


**ZEBRA**

# RFID Returnable Transport Item (RTI) Label

Long-lasting printable labels with advanced RFID AD Dogbone™ M830 Inlay to track and trace plastic RTIs

The RFID Returnable Transport Item (RTI) Label provides a robust and high-performance solution to encode RFID labels on demand, which gives RTIs a unique digital voice: a voice which is captured by fixed and handheld readers to gain a real-time view over the location of containers, and their contents, as they move across the supply chain. The labels' integrated AD Dogbone™ M830 Inlay is designed to withstand the detuning effects associated with high dielectric materials. And with its long read-range and high data throughput, it significantly enhances data capture performance in challenging environments and on materials that are typically hard to tag.



## High-performance RFID Inlay

The AD Dogbone™ M830 Inlay features the advanced Impinj M830 IC, with Gen2X capabilities which improve reliability and efficiency in complex deployments. The Dogbone™ shape is engineered to maximize the performance of the RFID antenna. It ensures that tags can be read accurately over longer distances and in the challenging radio frequency environments typically found in warehouses and distribution centers. The geometric configuration of the Dogbone™ shape enhances the antenna's sensitivity, making it more responsive to RFID readers.

## Assured Performance

Zebra employs ISO 9001 quality processes to reduce instances of unsuccessful encoding. We pre-test labels with Zebra readers and printers to ensure industry-leading performance. And we offer the latest generation of chips and consistent label materials from order to order to deliver always reliable, high-quality RFID labels and tags every time.

## Durable Design

The label is designed for plastic containers. It comprises a thermal transfer synthetic facestock, together with a permanent adhesive which is designed for, and adheres well to, reusable/returnable plastic containers. Using the durable 5095 resin ribbon is recommended to create a high-quality long-lasting image.

## Enhanced Operations for Frontline Teams

Streamline repetitive workflows, such as dock door scanning and capturing data at goods-in, to free your frontline teams to focus on other tasks. The labels can also be used to track the contents of containers across journeys, adding to the benefits. The inlay can compensate for the detuning effects of materials like cardboard, metal, and plastic, to enable seamless data capture, and will also read individual labels even when containers are tightly stacked or placed inside one another. Your frontline teams can easily find containers and capture their data by waving handheld RFID readers within a range of up to 21m.

**RFID Returnable Transport Item (RTI) Label—long-lasting printable labels with advanced RFID AD Dogbone™ M830 Inlay to track and trace plastic RTIs.**

For more information, please visit [www.zebra.com/rfidlabels](http://www.zebra.com/rfidlabels)

## PRODUCT SPEC SHEET

### RFID RETURNABLE TRANSPORT ITEM (RTI) LABEL WITH DOGBONE™ M830 RFID INLAY

The durable RFID Label for Returnable Transport Item (RTI) helps them get more done in less time. By integrating real-time RTI data from your RFID labels with your supply chain and workforce applications, you present your frontline teams with actionable intelligence which guides them on their next-best moves.

#### **Reduced Costs**

The permanent adhesive of the RFID Returnable Transport Item (RTI) Labels permanent adhesive will last for the lifecycle of RTIs, which can be up to five years. And, with the label, and its printed image, withstanding exposures to ultraviolet light, seawater, and a range of chemicals, the data will remain clearly legible. The lifecycle extends return on investment, which adds to the cost saving of having a real-time view over the location of your RTIs and ensuring they are accurately accounted for.

# Specifications

<b>Label Product Name</b>	RFID Returnable Transport Item (RTI) Label
<b>Label RM Number</b>	10040773RM
<b>Label Material Construction</b>	
<b>Facestock</b>	Topcoated polyester – 1.7mil (43 microns)
<b>Adhesive</b>	Permanent acrylic adhesive 0.8mil (20 microns)
<b>Liner</b>	Paper – 2.4 mil (61 microns)
<b>Total Thickness (+/-10%)</b>	4.9mil (124 microns)
<b>Environment</b>	Indoor/Outdoor use
<b>Temperature Performance</b>	
<b>Minimum application temperature<sup>1</sup></b>	0°F / -18°C
<b>Service temperature range<sup>2</sup></b>	-30°F to 185°F / -34°C to 85°C
<b>Recommended Printers</b>	
<b>Printers</b>	Thermal transfer printer (ribbon required); use Zebra desktop, mid-range and high-performance thermal printers for optimal performance
<b>Ribbons</b>	Compatible with resin ribbons; use Zebra 5095 ribbon for optimal performance.
<b>Adhesive Strength</b>	
<b>Polypropylene</b>	5 minute dwell time: 20 oz/in (6 N/25mm) 24 hour dwell time: 48 oz/in (13 N/25mm)
<b>High-density Polyethylene</b>	5 minute dwell time: 23 oz/in (6 N/25mm) 24 hour dwell time: 23 oz/in (6 N/25mm)
<b>Chemical resistance</b>	
<b>Weak Chemicals</b>	
<b>Blood</b>	5095 Recommended
<b>Body Fluid</b>	5095 Recommended
<b>Salt Water</b>	5095 Recommended
<b>Water</b>	5095 Recommended
<b>Window Cleaner</b>	5095 Recommended
<b>Moderate Chemicals</b>	
<b>Alcohol</b>	5095 Recommended
<b>Ammonia</b>	5095 Recommended
<b>Bleach</b>	5095 Recommended
<b>IPA</b>	5095 Recommended

<b>Harsh Chemicals</b>	
<b>Gasoline</b>	Test in your application
<b>Grease</b>	5095 Recommended
<b>Extreme Chemicals</b>	
<b>Acetone</b>	Not recommended
<b>IR Reflow</b>	Not recommended
<b>MEK</b>	Not recommended
<b>TCE</b>	Not recommended
<b>Xylene</b>	Not recommended
<b>Product Performance and Suitability</b>	
Recommended Storage Conditions: 68°F to 77°F / 20°C to 25°C at 40 to 50% RH	
<b>Expected Lifespan in Application</b>	
Exterior use – 3+ years	
<b>Regulatory and Compliance</b>	
Meets FDA 175.105 for indirect food requirements	
<b>Material Testing in End Application</b>	
The information contained in this document is to be used for guidance only and is not intended for use in setting specifications. All purchasers of Zebra products shall be solely responsible for independently determining if the product conforms to all requirements of their unique application.	
<b>Footnotes</b>	
1. When the label is applied, the environment and surface should be above this temperature. 2. Following correct application and appropriate dwell time (usually 24hrs), the media will withstand this temperature range.	
* Specifications are subject to change without notice.	

## Markets and Applications

### Healthcare

- Asset tracking, reusable plastic containers

### Transport and Logistics

- Asset tracking, reusable plastic containers

### Manufacturing

- Asset tracking, reusable plastic containers

### Warehousing

- Asset tracking, reusable plastic containers

### Retail

- Asset tracking, reusable plastic containers

**PRODUCT SPEC SHEET**

**RFID RETURNABLE TRANSPORT ITEM (RTI) LABEL WITH DOGBONE™ M830 RFID INLAY**

<b>RFID Product Name</b>	AD Dogbone™ M830 Inlay
<b>RFID Technical Information</b>	
<b>Chip</b>	Impinj M830 with Gen2X features
<b>EPC Memory</b>	128 bit
<b>User Memory</b>	N/A
<b>TID</b>	96 bit factory locked (48 bit unique)
<b>Read Sensitivity</b>	-25.5dBm
<b>Write Sensitivity</b>	-20dBm
<b>RFID Standards</b>	EPC Gen2v2
<b>Read Range</b>	Up to 22m (frequency and substrate dependent)
<b>Inlay Size</b>	97x27mm

<b>Theoretical Read Range: ETSI (865-868 MHz)*</b>	
<b>Air</b>	19m
<b>Cardboard</b>	20m
<b>Fiberglass</b>	19m
<b>Glass</b>	17m
<b>PTFE</b>	22m
<b>Polyacetyl</b>	20m
<b>PVC</b>	21m
<b>Rubber</b>	17m

<b>Theoretical Read Range: FCC (902-928 MHz)*</b>	
<b>Air</b>	21m
<b>Cardboard</b>	19m
<b>Fiberglass</b>	17m
<b>Glass</b>	19m
<b>PTFE</b>	22m
<b>Polyacetyl</b>	18m
<b>PVC</b>	19m
<b>Rubber</b>	19m

<b>Product Performance and Sustainability</b>	
<b>Operating Temperature</b>	-40°C / +85°C (-40°F / +185°F)
<b>Storage Temperature</b>	68°F to 77°F / 20°C to 25°C at 40 to 50% RH

**Testing and Compliance**

All inlays certified by Zebra have been pre-tested with Zebra printers and readers.

**Material Testing in End Application**

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**Warranty**

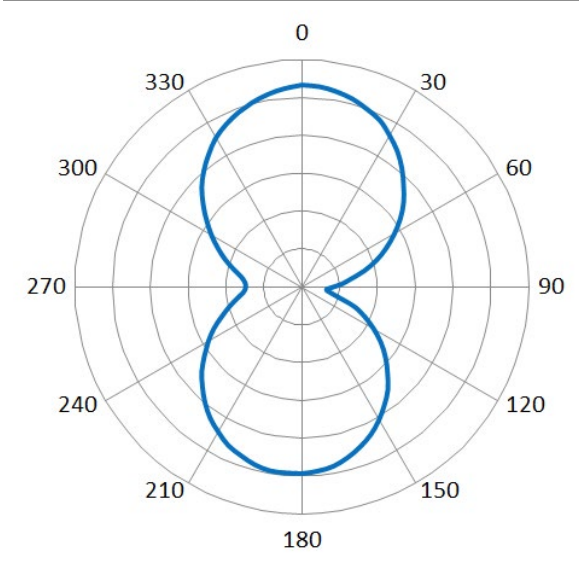
Supplies are warranted against defects in workmanship and materials for a period of 1 (one) year from the date of shipment. For the complete warranty statement, please visit [www.zebra.com/warranty](http://www.zebra.com/warranty)

**Footnotes**

\* Theoretical read range data is meant to be directional. Actual performance

**Radiation Pattern**

To learn more about Radiation Pattern, visit [www.zebra.com/rfidlabels](http://www.zebra.com/rfidlabels)



**Markets and Applications**

**Healthcare**

- Asset tracking, reusable plastic containers

**Transport and Logistics**

- Asset tracking, reusable plastic containers

**Manufacturing**

- Asset tracking, reusable plastic containers

**Warehousing**

- Asset tracking, reusable plastic containers

**Retail**

- Asset tracking, reusable plastic containers