Technical Memo

TO: KTL
FM: Chris Chattaway

DATE: March 29, 2000

SUBJECT: Technical Description of the Halo Infant/ECO Tag
Documnt Number: 970-000009-000

---

1. Introduction

The purpose of this memo is to give a top-level technical description of the Infant/ECO tag. The tag is used with the EXI Halo protection system. The following description outlines the operation of the tag.

The tag comes in two forms, Infant (umbilical tag) and the ECO (wrist strap). The infant tag is intended to go onto an infant's umbilical cord and can be identified by the post protruding from the bottom side of the case. The other case is applied to a patient with a wrist strap and has a figure eight look to it. Both units will be using the same electronics.

1. Operation

The Infant/ECO tag is an RF transceiver that responds to a 307 KHz channel on a 433.92 MHz channel. The tag upon entering a 307 KHz field wakes up and communicates its serial number to the controller (base station). The controller, over the 307 KHz field (channel), transmits wakeup and respond commands to the tag and also initiates and controls the serial number interrogation.

The Infant/ECO tag only operates when in the 307 KHz field. When a tag enters the field the tag is prompted to power up (wake up) by the 307 KHz field. Once powered up the tag will respond to the next wake up word with a 350µs pulse. This pulse prompts the controller to issue the serial number interrogation protocol command (bit by bit) and the serial number is extracted from the tag by the controller. The attached figure 1 illustrates this communication. For more information on the bit by bit protocol please refer to document "Bit-by-Bit Interrogation: Protocol Description" document number 970-000001-000

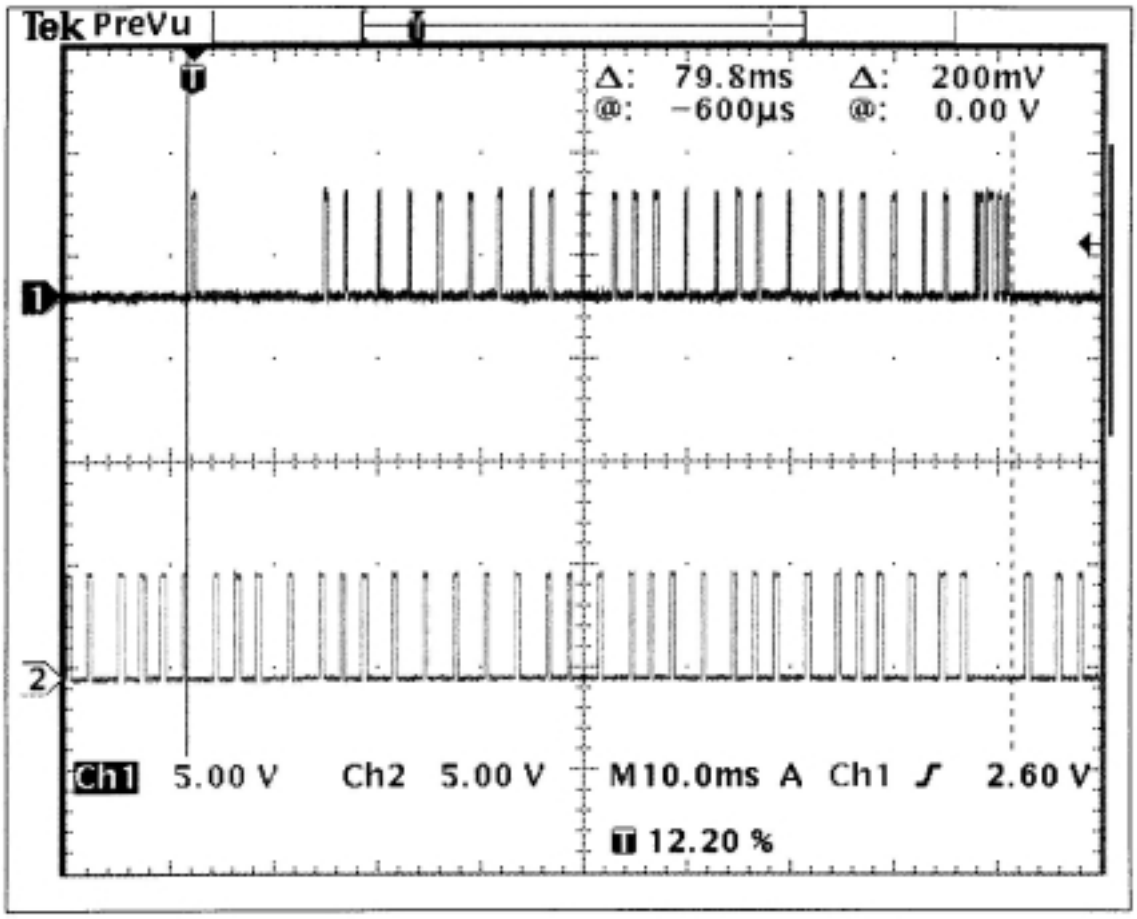

Figure 1: Bit by Bit communication example

Now that the tag in the field is identified the controller must periodically check to see if the tag is still in the field. Every 12 sec. the tag will wake up and respond with a 350µs pulse when it sees a respond command. This communication is shown in figure 2. This communication will continue until the controller issues a reset command and re-interrogates all the tags in the field (once per minute). This behavior is detailed in the document “Halo communication Protocol” document number 970-000002-000.

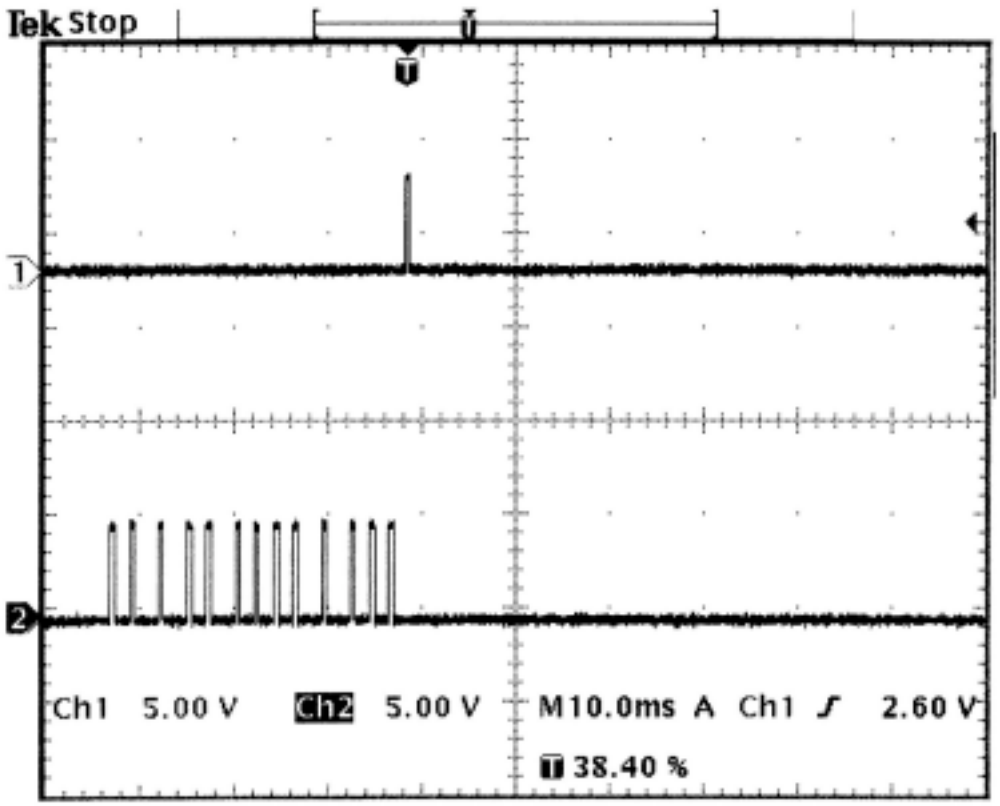

Figure 2: Respond Communication Example

2. Cases and markings

The following diagram, Figure 3, illustrates the two cases that will be used for these tags. In addition the diagrams show where the FCC identifications will appear on the respective tags

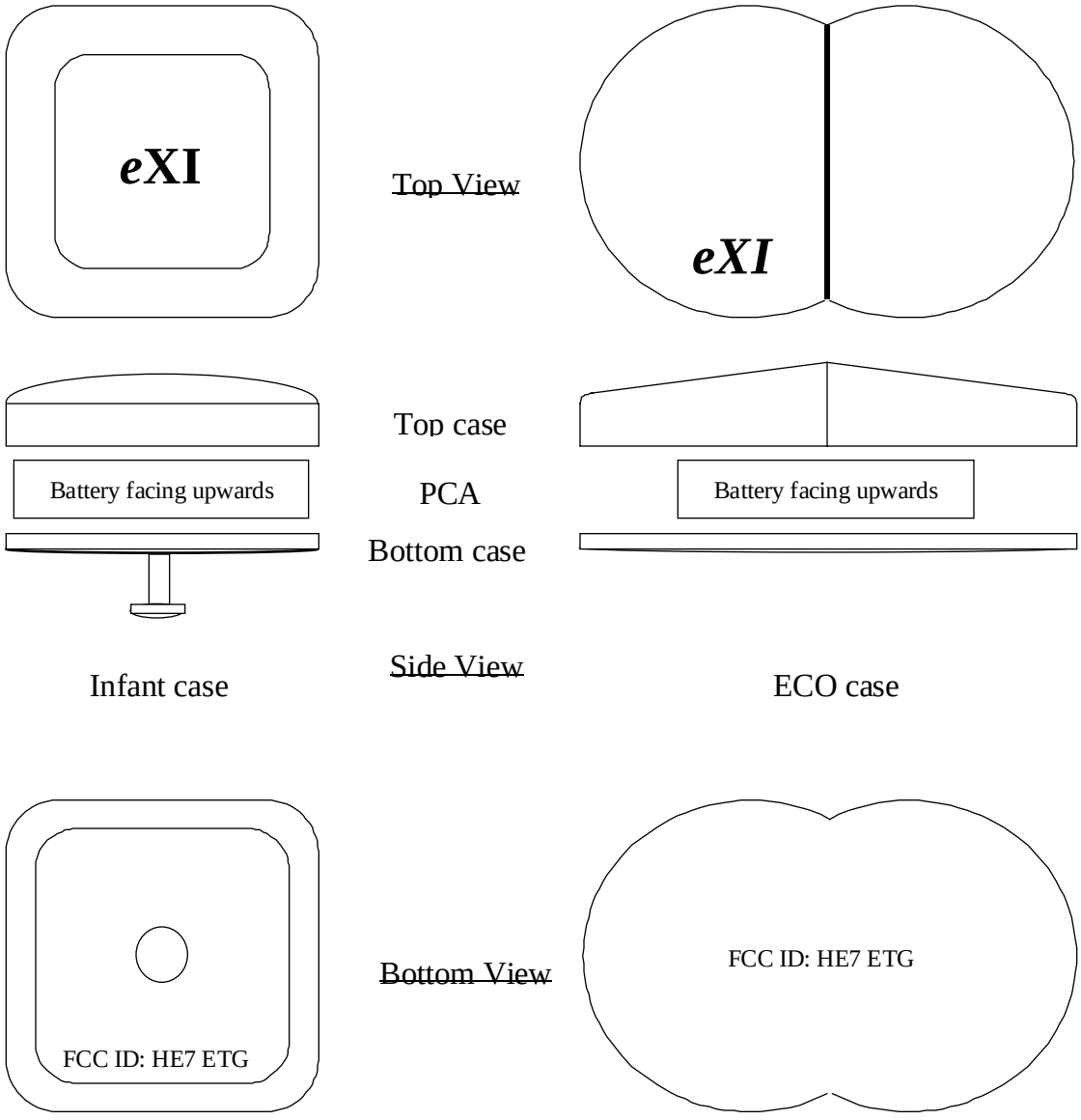

Figure 3: Cases and Markings for the Infant and ECO tags