Development of the Scientific Equipment for Search and Localization of Air Leak Places from the ISS ROS Pressurized Compartments

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Abstract. The article describes the main results of the development of the scientific equipment intended for refinement of methods of searching the air leaks from the ISS pressurized compartments. It should be stressed that in the process of work the hardware and software scientific complex, consisting of the optical-electronic block, control and monitor panel and laptop, was designed. The optical-electronic block is an extravehicular part of the complex used for identification of various effects and anomalies taking place at depressurization of the station. The results of measurements and video data are transferred via the panel to the onboard laptop in which indications of the UV, IR and visible band cameras, UV-spectrometer, as well as vacuum control and electric field intensity devices are fixed. Moreover, separate parts of the scientific equipment have passed factory and interdepartmental tests and verified their working capacity. The design and engineering documentation for the scientific equipment was issued. It should be noted that the scientific complex will allow to optimize the most effective method of extravehicular search of air leak places from the pressurized compartments of the ISS ROS (the Russian Orbital Segment of the International Space Station).

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