

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
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A2LA ACCREDITED  
A2LA CERT # 0955-01

## Test Report

Product Name: WIRELESS RECEIVER

FCC ID: JFZR1810D

Applicant:

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

**Date Receipt: 11/28/2006**

**Date Tested: 12/8/2006**

APPLICANT: AUDIO TECHNICA CORPORATION  
FCC ID: JFZR1810D  
REPORT #: V:\A\AudioTechnica\_JFZ\3239AUT6\3239AUT6TestReport.doc

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## 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 10/11/06	10/11/08
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 10/5/06	10/5/08
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

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## 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 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 100 kHz and the video bandwidth was 300 kHz. 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	+	CL	+	ACF	=	FS
33	20 dBuV	+	1.02	+	10.36 dB	=	30.36 dBuV/m @ 3m

**POWER LINE CONDUCTED EMISSIONS: 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.

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## RADIATED SPURIOUS EMISSIONS

**Rules Part No.:** 15.109

### Requirements:

Frequency	Limits
30 – 88	40.0 dB $\mu$ V/m measured @ 3 meters
80 – 216	43.5 dB $\mu$ V/m measured @ 3 meters
216 – 960	46.0 dB $\mu$ V/m measured @ 3 meters
Above 960	54.0 dB $\mu$ V/m measured @ 3 meters

**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
655.5	43.46	3.7	V	0.47	9.98	14.15	25.85
655.5	48.02	3.5	H	0.49	11.20	15.19	24.81
655.5	52.05	4.0	V	0.51	11.39	15.90	24.10
655.5	56.50	5.0	V	0.52	11.71	17.23	22.77
655.5	56.57	4.6	H	0.52	11.17	16.29	23.71
655.5	85.79	5.4	H	0.61	7.36	13.37	26.63
655.5	85.81	6.1	V	0.61	8.08	14.79	25.21
655.5	233.24	9.1	H	0.97	11.66	21.73	24.27
655.5	233.28	15.5	V	0.97	11.43	27.90	18.10
655.5	343.28	6.7	V	1.14	14.60	22.44	23.56
655.5	381.37	8.7	V	1.18	15.34	25.22	20.78
655.5	390.92	6.3	V	1.19	15.61	23.10	22.90
655.5	411.57	25.8	V	1.21	15.92	42.93	3.07
655.5	466.48	17.3	V	1.27	17.03	35.60	10.40
655.5	699.75	8.0	V	1.70	20.60	30.30	15.70
655.5	823.08	8.9	H	1.91	21.96	32.77	13.23
655.5	823.11	16.3	V	1.91	21.33	39.54	6.46
668.1	36.34	4.5	V	0.43	10.29	15.22	24.78
668.1	42.28	4.5	H	0.46	11.31	16.27	23.73
668.1	100.16	5.1	H	0.65	11.50	17.25	26.25
668.1	102.63	5.1	V	0.65	11.71	17.46	26.04
668.1	209.96	6.1	H	0.92	11.90	18.92	24.58
668.1	210.99	6.7	V	0.92	11.65	19.27	24.23
668.1	300.74	12.5	V	1.10	14.45	28.05	17.95

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**FCC ID:** JFZR1810D

**NAME OF TEST:** RADIATION INTERFERENCE

## TEST DATA CONTD.

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
668.1	303.11	12.9	H	1.10	14.65	28.65	17.35
668.1	495.54	12.3	H	1.30	17.72	31.32	14.68
668.1	500.06	11.3	V	1.30	17.90	30.50	15.50
668.1	677.42	11.2	H	1.68	20.92	33.80	12.20
668.1	677.70	11.6	V	1.68	20.50	33.78	12.22
680.3	85.80	5.8	V	0.61	8.07	14.48	25.52
680.3	85.82	5.7	H	0.61	7.36	13.67	26.33
680.3	233.26	10.9	H	0.97	11.66	23.53	22.47
680.3	233.27	25.9	V	0.97	11.43	38.30	7.70
680.3	381.39	8.7	V	1.18	15.34	25.22	20.78
680.3	419.53	8.7	V	1.22	16.00	25.92	20.08
680.3	436.34	17.2	V	1.24	16.23	34.67	11.33
680.3	436.37	7.8	H	1.24	16.69	25.73	20.27
680.3	466.49	13.9	V	1.27	17.03	32.20	13.80
680.3	699.76	8.7	V	1.70	20.60	31.00	15.00

**TEST PROCEDURE:** 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:** 12/8/2006

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## POWER LINE CONDUCTED INTERFERENCE

**Rules Part No.:** Part 15.107

**Requirements:**

Frequency (MHz)	Quasi Peak Limits (dBuV)	Average Limits (dBuV)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5.0	56	46
5.0 – 30	60	50

**Test Procedure:** ANSI Standard C63.4-2003. The spectrum was scanned from 0.15 to 30 MHz.

**Test Data:** The attached graphs represent the emissions for this device.

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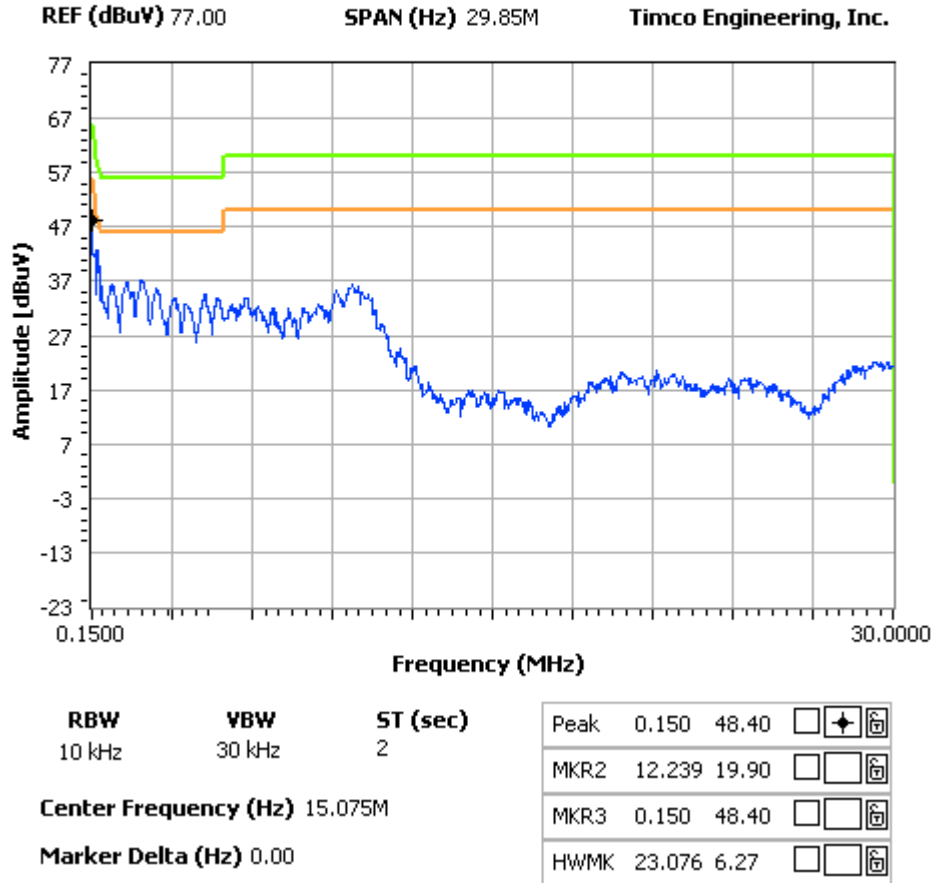
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**NOTES:**

POWERLINE CONDUCTED -- LINE 1  
 AUDIO TECHNICA CORPORATION -- FCC ID: JFZR1810D

**FCC 15.107 Mask Class B**



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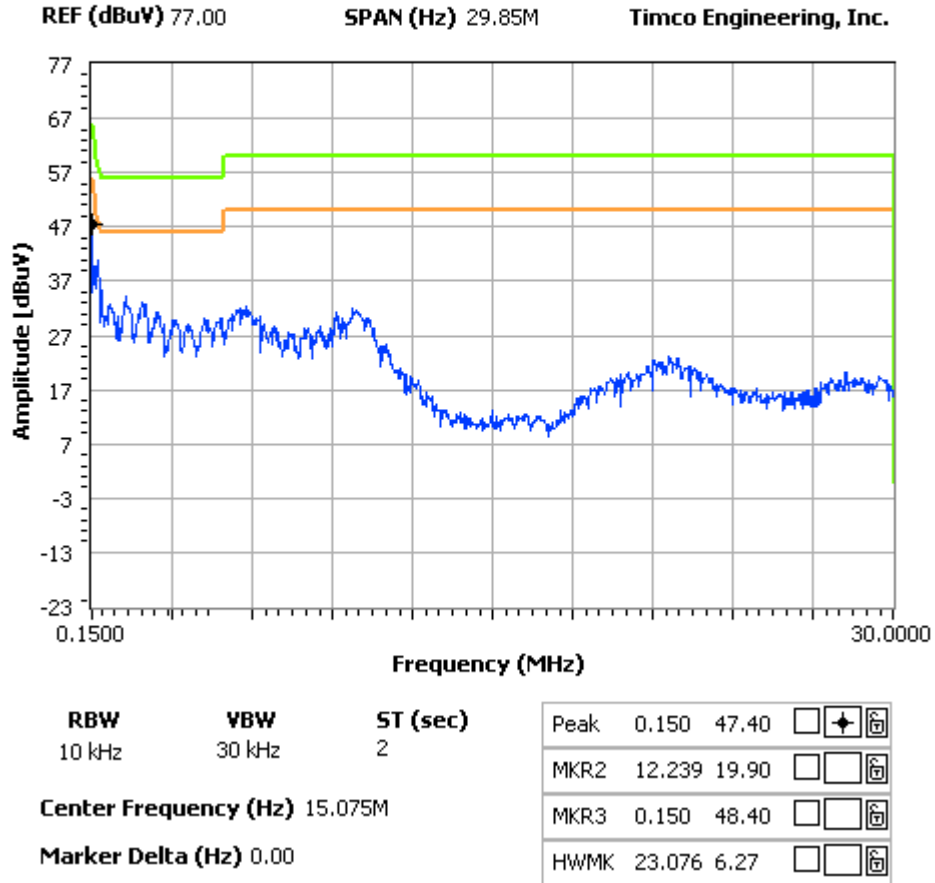
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**NOTES:**

POWERLINE CONDUCTED -- LINE 2  
 AUDIO TECHNICA CORPORATION -- FCC ID: JFZR1810D

**FCC 15.107 Mask Class B**



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## RADIATED EMISSIONS TEST SET UP PHOTO



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POWER LINE TEST SETUP PHOTO



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