Operational Description of Track Tag, Model TT2500

1 Introduction

The TrackTag circuit consists of two integrated circuit components, an MSP430 central processing unit (CPU) and a CC2500 transceiver. Power for the circuit is supplied by a 3.0 Volt Lithium battery. The CPU derives all of its internal timing from a 32.768KHz Crystal. The transceiver derives all of its internal timing from a 26MHz crystal.

1.1 Detailed Circuit Description

The CPU integrated circuit is comprised of a processor, a Read Only Memory (ROM), a Random Access Memory (RAM) and internal timing. The Transceiver integrated circuit is comprised of a transmitter, a receiver and internal timing circuits.

A proprietary software program is written into the CPU ROM at the time of manufacture, which controls the behavior of the TrackTag unit. The software program is intended to operate continuously without operator input or control.

The software program will periodically cause the CPU to activate the receiver section of the transceiver to listen for coded messages. These messages are transmitted from other TrackTag modules in close proximity. If the receiver receives a message, the software program running on the CPU will decode this message. The decoded message will be re-transmitted by the transmitter section of the transceiver.

Also, periodically, the software program will cause the CPU to activate the transmitter section of the transceiver to send a coded message. This message will be decoded by other TrackTag modules in close proximity.

The transmit times for two different applications of the Track Tag module are as follows: In the first mode the unit transmits every 15 minutes. When it transmits, the transmitter comes on for 10.8mS and then is off for 12.4mS. This repeats for a total time of 742mS and then goes back to sleep. The second application, the Repeater, comes on every time a Track Tag transmits. When it transmits, the transmitter comes on for 44mS and then off for 53mS. This only occurs once each time the repeater receives a signal from the Track Tag.

Impound Facility

Reader

Reader

Tagged Vehicle

Impound Lot

Reader

Reader

MSR

WiFi AP

Impound Office

Ethernet LAN

Tagged Vehicle

Exit
Reader

Internet