Radio Test Report

C9120AXP-x & C9120AXP-EWC-x, v06

(x = A, B, N, T)

FCC ID: LDKROFSN2177
IC: 2461N-ROFSN2177

Wi-Fi/AUX 2412-2462 MHz
BLE 2402MHz – 2480MHz

Against the following Specifications:

FCC Part 15.247; LP0002 (2018);
RSS-247 Issue 2, Feb 2017;
RSS-Gen Issue 5, Feb 2019

ACCREDITED

Cisco Systems
170 West Tasman Drive
San Jose, CA 95134

Author: Johanna Knudsen **Tested By:** Allan Beecroft	**Approved By:** Sam Kim **Title:** Radio Compliance Manager
Revision: 1.2	**Issue Date:** 19-JAN-2021

This report replaces any previously entered test report under EDCS – 19928416. This test report has been electronically authorized and archived using the CISCO Engineering Document Control system. Test Report Template EDCS# 703456.

Section 1: Overview

1.1 Test Summary

The samples were assessed against the tests detailed in section 3 under the requirements of the following specifications:

Specifications
FCC Part 15.247; LP0002 (2018); **RSS-247 Issue 2, Feb 2017;** **RSS-Gen Issue 5, Feb 2019**

Section 2: Assessment Information

2.1 General

This report contains an assessment of an apparatus against Radio Standards based upon tests carried out on the samples submitted. The testing was performed by and for the use of Cisco systems Inc:

With regard to this assessment, the following points should be noted:

a) The results contained in this report relate only to the items tested and were obtained in the period between the date of the initial assessment and the date of issue of the report. Manufactured products will not necessarily give identical results due to production and measurement tolerances.

b) The apparatus was set up and exercised using the configuration and modes of operation defined in this report only.

c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report and the Test Assessment Plan (TAP).

d) All testing was performed under the following environmental conditions:

Temperature	15°C to 35°C (54°F to 95°F)
Atmospheric Pressure	860mbar to 1060mbar (25.4" to 31.3")
Humidity	10% to 75*%

1.All AC testing was performed at one or more of the following supply voltages:

110V 60 Hz (+/-20%)

2.2 Units of Measurement

The units of measurements defined in the appendices are reported in specific terms, which are test dependent. Where radiated measurements are concerned these are defined at a particular distance. Basic voltage measurements are defined in units of [dBuV]

As an example, the basic calculation for all measurements is as follows:

Emission level [dBuV] = Indicated voltage level [dBuV] + Cable Loss [dB] + Other correction factors [dB]

The combinations of correction factors are dependent upon the exact test configurations [see test equipment lists for further details] and may include:-

Antenna Factors, Pre Amplifier Gain, LISN Loss, Pulse Limiter Loss and Filter Insertion Loss..

Note: to convert the results from dBuV/m to uV/m use the following formula:-

Level in uV/m = Common Antilogarithm [(X dBuV/m)/20] = Y uV/m

Measurement Uncertainty Values

voltage and power measurements	± 2 dB
conducted EIRP measurements	± 1.4 dB
radiated measurements	± 3.2 dB
frequency measurements	± 2.4 10-7
temperature measurements	± 0.54º.
humidity measurements	± 2.3%
DC and low frequency measurements	± 2.5%.

Where relevant measurement uncertainty levels have been estimated for tests performed on the apparatus. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Radiated emissions (expanded uncertainty, confidence interval 95%)

30 MHz - 300 MHz	+/- 3.8 dB
300 MHz - 1000 MHz	+/- 4.3 dB
1 GHz - 10 GHz	+/- 4.0 dB
10 GHz - 18GHz	+/- 8.2 dB
18GHz - 26.5GHz	+/- 4.1 dB
26.5GHz - 40GHz	+/- 3.9 dB

Conducted emissions (expanded uncertainty, confidence interval 95%)

30 MHz – 40GHz	+/- 0.38 dB

A product is considered to comply with a requirement if the nominal measured value is below the limit line. The product is considered to not be in compliance in case the nominal measured value is above the limit line.

2.3 Date of testing (initial sample receipt date to last date of testing)

02-JUL-2020 to 09-JUL-2020

2.4 Report Issue Date

See cover page.

2.5 Testing facilities

This assessment was performed by:

Testing Laboratory

Cisco Systems, Inc.
125 West Tasman Drive (Building P)
San Jose, CA 95134
USA

Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134
USA

Registration Numbers for ISED (Innovation, Science and Economic Development Canada)

Cisco System Site	Address	Site Identifier
Building P, 10m Chamber	125 West Tasman Dr San Jose, CA 95134 United States	Company #: 2461N-2
Building P, 5m Chamber	125 West Tasman Dr San Jose, CA 95134 United States	Company #: 2461N-1
Building I, 5m Chamber	285 W. Tasman Drive San Jose, California 95134 United States	Company #: 2461M-1
Building 7, 5m Chamber	425 E. Tasman Drive San Jose, California 95134 United States	Company #: 2461N-3

Test Engineers

Allan Beecroft

2.6 Equipment Assessed (EUT)

Model: C9120AXP-A, V06

2.7 EUT Description

The radio supports the following modes of operation. The modes are further defined in the radio Theory of Operation. The modes included in this report represent the worst case data for all modes. Data is recorded at the lowest supported data rate for each mode. This report covers operation on channel 1-11.

802.11g - Non HT20, One Antenna, 6 to 54 Mbps

The following antennas are supported by this product series.
The data included in this report represent the worst case data for all antennas.

Frequency	Part Number	Antenna Type	Antenna Gain (dBi)
-P SKU			
2.4GHz&5GHz	AIR-ANT2524DB-R/=	2.4 GHz 2 dBi/5 GHz 4 dBi Dipole Ant., Black, connectors RP-TNC	2dBi@2.4GHz 4dBi@5GHz
2.4GHz&5GHz	AIR-ANT2524DG-R/=	2.4 GHz 2 dBi/5 GHz 4 dBi Dipole Ant., Gray, connectors RP-TNC	2dBi@2.4GHz 4dBi@5GHz
2.4GHz&5GHz	AIR-ANT2524DW-R/=	2.4 GHz 2 dBi/5 GHz 4 dBi Dipole Ant., White, connectors RP-TNC	2dBi@2.4GHz 4dBi@5GHz
2.4GHz&5GHz	AIR-ANT2535SDW-R	2.4 GHz 3dBi/5 GHz 5 dBi Low Profile Antenna, White, connectors RP-TNC	3dBi@2.4GHz 5dBi@5GHz
2.4GHz&5GHz	AIR-ANT2566P4W-R=	2.4 GHz 6 dBi/5 GHz 6 dBi Directionnel Ant., 4-port, connectors RP-TNC	6dBi@2.4GHz 6dBi@5GHz
2.4GHz&5GHz	AIR-ANT2524V4C-R=	2.4GHz 2 dBi/5GHz 4 dBi Ceiling Mount Omni Ant., 4-port, connectors RP-TNC	2dBi@2.4GHz 4dBi@5GHz
2.4GHz&5GHz	AIR-ANT2544V4M-R=	2.4GHz 4 dBi/5GHz 4 dBi Wall Mount Omni Ant., 4-port, connectors RP-TNC	4dBi@2.4GHz 4dBi@5GHz
2.4GHz&5GHz	AIR-ANT2566D4M-R=	2.4 GHz 6 dBi/5 GHz 6 dBi 60 Deg. Patch Ant., 4-port, RP-TNC	6dBi@2.4GHz 6dBi@5GHz
2.4GHz&5GHz	AIR-ANT2513P4M-N=	2.4 GHz 13 dBi/5 GHz 13 dBi Patch Ant., 4-port, N Type	13dBi@2.4GHz 13dBi@5GHz

Section 3: Result Summary

3.1 Results Summary Table

Radiated Emissions (General requirements)

Basic Standard	Technical Requirements / Details	Result
FCC 15.209 FCC 15.205 FCC 15.247 RSS-Gen Sec 8.9 & 8.10 RSS-247 Sec 5.5 LP0002 (2018) Sec 3.10, 2.7 & 2.8	**TX Spurious Emissions:** Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the filed strength limits table in this section. Unwanted emissions falling within the restricted bands, as defined in FCC 15.205 (a) and RSS-Gen 8.10 must also comply with the radiated emission limits specified in FCC 15.209 (a) and RSS-Gen 8.9	Pass

Section 4: Sample Details

Note: Each sample was evaluated to ensure that its condition was suitable to be used as a test sample prior to the commencement of testing.

4.1 Sample Details

Sample Number	Equipment Details	Serial Number	CISCO Part Number
S01	C9120AXP-x	FOC24172PXD	074-124657-01
S02	AIR-PWRINJ6 V01	C16036663000000279	341-100456-01

4.2 System Details

System #	Description	Samples
1	UUT + PoE supply	S01 +S02

4.3 Mode of Operation Details

Mode#	Description	Comments
1	Continuous Transmit	All radios transmitting simultaneously.
2	Continuous Receive	All radios simultaneously in receive mode.

4.4 Software Image

Cisco AP Software, (ap1g7), [rtp-ads-139:/nobackup/eyankevi/Vanc-E_VE_c172_thr_May09/router]
Technical Support: http://www.cisco.com/techsupport
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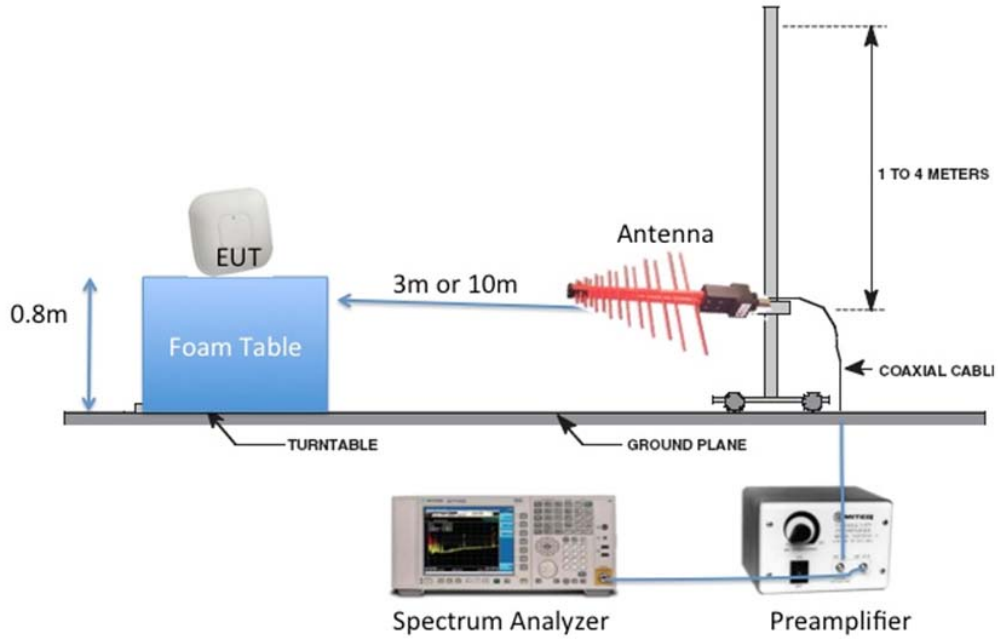
Compiled Tue May 19 23:48:59 EDT 2020

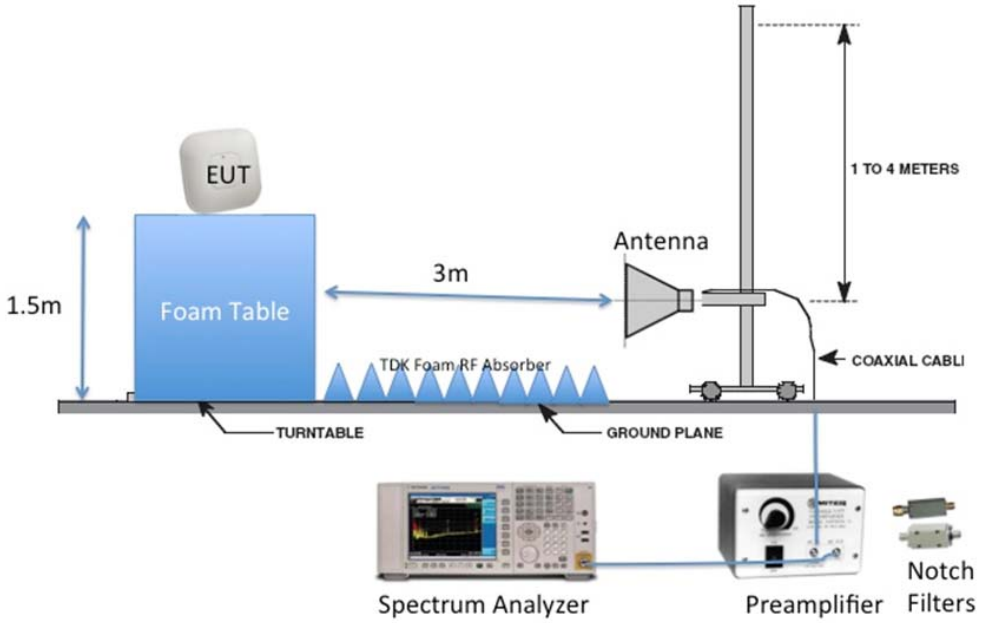
Appendix A: Emission Test Results (2.4GHz Wi-Fi & AUX)

Testing Laboratory: Cisco Systems, Inc., 125 West Tasman Drive, San Jose, CA 95134, USA

Radiated Emission Setup Diagram-Below 1G



Radiated Emission Setup Diagram-Above 1G



A.1 Radiated Spurious Emissions 1GHz – 26.5GHz

15.205 / RSS-Gen: Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) and RSS-Gen 8.10, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen 8.9.

Ref. ANSI C63.10: 2013 section 4.1.4.2.2, 4.1.4.2.3, 6.6.4 & 11.12.2

Radiated Spurious Emissions Test parameters	
Peak Span = 1-18GHz /18GHz-26.5GHz RBW = 1 MHz VBW ≥ 3 MHz Sweep = Auto couple Detector = Peak Trace = Max Hold.	**Average** Span = 1-18GHz /18GHz-26.5GHz RBW = 1 MHz VBW ≥ 3 MHz Sweep = Auto couple Detector = Average

Using Vasona, configure the spectrum analyzer as shown above (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode. Terminate the access Point RF ports with 50 ohm loads.

Define worst case orientation x, y, z
Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

This report represents data for all supported operating modes and antennas.

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☑	☐
	Support	S02	☐	☑

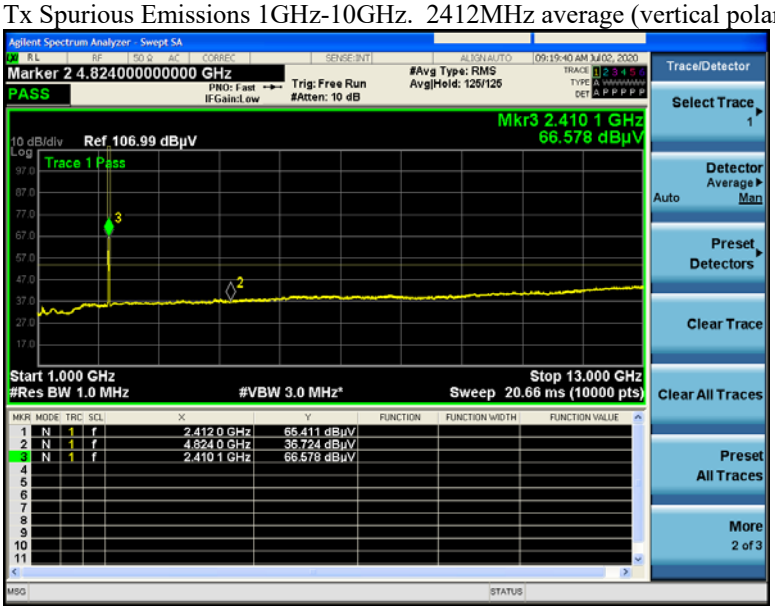
Tested By : Allan Beecroft	**Date of testing: 02-JUL-2020 to 09-JUL-2020**
Test Result : PASS	

See Appendix C for list of test equipment

A.1.A Transmitter Radiated Spurious Emissions-Average

Tx Spurious Emissions 1GHz-10GHz. 2412MHz average (horizontal polarity)

Tx Spurious Emissions 1GHz-10GHz. 2412MHz average (vertical polarity)



Tx Spurious Emissions 1GHz-10GHz. 2442MHz average (horizontal polarity)

Tx Spurious Emissions 1GHz-10GHz. 2442MHz average (vertical polarity)

Tx Spurious Emissions 1GHz-10GHz. 2462MHz average (horizontal polarity)

Tx Spurious Emissions 1GHz-10GHz. 2462MHz average (vertical polarity)

Tx Spurious Emissions 10GHz-18GHz. 2412MHz average horizontal

Tx Spurious Emissions 10GHz-18GHz. 2412MHz average vertical

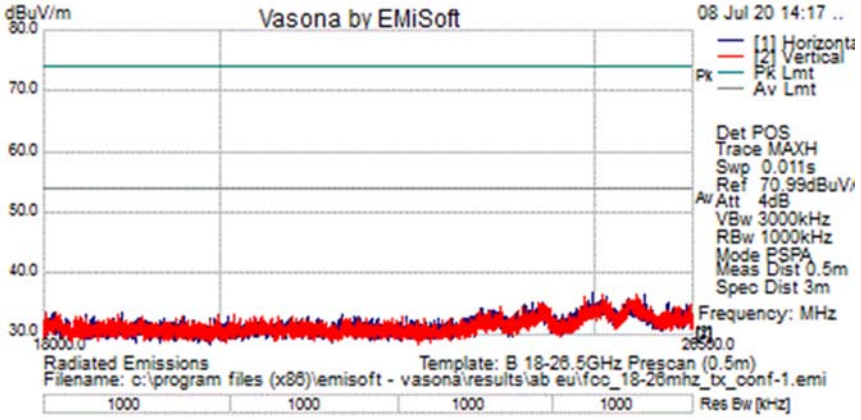
Tx Spurious Emissions 10GHz-18GHz. 2442MHz average horizontal

Tx Spurious Emissions 10GHz-18GHz. 2442MHz average vertical

Tx Spurious Emissions 10GHz-18GHz. 2462MHz average horizontal

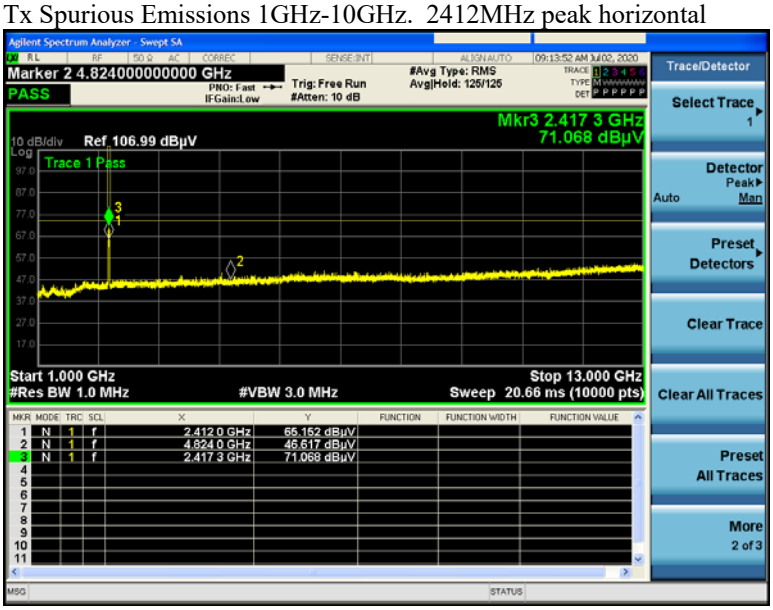
Tx Spurious Emissions 10GHz-18GHz. 2462MHz average vertical

Transmitter Radiated Spurious Emissions peak/average horizontal & vertical 18GHz – 26.5GHz



A.1.P Transmitter Radiated Spurious Emissions-Peak

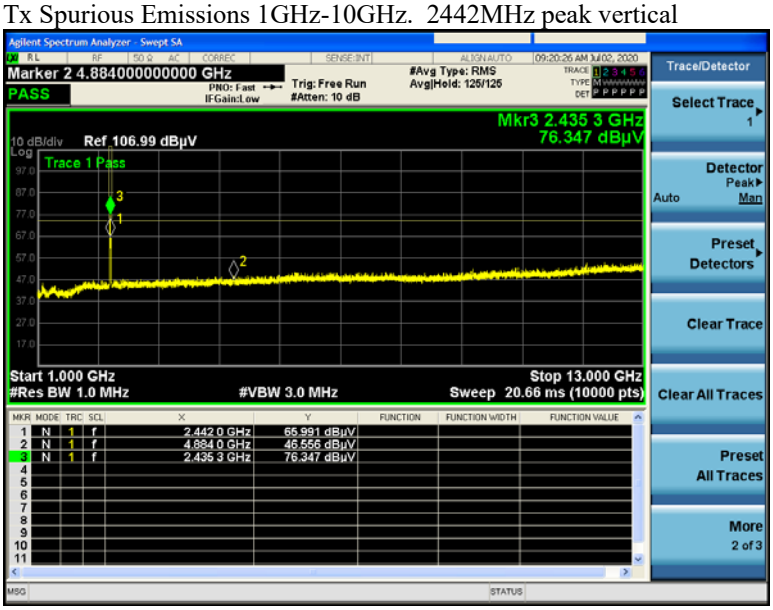
Tx Spurious Emissions 1GHz-10GHz. 2412MHz peak horizontal



Tx Spurious Emissions 1GHz-10GHz. 2412MHz peak vertical

Tx Spurious Emissions 1GHz-10GHz. 2442MHz peak horizontal

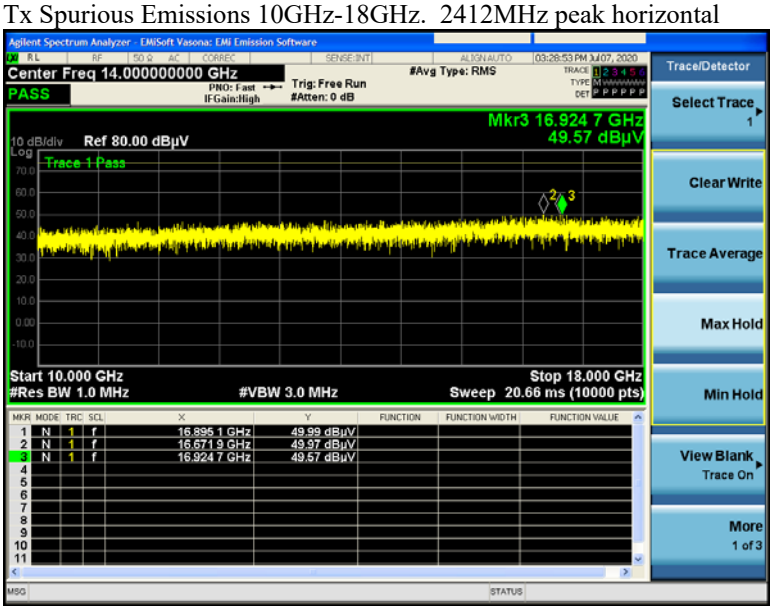
Tx Spurious Emissions 1GHz-10GHz. 2442MHz peak vertical



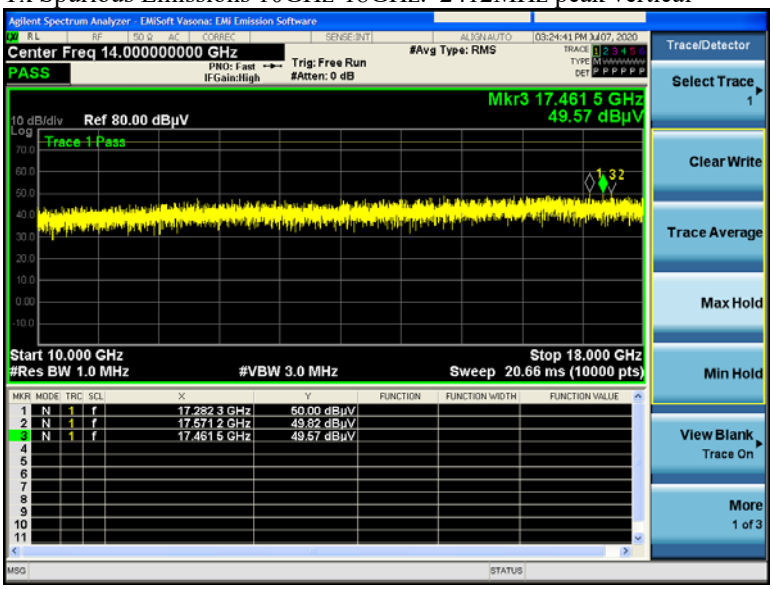
Tx Spurious Emissions 1GHz-10GHz. 2462MHz peak horizontal

Tx Spurious Emissions 1GHz-10GHz. 2462MHz peak vertical

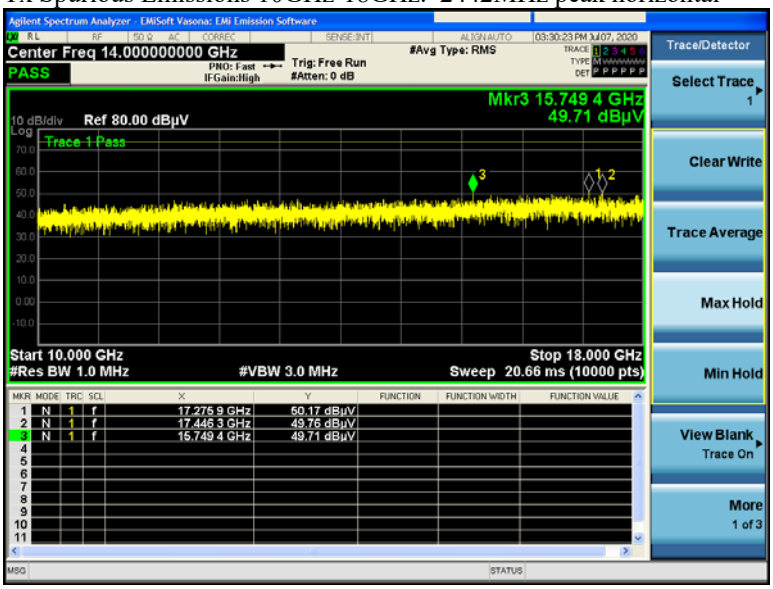
Tx Spurious Emissions 10GHz-18GHz. 2412MHz peak horizontal



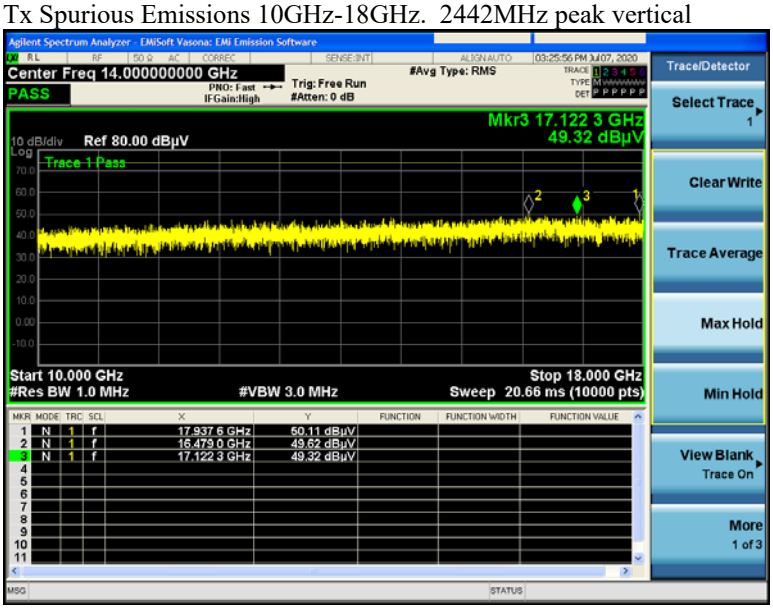
Tx Spurious Emissions 10GHz-18GHz. 2412MHz peak vertical



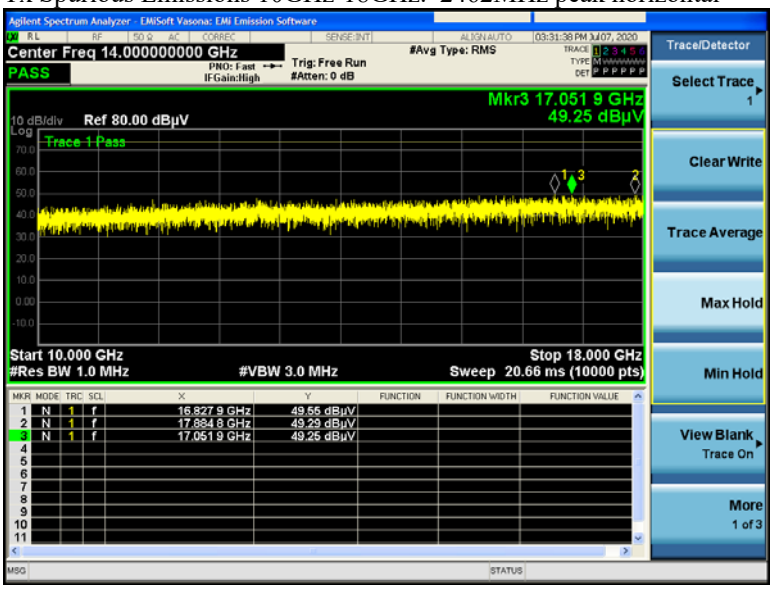
Tx Spurious Emissions 10GHz-18GHz. 2442MHz peak horizontal



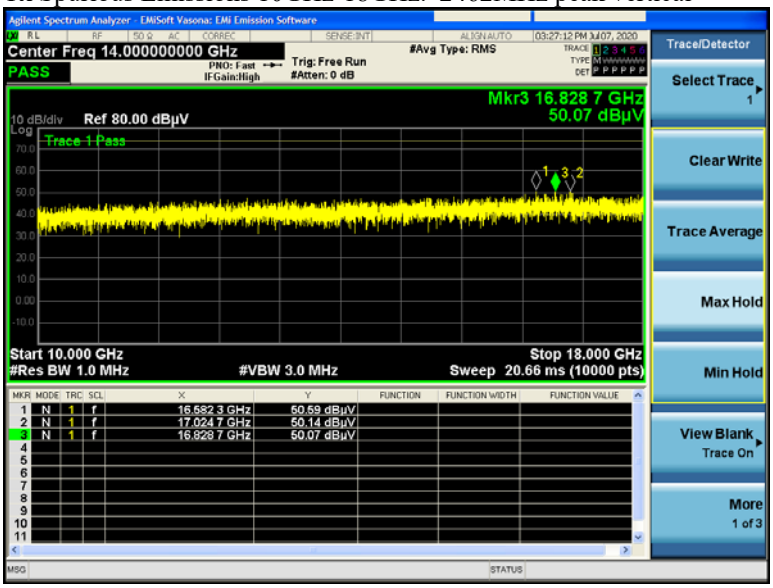
Tx Spurious Emissions 10GHz-18GHz. 2442MHz peak vertical



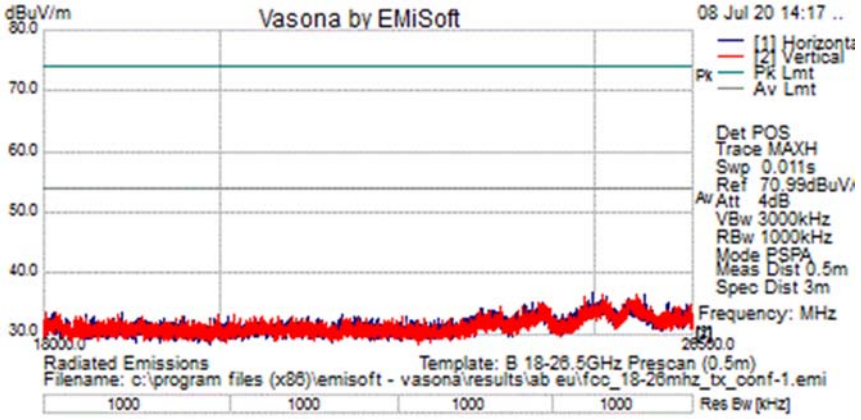
Tx Spurious Emissions 10GHz-18GHz. 2462MHz peak horizontal



Tx Spurious Emissions 10GHz-18GHz. 2462MHz peak vertical



Transmitter Radiated Spurious Emissions peak/average horizontal & vertical 18GHz – 26.5GHz



A.2 Radiated Emissions 30MHz to 1GHz

15.205 / 15.209 / RSS-Gen:
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) and RSS-GEN section 8.10, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen section 8.9.

Test Procedure

Ref. ANSI C63.10: 2013 section 6.5

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

Span:	30MHz – 1GHz
Reference Level:	80 dBuV
Attenuation:	10 dB
Sweep Time:	Coupled
Resolution Bandwidth:	100kHz
Video Bandwidth:	300kHz
Detector:	Peak for Pre-scan, Quasi-Peak
.	Compliance shall be determined using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.

Terminate the access Point RF ports with 50 ohm loads.

Define worst case orientation x, y, z.
Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

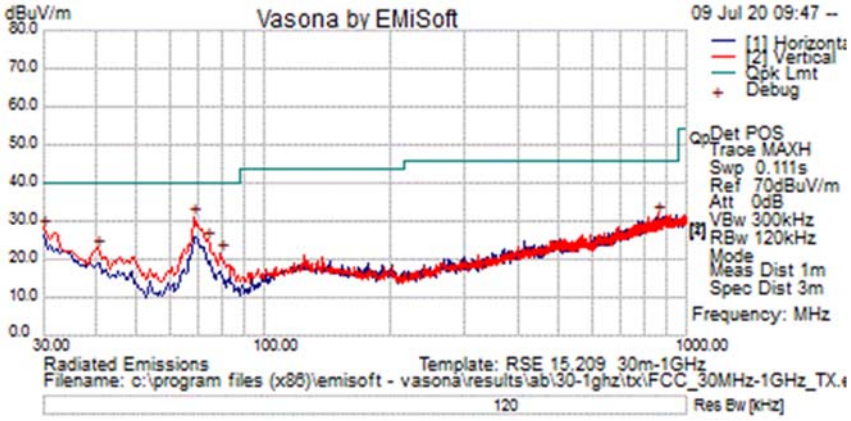
This report represents the worst case data for all supported operating modes and antennas.

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☑	☐
	Support	S02	☐	☑

Tested By : Allan Beecroft	**Date of testing: 09-JUL-2020**
Test Result : PASS	

See Appendix C for list of test equipment

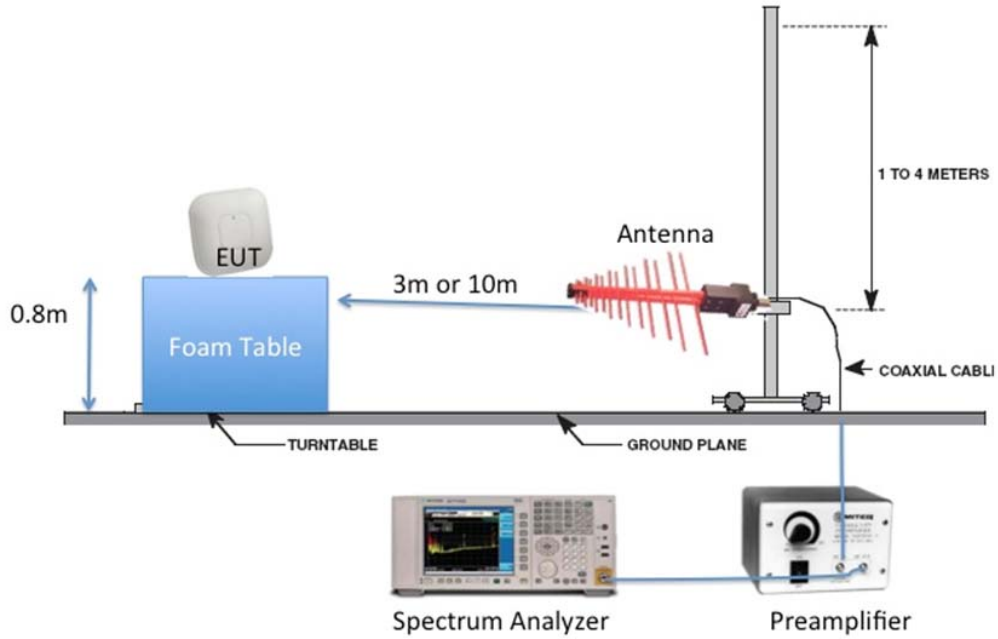
Transmitter Radiated Emissions



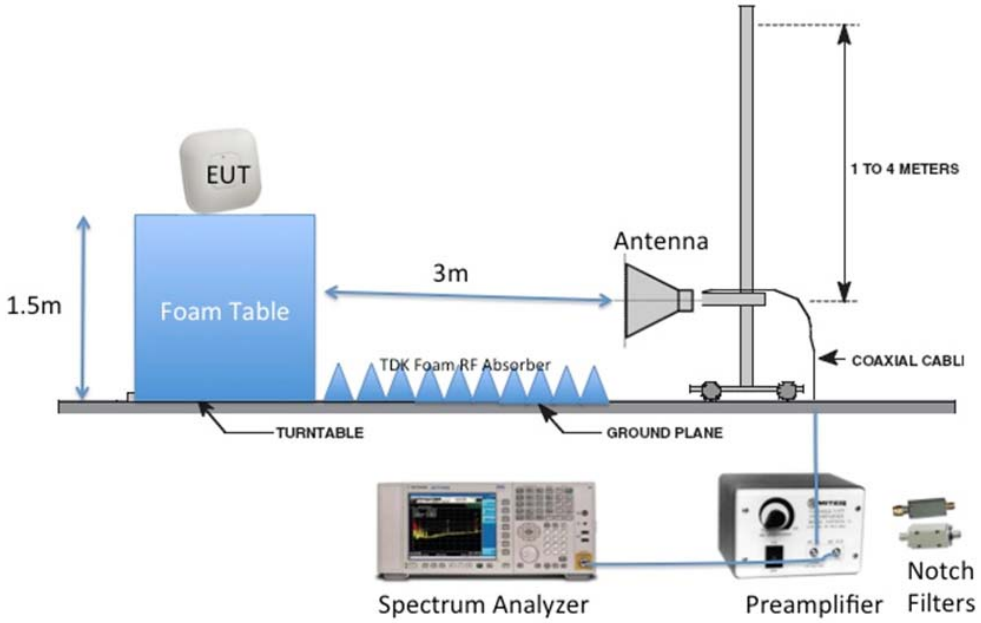
Appendix B: Emission Test Results (BLE)

Testing Laboratory: Cisco Systems, Inc., 125 West Tasman Drive, San Jose, CA 95134, USA

Radiated Emission Setup Diagram-Below 1G



Radiated Emission Setup Diagram-Above 1G



B.1 Radiated Spurious Emissions 1GHz – 26.5GHz

15.205 / RSS-Gen: Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) and RSS-Gen 8.10, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen 8.9.

Ref. ANSI C63.10: 2013 section 4.1.4.2.2, 4.1.4.2.3, 6.6.4 & 11.12.2

Radiated Spurious Emissions Test parameters	
Peak Span = 1-18GHz /18GHz-26.5GHz RBW = 1 MHz VBW ≥ 3 MHz Sweep = Auto couple Detector = Peak Trace = Max Hold.	**Average** Span = 1-18GHz /18GHz-26.5GHz RBW = 1 MHz VBW ≥ 3 MHz Sweep = Auto couple Detector = Average

Using Vasona, configure the spectrum analyzer as shown above (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode. Terminate the access Point RF ports with 50 ohm loads.

Define worst case orientation x, y, z
Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

This report represents data for all supported operating modes and antennas.

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☑	☐
	Support	S02	☐	☑

Tested By : Allan Beecroft	**Date of testing: 02-JUL-2020 to 09-JUL-2020**
Test Result : PASS	

See Appendix B for list of test equipment

B.1.A Transmitter Radiated Spurious Emissions-Average

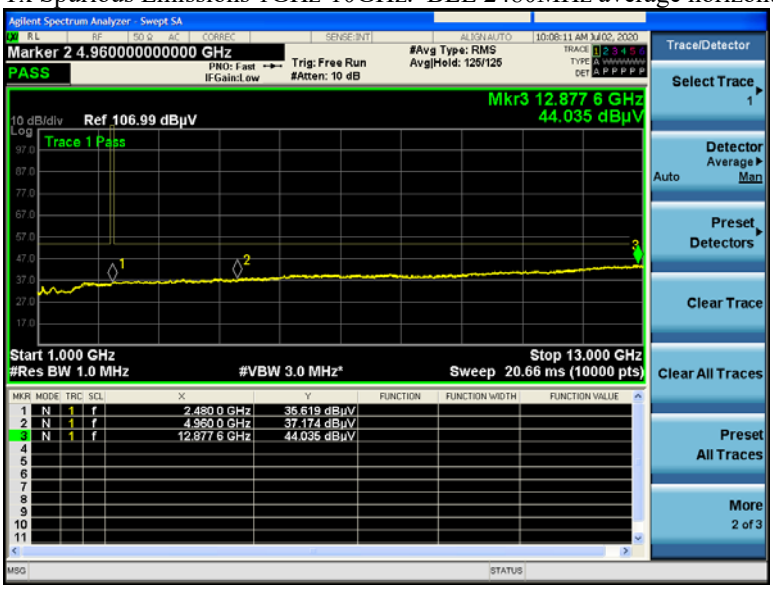
Tx Spurious Emissions 1GHz-10GHz. BLE 2402MHz average horizontal

Tx Spurious Emissions 1GHz-10GHz. BLE 2402MHz average vertical

Tx Spurious Emissions 1GHz-10GHz. BLE 2442MHz average horizontal

Tx Spurious Emissions 1GHz-10GHz. BLE 2442MHz average vertical

Tx Spurious Emissions 1GHz-10GHz. BLE 2480MHz average horizontal



Tx Spurious Emissions 1GHz-10GHz. BLE 2480MHz average vertical

Transmitter Radiated Spurious Emissions average horizontal 10GHz – 18GHz (BLE 2402MHz)

Transmitter Radiated Spurious Emissions average vertical 10GHz – 18GHz (BLE 2402MHz)

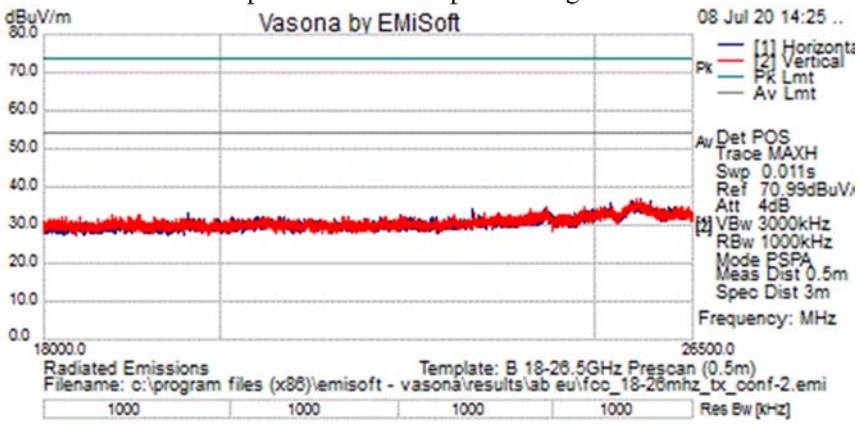
Transmitter Radiated Spurious Emissions average horizontal 10GHz – 18GHz (BLE 2442MHz)

Transmitter Radiated Spurious Emissions average vertical 10GHz – 18GHz (BLE 2442MHz)

Transmitter Radiated Spurious Emissions average horizontal 10GHz – 18GHz (BLE 2480MHz)

Transmitter Radiated Spurious Emissions average vertical 10GHz – 18GHz (BLE 2480MHz)

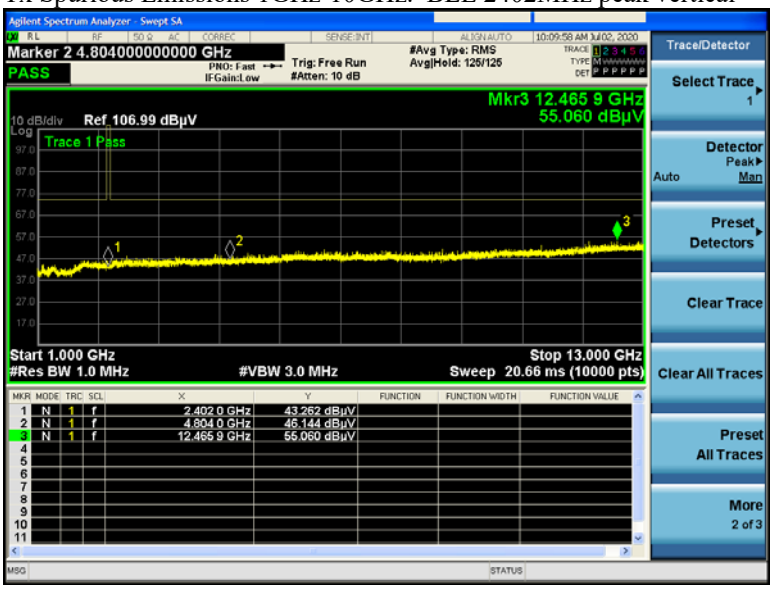
Transmitter Radiated Spurious Emissions peak/average horizontal & vertical 18GHz – 26.5GHz BLE



B.1.P Transmitter Radiated Spurious Emissions-Peak

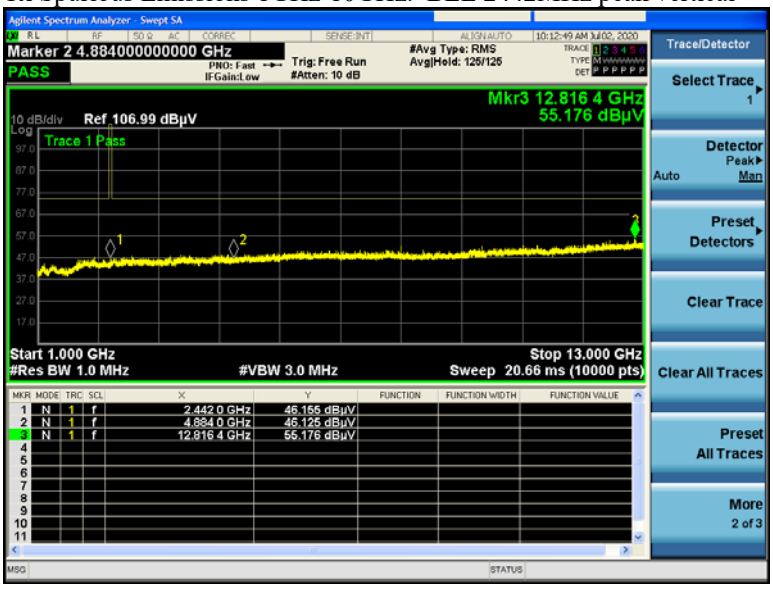
Tx Spurious Emissions 1GHz-10GHz. BLE 2402MHz peak horizontal

Tx Spurious Emissions 1GHz-10GHz. BLE 2402MHz peak vertical

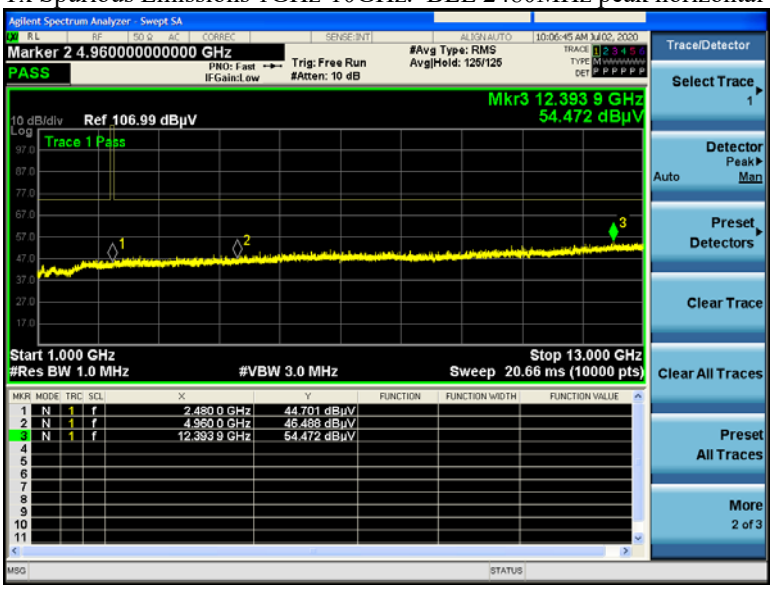


Tx Spurious Emissions 1GHz-10GHz. BLE 2442MHz peak horizontal

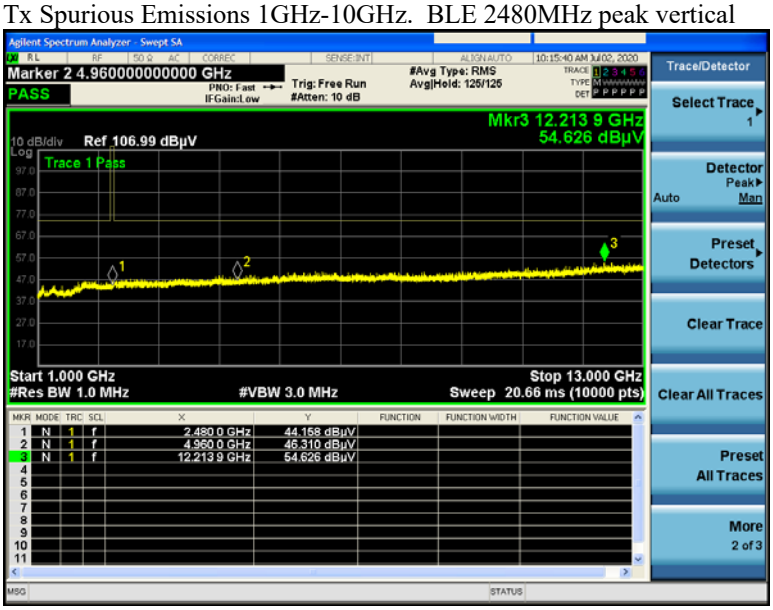
Tx Spurious Emissions 1GHz-10GHz. BLE 2442MHz peak vertical



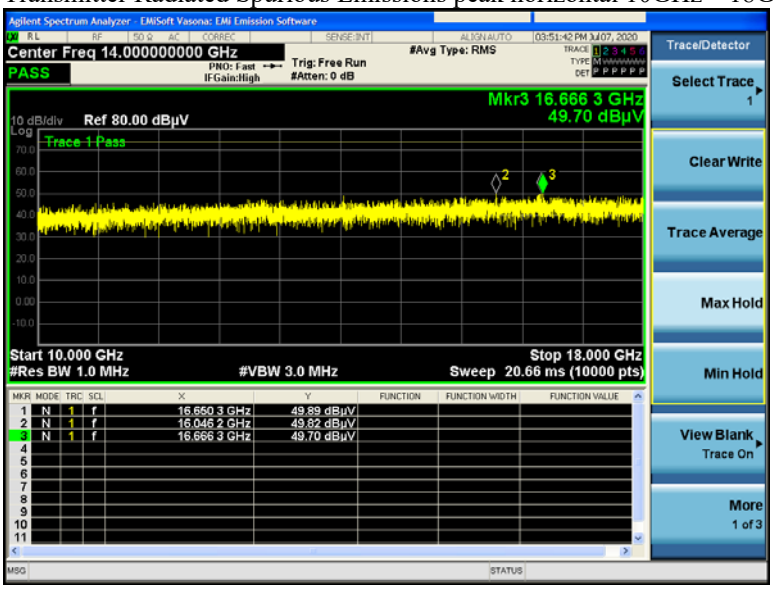
Tx Spurious Emissions 1GHz-10GHz. BLE 2480MHz peak horizontal



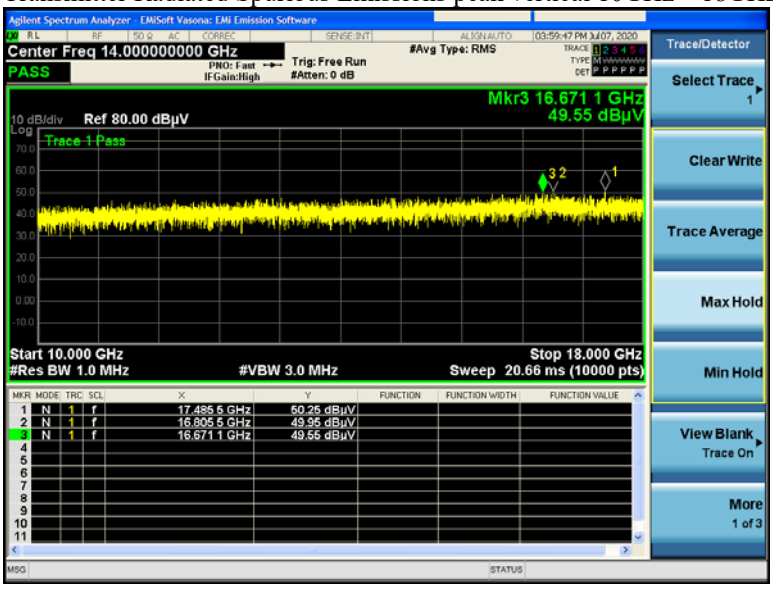
Tx Spurious Emissions 1GHz-10GHz. BLE 2480MHz peak vertical



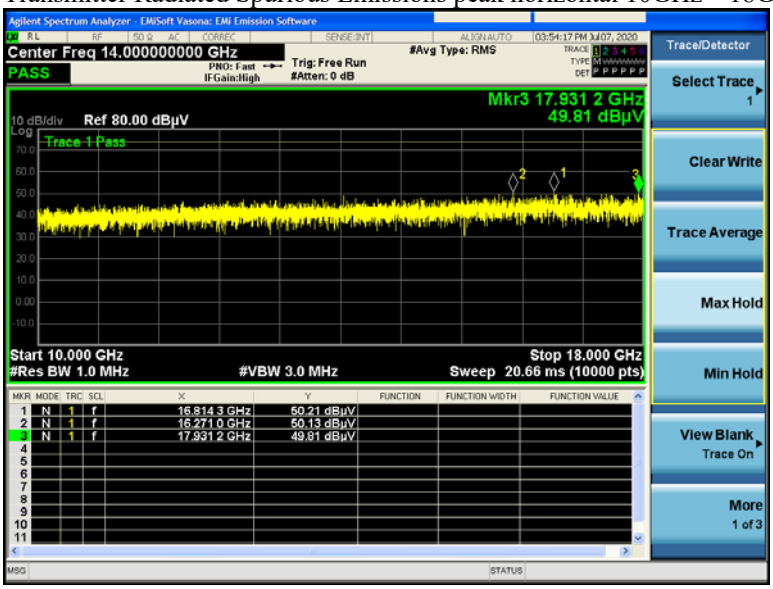
Transmitter Radiated Spurious Emissions peak horizontal 10GHz – 18GHz (BLE 2402MHz)



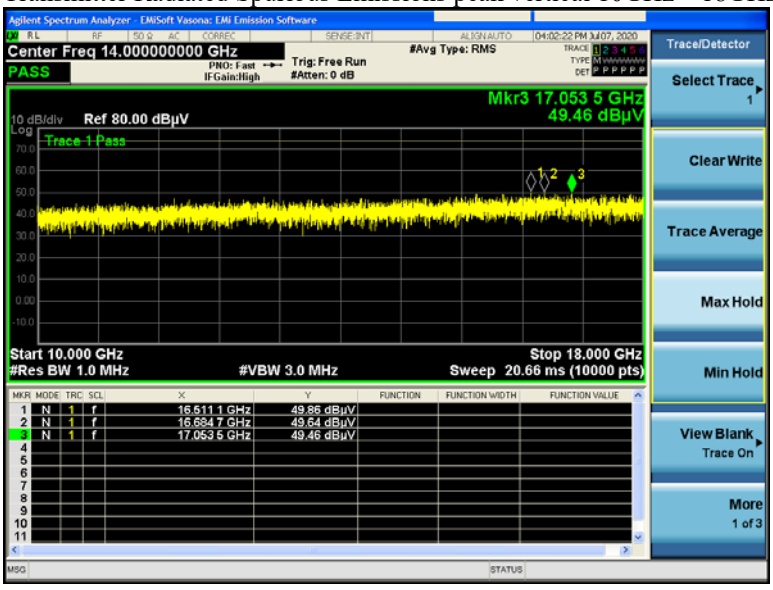
Transmitter Radiated Spurious Emissions peak vertical 10GHz – 18GHz (BLE 2402MHz)



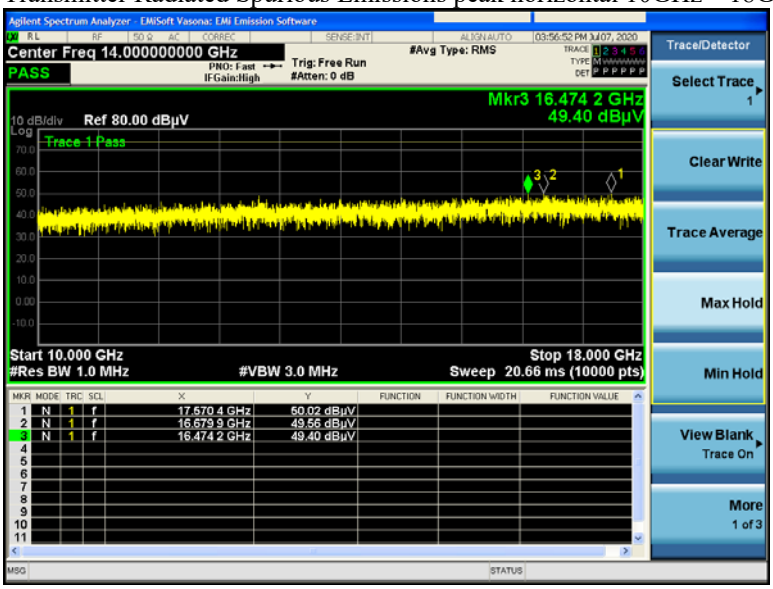
Transmitter Radiated Spurious Emissions peak horizontal 10GHz – 18GHz (BLE 2442MHz)



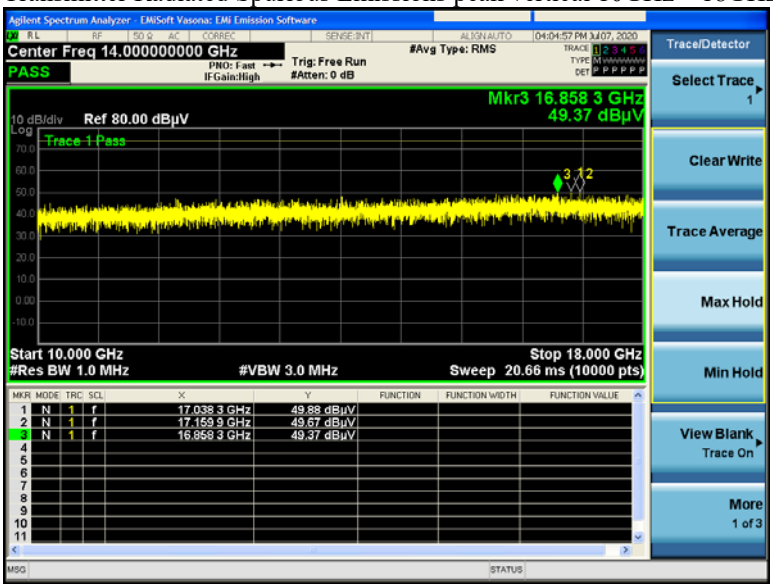
Transmitter Radiated Spurious Emissions peak vertical 10GHz – 18GHz (BLE 2442MHz)



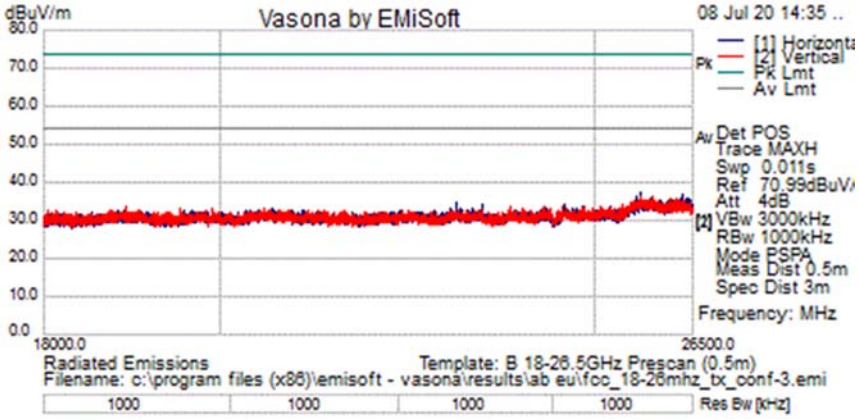
Transmitter Radiated Spurious Emissions peak horizontal 10GHz – 18GHz (BLE 2480MHz)



Transmitter Radiated Spurious Emissions peak vertical 10GHz – 18GHz (BLE 2480MHz)



Transmitter Radiated Spurious Emissions peak/average horizontal & vertical 18GHz – 26.5GHz BLE



B.2 Radiated Emissions 30MHz to 1GHz

15.205 / 15.209 / RSS-Gen:
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) and RSS-GEN section 8.10, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen section 8.9.

Test Procedure

Ref. ANSI C63.10: 2013 section 6.5

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

Span:	30MHz – 1GHz
Reference Level:	80 dBuV
Attenuation:	10 dB
Sweep Time:	Coupled
Resolution Bandwidth:	100kHz
Video Bandwidth:	300kHz
Detector:	Peak for Pre-scan, Quasi-Peak
.	Compliance shall be determined using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.

Terminate the access Point RF ports with 50 ohm loads.

Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

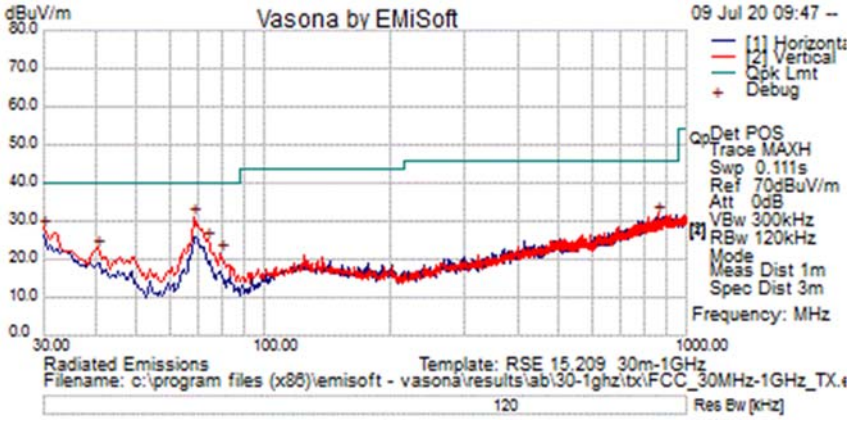
This report represents the worst case data for all supported operating modes and antennas.

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☑	☐
	Support	S02	☐	☑

Tested By : Allan Beecroft	Date of testing: 09-JUL-2020
Test Result : PASS	

See Appendix C for list of test equipment

Transmitter Radiated Emission BLE



Appendix C: List of Test Equipment Used to perform the test

30MHz to 1GHz					
Equip#	**Manufacturer/ Model**	**Description**	**Last Cal**	**Next Due**	**Test Item**
CIS38404	SUNOL SCIENCES / JB1	Combination Antenna, 30MHz-2GHz	27-FEB-2020	27-FEB-2021	A2 & B2
CIS18313uc	Keysight (Agilent/HP) / 8447D	AMPLIFIER	30-APR-2019	30-OCT-2020	A2 & B2
CIS8342	TIMES MICROWAVE SYSTEMS / RG-214	RG-214 Cable	30-APR-2020	30-OCT-2020	A2 & B2
CIS21117	MICRO-COAX / UFB311A-0-2484-5 20520	Coaxial Cable-18Ghz	12 Aug 2019	12 Aug 2020	A2 & B2
CIS49563	HUBER + SUHNER / Sucoflex 106A	N-type cable 18GHz	12-AUG-2019	12-AUG-2020	A2 & B2
CIS56155	HUBER + SUHNER / Sucoflex 104PA	RF N-Type Cable 2meter 18GHz	13-JAN-2020	13-JAN-2021	A2 & B2
CIS47410	Agilent / N9038A	/ MXE EMI Receiver 20Hz to 26.5GHz	06-MAR-2020	06-MAR-2021	A2 & B2
CIS8448	CISCO / NSA CAL	NSA Chamber	26 Sep 2019	26 Sep 2020	A2 & B2
CIS45166	STANLEY / 33-428	26' TAPE MEASURE	Cal not required	Cal not required	A2 & B2
CIS27233	York CNE V	Comparison Noise Emitter	Cal Not Required	Cal Not Required	A2 & B2
CIS58225	COMET / T7611-4	Temperature Probe & Monitoring Unit	20-AUG-2019	20-AUG-2020	A2 & B2

1GHz to 18GHz					
Equip#	**Manufacturer/ Model**	**Description**	**Last Cal**	**Next Due**	**Test Item**
CIS040597	CISCO Above 1GHz Site Cal	1GHz Cispr Site Verification	27 Sep 2019	27 Sep 2020	A1 & B1
CIS47410	Agilent / N9038A	/ MXE EMI Receiver 20Hz to 26.5GHz	06-MAR-2020	06-MAR-2021	A1 & B1
CIS41201	ETS Lindgren 3117	Double Ridged Horn Antenna	27-AUG- 2019	27 -AUG-2020	A1 & B1
CIS45096	CISCO TH0118	Mast Mount Preamplifier Array, 1-18GHz	29-OCT-2019	29-OCT-2020	A1 & B1
CIS49563	HUBER + SUHNER / Sucoflex 106A	N-type cable 18GHz	12-AUG-2019	12-AUG-2020	A1 & B1
CIS56060	Miteq	SMA Preamplifier 18GHz	08-APR-2020	08-OCT-2020	A1 & B1
CIS34740	ETS Lindgren 3117	Double Ridged Horn Antenna	10-FEB- 2020	10-FEB-2021	A1 & B1
CIS34304	Micro-Tronics HPM50112-02	High Pass Filter 6.4GHz – 18GHz	27 JUN 2019	27-DEC-2020	A1 & B1
CIS21117	MICRO-COAX / UFB311A-0-2484-520520	Coaxial Cable-18Ghz	12 AUG- 2019	12 AUG-2020	A1 & B1
CIS56155	HUBER + SUHNER / Sucoflex 104PA	RF N-Type Cable 2meter 18GHz	13-JAN-2020	13-JAN-2021	A1 & B1
CIS45166	STANLEY 33-428	8 meter Tape Measure	Cal Not Required	Cal Not Required	A1 & B1
CIS58225	COMET / T7611-4	Temperature Probe & Monitoring Unit	20-AUG-2019	20-AUG-2020	A1 & B1
CIS54235	PASTERNACK PE5011-1	PRESET TORQUE WRENCH, 8 IN/LBS	02-MAR-2020	02-MAR-2021	A1 & B1
CIS34075	SCHAFFNER RSG 2000	Reference Spectrum Generator, 1-18GHz	Cal Not Required	Cal Not Required	A1 & B1
CIS35040	Micro-Tronics HPM50112-02	High Pass Filter 6.4GHz – 18GHz	27 JUN- 2019	27-DEC-2020	A1 & B1
18GHz to 26GHz					
CIS26860	Cisco 1840	18-40GHz EMI Test Head/Verification Fixture	12-AUG-2019	12-AUG-2020	A1 & B1
CIS38393	Agilent / E4446A	PSA Spectrum Analyzer	08-JAN-2020	08-JAN-2021	A1 & B1
CIS7052	HP / 83731B	Synthesized Signal Generator	04-AUG-2019	04-AUG-2020	A1 & B1

Appendix D: Abbreviation Key and Definitions

The following table defines abbreviations used within this test report.

Abbreviation	Description	Abbreviation	Description
EMC	Electro Magnetic Compatibility	°F	Degrees Fahrenheit
EMI	Electro Magnetic Interference	°C	Degrees Celsius
EUT	Equipment Under Test	Temp	Temperature
ITE	Information Technology Equipment	S/N	Serial Number
TAP	Test Assessment Schedule	Qty	Quantity
ESD	Electro Static Discharge	emf	Electromotive force
EFT	Electric Fast Transient	RMS	Root mean square
EDCS	Engineering Document Control System	Qp	Quasi Peak
Config	Configuration	Av	Average
CIS#	Cisco Number (unique identification number for Cisco test equipment)	Pk	Peak
Cal	Calibration	kHz	Kilohertz ($1x10^3$)
EN	European Norm	MHz	MegaHertz ($1x10^6$)
IEC	International Electro technical Commission	GHz	Gigahertz ($1x10^9$)
CISPR	International Special Committee on Radio Interference	H	Horizontal
CDN	Coupling/Decoupling Network	V	Vertical
LISN	Line Impedance Stabilization Network	dB	decibel
PE	Protective Earth	V	Volt
GND	Ground	kV	Kilovolt ($1x10^3$)
L1	Line 1	µV	Microvolt ($1x10^{-6}$)
L2	Line2	A	Amp
L3	Line 3	µA	Micro Amp ($1x10^{-6}$)
DC	Direct Current	mS	Milli Second ($1x10^{-3}$)
RAW	Uncorrected measurement value, as indicated by the measuring device	µS	Micro Second ($1x10^{-6}$)
RF	Radio Frequency	µS	Micro Second ($1x10^{-6}$)
SLCE	Signal Line Conducted Emissions	m	Meter
Meas dist	Measurement distance	Spec dist	Specification distance
N/A or NA	Not Applicable	SL	Signal Line (or Telecom Line)
P	Power Line	L	Live Line
N	Neutral Line	R	Return
S	Supply	AC	Alternating Current

Appendix E: Photographs of Test Setups

Please refer to the attachment

Appendix F: Photographs of EUT


Appendix G: Software Used to Perform Testing

EMIsoft Vasona, version 6.047

Appendix H: Test Procedures

Measurements were made in accordance with

- KDB 558074 - D01 DTS Meas Guidance v05
- KDB 662911 - MIMO
- ANSI C63.10 2013 Intentional Radiators

Test procedures are summarized below

FCC 2.4GHz RSE Test Procedures	EDCS # 1480386

Appendix I: Scope of Accreditation (A2LA certificate number 1178-01)

The scope of accreditation of Cisco Systems, Inc. can be found on the A2LA web page at:
http://www.a2la.org/scopepdf/1178-01.pdf

Appendix J: Test Assessment Plan

Target Power Tables EDCS# 18087112