Aalberg Audio

EMC TEST REPORT FOR

Wireless Guitar Equipment
Models: EKKO EK-1 and AERO AE-1

Tested To The Following Standards:

FCC Part 15 Subpart C Sections
15.207 & 15.249

Report No.: 96887-5

Date of issue: August 11, 2015

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

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 EMC 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.

Testing the Future
CKC LABORATORIES, INC.

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Aalberg Audio
Postboks 645
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REPRESENTATIVE: Rune Aalberg Alstad

REPORT PREPARED BY:

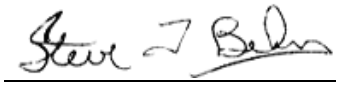
Terri Rayle
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 96887

DATE OF EQUIPMENT RECEIPT: August 4, 2015
DATE(S) OF TESTING: August 4-5, 2015

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment 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.
110 Olinda Place
Brea, CA 92823

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.02.00
EMITest Immunity	5.02.00

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Brea D	US0060	SL2-IN-E-1146R	3082D-2	100638	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C

Test Procedure	Description	Modifications	Results
15.207	AC Conducted Emissions	NA	Pass
15.215(c)	-20dB Bandwidth	NA	Pass
15.249(a)	Field Strength of Fundamental	NA	Pass
15.31(e)	Voltage Variation	NA	Pass
15.249(a)&(d)	Field Strength of Spurious Emissions / Band Edge	NA	Pass

NA = Not applicable.

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)

The following model has been tested by CKC Laboratories: **Wireless Guitar Equipment**
Models: EKKO EK-1
AERO AE-1

The manufacturer states that the following additional models are identical electrically to the one which was tested, or any differences between them do not affect their EMC characteristics, and therefore they meet the level of testing equivalent to the tested models**.**

ROM RO-1
TRYM TR-1
KOR KO-1
FLNG FL-1

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
Wireless Guitar Equipment	Aalberg Audio	EKKO EK-1	1510010033

Support Equipment:

Device	Manufacturer	Model #	S/N
Power Supply	Xantrex	XTS 30-2X	58738

Configuration 2

Equipment Tested:

Device	Manufacturer	Model #	S/N
Wireless Guitar Equipment	Aalberg Audio	AERO AE-1	1510020051

Support Equipment:

Device	Manufacturer	Model #	S/N
USB charger	Generic	TGR-025	8110 123 0176

Configuration 3

Equipment Tested:

Device	Manufacturer	Model #	S/N
Wireless Guitar Equipment	Aalberg Audio	AERO AE-1	1510020051

Support Equipment:

Device	Manufacturer	Model #	S/N
USB charger	Samsung	EP-TA20JWE	R37G2EZOML1RT3

FCC PART 15 SUBPART C

15.207 AC Conducted Emissions

Test Data

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	**Aalberg Audio**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**96887**	Date:	8/5/2015
Test Type:	**Conducted Emissions**	Time:	1:28:21 PM
Tested By:	Don Nguyen	Sequence#:	2
Software:	EMITest 5.02.00		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed flat on the wooden table as intended in normal application.
All I/O ports of the EUT are connected to section of unterminated 1/4" TRS audio cables.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is powered by 9V power supply.
The manufacturer declares that the EUT is not marketed with power supply.

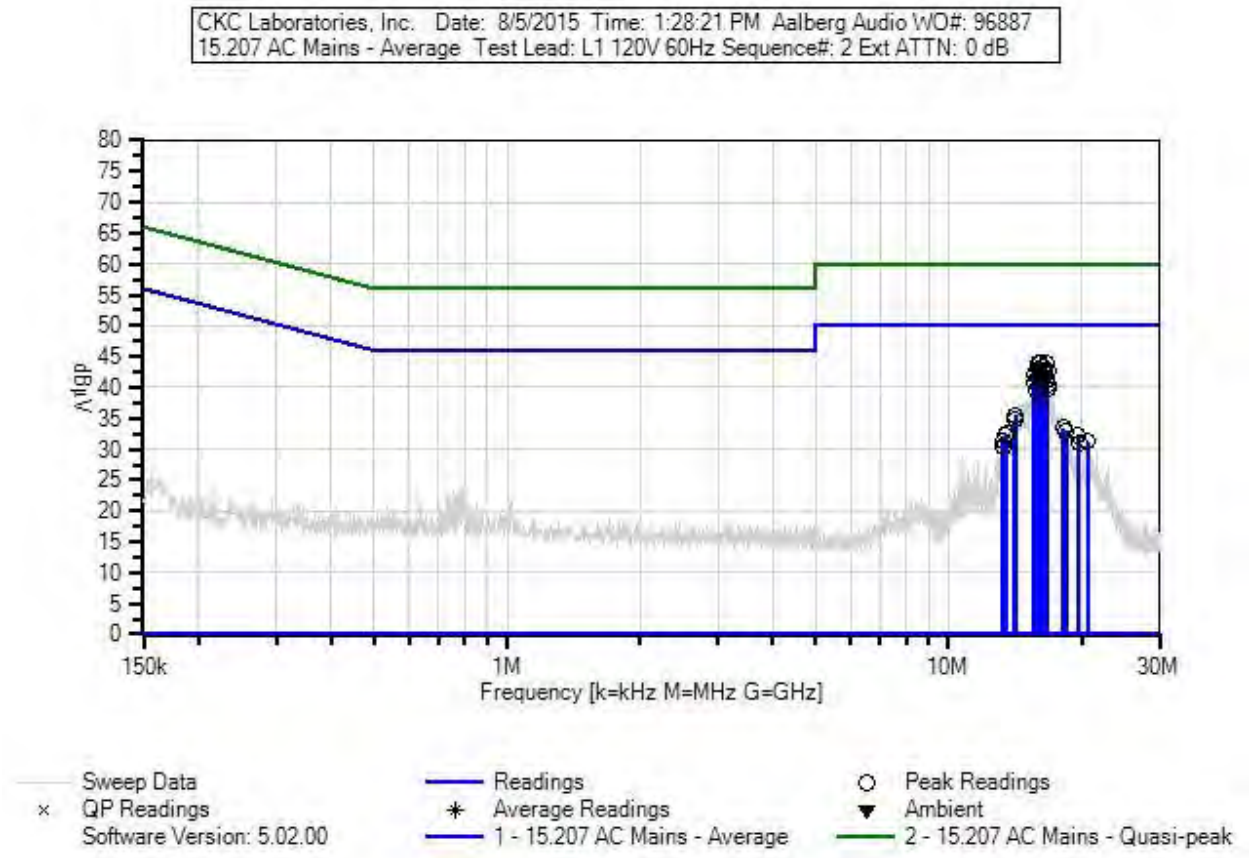
Operating frequency = 2.400-2.4835 GHz
Low CH (2.402GHz), Middle CH (2.440GHz) , High CH (2.480GHz)
The EUT is set to continuously transmit at low CH 2.402GHz

Frequency range of measurement = 150kHz-30MHz
0.15MHz to 30MHz RBW=VBW=9kHz

Test environment conditions:
Temperature: 25°C
Relative Humidity: 47%
Pressure: 100kPa

Site D
Test Method: ANSI C63.4 (2009)

Data represents worst case emission.


CKC Laboratories, Inc. Date: 8/5/2015 Time: 1:28:21 PM Aalberg Audio WO#: 96887
15.207 AC Mains - Average Test Lead: L1 120V 60Hz Sequence#: 2 Ext ATTN: 0 dB
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
QP Readings
Software Version: 5.02.00
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01910	Cable	RG-142	1/8/2014	1/8/2016
T2	AN00969A	50uH LISN-Line 1 (L1) (dB)	3816/2NM	3/12/2015	3/12/2017
	AN00969A	50uH LISN-Line 2 (L2) (dB)	3816/2NM	3/12/2015	3/12/2017
	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016
T3	AN02343	High Pass Filter	HE9615-150K-50-720B	1/8/2015	1/8/2017
T4	ANP06084	Attenuator	SA18N10W-06	12/17/2014	12/17/2016

Measurement Data: Reading listed by margin. Test Lead: L1

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	16.094M	37.3	+0.3	+0.5	+0.2	+5.7	+0.0	44.0	50.0	-6.0	L1
2	15.977M	37.1	+0.3	+0.5	+0.2	+5.7	+0.0	43.8	50.0	-6.2	L1
3	16.625M	37.1	+0.3	+0.5	+0.2	+5.7	+0.0	43.8	50.0	-6.2	L1
4	16.373M	36.5	+0.3	+0.5	+0.2	+5.7	+0.0	43.2	50.0	-6.8	L1
5	15.932M	36.2	+0.3	+0.5	+0.2	+5.7	+0.0	42.9	50.0	-7.1	L1
6	16.319M	35.9	+0.3	+0.5	+0.2	+5.7	+0.0	42.6	50.0	-7.4	L1
7	16.544M	35.9	+0.3	+0.5	+0.2	+5.7	+0.0	42.6	50.0	-7.4	L1
8	16.725M	35.9	+0.3	+0.5	+0.2	+5.7	+0.0	42.6	50.0	-7.4	L1
9	16.202M	35.6	+0.3	+0.5	+0.2	+5.7	+0.0	42.3	50.0	-7.7	L1
10	15.616M	35.3	+0.3	+0.5	+0.2	+5.7	+0.0	42.0	50.0	-8.0	L1
11	15.959M	35.1	+0.3	+0.5	+0.2	+5.7	+0.0	41.8	50.0	-8.2	L1
12	16.337M	34.8	+0.3	+0.5	+0.2	+5.7	+0.0	41.5	50.0	-8.5	L1
13	16.274M	34.4	+0.3	+0.5	+0.2	+5.7	+0.0	41.1	50.0	-8.9	L1
14	16.598M	34.3	+0.3	+0.5	+0.2	+5.7	+0.0	41.0	50.0	-9.0	L1
15	15.688M	34.0	+0.3	+0.5	+0.2	+5.7	+0.0	40.7	50.0	-9.3	L1
16	16.770M	33.8	+0.3	+0.5	+0.2	+5.7	+0.0	40.5	50.0	-9.5	L1
17	16.743M	33.1	+0.3	+0.5	+0.2	+5.7	+0.0	39.8	50.0	-10.2	L1
18	15.743M	32.8	+0.3	+0.5	+0.2	+5.7	+0.0	39.5	50.0	-10.5	L1

19	16.166M	32.0	+0.3	+0.5	+0.2	+5.7	+0.0	38.7	50.0	-11.3	L1
20	14.139M	29.0	+0.3	+0.4	+0.1	+5.7	+0.0	35.5	50.0	-14.5	L1
21	14.121M	28.2	+0.3	+0.4	+0.1	+5.7	+0.0	34.7	50.0	-15.3	L1
22	18.175M	26.6	+0.4	+0.6	+0.2	+5.7	+0.0	33.5	50.0	-16.5	L1
23	18.472M	26.0	+0.4	+0.6	+0.2	+5.7	+0.0	32.9	50.0	-17.1	L1
24	13.571M	26.0	+0.3	+0.4	+0.1	+5.7	+0.0	32.5	50.0	-17.5	L1
25	19.625M	25.3	+0.4	+0.6	+0.2	+5.7	+0.0	32.2	50.0	-17.8	L1
26	13.409M	25.6	+0.3	+0.4	+0.1	+5.7	+0.0	32.1	50.0	-17.9	L1
27	13.292M	24.8	+0.3	+0.4	+0.1	+5.7	+0.0	31.3	50.0	-18.7	L1
28	20.643M	24.3	+0.4	+0.7	+0.2	+5.7	+0.0	31.3	50.0	-18.7	L1
29	19.688M	24.1	+0.4	+0.6	+0.2	+5.7	+0.0	31.0	50.0	-19.0	L1
30	13.238M	24.0	+0.3	+0.4	+0.1	+5.7	+0.0	30.5	50.0	-19.5	L1

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	**Aalberg Audio**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**96887**	Date:	8/5/2015
Test Type:	**Conducted Emissions**	Time:	1:31:35 PM
Tested By:	Don Nguyen	Sequence#:	3
Software:	EMITest 5.02.00		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed flat on the wooden table as intended in normal application.
All I/O ports of the EUT are connected to section of unterminated 1/4" TRS audio cables.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is powered by 9V power supply.
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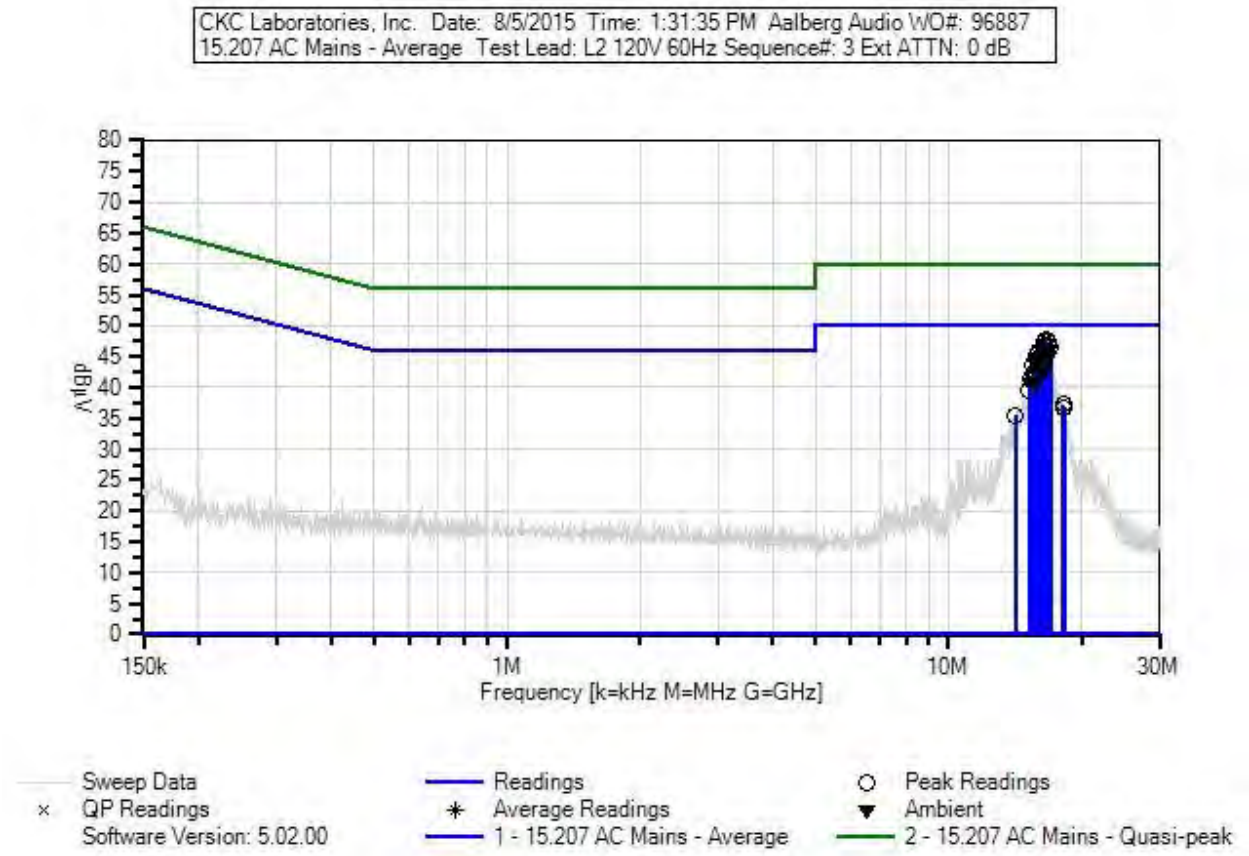
Low CH (2.402GHz), Middle CH (2.440GHz), High CH (2.480GHz)
The EUT is set to continuously transmit at low CH 2.402GHz

Frequency range of measurement = 150kHz-30MHz
0.15MHz to 30MHz RBW=VBW=9kHz

Test environment conditions:
Temperature: 25°C
Relative Humidity: 47%
Pressure: 100kPa

Site D Test Method: ANSI C63.4 (2009)

Data represents worst case emission.


CKC Laboratories, Inc. Date: 8/5/2015 Time: 1:31:35 PM Aalberg Audio WO#: 96887
15.207 AC Mains - Average Test Lead: L2 120V 60Hz Sequence#: 3 Ext ATTN: 0 dB
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
QP Readings
Software Version: 5.02.00
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01910	Cable	RG-142	1/8/2014	1/8/2016
	AN00969A	50uH LISN-Line 1 (L1) (dB)	3816/2NM	3/12/2015	3/12/2017
T2	AN00969A	50uH LISN-Line 2 (L2) (dB)	3816/2NM	3/12/2015	3/12/2017
	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016
T3	AN02343	High Pass Filter	HE9615-150K-50-720B	1/8/2015	1/8/2017
T4	ANP06084	Attenuator	SA18N10W-06	12/17/2014	12/17/2016

Measurement Data: Reading listed by margin. Test Lead: L2

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	16.553M	41.0	+0.3	+0.6	+0.2	+5.7	+0.0	47.8	50.0	-2.2	L2
2	16.382M	40.6	+0.3	+0.6	+0.2	+5.7	+0.0	47.4	50.0	-2.6	L2
3	16.824M	40.6	+0.3	+0.6	+0.2	+5.7	+0.0	47.4	50.0	-2.6	L2
4	16.869M	40.1	+0.3	+0.6	+0.2	+5.7	+0.0	46.9	50.0	-3.1	L2
5	16.472M	39.9	+0.3	+0.6	+0.2	+5.7	+0.0	46.7	50.0	-3.3	L2
6	17.004M	39.6	+0.3	+0.6	+0.2	+5.7	+0.0	46.4	50.0	-3.6	L2
7	16.427M	39.5	+0.3	+0.6	+0.2	+5.7	+0.0	46.3	50.0	-3.7	L2
8	15.950M	39.0	+0.3	+0.6	+0.2	+5.7	+0.0	45.8	50.0	-4.2	L2
9	16.643M	38.7	+0.3	+0.6	+0.2	+5.7	+0.0	45.5	50.0	-4.5	L2
10	15.878M	38.5	+0.3	+0.6	+0.2	+5.7	+0.0	45.3	50.0	-4.7	L2
11	16.625M	38.4	+0.3	+0.6	+0.2	+5.7	+0.0	45.2	50.0	-4.8	L2
12	16.310M	38.3	+0.3	+0.6	+0.2	+5.7	+0.0	45.1	50.0	-4.9	L2
13	16.103M	38.1	+0.3	+0.6	+0.2	+5.7	+0.0	44.9	50.0	-5.1	L2
14	15.770M	38.0	+0.3	+0.5	+0.2	+5.7	+0.0	44.7	50.0	-5.3	L2
15	16.238M	37.6	+0.3	+0.6	+0.2	+5.7	+0.0	44.4	50.0	-5.6	L2
16	15.517M	36.8	+0.3	+0.5	+0.2	+5.7	+0.0	43.5	50.0	-6.5	L2
17	16.220M	36.7	+0.3	+0.6	+0.2	+5.7	+0.0	43.5	50.0	-6.5	L2
18	16.013M	36.6	+0.3	+0.6	+0.2	+5.7	+0.0	43.4	50.0	-6.6	L2

19	16.130M	36.0	+0.3	+0.6	+0.2	+5.7	+0.0	42.8	50.0	-7.2	L2
20	15.697M	35.8	+0.3	+0.5	+0.2	+5.7	+0.0	42.5	50.0	-7.5	L2
21	15.842M	35.5	+0.3	+0.6	+0.2	+5.7	+0.0	42.3	50.0	-7.7	L2
22	15.652M	35.2	+0.3	+0.5	+0.2	+5.7	+0.0	41.9	50.0	-8.1	L2
23	15.580M	35.0	+0.3	+0.5	+0.2	+5.7	+0.0	41.7	50.0	-8.3	L2
24	15.310M	34.7	+0.3	+0.5	+0.2	+5.7	+0.0	41.4	50.0	-8.6	L2
25	15.634M	34.7	+0.3	+0.5	+0.2	+5.7	+0.0	41.4	50.0	-8.6	L2
26	15.562M	34.4	+0.3	+0.5	+0.2	+5.7	+0.0	41.1	50.0	-8.9	L2
27	15.184M	32.7	+0.3	+0.5	+0.2	+5.7	+0.0	39.4	50.0	-10.6	L2
28	18.193M	30.3	+0.4	+0.6	+0.2	+5.7	+0.0	37.2	50.0	-12.8	L2
29	18.274M	29.8	+0.4	+0.7	+0.2	+5.7	+0.0	36.8	50.0	-13.2	L2
30	14.193M	28.8	+0.3	+0.5	+0.2	+5.7	+0.0	35.5	50.0	-14.5	L2

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	**Aalberg Audio**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**96887**	Date:	8/5/2015
Test Type:	**Conducted Emissions**	Time:	13:58:13
Tested By:	Don Nguyen	Sequence#:	6
Software:	EMITest 5.02.00		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

The EUT is placed flat on the wooden table as intended in normal application.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is charged from support USB charger. When charging, the EUT can still transmit.
The manufacturer declares that the EUT is not marketed with power supply.

Operating frequency = 2.400-2.4835 GHz
Low CH (2.402GHz), Middle CH (2.440GHz), High CH (2.480GHz)
The EUT is set to continuously transmit at low CH 2.402GHz

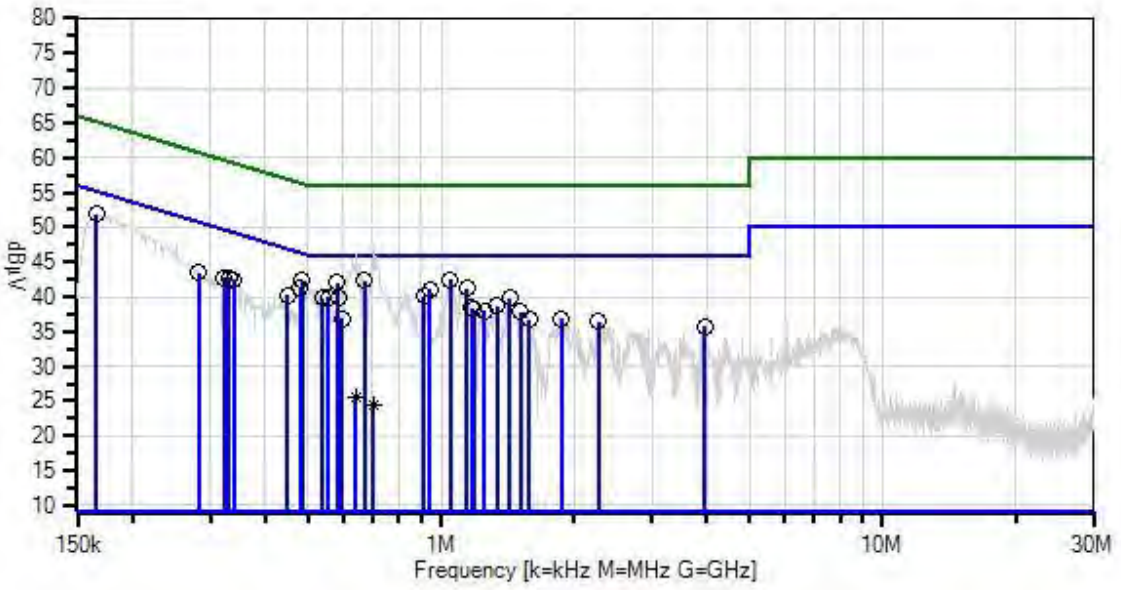
Frequency range of measurement = 150kHz-30MHz
0.15MHz to 30MHz RBW=VBW=9kHz

Test environment conditions:
Temperature: 25°C
Relative Humidity: 45%
Pressure: 100kPa

Site D Test Method: ANSI C63.4 (2009)

Data represents worst case emission.

CKC Laboratories, Inc. Date: 8/5/2015 Time: 13:58:13 Aalberg Audio WO#: 96887
15.207 AC Mains - Average Test Lead: L1 120V 60Hz Sequence#: 6 Ext ATTN: 0 dB



Sweep Data
× QP Readings
Software Version: 5.02.00
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01910	Cable	RG-142	1/8/2014	1/8/2016
T2	AN00969A	50uH LISN-Line 1 (L1) (dB)	3816/2NM	3/12/2015	3/12/2017
	AN00969A	50uH LISN-Line 2 (L2) (dB)	3816/2NM	3/12/2015	3/12/2017
	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016
T3	AN02343	High Pass Filter	HE9615-150K-50-720B	1/8/2015	1/8/2017
T4	ANP06084	Attenuator	SA18N10W-06	12/17/2014	12/17/2016

Measurement Data: Reading listed by margin. Test Lead: L1

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	165.998k	45.8	+0.0	+0.1	+0.3	+5.7	+0.0	51.9	55.2	-3.3	L1
2	1.052M	36.5	+0.0	+0.1	+0.1	+5.7	+0.0	42.4	46.0	-3.6	L1
3	671.406k	36.3	+0.0	+0.1	+0.2	+5.7	+0.0	42.3	46.0	-3.7	L1
4	484.514k	36.3	+0.0	+0.1	+0.2	+5.7	+0.0	42.3	46.3	-4.0	L1
5	581.233k	36.0	+0.0	+0.1	+0.2	+5.7	+0.0	42.0	46.0	-4.0	L1
6	1.141M	35.3	+0.0	+0.1	+0.1	+5.7	+0.0	41.2	46.0	-4.8	L1
7	480.151k	35.4	+0.0	+0.1	+0.2	+5.7	+0.0	41.4	46.3	-4.9	L1
8	940.995k	35.0	+0.0	+0.1	+0.1	+5.7	+0.0	40.9	46.0	-5.1	L1
9	915.479k	34.2	+0.0	+0.1	+0.1	+5.7	+0.0	40.1	46.0	-5.9	L1
10	584.141k	34.0	+0.0	+0.1	+0.2	+5.7	+0.0	40.0	46.0	-6.0	L1
11	554.326k	33.9	+0.0	+0.1	+0.2	+5.7	+0.0	39.9	46.0	-6.1	L1
12	537.600k	33.8	+0.0	+0.1	+0.2	+5.7	+0.0	39.8	46.0	-6.2	L1
13	1.430M	33.9	+0.0	+0.1	+0.1	+5.7	+0.0	39.8	46.0	-6.2	L1
14	449.608k	34.2	+0.0	+0.1	+0.2	+5.7	+0.0	40.2	46.9	-6.7	L1
15	331.074k	36.7	+0.0	+0.1	+0.2	+5.7	+0.0	42.7	49.4	-6.7	L1
16	339.800k	36.4	+0.0	+0.1	+0.2	+5.7	+0.0	42.4	49.2	-6.8	L1
17	322.347k	36.7	+0.0	+0.1	+0.2	+5.7	+0.0	42.7	49.6	-6.9	L1
18	283.078k	37.6	+0.0	+0.1	+0.1	+5.7	+0.0	43.5	50.7	-7.2	L1

19	1.336M	32.8	+0.0	+0.1	+0.1	+5.7	+0.0	38.7	46.0	-7.3	L1
20	1.171M	32.5	+0.0	+0.1	+0.1	+5.7	+0.0	38.4	46.0	-7.6	L1
21	1.183M	32.2	+0.0	+0.1	+0.1	+5.7	+0.0	38.1	46.0	-7.9	L1
22	1.256M	32.1	+0.0	+0.1	+0.1	+5.7	+0.0	38.0	46.0	-8.0	L1
23	1.515M	31.9	+0.1	+0.1	+0.1	+5.7	+0.0	37.9	46.0	-8.1	L1
24	1.872M	30.9	+0.1	+0.1	+0.1	+5.7	+0.0	36.9	46.0	-9.1	L1
25	595.050k	30.8	+0.0	+0.1	+0.2	+5.7	+0.0	36.8	46.0	-9.2	L1
26	1.587M	30.7	+0.1	+0.1	+0.1	+5.7	+0.0	36.7	46.0	-9.3	L1
27	2.276M	30.4	+0.1	+0.1	+0.1	+5.7	+0.0	36.4	46.0	-9.6	L1
28	3.948M	29.6	+0.2	+0.2	+0.1	+5.7	+0.0	35.8	46.0	-10.2	L1
29	640.864k Ave	19.5	+0.0	+0.1	+0.2	+5.7	+0.0	25.5	46.0	-20.5	L1
^	640.864k	40.2	+0.0	+0.1	+0.2	+5.7	+0.0	46.2	46.0	+0.2	L1
31	701.949k Ave	18.3	+0.0	+0.1	+0.2	+5.7	+0.0	24.3	46.0	-21.7	L1
^	701.949k	41.6	+0.0	+0.1	+0.2	+5.7	+0.0	47.6	46.0	+1.6	L1

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	**Aalberg Audio**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**96887**	Date:	8/5/2015
Test Type:	**Conducted Emissions**	Time:	14:02:28
Tested By:	Don Nguyen	Sequence#:	7
Software:	EMITest 5.02.00		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

The EUT is placed flat on the wooden table as intended in normal application.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is charged from support USB charger. When charging, the EUT can still transmit.
The manufacturer declares that the EUT is not marketed with power supply.

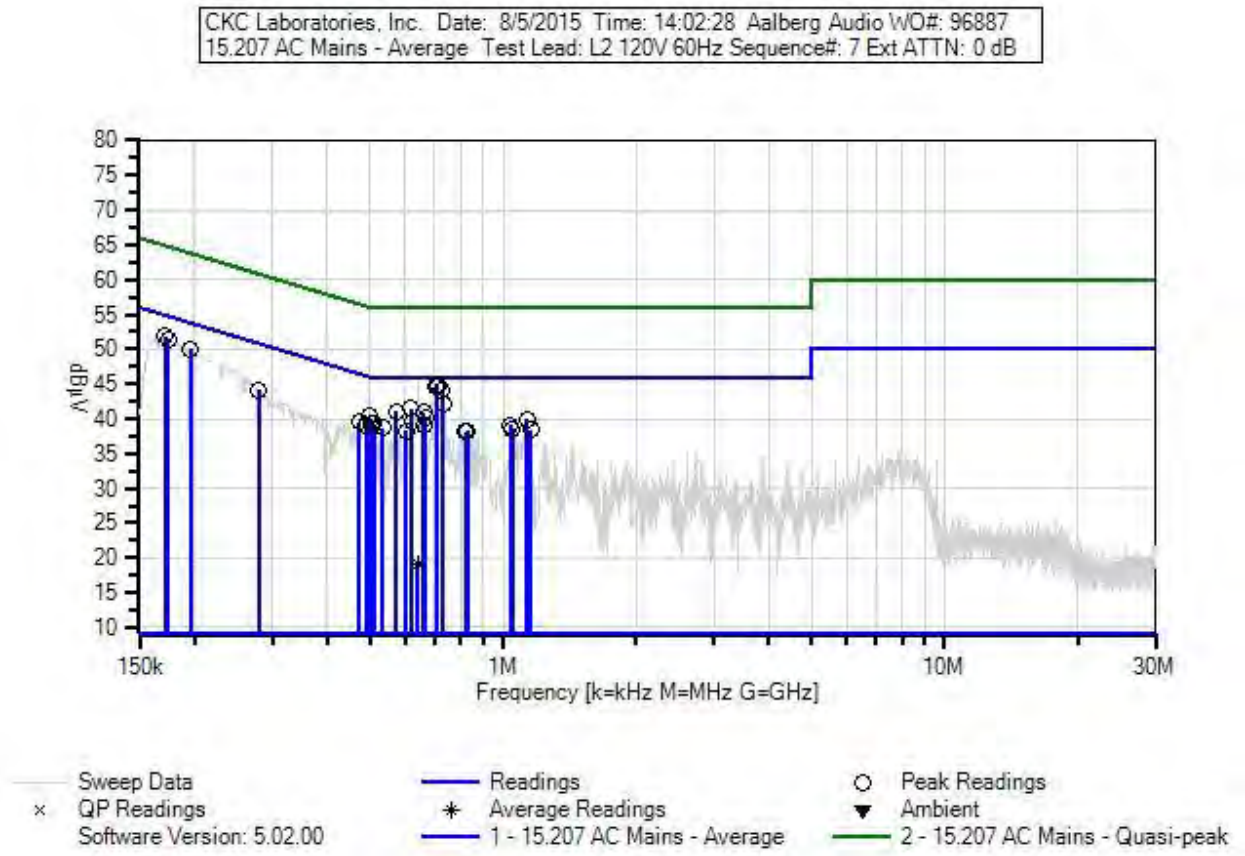
Operating frequency = 2.400-2.4835 GHz
Low CH (2.402GHz), Middle CH (2.440GHz), High CH (2.480GHz)
The EUT is set to continuously transmit at low CH 2.402GHz

Frequency range of measurement = 150kHz-30MHz
0.15MHz to 30MHz RBW=VBW=9kHz

Test environment conditions:
Temperature: 25°C
Relative Humidity: 45%
Pressure: 100kPa

Site D Test Method: ANSI C63.4 (2009)

Data represents worst case emission.


CKC Laboratories, Inc. Date: 8/5/2015 Time: 14:02:28 Aalberg Audio WO#: 96887
15.207 AC Mains - Average Test Lead: L2 120V 60Hz Sequence#: 7 Ext ATTN: 0 dB
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
dBµV
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.02.00
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01910	Cable	RG-142	1/8/2014	1/8/2016
	AN00969A	50uH LISN-Line 1 (L1) (dB)	3816/2NM	3/12/2015	3/12/2017
T2	AN00969A	50uH LISN-Line 2 (L2) (dB)	3816/2NM	3/12/2015	3/12/2017
	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016
T3	AN02343	High Pass Filter	HE9615-150K-50-720B	1/8/2015	1/8/2017
T4	ANP06084	Attenuator	SA18N10W-06	12/17/2014	12/17/2016

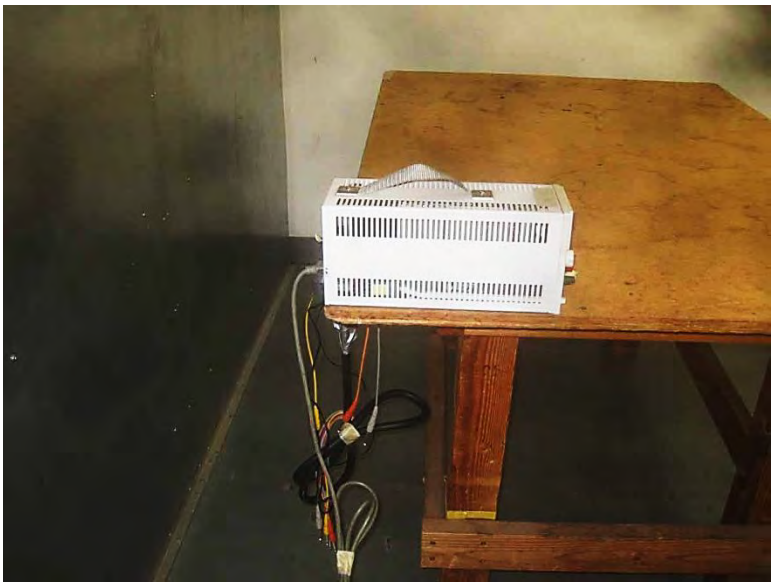
Measurement Data: Reading listed by margin. Test Lead: L2

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	710.675k	39.1	+0.0	+0.1	+0.1	+5.7	+0.0	45.0	46.0	-1.0	L2
2	706.312k	38.7	+0.0	+0.1	+0.2	+5.7	+0.0	44.7	46.0	-1.3	L2
3	707.767k	38.8	+0.0	+0.1	+0.1	+5.7	+0.0	44.7	46.0	-1.3	L2
4	726.674k	38.1	+0.0	+0.1	+0.1	+5.7	+0.0	44.0	46.0	-2.0	L2
5	171.816k	45.7	+0.0	+0.1	+0.3	+5.7	+0.0	51.8	54.9	-3.1	L2
6	173.997k	45.3	+0.0	+0.1	+0.3	+5.7	+0.0	51.4	54.8	-3.4	L2
7	195.813k	44.1	+0.0	+0.1	+0.1	+5.7	+0.0	50.0	53.8	-3.8	L2
8	730.310k	36.3	+0.0	+0.1	+0.1	+5.7	+0.0	42.2	46.0	-3.8	L2
9	618.320k	35.5	+0.0	+0.1	+0.2	+5.7	+0.0	41.5	46.0	-4.5	L2
10	572.506k	35.0	+0.0	+0.1	+0.2	+5.7	+0.0	41.0	46.0	-5.0	L2
11	659.044k	34.9	+0.0	+0.1	+0.2	+5.7	+0.0	40.9	46.0	-5.1	L2
12	496.877k	34.4	+0.0	+0.1	+0.2	+5.7	+0.0	40.4	46.1	-5.7	L2
13	667.770k	34.2	+0.0	+0.1	+0.2	+5.7	+0.0	40.2	46.0	-5.8	L2
14	1.132M	34.0	+0.0	+0.1	+0.1	+5.7	+0.0	39.9	46.0	-6.1	L2
15	619.775k	33.5	+0.0	+0.1	+0.2	+5.7	+0.0	39.5	46.0	-6.5	L2
16	279.442k	38.3	+0.0	+0.1	+0.1	+5.7	+0.0	44.2	50.8	-6.6	L2
17	504.876k	33.4	+0.0	+0.1	+0.2	+5.7	+0.0	39.4	46.0	-6.6	L2
18	508.512k	33.3	+0.0	+0.1	+0.2	+5.7	+0.0	39.3	46.0	-6.7	L2

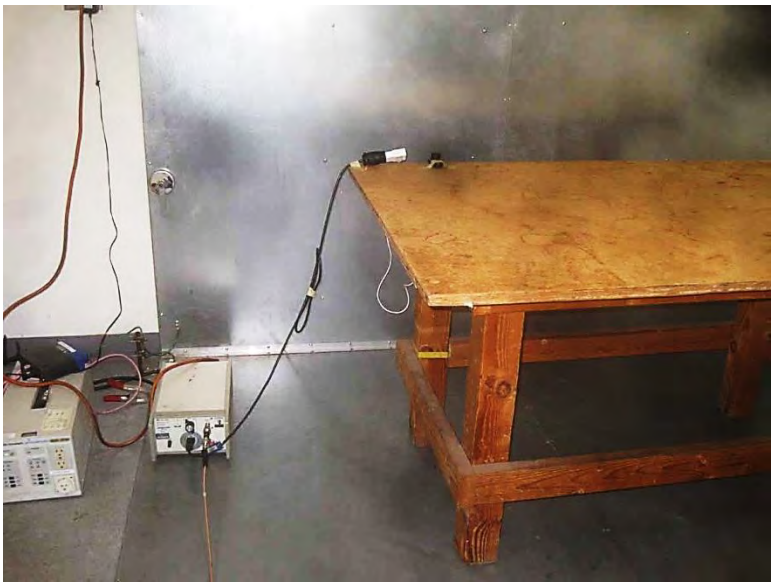
19	1.039M	33.2	+0.0	+0.1	+0.1	+5.7	+0.0	39.1	46.0	-6.9	L2
20	471.425k	33.5	+0.0	+0.1	+0.2	+5.7	+0.0	39.5	46.5	-7.0	L2
21	662.680k	32.9	+0.0	+0.1	+0.2	+5.7	+0.0	38.9	46.0	-7.1	L2
22	488.150k	32.9	+0.0	+0.1	+0.2	+5.7	+0.0	38.9	46.2	-7.3	L2
23	533.237k	32.7	+0.0	+0.1	+0.2	+5.7	+0.0	38.7	46.0	-7.3	L2
24	1.052M	32.7	+0.0	+0.1	+0.1	+5.7	+0.0	38.6	46.0	-7.4	L2
25	1.158M	32.5	+0.0	+0.1	+0.1	+5.7	+0.0	38.4	46.0	-7.6	L2
26	603.776k	32.2	+0.0	+0.1	+0.2	+5.7	+0.0	38.2	46.0	-7.8	L2
27	829.210k	32.3	+0.0	+0.1	+0.1	+5.7	+0.0	38.2	46.0	-7.8	L2
28	821.211k	32.2	+0.0	+0.1	+0.1	+5.7	+0.0	38.1	46.0	-7.9	L2
29	640.864k Ave	13.2	+0.0	+0.1	+0.2	+5.7	+0.0	19.2	46.0	-26.8	L2
^	640.864k	39.2	+0.0	+0.1	+0.2	+5.7	+0.0	45.2	46.0	-0.8	L2
^	643.045k	38.5	+0.0	+0.1	+0.2	+5.7	+0.0	44.5	46.0	-1.5	L2

Test Setup Photos

EKKO EK-1



EKKO EK-1



AERO AE-1

AERO AE-1

15.215(c) -20 dB Bandwidth

Test Conditions / Setup

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	Aalberg Audio		
Specification:	**-20dBc Occupied Bandwidth**		
Work Order #:	**96887**	Date:	8/4/2015
Test Type:	**Maximized Emissions**	Time:	10:37:53
Tested By:	Don Nguyen	Sequence#:	0
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
All I/O ports of the EUT are connected to section of unterminated 1/4" TRS audio cables.
The EUT is set in operational mode, exercising the intended functionalities.•
The EUT is powered by 9V power supply located on the ground plane. •
The manufacturer declares that the EUT is not marketed with power supply. •

The EUT is tested in three orthogonal axes. •••
Operating frequency = 2.400-2.4835 GHz••
Frequency range of measurement = Low CH (2.402GHz), Middle CH (2.440GHz), High CH (2.480GHz)•
RBW=1MHz, VBW=1MHz.•

Test environment conditions:
Temperature: 28°C
Relative Humidity: 51%
Pressure: 100kPa••

Site D• Test Method: ANSI C63.4 (2009)•

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T4	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T5	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T6	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	Aalberg Audio		
Specification:	**-20dBc Occupied Bandwidth**		
Work Order #:	**96887**	Date:	8/4/2015
Test Type:	**Maximized Emissions**	Time:	14:32:05
Tested By:	Don Nguyen	Sequence#:	1
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is charged from support USB charger. When charging, the EUT can still transmit. •
The manufacturer declares that the EUT is not marketed with power supply.

The EUT is tested in three orthogonal axes. •••
Operating frequency = 2.400-2.4835 GHz••
Frequency range of measurement = Low CH (2.402GHz), Middle CH (2.440GHz), High CH (2.480GHz)•
RBW=1MHz, VBW=1MHz•

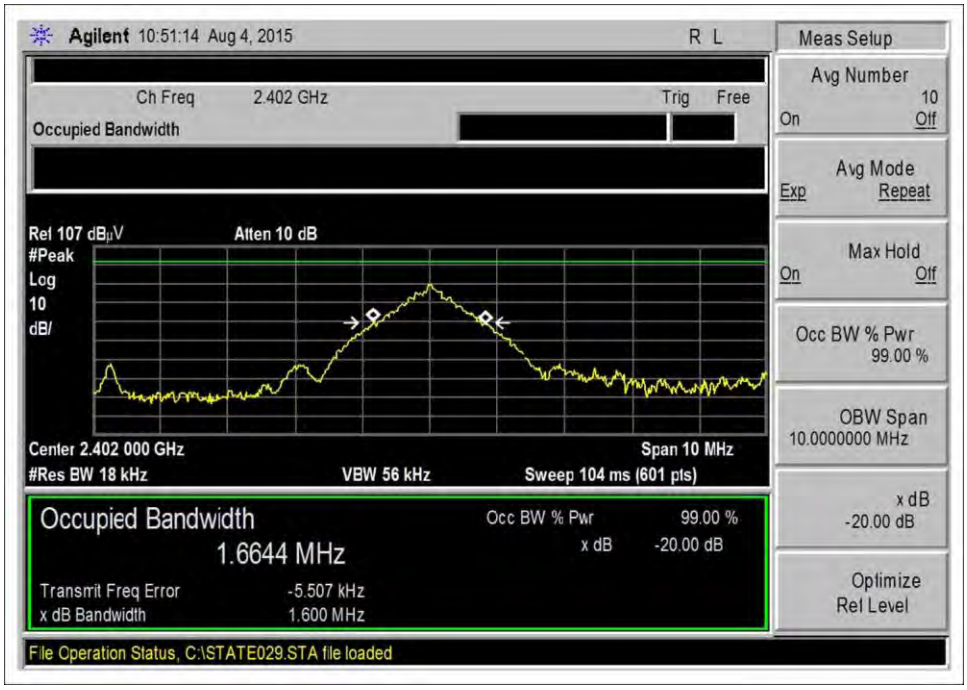
Test environment conditions:
Temperature: 29°C
Relative Humidity: 51%
Pressure: 100kPa••

Site D• Test Method: ANSI C63.4 (2009)•

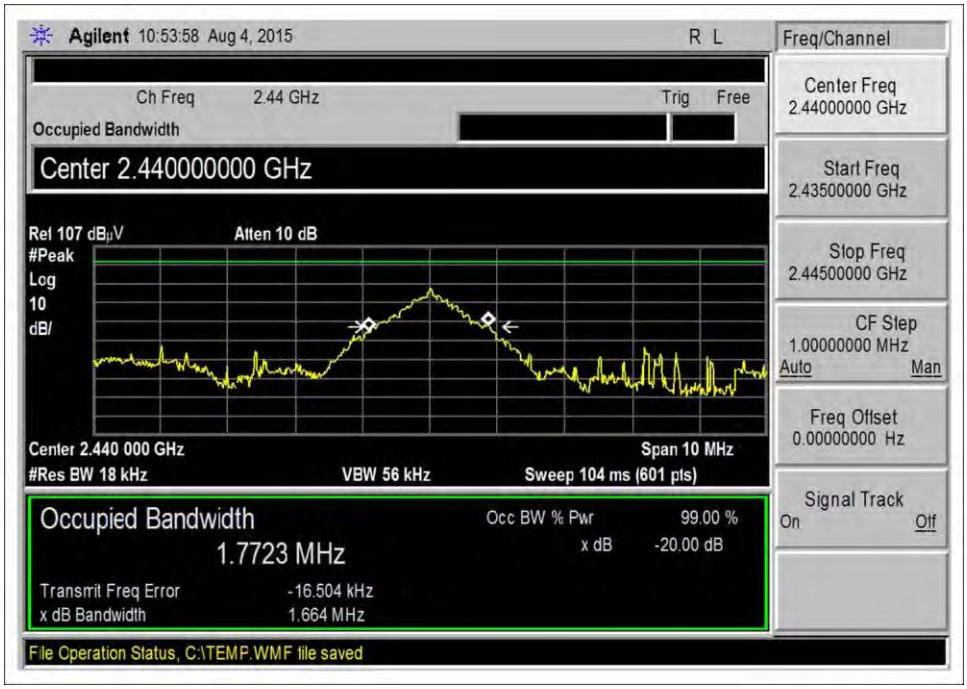
Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T4	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T5	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T6	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016

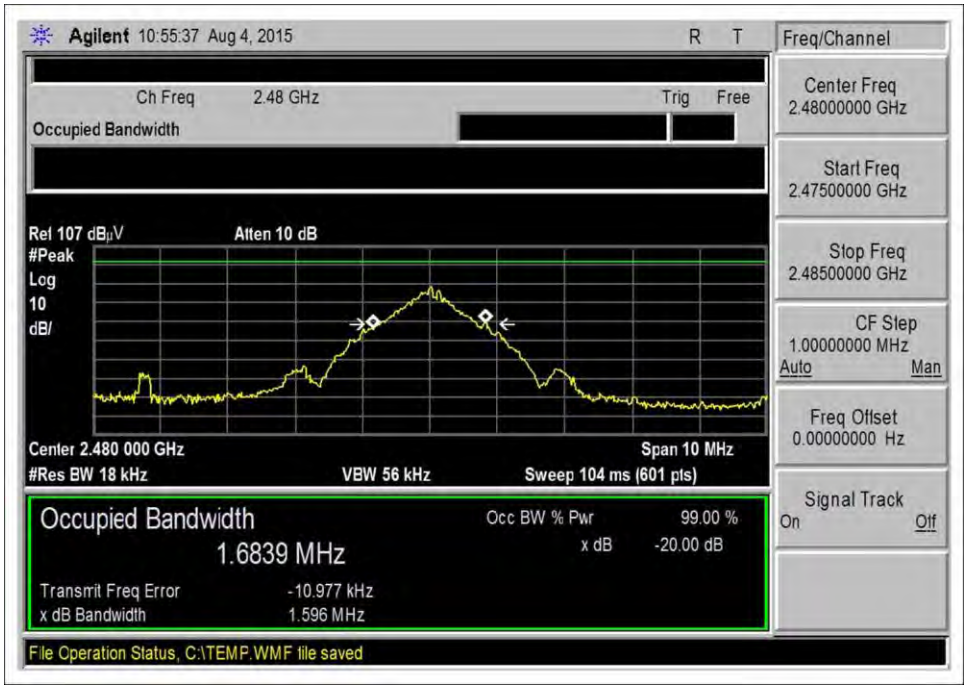
Plots



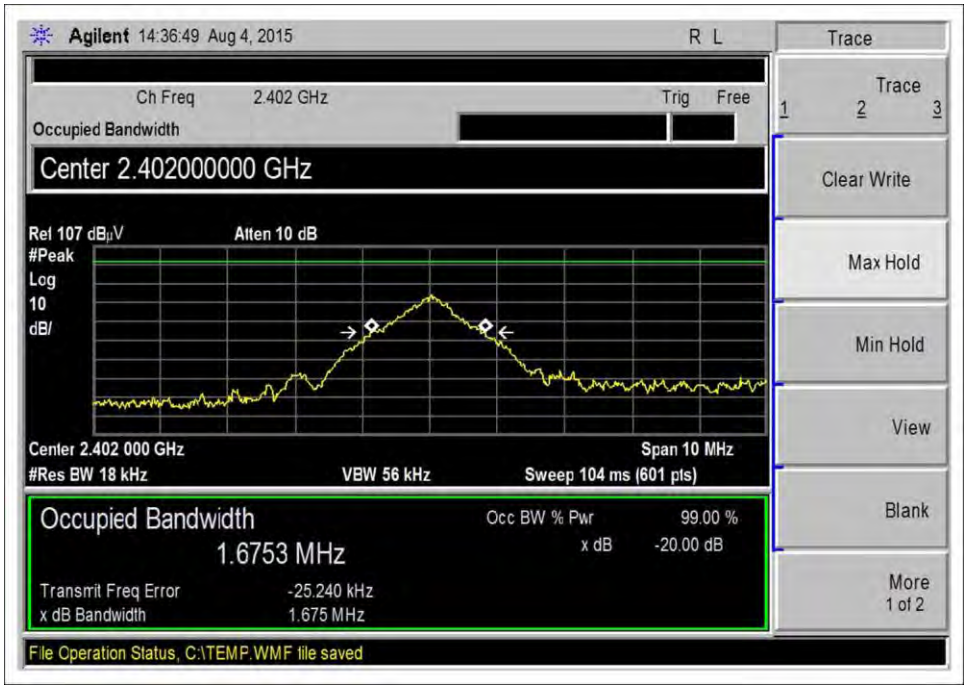
EKKO EK-1, Low Channel



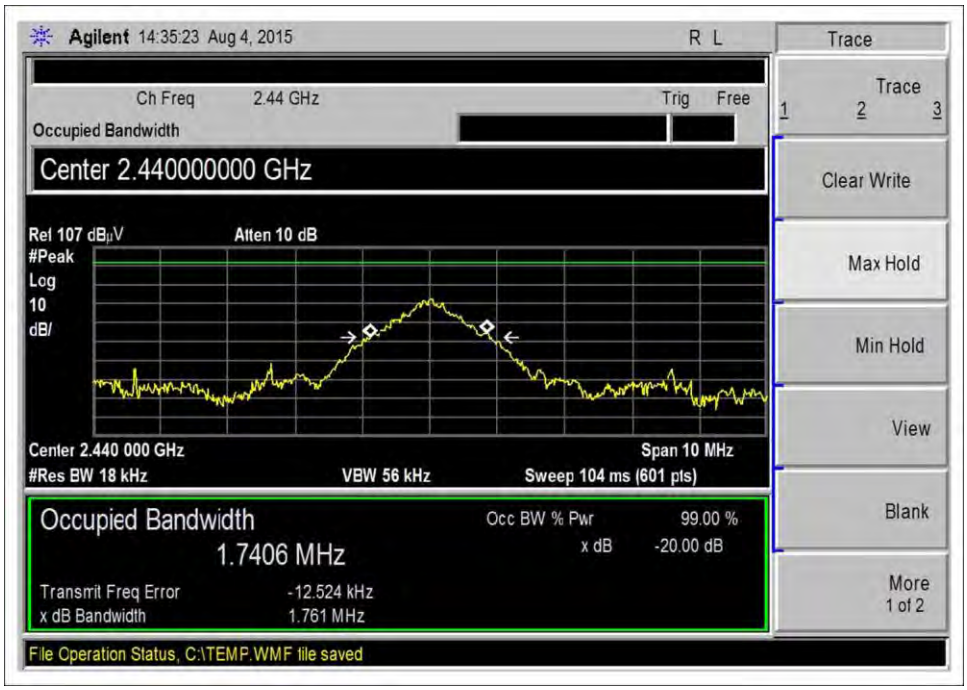
EKKO EK-1, Middle Channel



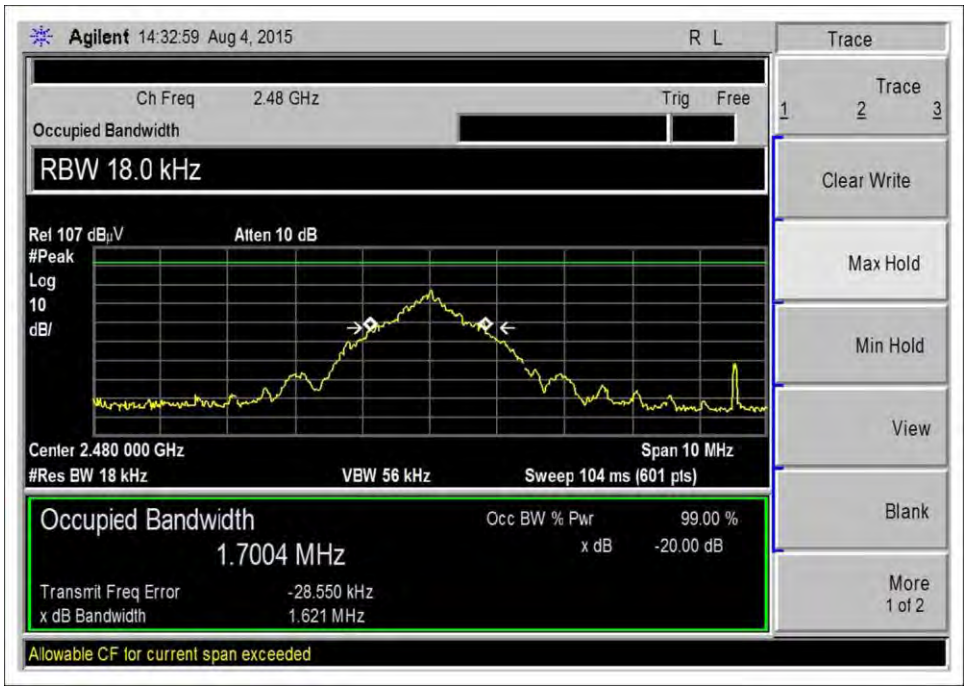
EKKO EK-1, High Channel



AERO AE-1, Low Channel

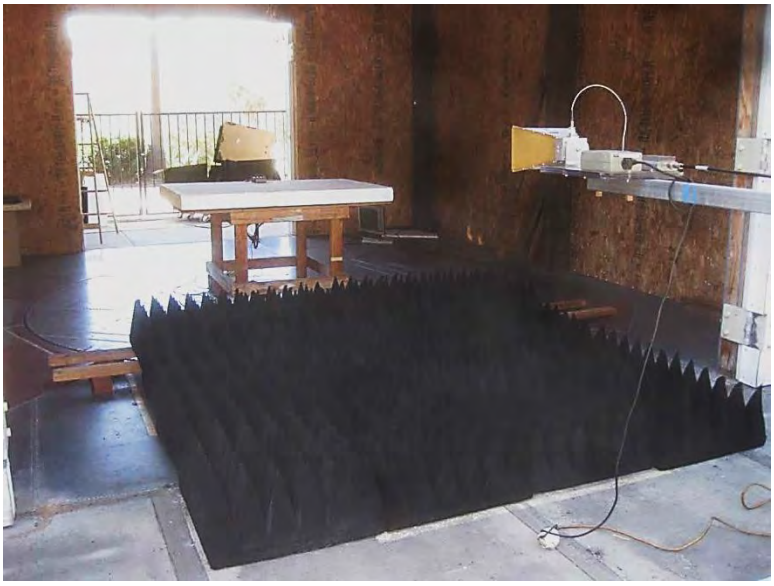


AERO AE-1, Middle Channel



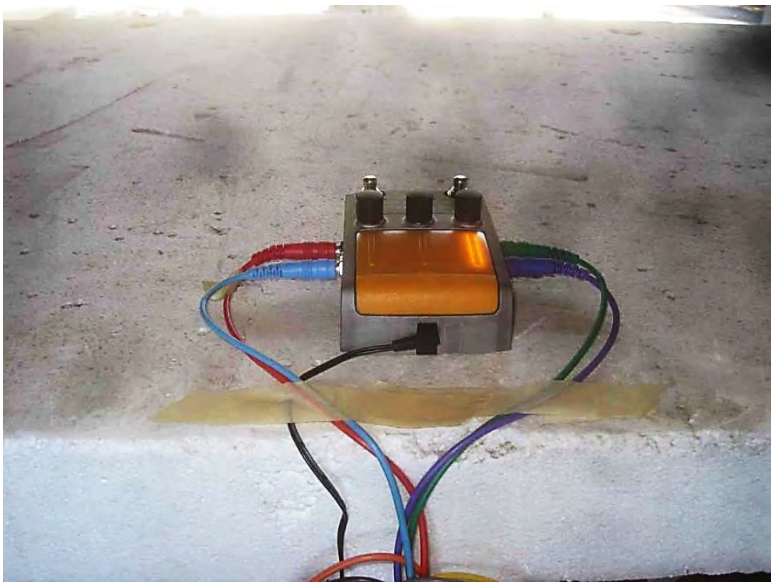
AERO AE-1, High Channel

Test Setup Photos

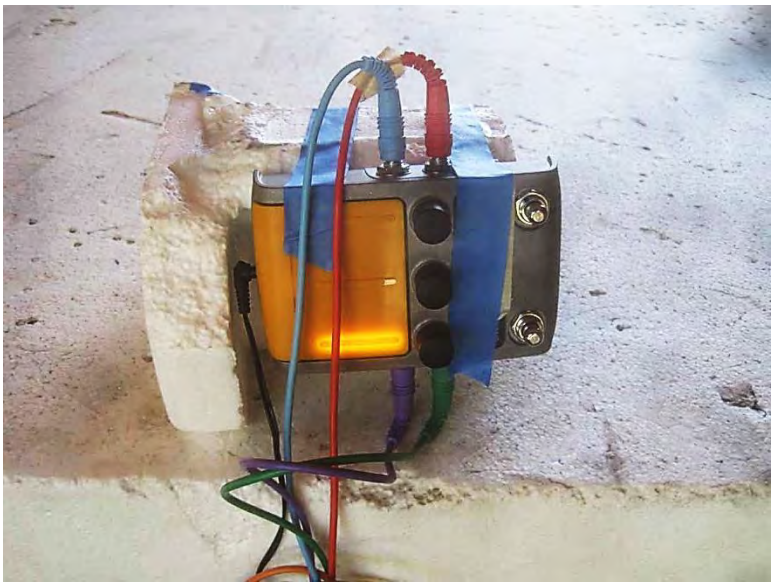


EKKO EK-1 Test Setup

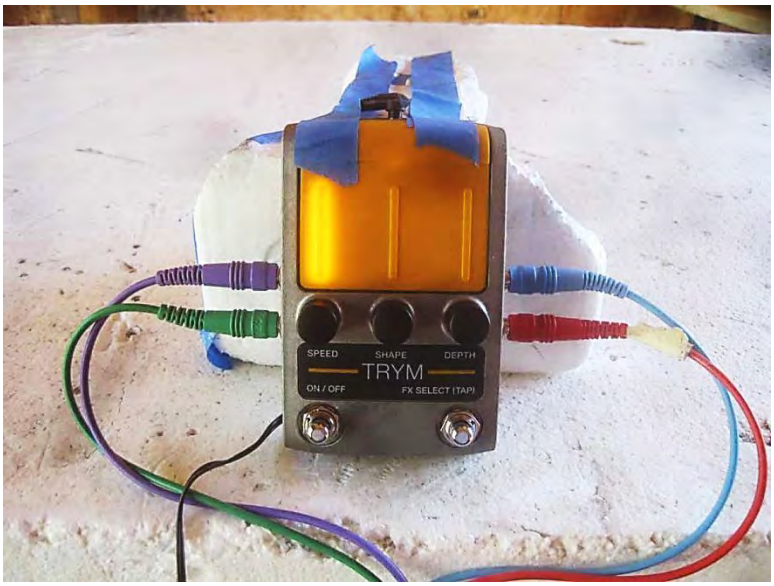
EKKO EK-1 Test Setup



EKKO EK-1, X axis



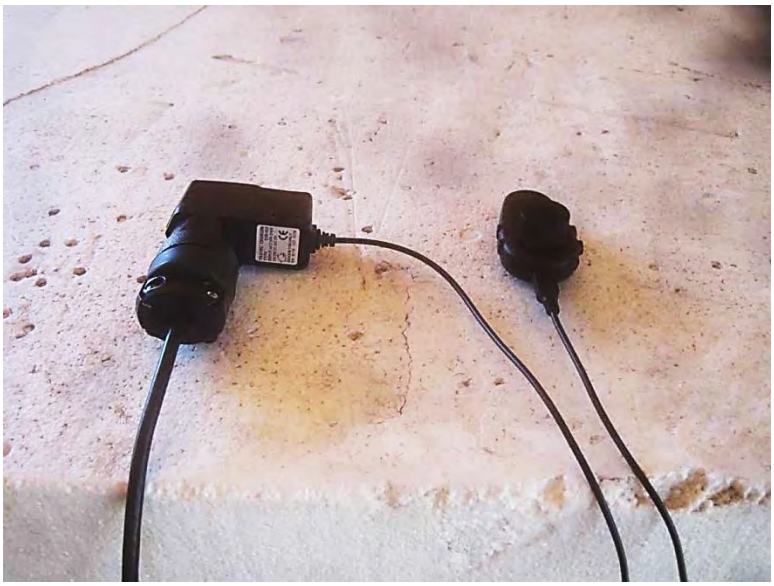
EKKO EK-1, Y axis



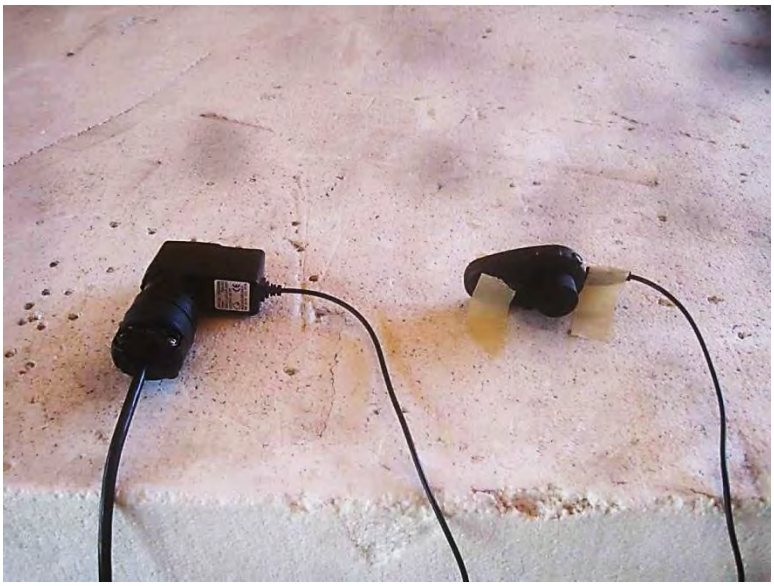
EKKO EK-1, Z axis

AERO AE-1 Test Setup

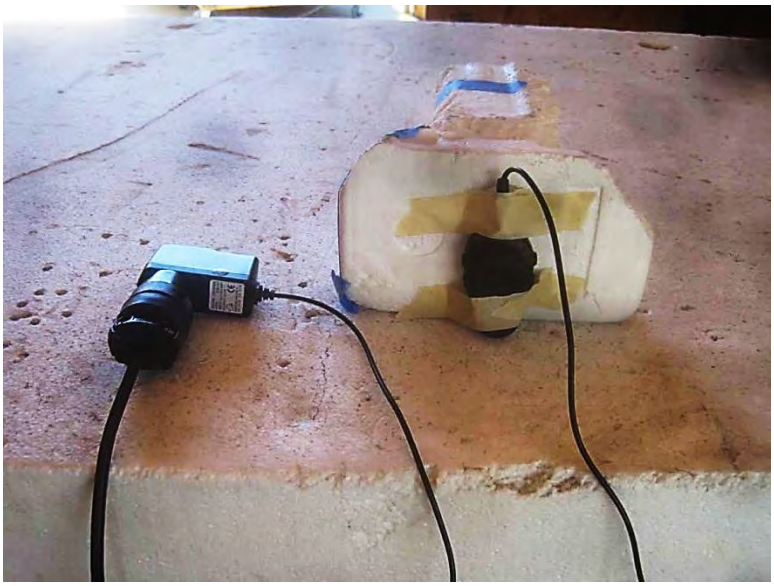
AERO AE-1 Test Setup



AERO AE-1, X axis



AERO AE-1, Y axis



AERO AE-1, Z axis

15.249(a) Field Strength of Fundamental

Test Conditions / Setup

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	**Aalberg Audio**		
Specification:	**15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**		
Work Order #:	**96887**	Date:	8/4/2015
Test Type:	**Maximized Emissions**	Time:	10:37:53
Tested By:	Don Nguyen	Sequence#:	0
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
All I/O ports of the EUT are connected to section of unterminated 1/4" TRS audio cables.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is powered by 9V power supply located on the ground plane.
The manufacturer declares that the EUT is not marketed with power supply.
The EUT is tested in three orthogonal axes.

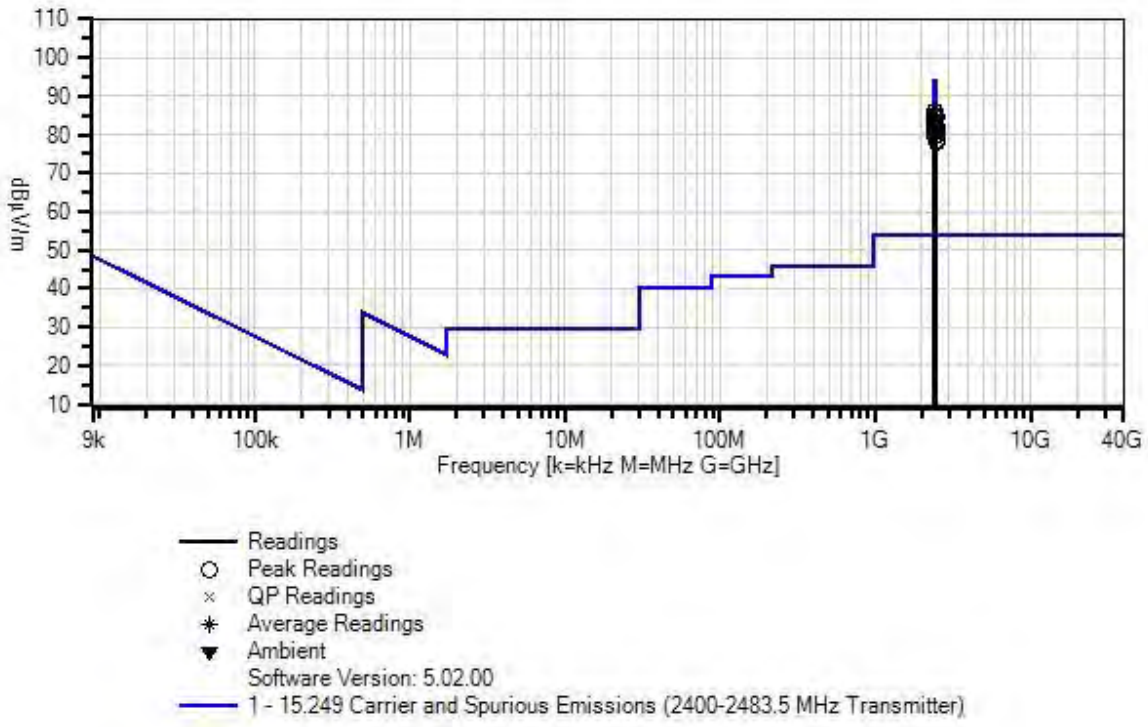
Operating frequency = 2.400-2.4835 GHz

Frequency range of measurement = Low CH (2.402GHz), Middle CH (2.440GHz) , High CH (2.480GHz)
RBW=1MHz, VBW=1MHz

Test environment conditions:
Temperature: 28°C
Relative Humidity: 51%
Pressure: 100kPa

Site D Test Method: ANSI C63.4 (2009)

CKC Laboratories, Inc. Date: 8/4/2015 Time: 10:37:53 Aalberg Audio WO#: 96887
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 0 Ext
ATTN: 0 dB



Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T4	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T5	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T6	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016

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	2402.000M	90.2	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	86.1	94.0 Z axis	-7.9	Horiz
2	2440.000M	89.3	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	85.2	94.0 Z axis	-8.8	Horiz
3	2402.000M	88.6	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	84.5	94.0 Y axis	-9.5	Vert
4	2480.000M	88.4	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	84.5	94.0 Z axis	-9.5	Horiz
5	2402.000M	87.9	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	83.8	94.0 Y axis	-10.2	Horiz
6	2402.000M	87.5	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	83.4	94.0 X axis	-10.6	Horiz
7	2402.000M	87.0	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	82.9	94.0 X axis	-11.1	Vert
8	2440.000M	86.5	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	82.4	94.0 X axis	-11.6	Vert
9	2440.000M	86.3	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	82.2	94.0 Y axis	-11.8	Vert
10	2480.000M	86.1	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	82.2	94.0 Y axis	-11.8	Vert
11	2479.975M	85.6	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	81.7	94.0 X axis	-12.3	Vert
12	2439.975M	85.5	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	81.4	94.0 X axis	-12.6	Horiz
13	2440.000M	84.5	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	80.4	94.0 Y axis	-13.6	Horiz
14	2402.000M	84.5	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	80.4	94.0 Z axis	-13.6	Vert
15	2479.975M	84.1	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	80.2	94.0 X axis	-13.8	Horiz
16	2440.000M	83.4	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	79.3	94.0 Z axis	-14.7	Vert
17	2480.000M	82.5	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	78.6	94.0 Y axis	-15.4	Horiz
18	2480.000M	81.7	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	77.8	94.0 Z axis	-16.2	Vert

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	**Aalberg Audio**		
Specification:	**15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**		
Work Order #:	**96887**	Date:	8/4/2015
Test Type:	**Maximized Emissions**	Time:	14:32:05
Tested By:	Don Nguyen	Sequence#:	1
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is charged from support USB charger. When charging, the EUT can still transmit.
The EUT is tested in three orthogonal axes.
The manufacturer declares that the EUT is not marketed with power supply.

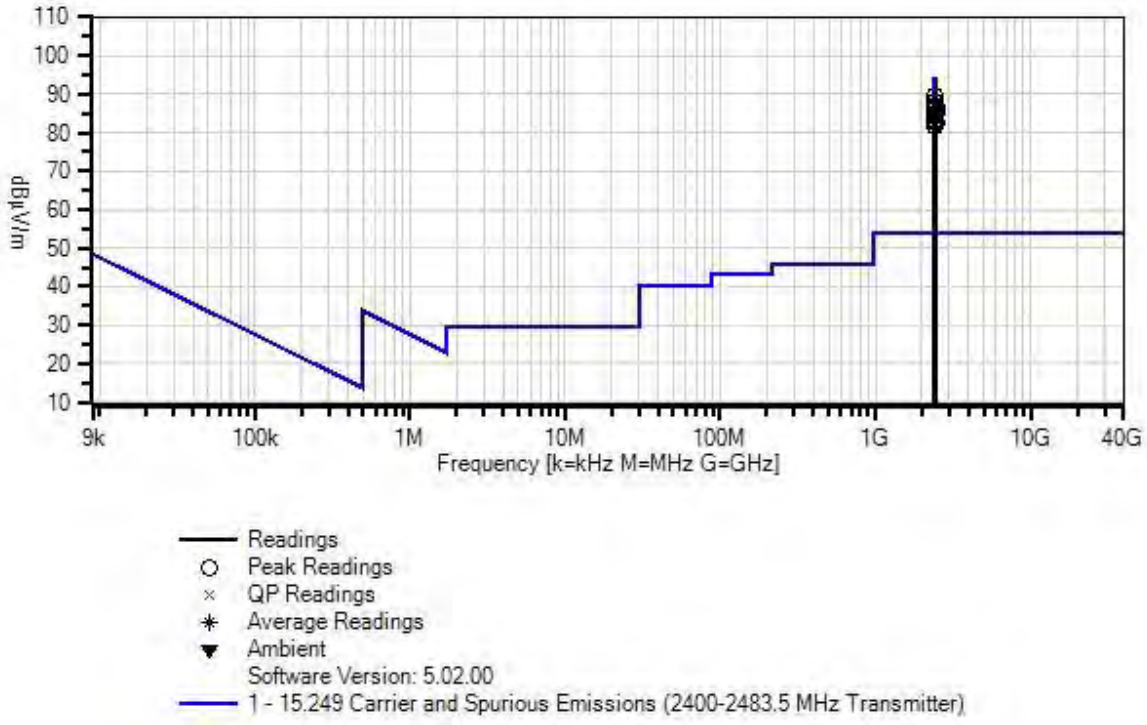
Operating frequency = 2.400-2.4835 GHz

Frequency range of measurement = Low CH (2.402GHz), Middle CH (2.440GHz) , High CH (2.480GHz)
RBW=1MHz, VBW=1MHz

Test environment conditions:
Temperature: 29°C
Relative Humidity: 51%
Pressure: 100kPa

Site D Test Method: ANSI C63.4 (2009)

CKC Laboratories, Inc. Date: 8/4/2015 Time: 14:32:05 Aalberg Audio WO#: 96887
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 1 Ext
ATTN: 0 dB



Test Equipment:

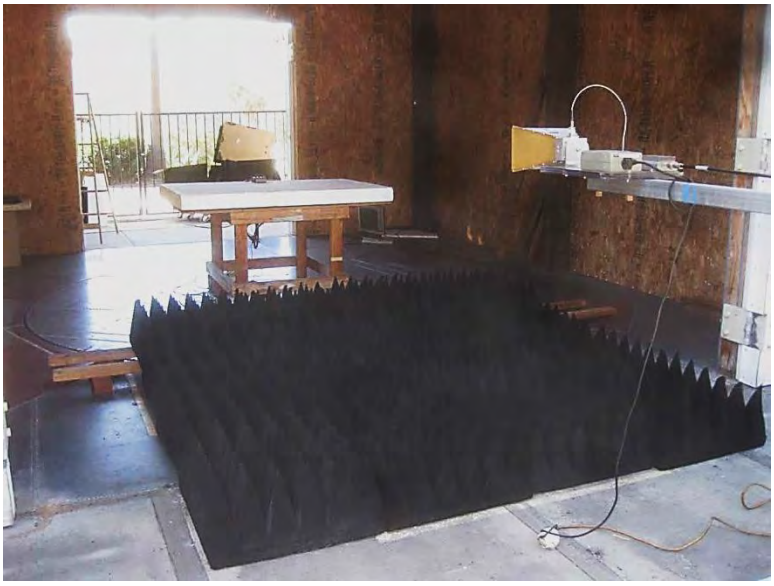
ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T4	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T5	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T6	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016

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	2402.000M	93.6	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	89.5	94.0 Y axis	-4.5	Horiz
2	2440.000M	92.3	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	88.2	94.0 Y axis	-5.8	Horiz
3	2402.000M	91.5	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	87.4	94.0 X axis	-6.6	Horiz
4	2480.000M	90.8	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	86.9	94.0 X axis	-7.1	Vert
5	2440.000M	90.9	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	86.8	94.0 X axis	-7.2	Horiz
6	2402.000M	90.1	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	86.0	94.0 Z axis	-8.0	Vert
7	2440.000M	90.0	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	85.9	94.0 X axis	-8.1	Vert
8	2480.000M Ave	89.4	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	85.5	94.0 Y axis	-8.5	Horiz
^	2480.000M	94.2	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	90.3	94.0 Y axis	-3.8	Horiz
^	2480.000M	91.9	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	88.0	94.0 X axis	-6.0	Horiz
^	2480.000M	86.5	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	82.6	94.0 Z axis	-11.4	Horiz
12	2480.000M	89.2	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	85.3	94.0 Z axis	-8.7	Vert

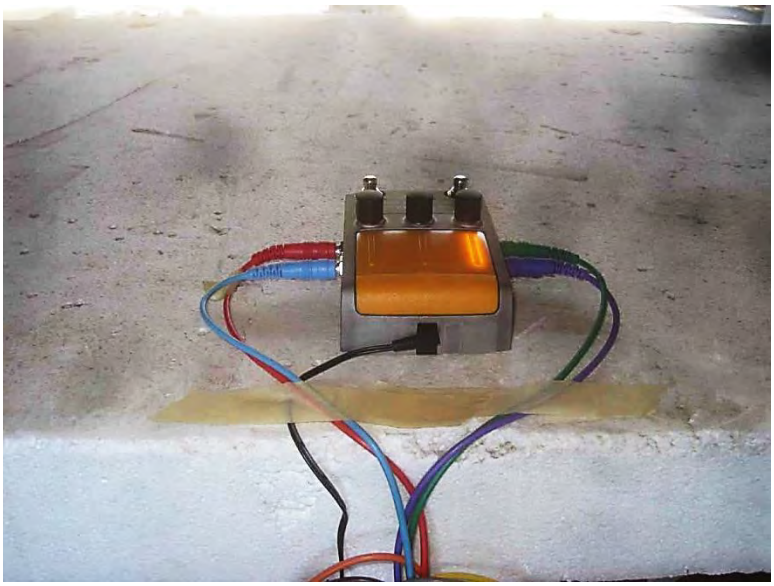
13	2440.000M	89.0	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	84.9	94.0 Z axis	-9.1	Vert
14	2402.000M	88.4	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	84.3	94.0 X axis	-9.7	Vert
15	2440.000M	88.0	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	83.9	94.0 Z axis	-10.1	Horiz
16	2402.000M	87.1	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	83.0	94.0 Z axis	-11.0	Horiz
17	2402.000M	86.6	-39.6 +0.4	+25.4 +0.0	+6.5	+3.2	+0.0	82.5	94.0 Y axis	-11.5	Vert
18	2480.000M	86.3	-39.7 +0.4	+25.5 +0.0	+6.5	+3.4	+0.0	82.4	94.0 Y axis	-11.6	Vert
19	2440.000M	85.7	-39.7 +0.4	+25.4 +0.0	+6.5	+3.3	+0.0	81.6	94.0 Y axis	-12.4	Vert

Test Setup Photos

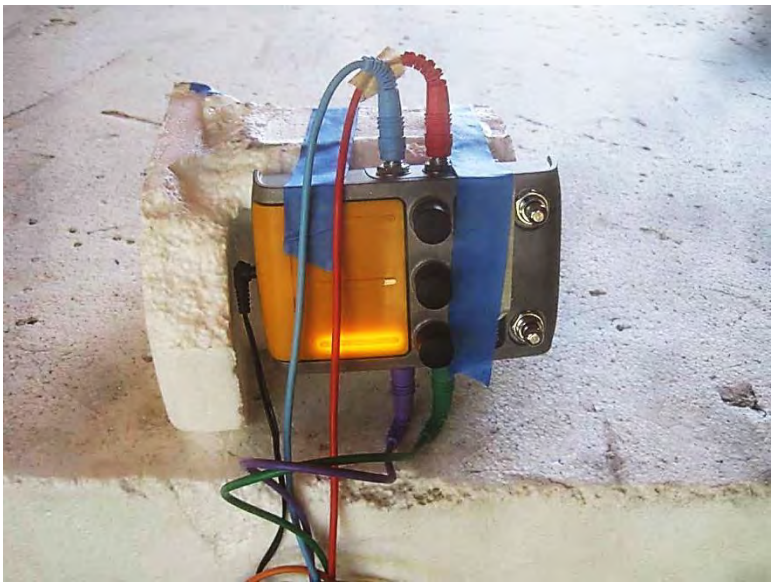


EKKO EK-1 Test Setup

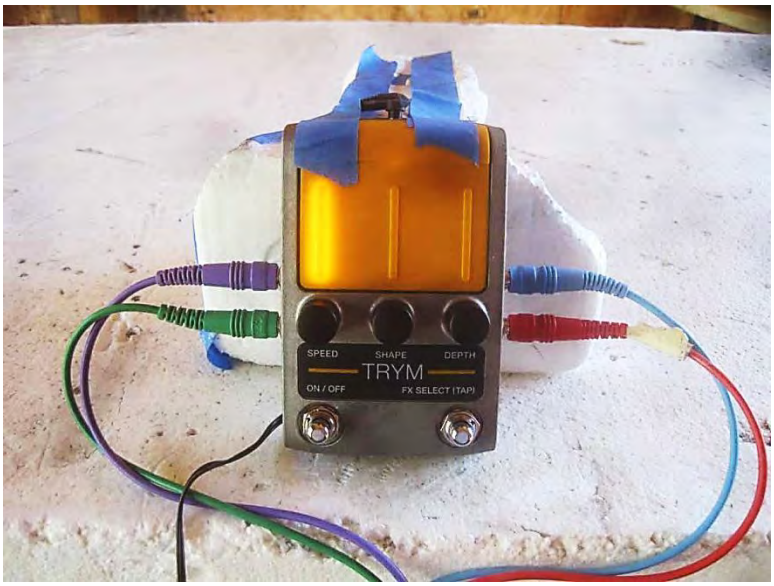
EKKO EK-1 Test Setup



EKKO EK-1, X axis



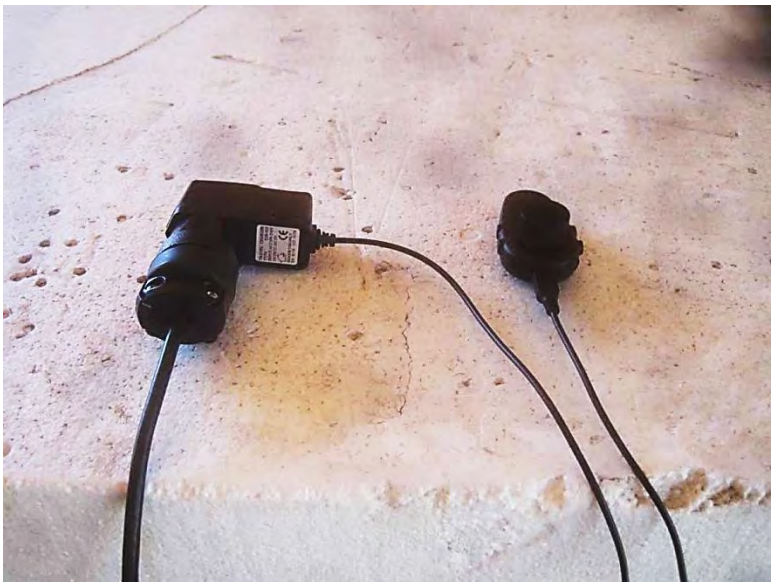
EKKO EK-1, Y axis



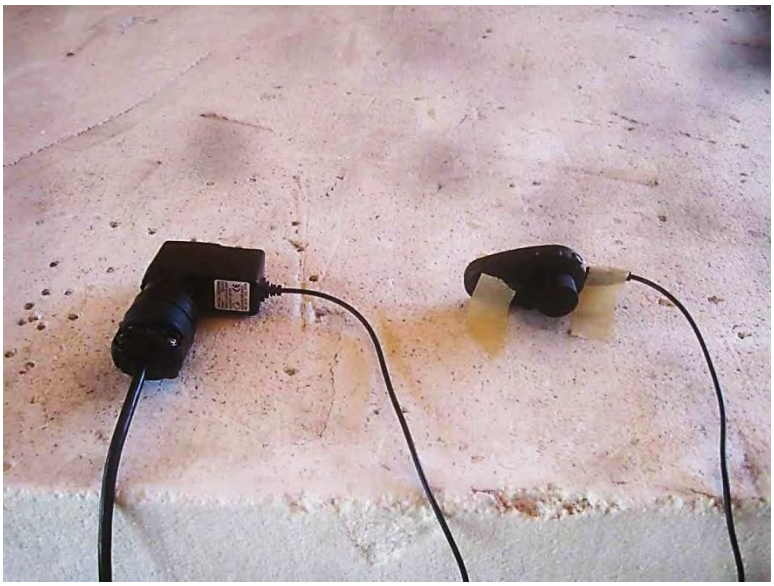
EKKO EK-1, Z axis

AERO AE-1 Test Setup

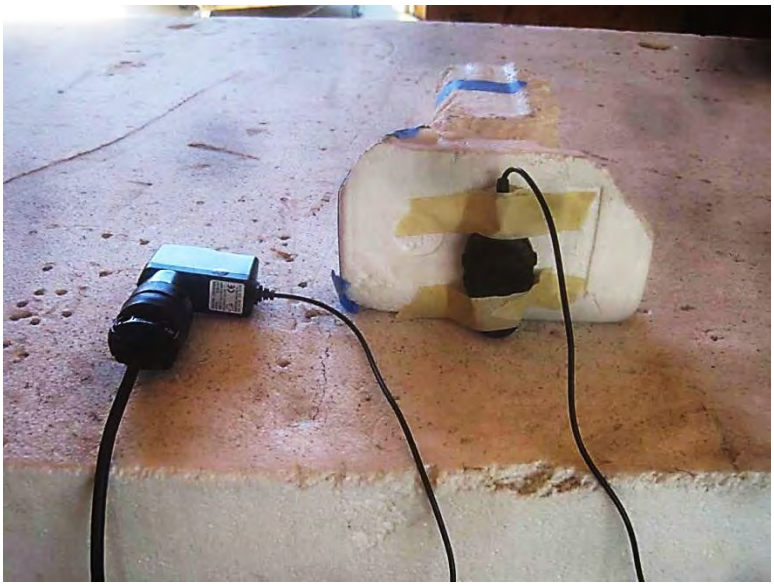
AERO AE-1 Test Setup



AERO AE-1, X axis



AERO AE-1, Y axis



AERO AE-1, Z axis

15.31(e) Voltage Variation

Test Conditions / Setup

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	Aalberg Audio		
Specification:	**15.31e**		
Work Order #:	**96887**	Date:	8/4/2015
Test Type:	**Maximized Emissions**	Time:	10:37:53
Tested By:	Don Nguyen	Sequence#:	0
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
All I/O ports of the EUT are connected to section of unterminated 1/4" TRS audio cables.
The EUT is set in operational mode, exercising the intended functionalities.•
The EUT is powered by 9V power supply located on the ground plane. •
The manufacturer declares that the EUT is not marketed with power supply. •

The EUT is tested in three orthogonal axes. •••
Operating frequency = 2.400-2.4835 GHz••
Frequency range of measurement = Low CH (2.402GHz), Middle CH (2.440GHz) , High CH (2.480GHz)•
RBW=1MHz, VBW=1MHz•

Test environment conditions:
Temperature: 28°C
Relative Humidity: 51%
Pressure: 100kPa••

Site D• Test Method: ANSI C63.4 (2009)•

15.31(e) compliance: The supply voltage was varied between 85% and 115% of the nominal rated supply voltage, no change in the fundamental signal level was observed.

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T4	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T5	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T6	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	Aalberg Audio		
Specification:	**15.31e**		
Work Order #:	**96887**	Date:	8/4/2015
Test Type:	**Maximized Emissions**	Time:	14:32:05
Tested By:	Don Nguyen	Sequence#:	1
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is charged from support USB charger. When charging, the EUT can still transmit.
The manufacturer declares that the EUT is not marketed with power supply. •

The EUT is tested in three orthogonal axes. •••
Operating frequency = 2.400-2.4835 GHz••
Frequency range of measurement = Low CH (2.402GHz), Middle CH (2.440GHz) , High CH (2.480GHz)•
RBW=1MHz, VBW=1MHz•

Test environment conditions:
Temperature: 29°C
Relative Humidity: 51%
Pressure: 100kPa••

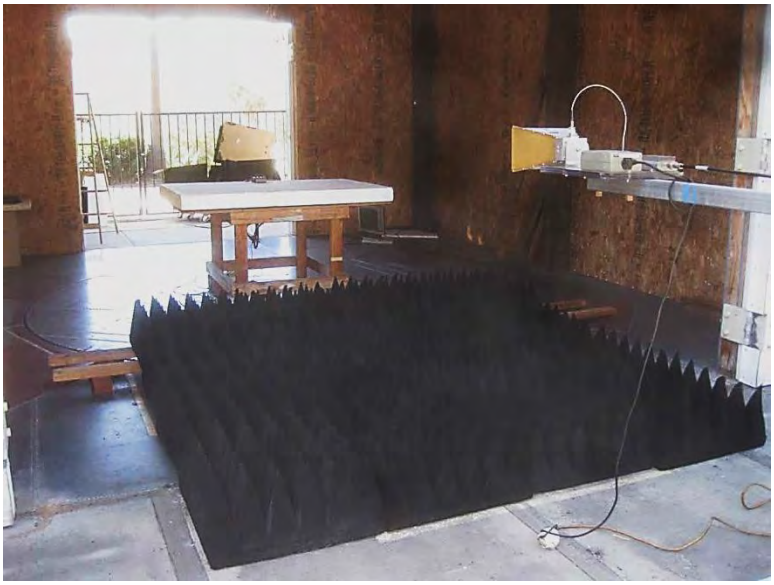
Site D• Test Method: ANSI C63.4 (2009)•

15.31(e) compliance: the EUT is tested with fully charged battery.

Test Equipment:

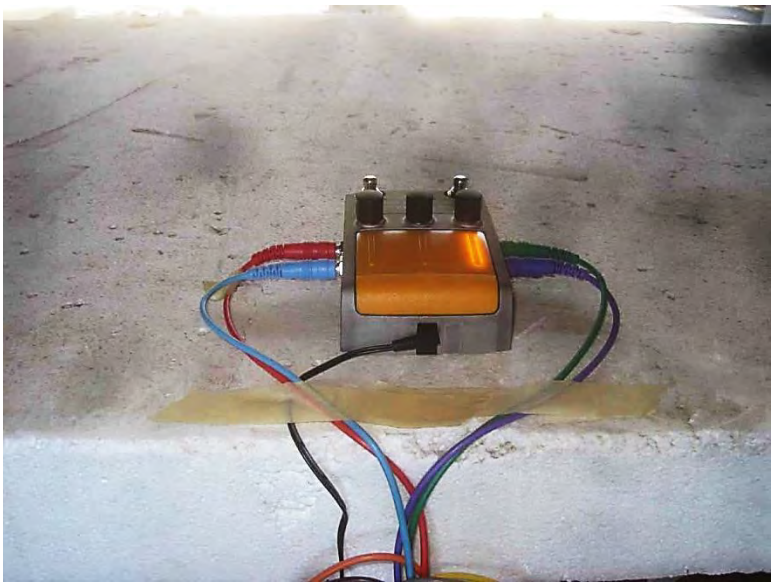
ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T4	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T5	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T6	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016

Test Setup Photos

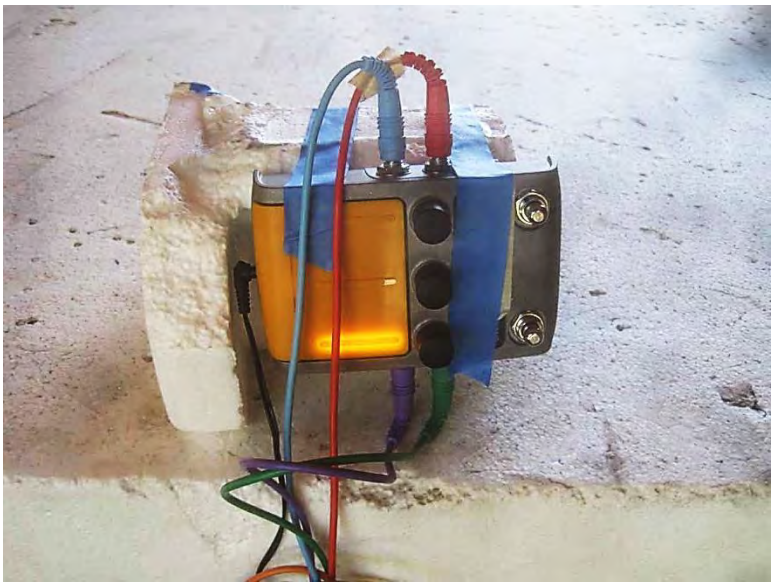


EKKO EK-1 Test Setup

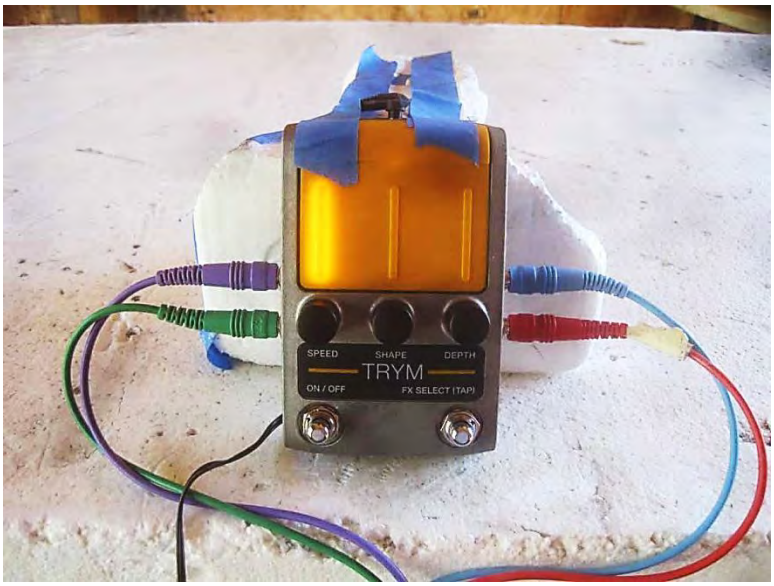
EKKO EK-1 Test Setup



EKKO EK-1, X axis



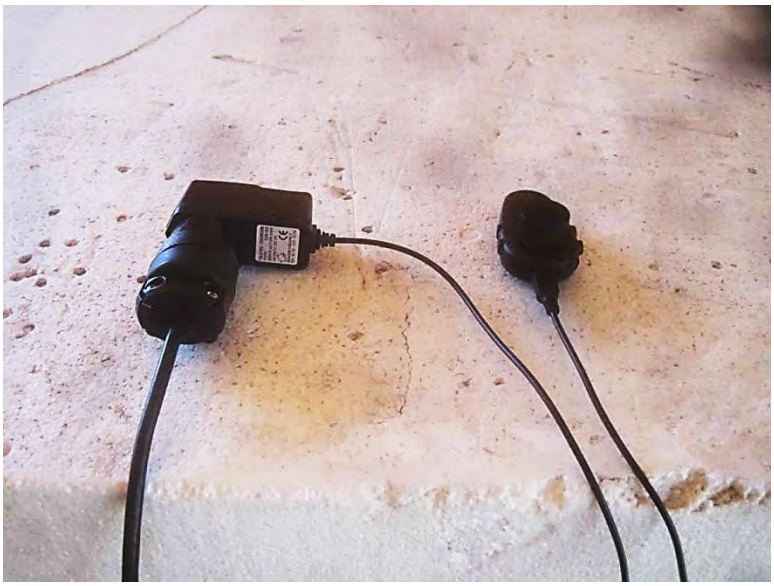
EKKO EK-1, Y axis



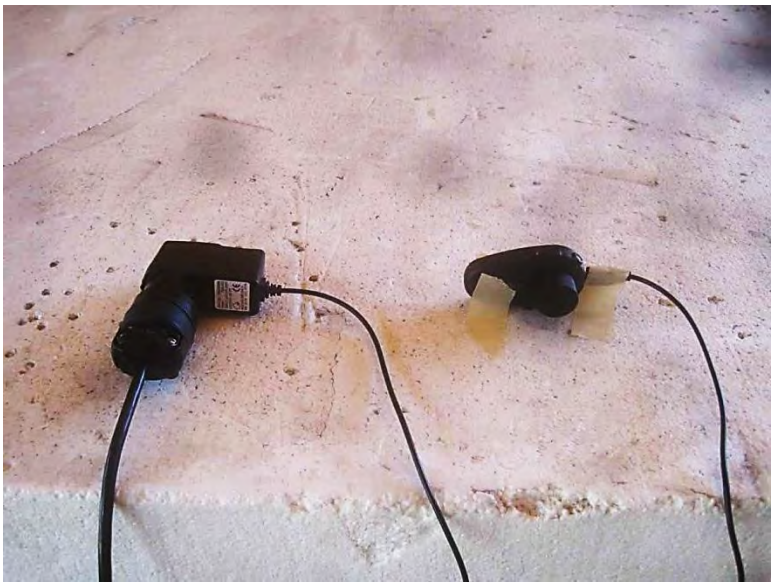
EKKO EK-1, Z axis

AERO AE-1 Test Setup

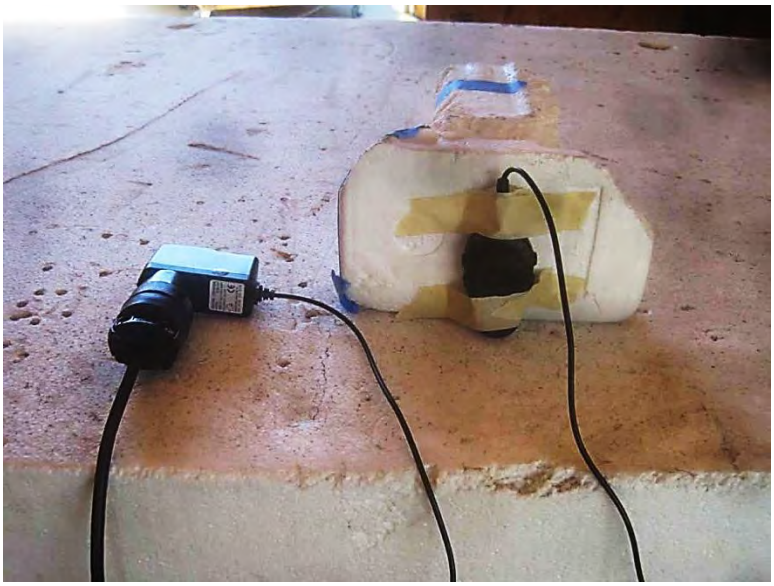
AERO AE-1 Test Setup



AERO AE-1, X axis



AERO AE-1, Y axis



AERO AE-1, Z axis

15.249(a)&(d) Radiated Spurious Emissions / Band Edge

Test Conditions / Setup

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	**Aalberg Audio**		
Specification:	**15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**		
Work Order #:	**96887**	Date:	8/5/2015
Test Type:	**Maximized Emissions**	Time:	13:11:25
Tested By:	Don Nguyen	Sequence#:	1
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
All I/O ports of the EUT are connected to section of unterminated 1/4" TRS audio cables.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is powered by 9V power supply located on the ground plane.
The manufacturer declares that the EUT is not marketed with power supply.
The EUT is tested in three orthogonal axes.

Operating frequency = 2.400-2.4835 GHz
Low CH (2.402GHz), Middle CH (2.440GHz), High CH (2.480GHz)

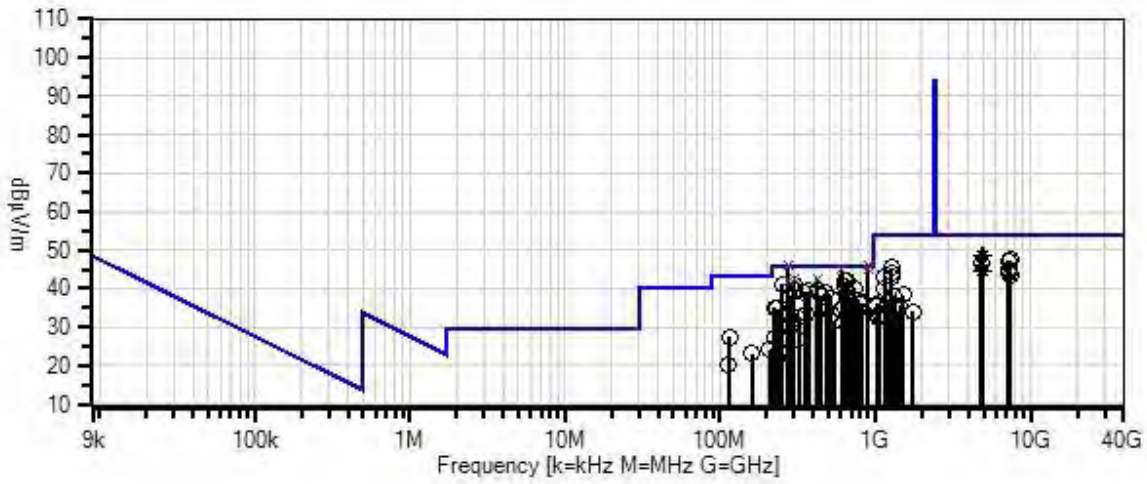
Frequency range of measurement = 9k-25000MHz
0.009MHz to 0.15MHz RBW=VBW=0.2kHz
0.15MHz to 30MHz RBW=VBW=9kHz
30MHz to 1000MHz RBW=VBW=120kHz
1000MHz to 25000MHz RBW=VBW=1MHz

Test environment conditions:
Temperature: 28°C
Relative Humidity: 51%
Pressure: 100kPa

Site D Test Method: ANSI C63.4 (2009)

Data represents worst case emission.

CKC Laboratories, Inc. Date: 8/5/2015 Time: 13:11:25 Aalberg Audio WO#: 96887
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 1 Ext
ATTN: 0 dB



Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.02.00
1 - 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T4	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T5	AN03385	High Pass Filter	11SH10-3000/T10000-O/O	6/15/2015	6/15/2017
	AN01413	Horn Antenna	84125-80008	11/25/2014	11/25/2016
T6	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T7	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016
T8	AN00010	Preamp	8447D	3/12/2014	3/12/2016
T9	ANP05555	Cable	RG223/U	5/7/2014	5/7/2016
T10	ANP05569	Cable	RG-214/U	5/7/2014	5/7/2016
T11	AN01992	Biconilog Antenna	CBL6111C	12/4/2014	12/4/2016
	AN00314	Loop Antenna	6502	7/2/2014	7/2/2016

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

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	899.981M	43.5	+0.0	+0.0	+0.0	+0.0	+0.0	45.9	46.0	-0.1	Horiz
	QP		+0.0	+3.4	+0.0	-27.5					
			+0.5	+3.4	+22.6						
^	899.981M	43.7	+0.0	+0.0	+0.0	+0.0	+0.0	46.1	46.0	+0.1	Horiz
			+0.0	+3.4	+0.0	-27.5					
			+0.5	+3.4	+22.6						
3	273.980M	55.5	+0.0	+0.0	+0.0	+0.0	+0.0	45.8	46.0	-0.2	Vert
	QP		+0.0	+1.8	+0.0	-26.5					
			+0.3	+1.7	+13.0						
^	273.980M	55.8	+0.0	+0.0	+0.0	+0.0	+0.0	46.1	46.0	+0.1	Vert
			+0.0	+1.8	+0.0	-26.5					
			+0.3	+1.7	+13.0						
5	899.980M	42.7	+0.0	+0.0	+0.0	+0.0	+0.0	45.1	46.0	-0.9	Vert
	QP		+0.0	+3.4	+0.0	-27.5					
			+0.5	+3.4	+22.6						
^	899.980M	43.2	+0.0	+0.0	+0.0	+0.0	+0.0	45.6	46.0	-0.4	Vert
			+0.0	+3.4	+0.0	-27.5					
			+0.5	+3.4	+22.6						
7	609.395M	46.9	+0.0	+0.0	+0.0	+0.0	+0.0	44.8	46.0	-1.2	Vert
	QP		+0.0	+2.8	+0.0	-27.9					
			+0.5	+2.6	+19.9						
^	609.395M	47.1	+0.0	+0.0	+0.0	+0.0	+0.0	45.0	46.0	-1.0	Vert
			+0.0	+2.8	+0.0	-27.9					
			+0.5	+2.6	+19.9						
9	419.997M	48.5	+0.0	+0.0	+0.0	+0.0	+0.0	42.6	46.0	-3.4	Horiz
	QP		+0.0	+2.3	+0.0	-27.4					
			+0.3	+2.2	+16.7						

^	419.997M	49.0	+0.0	+0.0	+0.0	+0.0	+0.0	43.1	46.0	-2.9	Horiz
			+0.0	+2.3	+0.0	-27.4					
			+0.3	+2.2	+16.7						
11	300.000M	51.5	+0.0	+0.0	+0.0	+0.0	+0.0	42.3	46.0	-3.7	Horiz
	QP		+0.0	+1.9	+0.0	-26.5					
			+0.3	+1.8	+13.3						
^	300.000M	52.1	+0.0	+0.0	+0.0	+0.0	+0.0	42.9	46.0	-3.1	Horiz
			+0.0	+1.9	+0.0	-26.5					
			+0.3	+1.8	+13.3						
13	658.555M	43.9	+0.0	+0.0	+0.0	+0.0	+0.0	42.2	46.0	-3.8	Vert
			+0.0	+2.9	+0.0	-27.9					
			+0.4	+2.8	+20.1						
14	633.970M	43.8	+0.0	+0.0	+0.0	+0.0	+0.0	41.9	46.0	-4.1	Vert
			+0.0	+2.9	+0.0	-27.9					
			+0.4	+2.7	+20.0						
15	273.985M	51.5	+0.0	+0.0	+0.0	+0.0	+0.0	41.8	46.0	-4.2	Horiz
	QP		+0.0	+1.8	+0.0	-26.5					
			+0.3	+1.7	+13.0						
^	273.985M	51.8	+0.0	+0.0	+0.0	+0.0	+0.0	42.1	46.0	-3.9	Horiz
			+0.0	+1.8	+0.0	-26.5					
			+0.3	+1.7	+13.0						
17	249.405M	51.2	+0.0	+0.0	+0.0	+0.0	+0.0	41.0	46.0	-5.0	Vert
			+0.0	+1.8	+0.0	-26.5					
			+0.2	+1.6	+12.7						
18	300.050M	50.0	+0.0	+0.0	+0.0	+0.0	+0.0	40.8	46.0	-5.2	Vert
			+0.0	+1.9	+0.0	-26.5					
			+0.3	+1.8	+13.3						
19	4804.000M	44.6	-40.5	+30.1	+4.7	+0.5	+0.0	48.7	54.0	-5.3	Vert
	Ave		+0.1	+9.2	+0.0	+0.0					
			+0.0	+0.0	+0.0						
^	4804.000M	49.4	-40.5	+30.1	+4.7	+0.5	+0.0	53.5	54.0	-0.5	Vert
			+0.1	+9.2	+0.0	+0.0					
			+0.0	+0.0	+0.0						
21	4960.000M	43.5	-40.1	+30.4	+4.8	+0.5	+0.0	48.6	54.0	-5.4	Vert
	Ave		+0.1	+9.4	+0.0	+0.0					
			+0.0	+0.0	+0.0						
^	4960.000M	48.3	-40.1	+30.4	+4.8	+0.5	+0.0	53.4	54.0	-0.6	Vert
			+0.1	+9.4	+0.0	+0.0					
			+0.0	+0.0	+0.0						
23	633.970M	42.2	+0.0	+0.0	+0.0	+0.0	+0.0	40.3	46.0	-5.7	Horiz
			+0.0	+2.9	+0.0	-27.9					
			+0.4	+2.7	+20.0						
24	732.265M	40.4	+0.0	+0.0	+0.0	+0.0	+0.0	40.0	46.0	-6.0	Vert
			+0.0	+3.1	+0.0	-27.8					
			+0.4	+3.0	+20.9						
25	7440.010M	35.5	-40.4	+33.8	+6.0	+0.7	+0.0	47.5	54.0	-6.5	Vert
			+0.3	+11.6	+0.0	+0.0					
			+0.0	+0.0	+0.0						
26	372.292M	46.4	+0.0	+0.0	+0.0	+0.0	+0.0	39.4	46.0	-6.6	Horiz
			+0.0	+2.1	+0.0	-27.0					
			+0.3	+2.0	+15.6						

27	298.550M	48.6	+0.0 +0.0 +0.3	+0.0 +1.9 +1.8	+0.0 +0.0 +13.3	+0.0 -26.5	+0.0	39.4	46.0	-6.6	Vert
28	420.000M	45.2	+0.0 +0.0 +0.3	+0.0 +2.3 +2.2	+0.0 +0.0 +16.7	+0.0 -27.4	+0.0	39.3	46.0	-6.7	Vert
29	7206.000M	36.3	-40.2 +0.2 +0.0	+33.3 +11.2 +0.0	+5.9 +0.0 +0.0	+0.6 +0.0	+0.0	47.3	54.0	-6.7	Vert
30	372.300M	46.2	+0.0 +0.0 +0.3	+0.0 +2.1 +2.0	+0.0 +0.0 +15.6	+0.0 -27.0	+0.0	39.2	46.0	-6.8	Vert
31	480.000M	43.8	+0.0 +0.0 +0.4	+0.0 +2.5 +2.4	+0.0 +0.0 +17.7	+0.0 -27.7	+0.0	39.1	46.0	-6.9	Vert
32	347.717M	46.7	+0.0 +0.0 +0.3	+0.0 +2.1 +1.9	+0.0 +0.0 +14.8	+0.0 -26.8	+0.0	39.0	46.0	-7.0	Horiz
33	660.005M	40.6	+0.0 +0.0 +0.4	+0.0 +2.9 +2.8	+0.0 +0.0 +20.1	+0.0 -27.9	+0.0	38.9	46.0	-7.1	Vert
34	4880.000M	41.8	-40.2 +0.1 +0.0	+30.2 +9.3 +0.0	+4.8 +0.0 +0.0	+0.5 +0.0	+0.0	46.5	54.0	-7.5	Horiz
35	4804.000M Ave	42.0	-40.5 +0.1 +0.0	+30.1 +9.2 +0.0	+4.7 +0.0 +0.0	+0.5 +0.0	+0.0	46.1	54.0	-7.9	Horiz
^	4804.000M	46.8	-40.5 +0.1 +0.0	+30.1 +9.2 +0.0	+4.7 +0.0 +0.0	+0.5 +0.0	+0.0	50.9	54.0	-3.1	Horiz
37	277.050M	47.8	+0.0 +0.0 +0.3	+0.0 +1.8 +1.7	+0.0 +0.0 +13.0	+0.0 -26.5	+0.0	38.1	46.0	-7.9	Vert
38	446.022M	43.5	+0.0 +0.0 +0.4	+0.0 +2.4 +2.3	+0.0 +0.0 +17.1	+0.0 -27.6	+0.0	38.1	46.0	-7.9	Horiz
39	1259.900M	56.5	-40.2 +0.0 +0.0	+22.4 +4.1 +0.0	+2.3 +0.0 +0.0	+0.3 +0.0	+0.0	45.4	54.0	-8.6	Horiz
40	659.995M	39.0	+0.0 +0.0 +0.4	+0.0 +2.9 +2.8	+0.0 +0.0 +20.1	+0.0 -27.9	+0.0	37.3	46.0	-8.7	Horiz
41	519.720M	41.3	+0.0 +0.0 +0.4	+0.0 +2.5 +2.4	+0.0 +0.0 +18.4	+0.0 -27.8	+0.0	37.2	46.0	-8.8	Vert
42	779.960M	36.1	+0.0 +0.0 +0.5	+0.0 +3.2 +3.1	+0.0 +0.0 +21.7	+0.0 -27.7	+0.0	36.9	46.0	-9.1	Vert
43	7320.000M	33.4	-40.3 +0.3 +0.0	+33.5 +11.3 +0.0	+5.9 +0.0 +0.0	+0.7 +0.0	+0.0	44.8	54.0	-9.2	Vert

44	4960.033M	39.6	-40.1	+30.4	+4.8	+0.5	+0.0	44.7	54.0	-9.3	Horiz
	Ave		+0.1	+9.4	+0.0	+0.0					
			+0.0	+0.0	+0.0						
^	4960.033M	45.4	-40.1	+30.4	+4.8	+0.5	+0.0	50.5	54.0	-3.5	Horiz
			+0.1	+9.4	+0.0	+0.0					
			+0.0	+0.0	+0.0						
46	4880.000M	39.7	-40.2	+30.2	+4.8	+0.5	+0.0	44.4	54.0	-9.6	Vert
	Ave		+0.1	+9.3	+0.0	+0.0					
			+0.0	+0.0	+0.0						
^	4880.000M	44.5	-40.2	+30.2	+4.8	+0.5	+0.0	49.2	54.0	-4.8	Vert
			+0.1	+9.3	+0.0	+0.0					
			+0.0	+0.0	+0.0						
48	7320.000M	32.9	-40.3	+33.5	+5.9	+0.7	+0.0	44.3	54.0	-9.7	Horiz
			+0.3	+11.3	+0.0	+0.0					
			+0.0	+0.0	+0.0						
49	806.055M	35.0	+0.0	+0.0	+0.0	+0.0	+0.0	36.1	46.0	-9.9	Horiz
			+0.0	+3.2	+0.0	-27.7					
			+0.5	+3.1	+22.0						
50	7206.000M	32.8	-40.2	+33.3	+5.9	+0.6	+0.0	43.8	54.0	-10.2	Horiz
			+0.2	+11.2	+0.0	+0.0					
			+0.0	+0.0	+0.0						
51	1260.000M	54.9	-40.2	+22.4	+2.3	+0.3	+0.0	43.8	54.0	-10.2	Vert
			+0.0	+4.1	+0.0	+0.0					
			+0.0	+0.0	+0.0						
52	707.715M	36.7	+0.0	+0.0	+0.0	+0.0	+0.0	35.6	46.0	-10.4	Vert
			+0.0	+3.0	+0.0	-27.9					
			+0.5	+2.9	+20.4						
53	7440.033M	31.5	-40.4	+33.8	+6.0	+0.7	+0.0	43.5	54.0	-10.5	Horiz
			+0.3	+11.6	+0.0	+0.0					
			+0.0	+0.0	+0.0						
54	1259.900M	54.3	-40.2	+22.4	+2.3	+0.3	+0.0	43.2	54.0	-10.8	Horiz
			+0.0	+4.1	+0.0	+0.0					
			+0.0	+0.0	+0.0						
55	224.850M	47.2	+0.0	+0.0	+0.0	+0.0	+0.0	35.0	46.0	-11.0	Vert
			+0.0	+1.7	+0.0	-26.6					
			+0.2	+1.5	+11.0						
56	1139.900M	55.0	-40.7	+22.2	+2.1	+0.3	+0.0	42.8	54.0	-11.2	Horiz
			+0.0	+3.9	+0.0	+0.0					
			+0.0	+0.0	+0.0						
57	233.500M	46.3	+0.0	+0.0	+0.0	+0.0	+0.0	34.7	46.0	-11.3	Vert
			+0.0	+1.7	+0.0	-26.6					
			+0.2	+1.5	+11.6						
58	609.387M	36.5	+0.0	+0.0	+0.0	+0.0	+0.0	34.4	46.0	-11.6	Horiz
			+0.0	+2.8	+0.0	-27.9					
			+0.5	+2.6	+19.9						
59	769.805M	33.8	+0.0	+0.0	+0.0	+0.0	+0.0	34.0	46.0	-12.0	Horiz
			+0.0	+3.1	+0.0	-27.8					
			+0.4	+3.0	+21.5						
60	359.992M	40.7	+0.0	+0.0	+0.0	+0.0	+0.0	33.3	46.0	-12.7	Horiz
			+0.0	+2.1	+0.0	-26.9					
			+0.3	+1.9	+15.2						

61	519.762M	37.4	+0.0 +0.0 +0.4	+0.0 +2.5 +2.4	+0.0 +0.0 +18.4	+0.0 -27.8	+0.0	33.3	46.0	-12.7	Horiz
62	658.545M	34.8	+0.0 +0.0 +0.4	+0.0 +2.9 +2.8	+0.0 +0.0 +20.1	+0.0 -27.9	+0.0	33.1	46.0	-12.9	Horiz
63	277.044M	42.5	+0.0 +0.0 +0.3	+0.0 +1.8 +1.7	+0.0 +0.0 +13.0	+0.0 -26.5	+0.0	32.8	46.0	-13.2	Horiz
64	323.150M	40.9	+0.0 +0.0 +0.3	+0.0 +2.0 +1.8	+0.0 +0.0 +14.1	+0.0 -26.6	+0.0	32.5	46.0	-13.5	Horiz
65	1140.000M	52.4	-40.7 +0.0 +0.0	+22.2 +3.9 +0.0	+2.1 +0.0 +0.0	+0.3 +0.0	+0.0	40.2	54.0	-13.8	Vert
66	544.340M	35.1	+0.0 +0.0 +0.4	+0.0 +2.6 +2.5	+0.0 +0.0 +18.8	+0.0 -27.9	+0.0	31.5	46.0	-14.5	Horiz
67	1500.000M	47.9	-39.7 +0.0 +0.0	+22.9 +4.5 +0.0	+2.5 +0.0 +0.0	+0.3 +0.0	+0.0	38.4	54.0	-15.6	Vert
68	744.565M	30.6	+0.0 +0.0 +0.4	+0.0 +3.1 +3.0	+0.0 +0.0 +21.1	+0.0 -27.8	+0.0	30.4	46.0	-15.6	Vert
69	249.395M	40.5	+0.0 +0.0 +0.2	+0.0 +1.8 +1.6	+0.0 +0.0 +12.7	+0.0 -26.5	+0.0	30.3	46.0	-15.7	Horiz
70	282.639M	39.8	+0.0 +0.0 +0.3	+0.0 +1.8 +1.7	+0.0 +0.0 +13.1	+0.0 -26.5	+0.0	30.2	46.0	-15.8	Horiz
71	1500.400M	47.7	-39.7 +0.0 +0.0	+22.9 +4.5 +0.0	+2.5 +0.0 +0.0	+0.3 +0.0	+0.0	38.2	54.0	-15.8	Horiz
72	114.800M	40.9	+0.0 +0.0 +0.1	+0.0 +1.2 +1.1	+0.0 +0.0 +11.2	+0.0 -27.0	+0.0	27.5	43.5	-16.0	Vert
73	1319.900M	48.3	-40.0 +0.0 +0.0	+22.6 +4.2 +0.0	+2.3 +0.0 +0.0	+0.3 +0.0	+0.0	37.7	54.0	-16.3	Horiz
74	1200.000M	48.1	-40.4 +0.0 +0.0	+22.3 +4.0 +0.0	+2.2 +0.0 +0.0	+0.3 +0.0	+0.0	36.5	54.0	-17.5	Vert
75	1020.000M	49.6	-41.4 +0.0 +0.0	+21.9 +3.6 +0.0	+2.0 +0.0 +0.0	+0.3 +0.0	+0.0	36.0	54.0	-18.0	Vert
76	1440.000M	45.3	-39.8 +0.0 +0.0	+22.8 +4.4 +0.0	+2.4 +0.0 +0.0	+0.3 +0.0	+0.0	35.4	54.0	-18.6	Vert
77	1019.900M	48.9	-41.4 +0.0 +0.0	+21.9 +3.6 +0.0	+2.0 +0.0 +0.0	+0.3 +0.0	+0.0	35.3	54.0	-18.7	Horiz

78	224.845M	39.4	+0.0 +0.0 +0.2	+0.0 +1.7 +1.5	+0.0 +0.0 +11.0	+0.0 -26.6	+0.0	27.2	46.0	-18.8	Horiz
79	320.050M	35.2	+0.0 +0.0 +0.3	+0.0 +2.0 +1.8	+0.0 +0.0 +14.0	+0.0 -26.6	+0.0	26.7	46.0	-19.3	Horiz
80	208.895M	37.8	+0.0 +0.0 +0.2	+0.0 +1.6 +1.4	+0.0 +0.0 +9.8	+0.0 -26.7	+0.0	24.1	43.5	-19.4	Horiz
81	1379.900M	44.3	-39.9 +0.0 +0.0	+22.7 +4.4 +0.0	+2.4 +0.0 +0.0	+0.3 +0.0	+0.0	34.2	54.0	-19.8	Horiz
82	1740.400M	41.6	-39.5 +0.0 +0.0	+24.0 +5.0 +0.0	+2.6 +0.0 +0.0	+0.3 +0.0	+0.0	34.0	54.0	-20.0	Horiz
83	160.820M	36.5	+0.0 +0.0 +0.2	+0.0 +1.4 +1.3	+0.0 +0.0 +10.7	+0.0 -26.9	+0.0	23.2	43.5	-20.3	Horiz
84	1067.400M	46.4	-41.1 +0.0 +0.0	+22.0 +3.7 +0.0	+2.1 +0.0 +0.0	+0.3 +0.0	+0.0	33.4	54.0	-20.6	Horiz
85	1042.900M	46.3	-41.3 +0.0 +0.0	+21.9 +3.7 +0.0	+2.0 +0.0 +0.0	+0.3 +0.0	+0.0	32.9	54.0	-21.1	Horiz
86	1043.500M	46.0	-41.3 +0.0 +0.0	+21.9 +3.7 +0.0	+2.0 +0.0 +0.0	+0.3 +0.0	+0.0	32.6	54.0	-21.4	Vert
87	239.995M	34.7	+0.0 +0.0 +0.2	+0.0 +1.8 +1.6	+0.0 +0.0 +12.0	+0.0 -26.5	+0.0	23.8	46.0	-22.2	Horiz
88	113.380M	33.6	+0.0 +0.0 +0.1	+0.0 +1.2 +1.1	+0.0 +0.0 +11.1	+0.0 -27.0	+0.0	20.1	43.5	-23.4	Horiz
89	233.445M	33.3	+0.0 +0.0 +0.2	+0.0 +1.7 +1.5	+0.0 +0.0 +11.6	+0.0 -26.6	+0.0	21.7	46.0	-24.3	Horiz

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	**Aalberg Audio**		
Specification:	**15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**		
Work Order #:	**96887**	Date:	8/5/2015
Test Type:	**Maximized Emissions**	Time:	09:45:18
Tested By:	Don Nguyen	Sequence#:	2
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is charged from support USB charger. When charging, the EUT can still transmit.
The manufacturer declares that the EUT is not marketed with power supply.
The EUT is tested in three orthogonal axes.

Operating frequency = 2.400-2.4835 GHz

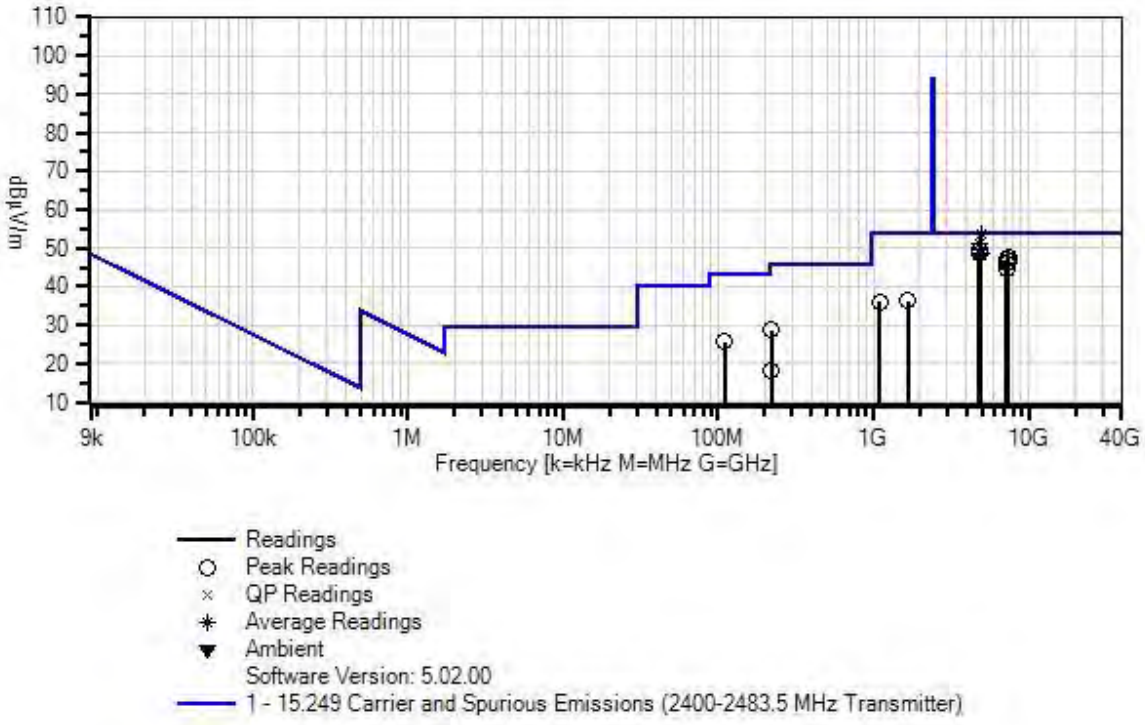
Frequency range of measurement = 9k-25000MHz
0.009MHz to 0.15MHz RBW=VBW=0.2kHz
0.15MHz to 30MHz RBW=VBW=9kHz
30MHz to 1000MHz RBW=VBW=120kHz
1000MHz to 25000MHz RBW=VBW=1MHz

Test environment conditions:
Temperature: 29°C
Relative Humidity: 51%
Pressure: 100kPa

Site D
Test Method: ANSI C63.4 (2009)

Data represents worst case emission.

CKC Laboratories, Inc. Date: 8/5/2015 Time: 09:45:18 Aalberg Audio WO#: 96887
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 2 Ext
ATTN: 0 dB



Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T4	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T5	AN03385	High Pass Filter	11SH10-3000/T10000-O/O	6/15/2015	6/15/2017
	AN01413	Horn Antenna	84125-80008	11/25/2014	11/25/2016
T6	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016
T7	AN00010	Preamp	8447D	3/12/2014	3/12/2016
T8	ANP05555	Cable	RG223/U	5/7/2014	5/7/2016
T9	ANP05569	Cable	RG-214/U	5/7/2014	5/7/2016
T10	AN01992	Biconilog Antenna	CBL6111C	12/4/2014	12/4/2016
	AN00314	Loop Antenna	6502	7/2/2014	7/2/2016

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

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	4960.000M	48.3	-40.1	+30.4	+4.8	+0.5	+0.0	53.4	54.0	-0.6	Vert
	Ave		+0.1	+9.4	+0.0	+0.0					
			+0.0	+0.0							
^	4960.000M	53.1	-40.1	+30.4	+4.8	+0.5	+0.0	58.2	54.0	+4.2	Vert
			+0.1	+9.4	+0.0	+0.0					
			+0.0	+0.0							
3	4880.000M	46.3	-40.2	+30.2	+4.8	+0.5	+0.0	51.0	54.0	-3.0	Vert
	Ave		+0.1	+9.3	+0.0	+0.0					
			+0.0	+0.0							
^	4880.000M	51.3	-40.2	+30.2	+4.8	+0.5	+0.0	56.0	54.0	+2.0	Vert
			+0.1	+9.3	+0.0	+0.0					
			+0.0	+0.0							
5	4804.000M	45.6	-40.5	+30.1	+4.7	+0.5	+0.0	49.7	54.0	-4.3	Horiz
			+0.1	+9.2	+0.0	+0.0					
			+0.0	+0.0							
6	4960.000M	43.7	-40.1	+30.4	+4.8	+0.5	+0.0	48.8	54.0	-5.2	Horiz
	Ave		+0.1	+9.4	+0.0	+0.0					
			+0.0	+0.0							
^	4960.000M	48.9	-40.1	+30.4	+4.8	+0.5	+0.0	54.0	54.0	+0.0	Horiz
			+0.1	+9.4	+0.0	+0.0					
			+0.0	+0.0							
8	4880.000M	43.8	-40.2	+30.2	+4.8	+0.5	+0.0	48.5	54.0	-5.5	Horiz
	Ave		+0.1	+9.3	+0.0	+0.0					
			+0.0	+0.0							
^	4880.000M	48.4	-40.2	+30.2	+4.8	+0.5	+0.0	53.1	54.0	-0.9	Horiz
			+0.1	+9.3	+0.0	+0.0					
			+0.0	+0.0							

10	4804.000M	44.3	-40.5 +0.1 +0.0	+30.1 +9.2 +0.0	+4.7 +0.0	+0.5 +0.0	+0.0	48.4	54.0	-5.6	Vert
11	7440.000M	35.8	-40.4 +0.3 +0.0	+33.8 +11.6 +0.0	+6.0 +0.0	+0.7 +0.0	+0.0	47.8	54.0	-6.2	Horiz
12	7320.000M	35.6	-40.3 +0.3 +0.0	+33.5 +11.3 +0.0	+5.9 +0.0	+0.7 +0.0	+0.0	47.0	54.0	-7.0	Vert
13	7320.000M	35.5	-40.3 +0.3 +0.0	+33.5 +11.3 +0.0	+5.9 +0.0	+0.7 +0.0	+0.0	46.9	54.0	-7.1	Horiz
14	7440.000M	34.6	-40.4 +0.3 +0.0	+33.8 +11.6 +0.0	+6.0 +0.0	+0.7 +0.0	+0.0	46.6	54.0	-7.4	Vert
15	7206.000M	35.2	-40.2 +0.2 +0.0	+33.3 +11.2 +0.0	+5.9 +0.0	+0.6 +0.0	+0.0	46.2	54.0	-7.8	Horiz
16	7206.000M	33.5	-40.2 +0.2 +0.0	+33.3 +11.2 +0.0	+5.9 +0.0	+0.6 +0.0	+0.0	44.5	54.0	-9.5	Vert
17	219.780M	41.2	+0.0 +0.0 +1.5	+0.0 +1.7 +10.6	+0.0 -26.6	+0.0 +0.2	+0.0	28.6	46.0	-17.4	Vert
18	1671.750M	44.5	-39.6 +0.0 +0.0	+23.7 +4.9 +0.0	+2.6 +0.0	+0.3 +0.0	+0.0	36.4	54.0	-17.6	Vert
19	110.430M	39.6	+0.0 +0.0 +1.1	+0.0 +1.1 +10.9	+0.0 -27.1	+0.0 +0.1	+0.0	25.7	43.5	-17.8	Vert
20	1104.500M	48.7	-40.9 +0.0 +0.0	+22.1 +3.8 +0.0	+2.1 +0.0	+0.3 +0.0	+0.0	36.1	54.0	-17.9	Vert
21	220.000M	30.8	+0.0 +0.0 +1.5	+0.0 +1.7 +10.6	+0.0 -26.6	+0.0 +0.2	+0.0	18.2	46.0	-27.8	Horiz

Band Edge

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	Aalberg Audio		
Specification:	**Band Edge**		
Work Order #:	**96887**	Date:	8/4/2015
Test Type:	**Maximized Emissions**	Time:	10:37:53
Tested By:	Don Nguyen	Sequence#:	0
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
All I/O ports of the EUT are connected to section of unterminated 1/4" TRS audio cables.
The EUT is set in operational mode, exercising the intended functionalities.•
The EUT is powered by 9V power supply located on the ground plane. •
The manufacturer declares that the EUT is not marketed with power supply. •

The EUT is tested in three orthogonal axes. •••
Operating frequency = 2.400-2.4835 GHz••
Frequency range of measurement = Low CH (2.402GHz), Middle CH (2.440GHz) , High CH (2.480GHz)•
RBW=1MHz, VBW=1MHz•

Test environment conditions:
Temperature: 28°C
Relative Humidity: 51%
Pressure: 100kPa••

Site D• Test Method: ANSI C63.4 (2009)•

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T4	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T5	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T6	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016

Test Location:	CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112		
Customer:	Aalberg Audio		
Specification:	**Band Edge**		
Work Order #:	**96887**	Date:	8/4/2015
Test Type:	**Maximized Emissions**	Time:	14:32:05
Tested By:	Don Nguyen	Sequence#:	1
Software:	EMITest 5.02.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

The EUT is placed flat on the Styrofoam platform as intended in normal application.
The EUT is set in operational mode, exercising the intended functionalities.
The EUT is charged from support USB charger. When charging, the EUT can still transmit.
The manufacturer declares that the EUT is not marketed with power supply. •

The EUT is tested in three orthogonal axes. •••
Operating frequency = 2.400-2.4835 GHz••
Frequency range of measurement = Low CH (2.402GHz), Middle CH (2.440GHz), High CH (2.480GHz)•
RBW=1MHz, VBW=1MHz•

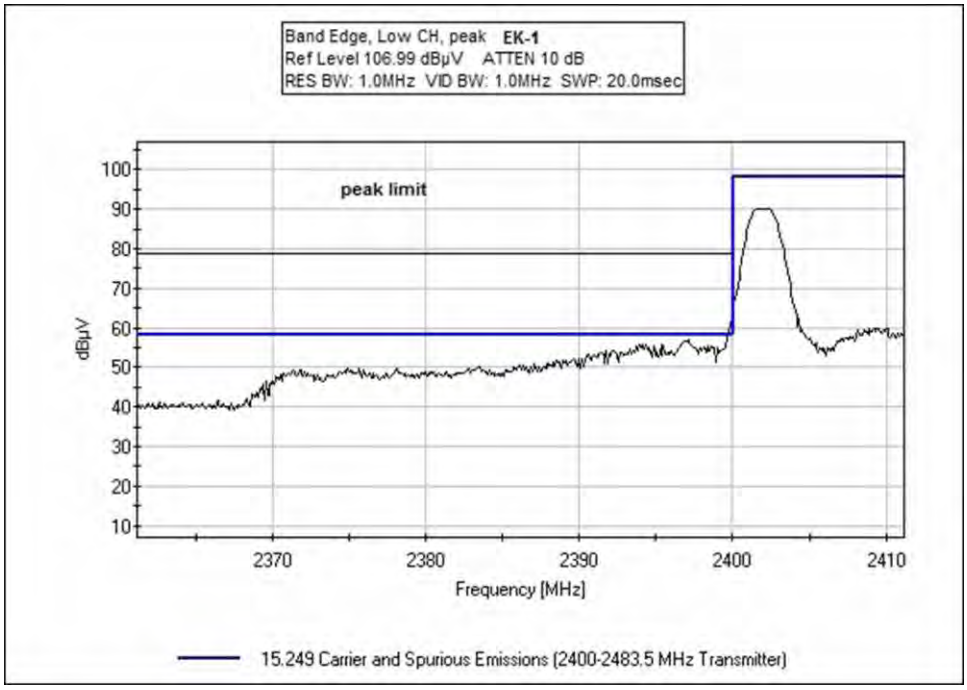
Test environment conditions:
Temperature: 29°C
Relative Humidity: 51%
Pressure: 100kPa••

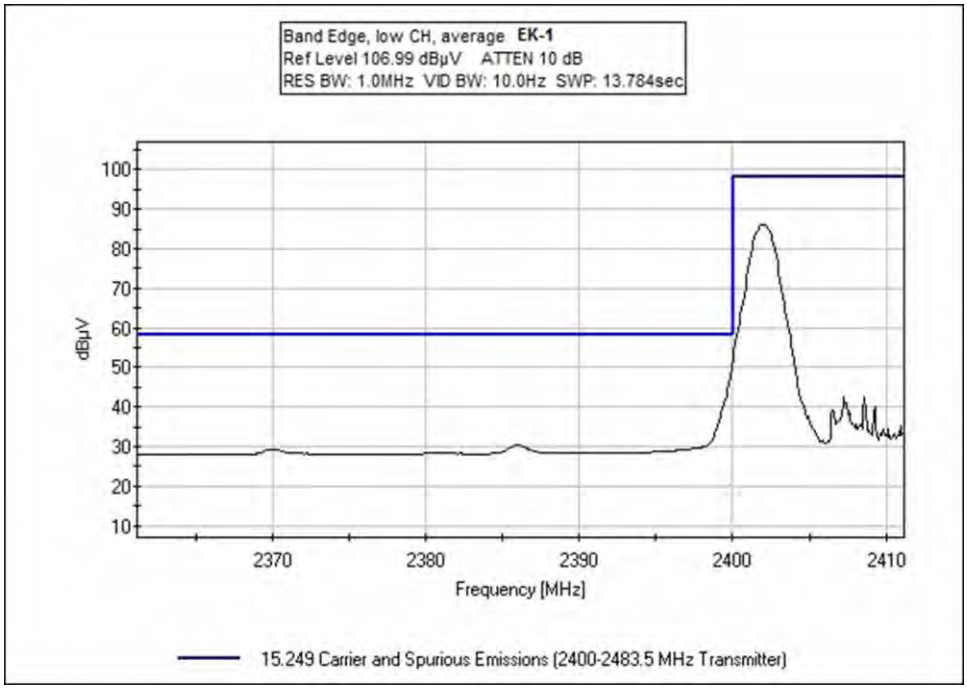
Site D• Test Method: ANSI C63.4 (2009)•

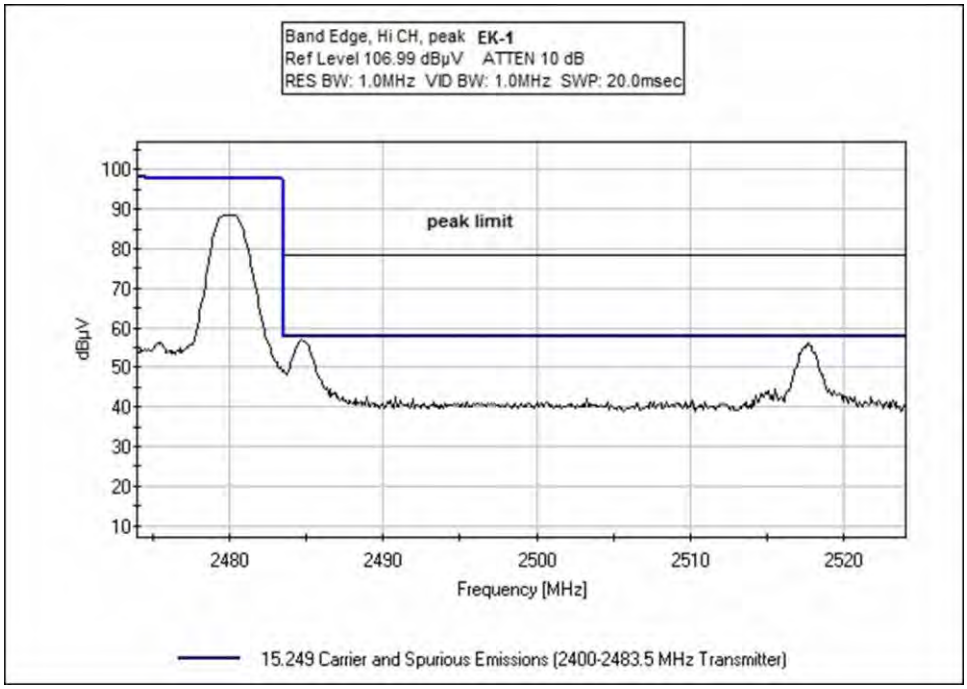
Test Equipment:

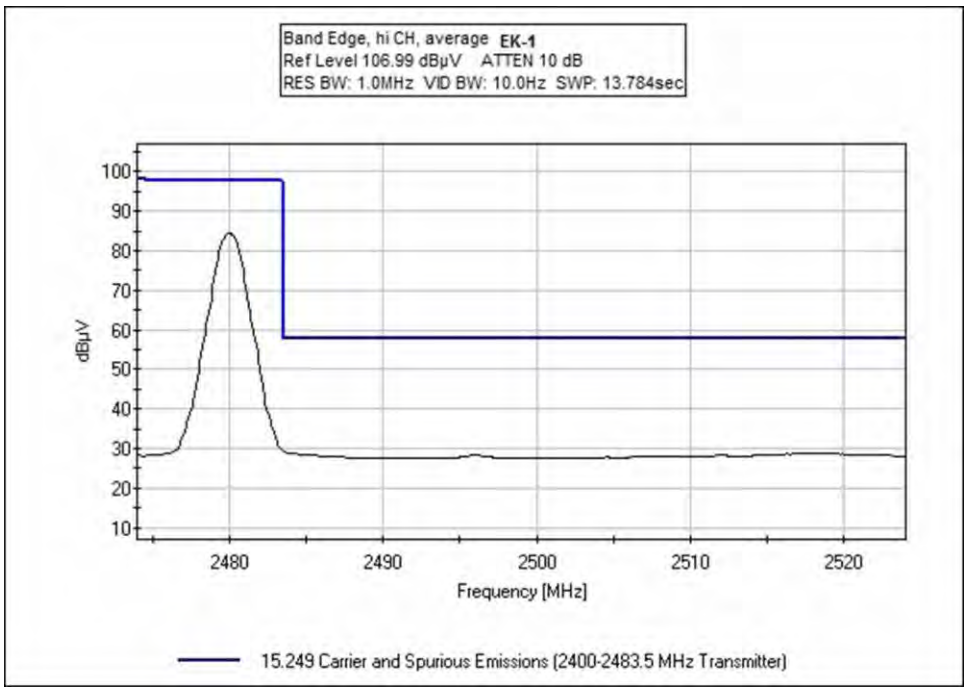
ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN00787	Preamp	83017A	6/10/2015	6/10/2017
T2	AN01646	Horn Antenna	3115	3/18/2014	3/18/2016
T3	ANP04382	Cable	LDF-50	7/30/2014	7/30/2016
T4	ANP06360	Cable	L1-PNMNM-48	7/29/2014	7/29/2016
T5	ANP06554	Cable	32022-29094K-29094K-24TC	3/19/2014	3/19/2016
T6	AN02869	Spectrum Analyzer	E4440A	7/17/2015	7/17/2016

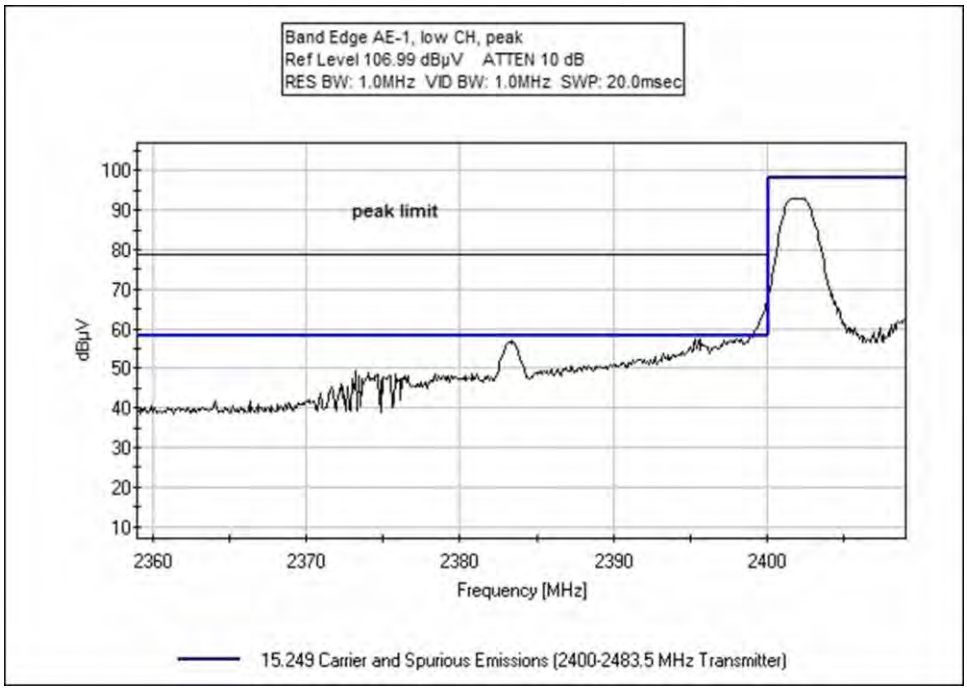
Band Edge Plots

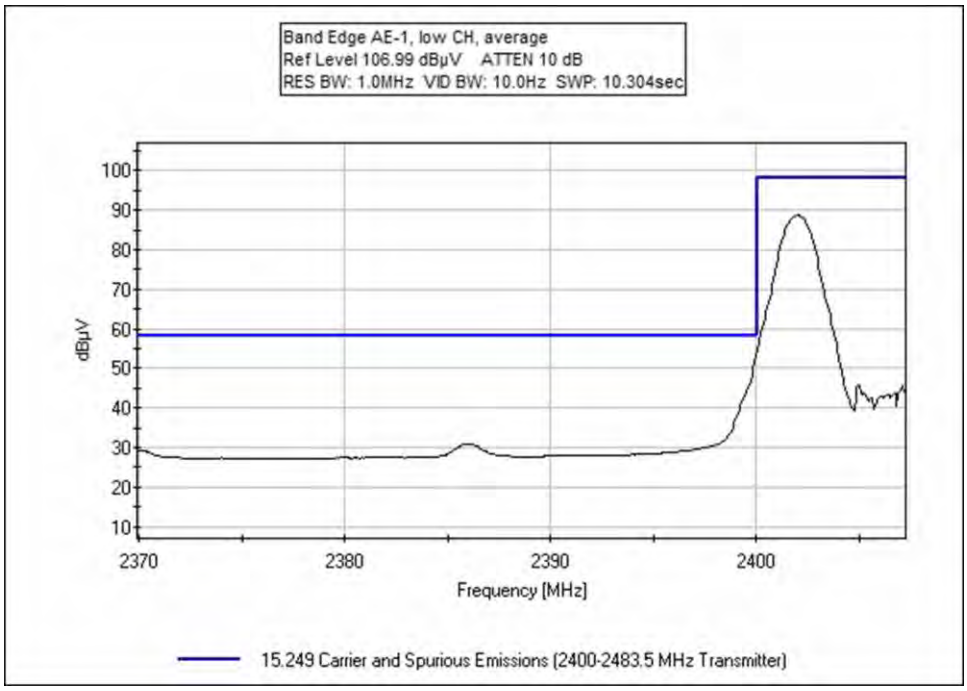


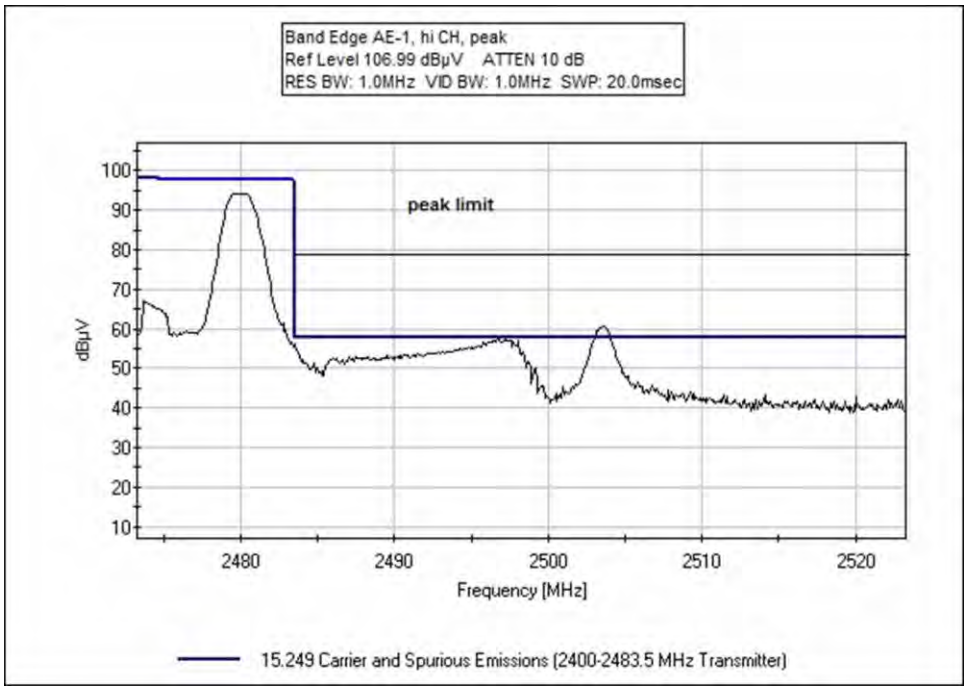


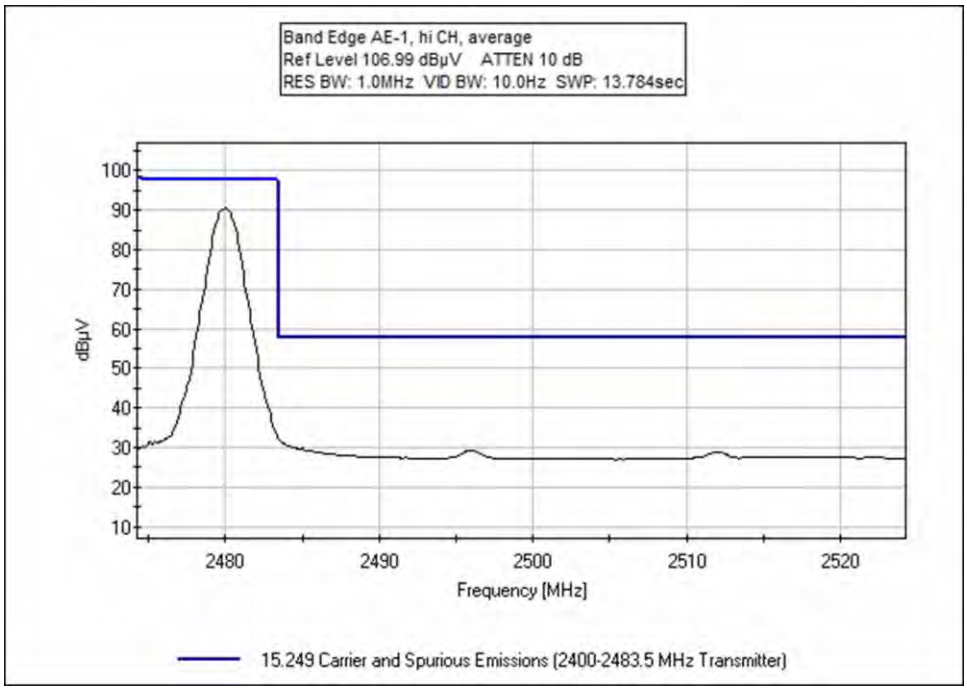

Band Edge, Hi CH, peak EK-1
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 20.0msec
peak limit
dBµV
100
90
80
70
60
50
40
30
20
10
2480
2490
2500
2510
2520
Frequency [MHz]
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)


Band Edge, hi CH, average EK-1
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 13.784sec
dBµV
100
90
80
70
60
50
40
30
20
10
2480
2490
2500
2510
2520
Frequency [MHz]
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)

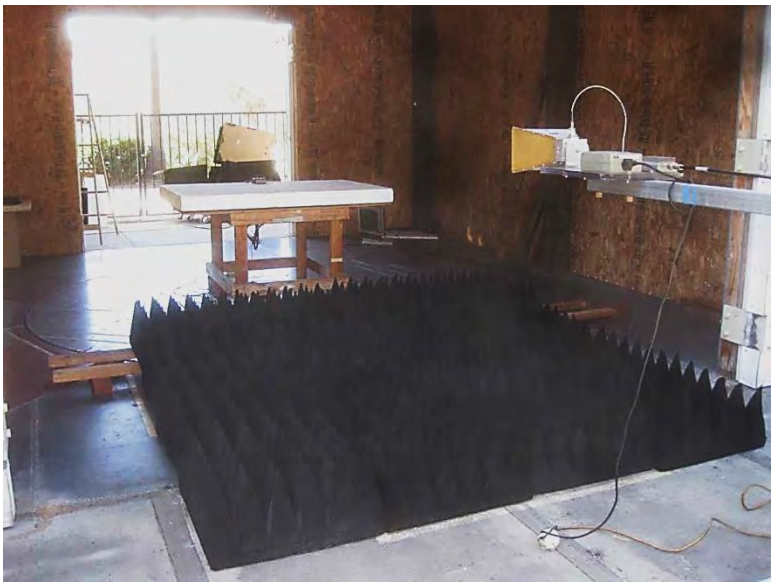

Band Edge AE-1, low CH, peak
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 20.0msec
peak limit
dBµV
100
90
80
70
60
50
40
30
20
10
2360
2370
2380
2390
2400
Frequency [MHz]
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)


Band Edge AE-1, low CH, average
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 10.304sec
dBµV
100
90
80
70
60
50
40
30
20
10
2370
2380
2390
2400
Frequency [MHz]
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)


Band Edge AE-1, hi CH, peak
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 20.0msec
peak limit
dBµV
100
90
80
70
60
50
40
30
20
10
2480
2490
2500
2510
2520
Frequency [MHz]
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)


Band Edge AE-1, hi CH, average
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 13.784sec
dBµV
100
90
80
70
60
50
40
30
20
10
2480
2490
2500
2510
2520
Frequency [MHz]
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)

Test Setup Photos

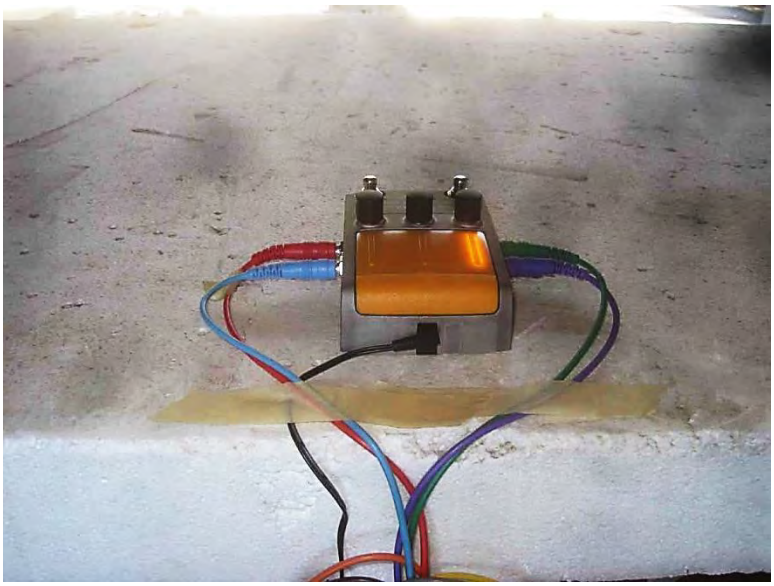


EKKO EK-1 Test Setup, 30MHz – 1GHz

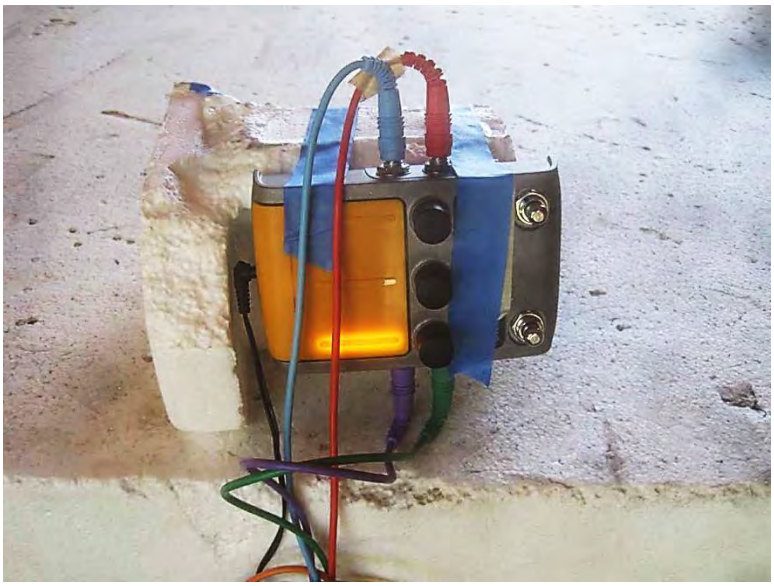
EKKO EK-1 Test Setup, 30MHz – 1GHz

EKKO EK-1 Test Setup, 1 – 25GHz

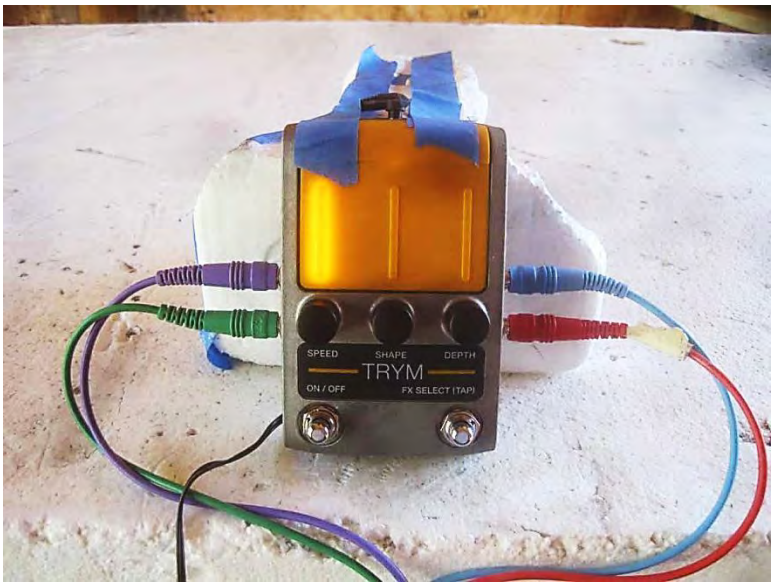
EKKO EK-1 Test Setup, 1 – 25GHz



EKKO EK-1, X axis



EKKO EK-1, Y axis



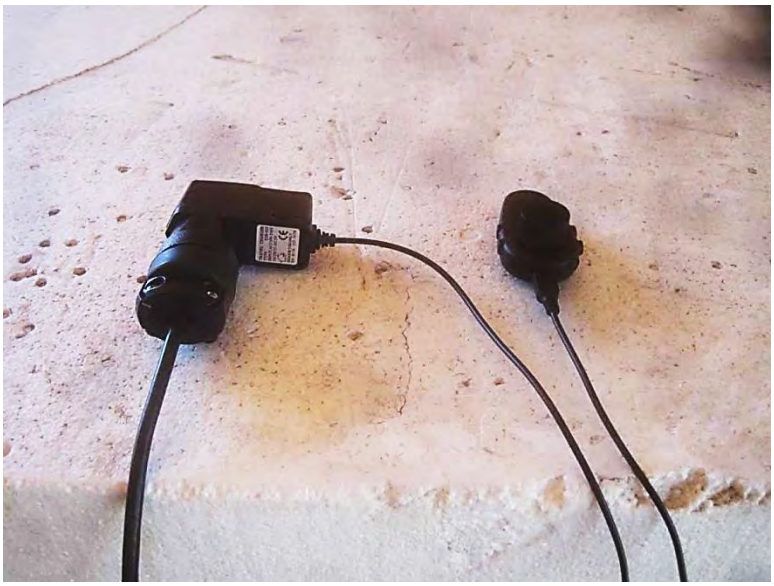
EKKO EK-1, Z axis

AERO AE-1 Test Setup, 30MHz – 1GHz

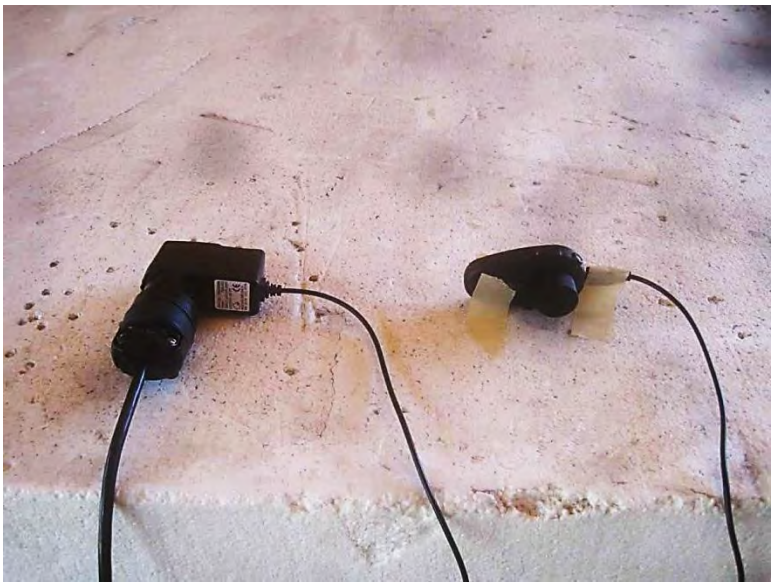
AERO AE-1 Test Setup, 30MHz – 1GHz

AERO AE-1 Test Setup, 1 – 25GHz

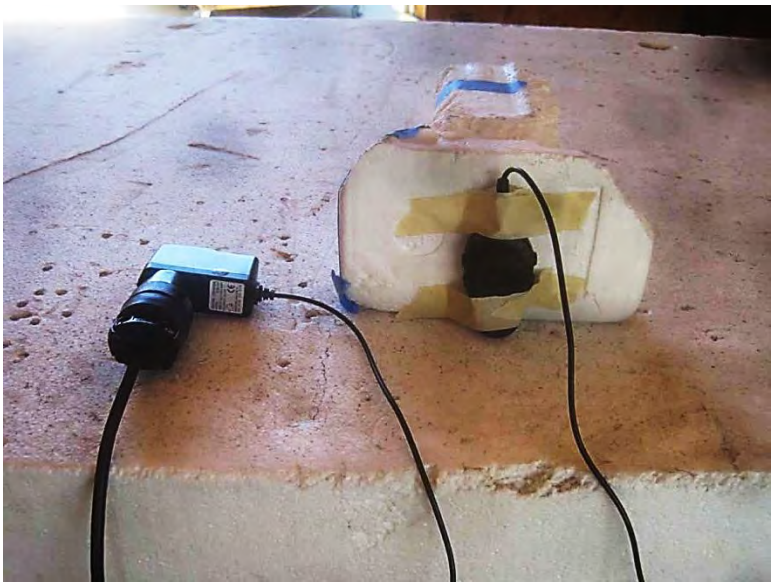
AERO AE-1 Test Setup, 1 – 25GHz



AERO AE-1, X axis



AERO AE-1, Y axis



AERO AE-1, Z axis

SUPPLEMENTAL INFORMATION

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.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	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 carrot ("^") 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.