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TEST REPORT

For

APPLICATION of CERTIFICATION

For

TEKK Incorporated
226 NW Parkway
Riverside, MO 64150

Mr. David Stubbs
Vice President

MODEL: XT-100
Land Mobile Radio Services (LMRS)
VHF TRANSCEIVER
FREQUENCY: 150-163 MHz

FCC ID: GOX XT100

Test Date: October 6, 2004

Certifying Engineer: *Scot D. Rogers*

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FORWARD:

In accordance with the Federal Communications Code of Federal Regulations, dated October 1, 2003, Part 2 Subpart J, Paragraphs 2.907, 2.911, 2.913, 2.915, 2.925, 2.926, 2.1031 through 2.1057, applicable paragraphs of Parts 15, and 90, the following is submitted:

List of Test Equipment

A Hewlett Packard 8591EM and or 8562A Spectrum Analyzer was used as the measuring device for the emissions testing. The analyzer settings used are described in the following table. Refer to the Appendix for a complete list of Test Equipment.

HP 8591EM SPECTRUM ANALYZER SETTINGS		
CONDUCTED EMISSIONS:		
RBW	AVG. BW	DETECTOR FUNCTION
9 kHz	30 kHz	Peak/Quasi Peak
RADIATED EMISSIONS (30 - 1000 MHz):		
RBW	AVG. BW	DETECTOR FUNCTION
120 kHz	300 kHz	Peak/Quasi Peak
HP 8562A SPECTRUM ANALYZER SETTINGS		
RADIATED EMISSIONS (1 - 40 GHz):		
RBW	AVG. BW	DETECTOR FUNCTION
1 MHz	1 MHz	Peak/Average
ANTENNA CONDUCTED EMISSIONS:		
RBW	AVG. BW	DETECTOR FUNCTION
120 kHz	300 kHz	Peak

2.1033(c) Application for Certification

(1) Manufacturer: TEKK Incorporated
226 NW Parkway
RIVERSIDE, MO 64150

(2) Identification: Model: XT-100
S/N: Set 2
FCC I.D.: GOX XT100

(3) Instruction Book:

Refer to exhibit for Draft Instruction Manual.

(4) Emission Type: 15k0F3E wideband and 10k0F3E Narrow band

(5) Frequency Range: 150 to 163 MHz

(6) Operating Power Level: 2.0 Watts

(7) Max P_o: 2.0 Watts

(8) Power into final amplifier:

7.20 Watts (7.2 V @ 1A)

(9) Tune Up Procedure for Output Power:

Refer to Exhibit for Transceiver Alignment Procedure.

(10) Circuit Diagrams; description of circuits, frequency stability, spurious suppression, and power and modulation limiting:
Refer to Exhibit for Circuit Diagrams.
Refer to Exhibit for Theory of Operation.

(11) Photograph or drawing of the Identification Plate:

Refer to Exhibit for Photograph or Drawing.

(12) Drawings of Construction and Layout:

Refer to Exhibit for Drawings of Components Layout and Chassis Drawings.

(13) Detail Description of Digital Modulation:

Not applicable.

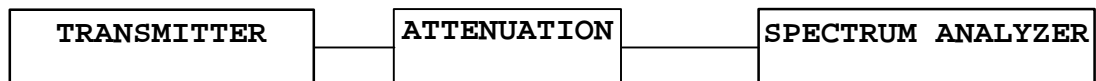
2.1046 RF Power Output

Measurements Required:

Measurements shall be made to establish the radio frequency power delivered by the transmitter into the standard output termination. The power output shall be monitored and recorded and no adjustment shall be made to the transmitter after the test has begun, except as noted below:

If the power output is adjustable, measurements shall be made for the highest and lowest power levels.

Test Arrangement:



The radio frequency power output was measured at the antenna terminal by replacing the antenna with a spectrum analyzer and appropriate attenuation. The spectrum analyzer had an impedance of 50W to match the impedance of the standard antenna. A HP 8591EM Spectrum Analyzer was used to measure the radio frequency power at the antenna port. The data was taken in dBm and converted to watts as shown in the following Table. Data was taken per Paragraph 2.1046(a) and applicable parts of Parts 2, and 90.

Power in dBm was converted to power in Watts using the following formula.

$$\begin{aligned}\text{Power (dBm)} &= \text{power in dB above 1 milliwatt} \\ \text{Milliwatts} &= 10^{(\text{Power dBm}/10)} \\ \text{Watts} &= \text{Power in milliwatts times } 0.001 \\ 32.55 \text{ dBm} &= 10^{(32.55/10)} \\ &= 1,798.9 \text{ mW} \\ &= 1.8 \text{ Watts}\end{aligned}$$

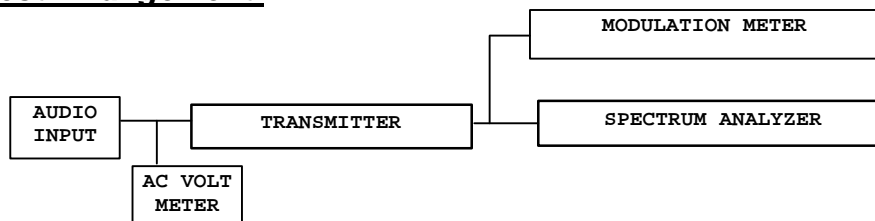
Results:

FREQUENCY	P _{dBm}	P _{mw}	P _w
150.0125	32.55	1,798.9	1.8
157.0125	33.00	1,995.3	2.0
162.9875	33.00	1,995.3	2.0

The specifications of Paragraph 2.1046(a) and applicable Parts of 2, and 90 are met. There are no deviations to the specifications.

2.1047 Modulation Characteristics**Measurements Required:**

A curve or equivalent data, which shows that the equipment will meet the modulation requirements of the rules, under which the equipment is to be licensed, shall be submitted.

Test Arrangement:

The radio frequency output was coupled to a HP Spectrum Analyzer and a modulation meter. The spectrum analyzer was used to observe the radio frequency spectrum with the transmitter operating in its various modes. The modulation meter was used to measure the percent modulation or frequency deviation.

Results:

Figure 1 displays the graph made showing the audio frequency response of the modulator. The frequency generator was set

to 1 kHz and injected into the audio input port of the EUT.

The input voltage amplitude was adjusted to obtain 50% modulation at 1000 Hz. This level was then taken as the 0-dB reference. The frequency of the generator was then varied and the voltage input level recorded while holding the output modulation level constant.

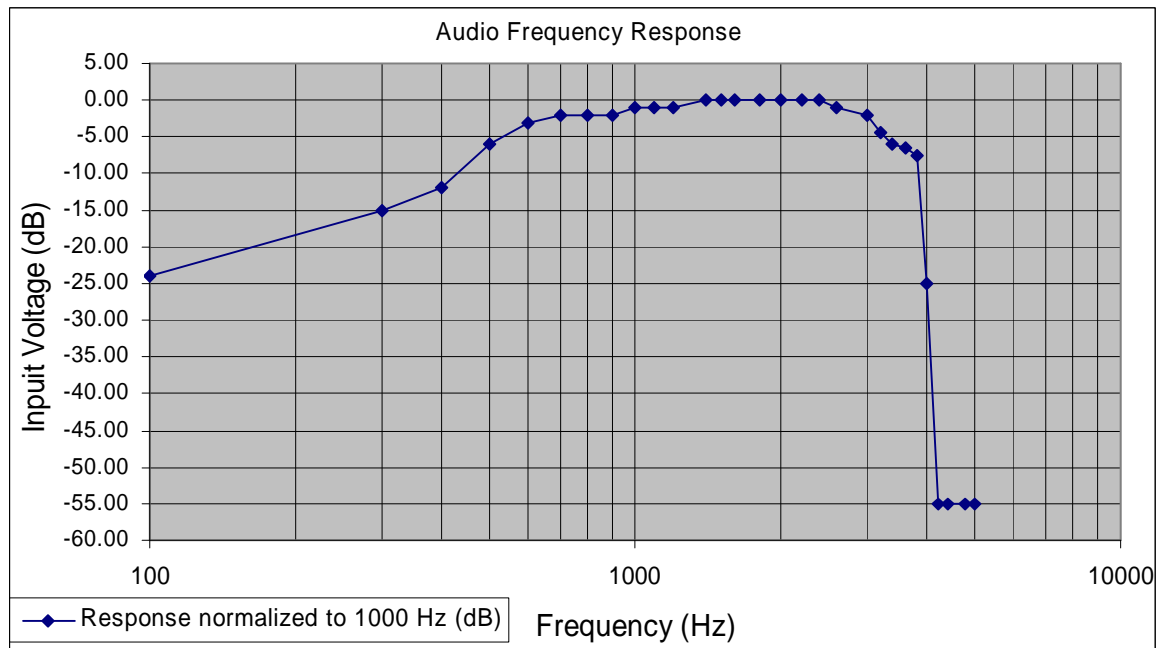
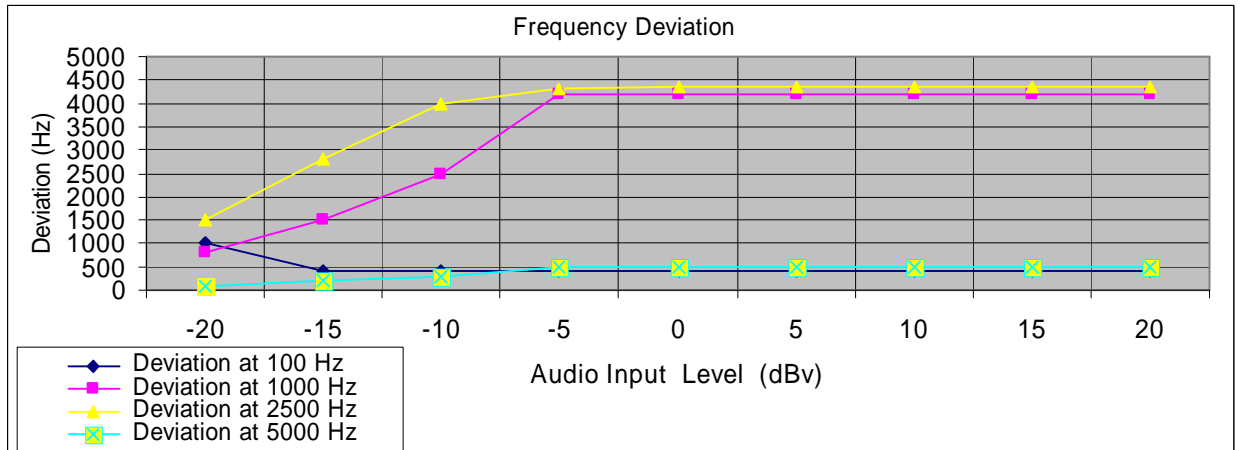


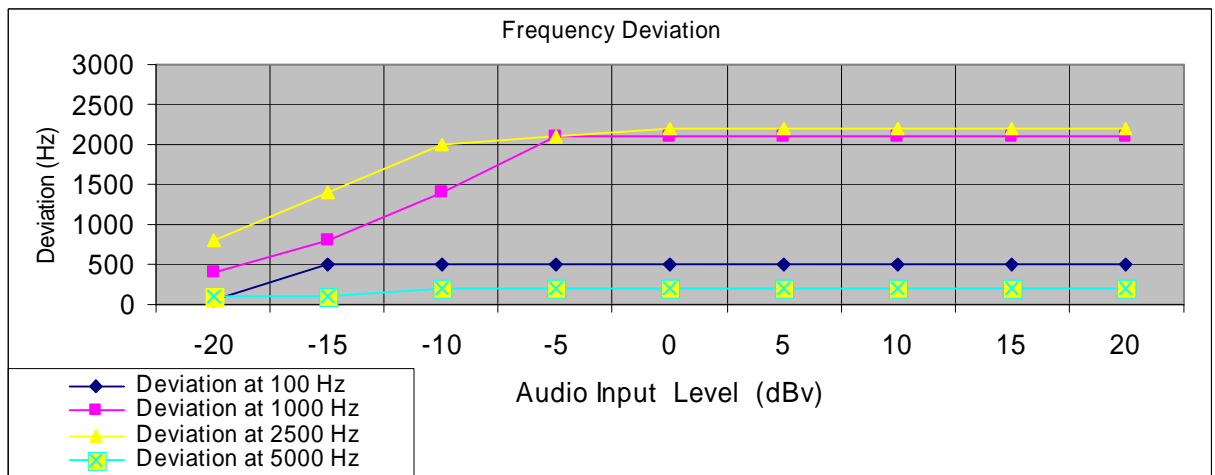
Figure one Audio Frequency Response Characteristics.

Audio Frequency (Hz)	Response normalized to 1000 Hz (dB)	Audio Frequency (Hz)	Response normalized to 1000 Hz (dB)
100	-24.00	1600	0.00
300	-15.00	1800	0.00
400	-12.00	2000	0.00
500	-6.00	2200	0.00
600	-3.00	2400	0.00
700	-2.00	2600	-1.00
800	-2.00	3000	-2.00
900	-2.00	3200	-4.50
1000	-1.00	3400	-6.00
1100	-1.00	3600	-6.50
1200	-1.00	3800	-7.50
1400	0.00	4000	-25.00
1500	0.00	4200	-55.00

Figure 2 shows the deviation response for each of four frequencies while the input voltage was varied. The frequency is held constant and the frequency deviation is read from the deviation meter.



Wideband Operation



Narrowband Operation

Figure two Deviation Characteristics.

Figure 3 shows the frequency response of the audio low pass filter.

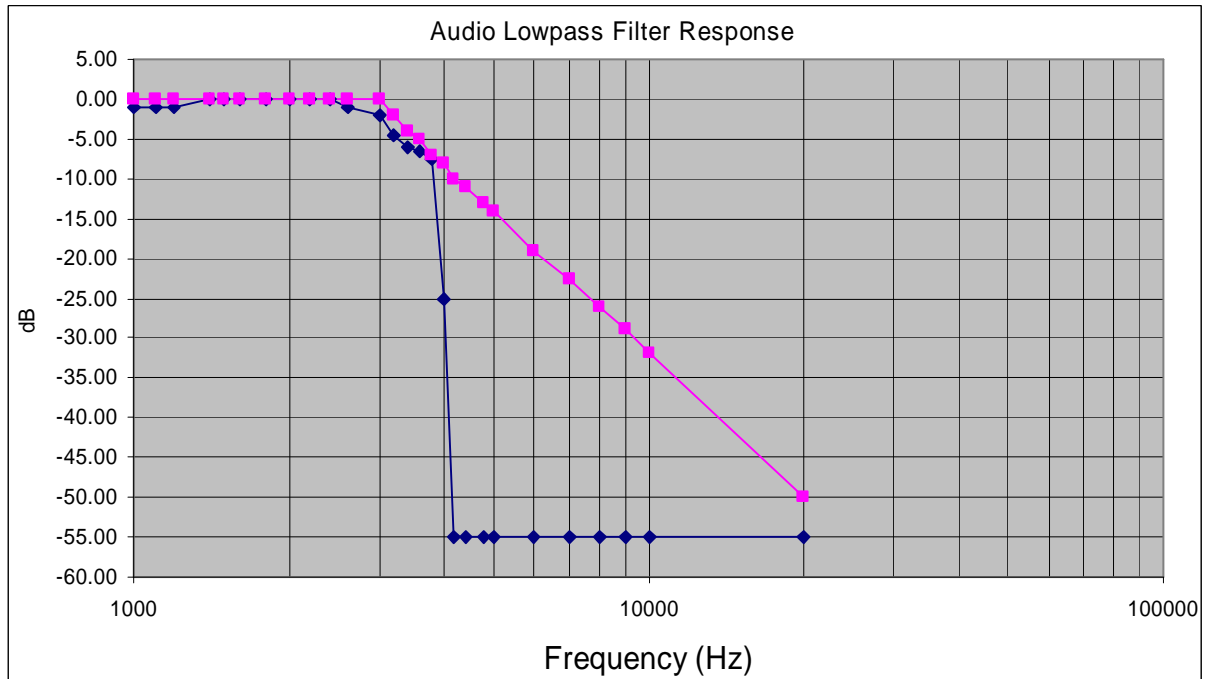


Figure three Frequency Response of Audio low Pass Filter.

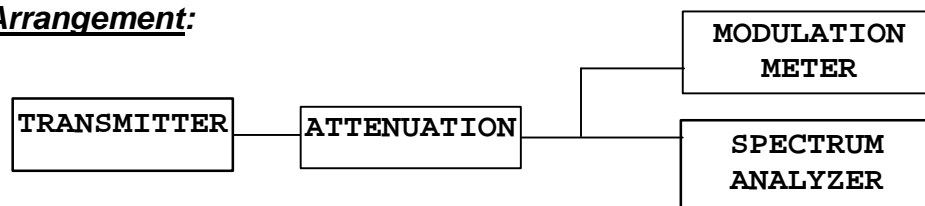
The specifications of Paragraph 2.1047 and applicable parts of 2, and 90 are met.

2.1049 Occupied Bandwidth

Measurements Required:

The occupied bandwidth, that is the frequency bandwidth such that below its lower and above its upper frequency limits, the mean powers radiated are equal to 0.5 percent of the total mean power radiated by a given emission.

Test Arrangement:



Results:

f_c (MHz)	Band	O.B. (kHz)
157.0125	Wideband Audio	14.81
157.0125	Wideband with DCS	14.56
157.0125	Wideband with CTCSS	13.56
157.0125	Narrowband Audio	9.88
157.0125	Narrowband with DCS	9.81
157.0125	Narrowband with CTCSS	9.56

A spectrum analyzer was used to observe the radio frequency spectrum with the transmitter operating in a normal mode, modulated by a frequency of 2500 Hz at a level 16 dB above 50% modulation. The power ratio in dB representing 99.5% of the total mean power was recorded from the spectrum analyzer. Refer to figures four through nine for plots showing the occupied bandwidth of 99.5% power.

The necessary bandwidth calculations for this unit are as follows:

Wideband operation

$$B_N = 2M + 2Dk \text{ (k=1), } M=2500, \text{ and } D=5000$$

$$B_N = 2(2500) + 2(5000)(1)$$

$$B_N = 15,000$$

Then B_N equates to 15k0 for wideband operation.

Narrowband operation

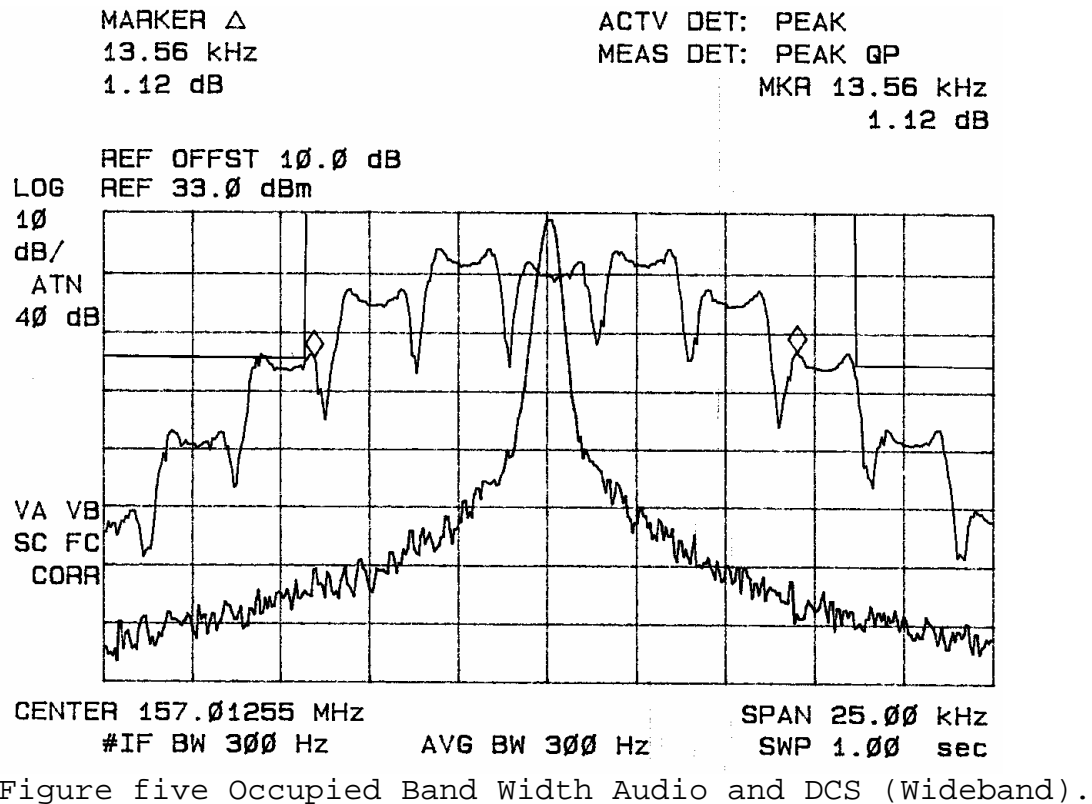
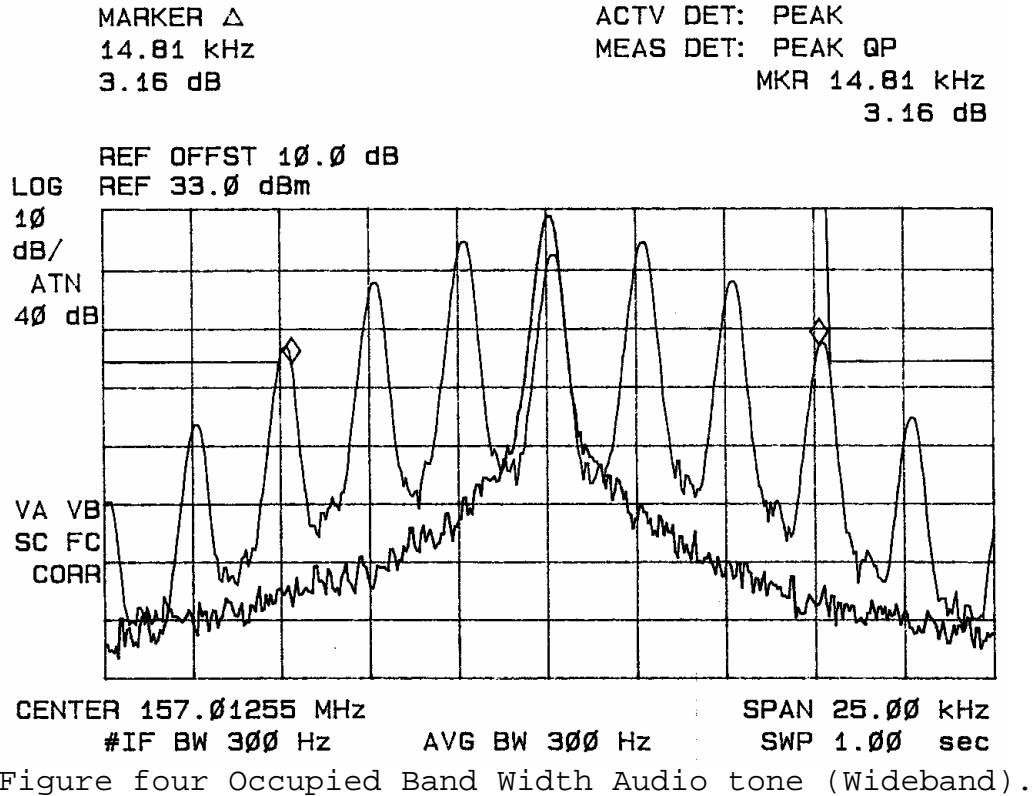
$$B_N = 2M + 2Dk \text{ (k=1), } M=2500, \text{ and } D=2500$$

$$B_N = 2(2500) + 2(2500)(1)$$

$$B_N = 10,000$$

Then B_N equates to 10k0 for narrowband operation.

Requirements of 2.1049(c) (1) and applicable paragraphs of Parts 2, and 90 are met. There are no deviations to the specifications.



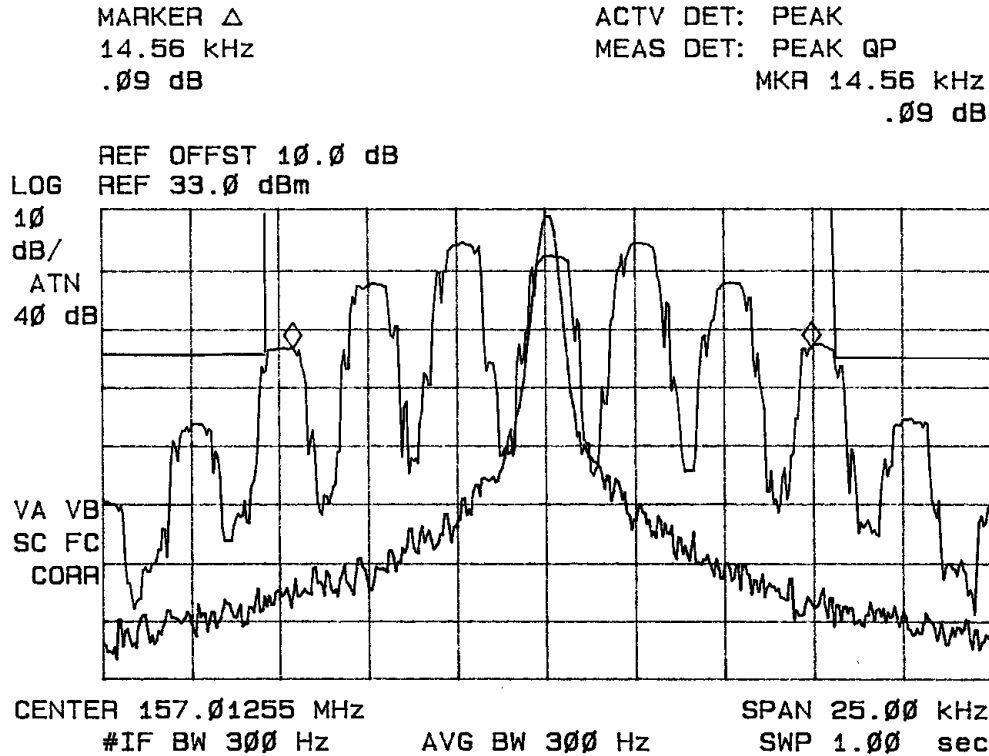


Figure six Occupied Band Width Audio tone (Narrowband).

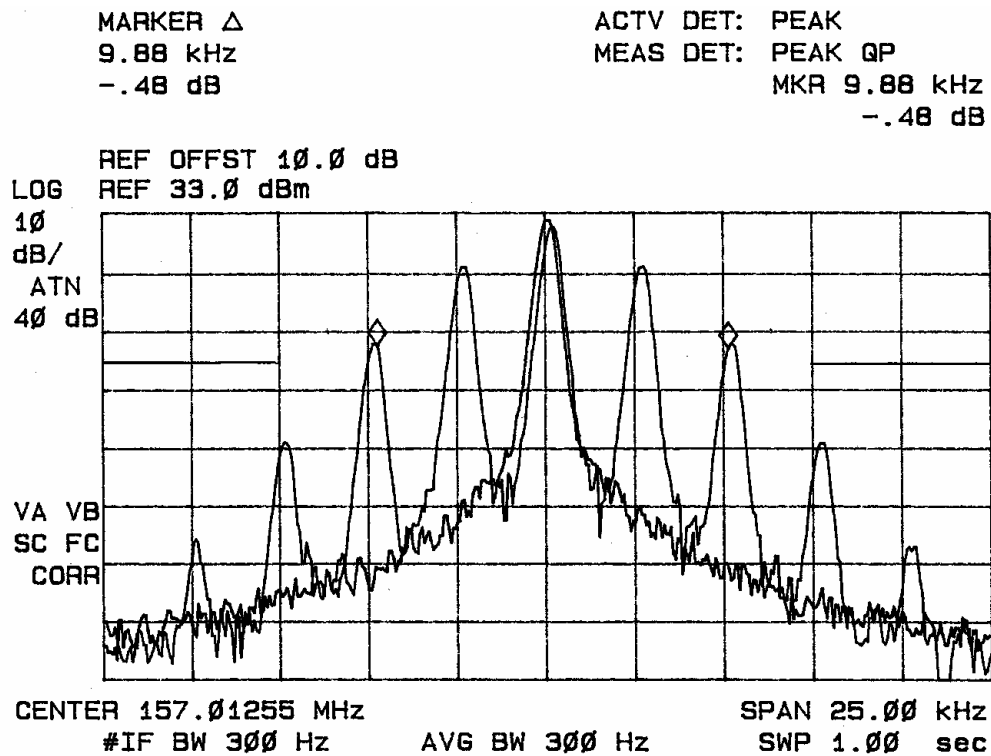


Figure seven Occupied Band Width Audio and CTCSS (Narrowband).

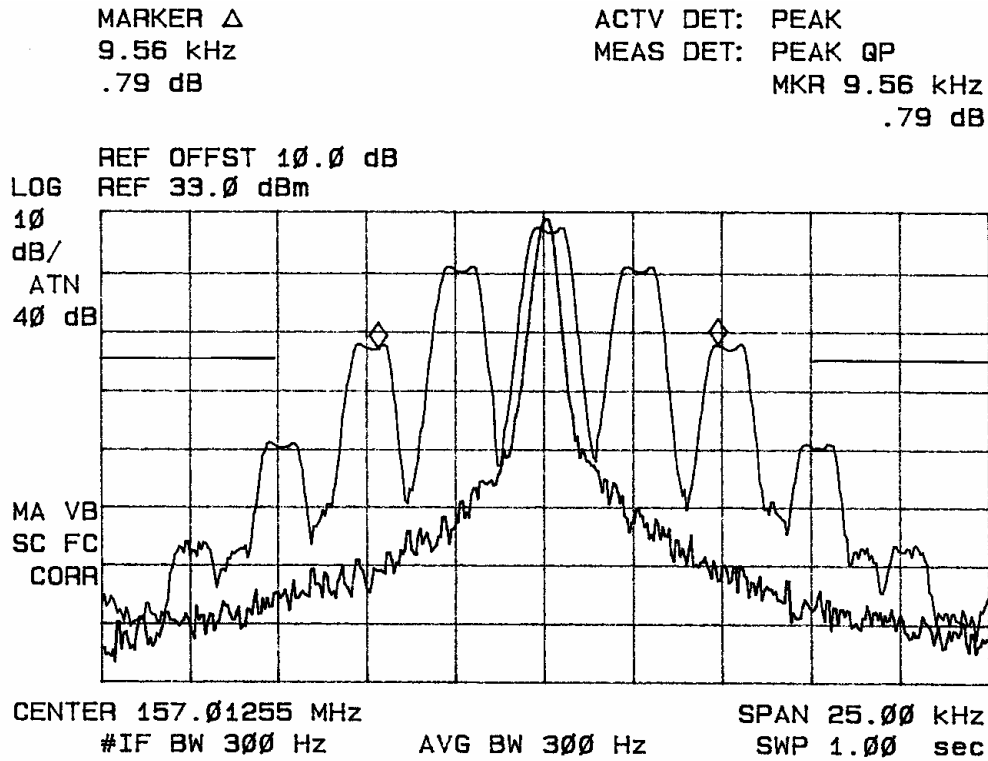


Figure eight Occupied Band Width Audio and CTCSS (Narrowband).

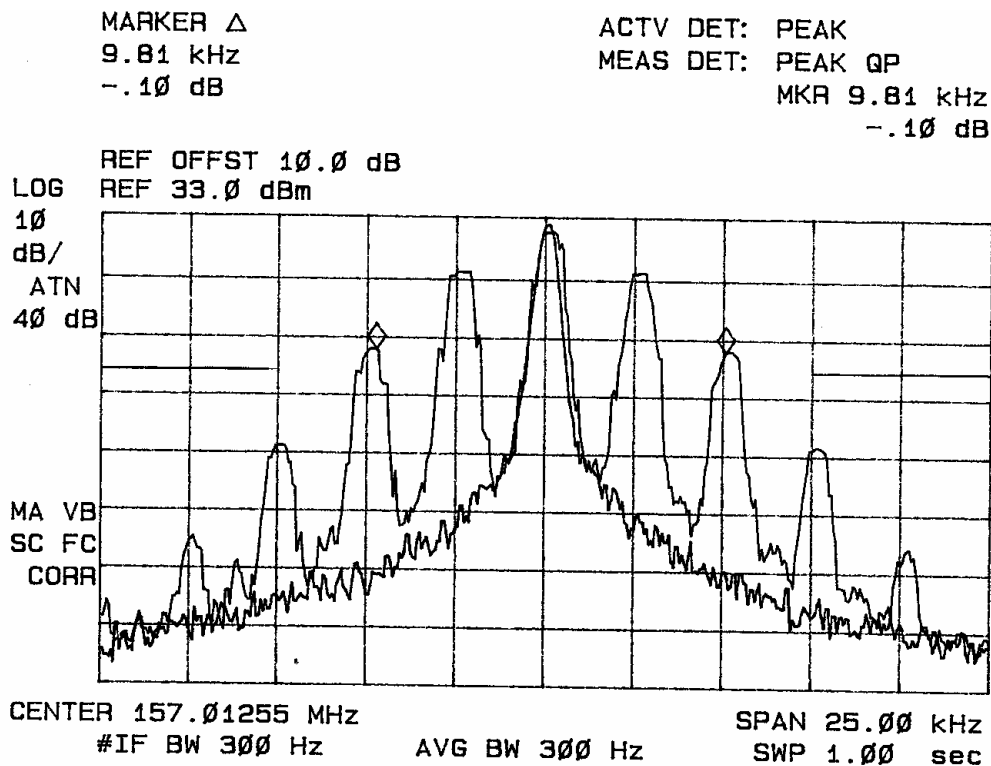


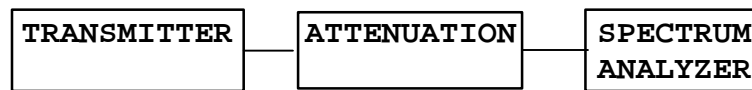
Figure nine Occupied Band Width Audio and CTCSS (Narrowband).

2.1051 Spurious Emissions at Antenna Terminals

Measurements Required:

The radio frequency voltage or power generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.

Test Arrangement:



The radio frequency output was coupled to a HP 8562 Spectrum Analyzer. The spectrum analyzer was used to observe the radio frequency spectrum with the transmitter operated in a normal mode. The frequency spectrum from 0 MHz to 2.9 GHz was observed and plots produced of the frequency spectrum. Figures 10 and 11 represent worst case data for the XT-100.

Data was taken per 2.1051, 2.1057, and applicable paragraphs of Parts 2, and 90.

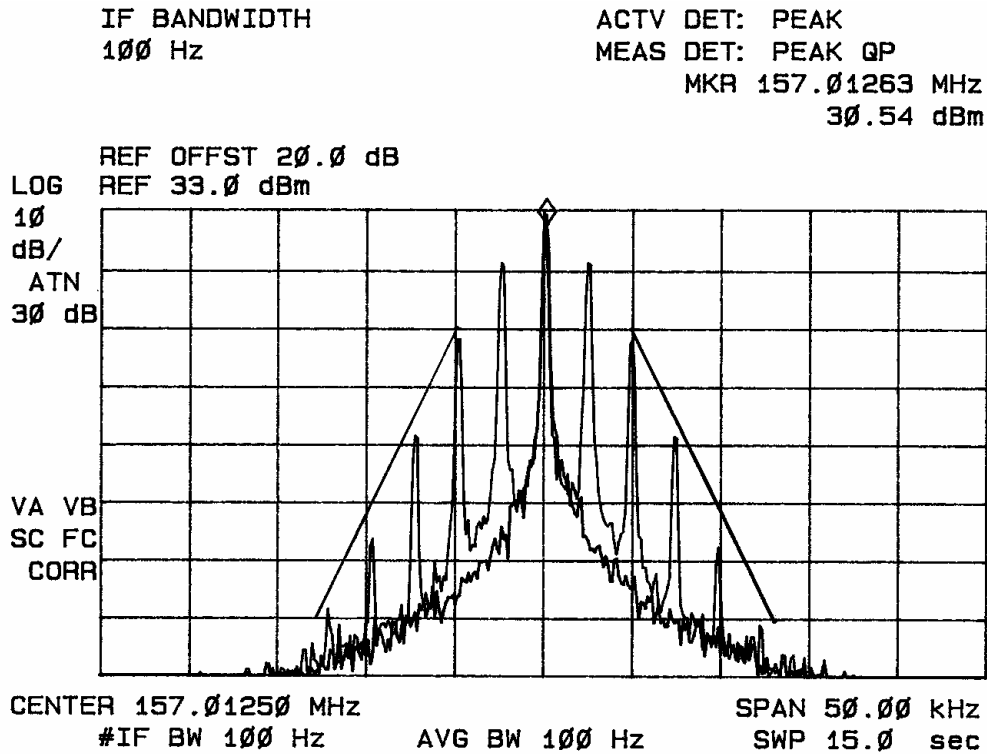


Figure ten Emissions at Antenna Terminal.

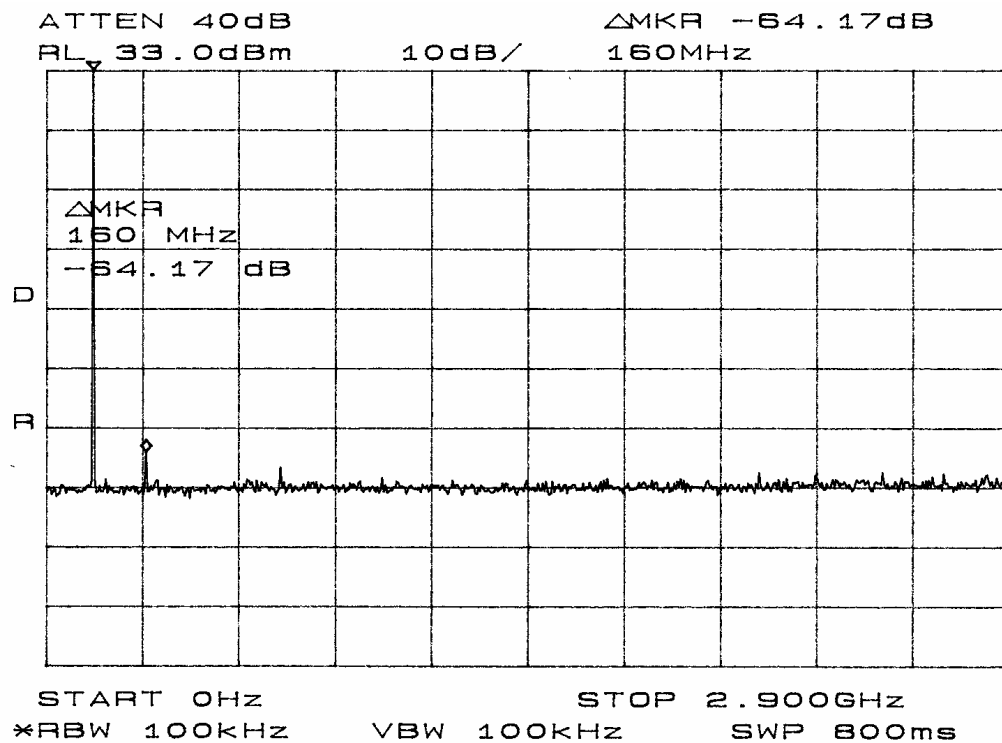


Figure eleven Emissions at Antenna Terminal.

Results:

The output of the unit was coupled to a HP Spectrum Analyzer and the frequency emissions were measured. Data was taken as per 2.1051 and applicable paragraphs of Parts 2, and 90.

Specifications of Paragraphs 2.1051, 2.1057 and applicable paragraphs of parts of 2, and 90 are met. There are no deviations to the specifications.

FCC Limit:

$$\begin{aligned} 2.0 \text{ Watt} &= 50 + 10 \text{ LOG}(P_o) \\ &= 50 + 10 \text{ LOG}(2.0) \\ &= 53.0 \end{aligned}$$

Antenna Spurious Data

CHANNEL MHz	SPURIOUS FREQ. (MHz)	LEVEL BELOW CARRIER (dB)
150.0125	300.025	65.7
	450.038	73.6
	600.050	78.4
	750.063	79.6
	900.075	82.6
	1050.088	82.6
157.0125	314.025	63.0
	471.038	72.8
	628.050	80.8
	785.063	80.4
	942.075	83.0
	1099.088	83.0
162.9875	325.975	62.5
	488.963	74.6
	651.950	81.3
	814.938	81.0
	977.925	83.0
	1140.913	83.0

2.1053 Field Strength of Spurious Radiation

Measurements Required:

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation.

Test Arrangement:



The transmitter was placed on a wooden turntable 0.8 meters above the ground plane and at a distance of 3 meters from the FSM antenna. With the EUT radiating into the standard antenna, the receiving antenna was raised and lowered from 1m to 4m to obtain the maximum reading of spurious radiation from the EUT on the spectrum analyzer. The turntable was rotated through 360 degrees to locate the position registering the highest amplitude of emission. The frequency spectrum was then searched for spurious emissions generated from the transmitter. The amplitude of each spurious emission was maximized by raising and lowering the FSM antenna, and rotating the turntable before final data was recorded. A biconilog antenna was used for frequency measurements of 30 to 1000 MHz. A log periodic antenna was used for frequencies of 1000 MHz to 5 GHz and pyramidal horn antennas were used for frequencies of 5 GHz to 40 GHz. Emission levels were measured and recorded from the spectrum analyzer in dBm. The transmitter was then removed and replaced with a substitution antenna and signal generator. The signal from the generator was then adjusted such that the amplitude received was the same as that previously recorded for each frequency. This step was repeated for both horizontal and vertical polarizations. The power in

dBm required to produce the desired signal level was then recorded from the signal generator. The power in dBm was then calculated by reducing the previous readings by the power loss in the cable and further corrected for the gain in the substitution antenna. Data was taken at the ROGERS LABS, INC. 3 meters open area test site (OATS). A description of the test facility is on file with the FCC, Reference 90910, and dated August 15, 2003. The testing procedures used conform to the procedures stated in the TIA/EIA-603 document.

The limits for the spurious radiated emissions are defined by the following equation.

Limit = Amplitude of the spurious emission must be attenuated by this amount below the level of the fundamental. On any frequency removed from the assigned frequency by more than 250% of the authorized bandwidth: at least $50 + 10 \log(P_o)$ dB.

Limit for 2.0 watt transmitter.
Attenuation = $50 + 10 \log_{10}(P_w)$
 = $50 + 10 \log_{10}(2.0)$
 = 53.0 dB

Results:

The EUT was connected to a 50 ohm load at the antenna and set to transmit at the desired frequency. The amplitude of each spurious emission was then maximized and recorded. Then the radiated spurious emission in dB is calculated from the following equation:

Radiated spurious emission (dB) = RSE
Radiated spurious emission (dB) =
 $10 \log_{10}[\text{Tx power(W)}/0.001]$ - signal level required to reproduce example:
 $RSE = 10 \log_{10}[2.0/0.001] - (-24.3) = 57.3 \text{ dBc}$

Channel frequency 150.0125

Frequency of Emission (MHz)	Amplitude of Spurious emission dBm	Signal Level to dipole required to reproduce dBm	Emission level below carrier dBc	Limit dBc
300.025	-58.7	-24.3	57.3	53.0
450.04	-57.0	-23.5	56.5	53.0
600.05	-70.0	-32.3	65.3	53.0
750.06	-74.0	-36.8	69.8	53.0
900.08	-78.9	-40.3	73.3	53.0

Channel frequency 157.0125 MHz

Frequency of Emission (MHz)	Amplitude of Spurious emission dBm	Signal Level to dipole required to reproduce dBm	Emission level below carrier dBc	Limit dBc
314.025	-56.7	-22.3	55.3	53.0
471.04	-61.0	-26.8	59.8	53.0
628.05	-71.4	-33.3	66.3	53.0
785.06	-76.4	-38.2	71.2	53.0
942.08	-73.9	-35.4	68.4	53.0

Channel frequency 162.9875 MHz

Frequency of Emission (MHz)	Amplitude of Spurious emission dBm	Signal Level to dipole required to reproduce dBm	Emission level below carrier dBc	Limit dBc
325.98	-57.0	-22.5	55.5	53.0
488.96	-66.0	-32.6	65.6	53.0
651.95	-75.2	-36.2	69.2	53.0
814.94	-79.0	-40.5	73.5	53.0
977.93	-71.0	-33.8	66.8	53.0

All other observed spurious emissions where 20 db or more below the limit. Specifications of Paragraph 2.1053, 2.1057, applicable paragraphs of parts 2, and 90 are met. There are no deviations to the specifications.

2.1055 Frequency Stability

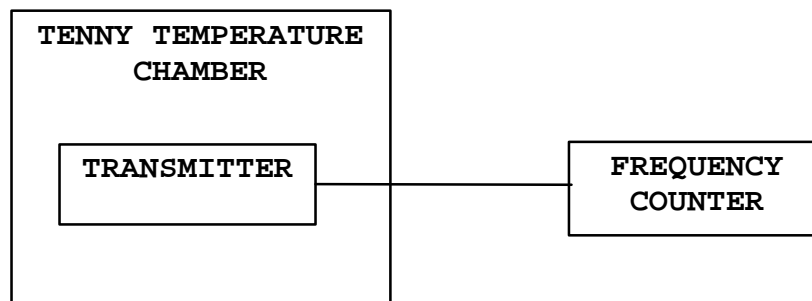
Measurements Required:

The frequency stability shall be measured with variations of ambient temperature from -30° to +50° centigrade.

Measurements shall be made at the extremes of the temperature range and at intervals of not more than 10° centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. In addition to temperature stability the frequency stability shall be measured with variation of primary supply voltage as follows:

- (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
- (2) For hand carried, batteries powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.
- (3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

Test Arrangement:



The measurement procedure outlined below shall be followed:

Steps 1: The transmitter shall be installed in an environmental test chamber whose temperature is controllable. Provision shall be made to measure the frequency of the transmitter.

Step 2: With the transmitter inoperative (power switched "OFF"), the temperature of the test chamber shall be adjusted to +25°C. After a temperature stabilization period of one hour at +25°C, the transmitter shall be switched "ON" with standard test voltage applied.

Step 3: The carrier shall be keyed "ON", and the transmitter shall be operated unmodulated at full radio frequency power output at the duty cycle, for which it is rated, for duration of at least 5 minutes. The radio frequency carrier frequency shall be monitored and measurements shall be recorded.

Step 4: The test procedures outlined in Steps 2 and 3, shall be repeated after stabilizing the transmitter at the environmental temperatures specified, -30°C to 50°C in 10 degree increments.

The frequency stability was measured with variations in the power supply voltage from 85 to 115 percent of the nominal value. A BK Precision 1670A DC Power Supply was used to vary the dc voltage for the power input from 6.1 Vdc to 8.3 Vdc. The frequency was measured and the variation in parts per million was calculated. Data was taken per Paragraphs 2.1055 and applicable paragraphs of parts 2, and 90.

Results:

FREQ.	FREQUENCY STABILITY VS TEMPERATURE IN PARTS PER MILLION (PPM)								
(MHz)	Temperature in °C								
150.0125	-30	-20	-10	0	+10	+20	+30	+40	+50
D (Hz)	670.0	400.0	-170.0	-440.0	-390.0	0.0	-200.0	160.0	220.0
Ppm	4.47	2.67	-1.13	-2.93	-2.60	0.0	-1.33	1.07	1.47
%	0.0004	0.0003	-0.0001	-0.0003	-0.0003	0.0	-0.0001	0.0001	0.0001

FREQUENCY IN MHz	FREQUENCY STABILITY VS VOLTAGE VARIATION 7.2 volts nominal; RESULTS IN PPM INPUT VOLTAGE		
	6.1 V _{dc}	7.2 V _{dc}	8.3 V _{dc}
	150.0125	0.0	0.0

FREQUENCY IN MHz	FREQUENCY STABILITY VS VOLTAGE VARIATION 7.2 volts nominal; RESULTS IN PPM BATTERY ENDPOINT VOLTAGE 5.7 V _{dc}	
	150.0125	0.0

Specifications of Paragraphs 2.1055 and applicable paragraphs of parts 2, and 90 are met. There are no deviations to the specifications.

Transient Frequency Behavior, Per 90.214

REQUIREMENTS:

When a transmitter is turned on, the radio frequency may take some time to stabilize. During this initial period, the frequency error must not exceed the limits specified in 90.214.

Minimum Standard

Transient Behavior for Equipment Designed to Operate on 25 kHz Channels			
Time Intervals	Maximum Frequency Difference (kHz)	Frequency Range	
		138-174 MHz	406.1-470 MHz
t ₁	± 25	5 mS	10 mS
t ₂	± 12.5	20 mS	25 mS
t ₃	± 25	5 mS	10 mS

Transient Behavior for Equipment Designed to Operate on 12.5 kHz Channels			
Time Intervals	Maximum Frequency Difference (kHz)	Frequency Range	
		138-174 MHz	406.1-470 MHz
t ₁	± 12.5	5 mS	10 mS
t ₂	± 6.25	20 mS	25 mS
t ₃	± 12.5	5 mS	10 mS

POWER INPUT:

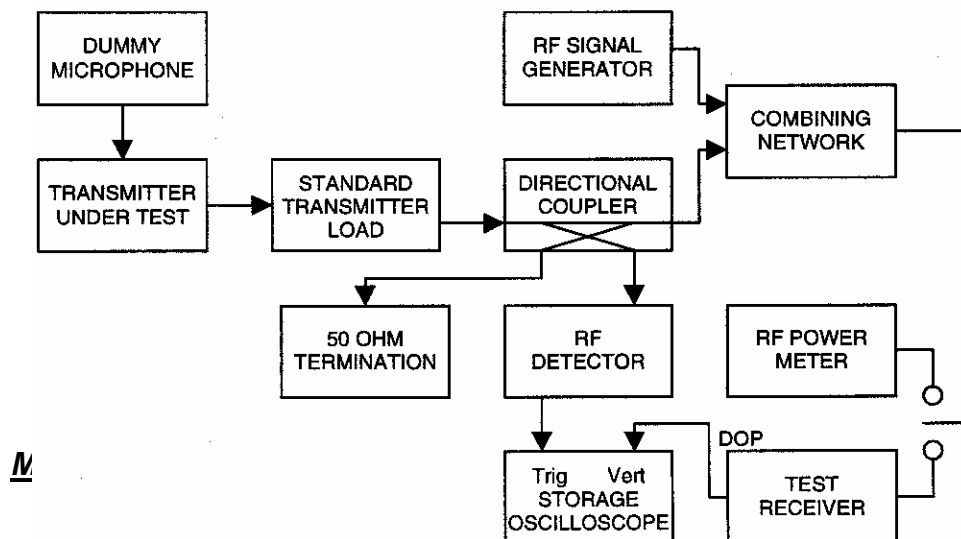
7.2 Vdc Battery

TEST EQUIPMENT:

- Tektronix Digital Storage Oscilloscope, Model 2230, S/N: 2230 B012508.
- Hewlett Packard Spectrum Analyzer, Model 8591EM, S/N: 3628A00871, Frequency Range 9 kHz to 1.8 GHz.
- EMCO 20 dB Attenuator, 50 Ohm IN/OUT.

METHOD OF MEASUREMENTS:

As recommended, the method given in ETA/TIA standard 603, was used. Refer to figures 12 through 15 for plots showing the transient behavior of the transmitter.

Test Arrangement:

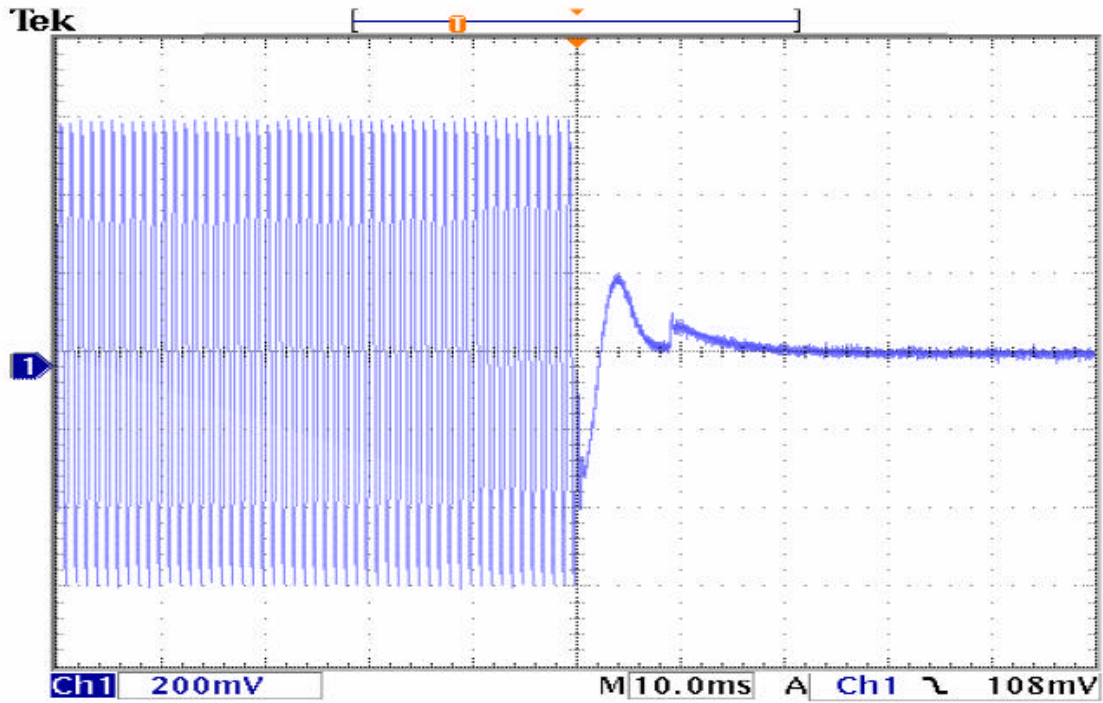


Figure 12 Transient Behavior of Transmitter t1 wide band

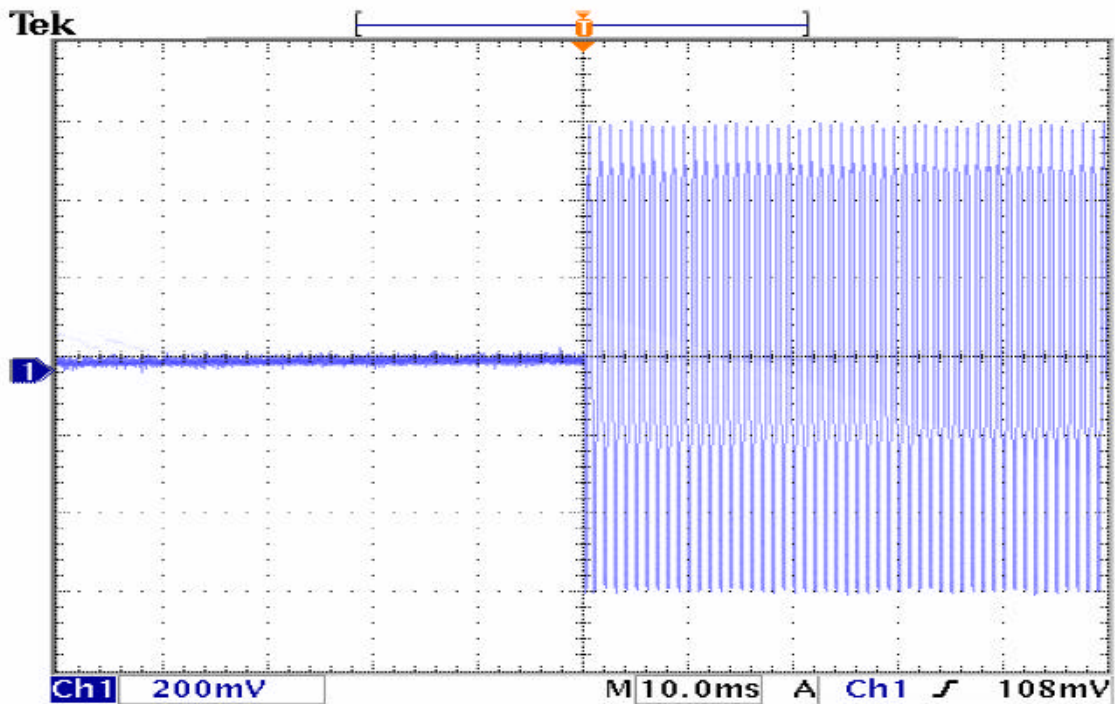


Figure 13 Transient Behavior of Transmitter t3 wide band

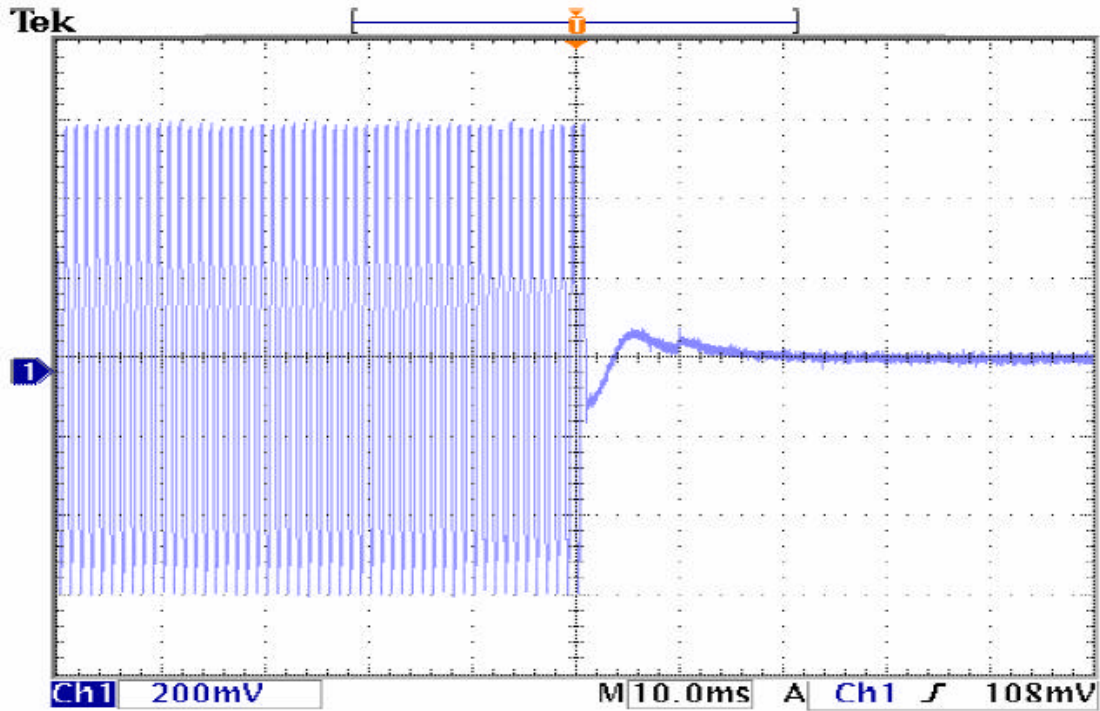


Figure 14 Transient Behavior of Transmitter t3 narrow band

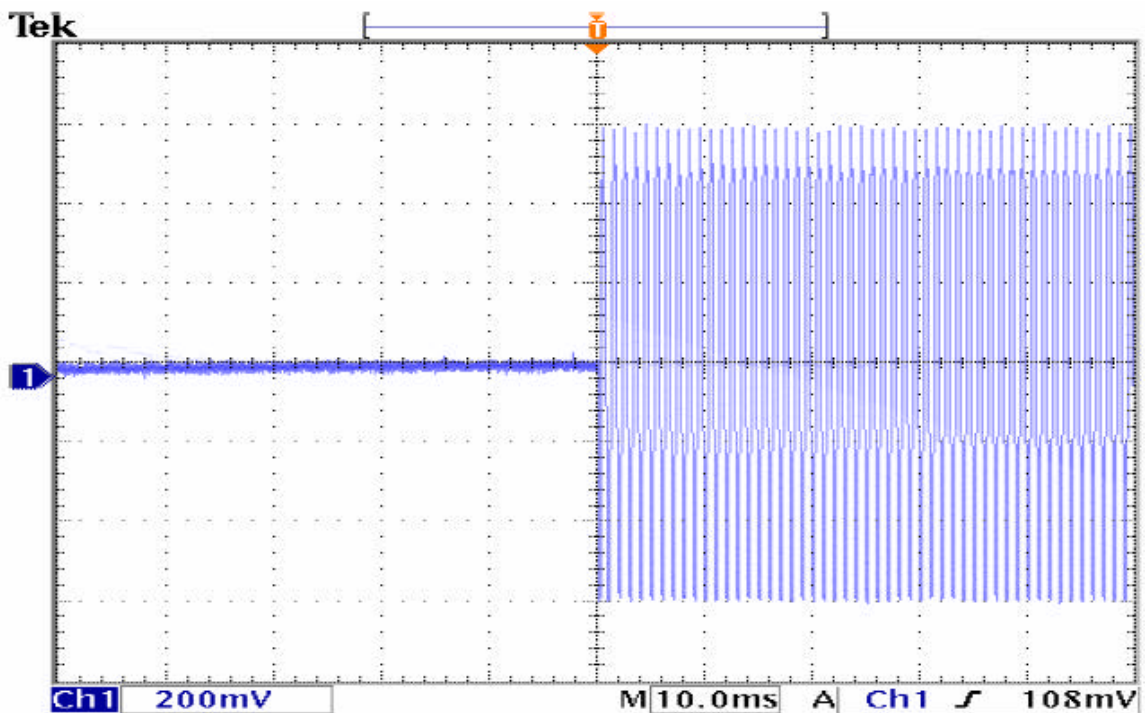


Figure 15 Transient Behavior of Transmitter t3 narrow band

Specifications of Paragraph 90.214 are met. There are no deviations to the specifications.

APPENDIX

Model: XT-100

1. Test Equipment List.
2. Rogers Qualifications.
3. FCC Site Approval Letter.

TEST EQUIPMENT LIST FOR ROGERS LABS, INC.

The test equipment used is maintained in calibration and good operating condition. Use of this calibrated equipment ensures measurements are traceable to national standards.

<u>List of Test Equipment:</u>	<u>Calibration Date:</u>
Scope: Tektronix 2230	2/04
Wattmeter: Bird 43 with Load Bird 8085	2/04
Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140	2/04
H/V Power Supply: Fluke Model: 408B (SN: 573)	2/04
R.F. Generator: HP 606A	2/04
R.F. Generator: HP 8614A	2/04
R.F. Generator: HP 8640B	2/04
Spectrum Analyzer: HP 8562A,	2/04
Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W	
HP Adapters: 11518, 11519, 11520	
Spectrum Analyzer: HP 8591 EM	5/04
Frequency Counter: Leader LDC 825	2/04
Antenna: EMCO Biconilog Model: 3143	5/04
Antenna: EMCO Log Periodic Model: 3147	10/04
Antenna: Antenna Research Biconical Model: BCD 235	10/04
Antenna: EMCO Dipole Set 3121C	2/04
Antenna: C.D. B-101	2/04
Antenna: Solar 9229-1 & 9230-1	2/04
Antenna: EMCO 6509	2/04
Audio Oscillator: H.P. 201CD	2/04
R.F. Power Amp 65W Model: 470-A-1010	2/04
R.F. Power Amp 50W M185- 10-501	2/04
R.F. PreAmp CPPA-102	2/04
LISN 50 μ Hy/50 ohm/0.1 μ f	10/04
LISN Compliance Eng. 240/20	2/04
Peavey Power Amp Model: IPS 801	2/04
Power Amp A.R. Model: 10W 1010M7	2/04
Power Amp EIN Model: A301	2/04
ELGAR Model: 1751	2/04
ELGAR Model: TG 704A-3D	2/04
ESD Test Set 2010i	2/04
Fast Transient Burst Generator Model: EFT/B-101	2/04
Current Probe: Singer CP-105	2/04
Current Probe: Solar 9108-1N	2/04
Field Intensity Meter: EFM-018	2/04
KEYTEK Ecat Surge Generator	2/04
Shielded Room 5 M x 3 M x 3.0 M (101 dB Integrity)	

10/1/2004

QUALIFICATIONS

of

SCOT D. ROGERS, ENGINEER**ROGERS LABS, INC.**

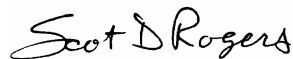
Mr. Rogers has approximately 16 years experience in the field of electronics. Six years working in the automated controls industry and 6 years working with the design, development and testing of radio communications and electronic equipment.

POSITIONS HELD:

Systems Engineer:	A/C Controls Mfg. Co., Inc. 6 Years
Electrical Engineer:	Rogers Consulting Labs, Inc. 5 Years
Electrical Engineer:	Rogers Labs, Inc. Current

EDUCATIONAL BACKGROUND:

- 1) Bachelor of Science Degree in Electrical Engineering from Kansas State University.
- 2) Bachelor of Science Degree in Business Administration Kansas State University.
- 3) Several Specialized Training courses and seminars pertaining to Microprocessors and Software programming.



Scot D. Rogers

October 6, 2004
Date

1/11/2003

FEDERAL COMMUNICATIONS COMMISSION

**Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046**

August 15, 2003

Registration Number: 90910

Rogers Labs, Inc.
4405 West 259th Terrace
Louisburg, KS 66053

Attention: Scot Rogers

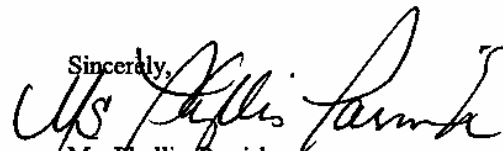
Re: Measurement facility located at Louisburg
3 & 10 meter site
Date of Renewal: August 15, 2003

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website www.fcc.gov under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,



Ms. Phyllis Parrish
Information Technician