



Low Dose
X-ray
Body Scanning



Worldwide crime has escalated to a multi-billion dollar “industry”. With theft, fraud and terrorism more prevalent, it is becoming increasingly difficult to ensure safety and security of the highest standards.

The need for proactive security management has led to the development of the Xscann Body Scanner, a system designed and developed through marrying the most advanced x-ray equipment with the highest level of digital technology.

The Xscann Body Scanner - protecting the world's assets



Xscann Technologies is an innovative company that has been operating within South Africa for a number of years and is responsible for the development of state of the art body scanners that are in operation throughout Africa and the rest of the world.

By utilising the cutting edge technology offered by Xscann, companies eliminate the usual problems associated with conventional body searching methods and send a message of zero tolerance to potential smugglers.

A case in point, the first installation of the Xscann Mobile Body Scanner in Tanzania during October 2005 translated into immediate results – recovering US\$ 21 000 worth of tanzanite stones which were being smuggled by employees. More recently, in excess of 100ct of diamonds were recovered in two separate incidents and production levels increased significantly at a mine in the Congo.



Two options are available in the Xscann range.

Full Body Scanner

For those customers who place importance on the prevention of smuggling of precious metals and gems, the Full Body Scanner is an essential security tool. The new machine offers outstanding image quality of the entire body with high image resolution and a flicker free display making it an effective tool for the detection of:

- × Precious stones - excluding diamonds
- × Precious metals
- × Explosives
- × Weapons
- × Bugging devices

Technical Specifications:

General Specifications:

Dimensions:	L 1955mm x H 2522mm x W 2585mm
X-ray Dose/Inspection	± 1.7µSv per exposure
Duty Cycle:	100%
X-ray Generator:	HEIMANN HI-RAY10
X-ray Tube	Focus 0.5mm,
Beam Divergence	80° max.

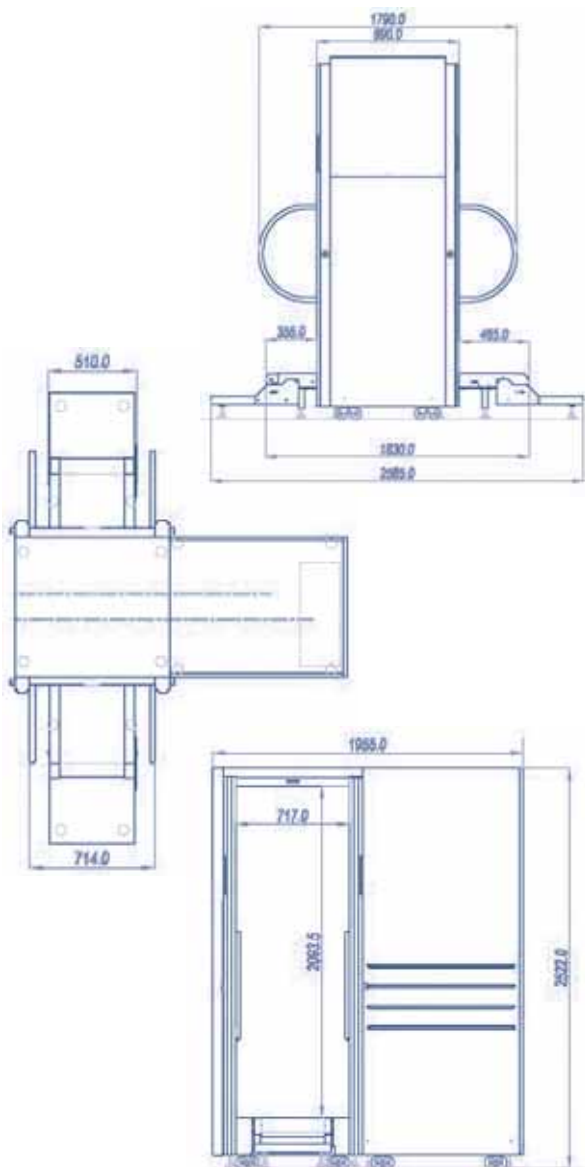


Image Generating System:

X-ray Converter	Solid state detector line
Grey Levels Stored	65536
Image Presentation	Black/White, color overlay
Image Evaluation Functions	Electronic zoom, various Enhancements & Filters
Monitor	21" color CRT monitor(s). Optionally special TFT Monitor(s)

Features:

	Fading-in Date/Time
	User ID Number
	Display of Operating Mode
	Save / Recall Images
	Zoom Overview
	Enhancement Filters
	Programmable Keys

Installation Data:

Operating Temperature	0° to 45° C
Humidity	10% to 90% (non-condensing)
Power Supply	Standard 230VAC =10%/-15%, 50 Hz/60Hz
Power Consumption	Approx. 1.2 kVA max.
Mechanical Construction	Metal construction: Aluminium / Steel
Sound Pressure Level	<70dB(A)

Computer Data:

Hardware	CPU 2.4 GHz or better, 512 MB Ram, Graphics acc., Ethernet. Optional: Back-up Device, WLAN, Modem.
Software	Operating System, System Tools, X-Ray-Scanner-Software including Operation, Maintenance, Configuration and Communication Modules.







Dual Body Scanner

The Dual Body Scanner provides two outstanding quality x-ray images, one of the whole body and one focusing on the torso area. The torso image enables the user of the system to obtain a higher definition image of the torso area than would be possible if only viewing the entire body x-ray image. This will provide the user with a more detailed x-ray image on which to base their scan evaluation.

The Xscann Dual Body Scanner is the only dual image body x-ray unit on the market, allowing for the accurate detection of:

- × **Narcotics**
- × **Precious stones – including diamonds**
- × **Explosives**
- × **Precious metals**
- × **Weapons**
- × **Bugging devices**

Technical Specifications:

General Specifications:

Dimensions:	L 2350mm x H 2522mm x W 2585mm
X-ray Dose/Inspection	
Full only / per exposure	± 1.7µSv per Exposure
Torso only / per exposure	± 3.5µSv per Exposure
Both full and Torso scan /per exposure	± 5.3µSv per Exposure
X-ray Generator:	HEIMANN HI-RAY10
X-ray Tube	Focus 0.5mm,
Beam Divergence	80° max.

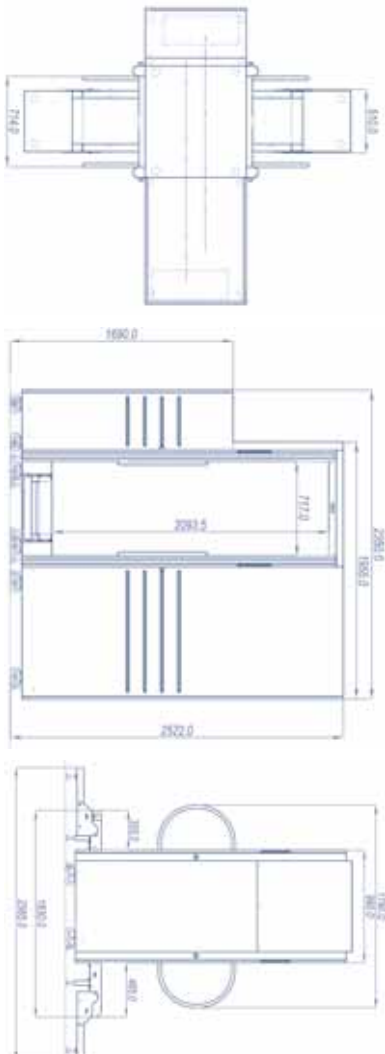


Image Generating System:

X-ray Converter	Solid state detector line
Grey Levels Stored	65536
Image Presentation	Black/White, color overlay
Image Evaluation Functions	Electronic zoom, various Enhancements & Filters
Monitor	21 " color CRT monitor(s). Optionally special TFT Monitor(s)

Features:

	Fading-in Date/Time
	User ID Number
	Display of Operating Mode
	Save / Recall Images
	Zoom Overview
	Enhancement Filters
	Programmable Keys

Installation Data:

Operating Temperature	0° to 45° C
Humidity	10% to 90% (non-condensing)
Power Supply	Standard 230VAC =10%/-15%, 50 Hz/60Hz
Power Consumption	Approx. 1.2 kVA max.
Mechanical Construction	Metal construction: Aluminium / Steel
Sound Pressure Level	<70dB(A)

Computer Data:

Hardware	CPU 2.4 GHz or better, 512 MB Ram, Graphics acc., Ethernet. Optional: Back-up Device, WLAN, Modem.
Software	Operating System, System Tools, X-Ray-Scanner-Software including Operation, Maintenance, Configuration and Communication Modules.

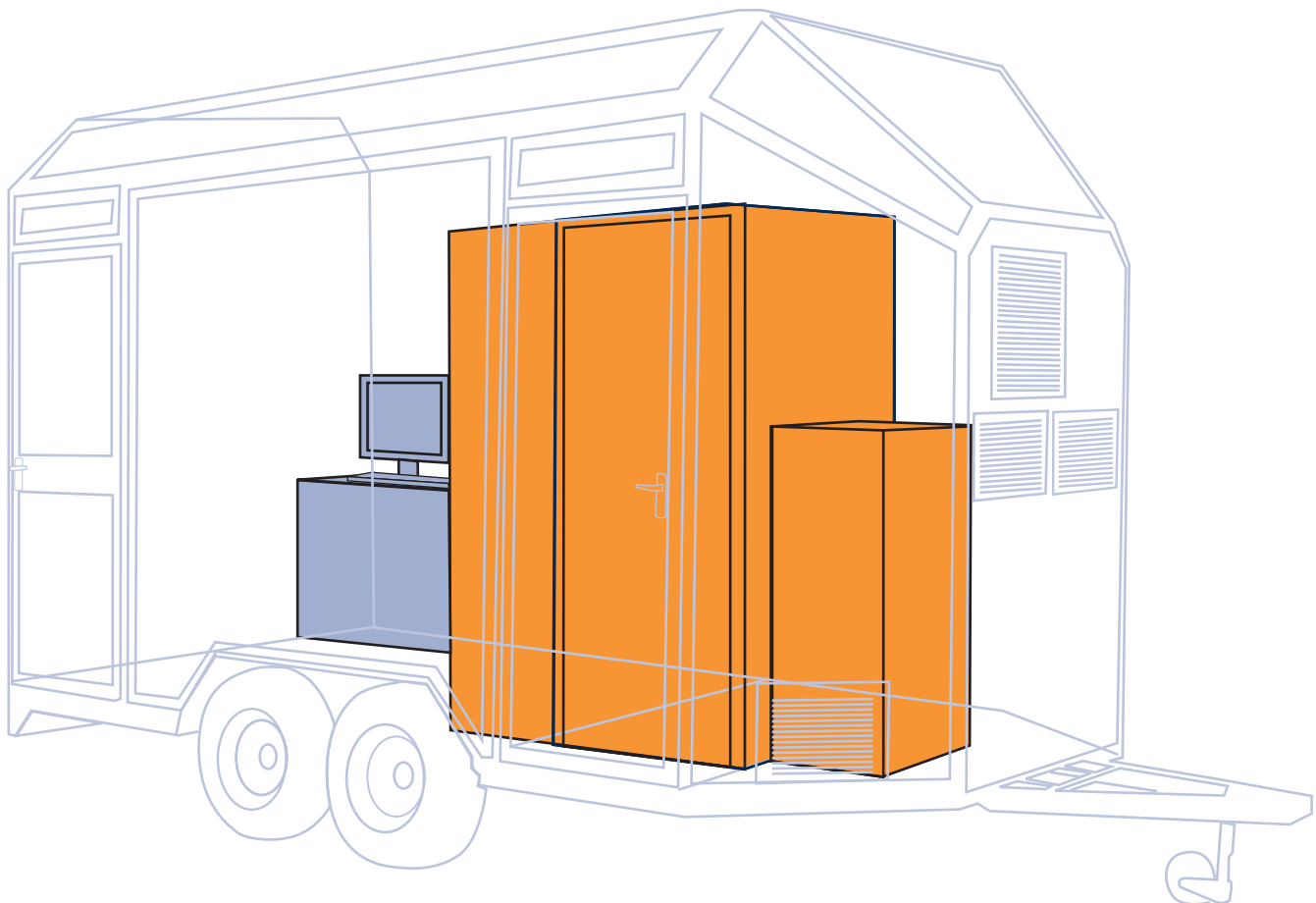




Mobile Unit

Both the Dual and Full Body Scanners can be converted into a mobile version for use in more than one location. This unit includes features such as a UPS and a generator backup power system, electrical distribution that integrates all electrical requirements and ensures uninterrupted operation of the unit with a standard air-conditioning unit fitted. These features can be customised to suit a client's specific requirements.

Illustration of Possible Configuration





Technology^x

Xscann Low Dose Body X-ray Scanners are managed by a software management system known as XMan2E. This software management system controls the entire environment surrounding the x-ray unit, including the access control system and dose measurement. XMan2E is also responsible for consolidating an MS SQL database that holds all the unit's information, from personal data and x-ray dosage, to the actual scanned images. Historical data of all transactions is available for reporting on the day-to-day operations of the unit. XMan2E keeps a detailed log of operations, from the operator identity to the flow process during a working shift of Xscann.

The following software modules were added to Xscann to ensure the smooth operation of the unit:

- X** The operator module: To integrate all information available to the user in an easily accessible format. The operator module provides the operator with a user interface through which personal information of the subject being scanned is displayed, as well as a summarised view of the unit's operational status. From here, the operator can start the x-ray and view its status throughout the scan process.
- X** Viewer module: A high-resolution image from the x-ray unit is displayed on the screen. From here, the viewer can analyse the image and decide whether to hold or release the subject, based on the image displayed. This viewer module can be remotely located to prevent any form of collusion occurring between colleagues. An optional enhancement is now

available that will complement the viewer module. By clicking on the R (Reference Image) button in the viewer module a reference image of the person being scanned will be displayed next to the current scanned image. This will enable the viewer to compare the two images, therefore making the evaluation process more efficient (See Fig. 1)

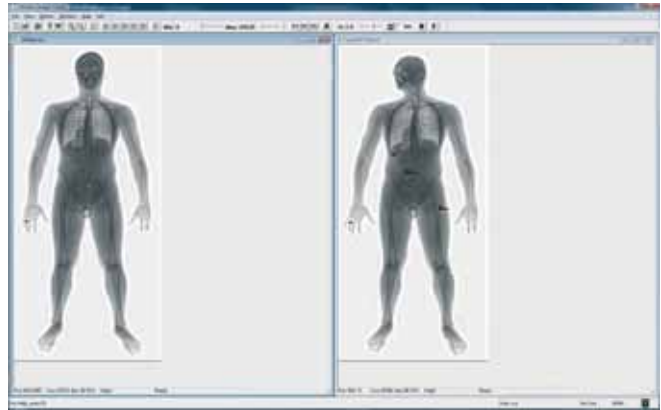
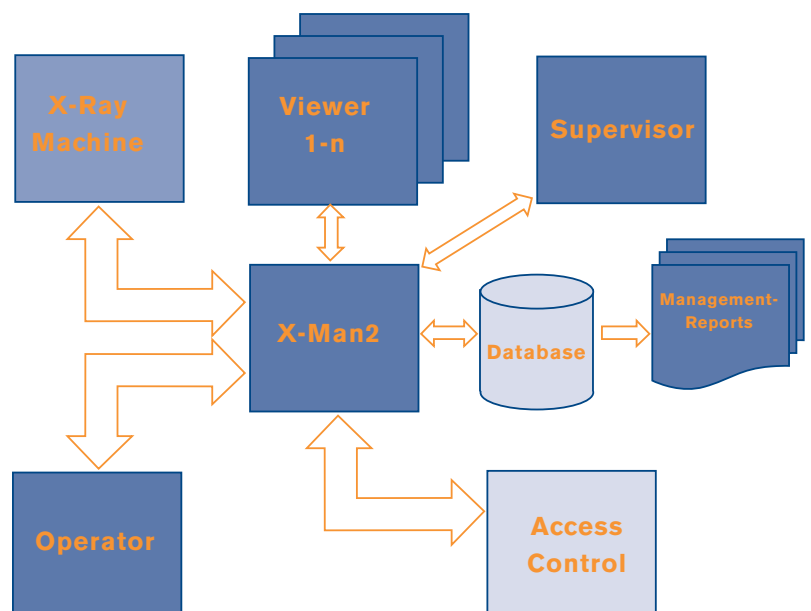


Figure 1.

- X** Data capturing module: To add new subjects and users, as well as to manage the security levels of the system. The same module provides the users with various levels of authority during operation, for example: operator or supervisor (available to supervisor only).
- X** Xscann's diagnostics module: Allows for full control of all the doors and access control readers. This enables the supervisor to conduct a quick troubleshooting of the unit.

System Architecture



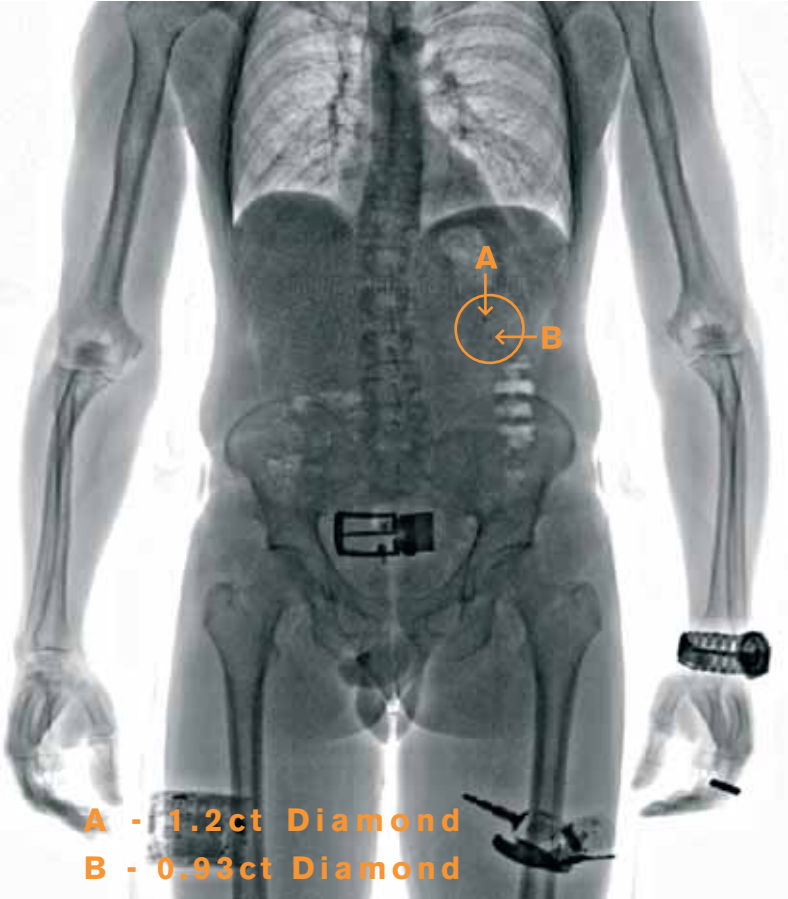


Image Quality^x

The new Xscann Low Dose Body X-ray Scanners offer X-ray images that are of exceptional quality and that shows very fine detail and clear images. The scanners are able to offer this outstanding display quality due to high image resolution, a flicker free display and various other functions.

A - 1.2ct Diamond
B - 0.93ct Diamond



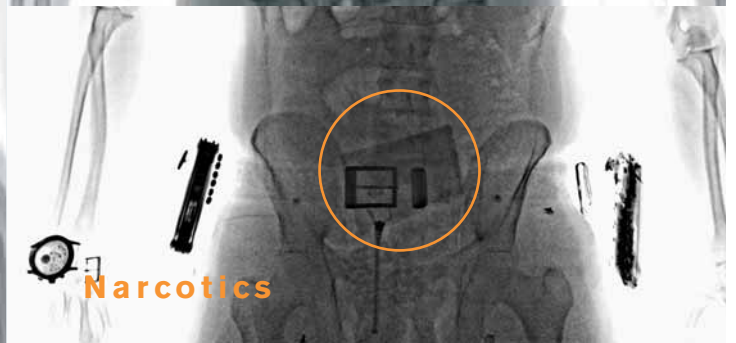
Platinum Metal Granules
A - 1 gram B - 2 grams
C - 4 grams D - 16 grams



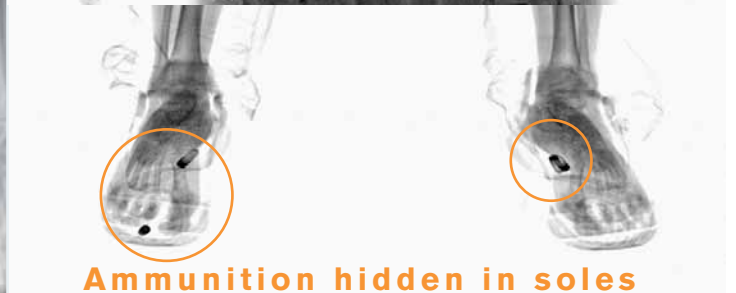
Dental Fillings



Platinum Salts



Narcotics



Ammunition hidden in soles of the shoes. 9mm Calibre



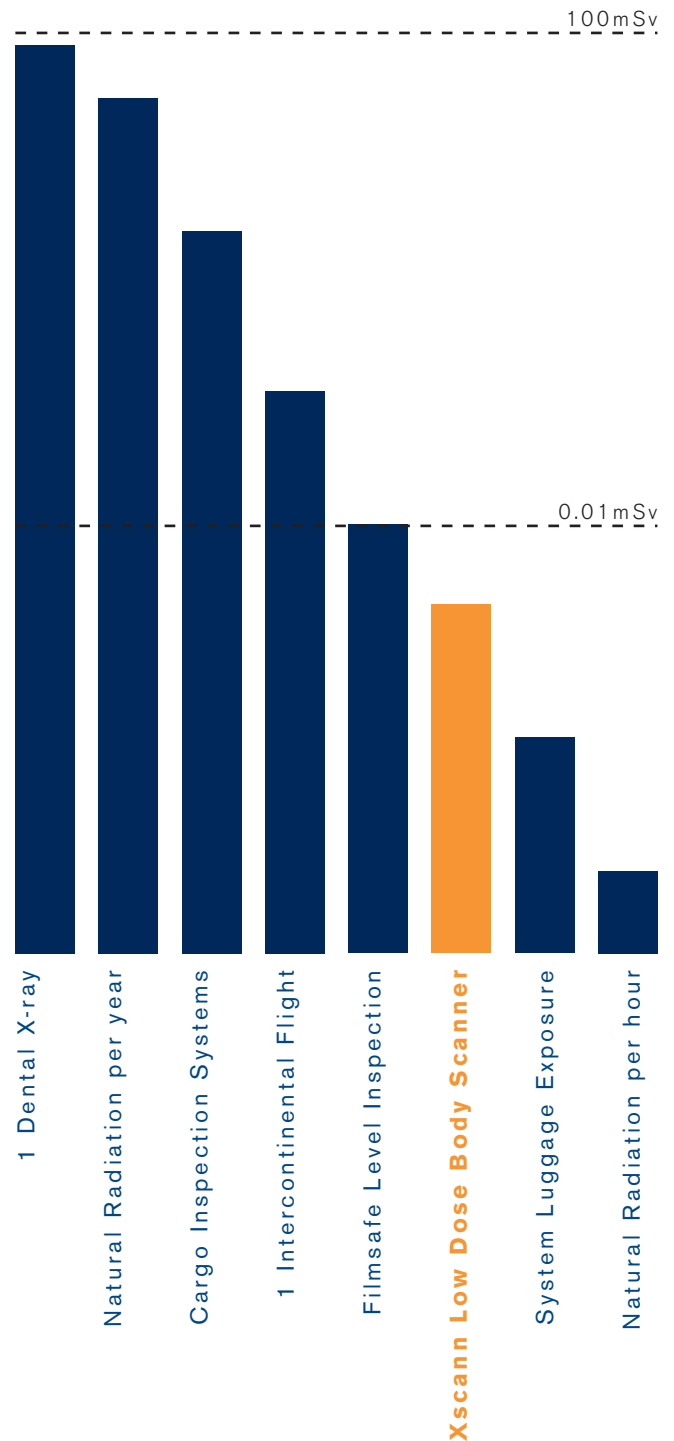
The safety features built into Xscann include:

- × Interlock switches installed on all leadshielded panels
- × Several emergency shutdown switches are strategically located
- × The x-ray generator control circuitry is not accessible to site personnel
- × The x-ray generator is automatically switched off if the conveyer belt is stopped or fails
- × Dosage is measured by means of a M4 Diamentor dose meter

The X-ray Management System ensures that:

- × Each exposure is measured and controlled according to:
 - The legal limit set for the installation (typical 1mSv per year)
 - The accumulated exposure limits for each individual
- × Each exposure is recorded to a MS SQL Server database.

Dose Levels of X-ray Exposure

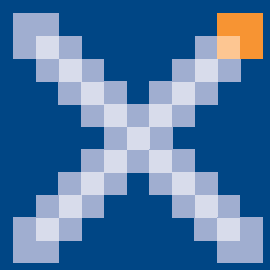


Public Dose Limit = 1mSv per year

Xscann Body Scanner dose per inspection = 0.0053mSv

Services^x

- x All Xscann Body Scanners include a one-year warranty on the x-ray, PLC and computer equipment
- x Full software support is included for the first year. Thereafter an annual subscription fee applies
- x Remote support and reporting will be available where remote connectivity is supplied by the client
- x A full maintenance contract is available



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