Transportation Security Administration

Office of Security Technology

Airport Perimeter Security Projects for FY08-09

FINAL REPORT

Asheville Regional Airport (AVL)

Virtual Perimeter Monitoring System-Airport (VPMS-A)

U.S. Department of Homeland Security
Transportation Security Administration
Office of Security Technology
Advanced Surveillance Program
701 South 12th Street
Arlington, VA 20598-6016

[redacted]

OVERVIEW

INTRODUCTION

In fiscal year (FY) 2006, the Transportation Security Administration (TSA) announced opportunities for general perimeter security enhancement projects at airports with typical configurations and existing barriers, such as fencing and concrete barricades. The announcement requested information from airport authorities on existing airport perimeter security vulnerabilities and proposals to mitigate those vulnerabilities through the inventive use of available technologies at intended perimeter access points (such as vehicle gates), perimeter boundaries, and terminals.

In FY 2008, TSA reissued the Airport Perimeter Security (APS) announcement to all airports, along with a second announcement addressing small to medium-sized airports with few or no barriers around their perimeters. The second announcement was for the Virtual Perimeter Monitoring System (VPMS) project intended to test a more elaborate solution that would better fit a smaller airport. The VPMS solution was developed by the Navy.

TSA requested airports provide white papers explaining the security deficiencies to be addressed and proposals, including technologies to be deployed and full life-cycle project cost estimates. 65 airports responded to the FY 2006 request and 35 airports responded to the FY 2008 requests. The airports proposed projects of varying complexity, from installation of a single piece of equipment to sophisticated, integrated systems.

Six airports were selected in FY 2006 to participate in the APS projects. In FY 2008 and 2009, TSA selected six additional airports for participation in APS and three airports for VPMS projects.

The attached report covers the test results of only one of the 15 total test sites. TSA plans to release each report singularly as the test results are completed and made available.

IMPLEMENTATION

Ashville Regional Airport (AVL) was selected to pilot the Virtual Perimeter Monitoring System-Airport (VPMS-A), a central command and control system developed by the Naval Surface Warfare Center – Panama City Division (NSWC-PCD). The deployment and operation of the new system would test different breach scenarios in order to generate information that would reflect the impact of the system on operational security (OpSec) awareness at AVL, as compared to that of the legacy system.

The VPMS-A surveillance system was designed to enhance OpSec awareness at AVL by interfacing with multiple technologies (sensor information or data streams) and displaying the information on a single Common Operational Picture (COP). TSA, in cooperation with the

[redacted]

NSWC-PCD, piloted the system at several airports across the United States to evaluate its capabilities.

National Safe Skies Alliance (Safe Skies) provided independent verification and validation (IV&V) services and operated along with airport authorities to verify that the mobile perimeter tower enhancements met the airport's security expectations. The IV&V was concluded November 09, 2009.

Testing was scheduled for November 2–13, 2009. testing commenced November 6 and ended on November 9. (see Final Report–Section 5.5, Appendix B, and Appendix C for details regarding

The VPMS-A equipment consisted of new video camera equipment (7 fixed cameras and 5 pan, tilt, and zoom cameras), wireless communication systems, video analytic software, video archiving subsystems, and a COP_display.

AVL personnel No legacy security equipment was integrated into the VPMS-A. The discussion to keep the two systems separate allowed for closed-circuit television monitoring by security personnel through legacy procedures while the test system was being installed and repaired

Testing sites and evaluation scenarios throughout the VPMS-A coverage areas were limited to locations to those that implemented video analytic rule sets.

These locations were:

The Safe Skies Lead Test Engineer (LTE) generated a site survey document based on a preliminary survey of the locations prior to the deployment of the security technology improvements. The LTE developed operational testing procedures used as the basis for determining if the system met the security requirements of AVL airport authorities.

[redacted]

Representatives of TSA, Safe Skies, and AVL convened to discuss and verify the system requirements prior to the implementation of evaluation procedures. The resulting operational data was analyzed by the Safe Skies statistical team and combined with the site survey information to generate the final report.

SUMMARY

[redacted]

[redacted]

DHS/TSA 2600.02.01.10-037	**Virtual Perimeter Monitoring System-Airport (VPMS-A) AVL Operational Test and Evaluation Report** COPYRIGHT © 2010 National Safe Skies Alliance, Inc. ALL RIGHTS RESERVED	
	Project Performed by: National Safe Skies Alliance 110 McGhee Tyson Boulevard Suite 201 Alcoa, TN 37701	Safe Skies Author(s) John Hunsucker Meg Graham
	Project Performed for: U.S. Dept. of Homeland Security Transportation Security Administration 601 S. 12th Street Mail Stop TSA-16 Arlington, VA 22209	TSA Technical Review Team Charles Kelley John Nestor David Taylor
	Project Funded by: Federal Aviation Administration 800 Independence Avenue, SW Washington, DC 20591	
	March 2010 Final Report	

NOTICE

This document is disseminated under the sponsorship of the U.S. Department of Homeland Security in the interest of information exchange. The United States Government assumes no liability for the contents or use thereof. The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the objective of this report.

COPYRIGHT © 2010 National Safe Skies Alliance, Inc.

ALL RIGHTS RESERVED. No part of this work may be reproduced, transcribed, or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, Web distribution, or information storage and retrieval systems—without the prior written permission of the publisher.

For permission to use material from this text or program, submit a request to National Safe Skies Alliance by email at safeskies@sskies.org.

[redacted]

Technical Report Documentation Page

1. Report No. DHS/TSA—10-037	**2. Government Accession No.**	**3. Recipient's Catalog No.**
4. Title and Subtitle Virtual Perimeter Monitoring System-Airport (VPMS-A) AVL Operational Test and Evaluation Report		**5. Report Date** March 2010 **6. Performing Organization Code**
7. Author(s) John Hunsucker, Meg Graham		**8. Performing Organization Report No.** DHS/TSA—2600.02.01.10-037
9. TSA Reviewer(s) Charles Kelley, John Nestor, David Taylor		**10. Work Unit No. (TRAIS)**
11. Performing Organization Name and Address National Safe Skies Alliance 110 McGhee Tyson Blvd., Suite 201 Alcoa, TN 37701		**12. Contract or Grant No.** 00-G-019 **13. Type of Report and Period Covered** Final Report, November 2009
14. Sponsoring Agency Name and Address U.S. Department of Homeland Security Transportation Security Administration 601 S. 12th Street Mail Stop TSA-16 Arlington, VA 22209		**15. Sponsoring Agency Code** TSA-16

16. Supplementary Notes
This report was prepared by John Hunsucker of National Safe Skies Alliance.

17. Abstract
This report presents the evaluation results of the Virtual Perimeter Monitoring System – Airport (VPMS-A) as it was installed at AVL. The VPMS-A was developed by the Naval Surface Warfare Center – Panama City Division to provide an adaptive system capable of enhancing operational security (OpSec) awareness at an airport perimeter. National Safe Skies Alliance, on behalf of the Transportation Security Administration, implemented a series of Operational Test and Evaluation scenarios in order to generate information that would reflect the impact of the system on OpSec awareness at AVL and compare it to the performance of the legacy system.

Testing was scheduled for November 2 – 13, 2009. [redacted] testing was delayed until November 6 and ended prematurely on November 9. [redacted]

18. Key Words
Asheville, AVL, Common Operating Picture, Naval Surface Warfare Center – Panama City Division, Virtual Perimeter Monitoring System, VPMS

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
SSI/FOUO	Unclassified	34	

Reproduction of completed page authorized

[redacted]

[redacted]

DOCUMENT CHANGE HISTORY

Version	Description/TSA Reviewer	Date(s)	TSA Approval
0.1	Initial Draft/Charles Kelley	March 2010	
1.0	Final Draft/Charles Kelley	March 2010	

[redacted]

[redacted]

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	v
ACRONYMS	vi
1. INTRODUCTION	1
1.1 Background	1
1.2 Purpose of Document	1
2. SCOPE	1
2.1 Limitations	1
3. SYSTEM DESCRIPTION	2
3.1 Legacy System	2
3.2 Virtual Perimeter Monitoring System-Airport (VPMS-A)	3
4. METHODOLOGY	7
4.1 Sites	7
4.2 Schedule	7
4.3 Test Personnel	7
4.4 Test Equipment	8
4.5 Critical Operational Issues	8
5. RESULTS	9
5.1 Evaluation Scenarios	9
5.2 ObjectVideo Alarm Results	9
[redacted]	10
	11
	13
5.3 VideoNEXT Results	14
5.4 User Surveys	14
5.5 [redacted]	14
6. SUMMARY & OBSERVATIONS	15
7. REFERENCES	15

APPENDIX A – CAMERA SCREENSHOTS

APPENDIX B – NSWC-PCD EVENT ACCOUNT

APPENDIX C – SAFE SKIES ISSUES/ACTIVITY LOG

[redacted]

[redacted]

LIST OF TABLES

Table 1. Technologies and Locations 4
Table 2. Site and Scenario Matrix 9
Table 3. [redacted] 11
Table 4. [redacted] 12
Table 5. [redacted] 13
Table 6. [redacted] 14

LIST OF FIGURES

Figure 1. Legacy CCTV Monitors 2
Figure 2. VPMS Core 3
Figure 3. COP and CCTV Monitor in AVL DPS Command Center 4
Figure 4. VPMS-A Fixed-Camera [redacted] 5
Figure 5. VPMS-A Fixed-Camera [redacted] 5
Figure 6. Block Diagram: Flow of Information within VPMS-A 6
Figure 7. [redacted] Camera Node 7
Figure 8. [redacted] 10
Figure 9. [redacted] 11
Figure 10 [redacted] 12
Figure 11 [redacted] 13
Figure 12 [redacted] A-1
Figure 13 [redacted] A-1
Figure 14 [redacted] A-2
Figure 15 [redacted] A-2
Figure 16 [redacted] A-3
Figure 17 [redacted] A-3
Figure 18 [redacted] A-4

[redacted]

[redacted]

EXECUTIVE SUMMARY

The Transportation Security Administration (TSA) selected Asheville Regional Airport (AVL) to pilot the Virtual Perimeter Monitoring System-Airport (VPMS-A), developed by the Naval Surface Warfare Center – Panama City Division (NSWC-PCD). National Safe Skies Alliance (Safe Skies) implemented a series of Operational Test and Evaluation (OT&E) scenarios in order to determine whether the system provided enhanced security capabilities for AVL security staff.

Evaluation

[redacted]

From NSWC-PCD records and Safe Skies' data logs, [redacted] observed by the test team are speculated to be caused by issues with the communications and network hardware.

[redacted]

User Surveys and Comments

[redacted]

Conclusions

[redacted]

[redacted]

[redacted]

ACRONYMS

AVL	Asheville Regional Airport – FAA designation
COI	Critical Operational Issue
COP	Common Operational Picture
DPS	Department of Public Safety
FAA	Federal Aviation Administration
GA	General Aviation
MOE	Measure of Effectiveness
MOP	Measure of Performance
NSWC - PCD	Naval Surface Warfare Center – Panama City Division
OpSec	Operational Security
OT&E	Operational Test and Evaluation
PTZ	Pan-Tilt-Zoom
TSA	Transportation Security Administration
VPMS-A	Virtual Perimeter Monitoring System - Airport

[redacted]

[redacted]

1. INTRODUCTION

The Transportation Security Administration (TSA) selected Asheville Regional Airport (AVL) to pilot the Virtual Perimeter Monitoring System-Airport (VPMS-A), which is a central command and control system developed by the Naval Surface Warfare Center – Panama City Division (NSWC-PCD). The intent of the pilot program was to demonstrate the utility of the system. National Safe Skies Alliance (Safe Skies) implemented a series of Operational Test and Evaluation (OT&E) scenarios in order to generate information that would reflect the impact of the system on operational security (OpSec) awareness at AVL, and compare its performance to that of the legacy system[1].

1.1 Background

The VPMS-A surveillance system was designed to enhance OpSec awareness at an airport by interfacing with multiple technologies (sensor information or data streams) and displaying the information on a single Common Operating Picture (COP). The TSA, in cooperation with the NSWC-PCD, piloted the system at several airports across the United States to evaluate its capabilities. Safe Skies was designated as the third-party evaluator to perform Baseline testing and OT&E.

1.2 Purpose of Document

This report details the results of Safe Skies' OT&E performed on the VPMS-A deployed at AVL. The following sections describe the operational testing and observations relating to system performance.

2. SCOPE

Safe Skies evaluated the VPMS-A system at AVL in accordance with the Critical Operational Issue (COI) that was defined and approved in the project's Final Test Plan (*DHS/TSA 2600.02.01.09-193,* October 2009).

2.1 Limitations

[redacted]

[1] The *legacy system* was the perimeter security technology that was present prior to the installation of the VPMS-A.

[redacted]

[redacted]

Testing was scheduled for November 2 – 13, 2009 [redacted] testing commenced November 6 and ended on November 9. [redacted] Section 5.5, Appendix B, and Appendix C contain more details regarding [redacted]

3. SYSTEM DESCRIPTION

3.1 Legacy System

AVL's legacy security system consisted of a closed-circuit television (CCTV) network with a 65-inch CCTV monitor (Figure 1), video archiving system, and some activity-reporting technologies. The operational CCTV network accommodated an array of 52 fixed and pan-tilt-zoom (PTZ) cameras mounted in and around the terminal area. The majority of the cameras continuously monitored the ticketing counters, baggage screening areas, passenger screening, boarding areas, jet bridges, terminal apron, public parking, and loading/unloading zones. Three cameras provided [redacted] All camera feeds were displayed simultaneously on the CCTV monitor located in the Department of Public Safety (DPS) control center.

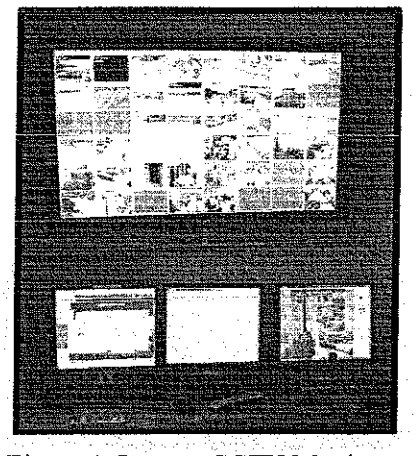
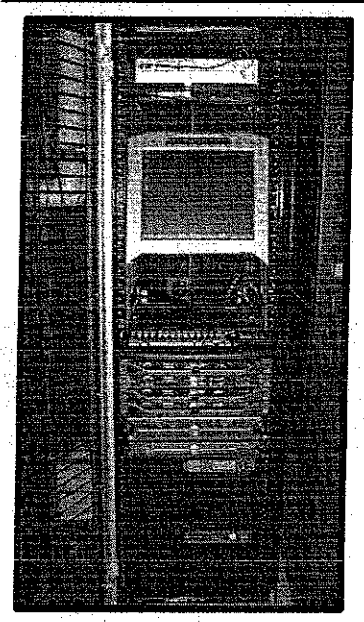


Figure 1. Legacy CCTV Monitors

[redacted]

[redacted]

[redacted]



3.2 Virtual Perimeter Monitoring System-Airport (VPMS-A)

The VPMS-A system included high-quality video camera equipment, wireless communication systems, video analytic software, video archiving subsystems, and a Common Operating Picture (COP). Designed to be an adaptive security tool, the VPMS-A's open architecture allowed for the integration of multiple sensors or additional security equipment. Additional details of the VPMS-A configuration and system specifications can be found in the following NSWC-PCD documents:

- *Draft System Segment Specification for the Asheville Regional Airport Virtual Perimeter Monitoring System*
- *Asheville Regional Airport Virtual Perimeter Monitoring System Operational Verification Test*
- *Asheville Regional Airport Virtual Perimeter Monitoring System Test Description*

The system core (Figure 2) included the sensor interfacing, communications networking, sensor processing, the computer control and display equipment, and archive retrieval for the entire VPMS-A. Information was streamed from the core to the COP, the end-user interface in the control center (Figure 3). Here, a single PC and set of peripheral devices drove the interaction between the end user and the surveillance network. The COP provided the user with a means to view all of the integrated camera surveillance equipment, retrieve and display video archives, and review alarm alerts. A 46-inch CCTV monitor was mounted to the wall adjacent to the COP to allow other personnel who were not sitting in front of the COP to watch for activity on the surveillance network.

[redacted]

[redacted]

The core server was installed in the server room inside the main terminal. The COP terminal and CCTV monitor were installed in the DPS and Fire Station, located in the building adjacent to the airport terminal. Camera and communications equipment were installed at the following areas around the facility:

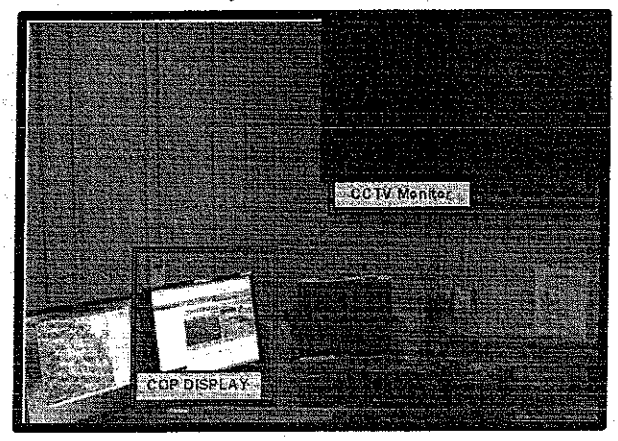


Figure 3. COP and CCTV Monitor in AVL DPS Command Center

[redacted]

Table 1 lists the equipment and location. Figures 4 and 5 illustrate the locations of areas that were monitored using video analytics. Appendix A contains screenshots of all camera views.

Table 1. Technologies and Locations

Camera Type	Locations
Fixed	[redacted]
PTZ	

[redacted]

[redacted]

[redacted]

Figure 4. VPMS-A Fixed-Camera [redacted] Coverage

[redacted]

Figure 5. VPMS-A Fixed-Camera [redacted] Coverage

[redacted]

Live feeds from the fixed cameras were processed through the VPMS-A video analytic component, ObjectVideo. Through ObjectVideo, airport personnel customized rule sets for automated detection of violations. The PTZ cameras were integrated in the system but were not analyzed through the ObjectVideo software. Figure 6 illustrates the basic flow of information within the system.

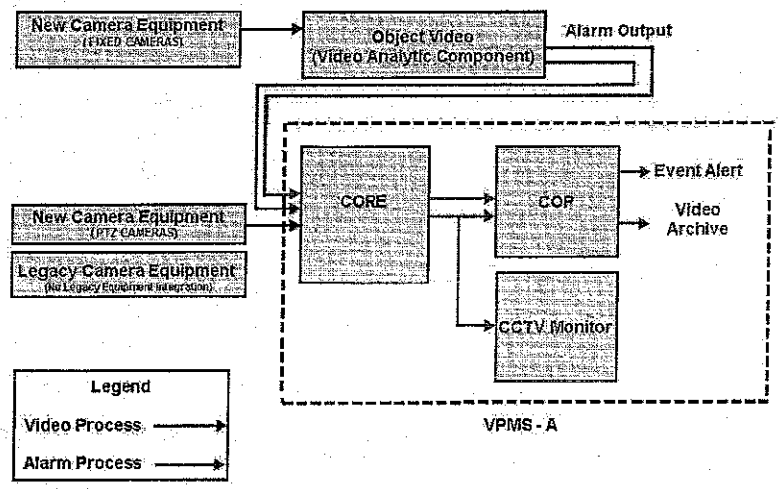


Figure 6. Block Diagram: Flow of Information within VPMS-A

As shown in the diagram, no legacy security equipment was integrated into the VPMS-A. Alarm events observed within the view of the cameras were analyzed by ObjectVideo. If ObjectVideo determined that the event constituted a violation of its rule-set configurations, it would issue alarms to VideoNEXT. This software was the primary component of the COP, which was the user interface through which the ObjectVideo alarms were reported as "events" that security personnel could review and acknowledge as clear or requiring investigation. VideoNEXT also provided the controls for the PTZ cameras.

Camera nodes were typically composed of one or two cameras and the wireless communication equipment. Figure 7 shows an example of a typical camera node.

[redacted]

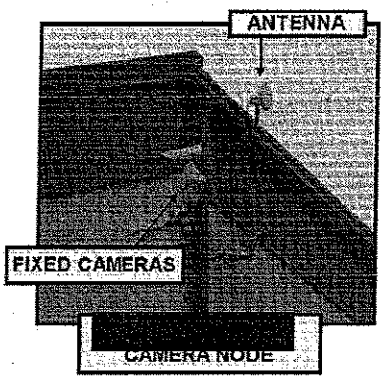


Figure 7. [redacted] Camera Node

Node components were selected based on the surrounding infrastructure, line-of-sight, and potential security risks. The directional antennas that were incorporated into each node communicated to a central hub that was mounted to the roof of the main terminal building.

4. METHODOLOGY

4.1 Sites

Safe Skies personnel performed evaluation scenarios throughout the VPMS-A coverage areas. Sites were limited to those that implemented video analytic rule sets:

[redacted]

4.2 Schedule

Testing was scheduled for November 2 – 13, 2009. [redacted] testing was delayed until November 6 and ended prematurely on November 9.

4.3 Test Personnel

Safe Skies personnel consisted of two data acquisition specialists. The scenarios were covert in nature and required attire that would not attract attention from AVL personnel, law enforcement, or the general civilian populace. The test personnel did not display their Security Identification Display Area credentials, but typically held writing materials, a camera, or a PDA while performing scenarios in order to appear as if they were functioning in an official capacity.

[redacted]

[redacted]

4.4 Test Equipment

[redacted]

4.5 Critical Operational Issues

The primary objective of conducting system tests and data collection is to address Critical Operational Issues (COI), which are the primary issues of interest. In order to address the COIs, corresponding Missions and Tasks were established, which were used to develop the methods for collecting quantitative and/or qualitative information. The Measures of Effectiveness (MOE) and Measures of Performance (MOP) were used to develop the methodologies for gathering quantitative detection rate data.

COI 1: What are the infrastructure elements of the VPMS-A at AVL?		
Mission	**Task**	
1 Identify technologies that support the VPMS-A, and identify the surrounding perimeter infrastructure.	**A**	Determine the location of the perimeter surveillance cameras and identify their operational use.
	B	Determine the perimeter boundary elements within the enhanced areas.

COI 2: Does the VPMS-A COP enhance situational awareness?		
Mission	**Task**	
1 How does the system affect incident response?	A	Determine, through user surveys, the observed capability of the system to improve real-time awareness.
	B	Determine, through user surveys, the observed value of the system's data collection capabilities, including access to stored data and video quality.
	C	Determine, through user surveys, the observed value of the information the VPMS provides that could enable coordination of incident response.
	D	Determine, through user surveys, the changes that could be made in order to optimize the system's ability to improve situational awareness at AVL.

[redacted]

[redacted]

COI 3: Does the video analytics component improve security effectiveness relative to the legacy system?	
MOE	**MOP**
[redacted]	

5. RESULTS

[redacted]

5.1 Evaluation Scenarios

[redacted]

5.2 ObjectVideo Alarm Results

The following sections report results of alarms issued by the ObjectVideo component of the VPMS-A, which was responsible for the automated detection of violations within the areas covered by the video camera network. It should be made clear, however, that the ObjectVideo

[redacted]

software was an integrated component of the VPMS-A and was *not* generally used or viewed by the security personnel to resolve alarms. Access to views as seen in the following screenshots was only available by accessing software on the core server.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[2] The gate threshold is the red boundary line on the right side of the screen that is drawn closest to the vehicle gate in Figure 12.

[3] The alarm threshold is the red boundary line on the left side of the screen that is drawn farthest from the vehicle gate in Figure 12.

[redacted]

[redacted]

[redacted]

5.3 VideoNEXT Results

VideoNEXT, the user interface portion of the VPMS-A, aggregated the alarms issued by ObjectVideo and reported them to the end user.

Because communication between the cameras and ObjectVideo was discontinuous, Safe Skies cannot report on the reliability of the VideoNext software.

5.4 User Surveys

At the time of Safe Skies' testing, the VPMS-A had not been operable for a sufficient period of time to allow personnel to become familiar with its functionality. Safe Skies did not collect feedback from the system users.

5.5 System Failures

[redacted]

[redacted]

[redacted]

The NSWC-PCD technicians' report of the events and troubleshooting methods is attached as Appendix B.

6. SUMMARY & OBSERVATIONS

[redacted]

7. REFERENCES

National Safe Skies Alliance. (2009, October). *Virtual Perimeter Monitoring System-Airport (VPMS-A) AVL Operational Test Plan* (*DHS/TSA 2600.02.01.193,* Final Version 1.0). Alcoa, TN: Hunsucker.

Naval Surface Warfare Center – Panama City. (2009, October). *Draft System Segment Specification for the Asheville Regional Airport Virtual Perimeter Monitoring System* (Draft Version 0.4). Panama City: FL Persistent Awareness Systems Development Branch, Code E26.

--- (2009, July). *Asheville Regional Airport Virtual Perimeter Monitoring System Operational Verification Test* (Draft Version 0.1). Panama City, FL: Engineering Branch, Code E26.

--- (2009, July). *Asheville Regional Airport Virtual Perimeter Monitoring System Test Description* (Draft Version 0.1). Panama City, FL: Engineering Branch, Code E26.

[redacted]

[redacted]

APPENDIX A – CAMERA SCREENSHOTS

[redacted]

[redacted]

Figure 12. [redacted]

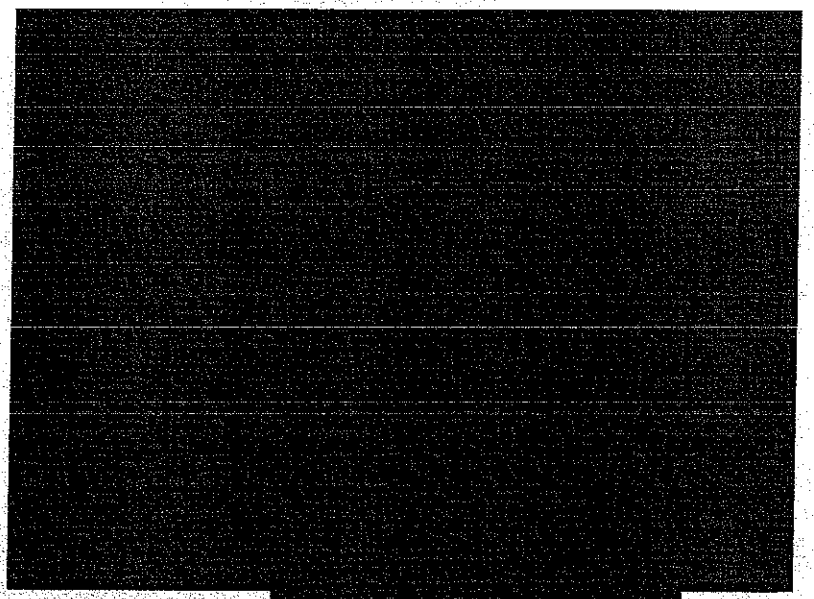


Figure 13. [redacted]

[redacted]

[redacted]

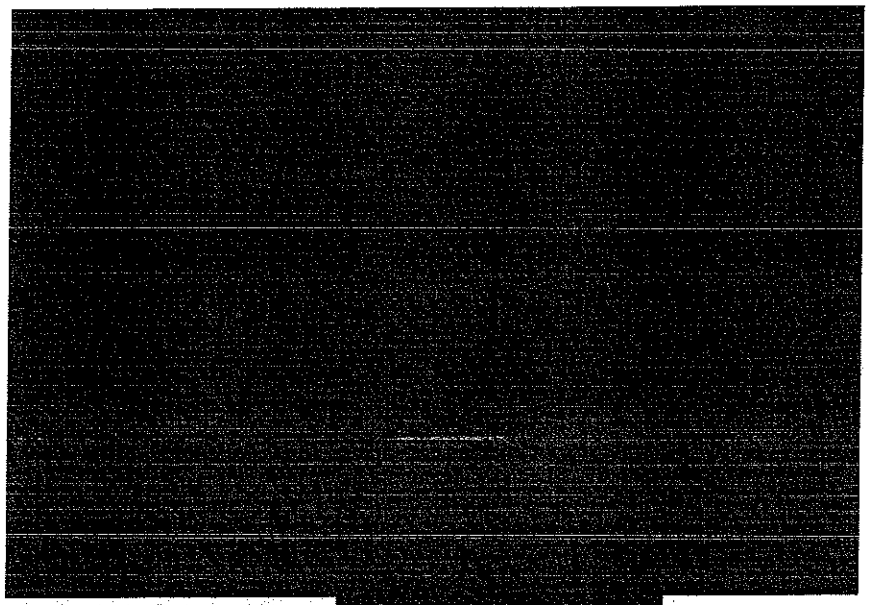


Figure 14. [redacted]

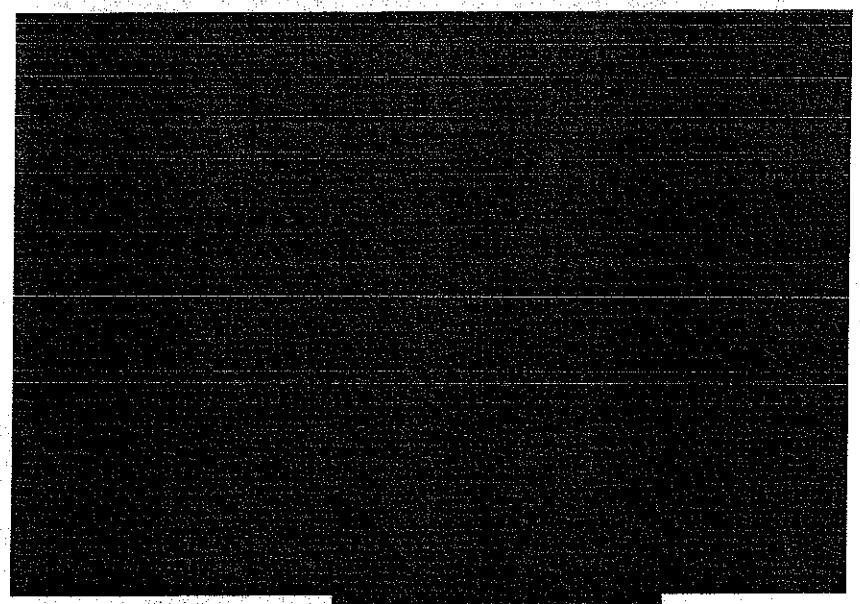


Figure 15. [redacted]

[redacted]

[redacted]

[redacted]

Figure 16. [redacted]

[redacted]

Figure 17. [redacted]

[redacted]

[redacted]

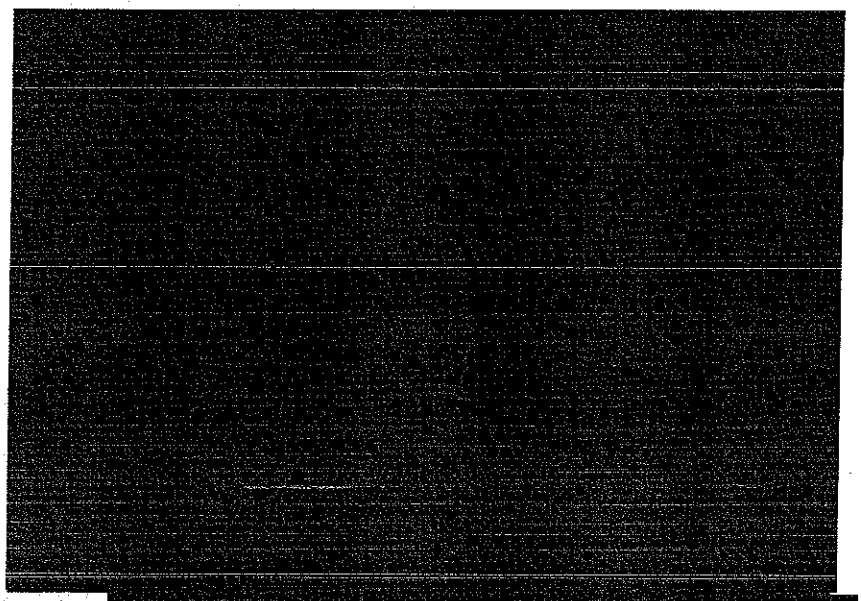


Figure 18. [redacted]

[redacted]

[redacted]

APPENDIX B – NSWC-PCD EVENT ACCOUNT

[redacted]

[redacted]

Recap of AVL Events, Current Status, and Way Ahead

AVL EVENTS:

- Installation was initially scheduled for 14 – 25 September 2009. AVL requested install dates move one week later, 21 Sep – 02 Oct 2009. Installation was extended to a third week, 05-08 Oct, due to delays primarily with our team getting access and escorts to complete work onsite. One location initially included in the site survey was subsequently dropped during installation due to problems encountered with infrastructure being privately owned.

- Due to the schedule changing, training and system testing were compressed and performed during the latter part of the week of 05-09 October. The system was operational when the team left on 09 Oct 2009. DoD 1149's turning over the system to the airport were signed by the Airport Director and returned to NSWC PCD on 09 October 2009.

- 19 Oct 2009 NSWC PCD was informed by AVL that the system was running off of UPS power. AVL checked power at the receptacle and reported no issues there. AVL was advised to power down system until it could be checked out.

- 02-06 Nov 2009 NSWC PCD traveled to AVL to address system issues. The following summarizes what was accomplished during that week:

  - Brought system to proper startup and found that the [redacted] nodes were not operational
  - Attempted access of wireless devices directly through web interfaces. Able to connect at Terminal roof to [redacted] Terminal roof to [redacted] only. Unable to connect at remote nodes. Lift equipment not available at that time
  - Tested links at Terminal roof using known good antenna cable. No change
  - [redacted] node link was re-established when Terminal roof antenna was re-aligned
  - Water was found in 2 of the 3 antenna connections on Terminal roof. All connections blown out with compressed air and resealed with mastic tape.
  - Checked [redacted] with a ladder. Antenna not reachable by ladder, but appeared out of alignment.
  - Borrowed lift equipment from Maintenance and re-aligned [redacted] ntenna. Antenna connection blown out with compressed air and resealed with mastic tape.
  - Re-aligned antenna at Terminal roof to [redacted]

[redacted]

[redacted]

- Consulted with 3ETI about Terminal roof to [redacted] node, wireless unit found to be faulty. Replaced wireless unit
- Re-aligned [redacted] antenna. Antenna connection blown out with compressed air and resealed with mastic tape.
- All cameras and sensors were operational by Thursday evening 11-5-09

- NSSA testing for AVL was initially scheduled for 02 – 13 Nov. The system was operational 05 Nov and testing began. It continued through 10 Nov, [redacted]

CURRENT STATUS:

[redacted]

[redacted]

[redacted]

WAY AHEAD:

- Once funding is received, schedule a site visit to assess status of system and adjust or repair if needed.
- Retrain staff and make sure they are aware of how to contact NSWC PCD if there are problems with the system.
- Inform NSSA after completion of site visit and retraining so final testing can take place.
- Continue to keep in contact with AVL personnel to ensure status of system.
- Set up network connectivity so remote troubleshooting can take place from NSWC PCD.

[redacted]

[redacted]

APPENDIX C – SAFE SKIES ISSUES/ACTIVITY LOG

[redacted]

[redacted]

AVL – Issues/Activity Timetable

- November 2 – Badging
- November 3 – System not ready; waited for NSWC-PCD to get the system running
- November 4 – Assisted NSWC-PCD technician on site with troubleshooting
- November 5 – Assisted NSWC-PCD technician on site with troubleshooting; system running
- November 6 – Normal round of data collection
- November 7 – Normal round of data collection
- November 8 – Normal round of data collection
- November 9 – Upon arrival at airport police to download data, Safe Skies was informed

[redacted]

[redacted]