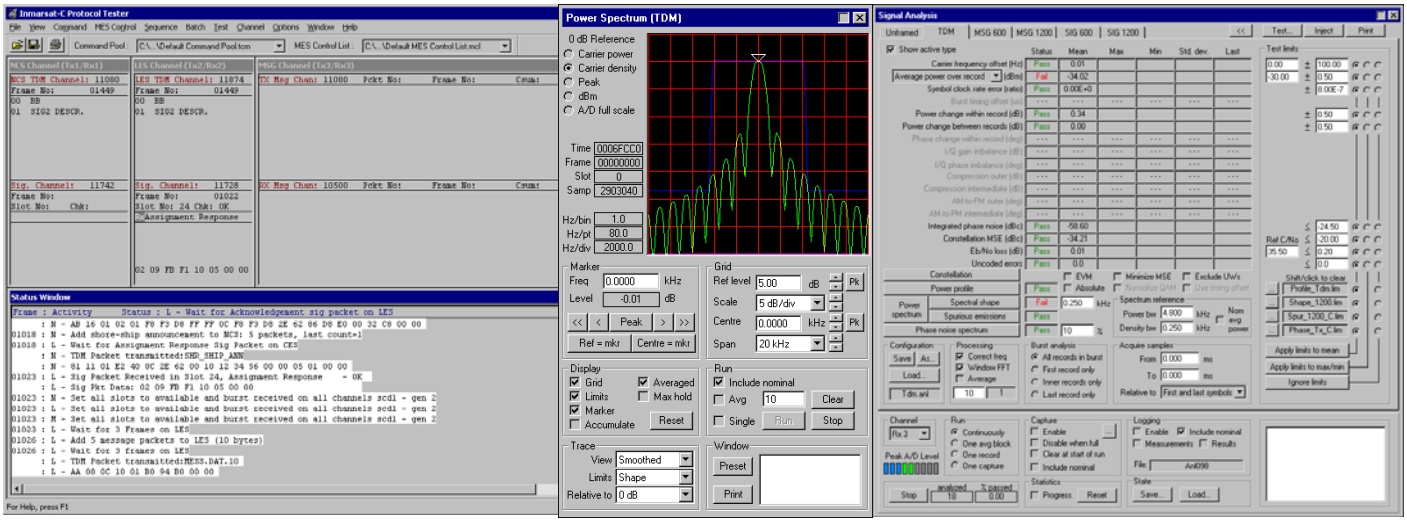
Square Peg Communications Inc.

Inmarsat-C Physical Layer Tester (CPLT)



Overview

Square Peg Communications Inc.'s Inmarsat-C Physical Layer Tester (CPLT) is a software application that runs on the generic high-rate Physical Layer Tester (PLTH) platform. The CPLT supports testing of the physical layer performance and protocol implementations of Inmarsat-C Mobile Earth Stations (MESs) and Land Earth Stations (LESs).

The CPLT supports all of the Inmarsat-C2 channel types using DSP-based modem technology. An Ethernet interface allows various options for control of the CPLT or for control of external equipment by the CPLT. A serial interface is also provided to allow communication with an MES under test.

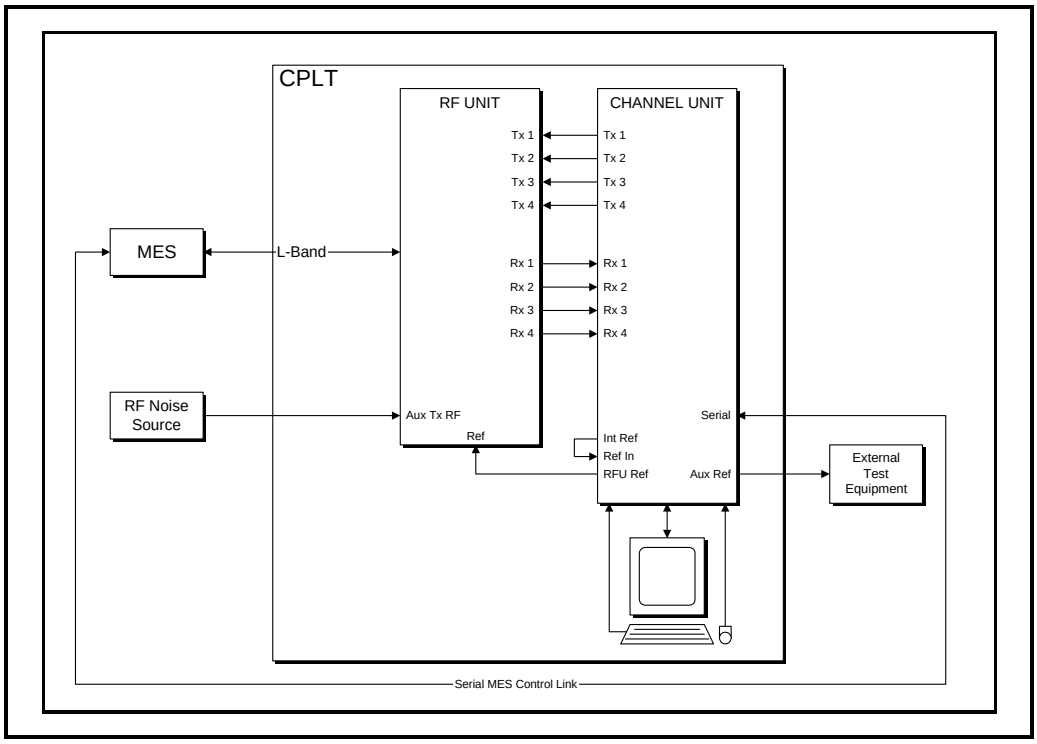
The CPLT is a powerful and flexible test tool. A familiar Windows-based user interface provides easy access to test functions, while a powerful scripting language allows every feature of the CPLT and equipment under test to be exercised in automated test cases and suites.

The CPLT also provides a Test Sequencer user interface compatible with that used with legacy Inmarsat-C test equipment. This facility allows users to execute existing type approval RTP scripts, while the channel simulator and signal analysis facilities provide the means of demonstrating compliant physical layer performance.

Specifications

TRANSMIT CAPABILITIES

Physical channels	**3 simultaneous (optional 4th channel)**
Channel types	**TDM (1200 sym/s BPSK)** **SIG (600 / 1200 sym/s BPSK)** **MSG (600 / 1200 sym/s BPSK)** **Test tones (CW, two-tone, etc.)**
Channel impairments	**Independently-specifiable parameters:** ▪ **Fixed carrier frequency error, burst frequency jitter** ▪ **Doppler rate, peak offset** ▪ **Reacquisition carrier offset** ▪ **Adjacent channel interference level and frequency offset** ▪ **Co-channel interference level** ▪ **Continuous phase noise spectrum, level** ▪ **Discrete phase noise level and freq offset** ▪ **Fading model, bandwidth, C/M ratio** ▪ **Phase and/or amplitude jump distribution, magnitude, interval** ▪ **Transmission path delay, burst timing jitter** ▪ **Symbol rate error** ▪ **HPA non-linearity** ▪ **AWGN**



CPLT CONFIGURATION FOR MES TESTING
(Not all components are required for all test applications)

RECEIVE CAPABILITIES

Physical channels	**3 simultaneous (optional 4th channel)**
Channel types	**TDM (1200 sym/s BPSK)** **SIG (600 / 1200 sym/s BPSK)** **MSG (600 / 1200 sym/s BPSK)** **Unframed**
Signal analysis	**Signal capture (raw samples and soft decisions)** **Selectable pass/fail limits for measurements:** ▪ **Carrier frequency offset** ▪ **Average power, power rate of change** ▪ **Phase change** ▪ **Integrated phase noise** ▪ **Burst timing offset** ▪ **Symbol clock rate error** ▪ **Constellation mean-squared error, EVM** ▪ **Eb/No loss** ▪ **Uncoded errors** ▪ **Power profile** ▪ **Spectral shape** ▪ **Out-of-band emissions** ▪ **Phase noise spectrum**

ETHERNET INTERFACE CAPABILITIES

Medium	**10/100BaseT**
Functionality	**Remote control interface (e.g., to LabView™ or Windows remote desktop)** **GPIB (IEEE-488) interface (with Ethernet-to-GPIB converter)**

LOGGING CAPABILITIES

General	**Test Sequencer interface messages** **Transmitted/received packet data** **Test sequence progress and outcome** **System events, faults, and abnormal conditions**
Signal analysis	**Signal analysis measurements** **Signal analysis statistics** **Raw input samples** **Demodulator soft decisions**

SCRIPT CAPABILITIES

General	**Procedure-based (like Basic, C or Pascal)** **Functions for string processing, math, user interaction, logging, I/O (serial, TCP/IP, GPIB)** **Integrated development environment**
CPLT-specific	**Configuring and controlling modems** **Sending and receiving Inmarsat-C packets** **Controlling channel simulator** **Sending and receiving messages to simulate the Test Sequencer**

CONTACT US

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