

SUBMITTED MEASURED DATA

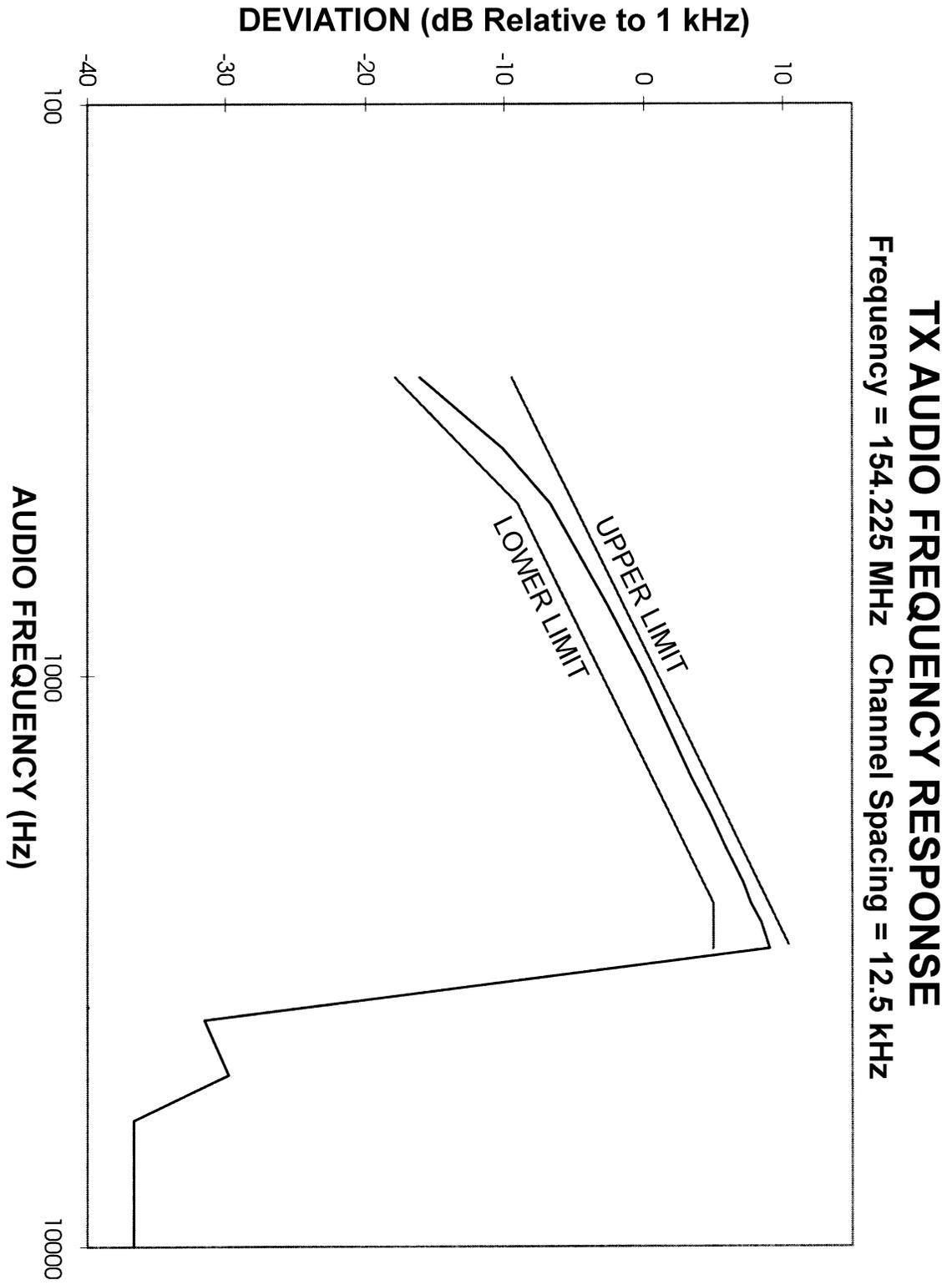
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RF POWER OUTPUT DATA

The RF power output was measured with the indicated voltage applied to and current into the final RF amplifying device.

Measured RF output	6.0 Watts
Nominal DC voltage	7.5 Volts
Nominal DC Current	2.15 Amps
Primary Supply Voltage	7.5 Volts

Measured RF output	1.0 Watt
Nominal DC voltage	7.5 Volts
Nominal DC Current	1.00 Amps
Primary Supply Voltage	7.5 Volts



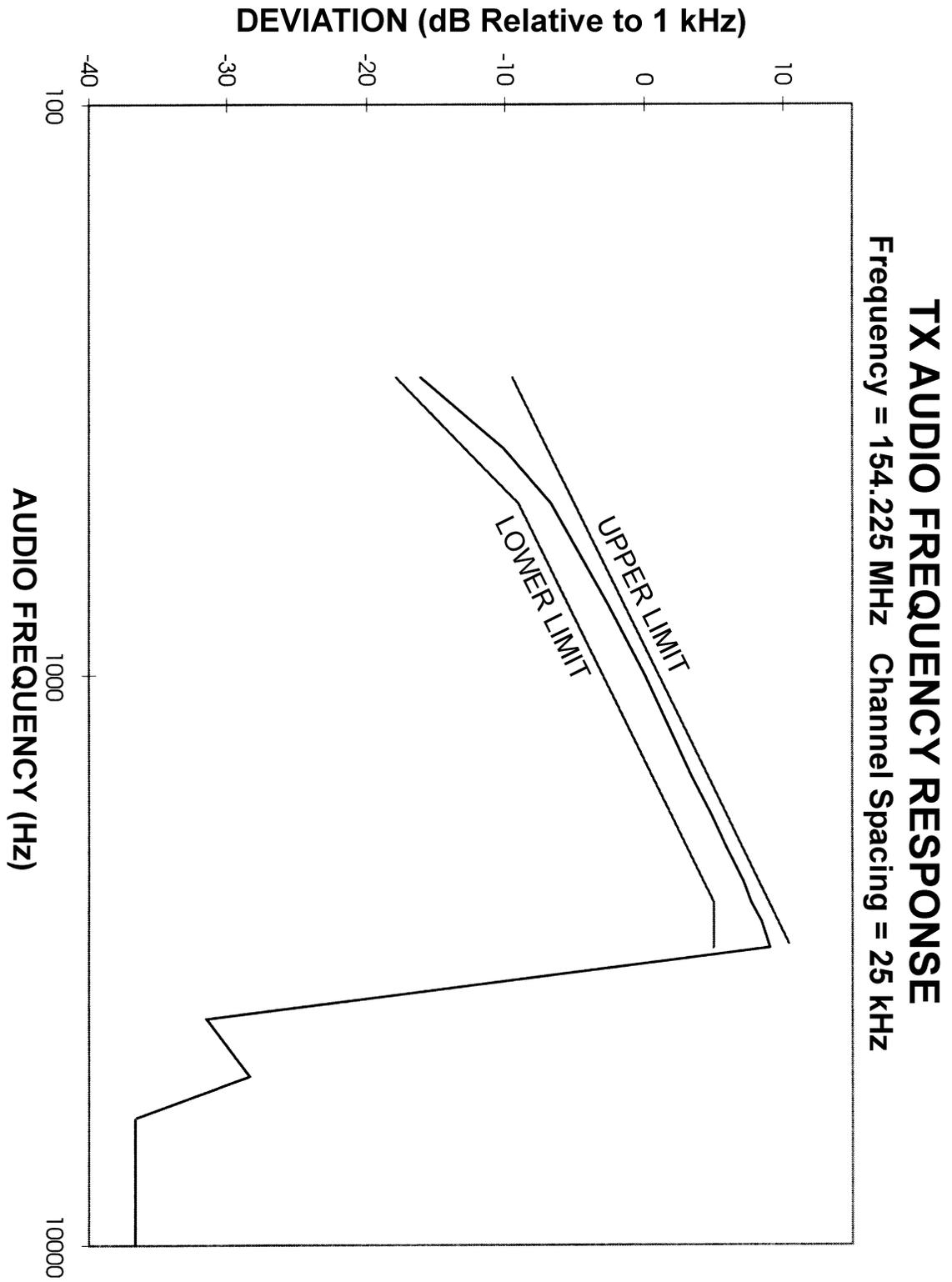
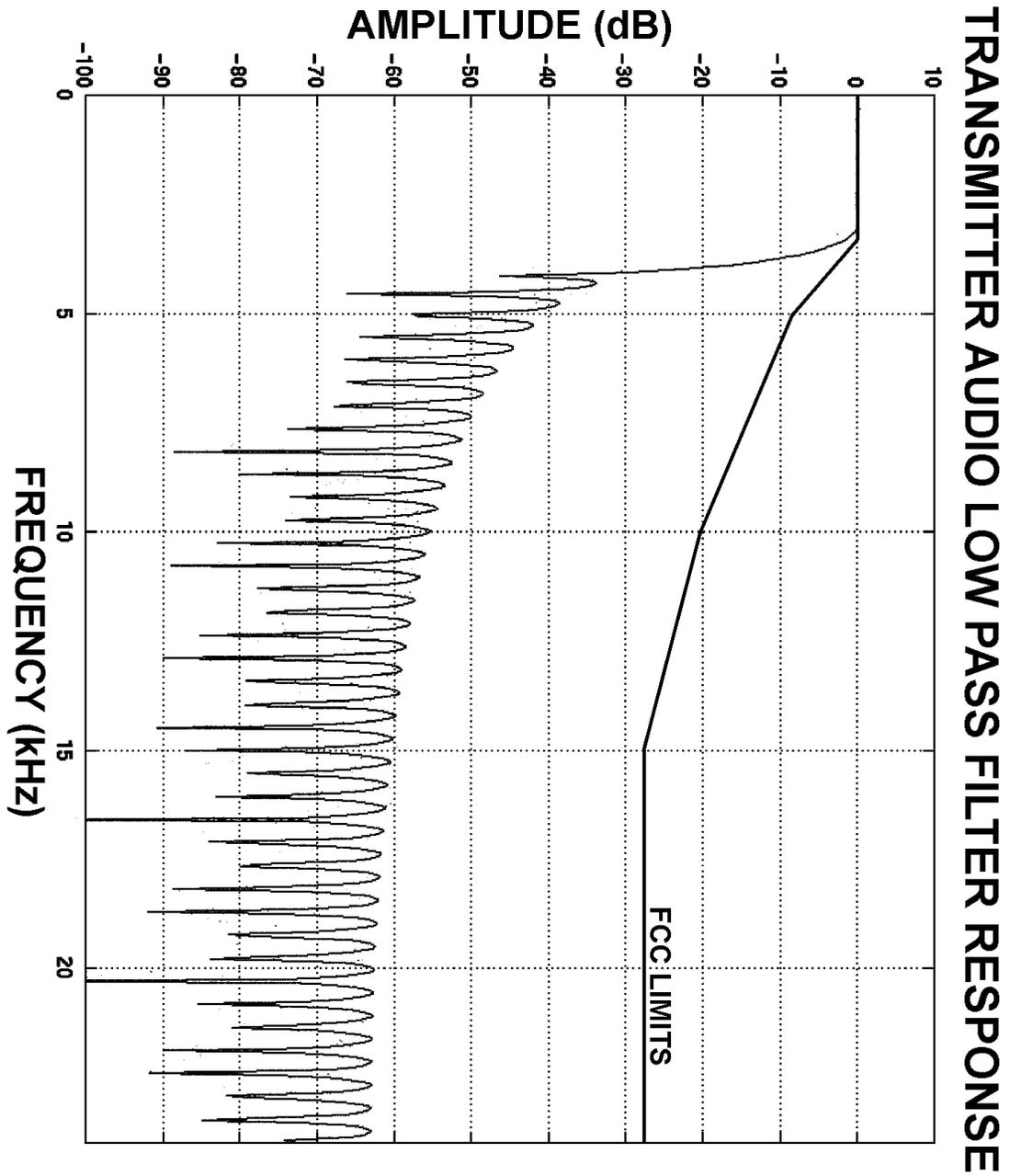
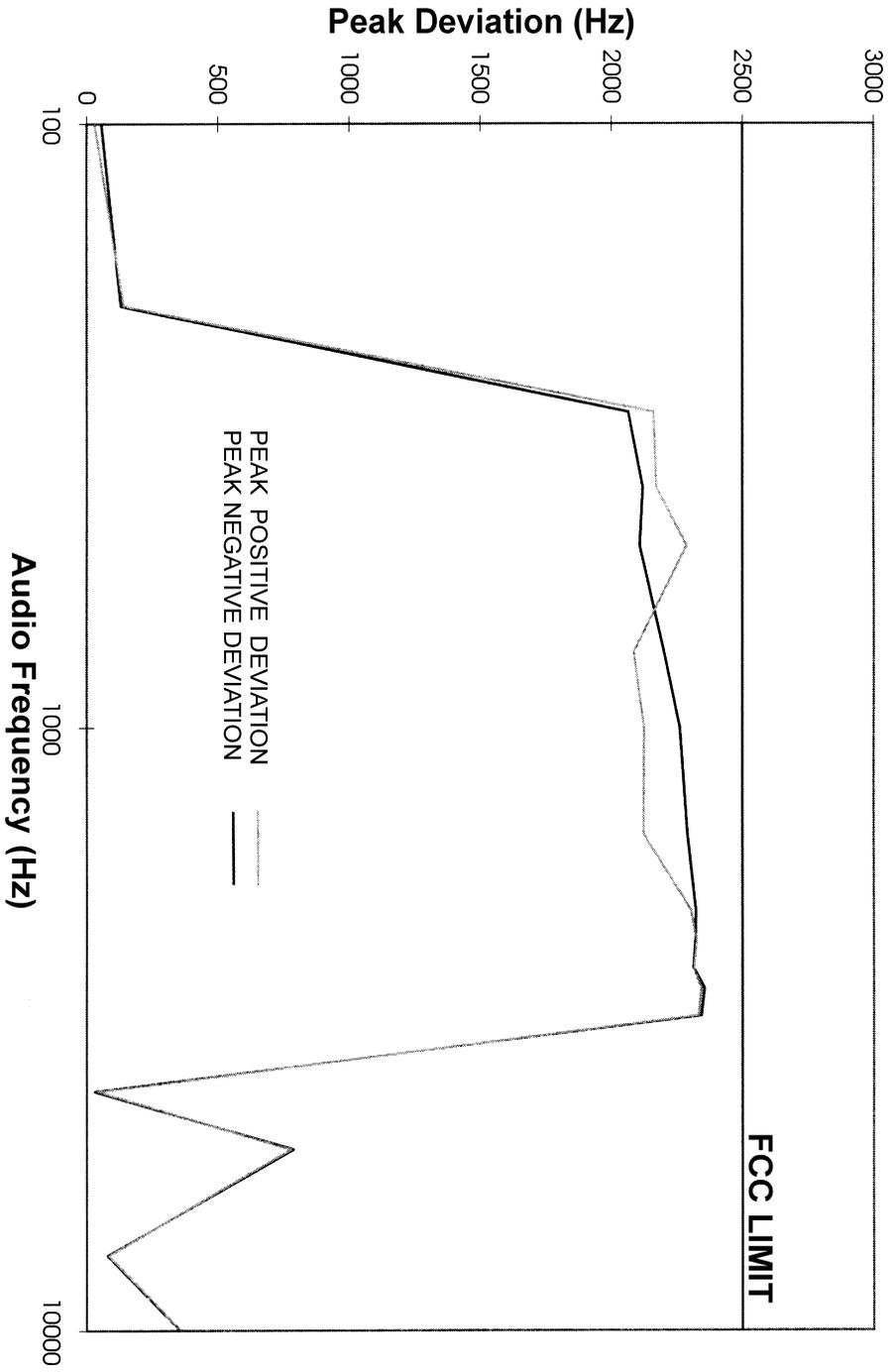


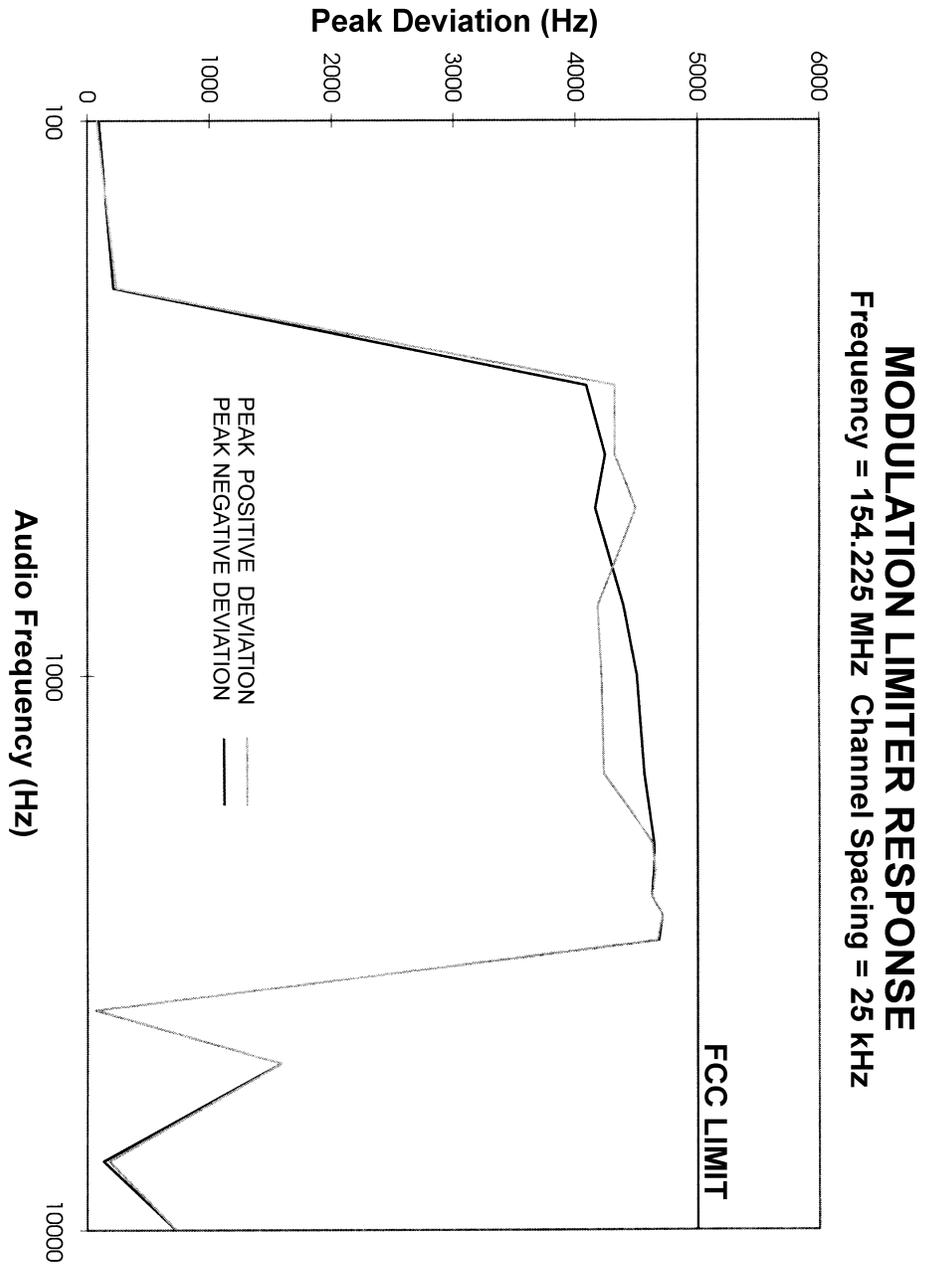
EXHIBIT 6B-2

The XTS3500 VHF portable radio is a digital radio. All the audio filtering is performed by a digital signal processor (DSP). It is not possible to examine the response of the post limiter low pass filter circuit at the radio level, since this filtering is performed digitally. The *mathematical* response of the filtering algorithm is shown below.



MODULATION LIMITER RESPONSE
Frequency = 154.225 MHz Channel Spacing = 12.5 KHz





OCCUPIED BANDWIDTH DATA

BANDWIDTH CALCULATIONS:

Carson's Rule for FM modulation is utilized to compute the bandwidth shown in the FCC emission designator. Carson's Rule is:

$$BW = 2 * (M + D) \quad \text{where: } BW = \text{Bandwidth}$$

$$M = \text{Maximum modulating frequency}$$

$$D = \text{Deviation}$$

Shown below are the calculations required for FCC ID: AZ489FT3799.

EXHIBIT 6E-1

Standard Audio Modulation (25 kHz Channelization, Analog Voice):

Emission Designator 16K0F3E

In this case, the maximum modulating frequency is 3 kHz with a 5 kHz deviation.

$$BW = 2(M+D) = 2*(3 \text{ kHz} + 5 \text{ kHz}) = 16 \text{ kHz} \implies 16K0$$

F3E portion of the designator indicates voice.

Therefore, the entire designator for 25 kHz channelization analog voice is 16K0F3E.

EXHIBIT 6E-2

Standard Audio Modulation (12.5 kHz Channelization, Analog Voice):

Emission Designator 11K0F3E

In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.

$$BW = 2(M+D) = 2*(3.0 \text{ kHz} + 2.5 \text{ kHz}) = 11 \text{ kHz} \implies 11K0$$

F3E portion of the designator indicates voice.

Therefore, the entire designator for 12.5 kHz channelization analog voice is 11K0F3E.

EXHIBIT 6E-3

Digital (12.5 kHz Channelization, Digital Voice):

Emission Designator 8K10F1E

Measurements per Rule Part 2.202 Section C (4) were done because Part 2.202 Section g Table III A, 1 formulation produces an excessive result using the value of K recommended in the Table. Therefore, the 99% energy rule (title 47CFR 2.989) was used for digital mode and is more accurate than Carson's rule. It basically states that 99% of the modulation energy falls within X kHz, in this case, 8.10 kHz. Measurements were empirically performed in accordance with TIA/EIA TSB102.CAAB Section 2.2.5.2. The emission mask was that in TIA/EIA TSB102.CAAB Section 3.2.5.2.

F1E portion of the designator indicates digital voice.

Therefore, the entire designator for 12.5 kHz channelization digital voice is 8K10F1E.

EXHIBIT 6E

EXHIBIT 6E-4

Digital (12.5 kHz Channelization, Digital Data):

Emission Designator 8K10F1D

Measurements per Rule Part 2.202 Section C (4) were done because Part 2.202 Section g Table III A, 1 formulation produces an excessive result using the value of K recommended in the Table. Therefore, the 99% energy rule (title 47CFR 2.989) was used for digital mode and is more accurate than Carson's rule. It basically states that 99% of the modulation energy falls within X KHz, in this case, 8.10 kHz. Measurements were empirically performed in accordance with TIA/EIA TSB102.CAAB Section 2.2.5.2. The emission mask was that in TIA/EIA TSB102.CAAB Section 3.2.5.2.

F1D portion of the designator indicates digital data.

Therefore, the entire designator for 12.5 kHz channelization digital data is 8K10F1D.

EXHIBIT 6E-5

SECURE MODE (25 kHz Channelization, Digital Voice Encryption):

Emission Designator 20K0F1E

Voice encryption is transmitted at 12 kbps rate which requires a 6 kHz bandwidth. Voice deviation is set to 4 kHz.

$$BW = 2(M+D) = 2*(6 \text{ kHz} + 4 \text{ kHz}) = 20 \text{ kHz} \implies 20K0$$

F1E portion of the designator indicates digital voice.

Therefore, the entire designator for secure mode (digital voice encryption) is 20K0F1E.

Note: The 90.203(j) efficiency standard for "F1D" emission is met by sending 2 bits at a time, at a rate of 4800 symbols/second. This yields 9600 bits/second, which is achieved using the modulation technique described in the note below. Modulation results from one of the digital 4-level standard symbol patterns applied to the modulation at a rate of 9600 bits/second. The modulation technique is 4-level FM. The information bits are commonly represented by a symbol which corresponds to one of 4 levels of FM deviation according to the following table.

<u>Information Bits</u>	<u>Symbol</u>	<u>C4FM Deviation</u>
01	+3	+1.8 kHz
00	+1	+0.6 kHz
10	-1	-0.6 kHz
11	-3	-1.8 kHz

For example, an 8-bit binary pattern of 0010 1101 would be sent as symbols +1, -1, -3, +3, which would cause a modulation signal (Frequency-Shift-Keyed) of +1.8 kHz, -600 Hz, -1.8 kHz, and +1.8 kHz. This results in 9600 bits/second of information being sent on a 12.5 kHz channel, which is the equivalent of 4800 bits/second per 6.25 kHz.

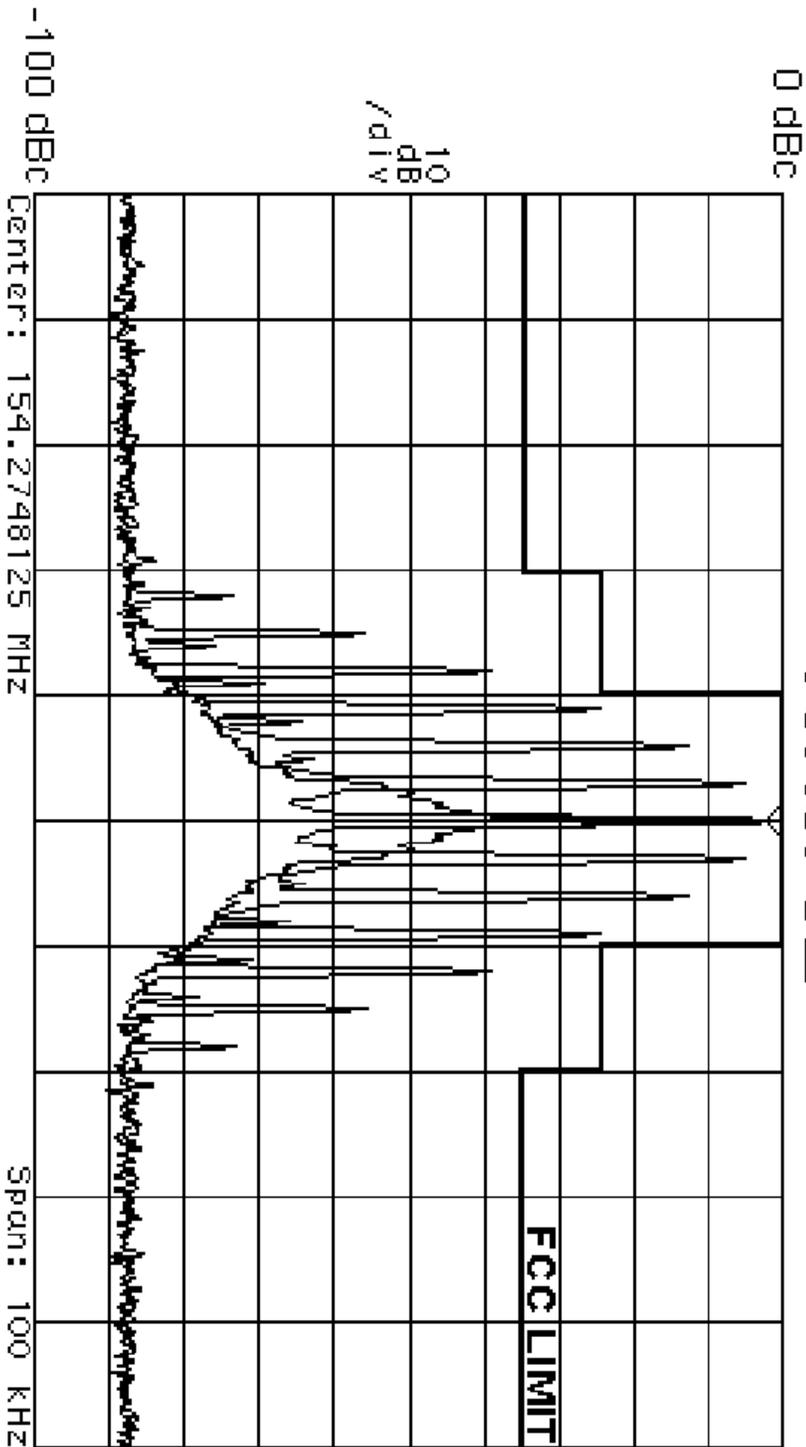
Note: The "F1D" and "F1E" signal parameters are described as follows: The modulation is 4-level FSK with +/-600 Hz and +/-1.8 kHz shifting (+/-600 Hz and +/-1.8 kHz are the 4 distinct levels of signals). The

digital voice test pattern is created by a 2500 Hz sine wave modulated at a level that is 16 dB above that required to produce 50% deviation at the radio output. The digital data test signal is generated by an internally generated psuedo random test pattern based on ITU-T 0.153 (formally CCITT V.52).

EXHIBIT 6E

OCCUPIED BANDWIDTH

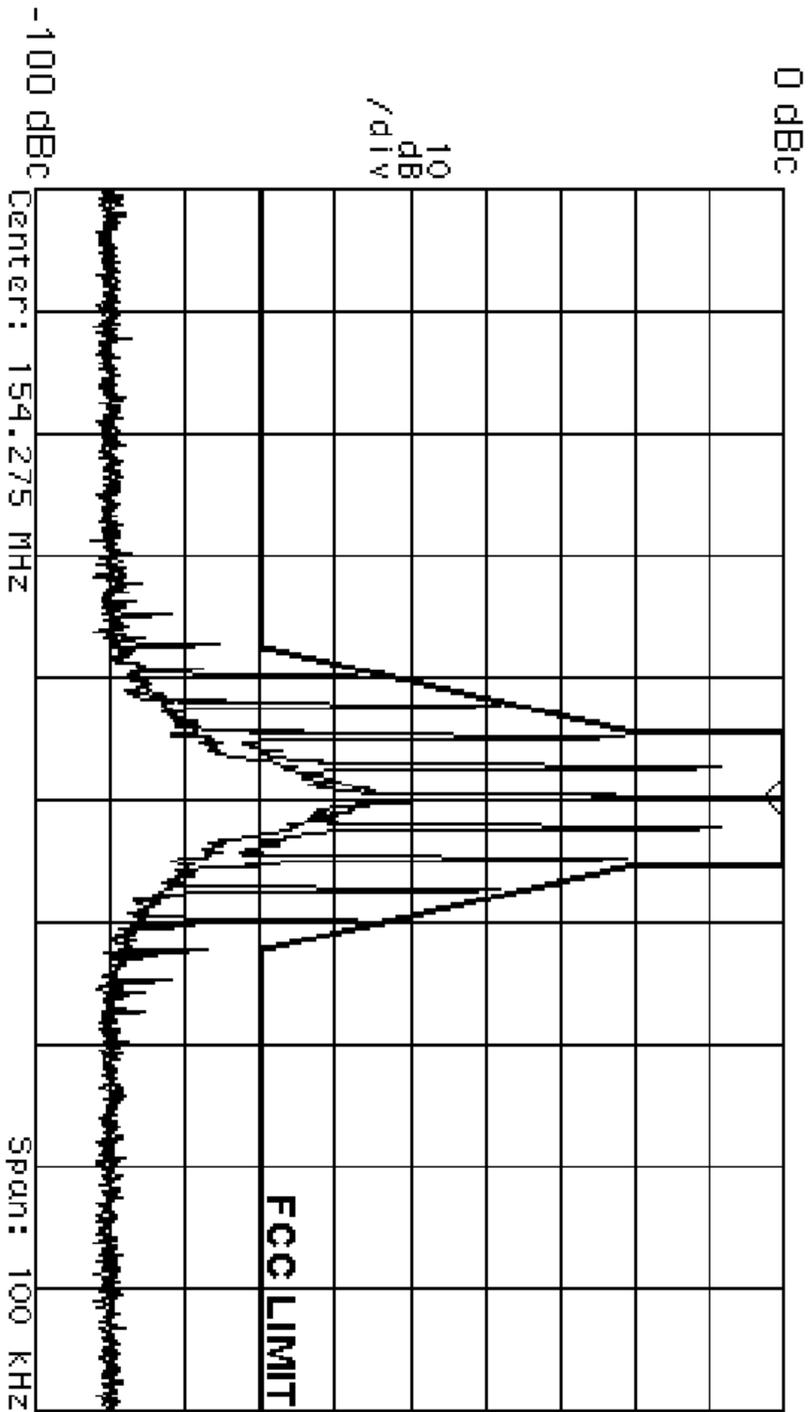
16K0F3E



Mask B

EXHIBIT 6E-1

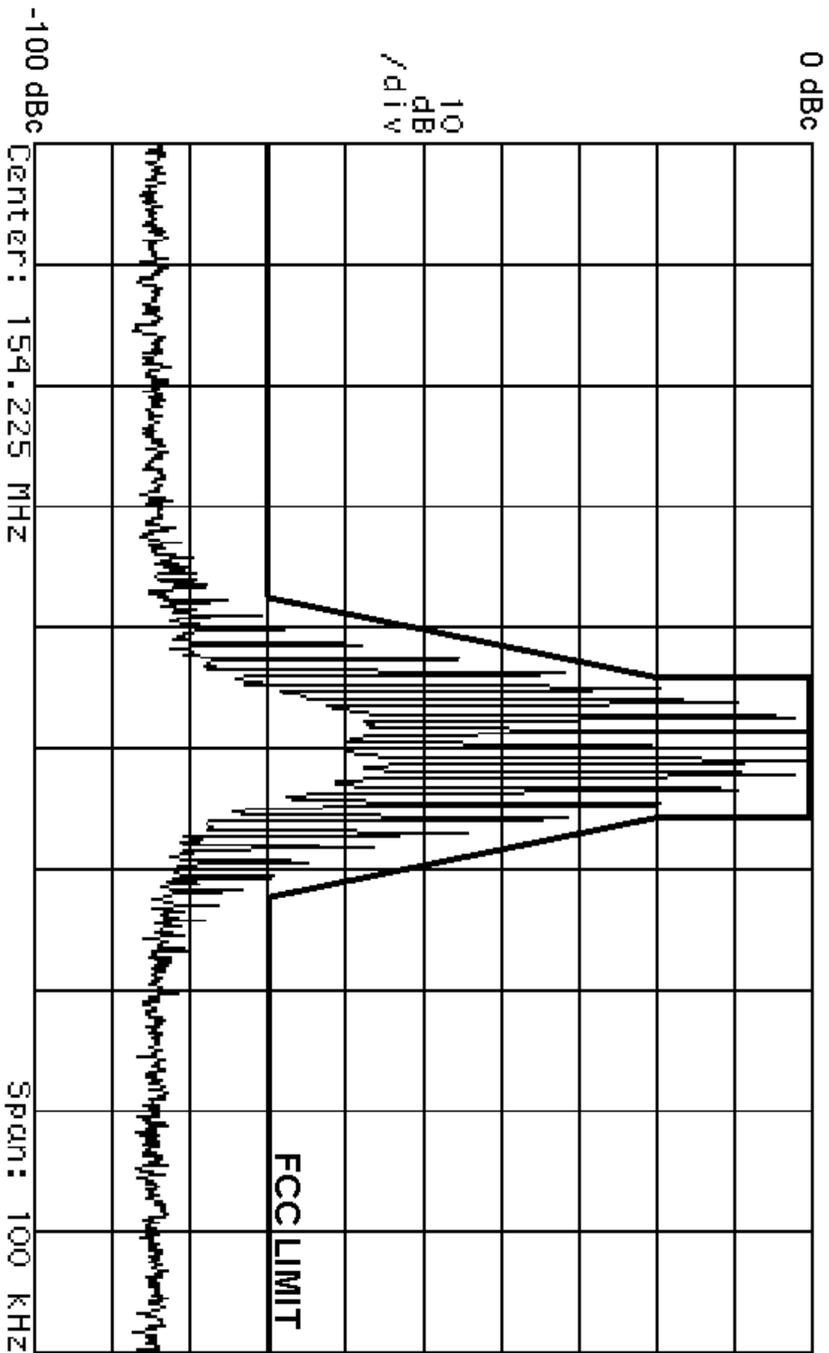
OCCUPIED BANDWIDTH 11K0F3E



Mask D

OCCUPIED BANDWIDTH

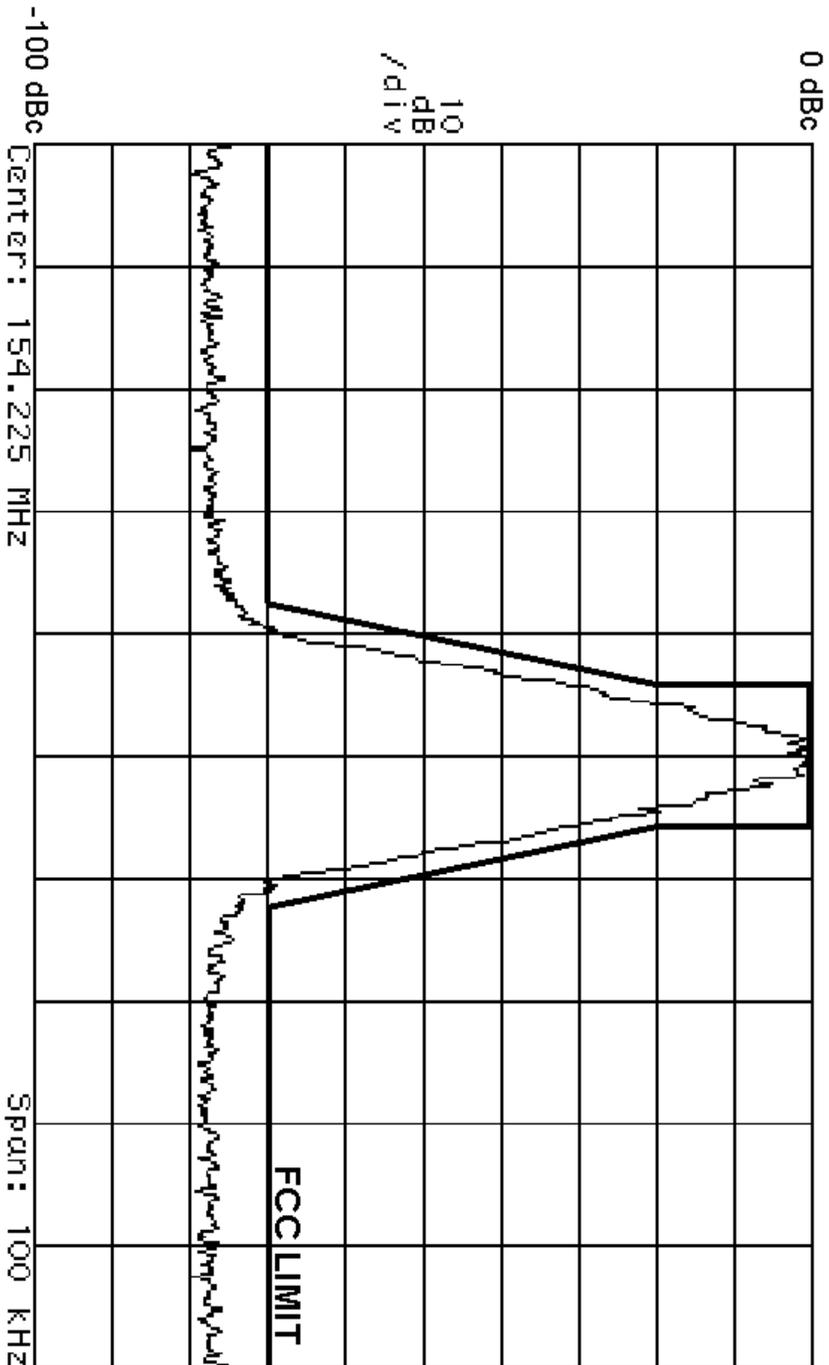
8K10F1E



Mask D

OCCUPIED BANDWIDTH

8K10F1D

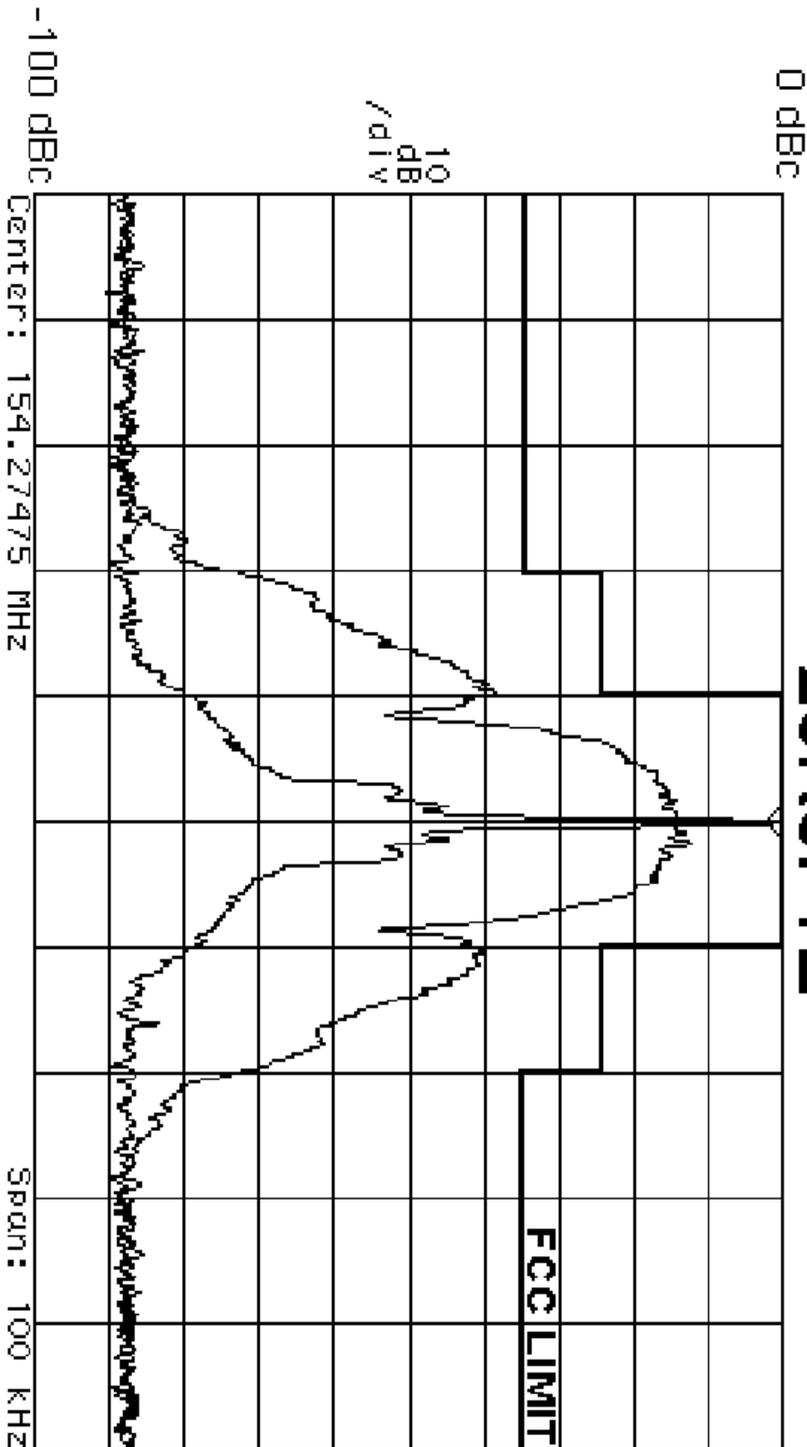


Mask D

EXHIBIT 6E-4

OCCUPIED BANDWIDTH

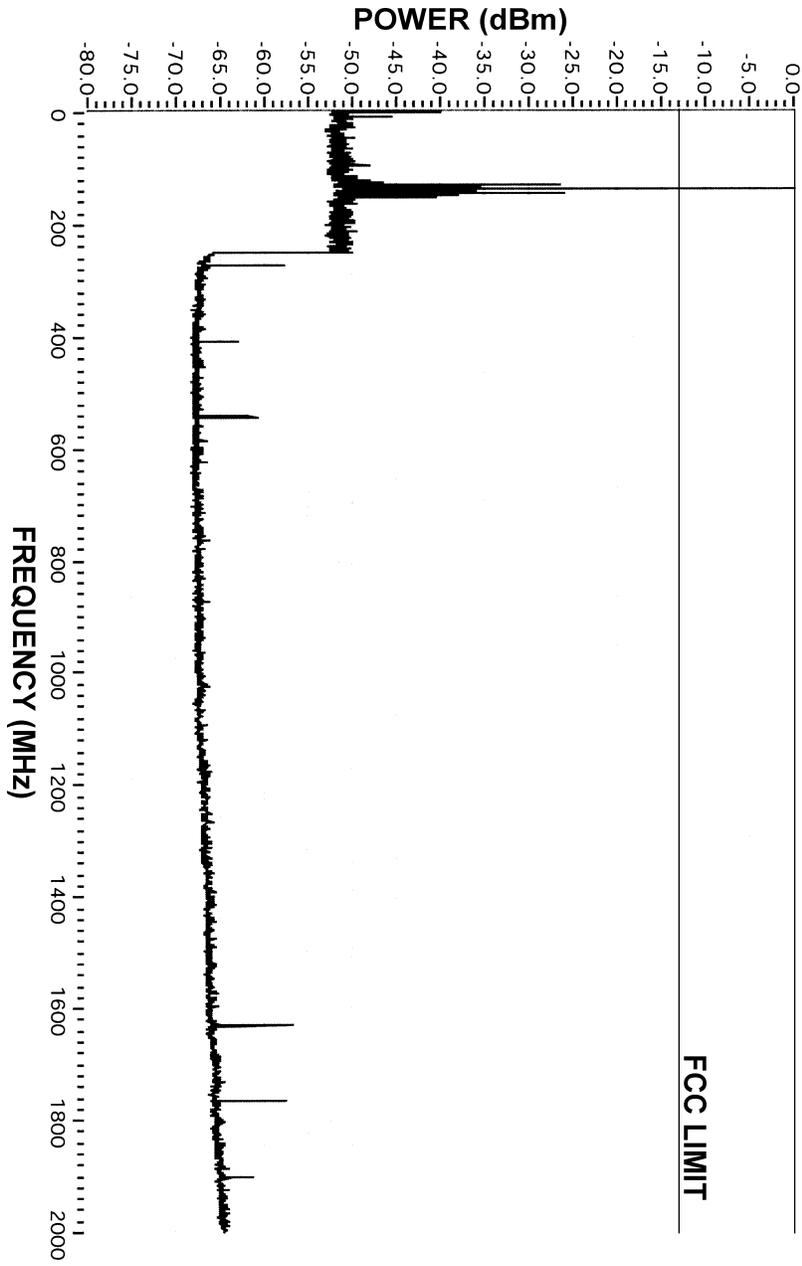
20K0F1E



Mask B

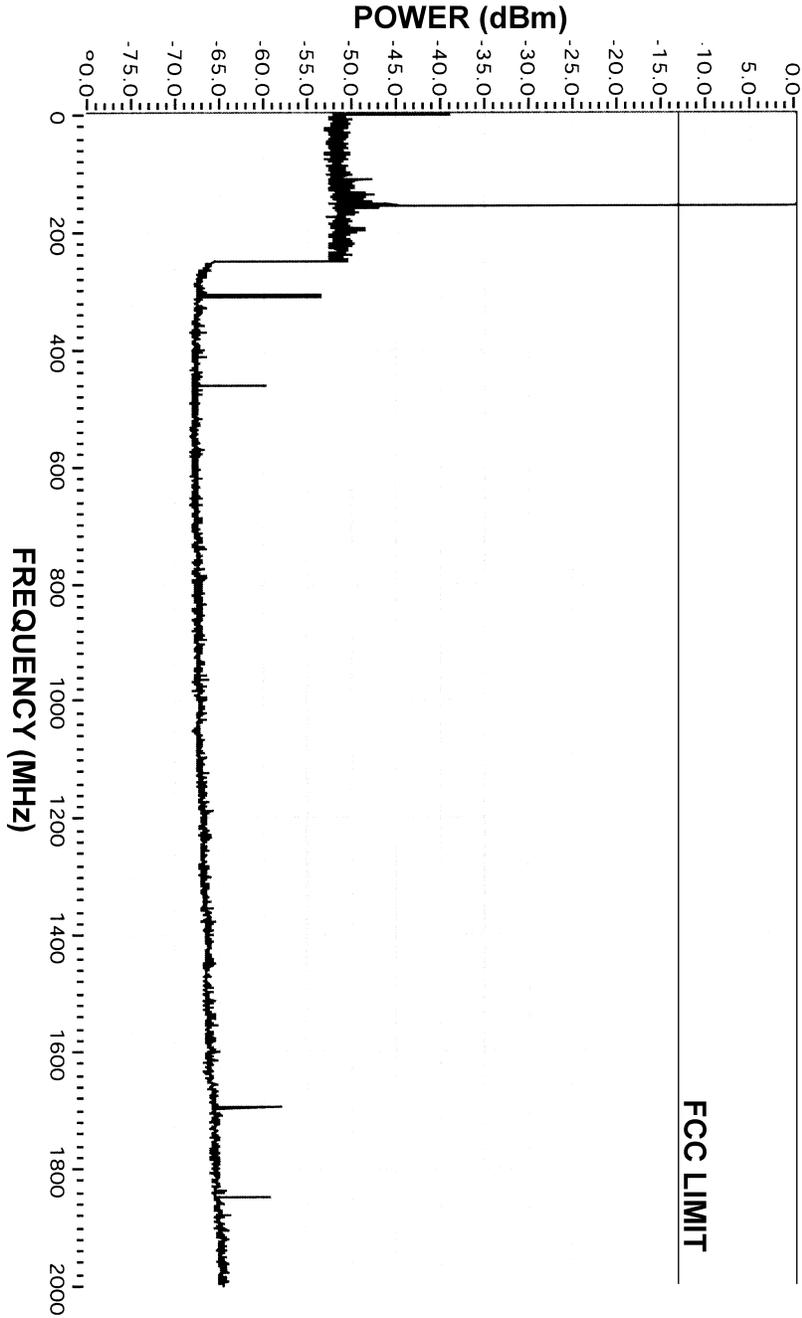
TRANSMITTER CONDUCTED SPURIOUS AND HARMONIC EMISSIONS

Frequency = 136.025 MHz Power Out = 6.2 W



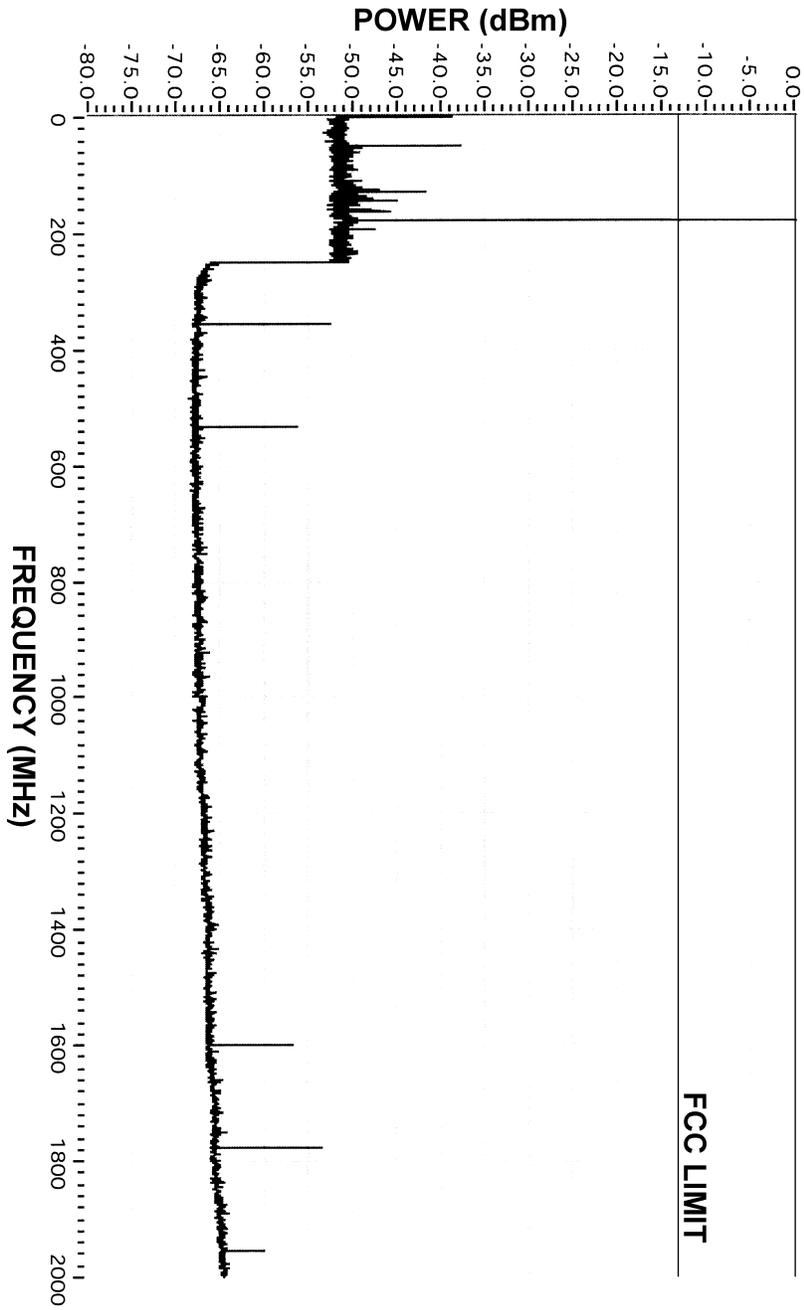
TRANSMITTER CONDUCTED SPURIOUS AND HARMONIC EMISSIONS

Frequency = 154.225 MHz Power Out = 6.2 W



TRANSMITTER CONDUCTED SPURIOUS AND HARMONIC EMISSIONS

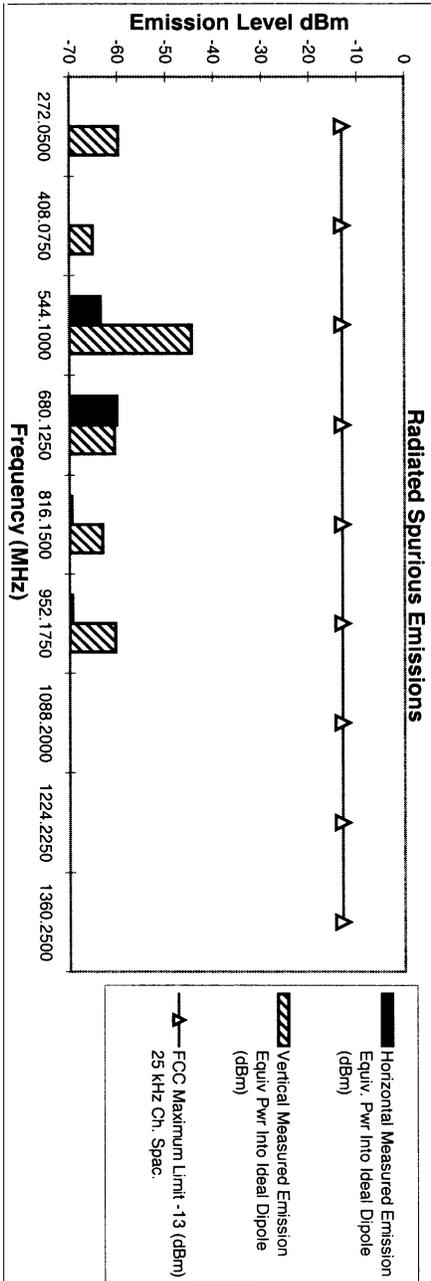
Frequency = 173.975 MHz Power Out = 6.2 W



Transmitter Radiated Spurious Emissions

136.025 MHz - 6.2 W - 25 KHz CH. Spacing

Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 KHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 KHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
272.0500	-13	-20	-75.9	-59.7
408.0750	-13	-20	-72.3	-65.1
544.1000	-13	-20	-63.5	-44.5
680.1250	-13	-20	-60.1	-60.6
816.1500	-13	-20	-69.5	-63.1
952.1750	-13	-20	-69.5	-60.5
1088.2000	-13	-20	*	*
1224.2250	-13	-20	*	*
1360.2500	-13	-20	*	*

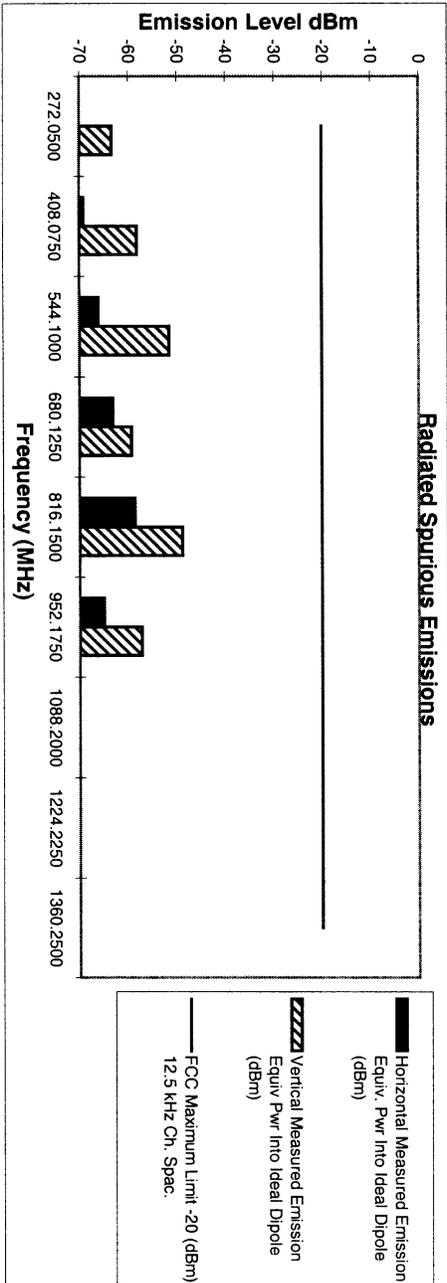


* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

Transmitter Radiated Spurious Emissions

136.025 MHz - 6.2 W - 12.5 KHz Ch. Spacing

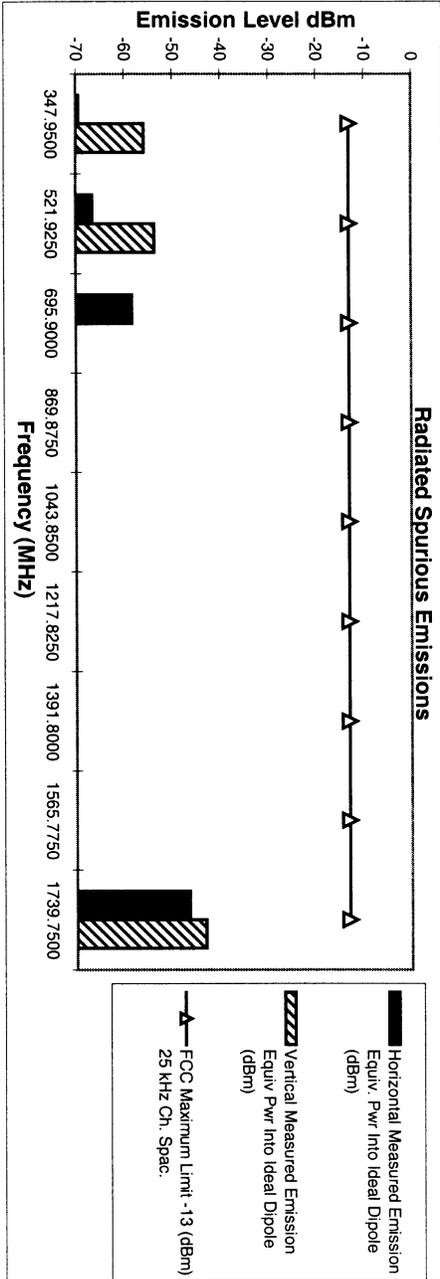
Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 KHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 KHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
272.0500	-13	-20	-74.7	-63.3
408.0750	-13	-20	-69.2	-58.2
544.1000	-13	-20	-66.1	-51.5
680.1250	-13	-20	-63.1	-59.3
816.1500	-13	-20	-58.7	-48.8
952.1750	-13	-20	-65.0	-57.2
1088.2000	-13	-20	*	*
1224.2250	-13	-20	*	*
1360.2500	-13	-20	*	*



* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambiants.

Transmitter Radiated Spurious Emissions 173.975 MHz - 6.2 W - 25 KHz Ch. Spacing

Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 KHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 KHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
347.9500	-13	-20	-69.5	-55.9
521.9250	-13	-20	-66.6	-53.7
695.9000	-13	-20	-58.3	*
869.8750	-13	-20	*	*
1043.8500	-13	-20	*	*
1217.8250	-13	-20	*	*
1391.8000	-13	-20	*	*
1565.7750	-13	-20	*	*
1739.7500	-13	-20	-46.6	-43.1

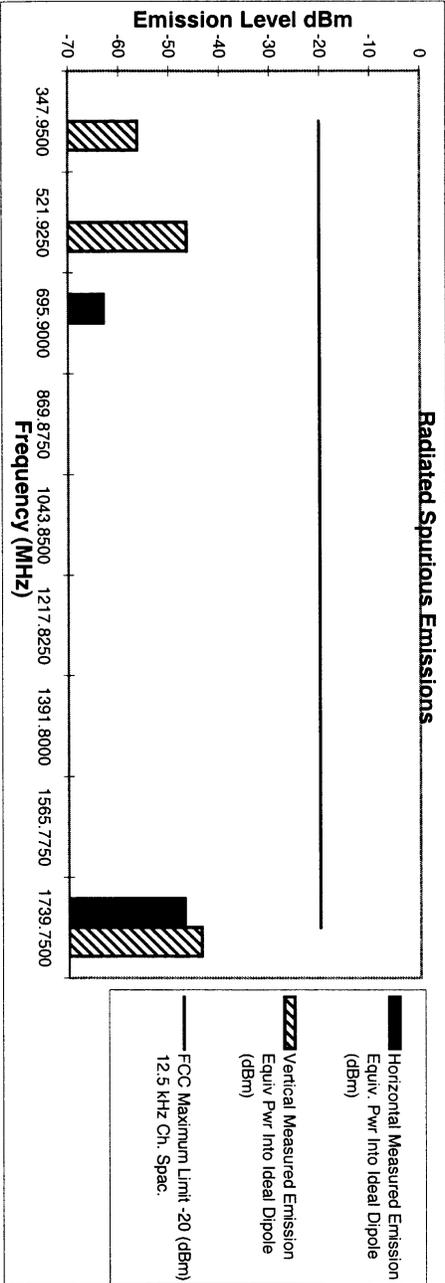


* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

Transmitter Radiated Spurious Emissions

173.975 MHz - 6.2 W - 12.5 KHz Ch. Spacing

Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 KHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 KHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
347.9500	-13	-20	-74.9	-56.2
521.9250	-13	-20	-71.5	-46.4
695.9000	-13	-20	-62.9	*
869.8750	-13	-20	*	*
1043.8500	-13	-20	*	*
1217.8250	-13	-20	*	*
1391.8000	-13	-20	*	*
1565.7750	-13	-20	*	*
1739.7500	-13	-20	-47.0	-43.7

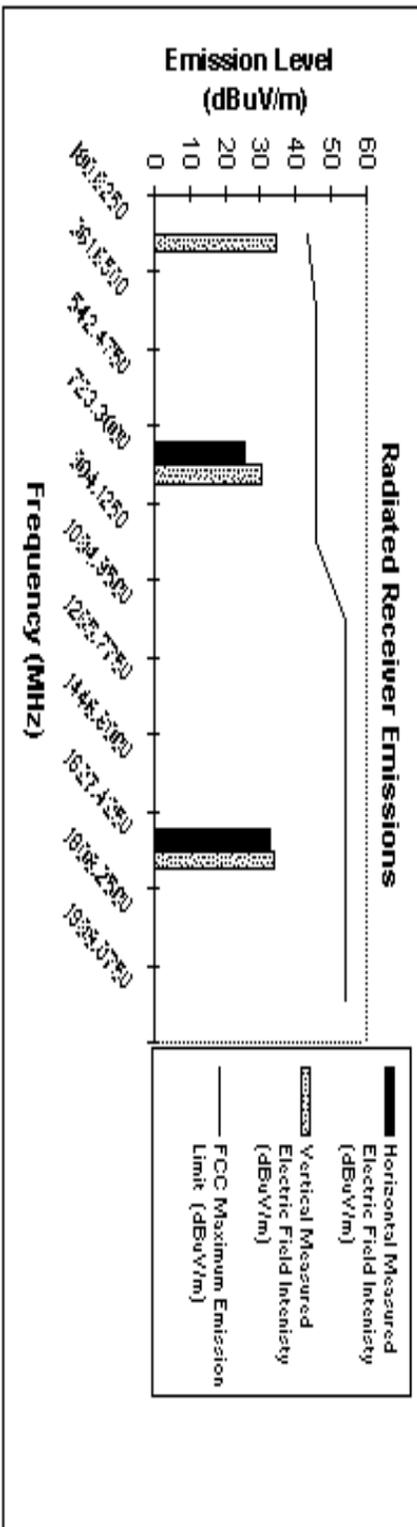


* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

Receiver Radiated Spurious Emissions : XTS 3500 VHF

136.025 MHz

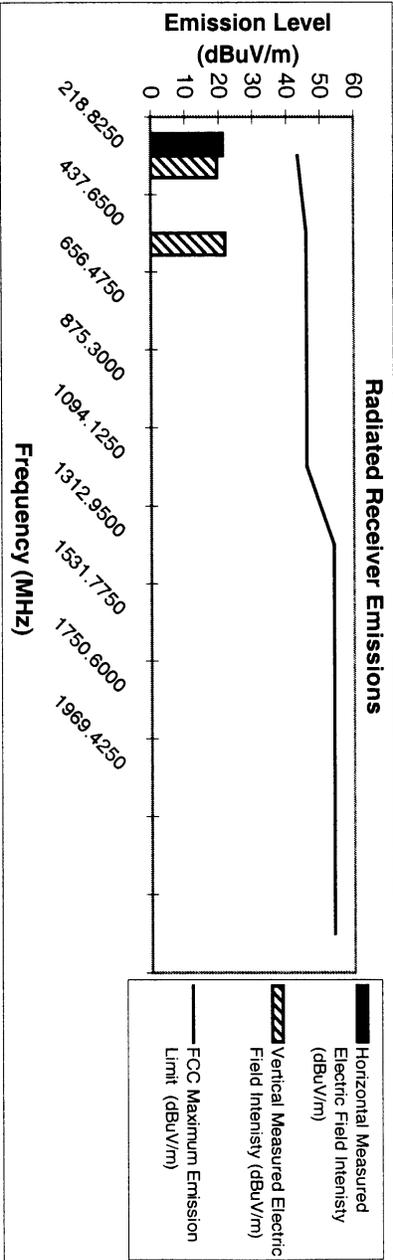
Spur	Frequency (MHz)	FCC Maximum Emission Limit (dBuV/m)	Horizontal Measured Electric Field Intensity (dBuV/m)	Vertical Measured Electric Field Intensity (dBuV/m)
LO	180.8250	43.5	*	34.40
2XLO	361.6500	46	*	*
3XLO	542.4750	46	*	*
4XLO	723.3000	46	25.62	30.32
5XLO	904.1250	46	*	*
6XLO	1084.9500	54	*	*
7XLO	1265.7750	54	*	*
8XLO	1446.6000	54	*	*
9XLO	1627.4250	54	32.93	33.97
10XLO	1808.2500	54	*	*
11XLO	1989.0750	54	*	*



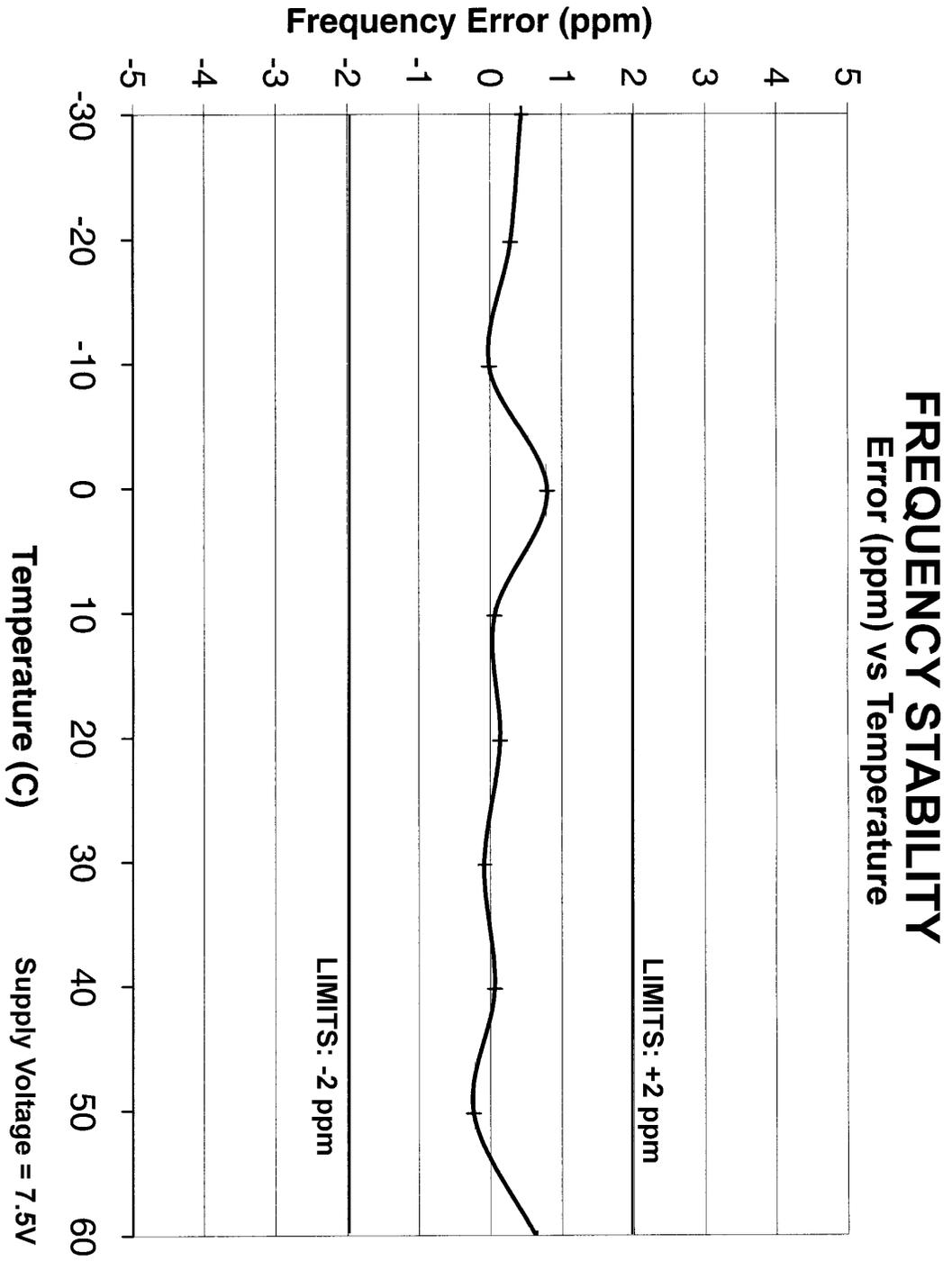
Receiver Radiated Spurious Emissions

173.975 MHz

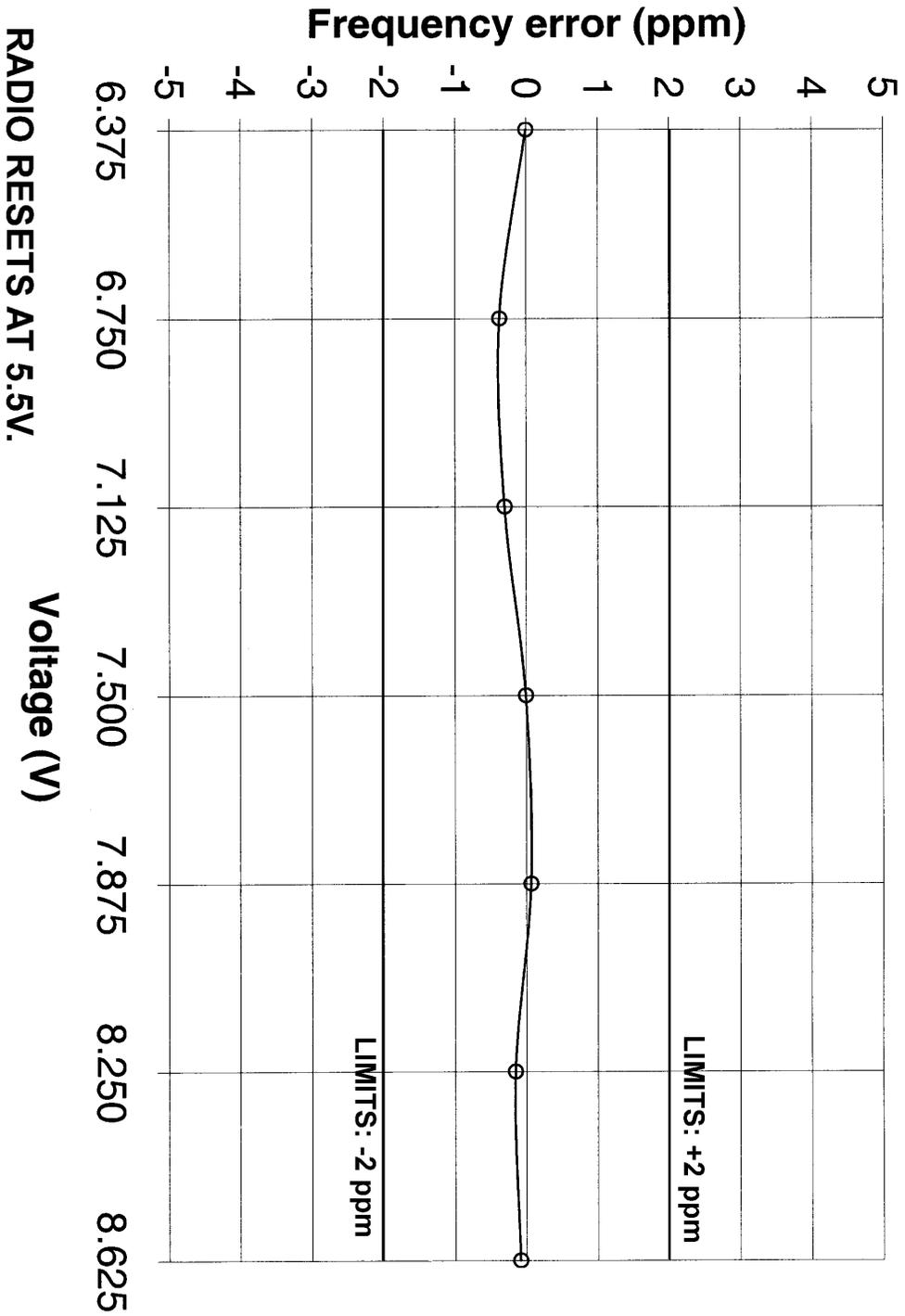
Spur	Frequency (MHz)	FCC Maximum Emission Limit (dBuV/m)	Horizontal Measured Electric Field Intensity (dBuV/m)	Vertical Measured Electric Field Intensity (dBuV/m)
LO	218.8250	46	21.30	19.55
2XLO	437.6500	46	*	21.93
3XLO	656.4750	46	*	*
4XLO	875.3000	46	*	*
5XLO	1094.1250	54	*	*
6XLO	1312.9500	54	*	*
7XLO	1531.7750	54	*	*
8XLO	1750.6000	54	*	*
9XLO	1969.4250	54	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.



FREQUENCY STABILITY



Radio Resets @ 5.5 volts

