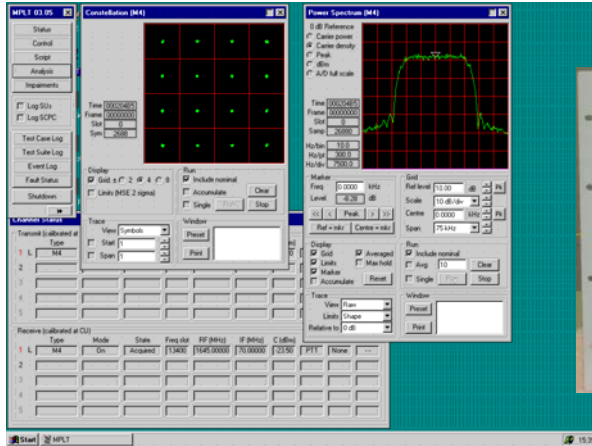




Square Peg

Communications Inc.

Physical Layer Tester (PLT)



OVERVIEW

Square Peg Communications Inc.'s second-generation Physical Layer Tester (PLT-H) 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-H hardware platform runs software specific to the equipment type under test. The following applications are currently available:

<u>Product</u>	<u>Inmarsat Standards</u>
Inmarsat BGAN Physical Layer Tester (BPLT)	BGAN, FleetBroadband, SwiftBroadband
Inmarsat-C Physical Layer Tester (CPLT)	Inmarsat-C
Inmarsat Aeronautical Ground Data Unit (GDU)	Classic Aero
Inmarsat Packet Data Service MES Physical Layer Tester (IPLT)	GAN Mobile Packet Data Service (MPDS)
Inmarsat Mini-M / M4 Physical Layer Tester (MPLT)	mini-M, GAN Mobile ISDN, Fleet 33/55/77, Swift 64



PLATFORM

The PLT comprises the following components:

CHANNEL UNIT

The PC-based Channel Unit implements the communication channels at IF. Up to four transmit and four receive channels are supported. It communicates with an optional Protocol Tester over a LAN or serial connection. The CU includes a high stability 10 MHz frequency reference and provides a Windows based Operator Interface.

IF UNIT

The optional IF Unit combines the CU transmit channels, and applies the combined signal to three Tx feeds for LES testing. It combines the signals from four Rx feeds and applies the combined signal to the CU receive channels. External noise sources or other signals can be added independently to the composite Tx and Rx signals.

RF UNIT

The optional RF Unit converts the CU IF feeds to and from L-band, at the appropriate levels for connection to an MES antenna port. L-band noise can be added to the MES L-band feed



SPECIFICATIONS

PHYSICAL

Channel Unit (CU)	19" / 6U rack mount industrial PC
IF Unit (IFU)	19" / 3U rack mount enclosure
RF Unit (RFU)	19" / 3U rack mount enclosure

RF

Connector	N female
Impedance	50 Ω nominal
Receive frequency	1626.5 to 1660.5 MHz
Receive frequency step size	1 Hz
Receive level (into high-power attenuator)	0 to +48 dBm (+45 dBm max per channel)
Receive level (into RFU)	-30 to +18 dBm
Receiver spurious signals	≤ -55 dBc
Receiver phase noise density	@ 100 Hz: ≤ -70 dBc/Hz @ 1 kHz: ≤ -80 dBc/Hz @ 10 kHz: ≤ -90 dBc/Hz @ 100 kHz: ≤ -100 dBc/Hz
Receiver 3 rd order intermodulation	≤ -55 dBc (two carriers at 3 dB below maximum, receive path attenuation adjusted optimally)
Receiver I/Q amplitude and phase imbalance	Negligible
Transmit frequency	1525.0 to 1559.0 MHz
Transmit frequency step size	1 Hz
Transmit level (from high-power attenuator)	-60 dBm max per-carrier (internally generated carriers) -15 dBm max (externally applied noise)
Transmit level (from RFU)	-30 dBm max per-carrier (internally generated carriers) +15 dBm max (externally applied noise)
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	< -55 dBc
Transmit 3 rd 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

IF TRANSMIT

Connector	BNC female
Impedance	50Ω
Frequency Level	50.0 – 90.0 MHz -20 dBm to -40 dBm per channel

IF RECEIVE

Connector	BNC female
Impedance	50Ω
Frequency Level	50.0 – 90.0 MHz -20 dBm to -40 dBm per channel

REFERENCE

Source	Internal / External
Connector	BNC female
Impedance	50Ω
Frequency Level	10 MHz +7 dBm ± 1 dB
Aux. reference out level	-1 dBm ± 2 dB
Frequency error	≤ 10 ⁻⁷

POWER

Connector	IEC 320 male
Voltage	105-130 VAC or 205-250 VAC, 47-63 Hz
Current (PLT-H Channel Unit with 4 channels)	≈ 2.54 A rms at 115 VAC
Current (PLT IF Unit)	≈ 0.06 A rms at 115 VAC
Current (PLT RF Unit)	≈ 0.12 A rms at 115 VAC



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