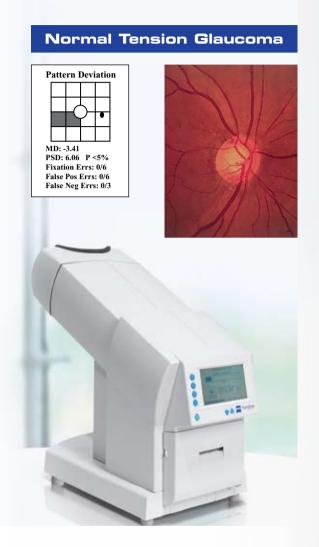
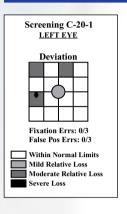




## ocular diseases without specialized training

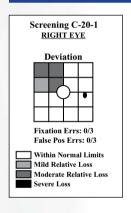


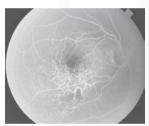
### Diabetic Retinopathy





#### **Branch Vein Occlusion**





# Humphrey FDT is produced by the leader in diagnostic equipment for eye disease – Carl Zeiss Meditec

The Humphrey FDT® is from Carl Zeiss Meditec, the world leader in diagnostic test equipment for ophthalmology. Carl Zeiss Meditec is also the developer and distributor of the Humphrey® Field Analyzer, the recognized gold standard in visual field testing. Humphrey Field Analyzers are used by more eye care providers than any other automated diagnostic perimeter today.

Carl Zeiss Meditec, one of the world's leading medical technology companies, offers integrated solutions for treating the four main eye diseases: vision defects (refraction), cataracts, glaucoma and retinal disorders. Diagnostic products range from slit lamps and fundus cameras to standard-setting diagnostic systems such as the Humphrey Field Analyzer, the Cirrus™ HD-OCT and the IOLMaster.® Carl Zeiss Meditec also produces surgical microscopes and innovative treatment systems for refractive laser surgery.

## FDT can help your staff detect vision loss in

#### **Clinically Validated**

Multiple studies<sup>1-15</sup> have shown that the Humphrey FDT detects visual field loss due to a variety of ocular diseases, including glaucoma. Thus FDT is ideal for clinics desiring to identify patients in need of ophthalmological referral.

• FDT is clinically validated in more than 170 peer-reviewed publications.

### **Proven Performance on Virtually all Patients**

Studies have found that virtually all patients can perform this fast and simple test with reliable results:

- Beijing Eye Study: 98% patient success
- Tajimi Population Screening Study: 98.7% patient success.





## The Humphrey FDT can detect visual field loss associated with a variety of ocular diseases

Cause of visual field loss	Number of subjects	Percentage
Cataract	116	2.6
Glaucoma	110	2.5
Degenerative and high myopia	86	2.0
Non-glaucomatous optic nerve disease	30	0.7
Diabetic retinopathy	13	0.3
Corneal opacity	12	0.3
Retinal vein occlusion	10	0.2
Macular degeneration	6	0.1
Vitreous opacity	3	0.07
Epiretinal membrane	3	0.07
Stroke	2	0.05
Retinal detachment	2	0.05
Other	62	1.4
<b>Total Case Detection</b>	455	10.5%

FDT case detection in 4350 subjects Beijing Eye Study (excerpted data)  $^{15}$ 

## ocular diseases without specialized training

#### Use the FDT Anywhere:

- General hospitals
- Polyclinics
- Community clinics
- · Industrial health check clinics
- Optical shops

Patients with a positive FDT result can be referred for specialized ophthalmic examination. Interpretation criteria may be adjusted for local conditions.

#### **Easy to Operate and Interpret**

The FDT is optimized for use in non-ophthalmological settings and may be operated by healthcare workers having little or no specialty training in ophthalmology.

- Simplified three touch operation
- Patients may be tested using their own glasses
- Short test: ~40 seconds per eye
- Small footprint
- Simplified interpretation of results



## FDT is easy on patients

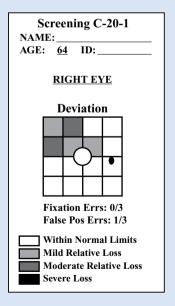
- Comfortable headrest
- · Large, easily seen test stimuli
- Ergonomic response button
- · Short testing time

The FDT is a small, automated peripheral vision testing device. The patient simply presses a response button whenever he/she sees a test stimulus. These simple operating requirements, coupled with the instrument's well-documented clinical performance, make it a natural choice to detect the effects of eye diseases on visual function.



## FDT is ideal for screening

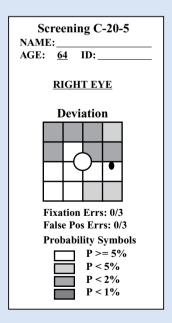
- Highly sensitive in detecting visual field loss associated with a range of eye diseases
- Can be placed almost anywhere, including non-ophthalmic clinical settings
- · Technician operated, with minimal training
- Fast and easy testing for patients in 40 seconds per eye
- Simple to understand test



Shaded locations in the FDT printout indicate areas of visual field sensitivity that are outside normal limits.

• The results illustrated above are consistent with a diagnosis of glaucoma. The darkest symbols indicate areas of the patient's peripheral vision that were lower than that found in 99.5% of normal subjects.

The C-20-1 test emphasizes high specificity and is therefore best designed for general screening of large populations. The C-20-5 test emphasizes high sensitivity to optimize detection of early, subtle pathologic sensitivity loss, and is best designed for screening ophthalmic patients with risk factors or symptoms associated with eye diseases.



Test reliability is automatically assessed by presenting fixation loss and false positive trials.

• The printout above indicates that the patient's gaze was quite steady during the test (Fixation Errs: 0/3), and that the patient reliably pressed the response button when a stimulus actually was seen. (False Pos Errs: 0/3.)

## **Humphrey FDT Perimeter**

Technical Specifications		
Test specifications	Maximum temporal range – 30 degrees	
	Stimulus duration – 300 ms	
	Visual field testing distance – infinity	
	Background illumination – 100 cd/m <sup>10</sup>	
Threshold test library	N-30	
	C-20	
Screening test library	C-20	
	N-30	
Screening test modes	Age corrected	

and the same of
THE R
STATE OF THE PARTY

Simple test that an inexperienced test-taker can perform easily and comfortably.

User Features		
Fixation control	Heijl/Krakau blind spot monitor	
Operator interface	LCD	
Stimulus	Frequency doubling	
General testing features	Stimulus sizes – 10 degrees	
Printer	Thermal printer	
Data storage, retrieval and analysis	PC-based – ViewFinder option	
Dimensions	Height: 17" (43 cm)	
	Width: 10" (25 cm)	
	Depth: 19" (48 cm)	
	Weight: 19 lbs (8.6 kg)	
Electrical requirements	100-120 V, 50/60 Hz	
	230 V, 50/60 Hz	
Meets UL, CSA, CE standards	Yes	

#### Selected References

- 1 Johnson CA, Samuels SJ. Screening for glaucomatous visual field loss with frequency-doubling perimetry. Invest Ophthalmol Vis Sci. 1997 Feb; 38(2): 413-425.
- <sup>2</sup> Parikh R, Naik M, Mathai A, et al. Role of frequency doubling technology perimetry in screening of diabetic retinopathy. *Indian J Ophthalmol*. 2006 Mar; 54(1): 17-22.
- 3 Realini T, Lai MQ, Barber L. Impact of diabetes on glaucoma screening using frequency-doubling perimetry. Ophthalmology. 2004 Nov; 111(11): 2133-6.
- 4 Thomas D, Thomas R, Muliyil JP, et al. Role of frequency doubling perimetry in detecting neuro-ophthalmic visual field defects. Am. J Ophthalmol; 2001 June; 131(6): 734-41.
- 5 Wall M, Neahring RK, Woodward KR. Sensitivity and specificity of frequency doubling perimetry in neuro-ophthalmic disorders: a comparison with conventional automated perimetry. Invest Ophthalmol Vis Sci. 2002 Apr; 43(4): 1277-83.
- 6 Detry-Morel M, Zeyen T, et al; Belgian Glaucoma Society. Screening for glaucoma in a general population with the non-mydriatic fundus camera and the frequency doubling perimeter. Eur J Ophthalmol. 2004 Sep-Oct; 14(5): 387-93.
- Quigley HA: Identification of glaucoma-related visual field abnormality with the screening protocol of frequency doubling technology; Am J Ophthalmol; 1998 June, 125(6): 819-29.
- 8 Robin TA, Müller A, Rait J, et al. Performance of community-based glaucoma screening using Frequency Doubling Technology and Heidelberg Retinal Tomography. Ophthalmic Epidemiol. 2005 June; 12(3): 167-78.
- 9 Iwase A et al. Performance of frequency-doubling technology perimetry in a population-based prevalence survey of glaucoma: the Tajimi study. Ophthalmology. 2007 Jan; 114(1): 27-32. Epub 2006 Oct 27.
- <sup>10</sup> Saito M, Yamashiro H, Matsumoto H, Shirato S. [Usefulness of frequency doubling technology as a screening test for glaucoma] [Article in Japanese] Nippon Ganka Gakkai Zasshi. 2001 Jan; 105(1): 20-3.
- <sup>11</sup> Kusaba K, Kawanami M, Ban Y. [The usefulness of frequency doubling technology perimetry in glaucoma screening in health-check program]. [Article in Japanese] *Nippon Ganka Gakkai Zasshi.* 2004 Sep; 108(9): 554-9.
- <sup>12</sup> Tatemichi M, Nakano T, Tanaka K, et al. Performance of glaucoma mass screening with only a visual field test using frequency-doubling technology perimetry. Am J Ophthalmol; 2002 Oct; 134(4): 529-37. Erratum in: 2003 Sep; 136(3): 592.
- <sup>13</sup> Jonas JB, Xu L, Wang YX, et al. The Beijing Eye Study. Acta Ophthalmol. 2009 May; 87(3): 247-61.
- <sup>14</sup> Thomas R, Naveen S, Nirmalan P, Parikh R. Detection of Ocular Disease by a Vision Center Technician & The Role of Frequency Doubling Technology Perimetry in this Setting. *Br J Ophthalmol*. 2009 Aug 18: [Epub ahead of print].
- <sup>15</sup> Wang Y, Xu L, and Jonas JB. Prevalence and causes of visual field loss as determined by frequency doubling perimetry in urban and rural adult Chinese. *Am J Ophthalmol*, 2006 Jun; 141(6): 1078-1086.

The contents of the brochure may differ from the current status of approval of the product in your country. Please contact your regional representative for more

information. Subject to change in design and scope of delivery and as a result of ongoing technical development. © 2009 by Carl Zeiss Meditec, Inc. All copyrights reserved. Cirrus HD-OCT, Humphrey, Humphrey FDT and IOLMaster are either registered trademarks or trademarks of Carl Zeiss Meditec, Inc. in the United States

www.meditec.zeiss.com/us