

EXHIBIT 7
MEASUREMENT PROCEDURES

7.1) RF Power Output -- Pursuant 47 CFR 2.1046

The transmitter was operated under normal conditions at the specified nominal DC input voltage. The antenna output was terminated in 50 ohms. An Ammeter was placed in the input path to measure input current. The input power was calculated from the product of the DC current (in amps) times the DC voltage (in volts). The measurement was performed at the upper, middle and lower limits of the frequency range, for both high and low power settings.

7.2) Occupied Bandwidth -- Pursuant 47 CFR 2.1049

An audio oscillator was connected to the microphone input. The frequency was set to 2500 Hz and the amplitude was adjusted to a level 16 dB above that required to produce 50% of full system deviation at the frequency of maximum response of the audio modulating circuit, in accordance with FCC rules Part 2.989(a)(1). The transmitter output is connected, via a suitable attenuator, to an HP8568A spectrum analyzer. Spectrum analysis of the transmitter output is performed to at least +/- 2.5 times the channel spacing, first of the unmodulated carrier to establish a 0 dB reference, then with the modulated signal applied.

FCC Limits -- Per 90.210 (a) (1), (2), (3)

Emission Mask B – 25 kHz channel bandwidth. For Transmitters that are equipped with an audio low-pass filter.

Measured Data: (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least $43 + 10 \log_{10}(P)$ dB.

7.3) Radiated Spurious Emissions -- Pursuant 47 CFR 2.1053

Transmitter radiated spurious emissions were measured at an open field test site constructed in accordance with FCC/OST 55 (1982). The measurement performed is the equivalent of the FCC Code of Federal Regulations, Title 47, Part 2, Paragraph 2.993. The tests were conducted at Ultra Tech RFI Labs Inc.

FCC Limits -- Per Applicable Rule Parts

Radiated Spurious emissions shall be attenuated below the maximum level of the emission of the carrier frequency in accordance with the following formula:

For 25 kHz channel bandwidth:

Spurious attenuation in dB = $43 + 10 \log_{10}(\text{Power output in watts})$ or -13dBm

7.4) Conducted Spurious Emissions -- Pursuant 47 CFR 2.1051

The output of the transmitter was connected, via a suitable attenuator, to the input of an HP8561B spectrum analyzer. After a carrier reference level was established, a tunable notch filter was inserted between the attenuator and the spectrum analyzer to allow suppression of the carrier. This data was measured from the lower frequency limits up to the tenth harmonic.

FCC Limits -- Per Applicable Rule Parts

Conducted spurious emissions shall be attenuated below the maximum level of emission of the carrier frequency in accordance with the following formula:

For 25 kHz. Channel Bandwidth:

Spurious attenuation in dB = $43 + 10 \log_{10}(\text{Power output in watts})$

7.5) Frequency Stability -- Pursuant to 47 CFR 2.1055 and 90.213

a) Frequency Stability Vs. Temperature

Frequency measurements were made at the extremes of the temperature range –30 to +60 degrees centigrade and at intervals of not more than 10 degrees centigrade. Sufficient time was allowed prior to each measurement for the circuit components to stabilize.

FCC Limits -- Per 90.213 and Applicable Rule Parts

Temperature - Frequency Stability of +/- 0.00015% from -30 to +60 degrees centigrade (-20 to +50 degrees centigrade Maritime parts 81 & 83).

b) Frequency Stability Vs. Voltage (FCC Rules Part 2.995)

The supply voltage was varied from 80% to 120% of the nominal value and the RF frequency error measured.

FCC Limits -- Per 90.213 and Applicable Rule Parts

Power Supply Voltage - Frequency Stability of +/- 0.00015% from 85% to 115% of nominal voltage. (See CRF Rule Part 90.213)

7.6) Radiated Receiver Spurious Emissions -- Pursuant to 47 CFR 15.107, 15.109

Measurement Equipment List ---- 47 CFR 2.1041

Transmitter Frequency:

HP8901B Modulation Analyzer

Temperature Measurement:

HP8901B Modulation Analyzer

HP8482B Power Sensor and 30dB Attenuator

DC Voltage and Currents:

HP6623A Power Supply

HP34401A Digital Multimeter

Deviation:

HP8901B Modulation Analyzer

Transmitter Occupied Bandwidth:

HP8562E Spectrum Analyzer

Transmitter Conducted Spurious and Harmonic Emissions:

HP8562E Spectrum Analyzer

K & L (11SH10-1500/T8000) High Pass Filter

Transmitter Radiated Spurious and Harmonic Emissions:

Test performed at Ultra Tech RFI Labs Inc.

The calibration of this equipment is performed at regular intervals.