Nikkor AF-S 50mm f/1.4 G (FX) - Review / Test Report

Lens Reviews - Nikon / Nikkor (full format)
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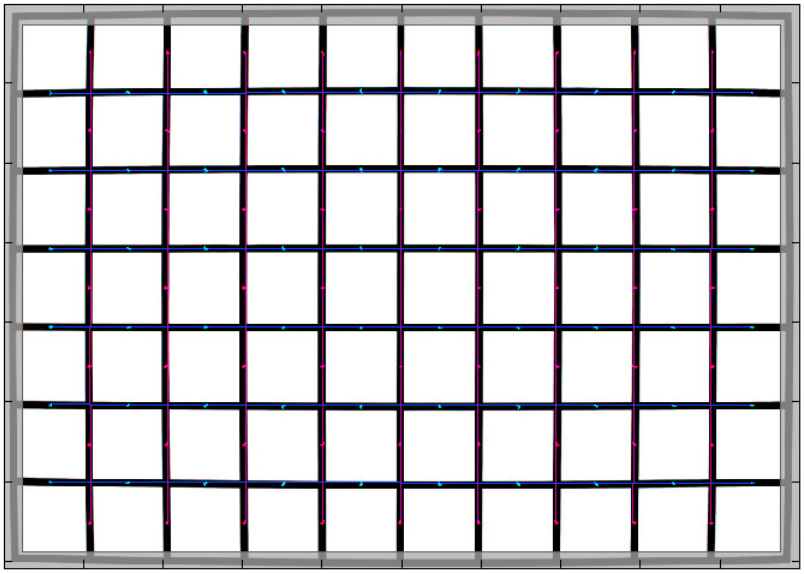
Distortions

The lens shows moderate barrel distortions at around 1.4%. This is more than you'd expect from a fix focal lens. However, this is actually a typical amount of distortion for fast standard primes and unless you shoot subjects with straight lines near the image borders it's usually not field relevant.

Distortion with decentering: 3rd order 24-Jun-2009 23:10:55
50mm.jpg



SMIA TV Distortion = -1.42% Barrel
Decenter r = 0; 0°
k_1 = 0.0233 ($r_u = r_d + k_1 r_d^3$)
(r in ctr-corner units.)
h_1, h_2 = 0.0247, -0.00128
PW Pro Coeff. = 0.02606
PW Pro Scale = 0.9924
Line calc: 3rd order

Selected EXIF data
File: 2009:06:24 23:09:24
Make: NIKON CORPORATION
Model: NIKON D3X
Taken: 2009:06:15 21:28:21
Res: 1000 x 708
FL: 50.0mm
Exp: 0.167 s (1/6)

Aper: f/11.0
ISO: 200
ExBias: 1.00
WtBal: Auto

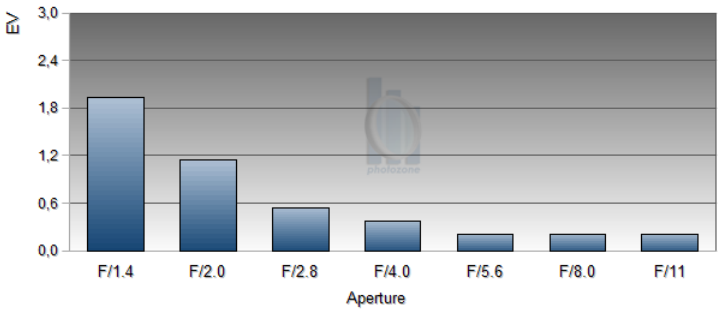
3.1 Master Imatest

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

Vignetting

Fast lenses tend to suffer from high vignetting on full frame cameras and the AF-S 50 is no exception to this rule. At almost 2 EV the corners darken visibly wide open. There's a moderate level of vignetting left at f/2.0 which is reduced further to a negligible degree stopped down to f/2.8 and beyond.

Vignetting	F/1.4	F/2.0	F/2.8	F/4.0	F/5.6	F/8.0	F/11
50 mm	1,93	1,14	0,55	0,38	0,21	0,20	0,20



MTF (resolution)

Standard primes have a reputation of delivering sharp images and the AF-S 50 does not disappoint in this regard.

In the center the resolution is very good (but only just) wide open already, reaching excellent figures at f/2.8. The borders and extreme corners start a little softer wide open (where the lens also lacks some contrast), but also improve by stopping down, reaching very good levels at f/2.8 and beyond (until diffraction visibly kicks in at f/11).

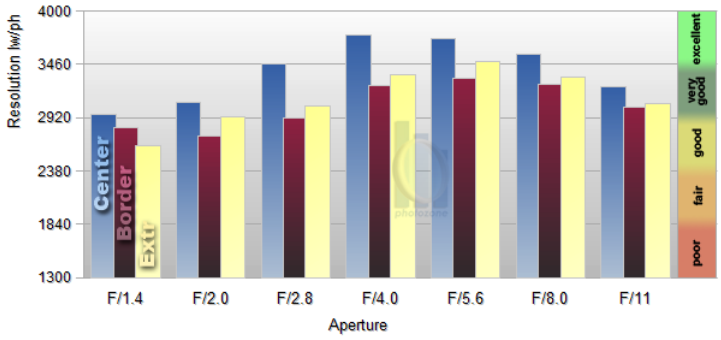
Except wide open the extreme corners deliver slightly higher resolution figures than the borders.

The lens showed some focus shift when stopping down (residual spherical aberration).

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 [1300, 4000]. If you want to know more about the MTF50 figures you may check out the corresponding Imatest Explanations.

Nikon AF-S 50 mm f/1.4 G

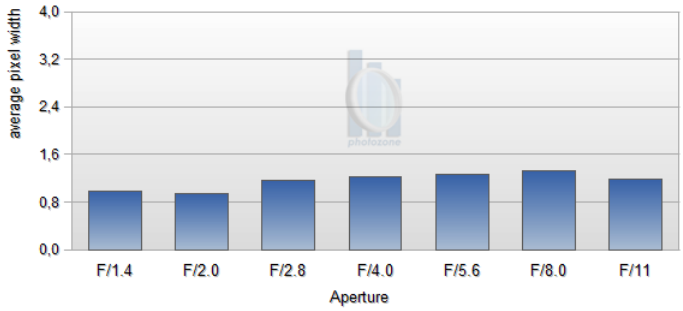
50mm	F/1.4	F/2.0	F/2.8	F/4.0	F/5.6	F/8.0	F/11
Center	2948	3070	3469	3755	3721	3566	3238
Border	2813	2727	2919	3245	3318	3254	3022
Extreme	2630	2930	3036	3352	3491	3333	3068



Chromatic Aberrations (CAs)

Chromatic aberrations (color shadows at harsh contrast transitions) are in the range of roughly 1 to 1.2 pixels throughout the aperture range. Given the huge resolution of the test camera, this might be visible in very large prints (or heavy crops), however, for typical print sizes the problem isn't really field relevant for most subjects. In addition, CAs can easily be corrected in software or by the camera itself.

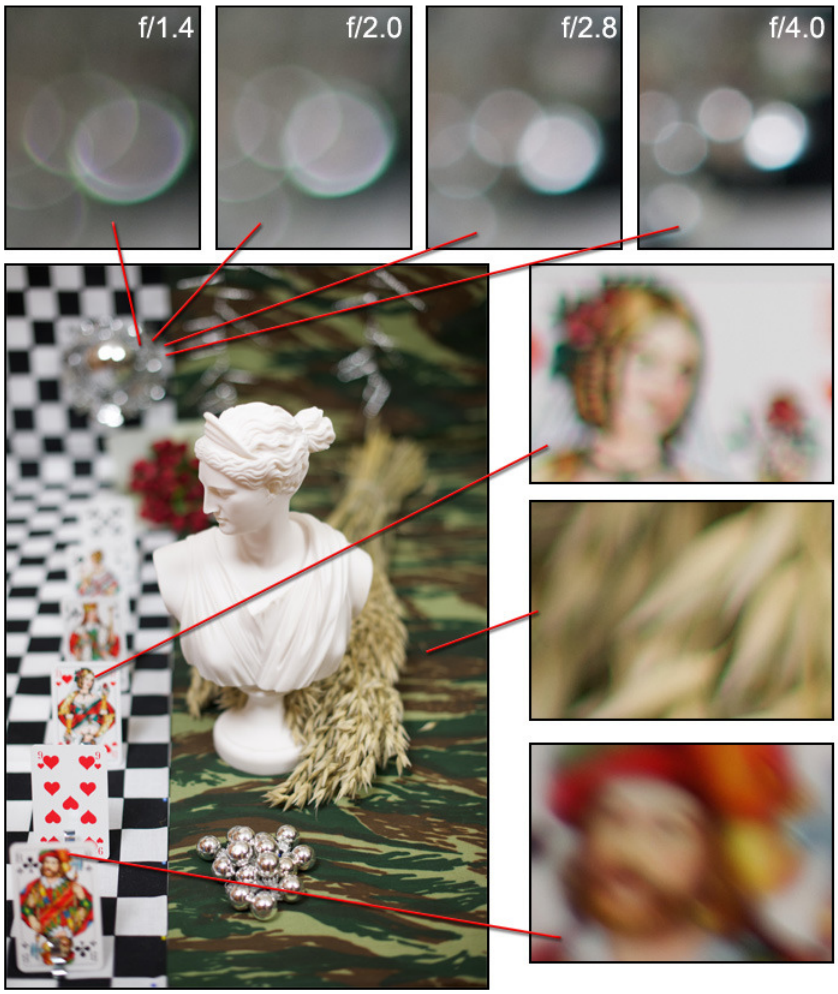
Border CA	F/1.4	F/2.0	F/2.8	F/4.0	F/5.6	F/8.0	F/11
50 mm	0,98	0,95	1,17	1,23	1,26	1,33	1,19



Bokeh

The quality of the bokeh (out-of-focus blur) is a primary aspect for such a large aperture lens. Unfortunately at wide open aperture the AF-S 50 shows a rather high amount of outlining resulting in a slightly nervous bokeh. From f/2 onwards these outlines disappear and the bokeh smoothens considerably, however highlights in the background remain troubled by LoCAs (see next section).

Thanks to 9 rounded aperture blades, background highlights remain their circular shape throughout the whole aperture range.



Bokeh Fringing / Longitudinal Chromatic Aberrations (LoCA)

LoCAs (non-coinciding focal planes of the various colors) are a common issue with relatively fast glass. As you can notice below the halos have different colors - magenta (red + blue) in front the focus point and green beyond. *Truly* "apochromatic" lenses don't show LoCAs but these lenses are very rare especially below 100mm. Unlike lateral lateral CAs, LoCAs cannot easily be fixed in post processing.

Typical for most fast primes the AF-S 50 shows a considerable amount of LoCAs at large aperture settings.

In addition, these shots also show the focus shift when stopping down and demonstrate the lack of contrast and sharpness wide open (the latter being emphasized on short subject distances).

Move the mouse cursor over the f-stop marks below to observe the respective LoCAs

f/1.4 f/2 f/2.8 f/4 f/5.6 f/8

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