



DRAFT

# WALMART RFID PLAYBOOK

Phase 3 RFID Rollout  
For Walmart U.S. Stores

*The requirements in this version supersede all previous playbooks.*

# General Overview

## What Industry Standards to Follow?

Walmart is following all industry standards set forth by the GS1 EPC Tag Data Standard, and Auburn University RFID Lab ARC inlay standard. All tagging requirements must meet these standards prior to arriving in our stores.

## Departments are already in scope:

All items within the following departments are required to have RFID tags, unless listed in the Out-of-Scope section of this playbook.

All items in these departments are in scope for RFID with no minimum price. Walmart will not decide or grant approval on tag spec and location. All items must be validated and approved by Auburn RFID lab.

### Departments:

D2 - Personal Care
D8 - Pets
D40 - OTC
D46 - Beauty
D79 - Infant & Consumables

## Apparel and General Merchandise Phase 1 and 2

The scope of this playbook is only the General Merchandise Phase 3 categories. Please refer to the Apparel RFID and General Merchandise Phase 1 and 2 Playbooks available in Retail link for information related to RFID tagging of Apparel items. <https://supplieracademy.wal-mart.com/mod/wiki/view.php?id=647>

## Out of Scope:

- DSV (Direct Ship Vendors), Pay from scan items, 3<sup>rd</sup> Party WFS
- D18 Seasonal (e.g. holiday décor)
- D56 Horticulture
- D67 Celebration (e.g., holiday décor, greeting cards)
- Items where RFID tags are not compatible with the product, as identified through the Auburn University RFID Lab.

# Getting Started

The following outlines a standard framework to integrate RFID into packaging. This includes major points and areas that should be considered; However, every company must tailor these steps to fit the needs of their business and supply chains.

- Identify the ways that RFID can help improve your operations. Refer to the "RFID Use Cases for Suppliers" section for details
- Develop an internal team
- Engage with your packaging provider and if needed you will also need to engage with an approved RFID Inlay Manufacturer
- Begin procurement discussions and provide forecasts to your packaging and RFID Inlay provider
- Begin data management and serialization discussions with your RFID packaging provider. Refer to the "RFID Encoding & Serialization Requirements" section for details
- Develop quality check process to ensure all items are tagged according to all requirements in this Playbook

## Select RFID Inlay Spec

Walmart has a set of ARC inlay specifications that are performance approved from the Auburn University RFID Lab. The Auburn University ARC standard ensures RFID tags meet or exceed the levels of performance and quality necessary to provide benefit in a consistent and cost-effective manner.

Refer to the chart at <https://rfid.auburn.edu/walmartspec/> to see what spec has been assigned to each category. You can only use an approved inlay from an item's associated inlay list.

Department	Subcategory	Inlay Spec	Approved Inlay List
D2 - Personal Care	Header Card, Backer Card, C Card, Boxed, Hang Tag, Clamshell, Belly band, Polybag, Blister Pack	Y2	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D2 - Personal Care	Liquid container, Jar, Tubs, Tubes, Pouches	Contact RFID Lab	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D2 - Personal Care	Label, Shrink wrap	Contact RFID Lab	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D2 - Personal Care	Metal Tin/Can	Contact RFID Lab	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D2 - Personal Care	Wipes	Contact RFID Lab	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D2 - Personal Care	Other	Contact RFID Lab	<a href="https://rfidlab.org/aleccontactform/">https://rfidlab.org/aleccontactform/</a>
D46 - Beauty	Lipstick, Nail Polish, Makeup Palettes, Concealer, Makeup	C2	<a href="https://rfidlab.org/arc/spec-c2.php">https://rfidlab.org/arc/spec-c2.php</a>

	Pencils (Loose), Lip liner/stain		
D46 - Beauty	Header Card, Backer Card, C Card, Boxed, Hang Tag, Clamshell, Belly band, Polybag, Blister Pack	Y2	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D46 - Beauty	Label, Shrink Wrap	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D46 - Beauty	Liquid Containers, Jar, Tubs, Tubes, Pouches	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D46 - Beauty	Metal Tin/Can	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D46 - Beauty	Wipes	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D46 - Beauty	Other	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D40 - OTC/Pharmacy	Header Card, Backer Card, C Card, Boxed, Hang Tag, Clamshell, Belly band, Polybag, Blister Pack	Y2	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D40 - OTC/Pharmacy	Label, Shrink Wrap	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D40 - OTC/Pharmacy	Liquid Containers, Jar, Tubs, Tubes, Pouches	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D40 - OTC/Pharmacy	Metal Tin/Can	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D40 - OTC/Pharmacy	Other	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D8 - Pets	Header Card, Backer Card, C Card, Boxed, Hang Tag, Clamshell, Belly band, Polybag, Blister Pack	Y2	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D8 - Pets	Label, Shrink Wrap	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D8 - Pets	Liquid Containers, Jar, Tubs, Tubes, Pouches	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D8 - Pets	Metal Tin/Can	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>

D8 - Pets	Other	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D79 - Baby	Boxed	Y2	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D79 - Baby	Boxed, Header Card, Backer Card, Hang Tag, C Card, Belly band, Polybag, Blister Pack	Y2	<a href="https://rfidlab.org/arc/spec-y2.php">https://rfidlab.org/arc/spec-y2.php</a>
D79 - Baby	Label, Shrink wrap	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D79 - Baby	Wipes	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D79 - Baby	Liquid Containers, Jar, Tubs, Tubes, Pouches	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D79 - Baby	Metal Tin/Can	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>
D79 - Baby	Other	Contact RFID Lab	<a href="https://rfidlab.org/alecontactform/">https://rfidlab.org/alecontactform/</a>

## Determine Inlay Manufacturer

Suppliers may only select from the approved list provided on the Auburn University RFID Lab's Website from the appropriate Spec. Any inlay manufacturer not listed on the appropriate Spec cannot produce inlays for packaging being shipped to Walmart. Even if using an approved inlay provider, you must still submit the final production samples to the Auburn University RFID Lab for approval.

The latest version of the ARC approved RFID inlay manufacturer and contact information is available at <https://rfidlab.org/inlaycontacts/>

RFID Inlay Providers	Contact Information
Arizon	<a href="mailto:business@arizonrfid.com">business@arizonrfid.com</a>
Avery Dennison / Smartrac	<a href="https://avydn.co/AD-RFID">https://avydn.co/AD-RFID</a>
Checkpoint	<a href="https://walmartfid.checkpointsystems.com">https://walmartfid.checkpointsystems.com</a>
Hana	<a href="mailto:info@hanarfid.com">info@hanarfid.com</a>
Paragon ID	<a href="mailto:retailrfid@paragon-id.com">retailrfid@paragon-id.com</a>
Tageos	<a href="mailto:Contact@tageos.com">Contact@tageos.com</a>

Brands can utilize their own RFID packaging resource, but the label provider or packaging resource will need to source an Auburn University ARC approved inlay.

# Determine Packaging Resource, RFID Encoder/Service Bureau

Suppliers can utilize their own RFID packaging resource to develop and print their RFID inlays but must adhere to the GS1 standards and ARC standards and obtain approvals from the Auburn University RFID Lab. Some private brand programs may have designated printers in place, please refer to the Walmart contract for questions.

A list of RFID packaging resources is available at <https://rfidpackagingresources.org/>. These are packaging providers that have supplied packaging for the Walmart RFID Program. This is NOT an endorsement or list of nominated suppliers.

Suppliers can also utilize other RFID packaging providers that are not listed. All label providers or packaging resources will need to source an Auburn university ARC approved RFID inlay.

## Identify Inlay Size

Use the largest RFID inlay size available that fits your packaging.

If your packaging does not fit the smallest inlay size available within the approved spec, add a generic embedded inlay hangtag or a separate paper-based sticker to your item.

For additional clarification, please contact the RFID lab at <https://rfidlab.org/alecontactform/> to discuss any additional options for your item.

## Determine Placement of RFID tag

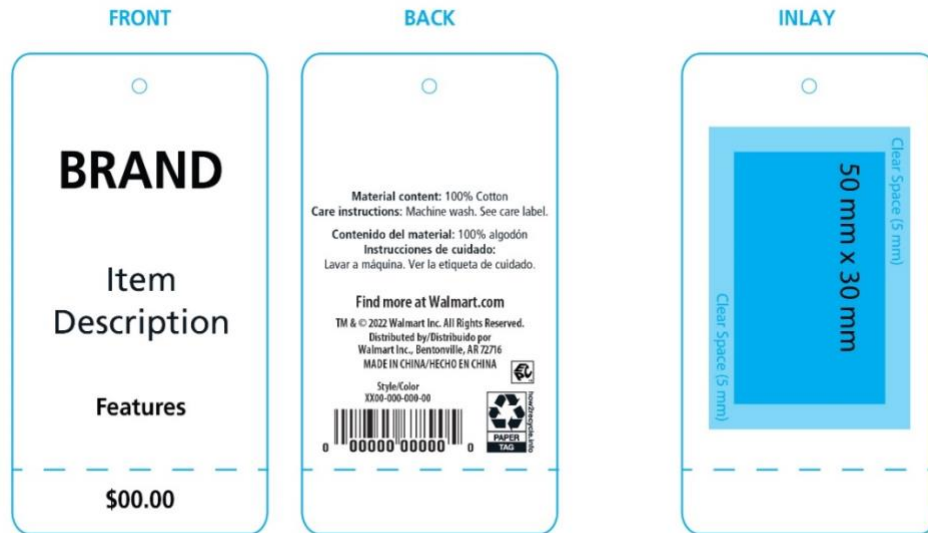
Please consult the Auburn University RFID Lab Tag Placement Guideline for product specific placement at <https://rfid.auburn.edu/tagging-location-guide/>.

If your item is not represented in the Auburn University RFID Lab Tag Placement Guideline, Please contact the RFID lab at <https://rfidlab.org/alecontactform/>.

# Review RFID Application Formats

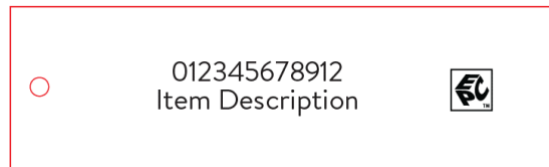
Please consult the Auburn University RFID Lab Tag Placement Guideline for all available application formats. Please contact the RFID lab at <https://rfidlab.org/alecontactform/> for any questions.

## Branded Embedded Hangtag (Private Brands Only)



- Any changes to die lines or artwork will be managed through Walmart U.S. Packaging Team
- Inlays must be embedded into branded hangtag
- 4 mm gutter or greater around the embedded inlay

## Generic Embedded Hangtag Format or Insert



Hangtag dimensions: 83mm x 25mm

### Specifications:

- Embed inlay between C2S paper stock
- Material: ~14pt. C2S (minimum; glossy both sides)
- Font: 12pt. Bogle Regular (centered vertically & horizontally from left side of logo to right side of swift tack hole)
- EPC logo: Centered vertically and placed as shown
- Prints: Black ink on one side of tag
- 4 mm gutter or greater around the embedded inlay

### Minimum Copy Requirements:

- UPC # (no bars; human readable)
- EPC Logo
- Prints: Black ink on one side of tag
- Additional information is allowed

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RFID Playbook General Merchandise

Confidential

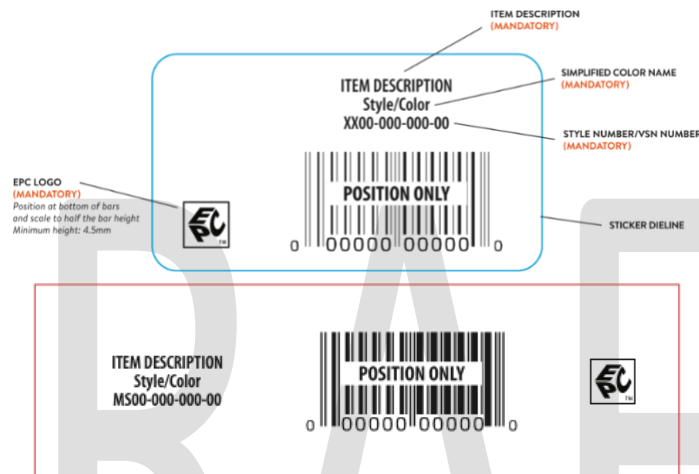
© Walmart Apollo, LLC 2024

## License Hangtags (All Brands)

- May use RFID embedded Walmart generic price ticket

## Generic Embedded Sticker WITH Scannable UPC Code

- If you DO NOT already have a scannable UPC barcode already shown on pack, Walmart prefers to use an EPC combo sticker as shown below. Please make sure that the UPC barcodes cannot be placed in the front of packaging.
- The example below is from an apparel item. Please include all the data fields as applicable to your item.
- Example: For a GM item you may not have size or color. Leave this off your finished RFID tag.



### MINIMUM REQUIREMENTS

- Barcode/UPC #
- EPC Logo
- Item Description (picked up from other primary packaging)
- Additional information is allowed
- 4 mm gutter or greater around the embedded inlay

## Private Brands Only

Tag options for plastic packaging are:

- If the packaging contains both paper and plastic, suppliers must place the RFID tag on the paper instead of plastic
- If plastic is the only packaging for the product, suppliers must choose one of the following options:
  1. Place the RFID tag loosely inside the packaging. Ensure that the tag won't reach the bottom of the package during transportation/handling and touch the metal shelves
  2. A hangtag attached to the packaging or product

Please contact [RFIDpackagingUpdates@walmart.com](mailto:RFIDpackagingUpdates@walmart.com) for any questions.



# Tagging Requirements

- Please make sure that there is only ONE RFID tag per product
- RFID tags must be removable by the customer. If sewn in, they must be removable.
- RFID tags can be placed inside the packaging as long as the EPC symbol is placed outside.
- RFID tags cannot be integrated into product.
- RFID tags or inlays cannot cover any text or images.
- If an item is being stickered, the domicile with the country of origin should not be covered up - it needs to be visible to the customer. The supplier can print the country of origin on the RFID sticker if needed.
- The RFID tag should not fall off from product easily.
- No staples, perforations, swift tachs, folding or die cuts through the inlay as it will make the inlay unreadable.
- When choosing the tagging location, RFID readability should be considered while product is in salesfloor, backroom, and case pack. For example, the RFID tag cannot be placed on bottom of product since the tag will most likely be in direct contact with metal.
- RFID tags can be used in parallel with EAS tags but **CANNOT** be used on top of each other.
- If the product could be merchandised without the packaging, the RFID tag should be attached to the product. For example, Bikes, Grills, Furniture.
- If the product comes in multiple cases (example, furniture set where the table is boxed separately from the chairs), ensure that there is only one tag on one of the cases. Please contact Auburn RFID Lab to determine the case to be tagged.
- No metal foils, holograms or metallic inks should be used on any packaging containing the RFID inlay. If so, you MUST receive the RFID Lab approval prior to bulk production of the printed packaging.
- No RFID inlay placement on bottom of polybags, bottom of boxed items, on glass, on liquids, on Silvadur, or near metal/foil.
- The performance of the RFID inlays could be affected by metals, foils, liquids, and glass. Special consideration must be taken when choosing tagging format and location for such products. Please contact the RFID lab at <https://rfidlab.org/alecontactform/>.
- For Electronic items that are typically stored in lock cases, the RFID tag should be on the side of the item that contains all the product information. This is the side that will be facing out in a locked cage, and will also be facing up, if stacked on a metal shelf.

## EPC Symbol

- The EPC logo example represents the bare minimum of information that should be shown on your packaging to identify RFID tagging

- The EPC logo is an industry standard to inform the customer and store associate that the product contains RFID
- The EPC symbol should not be shown on any packaging that does not contain an RFID inlay
- See this link for the EPC Symbol image file and related documentation:  
<https://www.gs1.org/standards/epc-rfid/guidelines>

## RFID Encoding & Serialization Requirements

- All tags are to be encoded appropriately per EPC Tag Data Standards (TDS), resulting in unique serialization for each item. The SGTIN-96 tag encoding standard maintained by GS1 is to be used

$$\text{UPC} + \text{Unique Serial Number} = \text{EPC (RFID)}$$

- Please keep in mind that each serial number must be unique to that item and can run a risk of having duplicate numbers if not managed properly throughout the development process. **Please ensure unique serialization is managed when using multiple packaging providers for the same SKU. See the link below for more information.**
- <https://documents.gs1us.org/adobe/assets/deliver/urn:aaid:aem:5f88064e-0dbb-495b-9f29-a9ce3758caed/Developing-an-RFID-Serialization-Plan.pdf>
- Tags must be permalocked to prevent tampering.
- All tags must undergo quality and data integrity checks prior to entering the Walmart supply chain.
- The EPC Encoder/Decoder Tool may be found here:  
<https://www.gs1.org/services/epc-encoderdecoder>

# ALEC - Approval of Production RFID Packaging Samples

Auburn University RFID Lab's ALEC program is to help Suppliers ensure that their RFID tagged item meets all the industry requirements.

Refer to the ALEC submission guide for detailed instruction before starting this process:

<https://rfidlab.org/wp-content/uploads/General-Form-Submission-Guide.pdf>

Before any shipment of goods can begin, you must receive RFID lab Approval.

Send Five (5) EPC tag samples of the same item only (no product or packaging) to the RFID Lab for ALEC validation prior to bulk production. These may be branded hangtags, generic hangtags, or stickers.

- Submit one UPC per Submission Form
- You will need approval on a representative UPC (SKU) for
  - Every brand
  - Every packaging type used
  - Every agency used
  - Every RFID inlay model
  - Every Tagging location

All items must be submitted for approval. You only need to pick one representative item per the list above to send RFID tag samples. You must include a full list of all items that share this packaging type to correctly make your submission.

Send five inlay samples of the one representative UPC.

- The RFID Tags MUST be production quality.
- Within the submission form, you will be asked to add a list of all items that follow the same criteria as the representative SKU.
- Please complete and submit the online submission form at <https://rfidlab.org/alec-submissionform/>. Print the PDF confirmation and include it along with the samples.
- Testing will not begin until the printed confirmation form has arrived at the lab.
- Actual product or packaging will only need to be sent when specifically requested by the RFID Lab. Please note: Any product sent to the RFID Lab will **NOT** be returned to the product supplier.
- Product Suppliers are responsible for submitting their own samples to the RFID Lab. Packaging resources CANNOT submit samples on behalf of the Product Suppliers to the RFID Lab.
- Once you receive an email approval from the RFID Lab, you are approved to move into bulk ordering and production.

# ALEC - Updating Previously Approved Submissions

- Product Suppliers who decide to switch inlay models/providers and/or change tagging locations AFTER receiving validation from the RFID Lab will need to submit the changes using the Submission Update Form: <https://rfidlab.org/submissionupdate/>
- Product Suppliers who decide to switch Service Bureau or RFID Packaging Providers AFTER receiving validation from the RFID Lab, will need to re-submit tag samples again for validation.
- Product Suppliers who decide to change/add new packaging with materials that may interfere with readability, will need to re-submit tag samples again for validation.
- Product Suppliers who would like to add additional skus to a previous approval can use the Item File Update Form: <https://rfidlab.org/wmitemfileupdate/>
  - Skus can only be added to a previous approval if they meet the below 6 requirements:
    - Same product supplier
    - Same brand
    - Same packaging type
    - Same packaging provider
    - Same RFID inlay model
    - Same tagging location

## Supplier Accountability

- Product suppliers are required to have a process in place to ensure all items that are delivered to Walmart have an ARC approved RFID tag
- Quality checking includes ensuring there are no duplicate serial numbers and that each tag is properly encoded with the correct GTIN for the item it is on
- Product suppliers will be responsible for all costs incurred for any RFID errors at store level

## RFID Use Cases for Suppliers

Please refer to the following research paper published by Auburn University for potential uses of RFID in your operations and supply chain.

<https://rfid.auburn.edu/papers/rfid-item-level-quantity-auditing-for-apparel-supplier-distribution-centers-12/>

[https://rfid.auburn.edu/wp-content/uploads/2021/02/Empirical\\_Study\\_of\\_RFID\\_in\\_Supply\\_Chain.pdf](https://rfid.auburn.edu/wp-content/uploads/2021/02/Empirical_Study_of_RFID_in_Supply_Chain.pdf)

<https://rfid.auburn.edu/wp-content/uploads/2021/02/CHIP-Proof-of-Concept-Results-Auburn-RFID-Lab.pdf>

RFID is being used by suppliers to automate inbound audit processes, improve Inventory accuracy, and outbound validation.

# RFID Shipper Case Markings

For the stores to easily identify on cases which items have packaging with RFID labels. The Shipper Case Markings must include the word RFID.

Please refer to the Walmart Packaging Standards Master Document [HERE](#)

Carton or carton labels do not carry any RFID inlays. Only the selling unit packaging carries the RFID inlay. The RFID marking is in addition to all other case markings and should not interfere with any other printed case markings, case labels, federal and state laws, or any other compliance related markings. If the product inside the case is not RFID labeled, do NOT use the updated RFID marking.

Please contact [wmbarcodelabeling@walmart.com](mailto:wmbarcodelabeling@walmart.com) for any questions.

## DSDC Suppliers

All master cases must be labeled with RFID even if there are mixed SKUs that are currently out of scope.

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# Contacts

## Walmart Corporate

General questions: [walmartrfid@walmart.com](mailto:walmartrfid@walmart.com)

Retail Link Page: <https://supplieracademy.wal-mart.com/mod/wiki/view.php?id=647>

Walmart Packaging Standards Master Document: [CLICK HERE](#)

Notices: <https://corporate.walmart.com/privacy-security/notices/>

## Walmart Private Brand Packaging

[RFIDpackagingUpdates@walmart.com](mailto:RFIDpackagingUpdates@walmart.com)

Generic sticker and hangtag templates are available for supplier:

<https://brandfolder.com/s/q65rh4wc9sm72wphcnm5k8g>

Supplier can fill out a request for sku-level artwork changes or for template requests:

<https://brandfolder.com/s/b656stj39rt8s2kw4fq7n5p>

Email to [RFIDpackagingUpdates@walmart.com](mailto:RFIDpackagingUpdates@walmart.com) and include subject line "reference: Template or Sku-Level Artwork"

## Auburn University RFID Lab

General Questions: <https://rfidlab.org/aleccontactform/>

ALEC RFID Submission Form: <https://rfidlab.org/alec-submissionform/>

ALEC Submission Update Form: <https://rfidlab.org/submissionupdate/>

ALEC Item File Update Form: <https://rfidlab.org/wmitemfileupdate/>

ARC Website: <https://rfidlab.org/arc/>

## GS1 U.S.

Supplier-oriented introduction to RFID: <https://site.gs1us.org/RFID-success.html>

Serialization Guide: <https://documents.gs1us.org/adobe/assets/deliver/urn:aaid:aem:5f88064e-0dbb-495b-9f29-a9ce3758caed/Developing-an-RFID-Serialization-Plan.pdf>

Tag Data Standard: <https://www.gs1.org/standards/tds>