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**FIELD EVALUATION OF EFFECTIVENESS OF VSA
(VOICE STRESS ANALYSIS) TECHNOLOGY
IN A US CRIMINAL JUSTICE SETTING**

This field study of criminal suspects and persons of interest is based upon actual CVSA examinations conducted by Prof. James Chapman over an 18-year period. The study resulted in **an accuracy rate of 99.69%, a precision rate of 99.67% and** a verified confession rate of 96.4%.

The total inventory of CVSA cases submitted, which exceeded 3,000, was culled for cases that met the following criteria:

- A confession was a potential outcome
- There was no involvement with veracity testing of previous statements
- No employment clearance was involved
- The case was not used as confirmation of prior witness testimony
- The facts of the case were such that responses could be verified by means of CVSA follow-up questioning

After excluding cases that did not meet all of the above criteria, the criminal cases remaining for study in which legally admissible confessions were possible totaled 2,109. A total of 236 cases, involving 329 specific crimes ("Confession Possibilities"), were randomly selected. These crimes included, but were not limited to: multiple homicides, corporate theft, organized crime, contract murders, sexual abuse of children, and arson for hire.

The subjects examined represented a wide spectrum, from people with no criminal history to those with previous arrest/conviction records, and included both males and females. The socio-economic strata ran the gamut from wealthy, well-educated

professionals to indigents. The livelihood of those within the study group ranged from elected public officials to professional criminals, such as organized crime hit-men.

Of the cases studied, 91% represented criminal investigations in which legal authorities had reached an investigative impasse. In other words, after following standard investigative procedures, investigators had been unable to reach a firm conclusion as to guilt or innocence.

Each subject named in the “Confession Possibility” list was individually interviewed by the CVSA examiner, with two goals in mind:

- To exonerate the innocent or identify the guilty, and
- To obtain legally valid and independently verifiable confessions from those subjects who were unable to clear the CVSA process.

Each interview was conducted according to a standard protocol in which the wording of the interview, but not the methodology, was adapted on-site to each specific case. In each case, the CVSA procedure used by the examiner consisted of the following six steps:

1. The CVSA examiner was briefed by the requesting authorities in order to become familiar with the circumstances of each case.
2. A pre-test interview with the subject was conducted.
3. The initial test questions were formulated and presented to the subject. Examinations contained from 9 to 31 questions, consisting of relevant, irrelevant, and control questions for which the subject provided “yes” or “no” answers.
4. The fourth step included processing the responses with the CVSA instrument, after which the resulting CVSA charts were analyzed and interpreted by the examiner.
5. If stress patterns associated with specific relevant questions (those questions pertinent to the crime) were observed by the examiner, an opportunity was given for the subject to provide additional clarification regarding the stress. Prior to the re-examination, questions were reformulated by the examiner to evaluate the veracity of the explanations offered by the subject. This procedure was repeated until all necessary questions had received responses which displayed no stress reaction or until the remaining stress reactions could not be eliminated by the explanation or the re-questioning.
6. The final step of the process was to provide a conclusion regarding the outcome of the CVSA examination. If the relevant questions produced a “No Stress” chart, the

subject was “cleared” by the CVSA procedure. This information was then turned over to the agency requesting the examination.

If a confession was made by the subject during the CVSA examination, the examiner would ask the subject to support his/her confession by verifying details or by providing further details concerning the events under investigation. Further, if a confession occurred, the subject was asked to provide a written statement. Another CVSA examination would then be conducted to validate the accuracy of the written statement. If no confession occurred, the examiner reported the findings to the agency requesting the CVSA examination, such that the information could guide further investigation.

Of the 329 confession possibilities in this study, 92.1% of the CVSA examinations produced a “Stress Indicated” result, and 89% of those resulted in validated confessions. **Most notably, in 96.4% of interviews conducted, where the CVSA indicated stress, suspects made self-incriminating confessions.**

The results of this study clearly establish that CVSA is a useful tool in obtaining valid confessions, and that the likelihood of obtaining valid confessions increases based upon whether or not stress is present for relevant crime issues. In each of the 236 cases in the study, which included 329 confession possibilities, a trained and experienced CVSA examiner used well-established CVSA protocols resulting in legally admissible confessions and the acquisition of additional supporting evidence from suspects and/or persons of interest. It is interesting to note that current scientific research reveals only 20-50% of police interviews/interrogations result in valid confessions. A 96.4% verified confession rate is phenomenally high compared to the 20-50% rate currently achieved by police. Further, during this study the CVSA had a negligible error rate, with a False Negative rate of 0% and a False Positive rate of 0.33%.

More importantly, this study substantiates the CVSA is a useful and predictive decision support tool for separating the innocent from the guilty, and conclusively demonstrates the CVSA’s ability to discriminate stress from no-stress in the human voice. In one case of Grand Larceny 20 individuals were considered suspects. Of the 20 CVSA examinations conducted for this case, 19 resulted in a finding of “No Stress Indicated,” while only one produced a “Stress Indicated” finding – which resulted in a confession. CVSA demonstrated its capability to accurately identifying the 19 innocent individuals from the one who was guilty, far surpassing a “chance” rate of accuracy. The probability of 20 successful evaluations of this type is less than 1 in 1,000,000.