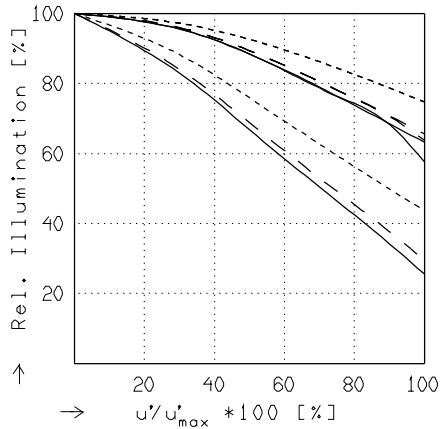
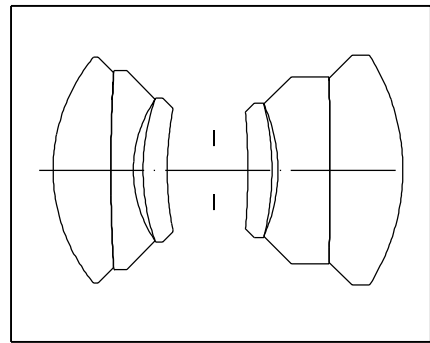


AP0-DIGITAR 4.5/90

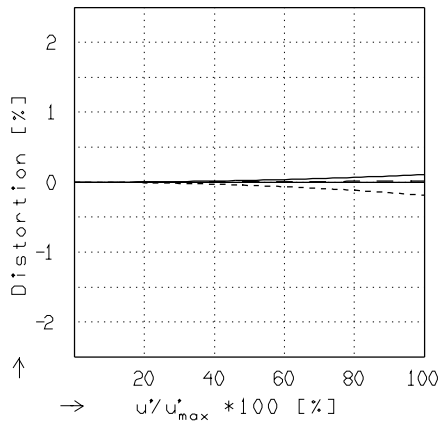
$f' = 89.8 \text{ mm}$ $\beta_p = 1.016$
 $s_F = -66.0 \text{ mm}$ $s_{EP} = 22.4 \text{ mm}$
 $s_{F'} = 66.7 \text{ mm}$ $s_{A'P} = -24.5 \text{ mm}$
 $HH' = -3.5 \text{ mm}$ $\Sigma d = 43.4 \text{ mm}$



RELATIVE ILLUMINATION

The relative illumination is shown for the given focal distances or magnifications.

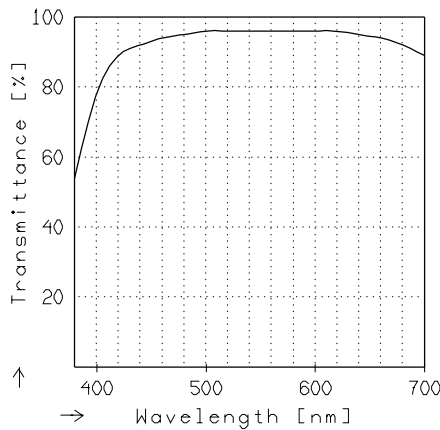
	$f / 4.5$	$f / 8.0$	$f / 11.0$
— $\beta' = -0.0500$	$u'_{max} = 46.0$	$00' = 1977.$	
- - $\beta' = -0.1000$	$u'_{max} = 46.0$	$00' = 1083.$	
- · - $\beta' = -0.3333$	$u'_{max} = 45.9$	$00' = 476.$	



DISTORTION

Distortion is shown for the given focal distances or magnifications. Positive values indicate pincushion distortion and negative values barrel distortion.

— $\beta' = -0.0500$	$u'_{max} = 45.9$	$00' = 1977.$
- - $\beta' = -0.1000$	$u'_{max} = 45.9$	$00' = 1083.$
- · - $\beta' = -0.3333$	$u'_{max} = 45.9$	$00' = 476.$



TRANSMITTANCE

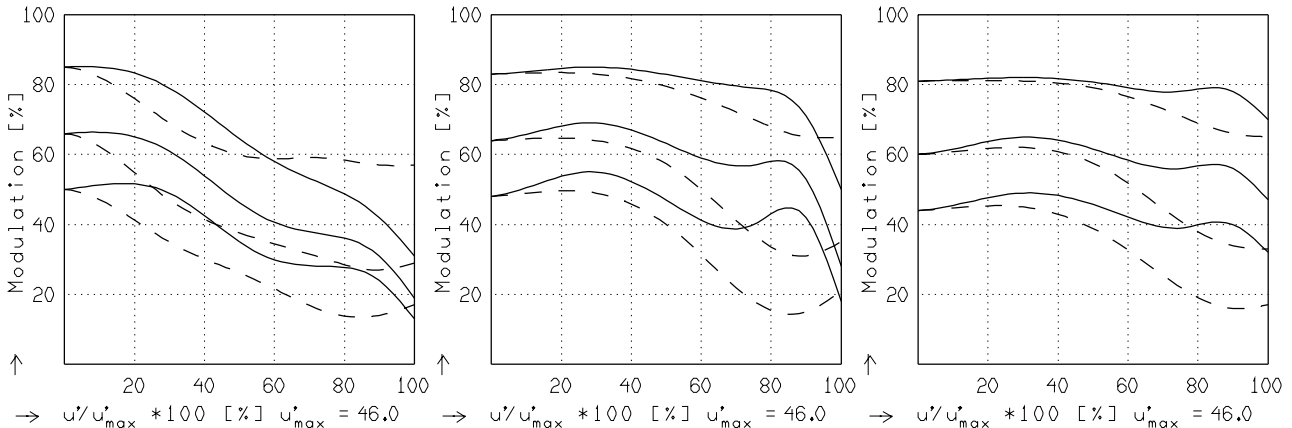
Relative spectral transmittance is shown with reference to wavelength.

APO-DIGITAR 4.5/90

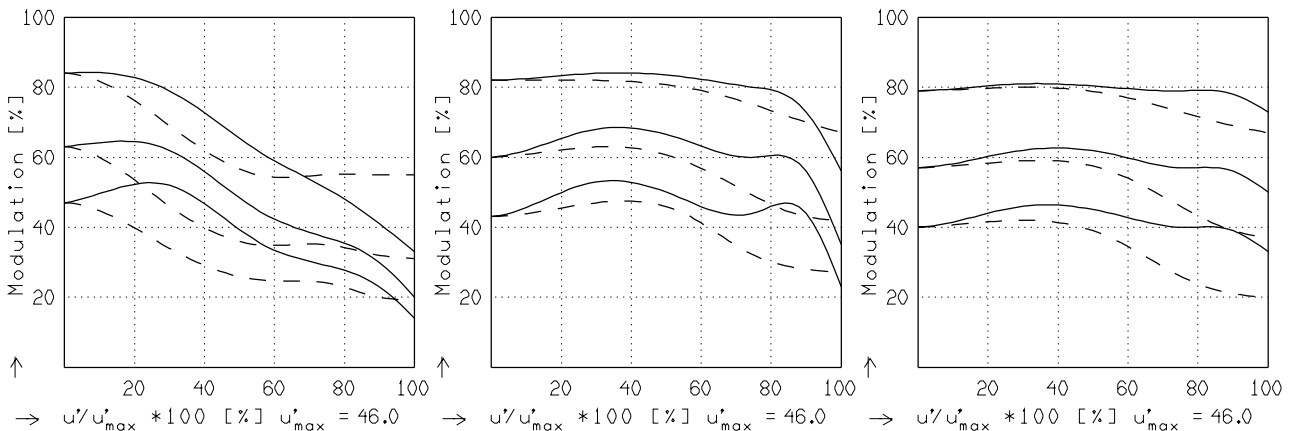
MODULATION with reference to the relative image height

Wavelength λ	[nm]	520	670	620	570	470	420
Spectral weighting	[%]	19.0	10.0	19.0	19.0	19.0	14.0
Spatial frequency R	[1/mm]	20	40	60			
Format	[mm X mm]	65.0	X	65.0			
Diagonal $2u'$	[mm]	92.0					

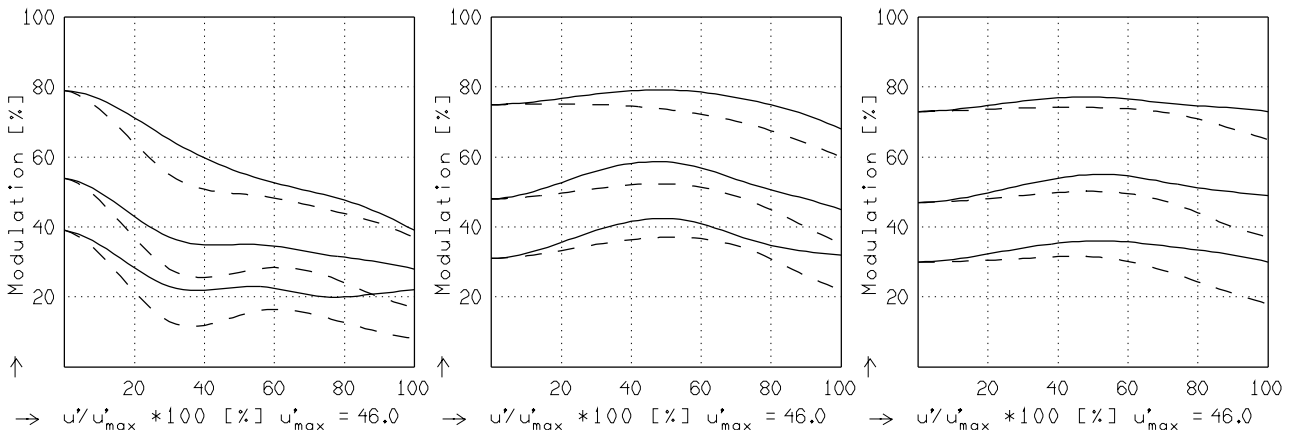
radial —
tangential - -



$f' = 89.8$ $f / 4.5$ $1/\beta' = -20.00$ $00' = 1977.$
 $f' = 89.8$ $f / 8.0$ $1/\beta' = -20.00$ $00' = 1977.$
 $f' = 89.8$ $f / 11.0$ $1/\beta' = -20.00$ $00' = 1977.$



$f' = 89.8$ $f / 4.5$ $1/\beta' = -10.00$ $00' = 1083.$
 $f' = 89.8$ $f / 8.0$ $1/\beta' = -10.00$ $00' = 1083.$
 $f' = 89.8$ $f / 11.0$ $1/\beta' = -10.00$ $00' = 1083.$



$f' = 89.8$ $f / 4.5$ $1/\beta' = -3.00$ $00' = 476.$
 $f' = 89.8$ $f / 8.0$ $1/\beta' = -3.00$ $00' = 476.$
 $f' = 89.8$ $f / 11.0$ $1/\beta' = -3.00$ $00' = 476.$

Focusing : MTF_{max} at $f / 4.5$, $R = 60$ 1/mm, $u'/u'_{max} = 0$