



AeroScout T7 Tag

User Guide

T7-UG-251011-01

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REVISION HISTORY			
Revision	Date	Comments	Author
1	25 October 2011	New Document	Refael Blanca

Introduction

The AeroScout T7a Tag is a key component of the AeroScout Infant Security System, an effective and reliable Wi-Fi-based solution to guard against the threat of infant abduction from hospitals. The T7a Tag is a small form factor Wi-Fi RFID device that is designed to attach to infant's umbilical stub and to help prevent infant abductions by alerting when the infant is carried close to an exit door. In addition, with the T7a Tag infants can be accurately located in real-time and in any environment – from tight indoor locations such as hospital floors to open outdoor spaces such as parking lots.

Each infant wears a small form factor T7a which is attached to its umbilical cord clamp. The MyChild system computer console displays floor plans of the facility, showing monitored areas and protected exits. Should an attempt to leave the monitored area with a protected child occur without authorization, the MiChild system will immediately set off an alarm, activate magnetic door locks and hold selected elevators.

T7a Tag messages are received and processed by standard Wi-Fi access points as well as AeroScout Location Receivers, keeping infrastructure costs low and installation simple. As with all AeroScout tags, location determination is performed through a unique beaconing method that keeps network impact low and ensures scalability and long battery life.



Figure 1: T7a Tag

T7 Tag Features

Wi-Fi Compatibility

T7a Tags use any standard Wi-Fi network infrastructure, keeping costs low and making deployments simple and fast. AeroScout tags are 802.11b compatible. The

tag's clear channel sensing techniques avoid interference with Wi-Fi networks. The use of the unlicensed 2.4GHz frequency band at low power levels ensures no interference with other wireless equipment, making AeroScout tags safe for use with such sensitive equipment as medical devices in a hospital.

Smart and Simple Activation

To prevent battery drainage and extend battery life as much as possible, tags leave the factory in Dormant mode. Using AeroScout Exciters, T7a Tags are activated automatically when entering the Labor & Delivery unit. As result battery life can be extended and the tags provide instant notification and protection prior to the enrollment. T7a Tag can also be easily deactivated in order to conserve battery power.

Power Management

The T7a Tag's rechargeable battery can provide power for an operating period of up to 30 days before a recharge is needed. The tag periodically provides a report on the battery level so that when the battery level runs low, it can be recharged efficiently with minimum down time. AeroScout tags also include a smart mechanism that records the tag activity and forms a profile of the tag's behavior. Based on those statistics, the system constantly delivers the updated battery's capacity level the estimated battery life expectancy.

Battery Life Prediction and Analysis

AeroScout Tags are configured with counters that retain the number of times a tag undergoes different events such as the number of transmissions or the number of LF triggers, thus forming a profile of the tag's behavior. Based on those statistics, the system constantly delivers updated estimates of the battery life expectancy and the tag's behavior can be analyzed.

Battery Stretch

AeroScout Tags are designed to stretch the battery life when it reaches low level in order to prevent the tag from dying before the battery is replaced. When a tag's battery reaches **Low** level, the tag will temporarily modify its configurations to transmit in intervals of one second between each channel and one second between repetitions. The original configurations will be restored once the battery is replaced with a new one. It is recommended to change the batteries as soon as they reach Low level.

Motion Sensing

AeroScout T7a Tags contain on-board motion sensors. The motion sensor can be configured to trigger alerts. It also enables different transmission intervals for tags

when they are stationary or in motion – which reduces unnecessary network traffic and conserves battery life.

Tag Management

The T7 Tag can be programmed via a wireless interface using the AeroScout Tag Activator. Together with the AeroScout Tag Manager software it allows for easy and efficient Tag configuration, activation or deactivation and programming.

Tag Programmability and Storage

The T7 Tag can store up to 15 messages of 15 bytes each. These messages can either be pre-programmed via the Tag Manager or programmed on the fly by an AeroScout Exciter when a tag is in proximity to it. These messages can also be transmitted in addition to the standard location messages (the tags can be either configured to transmit one of the messages or triggered by an AeroScout Exciter to transmit a specific message).

Active RFID Functionality

Using the AeroScout Exciter, the tag sends out specific location reports upon arrival at chokepoints or gateways. The tag behavior can also be automatically modified while passing through a chokepoint such as a doorway or gate. This includes activating/deactivating tags or changing the tags' transmission rate to accommodate different usage patterns.

Compatibility and Non-interference

AeroScout Tags are 802.11b compatible. The tag's clear channel sensing techniques avoid interference with Wi-Fi networks. The use of the unlicensed 2.4GHz frequency band at low power levels ensures no interference with other wireless equipment, making AeroScout tags safe for use with such sensitive equipment as medical devices in a hospital.

Rugged Performance

AeroScout Tags are designed to function in harsh work environments and weather conditions. The T7 Tag enclosure is water-resistant (IP-67) and designed to withstand significant physical shocks.

Tag Mounting

The AeroScout T7a Tag is enclosed in a compact case and designed to attach to infant's umbilical stub.



Figure 2: Umbilical Tag with the Clamp

Tag Management

The AeroScout T7 Tag can be configured, programmed and activated via a wireless interface. This is done with the help of the AeroScout Tag Manager application and the AeroScout Tag Activator.

In addition, Tag Manager is used to activate and deactivate tags and to program stored messages on the tags.

The Tag Manager functions can also be activated via APIs that enable easy integration with third-party applications.

Please refer to *AeroScout Tag Manager User Guide* and *AeroScout Tag Manager API User Guide*.

Tag Maintenance

Recharging the Internal Battery

T7 Tag Models

AeroScout T7 Tag	Comments	Model
Infant Security T7a Tag	Small form factor Tag to be attached on an infant's umbilical cord using a clamp	TAG-7000

AeroScout T7 Tag	Comments	Model
T7c Tag	Tamper evident cut-strap tag for patients (not for infants). Replaceable battery. Includes LF receiver. Does not include ultrasound receiver and call button.	TAG-7200
T7c Tag with Call Button	Tamper evident cut-strap tag for patients (not for infants). Replaceable battery. Includes LF receiver and call button. Does not include ultrasound receiver	TAG-7200-C
T7c Wi-Fi Ultrasound Tag	Tamper evident cut-strap tag for patients (not for infants). Replaceable battery. Includes LF receiver and Ultrasound receiver. Does not include call button.	TAG-7200-U
T7c Wi-Fi Ultrasound Tag with Call Button	Tamper evident cut-strap tag for patients (not for infants). Replaceable battery. Includes LF receiver, Ultrasound receiver and call button.	TAG-7200-CU
Infant Security T7d Tag	Wi-Fi Tag with mounting flanges for a standard infant strap to be attached to the infant's ankle, only for cases where tag cannot be attached to the umbilical cord clamp. Tag does not include a tamper evident mechanism/alert.	TAG-7300

Table 1 – Regular T7 Tag Models

Tag Management Suits

Tag Management		
Tag Management Suite	Includes Tag Activator, Tag Manager Software and 110/220V to 12V adaptor	
US Suite	Includes 110/220v to 12v adapter (US)	BWH-1000-02-TA-U
Europe Suite	Includes 110/220v to 12v adapter (Europe)	BWH-1000-02-TA-E
Japan Suite	Includes 110/220v to 12v adapter (Japan)	BWH-1000-02-TA-J

Tag Management		
UK Suite	Includes 110/220v to 12v adapter (UK)	BWH-1000-02-TA-UK

Table 2 – Tag Management Models

Specifications

Tag Specifications

Performance

- Outdoor range: Up to 200m (650 feet)
- Indoor range: Up to 80m (260 feet)

Physical and Mechanical

- Dimensions: 2.87cm x 2.5cm x 1.26cm (1.13in x 1.0in x 0.47in)
- Weight: 10.5g (0.37oz)

Radio

- 802.11b radio (2.4GHz)
- Low frequency receiver for chokepoint detection (125kHz)
- Transmission power: up to +19dBm (~81mW)
- Patented clear channel sensing avoids interference with wireless networks and VoIP systems

Environmental Specifications

- Operating temperature: 0 to 50 °C
- Storage temperature: -40 to 85 °C
- Humidity: 0 to 95%, condensing
- Water and dust resistant (IP-67)

Electrical

- Lithium polymer battery (rechargeable)
- Battery: 4.2V

Certification

- **Radio**
 - US standard: FCC part 15
 - European standard: ETSI 300.328, 300.330, ETSI 301.489

- Canada: RSS 210, upon customer request
- EMC standard for healthcare: IEC 6100 / EN 60601
- Japan : ARIB - Upon customer request
- Australia : C-tick – upon customer request
- Korea : MIC – upon customer request
- **Safety Certifications**
 - US – cTUVus: UL 60950
 - Europe – CE mark: EN 60950

Safety and Warnings

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- a) Reorient or relocate the receiving antenna.
- b) Increase the separation between the equipment and receiver.
- c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- d) Consult the dealer or an experienced radio/TV technician.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- a) This device may not cause harmful interference
- b) This device must accept any interference received, including interference that may cause undesired operation.

FCC Warning

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

WARNING: This device complies with Part 15 of the FCC Rules and RSS-210 of Industry and Science Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Limited Warranty

Hardware. AeroScout Inc. ("AeroScout") warrants that commencing from the date of delivery to Customer and continuing for a period of one (1) year thereafter (the "Warranty Period"), the Hardware will be free from defects in material and workmanship under normal use subject to terms hereof. The date of shipment of a Product by AeroScout is set forth on the packaging material in which the Product is shipped. This limited warranty extends only to the original user of the Product. Customer's sole and exclusive remedy and the entire liability of AeroScout and its suppliers under this limited warranty will be, at AeroScout's or its service center's option, shipment of a replacement within the period or a refund of the purchase price if the Hardware is returned to the party supplying it to Customer, if different than AeroScout, freight and insurance prepaid. AeroScout replacement parts used in Hardware repair may be new or equivalent to new. AeroScout's obligations hereunder are conditioned upon the return of affected articles in accordance with AeroScout's then-current Return Material Authorization (RMA) procedures.

Restrictions: This warranty does not apply if the Product (a) has been altered, except by AeroScout, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by AeroScout, (c) has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident; or (d) is provided for beta, evaluation, testing, or demonstration purposes for which AeroScout does not receive a payment of purchase price or license fee.

Exclusions:

This warranty shall have no coverage of the following:

- Batteries (other than DOA -Dead On Arrival)
- Plastics (including defects in appearance, cosmetics, decorative or structural items including framing and non-operative parts).
- Tag Calibration
- Expenses related to removing or reinstalling the Product

Defects or damage that result from the use of Non-AeroScout certified Products, Accessories, Software or other peripheral equipment are excluded from coverage.

Defects or damages resulting from service, testing, adjustment, installation, maintenance, alteration, or modification in any way by someone other than AeroScout, or its partners, are excluded from coverage.

Extended Warranty:

AeroScout offers an extended warranty. The initial year of the extended warranty must be purchased at the time of the product purchase or before the original warranty expires. The extended warranty may be renewed again for a maximum of two additional years (on top of the initial warranty period). Warranty extensions must be purchased prior to the existing warranty expiration and will not be available after the original/extended warranty expires.

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This disclaimer and exclusion shall apply even if the express warranty set forth above fails of its essential purpose. Under no circumstances shall AeroScout's liability under this limited warranty exceed the actual cash value of the Product at the time Consumer returns the Product for repair, determined by the price paid by Consumer for the Product less a reasonable amount for usage.

Please use the following link to submit your tickets using AeroScout's support portal:

<http://support.aeroscout.com>

About AeroScout

AeroScout is the market leader in Unified Asset Visibility solutions. Clients improve operational efficiency and quality using AeroScout products that leverage standard Wi-Fi networks to track and manage the location, condition and status of mobile assets and people. AeroScout's global customer base consists of leading hospital, manufacturing and logistics organizations, including many of the Fortune 500. The company originally invented the first Wi-Fi-based Active RFID tag, and today is widely recognized as leading the market in number of deployments and tags shipped. Headquartered in Redwood City, Calif., AeroScout has offices in Europe, Asia, the Middle East, Latin America and Australia. For more information, please visit www.aeroscout.com.

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