

## **1104 Tag Product Description**

The 1104 Personnel Name Tag is a small, active RFID tag that works as part of a PLUS Real Time Location System. The tag consists of a circuit board with integrated antenna, coin cell battery, and plastic enclosure. The tag is designed to support attachment of a CR80 format ID badge. The tag is worn on a lanyard or clip to enable location information for personnel.

The 1104 Tag periodically transmits a short (~100 us) packet that is received by a network of PLUS Readers. The Readers generate time of arrival data for the tag, and then send this data across an Ethernet network to a server running the PLUS Location Software. The PLUS software uses the time of arrival from multiple readers to determine an accurate location for the tag.

Each packet transmitted by the 1104 tag consists of pulses transmitted at a 1 MHz pulse repetition frequency (PRF). Data is transmitted using On-Off Keying (OOK) modulation, in which a pulse present in a given timeslot = data value 1, and a missing pulse in the timeslot = data value 0. Each pulse has an RF center frequency of 6.6 GHz.

The 1 MHz PRF is derived from an 8 MHz crystal resonator which also drives the PIC microcontroller on the tag. There are no other clock sources on the tag.

The tag is ultrasonically welded in its plastic enclosure. There are no user inputs. It is not possible for the user to change RF signal characteristics, PRF, or transmitted data content. The tag antenna is integrated onto the circuit board inside the plastic enclosure and cannot be accessed, removed, or replaced.