

Humphrey Matrix

**Proven to find early visual field loss.
Quickly. Easily.**



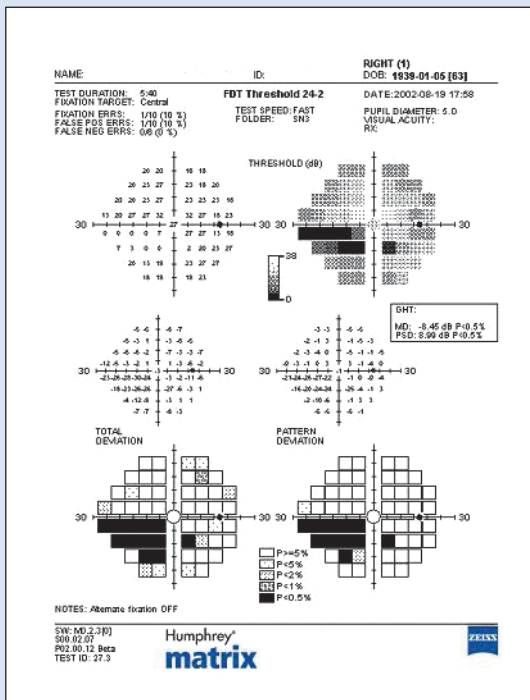
EYE CARE ALLIANCE™

800-328-2020

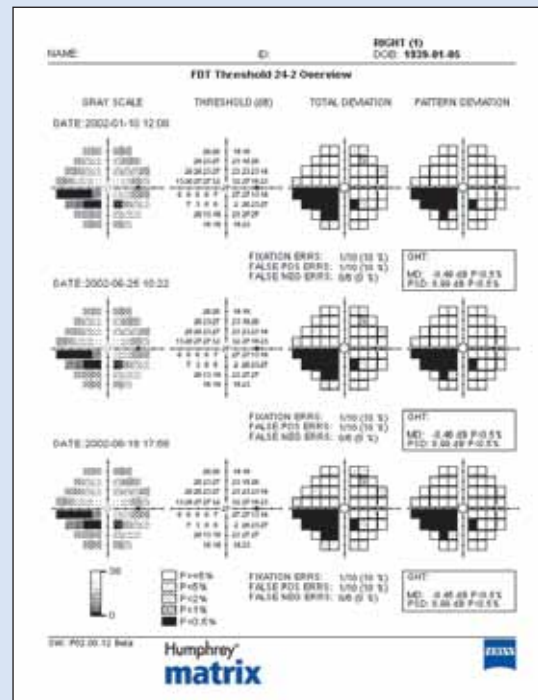
Humphrey Matrix

Operating a visual field instrument doesn't get much easier than a Humphrey Matrix.[®] It provides the ideal solution for busy practices seeking a single perimeter for case detection and fast threshold testing when streamlined assessment is an option. In addition to simplifying visual field testing, numerous studies show that frequency doubling perimetry can detect visual field loss missed by other methods.^{1, 2, 3, 4} Its patented stimulus, space-saving user-friendly design and validated clinical performance all make the Humphrey Matrix an ideal solution for many practices.

- Proven diagnostic performance in detecting early visual field loss.^{5, 6}
- Reliable FDT suprathreshold testing and quick threshold testing for high patient throughput.
- 15% faster threshold testing on average and up to 70% faster for more advanced cases.⁷
- Video eye monitoring simplifies patient alignment and fixation monitoring.
- Large patient-friendly stimuli eliminate the need for trial lens correction in most patients.
- Simple operation allows less experienced staff members to operate.



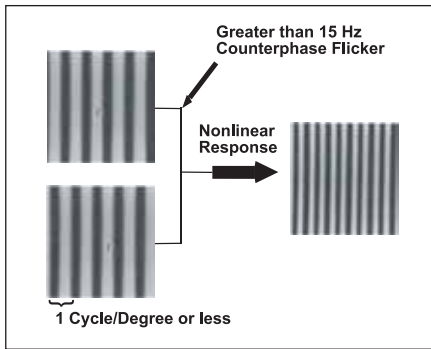
Single Field Analysis



Serial Field Overview

Frequency Doubling Technology

Matrix Frequency Doubling stimuli have been reported to preferentially test for sensitivity losses in the magnocellular pathways of the visual system.⁸ Alternating black and white bars create a patient-friendly frequency doubling illusion. Recent studies demonstrate that while all ganglion cell types are affected by glaucoma, and no one particular test always identifies functional effects of glaucoma first, the Humphrey Matrix has proven high sensitivity and may find defects earlier in a unique subset of patients.^{9, 10}



Frequency Doubling Stimulus



Humphrey Matrix



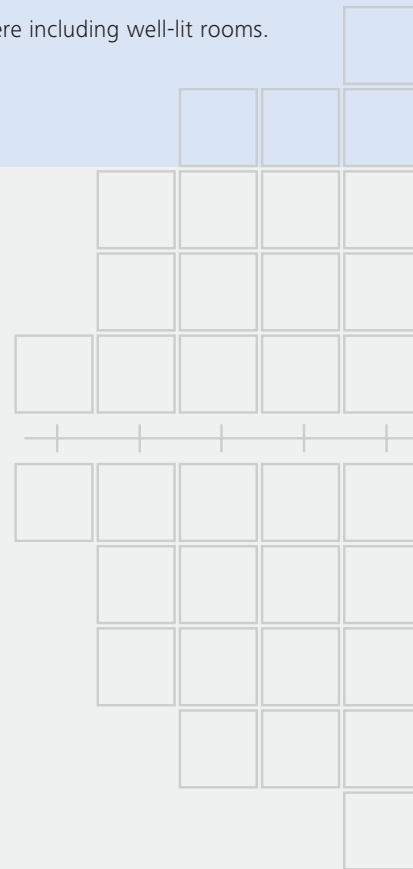
Easy on your patients

- Rapid suprathreshold testing in as little as 40 seconds per eye.
- Patient-friendly design promotes patient compliance and improved diagnostic confidence.
- Unique design eliminates the need for an eye patch.

Easy on your practice

- Minimal training required – suitable for any staff member.
- No trial lenses required.¹¹
- Compact design fits anywhere in your practice and allows use in multiple offices.
- Familiar format HFA-like reports are easy to interpret.
- Operates anywhere including well-lit rooms.

30



Humphrey Matrix

Technical Specifications	
Stimulus	Frequency doubled sinusoidal gratings
Fixation Control	Video eye monitoring
	Heijl-Krakau fixation method
	Alternative fixation targets
Area of Field Tested	Threshold – 30 degrees and macula
	Screening – 30 degrees
Test Library	Threshold
	• 24-2 FDT Full Threshold
	• 30-2 FDT Full Threshold
	• N-30 FDT Full Threshold
	• 10-2 FDT Full Threshold
	• Macula FDT Full Threshold
	Screening
	• N-30 FDT Supra-threshold
• 24-2 FDT Supra-threshold	

* Analysis software not available on N-30 tests.

Selected References

- Albanis CV and Quinones RA. Use of Matrix Frequency Doubling Technology (FDT) to Assess Visual Field Status Following Unreliable Standard Automated Perimetry (SAP). *Invest Ophthalmol Vis Sci.*, 2008 Apr; 49: 1078.
- Racette L, Medeiros FA, Zangwill LM, et al. Diagnostic accuracy of the Matrix 24-2 and original N-30 frequency doubling technology tests compared with standard automated perimetry. *Invest Ophthalmol Vis Sci.*, 2008; 49: 954-960.
- Sample PA, Medeiros FA, Racette L, et al. Identifying glaucomatous vision loss with visual-function-specific perimetry in the diagnostic innovations in glaucoma study. *Invest Ophthalmol Vis Sci.*, 2006; 47: 3381-339.
- Sample PA, Bosworth CF, Blumenthal EZ, Girkin C, Weinreb RN. Visual function-specific perimetry for indirect comparison of different ganglion cell populations in glaucoma. *Invest Ophthalmol Vis Sci.*, 2000; 41: 1783-1790.
- Medeiros FA, Sample PA, Zangwill LM, et al. A Statistical Approach to the Evaluation of Covariate Effects on the Receiver Operating Characteristic Curves of Diagnostic Tests in Glaucoma. *Invest Ophthalmol Vis Sci.*, 2006 Jun; 47: 2520-2527.
- Giuffre I. Frequency Doubling Technology vs Standard Automated Perimetry in Ocular Hypertensive Patients. *Open Ophthalmol J*, 2009 Jan; 3: 6-9.
- Patel A, Wollstein G, Ishikawa H, Schuman J. Comparison of Visual Field Defects Using Matrix Perimetry and Standard Achromatic Perimetry. *Ophthalmology*. 2007 Mar; 114(3): 480-487.
- White AJ, Sun H, Swanson WH, Lee BB. An examination of physiological mechanisms underlying the frequency-doubling illusion. *Invest Ophthalmol Vis Sci.*, 2002 Nov; 43(11): 3590-9.
- Sakata LM, DeLeon-Ortega J, Arthur SN, et al. Detecting Visual Function Abnormalities Using the Swedish Interactive Threshold Algorithm and Matrix Perimetry in Eyes with Glaucomatous Appearance of the Optic Disc. *Arch Ophthalmol*, 2007 Mar; 125: 340-345.
- Tafreshi A, Sample P, Liebmann J, et al. Visual Function – Specific Perimetry to Identify Glaucomatous Visual Field Loss Using Three Different Definitions of Visual Field Abnormality. *Invest Ophthalmol Vis Sci.*, 2009 Mar, Vol. 50, o.3 1234-1240.
- Within \pm 3 diopters.

Technical Specifications	
Test Strategies	MOBS and ZEST
Analysis Software*	Glaucoma Hemifield Test (GHT)
Printer (included)	Full-page color inkjet
Data Storage, Retrieval and Analysis	40 GB hard drive, floppy drive, CD-RW drive, RS-232 interface for PC-compatible data transfer
Dimensions	Height: 17" (43.2 cm)
	Width: 11" (27.9 cm)
	Depth: 24" (60.9 cm)
Electrical	Weight: ~35 lbs. (16 kg)
	100-240 V, 50/60 Hz, 300W max.
	IEC-320 standard power inlet connector for worldwide use
	Meets standards UL, CSA, CE

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