

Is your SD card reader delivering the true speed potential of your SD card that is inserted into it?



Well this was the question that I wanted to answer on my own system as I felt that transferring video from the SD card to the pc for editing was taking longer than I would have expected.

The first thing I needed to acquire was a reliable speed test program for the PC. After some searching I found one that was well recommended so I downloaded and installed the program from this link <http://www.softpedia.com/get/System/System-Miscellaneous/H2testw.shtml> - download. (it's for Windows and free, the MAC version appears to be paid for!)

You just need to select English as the language, select the target drive and the target test file.

If you want to test the integrity of the whole file system of the sd card then it has to be erased completely or you can use a smaller test file just to see the disk write and read speeds.

I wanted to test what the write and read speeds were of the pc card readers that I have as they are connected via 3.0 port through a USB 2.0 Hub (which has a practical write speed of about 20MB/sec and read speed of about 45 MB/sec)

I wanted to compare this to the inbuilt card reader of my laptop.

The inbuilt card reader returned the following data for a Sandisk SDXC card rated at 90MB/s (read)

Writing speed: 50.1 MByte/s

Reading speed: 79.9 MByte/s

using the same card in the INOV8 reader connected via USB & USB 2.0 Hub gave

Writing speed: 18.3 MByte/s

Reading speed: 17.8 MByte/s

using the same card in the INOV8 reader connected via USB & direct

Writing speed: 18.2 MByte/s

Reading speed: 17.3 MByte/s ----- proving the reader is a USB 2.0 device and limiting throughput!

Using the Transcend USB3.0 reader connected direct to USB 3.0 port

Writing speed: 51.2 MByte/s

Reading speed: 82.2 MByte/s

The Sandisk reader failed during testing :{

Using another type of generic USB 3.0 reader direct to USB port

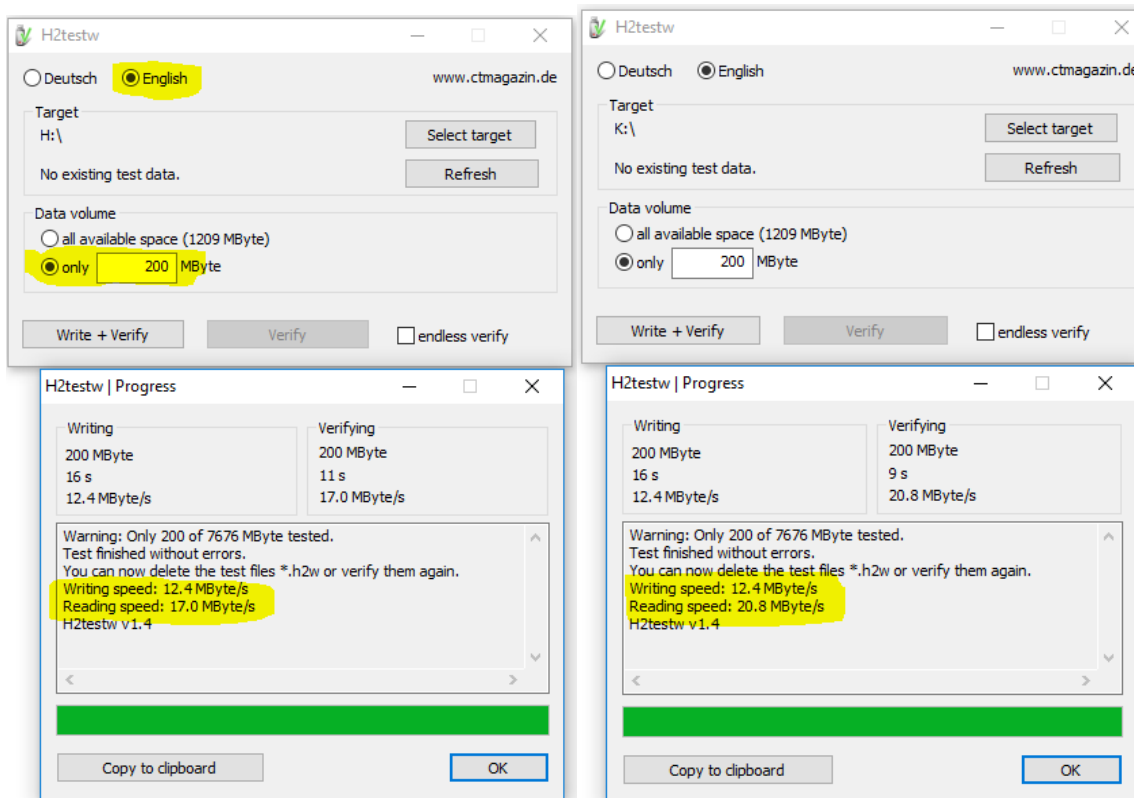
Writing speed: 31.5 MByte/s

Reading speed: 95.9 MByte/s

It was surprising that the inbuilt card reader could write faster than an external card reader but was slower on the read cycle.

So, if your card reader is a USB 2.0 device then you will not get the full transfer speeds of the card if they are faster than 35MB/s. In my case, because of the lack of USB ports on my laptop, I was using an older USB 2.0 hub which was causing the bottleneck. I've now ordered a USB 3.0 hub to replace it. The program can also identify "fake" cards which may not be full capacity or speed as indicated on the label.

Here's a sample of the program output.



Is Photographic Red Colours Presenting a Problem

Red can be a difficult colour to photograph. As you can see in the image below the red car appears to be different shades of red – especially on the bonnet.



If we look at the histogram of the image with the three channels visible you can see that the RED channel has got severe highlight clipping. Looking at the conventional Luminosity histogram it appears to be correctly exposed.

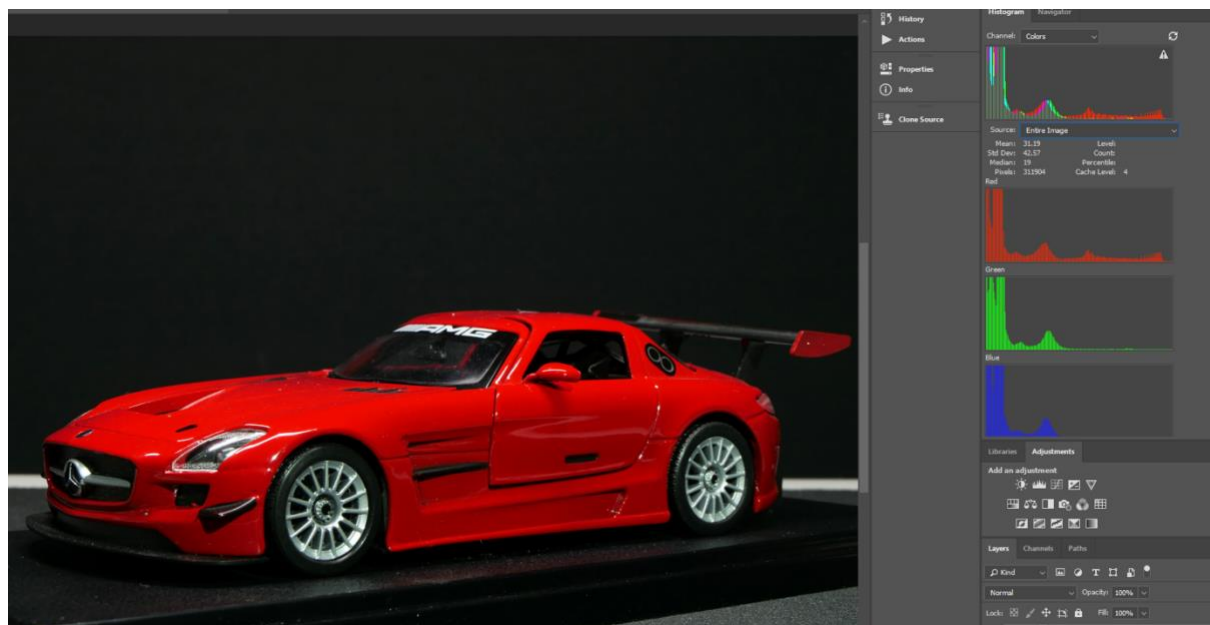


Note the red channel has a spike right at the red saturation (255) value

Pulling the exposure back so the highlights were no longer clipped produced the following image.



and here is the resulting histogram after the shadows had been lifted a little.



You can now see that the spike at 255 is no longer present and the red looks consistent throughout the image.

You've probably all heard of the simplistic digital exposure rule of "expose to the right", which refers to the histogram of the digital image. The histogram is simply a plot of the relative number of pixels in an image with a given value in the 0-255 range. Many cameras can show the image histogram, usually in one of two forms.

The first is the luminance histogram, which is a plot of the range of the luminance values of the pixels in the image.

Luminance is a measure of the perceived brightness of a pixel.

It's calculated by assigning a weighting of 59% for the green value, 30% for the red value and 11% for the blue value. This mimics our eyes spectral responsiveness which has a higher green sensitivity.

Where this comes into play is that many digital cameras can be setup to flash an overexposure warning on the image when a pixel is "blown out", i.e. overexposed.

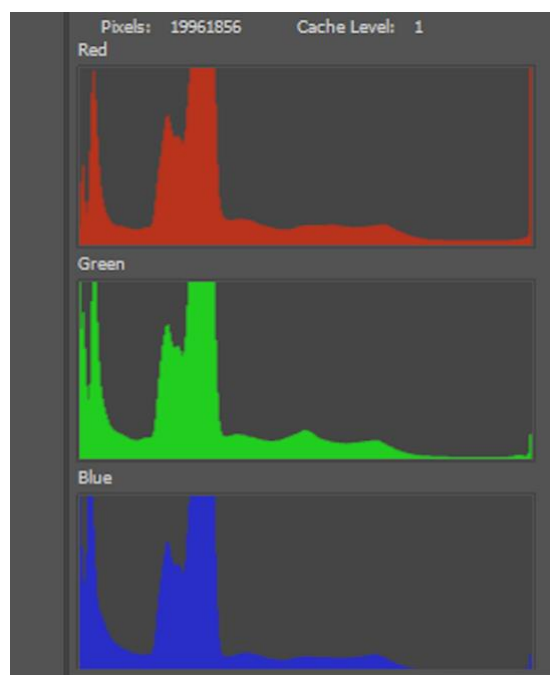
However, this warning is almost always triggered by a luminance value of 255.

The only way you can have a luminance value of 255 is when **all** the channels have a value of 255. You don't get a warning when only one, or even when two, of the channels has reached its maximum possible value (i.e. is overexposed).

Similarly, the histogram that many cameras display is a luminance histogram. "Expose to the right" suggests that you expose so that the histogram is as far to the right as possible, without any value being at the far right, which corresponds to a luminance of 255.

However, when you have a great imbalance between the values in the red, green and blue channels, it's possible to have a luminance histogram which looks perfectly fine, and which you can push all the way "to the right", and which doesn't give you a flashing "overexposed" warning on the image, yet which still results in a blown out (overexposed, clipped) channel. The problem is particularly bad for the blue channel since it only makes about an 11% contribution to the luminance histogram. This means a clipped blue channel usually can't be detected by looking at the luminance histogram.

In addition to the luminance histogram, some cameras can display histograms for the individual red, green and blue channels. However even if you look at individual red, green and blue histograms it's not always easy to spot a clipped channel as often it might just be a one pixel wide spike at the extreme edge of the graph.



So, if you are shooting objects with very strong primary colours, like flowers for example, it might be worth quickly going into the replay mode after you have captured an image and scrolling through the DISPLAY options until you see the 4-channel histogram and carefully examine it for clipped coloured highlights. Pull back your next exposure, by using –EV, if you are seeing this situation.

An Incident Light Manual White Balance Tool



We know the advantages of setting the correct white balance – especially if we are shooting in mixed lighting situations. Traditionally we do this by using a white or grey card and using reflected light to set the manual white balance operating point.

For setting white balance it doesn't matter if your target is white or grey. You may have heard of an 18% grey card which can be used for setting exposure.

It's also fine as a neutral target. However, for white balance it doesn't have to be 18% grey. It can be 5% grey or 12% grey or 18% grey or 25% grey or it can be white.

It makes no difference when used as a white balance target.

Now you might think that white is white, so you could just use a white sheet of paper as a neutral target.

Well, you'd be both right and wrong.

If it was just a *white* sheet of paper you'd be OK.

A white target would diffusely reflect 100% of the light falling on it. While you never get 100% diffuse reflectance, that doesn't matter.

It could reflect 92% of the light falling on it if that was 92% of the blue light, 92% of the green light and 92% of the red light that makes up "white" light.

However, some white paper (especially premium printing paper) contains a fluorescent whitener. This absorbs UV light and re-radiates it as blue light.

A little bit of additional blue makes the paper look brighter and "whiter" than white. It results in a reflection spectrum that contains relatively too much blue and so if it's used to set a custom white balance it will result in a colour temperature that's a little too high.

Is the effect a big one? Generally, not.

For most purposes a sheet of plain white copy paper makes a pretty good target for custom white balance setting.

Now I have seen commercially available gizmos for setting white balance using incident rather than reflected light – like the Expo Disk so that got me thinking if there was an easy DIY solution that would give good results.

Here's the way I made an incident light manual white balance tool from a failed LED light bulb.



This is the LED light bulb which had failed prematurely!
It had a nice opal diffuser and the diameter of it was just 51mm.

When The diffuser was removed (they are just held in place by a small amount of silicone adhesive in one unit and just push fitted in another) I glued this into an old 52mm filter ring so that it could be attached to the camera when needed.



The opal diffuser glued to an old 52mm filter ring

In use the camera is pointed TOWARDS the light source and then the manual white balance set as normal. It gives a good integration of the ambient light and sets a very good operating point.

Review of the Neewer S-type Bracket Holder with Bowens Mount

One of the things that hold you back when using standard flash guns off camera is the lack of large light modifiers.

Okay you can get small soft boxes which fit around the flash head but these don't have the light quality of a larger box or beauty disk.

By using this holder with the standard Bowens bayonet type ring mount you can attach any type of compatible light modifier.

Your flash is obviously fired using an RF trigger or direct PC cord connection to the camera, or you could use optical trigger if your flash unit supports the S1 mode.

Construction is first class with good clamping for the flash gun. The clamp itself has soft foam rubber inserts so there is little possibility of damage to your flash unit.



Adjustment of the whole bracket holder is done by releasing the clamp with the lever handle.

The lever can be pulled out to re-adjust the fully clamped position if needed.

Ideally fitted to a conventional light stand but you could use it with a spigot adaptor on a standard 1/4-20 tripod fitting.

Once assembled with the flash unit clamped in the fitting just attach the light modifier of your choice and away you go.

The Bowens mounting plate at the front has a spring-loaded clip that locks your Bowens modifier in place after you have twisted it on and you have to do is to pull this back to disengage the modifier from the mounting plate.

You can even fit either a shoot through or reflector umbrella system as the bracket also has provision to hold a standard studio umbrella shaft. For the money, an excellent accessory for the serious flash photographer.



24 inch soft box fitted (outer diffuser removed) and here a 16 inch “beauty dish” fitted.

I have a video tutorial on this on YouTube here <https://youtu.be/OZHMVV20MJA>

Available from Amazon UK <http://amzn.to/2GvxSyh> £12

Amazon USA <http://amzn.to/2HwaKkL> \$16

Five Reasons to Buy a Panasonic Lumix TZ10 (ZS7)

Now I know this is 2018 and Panasonic have just announced the latest travel zoom, the TZ200. However, is the latest iteration always better than the previous one?



Introduced in 2011, The TZ10 has a 14.5-megapixel multi-aspect CCD sensor with a maximum image size of 12 megapixels, a high quality 12x optical zoom f/3.3-f/4.9 Leica lens equivalent to 25-300mm, an extra-sharp 3in 460k monitor with a wide angle of view, 720p HD video recording with stereo audio, optional manual exposure and a built-in GPS receiver.

Why am I recommending this camera now? Well, in my opinion this was the best of the travel zooms ever produced and was the last of the line which used the CCD sensor instead of the current CMOS.

CCD sensors are inherently better at producing images with less noise at their base ISO. The reason manufacturers switched to CMOS is down to cost of sensor fabrication. CCD fabrication takes a specialist production facility and reject rates are high however, CMOS sensors can be fabricated (along with the necessary amplifiers on the chip) in any tradition IC production facility.

The “read out” speed of CCD is slow so this also meant that any video would be limited to just 720p and the market was demanding 1080 resolution. The next generation TZ20 introduced 1080i from a CMOS based sensor.

In terms of user customisation, the TZ10 had the option to set the picture settings for JPEG files. These were later to become PhotoStyles in the FZ series of bridge cameras.

As Panasonic tend to set aggressive noise reduction and sharpening to default profiles those wanting to get better image quality can set the contrast, saturation, sharpening and noise reduction parameters to -2 and then post process the image to the level of sharpness, contrast and saturation as needed.

As the CCD sensor in this camera can be set to ISO 80 it allows some great images with good highlight to shadow ratio (dynamic range) and very little noise. The full image and crop shown below



With the introduction of manual exposure with 60 seconds to 1/2000 sec shutter speed range the camera could shoot in bright sunlight without the addition of ND filters (with the ISO set down to ISO 80).

It has improved image stabilisation which meant that hand held shots at 1/15 sec are possible.

Video is only 720P and recorded in the AVCHD format at 25/30 frames per second depending upon sales region.

Those that were critical of the TZ7's very free turning mode dial were delighted to find that the mode dial on this model had been significantly stiffened up.

With a sensible 12Megapixel count it has a good balance between resolution and noise.

Here are wide angle and 12X telephoto zoom shots taken at ISO 80, F3.5 & 1/320 sec.



The cameras are still available on auction sites like EBay and are generally going for less than £60.

I got mine for £58 in very good condition with an additional Panasonic battery, case and charger from CEX in the UK.

If you want a good camera for just stills, then this one I highly recommend.

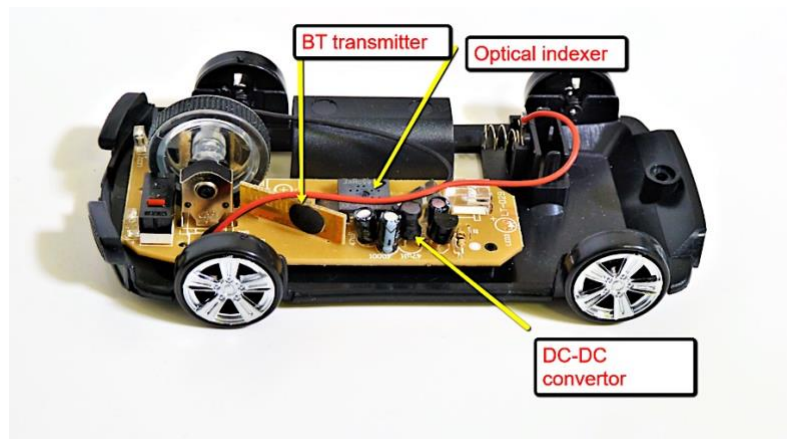
High Tech Toys

I do like when everyday objects get a new face lift. I needed a new mouse to replace my failing one.

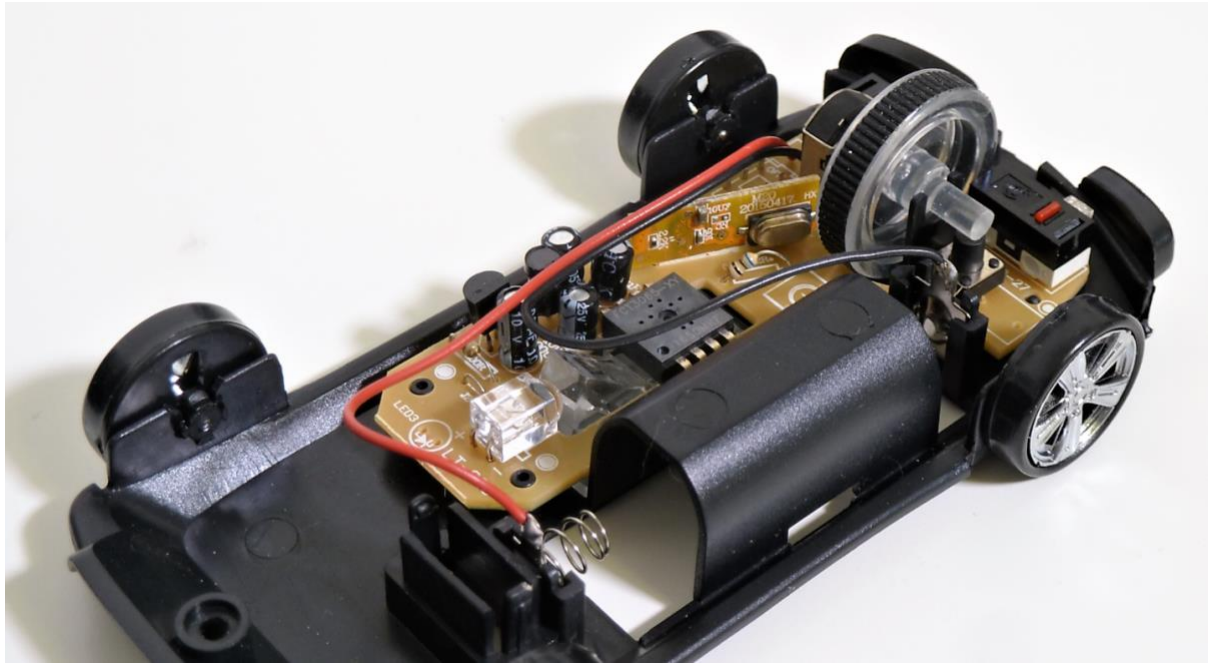
I found this one on Amazon which took my fancy.



Powered by a single AA battery it is a 2.4GHz wireless mouse (comes complete with USB dongle) needs no set up. The left and right buttons are implemented on the bonnet as well as the scroll wheel.



As the unit is powered by just 1 single AA battery I suspected that the unit must have some form of DC-DC convertor (like a Joule thief circuit) to power the RF transmitter, Optical sensor and microcontroller. A quick disassembly of the unit confirmed this and revealed that the unit was quite well made for the asking price of £11.99



It took just a few minutes to get my hand placement correct to enable both the buttons and wheel to be accessed, after that it worked very well!

Finding the Capacity of Camera Batteries

There are lots of battery chargers for both Li-ion and NI-MH batteries which show the charging and discharge states as well as internal resistance and capacity but I have not seen any for camera batteries.

I decided to try a proof of concept to determine the state of the capacity of the batteries that came with the recent TZ10 purchase.



By utilising a commercial charging unit and the charging plate from a USB charger I could connect the charging terminals of the charger to the battery under test on the USB charging plate.

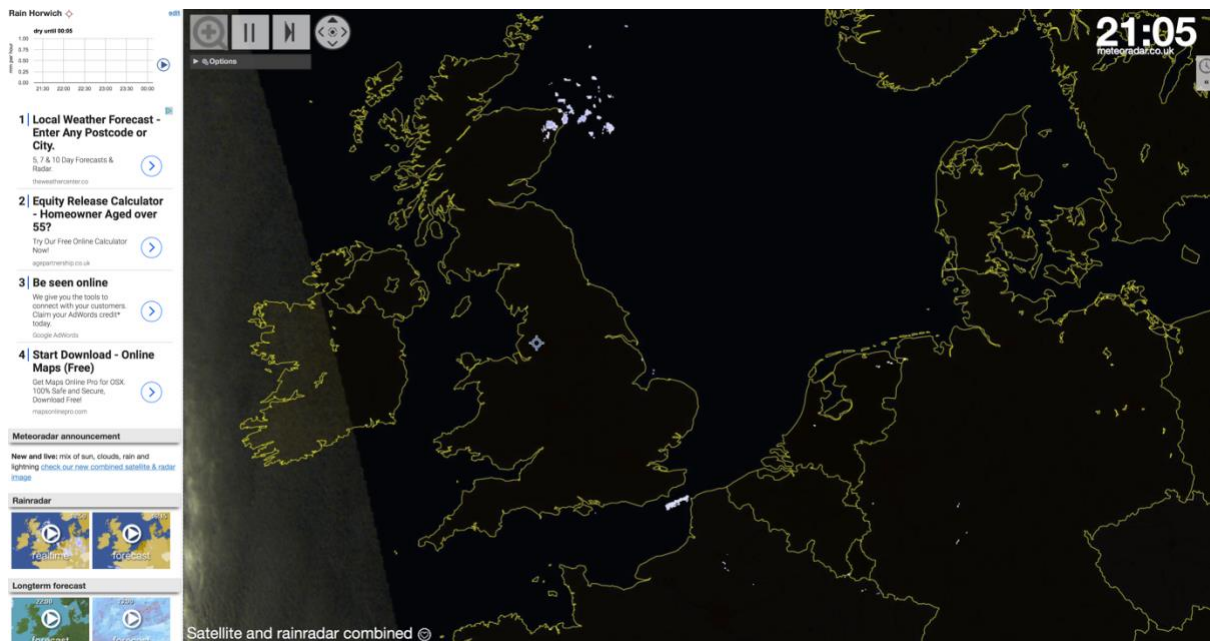
I ran a charge/discharge/charge cycle on the batteries to determine their residual capacity as potentially these batteries could be 6 -7 years' old. From the tests, I could determine that the cells had a total capacity of only 300mAH using a 250mA discharge rate.

I will now construct a proper rig to test all my Li-ion camera batteries and determine their capacity.

Rain, Sun and Cloud Forecasts for the UK

Prompted by a subscriber in Australia who had forwarded a satellite cloud formation/forecast map I also searched for a similar map for the UK.

I found this useful tool <http://meteoradar.co.uk/satellite-rainradar>



This is obviously a night time view showing clear skies over the whole of the UK – and that’s why it is so cold now. You can enter your own location and get hourly and long term forecasts.

I’ll keep an eye on this for a few days it might be a better predictor as to when to go out for those golden hour shots.