

# 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 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> 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,  $\phi$  is the azimuth angle, and  $\theta$  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).

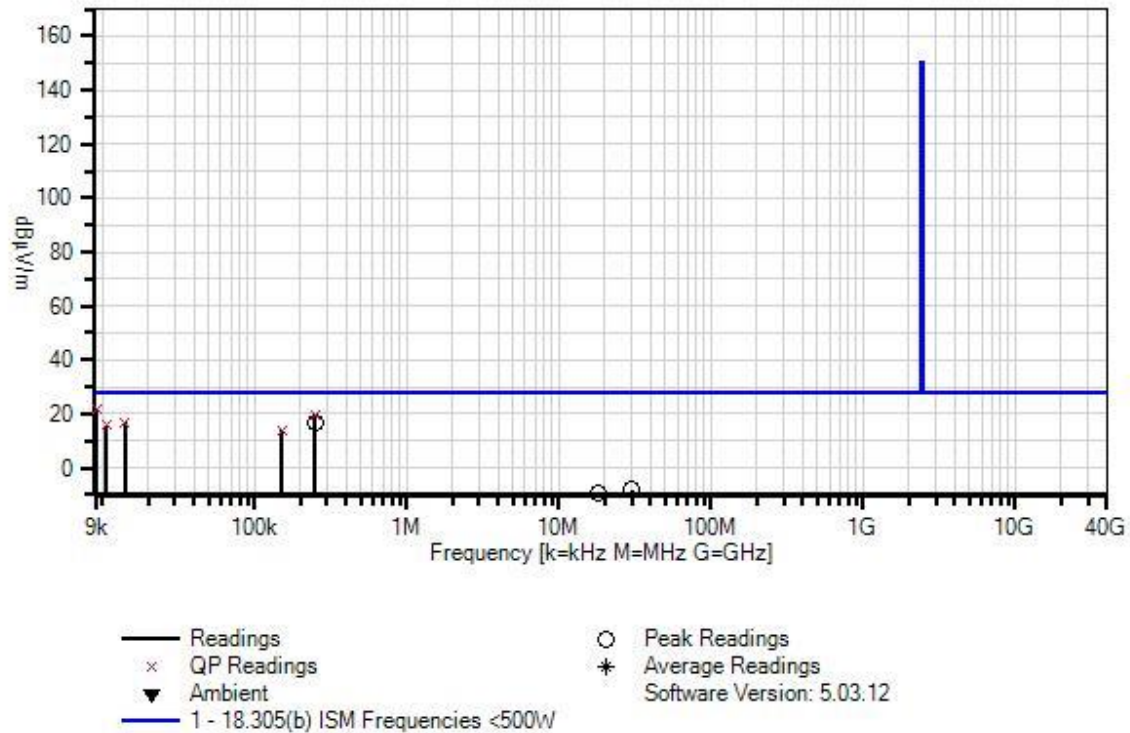
EUT connected to support laptop via USB cable, client is charging with external load attached that is remotely located via another USB cable, nominal charging conditions verified on the client during each test.

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<br>MHz | Rdng<br>dB $\mu$ V | T1<br>dB | T2<br>dB | T3<br>dB |  | Dist<br>Table | Corr<br>dB $\mu$ V/m | Spec<br>dB $\mu$ V/m | Margin<br>dB | Polar<br>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 |              |         |     |

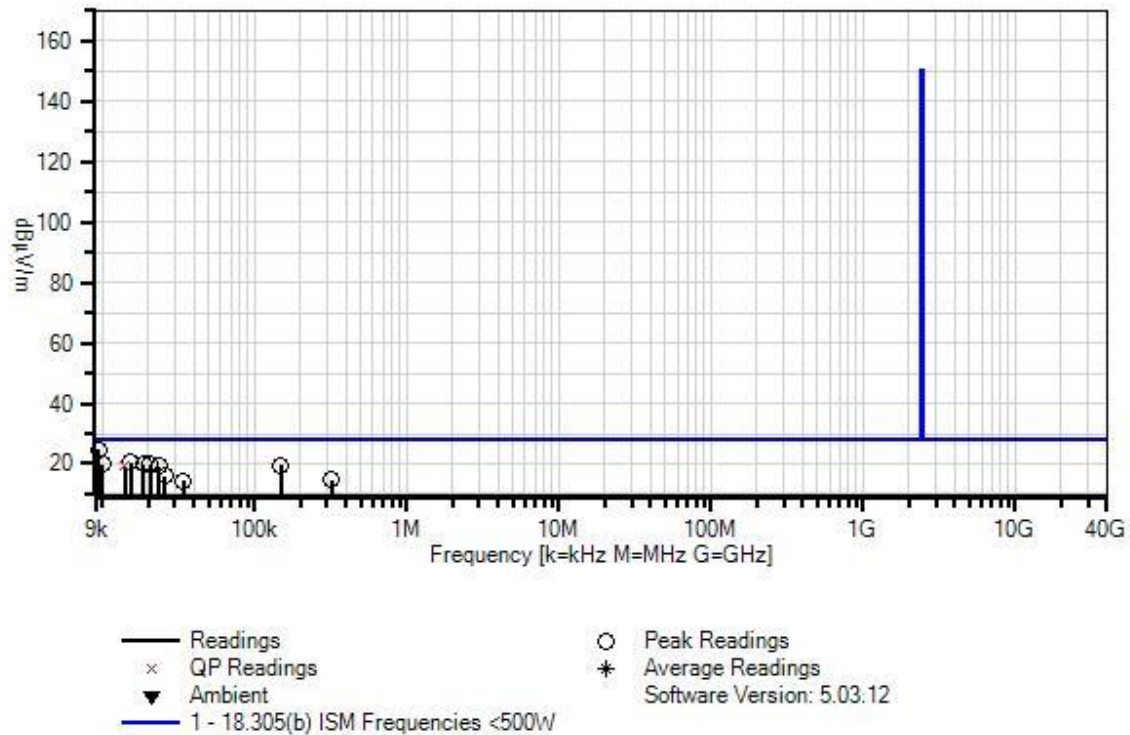
***Support Equipment:***

| 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<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | T3<br>dB |  | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>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 |              |         |     |

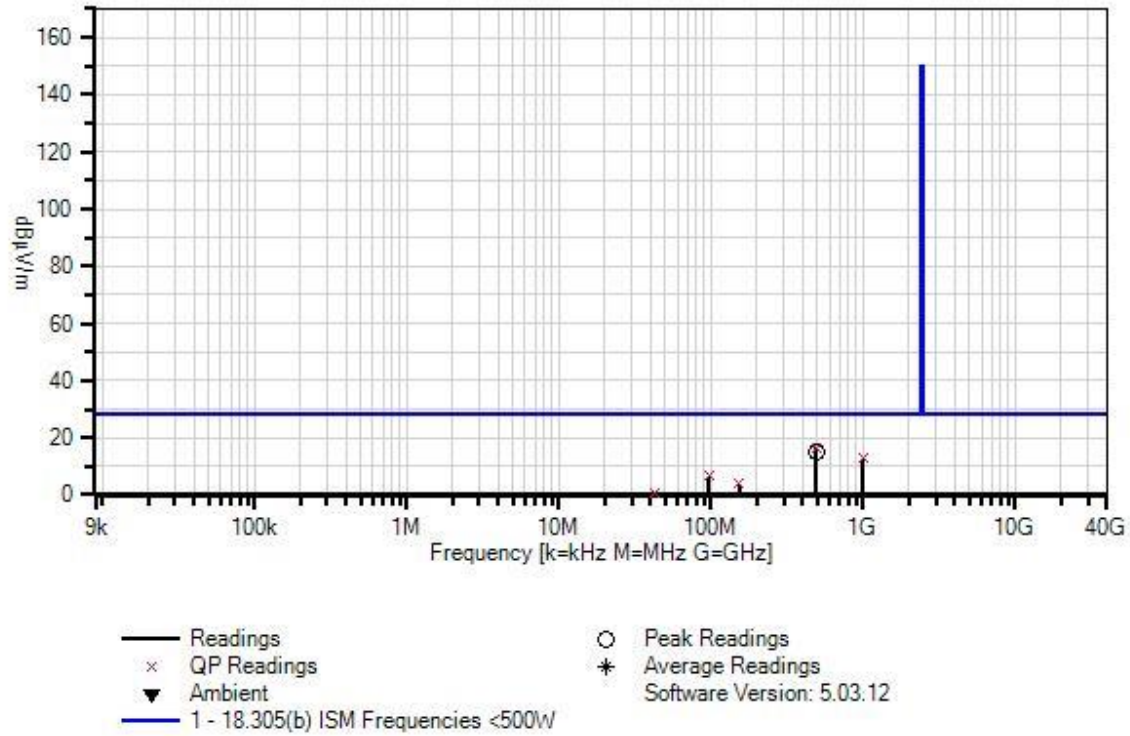
***Support Equipment:***

| 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<br>MHz    | Rdng<br>dBμV | T1<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|----|----------------|--------------|----------|----------|----------|----------|---------------|----------------|----------------|--------------|--------------|
| 1  | 489.306M<br>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<br>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<br>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<br>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<br>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<br>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 |              |         |     |

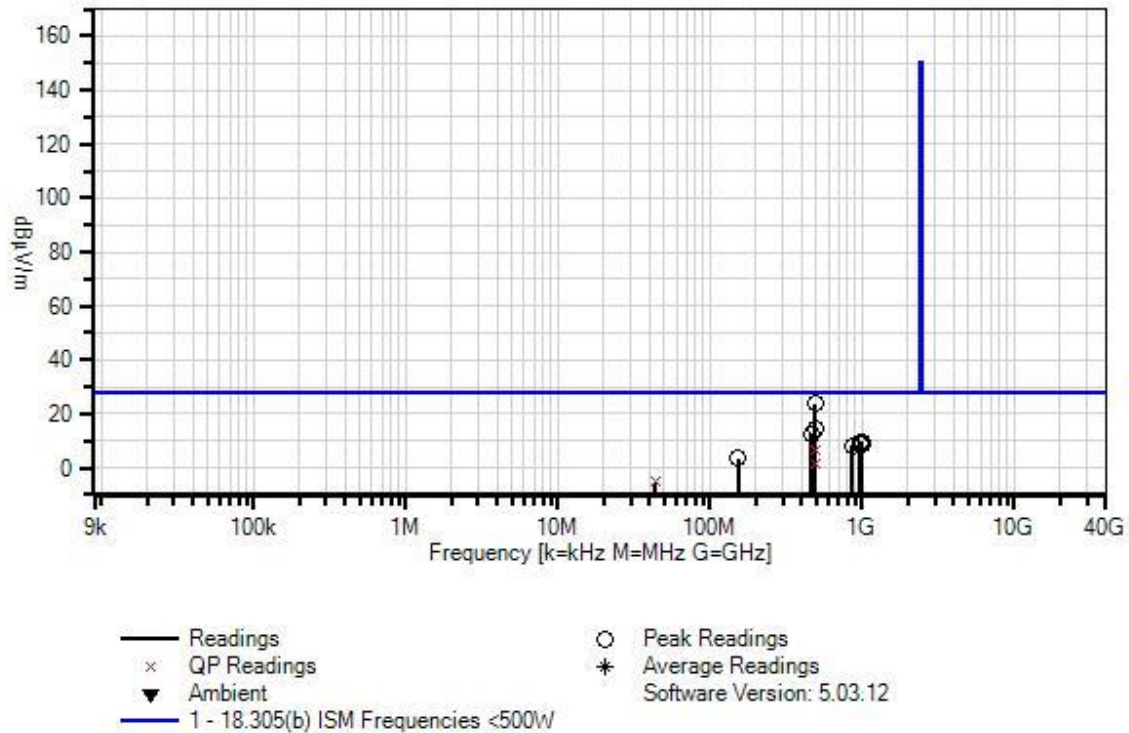
***Support Equipment:***

| 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<br>MHz    | Rdng<br>dBμV | T1<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>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<br>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<br>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<br>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 |              |         |     |

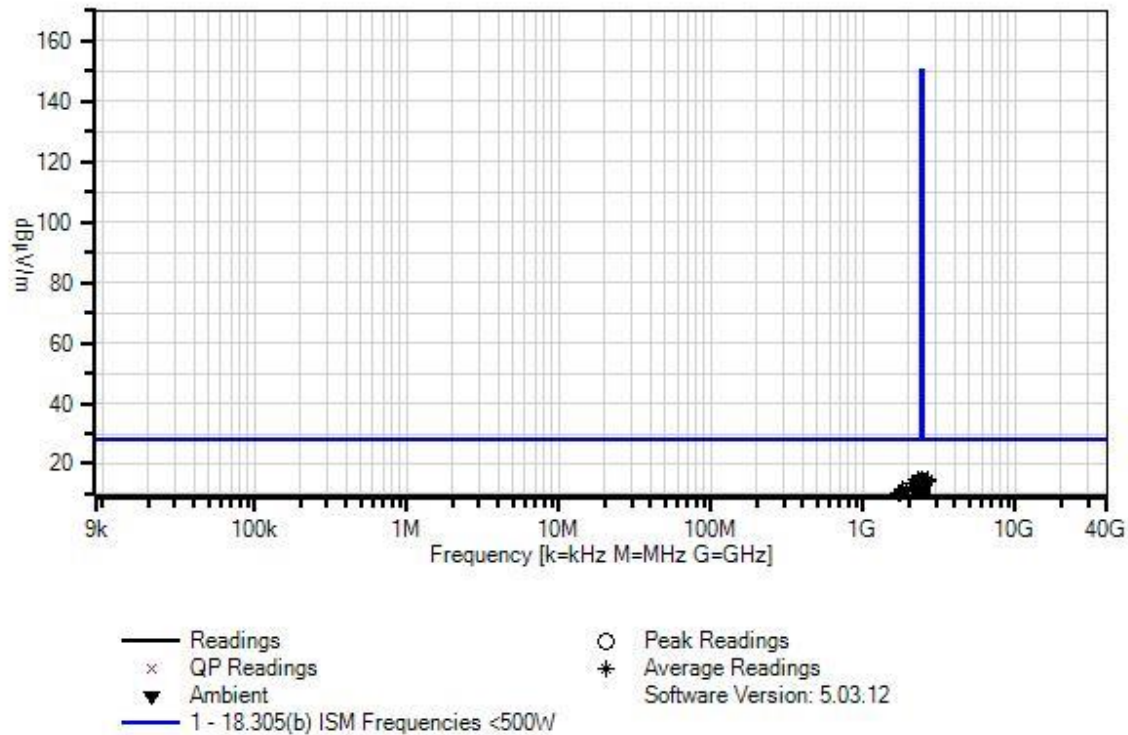
***Support Equipment:***

| 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-<br>ANSI C63.5<br>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-<br>1500/3000-N/N | 6/12/2020        | 6/12/2022    |

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

| #  | Freq      | Rdng | T1<br>T5 | T2<br>T6 | T3   | T4    | Dist  | Corr   | Spec   | Margin | Polar |
|----|-----------|------|----------|----------|------|-------|-------|--------|--------|--------|-------|
|    | MHz       | dBμV | dB       | dB       | dB   | dB    | Table | dBμV/m | dBμV/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<br>Ave | 22.3 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.7 | +27.7 | -40.0 | 13.9 | 28.0 | -14.1 | Horiz |
| 24 | 2379.057M<br>Ave | 22.4 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.6 | +27.7 | -40.0 | 13.9 | 28.0 | -14.1 | Horiz |
| ^  | 2379.057M        | 59.4 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.6 | +27.7 | -40.0 | 50.9 | 28.0 | +22.9 | Horiz |
| 26 | 2374.457M<br>Ave | 22.4 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.6 | +27.7 | -40.0 | 13.9 | 28.0 | -14.1 | Horiz |
| ^  | 2374.457M        | 63.5 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.6 | +27.7 | -40.0 | 55.0 | 28.0 | +27.0 | Horiz |
| 28 | 2502.325M<br>Ave | 22.4 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.7 | +27.6 | -40.0 | 13.9 | 28.0 | -14.1 | Horiz |
| ^  | 2502.325M        | 59.6 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.7 | +27.6 | -40.0 | 51.1 | 28.0 | +23.1 | Horiz |
| 30 | 2511.525M<br>Ave | 22.3 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.7 | +27.6 | -40.0 | 13.8 | 28.0 | -14.2 | Horiz |
| ^  | 2511.525M        | 56.9 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.7 | +27.6 | -40.0 | 48.4 | 28.0 | +20.4 | Horiz |
| 32 | 2515.204M<br>Ave | 22.3 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.7 | +27.6 | -40.0 | 13.8 | 28.0 | -14.2 | Horiz |
| ^  | 2515.204M        | 59.3 | +0.0<br>+0.5 | +0.6<br>+0.1 | +2.7 | +27.6 | -40.0 | 50.8 | 28.0 | +22.8 | Horiz |
| 34 | 2325.000M<br>Ave | 22.5 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 13.8 | 28.0 | -14.2 | Horiz |
| ^  | 2325.000M        | 52.1 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 43.4 | 28.0 | +15.4 | Horiz |
| 36 | 2321.100M<br>Ave | 22.5 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 13.8 | 28.0 | -14.2 | Horiz |
| 37 | 2348.500M<br>Ave | 22.4 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 13.7 | 28.0 | -14.3 | Horiz |
| ^  | 2348.500M        | 51.9 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 43.2 | 28.0 | +15.2 | Horiz |
| 39 | 2349.619M<br>Ave | 22.4 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 13.7 | 28.0 | -14.3 | Horiz |
| ^  | 2349.619M        | 58.0 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 49.3 | 28.0 | +21.3 | Horiz |
| 41 | 2353.299M<br>Ave | 22.4 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 13.7 | 28.0 | -14.3 | Horiz |
| ^  | 2353.299M        | 59.0 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 50.3 | 28.0 | +22.3 | Horiz |
| 43 | 2358.818M<br>Ave | 22.4 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 13.7 | 28.0 | -14.3 | Horiz |
| ^  | 2358.818M        | 63.3 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 54.6 | 28.0 | +26.6 | Horiz |
| 45 | 2361.578M<br>Ave | 22.4 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 13.7 | 28.0 | -14.3 | Horiz |
| ^  | 2361.578M        | 57.5 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.5 | +27.7 | -40.0 | 48.8 | 28.0 | +20.8 | Horiz |
| 47 | 2284.000M<br>Ave | 22.4 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.4 | +27.7 | -40.0 | 13.6 | 28.0 | -14.4 | Horiz |
| ^  | 2284.000M        | 47.8 | +0.0<br>+0.4 | +0.6<br>+0.1 | +2.4 | +27.7 | -40.0 | 39.0 | 28.0 | +11.0 | Horiz |

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

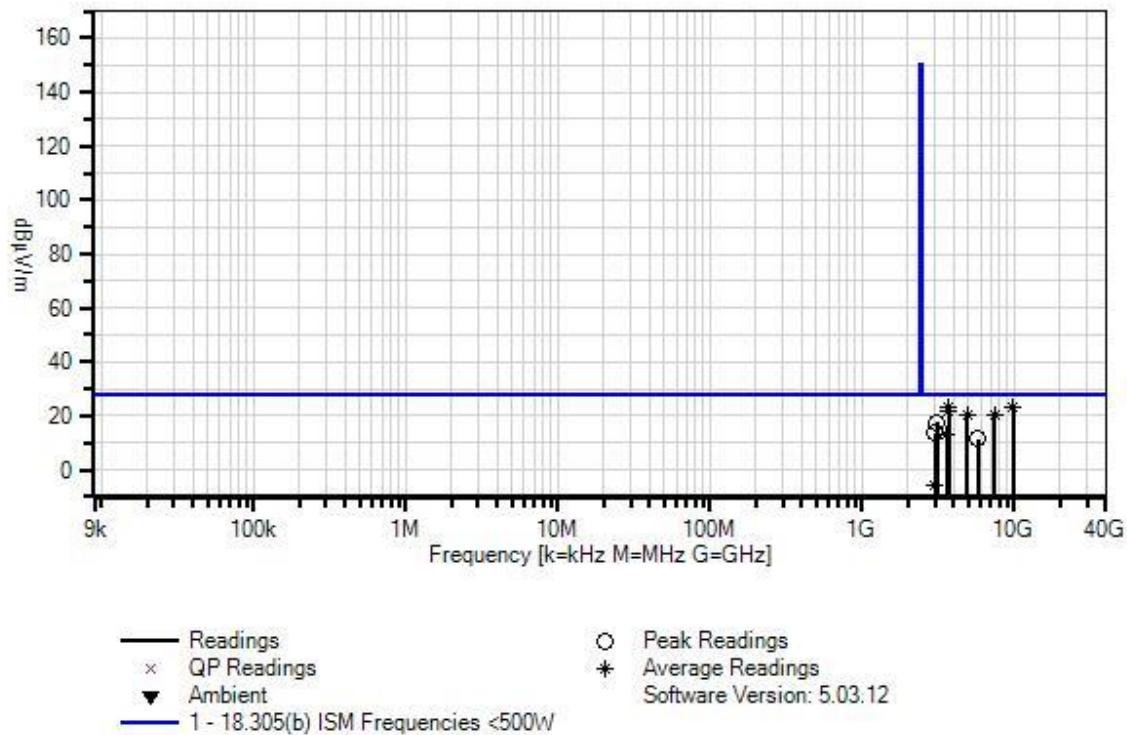
***Support Equipment:***

| 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



**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-<br>ANSI C63.5<br>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<br>MHz      | Rdng<br>dBμV | T1<br>T5<br>dB | T2<br>T6<br>dB | T3<br>T7<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|----|------------------|--------------|----------------|----------------|----------------|----------|---------------|----------------|----------------|--------------|--------------|
| 1  | 9800.000M<br>Ave | 51.5         | +0.0<br>+37.5  | +1.3<br>-33.9  | +6.3<br>+0.0   | +0.7     | -40.0         | 23.4           | 28.0           | -4.6         | Vert         |
| 2  | 3708.892M<br>Ave | 60.1         | +0.0<br>+30.6  | +0.9<br>-33.7  | +3.8<br>+0.5   | +0.7     | -40.0         | 22.9           | 28.0           | -5.1         | Horiz        |
| ^  | 3708.892M        | 74.3         | +0.0<br>+30.6  | +0.9<br>-33.7  | +3.8<br>+0.5   | +0.7     | -40.0         | 37.1           | 28.0           | +9.1         | Horiz        |
| 4  | 3708.739M<br>Ave | 58.9         | +0.0<br>+30.6  | +0.9<br>-33.7  | +3.8<br>+0.5   | +0.7     | -40.0         | 21.7           | 28.0           | -6.3         | Vert         |
| ^  | 3708.739M        | 69.1         | +0.0<br>+30.6  | +0.9<br>-33.7  | +3.8<br>+0.5   | +0.7     | -40.0         | 31.9           | 28.0           | +3.9         | Vert         |
| 6  | 3710.100M<br>Ave | 58.8         | +0.0<br>+30.6  | +0.9<br>-33.7  | +3.8<br>+0.5   | +0.7     | -40.0         | 21.6           | 28.0           | -6.4         | Horiz        |
| ^  | 3710.100M        | 69.7         | +0.0<br>+30.6  | +0.9<br>-33.7  | +3.8<br>+0.5   | +0.7     | -40.0         | 32.5           | 28.0           | +4.5         | Horiz        |
| 8  | 4900.000M<br>Ave | 55.5         | +0.0<br>+32.5  | +0.9<br>-33.6  | +4.2<br>+0.3   | +0.5     | -40.0         | 20.3           | 28.0           | -7.7         | Horiz        |
| 9  | 7350.000M<br>Ave | 49.6         | +0.0<br>+36.9  | +1.3<br>-34.6  | +5.4<br>+1.0   | +0.6     | -40.0         | 20.2           | 28.0           | -7.8         | Vert         |
| 10 | 3082.000M        | 56.4         | +0.0<br>+29.3  | +0.8<br>-34.0  | +3.0<br>+1.0   | +1.1     | -40.0         | 17.6           | 28.0           | -10.4        | Vert         |
| 11 | 3021.000M        | 52.7         | +0.0<br>+29.1  | +0.8<br>-34.0  | +2.9<br>+1.0   | +1.2     | -40.0         | 13.7           | 28.0           | -14.3        | Vert         |
| 12 | 3573.409M<br>Ave | 50.9         | +0.0<br>+30.2  | +0.8<br>-33.8  | +3.6<br>+0.6   | +1.0     | -40.0         | 13.3           | 28.0           | -14.7        | Vert         |
| ^  | 3573.400M        | 65.4         | +0.0<br>+30.2  | +0.8<br>-33.8  | +3.6<br>+0.6   | +1.0     | -40.0         | 27.8           | 28.0           | -0.2         | Vert         |
| 14 | 5751.000M        | 44.7         | +0.0<br>+34.2  | +1.0<br>-33.7  | +4.6<br>+0.2   | +0.5     | -40.0         | 11.5           | 28.0           | -16.5        | Horiz        |
| 15 | 3007.000M<br>Ave | 33.1         | +0.0<br>+29.1  | +0.8<br>-34.0  | +2.9<br>+1.0   | +1.2     | -40.0         | -5.9           | 28.0           | -33.9        | Horiz        |
| ^  | 3007.000M        | 61.2         | +0.0<br>+29.1  | +0.8<br>-34.0  | +2.9<br>+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 |              |         |     |

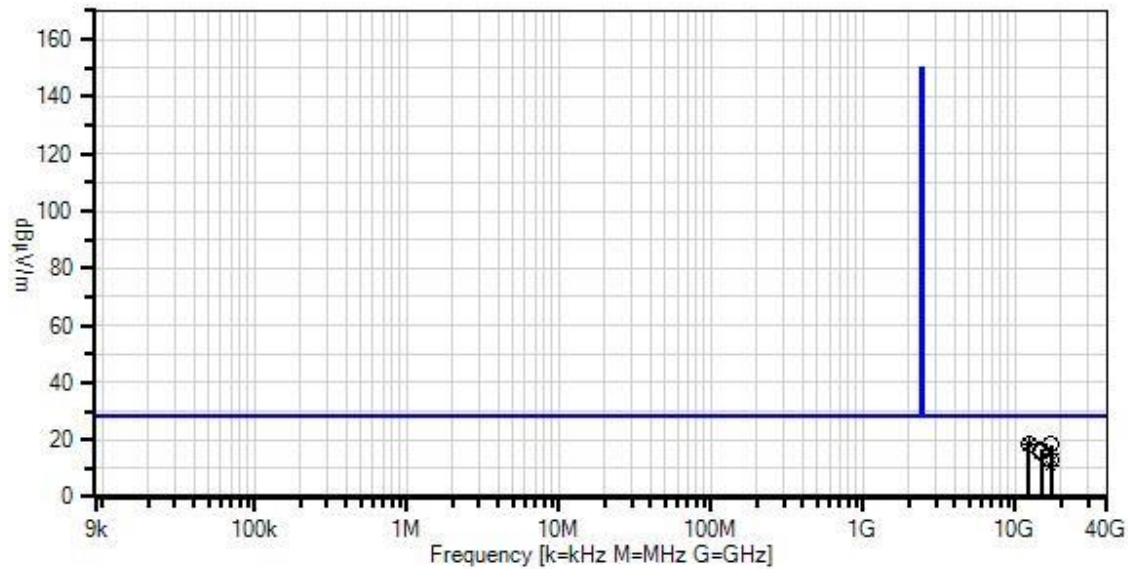
***Support Equipment:***

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

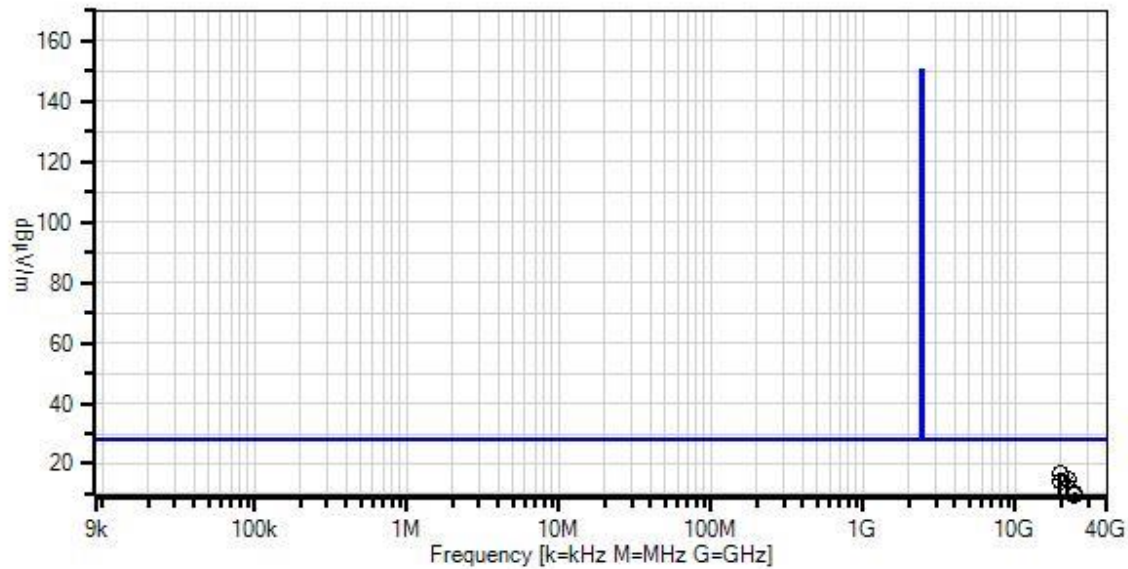
| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***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-<br>29801-144       | 2/20/2020        | 2/20/2022    |
| T3 | AN02742  | Active Horn<br>Antenna | AMFW-5F-<br>18002650-20-<br>10P | 10/16/2018       | 10/16/2020   |

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

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

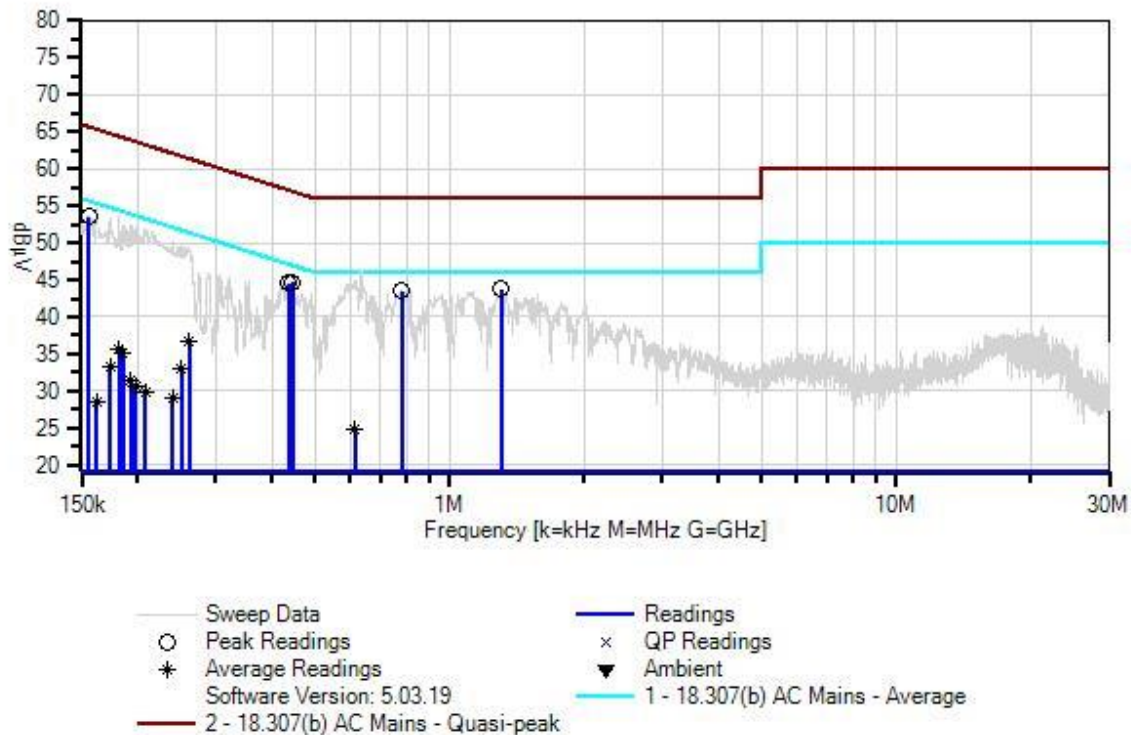
Frequency: 0.15-30MHz

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

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

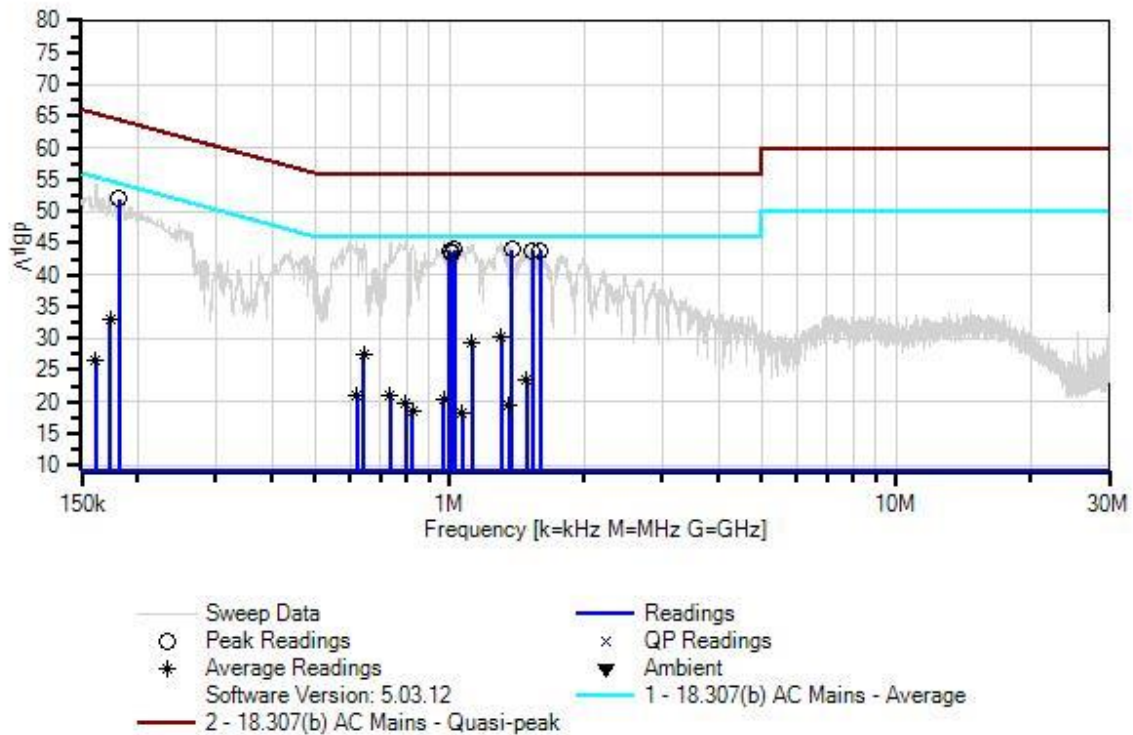
| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Temperature: 23°C<br/>         Humidity: 34%<br/>         Pressure: 101.6kPa</p> <p>Method: FCC/OET MP-5 (February 1986)</p> <p>Frequency: 0.15-30MHz</p> <p>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).</p> <p>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.</p> <p>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.</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



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

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

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 |              |         |     |

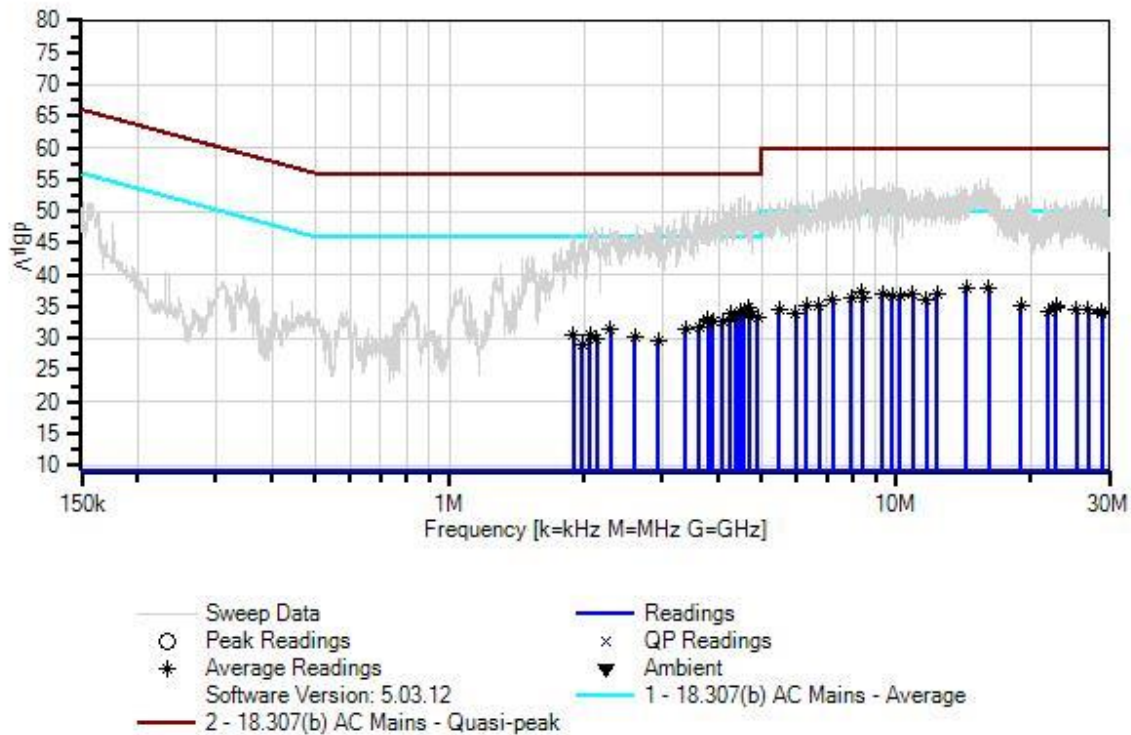
***Support Equipment:***

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

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

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



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

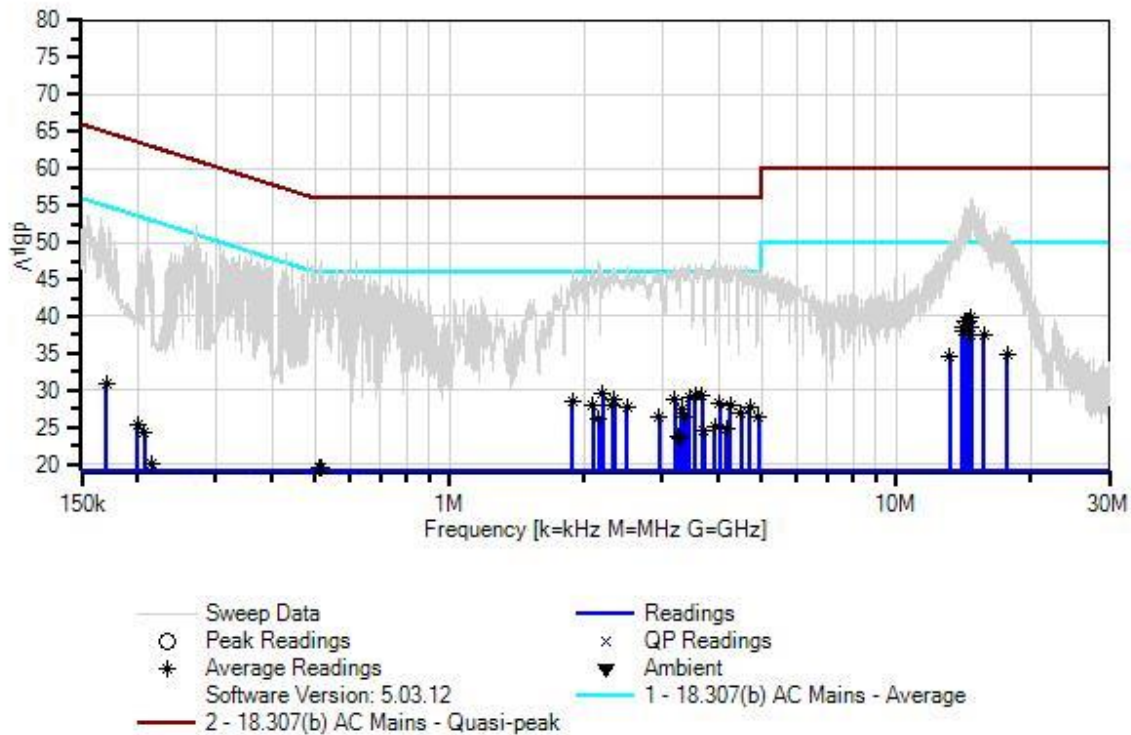
***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 19-21°C<br>Humidity: 29-32%<br>Pressure: 102-103kPa<br><br>Method: FCC/OET MP-5 (February 1986)<br><br>Frequency: 0.15-30MHz<br><br>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).<br><br>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.<br><br>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<br>MHz | Rdng<br>dBμV | T1<br>T5<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dBμV | Spec<br>dBμV | Margin<br>dB | Polar<br>Ant |
|-----|-------------|--------------|----------------|----------|----------|----------|---------------|--------------|--------------|--------------|--------------|
| 1   | 14.763M     | 29.8         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 39.9         | 50.0         | -10.1        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| 2   | 14.625M     | 29.7         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 39.8         | 50.0         | -10.2        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 14.625M     | 44.2         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 54.3         | 50.0         | +4.3         | Neutr        |
| 4   | 14.516M     | 29.3         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 39.4         | 50.0         | -10.6        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 14.516M     | 44.4         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 54.5         | 50.0         | +4.5         | Neutr        |
| 6   | 14.291M     | 29.2         | +0.2<br>+0.6   | +0.0     | +0.2     | +9.1     | +0.0          | 39.3         | 50.0         | -10.7        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 14.291M     | 44.7         | +0.2<br>+0.6   | +0.0     | +0.2     | +9.1     | +0.0          | 54.8         | 50.0         | +4.8         | Neutr        |
| 8   | 14.414M     | 29.2         | +0.2<br>+0.5   | +0.0     | +0.2     | +9.1     | +0.0          | 39.2         | 50.0         | -10.8        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 14.414M     | 43.6         | +0.2<br>+0.5   | +0.0     | +0.2     | +9.1     | +0.0          | 53.6         | 50.0         | +3.6         | Neutr        |
| 10  | 14.160M     | 28.6         | +0.2<br>+0.5   | +0.0     | +0.2     | +9.1     | +0.0          | 38.6         | 50.0         | -11.4        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 14.160M     | 43.4         | +0.2<br>+0.5   | +0.0     | +0.2     | +9.1     | +0.0          | 53.4         | 50.0         | +3.4         | Neutr        |
| 12  | 14.690M     | 28.4         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 38.5         | 50.0         | -11.5        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 14.690M     | 45.5         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 55.6         | 50.0         | +5.6         | Neutr        |
| 14  | 14.073M     | 28.1         | +0.2<br>+0.5   | +0.0     | +0.2     | +9.1     | +0.0          | 38.1         | 50.0         | -11.9        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 14.073M     | 43.6         | +0.2<br>+0.5   | +0.0     | +0.2     | +9.1     | +0.0          | 53.6         | 50.0         | +3.6         | Neutr        |
| 16  | 15.736M     | 27.4         | +0.2<br>+0.6   | +0.1     | +0.2     | +9.1     | +0.0          | 37.6         | 50.0         | -12.4        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 15.736M     | 44.0         | +0.2<br>+0.6   | +0.1     | +0.2     | +9.1     | +0.0          | 54.2         | 50.0         | +4.2         | Neutr        |
| 18  | 14.763M     | 27.4         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 37.5         | 50.0         | -12.5        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 14.763M     | 46.0         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 56.1         | 50.0         | +6.1         | Neutr        |
| 20  | 17.742M     | 24.8         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 34.9         | 50.0         | -15.1        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 17.742M     | 40.9         | +0.2<br>+0.5   | +0.1     | +0.2     | +9.1     | +0.0          | 51.0         | 50.0         | +1.0         | Neutr        |
| 22  | 13.187M     | 24.6         | +0.2<br>+0.5   | +0.0     | +0.2     | +9.1     | +0.0          | 34.6         | 50.0         | -15.4        | Neutr        |
| Ave |             |              |                |          |          |          |               |              |              |              |              |
| ^   | 13.187M     | 40.2         | +0.2<br>+0.5   | +0.0     | +0.2     | +9.1     | +0.0          | 50.2         | 50.0         | +0.2         | Neutr        |

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

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

|     |          |      |      |      |      |      |      |      |      |       |       |
|-----|----------|------|------|------|------|------|------|------|------|-------|-------|
| 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)**



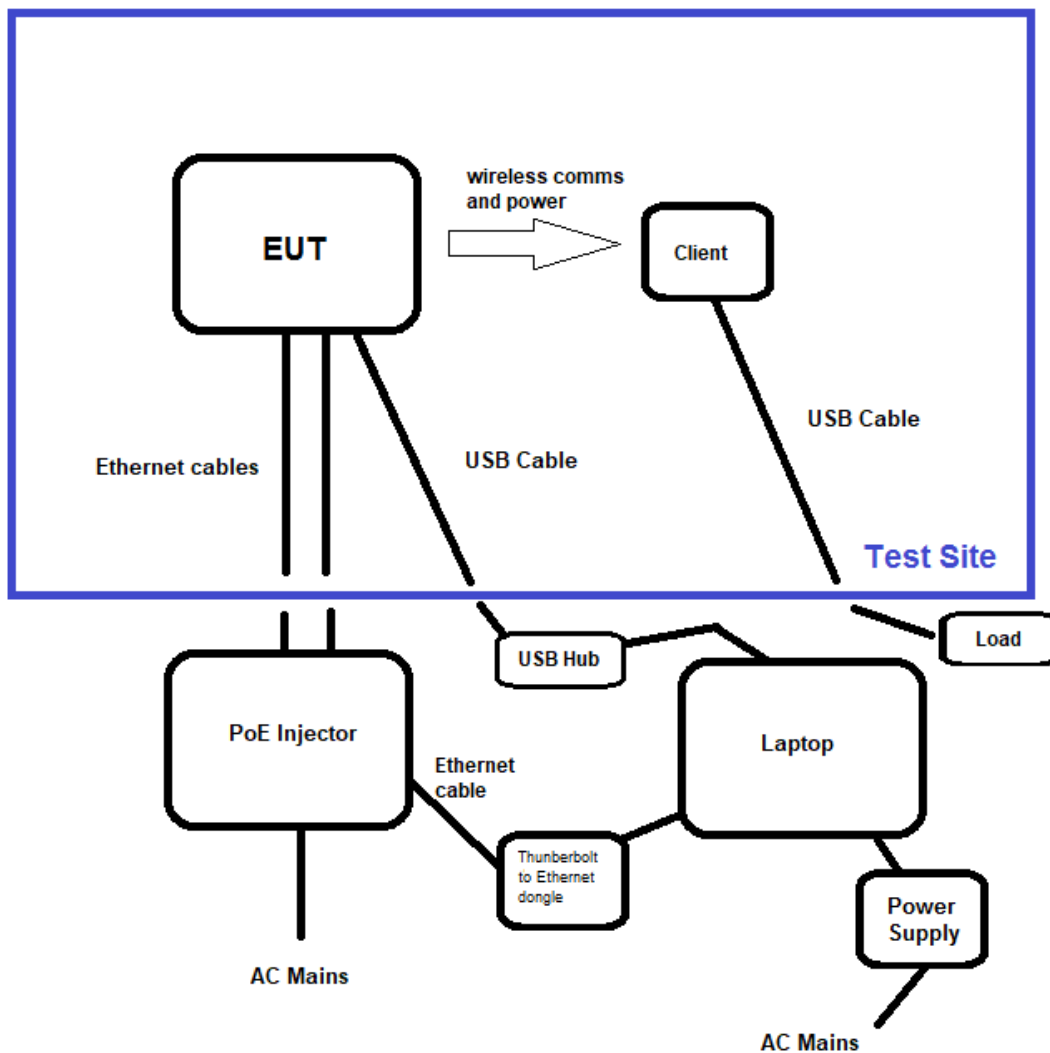
Configuration 1



Configuration 2

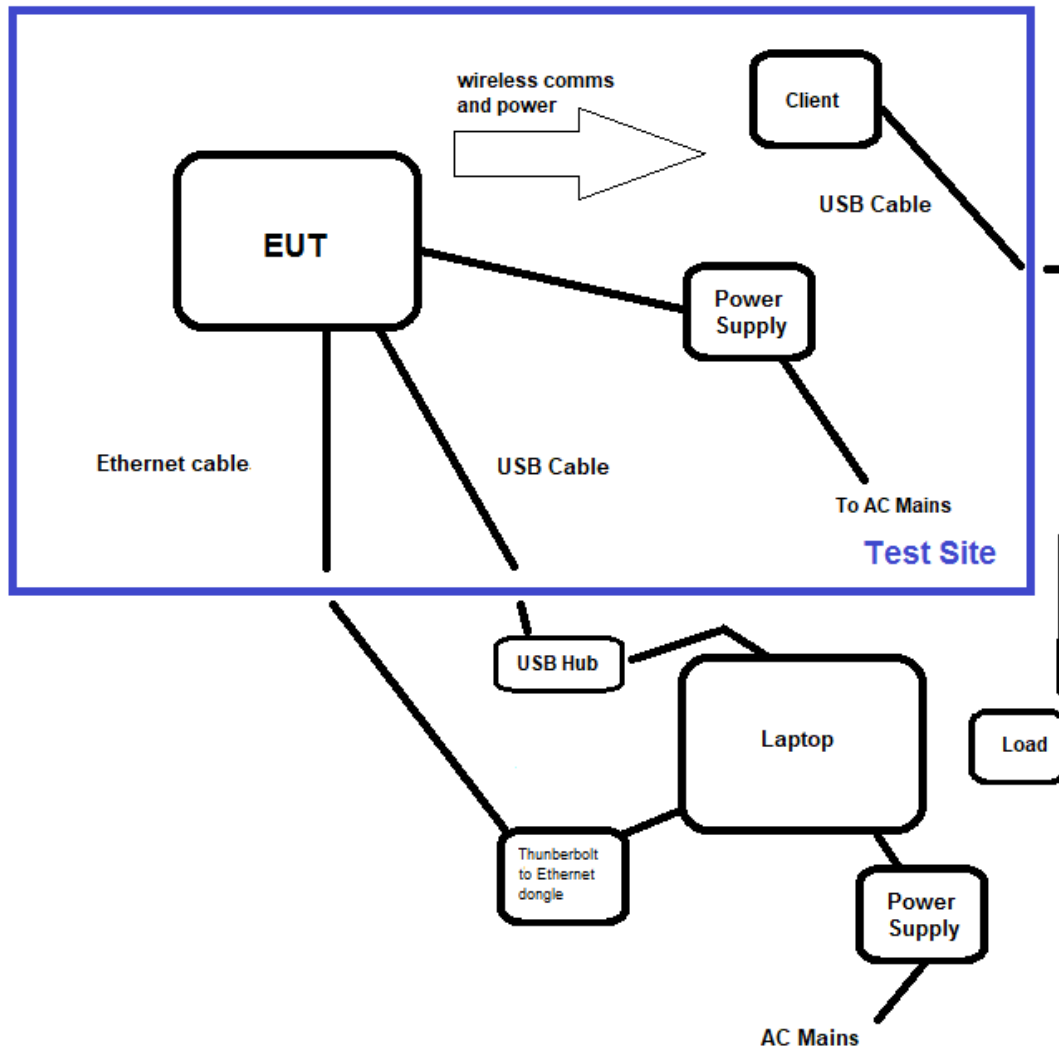
## Appendix A: Test Setup Block Diagrams

### 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      | ( $\text{dB}/\text{m}$ )            |
| +                   | Cable Loss          | ( $\text{dB}$ )                     |
| -                   | Distance Correction | ( $\text{dB}$ )                     |
| -                   | Preamplifier Gain   | ( $\text{dB}$ )                     |
| =                   | 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.