



Excellence in Compliance Testing

Certification Exhibit

FCC ID: OF8-TM8D

FCC Rule Part: 47 CFR Part 95, Subpart H

ACS Project Number: 15-3052

**Manufacturer: Life Sensing Instrument Company
Model: TM8D**

Theory of Operation

TM8D Overview

The TM8D Dual Lead ECG Transmitter is a frequency synthesized transmitter operating in the UHF (608 – 614 MHz) Wireless Medical Telemetry Service broadcast band. The device utilizes 5 independent patient lead wires connected to disposable patient electrodes, from which two distinct ECG signals are derived. The analog signals are digitized by two 10-bit A/D converters at 250 samples per second. The digitized data is then sent to the transmitter module (M-104) at 14.2Kbps, where it directly FSK modulates the carrier.

Electronics consists of two modules:

Analog/digital conversion and control module, designated as I-108.

Transmitter module, designated as M-104.

Operation:

Processor control is by a Philips P89LPC938 located on the I-108 module and driven by an internal clock at approximately 1.8MHz. Digitized ECG waveform data plus lead connect, battery status and record request is ported to the M-104 module, which is clocked by a 10MHz master oscillator. The M-104 sends a 14.2KHz baud clock to the I-108, which determines data rate.

The device is powered by two AAA alkaline batteries, the voltage of which is boost converted by a smps to 3.0V. The device is capable of continuous operation for approximately two to three days. A low battery level is detected, which then sets a software timer for a controlled shutdown, thus preventing any un-controlled RF activity in the M-104 module.

Emissions from the RF module are contained with generous ground plane and a shield that covers the essential RF parts of the module. Additionally, there is a well tuned passive filter network at the RF output. The patient lead wire shields form an effective monopole omnidirectional antenna.