

# VEO\_JM SAPPHIRE 1.43× / F3.0

For TDI Line Scan

## Key Features

- Optimized for 82 mm line scan sensors
- High resolution over the entire field
- Resolves 3.35  $\mu\text{m}$  in object space
- With beam splitter for axial in-line illumination
- Low chromatic focal shift
- No relative illumination loss at the edge
- Best azimuth marking

## Applications

- FPD (OLED / LCD) inspection
- PCB inspection
- Wafer inspection
- High resolution defect detection
- Quality assurance systems

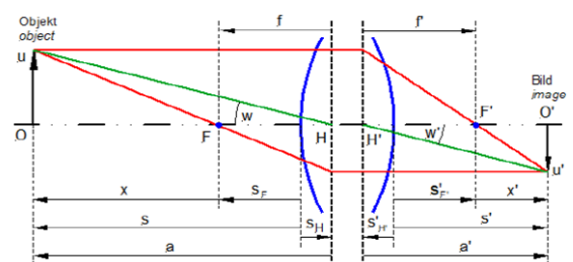


## Performance

Parameter	Specification	Remarks
Magnification range	1.43 (1.38...1.47)	
F/# range	F/3.0 ... F/5.6	Optimum F/3.0
Numerical aperture	0.10	Object Plane
Max. sensor size [mm]	82	
Infinite F/#	F/3.0	
Focal length [mm]	120	
Depth of field [ $\mu\text{m}$ ]	71.2	@ P. CoC 10 $\mu\text{m}$
Distortion	< 0.06%	
Wavelength [nm]	400 ... 700	Visible
Working distance [mm]	50 (51 ... 49)	B/S ... Object
Beam splitter size	25 × 25 × 120	
Total length [mm]	494 ± 2	from Object to Sensor
Interface	V90 mount	0.75 pitch
Iris	Changeable	
Relative illumination	Less than 5%	
Weight [g]	1954	

## Optical Parameters

Contents	Parameter	Value
Chief Ray Angle (Max.) in object plane	CRA	8.0
Effective focal length	f'eff [mm]	119.53
Front focal length	SF [mm]	32.43
Back focal length	S'F' [mm]	76.78
Principal plane distance	HH' [mm]	-1.12
Pupil magnification	$\beta'P$	0.984
Entrance pupil position	SEP [mm]	153.89
Exit pupil position	S'AP [mm]	-40.85
Vertex width	$\Sigma d$ [mm]	193.60



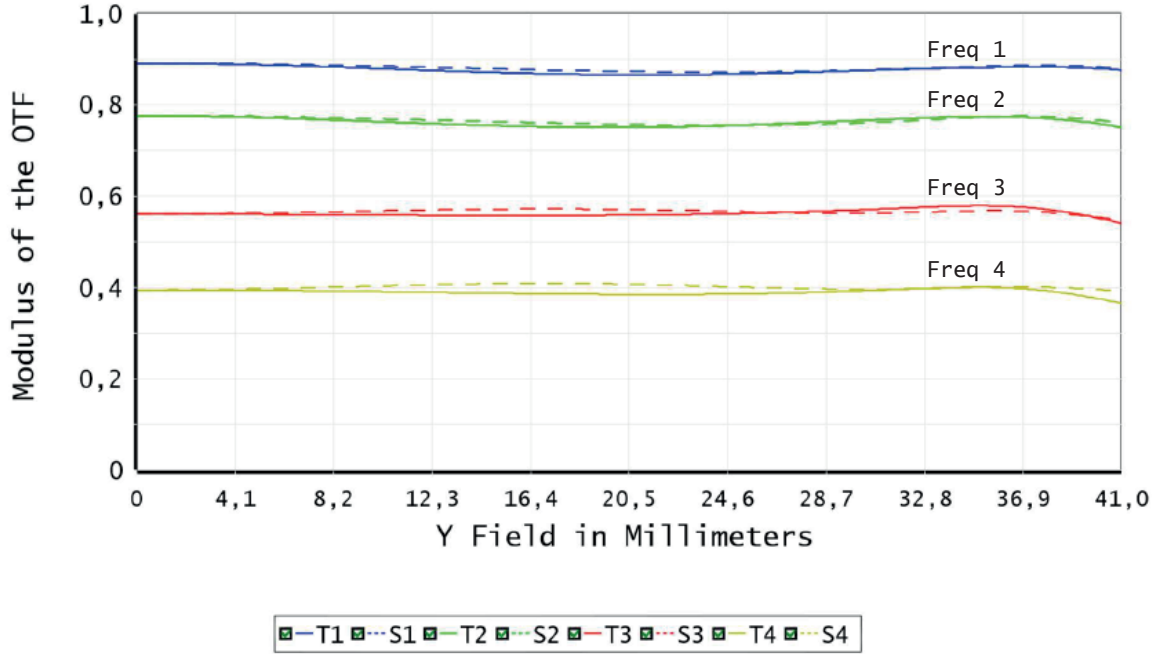
**VIEWWORKS**

www.vieworks.com

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## MTF

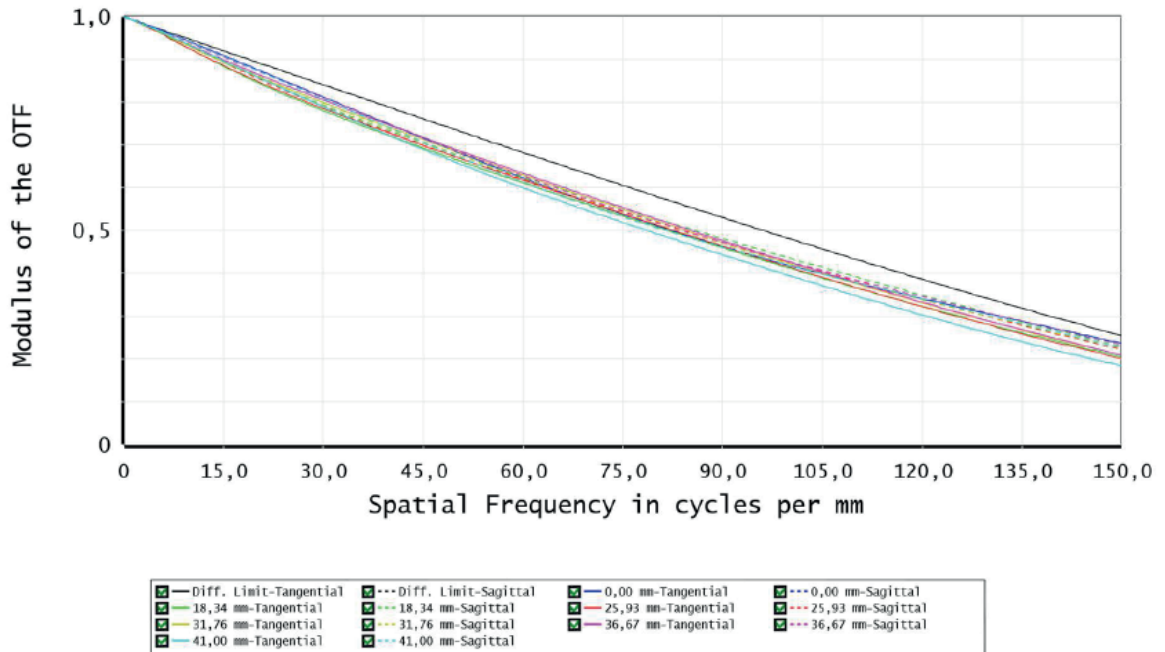


FFT MTF vs. Field

Data for 436 to 645 nm

Freq 1: 18.00 cyc/mm      Freq 2: 36.00 cyc/mm      Freq 3: 72.00 cyc/mm      Freq 4: 108.00 cyc/mm

Legend items refer to Tangential (T) / Sagittal (S) frequency



Polychromatic Diffraction MTF

Data for 436 to 645 nm

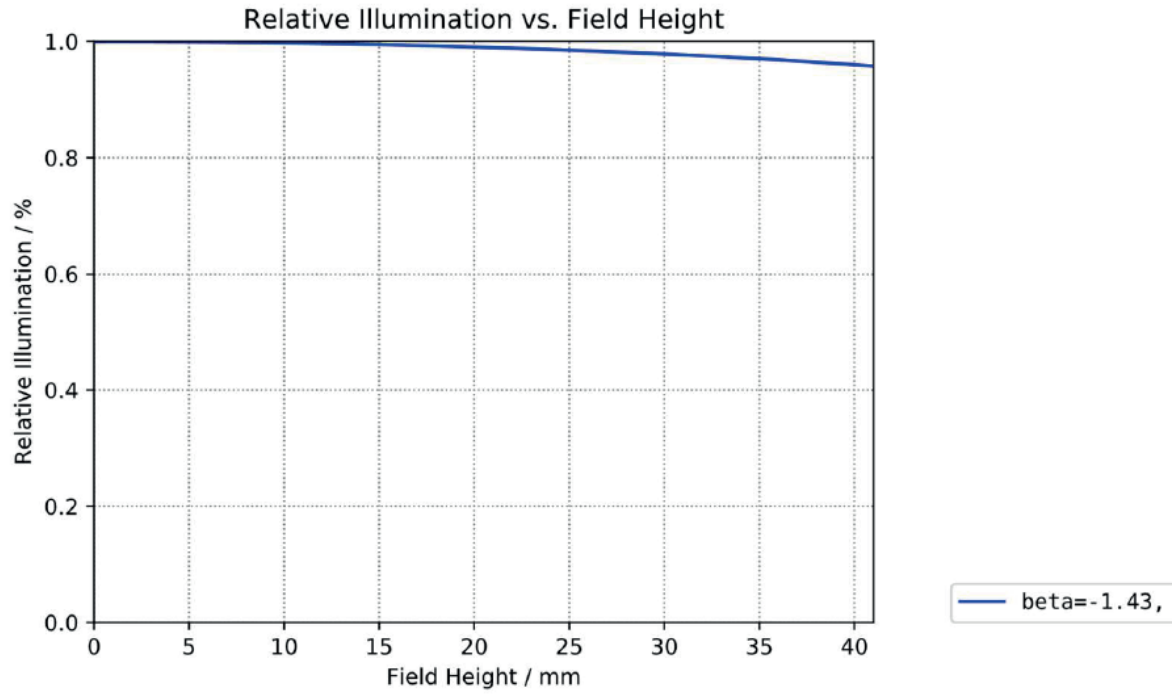
Surface: Image (image level)

Legend items refer to Field positions

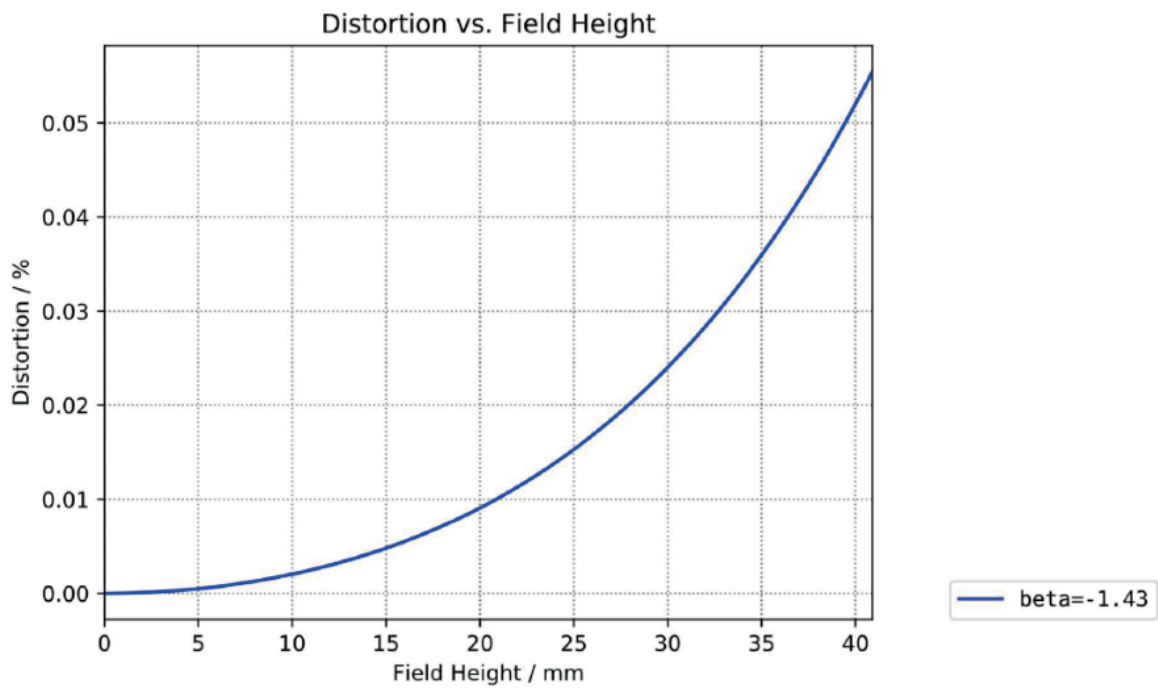
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## Relative Illumination



## Distortion



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## Dimensions

Unit: mm

\* WD and s'A  
in air at  
beta' -1.43

view without  
transport protection

