

# IOT Systems

## Standard In-Orbit Test (IOT) System

IOT Systems' Standard In-Orbit Test (IOT) System is a true Commercial-Off-The-Shelf (COTS) product that provides satellite operators and manufacturers with in-orbit spacecraft transponder measurements, processing and control software, and proven hardware design. Using industry standard COTS hardware which provides long-term reliability and performance for the demanding requirements of in-orbit test (IOT) of communications spacecraft. The engineered, integrated, Commercial Off-The-Shelf (COTS) System of software and hardware is installed easily with customized descriptive data files which permit considerable system flexibility, resulting in our proven ability to deliver high-quality, field-tested In-Orbit Test (IOT) systems against tight time schedules (e.g., 6 months after order, or 1 month if components are in stock). A software only delivery schedule is two weeks after receipt of payment.

The IOT Systems' approach is based on our heritage from COMSAT over 50 years of experience with In-Orbit Test (IOT) and 40 years of in-orbit test (IOT) system design. These methods have been used to deliver systems to EUTELSAT, Hughes, INTELSAT, GTE, SBS AMSC, ACoS, and NASA among many others. The Standard In-Orbit Test (IOT) System software has tested over 100 satellites in orbit.

To provide flexibility and customizability, a customer In-Orbit Test (IOT) system is installed as our COTS Standard In-Orbit Test (IOT) System with optional off-the-shelf and/or customer-specific capabilities. For example, our Graphic Mimic Panel (GMP) provides a window on the display on which the user can interactively configure and status the RF paths.

The installed Standard In-Orbit Test (IOT) System can take many forms, from using existing customer owned test equipment, or reuse of an existing hardware infrastructure and test equipment, to an expanded full feature customized system with all of the latest test equipment with some new customized measurement techniques, or anything in between. Our system is designed to work in any earth station, and test any communications satellite.

### In-Orbit Test (IOT) System Functions

- Satellite Payload In-Orbit Test (IOT) acceptance
- Routine payload monitoring
- Anomaly investigation
- Data Analysis

### Services

- Technical support & assistance during In-Orbit Test (IOT) Campaigns & other critical periods
- Customer-specific engineering & development
- Consulting
- Customer training
- Telephone & Internet support
- Earth Station Design, Engineering, Installation & Support
- Spacecraft Assembly, Integration, & Test

### Features

- In-Orbit Test (IOT) Measurement system software
- Presentation-quality printing & plotting
- Interactive data analysis & plotting
- Graphic Mimic Panel for interactive E/S configuration
- Remote control via LANs & WANs
- Cooperative multiple-site measurements
- In-Orbit Test (IOT) Systems capable of supporting any band
- Systems Designed for anomaly investigation
- Virtually unlimited number of antennas/configurations/sites
- Software supports a wide variety of E/S configurations
- Software supports a wide variety of test equipment
- Optional Radiometer

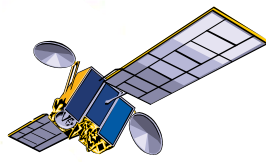


Original Legacy C & Ku Band Portable IOT System

*IOT Systems is a satellite services company continuing the mission begun over 50 years ago with the launch of Early Bird: fostering the growth of the commercial communications satellite industry.*

In-Orbit Test Systems

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# IOT Systems

## Measurements

### Power Category:

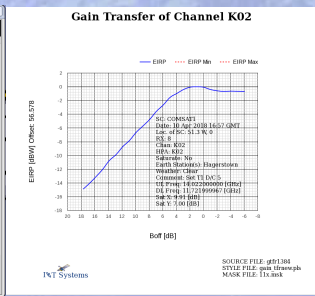
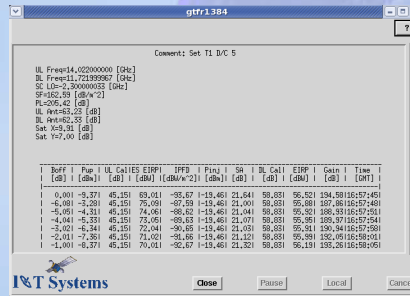
- Flux density & stability
- Saturation flux density & stability
- EIRP & stability
- Beacon EIRP & stability
- Gain transfer
- Fast gain transfer
- In-band frequency response & stability
- Out-of-band frequency response & stability
- Fast sweep frequency response
- Spacecraft gain adjustment
- Spacecraft 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)\*

### 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)\*



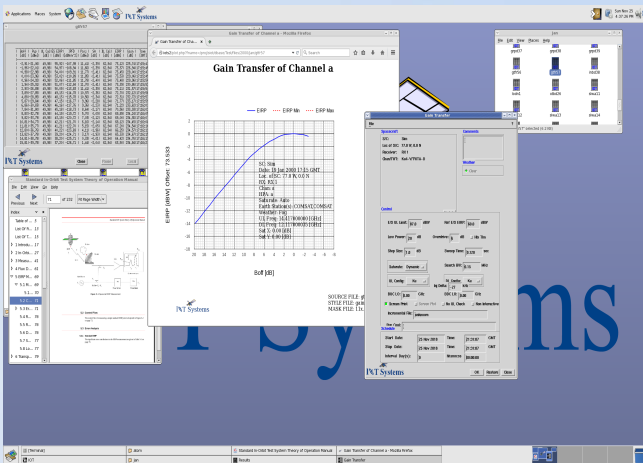
Printing & Plotting (browser based)

### Frequency Category:

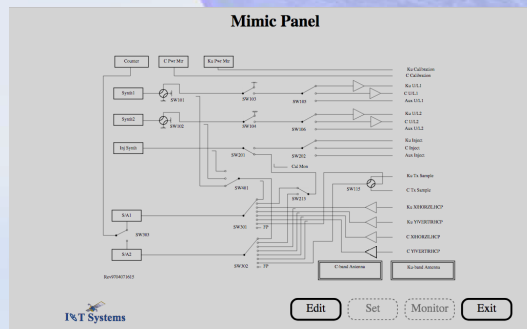
- Spacecraft LO & stability (without Doppler correction)
- Beacon frequency & stability (without Doppler correction)

### System Implementation

- Linux operating system
- Standard PC Desktop or Laptop
- X Windows, OSF/Motif user interface windows
- IEEE-488 instrument control
- User, Administrator, Theory of Operation, and Hardware manuals
- In-Orbit Test (IOT) System deployment guide
- Spacecraft ICD
- Earth Station ICD
- On-line Help containing full manual set.



In-Orbit Test (IOT) System Display



Browser-Based Interactive Mimic Panel

### Contact Us:

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\* Optional measurements

† If dual-polarization is supported by host earth station

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