

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

Lens construction:	10 elements in 6 groups (2 ED elements)
Focus distance:	1.45 m (4.8 ft.) to infinity
Angle of View:	8° 10' (5° 20' with D1-series digital camera)
Max. reproduction ratio:	1:3.7 (0.27 X)
Aperture scale:	f/4 to f/32
Attachment size:	77 mm
Diaphragm blades:	9
Lens hood:	built-in
Dimensions:	90 mm (dia.) x 222.5 mm (length)
Weight:	1440 g with tripod collar 1300 g for lens only

Introduction

Nikon introduced the AF-S 300/4 lens in 2001, thus replacing the glorious AF ED 300/4 IF. The new lens has some interesting features, which allow to consider it, at least in my opinion, as a real improvement on the previous model. Such features are:

- the **silent-wave AF** motor (AF-S), which works also with F4-Series cameras;
- the use of **77 mm filters** (finally!);
- a quite useful **1.45 m minimum focusing distance**.

Performance

Color rendition is awesome and distortion is comparable to my 50/1.8 E, *i.e.* nil. A state-of-the-art performance!

At the widest aperture an almost imperceptible corner light fall-off is visible, which disappears at f/5.6. Therefore, the light fall-off is better corrected than the previous non-D AF model. I guess the maximum aperture is around 1/3 stop less than f/4. In fact, slides taken at 1/500" f/4 are slightly darker than images at 1/250" f/5.6 or 1/125" f/8. To get similar densities at different apertures I have to compensate for +1/3 EV @ f/4.

The lens exhibits a very good sharpness at f/4, even in the corners. At f/5.6 sharpness increases and image quality is excellent. W/open & with my TC-14B the sharpness is very good, but contrast decreases. However, the overall performance is preferable to the AF Tokina ATX 400 mm f/5.6, a telephoto lens I used in the past with satisfaction.

If you trust MTF tests, I summarize in the following a ranking I have determined by comparing MTF tests of the following lenses: AFS 300/4, AF ED 300/4 (non-D model), AFS 300/2.8 and the Canon EF 300 mm lenses. The data I used to rank the lenses in order of MTF quality were published by TUTTI FOTOGRAFI magazine (Milan - Italy) and can be viewed [here](#).

The parameter I selected to rank the lenses was the average quality across the frame **at the maximum aperture**:

AFS 300/2.8 = EF 300/2.8 IS = EF 300/4 L > EF 300/4 IS > AFS 300/4 > AF 300/4.

Therefore, according to MTF tests, Nikon did not succeed - like Canon - in manufacturing a f/4 lens as good as the pro-calibre 300/2.8. As a matter of fact, the "slightly" lower quality of the AFS 300/4 with respect to the AFS 300/2.8 is implicitly admitted by Nikon Co. itself in their Jap web site. The

blue curve (30 lines per mm) in the MTF plot of the AFS 300/4 is not as "high" as the blue curve of the AFS 300/2.8 (whose MTF values are always larger than 0.9 up to 15 mm from the centre of the frame). Both the curves refer to the max. aperture (f/4 and f/2.8 respectively).

Anyway, I consider the AFS 300/4 a tool preferable to the f/2.8 brother because:

- it is unobtrusive & much lighter (a real travel lens, supplied with a nice semi-soft case);
- it focuses closer (see below);
- it can produce high quality images even w/open;
- yes, it's slower, but it costs 4000 € less ...

About tripod collar ...

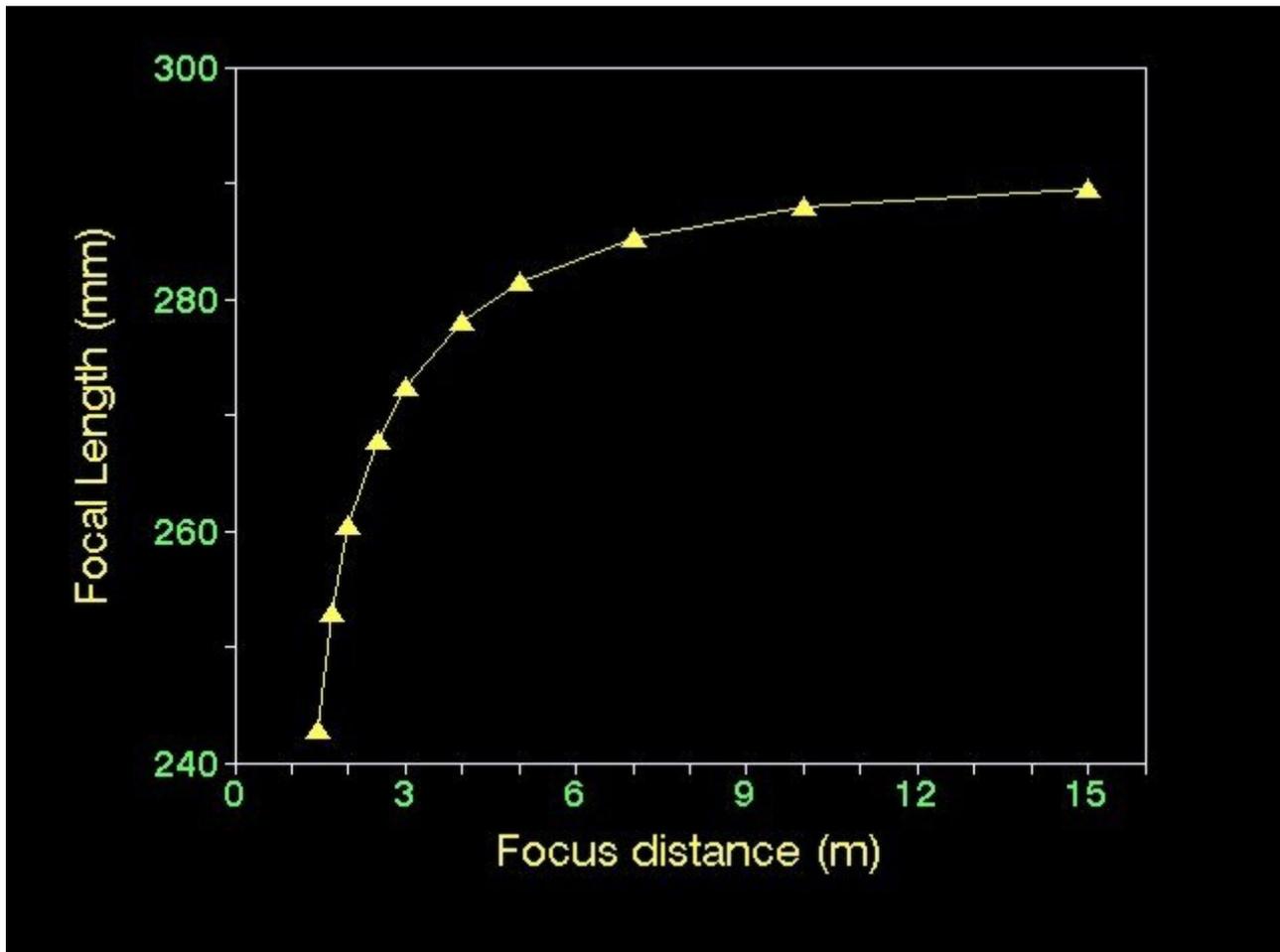
Several good reviews in the web have addressed the improvements over the previous (non-D) model and I prefer to invite you to read them rather than to repeat here the same things. In particular, [Thom Hogan's](#) review discussed in detail the AF-S performance and other issues as the one related to the new tripod collar, which drew several critical comments when it appeared. It could be interesting to check out [Bjørn Rørslett](#) web site, where he pointed out that the lens "vibrates" at critical shutter speeds, even on a first class tripod like the one he used to test the lens. [John Shaw](#), in the "product reviews" page of his web site suggests to use a *lens locking knob* by Really Right Stuff to solve the problem that, according to him, "lies with the collar not being sufficiently tightened down".

According to my experience in the field, I consider the quality of the tripod collar of my sample (serial number: 210xxx) "satisfactory".

Close-up performance

It is rather surprising that very few comments in the Web, and in magazines as well, have addressed the close-up performance of the AFS 300/4.

Without accessories, this lens focuses down to 1.45 m, thus achieving a 0.27 X magnification (1:3.7). As usual, the close focus performance has been attained by shortening the focal length (FL). Therefore, the actual FL at 1.45 m is about 240 mm.



This performance is slightly lower than that of the AF Sigma 300/4 Apo Macro, which allows to get 0.33 X at 1.2 m. However, with a 1.4 X (both the TC-14 B and TC-14 E can be employed) the resulting 420/5.6 lens allows to get a 1/2.6 reproduction ratio at 1.45 m, thus equalling the macro capabilities of the AF Sigma 400/5.6 Apo Macro (1:3 at 1.6 m).

Moreover, the close-up performance of the AF-S 300/4 can be enhanced by using a PK extension tube, according to the data reported in the Table below.

Close-up attachment	Reproduction ratio	Focused distance (m)	Image quality ⁵
1.4 X	0 - 1/2.6	infinity - 1.45	good-very good
PK-12	1/21 - 1/2.8	6.8 - 1.3	-
PK-12 + 1.4 X ¹	1/15 - 1/2	6.8 - 1.3	-
PK-13	1/11 - 1/2.3	3.9 - 1.2	very good
PK-13 + 1.4 X ¹	1/7.8 - 1/1.6	3.9 - 1.2	good-very good
PK-13 + PK-12 + PK-11A ²	1/6 - 1/1.8	2.5 - 1.08	-
PN-11	1/5.6 - 1/1.8	2.3 - 1.08	-
Canon 500 D	1/1.7 (at infinity)	0.5 m WD ³	good-very good
Nikon 5T ⁴	1/2.2 - 1/1.2	0.94 - 0.70	poor

¹ with the TC attached to the camera

² PK-11/PK-11A rings cannot be attached directly to the lens

³ WD: working distance, i.e. distance between front element and subject

⁴ to be used with a 77 mm (male) - 62 mm (female) step ring (don't worry! no vignetting occurs)

⁵ when the lens is stopped down @ f/8 or f/11, and at the minimum focused distance

In order to understand what the above mentioned reproduction ratios mean, the pictures below show an African pawn photographed with the AFS 300/4 using different accessories. The actual diameter of the blue buckler is 23 mm and the as-scanned pictures were not cropped.



Image taken at 1:2.7 with TC-14B



Image taken at 1:1.6 with 5T close-up filter



Image taken at 1:1.7 with PK-13 and TC-14B.
The image exhibits a much better quality than
the previous one, taken with a 5T filter

...
Thanks to its 1.45 m minimum focusing distance, the AFS 300/4 is a great tool for flower/plants photography.

