Edison Labs, Inc.

TEST REPORT FOR

Smart Light Switch
Model: A-PRD-0010

Tested to The Following Standards:

FCC Part 15 Subpart C Section(s)

15.207 & 15.247
(DTS 2400-2483.5 MHz)

Report No.: 101821-8

Date of issue: January 3, 2018

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

Test Certificate # 803.06

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Edison Labs, Inc.
1875 S. Grant St. Suite 620
San Mateo CA 94402

Representative: Joe Keto
Customer Reference Number: PO-0146

REPORT PREPARED BY:

Terri Rayle
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 101821

DATE OF EQUIPMENT RECEIPT: December 6, 2018
DATE(S) OF TESTING: December 6-13 and 29, 2018

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the equipment provided by the client, tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
1120 Fulton Place
Fremont, CA 94539

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.11

Site Registration & Accreditation Information

Location	NIST CB #	TAIWAN	CANADA	FCC	JAPAN
Fremont, CA	US0082	SL2-IN-E-1148R	3082B-1	US1023	A-0149

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C - 15.247 (DTS)

Test Procedure	Description	Modifications	Results
15.247(a)(2)	6dB Bandwidth	NA	NA1
15.247(b)(3)	Output Power	NA	NA1
15.247(e)	Power Spectral Density	NA	NA1
15.247(d)	RF Conducted Emissions & Band Edge	NA	NA2
15.247(d)	Radiated Emissions & Band Edge	NA	Pass
15.207	AC Conducted Emissions	NA	Pass

NA = Not Applicable
NA1 = Not applicable because the EUT is used as Certified Module, but different antenna.
NA2 = Not applicable since the EUT has an integral antenna.

ISO/IEC 17025 Decision Rule
The declaration of pass or fail herein is based upon assessment to the specification(s) listed above, including where applicable, assessment of measurement uncertainties. For performance related tests, equipment was monitored for specified criteria identified in that section of testing.

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions
No modifications were made during testing.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

During testing, numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1

Equipment Tested:

Device	Manufacturer	Model #	S/N
Smart Light Switch	Edison Labs, Inc.	A-PRD-0010	10008COC10005

Support Equipment:

Device	Manufacturer	Model #	S/N
40W Edison Bulb light	None	None	NA

General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type:	Stand-Alone Equipment
Type of Wideband System:	DTS
Operating Frequency Range:	2400MHz to 2483.5MHz
Modulation Type(s):	BLE: GFSK 802.11b: CCK/DBPSK 802.11g: OFDM/BPSK 802.11n HT20: QAM 802.11n HT40: QAM
Maximum Duty Cycle:	100%
Number of TX Chains:	BLE: 40 802.11: 11
Antenna Type(s) and Gain:	4.83dBi
Beamforming Type:	NA
Antenna Connection Type:	Integral
Nominal Input Voltage:	120VAC
Firmware used for Test:	1.0.0

FCC Part 15 Subpart C

15.247(d) Radiated Emissions & Band Edge

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/19/2018
Test Type:	**Radiated Scan**	Time:	14:20:13
Tested By:	Hieu Song Nguyenpham	Sequence#:	75
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

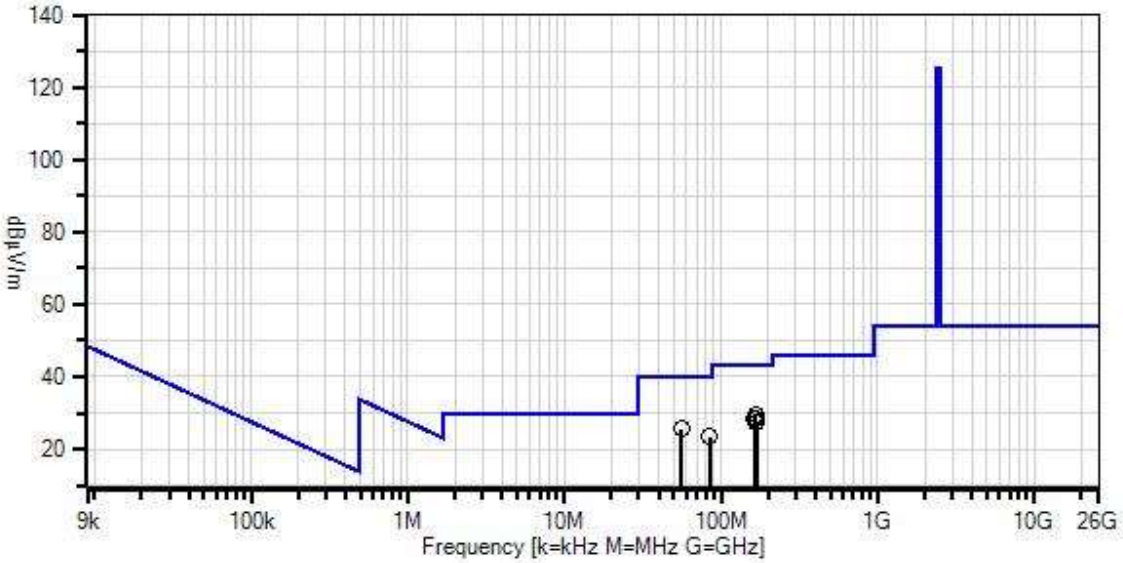
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 22.4°C
Relative Humidity: 48%
Atmospheric Pressure: 102.3 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=7dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
BLE
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 75 Date: 12/19/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	165.419M	43.7	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	29.7	43.5	-13.8	Horiz
2	56.261M	43.3	-32.1 +0.3	+6.0 +7.2	+0.7	+0.1	+0.0	25.5	40.0	-14.5	Vert
3	163.497M	42.4	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	28.6	43.5	-14.9	Horiz
4	165.520M	42.4	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	28.4	43.5	-15.1	Vert
5	167.542M	41.6	-32.1 +0.4	+5.9 +10.2	+1.2	+0.2	+0.0	27.4	43.5	-16.1	Horiz
6	85.129M	40.0	-32.1 +0.3	+5.9 +8.4	+0.8	+0.1	+0.0	23.4	40.0	-16.6	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	11:07:16
Tested By:	Hieu Song Nguyenpham	Sequence#:	31
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF output Power =7dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
BLE on
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 31 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9608.896M	63.4	+38.3 +1.1	+2.7 +0.1	+6.0	-59.3	+0.0	52.3	54.0	-1.7	Horiz
2	7205.261M Ave	63.8	+35.6 +1.0	+2.3 +0.1	+4.9	-59.0	+0.0	48.7	54.0	-5.3	Horiz
^	7205.261M	71.1	+35.6 +1.0	+2.3 +0.1	+4.9	-59.0	+0.0	56.0	54.0	+2.0	Horiz
4	3167.740M	68.7	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	46.1	54.0	-7.9	Horiz
5	4803.496M	62.4	+32.9 +0.9	+1.8 +0.1	+3.9	-59.0	+0.0	43.0	54.0	-11.0	Horiz
6	9606.896M Ave	51.4	+38.3 +1.1	+2.7 +0.1	+6.0	-59.3	+0.0	40.3	54.0	-13.7	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/19/2018
Test Type:	**Radiated Scan**	Time:	14:38:47
Tested By:	Hieu Song Nguyenpham	Sequence#:	78
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

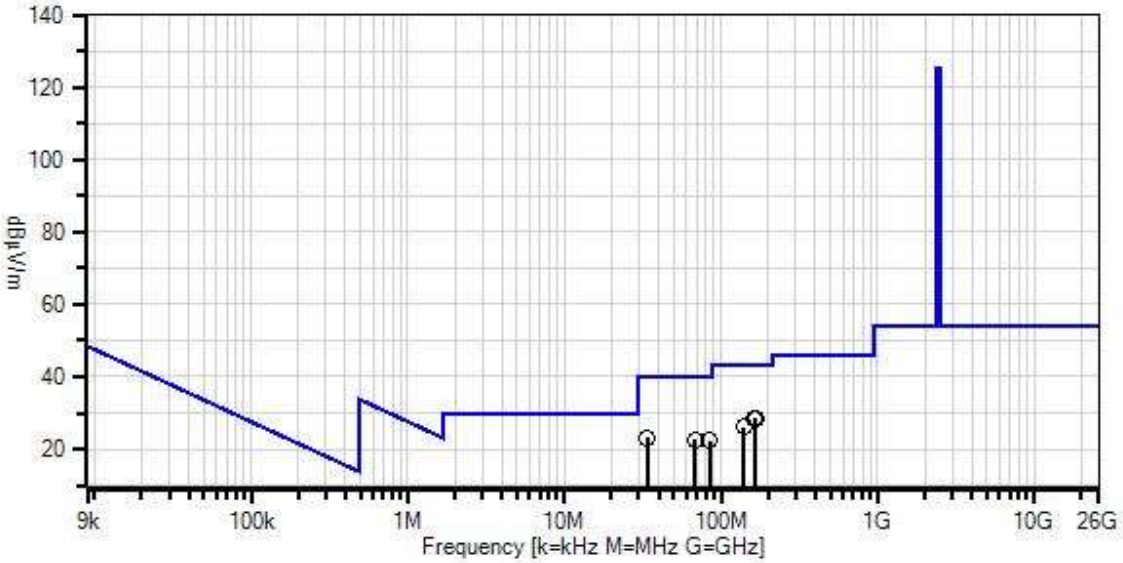
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 22.4°C
Relative Humidity: 48%
Atmospheric Pressure: 102.3 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=7dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
BLE
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 78 Date: 12/19/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	163.396M	42.3	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	28.5	43.5	-15.0	Horiz
2	165.520M	42.3	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	28.3	43.5	-15.2	Horiz
3	33.703M	31.4	-32.1 +0.2	+5.9 +17.2	+0.5	+0.1	+0.0	23.2	40.0	-16.8	Vert
4	68.170M	41.2	-32.1 +0.3	+6.0 +6.3	+0.7	+0.1	+0.0	22.5	40.0	-17.5	Vert
5	140.341M	38.6	-32.1 +0.4	+6.0 +11.8	+1.1	+0.2	+0.0	26.0	43.5	-17.5	Horiz
6	85.230M	38.9	-32.1 +0.3	+5.9 +8.5	+0.8	+0.1	+0.0	22.4	40.0	-17.6	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	11:24:23
Tested By:	Hieu Song Nguyenpham	Sequence#:	32
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF output Power =7dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
BLE on
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 32 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	7319.380M Ave	62.6	+35.9 +1.0	+2.3 +0.1	+4.9	-59.4	+0.0	47.4	54.0	-6.6	Horiz
^	7319.380M	70.1	+35.9 +1.0	+2.3 +0.1	+4.9	-59.4	+0.0	54.9	54.0	+0.9	Horiz
3	9759.125M Ave	51.7	+38.6 +1.1	+2.7 +0.1	+6.0	-59.1	+0.0	41.1	54.0	-12.9	Horiz
^	9759.125M	62.2	+38.6 +1.1	+2.7 +0.1	+6.0	-59.1	+0.0	51.6	54.0	-2.4	Horiz
5	4880.175M Ave	56.7	+33.1 +0.9	+1.9 +0.1	+3.9	-59.2	+0.0	37.4	54.0	-16.6	Horiz
^	4880.175M	65.7	+33.1 +0.9	+1.9 +0.1	+3.9	-59.2	+0.0	46.4	54.0	-7.6	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/19/2018
Test Type:	**Radiated Scan**	Time:	14:55:37
Tested By:	Hieu Song Nguyenpham	Sequence#:	81
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

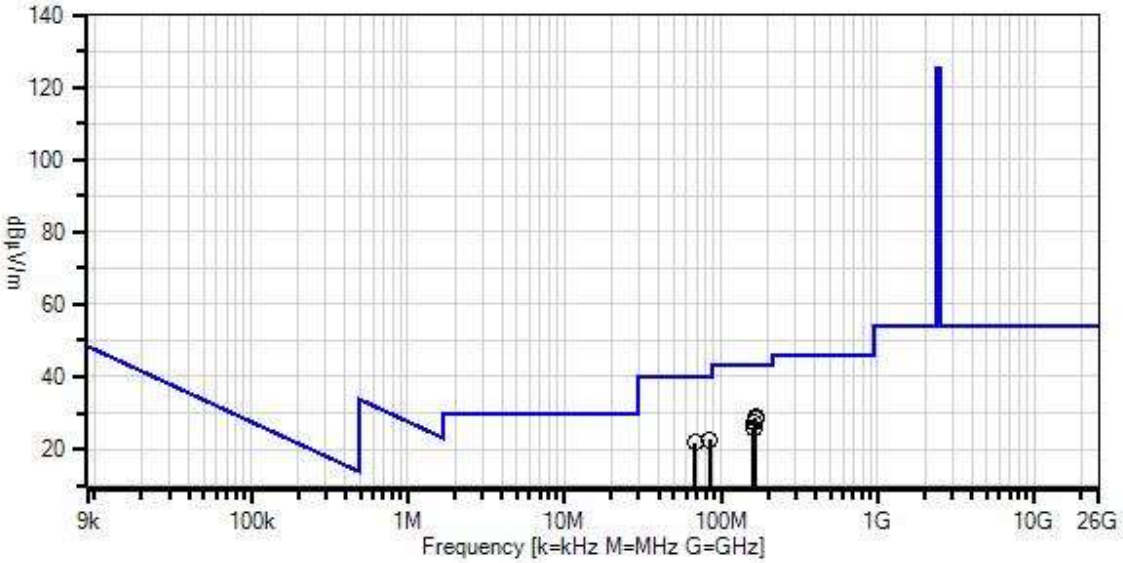
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 22.4°C
Relative Humidity: 48%
Atmospheric Pressure: 102.3 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=7dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
BLE
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 81 Date: 12/19/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	165.419M	42.9	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	28.9	43.5	-14.6	Horiz
2	167.441M	42.5	-32.1 +0.4	+5.9 +10.2	+1.2	+0.2	+0.0	28.3	43.5	-15.2	Horiz
3	163.396M	41.1	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	27.3	43.5	-16.2	Horiz
4	85.230M	39.1	-32.1 +0.3	+5.9 +8.5	+0.8	+0.1	+0.0	22.6	40.0	-17.4	Vert
5	161.374M	39.4	-32.1 +0.4	+5.9 +10.8	+1.2	+0.2	+0.0	25.8	43.5	-17.7	Vert
6	68.128M	40.6	-32.1 +0.3	+6.0 +6.3	+0.7	+0.1	+0.0	21.9	40.0	-18.1	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	11:42:49
Tested By:	Hieu Song Nguyenpham	Sequence#:	33
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF output Power =7dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended. It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT

Note:
BLE on
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 33 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	7439.145M Ave	62.3	+36.2 +1.0	+2.4 +0.1	+5.0	-59.2	+0.0	47.8	54.0	-6.2	Horiz
^	7439.145M	70.2	+36.2 +1.0	+2.4 +0.1	+5.0	-59.2	+0.0	55.7	54.0	+1.7	Horiz
3	3167.895M	66.7	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	44.1	54.0	-9.9	Horiz
4	4960.405M Ave	62.9	+33.3 +0.9	+1.9 +0.1	+4.0	-59.1	+0.0	44.0	54.0	-10.0	Horiz
^	4960.405M	69.4	+33.3 +0.9	+1.9 +0.1	+4.0	-59.1	+0.0	50.5	54.0	-3.5	Horiz
6	9920.770M Ave	52.4	+38.9 +1.1	+2.7 +0.1	+6.1	-59.2	+0.0	42.1	54.0	-11.9	Horiz
^	9920.770M	63.8	+38.9 +1.1	+2.7 +0.1	+6.1	-59.2	+0.0	53.5	54.0	-0.5	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	14:26:08
Tested By:	Hieu Song Nguyenpham	Sequence#:	39
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11b
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 39 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	163.497M	46.2	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	32.4	43.5	-11.1	Horiz
2	161.576M	45.4	-32.1 +0.4	+5.9 +10.7	+1.2	+0.2	+0.0	31.7	43.5	-11.8	Horiz
3	167.542M	45.5	-32.1 +0.4	+5.9 +10.2	+1.2	+0.2	+0.0	31.3	43.5	-12.2	Horiz
4	91.297M	45.5	-32.1 +0.3	+5.9 +9.2	+0.9	+0.1	+0.0	29.8	43.5	-13.7	Horiz
5	169.464M	44.1	-32.1 +0.4	+5.9 +10.0	+1.2	+0.2	+0.0	29.7	43.5	-13.8	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	12:01:55
Tested By:	Hieu Song Nguyenpham	Sequence#:	3
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11b
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 3 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9617.650M	60.6	+38.3 +1.1	+2.7 +0.1	+6.0	-59.3	+0.0	49.5	54.0	-4.5	Horiz
2	7237.150M	61.2	+35.7 +1.0	+2.3 +0.1	+4.9	-59.1	+0.0	46.1	54.0	-7.9	Horiz
3	3167.833M	66.4	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	43.8	54.0	-10.2	Horiz
4	4824.000M Ave	62.1	+32.9 +0.9	+1.8 +0.1	+3.9	-59.1	+0.0	42.6	54.0	-11.4	Vert
^	4824.000M	68.7	+32.9 +0.9	+1.8 +0.1	+3.9	-59.1	+0.0	49.2	54.0	-4.8	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	14:43:45
Tested By:	Hieu Song Nguyenpham	Sequence#:	42
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

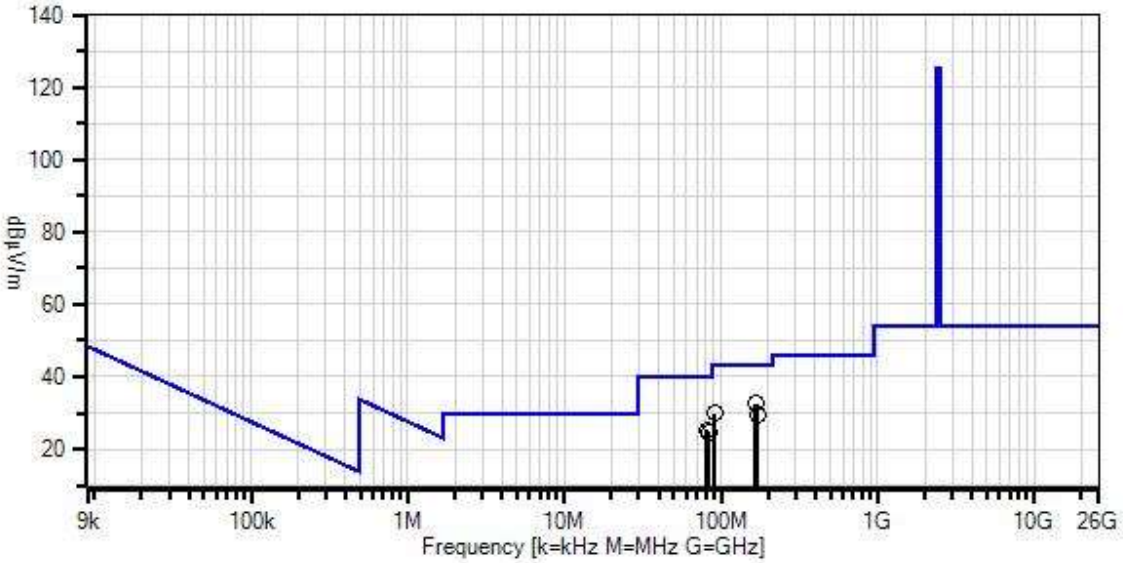
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11b
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 42 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	165.520M	46.6	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	32.6	43.5	-10.9	Horiz
2	167.745M	46.7	-32.1 +0.4	+5.9 +10.2	+1.2	+0.2	+0.0	32.5	43.5	-11.0	Horiz
3	91.297M	45.5	-32.1 +0.3	+5.9 +9.2	+0.9	+0.1	+0.0	29.8	43.5	-13.7	Horiz
4	171.789M	44.3	-32.1 +0.4	+5.9 +9.8	+1.2	+0.2	+0.0	29.7	43.5	-13.8	Horiz
5	81.387M	42.5	-32.1 +0.3	+5.9 +7.9	+0.8	+0.1	+0.0	25.4	40.0	-14.6	Vert
6	83.309M	41.6	-32.1 +0.3	+5.9 +8.2	+0.8	+0.1	+0.0	24.8	40.0	-15.2	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	13:23:42
Tested By:	Hieu Song Nguyenpham	Sequence#:	6
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11b
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 6 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	7749.638M	61.1	+36.2 +1.0	+2.4 +0.1	+5.2	-59.3	+0.0	46.7	54.0	-7.3	Horiz
2	4873.927M Ave	62.1	+33.1 +0.9	+1.9 +0.1	+3.9	-59.2	+0.0	42.8	54.0	-11.2	Horiz
^	4873.927M	69.9	+33.1 +0.9	+1.9 +0.1	+3.9	-59.2	+0.0	50.6	54.0	-3.4	Horiz
4	9747.870M	51.8	+38.6 +1.1	+2.7 +0.1	+6.0	-59.1	+0.0	41.2	54.0	-12.8	Horiz
5	3167.996M	62.8	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	40.2	54.0	-13.8	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	14:59:33
Tested By:	Hieu Song Nguyenpham	Sequence#:	45
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

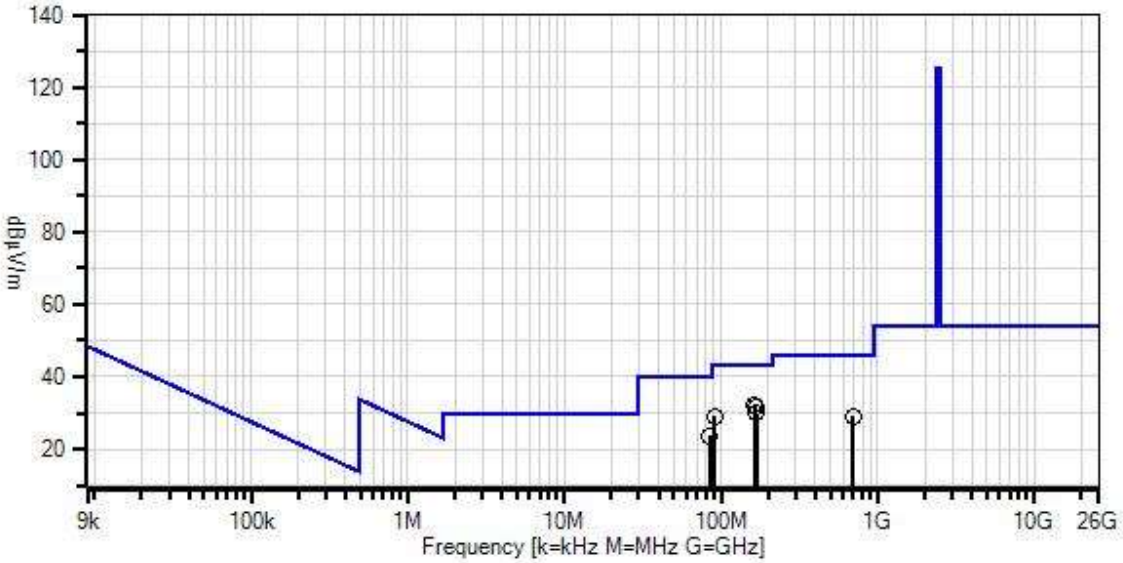
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11b
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 45 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	163.599M	46.1	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	32.3	43.5	-11.2	Horiz
2	165.520M	45.5	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	31.5	43.5	-12.0	Horiz
3	169.565M	44.3	-32.1 +0.4	+5.9 +10.0	+1.2	+0.2	+0.0	29.9	43.5	-13.6	Horiz
4	91.297M	44.8	-32.1 +0.3	+5.9 +9.2	+0.9	+0.1	+0.0	29.1	43.5	-14.4	Horiz
5	85.230M	40.2	-32.1 +0.3	+5.9 +8.5	+0.8	+0.1	+0.0	23.7	40.0	-16.3	Vert
6	700.500M	30.4	-32.3 +1.1	+6.0 +20.3	+2.9	+0.7	+0.0	29.1	46.0	-16.9	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	13:56:55
Tested By:	Hieu Song Nguyenpham	Sequence#:	9
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11b
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 9 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9848.000M	59.7	+38.8 +1.1	+2.7 +0.1	+6.1	-59.3	+0.0	49.2	54.0	-4.8	Horiz
2	4923.974M Ave	67.0	+33.2 +0.9	+1.9 +0.1	+4.0	-59.1	+0.0	48.0	54.0	-6.0	Horiz
^	4923.974M	74.6	+33.2 +0.9	+1.9 +0.1	+4.0	-59.1	+0.0	55.6	54.0	+1.6	Horiz
4	7386.140M	58.7	+36.0 +1.0	+2.3 +0.1	+5.0	-59.3	+0.0	43.8	54.0	-10.2	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	15:26:31
Tested By:	Hieu Song Nguyenpham	Sequence#:	48
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

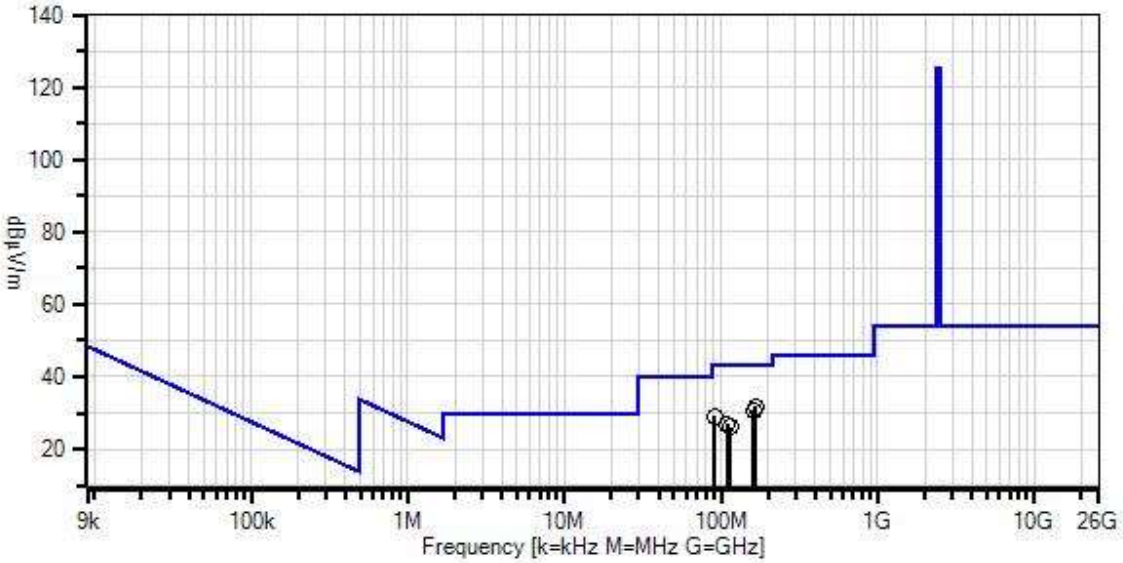
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11g
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 48 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	165.419M	45.9	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	31.9	43.5	-11.6	Horiz
2	167.441M	45.7	-32.1 +0.4	+5.9 +10.2	+1.2	+0.2	+0.0	31.5	43.5	-12.0	Horiz
3	161.273M	44.3	-32.1 +0.4	+5.9 +10.8	+1.2	+0.2	+0.0	30.7	43.5	-12.8	Horiz
4	91.196M	44.7	-32.1 +0.3	+5.9 +9.2	+0.9	+0.1	+0.0	29.0	43.5	-14.5	Horiz
5	110.308M	40.4	-32.1 +0.4	+5.9 +11.0	+1.0	+0.2	+0.0	26.8	43.5	-16.7	Vert
6	114.353M	39.4	-32.1 +0.4	+6.0 +11.3	+1.0	+0.2	+0.0	26.2	43.5	-17.3	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	14:20:44
Tested By:	Hieu Song Nguyenpham	Sequence#:	12
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11g
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 12 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9630.880M	59.1	+38.4 +1.1	+2.7 +0.1	+6.0	-59.3	+0.0	48.1	54.0	-5.9	Horiz
2	7235.380M	58.2	+35.7 +1.0	+2.3 +0.1	+4.9	-59.1	+0.0	43.1	54.0	-10.9	Horiz
3	3167.936M	65.2	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	42.6	54.0	-11.4	Horiz
4	4824.180M	61.0	+32.9 +0.9	+1.8 +0.1	+3.9	-59.1	+0.0	41.5	54.0	-12.5	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	15:42:02
Tested By:	Hieu Song Nguyenpham	Sequence#:	51
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

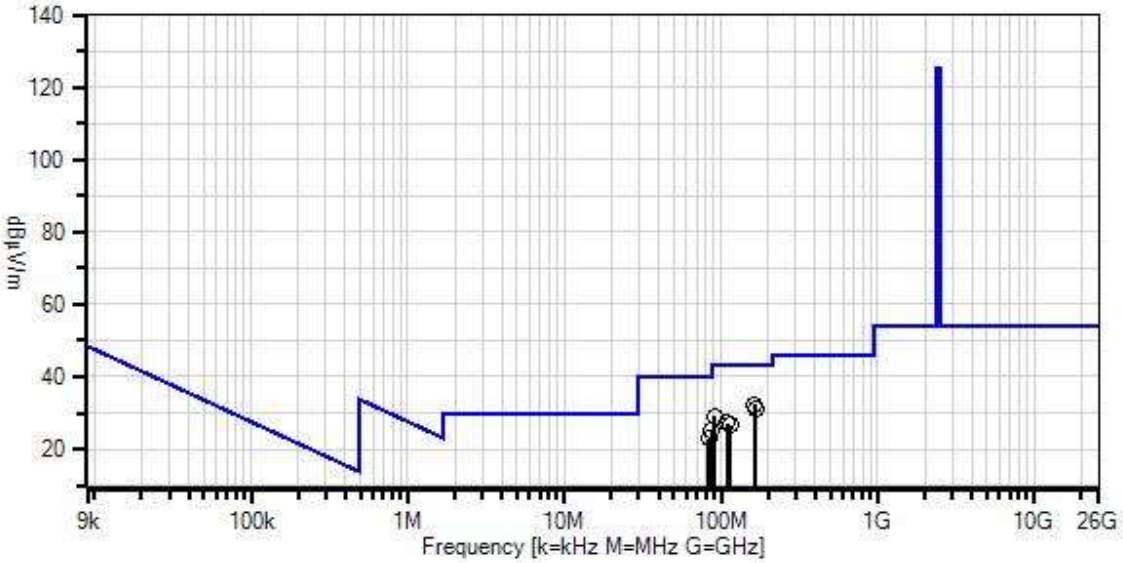
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11g
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 51 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	163.497M	46.0	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	32.2	43.5	-11.3	Horiz
2	167.441M	45.3	-32.1 +0.4	+5.9 +10.2	+1.2	+0.2	+0.0	31.1	43.5	-12.4	Horiz
3	91.196M	44.8	-32.1 +0.3	+5.9 +9.2	+0.9	+0.1	+0.0	29.1	43.5	-14.4	Horiz
4	87.252M	41.6	-32.1 +0.3	+5.9 +8.7	+0.8	+0.1	+0.0	25.3	40.0	-14.7	Horiz
5	110.308M	40.8	-32.1 +0.4	+5.9 +11.0	+1.0	+0.2	+0.0	27.2	43.5	-16.3	Vert
6	114.353M	39.8	-32.1 +0.4	+6.0 +11.3	+1.0	+0.2	+0.0	26.6	43.5	-16.9	Vert
7	83.208M	39.8	-32.1 +0.3	+5.9 +8.2	+0.8	+0.1	+0.0	23.0	40.0	-17.0	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	15:25:54
Tested By:	Hieu Song Nguyenpham	Sequence#:	17
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11g
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 17 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9747.200M	60.7	+38.6 +1.1	+2.7 +0.1	+6.0	-59.1	+0.0	50.1	54.0	-3.9	Horiz
2	7310.920M	58.6	+35.9 +1.0	+2.3 +0.1	+4.9	-59.4	+0.0	43.4	54.0	-10.6	Horiz
3	4874.040M	62.2	+33.1 +0.9	+1.9 +0.1	+3.9	-59.2	+0.0	42.9	54.0	-11.1	Horiz
4	3168.020M	64.6	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	42.0	54.0	-12.0	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	15:59:09
Tested By:	Hieu Song Nguyenpham	Sequence#:	54
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

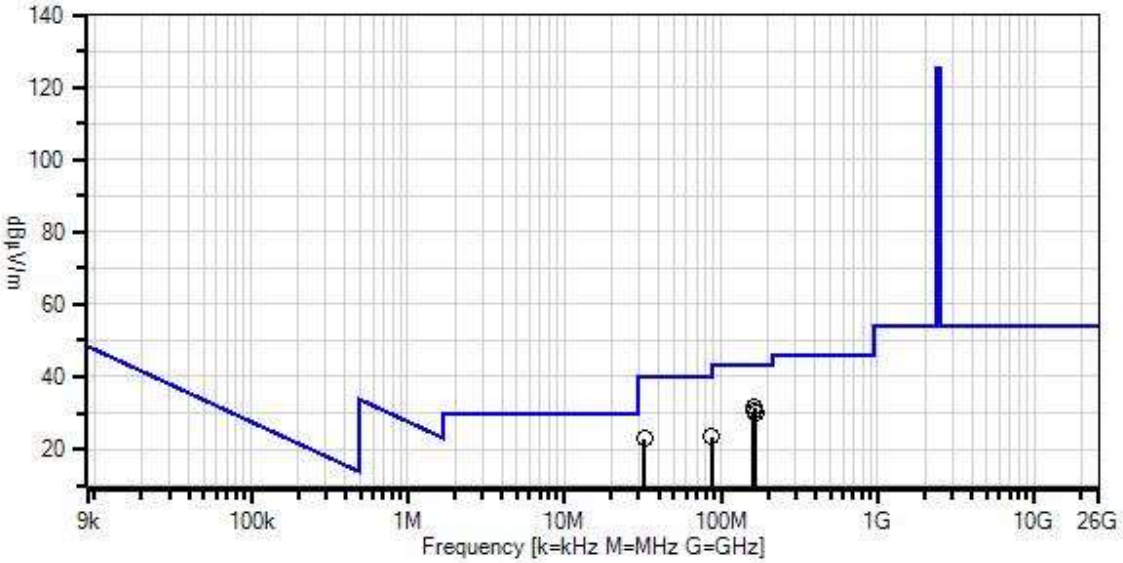
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11g
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 54 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	163.497M	45.3	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	31.5	43.5	-12.0	Horiz
2	161.475M	44.1	-32.1 +0.4	+5.9 +10.8	+1.2	+0.2	+0.0	30.5	43.5	-13.0	Horiz
3	167.441M	44.3	-32.1 +0.4	+5.9 +10.2	+1.2	+0.2	+0.0	30.1	43.5	-13.4	Horiz
4	87.252M	39.6	-32.1 +0.3	+5.9 +8.7	+0.8	+0.1	+0.0	23.3	40.0	-16.7	Vert
5	32.609M	30.5	-32.1 +0.2	+5.9 +17.7	+0.5	+0.1	+0.0	22.8	40.0	-17.2	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	15:52:16
Tested By:	Hieu Song Nguyenpham	Sequence#:	20
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11g
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 20 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	4923.850M	65.2	+33.2 +0.9	+1.9 +0.1	+4.0	-59.1	+0.0	46.2	54.0	-7.8	Horiz
2	7386.400M	58.5	+36.0 +1.0	+2.3 +0.1	+5.0	-59.3	+0.0	43.6	54.0	-10.4	Horiz
3	9846.200M Ave	49.5	+38.8 +1.1	+2.7 +0.1	+6.1	-59.3	+0.0	39.0	54.0	-15.0	Horiz
^	9846.200M	60.6	+38.8 +1.1	+2.7 +0.1	+6.1	-59.3	+0.0	50.1	54.0	-3.9	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	16:14:39
Tested By:	Hieu Song Nguyenpham	Sequence#:	57
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

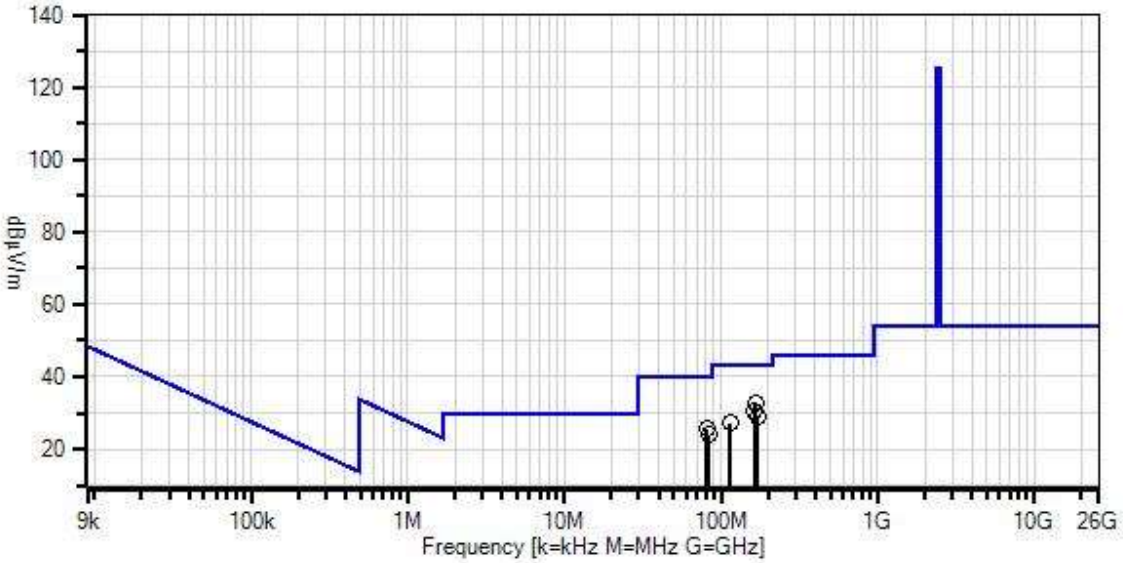
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT20
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 57 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	165.823M	46.9	-32.1 +0.4	+5.9 +10.3	+1.2	+0.2	+0.0	32.8	43.5	-10.7	Horiz
2	163.801M	44.7	-32.1 +0.4	+5.9 +10.5	+1.2	+0.2	+0.0	30.8	43.5	-12.7	Horiz
3	171.789M	43.8	-32.1 +0.4	+5.9 +9.8	+1.2	+0.2	+0.0	29.2	43.5	-14.3	Horiz
4	81.387M	42.7	-32.1 +0.3	+5.9 +7.9	+0.8	+0.1	+0.0	25.6	40.0	-14.4	Vert
5	83.410M	40.7	-32.1 +0.3	+5.9 +8.2	+0.8	+0.1	+0.0	23.9	40.0	-16.1	Vert
6	114.555M	40.3	-32.1 +0.4	+6.0 +11.3	+1.0	+0.2	+0.0	27.1	43.5	-16.4	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	16:08:38
Tested By:	Hieu Song Nguyenpham	Sequence#:	21
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT20
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 21 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9647.480M	59.7	+38.4 +1.1	+2.7 +0.1	+6.0	-59.2	+0.0	48.8	54.0	-5.2	Horiz
2	7235.520M	59.8	+35.7 +1.0	+2.3 +0.1	+4.9	-59.1	+0.0	44.7	54.0	-9.3	Horiz
3	4822.540M	62.6	+32.9 +0.9	+1.8 +0.1	+3.9	-59.1	+0.0	43.1	54.0	-10.9	Horiz
4	3167.760M	65.5	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	42.9	54.0	-11.1	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	16:32:39
Tested By:	Hieu Song Nguyenpham	Sequence#:	60
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

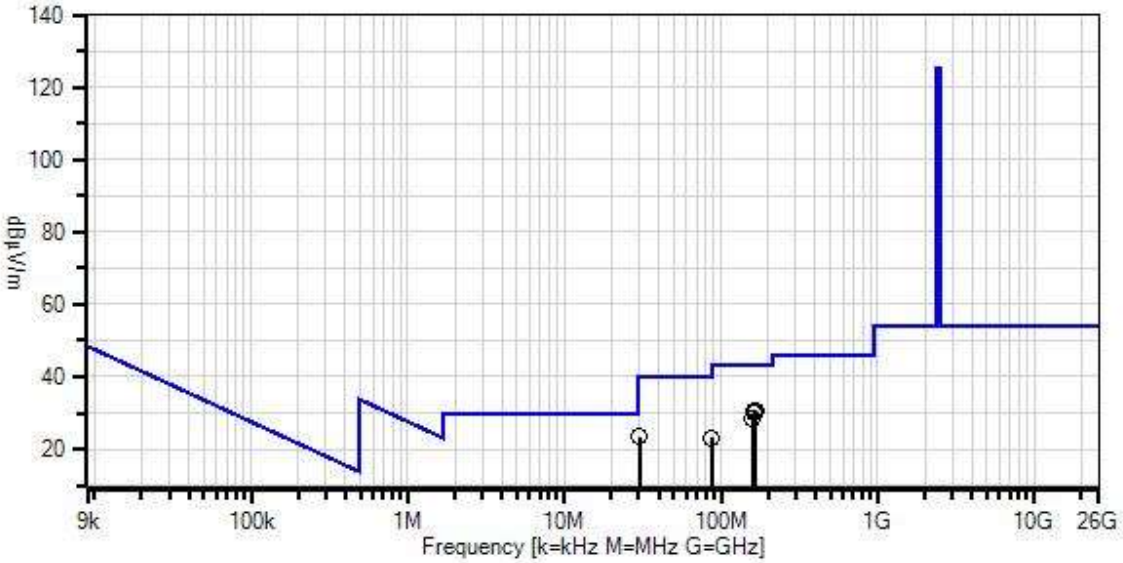
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT20
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 60 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	163.599M	44.6	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	30.8	43.5	-12.7	Horiz
2	165.621M	44.5	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	30.5	43.5	-13.0	Horiz
3	161.576M	43.6	-32.1 +0.4	+5.9 +10.7	+1.2	+0.2	+0.0	29.9	43.5	-13.6	Horiz
4	159.554M	41.7	-32.1 +0.4	+5.9 +10.9	+1.2	+0.2	+0.0	28.2	43.5	-15.3	Horiz
5	30.084M	30.0	-32.1 +0.2	+5.9 +18.9	+0.5	+0.1	+0.0	23.5	40.0	-16.5	Horiz
6	87.252M	39.5	-32.1 +0.3	+5.9 +8.7	+0.8	+0.1	+0.0	23.2	40.0	-16.8	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	16:21:24
Tested By:	Hieu Song Nguyenpham	Sequence#:	22
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT20
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 22 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	7312.850M	60.2	+35.9 +1.0	+2.3 +0.1	+4.9	-59.4	+0.0	45.0	54.0	-9.0	Vert
2	4872.300M	62.2	+33.1 +0.9	+1.9 +0.1	+3.9	-59.2	+0.0	42.9	54.0	-11.1	Horiz
3	3168.060M	65.1	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	42.5	54.0	-11.5	Horiz
4	9747.940M Ave	51.2	+38.6 +1.1	+2.7 +0.1	+6.0	-59.1	+0.0	40.6	54.0	-13.4	Horiz
^	9747.850M	60.9	+38.6 +1.1	+2.7 +0.1	+6.0	-59.1	+0.0	50.3	54.0	-3.7	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	16:48:06
Tested By:	Hieu Song Nguyenpham	Sequence#:	63
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

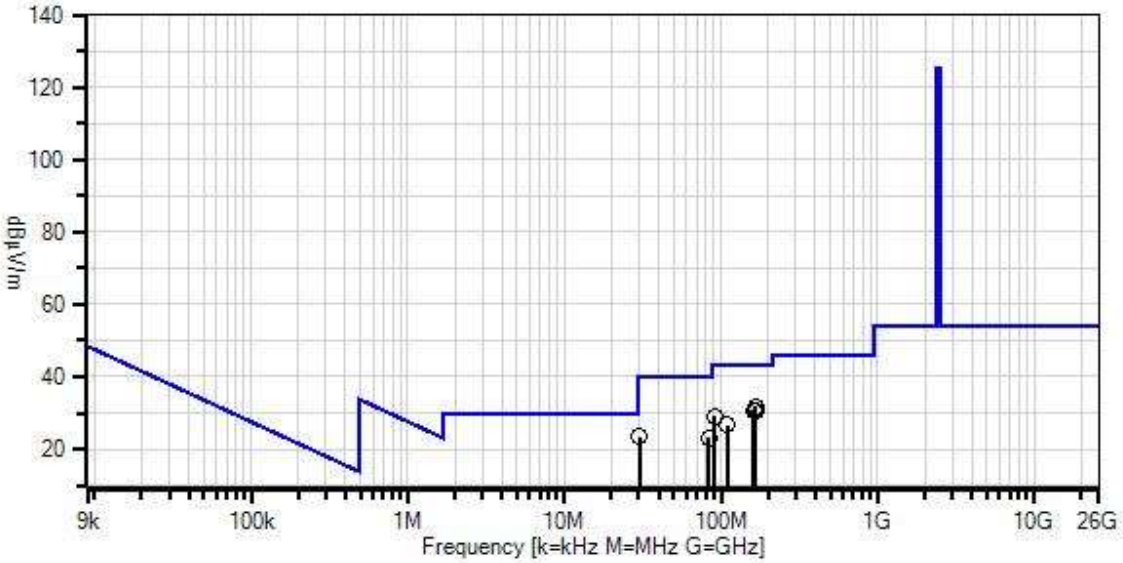
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT20
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 63 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	165.419M	45.8	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	31.8	43.5	-11.7	Horiz
2	161.475M	44.4	-32.1 +0.4	+5.9 +10.8	+1.2	+0.2	+0.0	30.8	43.5	-12.7	Horiz
3	167.441M	44.9	-32.1 +0.4	+5.9 +10.2	+1.2	+0.2	+0.0	30.7	43.5	-12.8	Horiz
4	91.297M	44.8	-32.1 +0.3	+5.9 +9.2	+0.9	+0.1	+0.0	29.1	43.5	-14.4	Horiz
5	30.126M	29.9	-32.1 +0.2	+5.9 +18.8	+0.5	+0.1	+0.0	23.3	40.0	-16.7	Vert
6	83.309M	39.9	-32.1 +0.3	+5.9 +8.2	+0.8	+0.1	+0.0	23.1	40.0	-16.9	Vert
7	110.308M	40.2	-32.1 +0.4	+5.9 +11.0	+1.0	+0.2	+0.0	26.6	43.5	-16.9	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	16:48:52
Tested By:	Hieu Song Nguyenpham	Sequence#:	23
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT20
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 23 Date: 12/12/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	7393.550M	59.3	+36.1 +1.0	+2.3 +0.1	+5.0	-59.2	+0.0	44.6	54.0	-9.4	Horiz
2	9849.200M Ave	53.6	+38.8 +1.1	+2.7 +0.1	+6.1	-59.3	+0.0	43.1	54.0	-10.9	Horiz
^	9849.200M	60.4	+38.8 +1.1	+2.7 +0.1	+6.1	-59.3	+0.0	49.9	54.0	-4.1	Horiz
4	4925.900M	62.0	+33.2 +0.9	+1.9 +0.1	+4.0	-59.1	+0.0	43.0	54.0	-11.0	Horiz
5	3168.015M	65.6	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	43.0	54.0	-11.0	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/19/2018
Test Type:	**Radiated Scan**	Time:	13:26:39
Tested By:	Hieu Song Nguyenpham	Sequence#:	66
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

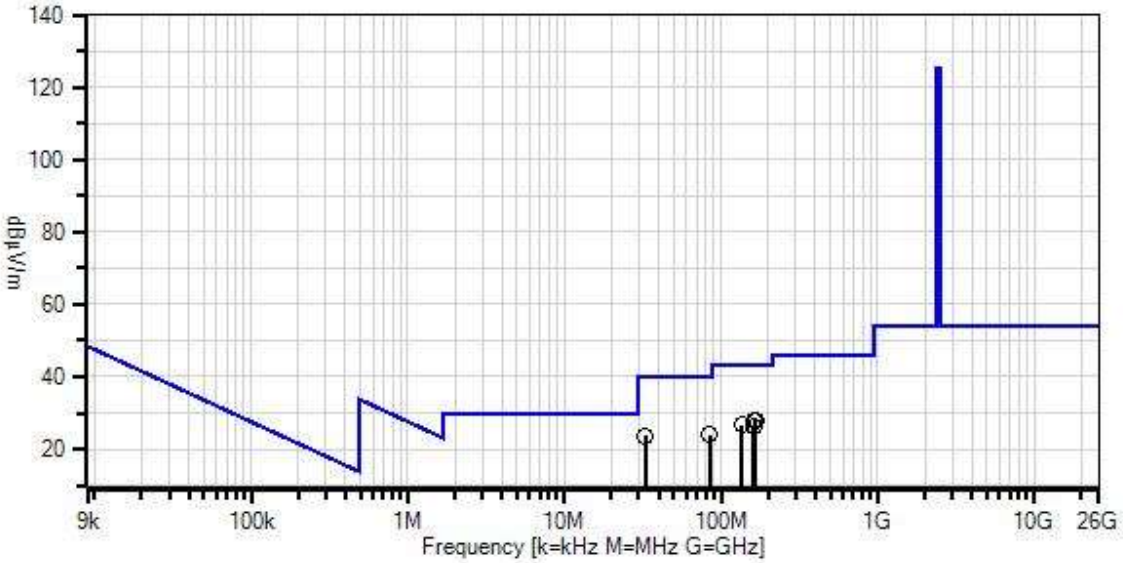
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 22.4°C
Relative Humidity: 48%
Atmospheric Pressure: 102.3 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT40
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 66 Date: 12/19/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	165.924M	42.2	-32.1 +0.4	+5.9 +10.3	+1.2	+0.2	+0.0	28.1	43.5	-15.4	Horiz
2	163.902M	41.9	-32.1 +0.4	+5.9 +10.5	+1.2	+0.2	+0.0	28.0	43.5	-15.5	Horiz
3	85.331M	40.4	-32.1 +0.3	+5.9 +8.5	+0.8	+0.1	+0.0	23.9	40.0	-16.1	Vert
4	32.988M	31.7	-32.1 +0.2	+5.9 +17.5	+0.5	+0.1	+0.0	23.8	40.0	-16.2	Vert
5	136.802M	39.3	-32.1 +0.4	+6.0 +11.8	+1.1	+0.2	+0.0	26.7	43.5	-16.8	Horiz
6	161.677M	39.8	-32.1 +0.4	+5.9 +10.7	+1.2	+0.2	+0.0	26.1	43.5	-17.4	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	09:25:36
Tested By:	Hieu Song Nguyenpham	Sequence#:	26
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT40
Low Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 26 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9689.050M	59.4	+38.5 +1.1	+2.7 +0.1	+6.0	-59.1	+0.0	48.7	54.0	-5.3	Horiz
2	3167.900M	68.3	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	45.7	54.0	-8.3	Horiz
3	7263.200M	59.2	+35.7 +1.0	+2.3 +0.1	+4.9	-59.3	+0.0	43.9	54.0	-10.1	Horiz
4	4843.850M	59.4	+33.0 +0.9	+1.8 +0.1	+3.9	-59.2	+0.0	39.9	54.0	-14.1	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/19/2018
Test Type:	**Radiated Scan**	Time:	13:46:27
Tested By:	Hieu Song Nguyenpham	Sequence#:	69
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

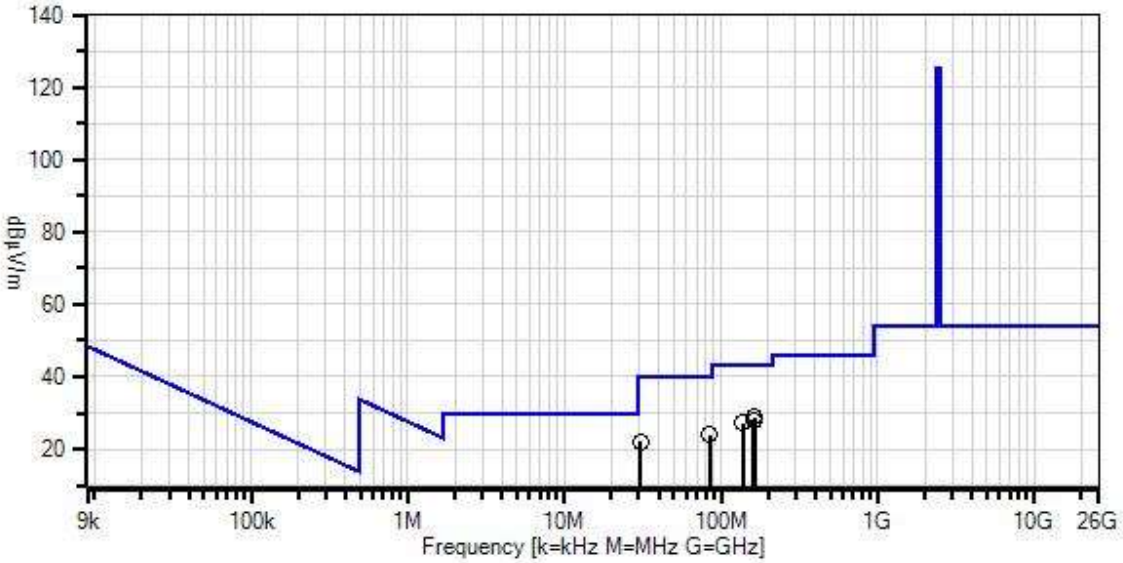
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 22.4°C
Relative Humidity: 48%
Atmospheric Pressure: 102.3 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended.
It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Note:
802.11n HT40
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 69 Date: 12/19/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	163.497M	42.5	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	28.7	43.5	-14.8	Horiz
2	161.576M	41.6	-32.1 +0.4	+5.9 +10.7	+1.2	+0.2	+0.0	27.9	43.5	-15.6	Horiz
3	85.230M	40.4	-32.1 +0.3	+5.9 +8.5	+0.8	+0.1	+0.0	23.9	40.0	-16.1	Vert
4	138.521M	39.9	-32.1 +0.4	+6.0 +11.8	+1.1	+0.2	+0.0	27.3	43.5	-16.2	Horiz
5	30.589M	29.0	-32.1 +0.2	+5.9 +18.6	+0.5	+0.1	+0.0	22.2	40.0	-17.8	Vert

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	09:41:13
Tested By:	Hieu Song Nguyenpham	Sequence#:	27
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended. It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT

Note:
802.11n HT40
Middle Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 27 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9751.360M	59.8	+38.6 +1.1	+2.7 +0.1	+6.0	-59.1	+0.0	49.2	54.0	-4.8	Horiz
2	7310.380M	57.6	+35.9 +1.0	+2.3 +0.1	+4.9	-59.4	+0.0	42.4	54.0	-11.6	Horiz
3	4875.120M	59.7	+33.1 +0.9	+1.9 +0.1	+3.9	-59.2	+0.0	40.4	54.0	-13.6	Horiz
4	3167.980M Ave	58.0	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	35.4	54.0	-18.6	Horiz
^	3167.980M	68.1	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	45.5	54.0	-8.5	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/19/2018
Test Type:	**Radiated Scan**	Time:	14:00:42
Tested By:	Hieu Song Nguyenpham	Sequence#:	72
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

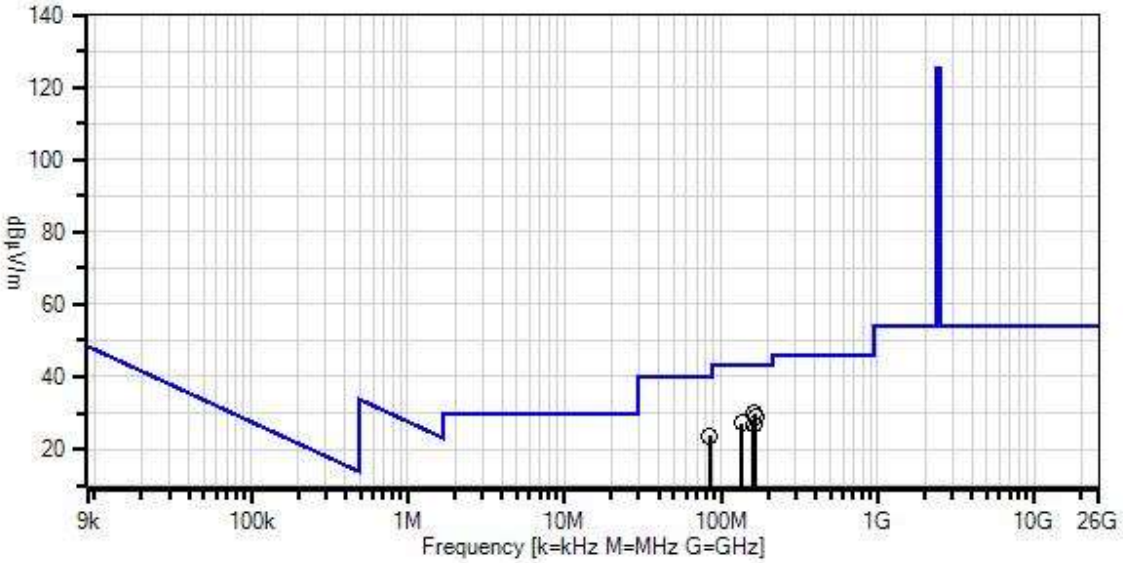
Radiated Emission
Frequency Range: 9kHz to 1000MHz

Temperature: 22.4°C
Relative Humidity: 48%
Atmospheric Pressure: 102.3 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended. It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT

Note:
802.11n HT40
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 72 Date: 12/19/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	163.396M	43.8	-32.1 +0.4	+5.9 +10.6	+1.2	+0.2	+0.0	30.0	43.5	-13.5	Horiz
2	165.520M	42.9	-32.1 +0.4	+5.9 +10.4	+1.2	+0.2	+0.0	28.9	43.5	-14.6	Horiz
3	136.397M	39.9	-32.1 +0.4	+6.0 +11.8	+1.1	+0.2	+0.0	27.3	43.5	-16.2	Horiz
4	85.129M	40.2	-32.1 +0.3	+5.9 +8.4	+0.8	+0.1	+0.0	23.6	40.0	-16.4	Vert
5	161.475M	40.5	-32.1 +0.4	+5.9 +10.8	+1.2	+0.2	+0.0	26.9	43.5	-16.6	Horiz

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**101821**	Date:	12/13/2018
Test Type:	**Radiated Scan**	Time:	09:51:05
Tested By:	Hieu Song Nguyenpham	Sequence#:	28
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 25000MHz

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
RF Output Power=20dBm
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

The EUT is set up as intended. It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT

Note:
802.11n HT40
High Channel

Edison Labs, Inc. WO#: 101821 Sequence#: 28 Date: 12/13/2018
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters

Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T4	AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
	AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
	AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
	ANP00928	Cable	various	1/15/2018	1/15/2020
	ANP00929	Cable	various	1/15/2018	1/15/2020
	ANP06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
T5	ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	3/16/2018	3/16/2020
	ANP06126	Cable	32022-29094K-29094K-168TC	3/27/2017	3/27/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	7352.750M	60.3	+36.0 +1.0	+2.3 +0.1	+4.9	-59.3	+0.0	45.3	54.0	-8.7	Horiz
2	3167.870M	67.4	+30.2 +0.7	+1.5 +0.5	+3.2	-58.7	+0.0	44.8	54.0	-9.2	Horiz
3	9808.050M Ave	51.0	+38.7 +1.1	+2.7 +0.1	+6.1	-59.3	+0.0	40.4	54.0	-13.6	Horiz
^	9808.050M	60.6	+38.7 +1.1	+2.7 +0.1	+6.1	-59.3	+0.0	50.0	54.0	-4.0	Horiz
5	4906.270M	59.3	+33.1 +0.9	+1.9 +0.1	+4.0	-59.1	+0.0	40.2	54.0	-13.8	Horiz

Band Edge

Band Edge Summary - BLE					
Frequency (MHz)	Modulation	Ant. Type	Field Strength (dBuV/m @3m)	Limit (dBuV/m @3m)	Results
2390.0	GFSK	Integral	42.9947	<54	Pass
2483.5	GFSK	Integral	43.5417	<54	Pass

Note: 2400 MHz band edge data is addressed in a prior report.

Band Edge Summary – 802.11b					
Frequency (MHz)	Modulation	Ant. Type	Field Strength (dBuV/m @3m)	Limit (dBuV/m @3m)	Results
2390.0	CCK/DBPSK	Integral	43.2187	<54	Pass
2483.5	CCK/DBPSK	Integral	44.5047	<54	Pass

Note: 2400 MHz band edge data is addressed in a prior report.

Band Edge Summary – 802.11g					
Frequency (MHz)	Modulation	Ant. Type	Field Strength (dBuV/m @3m)	Limit (dBuV/m @3m)	Results
2390.0	OFDM/BPSK	Integral	43.5827	<54	Pass
2483.5	OFDM/BPSK	Integral	43.8187	<54	Pass

Note: 2400 MHz band edge data is addressed in a prior report.

Band Edge Summary – 802.11nHT20					
Frequency (MHz)	Modulation	Ant. Type	Field Strength (dBuV/m @3m)	Limit (dBuV/m @3m)	Results
2390.0	QAM	Integral	43.7557	<54	Pass
2483.5	QAM	Integral	44.3557	<54	Pass

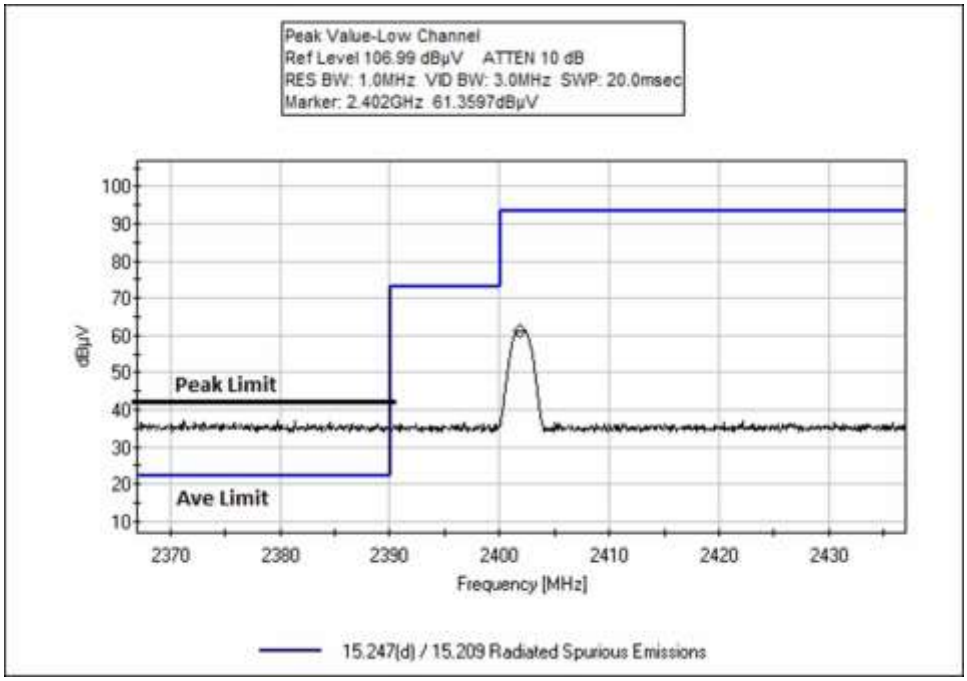
Note: 2400 MHz band edge data is addressed in a prior report.

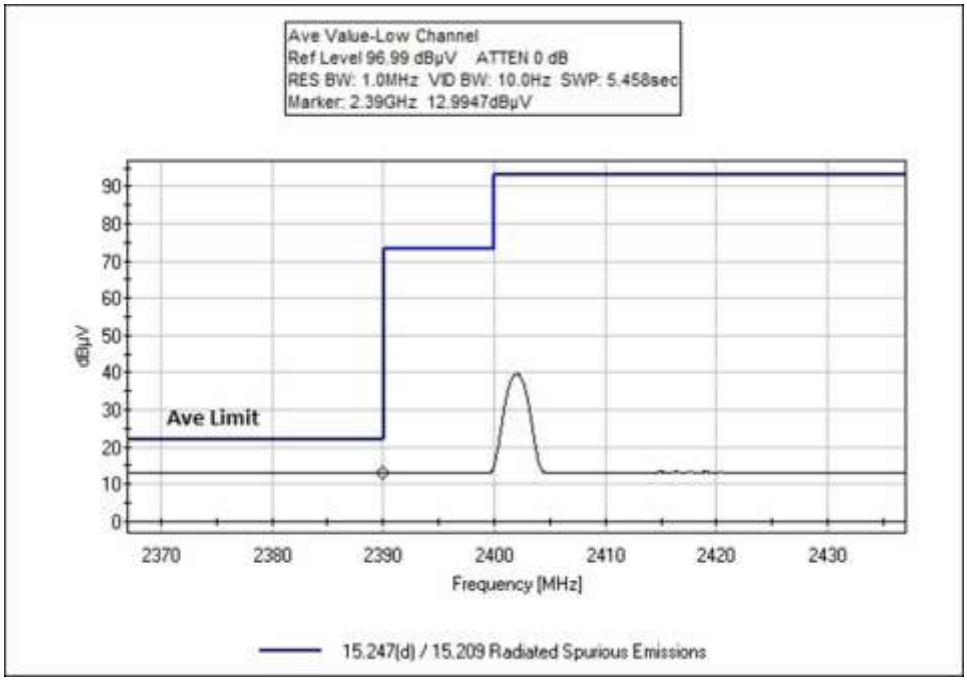
Band Edge Summary – 802.11n HT40					
Frequency (MHz)	Modulation	Ant. Type	Field Strength (dBuV/m @3m)	Limit (dBuV/m @3m)	Results
2390.0	QAM	Integral	43.8562	<54	Pass
2483.5	QAM	Integral	44.3257	<54	Pass

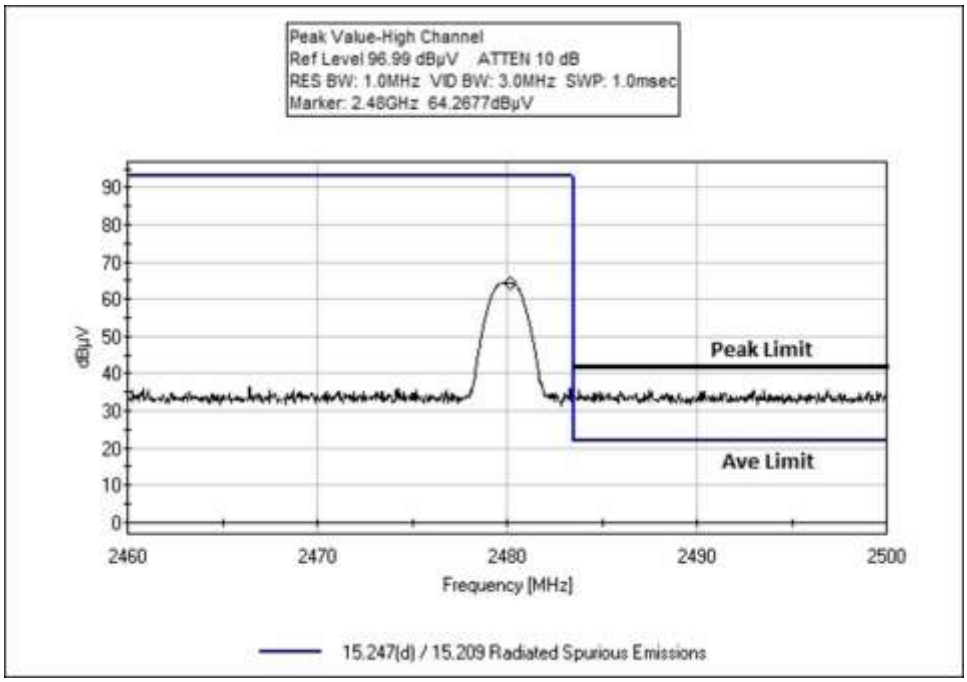
Note: 2400 MHz band edge data is addressed in a prior report.

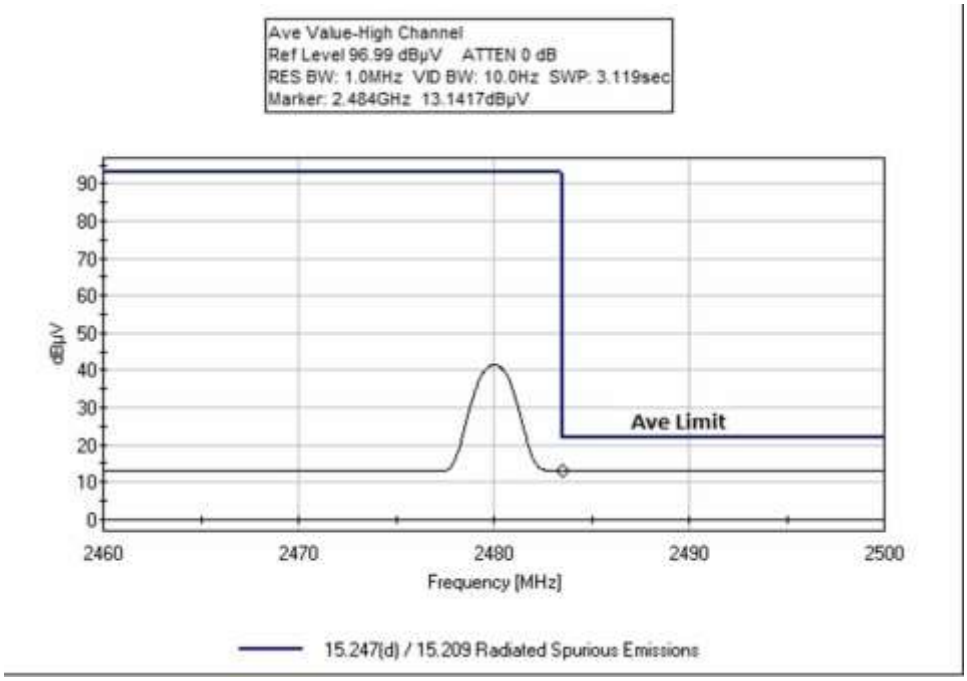
Band Edge Plots

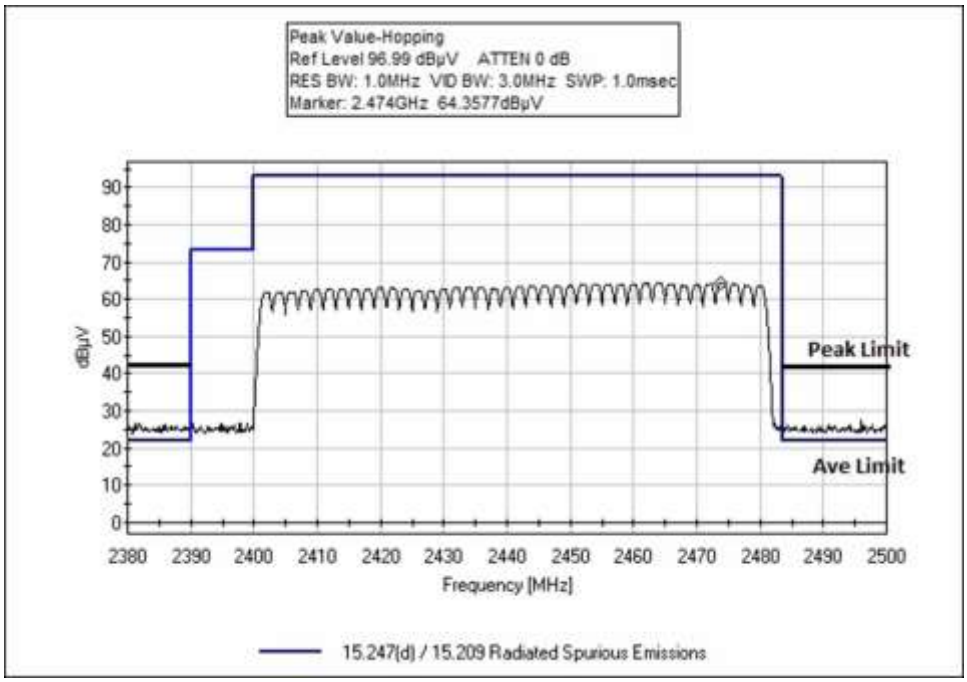
BLE



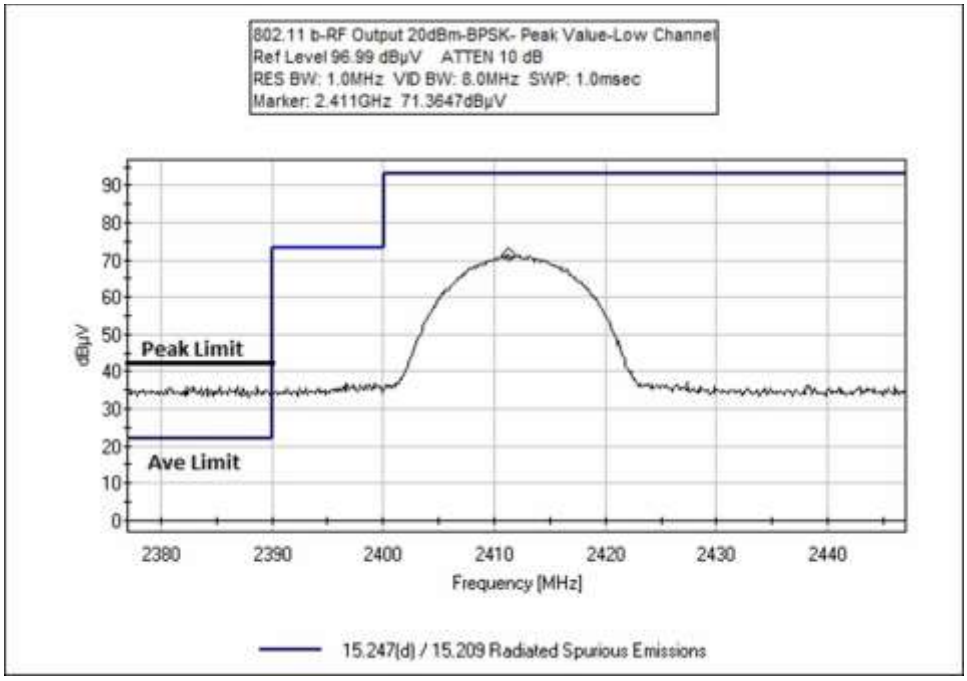


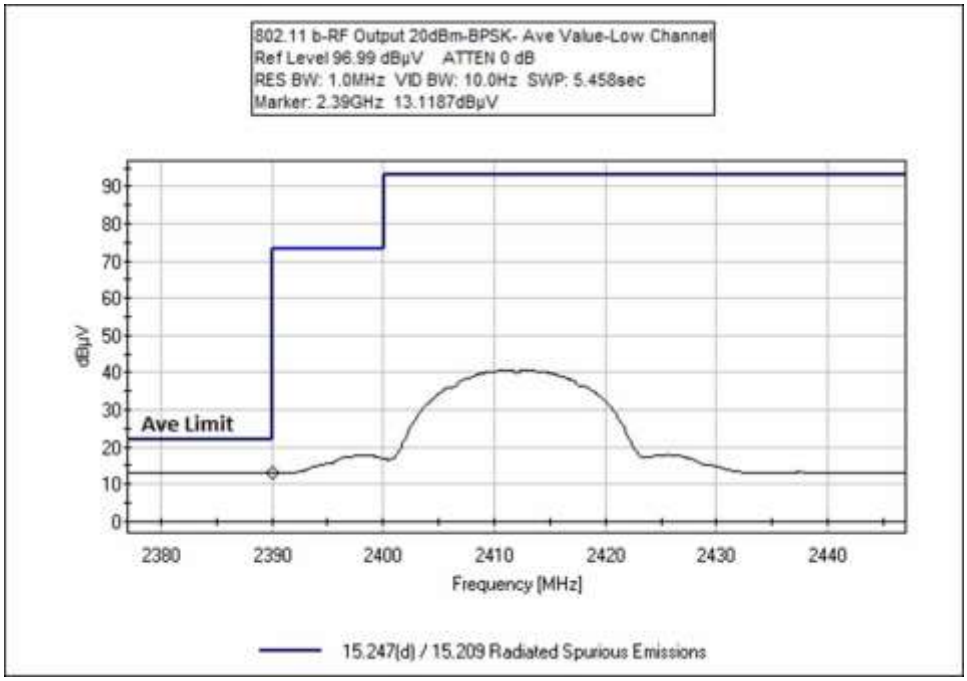

Peak Value-High Channel
Ref Level 96.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 1.0msec
Marker: 2.48GHz 64.2677dBµV
dBµV
Peak Limit
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

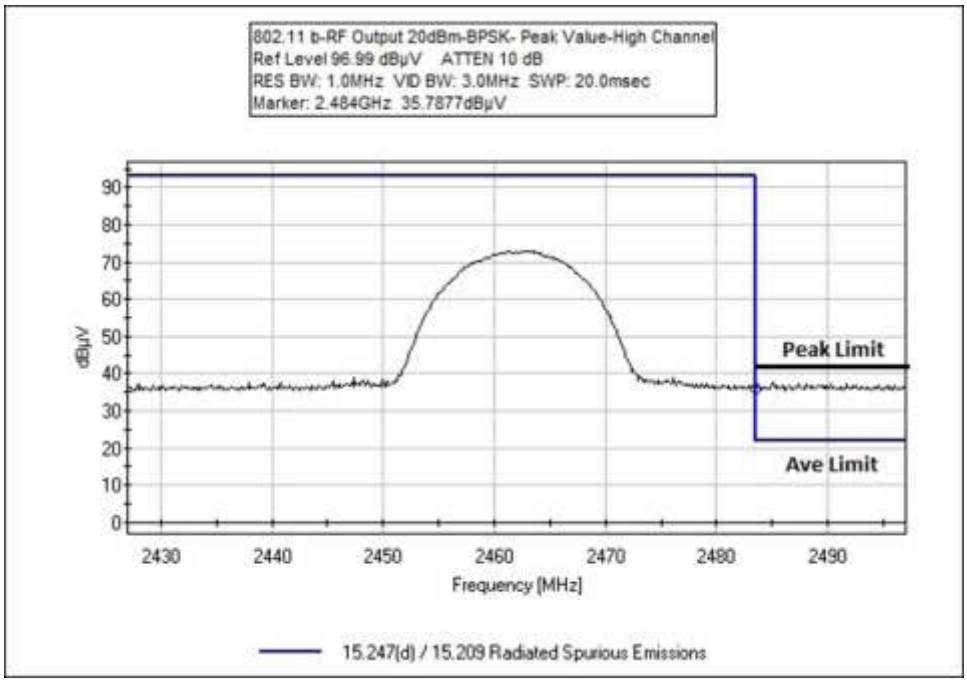

Ave Value-High Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 3.119sec
Marker: 2.484GHz 13.1417dBµV
dBµV
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

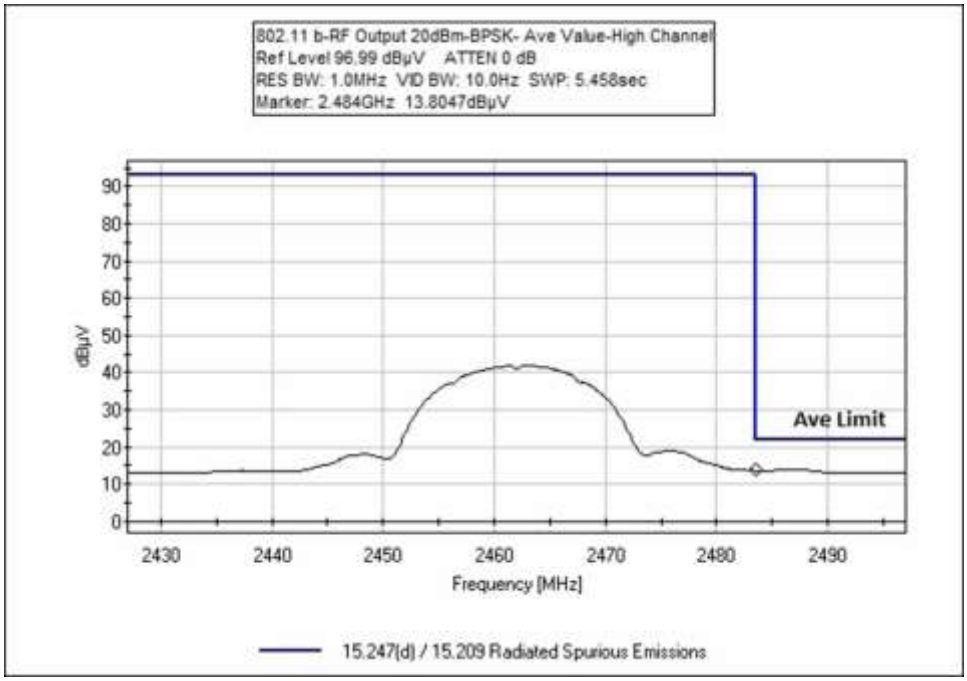

Peak Value-Hopping
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 1.0msec
Marker: 2.474GHz 64.3577dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
Peak Limit
Ave Limit
2380 2390 2400 2410 2420 2430 2440 2450 2460 2470 2480 2490 2500
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

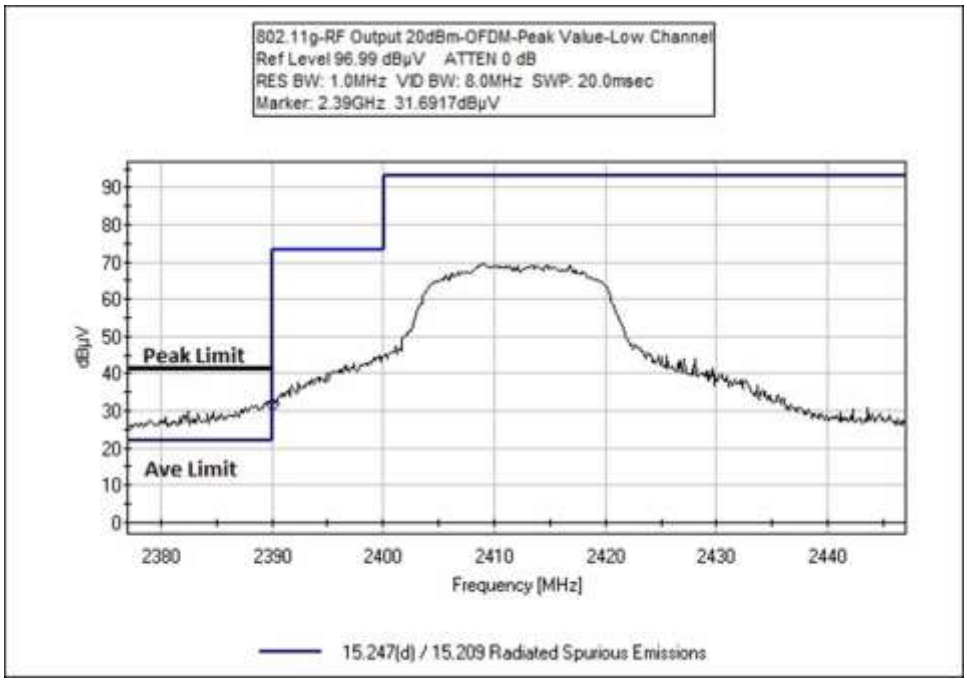
WIFI

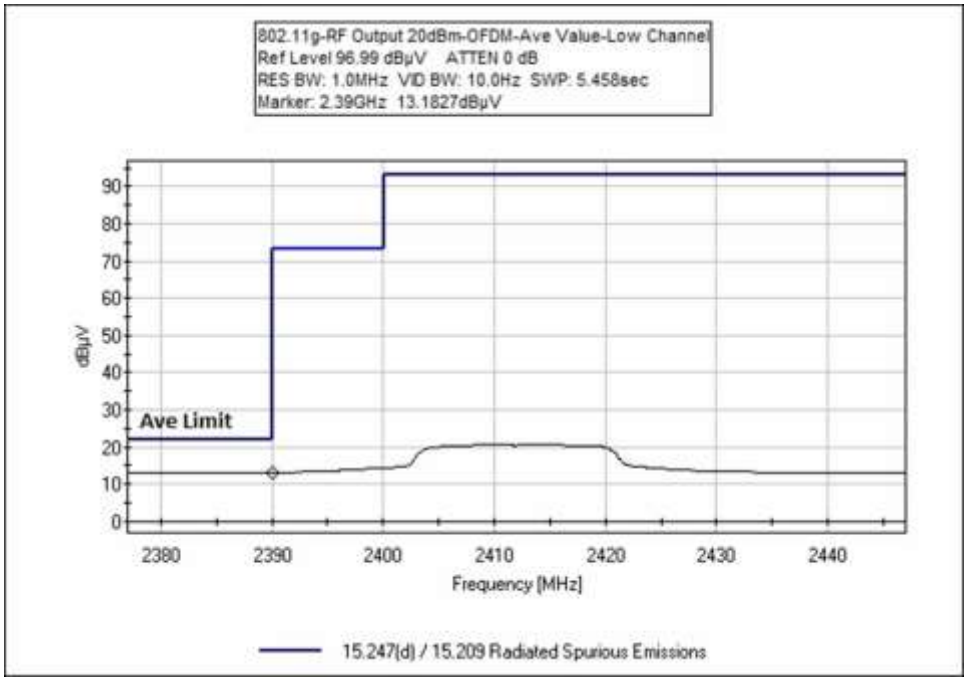

802.11 b-RF Output 20dBm-BPSK- Peak Value-Low Channel
Ref Level 96.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 8.0MHz SWP: 1.0msec
Marker: 2.411GHz 71.3647dBµV
Peak Limit
Ave Limit
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

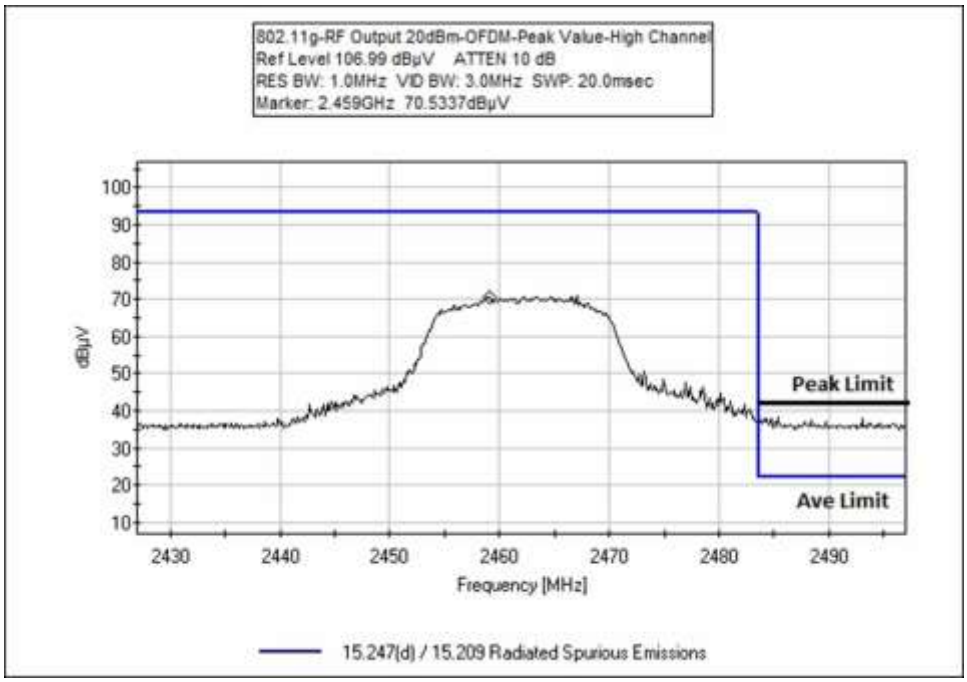

802.11 b-RF Output 20dBm-BPSK- Ave Value-Low Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.458sec
Marker: 2.39GHz 13.1187dBµV
Ave Limit
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

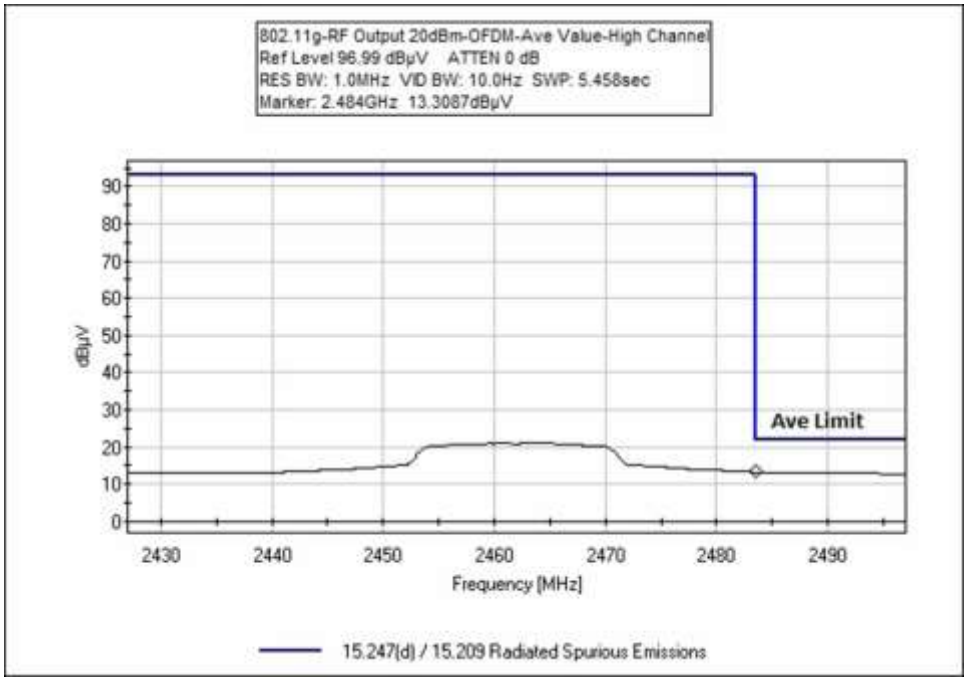

802.11 b-RF Output 20dBm-BPSK- Peak Value-High Channel
Ref Level 96.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 35.7877dBµV
dBµV
Peak Limit
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

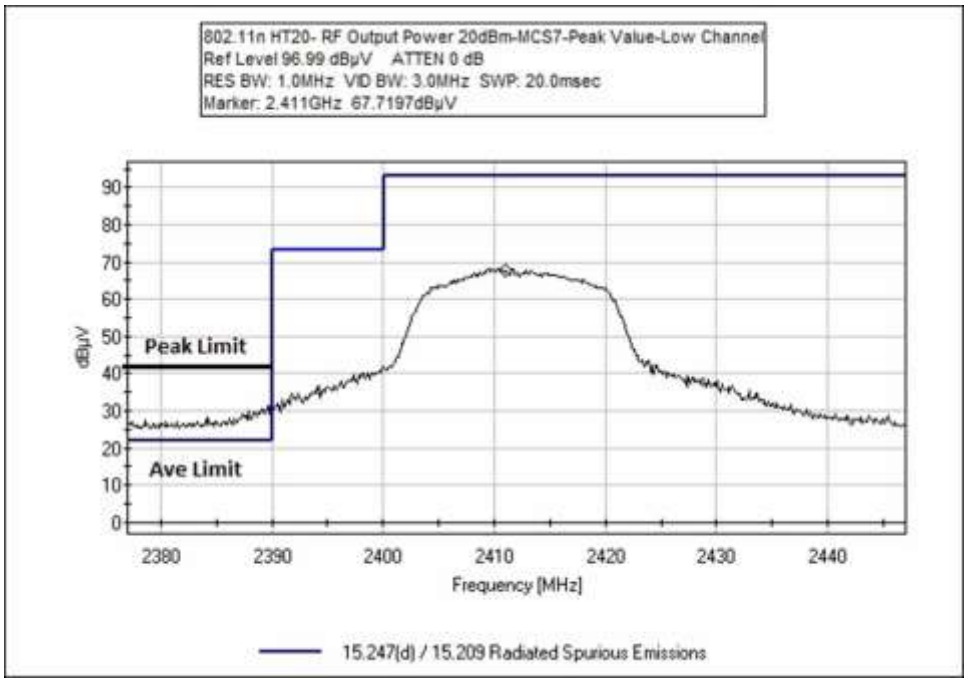

802.11 b-RF Output 20dBm-BPSK- Ave Value-High Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.458sec
Marker: 2.484GHz 13.8047dBµV
dBµV
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

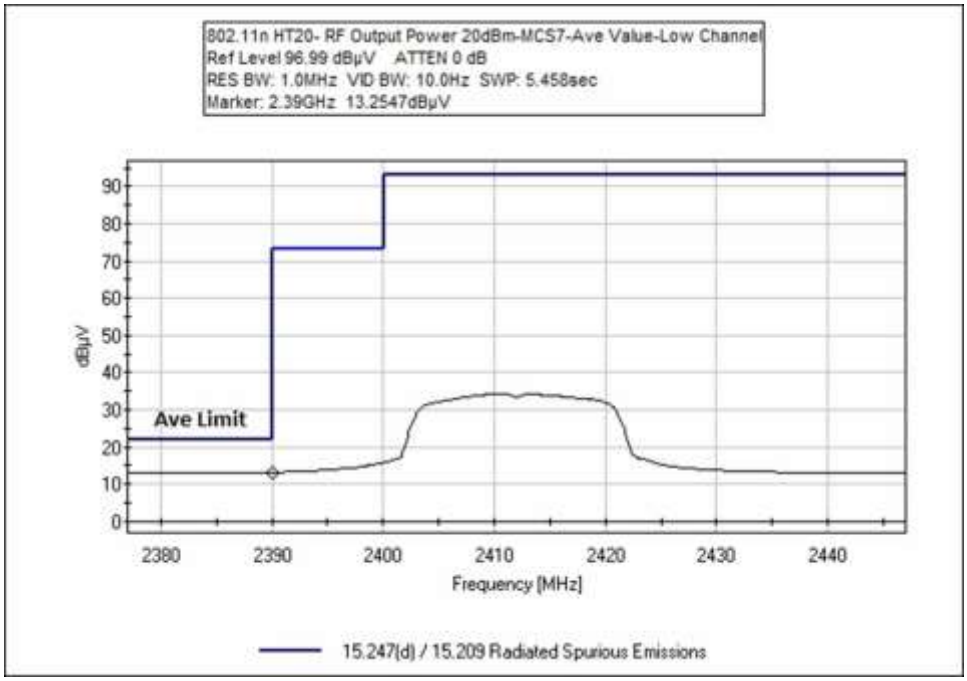

802.11g-RF Output 20dBm-OFDM-Peak Value-Low Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 8.0MHz SWP: 20.0msec
Marker: 2.39GHz 31.6917dBµV
dBµV
Peak Limit
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

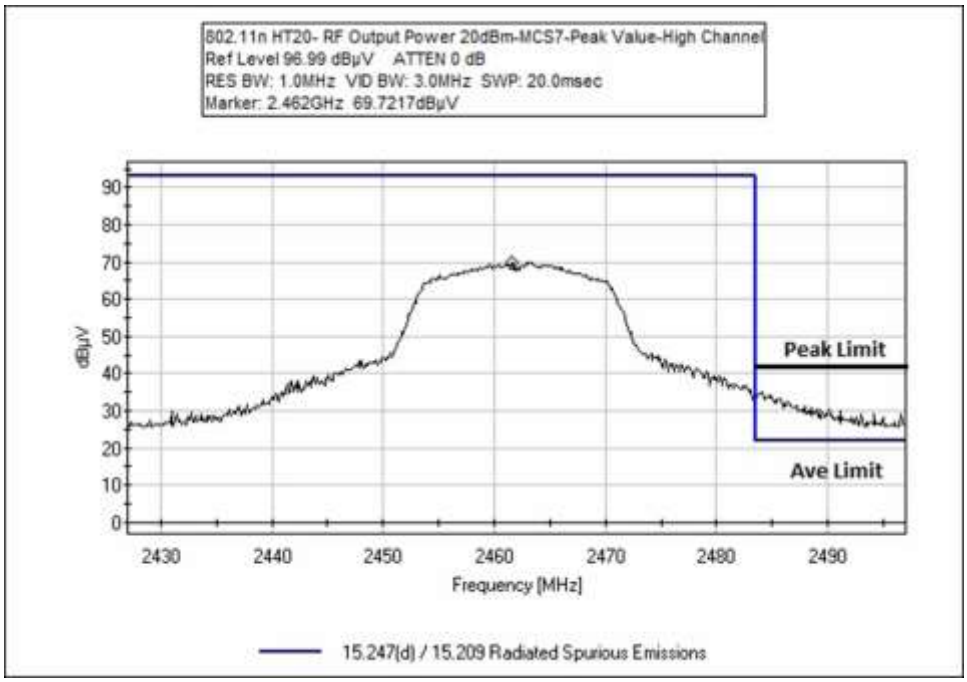

802.11g-RF Output 20dBm-OFDM-Ave Value-Low Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.458sec
Marker: 2.39GHz 13.1827dBµV
dBµV
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

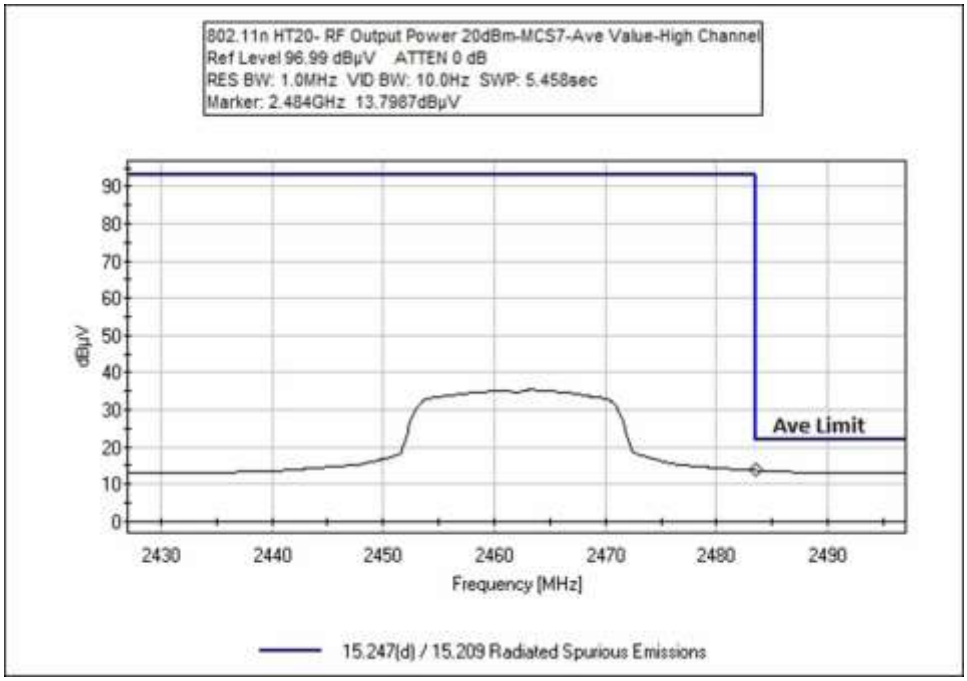

802.11g-RF Output 20dBm-OFDM-Peak Value-High Channel
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.459GHz 70.5337dBµV
dBµV
Peak Limit
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

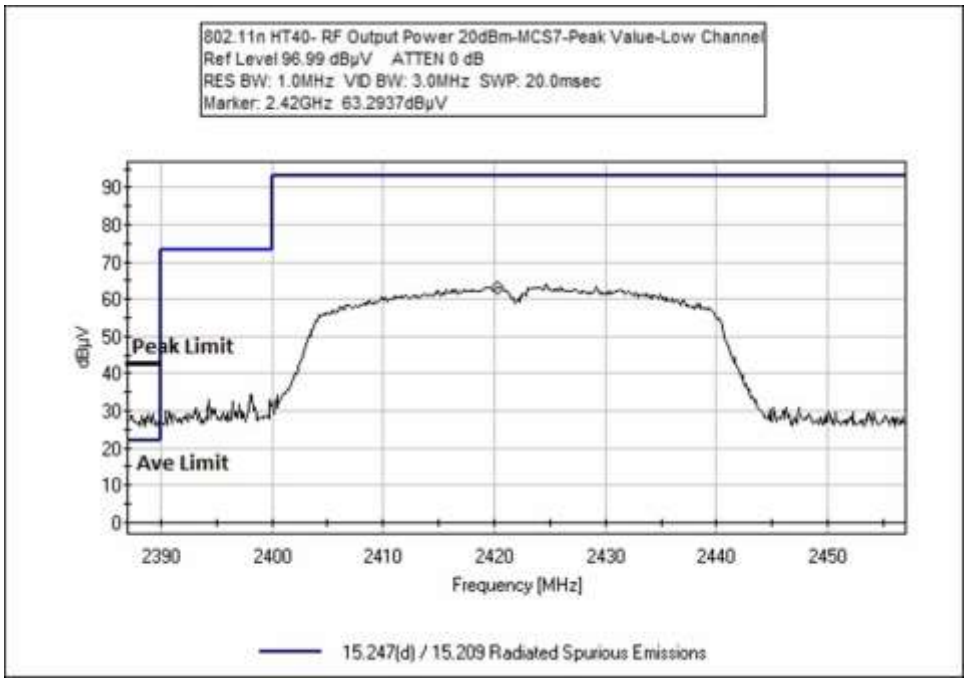

802.11g-RF Output 20dBm-OFDM-Ave Value-High Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.458sec
Marker: 2.484GHz 13.3087dBµV
dBµV
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

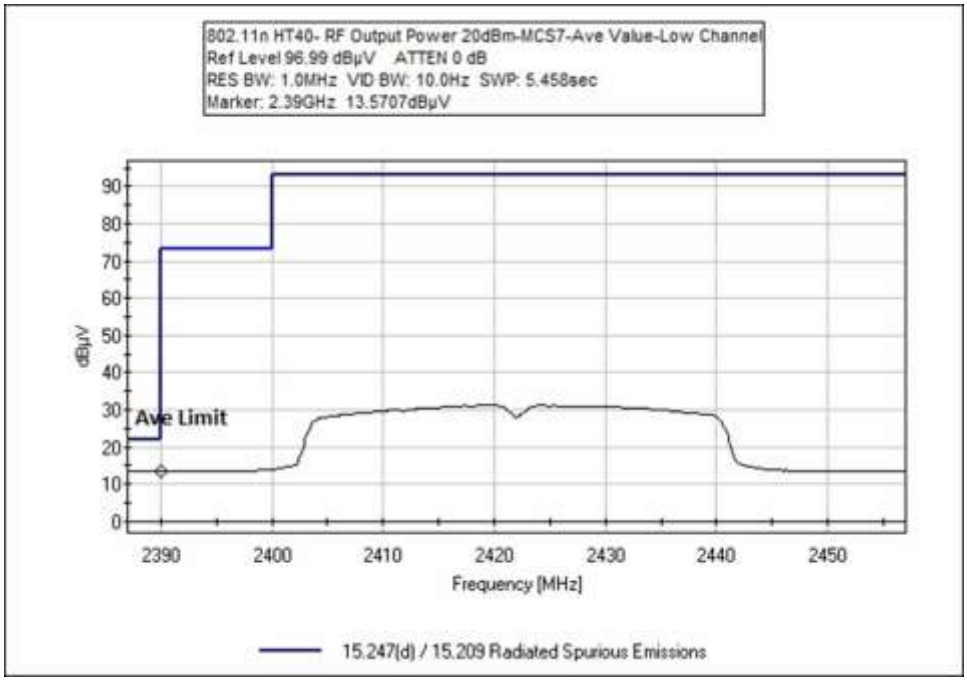

802.11n HT20- RF Output Power 20dBm-MCS7-Peak Value-Low Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.411GHz 67.7197dBµV
Peak Limit
Ave Limit
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

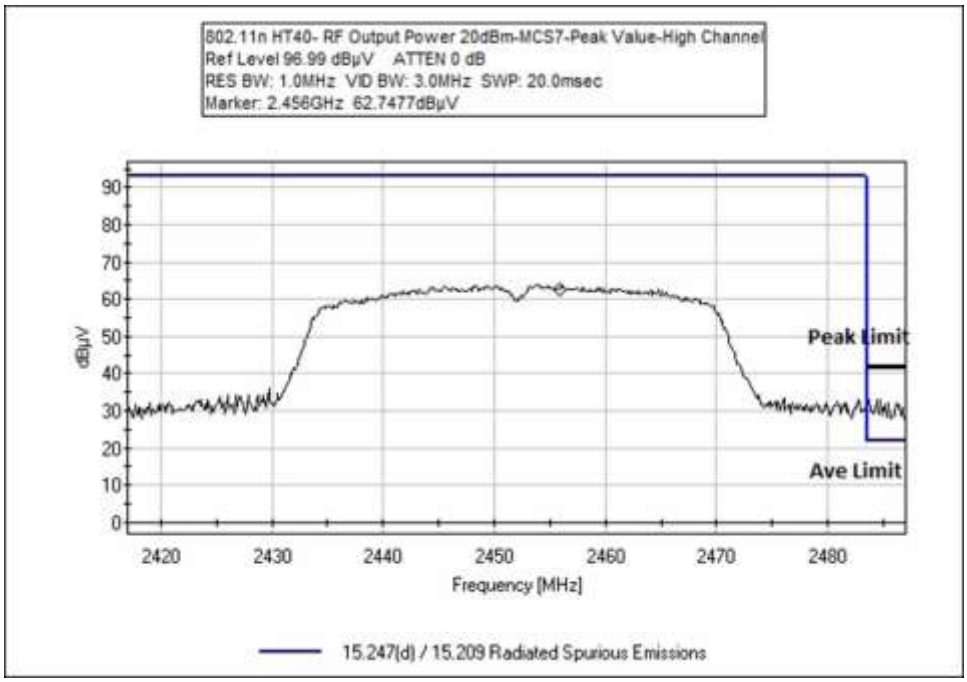

802.11n HT20- RF Output Power 20dBm-MCS7-Ave Value-Low Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.458sec
Marker: 2.39GHz 13.2547dBµV
Ave Limit
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

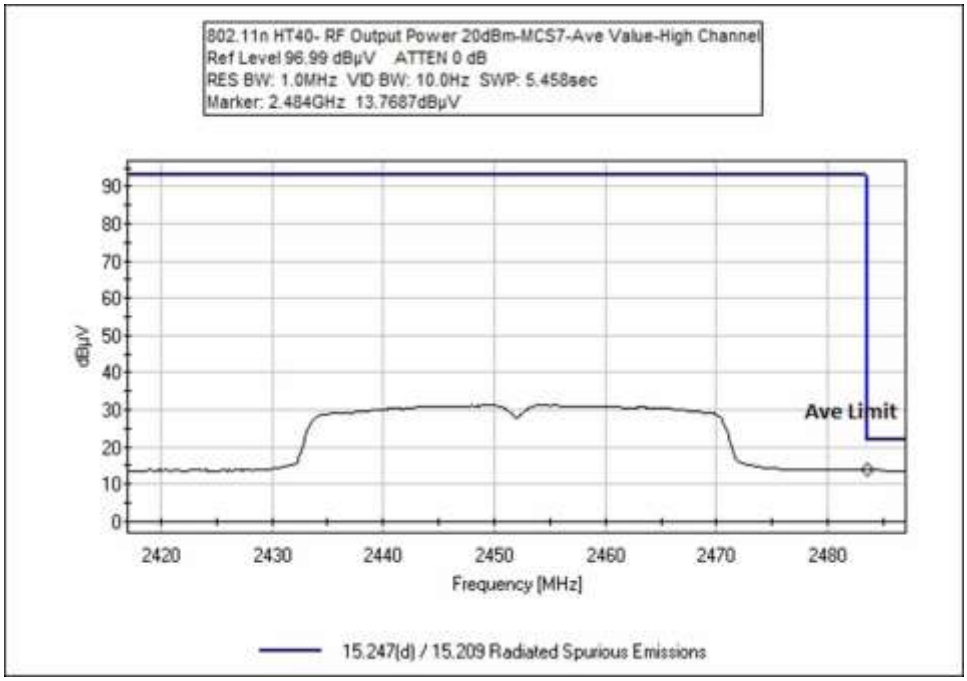

802.11n HT20- RF Output Power 20dBm-MCS7-Peak Value-High Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.462GHz 69.7217dBµV
dBµV
Peak Limit
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


802.11n HT20- RF Output Power 20dBm-MCS7-Ave Value-High Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.458sec
Marker: 2.484GHz 13.7967dBµV
dBµV
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


802.11n HT40- RF Output Power 20dBm-MCS7-Peak Value-Low Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.42GHz 63.2937dBµV
dBµV
Peak Limit
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


802.11n HT40- RF Output Power 20dBm-MCS7-Ave Value-Low Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.458sec
Marker: 2.39GHz 13.5707dBµV
dBµV
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


802.11n HT40- RF Output Power 20dBm-MCS7-Peak Value-High Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.456GHz 62.7477dBµV
dBµV
Peak Limit
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


802.11n HT40- RF Output Power 20dBm-MCS7-Ave Value-High Channel
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.458sec
Marker: 2.484GHz 13.7687dBµV
dBµV
Ave Limit
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc.**		
Specification:	Band Edge		
Work Order #:	**101821**	Date:	12/12/2018
Test Type:	**Radiated Scan**	Time:	11:28:08 AM
Tested By:	Hieu Song Nguyenpham	Sequence#:	1
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Band Edge

Temperature: 21.9°C
Relative Humidity: 44%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
Firmware: 1.0.0
Gain of antenna for BLE and Wifi: +4.83dBi
Method: ANSI C63.10 2013

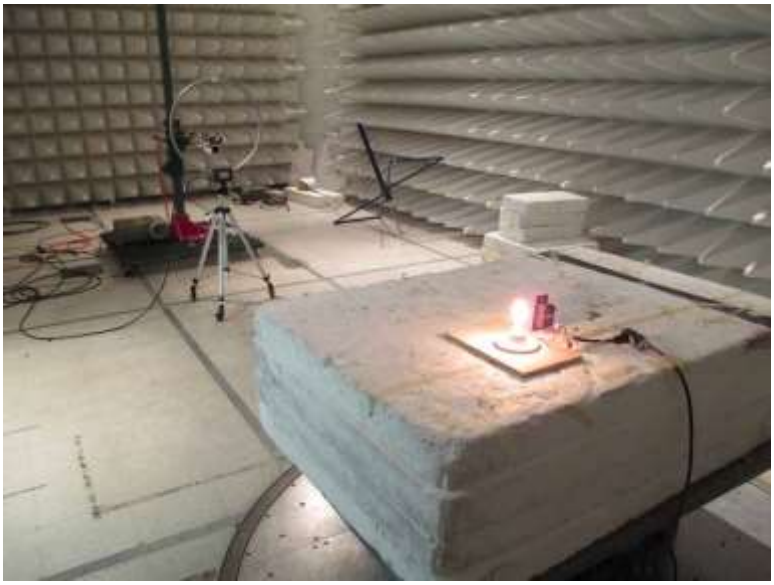
The EUT is set up as intended. It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
	AN03302	Cable	Astrolab	32026-29094K-29094K-72TC	1/15/2018
	ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020

Test Setup Photos

9kHz – 30MHz



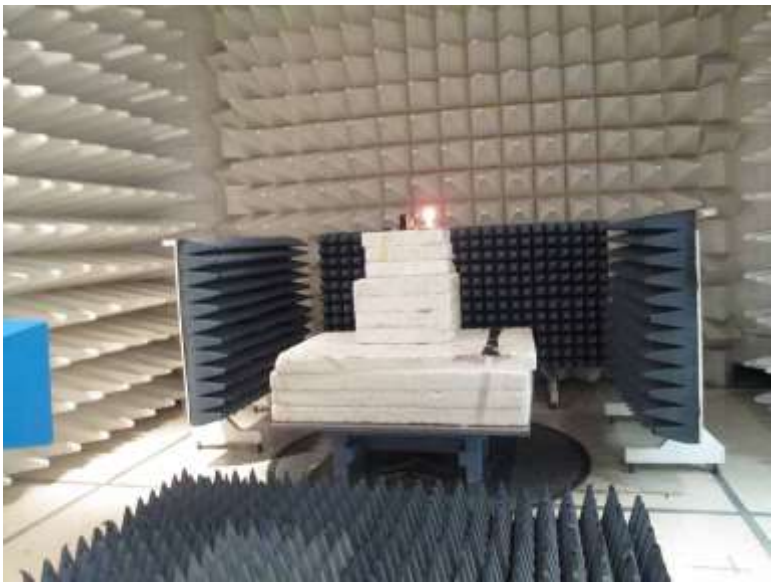
9kHz – 30MHz

30MHz – 1GHz

30MHz – 1GHz

1 – 12GHz, Cone placement

1 – 12GHz, Cone placement



12 – 25GHz, Cone placement

12 – 25GHz, Cone placement

15.207 AC Conducted Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc. dba Orro**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**101821**	Date:	12/10/2018
Test Type:	**Conducted Emissions**	Time:	17:11:15
Tested By:	Hieu Song Nguyenpham	Sequence#:	19
Software:	EMITest 5.03.11		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

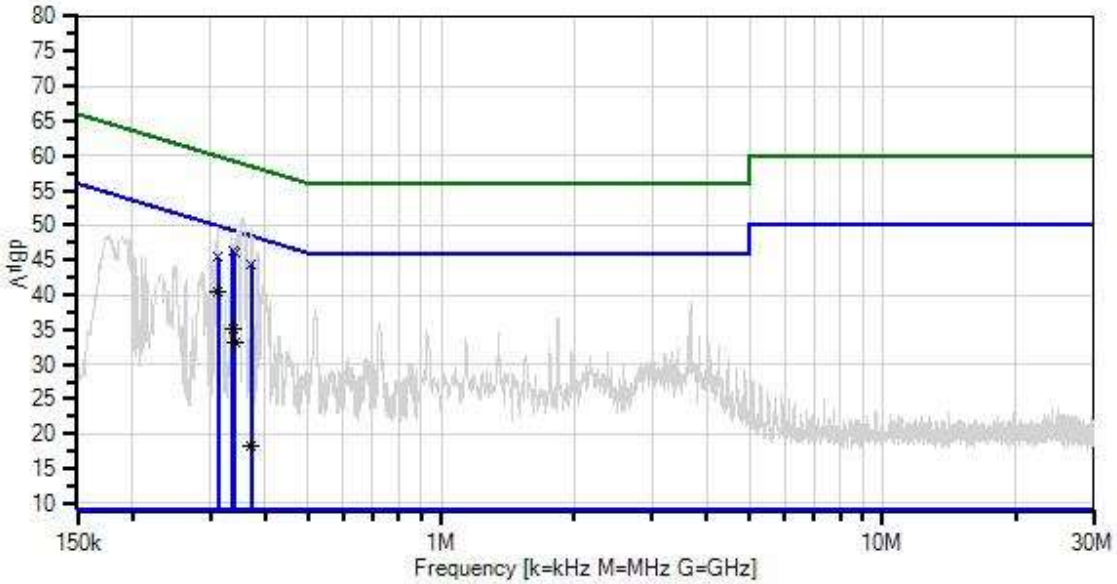
Conducted Emission
Frequency Range: 150kHz to 30MHz

Temperature: 22.8°C
Relative Humidity: 41%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
Firmware: 1.0.0
Method: ANSI C 63.10 2013

The EUT is set up as intended. It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT

BLE and Wifi is in Normal Mode

Edison Labs, Inc. dba Orro WO#: 101821 Sequence#: 19 Date: 12/10/2018
15.207 AC Mains - Average Test Lead: 120V 60Hz Line



Sweep Data
× QP Readings
Software Version: 5.03.11
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	23-10-34	2/20/2017	2/20/2019
T2	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T3	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
T4	AN00494	50uH LISN-Line Loss (dB)	3816/NM	3/1/2017	3/1/2019
	AN00494	50uH LISN-Return Loss (dB)	3816/NM	3/1/2017	3/1/2019
T5	ANP05258	High Pass Filter	HE9615-150K-50-720B	9/19/2018	9/19/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020

Measurement Data: Reading listed by margin. Test Lead: Line

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	311.983k Ave	30.4	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	40.4	49.9	-9.5	Line
2	338.140k QP	36.4	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	46.4	59.2	-12.8	Line
3	341.226k QP	36.2	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	46.2	59.2	-13.0	Line
4	338.140k Ave	25.2	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	35.2	49.2	-14.0	Line
5	371.797k QP	34.4	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	44.4	58.5	-14.1	Line
6	311.983k QP	35.4	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	45.4	59.9	-14.5	Line
^	311.983k	40.7	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	50.7	49.9	+0.8	Line
8	341.226k Ave	23.2	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	33.2	49.2	-16.0	Line
^	338.140k	40.1	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	50.1	49.2	+0.9	Line
^	341.226k	38.9	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	48.9	49.2	-0.3	Line
11	371.797k Ave	8.3	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	18.3	48.5	-30.2	Line
^	371.797k	38.7	+9.9 +0.1	+0.0	+0.0	+0.0	+0.0	48.7	48.5	+0.2	Line

Test Location:	CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 •		
Customer:	**Edison Labs, Inc. dba Orro**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**101821**	Date:	12/10/2018
Test Type:	**Conducted Emissions**	Time:	17:26:20
Tested By:	Hieu Song Nguyenpham	Sequence#:	20
Software:	EMITest 5.03.11		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

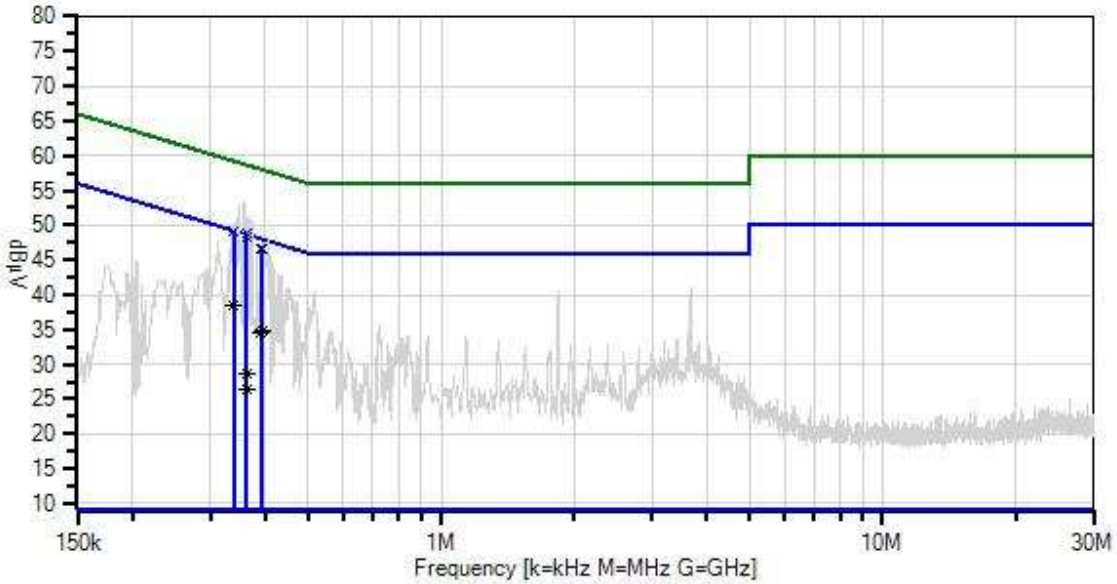
Conducted Emission
Frequency Range: 150kHz to 30MHz

Temperature: 22.8°C
Relative Humidity: 41%
Atmospheric Pressure: 102.4 kPa
Highest Generation Frequency: 2480MHz
Firmware: 1.0.0
Method: ANSI C 63.10 2013

The EUT is set up as intended. It is connected to a 40W Edison Bulb Light during testing to maximize all emission from the EUT

BLE and Wifi is in Normal Mode

Edison Labs, Inc. dba Orro WO#: 101821 Sequence#: 20 Date: 12/10/2018
15.207 AC Mains - Average Test Lead: 120V 60Hz Neutral



Sweep Data
× QP Readings
Software Version: 5.03.11
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

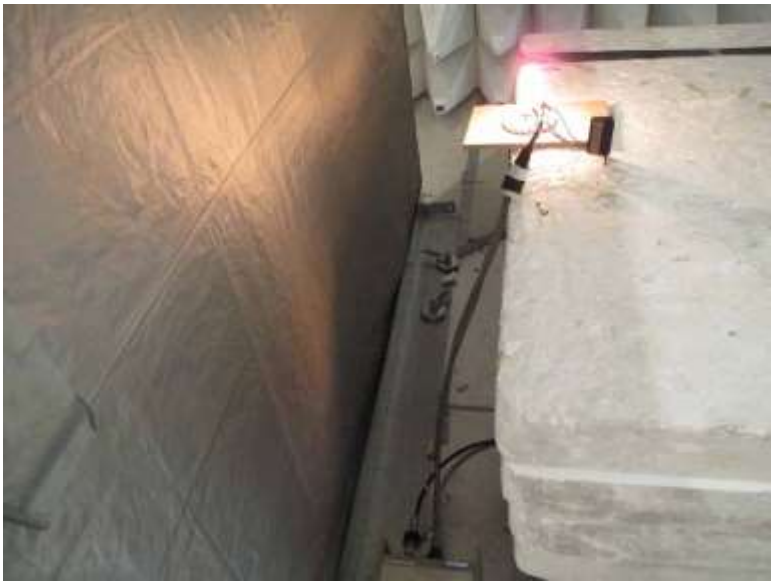
Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	23-10-34	2/20/2017	2/20/2019
T2	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T3	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN00494	50uH LISN-Line Loss (dB)	3816/NM	3/1/2017	3/1/2019
T4	AN00494	50uH LISN-Return Loss (dB)	3816/NM	3/1/2017	3/1/2019
T5	ANP05258	High Pass Filter	HE9615-150K-50-720B	9/19/2018	9/19/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020

Measurement Data: Reading listed by margin. Test Lead: Neutral

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	363.034k	38.9	+9.9	+0.0	+0.0	+0.0	+0.0	48.9	58.7	-9.8	Neutr
	QP		+0.1								
2	338.636k	39.1	+9.9	+0.0	+0.0	+0.0	+0.0	49.1	59.2	-10.1	Neutr
	QP		+0.1								
3	362.879k	38.2	+9.9	+0.0	+0.0	+0.0	+0.0	48.2	58.7	-10.5	Neutr
	QP		+0.1								
4	338.636k	28.6	+9.9	+0.0	+0.0	+0.0	+0.0	38.6	49.2	-10.6	Neutr
	Ave		+0.1								
^	338.636k	40.7	+9.9	+0.0	+0.0	+0.0	+0.0	50.7	49.2	+1.5	Neutr
			+0.1								
6	391.282k	36.6	+9.9	+0.0	+0.0	+0.0	+0.0	46.6	58.0	-11.4	Neutr
	QP		+0.1								
7	393.189k	36.6	+9.9	+0.0	+0.0	+0.0	+0.0	46.6	58.0	-11.4	Neutr
	QP		+0.1								
8	393.189k	24.8	+9.9	+0.0	+0.0	+0.0	+0.0	34.8	48.0	-13.2	Neutr
	Ave		+0.1								
9	391.282k	24.5	+9.9	+0.0	+0.0	+0.0	+0.0	34.5	48.0	-13.5	Neutr
	Ave		+0.1								
^	391.282k	39.1	+9.9	+0.0	+0.0	+0.0	+0.0	49.1	48.0	+1.1	Neutr
			+0.1								
^	393.189k	37.8	+9.9	+0.0	+0.0	+0.0	+0.0	47.8	48.0	-0.2	Neutr
			+0.1								
12	363.034k	18.7	+9.9	+0.0	+0.0	+0.0	+0.0	28.7	48.7	-20.0	Neutr
	Ave		+0.1								
13	362.879k	16.3	+9.9	+0.0	+0.0	+0.0	+0.0	26.3	48.7	-22.4	Neutr
	Ave		+0.1								
^	362.879k	44.9	+9.9	+0.0	+0.0	+0.0	+0.0	54.9	48.7	+6.2	Neutr
			+0.1								
^	363.034k	44.7	+9.9	+0.0	+0.0	+0.0	+0.0	54.7	48.7	+6.0	Neutr
			+0.1								

Test Setup Photos



SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

Uncertainties reported are worst case for all CKC Laboratories' sites and represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point, the measuring device is set into the linear mode and the scan time is reduced.