

Ossia, Inc.

REVISED EMC TEST REPORT TO 103895-4A

**Cota WPT Source
Model: Cota Tx203**

Tested to The Following Standards:

FCC Part 18 Subpart C Section 18.305 & 18.307

Report No.: 103895-4B

Date of issue: October 28, 2020



Test Certificate # 803.01

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.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Ossia, Inc.
1100 112th Ave NE Suite 301
Bellevue, WA 98004

Representative: Bob McDonald

REPORT PREPARED BY:

Kim Romero
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 103895

DATE OF EQUIPMENT RECEIPT:

June 12, 2020

DATE(S) OF TESTING:

June 12, 14, and 26, 2020

Revision History

Original: Testing of the Cota WPT Source, Model: Cota Tx203 to FCC Part 18 Subpart C Section 18.305 & 18.307.

Revision A: To replace Seq. 57 conducted emissions datasheet with the correct spec limit reference.

Revision B: To add an Engineers Statement to the Conditions Under Test Section.

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.
Canyon Park
22116 23rd Drive S.E., Suite A
Bothell, WA 98021

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.12
EMITest Immunity	5.03.10

Site Registration & Accreditation Information

Location	*NIST CB #	FCC	Japan
Canyon Park, Bothell, WA	US0081	US1022	A-0136
Brea, CA	US0060	US1025	A-0136
Fremont, CA	US0082	US1023	A-0136
Mariposa, CA	US0103	US1024	A-0136

*CKC's list of NIST designated countries can be found at: <https://standards.gov/cabs/designations.html>

SUMMARY OF RESULTS

Standard / Specification: FCC Part 18 Subpart C

Test Procedure	Description	Modifications	Results
FCC Part 18.305 (b)	Radiated Emissions	NA	PASS
FCC Part 18.307 (b)	Conducted Emissions	NA	PASS

NA = Not Applicable

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

Note: The production power setting for the device will limit the output power to 13dBm. To verify compliance with the radiated field strength limits in Part 18 the output power was set to 20dBm for the tests documented in this report. Additionally, an investigation was performed to check the worst-case harmonic emissions at both the 13dBm and 20dBm power settings, 20dBm was found to be worst-case.

Investigation of worst-case Radiated Emissions

Based on historical test data and the procedure established from CKC report 102580-4: the 2nd, 3rd, and 4th Harmonics of the fundamental frequency were identified as the worst-case emissions. The worst-case frequencies were maximized with the following boundary conditions established by the manufacturer:

- The minimum separation distance between the tile and client is 0.3m
- The maximum separation distance between the tile and client is 1.0m
- The maximum angle between the tile and client is 60 degrees

The following measurements were collected to narrow down the worst-case conditions, where r is the separation distance between the tile and client, ϕ is the azimuth angle, and θ is the altitude angle.

$r=0.3m$, $\phi=0$ degrees, $\theta=0$ degrees

$r=1.0m$, $\phi=0$ degrees, $\theta=0$ degrees

$r=0.4m$, $\phi=0$ degrees, $\theta=0$ degrees

$r=0.6m$, $\phi=0$ degrees, $\theta=0$ degrees

The configuration with $r=0.4m$ was found to be worst case among these configurations. Finer distance adjustments were made at this point, as well as varying the azimuth and altitude angles no more than 60 degrees. The 0.4m boresight configuration verified to be the worst-case.

Note: r is measured from the center of the front face on each device. The angles are measured from the tile's boresight line to a line connecting the center front face of each device. For the angle variation, the client was rotated to always be pointed at the center of the front face of the tile.

All Radiated Emissions measurements included in the report were taken in the following configuration as worst-case as determined above:

$r=0.4m$, $\phi=0$ degrees, $\theta=0$ degrees

EUT settings from manufacturer: 20dBm, dynamic tuning

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
Cota WPT Source	Ossia, Inc.	Cota Tx203	OR-001

Support Equipment:

Device	Manufacturer	Model #	S/N
USB 2.0 Extension Cable	Blue Rigger	32 ft (10m)	NA
AC Adapter (for PoE Injector)	GlobTek, Inc.	GTM961808P18054-T3	NA
PoE Injector	Ossia, Inc.	OL-10282	NA
Laptop	Apple	MacBook Pro A1398	NA
USB Hub	AmazonBasics	B00DQFGJR4	NA
Thunderbolt to Ethernet adapter	Apple	A1433	NA
Cota WPT Client	Ossia, Inc.	VenusRx	NA

Configuration 2

Equipment Tested:

Device	Manufacturer	Model #	S/N
Cota WPT Source	Ossia, Inc.	Cota Tx203	OR-001

Support Equipment:

Device	Manufacturer	Model #	S/N
USB 2.0 Extension Cable	Blue Rigger	32 ft (10m)	NA
AC/DC Switching Adapter	Mean Well	GST220A12	NA
Laptop	Apple	MacBook Pro A1398	NA
USB Hub	AmazonBasics	B00DQFGJR4	NA
Thunderbolt to Ethernet adapter	Apple	A1433	NA
Cota WPT Client	Ossia, Inc.	VenusRx	NA

FCC PART 18

18.305 Radiated Emissions

Test Notes: Radiated disturbances emanating from enclosure.

Test Setup / Conditions / Data

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.305(b) ISM Frequencies <500W**
 Work Order #: **102119** Date: 6/12/2020
 Test Type: **Maximized Emissions** Time: 14:31:42
 Tested By: Michael Atkinson Sequence#: 18
 Software: EMITest 5.03.12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

Method: FCC/OET MP-5 (February 1986)

Frequency: 9kHz-30MHz

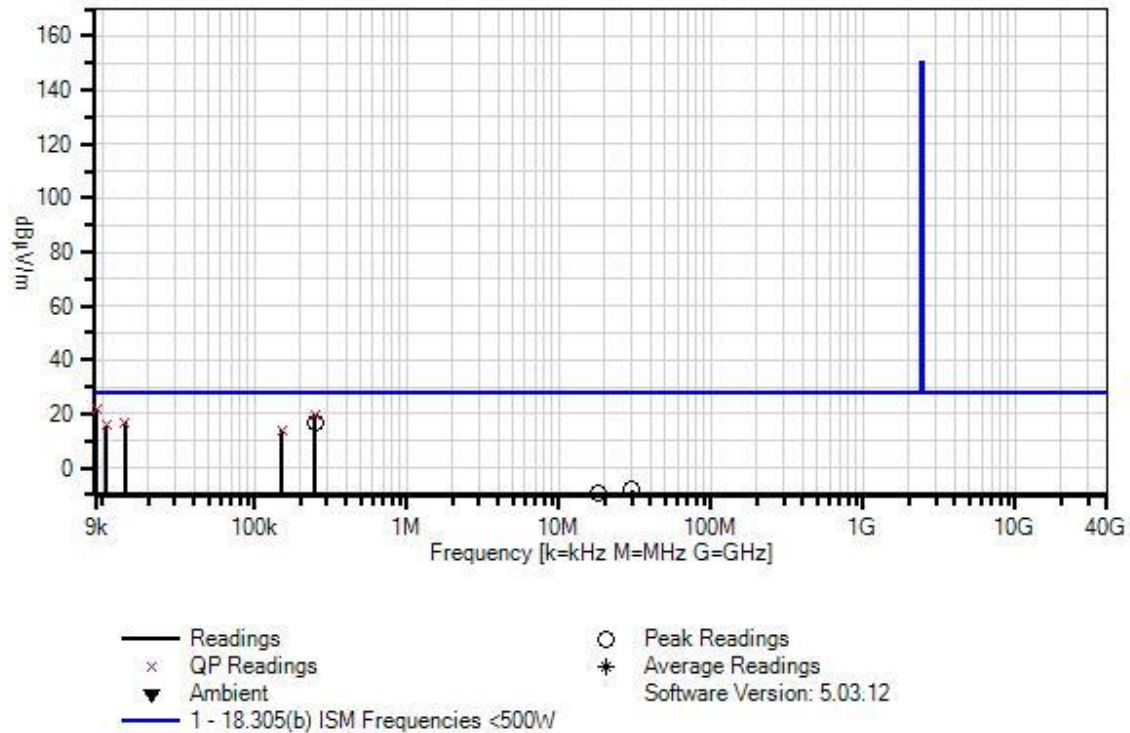
Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

Investigated power source for the EUT:
 Configuration 1: EUT connected to support PoE box with 2 x Ethernet cables for power. Support laptop connected to PoE box with 1 x Ethernet cable. PoE box and support Laptop are located remotely.

3 orthogonal axes investigated, worst case reported.

Ossia, Inc. WD#: 102119 Sequence#: 18 Date: 6/12/2020
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Para



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T1	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T2	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T3	AN00052	Loop Antenna	6502	5/4/2020	5/4/2022

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	9.182k	45.7	+0.0	+0.0	+16.0		-40.0	21.7	28.0	-6.3	Para
	QP										
2	250.461k	50.3	+0.0	+0.0	+9.5		-40.0	19.8	28.0	-8.2	Para
	QP										
^	250.353k	51.5	+0.0	+0.0	+9.5		-40.0	21.0	28.0	-7.0	Para
4	14.096k	42.9	+0.0	+0.0	+14.2		-40.0	17.1	28.0	-10.9	Perp
	QP										
^	14.096k	48.6	+0.0	+0.0	+14.2		-40.0	22.8	28.0	-5.2	Perp
6	251.800k	47.1	+0.0	+0.0	+9.5		-40.0	16.6	28.0	-11.4	Perp
7	10.630k	40.5	+0.0	+0.0	+15.4		-40.0	15.9	28.0	-12.1	Para
	QP										
8	152.091k	44.5	+0.0	+0.0	+9.5		-40.0	14.0	28.0	-14.0	Para
	QP										
^	152.090k	53.8	+0.0	+0.0	+9.5		-40.0	23.3	28.0	-4.7	Para
10	30.000M	27.4	+0.1	+0.3	+4.2		-40.0	-8.0	28.0	-36.0	Perp
11	18.020M	22.5	+0.1	+0.2	+8.0		-40.0	-9.2	28.0	-37.2	Groun

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.305(b) ISM Frequencies <500W**
 Work Order #: **102119** Date: 6/12/2020
 Test Type: **Maximized Emissions** Time: 17:12:30
 Tested By: Michael Atkinson Sequence#: 24
 Software: EMITest 5.03.12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

 Method: FCC/OET MP-5 (February 1986)

 Frequency: 9kHz-30MHz

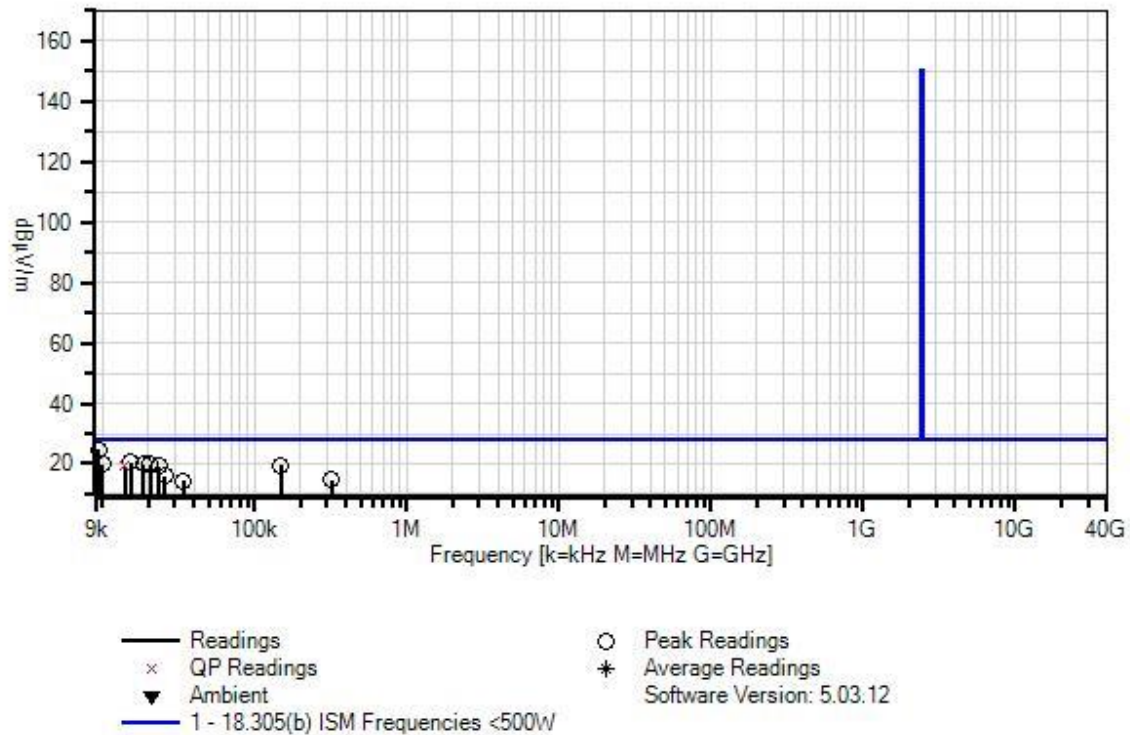
 Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

 EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

 Investigated power source for the EUT:
 Configuration 2: EUT connected to AC adapter for power. EUT connected to support Laptop via Ethernet cable. Laptop is located remotely.

 3 orthogonal axes investigated, worst case reported.

Ossia, Inc. WD#: 102119 Sequence#: 24 Date: 6/12/2020
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Para



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T1	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T2	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T3	AN00052	Loop Antenna	6502	5/4/2020	5/4/2022

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	9.420k	48.8	+0.0	+0.0	+15.9		-40.0	24.7	28.0	-3.3	Para
2	15.522k	46.9	+0.0	+0.0	+13.7		-40.0	20.6	28.0	-7.4	Para
3	20.665k	47.4	+0.0	+0.0	+12.5		-40.0	19.9	28.0	-8.1	Para
4	18.658k	46.9	+0.0	+0.0	+12.9		-40.0	19.8	28.0	-8.2	Para
5	10.002k	44.0	+0.0	+0.0	+15.7		-40.0	19.7	28.0	-8.3	Para
6	150.000k	50.0	+0.0	+0.0	+9.5		-40.0	19.5	28.0	-8.5	Para
7	14.142k	45.1	+0.0	+0.0	+14.2		-40.0	19.3	28.0	-8.7	Para
QP											
^	14.157k	49.9	+0.0	+0.0	+14.1		-40.0	24.0	28.0	-4.0	Para
^	14.142k	48.5	+0.0	+0.0	+14.1		-40.0	22.6	28.0	-5.4	Para
^	14.730k	46.7	+0.0	+0.0	+14.0		-40.0	20.7	28.0	-7.3	Para
11	23.675k	47.2	+0.0	+0.0	+12.0		-40.0	19.2	28.0	-8.8	Para
12	25.683k	44.1	+0.0	+0.0	+11.7		-40.0	15.8	28.0	-12.2	Para
13	323.528k	45.2	+0.0	+0.0	+9.5		-40.0	14.7	28.0	-13.3	Para
14	33.962k	43.5	+0.0	+0.0	+10.9		-40.0	14.4	28.0	-13.6	Para

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.305(b) ISM Frequencies <500W**
 Work Order #: **102119** Date: 6/12/2020
 Test Type: **Maximized Emissions** Time: 13:41:43
 Tested By: Michael Atkinson Sequence#: 17
 Software: EMITest 5.03.12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

Method: FCC/OET MP-5 (February 1986)

Frequency: 30-1000MHz

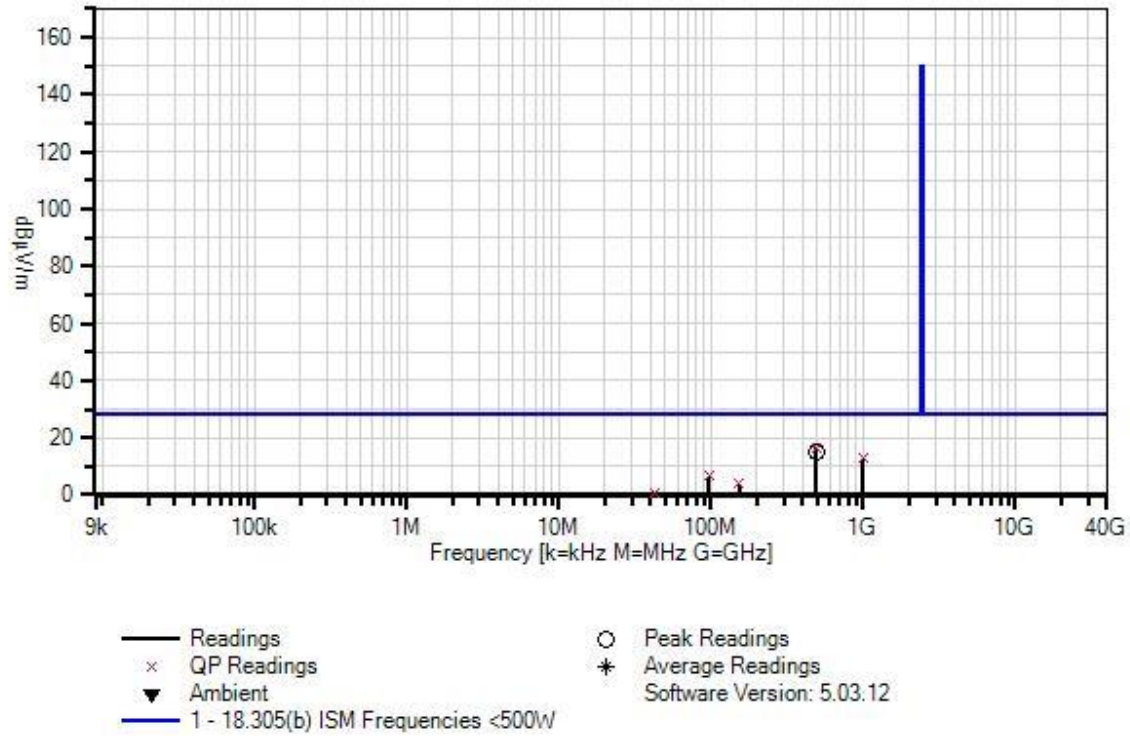
Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

Investigated power source for the EUT:
 Configuration 1: EUT connected to support PoE box with 2 x Ethernet cables for power. Support laptop connected to PoE box with 1 x Ethernet cable. PoE box and support Laptop are located remotely.

Horizontal and Vertical antenna polarities investigated, worst case reported.

Ossia, Inc. WO#: 102119 Sequence#: 17 Date: 6/12/2020
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Horiz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T1	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T2	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T3	AN03628	Biconilog Antenna	3142E	6/11/2019	6/11/2021
T4	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	489.306M QP	31.0	+0.3	+1.1	+18.4	+5.8	-40.0	16.6	28.0	-11.4	Horiz
2	488.800M	29.6	+0.3	+1.1	+18.4	+5.8	-40.0	15.2	28.0	-12.8	Horiz
3	997.081M QP	19.6	+0.4	+1.8	+25.1	+5.9	-40.0	12.8	28.0	-15.2	Vert
^	997.081M	26.1	+0.4	+1.8	+25.1	+5.9	-40.0	19.3	28.0	-8.7	Vert
5	97.310M QP	32.3	+0.1	+0.5	+7.8	+5.8	-40.0	6.5	28.0	-21.5	Vert
^	97.280M	33.7	+0.1	+0.5	+7.8	+5.8	-40.0	7.9	28.0	-20.1	Vert
7	153.131M QP	28.0	+0.2	+0.6	+9.4	+5.8	-40.0	4.0	28.0	-24.0	Horiz
^	153.200M	28.6	+0.2	+0.6	+9.4	+5.8	-40.0	4.6	28.0	-23.4	Horiz
9	42.400M QP	23.5	+0.1	+0.3	+11.0	+5.8	-40.0	0.7	28.0	-27.3	Vert
^	42.400M	28.7	+0.1	+0.3	+11.0	+5.8	-40.0	5.9	28.0	-22.1	Vert
11	45.440M QP	23.8	+0.1	+0.3	+9.5	+5.8	-40.0	-0.5	28.0	-28.5	Vert
^	45.440M	29.5	+0.1	+0.3	+9.5	+5.8	-40.0	5.2	28.0	-22.8	Vert

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.305(b) ISM Frequencies <500W**
 Work Order #: **102119** Date: 6/12/2020
 Test Type: **Maximized Emissions** Time: 17:33:20
 Tested By: Michael Atkinson Sequence#: 22
 Software: EMITest 5.03.12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

 Method: FCC/OET MP-5 (February 1986)

 Frequency: 30-1000MHz

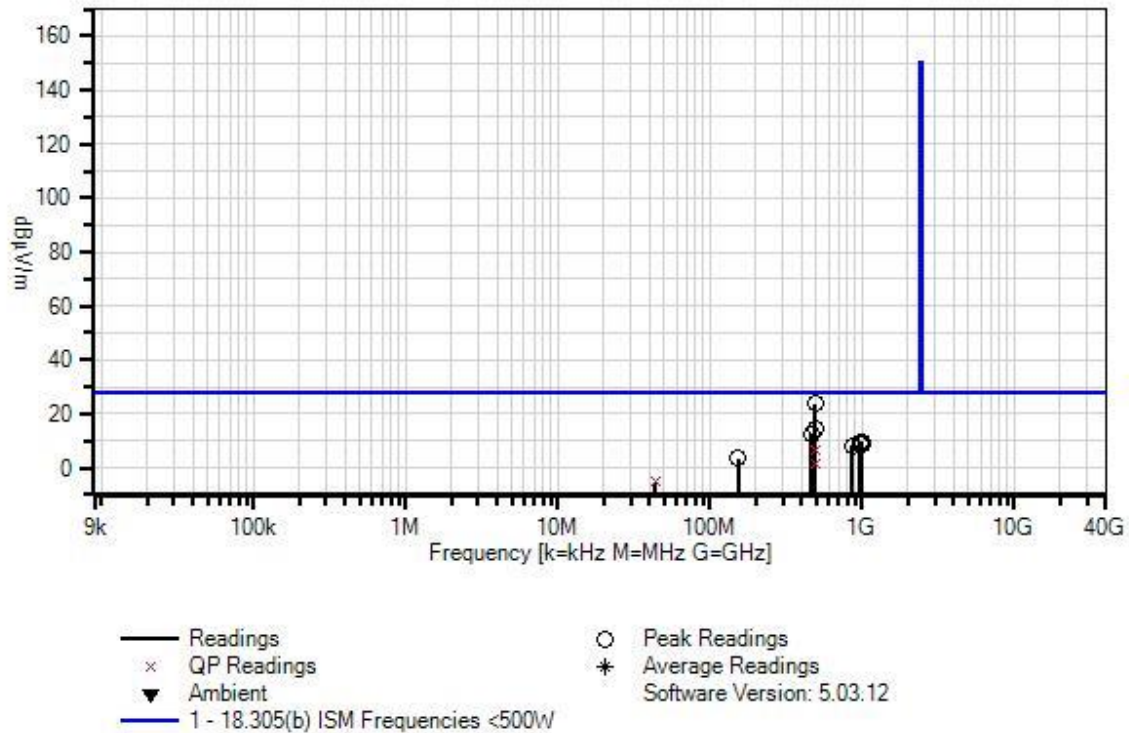
 Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

 EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

 Investigated power source for the EUT:
 Configuration 2: EUT connected to AC adapter for power. EUT connected to support Laptop via Ethernet cable. Laptop is located remotely.

 Horizontal and Vertical antenna polarities investigated, worst case reported.

Ossia, Inc. WO#: 102119 Sequence#: 22 Date: 6/12/2020
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Horiz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T1	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T2	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T3	AN03628	Biconilog Antenna	3142E	6/11/2019	6/11/2021
T4	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	489.800M	38.1	+0.3	+1.1	+18.4	+5.8	-40.0	23.7	28.0	-4.3	Horiz
2	489.800M	29.1	+0.3	+1.1	+18.4	+5.8	-40.0	14.7	28.0	-13.3	Horiz
3	459.382M	27.0	+0.2	+1.1	+18.1	+5.8	-40.0	12.2	28.0	-15.8	Vert
4	989.491M	16.6	+0.4	+1.8	+25.0	+5.9	-40.0	9.7	28.0	-18.3	Vert
5	992.410M	16.2	+0.4	+1.8	+25.0	+5.9	-40.0	9.3	28.0	-18.7	Vert
6	994.746M	16.2	+0.4	+1.8	+25.0	+5.9	-40.0	9.3	28.0	-18.7	Vert
7	965.555M	16.5	+0.4	+1.7	+24.7	+5.9	-40.0	9.2	28.0	-18.8	Vert
8	981.318M	16.0	+0.4	+1.8	+24.9	+5.9	-40.0	9.0	28.0	-19.0	Vert
9	997.665M	15.5	+0.4	+1.8	+25.1	+5.9	-40.0	8.7	28.0	-19.3	Vert
10	854.045M	17.0	+0.3	+1.5	+23.8	+5.8	-40.0	8.4	28.0	-19.6	Vert
11	861.634M	17.0	+0.3	+1.5	+23.8	+5.8	-40.0	8.4	28.0	-19.6	Vert
12	489.306M QP	20.8	+0.3	+1.1	+18.4	+5.8	-40.0	6.4	28.0	-21.6	Horiz
13	153.200M	27.4	+0.2	+0.6	+9.4	+5.8	-40.0	3.4	28.0	-24.6	Horiz
14	489.157M QP	15.8	+0.3	+1.1	+18.4	+5.8	-40.0	1.4	28.0	-26.6	Vert
^	489.157M	30.8	+0.3	+1.1	+18.4	+5.8	-40.0	16.4	28.0	-11.6	Vert
16	43.600M QP	18.3	+0.1	+0.3	+10.4	+5.8	-40.0	-5.1	28.0	-33.1	Vert
^	43.600M	26.9	+0.1	+0.3	+10.4	+5.8	-40.0	3.5	28.0	-24.5	Vert

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.305(b) ISM Frequencies <500W**
 Work Order #: **102119** Date: 6/12/2020
 Test Type: **Maximized Emissions** Time: 12:53:15
 Tested By: Michael Atkinson Sequence#: 16
 Software: EMITest 5.03.12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

 Method: FCC/OET MP-5 (February 1986)

 Frequency: 1-3GHz

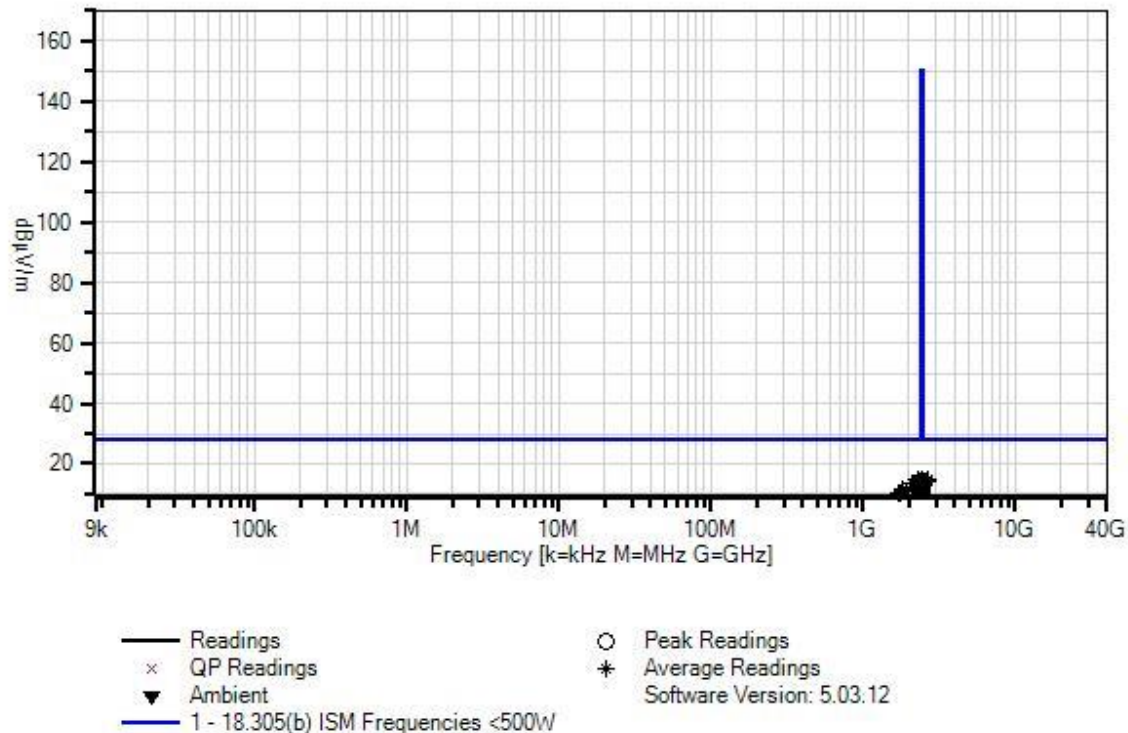
 Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

 EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

 Investigated power source for the EUT:
 Configuration 1: EUT connected to support PoE box with 2 x Ethernet cables for power. Support laptop connected to PoE box with 1 x Ethernet cable. PoE box and support Laptop are located remotely.

 Horizontal and Vertical antenna polarities investigated, worst case reported.

Ossia, Inc. WO#: 102119 Sequence#: 16 Date: 6/12/2020
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T2	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T4	AN01467	Horn Antenna- ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T5	ANP05960	Cable	Heliac 1/4	1/8/2019	1/8/2021
T6	AN03417	Band Reject Filter	3TNF- 1500/3000-N/N	6/12/2020	6/12/2022

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB	Ant
1	2677.200M	22.4	+0.0	+0.7	+2.6	+28.2	-40.0	14.6	28.0	-13.4	Horiz
	Ave		+0.5	+0.2							
^	2677.200M	39.6	+0.0	+0.7	+2.6	+28.2	-40.0	31.8	28.0	+3.8	Horiz
			+0.5	+0.2							
3	2652.600M	22.5	+0.0	+0.7	+2.6	+28.1	-40.0	14.6	28.0	-13.4	Horiz
	Ave		+0.5	+0.2							
^	2652.600M	38.6	+0.0	+0.7	+2.6	+28.1	-40.0	30.7	28.0	+2.7	Horiz
			+0.5	+0.2							
5	2321.100M	23.2	+0.0	+0.6	+2.5	+27.7	-40.0	14.5	28.0	-13.5	Vert
	Ave		+0.4	+0.1							
^	2321.100M	53.8	+0.0	+0.6	+2.5	+27.7	-40.0	45.1	28.0	+17.1	Vert
			+0.4	+0.1							
7	2619.600M	22.4	+0.0	+0.6	+2.7	+28.0	-40.0	14.3	28.0	-13.7	Horiz
	Ave		+0.5	+0.1							
^	2619.600M	44.1	+0.0	+0.6	+2.7	+28.0	-40.0	36.0	28.0	+8.0	Horiz
			+0.5	+0.1							
9	2575.200M	22.5	+0.0	+0.6	+2.7	+27.8	-40.0	14.2	28.0	-13.8	Horiz
	Ave		+0.5	+0.1							
^	2575.200M	45.7	+0.0	+0.6	+2.7	+27.8	-40.0	37.4	28.0	+9.4	Horiz
			+0.5	+0.1							
11	2601.000M	22.4	+0.0	+0.6	+2.7	+27.9	-40.0	14.2	28.0	-13.8	Horiz
	Ave		+0.5	+0.1							
^	2601.000M	51.1	+0.0	+0.6	+2.7	+27.9	-40.0	42.9	28.0	+14.9	Horiz
			+0.5	+0.1							
13	2553.000M	22.4	+0.0	+0.6	+2.7	+27.8	-40.0	14.1	28.0	-13.9	Horiz
	Ave		+0.5	+0.1							
^	2553.000M	46.1	+0.0	+0.6	+2.7	+27.8	-40.0	37.8	28.0	+9.8	Horiz
			+0.5	+0.1							
15	2529.000M	22.5	+0.0	+0.6	+2.7	+27.7	-40.0	14.1	28.0	-13.9	Vert
	Ave		+0.5	+0.1							
^	2529.000M	53.2	+0.0	+0.6	+2.7	+27.7	-40.0	44.8	28.0	+16.8	Vert
			+0.5	+0.1							
17	2396.535M	22.5	+0.0	+0.6	+2.6	+27.7	-40.0	14.0	28.0	-14.0	Horiz
	Ave		+0.5	+0.1							
^	2396.535M	57.6	+0.0	+0.6	+2.6	+27.7	-40.0	49.1	28.0	+21.1	Horiz
			+0.5	+0.1							
19	2544.600M	22.4	+0.0	+0.6	+2.7	+27.7	-40.0	14.0	28.0	-14.0	Horiz
	Ave		+0.5	+0.1							
^	2544.600M	45.7	+0.0	+0.6	+2.7	+27.7	-40.0	37.3	28.0	+9.3	Horiz
			+0.5	+0.1							
21	2534.400M	22.3	+0.0	+0.6	+2.7	+27.7	-40.0	13.9	28.0	-14.1	Horiz
	Ave		+0.5	+0.1							
^	2534.400M	50.1	+0.0	+0.6	+2.7	+27.7	-40.0	41.7	28.0	+13.7	Horiz
			+0.5	+0.1							

23	2529.000M Ave	22.3	+0.0 +0.5	+0.6 +0.1	+2.7	+27.7	-40.0	13.9	28.0	-14.1	Horiz
24	2379.057M Ave	22.4	+0.0 +0.5	+0.6 +0.1	+2.6	+27.7	-40.0	13.9	28.0	-14.1	Horiz
^	2379.057M	59.4	+0.0 +0.5	+0.6 +0.1	+2.6	+27.7	-40.0	50.9	28.0	+22.9	Horiz
26	2374.457M Ave	22.4	+0.0 +0.5	+0.6 +0.1	+2.6	+27.7	-40.0	13.9	28.0	-14.1	Horiz
^	2374.457M	63.5	+0.0 +0.5	+0.6 +0.1	+2.6	+27.7	-40.0	55.0	28.0	+27.0	Horiz
28	2502.325M Ave	22.4	+0.0 +0.5	+0.6 +0.1	+2.7	+27.6	-40.0	13.9	28.0	-14.1	Horiz
^	2502.325M	59.6	+0.0 +0.5	+0.6 +0.1	+2.7	+27.6	-40.0	51.1	28.0	+23.1	Horiz
30	2511.525M Ave	22.3	+0.0 +0.5	+0.6 +0.1	+2.7	+27.6	-40.0	13.8	28.0	-14.2	Horiz
^	2511.525M	56.9	+0.0 +0.5	+0.6 +0.1	+2.7	+27.6	-40.0	48.4	28.0	+20.4	Horiz
32	2515.204M Ave	22.3	+0.0 +0.5	+0.6 +0.1	+2.7	+27.6	-40.0	13.8	28.0	-14.2	Horiz
^	2515.204M	59.3	+0.0 +0.5	+0.6 +0.1	+2.7	+27.6	-40.0	50.8	28.0	+22.8	Horiz
34	2325.000M Ave	22.5	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	13.8	28.0	-14.2	Horiz
^	2325.000M	52.1	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	43.4	28.0	+15.4	Horiz
36	2321.100M Ave	22.5	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	13.8	28.0	-14.2	Horiz
37	2348.500M Ave	22.4	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	13.7	28.0	-14.3	Horiz
^	2348.500M	51.9	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	43.2	28.0	+15.2	Horiz
39	2349.619M Ave	22.4	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	13.7	28.0	-14.3	Horiz
^	2349.619M	58.0	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	49.3	28.0	+21.3	Horiz
41	2353.299M Ave	22.4	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	13.7	28.0	-14.3	Horiz
^	2353.299M	59.0	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	50.3	28.0	+22.3	Horiz
43	2358.818M Ave	22.4	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	13.7	28.0	-14.3	Horiz
^	2358.818M	63.3	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	54.6	28.0	+26.6	Horiz
45	2361.578M Ave	22.4	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	13.7	28.0	-14.3	Horiz
^	2361.578M	57.5	+0.0 +0.4	+0.6 +0.1	+2.5	+27.7	-40.0	48.8	28.0	+20.8	Horiz
47	2284.000M Ave	22.4	+0.0 +0.4	+0.6 +0.1	+2.4	+27.7	-40.0	13.6	28.0	-14.4	Horiz
^	2284.000M	47.8	+0.0 +0.4	+0.6 +0.1	+2.4	+27.7	-40.0	39.0	28.0	+11.0	Horiz

49	2256.000M Ave	22.3	+0.0 +0.4	+0.6 +0.1	+2.4	+27.7	-40.0	13.5	28.0	-14.5	Horiz
^	2256.000M	50.1	+0.0 +0.4	+0.6 +0.1	+2.4	+27.7	-40.0	41.3	28.0	+13.3	Horiz
51	2209.500M Ave	22.2	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	13.5	28.0	-14.5	Horiz
^	2209.500M	46.0	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	37.3	28.0	+9.3	Horiz
53	2151.000M Ave	22.1	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	13.4	28.0	-14.6	Horiz
^	2151.000M	41.2	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	32.5	28.0	+4.5	Horiz
55	2141.400M Ave	22.0	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	13.3	28.0	-14.7	Horiz
^	2141.400M	41.0	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	32.3	28.0	+4.3	Horiz
57	2123.400M Ave	22.0	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	13.3	28.0	-14.7	Horiz
58	2123.400M Ave	22.0	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	13.3	28.0	-14.7	Horiz
^	2123.400M	37.6	+0.0 +0.4	+0.6 +0.1	+2.4	+27.8	-40.0	28.9	28.0	+0.9	Horiz
60	1832.500M Ave	21.7	+0.0 +0.4	+0.5 +0.1	+2.3	+26.3	-40.0	11.3	28.0	-16.7	Horiz
^	1832.500M	40.1	+0.0 +0.4	+0.5 +0.1	+2.3	+26.3	-40.0	29.7	28.0	+1.7	Horiz
62	1803.000M Ave	21.7	+0.0 +0.4	+0.5 +0.1	+2.2	+26.0	-40.0	10.9	28.0	-17.1	Horiz
^	1803.000M	40.2	+0.0 +0.4	+0.5 +0.1	+2.2	+26.0	-40.0	29.4	28.0	+1.4	Horiz
64	1790.000M Ave	21.7	+0.0 +0.4	+0.5 +0.1	+2.2	+25.9	-40.0	10.8	28.0	-17.2	Vert
^	1790.000M	37.7	+0.0 +0.4	+0.5 +0.1	+2.2	+25.9	-40.0	26.8	28.0	-1.2	Vert
^	1790.000M	37.7	+0.0 +0.4	+0.5 +0.1	+2.2	+25.9	-40.0	26.8	28.0	-1.2	Vert
67	1794.000M Ave	21.7	+0.0 +0.4	+0.5 +0.1	+2.2	+25.9	-40.0	10.8	28.0	-17.2	Horiz
^	1794.000M	42.3	+0.0 +0.4	+0.5 +0.1	+2.2	+25.9	-40.0	31.4	28.0	+3.4	Horiz
69	1787.000M Ave	21.7	+0.0 +0.4	+0.5 +0.1	+2.2	+25.9	-40.0	10.8	28.0	-17.2	Horiz
70	1787.000M Ave	21.6	+0.0 +0.4	+0.5 +0.1	+2.2	+25.9	-40.0	10.7	28.0	-17.3	Horiz
^	1787.000M	40.7	+0.0 +0.4	+0.5 +0.1	+2.2	+25.9	-40.0	29.8	28.0	+1.8	Horiz
72	1755.000M Ave	21.7	+0.0 +0.4	+0.5 +0.1	+2.2	+25.6	-40.0	10.5	28.0	-17.5	Horiz
^	1755.000M	36.3	+0.0 +0.4	+0.5 +0.1	+2.2	+25.6	-40.0	25.1	28.0	-2.9	Horiz

74	1725.500M	21.6	+0.0	+0.5	+2.2	+25.5	-40.0	10.3	28.0	-17.7	Vert
	Ave		+0.4	+0.1							
^	1725.500M	36.5	+0.0	+0.5	+2.2	+25.5	-40.0	25.2	28.0	-2.8	Vert
			+0.4	+0.1							
76	2462.800M	22.9	+0.0	+0.6	+2.7	+27.6	-40.0	15.1	150.0	-134.9	Vert
	Ave		+0.5	+0.8							
^	2462.800M	70.1	+0.0	+0.6	+2.7	+27.6	-40.0	62.3	150.0	-87.7	Vert
			+0.5	+0.8							

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.305(b) ISM Frequencies <500W**
 Work Order #: **102119** Date: 6/12/2020
 Test Type: **Maximized Emissions** Time: 10:36:24
 Tested By: Michael Atkinson Sequence#: 14
 Software: EMITest 5.03.12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

 Method: FCC/OET MP-5 (February 1986)

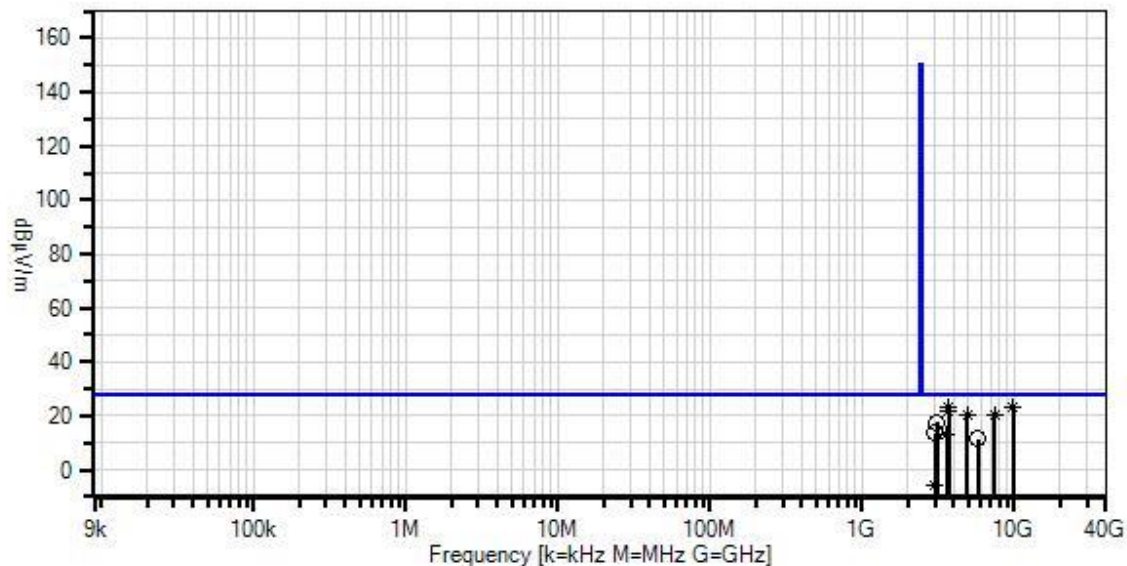
 Frequency: 3-10GHz

 Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

 EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

 Investigated power source for the EUT:
 Configuration 1: EUT connected to support PoE box with 2 x Ethernet cables for power. Support laptop connected to PoE box with 1 x Ethernet cable. PoE box and support Laptop are located remotely.
 .
 Horizontal and Vertical antenna polarities investigated, worst case reported.

Ossia, Inc. WO#: 102119 Sequence#: 14 Date: 6/12/2020
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Vert



— Readings
× QP Readings
▼ Ambient
○ Peak Readings
* Average Readings
Software Version: 5.03.12

1 - 18.305(b) ISM Frequencies <500W

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T2	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T4	AN03116	High Pass Filter	11SH10-00313	1/22/2019	1/22/2021
T5	AN01467	Horn Antenna- ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T6	AN03540	Preamplifier	83017A	5/13/2019	5/13/2021
T7	ANP07563	High Pass Filter	VHF-2700A+	3/15/2019	3/15/2021

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	9800.000M Ave	51.5	+0.0 +37.5	+1.3 -33.9	+6.3 +0.0	+0.7	-40.0	23.4	28.0	-4.6	Vert
2	3708.892M Ave	60.1	+0.0 +30.6	+0.9 -33.7	+3.8 +0.5	+0.7	-40.0	22.9	28.0	-5.1	Horiz
^	3708.892M	74.3	+0.0 +30.6	+0.9 -33.7	+3.8 +0.5	+0.7	-40.0	37.1	28.0	+9.1	Horiz
4	3708.739M Ave	58.9	+0.0 +30.6	+0.9 -33.7	+3.8 +0.5	+0.7	-40.0	21.7	28.0	-6.3	Vert
^	3708.739M	69.1	+0.0 +30.6	+0.9 -33.7	+3.8 +0.5	+0.7	-40.0	31.9	28.0	+3.9	Vert
6	3710.100M Ave	58.8	+0.0 +30.6	+0.9 -33.7	+3.8 +0.5	+0.7	-40.0	21.6	28.0	-6.4	Horiz
^	3710.100M	69.7	+0.0 +30.6	+0.9 -33.7	+3.8 +0.5	+0.7	-40.0	32.5	28.0	+4.5	Horiz
8	4900.000M Ave	55.5	+0.0 +32.5	+0.9 -33.6	+4.2 +0.3	+0.5	-40.0	20.3	28.0	-7.7	Horiz
9	7350.000M Ave	49.6	+0.0 +36.9	+1.3 -34.6	+5.4 +1.0	+0.6	-40.0	20.2	28.0	-7.8	Vert
10	3082.000M	56.4	+0.0 +29.3	+0.8 -34.0	+3.0 +1.0	+1.1	-40.0	17.6	28.0	-10.4	Vert
11	3021.000M	52.7	+0.0 +29.1	+0.8 -34.0	+2.9 +1.0	+1.2	-40.0	13.7	28.0	-14.3	Vert
12	3573.409M Ave	50.9	+0.0 +30.2	+0.8 -33.8	+3.6 +0.6	+1.0	-40.0	13.3	28.0	-14.7	Vert
^	3573.400M	65.4	+0.0 +30.2	+0.8 -33.8	+3.6 +0.6	+1.0	-40.0	27.8	28.0	-0.2	Vert
14	5751.000M	44.7	+0.0 +34.2	+1.0 -33.7	+4.6 +0.2	+0.5	-40.0	11.5	28.0	-16.5	Horiz
15	3007.000M Ave	33.1	+0.0 +29.1	+0.8 -34.0	+2.9 +1.0	+1.2	-40.0	-5.9	28.0	-33.9	Horiz
^	3007.000M	61.2	+0.0 +29.1	+0.8 -34.0	+2.9 +1.0	+1.2	-40.0	22.2	28.0	-5.8	Horiz

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.305(b) ISM Frequencies <500W**
 Work Order #: **102119** Date: 6/12/2020
 Test Type: **Maximized Emissions** Time: 11:51:26
 Tested By: Michael Atkinson Sequence#: 15
 Software: EMITest 5.03.12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

 Method: FCC/OET MP-5 (February 1986)

 Frequency: 10-18GHz

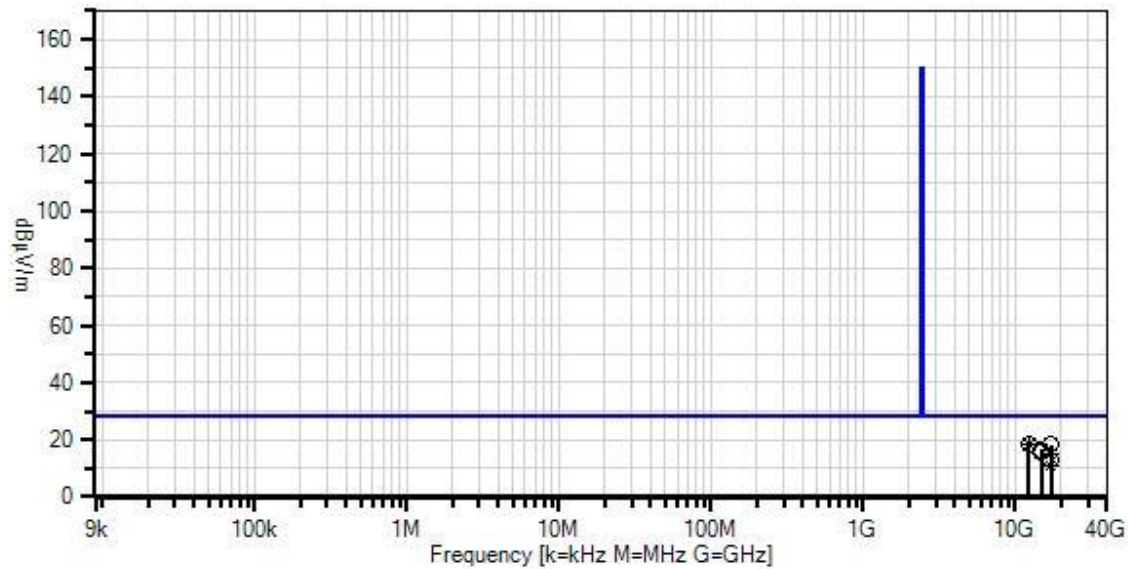
 Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

 EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

 Investigated power sources for the EUT:
 Configuration 1: EUT connected to support PoE box with 2 x Ethernet cables for power. Support laptop connected to PoE box with 1 x Ethernet cable. PoE box and support Laptop are located remotely.

 Horizontal and Vertical antenna polarities investigated, worst case reported.

Ossia, Inc. WO#: 102119 Sequence#: 15 Date: 6/12/2020
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Horiz



— Readings
× QP Readings
▼ Ambient
— 1 - 18.305(b) ISM Frequencies <500W

○ Peak Readings
* Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T2	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T4	AN02741	Active Horn Antenna	AMFW-5F-12001800-20-10P	4/26/2019	4/26/2021

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	12250.041 M Ave	63.3	+0.0	+1.4	+6.9	-12.9	-40.0	18.7	28.0	-9.3	Vert
^	12250.000 M	67.1	+0.0	+1.4	+6.9	-12.9	-40.0	22.5	28.0	-5.5	Vert
^	12250.010 M	63.8	+0.0	+1.4	+6.9	-12.9	-40.0	19.2	28.0	-8.8	Vert
4	12248.000 M	63.0	+0.0	+1.4	+6.9	-12.8	-40.0	18.5	28.0	-9.5	Horiz
5	17150.200 M	59.3	+0.0	+1.9	+8.9	-11.7	-40.0	18.4	28.0	-9.6	Horiz
6	14700.000 M	61.2	+0.0	+1.5	+8.3	-14.6	-40.0	16.4	28.0	-11.6	Vert
7	14700.100 M	60.7	+0.0	+1.5	+8.3	-14.6	-40.0	15.9	28.0	-12.1	Horiz
8	17149.989 M Ave	56.2	+0.0	+1.9	+8.9	-11.7	-40.0	15.3	28.0	-12.7	Horiz
9	17150.010 M	54.0	+0.0	+1.9	+8.9	-11.7	-40.0	13.1	28.0	-14.9	Vert
10	17150.028 M Ave	51.5	+0.0	+1.9	+8.9	-11.7	-40.0	10.6	28.0	-17.4	Horiz
11	10312.000 M	43.0	+0.0	+1.3	+6.2	-12.1	-40.0	-1.6	28.0	-29.6	Vert

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.305(b) ISM Frequencies <500W**
 Work Order #: **102119** Date: 6/12/2020
 Test Type: **Maximized Emissions** Time: 14:49:01
 Tested By: Michael Atkinson Sequence#: 19
 Software: EMITest 5.03.12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

 Method: FCC/OET MP-5 (February 1986)

 Frequency: 18GHz-25GHz

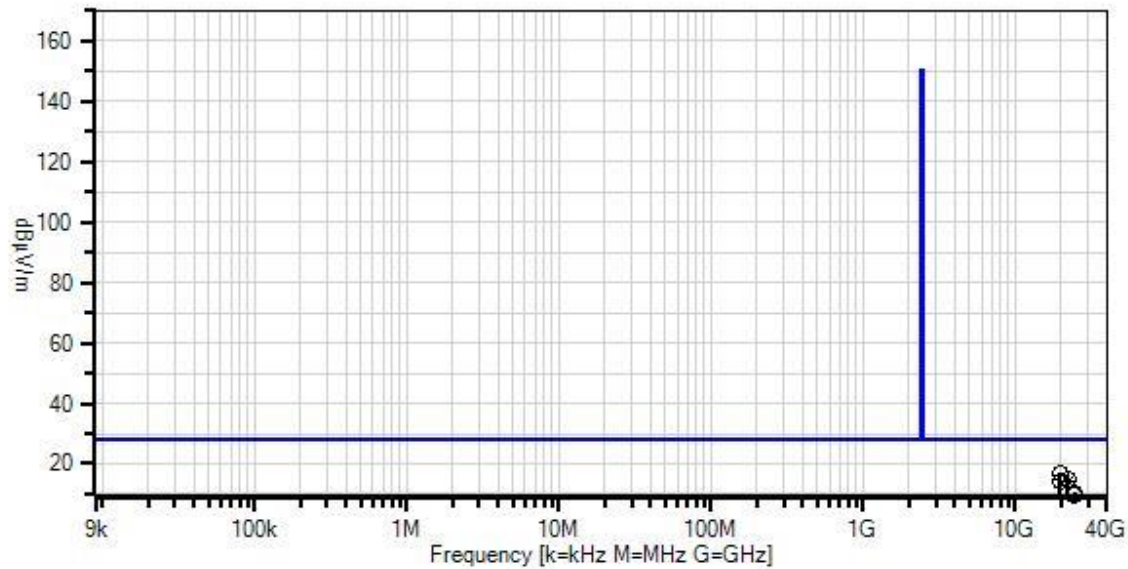
 Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

 EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

 Investigated power source for the EUT:
 Configuration 1: EUT connected to support PoE box with 2 x Ethernet cables for power. Support laptop connected to PoE box with 1 x Ethernet cable. PoE box and support Laptop are located remotely.

 Horizontal and Vertical antenna polarities investigated, worst case reported.

Ossia, Inc. WO#: 102119 Sequence#: 19 Date: 6/12/2020
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Horiz



— Readings
× QP Readings
▼ Ambient
○ Peak Readings
* Average Readings
Software Version: 5.03.12

1 - 18.305(b) ISM Frequencies <500W

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T2	ANP06678	Cable	32026-29801- 29801-144	2/20/2020	2/20/2022
T3	AN02742	Active Horn Antenna	AMFW-5F- 18002650-20- 10P	10/16/2018	10/16/2020

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	19600.000 M	60.9	+0.0	+9.0	-13.0		-40.0	16.9	28.0	-11.1	Horiz
2	22050.000 M	61.5	+0.0	+9.2	-16.1		-40.0	14.6	28.0	-13.4	Vert
3	19600.000 M	58.2	+0.0	+9.0	-13.0		-40.0	14.2	28.0	-13.8	Vert
4	22050.000 M	60.9	+0.0	+9.2	-16.1		-40.0	14.0	28.0	-14.0	Horiz
Ave											
^	22050.000 M	65.8	+0.0	+9.2	-16.1		-40.0	18.9	28.0	-9.1	Horiz
6	24500.000 M	52.8	+0.0	+10.0	-12.5		-40.0	10.3	28.0	-17.7	Horiz
7	24500.000 M	51.9	+0.0	+10.0	-12.5		-40.0	9.4	28.0	-18.6	Vert

Test Setup Photo(s)



Configuration 1



Configuration 2

18.307 AC Conducted Emissions

Test Notes: Conducted Disturbances at Mains Terminals, LISN method.

Test Setup / Conditions / Data

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.307(b) AC Mains - Average**
 Work Order #: **102119** Date: 6/26/2020
 Test Type: **Conducted Emissions** Time: 08:56:42
 Tested By: Michael Atkinson Sequence#: 57
 Software: EMITest 5.03.19 115VAC 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 23°C
 Humidity: 34%
 Pressure: 101.6kPa

Method: FCC/OET MP-5 (February 1986)

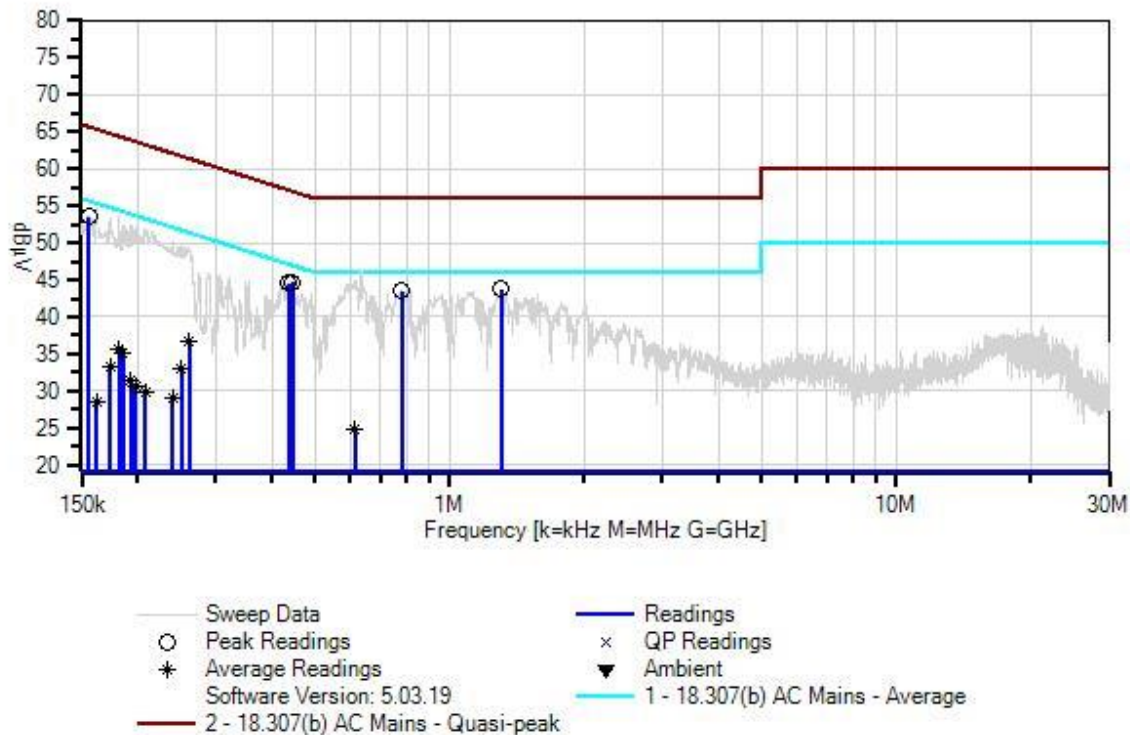
Frequency: 0.15-30MHz

Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

EUT connected to support PoE box with 2 x Ethernet cables for power. Support laptop connected to PoE box with 1 x Ethernet cable. Support Laptop located remotely.

Ossia, Inc. WO#: 102119 Sequence#: 57 Date: 6/26/2020
18.307(b) AC Mains - Average Test Lead: 115VAC 60Hz Line



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T1	AN02611	High Pass Filter	HE9615-150K-50-720B	1/10/2020	1/10/2022
T2	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T4	ANP06219	Attenuator	768-10	4/7/2020	4/7/2022
T5	AN01311	50uH LISN-Line1 (L)	3816/2	2/24/2020	2/24/2022
	AN01311	50uH LISN-Line2 (N)	3816/2	2/24/2020	2/24/2022

Measurement Data:

Reading listed by margin.

Test Lead: Line

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	156.077k	45.3	+0.8 -1.7	+0.0	+0.0	+9.1	+0.0	53.5	55.7	-2.2	Line
2	1.304M	34.7	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.7	46.0	-2.3	Line
3	445.207k	35.8	+0.2 -0.5	+0.0	+0.1	+9.1	+0.0	44.7	47.0	-2.3	Line
4	435.531k	35.7	+0.2 -0.5	+0.0	+0.1	+9.1	+0.0	44.6	47.1	-2.5	Line
5	780.904k	34.5	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.5	46.0	-2.5	Line
6	260.849k	28.1	+0.2 -0.8	+0.0	+0.0	+9.1	+0.0	36.6	51.4	-14.8	Line
^	260.849k	40.9	+0.2 -0.8	+0.0	+0.0	+9.1	+0.0	49.4	51.4	-2.0	Line
8	181.858k	27.5	+0.4 -1.4	+0.0	+0.0	+9.1	+0.0	35.6	54.4	-18.8	Line
9	250.919k	24.5	+0.2 -0.9	+0.0	+0.0	+9.1	+0.0	32.9	51.7	-18.8	Line
^	250.919k	41.3	+0.2 -0.9	+0.0	+0.0	+9.1	+0.0	49.7	51.7	-2.0	Line
11	186.050k	27.1	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	35.2	54.2	-19.0	Line
^	181.857k	45.6	+0.4 -1.4	+0.0	+0.0	+9.1	+0.0	53.7	54.4	-0.7	Line
^	186.049k	44.4	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	52.5	54.2	-1.7	Line
^	188.040k	43.6	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	51.7	54.1	-2.4	Line
15	615.751k	15.7	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	24.7	46.0	-21.3	Line
^	615.751k	36.0	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	45.0	46.0	-1.0	Line
17	173.893k	25.2	+0.4 -1.5	+0.0	+0.0	+9.1	+0.0	33.2	54.8	-21.6	Line
^	173.892k	45.4	+0.4 -1.5	+0.0	+0.0	+9.1	+0.0	53.4	54.8	-1.4	Line
19	193.490k	23.4	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	31.5	53.9	-22.4	Line
^	189.717k	43.7	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	51.8	54.0	-2.2	Line
21	240.440k	20.6	+0.2 -0.9	+0.0	+0.0	+9.1	+0.0	29.0	52.1	-23.1	Line
^	240.439k	41.8	+0.2 -0.9	+0.0	+0.0	+9.1	+0.0	50.2	52.1	-1.9	Line

23	198.311k Ave	22.5	+0.2 -1.2	+0.0	+0.0	+9.1	+0.0	30.6	53.7	-23.1	Line
^	193.490k	44.4	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	52.5	53.9	-1.4	Line
^	198.310k	44.0	+0.2 -1.2	+0.0	+0.0	+9.1	+0.0	52.1	53.7	-1.6	Line
26	208.057k Ave	21.7	+0.2 -1.1	+0.0	+0.0	+9.1	+0.0	29.9	53.3	-23.4	Line
^	208.057k	43.6	+0.2 -1.1	+0.0	+0.0	+9.1	+0.0	51.8	53.3	-1.5	Line
28	162.365k Ave	20.5	+0.6 -1.6	+0.0	+0.0	+9.1	+0.0	28.6	55.3	-26.7	Line
^	162.365k	46.5	+0.6 -1.6	+0.0	+0.0	+9.1	+0.0	54.6	55.3	-0.7	Line
30	815.319k Ave	7.8	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	16.8	46.0	-29.2	Line
^	815.318k	35.0	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	44.0	46.0	-2.0	Line
32	634.499k Ave	7.1	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	16.1	46.0	-29.9	Line
^	634.498k	37.5	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	46.5	46.0	+0.5	Line

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.307(b) AC Mains - Average**
 Work Order #: **102119** Date: 6/26/2020
 Test Type: **Conducted Emissions** Time: 09:05:23
 Tested By: Michael Atkinson Sequence#: 58
 Software: EMITest 5.03.12 115VAC 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

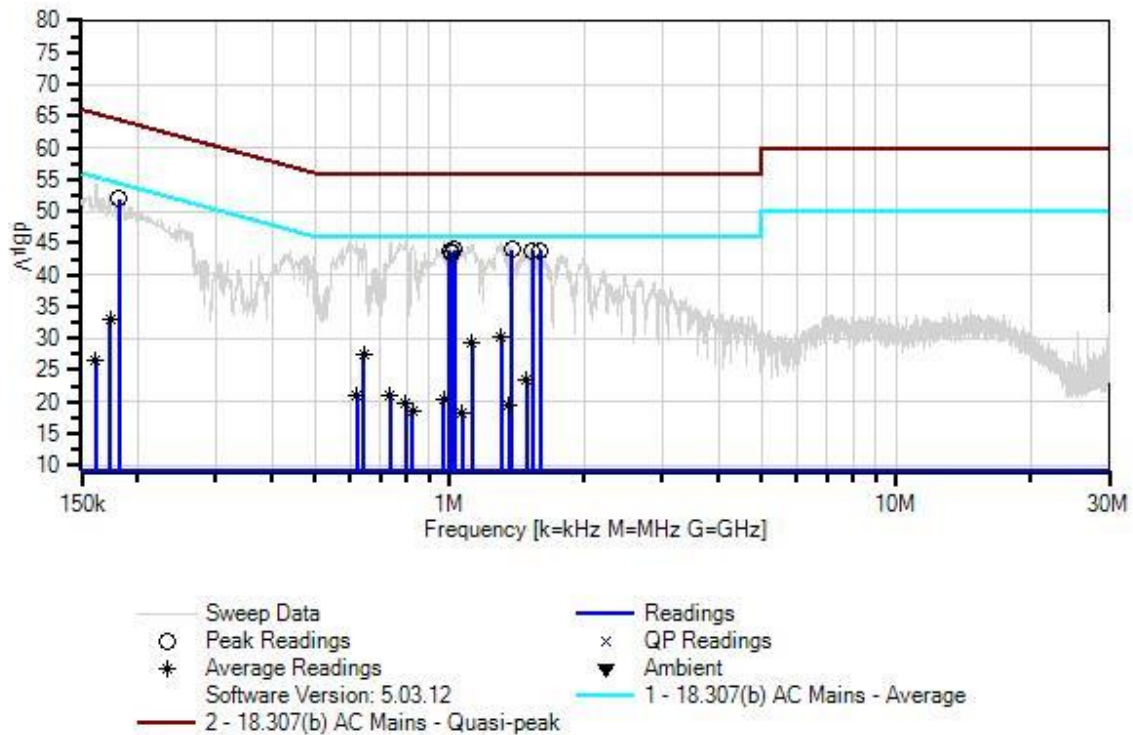
Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 23°C Humidity: 34% Pressure: 101.6kPa Method: FCC/OET MP-5 (February 1986) Frequency: 0.15-30MHz Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case). EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test. EUT connected to support PoE box with 2 x Ethernet cables for power. Support laptop connected to PoE box with 1 x Ethernet cable. Support Laptop located remotely.

Ossia, Inc. WO#: 102119 Sequence#: 58 Date: 6/26/2020
18.307(b) AC Mains - Average Test Lead: 115VAC 60Hz Neutral



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T1	AN02611	High Pass Filter	HE9615-150K-50-720B	1/10/2020	1/10/2022
T2	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T4	ANP06219	Attenuator	768-10	4/7/2020	4/7/2022
	AN01311	50uH LISN-Line1 (L)	3816/2	2/24/2020	2/24/2022
T5	AN01311	50uH LISN-Line2 (N)	3816/2	2/24/2020	2/24/2022

Measurement Data:

Reading listed by margin.

Test Lead: Neutral

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1.027M	34.9	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.9	46.0	-2.1	Neutr
2	1.380M	34.8	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	43.9	46.0	-2.1	Neutr
3	1.600M	34.7	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	43.8	46.0	-2.2	Neutr
4	1.531M	34.7	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	43.8	46.0	-2.2	Neutr
5	998.174k	34.8	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.8	46.0	-2.2	Neutr
6	182.171k	43.8	+0.4 -1.3	+0.0	+0.0	+9.1	+0.0	52.0	54.4	-2.4	Neutr
7	1.013M	34.5	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.5	46.0	-2.5	Neutr
8	1.308M	21.1	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	30.1	46.0	-15.9	Neutr
Ave											
^	1.308M	36.1	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	45.1	46.0	-0.9	Neutr
10	1.121M	20.4	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	29.4	46.0	-16.6	Neutr
Ave											
^	1.121M	35.7	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	44.7	46.0	-1.3	Neutr
12	642.361k	18.4	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	27.4	46.0	-18.6	Neutr
Ave											
^	642.360k	36.2	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	45.2	46.0	-0.8	Neutr
14	173.579k	25.0	+0.4 -1.4	+0.0	+0.0	+9.1	+0.0	33.1	54.8	-21.7	Neutr
Ave											
^	173.578k	44.7	+0.4 -1.4	+0.0	+0.0	+9.1	+0.0	52.8	54.8	-2.0	Neutr
16	1.488M	14.4	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	23.5	46.0	-22.5	Neutr
Ave											
^	1.488M	35.1	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	44.2	46.0	-1.8	Neutr
18	737.759k	12.1	+0.2 -0.4	+0.0	+0.0	+9.1	+0.0	21.0	46.0	-25.0	Neutr
Ave											
^	737.759k	36.2	+0.2 -0.4	+0.0	+0.0	+9.1	+0.0	45.1	46.0	-0.9	Neutr
20	620.589k	11.8	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	20.8	46.0	-25.2	Neutr
Ave											
^	620.589k	36.3	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	45.3	46.0	-0.7	Neutr
22	973.006k	11.3	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	20.3	46.0	-25.7	Neutr
Ave											
^	973.006k	36.4	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	45.4	46.0	-0.6	Neutr

24	796.828k	10.8	+0.2	+0.0	+0.0	+9.1	+0.0	19.8	46.0	-26.2	Neutr
	Ave		-0.3								
^	796.827k	36.2	+0.2	+0.0	+0.0	+9.1	+0.0	45.2	46.0	-0.8	Neutr
			-0.3								
26	1.362M	10.2	+0.2	+0.0	+0.1	+9.1	+0.0	19.3	46.0	-26.7	Neutr
	Ave		-0.3								
^	1.362M	35.8	+0.2	+0.0	+0.1	+9.1	+0.0	44.9	46.0	-1.1	Neutr
			-0.3								
28	827.646k	9.4	+0.2	+0.0	+0.0	+9.1	+0.0	18.4	46.0	-27.6	Neutr
	Ave		-0.3								
^	827.646k	35.8	+0.2	+0.0	+0.0	+9.1	+0.0	44.8	46.0	-1.2	Neutr
			-0.3								
30	1.069M	9.3	+0.2	+0.0	+0.0	+9.1	+0.0	18.3	46.0	-27.7	Neutr
	Ave		-0.3								
^	1.069M	35.6	+0.2	+0.0	+0.0	+9.1	+0.0	44.6	46.0	-1.4	Neutr
			-0.3								
32	161.632k	18.5	+0.6	+0.0	+0.0	+9.1	+0.0	26.6	55.4	-28.8	Neutr
	Ave		-1.6								
^	161.631k	46.2	+0.6	+0.0	+0.0	+9.1	+0.0	54.3	55.4	-1.1	Neutr
			-1.6								

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.307(b) AC Mains - Average**
 Work Order #: **102119** Date: 6/14/2020
 Test Type: **Conducted Emissions** Time: 14:56:26
 Tested By: Michael Atkinson Sequence#: 34
 Software: EMITest 5.03.12 115VAC 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

Temperature: 19-21°C
 Humidity: 29-32%
 Pressure: 102-103kPa

Method: FCC/OET MP-5 (February 1986)

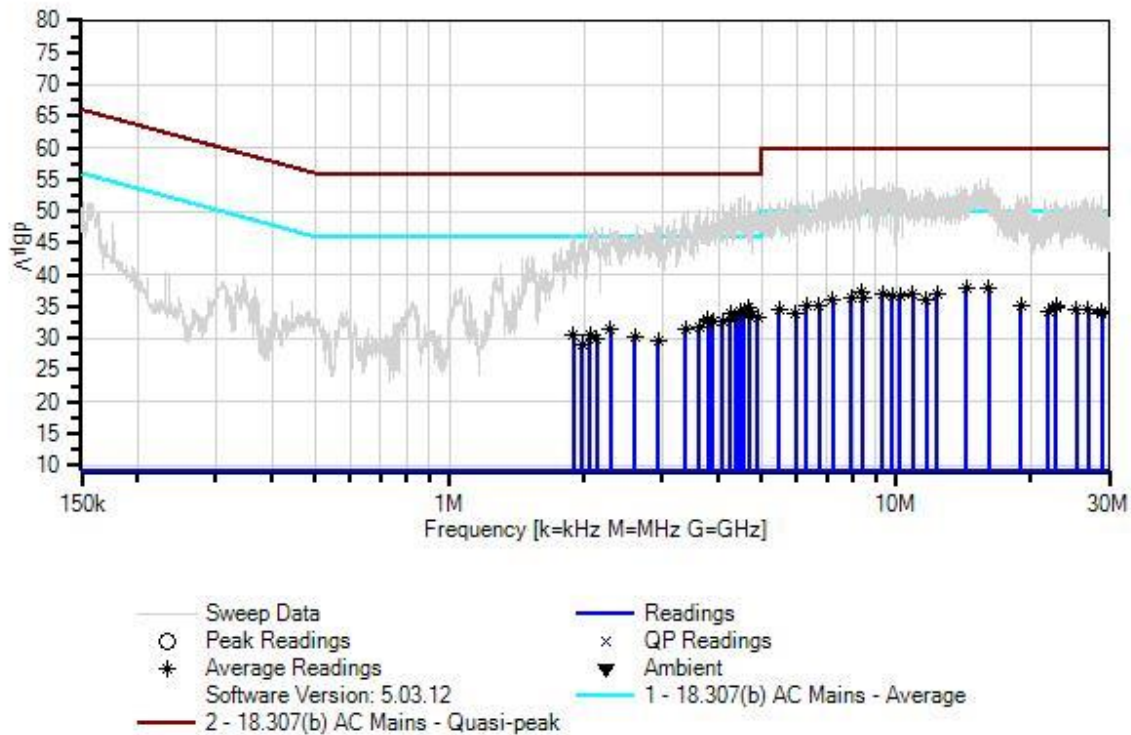
Frequency: 0.15-30MHz

Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case).

EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

EUT connected to AC adapter for power. EUT connected to support Laptop via Ethernet cable. Laptop is located remotely.

Ossia, Inc. WO#: 102119 Sequence#: 34 Date: 6/14/2020
18.307(b) AC Mains - Average Test Lead: 115VAC 60Hz Line



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T1	AN02611	High Pass Filter	HE9615-150K-50-720B	1/10/2020	1/10/2022
T2	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T4	ANP06219	Attenuator	768-10	4/7/2020	4/7/2022
T5	AN01492	50uH LISN-Line (L1)	3816/2NM	10/14/2019	10/14/2021
	AN01492	50uH LISN-Neutral (L2)	3816/2NM	10/14/2019	10/14/2021

Measurement Data:

Reading listed by margin.

Test Lead: Line

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	4.693M	24.8	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	34.7	46.0	-11.3	Line
2	4.464M	24.5	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	34.3	46.0	-11.7	Line
^	4.464M	42.5	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	52.3	46.0	+6.3	Line
4	4.482M	24.5	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	34.3	46.0	-11.7	Line
^	4.482M	42.2	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	52.0	46.0	+6.0	Line
6	4.714M	24.3	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	34.2	46.0	-11.8	Line
^	4.714M	41.4	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	51.3	46.0	+5.3	Line
8	4.573M	24.3	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	34.1	46.0	-11.9	Line
^	4.573M	42.4	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	52.2	46.0	+6.2	Line
10	14.363M	27.9	+0.2 +0.6	+0.0	+0.2	+9.1	+0.0	38.0	50.0	-12.0	Line
^	14.363M	44.2	+0.2 +0.6	+0.0	+0.2	+9.1	+0.0	54.3	50.0	+4.3	Line
12	16.107M	27.7	+0.2 +0.6	+0.1	+0.2	+9.1	+0.0	37.9	50.0	-12.1	Line
^	16.107M	45.0	+0.2 +0.6	+0.1	+0.2	+9.1	+0.0	55.2	50.0	+5.2	Line
14	4.248M	24.1	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	33.9	46.0	-12.1	Line
^	4.248M	41.5	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	51.3	46.0	+5.3	Line
16	4.693M	23.7	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	33.6	46.0	-12.4	Line
^	4.693M	41.8	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	51.7	46.0	+5.7	Line
18	4.890M	23.4	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	33.2	46.0	-12.8	Line
^	4.890M	41.4	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	51.2	46.0	+5.2	Line
20	8.385M	27.3	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	37.2	50.0	-12.8	Line
^	8.385M	44.6	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	54.5	50.0	+4.5	Line
22	12.377M	27.0	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	37.0	50.0	-13.0	Line
^	12.377M	42.4	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	52.4	50.0	+2.4	Line

24	9.310M	26.9	+0.1 +0.7	+0.0	+0.2	+9.1	+0.0	37.0	50.0	-13.0	Line
^	9.310M	44.1	+0.1 +0.7	+0.0	+0.2	+9.1	+0.0	54.2	50.0	+4.2	Line
26	4.369M	23.2	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	33.0	46.0	-13.0	Line
^	4.369M	41.3	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	51.1	46.0	+5.1	Line
28	10.879M	26.9	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	36.9	50.0	-13.1	Line
^	10.879M	42.5	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	52.5	50.0	+2.5	Line
30	3.794M	23.2	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	32.9	46.0	-13.1	Line
31	9.818M	26.9	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	36.8	50.0	-13.2	Line
32	3.794M	23.1	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	32.8	46.0	-13.2	Line
33	9.818M	26.8	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	36.7	50.0	-13.3	Line
^	9.818M	42.9	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	52.8	50.0	+2.8	Line
35	10.193M	26.8	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	36.7	50.0	-13.3	Line
^	10.193M	42.4	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	52.3	50.0	+2.3	Line
37	3.879M	22.9	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	32.6	46.0	-13.4	Line
^	3.879M	41.4	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	51.1	46.0	+5.1	Line
39	4.097M	22.8	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	32.6	46.0	-13.4	Line
^	4.097M	41.4	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	51.2	46.0	+5.2	Line
41	3.794M	22.9	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	32.6	46.0	-13.4	Line
^	3.794M	40.6	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	50.3	46.0	+4.3	Line
43	8.420M	26.4	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	36.4	50.0	-13.6	Line
^	8.420M	44.0	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	54.0	50.0	+4.0	Line
45	7.940M	26.6	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	36.4	50.0	-13.6	Line
^	7.940M	44.2	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	54.0	50.0	+4.0	Line
47	11.680M	26.3	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	36.2	50.0	-13.8	Line
^	11.680M	42.7	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	52.6	50.0	+2.6	Line

49	7.200M	26.4	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	36.2	50.0	-13.8	Line
^	7.200M	43.0	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	52.8	50.0	+2.8	Line
51	3.628M	22.1	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	31.8	46.0	-14.2	Line
^	3.628M	40.8	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	50.5	46.0	+4.5	Line
53	2.296M	21.6	+0.2 +0.4	+0.0	+0.1	+9.1	+0.0	31.4	46.0	-14.6	Line
^	2.296M	38.5	+0.2 +0.4	+0.0	+0.1	+9.1	+0.0	48.3	46.0	+2.3	Line
55	3.378M	21.6	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	31.3	46.0	-14.7	Line
^	3.378M	41.3	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	51.0	46.0	+5.0	Line
57	19.043M	24.9	+0.2 +0.7	+0.1	+0.2	+9.1	+0.0	35.2	50.0	-14.8	Line
^	19.043M	41.3	+0.2 +0.7	+0.1	+0.2	+9.1	+0.0	51.6	50.0	+1.6	Line
59	6.715M	25.3	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	35.2	50.0	-14.8	Line
^	6.715M	42.5	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	52.4	50.0	+2.4	Line
61	6.285M	25.3	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	35.2	50.0	-14.8	Line
^	6.285M	42.9	+0.1 +0.6	+0.0	+0.1	+9.1	+0.0	52.8	50.0	+2.8	Line
63	22.840M	24.3	+0.2 +1.0	+0.1	+0.3	+9.1	+0.0	35.0	50.0	-15.0	Line
64	22.840M	24.0	+0.2 +1.0	+0.1	+0.3	+9.1	+0.0	34.7	50.0	-15.3	Line
^	22.840M	40.7	+0.2 +1.0	+0.1	+0.3	+9.1	+0.0	51.4	50.0	+1.4	Line
66	1.896M	20.9	+0.2 +0.4	+0.0	+0.1	+9.1	+0.0	30.7	46.0	-15.3	Line
^	1.896M	37.2	+0.2 +0.4	+0.0	+0.1	+9.1	+0.0	47.0	46.0	+1.0	Line
68	2.060M	20.8	+0.2 +0.4	+0.0	+0.1	+9.1	+0.0	30.6	46.0	-15.4	Line
^	2.060M	37.4	+0.2 +0.4	+0.0	+0.1	+9.1	+0.0	47.2	46.0	+1.2	Line
70	5.465M	24.6	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	34.4	50.0	-15.6	Line
^	5.465M	41.5	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	51.3	50.0	+1.3	Line
72	26.960M	24.3	+0.2 +0.4	+0.1	+0.3	+9.1	+0.0	34.4	50.0	-15.6	Line
^	26.960M	40.5	+0.2 +0.4	+0.1	+0.3	+9.1	+0.0	50.6	50.0	+0.6	Line

74	25.380M	24.2	+0.2 +0.5	+0.1	+0.3	+9.1	+0.0	34.4	50.0	-15.6	Line
^	25.380M	42.0	+0.2 +0.5	+0.1	+0.3	+9.1	+0.0	52.2	50.0	+2.2	Line
76	21.860M	23.8	+0.2 +0.8	+0.1	+0.3	+9.1	+0.0	34.3	50.0	-15.7	Line
77	28.940M	24.1	+0.2 +0.5	+0.1	+0.3	+9.1	+0.0	34.3	50.0	-15.7	Line
78	2.598M	20.5	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	30.2	46.0	-15.8	Line
^	2.598M	38.2	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	47.9	46.0	+1.9	Line
80	21.860M	23.7	+0.2 +0.8	+0.1	+0.3	+9.1	+0.0	34.2	50.0	-15.8	Line
^	21.860M	41.6	+0.2 +0.8	+0.1	+0.3	+9.1	+0.0	52.1	50.0	+2.1	Line
82	28.940M	23.8	+0.2 +0.5	+0.1	+0.3	+9.1	+0.0	34.0	50.0	-16.0	Line
^	28.940M	43.1	+0.2 +0.5	+0.1	+0.3	+9.1	+0.0	53.3	50.0	+3.3	Line
84	2.138M	20.2	+0.2 +0.4	+0.0	+0.1	+9.1	+0.0	30.0	46.0	-16.0	Line
^	2.138M	38.5	+0.2 +0.4	+0.0	+0.1	+9.1	+0.0	48.3	46.0	+2.3	Line
86	5.955M	24.2	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	34.0	50.0	-16.0	Line
^	5.955M	40.9	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	50.7	50.0	+0.7	Line
88	2.940M	19.9	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	29.7	46.0	-16.3	Line
^	2.940M	38.1	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	47.9	46.0	+1.9	Line
90	1.984M	19.0	+0.2 +0.5	+0.0	+0.1	+9.1	+0.0	28.9	46.0	-17.1	Line
^	1.984M	36.8	+0.2 +0.5	+0.0	+0.1	+9.1	+0.0	46.7	46.0	+0.7	Line

Test Location: CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)
 Customer: **Ossia, Inc.**
 Specification: **18.307(b) AC Mains - Average**
 Work Order #: **102119** Date: 6/14/2020
 Test Type: **Conducted Emissions** Time: 15:19:46
 Tested By: Michael Atkinson Sequence#: 35
 Software: EMITest 5.03.12 115VAC 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

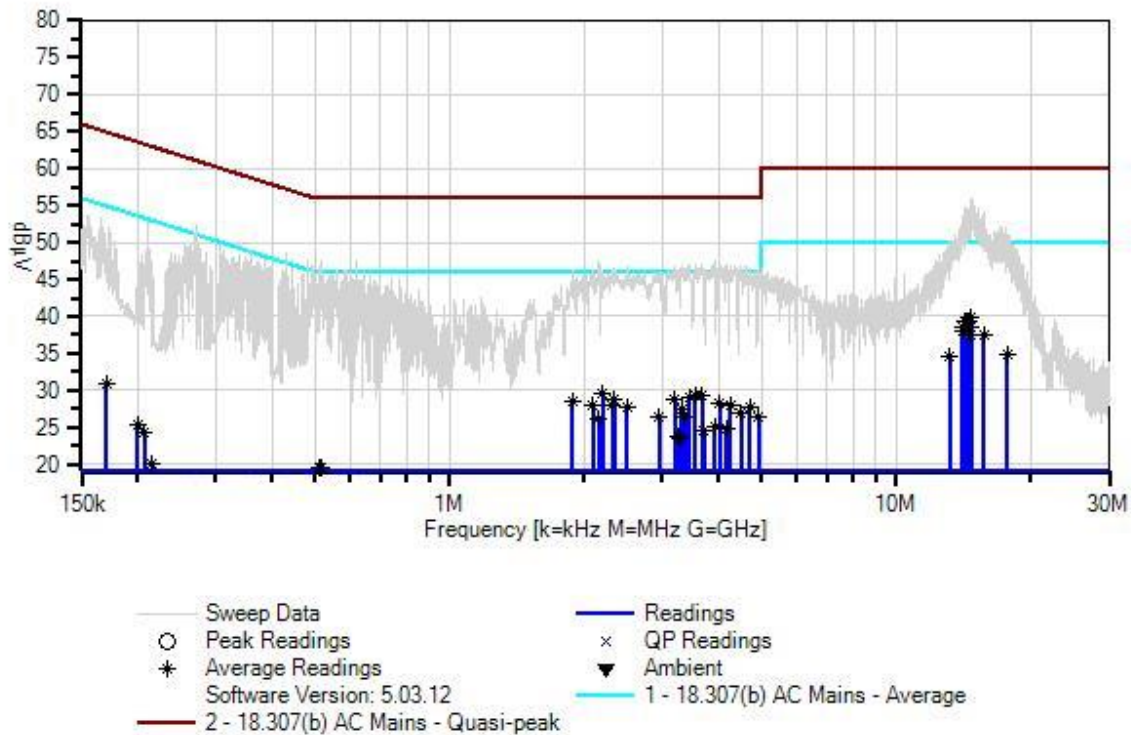
Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

Temperature: 19-21°C Humidity: 29-32% Pressure: 102-103kPa Method: FCC/OET MP-5 (February 1986) Frequency: 0.15-30MHz Client is charging with 12dBi gain antenna, client is 0.4m away from tile, boresight configuration. 20dBm setting. The 0.4m separation distance was determined to be worst case configuration for Radiated Emissions (see report summary of conditions for justification of worst case). EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test. EUT connected to AC adapter for power. EUT connected to support Laptop via Ethernet cable. Laptop is located remotely.

Ossia, Inc. WO#: 102119 Sequence#: 35 Date: 6/14/2020
18.307(b) AC Mains - Average Test Lead: 115VAC 60Hz Neutral



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T1	AN02611	High Pass Filter	HE9615-150K-50-720B	1/10/2020	1/10/2022
T2	ANP06540	Cable	Heliac	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliac	6/29/2018	6/29/2020
T4	ANP06219	Attenuator	768-10	4/7/2020	4/7/2022
T5	AN01492	50uH LISN-Line (L1)	3816/2NM	10/14/2019	10/14/2021
	AN01492	50uH LISN-Neutral (L2)	3816/2NM	10/14/2019	10/14/2021

Measurement Data:

Reading listed by margin.

Test Lead: Neutral

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	14.763M Ave	29.8	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	39.9	50.0	-10.1	Neutr
2	14.625M Ave	29.7	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	39.8	50.0	-10.2	Neutr
^	14.625M	44.2	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	54.3	50.0	+4.3	Neutr
4	14.516M Ave	29.3	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	39.4	50.0	-10.6	Neutr
^	14.516M	44.4	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	54.5	50.0	+4.5	Neutr
6	14.291M Ave	29.2	+0.2 +0.6	+0.0	+0.2	+9.1	+0.0	39.3	50.0	-10.7	Neutr
^	14.291M	44.7	+0.2 +0.6	+0.0	+0.2	+9.1	+0.0	54.8	50.0	+4.8	Neutr
8	14.414M Ave	29.2	+0.2 +0.5	+0.0	+0.2	+9.1	+0.0	39.2	50.0	-10.8	Neutr
^	14.414M	43.6	+0.2 +0.5	+0.0	+0.2	+9.1	+0.0	53.6	50.0	+3.6	Neutr
10	14.160M Ave	28.6	+0.2 +0.5	+0.0	+0.2	+9.1	+0.0	38.6	50.0	-11.4	Neutr
^	14.160M	43.4	+0.2 +0.5	+0.0	+0.2	+9.1	+0.0	53.4	50.0	+3.4	Neutr
12	14.690M Ave	28.4	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	38.5	50.0	-11.5	Neutr
^	14.690M	45.5	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	55.6	50.0	+5.6	Neutr
14	14.073M Ave	28.1	+0.2 +0.5	+0.0	+0.2	+9.1	+0.0	38.1	50.0	-11.9	Neutr
^	14.073M	43.6	+0.2 +0.5	+0.0	+0.2	+9.1	+0.0	53.6	50.0	+3.6	Neutr
16	15.736M Ave	27.4	+0.2 +0.6	+0.1	+0.2	+9.1	+0.0	37.6	50.0	-12.4	Neutr
^	15.736M	44.0	+0.2 +0.6	+0.1	+0.2	+9.1	+0.0	54.2	50.0	+4.2	Neutr
18	14.763M Ave	27.4	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	37.5	50.0	-12.5	Neutr
^	14.763M	46.0	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	56.1	50.0	+6.1	Neutr
20	17.742M Ave	24.8	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	34.9	50.0	-15.1	Neutr
^	17.742M	40.9	+0.2 +0.5	+0.1	+0.2	+9.1	+0.0	51.0	50.0	+1.0	Neutr
22	13.187M Ave	24.6	+0.2 +0.5	+0.0	+0.2	+9.1	+0.0	34.6	50.0	-15.4	Neutr
^	13.187M	40.2	+0.2 +0.5	+0.0	+0.2	+9.1	+0.0	50.2	50.0	+0.2	Neutr

24	2.206M	19.8	+0.2	+0.0	+0.1	+9.1	+0.0	29.7	46.0	-16.3	Neutr
Ave			+0.5								
^	2.206M	36.3	+0.2	+0.0	+0.1	+9.1	+0.0	46.2	46.0	+0.2	Neutr
			+0.5								
26	3.679M	19.7	+0.1	+0.0	+0.1	+9.1	+0.0	29.4	46.0	-16.6	Neutr
Ave			+0.4								
^	3.679M	37.3	+0.1	+0.0	+0.1	+9.1	+0.0	47.0	46.0	+1.0	Neutr
			+0.4								
28	3.549M	19.5	+0.1	+0.0	+0.1	+9.1	+0.0	29.2	46.0	-16.8	Neutr
Ave			+0.4								
^	3.549M	37.3	+0.1	+0.0	+0.1	+9.1	+0.0	47.0	46.0	+1.0	Neutr
			+0.4								
30	3.437M	19.3	+0.1	+0.0	+0.1	+9.1	+0.0	29.1	46.0	-16.9	Neutr
Ave			+0.5								
^	3.437M	37.2	+0.1	+0.0	+0.1	+9.1	+0.0	47.0	46.0	+1.0	Neutr
			+0.5								
32	3.196M	19.2	+0.1	+0.0	+0.1	+9.1	+0.0	28.8	46.0	-17.2	Neutr
Ave			+0.3								
^	3.196M	37.2	+0.1	+0.0	+0.1	+9.1	+0.0	46.8	46.0	+0.8	Neutr
			+0.3								
34	2.344M	19.0	+0.1	+0.0	+0.1	+9.1	+0.0	28.7	46.0	-17.3	Neutr
Ave			+0.4								
^	2.344M	37.0	+0.1	+0.0	+0.1	+9.1	+0.0	46.7	46.0	+0.7	Neutr
			+0.4								
36	1.889M	18.5	+0.2	+0.0	+0.1	+9.1	+0.0	28.4	46.0	-17.6	Neutr
Ave			+0.5								
^	1.889M	36.2	+0.2	+0.0	+0.1	+9.1	+0.0	46.1	46.0	+0.1	Neutr
			+0.5								
38	4.034M	18.4	+0.1	+0.0	+0.1	+9.1	+0.0	28.2	46.0	-17.8	Neutr
Ave			+0.5								
^	4.034M	37.4	+0.1	+0.0	+0.1	+9.1	+0.0	47.2	46.0	+1.2	Neutr
			+0.5								
40	2.317M	18.3	+0.1	+0.0	+0.1	+9.1	+0.0	28.0	46.0	-18.0	Neutr
Ave			+0.4								
^	2.317M	36.7	+0.1	+0.0	+0.1	+9.1	+0.0	46.4	46.0	+0.4	Neutr
			+0.4								
42	2.097M	18.2	+0.2	+0.0	+0.1	+9.1	+0.0	28.0	46.0	-18.0	Neutr
Ave			+0.4								
^	2.097M	36.5	+0.2	+0.0	+0.1	+9.1	+0.0	46.3	46.0	+0.3	Neutr
			+0.4								
44	4.253M	18.3	+0.1	+0.0	+0.1	+9.1	+0.0	28.0	46.0	-18.0	Neutr
Ave			+0.4								
^	4.253M	37.0	+0.1	+0.0	+0.1	+9.1	+0.0	46.7	46.0	+0.7	Neutr
			+0.4								
46	4.711M	18.0	+0.1	+0.0	+0.1	+9.1	+0.0	27.8	46.0	-18.2	Neutr
Ave			+0.5								
^	4.711M	36.8	+0.1	+0.0	+0.1	+9.1	+0.0	46.6	46.0	+0.6	Neutr
			+0.5								
48	2.498M	17.9	+0.1	+0.0	+0.1	+9.1	+0.0	27.6	46.0	-18.4	Neutr
Ave			+0.4								
^	2.498M	37.2	+0.1	+0.0	+0.1	+9.1	+0.0	46.9	46.0	+0.9	Neutr
			+0.4								

50	3.308M	17.8	+0.1	+0.0	+0.1	+9.1	+0.0	27.5	46.0	-18.5	Neutr
	Ave		+0.4								
^	3.308M	37.0	+0.1	+0.0	+0.1	+9.1	+0.0	46.7	46.0	+0.7	Neutr
			+0.4								
52	4.505M	17.1	+0.1	+0.0	+0.1	+9.1	+0.0	27.0	46.0	-19.0	Neutr
	Ave		+0.6								
^	4.505M	36.9	+0.1	+0.0	+0.1	+9.1	+0.0	46.8	46.0	+0.8	Neutr
			+0.6								
54	2.953M	16.7	+0.1	+0.0	+0.1	+9.1	+0.0	26.5	46.0	-19.5	Neutr
	Ave		+0.5								
^	2.953M	36.2	+0.1	+0.0	+0.1	+9.1	+0.0	46.0	46.0	+0.0	Neutr
			+0.5								
56	3.366M	16.7	+0.1	+0.0	+0.1	+9.1	+0.0	26.3	46.0	-19.7	Neutr
	Ave		+0.3								
^	3.366M	37.0	+0.1	+0.0	+0.1	+9.1	+0.0	46.6	46.0	+0.6	Neutr
			+0.3								
58	4.925M	16.4	+0.1	+0.0	+0.1	+9.1	+0.0	26.3	46.0	-19.7	Neutr
	Ave		+0.6								
^	4.925M	36.4	+0.1	+0.0	+0.1	+9.1	+0.0	46.3	46.0	+0.3	Neutr
			+0.6								
60	2.163M	16.4	+0.2	+0.0	+0.1	+9.1	+0.0	26.2	46.0	-19.8	Neutr
	Ave		+0.4								
^	2.163M	37.9	+0.2	+0.0	+0.1	+9.1	+0.0	47.7	46.0	+1.7	Neutr
			+0.4								
62	3.933M	15.3	+0.1	+0.0	+0.1	+9.1	+0.0	25.0	46.0	-21.0	Neutr
	Ave		+0.4								
^	3.933M	37.9	+0.1	+0.0	+0.1	+9.1	+0.0	47.6	46.0	+1.6	Neutr
			+0.4								
64	4.172M	15.0	+0.1	+0.0	+0.1	+9.1	+0.0	24.8	46.0	-21.2	Neutr
	Ave		+0.5								
^	4.172M	37.3	+0.1	+0.0	+0.1	+9.1	+0.0	47.1	46.0	+1.1	Neutr
			+0.5								
66	3.717M	14.8	+0.1	+0.0	+0.1	+9.1	+0.0	24.5	46.0	-21.5	Neutr
	Ave		+0.4								
^	3.717M	36.2	+0.1	+0.0	+0.1	+9.1	+0.0	45.9	46.0	-0.1	Neutr
			+0.4								
68	3.258M	14.2	+0.1	+0.0	+0.1	+9.1	+0.0	23.9	46.0	-22.1	Neutr
	Ave		+0.4								
^	3.258M	36.6	+0.1	+0.0	+0.1	+9.1	+0.0	46.3	46.0	+0.3	Neutr
			+0.4								
70	3.270M	13.8	+0.1	+0.0	+0.1	+9.1	+0.0	23.5	46.0	-22.5	Neutr
	Ave		+0.4								
^	3.270M	36.2	+0.1	+0.0	+0.1	+9.1	+0.0	45.9	46.0	-0.1	Neutr
			+0.4								
72	170.610k	19.8	+0.4	+0.0	+0.0	+9.1	+0.0	30.9	54.9	-24.0	Neutr
	Ave		+1.6								
^	170.610k	51.2	+0.4	+0.0	+0.0	+9.1	+0.0	62.3	54.9	+7.4	Neutr
			+1.6								
74	514.756k	9.7	+0.2	+0.0	+0.0	+9.1	+0.0	19.5	46.0	-26.5	Neutr
	Ave		+0.5								

75	510.522k	9.7	+0.2	+0.0	+0.0	+9.1	+0.0	19.5	46.0	-26.5	Neutr
	Ave		+0.5								
^	514.755k	37.8	+0.2	+0.0	+0.0	+9.1	+0.0	47.6	46.0	+1.6	Neutr
			+0.5								
^	510.522k	36.9	+0.2	+0.0	+0.0	+9.1	+0.0	46.7	46.0	+0.7	Neutr
			+0.5								
78	590.049k	9.0	+0.3	+0.0	+0.0	+9.1	+0.0	18.9	46.0	-27.1	Neutr
	Ave		+0.5								
^	590.048k	36.3	+0.3	+0.0	+0.0	+9.1	+0.0	46.2	46.0	+0.2	Neutr
			+0.5								
80	581.280k	8.2	+0.3	+0.0	+0.0	+9.1	+0.0	18.1	46.0	-27.9	Neutr
	Ave		+0.5								
^	581.279k	36.3	+0.3	+0.0	+0.0	+9.1	+0.0	46.2	46.0	+0.2	Neutr
			+0.5								
82	200.730k	14.7	+0.2	+0.0	+0.0	+9.1	+0.0	25.3	53.6	-28.3	Neutr
	Ave		+1.3								
^	200.730k	41.9	+0.2	+0.0	+0.0	+9.1	+0.0	52.5	53.6	-1.1	Neutr
			+1.3								
84	491.472k	7.4	+0.2	+0.0	+0.0	+9.1	+0.0	17.3	46.1	-28.8	Neutr
	Ave		+0.6								
^	491.472k	37.1	+0.2	+0.0	+0.0	+9.1	+0.0	47.0	46.1	+0.9	Neutr
			+0.6								
^	496.007k	36.7	+0.2	+0.0	+0.0	+9.1	+0.0	46.6	46.1	+0.5	Neutr
			+0.6								
87	207.850k	13.7	+0.2	+0.0	+0.0	+9.1	+0.0	24.3	53.3	-29.0	Neutr
	Ave		+1.3								
^	207.850k	40.8	+0.2	+0.0	+0.0	+9.1	+0.0	51.4	53.3	-1.9	Neutr
			+1.3								
89	479.982k	7.3	+0.2	+0.0	+0.0	+9.1	+0.0	17.1	46.3	-29.2	Neutr
	Ave		+0.5								
^	479.981k	37.7	+0.2	+0.0	+0.0	+9.1	+0.0	47.5	46.3	+1.2	Neutr
			+0.5								
91	617.263k	6.6	+0.3	+0.0	+0.0	+9.1	+0.0	16.5	46.0	-29.5	Neutr
	Ave		+0.5								
^	617.263k	37.6	+0.3	+0.0	+0.0	+9.1	+0.0	47.5	46.0	+1.5	Neutr
			+0.5								
93	432.633k	7.6	+0.2	+0.0	+0.1	+9.1	+0.0	17.6	47.2	-29.6	Neutr
	Ave		+0.6								
^	432.632k	38.8	+0.2	+0.0	+0.1	+9.1	+0.0	48.8	47.2	+1.6	Neutr
			+0.6								
95	600.934k	6.2	+0.3	+0.0	+0.0	+9.1	+0.0	16.1	46.0	-29.9	Neutr
	Ave		+0.5								
^	600.934k	36.1	+0.3	+0.0	+0.0	+9.1	+0.0	46.0	46.0	+0.0	Neutr
			+0.5								
97	559.810k	4.5	+0.3	+0.0	+0.0	+9.1	+0.0	14.5	46.0	-31.5	Neutr
	Ave		+0.6								
^	559.810k	36.1	+0.3	+0.0	+0.0	+9.1	+0.0	46.1	46.0	+0.1	Neutr
			+0.6								
99	643.873k	3.8	+0.3	+0.0	+0.0	+9.1	+0.0	13.8	46.0	-32.2	Neutr
	Ave		+0.6								
^	643.872k	36.0	+0.3	+0.0	+0.0	+9.1	+0.0	46.0	46.0	+0.0	Neutr
			+0.6								

101	359.647k	6.3	+0.1	+0.0	+0.0	+9.1	+0.0	16.2	48.7	-32.5	Neutr
	Ave		+0.7								
^	359.647k	39.0	+0.1	+0.0	+0.0	+9.1	+0.0	48.9	48.7	+0.2	Neutr
			+0.7								
103	216.170k	9.5	+0.3	+0.0	+0.0	+9.1	+0.0	20.1	53.0	-32.9	Neutr
	Ave		+1.2								
^	216.170k	42.5	+0.3	+0.0	+0.0	+9.1	+0.0	53.1	53.0	+0.1	Neutr
			+1.2								
105	270.462k	7.1	+0.1	+0.0	+0.0	+9.1	+0.0	17.2	51.1	-33.9	Neutr
	Ave		+0.9								
^	270.462k	42.2	+0.1	+0.0	+0.0	+9.1	+0.0	52.3	51.1	+1.2	Neutr
			+0.9								
^	268.860k	41.0	+0.2	+0.0	+0.0	+9.1	+0.0	51.3	51.2	+0.1	Neutr
			+1.0								

Test Setup Photo(s)



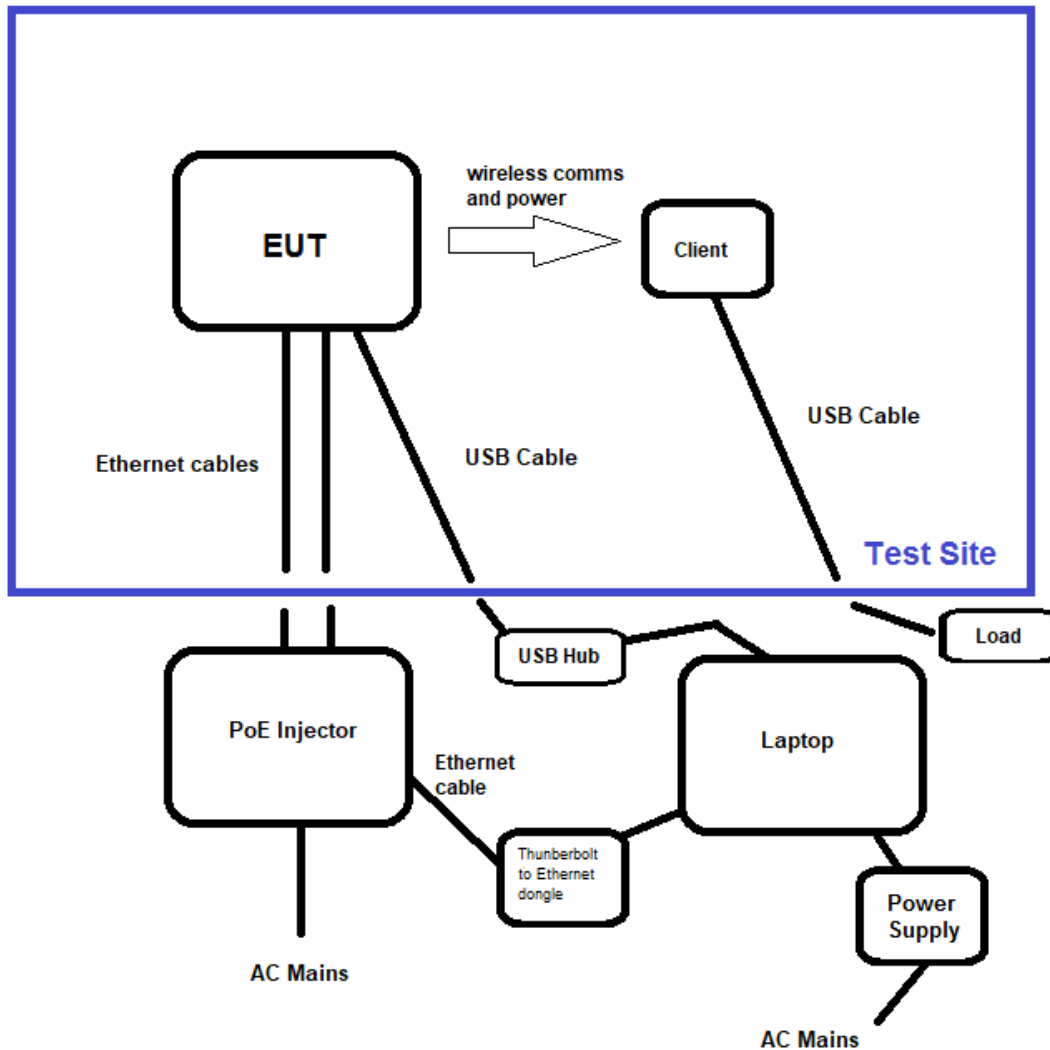
Configuration 1



Configuration 2

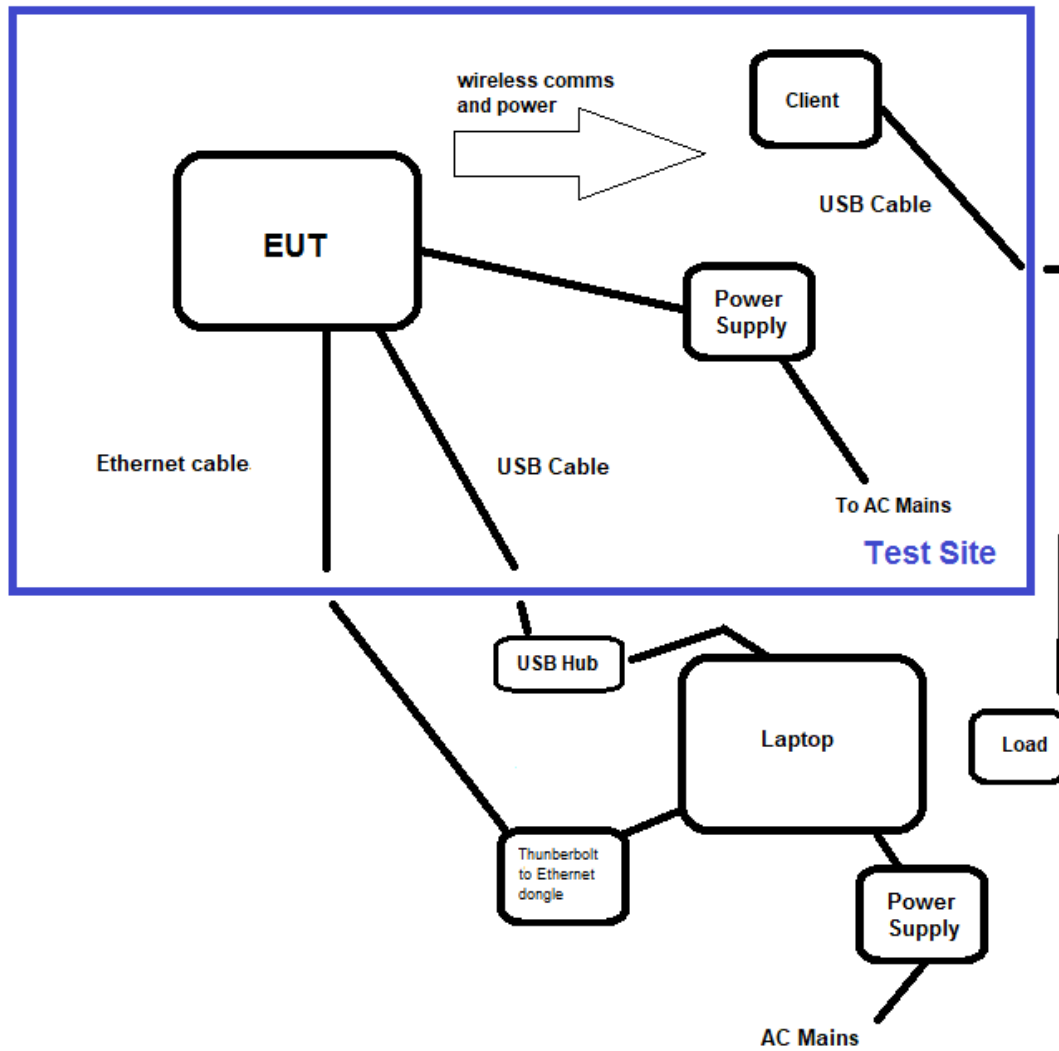
Appendix A: Test Setup Block Diagrams

Test Setup Block Diagram



Configuration 1

Test Setup Block Diagram



Configuration 2

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 $k=2$.

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 $\text{dB}\mu\text{V}/\text{m}$, the spectrum analyzer reading in $\text{dB}\mu\text{V}$ 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	($\text{dB}\mu\text{V}$)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	($\text{dB}\mu\text{V}/\text{m}$)

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.