

Re: color calibration of microscopic images

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>So, if I understand you, you prefer a tristimulus colorimeter because:
>1 – I would have directly color coordinates in a CIE Lab or similar
>space.

That is correct. If this meter cannot provide directly in the coordinates that you want the coordinates should be convertible to others. This unit comes with Software and cables to hook up to a computer. I have seen the software on the web for trial examination..

>2 – since the colorimeter has his own illumination source (if I
>understand correctly), I would not have to rely on the microscope
>light source whose characteristics are not well known.

This colorimeter does not have a light source of its own. I envisioned that it could be attached to the microscope to substitute for the camera.. This colorimeter is designed to read luminous sources like traffic lights or other colored illumination. You would calibrate this instrument just as you would perform a white balance with the camera.

You could also incorporate this instrument onto a copy stand which might provide the lighting.

>About the first point, couldn't I just convert my RGB readings to
>CIE Lab values (which is what I was planning to do after calibration)
>without necessarily using a colorimeter?

The colorimeter is designed for this work. For the camera yours is

Each digital color device has a gamut of colors it can produce and that gamut is not consistent from one device to another. I think you will be asking far more of the camera system than it was designed to provide. The use of the colorimeter will avoid a complex analysis of the camera performance which may ultimately show the camera's shortcomings in this non standard application. .

>What is not clear to me is whether such colorimeters make

>*spatially-resolved measurements. If not, then I can't use them.*

The meter reads the colors directly and provides the numbers. I am afraid you will never be able to obtain the same measurements using the camera and making calculations. You will have to investigate the specifications of any colorimeter that you might consider to see if that instrument provides the measurements that you require.. The CS-100a is not the only instrument available. .

>*Please correct me if I am wrong.*

Again I repeat that I am not using this colorimeter presently and it has been some years since I was involved in color work. At that time I learned that workers, even experienced workers, had trouble remembering colors or understanding how the colors changed with the addition of the colorants. I obtained a Hunter Colorimeter to study the colors and how small changes in the colorants changed the end product. Ultimately the colorimeter was used in the quality control area to make recommendations on the additives. While this did not lead to perfect color matches by eye, the range of colors produced became much smaller and had a random statistical variation that was far more acceptable.

I do not know if this particular colorimeter is the one for you. It seemed to have characteristics that would be very useful for your application.. However, I am at the limit of what I can offer as help. You need to contact vendors and see if you can borrow some units to determine if this is an avenue for you..

Good Luck

Aaron

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>*Beatrice*