Cheat Sheet for Retail RFID Mandates

If you decide to print and encode in-house, check if other customers have also issued RFID label requirements. If possible, you want to fulfill multiple customer requirements with as few inlays, label constructions, printed designs, encodings, and approval processes as possible. There are four essential points to keep in mind.

1 Check the Retailer's Documentation

- Each retailer usually has many points of contact listed for different purposes. For example, there may be one contact listed for help with inlay selection, but another contact for help with the approval process. Keep a clear list of these contacts handy – you will need it!
- If you have decided to source your pre-printed and encoded labels from a "service bureau", it is not necessarily required to use an approved service bureau, but these companies make a great starting point for comparing pricing and customer service.
- Acceptable label dimensions
- Acceptable label materials (facestock, adhesive, etc.)
- Acceptable RFID "inlays" by product type
- Information and barcode(s) that must be printed on the label, including fonts, point sizes, barcode specifications, etc.
- The RFID "Encoding Scheme" to use. For all known retailer mandates, this is currently GS1's so-called "SGTIN-96."
- The requirement to "Permalock" (lock permanently) your encodings
- Label placement guidelines
- How to get your labels approved before you start shipping items with RFID labels

Remember your list of contacts to get help – you will need this.

2 Label Creation

Using software like BarTender, NiceLabel, or CODESOFT with an RFID printer, you can design, print, and encode sample labels for internal review. The software needed to print and encode the labels is generally not complex, but there are four key caveats to keep in mind:

- Make sure that your printed design follows all requirements. These usually include required data elements (such as UPC/EAN number, item description and EPC logo), positioning, font and font point size.
- You must encode the tags using the proper numbering system.
- Every serial number you generate must be unique.
- You must Permalock the encodings.

The numbering system generally specified in retailer mandates is SGTIN-96. Conceptually, SGTIN-96 is a UPC/EAN number plus a serial number. You may need help converting your UPC/EAN number to an SGTIN-96 encoding (it is not straightforward), so check out this guideline from GS1, or contact TSC Printronix Auto ID for help.

3 Select a Correct RFID Printer

Not all RFID printers are equal. How do you select the right printer for your application? RFID printers must be physically robust enough to handle the environment and workload and technically advanced enough to properly and reliably encode your RFID labels. Select an RFID printer partner, such as TSC Printronix Auto ID, whose RFID printers support the same advanced RFID commands across all models. This means that to select the correct RFID printer from the portfolio, you only need to answer two questions:

- **What type or types of tags will you run through the printer?** If you foresee the need to work with non-standard RFID tag configurations, you should consider one of the TSC Printronix Auto ID T6000e and T4000 series printer models which were engineered from the ground up to work not only with standard smart labels but also on metal tags and many other "special" tags.
- **What standard, non-RFID printer specifications like print speed, print-volume, printhead resolution etc, will you need?** These specifications are generally independent of RFID, and a typical reseller is experienced at working through these specifications with their customers. Notably, most retailer mandates specify a minimum of 300 dpi printhead resolution, so make sure to source your printers accordingly.

4 Verify Encodings

After completing your label creation, make sure to verify your encodings. When you read the data, it will most likely be displayed as a hexadecimal value that bears little resemblance to what you think you encoded. You can plug this hexadecimal value into GS1's online decoder tool, which will display how it converts to an SGTIN-96 value, the UPC/EAN value, the serial number, and more.

Once you have some printed and encoded labels, verify your retail customer's documented approval process. They will want you to submit sample tags and possibly photos of where you plan to affix the labels to your products. Retailers will have a step-by-step process you will need to follow.

Assuming you have made it through the approval process for one product type, repeat the process for all your other product types covered by the mandate.