Ossia, Inc.

EMC TEST REPORT FOR

Cota WPT Client
Model: VenusRx

Tested to The Following Standards:

FCC Part 15 Subpart B Section 15.107 & 15.109

Report No.: 102446-10

Date of issue: April 24, 2019

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 # 803.05

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Ossia, Inc.
11235 SE 6th Ste. #200
Bellevue, WA 98004

Representative: Doug Williams
Customer Reference Number: 13041

REPORT PREPARED BY:

Morgan Tramontin
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 102446

DATE OF EQUIPMENT RECEIPT: April 5, 2019
DATE(S) OF TESTING: April 5 - 6, 2019

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-0148

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

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart B

Test Procedure	Description	Modifications	Results
15.107 Class B	Conducted Emissions	NA	Pass
15.109 Class B	Radiated 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
None

EQUIPMENT UNDER TEST (EUT)

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

Configuration 2

Equipment Tested:

Device	Manufacturer	Model #	S/N
Cota WPT Client	Ossia, Inc.	VenusRx	126

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop (Programming)	Apple	MacBook Pro A1398	NA
USB Charger	Belkin	F8M670	NA

FCC PART 15 SUBPART B

15.107 AC Conducted Emissions

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

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA. 98021 • 1-800-500-4EMC		
Customer:	**Ossia, Inc.**		
Specification:	**15.107 AC Mains Class B - Average**		
Work Order #:	**102446**	Date:	4/6/2019
Test Type:	**Conducted Emissions**	Time:	08:05:38
Tested By:	Matthew Harrison	Sequence#:	9
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

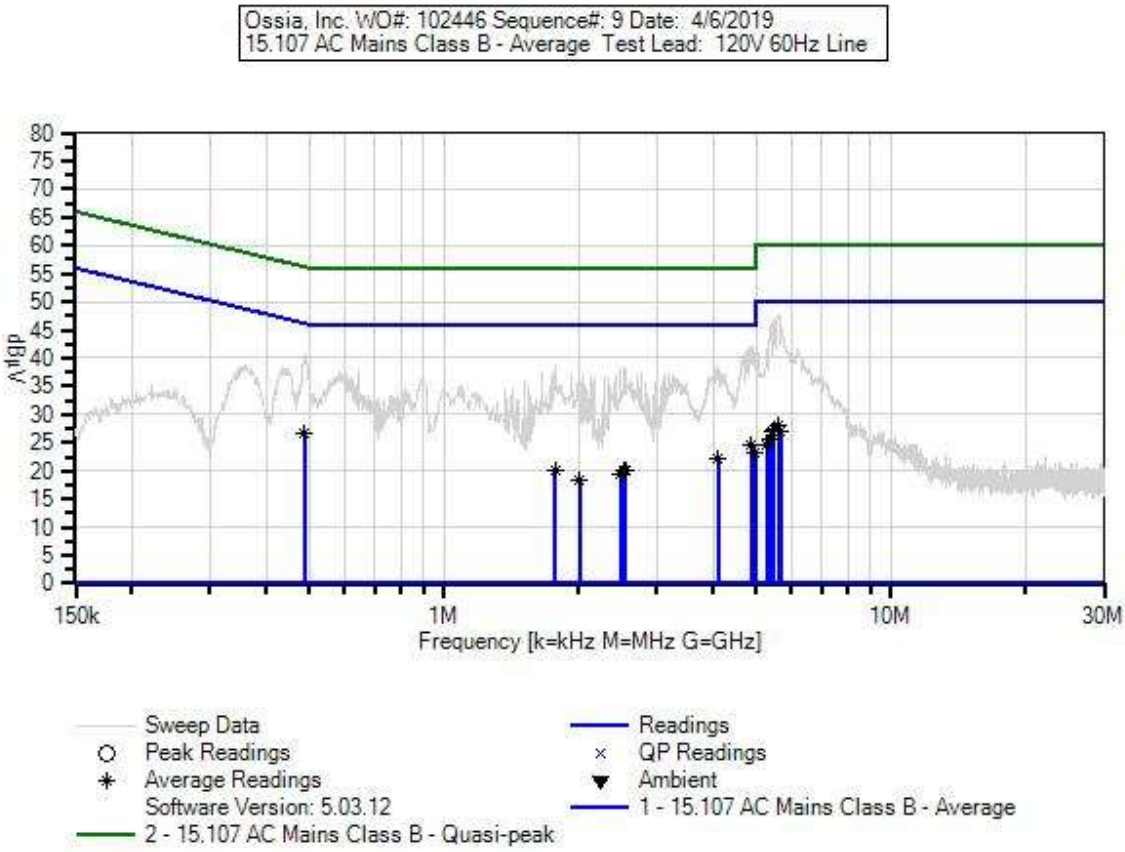
Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

Temperature: 20-21°C
Pressure: 101.8kPa
Humidity: 28%
Frequency Range: 150kHz-30MHz

Test Method: ANSI 63.4 (2014)

All radios are in standby or RX mode and battery is charging.


Ossia, Inc. WO#: 102446 Sequence#: 9 Date: 4/6/2019
15.107 AC Mains Class B - Average Test Lead: 120V 60Hz Line
dBµV
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
Peak Readings
Average Readings
Software Version: 5.03.12
2 - 15.107 AC Mains Class B - Quasi-peak
Readings
QP Readings
Ambient
1 - 15.107 AC Mains Class B - 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
	AN02871	Spectrum Analyzer	E4440A	1/9/2019	1/9/2021
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 Ave	486.696k	17.1	+9.1 +0.2	+0.0	+0.0	+0.4	+0.0	26.8	46.2	-19.4	Line
^	486.696k	30.8	+9.1 +0.2	+0.0	+0.0	+0.4	+0.0	40.5	46.2	-5.7	Line
3 Ave	4.879M	15.1	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	24.7	46.0	-21.3	Line
^	4.879M	32.6	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	42.2	46.0	-3.8	Line
5 Ave	5.598M	18.6	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	28.2	50.0	-21.8	Line
^	5.598M	38.1	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	47.7	50.0	-2.3	Line
7 Ave	5.472M	17.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	27.4	50.0	-22.6	Line
^	5.472M	37.3	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	46.9	50.0	-3.1	Line
9 Ave	4.977M	13.6	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	23.2	46.0	-22.8	Line
^	4.977M	31.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	41.3	46.0	-4.7	Line
11 Ave	5.427M	17.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	27.1	50.0	-22.9	Line
^	5.427M	36.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	46.4	50.0	-3.6	Line
13 Ave	5.679M	17.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	27.1	50.0	-22.9	Line
^	5.679M	36.3	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	45.9	50.0	-4.1	Line
15 Ave	4.105M	12.6	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	22.2	46.0	-23.8	Line
^	4.105M	28.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.4	46.0	-7.6	Line

17	5.382M	16.1	+9.1	+0.1	+0.0	+0.3	+0.0	25.7	50.0	-24.3	Line
	Ave		+0.1								
^	5.382M	36.3	+9.1	+0.1	+0.0	+0.3	+0.0	45.9	50.0	-4.1	Line
			+0.1								
19	5.292M	15.1	+9.1	+0.1	+0.0	+0.3	+0.0	24.7	50.0	-25.3	Line
	Ave		+0.1								
^	5.292M	32.1	+9.1	+0.1	+0.0	+0.3	+0.0	41.7	50.0	-8.3	Line
			+0.1								
21	2.549M	10.5	+9.1	+0.1	+0.0	+0.3	+0.0	20.1	46.0	-25.9	Line
	Ave		+0.1								
^	2.549M	28.6	+9.1	+0.1	+0.0	+0.3	+0.0	38.2	46.0	-7.8	Line
			+0.1								
23	1.770M	10.4	+9.1	+0.1	+0.0	+0.3	+0.0	20.1	46.0	-25.9	Line
	Ave		+0.2								
^	1.770M	29.1	+9.1	+0.1	+0.0	+0.3	+0.0	38.8	46.0	-7.2	Line
			+0.2								
25	2.536M	10.4	+9.1	+0.1	+0.0	+0.3	+0.0	20.0	46.0	-26.0	Line
	Ave		+0.1								
^	2.536M	28.9	+9.1	+0.1	+0.0	+0.3	+0.0	38.5	46.0	-7.5	Line
			+0.1								
27	2.480M	9.9	+9.1	+0.1	+0.0	+0.3	+0.0	19.5	46.0	-26.5	Line
	Ave		+0.1								
^	2.480M	28.5	+9.1	+0.1	+0.0	+0.3	+0.0	38.1	46.0	-7.9	Line
			+0.1								
29	2.013M	8.9	+9.1	+0.1	+0.0	+0.3	+0.0	18.5	46.0	-27.5	Line
	Ave		+0.1								
^	2.013M	28.7	+9.1	+0.1	+0.0	+0.3	+0.0	38.3	46.0	-7.7	Line
			+0.1								

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA. 98021 • 1-800-500-4EMC		
Customer:	**Ossia, Inc.**		
Specification:	**15.107 AC Mains Class B - Average**		
Work Order #:	**102446**	Date:	4/6/2019
Test Type:	**Conducted Emissions**	Time:	08:13:43
Tested By:	Matthew Harrison	Sequence#:	10
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

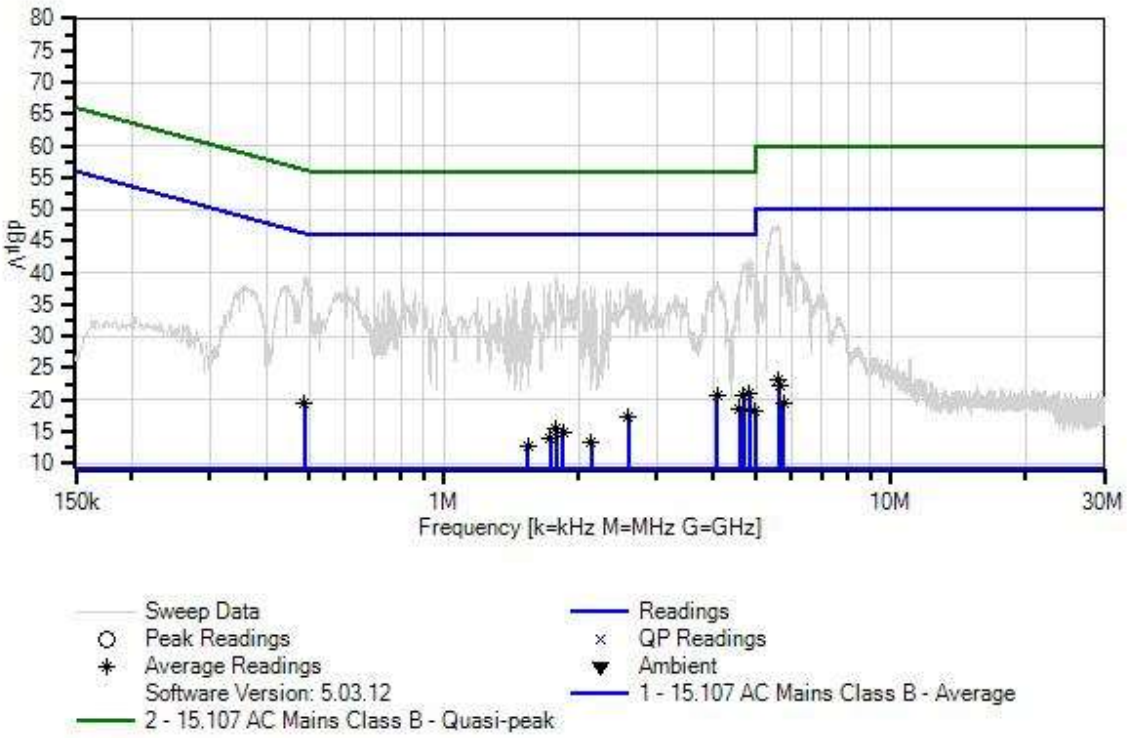
Test Conditions / Notes:

Temperature: 20-21°C
Pressure: 101.8kPa
Humidity: 28%
Frequency Range: 150kHz-30MHz

Test Method: ANSI 63.4 (2014)

All radios are in standby or RX mode and battery is charging.

Ossia, Inc. WO#: 102446 Sequence#: 10 Date: 4/6/2019
15.107 AC Mains Class B - Average Test Lead: 120V 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
	AN02871	Spectrum Analyzer	E4440A	1/9/2019	1/9/2021
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 Ave	4.824M	11.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	21.1	46.0	-24.9	Neutr
^	4.824M	32.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	42.4	46.0	-3.6	Neutr
3 Ave	4.692M	11.1	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	20.7	46.0	-25.3	Neutr
^	4.692M	31.9	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	41.5	46.0	-4.5	Neutr
5 Ave	4.097M	11.1	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	20.7	46.0	-25.3	Neutr
^	4.097M	28.9	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.5	46.0	-7.5	Neutr
7 Ave	487.424k	9.8	+9.1 +0.2	+0.0	+0.0	+0.4	+0.0	19.5	46.2	-26.7	Neutr
^	487.423k	29.7	+9.1 +0.2	+0.0	+0.0	+0.4	+0.0	39.4	46.2	-6.8	Neutr
9 Ave	5.607M	13.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	23.1	50.0	-26.9	Neutr
^	5.607M	37.9	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	47.5	50.0	-2.5	Neutr
11 Ave	4.586M	9.0	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	18.6	46.0	-27.4	Neutr
^	4.586M	28.6	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.2	46.0	-7.8	Neutr
13 Ave	4.964M	8.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	18.3	46.0	-27.7	Neutr
^	4.964M	30.6	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	40.2	46.0	-5.8	Neutr
15 Ave	5.643M	12.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	22.3	50.0	-27.7	Neutr
^	5.643M	37.5	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	47.1	50.0	-2.9	Neutr

17 Ave	2.591M	7.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	17.4	46.0	-28.6	Neutr
^	2.591M	29.2	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.8	46.0	-7.2	Neutr
19 Ave	1.783M	5.7	+9.1 +0.2	+0.1	+0.0	+0.3	+0.0	15.4	46.0	-30.6	Neutr
^	1.783M	29.9	+9.1 +0.2	+0.1	+0.0	+0.3	+0.0	39.6	46.0	-6.4	Neutr
21 Ave	5.743M	9.7	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	19.3	50.0	-30.7	Neutr
^	5.743M	33.0	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	42.6	50.0	-7.4	Neutr
23 Ave	1.847M	5.2	+9.1 +0.2	+0.1	+0.0	+0.3	+0.0	14.9	46.0	-31.1	Neutr
^	1.847M	28.5	+9.1 +0.2	+0.1	+0.0	+0.3	+0.0	38.2	46.0	-7.8	Neutr
25 Ave	1.728M	4.4	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	14.0	46.0	-32.0	Neutr
^	1.728M	28.6	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.2	46.0	-7.8	Neutr
27 Ave	2.136M	3.8	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	13.4	46.0	-32.6	Neutr
^	2.136M	28.4	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.0	46.0	-8.0	Neutr
29 Ave	1.545M	3.1	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	12.7	46.0	-33.3	Neutr
^	1.545M	28.9	+9.1 +0.1	+0.1	+0.0	+0.3	+0.0	38.5	46.0	-7.5	Neutr

Test Setup Photo(s)

15.109 Radiated Emissions

Test Notes: Radiated disturbances emanating from enclosure.

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA. 98021 • 1-800-500-4EMC		
Customer:	**Ossia, Inc.**		
Specification:	**15.109 Radiated Emissions Class B**		
Work Order #:	**102446**	Date:	4/5/2019
Test Type:	**Radiated Scan**	Time:	3:34:51 PM
Tested By:	Matthew Harrison	Sequence#:	8
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

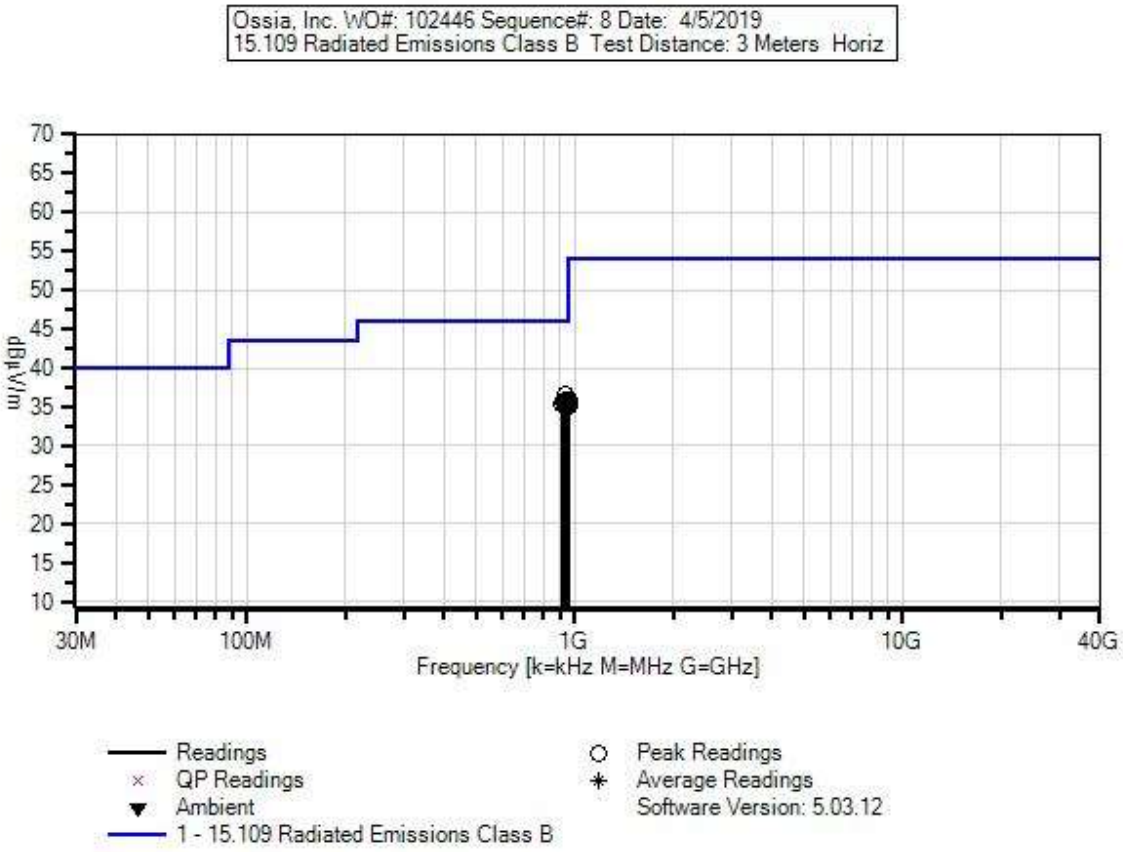
Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

Temperature: 20-21°C
Pressure: 101.8kPa
Humidity: 28%
Frequency: 30-1000MHz

Test Method: ANSI 63.4 (2014)

All radios are in standby or RX mode and battery is charging.
The EUT is investigated in X, Y, & Z Axis with only the worst case reported.


Ossia, Inc. WO#: 102446 Sequence#: 8 Date: 4/5/2019
15.109 Radiated Emissions Class B Test Distance: 3 Meters Horiz
70
65
60
55
50
45
40
35
30
25
20
15
10
dBµV/m
30M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.109 Radiated Emissions Class B
Peak Readings
Average Readings
Software Version: 5.03.12

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	6/7/2017	6/7/2019
T3	ANP06123	Attenuator	18N-6	5/5/2017	5/5/2019
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
	AN02871	Spectrum Analyzer	E4440A	1/9/2019	1/9/2021

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	941.521M	28.9	-27.2 +2.0	+24.9 +0.4	+5.9	+1.6	+0.0	36.5	46.0	-9.5	Horiz
2	936.428M	28.3	-27.2 +2.0	+24.8 +0.4	+5.9	+1.6	+0.0	35.8	46.0	-10.2	Horiz
3	956.548M	28.0	-27.2 +2.1	+25.0 +0.4	+5.9	+1.6	+0.0	35.8	46.0	-10.2	Horiz
4	928.860M	28.3	-27.3 +2.0	+24.6 +0.4	+5.9	+1.6	+0.0	35.5	46.0	-10.5	Horiz
5	939.580M	27.9	-27.2 +2.0	+24.9 +0.4	+5.9	+1.6	+0.0	35.5	46.0	-10.5	Horiz
6	955.045M	27.6	-27.2 +2.1	+25.0 +0.4	+5.9	+1.6	+0.0	35.4	46.0	-10.6	Horiz
7	958.238M	27.7	-27.2 +2.1	+24.9 +0.4	+5.9	+1.6	+0.0	35.4	46.0	-10.6	Horiz
8	949.285M	27.7	-27.2 +2.0	+25.0 +0.4	+5.9	+1.6	+0.0	35.4	46.0	-10.6	Horiz
9	944.589M	27.8	-27.2 +2.0	+24.9 +0.4	+5.9	+1.6	+0.0	35.4	46.0	-10.6	Horiz
10	911.323M	28.5	-27.3 +2.0	+24.2 +0.4	+5.9	+1.6	+0.0	35.3	46.0	-10.7	Horiz
11	938.203M	27.7	-27.2 +2.0	+24.8 +0.4	+5.9	+1.6	+0.0	35.2	46.0	-10.8	Horiz
12	930.302M	28.0	-27.3 +2.0	+24.6 +0.4	+5.9	+1.6	+0.0	35.2	46.0	-10.8	Horiz
13	938.954M	27.6	-27.2 +2.0	+24.9 +0.4	+5.9	+1.6	+0.0	35.2	46.0	-10.8	Horiz
14	958.426M	27.5	-27.2 +2.1	+24.9 +0.4	+5.9	+1.6	+0.0	35.2	46.0	-10.8	Horiz
15	955.358M	27.4	-27.2 +2.1	+25.0 +0.4	+5.9	+1.6	+0.0	35.2	46.0	-10.8	Horiz

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA. 98021 • 1-800-500-4EMC		
Customer:	**Ossia, Inc.**		
Specification:	**15.109 Radiated Emissions Class B**		
Work Order #:	**102446**	Date:	4/5/2019
Test Type:	**Radiated Scan**	Time:	3:26:23 PM
Tested By:	Matthew Harrison	Sequence#:	7
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

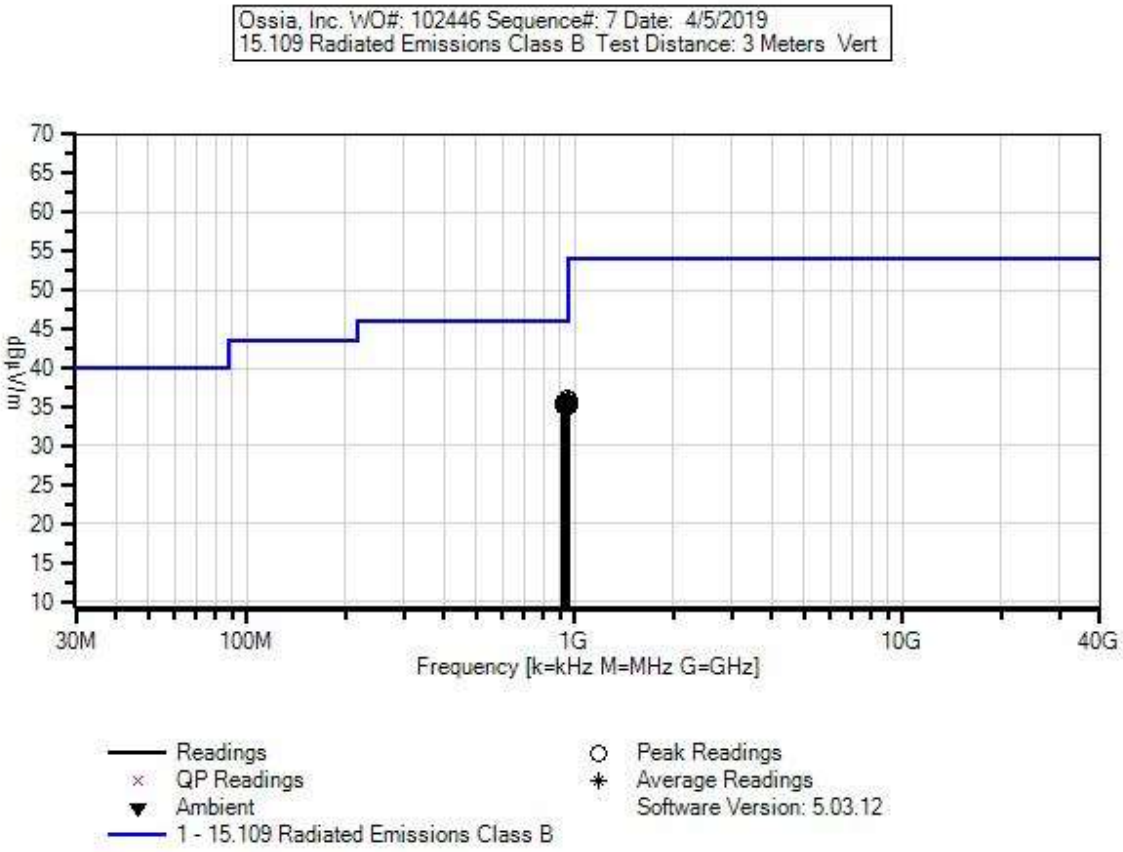
Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

Temperature: 20-21°C
Pressure: 101.8kPa
Humidity: 28%
Frequency: 30-1000MHz

Test Method: ANSI 63.4 (2014)

All radios are in standby or RX mode and battery is charging.
The EUT is investigated in X, Y, & Z Axis with only the worst case reported.


Ossia, Inc. WO#: 102446 Sequence#: 7 Date: 4/5/2019
15.109 Radiated Emissions Class B Test Distance: 3 Meters Vert
70
65
60
55
50
45
40
35
30
25
20
15
10
dBµV/m
30M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.109 Radiated Emissions Class B
Peak Readings
Average Readings
Software Version: 5.03.12

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	6/7/2017	6/7/2019
T3	ANP06123	Attenuator	18N-6	5/5/2017	5/5/2019
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
	AN02871	Spectrum Analyzer	E4440A	1/9/2019	1/9/2021

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	946.217M	28.4	-27.2 +2.0	+24.9 +0.4	+5.9	+1.6	+0.0	36.0	46.0	-10.0	Vert
2	955.546M	28.0	-27.2 +2.1	+25.0 +0.4	+5.9	+1.6	+0.0	35.8	46.0	-10.2	Vert
3	956.861M	28.0	-27.2 +2.1	+25.0 +0.4	+5.9	+1.6	+0.0	35.8	46.0	-10.2	Vert
4	942.648M	28.1	-27.2 +2.0	+24.9 +0.4	+5.9	+1.6	+0.0	35.7	46.0	-10.3	Vert
5	924.416M	28.4	-27.3 +2.0	+24.5 +0.4	+5.9	+1.6	+0.0	35.5	46.0	-10.5	Vert
6	951.539M	27.8	-27.2 +2.0	+25.0 +0.4	+5.9	+1.6	+0.0	35.5	46.0	-10.5	Vert
7	953.730M	27.6	-27.2 +2.1	+25.0 +0.4	+5.9	+1.6	+0.0	35.4	46.0	-10.6	Vert
8	946.029M	27.8	-27.2 +2.0	+24.9 +0.4	+5.9	+1.6	+0.0	35.4	46.0	-10.6	Vert
9	920.092M	28.1	-27.3 +2.0	+24.5 +0.4	+5.9	+1.6	+0.0	35.2	46.0	-10.8	Vert
10	949.911M	27.5	-27.2 +2.0	+25.0 +0.4	+5.9	+1.6	+0.0	35.2	46.0	-10.8	Vert
11	952.228M	27.5	-27.2 +2.0	+25.0 +0.4	+5.9	+1.6	+0.0	35.2	46.0	-10.8	Vert
12	947.031M	27.5	-27.2 +2.0	+24.9 +0.4	+5.9	+1.6	+0.0	35.1	46.0	-10.9	Vert
13	936.668M	27.6	-27.2 +2.0	+24.8 +0.4	+5.9	+1.6	+0.0	35.1	46.0	-10.9	Vert
14	957.237M	27.3	-27.2 +2.1	+25.0 +0.4	+5.9	+1.6	+0.0	35.1	46.0	-10.9	Vert
15	954.544M	27.3	-27.2 +2.1	+25.0 +0.4	+5.9	+1.6	+0.0	35.1	46.0	-10.9	Vert

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA. 98021 • 1-800-500-4EMC		
Customer:	**Ossia, Inc.**		
Specification:	**15.109 Radiated Emissions Class B**		
Work Order #:	**102446**	Date:	4/6/2019
Test Type:	**Radiated Scan**	Time:	09:05:10
Tested By:	Matthew Harrison	Sequence#:	11
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

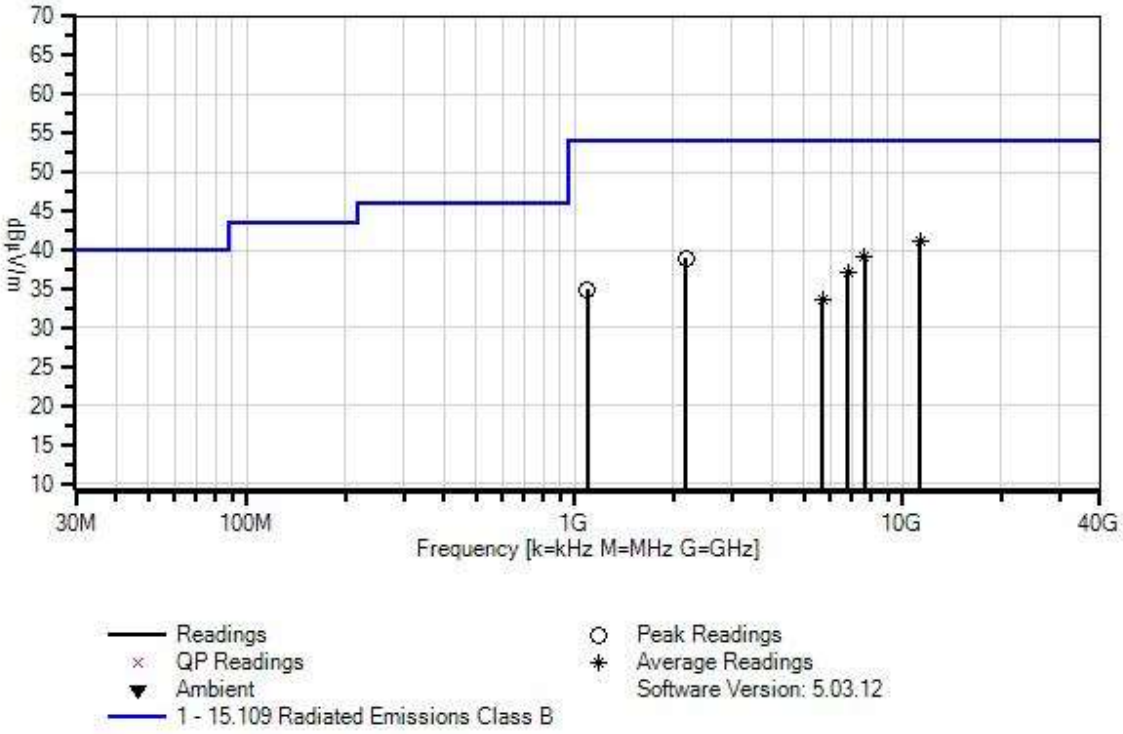
Test Conditions / Notes:

Temperature: 20-21°C
Pressure: 101.8kPa
Humidity: 28%
Frequency: 1-13GHz

Test Method: ANSI 63.4 (2014)

All radios are in standby or RX mode and battery is charging.
The EUT is investigated in X, Y, & Z Axis with only the worst case reported.
Vertical and Horizontal polarities investigated.

Ossia, Inc. WO#: 102446 Sequence#: 11 Date: 4/6/2019
15.109 Radiated Emissions Class B Test Distance: 3 Meters Vert & Horz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06540	Cable	Heliax	10/30/2017	10/30/2019
T2	AN02871	Spectrum Analyzer	E4440A	1/9/2019	1/9/2021
T3	AN03540	Preamp	83017A	3/25/2019	3/25/2021
T4	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/21/2017	7/21/2019
T5	ANP06503	Cable	32026-29801-29801-36	3/13/2018	3/13/2020
T6	ANP06515	Cable	Heliax	6/29/2018	6/29/2020

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	11320.000 M Ave	26.9	+0.9 +2.9	+0.0 +6.5	-34.6	+38.6	+0.0	41.2	54.0	-12.8	Vert
^	11320.000 M	39.0	+0.9 +2.9	+0.0 +6.5	-34.6	+38.6	+0.0	53.3	54.0	-0.7	Vert
3	7660.000M Ave	28.1	+1.1 +2.3	+0.0 +5.6	-35.0	+36.9	+0.0	39.0	54.0	-15.0	Vert
^	7660.000M	38.5	+1.1 +2.3	+0.0 +5.6	-35.0	+36.9	+0.0	49.4	54.0	-4.6	Vert
5	2175.000M	41.3	+0.4 +0.9	+0.0 +2.4	-34.3	+28.2	+0.0	38.9	54.0	-15.1	Vert
6	6796.000M Ave	27.5	+0.6 +2.0	+0.0 +5.4	-34.1	+35.6	+0.0	37.0	54.0	-17.0	Horiz
^	6796.000M	40.7	+0.6 +2.0	+0.0 +5.4	-34.1	+35.6	+0.0	50.2	54.0	-3.8	Horiz
8	1095.000M	44.4	+0.4 +0.5	+0.0 +1.8	-36.4	+24.2	+0.0	34.9	54.0	-19.1	Horiz
9	5680.000M Ave	25.6	+0.7 +1.8	+0.0 +4.5	-33.5	+34.5	+0.0	33.6	54.0	-20.4	Horiz
^	5680.000M	38.0	+0.7 +1.8	+0.0 +4.5	-33.5	+34.5	+0.0	46.0	54.0	-8.0	Horiz

Test Setup Photo(s)

Below 1GHz

Above 1GHz

X-Axis

Y-Axis


OSSO
Thoroughly Tested
MOLD RESISTANT
RIGID INSULATION
04.05.2010 12:50

Z-Axis

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.