



7GHz Tags

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User Manual



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Caution

- No modifications to the tag allowed. This includes any type of modification to the case, such as adding metal foils, holes, disassembly, or modifications to the PCB assembly, antenna, battery, or modifications to the product labels, etc.
- Prior to installation, carefully inspect the tag, looking for crack, puncture, or any other breach of the plastic case. Damaged tags must not be used. Properly dispose of any damaged tag.
- Never dispose of the tag in a fire.
- Deactivate the tag when not in use. It is mandatory to deactivate the tag prior to shipment by airplanes.
- Follow limitations of use as set forth by any applicable regulatory bodies.
- Do not attempt to open the tag and modify the battery due to fire, explosion, and severe burn hazard. Do not recharge, short circuit, crush, disassemble, heat above 100 °C (212 °F), incinerate, or expose contents of the battery to water.
- Do not dispose the tag or its lithium batteries in unsorted municipal waste. In most countries, recycling programs are available through non-profit organization, mandated by local government or organized on a voluntary basis. Contact your local government for disposal practices in your area.
- When not in use, the tag should be stored in dry and cool conditions at a temperature exceeding 30 °C (86 °F).
- These UWB devices may not be employed for operation of toys. Operation onboard an aircraft, a ship or a satellite is prohibited.

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1 Introduction

Zebra's Ultra-WideBand (UWB) 7GHz Tags (Models UWT-7020, and UWT-7010) are small battery-operated tags designed for use in sports applications. The UWT-7020 is only used attached to the bladder of a football, and when enabled will track the real time location of that ball on the field. The UWT-7010 is attached to people or assets to track their location in real time. Tags have a unique ID and emit UWB pulses that are received by Zebra's UWB 7GHz Receivers. Receivers report detected tag events to the Zebra Hub running Zebra's UWB real-time locating system (RTLS) software where tag location information is computed and reported.

Conditions of Waiver Operation:

Waiver DA 21-1294 specifies the rules under which Zebra can deploy its Dart positioning system in the 7125-7900MHz frequency range. The UWB tags are small battery-operated UWB transmitters that is part of that system. The UWB tags meet all the requirements of waiver DA 21-1294.

Restrictions in Waiver DA 21-1294 include:

The maximum number of active Dart tags in a designated sports venue shall not exceed 600.

Zebra shall inform its customers that all deployments of the Dart Systems must be activated prior to the beginning of the sports event or practice and shall be immediately deactivated after the sports event or practice has concluded.

The Dart System shall not be sold or marketed to consumers in the general public.

The locations where the Dart system is permitted to operate outdoors only under the conditions of this waiver order, are limited to NFL game venues, NFL practice venues, one Senior Bowl venue, and college sports venues. Any request by Zebra to modify or add to this list may be approved by the FCC in coordination with NTIA.

Antennas mounted on outdoor structures such as the outside of a building, on a telephone pole, or on any fixed outdoor infrastructure are prohibited.

2 Installation and Operation

7GHz Tags are shipped with the transmitter off. The tags can be turned on/off using a Zebra configuration tool or a Zebra WherePort. To meet regulatory requirements and increase battery life, Tags are only turned on for specific periods of time, and under specific conditions, for example, the length of an NFL football game. To further their battery life, Tags also slow down their blink rates when idle.

3 7GHz Tags

3.1 UWT-7020

The UWT-7020 is made only to be installed to the bladder of a football by the football manufacturer. It is a small, lightweight, battery-operated tag with no external interfaces. The tag is configured at the factory and shipped with the Tx function turned off. The Tag Tx function can be turned on/off with a Zebra installation tool or a WherePort magnetic exciter.

3.2 UWT-7010

The UWT-7010 tag is a small, rugged, battery-operated tag that is made to be installed under the shoulder pads of a football player or used to track other mobile personnel or equipment. The tag is configured at the factory and shipped with the Tx function turned off. The Tag Tx function can be turned on/off with a Zebra installation tool or a WherePort magnetic exciter.

4 Adjustment

No adjustment is necessary once a tag is activated

5 Regulatory

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A 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:

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

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.