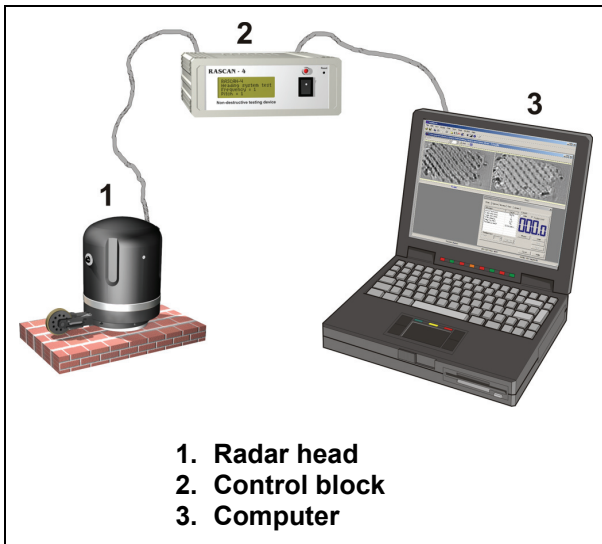


RASCAN-4 Holographic Subsurface Radar



The RASCAN-4 holographic subsurface radar is intended for sounding structural components of buildings (brickwork, wall panels, cast in place concrete and reinforced concrete, etc.) It gives possibility to find buried objects (wiring, reinforcement, voids, various kinds of discontinuities and foreign bodies such as eavesdropping devices). Computer's display reflects the internal structure of examination area. The device operates at five frequencies and two types of polarization (cross and parallel) resulting in almost 100% detection probability. Another application is non-destructive testing of dielectric composite structures that are used mainly in aerospace industry and shipbuilding.

Technical info:

| | |
|---------------------------------|-------------------------------|
| The weight of equipment set | 1.9 kg |
| Maximal sounding depth | 0.25 m |
| Resolution in plane of sounding | 1.5–2 cm |
| Transmitter power | < 10 mW |
| Number of operating frequencies | 5 |
| Number of signal polarizations | 2 |
| Productivity | 4...6 m ² per hour |

Main advantages:

- Ability of executing one-sided sounding of an object, instead of double-sided sounding as X-ray apparatus does;
- Ability to detect both metallic and nonmetallic objects;
- High resolution in plane of sounding;
- Safety of radar usage for the operator because of low level of emitting power.

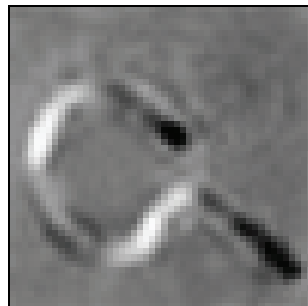
Main fields of application:

- Counterintelligence activities for detecting bugging devices;
- Operative inquiry activities of law-enforcement agencies;
- Surveying of building structures for determining the position of defects, reinforcement, voids and other heterogeneities;
- Sounding of especially critical building works (airport runways, bridges, crossings, etc.) for determining their latent flaws;
- Detection of cracks in underground parts of buildings and structures for prevention of water infiltration;
- Manufacturing quality control of dielectric composite details.

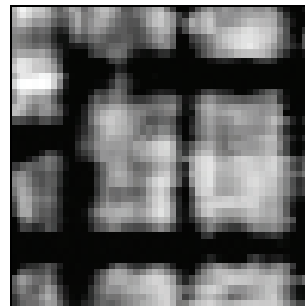
Examples of the microwave images of various objects recorded by RASCAN-4



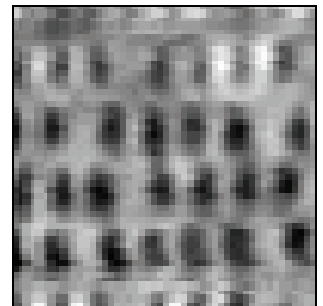
Tiny TV-camera and two microphones under a layer of plywood



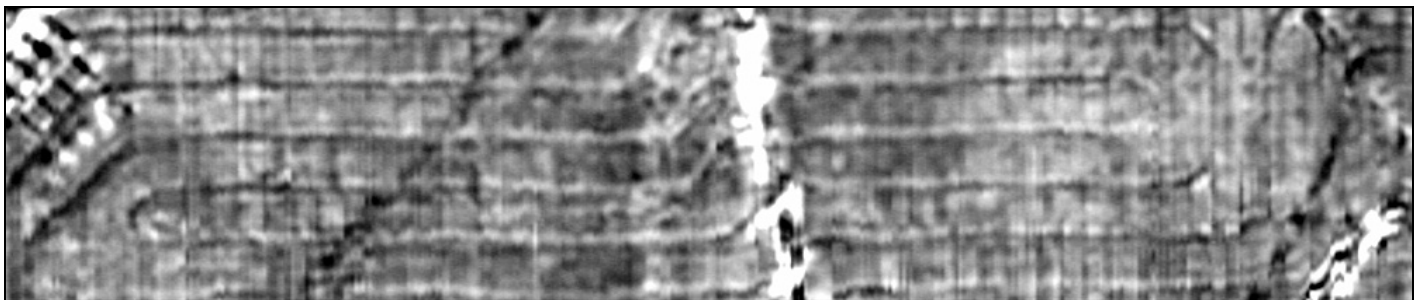
Optical fiber behind a wall of a closet



Reinforced concrete wall



Wall made from slag concrete blocks



Plastic heating tubes and tangle of cables under the concrete floor

Nowadays RASCAN-4 holographic radars have no analog in Russia and abroad because of its design and principle of operation. They are being produced in lots in three different frequency ranges: <http://www.rslab.ru/?lang=english&dir=product>
The Laboratory's staff was rewarded with Russian Federation government's prize in the field of science and technology for the creation of the RASCAN radar technology.