



Radio Frequency Identification (RFID) Supplier Implementation Familiarization Session



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Overview

- Shipments to LM Aeronautics require RFID tags if you are a user of TMS
- NO Software or Hardware are required to be purchased or implemented to comply with this requirement
- Tags are pre-encoded, and can be purchased from Tag suppliers (ref Slide 6) for less than \$1/tag
- RFID Tag Value must be entered into TMS and Tag affixed to shipment to LM Aeronautics
- IT IS EASY!

Who This Applies To

- Users of TMS – Transportation Management System
- Shipments to Lockheed Martin Aeronautics
 - Marietta
 - Fort Worth
- PM5010H (or later version) (See Sec 8.0)
- Requirement in Purchase Order Terms and Conditions ref to PM5010

Benefit to you

- Quicker payment after LM receipt of shipment
- Compliance with DoD requirements

What You Need To Do

- Pre-Requisites
 - Procure pre-coded Labels (Passive)
 - *No new hardware or software requirements to ship to LM utilizing RFID*
- RFID Label for Shipments only – not for parts
 - Affix label to THU (Transportation Handling Unit)
 - Enter 24 character Label ID into TMS
 - Can be entered via barcode reader, or by hand

Cost of Labels

- Costs will vary by order quantity, label supplier you choose
- Example Quotes
 - \$35 delivered for 50 labels (min order - \$1.43/label)
 - \$24.75 for 25 labels + shipping (no min order - \$0.99/label)
 - Received quotes ranging from \$0.35/label – \$2.00/label for order sizes from 1000 – 200 labels respectively.
 - Cost will vary based on vendor, order size

Potential Label Suppliers

- **Select a label vendor**

- Listed below are six *potential* sources for the RFID pre-coded labels. There is no LM Aero requirement to use these sources.
- The suppliers are familiar with LM Aero's requirements and the DoD-96 RFID spec:

- North America:

- **William Frick & Company**
Libertyville, IL
Telephone: (866) 669-7590; (847) 918-3700 (Outside US)
<http://www.fricknet.com>
- **Venture Research**
Plano, TX
Telephone: 469-246-4000; Toll Free: 1-866-RFID-111
<http://www.ventureresearch.com>

- **ODYSSEY**
Florence, KY
Telephone: (859) 449-7068
<http://odysseydcs.com>

- **EasySoft**
Telephone: (877) 765-5511
POC: Shawn Bredberg
<http://www.easysoftcorp.com/pre-printed/dod-rfid-tags.html>

- **SimplyRFID**
Telephone: (703) 343-1689
<http://www.simplyrfid.com/order-pre-programmed-dod-rfid/?gclid=CM6Jg8z9wsECFcyMgodKDAA4Q>

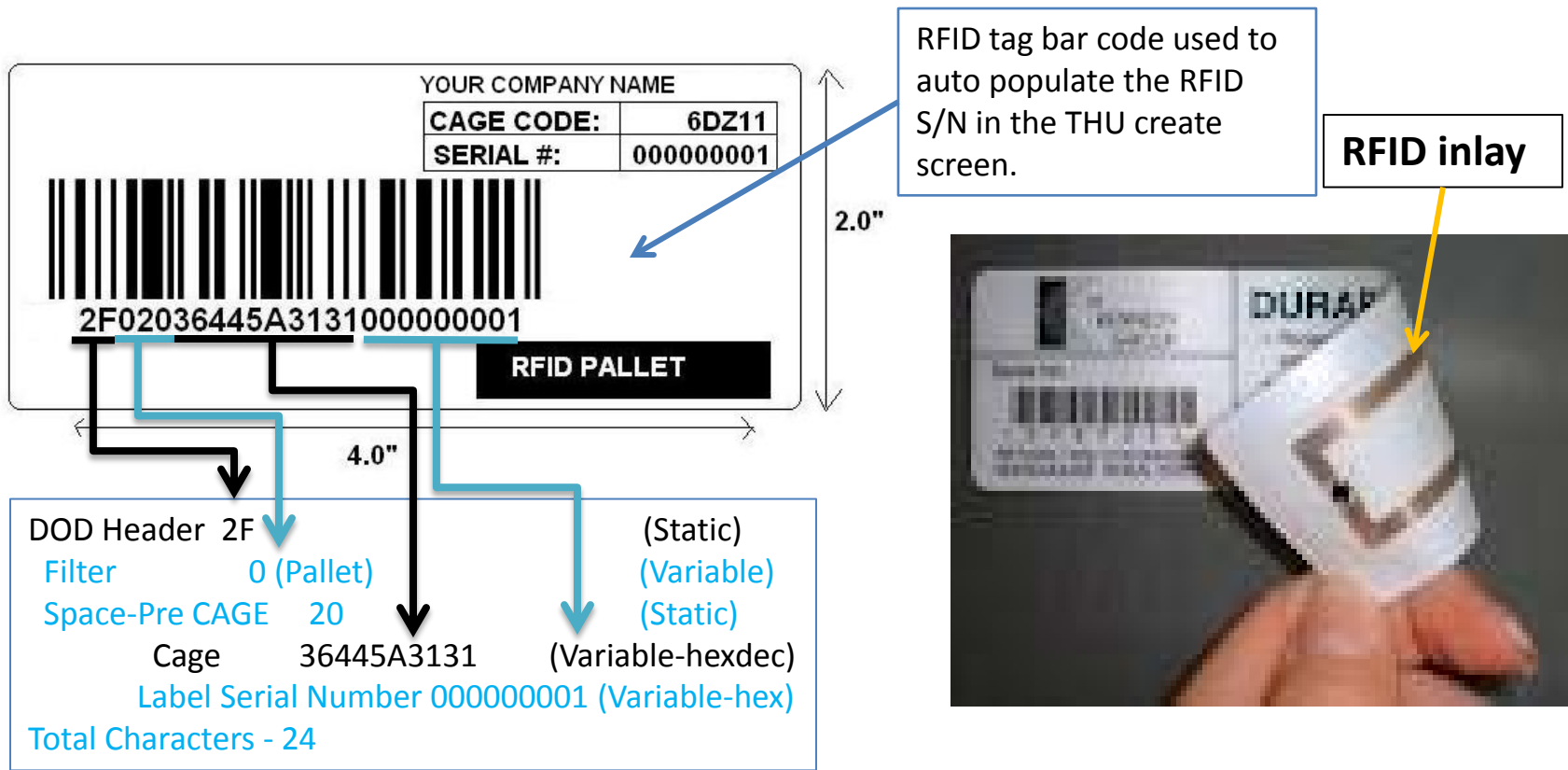
- Europe:

- **Rotas Italia s.r.l.**
Treviso, Italy
Tel. +39 0422 433100 Fax +39 0422 430413
<http://www.rotas.com>
Mr. Alberto Betteti

Label Data

- Supply label vendor with the following information:
 - Labels must be DOD-96 compliant (96 bit definition for the tag/label)
 - Your company CAGE code (label vendor will convert)
 - Link: https://www.logisticsinformationservice.dla.mil/BINCS/begin_search.aspx
 - Container Type: case or pallet
 - If you ship with cases and pallets, it is ok to choose 1 RFID Tag type, don't have to buy both tag types
 - 0000 – pallet
 - 0001 – Case
 - All other combinations reserved for future use
 - Tag serial number must be 36 bits, left padded with zeros.
 - Note: Cage and tag serial number combination must be unique
 - no repeats of serial numbers if you change label providers.
- If in doubt, send us a sample and we'll test it, contact information at end of presentation

Label Example



Note: These tags are for example purposes only. Other acceptable tag sizes and inlay configurations exist, please reference the next 2 slides for additional information

Label & Shipping References

- Links to U.S. DoD and EPC RFID Data Syntax and Standards:
 - DoD Automatic Info Tech (AIT) website: <http://www.acq.osd.mil/log/sci/ait.html>
 - Reference link (DoD 96 bit tag construct):
[http://www.acq.osd.mil/log/sci/ait/DoD Suppliers Passive RFID Info Guide v15.pdf](http://www.acq.osd.mil/log/sci/ait/DoD_Suppliers_Passive_RFID_Info_Guide_v15.pdf)
 - EPC Tag Data Standards are available at: <http://www.epcglobalinc.org/standards/>
- CAGE code lookup:
 - https://www.logisticsinformationservice.dla.mil/BINCS/begin_search.aspx
- LM Shipping Instructions and PM5010
 - http://www.lockheedmartin.com/us/aeronautics/materialmanagement/scm-shipping/scm-shipping_shippinginstructions.html
 - The Document table in the link above will contain the current version of PM 5010
- TMS Help Desk Number and link – 888-875-9801
 - http://www.lmaeronautics.com/tms/Documentation_Template.htm#HOME.htm
- TMS On-Boarding; Jacque Keeney – 817-777-4464
 - snc.fc-oneaero-aero@lmco.com

How to Ship with TMS and RFID



Supplier TMS Process w/ RFID

1. Utilize the TMS process and...
 - Complete RFID field in the initial Ready To Ship screen
 - Attach RFID label to the THU shipping package
2. Ship specified quantity to LM Aero

TMS - Create THU screen

Input RFID 24 digit Tag Number here:
Tip: with cursor in RFID Field, use a bar code scanner to read the barcoded RFID tag, will populate RFID Tag field in TMS.

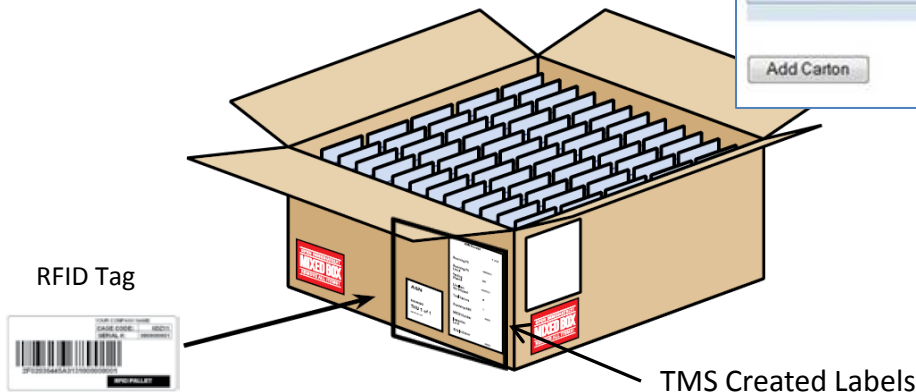
Ready To Ship
Create Transportation Handling Unit (THU)

Handling Unit Type*
NMFC Freight Class*
RFID Tag Number

Length* Width* Height* UOM*
Weight* UOM*
IN
LB

Dry Ice
Packaged with dry ice?

Add Carton



It's that easy!

Review/Next Steps

- Identified Requirement and Applicability
- What is needed/What to do
- Who can provide
- What it should cost
- How to Ship with RFID
- **Need an ECD for shipment with RFID**
 - Provide to Buyer or Aaron Dahnke

LM Aero POC Information

- Questions...

- Contact:

- your respective LM Aero Buyer or

- Aaron Dahnke

- 817-777-2994

- aaron.c.dahnke@lmco.com

- US Mail:

- LM Aeronautics

- P.O. Box 748

- Mailzone: 1440

- Fort Worth, TX 76101

- Attn: A. Dahnke

- FEDEX:

- LM Aeronautics

- 1 Lockheed Blvd

- Bldg: 15 MZ: 1440

- Fort Worth, TX 76108

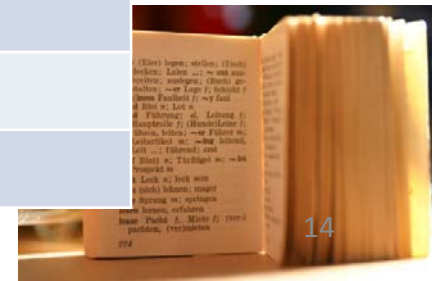
- Attn: A. Dahnke

BACKGROUND INFO

Acronyms



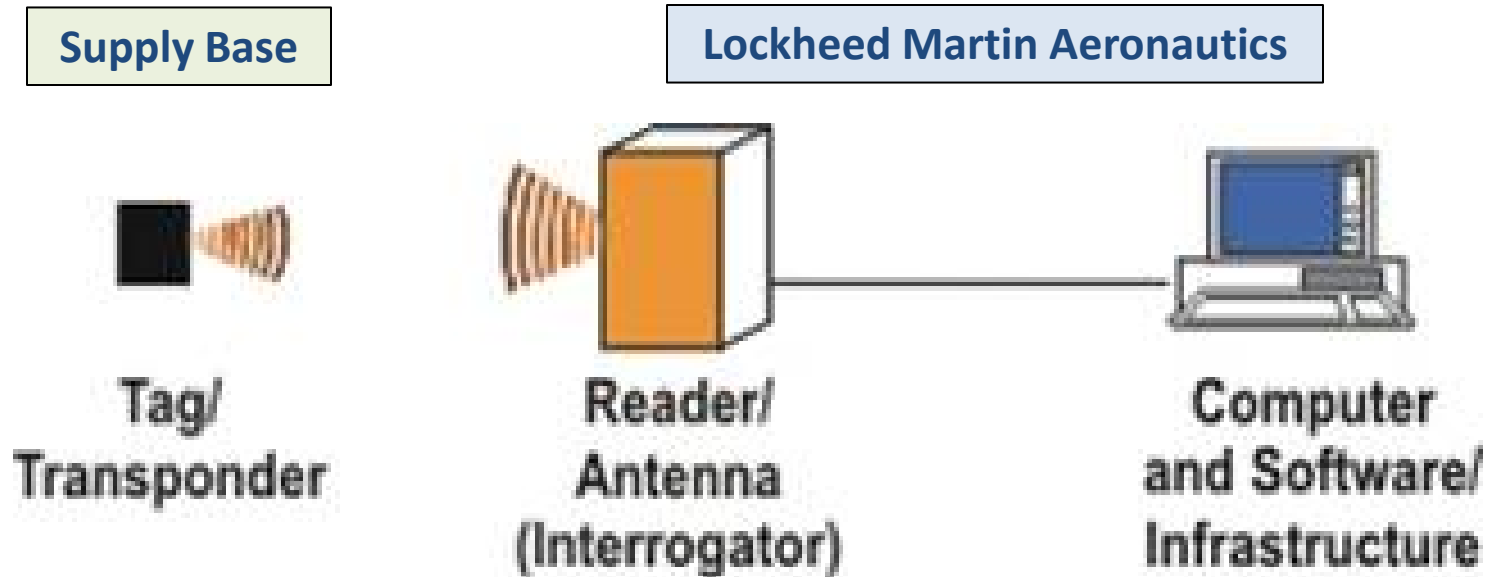
DoD	Department of Defense
EPC	Electronic Product Code
LM Aero	Lockheed Martin Aeronautics
LM	Lockheed Martin
PO	Purchase Order
POC	Point of Contact
RFID	Radio Frequency Identification
ID	Identification
THU	Transportation Handling Unit
TMS	Transportation Management System
PM5010	Lockheed Martin Packaging, Labeling, and Shipping Guidelines Document



Basic System - RFID

A basic RFID system consists of three components:

1. An antenna or coil
2. A transceiver (with decoder)
3. A transponder (RF tag) electronically programmed with unique information



RFID FAQ's

Q: Can multiple packages (i.e. THU) be sent under the same ASN?

A: **Yes.** The THU screen allows the user to assign multiple THU's to a single ASN. *An RFID label must be applied to each THU.* Each THU can be assigned a unique RFID label code in the RFID field on the THU screen.

Q: Is RFID part specific? Does each part or P/N need an RFID label?

A: **No. RFID is shipment specific. Labels are attached to the THU exterior packaging.**

Q: What is the timing to implement the RFID process?

A: LM expects the supplier to be at 100% compliant on TMS shipments 30 days from the Familiarization Session date or TMS onboarding date (2013/2014).

Q: What is the LM specification for RFID?

A: LM is following the DoD96 specifications and guidelines OR the EPC spec for RFID. A link will be provided with a copy of this presentation for the supplier to access.

Q: Will LM provide the names of suppliers for procuring RFID labels, hardware, etc...

A: LM will not endorse specific suppliers for RFID hardware, labels. Google search: "RFID labels DoD96" (search results will provide potential suppliers)

Q: Is RFID applicable to all LM Aero sites and programs?

A: *All TMS shipments to FWT and MAR are required to have RFID labels*

Q: Is IUID the same as RFID?

A: **No,** they are exclusive of each other.

Q: Is the LM RFID process different from the DoD WAWF?

A: LM's TMS system w/ RFID is the equivalent of the DoD WAWF in that both utilize RFID and ASN's.

FAQ's cont'd

Q: Additional LM Aero sites w/ RFID capability?

A: **None at this time. We will update the supply base as additional sites are added.**

Q: Are multiple packaging identifiers on labels (case, pallet, etc...) required when the supplier uses more than one of these methods to ship?

A: **No. Suppliers when using multiple types of packaging methods (i.e. cases, pallets, etc...)**

Pick one identifier from the pre-coded RFID label info (printed) and use that even if it doesn't match the physical shipment type.

Q: What information is required on the RFID label?

A: **Please refer to slides #7/8/9 for label content, example, and links to further information.**

Q: What size should the label be?

A: **There is no requirement for label size. Recommend 2x4 to 4x4**

Q: What is the EPC standard?

A:

- Field 1 - EPC Header identifier for DoD-96 is **2F**
- Field 2 - filter value (Case, pallet, etc...)
- Field3 - Cage code (Government Managed ID)
- Field4 - Serial number (This number is uniquely managed by each cage code holder; LM does not supply the SN it is the responsibility of the Cage Code owner to manage the uniqueness of the serial number. The Cage and serial number are combined to create a Globally unique ID.)

Q: What are the RFID label constructs?

A: <http://www.acq.osd.mil/log/sci/ait.html>

Tag construct must follow the DOD 96 bit or EPC encoding as follows:

DOD 96			
Header (8 bits)	Filter (4 bits)	CAGE Code as ASCII* (48 bits)	Serial Number (36 bits)

See pages 14 through 18 on the [DOD RFID Suppliers Guide \(v15\)](#) for specific guidance.

FAQ's Cont'd

Q: what is the relationship between PM5010 and MIL-129?

A: PM5010 outlines the requirement to use an RFID tag on a THU and other shipping/labeling instructions

MIL-129 is referenced in PM5010 as to where/how to place the RFID tag

- This is the reference to 129 in PM5010 Sec 8 - it references 129 for where to place the label (as of Feb '15 PM 5010 was modified to eliminate the ref to Mil 129 and explain where a label should be placed) – NEXT TO THE ASN Label.
- Seller shall ensure that the passive tag is affixed at the appropriate location on the specific level of packaging, in accordance with MIL-STD-129P tag placement specifications
- MIL-129P change 4 – page 69 and 70
- 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. This standard identifies recommended locations for the RFID-enabled address label and passive RFID tag placement.
- 4.9.2.1 Individual shipping container or palletized unit load. RFID-enabled address labels and/or 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.
- a. RFID-enabled address labels shall be applied to shipping containers or palletized unit loads per 4.3.2, including applicable sub-paragraphs.
 - (1) The RFID-enabled label should not be placed over a seam nor should sealing tape or bands be placed over the label in a manner that interferes with the scanning of the label bar codes or reading the transponder data.
 - (2) The RFID-enabled label should not be placed in a manner that overlaps any other existing RF transponder. There should be at least a 10 cm (4 in) separation.
 - (3) 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. To preclude inventory and receipt issues, the RFID tag attached to an exterior container must be linked to the contents of that specific container and not be linked to the contents of an entire palletized unit load.
- b. If RFID-enabled address labels are not used, then attach a separate passive RFID tag and a separate address label(s).
 - (1) Address labels should be affixed in accordance with the provisions of 4.3.2, including applicable sub-paragraphs.

Example Text

Supplier Info Text

Lockheed Martin Aeronautics Ft Worth and Marietta sites have implemented Radio Frequency Identification (RFID) technology to further automate the receiving process. This requirement is flowed to our suppliers through the PM-5010 document, version H or later, referenced in your PO documentation. At this point, our records indicate that your shipments do not include the proper RFID labeling. We are requesting that you review the following steps and comply with this requirement within the next 60 calendar days. Please provide confirmation back to the Buyer and Aaron Dahnke no later than xx/xx/xxxx.

A RFID label is required on all Transportation Management System (TMS) shipments to LM Aero Ft Worth and Marietta sites. You may choose to purchase pre-coded labels, for a nominal fee, or utilize a RFID capable printer. Simply, affix the RFID label to the exterior of the shipping package (i.e., box, pallet, crate, etc...) and input the 24 digit RFID serial number in TMS when creating the shipment.

For your convenience, the attached PPT (RFID_FAM_infopkg_xxxx.pptx) provides a few sources from which you may purchase RFID pre-coded labels, but you are not limited to these sources. Additionally, RFID familiarization sessions can be scheduled as necessary to assist with any questions or concerns. Individual company conference calls can be scheduled upon request for RFID Q&A due to confidentiality constraints. Contact Aaron Dahnke or (your name) for further information or scheduling. Aaron may be reached at (817) 777-2994 or aaron.c.dahnke@lmco.com.

Thank you.

PO Text

SHIPPING:

IF THIS IS A NORMAL PURCHASE ORDER, OR CONTRACT, WITH ONE OR MORE ITEMS TO BE SHIPPED, PM5010 - SUPPLIER SHIPPING INSTRUCTIONS, LATEST REVISION IS HEREBY INCORPORATED IN THIS PURCHASE ORDER, OR CONTRACT, BY REFERENCE AND APPLIES TO ALL ITEMS, OR WORK, SHIPPED EXCEPT THOSE ITEMS, OR WORK, IF ANY SPECIFIED FOR SHIPMENT ON DD250 IN ACCORDANCE WITH PM-801. PM5010 AND PM-801 MAY BE OBTAINED FROM BUYER'S WEBSITE: "HTTP://WWW.LOCKHEEDMARTIN.COM/AERONAUTICS/MATERIALMANAGEMENT" UNDER "SHIPPING INFORMATION"

Alternative Example

Compliance is Simple:

1. Acquire RFID Tags (information in link)

http://www.lockheedmartin.com/content/dam/lockheed/data/aero/documents/scm/shipping/shippinginstructions/RFID_InfoPkg.pdf

2. Enter RFID Tag value into TMS

TMS - Create THU screen

Input RFID 24 digit Tag Number here:
Tip: with cursor in RFID Field, use a bar code scanner to read the barcoded RFID tag, will populate RFID Tag field in TMS.

The screenshot shows the 'Create Transportation Handling Unit (THU)' screen in a TMS system. The interface includes the following elements:

- Ready To Ship** (tab)
- Create Transportation Handling Unit (THU)** (title)
- Handling Unit Type*** (dropdown menu)
- NMFC Freight Class*** (dropdown menu)
- RFID Tag Number** (text input field)
- Length***, **Width***, **Height*** (text input fields)
- UOM*** (dropdown menu, currently set to 'IN')
- Weight*** (text input field)
- UOM*** (dropdown menu, currently set to 'LB')
- Dry Ice** section with **Packaged with dry ice?** (checkbox)
- Add Carton** (button)

3. Affix RFID Tag to shipping package

