
FLEX³PRO FLEYEplus preliminary user manual

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Introduction

FLEYEplus is a software Module that makes the FLEX³PRO a fast quality control device for daily manufacturing. FLEYEplus adds reporting functions to the existing FLEX³PRO software.

Important: *This manual describes the current version of the FLEX³ hardware and software. Future enhancements or modifications are reserved.*

FLEYEplus philosophy

FLEYEplus is based on the principles of the DFTA Control wedge and on the idea to consider the plate manufacturing process as black box that has to be kept constant and repeatable. All job specific variations required in plate making are done in image setup before downloading the digital image to the plate making process.

The plate making process (Image Setter, Exposure, wash-out, drying) is optimized for a material (plate type) and tested using the DFTA-Control Wedge in pixel format or any other similar control wedge in pixel format. The pixel format makes sure, that no job specific settings (screen ruling, DGC -curve) will have an impact on the result. As a result of this initial test step the following reference information is stored for a specific material:

Imaging process (Laser)

- **Laser power:** the max. Stain density is controlled during daily work and should never be higher than the reference. Stain density can be lowered by adjusting the laser power or the RPM.
- **Laser linearity:** The Dot area value of the 50% patch in pixel format is measured on the mask before washout. The resulting value is an indicator for the linearity of the imaging process and typically will be close to real 50%. If the Stain density is in tolerance, but the 50% patch is out of tolerance, there might be a Laser Focus problem.

Plate making process (Exposure, washout, drying, finishing)

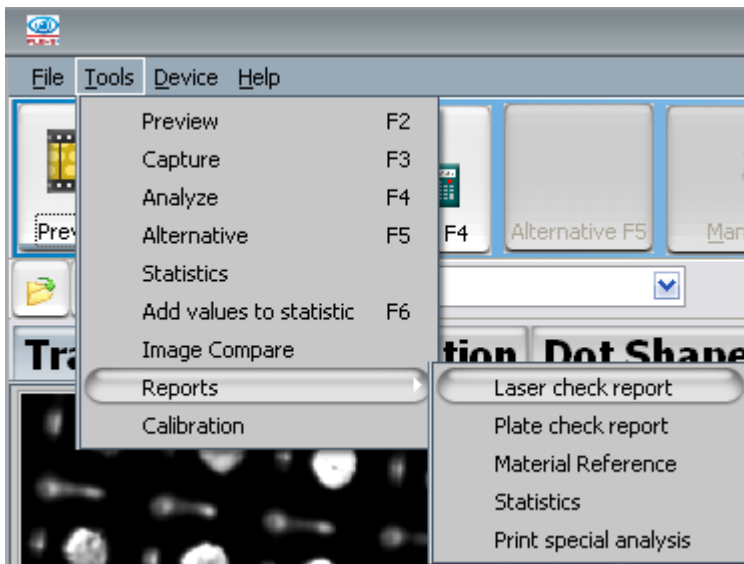
- **DOT LOSS:** In digital plate making there will always take place a dot loss between imaged dots on the ablation mask and the final plate. This dot loss compensates the dot gain in print such as the overall process gets more linear. The dot loss should be kept constant to make sure, that the image preparations can be done based on a predictable physical plate making process. The dot loss is controlled by measuring the 50% pixel oriented patch of the DFTA Control Wedge.
- **Minimum dot shape control – UV Exposure.** The minimum dot is selected once during the Plate making process characterization (for example one out of the A-U patches of the DFTA-control wedge) and a patch in pixel format is provided on every single plate. In case of minimum dots the shape is more important than the flat top dot. Therefore a reference of the shape is saved. The minimum dot shape is quite sensitive to changes in UV-Exposure.
- **Washout and drying, Relief Depth:** In addition it is possible to directly add relief depth characteristic measurements to the reports
 - 100% - measures the thickness of the plate
 - 50% - TO measure the difference between 100% and one of these patches as an indicator for the drying process. Solvent will lead to a blow up of the plate during

wash out. Drying will make solvent to leave the plate. The closer the 100% is to the 50%/TO the more solvent has left the plate.

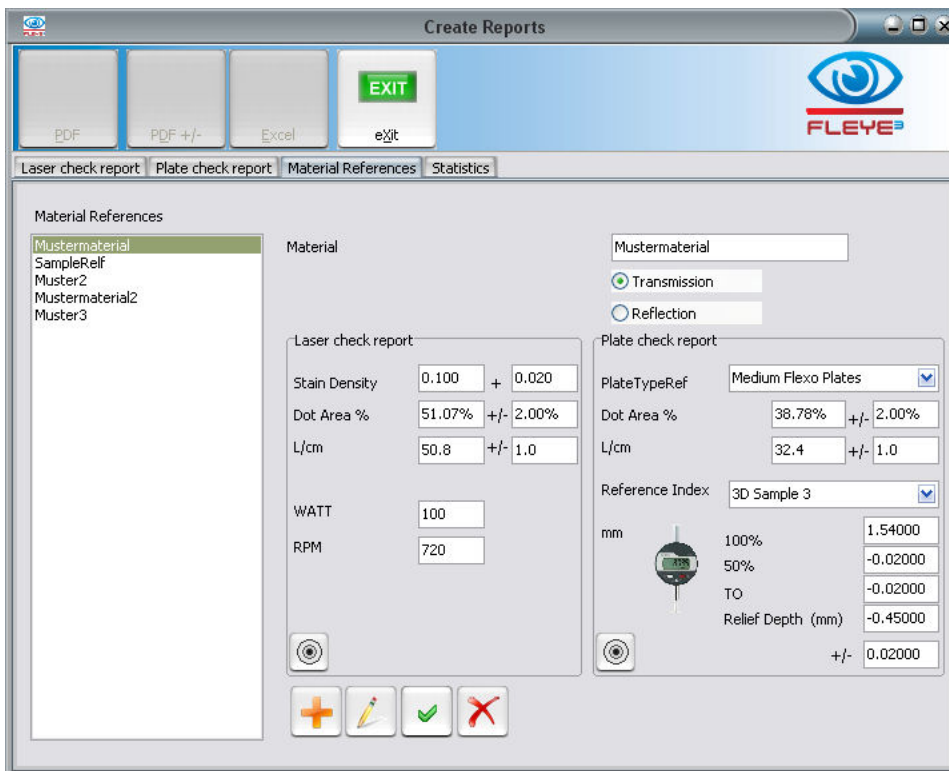
- Relief depth – measures the max. Relief depth.
- Dot area value of the 50% in vector format. This patch shows all job specific variations in plate making like screen ruling or DGC-curve.

FLEYEplus functions

The FLEYEplus functions can be accessed clicking the proper main menu items:



Material References



Up to 64 Material references can be stored.



Click the ADD icon to create a new record. Type in a Material name and select if it is a transparent plate (Transmission) or a non transparent plate (Reflection). Laser Check functions are available only for transparent plates.



Click the EDIT icon to edit an existing record.



Click the OK icon to confirm modifications and to permanently save the actual record



Click the DELETE icon to delete the actual record or to cancel the actual modifications.



Click the Bulls Eye Icon to copy the most recent laser check or the most recent plate check into the reference

Execute a Laser Check

Select the Material from the Materials list.

The screenshot displays the 'Create Reports' window in the FLEYE3 software. The interface includes a top toolbar with 'PDF', 'PDF +/-', 'Excel', and 'EXIT' buttons. Below the toolbar are tabs for 'Laser check report', 'Plate check report', 'Material References', and 'Statistics'. The main area shows a dropdown menu for 'Material' set to 'Mustermaterial'. Two primary data panels are visible: 'Laser power (Watt / RPM)' and 'Laser linearity (50% patch)'. The 'Laser power' panel shows a grayscale image of a plate with a 'Stain Density' of 0.056 (green indicator) and a target of 0.100. The 'Laser linearity' panel shows a yellow and black dot pattern with a 'Dot Area %' of 51.15% (green indicator) and a target of 51.07%, and an 'L/cm' of 50.7 (green indicator) and a target of 50.8. At the bottom, there are input fields for 'Image Setter' (set to 'CDI'), 'Laser power (Watt)' (set to 100), and 'Laser speed (RPM)' (set to 720). A 'More Info' field is also present.

Click inside the Laser Power Image to start a Stain density measurement. The Reports window will close and the main FLEX³PRO application will automatically be set to Stain Density measurement. Zero and measure Stain as usual. The Result is automatically copied to the Reports Window. The Reports Window will automatically re-open.

Click inside the Laser linearity Image to start a Laser Linearity measurement. The Reports window will close and the main FLEX³PRO application will automatically be set to MASK measurement. Measure the 50% patch on the mask as usual. The Result is automatically copied to the Reports Window. The Reports Window will automatically re-open.

Add additional Information like Image Setter or other comments.

Create a Laser Check Report

There are two different reports that can be created: one including reference and tolerance information. One Report without reference and tolerance information and one Report with tolerance Information.



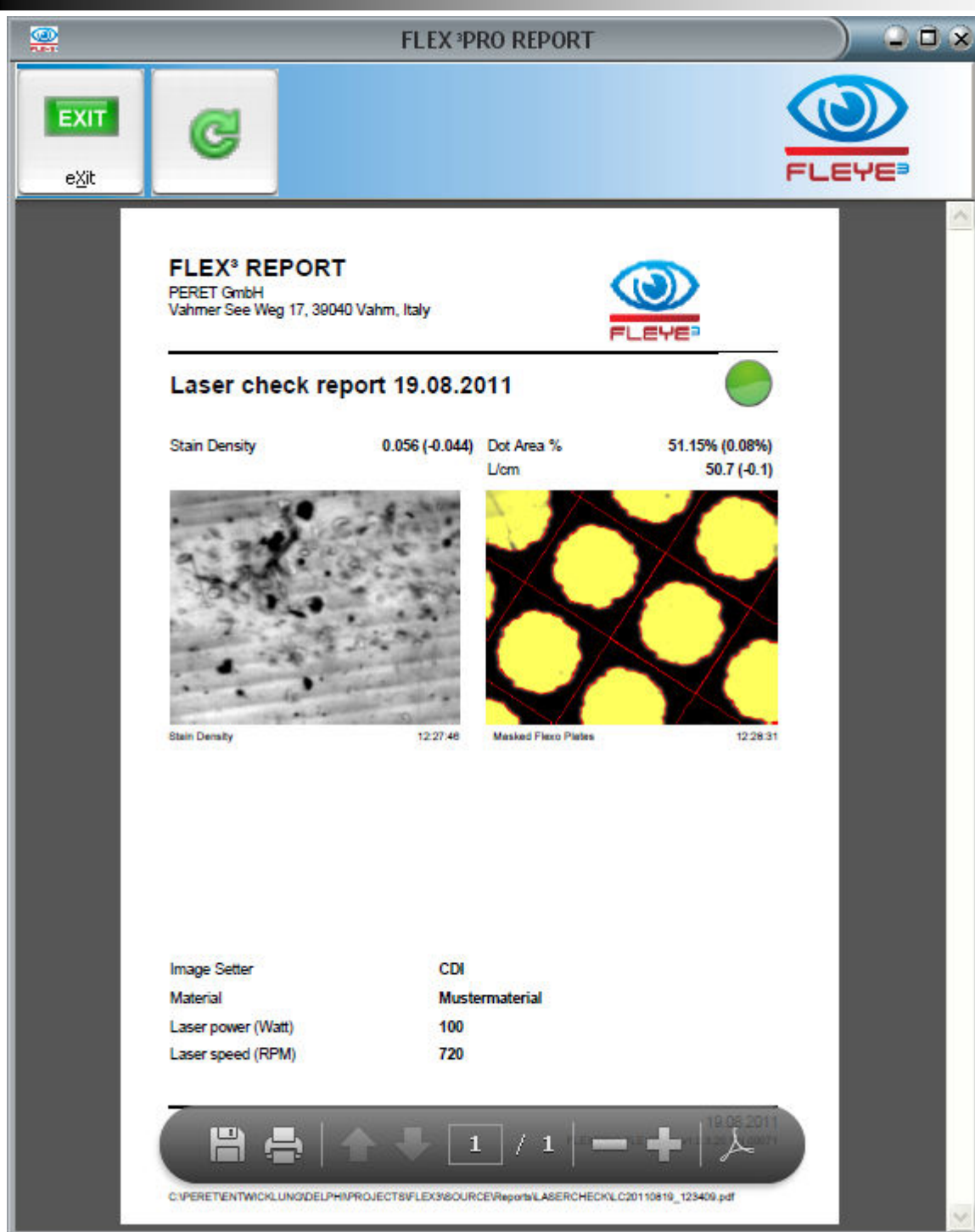
Click the PDF Icon to create a report without references



Click the PDF+/- Icon to create a report including references



The report is created as a PDF file and displayed using the Windows Browser. Sometimes Windows is not fast enough in running the browser. Click the refresh Icon in this case until you get the report displayed.



The report is automatically saved as PDF file in the subdirectory
 ...PERET\FLEX3PRO\Reports\LASERCHECK

Execute a Plate Check

Select the material from the Materials list

Create Reports

PDF PDF +/- Excel EXIT

Laser check report Plate check report Material References Statistics

Material: Mustermaterial

Dot Loss: 38.84% Dot Area %, 32.5 L/cm

Dot Loss (Vector): 39.35% Dot Area %, 58.4 L/cm

Minimum Dot: 17, 29, 3D Sample 3, Medium Flexo Plates

Thickness Measurements	
Drying (mm)	100% 1.54 1.54000
	50% -0.02 -0.02000
	TO -0.02 -0.02000
Relief Depth (mm)	-0.45 -0.45000

Color separation: Cyan

Image Setter: CDI

Click inside the Dot Loss Image to start a Dot Loss measurement on the Pixel variant of the 50% patch. The Reports window will close and the main FLEX³PRO application will automatically be set to dot area measurement. Measure the 50% pixel oriented patch as usual. The Result is automatically copied to the Reports Window. The Reports Window will automatically re-open.

Click inside the Dot Loss (Vector) Image to start a Dot Loss measurement on the vector variant of the 50% patch. The Reports window will close and the main FLEX³PRO application will automatically be set to dot area measurement. Measure the 50% vector oriented patch as usual. The Result is automatically copied to the Reports Window. The Reports Window will automatically re-open.

Click inside the Minimum Dot Image to start a 3D Minimum Dot analysis. The Reports window will close and the main FLEX³PRO application will automatically be set to Dot Shape measurement.

Measure the minimum Dot as usual. The Result is automatically copied to the Reports Window. The Reports Window will automatically re-open.

Add additional Information like Image Setter, Color separation, or other comments.

Create a Plate Check Report

There are two different reports that can be created: one including reference and tolerance information. One Report without reference and tolerance information and one Report with tolerance Information.



Click the PDF Icon to create a report without references



Click the PDF+/- Icon to create a report including references



The report is created as a PDF file and displayed using the Windows Browser. Sometimes Windows is not fast enough in running the browser. Click the refresh Icon in this case until you get the report displayed.

FLEX³PRO REPORT

EXIT

exit





FLEX³ REPORT
 PERET GmbH
 Vahmer See Weg 17, 39040 Vahm, Italy




Plate check report 19.08.2011 ●

Dot Area %	38.84% (0.06%)	39.35%
L/cm	32.5 (0.1)	58.4



Medium Flexo Plates
12:41:54



(Vector oriented)

17	Dot Structure Index	29
		Thickness Measurements Drying (mm) 100% 1.54 50% -0.02 TO -0.02 Relief Depth (mm) -0.45
3D Sample 3 Medium Flexo Plates 12:42:55		

Material
Image Setter
Color separation

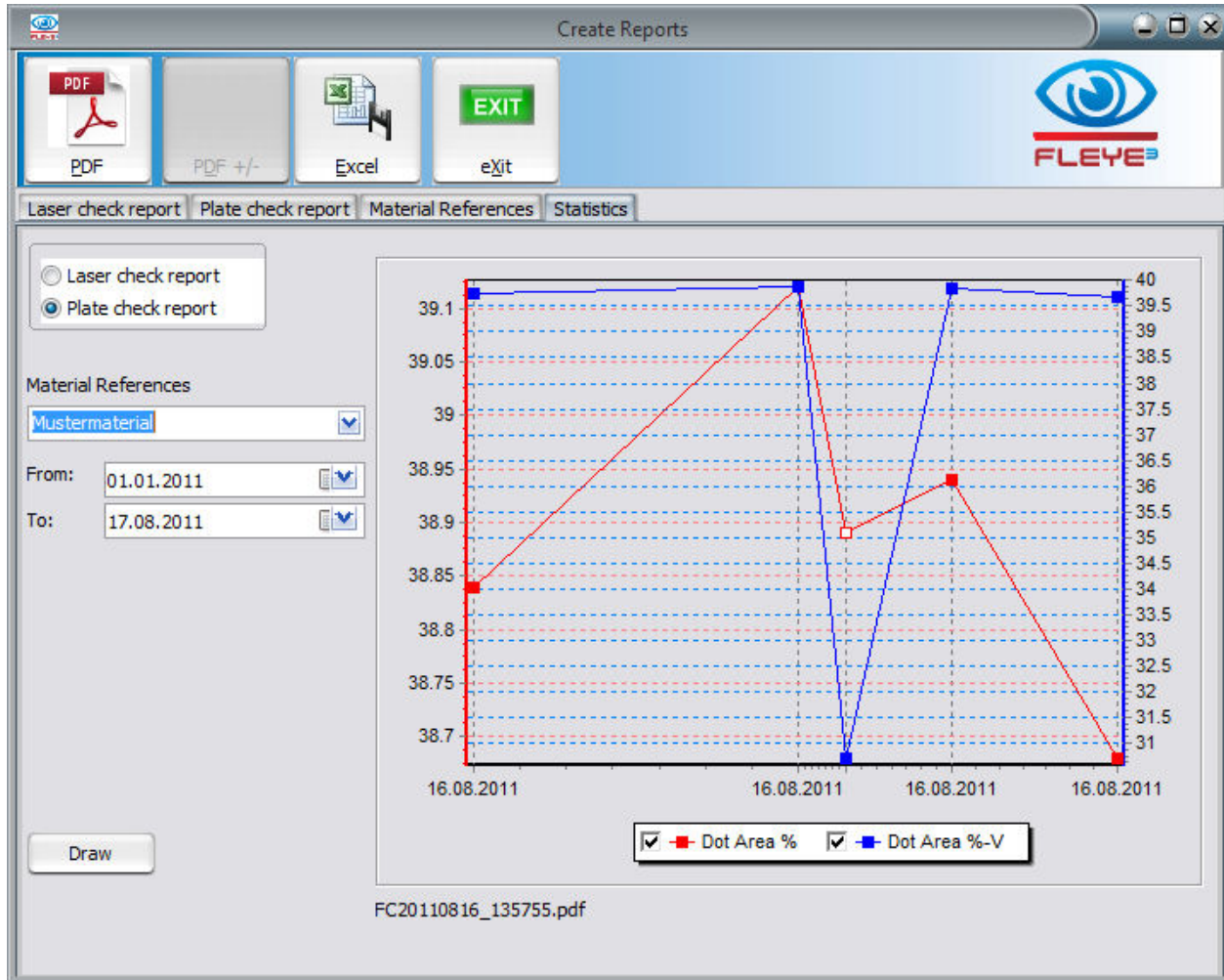
Mustermaterial
CDI
Cyan
Control side



C:\PERET\ENTWICKLUNG\DELPHI\PROJECTS\FLEX3\SOURCE\Reports\PLATECHECK\F20110819_124818.pdf

The report is automatically saved as PDF file in the subdirectory
 ...PERET\FLEX3PRO\Reports\PLATECHECK

Report Statistics



- Select Laser Check reports if you would like to analyze the behaviour of your Laser over time.
- Select Plate Check Reports if you would like to analyze the your plate production
- Select the Material from the Materials list you would like to analyse
- Select the time frame you would like to analyse
- Click Draw to draw the graph

- Click on an Item of the graph to show the proper report file name. Click on the filename to open the report.

- Click on the PDF Icon to create a Summary Report.

- Click on the EXCEL Icon to export data to EXCEL