

## A. DEVICE UNDER TEST

The device is a UHF Handheld Transceiver operating under Part 90 of the FCC rules. The transmit frequency range of operation is 450.050 MHz. to 465.050 MHz.

## B. MEASUREMENT PROCEDURE:

## TRANSMITTER SECTION CABINET RADIATED EMISSIONS

Transmitter cabinet radiation field strength measurements were conducted according to the procedures set forth in ANSI C63.4 (1992). The device under test was terminated with a 50 ohm dummy load and placed on a rotating turntable 0.8 meters high, centered at 3 meters distant from the measurement antenna. The device was placed in the center of the turntable and tested in three major planes as shown in the photographs

The device is powered by an internal 7.5V, NiCad rechargeable battery. The test was conducted with a fresh battery. A spare battery pack was on hand and was used after the first battery dropped to 85% capacity. For the purposes of testing, the device was locked in a constant transmit mode by holding the transmit key depressed with a rubber band. Testing was conducted at the low, mid and high ends of the operational range.

The device was scanned from 30MHz. to 5GHz. and all emissions were noted. In this case, the only emissions detected were those harmonically related to the fundamental transmit frequency.

## RECEIVER SECTION RADIATED EMISSIONS

Receiver radiation measurements were conducted according to the procedures set forth in ANSI C63.4 (1992). The device under test was placed on the center of turntable and terminated with the antenna supplied by the manufacturer. Testing was conducted with the device positioned in three major planes. The sample was tested the low, mid and high ends of its band. The squelch control was adjusted to allow sound from the speaker and the volume control was set to approximately one quarter rotation.

The device was scanned from 30MHz. to 5GHz. and all emissions were noted. In this case, the only emissions detected were those harmonically related to the fundamental frequency of the first local oscillator. The manufacturer's specifications indicated a second local oscillator running at 33.845 MHz., common to all channels, but neither this signal nor any related harmonic was detectable.

## MEASUREMENTS

The field strength measurements were taken using an HP8596E spectrum analyzer, an EMC0 3121C dipole set, an EMC0 3115 double ridge guide horn antenna and an Avantek UJ210 preamp.

At each detected frequency of emission, the device was measured by rotating the turntable and adjusting the antenna height over a range of 1 to 4 meters to obtain the maximum output level. This procedure was performed with both horizontal and vertical antenna polarizations with the device placed in the positions shown in the photographs. The peak reading for each frequency was captured and recorded in the second column on the data sheet.

### C. FACILITY

Radiated emissions testing for this device was conducted by Control Design & Testing, Inc. and performed on the Hyak Laboratories 3 meter open area test site located in Spotsylvania, VA.





