Understanding White Balance on the AU-EVA1

(excerpted from "A Guide To The Panasonic AU-EVA1 Camera")

Light is not all the same color. Even though it may look the same to the human eye, the camera sees a particular light for what it is: reddish, greenish, blueish, etc. Daylight does not give off the same color as an incandescent light bulb, for example. Our eyes may automatically compensate, but the camera doesn't, and it needs to be told what "white" should be – which is why we have the White Balance function. Executing a proper White Balance will help the camera to record colors more accurately.

Light color is measured in degrees Kelvin, in accordance with what color a hunk of platinum will glow when heated to certain temperatures. When heated to about 3200 degrees Kelvin (or 3200K), the platinum will glow an orangish-red color (which is pretty much how regular household lamps work: they're small filaments of metal that are heated until they glow that orangish-red color). If the metal is heated more, the color will shift towards the blues, and at 5600K the iron will glow blue-white. These temperatures, and their corresponding colors, are referred to as "color temperature." In general there are two color temperatures you need to be aware of: 3200K and 5600K. Daylight is typically said to be around 5600K, and tungsten (or most artificial) lights burn at around 2900K to 3200K.

Proper white balance is vital to accurately record the colors in a scene. To white-balance the camera, first decide if you want to use one of the existing presets or if you want to use a manual white balance. The presets are selected by setting the CAMERA SETTINGS>WHITE>VALUE menu item to one of the existing presets in the list; alternatively you can put the User Toggle switch to the WB position and then use the menu wheel to scroll through the available presets. There several presets available; two common ones are 3200K and 5600K. These presets generally correspond to indoor lighting (3200 Kelvin) and outdoors/daylight (5600 Kelvin). While the presets are perhaps a good starting point, there are many circumstances where a preset will not deliver the most accurate color rendition. For example, many incandescent and halogen lamps burn at color temperatures different from 3200 Kelvin; some may burn as low as 2700 K. If you're using 2700 K lamps to light your scene, and you have the white balance set to 3200K, your white walls will not look white, they'll look orange-ish. Also, daylight varies tremendously in color temperature, from around 3000 K during sunrise/sunset to over 10,000 K on an overcast, cloudy day. So the presets

are a good starting point, and good for on-the-run shooting, but if you have the time to take a manual white balance you can get more accurate color rendition.

To set the white balance, first set the white balance value to AWB MEMORY. Go into the camera menus, to CAMERA SETTINGS>WHITE>VALUE (or just use the HOME screen and touch the white balance display) and then scroll through the options until you find AWB MEMORY. Next, you'll need a white card (or other white object – a sheet of paper, a T-shirt, whatever you have, although the purer the white the more accurate results you'll get; I highly recommend getting a DSC Labs CamWhite card.) Place that white card/object into the light where you intend to be shooting. Don't just hold it up in front of the camera! You have to move the white card into the light that's hitting your desired subject. Ideally you'd have your subject hold a white card up in front of their face; you need to make sure that the light that your subject is lit by, is the same light that's lighting up the white card. Frame up that white card until it fills the screen (or as close as you can get). Now you're ready to take a white balance. Press the AWB button; the camera will let you know when the white balance has been properly set. Any time your lighting conditions change, you'll need to re-white balance if you want your colors to continue to be rendered accurately.

Another white balance option is to use Automatic Tracking White (ATW). In this mode, the camera will automatically attempt to continually monitor and change the white balance to what it thinks is correct. To enter ATW mode, set the CAMERA SETTINGS>WHITE>VALUE to ATW; the camera will then automatically start tracking white balance by itself, updating as lighting conditions change.

ATW is an automatic function, along the same lines as autofocus and auto-exposure. For professional shooting situations you may not want to use ATW very often, but for run 'n' gun type situations it may come in handy.

Black Balance

The camera also offers the ability to perform a Black Balance. It's really simple, and I recommend you get in the habit of doing it frequently. The black balance procedure is simpler than the white balance, because black (unlike white) isn't relative. Black is the absence of all light, so it doesn't really matter what the prevailing lighting conditions are. As such, you put on the lens cap (or the body cap, if no lens is attached) to block all light from hitting the camera's sensor. Then execute the CAMERA SETTINGS>AUTO BLACK BALANCE menu function, and the camera then analyzes the

signal coming off its sensor, and compensates for any noise issues or other situations which cause the sensor to be delivering anything other than a pure black signal. I recommend black balancing frequently.