

2.7. OPTOELECTRONIC SURVEILLANCE AND INSPECTION EQUIPMENT

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This paper reviews the basic classes of search & inspection optoelectronic equipment as well as ability and peculiarities of their application for public safety provision. In the paper also will be given the information relevant to the current results of development and engineering works conducted by the Research Institute of Introscopy of MSIA "Spectrum" (JSC Spectrum-RII) and the Scientific-Production Center of anti-terrorist and forensic equipment "Spektr-AT" (NPTs Spektr-AT LLC) and prospective lines of this class instruments development.

Detection of people and vehicles, search for hidden and camouflaged objects, recovering of human activity traces are basic tasks of public safety provision requiring use of optoelectronic surveillance and inspection instruments. The variety of tasks and outside conditions is requiring various approaches to their solution and instruments use.

For example, for people and vehicles search the best solution will be use of the thermal vision surveillance systems. This can be explained by the fact that temperature of human body and working technical means and devices is higher than ambient one. Tremendous advantage of the thermal vision systems operating in long-wave IR range, in comparison with the optic ones operating in the visible wave range, is their immunity towards such disturbances as fog and smoke as well as independence from the illumination level, i.e. their ability to be used in total darkness without necessity to implement any illumination sources. Due to the above peculiarities and modern technology development the night vision devices with electron-optic image intensifiers frequently used until recently are more and more replaced by the portable IR-imagers.

IR imagers operating in the near IR range, i.e. with wave length 1-2mcm, are used for detection of artificial cover-ups. The spectral systems providing images analysis in visible and IR spectral narrow bands also can be used to solve the above mentioned task but additionally they provide detection of human activity traces. For revealing of optical instruments used for covert counter observational and optical sights use is made of active optoelectronic laser location instruments operating, as a rule, in the near IR range.

JSC Spectrum-RII has extensive experience in the field of the optoelectronic surveillance and observation instruments (used by specials services) development as well as in production of modern equipment that helps to solve all above mentioned tasks. Further are listed some products of the company: hand-held and portable IR imagers of "Katran" series, instruments "Spin-2" and "Anriwatch-2" for covert optics detection, multipurpose surveillance instrument "Sprut".

The improvement of existing equipment developed earlier is carried out on the permanent bases. At the moment upgrade versions of IR-imager "Katran-II" and instrument "Antiwatch-2" are prepared for production. At the same time the development of new versions of multipurpose instruments "Sprut" and "Antiwatch-3" incorporating principally new scanning

modules is in process. The new engineering solutions will provide extended operation range of last two instruments.