

EXHIBIT - 7

TEST PROCEDURES AND TEST SITE DESCRIPTION

MEASUREMENT ITEMS	Section No.
1. DC Voltage & Current into Final Device	2.983(d)(5)
2. RF Output Power	2.985
3. Modulation Characteristics (Audio Roll-off Response)	2.987
4. Modulation Characteristics (Audio Frequency Response)	2.987
5. Modulation Characteristics (Modulation Limiting)	2.987
6. Occupied Bandwidth	2.989
7. Spurious & Harmonic Emission at Antenna Terminal	2.991
8. Field Strength of Spurious & Harmonic Radiation	2.993
9. Frequency Stability (Frequency vs. Temperature)	2.995
10. Frequency Stability (Frequency vs. Voltage)	2.995
11. Transient frequency behavior	90.214

NOTE: List of measurement equipment and test site description are included in this EXHIBIT.

1. DC Voltage & Current into Final Amplifying Device 2.983(d)(5)

To measure the DC Voltage and Current into Final Amplifying Device, the measuring equipment were connected to the actual P.C.Board of the transmitter.

FCC limits: Not specified

Test Results: Refer to EXHIBIT-8

2. RF Output Power 2.985

The unit was tuned-up in accordance with the alignment procedure stated in the EXHIBIT-6, and was loaded into a 50 ohm resistive termination. The unit was powered through its normally supplied power cable by a DC power supply. Power supply voltage was set to nominal voltage at the power supply terminals with the transmitter off.

The unit was operated for three consecutive test cycles of 15 minutes standby and 5 minutes in transmitting. At the end of the third 5 minutes period, the RF output power is measured. During the test, no components of the emission spectrum exceed the limit specified in the applicable rule part for occupied bandwidth or emission limitations.

FCC limits: Not specified

Test Results: Refer to EXHIBIT-8

3. Modulation Characteristics (Audio Roll-off Response) 2.987

To measure the audio roll-off filter response, an audio frequency oscillator and AF VTVM were connected to the actual P.C.Board of the transmitter. The output of the audio filter was monitored by AF VTVM and an oscilloscope. An AF input level was maintained was maintained constant at least 10 dB below the saturation level at maximum response frequency. The measurement was made under the

above conditions by varying the frequency between 1 kHz and 100 kHz.

FCC limits: 3 kHz - 15 kHz: -40 $\log_{10} (F/3)$ dB
 Above 20kHz : At least -28 dB

Test Results: Refer to EXHIBIT-8

4. Modulation Characteristics (Audio Frequency Response) 2.987

Operate the unit under the standard test conditions and monitor the output with a modulation or a calibrated test receiver. With a 1000 Hz sine wave (applied through a dummy microphone circuit) used as a 0 dB reference, vary the modulating frequency from 300 to 3000 Hz and observe the level necessary to maintain a constant 30% modulation.

FCC limits: 300 - 3000 Hz: 6dB/octave roll-off (+1/-3 dB)

Test Results: Refer to EXHIBIT-8

5. Modulation Characteristics (Modulation Limiting) 2.987

The transmitter shall be adjusted for full rated system deviation, 1000 Hz and reference it as 0dB input. With modulation frequencies of 300, 1000 and 3000 Hz respectively, vary the audio input to a level 20dB above that required at 100 Hz to produce 60% of rated system deviation. This is required for both up to and down modulation. Record the percent of full system deviation obtained as a function of input level.

FCC limits: +/-5 kHz deviation and/or +/-2.5 kHz deviation

Test Results: Refer to EXHIBIT-8

6. Occupied Bandwidth

2.989(c)(1)

The spectrum of the modulated carrier was monitored by a panoramic method capable of 60dB amplitude range. The unit was modulated with a 2500 Hz audio signal at an input level 16dB above that required for 50% of maximum system deviation.

In case the 100Hz of CTCSS tone or 100 bps of digital coded data modulation is indicated for this transmitter, a representative measurement data for this operation is also presented.

Since the total deviation of the unit is designed as 4.7 kHz Div., the deviation of 2500Hz audio signal was set to 3.7 kHz Div., as the maximum deviation of tone or digital coded signal was continuously set to 1.0 kHz Dev.

At first, tone or digital signal was disabled and set the 2500 Hz audio signal to 1.85 kHz deviation (= 50% of 3.7 kHz deviation). Then, the input level of 2500Hz audio signal was increased by 16dB. In this condition, the tone or digital coded signal was then enabled and imposed with 2500Hz audio signal.

FCC limits: a) -25dB (50 - 100% of assigned frequency)
b) -35dB (100 - 250% of assigned frequency)
c) $43 + 10\log_{10}$ (RF output power in Watts) dB
or 80dB, whichever is lesser attenuation
for more than 250% of assigned frequency

Test Results: Refer to EXHIBIT-8

7. Spurious & Harmonic Emission at Antenna Terminal

2.991

Spurious radiation are the radio frequency voltage or power generated within the equipment and appearing at the equipment's output terminals when properly loaded with its characteristic non-radiating load.

The unit was modulated with a 2500 Hz tone at an input level 16dB greater than that required 50% modulation. The spectrum was scanned from the lowest frequency generated in the equipment to the tenth harmonic of the carrier.

FCC limits: $43 + 10\log_{10}$ (RF output power in Watts) dB

Test Results: Refer to EXHIBIT - 8

8. Field Strength of Spurious & Harmonic Radiation 2.993

Measurement Procedure & Test Site Description

Field strength measurement of radiated spurious emissions were made on a 3 meter range maintained by Uniden Corporation in Japan. Complete description and measurement data of this test site have been placed on file with the Commission. The equipment was scanned for radiated emissions in a scheduled enclosure prior to open field testing.

For each spurious or harmonic frequency, the antenna was raised and lowered to obtain a maximum reading on the Spectrum Analyzer with antenna horizontally polarized. Then the turntable, on which the equipment under test was placed, was rotated a minimum of 360 degree to further increase the reading on the Spectrum Analyzer. This procedure was repeated with the antenna vertically polarized. In the case of lower frequency, where the half-wave length is impossible. In such a case the lower end of the antenna was adjusted to 0.3 meter above the ground.

FCC limits: $43 + 10\log_{10}$ (RF output power in Watts) dB

Test Results: Refer to EXHIBIT - 8

9. Frequency Stability (Frequency vs. Temperature)

2.995

Frequency measurement was performed at the extremes of throughout the range -30 degrees C to +50 degrees C and at intervals of not more than 10 degrees C throughout the range. A period of time sufficient to stabilize all of the components in the equipment was allowed prior to frequency measurement.

The frequency of the unit was measured by extracting a sample of the carrier and measuring its center frequency by equipment having a degree accuracy at least 10 times that of the minimum to be measured.

FCC limits: $\pm 0.00025\%$ *0.00015% GRH 7/17/98*

Test Results: Refer to EXHIBIT - 8

10. Frequency Stability (Frequency vs. Voltage)

2.995

Frequency measurement was performed at the extremes of throughout the range 85% and 115% of the nominal voltage. The frequency of the unit was measured by extracting a sample of the carrier and measuring its center frequency by equipment having a degree accuracy at least 10 times that of the minimum to be measured.

FCC limits: $\pm 0.00025\%$ *0.00015% GRH 7/17/98*

Test Results: Refer to EXHIBIT - 8

11. Transient frequency behavior

90.214

The measurement was performed in accordance with TIA/EIA-603 under normal operating condition.

FCC limits: t1 - 10.0 mS
 t2 - 25.0 mS
 t3 - 10.0 mS

Test results: Refer to EXHIBIT - 8