

**► SUMMARY**

The computer processes the voice frequencies and displays a graph "picture" of them. There is no need for strictly "yes" or "no" answers, and the computer process can "follow" unstructured conversation, recorded conversations, and live telephone conversations... with a 95 percent accuracy rate.

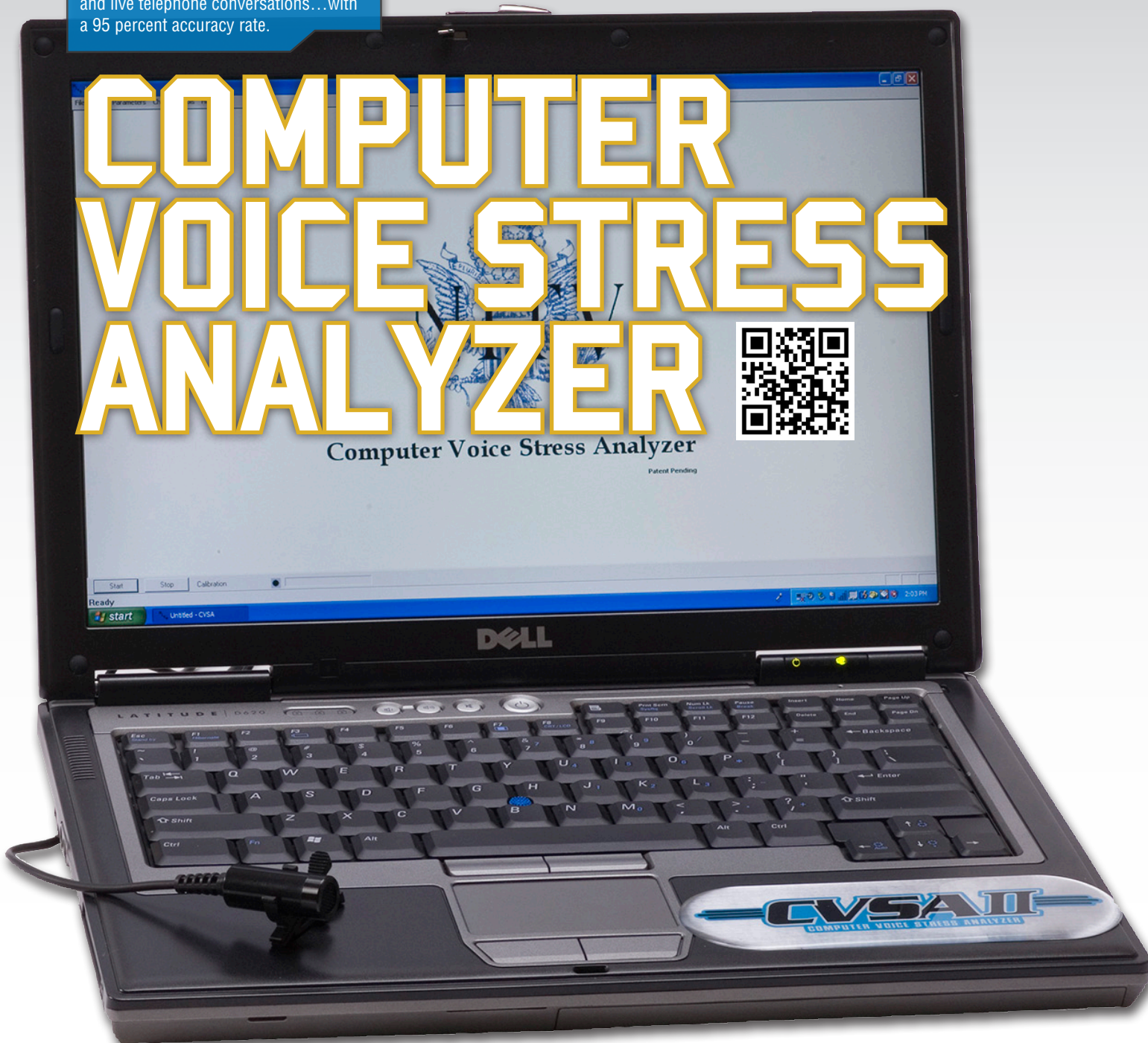
**► MORE INFORMATION**

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# COMPUTER VOICE STRESS ANALYZER

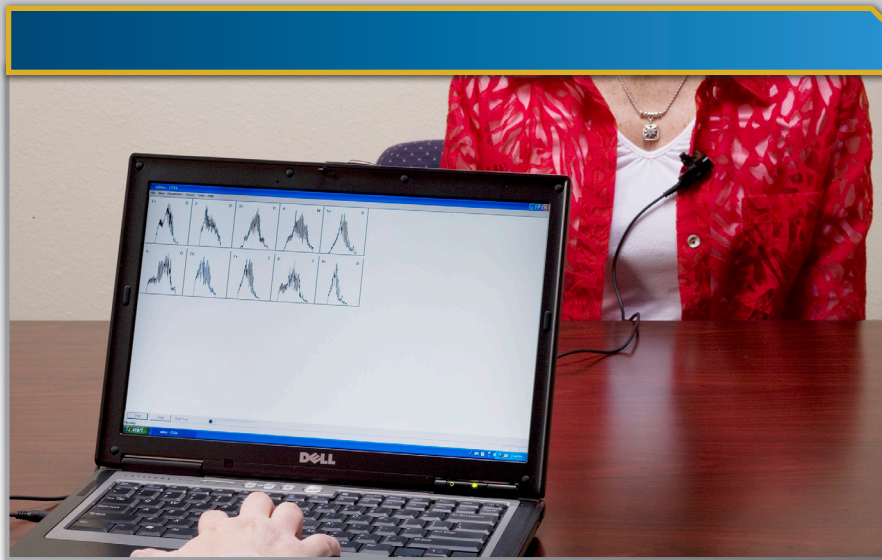
Computer Voice Stress Analyzer

Patent Pending



## IS IT A LIE?

► By Stephenie Slahor



▲ Inaudible changes in micro tremors are detected by the voice stress analyzer.

**I**t used to be that detecting a lie depended upon the observer's experience and intuition. Then, along came the polygraph—an instrument that, for 60 years, helped detect the veracity of someone. The polygraph had some effectiveness, but it also had its problems and limitations.

New technology has made possible an innovative entry into the field of lie detection—the Computer Voice Stress Analyzer® (CVSA). Developed in the 1980s, this relatively new technology features the recording, quantifying and analyzing of the subject's voice. By 1989, CVSA was making its first inroads in law enforcement, primarily with smaller police agencies.

Its effectiveness quickly prompted some large metropolitan agencies to add its technology. Those agencies now include Atlanta, Miami, Nashville, New Orleans, and the California Highway Patrol. In addition, the CVSA® and CVSA®II have been used in military combat and field conditions by the U.S. military since 2002.

It is the National Institute for Truth Verification Federal Services™ (located

in West Palm Beach, Fla.) that is the manufacturer and sole source of CVSA and CVSA II and the "Final Analysis Confirmation Tool™" (FACT™). FACT is a patented and validated automated scoring algorithm for quantifying and evaluating voice stress patterns.

The CVSA II is the "next generation" model that adds the FACT Scoring System; a simplification of the examiner interfaces to reduce the time required in conducting examinations. The CVSA II has the capability to record live and telephonic examinations onto the system's hard drive.

Computer voice stress analysis is low in cost, and the technology to use it is easy to operate and adaptable to various conditions. But its hallmark seems to be its accuracy. A recent study by James Chapman in the annual scientific journal, "Criminalistics and Court Expertise," states that the accuracy of computer voice stress analysis is greater than 95 percent.

Chapman's study was based on an 18-year field study. Chapman is not alone in his assessment. Journalist Bob McCarty, author of "The Clapper Memo," tells of the failures of the polygraph—failures that sometimes allowed circumstances leading to insider attacks against members of the U.S. military in Afghanistan.

Unlike a polygraph, the subject of computer voice stress analysis is not "wired to" an instrument when undergoing an examination. Only a microphone is used, which is plugged into the computer to analyze the subject's responses. As the subject speaks, a voice pattern is displayed and numbered, and saved to a chart to file.

Drugs or medical problems do not affect the results of the examination, and there are really no "counter measures" that could cause an inconclusive result such as those that occur with a polygraph. The computer voice stress analyzer notes the frequency changes in the subject's voice and "identifies" the vocal stress related to the specific facts under investigation.

The computer processes the voice frequencies and displays a graph "picture" of them. There is no need for strictly "yes" or "no" answers, and the computer process can "follow" unstructured conversation, recorded conversations, and live telephone conversations.

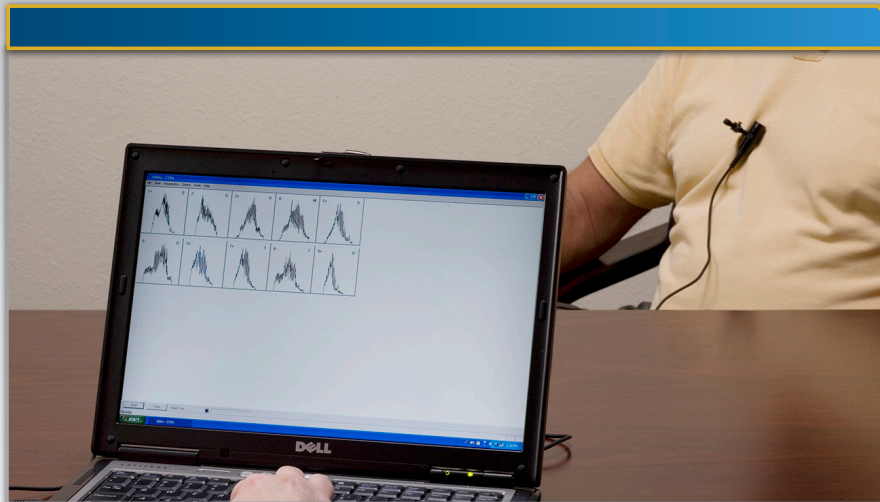
Micro tremors are tiny frequency modulations in the human voice and, when a subject is lying, the automatic or involuntary nervous system causes inaudible changes in those micro tremor frequencies. The computer voice stress analyzer detects, measures, quantifies and displays those changes in a graph format that can be evaluated and quantified for stress.

The technology is digitized and incorporated into a multi-functional notebook computer that is easily carried and that also has FAX and e-mail capability for the sending of charts for cold call review by other examiners. When used with the National Institute for Truth Verification's interviewing and interrogation techniques, results appear quite quickly (average examination time is 40 minutes) and the results can be very accurate in identifying deception or in validating statements.

According to Chapman's study, the consequence-based stress detected in the human voice when using a computer voice stress analyzer directly correlates to the matters of truth and deception. The analyzer is said to have an error rate of less than one-half of 1 percent.

The National Association of Com-





▲ The subject is not hard wired to the stress analyzer. Only a small microphone is used.

puter Voice Stress Analysts (NACVSA) represents a membership of about 2,000 U.S. law enforcement agencies and thousands of criminal justice pro-

fessionals. It is exclusively associated with computer voice stress analysis examiners, and the organization hosts continuing education and professional

development programs, monitors legislation impacting CVSA, and administers a professional certification program. The NACVSA feels that the CVSA proves its accuracy—and the polygraph an error-prone status.

The NITV has offered training in voice stress analysis since 1980. Its instructors are either former law enforcement personnel with experience in voice stress analysis and polygraph, or they have experience in such specific areas as interviewing and interrogation.

The examiners' course includes such topics as the history of lie detection, systems used in the instrumentation technology, the physiology of the body's reaction to jeopardy and how those reactions can be monitored, interviewing and interrogation, the psychological and physiological responses to questions and the "flight or fight" reaction, chart interpretation, scoring, test applications and construction, and covert interviewing and subsequent analysis.

## 18-YEAR FIELD STUDY VALIDATES COMPUTER VOICE STRESS ANALYZER AS MOST ACCURATE TRUTH VERIFICATION TECHNOLOGY

Independent, peer-reviewed research has validated the accuracy of the Computer Voice Stress Analyzer. According to the National Association of Computer Voice Stress Analysts, a recently published research study in the 2012 annual edition of the scientific journal *Criminalistics and Court Expertise* reports the accuracy rate of the (CVSA) is greater than 95 percent, an assertion long made by the system's manufacturer. The study's results are further bolstered by current U.S. Government-funded voice analysis research, which has established voice technologies performed well for border security applications.

The 18-year field study was conducted by Professor James L. Chapman and titled "Long-Term Field Evaluation of Voice Stress Analysis in a North American Criminal Justice Setting." Professor Chapman was known as the world's foremost authority on the application of Voice Stress Analysis technologies.

Recently deceased, Professor Chapman's career spanned over 40 years as a criminologist, educator and researcher, during which he conducted more than 15,000 Voice Stress Analysis examinations. The study's co-author, Marigo Stathis, a neuroscientist and research analyst, has been

the primary or co-author of 27 published scientific articles and studies focusing on various topics related to the human brain and biology.

Professor Chapman used the CVSA to conduct the research and the results achieved were highly consistent throughout the period the study's data were collected. The study's findings revealed the CVSA, when used as an investigative support tool, can accurately predict whether a person under investigation is being truthful or deceptive.

The study's findings are supported by scientifically accepted statistical models, and by the 96.4 percent validated confession rate Professor Chapman attained during the course of the 18-year study. According to current scientific research and meta-analyses, police confession rates worldwide vary between 20-45 percent, with even the most experienced police interviewers only achieving a 50-55 percent confession rate.

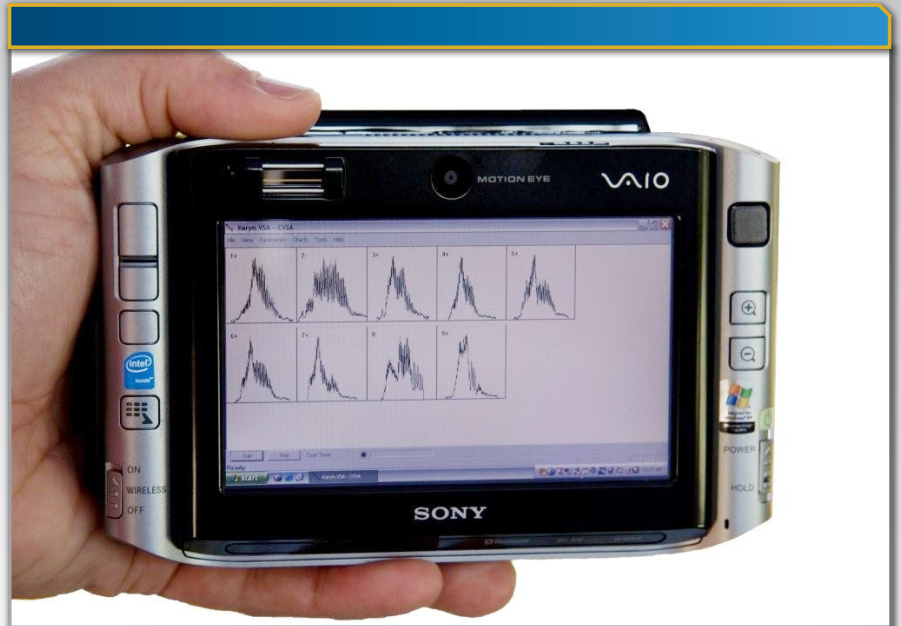
Empirical data collected by the CVSA's manufacturer, U.S. law enforcement and U.S. military CVSA users have long supported such findings; however, this is the first independent and peer-reviewed scientific study to validate these data. Additional studies and research are planned for the future.

Funding for computer voice stress analysis equipment and training can often be gained through traditional police grant sources such as the Edward Byrne grants in the U.S. Department of Justice, Wal-Mart's and Target Corporation's grants for local law-enforcement agency equipment purchases, local fraternal and charitable groups such as American Legion, Veterans of Foreign Wars, Knights of Columbus, Lions Club, Moose Lodge, etc. Other grant suggestions are given on the CVSA website.

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▲ Funding for computer voice stress analysis equipment and training is generally available.