EMT

ELECTRO MAGNETIC TEST, INC.

1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

FCC PART 15, SUBPART B CLASS B
and
FCC PART 15, SUBPART C
TEST REPORT

for

the

SONICBOX REMOTE TUNER

MODEL: 433

Prepared for

SONICBOX, INC.
241 POLARIS AVENUE
MOUNTAIN VIEW, CALIFORNIA 94041

Prepared by: _____

DOUG MOON

Approved by: _____

KEVIN BOTHMANN

ELECTRO MAGNETIC TEST, INC.
1547 PLYMOUTH STREET
MOUNTAIN VIEW , CALIFORNIA 94043
(650) 965-4000

DATE: APRIL 21, 2000

	REPORT BODY	APPENDICES			TOTAL
		A	*B*	*C*	
PAGES	15	16	4	5	**40**

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

TABLE OF CONTENTS

SECTION	TITLE	PAGE
	GENERAL REPORT SUMMARY	04
	SUMMARY OF TEST RESULTS	04
1.	PURPOSE	05
2.	ADMINISTRATIVE DATA	06
2.1	Location of Testing	06
2.2	Traceability Statement	06
2.3	Cognizant Personnel	06
2.4	Date Test Sample was Received	06
2.5	Disposition of the Test Sample	06
2.6	Abbreviations and Acronyms	06
3.	APPLICABLE DOCUMENTS	07
4.	DESCRIPTION OF TEST CONFIGURATIONS	08
4.1	Description of Test Configuration - EMI	08
4.1.1	Cable Construction and Termination	09
5.	LIST OF EUT, ACCESSORIES AND TEST EQUIPMENT	10
5.1	EUT and Accessory List	10
5.2	EMI Test Equipment	11
6.	TEST SITE DESCRIPTION	12
6.1	Test Facility Description	12
6.2	EUT Mounting, Bonding and Grounding	12
7.	TEST PROCEDURES	13
7.1	RF Emissions	13
7.1.1	Conducted Emissions Test	13
7.1.2	Radiated Emissions Test	14
8.0	CONCLUSIONS	15

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

LIST OF APPENDICES

APPENDIX	TITLE
A	Radiated and Conducted Emissions Data Sheets Plot of Bandwidth of Fundamental Frequency
B	Test Setup Diagrams
C	Antenna and Effective Gain Factors

LIST OF FIGURES

FIGURE	TITLE
1	Conducted Emissions Test Setup
2	Plot Map And Layout of Test Site
3	Equipment Configuration Block Diagram

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Electro Magnetic Test Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Electro Magnetic Test personnel according to the measurement procedure described in the test specification given below and in the "Test Procedures" section of this report.

Associated with the data in this report is a ±2dB measurement uncertainty.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested:	Sonicbox Remote Tuner Model: 433 S/N: B
Product Description:	The EUT is a personal computer peripheral device consisting of a base unit and a hand held remote unit. The base unit is connected to the USB port and stereo out port of a PC. It works in conjunction with the Sonicbox imBand software to locate and broadcast the audio from the WebPages of Internet radio stations. The hand held remote communicates with the base unit and is used to change stations, save stations, and control the PC volume.
Modifications:	The EUT was not modified during the testing.
Manufacturer:	Sonicbox, Inc. 241 Polaris Avenue Mountain View, California, 94041
Test Date(s):	April 15, 2000
Test Specifications:	EMI requirements FCC Title 47, Part 15 Subpart B, Class B FCC Title 47, Part 15 Subpart C Test Procedure: ANSI C63.4: 1992.
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 450 kHz - 30 MHz.	Complies with the **Class B** limits of FCC Title 47, Part 15 Subpart B.
2	Radiated RF Emissions, 30 MHz - 1000 MHz.	Complies with the **Class B** limits of FCC Title 47, Part 15 Subpart B.
3	Radiated RF Emissions, 433 MHz - 4330 MHz.	Complies with the limits of FCC Title 47, Part 15 Subpart C. (Section 15.231)

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Sonicbox Remote Tuner Model: 433. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined in FCC Title 47, Part 15, Subpart B. The EUT was also tested to determine if the electromagnetic emissions were within the limits defined in FCC Title 47, Subpart C, section 15.231.

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Electro Magnetic Test, 1547 Plymouth Street, Mountain View, California 94043.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The measurement results in this report and the calibration of the test equipment are traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Sonicbox, Inc.

Sara Fisher	Product Manager

Electro Magnetic Test, Inc.

Doug Moon	Test Technician
Neelesh Raj	Test Technician
Kevin Bothmann	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on April 14, 2000.

2.5 Disposition of the Test Sample

The test sample was returned to Sonicbox, Inc. on April 17, 2000.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
CISPR	International Special Committee On Radio Interference
FCC	Federal Communications Commission

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC Title 47, Part 15, Subpart B.	FCC Rules - Radio frequency devices (including digital devices).
FCC Title 47, Part 15, Subpart C.	FCC Rules – Radio frequency devices (intentional radiators) (Section 15.231)
ANSI C63.4 1992	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

The EUT (receiver) was connected to the computer and speakers via its USB, audio input and audio output ports, respectively. The EUT (transmitter) was located across the table from the receiver. The EUT (transmitter) is battery powered. The computer was connected to the keyboard, mouse, monitor, and printer via its keyboard, mouse, video, and parallel ports, respectively. The printer was connected to its AC adapter via its power input port. During the testing process, the EUT was transmitting and receiving signals.

The transmitter portion was tested in all three orthogonal positions (X, Y and Z). The final data was taken in the "Z" position, found to be worst case. Data for all three positions can be found in Appendix A. Appendix A also contains a plot showing the bandwidth of the fundamental frequency.

The transmitter and receiver were tested together for all emissions tests. The radiated emission data for both units is located in Appendix A. The conducted emissions test was done only on the receiver because the transmitter is a battery powered device.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The cables were moved to maximize the emissions. The final conducted as well as radiated data was taken in this mode of operation. All initial investigations were performed with the EMI receiver in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the photographs in Appendix A.

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

4.1.1 Cable Construction and Termination

Cable #1

This is a 6 1/2 foot braid and foil shielded cable connecting the EUT (receiver) to the computer. It has a metallic USB connector at both ends of the cable. The cable was bundled to a length of 4 feet. The shield of the cable was grounded to the chassis via the connectors.

Cable #2

This is a 6 foot foil shielded cable connecting the EUT (receiver) to the computer. It has a metallic 1/8 inch stereo jack connector at both ends of the cable. The cable was bundled to a length of 3 feet. The shied of the cable was grounded to the chassis via the connectors.

Cable #3

This is a 2 foot unshielded cable connecting the EUT (receiver) to speaker A. It has a metallic 1/8 inch stereo jack connector at the EUT end, and is hardwired into the speaker.

Cable #4

This is a 6 foot unshielded cable connecting speaker A to speaker B. The cable is hardwired at both ends of the cable. The cable was bundled to a length of 3 feet.

Cable #5

This is a 6 foot foil shielded cable connecting the computer to the mouse. It has a metallic 6 pin mini DIN connector at the computer end, and is hardwired into the mouse. The shield of the cable was grounded to the chassis via the connector.

Cable #6

This is a 6 foot foil shielded cable connecting the computer to the keyboard. It has a metallic 6 pin mini DIN connector at the computer end, and is hardwired into the keyboard. The shield of the cable was grounded to the chassis via the connector.

Cable #7

This is a 6 foot braid and foil shielded cable connecting the computer to the monitor. It has a metallic DB-15 pin high density connector with a factory installed ferrite bead at the computer end, and is hardwired into the monitor. The shield of the cable was grounded to the chassis via the connectors.

Cable #8

This is a 9 foot braid shielded cable connecting the computer to the printer. It has a metallic DB-25 pin connector at the computer end, and a metallic DB-15 pin connector at the printer end. The cable was bundled to a length of 5 feet. The shield of the cable was grounded to the chassis via the connectors.

Cable #9

This is a 6 foot unshielded cable connecting the printer to its AC adapter. It has a metallic 1/4 inch round power connector at the printer end, and is hardwired into the AC adapter. The cable was bundled to a length of 3 feet.

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER	FCC ID
SONICBOX REMOTE TUNER (EUT)	SONICBOX, INC.	433	B	OT7-433
COMPUTER	DELL	MMP	CTZYF	DoC
MONITOR	DELL	D1025TM	761845	DoC
KEYBOARD	DELL	SK-1000REW	12710-7B7-009078	GYUR433K
MOUSE	MICROSOFT	INTELLIMOUSE	00613298	C3KKMP5
SPEAKERS (A & B)	JUSTER	AC-69IN	N/A	N/A
PRINTER	HEWLETT PACKARD	C4582A	CN798120C2	B94C2164X
PRINTER POWER PACK	HEWLETT PACKARD	C2175A	9100-5124	N/A

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACT-URER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
Spectrum Analyzer	Hewlett Packard	8566B	3013A07296	July 6, 1999	1 Year
RF Preselector	Hewlett Packard	85685A	3010A01157	October 29, 1999	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650	2521A00584	July 20, 1999	1 Year
Preamplifier	Com Power	PA-102	1482	March 1, 2000	1 Year
Preamplifier	Com Power	PA-122	2113	October 7, 1999	1 Year
RF Attenuator	Mini-Circuits	CAT-10	Asset #1000	December 7, 1999	1 Year
LISN	Com Power	LI-200	12012	April 27, 1999	1 Year
LISN	Com Power	LI-200	12214	April 27, 1999	1 Year
LISN	Com Power	LI-200	1767	April 27, 1999	1 Year
LISN	Com Power	LI-200	1768	April 27, 1999	1 Year
Biconical Antenna	Com Power	AB-100	01557	November 13, 1999	1 Year
Log Periodic Antenna	Com Power	AL-100	16004	November 13, 1999	1 Year
Horn Antenna	Com Power	AH-118	10062	N/A	N/A
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Compaq	Series 3284	X637BBS20212	N/A	N/A
Printer	Epson	P930A	3HR1398903	N/A	N/A
Plotter	Hewlett Packard	7470A	2308A96499	N/A	N/A

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 7.1.1 and 7.1.2 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The receiver was grounded through the computer's chassis. The transmitter was not grounded.

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The HP 8566B spectrum analyzer was used as a measuring meter along with the HP 85650A quasi-peak adapter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak detector was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the spectrum analyzer input stage, and the spectrum analyzer offset was adjusted accordingly to read the actual data measured. The LISN output was read by the HP 8566B spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for the conducted emissions test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 1992. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The initial test data was taken in manual mode while scanning the frequency ranges of 0.45 MHz to 1.6 MHz, 1.6 MHz to 5 MHz and 5 MHz to 30 MHz. The conducted emissions from the EUT were maximized for operating mode as well as cable and peripheral placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the spectrum analyzer span adjusted to 1 MHz.

The final data was collected under program control by the HP 85869PC software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave.

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

7.1.2 Radiated Emissions Test

The HP 8566B spectrum analyzer was used as a measuring meter along with the HP 85650A quasi-peak adapter. The Com Power Preamplifier PA-102 and Com Power Preamplifier PA-122 was used to increase the sensitivity of the instrument. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps. The HP 85650A quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets. The effective measurement bandwidth used for the radiated emissions test was 120 kHz from 30 MHz to 1 GHz and 1 MHz from 1 GHz to 5 GHz.

Broadband biconical, log periodic and horn antennas were used as transducers during the measurement. The biconical antenna was used from 30 MHz to 300 MHz, the log periodic antenna was used from 300 MHz to 1 GHz, and the horn antenna was used for 1 GHz to 5 GHz. The frequency spans were wide (30 MHz to 88 MHz, 88 MHz to 216 MHz, 216 to 300 MHz, 300 MHz to 1 GHz, and 1 GHz to 5 GHz) during preliminary investigations. The final data was taken with a frequency span of 1 MHz. Furthermore, the frequency span was reduced during the preliminary investigations as deemed necessary.

The open field test site of Electro Magnetic Test, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 1992. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength).

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain final test data.

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

8. CONCLUSIONS

The Sonicbox Remote Turner Model: 433 meets all of the **Class B** requirements of the FCC Title 47, Part 15, Subpart B and FCC Title 47, Subpart C, section 15.231.

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

APPENDIX A

RADIATED AND CONDUCTED EMISSIONS DATA SHEETS

Electro Magnetic Test, Inc.
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

Radiated Emissions Test Data

Purpose of Test: [X] QUALIFICATION [] ENGINEERING [] MANUFACTURING AUDIT
FCC Class B Test Date: 04-15-00
Company Name: SONICBOX, INC.
EUT Model Number: 433
EUT Serial Number: B
EUT Description: SONICBOX REMOTE TUNER

Test Setup Configuration

EUT Clock Speeds: 433MHz

EUT Power Cords: [] SHIELDED [] NOT SHIELDED
EUT tested at: [] LOW SPEED [] HIGH SPEED
EUT is: [X] IN COMPLIANCE [] OUT OF COMPLIANCE with FCC Class B.

EUT Modifications during this test:
[] MODIFIED [X] NOT MODIFIED

Modifications: _____

_____

_____

NOTE: A formal report on passing data will be generated when required.
Design, debug and consultation services are available at all times.

Test Engineer: NEELESH RAJ

Electro Magnetic Test, Inc.
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

FCC Class B Test Date: 04-15-00
Company Name: SONICBOX, INC.
EUT Model Number: 433
EUT Description: SONICBOX REMOTE TUNER

RADIATED EMISSION TEST RESULTS

Freq MHz	Ampl dBuV	M	P	A	Ht m	Dist m	Ori deg	Gain dB	ACor dBuV/m	CCor dB	DCor dB	CorAmp dBuV/m	Limit dBuV/m	Margin dB	Flags FH---
THE FOLLOWING READINGS ARE FOR THE RECEIVER FCC PART 15.109 (30-1000MHz)															
Comment: THE FOLLOWING IS FOR POSTION "Z", FOUND TO BE THE WORST CASE MODE.															
-VERTICAL POLARIZATION															
36.000	34.2	P	V	B	1.0	3.0	0	21.8	11.8	1.0	0.0	25.2	40.0	-14.8	-----
42.003	34.8	P	V	B	1.0	3.0	0	21.8	10.7	1.0	0.0	24.7	40.0	-15.3	-----
72.004	37.2	P	V	B	1.0	3.0	90	21.5	9.8	1.3	0.0	26.8	40.0	-13.2	-----
84.003	35.0	P	V	B	1.0	3.0	90	21.7	8.8	1.3	0.0	23.4	40.0	-16.6	-----
137.753	27.5	P	V	B	1.0	3.0	90	21.8	11.6	1.8	0.0	19.1	43.5	-24.4	-----
168.033	30.5	P	V	B	1.0	3.0	90	21.8	13.5	1.9	0.0	24.1	43.5	-19.4	-----
291.137	29.2	P	V	B	1.0	3.0	0	21.6	20.5	2.6	0.0	30.7	46.0	-15.3	-----
303.130	27.2	P	V	L	1.0	3.0	0	21.6	15.6	2.7	0.0	23.9	46.0	-22.1	-----
311.310	27.6	P	V	L	1.0	3.0	315	21.6	15.5	2.7	0.0	24.2	46.0	-21.8	-----
419.999	24.7	P	V	L	1.0	3.0	0	21.4	16.4	3.1	0.0	22.8	46.0	-23.2	-----
636.029	23.0	P	V	L	1.0	3.0	0	21.1	20.9	3.8	0.0	26.6	46.0	-19.4	-----
996.033	23.2	P	V	L	1.0	3.0	0	19.8	23.2	4.9	0.0	31.5	54.0	-22.5	-----
-HORIZONTAL POLARIZAION															
36.040	37.0	P	H	B	1.0	3.0	0	21.8	11.8	1.0	0.0	28.0	40.0	-12.0	-----
42.001	30.6	P	H	B	1.0	3.0	0	21.8	10.7	1.0	0.0	20.5	40.0	-19.5	-----
72.002	32.4	P	H	B	1.0	3.0	0	21.5	9.8	1.3	0.0	22.0	40.0	-18.0	-----
84.002	27.2	P	H	B	1.0	3.0	0	21.7	8.8	1.3	0.0	15.6	40.0	-24.4	-----
137.734	35.7	P	H	B	2.0	3.0	135	21.8	11.6	1.8	0.0	27.3	43.5	-16.2	-----
167.981	27.8	P	H	B	2.0	3.0	0	21.8	13.5	1.9	0.0	21.4	43.5	-22.1	-----
291.141	25.1	P	H	B	1.0	3.0	0	21.6	20.5	2.6	0.0	26.6	46.0	-19.4	-----
303.313	29.2	P	H	L	1.0	3.0	0	21.6	15.6	2.7	0.0	25.9	46.0	-20.1	-----
311.313	28.7	P	H	L	1.0	3.0	0	21.6	15.5	2.7	0.0	25.3	46.0	-20.7	-----
420.006	25.8	P	H	L	1.0	3.0	315	21.4	16.4	3.1	0.0	23.9	46.0	-22.1	-----
636.006	23.0	P	H	L	1.0	3.0	0	21.1	20.9	3.8	0.0	26.6	46.0	-19.4	-----
996.006	22.1	P	H	L	1.0	3.0	0	19.8	23.2	4.9	0.0	30.4	54.0	-23.6	-----
THE FOLLOWING READINGS ARE FOR THE TRANSMITTER FCC PART 15.231(b) (FIELD STRENGTH OF FUNDAMENTAL AND HARMONICS,AND SPURIOUS EMISSIONS)															
Comment: THE FOLLOWING ARE FOR POSTIONS "Z", "Y" AND "X", POSTION "Z" WAS FOUND TO BE THE WORST CASE MODE.															
THE FOLLOWING IS FOR POSTION "Z"															
-VERTICAL POLARIZATION															
Comment: FUNDAMENTAL															
433.992	91.5	P	V	L	2.0	3.0	45	21.5	17.0	3.1	0.0	90.1	80.2	9.9	-----
433.992	76.5	A	V	L	2.0	3.0	45	21.5	17.0	3.1	0.0	75.1	80.2	-5.1	-----
Comment: 2ND HARMONIC															
867.995	63.2	P	V	L	1.0	3.0	135	20.8	22.4	4.7	0.0	69.5	61.9	7.6	-----
867.995	48.1	A	V	L	1.0	3.0	135	20.8	22.4	4.7	0.0	54.4	61.9	-7.5	-----

```
Comment: THE FOLLOWING ARE SPURIOUS EMISSIONS
 905.279  38.6 P V L 1.0   3.0   0  21.0   23.2   4.7   0.0   45.5   61.9  -16.4 -----
 905.279  22.4 A V L 1.0   3.0   0  21.0   23.2   4.7   0.0   29.2   61.9  -32.7 -----
 909.778  31.9 P V L 1.0   3.0   0  20.9   23.1   4.7   0.0   38.8   61.9  -23.1 -----
 909.778  19.8 A V L 1.0   3.0   0  20.9   23.1   4.7   0.0   26.7   61.9  -35.2 -----
 989.275  30.3 P V L 1.0   3.0   0  19.8   23.1   4.9   0.0   38.5   61.9  -23.4 -----
 989.275  16.6 A V L 1.0   3.0   0  19.8   23.1   4.9   0.0   24.8   61.9  -37.1 -----


Comment: 3RD HARMONIC
1302.004  34.2 P V H 1.0   3.0  90  33.7   27.8   5.4   0.0   33.7   61.9  -28.2 -----
1302.004  21.0 A V H 1.0   3.0  90  33.7   27.8   5.4   0.0   20.5   61.9  -41.4 -----
Comment: 4TH HARMONIC
1736.028  31.6 P V H 1.0   3.0  90  33.6   29.0   6.4   0.0   33.4   61.9  -28.5 -----
1736.028  18.3 A V H 1.0   3.0  90  33.6   29.0   6.4   0.0   20.1   61.9  -41.8 -----
Comment: 5TH HARMONIC
2170.045  28.5 P V H 1.0   3.0   0  33.7   31.0   7.2   0.0   33.0   61.9  -28.9 -----
2170.045  23.5 A V H 1.0   3.0   0  33.7   31.0   7.2   0.0   28.0   61.9  -33.9 -----
Comment: 6TH HARMONIC
2604.030  25.6 P V H 1.0   3.0   0  33.3   30.3   7.5   0.0   30.1   61.9  -31.8 -----
2604.030  15.2 A V H 1.0   3.0   0  33.3   30.3   7.5   0.0   19.7   61.9  -42.2 -----
Comment: 7TH HARMONIC
3038.034  27.2 P V H 1.0   3.0   0  32.7   31.8   7.8   0.0   34.1   61.9  -27.8 -----
3038.034  15.0 A V H 1.0   3.0   0  32.7   31.8   7.8   0.0   21.9   61.9  -40.0 -----
Comment: 8TH HARMONIC
3472.123  23.1 P V H 1.0   3.0   0  32.2   32.2   9.0   0.0   32.1   61.9  -29.8 -----
3472.123  12.8 A V H 1.0   3.0   0  32.2   32.2   9.0   0.0   21.8   61.9  -40.1 -----
Comment: 9TH HARMONIC
3096.000  22.4 P V H 1.0   3.0   0  32.6   31.9   8.0   0.0   29.7   61.9  -32.2 -----
3096.000  13.3 A V H 1.0   3.0   0  32.6   31.9   8.0   0.0   20.6   61.9  -41.3 -----
Comment: 10TH HARMONIC
4340.000  22.2 P V H 1.0   3.0   0  30.8   33.2  10.4   0.0   35.0   61.9  -26.9 -----
4340.000  13.7 A V H 1.0   3.0   0  30.8   33.2  10.4   0.0   26.5   61.9  -35.4 -----

-HORIZONTAL POLARIZATION
Comment: FUNDAMENTAL
 433.992  82.9 P H L 1.0   3.0 135  21.5   17.0   3.1   0.0   81.5   80.2    1.3 -----
 433.992  67.5 A H L 1.0   3.0 135  21.5   17.0   3.1   0.0   66.1   80.2  -14.1 -----
Comment: 2ND HARMONIC
 867.995  72.5 P H L 1.0   3.0   0  20.8   22.4   4.7   0.0   78.8   61.9   16.9 -----
 867.996  54.3 A H L 1.0   3.0   0  20.8   22.4   4.7   0.0   60.6   61.9   -1.3 -----
Comment: THE FOLLOWING ARE SPURIOUS EMISSIONS
 905.278  43.0 P H L 1.0   3.0   0  21.0   23.2   4.7   0.0   49.9   61.9  -12.0 -----
 905.278  25.3 A H L 1.0   3.0   0  21.0   23.2   4.7   0.0   32.2   61.9  -29.7 -----
 909.777  30.0 P H L 1.0   3.0   0  20.9   23.1   4.7   0.0   36.9   61.9  -25.0 -----
 909.777  17.5 A H L 1.0   3.0   0  20.9   23.1   4.7   0.0   24.4   61.9  -37.5 -----
 989.272  28.5 P H L 1.0   3.0   0  19.8   23.1   4.9   0.0   36.7   61.9  -25.2 -----
 989.272  14.8 A H L 1.0   3.0   0  19.8   23.1   4.9   0.0   23.0   61.9  -38.9 -----
Comment: 3RD HARMONIC
1302.003  30.2 P H H 1.0   3.0   0  33.7   27.8   5.4   0.0   29.7   61.9  -32.2 -----
1302.003  18.2 A H H 1.0   3.0   0  33.7   27.8   5.4   0.0   17.7   61.9  -44.2 -----
Comment: 4TH HARMONIC
1736.000  30.0 P H H 2.0   3.0   0  33.6   29.0   6.4   0.0   31.8   61.9  -30.1 -----
1736.000  17.4 A H H 2.0   3.0   0  33.6   29.0   6.4   0.0   19.2   61.9  -42.7 -----
Comment: 5TH HARMONIC
2170.000  23.0 P H H 1.0   3.0   0  33.7   31.0   7.2   0.0   27.5   61.9  -34.4 -----
2170.000  13.7 A H H 1.0   3.0   0  33.7   31.0   7.2   0.0   18.2   61.9  -43.7 -----
```

```
Comment: 6TH HARMONIC
2604.040  25.6 P H H 1.0   3.0   0  33.3   30.3   7.5   0.0   30.1   61.9  -31.8 -----
2604.040  14.2 A H H 1.0   3.0   0  33.3   30.3   7.5   0.0   18.7   61.9  -43.2 -----
Comment: 7TH HARMONIC
3038.002  22.7 P H H 1.0   3.0   0  32.7   31.8   7.8   0.0   29.6   61.9  -32.3 -----
3038.002  13.7 A H H 1.0   3.0   0  32.7   31.8   7.8   0.0   20.6   61.9  -41.3 -----
Comment: 8TH HARMONIC
3472.004  22.9 P H H 1.0   3.0   0  32.2   32.2   9.0   0.0   31.9   61.9  -30.0 -----
3472.004  12.9 A H H 1.0   3.0   0  32.2   32.2   9.0   0.0   21.9   61.9  -40.0 -----
Comment: 9TH HARMONIC
3906.003  22.1 P H H 1.0   3.0   0  31.1   34.3   9.8   0.0   35.1   61.9  -26.8 -----
3906.003  13.4 A H H 1.0   3.0   0  31.1   34.3   9.8   0.0   26.3   61.9  -35.6 -----
Comment: 10TH HARMONIC
4340.000  23.5 P H H 1.0   3.0   0  30.8   33.2  10.4   0.0   36.3   61.9  -25.6 -----
4340.000  13.7 A H H 1.0   3.0   0  30.8   33.2  10.4   0.0   26.5   61.9  -35.4 -----



                                THE FOLLOWING IS FOR POSTION "Y"
-VERTICAL POLARIZATION
Comment: FUNDAMENTAL
 433.995  87.0 P V L 1.0   3.0 315  21.5   17.0   3.1   0.0   85.6   80.2    5.4 -----
 433.995  71.9 A V L 1.0   3.0 315  21.5   17.0   3.1   0.0   70.5   80.2   -9.7 -----
Comment: 2ND HARMONIC
 868.005  69.6 P V L 1.0   3.0   0  20.8   22.4   4.7   0.0   75.9   61.9   14.0 -----
 868.005  54.2 A V L 1.0   3.0   0  20.8   22.4   4.7   0.0   60.5   61.9   -1.4 -----
Comment: 3RD HARMONIC
1302.012  30.5 P V H 1.0   3.0  45  33.7   27.8   5.4   0.0   30.0   61.9  -31.9 -----
1302.012  18.6 A V H 1.0   3.0  45  33.7   27.8   5.4   0.0   18.1   61.9  -43.8 -----
Comment: 4TH HARMONIC
1736.004  27.4 P V H 1.0   3.0  45  33.6   29.0   6.4   0.0   29.2   61.9  -32.7 -----
1736.004  16.6 A V H 1.0   3.0  45  33.6   29.0   6.4   0.0   18.4   61.9  -43.5 -----
Comment: 5TH HARMONIC
2170.000  23.2 P V H 1.0   3.0   0  33.7   31.0   7.2   0.0   27.7   61.9  -34.2 -----
2170.000  13.9 A V H 1.0   3.0   0  33.7   31.0   7.2   0.0   18.4   61.9  -43.5 -----
Comment: 6TH HARMONIC
2604.000  21.7 P V H 1.0   3.0   0  33.3   30.3   7.5   0.0   26.2   61.9  -35.7 -----
2604.000  13.2 A V H 1.0   3.0   0  33.3   30.3   7.5   0.0   17.7   61.9  -44.2 -----
Comment: 7TH HARMONIC
3038.000  22.3 P V H 1.0   3.0   0  32.7   31.8   7.8   0.0   29.2   61.9  -32.7 -----
3038.000  13.4 A V H 1.0   3.0   0  32.7   31.8   7.8   0.0   20.3   61.9  -41.6 -----
Comment: 8TH HARMONIC
3472.000  21.7 P V H 1.0   3.0   0  32.2   32.2   9.0   0.0   30.7   61.9  -31.2 -----
3472.000  12.9 A V H 1.0   3.0   0  32.2   32.2   9.0   0.0   21.9   61.9  -40.0 -----
Comment: 9TH HARMONIC
3906.003  23.3 P V H 1.0   3.0   0  31.1   34.3   9.8   0.0   36.3   61.9  -25.6 -----
3906.003  13.4 A V H 1.0   3.0   0  31.1   34.3   9.8   0.0   26.4   61.9  -35.5 -----
Comment: 10TH HARMONIC
4340.000  23.1 P V H 1.0   3.0   0  30.8   33.2  10.4   0.0   35.9   61.9  -26.0 -----
4340.000  13.7 A V H 1.0   3.0   0  30.8   33.2  10.4   0.0   26.5   61.9  -35.4 -----

-HORIZONTAL POLARIZATION
Comment: FUNDAMENTAL
 433.992  92.7 P H L 1.0   3.0   0  21.5   17.0   3.1   0.0   91.3   80.2   11.1 -----
 433.992  77.3 A H L 1.0   3.0   0  21.5   17.0   3.1   0.0   75.9   80.2   -4.3 -----
```

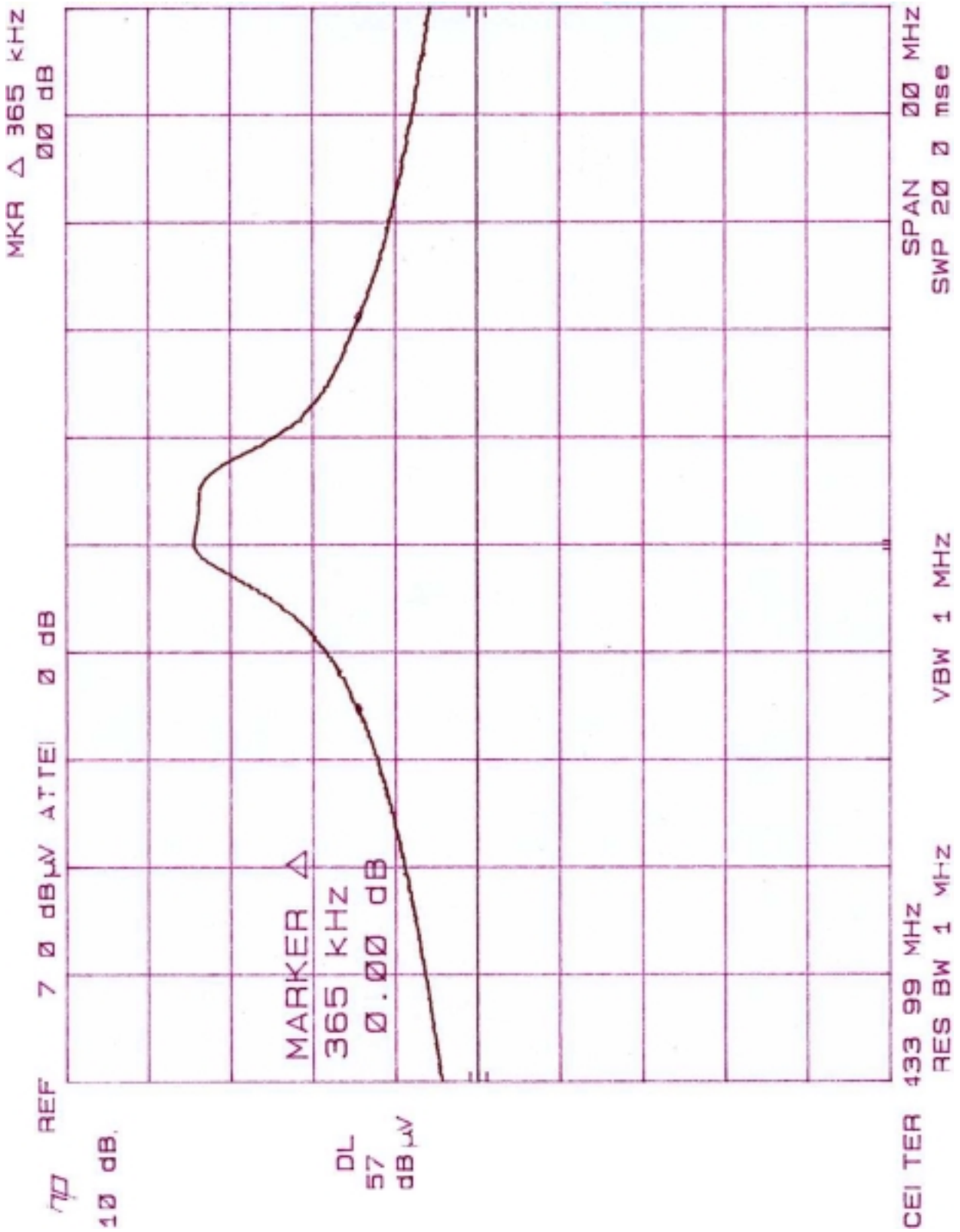
```
Comment: 2ND HARMONIC
 867.991  61.8 P H L 1.0   3.0   0  20.8   22.4   4.7   0.0   68.1   61.9    6.2 -----
 867.991  46.6 A H L 1.0   3.0   0  20.8   22.4   4.7   0.0   52.9   61.9   -9.0 -----
Comment: 3RD HARMONIC
1302.018  32.5 P H H 2.0   3.0   0  33.7   27.8   5.4   0.0   32.0   61.9  -29.9 -----
1302.018  20.1 A H H 2.0   3.0   0  33.7   27.8   5.4   0.0   19.6   61.9  -42.3 -----
Comment: 4TH HARMONIC
1736.003  28.0 P H H 1.0   3.0   0  33.6   29.0   6.4   0.0   29.8   61.9  -32.1 -----
1736.003  15.6 A H H 1.0   3.0   0  33.6   29.0   6.4   0.0   17.4   61.9  -44.5 -----
Comment: 5TH HARMONIC
2170.027  26.5 P H H 2.0   3.0   0  33.7   31.0   7.2   0.0   31.0   61.9  -30.9 -----
2170.027  15.6 A H H 2.0   3.0   0  33.7   31.0   7.2   0.0   20.1   61.9  -41.8 -----
Comment: 6TH HARMONIC
2604.030  26.9 P H H 1.0   3.0   0  33.3   30.3   7.5   0.0   31.4   61.9  -30.5 -----
2604.030  16.2 A H H 1.0   3.0   0  33.3   30.3   7.5   0.0   20.7   61.9  -41.2 -----
Comment: 7TH HARMONIC
3038.048  27.3 P H H 1.0   3.0   0  32.7   31.8   7.8   0.0   34.2   61.9  -27.7 -----
3038.048  16.0 A H H 1.0   3.0   0  32.7   31.8   7.8   0.0   22.9   61.9  -39.0 -----
Comment: 8TH HARMONIC
3472.000  22.7 P H H 1.0   3.0   0  32.2   32.2   9.0   0.0   31.7   61.9  -30.2 -----
3472.000  12.9 A H H 1.0   3.0   0  32.2   32.2   9.0   0.0   21.9   61.9  -40.0 -----
Comment: 9TH HARMONIC
3906.000  21.3 P H H 1.0   3.0   0  31.1   34.3   9.8   0.0   34.3   61.9  -27.6 -----
3906.000  13.4 A H H 1.0   3.0   0  31.1   34.3   9.8   0.0   26.4   61.9  -35.5 -----
Comment: 10TH HARMONIC
4340.000  21.9 P H H 1.0   3.0   0  30.8   33.2  10.4   0.0   34.7   61.9  -27.2 -----
4340.000  13.7 A H H 1.0   3.0   0  30.8   33.2  10.4   0.0   26.5   61.9  -35.4 -----



                                THE FOLLOWING IS FOR POSTION "X"
-VERTICAL POLARIZATION
Comment: FUNDAMENTAL
 433.998  80.1 P V L 3.0   3.0  45  21.5   17.0   3.1   0.0   78.7   80.2   -1.5 -----
 433.998  64.9 A V L 3.0   3.0  45  21.5   17.0   3.1   0.0   63.5   80.2  -16.7 -----
Comment: 2ND HARMONIC
 867.998  65.1 P V L 2.0   3.0   0  20.8   22.4   4.7   0.0   71.4   61.9    9.5 -----
 867.998  49.9 A V L 2.0   3.0   0  20.8   22.4   4.7   0.0   56.2   61.9   -5.7 -----
Comment: 3RD HARMONIC
1302.000  27.1 P V H 2.0   3.0   0  33.7   27.8   5.4   0.0   26.6   61.9  -35.3 -----
1302.000  15.6 A V H 2.0   3.0   0  33.7   27.8   5.4   0.0   15.1   61.9  -46.8 -----
Comment: 4TH HARMONIC
1736.006  25.7 P V H 1.0   3.0   0  33.6   29.0   6.4   0.0   27.5   61.9  -34.4 -----
1736.006  15.9 A V H 1.0   3.0   0  33.6   29.0   6.4   0.0   17.7   61.9  -44.2 -----
Comment: 5TH HARMONIC
2170.000  23.5 P V H 1.0   3.0   0  33.7   31.0   7.2   0.0   28.0   61.9  -33.9 -----
2170.000  13.8 A V H 1.0   3.0   0  33.7   31.0   7.2   0.0   18.3   61.9  -43.6 -----
Comment: 6TH HARMONIC
2604.035  21.7 P V H 1.0   3.0   0  33.3   30.3   7.5   0.0   26.2   61.9  -35.7 -----
2604.035  13.4 A V H 1.0   3.0   0  33.3   30.3   7.5   0.0   17.9   61.9  -44.0 -----
Comment: 7TH HARMONIC
3038.000  21.9 P V H 1.0   3.0   0  32.7   31.8   7.8   0.0   28.8   61.9  -33.1 -----
3038.000  13.6 A V H 1.0   3.0   0  32.7   31.8   7.8   0.0   20.4   61.9  -41.5 -----
Comment: 8TH HARMONIC
3472.000  22.9 P V H 1.0   3.0   0  32.2   32.2   9.0   0.0   31.9   61.9  -30.0 -----
3472.000  12.9 A V H 1.0   3.0   0  32.2   32.2   9.0   0.0   21.9   61.9  -40.0 -----
```

```
Comment: 9TH HARMONIC
3906.000  21.6 P V H 1.0   3.0   0  31.1   34.3   9.8   0.0   34.6   61.9  -27.3 -----
3906.000  13.3 A V H 1.0   3.0   0  31.1   34.3   9.8   0.0   26.3   61.9  -35.6 -----
Comment: 10TH HARMONIC
4340.001  21.6 P V H 1.0   3.0   0  30.8   33.2  10.4   0.0   34.4   61.9  -27.5 -----
4340.001  13.8 A V H 1.0   3.0   0  30.8   33.2  10.4   0.0   26.6   61.9  -35.3 -----

-HORIZONTAL POLARIZATION
Comment: FUNDAMENTAL
 433.992  93.4 P H L 1.0   3.0 180  21.5   17.0   3.1   0.0   92.0   80.2   11.8 -----
 433.992  78.3 A H L 1.0   3.0 180  21.5   17.0   3.1   0.0   76.9   80.2   -3.3 -----
Comment: 2ND HARMONIC
 867.996  68.1 P H L 2.0   3.0  90  20.8   22.4   4.7   0.0   74.4   61.9   12.5 -----
 867.996  52.7 A H L 2.0   3.0  90  20.8   22.4   4.7   0.0   59.0   61.9   -2.9 -----
Comment: 3RD HARMONIC
1302.000  31.9 P H H 2.0   3.0  45  33.7   27.8   5.4   0.0   31.4   61.9  -30.5 -----
1302.000  19.7 A H H 2.0   3.0  45  33.7   27.8   5.4   0.0   19.2   61.9  -42.7 -----
Comment: 4TH HARMONIC
1736.008  28.6 P H H 2.0   3.0  45  33.6   29.0   6.4   0.0   30.4   61.9  -31.5 -----
1736.008  27.5 A H H 2.0   3.0  45  33.6   29.0   6.4   0.0   29.4   61.9  -32.5 -----
Comment: 5TH HARMONIC
2170.003  22.7 P H H 1.0   3.0   0  33.7   31.0   7.2   0.0   27.2   61.9  -34.7 -----
2170.003  14.2 A H H 1.0   3.0   0  33.7   31.0   7.2   0.0   18.8   61.9  -43.1 -----
Comment: 6TH HARMONIC
2603.997  22.1 P H H 1.0   3.0   0  33.3   30.3   7.5   0.0   26.6   61.9  -35.3 -----
2603.997  13.1 A H H 1.0   3.0   0  33.3   30.3   7.5   0.0   17.6   61.9  -44.3 -----
Comment: 7TH HARMONIC
3038.000  22.5 P H H 1.0   3.0   0  32.7   31.8   7.8   0.0   29.4   61.9  -32.5 -----
3038.000  13.4 A H H 1.0   3.0   0  32.7   31.8   7.8   0.0   20.3   61.9  -41.6 -----
Comment: 8TH HARMONIC
3472.004  21.0 P H H 1.0   3.0   0  32.2   32.2   9.0   0.0   30.0   61.9  -31.9 -----
3472.004  12.9 A H H 1.0   3.0   0  32.2   32.2   9.0   0.0   21.9   61.9  -40.0 -----
Comment: 9TH HARMONIC
3906.005  22.1 P H H 1.0   3.0   0  31.1   34.3   9.8   0.0   35.1   61.9  -26.8 -----
3906.005  13.4 A H H 1.0   3.0   0  31.1   34.3   9.8   0.0   26.4   61.9  -35.5 -----
Comment: 10TH HARMONIC
4340.000  22.3 P H H 1.0   3.0   0  30.8   33.2  10.4   0.0   35.1   61.9  -26.8 -----
4340.000  13.7 A H H 1.0   3.0   0  30.8   33.2  10.4   0.0   26.5   61.9  -35.4 -----
```



PLOT SHOWING BANDWIDTH OF FUNDAMENTAL FREQUENCY

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

FRONT VIEW

SONICBOX, INC.
SONICBOX REMOTE TUNER
MODEL: 433
FCC CLASS B - RADIATED EMISSIONS - 4-14-00

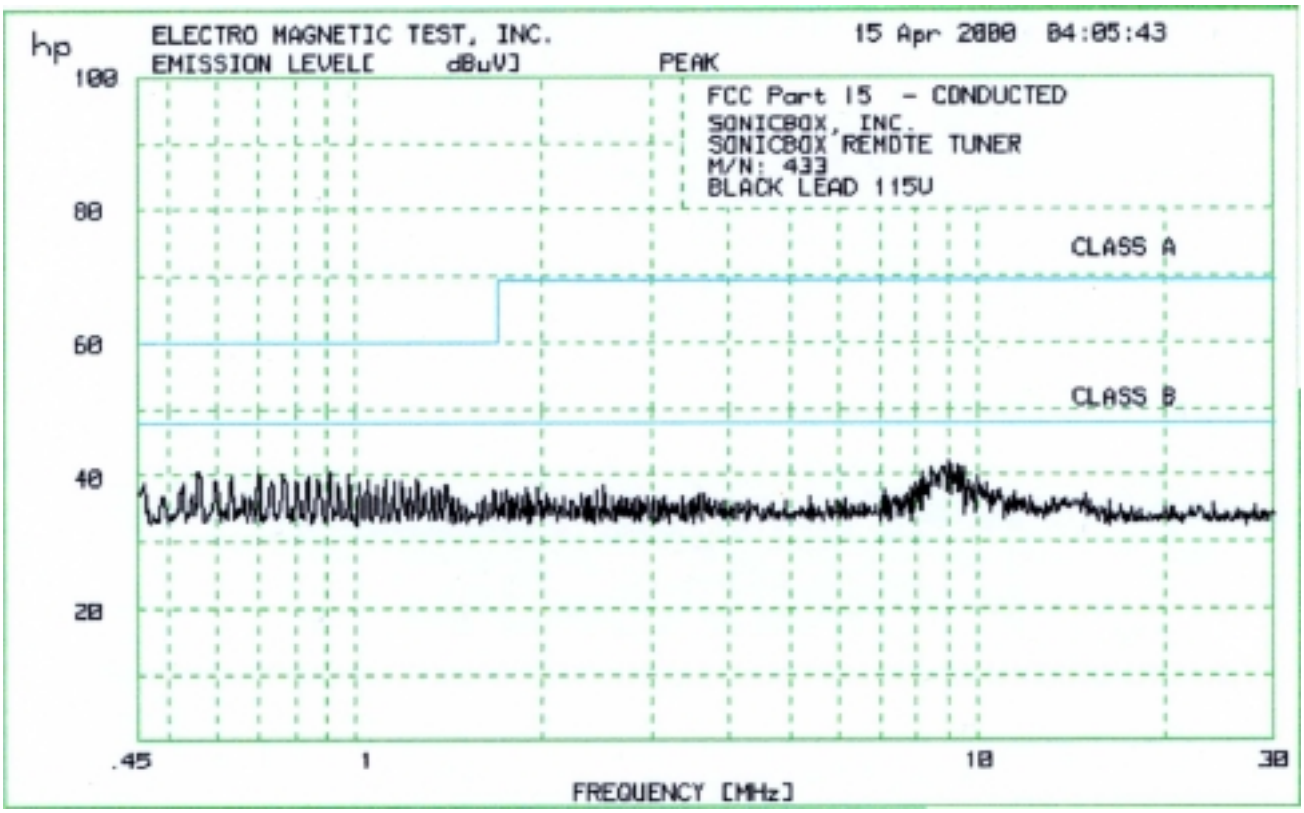
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

REAR VIEW

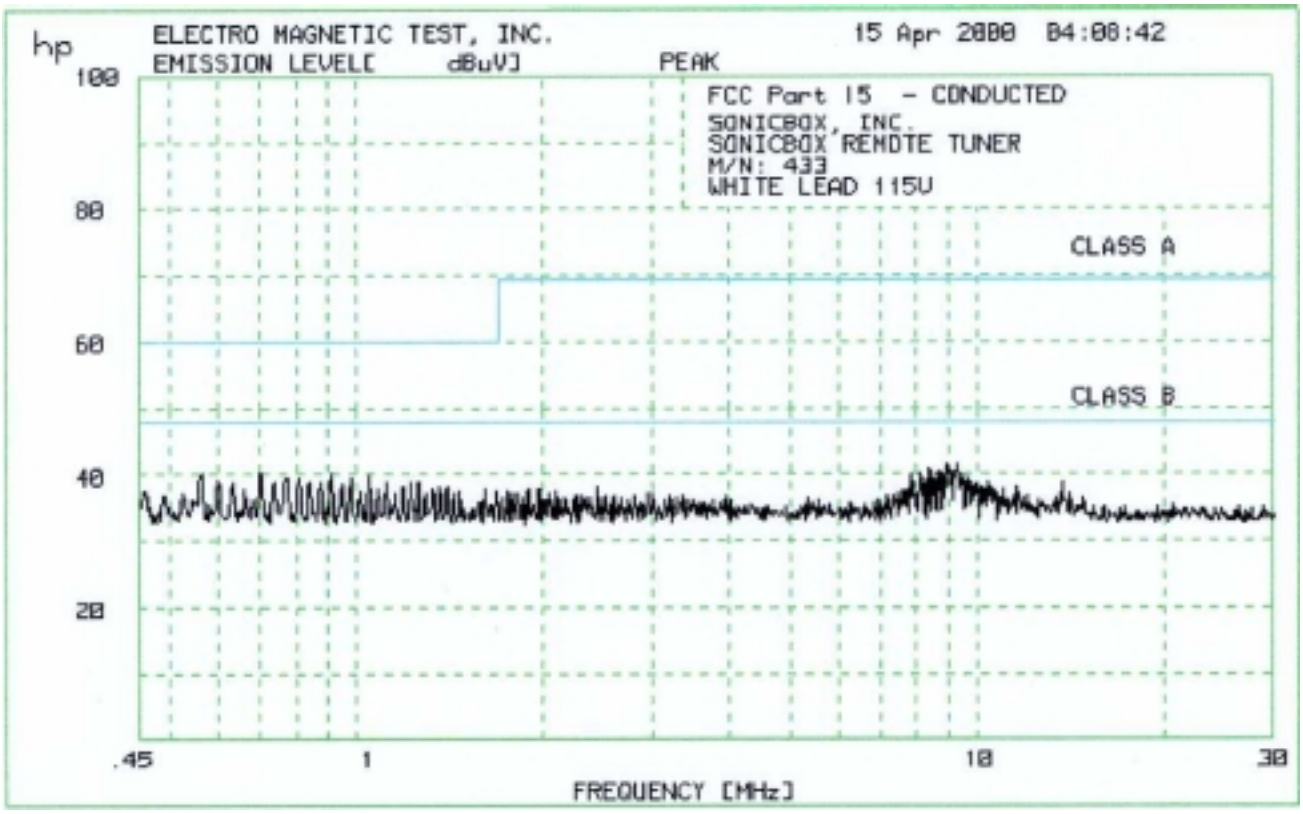
SONICBOX, INC.
SONICBOX REMOTE TUNER
MODEL: 433
FCC CLASS B - RADIATED EMISSIONS - 4-14-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS


hp
ELECTRO MAGNETIC TEST, INC.
15 Apr 2000 04:05:43
EMISSION LEVELS [dBuV]
PEAK
FCC Part 15 - CONDUCTED
SONICBOX, INC.
SONICBOX REMOTE TUNER
M/N: 433
BLACK LEAD 115V
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]

```
=====================================================
ELECTRO MAGNETIC TEST, INC.      15 Apr 2000  04:05:43
=====================================================
 1. CONDUCTED WITH PRESELECTOR
    1.1  FCC Part 15  - CONDUCTED
=====================================================
45 highest Peaks above -50 dB of Limit Line #2
  peak criteria = .1 dB

PEAK#    FREQ (MHz)       (dBuV)        DELTA
  1        9.037            42           -6.0
  2        9.113            41.5         -6.5
  3        9.306            41.3         -6.7
  4        8.485            41.2         -6.8
  5        8.812            41.2         -6.8
  6        9.384            41.2         -6.8
  7        9.543            41.1         -6.9
  8        8.171            40.6         -7.4
  9         .5621           40.5         -7.5
 10         .9144           40.4         -7.6
 11         .6991           40.1         -7.9
 12         .982            40.1         -7.9
 13         .7699           40           -8.0
 14        8.665            39.9         -8.1
 15         .705            39.8         -8.2
 16         .8444           39.7         -8.3
 17       10.04             39.7         -8.3
 18         .6348           39.6         -8.4
 19        8.24             39.4         -8.6
 20         .8768           39.3         -8.7
 21        1.05             39.3         -8.7
 22        1.123            39.3         -8.7
 23        1.263            39.3         -8.7
 24        1.191            39.2         -8.8
 25        9.705            39.2         -8.8
 26         .6011           39.1         -8.9
 27         .7383           39.1         -8.9
 28         .8063           39.1         -8.9
 29        1.157            39.1         -8.9
 30         .5961           39           -9.0
 31         .4576           38.9         -9.1
 32         .53             38.8         -9.2
 33         .9417           38.7         -9.3
 34        8.379            38.7         -9.3
 35        1.016            38.6         -9.4
 36        7.968            38.6         -9.4
 37       10.34             38.6         -9.4
 38        1.403            38.5         -9.5
 39        9.828            38.5         -9.5
 40        1.086            38.3         -9.7
 41        2.524            38.3         -9.7
 42         .4538           38.2         -9.8
 43        1.232            38.2         -9.8
 44        7.868            38.2         -9.8
 45        8.069            38.2         -9.8
```


hp
ELECTRO MAGNETIC TEST, INC.
15 Apr 2000 04:00:42
EMISSION LEVELS dBuV]
PEAK
FCC Part 15 - CONDUCTED
SONICBOX, INC.
SONICBOX REMOTE TUNER
M/N: 433
WHITE LEAD 115V
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]

```
=====================================================
ELECTRO MAGNETIC TEST, INC.      15 Apr 2000  04:08:42
=====================================================
 1. CONDUCTED WITH PRESELECTOR
    1.1  FCC Part 15  - CONDUCTED
=====================================================
45 highest Peaks above -50 dB of Limit Line #2
  peak criteria = .1 dB

PEAK#    FREQ (MHz)       (dBuV)        DELTA
  1        9.345           41.6          -6.4
  2        8.961           41.5          -6.5
  3        8.415           40.7          -7.3
  4        8.702           40.6          -7.4
  5        9.113           40.5          -7.5
  6        9.228           40.5          -7.5
  7        8.485           40.3          -7.7
  8         .5668          40.2          -7.8
  9         .705           40.2          -7.8
 10         .9144          40.1          -7.9
 11        8.103           40.1          -7.9
 12        8.629           40.1          -7.9
 13        8.812           40            -8.0
 14        7.835           39.8          -8.2
 15        9.543           39.7          -8.3
 16        1.05            39.6          -8.4
 17         .7764          39.5          -8.5
 18        8.205           39.5          -8.5
 19         .8131          39.4          -8.6
 20         .9861          39.3          -8.7
 21        9.705           39.3          -8.7
 22        8.309           39.2          -8.8
 23         .5986          39            -9.0
 24         .7414          38.9          -9.1
 25        1.268           38.9          -9.1
 26       10.42            38.9          -9.1
 27         .6374          38.8          -9.2
 28        9.786           38.8          -9.2
 29       13.75            38.8          -9.2
 30         .8805          38.7          -9.3
 31         .8479          38.6          -9.4
 32        1.123           38.6          -9.4
 33        1.227           38.6          -9.4
 34        7.901           38.6          -9.4
 35         .8408          38.4          -9.6
 36        9.91            38.4          -9.6
 37       10.04            38.4          -9.6
 38         .9536          38.3          -9.7
 39        1.191           38.2          -9.8
 40       11.62            38.2          -9.8
 41        1.368           38.1          -9.9
 42       10.21            38.1          -9.9
 43       10.51            38.1          -9.9
 44        1.409           38           -10.0
 45        2.461           38           -10.0
```

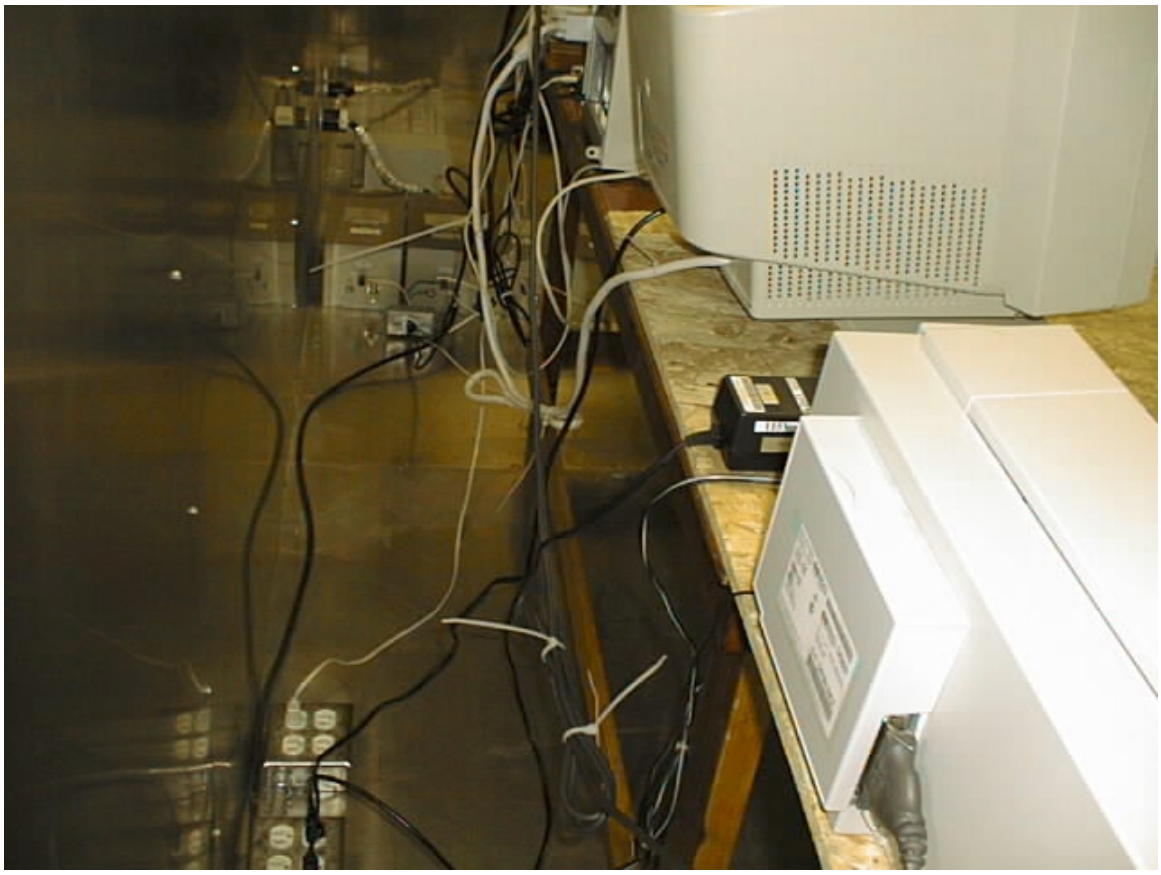
EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

FRONT VIEW

SONICBOX, INC.
SONICBOX REMOTE TUNER
MODEL: 433
FCC CLASS B - CONDUCTED EMISSIONS - 4-15-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000



REAR VIEW

SONICBOX, INC.
SONICBOX REMOTE TUNER
MODEL: 433
FCC CLASS B - CONDUCTED EMISSIONS - 4-15-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

APPENDIX B

TEST SETUP DIAGRAMS

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

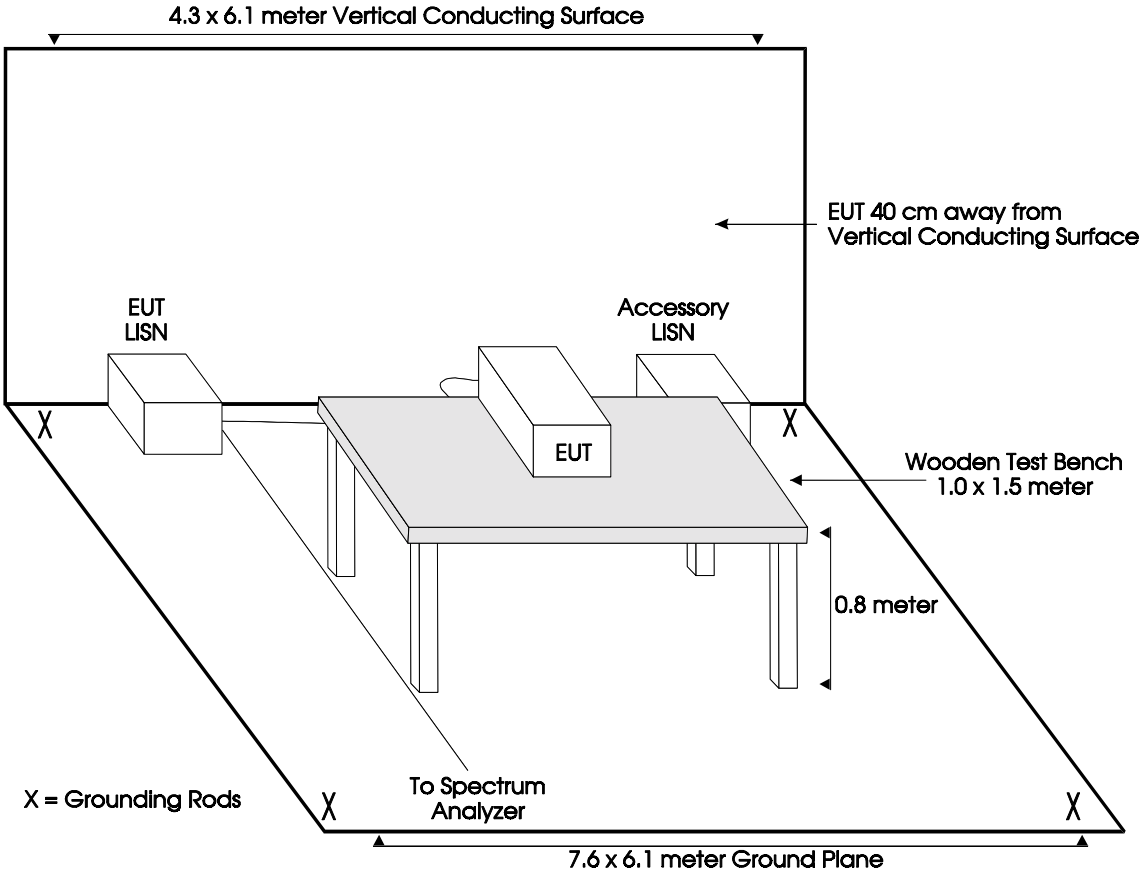


FIGURE 1 - CONDUCTED EMISSIONS TEST SETUP SITE A

EMT
ELECTRO MAGNETIC TEST, INC.
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

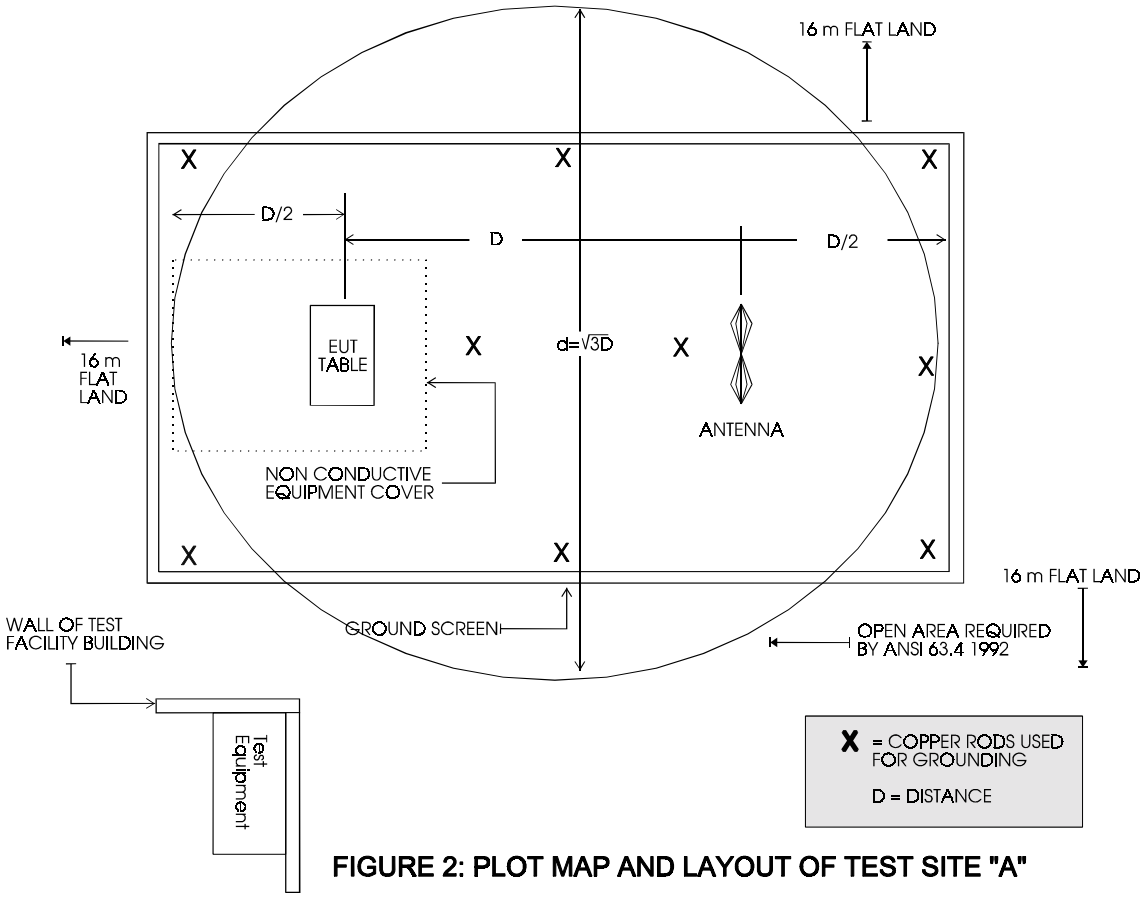
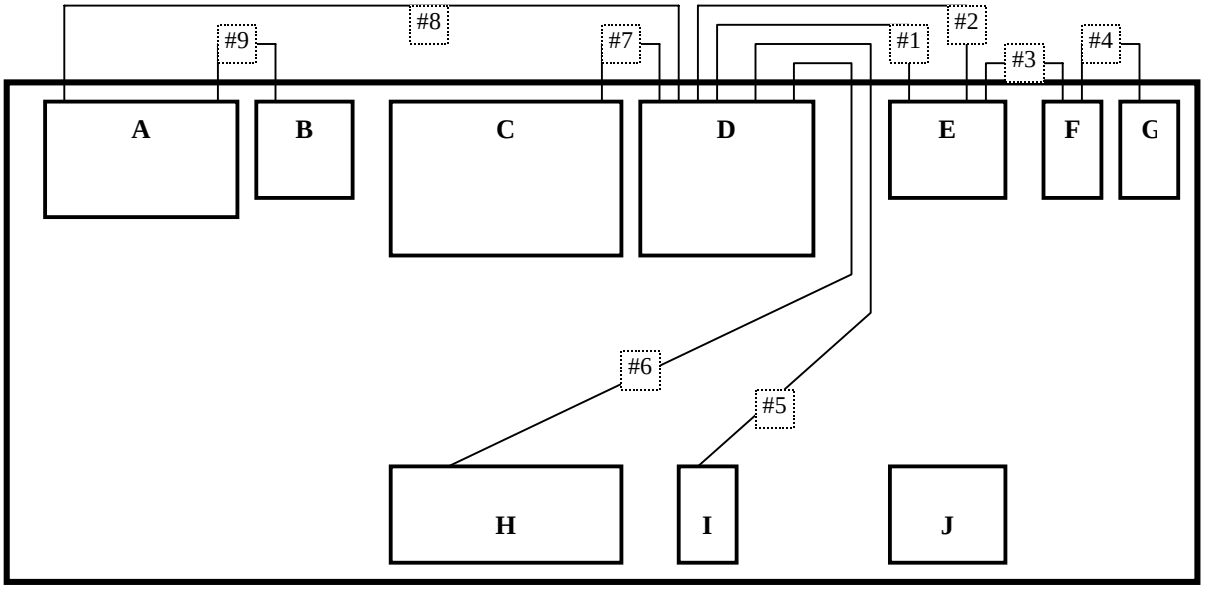


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE "A"

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000



Wooden Test Table↗

A. PRINTER	**F.** SPEAKER A
B. PRINTER'S AC ADAPTER	**G.** SPEAKER B
C. MONITOR	**H.** KEYBOARD
D. COMPUTER	**I.** MOUSE
E. RECEIVER (EUT)	**J.** TRANSMITTER (EUT)

FIGURE 3: EQUIPMENT CONFIGURATION BLOCK DIAGRAM

EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

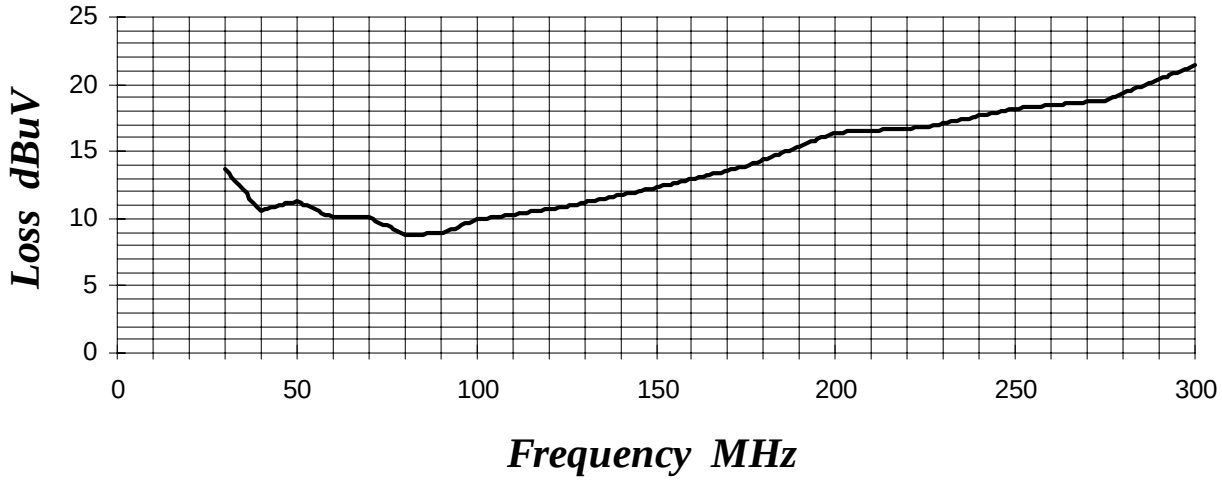
APPENDIX C

ANTENNA FACTORS AND EFFECTIVE GAIN FACTORS

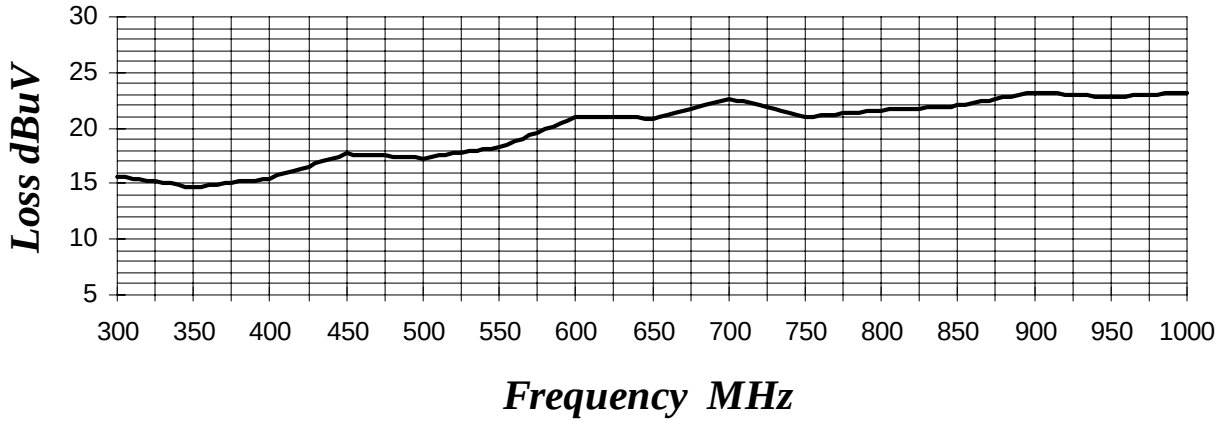
EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

EFFECTIVE 11-13-99

LAB "A" BICONICAL ANTENNA
AB-100 S/N: 1557



LAB "A" LOG PERIODIC ANTENNA
AL-100 S/N: 16000



EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

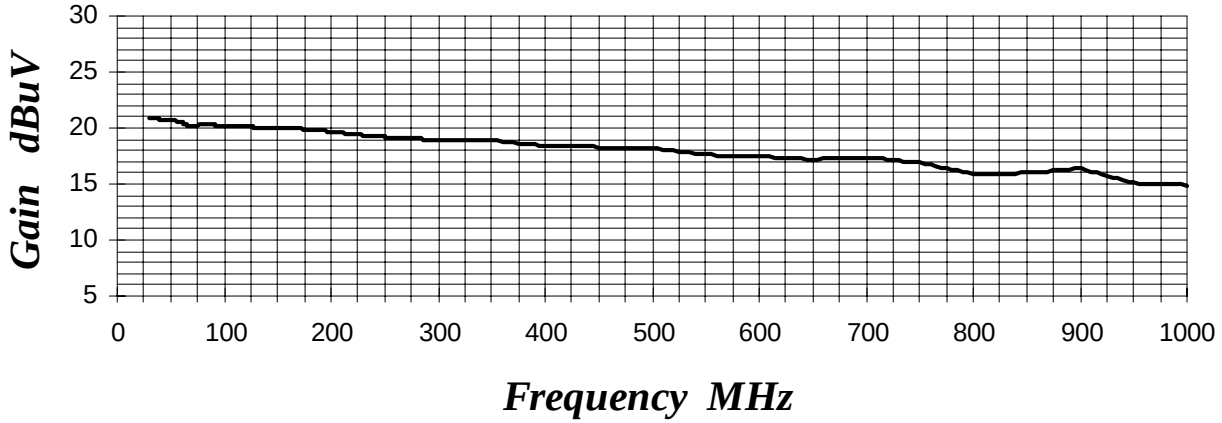
COM-POWER HORN ANTENNA MODEL: AH-118, S/N: 10062

FREQUENCY MHz	GAIN dBi	FACTOR dB
1000	5.2	25.0
1250	4.6	27.5
1500	4.8	28.9
1750	6.1	29.0
2000	4.6	31.6
2500	8.3	29.9
3000	8.0	31.8
3500	8.9	32.2
4000	7.5	34.8
4500	10.9	32.4
5000	8.1	36.1
6000	9.1	36.7
7000	10.3	36.8
8000	10.9	37.4
9000	8.4	40.9
10000	11.4	38.8
11000	15.0	36.0
12000	13.2	38.6
13000	12.9	39.6
14000	10.5	42.6
15000	9.2	44.5
16000	9.2	45.1
17000	10.1	44.7
18000	10.8	44.5

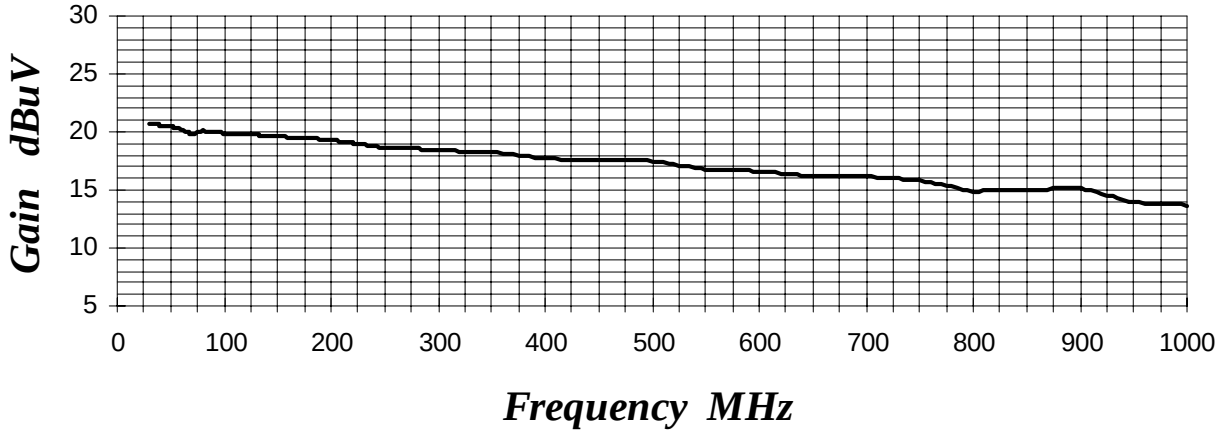
EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

LAB "A" EFFECTIVE 3-1-00

PREAMPLIFIER M/N: PA-102 S/N: 1482
EFFECTIVE GAIN AT 3 METERS



PREAMPLIFIER M/N: PA-102 S/N: 1482
EFFECTIVE GAIN AT 10 METERS



EMT *ELECTRO MAGNETIC TEST, INC.*
1547 Plymouth Street, Mountain View, CA 94043 Tel: (650) 965-4000 Fax: (650) 965-3000

LAB "A" EFFECTIVE: 10/7/99

COM-POWER PREAMPLIFIER MODEL: PA-122, S/N: 2113

EFFECTIVE GAIN AT 3 METERS

Effective Gain = Preamplifier Gain - Cable Loss

FREQUENCY MHz	PREAMPLIFIER GAIN dB	CABLE LOSS dB	EFFECTIVE GAIN dB
1000	34.3	4.8	29.5
1250	33.7	5.3	28.4
1500	33.5	5.7	27.8
1750	33.6	6.4	27.2
2000	33.8	7.1	26.7
2500	33.5	7.4	26.1
3000	32.7	7.7	25.0
3500	32.2	9.1	23.1
4000	30.8	10.0	20.8
4500	30.8	10.6	20.2
5000	31.1	10.7	20.4
6000	33.0	12.4	20.6
7000	33.5	13.7	19.8
8000	32.1	15.5	16.6
9000	30.8	15.8	15.0
10000	29.9	16.5	13.4
11000	32.3	17.8	14.5
12000	32.5	18.6	13.9
13000	33.7	19.8	13.9
14000	33.0	20.8	12.2
15000	30.5	21.2	9.3
16000	31.0	21.3	9.7
17000	33.4	22.3	11.1
18000	32.2	23.6	8.6