TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: sid@timcoengr.com

Test Report

Product Name: MODEL: COMMUNICATION RECEIVER

FCC ID: JFZR5200C

Applicant:

AUDIO TECHNICA CORPORATION
2206 NARUSE, MACHIDA
TOKYO 194
JAPAN

Date Receipt: FEBRUARY 3, 2004

Date Tested: FEBRUARY 19, 2004

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FCC ID: JFZR5200C

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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 3/26/01	3/26/04
3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/13/06
Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
Biconnical Antenna	Eaton	94455-1	1096	CAL 10/1/01	10/1/03
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/15/03	4/15/05
Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 4/15/03	4/15/05
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/15/03	4/15/05
LISN	Electro-Metrics	ANS-25/2	2604	CAL 10/9/01	10/9/03
LISN	Electro-Metrics	EM-7820	2682	CAL 3/12/03	3/12/05
Log-Periodic Antenna	Eaton	96005	1243	CAL 5/8/03	5/8/05

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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 C63.4-2001 using a HEWLETT PACKARD spectrum analyzer with a pre-selector. 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 63°F with a humidity of 80%.

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 C63.4-2001 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 ANSIC63.4-1992 with the EUT 40 cm from the vertical ground wall.

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APPLICANT: AUDIO TECHNICA CORPORATION

FCC ID: JFZR5200C

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 1000 MHz 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
541.5	607.25	18.3	V	3.42	19.15	40.87	5.13
541.5	607.25	20.3	H	3.42	19.63	43.35	2.65
541.5	1,214.50	17.4	H	1.31	25.93	44.64	9.36
541.5	1,214.50	22.2	V	1.31	25.93	49.44	4.56
541.5	1,821.75	11.4	H	1.61	27.99	41.00	13.00
541.5	1,821.75	15.0	V	1.61	28.06	44.67	9.33
541.5	2,429.00	13.8	H	1.87	29.29	44.96	9.04
541.5	2,429.00	14.1	V	1.87	29.30	45.27	8.73
541.5	3,036.25	13.0	H	2.11	30.58	45.69	8.31
541.5	3,036.25	16.2	V	2.11	30.57	48.88	5.12
541.5	3,643.50	12.1	V	2.29	31.90	46.29	7.71
541.5	4,858.00	10.0	V	2.66	34.15	46.81	7.19
553.9	619.24	19.5	V	3.46	19.29	42.25	3.75
553.9	619.24	20.1	H	3.46	19.51	43.07	2.93
553.9	1,239.24	20.0	H	1.32	26.01	47.33	6.67
553.9	1,239.24	25.9	V	1.32	26.01	53.23	0.77
553.9	1,858.86	13.2	H	1.63	28.12	42.95	11.05
553.9	1,858.86	18.3	V	1.63	28.19	48.12	5.88
553.9	2,478.48	14.7	V	1.89	29.37	45.96	8.04
553.9	2,478.48	15.0	H	1.89	29.37	46.26	7.74
553.9	3,098.10	13.6	H	2.13	30.72	46.45	7.55
553.9	3,098.10	18.8	V	2.13	30.70	51.63	2.37
553.9	3,717.72	10.9	H	2.32	32.25	45.47	8.53
553.9	3,717.72	14.2	V	2.32	32.11	48.63	5.37
553.9	4,337.34	13.8	V	2.50	32.97	49.27	4.73
553.9	4,956.96	12.6	V	2.69	34.46	49.75	4.25

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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 1000 MHz and the measurements indicate that the unit DOES meet the FCC requirements.

TEST DATA (CONTINUED):

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
566.4	632.12	18.1	V	3.50	19.66	41.26	4.74
566.4	632.12	19.0	H	3.50	19.90	42.40	3.60
566.4	1,264.24	18.3	H	1.33	26.10	45.73	8.27
566.4	1,264.24	22.8	V	1.33	26.10	50.23	3.77
566.4	1,896.36	11.3	H	1.65	28.25	41.20	12.80
566.4	1,896.36	13.5	V	1.65	28.33	43.48	10.52
566.4	2,528.48	12.2	V	1.91	29.46	43.57	10.43
566.4	2,528.48	13.4	H	1.91	29.46	44.77	9.23
566.4	3,160.60	11.3	H	2.15	30.85	44.30	9.70
566.4	3,160.60	13.0	V	2.15	30.82	45.97	8.03
566.4	3,792.72	11.2	V	2.34	32.32	45.86	8.14
566.4	3,792.72	11.7	H	2.34	32.48	46.52	7.48
566.4	5,056.96	11.0	V	2.72	34.63	48.35	5.65

SAMPLE CALCULATION: FSdBuV/m = MR (dBuV) + ACFdB.

TEST PROCEDURE: ANSI STANDARD C63.4-2001 using a Hewlett Packard Model 8566B spectrum analyzer, a Hewlett Packard Model 85685A Preselector, a Hewlett Packard Model 85650A Quasi-Peak adapter, and an appropriate antenna – see the test equipment list. 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: NAM NGUYEN **DATE**: FEBRUARY 19, 2004

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APPLICANT: AUDIO TECHNICA CORPORATION

FCC ID: JFZR5200C

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NO.: 15.107

REQUIREMENTS:

	QUASI-PEAK	**AVERAGE**
.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 C63.4-2001. The spectrum was scanned from .15 to 30 MHz.

TEST DATA:

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

TEST RESULTS: Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

PERFORMED BY: NAM NGUYEN **DATE: FEBRUARY 19, 2004**

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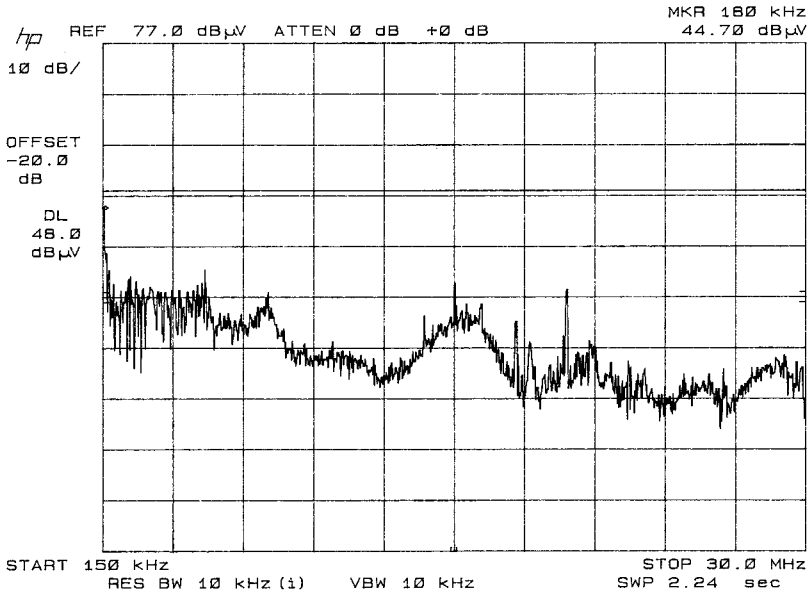
POWER LINE CONDUCTED
LINE 1



LINE 2