

Understanding hyperfocal distance

In pre-autofocus days, lenses used to come with markings for each f stop as well as the distance scale. Have a look at the attached image of an old Nikkor lens.



The f stops are colour coded to save space only. In the picture the lens is focused at infinity and f5.6 has been selected. (The black dot is the focus point for ordinary film, the red dot for infrared film.)

If you look at the silver ring between the f stops and distance you can see the colours of the f stops spreading out on either side of the black dot. These tick marks are the near and far points for the range of “in focus” subjects - the “depth of field”. More precisely, they are the extremities of what the eye would consider to be in focus. Only the distance opposite the black dot is really in focus.

Referring to the photo, the lens is focused at infinity. The orange tick for f16 to the right of the black dot is opposite 5m. What this means is that any subject between 5m and infinity will be in focus when the lens is focused at infinity and the aperture used is f16.

Now consider what the situation would be if you rotate the lens so that the infinity distance was opposite the orange f16 tick to the left of the black dot. Everything between the distances corresponding to the orange ticks on either side of the black dot would be in focus. The actual distance opposite the black dot is the hyperfocal distance for f16 for that lens.

I used an app called Hyperfocal Pro. For my camera, a NikonD700 and a 50mm lens the hyperfocal distance for f16 is 5.5m. The depth of focus is between 2.6m and infinity.

Ok, for street photography where you want the maximum depth of field you should use a short focal length lens. Again for my D700 here are some examples for a 50mm lens

	Near point	HFD.	Far point
F2.0.	20.8m.	490m.	Infinity
F4.0.	10.7m.	21.7m.	Infinity
F8.0.	5.5m.	10.9m.	Infinity
F16.0.	2.7m.	5.5m.	Infinity

For a 35mm lens, in comparison

F8.0.	3.5m	5.3m.	Infinity
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Other references

1. <https://photographylife.com/landscapes/hyperfocal-distance-explained>
2. <https://digital-photography-school.com/how-to-find-and-use-hyperfocal-distance-for-sharp-backgrounds/>