Full/Fractional BERT
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Record/Playback Disk Files
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

DTMF/MF/MFC-R2 TX/RX
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Call Capture and Analysis
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Digital/Analog Drop/Insert
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Echo Canceller Testing
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Simulate/Measure Propagation Delay
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Extensive Voiceband Analysis
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Scripted Control Test and Simulation
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Error Insertion/Impairment
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

ISDN, SS7, Frame Relay, HDLC and GR-303 Analysis
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Voice Quality Assessment
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Monitoring & Classification of T1/E1 Traffic
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Facility Data Link Analysis

GL's T1/E1 Analysis Systems

Internal Cards and External Units

Ultra T1/E1 Internal Card Features (ISA, PCI-Single and Dual)
The Ultra T1 and Ultra E1 Cards plug into PC expansion slots, providing digital T1 and E1 input/output for analyzing, testing, simulating, and monitoring T1/E1 signals. A single (two for dual cards) analog input and output is provided to insert and receive analog signals into the digital stream.

Laptop T1/E1 External Unit Features (Single or Dual)
The Laptop T1 (or E1) Analyzer provides a portable solution for T1/E1 testing in field applications. This external unit readily connects to the EPP parallel port or PCMCIA slot of your Notebook PC.

Accompanying Windows-95/98/2000/NT software provides:
Basic Software:
- Unframed/Framed, Full/Fractional T1/E1 Bit Error Rate Testing with Detailed Logging
- Time and Spectral Graphical Views of any Channel or Timeslot
- Drop and Insertion of Analog and Digital Signals
- Complex Error Insertion Capabilities
- Transmit/Receive Tone at User Defined Frequency and Power in one or all channels
- Simulate/Measure Propagation Delay
- Display of Power, Frequency, Signaling and Data for all Channels
- Display Timeslot and Multiframe Data
- Real-Time Monitor and Time-Stamped Log of all Alarms and Abnormal Events
- Transmission of User Defined Signaling Bits and Data
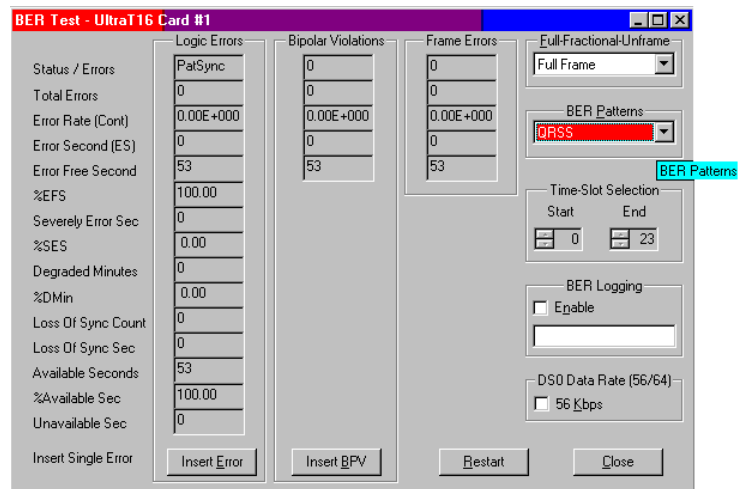- Measurement of DC Offset
- Transmit Gaussian Noise

GL Communications Inc.

207A Perry Parkway, Suite One., Gaithersburg, MD 20877 ● (V) 301-670-4784 (F) 301-670-9187
Web Page Address: http://www.gl.com ● **E-Mail Address: gl-info@gl.com**
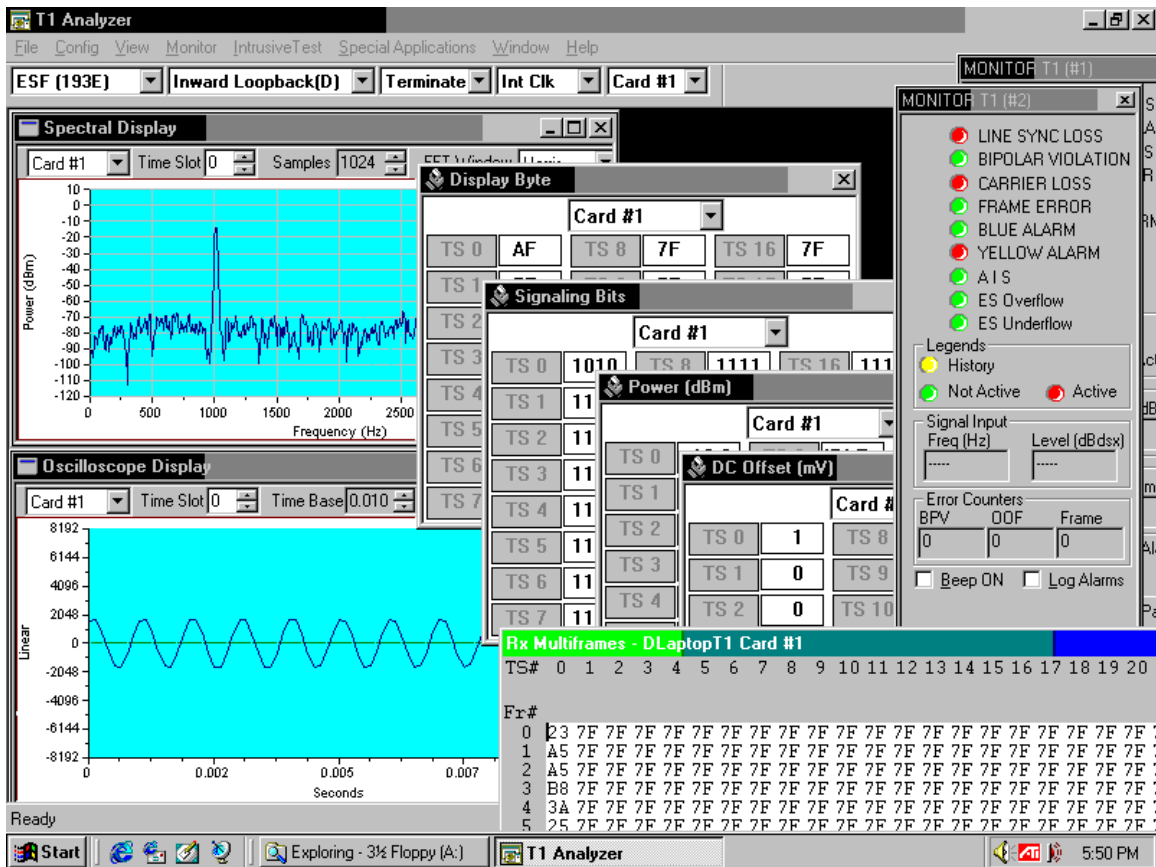
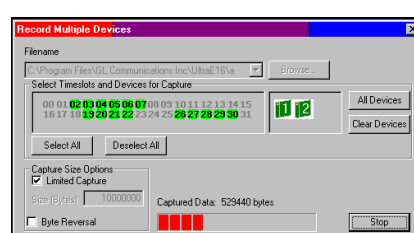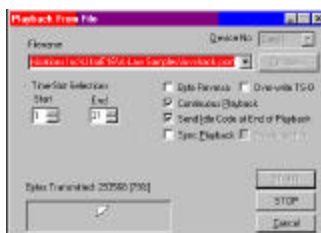Sample display of Time and Spectral Graphical Views, Real-time Alarms, Power, Signaling, DC Offset and Data

Bit Error Rate Testing with detailed logging

Optional Software

Record and Playback:

- Transmit /Receive files directly from T1/E1 lines.

DTMF/MF/MFC-R2 Transmit and Receive
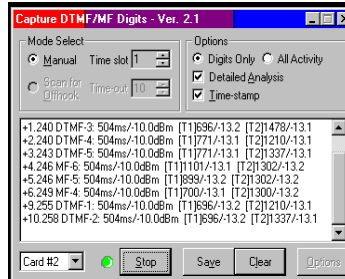
- Transmit DTMF/MF/MFC-R2 dual tones
- Control Signaling bits, on/off times
- Detect any tones, dual tones, with time-stamped, frequency, power measurements

Call Capture and Analysis

- Record Duplex Calls on any or all timeslots
- Flexible triggering for CAS and ISDN protocols
- Ideal for traffic recording, billing, and analysis
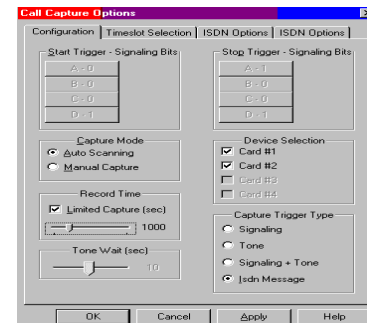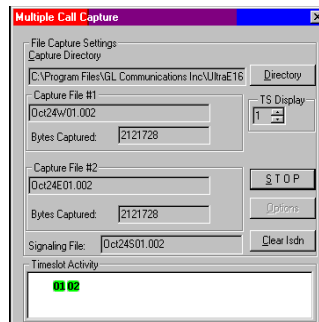
Simulate Echo and Propagation Delay

- Apply Delay, attenuation, and /or filtering to a received signal on any number of timeslots
- Add speech and/or Noise signals from files, insert speech signals via VF input, generate Gaussian noise signals internally

Measure Echo and Propagation Delay

- Capability to measure and display Echo Return Loss on one or more timeslots
- Allows Non Intrusive and Intrusive Operations

Scripted Control Software

- Precise, sequential control over T1/E1 Time-slots via a Script File using simple user-specified commands
- Ideal for Automating Repetitive Tasks and Tests

- Includes DSP functions such as Attenuate, Delay, and Noise Generation

- Simultaneous Multi-Channel Processing

Signaling Bits Recorder

- Continuous full duplex recording of signaling bits for any or all channels. Permits detailed analysis for call duration, wink, and abnormally terminated calls

ISDN, SS7, Frame Relay, HDLC and GR-303 Protocol Analysis

- Analyze ISDN, SS7, Frame Relay, HDLC and GR-303 protocols transmitted over D-channels on T1 or E1 lines

Ordering Information

xx001 (comes with Basic Software and User Manual)

Software Options:
Application Development Software Kit (XX010)
Transmit /Receive File Utility Software (XX019)
Record/Playback File (XX020)
FDL Tx/Rx Software (XX021) T1 Products
DTMF/MF Detector and Generator (XX022)
E1 μ-Law or T1 A-Law Software (XX023)
Call Capture & Analysis (XX030)
 Signaling Bits Recorder (XX050)
Scripted Control (XX060)

Echo Path Delay /Loss Simulation (XX062)
Echo Path Delay /Loss Measurement (XX062)
G.168 Test Suite for Echo Canceller Systems (XX065)
 MFC/R2 Capture & Analysis (XX070) E1 Products
 HDLC Decode/Store Software (XX090)
 Real -Time ISDN Protocol Analyzer (XX100)
 Real -Time SS7 Protocol Analyzer (XX120)
 Real -Time Frame Relay Protocol Analyzer (XX130)
 Single or Dual T1/E1 Multiport Repeaters - # MPT00, DPT00, MPE00, DPE00
Classification of T1/E1 Traffic (XX200)

Specifications

Physical Interface

T1/E1 Signal: RJ48c Connectors or Tx and Rx Bantam Jacks
Audio Signal: Tx and Rx Mini Headphone Jacks (1/8" - diameter) or Bantam Jacks (600 ohms)
External Clock   MCX or SMB Coaxial Jack

PC Interface: ISA -AT-Style/PCI 2.1 Complaint for Cards Parallel Port /PCMCIA Type II for Laptop Units

T1/E1 Line Interface

Line Code Format: AMI or B8ZS (T1), HDB3 (E1)

Framing Format: D4, ESF, Unframed, CAS, CCS, CRC4

Input Frequency :   1.544 Mbps (T1) or 2.048 Mbps (E1)

Receiver Interface: Terminate, Monitor, and Bridge

Input Impedance: For Terminate and Monitor = 100 Ohms (T1), 120 Ohms (E1), For Bridge > 1000 Ohms

Input Level: +75 mV to 6.0 V base to peak or –30 dBsX to +6 dBsX

Output Level: +3.0 +/-0.2 Base to Peak Selectable 0 to 655 ft. Pule Equalization Setting for T1 Short Haul, or line build outs for 0 dB to –22.5 dB (T1 Long Haul)

Output Clock Source: Recovered, Internal, or External

Audio Monitoring: Built-in-Speaker or External Speaker Attachment

Volume Control: User Specified Software Controller

Audio Insertion: Selected DS0 replaced with inserted audio from VF Input with selectable gain

Computer Requirement

Pentium or better with 100M bytes of free space available on hard disk, WIN 95/98/NT--, 32M byte RAM, 1.44M(3.5") drive, AT-Style ISA expansion slots or PCI Expansion slots.

Physical Dimensions

Dimensions: 7.0"L x 4.2" H (Single ISA and PCI card)
9.2"L x 4.2" H (Dual PCI card)
8.2"L x 5.8" W x 1.8" H (Laptop Analyzers)

Specifications subject to change without notice