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Generic Technologies for Nano/Pico Platforms (6B)

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SESCA: SPACE ENVIRONMENT SIMULATION CHAMBER FOR ACCURATE GROUND TESTING OF NANO SATELLITES

Abstract

The development of the first Ecuadorian satellite required the development of many in-house facilities in order to ensure proper performance of all the systems being tested, one of them being the Space Environment Simulation ChAmber or SESCA.

SESCA is basically a vacuum chamber able to withstand pressures as low as 10E-8 Torr. Able to generate thermal conditions as high as 500K and as low as 193K, it has a panoramic upper top that greatly facilitates the experiments being performed and the side windows are interchangeable with optional mechanical manipulator plates or any other options that would be needed in the future.

The main sensor is an inverted magnetron device capable of sensing up to 10E-9 Torr. Tied to a host sensor control matrix with up to 6 sensor inputs with an RS-232C interface for digital data collection, SESCA also has 1 airtight port for connecting sensors inside the chamber to report multiple inputs via digital bus with up to 15 sensor devices.