

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

## Test Report

Product Name: RECEIVER

FCC ID: JFZR250

Applicant:

**AUDIO TECHNICA CORPORATION  
2206 NARUSE, MACHIDA  
TOKYO 194  
JAPAN**

**Date Receipt: 5/30/2006**

**Date Tested: 7/4/2006**

### TABLE OF CONTENTS LIST

**APPLICANT:** AUDIO TECHNICA CORPORATION

**FCC ID:** JFZR250

APPLICANT: AUDIO TECHNICA CORPORATION  
FCC ID: JFZR250  
REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc

COVER SHEET

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

## TEST REPORT CONTAINING:

PAGE 1	TEST EQUIPMENT LIST
PAGE 2	RADIATION INTERFERENCE TEST PROCEDURES
PAGE 3	RADIATION INTERFERENCE TEST DATA
PAGE 4	POWER LINE CONDUCTED TEST PROCEDURE
PAGE 5	POWER LINE CONDUCTED PLOT - LINE 1
PAGE 6	POWER LINE CONDUCTED PLOG - LINE 2
PAGE 7	RADIATED EMISSIONS TEST SET-UP PHOTO
PAGE 8	POWERLINE CONDUCTED EMISSIONS TEST SET-UP PHOTO

## EXHIBITS CONTAINING:

BLOCK DIAGRAM  
SCHEMATIC  
INSTRUCTION MANUAL  
LABEL SAMPLE  
LABEL LOCATION  
EXTERNAL PHOTOGRAPHS  
INTERNAL PHOTOGRAPHS

APPLICANT: AUDIO TECHNICA CORPORATION  
FCC ID: JFZR250  
REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc

TABLE OF CONTENTS

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

## EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
Antenna: Biconnical	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Antenna: Biconnical	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Antenna: Biconnical	Electro- Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Analyzer	HP	85650A	2811A01279	CAL 4/13/05	4/13/07
Blue Tower Quasi-Peak Adapter Analyzer	HP	85685A	2926A00983	CAL 9/5/05	9/5/07
Blue Tower RF Preselector Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/05	4/13/07
Blue Tower Spectrum Analyzer LISN	Electro- Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro- Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Antenna: Log- Periodic	Eaton	96005	1243	CAL 12/14/05	12/14/07

APPLICANT: AUDIO TECHNICA CORPORATION  
FCC ID: JFZR250  
REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

## TEST PROCEDURE

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

**RADIATION INTERFERENCE:** The test procedure used was ANSI STANDARD C63.4-2003 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHZ and the video bandwidth was 300KHZ. The ambient temperature of the UUT was 80°F with a humidity of 70%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the Spectrum Analyzer Meter Reading.

**Example:**

Freq (MHz) METER READING + ACF = FS  
33            20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

**ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:** The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSIC63.4-2003 with the EUT 40 cm from the vertical ground wall.

APPLICANT: AUDIO TECHNICA CORPORATION  
FCC ID: JFZR250  
REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

**APPLICANT:** AUDIO TECHNICA CORPORATION

**FCC ID:** JFZR250

**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NO.:** 15.109

**REQUIREMENTS:** 30 to 88 MHz: 40.0 dBuV/M @ 3 METERS  
88 to 216 MHz: 43.5 dBuV/M  
216 to 960 MHz: 46.0 dBuV/M  
ABOVE 960 MHz: 54.0 dBuV/M

**TEST RESULTS:** A search was made of the spectrum from 30 to 1000MHz and the measurements indicate that the unit DOES meet the FCC requirements.

**TEST DATA:**

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
169.5	180.20	21.9	V	0.82	17.30	40.02	3.48
169.5	180.20	25.8	H	0.82	16.62	43.24	0.26
169.5	360.40	6.7	V	1.16	14.81	22.67	23.33
170.2	180.90	13.1	V	0.82	17.30	31.22	12.28
170.2	180.90	18.3	H	0.82	16.69	35.81	7.69
170.2	361.80	8.2	V	1.16	14.85	24.21	21.79
171.9	182.60	13.2	V	0.83	17.30	31.33	12.17
171.9	182.60	17.3	H	0.83	16.86	34.99	8.51
171.9	365.20	7.3	V	1.17	14.96	23.43	22.57

**SAMPLE CALCULATION:**  $F_{SdBuV/m} = MR (dBuV) + ACFdB.$

**TEST PROCEDURE:** ANSI STANDARD C63.4-2003. The bandwidth of spectrum analyzer was 100 kHz with an appropriate sweep speed. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported.

**PERFORMED BY:** RICHARD BLOCK

**DATE:** 7/4/06

APPLICANT: AUDIO TECHNICA CORPORATION  
FCC ID: JFZR250  
REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

**APPLICANT:** AUDIO TECHNICA CORPORATION  
**FCC ID:** JFZR250  
**NAME OF TEST:** POWER LINE CONDUCTED INTERFERENCE  
**RULES PART NO.:** 15.107

<b>REQUIREMENTS:</b>	<b>QUASI-PEAK</b>	<b>AVERAGE</b>
.15 - 0.5 MHz	66-56 dBuV	56-46 dBuV
0.5 - 5.0	56	46
5.0 - 30.	60	50

**TEST PROCEDURE:** ANSI STANDARD C63.4-2003. The spectrum was scanned from .15 to 30 MHz.

**TEST DATA:**

THE GRAPHS ON THE FOLLOWING PAGE REPRESENT THE EMISSIONS TAKEN FOR THIS DEVICE.

PERFORMED BY: RICHARD BLOCK

DATE: 7/04/06

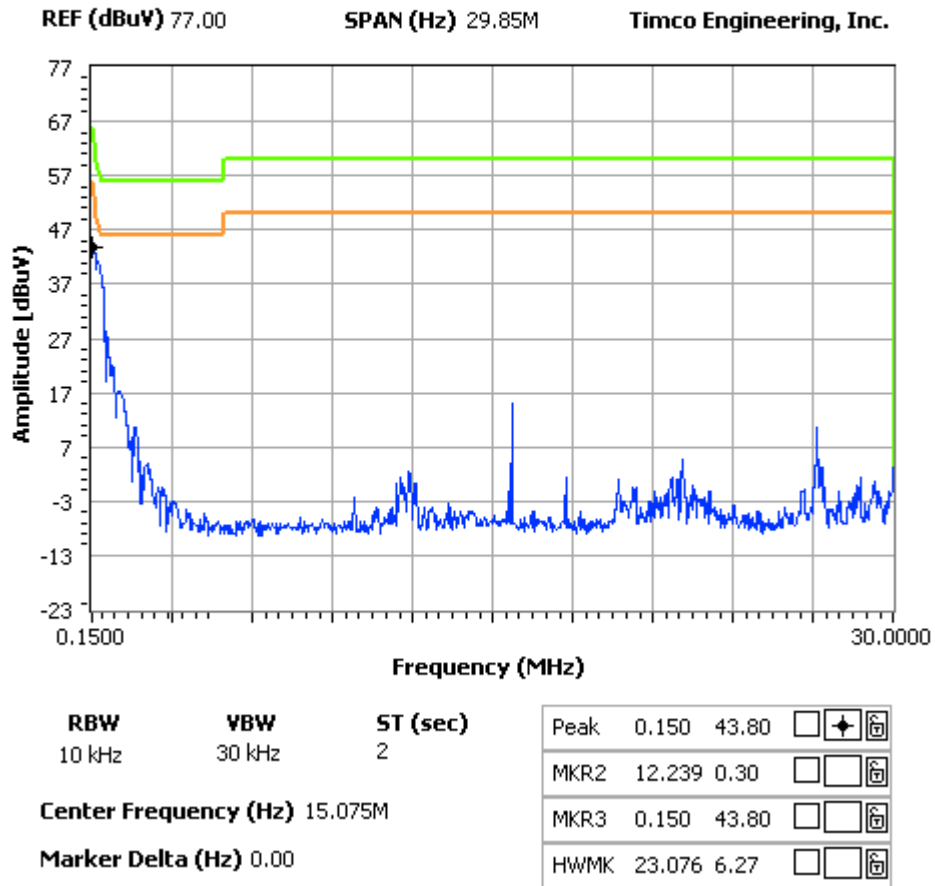
APPLICANT: AUDIO TECHNICA CORPORATION  
FCC ID: JFZR250  
REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
 Newberry, Florida 32669  
 http://www.timcoengr.com  
 888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

## POWERLINE CONDUCTED EMISSIONS – LINE 1

**NOTES:**  
 POWERLINE CONDUCTED -- LINE 1  
 AUDIO TECHNICA CORP  
 FCC ID: JFZ R250  
**FCC 15.107 Mask Class B**



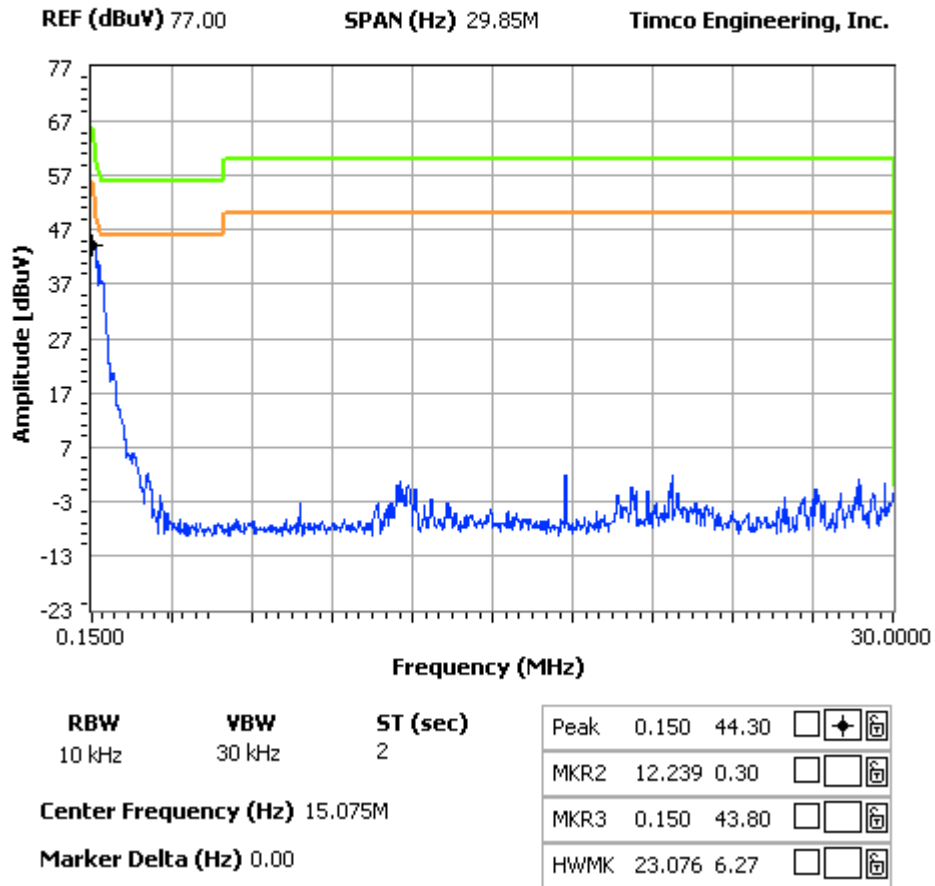
APPLICANT: AUDIO TECHNICA CORPORATION  
 FCC ID: JFZR250  
 REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
 Newberry, Florida 32669  
 http://www.timcoengr.com  
 888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

## POWERLINE CONDUCTED EMISSIONS – LINE 2

**NOTES:**  
 POWERLINE CONDUCTED -- LINE 2  
 AUDIO TECHNICA CORP  
 FCC ID: JFZ R250  
**FCC 15.107 Mask Class B**



APPLICANT: AUDIO TECHNICA CORPORATION  
 FCC ID: JFZR250  
 REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc



# TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

## RADIATED EMISSIONS TEST SET UP PHOTO



APPLICANT: AUDIO TECHNICA CORPORATION

FCC ID: JFZR250

REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: [tei@timcoengr.com](mailto:tei@timcoengr.com)

## POWERLINE CONDUCTED EMISSIONS TEST SET UP PHOTO



APPLICANT: AUDIO TECHNICA CORPORATION

FCC ID: JFZR250

REPORT #: V:\A\AudioTechnica\_JFZ\1132UT6\1132AUT6 TestReport.doc