Rapiscan systems An OSI Systems Company

BAGGAGE/PARCEL CABINET X-RAY SYSTEM RADIATION LEAKAGE REPORT

FIELD SERVICE ENGINEERS

Form R-0588-3 9/9/09

45. RSI W.O.# _____
Deferred W.O.# _____

1. Name of Facility: George Bush Intercontinental	2. Region: TX	3. Street Address: Continental
4. City: Houston		5. State or Province Code: TX / 6. Zip Code: 77032
7. Room No. or Other Physical Location of System: F15 Ln 4	8. Person Interviewed: [redacted]	9. Telephone Number: [redacted] / 10. Fax Number
11. Manufacture Information & Certification Label Present ☒ Yes - Pass ☐ No - Fail	12. Radiation Measuring Instrument: Model: 451P Serial No. 0616	FSE Shall Attach Copy of Calibration Certificate to This Form — Calibration Due Date: 5/24/11
Manufacturer: RAPISCAN	13. System Model No.: 620DVAT	14. Single Source ☐ Dual Source ☒ Other ☐, Describe: / 15. System Serial No.: 7084603
16. Date of Manufacture Mo. 11 Yr. 2008	18. Facility Owner Has been notified of responsibility for "Application for Registration" with their State Radiation Control Agency ☒ Yes ☐ No	19. Customer has been notified of their responsibility for posting their State "Notice to Employees" Document and Posted in Several Conspicuous Locations so Employees Can View ☒ Yes ☐ No
17. X-ray Tube Serial Number(s) V: P5180 H: P6018	20. Operator Instructions Available ☒ Yes - Pass ☐ No - Fail	21. Maintenance Schedule Available ☒ Yes - Pass ☐ No - Fail
22. Warning Label Present at Controls Stating: "Caution: X-Rays Produced When Energized" ☒ Yes - Pass ☐ No - Fail	23. Warning Labels Present at Ports Stating: "Caution: Do Not Insert Any Part of the Body When System is Energized, X-Ray Hazard" ☒ Yes - Pass ☐ No - Fail	24. Two Indicators Labeled "X-Ray On" Present at Controls (including software user interface) ☒ Yes - Pass ☐ No - Fail
25. At Least One Indicator, Marked "X-Ray On" is Visible from Each Port ☒ Yes - Pass ☐ No - Fail	26. Captured Key: The Key for the Key Actuated Control Cannot be Removed in Any Mode that Allows X-Ray Generation ☒ Yes - Pass ☐ No - Fail	
27. All Doors and Access Panels To the X-Ray Beam Prevent Generation of X-Radiation ☒ Yes - Pass ☐ No - Fail	28. Some Part of the Body Can Be Inserted Through a Port Into The Primary Beam ☐ Yes ☒ No	
29. Use of X-Ray Control Necessary to Resume Operation Following Interruption ☒ Yes ☐ No	30. Means Provided to Ensure Operator Presence at the Control Area X-ray located in a public access area ☒ Yes - Pass ☐ No – Fail Or X-ray located in a non-public access area ☐ Not Required	
Rapiscan Systems Test Procedure Used: Rapiscan Systems WI-0023-4	31. Scatter Block Description: ☐ Two (2) Reams Copy Paper ☒ Other, Describe: Tool Boxes	32. Means Provided to Operator for Terminating Exposures of Greater than One-Half Second and Preventing X-rays (E-Stop Test) ☒ Yes - Pass ☐ No - Fail
33. X-Ray Generator Settings 160.8 kVp 1.007 mA 160.8 kVp .992 mA	**Note: All Survey Measurements Shall be Obtained at 5 cm from All External Surfaces and at 5 cm from the Plane of All Access Port Openings or Shroud Extension Openings. Scatter Block shall be Stacked and Positioned Centerline of Primary Beam.**	
34.1. Background Radiation: 5 uR/hr	–	**Maximum External Surface Dose Rate Not to Exceed 500 uR/hr at 5 cm from all external surfaces.**

34.3 Record All Readings in uR/hr Unless Otherwise Noted

Please see model specific diagram (attached)

36. Overall Condition of Lead Drapes: ☒ SAT - Pass ☐ UNSAT- Fail Description	37. Overall Condition of Machine: ☒ SAT – Pass ☐ UNSAT – Fail	38. Comments, Corrective Active Actions and/or Recommendations:

39. Surveyor Name *(Print: L, F, MI)* [redacted]	40. Surveyor Signature [redacted]	41. Date of Survey: 3/15/11	42. Time of Survey: 10:06

The Surveyor has inspected, tested and certified this x-ray machine is in compliance with U.S. FDA 21 CFR 1020.40 and equivalent international radiation emission leakage standards.	43 [redacted] have received a copy of this Radiation Survey Report and understand the responsibility to retain this report for State inspection. Signature: [redacted] Date 3-15-11

This report is to certify this x-ray unit has been surveyed for radiation leakage emissions and found to be within the regulatory radiation emission limit. The safety features, controls and indicators incorporated in the x-ray unit have been satisfactorily tested and/or inspected. The owner of this x-ray unit is responsible for State Radiation Control Agency compliance (not applicable for facilities exclusively operated by the Federal Government) and for the safe use and routine inspection, general maintenance and cleanliness of this x-ray unit. Only trained and qualified individuals should operate this equipment.

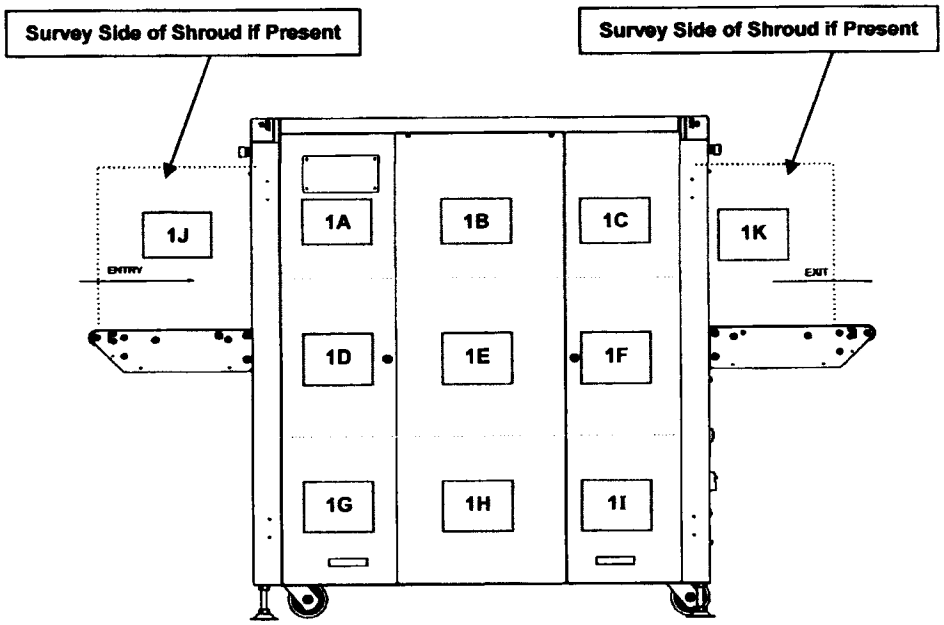
Rapiscan systems	MODEL 620DV OR 500 SERIES EQUIVALENT RADIATION LEAKAGE SURVEY FORM	MODEL 620DV FSE SURVEY FORM	FORM FSE-R-0047-620DV-1

FIELD SERVICE ENGINEERS RADIATION EMISSION SURVEY

United States and Canada External Surface Radiation Leakage Limit is 5.0 uSv/hr at 5 cm (500 uR/hr)

Global External Surface Radiation Leakage Limit is 1.0 uSv/hr at 5 cm (100 uR/hr at 5 cm)

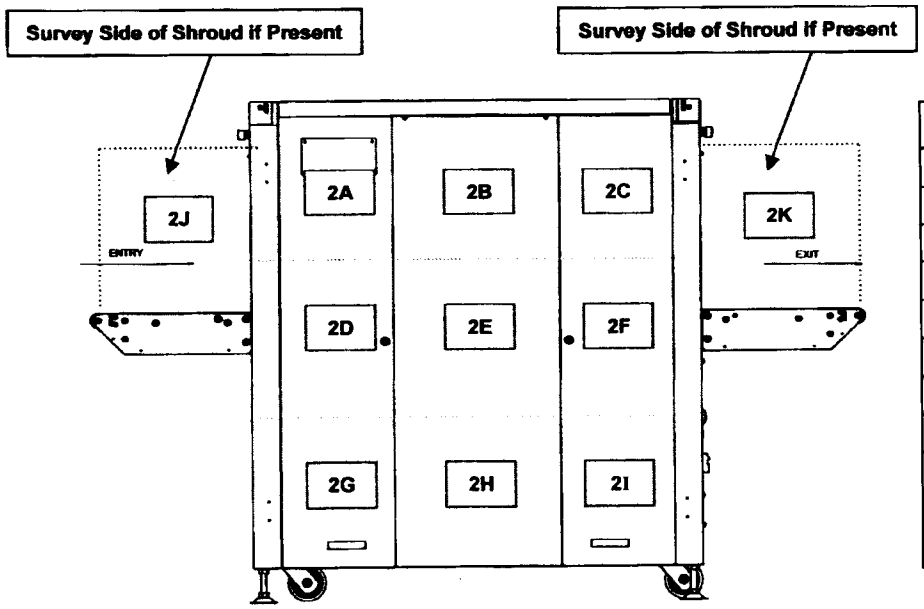
Date: 3/15/11	**Location Manufactured: (Check One)** ___ Malaysia ___ UK ✓ US	**Instrument Model No:** 451P
Time: 10:06	**Date of Mfg:** 11/2008	**Instrument Serial No:** 0616
Background: ___ uSv/hr (5 uR/hr)	**Serial No:** 7084603	**Instrument Calibration Due:** 5/24/11
All Measurements Recorded In: ___ uSv/hr ✓ uR/hr (Check One)	**Settings:** 160.8 kvP 1.007 mA **Settings:** 160.8 kvP .992 mA	**Description of Scatter Body: (Check One)** ___ Paper (2 Reams, 500 sheets each) ___ Wood Block (4" x 4" x 12" L) ✓ Other Tool Box



Operators Side

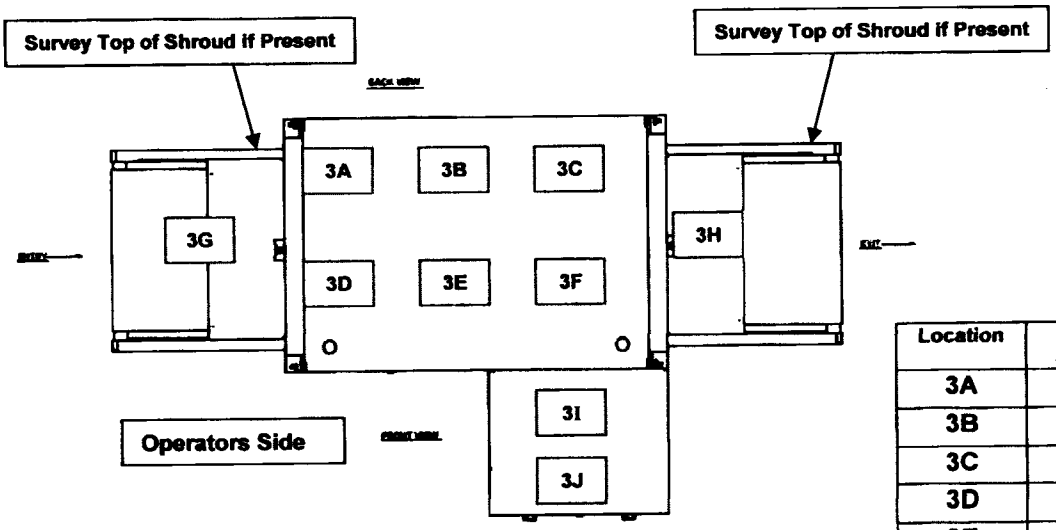
Location	Results NO Scatter Body	Results WITH Scatter Body
1A	9	3
1B	23	16
1C	7	9
1D	15	10
1E	42	70
1F	8	4
1G	4	7
1H	25	12
1I	6	5
1J	20	15
1K	25	32

FIELD SERVICE ENGINEERS RADIATION EMISSION SURVEY



Non-Operators Side

Location	Results NO Scatter Body	Results WITH Scatter Body
2A	17	10
2B	14	12
2C	10	3
2D	8	9
2E	15	10
2F	7	13
2G	3	10
2H	6	7
2I	4	9
2J	101	96
2K	70	80

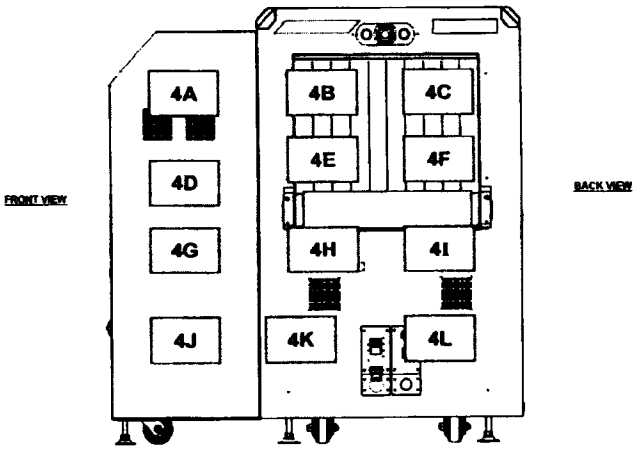


Top View

Location	Results NO Scatter Body	Results WITH Scatter Body
3A	5	5
3B	16	16
3C	6	8
3D	11	8
3E	21	21
3F	11	19
3G	64	67
3H	41	47
3I	11	4
3J	9	6

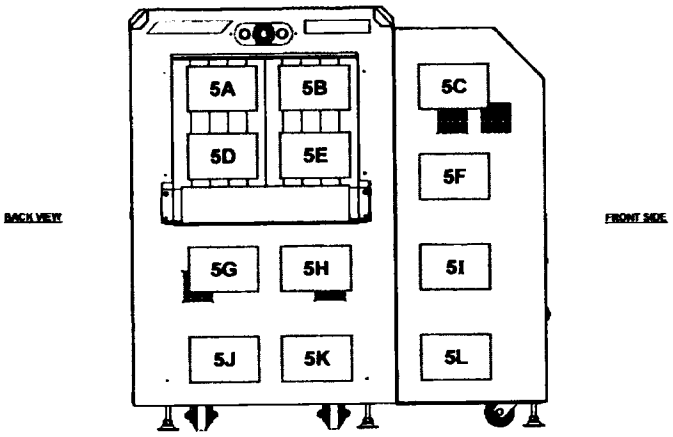
FIELD SERVICE ENGINEERS RADIATION EMISSION SURVEY

EXIT TUNNEL



Location	Results NO Scatter Body	Results WITH Scatter Body
4A	9	18
4B	21	31
4C	25	31
4D	36	47
4E	14	17
4F	32	36
4G	15	16
4H	7	6
4I	15	21
4J	8	12
4K	11	15
4L	6	7

ENTRANCE TUNNEL



Location	Results NO Scatter Body	Results WITH Scatter Body
5A	29	38
5B	20	32
5C	25	18
5D	38	57
5E	32	32
5F	12	20
5G	26	35
5H	11	25
5I	8	5
5J	6	14
5K	10	14
5L	5	5

Instructions:

- If shrouds are NOT installed, radiation measurements shall be taken 5 cm from the lead drapes.
- If shrouds are installed, radiation measurements shall be taken at the imaginary plane of the shroud opening.
- Lead Drapes should touch the conveyor. If they do not, check to verify x-ray radiation is not traveling down the conveyor where the gap exists between the lead drapes and the conveyor surface.
- Survey below the conveyor up against the cabinet near any gaps, mating surfaces, and photo sensor cut-outs.

SURVEY PERFORMED B[redacted] DATE: 3/15/11