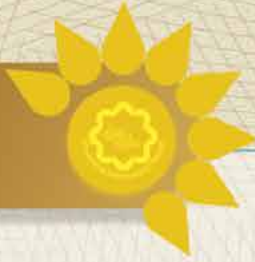


Second Laureate Applied Research



- Research Work Title: Design and Construction of Thermal Vacuum Simulator
- Executive Organization: Shahid Beheshti Uniesity
- Collaborating Organizations: Ministry of Communication and Information Technology, Iranian Space Agency, Iranian Space Research Institute



Abstract:

In this work three thermal vacuum system has been designed and constructed. The volume of one of the systems is about 14 m³ and the other two systems have volumes of about 1.5 m³. The chambers have shrouds and base plates and their temperature could be controlled with IR lamps and liquid nitrogen. In addition, a large solar simulator with one meter in beam diameter and power density of 1400 W/m² were designed and build using nine 2.5 KW xenon lamp each placed in an elliptical concave mirror. The light is directed inside the chamber to a large collimating parabolic mirror through a 50cm optical window on the chamber. There are many flanges and vacuum sealed connectors on the chamber, where about 300 electrical signal can be transferred between inside and outside the chamber. All the parts of the system is monitored and controlled by LabView software.

