



## Certificate of Conformity

The products

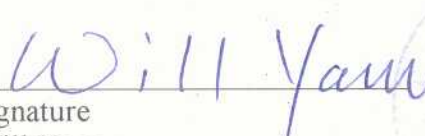
EUT : Audio Distribution System  
Trade Name : RTI  
Model No. : AD-8

which produced by

**Remote Technologies Inc.**  
**5775 12th Ave. East, Suite 180, Shakopee, MN 55379, U.S.A.**

Has been tested by Electronics Testing Center, Taiwan ETC  
And was found to comply with the EMC requirements on the basis of

**EN 55020: 2007**

  
Signature

Will Yauo

Manager of EMC Testing Department II  
Electronics Testing Center, Taiwan



Report Number : 11-04-RBF-173-02

Date of Issue: Jul. 22, 2011

**Note: 1. The results of the Test Report relate only to the items tested.**

**2. The Test Report shall not be reproduced except in full, without the written approval of ETC.**

**3. Together with the applicant's own documented production control, the applicant (or his European authorized representative) could draw up an EC Declaration of Conformity and affix the CE marking.**

**4. EC Declaration of Conformity is the responsibility of the manufacturer/ importer.**

ELECTRONICS TESTING CENTER, TAIWAN  
NO. 34, LIN 5, DINGFU, LINKOU DIST.,  
NEW TAIPEI COUNTY, TAIWAN, 24442,  
R.O.C.

TEL: (02) 26023052  
INT: +886-2-26023052  
FAX: (02) 26010910  
INT: +886-2-26010910



## TEST REPORT

Responsible Party : *Remote Technologies Inc.*

Manufacturer : *Amcli International Corp.*

Description of Product : *Audio Distribution System*

Trade Name : *RTI*

Model No. : *AD-8*

Test Report File No. : *11-04-RBF-173-02*

Date Test Item Received : *Apr. 26, 2011*

Date Test Campaign : *Jul. 21, 2011*

Completed

Date of Issue : *Jul. 22, 2011*

Test Performed by

ELECTRONICS TESTING CENTER , TAIWAN

NO. 34. LIN 5. DINGFU, LINKOU DIST.,

NEW TAIPEI COUNTY, TAIWAN, 24442, R.O.C.

<http://www.etc.org.tw> ; e-mail : [emc@etc.org.tw](mailto:emc@etc.org.tw)

TEL : +886-2-26023052

FAX : +886-2-26010910

This test report consists of 44 Pages. This test report is the property of ETC, and shall not be reproduced except in full, without the written consent of ETC. ETC hereby returns all rights-in-data to [*Remote Technologies Inc.*] for their exclusive legal use.

Note : 1. The results of the Test Report relate only to the items tested.

2. The Test Report shall not be reproduced except in full , without the written approval of ETC.

## **CONTENTS**


● EMC TEST REPORT .....	1
● CONTENTS .....	2
1. TEST REPORT CERTIFICATION .....	3
2. SUMMARY OF TEST RESULTS.....	4
2.1 Test result.....	4
2.2 Description of EUT:.....	5
2.3 Related Information of EUT: .....	5
2.4 Tested Configuration:.....	5
2.5 Deviation Record: .....	5
3. TEST MODE & EUT COMPONENTS DESCRIPTION .....	6
4. TEST EQUIPMENTS.....	7
4.1 TEST EQUIPMENTS.....	7
5 IMMUNITY REQUIREMENTS:.....	8
5.1 Performance criteria.....	8
5.2 Evaluation of audio quality:.....	8
5.3 Evaluation of picture quality: .....	8
6. SUMMARY OF TEST RESULTS.....	9
6.1 IMMUNITY AGAINST RFI VOLTAGES (S2a) .....	9
6.2 RADIATED FIELDS(S3,S5).....	26
6.3 ELECTROSTATIC DISCHARGE .....	33
6.4 EFT/BURST TESTING.....	41

**1. TEST REPORT CERTIFICATION**

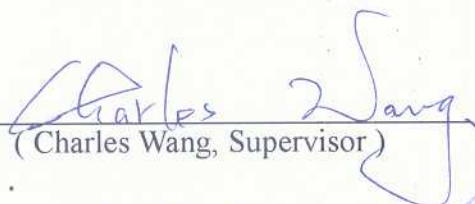
Client : Remote Technologies Inc.  
Address : 5775 12th Ave. East, Suite 180, Shakopee, MN 55379, U.S.A.  
Manufacturer : Amcli International Corp.  
Address : (1) 5Fl., No. 8, Alley 11, Lane 327, Sec 2, Chung San Rd., Chung Ho Dist., New Taipei City, Taiwan. ROC  
(2) 2Fl., No. 14, Lane 327, Sec 2, Chung San Rd., Chung Ho Dist., New Taipei City, Taiwan. ROC  
EUT : Audio Distribution System  
Trade name : RTI  
Model No. : AD-8  
Test specifications : EN 55020:2007  
IEC 61000-4-2:2008  
IEC 61000-4-4:2004/A1:2010  
Regulations applied : EN 55020: 2007

The testing described in this report has been carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to believe the sellers from their legal and/or contractual obligations.

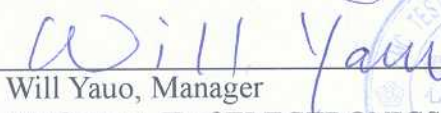
Test Engineer :

  
( Kimi Li, Engineer )

Check By :

  
( Charles Wang, Supervisor )

Approve &amp; Authorized :

  
Will Yauo, Manager  
EMC Dept. II of ELECTRONICS  
TESTING CENTER, TAIWAN

Laboratory Introduction: Electronics Testing Center, Taiwan is recognized, filed and mutual recognition arrangement as following:

- ① ISO9002 : BSMI, TÜV Product Service
- ② ISO/IEC 17025 : BSMI, CNLA, DGT, NVLAP, CCIBLAC, UL, Compliance
- ③ EN45001 : TÜV Rheinland, NEMKO, FIMKO, SGS
- ④ Filing : FCC, Industry Canada, VCCI
- ⑤ MRA : Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through CNLA

## 2. SUMMARY OF TEST RESULTS

### 2.1 Test result

Standard	Test Item	Test Result	Remark
EN 55020: 2007	Immunity to Induced Voltage	PASS	The immunity test at studio and mains terminal of EUT by CDN. The performance criteria is A.
EN 55020: 2007 IEC 61000-4-3	Immunity from radiated fields	PASS	The immunity test at enclosure of EUT by open strip line. The performance criteria is A.
EN 55020: 2007	Radiated fields	PASS	900MHz (duty cycle 1/8 , 217Hz repetition frequency): 3V/m
EN 55020: 2007 IEC 61000-4-2	Electronic discharge	PASS	Contact discharge up to $\pm 4$ kV Air discharge up to $\pm 8$ kV The performance criteria is B
EN 55020: 2007 IEC 61000-4-4:	EFT/Burst	PASS	$\pm 0.5$ kV , $\pm 1$ kV(AC Input) The performance criteria is B

**2.2 Description of EUT:**

Equipment	Audio Distribution System
Trade Name	RTI
Model No.	AD-8
Serial Model	----
OEM Brand/Model No.	----
Model Difference	----
Product Description	More details of EUT technical specification, please refer to the User's Manual.
Power Supply	115/230Vac, 2A/1A
Power Board	----
Panel Type	----
Connecting I/O Port(s)	Source Audio In*8 Source Audio Out*8 Zone Audio Out*8
Products Covered	N/A
EUT Modification(s)	N/A

**2.3 Related Information of EUT:**

Please refer to the User's Manual.

**2.4 Tested Configuration:**

The EUT connected without other devices

**2.5 Deviation Record:**

No deviations were required



### 3. Test Mode & EUT Components Description

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

INTF	Monitor	Sound
Mains	Audio Out	P
Source-1 Audio In		P
Source-2 Audio In		P
Source-3 Audio In		P
Source-4 Audio In		P
Source-5 Audio In		P
Source-6 Audio In		P
Source-7 Audio In		P
Source-8 Audio In		P
Source-1 Audio Out		P
Source-2 Audio Out		P
Source-3 Audio Out		P
Source-4 Audio Out		P
Source-5 Audio Out		P
Source-6 Audio Out		P
Source-7 Audio Out		P
Source-8 Audio Out		P
Zone-1 Audio Out		P
Zone-2 Audio Out		P
Zone-3 Audio Out		P
Zone-4 Audio Out		P
Zone-5 Audio Out		P
Zone-6 Audio Out		P
Zone-7 Audio Out		P
Zone-8 Audio Out		P

Note: “ P “ means “ PASS”.

## 4. TEST EQUIPMENTS

### 4.1 TEST EQUIPMENTS

Item	Instrument	Manufacturer	Model	Next Cal. Data
1	Signal generator	R & S	SML01	2012/02/23
2	Signal generator	R & S	SML02	2012/02/23
3	Power meter	R & S	NRVS	2012/02/25
4	RF Amplifier	R & S	TS998AM	N/A
5	Antenna	AR	AT5080	N/A
6	Mpeg2 generator	R & S	DVG	N/A
7	Audio Analyzer	R & S	UPL	2012/02/02
8	TV-Test Transmitter	R & S	SFQ	2012/02/27
9	EMC Immunity tester	EMC -PARTNER	TRANSIENT -1000	2011/08/16
10	Noise Ken	ESD Tester	ESS-2002	2011/10/07



## 5 Immunity requirements:

### 5.1 Performance criteria

<b>Criterion A</b>	<p>The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.</p> <p>If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.</p>
<b>Criterion B</b>	<p>After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomenon below a performance level specified by the manufacturer, when the equipment is used as intended. The Performance level may be replaced by a permissible loss of performance.</p> <p>During the test, degradation of performance is allowed. However, no change of operating state if stored data allowed to persist after the test. If the minimum performance level (or the permissible performance loss ) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.</p>
<b>Criterion C</b>	<p>Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.</p> <p>Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p>

### 5.2 Evaluation of audio quality:

<b>Audio Quality</b>	<p>The criterion of compliance with the requirement is a wanted to unwanted audio signal ration 40 dB at a wanted audio signal level of 50mW.</p> <p>If the S/N ratio is less than 43dB,the performance criterion for audio assessment is the actual S/N ratio minus 3dB.</p> <p>For AM and FM car radios and for broadcast receiver cards for computers the criterion is 26dB at 500mW</p>
----------------------	---

### 5.3 Evaluation of picture quality:

<b>Picture Quality</b>	<p>In the evaluation of picture interference the wanted test signal produces a standard picture and unwanted signal produces a degradation of the picture.</p> <p>The criterion of compliance with the requirement is just perceptible degradation by observation of the picture. The screen shall be observed under normal viewing conditions, at a viewing distance of six times the height of the screen</p>
------------------------	---

## 6. SUMMARY OF TEST RESULTS

### 6.1 IMMUNITY AGAINST RFI VOLTAGES (S2a)

#### 6.1.1 TEST LIMIT

Limits of immunity to RF voltages of audio input and output terminals	
Frequency MHz	Level dB (uV) (e.m.f.)
0.15 to 1.6	80 – 90 <sup>a</sup>
1.6 to 20	90 – 120 <sup>a</sup>
20 to 100	120
100 to 150	120 – 110 <sup>b</sup>
<sup>a</sup> Increasing linearly with the logarithm of the frequency	
<sup>b</sup> Decreasing linearly with the logarithm of the frequency	

Limits of immunity to RF voltages of mains, loudspeaker and headphone terminals	
Frequency MHz	Level dB (uV) (e.m.f.)
0.15 to 30	130
30 to 100	120
100 to 150	120 – 110 <sup>a</sup>
<sup>a</sup> Decreasing linearly with the logarithm of the frequency	

#### 6.1.2 TEST PROCEDURE

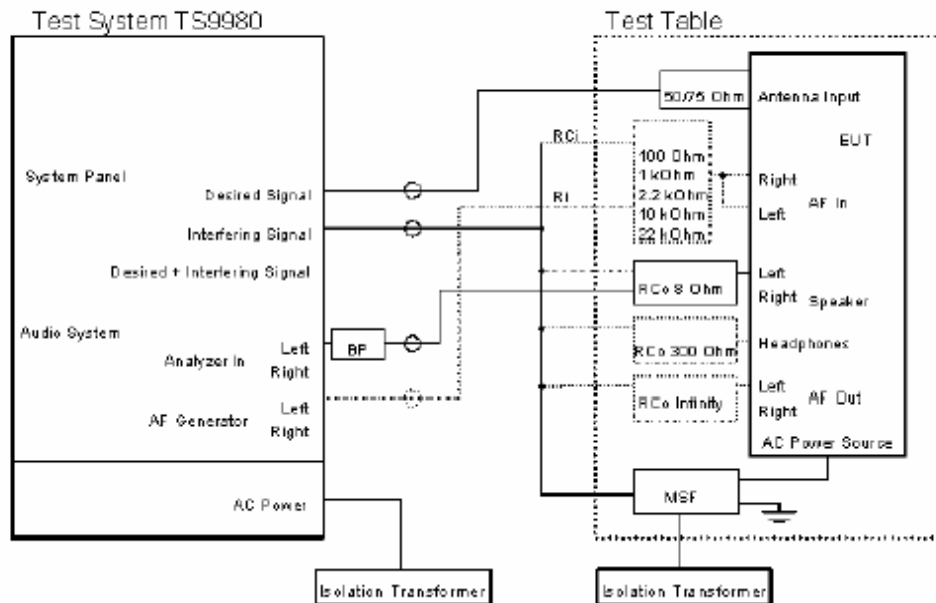
The test requirement was in accordance with  
EN 55020: 2007, item 5.7.

#### 6.1.3 DEVIATION FROM TEST STANDARD

No deviation

## 6.1.4 TEST SETUP

### S2a Measurement Set-up:



### 6.1.5 TEST PHOTOGRAPHS



## 6.2.6 TEST RESULT

## Test Mode: Audio In

Data of test	Jul. 21, 2011	Temperature	26 deg/C
Test Model	AD-8	Humidity	54 %RH

INTF	Monitor	Sound
Mains	Audio Out	P
Source-1 Audio In		P
Source-2 Audio In		P
Source-3 Audio In		P
Source-4 Audio In		P
Source-5 Audio In		P
Source-6 Audio In		P
Source-7 Audio In		P
Source-8 Audio In		P
Source-1 Audio Out		P
Source-2 Audio Out		P
Source-3 Audio Out		P
Source-4 Audio Out		P
Source-5 Audio Out		P
Source-6 Audio Out		P
Source-7 Audio Out		P
Source-8 Audio Out		P
Zone-1 Audio Out		P
Zone-2 Audio Out		P
Zone-3 Audio Out		P
Zone-4 Audio Out		P
Zone-5 Audio Out		P
Zone-6 Audio Out		P
Zone-7 Audio Out		P
Zone-8 Audio Out		P

Note: " P " means " PASS".

Test Mode : Amplifier

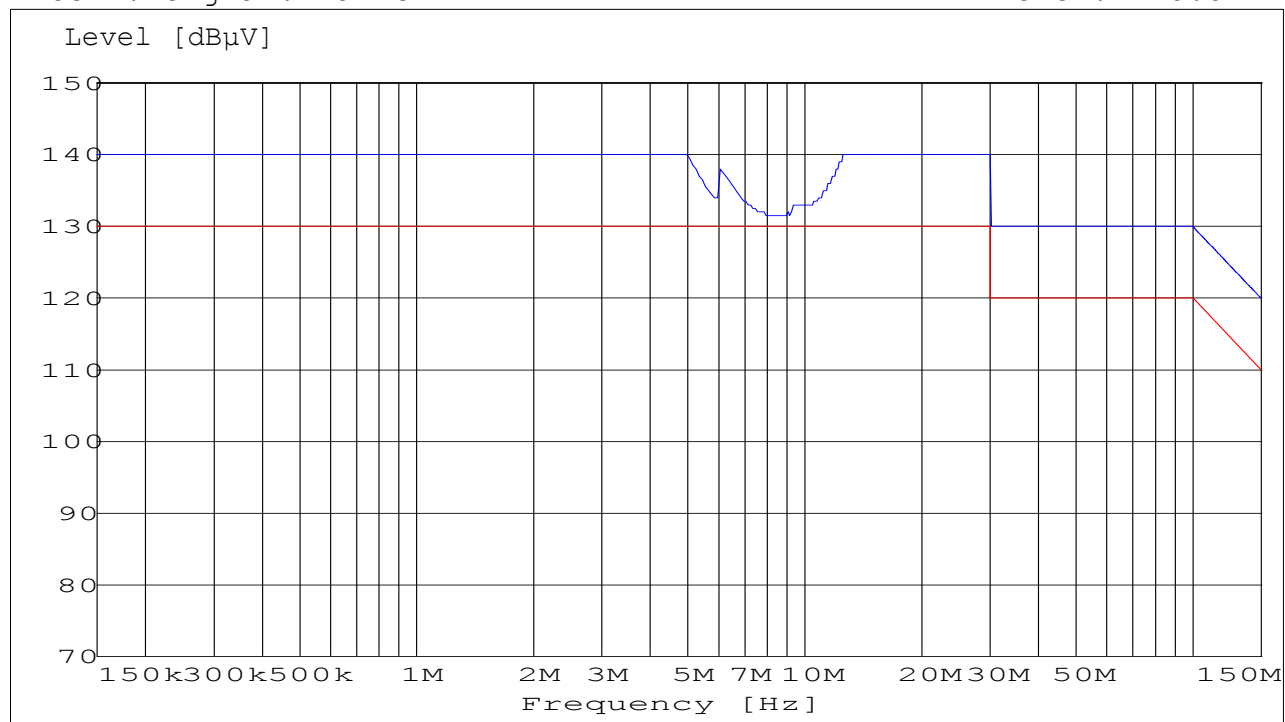
Monitor: Audio Out

Operation Mode : AUX

S/N: 81.4 dB

Interf. Signal: Mains

AF Level: 415.3 mW



Test Mode : Amplifier

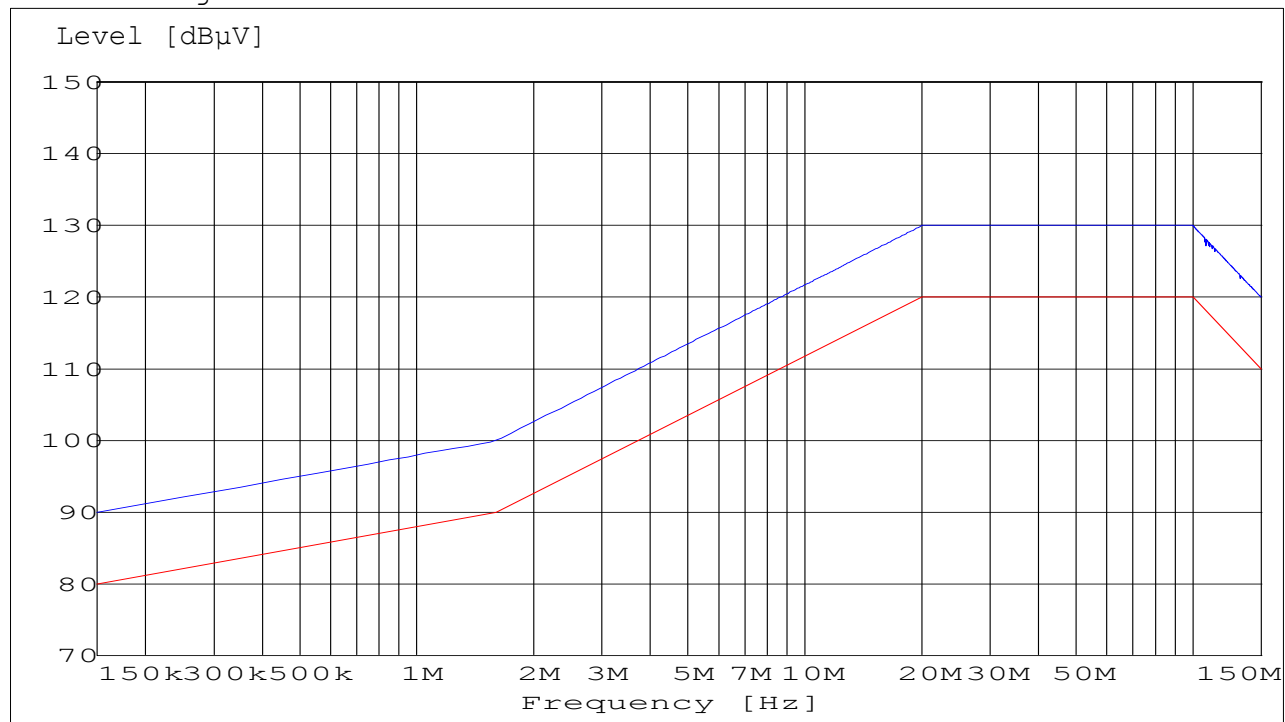
Monitor: Audio Out

Operation Mode : AUX

S/N: 81.4 dB

Interf. Signal: Source-1 Audio In

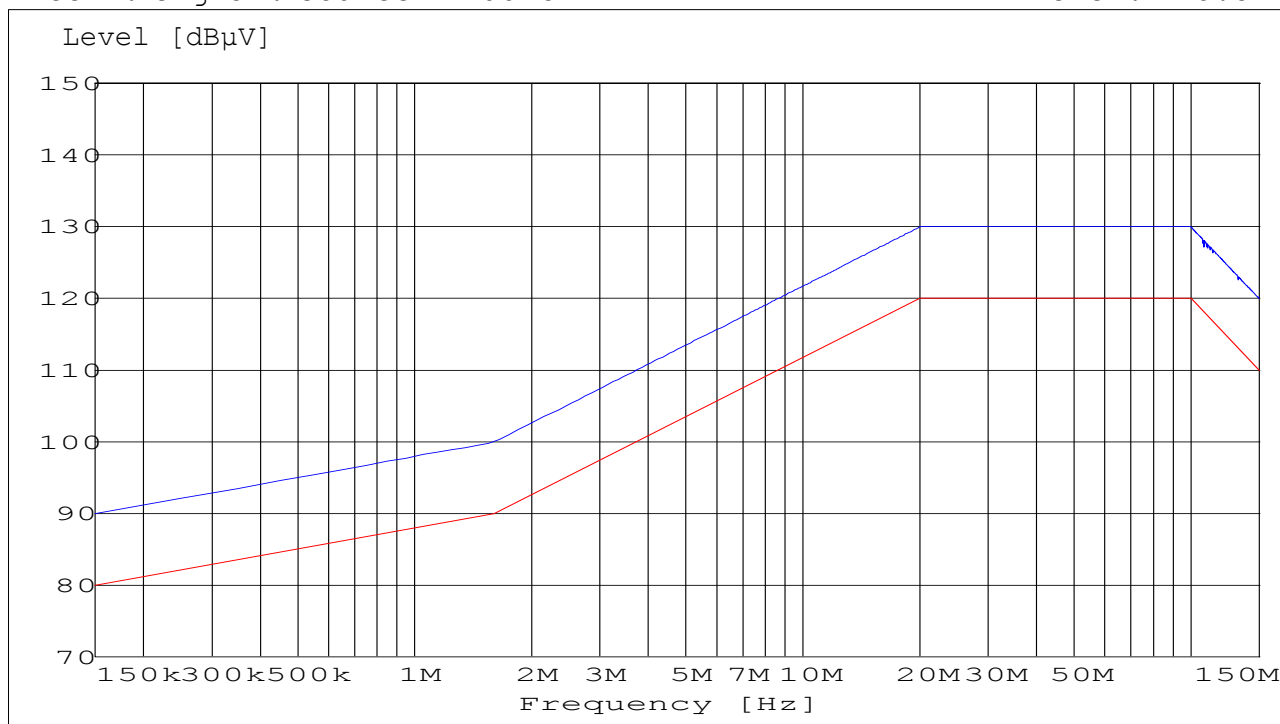
AF Level: 415.3 mW





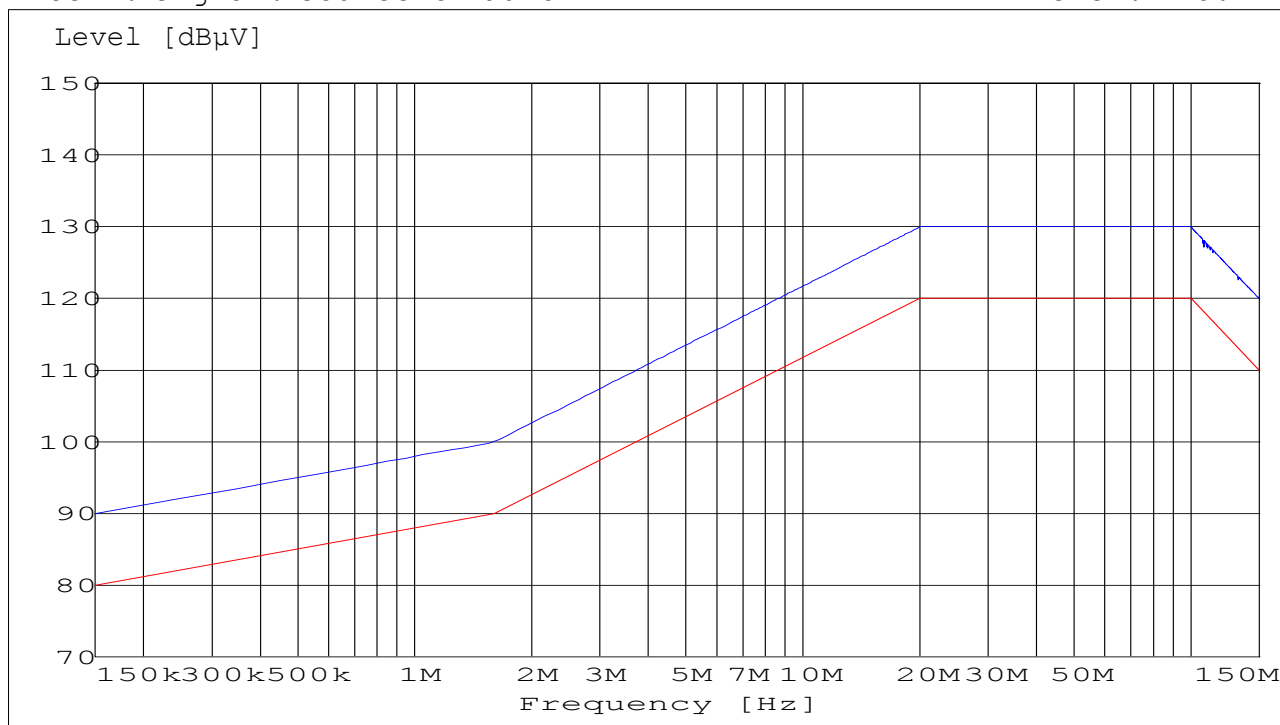
Test Mode : Amplifier  
Operation Mode : AUX  
Interf. Signal: Source-2 Audio In

Monitor: Audio Out  
S/N: 81.4 dB  
AF Level: 415.3 mW



Test Mode : Amplifier  
Operation Mode : AUX  
Interf. Signal: Source-3 Audio In

Monitor: Audio Out  
S/N: 60.0 dB  
AF Level: 415.4 mW

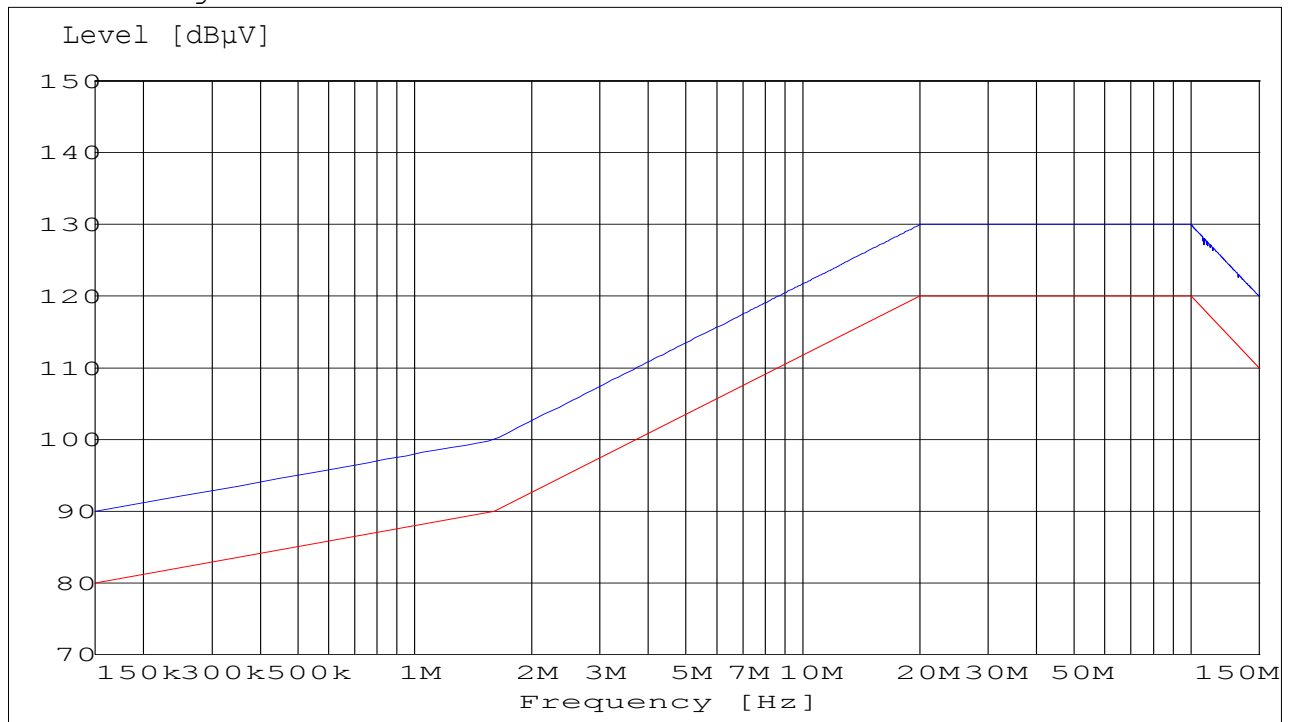






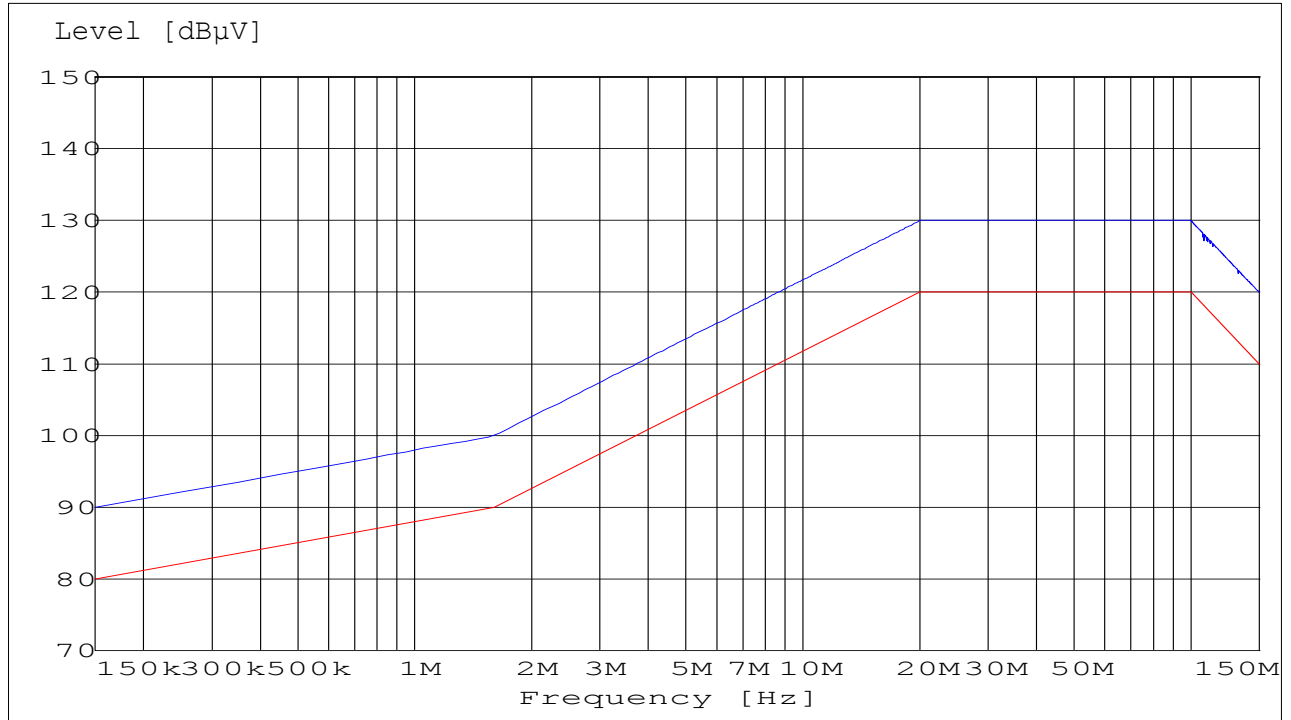
Test Mode : Amplifier  
Operation Mode : AUX  
Interf. Signal: Source-4 Audio In

Monitor: Audio Out  
S/N: 60.0 dB  
AF Level: 415.4 mW



Test Mode : Amplifier  
Operation Mode : AUX  
Interf. Signal: Source-5 Audio In

Monitor: Audio Out  
S/N: 55.6 dB  
AF Level: 415.6 mW



Test Mode : Amplifier

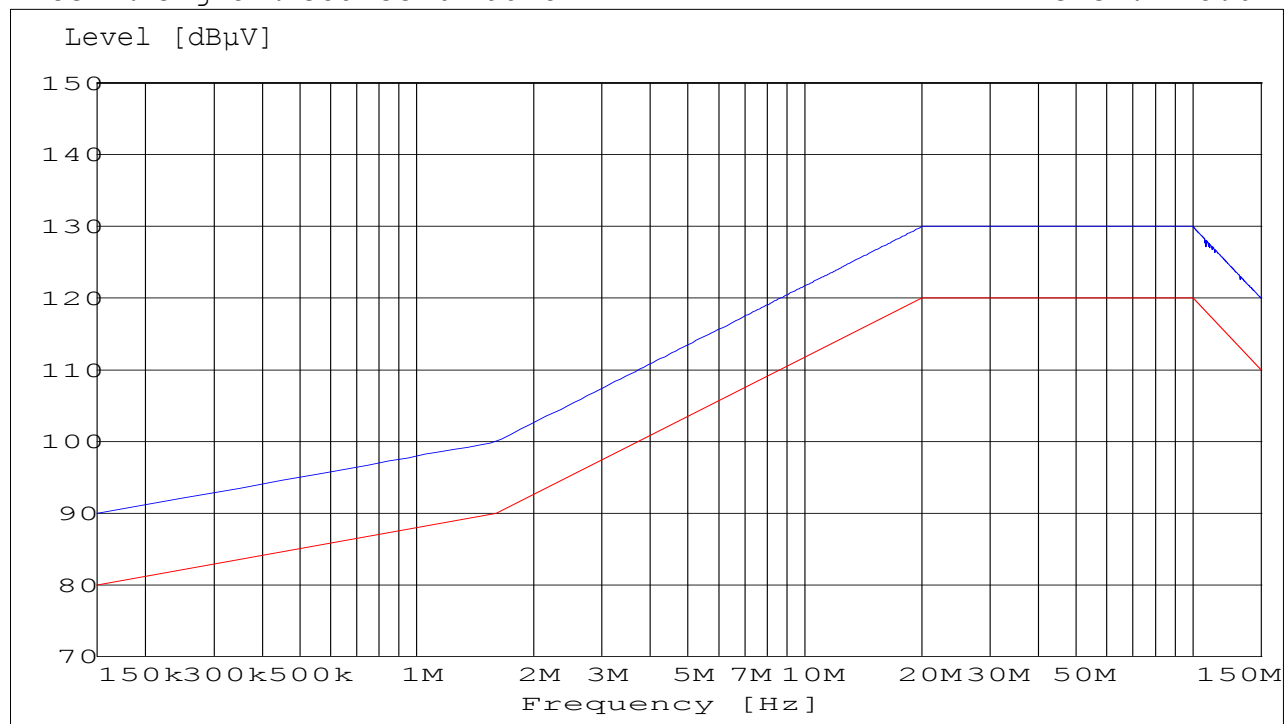
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.6 dB

Interf. Signal: Source-6 Audio In

AF Level: 415.6 mW



Test Mode : Amplifier

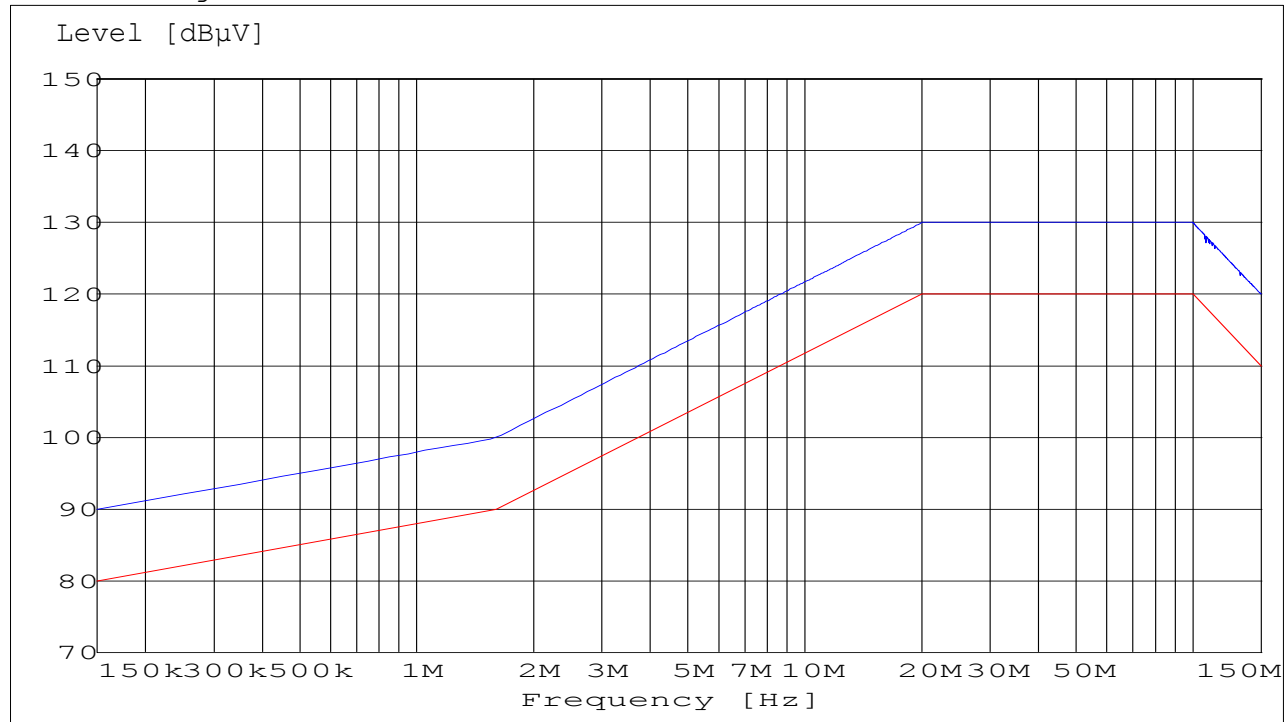
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.6 dB

Interf. Signal: Source-7 Audio In

AF Level: 415.6 mW



Test Mode : Amplifier

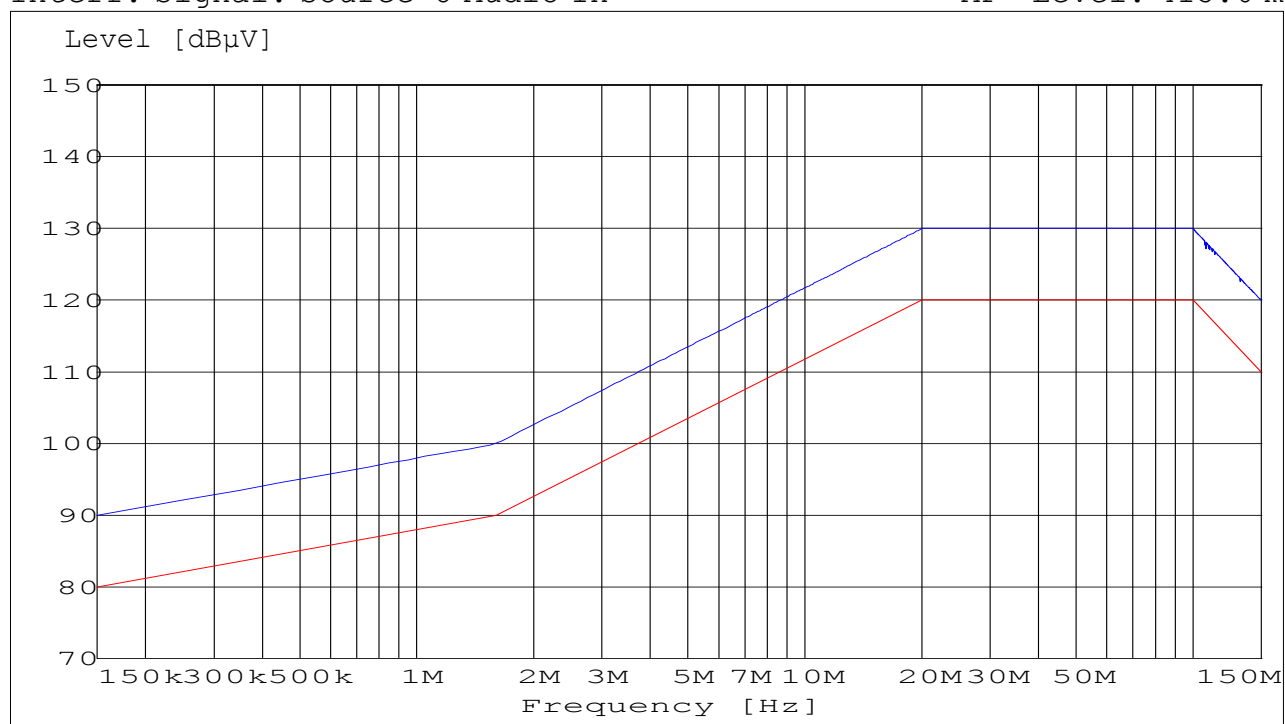
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.6 dB

Interf. Signal: Source-8 Audio In

AF Level: 415.6 mW



Test Mode : Amplifier

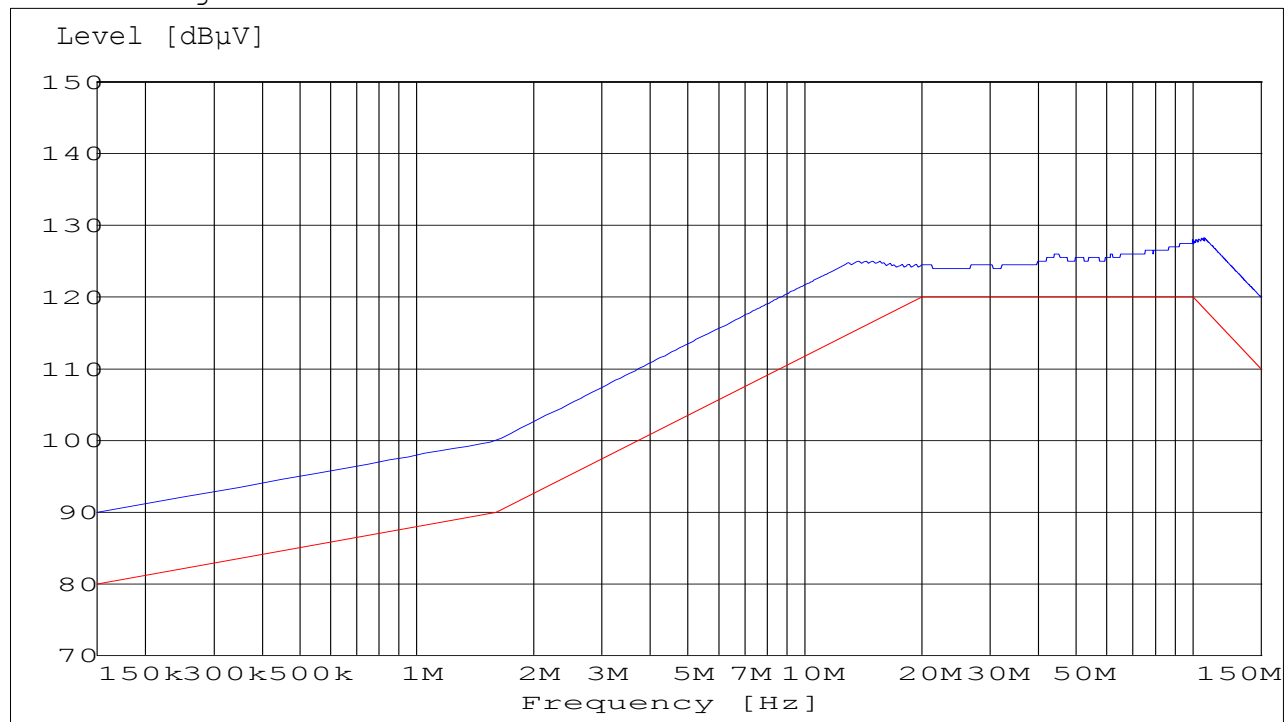
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.9 dB

Interf. Signal: Source-1 Audio Out

AF Level: 459.3 mW



Test Mode : Amplifier

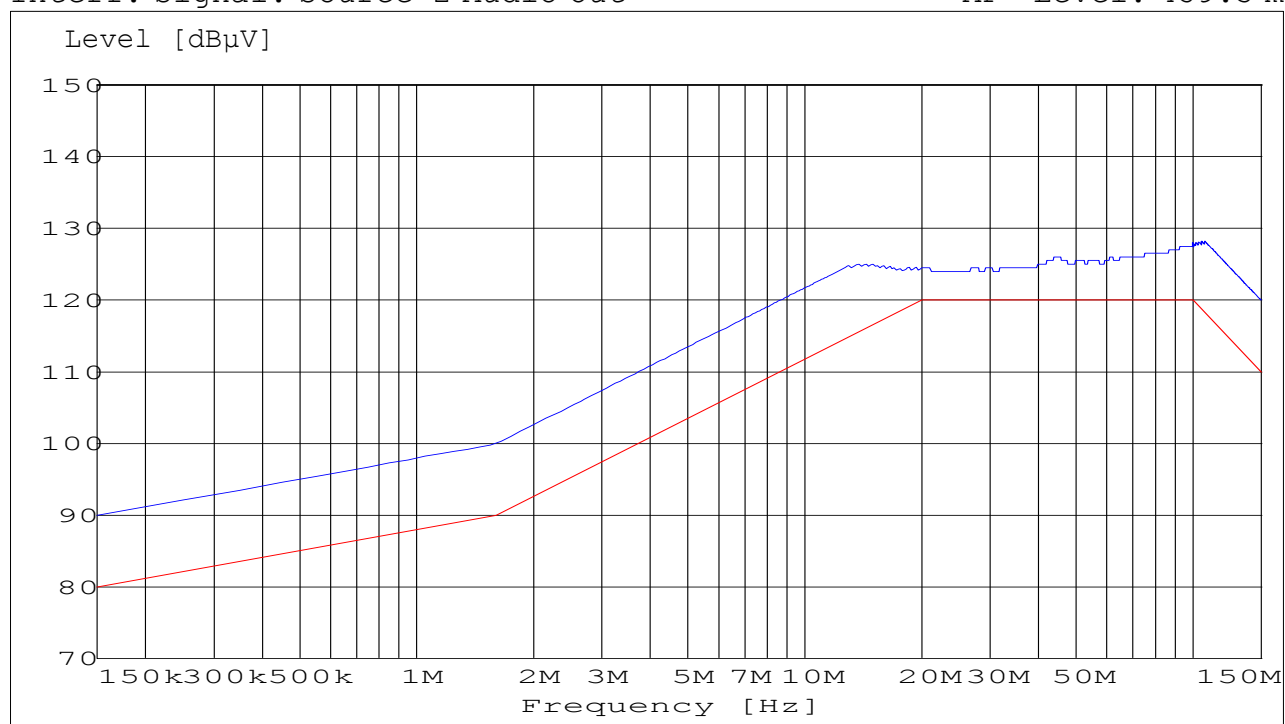
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.9 dB

Interf. Signal: Source-2 Audio Out

AF Level: 459.3 mW



Test Mode : Amplifier

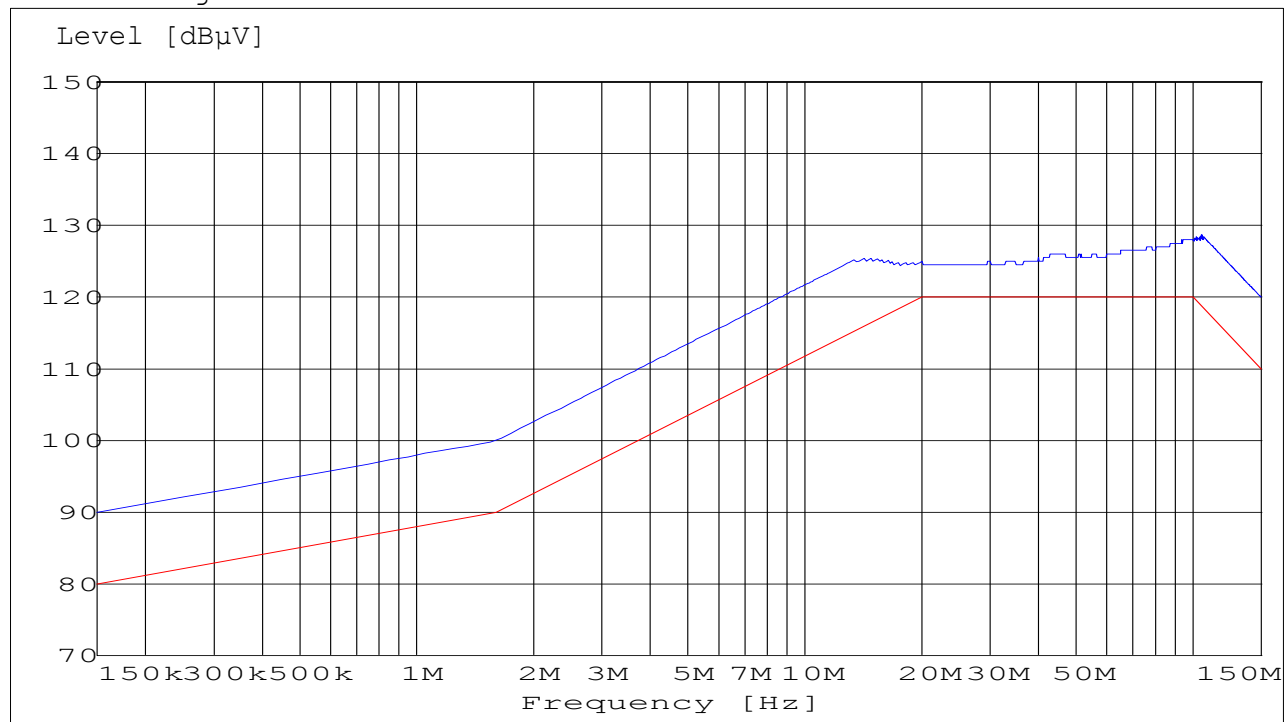
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.9 dB

Interf. Signal: Source-3 Audio Out

AF Level: 459.3 mW



Test Mode : Amplifier

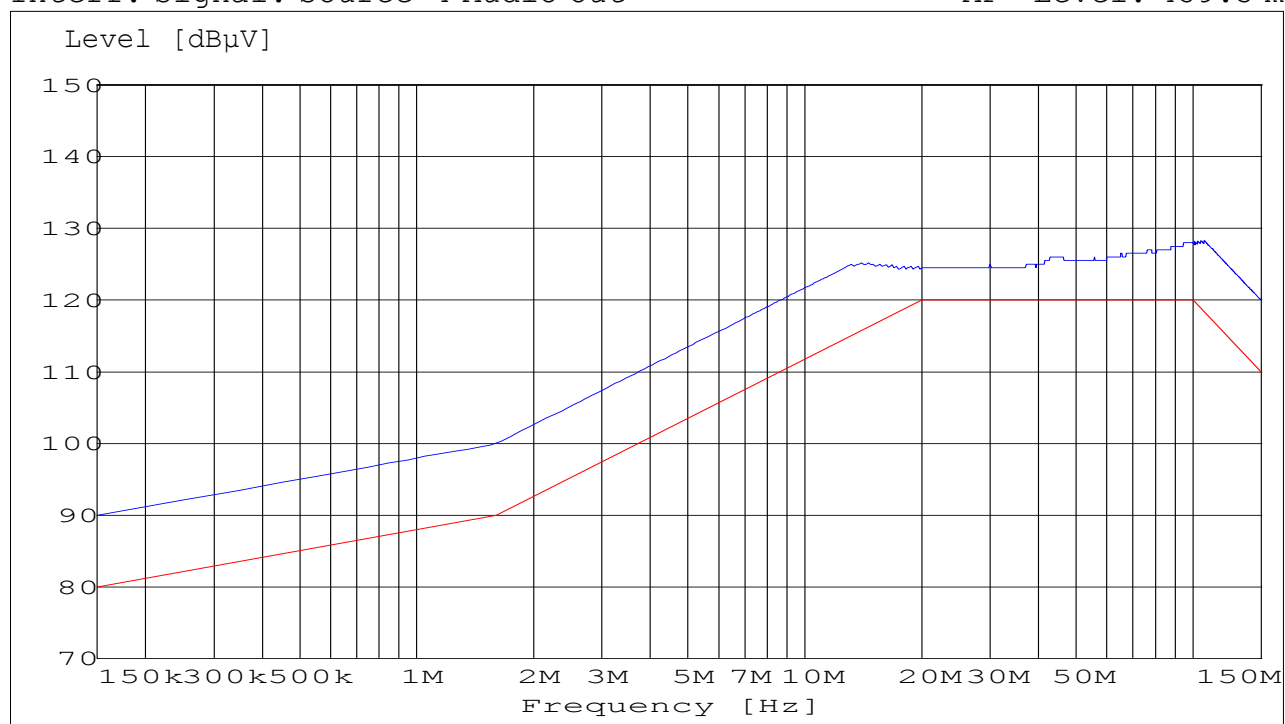
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.9 dB

Interf. Signal: Source-4 Audio Out

AF Level: 459.3 mW



Test Mode : Amplifier

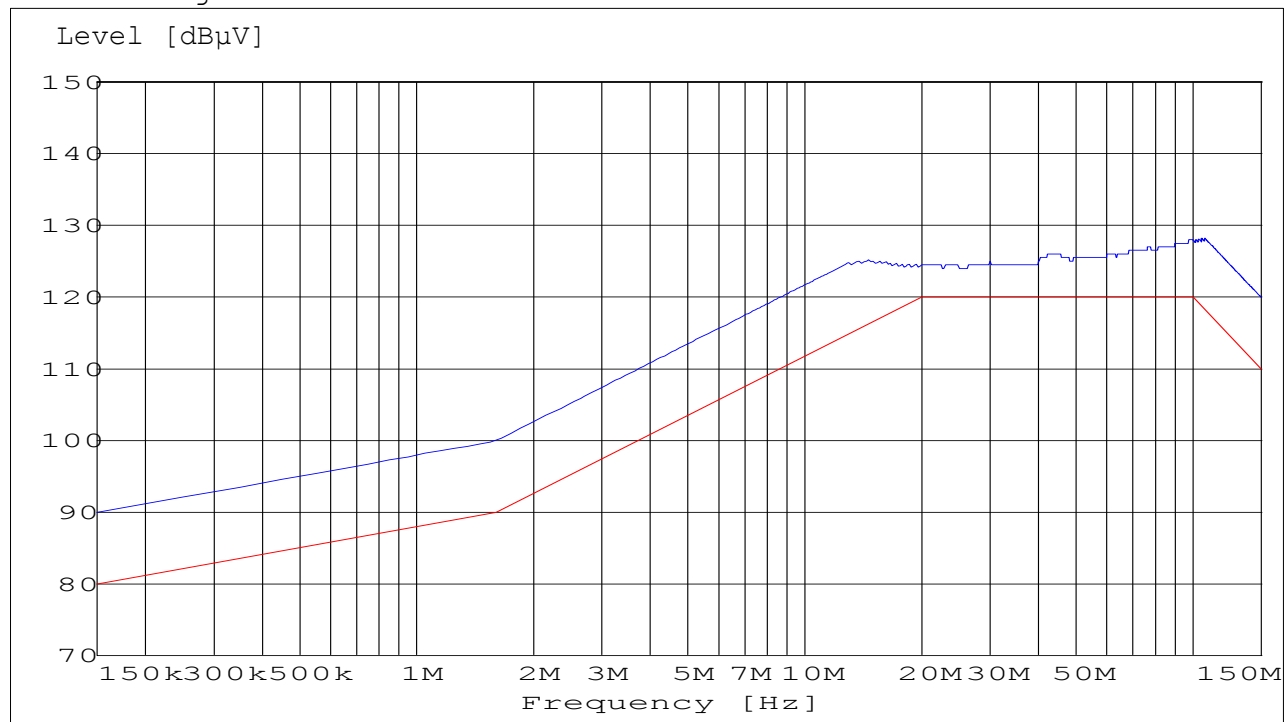
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.9 dB

Interf. Signal: Source-5 Audio Out

AF Level: 459.3 mW





Test Mode : Amplifier

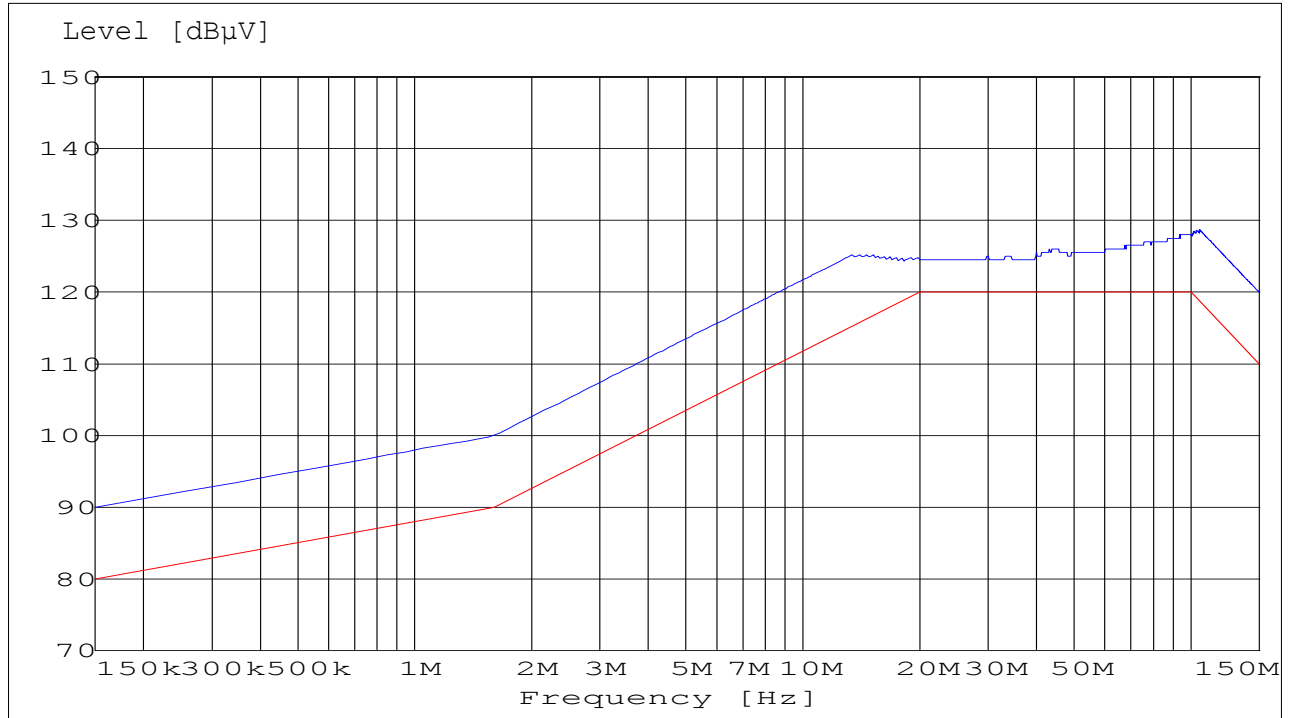
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.9 dB

Interf. Signal: Source-6 Audio Out

AF Level: 459.3 mW



Test Mode : Amplifier

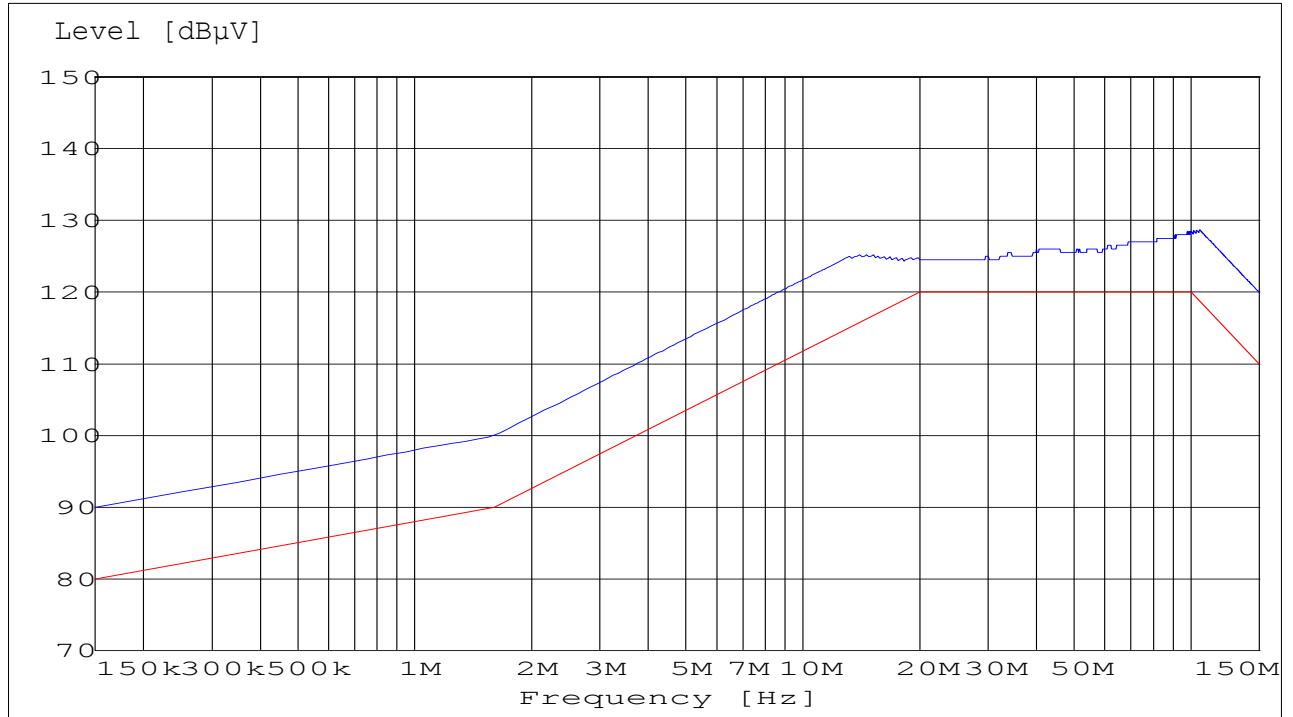
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.9 dB

Interf. Signal: Source-7 Audio Out

AF Level: 459.3 mW



Test Mode : Amplifier

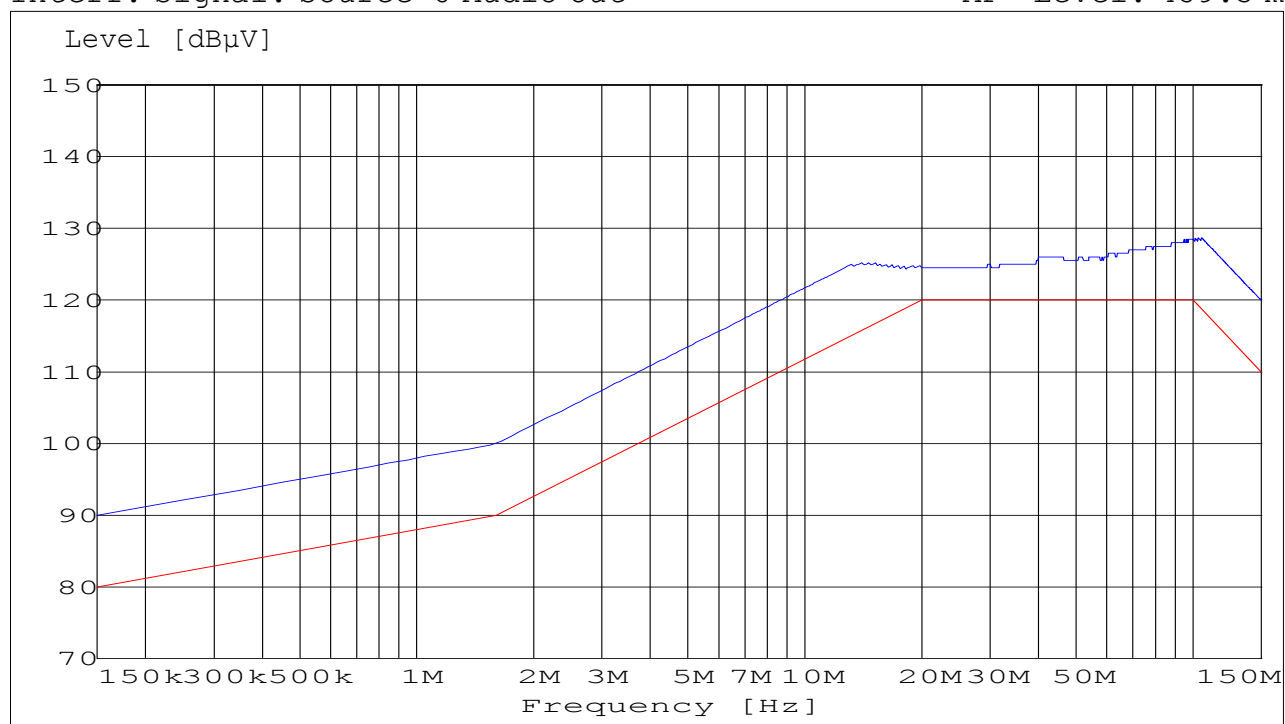
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.9 dB

Interf. Signal: Source-8 Audio Out

AF Level: 459.3 mW



Test Mode : Amplifier

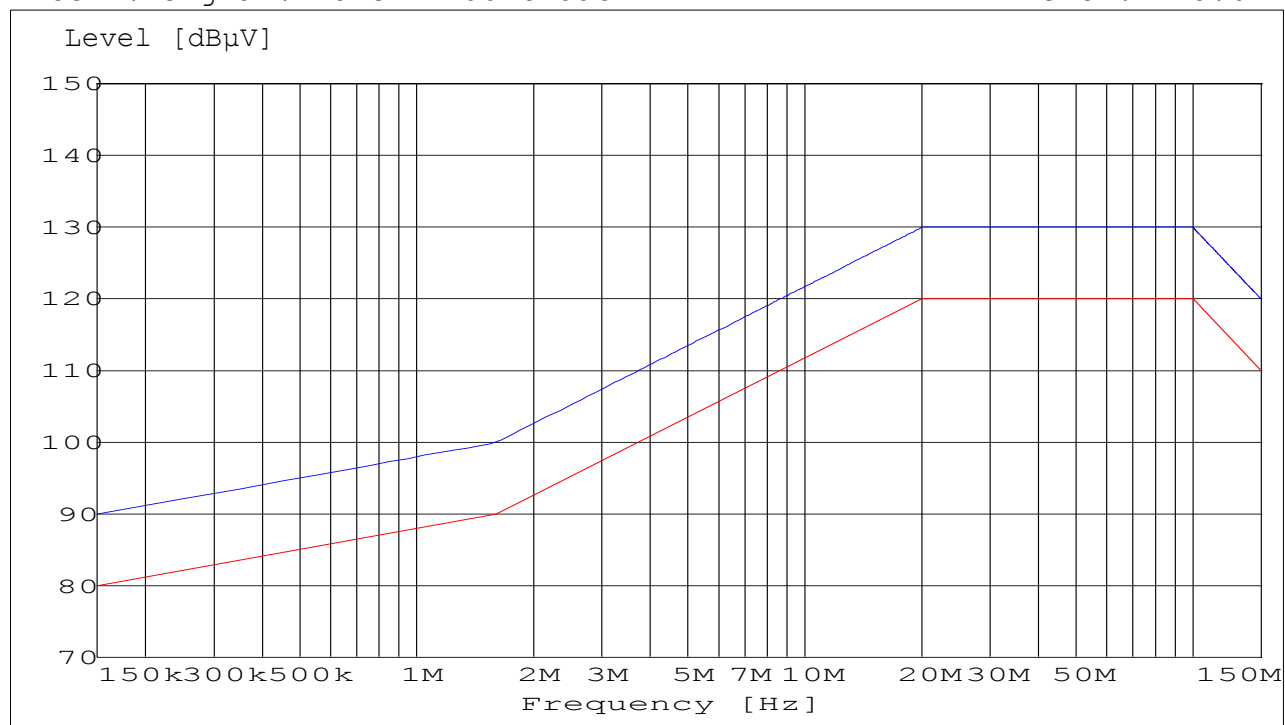
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.6 dB

Interf. Signal: Zone-1 Audio Out

AF Level: 415.6 mW





Test Mode : Amplifier

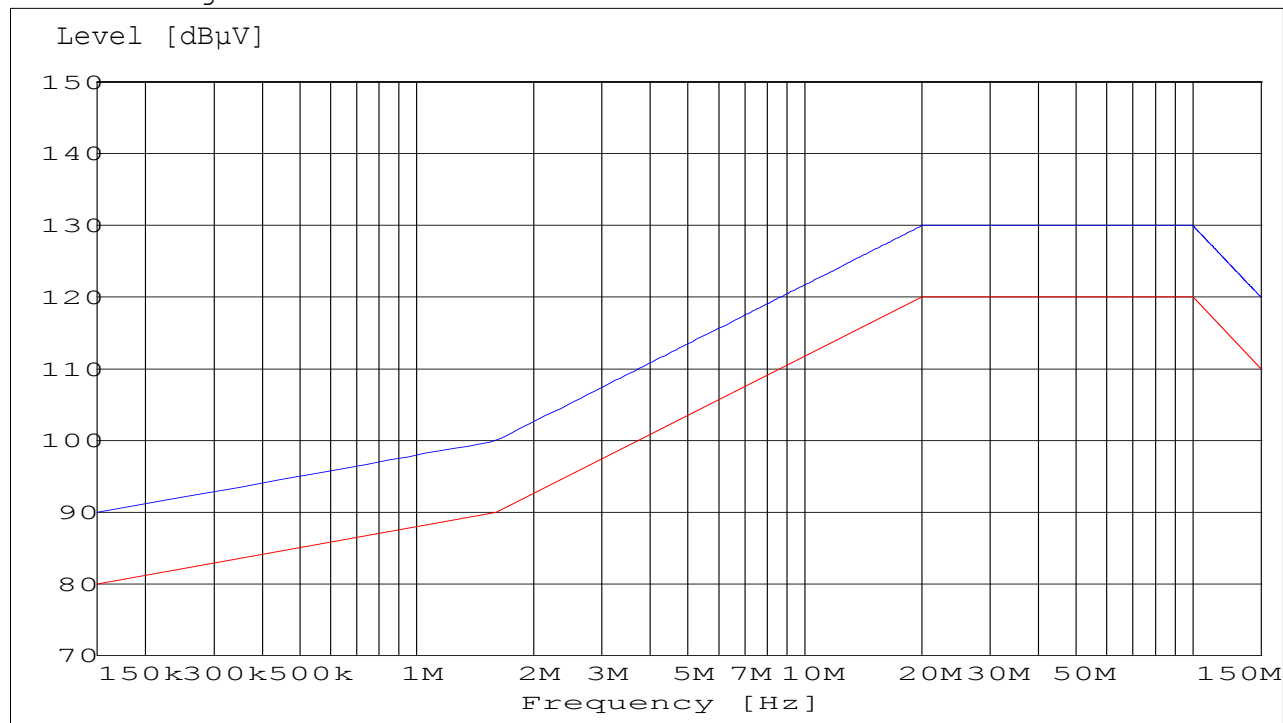
Monitor: Audio Out

Operation Mode : AUX

S/N: 55.6 dB

Interf. Signal: Zone-2 Audio Out

AF Level: 415.6 mW



Test Mode : Amplifier

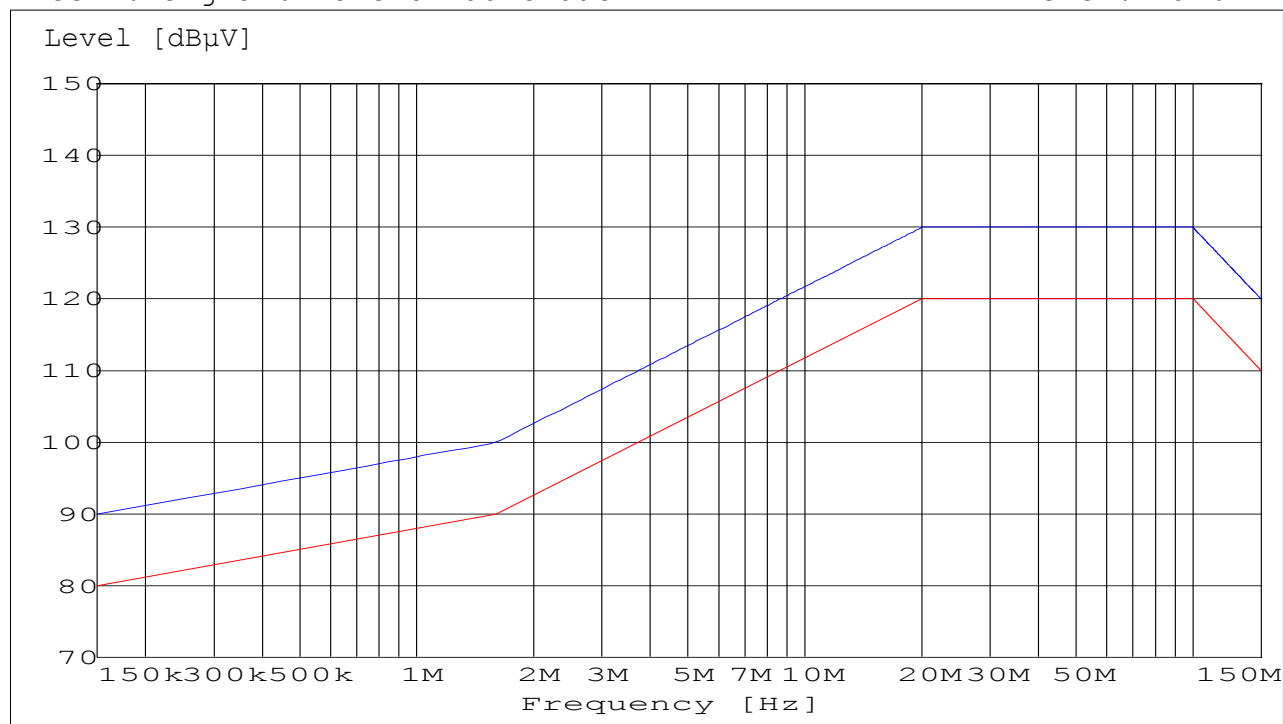
Monitor: Audio Out

Operation Mode : AUX

S/N: 56.1 dB

Interf. Signal: Zone-3 Audio Out

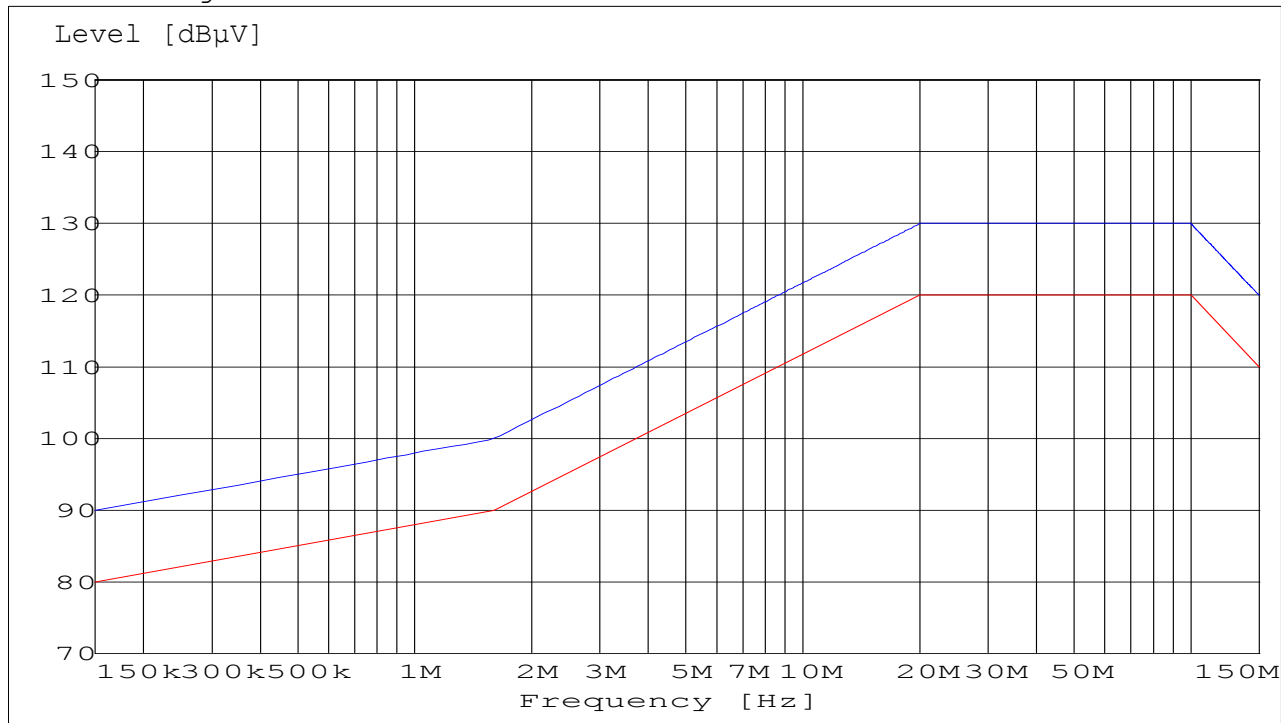
AF Level: 297.2 mW





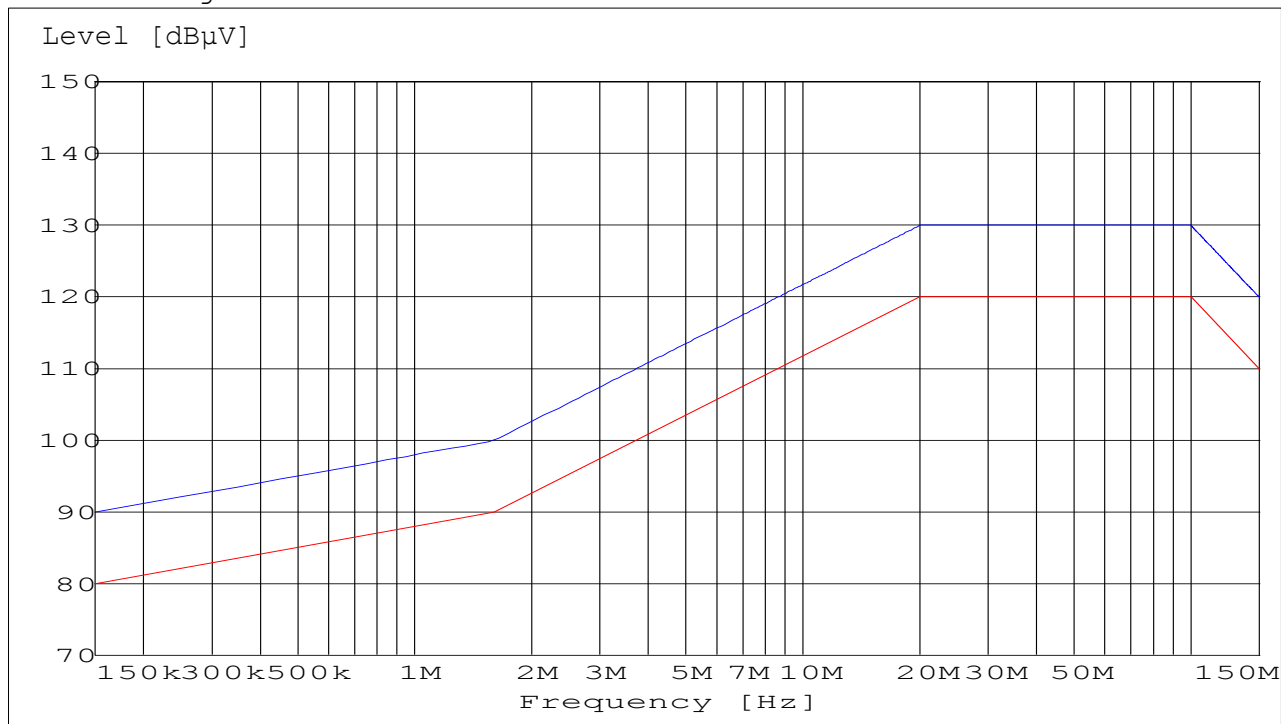
Test Mode : Amplifier  
Operation Mode : AUX  
Interf. Signal: Zone-4 Audio Out

Monitor: Audio Out  
S/N: 53.1 dB  
AF Level: 466.1 mW



Test Mode : Amplifier  
Operation Mode : AUX  
Interf. Signal: Zone-5 Audio Out

Monitor: Audio Out  
S/N: 53.1 dB  
AF Level: 466.1 mW



Test Mode : Amplifier

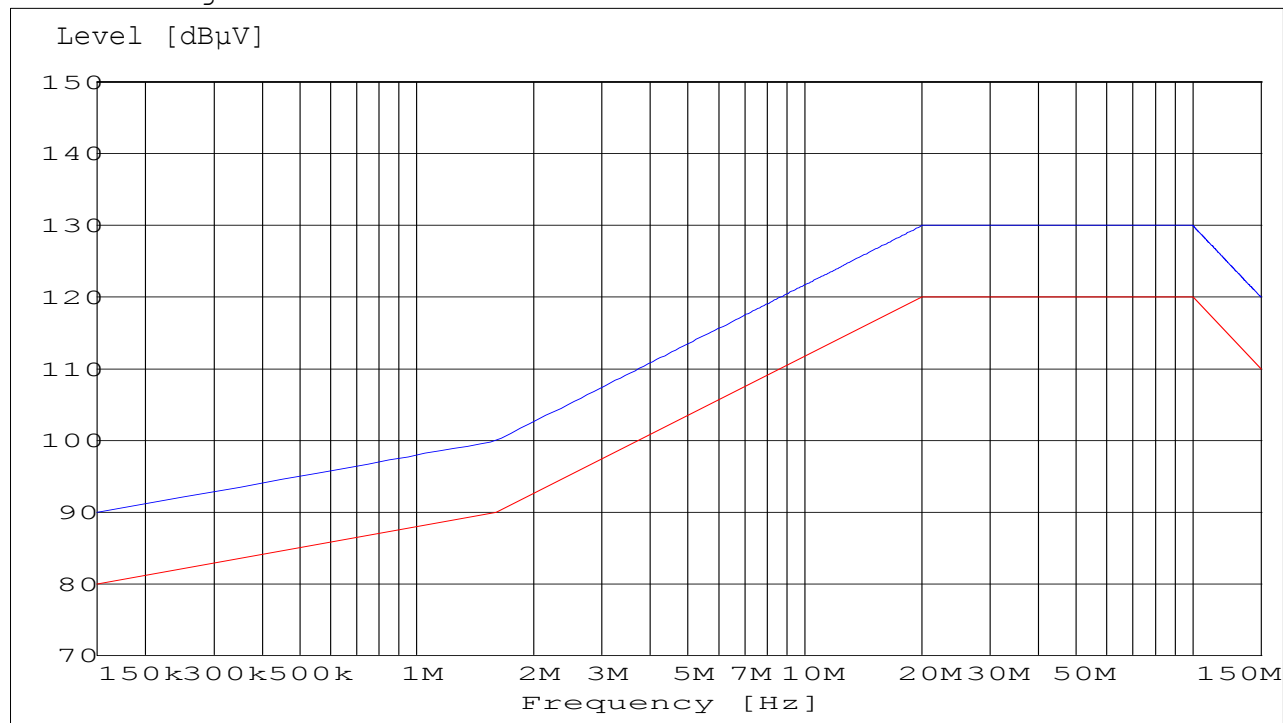
Monitor: Audio Out

Operation Mode : AUX

S/N: 53.1 dB

Interf. Signal: Zone-6 Audio Out

AF Level: 466.1 mW



Test Mode : Amplifier

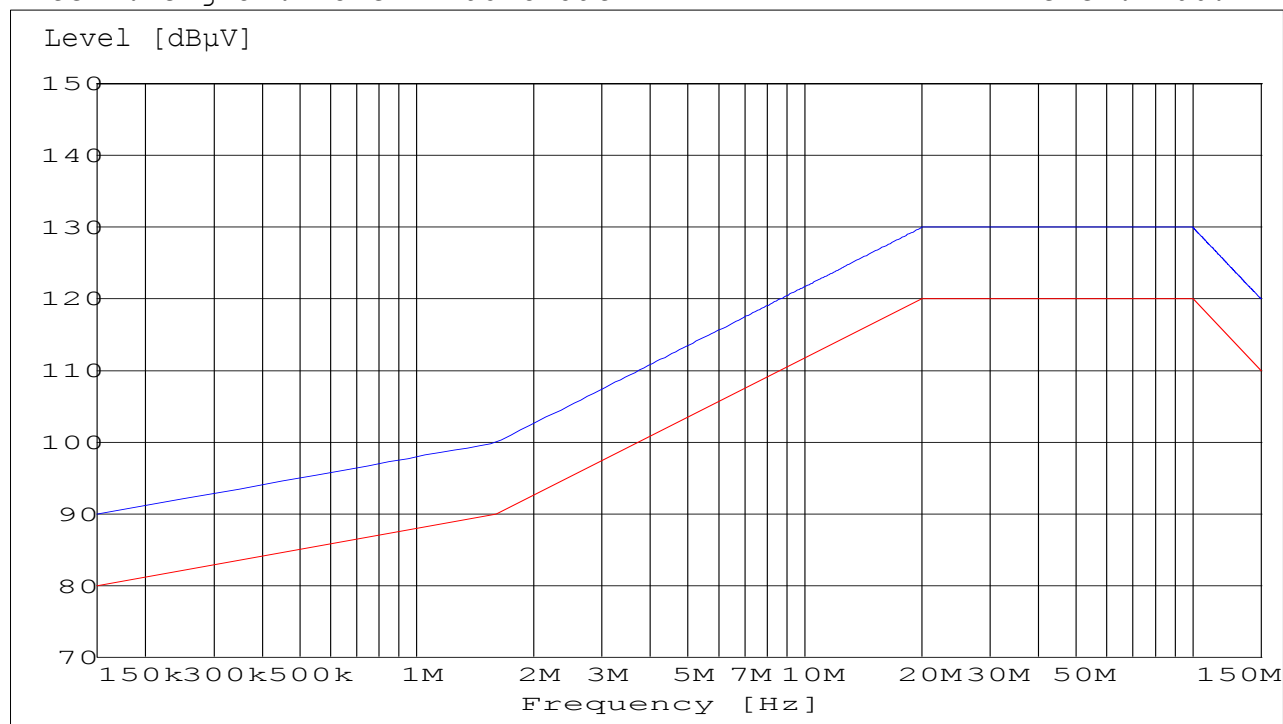
Monitor: Audio Out

Operation Mode : AUX

S/N: 53.1 dB

Interf. Signal: Zone-7 Audio Out

AF Level: 466.1 mW





Test Mode : Amplifier

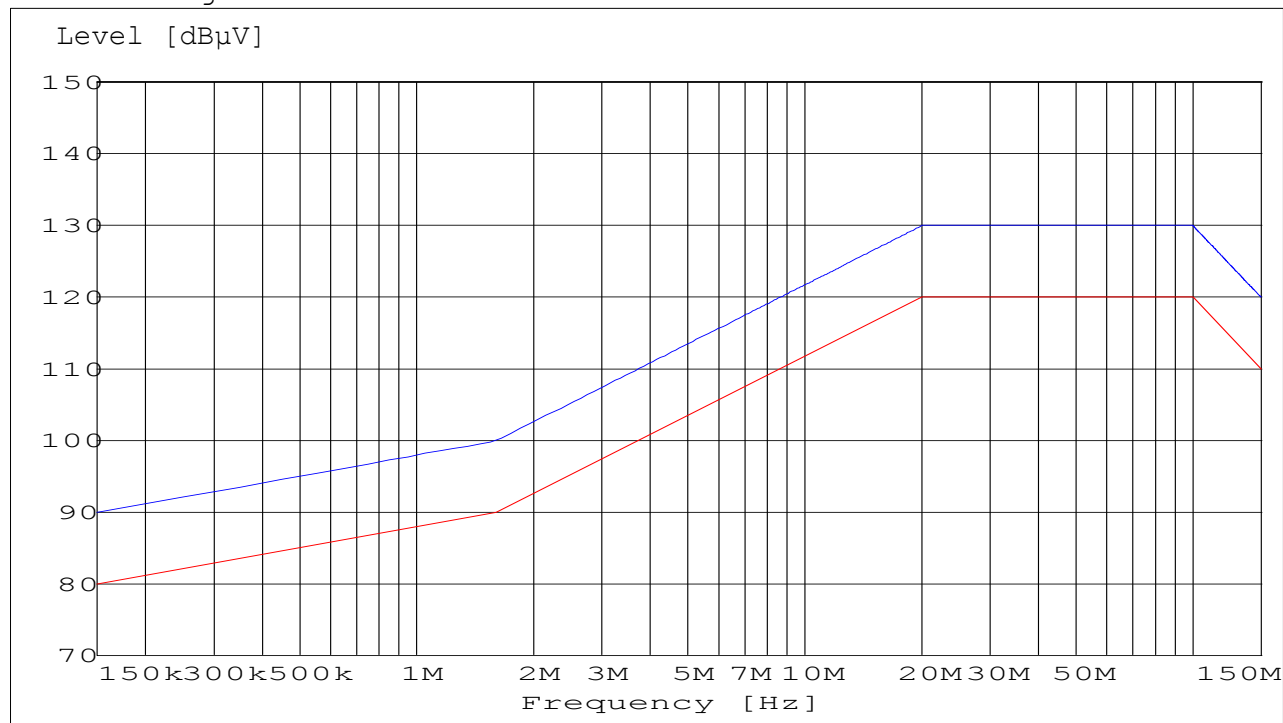
Monitor: Audio Out

Operation Mode : AUX

S/N: 53.1 dB

Interf. Signal: Zone-8 Audio Out

AF Level: 466.1 mW



## 6.2 RADIATED FIELDS(S3,S5)

### 6.2.1 TEST LIMIT

Equipment not fitting inside the open strip line shall be measured according IEC61000-4-3 in the frequency range 80MHz to 150MHz

Test Item	Test Specification
Radiated Signal(S3)	150k-150MHz (AM 80% depth, with 1kHz): 3V/m.
Radiated Signal(S5)	900MHz(duty cycle 1/8 217Hz repetition frequency): 3V/m.

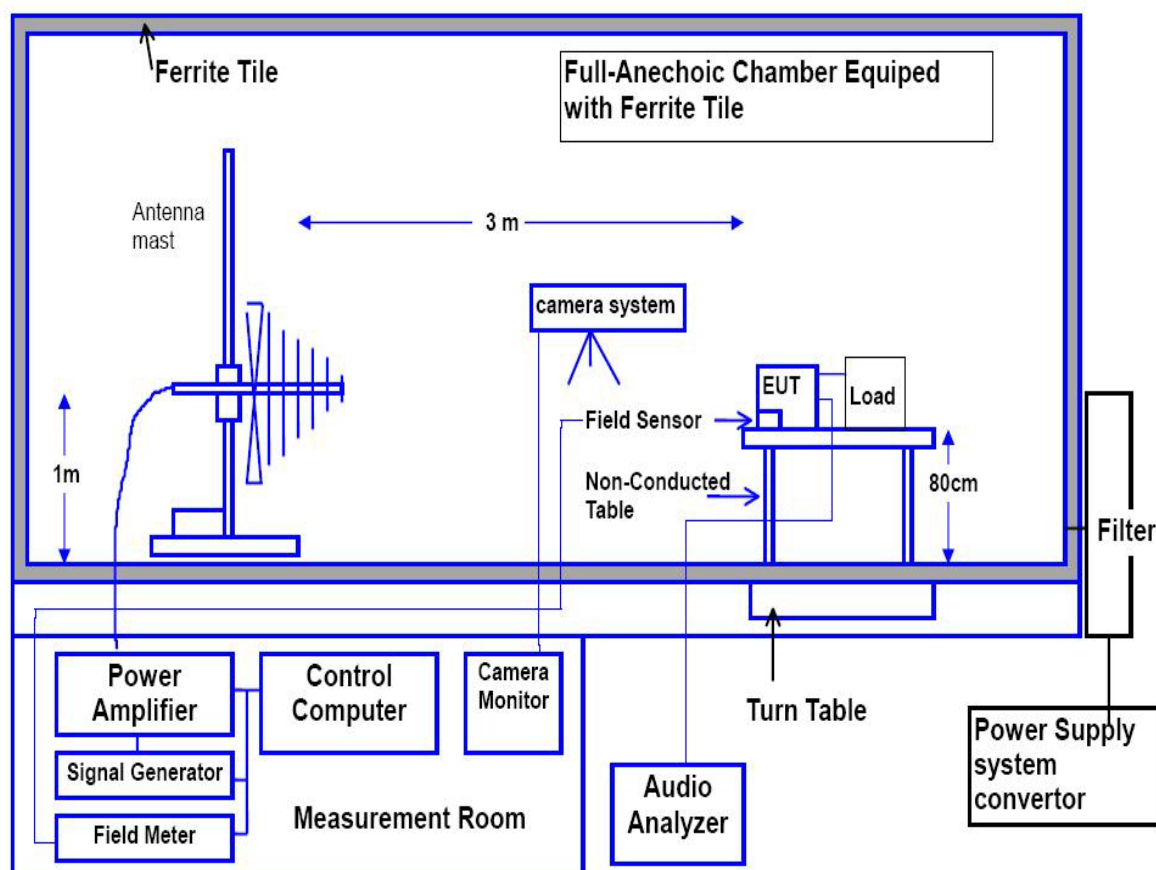
### 6.2.2 TEST PROCEDURE

The test requirement was in accordance with EN 55020: 2007, item 5.8

### 6.2.3 DEVIATION FROM TEST STANDARD

No deviation

### 6.2.4 TEST SETUP

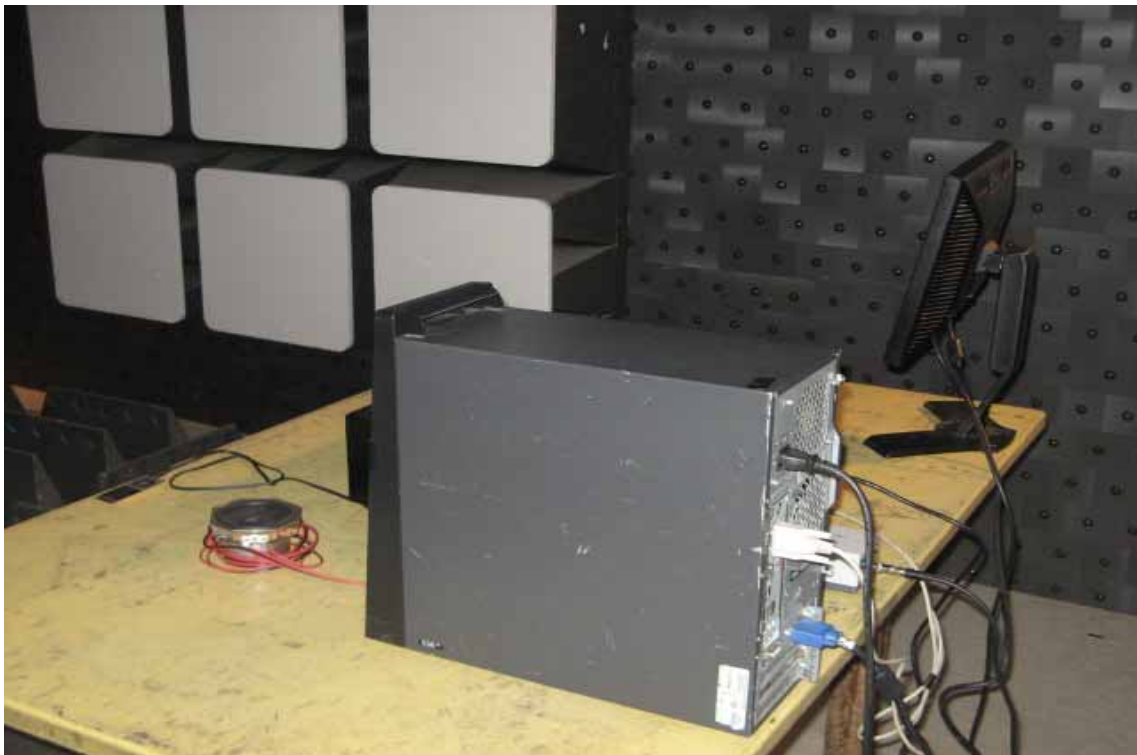


### 6.2.5 TEST PHOTOGRAPHS

Radiated Signal(S3) Test Setup Photo:



**Radiated Signal(S5) Test Setup Photo:**





**6.1.6 TEST RESULT**

Radiated Signal(S3)

**Test Mode: Audio In**

<b>Data of test</b>	<b>Jul. 21, 2011</b>	<b>Temperature:</b>	<b>26 deg/C</b>
<b>Test Mode</b>	<b>AD-8</b>	<b>Humidity</b>	<b>54 %RH</b>

<b>Monitor</b>	<b>Sound</b>
Audio Out	P

Note: “ P “ means “ PASS”.



Test Mode : Amplifier

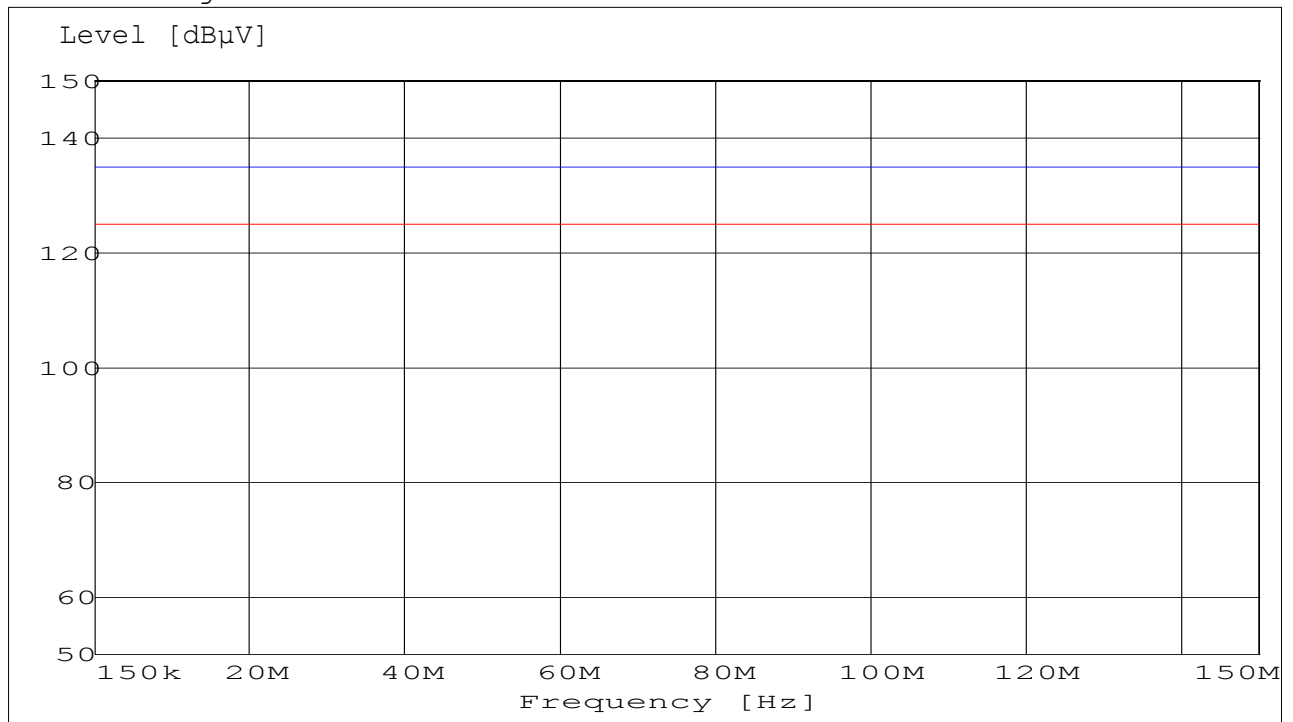
Monitor: Audio Out

Operating : AUX

S/N: 73.7 dB

Interf. Signal: Scan

AF Level: 459.8 mW





## Radiated Signal(S5) Test Data

**Test Mode: Audio In**

<b>Data of test</b>	<b>Jul. 21, 2011</b>	<b>Temperature:</b>	<b>26 deg/C</b>
<b>Test Model</b>	<b>AD-8</b>	<b>Humidity</b>	<b>54 %RH</b>

<b>Monitor</b>	<b>Sound</b>
Audio Out	P

Note: “ P “ means “ PASS”.



Test Mode : Amplifier

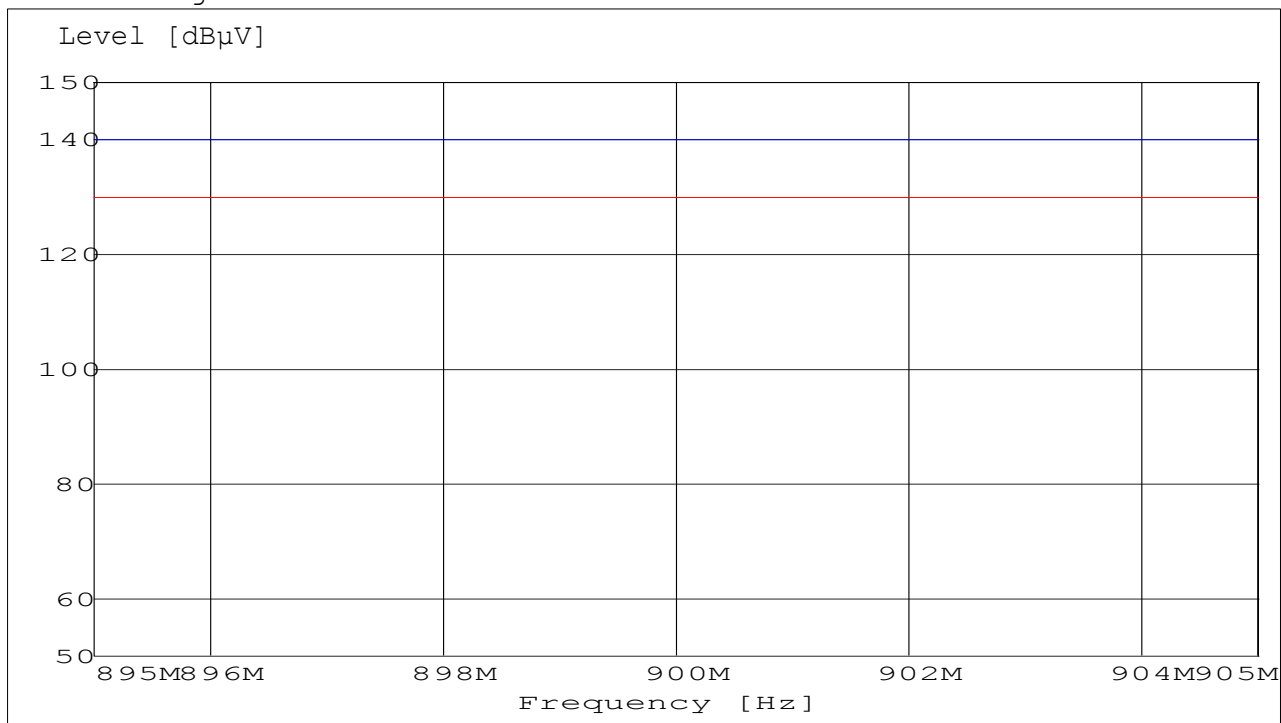
Monitor: Audio Out

Operating : AUX

S/N: 71.2 dB

Interf. Signal: Scan

AF Level: 451.3 mW



## 6.3 ELECTROSTATIC DISCHARGE

### 6.3.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-2:2008
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge:2kV/4kV/8kV (Direct) Contact Discharge:2kV/4kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 20 times at each test point Contact Discharge: min. 200 times in total
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

### 6.3.2 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

- a. Contact discharge was applied to conductive surfaces and coupling planes of the EUT. During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges.

If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

The selected point, which was performed with electrostatic discharge, please refers to the "Photo(s) shown the location(s) of ESD evaluated".

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

- b. Air discharges at insulation surfaces of the EUT.  
It was at least ten single discharges with positive and negative at the same selected point.
- c. For the actual test configuration, please refer to the related Item –EUT Test Photos.

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

### 6.3.5 TEST PHOTOGRAPHS

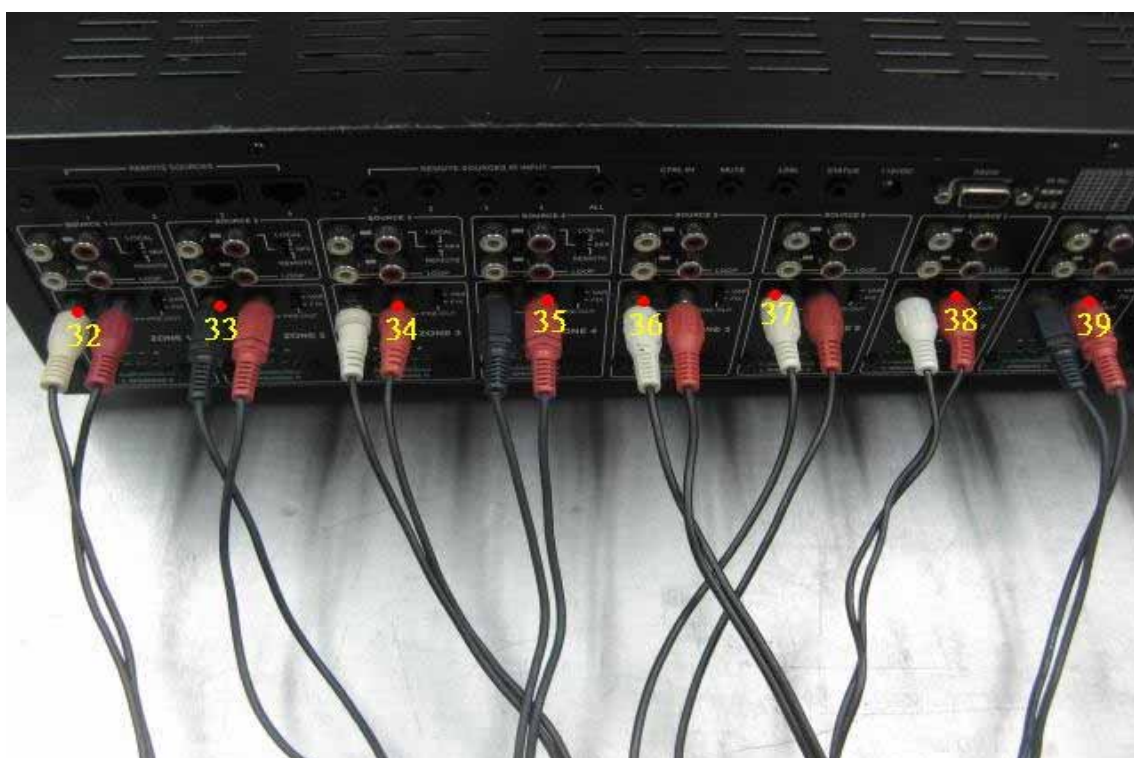
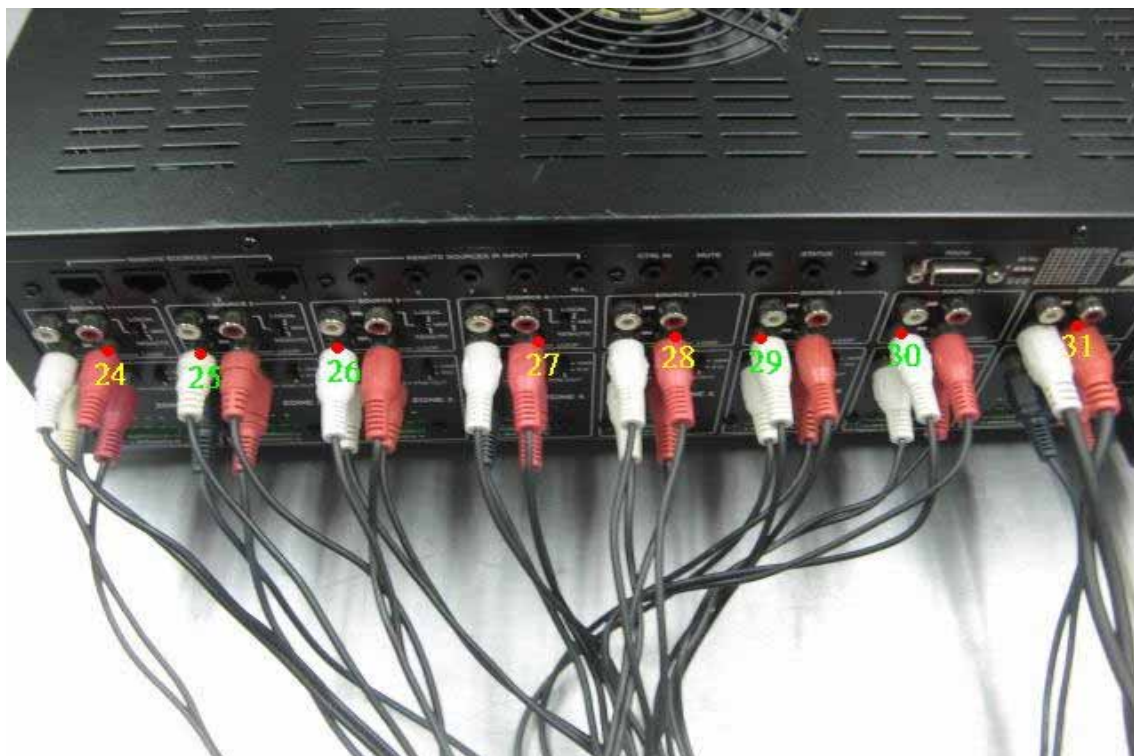














## 6.3.6 TEST RESULT

EUT:	Audio Distribution System	Model No. :	AD-8
Temperature:	26 °C	Relative Humidity :	50%
Pressure:	990 mbar	Test Power :	AC 230V/50Hz
Test Mode :	Audio in		

Energy-Storage Capacitor   : <u>150</u> pF									Contact Discharge Times       : <u>10</u> times/each condition								
Discharge Resistor       : <u>330</u> Ω									Air Discharge Times       : <u>10</u> times/each condition								
\ Discharge Mode		Contact Discharge								Air Discharge							
\ESD Voltage		<u>2</u> kV		<u>4</u> kV		___ kV		___ kV		<u>2</u> kV		<u>4</u> kV		<u>8</u> kV		___ kV	
\Points\Result\Polarity		+	—	+	—	+	—	+	—	+	—	+	—	+	—	+	—
VCP		A	A	A	A	---	---	---	---	---	---	---	---	---	---	---	---
HCP		A	A	A	A	---	---	---	---	---	---	---	---	---	---	---	---
P1~P15		A	A	A	A	---	---	---	---	---	---	---	---	---	---	---	---
P16~P39		B	B	B	B	---	---	---	---	---	---	---	---	---	---	---	---
P40~P47		---	---	---	---	---	---	---	---	A	A	A	A	A	A	---	---
P48		---	---	---	---	---	---	---	---	B	B	B	B	B	B	---	---
P49~P51		---	---	---	---	---	---	---	---	A	A	A	A	A	A	---	---

Note: 1) P/N denotes the Positive/Negative polarity of the output voltage.

2) Test condition:

Direct / Indirect (HCP/VCP) discharges: Minimum 50 times (Positive/Negative) at each point. Air discharges: Minimum 10 times (Positive/Negative) at each point.

3) Test location(s) in which discharge (Air and contact discharge) to be applied illustrated by photos shown in next page(s)

4) The Indirect (HCP/VCP) discharges description of test point as following:

1.left side 2.right side 3.front side 4.rear side

5) N/A - denotes test is not applicable in this test report

6) Criteria A: There was no change operated with initial operating during the test.

7) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

8) Criteria C: The system shut down during the test.

## 6.4 EFT/BURST TESTING

### 6.4.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-4: 2004/A1:2010
Test Voltage:	Power Line:1 kV
Impulse Wave shape :	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	Not less than 1 min.

### 6.4.2 MEASUREMENT INSTRUMENTS

N/A

### 6.4.3 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m\*1m min. and 0.65mm thick min.

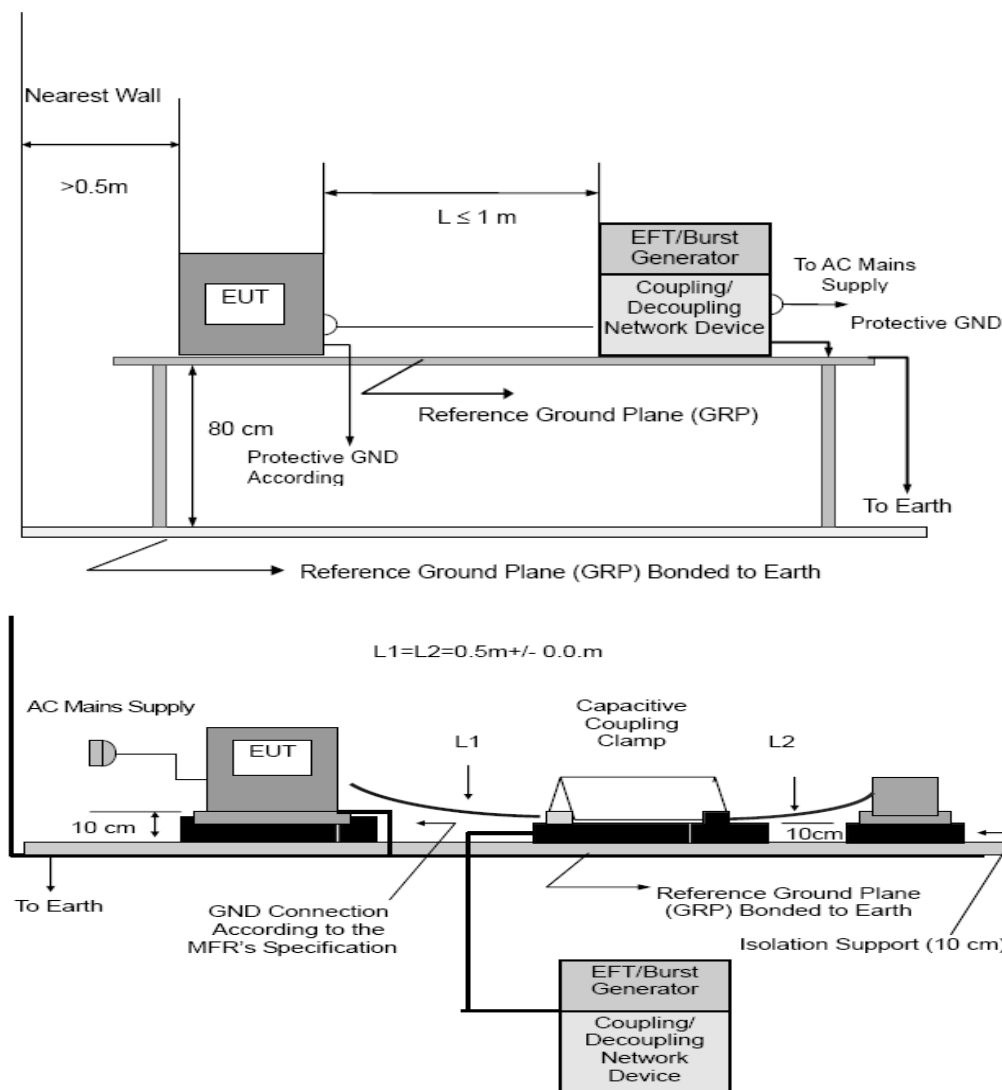
The other condition as following manner:

- The length of power cord between the coupling device and the EUT should not exceed 1 meter.
- Both positive and negative polarity discharges were applied.
- The duration time of each test sequential was 1 minute
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 6.4.4 DEVIATION FROM TEST STANDARD

No deviation

### 6.4.5 TEST SETUP



Note:

#### TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

#### FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

#### 6.4.6 EUT TEST PHOTO





## 6.4.7 TEST RESULTS

EUT:	Audio Distribution System	Model No. :	AD-8
Temperature:	26 °C	Relative Humidity :	50%
Pressure:	990 mbar	Test Power :	AC 230V/50Hz
Test Mode :	Audio in		

Pulse :5/50ns Burst :15m/300ms		Repetition Rate: <u>5kHz</u>	Test time: <u>1</u> min/each condition
\Voltage\Polarity\		<u>1.0kV</u>	
\Test Point\Mode\Result\		+	-
Power Line	L	B	B
	N	B	B
	L-N	B	B
	PE	B	B
	L-PE	B	B
	N-PE	B	B
	L-N-PE	B	B

Note: 1) P/N denotes the Positive/Negative polarity of the output voltage.

2) N/A - denotes test is not applicable in this test report

3) Criteria A: There was no change operated with initial operating during the test.

4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

5) Criteria C: The system shut down during the test.

## CONSTRUCTION PHOTOS OF EUT

### 1. Front View of EUT



### 2. Side View of EUT



### CONSTRUCTION PHOTOS OF EUT

#### 3. Rear View of EUT



#### 4. Side View of EUT



**CONSTRUCTION PHOTOS OF EUT**

## 5. Top View of EUT



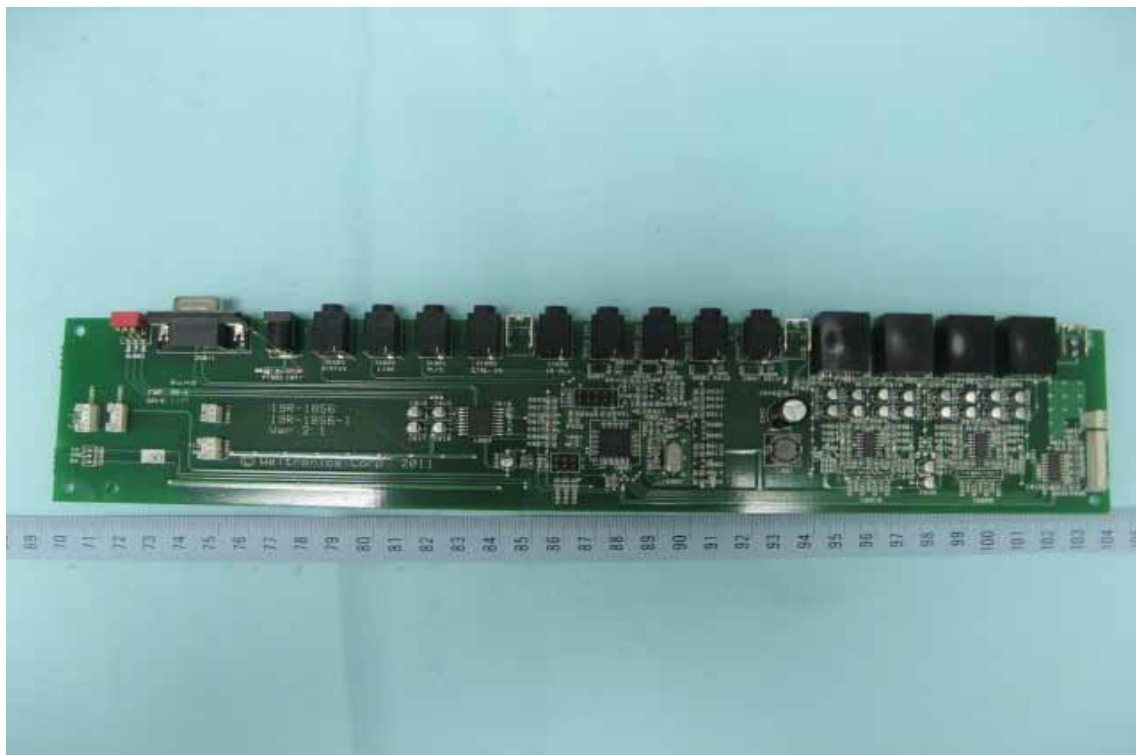
## CONSTRUCTION PHOTOS OF EUT

### 6. Internal View of EUT

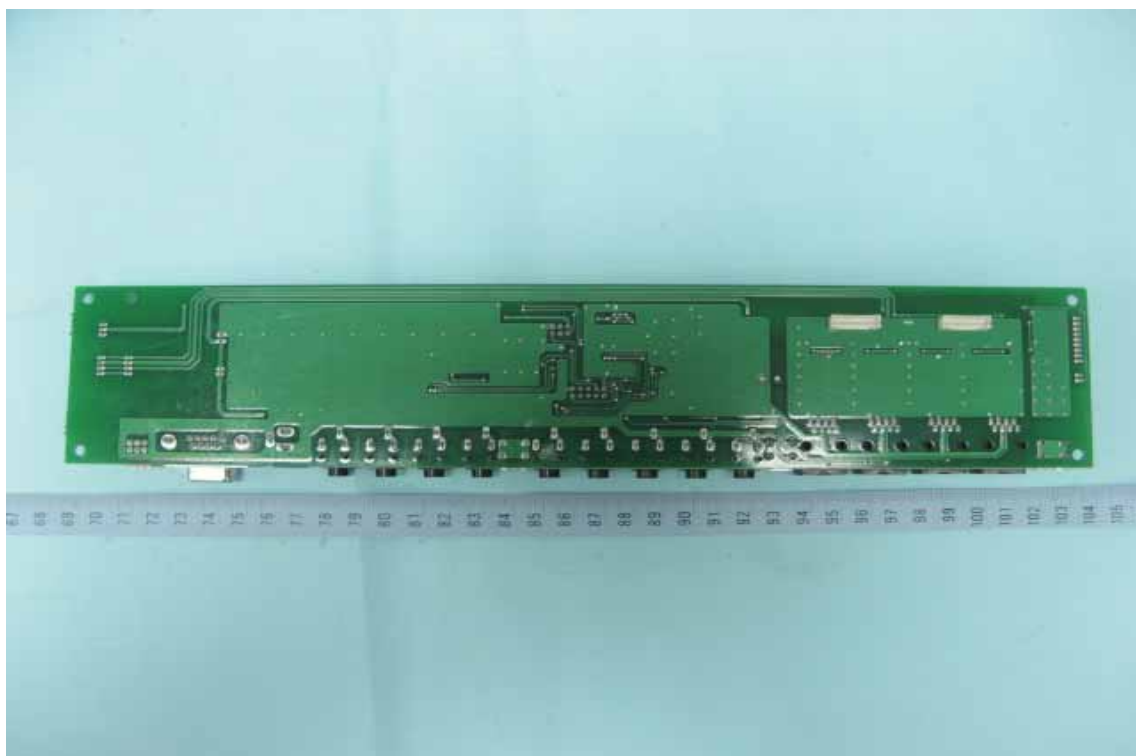


## CONSTRUCTION PHOTOS OF EUT

### 7. Component View of PCB



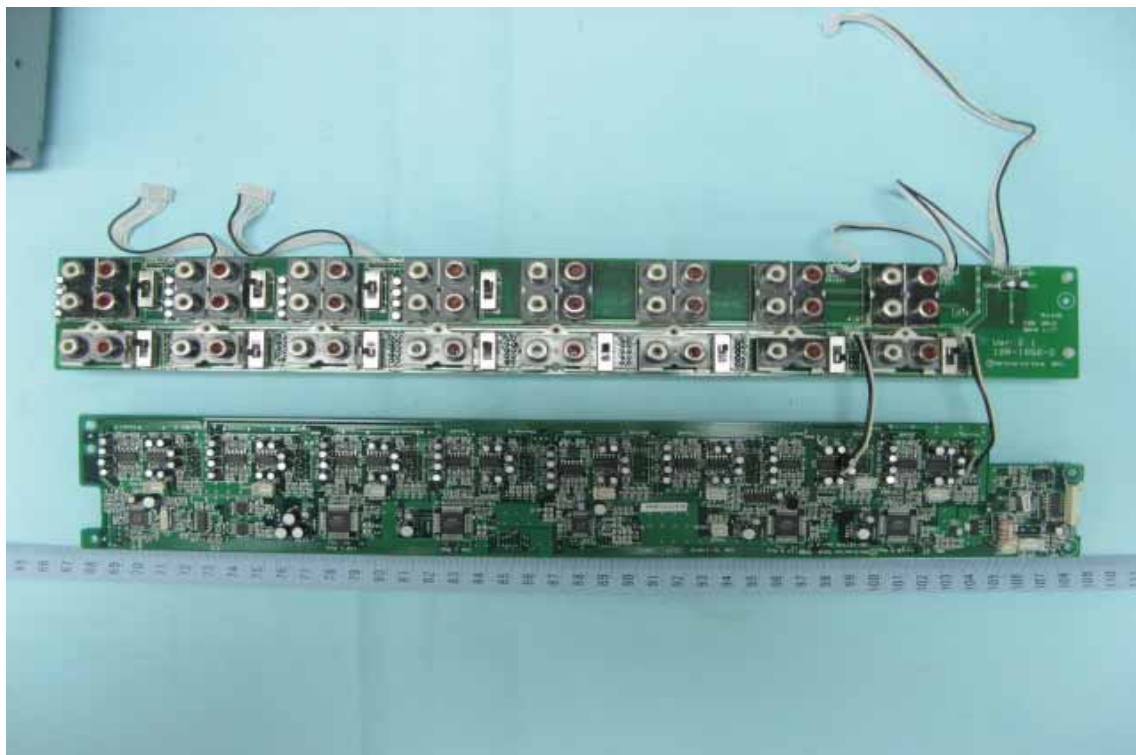
### 8. Solder View of PCB



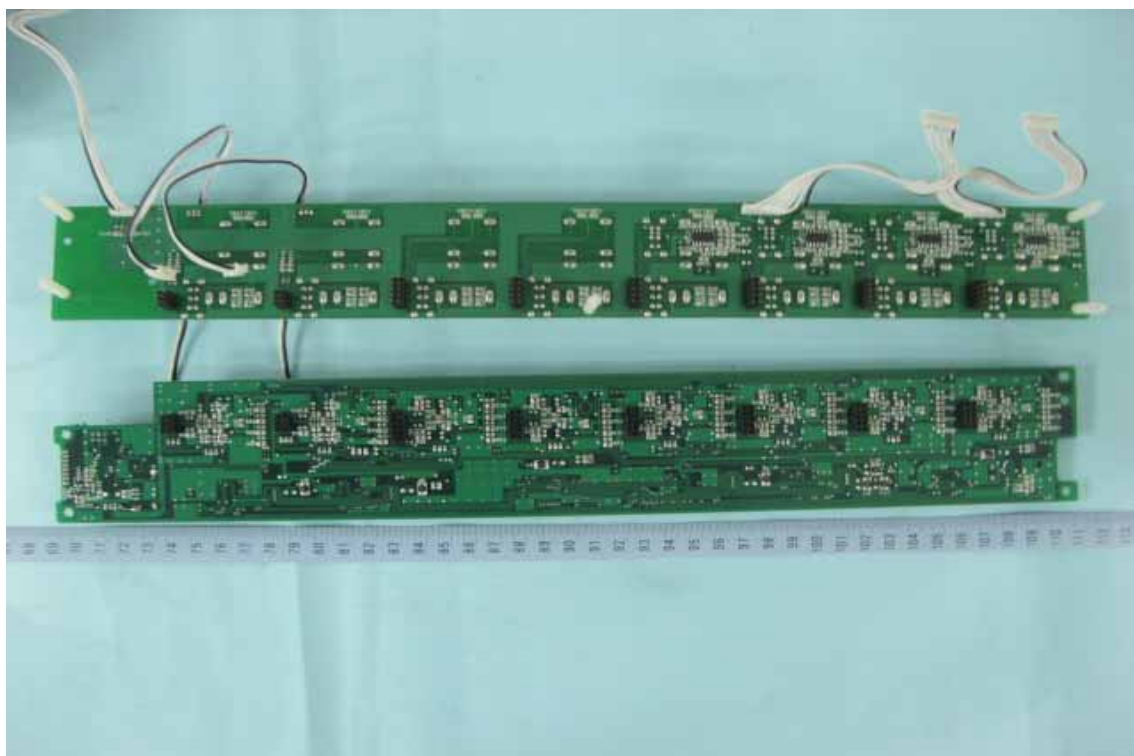


## CONSTRUCTION PHOTOS OF EUT

### 9. Component View of PCB

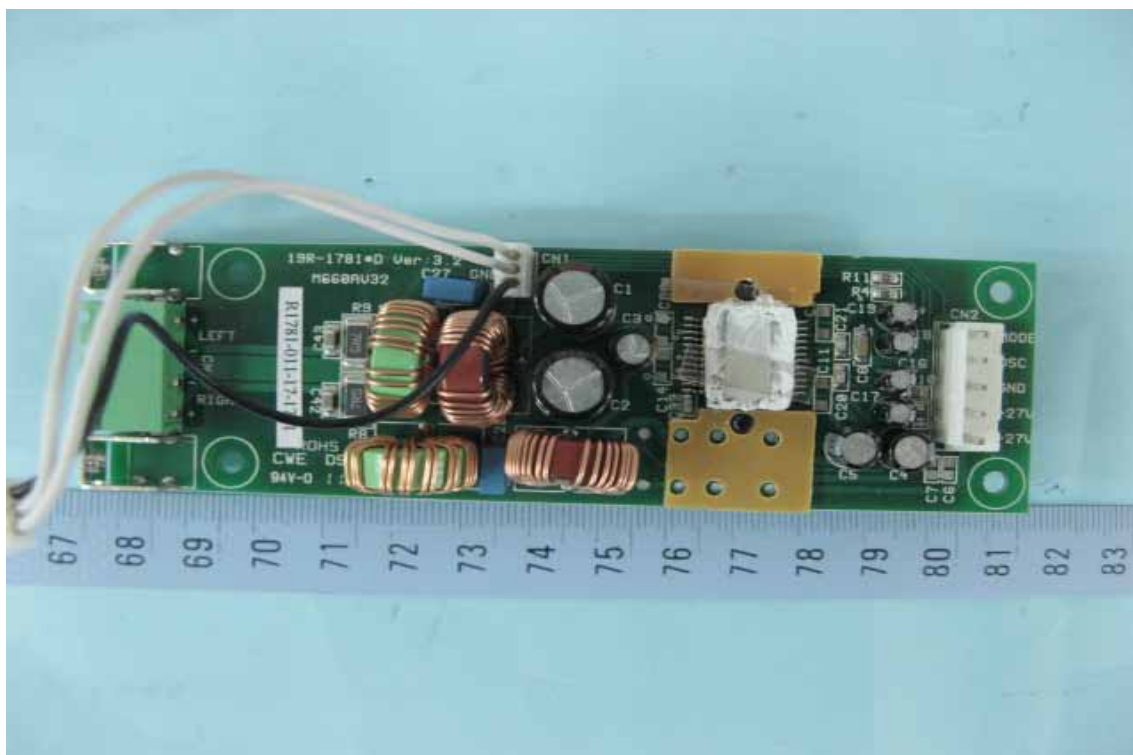


### 10. Solder View of PCB

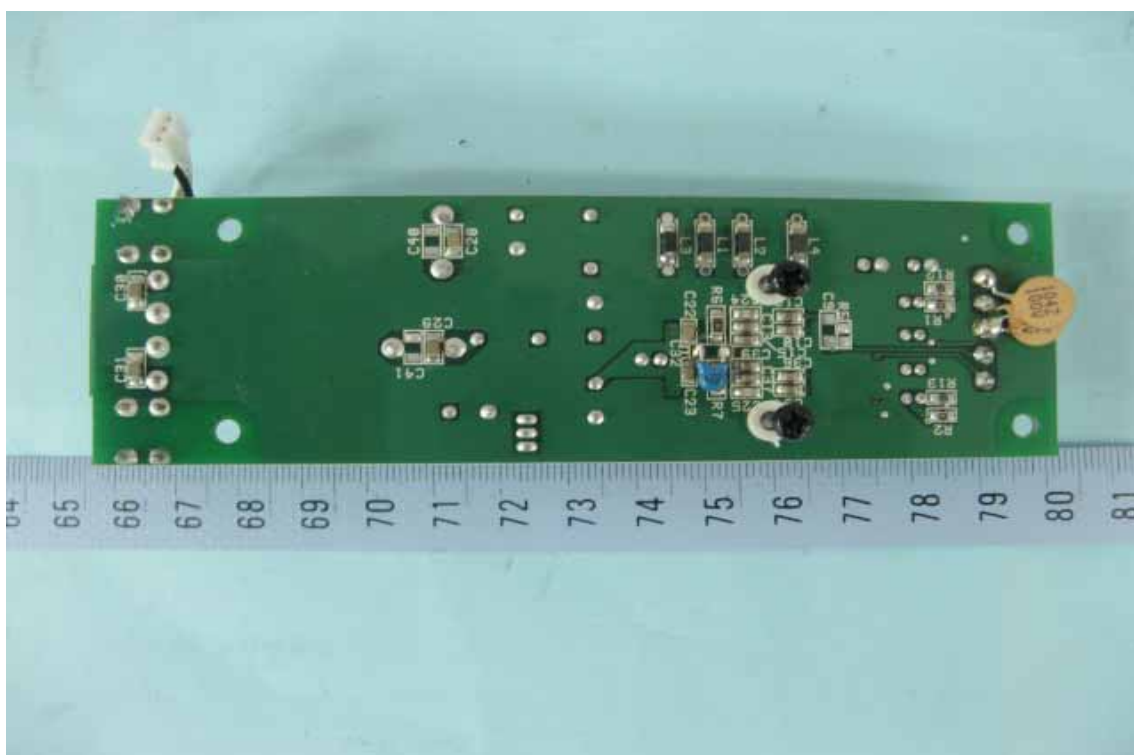


## CONSTRUCTION PHOTOS OF EUT

### 11. Component View of PCB



### 12. Solder View of PCB



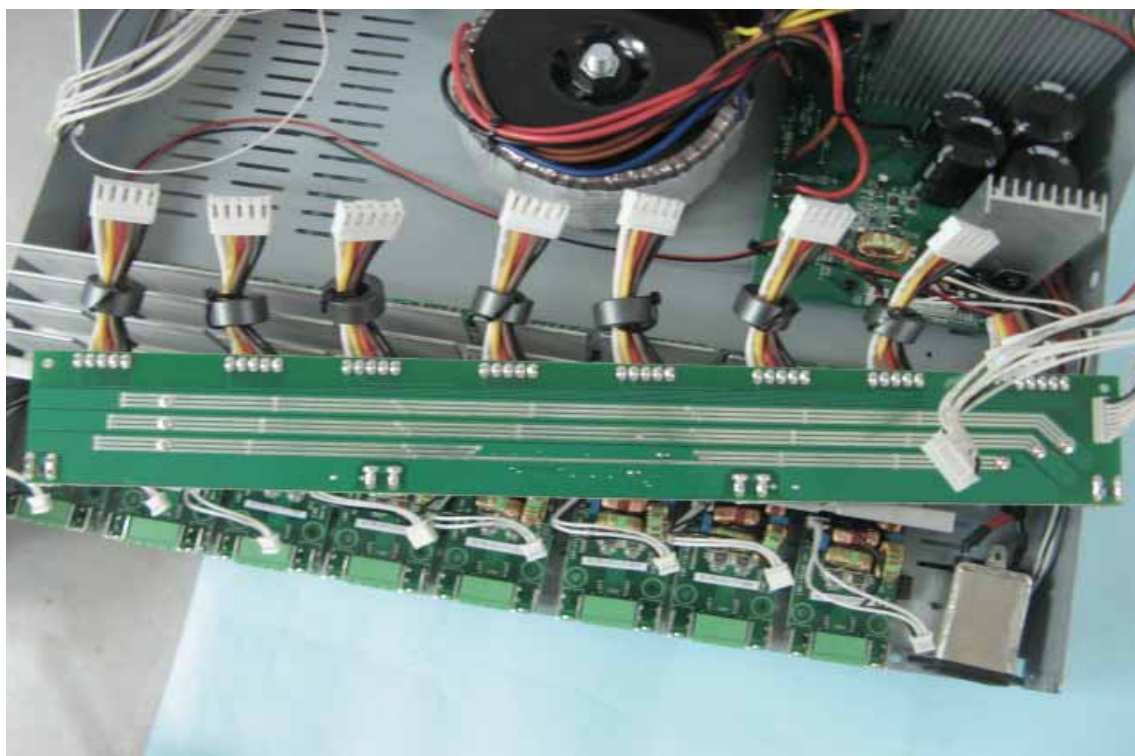


## CONSTRUCTION PHOTOS OF EUT

13. Component View of PCB

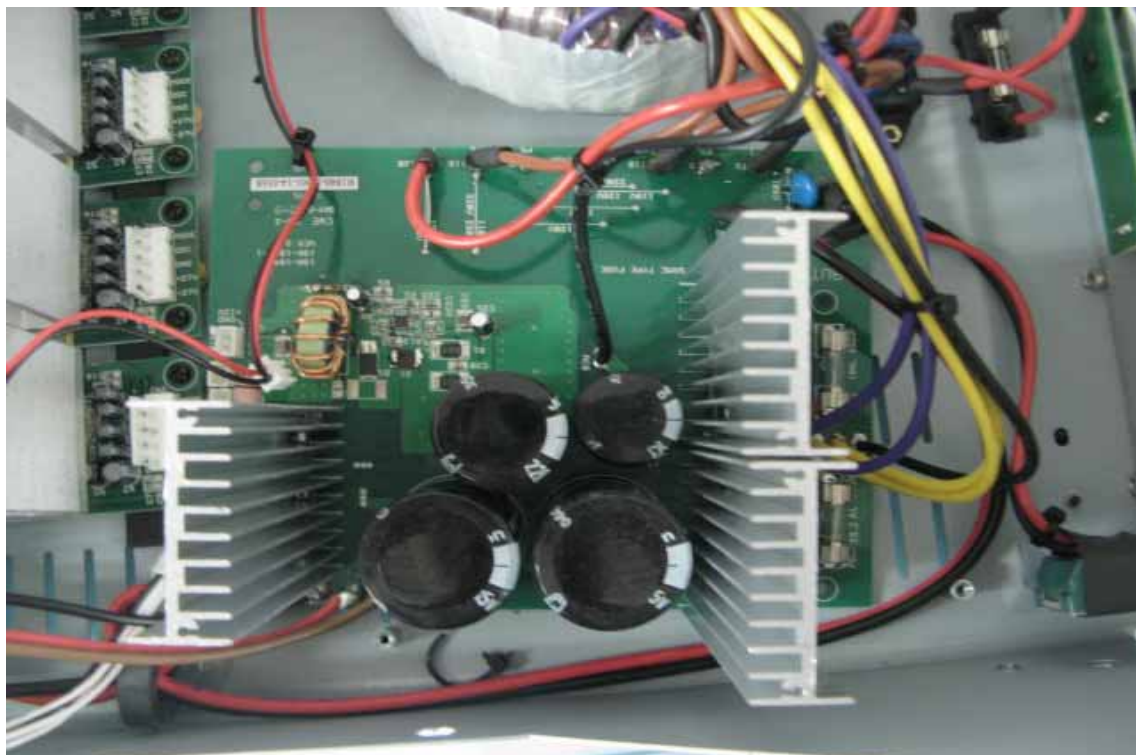


14. Solder View of PCB



## CONSTRUCTION PHOTOS OF EUT

15. Component View of PCB



16. Solder View of PCB

