Electroretinography (ERG)

DIOPSYS® NOVA-ERG

OFFICE BASED PATTERN ELECTRORETINOGRAPHY TESTING

ERG helps doctors gain *objective*, *functional* information about the performance of the inner retinal cells of the eye. ERG has been recognized as an effective test in helping to diagnose and monitor vision disorders including age-related macular degeneration (AMD), glaucoma and diabetic edema.[1-3]

Objective

- No verbal response or "button pushing" is required by the patient.
- Automated data collection minimizes subjective clinician interpretation.
- Reports and documents the results of practitioner intervention and supports medical decision making.

Functional

- Complements anatomical studies, allowing for a more complete assessment of the patient and pathology.
- Improves sensitivity and specificity in diagnosing vison disorders when used in conjunction with other diagnostic tests.

Vision Testing

- **Contrast Sensitivity Protocol**: Provides data to aid in the detection of diseases that affect the retina in a diffuse pattern like Chronic Open Angle Glaucoma (COAG) and Diabetic Retinopathy (DR). Since there is typically no specific topographic pattern of damage, the information collected using this protocol can help in detecting the depth of the macular dysfunction.
- **Concentric Stimulus Fields Protocol:** Provides data to aid in the detection of diseases affecting the central or paracentral area of the macula in specific topographic patterns like Age Related Macular Degeneration (AMD), Diabetes Macular Edema (CME) and Toxic Maculopathies (e.g. Plaquenil Maculopathy).

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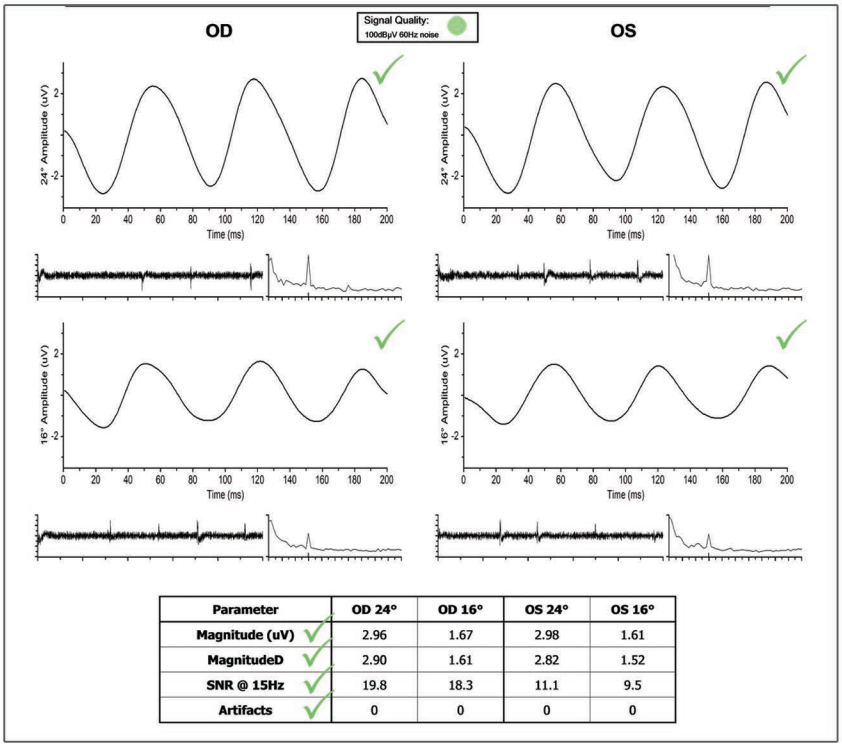
Example Normal Patient

- Three equally spaced sinusoidal-like peaks
- High Magnitude (uV) values
- MagnitudeD more than 50% of Magnitude

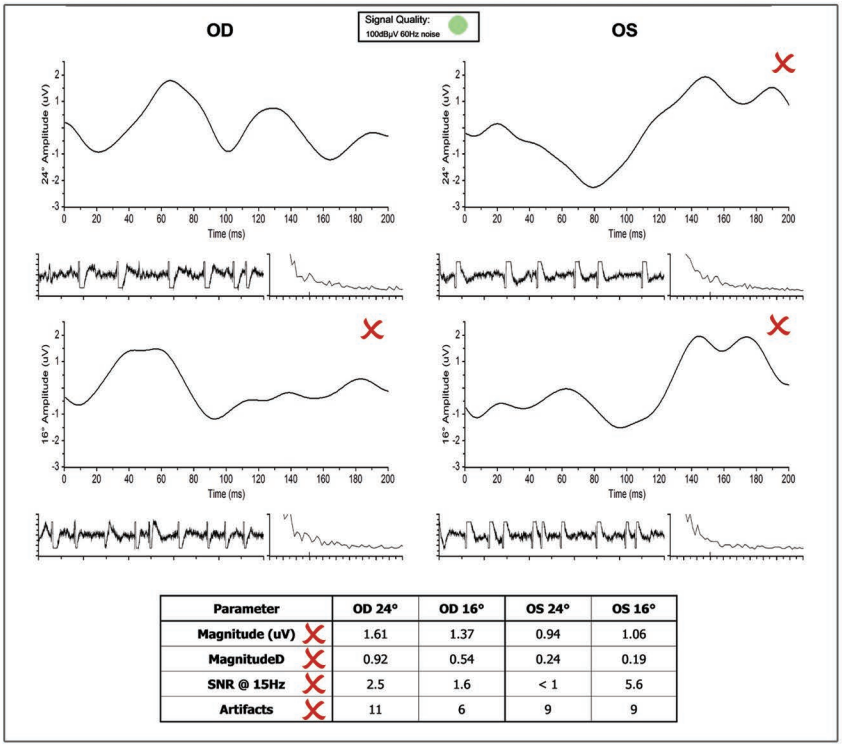
NOTE: The SNR ratios and number of artifacts are indicators of test reliability. While sick patients are more likely to have lower SNR ratios and a higher number of artifacts than healthy patients, it is possible for healthy patients to have high SNR ratios and a higher number of artifacts. This is often due to poor testing conditions.



Parameter	OD 24°	OD 16°	OS 24°	OS 16°
Magnitude (uV) ✓	2.96	1.67	2.98	1.61
MagnitudeD ✓	2.90	1.61	2.82	1.52
SNR @ 15Hz ✓	19.8	18.3	11.1	9.5
Artifacts ✓	0	0	0	0

Example Patient Diagnosed with AMD

- Abnormal waveform shapes OS 24^0, OD and OS 16^0
- Low magnitude (uV) values OS 24^0 and 16^0
- Poor MagnitudeD values OS 24^0, OD and OS 16^0
- Low signal-to-noise (SNR) ratios OD 16^0, OD and OS 24^0
- High number of artifacts OD and OS 24^0 and 16^0



Parameter	OD 24°	OD 16°	OS 24°	OS 16°
Magnitude (uV) ✗	1.61	1.37	0.94	1.06
MagnitudeD ✗	0.92	0.54	0.24	0.19
SNR @ 15Hz ✗	2.5	1.6	< 1	5.6
Artifacts ✗	11	6	9	9

✓ and ✗ for demonstration purposes only.

To learn more, visit *www.diopsys.com/ERG*

[1]Banitt et al. Progressive Loss of Retinal Ganglion Cell Function Precedes Structural Loss by Several Years in Glaucoma Suspects. *IOVS*, March 2013, Vol. 54, No. 3 (From the Bascom Palmer Eye Institute, supported by Grant National Institutes Health–National Eye Institute (NIH-NEI), NIH Center Grant, and Research to Prevent Blindness)

[2]Oner et al. Pattern electroretinographic results after photodynamic therapy alone and photodynamic therapy in combination with intravitreal bevacizumab for choroidal neovascularization in age-related macular degeneration. *Doc Ophthalmol*. 2009 Aug;119(1):37-42. doi: 10.1007/s10633-009-9167-8.

[3]Ozkiris A. Pattern electroretinogram changes after intravitreal bevacizumab injection for diabetic macular edema. *Doc Ophthalmol* 2010;120:243-50.