

A. DEVICE UNDER TEST

The device is a low power control transmitter operating under the provisions of Part 15.249 of the FCC rules. The transmit frequency is 916.5MHz. nominal. The modulation mode is on/off keying.

B. MEASUREMENT PROCEDURE: RADIATED EMISSIONS

Transmitter field strength measurements were conducted according to the procedures set forth in ANSI C63.4 (1992). The device under test was 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 the two logical positions as shown in the photographs

The device is powered from an external 9V alkaline battery and is internally regulated at 5V. The test was conducted with a fresh battery at full charge. Several spare batteries were on hand for the test but the original battery was checked periodically and never dropped below 90% capacity. The device maintains regulation down to 70% battery capacity.

For the purposes of testing, the device was locked in a constant transmit pattern generated by a special test routine programmed into the internal micro-controller. The field strength measurements were taken using an HP8596E spectrum analyzer, EMCO 3121C dipole set, an EMCO 3115 double ridge guide horn. and an Avantek UJ210 preamp. The device was scanned from 30MHz. to 9.2GHz. and all emissions were noted. In this case the only emissions detected were those harmonically related to the fundamental transmit frequency.

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 in the positions described above. The peak reading for each frequency was recorded in the second column on the data sheet. The readings for the 4th and 5th harmonics were obtained by reducing the distance from the measurement antenna to 1 meter and entering a -9.5dB distance

correction factor into the final calculation for those measurements. Harmonics above the 5th were not detectable.

The calculations for this device were made without factoring in a duty cycle correction factor. Although the transmission mode is on/off keying and yields a correction factor of approximately -6dB., all emissions were sufficiently below the applicable limits to ignore the difference.