Nikkor AF-S 70-200mm f/2.8 G IF-ED VR - Review / Test Report - Analysis

Lens Reviews - Nikon / Nikkor (APS-C)

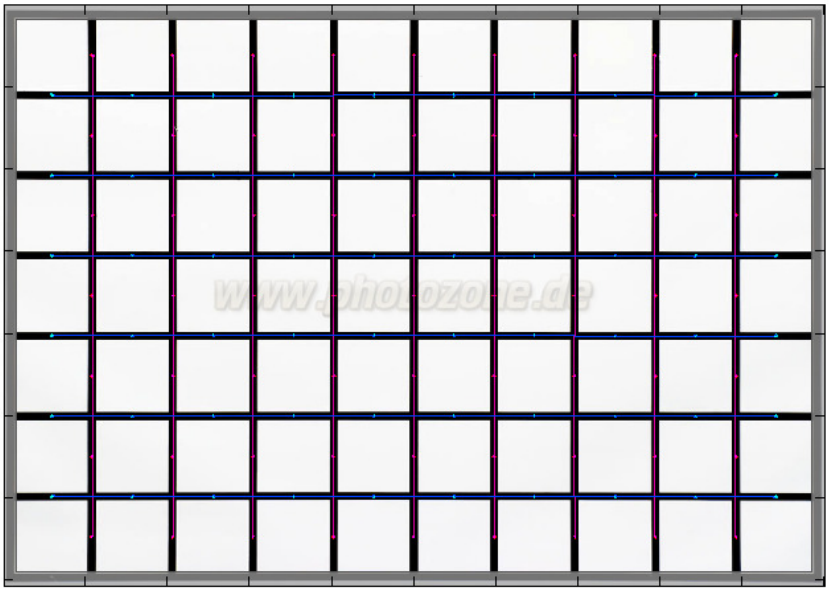
Distortions

The AF-S 70-200mm VR has a very moderate 3x zoom ratio and the level of distortions is quite low accordingly. At 70mm there's a moderate degree of barrel distortions (0.7%) changing to moderate pincushion distortions (0.7%) at the long end of the zoom range.

Move the mouse cursor over the focal length text marks below to observe the respective distortions

70mm 135mm 200mm

Distortion: 3rd order correction 02-Jul-2006 14:58:12
135mm



SMIA TV Distortion = 0.334%
k_1 = -0.00519 ($r_u = r_d + k_1 r_d^3$)
(r in center-corner units.)
h_1, h_2 = -0.00959, 0.00577
PW Pro Coeff. = -0.0125
PW Pro Scale = 1.005
Line calc: 3rd order

Selected EXIF data
File: 2006:07:02 14:56:04
Make: NIKON CORPORATION
Model: NIKON D200
Taken: 2006:07:01 15:22:38
Res: 1000 x 707
FL:
Exp: 0.011 s (1/90)

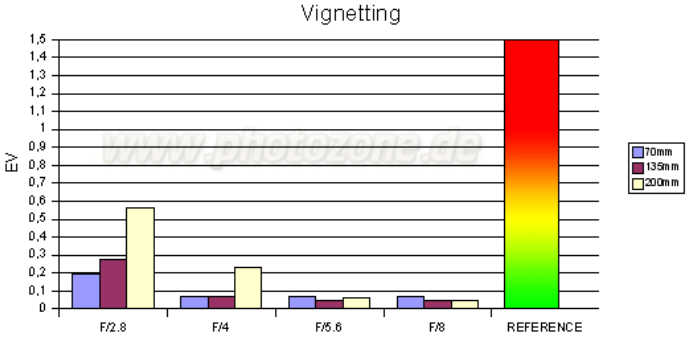
Aper: f/8.0
ISO: 200

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

Vignetting

On an APS-C DSLR the full-frame AF-S 70-200mm VR can take advantage of a sweet spot effect. At 70mm and 135mm the issue is negligible even at f/2.8. At 200mm at f/2.8 vignetting is a little more pronounced but still not overly field relevant. If needed stopping down a little will solve the problem completely.

Vignetting	F/2.8	F/4	F/5.6	F/8
70mm	0,2	0,07	0,07	0,07
135mm	0,28	0,07	0,05	0,05
200mm	0,56	0,23	0,06	0,05

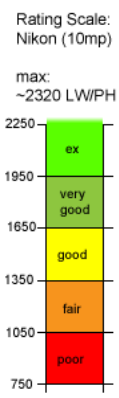


MTF (resolution)

In the MTF lab the first sample lens delivered good to very good resolution figures but suffered from a rather pronounced centering defect - this is actually not overly unusual for Nikon VR lenses if the local testing history serves as a guidance. In the meanwhile a 2nd sample has been tested that performed significantly better - these results are presented below.

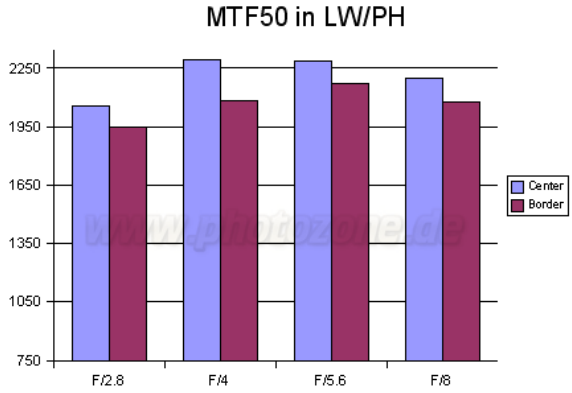
Generally the both the center and border resolution is excellent throughout the tested focal-length and aperture range. At 70mm the results are stellar and about as good as it gets on the Nikon D200. At 135mm and 200mm there´s a marginal decrease in quality which shouldn´t be really field relevant. The sweet spot of the lens is located around f/5.6.

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.

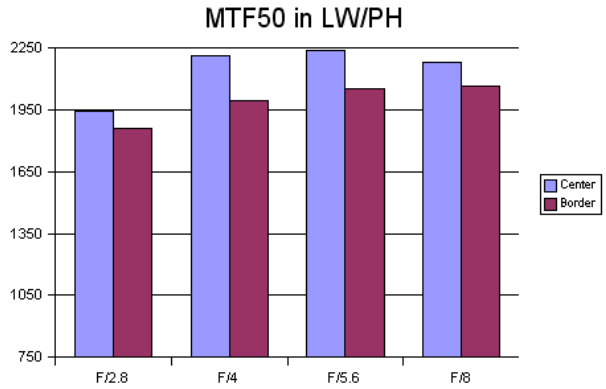


Nikkor AF-S 70-200mm f/2.8 G IF-ED VR

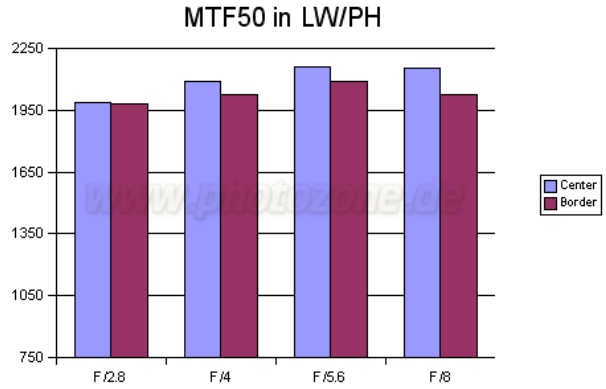
70mm	F/2.8	F/4	F/5.6	F/8
Center	2057	2296	2288,5	2198,5
Border	1949	2081	2171,5	2073,5



135mm	F/2.8	F/4	F/5.6	F/8
Center	1945,5	2210,5	2241	2180
Border	1863	1996,5	2051	2064



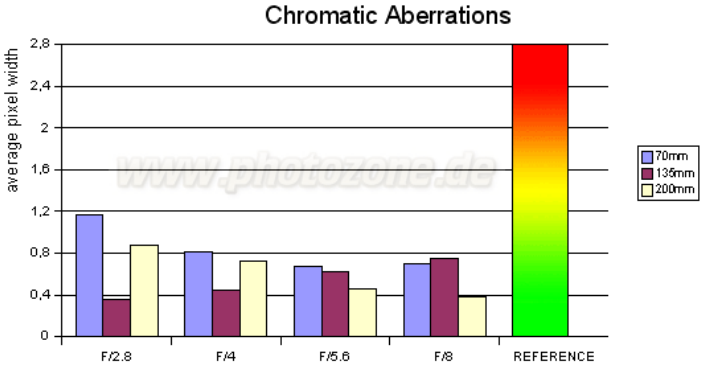
200mm	F/2.8	F/4	F/5.6	F/8
Center	1989	2087,5	2161,5	2157
Border	1981	2023	2087	2025,5



Chromatic Aberrations (CAs)

Chromatic aberrations (color shadows at harsh contrast transitions) are generally well controlled with a local peak of 1.2px on the average at the image borders at 70mm f/2.8.

Border CA	F/2.8	F/4	F/5.6	F/8
70mm	1,17	0,82	0,67	0,69
135mm	0,36	0,45	0,62	0,76
200mm	0,87	0,73	0,46	0,38



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