

## Managing PCB Prototypes with RFID

### The Customer's Challenge:

Track PCBs from prototype development to production.

#### Stakeholders:

PCB design group, component engineers, design engineers, quality and test engineers, lab managers & technicians, production team, etc.

#### Customer Challenges:

- Each board often becomes unique – with “bluewires,” specific firmware versions or FPGA code, etc.
- Difficult to keep track of all units and their individual makeup.
- Important to know location and custody ownership.
- Alternative solution (typically scribbles on sticky labels...) are often impractical, unreliable, and confusing.

### Benefits of RFID:

- PCBs can be uniquely identified for a single PCB or bulk inventory taking.
- Additional data can be written on the RFID chip.
  - Hardware and firmware versions, dates, test status, QC records, etc.
- Data can be password protected or permanently locked.
- Short and long range read distances are possible.
- RFID chip also readable through product enclosure (except if full Faraday cage).

### The Murata Solution:

#### The Products:

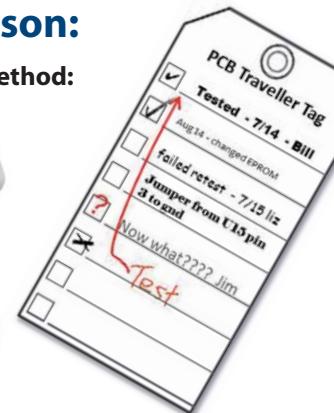
LXMS31 / LXMS2H Series  
RFID Module – MAGICSTRAP®  
EPC UHF Gen2 Compatible RFID Tag

#### How It Works:

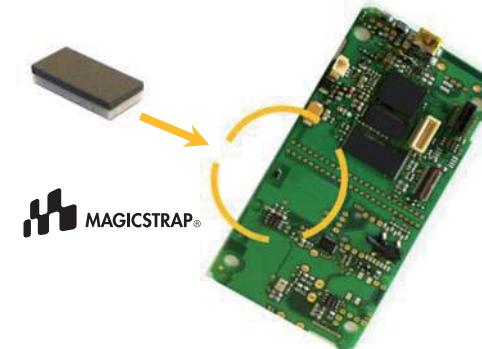
- Add MAGICSTRAP® to the PCB using Murata's antenna reference design.
- Each board now has a unique identifier.
- Each board has additional user memory space
  - Store PCB data (revision numbers, firmware revisions, time stamps, etc.) on chip or online database
  - 512 bits and up to 3.3k bits read/ writable memory
- Use RFID readers to track and identify specific boards throughout development process

### Comparison:

#### Traditional Method:



#### RFID Method:



- MAGICSTRAP® is permanently attached to PCB
- Secure and simple
- Non-line-of-sight visibility
- Ultra small
- Large memory to store data

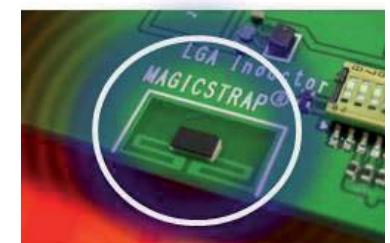
### More info:

For further information about RFID solutions please visit our website:

[www.murataamericas.com/rfid](http://www.murataamericas.com/rfid)

Data sheets and application notes for Murata Electronics products can be found at:

[www.murataamericas.com](http://www.murataamericas.com)



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