

TABLE OF CONTENTS LIST

APPLICANT: AUDIOVOX CORPORATION

FCC ID: BGAFR540

TEST REPORT:

PAGE	1.....COVER SHEET - GENERAL INFORMATION & TECHNICAL DESCR.
PAGE	2.....TECHNICAL DESCRIPTION CONTINUED AND RF POWER OUTPUT
PAGE	3.....MODULATION CHARACTERISTICS AND EMISSION BANDWIDTH
PAGE	4.....METHOD OF MEASURING OCCUPIED BANDWIDTH
PAGE	5.....SPURIOUS EMISSIONS AT ANTENNA TERMINALS
PAGE	5.....FIELD STRENGTH OF SPURIOUS EMISSIONS
PAGE	6.....METHOD OF MEASURING RADIATED SPURIOUS EMISSIONS
PAGE	7.....FREQUENCY STABILITY
PAGE	8.....LIST OF TEST EQUIPMENT

EXHIBITS CONTAINING:

EXHIBIT	1.....FCC ID LABEL SAMPLE
EXHIBIT	2.....SKETCH OF FCC ID LABEL LOCATION
EXHIBIT	3A.....EXTERNAL FRONT VIEW PHOTOGRAPH
EXHIBIT	3B.....EXTERNAL REAR VIEW PHOTOGRAPH
EXHIBIT	3C.....INTERNAL COMPONENT CHASSIS VIEW PHOTOGRAPH
EXHIBIT	3D.....INTERNAL COMPONENT VIEW PHOTOGRAPH
EXHIBIT	3E.....INTERNAL SOLDER CHASSIS VIEW PHOTOGRAPH
EXHIBIT	3F.....INTERNAL SOLDER VIEW PHOTOGRAPH
EXHIBIT	4A.....BLOCK DIAGRAM - MOTHER BOARD
EXHIBIT	4B.....BLOCK DIAGRAM - RF MODULE
EXHIBIT	5A.....SCHEMATIC - MOTHER BOARD
EXHIBIT	5B.....SCHEMATIC - RF MODULE
EXHIBIT	6A-6B.....PARTS LIST
EXHIBIT	7A-7C.....THEORY OF OPERATION
EXHIBIT	8A-8B.....TUNING PROCEDURES
EXHIBIT	9A-9C...USER'S MANUAL
EXHIBIT	10.....AUDIO FREQUENCY RESPONSE GRAPH
EXHIBIT	11A.....MODULATION LIMITING - 300 Hz
EXHIBIT	11B.....MODULATION LIMITING - 1000 Hz
EXHIBIT	11C.....MODULATION LIMITING - 3000 Hz
EXHIBIT	12.....AUDIO LOW PASS FILTER GRAPH
EXHIBIT	13A.....OCCUPIED BANDWIDTH CW PLOT
EXHIBIT	13B.....OCCUPIED BANDWIDTH PLOT

APPLICANT: AUDIOVOX CORPORATION

FCC ID: BGAFR540

REPORT #: T:\CUS\A\AUDIOVOX\128AK0\128AK0.RPT

PAGE: TABLE OF CONTENTS

GENERAL INFORMATION REQUIRED
FOR TYPE ACCEPTANCE

2.1033(c)(1)(2) AUDIOVOX CORPORATION will manufacture the
FCCID: BGAFR540 FAMILY RADIO SERVICES 14 CHANNEL
TRANSCIVER in quantity, for use under FCC RULES
PART 95.

2.1033 (c) TECHNICAL DESCRIPTION

2.1033(c)(3) Instruction book. A draft copy of the instruction
manual is included as EXHIBIT 9A-9C.

2.1033(c) (4) Type of Emission: 10K0F3E
95.629

$$B_n = 2M + 2DK$$

$$M = 3000$$

$$D = 2.0K$$

$$B_n = 2(3.0) + 2(2.0) = 10.0K$$

Authorized Bandwidth 12.5KHz

2.1033(c)(5) Frequency Range: 1. 462.5625 8. 467.5625
95.627 2. 462.5875 9. 467.5875
3. 462.6125 10. 467.6125
4. 462.6375 11. 467.6375
5. 462.6625 12. 467.6625
6. 462.6875 13. 467.6875
7. 462.7125 14. 467.7125 MHz

2.1033(c)(6)(7) Power Output shall not exceed 0.500Watts effective
95.637 radiated power. There can be no provisions for
95.647 increasing the power or varing the power. The Maximum
Output Power Rating: 300 milliWatts
effective radiated power.

95.645 The antenna is an intergral part to the unit, it cannot
be removed without rendering the unit inoperative. In
order to remove the antenna the case must unscrewed,
then the PCB assemblies must be removed then the
antenna can be removed.

2.1033(c)(8) DC Voltages and Current into Final Amplifier:

FINAL AMPLIFIER ONLY

Vce = 4.5 Volts DC Ice = 0.12A.

Pin = 0.54 Watts

2.1033(c)(9) Tune-up procedure. The tune-up procedure is included
as Exhibit 8A-8B.

APPLICANT: AUDIOVOX CORPORATION

FCC ID: BGAFR540

REPORT #: T:\CUS\A\AUDIOVOX\128AK0\128AK0.RPT

PAGE #: 1

2.1047(a)(b) Modulation characteristics:

AUDIO FREQUENCY RESPONSE

The audio frequency response was measured in accordance with TIA/EIA Specification 603. The audio frequency response curve is shown on the next page. The audio signal was fed into a dummy microphone circuit and into the microphone connector. The input required to produce 30 percent modulation level was measured. See EXHIBIT #: 10.

2.1047(b) Audio input versus modulation

The audio input level needed for a particular percentage of modulation was measured in accordance with TIA/EIA Specification 603. The audio input curves versus modulation are on the following pages. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz. See EXHIBIT # 11A-11C.

95.635(b) Post Limiter Filter The filter must be between the modulation limiter and the modulated stage. At any frequency between 3 & 20KHz the filter must have an attenuation of $60\log(f/3)$ greater than the attenuation at 1KHz. See the EXHIBIT #: 12.

2.989(c) EMISSION BANDWIDTH:
95.633(b)(1)(3)(7)

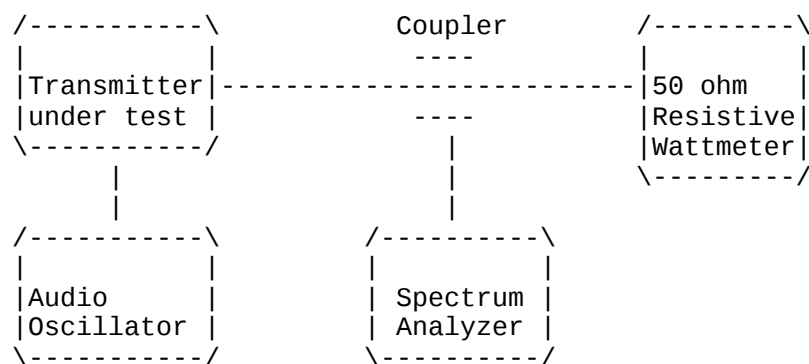
Data in the plots shows that the sidebands from greater than 50% to 100% of the authorized bandwidth must be attenuated by at least 25dB and from 100 to 250% the sidebands must be attenuated by at least 35dB. Beyond 250% the sidebands must be attenuated by at least $43 + \log_{10}(TP)$. The transmitter was modulated with 2500 Hz, adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the unmodulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth PLOTS follow.

APPLICANT: AUDIOVOX CORPORATION
FCC ID: BGAFR540
REPORT #: T:\CUS\A\AUDIOVOX\128AK0\128AK0.RPT
PAGE #: 3

Radiotelephone transmitter with modulation limiter.

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT



APPLICANT: AUDIOVOX CORPORATION
FCC ID: BGAFR540
REPORT #: T:\CUS\A\AUDIOVOX\128AK0\128AK0.RPT
PAGE #: 4

2.1051 Not Applicable, no antenna terminal allowed.

2.1053 UNWANTED_RADIATION:
95.635(b)(7)

REQUIREMENTS: Emissions must be attenuated by at least the following below the output of the transmitter.

$$43 + 10\log(TP) = 43 + 10\log(0.002) = 16.01\text{dB}$$

TEST DATA:

EMISSION FREQ. MHZ	METER READING @ 3m dBuV	COAX LOSS dB	ACF dB	FIELD STRNGTH dBuV/m	ATT. dBuV/m	MARGIN dB	ANT.
462.69	102.90	1.60	18.44	122.94	0.0	1.43	V
925.36	42.10	2.90	24.10	69.10	53.84	13.84	V
1388.05	53.60	1.00	25.55	80.15	42.79	2.79	V
1850.71	52.90	1.01	27.40	81.31	41.63	1.63	V
2313.34	41.90	1.08	28.78	71.76	51.18	11.18	V
2775.97	42.90	1.15	29.94	73.99	48.95	8.95	V
3238.66	39.90	1.22	31.10	72.21	50.73	10.73	V
3701.35	32.80	1.29	32.25	66.34	56.60	16.60	V
4163.96	28.00	1.35	33.18	62.54	60.40	20.40	V
4626.90	27.00	1.42	33.71	62.13	60.81	20.81	V

MARGIN = (Field strength of Fund - 40dB) - FS OF EMISSION

METHOD OF MEASUREMENT: The procedure used was C63.4-1992 for intentional radiators. The spectrum was scanned from 30 to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer, an Eaton model 94455-1 Biconical Antenna, ElectroMetrics antennas models TDA, TDS-25-1, TDS-25-2 and RGA-180. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.

APPLICANT: AUDIOVOX CORPORATION
FCC ID: BGAFR540
REPORT #: T:\CUS\A\AUDIOVOX\128AK0\128AK0.RPT
PAGE #: 5

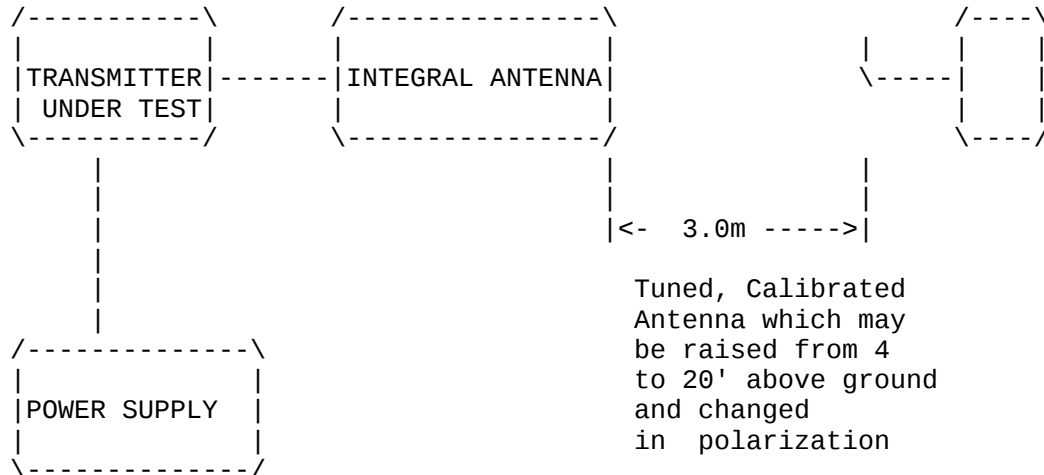
2.1053

UNWANTED_RADIATION:

95.631(b)(8)(9)

Method of Measuring Radiated Spurious Emissions

Hewlett Packard
Spectrum
Analyzer
HP8566B



Equipment placed 4' above ground
on a rotatable platform.

APPLICANT: AUDIOVOX CORPORATION
FCC ID: BGAFR540
REPORT #: T:\CUS\A\AUDIOVOX\128AK0\128AK0.RPT
PAGE #: 6

2.1055

Frequency stability:

Temperature and voltage tests were performed to verify that the frequency remains within the 0.00025%, 2.5 ppm specification limit. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15 second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15 second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C.

Readings were also taken at plus and minus 15% of the battery voltage of 4.5 VDC.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 462.712 500

TEMPERATURE_C	FREQUENCY_MHz	PPM
REFERENCE_____	462.712 500	00.00
-30_____	462.712 511	0.02
-20_____	462.712 131	-0.80
-10_____	462.712 280	-0.48
0_____	462.712 480	-0.04
+10_____	462.712 605	+0.23
+20_____	462.712 447	-0.11
+30_____	462.712 207	-0.63
+40_____	462.712 075	-0.92
+50_____	462.712 315	-0.40

-15% BATT. End-Point 3.825Vdc 462.712 326 -0.38

+15% BATT. End-Point 5.175Vdc 462.712 311 -0.41

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was -0.80 to +0.23 ppm. The maximum frequency variation with voltage was -0.41ppm.

APPLICANT: AUDIOVOX CORPORATION

FCC ID: BGAFR540

REPORT #: T:\CUS\A\AUDIOVOX\128AK0\128AK0.RPT

PAGE #: 7

APPLICANT: AUDIOVOX CORPORATION

FCC ID: BGAFR540

TEST EQUIPMENT LIST

- 1._X_Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/
preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter
HP 85650A, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02,
S/N 3008A00372 Cal. 10/17/99
- 2.___Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
- 3.___Signal Generator: HP 8614A, S/N 2015A07428 Cal. 5/29/99
- 4.___Passive Loop Antenna: EMC0 Model 6512, 9KHz to 30MHz, S/N
9706-1211 Cal. 6/23/97
- 5._X_Biconnical Antenna: Eaton Model 94455-1, S/N 1057
- 6._X_Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
- 7.___Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153
Cal. 11/24/99
- 8._X_Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,
1-18 GHz, S/N 2319 Cal. 4/27/99
- 9.___Horn 40-60GHz: ATM Part #19-443-6R
- 10.___Open Area Test Site #1-3meters Cal. 12/22/99
- 11.___Line Impedance Stabilization Network: Electro-Metrics Model
ANS-25/2, S/N 2604 Cal. 11/30/99
- 12.___Line Impedance Stabilization Network: Electro-Metrics Model
EM-7820, S/N 2682 Cal. 12/1/99
- 13._X_Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
- 14.___AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
- 15.___Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
- 16.___Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
- 17.___Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99
- 18._X_Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99

APPLICANT: AUDIOVOX CORPORATION

FCC ID: BGAFR540

REPORT #: T:\CUS\A\AUDIOVOX\128AK0\128AK0.RPT

PAGE #: 8