Clean-room procedures as per ISO 14644-1 and ISO 14644-2 standards are established and implemented

1. Unidirectional airflow clean rooms for telescope integration and testing.
2. Strict control of particulate and molecular contamination and parameters such as temperature, humidity (<30% at telescope integration room) and pressure.
3. Facility to monitor temperature, humidity, pressure and also to monitor particulate and molecular contaminants.
4. Restrictions on the maximum number of people permitted in the clean room.
5. All the personnel shall wear ISO 1/2 specified garments including hood. These are low nonvolatile residue (should not deposit more than 0.1ìg/cm^2 molecular contamination) gloves, jumpsuits and hoods.
6. Clean-room maintenance/cleaning methods, frequency, prohibition on using contaminant generating cleaning agents or methods.
7. Use of HEPA/ULPA filter vented vacuum cleaners, clean-room certified tools etc. for the facility.
8. A training program is established for all the personnel in clean room procedures.

The Ultra Violet Imaging Telescope on ASTROSAT mission is being integrated and calibrated in this facility. This facility will be upgraded to ISO-2 cleanliness standards to meet more stringent cleanliness requirements of Visible Emission Line Space Coronagraph on Aditya - 1 Mission.

Prepared by B. Raghavendra Prasad

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Dedicated to the Nation

by

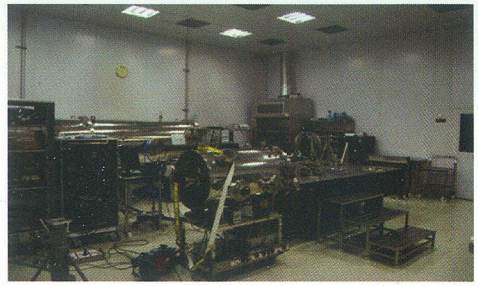
Dr. K. Kasturirangan
Honourable Member of the Planning Commission
and
Chairman, IIA Governing Council

June 21, 2012

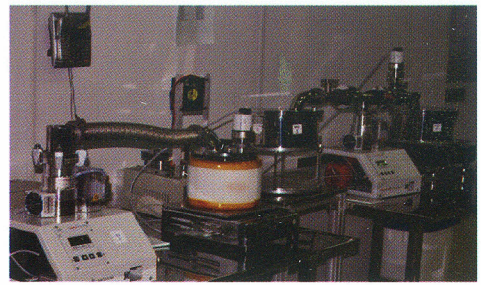
Professor M.G.K.Menon Laboratory for Space Sciences is a state of-the-art ultra-clean space instrumentation facility established at the Centre for Research and Education in Science and Technology (CREST) campus of the Indian Institute of Astrophysics, Bengaluru. It is on par with existing international space instrumentation facilities. The primary purpose of this facility is to test, integrate and calibrate space-based science instruments such as FUV, UV / Visible imaging telescopes, coronagraphs, detectors etc both at component level and system level. This facility is designed and built as per ISO 14644-1 and ISO 14644-2 standards to meet the critical molecular and particular contamination requirements of space-based science instruments. It consists of Class-100 to Class-300000 clean rooms to meet different levels of cleanliness requirements for different activities with an approximate total area of 400 m^2.

It has continuous monitoring facilities for Particulate Contamination, Molecular Contamination, Relative Humidity and Temperature. Building automation system with remote control ensures fail proof operation.The entire facility has adequate built-in redundancy and safety measures to ensure fail proof operation without any shut-downs which is critical for space-based instruments to prevent any molecular or particulate contamination.

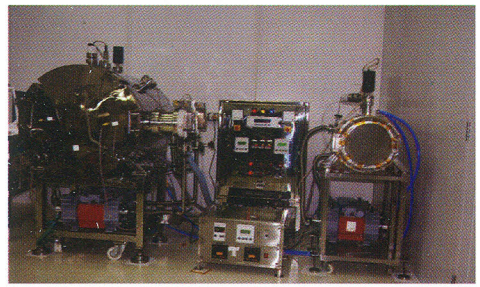
This facility is equipped with the state-of-the-art equipment which can be used to integrate, test and finally calibrate instruments which require clean-room conditions. It consists of Fizeau Interferometer, Thermovac chamber, Vacuum reflectometer, VUV test chamber (1m×5m ultra-clean vacuum chamber with VUV source, monochromator, precision motion stages etc.), Ultra-clean vibration isolation tables (Newport), VUV photon counting detectors (Photek), Metrology equipment (Zeiss), Ultra-clean gas lines (Class-C or better) and Clean-room monitoring systems etc.



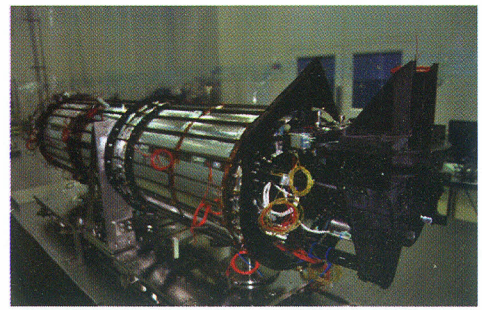
Vacuum calibration facilities



Contamination monitoring facilities



Thermovac chamber



Integrated Ultra Violet imaging telescope