

## Printing RFID Labels with a Laser Printer

### Lexmark Keeps Adding Capabilities, which May Open Up Additional RFID

#### SCDigest Editorial Staff

To date, RFID labels – generally meaning a human readable label with an encoded RFID tag inside – have primarily been produced using thermal transfer type printers from companies such as Avery Dennison, Intermec and Zebra. Those printers have an RFID encoder near the traditional thermal print head that has the ability to write data to tags at pretty high print speeds. They are often integrated with automatic “print and apply” machines for in-line label application.

Those types of printers work well in most distribution and manufacturing operations, but are not commonly found in traditional office areas. In addition, almost by definition they are designed for producing labels, not “documents.”

For the past several years, Lexmark International has been working on adding RFID capabilities to its line of laser printers.

In 2007, Lexmark introduced a stand-alone RFID printer. Last year, it released an RFID option that is effectively a sealed paper tray with all the technology inside for encoding tags that could just be added to the T64x family of laser printers.

In August, the company released a new tray that can be added to its T654 family of monochrome laser printers. The big advance – tags can be oriented both horizontally and vertically, and be placed almost anywhere on a document. Print/encoding speeds have also increased in this third iteration.

The capability is added through the purchase of an additional “media drawer” that contains the encoding

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and reading/verification hardware, with the RFID technology sourced from ThingMagic (see graphic nearby). The RFID capability module/drawer has a list price of \$2500.00, but will likely see a “street price” below that. One version of the base laser printer itself lists for \$1199.00.

The company says the new printer accessory allows the T654 family to print human readable portions of a document/label and encode and verify an RFID tag on media from 5" x 7" labels up to legal-size (11" x 14") documents. The printers can also support many types of media stock, from vinyl to paper labels. Support is exclusively for EPC Class 1



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Gen 2 tags. The printers can produce 20 tagged documents per minute.

The location and orientation of the tags must be defined using a form design tool. Lexmark itself offers such a tool, called Forms Composer, but third party packages that support the RFID T654 could also be used.

Up to 100 "sheets" that have embedded RFID tags in the media can be placed into the input tray, which normally is capable of holding 550 sheets of plain paper.

There are some challenges – the documentation for the printer notes that "Labels are one of the most difficult print materials for laser printers. Printing labels on the RFID printer requires a special fuser cleaner." That would apply specifically to adhesive labels. Tags embedded in more standard paper or tag stock would not need this additional part added to the machine.

### Potential Applications

Companies with existing Lexmark T654 printers and wanting to add RFID capabilities will certainly want

to look at this option.

The Lexmark approach may also be very well suited to any application, including those in logistics and manufacturing, where a document and an RFID tag need to be produced at the same time. For example, potentially a work order document in a factory and associated tracking tag. Other examples might include a manifest or packing slip and an RFID-encoded shipping label, or a printed pick list and RFID-encoded shipping label in distribution.

In general, this will involve working with a knowledgeable forms provider that can design and produce a combination document that will now include an embedded tag. Some forms providers have already announced support for the Lexmark machine with standard RFID documents suited for the printer.

Lexmark continues to be one of the very few if not only provider of RFID-enabled laser printers. It does not appear, for example, that rival HP yet has an RFID-enabled laser.