

Radiology System

X-ray Source: Linear accelerator

Nominal Energy: 2.5, 3, or 6 MV

Number of Sources: 1

Number of Views: Side and manifest

Detector Type: Modular linear Array

Detector Pitch: 1.4 mm, 2.3 mm or 4.6 mm

Throughput: 30 to 40 trucks per hour

Relative Humidity: Up to 100%

Maximum Vehicle Dimension:

L: 18.9 m (62 ft.), W: 2.6 m (8.5 ft.) H: 4.1 m (13.5 ft.)

Maximum Vehicle Weight: No limitations, vehicle remains stationary during scan

Power Requirement: 350 kVA

Facility Components

Foundation: Reinforced concrete pad

Pad footprint: L: 29.8 m (98 ft.), W: 12.8 m (42 ft.), D: 20.3 cm (8 in.)

Exterior Building: Lightweight movable prefabricated structure

Exterior Building Footprint: L: 29.8 m (98 ft.), W: 12.8 m (42 ft.), H: 4.9 m (16 ft.)

Mobile Gantry: Motorized rails system moves radiology system components over the stationary vehicle

Operator Control Room: Movable prefabricated structure

Control Room Dimensions: L: 6.1 m (20 ft.), W: 2.6 m (8.5 ft.), H: 2.7 m (9 ft.)

Other Components: Shielding doors and shielding modules

Operator Workstation Hardware

Image Display Terminal: Dual Xeon® 3.06 GHz processors

Display Monitors: Single View: Two 1200 x 1600 pixel monitors, 24-bit color

Data Storage: 7500 images

Data Archiving: CD-RW

Image and Data Printer: Color laser printer

Operator Workstation Software

Display Software: Based on Windows® XP™

Image Analysis Tools: Brightness and contrast adjustments, gray scale or color viewing, zoom (2x, 4x, 6x, 8x in discrete steps, up to 160 x zoom when specific value is entered in zoom box), region-of-interest (ROI) tool, synchronized ROI on dual view systems, object measurement tool, annotation, filters, preset density range colorization, single-button judgment; automated threat recognition (option)

Additional System Components

Database Server: Central Database for accessing manifest and image data

Radiology Control Unit: Controls data collection and image generation

System Control & Monitoring Unit: Controls safety interlocks, transport mechanism, and image routing

Check-In Workstation/Scanner: Scans manifest documents into the system prior to scanning vehicle

System Monitoring

Redundant safety interlocks, automated, motorized scan bay doors with redundant safety interlocks, CCTV monitoring of scan bay area, audible alarms, and emergency interrupt switches.

Health and Safety

Conforms to stringent USA and Japanese radiation safety codes limiting exposure to 100 mR/Hr for general public.

Absorbed dose per scan: nominal 10 mrem

Dose rate in operator premises: < 0.1 mR/Hr.

Dose in the environment: < 0.1 mR/Hr.

CARGO SECURITY SYSTEMS



Applications

Trucks, ISO containers, automobiles, at border crossing, small seaports, military bases, logistics centers.

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[Image Display Terminal](#)

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[System Architecture](#)

[Permanent Facilities Description](#)

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[Relocatable Facilities Description](#)