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DEVELOPMENT OF ENVIRONMENT SIMULATOR GVV-600 FOR RUSSIAN ISS-RESHETNEV

Abstract

ABSTRACT: A large-sized space environment simulator has been developed by Beijing Institute of Spacecraft Environment Engineering (BISEE) for JSC Academician M.F. Reshetnev Information Satellite Systems Company (ISS-Reshetnev) in Russia. It is mainly used to conduct thermal vacuum test on Russian new generation navigation satellites. This facility was cylindrical, with an inner dimension of 8m in diameter and 13.5m in length, and an effective volume of 600m³. An ultimate pressure of 1.4*10⁻⁵Pa was achieved at the empty chamber, and the shroud temperature was 100K. The chamber was located in Zheleznogorsk City, Russia. Taking account of design of old workshop and on-site's limitation, vacuum vessel and shroud was designed as spherical head in order to reduce the total length and volume. The door was opened along axial direction. The design of vacuum system was based on cleanness and reliability. Measurement and Control system developed a Linux-based operating system a one-button automatic control mode, which realized functions of equipment automatic control, data storage, display and management. This development of this facility was completed in July, 2011. Its performance met user's requirements. This paper introduces technical data, system, composition, and functions of the facility.