TECHSPEC® UC SERIES
FIXED FOCAL LENGTH LENSES
#33-307 • 8mm • f/1.8 - f/11.0

Our ultra-compact, TECHSPEC® UC Series Fixed Focal Length Lenses are designed to optimize performance, cost, and size without sacrificing quality or feel. Designed for pixels that are ≤2.2µm, these lenses provide high levels of resolution (>200 lp/mm) across the sensor and are compatible with all standard C-Mount cameras.

Focal Length:	8mm
Working Distance[1]:	50mm - ∞
Max. Sensor Format:	1/2"
Optimized Sensor Format:	1/2.5"
Camera Mount:	C-Mount
Aperture (f/#):	f/1.8 - f/11.0
Distortion %[2]:	<4.70% (on 1/2.5" Sensor)
Object Space NA[3]:	0.030638

Magnification Range:	0X - 0.114X
Type:	Fixed Focal Length Lens
Length[3]:	41.5mm
Weight:	78g
Filter Thread:	M39 x 0.5[4]
RoHS:	Compliant
Number of Elements (Groups):	9 (8)
AR Coating:	MgF_2 (400-700nm)

1. From front housing 2. At 750mm W.D. 3. At minimum W.D. 4. With required thread adapter #33-309

At Minimum W.D. (200mm)								
Sensor Size	1/4"	1/3"	1/2.5"	1/2"	1/1.8"	2/3"	1"	4/3"
Field Of View[5]	32.2mm - 25.6°	43.4mm - 33.9°	53.1mm - 40.7°	59.1mm - 44.7°	N/A	N/A	N/A	N/A

5. Horizontal FOV on Standard (4:3) sensor format. Min W.D.

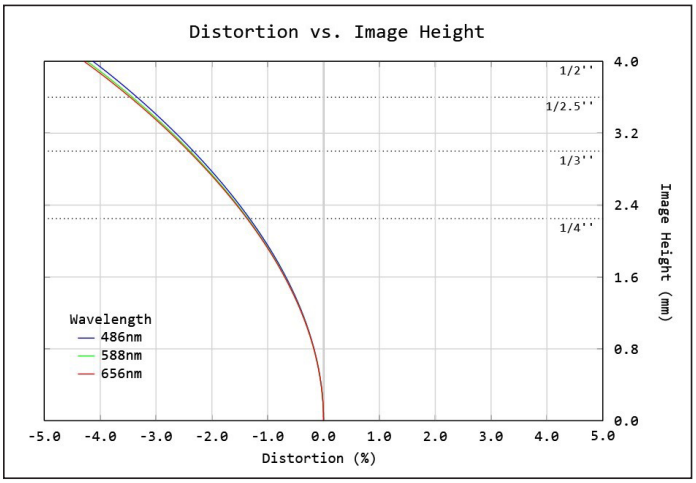

Figure 1: Distortion at the maximum sensor format. Positive values correspond to pincushion distortion, negative values correspond to barrel distortion.

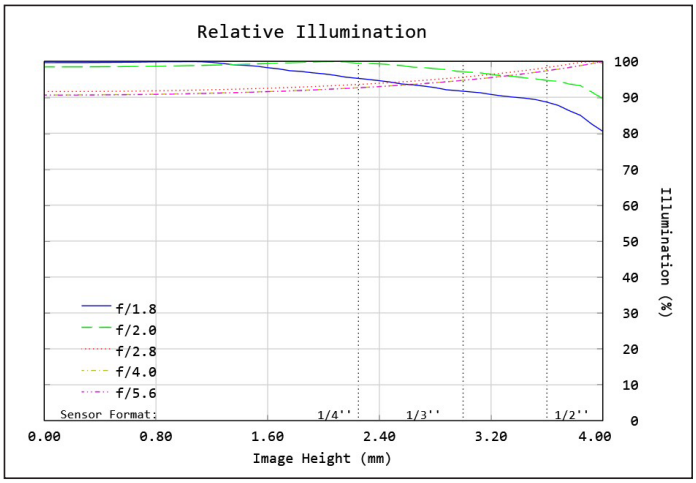

Figure 2: Relative illumination (center to corner)

In both plots, field points corresponding to the image circle of common sensor formats are included. Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.

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MTF & DOF: f/1.8
WD: 100mm
HORIZONTAL FOV: 90mm

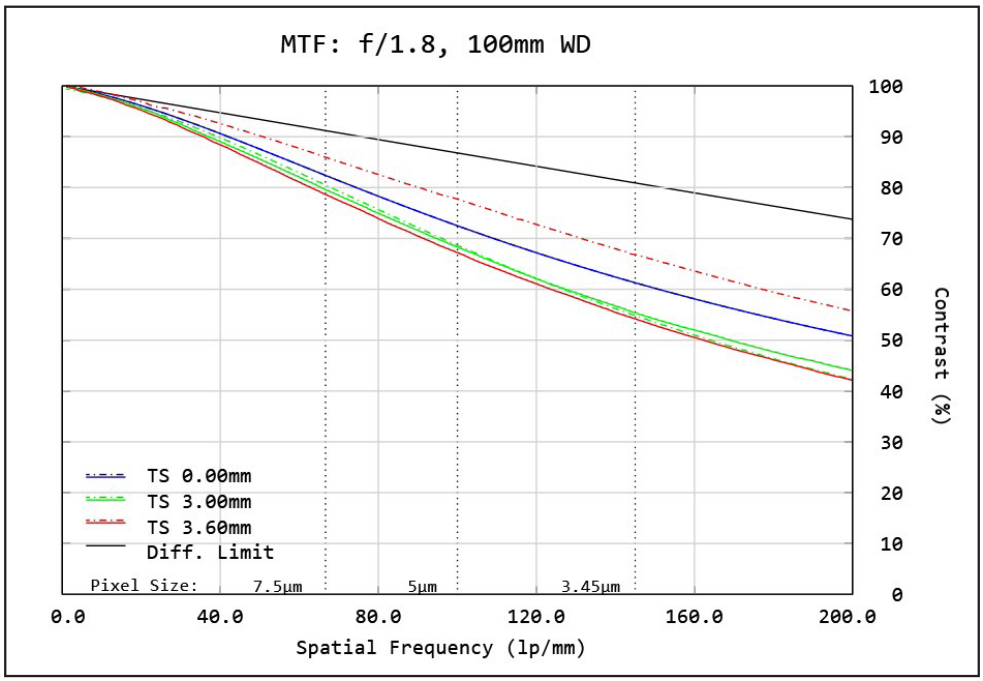

Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the optimized sensor format. Solid black line indicates diffraction limit determined by f/#-defined aperture. Frequencies corresponding to the Nyquist resolution limit of pixel sizes are indicated.

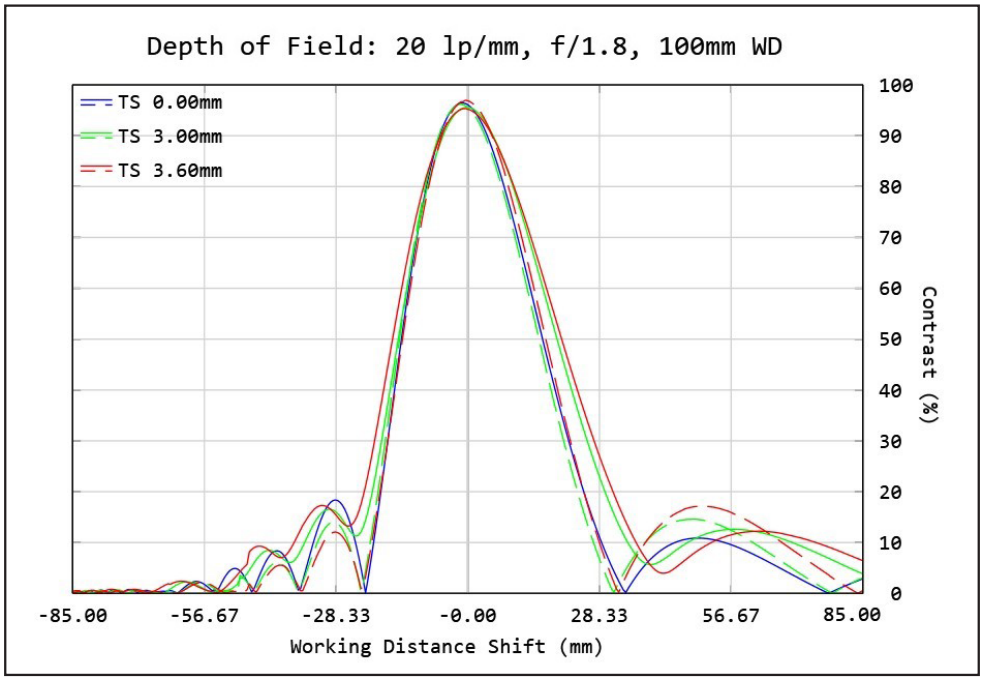

Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.

MTF & DOF: f/4.0
WD: 100mm
HORIZONTAL FOV: 90mm

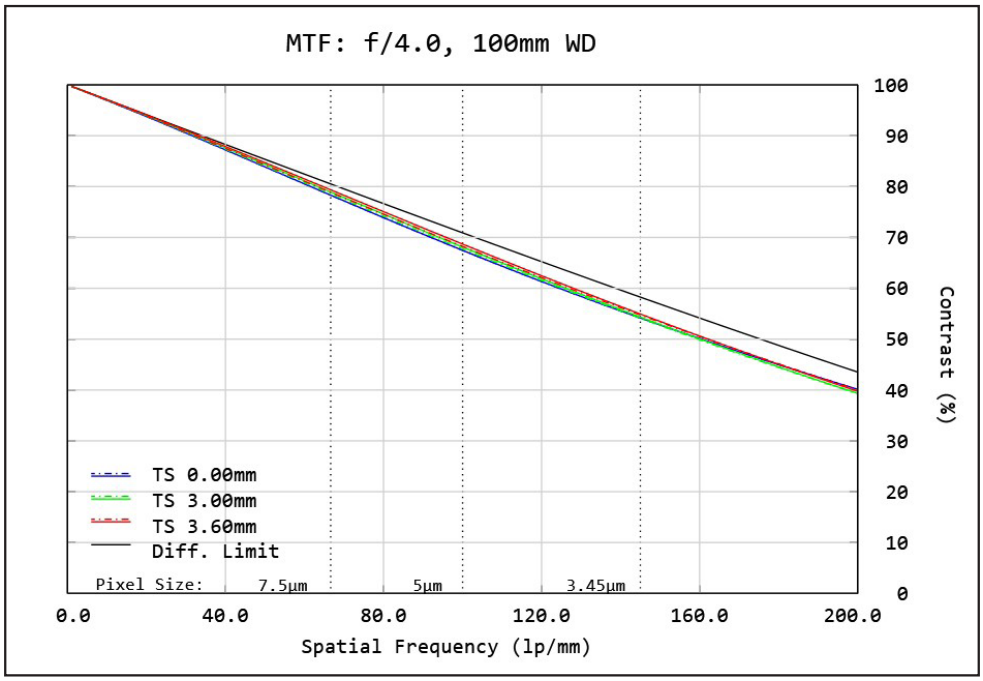

Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the optimized sensor format. Solid black line indicates diffraction limit determined by f/#-defined aperture. Frequencies corresponding to the Nyquist resolution limit of pixel sizes are indicated.

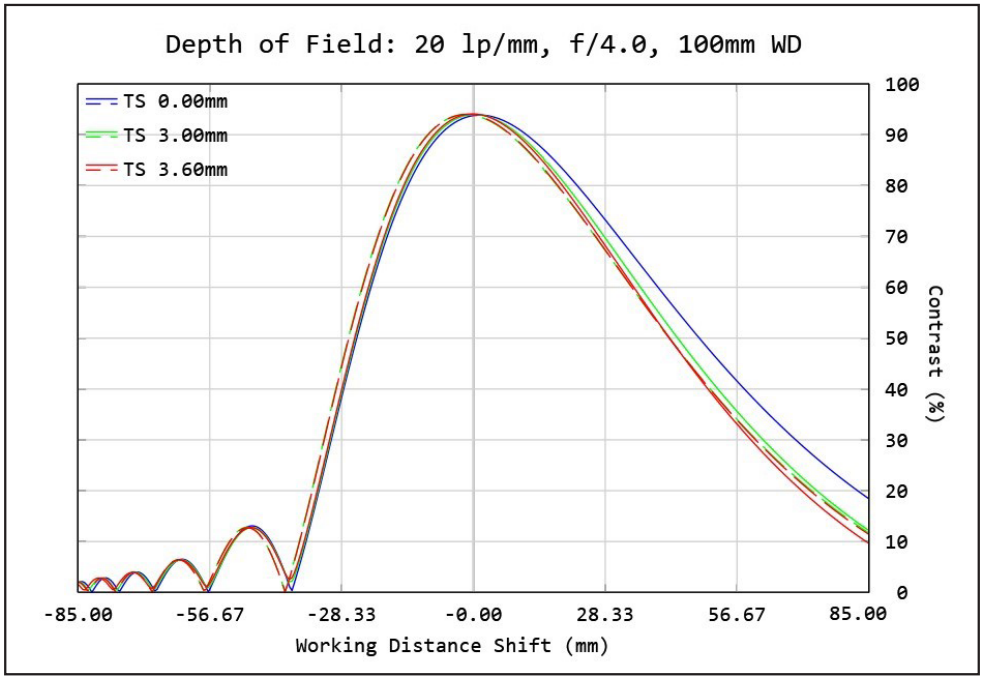

Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.

MTF & DOF: f/1.8
WD: 248mm
HORIZONTAL FOV: 200mm

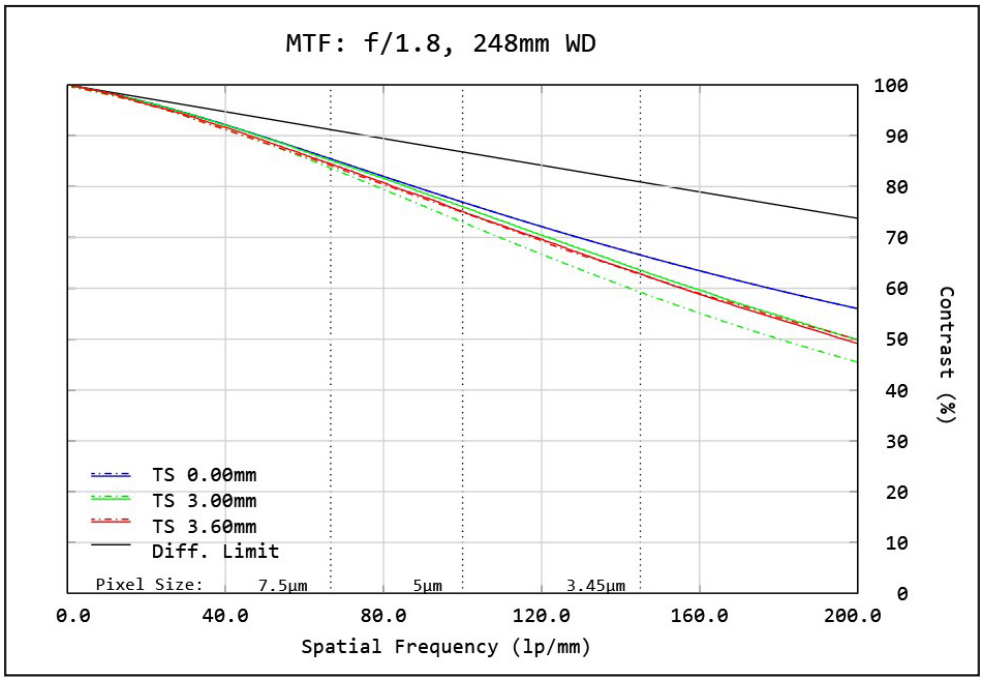

Figure 7: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the optimized sensor format. Solid black line indicates diffraction limit determined by f/#-defined aperture. Frequencies corresponding to the Nyquist resolution limit of pixel sizes are indicated.

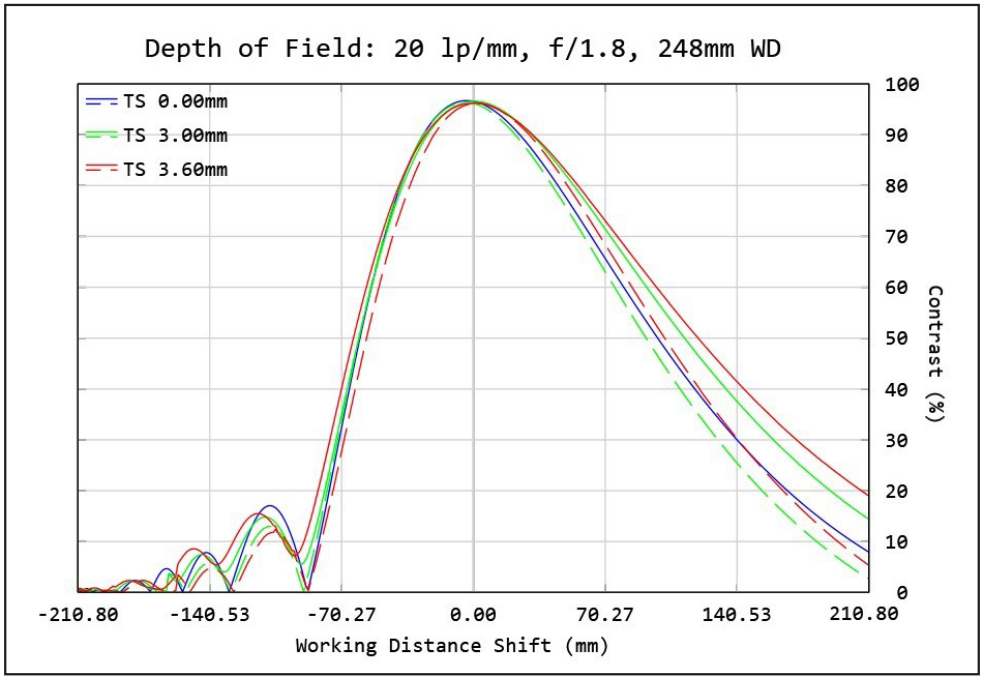

Figure 8: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.

MTF & DOF: f/4.0
WD: 248mm
HORIZONTAL FOV: 200mm

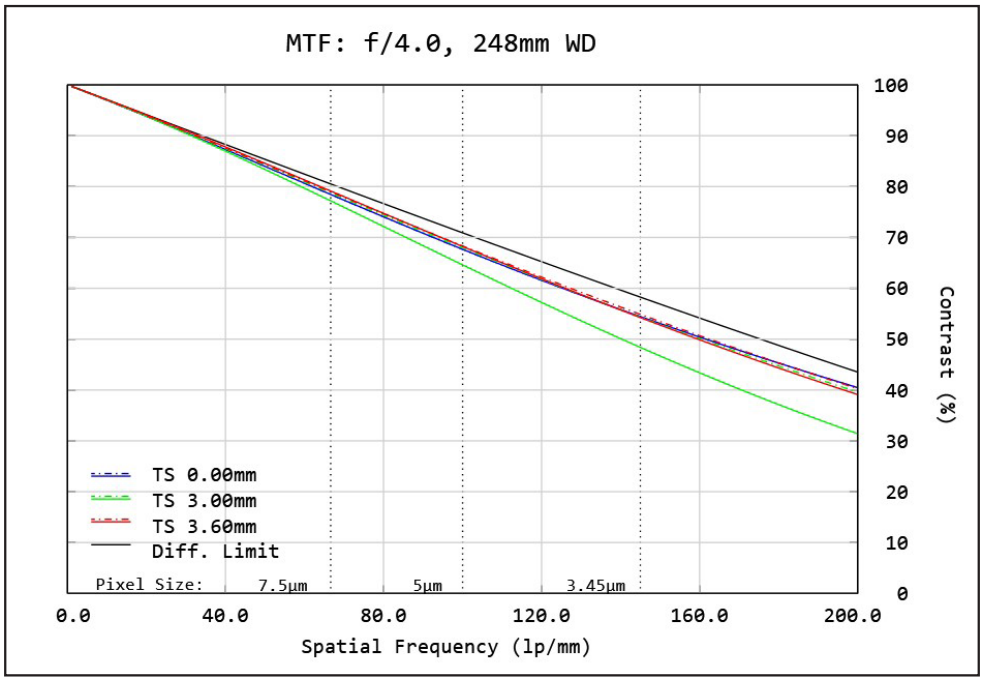

Figure 9: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the optimized sensor format. Solid black line indicates diffraction limit determined by f/#-defined aperture. Frequencies corresponding to the Nyquist resolution limit of pixel sizes are indicated.

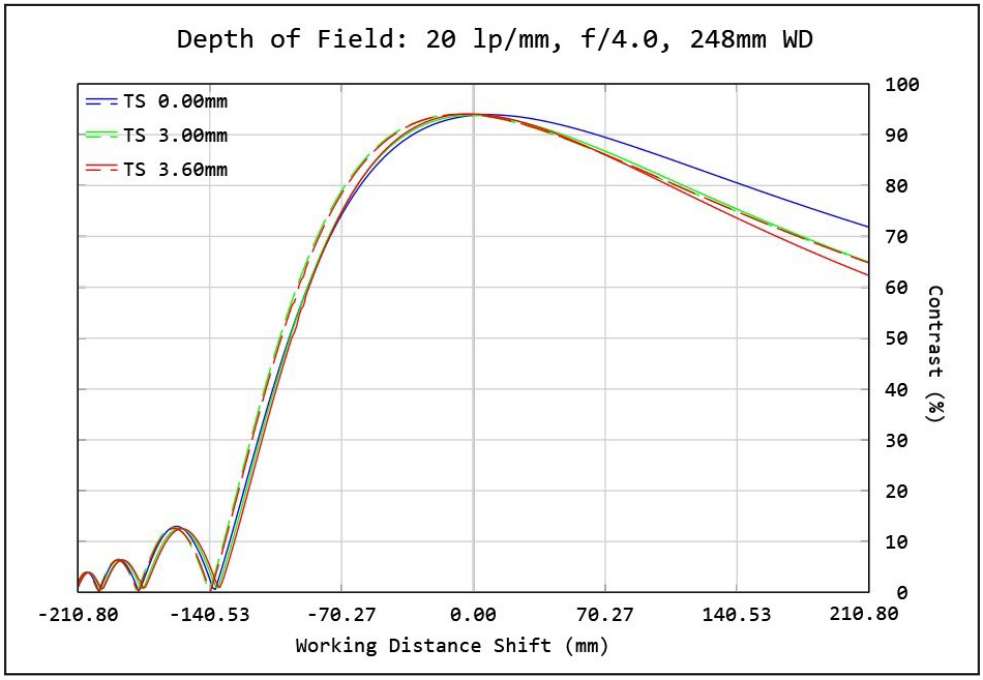

Figure 10: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.