PASSIVE Radio Frequency Identification (pRFID)
Agenda

- When is pRFID Required
- RFID Technology
- Tag Encoding
- WAWF – Advance Ship Notice
- Compliance
Clause Location

• Solicitations and Awards as Required
  – Manual awards - Section D
  – Automated Awards also require pRFID
    • Clauses are include by reference
    • Automated Master Solicitation – Section D
    • “V” in the 9th position – SPM7M112V1234 –
  – Inclusion in the solicitation or award triggers the requirement
• Department of Defense FAR Supplement (DFARS) 252.211-7006 Passive Radio Frequency Identification.

• As prescribed in 211.275-3, use the following clause:
• Department of Defense FAR Supplement
• Prescription for Use
  • DFARS 211.275-3 Contract clause.
    Use the clause at 252.211-7006, Passive Radio Frequency Identification, in solicitations and contracts that will require shipment of items meeting the criteria at 211.275-2, and complete paragraph (b)(1)(ii) of the clause as appropriate.
1st Criteria

• Inclusion of the clause in solicitations and/or awards triggers the requirement

• What is required
  – Radio frequency identification (RFID)
  – In the form of a passive RFID tag
  – Cases/Exterior containers and Palletized unit loads
  – Any additional consolidation level(s) deemed necessary by the requiring activity
2nd Criteria

– for shipments of items that—
  – Are in any of the following classes of supply (as listed in the clause)
    • Subclass of Class I –
    • Class II –
    • Class IIIP –
    • Class IV –
    • Class VI –
    • Subclass of Class VIII –
    • Class IX –

• And
3rd Criteria

• Will be shipped to
  – one of the locations listed at http://www.acq.osd.mil/log/rfid/ or to—
  – A location outside the contiguous United States when the shipment has been assigned Transportation Priority 1*; or
  – Any additional location(s) deemed necessary by the requiring activity.

*Ship to address will include: PROJ TP 1
Excluded from pRFID

• Exclusions are in paragraph (b) of the clause
  – Shipments of bulk commodities
  – Shipments to locations other than Defense Distribution Depots when the contract includes the clause at FAR 52.213-1, Fast Payment Procedures
Classes of Supply

Passive RFID is not required for all shipments.

**Required:**
- Subclass of Class I Packaged operational rations.
- Class II
- Class III
- Class IV
- Class VI
- Subclass of Class VIII Medical materials (excluding pharmaceuticals, biologicals, and reagents – suppliers should limit the mixing of excluded and non-excluded materials
- Class IX

**NOT required:**
- Subclass of Class I
- Class V
- Class VII
- Subclass of VIII
- Class X
Supply Chain Integration

• Ship to Locations can be accessed through the following website

• The following Website has links to:
  – DOD Suppliers Passive RFID Guide
  – MIL-STD-129P Military Marking for Shipment and Storage
# Ship-To Locations

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

<table>
<thead>
<tr>
<th>DODACC</th>
<th>Location Name</th>
<th>Required as of</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV0400</td>
<td>Defense Distribution Depot, Richmond, VA</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3100</td>
<td>Defense Distribution Depot, Susquehanna, PA</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3113</td>
<td>Defense Distribution Depot, Cherry Point, NC</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3114</td>
<td>Defense Distribution Depot, Tobyhanna, PA</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3117</td>
<td>Defense Distribution Depot, Norfolk, VA</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3119</td>
<td>Defense Distribution Depot, Warner Robins AFB, GA</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3120</td>
<td>Defense Distribution Depot, Anniston, AL</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3121</td>
<td>Defense Distribution Depot, Albany, GA</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3122</td>
<td>Defense Distribution Depot, Jacksonville, FL</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3144</td>
<td>Defense Distribution Depot, Pearl Harbor, HI</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3147</td>
<td>Defense Distribution Depot, Santa Rita, Guam</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3210</td>
<td>Defense Distribution Depot, Hill, UT</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3211</td>
<td>Defense Distribution Depot, Tinker AFB, OK</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3215</td>
<td>Defense Distribution Depot, Barstow, CA</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3216</td>
<td>Defense Distribution Depot, Puget Sound, WA</td>
<td>Jul-09</td>
</tr>
<tr>
<td>SV3218</td>
<td>Defense Distribution Depot, San Diego, CA</td>
<td>Jul-09</td>
</tr>
</tbody>
</table>
Supply Chain Integration

Automatic Information Technology (AIT)

The Office of the Under Secretary of Defense (Supply Chain Integration) is responsible for leading the implementation of a modern and integrated materiel supply chain process that fully supports military operational requirements. The end goal of this initiative is to promote customer confidence in the DoD logistics process by building a responsive, cost-effective capacity to provide required products and services to the Warfighter.

RFID technology addresses key DoD challenges of lacking asset visibility and transportation process inefficiency between nodes in the DoD supply chain. Alone and when combined with other AIT capabilities, RFID will become a key technology enabler for the DoD logistics business transformation by facilitating accurate, hands-free data capture within an integrated end-to-end supply chain enterprise.

RFID Reference Documents:

- 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
The Tag and Process

• The passive RFID Tag must be
  – Readable, undamaged, placed in the correct location on the shipment
  – Encoded with Globally Unique Data

• Contractor must create
  – Advance Shipping Notice (ASN) via WAWF
  – In the WAWF Receiving Report
    • Create the “Pack” Tab
    • Enter Passive RFID Tag Information

• WAWF online training https://wawf.eb.mil
Materiel and Ship To

Required for shipments of items that -

-are in any of the following classes of supply-
  Subclass of I, II, III, IV, VI, Subclass of VIII and IX

And one of the following


OR

OCONUS Transportation Priority 1 – shipments

OR

Location(s) deemed necessary by the requiring activity – clause fill-in
Passive RFID at Work
RFID Technology

- RFID is
  - Fast
  - Reliable
- RFID does not require
  - Line of Sight
  - Physical Contact with the Tagged Item
Understanding the Technology

RFID: The Fundamentals

Reader or Interrogators

Tags or Transponders
Active RFID

- Self-contained power source
- Long read range – 100 feet or more
- Send and receive signals from readers
- Currently in-use by DOD
- Cost between $75 - $100
- High price precludes widespread adoption
Passive RFID

- Smaller Than Active Tags
- Short Read Range
- Relies on Signal Emitted from a Reader
- No Self-Contained Power Source
- Costs are Decreasing as Technology Matures
- Low Cost Allows For Widespread Deployment and Use
Basic Components

• RF transponders (Tags)
  – Chip
  – Antenna

• Interrogators (Readers)
  – Reader
  – Antenna(s)

• Host computers
  – Hardware
  – Software
Potential Benefits

• Improves
  – Inventory Management
  – Shipment Visibility
  – Asset Tracking
  – Labor Productivity
  – Automated Receipt and Acceptance
  – Business Processes Within the DoD
Encoding the Tag

• Chip within the Passive RFID tag is encoded using

• Electronic Product Code (EPC)
  – An identification scheme
  – Universally known
  – Uniquely identifies an individual object
  – Via RFID tags and other means
  – Standardized EPC data consists of an EPC (or EPC identifier)
DoD Bit Format

Fields

96 bits total user memory on tag

<table>
<thead>
<tr>
<th>Header</th>
<th>Filter</th>
<th>Government Managed Identifier</th>
<th>Serial number</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 bits</td>
<td>4 bits</td>
<td>48 bits</td>
<td>36 bits</td>
</tr>
</tbody>
</table>

- Header - Specifies Tag Data Encoding
  - Identity Type - **DoD 96-bit Tag**
  - “2F” encoded
  - Binary - 00101111

<table>
<thead>
<tr>
<th>Hexadecimal Header</th>
<th>8-Bit Binary Header</th>
<th>Identifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F</td>
<td>00101111</td>
<td>DoD-96</td>
</tr>
<tr>
<td>30</td>
<td>00110000</td>
<td>SGTIN-96</td>
</tr>
<tr>
<td>31</td>
<td>00110001</td>
<td>SSCC-96</td>
</tr>
<tr>
<td>33</td>
<td>00110011</td>
<td>GRAI-96</td>
</tr>
<tr>
<td>34</td>
<td>00110100</td>
<td>GIAI-96</td>
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<td>35</td>
<td>00110101</td>
<td>GID-96</td>
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<tr>
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<td>SGTIN-198</td>
</tr>
<tr>
<td>37</td>
<td>00110111</td>
<td>GRAI-170</td>
</tr>
<tr>
<td>38</td>
<td>00111000</td>
<td>GIAI-202</td>
</tr>
</tbody>
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### DoD Bit Format

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**Filter**
- Identifies a pallet, case, or UID item associated with tag
  - 0000 = pallet (palletized unit load)
  - 0001 = case (shipping and exterior container)
  - 0010 = unit pack
  - all other combinations = reserved for future use
DoD Bit Format

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</tbody>
</table>

• Government Managed Identifier – 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
## DoD Bit Format

<table>
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<tbody>
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<td><strong>Header</strong></td>
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<tr>
<td>8 bits</td>
</tr>
</tbody>
</table>

- Serial Number uniquely Identifies up to 236 = 68,719,476,736 tagged items represented in Binary Format
- After Converted to Binary Format MUST Left-pad with zeros to a total of 36 bits
Advance Shipment Notice

• Contractor Shall Use
• Wide Area Workflow (WAWF)
  – DFARS 252.232-7003
    • Electronic Submission of Payment Requests [https://wawf.eb.mil/]
    • Receiving Report/Invoice or Combo
    • Create “Pack” Tab in WAWF
      – Enter Passive RFID Tag Information
      – Electronically Submit Advance Shipment Notice(s) (ASN)
Initial Entry into the receiving report with UID tab
The UID Tab, indicating all items that had UID's applied
Initial Entry into the receiving report with Pack(RFID) tab
Pack (RFID) Tab, indicating all items requiring RFID (Single shipment)
Compliance

• To Meet the Mandatory Requirement
• Supplier Options
  – Pre-Programmed DOD Compliant Tag
  – On Demand Internal Printing Solution
  – Full Passive RFID Integration
Non-Compliance

- Passive RFID tag is missing
- Passive RFID tag is visibly damaged and unreadable
- Passive RFID tag is present but unreadable (not visibly damaged)
- Passive RFID tag read has no corresponding ASN (Advance Ship Notice)
- Passive RFID tag read duplicates previously used tag identification
Websites

• Supply Chain Integration
    • List of Required Ship-To Locations is in red

• DFARS Clause 252.211-7006- Passive Radio Frequency Identification

• WAWF online training
  • https://wawf.eb.mil

• EPC™ Tag Data Standards Document
QUESTIONS