

Scope: Radio Frequency Identification (RFID) includes technologies that use radio waves to identify items automatically. Using this technology, DoD will have full automated visibility of supplies. Items will be automatically entered into the inventory upon receipt, with no person needed to scan bar codes or to input data. An RFID capable supply chain is a critical element of the Defense Transportation System. It will optimize the supply chain and provide the asset visibility support needed by the warfighter.

Purpose: The purpose of this training is to provide an overview of the DoD Radio Frequency Identification (RFID) Program as delineated in the policy published on 30 July 2004. This presentation includes the latest information available as a result of the DFARS Clause 252.211-7006 published in September 2011. It will also include RFID contract requirements, RFID data submittal, and the RFID marking requirements as specified in MIL-STD-129P, Change Notice 4, titled, "Military Marking for Shipment and Storage."

<http://www.acq.osd.mil/dpap/dars/dfars/html/current/252211.htm#252.211-7006>

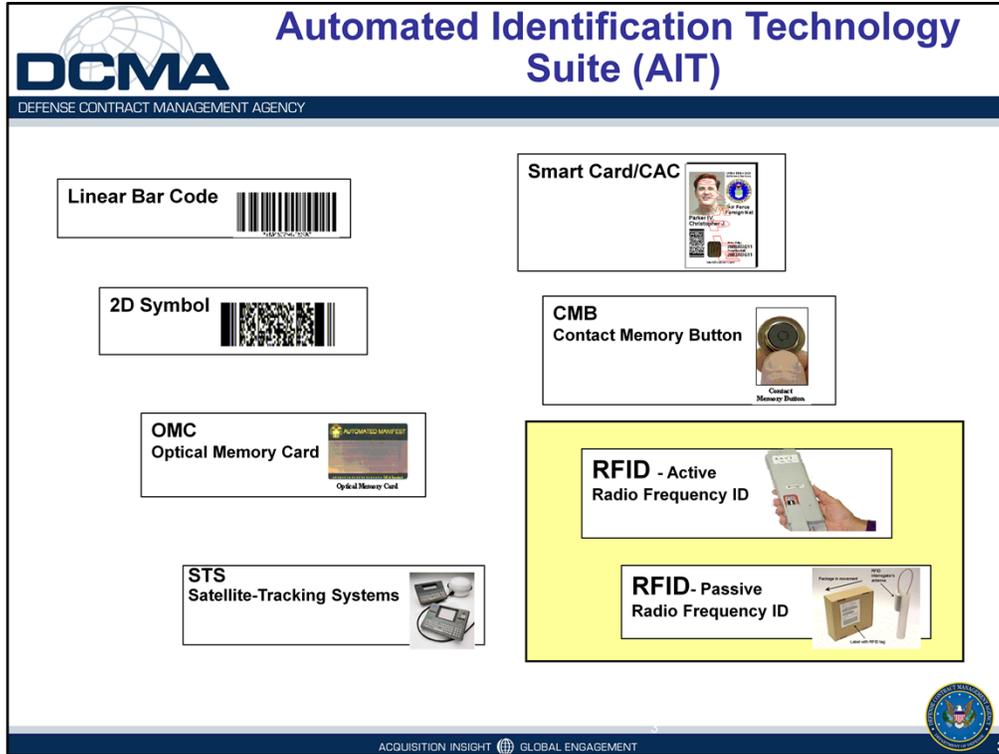
- **RFID Background**
- **DOD RFID Policy**
 - Active Tags
 - Passive Tags
- **Passive RFID Clause**
- **MIL-STD-129P (4)**
- **ASN and Tag Identity**
- **Summary**
- **Quiz**



The first thing we will cover is some background information on RFID – what it is, why the need, different types followed by the RFID policy as outlined in the Under Secretary of Defense (AT&L) memo dated Jul 30, 2004.

We will then review the requirements of the Passive RFID DFARS clause, when it applies, tag placement on cases and pallets per MIL-STD-129P.

Lastly we will briefly cover the link between RFID and the Advanced Shipment Notification as well as a few other RFID related topics.



RFID is a component of a larger Automatic Identification Technology suite.

AIT is a family of technologies that improves the accuracy, efficiency, and timeliness of material identification and data collection. AIT media and devices include, but are not limited to, linear and two-dimensional bar code symbols and their readers, magnetic stripe cards, integrated cards (e.g., smart cards), Optical Memory Cards (OMC), active and passive Radio Frequency Identification (RFID), contact memory (button memory) devices, and magnetic storage media. (DoD 4140.1-R)

For the foreseeable future, the DOD will maintain a “hybrid” world of available AIT technologies.

RFID is just one of a suite of AIT technologies that DoD will use within the supply chain. **RFID will not be replacing any of these technologies – it will serve as a complementary technology.**

Additional Information:

A **contact memory** device looks like a small button-style camera battery, but it's really a stainless steel container with a memory chip sealed inside. The top of the button is bonded to one point in the memory circuit; the bottom and sides of the package provide a signal ground. Data is written to and from the button using a probe-like device that is touched to the two electrical points on the unit, thereby establishing a communication path. A button can act as a "license plate" identifier or as a portable database in which data can be read and modified.

Optical memory cards use a technology similar to the one used for music CDs or CD ROMs. A panel of the "gold colored" laser sensitive material is laminated in the card and is used to store the information. These data intensive cards are currently being used to store prenatal-care records, medical images and personal medical records; for high-security drivers' licenses and access/entry cards, auto repair/warranty records, secure bank debit cards, immigrant ID cards, and **automated cargo manifests for Department of Defense logistics.**

What is RFID?

- **RFID technology is a means of identifying a unique object or a person using a radio frequency transmission**
- **RFID tags can be programmed to receive, store and transmit information**
- **RFID is fast, reliable, and does not require line of sight or physical contact with the tagged item**



RFID technology is a means of identifying a unique object or a person using a radio frequency transmission.

RFID tags can be programmed to receive, store and transmit information such as serial numbers.

RFID does not require line of sight or physical contact with the item to receive data.

Basic components of a RFID System

- **RF transponders (Tags)**

- Chip
- Antenna



- **Interrogators (Readers)**

- Reader
- Antenna(s)



- **Host computers**

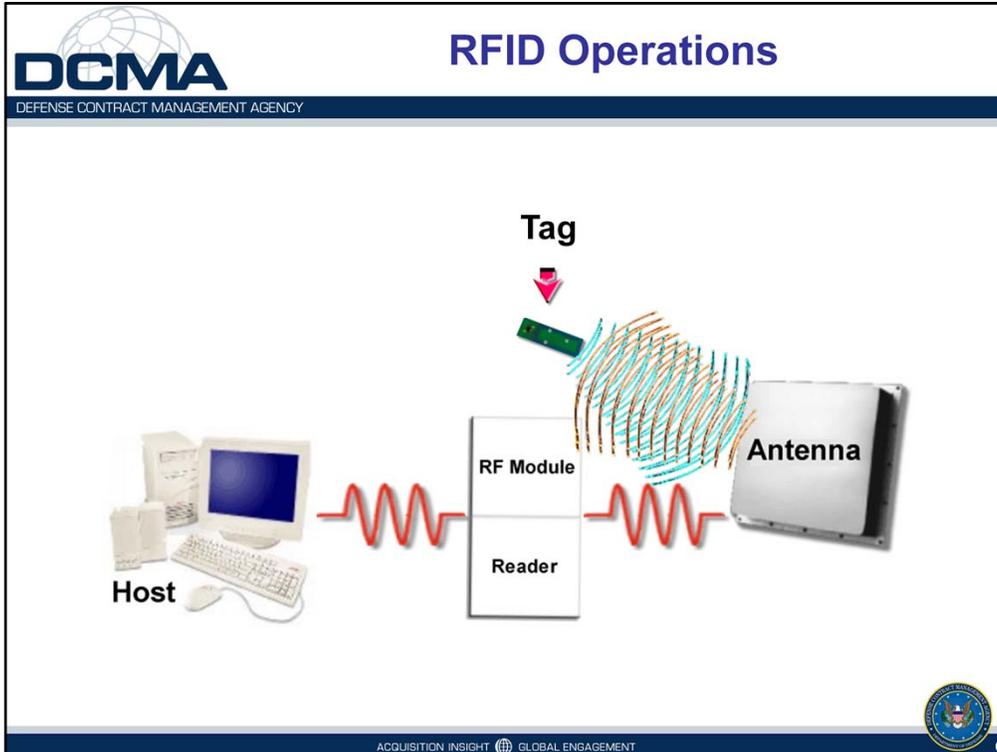
- Hardware
- Software



There are many variations and possibilities for an RFID system but they all boil down to these essential components.

Interrogator is the more technically correct name for an RFID “reader” or “scanner” since the device sends out interrogating radio waves. When an RFID tag comes within range of the interrogator, the transponder (tag) will send an answering signal back to it.

RFID middleware, simply put, is a software layer residing between the RFID hardware and the existing back-end system or application software. It extracts data from the RFID interrogators (readers), filters it, aggregates it and routes it to enterprise applications.



The antenna emits electromagnetic waves that form a magnetic field. The passive RFID tag draws power from the magnetic field which is used to power the microchip in the tag. The chip then sends electromagnetic waves back to the reader and the reader converts the new waves into data that a computer can use.

Passive tags get all their power from the signal sent by the interrogator. As well as using this radio wave to carry the data, the tag is able to convert it into power. This means that the tag is only powered when it is in the beam of the interrogator. The tag then uses a technique called backscatter to reply to the interrogator. This does not involve a transmitter on the tag, but is a means of "reflecting" the carrier wave and putting a signal into that reflection.

Categories of RFID

Active Tags (Battery)

Passive tags (No Battery)

Semi – Passive (Small Battery)



There are 3 basic categories of RFID tags in use today.

Active RFID tags have their own internal power source, which is used to power the integrated circuits and to broadcast the response signal to the reader.

Passive RFID tags have no internal power supply.

Semi-passive RFID tags use a process to generate a tag response similar to that of passive tags. Semi-passive tags differ from passive in that semi passive tags possess an internal power source (battery) for the tag's circuitry which allows the tag to complete other functions such as monitoring of environmental conditions (temperature, shock) and which may extend the tag signal range.

Semi-passive tags, also called semi-active tags, are similar to active tags in that they have their own power source, but the battery only powers the microchip and does not power the broadcasting of a signal, usually a small battery.

Only the first two categories will be discussed, they are the ones primarily used by DoD.

Active Tags

Powered by an internal battery
Battery life ~ 5 years



Can hold large amount of data
(128k programmable)



Read/write—tag data can be
rewritten or modified



Longer read range – up to 300 feet



Greater cost (\$100's) and size (brick)



Active RFID tags take on a variety of forms depending upon the application. They may be enclosed within a rugged case to protect the components from the elements including extended outdoor exposure. They may also include provisions for attachment to the item they are intended to identify.

Obtain operating power from a high powered reader

Limited amount of data can be encoded

Read-only tags; programmed with a unique set of data that cannot be modified or can also be Read/Write

Lightweight, smaller, less expensive, virtually unlimited lifetime

Shorter read ranges (about 10 feet)



The second category of RFID tags are the passive tags. They are generally small enough to be laminated into a label. The costs of the tags varies depending upon the type and quantity.

Generally speaking, a 96-bit EPC inlay (chip and antenna mounted on a substrate) costs from 7 to 15 U.S. cents. If the tag is embedded in a thermal transfer label on which companies can print a bar code, the price rises to 15 cents and up.

Why RFID?



This is a picture of the Theatre Distribution Center in Kuwait during the early days of Operation Iraqi Freedom.

As this picture highlights, the early lessons of OIF made it clear that DoD needed visibility not only at the consolidated level, but also down to the individual case/box.

RFID delivers near-real-time status and improves inventory control, particularly in deployed or combat environments. It can make “track and trace” a reality around the world, across system and organizational stovepipes. No longer will DOD be limited to capturing information on at-rest and in-transit materiel at fixed locations. As RFID tagging becomes more and more ubiquitous (presence everywhere) and RFID technology becomes more portable, real-time information can be captured wherever needed to support the requirements of the combatant commander.

Why RFID?

- **Improve Inventory and Shipment Visibility and Management**
- **Improve Labor Productivity**
- **Eliminate Duplicate Orders**
- **Replace Manual Procedures**
- **Automate Receipt and Acceptance**
- **Reduce Shrinkage**
- **Enhance Business Processes Within the DoD**
- **Improve Asset Tracking**



Gives the war fighters greater visibility and confidence in the supply chain



RFID will allow for fully automated visibility of supplies with no need for human intervention. Items can be automatically entered into inventory upon receipt—with no person needed to scan bar codes or to input data.

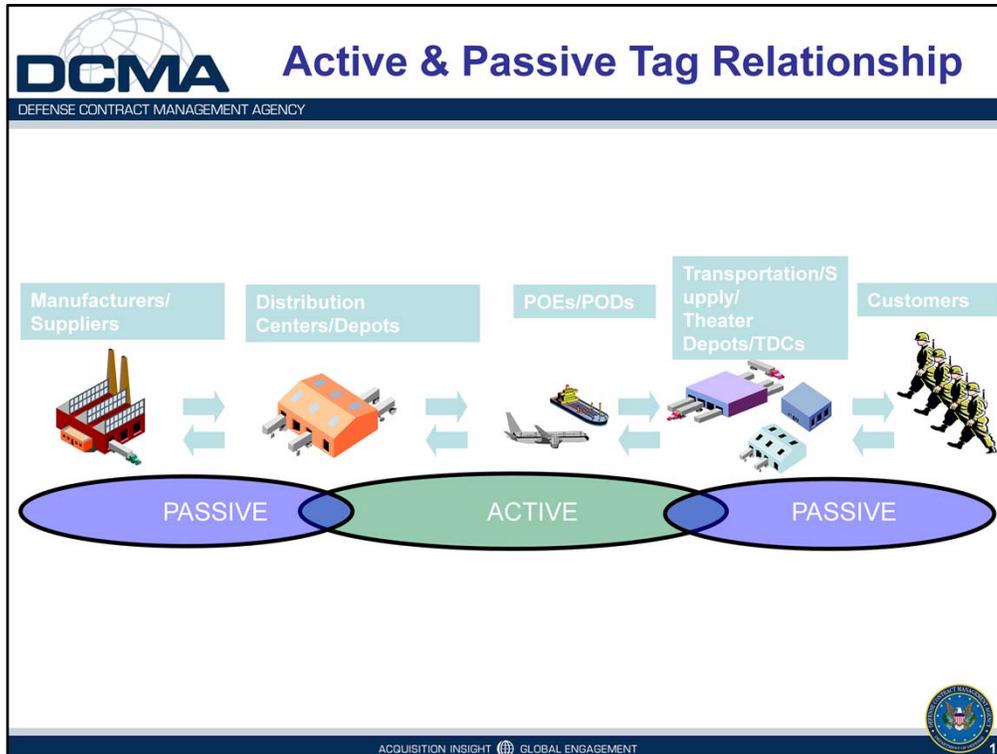
The initial focus on the RFID program is on the shipping/receiving functions with the distribution center. DoD will utilize RFID within other processes like inventory management in the future.

The increase in speed and accuracy of data will ultimately reduce cycle time on order management.

DOD envisions using RFID as an integral part of a comprehensive suite of automatic identification technologies (AITS) to facilitate accurate, hands-free data capture in support of business processes in an integrated DOD supply chain enterprise. DOD will apply all of the AITS where appropriate in the supply chain to improve support to the warfighter.

DoD's goals for RFID focus on the Warfighter.

Reduce Shrinkage – losing product/items between manufacture and use i.e. theft, poor inventory management



This slide shows the overlapping relationship envisioned for the active – passive RFID tags for OCONUS shipments.

At the manufacturer/supplier location and the depots, the item can be tracked to the shipping container level and pallet level using passive RFID. Active RFID is applied on large shipping containers to track the consolidated shipments during overseas transit. Passive RFID at the delivery point/customer location tracks the item back to the individual container level.

- **These rules apply to DoD cargo shipped outside the Continental United States (OCONUS)**
- **Applied to all freight containers and 463L consolidated air pallets and major organizational equipment**
- **Applied at the point of origin by all activities—including vendors and contractors**
 - **It is the responsibility of the procuring Service/Agency to arrange for the vendor to apply active tags – either by:**
 - **Obtaining sufficient RFID equipment to provide the vendor or**
 - **Requiring the vendor to obtain necessary equipment to meet the DoD requirement as a term of the contract**



All consolidated sustainment or retrograde shipments freight containers (20/40 foot sea vans, large engine containers and 463L pallets) of DoD cargo being shipped OCONUS must have active RFID tags written at the point of origin for all activities stuffing containers or building air pallets.

The tags will be attached at the point of shipment origin for all activities (including vendors/contractors) that stuff containers or build pallets (e.g., 20 or 40 foot SEAVANs, 463L pallets, and other large reusable containers [e.g., containers used to convey large items such as engines or transmissions]), or activities that ship unit move or prepositioned major organizational equipment.

If the originating activity is a vendor/contractor location, it is the responsibility of the procuring Service/Agency to arrange for the vendor to attach active tags, either by providing sufficient RFID equipment for the vendor/contractor to meet the requirement, or requiring the vendor/contractor as a term of the contract to obtain necessary equipment to meet the DOD requirement. (DTR part II-208-3 para F)



Active RFID tag attached to a 463L pallet. Shipment information on the pallet load is transferred at the receiving operation.

DOD has been using active RFID tags to track shipments since 1994. The DOD's In-Transit Visibility (ITV) RFID Network is the world's largest active RFID cargo tracking system, with participation at over 1500 installations—airports, seaports, consolidation ports, and railheads. Active RFID tags on conveyances provide real-time visibility in over 50 countries and tracking more than a quarter million shipments per week.

The DoD policy for active RFID tags also includes any contractor shipments directly to overseas destinations, but it is currently the responsibility of the procuring activity to arrange for the vendor to apply the active tags.



DOD RFID Policy—Passive Tags

Phase 1	Phase 2	Phase 3
<p>Classes of Supply:</p> <ul style="list-style-type: none"> ▪ II, VI, IX, I (PORs/MREs) <p>Level of Tagging:</p> <ul style="list-style-type: none"> ▪ Shipping Containers ▪ Palletized Unit Loads ▪ Exterior Containers <p>Ship to locations:</p> <ul style="list-style-type: none"> ▪ San Joaquin, CA ▪ Susquehanna, PA 	<p>Classes of Supply:</p> <ul style="list-style-type: none"> ▪ Additional Classes; III (P), IV, V, VII, VIII (Medical/Surgical) <p>Level of Tagging:</p> <ul style="list-style-type: none"> ▪ Shipping Containers ▪ Palletized Unit Loads ▪ Exterior Containers <p>Ship to locations:</p> <p>Selected</p> <ul style="list-style-type: none"> • Depots • TRANSCOM Facilities • Logistics Center 	<p>Classes of Supply:</p> <ul style="list-style-type: none"> ▪ All Classes that will be tagged <p>Level of Tagging:</p> <ul style="list-style-type: none"> ▪ Shipping Containers ▪ Palletized Unit Loads ▪ Exterior Containers ▪ UID Item Unit Pack <p>Ship to locations:</p> <ul style="list-style-type: none"> ▪ All locations that will be instrumented
<p>* Bulk Commodities Not Included</p>		



ACQUISITION INSIGHT  GLOBAL ENGAGEMENT

RFID will be a mandatory DoD requirements on solicitations issued on or after October 1, 2004 for delivery of material on or after January 1, 2005, IAW the supplier implementation plan at attachment 3. (Ref USD AT&L Memo Subj: RFID Policy Dtd Jul 30, 2004)

DOD business rules call for the application of passive RFID tags at the case pallet and unit pack (for UID shipments) on all shipments to and within DOD.

DOD is implementing Passive RFID requirements in three phases. We are currently in Phase 2.

Bulk commodities not included

Defined as those that are shipped in rail tank cars, tanker trucks, trailers, other bulk wheeled conveyances or pipelines.

- Sand
- Gravel
- Bulk Liquids (water, chemicals, or petroleum products)
- Ready-mix concrete or similar construction materials
- Coal or combustibles such as firewood
- Agricultural products – seeds, grains, animal feeds, and the like

Notes:

Pharmaceuticals, biologicals and reagents will not require RFID tags at this time. DOD will follow the FDA RFID rules for these materials when they are finalized.

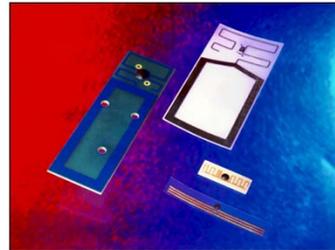
Class V (munitions/explosives) are also not required to have passive RFID at this time, until compatibility tests have been conducted.

POR – Packaged Operational Rations (Remainder of class I added in phase 2)

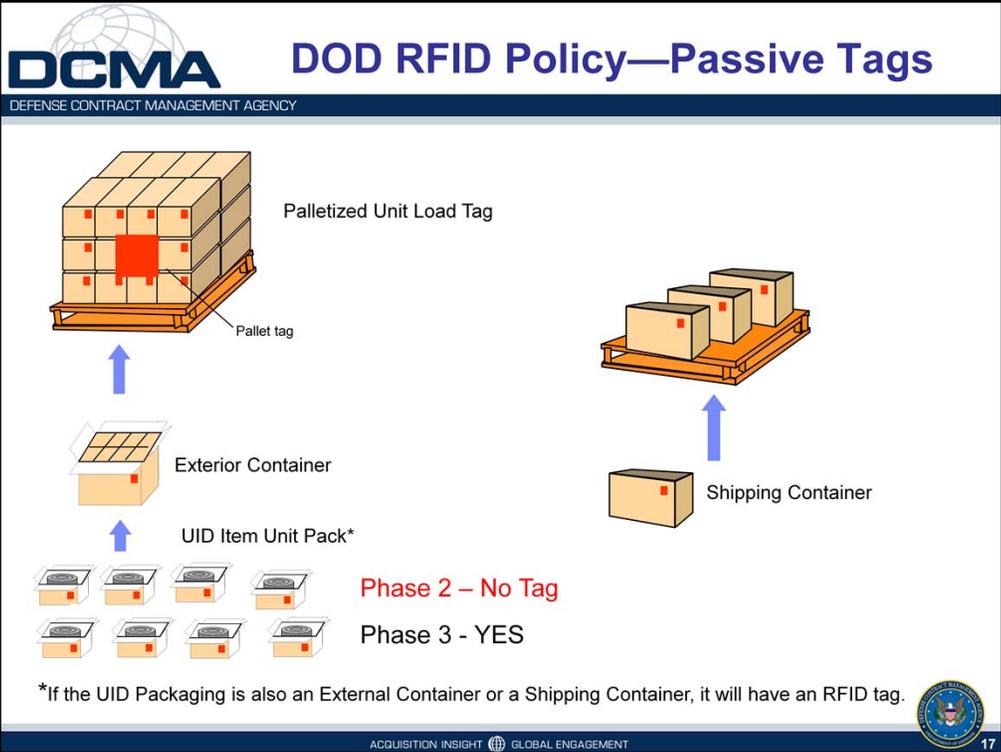
IIIP – Packaged Petroleum, Lubricants, Oils, Preservatives, Chemicals, Additives

- **Phase 3 - Passive RFID tags on all cases and pallets shipped to any DoD location for all commodities* and unit packs for items that require a Unique Identification (UID)**

❖ **Class X is exempted under Bulk commodities definition**



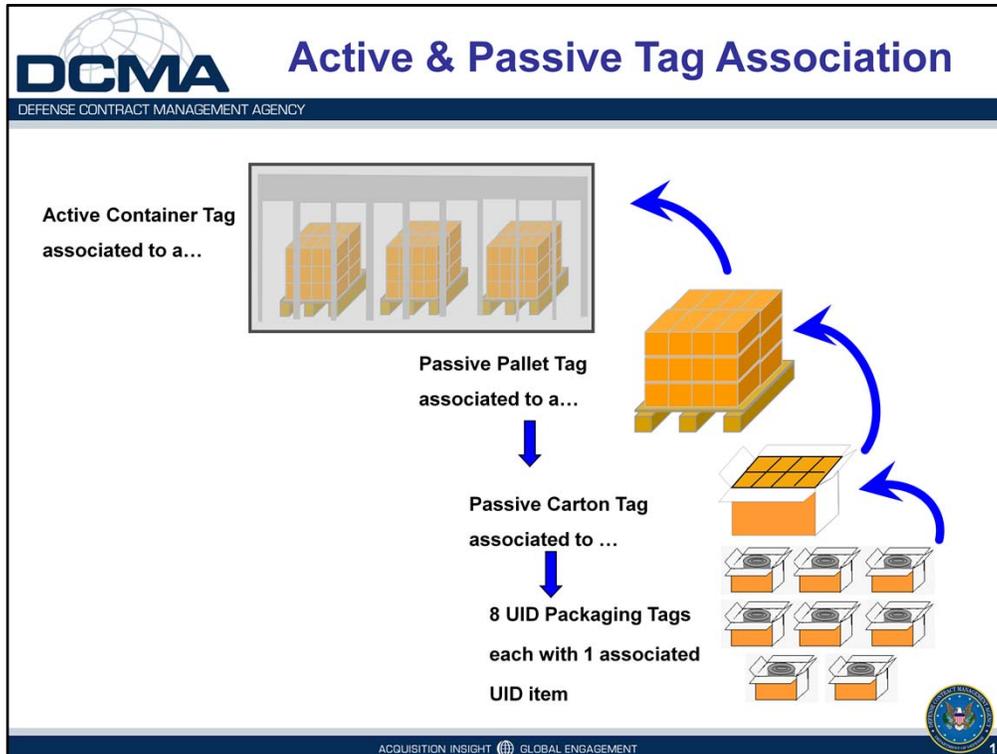
The third phase of the RFID implementation plan is to include tags on the unit packs of items that fall under the Unique Identification (UID) requirements. The RFID requirements will then apply to all commodities shipped to all locations except for Bulk commodities and Class X. (REF - Implementation plan for passive RFID)



A visual representation of the envisioned tagging of the unit pack (phase 3), the cases within a palletized unit load and the palletized unit load.

Also shown is the tagging of an individual case or shipping container.

Case - either an exterior container within a palletized unit load or an individual shipping container.



The grey rectangular box depicts a “freight container” that will be identified with an active RFID tag. The freight container could be a sea van or other enclosed intermodal container or a 463L pallet. The pallet loads that are consolidated into the freight container will have passive RFID tags that will link to content information for the containers that make up the pallet load.

The association of a passive tag to an active tag will reduce container stuffing and unstuffing time and provide more accurate “inside the box” visibility. This passive and active association is created by building a “nested” structure of passive tags (UID item packaging and case and pallet tags) that are subordinate to the active tags (SEAVAN container and 463L pallet tags). Historically, active RFID has been excellent at providing nodal visibility. The use of passive tags will provide efficient and accurate item and content visibility. The marriage of active and passive RFID will result in more accurate and timely automatic capture and reporting of data within the multiple layers of information required in DOD’s dynamic environment.

- **Passive RFID technology is evolving...**
- **EPCglobal provides a set of standards to identify, capture and share using RFID technologies**
- **Tags must meet EPCglobal Class 1 Generation 2 specification**



<http://www.epcglobalinc.org/standards/>



GS1 EPCglobal is an industry organization responsible for setting standards for RFID use.

EPCglobal is a joint venture between GS 1(formerly European Article Numbering International , EAN) and GS 1 US (formerly the Uniform Code Council Inc, UCC). The previous efforts of the Uniform Code Council are now a visible part of our everyday life – the UPC bar code.

<http://www.gs1.org/epcglobal/standards>

UPC=Universal Product Code

EPC=Electronic Product Code is a unique identification code that can be associated with specific product information, such as date of manufacture, origin and destination of shipment.

The EPC is stored on a Radio Frequency Identification (RFID) tag, which transmits data when prompted by a signal emitted by a special reader. EPC and RFID are not interchangeable. The EPC is a supply chain application that maximizes RFID technology to provide a level of visibility never before possible. There are numerous RFID applications that have nothing to do with the EPC, such as E-Z Pass use at tollbooths.

Commonly known as the "Gen 2" standard, this standard defines the physical and logical requirements for a passive-backscatter, Interrogator-talks-first (ITF), radio-frequency identification (RFID) system operating in the 860 MHz - 960 MHz frequency range. The system comprises Interrogators (also known as Readers), and Tags (also known as Labels).

Who is affected by Passive RFID?

ALL DOD suppliers of ALL material and goods purchased by the Department (very limited exceptions)

- Requirements are being phased in depending upon the class of material and the destination of the shipment
- Excludes bulk commodities and non-depot shipments using Fast Pay
- Note: There is no cost threshold with RFID requirements (unlike UID). Even low dollar value contracts will require RFID



We are currently in phase 2 of a three phase implementation process which started in 2004.

RFID will be a mandatory DoD requirements on solicitations issued on or after October 1, 2004 for delivery of material on or after January 1, 2005, IAW the supplier implementation plan at attachment 3. (Ref USD AT&L Memo Subj: RFID Policy Dtd Jul 30, 2004)

DFARS Clause 252.211-7006 Passive Radio Frequency Identification.

Contractor Shall

- **Ensure Tag affixed**
 - **IAW MIL-STD-129 (Section 4.9.2)**
 - **Specific levels of packaging (Case – Palletized Unit Load)**
 - **Is readable**
 - **Tag data globally unique**
 - **Meets EPCglobal Class 1, “Generation 2” Specification**
- **Use WAWF to electronically submit ASN**



To meet the RFID requirement, contractors have two distinct actions:

1. Place an RFID tag on the package with a unique serial number.
2. Transmit the serial number data that matches up to the shipment – provide information about the RFID tag with an Advance Shipment Notification (ASN) via Wide Area Work Flow (WAWF).

Q: The Passive RFID Suppliers' Guide states tags must be "readable at the time of shipment" (v. 11.0, Section 3.1). What exactly does this mean? If pre-printed tags are purchased and stored over a length of time, do they have to be re-verified when they are used?

A: The supplier is required to ensure that the tag he/she affixes to a package is readable. This can be accomplished in a variety of ways. Tags that were verified as readable at the time of purchase may be used at a later date for shipments. Similarly, passive RFID tag printers establish readability during the printing process (unreadable tags are rejected). Therefore, passive tags created using an RFID printer do not require verification. Quality Assurance Representative (QAR) personnel are not required to review and certify each passive RFID tag.

DCMA
DEFENSE CONTRACT MANAGEMENT AGENCY

DFARS 252.211-7006

Supply Chain Integration

Office of the Deputy Under Secretary of Defense (Logistics & Materiel Readiness)

DLA | MPP | MR | PS | RM | SCI | TP

Automatic Identification Technologies (AIT)

SEARCH

- Home
- What's New?
- Background & Policy
- Supplier Info
- Other Links/References

NOTE: The name of this website has been changed to better reflect the extent of technologies utilized by the DoD supply chain. As OASD(SCI) continues to modernize the DoD supply chain, it will be actively involved with Radio Frequency Identification (RFID) implementation as well as other components of the suite of technologies known as Automatic Identification Technologies (AIT). By applying RFID in tandem with other AIT, the DoD will be able to fully realize the capabilities offered by these enabling technologies.

<http://www.acq.osd.mil/log/rfid/index.htm>

RFID Reference Documents

- DoD 4140.1-R: DoD Supply Chain Materiel Management Regulation (2003) — The Department of Defense is currently updating 4140.1 Regulation from previous version (4140.1-R).
- MIL-STD-129P: Military Marking for Shipment and Storage
- Passive RFID DFARS Clause 252.211-7006 — [List of Required Ship-To Locations](#)
- DoD Suppliers' Passive RFID Information Guide

Clause

Locations

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Both the actual Clause and listing of locations may be found at the following website. (Prior version of DFARS Clause Feb 2007 listed the locations within the clause itself, the most recent version Sep 2011, has added locations and you must refer to this website for a complete listing).

[Http://www.acq.osd.mil/log/rfid/index.htm](http://www.acq.osd.mil/log/rfid/index.htm)

This site also provides additional information and links concerning RFID.

- **Bulk Commodities:** means the following commodities, when shipped in rail tank cars, tanker trucks, trailers, other bulk wheeled conveyances, or pipelines:

- (1) Sand
- (2) Gravel
- (3) Bulk liquids (water, chemicals, or petroleum products)
- (4) Ready-mix concrete or similar construction materials
- (5) Coal or combustibles such as firewood
- (6) Agricultural products such as seeds, grains, or animal feed



These items shall **NOT** be tagged in accordance with passive RFID tagging requirements.



There are several key definitions that the RFID Clause specifically mentions and play a key role in determining if and at what level an item needs a RFID tag.

Case:

- **MIL-STD-129 defined exterior container within a palletized unit load**

or

- **MILSTD-129 defined individual shipping container**



It is important to understand the different definitions for case, shipping container, exterior container and palletized unit load contained in the DFARS Clause and MIL-STD-129 as they play a key role in determining the number of RFID tags that need to be applied.

- **Shipping Container:** A MIL-STD-129 defined exterior container which meets carrier regulations and is of sufficient strength, by reason of material, design, and construction, to be shipped safely without further packing (e.g. wooden boxes or crates, fiber and metal drums, and corrugated and solid fiberboard boxes).
- **Exterior Container:** A MIL-STD-129 defined container, bundle, or assembly that is sufficient by reason of material, design, and construction to protect unit packs and intermediate containers and their contents during shipment and storage. It can be a unit pack or a container with a combination of unit packs or intermediate containers. **An exterior container may or may not be used as a shipping container.**

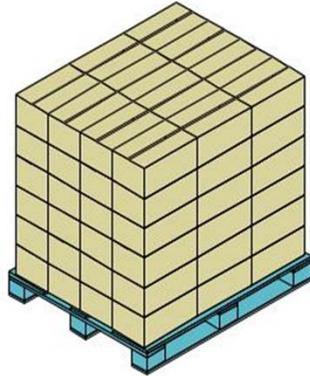


- **Palletized Unit Load:** A MIL-STD-129 defined quantity of items, packed or unpacked, arranged on a pallet in a specified manner and secured, strapped, or fastened on the pallet so that the whole palletized load is handled as a single unit. **A palletized or skidded load is not considered to be a shipping container.**



RFID tags are required on all exterior containers (cases) with the load as well as the palletized unit load.

Importance of Definitions



73 RFID Tags



1 RFID Tags

There are 72 individual cases on pallets. Each case would require a RFID tag plus one for the palletized unit load.

An example of intermediate or unit packs placed in an exterior container.

- **DFARS Clause 252.211-7006**
 - **Latest Revision Sep 2011**
 - **Previous Revision Feb 2007**
- **Requirements of the latest clause**
 - **Additional destinations**
 - **Ability to designate specific locations**



Contractors should look carefully at their solicitations and contracts to see which version of the RFID clause has been called out.



DEFENSE CONTRACT MANAGEMENT AGENCY

DFARS 252.211-7006 (Feb 2007)

SECTION D

**D11B03 252.211-7006 RADIO FREQUENCY IDENTIFICATION
(FEB 2007) DFARS**

(a) Definitions. As used in this clause-
'Advance shipment notice' means an electronic notification used to list the contents of a shipment of goods as well as additional information relating to the shipment, such as order information, product description, physical characteristics, type of packaging, marking, carrier information, and configuration of goods within the transportation equipment.

THE PURCHASE ORDER CLAUSES ARE APPLICABLE AS INDICATED IN THE **DLA MASTER SOLICITATION** FOR AUTOMATED SOLICITATIONS AND RESULTING AWARDS, REVISION 40, MARCH 2011, WHICH CAN BE FOUND ON THE WEB AT
<http://www.dla.mil/j-3/j-336/DLA/default.htm>



ACQUISITION INSIGHT GLOBAL ENGAGEMENT

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Some procuring activities are only adding the RFID clause when it will apply to the item and the destination. Others are adding the RFID clause to everything and the contractor must determine whether it is applicable.

In many DLA contracts, DLA procuring activities do not specifically call out the RFID clause; however, they do specify the DLA Master Solicitation. The Master Solicitation, which can be obtained at <http://www.dla.mil/Acquisition/Pages/Automaster.aspx>, specifies that the RFID DFARS Clause is mandatory for all DLA contracts.

(Feb 07) – Contractors shall affix passive RFID tags, at the case and palletized unit load packaging levels, for shipments of the following items (Classes of Supply) & shipped to any of the following locations:

- **Class I** - Packaged Operational rations
- **Class II** - Clothing, individual equipment, tentage, organizational tool kits, hand tools, and administrative and housekeeping supplies and equipment
- **Class III** – Packaged petroleum, lubricants, oils, preservatives, chemical and additives
- **Class IV** - Construction and barrier materials
- **Class VI** - Personal demand items such as snack foods, beverages, cigarettes, soap, toothpaste, writing materiel, cameras, batteries, and other non-military sale items
- **Class VIII** - Medical Materials (except Pharmaceuticals, biologicals, and reagents)
- **Class IX** - Repair parts and components including kits, assemblies and subassemblies, repairable and consumable items required for maintenance support of all equipment, excluding medical-peculiar repair parts



The classes of supplies that are required by the passive RFID clause.

Pharmaceuticals, biologicals and reagents will not require RFID tags at this time. DOD will follow the FDA RFID rules for these materials when they are finalized.

Suppliers should limit the mixing of excluded and non-excluded materials.

Class V (munitions/explosives) are also not required to have passive RFID at this time, until compatibility tests have been conducted.

Determining Class Of Supply (COS)

- **The first step is to determine the Federal Supply Class (FSC) of the item in question**
 - First 4 digits of NSN
 - **7720**-##-###-####
- **Determine Class of Supply (COS)**

FSC	CoS
7710	2
7720	9
7730	2
7740	2

- **A copy of the conversion chart is located on the packaging portal**



There are only certain classes of supply that are currently required to be tagged. The class of supply is usually not identified in the contract. The first step is to determine the Federal Supply Class, which is the first 4 digits of the NSN.

The second step is to convert the FSC to the Class of Supply. A copy of the conversion chart is located on the packaging portal.

- **DLA Defense Distribution Depots**

- | | | |
|----------------------|---------------------|----------------------|
| ▪ Albany, GA | ▪ Oklahoma City, OK | ▪ Tobyhanna, PA |
| ▪ Anniston, AL | ▪ Norfolk, VA | ▪ Warner Robbins, GA |
| ▪ Barstow, CA | ▪ Puget Sound, WA | |
| ▪ Cherry Point, NC | ▪ Red River, TX | |
| ▪ Columbus, OH | ▪ Richmond, VA | |
| ▪ Corpus Christi, TX | ▪ San Diego, CA | |
| ▪ Ogden, UT | ▪ Susquehanna, PA | |
| ▪ Jacksonville, FL | ▪ San Joaquin, CA | |



- **TRANSCOM Air Mobility Command Terminals**

- Charleston, SC
- Norfolk, VA
- Fairfield, CA (Travis AFB)

- **All TP 1 Shipments to OCONUS Destinations**



The specific locations are actually listed in the DFARS clause. Some locations have several DODAACs, the RFID Clause will give the specific DOD Activity Address Codes (DODAACs) for these destinations for which the use of passive RFID tags are required.

For those contractors who think that RFID might not apply to them, Defense Depot Susquehanna, PA is more commonly referred to as “New Cumberland, PA” and DD San Joaquin is more commonly known as “Tracy, CA”.

Transportation Priority. A number assigned to a shipment that establishes its movement precedence by air, land, or sea within the Defense Transportation System.

TP-1 Expedited Transportation



DFARS 252.211-7006 (Sep 2011)

DEFENSE CONTRACT MANAGEMENT AGENCY

DFARS 252.211-7006 (SEP 2011)

PASSIVE RADIO FREQUENCY IDENTIFICATION APPLIES TO ALL DLA ACQUISITIONS, WITH LIMITED EXCEPTIONS. QUOTERS ARE RESPONSIBLE FOR READING THE CLAUSE TO DETERMINE APPLICABILITY. (PASSIVE RFID TAGS SHOULD NOT BE APPLIED TO SHIPMENTS OF PHARMACEUTICALS, BIOLOGICS, OR REAGENTS. BULK COMMODITIES, SHIPMENTS TO DESTINATIONS NOT LISTED IN THE WEB LINK IN THE CLAUSE, AND SHIPMENTS TO LOCATIONS OTHER THAN DEFENSE DISTRIBUTION DEPOTS WHEN THE CONTRACT INCLUDES THE CLAUSE AT FAR 52.213-1, FAST PAYMENT PROCEDURES, DO NOT REQUIRE PASSIVE RFID TAGGING.) COST OF CONFORMING WITH RFID REQUIREMENTS IS INCORPORATED INTO UNIT PRICE QUOTED, LIKE ALL PACKAGING COSTS. NOTE THAT COMPLIANCE WITH DFARS 252.211-7006 IS MANDATORY. PACKAGING IS A MATERIAL CONTRACT REQUIREMENT. AND IN DIBBS, QUOTES/OFFERS MUST BE IDENTIFIED AS "BID WITHOUT EXCEPTION" BY ANSWERING "YES" TO "MEETS PACKAGING AND RFID REQUIREMENTS?" (ANY EXCEPTIONS MUST BE CLEARLY IDENTIFIED. BIDS WITH EXCEPTION AND A "NO" RESPONSE TO THE "MEETS PACKAGING AND RFID REQUIREMENTS" PROMPT MAY PRECLUDE CONSIDERATION.)

**Taken from DLA Master Solicitation
Part III Subpart A (Oct 2011 Rev 44)**



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The most recent passive RFID Clause as found in the DLA Master Solicitation.

In many DLA contracts, DLA procuring activities do not specifically call out the RFID clause; however, they do specify the DLA Master Solicitation. The Master Solicitation, which can be obtained at <http://www.dla.mil/j-3/j-336/DLA/>, specifies that the RFID DFARS Clause is mandatory for all DLA contracts. Refer to the above website for the latest revision of the master solicitation.

- **Locations listed on**
http://www.acq.osd.mil/log/rfid/r_dfars_list.html
- **Locations OCONUS (Outside contiguous United States) when shipment is assigned TP 1**
- **Locations deemed necessary by the requiring activity**



Listings of the specific locations and DODAACs are located at http://www.acq.osd.mil/log/rfid/r_dfars_list.html.

The Passive RFID clause dated 12 February 2007 listed specific locations within the clause, the recent changes to the clause has included more locations (listed on website) and the ability for the procuring activity to cite specific locations within the contract.

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RFID Location Website

Office of the Deputy Under Secretary of Defense (Logistics & Materiel Readiness)

Supply Chain Integration

Automatic Identification Technologies (AIT)

NOTE: The name of this website has been changed to better reflect utilized by the DoD supply chain. As OASD(SCI) continues to modern it will be actively involved with Radio Frequency Identification (RFID) other components of the suite of technologies known as Automatic (AIT). By applying RFID in tandem with other AIT, the DoD will be able capabilities offered by these enabling technologies.

<http://www.acq.osd.mil/log/rfid/>

- DoD 4149.1-R, DoD Supply Chain Materiel Management Board Department of Defense is currently updating 4149.1 Regulation (4149.1-R)
- ML STD 179P Military Marking for Shipment and Storage
- Passive RFID DFARS Clause 252.211-7006
- Link of Required Ship-To Locations
- DoD Suppliers' Choice RFID Information Guide

Passive RFID DFARS Clause 252.211-7006 Required to Ship-To Locations

DODACC	Location Name	Required as of
SV0400	Defense Distribution Depot, Richmond, VA	Jul-09
SV3112	Defense Distribution Depot, Cary, NC, NC	Jul-09
SV3114	Defense Distribution Depot, Tobyhanna, PA	Jul-09
SV3117	Defense Distribution Depot, Norfolk, VA	Jul-09
SV3119	Defense Distribution Depot, Warner Robins AFB, GA	Jul-09

http://www.acq.osd.mil/log/rfid/r_dfars_list.html

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A link to the list is located on the Automatic Identification Technologies (AIT) page under the Passive RFID DFARS Clause 252.211-7006.



DEFENSE CONTRACT MANAGEMENT AGENCY

RFID Required

Passive RFID Tags are required only when all three conditions exist:

- The RFID clause is in the contract (or referenced), **AND**
- Items are Class I (Rations), Class II, Class IIIP, Classes IV and VI, Class VIII (excluding pharmaceuticals, biologicals or reagents), or Class IX, **AND**
- The location is on the website, OCONUS TP1 or specifically cited in contract

SV3222	Defense Distribution Depot, Corpus Christi, TX	Jul-09
SV3224	Defense Distribution Depot, San Joaquin, CA	Jul-09
SV3227	Defense Distribution Depot, Red River, TX	Jul-09
SW0202	Defense Distribution Depot, Susquehanna, PA	Jul-09
SW0400	Defense Distribution Depot, Richmond, VA	Feb-07

Partial listing of locations from
http://www.acq.osd.mil/log/rfid/r_dfars_list.html



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Just because the DFARS Clause is listed does not mean that passive RFID will need to be applied. All three of the requirements must be met

-Clause in contract

-Items Class of supply is listed in DFARS Clause

-Location must be on list , cited in contract or an OCONUS Transportation Priority 1 shipment

(Feb 2007 DFARS clause the locations are listed in the clause and the cited in contract is not applicable)

A listing of locations are available at http://www.acq.osd.mil/log/rfid/r_dfars_list.html.

Date listed is the required as of date – 07 and earlier where listed in the Feb 2007 version.

- **The following are excluded**
 - Shipment of bulk commodities
 - Shipments to locations other than Depots when the contract includes the clause at FAR 52.213-1, Fast Payment Procedures
- **Other requirements**
 - Tags (data) are unique
 - Tags are readable
 - EPCglobal Class 1, “Generation 2” Specification Tags
 - Tag Placement – Per MIL-STD-129 Section 4.9.2
 - WAWF used to submit ASN



Suppliers are allowed to apply passive RFID tags, even in contracts where the DFARS Clause requiring passive RFID tagging has not been included. However, suppliers are not allowed to apply passive RFID tags to the following commodities: Class V (munitions/explosives), Class VIII (pharmaceuticals, biologicals and reagents), bulk commodities, and shipments to locations other than Defense Distribution Depots when the contract includes the clause at FAR 52.213-1, Fast Payment Procedures.

Again contractor need to submit ASN through WAWF and ensure the tag numbers are unique, readable, EPCGlobal Class1 Gen2 and tags are placed IAW MIL-STD-129.

Excerpt form the

52.213-1 Fast Payment Procedure.

As prescribed in [13.404](#), insert the following clause:

Fast Payment Procedure (May 2006)

(a) *General.* The Government will pay invoices based on the Contractor’s delivery to a post office or common carrier (or, if shipped by other means, to the point of first receipt by the Government).

(b) Responsibility for supplies.

(1) Title to the supplies passes to the Government upon delivery to—

(i) A post office or common carrier for shipment to the specific destination; or

(ii) The point of first receipt by the Government, if shipment is by means other than Postal Service or common carrier.

- Specifying MIL-STD-129P(4) in a contract is not sufficient to mandate RFID on a shipment. **The RFID DFARS clause in the contract triggers the requirement (along with the Item Supply Class and the destination).**
- **RFID Clause Definitions**
 - Case
 - Palletized Unit Load
 - Exterior Container
 - Shipping Container
- **Placement of RFID Tags (4.9 specifically 4.9.2)**



The MIL-STD-129 does not impose the requirement for placing RFID tags on items but it is used in conjunction with the RFID Clause to ensure RFID tags are correctly applied.

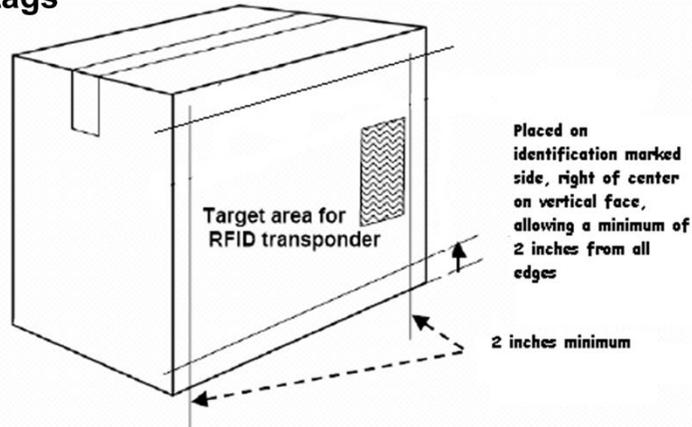
Numerous times the DFARS Clause refers to “MIL-STD-129” – Case, Exterior Container, Shipping Container, palletized unit load.

4.9.1 b. Bulk commodities **shall not be tagged** in accordance with passive RFID tagging requirements.

4.9.3 Tagging munitions/explosives with passive RFID. Munitions and explosives **shall not be tagged** until the following certification requirements are met for the passive RFID tag, tag reader and antenna configuration: electromagnetic effects on the environment (E3), Hazards of Electromagnetic Radiation to Ordnance (HERO), Hazards of Electromagnetic Radiation to Fuel (HERF), and Hazards of Electromagnetic Radiation to Personnel (HERP). For additional information, refer to the Product Manager Automatic Identification Technology website at <http://www.eis.army.mil>.

RFID Tag Placement

- **Passive RFID tags may be integrated into the MSL**
- **Placement of RFID enabled address labels or separate RFID tags**



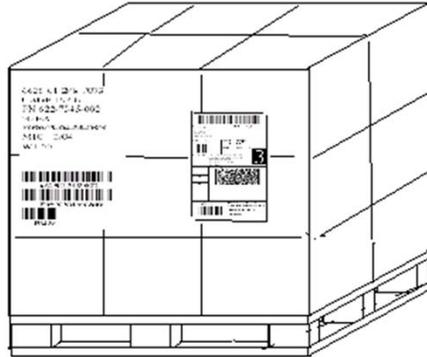
4.9.2 Passive RFID tag placement. The passive RFID tag may be integrated with the military or commercial shipping label (RFID-enabled address label) or they may be placed in separate locations on the shipment.

Keys point in placing RFID Tags

- Passive RFID tags should be affixed at a suitable location where there is a minimum risk of damage, easy access to the respective bar code symbols, and the highest potential for successful passive RFID tag interrogation.
- RFID-enabled address labels shall be applied to shipping containers or palletized unit loads per 4.3.2, including applicable sub-paragraphs.
- Address markings shall be placed on the identification-marked side of exterior shipping containers. If the container is too small to accommodate the address markings on the identification-marked side the address label shall be placed on the opposite side.

RFID Tags on Pallet Loads

- **Address labels may be attached to the marking board or to the stretch wrap if used to bond the load**
- **Individual cases that make up the pallet load require their own passive RFID tags**



The RFID-enabled label for a palletized unit load should not be attached to an exterior container if the cargo within the exterior container will not be removed for receipt processing and storage

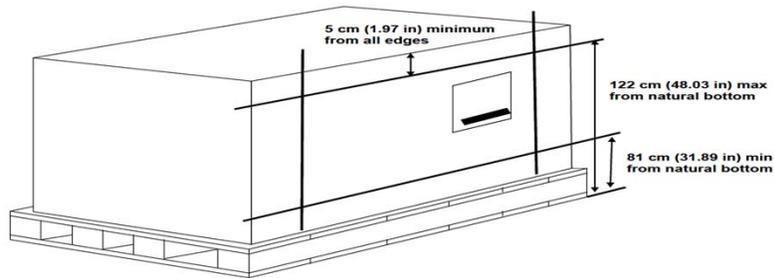
The RFID label should not be placed in a manner that overlaps any other existing RF transponder. There should be at least a 4 inch separation.



MIL-STD-129P, Change #4, Page 42, paragraph 4.3.2.7.d describes the placement of the address label on palletized loads.

RFID Tag Placement

- Identification marked side
- Minimum risk of damage
- Should not be placed over a seam
- Avoid overlapping of Tags



Additional information concerning Tag placement may be found in the Passive RFID Supplier's Guide – version 15.0
http://www.acq.osd.mil/log/rfid/guide/DoD_Suppliers_Passive_RFID_Info_Guide_v15.pdf

- **A unique serial number for each exterior container or pallet load**
- **Each RFID tag is like a small license plate which carries the serial number associated with the container or pallet load.**
- **Fields used for the DOD tag identity type are: Header, Filter, DODAAC/Cage Code and a Serial Number unique to the shipping activity.**
- **The contractor will provide the shipment data via WAWF. This will relate each serial number to the items in each package.**



The “serial number” required in the passive RFID tag ID Identifier does not refer to the serial number of the product being shipped but rather a unique number assigned by the supplier.

The serial number is the link between the tag and the information contained in the database. Just like a license plate number along does not identify you to anyone unless they have access to the data base of license plate numbers.

Suppliers have two options for encoding RFID tags -

EPCglobal™ subscriber and possesses a unique EPC™ company prefix, the Contractor may use any of the identifiers and encoding instructions described in the most recent EPC™ Tag Data Standards document to encode tags.

DoD identifier, use assigned Commercial and Government Entity (CAGE) code and shall encode the tags in accordance with the tag identifier details in the Suppliers Guide, located at http://www.acq.osd.mil/log/rfid/tag_data.htm.

If the Contractor uses a third-party packaging house to encode its tags, the CAGE code of the third-party packaging house is acceptable.

Regardless of the method, the Contractor with which the Department holds the contract is responsible for ensuring that the tag ID is globally unique.



DEFENSE CONTRACT MANAGEMENT AGENCY

DoD Tag Identity 96 Bit Format

96 bits total user memory on tag

Header	Filter	Government Managed Identifier	Serial number
8 bits	4 bits	48 bits	36 bits

Fields:

- Header – specifies that the tag data is encoded as a DoD 96-bit tag identity type (use “2F” encoded in binary as 0010 1111).
- Filter – identifies a pallet, case, or UID item associated with tag.
(0000 = pallet, 0001 = case, 0010 = unit pack, all other combinations = reserved for future use)
- Government Managed identifier – encoded with suppliers CAGE code – identifies the supplier, insures uniqueness of serial number across all suppliers, represented in ASCII format. For CAGE codes an ASCII space character must be placed in front of the CAGE to make a total of 6 ASCII characters
- Serial Number – uniquely identifies up to $2^{36} = 68,719,476,736$ tagged items, represented in binary format.



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Suppliers that choose to employ the DoD tag identity type will use the Commercial and Government Entity (CAGE) code previously assigned to them.

This shows the 96 bit format using the DoD tag identity type. The header information defines the overall length, identity type and structure of the EPC encoding. The Filter is not part of the EPC or DoD identifier but is additional data that is used for fast filtering and pre-selection of basic item/asset/pack types. The CAGE code is encoded in ASCII format.

Header (DoD identity type)	0010 1111
Filter (pallet)	0000
CAGE (2S194)	0010 0000 0011 0010 0101 0011 0011 0001 0011 1001 0011 0100
Serial Number (12,345,678,901)	0010 1101 1111 1101 1100 0001 1100 0011 0101

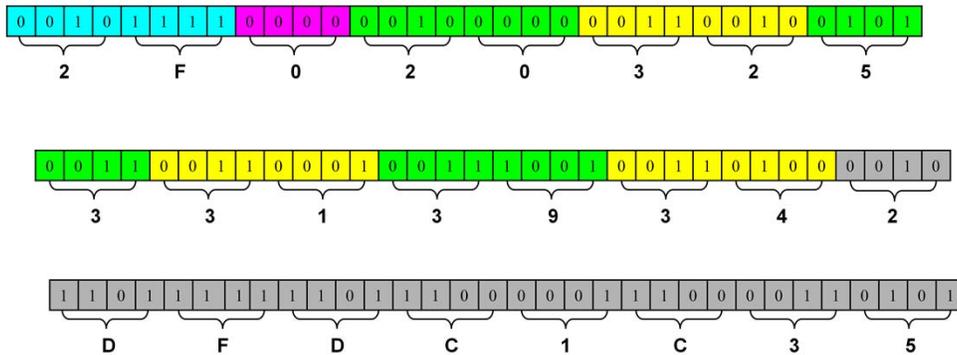
0010 1111 00000010 0000 0011 0010 0101 0011 0011 0001 0011 1001 0011 01000010 1101 1111 1101 1100 0001 1100 0011 0101

DOD Tag 96 Bit Identity Type Data



This slide again shows the DoD identity type for 96 bit tag including the applicable data encoding. Note that this data is a unique serial number only – it does not contain information on what is included in the pallet/box that the RFID tag is attached to. That information must be electronically transmitted in an Advance Shipment Notice to the receiving location.

RFID software converts the 96-bit binary (base 2) number into hexadecimal (base 16) format for encoding



The result is a unique hexadecimal number that can be written to the tag:
2F02032533139342DFDC1C35. This number will be entered into WAWF.



RFID numbers are reported and recorded in a hexadecimal format. (Numeric base 16, with characters 0,1,2,3,4,5,6,7,8,9,0,A,B,C,D,E,F.)

The binary serial number generated by the computer must be converted to a hexadecimal number to be entered into WAWF. This conversion is normally made by the software when the RFID tag is read. The hexadecimal RFID tag number will be displayed on RFID readers and scanners.

This slide shows the conversion of the binary data into a hexadecimal format.



DEFENSE CONTRACT MANAGEMENT AGENCY

RFID Tag Data: What number do I send?

- **DoD 96 bit tag data construct**
 - Header 00101111
 - Filter 0000
 - CAGE 0010000000110010010100110011000100111100100110100
 - Serial number 001011011111110111000001110000110101
- **The binary value is converted to a 24 digit hexadecimal interpretation for WAWF input**

2F02032533139342DFDC1C35

HEX loaded into WAWF



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See the Suppliers' Passive RFID Information Guide at http://www.acq.osd.mil/log/rfid/guide/DoD_Suppliers_Passive_RFID_Info_Guide_v15.pdf for additional information on constructing RFID numbers using the DOD construct option.

Advance Shipment Notice

- Advance Shipment Notice (ASN) via Wide Area Workflow (WAWF).
- Information that describes contents & configuration of a shipment:
 - **Contract information**
 - Contract Number, Shipment Number
 - Prime Contractor, Shipment Date
 - **Product description**
 - Line Item Number, NSN
 - Item Description, Quantity
 - **RFID Tag Data**
 - RFID Tag Number
 - Line Item Number
 - Quantity

Wide Area Workflow (WAWF)
 Information and registration at:
<https://wawf.eb.mil/>



MIL-STD-129P, Change Notice 4, page 70, paragraph 4.9.4 – Electronic Data Interchange (EDI) transactions are used to link the passive RFID tag to the content level detail information associated with each of the container types. Consignors are required to transmit these EDI transactions to consignees in advance of the shipment.

Contractors must submit the ASN via WAWF. Most of the data required by an ASN is already being submitted to the DOD via WAWF. Additional data required for RFID are the RFID tag number, the line item number, and the quantity.

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Advance Shipment Notice

- EDI Manifest Transaction Set 856
- UDF/FTP
- Web page form

Advance Shipment Notice

Manufacturers/Suppliers → WAWF → Distribution Centers/Depots

Advance Shipment Notice 856 will be a transportation based transaction

- Pallet
 - External Container
 - CLINs

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Once the contractor enters and submits the RFID tag data into WAWF, it will be transmitted to the receiving depot's database, awaiting arrival of the shipment. When the shipment arrives and the RFID tags are read, the shipment will automatically be updated as received by the depot.

The supplier has three options for entering data into the WAWF website. The supplier can manually enter the RFID tag ID into the WAWF website, use an 856 EDI document, or use a User Defined File (UDF) to transfer into WAWF. The latter two methods facilitate a more automated data capture and ASN creation process.



RFID Receiving Portal at Defense Depot Susquehanna, PA

Handheld/RFID
Barcode
reader



RFID antennas are mounted on either side of the truck dock area.

As shipping containers or pallet loads of boxes are moved past the antennas via forklift, RFID tags are automatically scanned and RFID tag data is submitted to the depot's computer system.

RFID tags can only be read when they go past an antenna system or portal which has been set up for this purpose.



DEFENSE CONTRACT MANAGEMENT AGENCY

Advance Shipment Notice

- **From the WAWF website:**
“In order to expedite receipt and vendor payment for material items requiring destination acceptance, contractors should submit the Receiving Report via WAWF with and at the time of physical shipment the material items. Material items received with RFID tag information before Receiving Report shipment information is available in WAWF will be subject to receive a Supply Discrepancy Report, SDR.”
- **For Inspection at Origin Shipments, the ASN is not generated until the DCMA QAR has approved the WAWF submittal.**



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For items inspected and accepted at source by a DCMA QAR, the ASN is not generated from the WAWF system until the WAWF submittal has been approved by the DCMA QAR.

Contractors should beware of shipping RFID-tagged parts prior to acceptance of the Receiving Report. Shipments made prior to QAR acceptance may be received at the destination prior to the arrival of the Advance Shipment Notice.

SDRs ARE being received on RFID shipments. Approximately 50% are for lack of RFID labels. The other 50% is for RFID tags on the containers, but no ASN in the system.

Recent Notice to DLA Suppliers:

Non-compliances for RFID "Radio Frequency Identification Device" labeling will now impact Suppliers ABVS scores if found non-compliant due to missing tags or other RFID labeling discrepancies in which the supplier is non-compliant.

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Wide Area Workflow (WAWF)

<https://wawftraining.eb.mil/xhtml/unauth/web/wbt/WbtSummary.xhtml>

Wide Area Workflow 5.2 Web Based Training

Web Based Training Course Introduction

Learning to use Wide Area Workflow (WAWF) is a two-step process.

1. This Web-Based Training Course provides a first look at the Wide Area Workflow System. It is an overview of the different areas of WAWF. The WBT contains demos for navigating, and creating and working different type documents in the WAWF system: [WAWF WBT](#)
2. The Department of Defense provides a Hands-On Practice System Site, a mirror-image of the real WAWF system. You can practice what you learned in this Course by creating or taking action on example receipts and acceptance documents: [WAWF Practice Training Site](#)

See the training instructions before going to the training site: [Training Instructions](#)

The best way to achieve success from this Training Course is to go to the Practice Site after completing each lesson.

WAWF
Wide Area Workflow
TRAINING

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The RFID data is input in the PACK tab.

Information and training on entering RFID information is available WAWF website <https://wawftraining.eb.mil/> .

<https://wawftraining.eb.mil/xhtml/unauth/web/wbt/WbtSummary.xhtml>

This site provides both a pdf file (containing screen shots on how to input RFID data) and a demo. Additionally it has a hands on practice site.

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DOD RFID Website

Supply Chain Integration

Office of the Deputy Under Secretary of Defense (Logistics & Materiel Readiness) [L&MR Home](#)

DLA | MPP | MR | PS | RM | SCI | TP

Automatic Identification Technologies (AIT)

- Home
- What's New?
- Background & Policy
- Supplier Info
- Other Links/References

NOTE: The name of this website has been changed to better reflect the extent of technologies utilized by the DoD supply chain. As OASD(SCI) continues to modernize the DoD supply chain, it will be actively involved with Radio Frequency Identification (RFID) implementation as well as other components of the suite of technologies known as Automatic Identification Technologies (AIT). By applying RFID in tandem with other AIT, the DoD will be able to fully realize the capabilities offered by these enabling technologies.

<http://www.acq.osd.mil/log/rfid/index.htm>

RFID Reference Documents

- [DoD 4140.1-R: DoD Supply Chain Materiel Management Regulation \(2003\)](#) — The Department of Defense is currently updating 4140.1 Regulation from previous version (4140.1-R).
- [MIL-STD-129P: Military Marking for Shipment and Storage](#)
- [Passive RFID DFARS Clause 252.211-7006](#)
— [List of Required Ship-To Locations](#)
- [DoD Suppliers' Passive RFID Information Guide](#)

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Many good documents are available on this site. It will contain the latest changes and updates to the DoD RFID policy. The web site also includes the DoD Suppliers' Passive RFID Information Guide, the passive RFID DFARS Clause, list of locations and a section for Frequently Asked Questions.

<http://www.acq.osd.mil/log/rfid/index.htm>

Key Websites

- **<http://www.acq.osd.mil/log/rfid/index.htm>**
 - <http://www.acq.osd.mil/dpap/dars/dfars/html/current/252211.htm#252.211-7006>
 - http://www.acq.osd.mil/log/rfid/r_dfars_list.html
 - http://www.acq.osd.mil/log/rfid/r_suppliers_guide.html
 - http://www.acq.osd.mil/log/rfid/tag_data.htm
- **<https://wawf.eb.mil/>**
 - <https://wawftraining.eb.mil/xhtml/unauth/web/wbt/WbtSummary.xhtml>
- **<http://www.gs1.org/gsm/kc/epcglobal>**



Automatic Identification Technologies (AIT) page – contains links to Clause, Supplier’s Guide, FAQs, Locations as well as background and policy information and other related RFID websites.

Listed below are links to the DFARS Clause, Location Lists, Suppliers Guide and Tag Data

The Link to the WAWF site – including the link to WAWF training.

Last is a link to the EPCGlobal standards.



DEFENSE CONTRACT MANAGEMENT AGENCY

Bye-Bye Bar Codes? – NO!

- **Traditional bar codes – Linear (UPC, 3 of 9)**
 - Will remain the dominant auto ID technology in most mainstream applications for the foreseeable future
 - Lowest cost, broadest applicability, huge infrastructure investment
- **2D bar codes – Data Matrix, PDF417**
 - Adopted for value added applications
 - Portable data files, supplementary retail coding etc.
- **RFID – Active, Passive and Semi Passive**
 - Will be increasingly adopted where non-line of sight, read/write, and multiple detection requirements are needed.



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Will barcodes still be required on cases/cartons? Yes. The requirements of human-readable, linear bar codes, and 2D Military Shipping labels have not been altered by the RFID initiative. These methods of marking must remain as a backup when the RFID can't be read.

UID vs. RFID

- | | |
|--|---|
| <ul style="list-style-type: none">• Unique Identification• Item Markings• DFARS Clause 252.211-7003• MIL-STD-130<ul style="list-style-type: none">• Linear Bar Code 39• Data Matrix 2-D Bar Code• Applied to items \$5000 and over (or mandated by contract)• Used to identify items in various databases (like a SS#) | <ul style="list-style-type: none">• Radio Frequency Identification• Packaging Markings• DFARS Clause 252.211-7006• MIL-STD-129<ul style="list-style-type: none">• RFID chip embedded in paper label• Applied based on destination and item supply class• Used to track packages in transportation (like a license plate) |
|--|---|



UID and RFID are frequently confused for each other. Both are part of the AIT suite and their implementation has been mandated by the Department of Defense in the past few years. This is a quick guide to identify the differences between the two systems.

- **Passive RFID is required when **all three** of the following conditions exist:**
 - The RFID DFARS **Clause** in the contract
 - AND**
 - Listed **Class of Supply**
 - AND**
 - **Location** (List, OCONUS TP1, Cited in contract)
- **Passive RFID labels are to be placed on exterior shipping containers (cases) and palletized unit loads**
- **ASN must be submitted via Wide Area Workflow**



Passive RFID is required when **all three** of the following conditions exist:

The RFID DFARS Clause in the contract

Listed Supply Class - Class I (Rations), Class II, Class IIIP, Classes IV and VI, Class VIII (excluding pharmaceuticals, biologicals or reagents), or Class IX, AND

Location (List, OCONUS TP1, Cited in contract)

Passive RFID labels are to be placed on exterior shipping containers (cases) and palletized unit loads.

Advance Shipment Notice containing RFID information must be submitted through Wide Area Workflow (WAWF).

1. Which of the following are components of an RFID system?

- a) Antennas
- b) RFID tags
- c) RFID interrogators
- d) Host computer with software
- e) All of the above



e) All of the above

2. Which of the following is NOT a characteristic of passive RFID transponders (tags).

- a) Carry a limited amount of data
- b) Have an internal battery
- c) Can be incorporated into a shipping label
- d) Are generally inexpensive, costing around \$1.00



b) Have an internal battery

3. Which of the following shipments will require passive RFID tags?

- a) The item is Class IX, the shipment is TP 1, destination is Balad Airbase, Iraq (W917YX)
- b) MIL-STD-129P Change Notice 4 is specified in the contract, item is Class IX, destination is New Cumberland (W25G1U)
- c) DFARS Clause 252.211-7006 is in the contract, item is ammunition (Class V), destination is New Cumberland (W25G1U)
- d) DFARS Clause 252.211-7006 is in the contract, item is Class IIIP petroleum product, destination is Tracy, CA (W62G2T)



d) DFARS Clause 252.211-7006 is in the contract, item is Class IIIP petroleum product, destination is Tracy, CA (W62G2T)

Note: If a) had the DFARS clause in the contract, it would also meet the criteria for RFID tags, but we did not indicate that the clause was in the contract. This is a case where the DFARS clause probably SHOULD be in the contract.

4. A contractor has a shipment going to New Cumberland, PA which requires passive RFID labels. The shipment consists of 36 exterior shipping containers consolidated onto two pallets. How many RFID tags (labels) will be needed for this shipment?
- a) 36
 - b) 2
 - c) 38
 - d) 40



c) 38—One for each shipping container, plus one for each pallet load.

5. Which of the following shipments are not excluded from RFID requirements?

- a) Shipments of bulk commodities
- b) Shipments valued less than \$5000
- c) Shipments to non Defense Distribution Depots when FAR 52.213-1 (Fast Pay) is cited
- d) None of the above



c) Shipments valued less than \$5000