Ossia, Inc.

REVISED EMC TEST REPORT TO 102778-27

Cota Forever Tracker Source
Model: Tracker Tx

Tested to The Following Standards:

FCC Part 18 Subpart C Section 18.305 & 18.307

Report No.: 102778-27A

Date of issue: August 19, 2019

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
Customer Reference Number: 13053

REPORT PREPARED BY:

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

Project Number: 102778

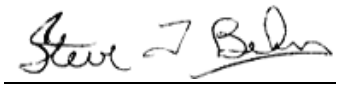
DATE OF EQUIPMENT RECEIPT: July 26, 2019
DATE(S) OF TESTING: July 26, 2019

Revision History

Original: Testing of the Cota Forever Tracker Source Model: Tracker Tx to FCC Part 18 Subpart B Section 15.805 & 15.807.
Revision A: Added clarification text to the Conditions During Test table and added a block diagram of test setup. Removed the reference to Ambient, Spec and Margin on first row of the 1-10GHz measurement data.

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.
22116 23rd Drive S.E., Suite A
Canyon Park, 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
Per the manufacturer, The EUT consists of a IEEE 802.15.4 radio, a beacon radio, and a wireless power charging system. While the lid of the enclosure is open the radios are not active, nor is the wireless power charging system. The radios and wireless power charging are only active while the lid of the enclosure is closed. This is achieved by several safety switches which must be engaged while the lid is closed for the system to operate. The system was tested with the lid closed while charging and radios active (configuration 1) and with the lid open and radios inactive (configuration 2). The wireless power charging system emissions with the lid closed (configuration 1) are the worst case for FCC Part 18 and are considered for the measurements in this report. 6 clients were used representative of worst case based on earlier investigations of the worst case comparing a static tune setup, a single client, and a maximum load of 8 clients. 6 clients was found to be representative of worst case. Radio emissions and unintentional emissions (lid open) are considered in separate reports under the relevant standards.

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

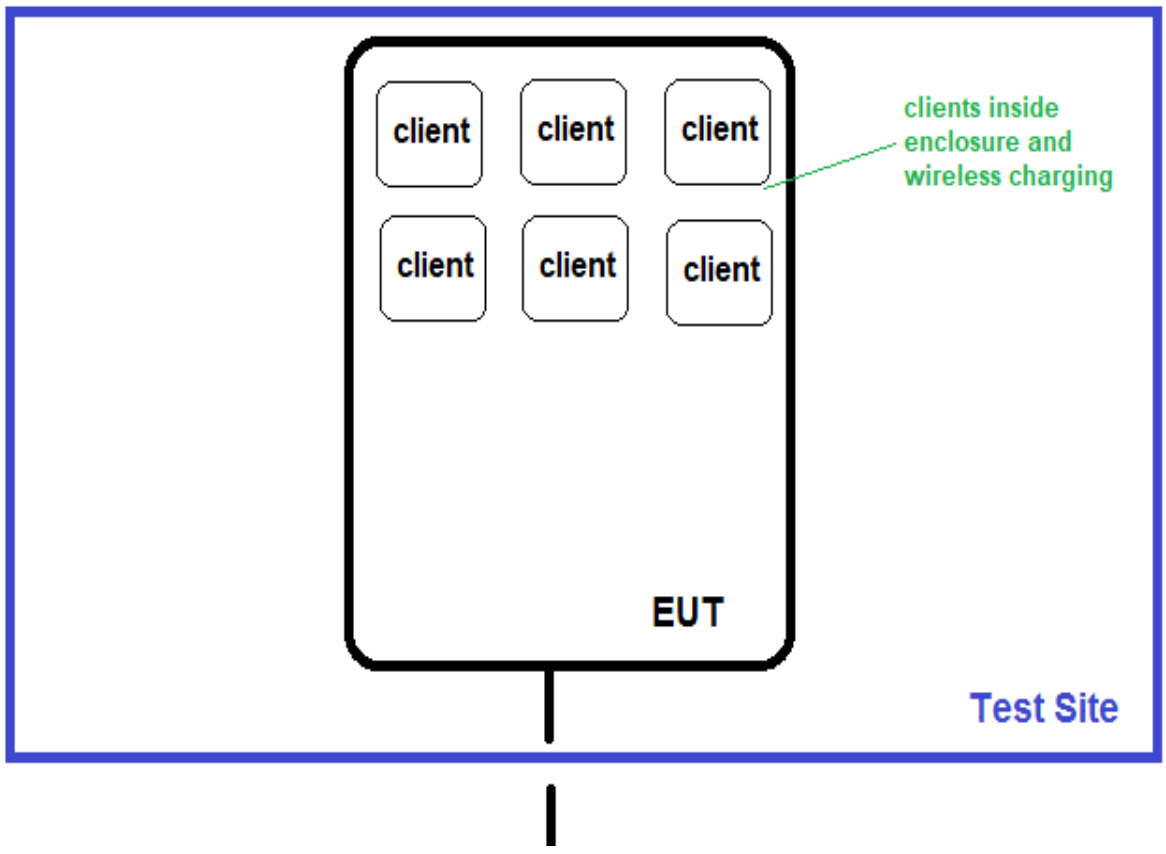
Equipment Tested:

Device	Manufacturer	Model #	S/N
Cota Forever Tracker Source	Ossia, Inc.	Tracker Tx	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
Cota Forever Tracker Source (Qty: 6)	Ossia, Inc.	Tracker Rx	NA

Test Setup Block Diagram



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 #:	**102778**	Date:	7/26/2019
Test Type:	**Maximized Emissions**	Time:	11:41:57
Tested By:	Steven Pittsford	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:

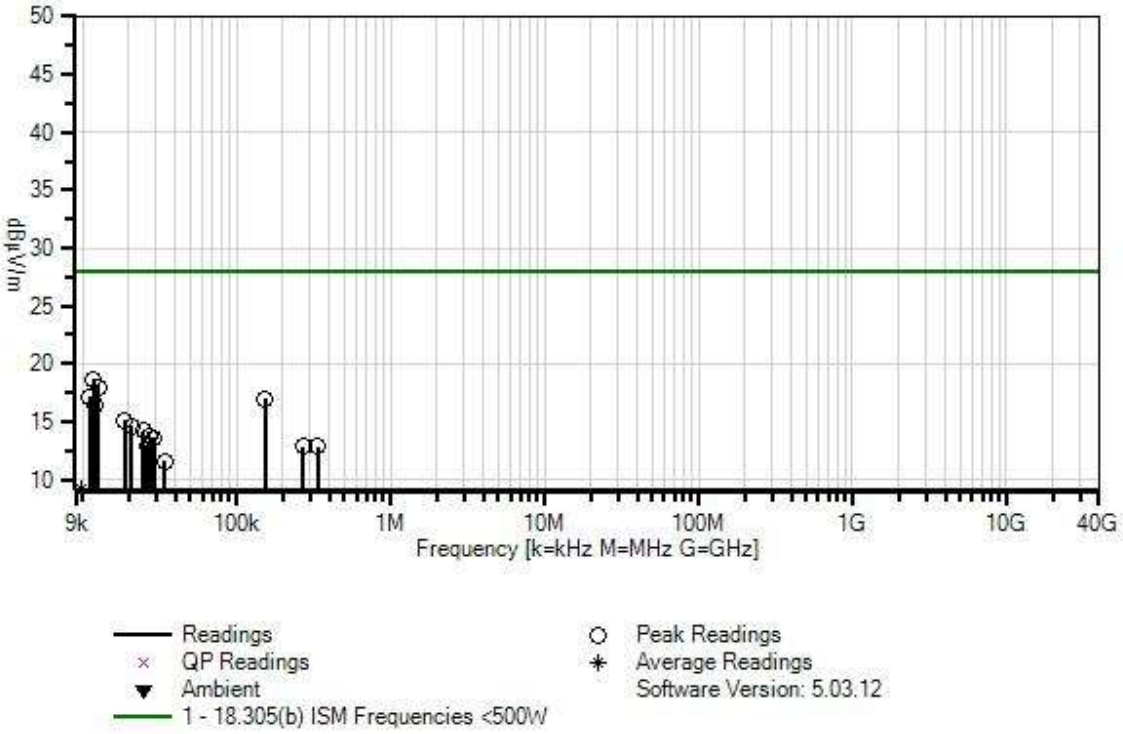
Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 9kHz-30MHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.

Ossia, Inc. WO#: 102778 Sequence#: 18 Date: 7/26/2019
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Para, Perp & Gnd Para



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019
T1	AN00052	Loop Antenna	6502	5/7/2018	5/7/2020
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	10/30/2017	10/30/2019

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	11.759k	45.1	+13.6	+0.0	+0.0		-40.0 360	18.7	28.0	-9.3	Para, 141
2	12.637k	44.6	+13.4	+0.0	+0.0		-40.0 360	18.0	28.0	-10.0	Para, 141
3	11.132k	43.3	+13.8	+0.0	+0.0		-40.0 360	17.1	28.0	-10.9	Para, 141
4	154.181k	47.3	+9.7	+0.0	+0.0		-40.0 360	17.0	28.0	-11.0	Para, 141
5	12.010k	42.9	+13.5	+0.0	+0.0		-40.0 360	16.4	28.0	-11.6	Para, 141
6	18.784k	43.0	+12.1	+0.0	+0.0		-40.0 360	15.1	28.0	-12.9	Para, 141
7	20.916k	42.8	+11.8	+0.0	+0.0		-40.0 360	14.6	28.0	-13.4	Para, 141
8	24.805k	42.8	+11.4	+0.0	+0.0		-40.0 360	14.2	28.0	-13.8	Para, 141
9	27.314k	42.5	+11.2	+0.0	+0.0		-40.0 360	13.7	28.0	-14.3	Para, 141
10	28.945k	42.5	+11.1	+0.0	+0.0		-40.0 360	13.6	28.0	-14.4	Para, 141
11	26.185k	41.6	+11.3	+0.0	+0.0		-40.0 360	12.9	28.0	-15.1	Para, 141
12	269.170k	43.2	+9.6	+0.0	+0.0		-40.0 360	12.8	28.0	-15.2	Para, 141
13	338.163k	43.2	+9.6	+0.0	+0.0		-40.0 360	12.8	28.0	-15.2	Para, 141
14	34.213k	40.9	+10.7	+0.0	+0.0		-40.0 360	11.6	28.0	-16.4	Para, 141
15	9.753k Ave	34.4	+14.8	+0.0	+0.0		-40.0 360	9.2	28.0	-18.8	Para, 141
^	9.752k	44.2	+14.8	+0.0	+0.0		-40.0 360	19.0	28.0	-9.0	Para, 141

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 #:	**102778**	Date:	7/26/2019
Test Type:	**Maximized Emissions**	Time:	12:10:38
Tested By:	Steven Pittsford	Sequence#:	20
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:

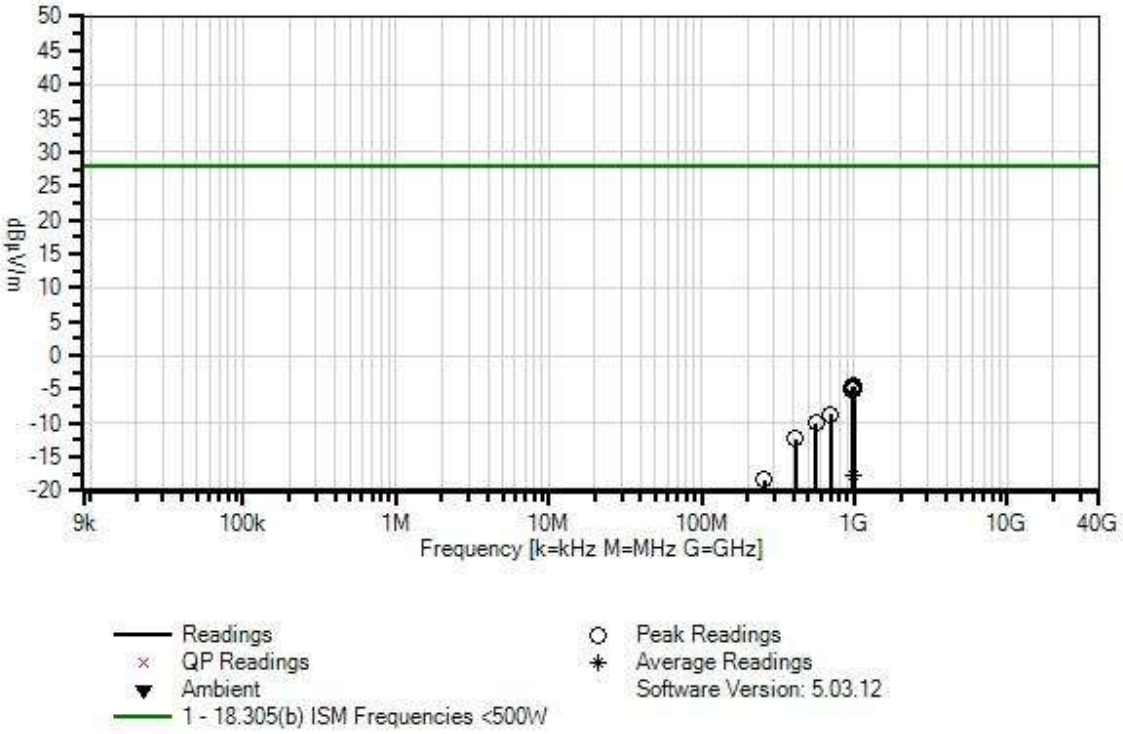
Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 30-1000MHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.

Ossia, Inc. WO#: 102778 Sequence#: 20 Date: 7/26/2019
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Horiz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02307	Preamp	8447D	1/15/2018	1/15/2020
T2	AN03628	Biconilog Antenna	3142E	6/11/2019	6/11/2021
T3	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021
T4	ANP05305	Cable	ETSI-50T	10/24/2017	10/24/2019
T5	ANP05360	Cable	RG214	1/31/2018	1/31/2020
T6	ANP06540	Cable	Heliax	10/30/2017	10/30/2019
	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	999.186M	27.4	-27.0 +2.1	+25.1 +0.4	+5.9	+1.6	-40.0 360	-4.5	28.0	-32.5	Horiz 130
2	982.907M	27.6	-27.1 +2.1	+24.9 +0.4	+5.9	+1.6	-40.0 360	-4.6	28.0	-32.6	Horiz 130
3	962.684M	27.9	-27.1 +2.1	+24.6 +0.4	+5.9	+1.6	-40.0 360	-4.6	28.0	-32.6	Horiz 130
4	996.556M	27.3	-27.0 +2.1	+25.1 +0.4	+5.9	+1.6	-40.0 360	-4.6	28.0	-32.6	Horiz 130
5	988.354M	27.4	-27.0 +2.1	+25.0 +0.4	+5.9	+1.6	-40.0 360	-4.6	28.0	-32.6	Horiz 130
6	968.694M	27.7	-27.1 +2.1	+24.7 +0.4	+5.9	+1.6	-40.0 360	-4.7	28.0	-32.7	Horiz 130
7	974.016M	27.6	-27.1 +2.1	+24.8 +0.4	+5.9	+1.6	-40.0 360	-4.7	28.0	-32.7	Horiz 130
8	982.156M	27.5	-27.1 +2.1	+24.9 +0.4	+5.9	+1.6	-40.0 360	-4.7	28.0	-32.7	Horiz 130
9	992.174M	27.2	-27.0 +2.1	+25.0 +0.4	+5.9	+1.6	-40.0 360	-4.8	28.0	-32.8	Horiz 130
10	961.619M	27.7	-27.1 +2.1	+24.6 +0.4	+5.8	+1.6	-40.0 360	-4.9	28.0	-32.9	Horiz 130
11	963.435M	27.5	-27.1 +2.1	+24.6 +0.4	+5.9	+1.6	-40.0 360	-5.0	28.0	-33.0	Horiz 130
12	964.061M	27.5	-27.1 +2.1	+24.6 +0.4	+5.9	+1.6	-40.0 360	-5.0	28.0	-33.0	Horiz 130
13	978.024M	27.3	-27.1 +2.1	+24.8 +0.4	+5.9	+1.6	-40.0 360	-5.0	28.0	-33.0	Horiz 130
14	972.451M	27.2	-27.1 +2.1	+24.8 +0.4	+5.9	+1.6	-40.0 360	-5.1	28.0	-33.1	Horiz 130
15	698.660M	27.6	-28.1 +1.6	+22.7 +0.3	+5.8	+1.4	-40.0	-8.7	28.0	-36.7	Horiz 130
16	556.620M	29.6	-28.2 +1.4	+19.9 +0.3	+5.8	+1.2	-40.0	-10.0	28.0	-38.0	Horiz 130

17	409.220M	29.6	-27.7 +1.2	+17.6 +0.2	+5.8	+1.0	-40.0	-12.3	28.0	-40.3	Horiz 130
18	993.488M Ave	14.3	-27.0 +2.1	+25.0 +0.4	+5.9	+1.6	-40.0	-17.7	28.0	-45.7	Horiz 130
^	993.488M	27.5	-27.0 +2.1	+25.0 +0.4	+5.9	+1.6	-40.0 360	-4.5	28.0	-32.5	Horiz 130
20	255.790M	28.7	-27.0 +0.9	+12.3 +0.2	+5.8	+0.8	-40.0	-18.3	28.0	-46.3	Horiz 130
21	42.060M	29.5	-27.9 +0.3	+11.1 +0.1	+5.8	+0.3	-40.0	-20.8	28.0	-48.8	Horiz 130
22	151.940M	29.0	-27.5 +0.7	+9.2 +0.2	+5.8	+0.6	-40.0	-22.0	28.0	-50.0	Horiz 130

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 #:	**102778**	Date:	7/26/2019
Test Type:	**Maximized Emissions**	Time:	11:57:43
Tested By:	Steven Pittsford	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:

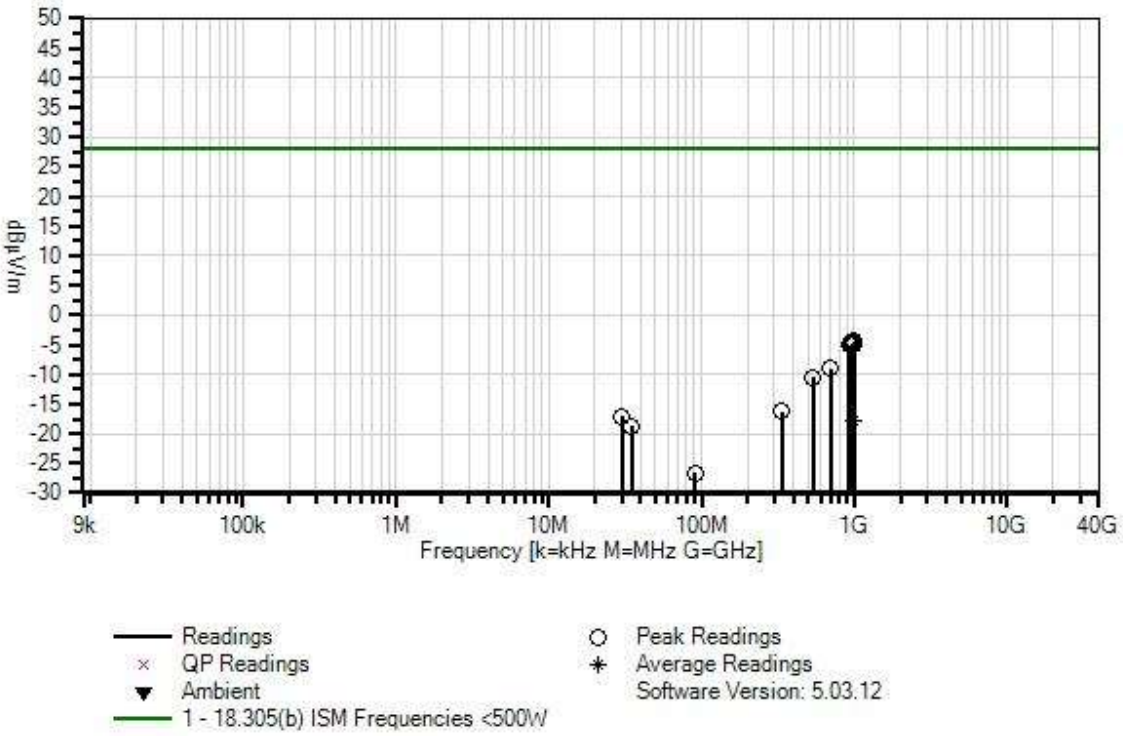
Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 30-1000MHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.

Ossia, Inc. WO#: 102778 Sequence#: 19 Date: 7/26/2019
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02307	Preamp	8447D	1/15/2018	1/15/2020
T2	AN03628	Biconilog Antenna	3142E	6/11/2019	6/11/2021
T3	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021
T4	ANP05305	Cable	ETSI-50T	10/24/2017	10/24/2019
T5	ANP05360	Cable	RG214	1/31/2018	1/31/2020
T6	ANP06540	Cable	Heliax	10/30/2017	10/30/2019
T7	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019

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

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	991.297M	27.6	-27.0 +2.1	+25.0 +0.4	+5.9 +0.0	+1.6	-40.0 360	-4.4	28.0	-32.4	Vert 129
2	995.993M	27.5	-27.0 +2.1	+25.1 +0.4	+5.9 +0.0	+1.6	-40.0 360	-4.4	28.0	-32.4	Vert 129
3	996.181M	27.5	-27.0 +2.1	+25.1 +0.4	+5.9 +0.0	+1.6	-40.0 360	-4.4	28.0	-32.4	Vert 129
4	970.135M	27.7	-27.1 +2.1	+24.7 +0.4	+5.9 +0.0	+1.6	-40.0 360	-4.7	28.0	-32.7	Vert 129
5	995.680M	27.2	-27.0 +2.1	+25.0 +0.4	+5.9 +0.0	+1.6	-40.0 360	-4.8	28.0	-32.8	Vert 129
6	986.100M	27.3	-27.1 +2.1	+24.9 +0.4	+5.9 +0.0	+1.6	-40.0 360	-4.9	28.0	-32.9	Vert 129
7	996.619M	26.9	-27.0 +2.1	+25.1 +0.4	+5.9 +0.0	+1.6	-40.0 360	-5.0	28.0	-33.0	Vert 129
8	987.666M	27.1	-27.0 +2.1	+24.9 +0.4	+5.9 +0.0	+1.6	-40.0 360	-5.0	28.0	-33.0	Vert 129
9	999.812M	26.9	-27.0 +2.1	+25.1 +0.4	+5.9 +0.0	+1.6	-40.0 360	-5.0	28.0	-33.0	Vert 129
10	997.245M	26.9	-27.0 +2.1	+25.1 +0.4	+5.9 +0.0	+1.6	-40.0 360	-5.0	28.0	-33.0	Vert 129
11	966.190M	27.4	-27.1 +2.1	+24.7 +0.4	+5.9 +0.0	+1.6	-40.0 360	-5.0	28.0	-33.0	Vert 129
12	927.299M	28.3	-27.3 +2.0	+24.2 +0.4	+5.8 +0.0	+1.6	-40.0 360	-5.0	28.0	-33.0	Vert 129
13	982.594M	27.2	-27.1 +2.1	+24.9 +0.4	+5.9 +0.0	+1.6	-40.0 360	-5.0	28.0	-33.0	Vert 129
14	977.460M	27.3	-27.1 +2.1	+24.8 +0.4	+5.9 +0.0	+1.6	-40.0 360	-5.0	28.0	-33.0	Vert 129
15	698.760M	27.4	-28.1 +1.6	+22.7 +0.3	+5.8 +0.0	+1.4	-40.0 360	-8.9	28.0	-36.9	Vert 129
16	537.560M	29.5	-28.2 +1.4	+19.5 +0.3	+5.8 +0.0	+1.2	-40.0 360	-10.5	28.0	-38.5	Vert 129
17	333.580M	28.2	-27.1 +1.1	+14.7 +0.2	+5.8 +0.0	+0.9	-40.0 360	-16.2	28.0	-44.2	Vert 129
18	30.070M	27.7	-28.0 +0.3	+16.7 +0.1	+5.8 +0.0	+0.3	-40.0 360	-17.1	28.0	-45.1	Vert 129

19	989.607M	14.3	-27.0	+25.0	+5.9	+1.6	-40.0	-17.7	28.0	-45.7	Vert
	Ave		+2.1	+0.4	+0.0		360				129
^	989.607M	27.8	-27.0	+25.0	+5.9	+1.6	-40.0	-4.2	28.0	-32.2	Vert
			+2.1	+0.4	+0.0		360				129
21	35.150M	28.6	-28.0	+14.2	+5.8	+0.3	-40.0	-18.7	28.0	-46.7	Vert
			+0.3	+0.1	+0.0		360				129
22	91.160M	27.1	-27.8	+7.2	+5.8	+0.5	-40.0	-26.6	28.0	-54.6	Vert
			+0.5	+0.1	+0.0		360				129

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 #:	**102778**	Date:	7/26/2019
Test Type:	**Maximized Emissions**	Time:	10:50:51
Tested By:	Steven Pittsford	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:

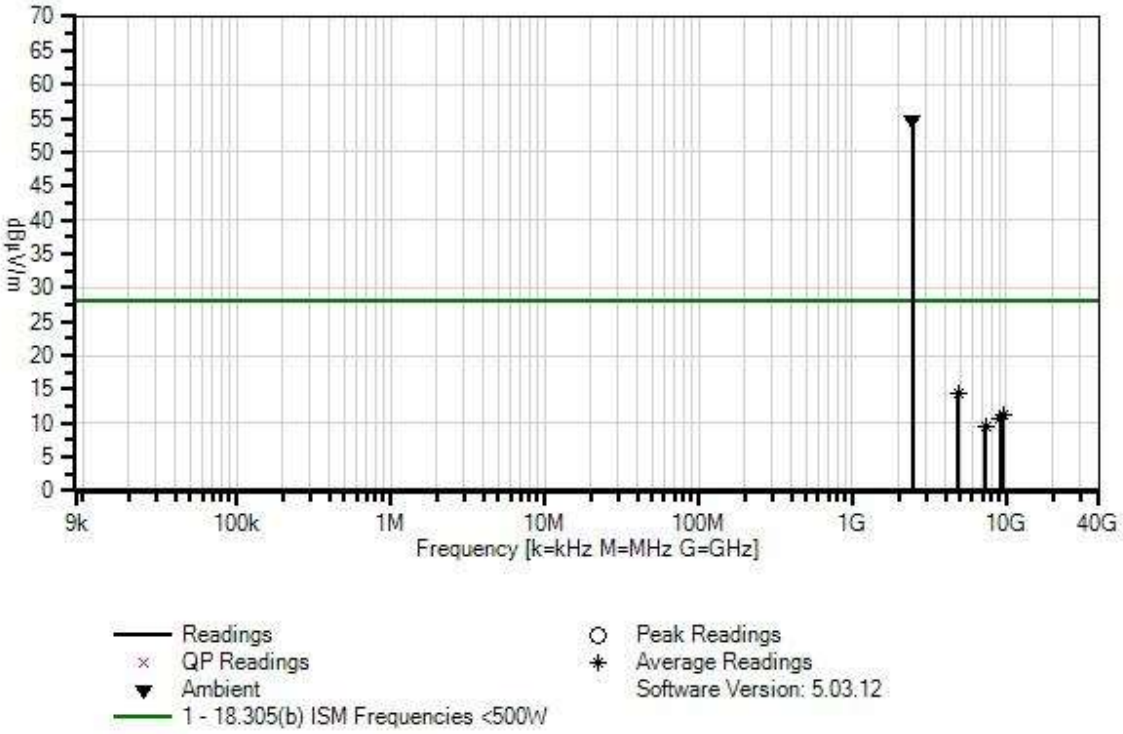
Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 1-10GHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.

Ossia, Inc. WO#: 102778 Sequence#: 15 Date: 7/26/2019
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Horiz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019
T2	ANP06540	Cable	Heliax	10/30/2017	10/30/2019
T3	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T4	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T5	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T6	ANP06503	Cable	32026-29801-29801-36	3/13/2018	3/13/2020
T7	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021
T8	ANP06124	Attenuator	18N-6	4/5/2019	4/5/2021

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

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2450.449M	85.6	+0.0	+0.4	+2.6	+27.6	-40.0	54.6			Horiz
			-34.3	+1.0	+5.9	+5.8	360		Fundamental		145
2	4900.000M	37.2	+0.0	+0.5	+4.2	+32.5	-40.0	14.3	28.0	-13.7	Horiz
	Ave		-33.6	+1.6	+6.0	+5.9	360				146
^	4900.005M	45.0	+0.0	+0.5	+4.2	+32.5	-40.0	22.1	28.0	-5.9	Horiz
			-33.6	+1.6	+6.0	+5.9					145
4	9500.032M	25.7	+0.0	+0.9	+6.2	+37.6	-40.0	11.2	28.0	-16.8	Horiz
	Ave		-33.9	+2.6	+6.1	+6.0	360				145
^	9500.032M	39.4	+0.0	+0.9	+6.2	+37.6	-40.0	24.9	28.0	-3.1	Horiz
			-33.9	+2.6	+6.1	+6.0	360				145
6	9048.672M	26.0	+0.0	+0.7	+6.2	+37.5	-40.0	10.6	28.0	-17.4	Horiz
	Ave		-34.2	+2.3	+6.1	+6.0	360				145
^	9048.672M	38.8	+0.0	+0.7	+6.2	+37.5	-40.0	23.4	28.0	-4.6	Horiz
			-34.2	+2.3	+6.1	+6.0	360				145
8	7350.000M	27.0	+0.0	+1.0	+5.4	+36.9	-40.0	9.6	28.0	-18.4	Horiz
	Ave		-34.6	+2.1	+6.0	+5.8	295				141
^	7350.000M	43.6	+0.0	+1.0	+5.4	+36.9	-40.0	26.2	28.0	-1.8	Horiz
			-34.6	+2.1	+6.0	+5.8	244				141
10	2446.445M	27.9	+0.0	+0.4	+2.6	+27.6	-40.0	-3.1	28.0	-31.1	Horiz
	Ave		-34.3	+1.0	+5.9	+5.8	360				145
^	2446.445M	61.0	+0.0	+0.4	+2.6	+27.6	-40.0	30.0	28.0	+2.0	Horiz
			-34.3	+1.0	+5.9	+5.8	360				145

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 #:	**102778**	Date:	7/26/2019
Test Type:	**Maximized Emissions**	Time:	10:39:24
Tested By:	Steven Pittsford	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:

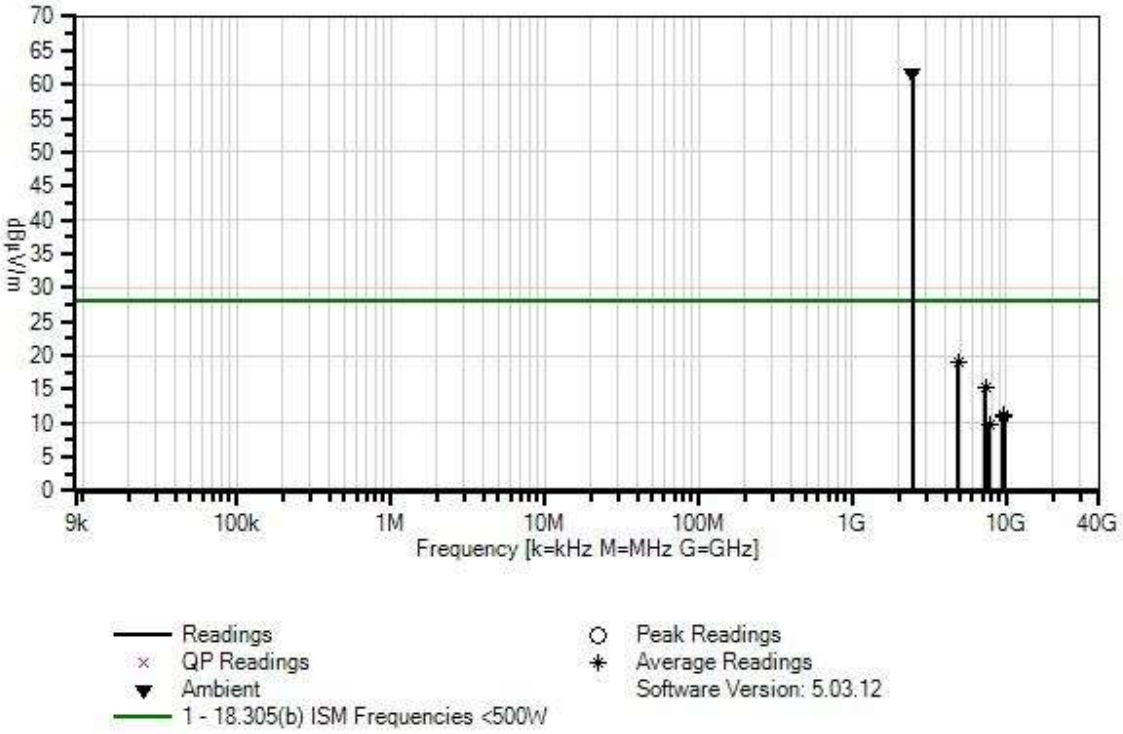
Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 1-10GHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.

Ossia, Inc. WO#: 102778 Sequence#: 14 Date: 7/26/2019
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019
T2	ANP06540	Cable	Heliax	10/30/2017	10/30/2019
T3	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T4	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T5	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T6	ANP06503	Cable	32026-29801-29801-36	3/13/2018	3/13/2020
T7	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021
T8	ANP06124	Attenuator	18N-6	4/5/2019	4/5/2021

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

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2450.050M	92.7	+0.0	+0.4	+2.6	+27.6	-40.0	61.7			Vert
			-34.3	+1.0	+5.9	+5.8	351		Fundamental		145
2	4900.042M	41.9	+0.0	+0.5	+4.2	+32.5	-40.0	19.0	28.0	-9.0	Vert
	Ave		-33.6	+1.6	+6.0	+5.9	263				145
^	4900.042M	51.1	+0.0	+0.5	+4.2	+32.5	-40.0	28.2	28.0	+0.2	Vert
			-33.6	+1.6	+6.0	+5.9	211				145
4	7350.033M	32.8	+0.0	+1.0	+5.4	+36.9	-40.0	15.4	28.0	-12.6	Vert
	Ave		-34.6	+2.1	+6.0	+5.8	329				114
^	7350.033M	51.3	+0.0	+1.0	+5.4	+36.9	-40.0	33.9	28.0	+5.9	Vert
			-34.6	+2.1	+6.0	+5.8	350				114
6	9621.056M	25.8	+0.0	+0.7	+6.2	+37.6	-40.0	11.1	28.0	-16.9	Vert
	Ave		-33.9	+2.6	+6.1	+6.0					145
^	9621.056M	38.3	+0.0	+0.7	+6.2	+37.6	-40.0	23.6	28.0	-4.4	Vert
			-33.9	+2.6	+6.1	+6.0	360				126
8	9605.184M	25.8	+0.0	+0.7	+6.2	+37.6	-40.0	11.1	28.0	-16.9	Vert
	Ave		-33.9	+2.6	+6.1	+6.0					145
^	9605.184M	38.7	+0.0	+0.7	+6.2	+37.6	-40.0	24.0	28.0	-4.0	Vert
			-33.9	+2.6	+6.1	+6.0	360				126
10	9480.192M	25.5	+0.0	+0.9	+6.2	+37.6	-40.0	11.0	28.0	-17.0	Vert
	Ave		-33.9	+2.6	+6.1	+6.0					145
^	9480.192M	38.7	+0.0	+0.9	+6.2	+37.6	-40.0	24.2	28.0	-3.8	Vert
			-33.9	+2.6	+6.1	+6.0	360				126
12	9669.664M	25.8	+0.0	+0.6	+6.2	+37.6	-40.0	11.0	28.0	-17.0	Vert
	Ave		-33.9	+2.6	+6.1	+6.0					145
^	9669.664M	38.4	+0.0	+0.6	+6.2	+37.6	-40.0	23.6	28.0	-4.4	Vert
			-33.9	+2.6	+6.1	+6.0	360				126

14	7814.808M	26.3	+0.0	+1.0	+5.6	+37.1	-40.0	9.7	28.0	-18.3	Vert
	Ave		-34.8	+2.3	+6.2	+6.0					145
^	7814.808M	40.4	+0.0	+1.0	+5.6	+37.1	-40.0	23.8	28.0	-4.2	Vert
			-34.8	+2.3	+6.2	+6.0	360				126
16	2446.445M	29.7	+0.0	+0.4	+2.6	+27.6	-40.0	-1.3	28.0	-29.3	Vert
	Ave		-34.3	+1.0	+5.9	+5.8	238				145
^	2446.445M	63.6	+0.0	+0.4	+2.6	+27.6	-40.0	32.6	28.0	+4.6	Vert
			-34.3	+1.0	+5.9	+5.8	360				126
18	2457.456M	27.7	+0.0	+0.4	+2.7	+27.6	-40.0	-3.2	28.0	-31.2	Vert
	Ave		-34.3	+1.0	+5.9	+5.8					145
^	2457.456M	55.0	+0.0	+0.4	+2.7	+27.6	-40.0	24.1	28.0	-3.9	Vert
			-34.3	+1.0	+5.9	+5.8	360				126
20	2443.442M	27.8	+0.0	+0.4	+2.6	+27.6	-40.0	-3.2	28.0	-31.2	Vert
	Ave		-34.3	+1.0	+5.9	+5.8					145
^	2443.442M	57.6	+0.0	+0.4	+2.6	+27.6	-40.0	26.6	28.0	-1.4	Vert
			-34.3	+1.0	+5.9	+5.8	360				126

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 #:	**102778**	Date:	7/26/2019
Test Type:	**Maximized Emissions**	Time:	11:06:06
Tested By:	Steven Pittsford	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:

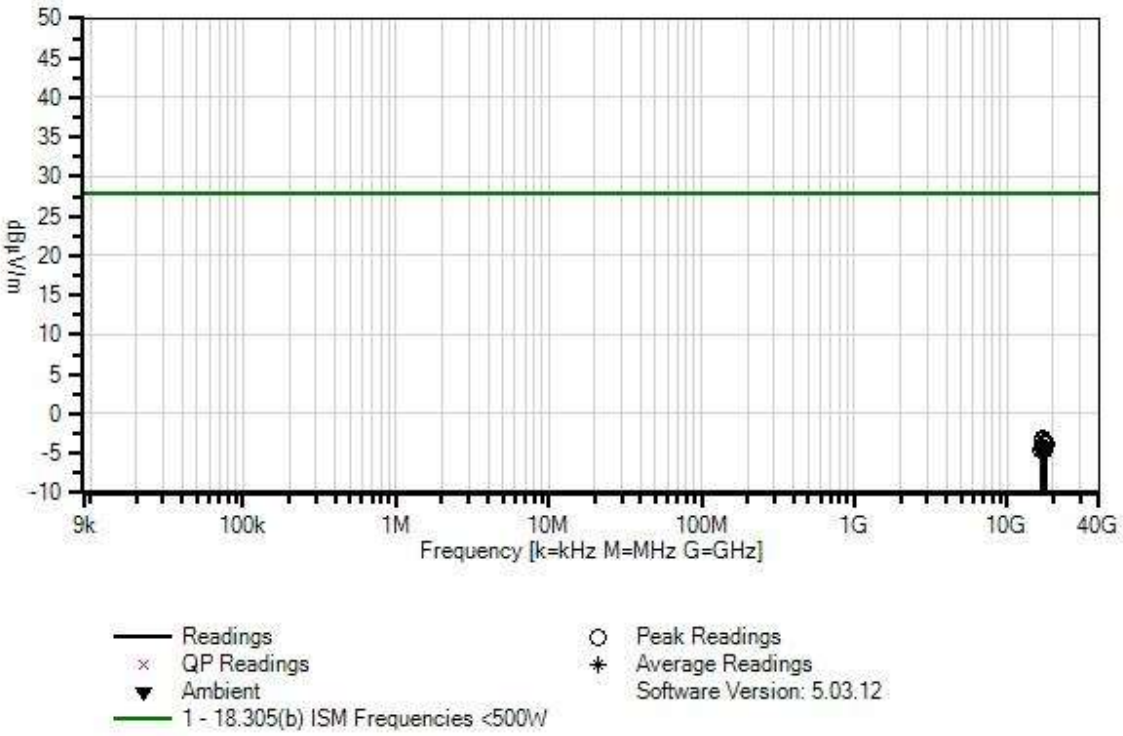
Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 10-18GHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.

Ossia, Inc. WO#: 102778 Sequence#: 16 Date: 7/26/2019
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Vert & Horz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019
T1	ANP06540	Cable	Heliax	10/30/2017	10/30/2019
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	AN02741	Active Horn Antenna	AMFW-5F-12001800-20-10P	4/26/2019	4/26/2021

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	16888.882 M	37.3	+1.3	+9.0	-10.6		-40.0	-3.0	28.0	-31.0	Vert /Horiz 141
2	16911.905 M	37.3	+1.3	+9.0	-10.6		-40.0	-3.0	28.0	-31.0	Vert /Horiz 141
3	16958.952 M	37.2	+1.3	+9.1	-10.9		-40.0	-3.3	28.0	-31.3	Vert /Horiz 141
4	17032.818 M	37.6	+1.3	+9.1	-11.4		-40.0	-3.4	28.0	-31.4	Vert /Horiz 141
5	17729.904 M	36.4	+1.4	+8.7	-10.1		-40.0	-3.6	28.0	-31.6	Vert /Horiz 141
6	17817.288 M	35.8	+1.4	+8.8	-9.8		-40.0	-3.8	28.0	-31.8	Vert /Horiz 141
7	17884.812 M	35.4	+1.4	+8.9	-9.6		-40.0	-3.9	28.0	-31.9	Vert /Horiz 141
8	17590.884 M	36.9	+1.3	+8.5	-10.6		-40.0	-3.9	28.0	-31.9	Vert /Horiz 141
9	17294.970 M	37.4	+1.2	+8.7	-11.5		-40.0	-4.2	28.0	-32.2	Vert /Horiz 141
10	17697.135 M	35.9	+1.4	+8.6	-10.2		-40.0	-4.3	28.0	-32.3	Vert /Horiz 141
11	17767.638 M	35.6	+1.4	+8.7	-10.0		-40.0	-4.3	28.0	-32.3	Vert /Horiz 141
12	17625.639 M	36.1	+1.3	+8.6	-10.4		-40.0	-4.4	28.0	-32.4	Vert /Horiz 141
13	16780.774 M	36.6	+1.4	+9.0	-11.5		-40.0	-4.5	28.0	-32.5	Vert /Horiz 141

14	17603.793 M	36.2	+1.3	+8.5	-10.5	-40.0	-4.5	28.0	-32.5	Vert /Horiz 141
15	16946.940 M	27.8	+1.3	+9.1	-10.8	-40.0	-12.6	28.0	-40.6	Vert /Horiz 141
	Ave									
^	16946.940 M	37.7	+1.3	+9.1	-10.8	-40.0	-2.7	28.0	-30.7	Vert /Horiz 141

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 #:	**102778**	Date:	7/26/2019
Test Type:	**Maximized Emissions**	Time:	11:20:08
Tested By:	Steven Pittsford	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:

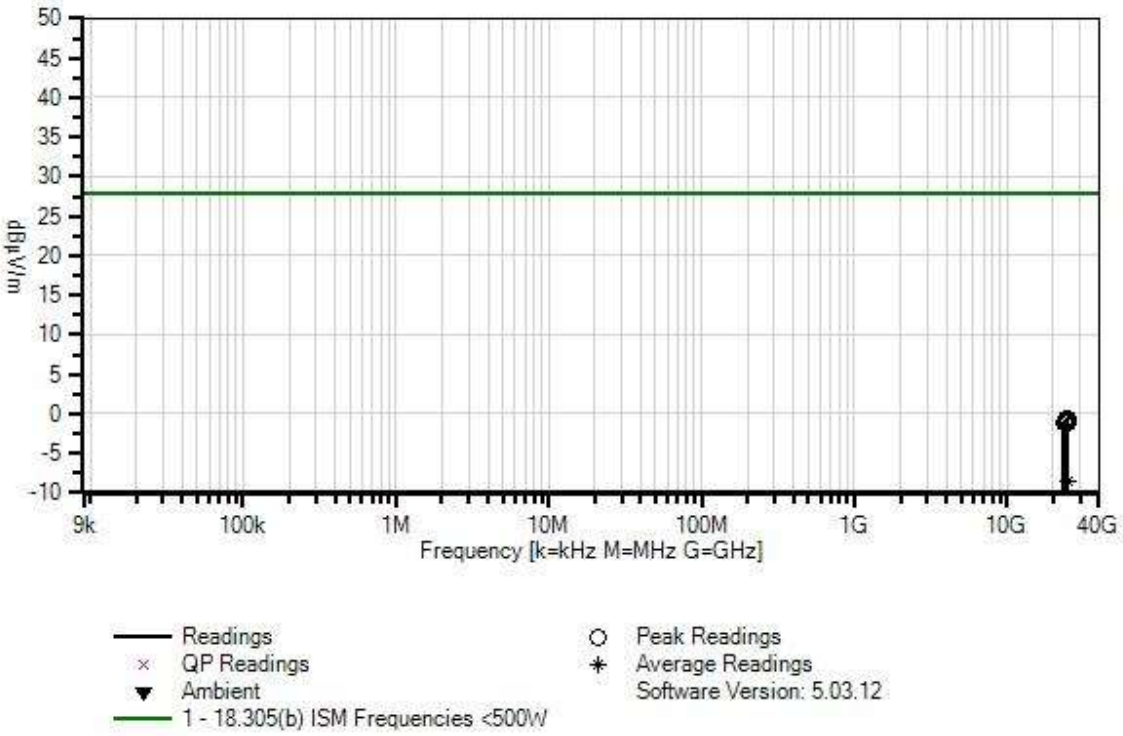
Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 18-25GHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.

Ossia, Inc. WO#: 102778 Sequence#: 17 Date: 7/26/2019
18.305(b) ISM Frequencies <500W Test Distance: 3 Meters Vert & Horz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019
T1	AN02742	Active Horn Antenna	AMFW-5F-18002650-20-10P	10/16/2018	10/16/2020
T2	AN02763-69	Waveguide	Multiple	4/23/2018	4/23/2020
T3	AN03122	Cable	32026-2-29801-36	3/13/2018	3/13/2020
T4	ANP06678	Cable	32026-29801-29801-144	3/13/2018	3/13/2020

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	24565.622 M	37.7	-12.4	+1.8	+2.6	+9.7	-40.0	-0.6	28.0	-28.6	Vert /Horiz 141
2	24970.180 M	36.9	-11.9	+1.8	+2.7	+9.9	-40.0	-0.6	28.0	-28.6	Vert /Horiz 141
3	24692.854 M	37.2	-12.1	+1.8	+2.6	+9.8	-40.0	-0.7	28.0	-28.7	Vert /Horiz 141
4	24983.102 M	36.8	-11.9	+1.8	+2.7	+9.9	-40.0	-0.7	28.0	-28.7	Vert /Horiz 141
5	24186.908 M	38.3	-13.1	+1.9	+2.5	+9.6	-40.0	-0.8	28.0	-28.8	Vert /Horiz 141
6	24704.782 M	37.1	-12.1	+1.8	+2.6	+9.8	-40.0	-0.8	28.0	-28.8	Vert /Horiz 141
7	24700.806 M	37.0	-12.1	+1.8	+2.6	+9.8	-40.0	-0.9	28.0	-28.9	Vert /Horiz 141
8	24585.502 M	37.2	-12.4	+1.8	+2.6	+9.7	-40.0	-1.1	28.0	-29.1	Vert /Horiz 141
9	24180.944 M	38.0	-13.1	+1.9	+2.5	+9.6	-40.0	-1.1	28.0	-29.1	Vert /Horiz 141
10	23538.533 M	39.7	-14.6	+1.9	+2.5	+9.4	-40.0	-1.1	28.0	-29.1	Vert /Horiz 141
11	24710.746 M	36.8	-12.1	+1.8	+2.6	+9.8	-40.0	-1.1	28.0	-29.1	Vert /Horiz 141

12	24926.444 M	36.5	-12.0	+1.8	+2.7	+9.9	-40.0	-1.1	28.0	-29.1	Vert /Horiz 141
13	24817.104 M	36.6	-12.0	+1.8	+2.7	+9.8	-40.0	-1.1	28.0	-29.1	Vert /Horiz 141
14	24743.548 M	36.8	-12.1	+1.8	+2.6	+9.8	-40.0	-1.1	28.0	-29.1	Vert /Horiz 141
15	24873.762 M Ave	29.1	-12.0	+1.8	+2.7	+9.8	-40.0	-8.6	28.0	-36.6	Vert /Horiz 141
^	24873.762 M	37.6	-12.0	+1.8	+2.7	+9.8	-40.0	-0.1	28.0	-28.1	Vert /Horiz 141

Test Setup Photo(s)

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 #:	**102778**	Date:	7/26/2019
Test Type:	**Conducted Emissions**	Time:	13:23:15
Tested By:	Steven Pittsford	Sequence#:	26
Software:	EMITest 5.03.12		115V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

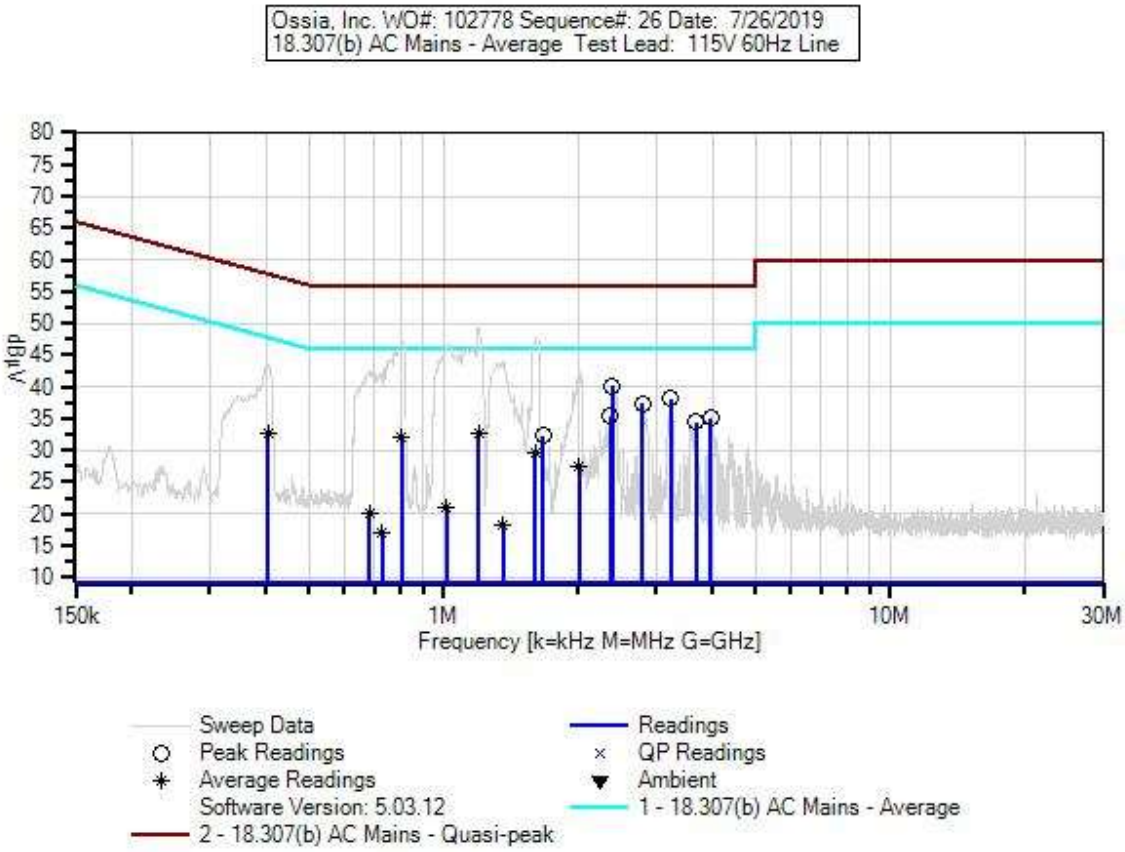
Test Conditions / Notes:

Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 0.15-30MHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.


Ossia, Inc. WO#: 102778 Sequence#: 26 Date: 7/26/2019
18.307(b) AC Mains - Average Test Lead: 115V 60Hz Line
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
dBµV
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
Peak Readings
Average Readings
Software Version: 5.03.12
2 - 18.307(b) AC Mains - Quasi-peak
Readings
QP Readings
Ambient
1 - 18.307(b) AC Mains - Average

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06219	Attenuator	768-10	4/13/2018	4/13/2020
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	10/30/2017	10/30/2019
T4	AN01311	50uH LISN-Line1 (L)	3816/2	3/16/2018	3/16/2020
	AN01311	50uH LISN-Line2 (N)	3816/2	3/16/2018	3/16/2020
	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019
T5	AN02611	High Pass Filter	HE9615-150K-50-720B	1/15/2018	1/15/2020

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	2.387M	30.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	40.1	46.0	-5.9	Line
2	3.225M	28.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.1	46.0	-7.9	Line
3	2.787M	27.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	37.3	46.0	-8.7	Line
4	2.361M	25.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	35.4	46.0	-10.6	Line
5	3.965M	25.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	35.1	46.0	-10.9	Line
6	3.680M	24.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	34.4	46.0	-11.6	Line
7	1.196M Ave	23.1	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	32.7	46.0	-13.3	Line
^	1.196M	39.7	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	49.3	46.0	+3.3	Line
9	1.668M	22.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	32.3	46.0	-13.7	Line
10	807.393k Ave	22.6	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	32.2	46.0	-13.8	Line
^	807.393k	37.7	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	47.3	46.0	+1.3	Line
12	405.248k Ave	23.0	+9.1 +0.1	+0.0	+0.0	+0.5	+0.0	32.7	47.7	-15.0	Line
^	405.248k	33.6	+9.1 +0.1	+0.0	+0.0	+0.5	+0.0	43.3	47.7	-4.4	Line
14	1.609M Ave	20.0	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	29.6	46.0	-16.4	Line
^	1.609M	38.0	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	47.6	46.0	+1.6	Line
16	2.017M Ave	17.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	27.3	46.0	-18.7	Line
^	2.017M	32.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	42.3	46.0	-3.7	Line

18	1.017M	11.5	+9.1	+0.0	+0.0	+0.3	+0.0	21.1	46.0	-24.9	Line
	Ave		+0.2								
^	1.017M	37.2	+9.1	+0.0	+0.0	+0.3	+0.0	46.8	46.0	+0.8	Line
			+0.2								
20	682.314k	10.4	+9.1	+0.0	+0.0	+0.3	+0.0	20.0	46.0	-26.0	Line
	Ave		+0.2								
^	682.313k	32.9	+9.1	+0.0	+0.0	+0.3	+0.0	42.5	46.0	-3.5	Line
			+0.2								
22	1.358M	8.7	+9.1	+0.1	+0.0	+0.3	+0.0	18.3	46.0	-27.7	Line
	Ave		+0.1								
^	1.358M	34.5	+9.1	+0.1	+0.0	+0.3	+0.0	44.1	46.0	-1.9	Line
			+0.1								
24	730.309k	7.5	+9.1	+0.0	+0.0	+0.3	+0.0	17.1	46.0	-28.9	Line
	Ave		+0.2								
^	730.309k	32.8	+9.1	+0.0	+0.0	+0.3	+0.0	42.4	46.0	-3.6	Line
			+0.2								

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 #:	**102778**	Date:	7/26/2019
Test Type:	**Conducted Emissions**	Time:	13:08:59
Tested By:	Steven Pittsford	Sequence#:	25
Software:	EMITest 5.03.12		115V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

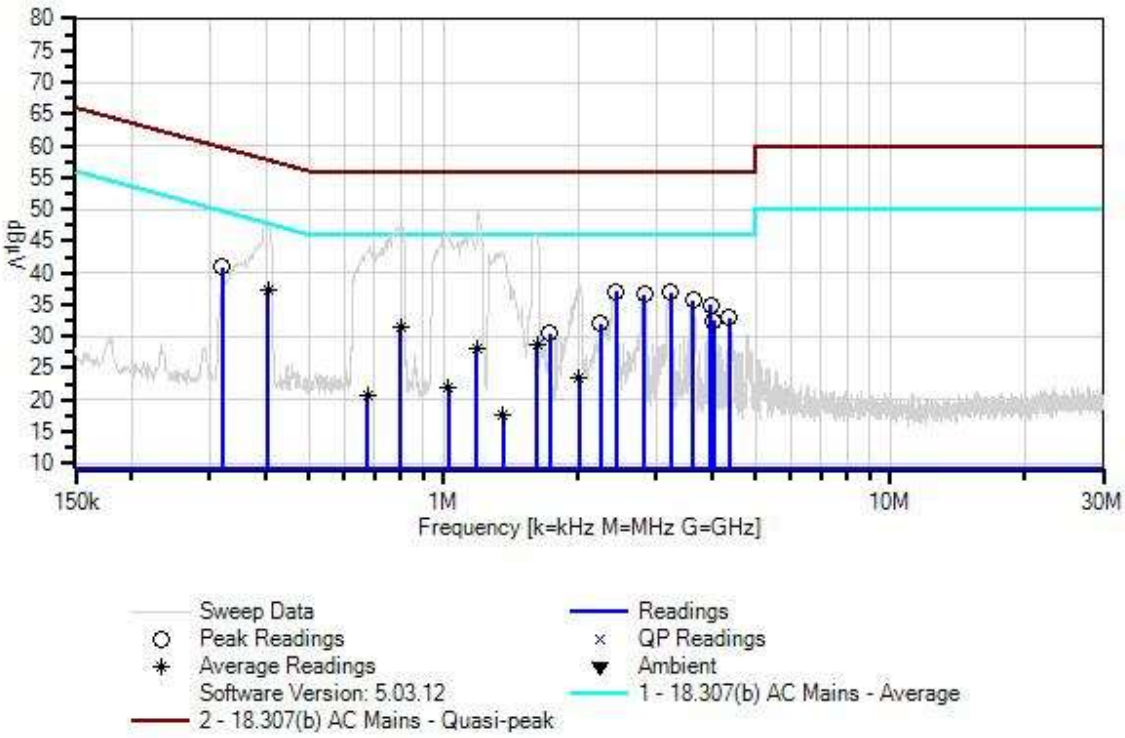
Temperature: 23-24°C
Humidity: 35-45%
Pressure: 102-103kPa

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

Frequency: 0.15-30MHz

Setup: The EUT with lid closed, EUT is charging multiple support devices internally. Max EUT frequency is less than 2.5GHz. Manufacturer declares RJ45 port is for maintenance/service only.

Ossia, Inc. WO#: 102778 Sequence#: 25 Date: 7/26/2019
18.307(b) AC Mains - Average Test Lead: 115V 60Hz Neutral



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06219	Attenuator	768-10	4/13/2018	4/13/2020
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	10/30/2017	10/30/2019
	AN01311	50uH LISN-Line1 (L)	3816/2	3/16/2018	3/16/2020
T4	AN01311	50uH LISN-Line2 (N)	3816/2	3/16/2018	3/16/2020
	AN02872	Spectrum Analyzer	E4440A	11/3/2017	11/3/2019
T5	AN02611	High Pass Filter	HE9615-150K-50-720B	1/15/2018	1/15/2020

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	319.800k	31.1	+9.1 +0.1	+0.0	+0.0	+0.6	+0.0	40.9	49.7	-8.8	Neutr
2	2.434M	27.4	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	37.0	46.0	-9.0	Neutr
3	3.220M	27.3	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	36.9	46.0	-9.1	Neutr
4	2.816M	27.0	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	36.6	46.0	-9.4	Neutr
5	3.624M	26.0	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	35.6	46.0	-10.4	Neutr
6	405.249k Ave	27.5	+9.1 +0.1	+0.0	+0.0	+0.5	+0.0	37.2	47.7	-10.5	Neutr
^	405.249k	37.6	+9.1 +0.1	+0.0	+0.0	+0.5	+0.0	47.3	47.7	-0.4	Neutr
8	3.969M	25.3	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	34.9	46.0	-11.1	Neutr
9	4.373M	23.3	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	32.9	46.0	-13.1	Neutr
10	4.024M	22.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	32.4	46.0	-13.6	Neutr
11	2.242M	22.4	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	32.0	46.0	-14.0	Neutr
12	803.031k Ave	21.8	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	31.4	46.0	-14.6	Neutr
^	803.030k	37.8	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	47.4	46.0	+1.4	Neutr
14	1.728M	20.9	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	30.5	46.0	-15.5	Neutr
15	1.617M Ave	19.0	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	28.6	46.0	-17.4	Neutr
^	1.617M	36.6	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	46.2	46.0	+0.2	Neutr

17 Ave	1.188M	18.6	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	28.2	46.0	-17.8	Neutr
^	1.188M	40.0	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	49.6	46.0	+3.6	Neutr
19 Ave	2.017M	13.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	23.3	46.0	-22.7	Neutr
^	2.017M	28.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.1	46.0	-7.9	Neutr
21 Ave	1.028M	12.3	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	21.9	46.0	-24.1	Neutr
^	1.028M	36.5	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	46.1	46.0	+0.1	Neutr
23 Ave	675.100k	11.0	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	20.6	46.0	-25.4	Neutr
^	675.100k	34.4	+9.1 +0.2	+0.0	+0.0	+0.3	+0.0	44.0	46.0	-2.0	Neutr
25 Ave	1.362M	7.9	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	17.5	46.0	-28.5	Neutr
^	1.362M	33.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	43.3	46.0	-2.7	Neutr

Test Setup Photo(s)

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 dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

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

TEST INSTRUMENTATION AND ANALYZER SETTINGS

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

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

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

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

Peak

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

Quasi-Peak

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

Average

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