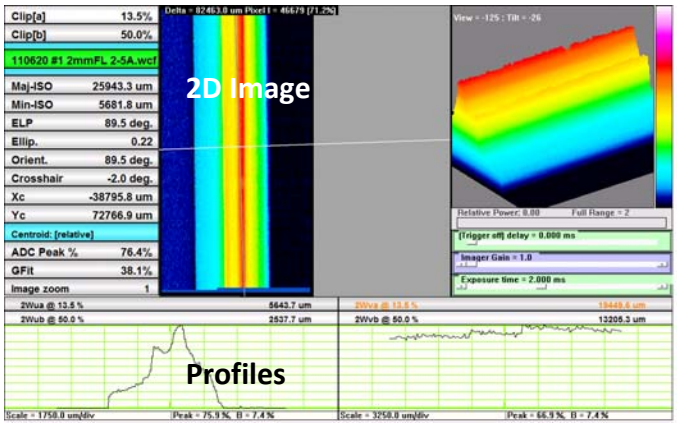
DataRay Inc. Application Note

Power Meter Input Correction to BS8-2D *.wcf Files

Issue: The BeamScope-P8 2D can scan a larger area (25 x 44 mm) than most power meters measure. How can a measured power meter power over a more limited area translate to useful total power & irradiance (fluence) measurements on a *.wcf file?

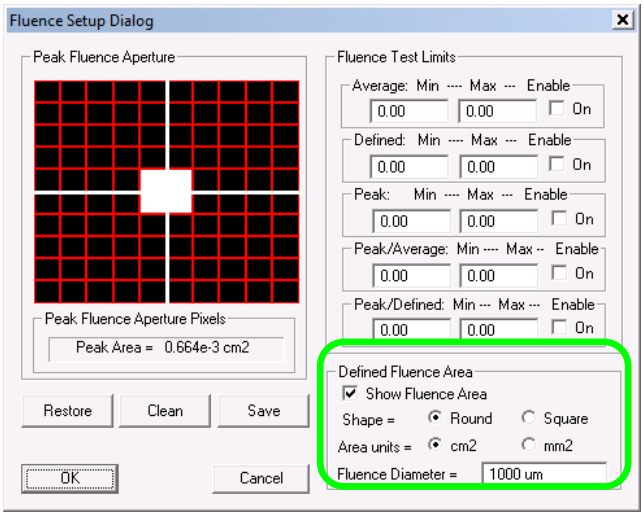


Method:

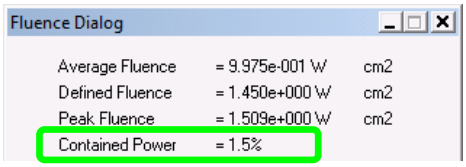
1) Use a power meter to measure power **P** W over circular aperture diameter **D** mm or square aperture **t** x **t** mm centered at a known position on the 2D scan, preferably the center. E.g. measured **P** = 165 mW.

2) Scan the BeamScope-P8 2D to create a wcf image file. Open the **wcf** file under **WinCam**, example above.
If necessary, right-click on the 2D image and uncheck **Auto orient crosshairs**. Click and drag the end of the crossairs to align with the scan. Click **Xu** to allow you to set the position of the crosshairs on the screen. Center them where the power measurement was taken.

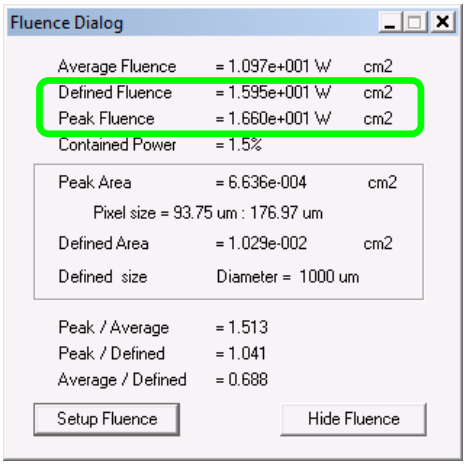
3) Click the **Fluence** button on the screen and click on the **Setup fluence** button in the window that opens.



4) In the **Defined Fluence Area** (outlined in green), check the **Show Fluence Area** box, Select **cm2** or **mm2** for your **Area units**. Check the **Shape** of your power meter's measurement area. Enter it's diameter **D µm** or square side **t µm** in the **Fluence Diameter** box. Click **OK**. The **Defined Fluence Area** will now show on the 2D image as a white circle or square centerd on the crosshairs.



5) Left-click on the **Relative Power** box and enter **1** and **W**. The **Fluence dialog** now shows a value in % for the **Contained Power**. Multiply this percentage by the previously entered **Relative power** to get the correct power contained in the **Defined Fluence Area**:
In this case 1 W x 1.5 % = 0.015 W.
In this example, at Step 1) we actually measured **P** = 0.165 W. To get this correct answer we need to multiply by a Factor (0.165/0.015) = 11 in the **Relative power** box, this being the implied power in the total image: 1 W x 11 = 11 W. Enter the value which you calculate.



Now you can click and drag the center of the crosshairs to anywhere on the 2D image and read the **Defined Fluence** for that position in the **Fluence Dialog**. You can now also change the aperture diameter and shape to measure irradiance in any way which suits you.