United States Marine Corps

AUTOMATIC IDENTIFICATION TECHNOLOGY

INTEGRATION PLAN

FOR

INSTALLATIONS AND LOGISTICS

December 2001

DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
2 NAVY ANNEX
WASHINGTON, DC 20380-1775

IN REPLY REFER TO:
4000
LPV
DEC 20 2001

From: Commandant of the Marine Corps
To: Commander, U.S. Marine Corps Forces Atlantic (G-4), 1468 Ingram St. Norfolk, VA 23551-2596
Commander, U.S. Marine Corps Forces Pacific (G-4), Camp H. M. Smith HI 96861-4139
Commander, Marine Forces Reserve (G-4), 4400 Dauphine St., New Orleans, LA @0146-5400
Commander, Marine Corps Materiel Command (M400), 814 Radford Blvd., Suite 20301, Albany, GA 31704-0301

Subj: U.S. MARINE CORPS AUTOMATIC INDENTIFICATION TECHNOLOGY (AIT) INTEGRATION PLAN

1. The U.S. Marine Corps seeks to integrate AIT into its logistics processes to support force readiness, in-transit visibility, warranty tracking, garrison property accountability, and other functional areas. This initial plan identifies actions to meet current supply and transportation objectives.

2. The use of the AIT within the CSSE/SE logistical domain will be based on requirements for accurate and timely data, process improvement, and enhanced warfighting capability. Improving a business process with the application of the AIT is not the same as reengineering the business processes to accommodate the full potential of the AIT.

3. The USMC AIT Integration Plan starts the roadmap to integrate existing and emerging AIT capabilities into the logistics business processes. This plan is a living document that will change to take real world requirements. This aggressive plan will be used to guide USMC efforts to fund and attain AIT objectives that will greatly enhance business processes and provide better service and in-transit visibility to deployed forces.

4. The point of contact at Headquarters Marine Corps (LPV) is Mr. Ricky Morton, DSN 225-6190, commercial (703) 695-6190, mortonrc@hqmc.usmc.mil.

G. S. McKISSOCK
DEPUTY COMMANDANT, INSTALLATIONS AND LOGISTICS

Contents

Chapter 1 Introduction 1-1

PURPOSE 1-1

BACKGROUND 1-1

Automatic Identification Technology 1-1

DoD Guidance 1-1

Marine Corps Guidance 1-3

VISION 1-4

PRINCIPLES 1-4

PLAN ORGANIZATION 1-4

SUMMARY 1-5

Chapter 2 AIT Media 2-1

MARINE CORPS AIT 2-1

Bar Codes 2-1

Marine Corps Bar Code Applications 2-2

Optical Memory Card 2-5

Radio Frequency Data Communications 2-6

Other Technologies 2-7

Smart Card 2-7

Contact Memory 2-8

Radio Frequency Identification 2-8

SUMMARY 2-10

Chapter 3 Integration 3-1

MARINE AIR-GROUND TASK FORCE DEPLOYMENT SUPPORT SYSTEM 3-1

CARGO MOVEMENT OPERATIONS SYSTEM 3-2

AUTOMATED MANIFEST SYSTEM-TACTICAL 3-2

ASSET TRACKING LOGISTICS AND SUPPLY SYSTEM II+ 3-2

STORAGE, RETRIEVAL, AUTOMATED, TRACKING INTEGRATED SYSTEM 3-3

SUMMARY 3-3

Chapter 4 Program Management 4-1
AIT MANAGEMENT STRUCTURE 4-1
DoD Logistics AIT Principals 4-1
DoD Logistics AIT Office 4-1
Deputy Commandant for Installations and Logistics HQMC 4-2
Marine Corps Systems Command 4-2
EXPANDING MARINE CORPS AIT CAPABILITIES 4-2
REQUIREMENTS AND FUNDING 4-3
LOGISTICS 4-3
Supply 4-4
Maintenance 4-4
Recycling OMCs 4-4
TRAINING 4-4
SAFETY 4-5
SUMMARY 4-5
Chapter 5 Other Considerations 5-1
AIT STANDARDS 5-1
BUSINESS PROCESS IMPROVEMENT 5-1
QUALITY ASSURANCE 5-2
Optical Memory Cards 5-2
Bar Codes 5-2
CONTRACTING REQUIREMENTS 5-3
INTRANSIT VISIBILITY DATA TIMELINESS 5-3
FREQUENCY APPROVAL 5-4
SUMMARY 5-4
Appendix A Implementing Actions
Appendix B Marine Air-Ground Task Force Deployment Support System II
Appendix C Cargo Movement Operations System
Appendix D Automated Manifest System - Tactical

Appendix E Asset Tracking Logistics and Supply System II+

Appendix F IT4 Nodes

Appendix G Recycling AIT Devices

Appendix H AIT Standards

Appendix I Frequency Approval

Appendix J Abbreviations

FIGURES

Figure 1-1. DoD AIT Guidance 1-2
Figure 1-2. AIT Integration Supports the Logistics Campaign Plan 1-3
Figure 1-3. Marine Corps AIT Principles 1-4
Figure 2-1. Linear Bar Code 2-2
Figure 2-2. Two-Dimensional Bar Code 2-2
Figure 2-3. Bar Code–Enabled Systems 2-3
Figure 2-4. Military Shipping Label 2-3
Figure 2-5. ATLASS II+ IRRD 2-4
Figure 2-6. MDSS II Label 2-5
Figure 2-7. Optical Memory Card 2-6
Figure 2-8. RFDC Capabilities 2-6
Figure 2-9. RFDC Hand Held Terminal 2-7
Figure 2-10. Common Assess Card 2-7
Figure 2-11 Contact Memory Button 2-8
Figure 2-12. RFID Tag 2-9
Figure 2-13. Satellite-Tracking Components 2-10
Figure 3-1. AIT Integration Objectives 3-1
Figure 5-1. Minimum Bar Code Quality Assurance Measures 5-3
Figure 5-2. DTR ITV Data Timeliness Criteria 5-4

Chapter 1
Introduction

PURPOSE

The Marine Corps is integrating automatic identification technology (AIT) into logistics business processes to facilitate the collection of initial source data, reduce processing times, improve accuracy, and enhance asset visibility. This plan, *U.S. Marine Corps Automatic Identification Technology Integration Plan for Installations and Logistics*, is a living document, providing overarching guidance and direction for implementing AIT in logistics business processes. It addresses AIT used by the Marine Corps to support logistics operations as well as other technologies used or evaluated by various Department of Defense (DoD) activities that may offer opportunities to improve support. Additionally, this plan discusses AIT integration into the logistics information technology infrastructure and the management of AIT, and assigns responsibility for key implementation actions.

BACKGROUND

This section briefly defines AIT and identifies the DoD and Marine Corps guidance upon which this plan is based.

Automatic Identification Technology

AIT encompasses several data storage media that capture asset identification information. These media (e.g., bar codes, optical memory cards [OMC], radio frequency identification [RFID], and smart cards) are interrogated by a variety of means, including physical contact, laser, and radio frequency. Information obtained from these interrogations is provided electronically to automated information systems (AISs) that support logistics operations. These AISs are the foundation of the Marine Corps' logistics business processes. AIT, combined with viable AISs, improves logistics business processes and the warfighting capability of Marine Corps' logistics forces.

DoD Guidance

In January 1997, the Deputy Under Secretary of Defense (Logistics) (DUSD[L]) established an AIT Task Force.[1] This task force subsequently became the

[1] Memorandum, Deputy Under Secretary of Defense (Logistics), Subject: Automatic Identification Technology (AIT) Task Force, 7 January 1997.

AIT Integrated Process Team (IPT), with an AIT principals group to guide its efforts. The Deputy Director Logistics Plans, Policies, and Strategic Mobility Division (code LP) is a member of this principals group, and its Logistics Vision and Strategy Center (code LPV) provides representation to the IPT. These groups have established an integrated approach to developing and using AIT within the DoD logistics community and to coordinate its continued development. They prepared the two significant policy documents discussed in the following sections.

CONCEPT OF OPERATIONS

The initial task of the AIT Task Force was to develop the *Logistics Automatic Identification Technology Concept of Operations*[2] (CONOPS). It is the basis for DoD logistics AIT policy. The CONOPS envisions AIT as a "toolbox" providing:

> …the proper mix of technologies that allows users to efficiently and effectively capture, aggregate, and transfer data and information, and integrate with logistics AISs using the optimum technology for their particular application. AIT will facilitate data collection and flow to all AISs to better achieve full total asset visibility, enhance and streamline business processes and warfighting capability.[3]

The CONOPS provided three overarching principles,[4] which are listed in Figure 1-1, to guide the use of AIT.

Figure 1-1. DoD AIT Guidance

- practicable. AIT should maximize the use of pre-positioned data and minimize the level of human intervention to collect and transfer data to AISs.
- tics functions (supply, distribution, maintenance, and transportation) and commercial distribution business processes that support the DoD logistics pipeline.
- timely data, process improvement, and enhanced warfighting capability.

IMPLEMENTATION PLAN

The AIT Principals Group directed the development and execution of an operational prototype to validate the CONOPS. The prototype, which was based on support for the U.S. European Command, explored the operational benefits and costs of integrating AIT technology into logistics business practices. The lessons learned from the prototype influenced the preparation of the *Department of*

[2] Department of Defense, AIT Task Force, *Logistics Automatic Identification Technology Concept of Operations*, November 1997.

[3] Ibid., p. 1-5.

[4] Ibid., p. 1-4.

Defense Implementation Plan for Logistics Automatic Identification Technology,[5] which expands the scope of the CONOPS, providing overarching guidance and direction for implementing AIT in DoD logistics operations.

Marine Corps Guidance

This integration plan supports the *United States Marine Corps Logistics Campaign Plan*.[6] The capabilities of AIT address the requirements of the campaign plan, as shown in the plan extract in Figure 1-2.

Figure 1-2. AIT Integration Supports the Logistics Campaign Plan

Goal 1. Enhance and develop capabilities, including *Sea-Based Logistics*, to support *Operational Maneuver from the Sea* and other operational concepts.

Objective 1.3—Improve Distribution

1.3.1 Develop and field AIT capabilities to support the identification and processing of materiel within the storage and distribution processes.

1.3.2 Achieve 100 percent automated visibility, access and redistribution of all classes of supply by January 2004.

1.3.3 Reduce average tactical and garrison retail Order Ship Time (OST) to no more than 24 hours on average by January 2005.

1.3.4 Reduce average tactical and garrison wholesale OST to no more than 24 hours on average by January 2005.

1.3.5 Participate in developing an effective, responsive, and seamless distribution system from source of supply via CINCTRANSCOM strategic lift, through the CINC's theater distribution system or Navy fleet logistics channels, into and including the forward deployed MAGTFs.

1.3.6 Reduce logistical footprint by having the right inventory at the right place at the right time, and tailoring inventory blocks to support deployments.

Objective 1.5—Develop Logistics Command and Control Capabilities

1.5.4 Develop and field an "Autonomic Logistics" capability that monitors and transmits critical weapon and support system information, to include essential location, diagnostics, and prognostic data, from battlefield to remote monitoring stations.

Notes: CINCTRANSCOM = Commander in Chief, U.S. Transportation Command; MAGTF = Marine Air-Ground Task Force.

Since its inception in 1984, the focal point for the Marine Corps logistics AIT was the Deputy Commandant for Installations and Logistics, Logistics Plans, Policies, Material, and Strategic Mobility Division. In June 1998, AIT program management responsibility transferred to the Marine Corps Systems Command (MARCORSYSCOM), while HQMC (Code LP) retained responsibility for policy and requirements.

[5] Ibid.

[6] United States Marine Corps, Deputy Commandant for Installations and Logistics, *United States Marine Corps Logistics Campaign Plan, 1* January 2000.

VISION

With minimal human intervention or affect on business processes, Logistics AIT in the Marine Corps will achieve an environment in which accurate and timely logistics data are automatically passed to information systems to achieve total asset visibility throughout the combat support process—from origin to destination and back.

PRINCIPLES

There are eight AIT principles to guide the integration of AIT into logistics business processes and attain the Marine Corps' AIT vision. These principles are provided in Figure 1-3. They are based upon the guidance provided in the *United States Marine Corps Logistics Campaign Plan,* and the principles and philosophies addressed in DoD's *Logistics Automatic Identification Technology Concept of Operations* and the *Department of Defense Implementation Plan for Logistics Automatic Identification Technology*.

Figure 1-3. Marine Corps AIT Principles

- Whenever possible, obtain data directly from the logistics AIS where source data resides.
- Base AIT decisions on specific user requirements for accurate and timely data, process improvement, and enhanced warfighting capability.
- Maximize the use of pre-positioned data and minimize human intervention when collecting and transferring data from AIT media to AISs.
- Apply the appropriate AIT medium or combination of media to each situation rather than advocating any single AIT medium.
- Use AIT media that support Marine Corps business processes and the AIT requirements of other data users in the DoD logistics chain.
- Select AIT media that are compatible throughout Marine Corps logistics functions (i.e., supply, distribution, maintenance, ammunition, medical, and transportation) and supporting commercial distribution business processes.
- Integrate AIT capabilities into deployable logistics AISs.
- Monitor emerging AIT innovations and integrate capabilities that improve support to the operational warfighter.

PLAN ORGANIZATION

The following chapters address AIT media, the integration of AIT into AISs, program management, and other considerations, and implementing actions are identified and responsibilities assigned. Appendix A summarizes these implementing actions. Other appendixes address AIT-enabled Marine Corps logistics AISs; Marine Corps nodes identified in the Joint Chiefs of Staff Information Technology for Deployment, Force Tracking, and Sustainment (IT4) Joint Warfighting

Capabilities Assessment (JWCA); AIT recycling procedures, standards, and frequency approval; and a list of acronyms.

SUMMARY

The *U.S. Marine Corps Automatic Identification Technology Integration Plan for Installations and Logistics* is a guide for planning and implementing logistics AIT support. Based on current DoD direction and guidance, it fully supports the *United States Marine Corps Logistics Campaign Plan*. This chapter establishes a Marine Corps AIT vision and identifies broad principles to guide the continuing implementation of AIT to support logistics business processes and improve support to the warfighter.

Chapter 2
AIT Media

This chapter addresses technologies used by the Marine Corps to support logistics operations as well as technologies currently used or being evaluated by various DoD activities. AIT encompasses a variety of data storage media that carry asset identification information. These media facilitate source data collection and transmission to AISs. Through the use of AIT, the Marine Corps can enhance its warfighting capability by reducing processing times and improving data accuracy. These advantages assist in meeting the critical and time-sensitive asset visibility requirements of deployment, redeployment, sustainment, and retrograde activities.

MARINE CORPS AIT

This section briefly describes the technologies routinely used by Marine Corps to support their logistics business processes.

Bar Codes

A bar code is a symbol that represents a group of characters. An electronic reader scans the symbol, decodes it, and transfers the data to an AIS. The Marine Corps uses bar codes to collect data about items moving within the logistics chain and then provides that data to AISs. DoD commonly uses two types of bar codes: linear and two-dimensional (2D). Linear bar codes have limited data storage capacity and rely on the existence and availability of an AIS database. 2D bar codes have greater data storage capacity and can transfer complete data records to AISs. These bar codes and some of their Marine Corps logistics applications are addressed below.

Linear Bar Codes

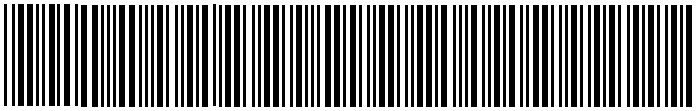
Linear bar codes are one-dimensional—the information is carried in only one direction (left-to-right)—and represent a limited group of characters. Linear bar code applications require an external database to support business processes. It is usually used to identify a data element (e.g., a document number or transportation control number [TCN]) that serves as an automated key to information prepositioned in an AIS database.

DoD selected the general purpose Code 39 bar codes as its first standard linear symbology. It is the principal DoD bar code and the only linear bar code used by the Marine Corps. The Defense Transportation Regulation (DTR) requires its use on all military shipping labels (MSLs) and MILSTRIP requires its use on all DD Form 1348, issue release receipt documents (IRRDs). Code 39 is a variable

length, alphanumeric symbology (i.e., it uses a set of 43 numeric, uppercase alphabetic, and special characters). Its effective capacity is about 20 characters. Figure 2-1 shows a Code 39 linear bar-coded TCN, accompanied by the human-readable data.

Figure 2-1. Linear Bar Code

SW31238013E221XXX

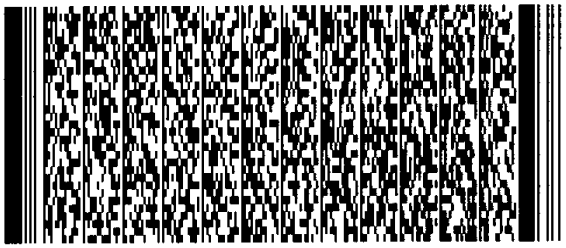


Two-Dimensional Bar Codes

Two-dimensional bar codes store data in two directions—left-to-right and top-to-bottom. They store significantly more data than linear bar codes and facilitate more complex applications. While most linear bar code applications require an external database to support business processes, 2D bar codes can function as a portable data file that travels with a shipment. They have error detection and can include error correction features. In other words, they can sustain considerable damage and still be read.

The portable data file (PDF) 417 is the most commonly used 2D bar code within DoD, and the only 2D bar code routinely used by the Marine Corps. Every PDF 417 symbol is composed of a stack of bar-coded rows, ranging from three rows to a maximum of 90. It can encode up to 1850 characters. The DTR requires its use on all MSLs for entry of Transportation Control Movement Document (TCMD) and/or supply data. In the near future, all DoD supply activities will be required to use 2D bar-coded IRRDs. Figure 2-2 shows a two-dimensional bar code.

Figure 2-2. Two-Dimensional Bar Code



Marine Corps Bar Code Applications

Bar codes are the principal Marine Corps AIT that supports logistics operations. They support force deployment, facilitate the Maritime Prepositioning Force (MPF) maintenance cycle, enhance traffic management receipt and distribution

processing, and supply and maintenance operations. Figure 2-3 lists the bar code–enabled logistics AISs, and the following paragraphs briefly describe some of their applications.

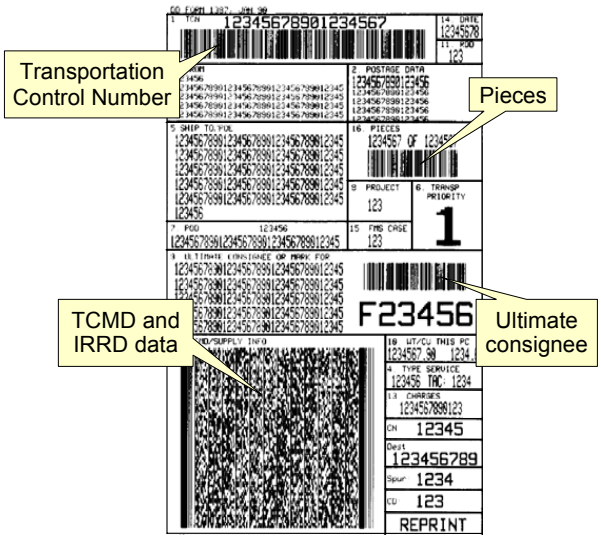
Figure 2-3. Bar Code–Enabled Systems

System	Linear Bar Code	2D Bar Code
• Marine Air-Ground Task Force Deployment Support System II (MDSS II)	X	X
• Automated Manifest System-Tactical (AMS-Tac)	X	X
• Storage, Retrieval, Automated, Tracking, Integrated System (STRATIS)	X	X
• Asset Tracking Logistics and Supply System II (ATLASS II+)	X	X
• Asset Tracking Logistics and Supply System (ATLASS)	X	
• Cargo Movement Operations System (CMOS)	X	X
• Warehouse Supply System (WSS)	X	

Traffic Management Offices Bar Code Applications

Traffic Management Offices (TMOs) use bar codes to support their business processes. The Automated Manifest System-Tactical (AMS-Tac) supports receipt processing of cargo and its disposition to the ultimate consignee. AMS-Tac utilizes both linear and 2D bar codes as well as the optical memory card (OMC), which is discussed in the next section. Receiving personnel use military shipping label (Figure 2-4) and DD 1348-1A codes bar to create, update, and reconcile shipment receipts into the AMS-Tac database.

Figure 2-4. Military Shipping Label

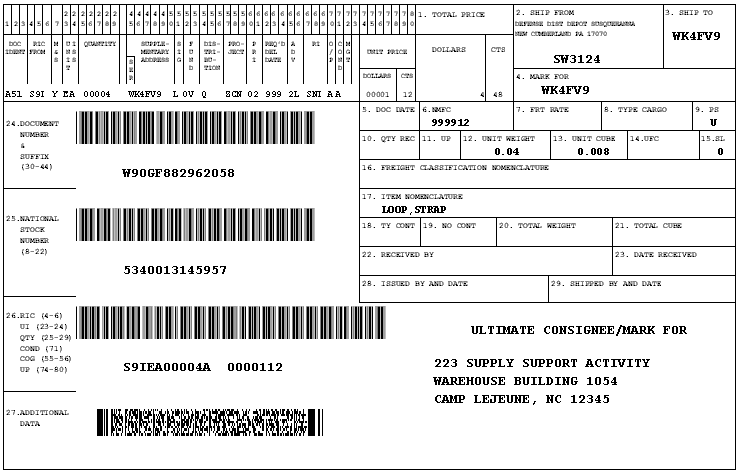


AMS-Tac also provides an electronic signature capability that documents the ultimate consignee receipt of the shipment by reading the bar codes on military

identification cards. AMS-Tac rapid deployable units equipped with AIT are currently being fielded to selected shipping and receiving platoons to automate their operations.

TMOs use the Cargo Movement Operations System (CMOS) to manage outbound shipments. The CMOS prepares MSLs with both linear and 2D bar codes, and it can also read/write OMCs. Another effort is to bridge the gap between the Marine Corps Supply Systems Supported Activities Supply System (SASSY), Asset Tracking Logistics and Supply System II+ (ATLASS II+), and Retail Ordnance Logistics Management System (ROLMS), and CMOS. These systems will generate shipment requests through bar coded Issue Release Receipt Document (IRRD) data, as shown in Figure 2-5. The data will then be prepositioned into CMOS' shipment planning module. Once the box arrives at TMO for shipping, the linear and/or 2D bar codes are scanned so that the box can be matched to the prepositioned data. If there is no match, then the IRRD data is automatically populated to the CMOS database to establish a shipment record, reducing manual data entry and ensuring essentially error free data transfer. The ATLASS II+/STRATIS interface is being tested within MARCORSYSCOM's Shared Data Environment Proof of Concept.

Figure 2-5. ATLASS II+ IRRD



Maritime Pre-Positioning Force Maintenance Cycle

Bar codes are used daily during MPF maintenance cycle (MMC) operations. Each piece of equipment is identified by a Marine Air-Ground Task Force Deployment Support System II (MDSS II) label similar to the one shown in Figure 2-6.

Figure 2-6. MDSS II Label

During the maintenance cycle, each old label is removed and a new one attached, clearly identifying that the label is current. The label is used to develop and maintain a complete database that shows all equipment and supplies being prepared for and loaded aboard each MPF vessel. The label also facilitates tracking by scanning the label bar codes on each item during the maintenance cycle, including back-load staging, and as each item is loaded aboard a ship.

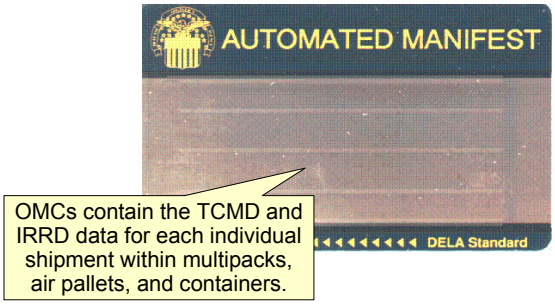
Optical Memory Card

An OMC uses the technology popularized by audio compact disks (CDs) and audio-visual CD-ROM (read only memory) products. The technology works on the principle of reflectivity. Data are etched to the card with a high-intensity laser and recovered by a low-power light beam. Most uses require a “write-once and read-many times” application. The OMC technology differs from bar code technology in that data are sequentially written to a card on several occasions until all available memory has been used.

OMCs provided by DLA support customer transportation and supply receipt processing. DLA distribution sites prepare OMCs upon customer request. The cards are currently used in conjunction with AMS-Tac at Marine Corps TMOs for receipt processing, and will support shipping and receiving platoon operations. The cards provide an individual shipment-level Transportation Control and Movement Document (TCMD) and IRRD data for consolidated shipments, and accompany multi-packs, air pallets, trucks, and seavan containers from DLA depots to customer receiving points where the cards support transportation in-check processing. The Cargo Movement Operations System, the AIS used by TMOs for outbound shipment processing, has the capability to read-and-write OMC cards. This will enable Marine Corps shippers to provide OMC cards to consignees who have the ability to read OMC cards either using AMS-Tac or CMOS. Figure 2-7 shows a sample OMC.

Request for OMC support for DLA shipments for Marine Corps AMS-Tac enabled supply and transportation activities should be submitted by the customer DoD Activity Address Code (DODAAC) through the Traffic Management Branch HQMC (Code LFT) to the Defense Logistics Agency (J333).

Figure 2-7. Optical Memory Card



Radio Frequency Data Communications

Radio frequency data communications (RFDC) is an AIT-enabling technology rather than an AIT medium. It is a means for transferring data in real time among AISs and AIT media, such as linear and 2D bar codes. In the absence of a hard-wired local area network (LAN), RFDC provides a wireless LAN that enables operators to access and update AIS databases remotely with two-way radio communications. Figure 2-8 lists the RFDC capabilities provided to logisticians.

Figure 2-8. RFDC Capabilities

- Collects and passes data from AIT media and update an AIS database.
- Extracts data from an AIS database remotely and applies the data to a bar code, OMC card, RFID tag, or other AIT medium.
- Eliminates batch downloading of data collected and stored in a portable HHT.
- Extracts data from an AIS database, views the data on a handheld terminal screen, and uses the information to support business processes.
- Reduces dependence on manual processing and printed documents.

RFDC is especially valuable to the Marine Corps because it allows remote, real-time interface between AIT devices and supported Marine Corps logistics AISs (MDSS II, AMS-Tac, and ATLASS II+) using the handheld terminals (HHTs) shown in Figure 2-9. In the near future, CMOS HHTs will be upgraded to a similar family of scanners. As discussed in detail later, RFDC is currently prohibited from use near certain munitions because it is not HERO (hazards of electromagnetic radiation to ordinance) compliant. Manufacturers are currently working these problems and certified, compliant equipment should soon be available to the ammunition community.

Figure 2-9. RFDC Hand Held Terminal

Other Technologies

The AIT industry is dynamic; hundreds of companies are developing new technologies or refining and designing new applications for current technologies. Many offer capabilities to better support Marine Corps logistics operations. The HQMC Logistics Systems Requirements Team (Code LPC-5) and MARCORSYSCOM monitor these activities and participate in various DoD activities that access new technologies and applications. This section briefly describes some AIT media used or being evaluated by DoD.

Smart Card

These cards have an integrated circuit chip containing a microprocessor capable of read, write, and calculate functions. The embedded microprocessor has 8–64 bits of stored memory. The smart card may also contain one or more other storage methods (e.g., magnetic strip, bar code, digitized photo, and printed information) for information related to the cardholder. The most notable DoD application is the Common Access Card (CAC) shown in
Figure 2-10, which will serve as the military and DoD civilian identification card, physical access, logical access, and public key infrastructure authentication token.

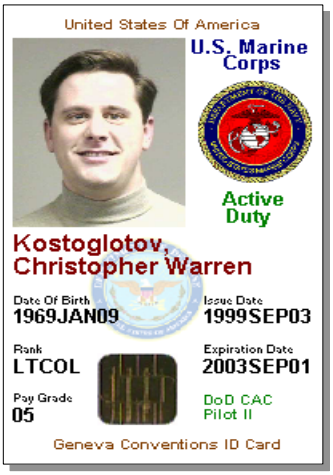


Figure 2-10. Common Assess Card

Contact Memory

Contact memory technology is based on a contact memory button—a very small, fast, read-write data storage device, impervious in most harsh operating environments—with capacities from 128 to 32,000 bytes. Analogous to small, "ruggedized" computer diskettes, contact memory buttons (shown in Figure 2-11) are capable of storing any digital data, including text, graphics, sounds, and color photographs. The button does not require a battery to retain its memory and has a life expectancy of 100 years or 1 million read-write cycles. Buttons work with portable button readers or serial links that provide interfaces with personal computers. Touching a reader-writer to the button accesses the chip's memory. Memory button tags are similar to RFID transponders in that they are completely sealed and do not have exposed contacts to transmit data. They are extremely resistant to temperature extremes and environmental hazards (e.g., electromagnetic interference, electromagnetic pulse, radiation, and corrosive atmospheres).

Contact memory technology can be used interchangeably with bar code media, interfaced with RFDC, and considered a low-cost alternative to the RFID tag offering additional features, such as larger memory capacity and faster data transfer rates. They are especially useful in applications where space is limited; however, they cannot be read remotely.

Figure 2-11
Contact Memory Button

The Navy currently uses these devices for maintaining maintenance records on aviation components, calibration data on electronic components, and helicopter logbooks and technical manuals with the aircraft. Other Services are evaluating the technology to support maintenance programs and marking of sensitive items.

Radio Frequency Identification

Radio frequency identification technology provides operators a means to remotely identify, categorize, and locate materiel automatically within relatively short distances. Data are digitally stored on RFID transponder devices, such as tags or labels. Fixed or handheld interrogators (located a few inches to 300 feet from the transponder device) electronically retrieve data via electromagnetic energy (i.e., radio or microwave) and send the data to AISs. The technology is divided into two categories—passive and active—of data storage and retrieval systems.

PASSIVE RFID TECHNOLOGY

Passive RFID systems generally have a limited range and require line-of-sight interrogation of powerless, inexpensive, low-capacity transponder devices. Intelligent labels are based upon an ultra-thin, battery-less, RFID read-write transponder that is easily laminated between layers of paper or plastic. Readers capture and transfer the data embedded in the label to an AIS. Currently the labels are limited to 256 bytes of memory. They are ideally suited for identifying items quickly and accurately at close range.

ACTIVE RFID TECHNOLOGY

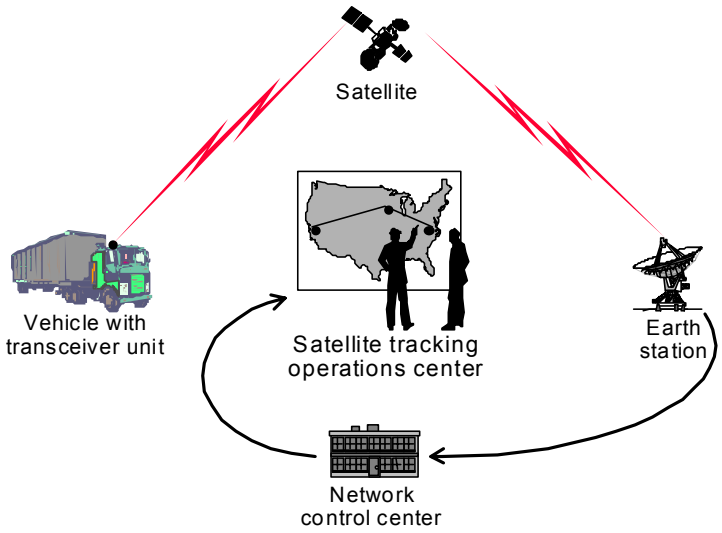
Active RFID systems are omnidirectional, can collect data at distances of 300 feet, and require moderately expensive, high-capacity battery operated transponder devices. The Army is the predominant user of RFID—tracking RFID tags carrying portable databases of TCMD and IRRD data on sustainment shipments and unit movement cargo. An RFID tag is shown in Figure 2-12.

Figure 2-12. RFID Tag

SATELLITE-TRACKING SYSTEMS

As shown in Figure 2-13, satellite-tracking systems provide near real-time tracking of vehicles, material, and convoys, and may offer digital communication for drivers. Typically, tracking systems require five components—a transceiver unit, satellite, earth station, network control center, and a military satellite-tracking operations center. A transceiver unit is installed on the vehicle or container being tracked. This unit exchanges data with an earth station via satellite communications. The earth station passes it to a network control center. These first four elements can be operated commercially. The military unit receiving the data establishes a satellite-tracking operations center. Its AIS accesses tracking data continuously, and monitors movement.

Figure 2-13. Satellite-Tracking Components



SUMMARY

This chapter provides an overview of a variety of AIT currently in use by the Marine Corps. It also addresses other AIT being used or being evaluated by DoD activities. Collectively, they provide a mix of AIT capabilities that may be applied to support logistics operations.

Chapter 3
Integration

The Marine Corps will employ logistics AIT to achieve an environment in which accurate and timely logistics data is automatically passed to AISs with minimal human intervention or effect on business processes. This will be achieved by effectively integrating AIT into the logistics information technology (IT) infrastructure during the next 3 years. The Marine Corps AIT integration objectives are listed in Figure 3-1.

Figure 3-1. AIT Integration Objectives

- Expand the existing bar code capability by fielding a 2D bar code read-and-write capability.
- Introduce RFDC capability into functional operations.
- Expand the existing optical memory card capability.
- Develop and field the capability to accept the common access card.
- Develop and field deployable AIT capability for deployable AISs.

AIT devices are non-developmental items managed as automated data processing peripheral equipment. Therefore, MARCORSYSCOM has primary responsibility for the integration of AIT into logistics AISs. However, the Commander of MARCORSYSCOM only performs this function for those AISs programs they manage. Program managers outside of MARCORSYSCOM are responsible for budgeting, implementing, and life-cycle management of AIT.

The following sections address the integration of AIT into the Marine Corps logistics IT infrastructure described in Appendixes B–E and assigns responsibility for implementing actions required to execute this plan.

MARINE AIR-GROUND TASK FORCE DEPLOYMENT SUPPORT SYSTEM

The MDSS II is a component system of the Marine Air-Ground Task Force War Planning System II and Logistics Automated Information System that aids planning for and supporting rapid force deployment anywhere in the world. Units equipped with MDSS II are identified in Appendix B. The MARCORSYSCOM has integrated linear and 2D bar code read-and-write capability, CAC, and RFDC at selected command and unit sites. A deployable transit case is also being procured for MDSS II systems.

CARGO MOVEMENT OPERATIONS SYSTEM

The Cargo Movement Operations System (CMOS) is an Air Force–developed client-server system that automates installation level traffic management. It is used at Marine Corps TMOs identified in Appendix C to manage outbound shipping. CMOS has both linear and 2D bar code capability, as well as the capability to read/write OMCs. The Air Force is developing RFDC and RFID tag read-and-write capabilities. HQMC (Code LFT) currently manages CMOS; however, in January 2002 MARCORSYSCOM will take over as the Marine Corps program manager, with HQMC LFT assuming the Marine Corps functional advocate role for CMOS.

- *Action 3-1:* HQMC (Code LFT), in coordination with the Air Force CMOS program manager, will integrate RFDC at traffic management office CMOS sites.

AUTOMATED MANIFEST SYSTEM-TACTICAL

The AMS-Tac is a Marine Corps TMO system that utilizes laser-readable optical memory cards in place of, or in addition to, paper packing list on consolidated shipments, such as multipacks, air pallets and containers. AMS-Tac is used at the TMOs to facilitate transportation receipt and distribution and will become the AIS of the shipping and receiving platoons in logistics units. Organizations equipped with AMS-Tac are identified in Appendix D. Linear and 2D bar code capability and RFDC have been integrated into AMS-Tac.

- *Action 3-2:* MARCORSYSCOM will procure AIT-enabled AMS-Tac rapid deployable units for selected shipping and receiving platoons or similar organizations.

ASSET TRACKING LOGISTICS AND SUPPLY SYSTEM II+

The Asset Tracking Logistics and Supply System (ATLASS) is the legacy Marine Air-Ground Task Force (MAGTF) supply system, providing asset visibility of end items and commodities within warehouses. ATLASS has linear bar code capability and is fielded at Camp Pendleton and Camp Butler. ATLASS II+ replaces ATLASS and adds the integration of unit supply and shop-level maintenance functions and transitions to a full client-server and open-system architecture. ATLASS II+ provides linear and 2D bar code, and RFDC capability. Camp Lejeune units are equipped with ATLASS II+ and identified in Appendix E.

- *Action 3-3:* MARCORSYSCOM will integrate linear and 2D bar code read-and-write capability, OMC and RFDC at ATLASS II+ sites.

STORAGE, RETRIEVAL, AUTOMATED, TRACKING INTEGRATED SYSTEM

The Warehouse Supply System is a legacy warehouse management system at Camp Butler that provides a linear bar-coded IRRD capability. It is being replaced by the Storage, Retrieval, Automated, Tracking Integrated System (STRATIS), which has been implemented at Camp Lejeune and Camp Pendleton. STRATIS provides an additional 2D bar code capability.

- *Action 3-4:* MARCORSYSCOM will provide linear and 2D bar code read-and-write capability with STRATIS at Camp Butler.

SUMMARY

This chapter addresses the integration of AIT into the Marine Corps logistics IT infrastructure to achieve an environment where timely logistics data is automatically passed to AISs with minimal human intervention or effect on business processes. It also provides guidance and assigns responsibility for implementing actions necessary to fully integrate AIT into Marine Corps AISs.

Chapter 4
Program Management

Effective management is required to ensure responsive AIT support to the Marine Corps. This chapter describes the management of AIT, discusses important issues, and assigns responsibility for implementing actions required to execute this plan.

AIT MANAGEMENT STRUCTURE

Routine management of AIT equipment within the Marine Corps is decentralized. Responsibility usually resides with the unit or activity using the technology because AIT applications support the business process, and the AIT hardware and software are components of the supporting AIS.

The executive management structure for AIT that establishes policy, guidance and manages program implementation is described in the following paragraphs.

DoD Logistics AIT Principals

The oversight committee for the DoD Logistics AIT program is composed of senior representatives from Deputy Under Secretary of Defense for Logistics and Materiel Readiness (DUSD[L&MR]); Deputy Under Secretary of Defense for Advanced Technology (DUSD[AT]); Joint Staff, Logistics (J4); the Military Services; U.S. Transportation Command, DLA; Defense Information Systems Agency; and the Defense Advanced Research Project Agency. The Deputy Commandant for Installations and Logistics, HQMC, is an active member of this group, as well.

DoD Logistics AIT Office

In 1998 the Defense Logistics Agency was designated as the executive agent for managing the DoD Logistics AIT effort.[1] Subsequently, the DoD Logistics AIT Office was established.[2] This office operates as a joint organization that is administratively supported by DLA. Its mission is to promote, manage, coordinate, and document the application of DoD and Joint Logistics AIT doctrine, technologies, and processes.

---

[1] Memorandum, Director for Logistics, Joint Staff, and DUSD (L) (acting for the AIT principals), Subject: Lead Organization for Automatic Identification Technology, 26 September 1997.

[2] Memorandum, Director, Defense Logistics Agency, Subject: DoD Logistics Automatic Identification Technology Office Charter, 17 December 1998.

Deputy Commandant for Installations and Logistics HQMC

The Logistics Plans, Policies, and Strategic Mobility Division (Code LP) is the focal point for the Marine Corps logistics AIT program since its inception in 1984. HQMC (Code LP) was responsible for the requirements, acquisition, and program management of AIT. In June 1998, program management responsibilities were transferred to MARCORSYSCOM. HQMC (Code LP) retains policy responsibility, that is managed by its Logistics Vision and Strategy Center (Code LPV). They also coordinate Marine Corps support of DoD AIT programs to include participation in DoD Logistics AIT Integrated Process Team (IPT), DoD Logistics Common Access Card IPT, DoD Logistics AIT Standards Group.

Currently, the HQMC Traffic Management Branch (Code LFT) manages the CMOS program on behalf of the Marine Corps. Effective January 2002, program management responsibilities will transfer to MARCORSYSCOM PMIS (transportation team); HQMC LFT will assume the role of Marine Corps functional advocate for CMOS.

Marine Corps Systems Command

The MARCORSYSCOM has program management responsibility for the integration of AIT into logistics AISs to include AIT procurement, fielding, and initial training.

EXPANDING MARINE CORPS AIT CAPABILITIES

Although the focus of this plan is on the implementation of bar codes and OMCs, these media are not the only technologies used by DoD and commercial enterprise. The AIT industry is dynamic; hundreds of companies are developing new technologies, or refining and designing new applications for current technologies. The Marine Corps will stay abreast of new innovations in AIT and exploit technologies and applications that fulfill requirements for accurate and timely data, process improvement, and enhanced warfighting capability.

- *Action 4-1:* HQMC Logistics Vision and Strategy Center (Code LPV) will monitor military and commercial AIT applications and emerging technologies, including commercial satellite tracking, and inform the Marine Corps logistics IT community of potential uses.

- *Action 4-2:* MARCORSYSCOM will continue to exploit new applications of current AIT and new technologies, including smart cards, contact memory, and RFID.

REQUIREMENTS AND FUNDING

Because AIT hardware and software are components of the AISs they support, AIS program managers employing AIT will budget for life-cycle support for AIT to ensure uninterrupted operations. This support includes AIT hardware and software replacement, upgrade, and maintenance and enabling AIS modifications. Although MARCORSYSCOM has primary responsibility for logistics AIS budgeting, they only perform this function for the systems they manage. Program managers outside of COMMARCORSYSCOM are responsible for budgeting AIT for their systems. Funding AIT spare parts and expendables (e.g., printer label stock and ribbons) is a user's responsibility.

- *Action 4-3:* Logistics AIS program managers will budget for AIT life-cycle support.

While, HQMC (Code LFT) currently has the responsibility, but not a budget line, for supporting CMOS, they are currently working with MARCORSYSCOM PMIS to ensure continued funding for via the POM process for CMOS AIT hardware and software replacement, upgrade, and maintenance and enabling AIS modifications.

- *Action 4-4:* MARCORSYSCOM (PMIS) will establish AIT life cycle funding support for CMOS.

The unified commands have identified critical logistics nodes and associated IT resources, including AIT in the Information Technology for Deployment, Force Tracking and Sustainment (IT4) Joint Warfighting Capabilities Assessment (JWCA). Many of the critical nodes do not require permanent AIT support, but are identified as sites in need of deployable capability to meet contingency requirements. Once this assessment is complete, these critical nodes may become additional AIT integration requirements for AIS program managers. Appendix F identifies these nodes.

- *Action 4-5:* MARFORs will notify AIS program managers of additional AIT requirements created by the IT4 JWCA.

LOGISTICS

AIT devices are non-developmental items managed as automated data processing peripheral equipment. Deficiencies concerning the logistics support of AIT should be identified to MARCORSYSCOM, which notifies the DoD Logistics AIT Office or the Product Management Office for AIT (PM-AIT), of the Program Executive Office, Standard Army Management Information Systems. The following paragraphs address logistics support of AIT.

Supply

The PM-AIT provides the Marine Corps central product procurement and management services for AIT. Coordination and management of AIT spare parts and expendables (e.g., printer label stock and ribbons) are a user's responsibility. Expendables are available from the General Services Administration (GSA).

Maintenance

Units and activities perform limited maintenance in accordance with manufacturers' manuals, which is generally restricted to cleaning and battery replacements. Manufacturers and vendors perform warranty service and maintenance on hardware, firmware, and software that is beyond a user's capability.

Marine Corps AIT equipment is procured through the Marine Corps Regional Contracting Office, Northeast. Most equipment is under a 3-year warranty. Non-warranty maintenance of AIT equipment may be obtained through the Marine Corps Regional Contracting Office, Northeast, or from the GSA Schedule.

Recycling OMCs

OMCs are reusable. If not required for mission support, OMCs should be returned to the supporting DLA Defense Distribution Center activities listed in Appendix G.

TRAINING

Commanders, managers, supervisors, AIS system administrators, and operators must understand how to employ and operate AIT effectively. Most AIT use is associated with an organization's business processes and the supporting AISs. Systems administrators require the skills to manage and sustain AIT software and firmware as part of their AISs. Operators use AIT peripheral equipment. School, new equipment, and sustainment training associated with AIT will be addressed within the context of the supported business processes incorporated into existing or planned AIS training.

- *Action 4-6:* Logistics AIS program managers will coordinate with MARCORSYSCOM T&E to ensure a formal school/training environment is established.

Attrition and personnel rotations make sustainment training important to the continued operation of AIT. After AIT is fielded, new equipment training is completed, and personnel are experienced, the repetitive use of AIT reduces sustainment training to orientation and supervision of new personnel. However, personnel not using AIT routinely will require sustainment training to support exercises and contingency operations.

- *Action 4-7:* Commanders of units and activities will conduct sustainment training to ensure uninterrupted mission support.

SAFETY

Many AIT equipment items are emitters of electromagnetic radiation and potential HERO risks. The radiation can cause premature actuation of sensitive, electrically initiated explosive elements associated with munitions. Although munitions are well shielded, AIT must be tested to identify hazards and may be prohibited or limited for use near munitions. The operation of non-HERO-compliant AIT is prohibited in the vicinity of munitions. Currently all RFDC devices are prohibited from use near munitions.

- *Action 4-8:* Logistics AIS program managers will obtain HERO certification for equipment procured by PM-AIT that is identified for use in a HERO environment.

- *Action 4-9:* Commanders of units and activities will prohibit the use of non-HERO-compliant AIT devices near ammunition.

SUMMARY

Strong management of AIT at all levels is imperative to properly support logistics operations. This chapter describes the management of logistics AIT in the Marine Corps and its active participation in DoD AIT development, interoperability, and standardization efforts. It also provides guidance and assigns responsibility for implementing actions that are necessary to effectively support requirements for AIT.

Chapter 5
Other Considerations

Other actions and issues that will affect the Marine Corps' ability to effectively employ AIT are addressed in the following paragraphs.

AIT STANDARDS

In 1994, the U.S. Office of Management and Budget directed government agencies to use commercial AIT standards. National and international activities that develop and coordinate these standards operate in a dynamic environment in which standards change in response to new technologies, applications, and industry requirements. The DoD Logistics AIT Office has the responsibility to coordinate AIT standardization issues. It also monitors changes in commercial standards and recommends DoD action. DoD has adopted several AIT commercial standards and will continue to align DoD AIT with common commercial practices. They are being integrated into Military Standard (MILSTD) 129 and the Defense Transportation Regulation (DTR) as appropriate. DoD AIT standards are identified in Appendix H.

- *Action 5-1:* Logistics AIS program managers will comply with DoD AIT standards.

BUSINESS PROCESS IMPROVEMENT

The introduction of AIT to support a business process without reengineering of underlying processes might limit the potential benefits as noted in the DoD Logistics AIT Implementation Plan:

> Merely overlaying AIT on business processes may provide little significant improvement. Because AIT provides capabilities not previously available to logistics managers, it offers operators and supporting AIS program managers an opportunity to reexamine and redesign their business process.[1]

This plan directs that business process improvement be a major consideration in identifying requirements for AIT. Although other considerations—such as improved accuracy and data timeliness also drive AIT requirements, opportunities for business process improvement must be examined.

[1] Department of Defense, DUSD (L), *Department of Defense Implementation Plan for Logistics Automatic Identification Technology*, March 2000, p. 5-1.

Ideally, Program Managers should follow the recommendation of the Logistics AIT CONOPS to "undertake a detailed analysis of their business process before purchasing and using the devices."[2] Although such analysis is not always possible at AIT acquisition, we should always seek opportunities to reengineer business processes.

- *Action 5-2:* Logistics and Contracting AIS program managers will aggressively seek and exploit opportunities for business process improvement and reengineering based on the integration of AIT.

QUALITY ASSURANCE

Quality assurance of the preparation and use of AIT media and devices is paramount if they are to accomplish their intended purpose of enhancing business processes of en route and destination activities. Bar codes and OMC data must be correct, complete, properly formatted, and effectively transferred to the AIS that requires the data. The following paragraphs address quality assurance for these AIT devices.

Optical Memory Cards

OMCs provide data to support destination receipt processing. As with bar codes, OMC quality assurance must focus on the needs of the AISs that support these business processes. OMC data must be correct, complete, and effectively transferred to the AIS that requires the data.

The process of loading data on OMCs is electronic and self-checking and accurately reflects the data aggregated in the AMS. Quality assurance programs should address periodic random physical reconciliation of the contents of consolidated shipments with the packing list to ensure completeness.

Bar Codes

Bar-code quality assurance is important at each node in the logistics chain. At origin, the readability of bar codes is affected by the print quality. Smears, poor contrast, improper label stock, incorrect ink, and poor printer adjustment can affect readability. DoD accepts the American National Standards Institute (ANSI) X3.182, Bar Code Print Quality Guidelines, and recommends compliance with the Department of Defense Logistics Handbook for Product and Shipping Label Quality Assurance, which is available at http://www.dodait.com.

As a minimum, units and activities will take the steps in Figure 5-1 to enhance bar code operations.

[2] DoD, AIT Task Force, *Logistics Automatic Identification Technology Concept of Operations*, November 1997, p. 5-1.

Figure 5-1. Minimum Bar Code Quality Assurance Measures

- Train operators at all nodes to effectively use scanners.
- Do not obscure bar codes by covering them with other labels or by marking them with pens, pencils, or markers; and protect them from damage.
- Perform prescribed routine maintenance to printers—examine and adjust printers daily.
- Visually examine each bar code—ensure proper label format, label stock, clear printing, and good contrast.
- Frequently scan bar codes at origin to ensure they can be read. However, this does not guarantee the ANSI standards have been met and that the bar code is readable by downstream operators—who may be using different scanners, under different environmental conditions, on bar codes that are subject to en route wear and tear. Scanning should verify that bar codes can be read, proper data has been encoded, and the data corresponds to the human-readable data on the label. Examinations should also occur after label stock, ribbon, toner, or ink is changed; when maintenance is performed; and after major software changes.
- Periodically send bar codes samples to en route and destination users, requesting their scanning and feedback on the effectiveness of the bar codes.

CONTRACTING REQUIREMENTS

Efforts are underway to develop a Marine Corps standard contracting clause that would require all vendors to apply bar code technology on all DD Form 250s. This effort is being coordinated with the Marine Corps Material Command to ensure that AMS-Tac and ATLASS II+ will be able to read these labels.

- *Action 5-3:* HQMC LBC and MATCOM shall develop and implement policy guidance and contracting language to incorporate into Marine Corps contracts requiring the use of bar code technology on all DD Form 250s.

INTRANSIT VISIBILITY DATA TIMELINESS

Although AIT does not equate to intransit visibility (ITV), it enhances the data capture of Marine Corps AISs that are the conduits providing this data to the Global Transportation Network (GTN). The DoD Logistics AIT Implementation Plan establishes ITV data timeliness criteria. The Defense Transportation Regulation implemented this guidance as shown in Figure 5-2.[3]

[3] Defense Transportation Regulation, DTR 4500.9-R Part II, Cargo Movement Change 1, 202–206.

Figure 5-2. DTR ITV Data Timeliness Criteria

ITV data timeliness is a critical factor in the effective management of assets moving through the logistics pipeline, and the standards for ITV data capture timeliness directed by the Office of the Under Secretary of Defense for Acquisition and Technology are:

- Four hours for all ocean shipments.
- Two hours for all intratheater shipments and passenger movements (all modes).
- One hour for all unit and non-unit equipment shipments.
- One hour for all air shipments and passenger movements.

FREQUENCY APPROVAL

Several AIT devices are RF emitters. Therefore, to prevent electromagnetic interference, nations carefully control their use. Because not all nations use the same frequency ranges to support similar functions, frequency requirements of a device may vary. Many countries not only require approval for the use of frequencies; they also require approval for each type—by model number, site, and radius of radio transmission.

Frequency approval for an item is based upon national and international allocation tables and its interaction with other equipment already in use. Obtaining approval in the United States generally is not at problem. Outside the continental United States, however, requests—which must be submitted through the supported commander-in-chief—require close coordination and may encounter long delays. The process may involve two steps. First, to use radio frequencies in AIT devices, the program offices of equipment developers or procuring organizations must obtain a frequency allocation. Second, using activities must obtain a frequency assignment—that is, approval to use the device at a location. Appendix I provides additional guidance concerning the frequency approval process.

MARCORSYSCOM is the lead in coordinating frequency approval for logistics AIT supporting their AISs. Difficulties in obtaining frequency approval for AIT devices require immediate action. If frequency approval is denied for RFDC, batch processing will be the methodology used to ensure continuity of data collection operations.

SUMMARY

This chapter discusses issues that must be considered when developing or employing logistics AIT in the Marine Corps. It also provides guidance and assigns responsibility for implementing actions that are necessary to effectively support requirements for AIT.

Appendix A
Implementing Actions

This plan directs the integration of AIT into Marine Corps logistics business processes to facilitate collection of initial source data, reduce processing times, improve accuracy, and enhance asset visibility. This appendix summarizes those actions. Table A-1 presents the actions and identifies the lead organization for completing the actions. Two numbers identify each action. The first number represents the chapter; the second represents the sequence number (e.g., 3-1 refers to chapter 3 action 1).

Table A-1. Summary of Implementing Actions

Number	Action
Integration	
3-1	HQMC (Code LFT), in coordination with the Air Force CMOS program manager, will integrate RFDC at traffic management office CMOS sites.
3-2	MARCORSYSCOM will procure AIT enabled AMS-Tac rapid deployable units for selected shipping and receiving platoons or similar organizations.
3-3	MARCORSYSCOM will integrate linear and 2D bar code read-and-write capability, OMC and RFDC at ATLASS II+ sites.
3-4	MARCORSYSCOM will provide linear and 2D bar code read-and-write capability with STRATIS at Camp Butler.
Program Management	
4-1	HQMC Logistics Vision and Strategy Center (Code LPV) will monitor military and commercial AIT applications and emerging technologies including commercial satellite tracking and inform the Marine Corps logistics IT community of potential uses.
4-2	MARCORSYSCOM will continue to exploit new applications of current AIT and new technologies including smart cards, contact memory, and RFID.
4-3	Logistics AIS program managers will budget for AIT life cycle support.
4-4	MARCORSYSCOM (PMIS) will establish AIT life cycle funding support for CMOS.
4-5	MARFORs will notify AIS program managers of additional AIT requirements created by the IT4 JWCA.

Table A-1. Summary of Implementing Actions (Continued)

Number	Action
4-6	Logistics AIS program managers will coordinate with MARCORSYSCOM T&E to ensure that a formal school/training environment is established.
4-7	Commanders of units and activities will conduct sustainment training to ensure uninterrupted mission support.
4-8	Logistics AIS program manager will obtain HERO certification for equipment procured by PM-AIT that is identified for use in a HERO environment.
4-9	Commanders of units and activities will prohibit the use of non-HERO-compliant AIT devices near ammunition.
Program Management	
5-1	Logistics AIS program managers will comply with DoD AIT standards.
5-2	Logistics and Contracting AIS program managers will aggressively seek and exploit opportunities for business process improvement and reengineering based on the integration of AIT.
5-3	HQMC LBC and MATCOM shall develop and implement policy guidance and contracting language to incorporate into Marine Corps contracts requiring the use of bar code technology on all DD Form 250s.

Appendix B
Marine Air-Ground Task Force Deployment Support System II

The Marine Air-Ground Task Force Deployment Support System (MDSS II) aids planning for, and supports rapid force deployment of, forces anywhere in the world. Units equipped with MDSS II with AIT capabilities are identified in Table B-1.

Table B-1. MDSS II Sites

Table of equipment number	Unit name	Location
I MEF GCE		
N1012	H&SCO, HQBN, 1ST MARDIV	CAMP PENDLETON
N1019	H&SCO, 1ST RECONBN, 1ST MARDIV	CAMP PENDLETON
N1111	HQCO, INFREGT, 1ST MARDIV	CAMP PENDLETON
N1111	HQCO, INFREGT, 1ST MARDIV	29 PALMS
N1162	H&SCO, INFBN, INFREGT, 1ST MARDIV	CAMP PENDLETON
N1162	H&SCO, INFBN, INFREGT, 1ST MARDIV	29 PALMS
N1311	H&SCO, COMBAT ENGRBN, 1ST MARDIV	CAMP PENDLETON
N1511	H&SCO, 1ST TANK BN, 1ST MARDIV	29 PALMS
N1611	H&SCO, 3D AABN, 1ST MARDIV	CAMP PENDLETON
N1613	ASLT AMPHIBCO, 3D AABN, 1ST MARDIV	CAMP PENDLETON
N1751	H&SCO, 1ST RECONBN (LA), 1ST MARDIV	CAMP PENDLETON
N1771	H&SCO, 3D RECONBN (LA), 1ST MARDIV	29 PALMS
N2101	HQBTRY, ARTYREGT, 1ST MARDIV	CAMP PENDLETON
N2109	HQBTRY, ARTYBN(M198), ARTYREGT, 1ST MARDIV	CAMP PENDLETON
N2109	HQBTRY, ARTYBN(M198), ARTYREGT, 1ST MARDIV	29 PALMS
I MEF ACE		
N8611	MWHS, MAW	MIRAMAR
N8615	HQ, MACG, MAW (w/MTACS)	MIRAMAR
N8641	HQ, MACS-1 (REIN), MACG, MAW	YUMA
N8642	TAOC, MACS (REIN), MACG, MAW	YUMA
N8643	ATC, MACS (REIN), MACG, MAW	YUMA
N8644	EW/C, MACS (REIN), MACG, MAW	YUMA
N8651	HQ, MARINE WING COMM SQD, MACG, MAW	MIRAMAR
N8652	AIRFIELD DET, MWCS, MACG, MAW	29 PALMS
N8660	MASS, MACG, MAW	CAMP PENDLETON

Table B-1. MDSS II Sites (Continued)

Table of equipment number	Unit name	Location
N8692	HQ BTRY, LAADBN	CAMP PENDLETON
N8701	HQ, MARINE WING SUPPORT GROUP, MAW	MIRAMAR
N8702	MARINE WING SUPPORT SQUADRON (FW), MWSG	YUMA
N8702	MARINE WING SUPPORT SQUADRON (FW), MWSG	MIRAMAR
N8703	MARINE WING SUPPORT SQUADRON (RW), MWSG	CAMP PENDLETON
N8703	MARINE WING SUPPORT SQUADRON (RW), MWSG	29 PALMS
N8800	HQ MAG (FIXED WING)	MIRAMAR
N8800	HQ MAG (FIXED WING)	YUMA
N8900	HQ MAG (ROTARY WING)	MIRAMAR
N8900	HQ MAG (ROTARY WING)	CAMP PENDLETON
I MEF FSSG		
N3111	HQCO, H&SBN, 1ST FSSG (Includes AIT for CSSDs, MSSGs, BSSG, CSSG, and DSUs.)	CAMP PENDLETON
N3121	H&SCO, SUPBN, 1ST FSSG	CAMP PENDLETON
N3131	H&SCO, MAINTBN, 1ST FSSG	CAMP PENDLETON
N3151	H&SCO, ENGRSPTBN, 1ST FSSG	CAMP PENDLETON
N3171	H&SCO, MEDBN, 1ST FSSG	CAMP PENDLETON
N3181	H&SCO, DENTBN, 1ST FSSG	CAMP PENDLETON
N3191	H&SCO, SUPPORTBN, 1ST FSSG	CAMP PENDLETON
I MEF Other Units		
N4606	H&SCO 1ST SRI GROUP	CAMP PENDLETON
N4616	HQCO, INTELBN, I MEF	CAMP PENDLETON
N4618	FORCE RECONCO, 1ST SRI GROUP	CAMP PENDLETON
N4637	H&SCO, 1ST RADIOBN	KANEOHE
N4686	HQCO, COMMBN, 1ST SRI GROUP	CAMP PENDLETON
N4915	HQ, MARINE EXPEDITIONARY UNIT, I MEF	CAMP PENDLETON
II MEF GCE		
N1022	H&SCO, HQBN, 2D MARDIV	CAMP LEJEUNE
N1029	H&SCO, 2D RECONBN, 2D MARDIV	CAMP LEJEUNE
N1121	HQCO, INFREGT, 2D MARDIV	CAMP LEJEUNE
N1172	H&SCO, INFBN, INFREGT, 2D MARDIV	CAMP LEJEUNE
N1321	H&SCO, COMBAT ENGRBN, 2D MARDIV	CAMP LEJEUNE
N1521	H&SCO, 2D TANKBN, 2D MARDIV	CAMP LEJEUNE
N1621	H&SCO, 2D AABN, 2D MARDIV	CAMP LEJEUNE
N1761	H&SCO, 2D RECONBN(LA), 2D MARDIV	CAMP LEJEUNE
N2201	HQBTRY, ARTYREGT, 2D MARDIV	CAMP LEJEUNE
N2209	HQBTRY, ARTYBN(M198, ARTYREGT, 2D MARDIV	CAMP LEJEUNE

Table B-1. MDSS II Sites (Continued)

Table of equipment number	Unit name	Location
II MEF ACE		
N8611	MWHS, MAW	CHERRY POINT
N8615	HQ, MACG, MAW (w/MTACS)	CHERRY POINT
N8641	HQ, MACS-1 (REIN), MACG, MAW	CHERRY POINT
N8642	TAOC, MACS (REIN), MACG, MAW	CHERRY POINT
N8643	ATC, MACS (REIN), MACG, MAW	CHERRY POINT
N8644	EW/C, MACS (REIN), MACG, MAW	CHERRY POINT
N8651	HQ, MARINE WING COMM SQD, MACG, MAW	CHERRY POINT
N8652	AIRFIELD DET, MWCS, MACG, MAW	CHERRY POINT
N8660	MASS, MACG, MAW	CHERRY POINT
N8692	HQ BTRY, LAADBN	CHERRY POINT
N8701	HDQTRS, MARINE WING SUPPORT GROUP, MAW	CHERRY POINT
N8702	MARINE WING SUPPORT SQUADRON (FW), MWSG	BOGUE
N8702	MARINE WING SUPPORT SQUADRON (FW), MWSG	BEAUFORT
N8702	MARINE WING SUPPORT SQUADRON (FW), MWSG	CHERRY POINT
N8703	MARINE WING SUPPORT SQUADRON (RW), MWSG	NEW RIVER
N8800	HQ MAG (FIXED WING)	CHERRY POINT
N8800	HQ MAG (FIXED WING)	BEAUFORT
N8900	HQ MAG (ROTARY WING)	NEW RIVER
II MEF FSSG		
N3211	HQCO, H&SBN, 2DFSSG (Includes AIT for CSSDs, MSSGs, and DSUs.)	CAMP LEJEUNE
N3221	H&SCO, SUPBN, 2D FSSG	CAMP LEJEUNE
N3231	H&SCO, MAINTBN, 2D FSSG	CAMP LEJEUNE
N3251	H&SCO, ENGRSPTBN, 2D FSSG	CAMP LEJEUNE
N3271	H&SCO, MEDBN, 2D FSSG	CAMP LEJEUNE
N3281	H&SCO, DENTBN, 2D FSSG	CAMP LEJEUNE
N3291	H&SCO, SUPPORTBN, 2D FSSG	CAMP LEJEUNE
II MEF Other Units		
N4706	HQCO, 2D SRI GROUP	CAMP LEJEUNE
N4716	HQCO, INTELBN, II MEF	CAMP LEJEUNE
N4718	FORCE RECONCO, 2D SRI GROUP	CAMP LEJEUNE
N4737	H&SCO, RADIOBN, 2D SRI GROUP	CAMP LEJEUNE
N4786	HQCO, COMMBN, 2D SRI GROUP	CAMP LEJEUNE
N4916	HQ, MARINE EXPEDITIONARY UNIT, II MEF	CAMP LEJEUNE

Table B-1. MDSS II Sites (Continued)

Table of equipment number	Unit name	Location
III MEF GCE		
B1131	HQCO, INFREGT, 3D MARDIV (HI)	KANEOHE
B1182	H&SCO, INFBN, INFREGT, 3D MARDIV (HI)	KANEOHE
B2301	HQBTRY(DET), ARTYREGT, 3D MARDIV (HI)	KANEOHE
B2309	HQBTRY, ARTYBN(M198), ARTYREGT, 3D MD (HI)	KANEOHE
N1032	H&SCO(-), HQBN, 3D MARDIV	OKINAWA
N1039	H&SCO, 3D RECONBN, 3D MARDIV	OKINAWA
N1131	HQCO, INFREGT, 3D MARDIV	OKINAWA
N1182	H&SCO, INFBN, INFREGT, 3D MARDIV	OKINAWA
N1231	H&SCO, COMBAT ASLTBN, 3D MARDIV	OKINAWA
N2301	HQBTRY(-), ARTYREGT, 3D MARDIV	OKINAWA
N2309	HQBTRY, ARTYBN(M198), ARTYREGT, 3D MARDIV	OKINAWA
III MEF ACE		
N8611	MWHS, MAW	OKINAWA
N8615	HQ, MACG, MAW (w/MTACS)	OKINAWA
N8631	HQ, MACS, MACG, MAW	OKINAWA
N8632	TAOC, MACS, MACG, MAW	OKINAWA
N8633	ATC, MACS, MACG, MAW	OKINAWA
N8651	HQ, MARINE WING COMM SQD, MACG, MAW	OKINAWA
N8652	AIRFIELD DET, MWCS, MACG, MAW	OKINAWA
N8660	MASS. MACG, MAW	OKINAWA
N8686	1ST STINGER BTRY, MACG, MAW	OKINAWA
N8701	HDQTRS, MARINE WING SUPPORT GROUP, MAW	OKINAWA
N8702	MARINE WING SUPPORT SQUADRON (FW), MWSG	IWAKUNI
N8703	MARINE WING SUPPORT SQUADRON (RW), MWSG	OKINAWA
N8800	HQ MAG (FIXED WING)	IWAKUNI
N8900	HQ MAG (ROTARY WING)	OKINAWA
III MEF FSSG		
N3311	HQCO, H&SBN, 3D FSSG (includes AIT for CSSDs, MSSG, CSSG, and DSU)	OKINAWA
N3321	H&SCO, SUPBN, 3D FSSG	OKINAWA
N3331	H&SCO, MAINTBN, 3D FSSG	OKINAWA
N3351	H&SCO, ENGRSPTBN, 3D FSSG	OKINAWA
N3371	H&SCO, MEDBN, 3D FSSG	OKINAWA
N3381	H&SCO, DENTBN , 3D FSSG	OKINAWA
N3391	H&SCO, SUPPORTBN, 3D FSSG	OKINAWA

Table B-1. MDSS II Sites (Continued)

Table of equipment number	Unit name	Location
III MEF Other Units		
N4806	H&SCO, H&SBN, III MEF	OKINAWA
N4816	HQCO, INTELBN, III MEF	OKINAWA
N4886	HQCO, COMMBN, III MEF	OKINAWA
N4917	HQ, MARINE EXPEDITIONARY UNIT, III MEF	OKINAWA
MARFORRES GCE		
N1042	HQCO, HQBN, 4TH MARDIV	NEW ORLEANS, LA
N1141	HQCO, INFREGT, 4TH MARDIV	CA, MA, MO
N1192	H&SCO, INFBN, INFREGT, 4TH MARDIV	CA, IL, LA, MA, MI, MO, NY, OH, TX
N1341	H&SCO, COMBAT ENGRBN, 4TH MARDIV	BALTIMORE, MD
N1441	H&SCO, RECONBN, 4TH MARDIV	SAN ANTONIO, TX
N1541	H&SCO, 4TH TANKBN, 4TH MARDIV	SAN DIEGO, CA
N1581	H&SCO, 8TH TANKBN, 4TH MARDIV	ROCHESTER, NY
N1641	H&SCO, 4TH AABN, 4TH MARDIV	TAMPA, FL
N1781	H&SCO, 4TH RECONBN(LA), 4TH MARDIV	CAMP PENDLETON, CA
N2401	HQBTRY, ARTYREGT, 4TH MARDIV	FORT WORTH, TX
N2409	HQBTRY, ARTYBN, ARTREGT, 4TH MARDIV	AL, CA, PA, TX
MARFORRES ACE		
N4725	4TH FIIU	BUCKLEY ANGB, CO
N8611	MWHS-4	BELLE CHASSE LA
N8615	MTACS-48	FT SHERIDAN, IL
N8631	MACS-23	BUCKLEY ANGB, CO
N8632	MACS-23, TAOC DET	BUCKLEY ANGB, CO
N8632	MACS-23, EWC DET	CHEYENNE, WY
N8631	MACS-24	VIRGINIA BEACH, VA
N8632	MACS-24, TAOC DET	VIRGINIA BEACH, VA
N8633	MACS-24, ATC DET A	NAS FT WORTH, TX
N8633	MACS-24, ATC DET B	WILLOW GROVE, PA
N8651	MWCS-48	FT SHERIDAN, IL
N8651	MWCS-48, DET A	FT SHERIDAN, IL
N8651	MWCS-48, DET B	MCAS MIRAMAR, CA
N8660	MASS-6	CHICOPEE, MA
N8660	MASS-6, DET A	MCAS MIRAMAR, CA
N8696	4TH LAAD BN (HQ BTRY)	PASADENA, CA
N8696	4TH LAAD BN, H&S DET	NAS ATLANTA, GA
N8697	4TH LAAD BN, Battery A	PASADENA, CA
N8697	4TH LAAD BN, Battery B	NAS ATLANTA, GA
N8701	MWSG-47	MT CLEMENS, MI
N8702	MWSS-471 (-)	NAS FT WORTH, TX

Table B-1. MDSS II Sites (Continued)

Table of equipment number	Unit name	Location
N8702	MWSS-471, DET A	MINNEAPOLIS, MN
N8703	MWSS-471, DET B	GREEN BAY, WI
N8703	MWSS-472	NAS ATLANTA, GA
N8703	MWSS-472, DET A	WYOMING, PA
N8703	MWSS-472, DET B	MOUNT CLEMENS, MI
N8702	MWSS-473	MCAS MIRAMAR, CA
N8702	MWSS-473, DET B	MCAS MIRAMAR, CA
N8702	MWSS-474	WILLOW GROVE, PA
N8702	MWSS-474, DET A	JOHNSTON, PA
N8703	MWSS-474, DET B	CHICOPEE, MA
N8851	MAG-41	NAS FT WORTH, TX
N8851	MAG-42	NAS ATLANTA, GA
N8851	MAG-46	MCAS MIRAMAR, CA
N8851	MAG-49	WILLOW GROVE, PA
MARFORRES FSSG		
N3411	HQCO, H&SBN, 4TH FSSG	NEW ORLEANS, LA
N3421	H&SCO, SUPBN, 4TH FSSG	NEWPORT NEWS, VA
N3431	H&SCO, MAINTBN, 4TH FSSG	CHARLOTTE, NC
N3441	H&SCO, LDGSPTBN, 4TH FSSG	FT LEWIS, WA
N3451	H&SCO, ENGRSPTBN, 4TH FSSG	PORTLAND, OR
N3461	H&SCO, MTBN, 4TH FSSG	RED BANK, NJ
N3471	H&SCO, MEDBN, 4TH FSSG	SAN DIEGO, CA
N3481	H&SCO, DENTBN, 4TH FSSG	MARIETTA, GA
MARFORRES Other Units		
M4623	3RD FORCE RECONCO	MOBILE, AL
M4623	4TH FORCE RECONCO	KANEOHE BAY, HI
M4960	HQ MARFORRES	NEW ORLEANS, LA
N4986	HQCO, COMMBN	BROOKLYN, NY
P4852	ANGLICO	LONG BEACH, CA
P4852	ANGLICO	WEST PALM BEACH CA

Appendix C
Cargo Movement Operations System

The Cargo Movement Operations System is an Air Force–developed client-server system that automates installation-level traffic management. HQMC Traffic Management Branch (Code LFT) currently manages CMOS. In January 2002, Marine Corps program management will transfer to MARCORSYSCOM (PMIS) with HQMC (LFT) retaining the functional advocate role. Marine Corps TMOs use CMOS for managing outbound shipments. Table C-1 lists the Marine Corps TMO sites equipped with CMOS.

Table C-1. CMOS Sites

Table of equipment number	Unit name	Location
7511	HQ&SPTBN, MCB	CAMP LEJEUNE, NC
7611	HQ&SPTBN, MCB	CAMP PENDLETON, CA
7800	HQ, MCB	CAMP BUTLER, OKINAWA
8475	H&HS, MCAS	YUMA, AZ
8485	H&HS, MCAS	BEAUFORT, SC
8365	H&HS, MCAS	MIRAMAR, CA
7700	MCB, MC AIR-GRND COMBAT CTR	TWENTYNINE PALMS, CA
7411	HQ, MCB, MCCDC	QUANTICO, VA
8451	H&HS, MCAS	IWKUNI, JAPAN

Appendix D
Automated Manifest System - Tactical

The Automated Manifest System-Tactical is a Defense Logistics Agency developed system that utilizes laser-readable optical memory cards in place of or in addition to paper packing list on consolidated shipments such as multipacks, air pallets and containers. MARCORSYSCOM (PMIS) is the Marine Corps program manager for AMS-TAC with HQMC (LFT) serving as the Marine Corps' functional advocate. AMS-Tac is used at Marine Corps TMOs to facilitate transportation receipt and distribution, and will become the AIS of the shipping and receiving platoons in logistics units. Linear and 2D bar code capability, OMC, and RFDC have been integrated into AMS-Tac at selected TMO sites.
Table D-1 lists the Marine Corps organizations being equipped with AMS-Tac for managing inbound shipments.

Table D-1. AMS-Tac Sites

Table of equipment number	Unit name	Location
4444	Blount Island Command	BLOUNT ISLAND, FL
5150	HQBN, HQMC	WASHINGTON, DC
7200	MCRD	SAN DIEGO, CA
7411	HQ, MCB, MCCDC	QUANTICO, VA
7511	HQ&SPTBN, MCB	CAMP LEJEUNE, NC
7611	HQ&SPTBN, MCB	CAMP PENDLETON, CA
7671	MOUNTAIN WARFARE TRNGCTR	BRIDGEPORT, CA
7700	MCB, MC AIR-GRND COMBAT CTR	TWENTYNINE PALMS, CA
7800	HQ, MCB	CAMP BUTLER, OKINAWA
7851	HQBN, MCB	KANEOHE, HI
8365	H&HS, MCAS	MIRAMAR, CA
8451	H&HS, MCAS	IWKUNI, JAPAN
8475	H&HS, MCAS	YUMA, AZ
8485	H&HS, MCAS	BEAUFORT, SC
M4960	HQ, MARFORRES	NEW ORLEANS, LA
N3194	BTO CO, 1ST FSSG (S&R PLT)	CAMPEN, CA
N3294	BTO CO, 2ND FSSG (S&R PLT)	CAMP LEJEUNE, NC
N3394	BTO CO, 3RD FSSG (S&R PLT)	OKINAWA
N3442	1ST BTO CO, 4TH LSB (S&R PLT)	SAN JOSE, CA
N3442	2ND BTO CO, 4TH LSB (S&R PLT)	SAVANNAH, GA
5060	MARINE CORPS TRAINING DETACHMENT	FORT EUSTIS, VA

Appendix E
Asset Tracking Logistics and Supply System II+

ATLASS II+ replaces ATLASS and adds the integration of unit supply and shop level maintenance functions and transitions to a full client-server and open-system architecture. ATLASS II+ also provides linear and 2D bar code, and RFDC capability. It is fielded at Camp Lejeune. Table E-1 lists the Marine Corps organizations equipped with ATLASS II+.

Table E-1. ATLASS II+ Sites

Table of equipment number	Unit name	Location
II MEF ACE		
N8611	MWHS, MAW	CHERRY POINT, NC
N8615	MTACS, MACG, MAW	CHERRY POINT, NC
N8641	HQ, MACS (REIN), MACG, MAW	CHERRY POINT, NC
N8651	HQ, MWCS	CHERRY POINT, NC
N8660	MASS, MACG, MAW	CHERRY POINT, NC
N8692	HQ BTRY, LAADBN	CHERRY POINT, NC
N8701	HQ, MARINE WING SUPPORT GROUP, (MWSG), MAW	CHERRY POINT, NC
N8702	MARINE WING SUPPORT SQUADRON (FW), MAW	BEAUFORT, SC
N8702	MARINE WING SUPPORT SQUADRON (FW), MAW	BOGUE, NC
N8702	MARINE WING SUPPORT SQUADRON (FW), MAW	CHERRY POINT, NC
N8703	MARINE WING SUPPORT SQUADRON (RW), MWSG,	NEW RIVER, NC
N8800	HQ MAG (FW), MAW	BEAUFORT, SC
N8800	HQ MAG (FW), MAW	CHERRY POINT, NC
N8900	HQ MAG (R/W), MAW	NEW RIVER, NC
II MEF CE		
M4958	CBIRF	INDIAN HEAD, MD
N4706	HQCO, II MHG	CAMP LEJUENE, NC
N4718	FORCE RECONCO, II MHG	CAMP LEJUENE, NC
N4737	H&SCO, RADIOBN, II MEF	CAMP LEJUENE, NC
N4786	HQCO, COMMBN, II MEF	CAMP LEJUENE, NC
N4916	HQ, MARINE EXPEDITIONARY UNIT, II MEF	CAMP LEJUENE, NC

Table E-1. ATLASS II+ Sites (Continued)

Table of equipment number	Unit name	Location
II MEF FSSG		
N3211	HQCO, H&SBN, 2D FSSG	CAMP LEJUENE, NC
N3221	H&SCO, SUPBN, 2D FSSG	CAMP LEJUENE, NC
N3231	H&SCO, MAINTBN, 2D FSSG	CAMP LEJUENE, NC
N3251	H&SCO, ENGRSPTBN, 2D FSSG	CAMP LEJUENE, NC
N3251	H&SCO, ENGRSPTBN, 2D FSSG	CAMP LEJUENE, NC
N3281	H&SCO, DENTBN, 2D FSSG	CAMP LEJUENE, NC
N3291	H&SCO, TSBN, 2D FSSG	CAMP LEJUENE, NC
II MEF GCE		
N1022	H&SCO, HQBN, 2D MARDIV	CAMP LEJUENE, NC
N1121	HQCO, INFREGT, 2D MARDIV	CAMP LEJUENE, NC
N1172	H&SCO, INFBN, INFREGT, 2D MARDIV	CAMP LEJUENE, NC
N1321	H&SCO, COMBAT ENGRBN, 2D MARRDIV	CAMP LEJUENE, NC
N1521	H&SCO, 2D TANK BN, 2D MARDIV	CAMP LEJUENE, NC
N1621	H&SCO, 2D AABN, 2D MARDIV	CAMP LEJUENE, NC
N1761	H&SCO, 2D (LA) RECONBN, 2D MARDIV	CAMP LEJUENE, NC
N2201	HQBTRY, ARTYREGT, 2D MARDIV	CAMP LEJUENE, NC
N2209	HQBTRY, ARTYBN, ARTYREGT, 2D MARDIV	CAMP LEJUENE, NC
BASE SUPPORT		
7511	HQ SPT BN	CAMP LEJUENE, NC
7520	WEAPONS TRAINING BN	CAMP LEJUENE, NC
7540	MC COMBAT ENGINEERING SCHOOL	CAMP LEJUENE, NC
7550	MCSERVSPTSCOL, H&SCO	CAMP LEJUENE, NC
7556	STAFF NCO ACADEMY	CAMP LEJUENE, NC
7561	SCHOOL OF INFANTRY	CAMP LEJUENE, NC
7580	RESERVE SUPPORT BN	CAMP LEJUENE, NC

Appendix F
IT4 Nodes

The Unified Commands have identified critical fixed and deployable logistics nodes and associated AISs and associated AIT in the Information Technology for Deployment, Force Tracking and Sustainment (IT4) Joint Warfighting Capabilities Assessment (JWCA). The Marine Corps nodes are identified in Table F-1.

Table F-1. CINC Nodal IT4 Requirements *

Node	Type	Priority	AOR	Type
Albany Marine Base, GA	Installation	A	JFCOM	Fixed
Barstow Marine Base, CA	Installation	A	JFCOM	Fixed
Camp Lejeune MCB, NC	Installation	A	JFCOM	Fixed
Camp Pendleton MCB, CA	Installation	A	JFCOM	Fixed
Twentynine Palms MCAGCC, CA	Installation	A	JFCOM	Deployable
Camp Courtney, Japan	Installation	B	PACOM	Fixed
Camp Elmore, VA	Installation	B	JFCOM	Fixed
Camp Foster, Japan	Installation	B	PACOM	Fixed
Camp Hansen, Japan	Installation	B	PACOM	Fixed
Camp Kinser, Japan	Installation	B	PACOM	Fixed
Camp Schwab, Japan	Installation	B	PACOM	Fixed
Camp Smith, HI	Installation	B	PACOM	Fixed
Yuma MCAS, AZ	Joint APOE/APOD	A	JFCOM	Deployable
Beaufort MCAS, SC	Military APOE/APOD	A	JFCOM	Fixed
Cherry Point MCAS, NC	Military APOE/APOD	A	JFCOM	Deployable
Futenma MCAS, Japan	Military APOE/APOD	A	PACOM	Fixed
Iwakuni MCAS, Japan	Military APOE/APOD	A	PACOM	Deployable
Kaneohe Bay MCB, HI	Military APOE/APOD	A	PACOM	Fixed
Miramar, CA	Military APOE/APOD	A	JFCOM	Fixed
New River MCAS, NC	Military APOE/APOD	A	JFCOM	Fixed
Tustin MCAS, CA	Military APOE/APOD	A	JFCOM	Fixed
El Toro MCAS, CA	Military APOE/APOD	C	JFCOM	Fixed
Blount Island MPF, FL	Military APOE/APOD	A	JFCOM	Fixed

* Changes should be forwarded to HQMC AIT POC.

Appendix G
Recycling AIT Devices

Optical memory cards are reusable AIT devices. If not required for mission support, they should be returned to DLA's Defense Distribution Center (DDC) activities. When returning OMCs to the DDC, they must be thoroughly cleaned in compliance with Department of Agriculture regulations and shipped to the appropriate address identified below:

- For units supported by Defense Distribution Depot Susquehanna Pennsylvania both mail and freight shipments should be addressed to:

  Defense Distribution Depot Susquehanna Pennsylvania
  Building 2001, Door 113-134
  Attn: DDSP-T
  2001 Mission Drive
  New Cumberland, PA 17070-5001

- For units supported by Defense Distribution Depot San Joaquin, California

  - mail shipments should be addressed to:

    Defense Distribution Depot San Joaquin California
    Attn: DDJC-TC, Warehouse 30
    PO Box 960001
    Stockton, CA 95296-0112

  - freight shipments should be addressed to:

    Defense Distribution Depot San Joaquin California
    Attn: DDJC-TC, Warehouse 30
    25600 South Chrisman Road
    Tracy, CA 95376

Appendix H
AIT Standards

This appendix addresses the DoD AIT standards identified in various DUSD (Logistics) memorandums and DoD AIT Office publications.[1, 2] These standards are identified below.

BAR CODES

Linear Bar Codes

DoD recognizes two linear bar codes as standard:

- **Automatic Identification Manufacturers' BC-1 (Code 39).** This bar code is the most commonly used linear bar code within DoD and the only linear bar code currently used for Marine Corps logistics applications.
- **Code 128.** This relatively new bar code is becoming increasingly popular with commercial users. It allows the encoding of more data in the same space. Although DoD accepts Code 128 as standard, there are currently no DoD applications.

Two-Dimensional Bar Codes

DoD recognizes three two-dimensional bar codes as standard:

- **Portable Data File (PDF) 417.** Currently the most commonly used 2D bar code media within DoD and the only high-density bar code currently used for Marine Corps logistics applications.
- **MaxiCode.** This bar code is a medium-capacity matrix symbol specially designed for the high-speed scanning application of package sorting and tracking. Although DoD accepts MaxiCode as the standard for logistics sorting applications, there are currently no DoD applications.
- **Data Matrix.** Data Matrix is a high-capacity matrix symbol popular for marking small items, such as integrated circuits, printed circuit boards,

[1] Department of Defense, DUSD(L), *Department of Defense Implementation Plan for Logistics Automatic Identification Technology*, March 2000, p. 6-3.

[2] Memorandum, Deputy Under Secretary of Defense (Logistics), Subject: Standard for Data Syntax and Semantics, and Symbols for Logistics Data Elements Used in Automatic Identification Technology, 6 October 2000.

and parts. A symbol can encode up to 2,000 characters. There are currently no DoD applications for data matrix, but it is being evaluated as the standard bar code for product marking of parts and components.

OPTICAL MEMORY CARD

The DoD recognizes the **Drexler European License Association (DELA)** format for OMCs.

BAR CODE PRINT QUALITY

The DoD recognizes the **ANSI X3.182, Bar Code Print Quality Guidelines**. Further information concerning print quality is available in the *Department of Defense Logistics Handbook for Product and Shipping Label Quality Assurance.*[3]

DATA IDENTIFIERS

The DoD recognizes **the American National Standards Institute (ANSI) MH10.8.2/ISO 15418, Data Application Identifier Standard** for data semantics. Data identifiers are a means to identify the purpose of a field of data. This standard does not provide commercial data identifiers for all required DoD data elements. The DoD AIT Office will adopt, standardize, and maintain a list of DoD-unique data identifiers to use with this standard.

DATA SYNTAX

The DoD recognizes the **ANSI MH10.8.3M, Unit Loads and Transport Packages—Two Dimensional Symbols** for data syntax. This standard provides the means by which multiple fields of data are assembled into shipping labels, packing list, bills of lading, shipping notices, and carrier sorting and tracking applications using two-dimensional symbols.

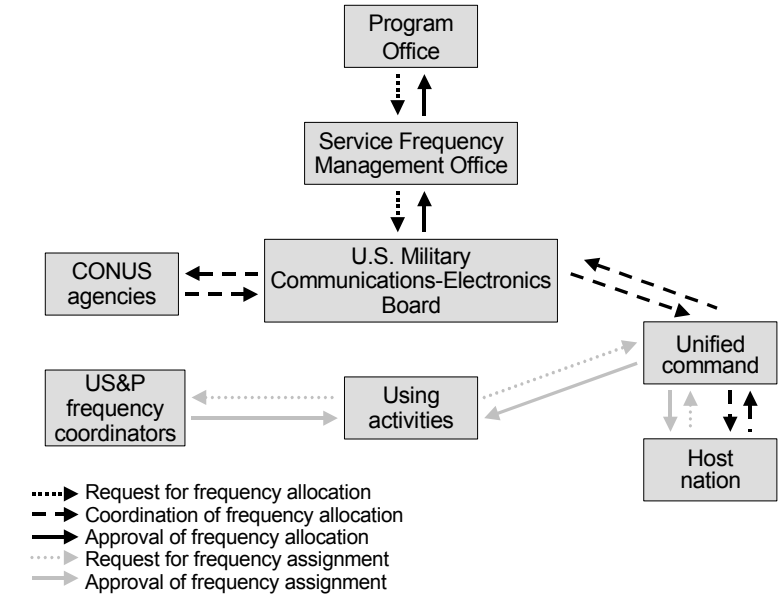
[3] Department of Defense Logistics Automatic Identification Office, *Department of Defense Logistics Handbook for Product and Shipping Label Quality Assurance*, Ft. Belvoir, VA, October 1999.

Appendix I
Frequency Approval

This appendix addresses the process for obtaining approval to use AIT devices that are RF emitters. The process is complex and requires close coordination. The process may involve two steps. First, to use radio frequencies in AIT devices, the program offices of equipment developers or procuring organizations must obtain a **frequency allocation**. Second, using activities must obtain a **frequency assignment** (i.e., approval to use the device at a location). The requirements are directed by DoD Directive 4650.1 (24 June 1987) and Chief of Naval Operations Instruction 2400.20E, *Navy Management of the Radio Frequency Spectrum*, 19 January 1989.

Figure I-1 presents an overview of the process for obtaining frequency allocation and assignment.

Figure I-1. Process for Obtaining Frequency Allocation and Assignment



Note: US&P = United States and possessions.

FREQUENCY ALLOCATION

An approved frequency allocation provides the frequency or frequency range of equipment being manufactured or procured. The Product Manager AIT (PM-AIT) of the Program Executive Office, Standard Army Management Information

Systems (PEO STAMIS) centrally manages frequency allocation for AIT equipment procured through their office.

Frequency allocation begins with the program manager's submission of an application for equipment frequency allocation (DD Form 1494) to the Navy's Electromagnetic Spectrum Center. This ensures the devices can operate in the proposed spectrum according to national and international tables of spectrum allocation and conforms to spectrum management regulations, directives, standards, and specifications. Therefore, requested frequencies for operating new equipment normally are selected from bands allocated to similar items. Developers may propose other frequency bands in extraordinary circumstances when supported by an operational, technical, or economic justification.

To ensure spectrum supportability, requests should be submitted as soon as RF bands are identified. The requests are updated for each stage of the system's life cycle, as well as when significant changes are planned in the device's electromagnetic radiating characteristics or operational use. The Electromagnetic Spectrum Center (with support of the Joint Spectrum Center) resolves technical issues, validates the application, assigns a distinctive J/F-12 number to the request (subsequently called a "J/F-12"), and forwards it to the U.S. Military Communications-Electronics Board (MCEB). The board staffs the J/F-12 with the National Telecommunications and Information Administration and affected spectrum managers.

If an AIT device will be used outside the United States and its possessions, a foreign version of the J/F-12 is prepared. The program manager coordinates the J/F-12 with commercial contractors to protect proprietary information, and coordinates with counterintelligence activities for classified devices. The J/F-12 is forwarded to the appropriate unified commands. Their frequency management field offices coordinate the application with host nations. The unified command's spectrum manager prepares theater comments and forwards them to the MCEB and the requesting military service's frequency management office.

The J-12 Working Group of the MCEB reviews all comments and proposes equipment frequency allocation guidance to the MCEB on the supportability of the device for operation on a frequency or band of frequencies. The MCEB issues this guidance (referred to as the J-12). Approval does not give operational authority; such authority is granted by frequency assignment.

RF communications, particularly when coupled with satellite-tracking capabilities, imply a requirement for increased bandwidth support. Satellite-tracking systems, which provide near-real-time location information, present a potential to change the way cargo and personnel movement operations are planned, controlled, and paid for. Acquisition of adequate bandwidth requires coordinated long-range planning. At each opportunity to apply AIT, a corollary consideration should be the need to adjust bandwidth requirements.

Frequency Assignment

Frequency assignment provides discrete frequency authorization to operate a device within its allocated frequency band at the location designated and within the constraints established by the assignment. Frequency assignment is primarily through the local spectrum manager. Assignment requests will not be granted without an approved J-12. The program manager initiates requests for developmental items as soon as the frequency allocation is obtained. Requests for operational or training use are prepared and submitted by using activities in accordance with military service and unified command guidance. A separate request is submitted for each device. The request identifies frequency, power, and operational locations.

In the United States and its possessions, requests are submitted to installation or area frequency coordinators designated by the Military Services. Other requests are submitted to the unified command's spectrum manager, who forwards the requests to the appropriate frequency management field offices for coordination with the host nation, as required, and approval.

Appendix J
Abbreviations

2D	Two-Dimensional
AIS	Automated Information System
AIT	Automatic Identification Technology
AMS-Tac	Automated Manifest System-Tactical
ANSI	American National Standards Institute
ATLASS	Asset Tracking Logistics and Supply System
ATLASS II	Asset Tracking Logistics and Supply System II
CAC	Common Access Card
CD	Compact Disk
CD-ROM	CD-Read-Only Memory
CINCTRANSCOM	Commander in Chief, U.S. Transportation Command
CMOS	Cargo Movement Operations System
Code LFT	Traffic Management Branch, HQMC
Code LP	Logistics Plans, Policies, and Strategic Mobility Division, HQMC
Code LPC	Logistics Capabilities Center, HQMC
Code LPC-5	Logistics Systems Requirements Team, HQMC
Code LPO	Logistics Operations and Sustainment Center, HQMC
Code LPV	Logistics Vision and Strategy Center, HQMC
CONOPS	Concept of Operations
DDC	Defense Distribution Center
DLA	Defense Logistics Agency
DoD	Department of Defense
DODAAC	DoD Activity Address Code
DTR	Defense Transportation Regulation
DUSD(AT)	Deputy Under Secretary (Advanced Technology)
DUSD(L&MR)	DUSD (Logistics and Material Readiness)
DUSD(L)	DUSD (Logistics)
GSA	General Services Administration

GTN	Global Transportation Network
HERO	Hazards of Electromagnetic Radiation to Ordnance
HHT	Hand-Held Terminal
HQMC	Headquarters, U.S. Marine Corps
IPT	Integrated Process Team
IRRD	Issue Release Receipt Document
IT	Information Technology
IT4	Information Technology for Deployment, Force Tracking and Sustainment
ITV	In-transit Visibility
J4	Joint Staff, Logistics
LAN	Local Area Network
MAGTF II/LOGAIS	Marine Air-Ground Task Force II/Logistics Automated Information System
MARCORSYSCOM	Marine Corps Systems Command
MDSS II	Marine Air-Ground Task Force Deployment Support System II
MILSTD	Military Standard
MMC	MPF Maintenance Cycle
MPF	Maritime Pre-Positioning Force
MSL	Military Shipping Label
OMC	Optical Memory Card
OST	Order Ship Time
PDF	Portable Data File
PM-AIT	Product Management Office for AIT
RFDC	Radio Frequency Data Communications
RFID	Radio Frequency Identification
STRATIS	Storage, Retrieval, Automated, Tracking, Integrated System
TCMD	Transportation Control and Movement Document
TCN	Transportation Control Number
TMO	Traffic Management Office
WSS	Warehouse Supply System