IN REPLY
REFER TO DLMSO

August 12, 2008

MEMORANDUM FOR SUPPLY PROCESS REVIEW COMMITTEE (PRC) MEMBERS

SUBJECT: Approved Defense Logistics Management System (DLMS) Change (ADC) 296, Passive Radio Frequency Identification (RFID) Transactions (Staffed as PDC 315)

The attached change to DOD 4000.25-M, Defense Logistics Management System (DLMS) is approved for implementation. Activities implementing this ADC must coordinate their testing and implementation with the Defense Automatic Addressing Support Center (DAASC) and Asset Visibility (AV) Program Office prior to moving this capability into production.

Addressees may direct questions to the DLMSO point of contact, Ms. Heidi Daverede, 703-767-5111; or, e-mail: Heidi.Daverede@dla.mil. Others must contact their Service or Agency designated representative.

DONALD C. PIPP
Director
Defense Logistics Management
Standards Office

Attachment

cc:
ODUSD(L&MR/SCI)

ADC 296
Passive Radio Frequency Identification (RFID) Transactions

1. ORIGINATOR:

    a. **Service/Agency:** Defense Logistics Agency

    b. **Originator:** DLA J-3YI, Commercial (717) 770-1538

2. FUNCTIONAL AREA: Primary: Automated Identification Technology (AIT); Secondary: Supply Chain Visibility

3. REFERENCE: DoD 4000.25-M, Defense Logistics Management System (DLMS), Volume 2, Chapter 24, Change 5.

4. REQUESTED CHANGE:

    a. Description of Changes: This change includes an update to Chapter 24, Passive RFID Transactions and the requirement to add "Delivered" and "Undelivered/Attempted Delivery" to the XML Visibility transaction in support of local delivery. A copy of the revised Chapter 24 is provided as an enclosure, with the changes identified by a strike-through for deleted information, and red, italicized type to show added information.

    b. Description of Changes in detail:

        (1) This update to Chapter 24 deletes program references in Change 5 about the Alaska RFID Initiative (ARI) mentioned in paragraph C24.2. DoD has now deployed passive RFID (pRFID) to other sites outside of Alaska, and the use of the referenced pRFID transactions is no longer focused solely on the pRFID systems in Alaska.

        (2) This update provides additional details about the use of the Visibility Transaction, adding two new events that can be reported, Delivered and Undelivered/Attempted Delivery.

        (3) The rules have been updated to reflect the expanded use of the Visibility Transaction and the associated Reader Function Codes to record deliveries and undelivered/attempted deliveries. There are two additional Reader Function codes to reflect these new events. Code X (Delivered) and Code U (Undelivered/Attempted Delivery) are now added to the Visibility Transaction Data Requirements Table.

        (4) A new transaction data table (Table C24.T3, Visibility Response Transaction Data Requirements) has been added to identify the data elements associated with the Visibility Response transactions sent by DAASC in response to a follow-up request from a site using action code "F" (Follow-up) in the Visibility Transaction.

(5) The authorized values for Shipment Notice Type in the Visibility Response Transaction data table have been modified. If the Reader Function Code is F (Follow-Up Information), then the Shipment Notice Type field will contain "SHIP" in lieu of "856S"; if the Reader Function Code is N (No Information Found), then the Shipment Notice Type field will contain "NONE" in lieu of "856".

(6) An updated pRFID data flow diagram is provided.

c. **Procedures:** The procedures that are added or changed are as follows.

(1) **Local Delivery Event Reporting.** The procedures for local delivery have been added and will be supported by the use of the pRFID Visibility Transaction. The depot will make local deliveries and record the delivery event by reading either a case or pallet pRFID tag, depending on the shipment configuration, using a handheld pRFID reader.

(a) Material will be transported to the customer location for delivery, and will be accompanied by a pRFID tag. Application location of the pRFID will depend on shipment configuration, customer requirements, or delivery process. For example; for process efficiency the shipment parent tag could be applied to a manifest instead of multiple pallets or in the case of a single item delivery, the MSL could be the scanned.

(b) Upon delivery to the customer location, depot drivers will scan the RFID placard on the building at the delivery location and then scan a pRFID tag representing the shipment during offload. If no delivery was possible, the driver will annotate in the handheld an attempted delivery.

(c) When the local delivery driver returns to the depot or homebase, the pRFID handheld device will either be placed in a docking station or connected via wireless to upload the delivery data to the pRFID server.

(d) The pRFID server middleware will process the RFID reads as they do today for internal queries and external reporting of the visibility transaction, and make use of the new Reader Function Codes for identifying both Delivered and Attempted Delivery (Undelivered).

(e) DAAS will receive the visibility transaction with these new codes and process them as they do today for Arrival, Departure, and Observed events.

(2) **Visibility Response Transaction**. This transaction is used to reply to requests for data if the pRFID middleware fails to associate the pRFID tag with a previously transmitted transaction such as a DS 856S, Shipment Status.

(a) The middleware will send a Visibility transaction to DAAS with Action Code F.

(b) If the requested information is found, DAAS will transmit a Visibility Response transaction containing the following data elements: RFID Location Control Number (of the site initiating the follow-up request), Tag Read Date/Time, Reader Function Code of "F", Passive RFID Tag Number, Shipment Notice Type of "SHIP", Document Number, Document Number

Suffix, Transportation Control Number, Shipment Date, NSN/Part Number and Quantity Shipped.

        (c) If DAAS does not have the information, the sender will receive a Visibility Response Transaction from DAAS with an 'N' in the Reader Function Code field indicating the corresponding DS 856S or DTEB 856A transaction was not recorded at DAASC. The data elements for this type of visibility response will be RFID Location Control Number, Tag Read Date/Time, Reader Function Code of "F", Passive RFID Tag Number, and Shipment Notice Type of "NONE".

5. REASON FOR CHANGE: The changes are proposed to standardize the pRFID processes and related visibility transactions used throughout DoD. In addition, the additions will expand the use of pRFID to local delivery and the associated delivery and attempted delivery transactions to be implemented under Joint Regional Inventory Materials Management (JRIMM).

6. ADVANTAGES AND DISADVANTAGES:

    a. Advantages: The change creates a standardized automated process for passive RFID transactions used in DoD and supports the local delivery process when pRFID tags are used with local logistics processes. This capability provides visibility at the point of delivery to the customer, when the customer's system neither is DLMS compliant nor has pRFID middleware to bridge the compliancy. The changes will also help clarify the use of pRFID data, and the associated visibility, visibility response and reader registration transactions to be used in both existing and future applications.

    b. Disadvantages: N/A.

7. Impact:

    a. Modifies DoD 4000.25-M, Defense Logistics Management System (DLMS), Volume 2, Chapter 24, Change 5.

    b. Modifies the requirements for the DAAS "V" table to include new Reader Function Codes "X" and "U" in support of the delivery and undelivered/attempted delivery processes associated with local delivery.

    c. Supports the implementation of the DLA's Distribution Standard System (DSS) local delivery procedures to integrate pRFID as part of the DLA JRIMM implementation.

    d. Adds to the data available for Asset Visibility (AV) reporting capability. When or if the new delivery data reported with Visibility Transactions is included for AV reporting purposes, changes will be required in order for the AV report database to include the new delivery data.

Enclosure (Chapter 24, Passive Radio Frequency Identification)

C24. CHAPTER 24

PASSIVE RADIO FREQUENCY IDENTIFICATION (RFID) TRANSACTIONS

C24.1 GENERAL. This chapter provides *procedures for reader registration and visibility processing* ~~general information~~ **supporting the Department of Defense (DoD) RFID implementation. The Department of Defense requires integration of passive RFID (pRFID) technology in the DoD Supply chain. Visibility is a critical component of this** ~~project~~ *requirement.* ~~and~~ **The Defense Logistics Management System (DLMS) includes the establishment of data requirements that support** *shipment* **visibility across the DoD supply chain. The detailed procedures pertaining to this** ~~program~~ *requirement* **are** ~~under development and~~ *provided in* **this chapter.** ~~will be expanded over time.~~ **DoD policy** ~~Stakeholder information~~ **regarding this passive RFID implementation** *is located* ~~may be found~~ **on the DoD AIT website (URL): http://www.transcom.mil/ait/.**

C24.2. APPLICABILITY AND SCOPE. This guidance is applicable to ~~the Alaska RFID (ARI) Program and applies to future pRFID implementations~~ *DoD passive RFID system implementations.* **The scope** ~~of the project~~ **includes systems that** ~~currently~~ *send, receive, and/or* **collect supply and transportation data** ~~for the Defense Logistics Agency (DLA) and United States Transportation Command (USTRANSCOM)~~ *and the* **business processes used to generate that data, technologies to collect new data, software to integrate the data, and tools to visualize the information.**

C24.3. PROCESS OVERVIEW.

C24.3.1. **Participating activities** *shall* ~~will~~ **register pRFID Readers,** ~~as specified below~~ *per the guidance in paragraph C24.4,* **for the purpose of identifying the location of the Reader.**

C24.3.2. **Once registered, scanned tag reads** *shall* ~~will~~ **be reported** *either by a DoD system or middleware* **to the Defense** *Automatic* **Addressing System (DAAS) using the Visibility Transaction which provides both the pRFID** *tag* **and Reader identification. The purpose of this** *process* **is to associate the tag identification and location with previously transmitted logistics transactions containing pRFID, e.g., DLMS Supplement (DS) 856S, Shipment Status,** ~~and Federal~~ *Defense Transportation Electronic Business (DTEB)* **Implementation Convention (IC) 856A, Receipt/Shipment, Consolidation/Due-in Notice,** *and any others defined in the future***.**

C24.3.3. If **the middleware fails to associate the tag with a previously transmitted** *logistics transaction* ~~DS 856S and Federal~~ *or DTEB* ~~IC 856A~~**, the activity** *will* ~~may~~ **ask for a follow-up** ~~Federal IC 856A and DS 856S by sending~~ *by sending* **a Visibility Transaction to DAAS with** ~~Action~~ *Reader Function* **Code** *of* **F** *(Follow-Up), and DAAS shall transmit a Visibility Response transaction containing the data elements defined in C24.9***.**

C24.3.4. There are three transactions[1] to support this process; one is used for sending Reader Registration data, a second for sending Visibility data, and a third for DAASC to respond to inquiries for unmatched tag reads. The transaction details are covered in the following paragraphs.

C24.4. READER REGISTRATION *PROCESS*

C24.4.1. The Reader Registration *transaction* is applicable to handheld or fixed pRFID devices for the purpose of identification of its location and role in the supply chain. The term "READER" refers to a specific Reader, group of Readers, or all Readers at a site, depending on how a specific site chose to register its Readers.

C24.4.2. The registering site *shall* ~~will~~ provide to DAAS the location registration data, ~~described below~~ *defined in Table C24.T.1.*, via the site's middleware application (Savi Site Manager, Globe Ranger, etc.) or via the worldwide web (to be determined). DAAS *shall* ~~will~~ establish that Reader in a location table *and assign a location control number*. The location control number *shall* ~~must~~ be used on every subsequent transaction sent to DAAS from the field.

C24.4.3. After a Reader is successfully registered, sites *are responsible for* ~~can~~ *updating* point of contact (POC) information *and deleting* the Reader *when no longer required*. POC information is for restricted use and *shall* ~~will~~ not be displayed in routine queries. Only registered Readers can be updated or deleted. A previously deleted Reader cannot be re-registered with the same location control number nor can it be updated.

C24.4.4. Anytime a Reader or group of Readers is *updated* ~~changed~~, moved, or retired, the site *shall* ~~must~~ send the update *transaction* to DAAS using the same location registration transaction with a delete in the action taken field. If the Reader or group of Readers is just being *updated* ~~changed~~ or moved and will be used at a different location, the Reader or group of Readers, after deletion, shall be registered again and receive a new location registration number.

C24.4.5. Registration actions which are not successfully processed by DAAS *shall* ~~will~~ be rejected **and a response sent** with the applicable reader registration action code.

C24.5. READER REGISTRATION DATA REQUIREMENTS. Passive RFID Reader Registration, ~~whether conducted via transaction exchange or on-line,~~ *shall* ~~will~~ encompass the data requirements identified in Table C24.T1.

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[1] **The schema files (XSD) can be viewed at: http://www.dla.mil/j-6/dlmso/elibrary/TransFormats/formats.asp**

Table C24.T1. Passive RFID Reader Registration _Data_ Requirements

Element	Description	Man/ Opt/ Con[2]	Mini- mum Lgth	Maxi- mum Lgth	Values
RFID Location Control Number (LCN)	DAAS-assigned upon initial registration: ~~required in up- date and delete; blank in the establish option~~	C	16	16	_From site to DAAS:_ _- Blank for initial registration request_ _- LCN for update requests_ _From DAAS to site:_ _- LCN_
Reader Registration Action	Describes purpose of registration action or DAAS response to the registration action	M	2	2	From Site to DAAS: E-establish reader U-update reader info D-delete reader From DAAS to Site: CE-establish reader confirmed CU-update reader confirmed CD-delete reader confirmed NE-establish reader not accepted NU-update reader not accepted ND-delete reader not accepted
Reader Type	Location's reader is fixed or mobile	M	1	1	F = Fixed M-= Mobile
Reader ID Number	Number assigned to this reader or group of readers by the site	M	10	10	
Location	DoDAAC, CAGE, Water Port or Aerial Port code for this location	M	5	6	
Location Text	Further description of this location	O	1	50	Free form text; Possible entries would be Area xxx, Bldg. xxx, Post xxx, Door xxx
Type of Location	Code ~~location is using to report by~~ _to identify type of location_	M	1	1	D = DoDAAC V = Cage Code A = Aerial Port W = Water Port

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Element	Description	Man/ Opt/ Con	Mini- mum Lgth	Maxi- mum Lgth	Values
Effective Date/Time	Date/Time reported action took place	M	12	12	ZULU CCYYMMDDHHmm (example: 200612051459)
Latitude	Latitude of this location	M	4	9	CRIF[3] or degrees, minutes, seconds, and direction
Longitude	Longitude of this location	M	4	9	CRIF or degrees, minutes, seconds, and direction
POC Name and Other Information	Name and other information of POC at site	M	20	100	
POC Commercial Telephone Number	Commercial telephone number of POC at site	M	10	15	
POC DSN Telephone Number	DSN telephone number of POC at site	M	7	7	
POC E-Mail Address	Email address of POC at site	M	10	50	

C24.6. VISIBILITY TRANSACTION PROCESS.

C24.6.1. When a shipment with pRFID arrives, departs or is observed at a registered Reader location, the Reader *shall* ~~will~~ *communicate with the middleware, which shall* send the Visibility Transaction to DAAS *with a Reader Function Code of A (Arrived), D (Departed) or O (Observed).* If the Reader has an assigned role (e.g., receiving or shipping) the transaction *shall be used to* ~~will~~ report that action (e.g. arrived or ~~shipped~~ *departed*) using the appropriate action codes. If the device cannot determine arrival or departure, the action code *for Observed shall* ~~will~~ be used.

C24.6.2. At those sites electing to provide pRFID support for local deliveries, use the new Reader Function Codes in Table C24.T2. For local delivery with pRFID, the reader shall either record a delivery event or an undelivered (e.g., attempted delivery) event. Delivered is defined as the customer accepting the material from the shipping entity. Undelivered is defined as during normal operating hours and at no fault of the shipping entity, a shipment is not able to be delivered. When a local delivery with pRFID is delivered or undelivered using a mobile handheld Reader, the Reader information shall be uploaded to the middleware at the home base, which shall send the Visibility transaction to DAAS with a Reader Function Code of X (Delivered) or U (Undelivered/Attempted Delivery).

C24.6.3. If the middleware fails to associate the tag with a previously transmitted logistics transaction, the activity will ask for a follow-up by sending a Visibility Transaction to DAAS with a Reader Function Code of F (Follow-Up).

C24.6.4. Valid Visibility Transactions *shall* ~~will~~ be accepted and stored in DAAS. Visibility

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[3] *Enter "CRIF" for undisclosed locations.*

Transactions from non-registered readers or with an invalid location control number *shall* ~~will~~ be returned to the sender with an 'N' in the sending location action indicating the transaction had an error and was not recorded at DAAS.

~~Should the middleware fail to associate the tag with a previously transmitted DS 856S, Shipment Status , and/or Federal IC 856A, Receipt/Shipment, Consolidation/Due-in Notice, the activity may ask for a follow-up Federal IC 856A and DS 856S by sending a Visibility Transaction to DAASC with Action Code of 'F'. If DAAS does not have the information, the sender will receive with an 'N' in the sending location action indicating the corresponding DS 856S or Federal IC 856A transaction was not recorded at DAASC. If DAAS does have the Federal IC 856A or DS 856S, the appropriate transaction will be sent to the requestor.~~

C24.7. <u>VISIBILITY TRANSACTION DATA REQUIREMENTS</u>. Passive RFID Visibility Transactions *shall* ~~must~~ contain the data requirements identified in Table C24.T2.

Table C24.T2. <u>Passive RFID Visibility Transaction Data Requirements</u>

Element	Description	Man/ Opt/ Con	Mini- mum Lgth	Maxi- mum Lgth	Values
Passive RFID Tag	Tag ID Value	M	~~50~~ *24*	50	**Expressed in hexadecimal**
RFID Location Control No.	DAAS assigned during the registration process	M	16	16	
Reader Function Code	Describes process associated with this Reader	M	1	1	<u>From site to DAAS;</u> A – Arrived D – Departed O – Observed F – Follow-up *X – Delivered* *U – Undelivered/ Attempted Delivery* <u>From DAAS to site:</u> N – Not recorded ~~for A, D, O, and F,~~ **(when no 856A or 856S exists for the tag); DAASC will send 856A and 856S in response to the "F"**
Tag Read Date/Time	Date/Time reported action took place	M	12	12	ZULU CCYYMMDDHHmm (example: 200612051459)

C24.8. <u>VISIBILITY RESPONSE TRANSACTION PROCESS</u>.

C24.8.1. If the middleware fails to associate the tag with a previously transmitted DS 856S or DTEB IC 856A, the activity will send a Visibility Transaction to DAAS with a Reader Function Code of F (Follow-Up).

C24.8.2. If the requested information is found, DAAS shall transmit a Visibility Response transaction containing the data elements defined in paragraph C24.9.

C24.8.3. If DAAS does not have the information, DAAS shall transmit to the sender a Visibility Response Transaction with an 'N' in the Reader Function Code field indicating the corresponding DS 856S or DTEB 856A transaction was not recorded at DAASC.

C24.9. VISIBILITY RESPONSE TRANSACTION DATA REQUIREMENTS. Passive RFID Visibility Response Transactions shall contain the data requirements identified in Table C24.T3.

Table C24.T3. Passive RFID Visibility Response Transaction Data Requirements

Element	Description	Man/ Opt/ Con	Mini- mum Lgth	Maxi- mum Lgth	Values
RFID Location Control No.	DAAS assigned during the registration process	M	16	16	
Tag Read Date Time	Date/Time reported action took place	M	12	12	ZULU CCYYMMDDHHmm (example: 200612051459)
Reader Function Code	Describes process associated with this Reader	M	1	1	From DAAS to Site; F – Follow-up Information N – No Information Found If N, the conditional fields will not be populated.
Passive RFID Tag	Tag Identification Value	M	24	50	Expressed in hexa- decimal
Shipment Notice Type	X12 Transaction Type Code	M	3	4	If F, enter "SHIP" If N, enter "NONE"
Document Number	Requisition Number	C	14	14	
Suffix	Requisition Number suffix	C	1	1	Populated only if Document No. has it
Transportation Control Number	TCN from Shipment notice	C	17	17	
Shipment Date	Date/Time from Shipment Notice	C	12	12	ZULU CCYYMMDDHHmm (example: 200612051459)
NSN/Part Number	Stock Number/Part Number cited in Shipment notice	C	13	15	
Ship Quantity	Quantity Shipped cited in Shipment Notice	C	5	9	

C24.10. <u>DATA STORAGE PROCESS</u>.

C24.10.1. DAAS *shall* ~~will~~ store both the *Reader Registration* transaction and the passive RFID Visibility Transaction, in addition to the ~~already stored~~ *"R table"* data.

C24.10.2. All error-free Visibility Transactions arriving at DAAS *shall* ~~will~~ be stored upon arrival for approximately 7 months.

C24.10.3. All error-free device registrations *shall* ~~will~~ be stored until ~~the~~ *a Reader Registration Action value of "D" (Delete Reader) is received by DAAS in a Reader Registration* transaction 'cancelling' the device. ~~is received.~~

C24.10.4. Figure C24.F.1 (next page) is a diagram which provides a summary of the general transaction process flow between a passive RFID system and DAASC.
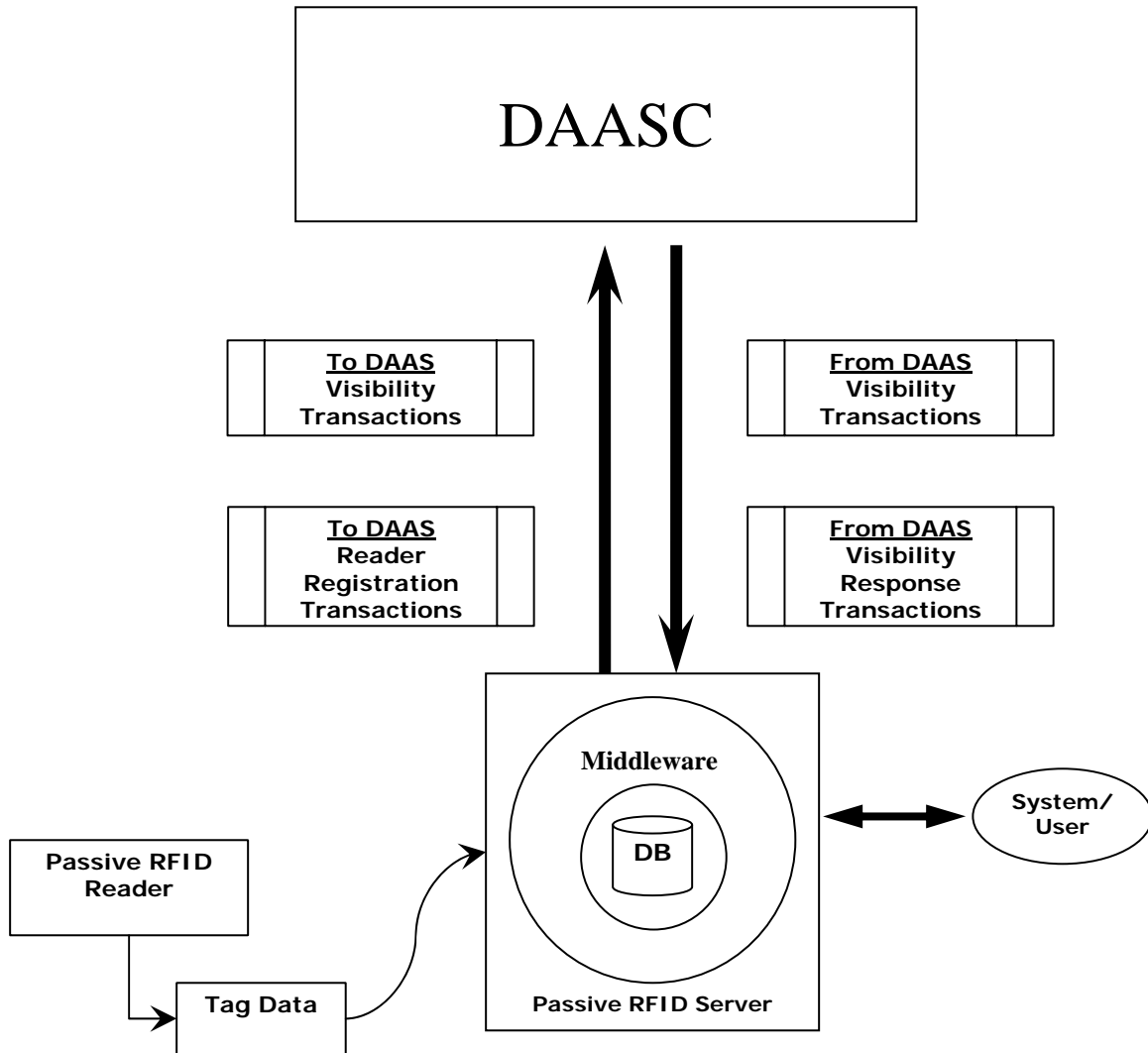
Passive RFID Data Flow (Between Site and DAASC)

Figure C24.F1. Passive RFID Data Flow