“SIBSCAN” X-RAY CONTROL SYSTEM

Description
The “Sibscan” x-ray control system is designed for inspection of people in airports, offices, banks, and government buildings for the purpose of detecting dangerous objects, substances, and arms, including those made of plastics, hidden on the body and inside the clothes. The only method suitable for this purpose is x-raying with microdose x-ray control systems.

The proposed system incorporates the following features:
- high contrast sensitivity and wide dynamic range necessary for detection of low-contrast objects, which allows one to see such objects both outside the body (in the clothes, at the side) and on the background of dense parts of the body;
- ultralow dosage of x-ray radiation commensurable with the daily background dose (lower than 5 µSv);
- large size of the image (2000x800 mm);
- short time of inspection (less than 5 sec);
- special software than allows short-time analysis of the image (less than 10 sec);
- minimum inconveniences associated with inspection.

When scanning is finished, the whole image consisting of 2000 “rows” is fed to a computer; after rapid processing, the image is displayed. Scanning starts from shoe soles and finishes when the detector becomes homogeneously illuminated, i.e., when the beam “leaves” the head of the inspected person.

Technical appraisal and economic benefits
As compared to foreign analogs “Conpass” and “Scannex”, the scanning time of the system is two to three times lower, the system is significantly less expensive, and its design is more convenient for people being inspected.

Application areas
Medicine.
Inspection of luggage and passengers at railway stations and airports.
Inspection of visitors of offices, banks, government buildings, etc.
Prevention of stealing of precious metals and diamonds in corresponding industries.

Development stage
A prototype has been created by the Budker Institute of Nuclear Physics of the Siberian Branch of the Russian Academy of Sciences together with Kawasaki Heavy Industries (Japan).

Patent situation
Patent application is being prepared.

Commercial offers
Production and procurement agreement.

Estimated cost
The cost of the basic configuration is about 150,000 USD.
Figure captions: 1,2,3 – linear guides, 4 – emitter, 5 – collimator, 6 – high-voltage source, 7 – detector, 8 – supports, 9 – cables, 10 – board transparent for x-rays

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