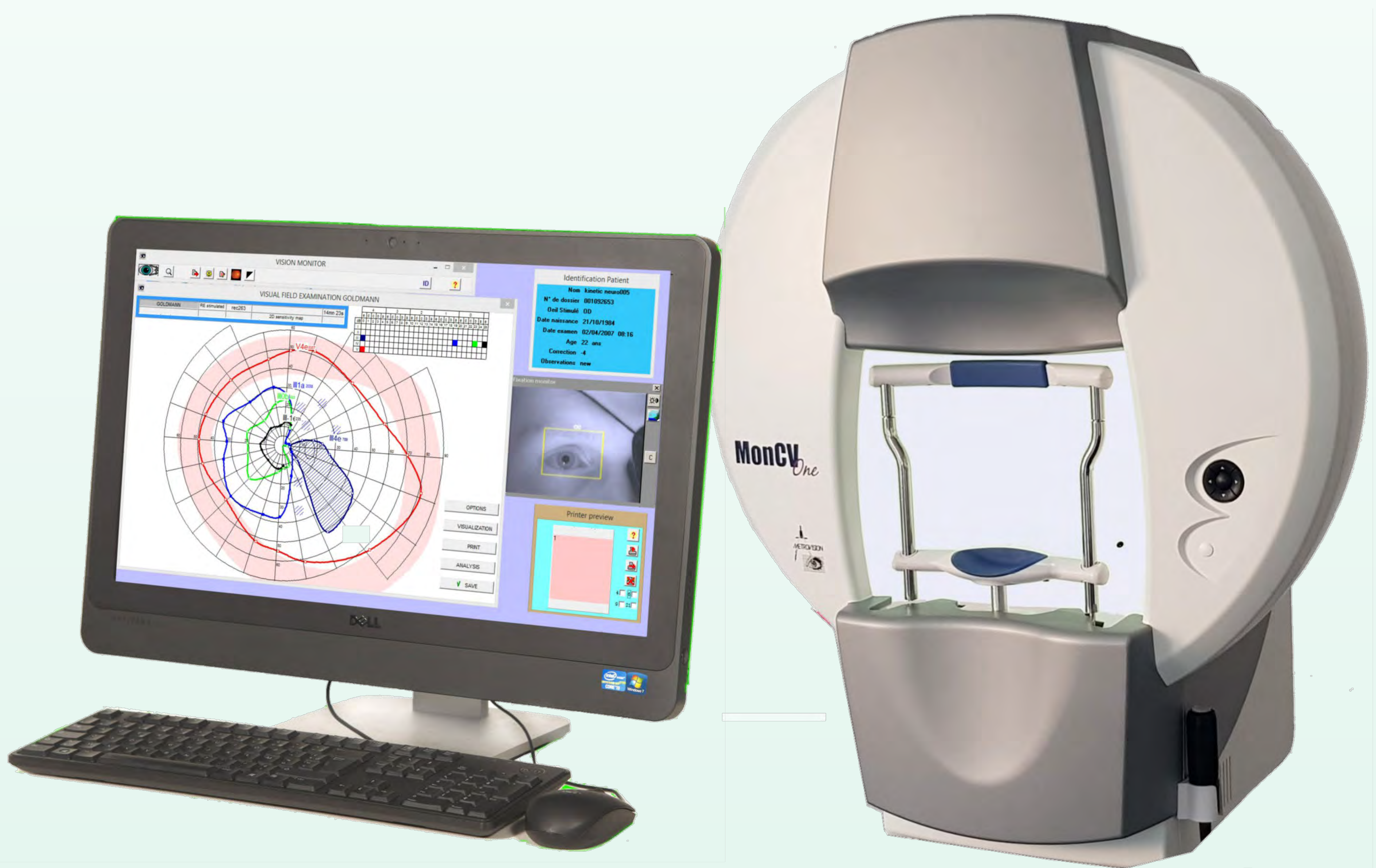


MonCV*One*

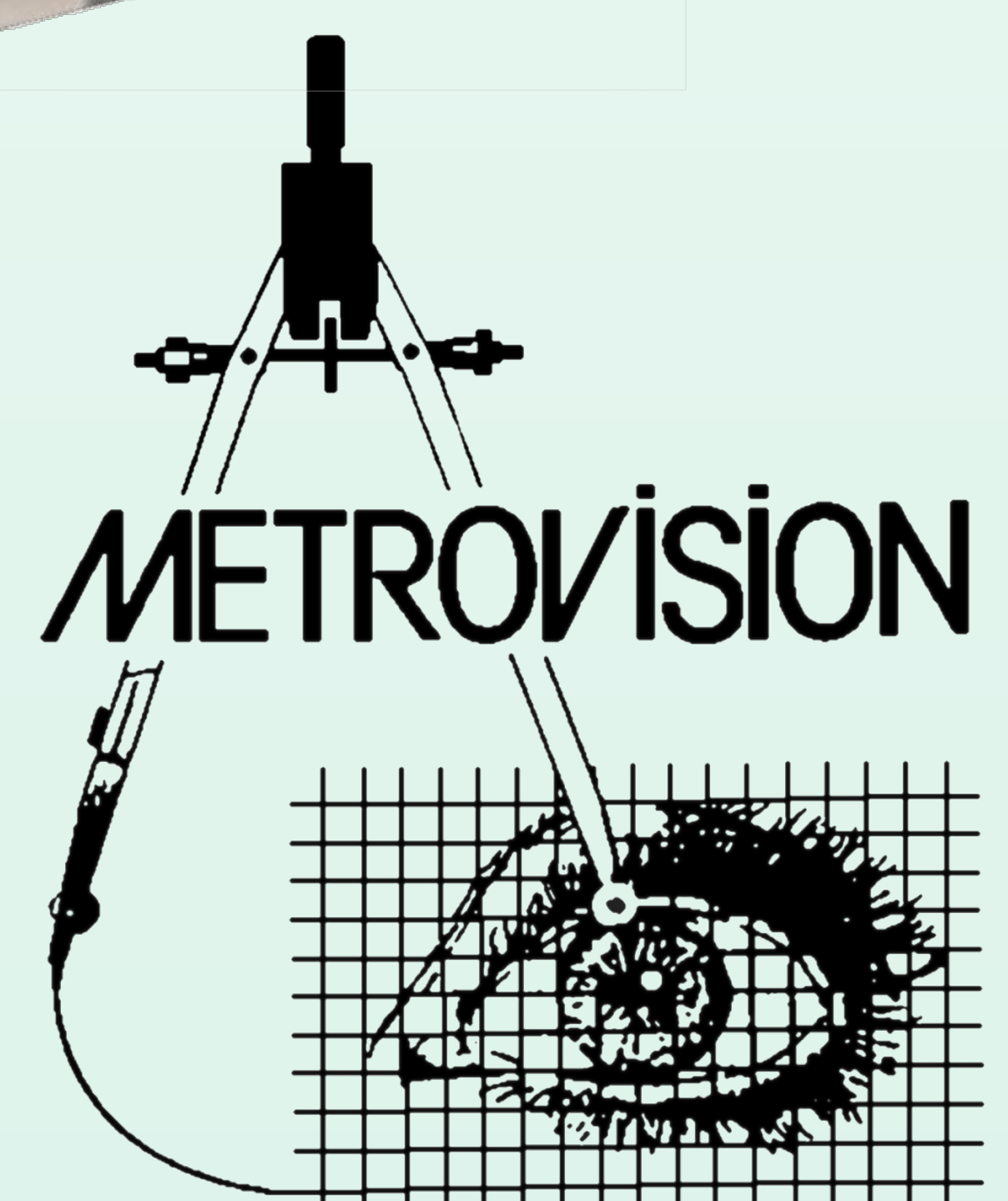
-Clinical Research-

- Standard automated perimetry
- Goldmann perimetry
- Dark and light adapted chromatic perimetry
- Dark and light adaptation
- Full field stimulus threshold (FST)
- Photoaversion threshold (PAT)
- Chromatic pupillometry
- Vision electrophysiology (fERG, EOG)



Manufactured by Metrovision
ISO 13485-2016
certified quality system

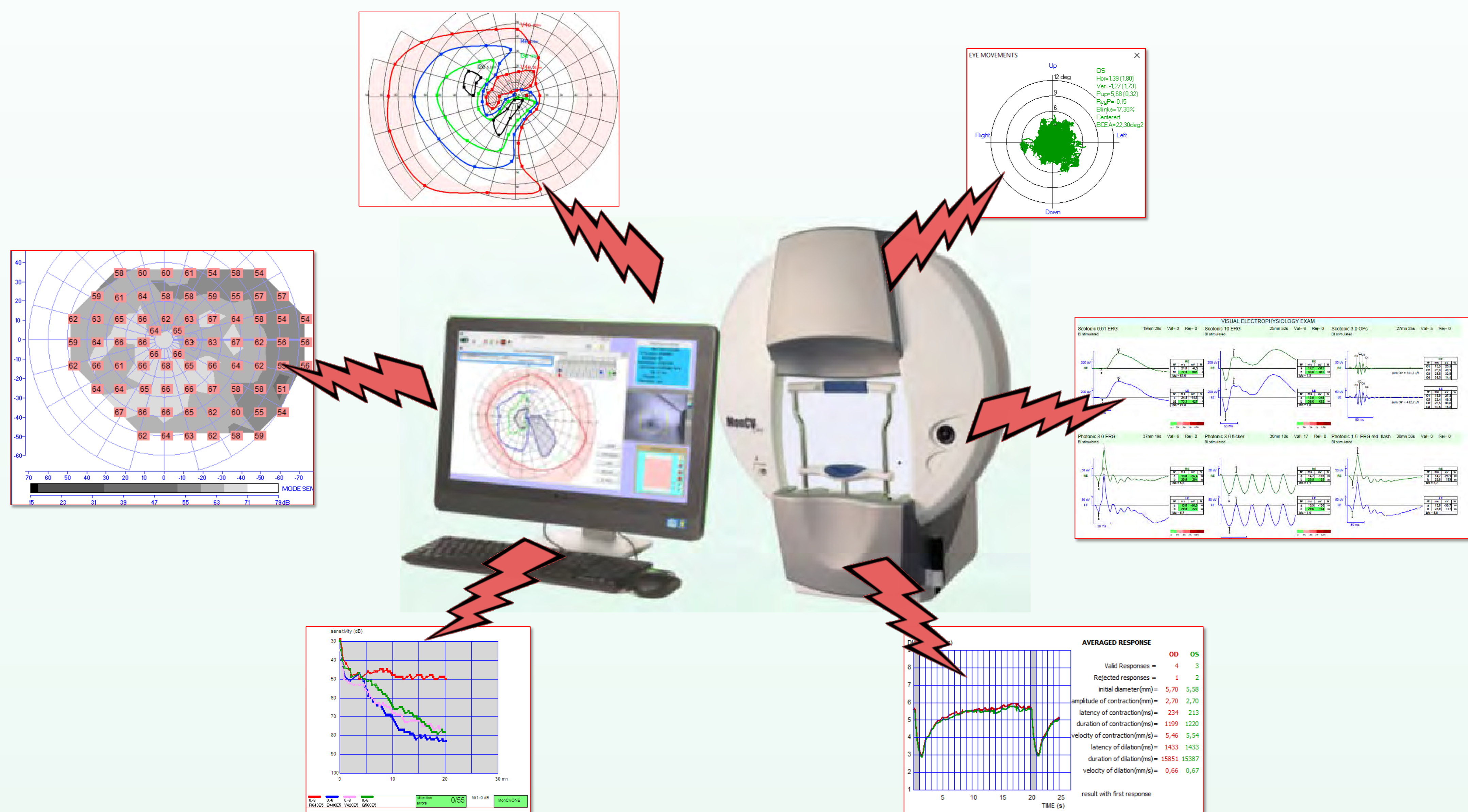
© 2025 Metrovision



Revolutionizing Ophthalmic Diagnostics with Multimodal Vision Testing

MonCvONE-CR is a groundbreaking multimodal medical device designed to provide a **comprehensive, objective, and quantitative** assessment of vision.

By seamlessly integrating state-of-the-art **vision psychophysics, vision electrophysiology, eye tracking, and pupillometry**, this advanced system delivers a **holistic evaluation of ocular and neural function**—all within a single platform.



MonCvONE-CR is engineered for **clinical and research applications**, offering unparalleled insights into retinal, optic nerve, and cortical functions that are needed to meet the challenges of future therapies.

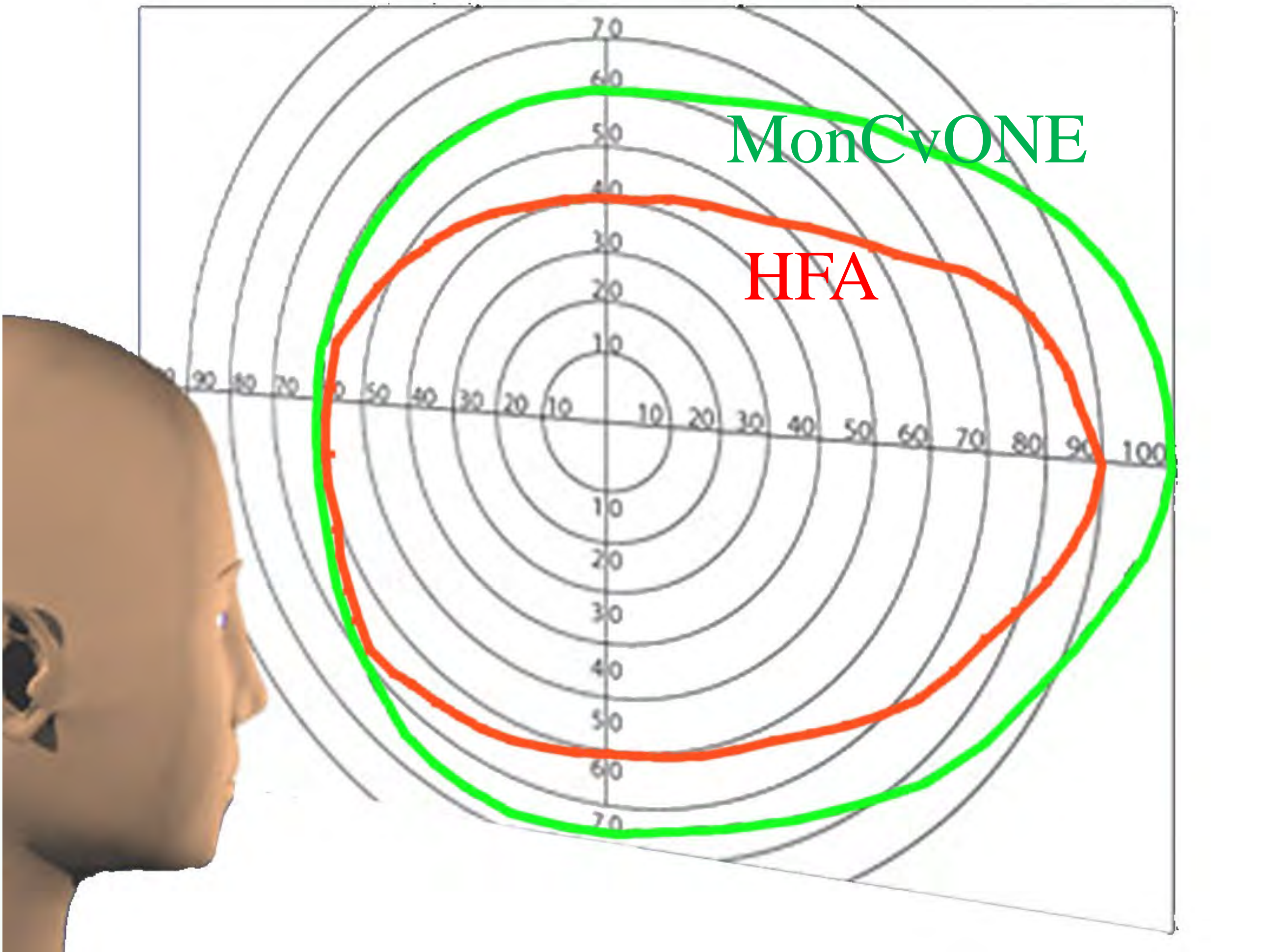


MonCvONE-CR is manufactured under a quality system that is certified ISO13485. It is registered in Europe, the United States and a number of other countries.

Ultra wide field range

Full field projection perimeter

(degrees)	MonCvONE limits	Normal limits
Temporal	105	~105
Up	60	~60
Down	70	~70



Key points

- *MonCvONE can test the visual field up to its true limits using automated or manual perimetry;*
- *The spot stimulus can be projected anywhere within these limits with a resolution better than one degree.*

Ultra wide photometric range

Key point

- *MonCvONE can perform exams under controlled photopic, mesopic and scotopic conditions;*
- *3180 cd/m² maximum luminance (for white);*
- *64dB dynamic range (95 dB with optical filters)*

Luminance (cd/m ²)	Level	Environment
10 ⁻⁶		Absolute threshold
10 ⁻⁵	SCOTOPIC	
10 ⁻⁴		
0.001		
0.01		Full moon night
0.1	MESOPIC	
1		
10		Cloudy sky
100		
1000	PHOTOPIC	
10000		Bright sky

Ganzfeld and local visual stimulations

MonCV*One* is equipped with two types of LED light sources:

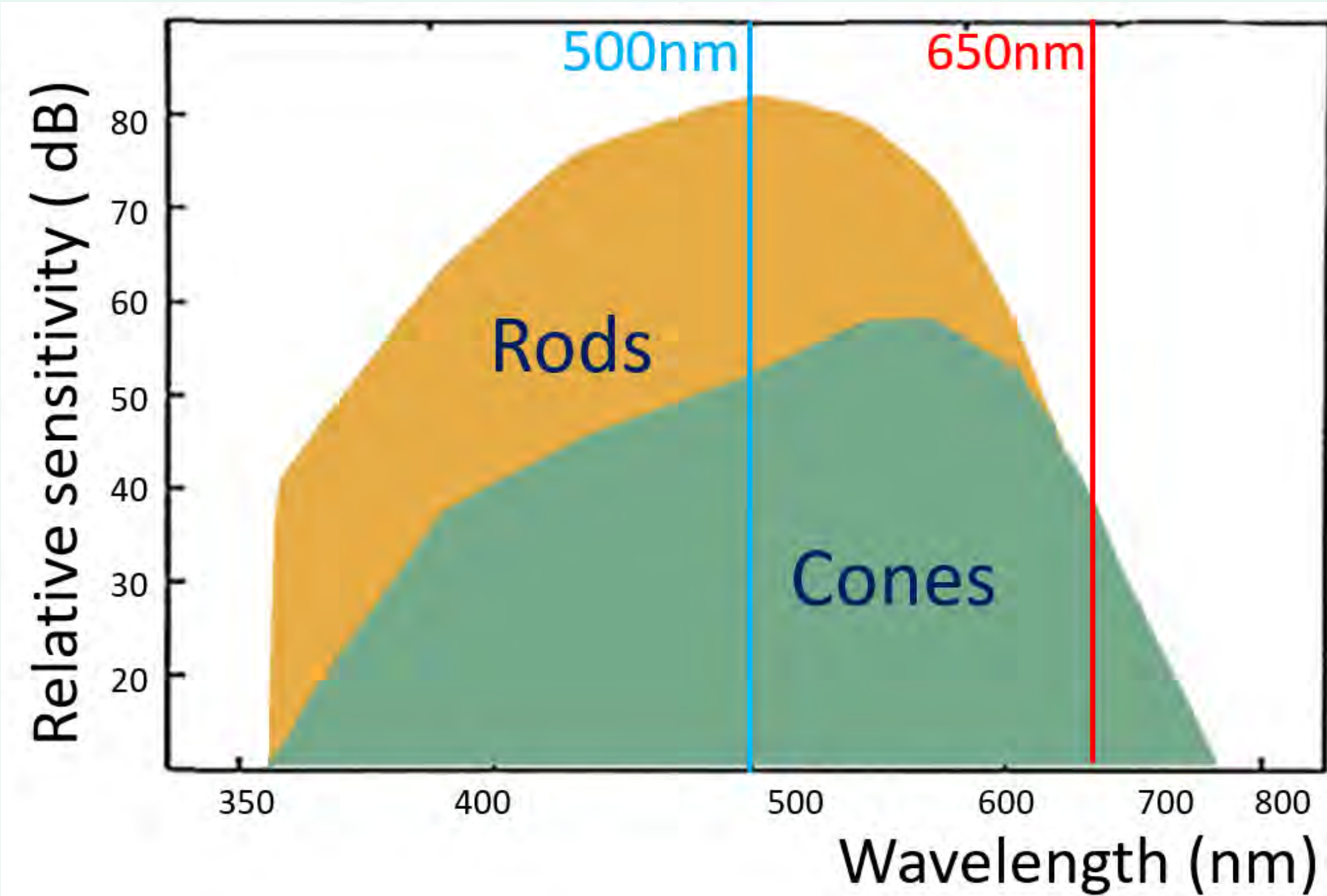
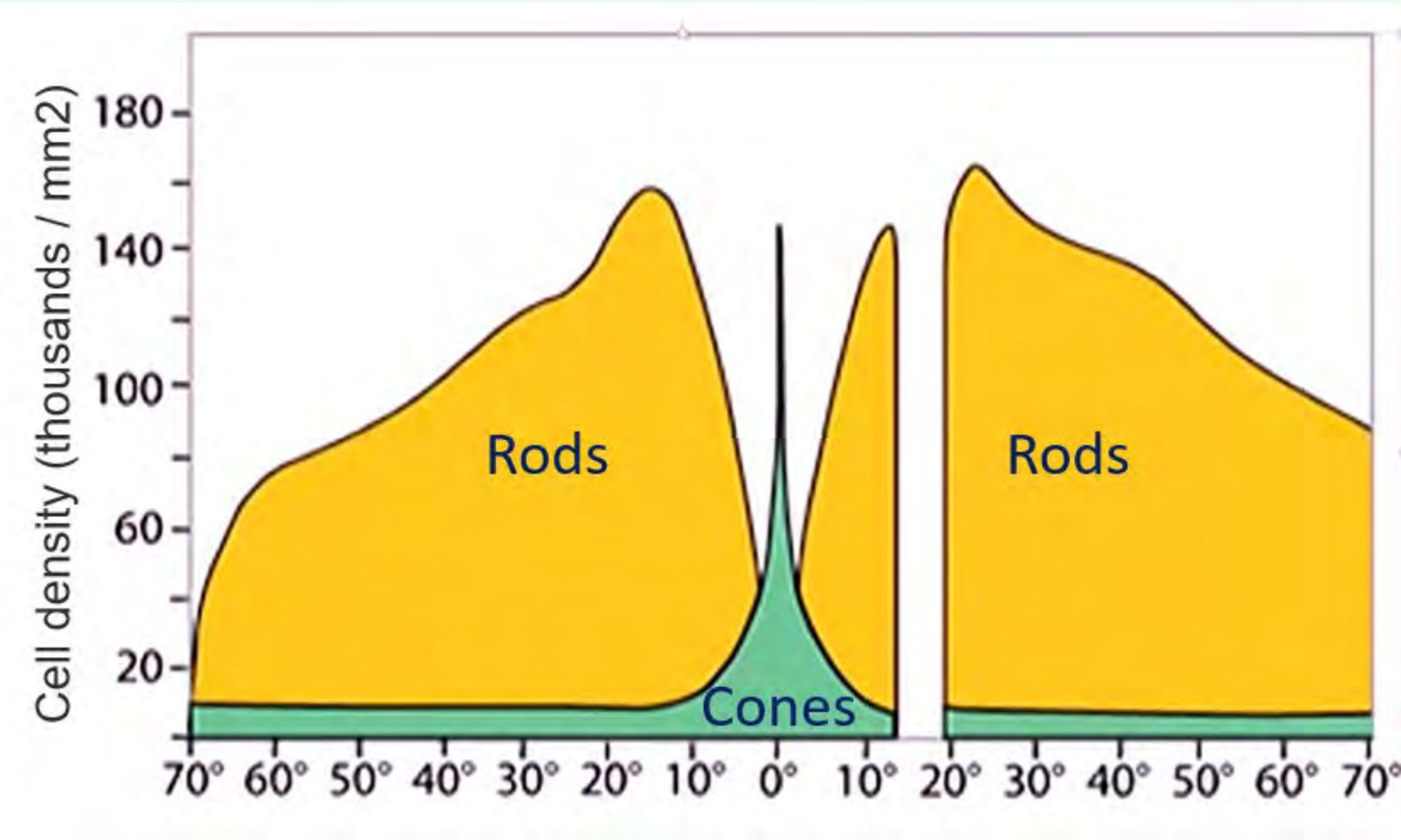
- LED sources providing a constant background illumination and/or ganzfeld visual stimulations with white, blue (455nm), yellow (591nm) and red (655nm) wavelengths.
- a LED spot projector generating a white spot with programmable position and size (I to V) and 5 additional spots with optical dichroic filters.

With these light sources **MonCV***One* can generate both ganzfeld and local visual stimulations, allowing the realization of multiple examination protocols:

Exam examples	Background adaptation	Visual stimulation
White/white perimetry	White	White spot
Swap perimetry	Yellow	Blue spot
Dark adapted chromatic perimetry	None or dim blue	500 and 650nm spot
Dark adaptometry	Light bleaching	Spot or ganzfeld
Full Field Stimulus Threshold (FST)	Scotopic or photopic	Ganzfeld
Photo Aversion Threshold (PAT)		Ganzfeld
Flash pupillometry		Ganzfeld
Local pupillometry	None or dim blue	Spot
Flash ERG (ISCEV)	Scotopic or photopic	Ganzfeld
Sensory EOG (ISCEV)	Scotopic or photopic	

Key points

- Local visual stimulations such as perimetry are needed to account for the non-uniform distribution of photoreceptors and localized alterations;
- Ganzfeld stimulations are suitable for patients with unstable fixation;
- LED sources combined with optical dichroic filters provide precisely controlled visual stimulations.



Video and eye movement recording

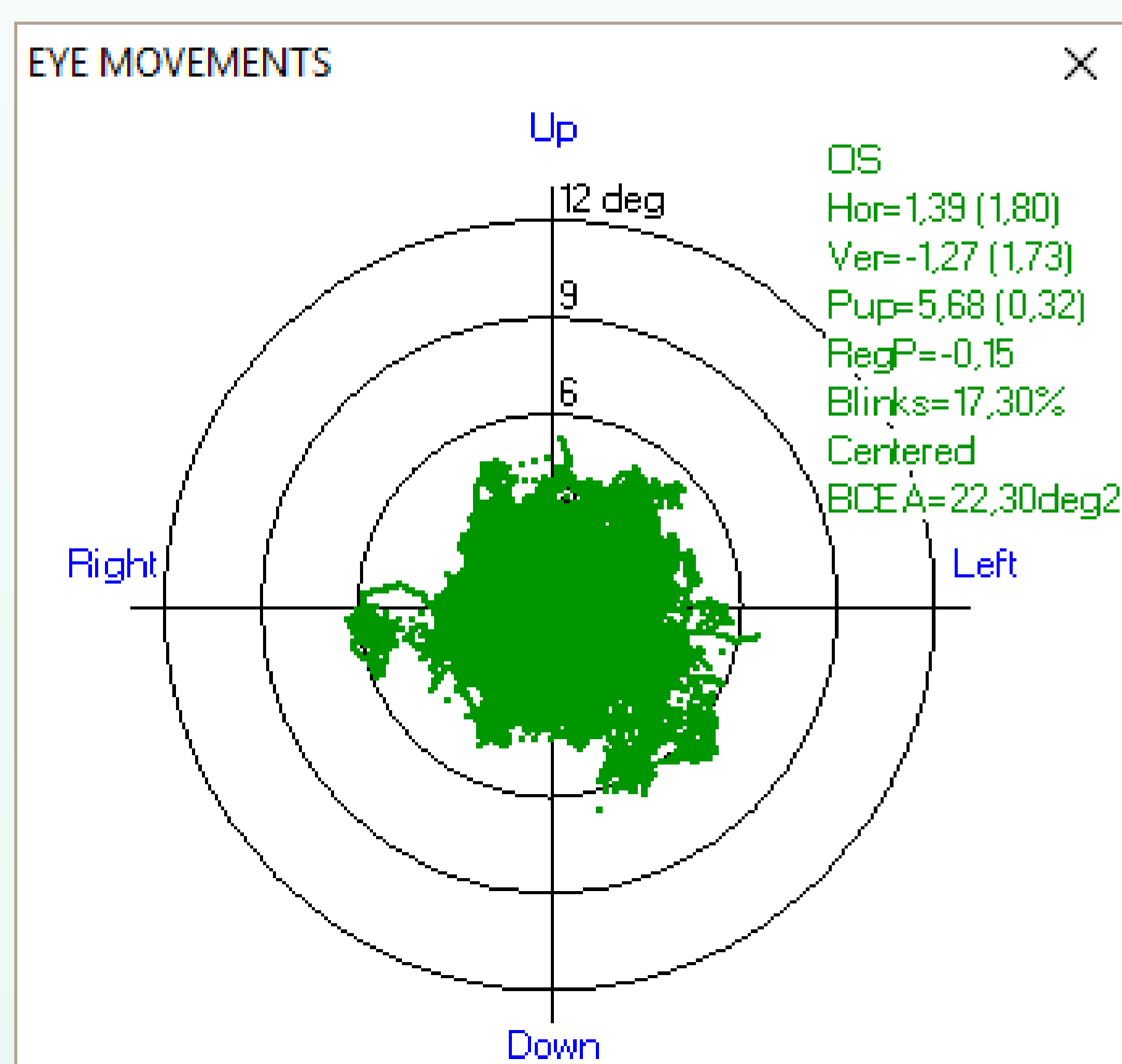
High resolution, binocular eye tracker

Key points

- Wide field camera can monitor both eyes simultaneously;
- Near infra red operation (940 nm);
- Measurement of eye movements with the Hirschberg technique (corneal reflex – pupil distance);
- Measurement of the pupil diameter.



Eye movement report



Key points

- Available for all exams;
- Evaluation of the stability of fixation; with bivariate contour ellipse area (BCEA);
- Pupil size average and fluctuations;
- Eye movement recording can also be displayed as a function of time.

Correction of refractive errors

MonCV*One* is supplied with a set of large field lenses (55 mm in diameter) and a translucent occluder with an easy magnetic fixation to the head rest.

Key points

- Large field lenses prevent peripheral field errors that result from the lens rim or lens misalignment;
- The translucent occluder prevents ganzfeld blackout.



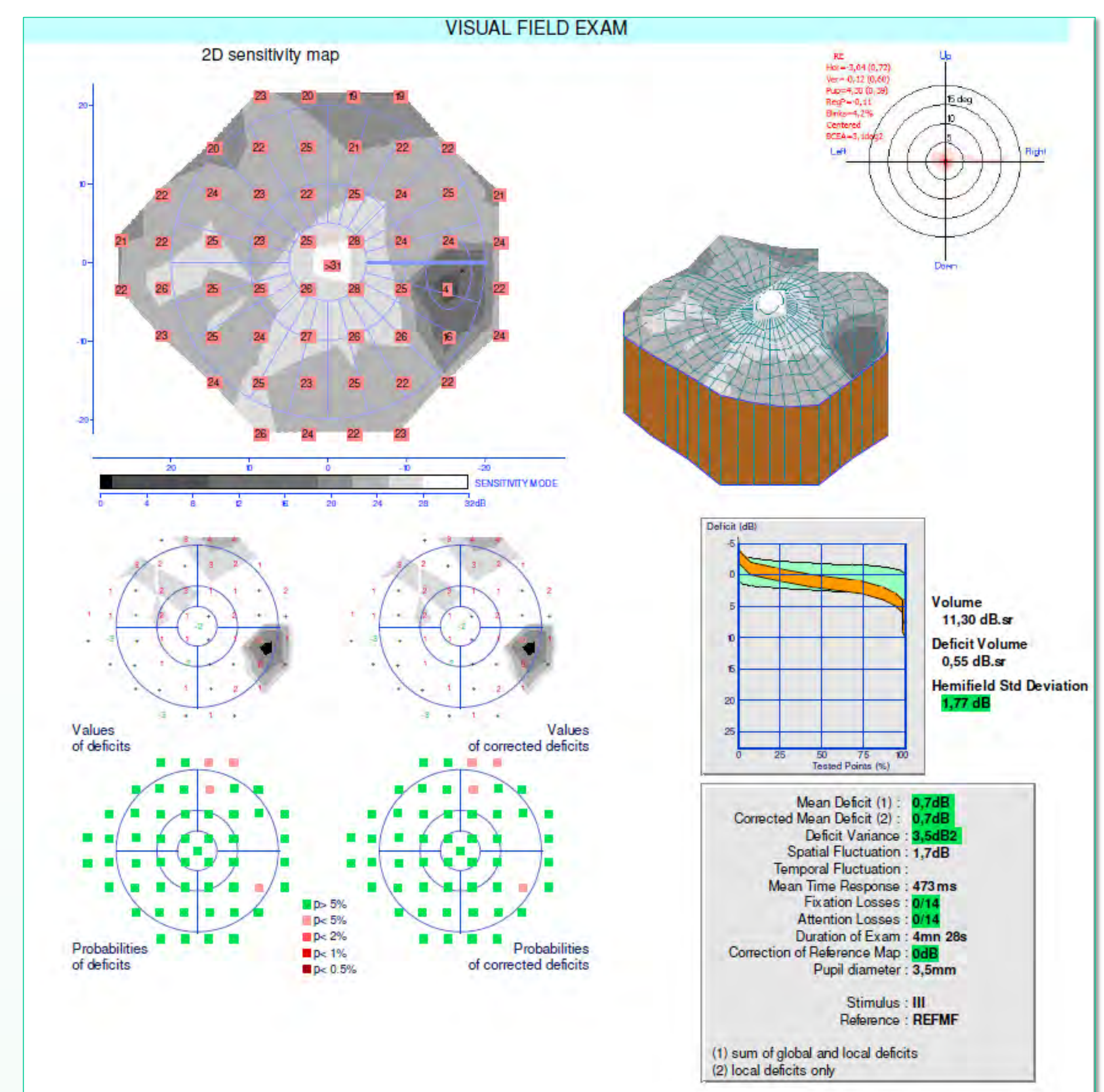
Static and kinetic automated perimetry

Key points

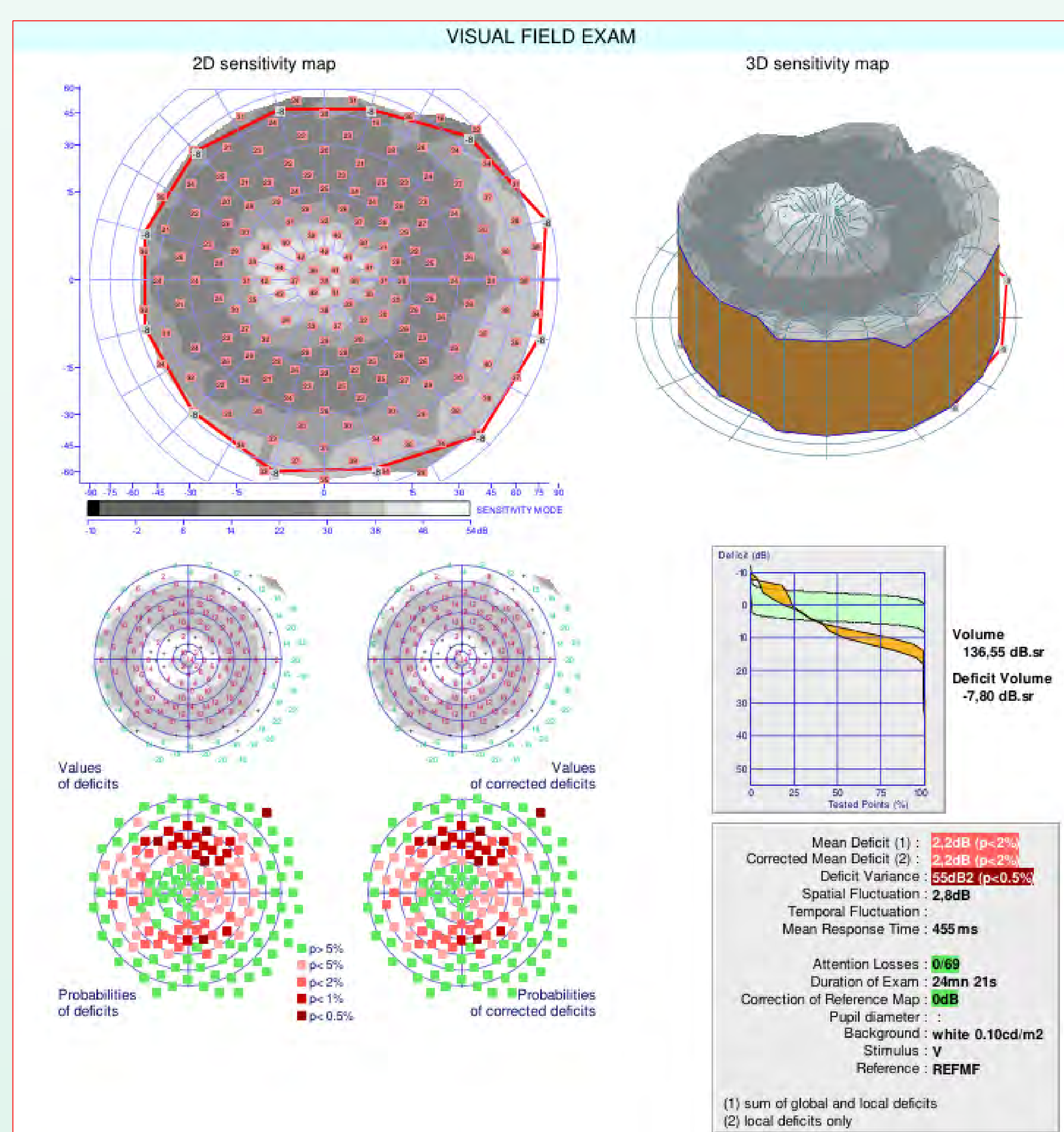
- Programmable background luminance and stimulus dynamic range;
- Programmable grid of test points;
- Programmable thresholding strategy.

Thresholding strategies:

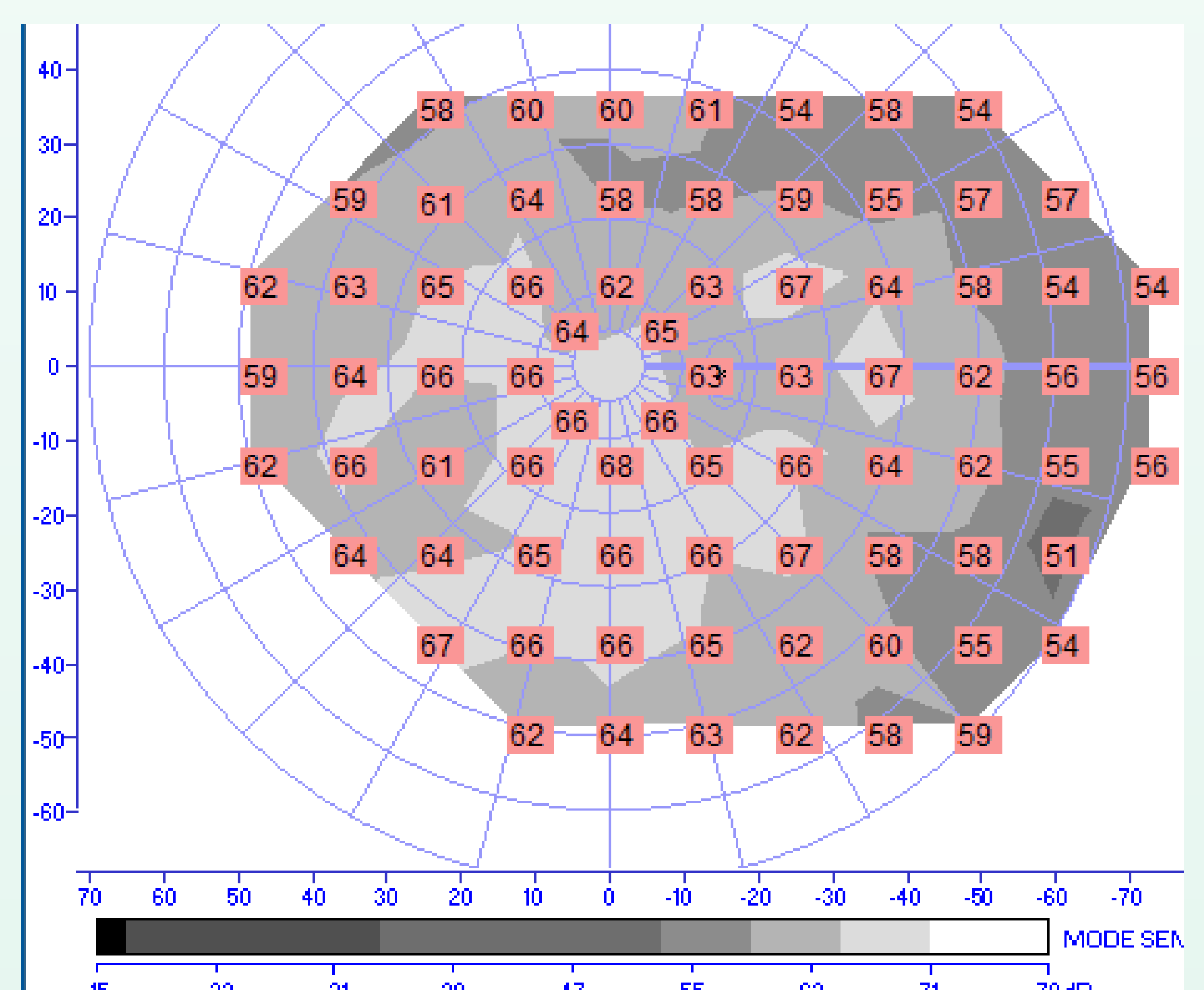
- Staircase full threshold strategies (4-2, 4-2-1, 8-4-2);
- Optimized threshold strategies (STAT) using the results of the previous 8 points to reduce testing time;
- 3 zones suprathreshold strategy for screening;
- KINETIC strategy with automated and manual controls;
- MIXED strategy combining kinetic tests for the periphery and static tests for the central field.



Example of 55 points STAT strategy with photopic background in glaucoma



Example of 190 points STAT strategy with mesopic background in retinitis pigmentosa



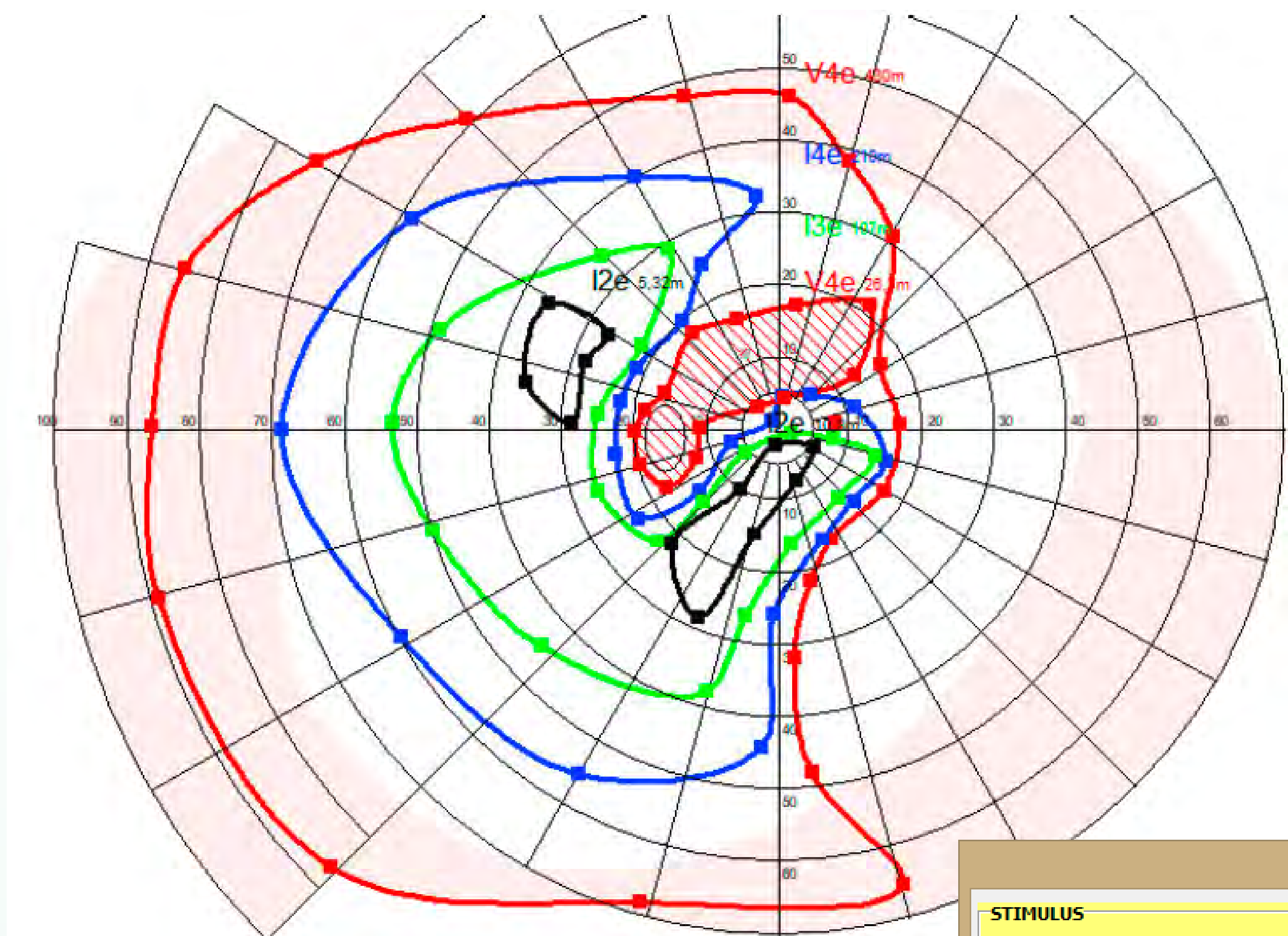
Example of dark-adapted chromatic perimetry with 650 nm stimuli

Manual, “Goldmann style” perimetry

Interactive mode

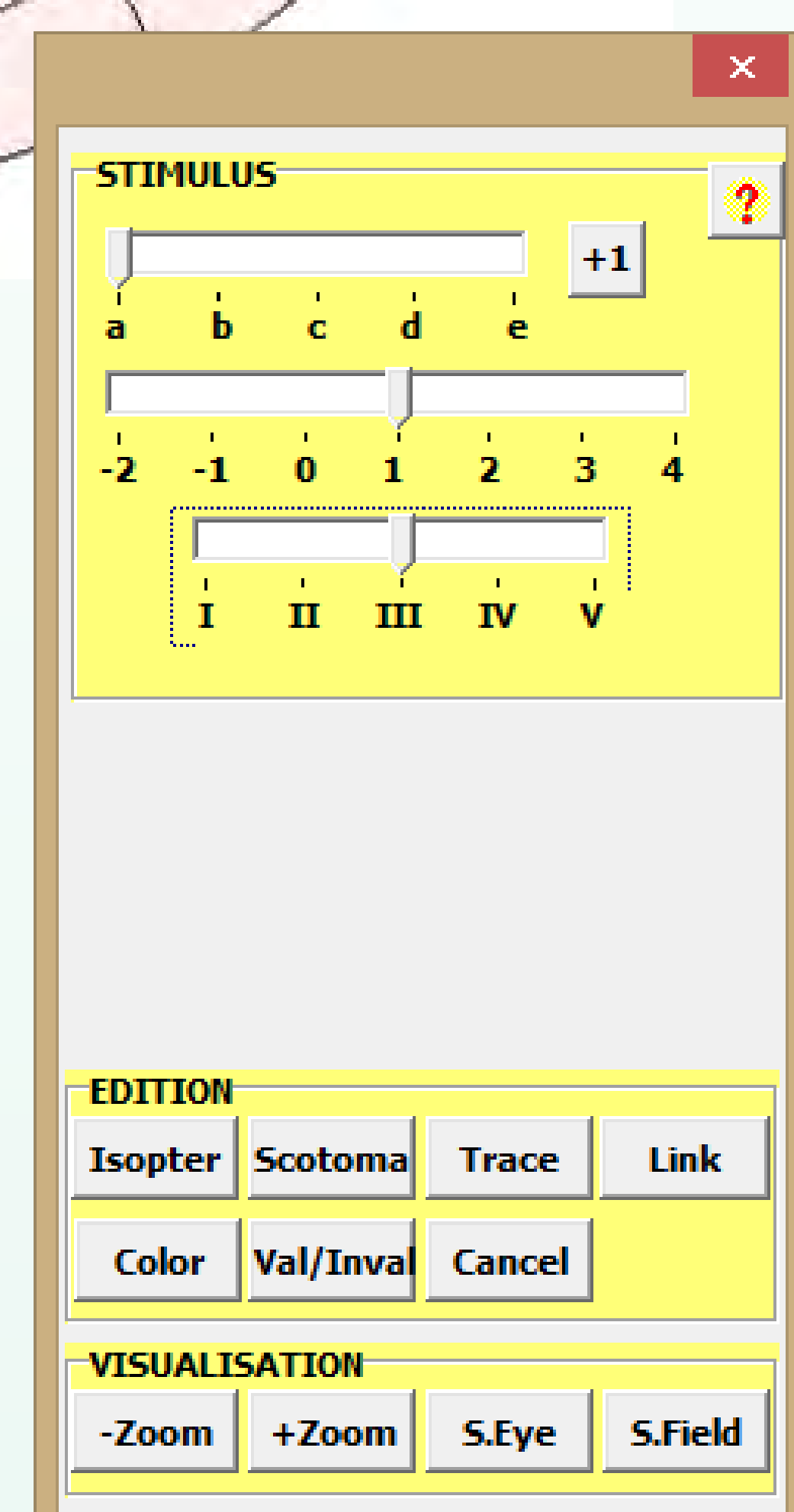
Manual perimetry is needed in a number of clinical situations:

- for patients who are not reliable with automated perimetry;
- for the control of abnormal results obtained with automated perimetry;
- for the evaluation of acute visual field loss.



Key points:

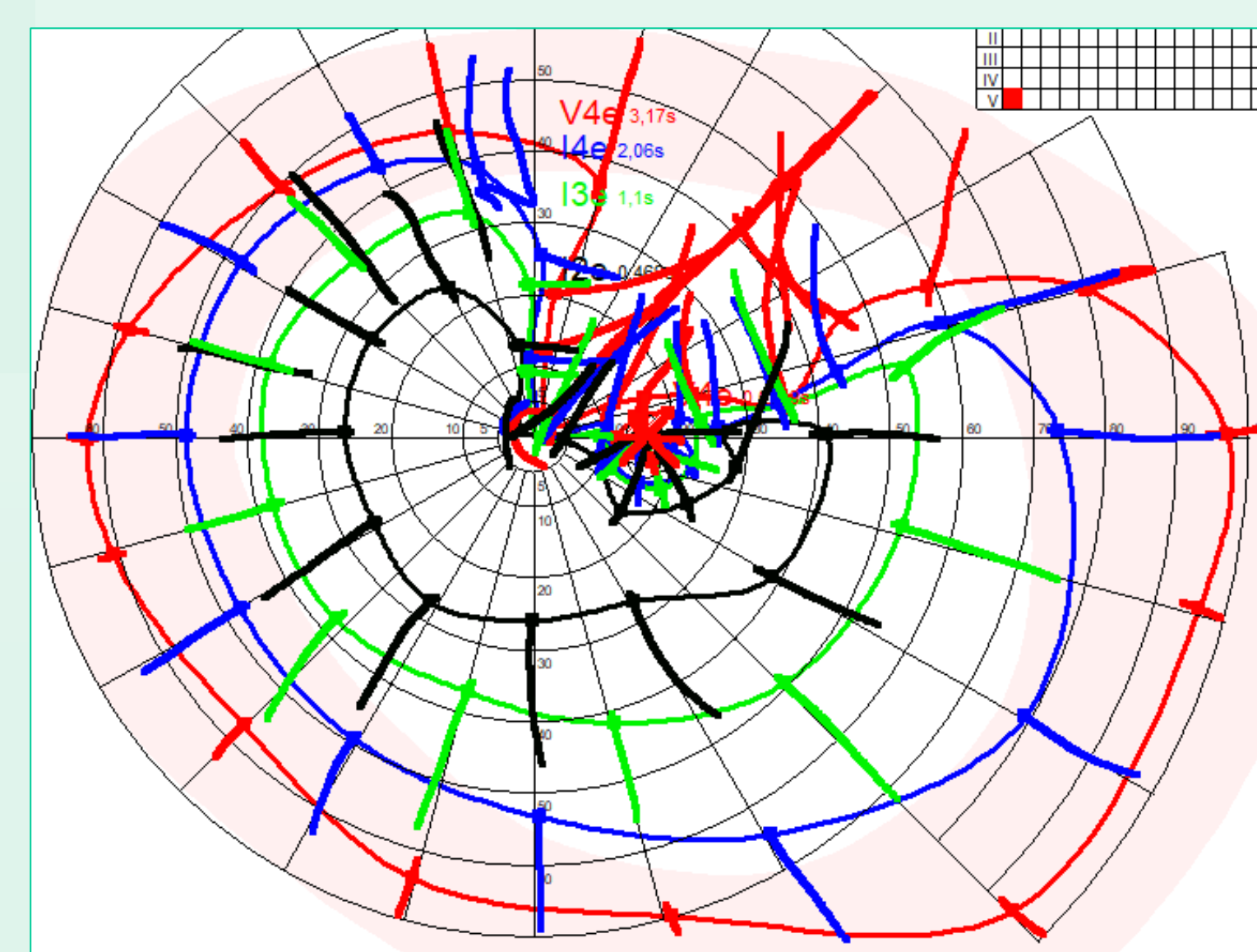
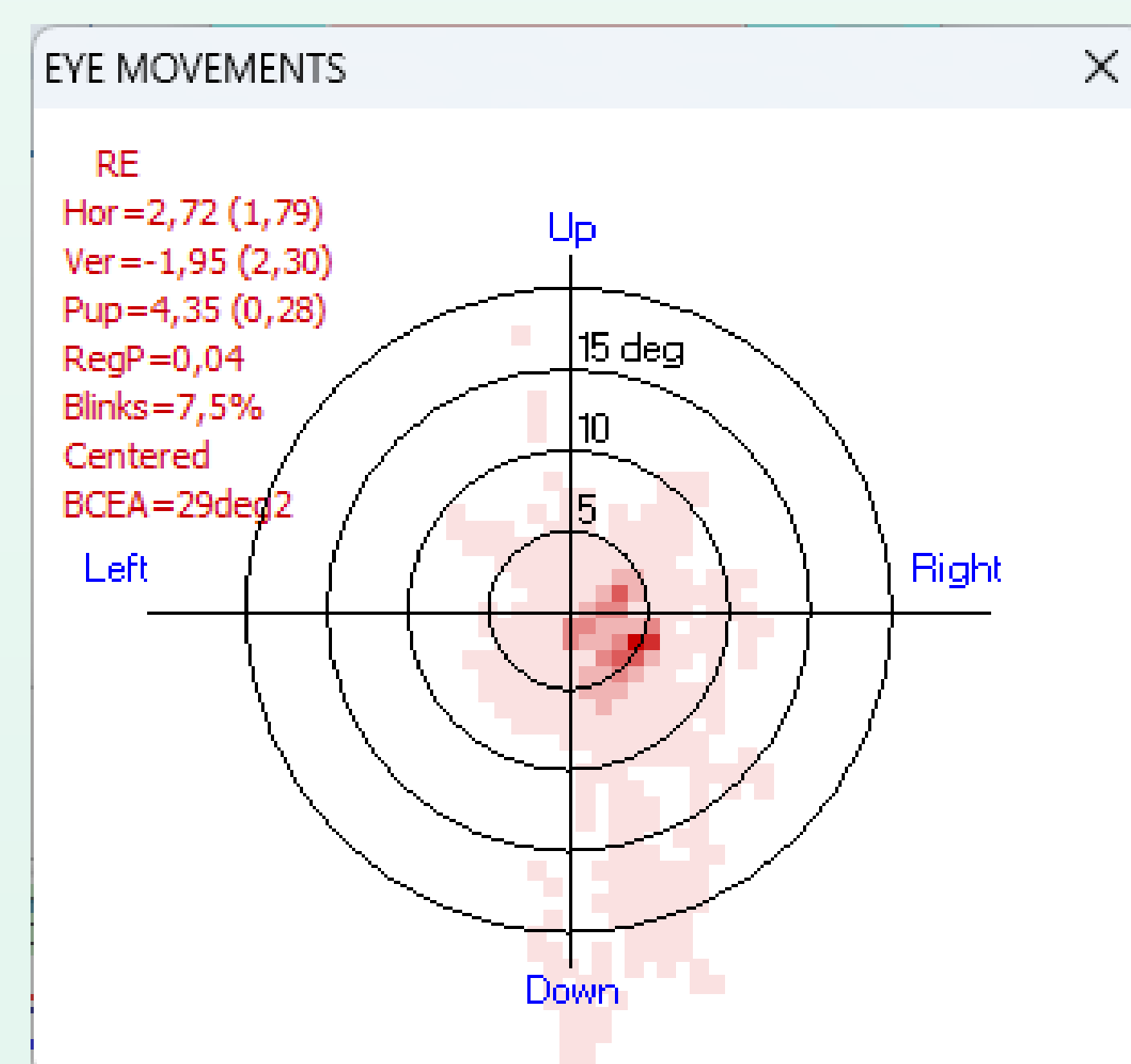
- Interactive perimetry with direct mouse control or with vectors;
- Automated quantification of isopters and scotoma surface area;
- Detailed evaluation of the macula obtained by zooming-in the central field.



Quality control

Key points:

- Automated analysis of fixation stability (BCEA), pupil size and blink rate;
- Documentation of the examination strategy obtained by recording the stimulus displacement and velocity.

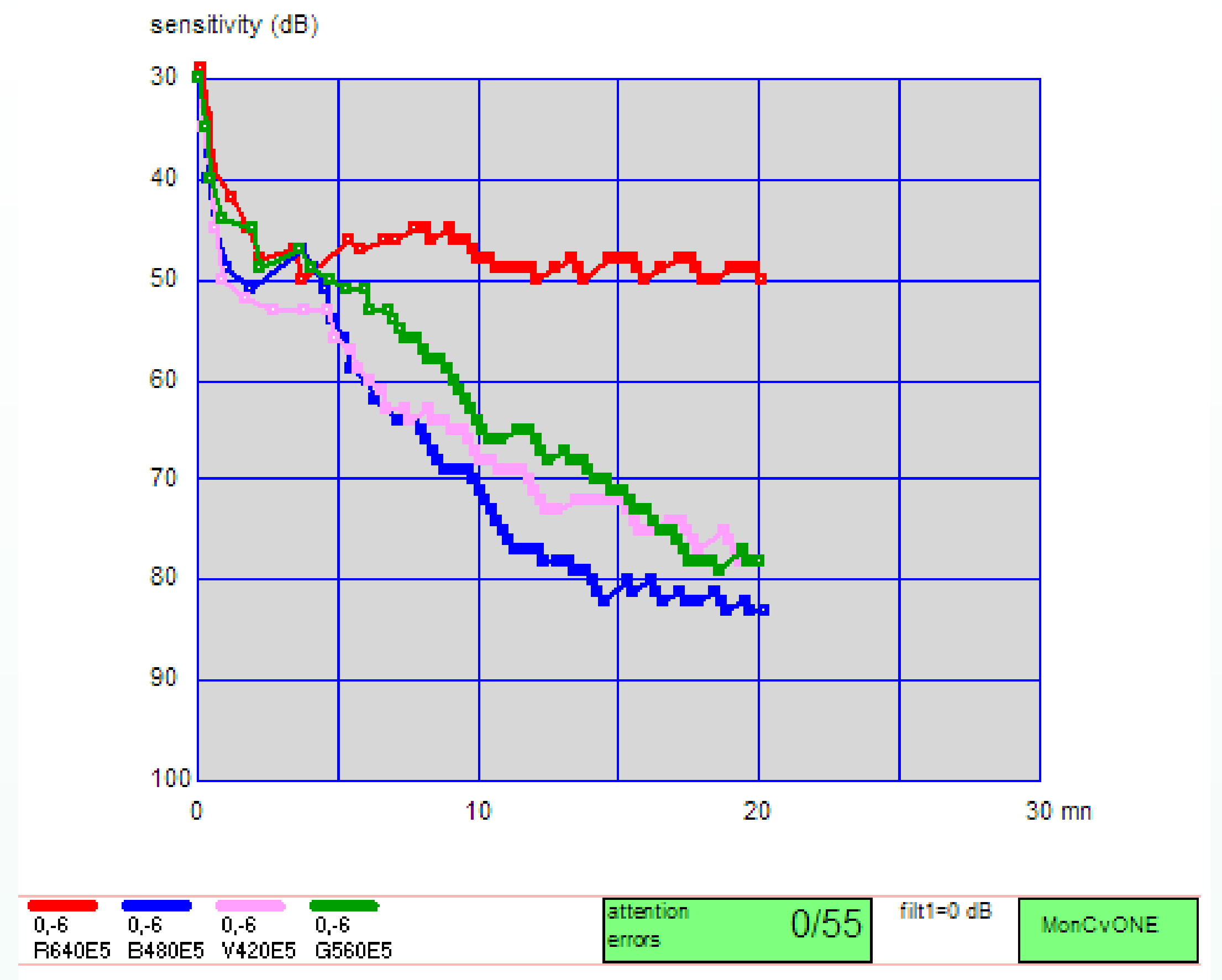


Dark and light adaptation exams

Dark adaptometry

Key points:

- Programmable bleaching time and luminance;
- Programmable stimulus color and location (with Goldmann size V);
- Automated measurement of alpha point, rod intercept time and S1 slope.



Full field stimulus threshold (FST)

Key points:

- Wide dynamic range with 8-4-2-1 threshold strategy;
- Single or multiple color(s);
- Scotopic or photopic.

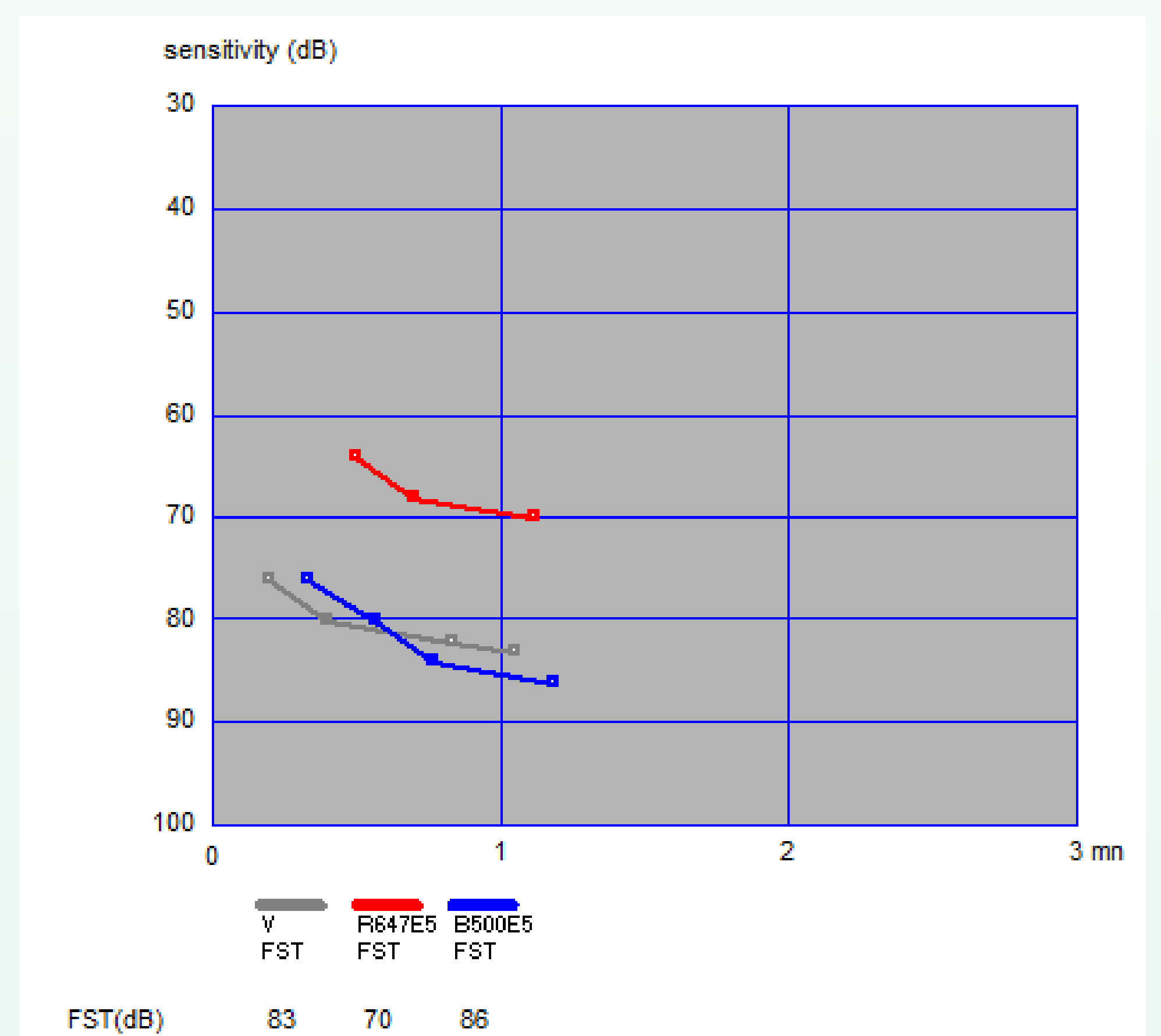
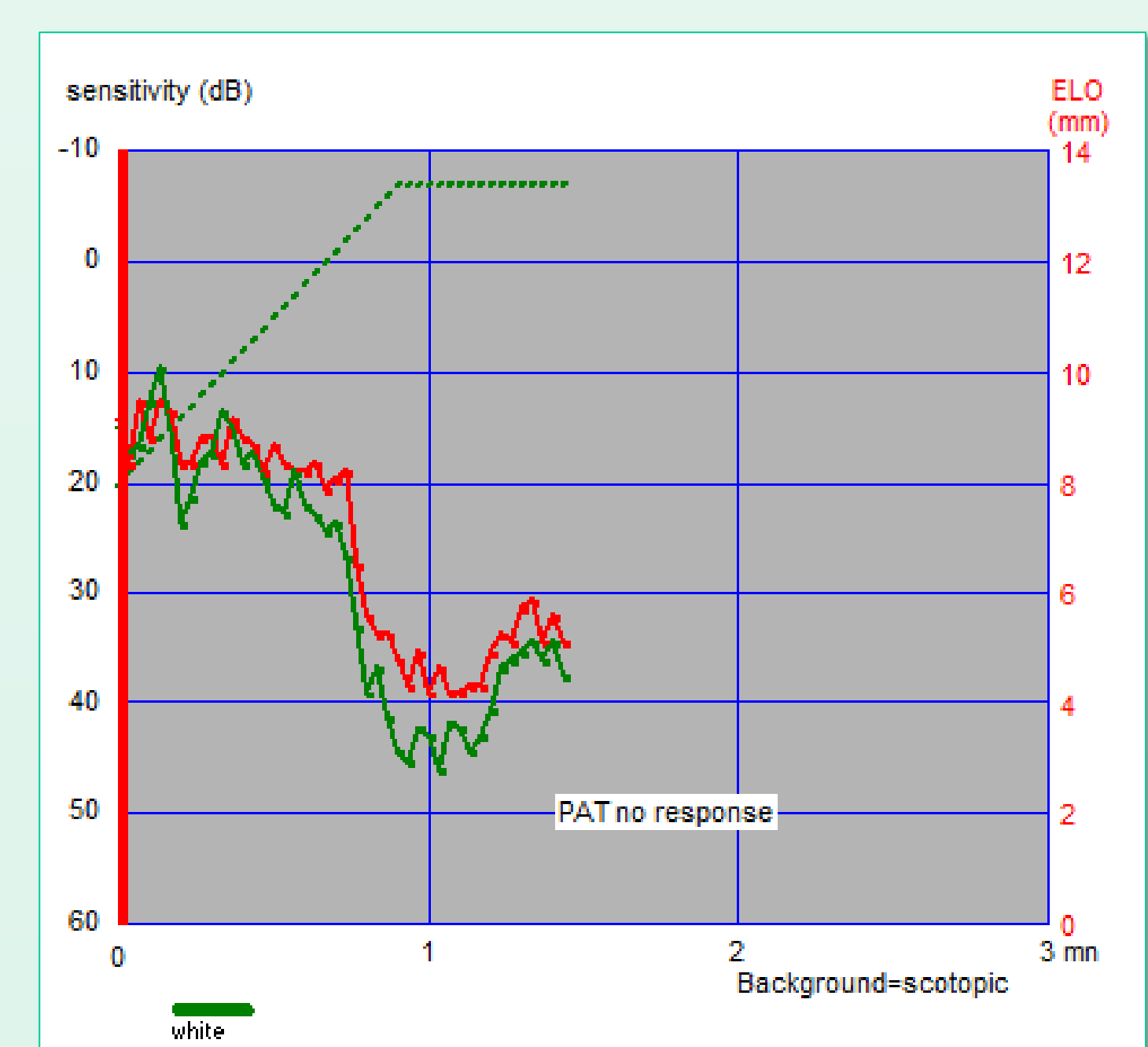


Photo aversion threshold (PAT)

Key points:

- Increase of luminance until the threshold of discomfort or pain is reached;
- Simultaneous recording of the pupil size and eye lid opening.

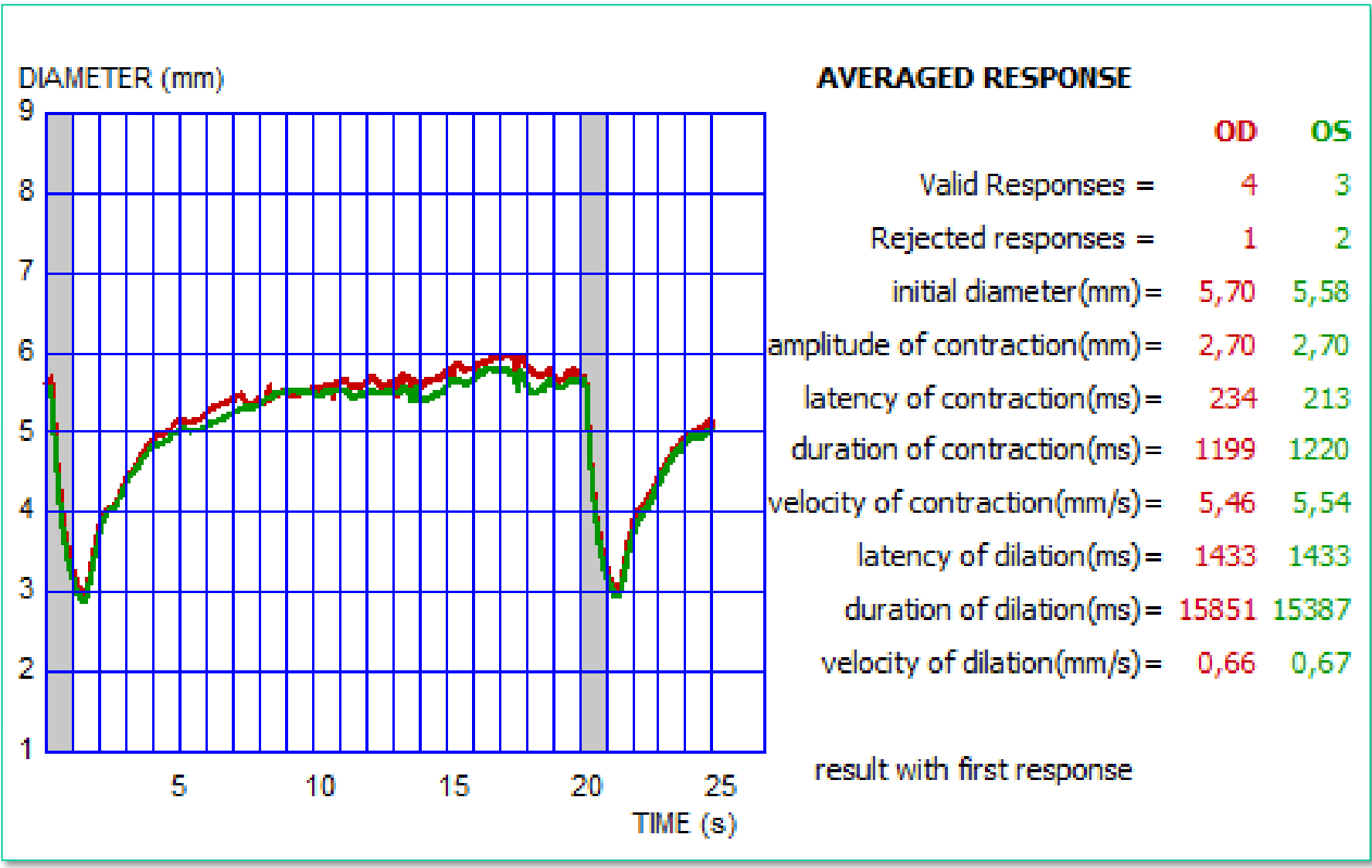


Chromatic pupillometry

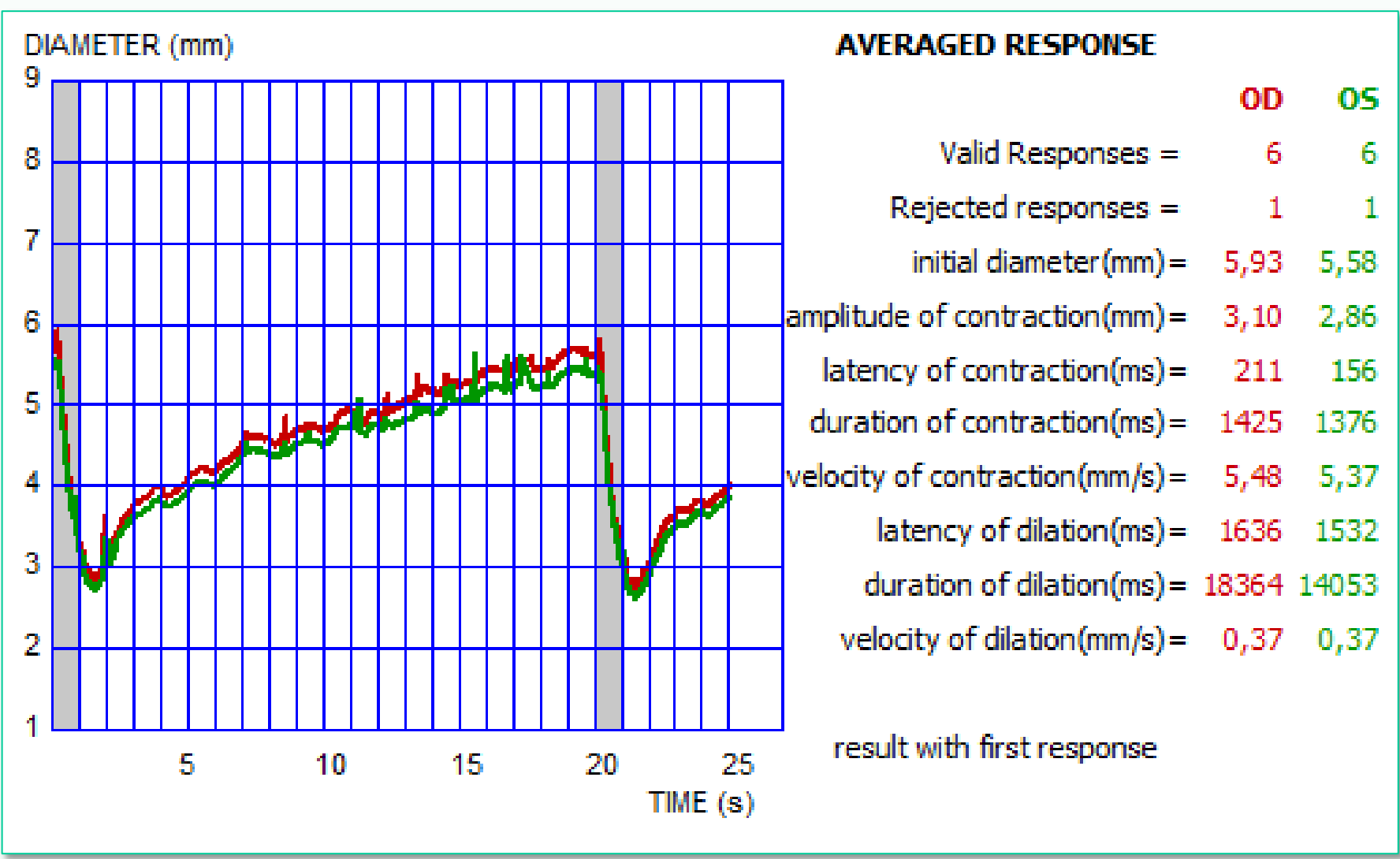
Key points

- Programmable flash color, intensity and duration;
- Monocular or binocular recording;
- Automated quantification of resting level, response time, response amplitude and constriction velocity;
- Ganzfeld and local stimulations.

response to red flash



response to blue flash

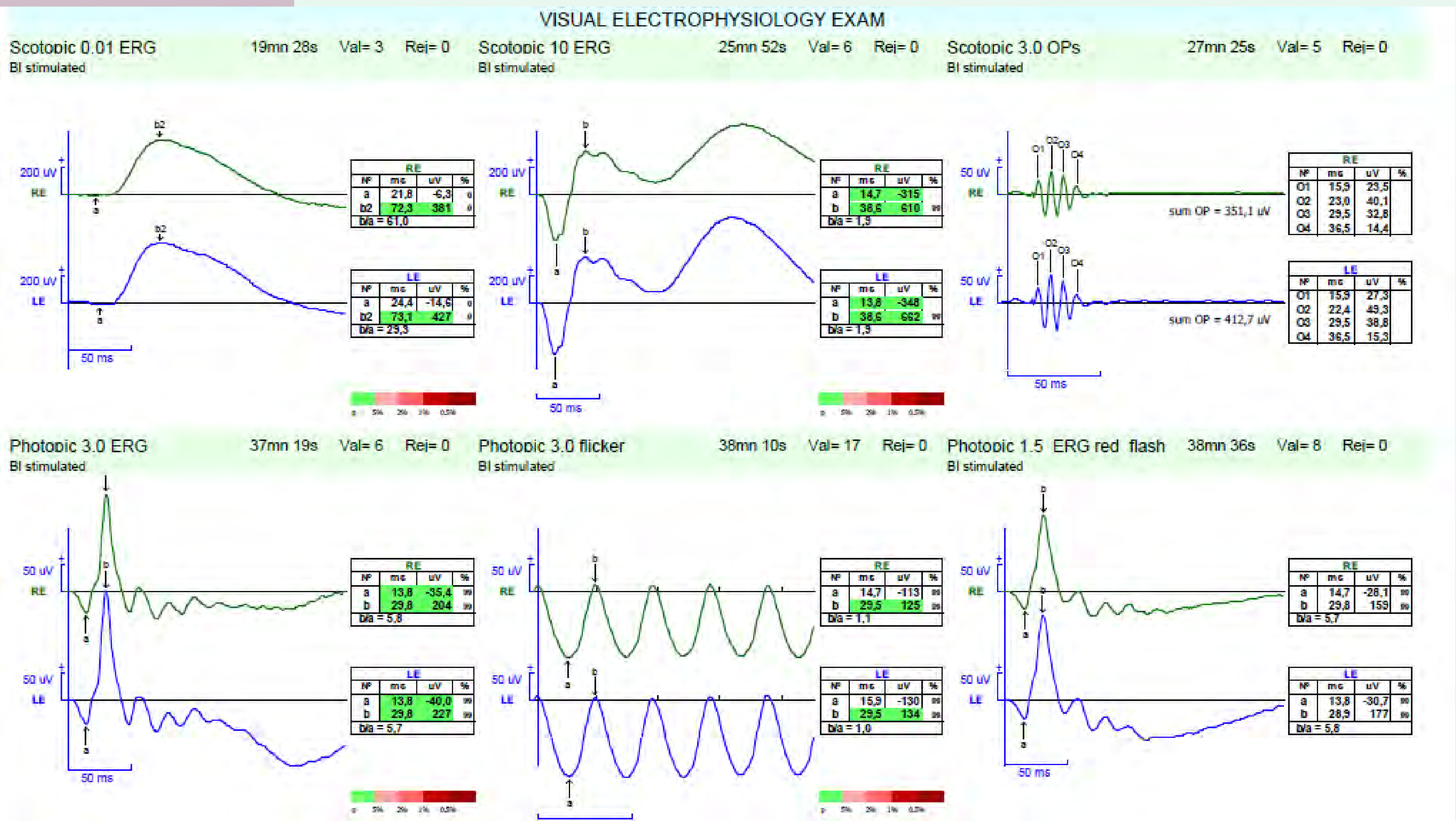


Vision electrophysiology

Key points

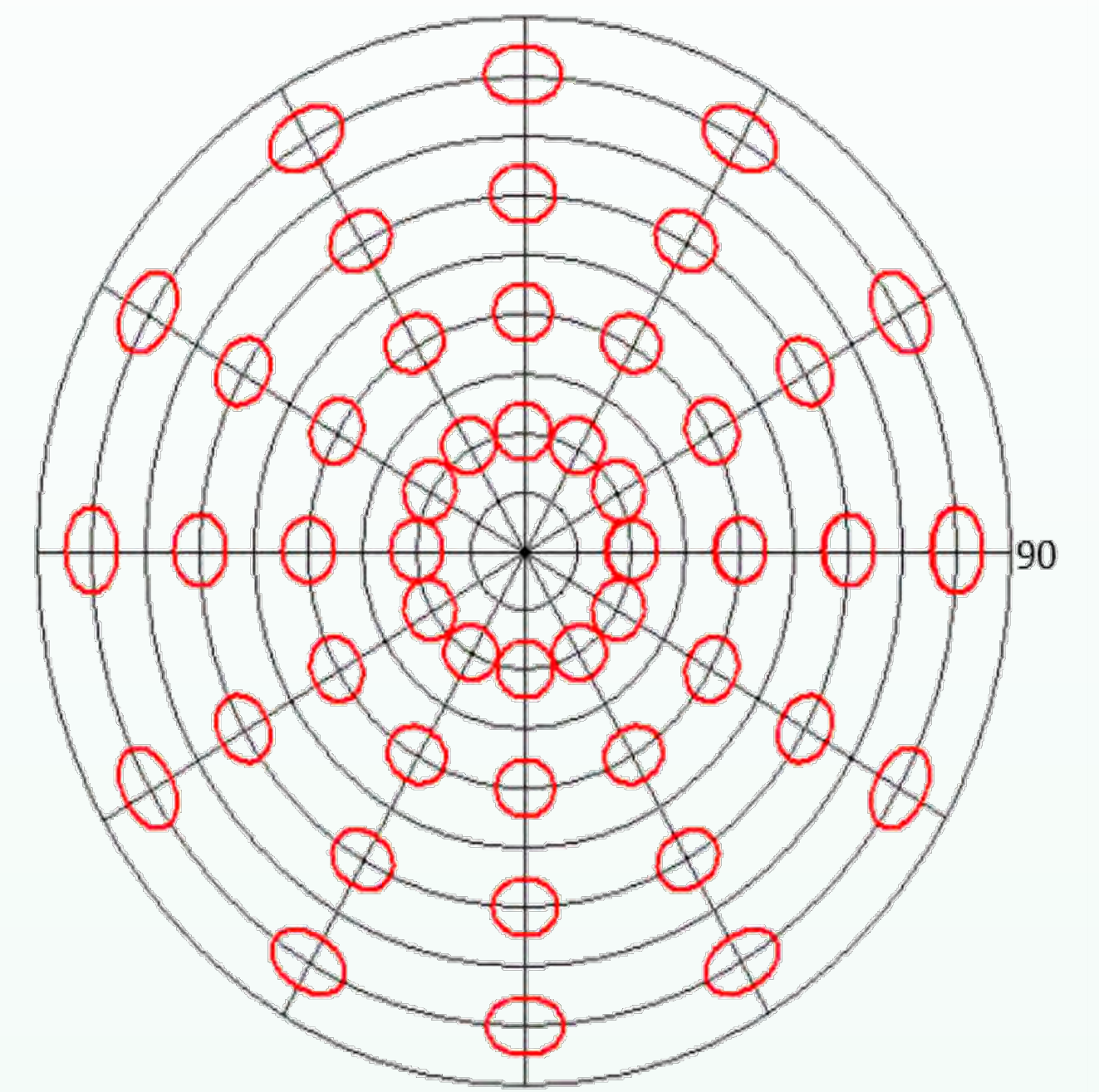
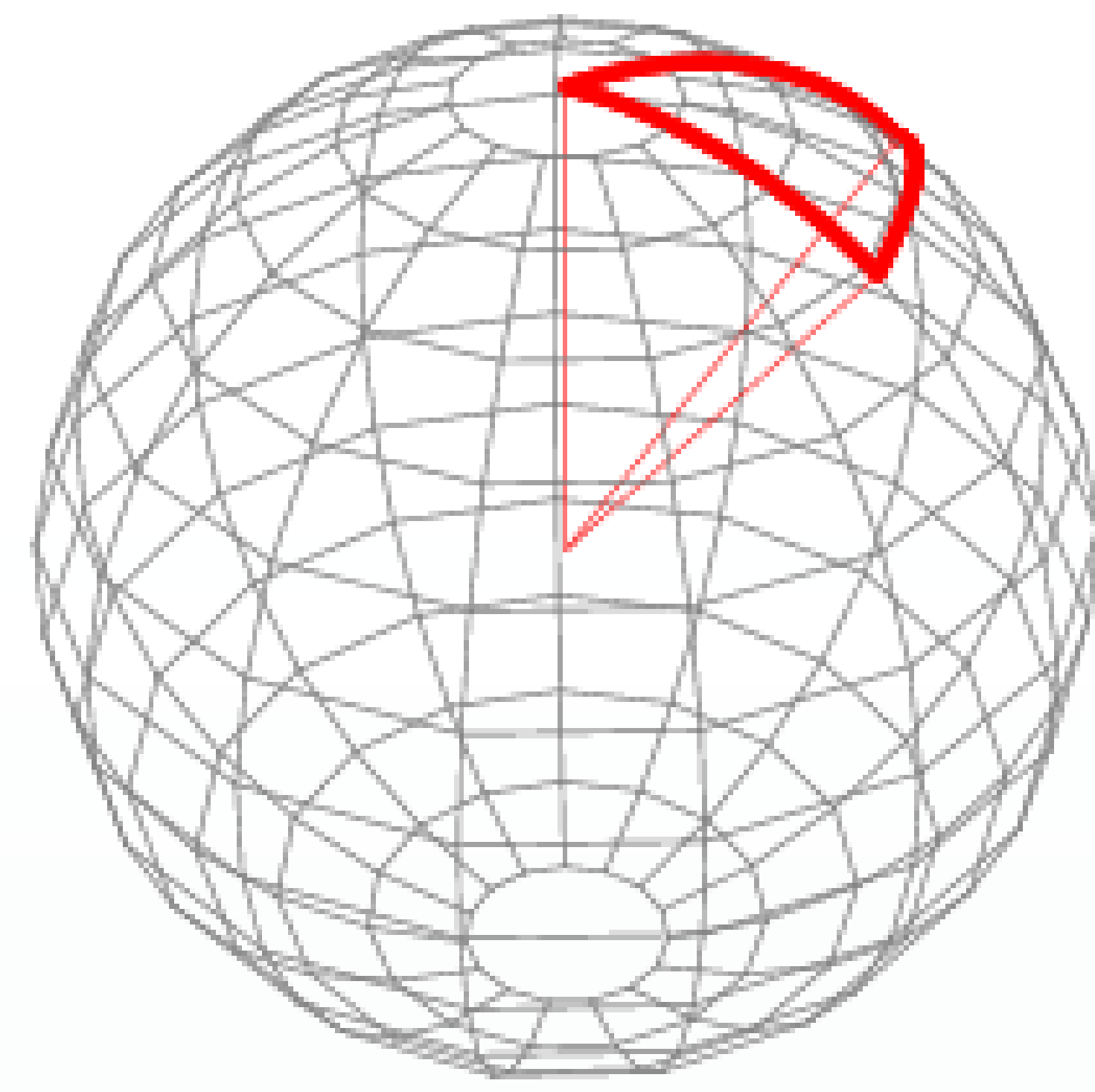
- ISCEV protocol for flash ERG and VEP;
- ISCEV protocol for sensory EOG.

(CR++ version)



Quantification of visual field results

MonCvONE uses solid angles to quantify isopters and scotoma, so avoiding the quantification errors of the visual field planar projection.



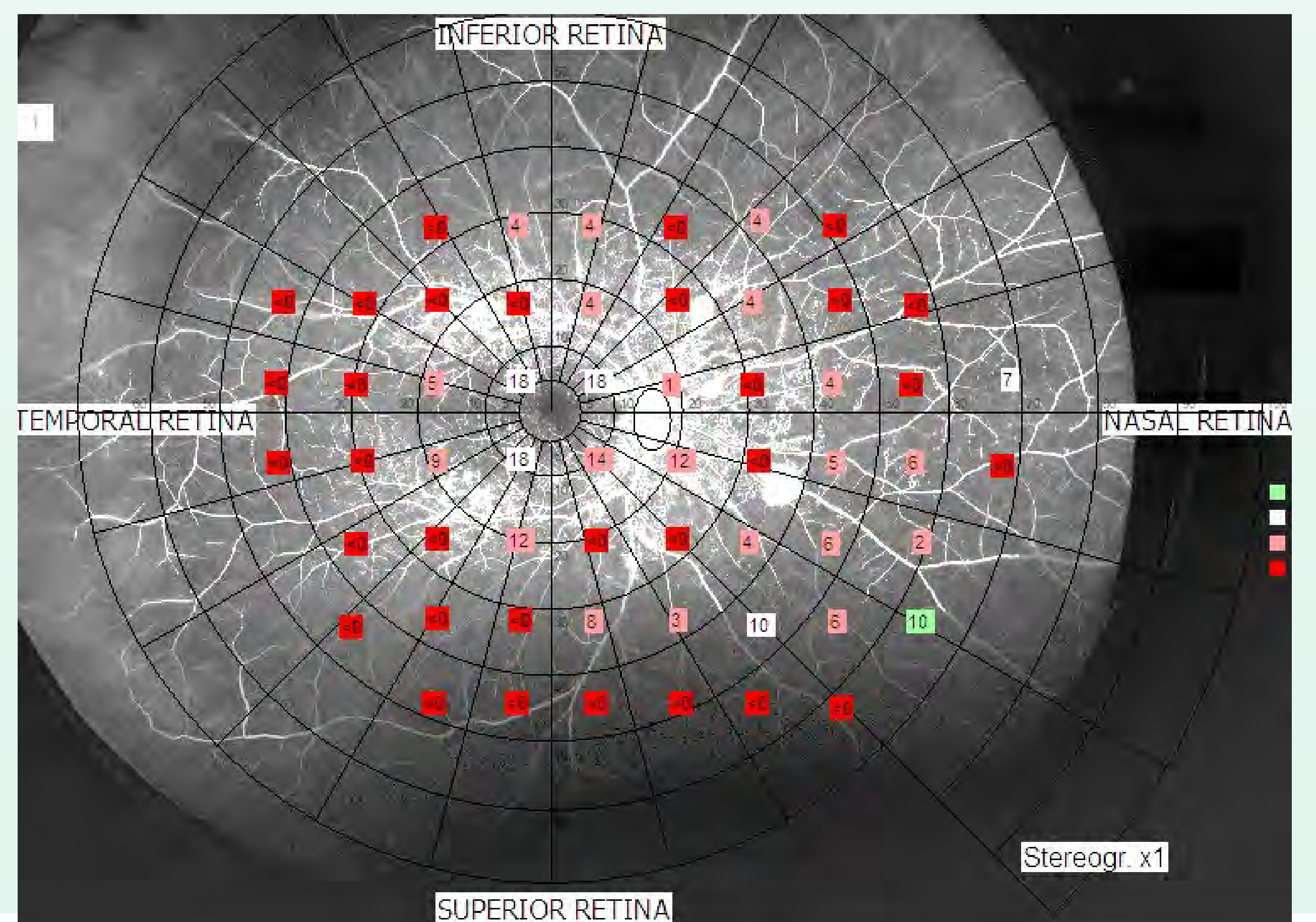
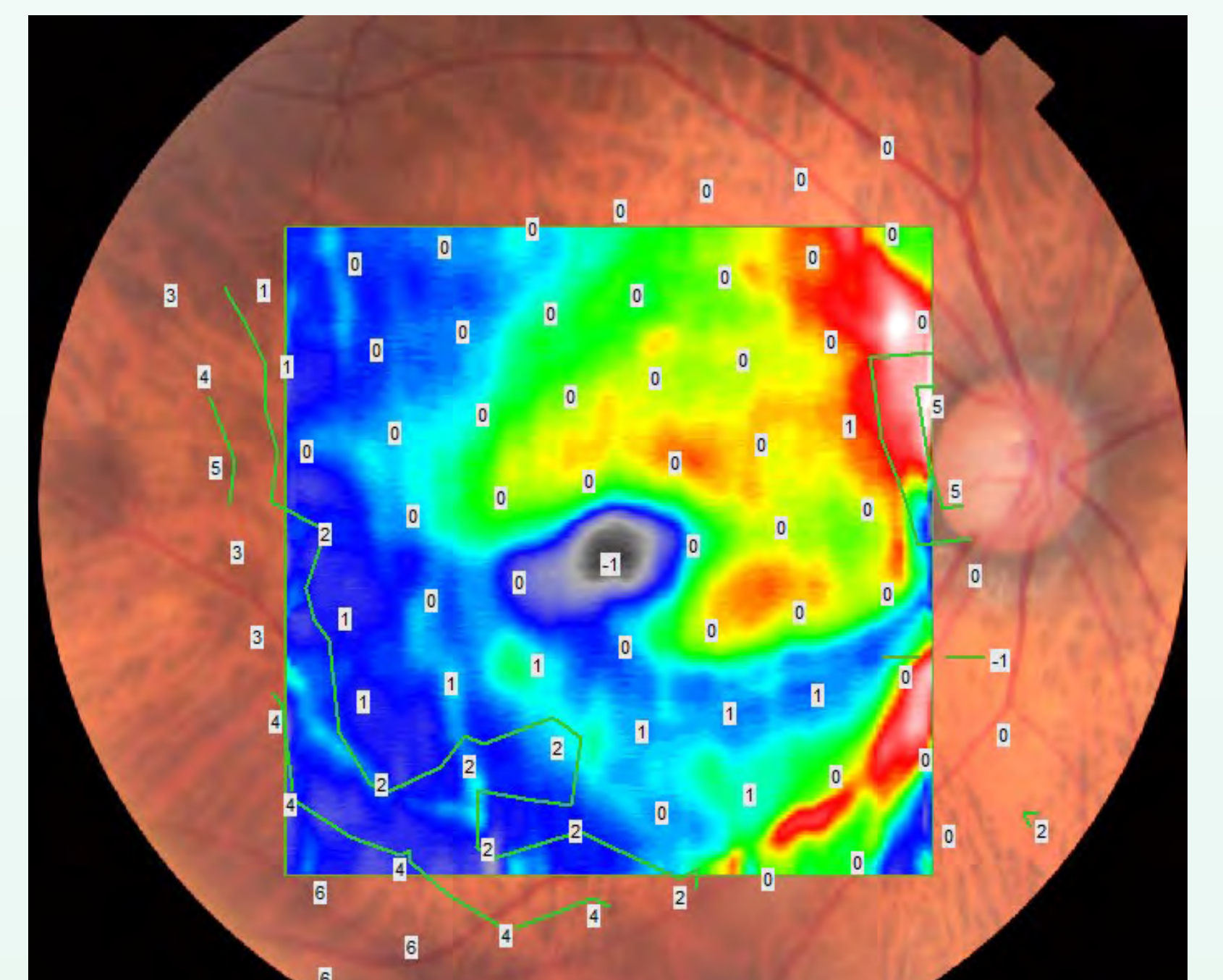
Key point

- Quantification of the isopters and scotoma surface area in steradians;
- Quantification of the visual field volume in dB x steradians.

Structure – function comparison

Key points

- Eye fundus images can be imported from standard imaging sources;
- Automated conversion from azimuthal (perimetry) to stereographic (imaging) format;
- Simple superposition based on the position of the fovea and papilla

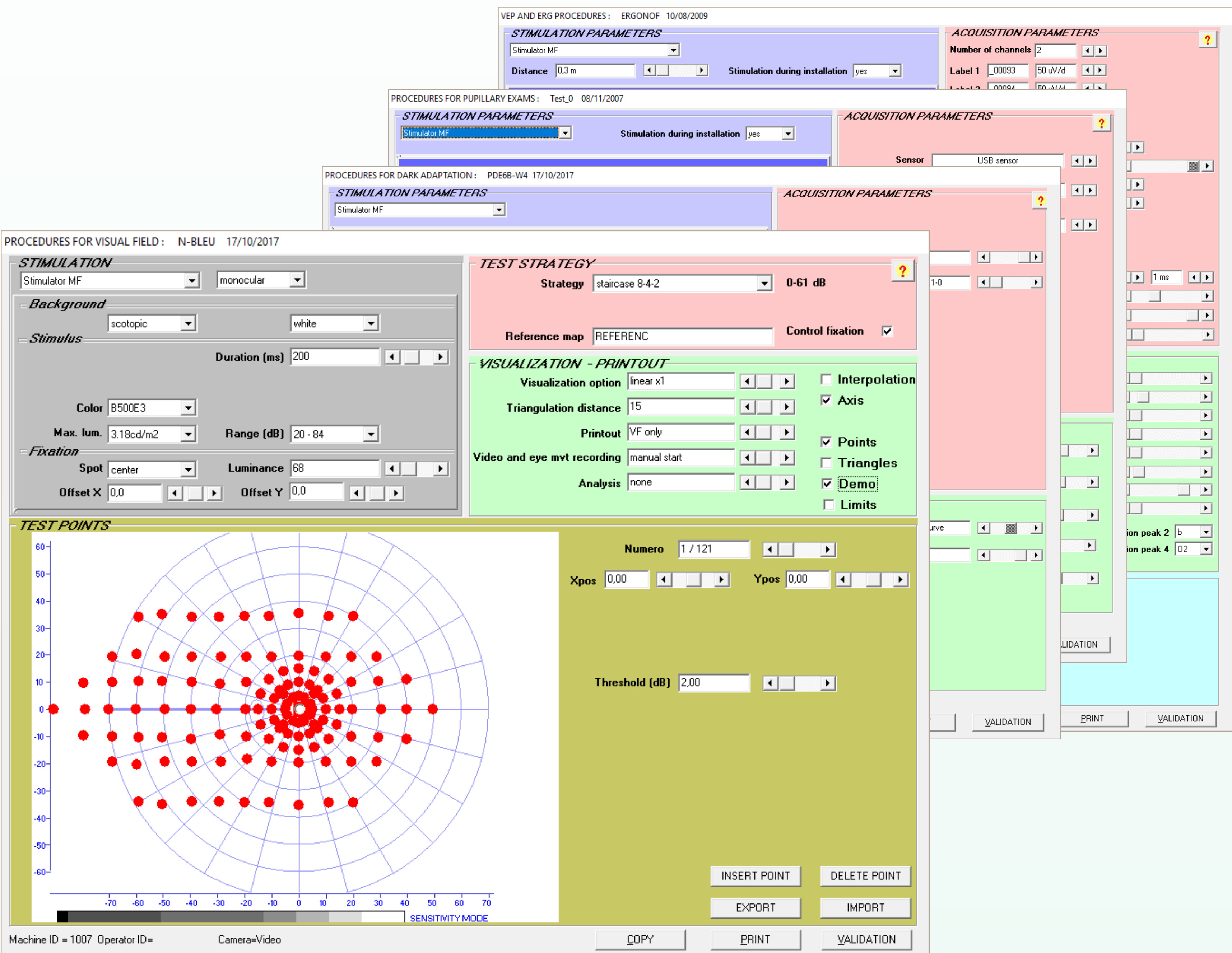


Tools for clinical investigation

Customizable examination protocols

Key point

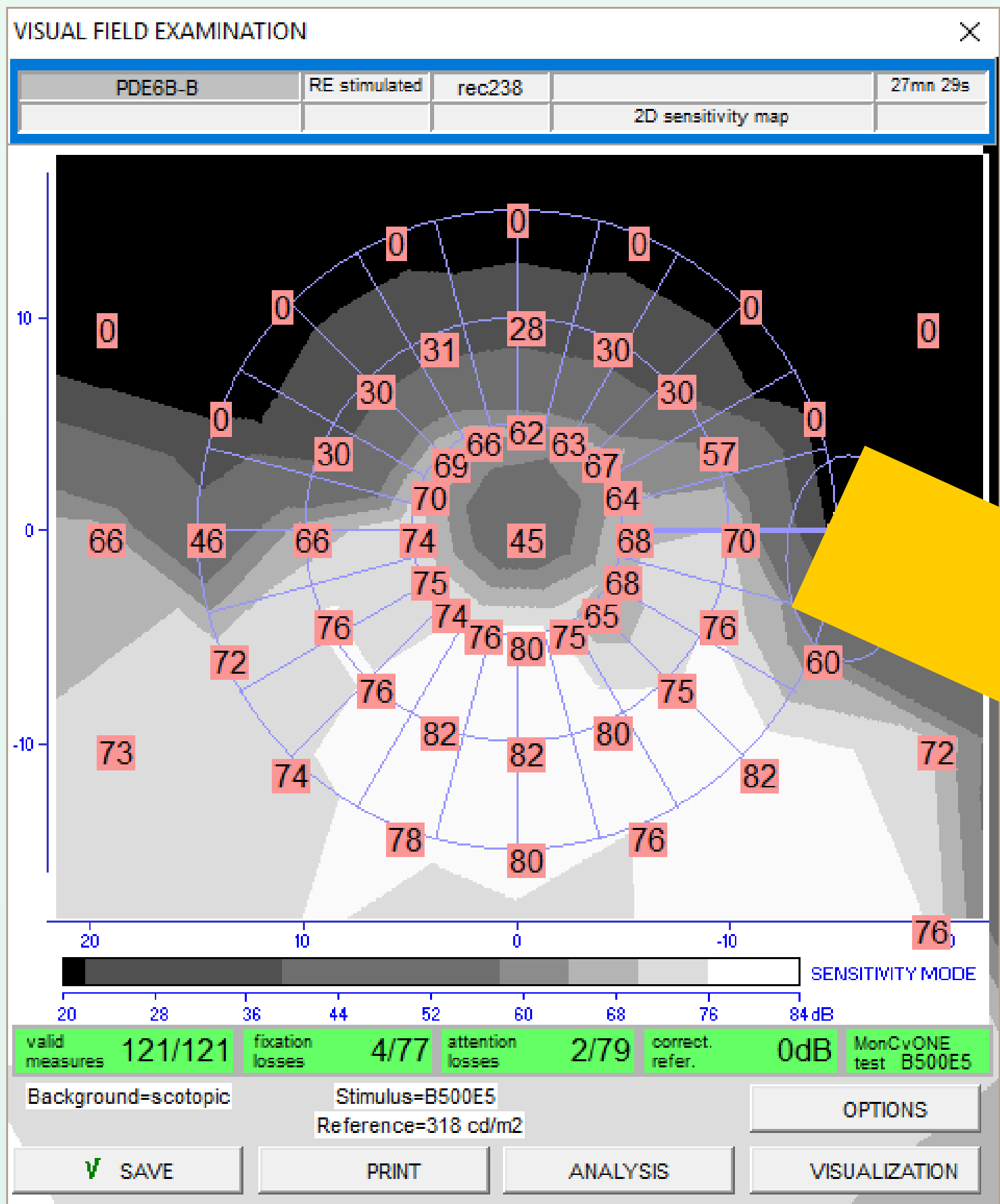
- Stimulation, acquisition and analysis parameters can be edited to create new examination protocols.
- New protocols can be transferred for multicentric studies



Easy export of data

Key point

- Results can easily be exported to a spreadsheet (Excel) or statistical analysis softwares.



The screenshot shows an Excel spreadsheet with the following data:

	Stimulus	X (deg)	Y (deg)	patient sens
3	B500E5	0	0	45
4	B500E5	4	9	30
5	B500E5	0	5	62
6	B500E5	10,9	-10,9	82
7	B500E5	-4	9	31
8	B500E5	0	10	28
9	B500E5	3,5	-3,5	65
10	B500E5	-10	0	66
11	B500E5	-7	7	30
12	B500E5	3,5	3,5	67
13	B500E5	-10,9	-10,9	74
14	B500E5	13,9	5,7	0

Specifications

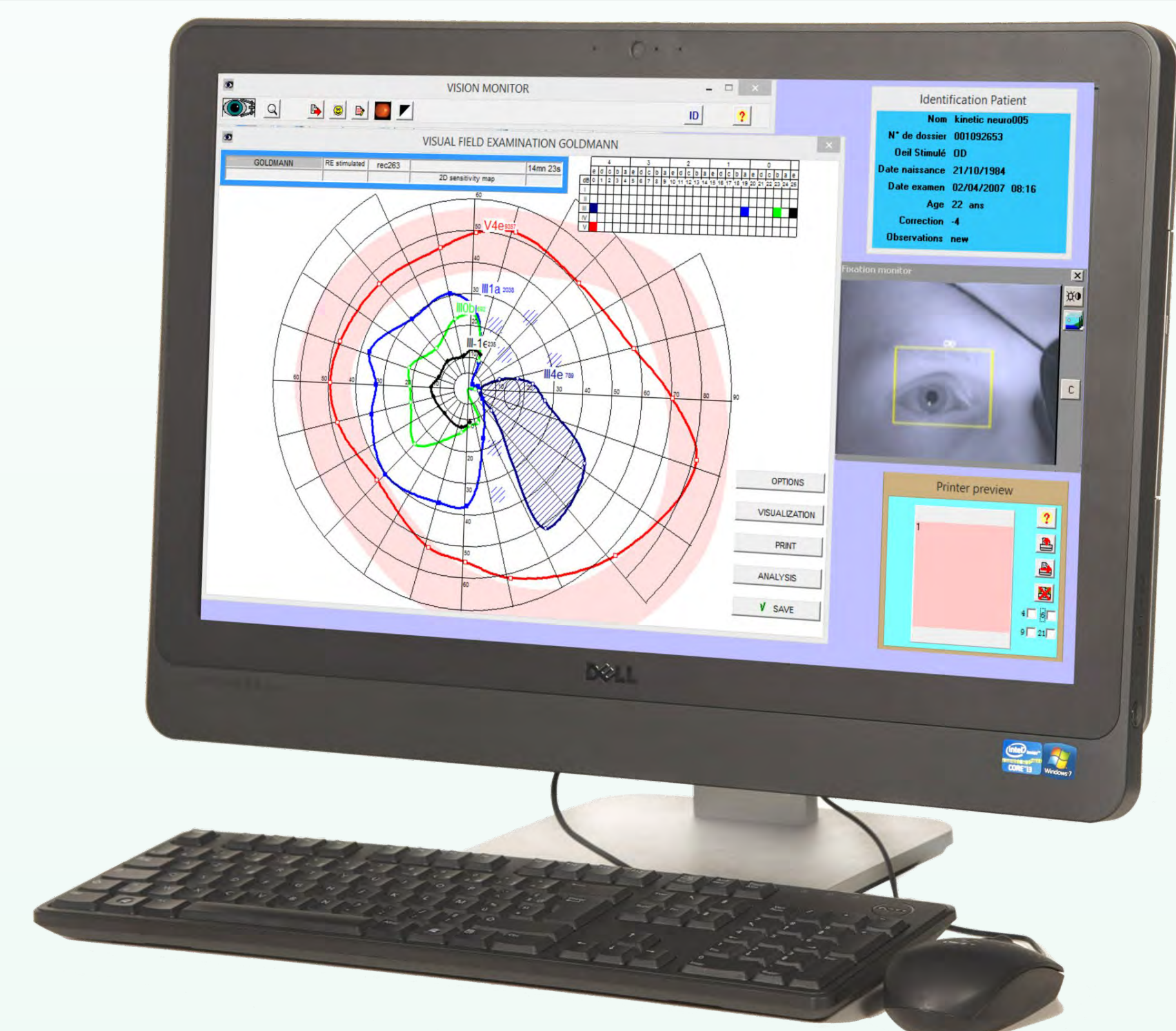
- Hemispherical cupola with 30 cm radius;
- Full field projection perimeter, up to the true limits of the visual field;
- **Test sizes:** Goldmann I, II, III, IV, V, ganzfeld;
- Automated control of calibration
- **Dimensions:** footprint=62x35cm, height=74cm;
- **Weight:** 23 kg (without PC, printer and electric table);
- **Power supply:** 110-240V, 3.6-1.8A , 50-60Hz.



Computer networking

MonCV*One* is controlled from a standard PC or tablet operating under Windows 11 PRO.

It can be connected to a computer network allowing the access of results from a work station and their exportation under **PDF** or **DICOM** formats.



Examinations and options

Vision psychophysic exams

- Visual field exam (automated static & dark adapted chromatic perimetry)
- Visual field PRO exam (Goldmann, Blue/Yellow perimetry)
- Dark adaptometry exam (dark adaptometry, FST and PAT)
- Macular pigments exam

Eye movements recording

- Video and eye movement recording (during visual field and other exams)

Vision electrophysiology exams (CR++ version)

- Flash and pattern ERG and VEP exam PVM-EL
- Sensory EOG exam PVM-ES

Options

- Electric table HVM-TABLE
- Set of large field refractive lenses HVM-OPTI
- High speed camera (200Hz) HVM-camera-200
- DICOM interface PVM-DICOM

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<http://www.metrovision.com>

