FCC PART 15, SUBPART B & C
TEST REPORT

for

PORTABLE TRANSMITTER
Model: LT-700-072
FCC ID: OMD700-001

Prepared for

LISTEN TECHNOLOGIES
1762A PROSPECTOR AVE.
PARK CITY, UT 84060

Prepared by: _____
JOEY J. MADLANGBAYAN

Approved by: _____
JEFF S. KLINGER

COMPATIBLE ELECTRONICS INC.
2337 TROUTDALE DRIVE
AGOURA, CALIFORNIA 91301
(818) 597-0600

DATE: JUNE 28, 1999

	REPORT BODY	APPENDICES				TOTAL
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GENERAL REPORT SUMMARY

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

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 with the written permission of Compatible Electronics.

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

Device Tested: Portable Transmitter
Model: LT-700-072
S/N: none

Product Description: *This is a Portable Auditory Assistance Transmitter which transmits multiple channels to remote receivers.*

Modifications: The EUT was modified during the test in order to comply with the specifications. See appendix A for a list of modifications.

Manufacturer: Listen technologies Corporation
1762A Prospector Avenue
Park City, Utah 84060

Test Date: June 11, 1999

Test Specifications:
EMI requirements
FCC Title 47, Part 15 Subpart B & 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, 10kHz to 1GHz.	Complies with the limits of FCC Title 47, Part 15 Subpart C 15.109, 15.209, 15.237.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Portable Transmitter Model: LT-700-072. 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 specification limits defined in FCC Title 47, Part 15, Subpart C, 15.109 and 15.209 and 15.237.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 2337 Troutdale Drive, Agoura, California 91301.

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 calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Listen Technologies Corporation

Keldon A. Paxman	VP Operations

Compatible Electronics, Inc.

Joey J. Madlangbayan	Test Engineer
Jeff S. Klinger	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on June 11, 1999.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics.

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

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
FCC Title 47, Subpart C.	FCC Rules - Intentional Radiators.
FCC Title 47, Subpart B.	FCC Rules – Radio frequency devices (including digital devices).
CISPR 16 1993	Specification for radio disturbance and immunity measuring apparatus and methods.
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.

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

The EUT was set up in a tabletop configuration while transmitting in the frequency ranges. The EUT was tested while continuously transmitting a signal within the EUT output frequencies. The headset microphone was connected to the input port.

The EUT was tested in the two axis while transmitting the frequency ranges.

It was determined that the highest emission levels were found in the above configuration. The final radiated data was taken in this mode of operation. All initial investigations were performed with the Spectrum Analyzer in manual mode scanning the frequency range continuously. Photographs and data sheets are included in Appendices C and D.

4.1.1 Cable Construction and Termination

Cable 1 This is a 1.5 meter unshielded round cable which connects the input port of the EUT to the headset. There is a 1 ¼ inch phone plug at the EUT end and it is hardwired to the microphone headset.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER
PORTABLE TRANSMITTER (EUT)	LISTEN TECHNOLOGIES CORPORATION	LT-700-072	S/N: none FCC ID: OMD700-001

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer	Hewlett Packard	8566B	27029A04566	Jun. 23, 1998	Jun. 23, 1999
Quasi-Peak Adapter	Hewlett Packard	85650A	2648A15161	Mar. 09, 1999	Mar. 09, 2000
Preamplifier	Com Power	PA-102	01249	Apr. 12, 1999	Apr. 12, 2000
Spectrum Analyzer	Hewlett Packard	8568B	2601A02643	Jan. 05, 1999	Jan. 05, 2000
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00485	Jan. 05, 1999	Jan. 05, 2000
RF Attenuator	Sertek	412-10	XX01	Sep. 14, 1998	Sep. 14, 1999
LISN	Com Power	LI-200	01758	Jul. 15, 1998	Jul. 15, 1999
LISN	Com Power	LI-200	01763	Jul. 15, 1998	Jul. 15, 1999
LISN	Com Power	LI-200	01734	Jul. 15, 1998	Jul. 15, 1999
LISN	Com Power	LI-200	01731	Jul. 15, 1998	Jul. 15, 1999
Biconical Antenna	Com Power	AB-100	01535	Apr. 16, 1999	Apr. 16, 2000
Log Periodic Antenna	Com Power	AL-100	A101	Apr. 16, 1999	Apr. 16, 2000
Powered Loop Antenna	Com Power	AL-130	17052	Jan. 06, 1999	Jan. 06, 2000
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TT-106A	N/A	N/A	N/A
Computer	Hewlett Packard	9153B	2647A01489	N/A	N/A
Printer	Hewlett Packard	2225A	2752S15982	N/A	N/A
Plotter	Hewlett Packard	7440A	2539A57182	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 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 EUT was not grounded.

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The Spectrum Analyzer was used as a measuring meter along with the 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 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 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 0.15 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 computer in several overlapping sweeps by running the Spectrum Analyzer at a minimum scan rate of 10 seconds per octave.

7.1.2 Radiated Emissions Test

The Spectrum Analyzer was used as a measuring meter along with the Quasi-Peak Adapter. The preamplifier 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 quasi-peak 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.

Broadband biconical and log periodic antennas were used as transducers during the measurement. The biconical antenna was used from 30 MHz to 300 MHz, and the log periodic antenna was used from 300 MHz to 1 GHz. The frequency spans were wide (30 MHz to 88 MHz, 88 MHz to 216 MHz, 216 to 300 MHz and 300 MHz to 1 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 Compatible Electronics, 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.

7.1.3 RF Emissions Test Results

The fundamental and up to the 10th harmonic emissions are within the specifications.

RADIATED EMISSIONS - SPURIOUS
PORTABLE TRANSMITTER

The following bands were specifically scanned.
Frequency Band 30 – 1000Mhz

No spurious emissions were found.

RF Energy From Portable Transmitter
in MHz at 3 meters (µV/m)

0.090-0.110	<2400/F(kHz)+80	16.42-16.423	<70
0.495-0.505	<2400/F(kHz)+40	16.69475-16.69525	<70
2.1735-2.1905	<70	16.80425-16.80475	<70
4.125-4.128	<70	25.5-25.67	<70
4.17725-4.17775	<70	37.5-38.25	<100
4.20725-4.20775	<70	73-74.6	<100
6.215-6.218	<70	74.8-75.2	<100
4.20725-4.20775	<70	108-121.94	<100
6.215-6.218	<70	123-138	<150
6.26775-6.26825	<70	149.9-150.05	<150
6.31175-6.31225	<70	156.52-156.52	<150
8.291-8.294	<70	162.01-167.17	<150
8.362-8.366	<70	167.72-173.2	<150
8.37625-8.38675	<70	240-285	<200
8.41425-8.41475	<70	322-335.4	<200
12.29-12.293	<70	399.9-410	<200
12.51975-12.52025	<70	608-614	<200
12.57675-12.57725	<70	960-1000	<500
13.36-13.41	<70		

8. CONCLUSION

The Portable Transmitter Model: LT-700-072 meets all of the requirements of the FCC Title 47, Part 15, Subpart B & C.

APPENDIX A

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Pt. 15.237 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

Modifications:

1) Added 100Ω resistor at the output of transmitter section.

2) Added 15kΩ resistor at the drive circuit.

3) Added ferrite bead to antenna output. (Steward: LT1206E310R)

APPENDIX B

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	PORTABLE TRANSMITTER Model: LT-700-072 S/N: NONE

There were no additional models covered under this report.

APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

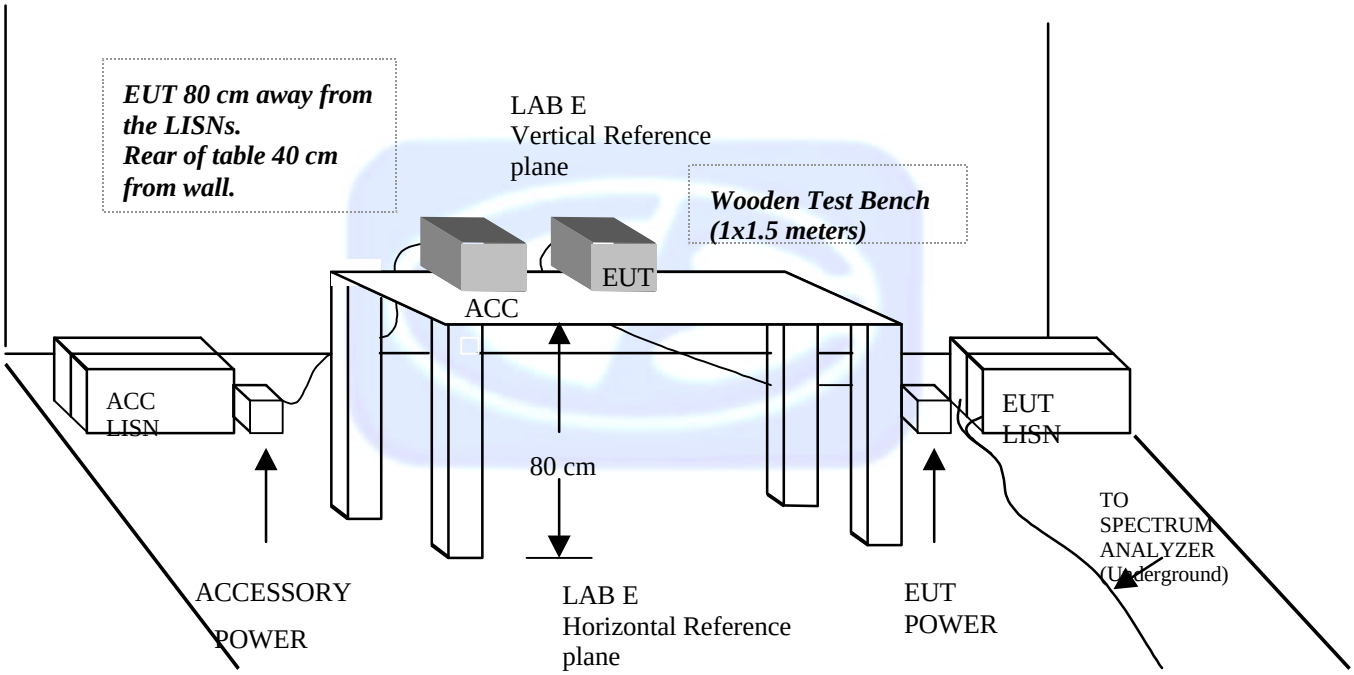
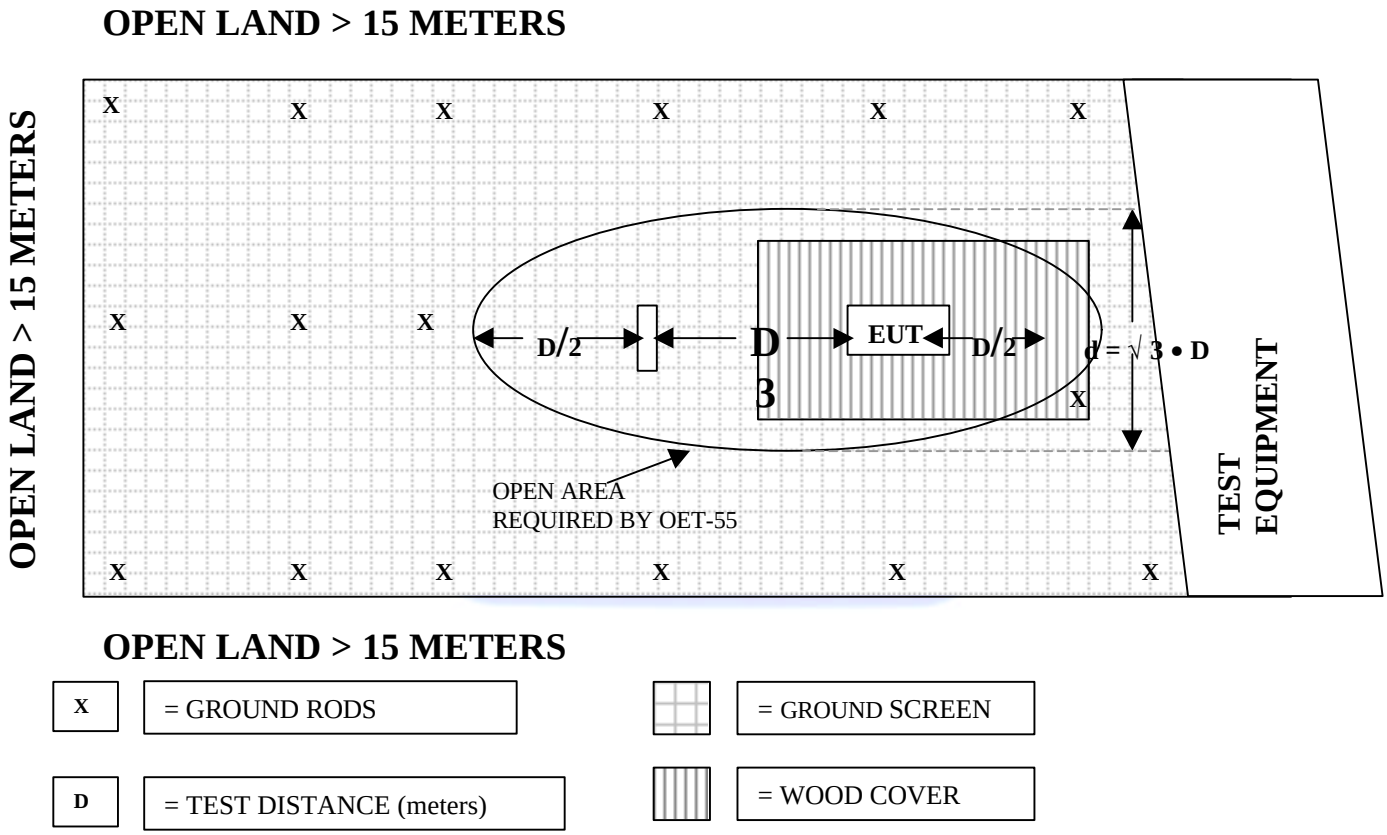
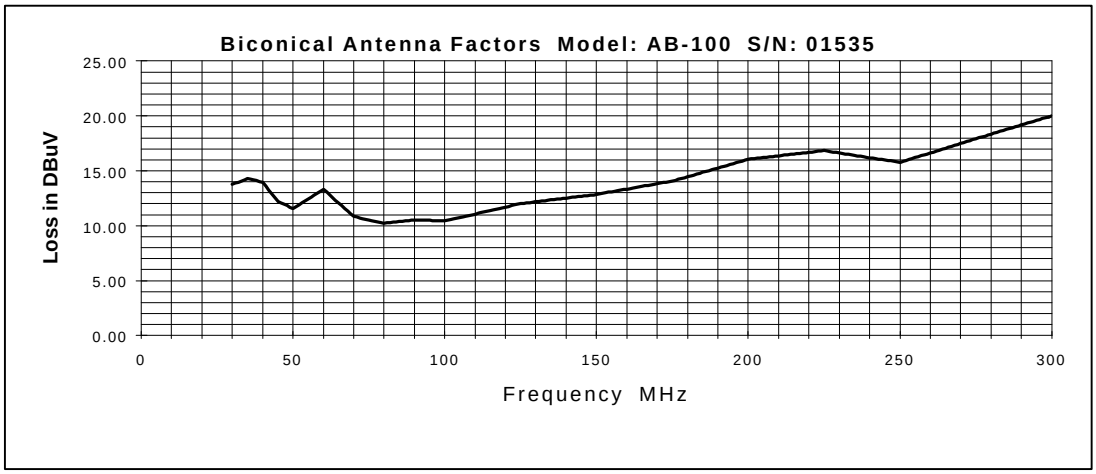
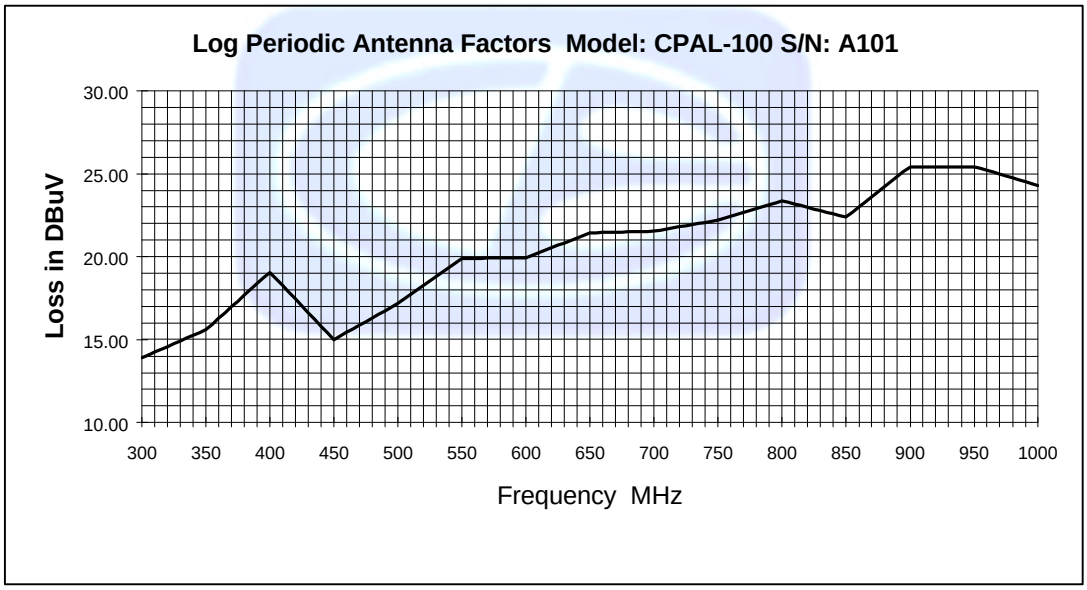
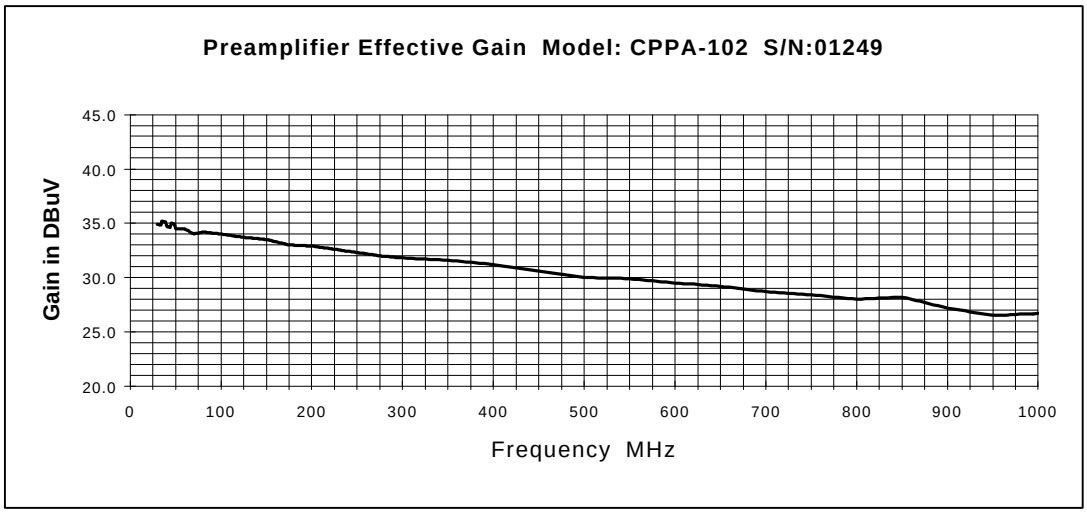


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE




Biconical Antenna Factors Model: AB-100 S/N: 01535
Loss in DBuV
25.00
20.00
15.00
10.00
5.00
0.00
0
50
100
150
200
250
300
Frequency MHz


Log Periodic Antenna Factors Model: CPAL-100 S/N: A101
Loss in DBuV
30.00
25.00
20.00
15.00
10.00
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
Frequency MHz


Preamplifier Effective Gain Model: CPPA-102 S/N:01249
Gain in DBuV
45.0
40.0
35.0
30.0
25.0
20.0
0
100
200
300
400
500
600
700
800
900
1000
Frequency MHz

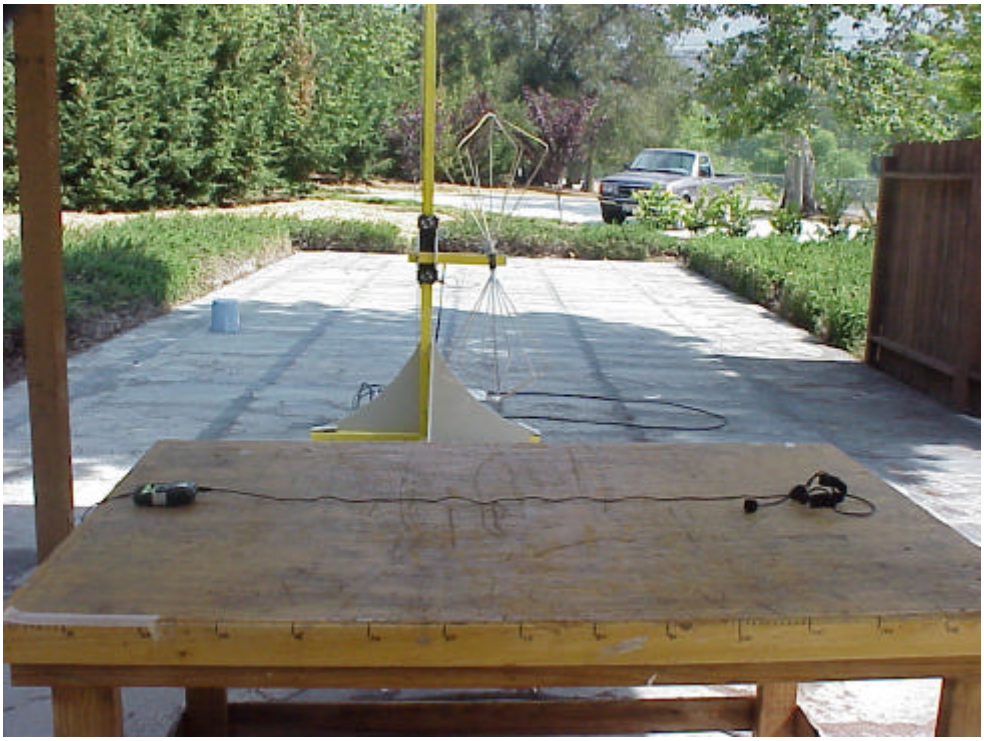
Com-Power Corporation

(949) 587-9800

Antenna Calibration

Antenna Type:	Loop Antenna	Transmit Antenna Height:	2 meters
Model:	AL-130	Receive Antenna Height:	2 meters
Serial Number:	17054		
Calibration Date:	1/6/99		

Frequency MHz	Magnetic (dB/m)	Electric (dB/m)
0.01	-41.3	10.2
0.02	-42.2	9.3
0.03	-40.5	11.0
0.04	-40.8	10.7
0.05	-42.1	9.4
0.06	-41.7	9.8
0.07	-41.8	9.7
0.08	-42.1	9.4
0.09	-42.3	9.2
0.1	-42.3	9.2
0.2	-44.6	6.9
0.3	-42.1	9.4
0.4	-42.2	9.3
0.5	-42.2	9.3
0.6	-42.1	9.4
0.7	-42.0	9.5
0.8	-42.0	9.5
0.9	-41.9	9.6
1	-41.4	10.1
2	-40.6	10.9
3	-40.9	10.6
4	-41.1	10.4
5	-40.5	11.0
6	-40.5	11.0
7	-40.9	10.6
8	-41.1	10.4
9	-40.6	10.9
10	-40.9	10.6
12	-41.6	9.9
14	-41.9	9.6
15	-42.1	9.4
16	-42.3	9.2
18	-42.1	9.4
20	-42.4	9.1
25	-43.4	8.1
30	-45.6	5.9



X-AXIS

LISTEN TECHNOLOGIES CORPORATION
PORTABLE TRANSMITTER
Model: LT-700-072
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS – 6-11-99

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

Y-AXIS

LISTEN TECHNOLOGIES CORPORATION
PORTABLE TRANSMITTER
Model: LT-700-072
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS – 6-10-99

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT SIDE

LISTEN TECHNOLOGIES CORPORATION
PORTABLE TRANSMITTER
Model: LT-700-072
FCC PART 15 SUBPART B & C - CONDUCTED EMISSIONS – 6-11-99

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

BACK SIDE

LISTEN TECHNOLOGIES CORPORATION
PORTABLE TRANSMITTER
Model: LT-700-072
FCC PART 15 SUBPART B & C - CONDUCTED EMISSIONS – 6-11-99

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX D

DATA SHEETS

RADIATED EMISSIONS

COMPANY NAME: LISTEN TECHNOLOGIES **DATE:** 6-11-99

EUT: PORTABLE TRANSMITTER **EUT S/N:** —

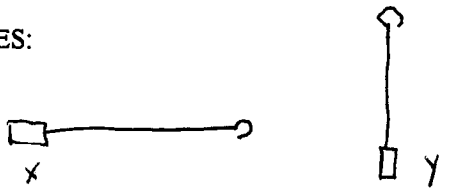
EUT MODEL: LT-700-072 **LOCATION:** ☐ BREA ☐ SILVERADO ☒ AGOURA

SPECIFICATION: FCC PT 15.237 **CLASS:** ____ **TEST DISTANCE:** 3m **LAB:** F

ANTENNA: ☐ LOOP ☒ BICONICAL ☒ LOG ☐ HORN **POLARIZATION:** ☒ VERT ☐ HORIZ

☒ QUALIFICATION ☐ ENGINEERING ☐ MFG. AUDIT **ENGINEER:** J. MADLANGBAYAN

NOTES:



BW = 114 KHz

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
72.03	101.3		1.0	270°	-20.2	121.5	CH 01 (x)
72.03	116.4		1.0	0°	-5.1	121.5	(y)
74.63	102.2		1.0	270°	-19.6	121.8	CH 33 (x)
74.63	116.1		1.0	0°	-5.7	121.8	(y)
75.97	98.7		1.0	0°	-23.1	121.8	CH 32 (x)
75.97	113.9		1.0	0°	-7.9	121.8	(y)

* **DELTA** = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS - CONTINUATION SHEET

COMPANY NAME: LISTEN TECHNOLOGIES **DATE:** 6-11-99

EUT: PORTABLE TRANSMITTER **EUT S/N:** —

EUT MODEL: LT-700-072 **ENGINEER:** J. MADLANGBAYAN

ANTENNA: ☐ LOOP ☒ BICONICAL ☒ LOG ☐ HORN **POLARIZATION:** ☒ VERT ☐ HORIZ

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
144.05	57.1		1.0	270°	-27.4	84.5	CH01 (X)
216.07	53.8		1.0	270°	-26.2	80.0	
288.10	57.5		1.0	270°	-19.4	76.9	
360.12	53.8		1.0	180°	-25.4	79.2	
432.15	47.0		1.0	180°	-31.7	~~78.7~~	
504.17	49.7		1.0	90°	~~-18.6~~ -27.1	~~74.1~~ 76.8	
576.20	55.5		1.0	90°	-18.6	74.1	
648.22	48.6		1.0	0°	-23.8	72.4	
720.25	43.5		1.0	270°	-27.7	71.2	
144.05	81.4		1.0	0°	-3.1	84.5	(Y)
216.07	75.1		1.0	0°	-4.9	80.0	
288.10	61.9		1.0	90°	-15.0	76.9	
360.12	56.3		1.0	180°	-22.9	79.2	
432.15	51.8		2.0	0°	-26.9	78.7	
504.17	56.4		1.0	180°	-20.4	76.8	
576.20	53.0		1.0	90°	-21.1	74.1	
648.22	50.7		1.0	180°	-21.7	72.4	
720.25	43.7		2.0	270°	-27.5	71.2	

* DELTA = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS - CONTINUATION SHEET

COMPANY NAME: LISTEN TECHNOLOGIES **DATE:** 6-11-99

EUT: PORTABLE TRANSMITTER **EUT S/N:** —

EUT MODEL: LT-700-072 **ENGINEER:** J. MAOLANGBAYAN

ANTENNA: ☐ LOOP ☒ BICONICAL ☒ LOG ☐ HORN **POLARIZATION:** ☒ VERT ☐ HORIZ

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
149.25	57.7		1.0	270°	-26.5	84.2	ch 33 (X)
223.88	56.9		1.0	270°	-22.8	79.7	
298.50	55.9		1.0	180°	-20.1	76.0	
373.13	50.3		1.0	90°	-27.8	78.1	
447.75	50.0		1.0	180°	-29.7	79.7	
522.38	53.1		1.0	270°	-22.7	75.8	
597.00	49.7		1.0	0°	-24.2	73.9	
671.63	51.6		1.0	0°	-20.4	72.0	
746.25	46.9		1.0	90°	-23.8	70.7	
149.25	77.5		1.0	0°	-6.7	84.2	(V)
223.88	74.4		1.0	0°	-5.7	79.7	
298.50	63.2		1.0	90°	-12.8	76.0	
373.13	50.8		1.5	0°	-27.3	78.1	
447.75	54.5		1.5	180°	-25.2	79.7	
522.38	54.9		1.0	90°	-20.9	75.8	
597.00	48.0		1.0	0°	-25.9	73.9	
671.63	47.3		1.0	0°	-24.7	72.0	
746.25	48.8		1.0	90°	-21.9	70.7	

* DELTA = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS - CONTINUATION SHEET

COMPANY NAME: LISTEN TECHNOLOGIES **DATE:** 6-11-99

EUT: PORTABLE TRANSMITTER **EUT S/N:** —

EUT MODEL: LT-700-072 **ENGINEER:** JMADIAN GRAYAN

ANTENNA: ☐ LOOP ☒ BICONICAL ☒ LOG ☐ HORN **POLARIZATION:** ☒ VERT ☐ HORIZ

	Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments (75.97 MHz)
2	151.95	56.8		1.0	90°	-27.4	84.2	CH 32 (x)
3	227.93	54.9		1.0	270°	-24.9	79.8	
4	303.90	63.3		1.0	180°	-18.4	81.7	
5	379.88	50.5		1.0	180°	-27.2	77.7	
6	455.85	49.2		1.0	0°	30.3	79.5	
7	531.83	49.3		1.0	90°	-25.8	75.1	
8	607.80	49.2		1.0	0°	-24.4	73.6	
9	683.78	49.5		1.0	270°	-22.3	71.8	
10	759.75	52.8		1.0	180°	-17.4	70.2	
2	151.95	~~83.0~~ 72.1	~~82.9~~ AVG	1.0	0°	~~+1.3~~ -12.1	84.2	(y)
3	227.93	~~79.1~~ 67.5	~~76.9~~	1.0	0°	~~-2.9~~ -12.3	79.8	
4	303.90	62.9		1.0	0°	-18.8	81.7	
5	379.88	48.4		1.5	0°	-29.3	77.7	
6	455.85	54.4		1.5	0°	-25.1	79.5	
7	531.83	52.3		2.0	0°	-22.8	75.1	
8	607.80	50.9		1.5	90°	-22.7	73.6	
9	683.78	47.0		2.0	270°	-24.8	71.8	
10	759.75	51.8		1.5	180°	-18.4	70.2	

* DELTA = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS

COMPANY NAME: LISTEN TECHNOLOGIES **DATE:** 6-11-99

EUT: PORTABLE TRANSMITTER **EUT S/N:** —

EUT MODEL: LT-700-0572 **LOCATION:** ☐ BREA ☐ SILVERADO ☒ AGOURA

SPECIFICATION: FCC PT 15.237 **CLASS:** — **TEST DISTANCE:** 3m **LAB:** F

ANTENNA: ☐ LOOP ☒ BICONICAL ☐ LOG ☐ HORN **POLARIZATION:** ☐ VERT ☒ HORIZ

☒ QUALIFICATION ☐ ENGINEERING ☐ MFG. AUDIT **ENGINEER:** J. MAGLANGBAYAN

NOTES:

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
72.03	109.00		2.0	270°	-12.5	121.5	CH 01 (X)
72.03	105.2		2.0	90°	-16.3	121.5	(Y)
74.63	108.9		2.0	270°	-12.9	121.8	CH 33 (X)
74.63	102.1		2.0	0°	-19.7	121.8	(Y)
75.97	106.6		2.0	270°	-15.2	121.8	CH 32 (X)
75.97	100.1		2.0	0°	-21.7	121.8	(Y)

* **DELTA** = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS - CONTINUATION SHEET

COMPANY NAME: LISTEN TECHNOLOGIES **DATE:** 6-11-99

EUT: PORTABLE TRANSMITTER **EUT S/N:** ———

EUT MODEL: LT-700-072 **ENGINEER:** J. MADLANG BAYAN

ANTENNA: ☐ LOOP ☒ BICONICAL ☒ LOG ☐ HORN **POLARIZATION:** ☐ VERT ☒ HORIZ

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
144.05	70.6	-	2.0	270°	-13.9	84.5	CH 01 (X)
216.07	62.6		2.0	270°	-17.9	80.0	
288.10	53.5		2.0	270°	-23.4	76.9	
360.12	60.0		1.0	90°	-19.2	79.2	
432.15	55.3		1.0	90°	-23.4	78.7	
504.17	55.0		1.0	90°	-21.8	76.8	
576.20	52.0		1.0	180°	-22.1	74.1	
648.22	47.1		1.0	0°	-25.3	72.4	
720.25	44.7		1.0	90°	-26.5	71.2	
144.05	62.6		2.0	270°	-21.9	84.5	(Y)
216.07	61.5		1.5	0°	-18.5	80.0	
288.10	63.4		1.0	90°	-13.5	76.9	
360.12	52.8		1.0	270°	-26.4	79.2	
432.15	49.6		1.0	270°	-29.1	78.7	
504.17	53.7		1.0	180°	-23.1	76.8	
576.20	48.2		1.0	180°	-25.9	74.1	
648.22	43.6		2.0	90°	-28.8	72.4	
720.25	42.2		3.0	270°	-29.0	71.2	

* DELTA = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS - CONTINUATION SHEET

COMPANY NAME: LISTEN TECHNOLOGIES DATE: 6-11-99

EUT: PORTABLE TRANSMITTER EUT S/N: —

EUT MODEL: LT-700-072 ENGINEER: J MADLANGBAYAN

ANTENNA: ☐ LOOP ☒ BICONICAL ☒ LOG ☐ HORN POLARIZATION: ☐ VERT ☒ HORIZ

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments (74.63MHz)
149.25	68.3		2.0	270°	-15.9	84.2	CH33 (X)
223.88	54.3		1.0	180°	-25.4	79.7	
298.50	57.3		1.0	180°	-18.7	76.0	
373.13	53.3		1.0	90°	-24.8	78.1	
447.75	53.8		1.0	0°	-25.9	79.7	
522.38	51.6		1.0	0°	-24.2	75.8	
597.00	50.0		1.0	0°	-23.9	73.9	
671.63	50.2		1.0	96°	-21.8	72.0	
746.25	51.2		1.0	90	-19.5	70.7	
149.25	58.9		1.0	90°	-25.3	84.2	(Y)
223.88	60.2		1.0	270°	-19.5	79.7	
298.50	63.5		1.0	0°	-12.5	76.0	
373.13	39.0		1.5	180°	-39.1	78.1	
447.75	46.2		2.0	0°	-33.5	79.7	
522.38	51.9		1.5	180°	-23.9	75.8	
597.00	47.9		1.5	0°	-26.0	73.9	
671.63	43.1		1.5	180°	-28.9	72.0	
746.25	48.8		1.5	90°	-21.9	70.7	

* DELTA = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS - CONTINUATION SHEET

COMPANY NAME: LISTEN TECHNOLOGIES DATE: 6-11-99

EUT: PORTABLE TRANSMITTER EUT S/N: —

EUT MODEL: LT-700-072 ENGINEER: J. MADLANGBAYAN

ANTENNA: ☐ LOOP ☒ BICONICAL ☒ LOG ☐ HORN POLARIZATION: ☐ VERT ☒ HORIZ

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments (75.97 MHz)
151.95	65.0		2.0	90°	-19.2	84.2	CH 32 (X)
227.93	60.2		2.0	270°	-19.6	79.8	
303.90	58.6		1.0	180°	-23.1	81.7	
379.88	48.9		1.0	180°	-28.8	77.7	
455.85	51.5		1.0	270°	-28.0	79.5	
531.83	50.3		1.0	180°	-24.8	75.1	
607.80	47.0		1.0	180°	-26.6	73.6	
683.78	50.1		1.0	0°	-21.7	71.8	
759.75	52.4		1.0	90°	-17.8	70.2	
151.95	55.8		2.0	90°	-28.4	84.2	(Y)
227.93	61.9		2.0	270°	-17.9	79.8	
303.90	67.1		1.0	0°	-14.6	81.7	
379.88	47.1		1.0	180°	-30.6	77.7	
455.85	46.5		2.0	180°	-33.0	79.5	
531.83	50.3		1.5	180°	-24.8	75.1	
607.80	44.8		1.0	90°	-28.8	73.6	
683.78	48.4		1.0	90°	-23.4	71.8	
759.75	51.4		1.0	90°	-18.8	70.2	

* DELTA = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS

COMPANY NAME: LISTEN TECHNOLOGIES **DATE:** 6-11-99

EUT: PORTABLE TRANSMITTER **EUT S/N:** —

EUT MODEL: LT-700-072 **LOCATION:** ☐ BREA ☐ SILVERADO ☒ AGOURA

SPECIFICATION: FCC PT 15.237 **CLASS:** B **TEST DISTANCE:** 3m **LAB:** F

ANTENNA: ☐ LOOP ☐ BICONICAL ☒ LOG ☐ HORN **POLARIZATION:** ☒ VERT ☐ HORIZ

☒ QUALIFICATION ☐ ENGINEERING ☐ MFG. AUDIT **ENGINEER:** J. MADLANGBAYAN

NOTES:

WORST CASE CONFIGURATION (Y) AXIS

NFF 10KHz - 30MHz

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
792.87	43.3		1.5	180°	-8.0	51.3	CH 01
864.94	42.7		1.0	270°	-8.8	51.5	
937.00	47.5	46.7	1.0	180°	-1.4	48.1	
821.49	46.7		1.0	180°	-5.0	51.7	CH 33
896.15	42.2		1.0	180°	-6.9	49.1	
970.82	49.6		1.0	270°	-6.5	56.1	
836.34	47.3		1.0	270°	-4.9	52.2	CH 32
912.36	39.9		1.0	0°	-8.6	48.5	
988.38	51.9		1.0	270°	-5.1	57.0	

* **DELTA** = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS

COMPANY NAME: LISTEN TECHNOLOGIES **DATE:** 6-11-99

EUT: PORTABLE TRANSMITTER **EUT S/N:** ---

EUT MODEL: LT-700-072 **LOCATION:** ☐ BREA ☐ SILVERADO ☒ AGOURA

SPECIFICATION: FCC PT 15.237 **CLASS:** ~~B~~ **TEST DISTANCE:** 3m **LAB:** F

ANTENNA: ☐ LOOP ☐ BICONICAL ☒ LOG ☐ HORN **POLARIZATION:** ☐ VERT ☒ HORIZ

☒ QUALIFICATION ☐ ENGINEERING ☐ MFG. AUDIT **ENGINEER:** J. MADANGBAYAN

NOTES:

WORST CASE CONFIGURATION (Y-AXIS)

NFF 10KHz - 30MHz

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
792.87	43.3		1.0	0°	-8.0	51.3	CH 01
864.96	40.1		1.0	0°	-11.4	51.5	
937.00	45.3	44.3	1.0	270°	-3.8	48.1	
821.48	46.9		1.0	0°	-4.8	51.7	CH 33
896.16	45.3		1.0	0°	-3.8	49.1	
970.82	52.7		1.0	270°	-3.7	56.4	
836.36	48.0		1.0	0°	-4.2	52.2	CH 32
912.37	39.9		1.0	270°	-8.6	48.5	
988.39	53.7		1.0	270°	-3.3	57.0	

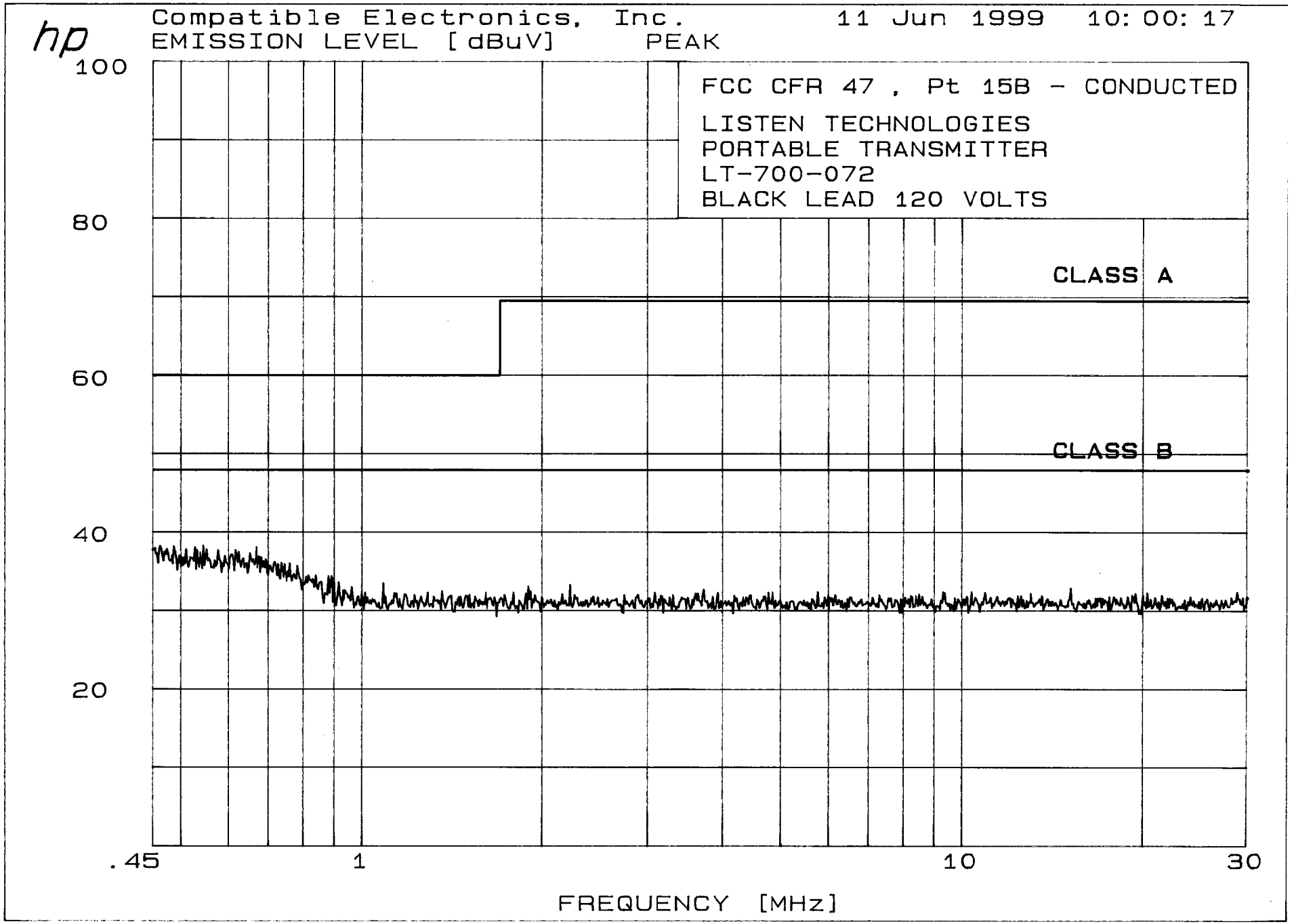
* DELTA = METER READING - CORRECTED LIMIT

MEASUREMENT NOTES:

LISTEN TECHNOLOGIES	DATE: 11 JUNE 1999
PORTABLE TRANSMITTER	TIME: 10:00:17
LT-700-072	TEST ENGINEER
BLACK LEAD 120 VOLTS	J. MADLANGBAYAN

Peaks above -12 dB of Limit Line #2
peak criteria = 2 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.4634	38.2	-9.8
2	.4894	38.2	-9.8
3	.5125	37.8	-10.2
4	.53	38.1	-9.9
5	.5345	37.7	-10.3
6	.5481	38.3	-9.7
7	.555	37.8	-10.2
8	.5788	37.7	-10.3
9	.6087	37.1	-10.9
10	.619	37.7	-10.3
11	.6704	38.1	-9.9
12	.7383	36.1	-11.9


hp
Compatible Electronics, Inc.
11 Jun 1999 10: 00: 17
EMISSION LEVEL [dBuV]
PEAK
FCC CFR 47 , Pt 15B - CONDUCTED
LISTEN TECHNOLOGIES
PORTABLE TRANSMITTER
LT-700-072
BLACK LEAD 120 VOLTS
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]

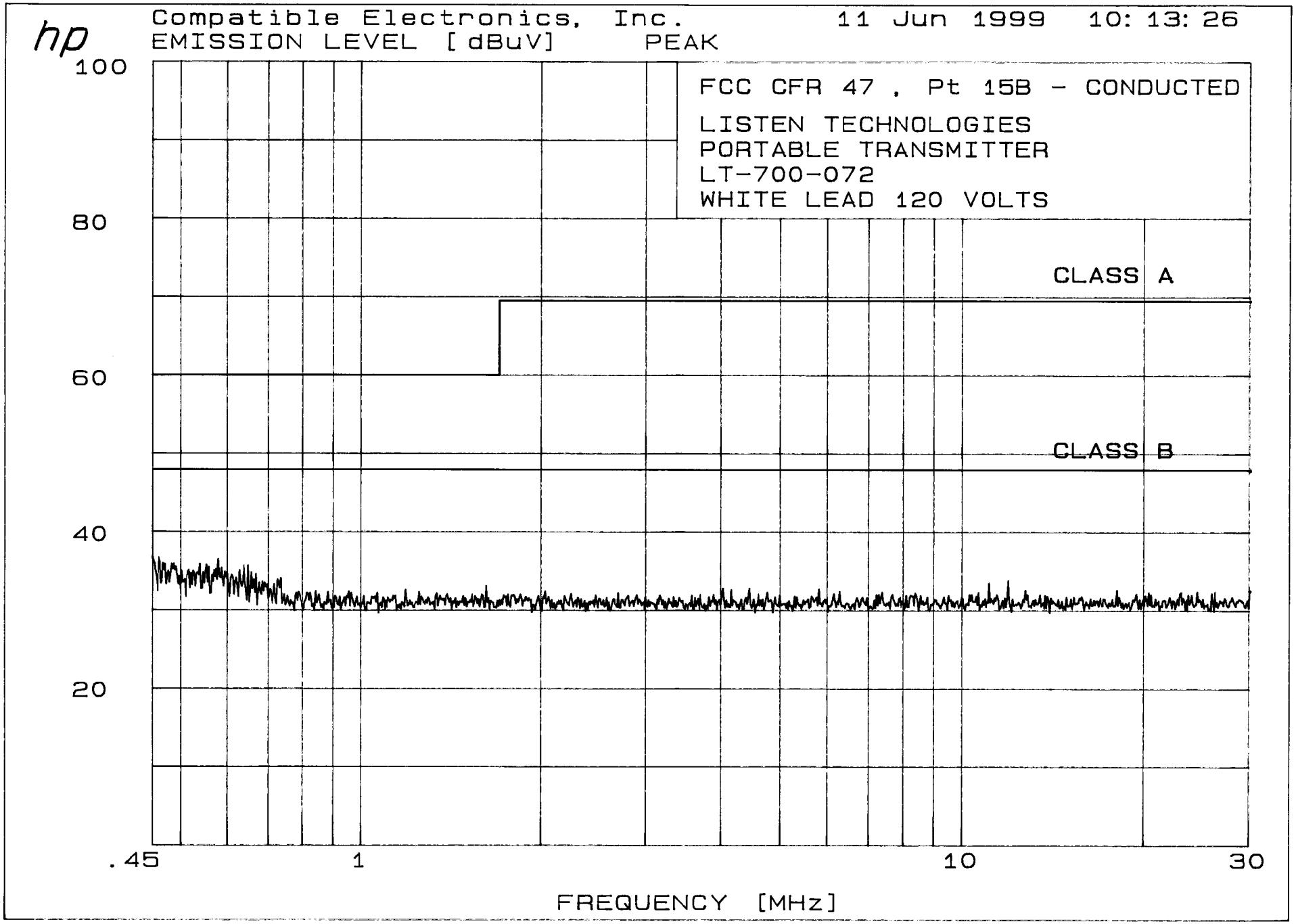
MEASUREMENT NOTES:

LISTEN TECHNOLOGIES
PORTABLE TRANSMITTER
LT-700-072
WHITE LEAD 120 VOLTS

DATE: 11 JUNE 1999
TIME: 10:13:26
TEST ENGINEER
J. MADLANGBAYAN

Peaks above -13 dB of Limit Line #2
peak criteria = 2 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.4615	36.7	-11.3
2	.4693	36	-12.0
3	.4853	35.9	-12.1
4	.519	35.1	-12.9
5	.5412	35.9	-12.1
6	.555	35.8	-12.2
7	.5812	36.5	-11.5
8	.6295	35.1	-12.9
9	.6401	35.7	-12.3
10	.651	35.7	-12.3


hp
Compatible Electronics, Inc.
11 Jun 1999 10: 13: 26
EMISSION LEVEL [dBuV]
PEAK
100
80
60
40
20
FCC CFR 47 , Pt 15B - CONDUCTED
LISTEN TECHNOLOGIES
PORTABLE TRANSMITTER
LT-700-072
WHITE LEAD 120 VOLTS
CLASS A
CLASS B
.45
1
10
30
FREQUENCY [MHz]