FCC PART 15, SUBPART C

TEST REPORT

For

Nestle Purina PetCare Company

1 Checkerboard Square
Saint Louis, MO 63164, USA

FCC ID: 2BEZH-DT1AM

Report Type: Original Report	**Product Type:** Pet Tracker
Prepared By:	Libass Thiaw RF Test Engineer
Report Number:	R2403183-247
Report Date:	2024-07-18
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ACCREDITED
CERTIFICATE #3297.02

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* This test report may contain data and test methods that are not covered by BACL's scope of accreditation as of the test report date shown above. These items are marked within the test report text with an asterisk "*"

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R2403183-247	Original Report	2024-07-18

1 General Description

1.1 Product Description for Equipment Under Test (EUT)

This test report is prepared on behalf of *Nestle Purina PetCare Company*, and their product model: DT1A, FCC ID: 2BEZH-DT1AM, the "EUT" as referred to in this report. The EUT has 2.4 GHz Wi-Fi, 2.4 GHz BLE, GNSS, and LTE capabilities (pre certified with FCC ID: 2ANPO00NRF9160).

1.2 Mechanical Description of EUT

The UUT measures approximately 5.3 cm (L) x 3.2 cm (W) x 1.3 cm (H) and weighs < 1 kg.

The data gathered was from a production sample provided by Nestle Purina PetCare Company, with S/N: DT1AX3400057

1.3 Objective

This report is prepared on behalf of *Nestle Purina PetCare Company* in accordance with Part 2, Subpart J, and Part 15, Subpart C of the Federal Communication Commission's rules.

The objective is to determine compliance with FCC Part 15.247 for Antenna Requirement, RF Exposure, AC Line Conducted Emissions, Radiated & Conducted Spurious Emissions, Emission Bandwidth, Maximum Output Power, Peak Power Spectral Density, and 100 kHz Band Edges.

In order to determine compliance, the manufacturer or a contracted laboratory makes measurements and takes the necessary steps to ensure that the equipment complies with the appropriate technical standards.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the immunity should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing and/or I/O cable changes, etc.).

1.4 Related Submittal(s)/Grant(s)

N/A

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and FCC KDB 558074 D01 DTS Meas Guidance v05r02: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Parameter	Measurement uncertainty
Occupied Channel Bandwidth	±5%
RF output power, conducted	±0.57 dB
Power Spectral Density, conducted	±1.48 dB
Unwanted Emissions, conducted	±1.57 dB
All emissions, radiated	±4.0 dB
AC power line Conducted Emission	±2.0 dB
Temperature	±2ºC
Humidity	±5%
DC and low frequency voltages	±1.0%
Time	±2%
Duty Cycle	±3%

1.7 Test Facility Registrations

BACLs test facilities that are used to perform Radiated and Conducted Emissions tests are currently recognized by the Federal Communications Commission as Accredited with NIST Designation Number US1129.

BACL's test facilities that are used to perform Radiated and Conducted Emissions tests are currently registered with Industry Canada under Registration Numbers: 3062A-1, 3062A-2, and 3062A-3.

BACL is a Chinese Taipei Bureau of Standards Metrology and Inspection (BSMI) validated Conformity Assessment Body (CAB), under Appendix B, Phase I Procedures of the APEC Mutual Recognition Arrangement (MRA). BACL's BSMI Lab Code Number is: SL2-IN-E-1002R

BACL's test facilities that are used to perform AC Line Conducted Emissions, Telecommunications Line Conducted Emissions, Radiated Emissions from 30 MHz to 1 GHz, and Radiated Emissions from 1 GHz to 6 GHz are currently recognized as Accredited in accordance with the Voluntary Control Council for Interference [VCCI] Article 15 procedures under Registration Number A-0027.

1.8 Test Facility Accreditations

Bay Area Compliance Laboratories Corp. (BACL) is:

A- ***An independent, 3rd-Party, Commercial Test Laboratory accredited to ISO/IEC 17025:2017 by A2LA (Test Laboratory Accreditation Certificate Number 3297.02),*** in the fields of: Electromagnetic Compatibility and Telecommunications. Unless noted by an Asterisk (*) in the Compliance Matrix (See Section 3 of this Test Report), BACL's ISO/IEC 17025:2017 Scope of Accreditation includes all of the Test Method Standards and/or the Product Family Standards detailed in this Test Report..

BACL's ISO/IEC 17025:2017 Scope of Accreditation includes a comprehensive suite of EMC Emissions, EMC Immunity, Radio, RF Exposure, Safety and wireline Telecommunications test methods applicable to a wide range of product categories. These product categories include Central Office Telecommunications Equipment [including NEBS - Network Equipment Building Systems], Unlicensed and Licensed Wireless and RF devices, Information Technology Equipment (ITE); Telecommunications Terminal Equipment (TTE); Medical Electrical Equipment; Industrial, Scientific and Medical Test Equipment; Professional Audio and Video Equipment;

Industrial and Scientific Instruments and Laboratory Apparatus; Cable Distribution Systems, and Energy Efficient Lighting.

B- ***A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.03)*** to certify

- For the USA (Federal Communications Commission):
  1- All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
  2- All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
  3- All Telephone Terminal Equipment within FCC Scope C.
- For the Canada (Industry Canada):
  1 All Scope 1-Licence-Exempt Radio Frequency Devices;
  2 All Scope 2-Licensed Personal Mobile Radio Services;
  3 All Scope 3-Licensed General Mobile & Fixed Radio Services;
  4 All Scope 4-Licensed Maritime & Aviation Radio Services;
  5 All Scope 5-Licensed Fixed Microwave Radio Services
  6 All Broadcasting Technical Standards (BETS) in the Category I Equipment Standards List.
- For Singapore (Info-Communications Development Authority (IDA)):
  1 All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2011, Annex 2
  2. All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2011, Annex 2
- For the Hong Kong Special Administrative Region:
  1 All Radio Equipment, per KHCA 10XX-series Specifications;
  2 All GMDSS Marine Radio Equipment, per HKCA 12XX-series Specifications;
  3 All Fixed Network Equipment, per HKCA 20XX-series Specifications.
- For Japan:
  1 MIC Telecommunication Business Law (Terminal Equipment):
    - All Scope A1 - Terminal Equipment for the Purpose of Calls;
    - All Scope A2 - Other Terminal Equipment
  2 Radio Law (Radio Equipment):
    - All Scope B1 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law
    - All Scope B2 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
    - All Scope B3 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law

C- ***A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.01)*** to certify Products to USA's Environmental Protection Agency (EPA) ENERGY STAR Product Specifications for:

1 Electronics and Office Equipment:
- for Telephony (ver. 3.0)
- for Audio/Video (ver. 3.0)
- for Battery Charging Systems (ver. 1.1)
- for Set-top Boxes & Cable Boxes (ver. 4.1)
- for Televisions (ver. 6.1)
- for Computers (ver. 6.0)
- for Displays (ver. 6.0)
- for Imaging Equipment (ver. 2.0)
- for Computer Servers (ver. 2.0)

2 Commercial Food Service Equipment
- for Commercial Dishwashers (ver. 2.0)
- for Commercial Ice Machines (ver. 2.0)

- for Commercial Ovens (ver. 2.1)
- for Commercial Refrigerators and Freezers

3 Lighting Products

- For Decorative Light Strings (ver. 1.5)
- For Luminaires (including sub-components) and Lamps (ver. 1.2)
- For Compact Fluorescent Lamps (CFLs) (ver. 4.3)
- For Integral LED Lamps (ver. 1.4)

4 Heating, Ventilation, and AC Products

- for Residential Ceiling Fans (ver. 3.0)
- for Residential Ventilating Fans (ver. 3.2)

5 Other

- For Water Coolers (ver. 3.0)

D- ***A NIST Designated Phase-I and Phase-II Conformity Assessment Body (CAB) for the following economies and regulatory authorities under the terms of the stated MRAs/Treaties:***

- Australia: ACMA (Australian Communication and Media Authority) – APEC Tel MRA -Phase I;
- Canada: (Innovation, Science and Economic development Canada - ISED) Foreign Certification Body – FCB – APEC Tel MRA -Phase I & Phase II;
- Chinese Taipei (Republic of China – Taiwan):
  - BSMI (Bureau of Standards, Metrology and Inspection) APEC Tel MRA -Phase I;
  - NCC (National Communications Commission) APEC Tel MRA -Phase I;
- European Union:
  - EMC Directive 2014/30/EU US-EU EMC & Telecom MRA CAB (NB)
  - Radio Equipment (RE) Directive 2014/53/EU US-EU EMC & Telecom MRA CAB (NB)
  - Low Voltage Directive (LVD) 2014/35/EU
- Hong Kong Special Administrative Region: (Office of the Telecommunications Authority – OFTA) APEC Tel MRA -Phase I & Phase II
- Israel – US-Israel MRA Phase I
- Republic of Korea (Ministry of Communications - Radio Research Laboratory) APEC Tel MRA -Phase I
- Singapore: (Infocomm Media Development Authority - IMDA) APEC Tel MRA -Phase I & Phase II;
- Japan: VCCI - Voluntary Control Council for Interference US-Japan Telecom Treaty VCCI Side Letter-
- USA:
  - ENERGY STAR Recognized Test Laboratory – US EPA
  - Telecommunications Certification Body (TCB) – US FCC;
  - Nationally Recognized Test Laboratory (NRTL) – US OSHA
- Vietnam: APEC Tel MRA -Phase I;

2 System Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.10-2013 and FCC KDB 558074 D01 DTS Meas Guidance v05r02.

The EUT was tested in a testing mode to represent worst-case results during the final qualification test.

2.2 EUT Exercise Software

The exercising software used during testing was “Tera Term”; the software is compliant with the standard requirements being tested against.

Radio	Channel	Frequency (MHz)	Configuration	Power Setting
2.4 GHz Wi-Fi	Low	2412	802.11b	0
	Middle	2437		0
	High	2462		0
	Low	2412	802.11g	5
	Middle	2437		0
	High	2462		5
	Low	2412	802.11n20	0
	Middle	2437		0
	High	2462		5

Data rates used:

802.11b: 1 Mbps
802.11g: 6 Mbps
802.11n: 6.5 Mbps

Radio	Channel	Frequency (MHz)	Configuration	Power Setting
BLE	Low	2402	1M	Default
	Middle	2440		Default
	High	2480		Default

Data rates used:

BLE 1M: 1Mbps

2.3 Duty Cycle Correction Factor

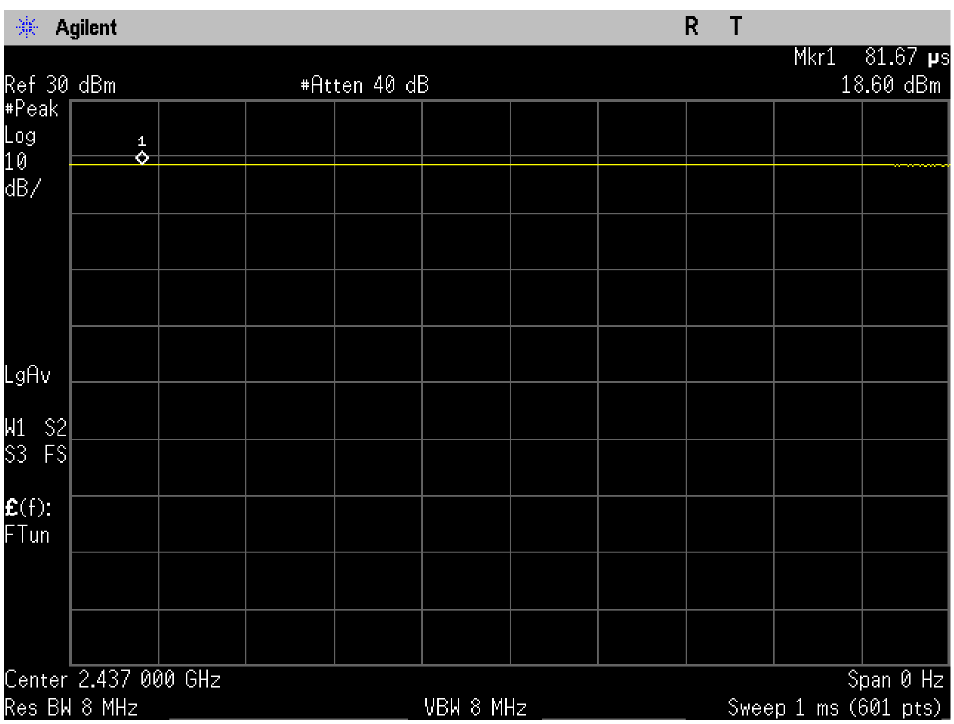
According to KDB 558074 D01 DTS Meas Guidance v05r02 section 6.0:

Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%). When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be utilized to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration (T) over which the transmitter is on and is transmitting at itPs maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data is being acquired (i.e., no transmitter off-time is to be considered).

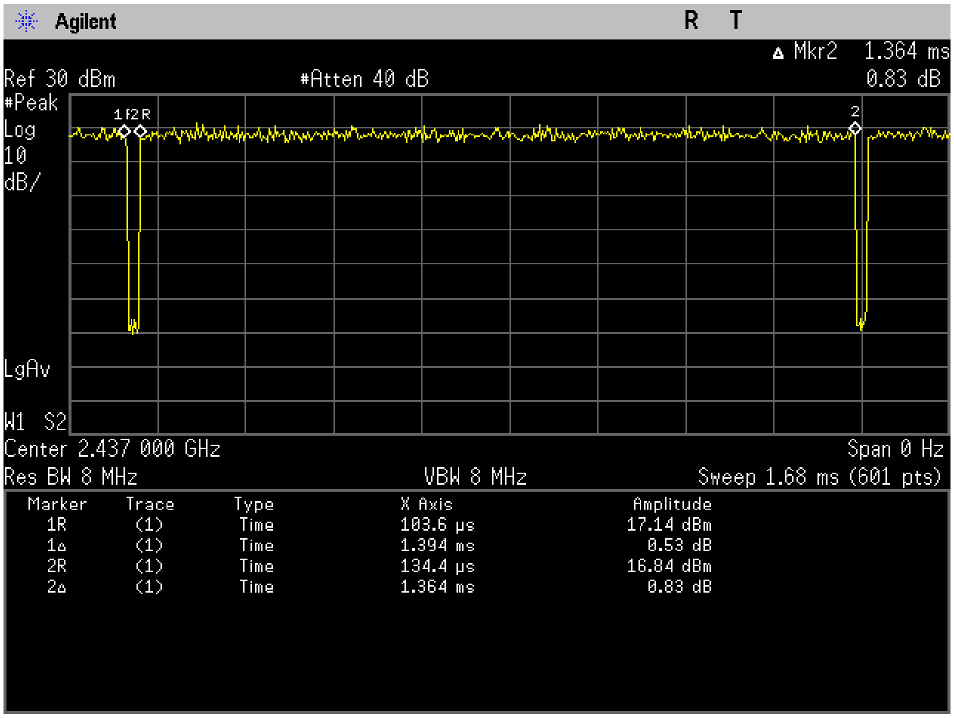
Radio	Radio Mode	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
2.4 GHz Wi-Fi	802.11b	-	-	100	-
	802.11g	1.364	1.394	97.8	0.097
	802.11n20	1.277	1.385	92.2	0.353
BLE	1M	0.09893	0.6077	16.28	7.88

*Note: Duty Cycle Correction Factor = 10*log (1/duty cycle)*

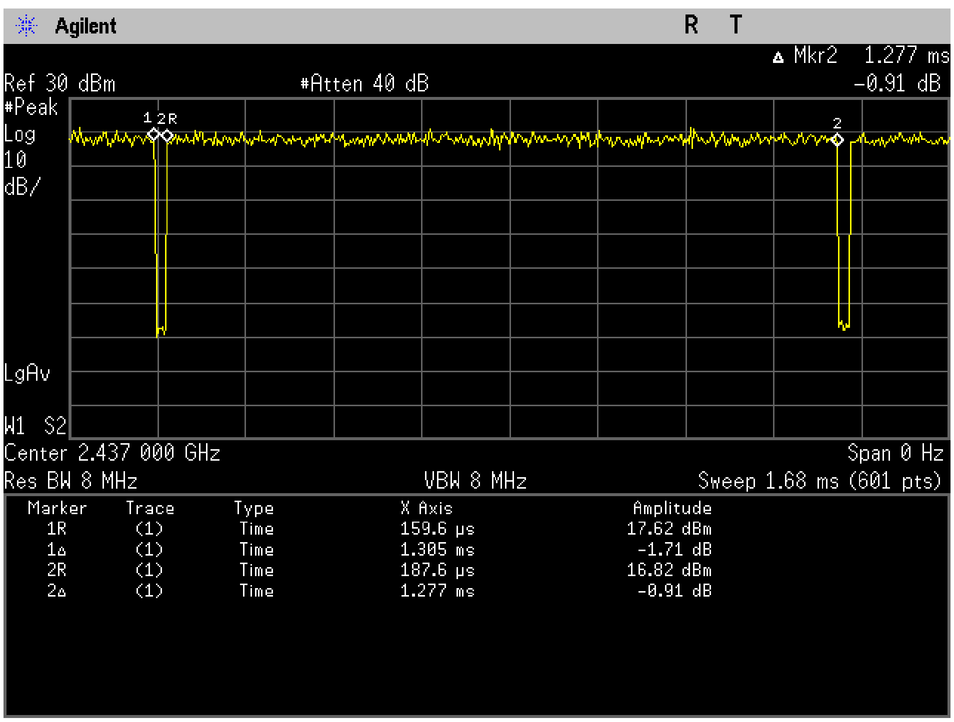
802.11b



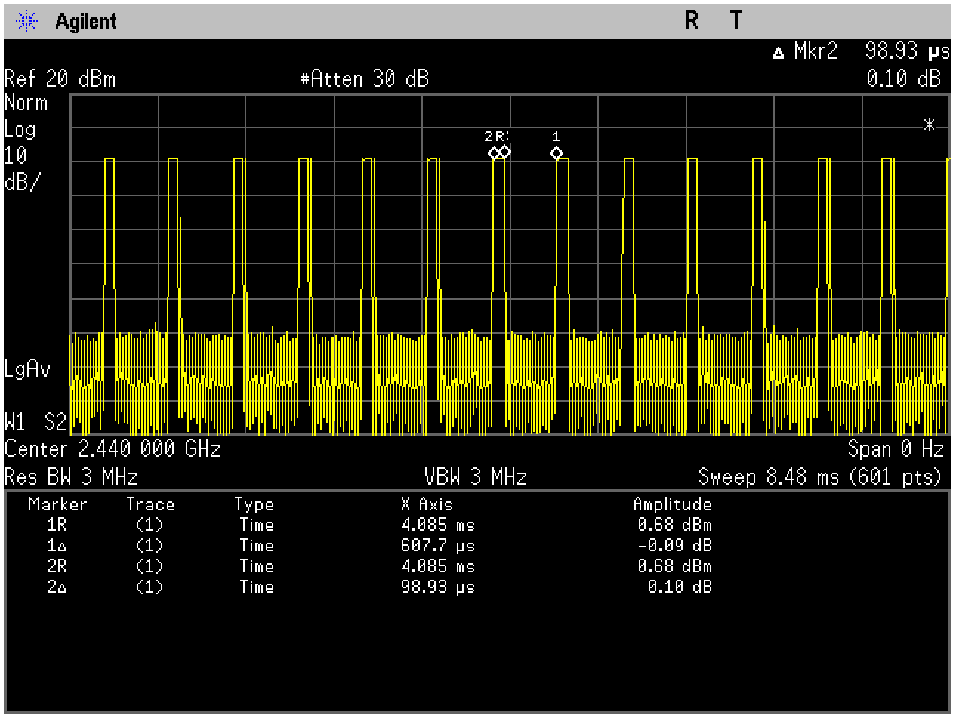
802.11g



802.11n



BLE


Agilent
R T
Δ Mkr2 98.93 μs
Ref 20 dBm #Atten 30 dB 0.10 dB
Norm
Log
10
dB/
LgAv
W1 S2
Center 2.440 000 GHz Span 0 Hz
Res BW 3 MHz VBW 3 MHz Sweep 8.48 ms (601 pts)
Marker Trace Type X Axis Amplitude
1R (1) Time 4.085 ms 0.68 dBm
1Δ (1) Time 607.7 μs -0.09 dB
2R (1) Time 4.085 ms 0.68 dBm
2Δ (1) Time 98.93 μs 0.10 dB

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2.4 Local Support Equipment

Manufacturer	Description	Model	Serial Number
Dell	Laptop	Latitude E7440	-
Nestle Purina PetCare Company	Debug Board	-	-
-	USB-C to USB-C connector	-	-

2.5 Remote Support Equipment

N/A

2.6 Power Supply and Line Filters

N/A

2.7 Interface Ports and Cabling

Cable Description	Length (m)	From	To
USB Cable	< 1	Laptop	Debug Board

3 Summary of Test Results

FCC Rules	Description of Test	Results
FCC §15.203	Antenna Requirements	Compliant
FCC §2.1091, §15.247(i)	RF Exposure	Compliant
FCC §15.207	AC Line Conducted Emissions	Compliant
FCC §2.1053, §15.35(b), §15.205, §15.209, §15.247(d)	Radiated Spurious Emissions	Compliant
FCC §15.247(a)(2)	6 dB & 99% Emission Bandwidth	Compliant
FCC §15.247(b)(3)	Maximum Output Power	Compliant
FCC §15.247(e)	Peak Power Spectral Density	Compliant
FCC §2.1051, §15.247 (d)	Spurious Emissions at Antenna Port	Compliant
FCC §2.1051, §15.247(d)	100 kHz Bandwidth of Frequency Band Edges	Compliant

BACL is responsible for all the information provided in this report, except when information is provided by the customer as identified in this report. Information provided by the customer, e.g., antenna gain, can affect the validity of results.

4 FCC §15.203 – Antenna Requirements

4.1 Applicable Standards

According to FCC §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 use of a standard antenna jack or electrical connector is prohibited.

And according to FCC §15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

This radio transmitter 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.

4.2 Antenna Description

External/Internal/ Integral	Antenna Usage	Antenna Type	Frequency Range (GHz)	Maximum Antenna Gain (dBi)
Integral	2.4 GHz Wi-Fi Ant	Meander Line Dipole	2.4-2.5	0
Integral	2.4 GHz BLE Ant	Meander Line Dipole	2.4-2.5	-1.5

NOTE: antenna gain information is provided by client

5 FCC §2.1091, FCC §15.247(i) – RF Exposure

5.1 Applicable Standards

According to FCC §15.247(i) 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.

According to KDB 447 498 Section (7.2), "simultaneous transmission of MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on calculated or measured field strengths or power density, is ≤ 1.0. The MPE ratio of each antenna is determined at the minimum *test separation distance* required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* (100)	30
1.34-30	824/f	2.19/f	* ($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

Where: f = frequency in MHz
* = Plane-wave equivalent power density

5.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Note: According to MIMOFCC KDB 662911 D02 MIMO with Cross Polarized Antenna v01, Where an FCC rule specifies limits in radiated terms such as EIRP or ERP, the limits apply to the maximum emission that would be observed by a linearly polarized measurement antenna. Therefore, the highest output power from single antenna power was selected to calculate in this section.

5.3 RF exposure evaluation

Worst Case: 802.11b, 2412 MHz

Maximum output power at antenna input terminal (dBm):	16.23
Maximum output power at antenna input terminal (mW):	41.98
Prediction distance (cm):	20
Prediction frequency (MHz):	2412
Maximum Directional Antenna Gain, typical (dBi):	0
Maximum Antenna Gain (numeric):	1
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.00835
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement FCC MPE limit for uncontrolled exposure. The maximum power density at the distance of 20cm is 0.00835 mW/cm^2. Limit is 1.0 mW/cm^2.

Worst Case: BLE, 2402 MHz

Maximum output power at antenna input terminal (dBm):	0.93
Maximum output power at antenna input terminal (mW):	1.239
Prediction distance (cm):	20
Prediction frequency (MHz):	2402
Maximum Directional Antenna Gain, typical (dBi):	-1.5
Maximum Antenna Gain (numeric):	0.708
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.0001745
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement FCC MPE limit for uncontrolled exposure. The maximum power density at the distance of 20cm is 0.0001745 mW/cm^2. Limit is 1.0 mW/cm^2.

Worst case colocation: BT ratio + 2.4Wifi ratio + LTE ratio. 0.0001745/1 +0.00835/1 + 0.0353/1.0 = 0.0439 < 1

NOTE: For worst-case LTE Power, please refer to original LTE certification report number "NIE: 59675RAN.002A1" page 9(i.e. 24dBm for Band 2). Per client, their antenna gain is as follows:

Frequency [MHz]	Max gain [dBi]
725	-4.0
770	-4.0
860	-1.9
1745	-2.1
1880	**-1.5**
1970	-3.1
2135	-5.2

6 FCC §15.207 – AC Line Conducted Emissions

6.1 Applicable Standards

As per FCC §15.207: Conducted limits

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.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 Note1	56 to 46 Note2
0.5-5	56	46
5-30	60	50

Note1: Decreases with the logarithm of the frequency.
Note2: A linear average detector is required

6.2 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.10-2013 measurement procedure. The specification used were FCC §15.207 limits.

External I/O cables were draped along the edge of the test table and bundle when necessary.

The AC/DC power adapter of the EUT was connected with LISN-1 which provided 120 V / 60 Hz AC power.

6.3 Test Procedure

During the conducted emissions test, the power cord of the EUT host system was connected to the mains outlet of the LISN-1 and the power cords of support equipment were connected to LISN-2.

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

All data were recorded in the peak, quasi-peak, and average detection mode. Quasi-Peak readings are distinguished with a “QP.” Average readings are distinguished with an “Ave”.

6.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Cable Loss (CL), the Attenuator Factor (Atten) to indicated Amplitude (Ai) reading. The basic equation is as follows:

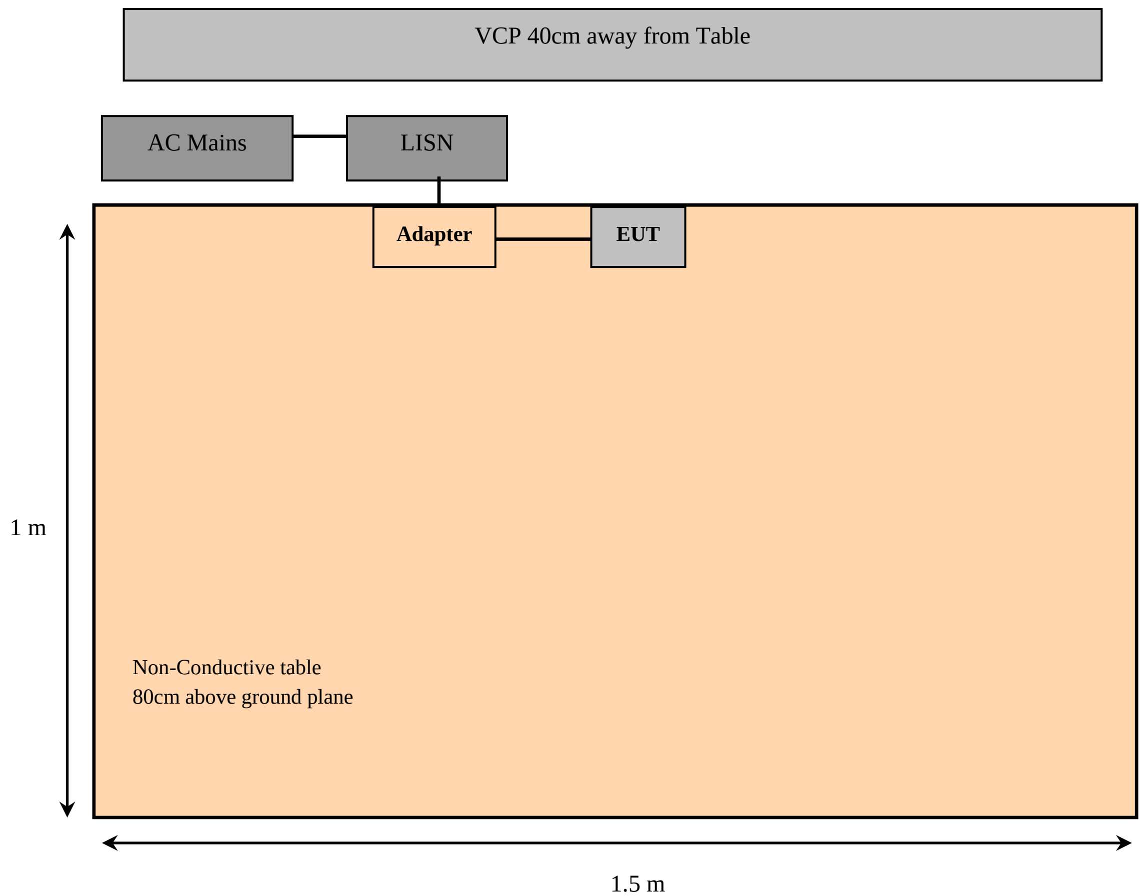
$$CA = Ai + CL + Atten$$

For example, a corrected amplitude of 46.2 dBuV = Indicated Reading (32.5 dBuV) + Cable Loss (3.7 dB) + Attenuator (10 dB)

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

$$\text{Margin} = \text{Corrected Amplitude} - \text{Limit}$$

6.5 Test Setup Block Diagram



6.6 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
124	Rohde & Schwarz	Receiver, EMI Test	ESCI	100044	2023-06-16	1 year
680	Rohde & Schwarz	Impulse Limiter	ESH3-Z2	101964	2024-03-22	1 year
724	Solar Electronics Company	High Pass Filter	Type 7930-100	7930150202	2024-03-22	1 year
732	FCC	LISN	FCC-LISN-50-25-2-10-CISPR16	160129	2023-09-12	1 year
1425	Fairview Microwave	Micro-Coax Cable	FMC0101223-240	210241	2024-01-12	1 year
348	California Instruments	AC Power Source	5001ix-208	57079	Calibration not Required	Calibration not Required

Note[1]: cables, attenuators and notch filters included in the test set-up were checked each time before testing.

Statement of Traceability: BACL Corp. *attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

6.7 Test Environmental Conditions

Temperature:	21.9 to 22.0ºC
Relative Humidity:	49.6 to 50.4%
ATM Pressure:	101.9 kPa

The testing was performed by Libass Thiaw from 2024-04-10 on ground plane

6.8 Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC Part 15.207 standard's conducted emissions limits, with the margin reading of:

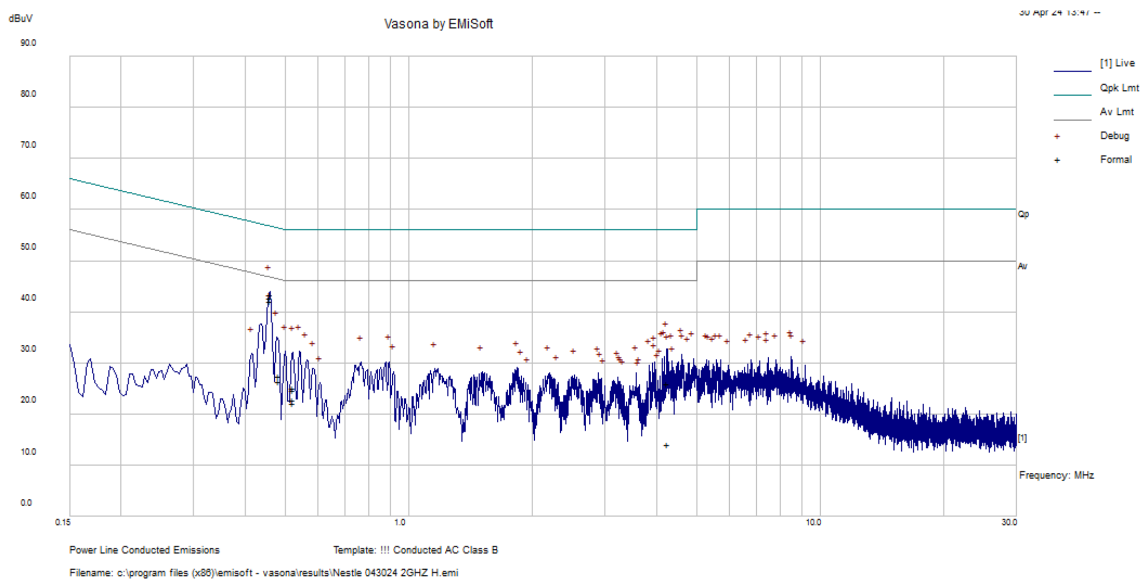
Worst Mode

Worst Case – AC Line: 120 V, 60 Hz			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Hot/Neutral)**	**Range (MHz)**
-3.33	0.461713	Hot	0.15 to 30

Please refer to the tables and plots in the next section for detailed test results.

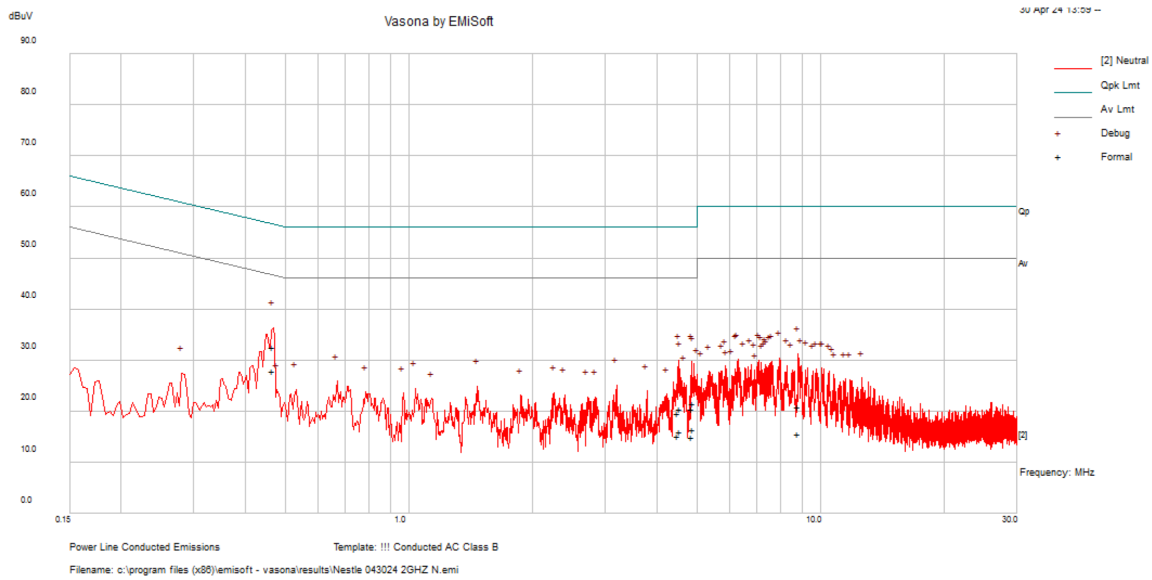
6.9 Conducted Emissions Test Plots and Data

AC Line: Worst Case Colocation 120 V, 60 Hz – Hot Conductor



Frequency (MHz)	Ai. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBµV)	Limit (dBµV)	Margin (dB)	Detector
0.461713	33.2	10.22	43.42	56.66	-13.24	QP
0.46165	32.62	10.22	42.84	56.66	-13.82	QP
4.25287	15.94	10.1	26.04	56	-29.96	QP
0.483031	17.27	10.15	27.42	56.29	-28.87	QP
0.523988	14.63	10.14	24.77	56	-31.23	QP
0.523132	14.92	10.14	25.06	56	-30.94	QP
0.461713	33.11	10.22	43.33	46.66	-3.33	Ave
0.46165	31.9	10.22	42.12	46.66	-4.54	Ave
4.25287	3.87	10.1	13.97	46	-32.03	Ave
0.483031	16.28	10.15	26.43	46.29	-19.86	Ave
0.523988	12.55	10.14	22.69	46	-23.31	Ave
0.523132	11.95	10.14	22.09	46	-23.91	Ave

AC Line: Worst Case Colocation 120 V, 60 Hz – Neutral Conductor



Frequency (MHz)	Ai. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBµV)	Limit (dBµV)	Margin (dB)	Detector
0.46554	22.32	10.21	32.53	56.59	-24.06	QP
4.507647	9.5	10.11	19.61	56	-36.39	QP
4.864373	10.28	10.1	20.38	56	-35.62	QP
4.890365	11.35	10.1	21.45	56	-34.55	QP
4.551575	10.41	10.11	20.52	56	-35.48	QP
8.79892	10.79	10.14	20.93	60	-39.07	QP
0.46554	17.66	10.21	27.87	46.59	-18.72	Ave
4.507647	4.96	10.11	15.07	46	-30.93	Ave
4.864373	4.75	10.1	14.85	46	-31.15	Ave
4.890365	6.21	10.1	16.31	46	-29.69	Ave
4.551575	5.77	10.11	15.88	46	-30.12	Ave
8.79892	5.38	10.14	15.52	50	-34.48	Ave

7 FCC §15.35(b), §15.205, §15.209, §15.247(d) & – Spurious Radiated Emissions

7.1 Applicable Standards

As per FCC §15.35(b): 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 1 MHz

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

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

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

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

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).

7.2 Test Setup

The radiated emissions tests were performed in the 5-meter chamber, using the setup in accordance with ANSI C63.10-2013. The specification used was the FCC §15.247 limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundled when necessary.

7.3 Test Procedure

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

The EUT was set 3 meter away from the testing antenna, which was varied from 1-4 meters, and the EUT was placed on a turntable, which was 0.8 meters and 1.5 meters above the ground plane for below and above 1000 MHz measurements, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna's polarity shall be changed between horizontal and vertical.

The spectrum analyzer or receiver was set as:

Below 1000 MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
(2) Average: RBW = 1MHz / VBW = 3Mhz Trace averaging for 100traces, Sweep = Auto

7.4 Corrected Amplitude and Margin Calculation

For emissions below 1 GHz,

The Corrected Amplitude (CA) is calculated by adding the Correction Factor to the S.A. Reading. The basic equation is as follows:

CA = S.A. Reading + Correction Factor

For example, a corrected amplitude of 40.3 dBuV/m = S.A. Reading (32.5 dBuV) + Correction Factor (7.8 dB/m)

The Correction Factor is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) together. This calculation is done in the measurement software, and reported in the test result section. The basic equation is as follows:

Correction Factor = AF + CL + Atten – Ga

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

Margin = Corrected Amplitude – Limit

For emission above 1 GHz,

The Corrected Amplitude (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

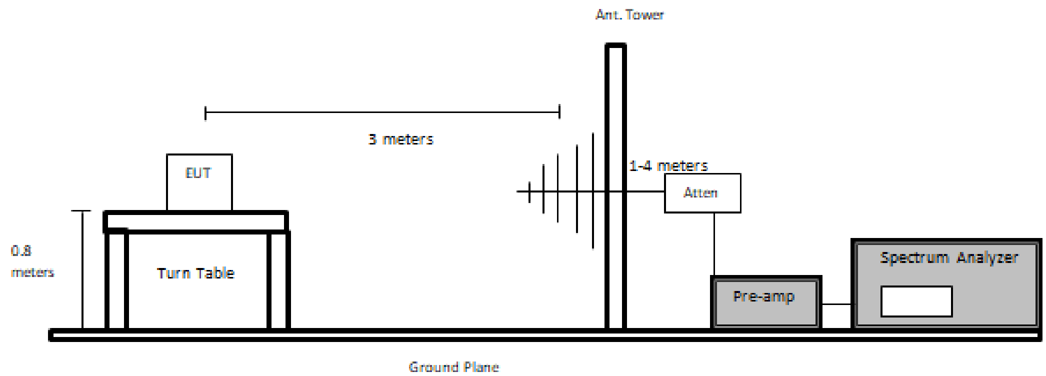
For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

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

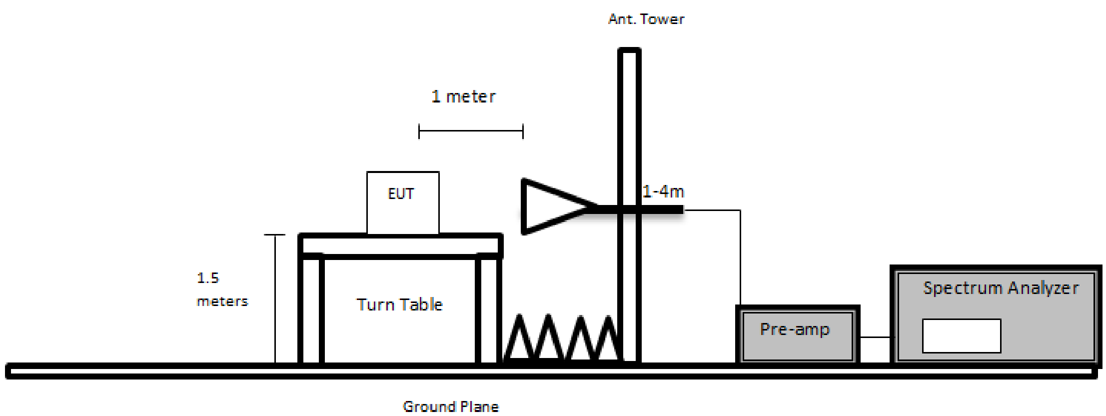
Margin = Corrected Amplitude – Limit

7.5 Test Setup Block Diagram

30 MHz to 1 GHz



Above 1 GHz



7.6 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
310	Rohde & Schwarz	EMI Test Receiver 9 KHZ to 3 GHZ	ESCI 1166.5950.03	100338	2023-05-11	1 year[1]
614	Rhode & Schwarz	Wideband Radio Communication Tester	CMW500	1201.0002K50-120503-Um	N/A	N/A
310	Rohde & Schwarz	EMI Test Receiver 9 KHZ to 3 GHZ	ESCI 1166.5950.03	100338	2024-05-29	1 year
624	Agilent	Spectrum Analyzer	E4446A	MY48250238	2023-05-12	1 year[2]
624	Agilent	Spectrum Analyzer	E4446A	MY48250238	2024-06-14	1 year
327	Sunol Sciences	System Controller	SC110V	122303-1	N/R	N/R
1075	Sunol Sciences	Boresight Tower	TLT3	050119-7	N/R	N/R
1388	Sunol Sciences	Flush Mount Turntable	FM	112005-2	N/R	N/R
316	Sonoma Instruments	Preamplifier	317	260406	2024-02-27	6 months
321	Sunol Sciences	Biconilog Antenna	JB3	A020106-2; 1504	2023-12-18	2 years
1186	Pasternack	Coaxial Cable, RG214	PE3062-1050CM	N/A	2023-10-03	1 year
1245	-	6dB Attenuator	PE7390-6	01182018A	2023-12-18	2 years
1246	Hewlet Packard	RF Limiter	11867A	01734	2024-04-09	1 year
1248	Pasternack	RG214 COAX Cable	PE3062	N/A	2023-10-04	1 year
1249	Time Microwave	LMR-400 Cable Dc-3 GHz	AE13684	2k80612-5 6fts	2023-10-09	1 year
658	HP/ Agilant	Pre Amplifier	8449B OPT HO2	3008A01103	2023-12-01	6 months[2]
658	HP/ Agilant	Pre Amplifier	8449B OPT HO2	3008A01103	2024-06-18	6 months
1192	ETS Lindgren	Horn Antenna	3117	00218973	2022-09-29	2 years
1353	RFMW	2.92 mm 10ft RF Cable DC to 40 GHz	P1CA-29M29M-F150-120	N/A	2024-01-24	6 months
672	Micro-Tronics	2.4-2.6 GHz Notch Filter	BRM50701	160	2024-03-06	1 year
91	Wisewave	Horn Antenna	ARH-4223-02	10555-02	2024-03-14	2 years
827	AH Systems	Preamplifier	PAM 1840 VH	170	2023-11-03	6 months[2]
827	AH Systems	Preamplifier	PAM 1840 VH	170	2024-07-08	6 months
1329	Pasternack	2.92 mm short coaxial cable	PE360-12	N/A	2023-11-28	6 months[2]
1329	Pasternack	2.92 mm short coaxial cable	PE360-12	N/A	2024-05-06	6 months

Note: cables, attenuators and notch filters included in the test set-up were checked each time before testing.
Note[1]: The equipment was used for testing on 2024-05-01.
Note[2]: The equipment was used for testing on 2024-04-29.

Statement of Traceability: BACL Corp. *attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

7.7 Test Environmental Conditions

Temperature:	20 – 22.5°C
Relative Humidity:	55%
ATM Pressure:	101.85 kPa

The testing was performed by Arturo Reyes from 2024-04-29, 2024-06-13 to 2024-06-14, and 2024-07-09 to 2024-07-10 in 5m chamber 3.

7.8 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Part 15.209, 15.247 standards' radiated emissions limits, and had the worst margin of:

Worst Case – Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Configuration**
-0.47	17883.125	Vertical	BLE 2402MHz

Please refer to the tables and plots in the next section for detailed test results.

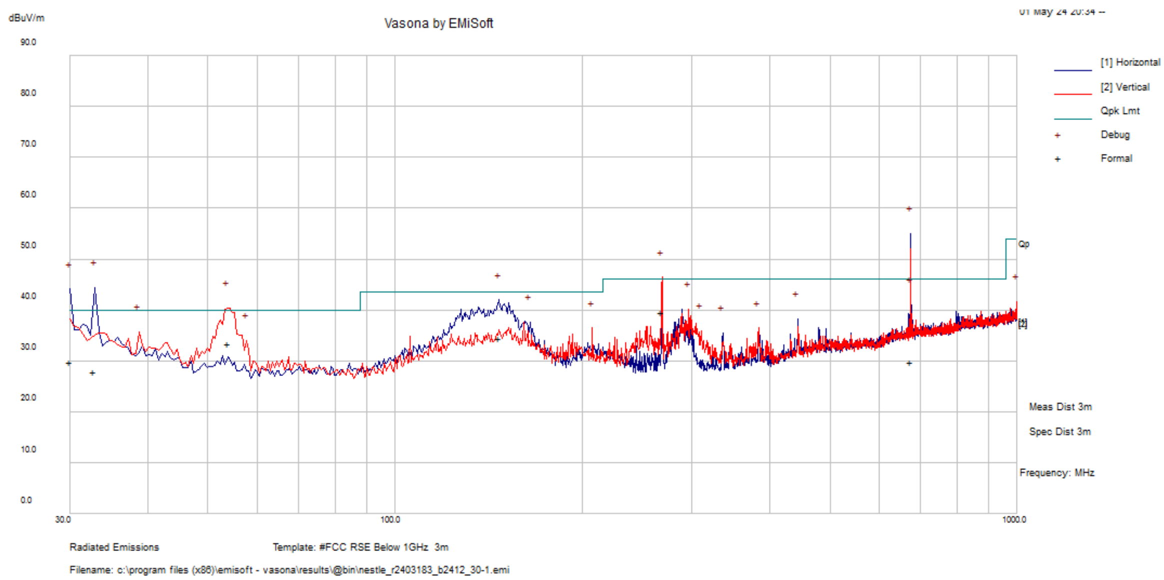
7.9 Radiated Emissions Test Results

Note: *All peaks exceeding the limit line in the graph fall out of restricted bands and thus 30dBc limit (FCC 15.247(d)) was instead applied.*
Fundamental measured for 2.4GHz Wi-Fi high channel: (106.26dBuV/m @3m) – 30dB = 76.26 dBuV/m @3m)

Note: *Pre-scans were performed on all shown configurations in order to determine worst-case results. Following this, a formal scan was performed on the worst-case detailed below*

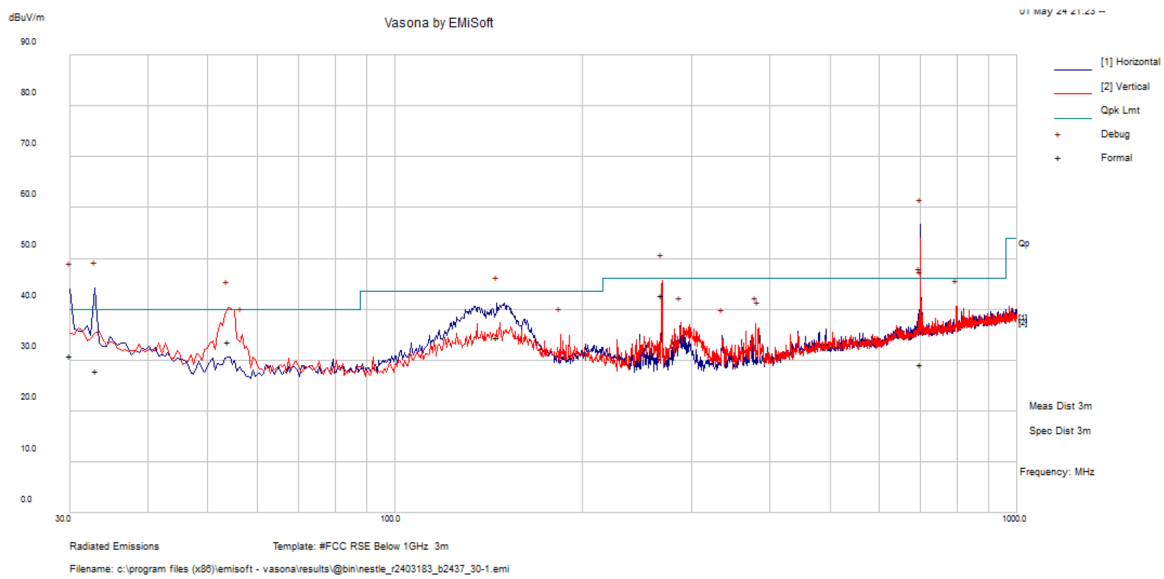
1) 30 MHz – 1 GHz, Measured at 3 meters

802.11b, 2412 MHz



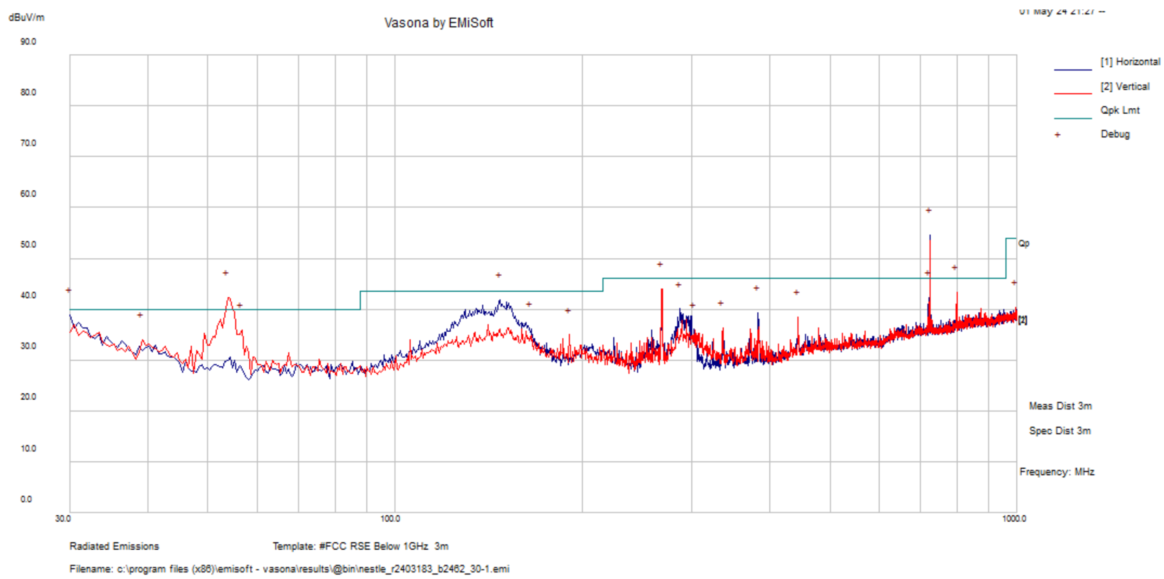
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
674.252	28.57	1.31	29.87	105	H	314	46	-16.13	QP
32.813	30.83	-3.05	27.79	232	H	157	40	-12.21	QP
30	30.71	-0.92	29.78	189	H	314	40	-10.22	QP
268.4273	46.84	-7.24	39.6	197	V	6	46	-6.4	QP
53.8605	47.52	-14.15	33.37	231	V	189	40	-6.63	QP
147.11	42.39	-8.02	34.36	261	H	156	43.5	-9.14	QP

802.11b, 2437 MHz



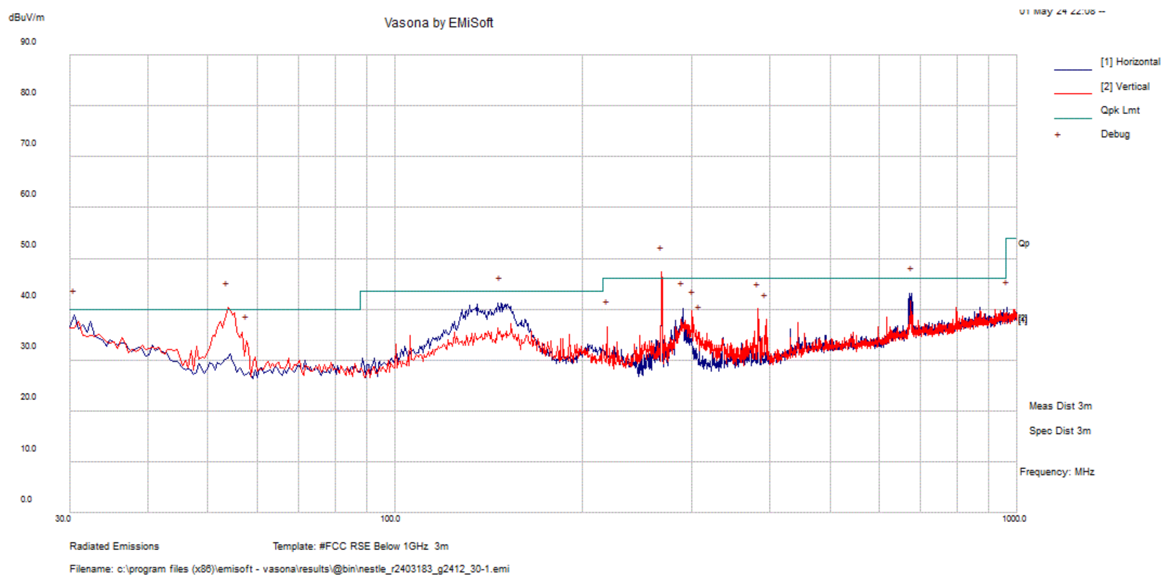
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
698.7455	27.12	1.92	29.05	101	H	313	46	-16.95	QP
33.1245	31.04	-3.24	27.8	286	H	7	40	-12.2	QP
30	31.72	-0.92	30.79	297	H	314	40	-9.21	QP
53.99475	47.75	-14.17	33.58	102	V	135	40	-6.42	QP
268.5075	50.02	-7.23	42.78	122	V	320	46	-3.22	QP
145.6988	42.43	-7.98	34.45	186	H	171	43.5	-9.05	QP

802.11b, 2462 MHz



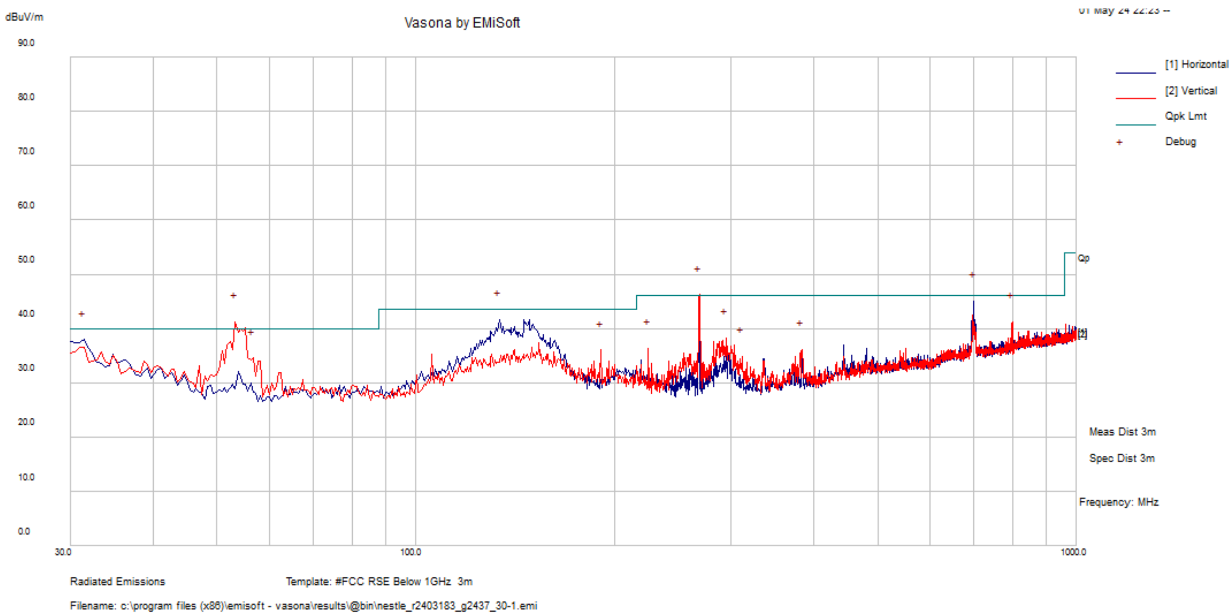
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
723.7875	27.11	2.02	29.14	101	H	314	46	-16.86	QP
53.87925	50.26	-14.16	36.1	110	V	19	40	-3.9	QP
30	31.28	-0.92	30.35	236	H	313	40	-9.65	QP
147.3303	42.85	-8.03	34.82	233	H	167	43.5	-8.68	QP
268.1333	49.01	-7.27	41.75	148	H	305	46	-4.25	QP
800.2275	27.95	2.94	30.89	176	V	7	46	-15.11	QP

802.11g, 2412 MHz



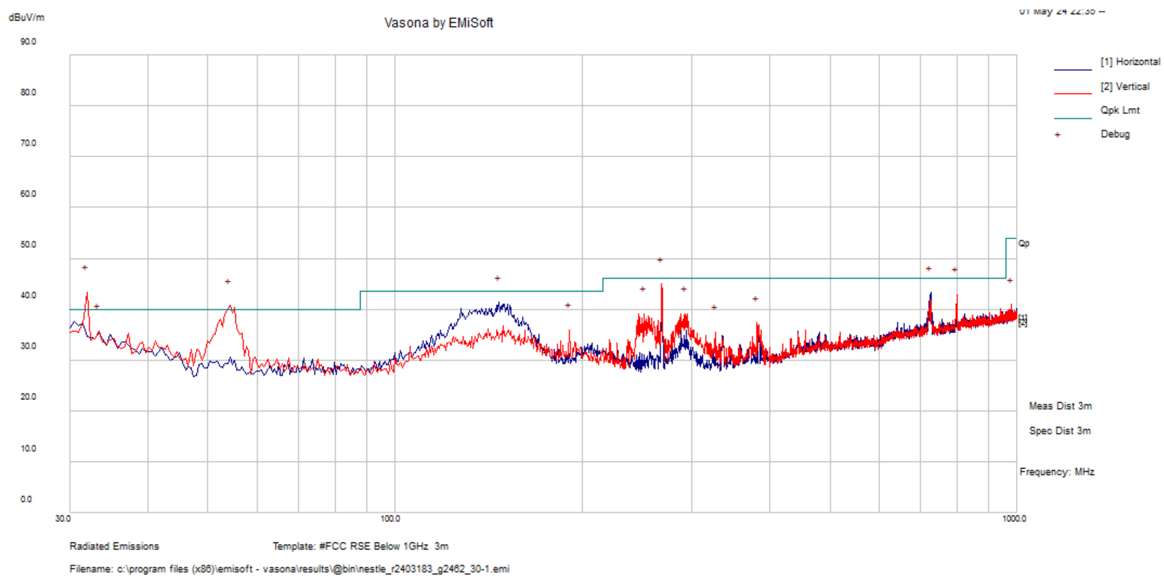
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
268.3303	47.17	-7.24	39.93	126	V	19	46	-6.07	QP
54.0095	44.84	-14.17	30.67	193	V	42	40	-9.33	QP
30.58125	31.49	-1.38	30.11	243	H	239	40	-9.89	QP
148.0893	43.11	-8.04	35.07	226	H	228	43.5	-8.43	QP
676.6995	28.13	1.36	29.49	182	H	173	46	-16.51	QP
289.862	40.77	-6.64	34.14	246	H	326	46	-11.86	QP

802.11g, 2437 MHz



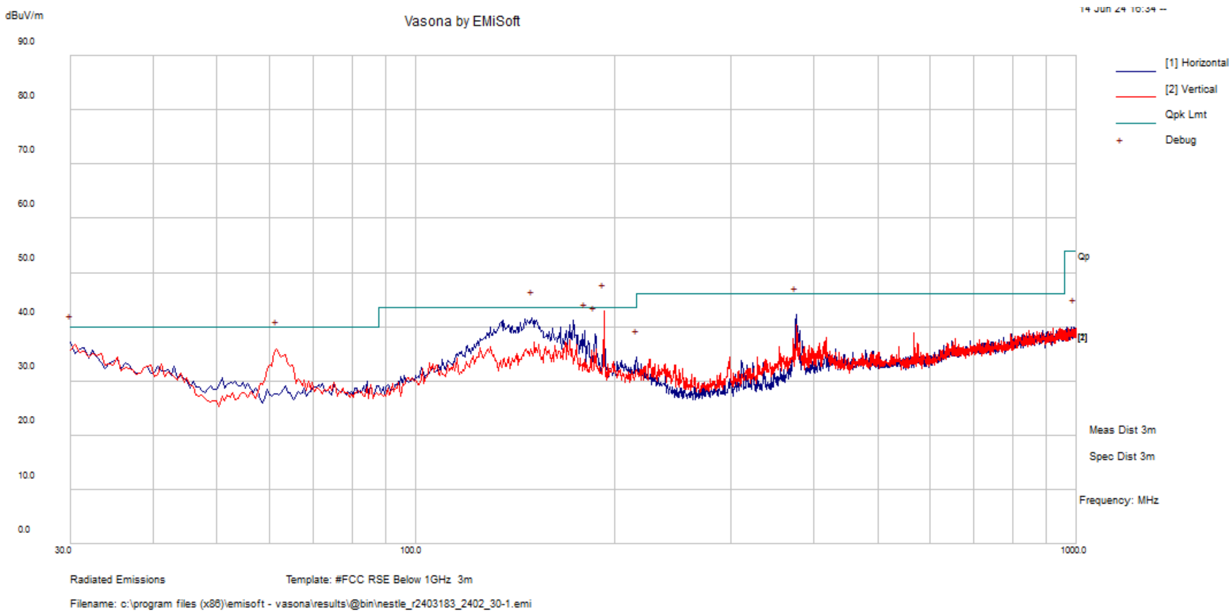
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
53.50225	33.3	-14.02	19.28	193	V	332	40	-20.72	QP
268.57325	34.96	-7.18	27.78	192	V	238	46	-18.22	QP
698.74575	27.02	2.12	29.14	113	H	333	46	-16.86	QP
133.55125	41.32	-6.98	34.34	266	H	7	43.5	-9.16	QP
31.61525	29.88	-2.05	27.83	101	H	173	40	-12.17	QP
800.15325	27.83	3.14	30.97	293	V	352	46	-15.03	QP

802.11g, 2462 MHz



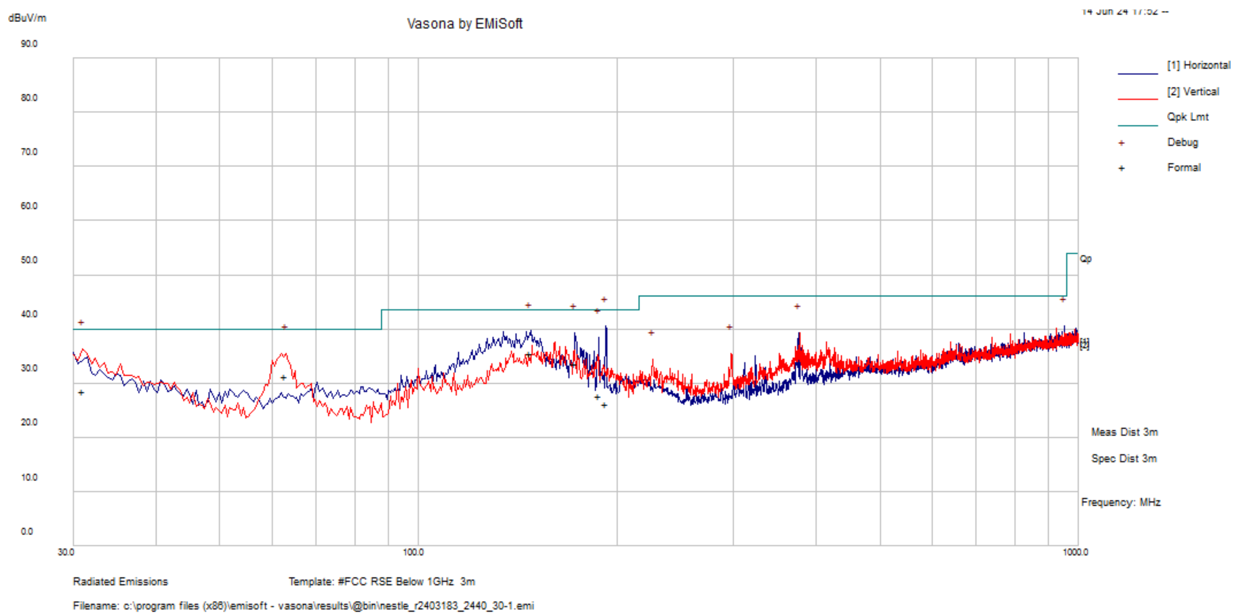
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
31.94	45.72	-2.44	43.28	100	V	360	76.26	-32.98	Peak
54.25	54.84	-14.18	40.66	100	V	360	76.26	-35.6	Peak
268.135	52.19	-7.27	44.92	100	V	360	46	-1.08	Peak
146.885	49.34	-8.02	41.32	200	H	360	43.5	-2.18	Peak
725.975	41.2	2.04	43.24	100	H	360	46	-2.76	Peak
800.18	39.93	2.94	42.87	100	V	360	46	-3.13	Peak

BLE: 2402 MHz



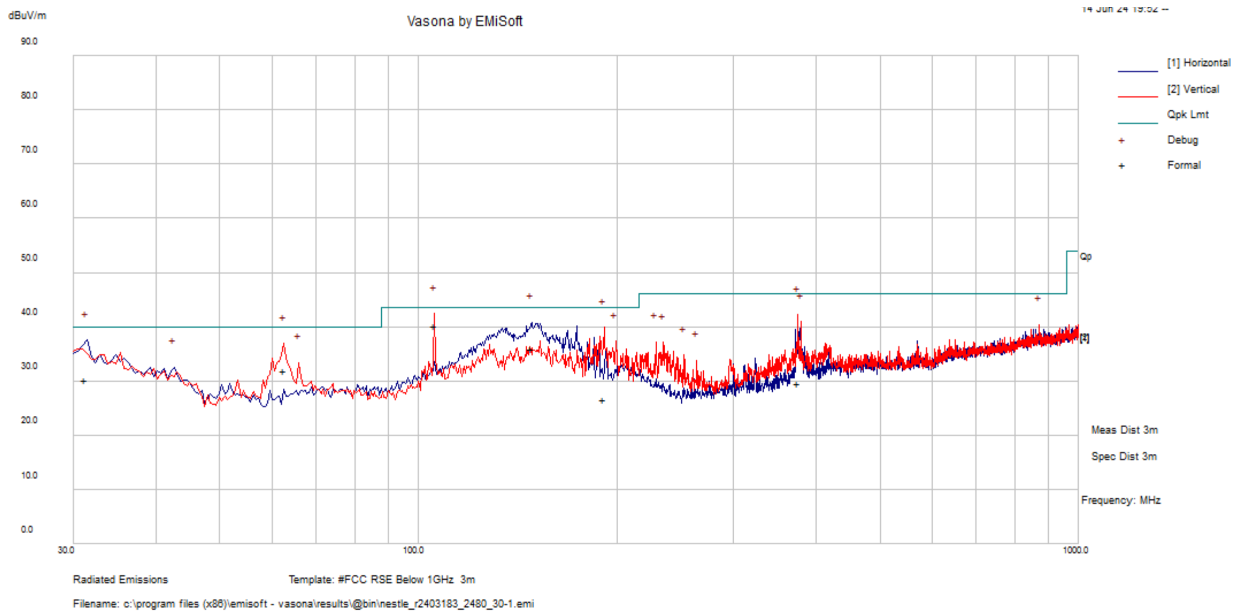
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
192.37375	34.54	-8.75	25.79	292	V	27	43.5	-17.71	QP
150.0025	41.8	-8.11	33.69	153	H	67	43.5	-9.81	QP
30	30.08	-0.92	29.16	132	H	221	40	-10.84	QP
376.07425	34.6	-4.74	29.86	116	H	313	46	-16.14	QP
61.421	42.08	-13.69	28.39	147	V	344	40	-11.61	QP
180.234	40.21	-9.35	30.86	174	H	80	43.5	-12.64	QP

BLE: 2440 MHz



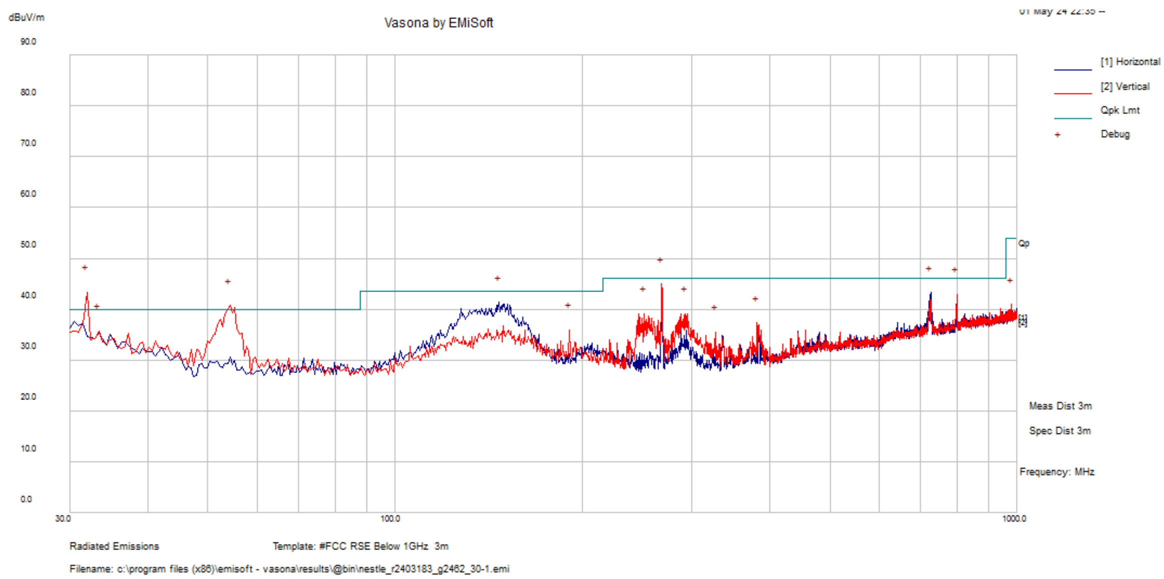
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
192.16925	34.99	-8.78	26.21	260	H	300	43.5	-17.29	QP
31.073	30.29	-1.77	28.52	169	V	140	40	-11.48	QP
147.66675	43.64	-8.04	35.6	226	H	352	43.5	-7.9	QP
172.819	42.65	-9.03	33.62	177	H	227	43.5	-9.88	QP
62.952	44.81	-13.55	31.26	123	V	142	40	-8.74	QP
187.672	36.86	-9.2	27.66	152	H	128	43.5	-15.84	QP

BLE: 2480 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
105.636	49	-8.78	40.22	289	V	220	43.5	-3.28	QP
31.279	32.16	-1.93	30.23	299	H	132	40	-9.77	QP
148.5085	43.94	-8.05	35.89	198	H	334	43.5	-7.61	QP
62.5545	45.44	-13.59	31.85	126	V	131	40	-8.15	QP
191.20175	35.57	-8.9	26.67	135	V	353	43.5	-16.83	QP
375.73925	34.21	-4.74	29.47	119	V	189	46	-16.53	QP

Colocation; 2.4Wi-Fi + BLE + LTE



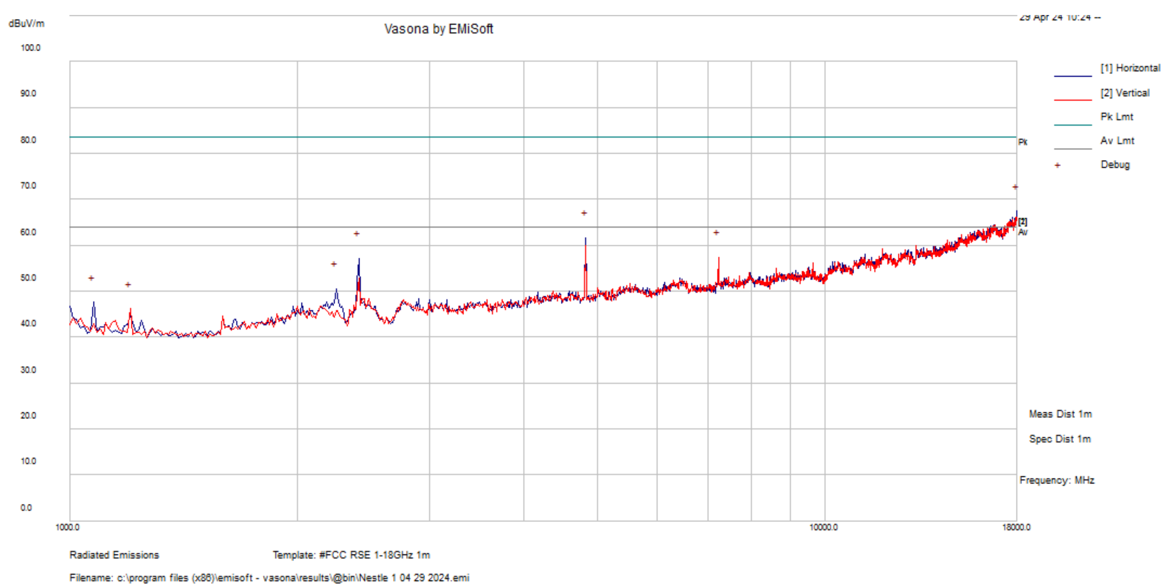
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
698.7495	26.82	1.92	28.74	100	V	70	46	-17.26	QP
30.00513	28.26	-0.93	27.33	175	H	250	40	-12.67	QP
33.12675	29.19	-3.24	25.95	277	H	320	40	-14.05	QP
700.25325	27.06	1.94	29	101	V	84	46	-17	QP
697.36475	27.65	1.92	29.57	210	H	194	46	-16.43	QP
34.6065	29.26	-4.12	25.14	251	H	147	40	-14.86	QP

FCC/IC Limits for 1 GHz to 26.5 GHz				
Applicability	**(dBm)**	**(uV/m at 3meters)**	**(dBuV/m at 3meters)**	**(dBuV/m at 1meter)[2]**
Restricted Band Average Limit	-	500	54	63.54
Restricted Band Peak Limit[1]	-	-	74	83.54

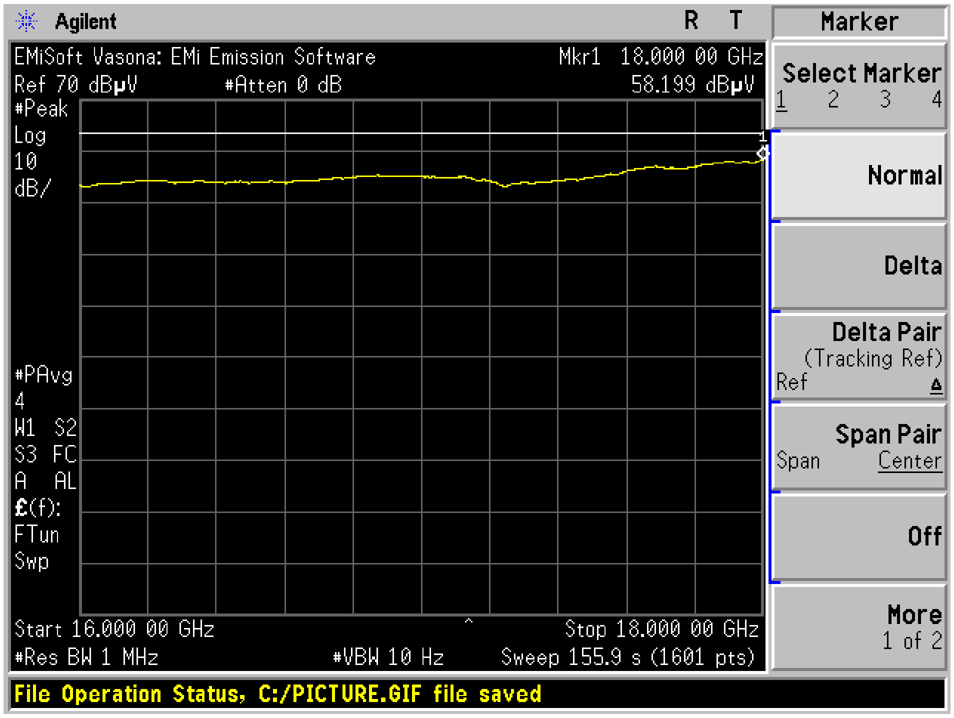
Note[1]: Restricted Band Peak Limit is defined to be 20dB higher than Average Limit.
Note[2]: Limits at 1 meter are determined by applying a Distance correction factor accounts for extrapolation from 1 meters to 3 meters. Formula used is as follows: 20*log(3meters/1meter) = 9.54 (According to ANSI C63.10-2013 Section 9.4)

2) 1 GHz – 18 GHz, Measured at 1 meter

802.11b, 2412 MHz



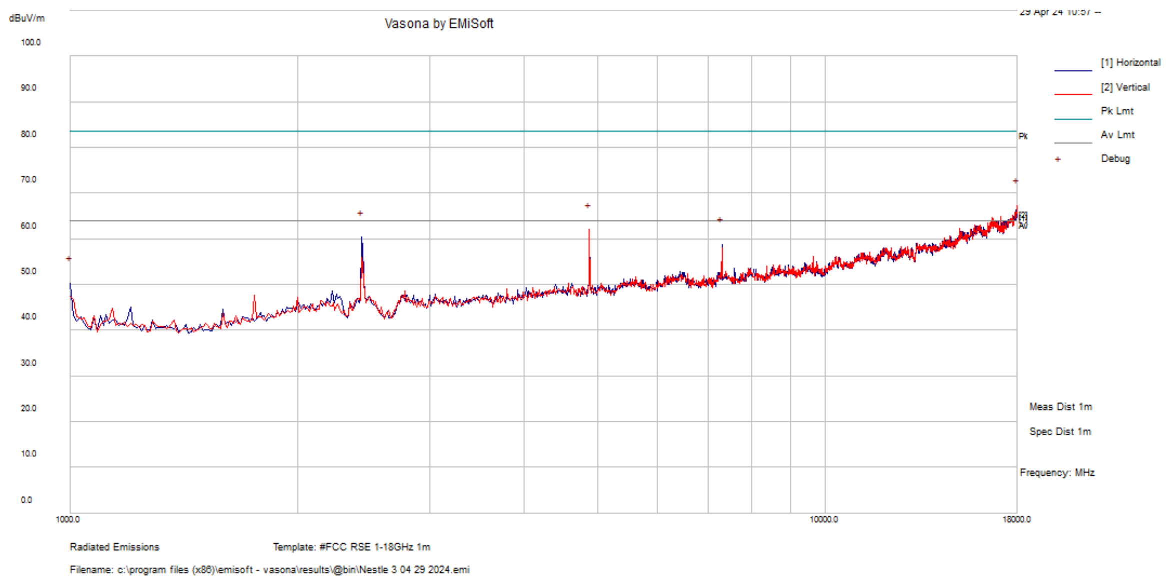
802.11b, 2412 MHz Noise Floor



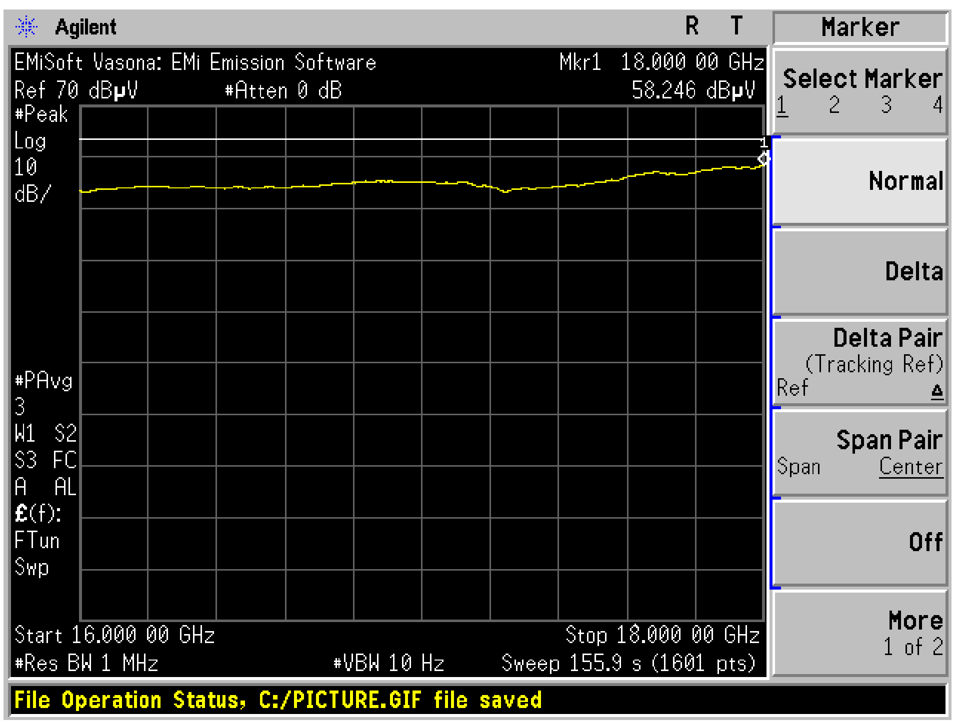
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
4825	58.55	3.04	61.59	100	H	360	63.54	-1.95	Peak
7236.875	50.8	6.51	57.31	100	V	360	63.54	-6.23	Peak

Note: Peak measurement is used to compare to the average limit.

802.11b, 2437 MHz



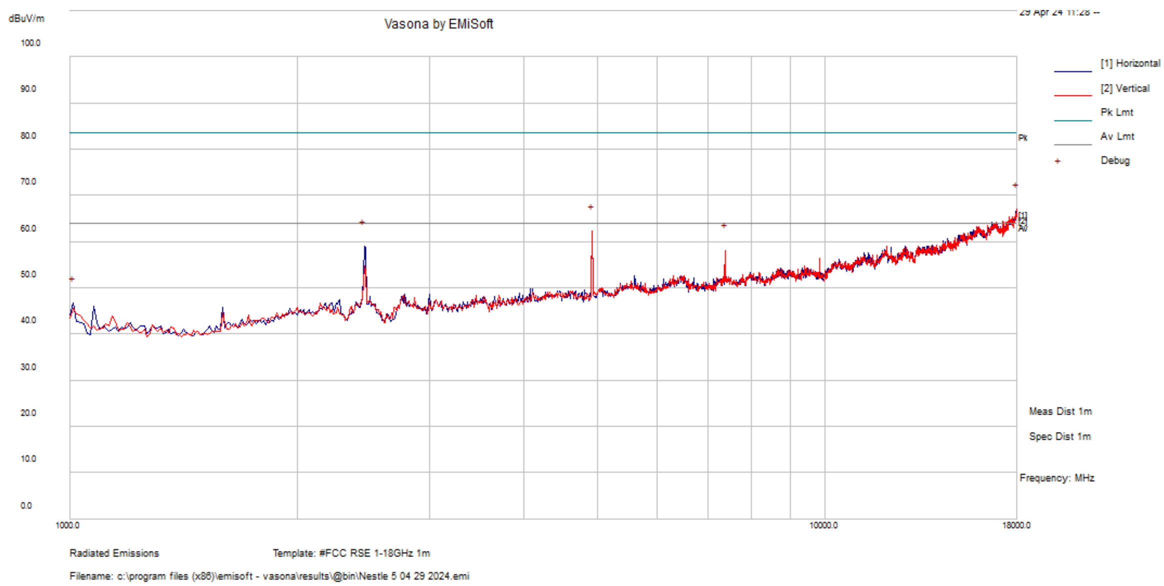
802.11b, 2437 MHz Noise Floor



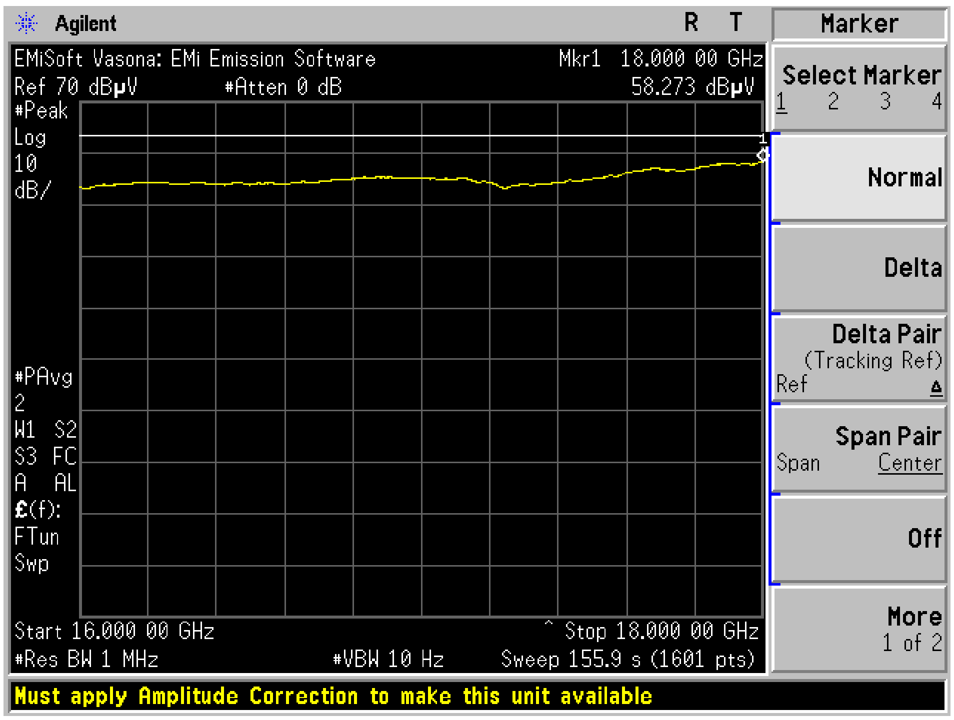
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
4878.125	58.9	3.07	61.97	300	V	360	63.54	-1.57	Peak
7311.25	52.06	6.74	58.8	100	H	360	63.54	-4.74	Peak

Note: Peak measurement is used to compare to the average limit.

802.11b, 2462MHz



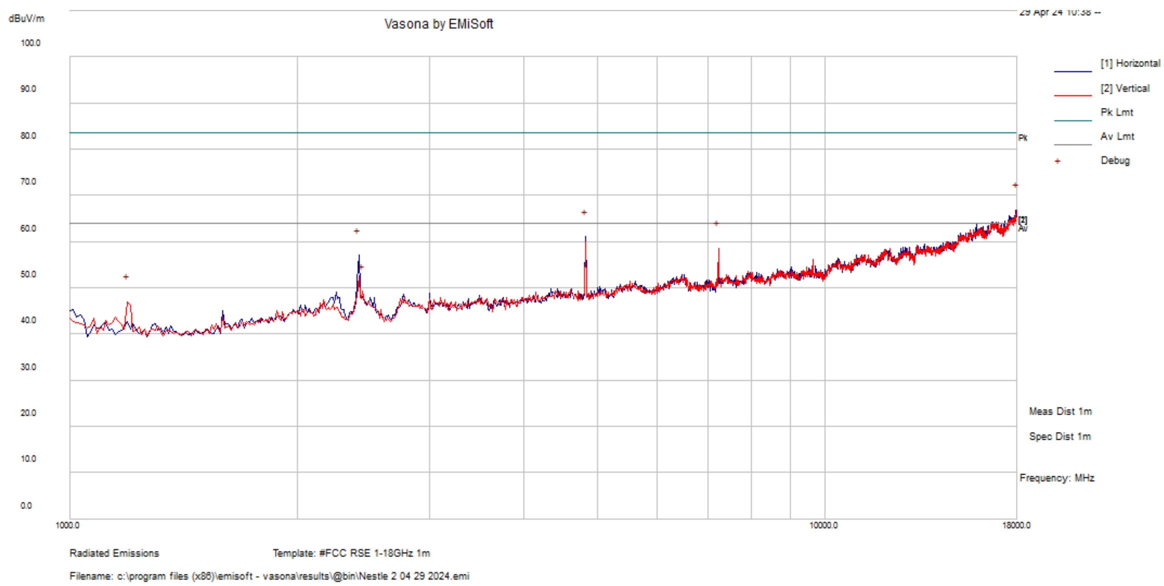
802.11b, 2462MHz Noise Floor



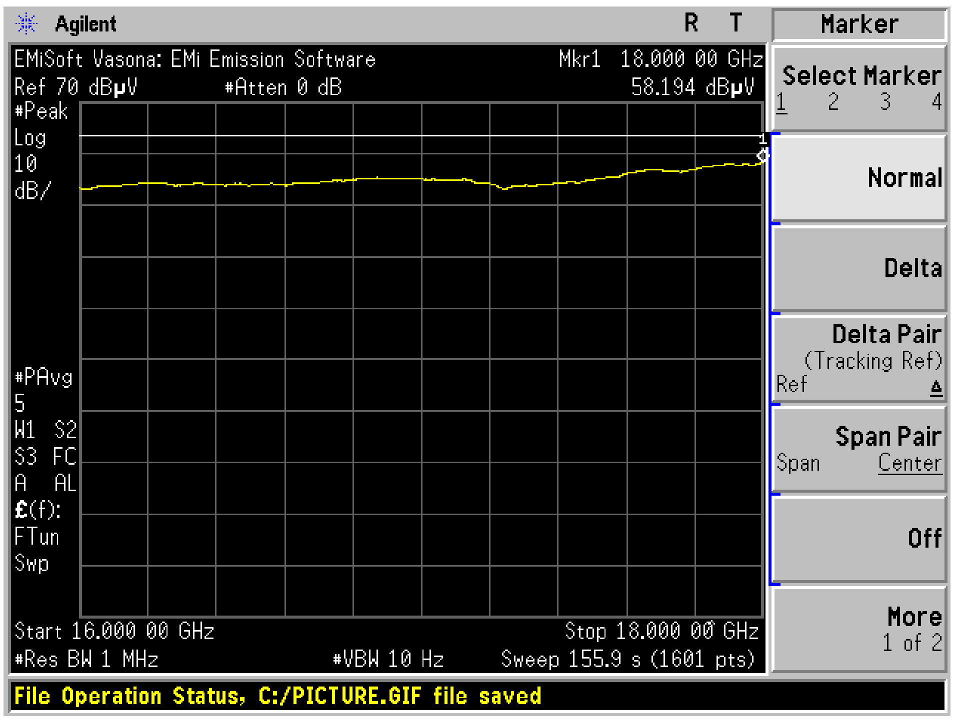
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
4920.625	59.11	3.12	62.23	300	V	360	63.54	-1.31	Peak
7385.625	51.4	6.74	58.14	100	V	360	63.54	-5.4	Peak

Note: Peak measurement is used to compare to the average limit.

802.11g 2412 MHz



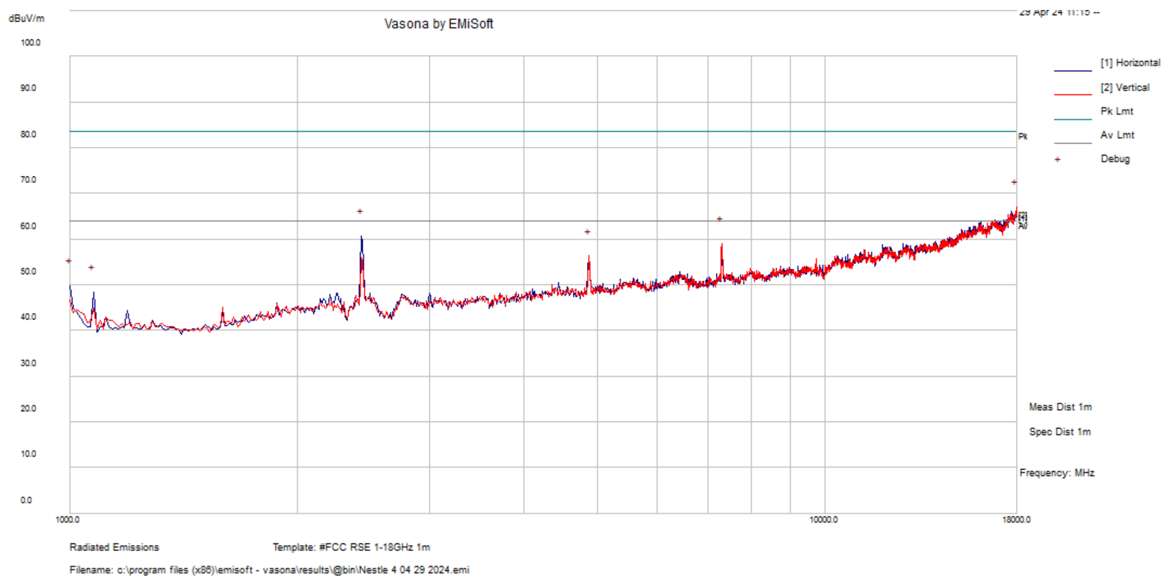
802.11g 2412 MHz Noise Floor



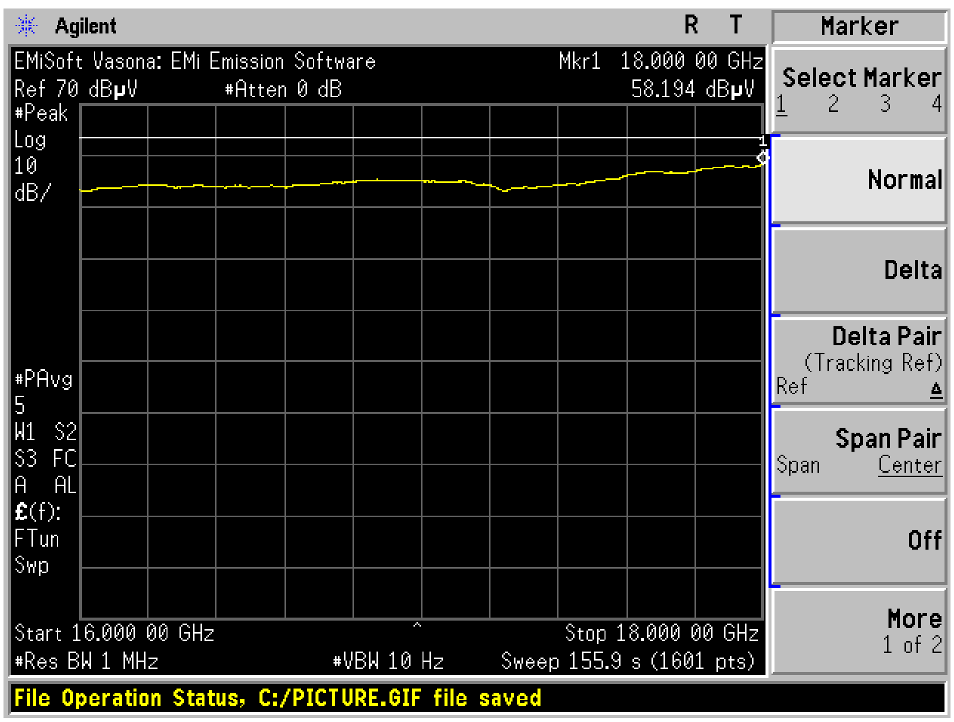
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
4825	58	3.04	61.04	100	H	360	63.54	-2.5	Peak
7236.875	52.04	6.51	58.55	100	V	360	63.54	-4.99	Peak

Note: Peak measurement is used to compare to the average limit.

802.11g, 2437 MHz



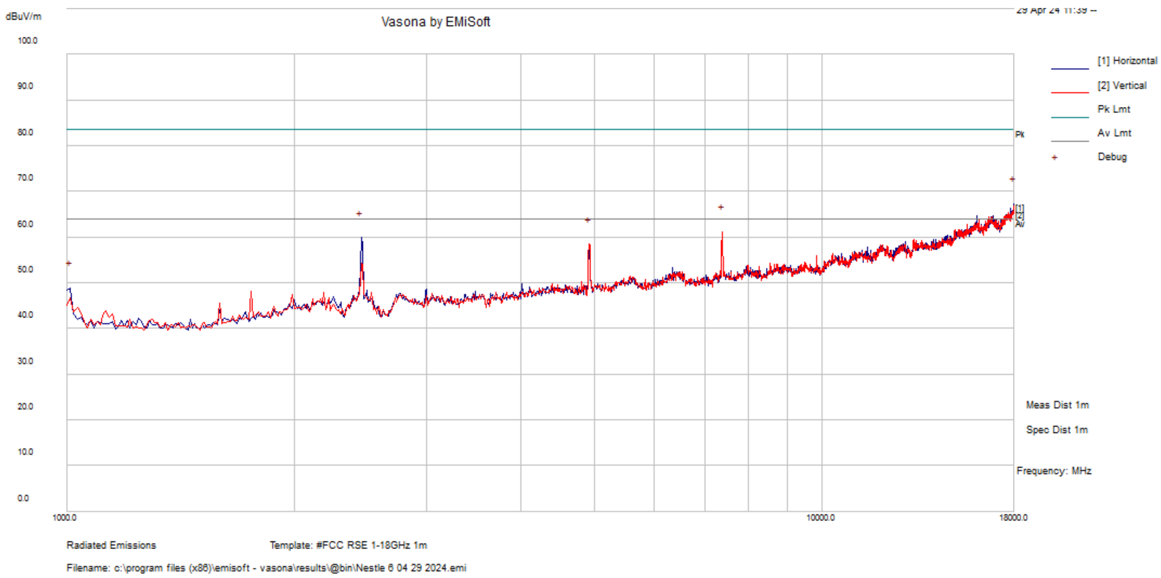
802.11g, 2437 MHz Noise Floor



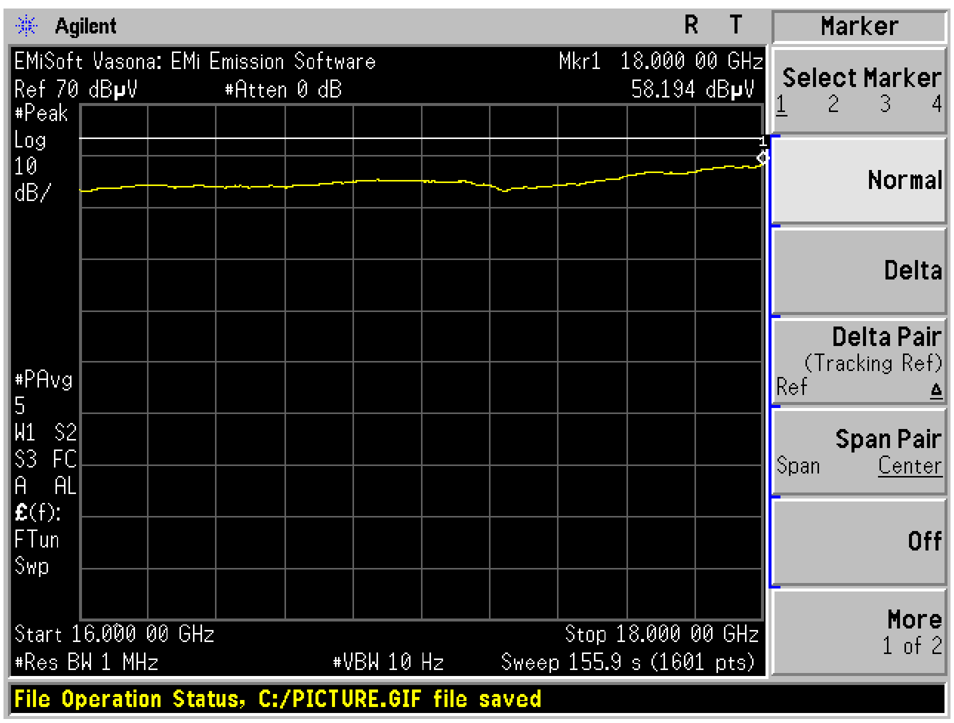
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
7311.25	52.33	6.74	59.07	100	V	360	63.54	-4.47	Peak
4878.125	53.21	3.07	56.28	300	V	360	63.54	-7.26	Peak

Note: Peak measurement is used to compare to the average limit.

802.11g, 2462 MHz



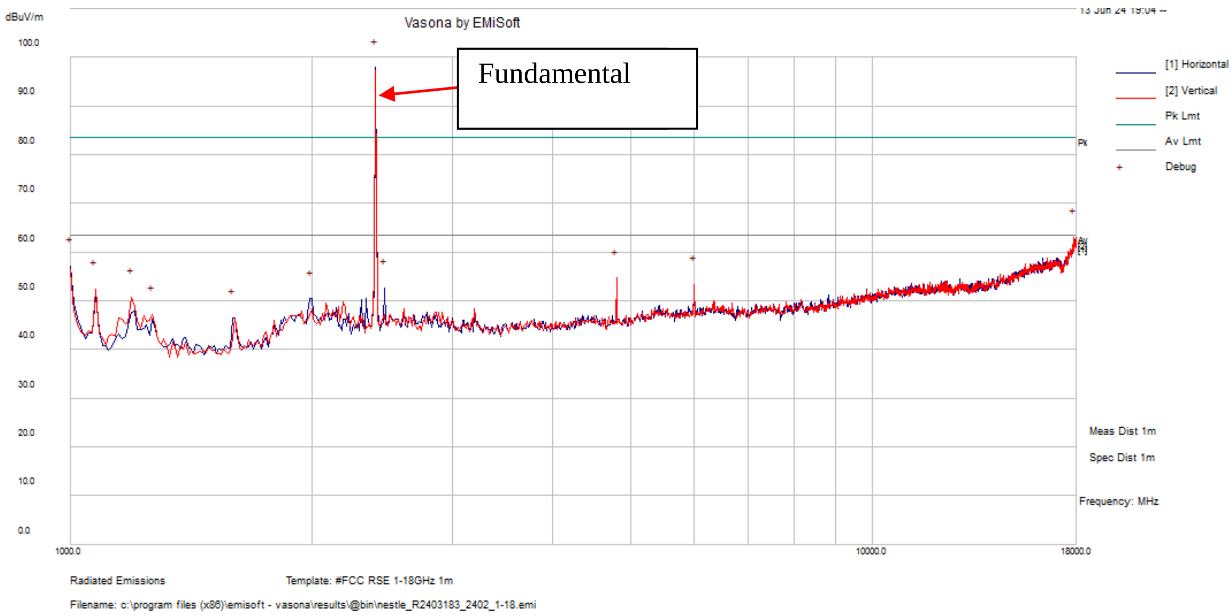
802.11g, 2462 MHz Noise Floor



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
7385.625	54.39	6.74	61.13	100	V	360	63.54	-2.41	Peak
4920.625	55.3	3.12	58.42	200	V	360	63.54	-5.12	Peak

Note: Peak measurement is used to compare to the average limit.

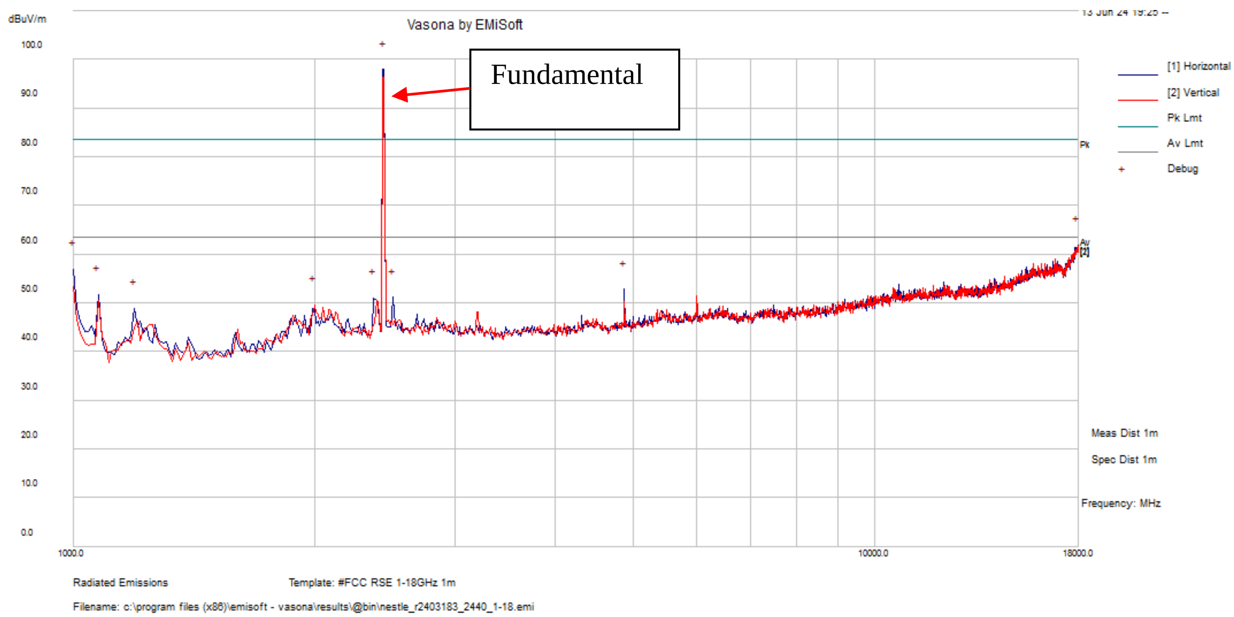
BLE: 2402 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
17883.125	48.02	15.05	63.07	300	V	360	63.54	-0.47	Peak
4803.75	54.9	-0.24	54.66	200	V	360	63.54	-8.88	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

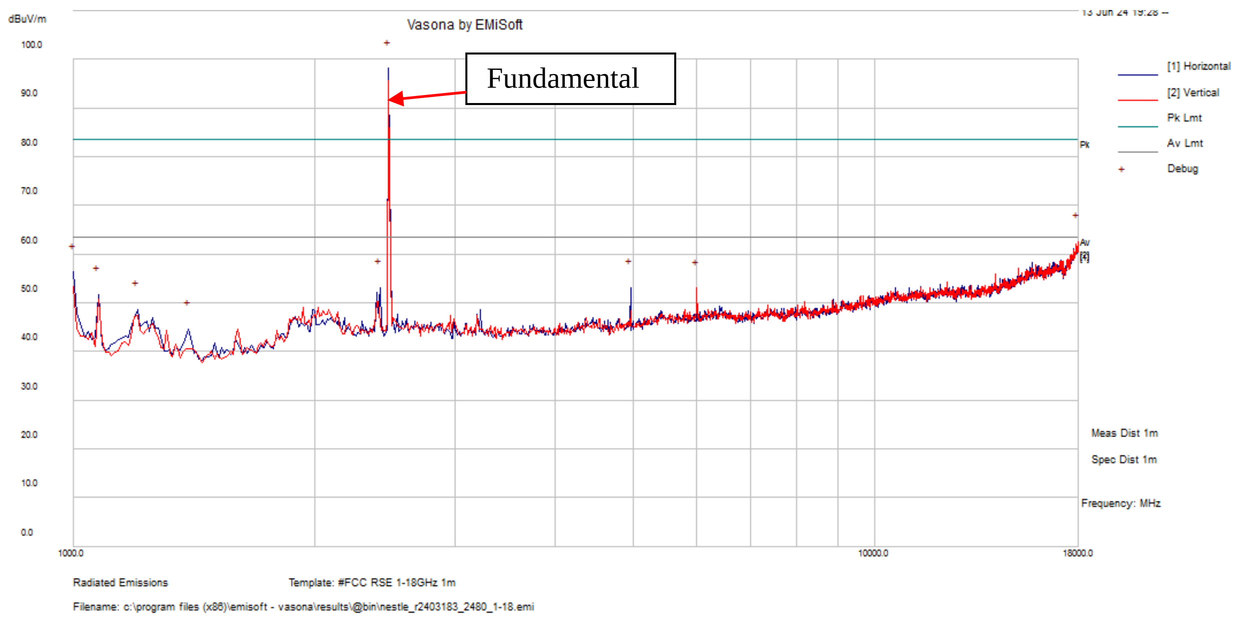
BLE: 2440 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
17968.125	46.26	15.6	61.86	200	H	360	63.54	-1.68	Peak
4878.125	52.85	-0.1	52.75	200	H	360	63.54	-10.79	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

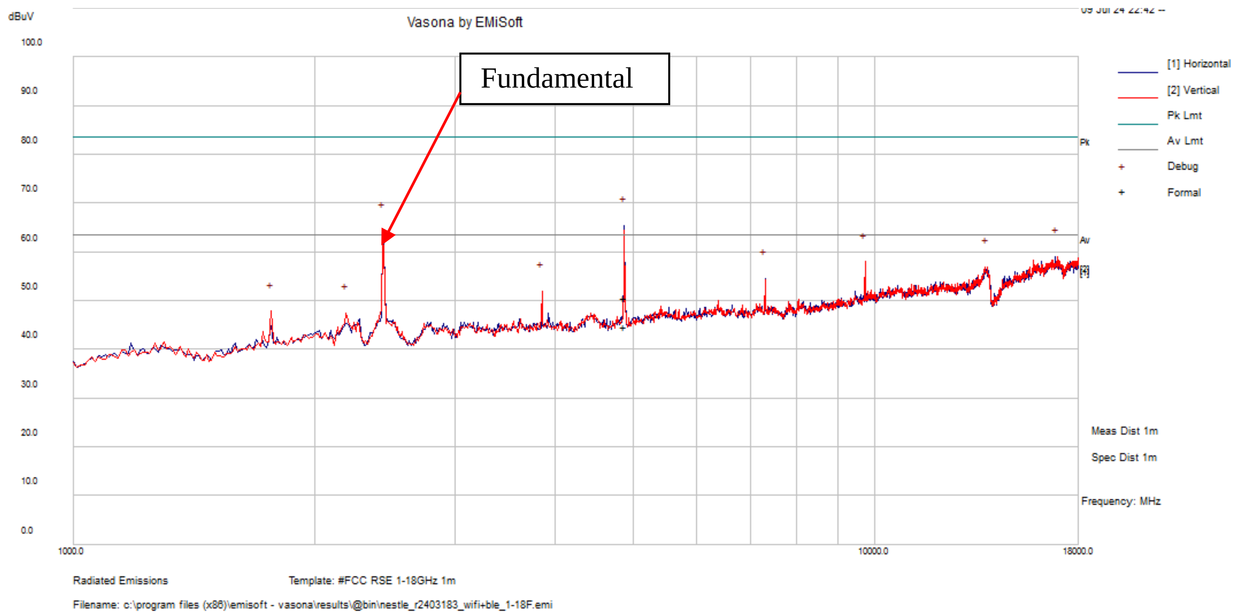
BLE: 2480 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
17968.125	46.91	15.6	62.51	200	V	360	63.54	-1.03	Peak
4963.125	52.91	0.2	53.11	200	H	360	63.54	-10.43	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

Colocation; 2.4Wi-Fi + BLE + LTE

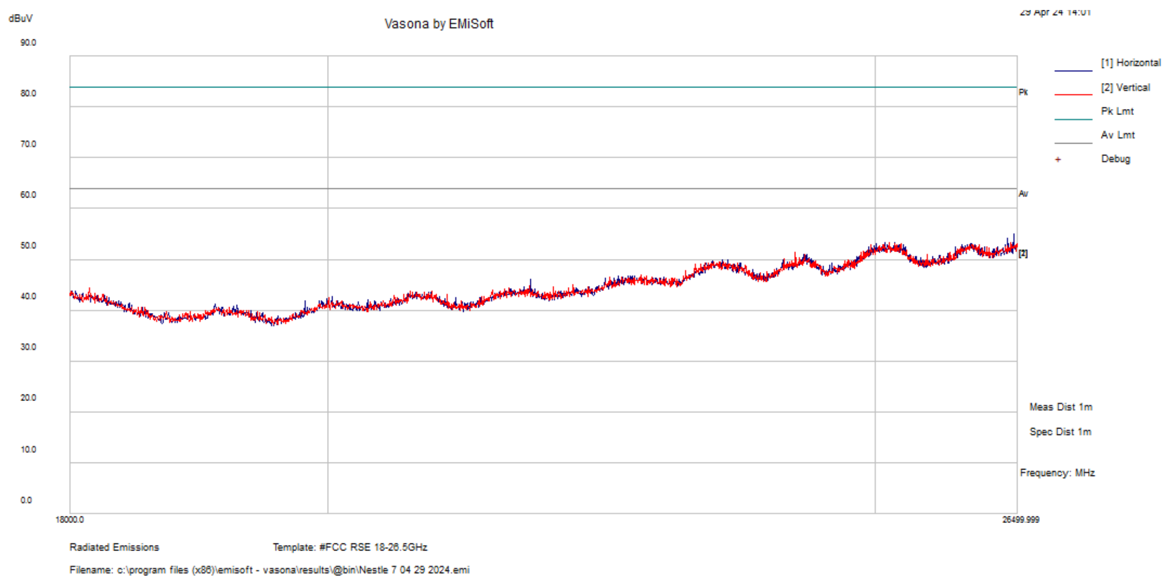


Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
4877.29	51.34	-0.67	50.67	148	H	96	83.54	-32.87	Peak
4877.29	45.39	-0.67	44.72	148	H	96	63.54	-18.82	Avg

Note: Peak measurement is used to compare to the average limit to show compliance.

3) 18 GHz – 26.5 GHz, Measured at 1 meter

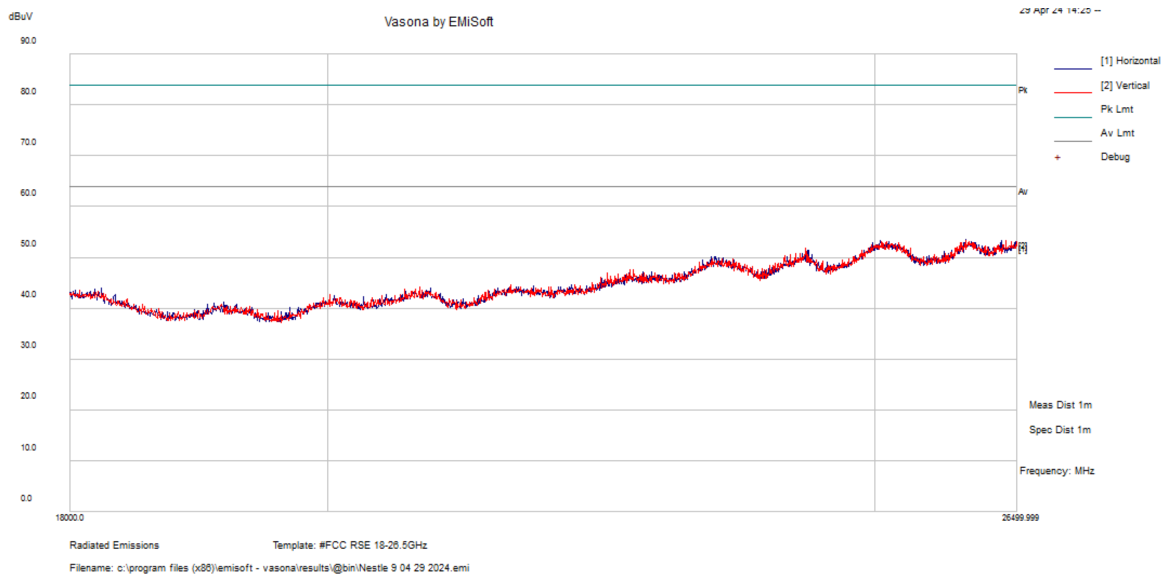
802.11b, 2412 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
25127.51	36.41	16.39	52.81	101	V	7	63.54	-10.74	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

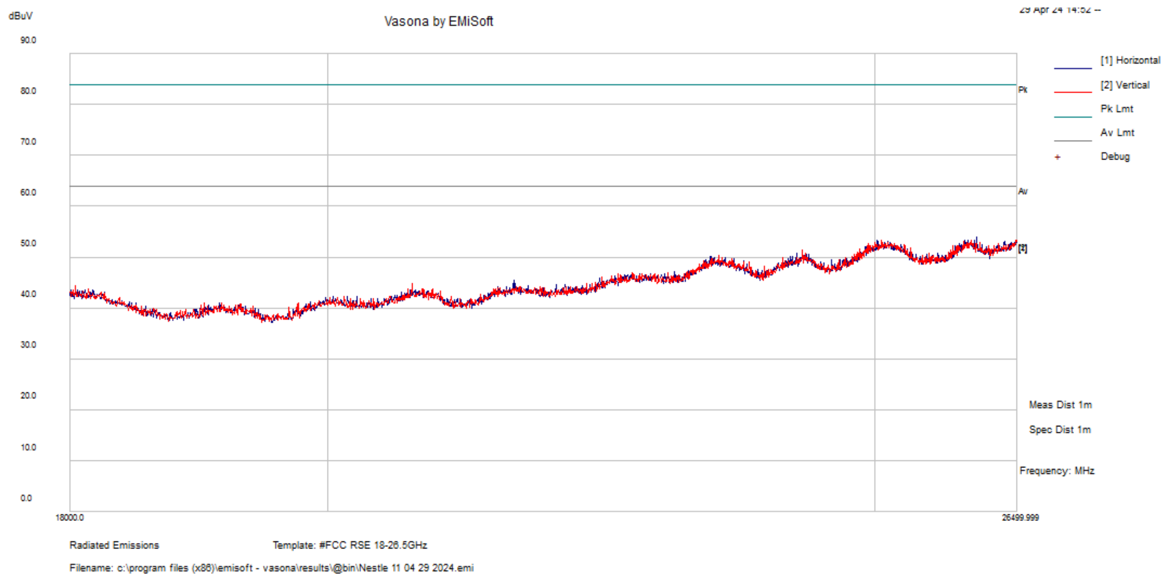
802.11b, 2437 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
26007.53	35.3	17.48	52.78	100	V	7	63.54	-10.76	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

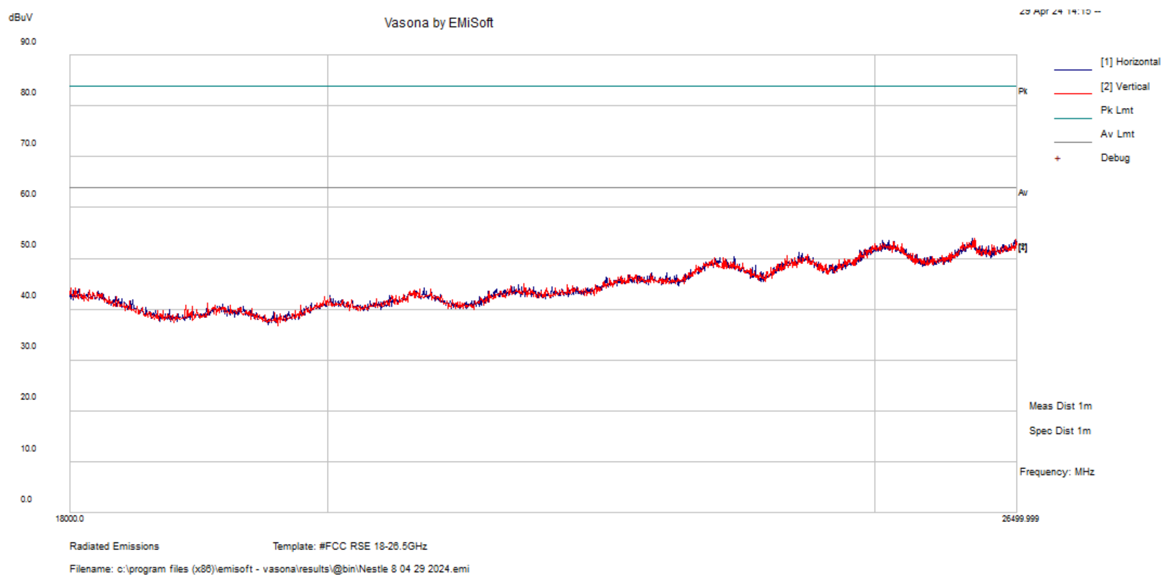
802.11b, 2462 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
25127.51	35.68	16.39	52.08	101	V	7	63.54	-11.47	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

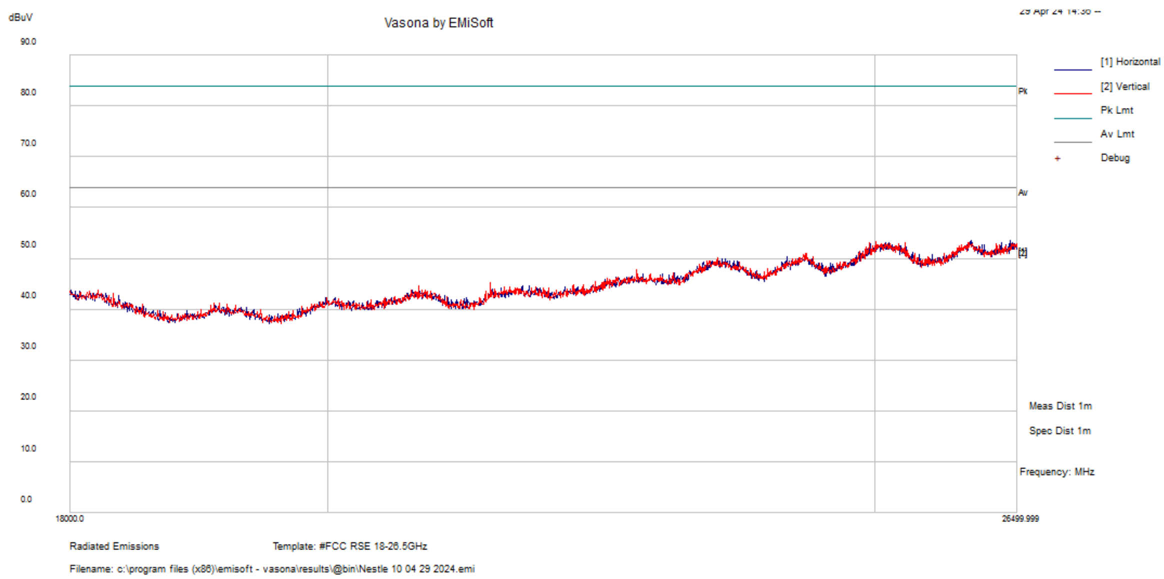
802.11g, 2412 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
26367.09	33.7	17.81	51.51	101	V	7	63.54	-12.03	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

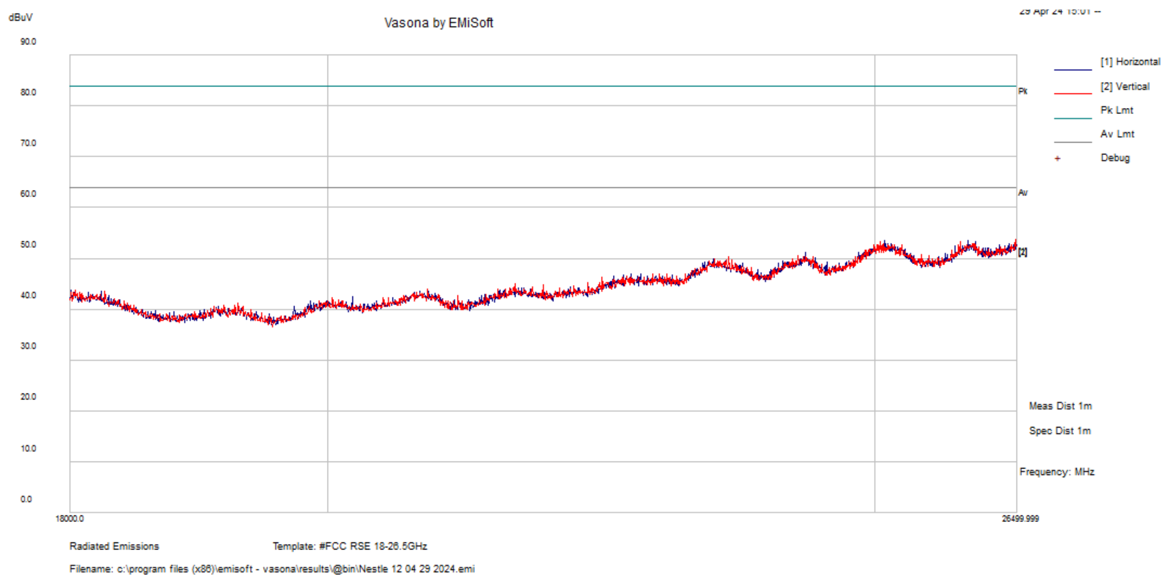
802.11g, 2437 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
24328.97	34.42	15.28	49.7	101	V	7	63.54	-13.84	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

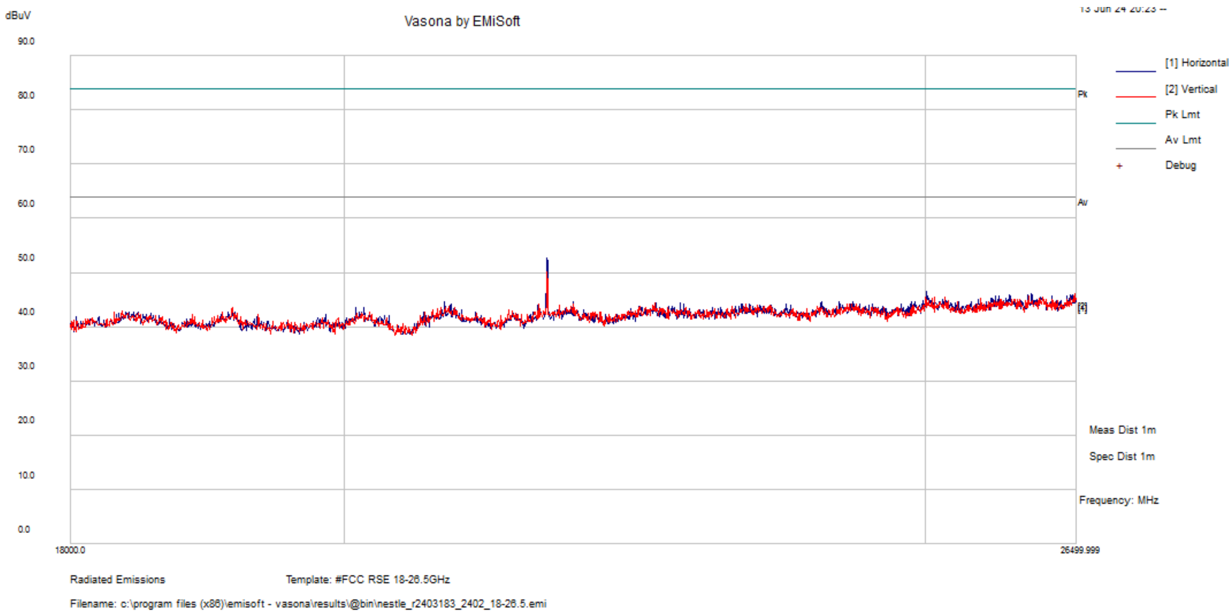
802.11g, 2462 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
25103.229	35.41	16.46	51.87	100	V	7	63.54	-11.67	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

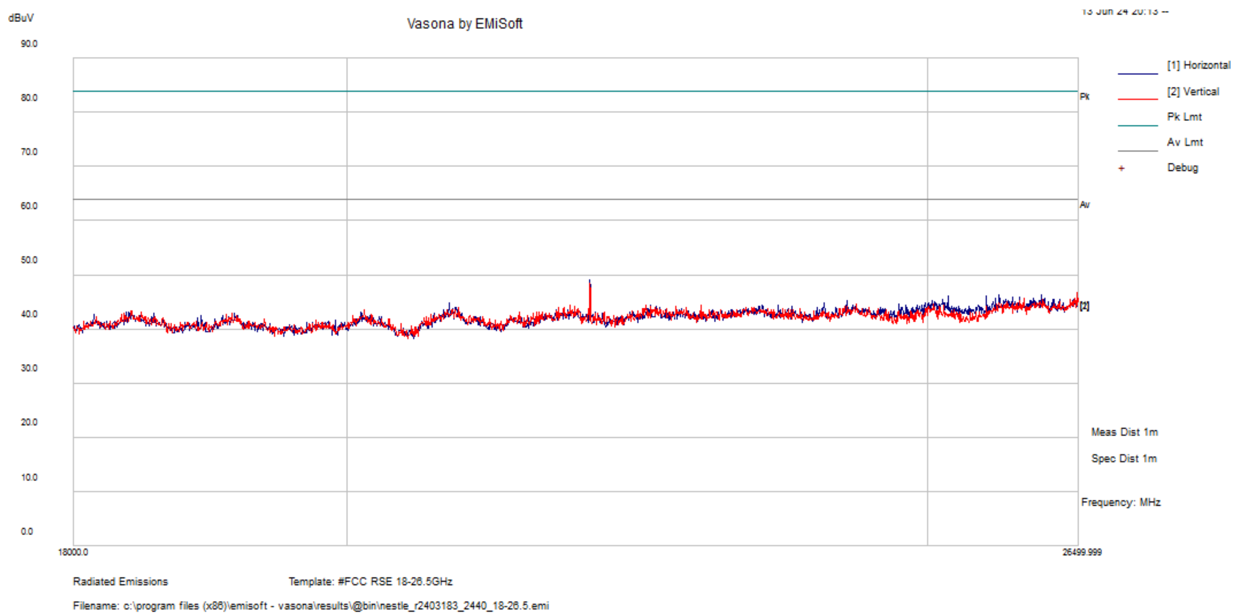
BLE: 2402 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
21618.162	50.07	2.63	52.7	200	V	7	63.54	-10.84	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

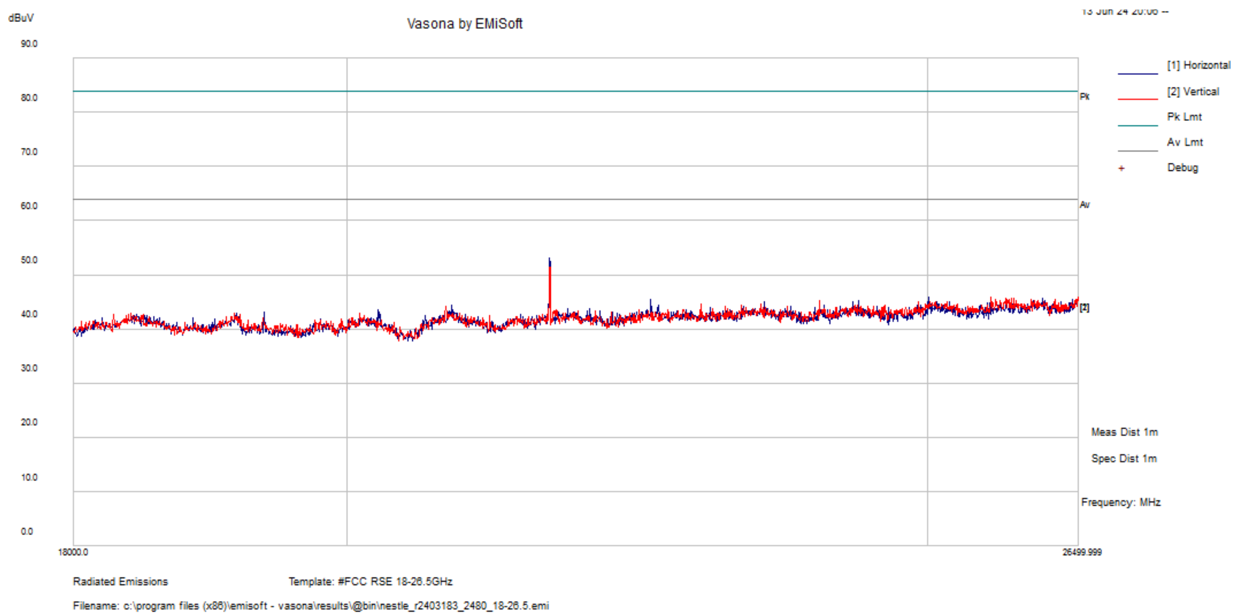
BLE: 2440 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
21959.413	45.76	2.98	48.74	101	V	7	63.54	-14.8	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

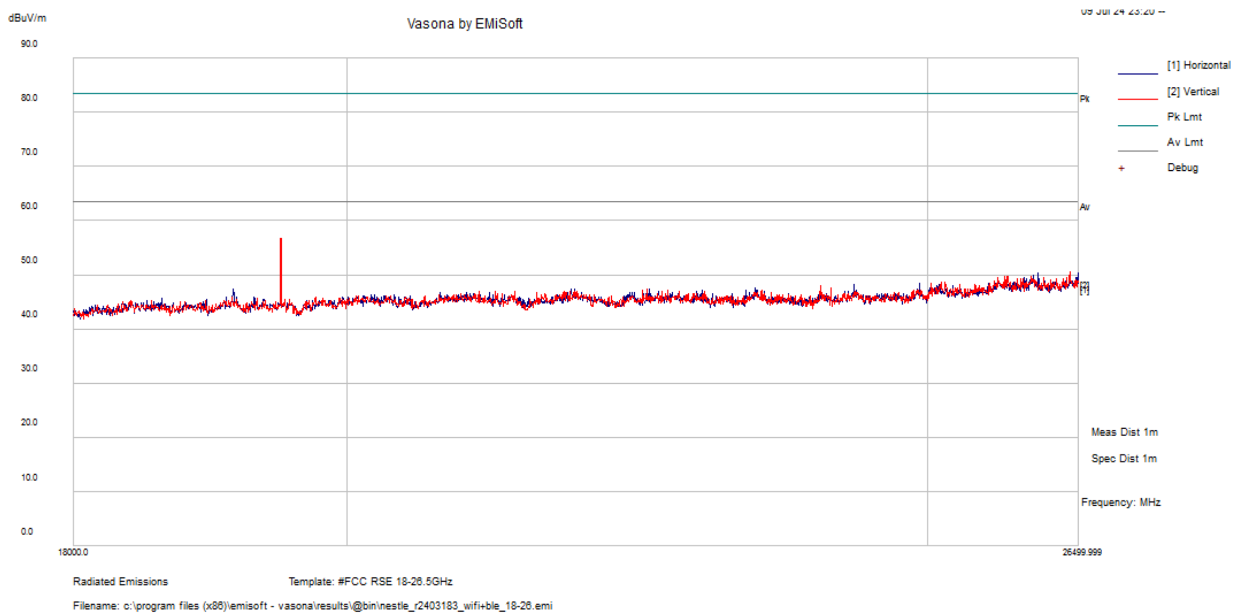
BLE: 2480 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
21619.472	50.19	2.64	52.83	200	V	7	63.54	-10.71	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

Colocation; 2.4Wifi + BLE + LTE



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
19496.916	52.01	4.74	56.75	101	V	7	63.54	-6.79	Peak

Note: Peak measurement is used to compare to the average limit to show compliance.

8 FCC §15.247(a) (2) – Emission Bandwidth

8.1 Applicable Standards

According to FCC §15.247(a) (2): the minimum 6 dB bandwidth shall be 500 kHz.

8.2 Measurement Procedure

The measurements are based on FCC KDB 558074 D01 DTS Meas Guidance v05r02: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 8: DTS bandwidth.

As per ANSI C63.10 Clause 11.8: DTS bandwidth

One of the following procedures may be used to determine the modulated DTS bandwidth.

Option 1:

a. Set RBW = 100 kHz.
b. Set the VBW ≥ [3 × 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 by00206 dB relative to the maximum level measured in the fundamental emission.

Option 2:
The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW ≥ 3 × RBW, and peak detector with maximum hold) is implemented by the instrumentation function.
When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥6 dB.

As per the ANSI 63.10 Clause 6.9.3: Occupied Bandwidth

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

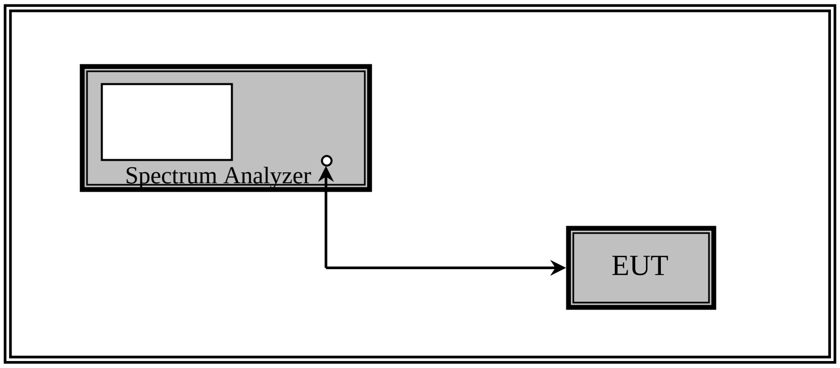
a. The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
b. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
c. Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
d. Step a) through step c) might require iteration to adjust within the specified range.
e. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

f. Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

g. If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power 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; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.

h. The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

8.3 Test Setup Block Diagram



8.4 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
424	Agilent	Spectrum Analyzer	E4440A	US45303156	2024-03-06	1 year[1]
624	Agilent	Spectrum Analyzer	E4446A	MY48250238	2023-05-12	1 year[2]
-	-	RF Cable	-	-	Each time[3]	N/A

Note[1]: The equipment was used for testing from 2024-06-06 through 2024-06-11.
Note[2]: The equipment was used for testing on 2024-04-17
Note[3]: cables, attenuators and notch filters included in the test set-up were checked each time before testing.

Statement of Traceability: BACL Corp. *attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

8.5 Test Environmental Conditions

Temperature:	22ºC
Relative Humidity:	53%
ATM Pressure:	101.5 kPa

The testing was performed by Libass Thiaw on 2024-04-17, and from 2024-06-06 through 2024-06-1 at RF Site 1.

8.6 Test Results

2.4 GHz Wi-Fi

Modulation	Channel	Frequency (MHz)	99% OBW (MHz)	6 dB OBW (MHz)	6 dB OBW Limit (kHz)	Result
b	Low	2412	13.304	8.669	≥ 500	Pass
	Middle	2437	13.286	9.627	≥ 500	Pass
	High	2462	13.349	8.200	≥ 500	Pass
g	Low	2412	16.828	15.527	≥ 500	Pass
	Middle	2437	16.817	15.605	≥ 500	Pass
	High	2462	16.794	15.702	≥ 500	Pass
n20	Low	2412	17.694	15.160	≥ 500	Pass
	Middle	2437	17.660	15.247	≥ 500	Pass
	High	2462	17.671	16.292	≥ 500	Pass

2.4 GHz BLE

Channel	Frequency (MHz)	99% OBW (MHz)	6 dB OBW (kHz)	6 dB OBW Limit (kHz)	Result
1M					
Low	2402	1.0398	680.368	≥ 500	Pass
Middle	2440	1.0389	677.080	≥ 500	Pass
High	2480	1.0333	671.046	≥ 500	Pass

Please refer to Annex A for detailed test results.

9 FCC §15.247(b)(3) – Maximum Output Power

9.1 Applicable Standards

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

9.2 Measurement Procedure

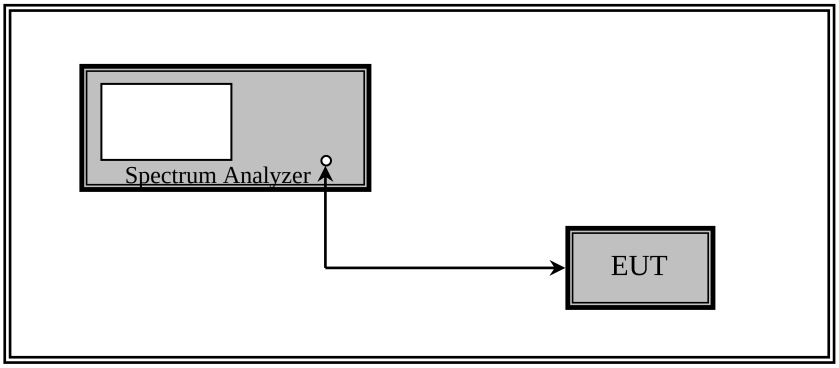
The measurements are based on ANSI C63.10-2013, Section 11.9.2.2.2.

11.9.2.2.2 Method AVGSA-1

Method AVGSA-1 uses trace averaging with the EUT transmitting at full power throughout each sweep.
The procedure for this method is as follows:

a. Set span to at least 1.5 times the OBW.
b. Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.
c. Set VBW ≥ [3 × RBW].
d. Number of points in sweep ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
e. Sweep time = auto.
f. Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
g. If transmit duty cycle < 98%, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at the maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFF intervals) or at duty cycle ≥ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."
h. Trace average at least 100 traces in power averaging (rms) mode.
i. Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

9.3 Test Setup Block Diagram



9.4 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
424	Agilent	Spectrum Analyzer	E4440A	US45303156	2024-03-06	1 year[1]
624	Agilent	Spectrum Analyzer	E4446A	MY48250238	2023-05-12	1 year[2]
-	-	RF Cable	-	-	Each time[3]	N/A

Note[1]: The equipment was used for testing from 2024-06-06 through 2024-06-11.
Note[2]: The equipment was used for testing on 2024-04-17
Note[3]: cables, attenuators and notch filters included in the test set-up were checked each time before testing.

Statement of Traceability: BACL Corp. *attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

9.5 Test Environmental Conditions

Temperature:	22ºC
Relative Humidity:	53%
ATM Pressure:	101.5 kPa

The testing was performed by Libass Thiaw on 2024-04-17, and from 2024-06-06 through 2024-06-11 at RF Site.

9.6 Test Results

2.4 GHz Wi-Fi

Modulation	Channel	Frequency (MHz)	Conducted Output Power (dBm)	Output Power Limit (dBm)	Result
b	Low	2412	16.230	< 30	Pass
	Middle	2437	15.780	< 30	Pass
	High	2462	15.850	< 30	Pass
g	Low	2412	11.177	< 30	Pass
	Middle	2437	15.207	< 30	Pass
	High	2462	10.957	< 30	Pass
n20	Low	2412	15.843	< 30	Pass
	Middle	2437	15.373	< 30	Pass
	High	2462	11.003	< 30	Pass

Note: Duty Cycle correction factor has already been added to the measurements.

2.4 GHz BLE

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Conducted Output Power Limit (dBm)	Result
1M				
Low	2402	0.970	< 30	Pass
Middle	2440	0.860	< 30	Pass
High	2480	0.930	< 30	Pass

Please refer to Annex B for detailed test results.

10 FCC §15.247(e) – Peak Power Spectral Density

10.1 Applicable Standards

According to FCC §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

10.2 Measurement Procedure

The measurements are based on FCC KDB 558074 D01 DTS Meas Guidance v05r02: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 8.4: Maximum power spectral density level in the fundamental emission.

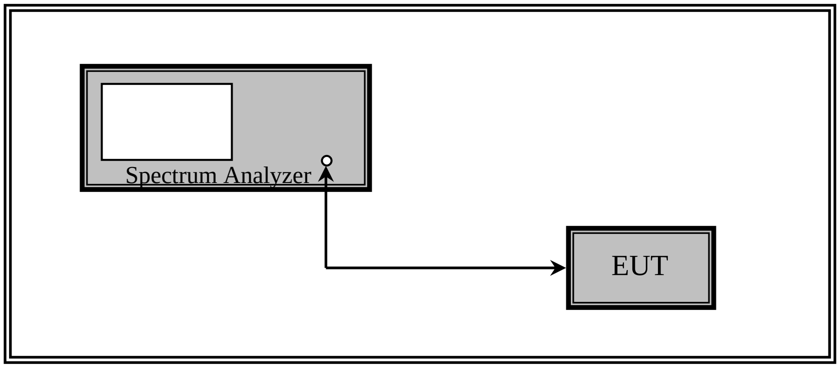
As per ANSI C63.10 Clause 11.10: Maximum power spectral density level in the fundamental emission

Some regulatory requirements specify a conducted PSD limit within the DTS bandwidth during any time interval of continuous transmission.88 Such specifications require that the same method as used to determine the conducted output power shall be used to determine the power spectral density. If maximum peak conducted output power was measured, then the peak PSD procedure 11.10.2 (method PKPSD) shall be used. If maximum conducted output power was measured, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option):

Method PKPSD (peak PSD): The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and it is optional if the maximum conducted (average) output power was used to determine compliance:

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ [3 × RBW].
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.
j. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

10.3 Test Setup Block Diagram



10.4 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
424	Agilent	Spectrum Analyzer	E4440A	US45303156	2024-03-06	1 year[1]
624	Agilent	Spectrum Analyzer	E4446A	MY48250238	2023-05-12	1 year[2]
-	-	RF Cable	-	-	Each time[3]	N/A

Note[1]: The equipment was used for testing from 2024-06-06 through 2024-06-11.
Note[2]: The equipment was used for testing on 2024-04-17
Note[3]: cables, attenuators and notch filters included in the test set-up were checked each time before testing.

Statement of Traceability: BACL Corp. *attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

10.5 Test Environmental Conditions

Temperature:	22ºC
Relative Humidity:	53%
ATM Pressure:	101.5 kPa

The testing was performed by Libass Thiaw on 2024-04-17, and from 2024-06-06 through 2024-06-1 at RF Site 1.

10.6 Test Results

2.4 GHz Wi-Fi

Modulation	Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)
b	Low	2412	-2.990	< 8
	Middle	2437	7.310	< 8
	High	2462	-3.260	< 8
g	Low	2412	-9.843	< 8
	Middle	2437	-5.743	< 8
	High	2462	-9.033	< 8
n20	Low	2412	-5.717	< 8
	Middle	2437	-5.027	< 8
	High	2462	-9.187	< 8

2.4 GHz BLE

Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Result
1M				
Low	2402	-9.160	< 8	Pass
Middle	2440	-8.940	< 8	Pass
High	2480	-8.960	< 8	Pass

Note: The EUT passed with stringent RBW of 10 kHz, thus complied with FCC RBW requirement of 3 kHz.

Please refer to Annex C for detailed test results.

11 FCC §15.247(d) – Spurious Emissions at Antenna Terminal and 100 kHz Band Edges

11.1 Applicable Standards

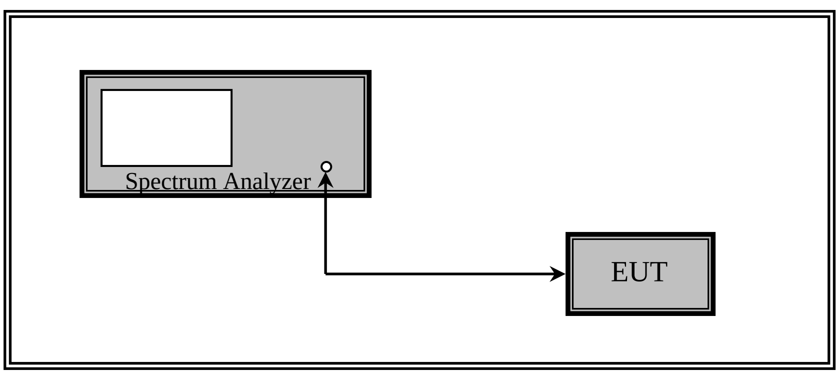
According to FCC §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emissions limits specified in §15.209(a) see §15.205(c).

11.2 Measurement Procedure

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation

RBW = 100 kHz
VBW = 300 kHz
Sweep = coupled
Detector function = peak
Trace = max hold

11.3 Test Setup Block Diagram



11.4 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
424	Agilent	Spectrum Analyzer	E4440A	US45303156	2024-03-06	1 year[1]
624	Agilent	Spectrum Analyzer	E4446A	MY48250238	2023-05-12	1 year[2]
-	-	RF Cable	-	-	Each time[3]	N/A

Note[1]: The equipment was used for testing from 2024-06-06 through 2024-06-11.
Note[2]: The equipment was used for testing on 2024-04-17
Note[3]: cables, attenuators and notch filters included in the test set-up were checked each time before testing.

Statement of Traceability: BACL Corp. *attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

11.5 Test Environmental Conditions

Temperature:	22ºC
Relative Humidity:	53%
ATM Pressure:	101.5 kPa

The testing was performed by Libass Thiaw on 2024-04-17, and from 2024-06-06 through 2024-06-11 at RF Site

11.6 Test Results

Please refer to Annex D for detailed test results.

Test result: PASS

12 Annex E (Normative) – EUT Test Setup Photographs

Please refer to the attachment.

13 Annex F (Normative) – EUT External Photographs

Please refer to the attachment.

14 Annex G (Normative) – EUT Internal Photographs

Please refer to the attachment.

15 Annex H (Normative) – A2LA Electrical Testing Certificate

ilac-MRA A2LA

Accredited Laboratory

A2LA has accredited

BAY AREA COMPLIACE LABORATORIES CORP.

Sunnyvale, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets A2LA R222 - Specific Requirements EPA ENERGY STAR Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 21st day of December 2022.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3297.02
Valid to September 30, 2024

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

Please follow the web link below for a full ISO 17025 scope.

https://www.a2la.org/scopepdf/3297-02.pdf

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