IOT Systems, LLC

Standard In-Orbit Test System

In-Orbit Test Systems

IOT Systems' Standard In-Orbit Test System provides satellite operators and manufacturers with in-orbit spacecraft transponder measurements, processing and control software, and proven hardware design. Using commercial, off-the-shelf industry standard hardware provides long-term reliability and performance for the demanding requirements of in-orbit test (IOT) of communications spacecraft. The engineered, integrated platform of measurement and control software components is driven by easily customized descriptive data files which permit considerable code leveraging and reuse, resulting in our proven ability to deliver high-quality, field-tested IOT systems against tight time schedules (e.g., 6 months after order, or 1 month if components are in stock).

The IOT Systems approach is based on our heritage from COMSAT over 40 years of experience with In-Orbit Test and 30 years of in-orbit test system design. These methods have been used to deliver systems to EUTELSAT, Hughes, INTELSAT, GTE, SBS and NASA among others. These systems have been used to test all DirecTV^{TM}, Galaxy, SBS, Sirius Satellite Radio, HotBird, EUTELSAT II satellites, AMSC and ACeS mobile satellites, PanAmSat satellites, and COMSAT's satellites. Another system delivered to the NASA ACTS program performs control and status at the Glenn ground station and performs in-orbit measurements on the ACTS satellite.

To provide flexibility and customizability, a customer IOT system is implemented as our Standard In-Orbit Test System with optional off-the-shelf and/or customer-specific capabilities. For example, our Graphic Mimic Panel (GMP) provides a window on the high-resolution color display on which the user can configure and status the RF paths. The GMP can be optionally configured to provide real-time telemetry from the controlled switches.

IOT System Functions

- In-orbit acceptance test
- Routine payload monitoring
- Anomaly investigation

Services

- Technical support & assistance during IOT & other critical periods
- Customer-specific engineering & development
- Consulting
- Customer training
- Earth Station Design, Engineering, Installation & Support
- Spacecraft Assembly, Integration, & Test

Features

- Measurement system software
- Presentation-quality printing & plotting
- Interactive data analysis & plotting
- Graphic Mimic Panel with optional telemetry
- Remote control via LANs & WANs
- Cooperative multiple-site measurements
- Automatic import to Adobe's FrameMaker^{TM} document publishing program to aid in final test report generation
- Optional Radiometer
- System with extension rack supports: L, S, C, X, Ku, & Ka Bands

C & Ku Band Portable IOT System

Contact Us:
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IOT Systems, LLC is a complete satellite services company continuing the mission begun over 40 years ago with the launch of Early Bird: fostering the growth of the commercial communications satellite industry.

Measurements

Power Category:

- Flux density & stability
- Saturation flux density & stability
- EIRP & stability
- Beacon EIRP & stability
- Gain transfer
- Fast gain transfer
- In-band frequency response & stability
- Out-of-band frequency response & stability
- Fastsweep frequency response
- Spacecraft gain adjustment
- Spacecraft antenna gain (cuts)
- Gain-to-temperature ratio (G/T)
- Spacecraft receive & transmit antenna cross-polarization isolation†
- Overall cross-polarization isolation†
- Beacon cross-polarization isolation†
- Spacecraft spurious search
- Third-order carrier-to-intermodulation (C/I3)*

Frequency Category:

- Spacecraft LO & stability (without Doppler correction)
- Beacon frequency & stability (without Doppler correction)

Phase Category:

- Group delay*
- Spacecraft LO & stability with Doppler correction*
- Doppler shift*
- Beacon frequency & stability with Doppler correction*

Other:

- Earth station evaluation*
- Earth station Verification and Assistance (ESVA)*
- Earth station Antenna Verification Testing (AVT)*
- Routine spacecraft payload monitoring (RSPM)*
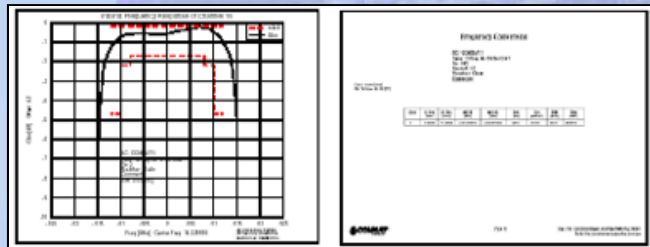
Report-ready, Postscript™-formatted plots and prints

System Implementation

- UNIX (HP-UX) operating system
- RISC-based color engineering workstation
- X Windows, OSF/Motif user interface windows
- IEEE-488 instrument control
- User, Administrator, Theory of Operation, and Hardware manuals
- IOT deployment guide
- Spacecraft ICD
- Earth Station ICD
- On-line Help containing full manual set.
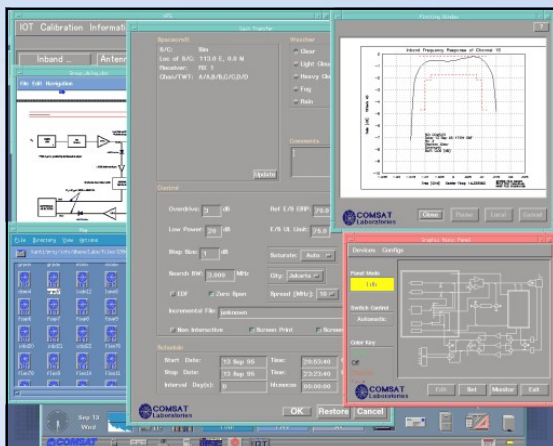
IOT System Display
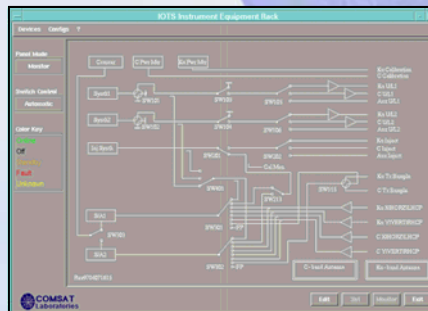
Mimic Panel

Extension Rack for support of L, S, X, and Ka Bands

* Optional measurements
† If dual-polarization is supported by host earth station

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