Ground-Based Preparatory Activities (13)
Ground-Based Preparatory Activities - IP Session (IP)

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PRITHVI (POEM RT INTERFACE FOR TM/TC, HEALTH AND VISIBILITY INTEGRATED SYSTEM)

Abstract

ISRO Telemetry Tracking and Command Network (ISTRAC) is responsible for monitoring and control of low earth orbit spacecraft and it started innovation in the field of new PS4 Orbital Experimental Module (POEM). As we know that PS4 stage of PSLV launch vehicle is abandoned after separating the planned satellites in orbit bur remains in same orbit. ISRO has come up with the idea of using the spent terminal stage of PSLV to perform experiments that would require space qualification. This idea aims to utilize the terminal stage (PS4) as a platform on which the scientific experiments can be mounted and tested after separation of all satellites. There are many sub systems like Avionics, Mission Management Computer, Navigation Guided Control, Navic for navigation Attitude Control System and Tele-command in this module and each sub system is having its own parameters to define the health and related information. Interface is available for payload/package On/Off, data uploading in Main Computer memory, mode selection and telecommand for TTPU commanding. Telemetry data is reaching to ISTRAC from many ground stations through MPS. Many types of space generated experiments are being executing. A new software PRITHVI is being developed by ISTRAC/ISRO to cater smooth operation of these objectives.

PRITHVI is schedule driven automated software to assess and monitor health/status for POEM sub-systems' parameters in real time and command to orbital module through MPS. PRITHVI ensures that all tasks involved in analysing and monitoring fully automated. PRITHVI software is a framework to assess the health/status of POEM subsystem data by assessing and converting through various defined schemes continuously coming in binary data from multiple ground stations simultaneously and interface for tele-command in real time. It shall be schedule driven software that can invoke itself automatically on and every visibility session to display data value/status and variations of parameters in real time. PRITHVI software shall also responsible to present the past sessions in offline mode for analysis purpose.