

The Tantalising 17-35 mm f/2.8 AFS Nikkor

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With the 20-35 mm f/2.8 Nikkor in 1993, Nikon reluctantly followed the trend set by other major brands and third-party lens producers for making increasingly wide zoom lenses. Optically speaking, such lenses are very difficult to design if quality is to be achieved. This is plainly obvious when using the offerings from otherwise well-respected manufacturers. Strong light fall-off towards the corners (vignetting) at wide apertures, loss of edge sharpness, field curvature, proneness to flare and ghosts, and colour fringing, all are optical evils riding along when the zoom designs were pushed for wider angles.

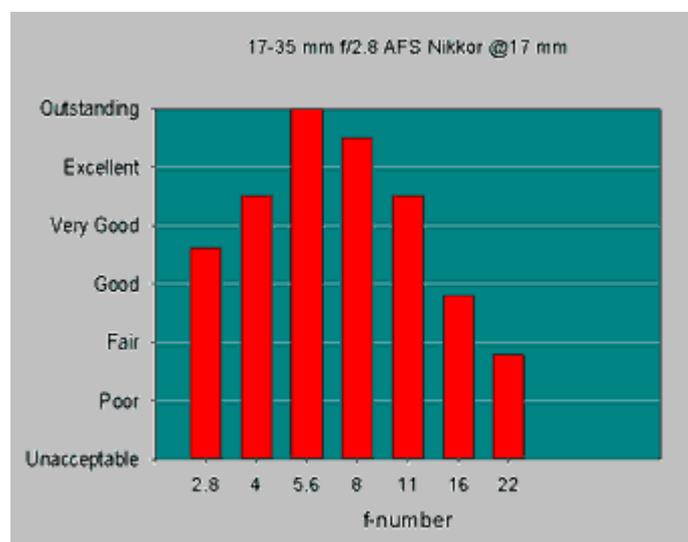
No further development was made by Nikon along this line before the introduction of the D1, Nikon's professional digital camera, in 1999. The digital features of Nikon's new prestigious camera necessitated a new and wider zoom lens. This results because the D1, as all other current digital cameras, has a recording surface smaller than the 35 mm film format so lenses mounted on it give a smaller angle of view and thus act as if their focal length is longer. On D1, this factor is 1.5X so your superwide 20 mm lens effectively becomes an ordinary 35 mm. Another significant factor impairing digital quality is colour fringing. This is because a typical digital camera records the image using a colour filter of randomly distributed red, green, and blue dots in front of the CCD image-forming chip. The pixels on the chip themselves are "colour-blind" and record only light intensity at each pixel position, not colour. Advanced hardware (or software) reconstructs the colours of the final image by interpolating from neighbouring pixels. It goes without saying that any colour aberrations produced by the lens will adversely impact quality of the reconstructed, final image. Loss of fine image detail and sharpness results.

Enters the unique 17-35 mm f/2.8 AFS Nikkor zoom. Designed for the D1 on which it equals a 25-50 mm lens in terms of angle of view, it also matches any Nikon SLR camera. Nikon choose to go for a really far-out optical design only made possible by including moulded aspherical elements and ED glass. The lens incorporates no less than 5 special elements out of a total of 13. ED glass helps eliminate colour fringing and counteracts possible ill effects from the IF (internal focusing) design of the 17-35 mm lens. The front element is peculiar in being strongly aspherical and in fact there is a bulge in the centre of the front element! Many people won't actually believe this because it can be quite hard to see with the naked eye, but either consult the lens diagram or follow reflections of a window sill across the front element, then you should know better. Nikon obviously applied every trick in the optical book and then throw in additional wizardry for good measure. This cleverness evidently paid off as far as image quality goes.

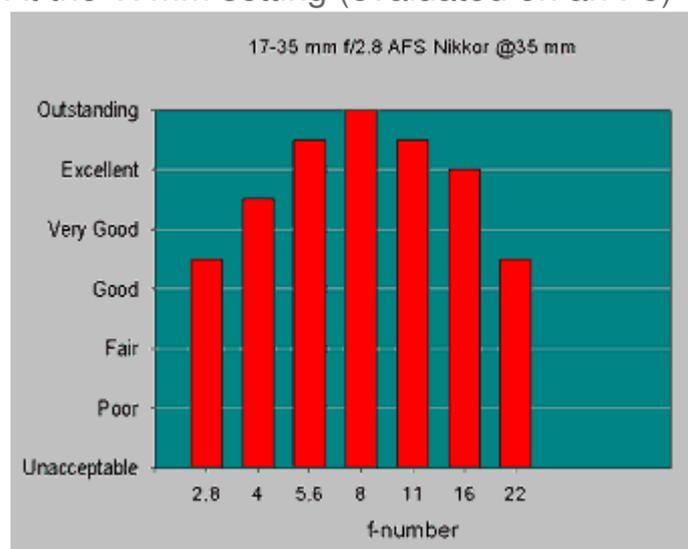
I tested the 17-35 AFS using my routine setup as outlined under the '[Lens Evaluation](#)' section. As set forth with the [85 PC Micro-Nikkor](#), my results are summarised graphically as depicted in the graph below. The graphical presentation aims to augment, not replace, the exhaustive written comments on each lens. Please bear in

mind that no lens can achieve an 'Outstanding' or 'Excellent' quality when it is stopped well down because of the adverse effects of diffraction. Performance at each aperture in this graph is not weighted according to the maximum possible, so any lens will show a declining pattern towards its minimum aperture. I simply evaluate the test results in terms of what one should like to see in image quality, were the aperture setting not known.

For the 17-35 mm, results are given for the extreme end points of the focal range. I tested the lens both mounted on my F5 and on the D1. The digital images on the D1 were captured using 12-bit raw files from the camera which were converted into TIFF format with a pre-release version of the Nikon Capture program. Test subjects were identical so I also had an opportunity to compare analog and digital rendition directly. I'll return to these results soon in an upcoming field test of the D1.



At the 17mm setting (evaluated on an F5)



Lens set at 35 mm (on the F5)

Subjective evaluation of the 17-35 mm f/2.8 AFS Nikkor. See text for details.

Compared to the 20-35 mm f/2.8 Nikkor, the 17-35 lens is slightly heavier and balances nicely on all modern Nikon bodies. Its IF construction makes for very fast AF action on the F5 and D1 cameras. It is a two-ring design which is simplicity itself to use in practical shooting. The minimum focusing distance, a traditional weakness of zooms, is a respectable 0.28 m making it possible to get very tight shots indeed. . Filter size at 77 mm follows the new Nikon standard, and there isn't a rotating front. The exterior barrel has a smoother finish than the 20-35, although a hammered surface still is used. A nice touch is that all numerals are engraved, just as in the good old days of Nikon F! The sunshade is fairly anonymous as wide-angle zooms go being much smaller than that of the 20-35, and the locking design is better, too.

Geometric distortion is substantially higher with the 17-35 Nikkor than with its predecessor, in particular at the wide end where barrel distortion is plainly visible. This is less prominent with the lens mounted on a D1 because of the smaller angle of view here. There is much less distortion at the long end. Slight pincushion distortion @35 mm is typical for most 17-35 Nikkors I've tested. Around 24-28 mm, distortion is absolutely minimal.

Wide open at the 17 mm setting, there is a slight softness across the entire frame, but image detail was very good. The extreme corners are quite soft on the F5 at this end at f/2.8, while D1 by recording less of the image circle gives better results. In sharp contrast to all other wide zooms, there is virtually no vignetting at the maximum aperture, even when the lens is used on the F5 and thus covers a much wider frame. On the D1, it is in practice impossible to detect vignetting at f/2.8 @ 17mm. A remarkable result that places the 17-35 Nikkor in a class of its own. Also remarkable is that maximum aperture sharpness was slightly better at 17mm than at the 35 mm setting, which is the reverse situation of the previous 20-35 mm Nikkor.

Image contrast and sharpness improve rapidly upon stopping down, and within the peak range f/5.6-f/11 the image results are simply stunning. There is virtually no trace of colour fringing and this adds to the impressive image quality of this zoom lens. It renders all colours with a very pleasing vividness and saturation and I suspect this is a fringe benefit of all the ED elements that Nikon placed inside this lens.

When the lens is set at 35 mm, the remarkable image quality of the 17-35 holds up much longer than usual when the lens is stopped down. I regard the lens as being near diffraction-limited in its performance between f/8 and f/16. The endpoint f/22 shows lowered contrast because of diffraction and visible softening of the image.

On the other end of its zooming range, peak performance is shown slightly earlier across the aperture scale with an optimum at f/5.6. However, now the lens cannot quite follow the long-end performance at smaller apertures and I saw a very visible decline in quality at f/16-f/22. This degradation of image quality manifested itself with significant lowering of contrast and loss of detail. Again, this is the reverse situation compared to the 20-35 Nikkor.

Under field conditions the 17-35 handled extremely well on either the F5 or D1, delivering extremely sharp and crisply defined images with a tremendous colour rendition. I found its close-focusing ability to be of great value for practical shooting.



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These frozen fern leaves contain a wealth of detail which is effortlessly captured with the new AFS 17-35 mm Nikkor. Shown is just an 8 by 8 mm section of an image taken on D1.

Web presentation cannot possibly do justice to the image quality attainable with this remarkable lens. To underscore this point, take a look at the tiny detail presented below - it represents less than 1 x 1 mm of the original. Are you able to locate it in the bigger picture above? See the crispness of the rendition of the fern veins - wish all my other pictures were that sharp ...



The 17-35 mm f/2.8 AFS Nikkor is a remarkable and amazing lens, that well deserves a total ranking of 5 (Excellent). I'm looking forward to joyous photo opportunities with this lens and shall post more pictures taken with it when they become available.

Added note 28 July, 2002: The AFS 17-35 has been my main lens on my digital cameras (D1, D1X and D1H) for 3 years. This is my bread-and-butter lens. Probably it doesn't come as a surprise that I regard this lens as one of the legendary Nikkors by now.

Sample Variability and other Lessons Learned

Since this review was incepted, I have had shooting and testing experience with quite a number (more than 10) of 17-35 Nikkors both on my D1 and F5 cameras. The reasons for this are the persistent rumours that this lens is inferior to the 20-35 Nikkor. When I first got my personal sample of the 17-35, it didn't take me long to detect this sample lens showed severe faults of focus shifts and decentered elements. Since the first two or three of these lenses I had used were superb, I wouldn't accept no less for my own use. So, I demanded a packing case filled with 17-35 lenses for testing from the national Nikon dealer, and surprise, got it! Thorough testing of all these 17-35 Nikkors indicated that mild decentering isn't uncommon, and the same goes for focus shifts. A sample size of 10 is too small to draw any statistical significant conclusions, but finding that 2 out of 10 lenses had severe decentering problems was discouraging. Eventually I located a perfect 17-35 AFS and kept it for my personal use. It has proven itself a highly useful all-round lens on my D1. In fact, my records show I use it each and every day. Must be a real favourite, then.

I see on the Web different opinions regarding the flare and ghosting propensity of the AFS 17-35 Nikkor. In my experience, most such issues are neatly solved simply by removing any filter on the lens. In fact, if you leave a UV filter on "for protection", you are certain to be rewarded with a quite ugly, **greenish and elongated ghosting spot** upon shooting into the sun. This ugly ghost arises from the inwards bulge in the front lens, which actually "focuses" the flare onto the filter underside and thus allows it to be imaged by the lens. So, unscrew your filter(s) and make sure the front element is immaculately clean.

Another useful feature of the AFS 17-35 is its close-focusing ability. This comes in handy all the time, and adds to the versatility of this zoom lens. At the near limit, there is only 10 cm from the object to the front of the lens so clearance for lighting is restricted. Image quality still is very good in the close-up range, but there is some field curvature and beginning spherical aberrations too, so do not expect the 17-35 to be a "macro" lens, and stop it down for best image quality. The flattest field and lowest geometric distortion occur around the 24 mm setting.

End Note:

A great deal of confusion seems to exist about the 17-35 Nikkor lens and its qualities. Is it a good or a bad lens?

Some of this is due to the way people read out whatever they want from any written source. So, for instance, my web review is interpreted to imply it is mandatory to "cherry-pick" a sample for it to be any good at all.

That is simply not true. I based my review, published here, on results derived from the second sample lens I had access to, simply because I was allowed to keep that lens for some time (remember they initially were in extreme demand and press photographers would do anything to get their own 17-35). Most AFS 17-35 lenses I have later examined exhibit the performance features I have described in my article. However, given the production complexity and high demand for it, the first batches of the AFS 17-35 Nikkor showed some sampling variability due to insufficiently tight quality control. And according to the universal laws, it is inevitable that I, knowing the exceptional quality of this lens, should be the one getting a dog sample when I

http://www.naturfotograf.com/17_35_review.html

purchased my own 17-35 (this was a lens from the first monthly batch, by the way).

I take pride in my testing and its independency, so would not gloss over such quality deviation. My Nikon dealer was informed of this and, maybe because they consider me a good customer after all, allowed me to sample a series of "fresh" 17-35 lenses (still from the early batches). The results are given earlier so will not be repeated here, but the quality variability detected by me caused quite a stir and was immediately relayed to Nikon, Japan. Later experience with 17-35 lenses indicated that their QC of the AFS 17-35 rapidly improved, and I would like to think my small contribution was instrumental in this (a nice thought, at least).

In fact, when people send me test shots to "prove" their AFS 17-35 is faulty, in 9 out of 10 cases either the camera front plane is found to be warped or misaligned, or no optical flaws whatsoever can be demonstrated (I've seen a surprising number of international brick walls shot with the 17-35!).

It is food for thought that so few photographers are unaware of their warped cameras. Even professional cameras will become misaligned by getting forcibly bumped or knocked around. In other words, a fault likely arises when the camera is abused, not when it is being used for normal photography. Thus, a camera isn't a substitute for a hammer, to the contrary of what many people believe. Expect the AFS 17-35 Nikkor, with its inherently high optical quality and short focal length, to bring any such alignment problems to the surface.

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