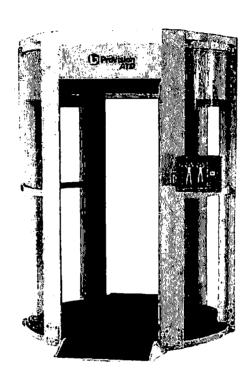
# L-3 Communications Security and Detection Systems AIT ATR QPL



(b) (6)
Transportation Security Laboratory, TSL-10
William J. Hughes Technical Center (Bldg 315)
Atlantic City International Airport, NJ 08405

#### **PREPARED BY**



Telephone:

781-939-<sup>(b)</sup> <sup>(6)</sup>

www.dsxray.com

#### L-3 Proprietary Information

WARNING: This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons without a "newfo know", a defined in 40 CFR parts Boand 1520, Stept with the Tritten permission of the Administratory the Transportation Security Administration or the Secretary of Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 U.S.C. 552 and 49 CFR parts 15 and 1520.

## L-3 Communications Security & Detection Systems AIT ATR QPL v1



#### **Table of Contents**

L-3 Introduction
Detailed description of the ATR feature space used (2.4.1)
2.4.2 AIT Executable Software (2.4.2)
Special Functionality (2.4.3)
ATR Software Engineering Data (2.4.4)
AIT Baseline Revision (if applicable) (2.4.5)
Qualification Test (2.7)
Secial Fuinctionality for Testing (3.0)
Simulator Software (3.1)
Hardware Specification (3.2)
Copy of AVATAR (3.3)
AVATAR Scaling (3.4)
Z-Level Access (3.5)
Re-Process Capability (3.6)5
Recording (3.7)
Test Mode (3.8)5
Instructions Regarding QDP (4.0)
SUBSTANTIATION (4.1)
Protection of Sensitive and Classified Information (4.2)
CONFIGURATION DIFFERENCES (4.3)
Level of Substantiation – Level A – Compliance
CERTIFICATE OF COMPLIANCE
Level of Substantiation – Level B – Compliance 11
Level of Substantiation – Level C – Compliance45
APPENDIX A Substantiation Data
APPENDIX B Manuals





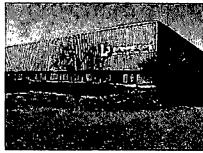
#### L-3 Introduction

L-3 Communications Corporation, headquartered in New York City, New York, is a publicly traded

FORTUNE 500 company (NYSE symbol: LLL) with revenues over \$15.9 billion in 2009, and more than 75 divisions and over 70,000 employees worldwide. With more than 2,000 contracts, our customers cover a global spectrum and include the military, intelligence agencies, homeland security, and more.

L-3 Communications Security and Detection Systems, Inc., (L-3) is a wholly owned subsidiary of L-3 Communications Corporation. The design, engineering, management, manufacturing, and support infrastructure for our offering is based in the US. With more than 20,000 X-ray systems in operation worldwide, we are the world's leading supplier of X-ray screening solutions, offering a broad array of products to the aviation, transportation, and security markets.

We are ISO 9001:2000 registered and fully embrace the ISO 9000 management methodology. Our experience in project management extends from defect-free product manufacturing to need and cost-benefit analysis, site surveys, and on-time delivery. We maintain facilities in 2 US locations. The headquarters facility is located in Woburn, Massachusetts USA where executive, research and



L-3 Woburn MA

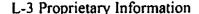


L-3 St. Petersburg, FL

development, service, and engineering resources reside. System engineering and manufacturing as takes place in the St. Petersburg, Florida offices. Our total facilities consist of nearly 300,000 square feet dedicated with over 225,000 square feet in FL available for manufacturing. With hold baggage screening (HBS) systems installed in over 125 major airports throughout the world SDS provides the most comprehensive and complete screening solutions available on the market today.

L-3 Automated Detection Expertise We have highly relevant experience in design and development of automated threat detection X-ray systems. Our systems have been used in a variety of checkpoint and aviation deployments. The experience fielding 1,000+ dual energy automated explosives detection systems in operation throughout the globe today prove that we are qualified for this project. We understand the nature of detection performance specifications, their interrelationships, and their impacts. We have vast experience in the type of management required in Department of Defense (DoD) type and DHS type contracts. Our experience with the military, BAA, FAA, TSA, DHS and other government organizations demonstrates our capability to deliver.

The ProVision<sup>TM</sup> Body Screening System screens people for concealed threats -- without exposure to harmful electromagnetic radiation. L-3's ProVision's active millimeter wave imaging technology penetrates clothing and packaging to reveal and pinpoint hidden weapons, explosives, drugs, and other contraband. With potential peak throughput levels of 600 people an hour, ProVision far outpaces alternative screening methods. The system can easily be configured to meet specific throughput and facility requirements, from single scanner and single computer combinations to multilane configurations.







Detailed description of the ATR feature space used (2.4.1)



(b) (4)

L-3 Proprietary Information

SENSITING SECURTY INFORMATION

Page 2

WARNING: This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons without a "negligible know", indefined in ACFR parts Mand 1520, greet with the Arritten per section of the Alministration of the Alministration of the Secretary of Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 U.S.C. 552 and 49 CFR parts 15 and 1520.



### 2.4.2 AIT Executable Software (2.4.2)



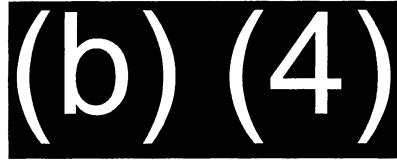
#### **Special Functionality (2.4.3)**

L-3 Communications Security and Detection Systems will provide functional capability to support testing.

#### ATR Software Engineering Data (2.4.4)

L-3 Communications Security and Detection Systems will gladly work with the TSA to provide source code once we are on contract with the ATR enhancements.

AIT Baseline Revision (if applicable) (2.4.5)



#### **Qualification Test (2.7)**

L-3 Communications understands that the TSL test team personnel will conduct the qualification tests and we will not be permitted to witness the qualification tests. L-3 further understands that we will be called upon to provide both technical and maintenance support and we will be responsible for the removl of the AIT and simulators within one week of notification.

#### **Simulator Software (3.1)**

L-3 Communications Security and Detection Systems will provide a copy of the application software for the simulator of the SO Station for displaying the representative human figure with ATR output on a CD for configuration management/audit and installation on TSL equipment for testing purposes.

**Hardware Specification (3.2)** 

(b) (4)

L-3 Proprietary Information

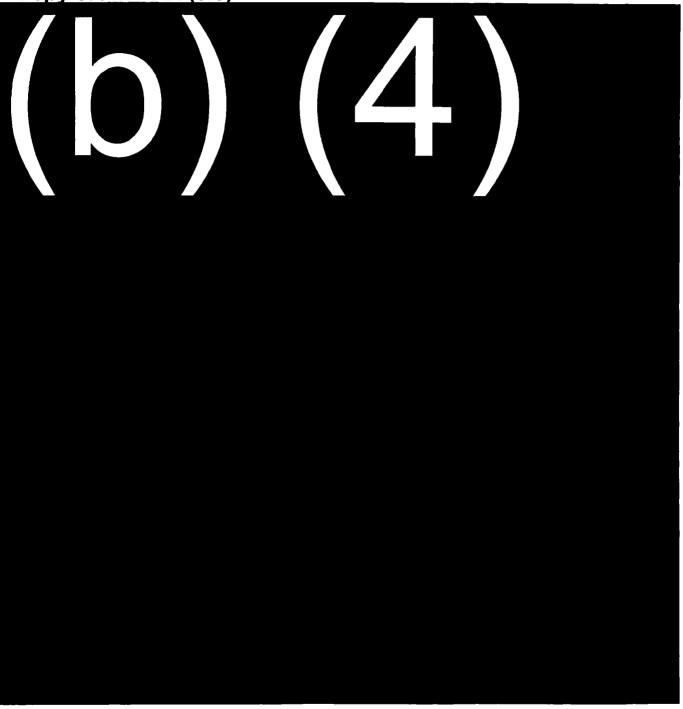
SENSITIVE SECURITY INFORMATION

Page 3

WARNING. This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons within a "need to below", as de field in 49 CFR parts 15 and 520, except with the writing permission of the Administration of the Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 U.S.C. 552 and 49 CFR parts 15 and 1520.



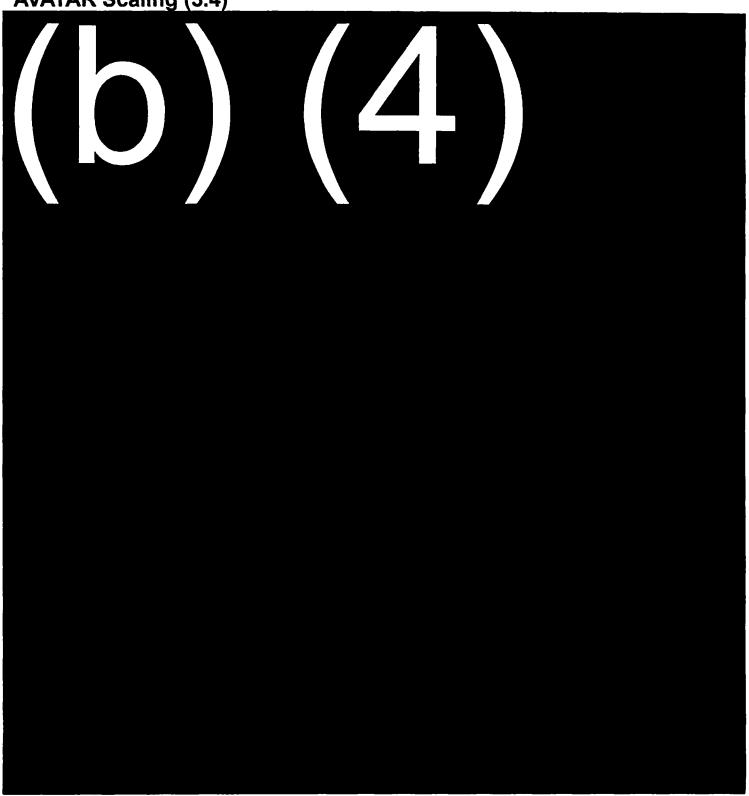
Copy of AVATAR (3.3)







**AVATAR Scaling (3.4)** 



L-3 Proprietary Information

SENSITIVE SECURITY INFORMATION

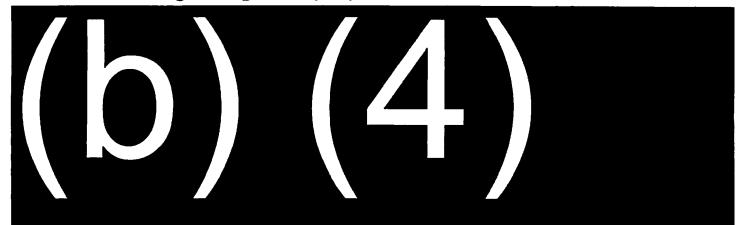
Page 5

<u>WARNING</u>: This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons without a "nord to know". defined in CFR parts 3 and 1520, deept with the written per existing of the Edministration of the Secretary of Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 U.S.C. 552 and 49 CFR parts 15 and 1520.



mode capable version provided with this submission. The field version of software will be released under a new part number and submitted to the TSA for evaluation under the appropriate change request.

#### Instructions Regarding QDP (4.0)



(b)(3), (b)(4), 49 U.S.C. § 114(r)

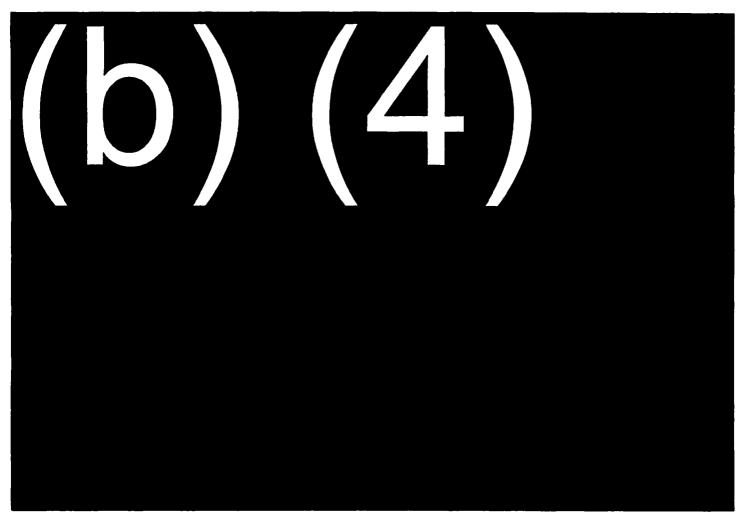
(b)(3), (b)(4), 49 U.S.C. § 114(r)

L-3 Proprietary Information



Page 6





(b)(4), (b)(6)

Date 8/30/10

Quality Assurance: (b)(4), (b)(6)

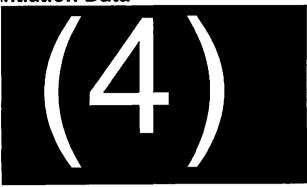
Verification Validation Engineer L3 Communications SDS

L-3 Proprietary Information



Page 1

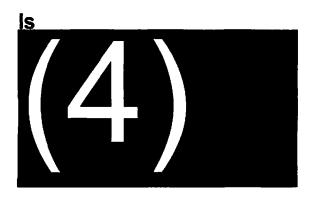
#### **intiation Data**





Page A

unity Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons without a "need to know", as defined in 49 CFR parts q of the Addanistrator of or Transport from Security Administratify or the Security Administratify or the Security Sec



## SENTIVE SECRITY IN RMATION

unity information that is controlled under 49 CER parts 15 and 1520. No part of this record may be disclosed to persons without a "need to know", as defined in 49 CFR parts not the Administration of the Commission of the Exercitary of Commission of Commi



10 Commerce Way Woburn, MA 01801 (781) 939-3800 Fax (781) 939-3996 www.l-3com.com

## **Operations Manual**

## L-3 ProVision<sup>TM</sup> SC-100 Advanced Imaging Technology ATD

August 2010

If this technical data is being exported from the United States, it is being exported in accordance with Export Administration Regulations (	LAR)
as follows	

□ ECCN - No I icense Required to Entity and Country of Find-Use

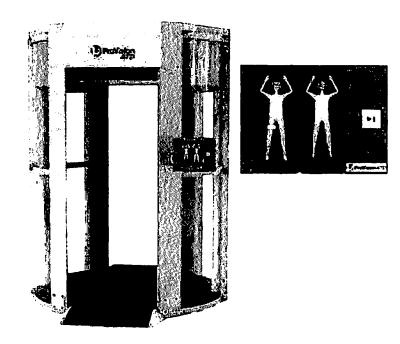
☐ License Exception 740-13(a)1 to Finity and Country of End-Use

Diversion contrary to U.S. law is prohibited. In accordance with U.S. Law (1)the 15 CLR Pair 746 and Supplement No. 1 to pair 774, and 1)the 31 CLR) result re-export or transfer to certain designated countries is prohibited without the prior written consent of the U.S. Department of Commerce. If further transfer is required, contact your 1.3 Communications representative for authorization.

## Operations Manual, ProVision SC-100

Part number: 8100-11969-OM

Revision: A0



All rights reserved. No part of this book may be reproduced in any form without written permission from L-3 Communications Security and Detections.

The materials and information contained herein are being provided by L-3 Communications Security and Detections to its Customers for their internal business purposes only.

L-3 Communications Security and Detections retains all rights, titles, interests in and copyrights to the materials and information herein. The materials and information contained herein constitute confidential information of L-3 Communications Security and Detections. Customer shall not disclose or transfer any of these materials or information to any third party.

Safety Disclaimer:

Equipment that is used in a manner NOT specified by L-3 Communications Security and Detections may reduce any protection provided by the system.

#### Warranty Disclaimer:

L-3 Communications Security and Detections does not warrant that the operation of the L-3 Communications Security and Detections Products will be uninterrupted, error-free, or secure, that the L-3 Communications Security and Detections Products will comply with any rules or regulations applicable to the activities in which customers may employ the L-3 Communications Security and Detections Products or that the L-3 Communications Security and Detections Products will operate to detect prohibited objects in all circumstances. You acknowledge that the real-world performance of the L-3 Communications Security and Detections Product may vary depending on your deployment, operation and application of the L-3 Communications Security and Detections product.

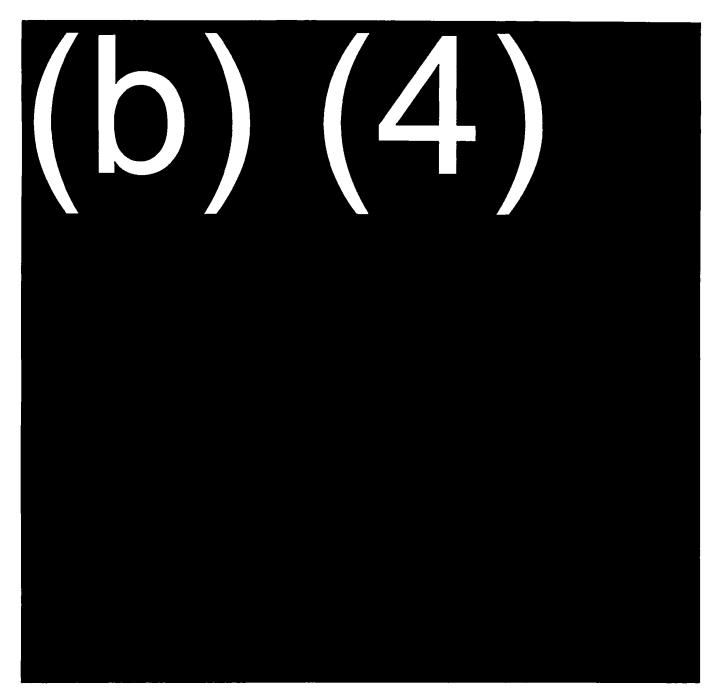
Underwriters Laboratories Inc. TM (UL) Disclaimer:
Underwriters Laboratories Inc. TM (UL) has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested for fire, shock, and/or casualty hazards as outlined in UL's Standard for Safety: "Electrical Equipment for Measurement, Control and Laboratory Use", (UL61010-1, 2<sup>nd</sup> Ed). UL Certification does not cover the performance or reliability of the security or signaling aspects of this product. UL MAKES NO REPRESENTATIONS, WARRANTIES OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

This Document is subject to Configuration Management Control.

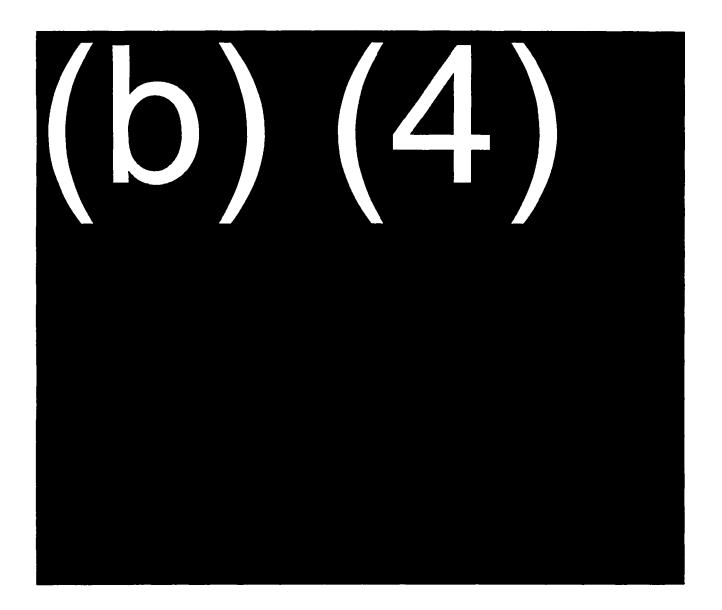
Date	Rev.	Oria.	ECO.#	Change Description
(b) (4)				
		<u> </u>	<u> </u>	
1	i	1	1	}

## Table of Contents

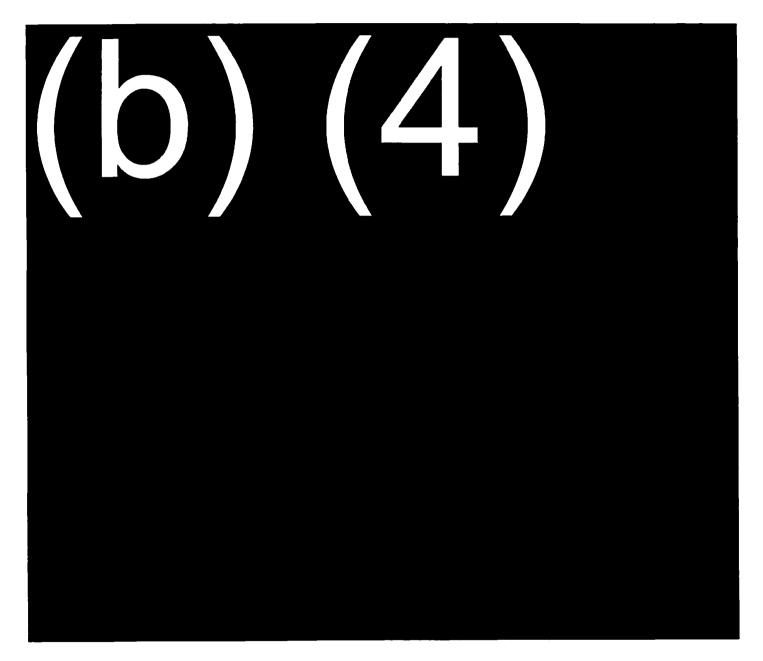
1	Intro	Introduction				
	1.1	FCC Statement	1			
	1.2	Installation/Relocation	1			
	1.3	System Safety	2			
	1.4	System Grounding	3			
	1.5	Power Cord	4			
2	The	ory of Operation	• • • • • • • • • • • • • • • • • • • •	5		
3	Get	ting Started		8		
	3.1	Power Up	8			
4	Ope	erator Control Panel, Detail		12		
	4.1	Scan Button	13			
	4.2	Reset Button	13			
	4.3	Calibrate	13			
	4.4	The Red Wrench	14			
	4.5	Messages, Alarms, Faults	15			
5	Ava	itar Image Display and processing. Error! Bookmar	k not de	efined.		
	5.1	Results diplay Error! Bookmark not defin	ed.			
	5.2	Passenger Queue Error! Bookmark not defin	ed.			
6	Shu	ıtdown	• • • • • • • • • • •	24		
	6.1	Scanner Shutdown	24			
7	Cle	aning and Maintenance		25		
8	Ala	rms, Faults, and Information		26		
	8.1	Alarm Messages	26			
	8.2	FAULT Messages	26			
	8.3	INFORMATION Messages	28			
9	Spe	ecifications		30		



The diagram above shows the description and location of the safety labels found on the ProVision<sup>TM</sup> SC-100. Do not open the high voltage section of the system as shown in Figure 1 as serious electrical shock could occur. Only qualified service technicians should remove this panel. Likewise, as shown in Figure 2 the system should not be operated with the belt cover removed as a serious crush or cut could occur.



Note: A message regarding proper grounding also posted on the scanner next to the power-on switch. Do not operate the system if it is not grounded properly.



The System Operator is in charge of the queue of subjects to be screened. The System Operator instructs a subject to enter the scanner and stand stationary in a specific pose. The required pose is the "ballerina" with the feet placed on the foot decals facing the direction indicated on the foot decals, and the hands above the head. When the subject is properly positioned the System Operator presses the gender appropriate Scan button on the touch-screen Operator Control Panel triggering the antennas to rotate



#### X SENSITE SECURETY INFORMATION X



## **communications**Security and Detection Systems

# Qualification Plan For The Advanced Imaging Technology (AIT) System With Automated Target Recognition (ATR)

August 16, 2010

L-3 Communications Security Systems 2005 Gandy Blvd., (b) (6) St. Petersburg, FL 33702 (727) 556-0270 Fax (727) 369(5) (6)

EXCLUSION TO THE FREEDOM OF INFORMATION ACT

(b) (4)
(b) (4)

Approval:

(b)(4), (b)(6) 08/16/10

Quality Date

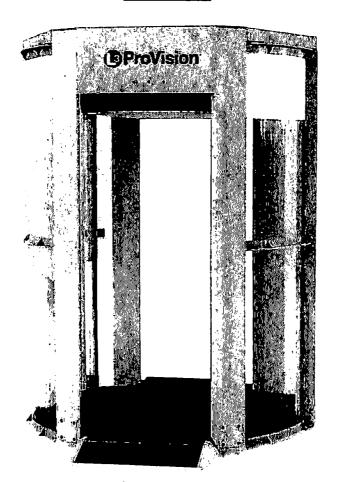
#### **Table of Contents**

1	SCOPE	1
2	APPLICABLE DOCUMENTS	1
3	TEST APPROACH	2
4	TEST ORGANIZATION	3
5	TEST ITEM DESCRIPTION AND CONFIGURATION	
6	REQUIREMENTS THAT DO NOT REQUIRE SUBSTANTIATION	3
7	ANALYSES VERIFICATIONS	4
8	TEST PLAN	4
-	8.1 FUNCTIONAL TESTING	4
_	8.2 IMAGING PERFORMANCE	
-	8.4 DATA REPORTING AND RECORDING	4
8	8.5 SYSTEMATIC AND RANDOM SELECTION GENERATOR	
9	SUPPORT EQUIPMENT	5
10	GOVERNMENT FURNISHED EQUIPMENT AND SERVICES	5
11	TEST SCHEDULE	5
12	VERIFICATION REQUIREMENTS TRACEABILITY MATRIX (VRTM)	<b>5</b>



#### **Security & Detection Systems**

10 Commerce Way Woburn, MA 01801 (781) 939-3800 Fax (781) 939-3996 www.l-3com.com

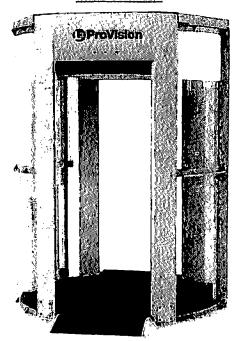


## ProVision<sup>TM</sup> SC-100 (TSA) Service Manual



#### **Security & Detection Systems**

10 Commerce Way Woburn, MA 01801 (781) 939-3800 Fax (781) 939-3996 www.l-3com.com



# ProVision<sup>TM</sup> SC-100 (TSA) Technical Manual August 2010

If this technical data is being exported from the	inted States, it is being exported in accordance.	with Export Administration Regulations (EAR)
. C.H	,	

☐ FCCN - No License Required to Linity and Country of End-Use

☐ Department of Commerce License Number to Entity and Country of Lind-Use

☐ License Exception 740.13(a)1 to Entity and Country of End-Use

Diversion contrary to U.S. law is prohibited. In accordance with U.S. Law (1)the 15 CFR Part 746 and Supplement No. 1 to part 774, and 1)the 31 CFR) resale re-export or transfer to certain designated countries is prohibited without the prior written consent of the U.S. Department of Commerce. If further transfer is required, contact your L.3 Communications representative for authorization

All rights reserved. No part of this book may be reproduced in any form without written permission from L-3 Communications Security and Detections.

The materials and information contained herein are being provided by L-3 Communications Security and Detections to its Customers for their internal business purposes only.

L-3 Communications Security and Detections retains all rights, titles, interests in and copyrights to the materials and information herein. The materials and information contained herein constitute confidential information of L-3 Communications Security and Detections. Customer shall not disclose or transfer any of these materials or information to any third party.

#### Safety Disclaimer:

Equipment that is used in a manner NOT specified by L-3 Communications Security and Detections may reduce any protection provided by the system.

#### Warranty Disclaimer:

L-3 Communications Security and Detections does not warrant that the operation of the L-3 Communications Security and Detections Products will be uninterrupted, error-free, or secure, that the L-3 Communications Security and Detections Products will comply with any rules or regulations applicable to the activities in which customers may employ the L-3 Communications Security and Detections Products. or that the L-3 Communications Security and Detections Products will operate to detect prohibited objects in all circumstances. You acknowledge that the real-world performance of the L-3 Communications Security and Detections Product may vary depending on your deployment, operation and application of the L-3 Communications Security and Detections product.

Underwriters Laboratories Inc. <sup>TM</sup> (UL) Disclaimer: Underwriters Laboratories Inc. <sup>TM</sup> (UL) has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested for fire, shock, and/or casualty hazards as outlined in UL's Standard for Safety: "Electrical Equipment for Measurement, Control and Laboratory Use". (UL61010-1, 2<sup>nd</sup> Ed). UL Certification does not cover the performance or reliability of the security or signaling aspects of this product. UL MAKES NO REPRESENTATIONS, WARRANTIES OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

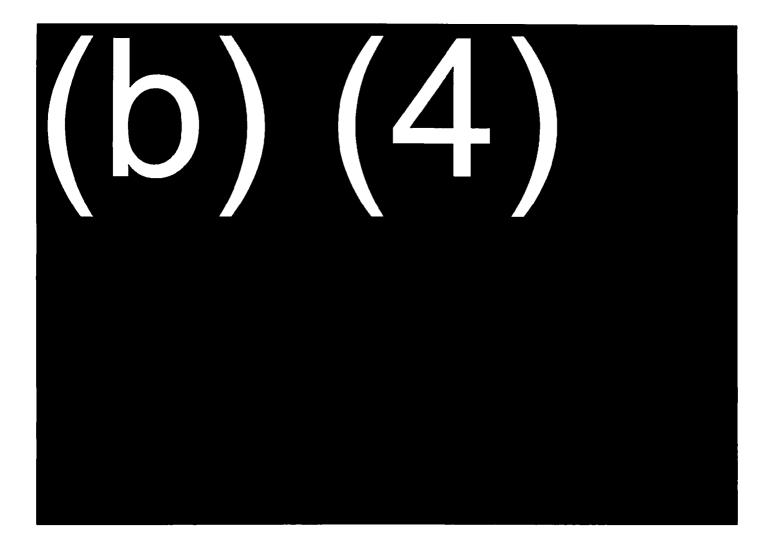
This Document is subject to Configuration Management Control.

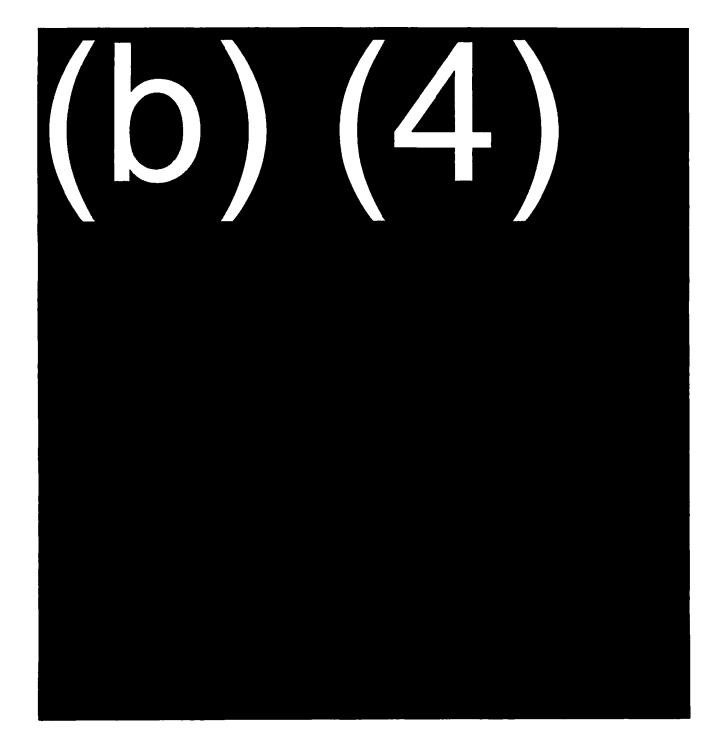
Date	Rev	Orig.	ECO.#	Change Description	
(b)(4)					

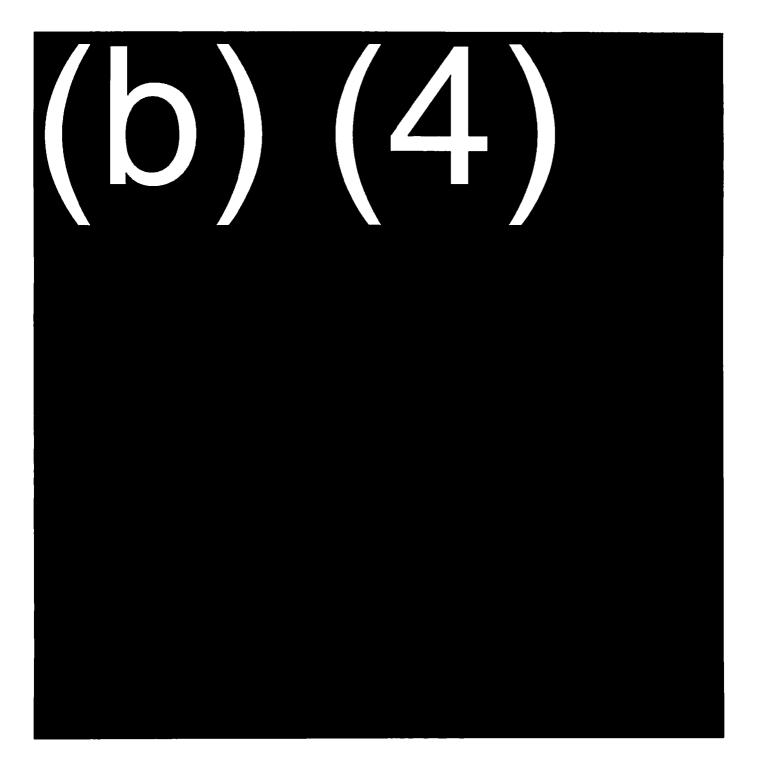
### Contents

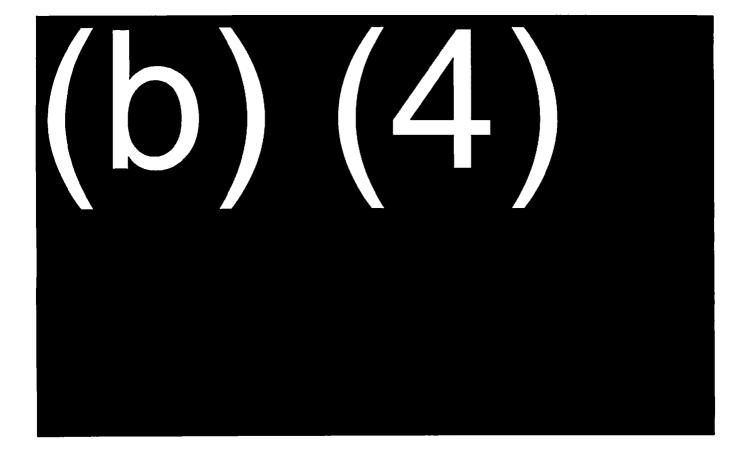
1	Introd	uction			
	1.1 Installation/Relocation			1	
	1.2	Syste	em Safety	1	
	1.3 System Grounding			3	
	1.4 Power Cord			4	
2	System Overview				
3	Major Components			9	
		3.1	Image Analysis Unit (IAU)	9	
		3.1.1	Alarm Messages	9	
		3.2	System Control Unit (SCU)	10	
		3.3	ISU	16	
		3.4	Control Tower	19	
		3.5	Antenna Mast	23	
4	Speci	fication	ns		

#### Chapter











(b) (4)

**Training Manual**