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

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

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

Test Certificate # 803.01

Testing the Future
CKC LABORATORIES, INC.

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ADMINISTRATIVE INFORMATION

Test Report Information

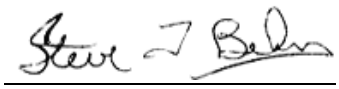
REPORT PREPARED FOR:	REPORT PREPARED BY:
Ossia, Inc. 1100 112th Ave NE Suite 301 Bellevue, WA 98004	Kim Romero CKC Laboratories, Inc. 5046 Sierra Pines Drive Mariposa, CA 95338
Representative: Bob McDonald	Project Number: 103895
DATE OF EQUIPMENT RECEIPT:	June 12 , 2020
DATE(S) OF TESTING:	June 12,14, and 26, 2020

Revision History

Original: Testing of the Cota WPT Source, Model: Cota Tx203 to FCC Part 18 Subpart C Section 18.305 & 18.307.
Revision A: To replace Seq. 57 conducted emissions datasheet with the correct spec limit reference.
Revision B: To add an Engineers Statement to the Conditions Under Test Section.

Report Authorization

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



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

Test Facility Information

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

TEST LOCATION(S):
CKC Laboratories, Inc.
Canyon Park
22116 23rd Drive S.E., Suite A
Bothell,WA 98021

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.12
EMITest Immunity	5.03.10

Site Registration & Accreditation Information

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

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

SUMMARY OF RESULTS

Standard / Specification: FCC Part 18 Subpart C

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

NA = Not Applicable

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

Modifications During Testing

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

Summary of Conditions
No modifications were made during testing.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

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

Summary of Conditions
Note: The production power setting for the device will limit the output power to 13dBm. To verify compliance with the radiated field strength limits in Part 18 the output power was set to 20dBm for the tests documented in this report. Additionally, an investigation was performed to check the worst-case harmonic emissions at both the 13dBm and 20dBm power settings, 20dBm was found to be worst-case.
Investigation of worst-case Radiated Emissions Based on historical test data and the procedure established from CKC report 102580-4: the 2nd, 3rd, and 4th Harmonics of the fundamental frequency were identified as the worst-case emissions. The worst-case frequencies were maximized with the following boundary conditions established by the manufacturer: -The minimum separation distance between the tile and client is 0.3m -The maximum separation distance between the tile and client is 1.0m -The maximum angle between the tile and client is 60 degrees The following measurements were collected to narrow down the worst-case conditions, where **r** is the separation distance between the tile and client, φ is the azimuth angle, and θ is the altitude angle. r=0.3m, φ=0 degrees, θ=0 degrees r=1.0m, φ=0 degrees, θ=0 degrees r=0.4m, φ=0 degrees, θ=0 degrees r=0.6m, φ=0 degrees, θ=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, φ=0 degrees, θ=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)

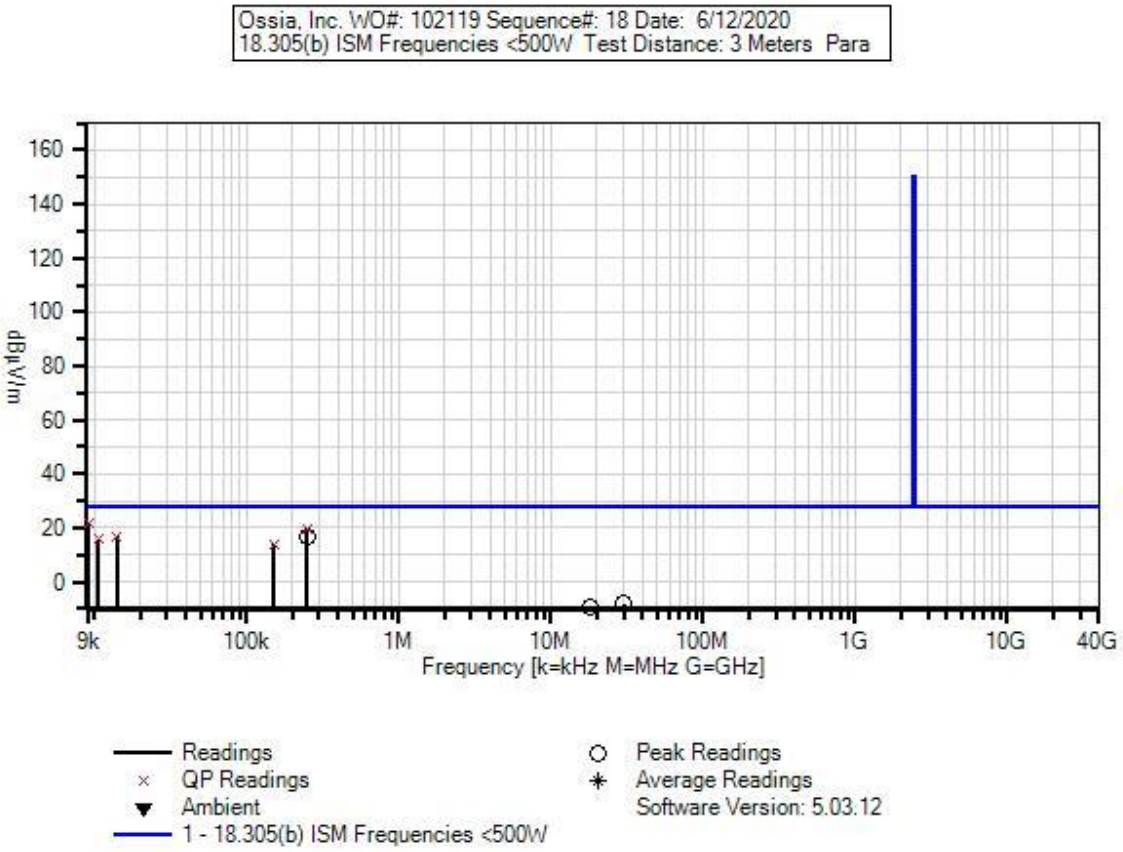
Frequency: 9kHz-30MHz

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.



Test Equipment:

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

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	9.182k QP	45.7	+0.0	+0.0	+16.0		-40.0	21.7	28.0	-6.3	Para
2	250.461k QP	50.3	+0.0	+0.0	+9.5		-40.0	19.8	28.0	-8.2	Para
^	250.353k	51.5	+0.0	+0.0	+9.5		-40.0	21.0	28.0	-7.0	Para
4	14.096k QP	42.9	+0.0	+0.0	+14.2		-40.0	17.1	28.0	-10.9	Perp
^	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 QP	40.5	+0.0	+0.0	+15.4		-40.0	15.9	28.0	-12.1	Para
8	152.091k QP	44.5	+0.0	+0.0	+9.5		-40.0	14.0	28.0	-14.0	Para
^	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)

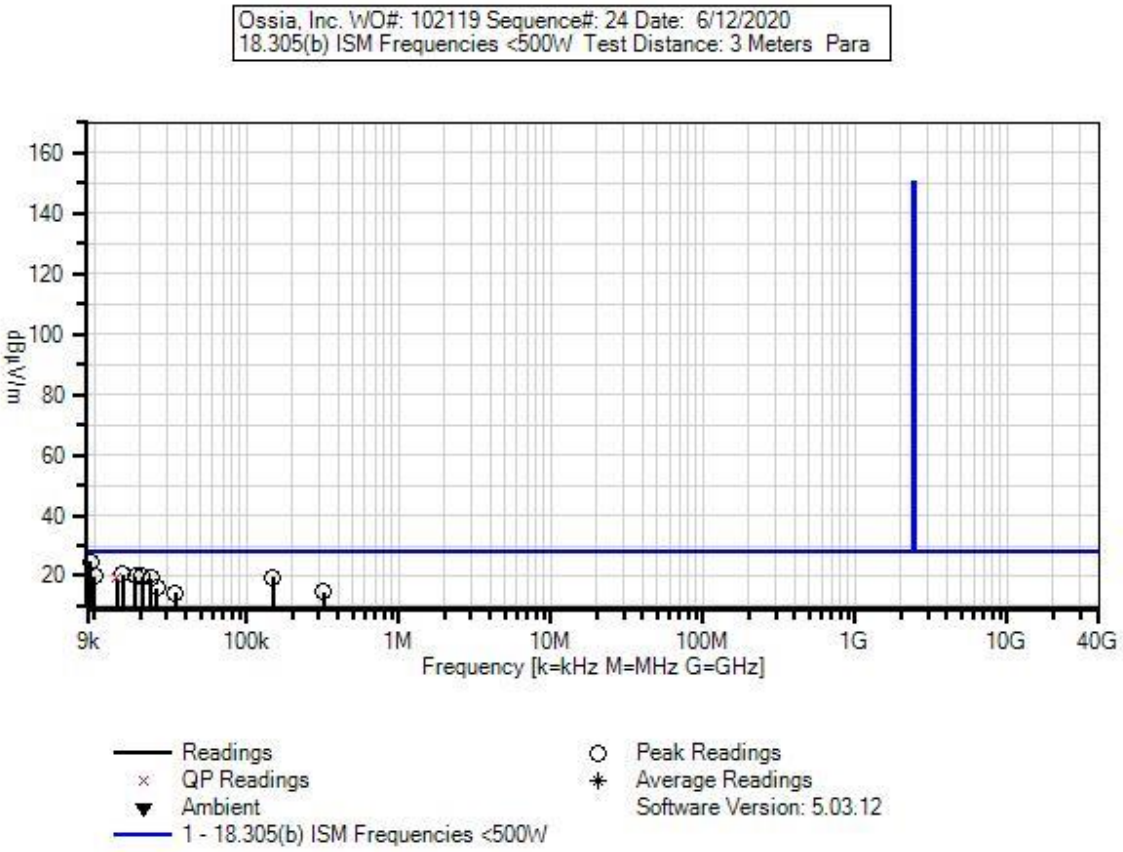
Frequency: 9kHz-30MHz

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.



Test Equipment:

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

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	9.420k	48.8	+0.0	+0.0	+15.9		-40.0	24.7	28.0	-3.3	Para
2	15.522k	46.9	+0.0	+0.0	+13.7		-40.0	20.6	28.0	-7.4	Para
3	20.665k	47.4	+0.0	+0.0	+12.5		-40.0	19.9	28.0	-8.1	Para
4	18.658k	46.9	+0.0	+0.0	+12.9		-40.0	19.8	28.0	-8.2	Para
5	10.002k	44.0	+0.0	+0.0	+15.7		-40.0	19.7	28.0	-8.3	Para
6	150.000k	50.0	+0.0	+0.0	+9.5		-40.0	19.5	28.0	-8.5	Para
7 QP	14.142k	45.1	+0.0	+0.0	+14.2		-40.0	19.3	28.0	-8.7	Para
^	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)

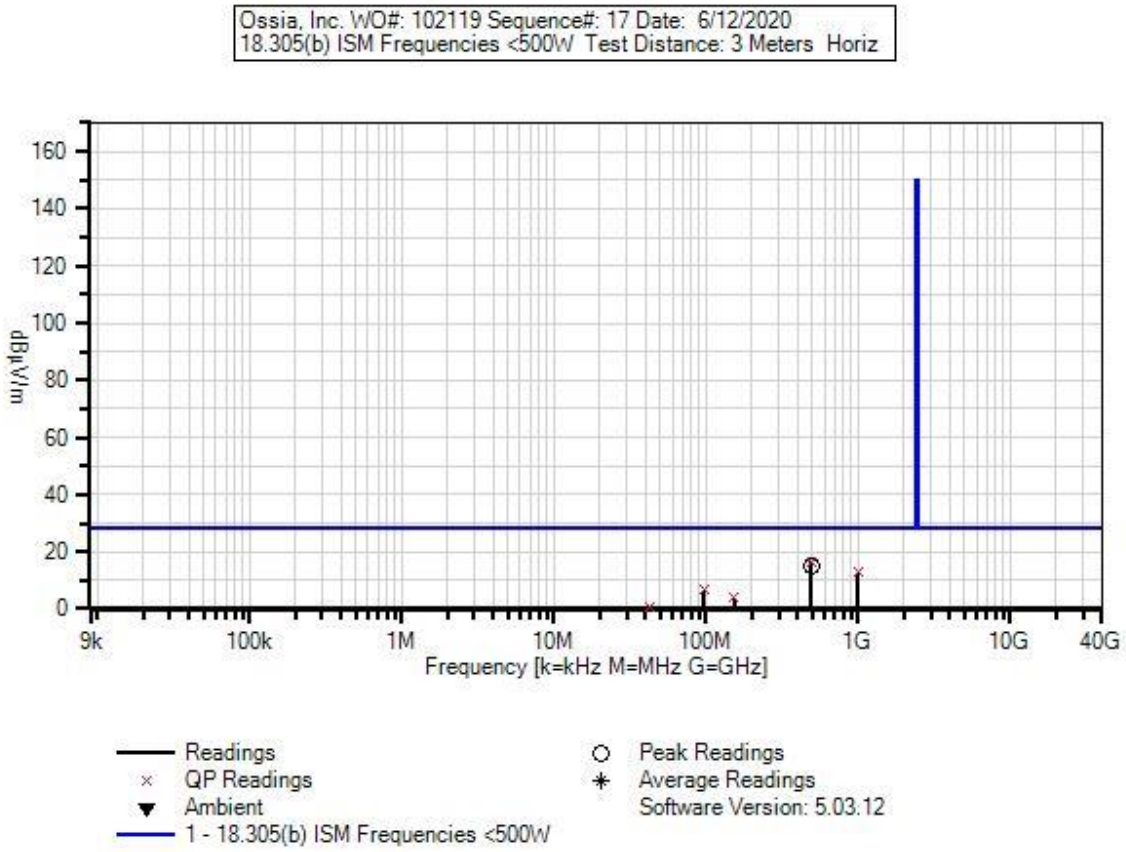
Frequency: 30-1000MHz

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.



Test Equipment:

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

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

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

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

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

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

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

Frequency: 30-1000MHz

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

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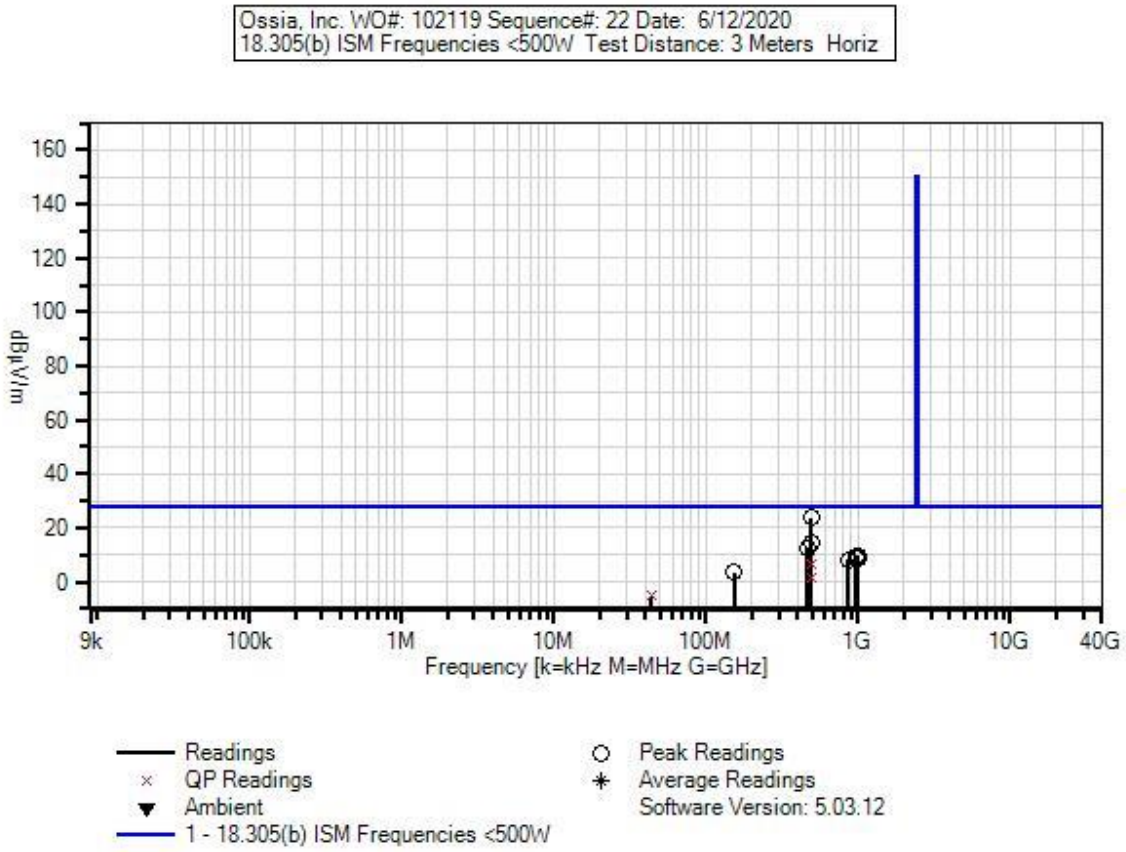
Investigated power source for the EUT:
Configuration 2: EUT connected to AC adapter for power. EUT connected to support Laptop via Ethernet cable. Laptop is located remotely.

Horizontal and Vertical antenna polarities investigated, worst case reported.



Test Equipment:

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

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

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

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

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

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

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

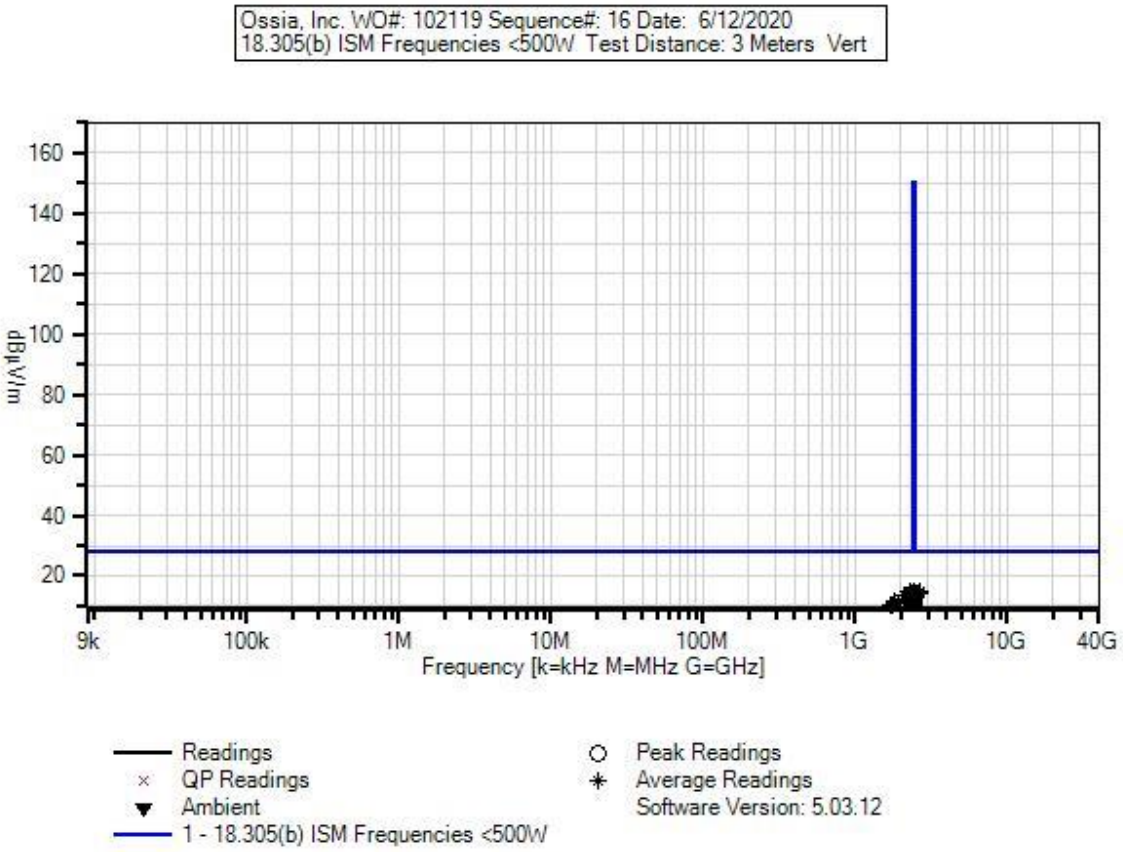
Frequency: 1-3GHz

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

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

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

Horizontal and Vertical antenna polarities investigated, worst case reported.



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	Heliax	8/23/2019	8/23/2021
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	ANP05960	Cable	Heliax 1/4	1/8/2019	1/8/2021
T6	AN03417	Band Reject Filter	3TNF-1500/3000-N/N	6/12/2020	6/12/2022

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

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

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

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

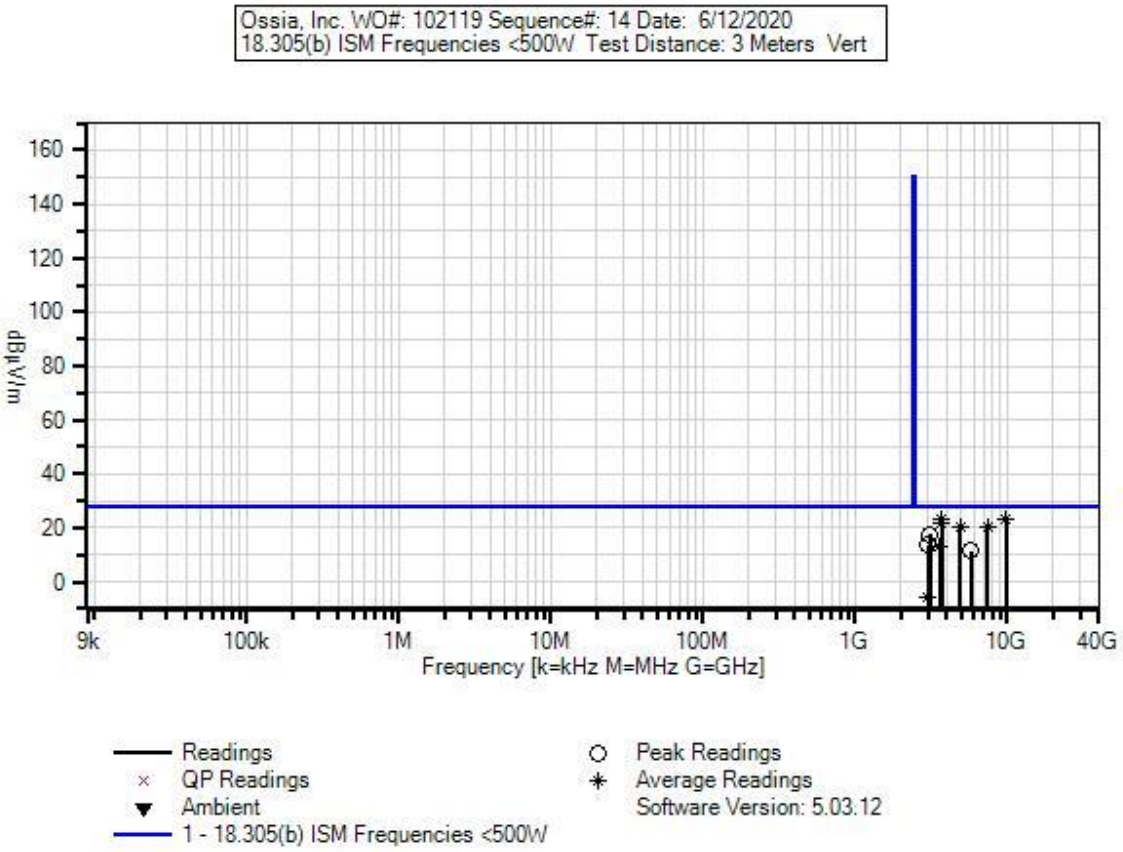
Method: FCC/OET MP-5 (February 1986)

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.



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	Heliax	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T4	AN03116	High Pass Filter	11SH10-00313	1/22/2019	1/22/2021
T5	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T6	AN03540	Preamp	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	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7						
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9800.000M	51.5	+0.0	+1.3	+6.3	+0.7	-40.0	23.4	28.0	-4.6	Vert
	Ave		+37.5	-33.9	+0.0						
2	3708.892M	60.1	+0.0	+0.9	+3.8	+0.7	-40.0	22.9	28.0	-5.1	Horiz
	Ave		+30.6	-33.7	+0.5						
^	3708.892M	74.3	+0.0	+0.9	+3.8	+0.7	-40.0	37.1	28.0	+9.1	Horiz
			+30.6	-33.7	+0.5						
4	3708.739M	58.9	+0.0	+0.9	+3.8	+0.7	-40.0	21.7	28.0	-6.3	Vert
	Ave		+30.6	-33.7	+0.5						
^	3708.739M	69.1	+0.0	+0.9	+3.8	+0.7	-40.0	31.9	28.0	+3.9	Vert
			+30.6	-33.7	+0.5						
6	3710.100M	58.8	+0.0	+0.9	+3.8	+0.7	-40.0	21.6	28.0	-6.4	Horiz
	Ave		+30.6	-33.7	+0.5						
^	3710.100M	69.7	+0.0	+0.9	+3.8	+0.7	-40.0	32.5	28.0	+4.5	Horiz
			+30.6	-33.7	+0.5						
8	4900.000M	55.5	+0.0	+0.9	+4.2	+0.5	-40.0	20.3	28.0	-7.7	Horiz
	Ave		+32.5	-33.6	+0.3						
9	7350.000M	49.6	+0.0	+1.3	+5.4	+0.6	-40.0	20.2	28.0	-7.8	Vert
	Ave		+36.9	-34.6	+1.0						
10	3082.000M	56.4	+0.0	+0.8	+3.0	+1.1	-40.0	17.6	28.0	-10.4	Vert
			+29.3	-34.0	+1.0						
11	3021.000M	52.7	+0.0	+0.8	+2.9	+1.2	-40.0	13.7	28.0	-14.3	Vert
			+29.1	-34.0	+1.0						
12	3573.409M	50.9	+0.0	+0.8	+3.6	+1.0	-40.0	13.3	28.0	-14.7	Vert
	Ave		+30.2	-33.8	+0.6						
^	3573.400M	65.4	+0.0	+0.8	+3.6	+1.0	-40.0	27.8	28.0	-0.2	Vert
			+30.2	-33.8	+0.6						
14	5751.000M	44.7	+0.0	+1.0	+4.6	+0.5	-40.0	11.5	28.0	-16.5	Horiz
			+34.2	-33.7	+0.2						
15	3007.000M	33.1	+0.0	+0.8	+2.9	+1.2	-40.0	-5.9	28.0	-33.9	Horiz
	Ave		+29.1	-34.0	+1.0						
^	3007.000M	61.2	+0.0	+0.8	+2.9	+1.2	-40.0	22.2	28.0	-5.8	Horiz
			+29.1	-34.0	+1.0						

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)

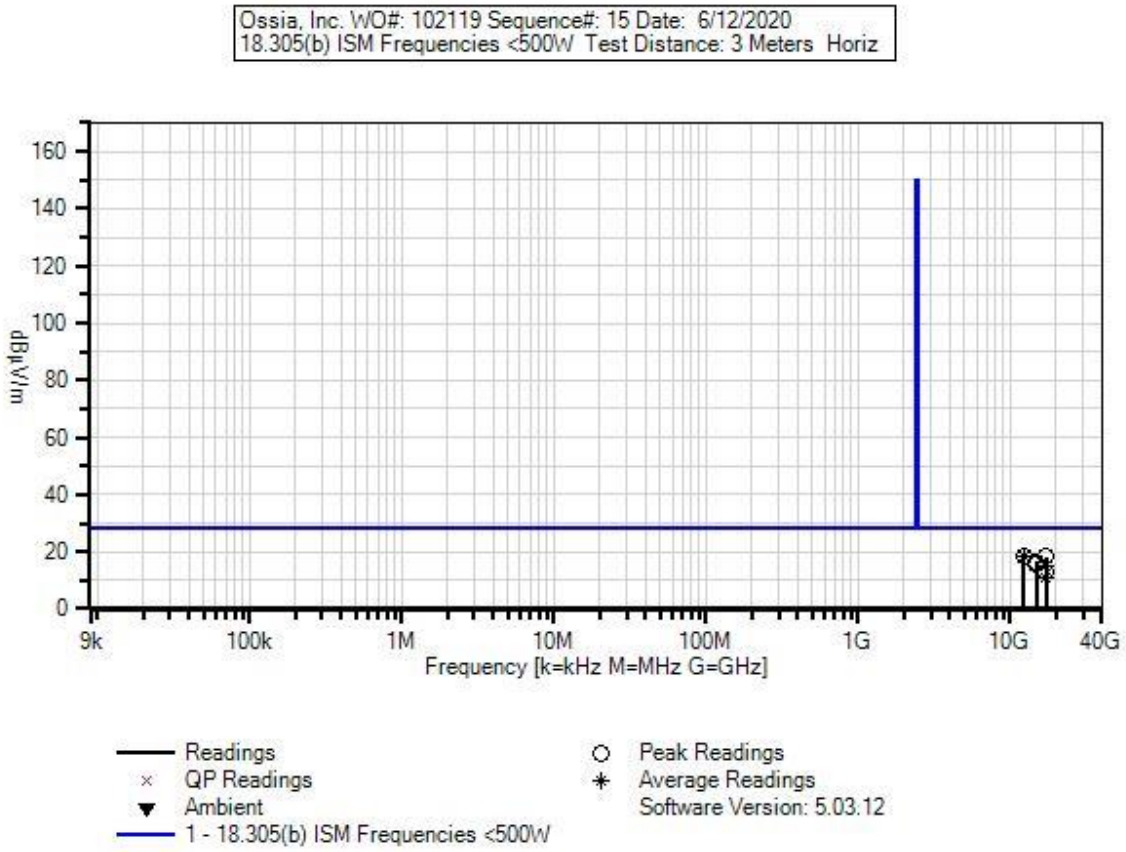
Frequency: 10-18GHz

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.



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	Heliax	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T4	AN02741	Active Horn Antenna	AMFW-5F-12001800-20-10P	4/26/2019	4/26/2021

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

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

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

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

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

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

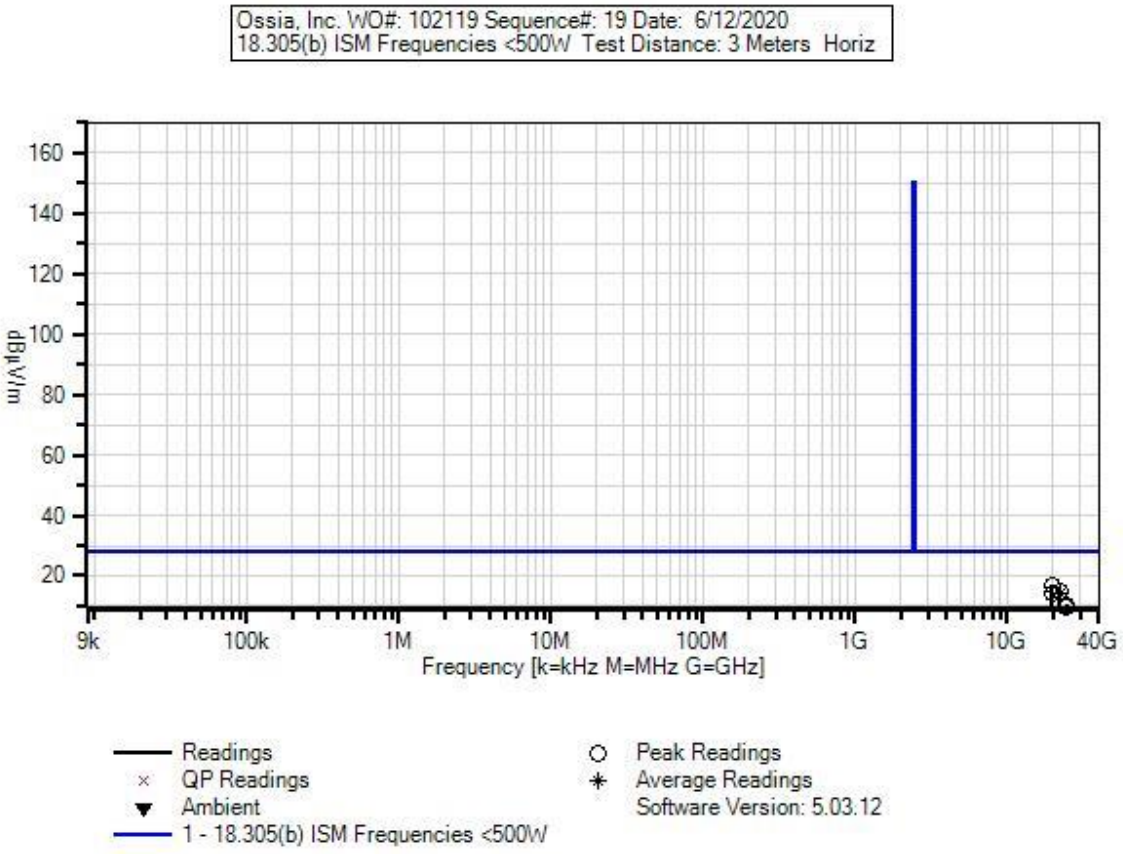
Frequency: 18GHz-25GHz

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

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

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

Horizontal and Vertical antenna polarities investigated, worst case reported.



Test Equipment:

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

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

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

Test Setup Photo(s)

Configuration 1

Configuration 2

18.307 AC Conducted Emissions

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

Test Setup / Conditions / Data

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

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

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

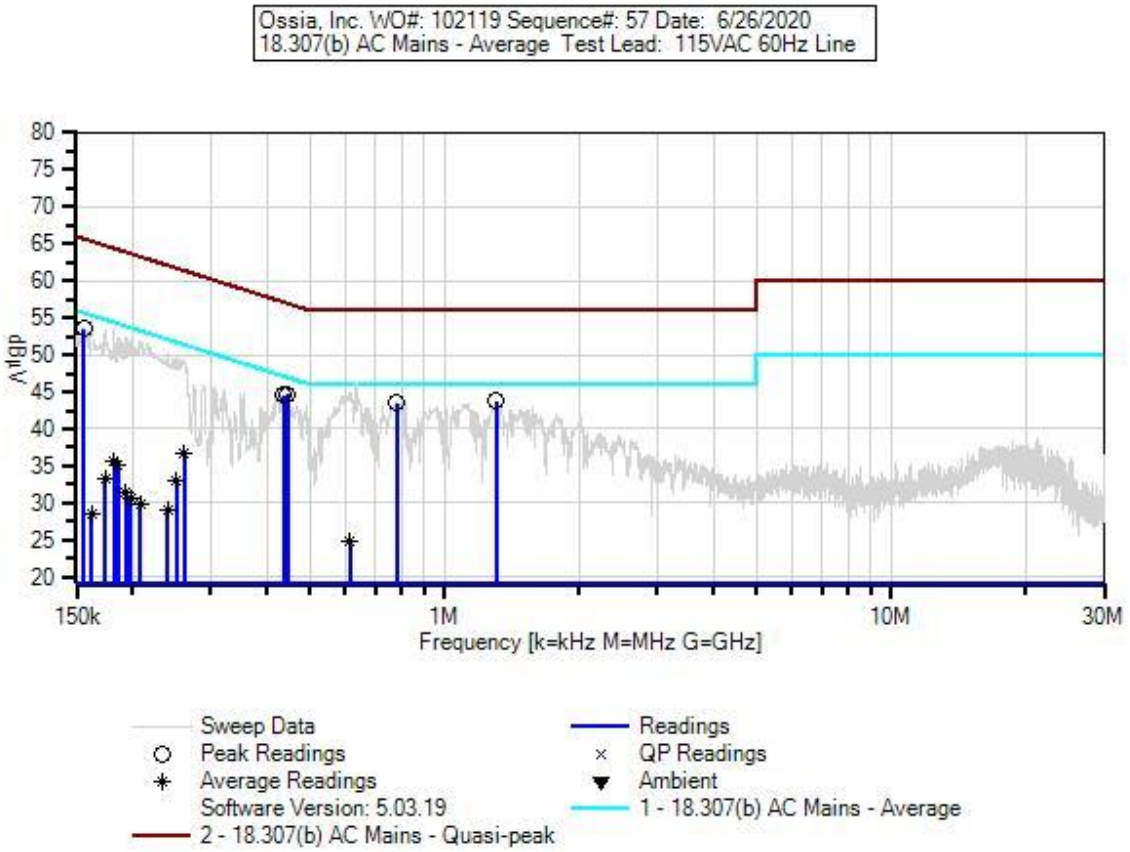
Method: FCC/OET MP-5 (February 1986)

Frequency: 0.15-30MHz

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

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

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



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	Heliax	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliax	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	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	156.077k	45.3	+0.8 -1.7	+0.0	+0.0	+9.1	+0.0	53.5	55.7	-2.2	Line
2	1.304M	34.7	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.7	46.0	-2.3	Line
3	445.207k	35.8	+0.2 -0.5	+0.0	+0.1	+9.1	+0.0	44.7	47.0	-2.3	Line
4	435.531k	35.7	+0.2 -0.5	+0.0	+0.1	+9.1	+0.0	44.6	47.1	-2.5	Line
5	780.904k	34.5	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.5	46.0	-2.5	Line
6	260.849k Ave	28.1	+0.2 -0.8	+0.0	+0.0	+9.1	+0.0	36.6	51.4	-14.8	Line
^	260.849k	40.9	+0.2 -0.8	+0.0	+0.0	+9.1	+0.0	49.4	51.4	-2.0	Line
8	181.858k Ave	27.5	+0.4 -1.4	+0.0	+0.0	+9.1	+0.0	35.6	54.4	-18.8	Line
9	250.919k Ave	24.5	+0.2 -0.9	+0.0	+0.0	+9.1	+0.0	32.9	51.7	-18.8	Line
^	250.919k	41.3	+0.2 -0.9	+0.0	+0.0	+9.1	+0.0	49.7	51.7	-2.0	Line
11	186.050k Ave	27.1	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	35.2	54.2	-19.0	Line
^	181.857k	45.6	+0.4 -1.4	+0.0	+0.0	+9.1	+0.0	53.7	54.4	-0.7	Line
^	186.049k	44.4	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	52.5	54.2	-1.7	Line
^	188.040k	43.6	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	51.7	54.1	-2.4	Line
15	615.751k Ave	15.7	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	24.7	46.0	-21.3	Line
^	615.751k	36.0	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	45.0	46.0	-1.0	Line
17	173.893k Ave	25.2	+0.4 -1.5	+0.0	+0.0	+9.1	+0.0	33.2	54.8	-21.6	Line
^	173.892k	45.4	+0.4 -1.5	+0.0	+0.0	+9.1	+0.0	53.4	54.8	-1.4	Line
19	193.490k Ave	23.4	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	31.5	53.9	-22.4	Line
^	189.717k	43.7	+0.3 -1.3	+0.0	+0.0	+9.1	+0.0	51.8	54.0	-2.2	Line
21	240.440k Ave	20.6	+0.2 -0.9	+0.0	+0.0	+9.1	+0.0	29.0	52.1	-23.1	Line
^	240.439k	41.8	+0.2 -0.9	+0.0	+0.0	+9.1	+0.0	50.2	52.1	-1.9	Line

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

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

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

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

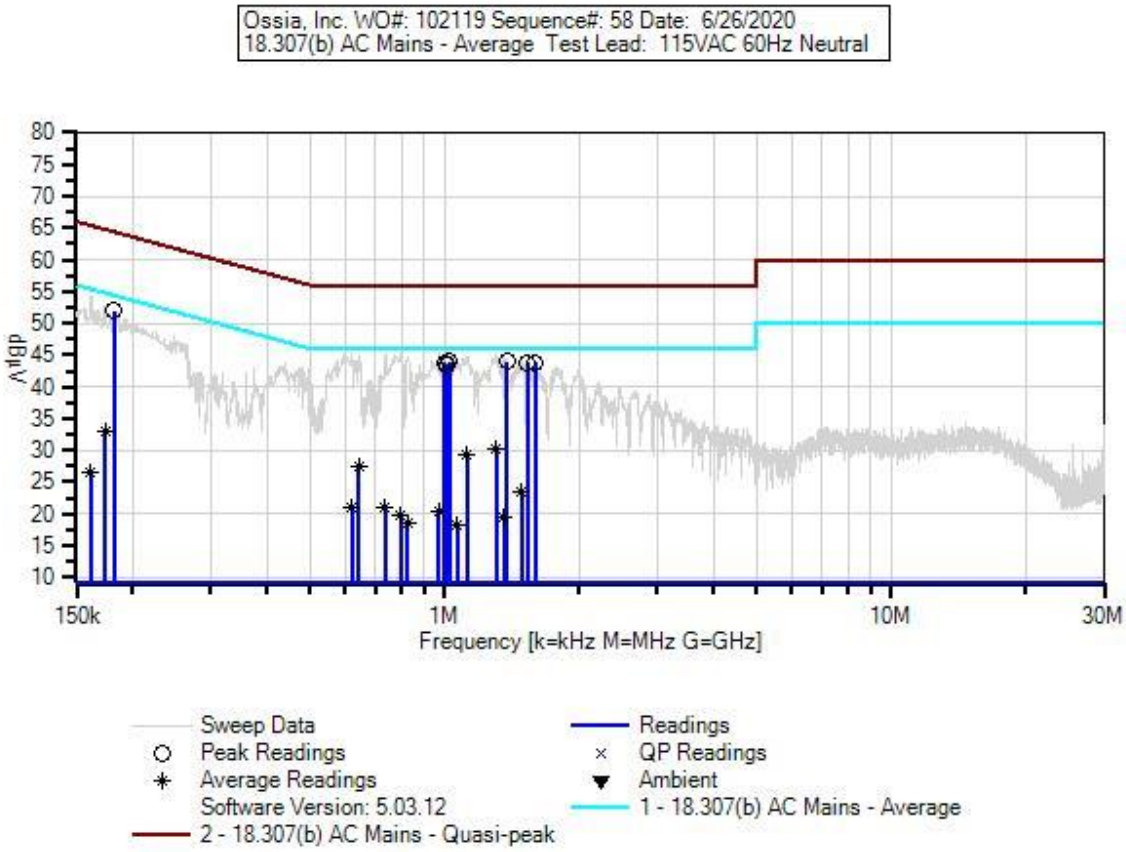
Method: FCC/OET MP-5 (February 1986)

Frequency: 0.15-30MHz

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

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

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



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	Heliax	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliax	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	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	1.027M	34.9	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.9	46.0	-2.1	Neutr
2	1.380M	34.8	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	43.9	46.0	-2.1	Neutr
3	1.600M	34.7	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	43.8	46.0	-2.2	Neutr
4	1.531M	34.7	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	43.8	46.0	-2.2	Neutr
5	998.174k	34.8	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.8	46.0	-2.2	Neutr
6	182.171k	43.8	+0.4 -1.3	+0.0	+0.0	+9.1	+0.0	52.0	54.4	-2.4	Neutr
7	1.013M	34.5	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	43.5	46.0	-2.5	Neutr
8	1.308M Ave	21.1	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	30.1	46.0	-15.9	Neutr
^	1.308M	36.1	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	45.1	46.0	-0.9	Neutr
10	1.121M Ave	20.4	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	29.4	46.0	-16.6	Neutr
^	1.121M	35.7	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	44.7	46.0	-1.3	Neutr
12	642.361k Ave	18.4	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	27.4	46.0	-18.6	Neutr
^	642.360k	36.2	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	45.2	46.0	-0.8	Neutr
14	173.579k Ave	25.0	+0.4 -1.4	+0.0	+0.0	+9.1	+0.0	33.1	54.8	-21.7	Neutr
^	173.578k	44.7	+0.4 -1.4	+0.0	+0.0	+9.1	+0.0	52.8	54.8	-2.0	Neutr
16	1.488M Ave	14.4	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	23.5	46.0	-22.5	Neutr
^	1.488M	35.1	+0.2 -0.3	+0.0	+0.1	+9.1	+0.0	44.2	46.0	-1.8	Neutr
18	737.759k Ave	12.1	+0.2 -0.4	+0.0	+0.0	+9.1	+0.0	21.0	46.0	-25.0	Neutr
^	737.759k	36.2	+0.2 -0.4	+0.0	+0.0	+9.1	+0.0	45.1	46.0	-0.9	Neutr
20	620.589k Ave	11.8	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	20.8	46.0	-25.2	Neutr
^	620.589k	36.3	+0.3 -0.4	+0.0	+0.0	+9.1	+0.0	45.3	46.0	-0.7	Neutr
22	973.006k Ave	11.3	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	20.3	46.0	-25.7	Neutr
^	973.006k	36.4	+0.2 -0.3	+0.0	+0.0	+9.1	+0.0	45.4	46.0	-0.6	Neutr

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

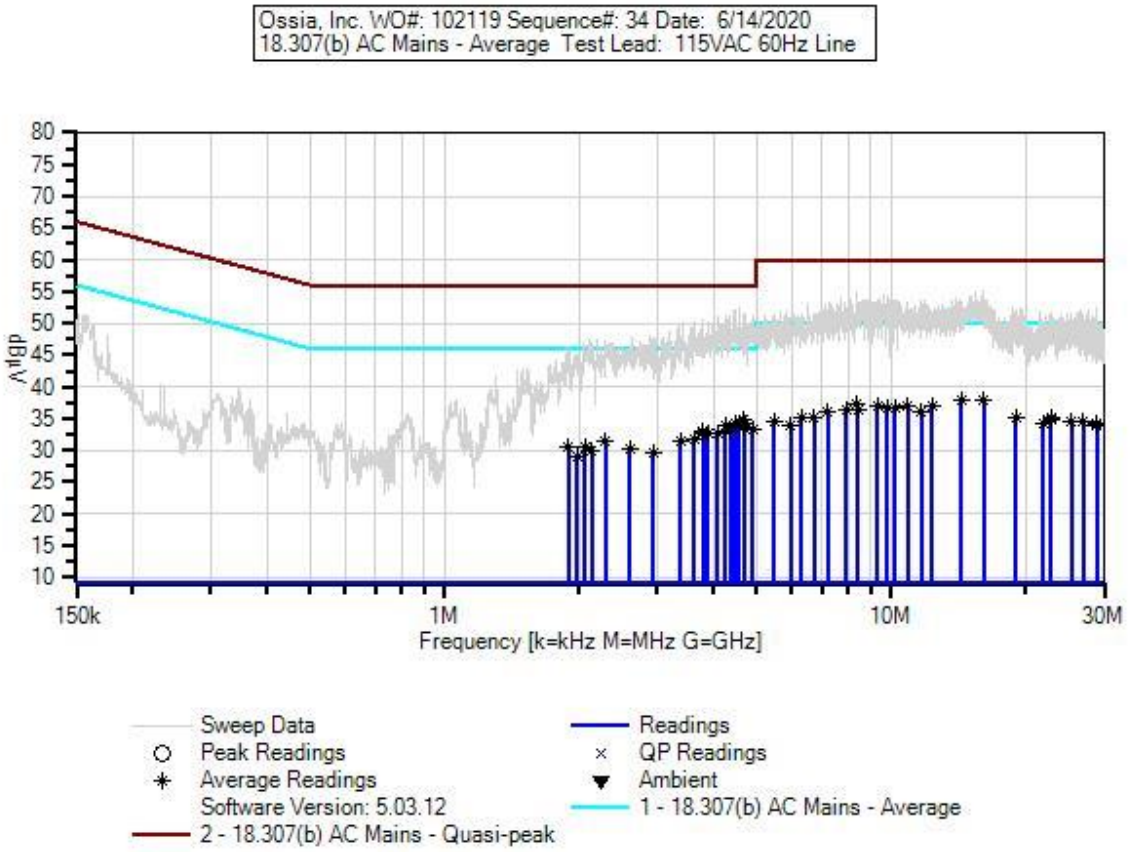
Method: FCC/OET MP-5 (February 1986)

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.



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	Heliax	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliax	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	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	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 Ave	26.9	+0.1 +0.7	+0.0	+0.2	+9.1	+0.0	37.0	50.0	-13.0	Line
^	9.310M	44.1	+0.1 +0.7	+0.0	+0.2	+9.1	+0.0	54.2	50.0	+4.2	Line
26	4.369M Ave	23.2	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	33.0	46.0	-13.0	Line
^	4.369M	41.3	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	51.1	46.0	+5.1	Line
28	10.879M Ave	26.9	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	36.9	50.0	-13.1	Line
^	10.879M	42.5	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	52.5	50.0	+2.5	Line
30	3.794M Ave	23.2	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	32.9	46.0	-13.1	Line
31	9.818M Ave	26.9	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	36.8	50.0	-13.2	Line
32	3.794M Ave	23.1	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	32.8	46.0	-13.2	Line
33	9.818M Ave	26.8	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	36.7	50.0	-13.3	Line
^	9.818M	42.9	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	52.8	50.0	+2.8	Line
35	10.193M Ave	26.8	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	36.7	50.0	-13.3	Line
^	10.193M	42.4	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	52.3	50.0	+2.3	Line
37	3.879M Ave	22.9	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	32.6	46.0	-13.4	Line
^	3.879M	41.4	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	51.1	46.0	+5.1	Line
39	4.097M Ave	22.8	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	32.6	46.0	-13.4	Line
^	4.097M	41.4	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	51.2	46.0	+5.2	Line
41	3.794M Ave	22.9	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	32.6	46.0	-13.4	Line
^	3.794M	40.6	+0.1 +0.4	+0.0	+0.1	+9.1	+0.0	50.3	46.0	+4.3	Line
43	8.420M Ave	26.4	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	36.4	50.0	-13.6	Line
^	8.420M	44.0	+0.1 +0.6	+0.0	+0.2	+9.1	+0.0	54.0	50.0	+4.0	Line
45	7.940M Ave	26.6	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	36.4	50.0	-13.6	Line
^	7.940M	44.2	+0.1 +0.5	+0.0	+0.1	+9.1	+0.0	54.0	50.0	+4.0	Line
47	11.680M Ave	26.3	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	36.2	50.0	-13.8	Line
^	11.680M	42.7	+0.1 +0.5	+0.0	+0.2	+9.1	+0.0	52.6	50.0	+2.6	Line

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

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

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

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

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

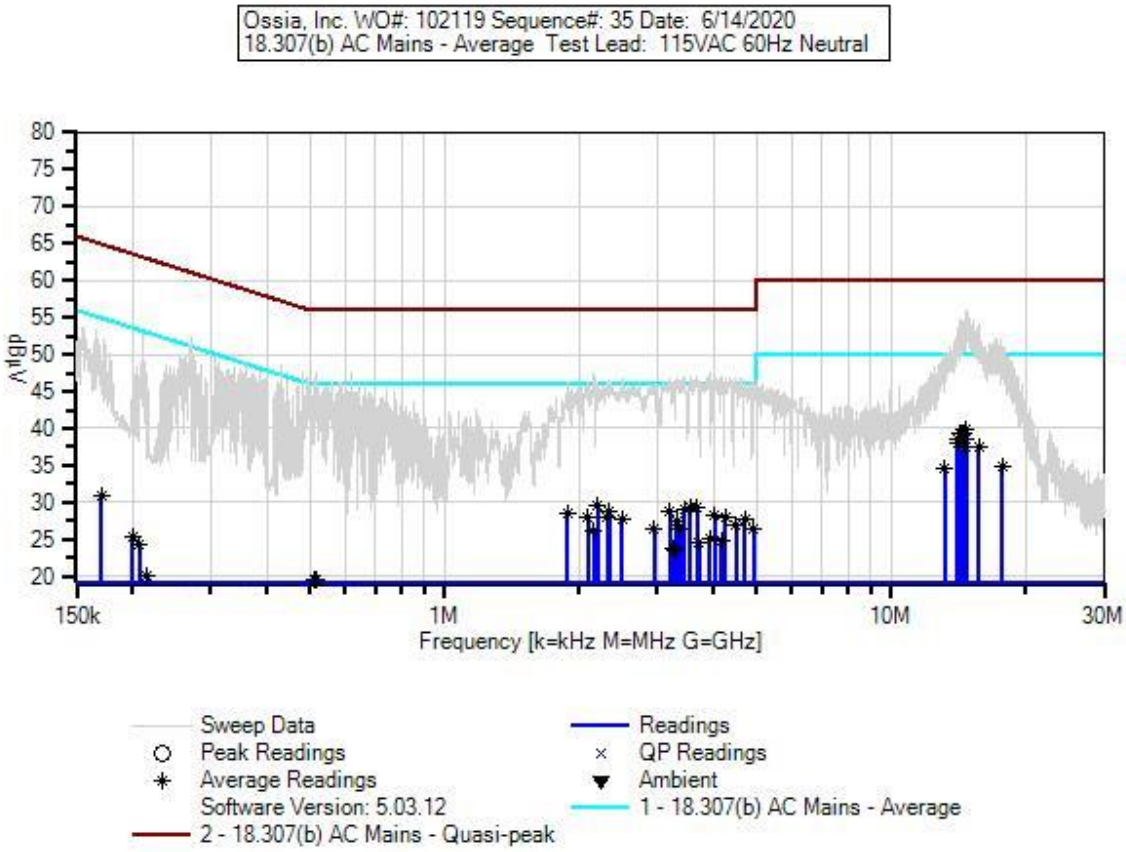
Method: FCC/OET MP-5 (February 1986)

Frequency: 0.15-30MHz

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

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

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



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	Heliax	8/23/2019	8/23/2021
T3	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T4	ANP06219	Attenuator	768-10	4/7/2020	4/7/2022
	AN01492	50uH LISN-Line (L1)	3816/2NM	10/14/2019	10/14/2021
T5	AN01492	50uH LISN-Neutral (L2)	3816/2NM	10/14/2019	10/14/2021

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

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

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

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

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

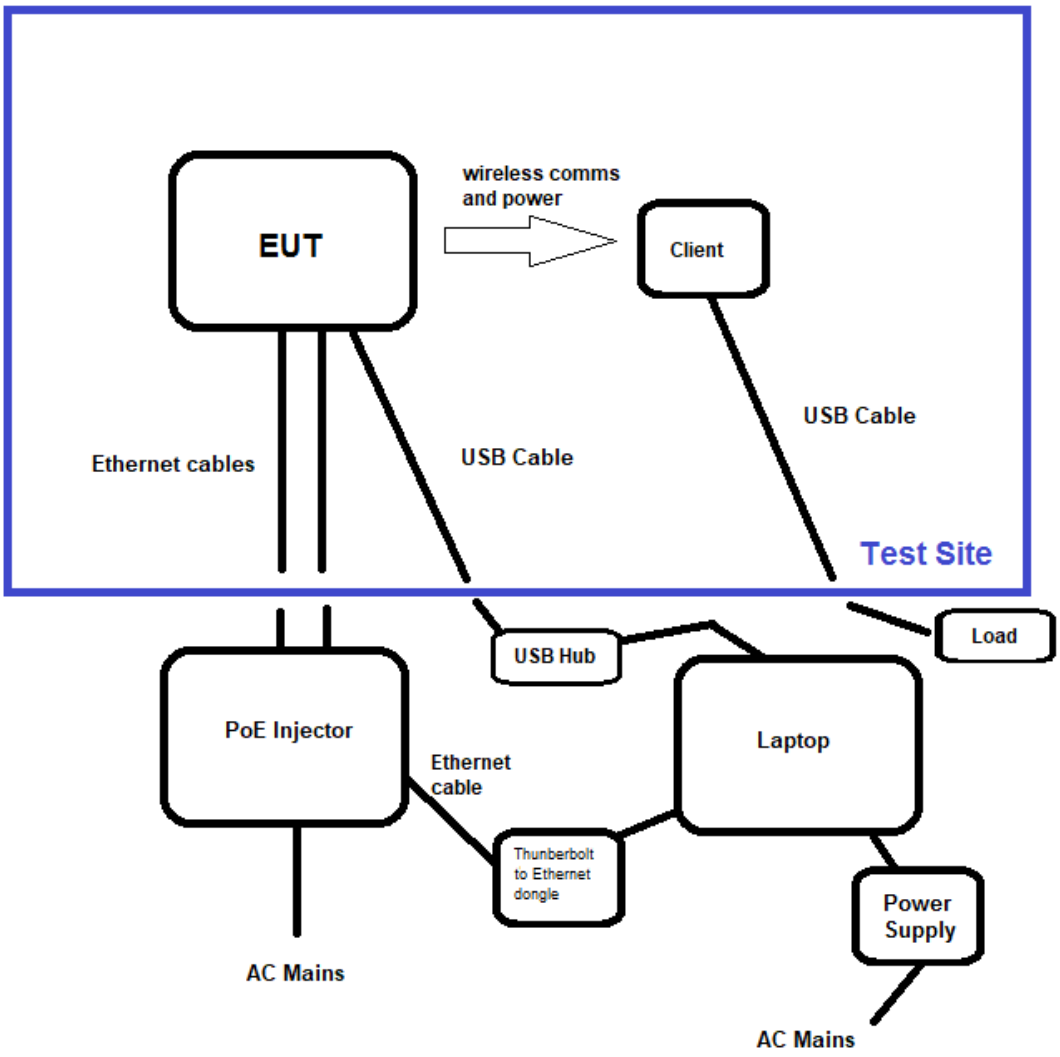
Test Setup Photo(s)

Configuration 1

Configuration 2

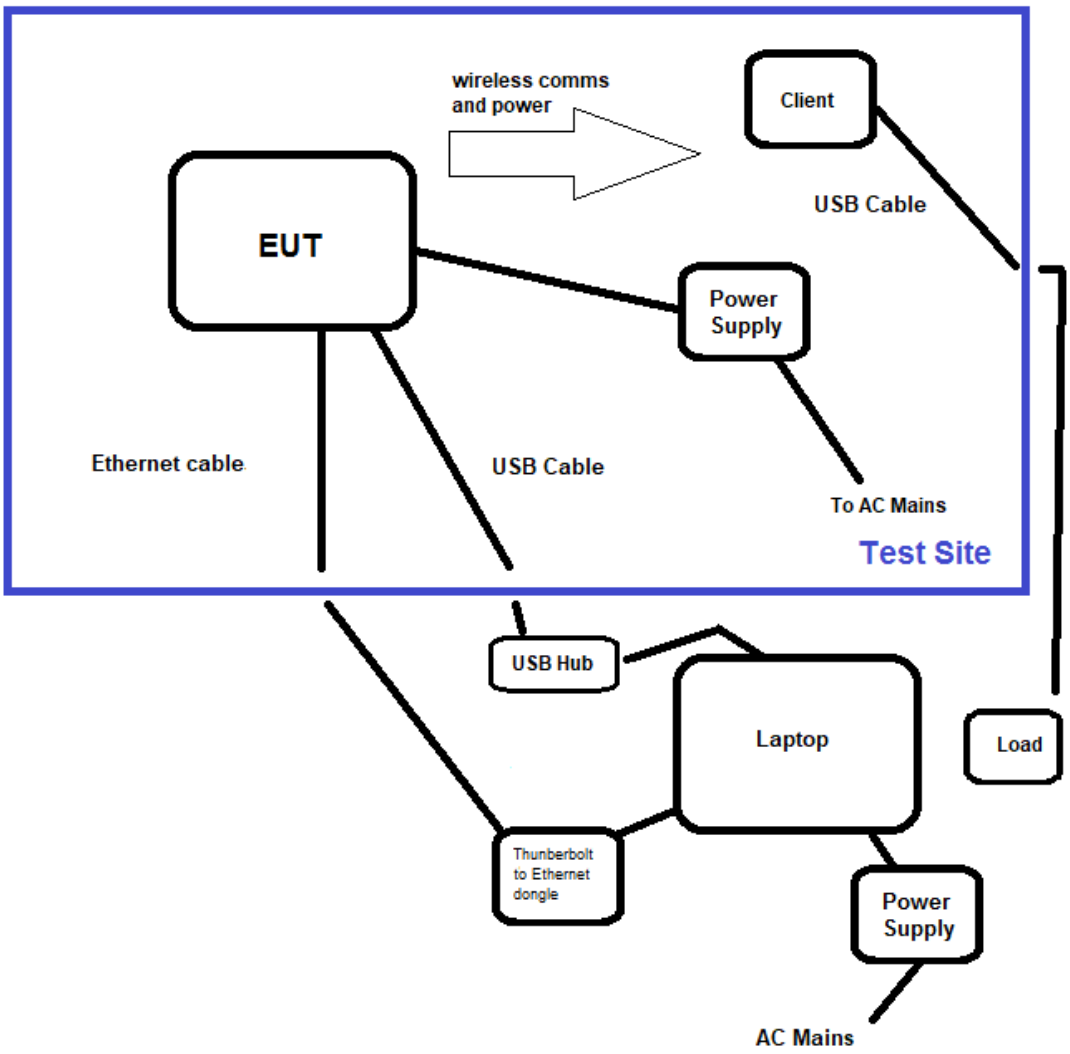
Appendix A: Test Setup Block Diagrams

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 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.