Standard Practices for
Interpretation of Psychophysiological Detection of Deception (Polygraph) Data[1]

1. Scope

1.1 These practices establish procedures for the systematic interpretation and analysis of Psychophysiological Detection of Deception (PDD) data.

1.2 Any test data analysis procedure used shall be correctly matched to the PDD examination format. Examiners shall use evaluation methods for which they have been formally trained.

1.2.1 Acceptable test data analysis procedures are those published in refereed or technical journals, and for which published replications of the procedures have confirmed their efficacy.
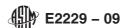
2. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 *3–position scale*—whole number values from -1 to 1 assigned systematically to responses to relevant and comparison questions. These values are summed, and the PDD outcome is governed by specified decision rules for which these sums are used.

2.1.2 *7–position scale*—whole number values from -3 to 3 assigned systematically to responses to relevant and comparison questions. These values are summed, and the PDD outcome is governed by specified decision rules for which these sums are used.

2.1.3 *rank*—a number assigned to individual responses within a PDD recording hierarchically, according to relative response intensity.

2.1.4 *rank order scoring*—assignment of ranks according to relative magnitude of the responses. The PDD outcome is governed by specified decision rules using these ranks.

2.1.5 *respiration line length*—sum of the length of the respiration waveform over a fixed time period.

2.1.6 *response amplitude*—magnitude of a response from stimulus onset to maximum expression of the response within the response window.

2.1.7 *response duration*—period between a phasic response onset and return to baseline.

2.1.8 *response latency*—time between stimulus and response onsets.

2.1.9 *response window*—the period in which physiological responding normally occurs and recovers after stimulus onset. Response windows vary by channel.

2.1.10 *score*—a number systematically assigned to an established set of comparisons within a PDD recording.

2.1.11 *spot score*—sum of scores associated with an individual relevant question across all test recordings.

2.1.12 *stimulus onset*—commencement of stimulus presentation.

2.1.13 *tonic level*—resting or baseline activity level of the examinee.

2.1.14 *total numerical score*—sum of scores for an entire series of charts and questions.

3. Summary of Practices

3.1 *Global Evaluation:*

3.1.1 Evaluators utilizing global interpretation shall:

3.1.1.1 Be formally trained in global interpretation.

3.1.1.2 Confirm that the recordings are suitable for global evaluation. If they are not suitable, no evaluation shall be undertaken for the purpose of diagnosing truthfulness or deception. Nothing shall preclude an evaluator from reporting evidence of countermeasures when this evidence exists.

3.1.1.3 Use analysis methods generally recognized to be accurate.

3.1.2 When possible, numerical evaluation shall be preferred over global evaluation.

3.2 *Numerical Evaluation:*

3.2.1 Evaluators employing numerical evaluation shall first verify that the PDD recordings are suitable for evaluation. If they are not suitable, no evaluation shall be undertaken for the purpose of diagnosing truthfulness or deception.

3.2.1.1 Nothing shall preclude an evaluator from reporting evidence of countermeasures when this evidence exists.

3.2.2 There are four principal components to numerical evaluation. They are:

3.2.2.1 Identification of diagnostic tracing features.

3.2.2.2 Assignment of numerical values according to the relative intensity of the tracing features.

3.2.2.3 Computations based on the numerical values.

3.2.2.4 Decision rules that result from the computations.

3.2.3 While others may occur in individual cases, there are five empirically established diagnostic features in the respiration channel. They are:

3.2.3.1 Suppression of respiration amplitude.

3.2.3.2 Slowing of breathing rate (increase in cycle time, or bradypnea).

3.2.3.3 Change in the inhalation/exhalation time ratio.

3.2.3.4 Apnea.

3.2.3.5 Rise in the baseline of the respiration cycles. All of the diagnostic features in respiration, except the rise in baseline, are captured by a common metric, respiration line length.

3.2.4 There is one primary diagnostic feature in the electrodermal channel that has been empirically confirmed. It is electrodermal response amplitude.

3.2.4.1 There are two secondary diagnostic features:

(1) Response complexity.

(2) Response duration.

3.2.5 While others may occur in individual cases, there is one primary diagnostic feature in the cardiograph channel that has been empirically verified. It is the rise in the cardiograph tracing baseline.

3.2.5.1 There is one secondary feature: response duration.

3.2.6 There are two diagnostic features in the photoplethysmograph that have been empirically determined. They are decrease in pulse amplitude and duration of response.

3.2.7 Assignment of numbers to relative response intensities shall be in keeping with those of scoring systems that have been empirically verified and cross-validated in university-grade research.

3.2.8 Computation methods using the assigned numbers intensities shall be in keeping with those of scoring systems that have been empirically verified and cross-validated in university-grade research.

3.2.9 Decision rules shall be in keeping with those of scoring systems that have been empirically verified and cross-validated in university-grade research.

4. Keywords

4.1 decision rules; global analysis; numerical analysis; polygraph; psychophysiological detection of deception