ltd.	DCT10W050200US-C0
Notebook	DELL	E6410
fixture	N/A	N/A
SD Card	SanDisk	3215DXDN60CK

2.5 External Cable List and Details

Description	Manufacturer	Model Number
USB Cable	BACL	5.0m
RS-232 Cable	BACL	2m

2.6 Test Mode

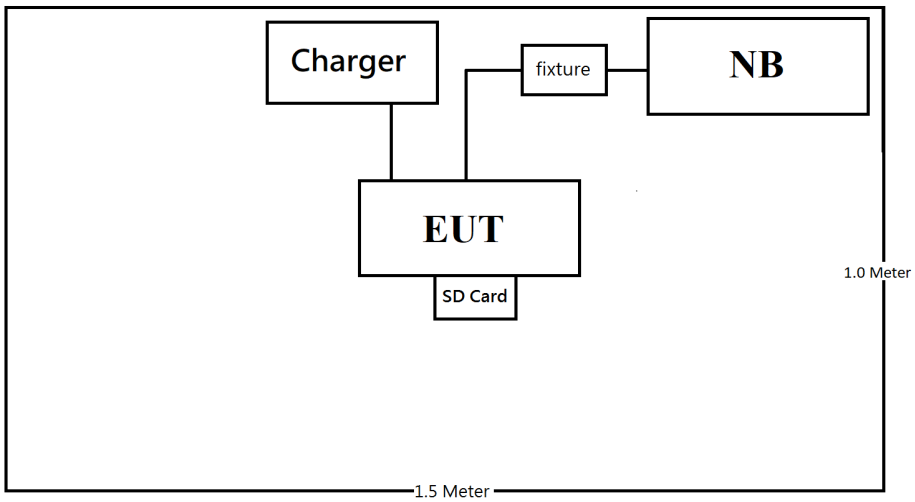
Mode 1: T410 tested all measure item.

2.7 Block Diagram of Test Setup

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

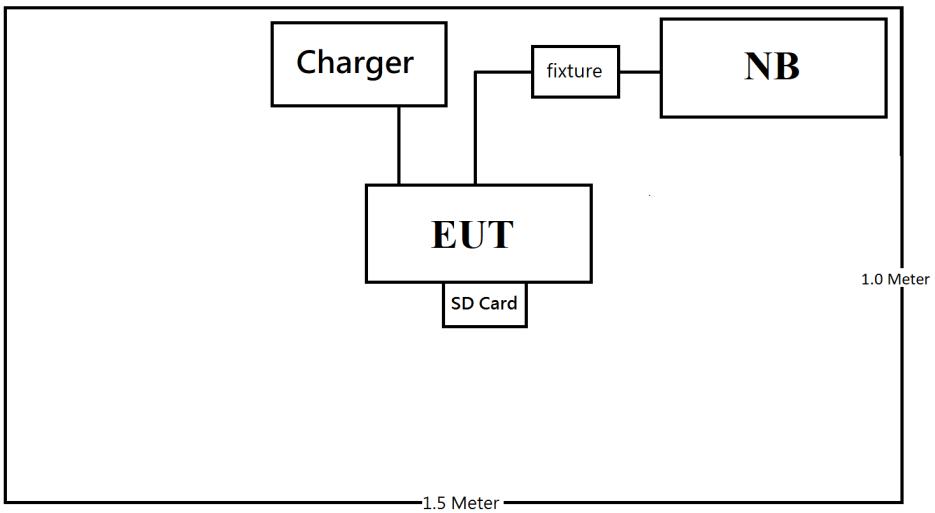
Radiation:

Below 1GHz



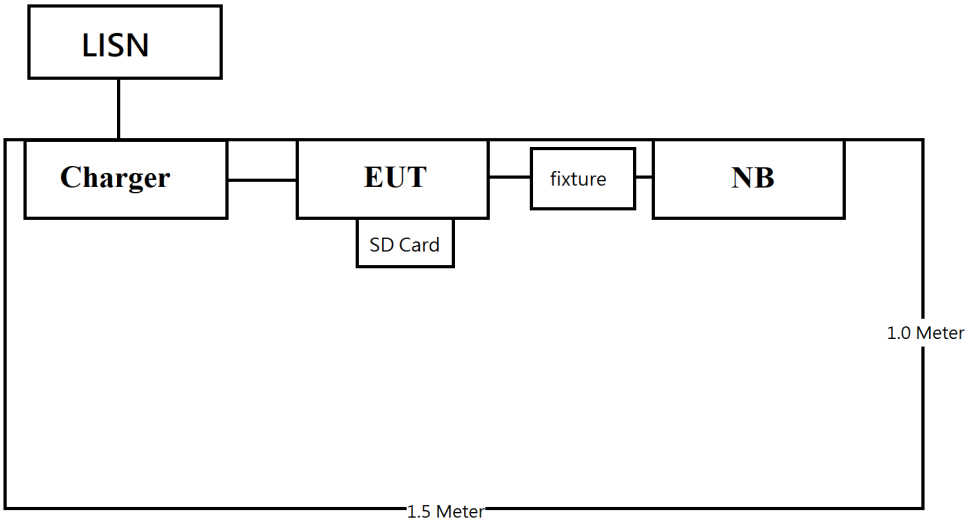
Non – Conductive Table 80cm above Ground Plane

Above 1GHz:



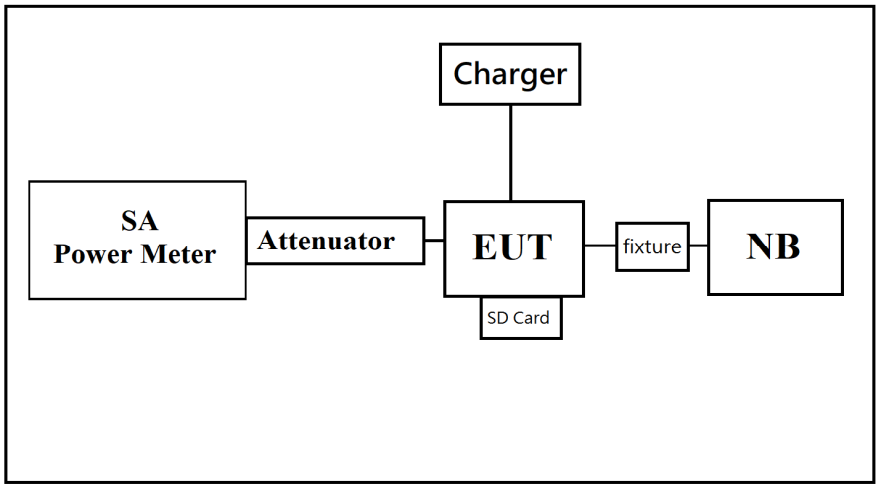
Non – Conductive Table 150cm above Ground Plane

Conduction:



Non – Conductive Table 800cm above Ground Plane

Conducted:



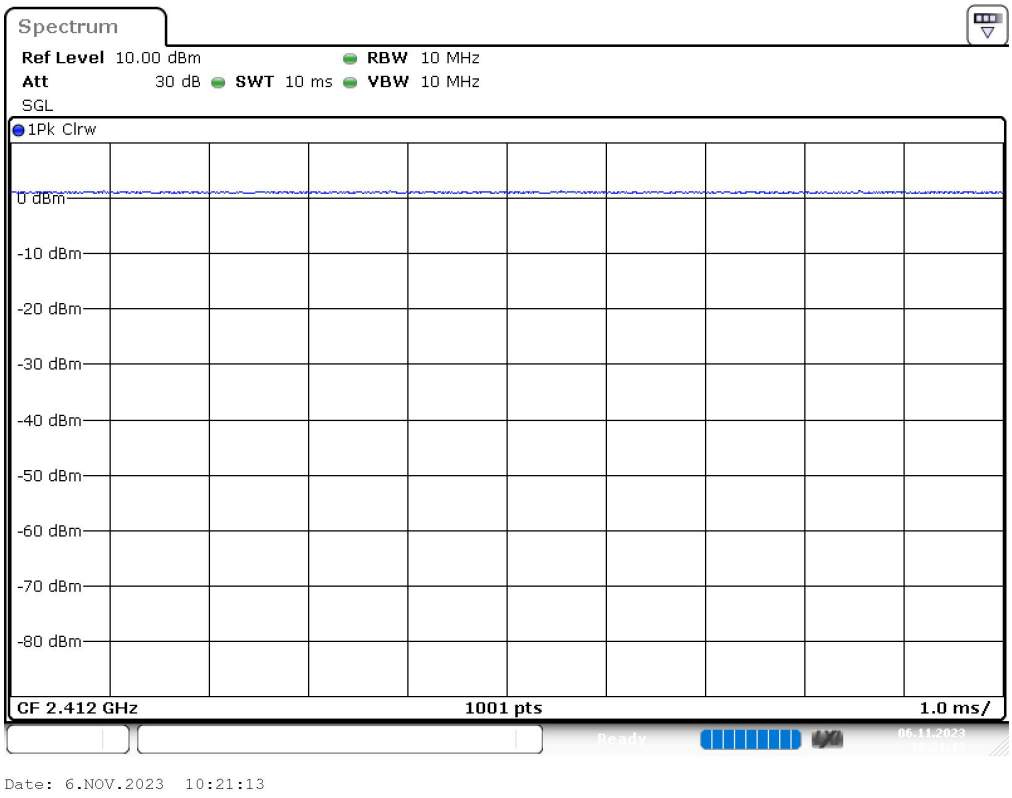
2.8 Duty Cycle

The duty cycle as below:

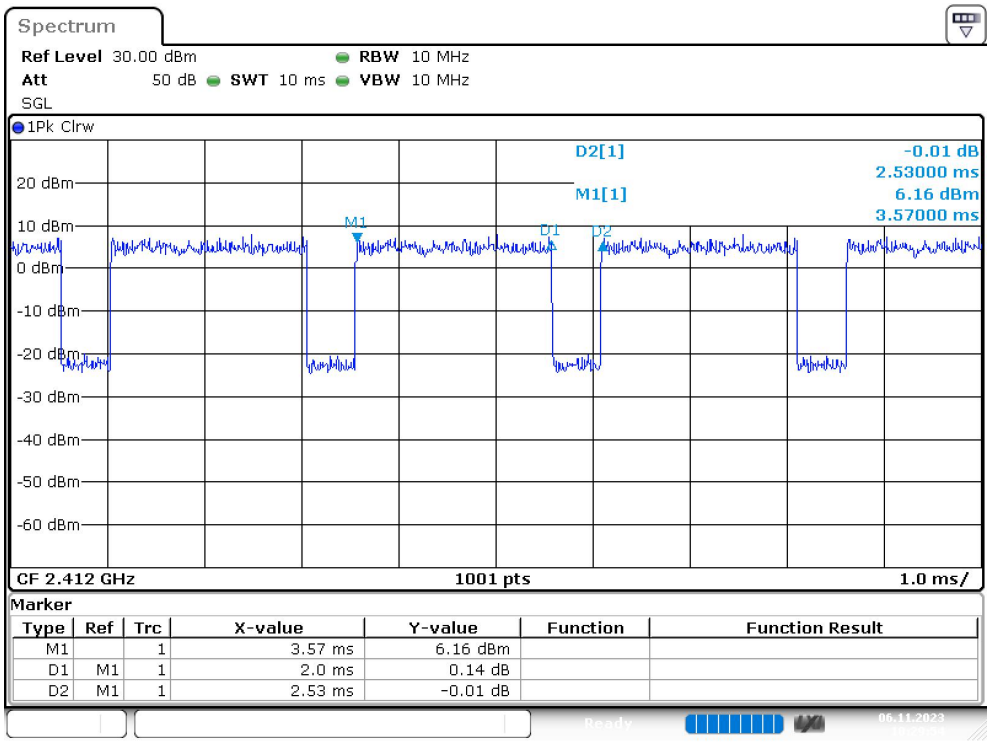
Radio Mode	Ton (ms)	Ton+off (ms)	Duty Cycle (%)	1/T (kHz)	VBW Setting (kHz)
802.11b	100	100	100	0.01	0.01
802.11g	2.00	2.53	79	0.50	0.5
802.11n20	1.87	2.39	78	0.53	1.0

Please refer to the following plots.

B Mode



G Mode



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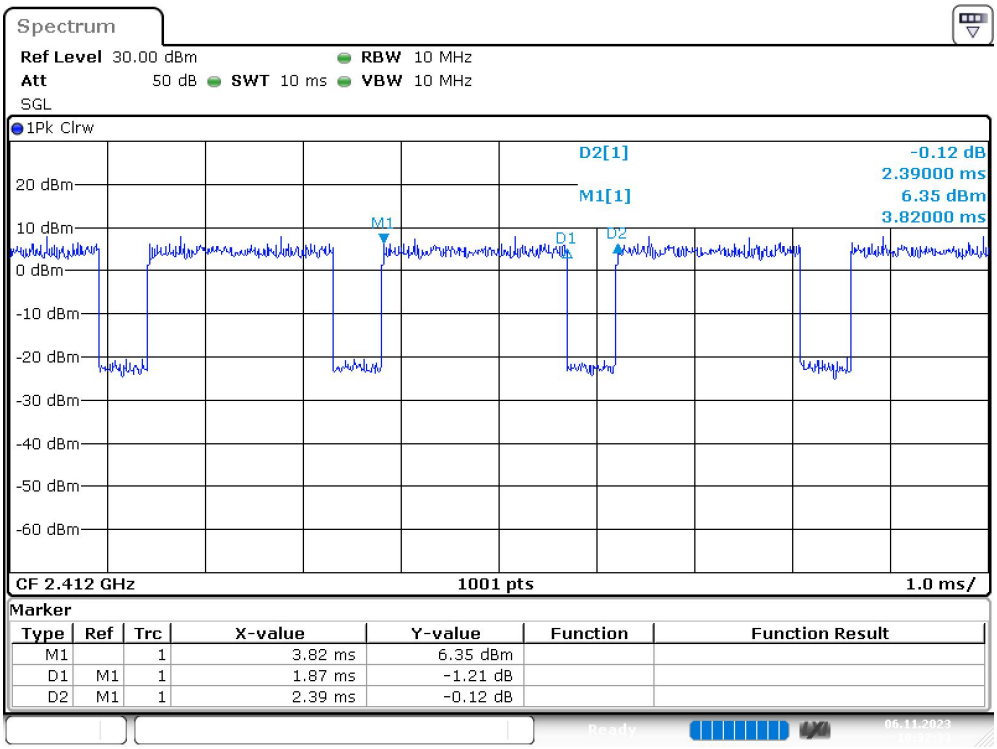
N20 Mode



Date: 6.NOV.2023 10:32:33

3 Summary of Test Results

Rules	Description of Test	Results
FCC §15.247(i), §1.1307(b)(3)(i)	RF Exposure	Compliance
FCC §15.203	Antenna Requirement	Compliance
FCC §15.207(a)	AC Line Conducted Emissions	Compliance
FCC §15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
FCC §15.247(a)(2)	Emission Bandwidth	Compliance
FCC §15.247(b)(3)	Maximum Peak Output Power	Compliance
FCC §15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
FCC §15.247(e)	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)					
Two-Line-V-Network	Rohde & Schwarz	ENV216	100037	2023/09/13	2024/09/11
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100769	2023/03/09	2024/03/07
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00432	2023/08/14	2024/08/12
RF Cable	EMCI	EMCCFD300-BM-BM-3000	221013	2023/10/17	2024/10/15
Software	Audix	e3 v9	E3LK-03	N.C.R	N.C.R
Radiation 3M Room (966-A)					
Active Loop Antenna	ETS-Lindgren	6502	0001-3322	2023/03/23	2024/03/22
Bilog Antenna with 6 dB Attenuator	SUNOL SCIENCES & EMCI	JB3 & N-6-06	A111513 & AT-N0668	2023/4/13	2024/4/11
Horn Antenna	EMCO	3115	2058	2023/03/25	2024/03/23
Horn Antenna	ETS-Lindgren	3160-09	123852	2023/07/21	2024/07/19
Double ridged waveguide horn antenna	ETS-Lindgren	3116	00060023	2023/07/07	2024/07/05
Preamplifier	A.H. Systems	PAM-1840VH	174	2023/3/24	2024/3/22
Preamplifier	A.H. Systems	PAM-0118P	470	2023/03/24	2024/03/22
Band Reject Filter	Xi'an Xingbo	XBLBQ-DZA81	190329-1-08	2023/04/06	2024/04/05
High Pass Filter	Xi'an Xingbo	XBLBQ-GTA54	190329-1-28	2023/04/06	2024/04/05
ESR EMI Test Receiver	Rohde & Schwarz	ESR3	102759	2023/09/14	2024/09/12
Spectrum Analyzer	Rohde & Schwarz	FSV40	101940	2023/12/15	2024/12/14
Microflex Cable (0.9m)	UTIFLEX	W6103	LKTE381	2023/06/26	2024/06/24
Microflex Cable (2m)	EMCI	EMC106-SM-SM-2000	180515	2023/08/03	2024/08/01
Microflex Cable (8m)	UTIFLEX	UFA210A-1-3149-300300	MFR 64639 232490-001	2023/08/03	2024/08/01
Software	AUDIX	E3 V9	E3LK-01	N.C.R	N.C.R
Conducted Room					
Spectrum Analyzer	Rohde & Schwarz	FSV40	101938	2022/12/7	2023/12/6
Cable	MTJ	MT40S	620620-MT40S-100	2022/12/23	2023/12/22
USB Wideband Power Sensor	AGILENT	U2021XA	MY54080011	2023/08/30	2024/08/28
10dB Attenuator	MCL	BW-S10W5+	605	2023/03/22	2024/03/20

***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 §15.247(i), §1.1307(b)(3)(i) - RF Exposure

5.1 Applicable Standard

According to subpart 15.247(i)and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

(A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold Pth (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by:

$$P_{th}\ (\text{mW}) = \begin{cases} ERP_{20\ cm}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ cm} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases}$$

Where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20\ cm}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

(C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least λ/2π, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of λ/4 or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1,920 R^2.
1.34-30	3,450 R^2/f^2.
30-300	3.83 R^2.
300-1,500	0.0128 R^2f.
1,500-100,000	19.2R^2.

5.2 RF Exposure Evaluation Result

Project info

Band	Freq (MHz)	Tune up power (dBm)	Ant Gain (dBi)	Distances (mm)	Duty (%)	Tune up power (mW)	ERP (dBm)	ERP (mW)
2.4G WIFI	2412	24.5	4.58	200	100%	281.84	26.93	493.17

§ 1.1307(b)(3)(i)(A) method is not applicable.

Band	Freq (MHz)	Result
2.4G WIFI	2412	not exempt

§ 1.1307(b)(3)(i)(C)

Band	Freq (MHz)	λ/2π (mm)	Distances applies	ERP Limit (mW)	Result
2.4G WIFI	2412	19.8	apply	768.00	exempt

The minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates
ERP (watts) is no more than the calculated value prescribed for that frequency
R must be at least $\lambda/2\pi$
λ is the free-space operating wavelength in meters

Result: MPE evaluation of single and simultaneous transmission meet 20cm the requirement of standard.

6 FCC §15.203 – Antenna Requirements

6.1 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.

6.2 Antenna Information

Manufacturer	Type	Antenna Gain	Impedance
Dongguan RF Electronic Technology Co., Ltd	FPC Antenna	4.58 dBi	50Ω

Result: Compliance

7 FCC §15.207(a) – AC Line Conducted Emissions

7.1 Applicable Standard

According to §15.207

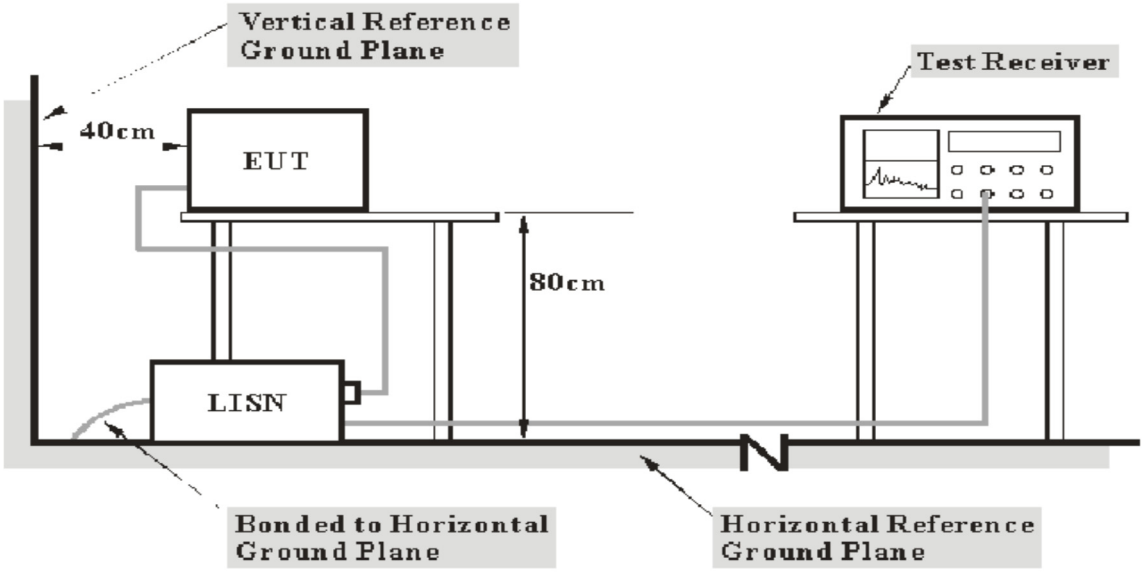
For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/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.

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.

7.2 EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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

7.3 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

7.4 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.

7.5 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:

Factor = LISN VDF + Cable Loss + 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:

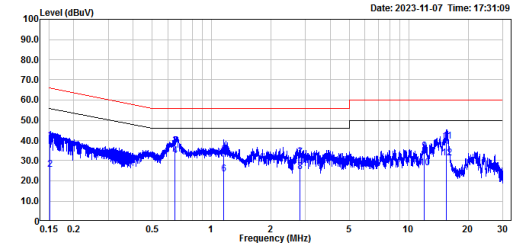
Over Limit = Level – Limit Line

7.6 Test Results

Test Mode: Transmitting

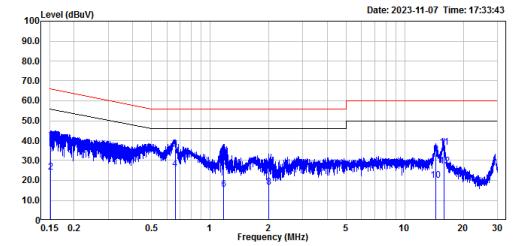
Main: AC120 V, 60 Hz **(**Worst case is 802.11g mode low channel)

Line	Neutral



Site : Conduction
Condition: Line
Job No : RLK231024082
Test By : Kevin
Power : AC 120V/60Hz
Temp.(℃)/Hum.(%RH): 23.5℃/55%
Mode : WiFi 2.4G

	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	
1	0.152	19.92	39.88	19.96	65.90	-26.02	QP
2	0.152	5.58	25.54	19.96	55.90	-30.36	Average
3	0.652	17.45	37.41	19.96	56.00	-18.59	QP
4	0.652	12.44	32.40	19.96	46.00	-13.60	Average
5	1.157	12.83	32.79	19.96	56.00	-23.21	QP
6	1.157	3.30	23.26	19.96	46.00	-22.74	Average
7	2.808	11.82	31.81	19.99	56.00	-24.19	QP
8	2.808	4.43	24.42	19.99	46.00	-21.58	Average
9	11.961	14.59	34.72	20.13	60.00	-25.28	QP
10	11.961	6.18	26.31	20.13	50.00	-23.69	Average
11	15.573	19.46	39.65	20.19	60.00	-20.35	QP
12	15.573	11.22	31.41	20.19	50.00	-18.59	Average



Site : Conduction
Condition: Neutral
Job No : RLK231024082
Test By : Kevin
Power : AC 120V/60Hz
Temp.(℃)/Hum.(%RH): 23.5℃/55%
Mode : WiFi 2.4G

	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	
1	0.152	20.39	40.35	19.96	65.92	-25.57	QP
2	0.152	4.16	24.12	19.96	55.92	-31.80	Average
3	0.661	15.71	35.67	19.96	56.00	-20.33	QP
4	0.661	5.74	25.70	19.96	46.00	-20.30	Average
5	1.170	7.19	27.15	19.96	56.00	-28.85	QP
6	1.170	-4.38	15.58	19.96	46.00	-30.42	Average
7	2.007	4.73	24.69	19.96	56.00	-31.31	QP
8	2.007	-3.48	16.48	19.96	46.00	-29.52	Average
9	14.391	13.18	33.34	20.16	60.00	-26.66	QP
10	14.391	-0.19	19.97	20.16	50.00	-30.03	Average
11	15.887	16.34	36.52	20.18	60.00	-23.48	QP
12	15.887	6.89	27.07	20.18	50.00	-22.93	Average

Note:

Result = Read Level + Factor

Over Limit = Result – Limit Line

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

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

8.1 Applicable Standard

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

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

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

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

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (millivolts/meter)
920-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

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

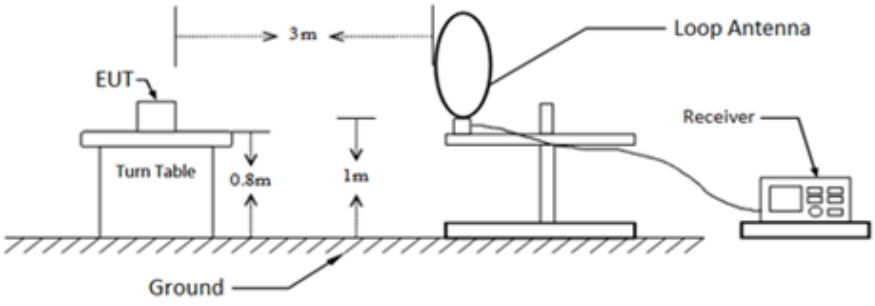
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this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

According to ANSI C63.10-2013, section 5.3.3
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field, and the emissions to be measured can be detected by the measurement equipment (see 4.3.4). Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. Measurements from 18 GHz to 40 GHz are typically made at distances significantly less than 3 m from the EUT. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade of distance (inverse of linear distance for field-strength measurements or inverse of linear distance-squared for power-density measurements).
Convert the test distance limit of 3 meters to a limit of 1 meter:
Conversion factor = 20 log (1m/3m) = 9.5 dB , Limit = 63.50 dBuV/m @ 1m

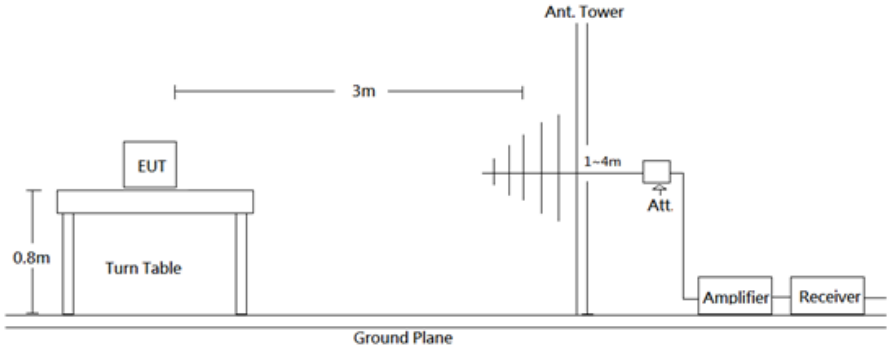
As per FCC §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the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

8.2 EUT Setup

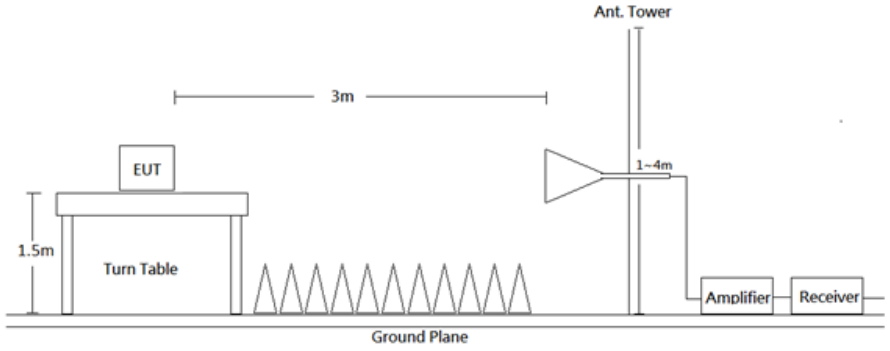
9kHz-30MHz:



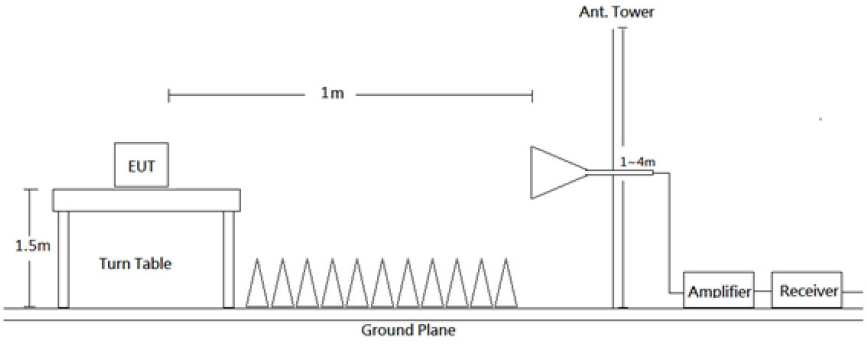
30MHz-1GHz:



1-18GHz:



18-26.5GHz:



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 Limits.

8.3 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
9 kHz - 150 kHz	300 Hz	1 kHz	/	QP/AV
150 kHz - 30 MHz	10 kHz	30 kHz	/	QP/AV
30-1000 MHz	120 kHz	/	/	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	10 Hz	>98%	Ave
	1 MHz	1/T	<98%	Ave

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.

8.4 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 the Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

8.5 Corrected Factor & Over Limit Calculation

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

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The “Over Limit” 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:

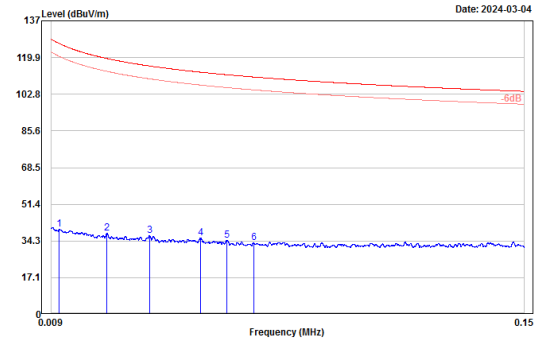
Over Limit = Level – Limit

8.6 Test Results

Test Mode: Transmitting
(Pre-scan with three orthogonal axis, and worse case as Y axis.)
(Worst case is 802.11g mode Low channel)

9kHz-30MHz (Loop Antenna Pre-scan with three orthogonal axis, and worse case as perpendicular.)

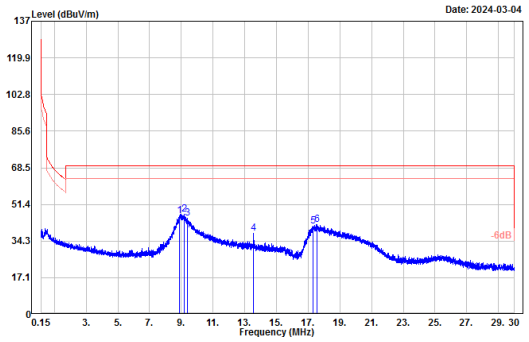
9kHz-150kHz	150kHz-30MHz



Site : LK-966A
Condition: 3m

Note : Temp/RH:16.5°C/69%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	0.011	39.90	126.39	-86.49	25.17	14.73	Peak
2	0.026	37.94	119.41	-81.47	23.95	13.99	Peak
3	0.038	36.68	115.93	-79.25	23.19	13.49	Peak
4	0.054	35.69	113.03	-77.34	22.55	13.14	Peak
5	0.061	34.69	111.84	-77.15	22.07	12.62	Peak
6	0.069	33.42	110.79	-77.37	20.80	12.62	Peak



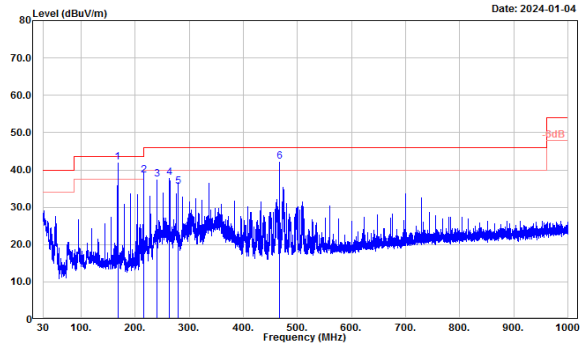
Site : LK-966A
Condition: 3m

Note : Temp/RH:16.5°C/69%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	8.887	46.04	69.54	-23.50	33.95	12.09	Peak
2	9.168	46.82	69.54	-22.72	34.73	12.09	Peak
3	9.365	44.88	69.54	-24.66	32.76	12.12	Peak
4	13.559	37.76	69.54	-31.78	25.97	11.79	Peak
5	17.302	41.24	69.54	-28.30	29.24	12.00	Peak
6	17.541	42.04	69.54	-27.50	30.02	12.02	Peak

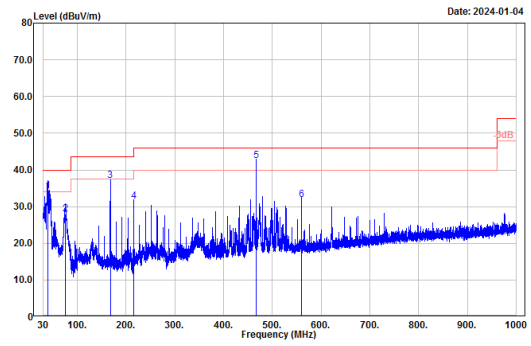
30MHz-1GHz:

Low channel	
Horizontal	**Vertical**



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2412MHz
Note : Temp/RH:18.1°C/62%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1 !	167.934	42.10	43.50	-1.40	62.53	-20.43	QP
2 !	215.949	38.48	43.50	-5.02	60.24	-21.76	QP
3	240.005	37.41	46.00	-8.59	58.21	-20.80	QP
4	263.964	37.95	46.00	-8.05	58.09	-20.14	QP
5	279.969	35.45	46.00	-10.55	55.05	-19.60	QP
6 !	466.694	42.20	46.00	-3.80	57.79	-15.59	QP

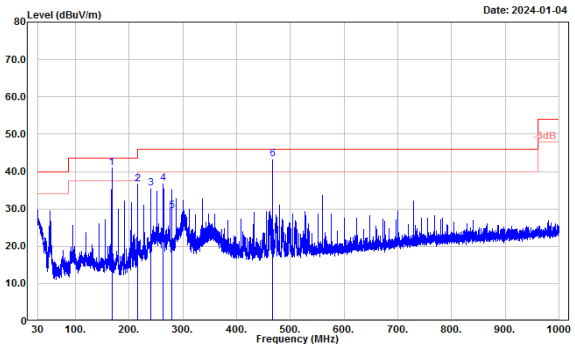


Site : LK-966A
Condition: 3m vertical
Mode : G TX-2412MHz
Note : Temp/RH:18.1°C/62%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1 !	39.506	34.24	40.00	-5.76	49.29	-15.05	QP
2	76.172	27.98	40.00	-12.02	51.77	-23.79	QP
3	167.934	37.18	43.50	-6.32	57.61	-20.43	QP
4	215.949	31.45	43.50	-12.05	53.21	-21.76	QP
5 !	466.694	42.46	46.00	-3.54	58.05	-15.59	QP
6	560.008	31.80	46.00	-14.20	45.73	-13.93	QP

Middle channel

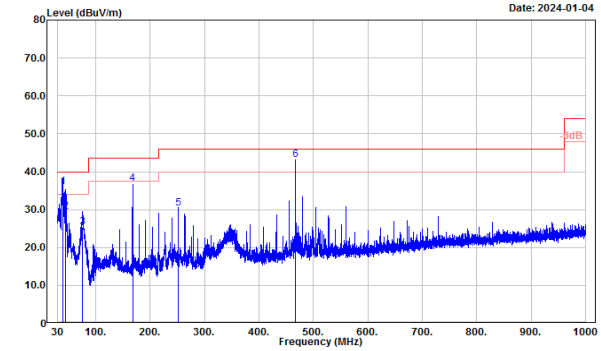
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2437MHz
Note : Temp/RH:18.1°C/62%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1 !	167.934	41.05	43.50	-2.45	61.48	-20.43	QP
2	215.949	36.70	43.50	-6.80	58.46	-21.76	QP
3	240.005	35.62	46.00	-10.38	56.42	-20.80	QP
4	263.964	36.80	46.00	-9.20	56.94	-20.14	QP
5	279.969	29.45	46.00	-16.55	49.05	-19.60	QP
6 !	466.694	43.26	46.00	-2.74	58.85	-15.59	QP

Vertical

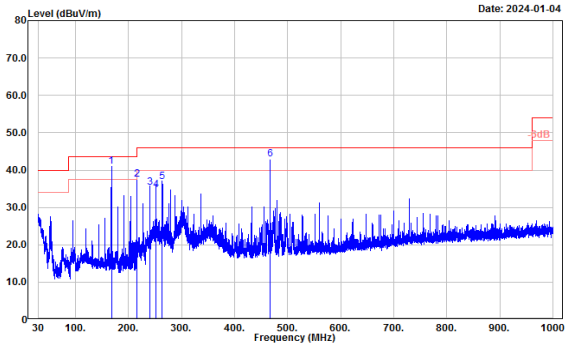


Site : LK-966A
Condition: 3m vertical
Mode : G TX-2437MHz
Note : Temp/RH:18.1°C/62%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1 !	39.506	35.98	40.00	-4.02	51.03	-15.05	QP
2	45.617	29.44	40.00	-10.56	49.13	-19.69	QP
3	75.978	25.39	40.00	-14.61	49.17	-23.78	QP
4	167.934	36.83	43.50	-6.67	57.26	-20.43	QP
5	252.033	30.43	46.00	-15.57	51.19	-20.76	QP
6 !	466.694	43.05	46.00	-2.95	58.64	-15.59	QP

High channel

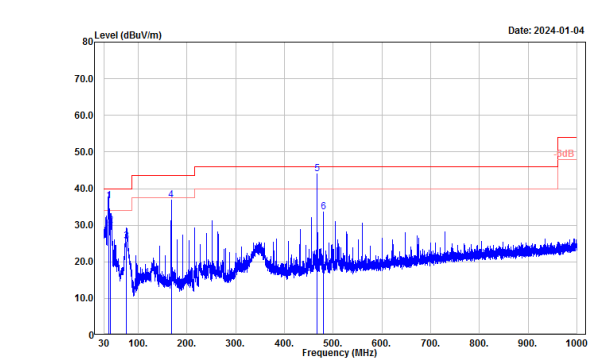
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2462MHz
Note : Temp/RH:18.1°C/62%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1 !	167.934	40.96	43.50	-2.54	61.39	-20.43	QP
2 !	215.949	37.51	43.50	-5.99	59.27	-21.76	QP
3	240.005	35.33	46.00	-10.67	56.13	-20.80	QP
4	251.936	34.68	46.00	-11.32	55.44	-20.76	QP
5	263.964	36.79	46.00	-9.21	56.93	-20.14	QP
6 !	466.694	42.97	46.00	-3.03	58.56	-15.59	QP

Vertical



Site : LK-966A
Condition: 3m vertical
Mode : G TX-2462MHz
Note : Temp/RH:18.1°C/62%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1 !	39.409	36.55	40.00	-3.45	51.53	-14.98	QP
2	43.968	29.99	40.00	-10.01	48.52	-18.53	QP
3	75.978	25.59	40.00	-14.41	49.37	-23.78	QP
4	167.934	36.90	43.50	-6.60	57.33	-20.43	QP
5 !	466.694	44.04	46.00	-1.96	59.63	-15.59	QP

Note:

Level = Reading + Factor.

Over Limit = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

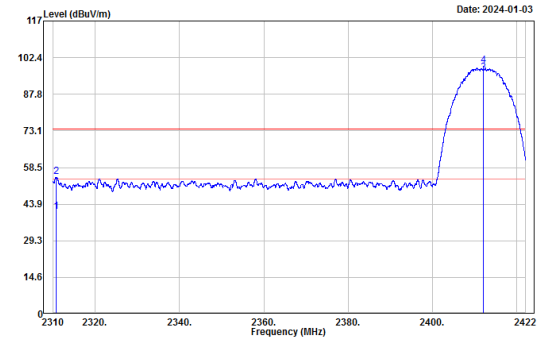
The other spurious emission which is 20dB to the limit or in noise floor was not recorded.

Band-Edge:

802.11b Mode

Low channel

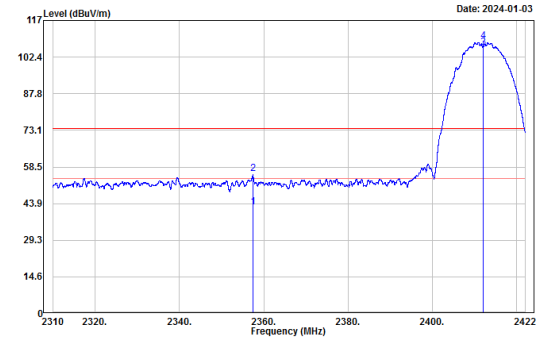
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : B TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2310.818	40.90	54.00	-13.10	49.93	-9.03	Average
2	2310.818	54.83	74.00	-19.17	63.86	-9.03	Peak
3	2412.000	96.48	------	------	105.00	-8.52	Average
4	2412.000	99.11	------	------	107.63	-8.52	Peak

Vertical

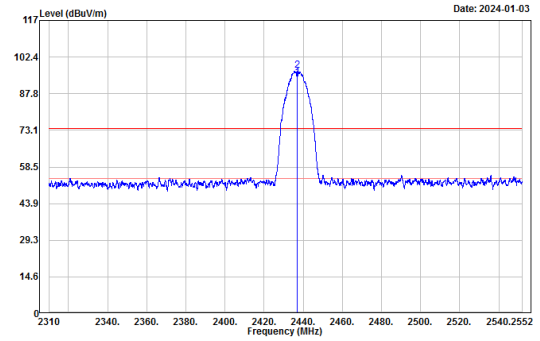


Site : LK-966A
Condition: 3m vertical
Mode : B TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2357.376	42.47	54.00	-11.53	51.27	-8.80	Average
2	2357.376	55.80	74.00	-18.20	64.60	-8.80	Peak
3	2412.000	106.12	------	------	114.64	-8.52	Average
4	2412.000	108.83	------	------	117.35	-8.52	Peak

Middle channel

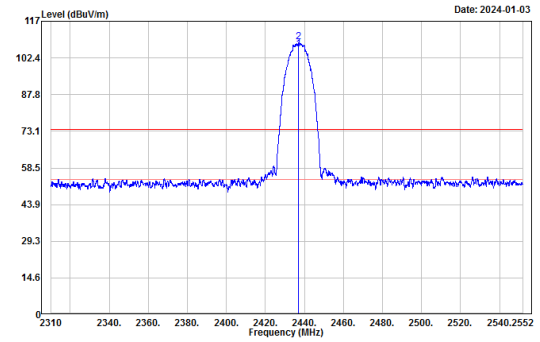
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : B TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2437.000	94.30	------	------	102.69	-8.39	Average
2	2437.000	96.90	------	------	105.29	-8.39	Peak

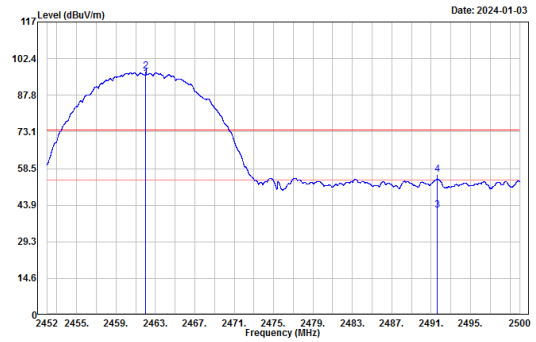
Vertical



Site : LK-966A
Condition: 3m vertical
Mode : B TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

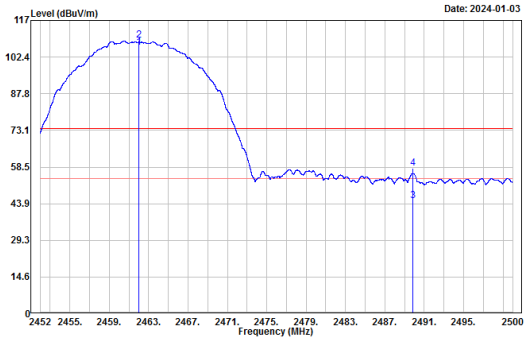
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2437.000	105.96	------	------	114.35	-8.39	Average
2	2437.000	108.61	------	------	117.00	-8.39	Peak

High channel	
Horizontal	**Vertical**



Site : LK-966A
Condition: 3m horizontal
Mode : B TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2462.000	94.58	------	------	102.85	-8.27	Average
2	2462.000	97.22	------	------	105.49	-8.27	Peak
3	2491.643	41.80	54.00	-12.20	49.91	-8.11	Average
4	2491.643	56.21	74.00	-17.79	64.32	-8.11	Peak

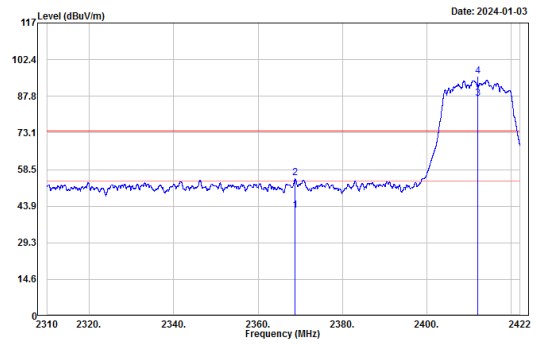


Site : LK-966A
Condition: 3m vertical
Mode : B TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2462.000	106.34	------	------	114.61	-8.27	Average
2	2462.000	109.00	------	------	117.27	-8.27	Peak
3	2489.843	44.93	54.00	-9.07	53.05	-8.12	Average
4	2489.843	58.02	74.00	-15.98	66.14	-8.12	Peak

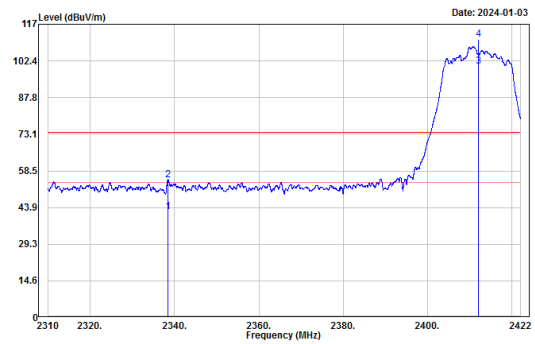
802.11g Mode

Low channel	
Horizontal	**Vertical**



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2368.789	42.19	54.00	-11.81	50.92	-8.73	Average
2	2368.789	55.17	74.00	-18.83	63.90	-8.73	Peak
3	2412.000	86.91	------	------	95.43	-8.52	Average
4	2412.000	95.84	------	------	104.36	-8.52	Peak

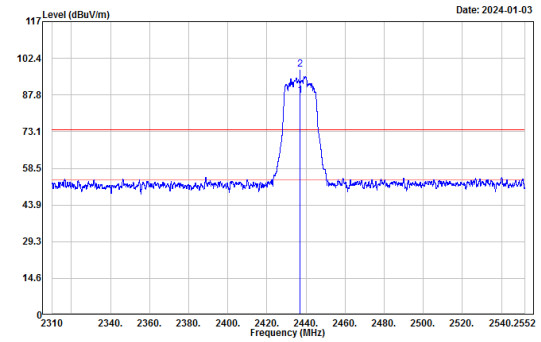


Site : LK-966A
Condition: 3m vertical
Mode : G TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2338.482	42.07	54.00	-11.93	50.95	-8.88	Average
2	2338.482	54.71	74.00	-19.29	63.59	-8.88	Peak
3	2412.000	100.21	------	------	108.73	-8.52	Average
4	2412.000	110.92	------	------	119.44	-8.52	Peak

Middle channel

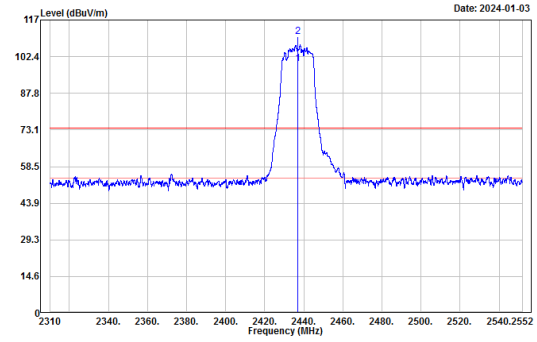
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2437.000	87.38	------	------	95.76	-8.38	Average
2	2437.000	97.99	------	------	106.37	-8.38	Peak

Vertical

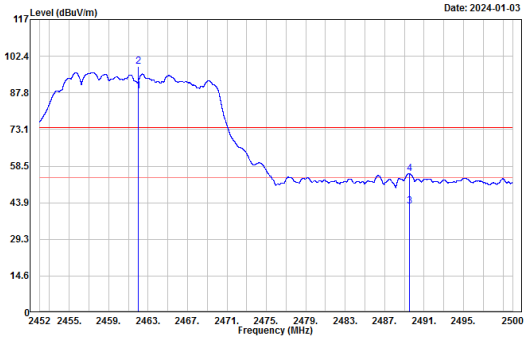


Site : LK-966A
Condition: 3m vertical
Mode : G TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2437.000	99.57	------	------	107.96	-8.39	Average
2	2437.000	110.35	------	------	118.74	-8.39	Peak

High channel

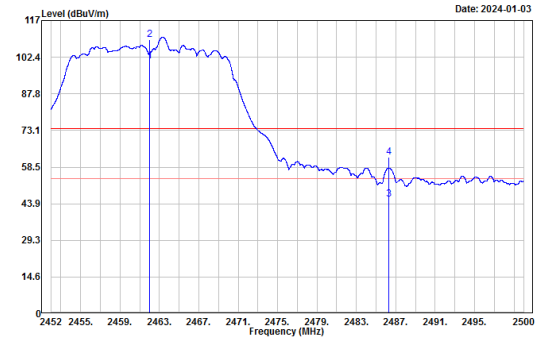
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2462.000	88.61	------	------	96.88	-8.27	Average
2	2462.000	98.44	------	------	106.71	-8.27	Peak
3	2489.483	42.55	54.00	-11.45	50.67	-8.12	Average
4	2489.483	55.48	74.00	-18.52	63.60	-8.12	Peak

Vertical



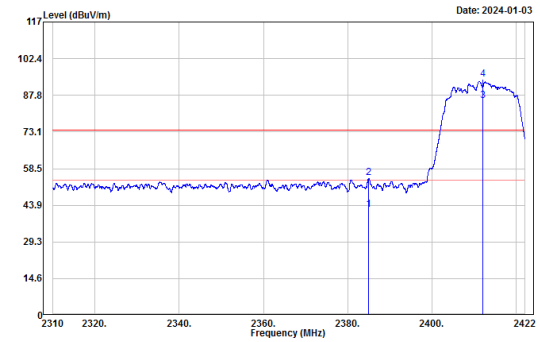
Site : LK-966A
Condition: 3m vertical
Mode : G TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2462.000	100.83	------	------	109.10	-8.27	Average
2	2462.000	109.48	------	------	117.75	-8.27	Peak
3	2486.296	45.55	54.00	-8.45	53.69	-8.14	Average
4	2486.296	62.48	74.00	-11.52	70.62	-8.14	Peak

802.11n 20Mode

Low channel

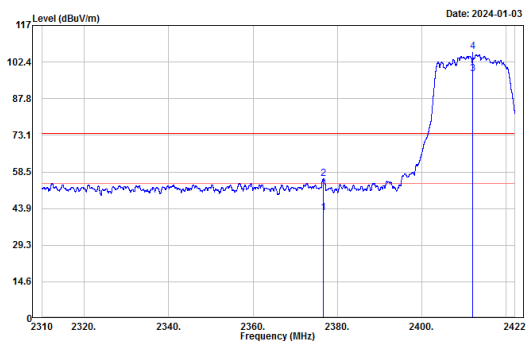
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : N20 TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2384.962	42.06	54.00	-11.94	50.71	-8.65	Average
2	2384.962	54.82	74.00	-19.18	63.47	-8.65	Peak
3	2412.000	85.45	------	------	93.97	-8.52	Average
4	2412.000	94.21	------	------	102.73	-8.52	Peak

Vertical

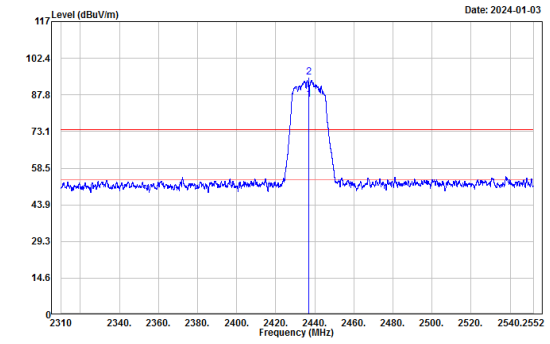


Site : LK-966A
Condition: 3m vertical
Mode : N20 TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2376.674	42.29	54.00	-11.71	50.99	-8.70	Average
2	2376.674	55.82	74.00	-18.18	64.52	-8.70	Peak
3	2412.000	97.79	------	------	106.31	-8.52	Average
4	2412.000	106.50	------	------	115.01	-8.51	Peak

Middle channel

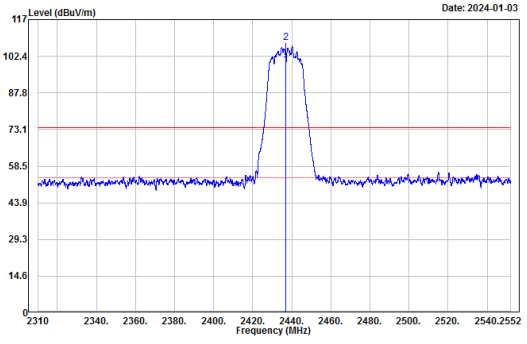
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : N20 TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2437.000	85.94	------	------	94.33	-8.39	Average
2	2437.000	94.68	------	------	103.06	-8.38	Peak

Vertical

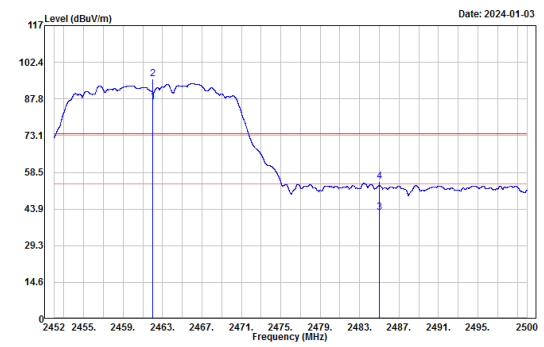


Site : LK-966A
Condition: 3m vertical
Mode : N20 TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2437.000	98.94	------	------	107.33	-8.39	Average
2	2437.000	107.71	------	------	116.10	-8.39	Peak

High channel

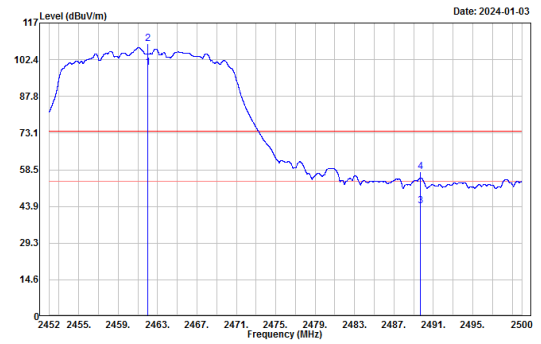
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : N20 TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2462.000	86.57	------	------	94.84	-8.27	Average
2	2462.000	95.82	------	------	104.06	-8.24	Peak
3	2485.014	42.36	54.00	-11.64	50.51	-8.15	Average

Vertical



Site : LK-966A
Condition: 3m vertical
Mode : N20 TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2462.000	99.31	------	------	107.58	-8.27	Average
2	2462.000	108.62	------	------	116.89	-8.27	Peak
3	2489.694	44.11	54.00	-9.89	52.23	-8.12	Average
4	2489.694	57.70	74.00	-16.30	65.82	-8.12	Peak

Note:

Level = Reading + Factor.

Over Limit = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

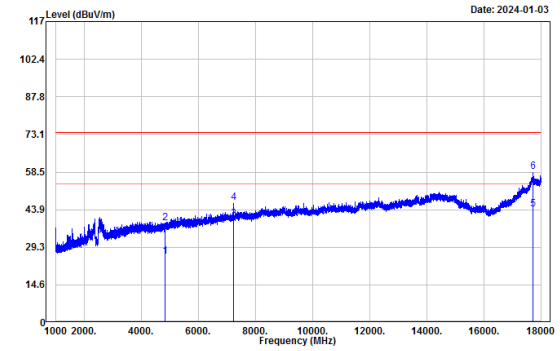
The other spurious emission which is 20dB to the limit or in noise floor was not recorded.

1GHz-18GHz:

802.11b Mode

Low channel

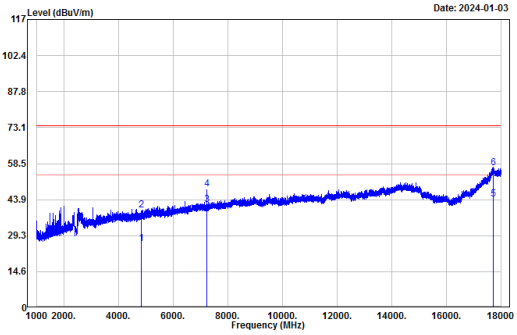
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : B TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4824.000	25.69	54.00	-28.31	27.57	-1.88	Average
2	4824.000	38.74	74.00	-35.26	40.62	-1.88	Peak
3	7236.000	40.18	54.00	-13.82	35.94	4.24	Average
4	7236.000	46.60	74.00	-27.40	42.36	4.24	Peak
5	17710.000	44.09	54.00	-9.91	22.57	21.52	Average
6	17710.000	58.51	74.00	-15.49	36.99	21.52	Peak

Vertical

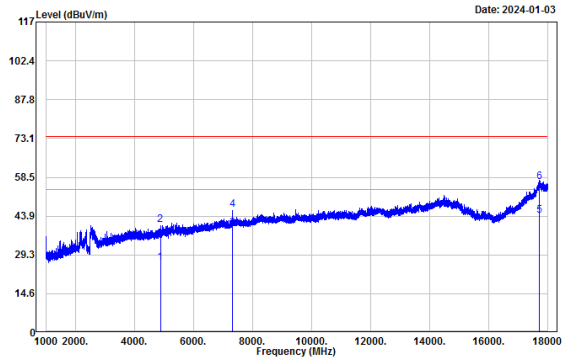


Site : LK-966A
Condition: 3m vertical
Mode : B TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4824.000	26.08	54.00	-27.92	27.96	-1.88	Average
2	4824.000	39.49	74.00	-34.51	41.37	-1.88	Peak
3	7236.000	41.72	54.00	-12.28	37.48	4.24	Average
4	7236.000	48.33	74.00	-25.67	44.09	4.24	Peak
5	17710.000	44.10	54.00	-9.90	22.58	21.52	Average
6	17710.000	56.79	74.00	-17.21	35.27	21.52	Peak

Middle channel

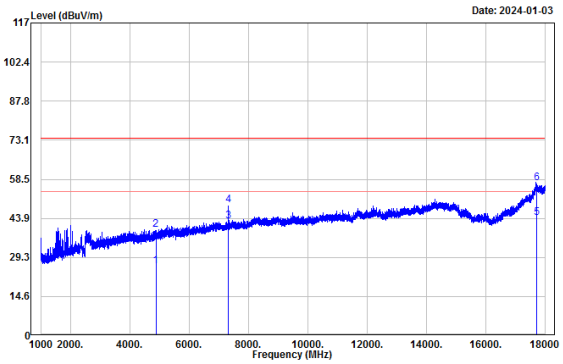
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : B TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4874.000	26.23	54.00	-27.77	27.88	-1.65	Average
2	4874.000	40.53	74.00	-33.47	42.18	-1.65	Peak
3	7311.000	39.27	54.00	-14.73	34.83	4.44	Average
4	7311.000	46.22	74.00	-27.78	41.78	4.44	Peak
5	17710.000	44.07	54.00	-9.93	22.55	21.52	Average
6	17710.000	56.80	74.00	-17.20	35.28	21.52	Peak

Vertical

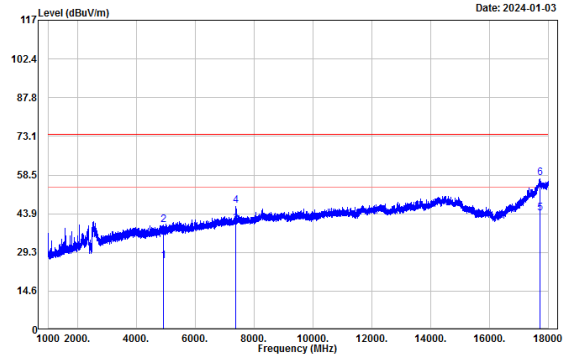


Site : LK-966A
Condition: 3m vertical
Mode : B TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4874.000	25.88	54.00	-28.12	27.53	-1.65	Average
2	4874.000	39.56	74.00	-34.44	41.21	-1.65	Peak
3	7311.000	42.85	54.00	-11.15	38.41	4.44	Average
4	7311.000	48.80	74.00	-25.20	44.36	4.44	Peak
5	17710.000	44.09	54.00	-9.91	22.57	21.52	Average
6	17710.000	56.92	74.00	-17.08	35.40	21.52	Peak

High channel

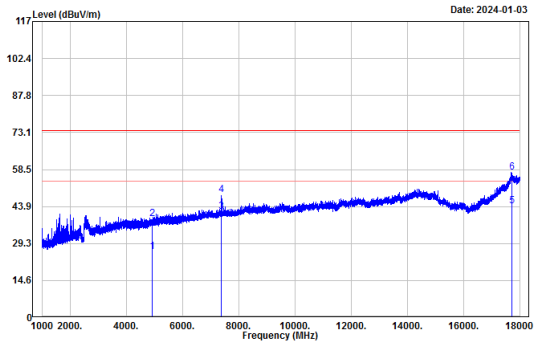
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : B TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4924.000	25.94	54.00	-28.06	27.37	-1.43	Average
2	4924.000	39.54	74.00	-34.46	40.97	-1.43	Peak
3	7386.000	39.79	54.00	-14.21	35.22	4.57	Average
4	7386.000	47.04	74.00	-26.96	42.47	4.57	Peak
5	17710.000	44.02	54.00	-9.98	22.50	21.52	Average
6	17710.000	57.48	74.00	-16.52	35.96	21.52	Peak

Vertical



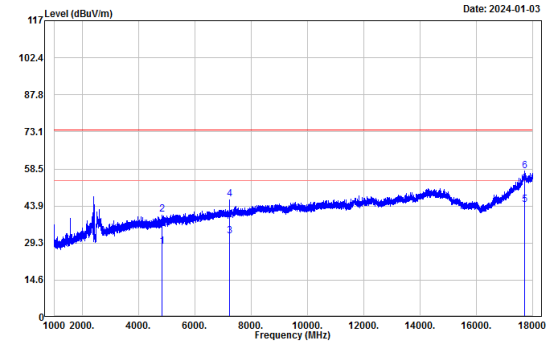
Site : LK-966A
Condition: 3m vertical
Mode : B TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4924.000	25.94	54.00	-28.06	27.37	-1.43	Average
2	4924.000	39.08	74.00	-34.92	40.51	-1.43	Peak
3	7386.000	41.86	54.00	-12.14	37.29	4.57	Average
4	7386.000	48.65	74.00	-25.35	44.08	4.57	Peak
5	17710.000	44.00	54.00	-10.00	22.48	21.52	Average
6	17710.000	57.54	74.00	-16.46	36.02	21.52	Peak

802.11g Mode:

Low channel

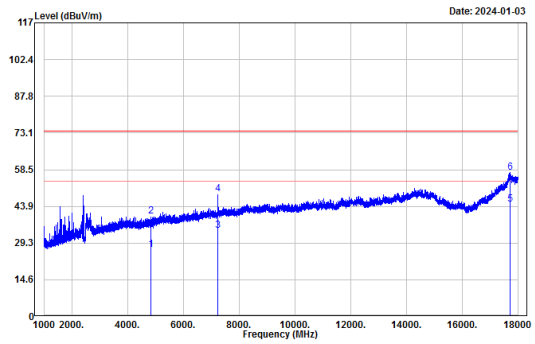
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4824.000	27.84	54.00	-26.16	29.72	-1.88	Average
2	4824.000	40.66	74.00	-33.34	42.54	-1.88	Peak
3	7236.000	31.96	54.00	-22.04	27.72	4.24	Average
4	7236.000	46.49	74.00	-27.51	42.25	4.24	Peak
5	17710.000	44.53	54.00	-9.47	23.01	21.52	Average
6	17710.000	57.71	74.00	-16.29	36.19	21.52	Peak

Vertical

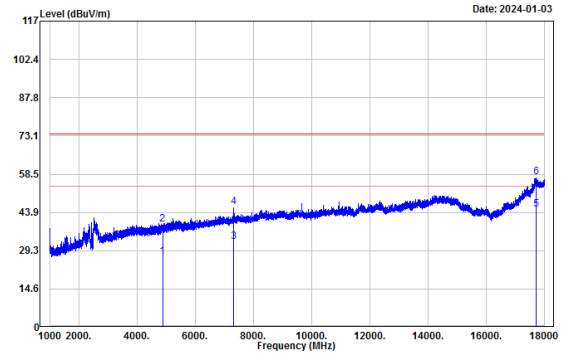


Site : LK-966A
Condition: 3m vertical
Mode : G TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4824.000	26.60	54.00	-27.40	28.48	-1.88	Average
2	4824.000	39.95	74.00	-34.05	41.83	-1.88	Peak
3	7236.000	34.35	54.00	-19.65	30.11	4.24	Average
4	7236.000	48.73	74.00	-25.27	44.49	4.24	Peak
5	17710.000	44.56	54.00	-9.44	23.04	21.52	Average
6	17710.000	57.40	74.00	-16.60	35.88	21.52	Peak

Middle channel

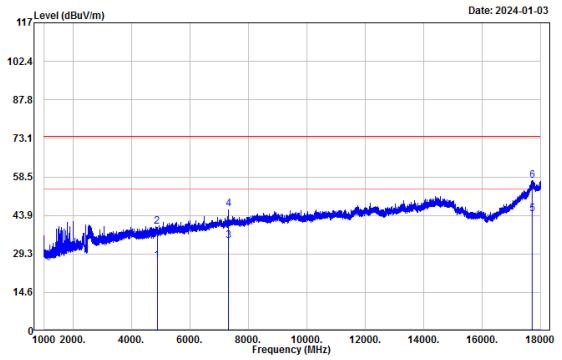
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4874.000	26.85	54.00	-27.15	28.50	-1.65	Average
2	4874.000	39.37	74.00	-34.63	41.02	-1.65	Peak
3	7311.000	32.71	54.00	-21.29	28.27	4.44	Average
4	7311.000	46.08	74.00	-27.92	41.64	4.44	Peak
5	17710.000	44.94	54.00	-9.06	23.42	21.52	Average
6	17710.000	57.45	74.00	-16.55	35.93	21.52	Peak

Vertical

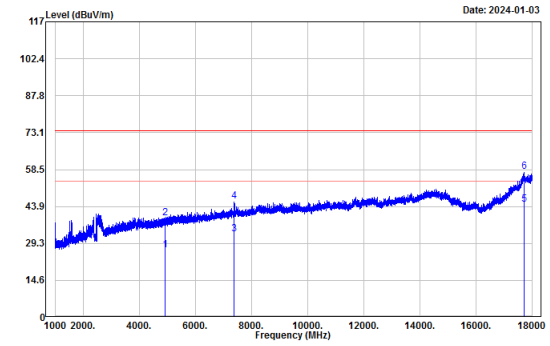


Site : LK-966A
Condition: 3m vertical
Mode : G TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4874.000	26.66	54.00	-27.34	28.31	-1.65	Average
2	4874.000	39.57	74.00	-34.43	41.22	-1.65	Peak
3	7311.000	34.39	54.00	-19.61	29.95	4.44	Average
4	7311.000	46.13	74.00	-27.87	41.69	4.44	Peak
5	17710.000	44.51	54.00	-9.49	22.99	21.52	Average
6	17710.000	56.96	74.00	-17.04	35.44	21.52	Peak

High channel

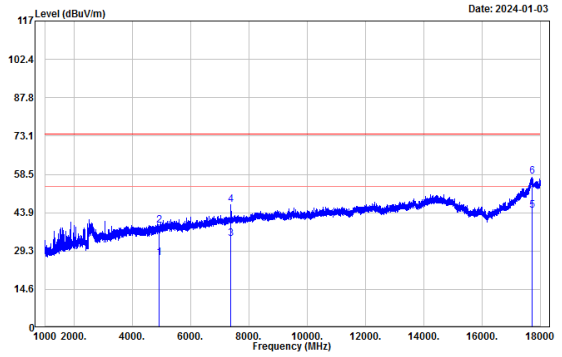
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : G TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4924.000	26.77	54.00	-27.23	28.20	-1.43	Average
2	4924.000	39.45	74.00	-34.55	40.88	-1.43	Peak
3	7386.000	33.09	54.00	-20.91	28.52	4.57	Average
4	7386.000	45.95	74.00	-28.05	41.38	4.57	Peak
5	17710.000	44.57	54.00	-9.43	23.05	21.52	Average
6	17710.000	57.61	74.00	-16.39	36.09	21.52	Peak

Vertical



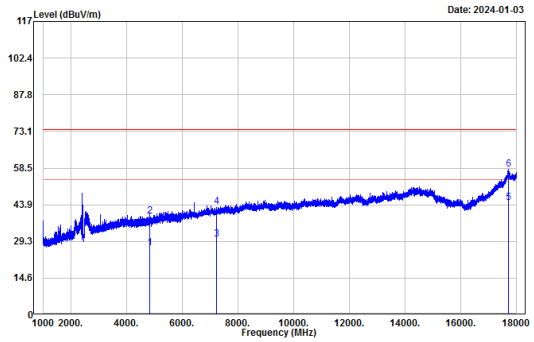
Site : LK-966A
Condition: 3m vertical
Mode : G TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4924.000	26.55	54.00	-27.45	27.98	-1.43	Average
2	4924.000	38.89	74.00	-35.11	40.32	-1.43	Peak
3	7386.000	33.84	54.00	-20.16	29.27	4.57	Average
4	7386.000	46.90	74.00	-27.10	42.33	4.57	Peak
5	17710.000	44.84	54.00	-9.16	23.32	21.52	Average
6	17710.000	57.60	74.00	-16.40	36.08	21.52	Peak

802.11n 20Mode

Low channel

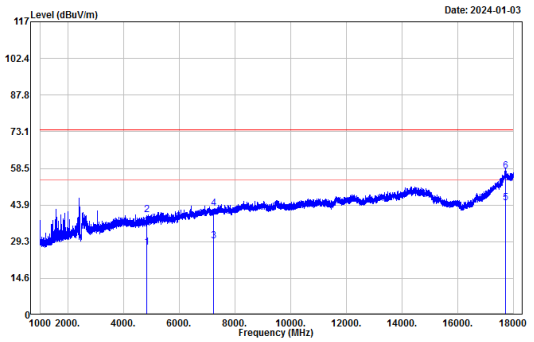
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : N20 TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4824.000	26.70	54.00	-27.30	28.58	-1.88	Average
2	4824.000	39.22	74.00	-34.78	41.10	-1.88	Peak
3	7236.000	30.14	54.00	-23.86	25.90	4.24	Average
4	7236.000	43.03	74.00	-30.97	38.79	4.24	Peak
5	17710.000	44.62	54.00	-9.38	23.10	21.52	Average
6	17710.000	57.91	74.00	-16.09	36.39	21.52	Peak

Vertical

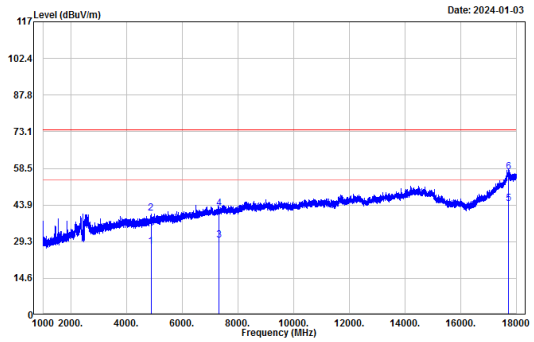


Site : LK-966A
Condition: 3m vertical
Mode : N20 TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4824.000	26.86	54.00	-27.14	28.74	-1.88	Average
2	4824.000	39.90	74.00	-34.10	41.78	-1.88	Peak
3	7236.000	29.57	54.00	-24.43	25.33	4.24	Average
4	7236.000	42.52	74.00	-31.48	38.28	4.24	Peak
5	17710.000	44.58	54.00	-9.42	23.06	21.52	Average
6	17710.000	57.23	74.00	-16.77	35.71	21.52	Peak

Middle channel

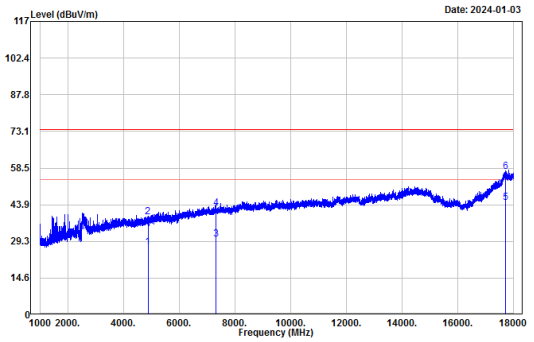
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : N20 TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4874.000	27.42	54.00	-26.58	29.07	-1.65	Average
2	4874.000	40.67	74.00	-33.33	42.32	-1.65	Peak
3	7311.000	29.91	54.00	-24.09	25.47	4.44	Average
4	7311.000	42.45	74.00	-31.55	38.01	4.44	Peak
5	17710.000	44.45	54.00	-9.55	22.93	21.52	Average
6	17710.000	57.18	74.00	-16.82	35.66	21.52	Peak

Vertical

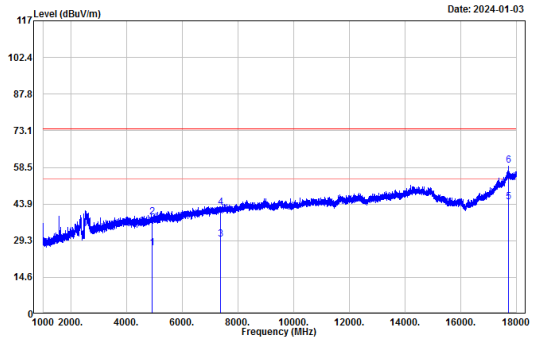


Site : LK-966A
Condition: 3m vertical
Mode : N20 TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4874.000	27.00	54.00	-27.00	28.65	-1.65	Average
2	4874.000	39.01	74.00	-34.99	40.66	-1.65	Peak
3	7311.000	29.98	54.00	-24.02	25.54	4.44	Average
4	7311.000	42.56	74.00	-31.44	38.12	4.44	Peak
5	17710.000	44.58	54.00	-9.42	23.06	21.52	Average
6	17710.000	57.05	74.00	-16.95	35.53	21.52	Peak

High channel

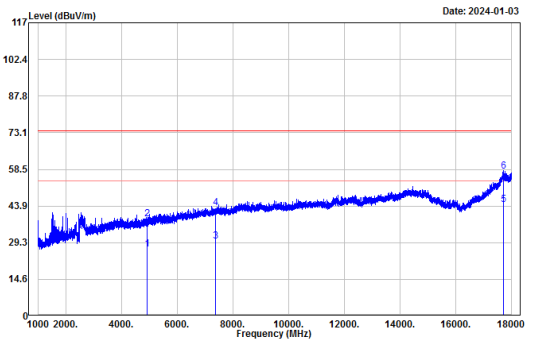
Horizontal



Site : LK-966A
Condition: 3m horizontal
Mode : N20 TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4924.000	26.27	54.00	-27.73	27.70	-1.43	Average
2	4924.000	38.65	74.00	-35.35	40.08	-1.43	Peak
3	7386.000	29.87	54.00	-24.13	25.30	4.57	Average
4	7386.000	42.52	74.00	-31.48	37.95	4.57	Peak
5	17710.000	44.63	54.00	-9.37	23.11	21.52	Average
6	17710.000	59.41	74.00	-14.59	37.89	21.52	Peak

Vertical



Site : LK-966A
Condition: 3m vertical
Mode : N20 TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4924.000	26.65	54.00	-27.35	28.08	-1.43	Average
2	4924.000	38.58	74.00	-35.42	40.01	-1.43	Peak
3	7386.000	29.95	54.00	-24.05	25.38	4.57	Average
4	7386.000	43.02	74.00	-30.98	38.45	4.57	Peak
5	17710.000	44.49	54.00	-9.51	22.97	21.52	Average
6	17710.000	57.80	74.00	-16.20	36.28	21.52	Peak

Note:

Level = Reading + Factor.

Over Limit = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

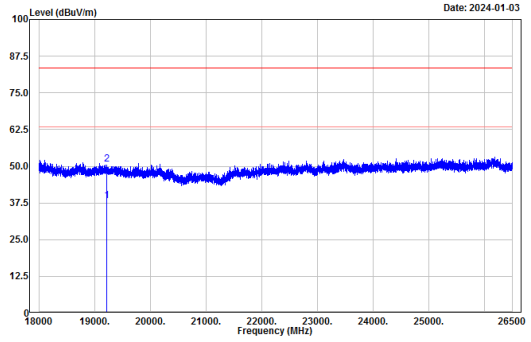
The other spurious emission which is 20dB to the limit or in noise floor was not recorded.

18GHz-26.5GHz:

802.11b Mode

Low channel

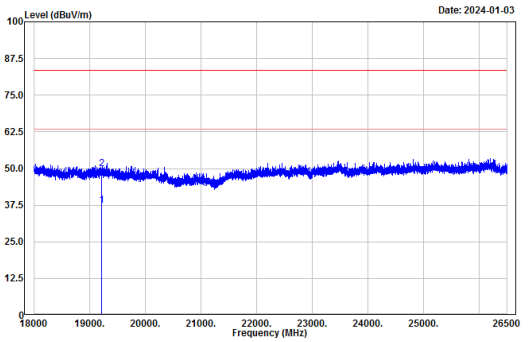
Horizontal



Site : LK-966A
Condition: 1m horizontal
Mode : B TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19216.000	38.12	63.50	-25.38	22.93	15.19	Average
2	19216.000	50.69	83.50	-32.81	35.50	15.19	Peak

Vertical

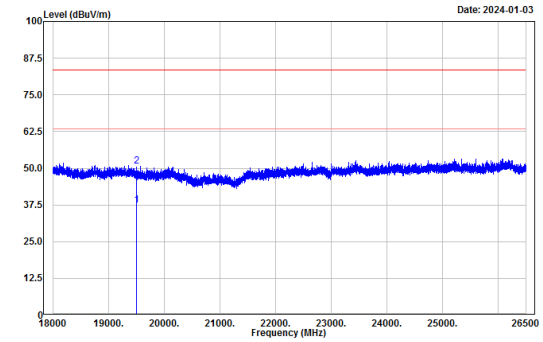


Site : LK-966A
Condition: 1m vertical
Mode : B TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19216.000	37.40	63.50	-26.10	22.21	15.19	Average
2	19216.000	49.94	83.50	-33.56	34.75	15.19	Peak

Middle channel

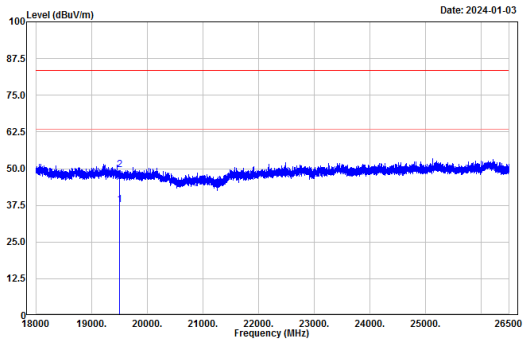
Horizontal



Site : LK-966A
Condition: 1m horizontal
Mode : B TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19496.000	37.29	63.50	-26.21	22.82	14.47	Average
2	19496.000	50.56	83.50	-32.94	36.09	14.47	Peak

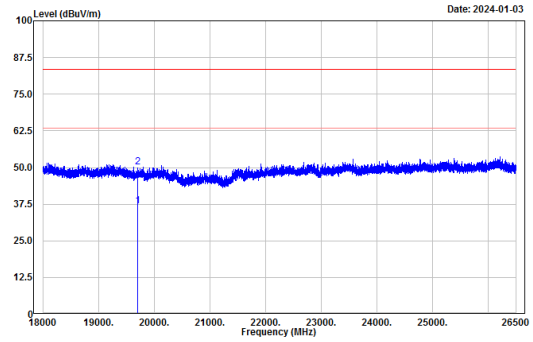
Vertical



Site : LK-966A
Condition: 1m vertical
Mode : B TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

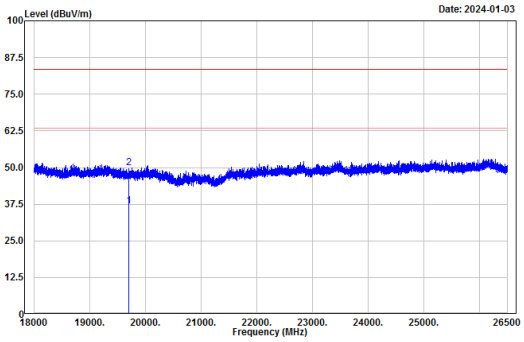
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19496.000	37.62	63.50	-25.88	23.15	14.47	Average
2	19496.000	49.56	83.50	-33.94	35.09	14.47	Peak

High channel	
Horizontal	**Vertical**



Site : LK-966A
Condition: 1m horizontal
Mode : B TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19696.000	36.87	63.50	-26.63	22.53	14.34	Average
2	19696.000	50.19	83.50	-33.31	35.85	14.34	Peak

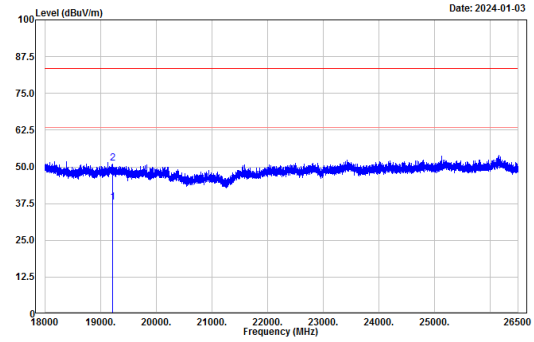


Site : LK-966A
Condition: 1m vertical
Mode : B TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19696.000	36.75	63.50	-26.75	22.41	14.34	Average
2	19696.000	49.80	83.50	-33.70	35.46	14.34	Peak

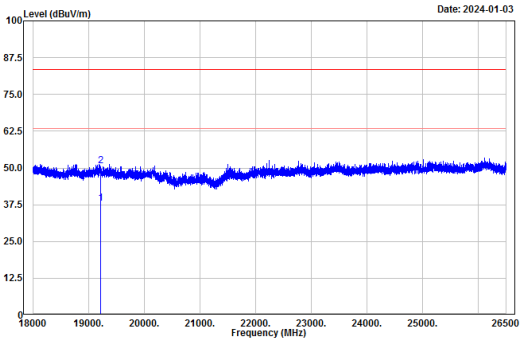
802.11g Mode

Low channel	
Horizontal	**Vertical**



Site : LK-966A
Condition: 1m horizontal
Mode : G TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19216.000	37.98	63.50	-25.52	22.79	15.19	Average
2	19216.000	51.33	83.50	-32.17	36.14	15.19	Peak

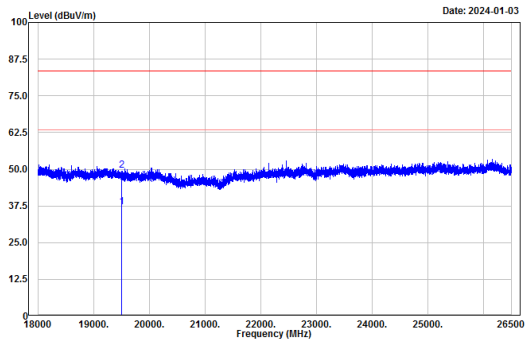


Site : LK-966A
Condition: 1m vertical
Mode : G TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19216.000	37.89	63.50	-25.61	22.70	15.19	Average
2	19216.000	50.55	83.50	-32.95	35.36	15.19	Peak

Middle channel

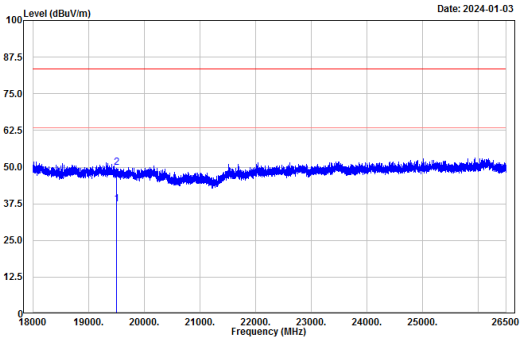
Horizontal



Site : LK-966A
Condition: 1m horizontal
Mode : G TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19496.000	37.14	63.50	-26.36	22.67	14.47	Average
2	19496.000	49.55	83.50	-33.95	35.08	14.47	Peak

Vertical

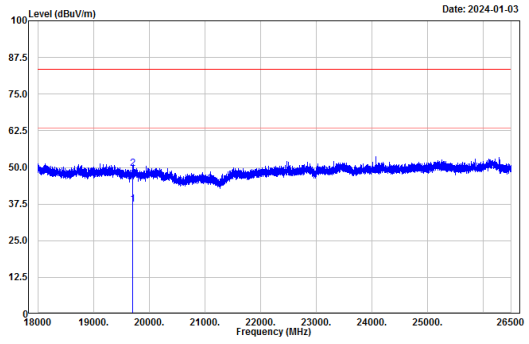


Site : LK-966A
Condition: 1m vertical
Mode : G TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19496.000	37.43	63.50	-26.07	22.96	14.47	Average
2	19496.000	49.77	83.50	-33.73	35.30	14.47	Peak

High channel

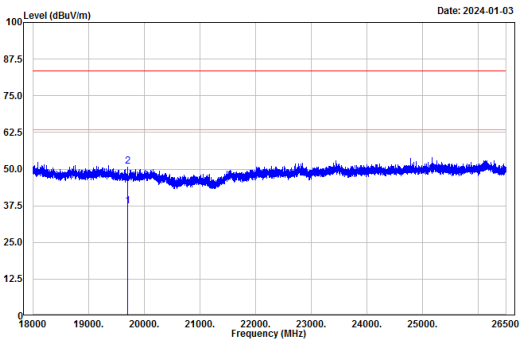
Horizontal



Site : LK-966A
Condition: 1m horizontal
Mode : G TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19696.000	37.29	63.50	-26.21	22.95	14.34	Average
2	19696.000	49.65	83.50	-33.85	35.31	14.34	Peak

Vertical



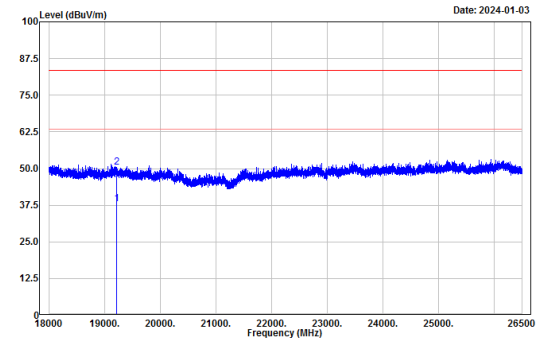
Site : LK-966A
Condition: 1m vertical
Mode : G TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19696.000	37.41	63.50	-26.09	23.07	14.34	Average
2	19696.000	50.82	83.50	-32.68	36.48	14.34	Peak

802.11n 20Mode

Low channel

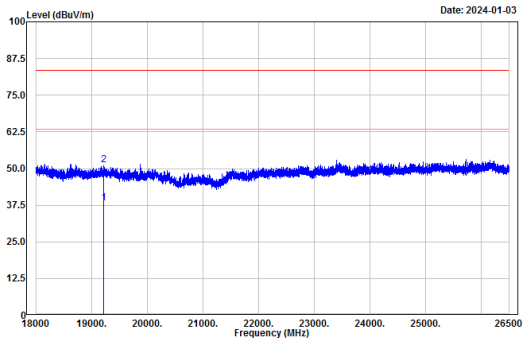
Horizontal



Site : LK-966A
Condition: 1m horizontal
Mode : N20 TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19216.000	38.02	63.50	-25.48	22.83	15.19	Average
2	19216.000	50.37	83.50	-33.13	35.18	15.19	Peak

Vertical

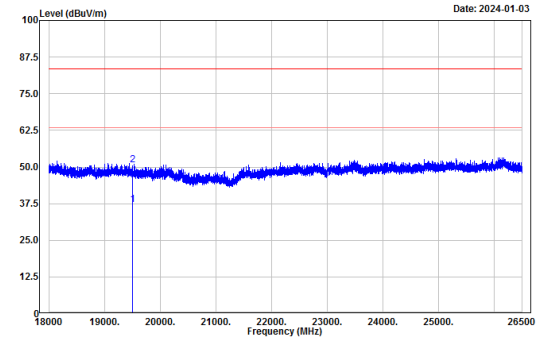


Site : LK-966A
Condition: 1m vertical
Mode : N20 TX-2412MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19216.000	38.14	63.50	-25.36	22.95	15.19	Average
2	19216.000	51.11	83.50	-32.39	35.92	15.19	Peak

Middle channel

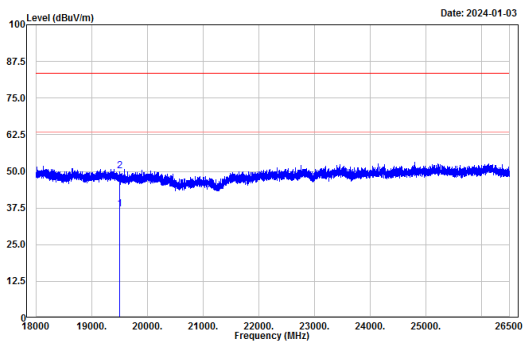
Horizontal



Site : LK-966A
Condition: 1m horizontal
Mode : N20 TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19496.000	37.12	63.50	-26.38	22.65	14.47	Average
2	19496.000	50.71	83.50	-32.79	36.24	14.47	Peak

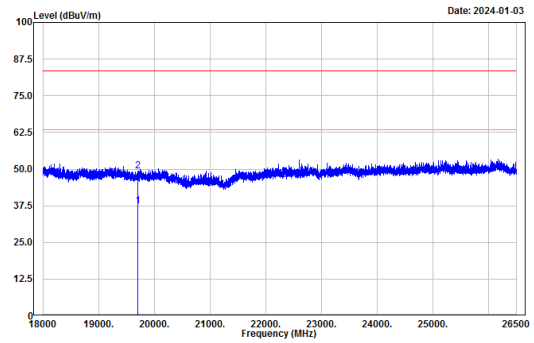
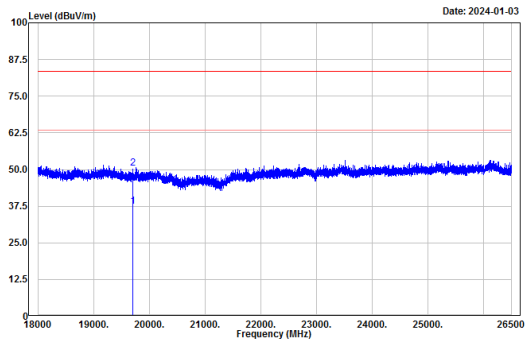
Vertical



Site : LK-966A
Condition: 1m vertical
Mode : N20 TX-2437MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19496.000	37.18	63.50	-26.32	22.71	14.47	Average
2	19496.000	50.26	83.50	-33.24	35.79	14.47	Peak

High channel

Horizontal	Vertical
	

Site : LK-966A
Condition: 1m horizontal
Mode : N20 TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19696.000	37.39	63.50	-26.11	23.05	14.34	Average
2	19696.000	49.39	83.50	-34.11	35.05	14.34	Peak

Site : LK-966A
Condition: 1m vertical
Mode : N20 TX-2462MHz
Note : Temp/RH:19.1°C/64%
Tester: Bruce

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	19696.000	37.47	63.50	-26.03	23.13	14.34	Average
2	19696.000	50.51	83.50	-32.99	36.17	14.34	Peak

Note:

Level = Reading + Factor.

Over Limit = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

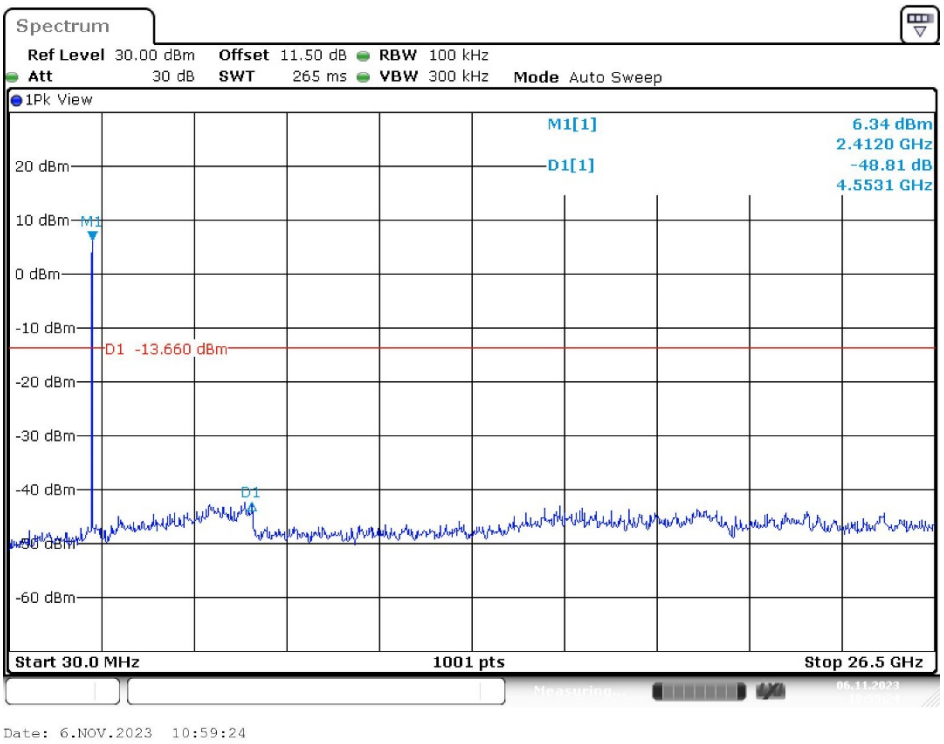
The other spurious emission which is 20dB to the limit or in noise floor was not recorded.

Conducted Spurious Emissions:

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B Mode				
Low	2412	48.81	≥ 20	PASS
Middle	2437	48.16	≥ 20	PASS
High	2462	48.05	≥ 20	PASS
G Mode				
Low	2412	43.06	≥ 20	PASS
Middle	2437	44.17	≥ 20	PASS
High	2462	43.49	≥ 20	PASS
N20 Mode				
Low	2412	42.71	≥ 20	PASS
Middle	2437	41.88	≥ 20	PASS
High	2462	41.92	≥ 20	PASS

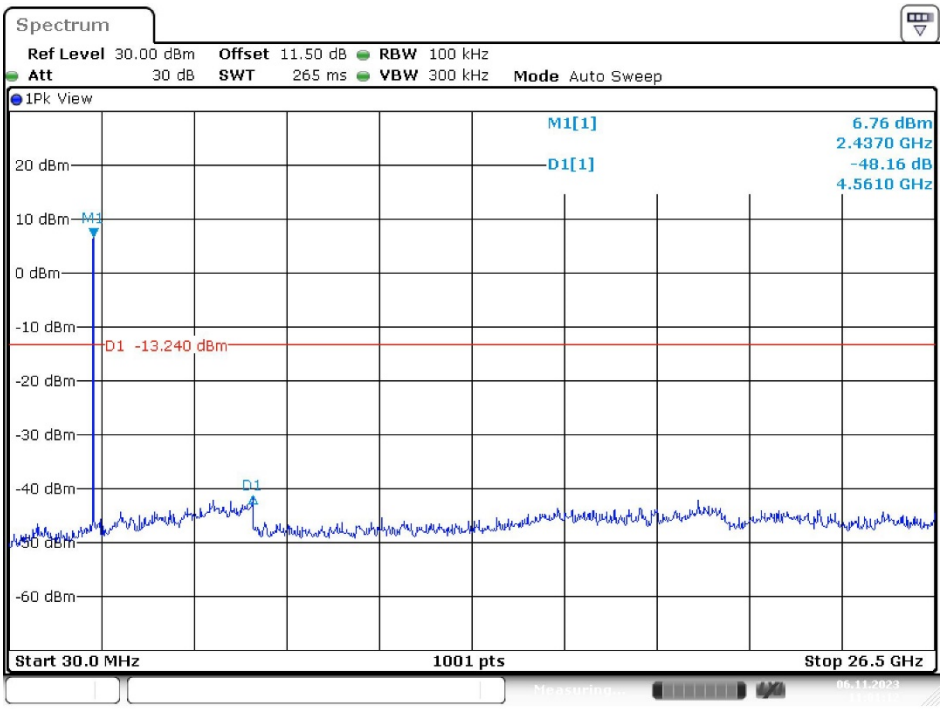
B Mode

Low Channel



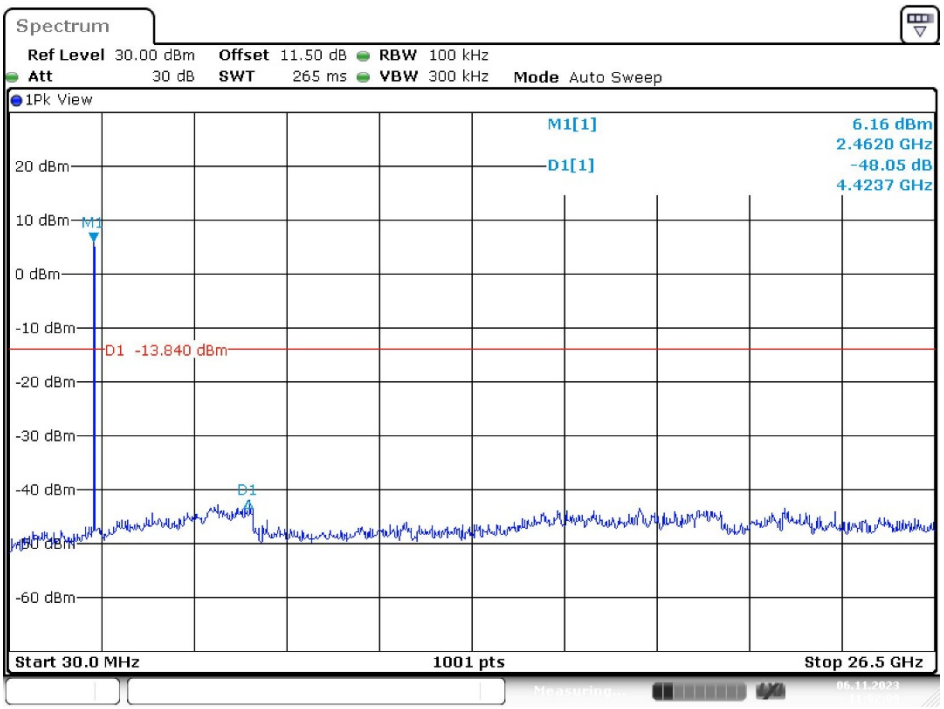
Date: 6.NOV.2023 10:59:24

Middle Channel



Date: 6.NOV.2023 11:01:12

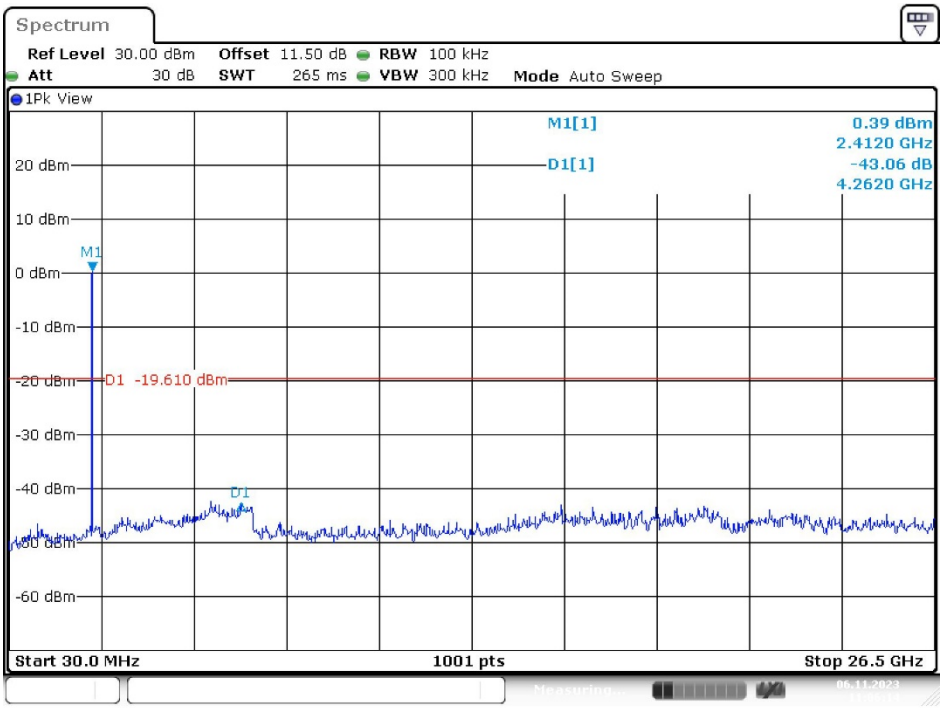
High Channel



Date: 6.NOV.2023 11:02:10

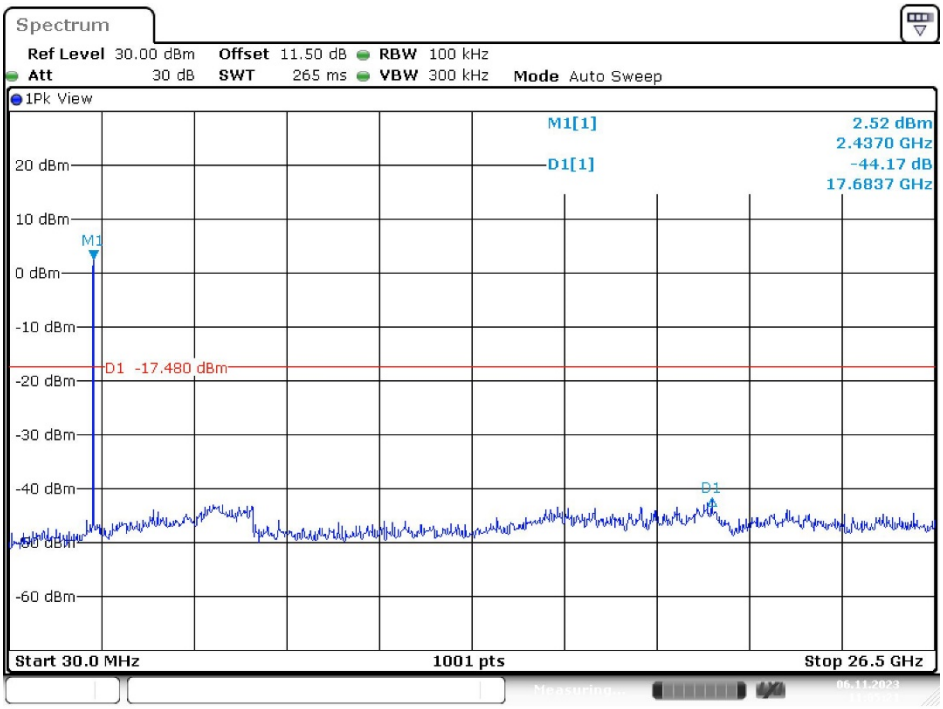
G Mode

Low Channel



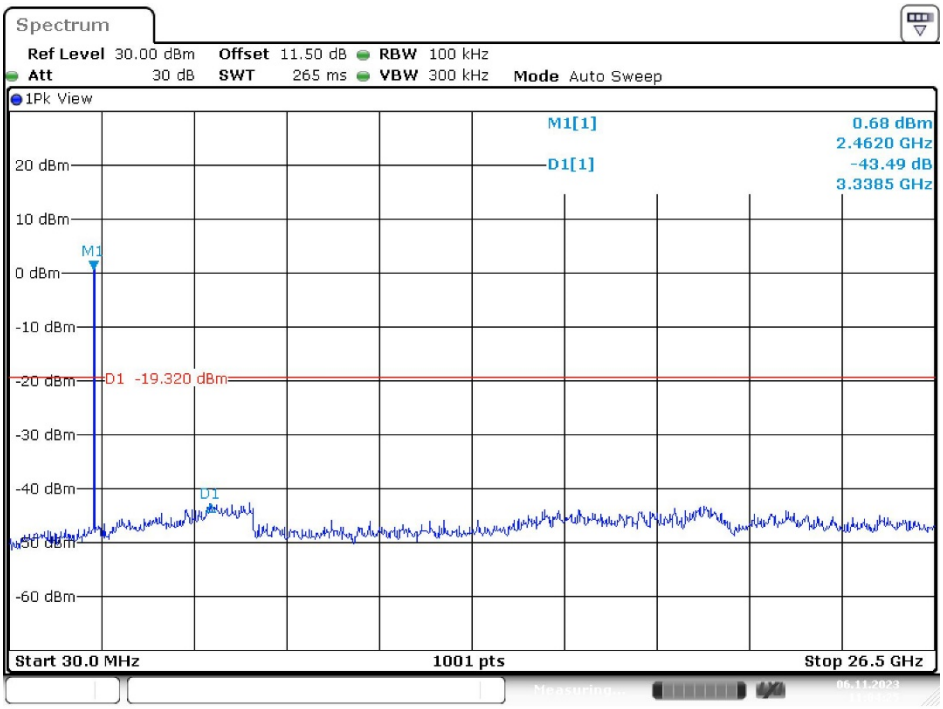
Date: 6.NOV.2023 11:06:15

Middle Channel



Date: 6.NOV.2023 11:05:22

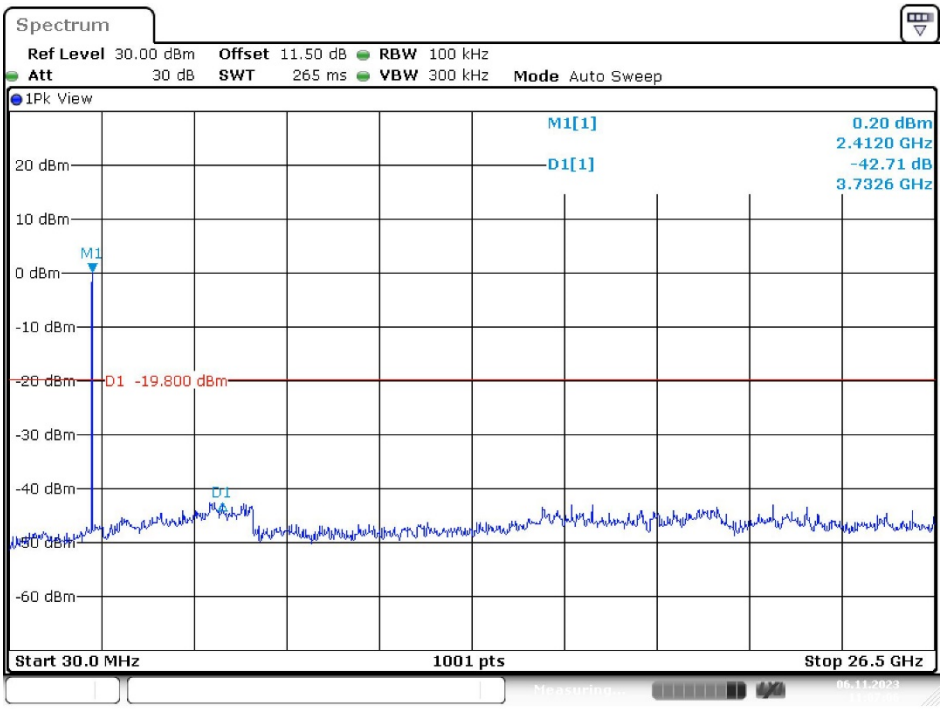
High Channel



Date: 6.NOV.2023 11:04:24

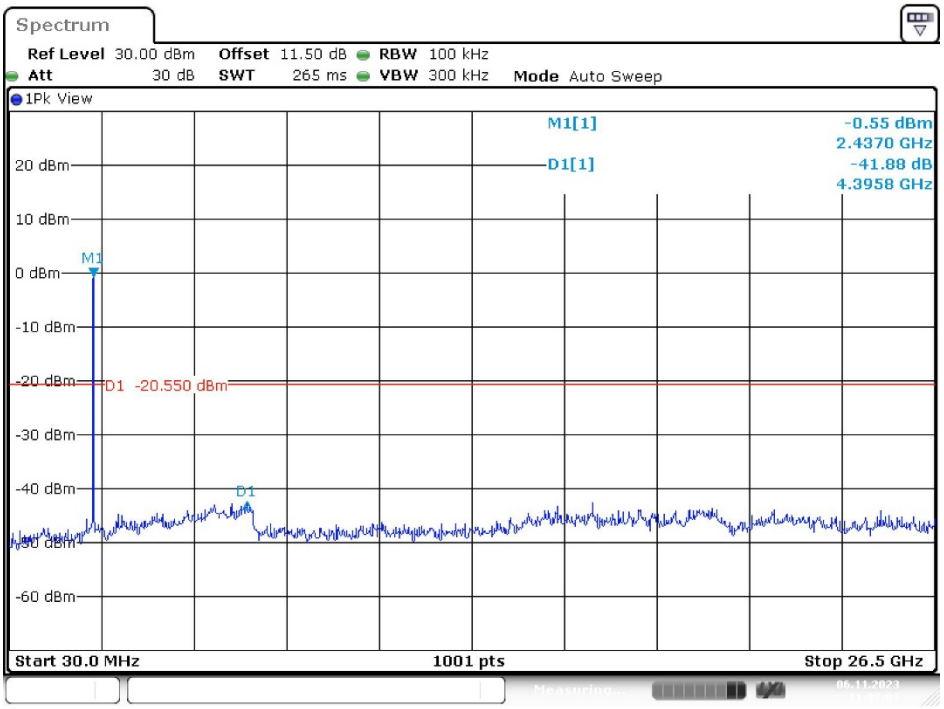
N20 Mode

Low Channel



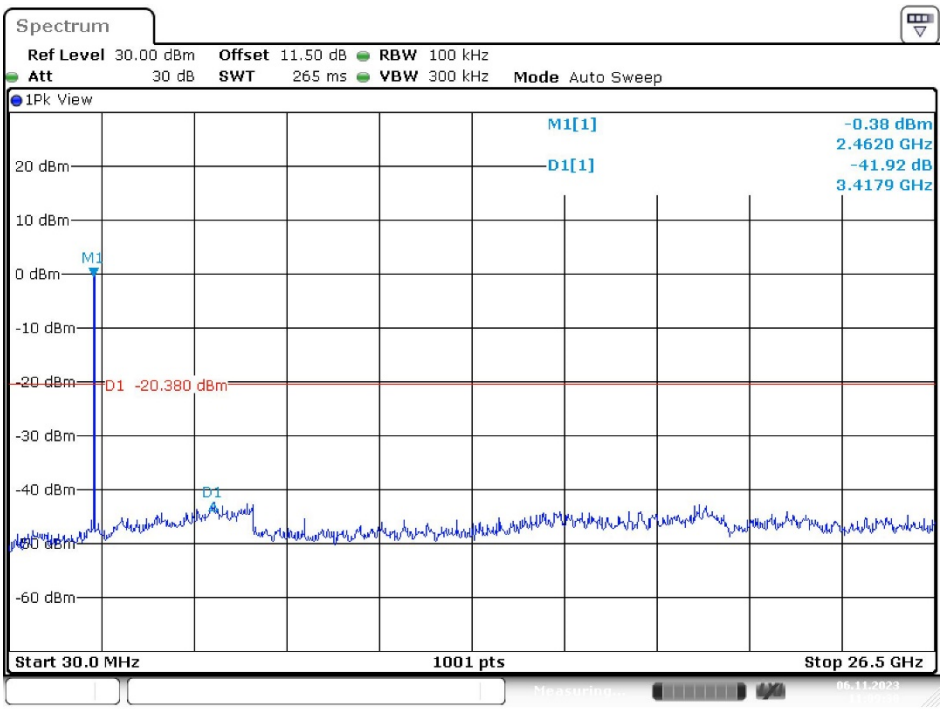
Date: 6.NOV.2023 11:07:07

Middle Channel



Date: 6.NOV.2023 11:08:03

High Channel



Date: 6.NOV.2023 11:09:31