FCC PART 15, SUBPART E

ISEDC RSS-247, ISSUE 2, FEBRUARY 2017

TEST REPORT

For

Cisco Systems Inc.

125 W Tasman Drive,
San Jose, CA 95134, USA

FCC ID: LDK948342197
IC: 2461N-948342197

Report Type: CIIPC Report	**Product Type:** Cisco Catalyst 9130AXE Series Wi-Fi 6 Access Points

Prepared By:	Deepak Mishra Test Technician
Report Number:	R2104052-407
Report Date:	2021-08-03
Reviewed By:	Zhao Zhao RF Project Engineer

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CERTIFICATE #3297.02

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R2104052-407	Original Report	2021-08-03

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: *C9130AXE-B (US), C9130AXE-A (Canada),* FCC ID: LDK948342197, IC: 2461N-948342197 with Marlin Antenna Model: C-ANT9104 as referred to as EUT in this report. The product is an 802.11ax Access Point operates in 2.4GHz and 5GHz bands.

1.2 Mechanical Description of EUT

Length (cm)	Width (cm)	Height (cm)	Weight (kg)
40	59	46	8.48

S/N: ACE21060026, assigned by Cisco System, Inc.

1.3 Objective

This report was prepared on behalf of *Cisco Systems Inc.,* in accordance with Part 2, Subpart J, and Part 15, Subparts E of the Federal Communication Commission's rules, ISEDC RSS-247 Issue 2 on February 2017.

The objective was to determine Continuous compliance with FCC Part 15.407, ISEDC RSS-247 rules for Radiated Spurious Emissions.

1.4 Related Submittal(s)/Grant(s)

Equipment Class: DTS, FCC ID: LDK948342197, IC: 2461N-948342197

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.

2.2 EUT Exercise Software

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

Radio	Modulation	Frequency (MHz)	Power Setting
5 GHz Wi-Fi & 5 GHz Aux	802.11a	5200	17
		5300	17
		5580	17
		5785	17

Data Rates Tested:
802.11a mode: 6Mbps

2.3 Duty Cycle Correction Factor

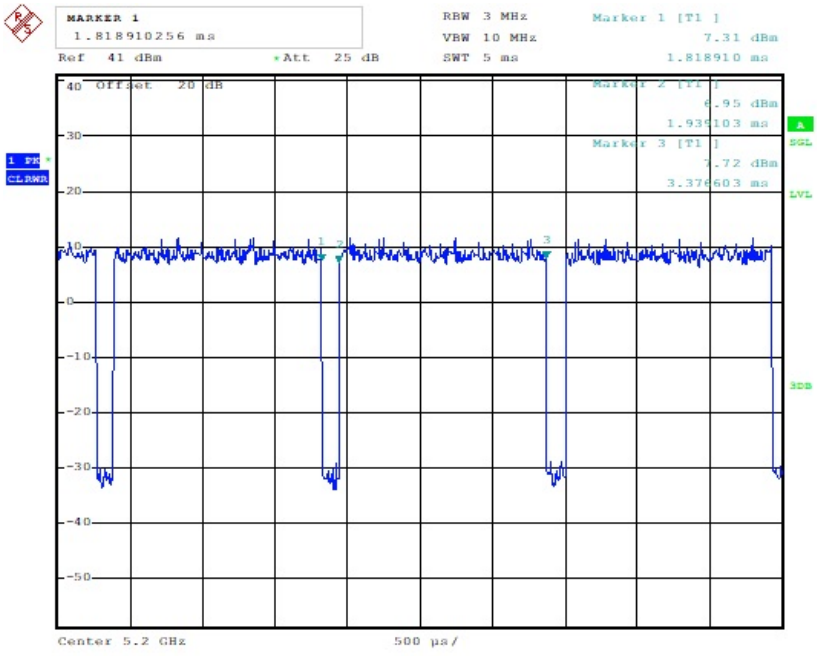
According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 section B:

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	Modulation	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
5 GHz Wi-Fi	802.11a	1.4375	1.557693	92.28%	0.3487
5 GHz Aux	802.11a	0.294871795	0.310897	94.84%	0.2298

Note: Duty Cycle Correction Factor = 10*log(1/duty cycle)
Please refer to the following plots.

5 GHz Wi-Fi 802.11a Mode



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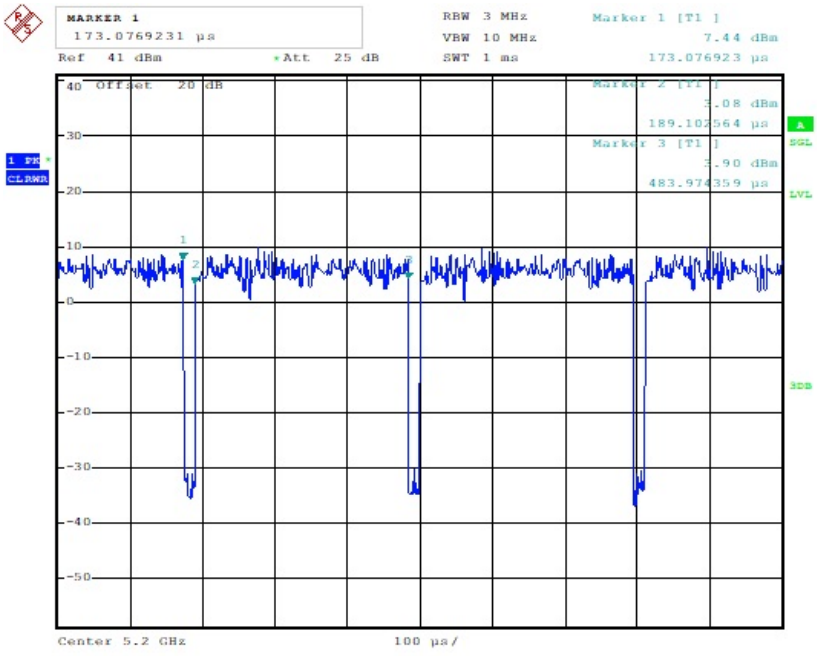
5 GHz Aux 802.11a Mode



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2.4 Equipment Modifications

N/A

2.5 Local Support Equipment

Manufacturer	Description	Model	Serial Number
Dell	Laptop	Latitude E6410	3CKRAQ1

2.6 Support Equipment

Manufacturer	Description	Model
Cisco	Power Supply	AIR-PWRIN-J6 V01

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

3 Summary of Test Results

Results reported relate only to the product tested.

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

4 FCC §15.207 & ISEDC RSS-Gen §8.8 - AC Power Line Conducted Emissions

4.1 Applicable Standards

As per FCC §15.207, ISEDC RSS GEN §8.

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

4.2 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.10-2013 measurement procedure. The specification used was FCC §15.207 limits and and ISEDC RSS GEN §8.8.

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.

4.3 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 was 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”.

4.4 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)

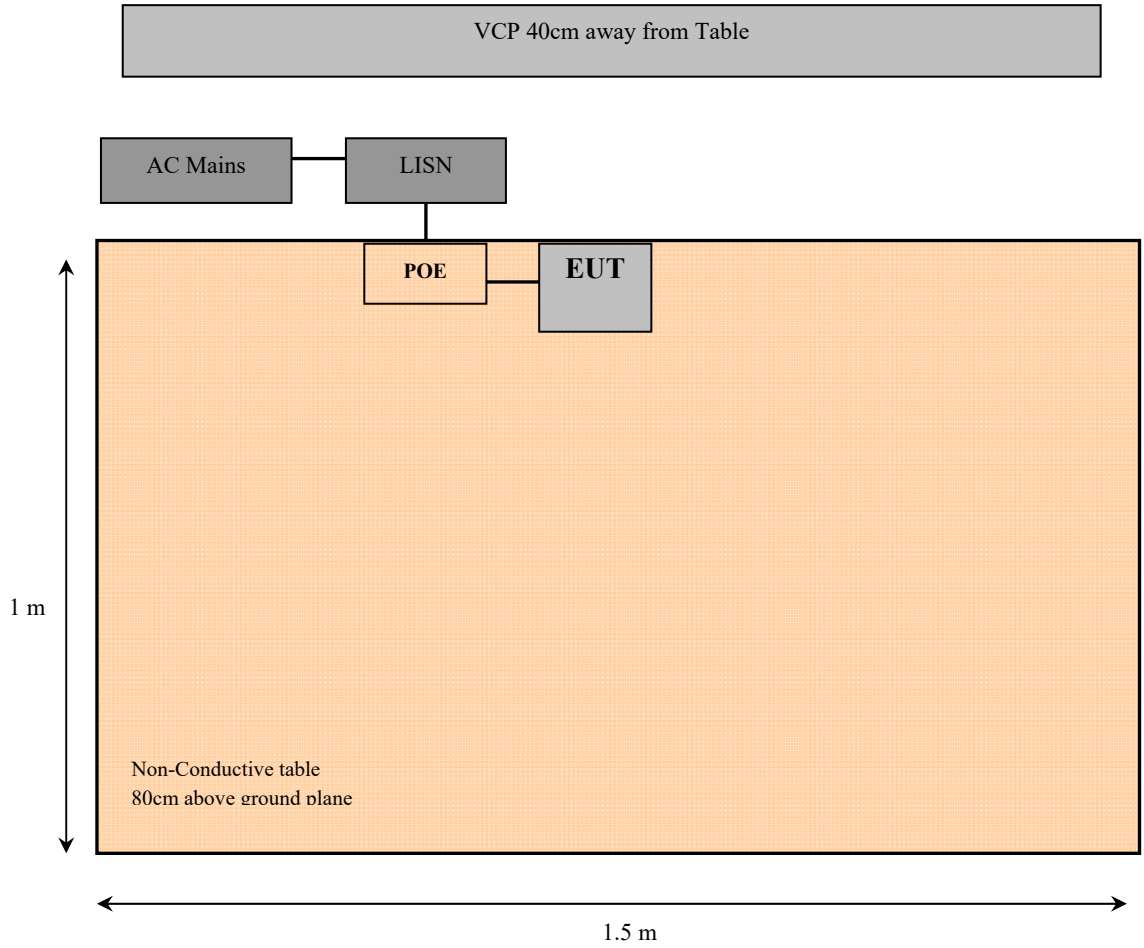
The Correction Factor is calculated by adding the Cable Loss (CL) and the Attenuator Factor (Atten) together. This calculation is done in the measurement software, and reported in the test result section. The basic equation is as follows:

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

4.5 Test Setup Block Diagram



4.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2021-03-09	2 years
Rohde & Schwarz	Impulse Limiter	ESH3-Z2	101964	2020-07-01	1 year
Solar Electronics Company	High Pass Filter	Type 7930-100	7930150203	2021-03-02	1 year
Fairview Microwave	Coaxial Cable	LMR240UF	BACL1907181	2020-08-25	1 year
FCC	LISN	FCC-LISN-50-25-2-10-CISPR16	160129	2020-10-13	1 year
California Instruments	AC Power Source	5001ix-208	57079	N/A	N/A

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".*

4.7 Test Environmental Conditions

Temperature:	23º C
Relative Humidity:	42 %
ATM Pressure:	101.31 kPa

The testing was performed by Deepak Mishra on 2021-06-02

4.8 Summary of Test Results

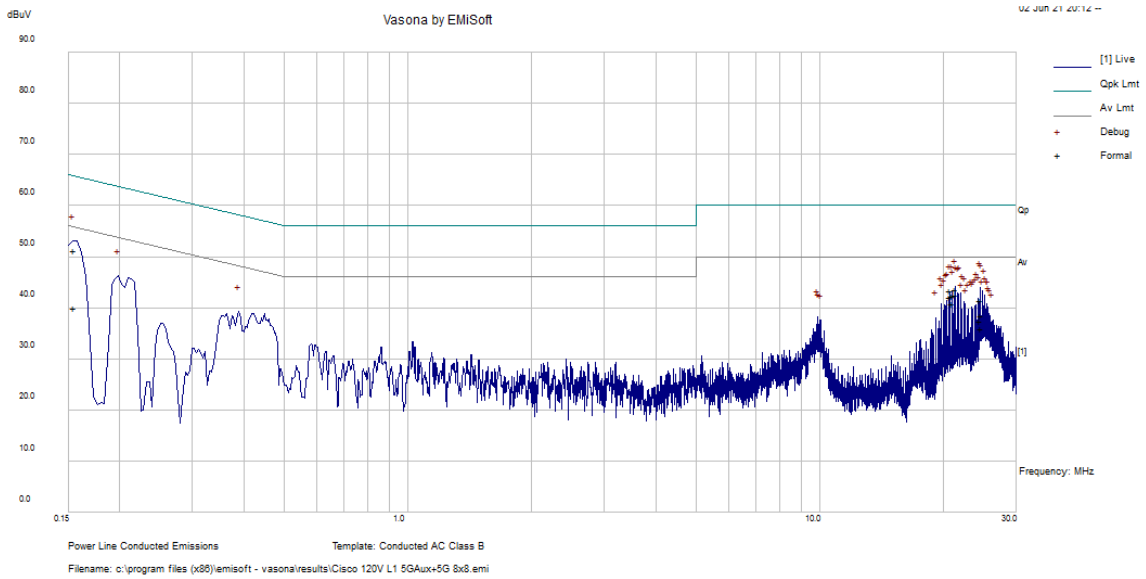
According to the recorded data in following table, the EUT complied with the FCC Part 15 and RSS-Gen standards' conducted emissions limits, with the margin reading of:

Connection: POE connected to 120 V/60 Hz, AC			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Live/Neutral)**	**Range (MHz)**
-6.47	20.74017	Neutral	0.15-30

4.9 Conducted Emissions Test Plots and Data

Worst Case Colocation EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, 8x8 MIMO) + 5 GHz Aux (802.11a mode, 5200 MHz)

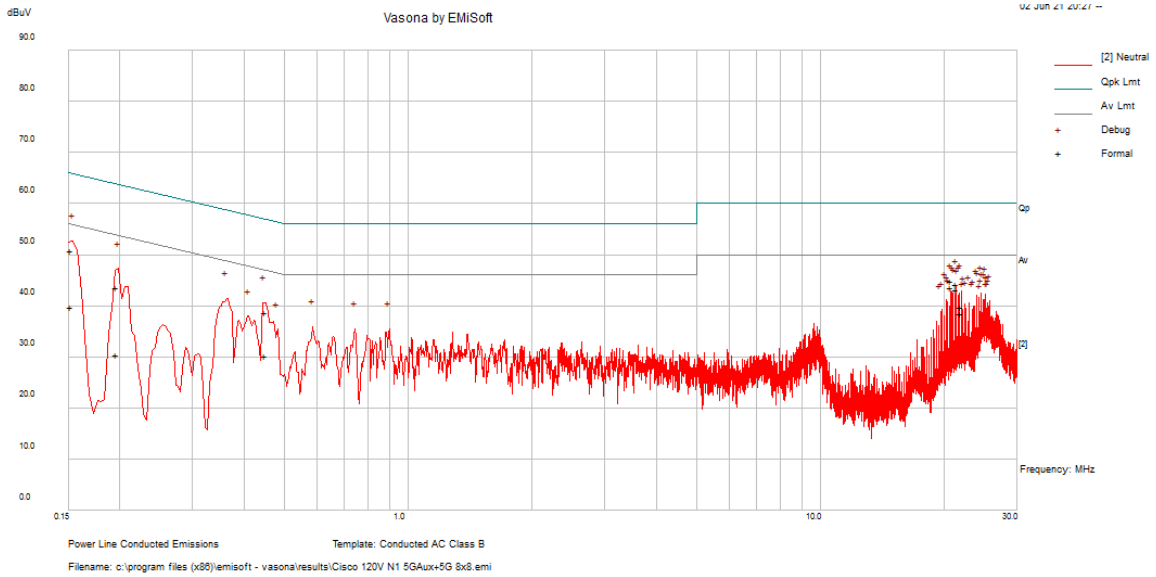
120 V, 60 Hz – Line



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
0.15528	40.46	10.71	51.17	Line	65.71	-14.55	QP
21.33173	33.04	10.66	43.7	Line	60	-16.30	QP
24.54888	30.7	10.71	41.4	Line	60	-18.60	QP
24.75699	27.82	10.72	38.54	Line	60	-21.46	QP
20.93145	31.58	10.64	42.22	Line	60	-17.78	QP
20.73193	32.71	10.63	43.34	Line	60	-16.66	QP

Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
0.15528	29.36	10.71	40.07	Line	55.71	-15.64	Ave.
21.33173	31.81	10.66	42.47	Line	50	-7.53	Ave.
24.54888	26.64	10.71	37.35	Line	50	-12.65	Ave.
24.75699	25.28	10.72	36	Line	50	-14.00	Ave.
20.93145	30.11	10.64	40.75	Line	50	-9.25	Ave.
20.73193	31.47	10.63	42.1	Line	50	-7.90	Ave.

120 V, 60 Hz – Neutral

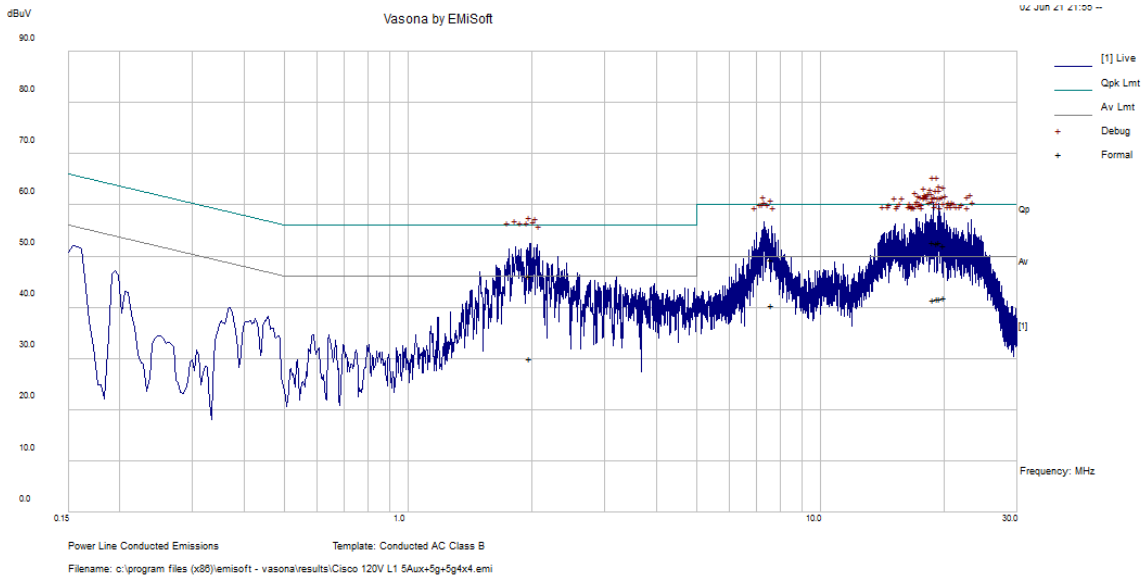


Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
0.151968	40.07	10.71	50.79	Neutral	65.89	-15.10	QP
21.34336	33.53	10.66	44.19	Neutral	60	-15.81	QP
0.451202	28.48	10.33	38.81	Neutral	56.85	-18.04	QP
0.195864	32.93	10.64	43.58	Neutral	63.78	-20.21	QP
20.74017	34.17	10.63	44.8	Neutral	60	-15.20	QP
21.94822	29.23	10.65	39.88	Neutral	60	-20.12	QP

Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
0.151968	29.01	10.71	39.72	Neutral	55.89	-16.17	Ave.
21.34336	32.46	10.66	43.13	Neutral	50	-6.87	Ave.
0.451202	19.85	10.33	30.18	Neutral	46.85	-16.68	Ave.
0.195864	19.78	10.64	30.43	Neutral	53.78	-23.36	Ave.
20.74017	32.9	10.63	43.53	Neutral	50	-6.47	Ave.
21.94822	27.77	10.65	38.42	Neutral	50	-11.58	Ave.

Worst Case Colocation EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, dual 4x4 MIMO) + 5 GHz Aux (802.11a mode, 5200 MHz)

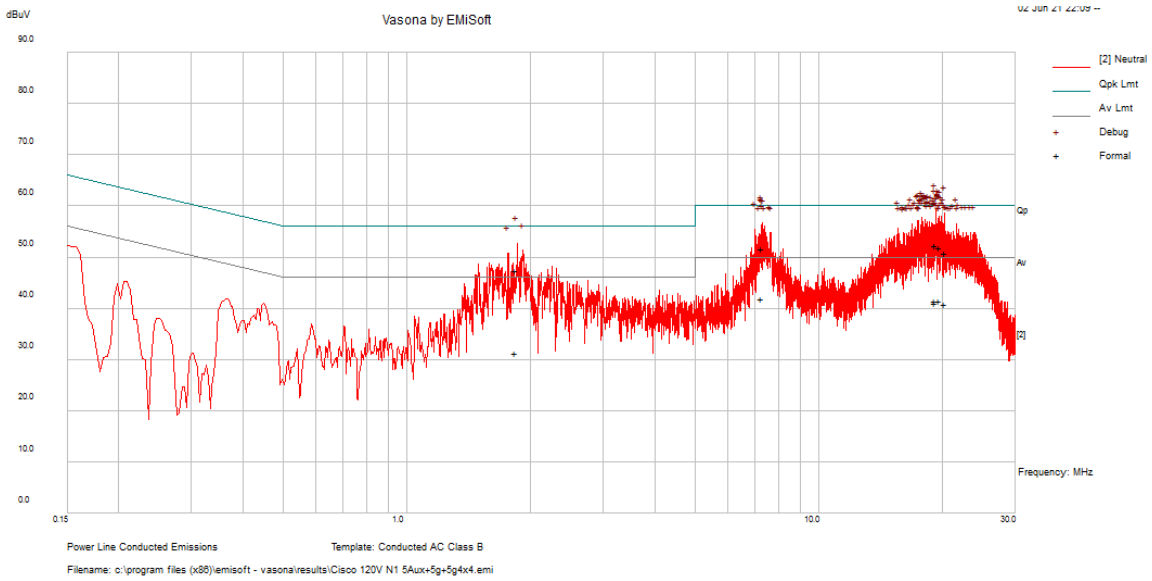
120 V, 60 Hz – Line



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
18.81075	42.14	10.54	52.69	Line	60	-7.31	QP
19.32443	42	10.56	52.57	Line	60	-7.43	QP
19.48551	42.11	10.57	52.68	Line	60	-7.32	QP
19.92854	41.6	10.59	52.18	Line	60	-7.82	QP
1.972112	36.09	10.02	46.11	Line	56	-9.89	QP
7.612334	39.28	10.03	49.32	Line	60	-10.68	QP

Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
18.81075	30.85	10.54	41.4	Line	50	-8.60	Ave.
19.32443	31.09	10.56	41.65	Line	50	-8.35	Ave.
19.48551	31.18	10.57	41.75	Line	50	-8.25	Ave.
19.92854	31.21	10.59	41.79	Line	50	-8.21	Ave.
1.972112	19.96	10.02	29.98	Line	46	-16.02	Ave.
7.612334	30.34	10.03	40.37	Line	50	-9.63	Ave.

120 V, 60 Hz – Neutral



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
19.21179	41.69	10.56	52.25	Neutral	60	-7.75	QP
20.2189	40.23	10.6	50.83	Neutral	60	-9.17	QP
19.5709	41.38	10.57	51.95	Neutral	60	-8.05	QP
19.17236	41.67	10.55	52.23	Neutral	60	-7.77	QP
1.836102	37.45	10.02	47.46	Neutral	56	-8.54	QP
7.281293	41.57	10.03	51.6	Neutral	60	-8.40	QP

Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB)	Corrected Amplitude (dBuV)	Conductor (Line/ Neutral)	Limit (dBuV)	Margin (dB)	Detector (QP/Ave.)
19.21179	30.51	10.56	41.07	Neutral	50	-8.93	Ave.
20.2189	30.21	10.6	40.81	Neutral	50	-9.19	Ave.
19.5709	30.99	10.57	41.56	Neutral	50	-8.44	Ave.
19.17236	30.86	10.55	41.41	Neutral	50	-8.59	Ave.
1.836102	21.16	10.02	31.18	Neutral	46	-14.82	Ave.
7.281293	31.87	10.03	41.9	Neutral	50	-8.10	Ave.

5 FCC §15.209, §15.407(b) & ISEDC RSS-247 §6.2 - Spurious Radiated Emissions

5.1 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) and LP0002§4.7.4

(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 ISEDC RSS-247 §6.2

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250- 5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz. Otherwise, the transmission is considered as intentional and the devices shall implement dynamic frequency selection (DFS) and transmitter power control (TPC) as per the requirements for the band 5250-5350 MHz

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.

For the band 5725-5850 MHz, emissions at frequencies from the band edges to 10 MHz above or below the band edges shall not exceed -17 dBm/MHz e.i.r.p. For emissions at frequencies more than 10 MHz above or below the band edges, the emissions power shall not exceed -27 dBm/MHz.

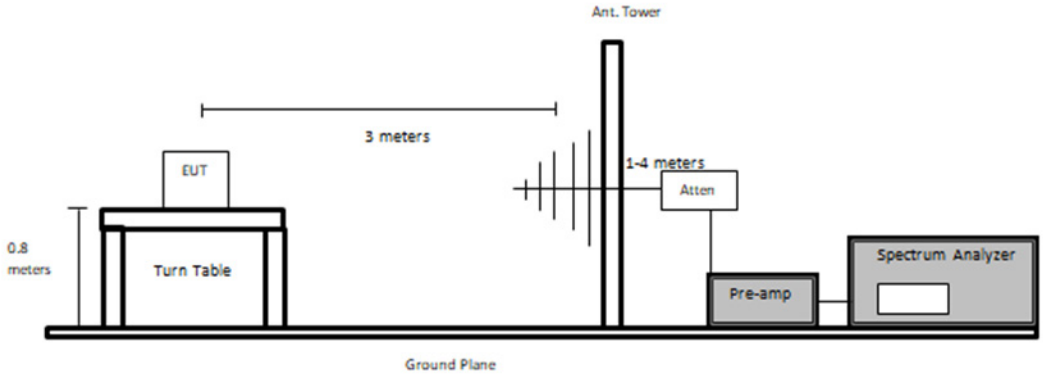
5.2 Test Setup

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 limits.

The spacing between the peripherals was 10 centimeters.

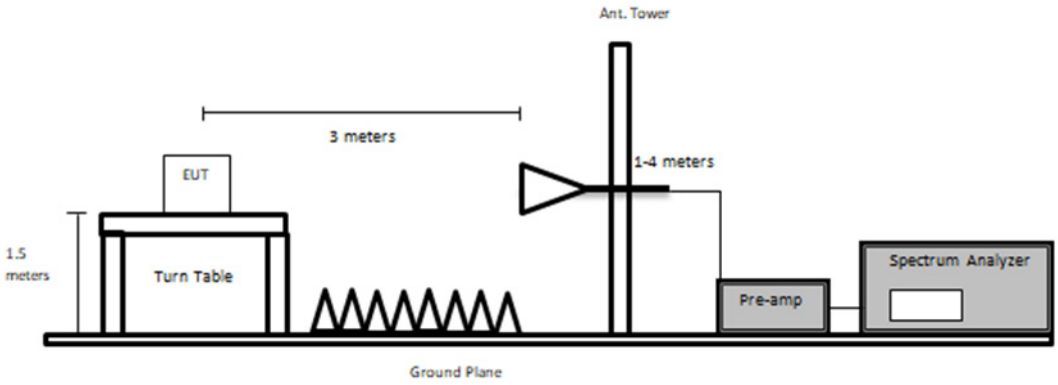
External I/O cables were draped along the edge of the test table and bundle when necessary.

Below 1GHz:

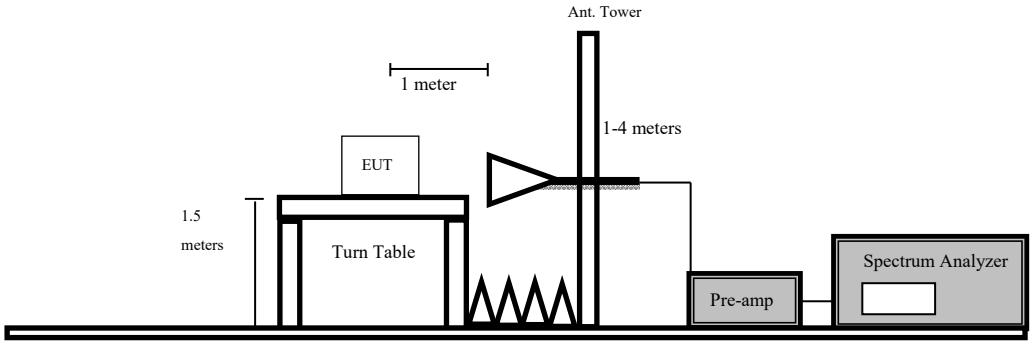


Above 1GHz:

At 3 meters:



At 1 meter:



5.3 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

5.4 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

5.5 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	1.5 years
Rhode & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100044	2021-05-14	2 years
ETS Lindgren	Horn Antenna	3117	00218973	2019-02-13	2.5 years
Insulated Wire Corp.	157 Series 2.92 SM (x2) Armored 33 ft. Cable	KPS-1571AN-3960-KPS	DC 1917	2021-03-03	1 year
Agilent	Analyzer, Spectrum	E4446A	MY48250238	2021-02-12	1 year
Sunol Sciences	System Controller	SC99V	011003-1	N/R	N/A
Sunol Sciences	Biconilog Antenna	JB3	A020106-2	2019-11-20	2 years
Wisewave	Antenna, Horn	ARH-2823-02	10555-02	2020-02-12	2 years
Wisewave	Antenna, Horn	ARH-4223-02	10555-02	2020-02-05	2 years
Agilent	Amplifier, Pre	8447D	2944A07030	2020-08-17	1 year
MDP DIgital	Times Microwave LMR 400 UltraFex Coaxial Cable 35'	LMR400UF	BACL1904161	2020-5-20	1.5 years
-	SMA cable	-	C00011	Each time[1]	N/A
Agilent	Pre-Amplifier	8449B	3147A00400	2021-03-02	1 year
HP	Spectrum Analyzer 46 GHz	E4446A	US44300386	2021-04-27	1 year
BACL	5m3 Sensitivity Box	1	2	2020-10-27	1 year
IW Microwave	157 Series Cable Armored with 2.92mm Male Plugs on Both Sides	KPS-1571AN-2400	DC 1922	2020-06-06	1 year
A.H. Systems	Pre-Amplifier	PAM 1840V	170	2020-11-09	1 year
Vasona	Test software	V6.0 build 11	10400213	N/R	N/R

Note[1]: cable and attenuator 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 the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

5.6 Test Environmental Conditions

Temperature:	22-25 ºC
Relative Humidity:	29-30 %
ATM Pressure:	102.1 kPa

The testing was performed by Deepak Mishra from 2021-05-24 to 2021-06-02 in 5m chamber 3.

5.7 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:

5 GHz Dual 4x4 Wi-Fi + 5 GHz Aux mode:

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel**
-2.58	39483.801	Vertical	5200 MHz, dual 4x4 Wi-Fi + AUX radio

5 GHz 8x8 Wi-Fi + 5 GHz Aux mode:

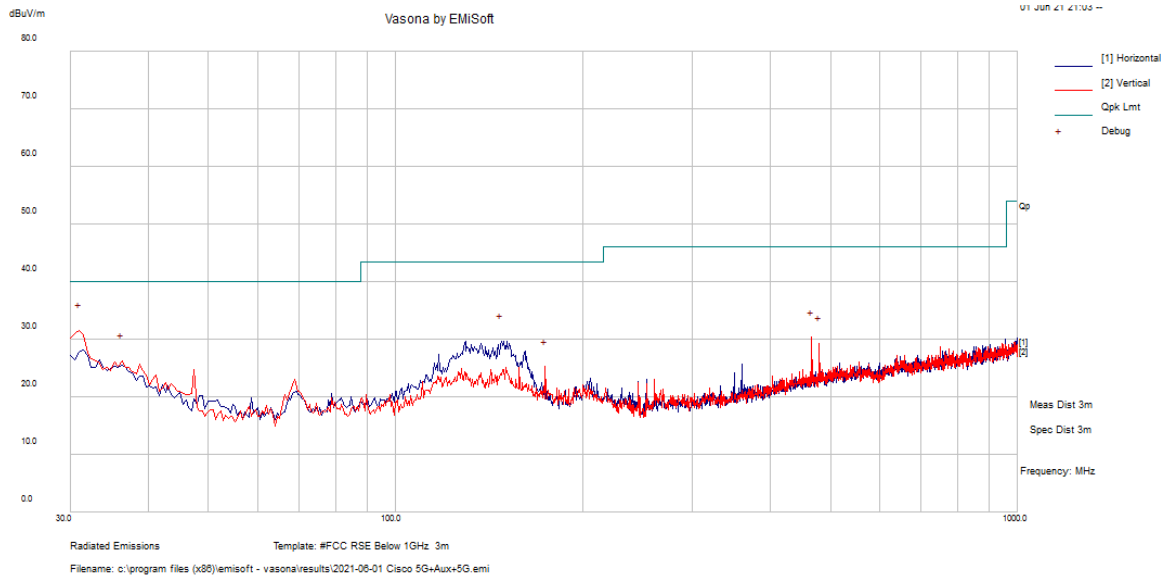
Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel**
-2.5	39993.253	Vertical	5200 MHz, 8x8 Wi-Fi + AUX radio

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

5.8 Radiated Emissions Test Result

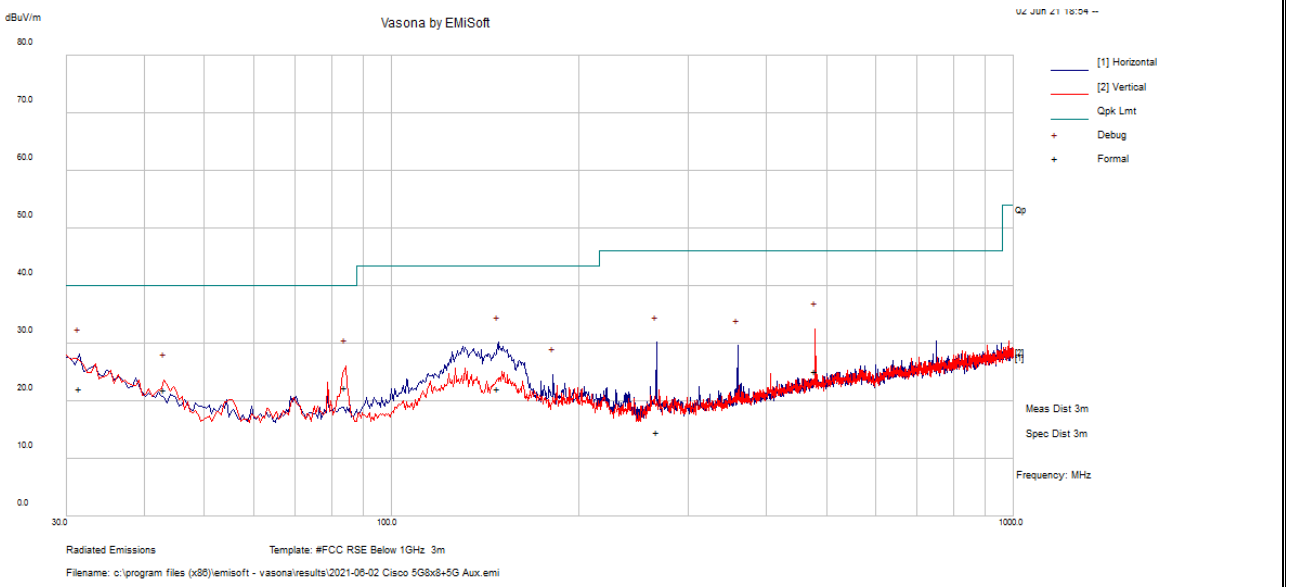
1) 30 MHz – 1 GHz Worst Case, Measured at 3 meters

EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, dual 4x4 MIMO) + 5 GHz Aux (802.11a mode, 5200 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
30.57625	24.02	2.05	26.07	131	V	71	40	-13.93	QP
36.53125	22.00	-2.53	19.46	300	H	301	40	-20.54	QP
148.012	28.83	-5.73	23.1	280	H	151	43.5	-20.40	QP
466.326	19.27	-0.55	18.72	128	V	314	46	-27.28	QP
479.9975	27.48	-0.15	27.32	136	V	268	46	-18.68	QP
173.992	27.91	-6.74	21.16	105	V	352	43.5	-22.34	QP

EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, 8x8 MIMO) + 5 GHz Aux (802.11a mode, 5200 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
31.55525	20.84	1.26	22.1	257	H	152	40	-17.90	QP
148.277	27.86	-5.73	22.14	153	H	84	43.5	-21.36	QP
479.8925	25.3	-0.15	25.14	138	V	212	46	-20.86	QP
84.12275	33.37	-11.14	22.23	164	V	296	40	-17.77	QP
266.92425	19.5	-4.96	14.55	165	H	181	46	-31.45	QP
43.06425	29.29	-7.32	21.97	113	V	134	40	-18.03	QP

2) Above 1 GHz, measured at 1 meters

EUT configuration: 5 GHz Wi-Fi (802.11a mode, dual 4x4 MIMO) + 5 GHz Aux (802.11a mode)

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)	
5200 MHz											
1249	52.47	184	153	V	28.90	4.64	35.12	50.89	84	-33.11	PK
1249	40.61	184	153	V	28.90	4.64	35.12	39.03	64	-24.97	AV
1250	52.61	116	163	H	28.90	4.64	35.12	51.03	84	-32.97	PK
1250	42.10	116	163	H	28.90	4.64	35.12	40.52	64	-23.48	AV
10400	44.07	12	182	V	38.10	13.88	29.70	66.36	84	-17.64	PK
10400	27.04	12	182	V	38.10	13.88	29.70	49.33	64	-14.67	AV
10393	42.79	348	207	H	38.10	13.88	29.70	65.08	84	-18.92	PK
10393	27.91	348	207	H	38.10	13.88	29.70	50.20	64	-13.80	AV
15591	36.10	0	150	V	40.50	13.43	26.45	63.58	84	-20.42	PK
15591	24.16	0	150	V	40.50	13.43	26.45	51.64	64	-12.36	AV
15617	36.20	0	150	H	40.50	13.43	26.45	63.68	84	-20.32	PK
15617	24.18	0	150	H	40.50	13.43	26.45	51.66	64	-12.34	AV
5300 MHz											
10633	37.53	0	163	V	38.20	14.47	30.24	59.96	84	-24.04	PK
10633	23.42	0	163	V	38.20	14.47	30.24	45.85	64	-18.15	AV
10633	40.03	0	163	H	38.20	14.47	30.24	62.46	84	-21.54	PK
10633	28.40	0	163	H	38.20	14.47	30.24	50.83	64	-13.17	AV
15894	34.85	0	150	V	41.00	12.85	25.51	63.19	84	-20.81	PK
15894	21.04	0	150	V	41.00	12.85	25.51	49.38	64	-14.62	AV
15873	34.40	0	150	H	41.00	12.85	25.51	62.74	84	-21.26	PK
15873	21.92	0	150	H	41.00	12.85	25.51	50.26	64	-13.74	AV
5580 MHz											
1250	50.21	176	142	V	28.90	4.64	35.12	48.63	84	-35.37	PK
1250	38.52	176	142	V	28.90	4.64	35.12	36.94	64	-27.06	AV
1250	51.83	112	155	H	28.90	4.64	35.12	50.25	84	-33.75	PK
1250	42.10	112	155	H	28.90	4.64	35.12	40.52	64	-23.48	AV
11160	32.68	0	150	V	38.50	15.85	28.09	58.94	84	-25.06	PK
11160	20.39	0	150	V	38.50	15.85	28.09	46.65	64	-17.35	AV
11119	33.14	0	150	H	38.50	15.85	28.09	59.40	84	-24.60	PK
11119	20.67	0	150	H	38.50	15.85	28.09	46.93	64	-17.07	AV
16730	33.12	0	150	V	42.30	13.72	26.07	63.07	84	-20.93	PK
16730	20.80	0	150	V	42.30	13.72	26.07	50.75	64	-13.25	AV
16748	33.56	0	150	H	42.30	13.72	26.07	63.51	84	-20.49	PK
16748	21.73	0	150	H	42.30	13.72	26.07	51.68	64	-12.32	AV

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)	
5785 MHz											
1250	49.21	225	98	v	28.90	4.64	35.12	47.63	84	-36.37	PK
1250	39.75	225	98	V	28.90	4.64	35.12	38.17	64	-25.83	AV
1250	51.97	117	159	H	28.90	4.64	35.12	50.39	84	-33.61	PK
1250	41.21	117	159	H	28.90	4.64	35.12	39.63	64	-24.37	AV
11522	33.53	0	150	V	38.70	15.79	28.20	59.82	84	-24.18	PK
11522	21.73	0	150	V	38.70	15.79	28.20	48.02	64	-15.98	AV
11550	33.26	0	150	H	38.70	15.79	28.20	59.55	84	-24.45	PK
11550	21.08	0	150	H	38.70	15.79	28.20	47.37	64	-16.63	AV
17319	37.80	0	150	V	41.80	15.03	26.02	68.61	84	-15.39	PK
17319	25.15	0	150	V	41.80	15.03	26.02	55.96	64	-8.04	AV
17306	36.98	0	150	H	41.80	15.03	26.02	67.79	84	-16.21	PK
17306	25.49	0	150	H	41.80	15.03	26.02	56.30	64	-7.70	AV

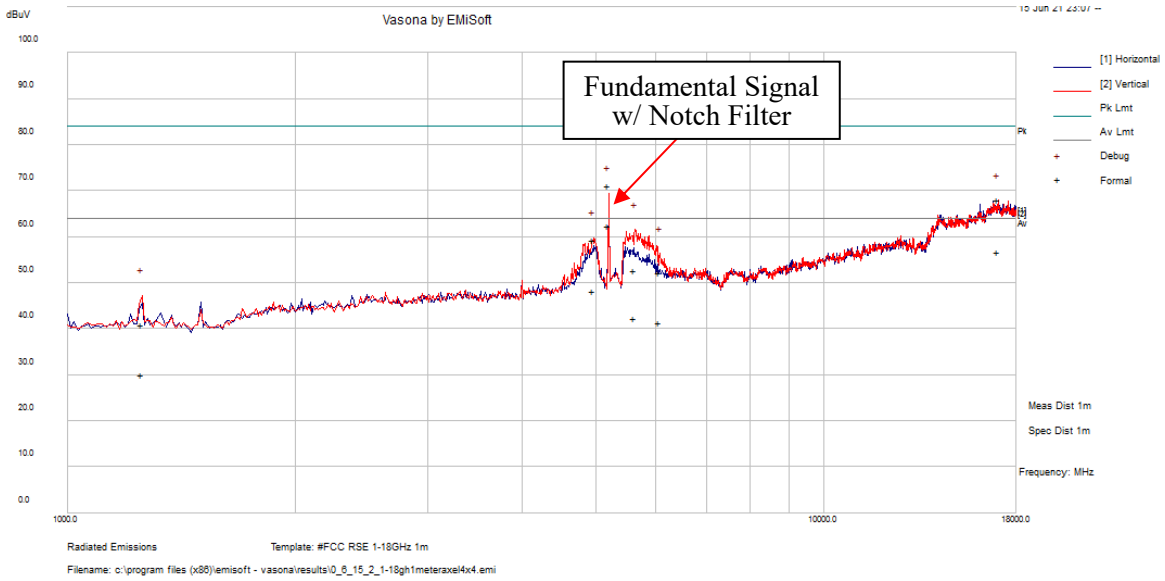
EUT configuration: 5 GHz Wi-Fi (802.11a mode, 8x8 MIMO) + 5 GHz Aux (802.11a mode)

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)	
5200 MHz											
6922	38.39	0	150	V	36.00	11.67	30.84	55.23	84	-28.77	PK
6922	26.10	0	150	V	36.00	11.67	30.84	42.94	64	-21.06	AV
6922	36.82	0	150	H	36.00	11.67	30.84	53.66	84	-30.34	PK
6922	25.84	0	150	H	36.00	11.67	30.84	42.68	64	-21.32	AV
10398	35.44	0	150	V	38.10	13.88	29.70	57.73	84	-26.27	PK
10398	23.46	0	150	V	38.10	13.88	29.70	45.75	64	-18.25	AV
10398	36.85	0	150	H	38.10	13.88	29.70	59.14	84	-24.86	PK
10398	23.45	0	150	H	38.10	13.88	29.70	45.74	64	-18.26	AV
15585	36.05	0	150	V	40.50	15.75	26.45	65.85	84	-18.15	PK
15585	24.47	0	150	V	40.50	15.75	26.45	54.27	64	-9.73	AV
15624	35.73	0	150	H	40.50	15.75	26.45	65.53	84	-18.47	PK
15624	24.31	0	150	H	40.50	15.75	26.45	54.11	64	-9.89	AV
5300 MHz											
1249	50.87	193	156	V	28.90	4.64	35.12	49.29	84	-34.71	PK
1249	41.10	193	156	V	28.90	4.64	35.12	39.52	64	-24.48	AV
1250	51.52	242	165	H	28.90	4.64	35.12	49.94	84	-34.06	PK
1250	40.16	242	165	H	28.90	4.64	35.12	38.58	64	-25.42	AV
10578	42.67	218	150	V	38.20	14.47	30.24	65.10	84	-18.90	PK
10578	30.57	218	150	V	38.20	14.47	30.24	53.00	64	-11.00	AV
10574	42.25	259	297	H	38.20	14.47	30.24	64.68	84	-19.32	PK
10574	23.20	259	297	H	38.20	14.47	30.24	45.63	64	-18.37	AV
15913	34.33	316	150	V	41.00	12.85	25.51	62.67	84	-21.33	PK
15913	22.40	316	150	V	41.00	12.85	25.51	50.74	64	-13.26	AV
15855	35.07	0	150	H	41.00	12.85	25.51	63.41	84	-20.59	PK
15855	22.24	0	150	H	41.00	12.85	25.51	50.58	64	-13.42	AV
5580 MHz											
1249	52.57	170	130	V	28.90	4.64	35.12	50.99	84	-33.01	PK
1249	41.25	170	130	V	28.90	4.64	35.12	39.67	64	-24.33	AV
1249	52.35	114	162	H	28.90	4.64	35.12	50.77	84	-33.23	PK
1249	40.20	114	162	H	28.90	4.64	35.12	38.62	64	-25.38	AV
11112	35.58	0	150	V	38.50	16.09	28.09	62.08	84	-21.92	PK
11112	22.76	0	150	V	38.50	16.09	28.09	49.26	64	-14.74	AV
11129	36.31	0	150	H	38.50	16.09	28.09	62.81	84	-21.19	PK
11129	22.58	0	150	H	38.50	16.09	28.09	49.08	64	-14.92	AV
16693	34.76	168	150	V	42.30	13.72	26.07	64.71	84	-19.29	PK
16693	22.91	168	150	V	42.30	13.72	26.07	52.86	64	-11.14	AV
16715	35.20	0	150	H	42.30	13.72	26.07	65.15	84	-18.85	PK
16715	22.23	0	150	H	42.30	13.72	26.07	52.18	64	-11.82	AV

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)	
5785 MHz											
1249	52.36	172	260	V	28.90	4.64	35.12	50.78	84	-33.22	PK
1249	41.69	172	260	V	28.90	4.64	35.12	40.11	64	-23.89	AV
1250	52.60	174	179	H	28.90	4.64	35.12	51.02	84	-32.98	PK
1250	40.72	174	179	H	28.90	4.64	35.12	39.14	64	-24.86	AV
11571	34.09	0	150	V	38.90	15.79	28.20	60.58	84	-23.42	PK
11571	20.72	0	150	V	38.90	15.79	28.20	47.21	64	-16.79	AV
11595	33.15	0	150	H	38.90	15.79	28.20	59.64	84	-24.36	PK
11595	20.14	0	150	H	38.90	15.79	28.20	46.63	64	-17.37	AV
17314	36.61	0	150	V	41.80	15.03	26.02	67.42	84	-16.58	PK
17314	24.58	0	150	V	41.80	15.03	26.02	55.39	64	-8.61	AV
17390	36.86	0	150	H	41.80	15.03	26.02	67.67	84	-16.33	PK
17390	23.72	0	150	H	41.80	15.03	26.02	54.53	64	-9.47	AV

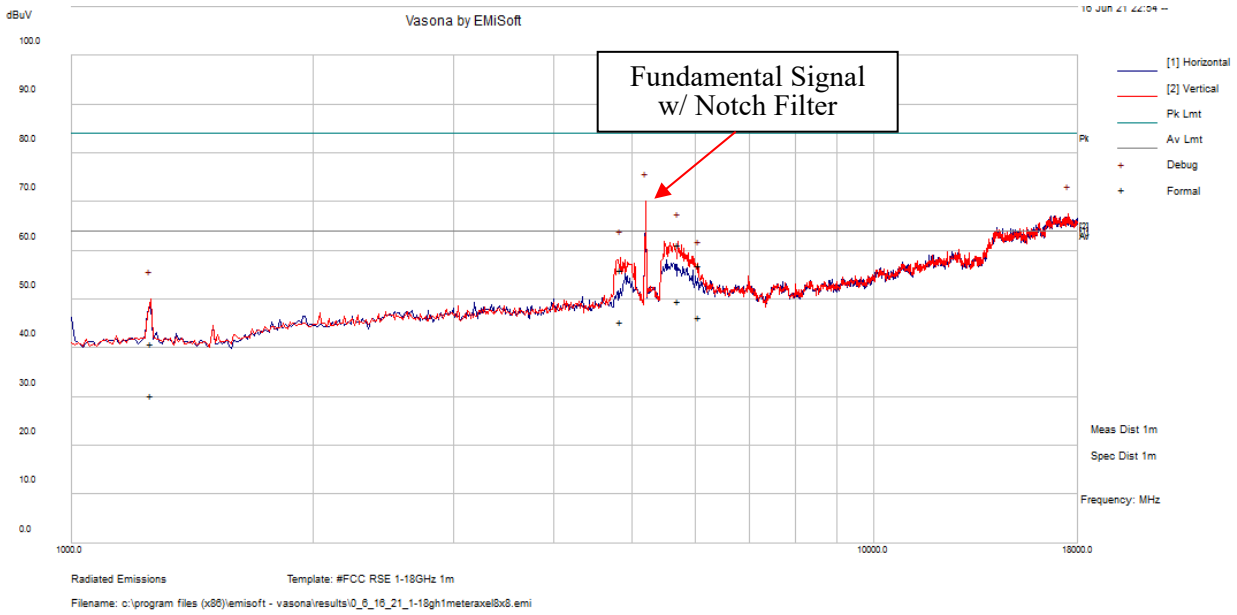
3) 1 - 18 GHz Scan, measured at 1 meter

EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, dual 4x4 MIMO) + 5 GHz Aux (802.11a mode, 5200 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
5195.9775	63.76	7.37	71.13	191	V	352	84	-12.87	Peak
17022.28	44.08	24.07	68.15	182	H	340	84	-15.85	Peak
5630.9475	44.55	8.11	52.65	208	V	44	84	-31.35	Peak
4962.44	52.61	6.74	59.35	198	V	7	84	-24.65	Peak
6075.3975	43.52	8.72	52.25	228	H	58	84	-31.75	Peak
1254.8925	46.21	-5.35	40.86	198	V	172	84	-43.14	Peak
5195.978	55.05	7.37	62.42	191	V	352	64	-1.58	Average
17022.28	32.62	24.07	56.69	182	H	340	64	-7.31	Average
5630.948	34.22	8.11	42.32	208	V	44	64	-21.68	Average
4962.44	41.5	6.74	48.24	198	V	7	64	-15.76	Average
6075.398	32.55	8.72	41.28	228	H	58	64	-22.72	Average
1254.893	35.47	-5.35	30.12	198	V	172	64	-33.88	Average

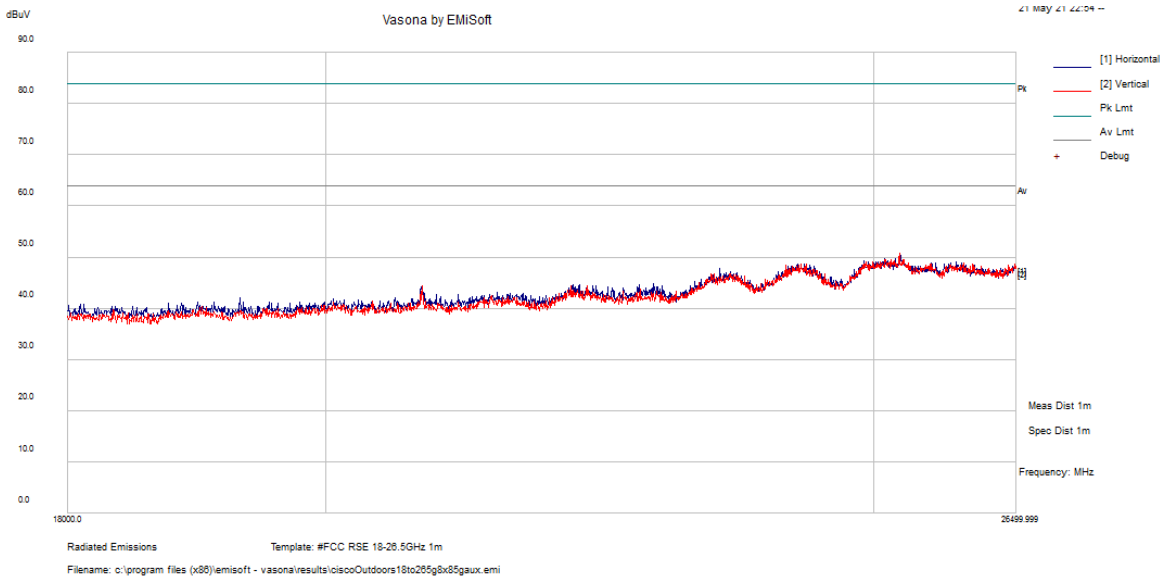
EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, 8x8 MIMO) + 5 GHz Aux (802.11a mode, 5200 MHz)



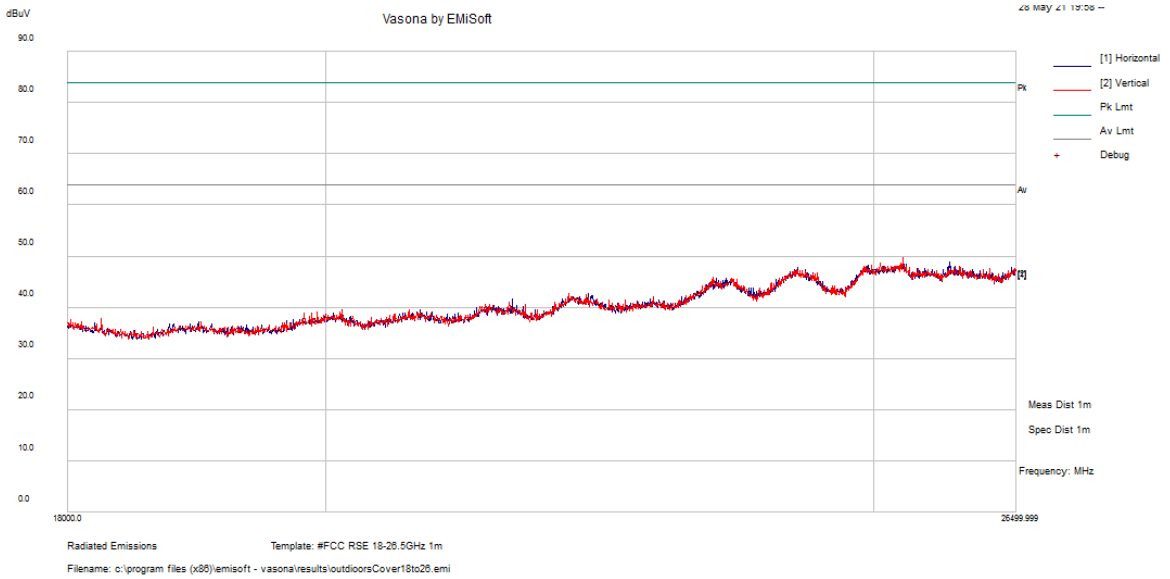
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comment
5717.2175	53.09	8.17	61.26	175	V	29	84	-22.74	Peak
4846.7825	49.67	6.29	55.96	195	V	23	84	-28.04	Peak
6056.4125	48.37	8.67	57.04	179	V	27	84	-26.96	Peak
1256.7575	46.2	-5.34	40.86	241	V	93	84	-43.14	Peak
5717.2175	41.52	8.17	49.69	175	V	29	64	-14.31	Average
4846.7825	39.02	6.29	45.3	195	V	23	64	-18.7	Average
6056.4125	37.61	8.67	46.28	179	V	27	64	-17.72	Average
1256.7575	35.62	-5.34	30.28	241	V	93	64	-33.72	Average

4) 18 - 26.5 GHz Scan, measured at 1 meter

EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, dual 4x4 MIMO) + 5 GHz Aux (802.11a mode, 5200 MHz)

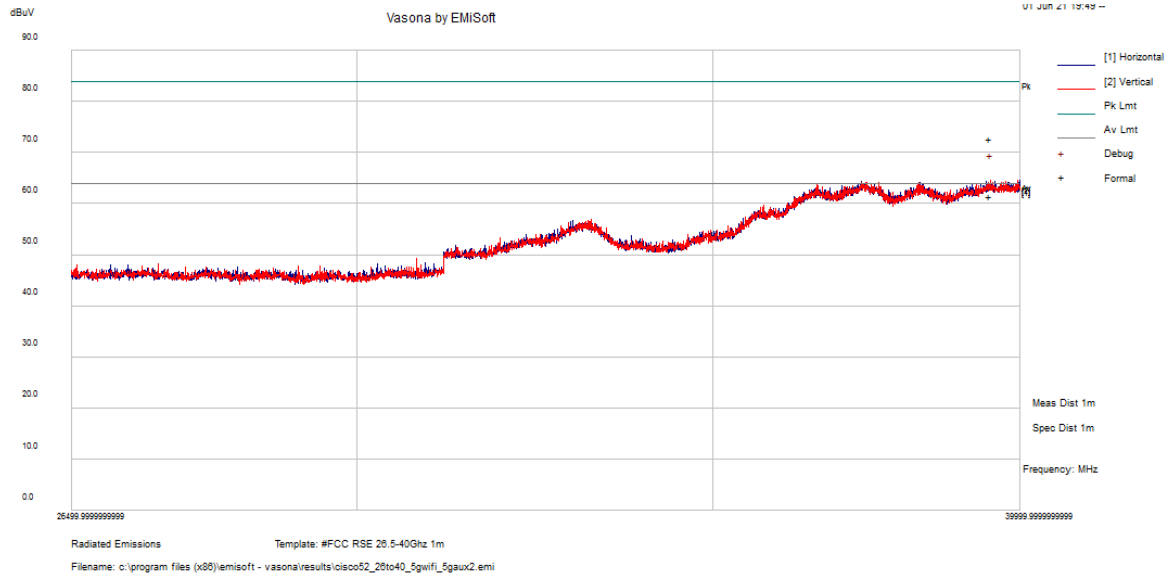


EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, 8x8 MIMO) + 5 GHz Aux (802.11a mode, 5200 MHz)



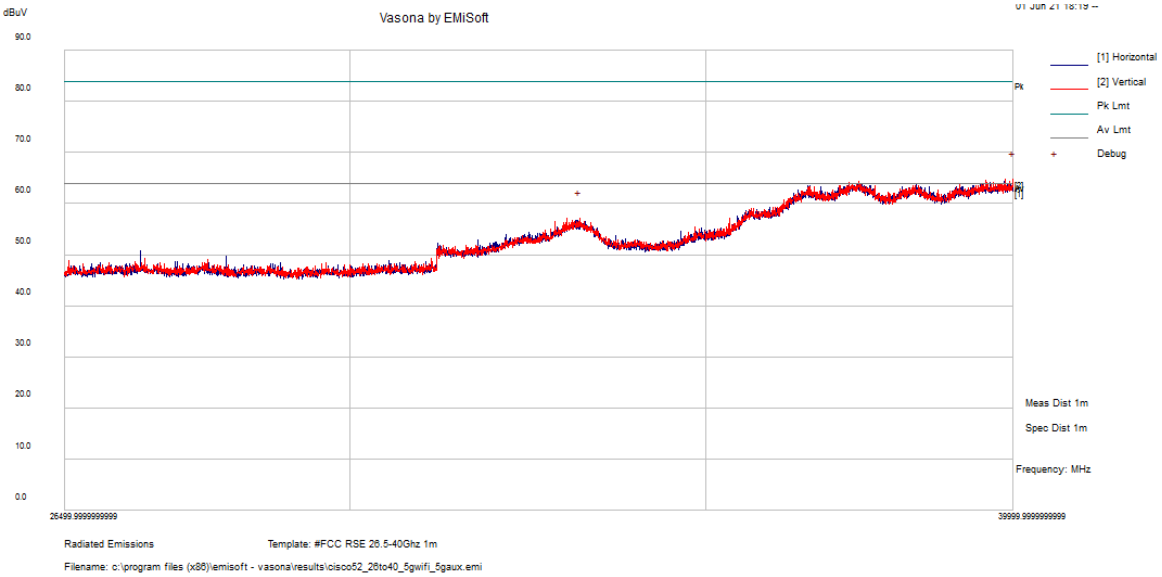
5) 26.5 - 40 GHz Scan, measured at 1 meter

EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, dual 4x4 MIMO) + 5 GHz Aux (802.11a mode, 5200 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
39483.801	52.81	20.01	72.82	105	H	317	84	-11.18	Peak
39483.801	41.41	20.01	61.42	114	V	227	64	-2.58	Average

EUT configuration: 5 GHz Wi-Fi (802.11a mode, 5200 MHz, 8x8 MIMO) + 5 GHz Aux (802.11a mode, 5200 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
39993.253	51.43	20.71	72.14	105	V	102	84	-11.86	Peak
33135.242	50.72	13.81	64.53	127	V	35	84	-19.47	Peak
39993.253	40.79	20.71	61.5	105	V	102	64	-2.5	Average
33135.242	39.96	13.81	53.77	127	V	35	64	-10.23	Average

6 Annex A- EUT Test Setup Photographs

Please refer to the attachment

7 Annex B- EUT External Photographs

Please refer to the attachment

8 Annex C- EUT Internal Photographs

Please refer to the attachment

9 Annex D (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

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