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***TRANSPORTATION COORDINATORS' – AUTOMATED  
INFORMATION FOR MOVEMENTS SYSTEM II (TC-AIMS II)***

***MILITARY SHIPPING LABEL (MSL) ASSESSMENT  
FOR AIT-V BAR CODE PRINTERS***

**TEST REPORT**

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Version1.0  
11 March 2016

## VERSION HISTORY

Version #	Implemented/Updated By	Revision Date	Approved By	Approval Date	Reason
1.0	Paul Toth LOGSA-Tobyhanna for AMIS PO	11 March 2016	Klaus B. Stroup Team Lead, AMIS Acquisition Support Team	11 March 2016	Added/Amended: Sections 1.0 Introduction, 1.1 Purpose, 1.2 Products Tested, 4.0 Test Artifacts.  2.0 Test Summary and 3.0 Assessment of Products to include printer salient characteristics and supporting photos, Added 5.0 Printer Technical Data Sheets.
7.0.2	James Moorer Exeter Information Technology Services, LLC	18 February 2016	Martin Andrews, Exeter Project Manager, TC-AIMS II	24 February 2016	Initial Release Doc. No AIMS-TRT-16 0002

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## **1.0 INTRODUCTION**

Based on a Memorandum of Agreement between Product Leader Automated Movement and Identification Solutions (PL AMIS) and Logistics Support Activity Packaging Storage Containerization Center (LOGSA PSCC), PSCC AIT Laboratory has provided acquisition and technical reimbursable support to the Automated Movement and Identification Solutions (AMIS) Product Office since 1999 in the arena of Automatic Identification Technologies (AIT) and both Active and Passive Radio Frequency Identification (aRFID, pRFID).

Per request from Mr. Jim Alexander, Product Lead AMIS, the PSCC AIT Team provided onsite technical support at AMIS subcontractor's facility, Exeter Information Technology Services, LLC, Manassas, VA. The focus of PSCC AIT Laboratory was to provide the equipment and technical oversight to support printer verification/validation tests for two stationary bar code label printers presently listed on the AMIS AIT-V contract. Testing was conducted 11-12 February, 2016.

## **1.1 PURPOSE**

The bar code label printer tests were required to validate the capability to connect the Automated Information for Movement System II (TC-AIMS II) Version 7.0.1.1 software for both standalone and Enterprise applications to enable printing of the military shipping labels (MSL) required in accordance with the Defense Travel Regulation Volumes II (Transportation) and III (Mobility) and FORSCOM Regulation 55-1 to account and track for equipment moving on the defense transportation network. This TC-AIMS II MSL Assessment for AIT-V Barcode Label Test Report provides a summary of the results of test performed as outlined within this document.

## **1.2 Products Tested**

Two stationary bar code label printers tested are manufactured by Zebra Technologies, Inc. and Honeywell International, Inc.

1. Zebra 105SL Plus
2. Intermec PD43

Both printers are available on the AMIS Automated Identification Technology V (AIT-V) contract at CLIN #0005BA

[<http://www.pdamis.army.mil/Contracts/aitv/aitv.html>]

**2.0 TEST SUMMARY**

**Barcode Printer Assessment:**

1. The Zebra 105SL Plus and Intermec PD43 printer were reset to factory settings and reconfigured to function with the TC-AIMS II application.
2. All steps to configure the printers were reviewed using the manufacturers' documentation.
3. Hardware - Dell 6530 and Dell 6520 laptops:
  - a. Zebra 105SL Plus - 40 labels printed.
  - b. Intermec PD43 – 40 labels printed.
4. Printers were tested in a closed network environment.
  - a. Result - Military Shipping Labels (MSLs) were successfully printed by each printer.
5. Printers were successfully networked with the v7.0.1.1 Production Enterprise.
  - a. Result - Military Shipping Labels (MSLs) were successfully printed by each printer.

**3.0 ASSESSMENT OF PRINTERS**

Items Tested	Zebra 105SL Plus	Intermec PD43
		
Labels	Printed 40, Continuous printing.	Printed 40, Capable of printing continuously.
Ink Quality	Print quality is good using the correct labels and ribbons.	Print quality is good using the correct labels and ribbons.
Configuration	Minimal to no configuration is needed. Successfully prints the TC-AIMS II ZPL labels.	Printer requires additional set-up. - The printer configuration has to be set to ZSIMs mode and

**MILITARY SHIPPING LABEL (MSL) ASSESSMENT FOR AIT-V BARCODE PRINTERS**

Items Tested	Zebra 105SL Plus	Intermec PD43
		
Build/Set-Up	Zebra implements two printer modes, ZPL and ZPL designer. These modes were successfully tested building the printer through the Wizard.	The printer build was successfully tested through the Wizard.
User Documentation	Included	Included
Ports	Serial, parallel and USB	Serial, parallel and USB
Size/weight	Height: 15.5" Width: 10.31" Depth: 20.38" Weight: 50 lbs.	Height (Std door): 9.8" Width: 8.3" Depth: 18.5" Weight: 18.5 lbs.
Stand Alone configuration and Print Capable	Yes	Yes
Network configuration and Print Capable	Yes	Yes
Recommendation for use*	Inter-Office (due to product size)	Inter-Office or Deploying Units
Recommendation for Printer Settings*	None	The Intermec PD43 should be factory set to ZSIM/USB prior to fielding

\* TC-AIMS systems use only

4.0 TEST ARTIFACTS:



PRINTED WITH INTERMEC PD43 (Shown above)

MILITARY SHIPPING LABEL (MSL) ASSESSMENT FOR AIT-V BARCODE PRINTERS

TCN				<b>AWAGGAA\$0D00090XX</b>			
							
Equipment Description <b>TRK CARGO 2 - 1/2 - TON</b>			Serial Number/Package ID <b>461210740052</b>				
Model <b>M35A2</b>		Bumper Num	ULN	UIC <b>WAGGAA</b>			
From <b>WAGGAA</b>			NSN <b>2320000771616</b>				
CAMP HOVE, TX			Length(in.) <b>265</b>	TAC <b>A222</b>			
Piece	<b>1</b>	Of	<b>1</b>	Weight(lb.) <b>13180</b>	Width(in.) <b>106</b>	Project <b>JCS</b>	
	Cube(ft.) <b>1837</b>	Height(in.) <b>113</b>	RDD <b>999</b>				
Ship To/POE <b>1P2</b>		WAGGAA WAGGAA WAGGAA WAGGAA					
POD <b>PN4</b>	MSL/TCMD/Unit Move Information 						
Commodity/SH <b>VZ</b>							
	Ultimate Consignee/Mark For Consignee <b>WAGGAA</b>						
							

PRINTED WITH HONEYWELL 105SL PLUS (Shown above)

## 5.0 PRINTER TECHNICAL DATA SHEETS



### PD43 & PD43c

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#### 4" LIGHT INDUSTRIAL THERMAL PRINTER

The PD43 and smaller PD43c family of light industrial thermal printers incorporate the latest printing innovations into a compact and affordable package. Ideal for tight spaces, shallow countertops, and pull-out cabinets, the PD series was designed to deliver no-compromise printing performance in the smallest possible footprint.

Suited for the distribution center and warehouse, as well as airline passenger service, the PD43 upholds the PD series' long tradition of reliable performance. An all-metal chassis, strong cast-aluminum print mechanism, and tool-free printhead and roller replacement help minimize downtime and maintenance needs. With a variety of door options, the PD43 can support a wide range of media—including ink-in and ink-out ribbons with half-inch or one-inch core sizes—making it possible to maximize time between media resupply. Fast time-to-label and print speeds up to 200 mm/s (8 ips) ensure PD43 can scale with the changing needs of dynamic operations.

The PD43 takes industrial printing to a new level of simplicity, with a color graphic display that makes it easier to set up, configure and fine-tune settings without the need for a host computer. In fact, with Smart Printing capabilities, the PD43 can run apps right inside the printer—eliminating the need for a connected PC entirely.

Honeywell's Medallion Complete Service Plan includes options for complete onsite support and preventative maintenance, ensuring the highest levels of productivity, resource optimization, device reliability, and uptime.



#### Features

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- **Incredibly Compact:** Small footprint for installation into compact tabletops and pull-out cabinets
- **Built Strong:** Rugged metal chassis and print mechanism provide investment protection
- **Easy to Use:** Intuitive, ten-language color display or icon interface simplifies setup and maintenance
- **Built-In Command Languages:** Supports ESim, ZSim, DSim, IPL, and Direct Protocol right out-of-the-box
- **Smart Printer:** Run apps right inside the printer, control peripherals, and eliminate the need for a connected PC, using either C# for Printers or Fingerprint
- **Maintenance Made Easy:** Completely tool-free printhead and roller replacement
- **Broad Media Compatibility:** Supports half- and one-inch ribbon cores, ink-in or ink-out
- **Co-Engineered Media:** Extensively tested with Intermec co-engineered media products, ensuring optimized performance
- **Available Accessories:** Customize with a wide range of available accessories such as a Wi-Fi/Bluetooth® module and cutter

## PD43 & PD43c Technical Specification

### Physical Characteristics

Model	Length	Width	Height	Weight
PD43 – Standard Door	470 mm (18.5 in)	211 mm (8.3 in)	249 mm (9.8 in)	8.4 kg (18.5 lbs)
PD43 – Flat Top Door	470 mm (18.5 in)	211 mm (8.3 in)	209 mm (8.2 in)	8.3 kg (18.3 lbs)
PD43c – Standard Door	236 mm (9.3 in)	211 mm (8.3 in)	205 mm (8.1 in)	5.1 kg (11.2 lbs)
PD43c – External Media Holder	432 mm (17.0 in)	211 mm (8.3 in)	217 mm (8.5 in)	6.0 kg (13.2 lbs)

### Media Compatibility

Max. Media Diameter (OD) – Standard Door	213 mm (8.375 in)
Max. Media Diameter (OD) – Flat Top Door	152 mm (6.0 in)
Media Core Sizes (ID)	1, 1.5, 3 in
Media Width	19 mm (0.75 in) to 118 mm (4.65 in)
Label Length	6.4 mm (0.25 in) to 172.7 cm (68.0 in)

### Ribbon Compatibility

Ribbon Support	Coated Side In, Coated Side Out
Max. Ribbon Diameter	68 mm (2.68 in)
Ribbon Core Sizes	0.5, 1 in
Ribbon Width	25.4 mm (1 in) to 110.0 mm (4.3 in)
Max. Ribbon Length	300 m (984 ft)

### Printing Characteristics

Print Resolution	8.0 dppm (203 dpi), 11.8 dppm (300 dpi)
Max. Print Speed	203 mm/s (8.0 ips) @ 8.0 dppm (203 dpi), 152 mm/s (6.0 ips) @ 11.8 dppm (300 dpi)
Max. Print Width	104 mm (4.1 in)

### Communications

Standard Interfaces	USB Device, USB Host*
Optional – via Adapter Cables	Internal Ethernet (NIC), Parallel Port, Serial Port
Optional – Factory/Service Installable	Bluetooth & Wireless 802.11, HF/UHF RFID, Internal Ethernet (NIC)
Protocols – Wireless	WEP Dynamic; WEP Static (64/128 bits); WPA; WPA2; EAP (FAST, PEAP, TLS, TTLS); LEAP
Protocols – Serial Flow Control	XON/XOFF, RTS/CTS (DTR/DSR)
Certifications	Class 2 CCXv4, Wi-Fi*

### User Interface

Display	Color Graphic Display or Icon Display
Languages – Standard	English, French, German, Italian, Portuguese, Russian, Spanish
Languages – Optional	Simplified Chinese, Traditional Chinese, Korean

### Graphics & Bar Codes

Native Graphic Formats	BMP, GIF, PCX, PNG
Barcode Symbologies	All Major 1D, 2D, & Composite Symbologies

### Software

Printer Command Languages	Direct Protocol, PL, DSim (DPL), ESim (EPL), ZSim (ZPL), XML-Enabled for SAP® All & Oracle® WMS
Smart Printing Languages	C# for Printers, Fingerprint
Developer Tools	Smart Printing Developer Resource Kit, Intermec Fingerprint Application Builder (FAB)
Applications & Drivers	InterDriver™ Windows Printer Driver, Certified Device Types for SAP®, BarTender® Ultralite
Device Management	PrintSet, SmartSystems™, Wavelink Avalanche™
Character Sets	English & Extended Latin, Arabic, Baltic & Baltic Rim, Cyrillic, Greek, Hebrew, Thai, Turkish, Vietnamese, & More with Monotype™ Universal Font Scaling Technology (UFST) & WorldType Layout Engine (WTL)
Resident Fonts	Andale Mono, Andale Mono Bold, Century Schoolbook, CG Times, CG Times Bold, CG Triumvirate Bold Condensed, Letter Gothic, OCR-A, OCR-B, Univers, Univers Bold, Univers Condensed Bold, Univers Extra Condensed

Additional Fonts	Support for TrueType and TrueType-based OpenType Fonts, User-Downloadable Fonts
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### Environmental

Operating Temperature	+5° to +40°C (+40° to +104°F) @ 10-80% RH Non-Condensing
Storage Temperature	-40° to +60°C (-40° to +140° F) @ 85% RH

### Electrical

Input	100-240V AC @ 50-60 Hz, 1.5 A, Energy Star Compliant
Output	24V DC, 2.5 A

### Memory

Standard	128 MB Flash, 128 MB RAM (DDR2)
Optional	Up to 32 GB (via User USB Thumbdrive)

### Optional Accessories & Upgrades

User Installable	300 DPI, Cutter Unit with LTS, Label Dispenser with LTS, Front Label Tray, Linerless
Factory/Service Installable	HF RFID (13.56 MHz, ISO 15693); UHF RFID (EPC Class1 Gen2, ISO 18000-6C)

### Approvals

Regulatory	UL, cUL, cULus, CE, FCC Class A, D Mark COC, KCC, RCM
Safety	North America: UL & cUL Listed, UL 60950-1; Europe: D Mark, EN 60950-1; CE; Mexico: NYCE Certified, NOM 19; Other Countries: IEC 60950-1
EMC	USA FCC Title 47, Part 15, Subpart A, Class A; Europe EMC Directive (EN55022 Class A + EN55024); CISPR22

### Warranty

One Year Standard Warranty
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For more information:

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PD43-DS Rev A 08/14  
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\*PD43 supports two USB Host connectors



Zebra® 105SLPlus™



Zebra's 105SLPlus provides economical, dependable, high-performance printing. This rugged printer is built for continuous operation, with exactly the features needed for fast, reliable and cost-effective printing in your manufacturing and warehousing environments.

Zebra created the 105SLPlus with ease of use in mind. The icon-based, multilingual graphical LCD user interface is intuitive to operate, minimizing user training and making the printer ideal for a multitude of languages and global applications. The simplified ribbon loading process minimizes downtime.

The 105SLPlus offers durable all-metal construction and a robust

print mechanism to withstand the toughest environments. The 105SLPlus leverages Zebra's proven electronics platform to offer increased speed for high-volume applications—and increased storage of formats, fonts and graphics. Element Energy Equalizer™ (E<sup>3</sup>) technology extends the life of the printhead and provides outstanding print quality.

The 105SLPlus is designed to easily fit into existing operations. Multiple standard connectivity options including parallel, serial, USB and Ethernet coupled with full backward compatibility makes integration fast and simple. For added connectivity, choose the optional ZebraNet® b/g Print Server for wireless support.

#### Ideal for These Applications

**Manufacturing / Product** identification labels, Packaging labels, Receiving/Put-away labeling, Work-in-process

**Transportation & Logistics /** Order picking/packing, Shipping/Receiving, Cross-docking, Compliance labeling

**Retail / Shipping, Returns**

**Government / Asset tracking,** Compliance labeling, Inventory labeling

Zebra 105SLPlus Data Sheet

# SPECIFICATIONS AT A GLANCE\*

## Printer Name

105SLPlus

## Standard Features

- Full-function front panel and large multilingual backlit LCD display—with user-programmable password protection
- Thin film printhead with Element Energy Equalizer™ (E<sup>2</sup>) for superior print quality
- 8 MB Flash memory—including 2 MB user-available non-volatile memory storage for downloadable objects
- Serial RS-232 and bi-directional parallel ports—with auto detect
- USB 2.0
- Dual media sensors—transmissive and reflective, selectable through software or front panel
- Internal ZebraNet® 10/100 Print Server—supports 10Base-T, 100Base-TX, and fast Ethernet 10/100 auto-switching networks.

## Printer Specifications

### Resolution

- 203 dpi/8 dots per mm
- 300 dpi/12 dots per mm (optional)

### Memory

Standard: 16 MB SDRAM; 8 MB Flash

### Print width

4.0"/102 mm

### Print length

- 203 dpi: 150"/3810 mm (with standard memory)
- 300 dpi (optional): 100"/2540 mm (with standard memory)

### Print speed

- 203 dpi: 12"/305 mm per second
- 300 dpi: 10"/254 mm per second

## Media Specifications

- Media types: continuous, die-cut, or black mark, notch
- Media thickness (label and liner): 0.003"/0.076 mm to 0.012"/0.305 mm
- Maximum media roll size: 8.0"/203 mm O.D. on a 3"/76 mm I.D. core
- Media width (label and liner): 0.79"/20 mm to 4.5"/114 mm
- Maximum non-continuous label length: 39"/991 mm

## Ribbon Characteristics

- Standard Lengths: 1476'/450 m or 984'/300 m
- Provides 2:1 and 3:1 media roll to ribbon ratios
- Maximum ribbon roll size: 3.2"/81.3 mm O.D. on a 1.0"/25.4 mm I.D. core
- Ribbon wound coated-side out
- Ribbon width: 0.79"/20 mm to 4.33"/110 mm

## Operating Characteristics

### Environmental

- Operating environment:
  - Thermal transfer – 40° F/5° C to 105° F/40° C
  - Direct thermal – 32° F/0° C to 105° F/40° C
- Operating Humidity: 20% to 85% non-condensing
- Storage/transportation environment: -40° F/-40° C to 140° F/60° C
- Storage Humidity: 5% to 85% non-condensing

### Electrical

- Universal power supply with power-factor correction 100-240 VAC, 47-63 Hz

### Agency Approvals

- IEC 60950-1, EN 55022 Class B, EN 55024, EN 61000-3-2, EN 61000-3-3
- Product Markings: cTUVus, CE, FCC-B, ICES-003, VCCI, C-Tick, NCM, S-Mark(Arg), CCC, GOST-R, BSMI, KCC, and UkrSEPRO

## Physical Characteristics

- Height: 15.5"/393.7 mm
- Width: 10.31"/261.8 mm
- Depth: 20.38"/517.5 mm
- Weight: 50 lbs/22.7 kg

## Options and Accessories

- 300 dpi
- Cutter and catch tray
- Media rewind spindle—Internal finished roll rewind or passive-pool with liner take-up spindle
- 64 MB On-Board Linear Flash Memory (factory installed only)
- Scalable and International fonts

## ZebraLink™ Solutions

### Software

- ZebraDesigner™ Pro
- ZebraDesigner for XML
- ZebraNet™ Bridge Enterprise
- ZebraNet™ Utilities v 7.0

### Optional Connectivity

- ZebraNet® big Print Server (Internal)

### Firmware

- ZPL II®
- Zebra Global Printing Solution
- Web View & Alert
- ZBI 2.0™ (optional)

## Fonts/Graphics/Symbologies

### Fonts and Character Sets

- Zebra Global printing solution including Unicode™
- Swiss 721 font standard
- Bitmap fonts A to H and GS symbols are expandable up to 10 times, height- and width-independent
- Smooth-scalable font Ø (CG Trumvirate™ Bold Condensed) is expandable dot-by-dot, height- and width-independent
- IBM® Code Page 850 International Characters
- Contains UFST® from Agfa Monotype Corporation
- Firmware support for downloadable TrueType™ fonts
- Additional fonts available

### Graphics Features

- Supports user-defined fonts and graphics, including custom logos

### Barcode Symbologies

- All standard linear and 2D barcodes supported

For optimum print quality and printer performance, use genuine Zebra™ supplies.



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