Brain Waves and Crime Investigation: Understanding Brain ‘Fingerprinting’ Technique

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Brain Fingerprinting is a technique whereby the brain is tested in an attempt to detect whether specific information is stored in the brain. In criminal investigations, it is used to test whether certain information about a crime is stored in the suspect’s brain. This technique was invented by Dr. Lawrence A. Farwell in 1986, and involves using computer-based technology to measure brain-wave activities or responses to words, phrases, sounds or pictures relating to the crime. The brain fingerprinting process involves the subject (or suspect) wearing a headband equipped with sensors that measure the brain wave response; the headband is connected to electroencephalograph amplifier (EEG), which transmits the brain wave patterns into a computer for analysis.

Several evidential and ethical questions have been addressed in this paper. Does brain fingerprinting satisfy the ‘general acceptance’ criteria required by many courts? What are the countermeasures that can be used to “beat” this technique? Does the fact that a suspect cannot recall details of the crime imply that he or she did not commit the crime?

Brain Fingerprinting has a scientific foundation; has enormous potential, but at the moment it is limited by several countermeasures. These limitations need to be addressed before this technique can be “generally accepted.” In cases where there were little or no physical evidence linking a defendant to a crime, brain fingerprinting will likely be accorded no evidential weight by trial courts. At the moment, it does not satisfy the general acceptance standard. The selection of the targets or probes can be subjective. This paper maintains that we need to carry out more studies before brain fingerprinting can become authoritative or generally accepted as admissible forensic evidence.