
WCS Fax Simulator



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Overview

- WCS Fax module transmits and receives the fax files over T1/E1 (telephone system) lines as per T.30 Fax Protocol Standard
- Fax Simulator Server runs as a task within GL Client Server Framework
- Supported Platforms: tProbe™ T1/E1 Analyzer, USB T1/E1 Analyzer, QuadXpress T1E1 Main Board, OctalXpress T1E1 Main Board



Fax and Modem Standards

Standard	Description
V.17	High speed data transmission used for high transfer rates of High Speed (HS) fax page data (9600 to 14400 bps).
V.27	It uses a data signaling rate of 4800 bps with eight phases differentially encoded modulation and operates at a reduced rate of 2400 bps with four phase differentially encoded modulation.
V.29	High speed data transmission used for medium transfer rates of High Speed (HS) fax page data (4800 to 9600 bps).
V.34	High speed data transmission, fax page data (1200 to 2880 bps). Used for Sync/Async data transmission.

Codec Types

Codec Types	Values
IEFT_ANALOG_LIN13	0
IEFT_ANALOG_LIN16	1
IEFT_ANALOG_ALAW	2
IEFT_ANALOG_MULAW	3

Supported Page Size Values

Page Size	Comments
IEFT_PAGESIZE_A4	/* ISO A4 (210mm x 297mm); (1728pels on 215mm) */
IEFT_PAGESIZE_B4	/* JIS B4 (257mm x 364mm); (2048pels on 255mm) */
IEFT_PAGESIZE_A3	/* ISO A3 (297mm x 420mm); (2432pels on 303mm) */
IEFT_PAGESIZE_A6	/* ISO A6 (864pels on 107mm) or (1728pels on 107mm) */
IEFT_PAGESIZE_A5	/* ISO A5 (1216pels on 151mm) */
IEFT_PAGESIZE_LETTER	
IEFT_PAGESIZE_LEGAL	

Supported Resolutions

Resolution Types	Comments
RES_150x150	/* 150 x 150 dpi */
RES_204x98	/* R8 x 3.85 lines/mm */
RES_204x196	/* R8 x 7.7 lines/mm */
RES_204x391	/* R8 x 15.4 lines/mm */
RES_408x391	/* R16 x 15.4 lines/mm */
RES_200x200	/* 200 x 200 dpi */
RES_300x300	/* 300 x 300 dpi */
RES_400x400	/* 400 x 400 dpi */

Supported Data Rates

Data Rate Type	Value
DATA_RATE_2400	2400
DATA_RATE_4800	4800
DATA_RATE_7200	7200
DATA_RATE_9600	9600
DATA_RATE_12000	12000
DATA_RATE_14400	14400
DATA_RATE_16800	16800
DATA_RATE_19200	19200
DATA_RATE_21600	21600
DATA_RATE_24000	24000
DATA_RATE_26400	26400
DATA_RATE_28800	28800
DATA_RATE_31200	31200
DATA_RATE_33600	33600
DATA_RATE_UNKNOWN	

Start Fax Simulator Server Task

- FaxSimulatorT1:StartFaxSim must be used for T1 Analyzers
- FaxSimulatorE1:StartFaxSim must be used for E1 Analyzers
 - Initiates the Fax Simulator Server
 - Inform the server task to start the fax sessions

The screenshot shows the FAX_Simulator_E1.gls - GLClient application window. The main window has a menu bar (File, Edit, View, Connect, Script, Log, User, Help) and a toolbar. The main area displays a terminal window with the following text:

```
Connected to GL Server on 'GLIN-11'  
run task "FaxSimulatorE1:StartFaxSim";  
Task 1: Task 1 started  
inform task * "START";  
OK  
inform task * "TXFAX #1:1..10 TIFF_FILE 'WinClientServer\FAXSimulator\send\1.tif' COD  
MIN_DATA_RATE 16800 MAX_DATA_RATE 33600 ECMENABLED 1";  
OK  
Task 1: FaxTransmissionStarted, PortNo = 1, TimeSlot = 1, FaxDirection = 'TX', Transm
```

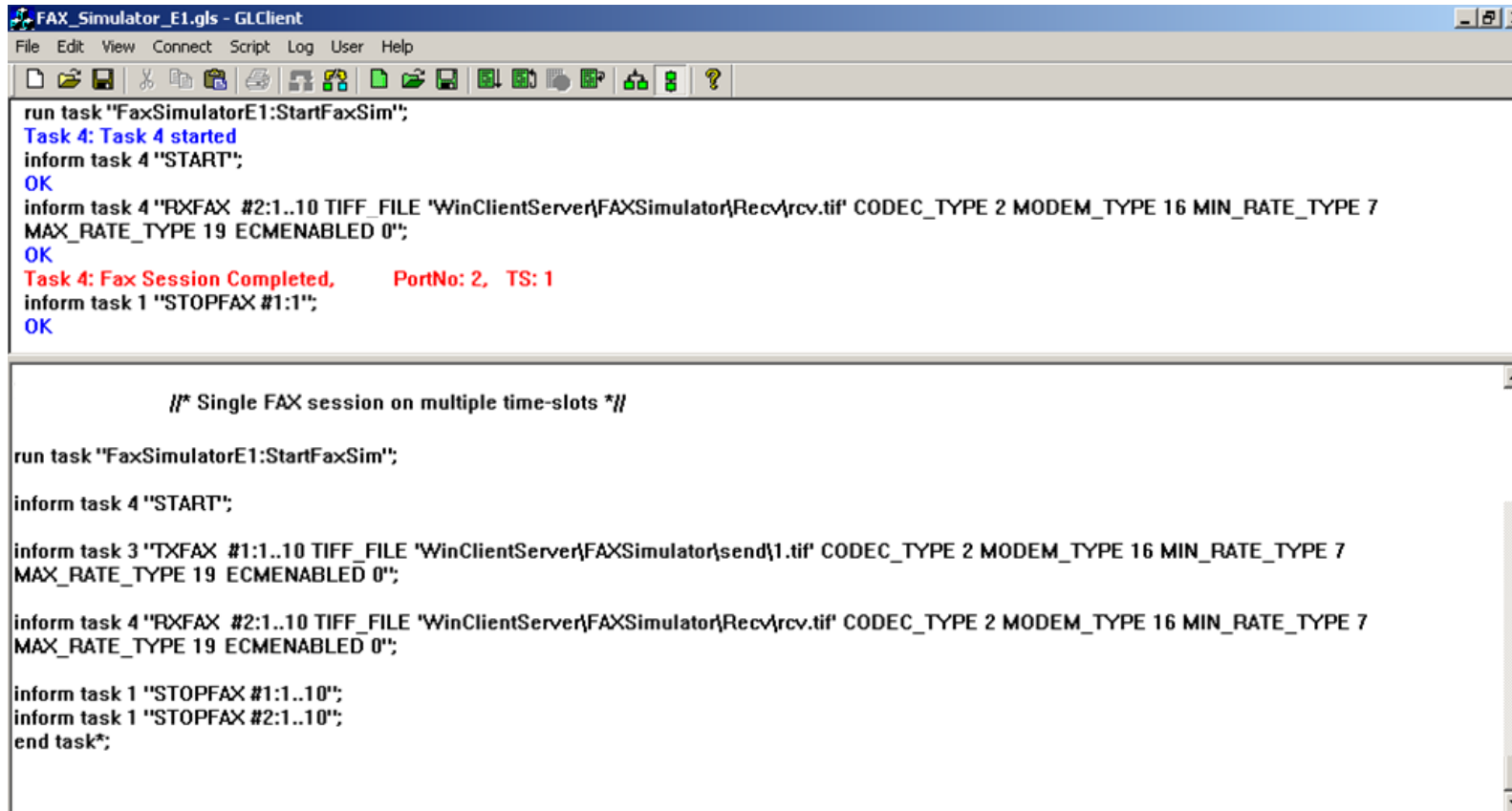
A 'Connect...' dialog box is open in the foreground, showing the following options:

- Connect to Server on This Machine
- Connect to Server on [Dropdown]
- Server Listens at port: 17090
- Messaging:
 - Server uses Binary messages
 - Server uses ASCII text messages
- Version:
 - Server uses Version 3 Messaging (Legacy)
 - Server uses Version 4 Messaging (Unified)

The status bar at the bottom of the window shows 'Ready' on the left and 'Ver 4 B NUM' on the right.

Port, Timeslot and Multiple Timeslot

- Ports, timeslots and subchannels can be specified using the comma delimited lists of single values or ranges (min..max).
- Timeslot numbers are zero relative 0..23 for T1 and 0..31 for E1.
- Ports and subchannels are one relative
- Subchannels are specified using a comma delimited single or range list.



```
run task "FaxSimulatorE1:StartFaxSim";
Task 4: Task 4 started
inform task 4 "START";
OK
inform task 4 "RXFAX #2:1..10 TIFF_FILE 'WinClientServer\FAXSimulator\Recv\rcv.tif' CODEC_TYPE 2 MODEM_TYPE 16 MIN_RATE_TYPE 7
MAX_RATE_TYPE 19 ECMENABLED 0";
OK
Task 4: Fax Session Completed,      PortNo: 2, TS: 1
inform task 1 "STOPFAX #1:1";
OK

      /* Single FAX session on multiple time-slots */

run task "FaxSimulatorE1:StartFaxSim";

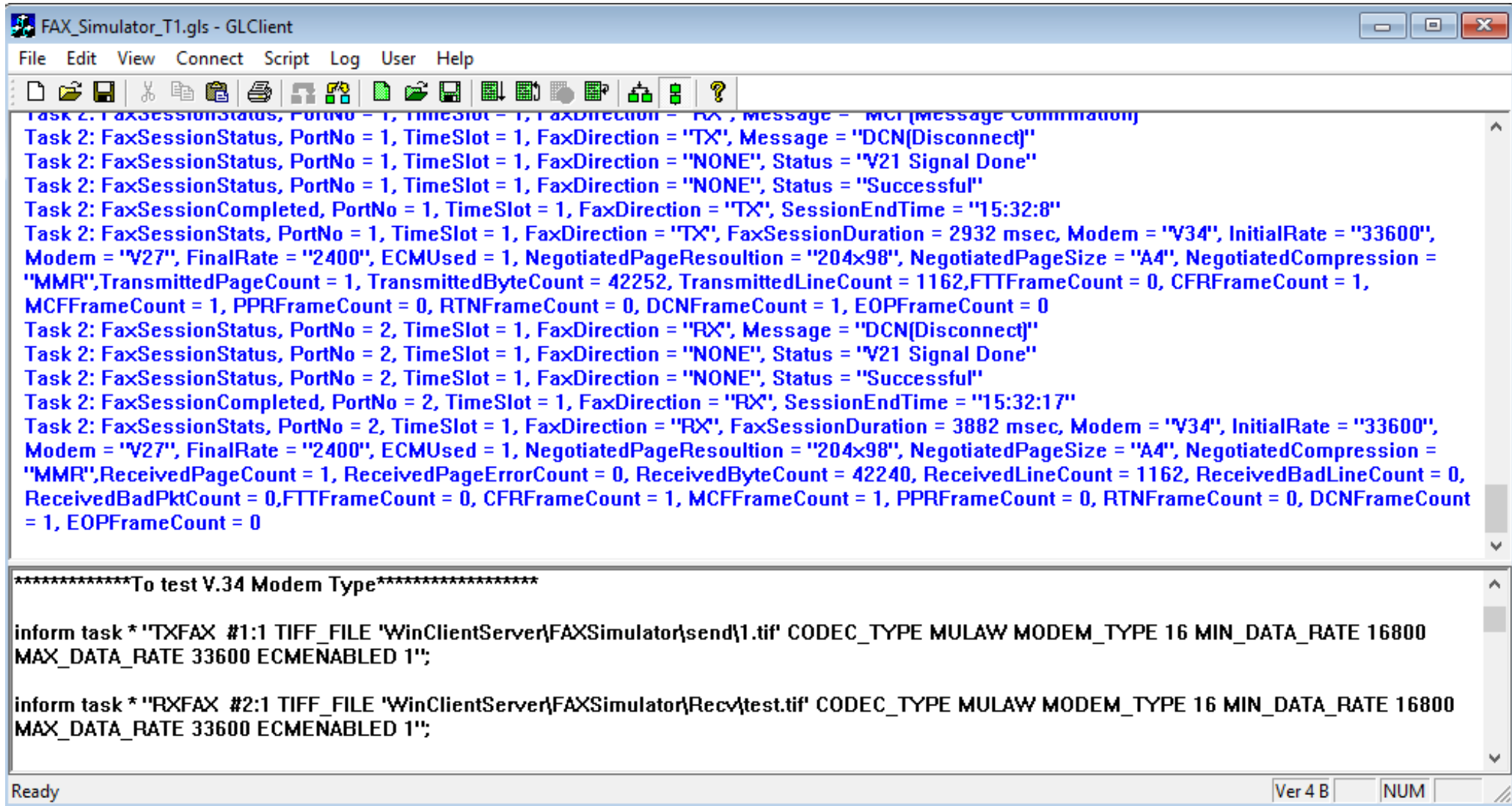
inform task 4 "START";

inform task 3 "TXFAX #1:1..10 TIFF_FILE 'WinClientServer\FAXSimulator\send\1.tif' CODEC_TYPE 2 MODEM_TYPE 16 MIN_RATE_TYPE 7
MAX_RATE_TYPE 19 ECMENABLED 0";

inform task 4 "RXFAX #2:1..10 TIFF_FILE 'WinClientServer\FAXSimulator\Recv\rcv.tif' CODEC_TYPE 2 MODEM_TYPE 16 MIN_RATE_TYPE 7
MAX_RATE_TYPE 19 ECMENABLED 0";

inform task 1 "STOPFAX #1:1..10";
inform task 1 "STOPFAX #2:1..10";
end task;
```

Tx and Rx Fax Session



```
Task 2: FaxSessionStatus, PortNo = 1, TimeSlot = 1, FaxDirection = "TX", Message = "MCF(message completion)"
Task 2: FaxSessionStatus, PortNo = 1, TimeSlot = 1, FaxDirection = "TX", Message = "DCN(Disconnect)"
Task 2: FaxSessionStatus, PortNo = 1, TimeSlot = 1, FaxDirection = "NONE", Status = "V21 Signal Done"
Task 2: FaxSessionStatus, PortNo = 1, TimeSlot = 1, FaxDirection = "NONE", Status = "Successful"
Task 2: FaxSessionCompleted, PortNo = 1, TimeSlot = 1, FaxDirection = "TX", SessionEndTime = "15:32:8"
Task 2: FaxSessionStats, PortNo = 1, TimeSlot = 1, FaxDirection = "TX", FaxSessionDuration = 2932 msec, Modem = "V34", InitialRate = "33600",
Modem = "V27", FinalRate = "2400", ECMUsed = 1, NegotiatedPageResolution = "204x98", NegotiatedPageSize = "A4", NegotiatedCompression =
"MMR", TransmittedPageCount = 1, TransmittedByteCount = 42252, TransmittedLineCount = 1162, FTTFrameCount = 0, CFRFrameCount = 1,
MCFFrameCount = 1, PPRFrameCount = 0, RTNFrameCount = 0, DCNFrameCount = 1, EOPFrameCount = 0
Task 2: FaxSessionStatus, PortNo = 2, TimeSlot = 1, FaxDirection = "RX", Message = "DCN(Disconnect)"
Task 2: FaxSessionStatus, PortNo = 2, TimeSlot = 1, FaxDirection = "NONE", Status = "V21 Signal Done"
Task 2: FaxSessionStatus, PortNo = 2, TimeSlot = 1, FaxDirection = "NONE", Status = "Successful"
Task 2: FaxSessionCompleted, PortNo = 2, TimeSlot = 1, FaxDirection = "RX", SessionEndTime = "15:32:17"
Task 2: FaxSessionStats, PortNo = 2, TimeSlot = 1, FaxDirection = "RX", FaxSessionDuration = 3882 msec, Modem = "V34", InitialRate = "33600",
Modem = "V27", FinalRate = "2400", ECMUsed = 1, NegotiatedPageResolution = "204x98", NegotiatedPageSize = "A4", NegotiatedCompression =
"MMR", ReceivedPageCount = 1, ReceivedPageErrorCount = 0, ReceivedByteCount = 42240, ReceivedLineCount = 1162, ReceivedBadLineCount = 0,
ReceivedBadPktCount = 0, FTTFrameCount = 0, CFRFrameCount = 1, MCFFrameCount = 1, PPRFrameCount = 0, RTNFrameCount = 0, DCNFrameCount
= 1, EOPFrameCount = 0

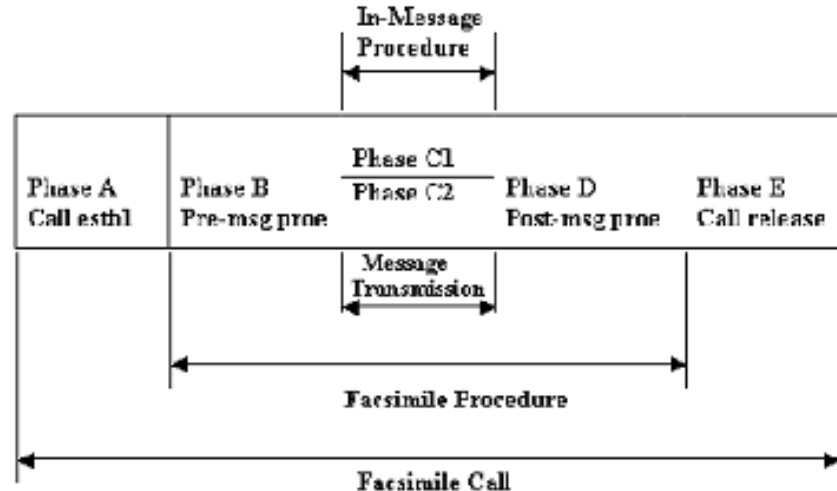
*****To test V.34 Modem Type*****

inform task * "TXFAX #1:1 TIFF_FILE 'WinClientServer\FAXSimulator\send\1.tif' CODEC_TYPE MULAW MODEM_TYPE 16 MIN_DATA_RATE 16800
MAX_DATA_RATE 33600 ECMENABLED 1";

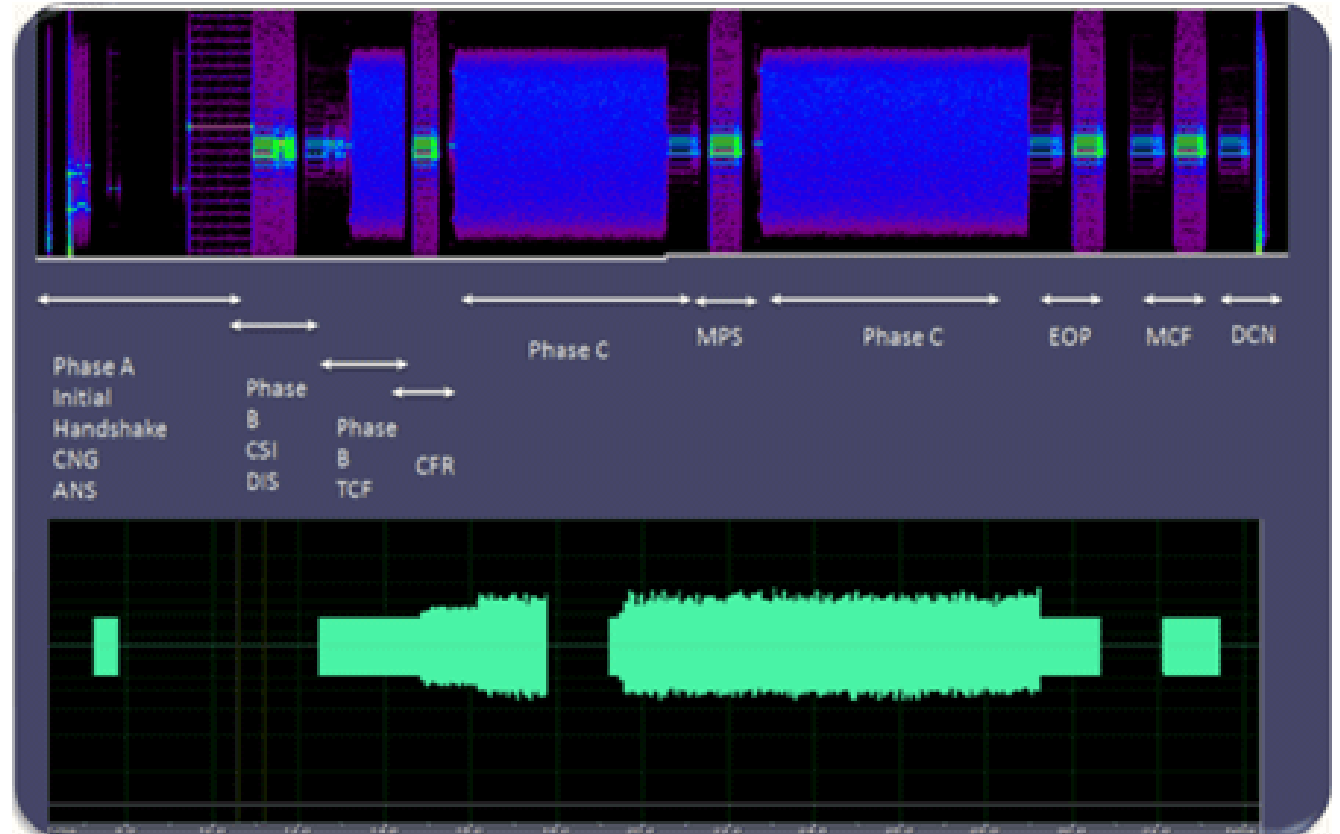
inform task * "RXFAX #2:1 TIFF_FILE 'WinClientServer\FAXSimulator\Recv\test.tif' CODEC_TYPE MULAW MODEM_TYPE 16 MIN_DATA_RATE 16800
MAX_DATA_RATE 33600 ECMENABLED 1";
```

Ready Ver 4 B NUM

Typical Fax Session

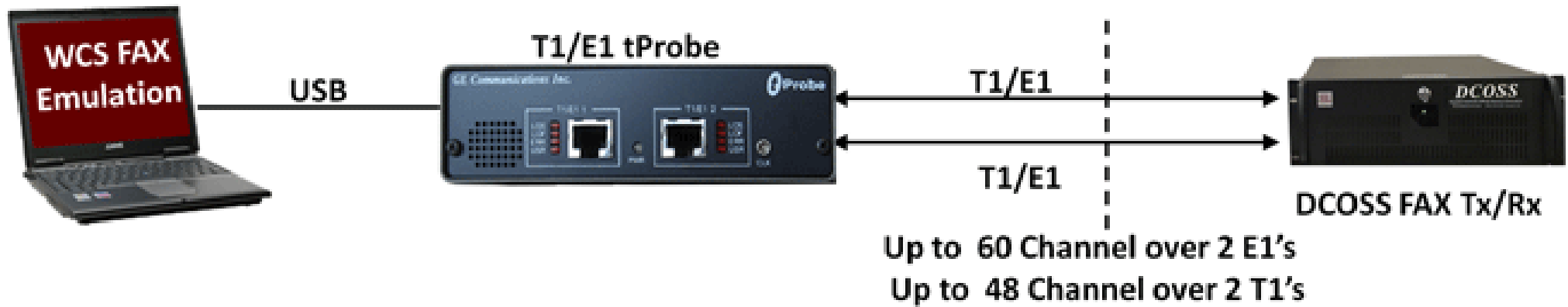


Calling transmitter (Call setup)	Called receiver
Phase A	Called terminal identification (CSI)
	Capabilities identification (DIS)
Command information (TSL, DCS)	
Phase B	Training (ICF)
	Confirmation to receive (CFR)
Phase C	Message
	End of message (EOM)
Phase D	Message Confirmation (MCF)
Phase E	Disconnect (DCN)

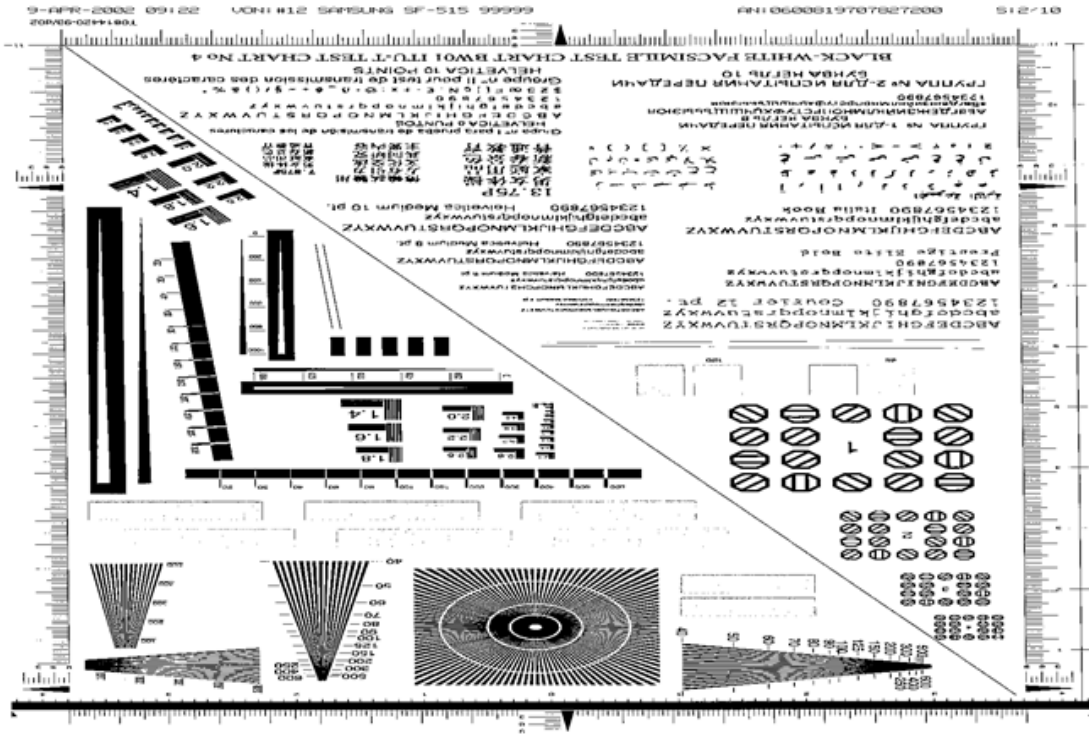


Test Scenarios for Fax Simulator

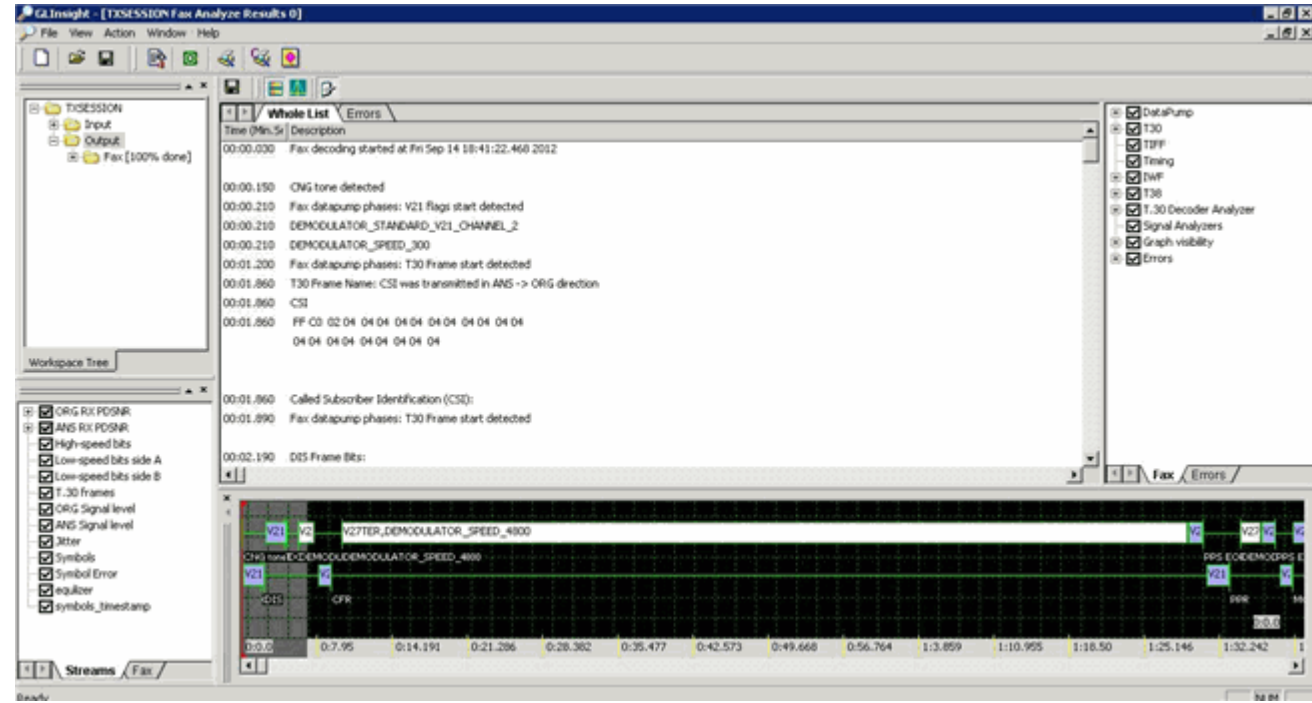
- Fax Simulator Between tProbe™ and DCOSS (Over T1/E1)



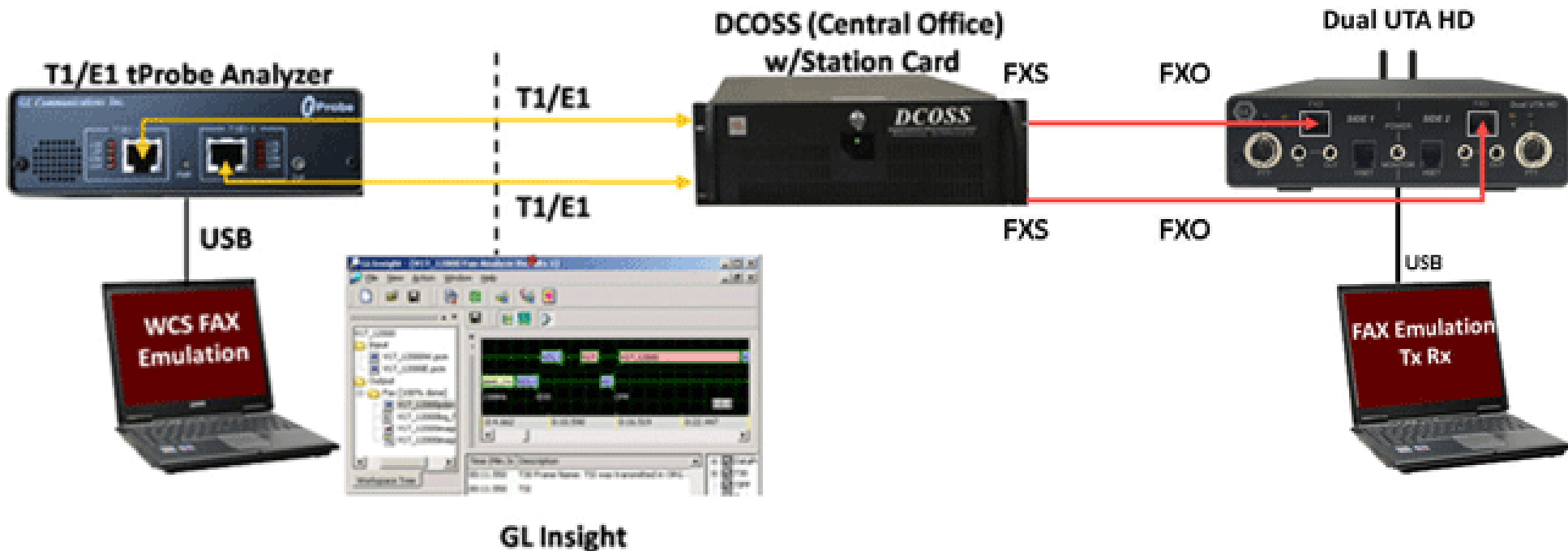
Tiff Output



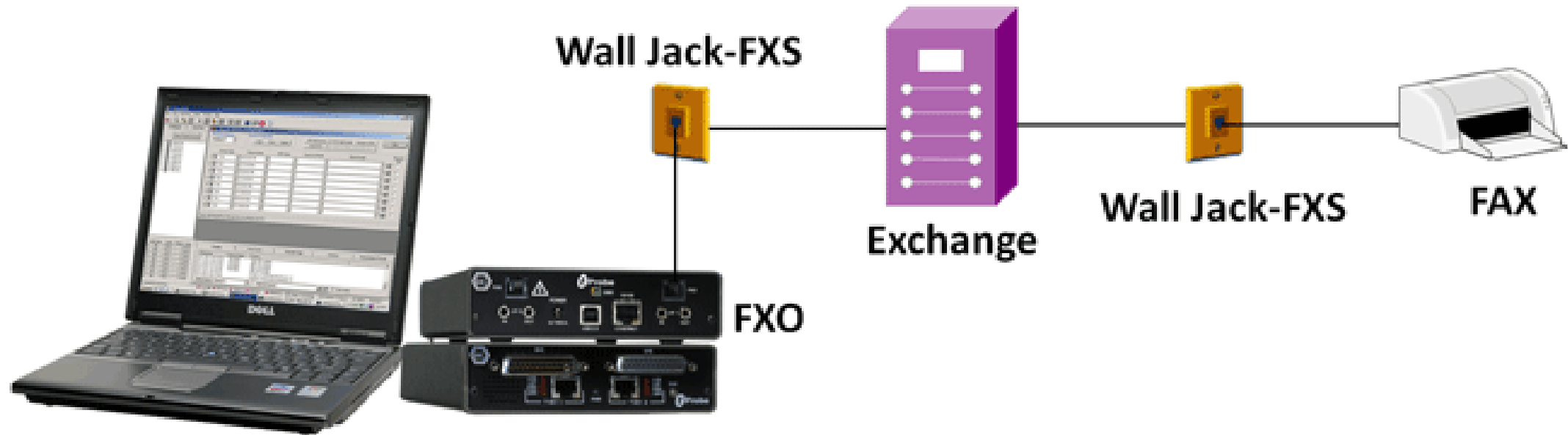
Analysis of PCM Files in GL Insight



Fax Simulation over T1/E1 to Analog Interface on Dual UTA HD (via DCOSS)



Fax Simulation over tProbe™ FXO



Thank you!

For more information refer <https://www.gl.com/wcs-fax-simulation-and-analysis-over-t1-e1.html>