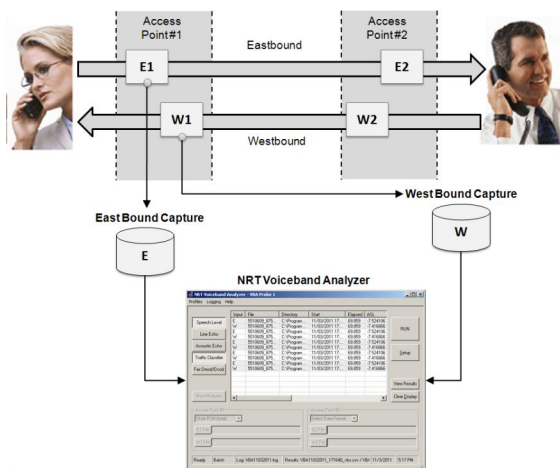


Near Real-time Voice-band Analyzer



Near Real-Time Non-Intrusive Voice Band Analysis

Speech & Noise Level, Line & Traffic Classifier, and Fax analysis

Accepts A-Law, μ -Law, 16-bit Linear PCM and Wave Files

Manual, Batch, and Auto Processing Modes

Reports Events and Summary Analysis Results in CSV files

Database and File Based Reporting Options

Built-in & Customized File Naming Conventions

2-wire and 4-wire voiceband captures for Fax traffic

Supports 1-, 2-, 3-, and 4-Port Signal Data Analysis

Works with TDM, VoIP, and Wireless Captured Files

Overview

The Near Real-time Voice-band Analyzer (VBA) is an analysis tool for monitoring the quality of voice band traffic over VoIP, TDM, 2-Wire, and wireless networks. It can host an arbitrary number of analysis algorithms. Built-in algorithms include ITU-T P.56 Active Voice Level analysis, Line Echo (Hybrid) analysis, and licensed modules include 2-Wire Echo Analysis, Traffic Classifier, and Fax analysis. Other analysis modules such as ITU-T P.561, P.562, and P.563 can be hosted as plug-ins. The VBA application can operate on previously captured files, making it a near-real time (as opposed to a strictly real-time) tool. It supports on A-Law, μ -Law, 16-bit PCM (Intel), 16-bit PCM (Motorola), and MS Wave file formats.

VBA records its output into two files, the first containing overall channel measurements, and the second containing event records. It produces summary measurements of the captured signals, including active speech levels, noise level, percent time active, DC offset and the like. The optional VBA Fax decoder/demodulator module (require additional license) can be used to analyze both 2-wire and 4-wire voiceband captures for Fax traffic and output fax signaling frames in a log file and fax image as TIFF format.

VBA works in conjunction with GL's TDM, Packet, and Wireless non-intrusive capture products:

- VBA with GL's TDM T1 E1 Call Capture and Analysis, or
- VBA with GL's VoIP PacketScan™ / MLPPP Analyzer
- VBA with GL's GSM, CDMA, and 3G Call Capture Products
- VBA with GL's 2-Wire (FXO RJ11) Hardware Tap and Audio Capture Software

Main Features

- Near real-time (NRT) non-intrusive analysis platform.
- Supports 1, 2, 3, and 4-port signal data analysis
- Supports Fax Decode / Demodulation on 2-wire or 4-wire captures
- FaxDD module outputs fax signaling frames in a log file and Fax image in TIF format.
- Manual, batch, and automatic processing modes
- Accepts A-Law, μ -Law, 16-bit linear PCM, and WAV input data from files
- Hosts built-in P.56 Active Voice Level analysis, Line Echo analysis, and other optional analysis algorithms such as 2-Wire Echo Analysis, Traffic Classifier analysis, and Fax analysis
- Allows to implement Psophometric and C-Message signal conditioning before the Active Speech Level analysis; reports C-Message filtered files in dBnrc
- User-selectable analysis output fields
- Voice Band Status (*_vbs.csv) files are generated for all modules; Additionally Voice Band Event (*_vbe.csv) files are generated for Traffic Classifier module
- Analysis output mode directly compatible with Microsoft® Excel and other analysis tools

For more information on DCME Analyzer, refer to <http://www.gl.com/voicebandanalyzer.html>



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Operation Modes

The VBA operates in three fundamental modes: **Manual**, **Batch** and **Automatic**.

In **manual** mode, the user specifies the files to be analyzed. This is useful for quick analysis, and for verifying algorithm configuration before a **batch** or **auto** run.

Batch mode allows users to analyze an entire set of data stored in a designated folder or subfolders. In **automatic** mode, the process continues indefinitely until the user manually stops the analysis.

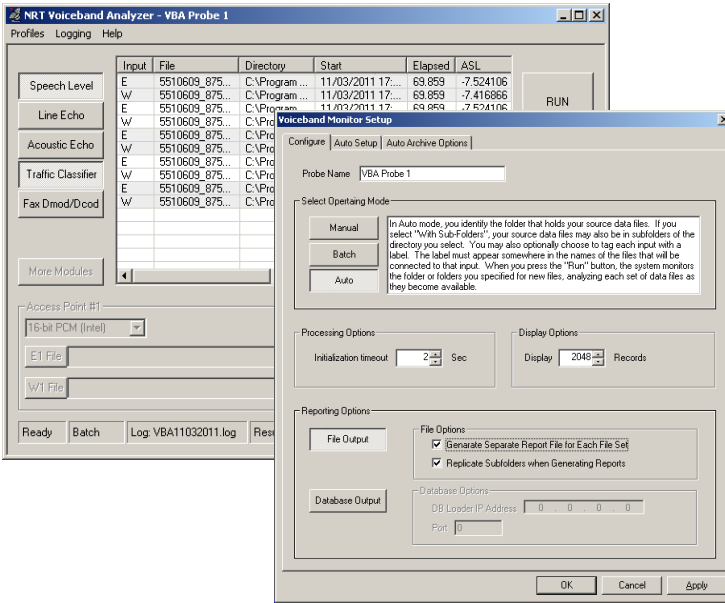


Figure: Manual, Batch, and Auto Mode

File Naming Conventions

The file name convention allows users to identify source data files and to group them into data sets in Batch or Auto Mode operations. The built-in naming conventions are **CCA – Standard**, **CCA-MFCR2**, and **CCA-ISDN**, which are compatible with GL's Call Capture and Analysis application. The application also allows users to customize the naming convention according to user's requirements and create corresponding a file name pattern.

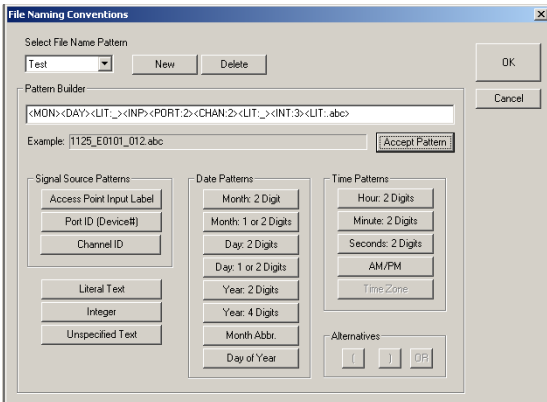


Figure: File Naming Conventions

Built-in and Optional VBA Algorithms

The active speech level is measured in accordance with P.56 Method B. Line module displays Echo Return Loss - ERL (dB), Echo Delay (ms), and Echo Dispersion (ms). Traffic Classifier displays the amount of Fax/Voice/Digits/Tones/Silent types of traffic present in the network. Fax decoder/demodulator used to analyze voice band traffic files for Fax traffic and output Fax signaling frames in a log file.

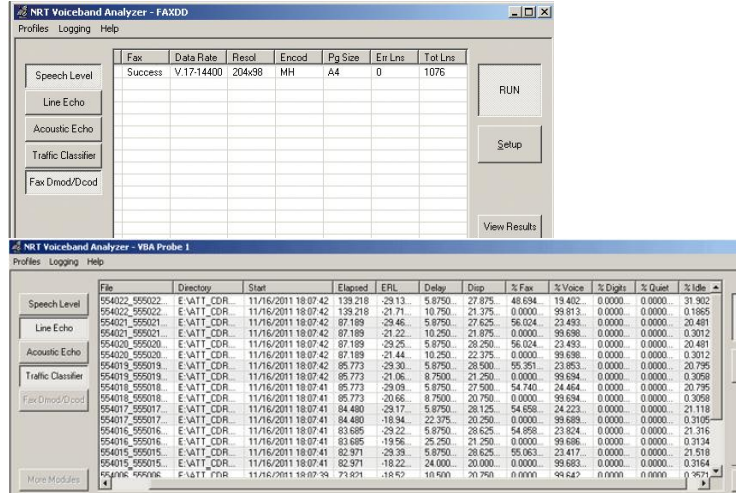


Figure: Fax Decode/Demodulation

Algorithms Parameters and Output Fields

Active Speech Level Module

In the Active Speech Level algorithm, parameters such as Sample Rate, Smoothing Constant, Hangover-time, and Threshold Margin all have fixed values. The ASL modelers allows you to apply Signal Conditioning (either a Psophometric or a C-Message channel profile) to the signal before the Active Speech Level analysis is performed. C-Message is normally used in North American systems, where T1/ μ -Law is the norm. It displays Activity factor, RMS factor, Noise Level, Possibly Clipped Samples, Maximum Positive Sample Value, Maximum Negative Sample Value and DC level.

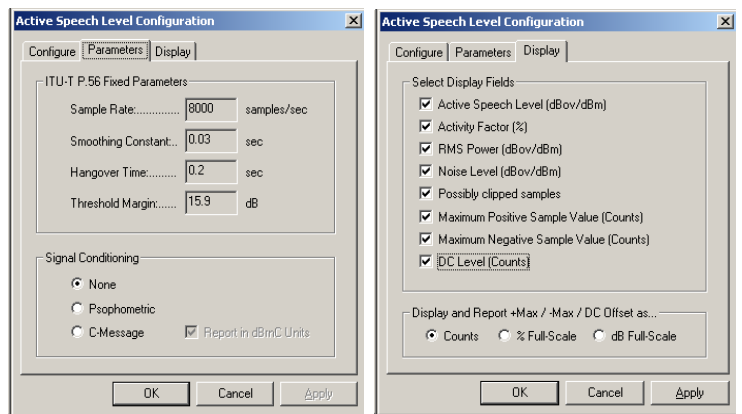


Figure: Active Speech Level Display and Parameters



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Line Echo Module

Line Echo has two classes of variable parameters: Echo Path Model and Double-Talk Detection parameters. Echo Path Model parameter allows setting values for 'Tail Length' and 'Bulk Delay' (Tail Offset), while, double talk detection (DTD) allows raising or lowering the **ON Sensitivity** and **OFF Sensitivity**. It displays the echo parameters such as Echo Return Loss - ERL (dB), Echo Delay (ms) and Echo Dispersion (ms).

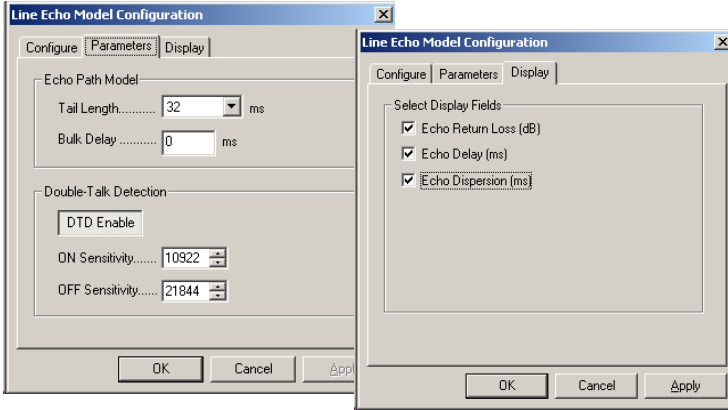


Figure: Line Echo Display and Parameter Fields

Traffic Classifier Module

Traffic Classifier algorithm allows VBA to choose to display the amount of Fax/Voice/Digits/Tones/Silent types of traffic present in the network and generate corresponding reports. Traffic Classifier allows Idle Code settings for signaling bits and options to detect DTMF, MF, MFR2-fwd, MFR2-bkwd digits, and Tones (Dial/Ring/Busy).

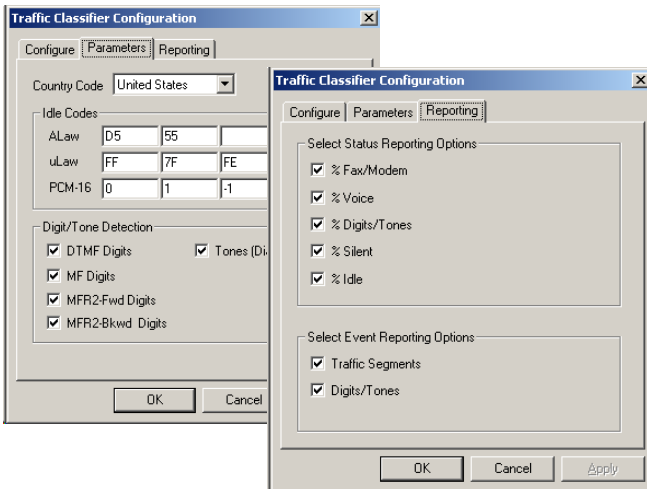


Figure: Traffic Classifier Reporting and Parameters

Fax Decode/Demodulation Module

FaxDD allows you to output a Log File, which contains information on Fax signaling frames, in addition to reporting the Fax image in a TIFF ("Tagged Image File Format") format.

The Fax Demodulate/Decode module allows you to choose the output fields such as Fax status, Standard, Data Rate, Resolution, Encoding, Page Size, Error Lines, Total Lines, Total Bytes, and Total Pages. The total lines decoded is a good indication as to the success of the decode process. A typical page should indicate over 1000 lines.

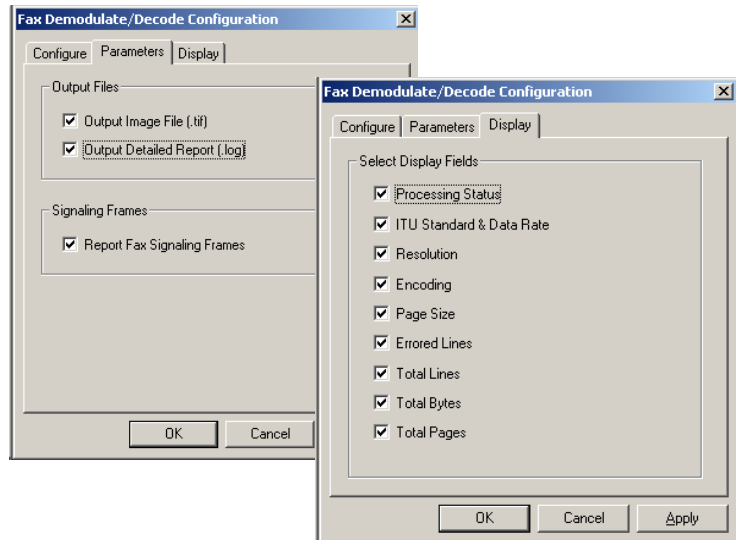


Figure: Fax Decod/Demod Parameters and Display Fields

VBA Reports

Call Event

The **Voiceband Events** output file contains various signaling (ISDN, CAS, SS7) events, start time, event duration, and so on.

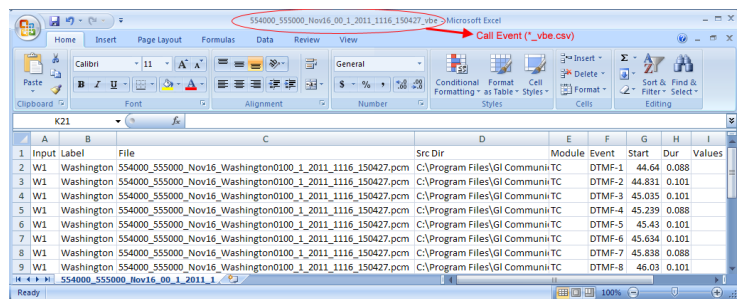


Figure: Voiceband Call Event Output File



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Call Summary

The **Voiceband Summary or Status** output file contains an overall summary of the call, including the input direction (E / W), the call duration, the elapsed time and various measurements based on the modules selected.

Probe Input Label	File	Src Dir	Arch Dir	Start	Elapsed	ASL	AF	RMS	Noise	% Voice	% Digits	% Quiet	% Idle
E1	New York	S54000_S5	C:\Program Files\Netop\11\16\2011\110504	72.429	-100	0	-100	-100	34.1818	2.5455	0	63.272727	100
W1	Washington	S54000_S5	C:\Program Files\Netop\11\16\2011\110504	72.429	-11.635865	30.58493	-16.78	-54.705					

Figure: Voiceband Call Summary Output File

VBA FAXDD Reports

VBA FaxDD always outputs the Fax image as a TIFF (“Tagged Image File Format”) file and a Log File.

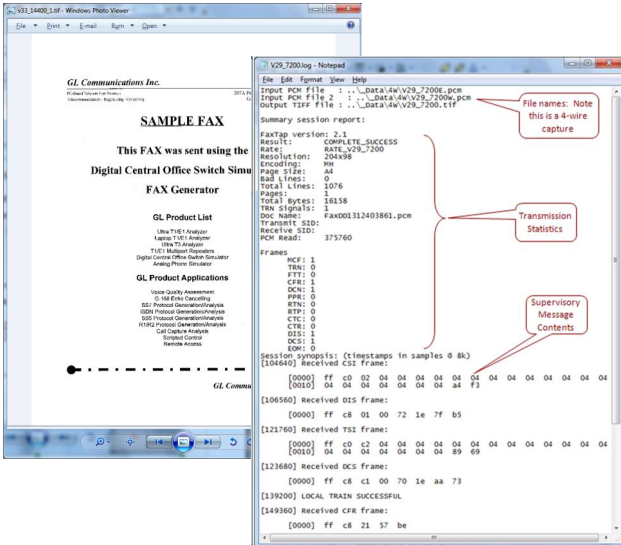


Figure: Voiceband FaxDD Tiff Image and Text Report

Buyer's guide

- [VBA032](#) – Voice-band Analyzer
- [VBA038](#) – Fax decoder/demodulator
- [VBA033](#) – Two-Wire Echo Analysis for VBA
- [VBA036](#) – Traffic Analysis for VBA

Related Software

- [PKV104](#) – FaxDDT38
- [XX030](#) – Call Capture and Analysis Software (T1 or E1)
- [CDR032](#) – Call Data Records
- [PKV100](#) – PacketScan™ (Real-time and Offline)
- [PKV101](#) – PacketScan™ - Offline
- [PKB070](#) – Audio Processing Utility
- [VQT035](#) – 2-Wire Voice/Data Capture

Related Hardware

- [PTE001](#) – tProbe™ Dual T1 E1 Laptop Analyzer (Requires Basic Software)
- [HTE001](#) – Universal T1/E1 Card (Requires Basic Software)
- [UTE001](#) – Portable USB based Dual T1 or E1 Laptop Analyzer (Requires Basic Software)



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