SINGAPORE’S JTC CORPORATION KNOWS THE AS&E ADVANTAGE. THE Z PORTAL IS DEPLOYED AT JURONG ISLAND, A MAJOR CHEMICAL AND INDUSTRIAL COMPLEX, TO INSPECT INCOMING VEHICLES AND CONTAINERS FOR THREATS TO ISLAND SECURITY.

**APPLICATIONS**
- Seaports
- Land border crossings
- Airports
- Security checkpoints
- High-security facilities

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**Z PORTAL**

**MULTI-VIEW CARGO AND VEHICLE SCREENING SYSTEM (RELOCATABLE)**

AS&E’s Z® Portal™ is a multi-view, drive-through inspection system capable of scanning cars, vans, trucks, and their cargo for concealed threats and contraband.

The relocatable screening system is available in two sizes — one for large trucks, buses, and cargo vehicles; and a smaller size for passenger vehicles. Z Portal can be configured with up to three Z® Backscatter™ imaging modules, allowing a left, right, and top view of the vehicle under examination. The multi-views provide maximum screening capability and facilitate image interpretation. The Z Portal system provides high-quality, photo-like images that offer outstanding material discrimination capability.

The Z Portal is a high-throughput screening gateway, allowing approximately 80 trucks or 120 passenger vehicles per hour. Driven at a speed of 5 kph, vehicles and their cargo are scanned for threats and illegal goods such as stowaways, explosives, drugs, and alcohol. With its compact design and profile, the Z Portal system is ideal for high-traffic locations with space constraints and a high-throughput requirement. The Z Portal system is safe for drivers, operators, cargo, and the environment.

**TECHNOLOGY**

The Z Portal employs AS&E’s patented Z Backscatter technology, which produces photo-like images of the contents of a container or vehicle, highlighting organic materials, such as explosives, illegal drugs, agricultural products, currency, and other contraband.

Optional Forwardscatter imaging creates up to two additional side-view images of the scanned vehicles and cargo. This option offers a second ‘scatter’ perspective to display dense regions of scanned vehicles and cargo to identify potential anomalies.

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**MULTI-VIEW Z BACKSCATTER**

Multiple views of the cargo improve detection, while facilitating interpretation of the X-ray image. Three-sided Z Backscatter X-rays (below) provide organic discrimination and photo-realistic imaging.

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**THE AS&E ADVANTAGE**

SINGAPORE’S JTC CORPORATION KNOWS THE AS&E ADVANTAGE. THE Z PORTAL IS DEPLOYED AT JURONG ISLAND, A MAJOR CHEMICAL AND INDUSTRIAL COMPLEX, TO INSPECT INCOMING VEHICLES AND CONTAINERS FOR THREATS TO ISLAND SECURITY.
**OPERATING FEATURES**

- **X-Ray Sources:** 225 keV rated, electrically powered
- **Throughput:** 80 trucks or 120 passenger vehicles per hour. Vehicles pass through system at 5 kph.
- **Power:** 240 VAC, 60/50 Hz, 3 phase, 45 kva
- **Crew requirements:** Scan coordinator and X-ray system operator/inspector. One-person operation is possible under certain circumstances.

**Maximum Vehicle Dimensions**

<table>
<thead>
<tr>
<th>Length of scanned vehicle: Up to 250 ft (76.2 m). System can also be used to image a continuous flow of traffic, allowing the image data to scroll with the flow.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Truck Configuration</strong></td>
</tr>
<tr>
<td><strong>Width</strong></td>
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<tr>
<td><strong>Height</strong></td>
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</tbody>
</table>

**Overall System Dimensions**

<table>
<thead>
<tr>
<th>Depth of structure (front-to-back): 9.7 ft (2.9 m)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Truck Configuration</strong></td>
</tr>
<tr>
<td><strong>Width</strong></td>
</tr>
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<td><strong>Height</strong></td>
</tr>
</tbody>
</table>

**SYSTEM FEATURES**

- **Operating System:** Windows XP
- **Operator’s Console:** System is configured with three high resolution 21” TFT-LCD monitors
- **Printer:** Color laser printer
- **Hard Disk:** (250 GB minimum)
- **Network-Ready**
- **CD/DVD-RW Drive**
- **Data Storage:** The inspection system is capable of storing images from up to 24,000 trucks or 85,000 passenger vehicles in a standard format. Images can be transferred via a CD or DVD.
- **Safety System:** “Emergency Stop” and “System Stop” switches are strategically located within the scanning zone to permit rapid cessation of system operation if required.
- **Operating Signals:** The inspection system incorporates warning lights and audible alarm signals, indicating that X-rays are present and system is operating.
- **Traffic Control Signals:** For directing vehicles through the inspection tunnel

**SYSTEM OPTIONS**

- **Integrated License Plate Reader**
- **Forwardsscatter Imaging:** From left and/or right side
- **Operator Building**
- **Enclosed Structure:** Shelters scanning system from severe weather conditions
- **Camera system:** Pan/Tilt/Zoom camera for observing the area in and around the X-ray system

**HEALTH AND SAFETY**

- **Radiation Standards:** System conforms to ANSI N43.17; Radiation Safety For Personnel Security Screening Systems Using X-Rays.
- **Radiation Dose:** The total dose to the inspected object is less than 0.05 μSv (5 μR) per scan at 5 kph.

**SYSTEM SOFTWARE AND IMAGING TOOLS**

- **Z Backscatter Imaging**
Z Backscatter detects low-Z organic materials even when hidden in complex high-density X-ray backgrounds. Z Backscatter reveals items such as explosives, drugs, and stowaways.

**Field of View:** Complete coverage of objects to ground

- **ASEInspection Software**
ASEInspection is the Windows-based application software used for system control and image analysis. ASEInspection contains a suite of tools for analyzing images, and it is used for image storage and retrieval.

**ASEInspection Features**

- **System Diagnostics Screen:** Real-time system status monitoring
- **Database Function:** Provides ability to create and store records with vehicle data and X-ray images
- **Auto Save:** Automatically saves an image and a record of the image as vehicles pass through the screening system, eliminating manual saving.
- **Archive:** Manually saves stored image files on a CD/DVD disk, and creates a reference to the disk in the database
- **Export Image:** Provides capability to export full images into TIF/JPG files
- **RAID Drive (Optional)**
- **Manifest Display (Optional):** For manifest verification
- **Networking Capability (Optional):** To a central server

**Image Analysis Tools**

- **Mark and Annotate:** Attaches pointers and comment fields to images
- **Density Expand:** Continuous adjustment of contrast and brightness to emphasize specific object densities
- **Edge Enhancement:** Accentuates the edges of objects, making them appear sharper
- **Sharpen:** Accentuates the edges of the object discriminately without accentuating background noise
- **Reverse Video:** Displays the normal, “positive” image or the reverse black-and-white “negative” image, thereby enhancing subtle density differences
- **High Contrast:** Automatically adjusts the contrast to optimal settings for the current region of interest
- **Adaptive Contrast:** Automatically adjusts the contrast of the image so all densities can be seen without requiring manual density adjustments.
- **Histogram Equalization:** Adjusts the contrast of an image by utilizing all density values equally
- **Color Palettes:** Adds the ability to evaluate images and regions of interests in greater depth using color
- **Historical Compare:** Side-by-side comparison of a current image to a saved image
- **Zoom:** 1/2 x, 2x, 3x, 4x, 8x, 16x magnification with the ability to roam continuously through full field of view
- **Region of Interest:** Allows filters and analysis tools to be applied to selected region of image
- **Ruler:** Ruler axis along sides of image to allow object measurement

**ENVIRONMENT**

- **Operating Temperature:** 0°F to 122°F (-18°C to 50°C); kits available for more extreme temperature conditions
- **Operable in rain, snow, wind, and blowing sand**
- **Storage Temperature:** 0°F to 140°F (-18°C to 60°C)

All specifications subject to change without notification.

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