



DEFENSE LOGISTICS AGENCY  
HEADQUARTERS  
8725 JOHN J. KINGMAN ROAD  
FORT BELVOIR, VIRGINIA 22060-6221

IN REPLY  
REFER TO DLMSO

July 29, 2004

MEMORANDUM FOR SUPPLY PROCESS REVIEW COMMITTEE MEMBERS

SUBJECT: Approved DLMS Change (ADC) 127, Unique Identification (UID) of Items and Radio Frequency Identification (RFID) in DLMS Shipment Status (856S) (Supply) (Staffed as PDC 122A)

The attached change to DOD 4000.25-M, Defense Logistics Management System (DLMS), is approved for implementation. The updated DLMS Supplement will be posted to the DLMSO Web site (<http://www.dla.mil/j-6/dlms/ICs/Default.htm>) within 30 days from the above date for implementation planning. The DLA implementation for the 856S transaction is scheduled for January 10, 2005.

The attached change to DLMS will be incorporated into the DLMS manual in a future revision. The Defense Automatic Addressing System Center and the Defense Logistics Agency have advance authorization to employ these procedures. DLMSO will submit concurrently any necessary revisions to the governing Federal Implementation Convention to the DOD Electronic Data Interchange Standards Management Committee, and the Federal Electronic Data Interchange Standards Management Coordinating Committee.

Addressees may direct questions to the DLMSO points of contact listed below. Others must contact their Component designated representative.

- Ms. Ellen Hilert, Chair, Supply Process Review Committee, 703-767-0676,  
DSN 427-0676, or e-mail: [ellen.hilert@dla.mil](mailto:ellen.hilert@dla.mil)  
Ms. Mary Jane Johnson, DOD MILSTRAP System Administrator and Chair,  
Unique Item Tracking Committee, 703-767-0677, DSN 427-0677, or e-mail:  
[mary.jane.johnson@dla.mil](mailto:mary.jane.johnson@dla.mil)  
Ms. Vermella Saváge, DOD MILSTRIP System Administrator, 703 767-0674,  
DSN 427-0674, or e-mail: [vermella.savage@dla.mil](mailto:vermella.savage@dla.mil).

  
JAMES A. JOHNSON  
Director  
Defense Logistics Management  
Standards Office

Attachment

cc:  
ADUSD(L)SCI  
UITC  
JSAG  
JPIWG  
LMI

**Approved Defense Logistics Management System (DLMS) Change 127**  
UID of Items and RFID in the DLMS Shipment Status (856S)

**1. ORIGINATOR:**

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

(1) Supply Process Review Committee, Chair: Ellen Hilert, DLA DLMSO (J-6411), 703-767-0676 (DSN 427), [ellen.hilert@dla.mil](mailto:ellen.hilert@dla.mil)

(2) Unique Item Tracking Committee (UITC)/MILSTRAP Chair: Mary Jane Johnson, DLA DLMSO (J-6411), 703-767-0677 (DSN 427), [mary.jane.johnson@dla.mil](mailto:mary.jane.johnson@dla.mil)

**2. REFERENCES:**

a. All DLMS Supplements listed in this memorandum are posted to the DLMSO Web site at <http://www.dla.mil/j-6/dlms0/elibrary/TransFormats/x12.asp>. Federal Implementation Conventions are available at <http://fedebiz.disa.mil/cgi/advsearch.cgi>.

b. UII policy and associated documentation are available at: <http://www.acq.osd.mil/UID/index.html>.

c. DUSD AT&L memorandum dated February 20, 2004, subject: Radio Frequency Identification Policy – UPDATE.

**3. FUNCTIONAL AREA:** Primary: Supply

**4. REQUESTED CHANGE:**

a. **Title:** ADC 127, UID of Items and RFID in DLMS Shipment Status

b. **Description of Change:** This change updates the DLMS Shipment Status to carry UID information and passive RFID tag information. The DLMS 856S Shipment Status is used by DOD shippers to provide requisition-level shipment status to the customer and designated status recipients. Since policy and procedures are not fully defined, this PDC is considered a planning tool for establishing techniques for accommodating UID and RFID tag data within transactional exchanges under the DLMS. As procedures are developed, additional DLMS changes will be staffed. **This is provided as a first step in documenting changes which may be used to support business process improvements.** Component system changes which are required to support the integration of the UII or RFID tag data requirements are not identified in this change. **Significant revisions from PDC 122A are identified by blue highlighting.** [Active RFID is not addressed anywhere in this document.]

(a) The revised shipment status structure provides the flexibility to identify the non-parsable UUI value and each of its component and related elements separately. There will be a separate Hierarchical Level (HL) loop for each item identified. The available data fields are: UUI, serial number, enterprise identifier and/or manufacturer, original part number, current part number, batch/lot number, and UUI type.

(b) The field size of the UUI has been subject to fluctuation; the current requirement is for a maximum of 78 characters. To allow for the longer length of the UUI it is mapped to an ANSI text field (vice the shorter reference number field).

(c) The revised requisition-level shipment status also provides the flexibility to identify up to multiple levels of packing to which an RF tag may be identified. There will be a separate HL loop for each of the level.

(d) A parent/child relationship may be established between the UID and the UID packaging layer (to associate the UID item with the RF tag on its packaging). In addition, a parent/child relationship may be established between each of the packing layers (e.g., to associate which case is in which pallet). **The number of pieces and quantity associated with a particular layer are not identified in this version of the 856S. Changes to accomplish this will be considered for a future version or for a separate transaction.**

(e) The transaction structure will accommodate DLMS unique item tracking by serial number. This is a transitional requirement which may be employed until tracking by UUI is implemented across DOD.

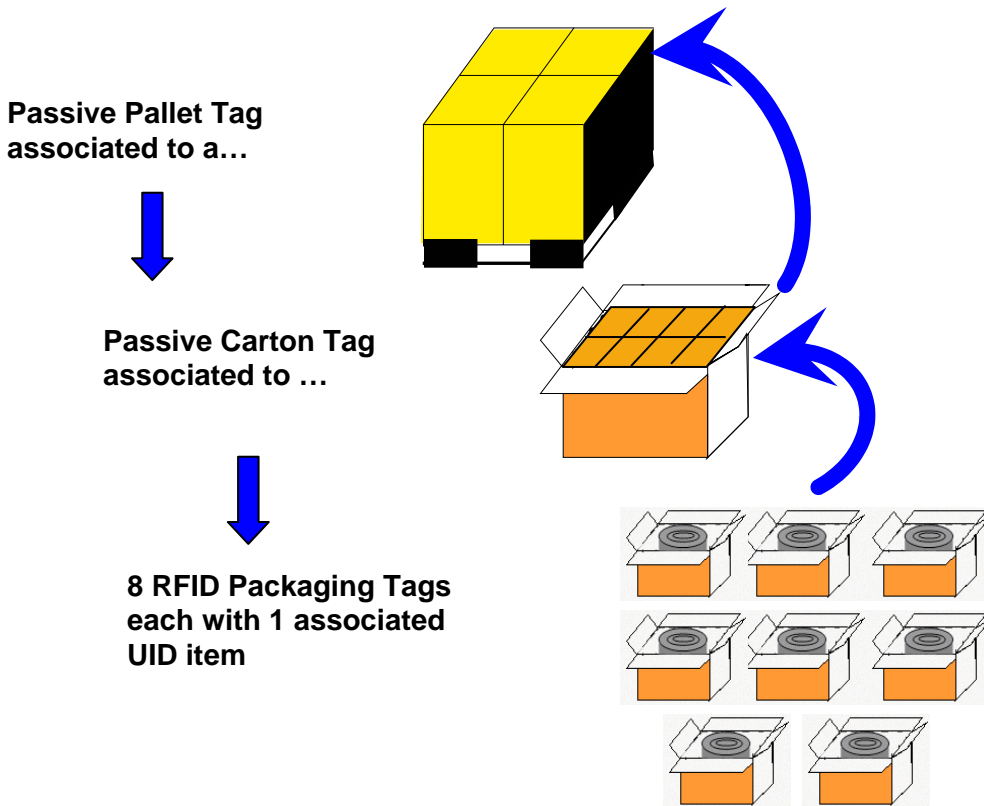
(f) This transaction is provided using ANSI Version 4030. The existing implemented 4010 version will continue to be supported until Components migrate to the higher level.

(g) The original 4010 structure was intended to permit multiple shipment status transactions (different requisition document numbers) to be included in a single 856S transaction exchange using multiple HL loops (for economy of transmission; not for any functional purpose such as describing an entire shipment unit and its contents). The 4030 structure is intended to reflect only a **single requisition-level shipment status transaction**. The ANSI transaction could support multiple status transactions in a single transaction exchange plus all the new HL loops for UID and RFID, but such a complex transaction is not desirable at this time. The current practice for implementation of the 856S uses only a single HL shipment status loop (only USAMMA has expressed interest in the 'multiple transactions within a transaction set' capability).

(h) The 856S provides UID and RFID information applicable to the initial TCN. Consolidations and breakdowns of the shipment unit resulting in a new hierarchical (parent/child) relationship by TCN will be addressed separately. An 856A, Consolidated Shipment Notice, based upon the TAV/TAW transactions is under consideration. The 856A is the responsibility of USTRANSCOM and will be coordinated with the Defense Transportation E-Business Committee.

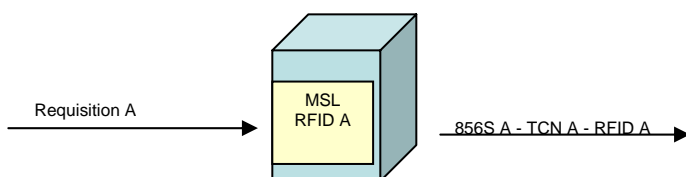
(i) The following diagram is provided to visually portray the concept for how RFID tags may be nested in a particular shipment. The DLMS shipment status transaction can mimic the physical nesting using a hierarchical structure defined by the HL loop. HL looping permits data to be structured to reflect subordinate levels (a parent/child relationship). In the example below, the RFID on the carton is a child to the pallet. The 8 item pack RFIDs for UID items are the children to the carton. The item contained within the item pack is the child of the specific item pack RFID. (This

example shows only one item per UID packaging. There is a potential for multiple items to be contained within the UID item pack. In that situation, the UID item pack would be the parent to multiple UID child loops.



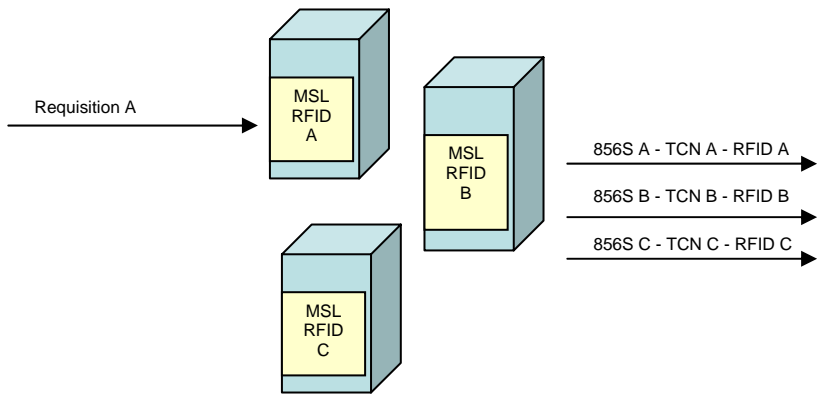
(j) The diagrams below are provided to clarify the complex relationship between requisition/shipment status and RFID. These diagrams illustrate that the information associated with a particular RFID may vary. Procedures for receipt processing based upon RFID will require careful consideration. The box shapes used for these diagrams should not be construed as representative of the type of packaging. The intent is to reflect levels of interior and exterior packaging and their association with the customer’s shipment status.

(k) DLA has indicated that initial implementation for December 2004 will provide an RFID in association with the military shipment label (MSL). There will be a single TCN on the 856S which will be the highest level TCN generated at the depot – the same TCN which would have appeared on the equivalent MILSTRIP AS\_ shipment status.



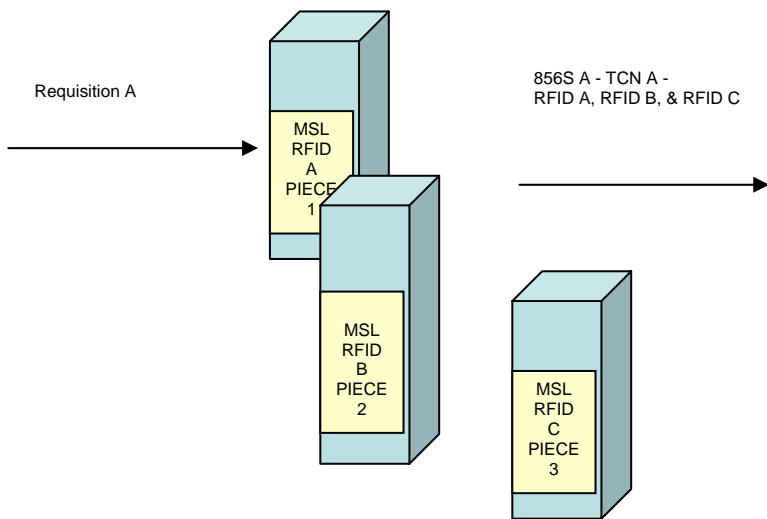
**Scenario 1 – Material shipped in single unit.**

- One customer requisition.
- RFID applied to exterior.
- Shipment status transaction with document number, quantity, TCN, and RFID forwarded to status recipients via DAAS.



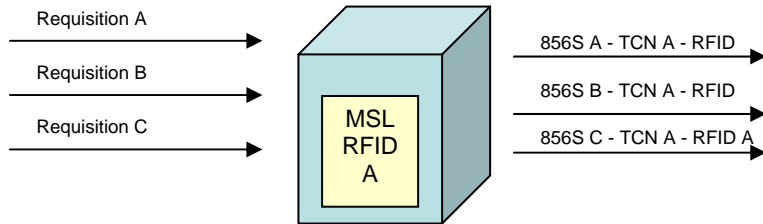
**Scenario2 – Material shipped in separate pieces; partial TCN.**

- One customer requisition.
- Shipped in multiple pieces as partial shipments (This is not ICP split indicated by suffixing. This is partial by depot indicated by the TCN construct). MSL/RFID on each piece.
- Three shipment status transactions with same document number, partial quantity applicable to each, partial TCN, and different RFID.



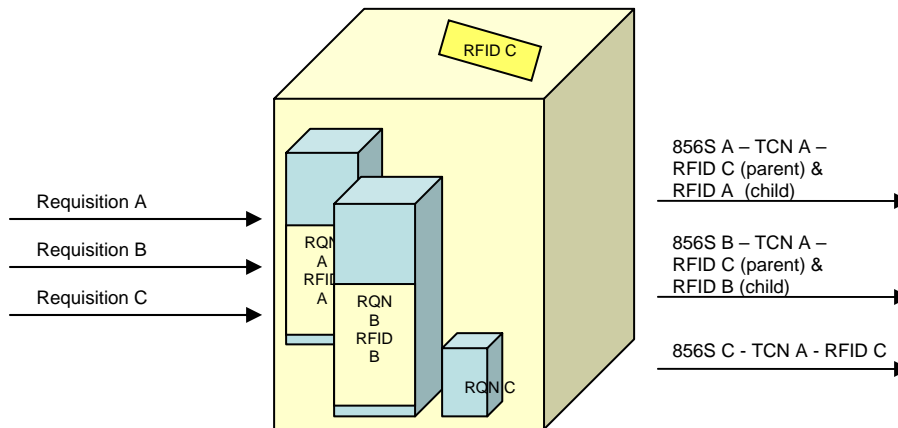
**Scenario 3 – Material shipped in separate pieces without consolidation; no partial TCN.**

- One customer requisition.
- Shipped in multiple pieces. MSL/RFID on each piece.
- One shipment status transaction with single total quantity, document number, TCN, but with a multiple applicable RFID tags.
- **Potential Problem:** Separation of pieces during shipment may occur. There is no association of specific piece quantity to the specific tag.



**Scenario 4 – Interim Solution**  
**(Lead TCN Concept)**  
Multiple requisitions contained in single shipment unit, e.g. multipack or palletized unit.

- Same customer with three requisitions to same destination.
- Shipped as a single unit with one MSL and one RFID.
- Three shipment status transactions; each with different NSN, document number, quantity, same lead TCN, and same RFID.
- No interior tags will be applied by under the interim solution. If interior vendor-applied tags already exist they will not be referenced in the transaction.

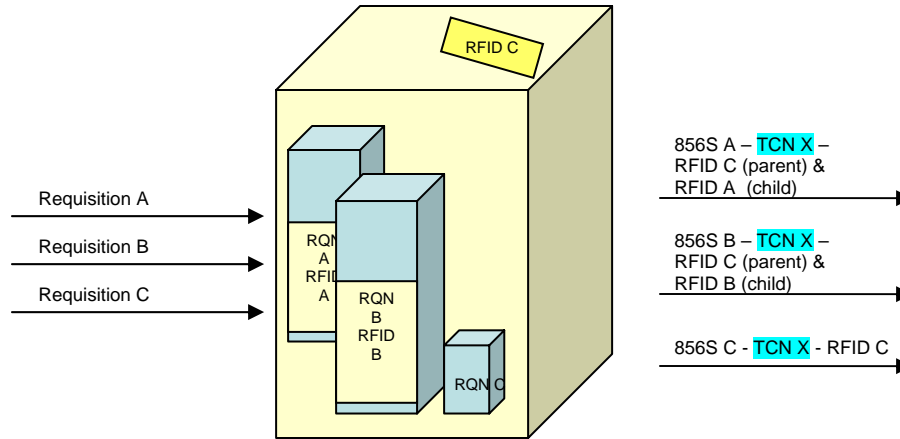


**Scenario 5 – Interim Solution**  
**(Lead TCN Concept with visibility of interior RFID)**  
Three requisitions contained in larger shipping unit. Customer status reflects the interior RFID for requisitioned material (if applicable) and exterior RFID for shipment unit.

- One customer with three requisitions to same destination.
- Shipped as a single unit. One RFID on exterior. Inside, two containers also use RFID.
- Three shipment status transactions with different NSN, document numbers, lead TCN, and same exterior RFID. Subordinate loops on two of the 856S transactions indicate nested RFID.

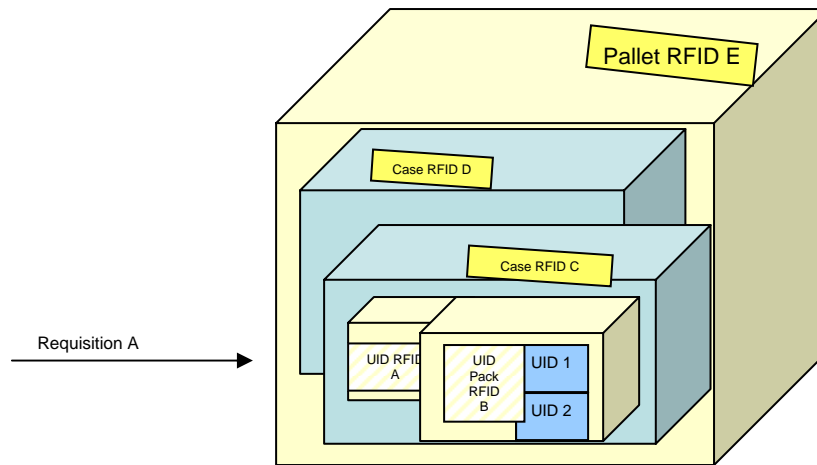
RQN C

**Scenario 6 – Interim Solution  
(‘Non-MILS’ Depot-Consolidated TCN Concept with visibility of interior RFID)**



**Three requisitions contained in larger shipping unit. Customer status reflects the interior RFID for requisitioned material (if applicable) and exterior RFID for depot-consolidated shipment unit.**

- One customer with three requisitions to same destination.
- Shipped as a single unit. One RFID on exterior. Inside, two containers also use RFID.
- Three shipment status transactions with different NSN, document numbers, depot-constructed TCN, but same exterior RFID. Subordinate loops on two of the 856S transactions indicate nested RFID.



856S A – TCN A – RFID E (parent)  
RFID C & D (children of E)  
RFID A & B (children of C)  
UID 1 (child of RFID B)  
UID 2 (child of RFID B)

**Scenario 7 – Long Term Solution with RFID/UID  
Single shipment unit with three levels of RFID applicable to single requisition of uniquely identified material (no other requisitions in this shipment unit).**

- One customer requisition-large quantity of UID material.
- Shipped as a single unit. RFID on exterior.
- Inside shipment unit are two cases of UID items with RFID on each.
- One shipment status with single quantity and TCN. Three levels of nested loops. UID loops associated with RFID on packaging (two UID items per UID package). (Only two UID loops illustrated in this diagram, but actual transaction would be more complex.)

(1) The format of the RFID tag has not been finalized at the time of this staffing. The following format for outbound shipments is currently under consideration. In this construct, the tag identification would be passed as a hexadecimal value.

8 BIT HEADER: Fixed Hexadecimal value (FF)

4 BIT FILTER: Three values currently assigned for UID, Case, and Pallet. An additional value (0011) will be assigned for Shipment Control Tags to be used by DSS for interim solution.

36 BIT SHIPPER ID: DODAAC or CAGE+Blank.

48 BIT SERIAL: Considered more than sufficient to insure uniqueness.

c. **Procedures:** Modify DOD 4000.25-M, Defense Logistics Management System Manual as follows:

(1) Update DLMS manual front matter:

### **Terms and Definitions:**

**Enterprise Identifier (EID).** An activity identifier code assigned to the entity that is responsible for assigning the unique item identification to an item. EID codes are uniquely assigned by a registration (or controlling) authority (e.g., Dun & Bradstreet's Data Universal Numbering System (D-U-N-S), European Article Number (EAN).Uniform Code Council (UCC) System, and Allied Committee 135).

**Issuing Agency Code (IAC).** The IAC represents the registration authority that issued the enterprise identifier. The value for the IAC is assigned by the Registration Authority for ISO/IEC 15459-2, Registration Procedures. The current Registration Authority of ISO/IEC 15459-2 is NEN – Nederlands Normalisatie-instituut. The IAC can be derived from the data qualifier for the enterprise identifier and does not need to be marked on the item or carried in the DLMS transaction.

**Radio Frequency Identification (RFID).** RFID systems consist of an antenna, a transceiver with a decoder, and a transponder, typically called an RFID tag. Depending on the type of tag used, the RFID tag may contain a simple "license plate" uniquely identifying the specific tag, or it may be programmed with application-specific information. The antenna acts as a link between the tag and the transceiver. Often, the antenna is packaged with the transceiver and decoder to become a reader, also known as an interrogator. Interrogators can be handheld or fixed-mount devices. The reader decodes the data and passes that information to a computer for processing. The information can be used for a wide variety of inventory management or other identification applications through a central database.

**Passive RFID tags** have no on-board battery and they provide short communication ranges (1-5 meters). These tags have a low data bandwidth and cannot initiate communications, they must be read.

**Semi-passive RFID tags** have an internal power source for tag circuitry which allows the tag



to complete functions such as monitoring of environmental conditions and which may extend the tag signal range.

**Active RFID tags** allow extremely low-level RF signals to be received by the tag and the tag (powered by its internal source) can respond by generating a high-level signal back to the reader/interrogator. Active RFID tags can hold large amounts of data, are continuously powered, and are normally used when a longer tag read distance is desired.

**Unique Identification (UID) of Items.** The application of a set of data elements that is globally unique and unambiguous, ensures data integrity and data quality throughout life, and supports multi-faceted business applications and users.

**Unique Item Identifier (UII).** An identifier used in ~~unique item tracking programs~~ to uniquely identify an individual asset used within DOD. *The UII may be derived from a DOD-approved commercially-accepted identification methodology [e.g., Vehicle Identification Number (VIN)] or a composite structure defined by the DOD [refer to UID Construct 1 and UID Construct 2]. Formation of the UII relies upon two primary methods of serialization: (1) Serialization within the enterprise and (2) Serialization within the original part number of the enterprise. Regardless of which numbering system is used, the UII must include the Enterprise Identifier. Refer to OSD policy and supporting documentation for specific guidance at <http://www.acq.osd.mil/UID/index.html>. Refer to MIL-STD-130L for specific guidance marking of U.S. Military property.*

**Unique Item Identifier (UII) Type.** *A designator that identifies the specific structure and syntax of a type of UII. Specific examples of the UII Type are: Vehicle Identification Number (VIN), UID Construct I (UID1), UID Construct I (UID2).*

**Unique Identification (UID) Construct I.** This is a concatenated UII based upon serialization within the enterprise. The UII contains the IAC, EID, and serial number.

**Unique Identification (UID) Construct II.** This is a concatenated UII based upon serialization within the part. The UII contains the IAC, EID, original part number, and serial number. For legacy material, a subset of UID Construct II (referred to as Construct IIA) contains a batch, lot number, or other production run number required for uniqueness of the serial number within the part.

### **Acronyms and Abbreviations:**

**EID** Enterprise Identifier

**IAC** Issuing Agency Code

**RFID** Radio Frequency Identification

**UII** Unique Item Identifier

**UID** Unique Identification

(2) Update DLMS Supplements. Mapping and associated notes for ANSI ASC X12 formats are identified at Enclosure 1. Changes will be applied to XML equivalent transactions.

(3) Update DLMS Chapters. Not available at this time.

**5. REASON FOR CHANGE:** OSD policy for the UID states that the Unique Item Identifier shall be the primary pointer or key data element for the AIS in all computational functions including inventory acceptance, item accountability, storage, issue, receipt, valuation, maintenance, and disposal. In support of this requirement, future logistics transactions must identify the UII. This change is required to incorporate the UII as currently defined within DLMS logistics exchange transactions and provide maximum flexibility. [Note: The UII terminology currently carried in DLMS is comparable to the serial number, but does not equate to a UII under the new DOD definition since it lacks “uniqueness” when used alone. This change introduces the revised understanding of the term “UII.”] OSD policy for passive RFID is being finalized. **Draft policy (as of July 7, 2004) requires RFID implementation by DOD shippers at the case or pallet level. RFID at the UID packaging level for items requiring UID is not included for initial implementation.**

**6. ADVANTAGES AND DISADVANTAGES:**

- a. **Advantages:** Supports implementation of UID/RFID policy within the supply functional area.
- b. **Disadvantages:** None specifically identified; however, policy is evolving and additional changes may be required to modify or enhance the transactional exchange as outlined in this proposal.

**7. IMPACT: Publication(s):** DOD 4000.25-M, DLMS, and 856S Federal IC and corresponding DLMS Supplement. Revisions to Federal ICs will be submitted to the EDISMC/Logistics Functional Work Group for coordination/approval.

**8. DS 856S Examples:**

**Interim RFID Solution**

<b>ST~856~(transaction control number)</b>	<b>Header</b>
<b>BSN~00~ZZ~(date-ccyymmdd)~(time-hhmm)~~AS</b>	<b>Beginning Segment – Shipment Advice</b>
<b>HL~1~~V</b>	<b>Address information loop</b>
N1~SB~~M4~(RI code)~~FR	Originating transaction organization
N1~GP~~M4~(RI code)~~TO	Send transaction to DAASC (AS8 equivalent)
<b>HL~2~~W</b>	<b>Shipment status loop</b>
LIN~~FS~(NSN)	NSN
SN1~~7~EA	Total quantity and Unit of Issue of shipped items
TD5~~~~(conveyance mode code)	Method of shipment
REF~TG~(TCN)	Lead TCN
REF~TN~(document number)~~W8~(suffix number)	Supply document number and suffix
REF~FG~(fund purpose code)~~FU^(fund code)	Fund purpose code and fund code
REF~TT~(POE terminal code)	POE
LM~DF	Identifies DOD as agency assigning code values
LQ~0~AS8	DLSS Document ID code
LQ~DE~(signal code)	Signal code
LQ~DF~(media and status code)	Media and Status code
LQ~A9~(supplementary address)	Supplementary address
LQ~BC~(shipment hold code)	Hold code
LQ~AK~(distribution code)	Distribution code
LQ~AL~(special handling/expedite code)	Special handling/expedite code (from MILS)

DTM~011~(date-ccyymmdd)  
**HL~3~P**  
 REF~JH~(tag number)  
**SE~77~(transaction control number)**

RDD field)  
 Date shipped  
**RFID Loop**  
 RFID tag number, e.g., for unitized pallet load  
**Transaction Set Trailer**

### Nested Looping with UID (UID portion for illustration only)

Shipment is a tagged unitized pallet load containing two tagged shipping container. One of the tagged containers contains a tagged UID unit pack containing which contains two UID-identified items.

**ST~856~(transaction control number)**

**Header**

**BSN~00~ZZ~(date-ccyymmdd)~(time-hhmm)~AS**

**Beginning Segment – Shipment Advice**

**HL~1~V**

N1~SB~M4~(RI code)~FR  
 N1~GP~M4~(RI code)~TO

**Address information loop**

Originating transaction organization  
 Send transaction to DAASC (AS8 equivalent)

**HL~2~W**

LIN~FS~(NSN)  
 SN1~7~EA  
  
 TD5~(conveyance mode code)  
 REF~TG~(TCN)  
 REF~TN~(document number)~W8~(suffix number)  
 REF~FG~(fund purpose code)~FU^(fund code)  
 REF~TT~(POE terminal code)  
 LM~DF  
 LQ~0~AS8  
 LQ~DE~(signal code)  
 LQ~DF~(media and status code)  
 LQ~A9~(supplementary address)  
 LQ~BC~(shipment hold code)  
 LQ~AK~(distribution code)  
 LQ~AL~(special handling/expedite code)

**Shipment status loop**

NSN  
 Total quantity and Unit of Issue of shipped items  
 Method of shipment  
 Lead TCN  
 Supply document number and suffix  
 Fund purpose code and fund code  
 POE  
 Identifies DOD as agency assigning code values  
 DLSS Document ID code  
 Signal code  
 Media and Status code  
 Supplementary address  
 Hold code  
 Distribution code  
 Special handling/expedite code (from MILS RDD field)  
 Date shipped

DTM~011~(date-ccyymmdd)

**HL~3~P**

REF~JH~(tag number)

**RFID Loop**

RFID tag number, e.g., for unitized pallet load

**HL~4~3~P**

REF~JH~(tag number)

**RFID Loop**

RFID tag number, e.g., for external container 1

**HL~5~3~P**

REF~JH~(tag number)

**RFID Loop**

RFID tag number, e.g., for external container 2

**HL~6~5~P**

REF~JH~(tag number)

**RFID Loop**

RFID tag number for UID unit pack (in container

2)

**HL~7~6~I**

REF~U3~(UUI number)~T0^UID2  
 REF~PM~(original part number)  
 REF~QW~(new part number)  
 REF~SE~(serial number)

**UID Loop**

UID and UUI type  
 Original part number  
 New part number  
 Serial number

REF~BT~(batch number)  
N1~IAT~33~(enterprise ID expressed as CAGE)  
N1~MF~33~(manufacturer's CAGE)

**HL~8~6~I**

REF~U3~~(UII number)~T0~UID2  
REF~PM~(original part number)  
REF~QW~(new part number)  
REF~SE~(serial number)  
REF~BT~(batch number)  
N1~IAT~1~(enterprise ID expressed as DUNS number)  
N1~MF~33~(manufacturer's CAGE)

**SE~77~(transaction control number)**

Batch number  
Enterprise ID  
Manufacturer's CAGE

**UID loop**

UID and UII type  
Original part number  
New part number  
Serial number  
Batch number  
Enterprise ID  
Manufacturer's CAGE

**Transaction Set Trailer**

Enclosure