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DEC 07 2006

MEMORANDUM FOR SUPPLY PROCESS REVIEW COMMITTEE (PRC) MEMBERS

SUBJECT: Approved Defense Logistics Management System (DLMS) Change (ADC) 219,  
Passive Radio Frequency Identification (RFID) Visibility Transactions (Staffed by PDC  
236)

The attached change to DOD 4000.25-M, DLMS, and DOD 4000.25-2-M, Military Standard Requisitioning and Issue Procedures (MILSTRIP), is approved for implementation.

Addressees may direct questions to the DLMSO point of contact, Ms. Lori Barnhill, 703-767-9739 or e-mail: [Lori.Barnhill@dla.mil](mailto:Lori.Barnhill@dla.mil). Others must contact their Service or Agency designated representative.

A handwritten signature in blue ink that reads "Donald C. Pipp".

DONALD C. PIPP  
Director  
Defense Logistics Management  
Standards Office

Attachment

cc:  
DUSD(L&MR)SCI

**ADC 219**  
**Passive Radio Frequency Identification (RFID) Visibility Transactions**

**1. ORIGINATOR:**

**a. Service/Agency:** Defense Logistics Management Standards Office (DLMSO)

**b. Originator:** Ms. Lori Barnhill, 703-767-9739 or e-mail: [Lori.Barnhill@dla.mil](mailto:Lori.Barnhill@dla.mil)

**2. FUNCTIONAL AREA:** Supply/Transportation

**3. REQUESTED CHANGE:**

**a. Title:** PDC 236, Passive Radio Frequency Identification (RFID) Visibility Transactions

**b. Description of Change:** This change establishes data requirements for registering passive RFID readers at DAAS for the purpose of identifying the location of the reader so that subsequent tag reads can be associated with the physical location of the read. This change also establishes data requirements for sending scanned tag read identification and reader identification to DAAS via middleware (e.g., Savi Site Manager, Globe Ranger, etc.). The goal is to associate the tag identification and location with previously transmitted logistics transactions containing passive RFID, e.g., 856S, Shipment Status, and 856A, Receipt/Shipment, Consolidation/Due-in Notice.

**c. Scope of Change:**

(1) This change is restricted to the Alaska RFID Implementation (ARI) program; however the intent is to validate the process for broad use in future passive RFID implementations. The scope of the project includes systems that currently collect supply and transportation data for the Defense Logistics Agency (DLA) and United States Transportation Command (USTRANSCOM) business processes used to generate that data, technologies to collect new data, software to integrate the data, and tools to visualize the information.

(2) The initial scope of the ARI program is limited to DOD-prepared shipment transactions (856S and 856A); it is anticipated that future expansion will incorporate vendor/contractor-prepared advance shipment notices (856) in the future.

**d. Comments received on PDC 236, and the comment disposition:**

Name/ Organization	#	PDC 236 Location (if applicable)	Comment	Disposition
Mary Maurer Ctr./ DAASC	1	Page 8 C24.3.5	"Minimum of 7 months" should say something like "Approximately seven months." We store the RFTag data based on the type of transactions received. There is really no minimum or maximum.	Concur. DLMSO revised to read: "approximately seven months."

Garry Duvall, Civ/ OASD(HA)/TMA	2	Will this change apply to all RFID tagged cases and pallets shipped and received and observed within the ARI pilot, and if the concept is proved will this apply to rest of the DOD supply chain?	All passive tagged items in the scope of the ARI program are affected by this change. Application to the rest of the supply chain will be determined by OSD's Supply Chain Integration office.
	3	Will middleware be designed to filter data to account for registering only 1 event per tag per location, to prevent multiple read notifications being sent to the DAAS? If not then the potential impact would be overload on the network.	The various middlewares deployed have capabilities that are currently being tuned to control the repetition of tag notifications.
	4	Is the reader identification number, which is the number assigned by to the reader by the site, follow a standard format from site to site? If a standard does not exist then one should be specified to maintain uniformity.	Each site will determine the location, requirement, and naming of the specific readers at the site that will read and capture the visibility transaction. What really counts is the "Passive RFID Location Control Number" that is assigned by DAAS - this is what will be seen at DAAS and in AV. For example: there may be 12 individual readers within a site that capture the visibility transaction - DAAS and AV will display the DODAAC, CAGE , Port code, etc...of the location - based on the "Passive RFID Location Control Number" and then the corresponding visibility transactions for that location.
	5	Are the following elements "free form text"? • POC Name and other information • POC comm. phone number • POC DSN phone number • POC E-mail address	A specific length and format of the data elements will be validated by DAAS. The user will be responsible for mapping to the standard format. Testing will take place under the ARI Program.
	6	Will a test site be created like the test ITV server established by PM J-AIT?	Test sites for this ARI have already been established under the RAPIDS program and have been transitioned to the ARI program manager.
	7	We believe standard format should be specified for all the fields.	We are working with the known ANSI standards and will have follow-on formats for the eXtensible Mark-up Language (XML) very shortly.

Reid Canning, Civ/ DLA J6UEA	8	It references that this only applies to the Alaska RFID (ARI) Program. I don't know what that is. Does that mean we (DSS) are inherently not impacted, or are we potentially impacted as a possible trading partner making shipments or accepting receipts from ARI?	The ARI is a DOD level implementation of passive RFID (physically located in Alaska). You could think of it as a prototype, but officially it is considered an "implementation" – regardless, once this process is proven, it is anticipated to be rolled out across DOD. Initially, it was intended that DSS readers be included, but, as of right now, they are not since the 856S and the 856A give the necessary information for the outbound, and I don't think anyone is concerned about the inbound for this process.
	9	Is the initial registration of devices, and subsequent changes and deletions via email, web input (TBD), phone call. Or is it transactional. It seems to state transactional in a couple places but what would that transaction be? Perhaps a new DLMS DS for just that purpose?	The Middleware captures this information already for its internal purposes, this transaction shares that data with DAAS and allows DAAS to provide a systematic identity for Asset Visibility.
	10	In addition to the one time registration of devices in (above), is it then also saying that the site/device identification data must be sent within each 856S, 856A, and future 856 transactions? Meaning, we would need to capture that some how and put it into our outbound DLMS transactions? If so, I presume there will be separate PDCs for the 856S, 856A, 856, identifying the qualifiers and such?	There are no changes to the 856s. The middleware is supposed to send an XML transaction to DAASC every time it reads a tag. The visibility transaction will give the tag and the reader id. Then DAASC or other applications will have to match up the read location with the shipment info from the various types of 856 transactions to turn this into useful information. Also looking into queries that would allow someone with tagged material to search for what shipment it is.
	11	It is not perhaps saying that an entirely new DLMS DS will be created that merely transmits RFID info to DAASC every time a tag is merely read/written right? Meaning, unrelated to the possible logistics transaction (856(s).....), but merely a transactions that merely states a device read a given tag?	That's it – just the reader saying a specific tag was read.

Emmet Lung/ SRA	12	Page 3 and Table C24.T1	Should the a date format of CCYYMMDDHHmm would be written as <b>2108</b> 11151456 for today's date since this is the 21 <sup>st</sup> century and "CC" in the format stands for century.	CCYY is understood to mean the four position year and not literally the century. Same issue applies to all our X12 transaction as well (where the CCYY construct is part of the standard and not modifiable). We have provided an example in the guidance.
Supply PRC	13	Page 3 and Table C24.T1	Location currently reads "DODAAC or CAGE Code of this location" please add Water Port and Aerial Port Codes also.	Concur. DLMSO revised to read: "DODAAC, CAGE, Water Port or Aerial Port code for this location."
ARI PMO	14	Pages 4 and Table C24.T2	Add 'F' - Follow up with 856s; DAASC will return an 856A and 856S	DLMSO revised to add 'F - Follow Up'

#### 4. BACKGROUND:

a. The DOD has mandated implementation of passive RFID technology in the DOD supply chain. To achieve this end, the ARI project demonstrated an integration of a variety of technologies including; passive RFID readers, RFID edgeware, ASC X12/MILS message translators, enterprise application integration brokers, and more. The ARI Team is specifically tasked to approach this integration project with an enterprise-wide view at streamlining DOD supply chain operations.

b. The DOD also tasked the ARI Team with comprehensive end-to-end mapping, measuring, and evaluating current end-to-end supply chain business processes. The goal was to develop streamlined processes as a result of implementing the new technology, resulting in more supply chain value for the resources consumed. (See attached Context Diagram.)

c. In October of 2006 the DLA J-3734 (ARI Program Manager) held a stakeholders meeting to record the functional needs of a passive RFID program and the visibility transaction **was identified as a critical component** of the project.

#### 5. REASON FOR CHANGE:

a. The U.S. Department of Defense (DOD) has mandated implementation of integrated passive RFID technology in the DOD supply chain. As directed by the Office of the Secretary of Defense (OSD) Supply Chain Integration (SCI) office, these transactions and procedures are developed to integrate the RFID technologies and enable visibility of shipments moving throughout the DOD supply chain using passive RFID.

b. This change is the first of several which will establish a complete business process associated with intransit visibility based upon passive RFID. While this change establishes the reader registration and visibility transaction, others will integrate the information with existing asset tracking and visibility applications making it possible to obtain more precise location history of tracked shipments. Query capability from the middleware to obtain logistics information based upon a tag read is also being explored.

**6. ADVANTAGES AND DISADVANTAGES:**

**a. Advantages:** Integrates the passive RFID technologies to enable visibility of shipments moving throughout the DOD supply chain.

**b. Disadvantages:** None known.

**7. IMPACT/INTERFACE:**

**a. Data Content:**

Registration Data Requirements					
Element	Description	Mandatory, Optional, Conditional	Min Length	Max Length	Values
Passive RFID Location Control Number	DAAS-assigned upon initial registration; required in update and delete; blank in the establish option	C	16	16	
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 information 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
Passive RFID Reader Type	Location's reader is fixed or mobile	M	1	1	F = fixed, M = Mobile
Reader Identification 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 <sup>1,2</sup>	M	5	6	
Location Text	Further description of this	O	1	50	

<sup>1</sup> Components must identify if other code types should be included to define reader location, e.g., airport code, port of embarkation code.

<sup>2</sup> DAASC access to the CCR at DLIS to obtain the associated clear text address.

	location				
Type of Location	Code location is using to report by	M	1	1	D = DODAAC, V = CAGE Code, A = Aerial Port, W = Water Port
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 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 comm. phone number	Comm. Phone number of POC at site	M	10	15	
POC DSN phone number	DSN Phone number of POC at site	M	7	7	
POC E-mail address	E-mail address of POC at site	M	10	50	

<b>Visibility Transaction</b>					
<b>Element</b>	<b>Description</b>	<b>Mandatory, Optional, Conditional</b>	<b>Min Length</b>	<b>Max Length</b>	<b>Values</b>
Passive RFID Tag	Tag identification value	M	50	50	Expressed in hexadecimal
RFID Location Control Number	DAASC assigned during the registration process	M	16	16	
Reader Function Code	Describes process associated with this read	M	1	1	From Site to DAAS: A - Arrived D - Departed O - Observed F – Follow up  From DAASC to Site: N- Not recorded for A, D, O and F (when no 856A or S exists for the tag.) DAASC will send 856A and S in response to the 'F'.
Tag Read Date/Time	Date/Time reported action took place	M	12	12	ZULU CCYYMMDDHHmm (example: 200612051459)

**b. Storage:** Visibility transactions will be stored in the DAASC R table... Interface and functional requirements to share this information with WebVLIPS, AV, and/or GTN are currently under evaluation.

**c. Publications**

**(1) Passive RFID Visibility Transaction.** Incorporate new data requirements into the DLMS and Defense Transportation Electronic Business (DTEB) libraries. The XML schema format for the visibility transaction is under development and will be provided separately.

**(2) Reader Registration.** The most efficient effective method for registration is currently under evaluation. A set of XML schema formats or on-line registration will be provided. In response to this PDC, Components may comment on preference for transactional exchange for registration vs. web-based registration.

**(3) DLMS Manual.** Incorporate enclosed chapter describing the procedures for registering passive RFID readers and furnishing passive RFID tag read information to DAAS. This chapter will be expanded over time as the process is defined and enhanced.

**d. Asset Visibility and Tracking Applications.** Interface requirements for incorporation of tag read locations is under evaluation and will be provided separately.

Enclosure



## C24. CHAPTER 24

### Passive Radio Frequency Identification (RFID) Implementation

C24.1 General. This chapter provides general information supporting the Department of Defense (DOD) RFID implementation. The DOD requires integration of passive RFID technology in the DOD Supply chain. Visibility is a critical component of this project and the Defense Logistics Management System (DLMS) includes the establishment of data requirements that support visibility across the DOD supply chain. The detailed procedures pertaining to this program are under development and this chapter will be expanded over time. Stakeholder information regarding this passive RFID implementation may be found on the DOD AIT website (URL: <http://www.DODait.com>).

C24.2 Applicability and Scope. This guidance is applicable to the Alaska RFID (ARI) Program and may be applied to future passive RFID implementations. The scope of the project includes systems that currently collect supply and transportation data for the Defense Logistics Agency (DLA) and United States Transportation Command (USTRANSCOM) 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. Participating activities will register passive RFID readers as specified below for the purpose of identifying the location of the reader. Once registered, scanned tag reads will be reported to DAAS using the Visibility Transaction which provides both the passive RFID and reader identification. The purpose of this is to associate the tag identification and location with previously transmitted logistics transactions containing passive RFID, e.g., 856S, Shipment Status, and 856A, Receipt/Shipment, Consolidation/Due-in Notice. Should the middleware fail to associate the tag with a previously transmitted 856S, Shipment Status, and 856A, Receipt/Shipment, Consolidation/Due-in Notice, the activity may ask for a follow-up 856A and S by sending a Visibility Transaction to DAASC with an action code of 'F'.

#### C24.3.1 Reader Registration.

C24.4.1.1. The reader registration is applicable to handheld or fixed passive RFID 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.

C24.4.1.2. The registering site will provide to Defense Automated Addressing System (DAAS) the location registration data, described below, via the site's middleware application (Savi Site Manager, Globe Ranger, etc.) or via the worldwide web (to be determined). DAAS will establish that reader in a location table. The location control number must be used on every subsequent transaction sent to DAAS from the field.

C24.4.1.3. **After** a reader is successfully registered; sites can update point of contact (POC) information or delete the reader. POC information is for restricted use and will not be displayed in

routine queries. Only registered readers can be updated or deleted. A previous deleted reader cannot be re-registered with the same location control number nor can it be updated.

C24.4.1.4. Any time a reader or group of readers is changed, moved, or retired, the site must send the update to DAASC using the same location registration transaction with a delete in the action taken field. If the reader or group of readers is just being 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.

C24.4.1.5. Registration actions which are not successfully processed by DAAS will be rejected with the applicable reader registration action code.

C24.3.1 Reader Registration Data Requirements. Passive RFID reader registration, whether conducted via transaction exchange or on-line, will encompass the data requirements identified in Table C24.T1.

Table C24.T1. Passive RFID Reader Registration Data Requirements.

Element	Description	Mandatory, Optional, Conditional	Min Length	Max Length	Values
RFID Location Control Number	DAAS-assigned upon initial registration; required in update and delete; blank in the establish option	C	16	16	
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 information 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 Identification 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, Floor xxx,

Type of Location	Code location is using to report by	M	1	1	D = DODAAC, V = CAGE Code, A = Aerial Port, W = Water Port
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 <sup>3</sup> 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 comm. phone number	Comm. Phone number of POC at site	M	10	15	
POC DSN phone number	DSN Phone number of POC at site	M	7	7	
POC E-mail address	E-mail address of POC at site	M	10	50	

C24.3.3 Visibility Transaction Process. When a shipment with passive RFID arrives, departs or is observed at a registered reader location, the reader will send the visibility transaction to DAAS. If the reader has an assigned role (e.g., receiving or shipping) the transaction will report that action (e.g., arrived or shipped) using the appropriate action codes. If the device cannot determine arrival or departure, the action code observed will be used. Valid visibility transactions will be accepted and stored in DAAS. Visibility transactions from non-registered readers or with an invalid location control number 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 DAASC.

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

C24.3.4 Visibility Transaction Data Requirements. Passive RFID visibility transactions must contain the data requirements identified in Table C24.T2.

Table C24.T2, Passive RFID Visibility Transaction Data Requirements

Element	Description	Mandatory, Optional, Conditional	Min Length	Max Length	Values
Passive RFID Tag	Tag identification value	M	50	50	Expressed in hexadecimal

<sup>3</sup> Enter “CRIF” for undisclosed locations

RFID Location Control Number	DAASC assigned during the registration process	M	16	16	
Reader Function Code	Describes process associated with this read	M	1	1	From Site to DAAS: A - Arrived, D - Departed O - Observed F – Follow up  From DAASC to Site: N- Not recorded for A, D, O, and F (when no 856A or S exists for the tag.) DAASC will send 856A and S in response to the 'F'.
Tag Read Date /Time	Date/Time reported action took place	M	12	12	ZULU CCYYMMDDHHmm (example: 200612051459)

C24.3.5 Data Storage Process. DAAS will store both the registration and the passive RFID visibility transaction, in addition to the already stored R table data. All error free visibility transactions arriving at DAAS will be stored upon arrival for approximately seven months. All error free device registrations will be stored until the transaction 'cancelling' the device is received.

### Context diagram of passive RFID processing system

