

Nikkor AF-S 300mm f/4D IF-ED - Review / Test Report

Lens Reviews - Nikon / Nikkor (APS-C)  
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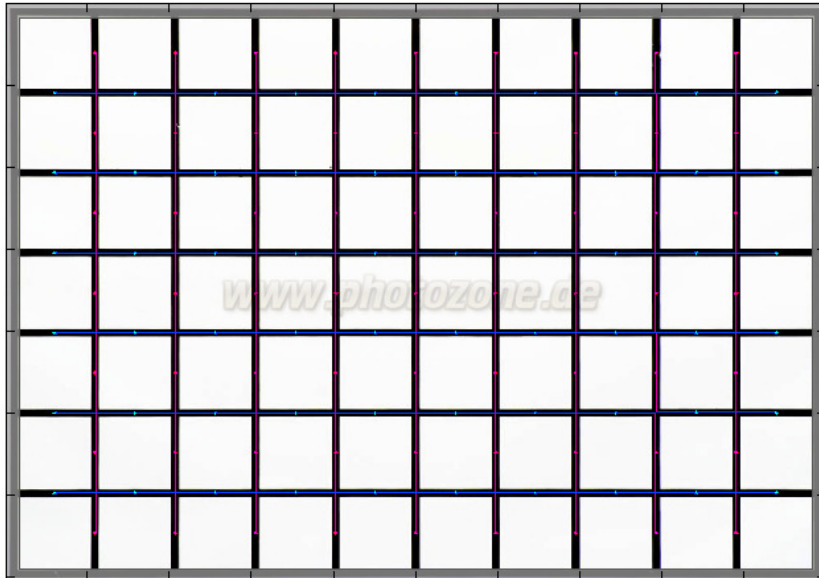
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- [Analysis](#)
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Distortions

The naked AF 300mm f/4D IF-ED produces an insignificant degree of distortions only measurable under lab conditions. Adding tele-converters does merely affect this base characteristic.

Move the mouse cursor over the focal length text marks below to observe the respective distortions  
 300mm      300mm + AF-S 1.4x      300mm + AF 1.7x DG (third-party)

Distortion: 3rd order correction    02-Jul-2006 15:07:03  
510mm



SMIA TV Distortion = 0.311%  
 $k_1 = -0.00475$  ( $r_u = r_d + k_1 r_d^2$ )  
 (r in center-corner units)  
 $h_1, h_2 = 0.00123, -0.00831$   
 PW Pro Coeff. = -0.01194  
 PW Pro Scale = 1.005  
 Line calc: 3rd order

**Selected EXIF data**  
 File: 2006:07:02 15:05:45  
 Make: NIKON CORPORATION  
 Model: NIKON D200  
 Taken: 2006:07:01 15:42:07  
 Res: 1000 x 703  
 FL:  
 Exp: 0.0050 s (1/200)

Aper: f/9.0  
ISO: 640

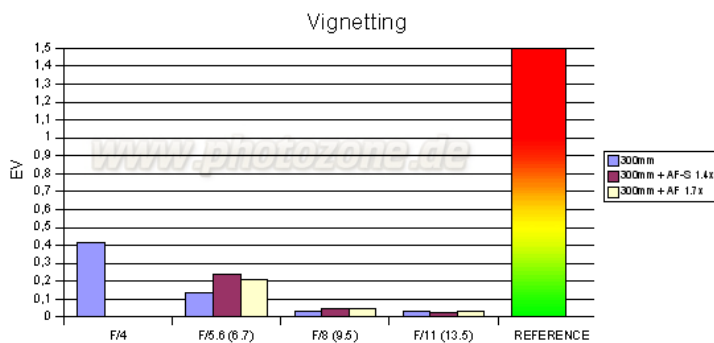


The chart above has a real-world size of about 120x80cm.

Vignetting

The AF-S 300mm f/4 is a full frame lens so it can take advantage of a sweet spot behavior on the D200. Vignetting is detectable at f/4 (0.4EV) but it shouldn't be overly field-relevant. At f/5.6 vignetting is absolutely negligible. There's even less vignetting at wide-open aperture when adding a Nikkor AF-S 1.4x or a third-party (Soligor) AF 1.7x DG converter.

Vignetting	F/4	F/5.6 (6.7)	F/8 (9.5)	F/11 (13.5)
300mm	0,42	0,14	0,03	0,03
300mm + AF-S 1.4x		0,24	0,05	0,03
300mm + AF 1.7x		0,21	0,05	0,03



**MTF (resolution)**

The AF-S 300mm f/4D IF-ED produced very-good to excellent resolution figures under lab conditions. The performance at f/4 is already great in the center of the image. The borders follow on a very good level at this setting. The peak performance is reached at f/8 with an increase in quality primarily at the borders.

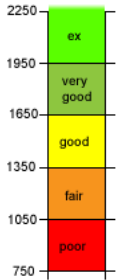
Adding a tele-converter always comes at cost of a performance penalty but with the Nikkor AF-S 1.4x the decrease in quality remains relatively moderate. Nonetheless the resolution figure are only good (borders) to very-good (center) at f/4. Stopping down helps to lift the quality especially at the borders.

The Soligor AF 1.7x DG is a third-party converter (probably a Kenko clone) which pushes the limits a little more (~510mm f/6.7). However, at wide-open aperture the resulting border quality is quite poor. At f/9.5 (f/8 is displayed in the viewfinder) the quality is pretty decent though.

Below is a simplified summary of the formal findings. The chart shows in line widths per picture height (LW/PH) which can be taken as a quantity for sharpness. The chart is limited to the visually relevant LW/PH range of [750, 2250]. If you want to know more about the MTF50 figures you may check out the corresponding [Imatest Explanations](#).

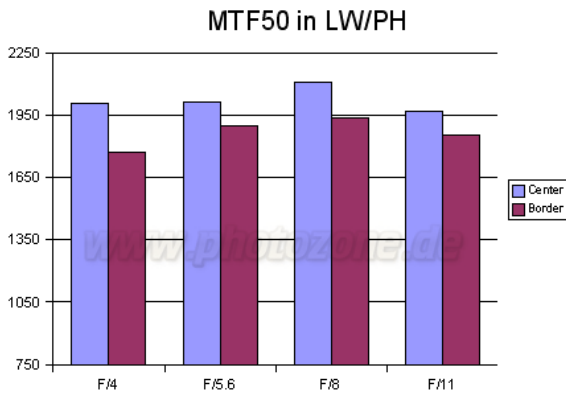
Rating Scale:  
Nikon (10mp)

max:  
~2320 LW/PH

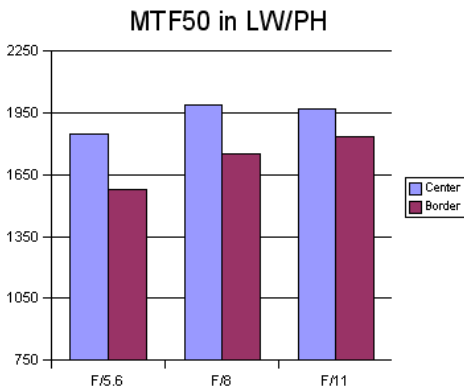


**Nikkor AF-S 300mm f/4 IF-ED D**

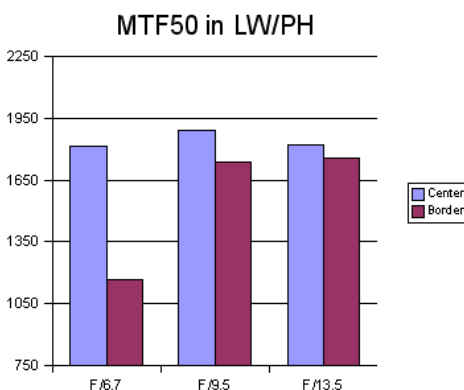
300mm	F/4	F/5.6	F/8	F/11
Center	2005	2011	2107	1970
Border	1771	1899,5	1934	1851,5



300mm + AF-S 1.4x	F/5.6	F/8	F/11
Center	1847	1988	1968
Border	1576,5	1748,5	1837



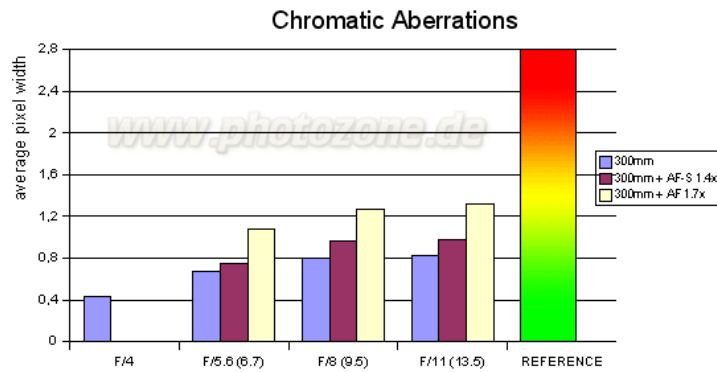
300mm + AF 1.7x	F/6.7	F/9.5	F/13.5
Center	1812	1892	1823
Border	1166,5	1735,5	1757,5



### Chromatic Aberrations (CAs)

CAs (color shadows at harsh contrast transitions) are pretty well controlled with an average CA pixel width of less than 1px at the borders. The converters magnify CAs but the situation remains pretty acceptable. Purple fringing doesn't seem to be an issue with this lens.

Border CA	F/4	F/5.6 (6.7)	F/8 (9.5)	F/11 (13.5)
300mm	0,44	0,68	0,8	0,83
300mm + AF-S 1.4x		0,75	0,96	0,97
300mm + AF 1.7x		1,08	1,27	1,32



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