Square Peg Communications Inc.

L-Band Physical Layer Tester (PLT-L)

Overview

Square Peg Communications Inc.'s L-band Physical Layer Tester (PLT-L) is a generic PC based test tool which supports the testing and type approval of mobile terminals and base stations for various satellite or wireless communications networks.

The generic PLT-L hardware platform runs software specific to the equipment type under test. It initially supports the protocol tester version of the BGAN Physical Layer Tester (BPLT-P). BPLT-P is compatible with the BGAN Protocol Tester (BPT) available from Livewire Digital or the BGAN Network Emulator (BNE) available from Gatehouse.

The PLT-L is derived from the PLT-H platform, which supports protocol and physical layer testing of terminals and base stations for almost all modern Inmarsat standards, including BGAN, FleetBroadband, SwiftBroadband, Inmarsat-C, Classic Aero, GAN Mobile Packet Data Service (MPDS), mini-M, GAN Mobile ISDN, Fleet 33/55/77 and Swift 64. Some of these other PLT applications will be ported to the platform as required; however, the PLT-H must be used when channel simulation and signal analysis capabilities for testing of receive and transmit physical layers are required.

Platform

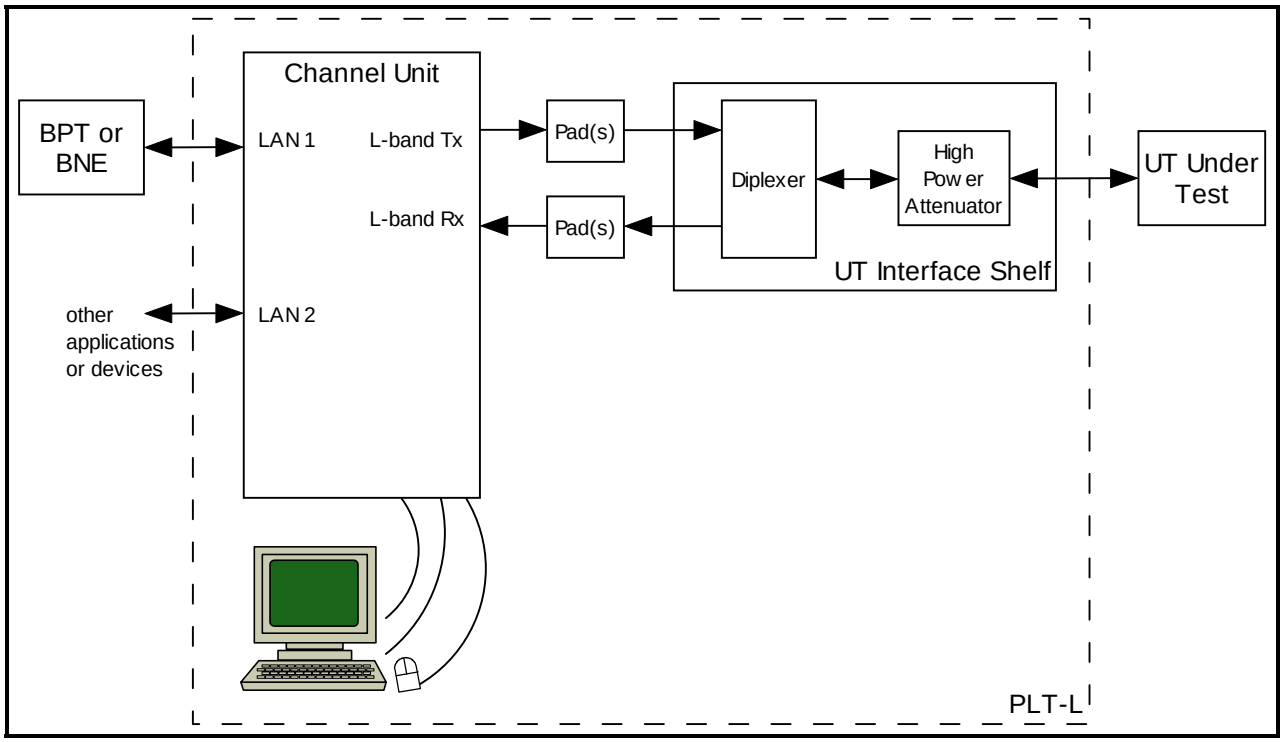
The PLT-L comprises the following components:

CHANNEL UNIT

The PC-based Channel Unit implements the communication channels at L-band. Up to four transmit and four receive channels are supported. It communicates with an optional Protocol Tester or Network Emulator over a LAN or serial connection. The CU includes a high stability 10 MHz frequency reference and provides a Windows based Operator Interface. The CU can also control external test equipment (including ARINC-429 or IEEE-488) via serial and LAN (TCP or UDP) connections.

UT INTERFACE SHELF

The User Terminal (UT) interface shelf provides a diplexer that is used to combine the PLT-L transmit and receive paths into a single feed suitable for connection to the UT's antenna port. Connectorized fixed attenuators are used to pad the transmit and receive paths to match the levels for connection to the UT's antenna port. A high-power attenuator allows operation of the UT at its normal transmit power level.



EXAMPLE PLT-L CONFIGURATION FOR BGAN UT TESTING

SPECIFICATIONS

UT INTERFACE SHELF

Form factor	**19" / 3U rack mount shelf**
Connector (to UT)	**N female**
Receive level (into high-power attenuator)	**0 to +48 dBm (+45 dBm max per channel)**
Transmit level (from high-power attenuator, when driven by CU)	**–60 dBm max per-carrier** **–54 dBm max total**

CHANNEL UNIT RF

Form factor	**19" / 4U rack mount industrial PC**
Tx/Rx RF connectors	**SMA female**
Tx/Rx RF impedance	**50 Ω nominal**
Receive frequency	**1626.5 to 1675.0 MHz**
Receive frequency step size	**1 Hz**
Receive level	**–50 to –40 dBm**
Transmit frequency	**1518.0 to 1559.0 MHz**
Transmit frequency step size	**1 Hz**
Transmit level resolution	**0.01 dB**
Transmit level accuracy	**± 1.0 dB**
Transmit phase noise density	**@ 100 Hz: ≤ – 70 dBc/Hz** **@ 1 kHz: ≤ – 80 dBc/Hz** **@ 10 kHz: ≤ – 84 dBc/Hz** **@ 100 kHz: ≤ – 95 dBc/Hz**
Transmit spurious	**< –50 dBc**
Transmit 3rd order intermodulation	**≤ –55 dBc with two carriers at 3 dB below maximum**
Transmit frequency accuracy	**± 1 × 10^{-7}**
Transmit I/Q amplitude and phase imbalance	**Negligible**

CHANNEL UNIT NETWORKING

Number of interfaces	**2**
Connector	**RJ-45**
Rates	**10/100/1000 Mb/s**

CHANNEL UNIT POWER

Connector	**IEC 320 male**
Voltage	**105-130 VAC or 205-250 VAC, 47-63 Hz**
Current	**≈ 1.6 A rms at 115 VAC**

CONTACT US

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