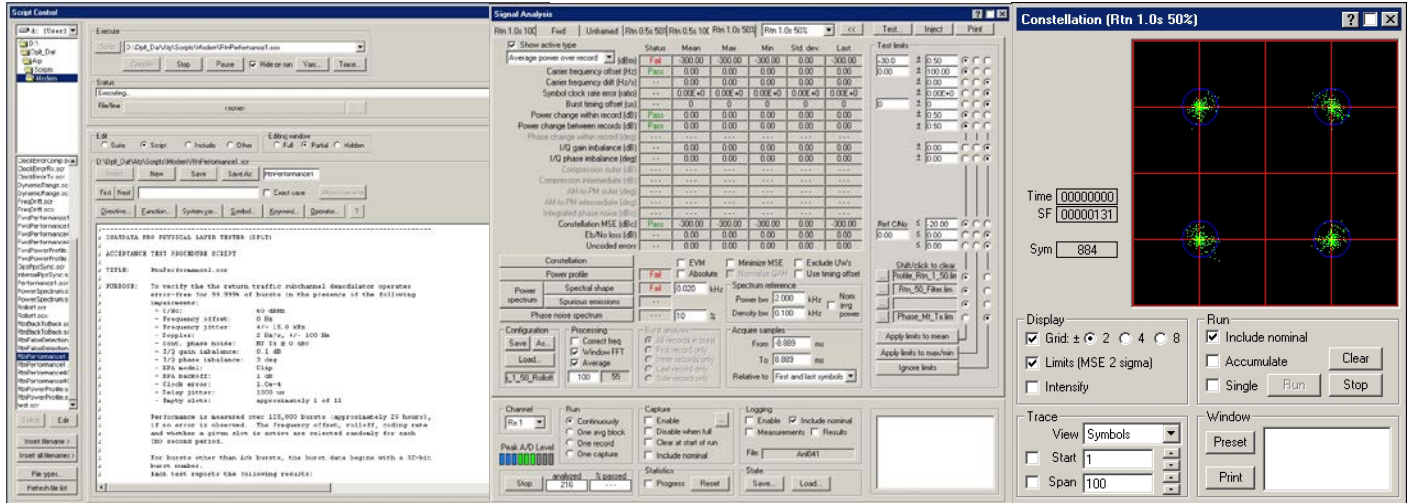




SQUARE PEG COMMUNICATIONS

IDP Physical Layer Tester on MCP (DMCP)



OVERVIEW

Square Peg Communications Inc.'s IDP Physical Layer Tester (DPLT) supports testing of the physical layer performance and protocol implementation of Mobile Terminals (MTs) implementing Inmarsat's IsatData Pro (IDP) services. The DPLT application running on Square Peg's generic Physical Layer Tester Multi-Channel Platform (PLT-M) is referred to as DMCP.

DMCP supports all IDP forward and return channel and sub-channel types, and includes channel simulation and signal analysis capabilities for the testing of the MT receive and transmit physical layer.

A DMCP unit can be operated locally, or remotely via Ethernet. External equipment can be controlled from DMCP via Ethernet, USB, or serial interfaces.

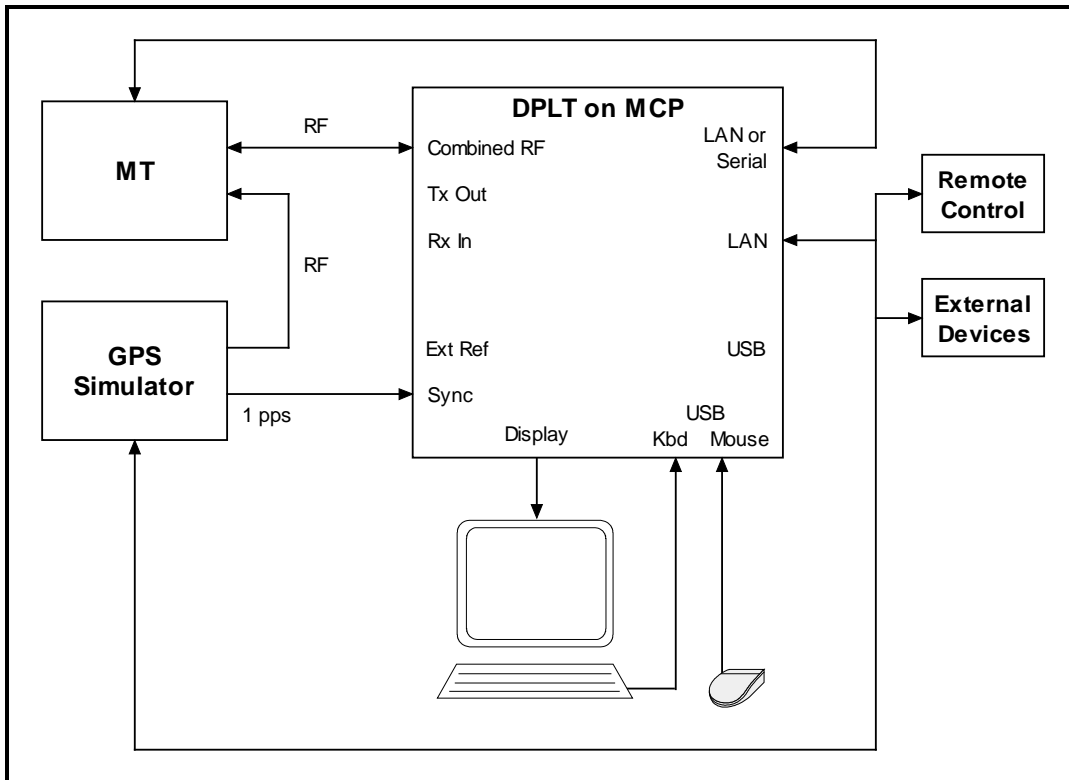
A Windows-based user interface provides interactive access to all test functions, while a powerful scripting language allows every feature of the DMCP and the equipment under test to be exercised in automated test cases and suites.

Comprehensive suites of scripts are available that perform automated testing of the applicable Inmarsat IDP MT physical layer and network protocol Mandatory Test Requirements (MTRs).

SPECIFICATIONS

TRANSMIT CAPABILITIES

- Channels** 4 simultaneous
- Channel types** Bulletin Board
To-mobile (forward traffic)
From-mobile (return traffic/ack sub-channels)
Test tones (CW, two-tone, etc.) and raw samples
- Channel impairments** Independently-specifiable parameters:
 - Fixed carrier frequency error
 - Burst frequency jitter
 - Sinusoidal Doppler peak rate and offset
 - ACI level and frequency offset
 - CCI level
 - I/Q gain and phase imbalance
 - Continuous phase noise spectrum, level
 - Discrete phase noise level, frequency offset
 - Fading model, bandwidth, C/M ratio
 - Phase and amplitude jump distribution, magnitude, interval
 - Periodic signal blockage (e.g., helicopter)
 - Transmission path delay
 - Burst timing jitter
 - Symbol rate error
 - HPA non-linearity
 - AWGN C/N0



TYPICAL DMCP CONFIGURATION FOR MT TESTING

RECEIVE CAPABILITIES

Channels	4 simultaneous
Channel types	Bulletin Board To-mobile (forward traffic) From-mobile (return traffic/ack sub-channels) Unframed (raw samples)
Demodulator features	Auto-identification of return burst type, optimized for transmitter performance testing
Signal analysis	Signal capture (raw samples and soft decisions) Signal replay (from raw samples) Selectable pass/fail limits for measurements: <ul style="list-style-type: none"> ▪ Carrier frequency offset and drift ▪ Average power, power rate of change ▪ Phase change ▪ Integrated phase noise ▪ Burst timing offset ▪ Symbol clock rate error ▪ I/Q gain and phase imbalance ▪ Constellation MSE, EVM² ▪ Eb/No loss ▪ Uncoded errors ▪ Power profile ▪ Spectral shape ▪ Spurious emissions ▪ Phase noise spectrum

ETHERNET INTERFACE CAPABILITIES

Medium	10/100/1000BaseT
Functionality	Protocol Tester interface, remote control interface, MT control interface, MPC interface for ESE emulation, GPIB interface (with Ethernet-to-GPIB converter)

LOGGING CAPABILITIES

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

SCRIPT CAPABILITIES

General	Procedural (similar to C or Basic) Functions for string processing, math, user interaction, logging, I/O (serial, TCP/IP, GPIB) Integrated development environment
DPLT-specific	Controlling the Tx and Rx channels Sending and receiving IDP packets Controlling channel impairments Sending and receiving MT control messages



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