

Occupied Vehicle Scanner - Fixed

The Occupied Vehicle Scanner – Fixed System is a drive thru x-ray scanner for screening occupied vehicles such as cars, 4 x 4WD, MPV, SUV and up to medium size vans. The system will assist security operators in identifying the presence of hidden persons and contraband, such as weapons, explosives and narcotics.

Applications

- ▶ Airports;
- ▶ Border check points;
- ▶ Government facilities;
- ▶ Hotels
- ▶ Military bases;
- ▶ Seaports; Sporting events; Temporary check points; VIP facilities.



Conventional vehicle scanners require the driver and passengers to leave the vehicle prior to the scanning taking place to prevent harmful radiation exposure, this obviously slows the through put of vehicles to approximately 30 per hour and there is still a potential risk that the occupants may be carrying explosives.

The Occupied Vehicle Scanner Fixed system can provide an approximate through put of up to 360 vehicles per hour whilst scanning the vehicle and occupants for explosives and contraband.

The system significantly increases detection capabilities at both temporary and permanent checkpoints at borders, airports, seaports, military facilities, government facilities, national infrastructure, commercial facilities and other high-security locations.

Any concealed items will be quickly identified in vehicles travelling through the checkpoints. This system will dramatically reduce the inspection time at high volume vehicle checkpoint sites.

The robust construction is able to withstand heavy vehicle of up to 10 tons.



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The system utilises dual energy transmission X-ray technology.

The x-ray generator is located in the overhead portal above the target vehicle and the detectors are located in a housing beneath the vehicle, the x-ray beam is passed through the vehicle top to bottom; the resultant image is easily interpreted by the operator.

Advantage - With other competitor systems the beam is directed from the bottom of one side of the target vehicle diagonally through the top of the other side of the vehicle, producing a distorted image that is difficult for the security operator to relate to and spot anomalies

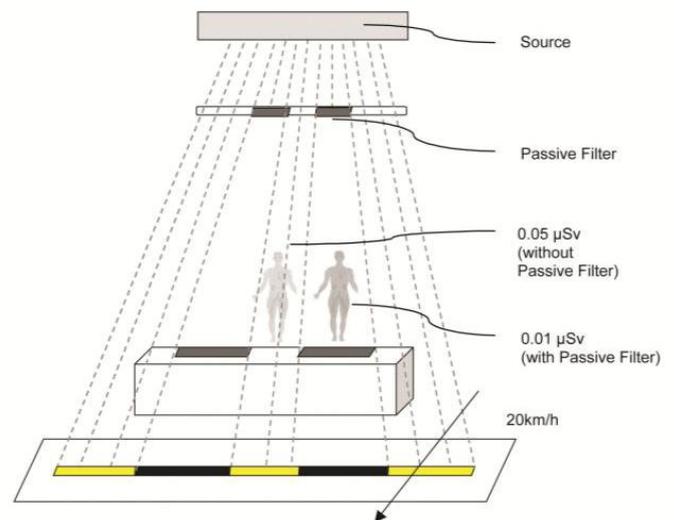
Organic objects detected are highlighted in very easily identifiable un-cluttered colour-coded images that practically eliminate clutter that is endemic on competitors systems.

The systems relatively small footprint allows it to be installed into an existing traffic lane using minimum manpower.

The resulting images are sent to a receiving station PC, which can be located in close proximity to the unit or remotely in a nearby security booth etc.

The system utilises a 160kV X-Ray imaging source and hyper-sensitive detectors together with "Passive filters" that provides a human safe and efficient inspection solution for any moving vehicle at checkpoints and critical installations.

The Passive Filter Technology uses an intelligent filtering mechanism to effectively shield off any unnecessary radiation targeted to the driver and passengers during the inspection process.



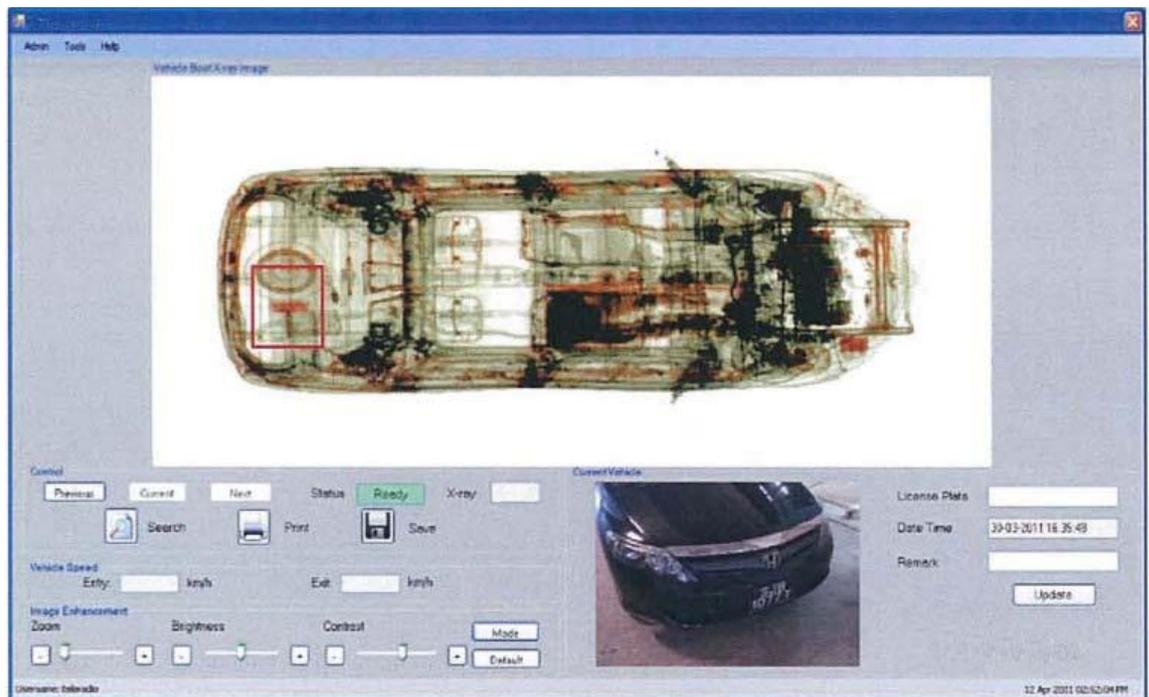
General

- ▶ System activation and deactivation is fully automatic;
- ▶ Only 1 operator is required for operation;
- ▶ Vehicles do not need to stop during screening;
- ▶ Screening time for each vehicle is less than 10 seconds;
- ▶ Vehicle, driver and passengers screened;
- ▶ Vehicle screened at 20km per hour or faster;
- ▶ Suspicious objects highlighted to operator;
- ▶ Image can enhanced and enlarged for more detailed investigation;
- ▶ Vehicle data are stored in database for report compilation or investigation;
- ▶ Safety emergency stop buttons fitted;
- ▶ System installation does not require civil works;
System can be relocated when required

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Receiving Station and Software Features

The system utilises an Intel® Duo Core processor unit with a 19" monitor that displays a user friendly graphic user interface for control and review of images.



Operation

The system has an easy to use software application for viewing system images and data this provides functions for monitoring and controlling the scanning operation, as well as functions for retrieving and analysing scanning images.

The software viewer software application is provided on the workstations that are supplied with the system, as an option the software viewer application can be supplied for installation on customer-supplied workstations to support additional operators or analysts.

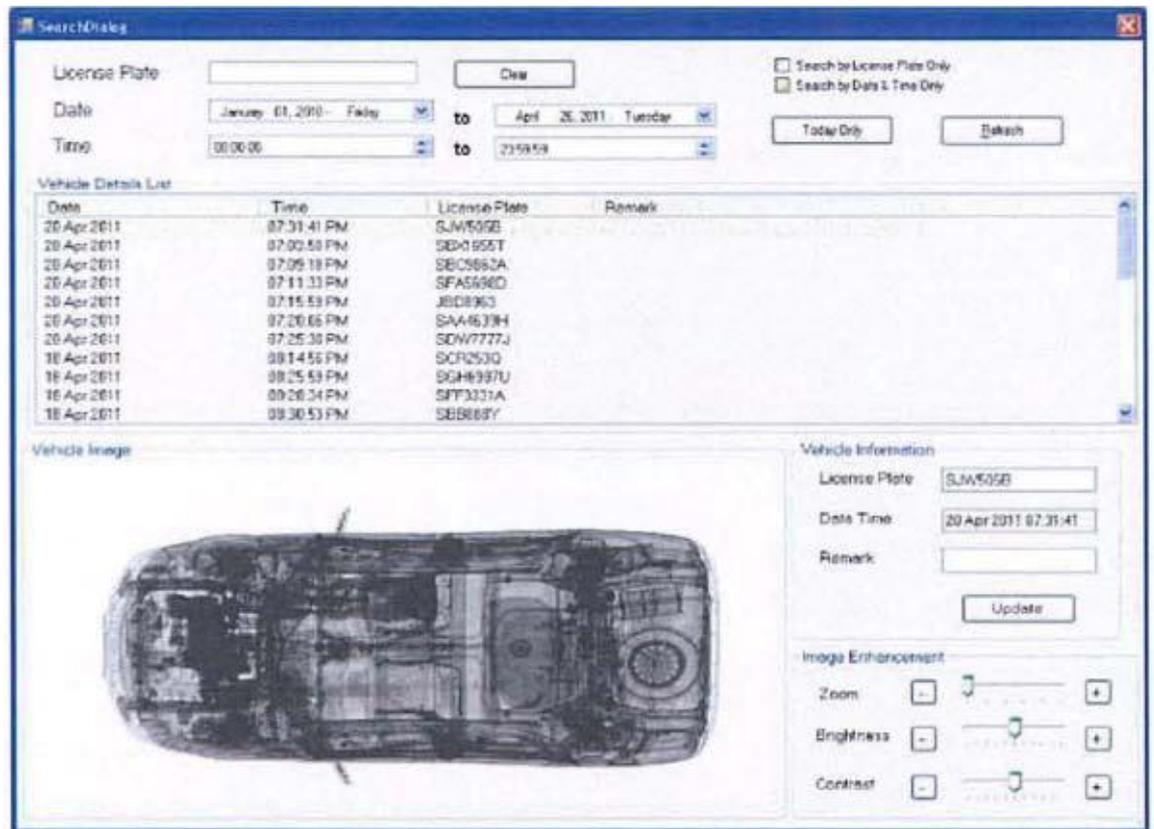
The system viewer provides functions for controlling the scanning operation, and for retrieving and analysing X-ray images.

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Operator Functions

The system viewer provides a variety of functions for monitoring and controlling the scanning operation.

- ▶ View and change the disposition of the vehicle;
- ▶ Enter comments about the vehicle;
- ▶ Start and stop the scan;
- ▶ View the system and source status and system messages;
- ▶ High quality 16bit resolution image for object identification;
- ▶ Zoom capability;
- ▶ High pass image modes for different perspective of images;
- ▶ Image enhancement image brightness and contrast;
- ▶ Control panel provides navigation control of the image, data search and print;
- ▶ Vehicle information panel displays vehicle information such as vehicle image, licence plate number, date of entry, time of entry and remarks field;
- ▶ 500GB hard disk stores comprehensive database, all data and vehicle information captured;
- ▶ Print Function is provided to generate a print-out of the image captured together with the vehicle information when required.



Previous Inspections

The analyst can retrieve inspection records stored in the system database to review prior inspections at any time. The analyst can select from a chronological list of inspections or search for inspections by date, transaction ID, disposition, comments, and other criteria.

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Analysis Scan

This enables the operator to view live or stored scanning images and provides functions for enhancing the images:-

- ▶ Annotation: Image-marking and text annotation.
- ▶ Image enhancement: contrast stretch, pseudo-colour, edge enhancement, noise reduction;
- ▶ Viewing: zoom, multiple regions of interest;

The system has a number of features to assist users analyse X-ray images, including contrast stretch, sharpening, smoothing, edge detection, noise reduction and pseudo-colour.

Auto Detect Mode

Auto Detect mode highlights suspicious objects allowing the operator to quickly analyse the images for concealed contraband.

Intelligent software algorithms automatically search and highlight suspicious objects.

ANPR License Plate Reader

The Occupied Vehicle Scanner - Rapid Deployable System is equipped with ANPR technology to read license plate numbers, enabling the system to automatically integrate the scanning data for each inspection. The ANPR results can be manually reviewed and updated if required.

Please check with DST SECURITY regarding country to be deployed that number plates can be read.

Health & Safety

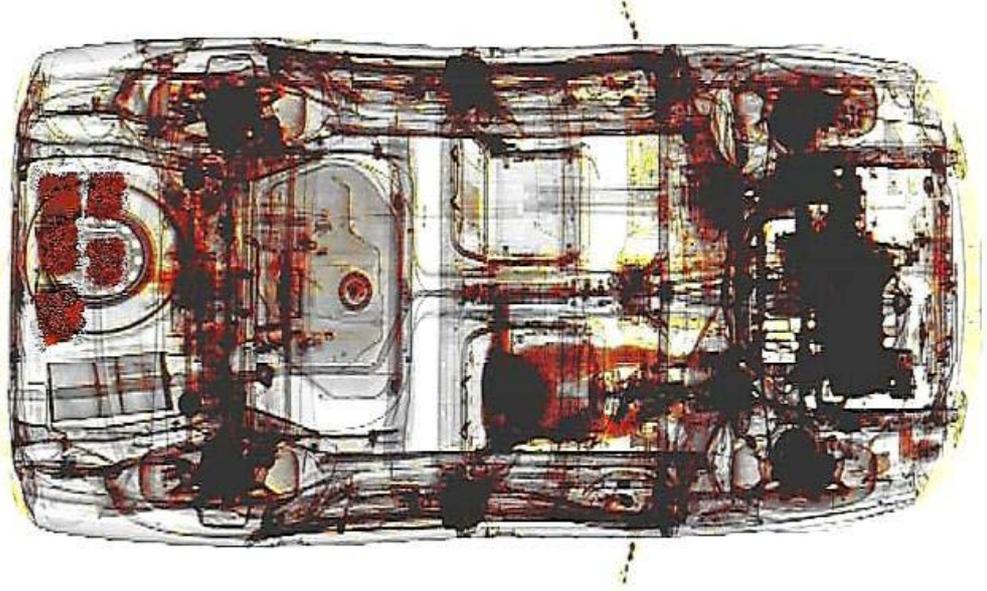
- ▶ A scan exposes the occupants of the vehicle occupants to less than 0.01 μ Sv of radiation at passive filtering zone;
- ▶ In comparison, naturally occurring radioactive materials in the air and soil expose all persons to 3 μ Sv radiation per day;
- ▶ An aeroplane passenger receives approximately 5 μ Sv of radiation per hour during flight, due to the increased elevation;
- ▶ The system complies with ANSI N43.17-2009, the primary standard in the U.S. for general purpose security screening of humans using X-rays.

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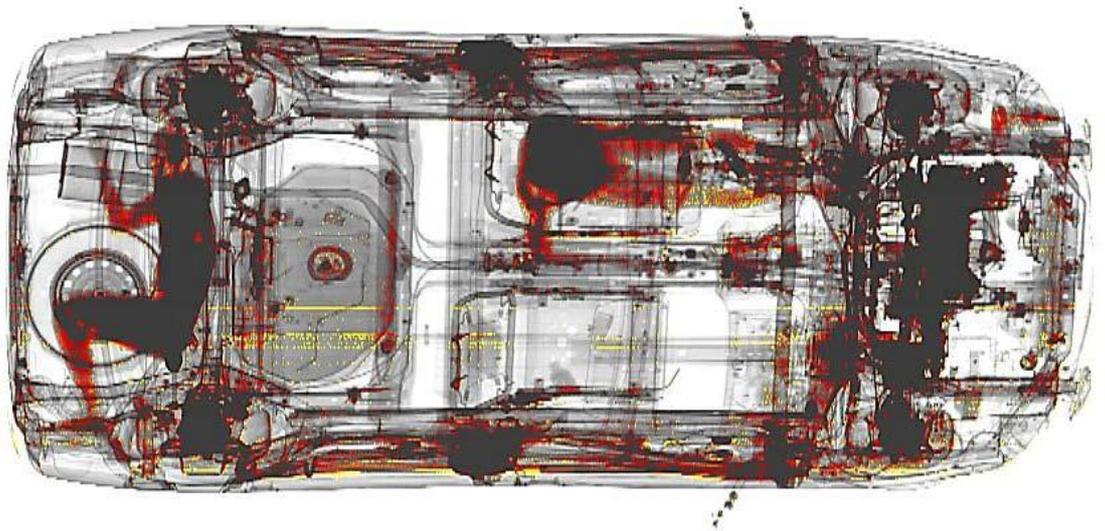
Typical Images

High lighting Organic objects, substances in **RED**

The packages in the car boot (trunk) were found to be explosives.



Person found hiding in the car boot (trunk)

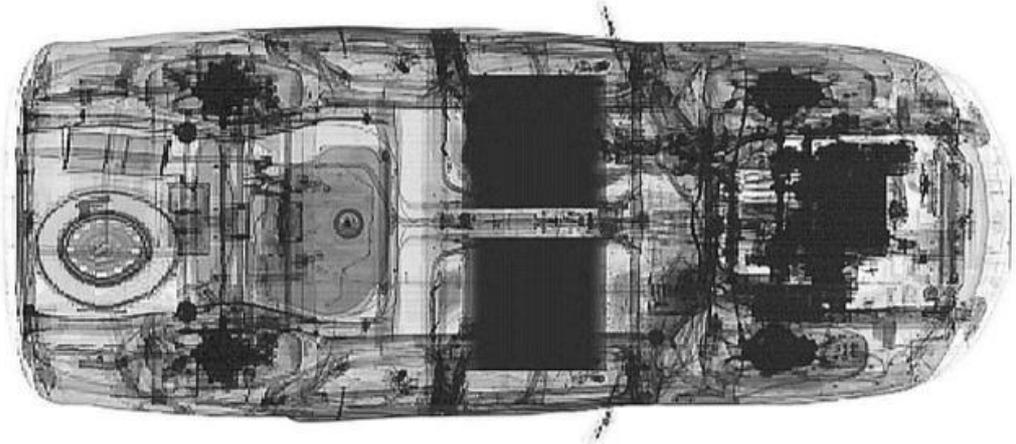


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Typical Image

It is sometimes easier to identify suspicious items using a Black & White image.

Pistol located on spare tyre in trunk (boot).



Detection Capabilities

Organic threats such as explosives, stowaways, and drugs are displayed in shades of yellow and red, allowing the operator to quickly understand the vehicle's contents.

Technology

The Occupied Vehicle Scanner operates using both single mode and dual energy X-ray systems.

The single energy system provides the black and white images and the dual energy provides colour images highlighting organic items such as explosives, stowaways, and drugs these are displayed in shades of yellow and red.

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Specifications

Physical	
Vehicle Throughput:	Up to 360 per hour
Maximum Vehicle Speed:	20 km per hour
Tunnel Inside Dimensions:	W 2,800 x H 2,400mm
Maximum Vehicle Dimensions:	W 2,400 x H 2,100mm
Outside Dimensions:	W 3,250 x H 3,300 x L3,000mm
Weight:	1,600 kg
Electrical	
Power:	220 Volts, 20 Amps, 50 Hz Single Phase 110 Volts, 40 Amps, 60 Hz Single Phase
Dust and Moisture IP Rating:	IP65
Environment	
Operating Temperature:	-0°C to 50°C
Relative Humidity:	0 to 98% relative, non-condensing
Receiving Station	
	Pentium Quad Core, 4 GB Ram, DVD-RW, 500 GB storage
Safety	
Maximum radiation maximum dose per inspection:	Less than 0.05 μ Sv
Maximum radiation dose at Passive Filtering Zone per inspection:	Less than 0.01 μ Sv
ANSI N43.17	Compliant
Shipping	
Shipping Size per box:	Case 1: L 3,200 x W 1,000 x H 1,000mm, Case 2: L 1,450 x W 1,200 x H 1,000mm, Case 3: L 1,200 x W 1,200 x H 900mm.
Shipping Weight:	2,000 kg
Sea Freight Container:	1 x 20' Standard