

## Nikon AF Nikkor 85mm f/1.4D Lens Review



### Introduction

Nikon AF Nikkor 85mm f/1.4D, is currently the fastest medium telephoto in Nikon's modern lens lineup. The lens was first introduced in 1980 as a fully manual, Ai-S version. Nikon eventually added an AF-D type autofocus system into the lens, but up until mid 1988 the company was still offering both manual as well as AF versions of the lens side by side. The lens currently retails at ~US\$900 (as of May 2008) and as such is targeted towards professionals and prosumers rather than entry level users.

The optical construction of the lens consists of 9 elements in 8 groups. The optical formula of the lens follows internal focusing design, so the lens size remains constant at all times. However, unlike its previous Ai-S incarnation, the lens does not incorporate CRC (Close Range Correction). The build quality is quite good - barrel is made of lightweight metal with beautiful finish, and looks and feels very sturdy - there is no wobbling inside or outside. The focusing ring is fully rubberized and is pretty smooth to operate. The focusing ring itself can be rotated only when the lens is switched into the manual focusing mode. This is done using a dedicated M/A ring, underneath the focusing ring, which must be turned to the A (for auto-focus) or M (for manual) mode position. The M/A ring itself is released with a small knob on the side - this prevents users from accidentally switching the focusing mode while handling the lens. Once the M/A ring is moved into the A (autofocus) position, the focusing ring locks, preventing the user from rotating it.





Like all AF-D type lenses, AF Nikkor 85mm f/1.4D is fully backward compatible with all Nikon F mount cameras. The AF system is fully mechanical - the lens sports a screw slot on the base of the mount, so only cameras equipped with an AF-D type auto-focus system (a pin that extends from the camera and locks into the slot to rotate the lens in and out of focus), will be able to leverage the AF. Currently, only Nikon's D40/D40x series SLRs don't support AF-D type auto-focusing, so you will have to focus the lens manually.

In the world of fast medium telephotos, Nikon AF Nikkor 85mm f/1.4D is not the largest or heaviest lens, but it is not the most compact or light either. The lens weighs 550g (19.8oz) and measures 80 x 72.5mm (3.1 x 2.9in), which actually makes the modern, AF version of the lens lighter than the older, fully manual Ai-S variant, despite the fact that the older version had fewer lens elements and lens groups in its optical design (7 elements in 5 groups vs 9 elements in 8 groups). One can only speculate the reason for this - could it be that Nikon incorporated lighter/thinner metal barrel or thinner glass elements?

The lens also incorporates a dedicated aperture ring, which moves from f/1.4 to f/16 in one full f-stop increments. The minimum focusing distance is 85cm (2.8ft) - here the lens achieves its maximum magnification ratio of 1:8.8. The lens accepts 77mm screw-in type filters, and since the front element does not rotate during focusing, the lens can also accept circular polarizer filters.



The lens sports an auto/manual focus release ring - the ring has M and A markings (standing for Manual and Autofocus) and has to be rotated into the position to enable or disable manual focusing. Switching the release ring into A position will lock the focusing ring, preventing it from rotating.

The aperture ring moves from f/1.4 to f/16 in one full f-stop increments. f/16 is marked with different color - once the aperture ring is moved into this position, it can be locked in, using a switch on the right hand side of the aperture ring. This would enable camera's electronic aperture control - aperture levels can then be set directly from the camera and the lens will be stopped down automatically.

The lens sports a DOF scale, with 2 markings at f/11 and f/16. The focusing distance scale has markings from 0.85m to 10m. There is no meter coupling shoe, so when the lens is used on pre-AI cameras, all metering information will have to be entered manually.



All AF-D lenses are by default also Ai-S lenses - the groove in the base of the mount is used in all Ai-S lenses to instruct the camera that the aperture stop down is linear. This allows the camera to control all aperture settings electronically (the aperture ring has to be locked at f/16 to enable electronic control) - once an aperture level is set in the camera and the shutter button depressed, the camera pulls the aperture level to open up the diaphragm to the required level.

AF function is possible with the use of the slotted screw, which is turned by an AF pin, which extends from the camera to focus the lens mechanically.

The lens incorporates ROM contacts, which transfer distance information from the focal plane to the object to allow for advanced 3D Matrix Metering.

The factory box contains Nikon AF Nikkor 85mm f/1.4D lens, front and rear caps, HN-31 screw-on lens metal hood, registration and warranty cards. The lens was originally designed for full frame 35mm cameras, so when used on APS-C type digital SLRs, the field of view of the lens will resemble that of a 135mm prime on a full frame body. Like any Nikon F mount lens with manual aperture and focus controls, the lens can easily be adapted to a number of 3rd party camera systems, including Canon's EF/EF-S cameras. Within the scope of this review, the lens was tested on a full frame type Nikon D3, full frame type Canon 5D and APS-C type Canon Digital Rebel XTi. A generic Nikon F to Canon EOS non AF-chipped lens adapter was used when testing the lens on Canon bodies.

Summary	
Lens Composition	9 elements in 8 groups
Angular Field	~28 degrees
Minimum Focus	85cm/2.8ft
Focusing Action	AF/MF
f-stop Scale	f/1.4-f/16, camera/manual
Filter Size	77mm
Lens Hood	NH-31 (included)
Weight	550g/19.8oz
Dimensions	80x72.5mm/3.1x2.9"
Lens Case	CL-44 (optional)

## Field Tests

The first thing you will notice after screwing Nikon AF Nikkor 85mm f/1.4D to your camera is that the lens is pretty bulky. The front element of the lens is simply humongous, making the relatively large camera like Nikon D3 look a little bit dwarfish. And on a small, APS-C camera like Canon Digital Rebel XTi, the lens looks and feels like Gulliver in the land of Lilliputian. Not that the lens is huge by all standards - there are certainly bulkier, heavier and larger medium telephoto lenses out there, but AF Nikkor 85mm f/1.4D is certainly not a very discreet lens that can be used say in street photography.

The bulkiness of the lens brings some other disadvantages as well. The aperture ring is located pretty close to the rear end of the mount and is well recessed, making it a little bit hard to get grip on and rotate between positions. And if you have the ring locked at f/16 for electronic aperture control, you will literally need to use the tip of your fingernail to unlock it.

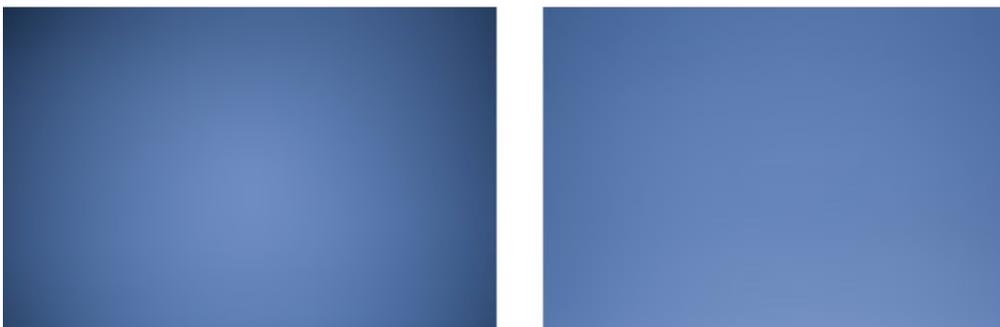
As mentioned above, Nikon AF Nikkor 85mm f/1.4D supports both manual as well as automatic focusing and aperture control. This makes the lens a good candidate for adaptation to alternative mount cameras such as Canon EF/EF-S and Olympus 4/3. Naturally, when used on an alternative camera, you'd lose AF as well as some advanced features like 3D Matrix metering, so you should be comfortable with manual focusing. Buying an AF confirmation adapter in general is going to be a good investment, but keep in mind that even with an AF adapter you will have to rely on stop down metering quite often. Since you will be stopping the aperture manually, the camera's viewfinder will get darker and darker at smaller aperture levels and your camera's AF confirmation will pretty much give up around f/5.6. At this aperture level the viewfinder is typically dark enough to make pure manual focusing practically impossible. Hence you would likely have to focus the lens wide open, get the AF confirmation and then stop down the lens to the desired aperture. Not the most streamlined process, but that's the cost of using alternative lenses. But enough about the looks and feels, let's look at how the lens performed.

The lens showcased pretty good overall performance in the field. Images were uniformly sharp from about f/4 through the rest of the aperture range on both full frame, as well as APS-C cameras. There might have been some minor differences between the border and center performance, but visually quality was about the same. The story was a little bit different at wider apertures. Here the lens showed a marginally better image quality on an APS-C camera, but overall, both center image quality and to a larger degree border image quality were noticeably softer. f/2.8 seemed to be a transitional point with this lens - quite good results in the center, but still a bit soft edges. Furthermore, image quality seemed to suffer a little bit more at close distances - wider apertures seemed to be more prone to that than smaller (for example, compare the shot with a yellow rose, which was taken at the closest distance of 85cm, to other images taken with wide open aperture at infinity).



ISO 400, 1/200, f/1.4, 85mm (Nikon D3)

When shot with wide open aperture, the lens produced well rounded and mostly uniformly lit out of focus highlights. OOF edges were predominantly neutral, although in a few cases you could spot slightly harsher edge highlighting. The lens also produced occasional color fringing in OOF highlights, which can be noticed in the image above, as well as in the wine glass shot in the image gallery. Contrast transitions in near/far OOF areas were pretty smooth, which helped to better isolate the in-focus targets. There was no sign of double edging around OOF objects.



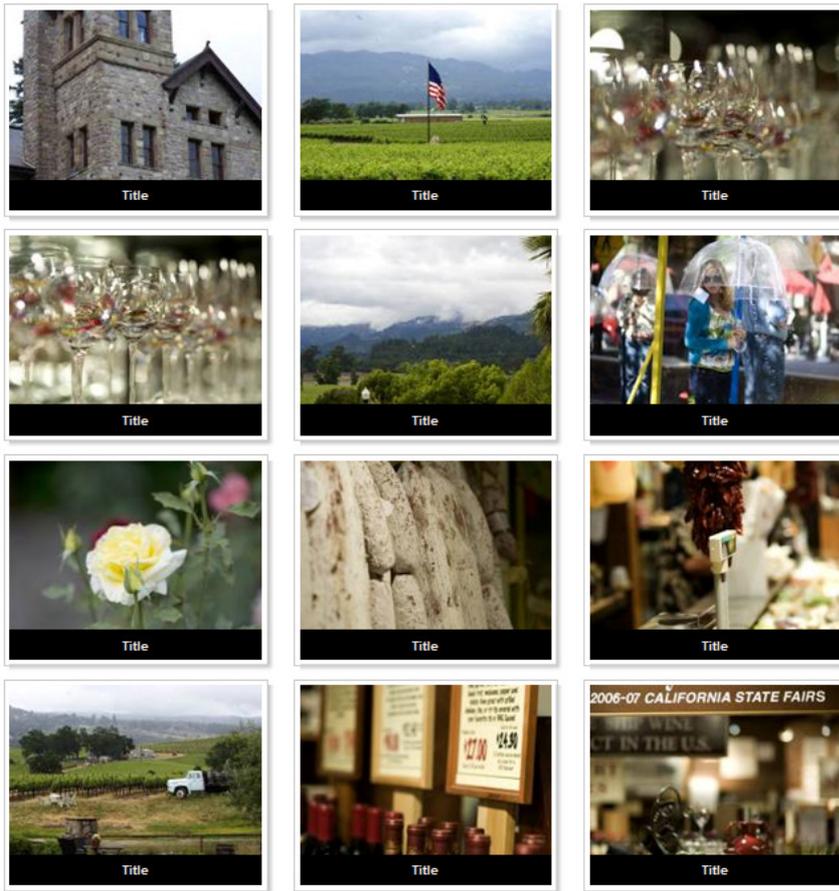
Vignetting @ f/1.4 - full frame vs 1.6x crop

The lens showed noticeable vignetting on a full frame camera at  $f/1.4$ . Not a big surprise here though, since majority of fast primes produce some vignetting wide open. Vignetting is reduced with stopped down aperture but does not completely go away until about  $f/4$ . On an APS-C camera the lens takes advantage of a reduced image sensor but still shows minor vignetting at  $f/1.4$ , which practically disappears by  $f/2.8$ .

AF Nikkor 85mm  $f/1.4$ D showcased very good, practically neutral color reproduction - images in general carried good amount of contrast throughout the aperture range and colors were sufficiently saturated, which in turn helped create rich, life-like textures. All good and dandy, but unfortunately, the lens fell prone to pretty severe flare at wider apertures. At  $f/1.4$ , the lens showed flare in situations with a direct light source located within or close to the frame. Same was true with surface reflected light, as can be seen in the shot below. In all these cases, flare manifested itself as greatly reduced contrast and blown out highlights.



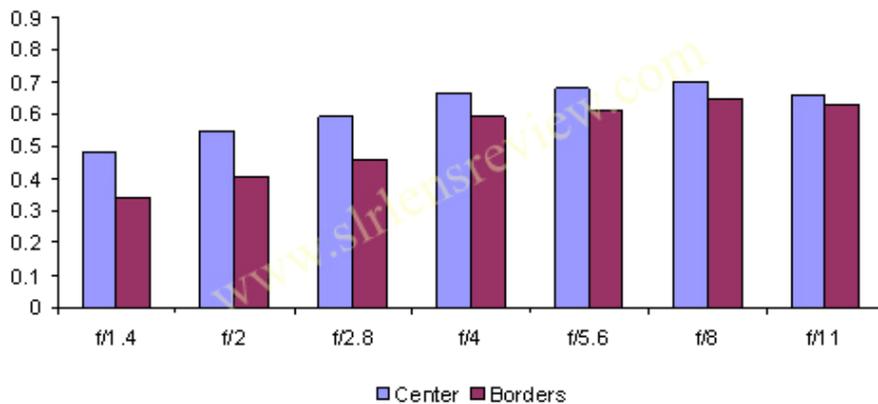
ISO 400, 1/8000,  $f/1.4$ , 85mm (Nikon D3)



## Lab Tests

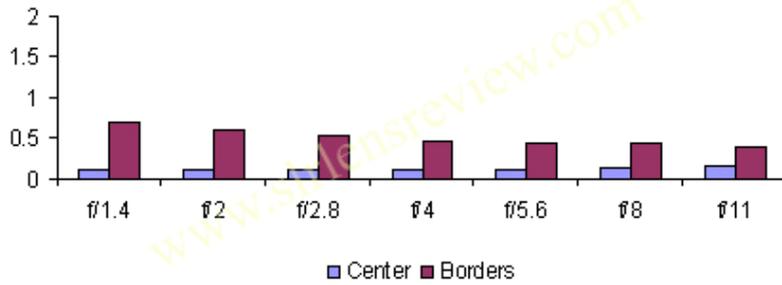
Please note that MTF50 results for APS-C and Full-Frame cameras as well as cameras from different manufacturers are not cross-comparable despite the same normalized [0:1] range used to report results for all types of cameras.

**Nikon FF:** Nikon AF Nikkor 85mm f/1.4D showed pretty solid overall performance on a full frame Nikon D3. The lens demonstrated excellent performance across the entire frame in the f/4 through f/11 range - there are no compromises here whatsoever. Unfortunately, image quality at wider apertures suffered to some extent. This is especially noticeable at f/1.4, where both center as well as border quality suffer most. And while center quality recovers nicely at f/2 and f/2.8, border performance remains kind of on an average level even at f/2.8. Conclusion? This is certainly not the best performing lens on the market, but by far not the worst either. Image quality is very good at medium and small aperture levels and the only thing to be aware of is the weakness at f/1.4 (and to some degree f/2). Disappointing? Yes. Common? Also yes.



Normalized raw MTF50 @ 85mm

Chromatic aberration on a full frame Nikon D3 was well under control, with center CA remaining very insignificant at ~0.1px, while border CA approached ~0.7px at f/1.4, slowly dropping to ~0.4px by f/11.



Chromatic Aberration (FF) @ 85mm

Here are 100% image crops comparing image borders taken with a full frame Nikon D3 at f/1.4 and f/8.

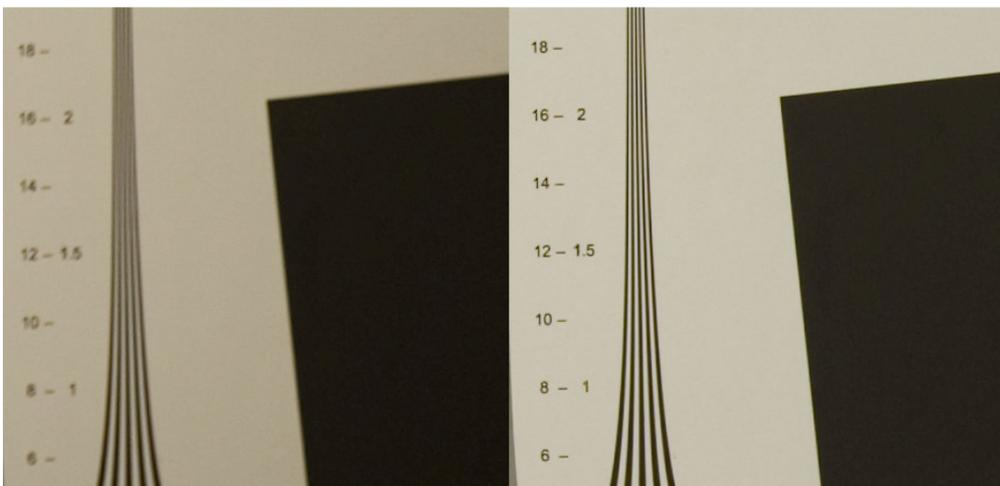
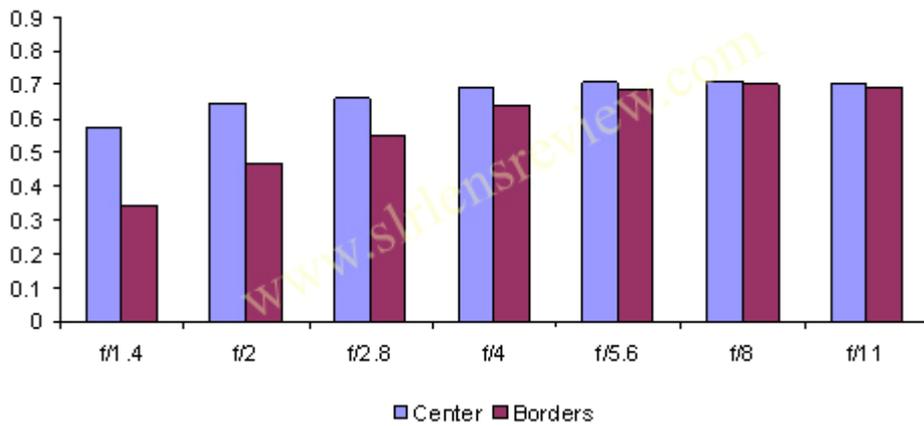


Image borders @ 85mm (100% crop): f/1.4 vs f/8

**Canon APS-C:** AF Nikkor 85mm f/1.4D showed very solid center performance pretty much throughout the entire aperture range. At f/1.4 center quality suffered a little bit, but from f/2 on it was exceptionally good. But, border image quality still suffered at wider apertures - at f/1.4 and f/2 border performance is rather average. Overall performance peaks around f/8, where the lens is capable of producing outstanding 19in and decent 24in prints, however, image quality is pretty balanced across the entire frame in the f/4-f/11 range. Conclusion?

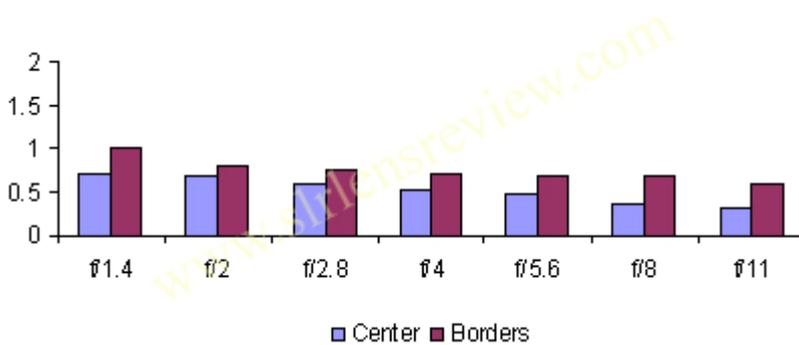
Height(in)		f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11
4	Center	432	485	495	520	531	535	526
	Border	259	350	408	480	514	527	520
5	Center	345	388	396	416	424	428	420
	Border	207	280	327	384	411	422	416
8	Center	216	242	247	260	265	267	263
	Border	130	175	204	240	257	264	260
11	Center	157	176	180	189	193	194	191
	Border	94	127	148	175	187	192	189
16	Center	108	121	124	130	133	134	131
	Border	65	87	102	120	129	132	130
19	Center	91	102	104	109	112	113	111
	Border	55	74	86	101	108	111	109
24	Center	72	81	82	87	88	89	88
	Border	43	58	68	80	86	88	87

MTF50 (Line Width/Inch on the Print) @ 85mm



Normalized raw MTF50 @ 85mm

CA on an APS-C camera was a little bit higher both in the center and around borders when compared to FF cameras. CA in the center reached ~0.7px in the center at f/1.4 and dropped to ~0.3px by f/11, while CA around borders averaged ~1px at f/1.4, dropping to ~0.6px by f/11.



Chromatic Aberration (APS-C) @ 85mm

Here are 100% image crops comparing image borders taken with an APS-C type Canon Digital Rebel XT at f/1.4 and f/8.

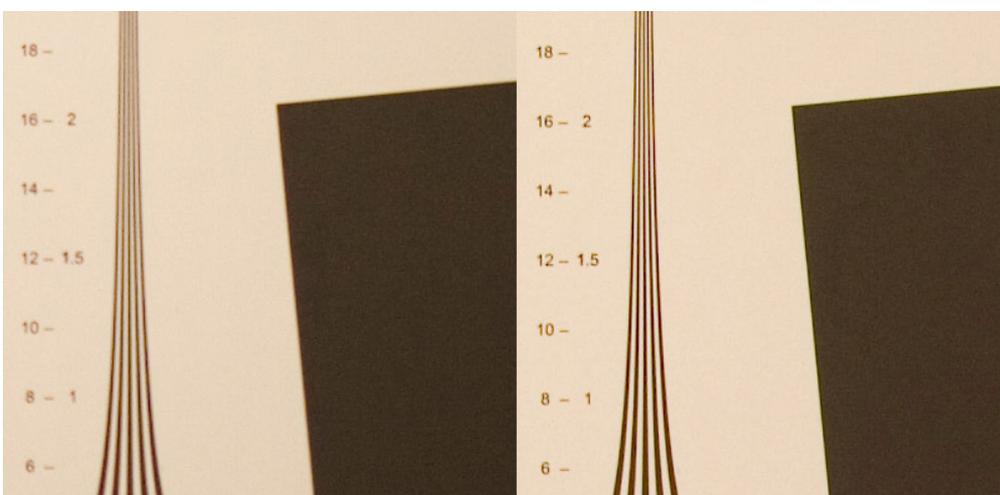
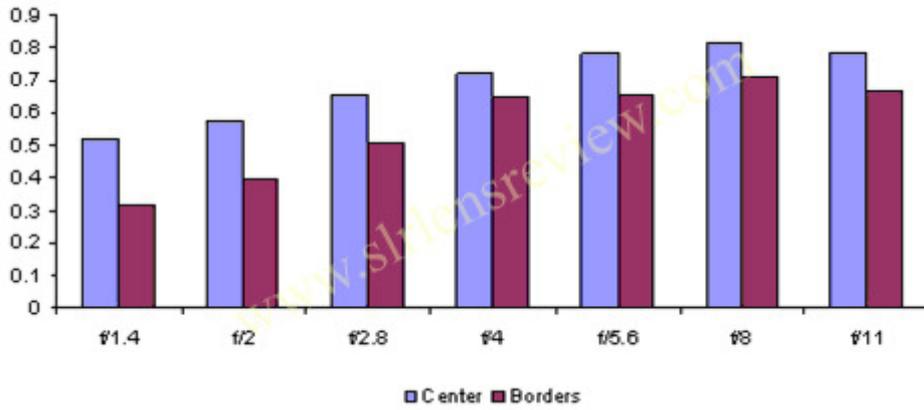


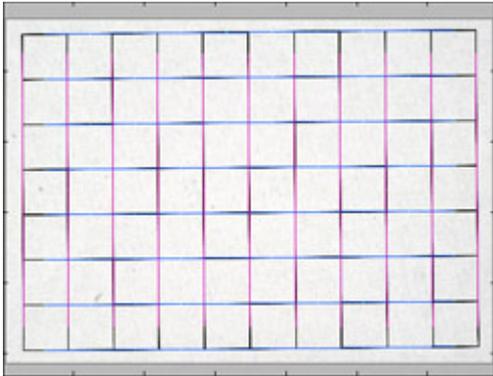
Image borders @ 85mm (100% crop): f/1.4 vs f/8

**Canon FF:** The lens did not really produce any miracles (performance-wise that is) on a full frame Canon 5D. Instead, it showed very consistent performance.  $f/4$  through  $f/11$  still remained the sweet spot for the lens, while  $f/1.4$  remained the weakest. Border quality at  $f/1.4$  as well as at  $f/2$  is what bothering - quality here is rather unimpressive at least. But, by  $f/2.8$  overall quality can be considered quite decent, despite the fact that borders are still a little bit softer then what one would have hoped for. Conclusion? There are no nasty surprises hidden here and as I have said before, consistency is good. Sharpness at wide apertures, especially around borders, is lagging, but this has become a common trend for majority of lenses. Want best performance? Stop down to  $f/4$  or so.



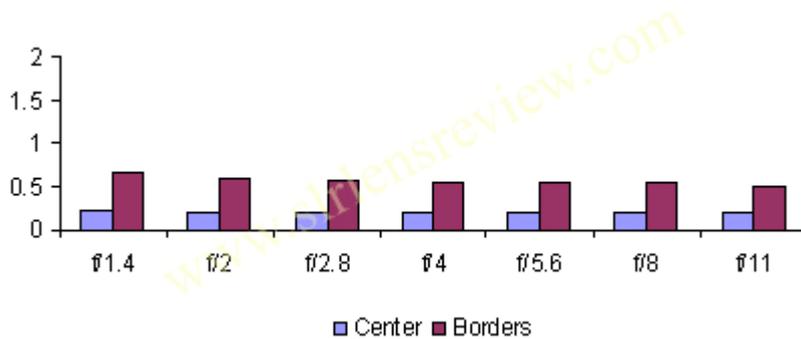
Normalized raw MTF50 @ 85mm

The lens showed very negligible amount of distortion - at 0.09%, distortion should not be even visible in general type photography,



Distortion (FF) @ 85mm

Chromatic aberration on a Canon 5D quite low in the center, where it averaged  $\sim 0.2\text{px}$  across the aperture range, and  $\sim 0.55\text{px}$  around borders (also across the aperture range).



Chromatic Aberration (FF) @ 85mm

Here are 100% image crops comparing image borders taken with a full frame Canon 5D at f/1.4 and f/8.

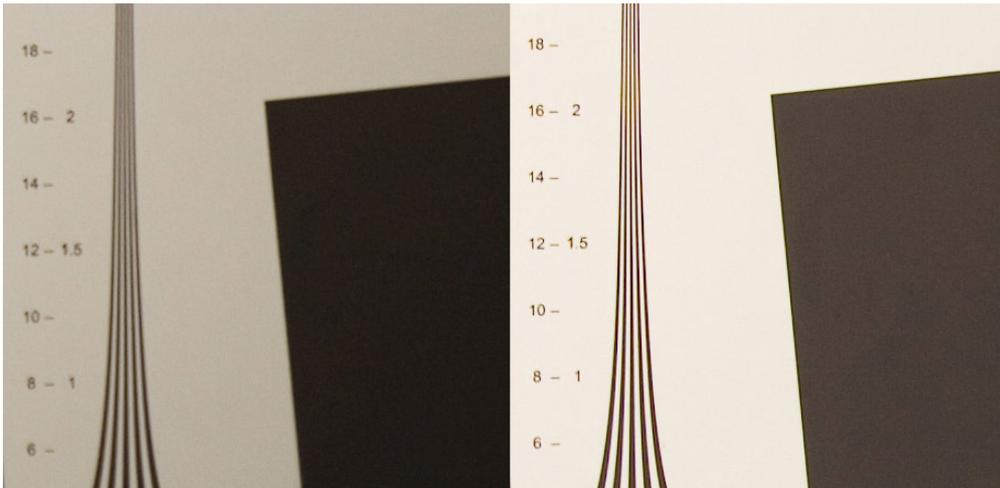


Image borders @ 85mm (100% crop): f/1.4 vs f/8

## Alternatives

Nikon currently offers a number of medium telephoto primes in its lineup, including a slightly slower version of the 85mm lens, [AF Nikkor 85mm f/1.8](#). This lens offers pretty decent image quality and costs about 50% less than its faster cousin reviewed here. For slightly longer focal length, consider [AF DC Nikkor 105mm f/2D](#) and [AF DC Nikkor 135mm f/2D](#). If you are willing to entertain the idea of using a manual lens with your camera, then the older, Ai-S version of 85mm lens is an obvious option along with the recently released [Carl Zeiss Planar T\\* 85mm f/1.4 ZF](#) and slightly longer [Carl Zeiss Makro Planar T\\* 100mm f/2 ZF](#) (both also available in Pentax K mount).

On the other hand, if you have been evaluating Nikon AF Nikkor 85mm f/1.4D as an alternative lens for your Canon or Olympus SLR, then you might as well expand your search to include older, now discontinued lenses for Contax/Yashica mount. These include [Carl Zeiss Planar T\\* 85mm f/1.4](#), [Carl Zeiss Sonnar T\\* 85mm f/2.8](#), [Carl Zeiss Planar T\\* 100 f/2](#), [Carl Zeiss Makro-Planar T\\* 100mm f/2.8](#). Also don't forget to take a look at a couple of Leica SLR lenses, including [Summilux-R 80mm f/1.4](#), [Summicron-R 90mm f/2](#) and [APO Macro-Elmarit-R 100mm f/2.8](#). For a side by side comparison of a number of 85mm primes, you might want to take a look at the [85mm Challenge](#).

## Recommendation

Nikon AF Nikkor 85mm f/1.4D is a solid performer with a few 'gotchas'. The lens is a mighty performer when it comes down to medium and slow apertures, but is more of a lame duck when it comes down to the widest, f/1.4-f/2 range. Those of you looking for a lens that has the best performance at wide apertures might as well stop here and move on to your next alternative. On the other hand, if you do not plan to use the lens wide open, then the softer results should not bother you much. Although, if you don't plan to use the lens at wide apertures often, then one might ask why do you need such a fast lens? After all, at ~US\$900, AF Nikkor 85mm f/1.4D does not really classify as a bargain lens. Resolution is obviously not the only characteristic that needs to be evaluated when choosing a lens. Unfortunately, AF Nikkor 85mm f/1.4D does not really deliver a clean victory in other aspects either. The lens showcases excellent color handling and practically non-existent distortion, but falls prone to pretty heavy flare and occasional color fringing again at wider apertures. So is this the best medium telephoto ever made? Not even close. But as mentioned above, it is a solid performer. A bit overpriced in my opinion though.

Source: <http://www.srlensreview.com/web/nikon-slr-lenses-40/telephoto-slr-lenses-165/102-nikon-af-nikkor-85mm-f14d-lens-review.html>

(January 3, 2010)