The RETeval device brings comprehensive electrophysiology testing to any office or clinical setting. Run standard flicker and flash ERGs and VEPs to better define retina function with efficiency and proven efficacy.
An ERG test provides reliable guidance for medical professionals to understand and assess functional changes that may impact a patient's vision by evaluating the retina's response to light. The RETeval device helps doctors obtain objective, functional information.

### COMMON USES FOR FULL FLASH AND FLICKER ERG TESTS

- Glaucoma\(^3,7\)
- Diabetic Retinopathy\(^1,2\)
- Central Retinal Vein Occlusion\(^4\)
- Acquired and Inherited Retinal Diseases\(^5,6\)
- Unexplained Vision Loss
- Pediatric Nystagmus\(^8\)
- Trouble Seeing in the Dark
- Changes in Color Vision

### NORMATIVE DATA AVAILABLE TO AID IN INTERPRETATION

**Flash:** 85 Td∙s, Chromaticity (0.33, 0.33) at 28.3 Hz  
**Background:** 850 Td, Chromaticity (0.33, 0.33)

#### Right Eye

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ms</td>
<td>23.3 ↔ 27.4</td>
</tr>
<tr>
<td>µV</td>
<td>19.1 ↔ 48.4</td>
</tr>
</tbody>
</table>

Age Adjusted Reference Intervals

Example Patient: Age 27

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The RETeval device is the only device that offers full ISCEV-compliant ERG testing in a completely portable device. Clearly define your diagnosis with the right information in hand.

1. Soft eye cup for patient comfort
2. IR camera to view eye during testing
3. Immediate test results right on the device
4. Simple joystick control
5. Ergonomic to fit comfortably in hand
6. Small charging base
7. Lithium Ion battery for up to 8 hours* of use
8. Docking station offers USB connectivity

*Approximately 70 patients before recharging, depending on protocol used.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multilingual user interface for global use</td>
<td>Infield calibration ensures accurate settings for testing</td>
</tr>
<tr>
<td>Built-in pupilometer to measure and (optionally) compensate for pupil size, allowing for tests on dilated or undilated eyes depending on patient needs</td>
<td>Standard ganzfeld functionality in a hand-held device</td>
</tr>
<tr>
<td>Non-invasive testing with the optional use of patented LKC Sensor Strip electrodes that can be applied directly on the skin, a great alternative for those who cannot tolerate corneal electrodes</td>
<td></td>
</tr>
</tbody>
</table>
RETeval DEVICE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Light source</th>
<th>Red LED (621 nm)</th>
<th>Green LED (530 nm)</th>
<th>Blue LED (470 nm)</th>
<th>White (RGB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash luminance (cd∙s/m²)</td>
<td>0.0001 – 15</td>
<td>0.001 – 17</td>
<td>0.0001 – 5</td>
<td>0.002 – 30</td>
</tr>
<tr>
<td>Background luminance (cd/m²)</td>
<td>0.03 – 3000</td>
<td>0.2 – 3500</td>
<td>0.03 – 1200</td>
<td>0.4 – 6000</td>
</tr>
</tbody>
</table>

To convert to Trolands, multiply luminance by the pupil area in mm².

Input type: Custom 3 pin connector with positive, negative, and right leg drive signals
Noise: < 0.1 µV at the flicker frequency for flicker protocols
CMRR: > 100 dB at 50-60 Hz
Frequency range: DC-coupled
Flicker frequency: Approximately 28.3 Hz
Data resolution: Approximately 71 nV / bit
Input range: ± 0.6 V
Sampling Rate: Approximately 2 kHz
Timing accuracy † (electronic eye): < ±0.1 ms
Timing precision † (human eye, 1σ): Typically < ±1 ms
Pupil measurements: 1.3 mm – 9.0 mm, < 0.1 mm resolution, 28.3 Hz
Safety: Battery-powered. Complies with optical, electrical, and biocompatibility safety standards
Power source: Li-Ion battery allows testing of approximately 70 patients before recharging, depending on the protocol used
Recharge time: 4 hours – charger included
Size: 2.8” W x 3.8” D x 9” H (7 cm x 10 cm x 23 cm)
Weight: 8.5 oz. (240 g)
Docking station: Convenient storage location, charging stand, and USB connectivity to your computer and network
Protocols: Based on software options, choose from retinal illuminance (Td) and luminance (cd/m²) versions of ISCEV standard protocols, flicker protocols, and other protocols.

† For Troland-based flicker protocols having a retinal illuminance energy ≥ 4 Td∙s. All specifications are subject to change.

ADVANCED TESTING FOR ALL YOUR NEEDS

RETeval features arbitrary wave forms and extended protocols, including:
- ISCEV compliant 5 and 6 step protocols
- Flash VEP
- S-Cone
- On/Off
- Photopic negative response (PhNR)
- Custom protocols to meet your specific needs

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LKC Technologies, Inc., established in 1975, is an ISO 13485:2003 & 2016 and MDSAP certified, FDA-registered medical device manufacturer with quality products installed worldwide in over 70 countries. RETeval is trademarked by LKC Technologies and the device is CE marked and FDA cleared. The project described was supported by Award Number R44EY021121 from the National Eye Institute. The content is solely the responsibility of LKC and does not necessarily reflect the views of the National Eye Institute of the National Institutes of Health. The RETeval device may be covered by one or more of the following US patents and their foreign counterparts: 7,540,613; and 9,492,098. Additional patents pending. The RETeval device Sensor Strips may be covered by one or more of the following US patents and their foreign counterparts: 9,510,762 and 10,010,261.

Additional patents pending. RETeval DR is not currently available in the United States.

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