

## Panasonic Announce a Full Frame Mirrorless Cameras for 2019

At the latest Photokina (the biennial trade show held in Cologne, Germany) Panasonic announced its first full-frame mirrorless cameras, the Lumix S1 and S1R.

The 24 and 47megapixel cameras, respectively, are still prototypes and the final body and lens specifications have not been revealed but they look promising.

Both are said to have built-in image stabilization, a large, high-resolution EVF, triaxial tilt LCD for both selfie photographers and vloggers, the highest flash sync speeds on the market, and double slots for SD and the latest XQD cards.

Whatever were the designers thinking of the do away with the much tried and tested fully articulated screen to implement a screen with limited rotation and swivel?

If the S1R is aimed at stills photographers then at least the S1, which is for hybrid shooters, should have the fully articulated screen.

No price has been set but it must match the latest Nikon and Canon full frame prices to stand some chance of market acceptance.

The body features the Leica "L" mount system, which is 50mm diameter, smaller than both the Nikon and Canon systems.

It is said that it will be contrast based autofocus with DFD technology so will not rival the phase detect systems of the Nikon and Canon systems. This must be a major consideration for sports and wildlife photographers as phase detection is proven to be faster and more accurate than contrast plus DFD.

Dual pixel autofocus on the Canon cameras works incredibly fast and accurately, contrast detect with DFD is way behind it. The GH5s is probably the only camera that focusses accurately but still suffers the back and forward motion when changes focus.

The 24megapixel version is said to be aimed at 4K (50/60p) video shooters and the 47megapixel aimed at landscape, portrait and those photographers who will need the extra resolution.

The actual camera doesn't exist yet; only non-functioning mock ups were shown so it may be some time before we get to see the camera in its final production design.

As there will only be 3 lenses (a 50mm/F1.4 prime lens, 24-105mm standard zoom lens, and 70-200mm telephoto zoom lens) available at launch this is going to be a real barrier to entry into this market, in my opinion, for Panasonic.

Panasonic will also expand its line-up of LUMIX S Series compatible lenses, indicating that it will develop more than ten lens designs by 2020. It may allow the use of other L mount compatible lenses from Sigma and Leica.

It will be interesting to see the industry reaction to this model, I just hope it has a more substantial shutter release button to that on the G9, which I'm growing to hate every day now that I use the camera.

New lenses were also shown to expand the existing micro four thirds line including the world's first constant f1.7 aperture 10-25mm

More details from [Panasonic's website](#)

## Panasonic FZ80/82 Tutorials Concluded

I've now finished, and uploaded the last in the planned series for new users to the Panasonic FZ80/82 bridge camera.

In general, I'm pleased at the reception to the videos based upon the comments on the videos and from personal emails from you.

It is a camera with good potential although it does require good light to allow it to deliver the kind of results that you would want from it.

It does shoot good 4K UHD video and provided you keep the camera rock steady you do not see the rolling shutter video problem (which affects all cameras to some degree)

The whole video playlist is [here on YouTube](#)

## Godox X PRO Flash Trigger



For my flash photography, I have been using the Godox flash system for over a year now.

The Chinese kit is extremely well made and has been 100% reliable. I now have 3 flash guns and 2 studio flash heads now.

The system is radio based wireless flash rather than the usual optical system employed on most other systems. This has many advantages to the photographer as it doesn't need all the cameras and flash to be within line of sight and can work outdoors and in bright sunlight.

*Wireless (radio) TTL/Manual Control*



I have recently added the X PRO trigger as this upgrade to the X1T allows far easier control of the remote flash units. It has an expanded range of 32 channels and 5 groups catering for very elaborate set ups.



With its built-in 2.4G wireless transmission, the Xpro trigger can directly remote control Godox flashes with their own built-in 2.4G wireless X system. When using the Xpro in combination with a compatible X1R receiver, the Xpro transmitter can also remote control flashes which do not have the Godox wireless X system.

For example, using a Godox Xpro-C with an X1R-C you can trigger Canon branded flashes.

The Godox Xpro can be used as a:  
Wireless Godox flash trigger  
Wireless Canon, Nikon, Fujifilm, Olympus or Sony flash trigger  
Wireless shutter release trigger  
Wireless trigger for non-Godox X system flash using the 2.5mm sync cord jack

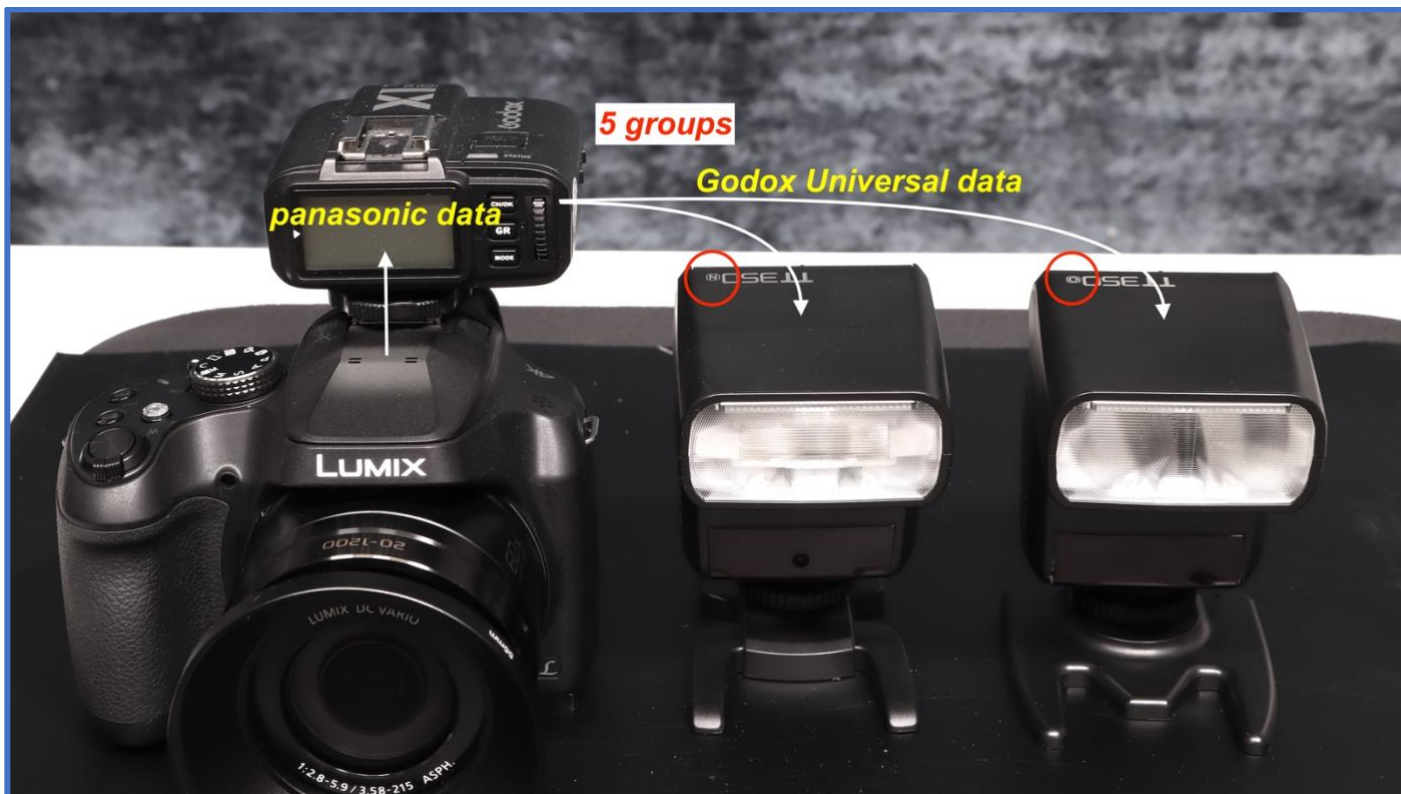
All Godox Xpro flash triggers fully support their native TTL autoflash functions plus:  
16 groups and 32 channels  
Add 01 to 99 wireless ID settings to avoid signal interference effectively  
1/8000s high-speed sync  
Multi-flash  
Manual flash  
Flash exposure compensation  
TCM transform function (transform the flash value in TTL mode into the power output value in M mode)  
Magnification function (enables groups to be switched between one-group and multi-group mode)  
One shoot and multi-shoot setting  
Group modelling lamp control  
Group Zooming  
Adjust all groups' output value simultaneously etc.

You can use TCM mode to set the initial exposure with TTL and then it will retain the current lighting settings in manual mode. This reduces the requirement for flash meters. You will need to let it know which device that you are using to configure TCM for example the AD600, AD200, speedlight. This is great as the AD600 studio strobe that I have doesn't support TTL.

Godox started off with making good quality copies, but these days they are innovating with their own solutions. Lighting solutions, like the AD200 are a good indication of Godox doing good things differently and doing it right.

Godox were one of the first brands to offer any form of wireless TTL support for brands like Sony, Panasonic and Fujifilm, and my initial tests on the TT350-o were very positive, both from a construction quality and lighting perspective. It was a small flash that offered a size to match the small mirrorless bodies.





The Godox system allows an affordable entry into flash photography. My existing X1-To Panasonic and X1-Tc transmitters allow me to utilise all my flash units across my Panasonic and Canon cameras. No longer do I have to use manual only flash guns or have dedicated flash setups. By using the correct system receiver X1-R it is possible to utilise other flashguns which don't have the Godox wireless system inbuilt. The ones below are using Nikon and Canon TTL protocols.



## Fast Lenses, Depth of Field and Aperture Misconceptions

During our development as photographers we probably have some desire to understand some of the technical aspects of our cameras so we have a better understanding when it comes to making informed choices for purchase of new kit etc. Or, it may be that understanding the physics helps understanding how to take better images in various lighting or compositional situations.

When I was putting together some notes for another project (which will hopefully be ready soon) I came across a lot of untruths about the elements of exposure so I thought that I would add a little of what I found in this newsletter.

Photographers often say that they have “fast glass” or fast lenses. Now you might think that this refers to the aperture and you might probably think that F1.8 or F1.4 is fast. Well, it is because the bigger apertures allow more light to enter the lens and reach the sensor resulting in “faster” shutter speeds for any given ISO.

When it comes to aperture definition, whilst the general statement that aperture diameter is the focal length/f-stop of the iris e.g. a 50mm lens at f4 would have a 12.5mm aperture diameter this is not exactly right.

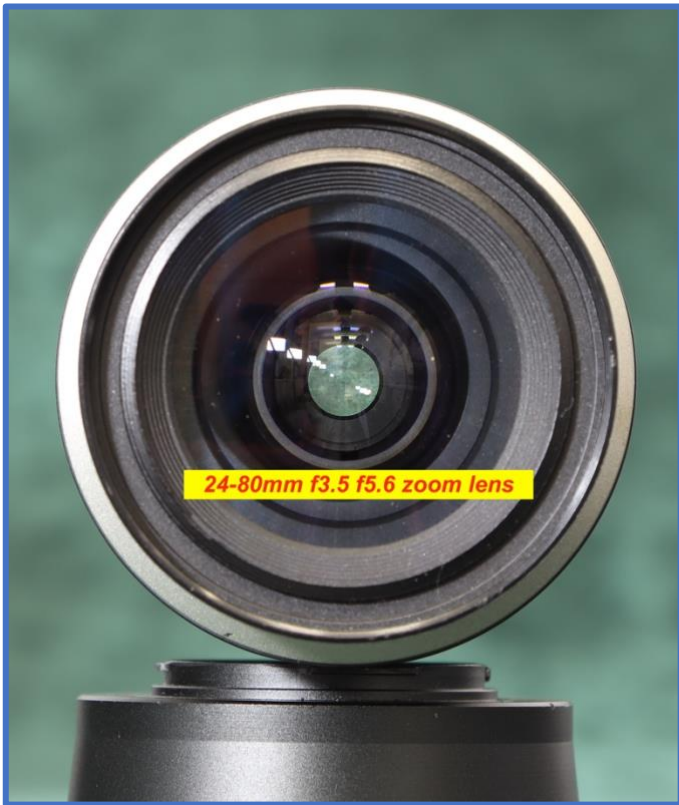
Aperture = focal length/ entrance pupil diameter.

In most cases the entrance pupil diameter will be very close to the hole in the diaphragm (the iris) but for some lenses it will be very different (as in long telephoto lenses)



When you peer into the front of a front of a lens you will see the diaphragm and the hole in it created by the movable blades (the iris).

The front element(s) of the lens may have a magnifying effect and it may appear larger however, it is this virtual diameter that is used in the formula.



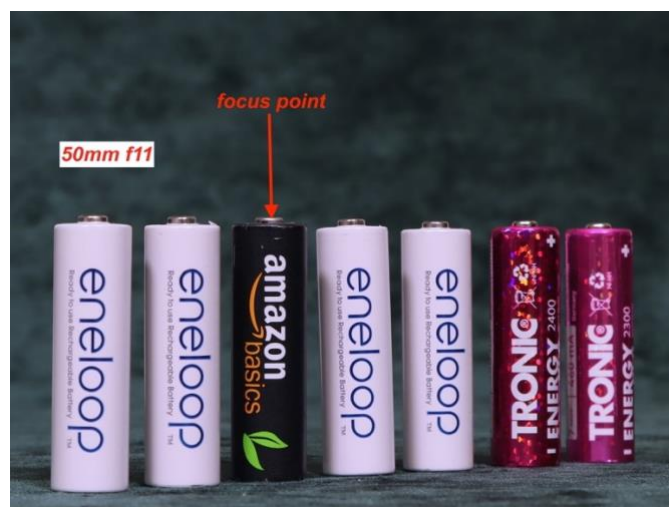
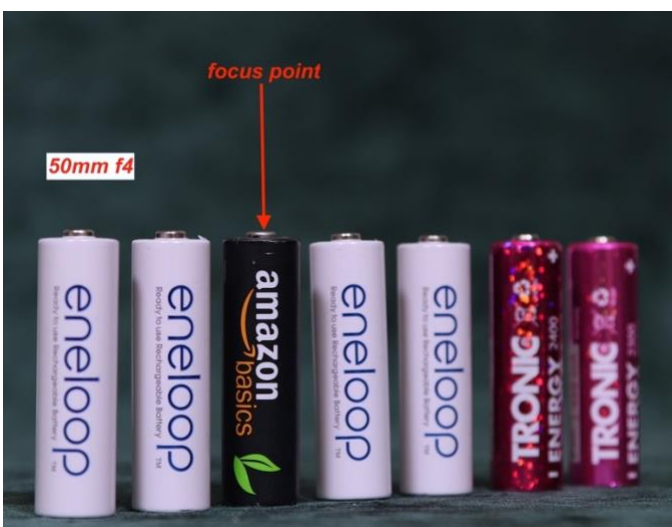
When performing this with the Pentax 24-80mm zoom lens, set at 80mm and wide open, the virtual diameter of the iris is measured at 14mm so the actual aperture is  $80/14 = f5.7$

Measurement is done by placing a rule as close to the lens as possible and trying to judge the size of the hole against the rule markings.

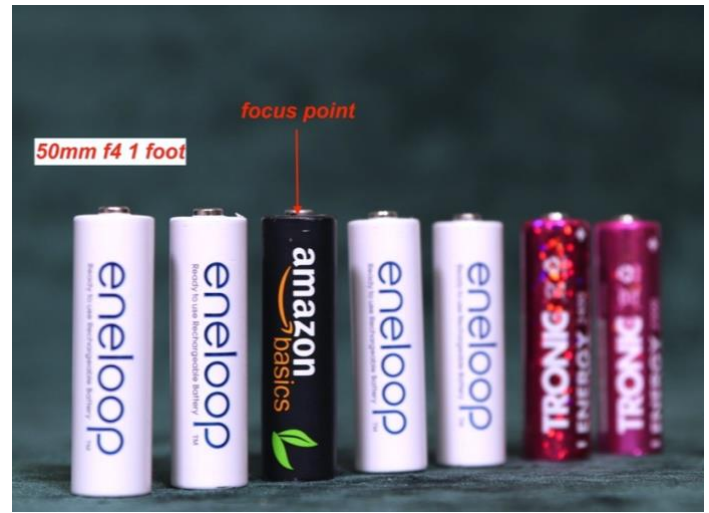
This entrance pupil plays more in the understanding of depth of field than the lens focal length.

Depth of field DOF is the distance between the areas in front and behind the actual focal plane that are “acceptably” in focus. The lens can only focus an image of a point on the subject at one focal plane. Points on the subject which are closer to the lens are rendered slightly in front of the focal plane and those points of light behind in the subject are rendered slightly behind the focal plane. The amount of acceptable focus of these images will depend directly upon the distance of the subject to the lens and the diameter of the entrance pupil.

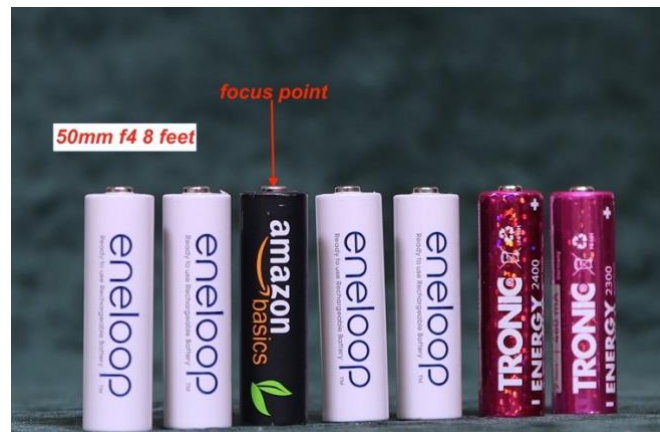
Now I hear you saying that using telephoto settings makes the depth of field very shallow and renders the background nicely out of focus thus making our subject stand out from the background. Well let’s examine why this is and why the focal length, f-stop and sensor size only indirectly affect the depth of field that we see in our image.



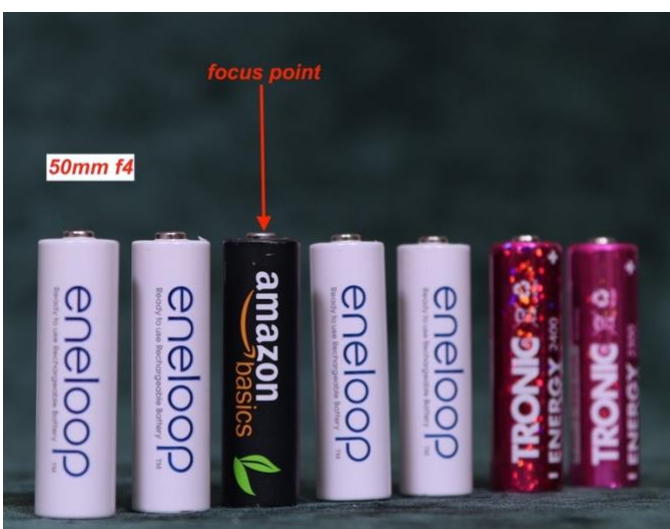
For the first illustration, the camera is in a fixed position, the aperture changed from f4 to f11. Note the increased depth of field.



In the next illustration, the aperture is kept constant at f4 but the camera is moved in by 1 foot note the slightly reduced depth of field.



and for this illustration, the camera was moved back 8 feet and the image enlarged to the same image height, note the increased depth of field.



In the final illustration, the **camera position** and aperture remain the same just the lens focal length is changed (50mm image enlarged to same image height). The longer focal length producing shallower depth of field.



*105mm f4*



*50mm f4 moved closer*



So, here in the two final illustrations is the result of the image shot at 105mm and then with 50mm BUT keeping the same image size by moving the lens closer to the subject. The result is almost identical depth of field. The image taken at 105mm will appear to have the background much closer due to the magnification of the telephoto lens.

So, in summary:

Keeping the same aperture and same focal length and moving closer = **shallower DOF** (bigger image size)

Keeping the same aperture and same camera subject distance and changing focal length  
Increasing focal length = **shallower DOF** (bigger image size)

Keeping the same distance and focal length and increasing aperture size = **shallower DOF**

Keeping the image size the same (by moving closer/further away) but increasing/decreasing focal length  
= **same DOF**

There could be some situations where increasing the focal length (AKA Zoom) and moving closer will result in even shallower DOF. This may be not what you need for pictures of flower blooms, insects etc., If your image resolution will allow then moving the camera further back and cropping your image will result in more depth of field.



This is illustrated in the images above. The first is at 35mm and the second with the camera moved further back (increased DOF and reduced image size) and then zoom to 105mm (increased image size and reduced DOF) but the net effect is one of greater DOF. The image which is enlarged and cropped shows more depth of field without any loss of image quality.

(All images taken with the Canon M50 with EOS EF to EOS M adaptor and the Canon 24-105mm F4 L lens)

The same argument can be applied to crop factor cameras as to maintain the same image size and field of view the focal length of the lens is reduced by the crop factor equivalence and to maintain the same DOF the aperture is increased by the crop factor.

So, say for micro four thirds which has a 2x crop factor

M43 focal length x2 = equivalent full frame focal length

M43 aperture x2 = equivalent aperture of full frame for DOF

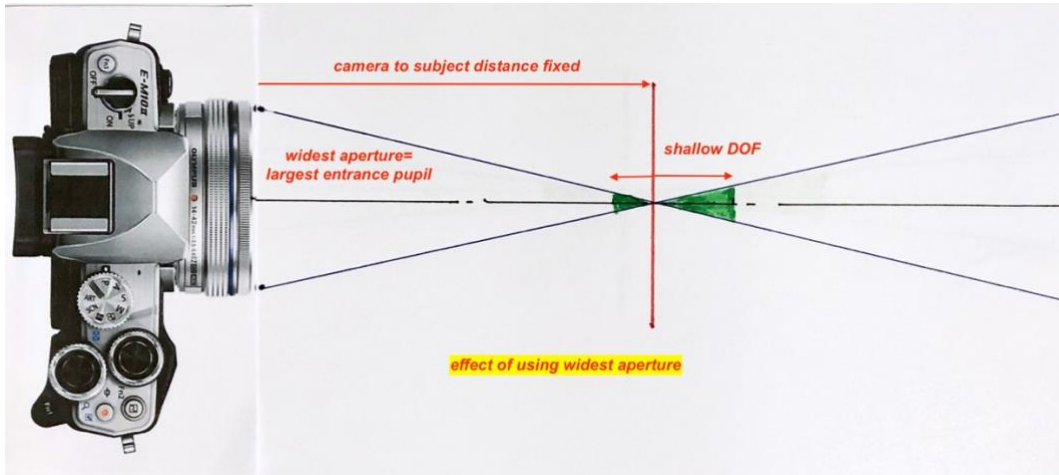
M43 ISO x 2<sup>2</sup> = equivalent noise levels on full frame (You multiply by crop factor squared because of the way the signal to noise ratio is compounded.)

Here in my illustration the change in depth of field is illustrated when the camera to subject distance is changed but keeping the aperture and focal length the same.

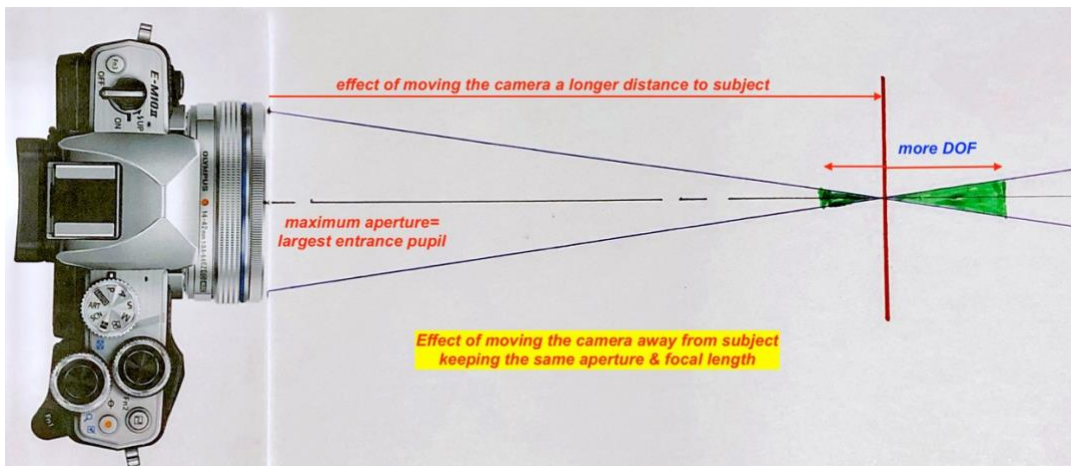
The green area is the depth of field (roughly 1/3 of it is in front of the subject and 2/3 behind it)

You can imagine the zone of DOF is like my analogy of a balloon sandwiched between two plates and as the angle of the plates decreases the balloon expands outwards to create more DOF and as the angle of the plates increases the balloon shrinks back creating a shallower DOF.

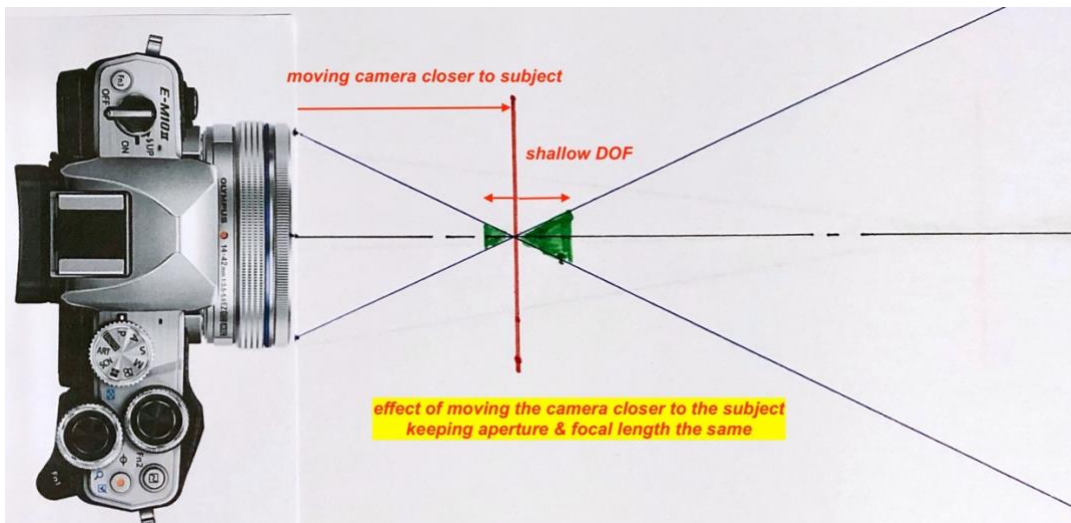
(I've illustrated this ray trace from the front of the camera to show the effect rather than the usual way of showing depth of field at the image plane or sensor but the effect is the same!)



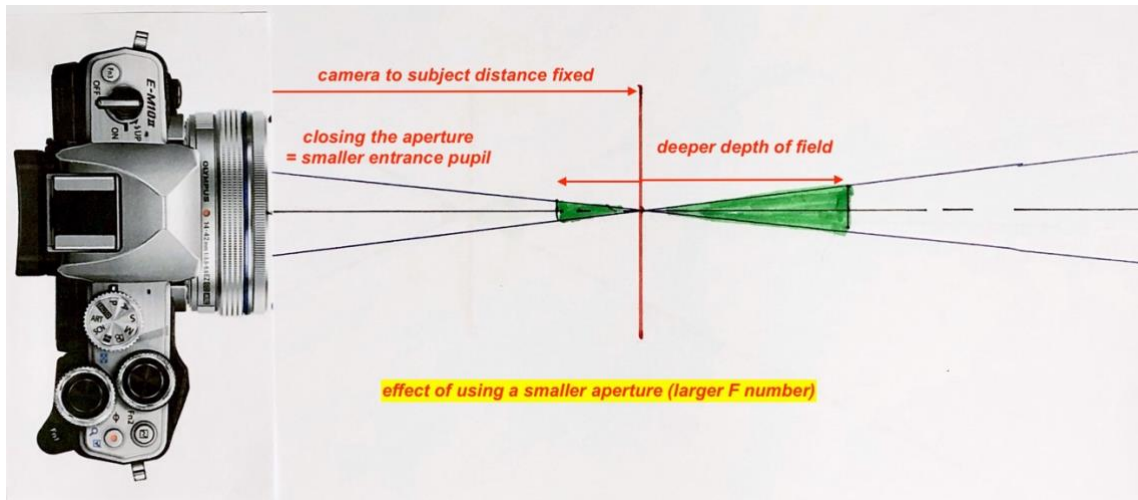
initial focus position and depth of field



at a longer focus distance to the subject the light rays are narrower causing the zone of focus (DOF) to increase

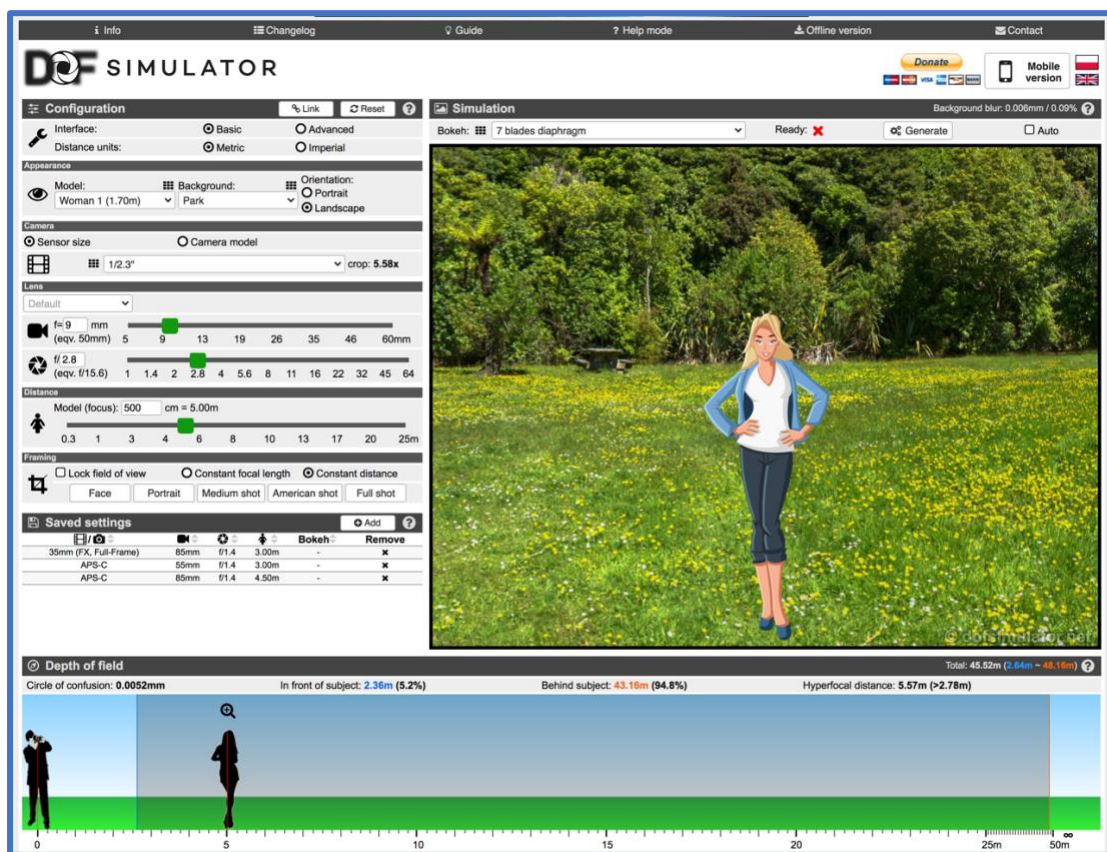


at a shorter focus distance to the subject the light rays are wider causing the zone of focus (DOF) to decrease



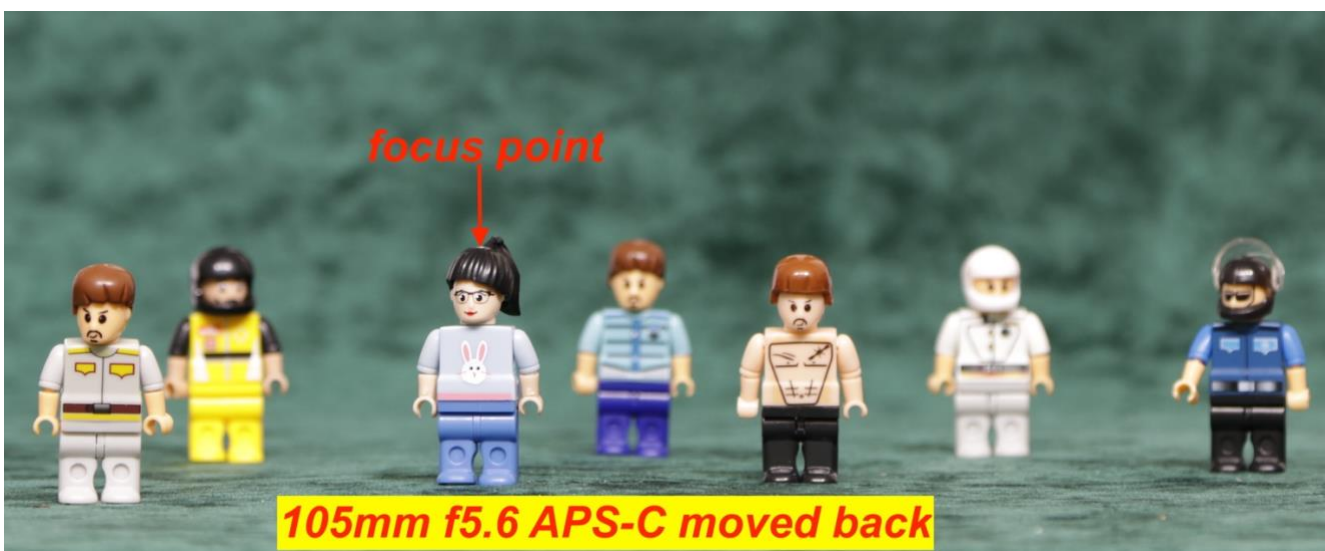
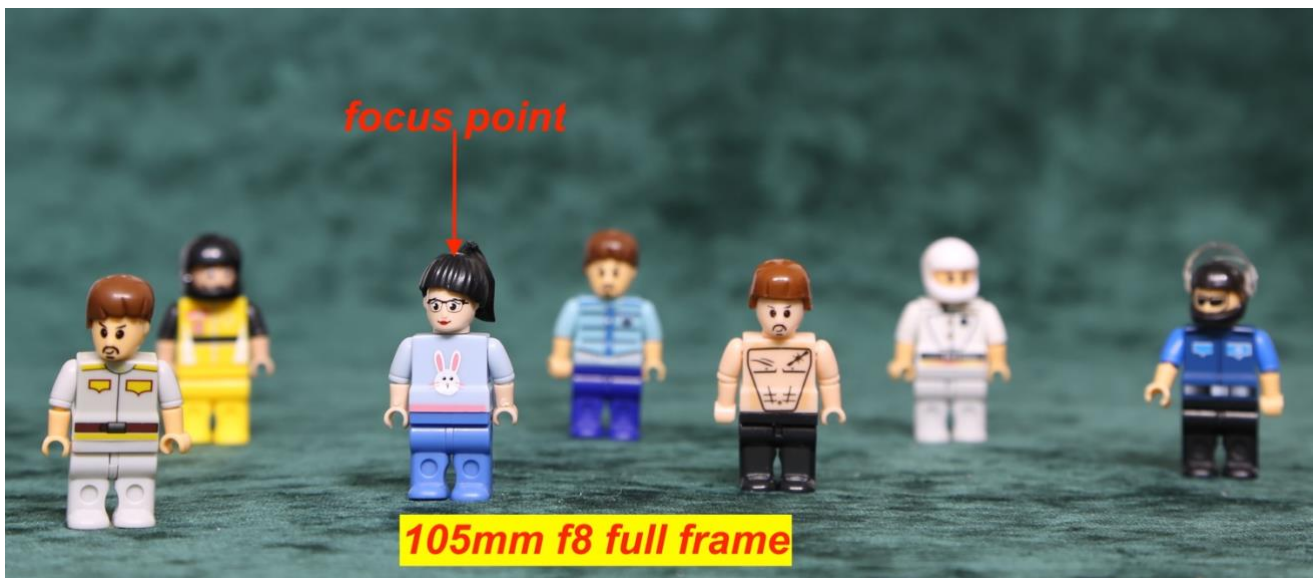
In this illustration, the camera to subject distance and the focal length is the same as in the first illustration but the aperture (and thus the entrance pupil) has been decreased to a smaller f-number. The net effect is to reduce the cone of the light rays entering the lens and causing a deeper DOF.

If the diameter of the iris becomes smaller there is another physical effect (which is called diffraction) takes place and this leads to the points of light not being focussed as sharply as in a larger diameter. That's why in the 1-2/3 inch bridge camera you notice diffraction at about f5.6 and the lens only physically goes to f8 in stills and f11 in video mode. In micro four thirds this is around f9 and in APS-C around f16.



There is an excellent DOF calculator [here at this web address](#). You can see that I have set the sensor size to 1-2/3 inch as in the FZ200/300/330, the focal length to 50mm EFL, the aperture to f2.8 and the camera focus set to 5 metres. The DOF is shown from 2.5metres to 50metres. You can see the effects of changing just one element (like focus distance) on the resulting DOF.

**Activate the field lock to see the effects of changing focal length and maintaining the same image size – the DOF DOES NOT CHANGE.**



*As a comparison illustration images from full frame versus APS-C using the same lens (24-105mm F4 L)*

As the crop factor of the APS-C is 1.6 to keep the same field of view using the same focal length the camera had to be moved back as the effective focal length would be 168mm. You can see the effect of the increase in focal length by the foreshortening of the background characters. With an aperture of 5.6 the DOF is approximately the same.

## The Enchanted Forest



When I was out recently scouting for a new location to shoot an upcoming video I came across this group of trees in a woodland area near to my home town. I like the way the path leads you into this picture and that overhanging tree keeps your eye in the middle of the frame.

I'm just waiting for a foggy morning with a few sun beams to "make" this picture.



## Christmas Decorations

1st of October and a lot of our bigger stores now have their Halloween and Christmas stock out on the shelves!

I do like looking for small and interesting decorations to photograph. I came across this little figurine and it was only £2.99. It has a lot of detail in the painting and in the skirt.



## Panasonic Image App not working on Android Devices?

I've had a few people comment that the Image App by Panasonic does not work properly with some Android devices. The option for remote view and shoot doesn't appear to work.

Has anyone got specific problems with this app, if so could you let me know with phone model details

[Send your findings to me here](#)

## Free items for the price of postage

I was contacted by a subscriber with some surplus Panasonic accessories who thought it was a shame to throw them out. So, if you would like any of the items just let me know and I'll pass your details to the subscriber. You must pay the postage to your destination and I suggest UK only for this please.

Here's the items available:

Panasonic chargers (DE-A44 x2) for the FZ7/FZ38 and batteries plus other such as the sun hoods,

Lens adaptor for the FZ7 (DMW-LA2)

Lens protectors (DMW-LMC46 & 52).

[Contact me here](#) if you would like any of the items and I will contact the subscriber with your details.

## Internet Woes

For the whole of this week, and part of last week, we have had issues with our fibre broadband.

Our throughput should be 39Mb/s download and 7Mb/s upload but the best we could see was 4Mb/s and 800Kb/s.

BT Open reach (who maintain the fibre network) have yet to identify the fault.

We have been through the usual ISP provide diagnostics of: whole disconnect and reconnect the router routine, change the micro filter etc., etc., The line synch speeds show we are getting the right speeds but the throughput remains so low.

We had the same fault 2 years ago and it took over a week and 4 engineer visits until one finally decided to swap the fibre line and the fault cleared. Now, they seem to be reluctant to do anything like this and are passing the buck back to the ISP who puts the blame back on Open reach.

Today (Wednesday) should have seen another BT visit but due to some misunderstanding the call was not booked!

Thursday update, more diagnostics from ISP and fault handed back to BT Openreach as the speeds are there but no bandwidth on my system. So, that's about 4 hours in total on the phone with them running diagnostics, with me enabling and disabling devices, wired versus wireless tests etc., I don't know how a non-tech savvy person would go on with this sort of fault when the ISP are asking them to make router changes etc. I do know for a fact that the ISP can interrogate the router without a username/password using their own system software.

It makes you wonder that maybe someone else has the know how to build software that can bypass the router security and firewall and access attached devices on your local network.

Any Network geeks in my subscriber base know if this is possible?

In the meantime, I cannot work with any large files as the upload takes so long. I just hope they get this resolved for the issue of the newsletter on Friday otherwise I must send the file from a coffee shop or other Wi-Fi enabled location.

## Newsletter Frequency

Due to ever increasing demands upon my time for other things I am having to review the time that I allocate for producing this newsletter. Now, it can take several days to produce the content, publish it to the blog page and upload it to the mail server (Mail chimp). This newsletter was something that I wanted to produce as an extension to my photoblog and I initially did a smaller version on a weekly basis.

I changed the frequency about 2 years ago to every two weeks, again because of the changes in my domestic scene. As I want to allocate more time to completing the FZ1000 user's Guide (well behind schedule) and begin to write some tutorials for the FZ2000/2500 and the G9 cameras I am going to reduce the frequency of the newsletter to every 3 weeks from this issue. I do hope that you understand my reason for doing this but I hope you will continue to enjoy the content that will continue in the future.

## Shortening the working distance when using tele converters

We often use tele converters to extend the focal length of our FZ200/300/330 to allow us to shoot enlarged images from a greater distance but the working distance is usually a couple of metres.

To get closer (and hence a bigger image) we can use the technique of adding a supplementary positive dioptre lens to the camera lens (or at the rear of the tele converter as it is afocal). Using a +2 or +4 dioptre will usually give some decent images from under a metre with a couple of cms DOF at 400mm EFL.





*The TCon 14 (1.4x magnification used with adaptor tube on FZ300/330. A 58mm +4 supplementary lens is attached between the converter and the adaptor tube.*



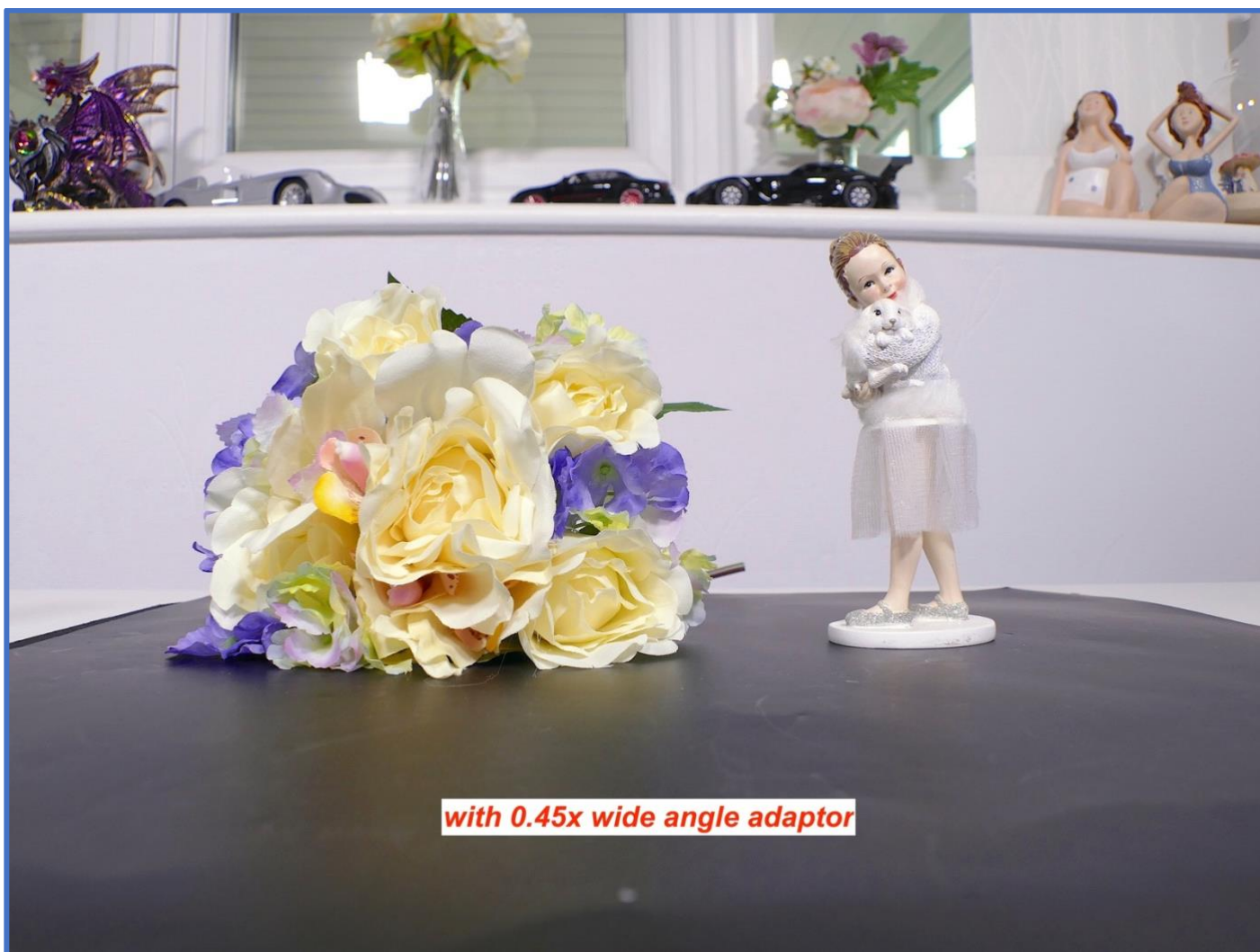
*an image from the combination above showing the lovely out of focus background with the lens at f4 and 400mm EFL*

## Wide Angle Converter on the FZ1000

If you want to recover the loss of field of view (from 25mm to 37mm EFL) when you shoot 4K video with the FZ1000 then you can use the Neewer 0.45X HD wide angle lens and screw it onto the FZ1000 lens using a 62mm to 67mm step up ring.

The slight loss of image resolution goes un-noticed when shooting video and you must look hard to see the effect in the stills mode. I don't recommend that you use the zoom motor too much with the WA converter fitted to prevent strain on the focus motor. The combination results in sub 20mm EFL in video and hence the slight barrel distortion associated with extreme wide angle lenses.





*4:3 still with 0.45x Wide Angle Adaptor fitted*

For the FZ1000 this 67mm adaptor would need a 62 to 67mm step up ring. The larger adaptor reduces the amount of vignette. A 62mm adaptor vignettes a little more than the 67mm one. There is just a hint of corner vignette at 4:3 aspect ratio but nothing at the 3:2 and 16:9 ratios. I bought it primarily to get back the field of view lost during 4K video recording. As you can see from the above 4:3 image the quality is very acceptable for this type of adaptor.

Just looking on Amazon UK and the Neewer version doesn't appear to be there now, the [Andoer seems to be a similar version \(affiliate link\)](#)

And the 62mm to 67mm step up ring [link](#)

On Amazon.com [adaptor link](#)

And the step up ring [link](#)