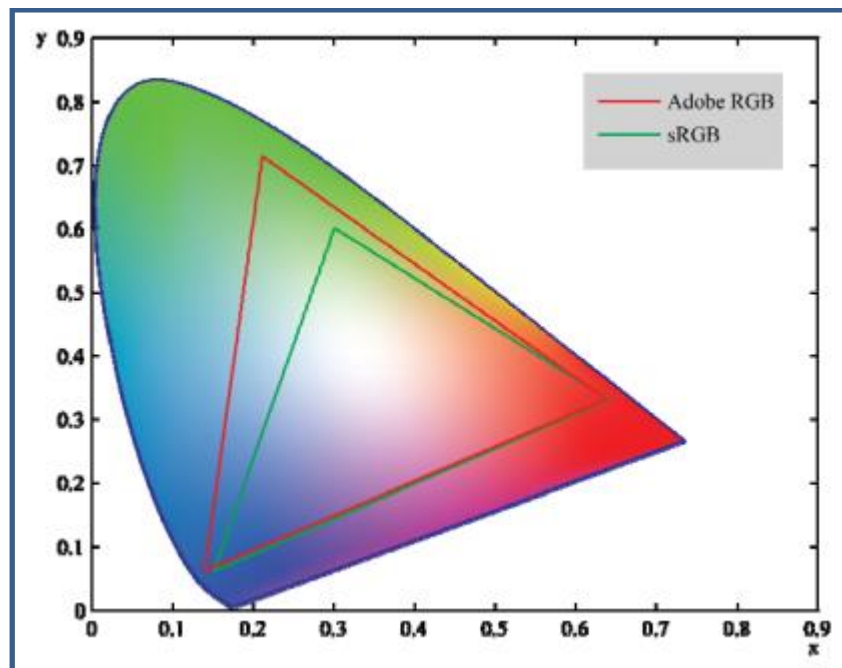


Mysteries of Photography #11: Why do competitions specify Digital Images in the sRGB colorspace?

Digital photography only really became a reality after about the year 2000. We had digital images before this but they were either drawn using software or were photographs that had been scanned and digitised.

It is no use having a digital image if you cannot display it accurately and reproducibly. A group of fourteen technology companies got together to thrash out a standard for this. With this babel of voices and opinions not surprisingly it failed to produce anything useful. Frustrated with this, Microsoft and Hewlett Packard got together and came up with the sRGB colorspace standard. This was to specify the colour range that a good monitor should reproduce accurately. The range of human perception is shown diagrammatically in the shaded area with the portion covered by sRGB as the green triangle outline, obviously a lot smaller than the range of colours we can actually see.



Then Adobe came along and said, hey fellers, the printing industry can reproduce deeper greens than that and came up with Adobe RGB that extended more into the green. Adobe's principle customer base at the time was the advertising industry and most advertising at that time was printed. Note that even Adobe RGB only covers part of the colour range perceptible to us (red triangle outline).

So why do major photographic competitions usually specify digital images in sRGB?

Some of it comes back to technology limitations. Competition judging of digital images requires that (typically) three judges have an unimpeded view of the image being judged. This means either a large monitor or a projector that is calibrated for colour accuracy. Currently affordable monitors that reproduce the full Adobe RGB (or DCI-P3) colorspace are limited to 32 inch, to my knowledge, a bit too small for this requirement. Even high end 50+

inch TV screens struggle to cover sRGB and this includes OLEDs. (Note: DCI-P3 is similar to Adobe RGB but shifted a little bit sideways.)

Strange as it may seem, even now, 20 years later, your average budget laptop screen is well below 100% in coverage of even sRGB. However, our brain/eye combination adjusts. We simply don't notice it unless we have a one-to-one comparison.

Projectors also have major issues, in my opinion, the least of which is ascertaining the achieved luminosity even if they reproduce a broader colorspace (and most do not). This is a major discussion in itself and requires discussion of the inverse square law of light propagation and we don't want to disappear down that particular rabbit hole just now. (Note 1)

In summary, it is simply a matter of practicality that most competitions specify digital images to be in the smaller sRGB colorspace. This will of course change as the technology improves and becomes more affordable. (Note 2)

David Woodcock GMAPS EFIAP/b

Note 1: To put it simply, the closer the screen, the brighter the image. To allow 3 judges to all have unimpeded views (and to have the projector's light pass between two of them), the screen has to some distance from the projector. When you calibrate a projector for colour accuracy, brightness is disabled in the software.

Note 2: Indeed it is not that hard to judge in the Adobe RGB colorspace if you have the wherewithal. If each judge (and the person running the show) had their own monitor, 24 inch screens should be adequate. Display cards based in the Nvidia Quadro chips (ranging in price from \$300 to >\$2,000) could easily run 4 screens simultaneously. Adobe RGB capable 24 inch monitors are available for about \$800 each. Once you buy three or four plus a suitable graphics card, you still need reasonably deep pockets.