Engineering and Testing for EMC and Safety Compliance

TYPE CERTIFICATION REPORT

Vertex Standard Co., LTD.
4-8-8, Nakameguro, Meguro-ku, Tokyo 153-8644, Japan
81-(0) 3-5725-6122

MODEL: VXA-200
FCC ID: K66VXA-200

February December 8, 2000

STANDARDS REFERENCED FOR THIS REPORT	
PART 2: 1999	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS
PART 15: 1999	§15.109: RADIATED EMISSIONS LIMITS
PART 87: 1998	PRIVATE LAND MOBILE RADIO SERVICES
ANSI C63.4-1992	STANDARD FORMAT MEASUREMENT/TECHNICAL REPORT PERSONAL COMPUTER AND PERIPHERALS
ANSI/TIA/EIA603- 1992	LAND MOBILE FM OR PM COMMUNICATIONS EQUIPMENT MEASUREMENT AND PERFORMANCE STANDARDS
ANSI/TIA/EIA 603-1-1998	ADDENDUM TO ANSI/TIA/EIA 603-1992
RSS-141	AERONAUTICAL RADIO COOMUNICATION EQUIPMENT NOV 4, 1999

FCC Rules Parts	Frequency Range	Output Power (W)	Freq. Tolerance	Emission Designator
87	118-137 MHz	1.5	10 ppm	6K00A3E
Canadian	**Frequency Range**	**Output Power (W)**	**Freq. Tolerance**	
RSS-141	118-137MHz	1.5	10 ppm	6K00A3E

REPORT PREPARED BY:

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Document Number: 2000468

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1 GENERAL INFORMATION

The following Report of a Type Certification is prepared on behalf of ***Vertex Standard Co., LTD*** in accordance with the Federal Communications Commissions and Industry Canada Rules and Regulations. The Equipment Under Test (EUT) was the ***VXA-200; FCC ID: K66VXA-200***. The test results reported in this document relate only to the item that was tested. All measurements contained in this application were conducted in accordance with FCC Rules and Regulations CFR 47, Industry Canada RSS-141, and ANSI C63.4 Methods of Measurement of Radio Noise Emissions, 1992. The instrumentation utilized for the measurements conforms to the ANSI C63.4 standard for EMI and Field Strength Instrumentation. Calibration checks are performed regularly on the instruments, and all accessories including high pass filter, coaxial attenuator, preamplifier and cables.

1.1 TEST FACILITY

The open area test site and conducted measurement facility used to collect the radiated data is located on the parking lot of Rhein Tech Laboratories, Inc. 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report submitted to and approved by the Federal Communication Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4 1992).

1.2 RELATED SUBMITTAL(S)/GRANT(S)

This is an original application report.

2 CONFORMANCE STATEMENT

We, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this attached test record. No modifications were made to the equipment during testing in order to achieve compliance with these standards.

Furthermore, there was no deviation from, additions to or exclusions from the FCC Part 2, FCC Part 87 and Industry Canada RSS-141 Certification methodology.

Signature: __________________ Date: January 17, 2001

Typed/Printed Name: Desmond A. Fraser Position: President (NVLAP Signatory)

NVLAP *Accredited by the National Voluntary Accreditation Program for the specific scope of accreditation under Lab Code 200061-0.*

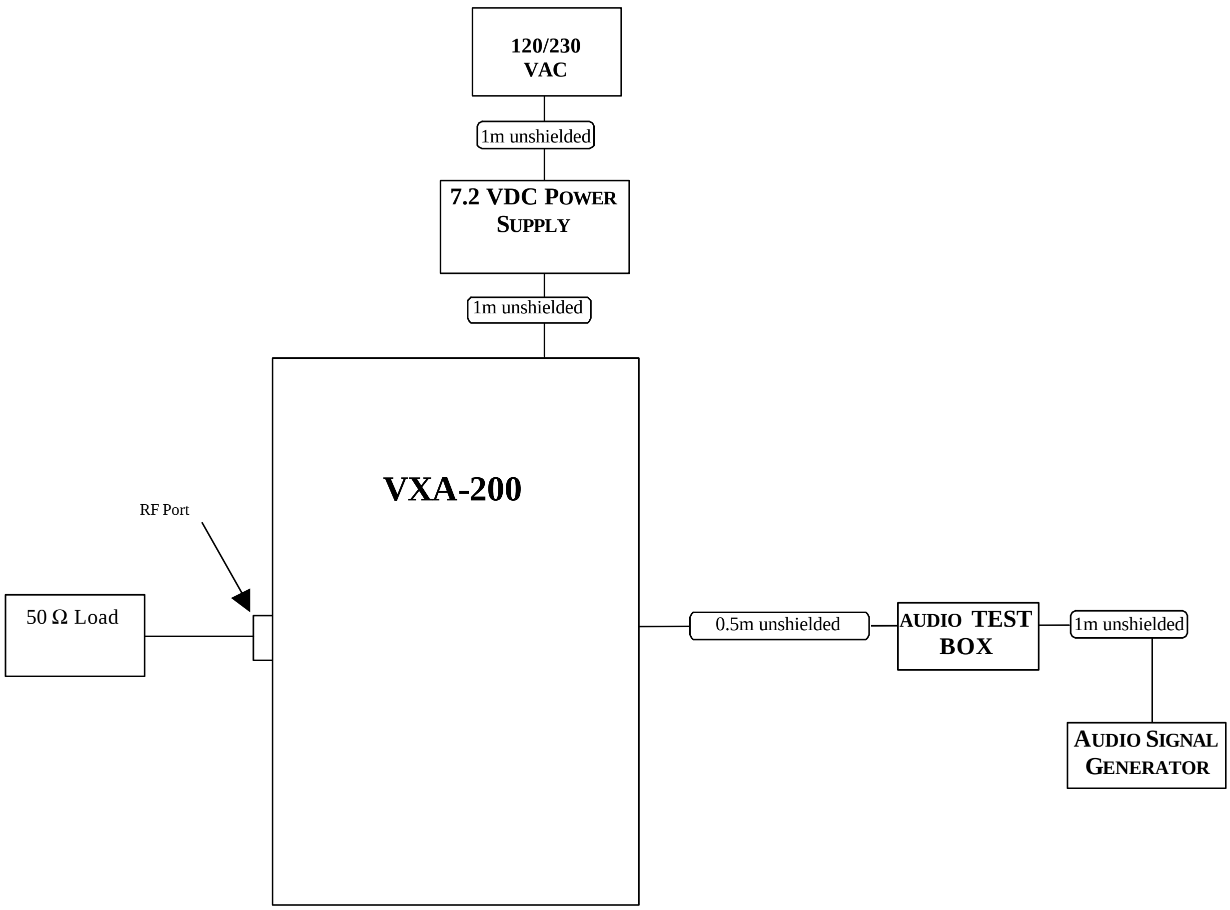
Note: This report may not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

3 TESTED SYSTEM DETAILS

Listed below is the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

Part	Manufacturer	Model	Serial Number	FCC ID
Radio	**Vertex**	**VXA-200**	**N/A**	**K66VXA-200**
Antenna Whip	Vertex	N/A	N/A	N/A
Audio Test Cable	Vertex	N/A	N/A	N/A
Audio Test Box	Vertex	Tuning I/F	N/A	N/A
Battery	Vertex	FNB-64	N/A	N/A
Microphone / Speaker	Vertex	MH-44	N/A	N/A

3.1 CONFIGURATION OF TESTED SYSTEM



4 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FI(dBuV/m) = SAR(dBuV) + SCF(dB/m)
FI = Field Intensity
SAR = Spectrum Analyzer Reading
SCF = Site Correction Factor

The Site Correction Factor (SCF) used in the above equation is determined empirically, and is expressed in the following equation:

SCF(dB/m) = - PG(dB) + AF(dB/m) + CL(dB)

SCF = Site Correction Factor
PG = Pre-amplifier Gain
AF = Antenna Factor
CL = Cable Loss

The field intensity in microvolts per meter can then be determined according to the following equation:

$$FI(uV/m) = 10^{FI(dBuV/m)/20}$$

For example, assume a signal at a frequency of 125 MHz has a received level measured as 49.3 dBuV. The total Site Correction Factor (antenna factor plus cable loss minus preamplifier gain) for 125 MHz is -11.5 dB/m. The actual radiated field strength is calculated as follows:

49.3 dBuV - 11.5 dB/m = 37.8 dBuV/m

$$10^{37.8/20} = 10^{1.89} = 77.6 \text{ uV/m}$$

5 CONDUCTED MEASUREMENT

The power line conducted emission measurements were performed in a Series 81 type shielded enclosure manufactured by Rayproof. The EUT was assembled on a wooden table 80 centimeters high. Power was fed to the EUT through a 50 ohm / 50 microhenry Line Impedance Stabilization Network (EUT LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT test peripherals. This peripheral LISN was also fed A.C. power. A metal power outlet box, which is bonded to the ground plane and electrically connected to the peripheral LISN, powers the EUT host peripherals.

The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar 400 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 400 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The analyzer's 6 dB bandwidth was set to 9 kHz. No video filter less than 10 times the resolution bandwidth was used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, and by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from (150/450) kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in this report.

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5.1 CONDUCTED MEASUREMENT TEST RESULTS

Mode: 121.500 MHz High Wide band power wide band
NEUTRAL SIDE (Line 1)

Temperature: 54°F			Humidity: 42%			
Emission Frequency (MHz)	**Test Detector**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB)**	**Emission Level (dBuV)**	**FCC B Limit (dBuV)**	**FCC B Margin (dB)**
0.464	Pk	23.3	0.8	24.1	48.0	-23.9
0.596	Pk	23.1	0.9	24.0	48.0	-24.0
0.798	Pk	21.0	0.9	21.9	48.0	-26.1
2.698	Pk	19.3	1.5	20.8	48.0	-27.2
8.490	Pk	16.2	2.3	18.5	48.0	-29.5
15.700	Pk	18.6	3.0	21.6	48.0	-26.4
27.810	Pk	16.4	3.4	19.8	48.0	-28.2

Mode: 121.525 MHz high power wide band
HOT SIDE (Line 2)

Temperature: 54°F			Humidity: 42%			
Emission Frequency (MHz)	**Test Detector**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB)**	**Emission Level (dBuV)**	**FCC B Limit (dBuV)**	**FCC B Margin (dB)**
0.613	Pk	21.1	0.8	21.9	48.0	-26.1
0.795	Pk	19.4	0.9	20.3	48.0	-27.7
0.984	Pk	20.1	0.9	21.0	48.0	-27.0
2.130	Pk	20.2	1.3	21.5	48.0	-26.5
11.440	Pk	18.9	2.6	21.5	48.0	-26.5
22.050	Pk	17.8	3.4	21.2	48.0	-26.8

Pk = Peak; QP = Quasi-Peak; Av = Average

<u>TEST PERSONNEL:</u>

Signature: ________________ **Date:** January 16, 2001

Typed/Printed Name: Daniel Baltzell

6 RADIATED MEASUREMENT

Before final measurements of radiated emissions were made on the open-field three meter range, the EUT was scanned indoors at a three meter distance in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to insure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three-meter, open-field test site. The EUT was placed on a nonconductive turntable approximately 0.8 meters above the ground plane.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters in order to determine the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations.

Note: Rhein Tech Laboratories, Inc. has implemented procedures to minimize errors that occur from test instruments, calibration, procedures, and test setups. Test instrument and calibration errors are documented from the manufacturer or calibration lab. Other errors have been defined and calculated within the Rhein Tech quality manual, section 6.1. Rhein Tech implements the following procedures to minimize errors that may occur: yearly as well as daily calibration methods, technician training, and emphasis to employees on avoiding error.

7 FCC RULES AND REGULATIONS PART 2 §2.1046 (A): RF POWER OUTPUT: CONDUCTED

7.1 TEST PROCEDURE

ANSI/TIA/EIA-603-1992, section 2.2.1

The EUT was connected to a coaxial attenuator having a 50-Ω load impedance and the un-modulated output power was measured by means of an RF Power meter

7.2 TEST DATA

The following channel (in MHz) was tested: 121.500 MHz
The worst-case Output Power (highest) levels is shown below.

CARRIER OUTPUT POWER (UNMODULATED)

Power Setting	RF Power measured (Watt)*
High	1.5

*Measurement accuracy: +/- 3%

Rated PEP Power:

Power Setting	Rated PEP Power (W)
High	5

7.3 TEST EQUIPMENT

Power Meter	HP437B	s/n 2949A02966
	HP 8901A	s/n 2545A04102 (power mode)
Power Sensor	HP8481B	s/n 2702A05059
Frequency Counter	HP8901A	s/n 2545A04102 (Frequency mode)

8 PART 2.1046 (A) RF POWER OUTPUT: RADIATED - ERP

8.1 TEST PROCEDURE

Substitution Method:

The EUT was setup at an antenna to EUT distance of 3 meters on an open area test site. The EUT was placed on a nonconductive turntable approximately 0.8 meters above the ground plane.

The physical arrangement of the EUT and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters in order to determine the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations.

The worst-case, maximum radiated emission was recorded and used as reference for the ERP measurement.

The EUT was then replaced by an ½wave dipole antenna and polarized in accordance with the EUT's antenna polarization. The ½wave dipole antenna was connected to a RF signal generator with a coaxial cable.

The search antenna height, and search antenna polarity was set to levels that produced the maximum reading obtained in step 3. The signal generator was adjusted to a level that produced the radiated emission level obtained in step 3.

The signal generator level was recorded and corrected by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal ½wave dipole antenna. The signal generator corrected level is the ERP level

Calculation Method:

$$P_{Watt} = \frac{E_{v/m}{}^{2} x d_{m}{}^{2}}{30x1.64}$$

8.2 TEST DATA

Settings:

- High Power: 1.5 Watt delivered to antenna
- 1.5W EUT radiated power measurements (3 meter)

Freq	S/G	CL	Diff Gain	Corr'd	ERP
121.500	32.7	0.8	-0.2	31.7	1.48W

*Antenna as specified by manufacturer
**Measurement accuracy is +/- 1.5 dB

8.3 TEST EQUIPMENT

Spectrum Analyzer	HP8566B
Antenna	Roberts ½wave dipoles

9 FCC RULES AND REGULATIONS PART 2 §2.1051: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

9.1 TEST PROCEDURE

ANSI/TIA/EIA-603-1992, Section 2.2.13

The transmitter is terminated with a 50 Ω load and interfaced with a spectrum analyzer.
The transmitter is modulated with a 2,500 Hz sine wave at an input level 16 dB greater than that required to produce 50% of the rated system deviation at 1000 Hz.

9.2 TEST DATA

Frequency range of measurement per Part 2.1057: 9kHz to 10 x Fc

Limits: Mask B (dBm): P(dBm) – (43+10xLOG P(W))

The following channel (in MHz) were investigated: 118.025 MHz, 121.5 MHz, and 136.975 MHz in 1.5W mode for 25KHz channel spacing.

The worst case (unwanted emissions) channels are shown. The magnitude of emissions attenuated more than 20 dB below the FCC limit need not be recorded.

Channel 1 (118.025 MHz) – 1.5 Watt and 25 kHz Channel Bandwidth: Mask B
Conducted Spurious Harmonics

Frequency (MHz)	**Level Measured (dBm)**	**Limit (dBm)**	**Margin (dB)**
236.050	-23.4	-13.0	10.4
354.075	-27.9	-13.0	14.9
472.100	-39.8	-13.0	26.8
590.125	-41.4	-13.0	28.4
708.150	-44.1	-13.0	31.1
826.175	-44.0	-13.0	31.0
944.200	-42.9	-13.0	29.9
1062.225	-43.7	-13.0	30.7
1180.250	-43.9	-13.0	30.9

Channel 2 (121.500 MHz) – 1.5 Watt and 25 kHz Channel Bandwidth: Mask B

Frequency (MHz)	**Level Measured (dBm)**	**Limit (dBm)**	**Margin (dB)**
243.000	-21.3	-13.0	8.3
364.500	-27.9	-13.0	14.9
486.000	-39.0	-13.0	26.0
607.500	-42.0	-13.0	29.0
729.000	-43.2	-13.0	30.2
850.500	-42.6	-13.0	29.6
972.000	-42.7	-13.0	29.7
1093.500	-42.7	-13.0	29.7
1215.000	-42.5	-13.0	29.5

Channel 3 (136.975 MHz) – 1.5 Watt and 25 kHz Channel Bandwidth: Mask B

Frequency (MHz)	**Level Measured (dBm)**	**Limit (dBm)**	**Margin (dB)**
273.950	-18.3	-13.0	5.3
410.925	-29.6	-13.0	16.6
547.900	-37.8	-13.0	24.8
684.875	-39.3	-13.0	26.3
821.850	-40.1	-13.0	27.1
958.825	-40.1	-13.0	27.1
1095.800	-40.0	-13.0	27.0
1232.775	-39.4	-13.0	26.4
1369.750	-39.6	-13.0	26.6

4.3 Test Equipment

Audio Generator:

Synthesized Level Generator	HP3336B	s/n 2127A00559
Selective Level Meter	HP3585	s/n B032374

Spectrum Analyzer:

HP8564E	s/n 3943A01719
HP8546A	s/n 3525A00159

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10 FCC RULES AND REGULATIONS PART 2 §2.1053 (A): FIELD STRENGTH OF SPURIOUS RADIATION

10.1 TEST PROCEDURE

ANSI/TIA/EIA-603-1992, section 2.2.12

The transmitter is terminated with a 50 Ω load and is modulated with a 2,500 Hz sine wave at an input level 16 dB greater than that required to produce 50% of the rated system deviation at 1000 Hz.

Refer to section "Radiated Measurement" in this report for further information.

10.2 TEST DATA

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	S/G Reading (dBm)	Correction Factor (dB)	Corr'd ERP (dBm)	Limit (dBm)	Margin (dB)
243.000	Qp	H	120	1.2	-42.1	-2.2	-44.3	-13	-31.3
364.500	Qp	H	350	2.8	-48.3	-2.7	-51.0	-13	-38.0
486.000	Qp	H	350	1.0	-50.0	-3.3	-53.3	-13	-40.3
607.500	Qp	V	270	1.0	-51.9	-4.3	-56.2	-13	-43.2
729.000	Qp	H	30	1.1	-46.1	-4.6	-50.7	-13	-37.7
850.500	Qp	H	300	1.0	-62.0	-4.9	-66.9	-13	-53.9
972.000	Qp	H	300	1.0	-59.5	-5.5	-65.0	-13	-52.0
1093.500	Av	H	90	1.0	-66.6	-4.1	-70.7	-13	-57.7
1215.000	Av	H	300	1.0	-76.3	-3.6	-79.9	-13	-66.9

The worst-case emissions test data are shown. The magnitude of emissions attenuated more than 20 dB below the FCC limit need not be recorded.

*This insertion loss corresponds to the cable connecting the RF Signal Generator to the ½wave dipole antenna.

10.3 TEST EQUIPMENT

Antenna: CHASE CBL6112 s/n 2099
Amplifier: HP8449B s/n 3008A00505
Spectrum analyzer: HP8564E s/n 3943A01719

RF Signal Generator HP8648C s/n 3537A01741
Synthesized Sweeper HP83752A s/n 3610A00846

11 FCC RULES AND REGULATIONS PART 2 §2.1049 (C) (1): OCCUPIED BANDWIDTH

OCCUPIED BANDWIDTH - COMPLIANCE WITH THE EMISSION MASKS

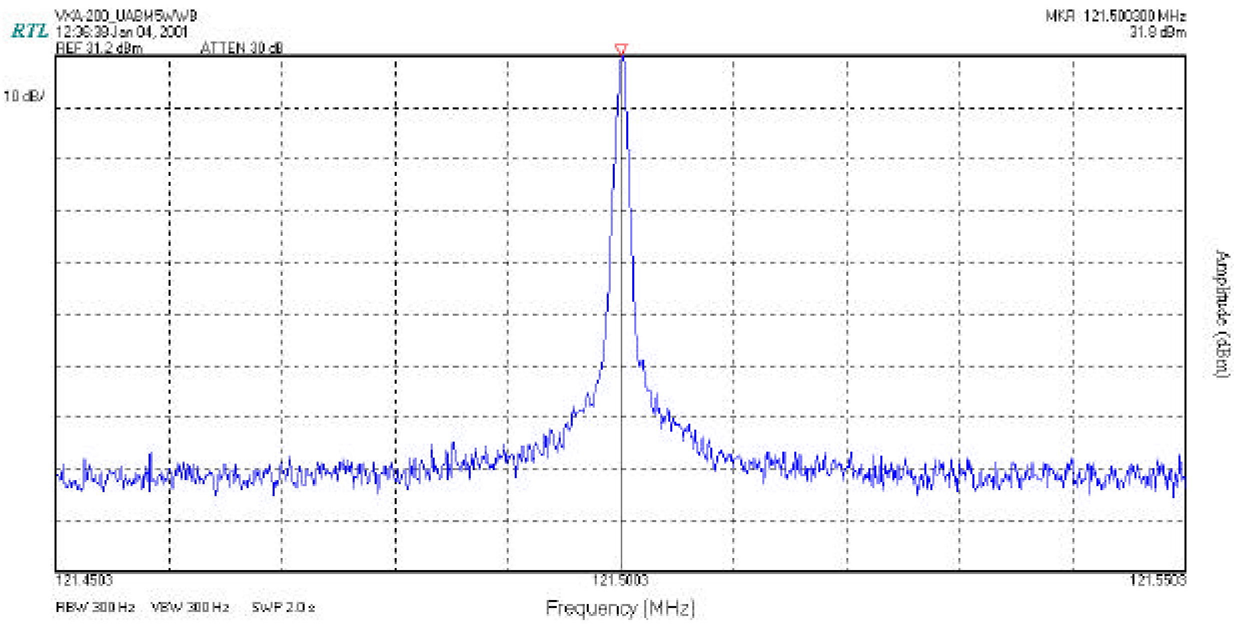
11.1 TEST PROCEDURE

ANSI/TIA/EIA-603-1992, section 2.2.11

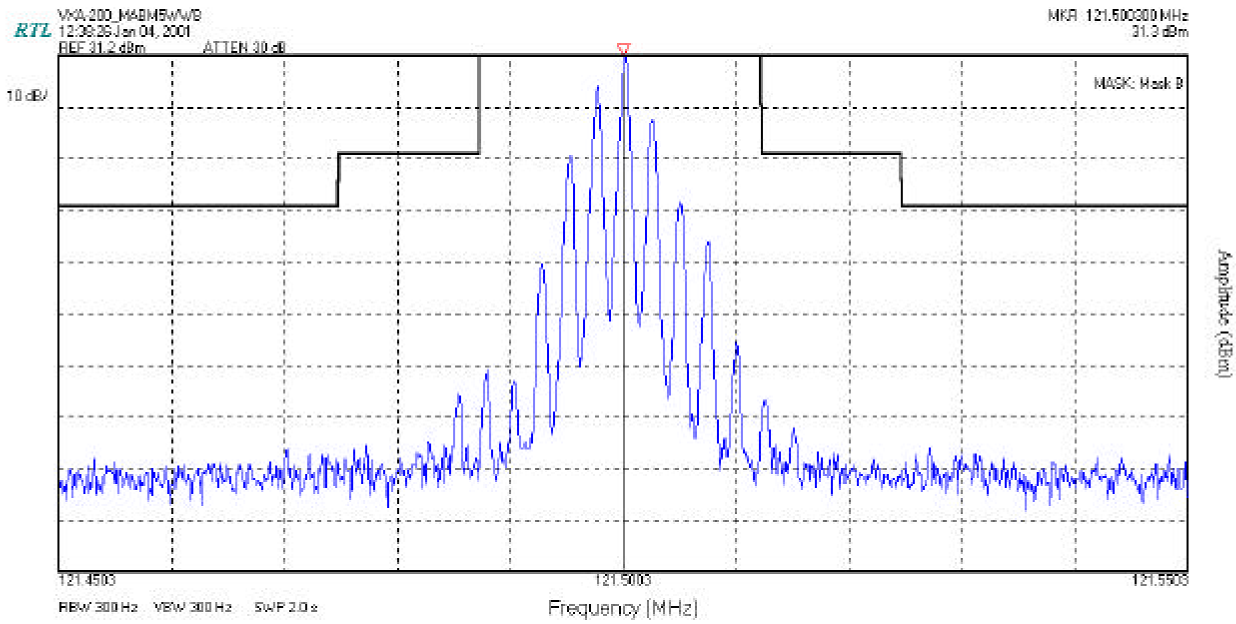
Device with audio modulation: Transmitter is modulated with a 2500 Hz sine wave at an input level of 16 dB greater than that required to produce 50% modulation at 1000 Hz.

11.2 TEST DATA

11.2.1 CHANNEL 2: 1.5 W FOR 25 KHZ CHANNEL BANDWIDTH: MASK B (UN-MODULATION CARRIER)



11.2.2 CHANNEL 2: 1.5W FOR 25 KHZ CHANNEL BANDWIDTH: MASK B (AUDIO MODULATION: 2,500 HZ)



11.3 TEST EQUIPMENT

Spectrum Analyzer HP8564E s/n 3943A01719

12 FCC RULES AND REGULATION PART 2 §2.1055: FREQUENCY STABILITY

12.1 TEST PROCEDURE

ANSI/TIA/EIA-603-1992, section 2.2.2

The carrier frequency stability is the ability of the transmitter to maintain an assigned carrier frequency.

The EUT was evaluated over the temperature range -30°C to +50°C.
The temperature was initially set to -30°C and a 2-hour period was observed for stabilization of the EUT.
The frequency stability was measured within one minute after application of primary power to the transmitter. The temperature was raised at intervals of 10 degrees centigrade through the range. A ½ an hour period was observed to stabilize the EUT at each measurement step and the frequency stability was measured within one minute after application of primary power to the transmitter.
Additionally, the power supply voltage of the EUT was varied from 85% to 115% of the nominal voltage.

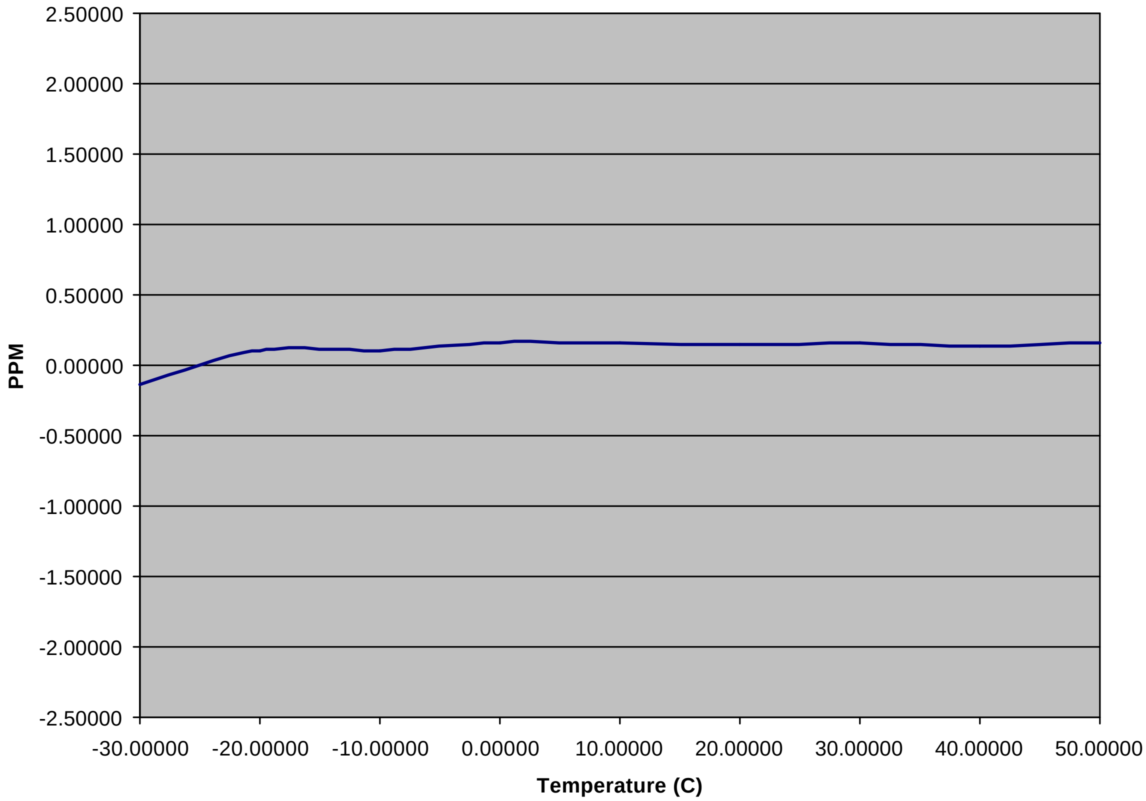
The worst-case test data are shown.

12.2 TEST DATA

12.2.1 FREQUENCY STABILITY/TEMPERATURE VARIATION

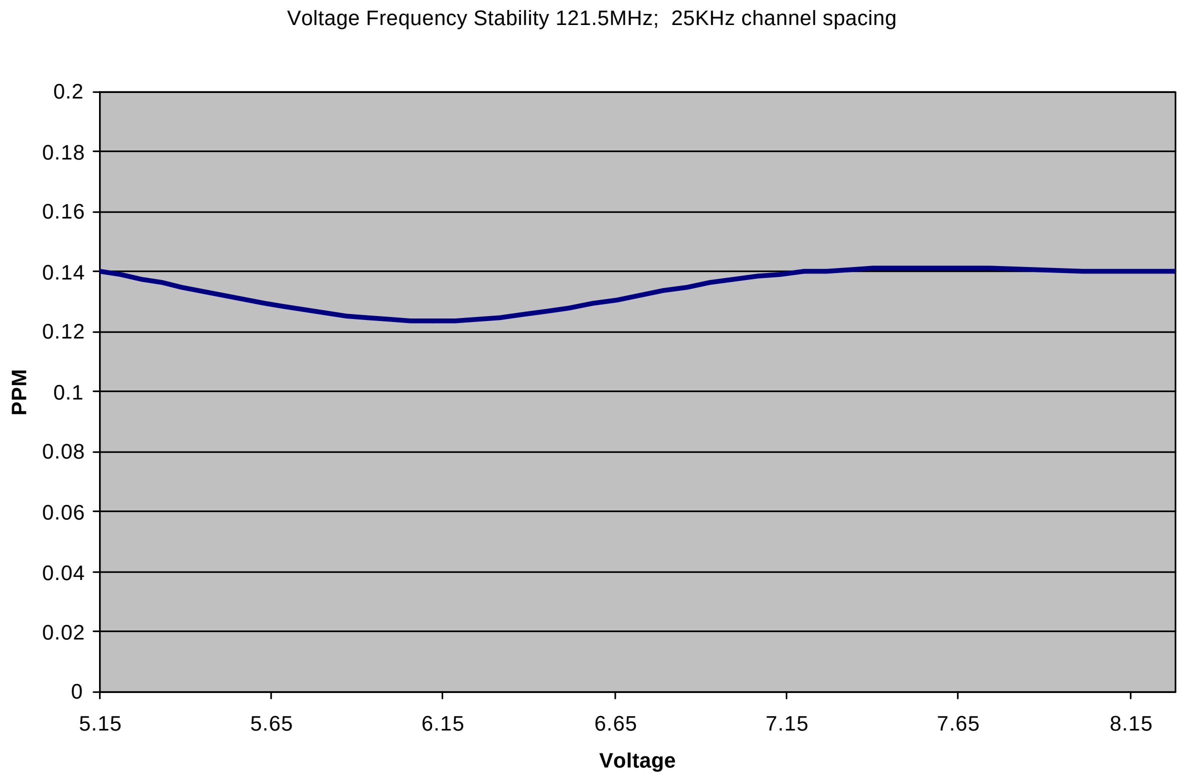
The VXA-200 1.5Watt radios was tested 25 kHz channel bandwidth. The worst-case temperature deviation on the following plots.

Temperature Frequency Stability; 121,500 MHz; 25KHz channel spacing



Temperature (C)	Frequency (MHz)	ppm
-30.00000	121.50000	-0.13169
-20.00000	121.500013	0.10700
-10.00000	121.50001	0.10700
0.00000	121.50002	0.16461
10.00000	121.50002	0.15638
20.00000	121.50002	0.14815
30.00000	121.50002	0.15638
40.00000	121.50002	0.13992
50.00000	121.50002	0.16461

12.2.2 FREQUENCY STABILITY/VOLTAGE VARIATION



Voltage (7.2V +/- 85-115%)	Frequency (MHz)	ppm
5.15	121.500017	0.139918
6.12	121.500015	0.123457
7.2	121.500017	0.139918
8.28	121.500017	0.139918

Battery end point = 5.15

12.3 7.3 TEST EQUIPMENT

Temperature Chamber Tenney TH65 s/n 11380

Frequency Counter HP8901A (Frequency Mode) s/n 2545A04102

13 FCC RULES AND REGULATIONS PART 2 §2.1047 (A): MODULATION CHARACTERISTICS - AUDIO FREQUENCY RESPONSE

13.1 TEST PROCEDURE

ANSI/TIA/EIA-603-1992, section 2.2.6

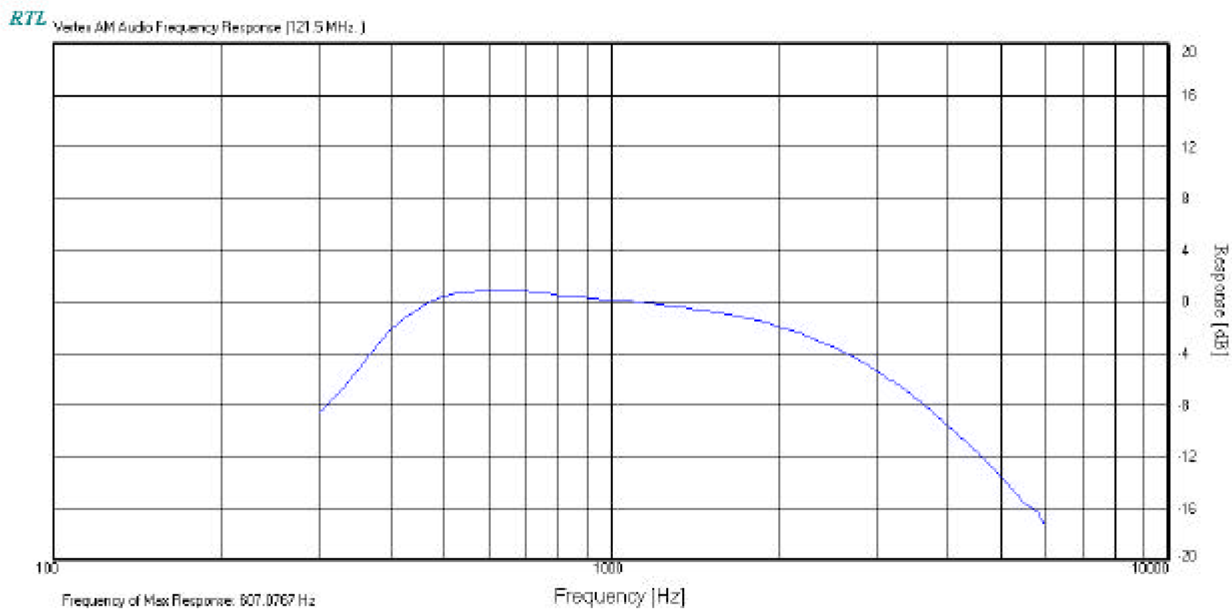
The audio frequency response is the degree of closeness to which the frequency deviation of the transmitter follows a prescribed characteristic.

The input audio level at 1000 Hz is set to produce 20% modulation. This point is shown as the 0 dB reference level, noted MODref.
The audio signal generator was varied from 100Hz to 5kHz with the input level held constant.
The modulation in kHz was recorded using a modulation analyzer as MODfreq.
The response in dB relative to 1 kHz was calculated as follows:

Audio Frequency Response = 20 LOG (MODfreq/MODref)

13.2 TEST DATA

13.2.1 CHANNEL 2 – 25 KHZ AUDIO FREQUENCY RESPONSE



Max audio frequency response =607.07 KHz

13.3 TEST EQUIPMENT

Audio generator	HP3336B	s/n 2127A00559
Modulation analyzer	HP8901A	s/n 2545A04102

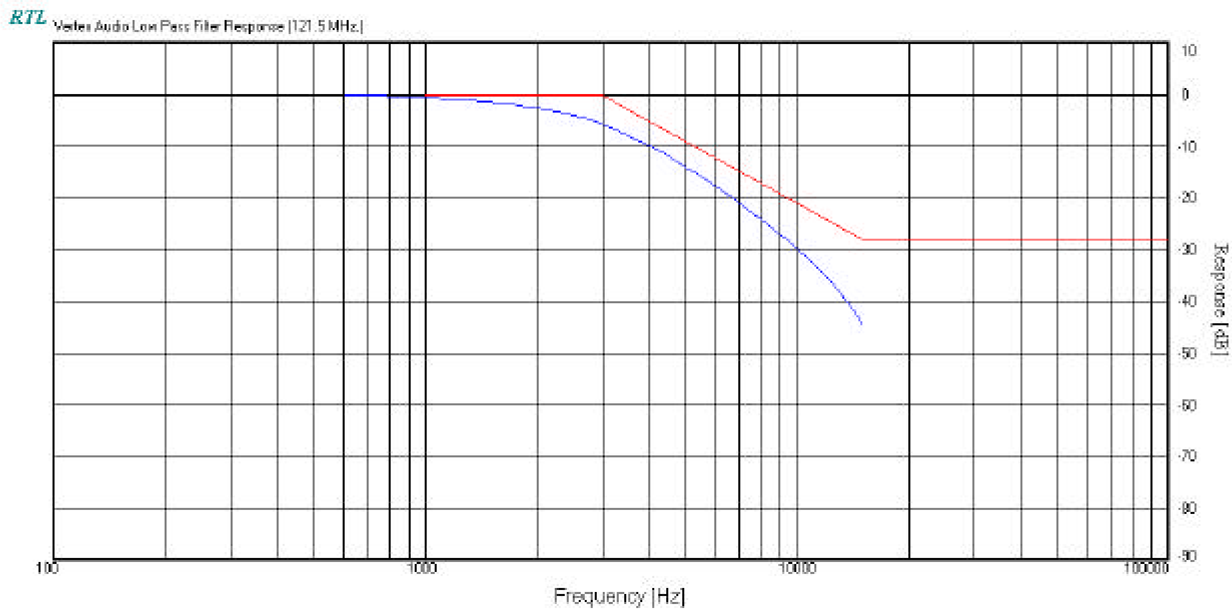
14 FCC RULES AND REGULATIONS PART 2 §2.1047 (A): MODULATION CHARACTERISTICS - AUDIO LOW PASS FILTER RESPONSE

14.1 TEST PROCEDURE

ANSI/TIA/EIA-603-1992, 2.2.15

The Audio Low Pass Filter Response is the frequency response of the post limiter low pass filter circuit above 3000 Hz.

14.2 TEST DATA



14.3 TEST EQUIPMENT

Audio generator	HP3336B	s/n 2127A00559
Modulation analyzer	HP8901A	s/n 2545A04102
Selective level meter	HP3586B	s/n 1928A01892
Synthesizer/Level generator	HP3336B	s/n 2514A02585

15 FCC RULES AND REGULATIONS PART 2 §2.1047 (B): MODULATION CHARACTERISTICS - MODULATION LIMITING

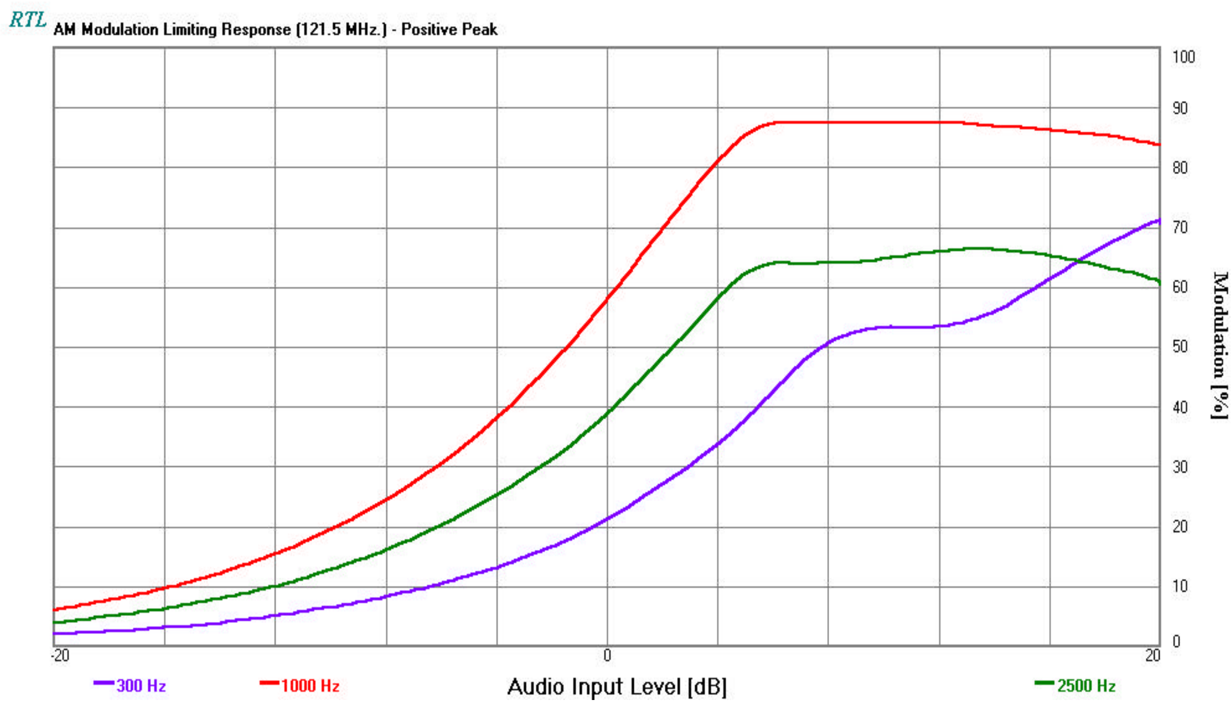
15.1 TEST PROCEDURE

ANSI/TIA/EIA-603-1992, section 2.2.3

The transmitter is adjusted for full rated modulation. The audio input level is adjusted for 50% of modulation at 1000Hz. Using this level as a reference (0dB) the audio input level is varied from the reference to a level +20 dB above it and –20 dB under it, for modulation frequencies of 300Hz, 1,000Hz, and 2,500Hz. The modulation obtained as a function of the input level is recorded.
Both Positive and Negative Peak deviations were recorded.

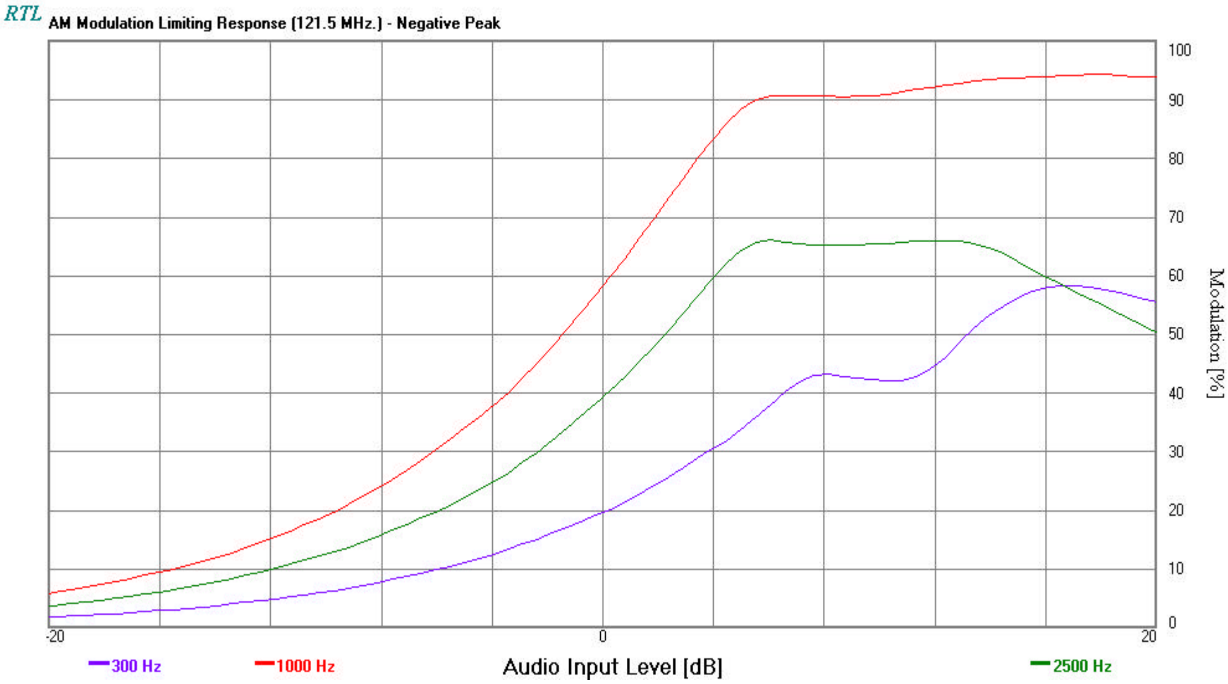
15.2 TEST DATA

Positive Peak



15.3 TEST DATA

Negative Peak



15.4 TEST EQUIPMENT

Audio generator	HP3336B	s/n 2127A00559
Modulation analyzer	HP8901A	s/n 2545A04102
Selective level meter	HP3586B	s/n 1928A01892
Synthesizer/Level generator	HP3336B	s/n 2514A02585

16 FCC RULES AND REGULATIONS PART 2.202: NECESSARY BANDWIDTH AND EMISSION BANDWIDTH

Type of Emission: AE3

Necessary Bandwidth and Emission Bandwidth:

25kHz (WB channel): Bn = 6K00A3E

Calculation:
Max modulation (M) in kHz 0.607
Max deviation (D) in kHz: 2.4 (WB)
Constant factor (K) : 1
Bn = 2xM+2xDK = 6

17 RECEIVER DATA

Temperature: 32°F					Humidity: 64%				
Emission Frequency (MHz)	**Test Detector**	**Antenna Polarity (H/V)**	**Turntable Azimuth (deg)**	**Antenna Height (m)**	**Analyzer Reading (dBuV/m)**	**Site Correction Factor (dB/m)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**
156.900	Qp	V	0	1.0	28.8	-17.1	11.7	43.5	-31.8
242.999	Qp	V	0	1.0	50.3	-15.5	34.8	46.0	-11.2
313.800	Qp	V	0	1.0	37.6	-13.1	24.5	46.0	-21.5
470.700	Qp	V	90	1.0	33.8	-8.2	25.6	46.0	-20.4
627.600	Qp	V	50	1.0	24.2	-5.3	18.9	46.0	-27.1
784.500	Qp	V	40	1.0	24.6	-4.3	20.3	46.0	-25.7
941.400	Qp	V	90	1.0	25.0	-2.9	22.1	46.0	-23.9

18 PRODUCT DESCRIPTION

19 PARTS LIST

Please see the following page

20 LABEL INFORMATION

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21 BLOCK DIAGRAM

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22 SCHEMATICS

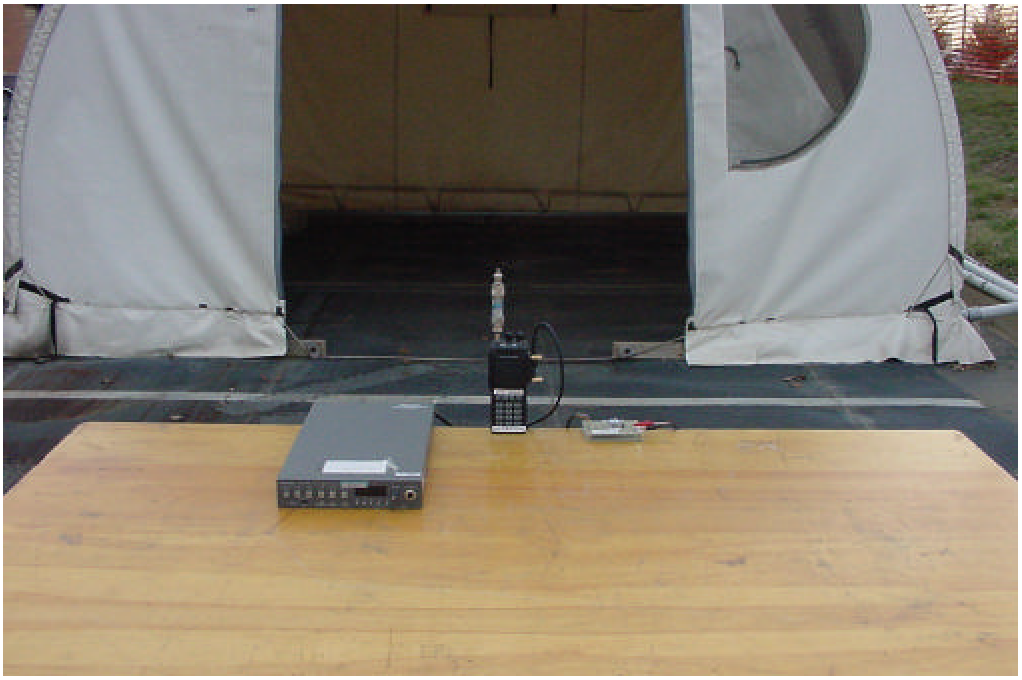
Please see the following page.

23 OPERATOR'S MANUAL

Please see the following page

24 TEST PHOTOGRAPHS

Radiated Back View



Radiated Front View

25 INTERNAL PHOTOGRAPHS

26 EXTERNAL PHOTOGRAPHS

27 SAR REPORT

Please see the following page