Electrical Ground Support Equipment Design for LEO Satellite

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This document describes the new EGSE design for the low earth orbit satellite. The new design concept of EGSE is to minimize a size and cost, to integrate with various functions, flexible and user friendly operational environment. The EGSE consists of Power And Control Equipment and Telemetry and TeleCommand Equipment. The objective of EGSE is to provide hardware and software for efficient electrical testing of integrated LEO satellite. The PACE performs the system level testing in the Attitude Orbit Control Subsystem and Electrical Power Subsystem and the TTCE performs the system level testing in the Telemetry, Command and Ranging Subsystem. The PACE provides the following major capabilities : Provide and monitor the external power, Provide and monitor the launch vehicle power, Provide and monitor the spacecraft battery activation, Provide and monitor the solar array simulated power to Solar Array Regulator interface, Provide and monitor the spacecraft signal interface for test point, Provide the launch vehicle interface, Provide the RS-422 serial interface for spacecraft Power Control and Distribution Unit, Monitor the Deploy Device Equipment and Valve Drive Equipment pulse signals, Provide and monitor the load simulation for validation and spacecraft bus and monitor the MIL-STD-1553B Bus signals. The TTCE provides the following major capabilities : Provide the digital and baseband link service, Provide the S-band RF link service, Provide the CCSDS format link service and processing and Measure the RF Performance via S-band RF link.