

# A Field Review on the Canon EF 70-300 f4-5.6 IS II USM

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The Canon EF 70-300 f4-5.6 IS II USM with optional lens hood, mounted on a Canon EOS 60D

## INTRODUCTION

The basic range of 70-300mm type lenses must be one of the most popular series of lenses used by enthusiastic photographers and professionals alike. Just about everyone who owned or has owned a camera will have had a lens in the zoom range at some point in time, and for very good reason; it is such a handy overall package. You get a mid-range telephoto zoom, reasonably fast in aperture range, relatively compact and light with good enough optical quality all at an affordable price.

The lens on review here is the Mark II version of Canon's offering in this range, and they have made a few design changes to the popular first model. This Mark II was launched in the last quarter of 2016 already and remains a popular lens.

So just what do you get for the approximately R7500 (January 2020 pricing) of your hard-earned cash you will spend (give or take a few hundred either way depending on where you shop)

On offer is a good mid-range zoom lens, which can zoom from 70mm at f4 to 300mm at f5.6. A lens with good build quality, good auto focus (AF) performance, effective IS (Image Stabilizer) and good image quality.

## **SPECIFICATIONS**

The more detailed specifications for this lens are listed below:

Zoom range	70mm to 300mm
Maximum aperture range	f4 (70mm to f5.6 (300mm)
Minimum aperture	f32 (70mm to f45 (300mm)
Minimum focus distance	1.2m
Maximum magnification	0.25x (1:4)
Overall dimensions	Diameter: 80mm Length 70mm: 146mm Length 300mm: 214mm Lens hood (optional): add 78mm
Optical construction	17 elements in 12 groups. One UD (Ultra-Low Dispersion) glass element.
Image stabilizer (IS)	4 stops
Weight	710g
Filter size	67mm
Lens hood (Optional)	ET 74B

## **EXTERIOR DESIGN AND LAYOUT**

The lens now has a Mode Switch, a first for Canon. This switch is mounted on the left side of the lens barrel and its selection mode is displayed in an LCD screen on the top side of the lens. The display changes in sequence from an equivalent zoom range to a camera shake indicator and a distance scale readout. Personally, I feel this is a handy to have feature for the beginner photographer, but not of much use for the advanced user. The camera shake mode is probably of little use, you cannot see it with the camera in shooting position, but it does show you how much you are shaking just trying to hold the camera steady. The other two settings can be checked before and after focussing and shutter tripping, providing some trivial information. Anyway, a brave and innovative move from Canon. Some will like it; others will probably ignore it.

Below the mode switch is the AF / MF (Manual Focus) switch and the IS On / Off switch.

To the right of the LCD panel is a zoom lock switch which prevents lens creep when carrying the lens mounted to a body. The switch must be manually locked and unlocked on the 70mm zoom setting only.

Mode switch settings:



Focal length mode



Camera shake mode



Distance scale mode



Selector switch layout on the left side of lens barrel

The lens mount is the standard EF design, which means it can be used on both full frame and EF-S mount (1.6x crop bodies) as well as RF (mirrorless mount) when the RF-EF mount adaptor is used.

Another nice feature is the use of an internal focus system, meaning the front element of the lens does not rotate or extend during focus activity making the use of a polarising filter that much easier.

The lens extends when zooming, as do all the lenses in this zoom range and price bracket.



Length at 70mm



Length at 300mm

The optional lens hood is the ET 74B model featuring a bayonet style mount with a locking clip which holds it securely in place.

External finish is an attractive matt black, looks quite durable too.

## HANDLING AND PERFORMANCE

Light enough for easy handholding in the field mounted on any Canon body, the lens is a real joy to use. The AF is quick, very quiet and accurate, and AF during video recording benefits a lot from the Nano USM design of the AF system with smooth and quiet functioning.

The switches all perform with positive click actions, the zoom ring is stiff enough not to allow for zoom creep with the lens pointing downwards but positive when turning the zoom ring manually. No doubt it will loosen up a little with constant use, but there is still the zoom lock switch for safe carrying around.

The MF ring has full AF override, and uses a electronic controlled MF variable drive rate. This means when you do a fast turn of the MF ring the focus plane changes more in distance for focus plane adjustments. When a slow turn of the ring is used, the focus plane adjusts in smaller increments for a very precise fine-tuning of the MF. Note that for the MF ring to operate, the camera must be in awake mode and the in-camera full time manual focus setting must not be switched off (if available)

AF speed and accuracy with different bodies turned out to be very good, fast, accurate, even in lower light conditions, largely due to the new focus motor design, Nano USM, which combines the performance of the regular ring type Ultrasonic Motor (USM) with that of a Stepping Motor (STM) delivering a quiet, smooth and direct lead screw type AF drive resulting in a silent, fast and smooth AF system. This is by far the best performance from any entry to midrange level 70-300 type lens I've ever used or tested.

The 4-stop Image Stabilizer works like it's supposed to. With an auto panning detection feature there is no need for a special switch setting, just on or off. It is recommended to

switch the IS off when mounting the camera to a tripod or some solid rest like a bean bag. It provides a leniency when using slower shutter speed for effect or in low light conditions and still getting sharp images, up to a point of course. At 300mm I could manage sharp images consistently using IS and handholding at speeds as low as 1/50.

Zoom range: The useful 70-300mm zoom is probably one of the reasons why these design style lenses are so popular.

One can expect more than acceptable results using the lens for the typical family portrait sessions, yielding sharp results with very good detail, colour tones and textures. The zoom range is ideal for the enthusiast family photographer, zooming out for loosely framed full body or group images and zooming in to capture sharp head and shoulder images. The portrait images below were captured from the same spot, the framing effect is due to lens zoom only.



Canon EOS R, 70mm zoom



Canon EOS R, 300mm zoom

Side note - Kudo's to Canon for not marking or advertising this lens as a "macro" offering like so many manufacturers do, even Canon sometimes do with typically the EF 24-105 f4 L and 24-70 f4 L lenses, just having a closer focus setting which still does not allow a 1:1 magnification ratio. There are no zoom lenses that I know of which will give a true macro 1:1 ratio used on its own.

The images on the next page is of a yellow metal flower with a bug in the centre which I use with students to teach and practice macro focussing techniques, the bug doesn't fly away! That flower will fit in a 10cm diameter circle, and the bug has a wingspan of 4.4cm. At the

300mm zoom setting and minimum focus distance (approximately 1.2m) the flower will just fit into the frame when using a full frame body like my Canon EOS 1Dx and a Canon EOS R, with a little overflow in the frame when using my 1.3x Canon EOS 1D MkIV, and on a typical 1.6x Canon EOS 60D the crop on the petals is even more. Therefore when using a xxD or xxxD body with a 1.6x crop sensor (APS-C) it means that those enthusiast photographers can capture flowers and larger insects such as dragonflies quite nicely, and even with full frame bodies using a larger crop ratio still get an acceptable result. Not macro detail, but good enough for finer detail.

All images below captured with exact same camera settings and with the zoom at 300mm, 1.2m distance to subject.



EOS 60D APS-C (1.6x)



EOS 1D MkIV APS-H (1.3x)



EOS 1Dx Full Frame



EOS R Full Frame

Viewing the metal flower images at full size shows good centre sharpness even wide open at f5.6, going very slightly sharper when using f8. The edges and corners show a little softening but less than what other similar lenses in this class do. Some purple fringing is noticeable in contrasting lighting conditions, but easily corrected in software. Again, this is less than what can usually be expected from entry and midrange tele-zoom lenses of similar nature.

The same metal flower and an EOS 60D (APS-C, 1.6x) was used to demonstrate the zoom advantage from 70mm to 300mm



Canon EOS 60D, 70mm zoom setting



Canon EOS 60D, 300mm zoom setting

Another typical use for this lens by the amateur or enthusiast photographer will be wildlife when taking the family to a nature reserve. The Zebra again demonstrated the zooming in power of this lens, when used as a test subject from the same position inside my vehicle.



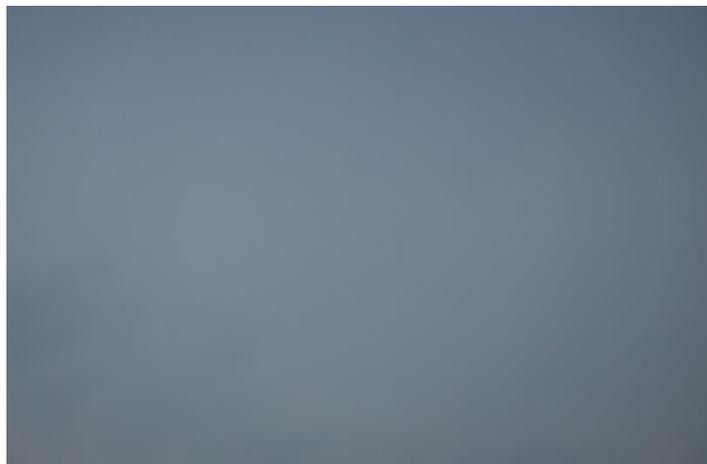
Canon EOS R, 70mm zoom setting



Canon EOS R, 300mm zoom setting

Testing for light fall-off and vignette was done using the EOS R and sample frames were captured at 70mm f4 and f8 and at 300mm f5,6 and f8, then repeated with the lens hood fitted. First of all, the lens hood didn't have any noticeable effect on light fall-off and didn't cause any vignette. The corners and extreme edges of the frames captured at 70mm f4 and 300mm f5.6 showed visible light fall-off, which was virtually gone at f8. Not measured scientifically, but about 1/3 stop light fall-off was noticed.

Light fall-off 70mm f4



## **SUMMARY**

This is a lens that really surprised me with its overall performance. The image quality is the best of any lens of this nature and in this price bracket; sharpness and detail are very good, colours are good, AF is fast, quiet and smooth, the IS performs very well indeed, build quality is good. You'll have to pay a lot more for better performance, such as can be had from the Canon EF 70-300mm f4-f5.6 L IS USM at almost 3x the price. Certainly, for the amateur or enthusiast photographer and even professionals this Canon EF 70-300 f4-5.6 IS II USM will more than meet the need; good for portraiture, general family style photography, a visit to a nature reserve, some close-up photography. By far the best performance from any 70-300 type lens in the entry to midrange bracket. Highly recommended in its class.