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Sony OLED Display White Point Correction with the Klein K10/A using K Colorimeter Program
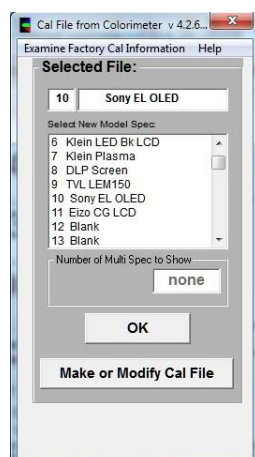
On the Sony OLED Display, it has been observed that with the Klein K10 or other CIE spec devices the white screen appears color shifted. Sony has remarked that the wavelengths emitted by the OLED are in a region where there appears to be error in the 1937 CIE curves, and to make it match a more standard display, offsets need to be subtracted from the target white spec. We are not correcting the CIE color method, and correction can be added in either the measured values or the target values. Shifting the measured values would make measurement devices inconsistent, so we are left with shifting the REC709 white point values.

A Screenshot of K10 showing data on a Sony OLED which has been visually adjusted for white compared to a CRT. Notice the K10 shows color shifted away from green while display appears proper:
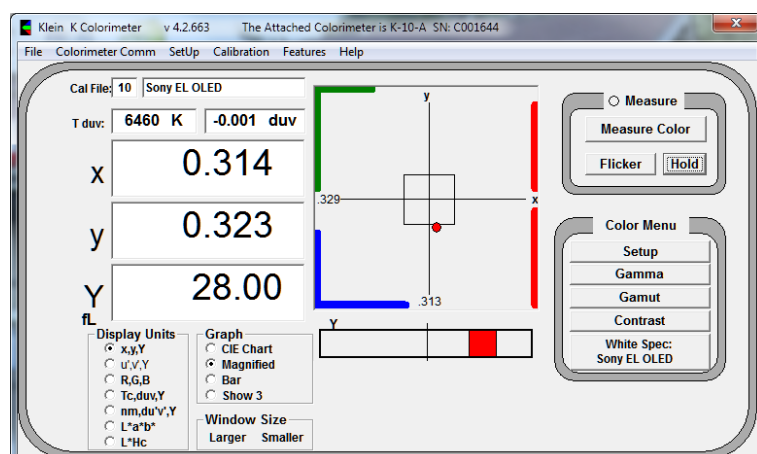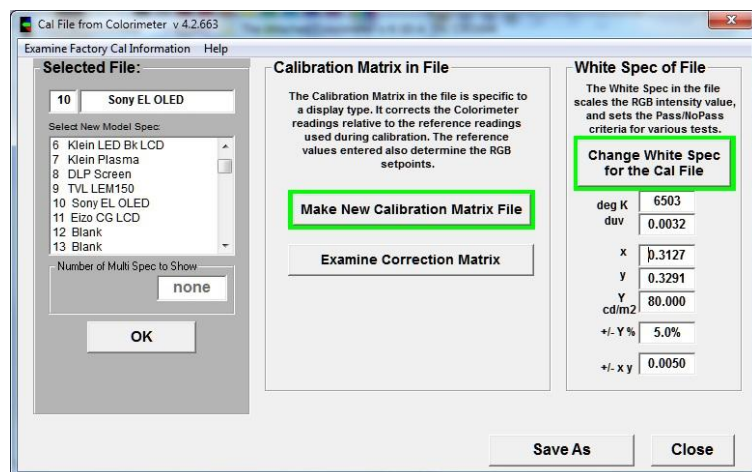

Correction Method #1:
As a solution we can change the target white spec stored in the K10's Sony OLED cal file. Instead of the REC709 target white xy values of (0.3127, 0.3290), offsets are subtracted and the white point target becomes (0.3117, 0.3240). This is modified in the K10 white spec for this particular display in the K10 flash.

To do this in your K10, recall the Cal File "10 Sony EL OLED" by selecting it in the Calibration Menu:

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Press the "Make or Modify Cal File" button and see:

Press the "Change White Spec for the Cal File" button, and:
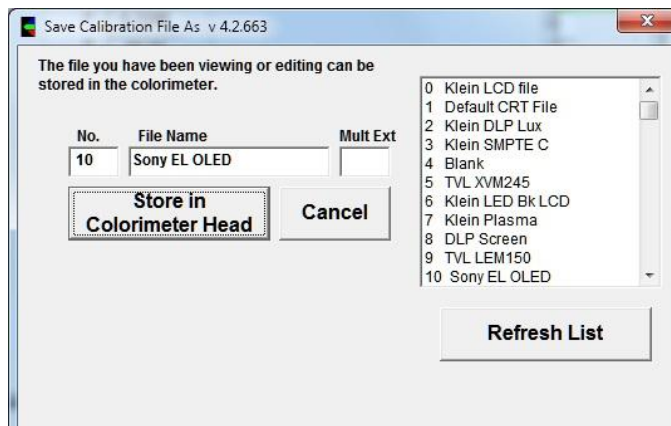
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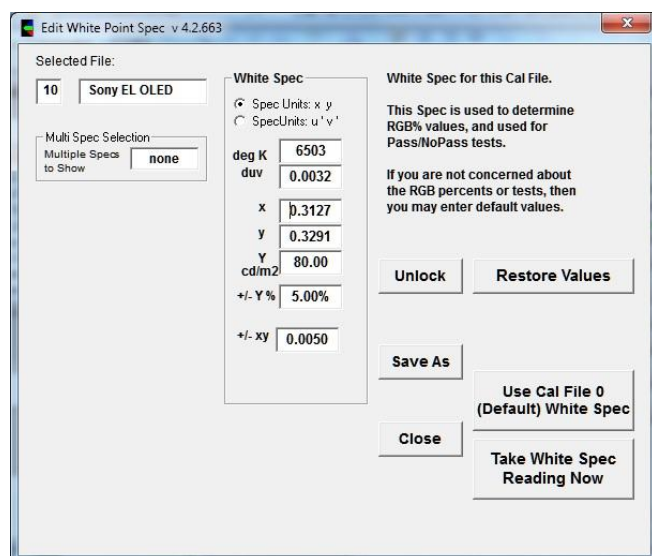
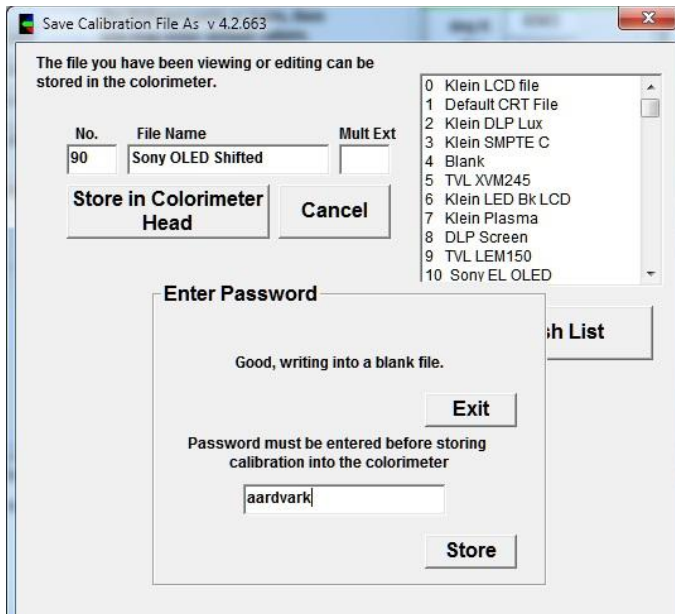Press the "Unlock" Button and enter the new xy values for the Sony White Point (0.3117, 0.3240):
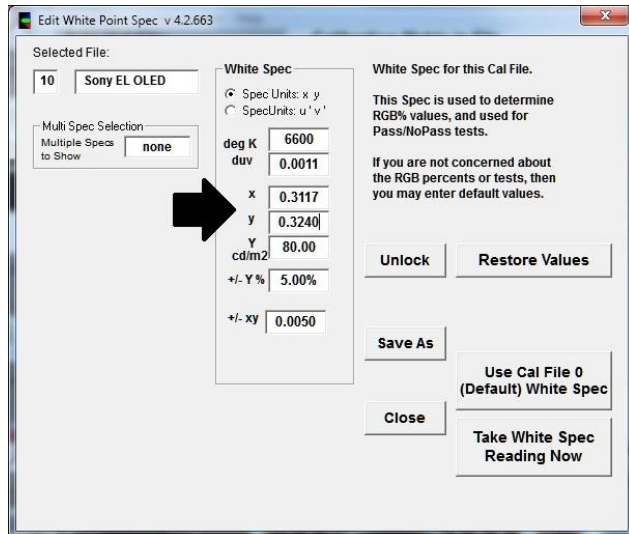
You may also modify the Y spec value (in cd/m2) if desired.

Press the "Save As" button, and see:

You may choose a new File Number location, or you may overwrite the current Sony File.

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The calibration values will remain the same, you are changing just the white point spec. We suggest that you give it the file name "Sony OLED Shift". The program will ask for a password. Enter "aardvark", and press the "Store" button. A success message should appear, and you have written the new white spec value into this particular cal file. That spec will determine the target box, the RGB 100% point, and the slider success positions, but it will not affect the xy read by the K10.

With this modified file, when you measure white, you can aim for the target box center and although the reported xy values are not precise REC709, the display should appear properly balanced white.
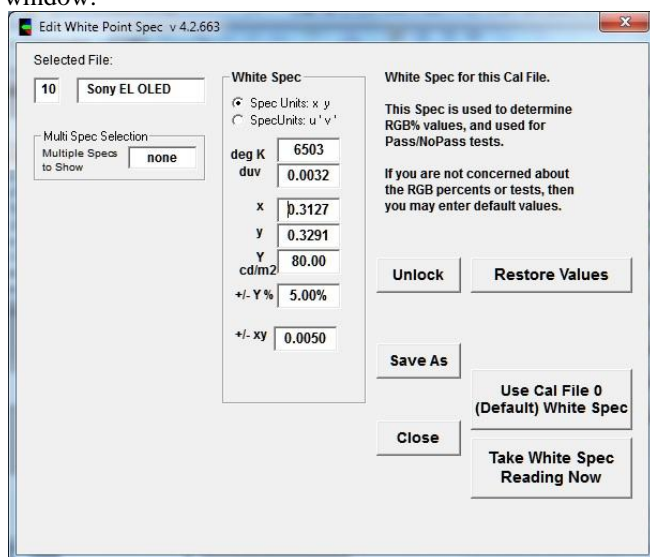
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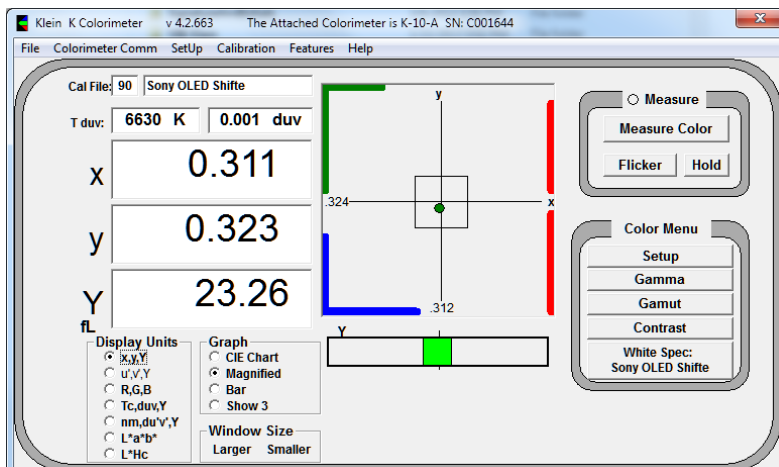
And.. as always, if adjustments on your display are to be made in RGB units, then the easiest (non-interactive between colors) method of adjustment is using the RGB% Display Units. When the three % match one another, then xy is proper, and when the three values are at 100%, the display is also adjusted to the white spec Y value.
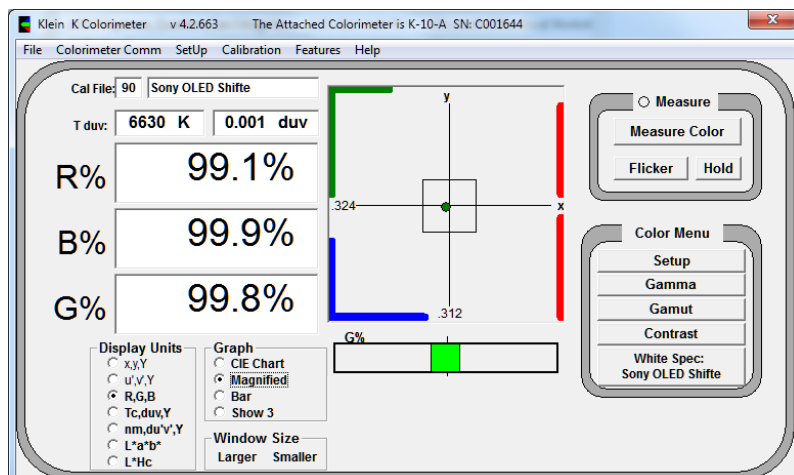
You have completed the procedure for modifying the white point spec in the Sony OLED cal file. That white target spec is now stored in the K10 flash and will be loaded to the K Colorimeter program each time the Sony OLED cal file is recalled.

Method 2 for modifying the White Point Spec:

If you have access to a display whose white value is very nearly ideal, you can use it to supply the xyY values for the white spec, and store those values as above. In the above procedure, when you get to the "Edit White Spec" window:

Instead of entering the modified values by keyboard, use the "Take White Spec Reading Now" button to record the current xy values as the new white point spec. The other steps are the same as above.