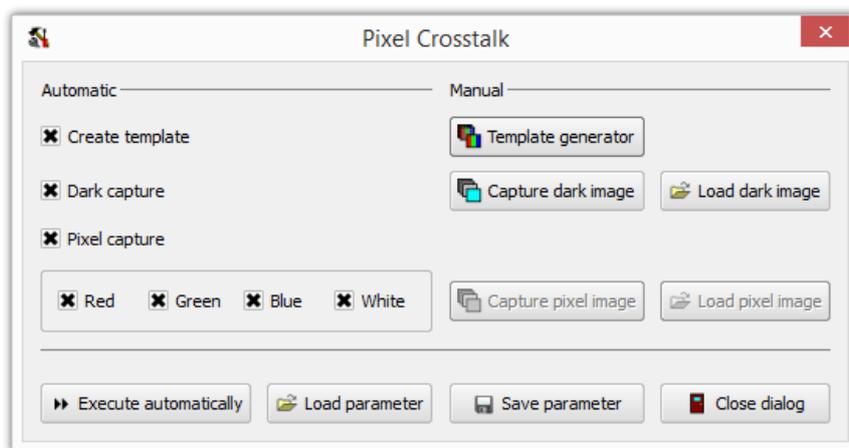# LabSoft AddOn **Pixel Crosstalk**

## Running the Pixel Crosstalk measuring procedure

- Install the '35_Lmk_LabSoft_PixelCrosstalk_AddOn_YYYY_MM_DD.exe' after installing a LMK LabSoft standard version package.

- A new Icon "PCT" and the new submenu entry "Pixel crosstalk ..." in the Main menu "Evaluation" is available now.

- Select the 'PCT' icon:



- As a first step the parameter set for the template images has to be defined
  - Clicking the "Create templates" button opens the "Template image generator"
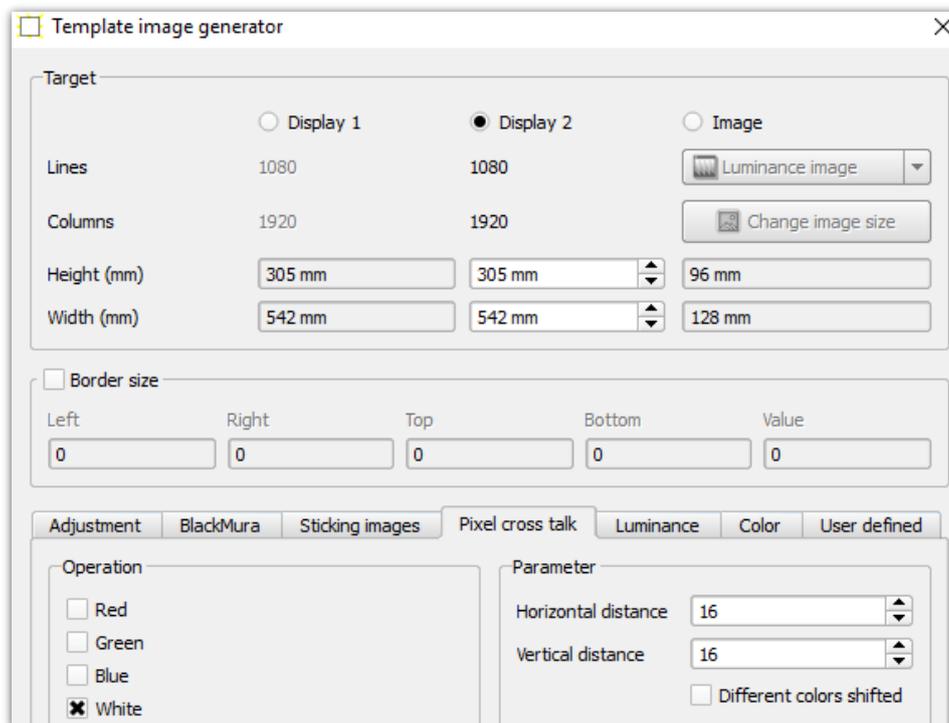


  - Test display devices can be controlled via the DVI or HDMI interface

- o Choose the pixel colors (red, green, blue and white), which shall be assessed. During the Pixel crosstalk measurement, the different pixel colors will be switched on successively.
- o It is important, that the horizontal and the vertical distance between bright pixels is 10 pixels in minimum.
- After pressing the button "Execute automatically" the program firstly captures a dark image. In the dark image all pixels are switched to black. This picture will be used to correct the influences of ambient light or stray light. If this step seems to be not necessary, the option "Dark capture" can be deactivated.
- In the next step the red, green, blue and white pixel are successively switched on and measured – depending on whether they were selected in the PCT dialog before.
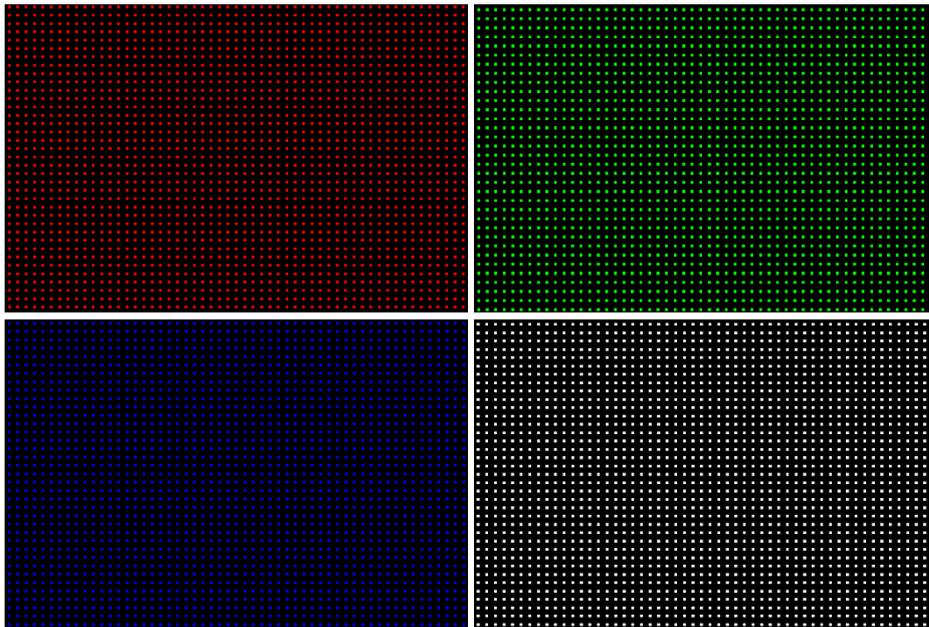


- After the correction with the dark image, the locations for the luminous pixel are detected and the measuring regions are determined inside the images.
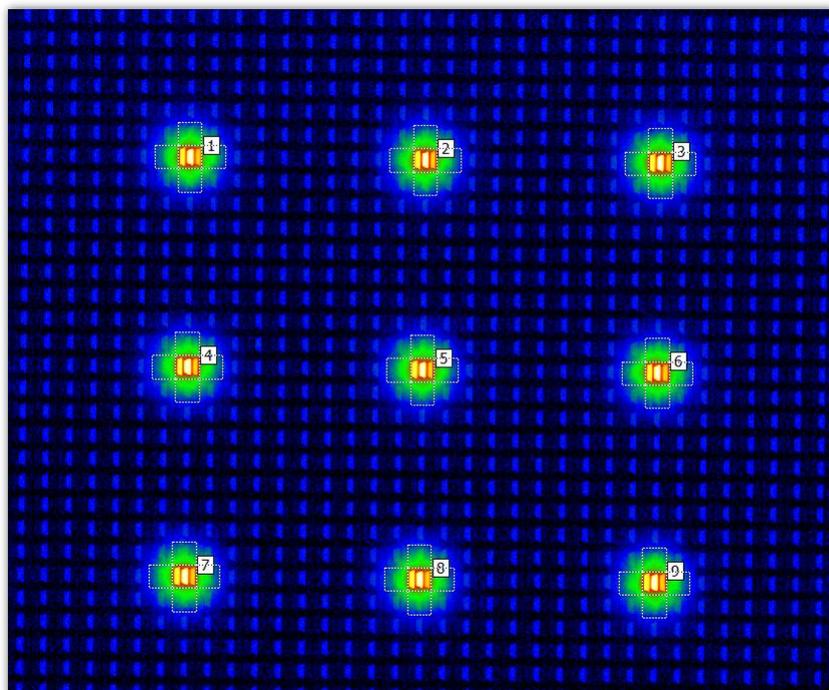
- The size and position of the regions to calculate the luminance values can be determined from the locations and the distances of the detected light points. Five measuring regions are placed around each light spot and the mean luminance is calculated from them.
- The raw values for the last recorded image can be found in the table "PCT raw values". These values are the basis for a quality standard, which was defined in the document "Pixel Crosstalk: A New Metric to Characterize DOI Loss Due to AG Treatments of Display Glasses" published by Thomas Fink und Udo Krüger:

$$PCT_{horizontal} = 100\% * \frac{L_{Left} + L_{Right}}{2 * L_{center}}$$

$$PCT_{vertical} = 100\% * \frac{L_{above} + L_{below}}{2 * L_{center}}$$

- In the table "PCT-results" an overview over the measurement parameters and the results for all colors are given:

| Property | Value | Unit |
|---|---|---|
| Number of pixels | 9 | |
| Pixel distance X | 16 | |
| Pixel distance Y | 16 | |
| Reproduction scale Y | 69.2 | |
| Reproduction scale X | 69.17 | |
| PCT horizontal red | 1.301 | % |
| PCT vertical red | 1.509 | % |
| PCT horizontal green | 1.682 | % |
| PCT vertical green | 1.824 | % |
| PCT horizontal blue | 1.937 | % |
| PCT vertical blue | 2.247 | % |
| PCT horizontal white | 1.905 | % |
| PCT vertical white | 1.757 | % |

- This table the entry "Number of pixels" indicates the number of measured regions, which were found in the image. In "Pixel distance X and Y" respectively the corresponding parameters of the original image generator have been adopted. From the distances between the measurement regions and the pixel distances in the original image, the reproduction scales can be calculated. The other lines contain the quality criterions according to the above equations, separated by color and orientation.
- There is also the option to make the PCT measurement manually. Therefore the buttons "Capture dark image", "Load dark image", "Capture pixel image" and "Load pixel image" are available. So every step can be made manually too.