Los Angeles Police Department
Polygraph Unit

Examiner Reference Guide

LAW ENFORCEMENT SENSITIVE
Department Core Values

The Core Values of the Los Angeles Police Department are intended to guide and inspire us in all we say and do. Making sure that our values become part of our day-to-day work life is our mandate, and they help to ensure that our personal and professional behavior can be a model for all to follow.

- Service to Our Communities
- Reverence for the Law
- Commitment to Leadership
- Integrity in All We Say and Do
- Respect for People
- Quality Through Continuous Improvement

LAPD Polygraph Unit - Mission Statement

- Assist the Department in achieving its goals and support the Department’s mission.
- Provide professional services in the field of forensic psychophysiology using standardized polygraph techniques.
- Perform duties with the highest degree of professionalism, ethical standards, and integrity.
- Strive for the truth while maintaining the dignity of all those we serve.
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DIAGNOSTIC FEATURES

Pneumos

Respiratory Line Length (RLL) - 5 diagnostic features

**Apnea - blocking**
Apnea must occur at or near the bottom of the respiration cycle. Apnea should not drop significantly below baseline (no exaggerated drop in baseline or midway between top and bottom of baseline)

![Diagram of Apnea Blocking]

**Decrease in amplitude (suppression)**
(Includes “ascending” cycles of suppression)

![Diagram of Decrease in Amplitude]

**Progressive decrease in amplitude**

![Diagram of Progressive Decrease in Amplitude]

**Decrease in rate**

![Diagram of Decrease in Rate]

**Change in I/E Ratio**

![Diagram of Change in I/E Ratio]

**Non-RLL – 1 feature:**

**Baseline arousal (without suppression)**

![Diagram of Baseline Arousal]
**DIAGNOSTIC FEATURES**

**EDA**

3 Diagnostic Features:

**Primary:**
1. Amplitude

**Secondary:**
2. Complexity
3. Duration

**Cardiovascular**

3 Diagnostic Features:

**Primary:**
1. Baseline Arousal

**Secondary:**
2. Duration
3. Decrease in Rate

*Note: Complexity is NOT a diagnostic feature in cardiovascular tracings.*
RESPONSE ONSET WINDOW

What is the ROW?
— Period of time within which the response must BEGIN in order to be considered timely.
✔ Evaluate the entire response.

Pneumo tracings:

**ROW** – Question onset *to include* first *complete* cycle past the answer

Evaluate entire response
EDA & Cardio tracings:

**ROW - Question Onset to 5 Seconds Past Answer**

![Graph showing EDA & Cardio tracings with highlighted area evaluated and ROW]
7-POSITION SCALE

Assigning Values

Respiratory tracing -

- Subtle (+1/-1)
- *Obvious (+2/-2)
- **Dramatic (+3/-3)

*A +2/-2 value may be difficult to assign unless similar respiratory attributes are exhibited or the comparative response is much more significant.

**A +3/-3 is rarely assigned in pneumo tracings.

EDA tracing –

The EDA tracing is generally most responsive. Ratio of response method is used to assign values. Unit of measurement is generally vertical chart division at 1/4” vertical grid setting.

Assigned values are based on ratio scale:

<table>
<thead>
<tr>
<th>RATIO</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:1</td>
<td>+/- 3</td>
</tr>
<tr>
<td>3:1</td>
<td>+/- 2</td>
</tr>
<tr>
<td>2:1</td>
<td>+/- 1</td>
</tr>
<tr>
<td>1:1</td>
<td>0</td>
</tr>
</tbody>
</table>

Cardiovascular tracing –

- **For a value of +1/-1, response must be visually larger but less than twice the degree of baseline arousal** than its comparative response.

- **For +2/-2, response must have twice but less than three times the degree of baseline arousal** than its comparative response

- **For a +3/-3, the response must have three times the degree of baseline arousal or more** than its comparative response
### FORMATS – Question Sequencing

**Air Force Modified General Question Technique**

#### 2 Relevant Questions:

**Version 1**

<table>
<thead>
<tr>
<th>I1</th>
<th>SR2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3 Comparison</td>
<td>R4 (help, plan, participate)</td>
</tr>
<tr>
<td>R5 (most encompassing)</td>
<td>C6 (always primary relevant)</td>
</tr>
<tr>
<td>C7 Comparison</td>
<td>R8 (guilty knowledge)</td>
</tr>
</tbody>
</table>

**Version 2**

<table>
<thead>
<tr>
<th>I1</th>
<th>SR2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3 Comparison</td>
<td>R4 (help, plan, participate)</td>
</tr>
<tr>
<td>R5 (most encompassing)</td>
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#### 3 Relevant Questions:

**Version 1**

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</tr>
<tr>
<td>R5 (most encompassing)</td>
<td>C6 (always primary relevant)</td>
</tr>
<tr>
<td>R7 (guilty knowledge or evidence connecting)</td>
<td>C8 Comparison</td>
</tr>
</tbody>
</table>

**Version 2**

<table>
<thead>
<tr>
<th>I1</th>
<th>SR2</th>
</tr>
</thead>
<tbody>
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<td>C3 Comparison</td>
<td>R4 (help, plan, participate)</td>
</tr>
<tr>
<td>R5 (most encompassing)</td>
<td>C6 (always primary relevant)</td>
</tr>
<tr>
<td>R7 (evidence connecting)</td>
<td>C8 Comparison</td>
</tr>
</tbody>
</table>

#### 4 Relevant Questions:

**Version 1**

<table>
<thead>
<tr>
<th>I1</th>
<th>SR2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3 Comparison</td>
<td>R4 (help, plan, participate)</td>
</tr>
<tr>
<td>R5 (most encompassing)</td>
<td>C6 (always primary relevant)</td>
</tr>
<tr>
<td>R7 (guilty knowledge or evidence connecting)</td>
<td>C8 Comparison</td>
</tr>
</tbody>
</table>

**Version 2**

<table>
<thead>
<tr>
<th>I1</th>
<th>SR2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3 Comparison</td>
<td>R4 (help, plan, participate)</td>
</tr>
<tr>
<td>R5 (most encompassing)</td>
<td>C6 (always primary relevant)</td>
</tr>
<tr>
<td>R7 (evidence connecting)</td>
<td>C8 Comparison</td>
</tr>
</tbody>
</table>
FORMATS – Question Sequences

You Phase Zone

1  Irrelevant
2  Sacrifice Relevant
SYM3 Symptomatic (yes answer)
C4  Comparison
R5  Relevant
C6  Comparison (most encompassing)
R7  Relevant (lengthen & strengthen)
C8  Comparison
SYM9 Symptomatic (no answer)

Zone Comparison Test

1  Irrelevant
2  Sacrifice Relevant
SYM3 Symptomatic (yes answer)
C4  Comparison
R5  Relevant
C6  Comparison (most encompassing)
R7  Relevant (lengthen & strengthen)
SYM8 Symptomatic (no answer)
C9  Comparison
R10 Secondary Relevant

Law Enforcement Pre-Employment Test (LEPET)

I1 -  Irrelevant
SR2 –  Sacrifice Relevant
C3 -  Comparison
R4 -  Relevant
C5 -  Comparison
R6 -  Relevant
I1a -  Irrelevant (disguised as a comparison)
C7 -  Comparison
R8 -  Relevant
C9 -  Comparison
R10 –  Relevant
C11 -  Comparison

Acquaintance Test

This format requires the use of 6 numbers in the sequence. The “key” may be in either the #3 or the #4 position, with a minimum of 2 padding questions above and below the key.

1. Regarding the number you wrote, did you write the number 2?
2. Did you write the number 3?
3. Did you write the number 4? (Key)
4. Did you write the number 5? (Key)
5. Did you write the number 6?
6. Did you write the number 7?
CUT-OFF SCORES

You Phase Zone (2 Relevant Questions)

**DI:** The score must be a Combined Spot Total of **-3 or lower (-4, -5, etc.)** in any vertical spot **or a grand total of -4 or lower.**

**NDI:** There must be at least a **+1 or greater in each vertical spot AND a Combined Spot Total of +4 or greater (+5, +6, etc.).**

**NO:** If the score does not fall in either of the above categories, it is No Opinion.

---

**Scoring Examples:**

<table>
<thead>
<tr>
<th>Example No.</th>
<th>Vertical Total Spot I (R5)</th>
<th>Vertical Total Spot II (R7)</th>
<th>Combined Spot Total</th>
<th>Opinion Rendered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+6</td>
<td>0</td>
<td>+6</td>
<td>N.O.</td>
</tr>
<tr>
<td>2</td>
<td>+4</td>
<td>-1</td>
<td>+3</td>
<td>N.O.</td>
</tr>
<tr>
<td>3</td>
<td>+2</td>
<td>+2</td>
<td>+4</td>
<td>NDI</td>
</tr>
<tr>
<td>4</td>
<td>-2</td>
<td>-2</td>
<td>-4</td>
<td>DI</td>
</tr>
<tr>
<td>5</td>
<td>+3</td>
<td>+1</td>
<td>+4</td>
<td>NDI</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>-3</td>
<td>-3</td>
<td>DI</td>
</tr>
<tr>
<td>7</td>
<td>+1</td>
<td>+2</td>
<td>+3</td>
<td>NO</td>
</tr>
</tbody>
</table>
CUT-OFF SCORES

Zone Comparison Test (3 Relevant Questions)

**DI:** The score must be a Combined Spot Total **of -3 or lower (-4, -5, etc.)** in any vertical spot or a grand total of **-6 or lower.**

**NDI:** There must be at least a **+1 or greater** in each vertical spot AND a Combined Spot Total of **+6 or greater (+7, +8, etc.).**

**NO:** If the score does not fall in either of the above categories, it is No Opinion.

Scoring Examples:

<table>
<thead>
<tr>
<th>Example No.</th>
<th>Vertical Total Spot I (R5)</th>
<th>Vertical Total Spot II (R7)</th>
<th>Vertical Total Spot III (R10)</th>
<th>Combined Spot Total</th>
<th>Opinion Rendered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+6</td>
<td>0</td>
<td>+6</td>
<td>+12</td>
<td>N.O.</td>
</tr>
<tr>
<td>2</td>
<td>+4</td>
<td>-1</td>
<td>-2</td>
<td>+1</td>
<td>N.O.</td>
</tr>
<tr>
<td>3</td>
<td>-1</td>
<td>+6</td>
<td>+6</td>
<td>+11</td>
<td>N.O.</td>
</tr>
<tr>
<td>4</td>
<td>+2</td>
<td>+2</td>
<td>+2</td>
<td>+6</td>
<td>NDI</td>
</tr>
<tr>
<td>5</td>
<td>-2</td>
<td>-2</td>
<td>-2</td>
<td>-6</td>
<td>DI</td>
</tr>
<tr>
<td>6</td>
<td>+3</td>
<td>+3</td>
<td>+2</td>
<td>+6</td>
<td>NDI</td>
</tr>
<tr>
<td>7</td>
<td>+3</td>
<td>+3</td>
<td>-3</td>
<td>+2</td>
<td>DI</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>0</td>
<td>-3</td>
<td>-3</td>
<td>DI</td>
</tr>
<tr>
<td>9</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+3</td>
<td>N.O.</td>
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</table>
CUT-OFF SCORES

AFMGQT – Versions 1 and 2

**DI:** At least one overall spot total must be a -3 or lower (-4, -5, etc.).

**NDI:** Each overall vertical score must be a +3 or greater.

**NO:** Anything else is No Opinion.

*Note: In the AFMGQT format, there is NO grand overall total used, as in the ZCT and You Phase Zone formats.*

### Scoring Examples:

<table>
<thead>
<tr>
<th>Example No.</th>
<th>Vertical Total Spot I (R4)</th>
<th>Vertical Total Spot II (R6)</th>
<th>Vertical Total Spot III (R8)</th>
<th>Opinion Rendered</th>
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<tbody>
<tr>
<td>1</td>
<td>+2</td>
<td>+3</td>
<td>+1</td>
<td>N.O.</td>
</tr>
<tr>
<td>2</td>
<td>+4</td>
<td>-1</td>
<td>+3</td>
<td>N.O.</td>
</tr>
<tr>
<td>3</td>
<td>+3</td>
<td>+3</td>
<td>+3</td>
<td>NDI</td>
</tr>
<tr>
<td>4</td>
<td>-3</td>
<td>-4</td>
<td>-3</td>
<td>DI</td>
</tr>
<tr>
<td>5</td>
<td>+3</td>
<td>+1</td>
<td>+5</td>
<td>NO</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>-3</td>
<td>+3</td>
<td>DI</td>
</tr>
<tr>
<td>7</td>
<td>+3</td>
<td>+5</td>
<td>+4</td>
<td>NDI</td>
</tr>
<tr>
<td>8</td>
<td>+4</td>
<td>+3</td>
<td>-4</td>
<td>DI</td>
</tr>
<tr>
<td>9</td>
<td>+4</td>
<td>+3</td>
<td>+5</td>
<td>NDI</td>
</tr>
</tbody>
</table>
QUESTION ORDER OF REVIEW

Questions should be reviewed in the following order:

1. Sacrifice Relevant
2. Relevant
3. Comparison
4. Neutral (Irrelevant)
5. Symptomatic (for ZCT and You Phase ZCT)
Exceptions to Homeostasis
EDA Tracings

Three Exceptions:

#1 – Waveform returns to baseline (following an early response) with a subsequent response beginning within the ROW:

(5 seconds past answer)

ROW
Valid Response
#2 – The tracing establishes a new baseline (3-4 seconds) and begins a new response within the ROW.

![](image1)

Invalid Response  
Valid Response

#3 – When question onset occurs during recovery of an “early” response, and a “subsequent but distinct” response occurs within ROW.

![](image2)

Valid Response
Something vs. Nothing Principle  
EDA Tracings

*NCCA Numerical Evaluation Pamphlet 2017, p. 31*

**Something-Versus-Nothing Principle.** When comparing one question containing any type of diagnostic response to another question that is devoid of response, the something-versus-nothing principle holds.

5.13.1.1. If one comparative question is **devoid of response** and the other comparative question has a response that measures **less than two chart divisions**, assign a value of **plus or minus one**.
5.13.1.2. If one comparative question is **devoid of response** and the other comparative question has a response that measures **at least two but less than three chart divisions**, assign a value of **plus or minus two**.
5.13.1.3. If one comparative question is **devoid of response and the other comparative question has a response that measures at least three chart divisions**, assign a value of **plus or minus three**.

5.13.2. **If a response appears to be an anomaly for that channel or waveform, a lesser value than would otherwise be justified, under the something-versus-nothing principle, can be assigned to an analysis spot.** This conservative approach to evaluation of an analysis spot must be uniformly applied and exercised in only the most unique circumstances.

---

**C3 EDA is between 1-2 chart divisions:** is devoid of response.  
**Score = +1**

**C3 EDA is between 2-3 chart divisions; R4 is devoid of response.**  
**Score = +2**

**C3 EDA is at least 3 chart divisions; R4 is devoid of response.**  
**Score = +3**

*Note: When we have an EDA response that is less than one full CD, it is acceptable to increase sensitivity to bring it to one full chart division and use the standard ratio guidelines to assign value. However, if one question is devoid of response, you MAY NOT increase sensitivity to the comparative spot to assign a greater value.*
Exceptions to Homeostasis
Cardio Tracings

Three Exceptions:

1. Early response *just prior to asking a question* -
   Must . . .
   • establish a new baseline, and
   • there is a subsequent response that begins within ROW.

   Note: Latency outside of ROW is not considered
2. Question onset is on the **recovery side** of CV waveform

   - Tracing returns to pre-stimulus level during ROW, **and**
   - Subsequent response occurs during ROW
3. Question onset is on the *recovery side* of cardiovascular response
   a. Subsequent, but distinct, response during ROW (with no return to baseline first)
No Complexity in Cardiovascular Responses

Tracing establishes new baseline; secondary rise is not considered for evaluation purposes.

Tracing does NOT establish new baseline; however, secondary rise is still not considered for evaluation purposes.
Cardio Tracings: When the Smaller Response is Less Than 1 Chart Division

TDA Handbook 2017, page 38

6.9.4. Values more significant than plus or minus one are not assigned when comparing CV responses that are differentiated by less than the equivalent of one standard chart division (i.e., one quarter inch or six millimeters in height).

- When a response is less than one chart division, the larger of the two responses should be at least one full chart division larger than the lesser response if assigning a value greater than +/-1.

C7 and C9 cardios are more than 1 full chart division higher in amplitude than R8. Therefore, the standard “ratio” applies (3:1 = +/-3).

Although the comparison question (C3) is twice the amplitude of R10, it is not a full chart division higher in amplitude. Therefore, the value remains a +1 because the difference in amplitude is not more than the minimum of one chart division.
### Uniform Chart Markings

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB</td>
<td>Deep Breath</td>
<td>T</td>
<td>Talking</td>
</tr>
<tr>
<td>BI</td>
<td>Breathing Instruction</td>
<td>TI</td>
<td>Talking Instruction</td>
</tr>
<tr>
<td>B</td>
<td>Belch</td>
<td>AI</td>
<td>Answer Instruction</td>
</tr>
<tr>
<td>C</td>
<td>Cough</td>
<td>MV</td>
<td>Movement</td>
</tr>
<tr>
<td>CT</td>
<td>Clear Throat</td>
<td>MI</td>
<td>Movement Instruction</td>
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<tr>
<td>LGH</td>
<td>Laugh</td>
<td>EE</td>
<td>Examiner Error</td>
</tr>
<tr>
<td>SI</td>
<td>Sigh</td>
<td>PW</td>
<td>Poorly Worded</td>
</tr>
<tr>
<td>SN</td>
<td>Sniff</td>
<td>OSN</td>
<td>Outside Noise</td>
</tr>
<tr>
<td>SW</td>
<td>Swallow</td>
<td>ISN</td>
<td>Inside Noise</td>
</tr>
<tr>
<td>SZ</td>
<td>Sneeze</td>
<td>RLW</td>
<td>Repeat the Last Word</td>
</tr>
<tr>
<td>WU</td>
<td>Wake Up</td>
<td>SAT</td>
<td>Silent Answer Test</td>
</tr>
<tr>
<td>Y</td>
<td>Yawn</td>
<td>WRQ</td>
<td>Will Repeat Question</td>
</tr>
</tbody>
</table>