FCC PART 15.407
ISEDC RSS-247, ISSUE 2, FEBRUARY 2017

TEST REPORT

For

Cisco Systems, Inc.

125 West Tasman Drive,
San Jose, CA 95134 USA

FCC ID: LDKVCVER1937
IC: 2461N-VCVER1937

Report Type:	**Product type:**
Class II Permissive Change	Cisco Catalyst 9120AX Series Access Point

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ACCREDITED
CERTIFICATE #3297.02

TABLE OF CONTENTS

1 GENERAL DESCRIPTION 4

1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) 4
1.2 MECHANICAL DESCRIPTION OF EUT 4
1.3 OBJECTIVE 4
1.4 RELATED SUBMITTAL(S)/GRANT(S) 4
1.5 TEST METHODOLOGY 4
1.6 MEASUREMENT UNCERTAINTY 5
1.7 TEST FACILITY REGISTRATIONS 5
1.8 TEST FACILITY ACCREDITATIONS 5

2 SYSTEM TEST CONFIGURATION 8

2.1 JUSTIFICATION 8
2.2 EUT EXERCISE SOFTWARE 8
2.3 DUTY CYCLE CORRECTION FACTOR 9
2.4 EQUIPMENT MODIFICATIONS 11
2.5 LOCAL SUPPORT EQUIPMENT 11
2.6 REMOTE SUPPORT EQUIPMENT 11
2.7 INTERFACE PORTS AND CABLING 11

3 SUMMARY OF TEST RESULTS 12

4 FCC §2.1091, §15.407(F) & ISEDC RSS-102 – RF EXPOSURE 13

4.1 APPLICABLE STANDARDS 13
4.2 MPE PREDICTION 14
4.3 MPE RESULTS FOR FCC 14
4.4 RF EXPOSURE EVALUATION EXEMPTION FOR ISEDC 17

5 FCC §15.207 & ISED RSS-GEN §8.8 - AC LINE CONDUCTED EMISSIONS 18

5.1 APPLICABLE STANDARDS 18
5.2 TEST SETUP 18
5.3 TEST PROCEDURE 18
5.4 CORRECTED AMPLITUDE AND MARGIN CALCULATION 19
5.5 TEST SETUP BLOCK DIAGRAM 19
5.6 TEST EQUIPMENT LIST AND DETAILS 20
5.7 TEST ENVIRONMENTAL CONDITIONS 20
5.8 SUMMARY OF TEST RESULTS 20
5.9 CONDUCTED EMISSIONS TEST PLOTS AND DATA 21

6 FCC §15.209, §15.407(B) & ISEDC RSS-247 §6.2, RSS-GEN §8.9, §8.10 - SPURIOUS RADIATED EMISSIONS 23

6.1 APPLICABLE STANDARD 23
6.2 TEST SETUP 25
6.3 TEST PROCEDURE 26
6.4 CORRECTED AMPLITUDE AND MARGIN CALCULATION 26
6.5 TEST EQUIPMENT LIST AND DETAILS 27
6.6 TEST ENVIRONMENTAL CONDITIONS 27
6.7 SUMMARY OF TEST RESULTS 28
6.8 RADIATED EMISSIONS TEST RESULT 28
1) 30 MHZ–1 GHZ WORST CASE, MEASURED AT 3 METERS 28
2) 1 GHZ–18 GHZ, MEASUREMENT AT 1 METER 29
3) 1 GHZ–40GHZ, VASONA SCAN GRAPH AT 1 METER. 31

7 ANNEX A – TEST SETUP PHOTOGRAPHS 34

8 ANNEX B (NORMATIVE) - A2LA ELECTRICAL TESTING CERTIFICATE 35

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R2106223-407	Original Report	2021-08-20

1 General Description

1.1 Product Description for Equipment under Test (EUT)

This test report was prepared on behalf of *Cisco Systems, Inc.*, and their product model *C9120AXI-A (Canada), C9120AXI-B (US), FCC ID: LDKVCVER1937, IC: 2461N-VCVER1937, or the "EUT"* as referred to in this report. The product is a Wireless Access Point with 2.4 GHz Wi-Fi, 5 GHz Wi-Fi, and BLE functionalities.

1.2 Mechanical Description of EUT

Length (cm)	Width (cm)	Height (cm)	Weight (kg)	S/N
20.5	20.5	4.0	0.95	FOC2517056S

1.3 Objective

This report was prepared on behalf of *Cisco Systems Inc.*, in accordance with FCC CFR47 §15.407 and ISED RSS-247 Issue 2, February2017.

The objective was to determine continuous compliance with FCC Part 15.407 and ISEDC RSS-247 rules for AC Line Conducted Emissions and Radiated Spurious Emissions.

1.4 Related Submittal(s)/Grant(s)

Equipment Class: DTS, FCC ID: LDKVCVER1937, IC: 2461N-VCVER1937

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.10-2013, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz, and FCC KDB 789033 D02 General UNII Test Procedure New Rules v02r01.

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	±1.48dB
Unwanted Emissions, conducted	±1.57dB
All emissions, radiated	±4.0 dB
AC power line Conducted Emission	±2.0 dB
Temperature	±2 ^{o} C
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 17025:2005 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 17025:2005 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 17025:2005 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 - ISEDC) 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 789033 D02 General UNII Test Procedures New Rules v02r01.

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

To test the EUT cabinet radiation, the radio was configured to transmit its highest output power possible, which represents the worst case.

2.2 EUT Exercise Software

The software used was Tera Term and test commands, provided by *Cisco Systems Inc.*, the software is compliant with the standard requirements being tested against.

The EUT image version:

svn base: b22cae05ec30b4a758eb0171b9c2cb24f4cb3167
commit: b22cae05ec30b4a758eb0171b9c2cb24f4cb3167
tree 713c406cb897cc942f3f3d41b9ade640092cfba7

Radio	Modulation	Frequency (MHz)	Power Setting
5 GHz Wi-Fi	802.11a	5180	17
5 GHz XOR	802.11a	5180	17
5 GHz AUX	802.11a	5180	17
BLE	GFSK	2402	default

Data Rates Tested:
802.11a mode: 6Mbps
BLE: default

2.3 Duty Cycle Correction Factor

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 section B:

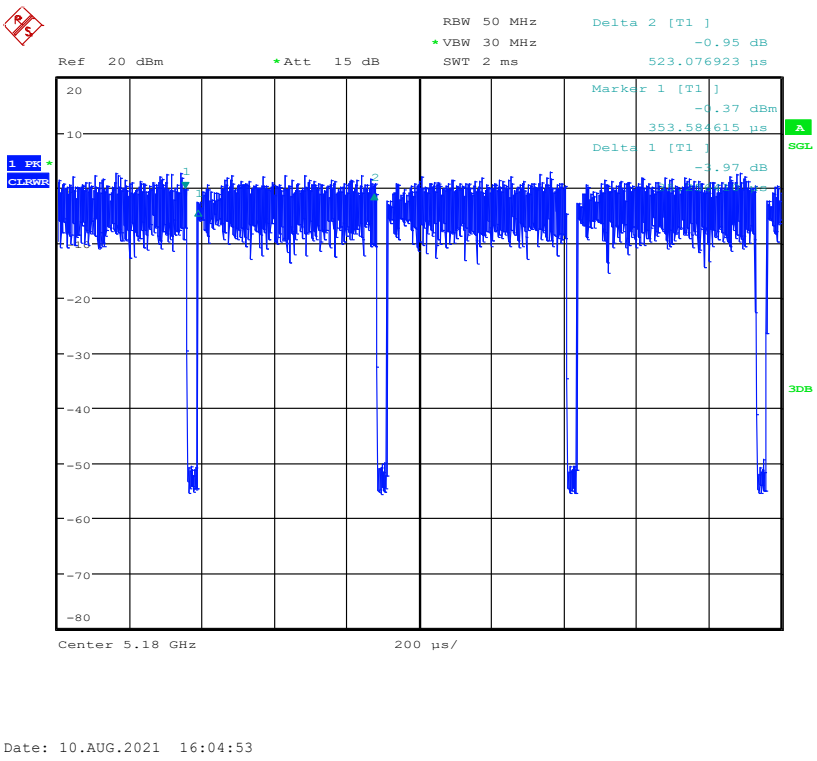
All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.

Radio	Mode	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
5 GHz Wi-Fi & 5 GHz XOR	802.11a	0.48782	0.52307	93.26	0.3030
5 GHz Wi-Fi	802.11a	0.30382	0.28557	93.99	0.2690
BLE	Default	1	1	100	0

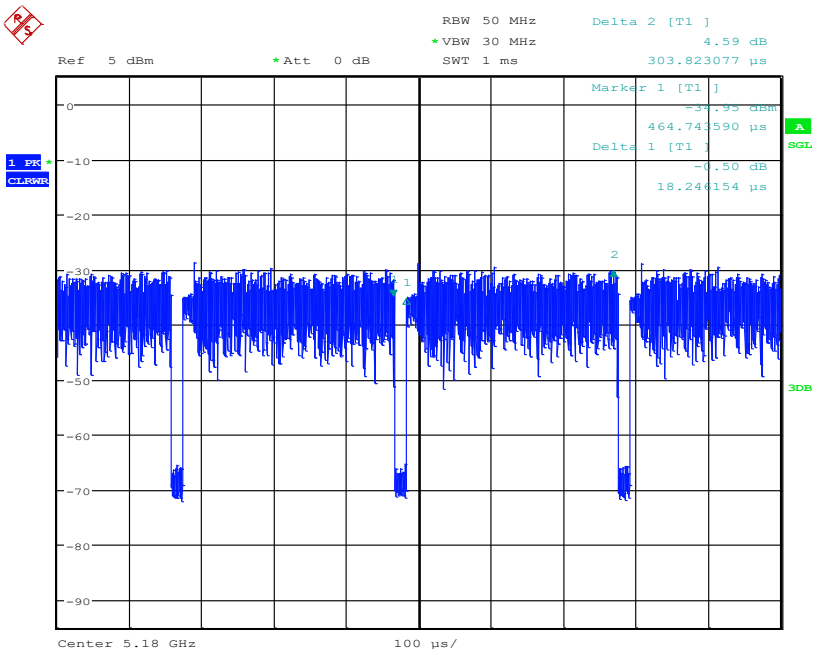
Duty Cycle = On Time (ms)/ Period (ms)
Duty Cycle Correction Factor (dB) = 10*log(1/Duty Cycle)

Please refer to the following plots.

5 GHz Wi-Fi & XOR (802.11 a)

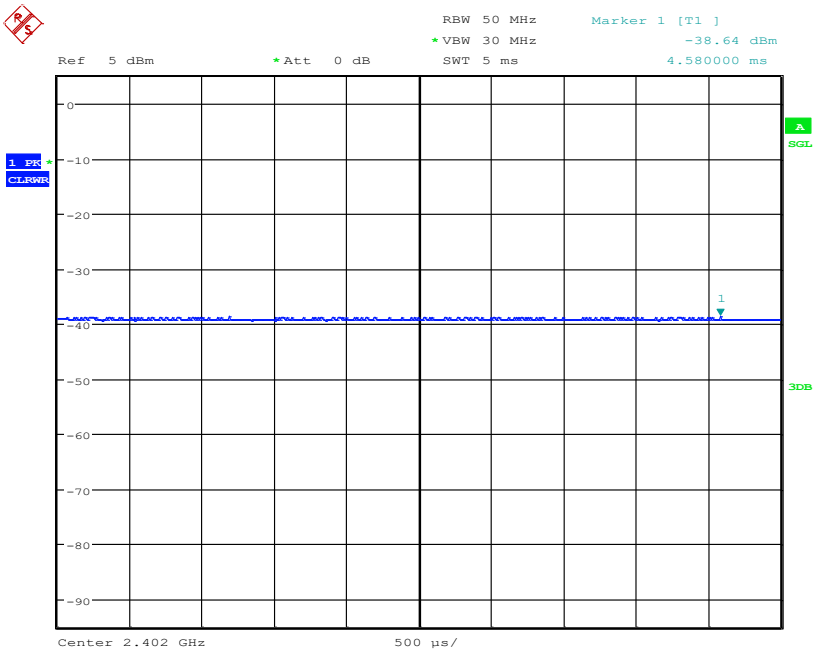


5 GHz AUX (802.11 a)



Date: 10.AUG.2021 16:34:13

BLE



Date: 10.AUG.2021 16:36:25

2.4 Equipment Modifications

No equipment modifications are made to the EUT

2.5 Local Support Equipment

Manufacturer	Description	Model	Serial Number
Dell	Laptop	Latitude E6410	3CKRAQ1

2.6 Remote Support Equipment

Manufacturer	Description	Model
Cisco	PoE	SB-PWR-INJ2

2.7 Interface Ports and Cabling

Cable Description	Length (m)	To	From
RS232 Male to Ethernet Cable	2 m	RS232 Female to USB Cable	EUT
RS232 Female to USB Cable	2 m	Laptop	RS232 Male to Ethernet Cable
Category 6 Ethernet Cable	2 m	EUT	PoE Injector

3 Summary of Test Results

FCC and ISED Rules	Description of Test	Result
FCC §2.1091, §15.407(f) & ISEDC RSS-102	RF Exposure	Compliant
FCC §15.207 ISED RSS-Gen §8.8	AC Power Line Conducted Emissions	Compliant
FCC §2.1053, §15.205, §15.209, 15.407(b) ISED RSS-247 §6.2 ISEDC RSS-Gen §8.9 and §8.10	Spurious Radiated Emissions	Compliant

4 FCC §2.1091, §15.407(f) & ISEDC RSS-102 – RF Exposure

4.1 Applicable Standards

According to FCC §15.407(f), §1.1307(b)(1), 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.

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

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

According to ISED RSS-102 Issue 5:

2.5.2 Exemption Limits for Routine Evaluation – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz[6] and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

4.2 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

4.3 MPE Results for FCC

2.4 GHz Wi-Fi Aux

Maximum output power at antenna input terminal (dBm):	19.56
Maximum output power at antenna input terminal (mW):	90.36
Prediction distance (cm):	30
Prediction frequency (MHz):	2462
Maximum Antenna Gain, typical (dBi):	3
Maximum Antenna Gain (numeric):	2
Power density of prediction frequency at 30.0 cm (mW/cm^2):	0.0160
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 30 cm is 0.016 mW/cm^2. Limit is 1.0 mW/cm^2.

2.4 GHz Wi-Fi

Maximum output power at antenna input terminal (dBm):	22.9
Maximum output power at antenna input terminal (mW):	194.98
Prediction distance (cm):	30
Prediction frequency (MHz):	2437
Maximum Antenna Gain, typical (dBi):	10
Maximum Antenna Gain (numeric):	10
Power density of prediction frequency at 30.0 cm (mW/cm^2):	0.1725
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 30 cm is 0.1725 mW/cm^2. Limit is 1.0 mW/cm^2.

2.4 GHz BLE

Maximum peak output power at antenna input terminal (dBm):	3.67
Maximum peak output power at antenna input terminal (mW):	2.33
Prediction distance (cm):	30
Prediction frequency (MHz):	2426
Maximum Antenna Gain, typical (dBi):	3
Maximum Antenna Gain (numeric):	3.98
Power density of prediction frequency at 30.0 cm (mW/cm^2):	0.0004
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 30 cm is 0.0004 mW/cm^2. Limit is 1.0 mW/cm^2.

5 GHz Wi-Fi Aux

Maximum peak output power at antenna input terminal (dBm):	21.4
Maximum peak output power at antenna input terminal (mW):	138.04
Prediction distance (cm):	30
Prediction frequency (MHz):	5825
Maximum Antenna Gain, typical (dBi):	5
Maximum Antenna Gain (numeric):	3.16
Power density of prediction frequency at 30.0 cm (mW/cm^2):	0.0386
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 30 cm is 0.0386 mW/cm^2. Limit is 1.0 mW/cm^2.

5 GHz Wi-Fi XOR

Maximum peak output power at antenna input terminal (dBm):	23.6
Maximum peak output power at antenna input terminal (mW):	229.09
Prediction distance (cm):	30
Prediction frequency (MHz):	5745
Maximum Antenna Gain, typical (dBi):	11
Maximum Antenna Gain (numeric):	12.59
Power density of prediction frequency at 30.0 cm (mW/cm^2):	0.2551
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 30 cm is 0.2551 mW/cm^2. Limit is 1.0 mW/cm^2.

5 GHz Wi-Fi Regular

Maximum peak output power at antenna input terminal (dBm):	23.7
Maximum peak output power at antenna input terminal (mW):	234.42
Prediction distance (cm):	30
Prediction frequency (MHz):	5230
Maximum Antenna Gain, typical (dBi):	11
Maximum Antenna Gain (numeric):	12.59
Power density of prediction frequency at 30.0 cm (mW/cm^2):	0.2611
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 30 cm is 0.2611 mW/cm^2. Limit is 1.0 mW/cm^2.

Worst case colocation 5 GHz Wi-Fi Regular, 5 GHz Wi-Fi Aux, 5 GHz Wi-Fi XOR and BLE.

Frequency Band	Max Conducted Power(dBm)	Evaluated Distance (cm)	Worst-Case MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Worst-Case MPE Ratios	Sum of MPE Ratios	Limit
Worst Case							
5 GHz Wi-Fi Regualr	23.7	30	0.2611	1.0	26.11 %	55.52 %	100%
5 GHz Wi-Fi Aux	21.4	30	0.0386	1.0	3.86 %		
5 GHz Wi-Fi XOR	23.6	30	0.2551	1.0	25.51%		
2.4 GHz BLE	3.67	30	0.0004	1.0	0.04%		

Note: EUT can operate in the following colocation cases, the worst colocation case has been selected to analyze.

Case1: 5 GHz Wi-Fi Regular, 5 GHz Wi-Fi Aux, 5 GHz Wi-Fi XOR and BLE.
Case2: 5 GHz Wi-Fi Regular, 2.4 GHz Wi-Fi Aux, 5 GHz Wi-Fi XOR and BLE.
Case3: 5 GHz Wi-Fi Regular, 2.4 GHz Wi-Fi Aux, 2.4 GHz Wi-Fi and BLE.
Case4: 5 GHz Wi-Fi Regular, 5 GHz Wi-Fi Aux, 2.4 GHz Wi-Fi and BLE.

4.4 RF exposure evaluation exemption for ISEDC

2.4 GHz Wi-Fi

22.9 dBm + 10 dBi = 32.9 dBm < $1.31\times10^{-2}f^{0.6834}$ = 2.703 W = 34.318 dBm

5 GHz Wi-Fi Aux

21.4 + 5 dBi = 21.9 dBm < $1.31\times10^{-2}f^{0.6834}$ = 4.903 W = 36.904 dBm

5 GHz Wi-Fi XOR

23.6 + 11 dBi = 34.6 dBm < $1.31\times10^{-2}f^{0.6834}$ = 4.880 W = 36.884 dBm

5 GHz Wi-Fi Regular

23 + 11 dBi = 34 dBm < $1.31\times10^{-2}f^{0.6834}$ = 4.880 W = 36.884 dBm

Therefore, the RF exposure is not required.

5 FCC §15.207 & ISED RSS-Gen §8.8 - AC Line Conducted Emissions

5.1 Applicable Standards

As per FCC §15.207 and ISEDC RSS-Gen §8.8 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

5.2 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 and ISEDC RSS-Gen §8.8 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.

5.3 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".

5.4 Corrected Amplitude and Margin Calculation

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 = S.A. Reading (32.5 dBuV) + Correction Factor (7.8 dB)

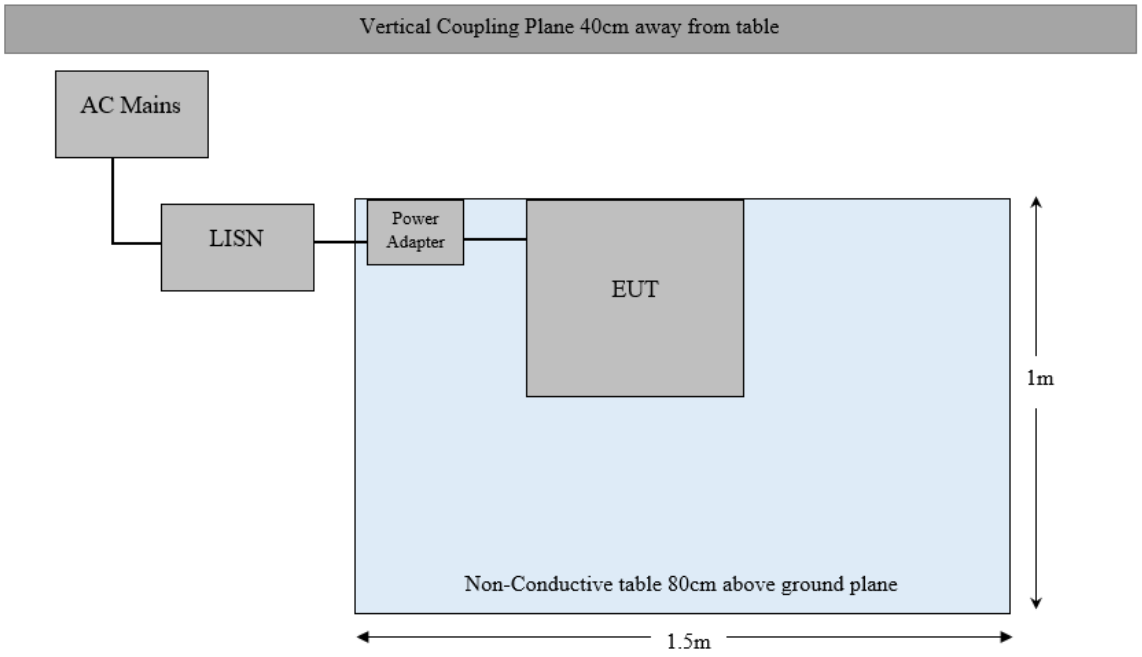
The Correction Factor is calculated by adding the Cable Loss (CL) and the Attenuator Factor (Atten) together. This calculation is done in the measurement software, and reported in the test result section. The basic equation is as follows:

Correction Factor = CL + Atten

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

5.5 Test Setup Block Diagram



5.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	Receiver, EMI Test	ESCI 1166.5950.03	100338	2020-03-17	1.5 years
Rohde & Schwarz	Impulse Limiter	ESH3-Z2	101963	2021-07-07	1 year
Solar Electronics Company	High Pass Filter	Type 7930-100	7930150203	2021-03-02	1 year
Fairview Microwave	Micro-Coax Cable	FMC0101223-240	1907181	2020-08-25	1 year
FCC	LISN	FCC-LISN-50-25-2-10-CISPR16	160129	2020-10-12	1 year
Vasona	Test software	V6.0 build 11	10400213	N/R	N/R
California Instruments	AC Power Source	5001ix-208	57079	Calibration not Required	Calibration not Required

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 A2LA Policy P102 "A2LA Policy on Metrological Traceability".*

5.7 Test Environmental Conditions

Temperature:	24 ºC
Relative Humidity:	38 %
ATM Pressure:	101.6 kPa

The testing was performed by Giriraj Gurjar on 2021-08-03 on ground plane test site.

5.8 Summary of Test Results

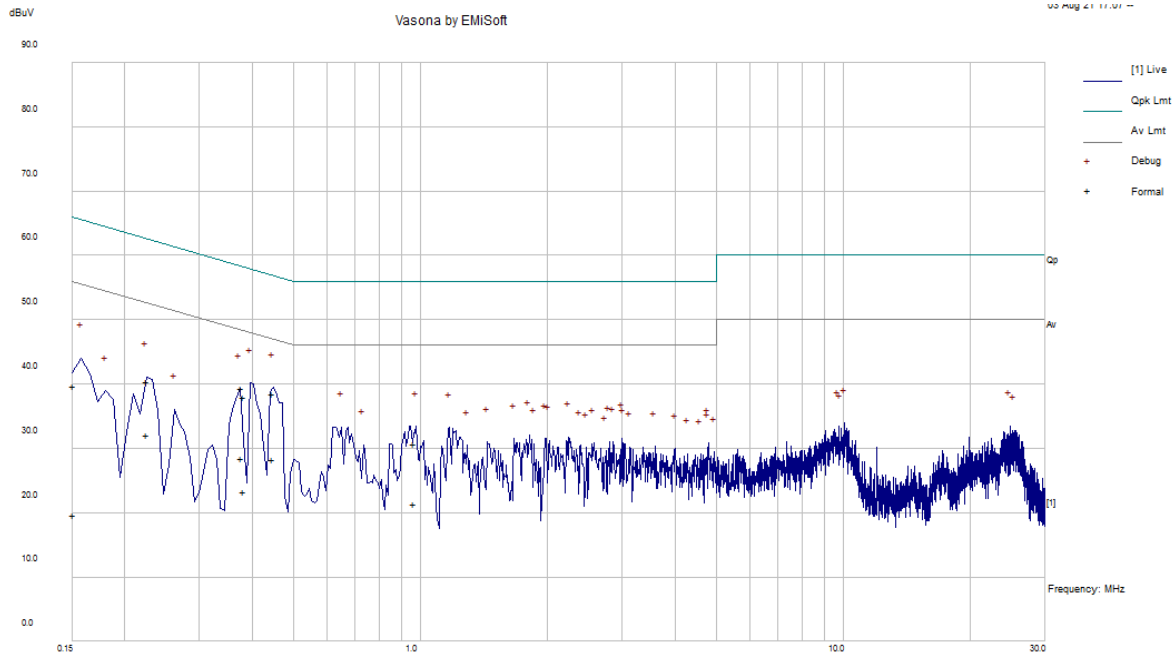
According to the recorded data in following table, the EUT complied with the FCC 15.207 and ISEDC RSS-Gen standard's conducted emissions limits, with the margin reading of:

Connection: AC/DC adapter connected to 120 V/60 Hz, AC			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Line/Neutral)**	**Range (MHz)**
-17.94	0.184685	Neutral	0.15-30

5.9 Conducted Emissions Test Plots and Data

Worst Case EUT configuration: 5 GHz Wi-Fi & XOR (802.11a, 5180 MHz),5 GHz AUX (802.11a, 5180 MHz), BLE (2402 MHz)

AC Line: 120V/60Hz



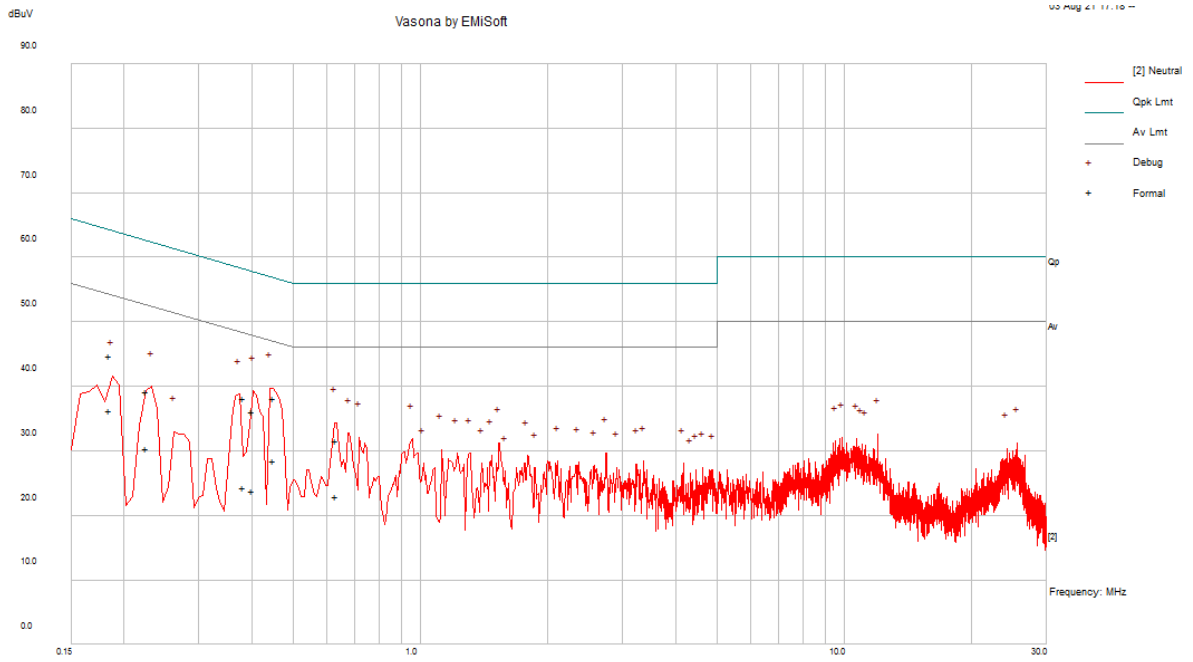
Quasi-peak Measurement:

Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
0.44787	28.13	10.36	38.49	Line	56.91	-18.43	QP
0.378645	28.88	10.43	39.31	Line	58.31	-19	QP
0.382457	27.55	10.44	37.98	Line	58.23	-20.24	QP
0.225813	29.77	10.64	40.41	Line	62.6	-22.19	QP
0.963236	20.64	10.14	30.77	Line	56	-25.23	QP
0.150947	28.96	10.75	39.71	Line	65.95	-26.24	QP

Average Measurement:

Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
0.44787	18	10.36	28.37	Line	46.91	-18.55	Ave.
0.378645	18.13	10.43	28.57	Line	48.31	-19.74	Ave.
0.225813	21.47	10.64	32.12	Line	52.6	-20.49	Ave.
0.963236	11.35	10.14	21.49	Line	46	-24.51	Ave.
0.382457	12.94	10.44	23.37	Line	48.23	-24.85	Ave.
0.150947	8.91	10.75	19.65	Line	55.95	-36.29	Ave.

AC Line: 120V/60Hz



Quasi-peak Measurement:

Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
0.449102	27.84	10.36	38.2	Neutral	56.89	-18.69	QP
0.184685	34.06	10.71	44.77	Neutral	64.27	-19.5	QP
0.382731	27.77	10.44	38.2	Neutral	58.22	-20.02	QP
0.400215	25.67	10.41	36.08	Neutral	57.85	-21.77	QP
0.225896	28.67	10.65	39.31	Neutral	62.6	-23.29	QP
0.633846	21.33	10.25	31.59	Neutral	56	-24.41	QP

Average Measurement:

Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
0.184685	25.63	10.71	36.33	Neutral	54.27	-17.94	Ave.
0.449102	18.11	10.36	28.47	Neutral	46.89	-18.42	Ave.
0.225896	19.78	10.65	30.42	Neutral	52.6	-22.18	Ave.
0.633846	12.65	10.25	22.9	Neutral	46	-23.1	Ave.
0.382731	13.84	10.44	24.27	Neutral	48.22	-23.95	Ave.
0.400215	13.39	10.41	23.8	Neutral	47.85	-24.05	Ave.

6 FCC §15.209, §15.407(b) & ISEDC RSS-247 §6.2, RSS-Gen §8.9, §8.10 - Spurious Radiated Emissions

6.1 Applicable Standard

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

As per FCC §15.209: 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 Note 1	3
88 - 216	150 Note 1	3
216 - 960	200 Note 1	3
Above 960	500	3

Note 1: 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 Part 15.407 (b)

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

As per ISED RSS-247 §6.2

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHzshall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

For devices with both operating frequencies and channel bandwidths contained within the band 5250-5350 MHz, the device shall comply with the following:

1. All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. if the equipment is intended for outdoor use; or
2. All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and any emissions within the band 5150-5250 MHz shall meet the power spectral density limits of Section 6.2.1. The device shall be labelled “for indoor use only.”

For devices with operating frequencies in the band 5250-5350 MHz but having a channel bandwidth that overlaps the band 5150-5250 MHz, the devices’ unwanted emission shall not exceed -27 dBm/MHz e.i.r.p. outside the band 5150-5350 MHz and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device shall be labelled “for indoor use only.”

For transmitters operating in the band 5470-5725 MHz, emissions outside the band shall not exceed -27 dBm/MHz e.i.r.p.

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

a. 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 Bm/MHz at 5 MHz above or below the band edges;
b. 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHzat 25 MHz above or below the band edges;
c. 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHzat 75 MHz above or below the band edges; and
d. -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

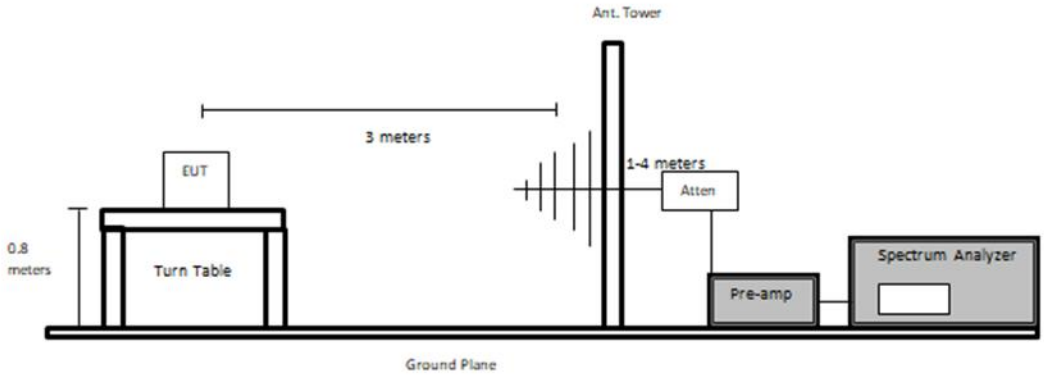
6.2 Test Setup

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 15.407 and ISED RSS-247 limits.

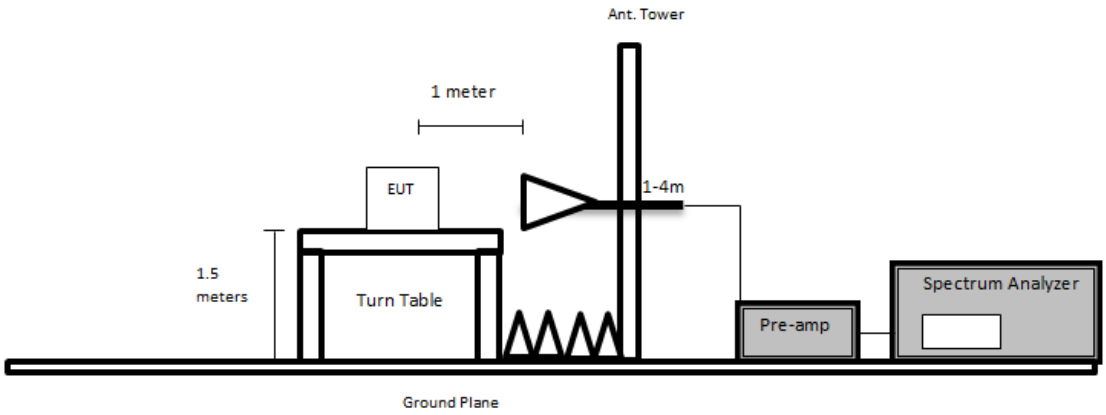
The spacing between the peripherals was 10 centimeters.

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

Below 1GHz:



Above 1GHz:



6.3 Test Procedure

For the radiated emissions test, the EUT host, and all support equipment power cords were connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.
The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter or 1.5 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

The spectrum analyzer or receiver is set as:

Below 1000 MHz:

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

Above 1000 MHz:

(1) Peak: RBW = 1MHz / VBW = 3MHz / Sweep = 100 ms
(2) Average: RBW = 1MHz / VBW = 1 / T or 10 Hz / Sweep = Auto

6.4 Corrected Amplitude and Margin Calculation

For emissions below 1 GHz and for above 1GHz scans.

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

6.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde and Schwarz	Receiver, EMI Test	ESCI 1166.5950.03	100338	2020-03-17	18 months
Agilent	Analyzer, Spectrum	E4446A	MY48250238	2021-02-12	1 year
Sunol Sciences	System Controller	SC99V	011003-1	N/R	N/A
Sunol Sciences	Antenna, Biconi-Log	JB3	A020106-2	2019-11-20	2 years
ETS Lindgren	Horn Antenna	3117	00218973	2019-02-13	2.5 years
Wisewave	Antenna, Horn	ARH-4223-02	10555-02	2021-04-12	2 years
Wisewave	Antenna, Horn	ARH-2823-02	10555-02	2020-02-27	2 years
Agilent	Amplifier, Pre	8447D	2443A04374	2020-08-17	1 year
HP	Pre-Amplifier	8449B	3008A01978	2021-05-05	1 year
AH Systems	Preamplifier	PAM 1840 VH	170	2020-11-09	1 year
IW Incorporated	157 Series 2.92 SM (x2) Armored 33 ft. Cable	KPS-1571AN-3960-KPS	DC 1917	2021-03-03	1 year
Keysight Technologies	RF Limiter	11867A	MY42242932	2021-03-03	1 year
MDP Digital	Times Microwave LMR 400 UltraFex Coaxial Cable 35'	LMR400UF	BACL1904161	2021-06-18	1 year
-	SMA cable	-	C00011	Each time[1]	N/A
-	Band Reject Filter	-	-	Each time[1]	N/A
Vasona	Test software	V6.0 build 11	10400213	N/R	N/R

Note[1]: cables included in the test set-up will be 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 A2LA Policy P102 "A2LA Policy on Metrological Traceability".*

6.6 Test Environmental Conditions

Temperature:	20-24 ºC
Relative Humidity:	28-45 %
ATM Pressure:	102.5 kPa

The testing was performed by Giriraj Gurjar from 2021-07-08 to 2021-07-12 in 5m chamber 3.

6.7 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Part 15.407 and RSS-247 standards' radiated emissions limits, and had the worst margin of:

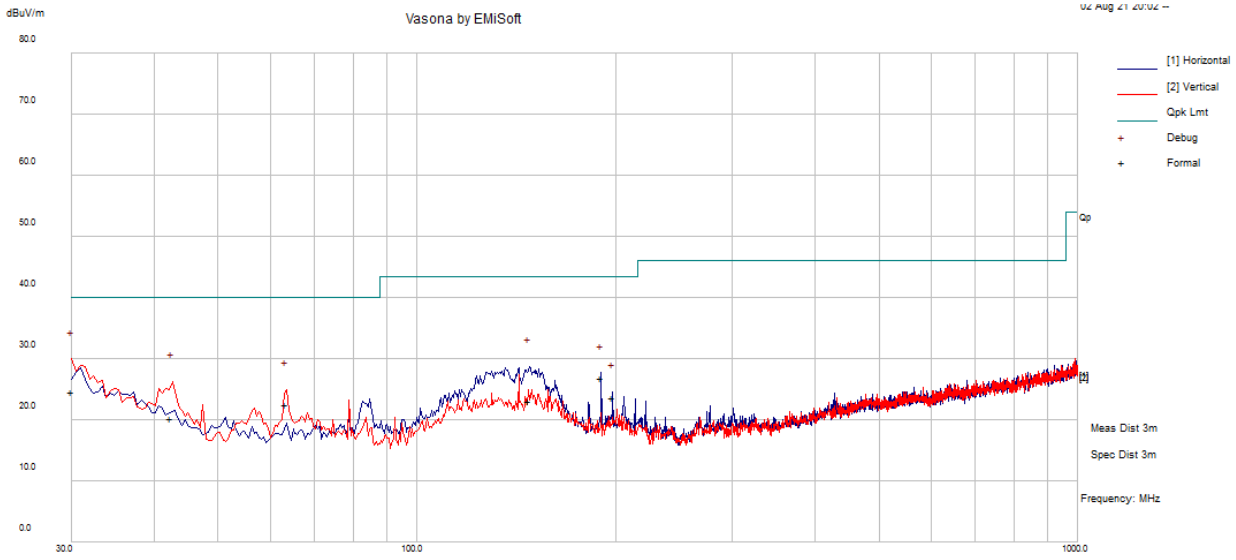
Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel**
-3.16	39947.84	Vertical	5180 MHz, 36

Please refer to the following table and plots for specific test result details

6.8 Radiated Emissions Test Result

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

Worst Case EUT configuration: 5 GHz Wi-Fi & XOR (802.11a, 5180 MHz), 5 GHz AUX (802.11a, 5180 MHz), 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)	Comment
30.00058	22.18	2.45	24.64	126	V	264	40	-15.36	QP
189.9698	33.6	-6.81	26.8	182	H	198	43.5	-16.7	QP
63.32975	33.34	-10.81	22.53	172	V	58	40	-17.47	QP
42.41825	27.2	-6.92	20.27	113	V	33	40	-19.73	QP
197.9288	29.36	-5.8	23.55	131	H	167	43.5	-19.95	QP
147.8293	28.74	-5.73	23.01	184	H	61	43.5	-20.49	QP

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

EUT configuration: 5 GHz Wi-Fi & XOR (802.11a, 5180 MHz), 5 GHz AUX (802.11a, 5180 MHz)

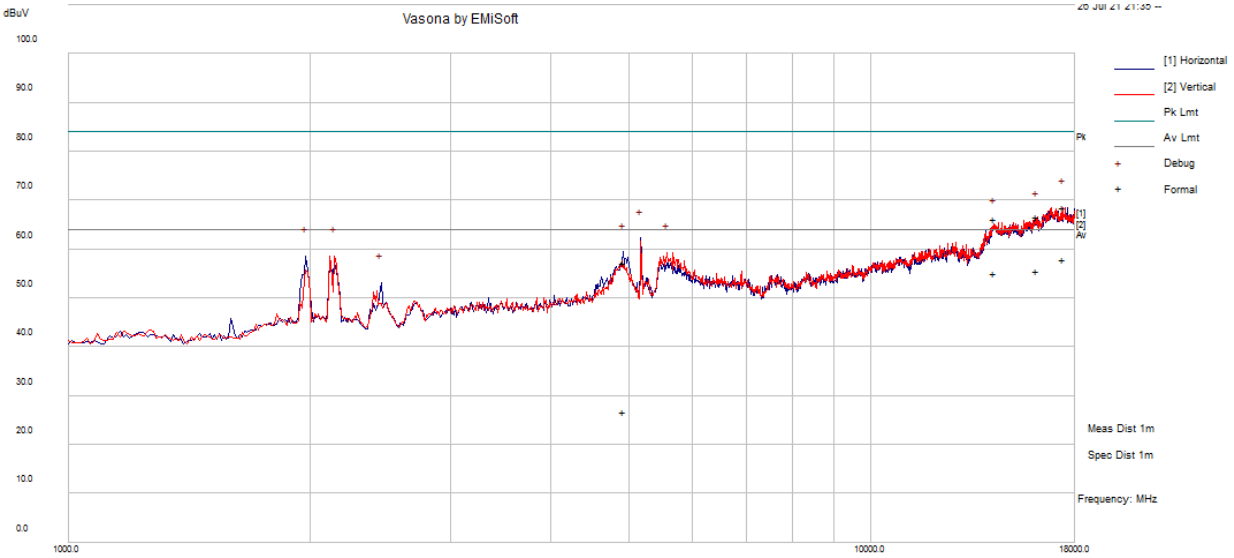
Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISEDC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Channel 36: 5180 MHz power setting: 17											
4999	49.64	0	150	V	35.40	6.71	35.70	56.05	84	-27.95	PK
4999	38.30	0	150	V	35.40	6.71	35.70	44.71	64	-19.29	AVG
4864	50.44	0	150	H	35.20	6.56	35.70	56.50	84	-27.50	PK
4864	39.40	0	150	H	35.20	6.56	35.70	45.46	64	-18.54	AVG
10358	45.60	275	140	V	38.00	9.58	36.50	56.68	84	-27.32	PK
10358	34.20	275	140	V	38.00	9.58	36.50	45.28	64	-18.72	AVG
10369	45.76	0	150	H	38.00	9.58	36.50	56.84	84	-27.16	PK
10369	33.64	0	150	H	38.00	9.58	36.50	44.72	64	-19.28	AVG
15540	45.32	0	150	V	40.50	9.86	34.20	61.48	84	-22.52	PK
15540	34.12	0	150	V	40.50	9.86	34.20	50.28	64	-13.72	AVG
15545	46.17	94	150	H	40.50	9.86	34.20	62.33	84	-21.67	PK
15545	33.80	94	150	H	40.50	9.86	34.20	49.96	64	-14.04	AVG
Channel 64: 5300 MHz power setting: 17											
5660	51.14	0	150	V	35.30	7.17	34.80	58.81	84	-25.19	PK
5660	39.87	0	150	V	35.30	7.17	34.80	47.54	64	-16.46	AVG
5632	50.02	0	150	H	35.30	7.12	34.80	57.64	84	-26.36	PK
5632	39.12	0	150	H	35.30	7.12	34.80	46.74	64	-17.26	AVG
10595	44.89	332	150	V	38.20	9.74	36.40	56.43	84	-27.57	PK
10595	34.22	332	150	V	38.20	9.74	36.40	45.76	64	-18.24	AVG
10591	44.38	15	150	H	38.20	9.74	36.40	55.92	84	-28.08	PK
10591	33.58	15	150	H	38.20	9.74	36.40	45.12	64	-18.88	AVG
15904	45.57	0	150	V	41.00	10.73	34.30	63.00	84	-21.00	PK
15904	33.42	0	150	V	41.00	10.73	34.30	50.85	64	-13.15	AVG
15897	45.50	278	150	H	40.90	10.68	34.30	62.78	84	-21.22	PK
15897	34.14	278	150	H	40.90	10.68	34.30	51.42	64	-12.58	AVG

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISEDC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Channel 116: 5580 MHz power setting: 17											
2485	49.00	0	150	V	33.00	4.40	36.80	49.60	84	-34.40	PK
2485	37.33	0	150	V	33.00	4.40	36.80	37.93	64	-26.07	AVG
4803	47.21	0	150	H	35.00	6.56	35.70	53.07	84	-30.93	PK
4803	37.58	0	150	H	35.00	6.56	35.70	43.44	64	-20.56	AVG
11160	44.48	0	150	V	38.50	10.01	35.70	57.29	84	-26.71	PK
11160	33.20	0	150	V	38.50	10.01	35.70	46.01	64	-17.99	AVG
11175	45.06	180	125	H	38.50	10.01	35.70	57.87	84	-26.13	PK
11175	32.81	180	125	H	38.50	10.01	35.70	45.62	64	-18.38	AVG
16732	45.34	16	135	V	42.30	10.07	33.90	63.81	84	-20.19	PK
16732	34.76	16	135	V	42.30	10.07	33.90	53.23	64	-10.77	AVG
16718	45.09	0	150	H	42.30	10.06	33.90	63.55	84	-20.45	PK
16718	32.85	0	150	H	42.30	10.06	33.90	51.31	64	-12.69	AVG
Channel 157: 5785 MHz power setting: 17											
1049	50.61	194	150	V	27.60	2.85	38.03	43.03	84	-40.97	PK
1049	30.32	194	150	V	27.60	2.85	38.03	22.74	64	-41.26	AVG
1603	50.46	0	150	H	27.60	3.44	37.58	43.92	84	-40.08	PK
1603	39.51	0	150	H	27.60	3.44	37.58	32.97	64	-31.03	AVG
11569	45.43	166	150	V	38.70	10.09	35.50	58.72	84	-25.28	PK
11569	34.24	166	150	V	38.70	10.09	35.50	47.53	64	-16.47	AVG
11579	45.45	0	150	H	38.70	10.09	35.35	58.89	84	-25.11	PK
11579	33.56	0	150	H	38.70	10.09	35.35	47.00	64	-17.00	AVG
17359	45.08	211	150	V	41.80	11.38	33.00	65.26	84	-18.74	PK
17359	33.79	211	150	V	41.80	11.38	33.00	53.97	64	-10.03	AVG
17346	45.27	0	150	H	41.80	11.38	33.00	65.45	84	-18.55	PK
17346	34.31	0	150	H	41.80	11.38	33.00	54.49	64	-9.51	AVG

3) 1 GHz–40GHz, Vasona scan graph at 1 meter.

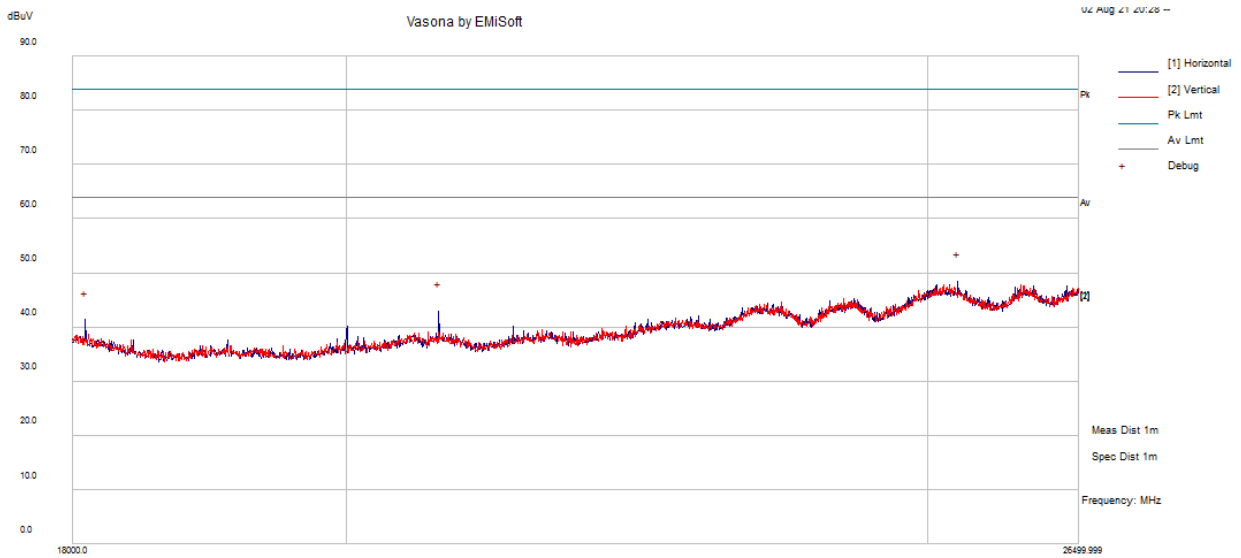
Worst Case EUT configuration: 5 GHz Wi-Fi & XOR (802.11a, 5180 MHz) + 5 GHz AUX (802.11a, 5180 MHz) + BLE (2402 MHz)

1 GHz – 18 GHz

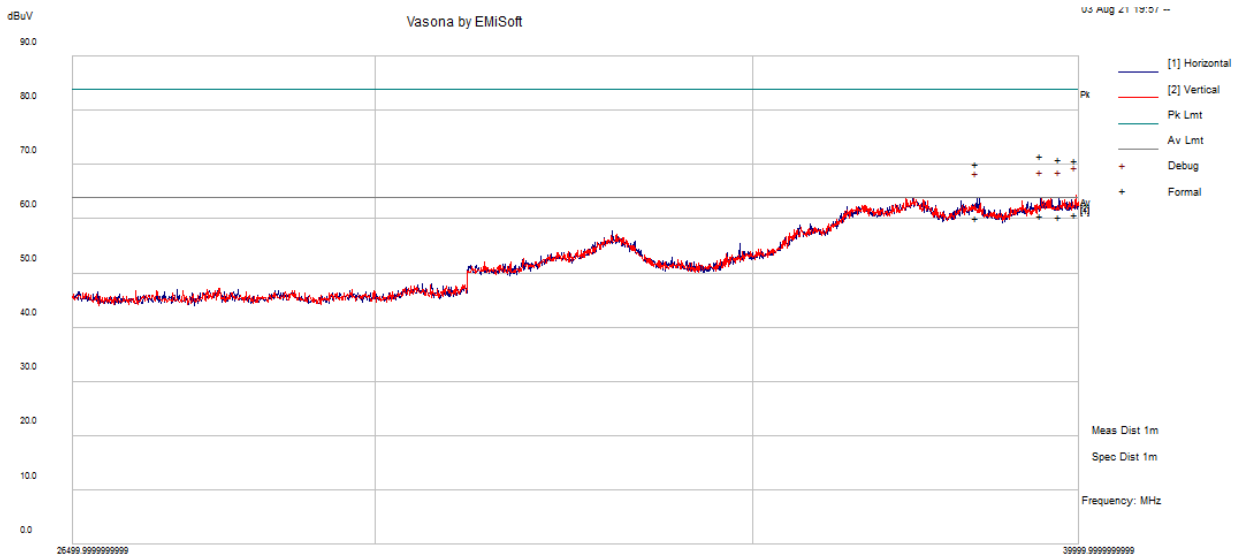


Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comment
17403.39	44.37	24.08	68.45	210	V	223	84	-15.55	PK
16116.37	44.44	22.24	66.68	241	H	315	84	-17.32	PK
14277.67	43.94	22.26	66.2	253	H	149	84	-17.8	PK
4918.81	50.77	6.53	57.3	159	H	317	84	-26.7	PK
17403.39	33.91	24.08	57.99	210	V	223	64	-6.01	Ave
16116.37	33.31	22.24	55.56	241	H	315	64	-8.44	Ave
14277.67	32.87	22.26	55.13	253	H	149	64	-8.87	Ave
4918.81	20.1	6.53	26.63	159	H	317	64	-37.37	Ave

18 GHz-26.5 GHz



26.5 GHz-40 GHz



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)	Comment
39947.84	50.2	20.71	70.9	107	V	77	84	-13.1	PK
39377.99	51.39	20.27	71.67	105	H	69	84	-12.33	PK
39680.53	51.39	19.73	71.11	157	H	75	84	-12.89	PK
38359.25	51.72	18.4	70.13	111	H	43	84	-13.87	PK
39947.84	40.13	20.71	60.84	107	V	77	64	-3.16	Ave
39377.99	40.25	20.27	60.52	105	H	69	64	-3.48	Ave
39680.53	40.75	19.73	60.48	157	H	75	64	-3.52	Ave
38359.25	41.75	18.4	60.16	111	H	43	64	-3.84	Ave

7 Annex A – Test Setup Photographs

Please refer to the attachment

8 Annex B (Normative) - A2LA Electrical Testing Certificate

Accredited Laboratory

A2LA has accredited

BAY AREA COMPLIANCE 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 10th day of March 2021.

Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3297.02
Valid to September 30, 2022

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

--- END OF REPORT ---