



# Standard Terminology Relating to Forensic Psychophysiology<sup>1</sup>

This standard is issued under the fixed designation E 2035; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This is a compilation of terms and corresponding definitions used in forensic psychophysiology. Legal or scientific terms that generally are understood or defined adequately in other readily available sources may not be included.

1.2 A definition is a single sentence with additional information included in notes. It is reviewed every five years, and the year of the last review or revision is appended.

1.3 Definitions identical to those published by another standards organization or ASTM committee are identified with the abbreviation of the name of the organization or the identifying document and ASTM committee; for example, ASME is the American Society of Mechanical Engineering.

1.4 Definitions of terms specific to a particular field are identified with an abbreviation.

## 2. Significance and Use

2.1 These terms have particular application to the scientific discipline of forensic psychophysiology. In addition, a hierarchy of sources of definitions are used in the development of this terminology. The hierarchy is as follows: Webster's New World Dictionary, Third College Edition; technical dictionaries; and, the Compilation of ASTM Standard Definitions. The subcommittee developed a suitable definition after all of the sources in the hierarchy are found wanting.

## 3. Terminology

### 3.1 Terms and Definitions:

**artifact**, *n*—a change in a PDD tracing that is not attributable to a review test question, stimulus, recovery, or homeostasis.

**cardiovascular tracing**, *n*—a display of physiological patterns of the subject's relative blood volume and pulse rate. The cardiograph component records this activity.

**comparison question**, *n*—type of question, the physiological responses from which are compared to those generated by the relevant questions.

**counterintelligence-scope polygraph (CSP)**, *n*—screening examination administered by the Federal Government on individuals with sensitive security clearances to detect and deter espionage, security breaches, sabotage, or other acts against the government. Sometimes referred to as a *loyalty* examination.

**Daubert v. Merrell Dow Pharmaceuticals, Inc.**, *n*—although not a PDD case, the Daubert case set aside the landmark Frye rule's "general acceptability" provisions in favor of the Federal Rules of Evidence. This paved the way for the admissibility of PDD evidence in most jurisdictions. See: Daubert v. Merrell Dow Pharmaceuticals, Inc. (1992), 509 U. S. 579, 125 1. Ed 2d 469; United States v. Frye 54 App D.C. 46, 293 F 1013.

**deception indicated (DI)**, *n*—deception indicated is a conventional term for a PDD outcome. A decision of DI means that the physiological data are stable and interpretable and that the evaluation criteria used by the examiner concluded that the examinee was not being completely truthful to the relevant issue. Deception indicated corresponds to the term "Significant Physiological Responses," or SPR.

**electrodermal tracing**, *n*—the display of physiological patterns of either skin resistance or skin conductance obtained through exosomatic recording with a galvanograph component.

**false negative**, *n*—misclassification of a deceptive person as truthful.

**false positive**, *n*—misclassification of a truthful person as deceptive.

**forensic psychophysiology**, *n*—the scientific discipline dealing with the relationship and applications of PDD tests within the legal system. It encompasses the academic discipline that provides the student, the practitioner, and the researcher with the theoretical and applied psychological, physiological, and psychophysiological fundamentals for a thorough understanding of PDD tests, and the skills and qualifications for conducting PDD examinations. The modifier "forensic" delineates and delimits this discipline from the broader discipline of psychophysiology.

**homeostasis**, *n*—a complex interactive regulatory system by which the body strives to maintain a state of internal equilibrium.

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**investigative PDD procedures**, *n*—routine PDD examinations that are used to explore wider issues than evidentiary PDD examinations, and are not intended to meet exacting evidentiary standards. Investigative procedures may include applicant testing, Post-Conviction Sex Offender Testing, and multiple-facet criminal testing.

**irrelevant question**, *n*—An irrelevant question is designed to be a non-emotion provoking question. Also referred to as “norms” or “neutral questions.”

**multiple-facet polygraph test**, *n*—a test in which the relevant questions cover the same event, though the questions may cover different aspects of that event. Because the relevant questions all relate to the same event, in field conditions the examinee would typically be entirely either truthful or deceptive to all questions, though this is not a condition of the multiple-facet polygraph test. One multiple-facet PDD format is the Reid Test.

**multiple-issue polygraph test**, *n*—a test in which the relevant questions cover two or more areas that are partially or completely independent from one another. Forms of multiple-issue polygraph testing include Post-Conviction Sex Offender Testing, applicant testing, and counterintelligence screening.

**no deception indicated (NDI)**, *n*—no deception indicated is a conventional term for a PDD outcome. A decision of NDI means that the physiological data are stable and interpretable and that the evaluation criteria used by the examiner concluded that the examinee was being completely truthful to the relevant issue. No deception indicated corresponds to the term “No Significant Physiological Responses,” or NSR.

**PDD examination**, *n*—a process that encompasses all activities that take place between a PDD examiner and an examinee during a specific series of interactions. These interactions may include the pretest interview, the use of the polygraph to collect physiological data from the examinee while presenting a series of tests, the test data analysis phase, which may be supplemented in a post-test interview phase.

**PDD examiner**, *n*—someone who has successfully completed formal education and accredited training in conducting PDD examinations and, if appropriate, is certified or licensed by their agency or state to conduct such examinations.

**peak of tension (PTO)**, *n*—a family of testing procedures, including known solution, searching (probing), and acquaintance tests. There is a body of validation research for the known solution POT.

**phasic response**, *n*—a response, typically of short duration, where the level of physiological arousal returns to its pre-arousal state.

**physiology**, *n*—the branch of biology dealing with the functions and vital processes of living organisms or their parts and organs.

**polygraph examiner**, *n*—a term used synonymously with PDD examiner. In the evolution of terminology within this discipline, the term “Polygraph Examiners” replaced the antiquated appellation “Lie Detector Operator” (see definition of **PDD examiner**).

**polygraph instrument**, *n*—a diagnostic instrument used during a PDD examination, which is capable of simultaneously

monitoring, recording, and measuring at a minimum, respiratory, electrodermal, and cardiovascular activity as a response to auditory or visual stimuli.

**polygraphy**, *n*—see definition of **PDD**.

**post-conviction sex offender testing (PCSOT)**, *n*—Specialized application of polygraphy designed to aid in the management of the convicted sex offender who has been released into the community, though sometimes is employed as part of treatment of offenders who are incarcerated. There are four principal types of PCSOT examinations: *disclosure examination*, *instant offense examination*, *maintenance examination*, and *monitoring examination*.

*disclosure examination*, *n*—a form of Post-Conviction Sex Offender Testing (PCSOT) which involves an in-depth look at the entire life cycle of an offender and his or her sexual behaviors up to the date of criminal conviction. Sometimes referred to as a sexual history examination.

**pretest interview**, *n*—the earliest portion of the PDD examination process during which the examinee and examiner discuss the test, test procedure, and the details of the test issues. The pretest interview also serves to prepare the examinee for the testing.

**psychology**, *n*—the science dealing with the mind and with the mental and emotional processes.

**psychophysiological detection of deception (PDD)**, *n*—the academic discipline that provides the student, the practitioner, and the researcher with the theoretical and applied psychological, physiological, and psychophysiological fundamentals for a thorough understanding of PDD tests and the skills and qualifications for conducting PDD examinations (see **polygraphy**).

**psychophysiological veracity (PV) examination**, *n*—see definition of **PDD**

**psychophysiology**, *n*—the study of interactions between mental and physiological processes.

**relevant question**, *n*—a question that pertains directly to the matter under investigation or to the issue(s) for which the examinee is being tested.

**respiratory tracing**, *n*—a display of physiological patterns of the subject’s breathing activity as recorded by the pneumograph component.

**response**, *n*—a physiological change that occurs following, and is attributable to, the presentation of an applied stimulus (for example, reviewed test question).

**single-issue polygraph test**, *n*—a PDD test in which the relevant questions cover the exact same issue. To be a single-issue polygraph test, the examinee must be able to answer the relevant questions either all truthfully, or all deceptively. An example would be the single-issue Zone Comparison Test.

**tonic response**, *n*—shifting of tonic level, typically in response to changing conditions, as opposed to a sudden stimulus. Tonic responses take several seconds or minutes to occur, unlike phasic responses which tend to be much more rapid. Among the more common PDD methods, the only tests where tonic responses are used as diagnostic information are in the Peak of Tension tests, where a change in the trend of tonic activity can signal that the examinee is aware that the

critical item in the series has passed.

**true negative,  $n$** —correct classification of a truthful person as truthful.

**true positive,  $n$** —correct classification of a deceptive person as deceptive.

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