

Evaluation of video imaging technology during visual field perimetry

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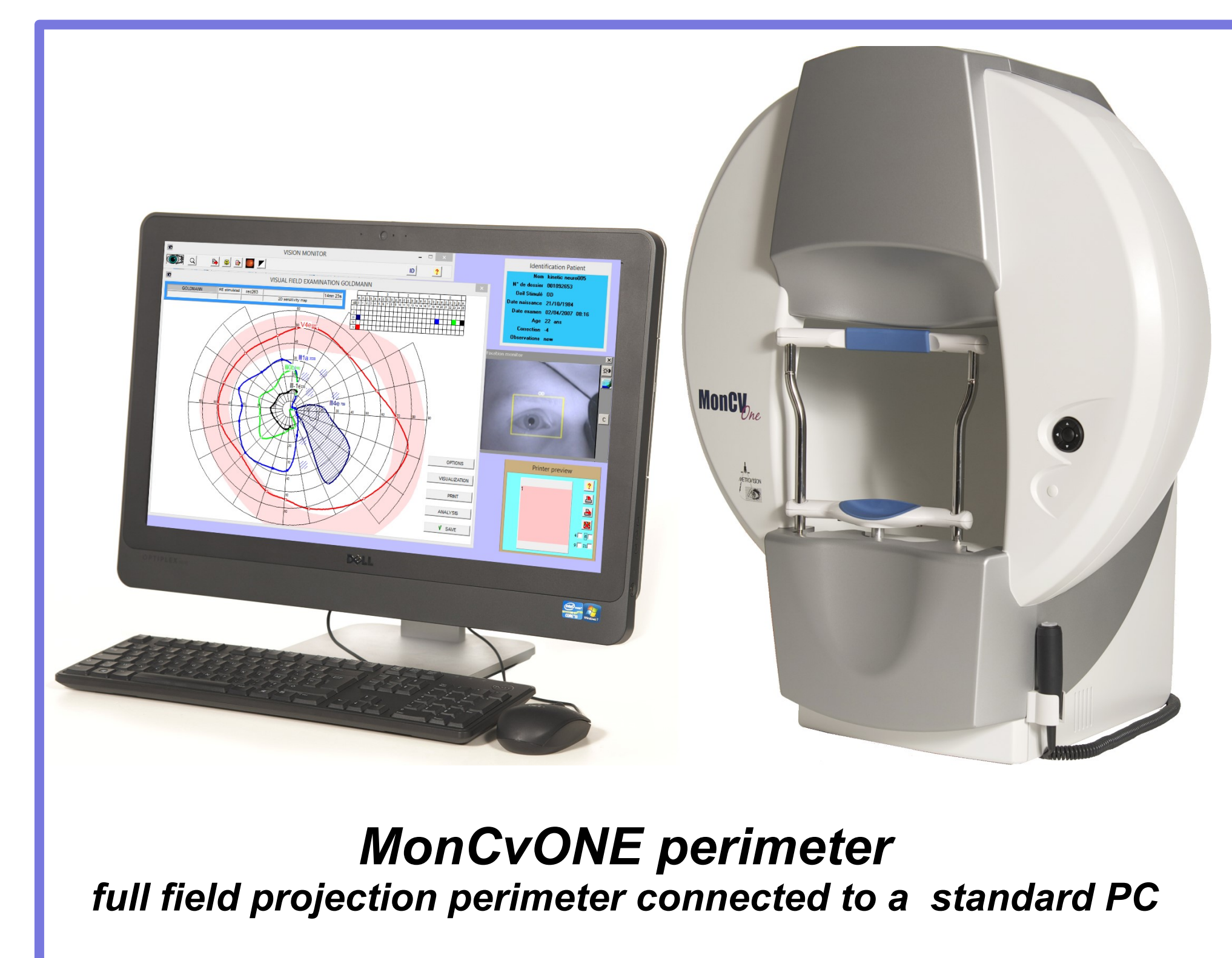
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Purpose

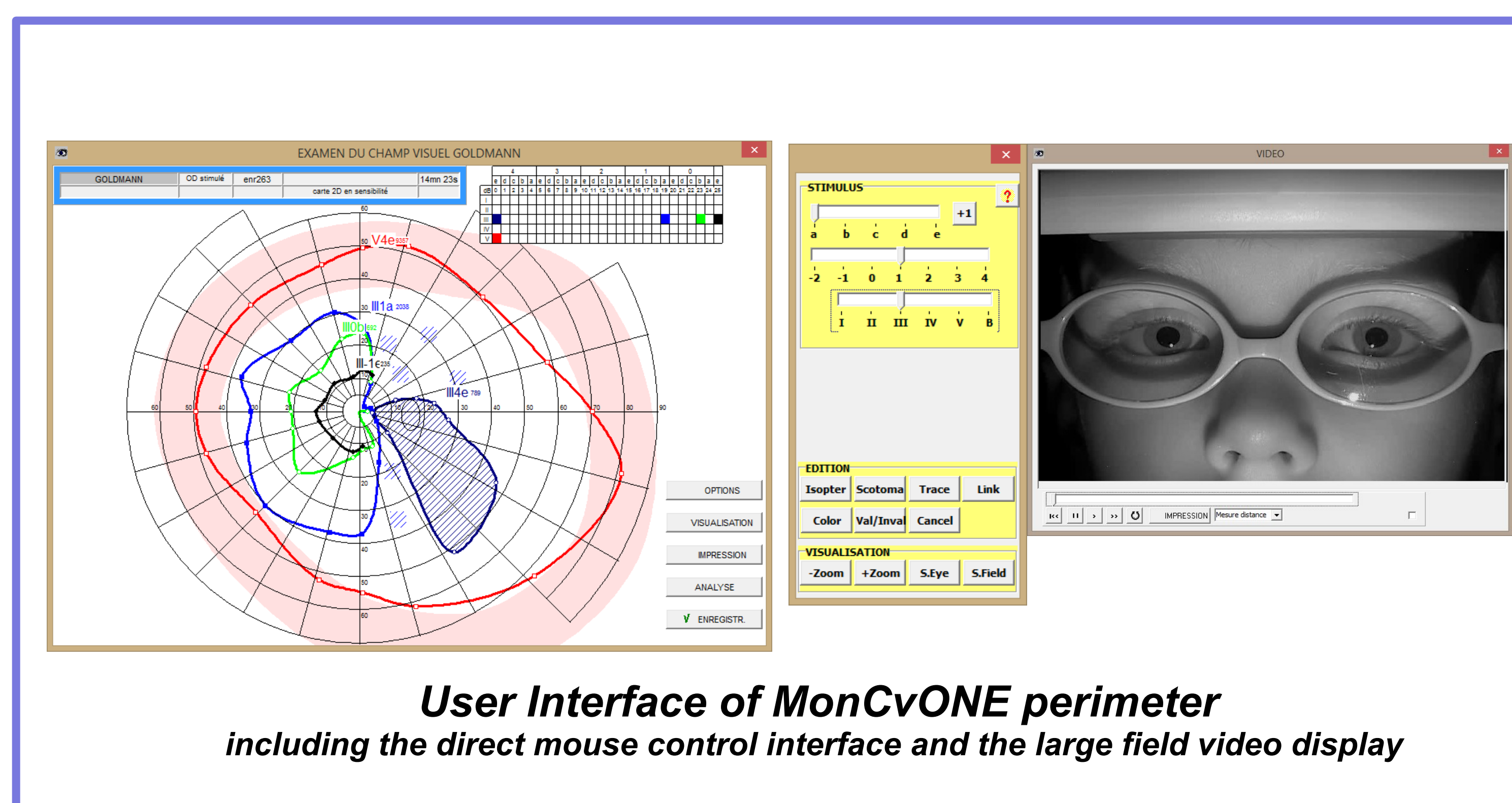
Video imaging consists in recording the entire visual field process in synchrony with the video of the patient's head. Several clinical applications have been investigated to evaluate the clinical usefulness of this new technology.

Methods

The study included results from 48 visual field exams performed on a MonCvONE™ full field projection perimeter with synchronized video recording (Metrovision, Pérenchies, France). The video from a large viewing field (binocular) camera was recorded in synchrony with the position of the visual stimulus, with other test parameters such as luminance and size and with the patient's response obtained from the patient's press button or from the operator judgment. The study included patients who were unable to perform automated perimetry due to young age or handicap, patients with abnormal eye movements, head posture or ptosis and controls performed after automated perimetry.



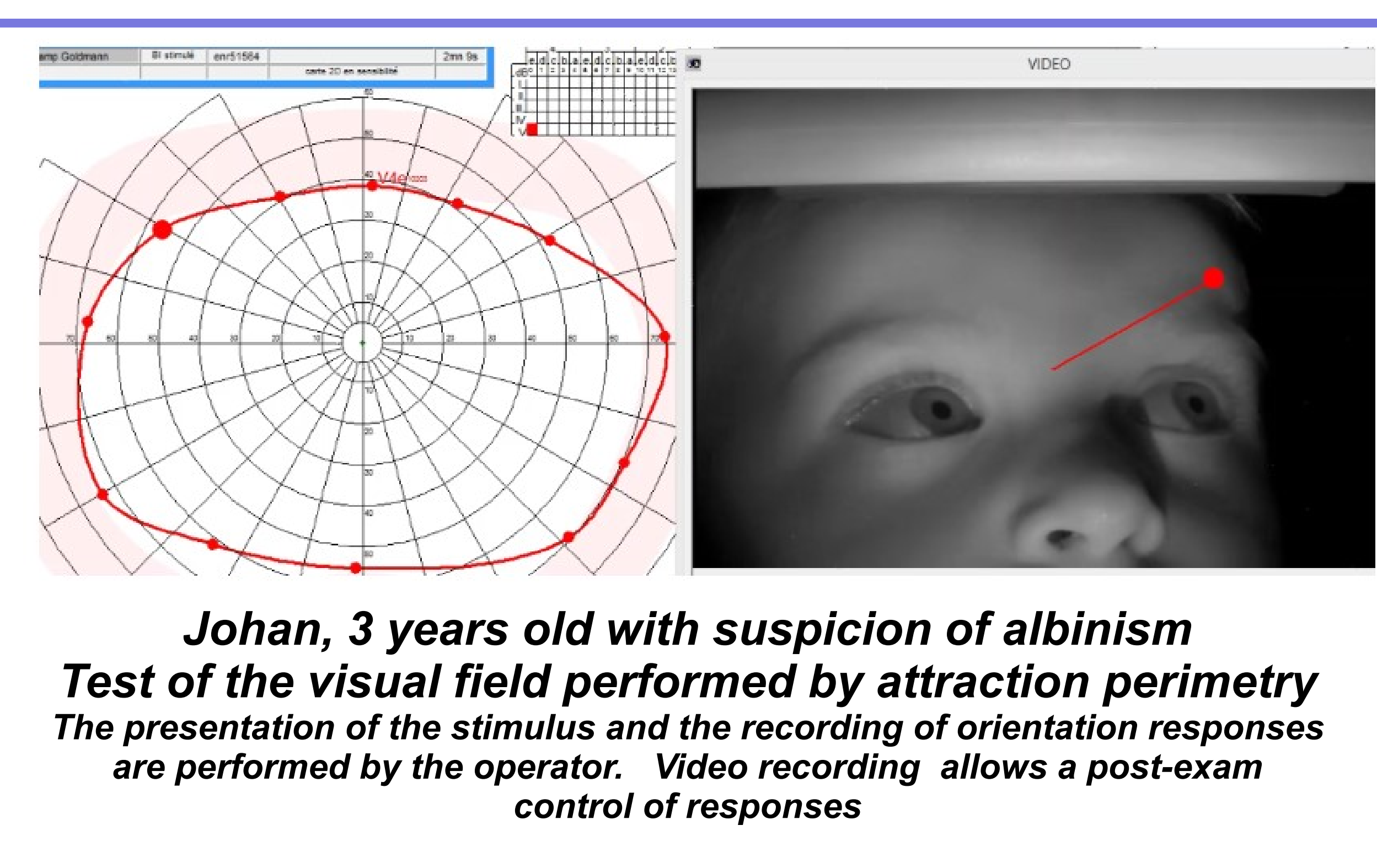
MonCvONE perimeter
full field projection perimeter connected to a standard PC



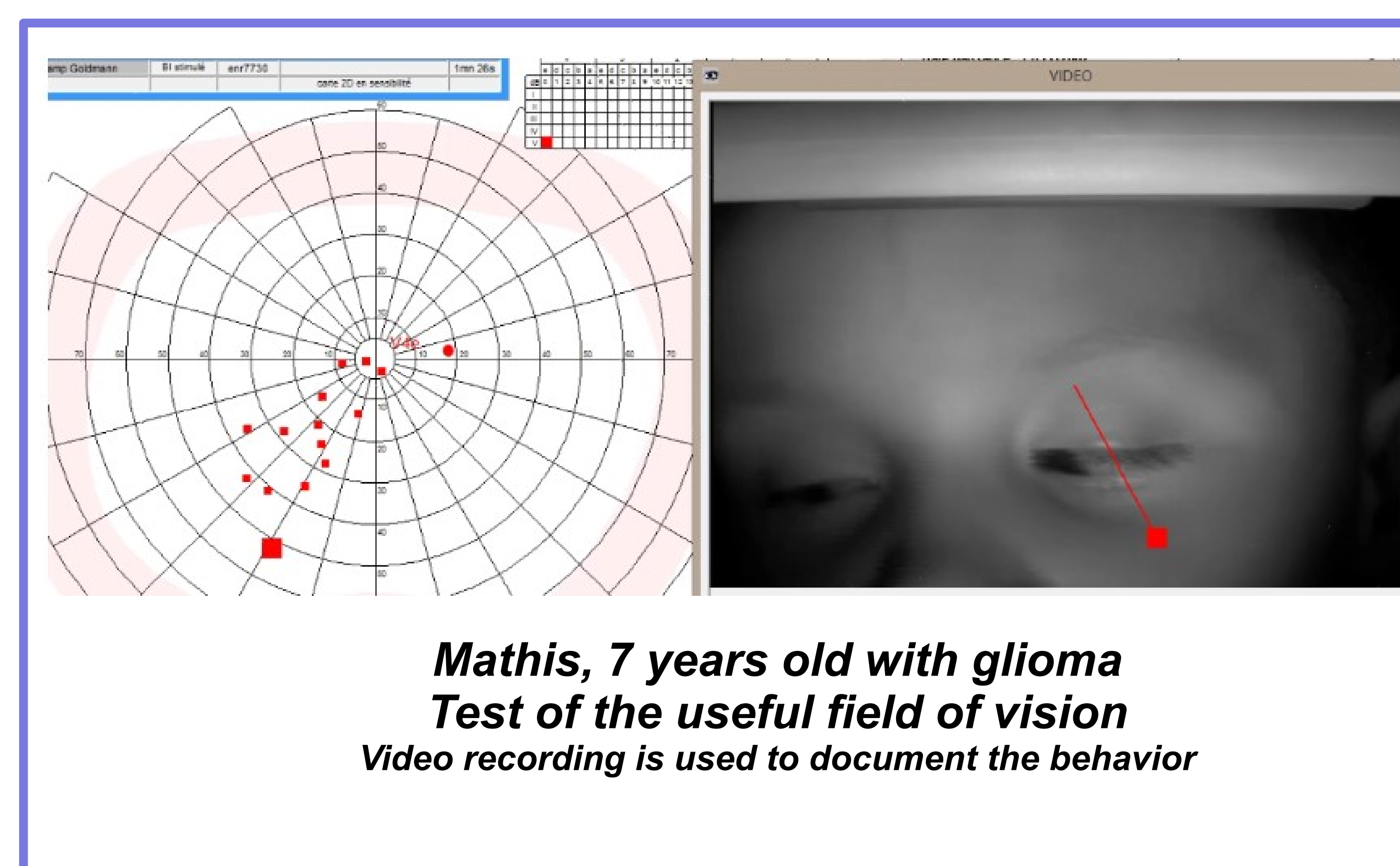
User Interface of MonCvONE perimeter
including the direct mouse control interface and the large field video display

Results

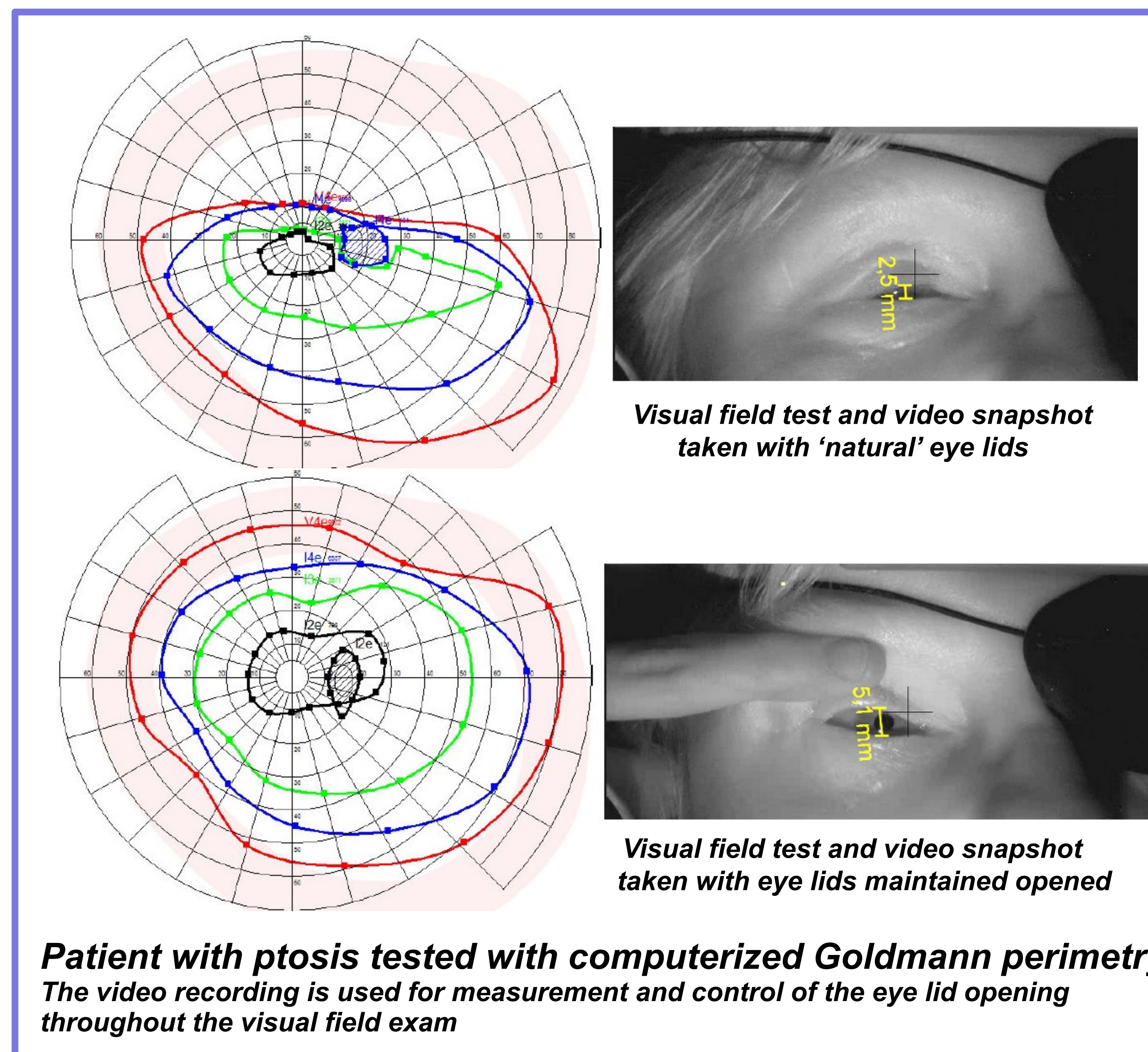
Video recording was extremely useful in the majority of clinical cases. 24 exams were performed on young children (age between 2 and 5 years) using attraction perimetry. The eye orientation responses could be interpreted and validated after the exam. In other cases, the video recording facilitated the interpretation and documentation of visual field results with the inclusion of video snapshots in the examination report. Additional applications included the recording of cardinal eye gaze positions and of the fusion visual field



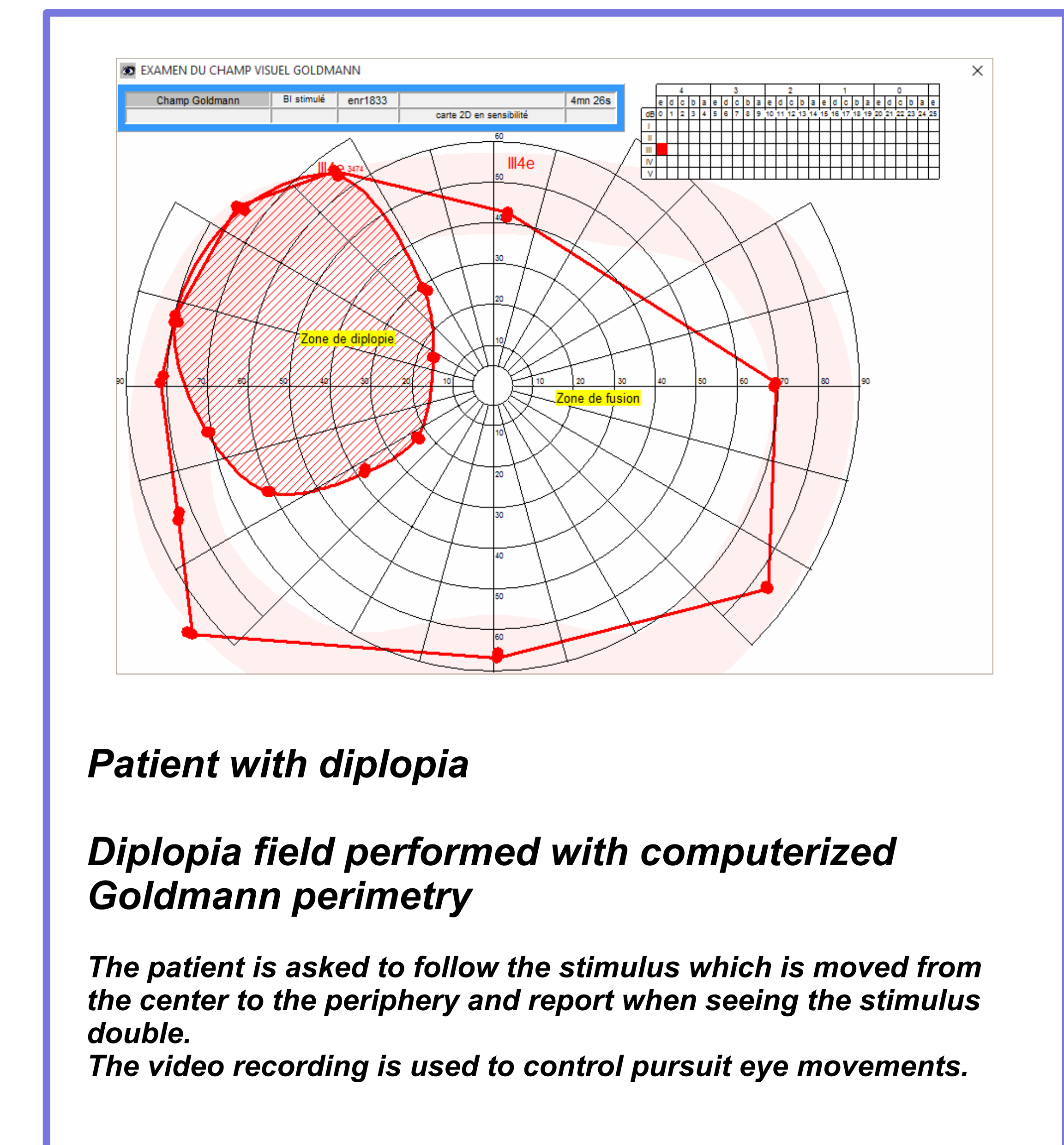
Johan, 3 years old with suspicion of albinism
Test of the visual field performed by attraction perimetry
The presentation of the stimulus and the recording of orientation responses are performed by the operator. Video recording allows a post-exam control of responses



Mathis, 7 years old with glioma
Test of the useful field of vision
Video recording is used to document the behavior



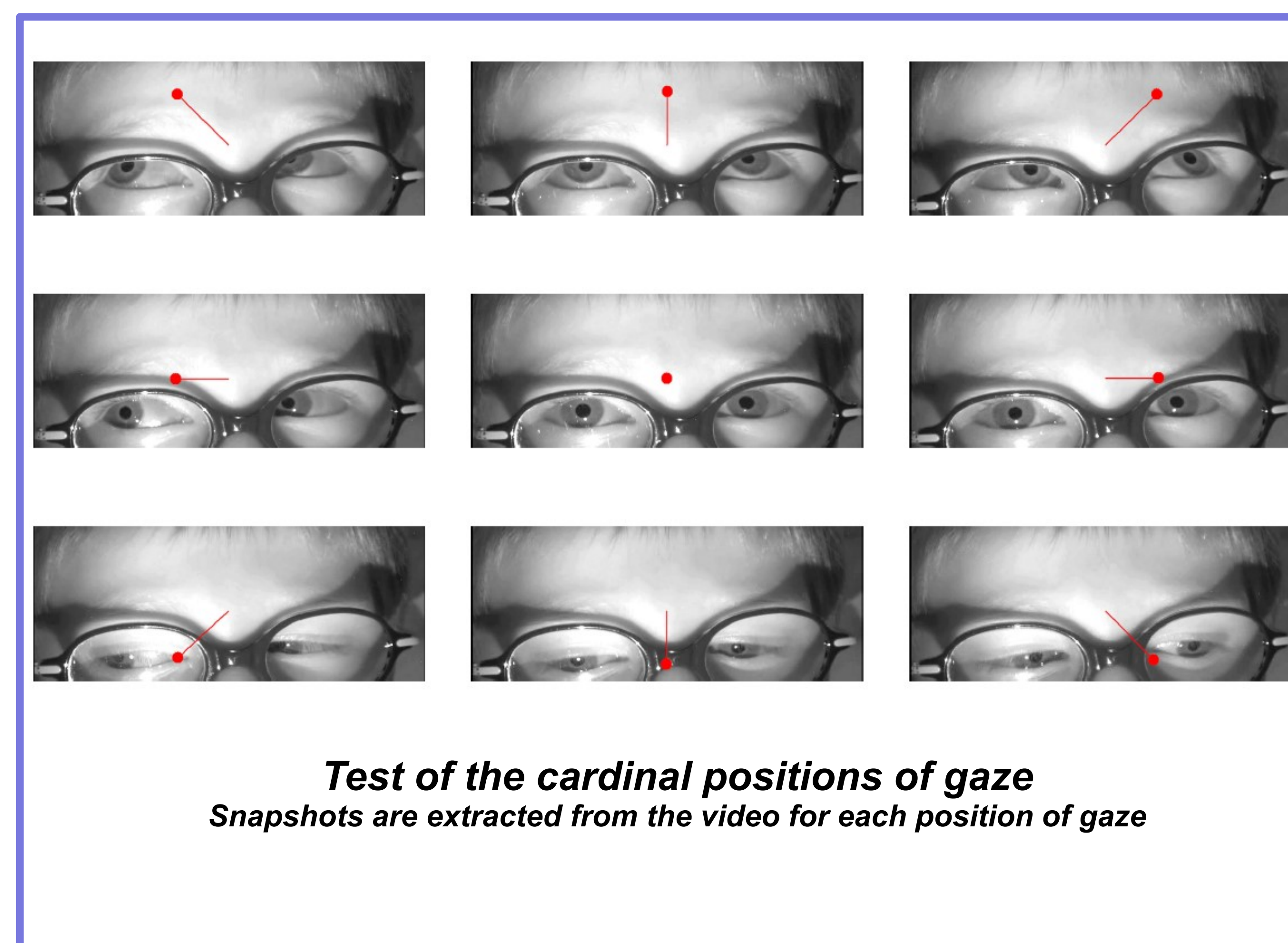
Patient with ptosis tested with computerized Goldmann perimetry
The video recording is used for measurement and control of the eye lid opening throughout the visual field exam



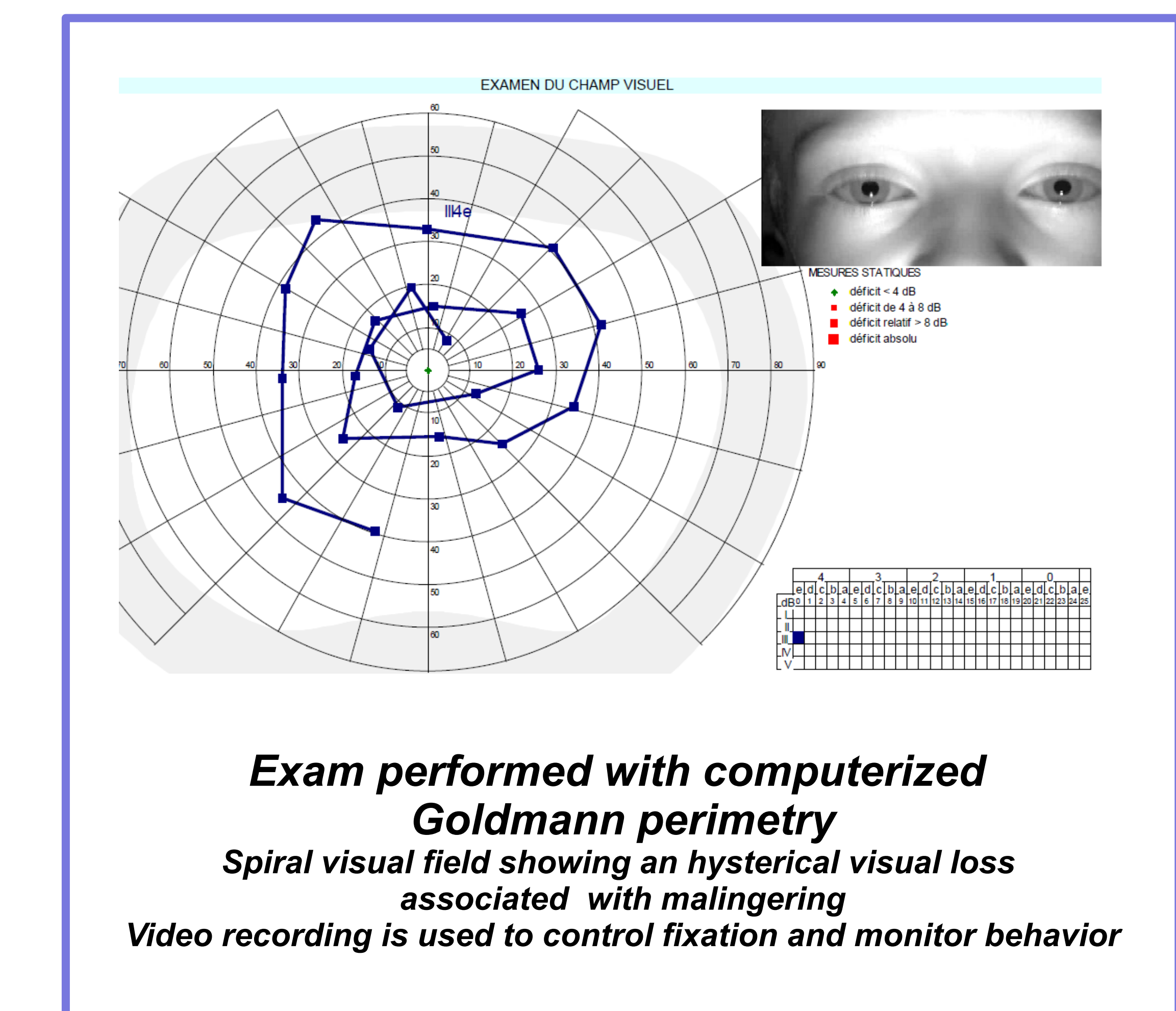
Patient with diplopia

Diplopia field performed with computerized Goldmann perimetry

The patient is asked to follow the stimulus which is moved from the center to the periphery and report when seeing the stimulus double. The video recording is used to control pursuit eye movements.



Test of the cardinal positions of gaze
Snapshots are extracted from the video for each position of gaze



Exam performed with computerized Goldmann perimetry
Spiral visual field showing a hysterial visual loss associated with malingering
Video recording is used to control fixation and monitor behavior

Conclusions

Synchronized video imaging performed during visual field exams is a clinically useful tool for the examination of patients who cannot perform automated perimetry and for the documentation of artefacts and situations such as ptosis, abnormal eye movements, abnormal head posture and incorrect position of refraction correction.

Author Disclosure Block

J.R. Charlier, Metrovision P; X. Zanlonghi, None, S. Defoort-Dhellemmes, None;

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