



AssetTag Model: 220Bi

## **User Guide**

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## Introduction

**V**estac AssetTag 220Bi is the industry's first Wi-Fi & IR multi-modal tag. These dedicated battery-powered tags send Wi-Fi compatible messages at pre-defined intervals to application servers via an Enterprise class Wi-Fi infrastructure.

When attached to assets the 220Bi can be tracked by most existing Wi-Fi infrastructures. The Wi-Fi & IR capability allows *simultaneous* tracking of the device by using Wi-Fi positioning algorithms and/or Infrared based chokepoint technology. The 220Bi is specifically designed to work in sparse Wi-Fi installations utilizing the optional “deploy and forget” Vestac 330Xi IR Transmitter.

### A Unique Approach to IndoorGPS©

Real Time Locationing System (RTLS) systems that also work indoors require additional infrastructure. Vestac 220Bi reuses the existing Wi-Fi infrastructure which results in dramatic cost reduction. Indoor RTLS based applications also require room level or sub-room level accuracy which Wi-Fi based systems may not be able to provide easily or at affordable cost. In response Vestac has designed the multi-modal 220Bi which uses Wi-Fi infrastructure both for RTLS as well as relaying pin-point positioning based on receipt of IR signals from Vestac long-life, battery-operated 330Xi IR transmitters. No additional infrastructure is required.

# **AssetTag 220Bi Features**

## **Multi-Modal Wi-Fi + Infrared**

802.11b Compatible RF with Proprietary Infrared Signal Detection

## **Compact Form Factor**

The small size (1.85" x 1.46" x 0.55") and light weight Vestac AssetTag 220Bi can be easily incorporated and affixed to a variety of asset types such as but not limited to medical devices, manufacturing equipment, IT equipment, shipping containers, vehicles and carts.

## **Flexible Mounting Option**

Vestac AssetTag 220Bi can be affixed to assets using a variety of mounting options including adhesive tape, Velcro, tie-wrap, or be placed inside a holder.

## **Integrated Motion Sensing**

220Bi includes a built-in motion detector that reports whether the tag is in motion or stationary. The motion sensor is designed to optimize and maximize battery life by allowing higher transmission rates when the asset is in motion.

## **Storage Mode**

A power optimization feature places the tag into "Storage Mode" when the tag has been stationary for long periods of time. Storage mode will chirp once every 8 hours.

## **Long Battery Life**

A powerful lithium polymer battery provides greater than 5 years of battery life under normal operating conditions. An advance power optimization and power management design ensures that Vestac AssetTag 220Bi maximizes battery life under a variety of transmission and usage scenarios. Vestac AssetTag 220Bi transmits battery status and low battery alerts to facilitate asset monitoring by software applications.

## **Ultra-Secure Provisioning**

Configuring and programming of 220Bi is performed using Ultra-Secure Infrared Provisioning.

## **Infrared Functionality**

The 220Bi uses the Wi-Fi infrastructure for both RTLS and as a data path for relaying pin-point positioning information received in IR signals transmitted by the Vestac 330Xi IR Transmitter. No additional infrastructure is required.

## **Wi-Fi Compatibility**

Vestac tags are IEEE 802.11b compatible and FCC certified to not pose interference or frequency concerns for wireless equipments or devices.

## **Mounting**

The Vestac AssetTag 220Bi is enclosed in a compact case that offers a variety of mounting options.

- adhesive mounting or velco
- mount on cylindrical form using tie-wrap

## **Tag Management**

Vestac AssetTag 220Bi is configured and programmed via a ultra-secure infrared provisioning. This is performed using the Tag Provisioning Software version 1.0.

# Specifications

## Data

Wi-Fi Compatible 802.11b

DSSS (Direct Sequence Spread Spectrum)

Max RF Output Power up to +19.8 dBm

Frequency Range: 2.412 -2.462 GHz

IR Receiver: Compatible with Vestac 330Xi IR Transmitter

## Interface

DC Power: 3.6V—5.0V Customizable Battery

Antenna: Internal, omni-directional

Configuration: Ultra-Secure Infrared Provisioning

## Configuration

Transmit Power: -5.0 dBm to +17.8 dBm

US Channels: 1, 6 and 11

At rest transmit interval: From 60 seconds to 8 hours

In-motion transmit interval: From 2 seconds to 4 minutes.

Storage Mode transmit interval: once every 8 hours

## Physical

Weight: 50 grams

Dimensions: 2.83"x1.96"x0.24" (72mm x 50mm x 6mm)

Battery life: > 5years under normal usage.

Mounting options: Permanent adhesive film.

## Environmental

Operating: 0 to 50 °C / 32 to 122 °F

Protection: water proof, IP67/NEMA 6

## Certifications

FCC Part 15, subpart Class C



## Safety and Warning

### Federal Communication Commission Declaration of Conformity (DoC) Statement



Model No: Vestac AssetTag 220Bi

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:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules.

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.

### FCC Warning

Any changes or modifications not expressly approved by Vestac could void the user's authority to operate the equipment under FCC rules.

**Instructions concerning human exposure to radio frequency electromagnetic fields.**

To comply with FCC Section 1.1307(b)(1) for human exposure to radio frequency electromagnetic fields, implement the following instructions: A distance of at least 20 cm between the equipment and all persons should be maintained during operation of the equipment.

## **Warranty**

### **Hardware**

Vestac LLC warrants that commencing from the date of delivery to Customer, and continuing for a period of ninety (90) days the 220Bi hardware will be free from defects in material and workmanship under normal use. The date of shipment of a Product by Vestac 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 Vestac and its suppliers under this limited warranty will be, at the option of Vestac or its service center, 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 Vestac, freight and insurance prepaid. Vestac replacement parts used in

returned goods repair may be new or equivalent to new. Vestac's obligations hereunder are conditioned upon the return of affected articles in accordance with Vestac's then-current Return Material Authorization (RMA) procedures.

### **Restrictions**

This warranty does not apply if the 220Bi product (a) has been altered, except by Vestac, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Vestac, (c) has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident; or (d) is sold for beta, evaluation, testing, or demonstration purposes for which Vestac does not receive a payment of purchase price or license fee.