

## Features

- Optimized for item tracking in near-field and long range in far-field operation
- Enhanced anti-counterfeiting/anti-cloning capability.
- Applications include logistics, garments, and other assets.
- Aluminium inlay provides excellent performance at lower • costs than silver ink or copper; RoHS compliant

## Overview

The TH41 is optimized for medium to large range item level tracking, including, garments, and assets. Its design allows it to operate in the short range as well as in far-field. The TH41 features the Impinj Monza 4 chip, the Monza 4 family provides a variety of models to suit diverse applications, ushering in new standards in RFID privacy, tag orientation insensitivity, best and most consistent read/write performance, and memory capability.

## Communication Protocol and Memory Specifications

Wireless Communication Protocol EPC Gen 2, ISO 18000-6C, ISO/IEC 15963 (UID standard). Protocol Class 1. Component Used Impinj Monza 4

IC NAME	Monza 4D	Monza 4E	Monza 4QT
EPC MEMORY	128 bits	496 bits	128 bits
USER MEMORY	32 bits	128 bits	512 bits
SERIALIZED TID	32 bits	32 bits	32 bits
RESERVED MEMORY (password, kill)	64 bits	64 bits	64 bits
READ SENSIBILITY LIMIT	-18 dBm	-18 dBm	-18 dBm
WRITE SENSIBILITY LIMIT	-14,6 dBm	-14,6 dBm	-14,6 dBm

## Functional Specifications

EPC Class 1 Gen 2  
ISO/IEC 18000-6C  
Operating Frequency Band:860 - 960 MHz  
Read Range Typical  $\geq$  4m with fixed reader and inlay mounted on cardboard  
Mode of Operation Passive, Backscattering Modulation

## Environmental Specifications

Operating Temperature Range -40° C to +65° C at 40-80% RH  
Storage Temperature -40° C to +85° C at 40-80% RH  
Electrostatic Discharge (ESD) tolerance: 2.000V HBM (Human Body Model)



# “TH41 CABIS” Inlay

Produced by Trace-Tech Id Solutions S.L.  
Tag for far Field and Medium Range Item level Tagging

## Dry Inlay Specifications

Substrate	50 micron PET
Metal Layer	Aluminum 99.8% pure
Pitch	34.0179 mm
Overall Inlay Thickness with IC	Max 210 µm
Bending Diameter	≥ 15mm, tension less than 6 N

## Wet Inlay Specifications

Die-cut size	53x32 mm
Inlay Adhesive	Acrylic
Release liner	40#SCK
Pitch	34.0179 mm

## Test Materials

CB: corrugated cardboard box

ThinPI: thin plastic (1.5 mm thick LDPE): McMaster-Carr® Part #8657K111

ThickPI: thick plastic (3 mm thick HDPE), McMaster-Carr® Part #8657K112

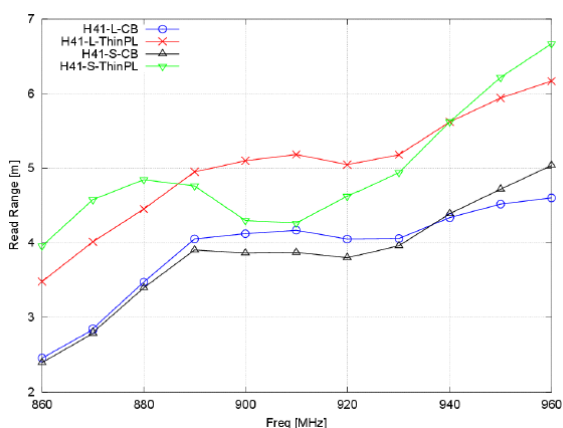
Jeans: denim jeans

Books: notebook, National® Brand chemistry notebook item No. 43-571

Note:

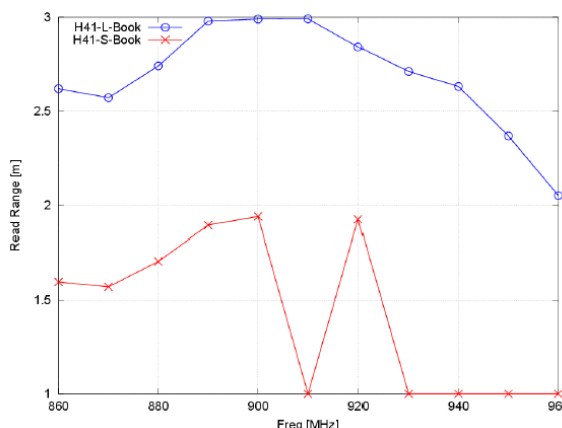
- Higher read range indicates greater tag sensitivity.
- The plots illustrate typical results. The results may shift depending on inlay material selection and assembly parameters.
- The lines with H41-L-xx are 0o orientation and H41-S-xx are 90o orientation. Refer to Figure 5 for the tag angular orientation.

**FIGURE 3**



Read range of TH14 applied to lightly loading materials

**FIGURE 4**



Read range of TH14 applied to medium-loading materials

**FIGURE 5**

