

Canon EF 800mm f5.6L IS USM review

This is the longest telephoto lens among Canon's lineup, and a terrific choice for any long-distance application-outdoor sports, wildlife, news photojournalism, and so on. It's actually lighter than Canon's EF 600mm f/4L IS lens, weighing just under 10 lbs. It uses a refined optical design, with two fluorite lens elements, one UD element, and one Super-UD-glass element, for outstanding correction of color fringing and superb contrast and sharpness. This super-telephoto lens uses magnesium-alloy barrel construction to enhance its light weight, and has weather-resistant gaskets throughout for use in harsh conditions. It's compatible with both the EF 1.4x II and 2x II tele extenders for even more reach: EOS cameras with 45 AF points will continue to provide autofocus at the center AF point when the lens is used with the 1.4x extender. Finally, it's image stabilized, providing up to 4 stops of correction for camera shake. This makes it even more practical in many situations.

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Canon EF800mm f/5.6L IS USM

Photo 6: EF 800mm f/5.6L IS USM

Development objectives

The EF 800mm f/5.6L IS USM (Photo 2) is a L-series L-series super-telephoto lens with a newly developed image stabilization unit intended to enhance our line of super-telephoto lenses. This lens's specifications allow it to be used for hand-held photography - thanks to its lightweight design and image stabilization function - despite its 800mm super-telephoto focal length.

The primary development objectives of this lens are given below.

Feature 1: Top picture quality suitable for an L lens

Using fluorite, super UD, and UD lens elements in this lens allowed us to make it compact: its overall length, even with a 800mm focal length, is about the same as the EF 600mm f/4L IS USM. This optical design also delivers the high-fidelity, high-contrast images one expects from an L-series lens while minimizing chromatic aberration and eliminating color fringing (figures 4 and 5).

Figure 4: Optical assembly of the EF 800mm f/5.6L IS USM

Figure 5: MTF characteristics of the EF 800mm f/5.6L IS USM

Feature 2: Four f-stop stabilization gain

Image stabilization on this lens is achieved with a mechanism that shifts the compensation optics (G11, G12, and G13). The high-performance IS unit - which is responsive to even subtle blurring - and the gyro-sensors - which precisely detect blurring - together with an optimized image-stabilization algorithm, give the lens a stabilization gain equivalent to roughly four f-stops* of shutter speed. This lens's image stabilization function has the following outstanding features:

- Two selectable image stabilization modes - Mode 1, for still shooting, and Mode 2, for pan shooting

- Image stabilization when using a monopod is equivalent to hand-held image stabilization

- Image stabilization available when using a tripod**

- Image stabilization can be used with the EF 1.4x II/EF 2x II extender attached***

*The minimum unaided hand-held shutter speed is roughly $[1/\text{focal length}]$ seconds.

**In certain shooting conditions and with certain tripod types, it is better to work with image stabilization off.

***Not possible with all camera models. See Table 2.

Feature 3: Lightweight design

We kept the weight of this lens to 4,500 grams by designing the major components from lightweight magnesium alloy, in addition to using a compact optical system. This makes hand-held shooting with this lens possible even though it is an 800mm super telephoto.

Feature 4: Superior waterproof and dustproof construction

Waterproof and dustproof construction (Figure 6) around the mount, the switch panel and switches, the AF stop buttons, the focus-recall and focusing rings, and the drop-in filter prevents dust and moisture from getting into the lens, making it suitable for taking pictures in harsh conditions.

*Be sure to use the lens with a weatherproof/dustproof camera body.

Figure 6: Waterproof and dustproof construction on the EF 800mm f/5.6L IS USM

Feature 5: Optimal optics for digital SLRs

The lens configuration and coatings have been optimized to ensure excellent color balance as well as to minimize the flaring and ghosting found with digital SLRs due to surface reflections from the imaging sensor.

Other features

- Manual focusing in AF mode

After the one-shot AF operation, the full-time mechanical manual focus construction allows the user to continue to focus manually without leaving the AF mode.

- Fast, silent autofocus

The lens's inner-focusing system, ring-USM drive, high-speed CPU, and optimized AF algorithms enable fast, silent autofocus performance on par with the EF 300mm f/2.8L IS USM.

- AF stop function

The AF stop function allows the user to stop the autofocus at any time.

- Focus preset function

The lens comes with a focus preset function that instantly moves the lens to a previously stored focus position.

- Circular aperture produces beautiful bokeh blurring effects

The lens features an electro-magnetic diaphragm with a circular aperture that provides attractive bokeh blurring effects.

- Switch shapes designed to prevent accidental settings

The switches on the switch panel have been shaped to prevent the switches from being moved accidentally while shooting or during transport.

- Large hood provides more effective light blocking

The inner wall of the large circular ET-155 hood has been flocked for superior anti-reflective performance, vastly reducing harmful reflections.

- Environmentally friendly design

The lens optics use only lead-free glass in consideration of the environment.

Furthermore, the lens design meets the environmental requirements of the European Union's RoHS Directive (Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

Photo 7: The telephoto/super-telephoto large aperture L-lens series

This concludes this month's look at our two new high-performance L-series lenses. With the addition of these two new lenses, our EF lens line now features six large-aperture L-series lenses that cover telephoto and super-telephoto ranges (Photo 7).