

Wal-Mart Stores
Sam's Club

EPC Guidelines and Requirements



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EPC Guidelines and Requirements

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Introduction

Background

In June of 2003, Wal-Mart and Sam's Club announced an RFID (radio frequency identification) tagging initiative on pallets and cases of product with the partnership of our top 100 Suppliers. Currently, over 600 Suppliers many of them voluntary are participating in this initiative and we will continue to rollout to a broader Supplier community in the next few years. We suggest that all Suppliers start investigating the value in utilizing EPC technology and begin preparing for the rollout to the broader Supplier community.

In November of 2007, Sam's club announced that all suppliers should begin EPC (Electronic Product Code) tagging according to the schedule provided, or they will risk a chargeback for non-compliance. The schedule is located on the Retail Link RFID Information page in the document named "Sam's EPC Tagging Schedule".

The purpose of this document is to summarize Wal-Mart and Sam's Club EPC (electronic product code) guidelines and requirements. This guide is a summary of EPCglobal standards and all Suppliers should refer to EPCglobal standards for RFID implementation. As business needs evolve and technology advancements support further applications of EPC in the supply chain, this guide will be updated to account for those changes. However, EPCglobal should become the primary source of EPC information.

Business Goals

Wal-Mart and Sam's Club is committed to EPC technology and is focusing on specific opportunities that benefit us, our Supplier partners, and ultimately our Customers and Members. There are a variety of applications for which EPC can make a positive business impact, and they can generally be grouped into five categories:

- Improved inventory management
- Inventory visibility
- Operational improvements
- Reduce inventory shrink
- Asset tracking

Wal-Mart and Sam's Club planned improvements and benefits of using EPC's:

- Improving in-stocks and product availability
- Improving store and club inventory accuracy
- Promotion execution
- Associate productivity
- Electronic proof of delivery (EPOD)

Future Guideline Amendments

Wal-Mart and Sam's Club plan to be flexible to capitalize on developments in technology. You should keep abreast of EPC technology and be actively involved in the EPCglobal organization (EPCglobal was formed by UCC & EAN International to advance commercialization of the EPC).

Wal-Mart and Sam's Club's most recent EPC guidelines and rollout information is available on Retail Link. **Please treat this information as confidential.** Wal-Mart's and Sam's Club's guidelines mirror EPCglobal standards, so you should frequently refer to EPCglobal for the most current standards information.

EPC Resources and Wal-Mart Contacts

If you have not done so already, we encourage you to start investigating EPC benefits within your company and brainstorming the potential synergies between our organizations. The following suggestions will help:

- Contact: **EPCglobal US Subscriber Services**
7887 Washington Village Drive Suite 300 Dayton, OH 45459
Tel: 937.291.3300 Fax: 937.435.7317 E-mail: EPCinfo@EPCglobalUS.org
- Log on to the EPCglobal website for background information on the technology
 - website: www.epcglobalinc.org or www.epcglobalus.com
- Develop a team to focus on EPC solutions (functional and technical) using RFID technology.

Process Guidelines and Requirements

Summary

- Our focus is on inventory visibility at distinct points within the Store, Club, and DC.
- Suppliers are responsible for the procurement and affixing of tags to merchandise and ensuring tags meet minimum performance requirements.

Preliminary EPC Usage – Stores and Clubs

Within the Stores and Clubs our initial focus is on inventory visibility in the following key areas:

- Direct to Store and Club receiving
- Between the Store backroom and sales floor
- Between the Club staging area and sales floor
- Visibility data for Suppliers
- Exception reporting for Wal-Mart and Sam's Club management and Associates

The EPC data is available to Suppliers via Retail Link. Please note that the above focus areas are preliminary and lay the foundation for future developments in technology and process improvement.

Preliminary EPC Usage – DCs

Within the DC network our initial focus is on visibility at the receiving and shipping docks, specifically:

- Inventory visibility of inbound receipts
- Inventory visibility of outbound shipments
- Visibility data for Suppliers (inbound information could initially assist with freight claims process)

Distribution Center EPC data is available to Suppliers via Retail Link. Please note that the above focus areas are preliminary and lay the foundation for future developments in technology and process improvement.

Tagging and EDI Requirements Summary

The following outlines the EPC tagging and EDI data requirements for all direct-to-Store deliveries and DC shipments for Wal-Mart discount Stores, Supercenters, Sam's Club locations, Neighborhood Markets, regional and grocery centers, and Sam's Club dry cross-dock DCs.

Note: EPC data detail is not a requirement in an ASN to provide visibility. Reconciliation of EPC detail will be determined on a Supplier, by Supplier basis. ASN utilization of EPC data requires a conversion to version 5010.

Tagging Guidelines for Wal-Mart Stores and Distribution Centers					
WAL-MART Stores - RDC and GDC Tagging Guide	Description	EPC Tag required	Tag Data Format	EPC required in ASN	EDI-ASN Notes for EPC
CASES					
Single item/standard assortment full case	Full case to Store or DC and is shipped out as that case	YES	SGTIN	Not required	Note: The User Guide document for version 5010 for the ASN-856 is located under the e-commerce section of Retail Link. It is not a requirement to send EPC level detail in the ASN at this time.
Masterpack carton containers - contain more than one vendor pack	Containers with > 1 vendor pack, broken down and inner cartons are sent to the Store	YES-inner vendor pack cartons only	SGTIN	Not required	Note: The User Guide document for version 5010 for the ASN-856 is located under the e-commerce section of Retail Link. It is not a requirement to send EPC level detail in the ASN at this time.
Single item/standard assortment breakpack carton	Full case to DC and is shipped out as innerpacks to the Store	No	SGTIN	N/A	N/A - no tag is required
Custom pack - DSD or DSDC cartons with multiple SKUs packed into a carton	Cartons with multiple SKUs packed specifically for a given Store	YES-if you currently send an ASN	SSCC	Yes	The ASN structure currently accommodates the SSCC and should be identified in the existing MAN segment.
PALLETS					
Single item/standard assortment pallet - same SKU on pallet	A pallet with a single item/standard assortment of full case cartons	YES	SGTIN	Not required	Note: The User Guide document for version 5010 for the ASN-856 is located under the e-commerce section of Retail Link. It is not a requirement to send EPC level detail in the ASN at this time.
Multiple item pallet - multiple SKUs on pallet	A pallet with multiple item/standard assortment cases	Optional	SSCC	If tagged - YES	This option requires the use of an ASN. The current ASN structure can accommodate the SSCC and it should be placed in the existing MAN segment
Tagging Guidelines for Sam's Clubs and Distribution Centers					
Sam's Clubs and DC Tagging Guide	Description	EPC Tag required	Tag Data Format	EPC required in ASN	EDI-ASN Notes for EPC
CASES					
Single item/standard assortment full case	Full case to Club or DC and is shipped out as that case	YES	SGTIN	Not required	Note: The User Guide document for version 5010 for the ASN-856 is located under the e-commerce section of Retail Link. It is not a requirement to send EPC level detail in the ASN at this time.
PALLETS					
Single item/standard assortment pallet - same SKU on pallet	A pallet with a single item/standard assortment of full case cartons	YES	SGTIN	Not required	Note: The User Guide document for version 5010 for the ASN-856 is located under the e-commerce section of Retail Link. It is not a requirement to send EPC level detail in the ASN at this time.
Multiple item pallet - multiple SKUs on pallet	A pallet with multiple item/standard assortment cases	Optional	SSCC	If tagged - YES	This option perpetuates the use of an ASN. Tagging multi-SKU pallets will give you more visibility to the product, but the pallet tag in SSCC format will not identify the product in Sam's Club systems without the use of an ASN. The current ASN structure can accommodate the SSCC and it should be placed in the existing MAN segment
Additional Tagging Clarifications					
Additional Tagging Clarifications (Wal-Mart and Sam's)	Description	EPC Tag required	Tag Data Format	EPC required in ASN	EDI-ASN Notes for EPC
CASES					
Merchandise shipped to and consumed by Wal-Mart Inc.	For example: cleaning supplies used in our Stores or photo film used in our machines	No	SGTIN or SSCC	N/A	N/A - no tag is required
Consumer selling cases	Merchandise that is sold in the case quantities which includes but not limited to whse pack 1 of 1	YES	SGTIN	Not required	Note: The User Guide document for version 5010 for the ASN-856 is located under the e-commerce section of Retail Link. It is not a requirement to send EPC level detail in the ASN at this time.

Read Environment

As stated in the deployment scope, EPC hardware will be installed in various Wal-Mart and Sam's Club facility formats. Facilities could have some or all of the following characteristics (partial list):

- Concrete floor
- Steel building construction components
- Existing RF backbone (operating at different frequency from EPC RFID)
- Steel racking for pallet/carton storage
- Dock leveler plates on the receiving and shipping docks
- Receiving in-line conveyor in the RDC's (belt conveyor incline, leading to powered roller)
- Receiving extendable conveyor in the Stores

We suggest that Suppliers consider the technology impact of tag placement and packaging requirements. It is your responsibility to ensure that tagged merchandise is readable based on the 'quality expectations' section of this chapter.

We expect to achieve the following use cases and minimum performance requirements.

Pallets tag use cases - 100% read rate for pallet tags (will evolve as technology evolves):

- Dock door antenna/reader configuration with 2 antennae on each side of the door (up to 10ft/3m)
- Portable portal antenna/reader configuration with 2 antennae on each side of the door (up to 10ft/3m)
- Handheld antenna/reader configuration with 1 antennae (up to 6-8ft/2-2.5m)
- Forklift antennae/reader configuration with 1 - 2 antennae at the mast end of the lift

Case tag use cases – 100% read rate for case tags regardless of tag orientation with respect to the reader antenna (will evolve as technology evolves):

- Conveyor antenna/reader configuration with 1 antennae on each side or underneath (600 fpm/185mpm)
- Handheld antenna/reader configuration with 1 antennae (up to 6-8ft/2-2.5m)
- Dock door antenna/reader configuration with 2 antennae on each side of the door (up to 10ft/3m)

Case Tagging Specifics

What constitutes a case?

To support the visibility objective at the Store and Club, each case will have an EPC tag on it. This includes but is not limited to the following:

- Cardboard/plastic corrugate cases
- Plastic totes (reusable plastic containers)
- Bags
- Shrink wrapped bundles or trays on pallets
- DSD delivery containers (trays, etc.)
- PDQs or Displays

Which type of tag is required - temporary or permanent?

Each Supplier is free to use either a temporary one-time use tag or a permanently applied tag (for reusable containers). Tags must be durable and robust enough to meet their purpose in the supply chain. The decision will largely be based on the number of cycles a permanent tag can achieve. One word of caution, frozen cases tend to sweat, causing tags to peel at the edges. There are many new adhesives on the market that can eliminate or minimize this problem.

What do you mean by durability?

Tags need to be secured to their container until it is destroyed at the Store/Club or returned empty (plastic containers) to the origination point. A tag that is improperly affixed to a case will not survive its trip through the supply chain and will be rendered useless.

Where is the tag placed?

The tag location must meet the performance standards specified in the 'quality expectations' section. The EPCglobal certification center is a tool to verify appropriate tag placement. Tags should not be placed over other barcodes, labels, or other information that may be needed by the DC, Stores, or Clubs for processing (e.g. carton markings, over the tape seal).

What about mixed SKU cases?

We are expecting mixed SKU cases to be tagged. Currently there are two types of mixed SKU cases; standard pack assortments and custom pack (DSDC merchandise). Standard assortments essentially contain a relationship of a parent SKU to the detailed children SKUs contained in the case. Custom pack assortments have no relationship between the SKUs since the assortment is not pre-defined. Please reference the "tagging requirements summary" and "data exchange" sections for tagging and data requirements for mixed SKU cases.

Are any other markings required on the case?

To ensure we keep our Customers and Members informed at all times, the tag must carry a human readable "EPC Seal" (If the tag is too small to allow this then an additional label will need to be placed on the package.) If an additional label is used, it should be next to the tag so that the Customer can easily identify the location of the tag. For tags embedded in the corrugate, the "EPC Seal" must be printed on the external face of the corrugate or a label displaying the "EPC Seal." Specific focus should be given to merchandise where the Customer or Member handles the selling "unit:"



- Merchandise for which the warehouse pack and vendor pack are the same (e.g. TVs, VCRs, etc.)
- Sam's Club merchandise that can be sold at the case/selling unit level (the majority of Sam's Club product)

Consumer notification is discussed in more detail as part of the Supplier merchandising plan reviews. Our goal is to make sure consumers are aware of EPC tagging and the choices they have.

Pallet Tagging Specifics

What type of tag - temporary or permanent?

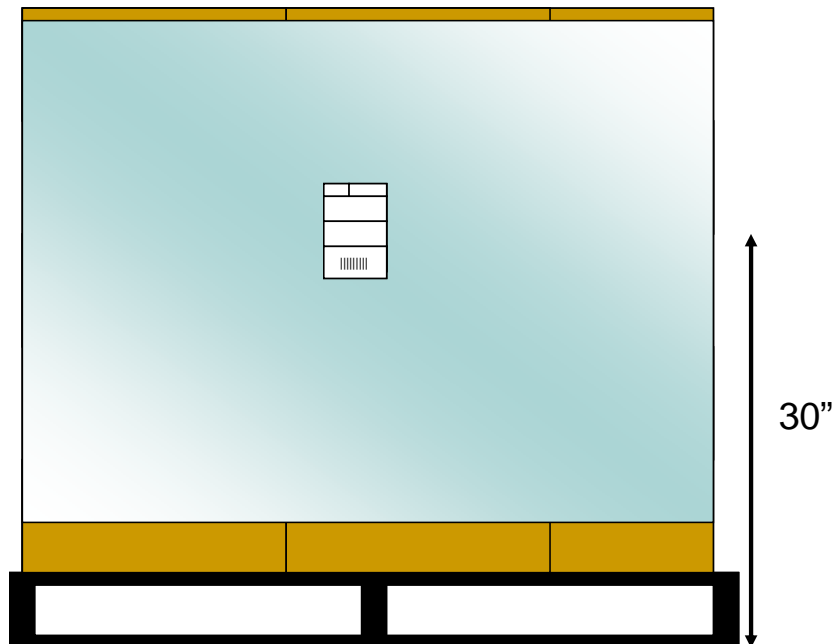
Each Supplier is free use a temporary one-time use tag or a permanently applied tag as long as they are durable enough to meet their purpose in the supply chain. This decision will be based on the number of cycles a permanent tag can achieve and the necessary data required within the tag.

What is meant by durability?

Tags need to be secured to the pallet until the load is broken down in the DC or delivered to the Store/Club. A tag that is improperly affixed to the pallet will not survive its trip through the supply chain and will be rendered useless.

Where is the tag placed?

The tag needs to be located so that they meet the performance standards specified in the 'quality expectations' section. EPCglobal certification centers can verify appropriate tag placement. Permanent tags will obviously be placed on the pallet itself. Temporary tags can be placed over the shrink-wrap on a pallet where they are easily accessible by a forklift driver or Associate using a handheld. If merchandise is not shrink-wrapped the pallet tag can be placed on an exterior case, exterior face (on the 40" side) and in alignment with any other labels that mark the "front" side of the pallet Temporary pallet tags should not be placed over other case tags, barcodes, labels or other information that may be needed by the DC, Stores or Clubs for processing (e.g. carton markings, over the tape seal).



For Sam's pallet tagging, the EPC tag must be placed on a side of a pallet that can be determined to be the "front" of the pallet (40 inch side) upon arrival at the Distribution Center. The EPC tag must be placed in middle (horizontally) and approximately 30 inches from the floor (vertical). The EPC tag must be applied on the outside of the shrink-wrap. If the merchandise is not shrink-wrapped, follow the guidelines in the paragraph above.

What about mixed SKU pallets?

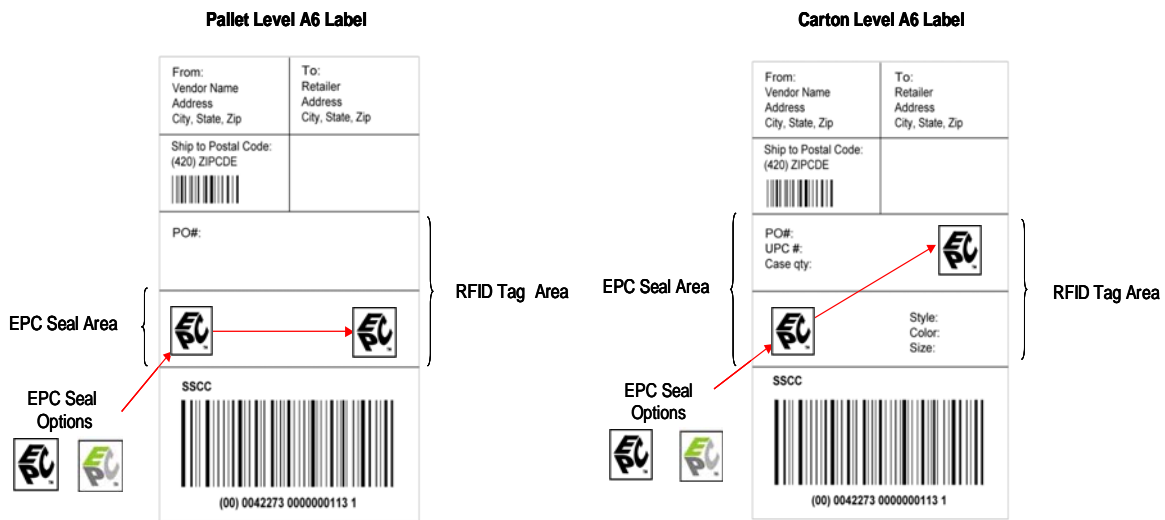
We are expecting mixed SKU pallets to be tagged. Please reference the "tagging requirements summary" and "data exchange" sections for tagging and data requirements for mixed SKU cases.

Human Readable Information

EPC tagging must not affect any existing carton markings or human-readable label requirements. Please refer to the existing Supplier manual on Carton Quality & Markings Requirements for requirement details on Retail Link: <http://rl.homeoffice.wal-mart.com/information/docs/default.asp?docid=3885>.

Wal-Mart requires that ALL cartons containing an EPC tag MUST have an EPC seal on or near the tag to support Consumer Notification Policies for EPC usage. (This requirement exceeds the guidelines adopted by EPCglobal which apply only to cartons that contain EPC tags on consumer units).

Consumer Notification: Consumers will be given clear notice of the presence of EPC on products or their packaging. This notice will be achieved through the use of the EPC Seal on the products or packaging. Additional details of the EPC Seal are available on EPCglobal's website: www.epcglobalinc.org.



Keep in mind that as exception process changes get further defined there may be a future requirement for a human-readable version of the EPC. This would be required to generate a tag to replace a defective tag that exists on merchandise.

Quality Expectations

EPC data

Case/Pallet EPC tag data must be verified prior to receipt at our facilities to ensure that the tag is readable and contains the correct information. We suggest a quality assurance process to eliminate errors at time of application.

Note that as Suppliers make process changes to leverage EPC within their networks, they must be sure to accommodate the verification process which includes the encoding of the tag, verifying the encoding of the tag against the database and potentially verifying tag data with a printed barcode.

Read rates

A 100% read rate for pallet tags is expected on product arriving at our Distribution Centers, Stores, and Clubs. We do not expect to read all carton tags on the pallet (based on product content/characteristics, not all tags can be read through the pallet). A 100% read rate for individual cases traveling on conveyor is expected. A quality audit process will be implemented during the rollout to provide feedback on tagging errors. We recognize that Wal-Mart and Sam's Club controls a portion of read rate accuracy based on our reading equipment and installation. The focus of this section is on the portion within the Supplier's control (e.g. tag placement on the case, tag data verification, case tags touching on pallets, etc.).

Operational processing

The tags should not impact any existing requirements for processing such as conveyability, drop tests, protrusions, etc. Please refer to the existing Supplier manual on Carton Quality & Markings Requirements for requirement details.

Tag Placement Analysis

It is also a good idea to conduct a tag placement analysis: that is, to test how well tags read on a given product depending on where they are affixed on the product. In conducting a tag placement analysis, minimize as many variables as possible in order to gain clarity around the actual location of the tag on the product.

Compliance

As stated earlier, Wal-Mart and Sam's Club are committed to supporting our Suppliers with this rollout and recognize that there are some details to be worked through on a one-to-one basis with our Suppliers. The following are common questions we have received regarding compliance:

What if a Supplier is not ready to begin EPC tagging by their specified start date?

Wal-Mart encourages all Suppliers to begin experimenting with EPC data immediately to prepare for any future tagging initiatives. The goal is to be live by their specified start date and assuming an effective dialogue there should be no surprises for either organization. Each Supplier will have a Wal-Mart and Sam's Club contact to support the rollout and answer any questions.

Are there any plans for a monetary penalty system for non-compliance?

Wal-Mart

Is not planning to impose a monetary penalty at this time. Our focus is to continue collaborative discussions and provide feedback to you on your progress. We also welcome your feedback to help improve the EPC rollout process and refine our guidelines.

Sam's Club

Is planning to impose a monetary penalty based on the Sam's Tagging schedule provided. The monetary penalty is intended to cover the cost and labor required to perform tagging for non-compliant suppliers. The amount of the penalty will be communicated to suppliers in a separate notification.

Will Wal-Mart and Sam's Club share the cost?

To realize the benefits of EPC, we all have an investment to make, including Wal-Mart and Sam's Club. Our consistent pursuit is to lower costs for our Customers and Members through improved efficiencies across both of our supply chains. We will not accept any cost sharing plans for EPC or a cost of goods increase.

What types of tags will be supported?

Wal-Mart and Sam's Club support only GEN2 tag protocols.

Data Setup and Exchange

Summary

This chapter discusses sharing data to enhance communication and improved visibility:

- Data Synchronization through the GS1 - Global Data Synchronization Network (GDSN)
- Retail Link Data / Information
- EDI Data Information
- EPC Data Structure

Data Synchronization

To send and receive EPC information, you must be GTIN compliant.

To send and receive GTIN information, your data must be synchronized through the Global Data Synchronization Network (GDSN - 1SYNC).

Data must be accurate.

1SYNC facilitates supply and demand synchronization of item information Stored in each partner company's internal systems. 1SYNC synchronizes data in an industry standard way in compliance with the Global Data Synchronization Network. 1SYNC is Wal-Mart's recipient data pool. Any Supplier should be able to synchronize data with Wal-Mart as long as they have a certified GDSN data pool partner.

Retail Link Data / Information

EPC Information Page

The EPC Information Page provides direct access to Guideline documents, Frequently Asked Questions, Supplier Notifications, EPC Tag Encoding Validation Tool, an Interactive Help Tool, as well as direct links to the EPC Item Maintenance Screen, DSS-Life Cycle Reporting and a link to EPCglobal's website for the latest Standards Documents.

The screenshot shows a Microsoft Internet Explorer browser window displaying the Retail Link website. The address bar shows the URL: http://rl.wal-mart.com/rl_posting/view_review.aspx?docid=24&ukey=W2615. The page title is "Retail Link RLUGs - Microsoft Internet Explorer provided by Wal-Mart Stores, Inc.".

The website content includes a navigation bar with "BACK TO RL", "MY FAVORITES", and "RL SITE MAP" buttons. A user greeting says "Welcome Ron Moser WM WEEK: 200746". The main heading is "RFID Information".

A central message states: "Wal-Mart is deploying EPC (Electronic Product Code), following EPCglobal standards. Please submit all questions to the EPC Forum (See the 'Useful Links' section on this page). For any system issues with this page or EPC tools contact the Retail Link Help Desk at 479-273-8888."

Guidelines and Requirements	Support Tools	EPC Reports	Useful Links
EPC Guidelines and Requirements (v1.6.11) (.pdf)	Wal-Mart EPC Item Maintenance Screen	Wal-Mart EPC Life Cycle Report	EPC LIVE STORE LIST 08/24/2007 (.xls)
EPC Tagging Guidelines (.pdf)	SAM'S EPC Item Maintenance Screen	SAM'S EPC Life Cycle Report	EPCglobalinc.org
EPC Helpful Hints (.pdf)	EPC Tag Encoding Validation	Wal-Mart EPC SSSC Reads	EPC Reports and Tools Instructions (.pdf)
EPC FAQ's (.doc)	Supplier On-Boarding Tagging Template (.htm)	SAM'S EPC SSSC Reads	Check Digit Calculator
	EPC Interactive Help Tool	EPC Item Information Report	EPC Forum

Wal-Mart Updates	SAM'S Updates	Industry News	Presentations
	Supplier Invitation 8/16/2007 (.pdf)	Article - Wal-Mart, Sam's Club Push RFID Further Along	News release from Rollin Ford EVP/CIO (.pdf)
	SAM's Supplier Summit Presentation - Nov 2007 (.pdf)	Press Release - RFID Study (.pdf)	RFID: From Vision to Execution - 50MB MPG Movie
		Article - A Shared Vision for Transforming Business Processes (.pdf)	Generic Store, Club and DC Layouts (.ppt)
		GEN2 Tagging message (.pdf)	

At the bottom of the page, it says "Last reviewed: 11/16/2007 4:56:42 PM".

Retail Link Data / Information

EPC Item Maintenance Screen

This screen is used to verify and update the GTIN assignment for each packaging level used in your EPC tags. GDSN updates automatically populate the lower section of this screen - the EPC indicator (product is being tagged) is currently not supported by GDSN and requires manual updating. You are required to update your GTIN information in the EPC maintenance screen on Retail Link prior to releasing any tagged shipments.

Note: There are two versions of this screen - one for Wal-Mart and one for SAM's

RFID Maintenance

Item Number: 423434 [Help](#)

Item Description 1: KF48 GV LOTION 80CT Shelf 1 / Color: WHITE
 Supplier Stock Number: 32805 Shelf 2 / Size: 80CT

Warehouse Pack UPC Number: 10078742082780 Whse Pack Qty: 27
 Case UPC Supplier Pack: 10078742082780 Supplier Pack Qty: 27
 Pallet UPC Number: 0000000000000 Pallet Qty: 63
 UPC: 00078742082783 Each RFID Indicator

Remove?	GTIN	Pack Type	RFID Quantity
<input type="checkbox"/>	0008850207070	7 Pallet	<input checked="" type="checkbox"/> 1701
<input type="checkbox"/>	1007874208278	0 Case pack	<input checked="" type="checkbox"/> 27
<input type="checkbox"/>	0007874208278	3 Each	<input type="checkbox"/> 1

Item Description Information

Item File Data used for purchase orders, etc. Can be updated via GDSN or on-line Item File maintenance

EPC cross reference data used for EPC reporting. Can be updated via GDSN or directly from this screen

EPC Tag Encoding Validation Screen

This screen is used to create a HEX value from a GTIN or SSCC to aid in your tag encoding process. It also provides the ability to validate the decoding of a tag will be recognized properly when read in our DC's, Stores and Clubs. Once a GTIN is set up on the EPC Item Maintenance screen the HEX value can be immediately validated **Note: Be sure to select Wal-Mart or SAM's for proper item matching.**

Validate EPC Tag Encoding

Include PC Bits (GEN2 Only)
 Select either Wal-Mart or Sam's
 Wal-Mart

Hex Value in Tag: 305404cc5868

Validation Results:
 filter = 2 GTIN = 10078742075140 EPC = sgtin:0078742.107514.123

ITEM_NBR	PACK_UPC_NBR	RFID_IND	PACK_TYPE	DESC1	ITEM1_DESC	ITEM2_DESC	SIGNING_DESC	ITEM_PACK_QTY	VENDOR_NBR	PRODUCT_NBR	VENDOR_STOCK_ID
405275	1007874207514	Y	Case pack	GV SPRING CUBE	7OCT	GREAT VALUE FACIAL TISSUE	UPRIGHT SPRING CUBE	17	274993	997912	2886

Calculate EPC Tag Encoding

Include PC Bits (GEN2 Only)

Tag Type: SSCC
 Company Prefix Length: 7 Digits
 Number of bits in Tag: 96 Bits

14 Digit GTIN: 10078742075
 Filter Value: 2
 Serial: 123

Calculation Results:
ENCODED HEX VALUE: 305404cc5868f0800000007b

This section decodes a tags HEX value into the GTIN (EPC Mgr + Item Reference) and serial number. It will then attempt to match this to an item - If it fails to match to an item - there is a problem that needs to be resolved. **Note: Be sure to select Wal-Mart or SAM's for item matching.**

This section provides the ability to create a HEX value for a tag from a GTIN or SSCC. Be sure to select the proper Company Prefix length. The filter value and serial number selections are required, but can be any valid number

Retail Link

Additional information will be made available on Retail Link for displaying, tracking, and status detail of tagged product.

- Retail Link is the primary method used for sharing EPC tracking information.
- Retail Link allows Suppliers to see information about their items that their Buyers and Replenishment Managers can see.
- No other retailer shares as much data with its Suppliers as Wal-Mart and Sam's Club.

Where's My Stuff?



This application shows item inventory wherever it is from PO creation to Store onhand.

- In transit and in every facility.
- Provides the ability to drill down.
- DC & Store Out of Stock.
- DC on yard not yet received.
- EPC Updates that are captured.
 - DC Receiving
 - DC Shipping
 - Store Receiving
 - Backroom to Sales Floor
 - Destroyed

EPC Life Cycle Reporting

Decision Support

Templates Search

- +  Sales and Margin
- +  Supply Chain
 - EPC Life Cycle

The EPC Life Cycle report provides EPC read information every 30 minutes as tagged product passes through the receiving doors, conveyors, and shipping areas of our distribution centers, receiving doors, back room and sales floor of our Stores. Fifty-two weeks of collected information is available at the click of a button.

Select Wal-Mart or SAM's in the upper section of the screen for pulling EPC read detail

EDI Data Information

Data Exchange Documents

- 861 - Receiving Advice - EPC read data is available via this EDI document (version 5010) - contact the EDI help desk for more information – (479) 273-8888
- 856 - Ship Notice - Version 5010 supports EPC information within this document

AS2 Requirements

Wal-Mart endorses EDIINT as a standard developed for exchanging data securely over the Internet. AS2 is the 2nd version of this standard (Applicability Statement 2). Contact the EDI Help Desk at (479) 273-4556 or email gem@wal-mart.com with any questions concerning set up.

For more detailed information on EDI select the [E-Commerce/EDI](#) section on Retail Link.

EPCIS Data Information

Data Exchange Documents

- EPCIS XML - formatted data is available. EPCIS provides a standard set of interfaces for EPC data, enables a single way to capture and share information, while still allowing the flexibility for industry and organization-specific implementations.

For more detailed information go to EPCglobal's web site: www.epcglobalus.org

Contact the EDI Help Desk at (479) 273-8888 to get set up to receive EPC read data via EPCIS -XML format

EPC Data Structure

- The structure of the Electronic Product Code (EPC) is divided into 6 sections. Each of these is described in detail within this section. For additional information log onto the EPCglobal website. - www.epcglobalinc.org (Standards and Technology - EPC Tag Data Specifications)

Header: Identifies EPC field layout

Elements	Header Value	Filter Value	Partition	Company Prefix	Item Reference	Serial Nbr	Total
SGTIN	48	3	3	20-40	24-4	38	96
SSCC	49	3	3	20-40	n/a	38-18	72*
SGLN	50	3	3	20-40	21-1	41	96

* The last 24 bits of the SSCC are not used and must be zero filled at the end of the 96 bit tag space

Binary Representation: 48 = 0011 0000 49 = 0011 0001 50 = 0011 0010

Layout for a 96 bit SGTIN Tag:

Elements	Header	Filter Value	Partition	Company Prefix	Item Reference	Serial Nbr	Total
Bits	8	3	3	20-40	24-4	38	96
Value	0-255	0-7	0-7	13 digit GTIN		0-274,877,906,943	

Filter Value: Identifies type of object (selling unit, case, or other)

Filter Value	Binary Number	Description	Example
0	000	Unspecified	Default always read
1	001	Consumer unit	Single package of tissues
2	010	Case	48 unit case of tissues
3	011	Case & Consumer unit	TV, Bicycle, Grill, etc.
Not defined		Inner pack	
Not defined		Load/Pallet	

Note: Refer to Tag Data Standards Document at: www.epcglobalinc.org for latest version updates

The *Filter Value* is not part of the GTIN or EPC identifier. It is used strictly for fast filtering by the reader to distinguish between pre-selected basic logistics types and is not used for any other purpose.

Unspecified: any object containing a tag other than those described in the table above. This is a default value and should always be read by the reader - until a Pallet/Load filter is specified, "0" should be used for a Pallet.

Item or Consumer Unit: a single product or bundle of products that are for sale to consumers as a single item. This can include so-called "bundle packs" of identical or unlike items such as 2 boxes of toothpaste or a toothbrush and toothpaste combination. For bundles, the individual items can not be tagged.

Case or Shipping Unit: a disposable shipping container that contains more than one consumer unit, possibly packaged in Inner Packs. A case or shipping unit is not intended for point of sale scanning. For example: a carton containing 48 selling units of tissue.

Case and Consumer Unit: a disposable shipping container that contains a single product or bundle of products that are for sale to consumers as a single item. A case and consumer unit could be an item such as a TV, DVD player or bicycle and could also be an item such as motor oil that is sold both by the case and as individual bottles.

Inner Pack: a sub-unit of a case containing fewer Items and used for shipment in situations where full case quantities are not warranted. Inner packs can also be consumer units. An inner pack can be formed using a separate bundling mechanism such as an inner cardboard box, shrink-wrap inside the case's shipping container, or tray, or other mechanism, or it can be formed simply by splitting the case' shipping container using a tear-strip. For example, an item packed in a case of 24 consumer units may have inner packs of 6 consumer units inside the shipping container.

Load or Pallet: a collection of cases that are to be treated as a unit. Most loads today are identified using a Serial Shipping Container Code (SSCC). A load only has meaning while the collection of cases remains intact. This is not the same as a physical pallet that can also have a Global Returnable Asset Identifier (GRAI) tag.

Partition: Identifies length of Company Prefix Nbr

Partition	Binary Number	Company Prefix		Item Reference	
		Bits	Digits	Bits	Digits
0	000	40	12	4	1
1	001	37	11	7	2
2	010	34	10	10	3
3	011	30	9	14	4
4	100	27	8	17	5
5	101	24	7	20	6
6	110	20	6	24	7

Company Prefix: EPC Manager Number assigned by EPCglobal (including number system characters)
 Item Reference: Item number assigned by EPC Manager (company). The first digit contains the Indicator digit of the GTIN
 Serial Number: Unique serial number assigned to Item Reference

Example of UPC to EPC conversion

Item: GV Detergent - 2pk carton

UPC			0	7	8	7	4	2		4	6	1	6	5	6
GTIN	1	0	0	7	8	7	4	2		4	6	1	6	5	3
EPC		0	0	7	8	7	4	2	1	4	6	1	6	5	

Indicator digit of "1" was assigned for 2pk carton of product

Convert to:
 Header =====> **48** (96 bit GTIN)
 Filter Value =====> **2** (Case of product)
 Partition =====> **5** (7 digit Mfg Nbr including number system characters)
 Company Prefix =====> **0078742** (Mfg Nbr including number system characters)
 Item Reference =====> **146165** (Item number assigned by EPC Mgr)
 Serial Nbr =====> **1234567890** (Serial Nbr assigned by EPC Mgr for item)

Elements	Header	Filter Value	Partition	Company Prefix	Item Reference	Serial Nbr
Value	48	2	5	0078742	146165	1234567890

sgtin: 0078742.146165.1234567890

Elements	Value	Binary Number
Header	48	00110000
Filter Value	2	010
Partition	5	101
Company Prefix	0078742	000000010011001110010110
Item Reference	146165	00100011101011110101
Serial Nbr	1234567890	00000001001001100101100000001011010010

Actual Tag Data

00110000 010 101 000000010011001110010110 00100011101011110101 00000001001001100101100000001011010010

Layout for a 96 bit SSCC Tag:

Elements	Header	Filter Value	Partition	Company Prefix	Serial Reference	Unallocated	Total
Bits	8	3	3	20-40	38-18	24	96
Value	0-255	0-7	0-7	17 digit SSCC		24 zero bits	

Example of SSCC to EPC conversion

SSCC	0	0	0	7	8	7	4	2		1	2	3	4	5	6	7	8	9	3
EPC		0	0	7	8	7	4	2	0	1	2	3	4	5	6	7	8	9	

The "AI" (00) is not used for EPC conversion. The extension digit is moved to first position of the serial number.

Convert to:

Header =====> **49** (96 bit SSCC)
 Filter Value =====> **0** (Pallet of product)
 Partition =====> **5** (7 digit Mfg Nbr including number system characters)
 Company Prefix =====> **0078742** (Mfg Nbr including number system characters)
 Serial Ref =====> **0123456789** (Extension digit + Serial Number)
 Unused =====> **zero filled** (This field must contain 24 zero bits to conform with this version of the specification.)

Elements	Header	Filter Value	Partition	Company Prefix	Serial Reference	Unused
Value	49	0	5	0078742	0123456789	24 zero bits

sscc: 0078742.0123456789

Elements	Value	Binary Number
Header	49	00110001
Filter Value	0	000
Partition	5	101
Company Prefix	0078742	000000010011001110010110
Serial Reference	0123456789	0000000111010110111100110100010101
Unused	24 zero bits	000000000000000000000000

Actual Tag Data

00110001 000 101 000000010011001110010110 0000000111010110111100110100010101 000000000000000000000000

NOTE: Wal-Mart and Sam’s Club fully support the EPCglobal Tag Standards Document for tag layouts, encoding and decoding for EPC data - for the latest detail information - to go: www.epcglobalinc.org.

EPC Network

More information will be made available concerning the sharing of EPC related data via the EPC Network from EPCglobal. The most current standards are posted under the Standards section on their website.

Technology

Summary

- Focusing on **Ultra High Frequency** (UHF) tags (868 MHz to 956 MHz).
- Tags must be **EPC compliant** (compliant in both data format and air interface protocol). The class of the tag (based upon the desired tag characteristics) is up to the Supplier to determine.
 - **Class 1 protocol**
 - **Class 2 Protocol**
- Tags must be Gen2 EPC compliant.

Advice on EPC technology

We encourage all of our Supplier partners to consider the following:

- 1) Technology is always evolving, especially in the RFID industry. Purchasing hardware that is upgradeable (preferably via a software update) to protect your capital investment makes sense. **Agile readers**, or readers that can read a number of different air-interface protocols are a good investment to protect your company's assets against future technology leaps, or governmental regulatory changes.
- 2) Your **participation** within **EPCglobal** is extremely important in helping to shape the future of EPC and EPC technology. EPCglobal must be a user-driven, not a technology-driven organization.
- 3) Your company's help is needed to focus the RFID industry on providing standard, supportable, deployable EPC reader solutions. Some examples include:
 - Ethernet Based
 - Common Platform
 - OS / intelligence for on board filtering
 - Combined Reader\Antenna
 - Flexible Output Options
 - RF Environment Awareness
 - Power Over Ethernet
 - Security
 - Ability To Disable Unused Features

EPC Tag Frequency

Because of the performance characteristics of the frequency and how they relate to the business processes surrounding cases and pallets, we are focusing on the Ultra High Frequency (UHF). The actual frequency the readers transmit in is between 868 MHz and 956 MHz depending upon the regulatory region in which they are working. Be mindful of other nearby devices in this working frequency range as the EPC readers can interfere with their performance.

EPC (GEN2) Class Information

Gen 2 protocols offer significant performance enhancements over the first generation of EPCglobal UHF protocols, including superior tag throughput, improved accuracy and compliance with global spectrum regulations. Having a single Global Standard using EPC Generation 2, allows industries to leverage standards-based interoperability among tags, interrogators, printer/encoders, etc. as well as aggressive pricing spawned by competition

For more detailed and the latest information on GEN2 go to EPCglobal website: www.epcglobalinc.org

Supplier Merchandise Tagging Template

Summary

The following are the key summary points with respect to this chapter:

- Suppliers need to be prepared to discuss their merchandise tagging plans with Wal-Mart and Sam's Club prior to their implementation dates.
- It is critical for Suppliers to understand their internal organizational structure with respect to EPC.
- Documentation/evaluation of major merchandise flows and specific SKU details will need to be performed by each Supplier.

Background

We ask you to start, if you haven't done so already, the process of determining the impacts of EPC to your business and where you will leverage the benefits for your organization.

Notification will be sent when Wal-Mart and Sam's Club will begin reviewing with each Supplier, their plans for meeting our requirements. This includes the SKUs that will be tagged and the reasons why some may not be tagged initially. We ask that you work on the following sections and be prepared to discuss.

Supplier Organization Structure

Each Supplier organization is structured differently and our goal is to understand the various divisions that exist. This information is needed to ensure effective communication between Wal-Mart and Sam's Club and the Supplier. The following are examples of organizational structure points for Suppliers to clarify:

- Parent company and subsidiaries.
- Operating relationship between subsidiaries/divisions (e.g. centralized project management).
- Comprehensive summary of parent company/subsidiaries involvement.
- Alignment of EPC points of contacts to parent company/subsidiaries.

Merchandise Flow

For each entity identified in the Supplier organization structure, we should classify the various merchandise flows through the Wal-Mart and Sam's Club supply chain. The following grid is draft template to document your flows:

Company, subsidiary, division	Wal-Mart and Sam's Club Merchandise Flow						
	RDC	GDC	DSD to Stores	Sam's Club DC	DSD to Clubs	Specialty	McLanes
	<ul style="list-style-type: none"> • Indicate flows that apply • SKUs for each flow • Approximate volume for each flow (case/pallet) • Existing EDI-ASN transmissions 						
1.							
2.							
3.							

This initial filter helps all of us focus on the merchandise that flows through the channels identified in the EPC rollout and still be mindful of potential opportunities for the near future.

Rollout Region Alignment

We suggest that you document the alignment of your products/facilities with the planned rollout region. As the rollout expansion evolves for Wal-Mart and Sam's Club this necessitates a similar rollout plan to be developed internally within your organization. The following are examples of alignment points for Suppliers to document and think through:

- How is merchandise warehoused to support fulfillment (by region, by product type, etc.)?
- At a high level, what impact would a geographic expansion have on the tagging plans?
- What synergies or issues are there if I supply to both Wal-Mart and Sam's Club?

SKU Assessment

Eventually each Supplier needs to understand how EPC affects their individual SKUs. The following grid is a draft template of points for you to consider (not an exhaustive list):

Category /Dept.	SKU	WMT/Sam's Club warehouse flow (assembly, staple stock, etc.)	Breakpack item	Tag data requirements (GTIN, SCCC)	'Case' material (cardboard corrugate, RPC's, etc.)	Permanent tagging possibilities	Other
1.							
2.							
3.							

Supplier Due Diligence

Wal-Mart and Sam's Club has been actively involved with the EPC technology for several years and we are excited about its potential. We have categorized EPC benefits into three areas:

- Collaborative benefits (between Wal-Mart, Sam's Club, and our Suppliers)
- Wal-Mart and Sam's Club internal benefits (improved efficiencies and service levels)
- Supplier internal benefits (improved efficiencies and service levels)

Among the collaborative benefits we plan to provide is additional visibility into our supply chain to improve Store/Club in-stock and potentially improve the freight claims process (details discussed in later chapters).

We ask Suppliers to conduct their own due diligence to determine:

- Internal efficiencies to be realized based on merchandise and level of tagging
- Your potential benefits from increased visibility to the Wal-Mart and Sam's Club supply chain
- Opportunities with your own Suppliers of raw materials, packing, etc.

EPC technology significantly changes the way we all do business and it requires sincere effort on all our parts to realize that vision. Wal-Mart and Sam's Club are committed to supporting Suppliers during the rollout, yet we expect each Supplier to define what EPC means to their business and determine the most cost effective way to deploy the technology.