MPACT LOCATION & ANALYTICS HARDWARE INSTALLATION GUIDE VERSION 2.0

RB BEACON ATLS-T1B
2AA BEACON MPACT-INDR1
OUTDOOR BEACON MPACT-OUTR1
USB BEACON MPACT-USB1

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ABOUT THIS GUIDE

This chapter is organized into the following sections:

- *Using the Documentation*
- *Zebra Technologies Corporation ("Zebra") End-User Software License Agreement*

Using the Documentation

The following sections provide information about the document and notational conventions used in the guides, and provides a list of related documentation.

Document Conventions

The following conventions are used in this manual to draw your attention to important information:

NOTE: Indicates tips or special requirements.

CAUTION: Indicates conditions that can cause equipment damage or data loss.

WARNING! Indicates a condition or procedure that could result in personal injury or equipment damage.

Revision History

This guide has the following release and revision milestone history:

Release	Date	Change
Revision A	July, 2015	Initial release of document with new MPact beacons added.
Revision B	September, 2015	Release of document with Outdoor MPact beacon added.

Notational Conventions

The following notational conventions are used in this document:

- Italics are used to highlight specific items in the general text, and to identify chapters and sections in this and related documents
- Bullets (•) indicate:
  - lists of alternatives
  - lists of required steps that are not necessarily sequential
  - action items
- Sequential lists (those describing step-by-step procedures) appear as numbered lists

Related Documentation

MPact Location and Analytics documentation includes the following:

- *MPact Location & Analytics Deployment Guide*
- *MPact Location & Analytics Server Reference Guide*
- *MPact Location & Analytics Server API Guide*
- *MPact Location & Analytics Toolbox Reference Guide*
- *MPact Location & Analytics Client Software Development Kit*

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CHAPTER 1 MPACT BLUETOOTH® SMART BEACON OVERVIEW

The MPact Platform employs Bluetooth® Smart beacons deployable in various modes, including Battery Save, iBeacon™ and MPact to unify Wi-Fi and Bluetooth® Smart Technology to capture more analytics, accuracy and insight into consumers purchasing preferences. Use Bluetooth® Smart beacons to learn which aisles and products customers prefer, their shopping history, and what influences their buying decisions.

Beacon placements can be adjusted within a deployment floor plan, and depending on the mode selected, their battery life can be tracked over time. Administrators can cursor over a beacon on a site's floor plan to assess the beacon's remaining battery life.

This guide includes the following:

- *Beacon Hardware Specifications and Installation*
  - *RB Beacon Part Number: MPACT-T1B20-000-WR*
  - *RB Beacon Part Number: MPACT-T1B10-000-WR*
  - *2AA Beacon Part Number: MPACT-MB2000-01-WR*
  - *Mounting and Installing the Outdoor Style Beacon*
  - *USB Beacon Part Number: MPACT-MB3000-01-WAR*
  - *Beacon Battery Replacement*
    - *Replacing RB Battery: MPACT-T1B20-000-WR and MPACT-T1B10-000-WR*
    - *Replacing 2AA Battery: MPACT-MB2000-01-WR*

CHAPTER 2 BEACON HARDWARE SPECIFICATIONS AND INSTALLATION

The following setup processes must be complete as a prerequisite to installing beacon hardware:

- *MPact Server Installation and Setup - see the MPact Location & Analytics Deployment Guide*
- *MPact Toolbox and Beacon Installation - see the MPact Location & Analytics Deployment Guide*

Lozier® Shelves

Beacon brackets for the MPACT-T1B20-000-WR and MPACT-T1B10-000-WR can be used with the following Lozier products:

- TL Shelf
- DL Shelf
- HL Shelf
- Standard Base Deck

2.1 RB Beacon Part Number: MPACT-T1B20-000-WR

As a prerequisite, the following hardware items are required to mount the tie-wrap style beacon housing to a pole or similar structure:

- Beacon (tie-wrap style housing), part number - MPACT-T1B20-000-WR. (When ordering, use the following part number: MPAC-T1B20-250-WR (Box of 25)
- Plastic tie wraps for attaching each beacon housing to the shelf

2.1.1 Installing the Tie-Wrap Style Beacon

Tie-wrap beacon housings are designed to attach to vertical or horizontal poles or similar mounting surfaces. In Figure 2-1, there are openings located on the back of the beacon housing allowing a tie wrap to be inserted through the openings and wrapped around a pole or similar structure.

Notice the up arrow located on the middle of the beacon housing. This arrow indicates the optimal orientation for the beacon to function properly. Additionally, the smooth front of the beacon should face outward toward the aisle where client devices are expected to engage (dwell).

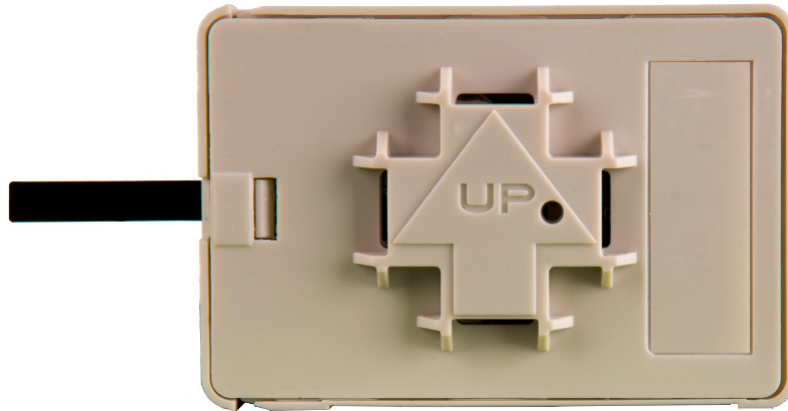Figure 2-1 shows a beacon with the mylar strip attached to the left-hand side of the housing.

Figure 2-1 *Tie Wrap Style Beacon - Part Number - MPACT-T1B20-000-WR*

⚠ **NOTE:** When installing numerous beacons, group beacons by category and activate them prior to scanning the barcodes and associating them with positions in the Toolbox.

1. From MPact Toolbox, select a site floor plan and an unassigned position for the beacon. Refer to the *MPact Location & Analytics Deployment Guide* for information on how to install and deploy the beacon from the Toolbox.

To mount the tie wrap beacon to a pole or similar structure:

2. Mount the beacon to a pole or similar structure using the plastic tie wrap. Tie can be placed vertically or horizontally but the arrow should still point up.

To activate a beacon part number - MPACT-T1B20-000-WR:

3. Activate one or more beacons by pulling the mylar strip off the beacon housing.

⚠ **CAUTION:** After pulling off the last mylar strip, you have 20 seconds to associate the beacon in either offline or online mode using the Toolbox application.

2.2 RB Beacon Part Number: MPACT-T1B10-000-WR

As a prerequisite, the following hardware items are required to mount beacon brackets to a Lozier style shelf:

- *Lozier® Shelves*
- Beacon: Part number - MPACT-T1B10-000-WR
  - When ordering, use the following part number: MPACT-T1B10-250-WR (Box of 25)
- Bracket mount, one of the following:
  - MPACT Metal Lozier Bracket: Part number MPACT-A1O10-004-WR
  - MPACT Plastic Lozier Bracket: Part number MPACT-A1O10-001-WR
- Phillips head screw driver for mounting the bracket (metal brackets only) to the Lozier shelf

2.2.1 Mounting and Installing the Universal Style Beacon

Figure 2-2 shows a *universal* style beacon. While there is no up arrow on this beacon's housing, the beacon should be oriented similar to the tie wrap style of beacon housing, see *RB Beacon Part Number: MPACT-T1B20-000-WR*.

Notice the up arrow located on the middle of the beacon housing. This arrow indicates the optimal orientation for the beacon to function properly. Additionally, the smooth front of the beacon should face outward toward the aisle where client devices are expected to engage (dwell).

Figure 2-2 *Universal Style Beacon - Part Number - MPACT-T1B10-000-WR*

> **NOTE:** When installing numerous beacons, group beacons by category configurations and activate the beacons prior to scanning the barcodes and associating them with positions in the Toolbox.

From MPact Toolbox, select a site floor plan and an unassigned position for the beacon. Refer to the MPact Location & Analytics Deployment Guide for information on how to install and deploy the beacon from the Toolbox.

To mount the universal style beacon to *Lozier® Shelves*:

1. Mount the universal beacon shelf-bracket on the shelf:

   - *Metal brackets*: Fit in place and tighten onto the shelving unit using a phillips-head screw driver.

   - *Plastic brackets*: Fit in place and snap onto the shelving unit.

2. Fit the beacon's universal style housing into the bracket (mylar tap pointing up) and turn the beacon housing clockwise 90 degrees.

The barcode label should face up toward the ceiling and the smooth front of the beacon should face out toward the aisle where the mobile client is expected to engage.

There are two styles of bracket mounts from which to choose, either metal or plastic for Beacon:
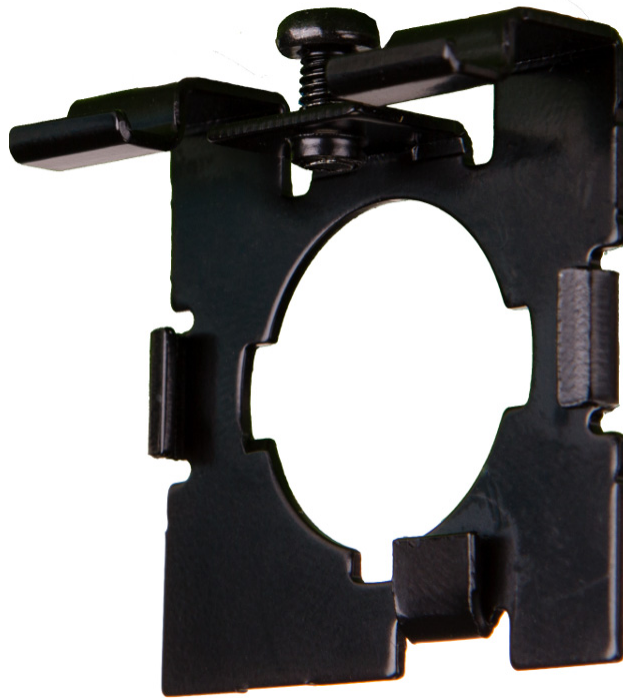Part number - MPACT-T1B10-000-WR.

Figure 2-3 *Universal Style Metal Bracket - Part Number MPACT-A1O10-004-WR*
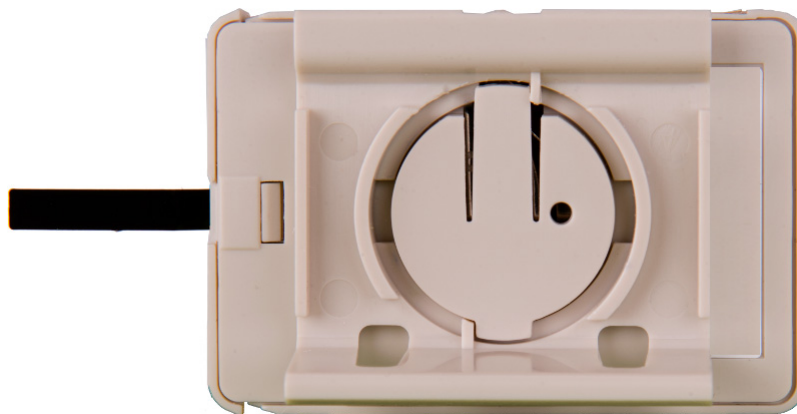

Figure 2-4 *Universal Style Plastic Bracket with Beacon- Bracket Part Number MPACT-A1O10-001-WR*

To activate MPACT-T1B10-000-WR model beacon:

3. Activate one or more beacons by pulling the mylar strip off the beacon housing.

> ⚠️ **CAUTION:** After pulling off the last mylar strip, you have 20 seconds to associate the beacon in either offline or online mode using the Toolbox application.

2.3 2AA Beacon Part Number: MPACT-MB2000-01-WR

As a prerequisite, the following hardware items are required to mount a beacon to a wall.

- Beacon: Part number - MPACT-MB2000-01-WR
  - When ordering, use the following part number: MPACT-MB2000-01-WR (Box of 25)
- Bracket mount kit see Figure 2-5 (included with part number MPACT-MB2000-01-WR):
  - Metal bracket
  - Two 1inch Phillips head tap screws, and two 1inch plastic wall inserts
- Phillips head screw driver for mounting the bracket (metal brackets only) to a wall

2.3.1 Mounting and Installing the Indoor Style Beacon

1. From the MPact Toolbox, select a site floor plan and an unassigned position for the beacon. Refer to the *MPact Location & Analytics Deployment Guide* for information on how to install and deploy the beacon from the Toolbox.
   To mount the universal style beacon to a wall:

   .a Mount the Indoor Metal beacon wall bracket on the wall with the provided screws and plastic wall inserts:

   .b Press the beacon's housing onto the bracket as shown in Figure 2-5.

> ✓ **NOTE:** The barcode label should face up toward the ceiling and the smooth front of the beacon should face out toward the aisle where the mobile client is expected to engage.

> ⚠ **NOTE:** When installing numerous beacons, group beacons by category configurations and activate the beacons prior to scanning the barcodes and associating them with positions in the Toolbox.

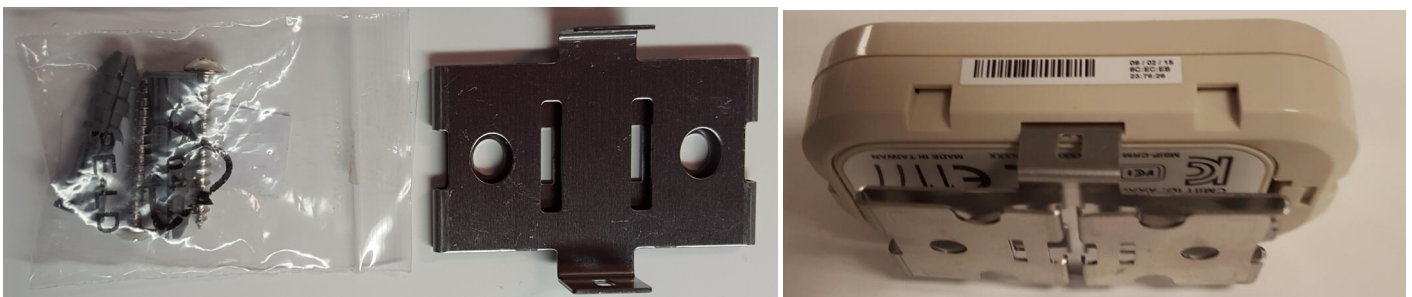There is one style of bracket mount included with the Indoor Style Beacon: Part number - MPACT-MB2000-01-WR.

Figure 2-5 *Metal Beacon Wall Mount Bracket:* MPACT-MB2000-01-WR

> ✓ **NOTE:** Ensure the beacon is positioned correctly, Once the beacon is mounted on the bracket it will be difficult to remove.

To activate a beacon part number - MPACT-MB2000-01-WR:

2. Activate one or more beacons by pulling the mylar strip out from inside the beacon housing.

> ⚠ **CAUTION:** After pulling off the last mylar strip, you have 20 seconds to associate the beacon in either offline or online mode using the Toolbox application.

Figure 2-6 shows the back of a *Indoor style beacon*.

Figure 2-6 *Indoor Style Beacon - MPACT-MB3000-01-WR*

2.3.2 Beacon Operating Modes Definded

Refer to the following table for beacon operating modes definitions.

Mode	Definition
Sleep	The beacon is not transmitting nor will it accept connections from clients.
Configuration	The beacon is in a state where it accepts connections from clients. Clients can configure the device when connected.
Broadcast	The beacon is transmitting packets that conform to one of the supported beacon formats (iBeacon, MPact, Battery Save, and SecureCast).

Refer to the following table for information about Indoor Style Beacon operating modes:

Mode	Sleep	Configuration	Broadcast	LED Behavior
0-2 seconds	No action	No action	No action	
2+ -5	Broadcast	Broadcast	Broadcast	Slow flash when button flashes 300 ms on / 300ms off.
5+ - 10	Move to configuration	Remain in configuration	Move to configuration	Fast flash – 100ms /on & off
+ 10	Sleep	Sleep	Sleep	Solid light

2.3.3 *Mounting and Installing the Outdoor Style Beacon*

1. From the MPact Toolbox, select a site floor plan and an unassigned position for the beacon. Refer to the *MPact Location & Analytics Deployment Guide* for information on how to install and deploy the beacon from the Toolbox.
   To prepare the Outdoor style beacon for mounting:

   .a   Prepare a surface for mounting the Outdoor style beacon with 3M VHB double-sided tape. See *section 2.3.3.1 Preparing Surface for Mounting with 3M VHB Double-sided tape:* on page 2-7

   Or

   .b   Prepare to mount the Outdoor style beacon with two No. 6 gauge or M3.5 screws (not included).

> **NOTE:** If the surface is clean and smooth, the 3M VHB tape should be used to mount the beacon. However, is wood, brink or some other surface that is not smooth and clean, the 3M tape will not adhere to the surface. Use the appropriate screws for mounting (not included). When using screws to mount to a surface, do not expose the 3M VHB tape.

2.3.3.1 Preparing Surface for Mounting with 3M VHB Double-sided tape:

To prepare a surface before mounting the Outdoor style beacon to a wall with 3M VHB double-sided tape:

Clean the surface with a 50:50 mixture of isopropyl alcohol (IPA) and water before applying 3M™ VHB™ tape.

Some surfaces may require additional preparation such as the following:

- Use degreasers or solvent-based cleaner to remove heavy oil or grease from a surface followed by cleaning with IPA/water
- Abrade the surface, followed by cleaning with IPA/water to remove heavy dirt or oxidation and increases surface area to improve adhesion.
- Prime the surface to improves initial and ultimate adhesion to many materials such as plastics and paints..
- Seal porous and fibered materials such as wood, particleboard, and concrete to provide a unified surface.

After preparing the surface the Outdoor Style beacon is now ready to be mounted.

2.3.3.2 Mounting Outdoor Style Beacon

To mount a Outdoor Style beacon with 3M™ VHB™ tape:

1. Peel the plastic off from 3M™ VHB™ tape.
2. Press the backside of the Outdoor Style beacon firmly to a smooth clean mounting surface.

To mount a Outdoor Style beacon with No. 6 gauge or M3.5 screws :

1. Press the backside of the beacon to the mounting surface.
2. Insert screws into the screw holes shown in Figure 2-8 on page 2-8.

> **NOTE:** Zebra recommends not removing the plastic backside of the 3M tape when mounting the beacon with screws..

3. Hand tighten the screws to firmly secure the beacon.

> ⚠ **NOTE:** Ensure the beacon is positioned correctly, Once the beacon is mounted it will be difficult to remove.
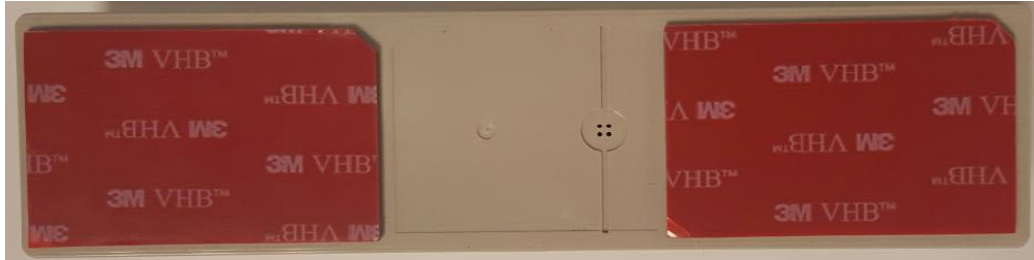
Figure 2-7 Outdoor Style Beacon (backside).

Figure 2-7 *Back of Outdoor Style Beacon Outdoor Beacon*
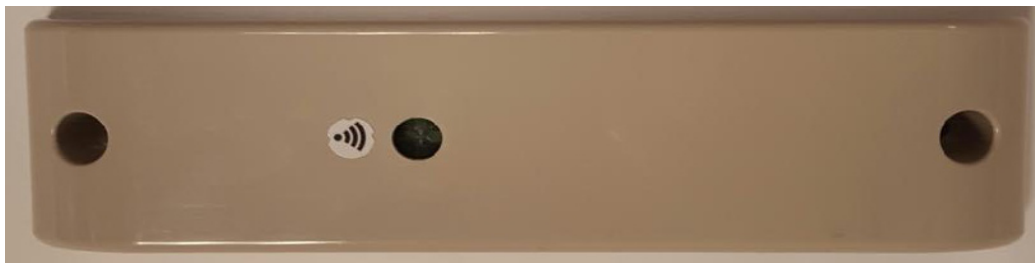
Figure 2-8 Outdoor Style Beacon (Top).

Figure 2-8 *Top of Outdoor Style Beacon - MPACT-MB4000-01-WR*

> ⚠ **NOTE:** When installing numerous beacons, group beacons by category configurations and activate the beacons prior to scanning the barcodes and associating them with positions in the Toolbox.

To activate a beacon part numbers - MPACT-MB4000-01-WR:

4. Press the capacitive switch on the top of the beacon housing. Refer to Figure 2-8.

The barcode label should face up toward the ceiling and the smooth front of the beacon should face out to where the mobile client is expected to engage. Refer to the following table about operating modes:

Mode	*Sleep*	*Configuration*	*Broadcast*	*LED Behavior*
0-2 seconds	No action	No action	No action	
2+ -7	Broadcast	Broadcast	Broadcast	Solid light
7+ - 12	Move to configuration	Remain in configuration	Move to configuration	Slow flash when button flashes 300 ms on / 300ms off.
+ 12	Sleep	Sleep	Sleep	Fast flash – 100ms /on & off

2.4 USB Beacon Part Number: MPACT-MB3000-01-WAR

A USB powered interface is required to power the USB Beacon. No additional hardware is required.

2.4.1 Installing the USB Style Beacon

Figure 2-9 shows a USB style beacon.

To activate a beacon part number - MPACT-MB3000-01-WR:

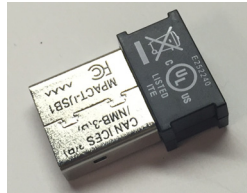1. Insert the beacon into any standard USB power source.

Figure 2-9 *USB Style Beacon - MPACT-MB3000-01-WR*

When installing numerous beacons, group beacons by category configurations and activate the beacons prior to scanning the barcodes and associating them with positions in the Toolbox.

> ✓ **NOTE:** The USB beacon barcode is not on the beacon itself but on the on its plastic packaging.

2. After inserting the beacon(s) into any standard USB power source, associate the beacon in either offline or online mode in the Toolbox application.

3. From the MPact Toolbox, select a site floor plan and an unassigned position for the beacon. Refer to the MPact Location & Analytics Deployment Guide for information on how to install and deploy the beacon from the Toolbox.

2.5 Beacon Part Numbers: MPACT-MB4000-01-WR and MPACT-MB4001-01-WR

As a prerequisite, the following hardware items are required to mount a beacon to a surface.

- Beacon: Part numbers - MPACT-MB4000-01-WR and MPACT-MB4001-01-WR
  - Two No. 6 gauge or M3.5 screws (not included) for use on the intended surface
  - Phillips head screw driver compatible with No. 6 gauge screws for mounting the Outdoor Style beacon

2.6 MPACT-MB4000-01-WR and MPACT-MB4001-01-WR Antenae Positions

Following are the antenae positions of the MPACT-MB4000-01-WR and MPACT-MB4001-01 Outdoor Beacons:

- MPACT-MB4000-01-WR points down at a 20 degree angle
- MPACT-MB40001-01-WR points to the side at a 20 degree angle

Figure 2-10 shows the antenae positions of the Outdoor Beacon.

Figure 2-10 *Antenae Positions of the MPACT-MB4000-01-WR and MPACT-MB4001-01-WR Beacons*

2.7 Beacon Battery Replacement

When a beacon's battery life is less than 20%, the beacon should be prioritized for immediate replacement. The beacon's battery is located within a battery tray in the beacon's housing.

This section includes procedures for replacing batteries for the following part numbers:

- *Replacing RB Battery: MPACT-T1B20-000-WR and MPACT-T1B10-000-WR*
- *Replacing 2AA Battery: MPACT-MB2000-01-WR*

2.7.1 Replacing RB Battery: MPACT-T1B20-000-WR and MPACT-T1B10-000-WR

To replace MPACT-T1B20-000-WR and MPACT-T1B10-000-WR beacon's battery:

1. Remove the beacon from the shelving unit (see information on the appropriate beacon part number).

2. With the bottom of the beacon facing up, gently lift each corner of the beacon's battery tray.

   Figure 2-11 shows the beacon battery housing for part number MPACT-T1B20-000-WR and MPACT-T1B10-000-WR and MPACT-T1B10-000-WR. In this example, the battery tray is on the right and the corners of the battery tray are marked in red. When gently lifting each tray corner, slightly push the each corner out to dislodge corners of the tray.
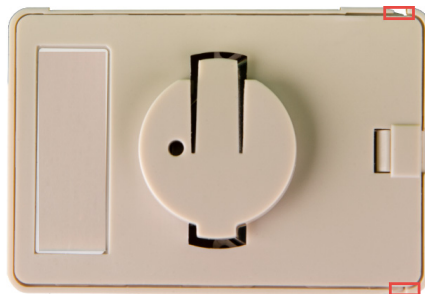

Figure 2-11 *Beacon Battery Housing Example:* MPACT-T1B20-000-WR *and* MPACT-T1B20-000-WR and MPACT-T1B10-000-WR

3. With both tray corners dislodged, gently slide the battery tray open, being careful not to drop the tray.

   Figure 2-12 shows an open battery housing. In this example, the battery tray is a separate piece, along with the battery, on the right-hand side.
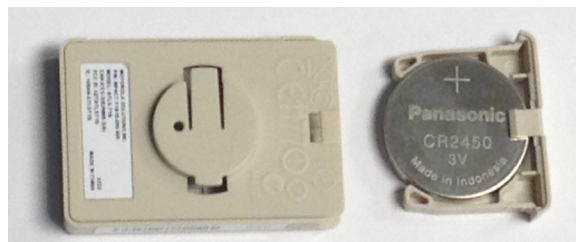

Figure 2-12 Battery Tray: MPACT-T1B20-000-WR and MPACT-T1B20-000-WR and MPACT-T1B10-000-WR

4. Remove the old battery and dispose of properly and replace it with a new battery (Panasonic CR2450).

> ✓ **NOTE:** Pay attention to the position of the + on the battery. Installing the battery backwards may damage the Beacon

5. Close the tray, ensuring the latch is secure.

2.7.2 Replacing 2AA Battery: MPACT-MB2000-01-WR

To replace a beacon's battery in part number MPACT-MB2000-01-WR:

1. Remove the beacon from the shelving unit (see information on the appropriate beacon part number).

2. With the bottom of the beacon facing up, use your finger nail to gently lift the clip up to remove the back off the beacon's battery enclosure.

3. Remove the old batteries and dispose of properly and replace it with two new 2AA batteries.

> ✓ **NOTE:** Pay attention to the polarity (+ and -) of the batteries. Installing the batteries incorrectly may damage the Beacon.

Figure 2-13 shows an open battery enclosure of *Indoor Style Beacon*.

Figure 2-13 *Open Battery Enclosure: MPACT-MB2000-01-WR*

4. Close the battery enclosure, ensuring the clip is secure.

APPENDIX CUSTOMER SUPPORT

If you have a problem with your equipment, contact Support for your region. Support and issue resolution is provided for products under warranty or that are covered by a services agreement. Contact information and Web self-service is available by visiting *www.zebra.com/support*.

When contacting Support, please provide the following information:

- *MAC ID of the unit*
- *Model number or product name*
- *Software type and version number*

Support responds to calls by email or telephone within the time limits set forth in support agreements. If you purchased your product from a business partner, contact that business partner for support.

Customer Support Web Site

The support site, located at *www.zebra.com/support* provides information and online assistance including developer tools, software downloads, product manuals, support contact information and online repair requests.

Manuals

To see manuals, go to: *www.zebra.com/support*.

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