



Transportation  
Security  
Administration

February 22, 2012

Mr. Patrick Ahlstrom  
Acting Federal Security Director  
Transportation Security Administration  
Phoenix Sky Harbor International Airport (PHX)

Dear Mr. Ahlstrom:

The TSA Office of Occupational Safety, Health, and Environment (OSHE) is sponsoring an independent radiation protection survey project of general-use backscatter x-ray advanced imaging technology (AIT) systems and cabinet x-ray systems through an interagency agreement with the U.S. Army Public Health Command (USAPHC). This survey project is not to be confused with the radiation surveys performed during preventive maintenance checks. The annual equipment inspections are conducted by certified equipment maintenance personnel under specific testing conditions, whereas the survey project is conducted by USAPHC personnel under normal operating conditions; e.g., baggage flow-through or passenger screening with TSOs in attendance.

As part of the survey project, a radiation protection survey of selected general-use backscatter x-ray AIT and cabinet x-ray systems used at TSA PHX was conducted on August 22-25, 2011, by a team of certified health physicists from USAPHC's Health Physics Program, Army Institute of Public Health. The purpose of the survey was to ensure that the general-use backscatter x-ray AIT systems comply with the requirements of ANSI/HPS N43.17-2009, that the cabinet x-ray systems comply with the Food and Drug Administration's Performance Standards for Ionizing Radiation Emitting Products (21 CFR 1020.40), and to identify any health hazards associated with the use of either of these x-ray systems.

*General-use Backscatter X-ray AIT Systems*

The findings for the surveyed AIT systems are described on page 2 of the attached report and in applicable survey worksheets (Enclosure 1 of attached report), and are summarized as follows:

A total of 16 general-use backscatter x-ray AIT systems were tested and found to be in compliance with the radiation dose limits specified in ANSI/HPS N43.17-2009. There are no health hazards associated with the use of these general-use backscatter x-ray AIT systems provided the appropriate operating procedures are followed. In addition, the general-use backscatter x-ray AIT systems were in compliance with other (non-emission) requirements of the standard.

Several items were noted by the survey officers during the AIT surveys, specifically a misalignment of the master and slave units of one AIT system, and an unlocked access panel on the slave unit of two AIT systems. The misalignment was not a radiation hazard and was corrected by the service provider. See paragraphs (a) through (c) in the bottom half of page 2 for system descriptions.

*Cabinet X-ray Systems*

The findings for the surveyed cabinet x-ray systems are described on page 2 of the attached report and in the survey worksheets (Enclosure 2 of the attached report), and are summarized as follows:

A total of 14 cabinet x-ray systems were tested and found to be in compliance with the emissions limit specified in Title 21, CFR, Subchapter J. There are no health hazards associated with the use of these cabinet x-ray systems provided the appropriate operating procedures are followed.

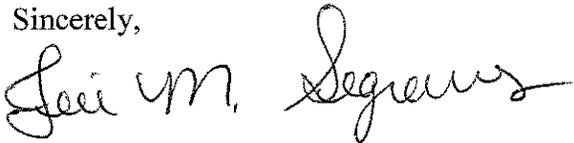
The cabinet x-ray systems complied with other (non-emission) requirements of Title 21, CFR, Subchapter J, with the exception of a missing manufacturer's certification label on one system and unavailability of a user's manual at another system at the time of the survey. The affected systems are described in paragraphs (a) and (b) in the top half of page 2.

In addition, the service provider's survey date posted on two cabinet x-ray systems was over a year old. Please see paragraphs (d) and (e) in the bottom part of page 2.

Your early attention to correcting the uncorrected findings is requested. Please contact the TSA Service Response Center at 1-800-820-8535 for assistance, and advise me of progress via email by March 28, 2012, or when the corrections are completed, whichever is sooner.

If you have questions or comments about the report's contents, please direct them to me at

Sincerely,



Jill M. Segraves, CSP

Director

Office of Occupational Safety, Health, and Environment

cc: Ms. Christine Halfacre, Chief of Staff, Office of Security Technology

Enclosure: TSA PHX Radiation Protection Survey Report, dated 12 December 2011



DEPARTMENT OF THE ARMY  
US ARMY INSTITUTE OF PUBLIC HEALTH  
5158 BLACKHAWK ROAD  
ABERDEEN PROVING GROUND MD 21010-5403

12 Dec 2011

Health Physics Program

Ms. Jill Segraves  
Transportation Security Administration  
TSA-170SHE  
601 South 12<sup>th</sup> Street  
Arlington, Virginia 22202

Dear Ms. Segraves:

This letter is in reference to the Memorandum of Agreement between the U.S. Army Medical Command and the Transportation Security Administration (TSA), signed September 10, 2008; electronic mail message, subject: RE: 2400.2.1 Radiation Safety Surveys, 28 July 2011; American National Standards Institute/Health Physics Society (ANSI/HPS) N43.17-2009; and Title 21, Code of Federal Regulations (CFR), Subchapter J.

A radiation protection survey was performed on 22-25 August 2011 at Phoenix Sky Harbor International Airport (PHX), Phoenix, AZ, Project No. 26-MF-0F0N-11. The survey was performed to:

- a. Evaluate the advanced imaging technology (AIT) x-ray systems to ensure compliance with the requirements of ANSI/HPS N43.17-2009.
- b. Evaluate selected cabinet x-ray systems to ensure compliance with the requirements of Title 21, CFR, Subchapter J.
- c. Identify any health hazards associated with the use of these x-ray systems.
- d. Provide recommendations to assist in correcting any areas of regulatory noncompliance or health hazards.

The survey was performed by [REDACTED], Certified Health Physicist (CHP), Health Physics Program (HPP), Army Institute of Public Health (AIPH), [REDACTED], CHP, Consolidated Safety Services (CSS) and [REDACTED] Certified Industrial Hygienist, CSS. A total of 16 AIT x-ray systems were evaluated for compliance with the requirements of ANSI/HPS N43.17-2009 and 14 cabinet x-ray systems were evaluated for compliance with the requirements of Title 21, CFR, Subchapter J. The survey results for each AIT system are provided in Enclosure 1. The survey results for each cabinet x-ray system are provided in Enclosure 2.

All AIT x-ray systems tested were found to be in compliance with the radiation dose limits specified in ANSI/HPS N43.17-2009. All cabinet x-ray systems tested were found to be in compliance with the emissions limit specified in Title 21, CFR, Subchapter J. There are no health hazards associated with the use of these systems provided appropriate operating procedures are followed.

All AIT systems surveyed were found to be in compliance with the other requirements of ANSI/HPS N43.17-2009.

All cabinet systems were found to be in compliance with the other requirements of Title 21, CFR, Subchapter J, with the following exceptions:

- a. L3 3DX-FFOV, SN 6777, Terminal 4, Basement, Oversize: A manufacturer's certification label could not be found on the system.
- b. Rapiscan 520Bs, SN 7075001, Terminal 3, South Checkpoint, Lane 3 and SN 7052005, Terminal 3, North Checkpoint, Lane 5: A User's Manual was not available at the time of the survey.

In addition, the survey officers noted the following items during the surveys:

- a. Rapiscan Secure 1000 SP, SN S51037012, Terminal 2, Checkpoint, Lane 3/4: The master and slave units were misaligned resulting in slightly elevated measurements at two locations. The radiation levels at both locations were very small but larger than typically seen. This situation was not a radiation safety hazard. The survey officers were informed at the exit briefing that the service provider had corrected the alignment.
- b. Rapiscan Secure 1000 SP, SN S51023007, Terminal 4, Checkpoint A, Lane 3/4: The access panel door on the slave unit was unlocked.
- c. Rapiscan Secure 1000 SP, SN S51023012, Terminal 4, Checkpoint C, Lane 1/2: The access panel door on the slave unit was unlocked.
- d. L3 3DX-FFOV, SN 6669, Terminal 4, Basement: The service provider's survey date posted on the system was over a year old.
- e. Rapiscan 620DV, SN 7092307, Terminal 4, Checkpoint C, Lane 4: The service provider's survey date posted on the system was over a year old.

Based on dosimetry and field measurements around the Secure 1000 SP and cabinet x-ray systems, it is estimated that Transportation Security Officers will receive a radiation dose of less than 10 millirem per year. For comparison, the occupational limit under Occupational Safety and Health Administration regulations is 1,250 millirem per quarter (or 5,000 millirem per year). The goal of the TSA radiation safety program is to keep all exposures less than 100 millirem per year.

The survey officers discussed the survey results with Ms. Heather Callahan, Federal Security Director, and four other TSA PHX staff on August 25, 2011. A copy of the survey notes is provided in Enclosure 3.

For more information concerning the survey, please contact the AIPH, HPP, at [REDACTED].

Sincerely,

[REDACTED]  
Portfolio Director  
Occupational Health Sciences

Enclosures

## Survey Results for 16 AIT X-Ray Systems

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION				
Project No.		26-MF-0F0N-11		Location		Terminal 2, Checkpoint, Lane 1/2		
Survey Date		23 Aug 2011		Organization		Phoenix Sky Harbor International		
Surveyor(s)				Street Address		3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation		Phoenix	State	AZ
INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51037011	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date		14 Mar 2011	

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM		SCANNING MEASUREMENTS			
		Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments)			
		Inspection zone boundary scanned with Instrument #3.			
SCATTERED RADIATION (Optional)					
Location	Scan 1	Scan 2	Scan 3	Average	
#1	μR	μR	μR	μR	
#2	μR	μR	μR	μR	
#3	μR	μR	μR	μR	
#4	μR	μR	μR	μR	
#5	μR	#6	μR		
Measurements not performed because passengers were not being screened with this system while the survey team was present.					

DOSE PER SCREENING				BEAM QUALITY			
		Exposure (X)				Exposure (X)	
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem): 2.1 μrem or 0.021 μSv	mm Al	"Front" Side	"Back" Side	HVL "Front" Side 1.1 mm Al HVL "Back" Side 1.1 mm Al Conversion Factor 0.122 Min. Filtration <sup>1</sup> 1.0 mm Al <small><sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system</small>
a	6.83 μR	6.77 μR		0	1.77 μR	2.25 μR	
b	6.84 μR	6.91 μR		0	1.77 μR	2.24 μR	
c	6.90 μR	6.77 μR		1	0.95 μR	1.16 μR	
d	6.77 μR	6.84 μR		1	0.88 μR	1.22 μR	
e	6.84 μR	6.84 μR		1.5	0.68 μR	0.95 μR	
AVG	6.84 μR	6.83 μR		1.5	0.68 μR	0.88 μR	
Energy Correction Factor		1.25		RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>			
Measurements made with Instruments #1 & #2				Measurements made with Instruments #4 & #5			

COMMENTS AND RECOMMENDATIONS																			
Additional Instruments Used: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>Manufacturer</th> <th>Model</th> <th>Serial No.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr> <td>Instrument #4</td> <td>Radcal</td> <td>9010</td> <td>90-3291</td> <td>29 Jul 2012</td> </tr> <tr> <td>Instrument #5</td> <td>Radcal</td> <td>10X5-1800</td> <td>10299</td> <td>28 Jul 2012</td> </tr> </tbody> </table> <p>* Instrument #3 was response checked before and after the survey.</p>						Manufacturer	Model	Serial No.	Cal. Due	Instrument #4	Radcal	9010	90-3291	29 Jul 2012	Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012
	Manufacturer	Model	Serial No.	Cal. Due															
Instrument #4	Radcal	9010	90-3291	29 Jul 2012															
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012															

# Survey Worksheet - AIT X-Ray Systems

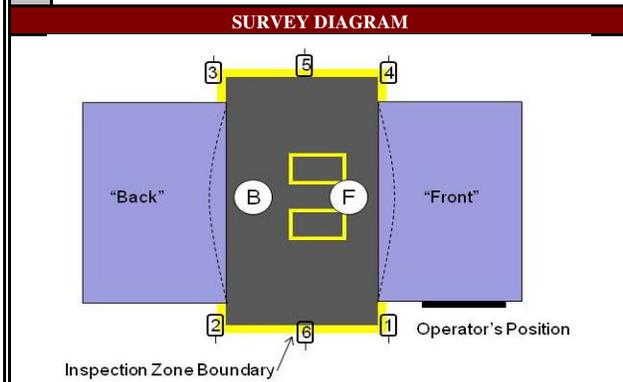
Health Physics Program

U.S. Army Public Health Command

Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA					SURVEY LOCATION				
Project No.	26-MF-0FON-11				Location	Terminal 2, Checkpoint, Lane 3/4			
Survey Date	23 Aug 2011				Organization	Phoenix Sky Harbor International			
Surveyor(s)	[Redacted]				Street Address	3800 East Skyharbor Blvd., Suiret 4206			
					City/Installation	Phoenix	State	AZ	ZIP
INSTRUMENTS USED					SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date	
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51037012	Sep 2010	
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA	
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	14 Mar 2011			

VISUAL INSPECTION			
Y	N	<b>Requirement</b>	<b>Requirement</b>
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	X
			At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X
			X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	X
			Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X
			Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X
			User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			



SCANNING MEASUREMENTS	
Scanning below action levels?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
(If no, explain in comments)	
Inspection zone boundary scanned with Instrument #3.	

SCATTERED RADIATION (Optional)							
Location	Scan 1	Scan 2	Scan 3	Average			
#1	0.00 $\mu$ R						
#2	0.21 $\mu$ R	0.14 $\mu$ R	0.14 $\mu$ R	0.16 $\mu$ R	0.16 $\mu$ R	0.16 $\mu$ R	
#3	0.07 $\mu$ R	0.00 $\mu$ R	0.00 $\mu$ R	0.02 $\mu$ R	0.02 $\mu$ R	0.02 $\mu$ R	
#4	0.07 $\mu$ R	0.21 $\mu$ R	0.07 $\mu$ R	0.12 $\mu$ R	0.12 $\mu$ R	0.12 $\mu$ R	
#5	0.00 $\mu$ R		#6	0.00 $\mu$ R			

Measurements made with Instruments #1 & #2

DOSE PER SCREENING				
	<i>Exposure (X)</i>			Reference Effective Dose per Screening (max 25 $\mu$ rem): <div style="border: 1px solid black; padding: 2px; display: inline-block;">1.9 <math>\mu</math>rem</div> or <div style="border: 1px solid black; padding: 2px; display: inline-block;">0.019 <math>\mu</math>Sv</div>
<i>Trial</i>	<i>"Front" Side</i>	<i>"Back" Side</i>		
a	5.65 $\mu$ R	5.37 $\mu$ R		
b	5.85 $\mu$ R	5.30 $\mu$ R		
c	5.57 $\mu$ R	5.30 $\mu$ R		
d	5.58 $\mu$ R	5.38 $\mu$ R		
e	5.58 $\mu$ R	5.38 $\mu$ R		
AVG	5.65 $\mu$ R	5.35 $\mu$ R		
Energy Correction Factor	1.25			
<b>RESULT</b> <span style="background-color: #90EE90; padding: 2px;">PASS</span>				

Measurements made with Instruments #1 & #2

BEAM QUALITY				
	<i>Exposure (X)</i>			HVL "Front" Side <span style="border: 1px solid black; padding: 2px;">1.0</span> mm Al HVL "Back" Side <span style="border: 1px solid black; padding: 2px;">1.2</span> mm Al Conversion Factor <span style="border: 1px solid black; padding: 2px;">0.131</span> Min. Filtration <sup>1</sup> <span style="border: 1px solid black; padding: 2px;">1.0</span> mm Al <small><sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system</small>
<i>mm Al</i>	<i>"Front" Side</i>	<i>"Back" Side</i>		
0	1.97 $\mu$ R	1.77 $\mu$ R		
0	1.98 $\mu$ R	1.70 $\mu$ R		
1	1.02 $\mu$ R	0.95 $\mu$ R		
1	0.96 $\mu$ R	0.95 $\mu$ R		
1.5	0.75 $\mu$ R	0.75 $\mu$ R		
1.5	0.75 $\mu$ R	0.75 $\mu$ R		
<b>RESULT</b> <span style="background-color: #90EE90; padding: 2px;">PASS</span>				

Measurements made with Instruments #4 & #5

**COMMENTS AND RECOMMENDATIONS**

Scattered radiation measurements were slightly higher than typically seen at locations #2 and #4 due to a misalignment of the front (master) and back (slave) units. The measured levels do not pose a radiation safety hazard.

Additional Instruments Used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012

\* Instrument #3 was response checked before and after the survey.

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 2, Checkpoint, Lane 5/6		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51037013	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	14 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS			
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.			
SCATTERED RADIATION (Optional)				
Location	Scan 1	Scan 2	Scan 3	Average
#1	μR	μR	μR	μR
#2	μR	μR	μR	μR
#3	μR	μR	μR	μR
#4	μR	μR	μR	μR
#5	μR	#6	μR	
Measurements not performed because passengers were not being screened with this system while the survey team was present.				

DOSE PER SCREENING					BEAM QUALITY				
Exposure (X)					Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):		mm Al	"Front" Side	"Back" Side	HVL "Front" Side	
a	5.72 μR	6.13 μR	1.8 μrem or 0.018 μSv		0	1.63 μR	1.97 μR	1.1 mm Al	
b	5.71 μR	6.28 μR			0	1.63 μR	1.97 μR	1.0 mm Al	
c	5.78 μR	6.21 μR	RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>		1	0.81 μR	0.95 μR	Conversion Factor	
d	5.86 μR	6.20 μR			1	0.88 μR	1.02 μR	0.119	
e	5.72 μR	6.13 μR	RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>		1.5	0.68 μR	0.82 μR	Min. Filtration <sup>1</sup>	
AVG	5.76 μR	6.19 μR			1.5	0.68 μR	0.82 μR	1.0 mm Al	
Energy Correction Factor 1.25					<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system				
Measurements made with Instruments #1 & #2					Measurements made with Instruments #4 & #5				

COMMENTS AND RECOMMENDATIONS																			
Additional Instruments Used: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>Manufacturer</th> <th>Model</th> <th>Serial No.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr> <td>Instrument #4</td> <td>Radcal</td> <td>9010</td> <td>90-3291</td> <td>29 Jul 2012</td> </tr> <tr> <td>Instrument #5</td> <td>Radcal</td> <td>10X5-1800</td> <td>10299</td> <td>28 Jul 2012</td> </tr> </tbody> </table> <p>* Instrument #3 was response checked before and after the survey.</p>						Manufacturer	Model	Serial No.	Cal. Due	Instrument #4	Radcal	9010	90-3291	29 Jul 2012	Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012
	Manufacturer	Model	Serial No.	Cal. Due															
Instrument #4	Radcal	9010	90-3291	29 Jul 2012															
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012															

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint A, Lane 1/2		
Survey Date	22 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51023006	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS																														
<p style="text-align: center;">Inspection Zone Boundary</p>	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.																														
SCATTERED RADIATION (Optional)																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Location</th> <th>Scan 1</th> <th>Scan 2</th> <th>Scan 3</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#2</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#3</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#4</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#5</td> <td>μR</td> <td>#6</td> <td>μR</td> <td></td> </tr> </tbody> </table>	Location	Scan 1	Scan 2	Scan 3	Average	#1	μR	μR	μR	μR	#2	μR	μR	μR	μR	#3	μR	μR	μR	μR	#4	μR	μR	μR	μR	#5	μR	#6	μR		
Location	Scan 1	Scan 2	Scan 3	Average																											
#1	μR	μR	μR	μR																											
#2	μR	μR	μR	μR																											
#3	μR	μR	μR	μR																											
#4	μR	μR	μR	μR																											
#5	μR	#6	μR																												
Measurements not performed because passengers were not being screened with this system while the survey team was present.																															

DOSE PER SCREENING					BEAM QUALITY				
Exposure (X)					Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):		mm Al	"Front" Side	"Back" Side	HVL "Front" Side	
a	6.53 μR	6.25 μR	2.1 μrem or 0.021 μSv		0	2.24 μR	2.17 μR	1.1 mm Al	
b	6.53 μR	6.26 μR			0	2.31 μR	2.17 μR	Conversion Factor	
c	6.60 μR	6.47 μR	RESULT <span style="background-color: #FFDAB9; padding: 2px;">PASS</span>		1	1.22 μR	1.08 μR	Min. Filtration <sup>1</sup>	
d	6.60 μR	6.26 μR			1	1.22 μR	1.15 μR	1.0 mm Al	
e	6.59 μR	6.25 μR	RESULT <span style="background-color: #FFDAB9; padding: 2px;">PASS</span>		1.5	0.95 μR	0.88 μR	<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system	
AVG	6.57 μR	6.30 μR			1.5	0.95 μR	0.95 μR		
Energy Correction Factor	1.25				Measurements made with Instruments #4 & #5				

COMMENTS AND RECOMMENDATIONS																			
Additional Instruments Used: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th></th> <th>Manufacturer</th> <th>Model</th> <th>Serial No.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr> <td>Instrument #4</td> <td>Radcal</td> <td>9010</td> <td>90-3291</td> <td>29 Jul 2012</td> </tr> <tr> <td>Instrument #5</td> <td>Radcal</td> <td>10X5-1800</td> <td>10299</td> <td>28 Jul 2012</td> </tr> </tbody> </table> <p>* Instrument #3 was response checked before and after the survey.</p>						Manufacturer	Model	Serial No.	Cal. Due	Instrument #4	Radcal	9010	90-3291	29 Jul 2012	Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012
	Manufacturer	Model	Serial No.	Cal. Due															
Instrument #4	Radcal	9010	90-3291	29 Jul 2012															
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012															

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint A, Lane 3/4		
Survey Date	22 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suite 4206		
	[Redacted]			City/Installation	Phoenix	State	AZ
	[Redacted]					ZIP	85034

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51023007	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	23 May 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS																														
<p style="text-align: center;">Inspection Zone Boundary</p>	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.																														
	SCATTERED RADIATION (Optional)																														
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Location	Scan 1	Scan 2	Scan 3	Average																											
#1	μR	μR	μR	μR																											
#2	μR	μR	μR	μR																											
#3	μR	μR	μR	μR																											
#4	μR	μR	μR	μR																											
#5	μR	#6	μR																												
	Measurements not performed because passengers were not being screened with this system while the survey team was present.																														

DOSE PER SCREENING					BEAM QUALITY				
Exposure (X)					Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):		mm Al	"Front" Side	"Back" Side	HVL "Front" Side	
a	6.72 μR	6.81 μR	2.1 μrem or 0.021 μSv		0	1.82 μR	2.23 μR	1.1 mm Al	
b	6.73 μR	6.80 μR			0	1.96 μR	2.23 μR	1.1 mm Al	
c	6.79 μR	6.80 μR			1	1.02 μR	1.15 μR	Conversion Factor	
d	6.66 μR	6.73 μR			1	0.95 μR	1.22 μR	Min. Filtration <sup>1</sup>	
e	6.72 μR	6.78 μR			1.5	0.74 μR	0.95 μR	1.0 mm Al	
AVG	6.72 μR	6.78 μR	1.5	0.74 μR	0.95 μR	<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system			
Energy Correction Factor	1.25		<b>RESULT PASS</b>		<b>RESULT PASS</b>				
Measurements made with Instruments #1 & #2					Measurements made with Instruments #4 & #5				

COMMENTS AND RECOMMENDATIONS

Access panel on slave unit was unlocked.

Additional Instruments Used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012

\* Instrument #3 was response checked before and after the survey.

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint A, Lane 5/6		
Survey Date	22 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51023008	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS			
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.			
SCATTERED RADIATION (Optional)				
Location	Scan 1	Scan 2	Scan 3	Average
#1	μR	μR	μR	μR
#2	μR	μR	μR	μR
#3	μR	μR	μR	μR
#4	μR	μR	μR	μR
#5	μR	#6	μR	
Measurements not performed because passengers were not being screened with this system while the survey team was present.				

DOSE PER SCREENING				BEAM QUALITY			
Exposure (X)				Exposure (X)			
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):	mm Al	"Front" Side	"Back" Side	HVL "Front" Side
a	7.97 μR	7.06 μR	2.4 μrem or 0.024 μSv	0	2.24 μR	2.11 μR	1.1 mm Al
b	7.97 μR	7.06 μR		0	2.24 μR	2.04 μR	1.1 mm Al
c	7.97 μR	7.06 μR		1	1.15 μR	1.08 μR	0.122
d	7.97 μR	6.99 μR		1	1.15 μR	1.09 μR	1.0 mm Al
e	8.18 μR	7.00 μR		1.5	1.02 μR	0.88 μR	
AVG	8.01 μR	7.03 μR	1.5	0.95 μR	0.88 μR		
Energy Correction Factor	1.25			RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>			
Measurements made with Instruments #1 & #2				Measurements made with Instruments #4 & #5			

COMMENTS AND RECOMMENDATIONS																			
Additional Instruments Used: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>Manufacturer</th> <th>Model</th> <th>Serial No.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr> <td>Instrument #4</td> <td>Radcal</td> <td>9010</td> <td>90-3291</td> <td>29 Jul 2012</td> </tr> <tr> <td>Instrument #5</td> <td>Radcal</td> <td>10X5-1800</td> <td>10299</td> <td>28 Jul 2012</td> </tr> </tbody> </table> <p>* Instrument #3 was response checked before and after the survey.</p>						Manufacturer	Model	Serial No.	Cal. Due	Instrument #4	Radcal	9010	90-3291	29 Jul 2012	Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012
	Manufacturer	Model	Serial No.	Cal. Due															
Instrument #4	Radcal	9010	90-3291	29 Jul 2012															
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012															

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program

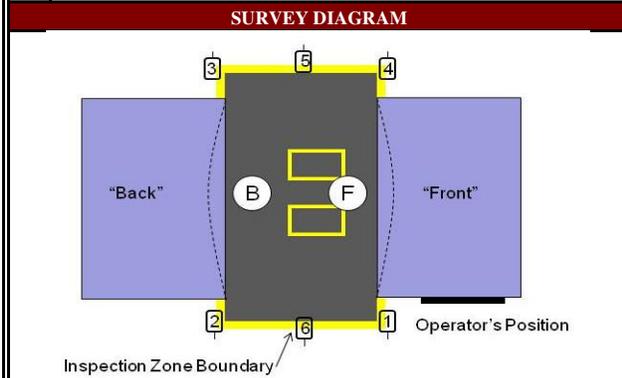
U.S. Army Public Health Command

Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint A, Lane 7/8		
Survey Date	22 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51023009	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			



SCANNING MEASUREMENTS			
Scanning below action levels?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
(If no, explain in comments)			
Inspection zone boundary scanned with Instrument #3.			

SCATTERED RADIATION (Optional)							
Location	Scan 1	Scan 2	Scan 3	Average			
#1	0.07 $\mu$ R	0.00 $\mu$ R	0.07 $\mu$ R	0.05 $\mu$ R			
#2	0.00 $\mu$ R	0.07 $\mu$ R	0.00 $\mu$ R	0.02 $\mu$ R			
#3	0.00 $\mu$ R	0.07 $\mu$ R	0.14 $\mu$ R	0.07 $\mu$ R			
#4	0.07 $\mu$ R	0.07 $\mu$ R	0.07 $\mu$ R	0.07 $\mu$ R			
#5	0.07 $\mu$ R		#6	0.07 $\mu$ R			
Measurements made with Instruments #1 & #2							

DOSE PER SCREENING				
Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 $\mu$ rem):	
a	5.66 $\mu$ R	6.64 $\mu$ R	2.1 $\mu$ rem or 0.021 $\mu$ Sv	
b	5.66 $\mu$ R	6.72 $\mu$ R		
c	5.73 $\mu$ R	6.64 $\mu$ R	<b>RESULT</b> <span style="background-color: #FFDAB9; padding: 2px;">PASS</span>	
d	5.67 $\mu$ R	6.58 $\mu$ R		
e	5.66 $\mu$ R	6.72 $\mu$ R	<b>RESULT</b> <span style="background-color: #FFDAB9; padding: 2px;">PASS</span>	
AVG	5.68 $\mu$ R	6.66 $\mu$ R		
Energy Correction Factor	1.25			
Measurements made with Instruments #1 & #2				

BEAM QUALITY				
Exposure (X)				
mm Al	"Front" Side	"Back" Side	HVL "Front" Side <span style="background-color: #FFDAB9; padding: 2px;">1.1</span> mm Al	
0	1.22 $\mu$ R	2.30 $\mu$ R	HVL "Back" Side <span style="background-color: #FFDAB9; padding: 2px;">1.2</span> mm Al	
0	1.22 $\mu$ R	2.30 $\mu$ R	Conversion Factor <span style="background-color: #FFDAB9; padding: 2px;">0.128</span>	
1	0.68 $\mu$ R	1.22 $\mu$ R	Min. Filtration <sup>1</sup> <span style="background-color: #FFDAB9; padding: 2px;">1.0</span> mm Al	
1	0.61 $\mu$ R	1.22 $\mu$ R	<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system	
1.5	0.47 $\mu$ R	1.02 $\mu$ R		
1.5	0.47 $\mu$ R	1.02 $\mu$ R		
Measurements made with Instruments #4 & #5				
<b>RESULT</b> <span style="background-color: #FFDAB9; padding: 2px;">PASS</span>				

**COMMENTS AND RECOMMENDATIONS**

Additional Instruments Used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012

\* Instrument #3 was response checked before and after the survey.

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint B, Lane 1/2		
Survey Date	22 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51023010	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	10 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS																														
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.																														
SCATTERED RADIATION (Optional)																															
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#1	μR	μR	μR	μR																											
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#4	μR	μR	μR	μR																											
#5	μR	#6	μR																												
Measurements not performed because passengers were not being screened with this system while the survey team was present.																															

DOSE PER SCREENING				BEAM QUALITY			
Exposure (X)				Exposure (X)			
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):	mm Al	"Front" Side	"Back" Side	HVL "Front" Side
a	6.97 μR	7.46 μR	2.4 μrem or 0.024 μSv	0	1.72 μR	2.47 μR	1.1 mm Al
b	6.97 μR	7.53 μR		0	1.72 μR	2.40 μR	1.1 mm Al
c	6.97 μR	7.47 μR		1	0.89 μR	1.30 μR	Conversion Factor
d	6.97 μR	7.46 μR		1	0.89 μR	1.31 μR	1.0 mm Al
e	6.90 μR	7.54 μR		1.5	0.69 μR	1.03 μR	Min. Filtration <sup>1</sup>
AVG	6.96 μR	7.49 μR	1.5	0.69 μR	1.03 μR	<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system	
Energy Correction Factor	1.25			RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>			
Measurements made with Instruments #1 & #2				Measurements made with Instruments #4 & #5			

COMMENTS AND RECOMMENDATIONS																			
Additional Instruments Used: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>Manufacturer</th> <th>Model</th> <th>Serial No.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr> <td>Instrument #4</td> <td>Radcal</td> <td>9010</td> <td>90-3291</td> <td>29 Jul 2012</td> </tr> <tr> <td>Instrument #5</td> <td>Radcal</td> <td>10X5-1800</td> <td>10299</td> <td>28 Jul 2012</td> </tr> </tbody> </table> <p>* Instrument #3 was response checked before and after the survey.</p>						Manufacturer	Model	Serial No.	Cal. Due	Instrument #4	Radcal	9010	90-3291	29 Jul 2012	Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012
	Manufacturer	Model	Serial No.	Cal. Due															
Instrument #4	Radcal	9010	90-3291	29 Jul 2012															
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012															

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program

U.S. Army Public Health Command

Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint B, Lane 3/4		
Survey Date	22 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51005006	Feb 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	10 Aug 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS																														
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.																														
SCATTERED RADIATION (Optional)																															
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Location</th> <th>Scan 1</th> <th>Scan 2</th> <th>Scan 3</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#2</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#3</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#4</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#5</td> <td>μR</td> <td>#6</td> <td>μR</td> <td></td> </tr> </tbody> </table>	Location	Scan 1	Scan 2	Scan 3	Average	#1	μR	μR	μR	μR	#2	μR	μR	μR	μR	#3	μR	μR	μR	μR	#4	μR	μR	μR	μR	#5	μR	#6	μR	
Location	Scan 1	Scan 2	Scan 3	Average																											
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#4	μR	μR	μR	μR																											
#5	μR	#6	μR																												
	Measurements not performed because passengers were not being screened with this system while the survey team was present.																														

DOSE PER SCREENING					BEAM QUALITY				
Exposure (X)					Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):		mm Al	"Front" Side	"Back" Side	HVL "Front" Side	
a	5.35 μR	6.33 μR	1.9 μrem or 0.019 μSv		0	1.51 μR	2.34 μR	1.0 mm Al	
b	5.27 μR	6.31 μR			0	1.44 μR	2.26 μR	1.1 mm Al	
c	5.21 μR	6.47 μR	RESULT <span style="background-color: #FFDAB9; padding: 2px;">PASS</span>		1	0.75 μR	1.17 μR	Conversion Factor	
d	5.21 μR	6.40 μR			1	0.75 μR	1.24 μR	0.121	
e	5.21 μR	6.47 μR			1.5	0.55 μR	0.96 μR	Min. Filtration <sup>1</sup>	
AVG	5.25 μR	6.40 μR			1.5	0.55 μR	0.96 μR	1.0 mm Al	
Energy Correction Factor	1.25				<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.				
Measurements made with Instruments #1 & #2					Measurements made with Instruments #4 & #5				

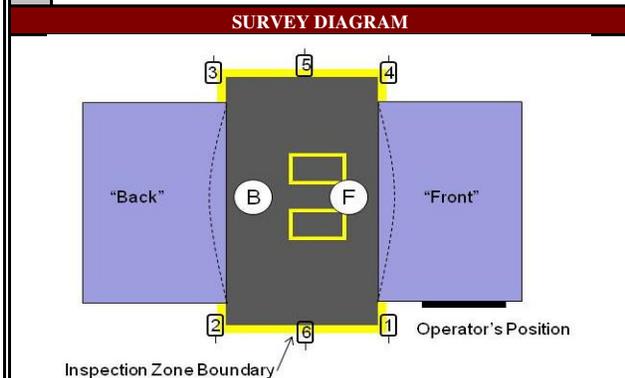
COMMENTS AND RECOMMENDATIONS																			
Additional Instruments Used: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>Manufacturer</th> <th>Model</th> <th>Serial No.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr> <td>Instrument #4</td> <td>Radcal</td> <td>9010</td> <td>90-3291</td> <td>29 Jul 2012</td> </tr> <tr> <td>Instrument #5</td> <td>Radcal</td> <td>10X5-1800</td> <td>10299</td> <td>28 Jul 2012</td> </tr> </tbody> </table> <p>* Instrument #3 was response checked before and after the survey.</p>						Manufacturer	Model	Serial No.	Cal. Due	Instrument #4	Radcal	9010	90-3291	29 Jul 2012	Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012
	Manufacturer	Model	Serial No.	Cal. Due															
Instrument #4	Radcal	9010	90-3291	29 Jul 2012															
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012															

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION				
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint B, Lane 5/6			
Survey Date	22 Aug 2011			Organization	Phoenix Sky Harbor International			
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206			
				City/Installation	Phoenix	State	AZ	ZIP
INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51023011	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION							
Y	N	<b>Requirement</b>		Y	N	<b>Requirement</b>	
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)		X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)	
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)		X		X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)	
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)		X		Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)	
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)		X		Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)	
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)		X		User provided with required information? (ANSI N43.17-2009, paragraph 7.5)	
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)		NT=not tested; NA=not applicable.			



SCANNING MEASUREMENTS				
Scanning below action levels?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
(If no, explain in comments)				
Inspection zone boundary scanned with Instrument #3.				

SCATTERED RADIATION (Optional)							
Location	Scan 1	Scan 2	Scan 3	Average			
#1	0.07 $\mu$ R						
#2	0.00 $\mu$ R						
#3	0.00 $\mu$ R						
#4	0.00 $\mu$ R	0.00 $\mu$ R	0.07 $\mu$ R	0.02 $\mu$ R	0.02 $\mu$ R		
#5	0.00 $\mu$ R		#6	0.07 $\mu$ R			

Measurements made with Instruments #1 & #2

DOSE PER SCREENING				
	<i>Exposure (X)</i>			Reference Effective Dose per Screening (max 25 $\mu$ rem): <div style="border: 1px solid black; padding: 2px; display: inline-block;">2.0 <math>\mu</math>rem</div> or <div style="border: 1px solid black; padding: 2px; display: inline-block;">0.020 <math>\mu</math>Sv</div>
Trial	"Front" Side	"Back" Side		
a	6.42 $\mu$ R	6.85 $\mu$ R		
b	6.62 $\mu$ R	6.92 $\mu$ R		
c	6.84 $\mu$ R	6.92 $\mu$ R		
d	6.78 $\mu$ R	6.99 $\mu$ R		
e	6.86 $\mu$ R	6.92 $\mu$ R		
AVG	6.70 $\mu$ R	6.92 $\mu$ R		
Energy Correction Factor	1.25			
Measurements made with Instruments #1 & #2				<b>RESULT</b> <span style="border: 1px solid black; padding: 2px; color: white; background-color: #800000;">PASS</span>

BEAM QUALITY				
	<i>Exposure (X)</i>			HVL "Front" Side <span style="border: 1px solid black; padding: 2px;">1.0</span> mm Al HVL "Back" Side <span style="border: 1px solid black; padding: 2px;">1.1</span> mm Al Conversion Factor <span style="border: 1px solid black; padding: 2px;">0.116</span> Min. Filtration <sup>1</sup> <span style="border: 1px solid black; padding: 2px;">1.0</span> mm Al  <sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system
mm Al	"Front" Side	"Back" Side		
0	2.11 $\mu$ R	2.05 $\mu$ R		
0	2.18 $\mu$ R	2.05 $\mu$ R		
1	1.09 $\mu$ R	1.09 $\mu$ R		
1	1.09 $\mu$ R	1.02 $\mu$ R		
1.5	0.89 $\mu$ R	0.82 $\mu$ R		
1.5	0.88 $\mu$ R	0.82 $\mu$ R		
Measurements made with Instruments #4 & #5				<b>RESULT</b> <span style="border: 1px solid black; padding: 2px; color: white; background-color: #800000;">PASS</span>

## COMMENTS AND RECOMMENDATIONS

Additional Instruments Used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012

\* Instrument #3 was response checked before and after the survey.

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint C, Lane 1/2		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51023012	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS																														
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.																														
	SCATTERED RADIATION (Optional)																														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Location</th> <th>Scan 1</th> <th>Scan 2</th> <th>Scan 3</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#2</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#3</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#4</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#5</td> <td>μR</td> <td>#6</td> <td>μR</td> <td></td> </tr> </tbody> </table>	Location	Scan 1	Scan 2	Scan 3	Average	#1	μR	μR	μR	μR	#2	μR	μR	μR	μR	#3	μR	μR	μR	μR	#4	μR	μR	μR	μR	#5	μR	#6	μR	
Location	Scan 1	Scan 2	Scan 3	Average																											
#1	μR	μR	μR	μR																											
#2	μR	μR	μR	μR																											
#3	μR	μR	μR	μR																											
#4	μR	μR	μR	μR																											
#5	μR	#6	μR																												
	Measurements not performed because passengers were not being screened with this system while the survey team was present.																														

DOSE PER SCREENING					BEAM QUALITY				
Exposure (X)					Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):		mm Al	"Front" Side	"Back" Side	HVL "Front" Side	
a	6.40 μR	6.48 μR	2.1 μrem or 0.021 μSv		0	2.31 μR	1.77 μR	1.0 mm Al	
b	6.90 μR	6.41 μR			0	2.31 μR	1.77 μR	1.1 mm Al	
c	6.84 μR	6.41 μR			1	1.16 μR	0.95 μR	Conversion Factor	
d	6.97 μR	6.48 μR			1	1.15 μR	0.95 μR	Min. Filtration <sup>1</sup>	
e	6.90 μR	6.48 μR			1.5	0.95 μR	0.68 μR	1.0 mm Al	
AVG	6.80 μR	6.45 μR	1.5	0.88 μR	0.75 μR	<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system			
Energy Correction Factor	1.25		<b>RESULT PASS</b>		<b>RESULT PASS</b>				
Measurements made with Instruments #1 & #2					Measurements made with Instruments #4 & #5				

**COMMENTS AND RECOMMENDATIONS**

Access panel on slave unit was unlocked.

Additional Instruments Used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012

\* Instrument #3 was response checked before and after the survey.

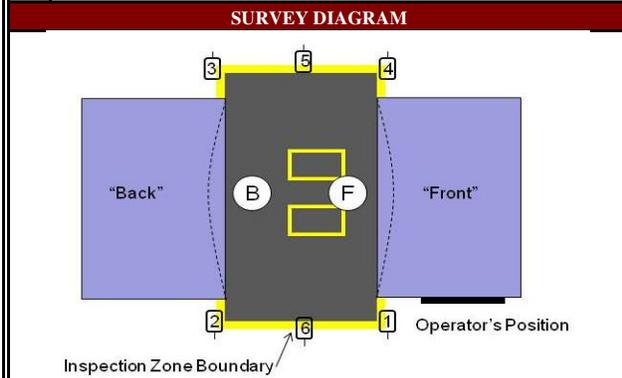
# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint C, Lane 3/4		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51023013	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	18 May 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			



SCANNING MEASUREMENTS			
Scanning below action levels?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
(If no, explain in comments)			
Inspection zone boundary scanned with Instrument #3.			

SCATTERED RADIATION (Optional)							
Location	Scan 1	Scan 2	Scan 3	Average			
#1	0.00 μR						
#2	0.00 μR						
#3	0.00 μR						
#4	0.00 μR						
#5	0.00 μR		#6	0.00 μR			
Measurements made with Instruments #1 & #2							

DOSE PER SCREENING				
Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):	
a	6.10 μR	6.46 μR	2.0 μrem or 0.020 μSv	
b	6.17 μR	6.45 μR		
c	6.10 μR	6.32 μR		
d	6.10 μR	6.46 μR		
e	6.04 μR	6.31 μR		
AVG	6.10 μR	6.40 μR		
Energy Correction Factor	1.25			
RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>				
Measurements made with Instruments #1 & #2				

BEAM QUALITY				
Exposure (X)				
mm Al	"Front" Side	"Back" Side	HVL "Front" Side <span style="background-color: #90EE90; padding: 2px;">1.2</span> mm Al	
0	1.64 μR	2.25 μR	HVL "Back" Side <span style="background-color: #90EE90; padding: 2px;">1.1</span> mm Al	
0	1.64 μR	2.25 μR	Conversion Factor <span style="background-color: #90EE90; padding: 2px;">0.127</span>	
1	0.89 μR	1.23 μR	Min. Filtration <sup>1</sup> <span style="background-color: #90EE90; padding: 2px;">1.0</span> mm Al	
1	0.89 μR	1.16 μR	<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system	
1.5	0.68 μR	0.95 μR		
1.5	0.68 μR	0.95 μR		
RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>				
Measurements made with Instruments #4 & #5				

**COMMENTS AND RECOMMENDATIONS**

Additional Instruments Used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012

\* Instrument #3 was response checked before and after the survey.

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint C, Lane 5/6		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51024008	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS			
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.			
SCATTERED RADIATION (Optional)				
Location	Scan 1	Scan 2	Scan 3	Average
#1	μR	μR	μR	μR
#2	μR	μR	μR	μR
#3	μR	μR	μR	μR
#4	μR	μR	μR	μR
#5	μR	#6	μR	
Measurements not performed because passengers were not being screened with this system while the survey team was present.				

DOSE PER SCREENING					BEAM QUALITY				
Exposure (X)					Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):		mm Al	"Front" Side	"Back" Side	HVL "Front" Side	
a	6.38 μR	5.96 μR	2.1 μrem or 0.021 μSv		0	2.25 μR	1.71 μR	1.1 mm Al	
b	6.31 μR	5.96 μR			1.2 mm Al				
c	6.38 μR	5.96 μR			1.0 mm Al				
d	6.45 μR	6.03 μR			1 An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system				
e	6.45 μR	6.04 μR							
AVG	6.39 μR	5.99 μR			1.5	0.89 μR	0.75 μR		
Energy Correction Factor	1.25				1.5	0.89 μR	0.75 μR		
Measurements made with Instruments #1 & #2					Measurements made with Instruments #4 & #5				
RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>					RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>				

## COMMENTS AND RECOMMENDATIONS

Additional Instruments Used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012

\* Instrument #3 was response checked before and after the survey.

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program

U.S. Army Public Health Command

Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0FON-11			Location	Terminal 4, Checkpoint D, Lane 1/2		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038001	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	14 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS																														
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.																														
	SCATTERED RADIATION (Optional)																														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Location</th> <th>Scan 1</th> <th>Scan 2</th> <th>Scan 3</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#2</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#3</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#4</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>#5</td> <td>μR</td> <td>#6</td> <td>μR</td> <td></td> </tr> </tbody> </table>	Location	Scan 1	Scan 2	Scan 3	Average	#1	μR	μR	μR	μR	#2	μR	μR	μR	μR	#3	μR	μR	μR	μR	#4	μR	μR	μR	μR	#5	μR	#6	μR	
Location	Scan 1	Scan 2	Scan 3	Average																											
#1	μR	μR	μR	μR																											
#2	μR	μR	μR	μR																											
#3	μR	μR	μR	μR																											
#4	μR	μR	μR	μR																											
#5	μR	#6	μR																												
	Measurements not performed because passengers were not being screened with this system while the survey team was present.																														

DOSE PER SCREENING					BEAM QUALITY				
Exposure (X)					Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):		mm Al	"Front" Side	"Back" Side	HVL "Front" Side	
a	4.89 μR	4.19 μR	1.6 μrem or 0.016 μSv		0	2.11 μR	1.09 μR	1.1 mm Al	
b	5.31 μR	4.19 μR			0	2.11 μR	1.09 μR	1.0 mm Al	
c	5.45 μR	4.20 μR	RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>		1	1.09 μR	0.55 μR	Conversion Factor	
d	5.24 μR	4.20 μR			1	1.09 μR	0.54 μR	Min. Filtration <sup>1</sup>	
e	5.31 μR	4.13 μR	RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>		1.5	0.88 μR	0.48 μR	<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system	
AVG	5.24 μR	4.18 μR			1.5	0.88 μR	0.48 μR		
Energy Correction Factor	1.25				Measurements made with Instruments #4 & #5				

## COMMENTS AND RECOMMENDATIONS

Additional Instruments Used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012

\* Instrument #3 was response checked before and after the survey.

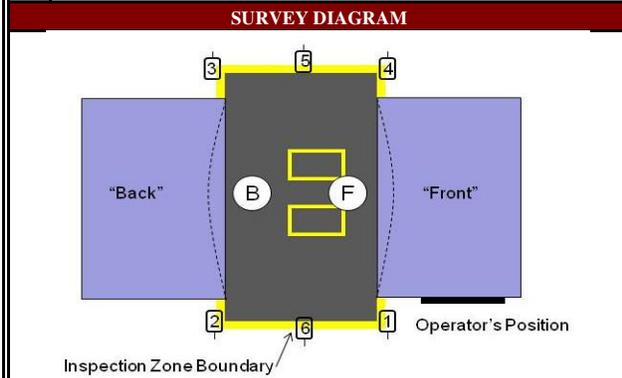
# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint D, Lane 3/4		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
	[Redacted]			City/Installation	Phoenix	State	AZ
	[Redacted]				ZIP	85034	

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038002	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	14 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			



SCANNING MEASUREMENTS			
Scanning below action levels?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
(If no, explain in comments)			
Inspection zone boundary scanned with Instrument #3.			

SCATTERED RADIATION (Optional)							
Location	Scan 1	Scan 2	Scan 3	Average			
#1	0.00 $\mu$ R	0.07 $\mu$ R	0.00 $\mu$ R	0.02 $\mu$ R			
#2	0.00 $\mu$ R	0.07 $\mu$ R	0.00 $\mu$ R	0.02 $\mu$ R			
#3	0.00 $\mu$ R	0.07 $\mu$ R	0.00 $\mu$ R	0.02 $\mu$ R			
#4	0.00 $\mu$ R	0.00 $\mu$ R	0.07 $\mu$ R	0.02 $\mu$ R			
#5	0.07 $\mu$ R		#6	0.00 $\mu$ R			
Measurements made with Instruments #1 & #2							

DOSE PER SCREENING					
		Exposure (X)			Reference Effective Dose per Screening (max 25 $\mu$ rem): <span style="border: 1px solid black; padding: 2px;">2.0 <math>\mu</math>rem</span> or <span style="border: 1px solid black; padding: 2px;">0.020 <math>\mu</math>Sv</span>
Trial	"Front" Side	"Back" Side			
a	6.08 $\mu$ R	5.66 $\mu$ R			
b	6.15 $\mu$ R	5.67 $\mu$ R			
c	6.08 $\mu$ R	5.74 $\mu$ R			
d	6.15 $\mu$ R	5.73 $\mu$ R			
e	6.15 $\mu$ R	5.60 $\mu$ R			
AVG	6.12 $\mu$ R	5.68 $\mu$ R			
Energy Correction Factor	1.25				
Measurements made with Instruments #1 & #2					
<b>RESULT</b> <span style="border: 1px solid black; padding: 2px; color: white; background-color: #ff0000;">PASS</span>					

BEAM QUALITY					
		Exposure (X)			HVL "Front" Side <span style="border: 1px solid black; padding: 2px;">1.1</span> mm Al HVL "Back" Side <span style="border: 1px solid black; padding: 2px;">1.2</span> mm Al Conversion Factor <span style="border: 1px solid black; padding: 2px;">0.132</span> Min. Filtration <sup>1</sup> <span style="border: 1px solid black; padding: 2px;">1.0</span> mm Al  <sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system
mm Al	"Front" Side	"Back" Side			
0	1.84 $\mu$ R	1.91 $\mu$ R			
0	1.77 $\mu$ R	1.91 $\mu$ R			
1	0.95 $\mu$ R	1.09 $\mu$ R			
1	0.95 $\mu$ R	1.02 $\mu$ R			
1.5	0.68 $\mu$ R	0.82 $\mu$ R			
1.5	0.68 $\mu$ R	0.82 $\mu$ R			
Measurements made with Instruments #4 & #5					
<b>RESULT</b> <span style="border: 1px solid black; padding: 2px; color: white; background-color: #ff0000;">PASS</span>					

COMMENTS AND RECOMMENDATIONS				
Additional Instruments Used:				
	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3291	29 Jul 2012
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012
* Instrument #3 was response checked before and after the survey.				

# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint D, Lane 5/6		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038003	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	14 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (ANSI N43.17-2009, paragraph 7.2.2.d)	X-ray emission terminates after a preset time or exposure? (ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (ANSI N43.17-2009, paragraph 7.5)
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	
NT=not tested; NA=not applicable.			

SURVEY DIAGRAM	SCANNING MEASUREMENTS			
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments) Inspection zone boundary scanned with Instrument #3.			
SCATTERED RADIATION (Optional)				
Location	Scan 1	Scan 2	Scan 3	Average
#1	μR	μR	μR	μR
#2	μR	μR	μR	μR
#3	μR	μR	μR	μR
#4	μR	μR	μR	μR
#5	μR	#6	μR	
Measurements not performed because passengers were not being screened with this system while the survey team was present.				

DOSE PER SCREENING					BEAM QUALITY				
Exposure (X)					Exposure (X)				
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):		mm Al	"Front" Side	"Back" Side	HVL "Front" Side	
a	6.06 μR	6.34 μR	1.9 μrem or 0.019 μSv		0	1.91 μR	1.77 μR	1.1 mm Al	
b	6.06 μR	6.33 μR			0	1.91 μR	1.77 μR	1.1 mm Al	
c	6.06 μR	6.34 μR			1	1.02 μR	0.95 μR	Conversion Factor	
d	6.06 μR	6.41 μR			1	0.95 μR	0.88 μR	Min. Filtration <sup>1</sup>	
e	6.01 μR	6.36 μR			1.5	0.75 μR	0.75 μR	1.0 mm Al	
AVG	6.05 μR	6.36 μR	1.5	0.75 μR	0.75 μR	<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system			
Energy Correction Factor	1.25				RESULT <span style="background-color: #90EE90; padding: 2px;">PASS</span>				
Measurements made with Instruments #1 & #2					Measurements made with Instruments #4 & #5				

COMMENTS AND RECOMMENDATIONS																			
Additional Instruments Used: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>Manufacturer</th> <th>Model</th> <th>Serial No.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr> <td>Instrument #4</td> <td>Radcal</td> <td>9010</td> <td>90-3291</td> <td>29 Jul 2012</td> </tr> <tr> <td>Instrument #5</td> <td>Radcal</td> <td>10X5-1800</td> <td>10299</td> <td>28 Jul 2012</td> </tr> </tbody> </table> <p>* Instrument #3 was response checked before and after the survey.</p>						Manufacturer	Model	Serial No.	Cal. Due	Instrument #4	Radcal	9010	90-3291	29 Jul 2012	Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012
	Manufacturer	Model	Serial No.	Cal. Due															
Instrument #4	Radcal	9010	90-3291	29 Jul 2012															
Instrument #5	Radcal	10X5-1800	10299	28 Jul 2012															

## Survey Results for 14 Cabinet X-Ray Systems

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

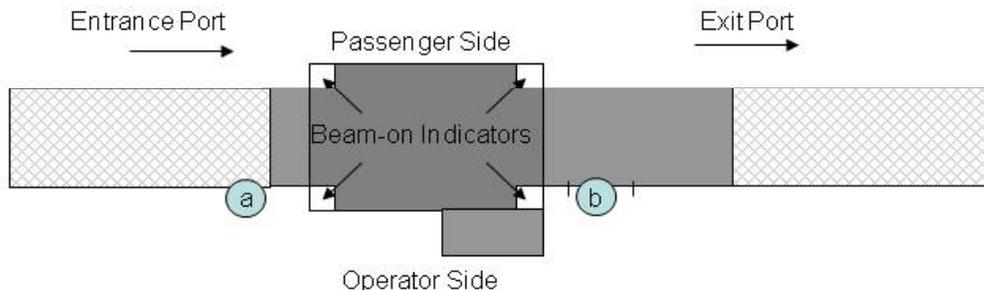
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 2, Checkpoint, Lane 2		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	620 DV	7080810	Mar 2008
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, CA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	12 Apr 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	<input checked="" type="checkbox"/> <input type="checkbox"/>
			NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE			EXPOSURE OUTSIDE CABINET				
Trial	Exposure ( $X_i$ )		Ambient Background	0.00 $\mu$ R			
1	0.8339 mR		Location	Exposure	Time	Exposure in 1 hr	RESULT
2	0.8684 mR	$X_{avg}$ 0.84 mR	a	4.06 $\mu$ R	5.0 min	0.049 mR	PASS
3	0.9006 mR	CV 0.0475	b	6.43 $\mu$ R	5.0 min	0.077 mR	PASS
4	0.8129 mR	Coefficient of Variation (CV):	c	$\mu$ R	min	mR	
5	0.8046 mR	$CV = (1/X_{avg})(\sum(X_i - X_{avg})^2/(n-1))^{1/2}$	d	$\mu$ R	min	mR	
			e	$\mu$ R	min	mR	

## COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

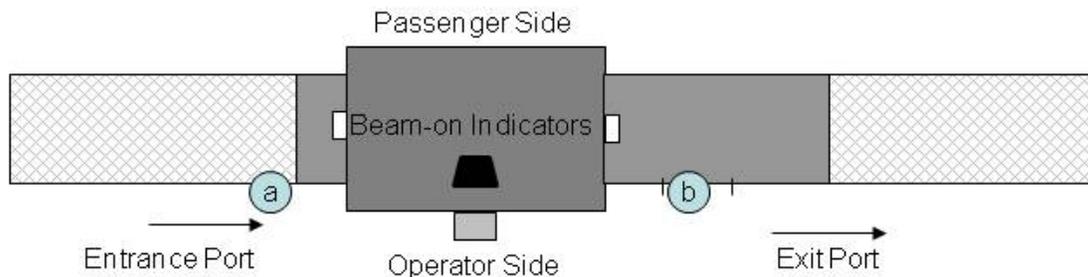
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 3, North Checkpoint, Lane 5		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suite 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	520 B	7052005	May 2005
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, CA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	18 Jan 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	<input type="checkbox"/> <input checked="" type="checkbox"/>
			NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE			EXPOSURE OUTSIDE CABINET				
Trial	Exposure (X <sub>i</sub> )		Ambient Background	0.00 μR			
1	0.2009 mR		Location	Exposure	Time	Exposure in 1 hr	RESULT
2	0.1998 mR		a	0.85 μR	5.0 min	0.010 mR	PASS
3	0.2018 mR		b	0.00 μR	5.0 min	0.000 mR	PASS
4	0.2013 mR		c	μR	min	mR	
5	0.2025 mR		d	μR	min	mR	
			e	μR	min	mR	

X <sub>avg</sub>	0.20	mR
CV	0.005	

Coefficient of Variation (CV):  
 $CV = (1/X_{avg})(\sum(X_i - X_{avg})^2 / (n-1))^{1/2}$

## COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

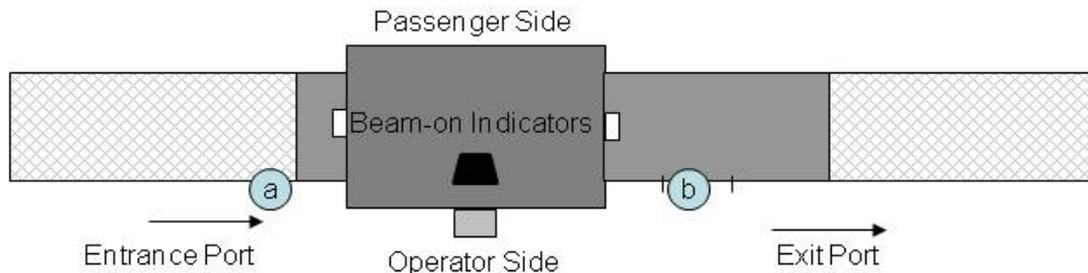
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 3, South Checkpoint, Lane 3		
Survey Date	23 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suite 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	520 B	7075001	Dec 2007
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, CA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	26 Jul 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	<input type="checkbox"/> <input checked="" type="checkbox"/>
			NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE			EXPOSURE OUTSIDE CABINET				
Trial	Exposure ( $X_i$ )		Ambient Background	0.00 $\mu$ R			
1	0.2753 mR		Location	Exposure	Time	Exposure in 1 hr	RESULT
2	0.2655 mR	$X_{avg}$ 0.27 mR	a	4.57 $\mu$ R	5.0 min	0.055 mR	PASS
3	0.2679 mR	CV 0.0144	b	6.12 $\mu$ R	5.0 min	0.073 mR	PASS
4	0.2729 mR	Coefficient of Variation (CV):	c	$\mu$ R	min	mR	
5	0.2711 mR	$CV = (1/X_{avg})(\sum(X_i - X_{avg})^2/(n-1))^{1/2}$	d	$\mu$ R	min	mR	
			e	$\mu$ R	min	mR	

## COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

Aberdeen Proving Ground, Maryland 21010-5403

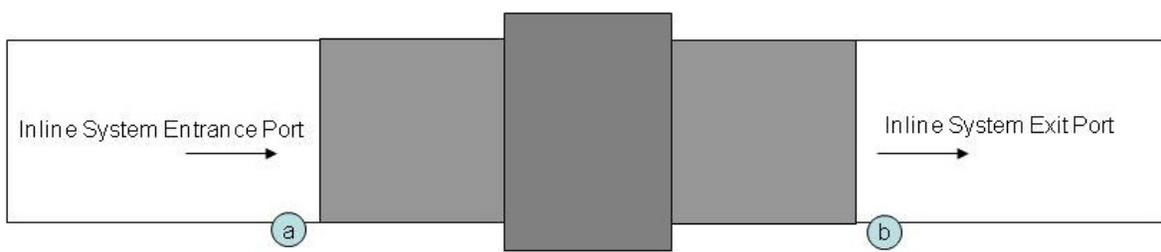
SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Basement		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	L3	3DX-FFOV	6668	Oct 2005
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Peabody, MA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input type="checkbox"/>	EDS: In-line <input checked="" type="checkbox"/> Stand-Alone <input type="checkbox"/>	
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	3 Oct 2010		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> Means to initiate and terminate x-ray generation? (21 CFR 1020.40(c)(6)(ii); 1020.40(c)(10)(i) or (ii))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> Leaded drapes in good condition? <input checked="" type="checkbox"/> Interlocks not bypassed?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input type="checkbox"/> Current User's Manual available? (21 CFR 1020.40(c)(9))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input checked="" type="checkbox"/> Maintenance performed according to recommended schedule? (21 CFR 1020.40(c)(9))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	

NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE				EXPOSURE OUTSIDE CABINET					
Trial	Exposure ( $X_i$ )			Ambient Background	0.00 $\mu$ R				
1		mR		Location	Exposure	Time	Exposure in 1 hr	RESULT	
2		mR		a	0.00 $\mu$ R	5.0 min	0.000 mR	PASS	
3		mR		b	0.00 $\mu$ R	5.0 min	0.000 mR	PASS	
4		mR		c	$\mu$ R	min	mR		
5		mR		d	$\mu$ R	min	mR		
				e	$\mu$ R	min	mR		

$X_{avg}$   mR

CV

Coefficient of Variation (CV):

$$CV = (1/X_{avg})(\sum(X_i - X_{avg})^2/(n-1))^{1/2}$$

## COMMENTS AND RECOMMENDATIONS

Dose to baggage not measured for in-line systems due to potential issues with bag counts that may trigger a security breach. Exposure outside cabinet measured with instrument #1/#2 combination. Very few bags were flowing during the measurement at locations a and b.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

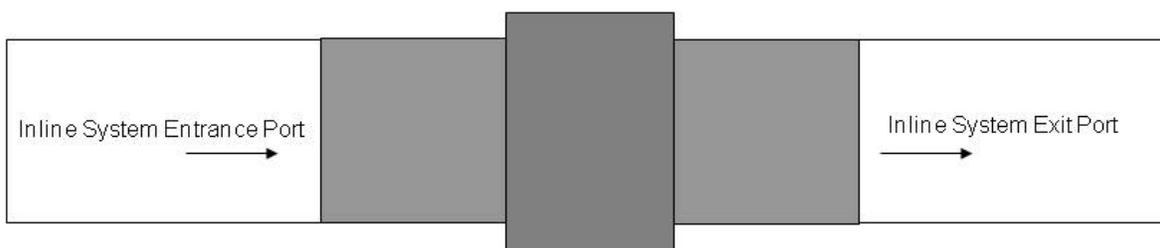
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Basement		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	L3	3DX-FFOV	6669	Oct 2005
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Peabody, MA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input type="checkbox"/>	EDS: In-line <input checked="" type="checkbox"/> Stand-Alone <input type="checkbox"/>	
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	4 May 2010 †		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> Means to initiate and terminate x-ray generation? (21 CFR 1020.40(c)(6)(ii); 1020.40(c)(10)(i) or (ii))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> Leaded drapes in good condition?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input checked="" type="checkbox"/> Interlocks not bypassed?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	NT Current User's Manual available? (21 CFR 1020.40(c)(9))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	+ Maintenance performed according to recommended schedule? (21 CFR 1020.40(c)(9))
NA	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE				EXPOSURE OUTSIDE CABINET				
Trial	Exposure ( $X_i$ )			Ambient Background	0.00 $\mu$ R			
1	mR			Location	Exposure	Time	Exposure in 1 hr	RESULT
2	mR	$X_{avg}$	mR	a	$\mu$ R	min	mR	
3	mR	CV		b	$\mu$ R	min	mR	
4	mR	Coefficient of Variation (CV):		c	$\mu$ R	min	mR	
5	mR	$CV = (1/X_{avg})(\sum(X_i - X_{avg})^2/(n-1))^{1/2}$		d	$\mu$ R	min	mR	
				e	$\mu$ R	min	mR	

## COMMENTS AND RECOMMENDATIONS

Dose to baggage not measured for in-line systems due to potential issues with bag counts that may trigger a security breach. Exposure outside cabinet not measured since no baggage was flowing through the systems at the time of the survey.

† The service provider's survey date posted on the system was over 1-year ago.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

Aberdeen Proving Ground, Maryland 21010-5403

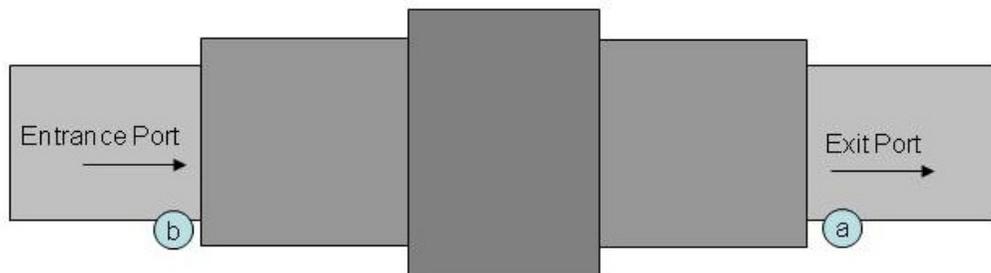
SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Basement, Oversize		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED					SYSTEM INFORMATION						
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date			
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	L3	3DX-FFOV	6777	Jan 2007			
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes †	No	Place of Manufacture			
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint	EDS:	In-line	X	Stand-Alone	
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	11 Feb 2011					

VISUAL INSPECTION			
Y	N	Requirement	Y N
X		Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	X
X		Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	X
X		Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	X
X		One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	NT
X		Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	X
NA		Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	

NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE				EXPOSURE OUTSIDE CABINET					
Trial	Exposure ( $X_i$ )			Ambient Background	0.00 $\mu$ R				
1		mR		Location	Exposure	Time	Exposure in 1 hr	RESULT	
2		mR		a	1.11 $\mu$ R	3.0 min	0.022 mR	PASS	
3		mR		b	0.35 $\mu$ R	5.0 min	0.004 mR	PASS	
4		mR		c	$\mu$ R	min	mR		
5		mR		d	$\mu$ R	min	mR		
				e	$\mu$ R	min	mR		

$$X_{avg} = \frac{\sum X_i}{n}$$

$$CV = \frac{1}{X_{avg}} \left( \frac{\sum (X_i - X_{avg})^2}{(n-1)} \right)^{1/2}$$

## COMMENTS AND RECOMMENDATIONS

Dose to baggage not measured for in-line systems due to potential issues with bag counts that may trigger a security breach. Exposure outside cabinet measured with instrument #1/#2 combination. Very few bags were flowing during the measurement at location b.

† The certification label could not be found on the system.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

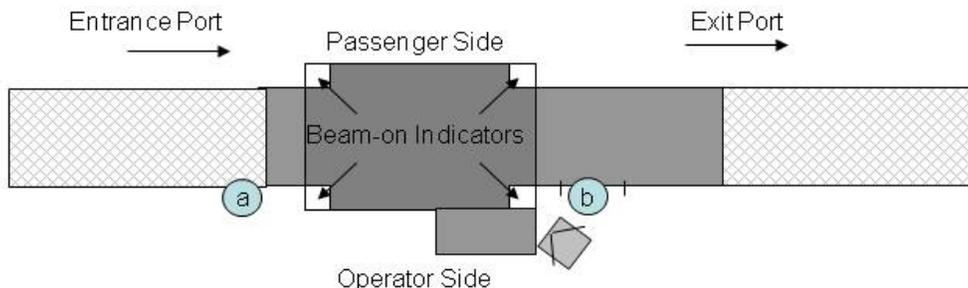
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint A, Lane 4		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	620 DV	7081705	May 2008
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, CA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	23 May 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	<input checked="" type="checkbox"/> <input type="checkbox"/>
			NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE			EXPOSURE OUTSIDE CABINET				
Trial	Exposure ( $X_i$ )		$X_{avg}$	0.4	mR		
1	0.4242	mR	CV	0.0672			
2	0.4800	mR			Coefficient of Variation (CV):		
3	0.4169	mR			$CV = (1/X_{avg})(\sum(X_i - X_{avg})^2/(n-1))^{1/2}$		
4	0.4128	mR					
5	0.4590	mR					
			Ambient Background				
			0.00 $\mu$ R				
			Location	Exposure	Time	Exposure in 1 hr	RESULT
			a	2.88 $\mu$ R	5.0 min	0.035 mR	PASS
			b	2.32 $\mu$ R	5.0 min	0.028 mR	PASS
			c	$\mu$ R	min	mR	
			d	$\mu$ R	min	mR	
			e	$\mu$ R	min	mR	

## COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.



# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

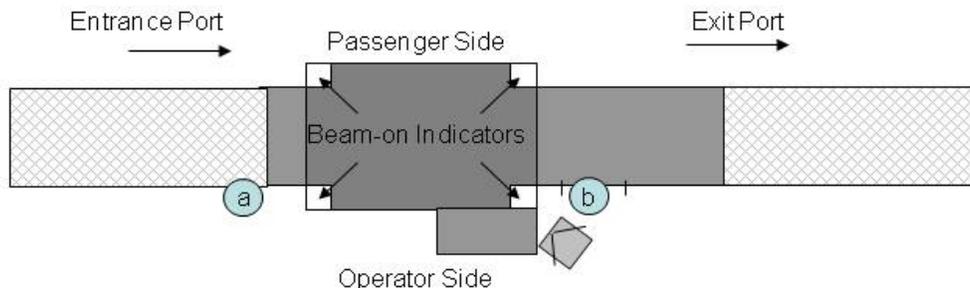
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint B, Lane 1		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	620 DV	7081704	May 2009
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, CA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	7 Jul 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	<input checked="" type="checkbox"/> <input type="checkbox"/>
			NT=not tested; NA=not applicable.

### SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE				EXPOSURE OUTSIDE CABINET					
<b>Trial</b>	<b>Exposure (X<sub>i</sub>)</b>			Ambient Background	0.00 μR				
1	0.4970	mR		<b>Location</b>	<b>Exposure</b>	<b>Time</b>	<b>Exposure in 1 hr</b>	<b>RESULT</b>	
2	0.4855	mR		a	1.87 μR	5.0 min	0.022 mR	PASS	
3	0.4901	mR		b	0.82 μR	5.0 min	0.010 mR	PASS	
4	0.4830	mR		c	μR	min	mR		
5	0.4120	mR		d	μR	min	mR		
				e	μR	min	mR		

$X_{avg} = 0.47$  mR

$CV = 0.0735$

Coefficient of Variation (CV):  
 $CV = (1/X_{avg})(\sum(X_i - X_{avg})^2 / (n-1))^{1/2}$

### COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.



# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

Aberdeen Proving Ground, Maryland 21010-5403

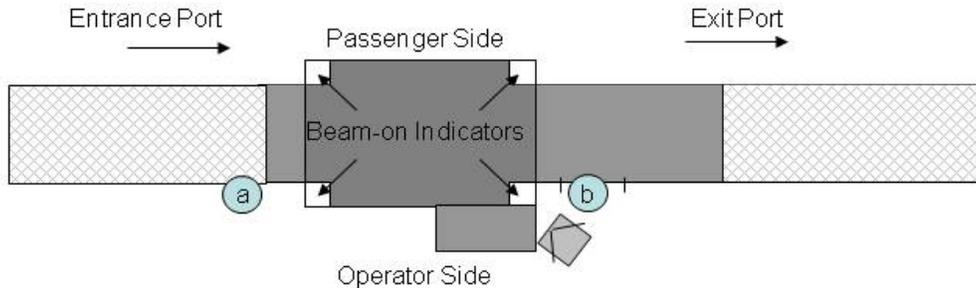
SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint C, Lane 4		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suite 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	620 DV	7092307	Jun 2009
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, CA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	17 May 2010 †		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> Means to initiate and terminate x-ray generation? (21 CFR 1020.40(c)(6)(ii); 1020.40(c)(10)(i) or (ii))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> Leaded drapes in good condition?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input checked="" type="checkbox"/> Interlocks not bypassed?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input type="checkbox"/> Current User's Manual available? (21 CFR 1020.40(c)(9))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input checked="" type="checkbox"/> Maintenance performed according to recommended schedule? (21 CFR 1020.40(c)(9))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	

NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE			EXPOSURE OUTSIDE CABINET				
<b>Trial</b>	<b>Exposure (X<sub>i</sub>)</b>		<b>Ambient Background</b>	0.00 μR			
1	0.7283 mR		<b>Location</b>	<b>Exposure</b>	<b>Time</b>	<b>Exposure in 1 hr</b>	<b>RESULT</b>
2	0.6895 mR	$X_{avg} = 0.72$ mR	a	0.21 μR	5.0 min	0.003 mR	PASS
3	0.6810 mR	CV = 0.0452	b	0.28 μR	5.0 min	0.003 mR	PASS
4	0.7618 mR	Coefficient of Variation (CV):	c	μR	min	mR	
5	0.7163 mR	$CV = (1/X_{avg})(\sum(X_i - X_{avg})^2/(n-1))^{1/2}$	d	μR	min	mR	
			e	μR	min	mR	

## COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.

† The service provider's survey date posted on the system was over 1-year ago.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

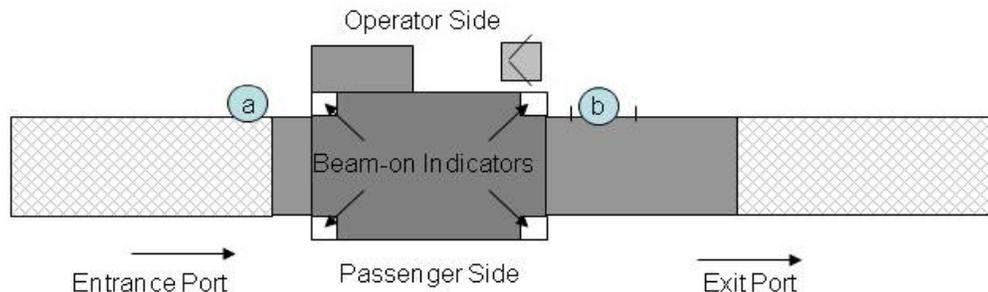
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint C, Lane 5		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	620 DV	7081911	May 2008
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, CA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	29 Jun 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	<input checked="" type="checkbox"/> <input type="checkbox"/>
			NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE			EXPOSURE OUTSIDE CABINET				
Trial	Exposure (X <sub>i</sub> )		Ambient Background	0.00 μR			
1	0.6768 mR		Location	Exposure	Time	Exposure in 1 hr	RESULT
2	0.6782 mR		a	0.63 μR	5.0 min	0.008 mR	PASS
3	0.6758 mR		b	0.14 μR	5.0 min	0.002 mR	PASS
4	0.6754 mR		c	μR	min	mR	
5	0.6843 mR		d	μR	min	mR	
			e	μR	min	mR	

X<sub>avg</sub> = 0.68 mR

CV = 0.0054

Coefficient of Variation (CV):

$$CV = (1/X_{avg})(\sum(X_i - X_{avg})^2 / (n-1))^{1/2}$$

## COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

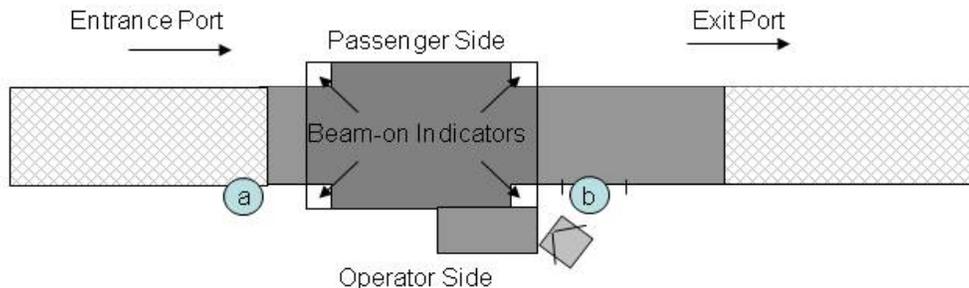
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint D, Lane 4		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[Redacted]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	620 DV	7080807	Mar 2008
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, Ca
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	22 Jun 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	<input checked="" type="checkbox"/> <input type="checkbox"/>
			NT=not tested; NA=not applicable.

## SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE			EXPOSURE OUTSIDE CABINET				
Trial	Exposure (X <sub>i</sub> )		Ambient Background	0.00 μR			
1	0.9946 mR		Location	Exposure	Time	Exposure in 1 hr	RESULT
2	1.023 mR		a	4.40 μR	5.0 min	0.053 mR	PASS
3	1.040 mR		b	3.91 μR	5.0 min	0.047 mR	PASS
4	1.017 mR		c	μR	min	mR	
5	1.033 mR		d	μR	min	mR	
			e	μR	min	mR	

X<sub>avg</sub> = 1.02 mR

CV = 0.0171

Coefficient of Variation (CV):

$$CV = (1/X_{avg})(\sum(X_i - X_{avg})^2 / (n-1))^{1/2}$$

## COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.

# Survey Worksheet - Cabinet X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command

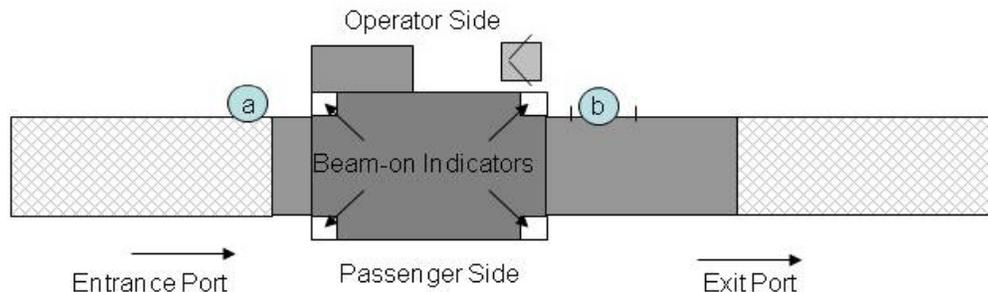
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0F0N-11			Location	Terminal 4, Checkpoint D, Lane 5		
Survey Date	24 Aug 2011			Organization	Phoenix Sky Harbor International		
Surveyor(s)	[REDACTED]			Street Address	3800 East Skyharbor Blvd., Suiret 4206		
				City/Installation	Phoenix	State	AZ

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	620 DV	7080813	Mar 2008
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Place of Manufacture	Torrance, CA
Instrument #3	Radcal	10X5-180	18836	17 Mar 2012	Type	Checkpoint <input checked="" type="checkbox"/>	EDS: In-line <input type="checkbox"/>	Stand-Alone <input type="checkbox"/>
Instrument #4	WB Johnson	TVX-2000	40155	*	Manufacturer Survey Date	27 Sep 2010		

VISUAL INSPECTION			
Y	N	Requirement	Y N
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: X-Rays Produced When Energized" present at control panel? (21 CFR 1020.40(c)(8)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Warning label "Caution: Do Not Insert Any Part of the Body When System Is Energized - X-Ray Hazard" present at each port? (21 CFR 1020.40(c)(8)(ii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two independent "x-ray on" indicators visible from control panel? (21 CFR 1020.40(c)(6)(iii))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	One "x-ray on" indicator visible from each port and access panel? (21 CFR 1020.40(c)(6)(iv))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key Activated Control present? (21 CFR 1020.40(c)(6)(i))	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to require operator presence at control panel? (21 CFR 1020.40(c)(10))	<input checked="" type="checkbox"/> <input type="checkbox"/>
			NT=not tested; NA=not applicable.

### SURVEY DIAGRAM



Accessible exterior surfaces of cabinet scanned with Instrument #4. All scanning results below action levels? Yes  No  (If no, explain below)

DOSE TO BAGGAGE			EXPOSURE OUTSIDE CABINET				
Trial	Exposure (X <sub>i</sub> )		Ambient Background	0.00 μR			
1	0.9709 mR		Location	Exposure	Time	Exposure in 1 hr	RESULT
2	0.9699 mR	X <sub>avg</sub> 0.97 mR	a	7.12 μR	5.0 min	0.085 mR	PASS
3	0.9498 mR	CV 0.0121	b	3.00 μR	5.0 min	0.036 mR	PASS
4	0.9716 mR	Coefficient of Variation (CV):	c	μR	min	mR	
5	0.9819 mR	CV = (1/X <sub>avg</sub> )(Σ(X <sub>i</sub> - X <sub>avg</sub> ) <sup>2</sup> /(n-1)) <sup>1/2</sup>	d	μR	min	mR	
			e	μR	min	mR	

### COMMENTS AND RECOMMENDATIONS

Dose to baggage measured with instrument #1/#2 combination.  
Exposure outside cabinet measured with instrument #1/#2 combination.

Survey Notes Provided on 25 August 2011

## Exit Briefing Notes

## 1. Project Information.

- a. Radiation Protection Survey No. 26-MF-0F0N-11
- b. Survey dates: 22-25 August 2011
- c. Phoenix Sky Harbor International (PHX), Phoenix, AZ
- d. Survey Officer(s): [REDACTED]

## 2. Background Information.

a. TSA Headquarters Contact: Jill Segraves, Director, Occupational Safety, Health, and Environment (OSHE), [REDACTED]

b. Airport Contacts: Lisa Christenson, Program Analyst, [REDACTED]

c. Individuals Assisting the Survey Team:

Name	Title/Position
[REDACTED]	LTSO/CDSO
[REDACTED]	STSO

d. AIT (Backscatter X-Ray) Systems Surveyed:

Model	Serial No.	Location
Rapiscan Secure 1000 SP	S51023007	Terminal 4, Checkpoint A, Lane 3/4
Rapiscan Secure 1000 SP	S51023006	Terminal 4, Checkpoint A, Lane 1/2
Rapiscan Secure 1000 SP	S51023009	Terminal 4, Checkpoint A, Lane 7/8
Rapiscan Secure 1000 SP	S51023008	Terminal 4, Checkpoint A, Lane 5/6
Rapiscan Secure 1000 SP	S51023011	Terminal 4, Checkpoint B, Lane 5/6
Rapiscan Secure 1000 SP	S51005006	Terminal 4, Checkpoint B, Lane 3/4
Rapiscan Secure 1000 SP	S51023010	Terminal 4, Checkpoint B, Lane 1/2
Rapiscan Secure 1000 SP	S51023012	Terminal 4, Checkpoint C, Lane 1/2
Rapiscan Secure 1000 SP	S51023013	Terminal 4, Checkpoint C, Lane 3/4
Rapiscan Secure 1000 SP	S51024008	Terminal 4, Checkpoint C, Lane 5/6
Rapiscan Secure 1000 SP	S51038001	Terminal 4, Checkpoint D, Lane 1/2
Rapiscan Secure 1000 SP	S51038003	Terminal 4, Checkpoint D, Lane 5/6
Rapiscan Secure 1000 SP	S51038002	Terminal 4, Checkpoint D, Lane 3/4
Rapiscan Secure 1000 SP	S51037013	Terminal 2, Checkpoint, Lane 5/6
Rapiscan Secure 1000 SP	S51037011	Terminal 2, Checkpoint, Lane 1/2
Rapiscan Secure 1000 SP	S51037012	Terminal 2, Checkpoint, Lane 3/4

e. Cabinet X-Ray Systems Surveyed:

Model	Serial No.	Location
Rapiscan 620DV	7080810	Terminal 2, Checkpoint, Lane 2
Rapiscan 520B	7075001	Terminal 3, South Checkpoint, Lane 3
Rapiscan 520B	7052005	Terminal 3, North Checkpoint, Lane 5
L3 3DX-FFOV	6777	Terminal 4, Basement, Oversize
L3 3DX-FFOV	6668	Terminal 4, Basement
L3 3DX-FFOV	6669	Terminal 4, Basement
Rapiscan 620DV	7092307	Terminal 4, Checkpoint C, Lane 4
Rapiscan 620DV	7081911	Terminal 4, Checkpoint C, Lane 5
Rapiscan 620DV	7080813	Terminal 4, Checkpoint D, Lane 5
Rapiscan 620DV	7080807	Terminal 4, Checkpoint D, Lane 4
Rapiscan 620DV	7081704	Terminal 4, Checkpoint B, Lane 1
Rapiscan 620DV	7081208	Terminal 4, Checkpoint B, Lane 2
Rapiscan 620DV	7081705	Terminal 4, Checkpoint A, Lane 4
Rapiscan 620DV	7081706	Terminal 4, Checkpoint A, Lane 5

3. Findings and Recommendations.

a. AIT (Backscatter X-Ray) Systems.

(1) All x-ray personnel screening systems surveyed were found to be in compliance with the radiation dose limits of American National Standards Institute/Health Physics Society (ANSI/HPS) Standard N43.17-2009, Radiation Safety for Personnel Security Screening Systems Using X-Ray or Gamma Radiation.

(2) All systems surveyed were found to be in compliance with the other requirements of ANSI/HPS N43.17-2009.

(3) The following items were also noted during the surveys:

(a) Rapiscan Secure 1000, SN S51037012, Terminal 2, Checkpoint, Lane 3/4: The master and slave units were misaligned resulting in slightly elevated measurements at two locations. The radiation levels at both locations were very small, but larger than typically seen. This is not a radiation safety hazard; however, the service provider should ensure that the alignment of the systems is corrected.

(b) Rapiscan Secure 1000, SN S51023007, Terminal 4, Checkpoint A, Lane 3/4: The access panel door on the slave unit was unlocked.

(c) Rapiscan Secure 1000, SN S51023012, Terminal 4, Checkpoint C, Lane 1/2: The access panel door on the slave unit was unlocked.

MCHB-TS-OHP

Exit Briefing Notes, PHX, Phoenix, AZ, 25 Aug 11

b. Cabinet X-ray Systems.

(1) All systems were found to be in compliance with the radiation emission limits of Title 21, Code of Federal Regulations, Section 1020.40.

(2) All systems were found to be in compliance with the other requirements of Title 21, Code of Federal Regulations, Section 1020.40, with the following exceptions: L3 3DX-FFOV, SN 6777, Terminal 4, Basement, Oversize: A manufacturer's certification label could not be found on the system.

(3) The following items were also noted during the surveys:

(a) L3 3DX-FFOV, SN 6777, Terminal 4, Basement: The service providers survey date posted on the system was over a year old.

(b) Rapiscan 620DV, Terminal 4, Checkpoint C, Lane 4: The service providers survey date posted on the system was over a year old.