CALIBRATION FILE MANAGER: USER MANUAL

SUMMARY

Overview

Calibration File Manager presents three modules that allow editing, managing and acquiring calibration files for CEDIP's cameras.
This manual will describe the use of the Calibration File Manager.

Hardware requirements

Computer:	PC compatible Pentium II 233 MHz computer
Memory:	64 MB Memory.
Graphic board and monitor:	A graphic system with 256 colours or higher than 24bits colour depth.
Blackbody(only for acquisition):	*A CI SR80 blackbody connected through GPIB interface*

Software requirements

OS:	Windows 2000 / Windows XP
Cedip software:	Altair for film edition.

Notations

DL	Digital Level
IR	Infrared
PC	Personal Computer
TBD	To be defined

Software installation

Calibration File Manager comes with Altair. It is automatically installed with Altair.

Calibration File Edition

This mode allows editing the calibration curve points. A real time graph presents a graphical representation of the calibration.

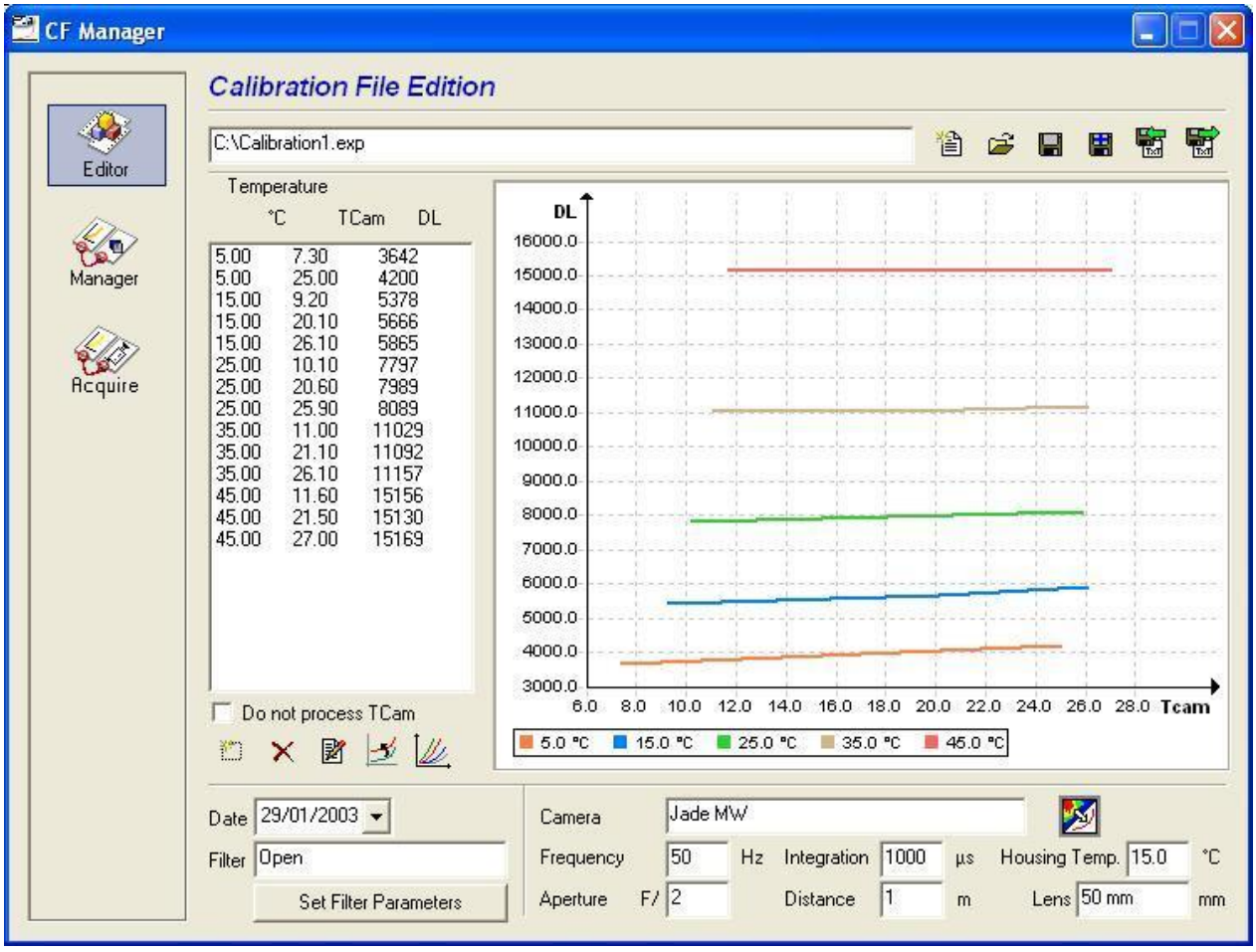

Figure 1 : Calibration edition screen

The calibration data are composed of Blackbody temperature, Camera temperature and corresponding DL. Data are organised in the following order: for each blackbody temperature, enter the DL value corresponding to different camera temperature. Blackbody temperature must be growing and Camera temperature must be growing for a specified Blackbody temperature.

After add a calibration point, the graphic is updated, showing the camera response for each Blackbody temperature.

When the button is pressed, the graphic shows the camera response for some camera temperature.

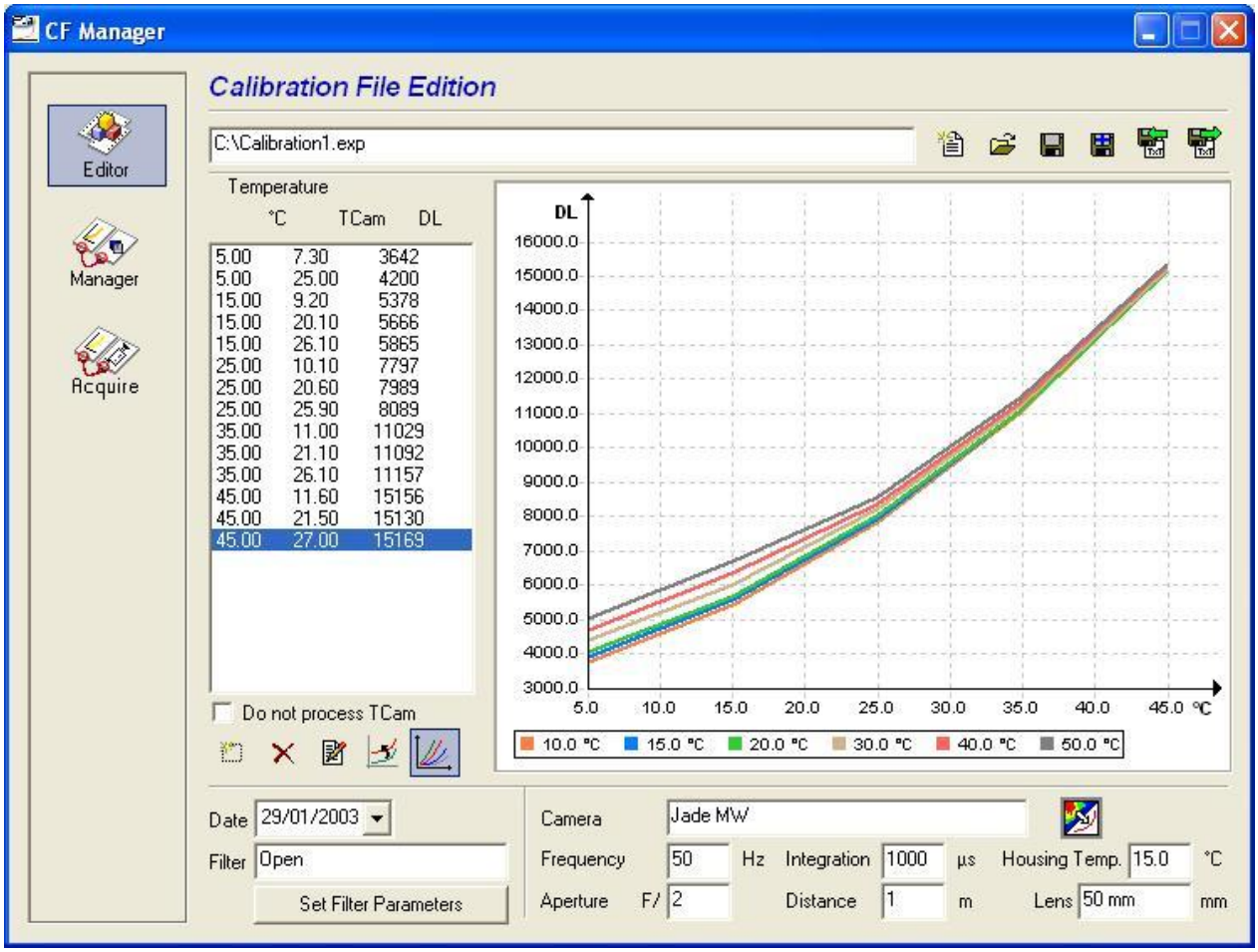

Figure 2 : Camera response for each camera temperature

File Option

Figure 3 : File option bar

New: Initialise Calibration Editor for a new calibration file.

Open: Open an existing calibration file for edition.

Save: Save the current calibration file

Save as: Save the current calibration file in a new file.

Save in text format: Save the calibration file in text format so it can be directly readable with Excel or Matlab.

Import from text file: Import calibration data from text file. The text file must have the same format as the one of files saved using **Save in Text format** function.

List - Graph

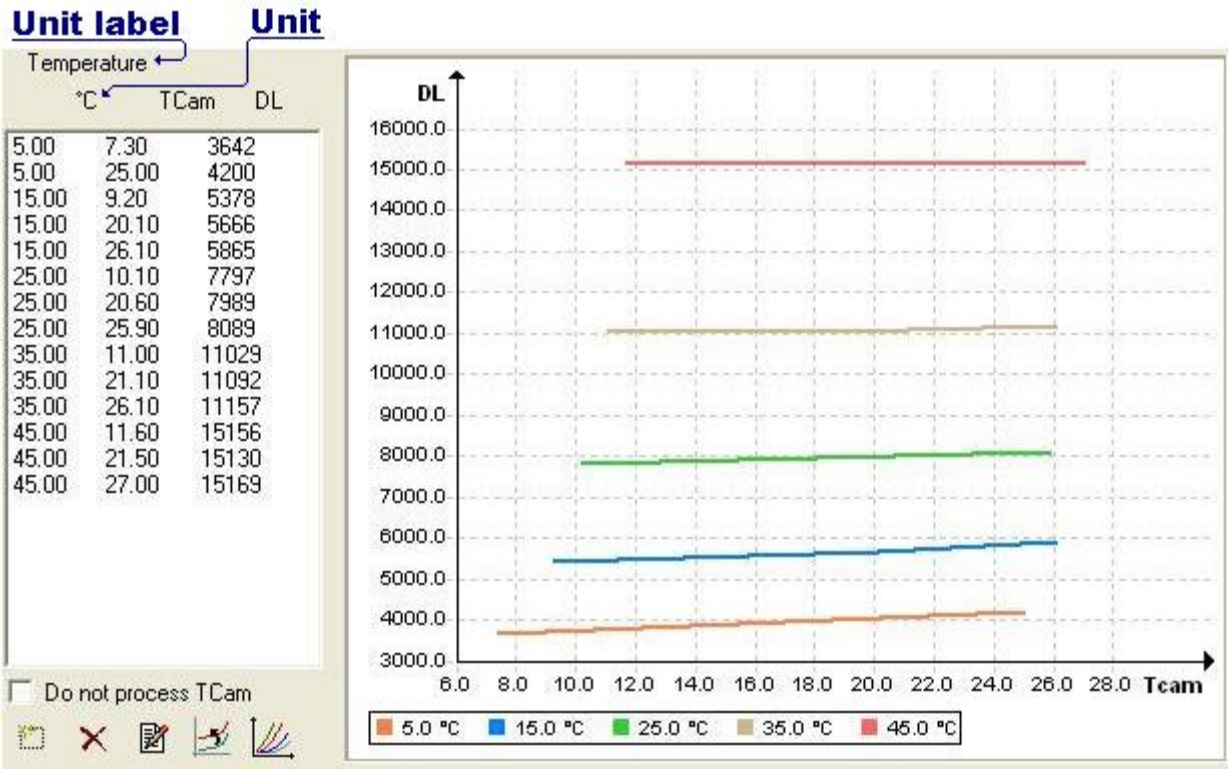

Figure 4 : Graphical representation of the calibration according to the points defined in the list

Add: Add a point to the curve. A dialog window appears:

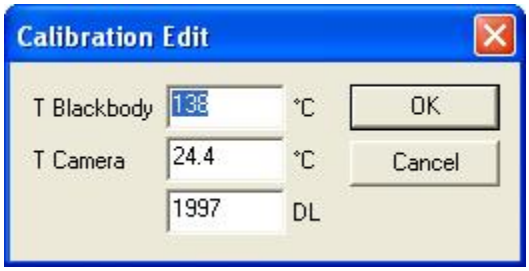

Figure 5 : Value add

Fill up the blackbody temperature, camera temperature and corresponding DL.

Del: Delete the selected point.

Edit: Open a window that allows editing the selected point. Double clicking a point on the list also opens the edition window.

Offset: Open a window that allows applying an offset to the curve. The offset can be applied on both DL and °C axis.

Do not process TCam : Check this option if the camera temperature is not processed. It means you're your calibration file will not deal with the internal camera temperature.
This option is only available at creation time. When opening an existing calibration file, if is disabled and set to the type defined in the file.

Unit: It is possible to change the unit of the value associated to a Digital Level. Click on the unit label (usually *Temperature*) and type the new unit label. Then change the unit abbreviation in the same way.

File Information

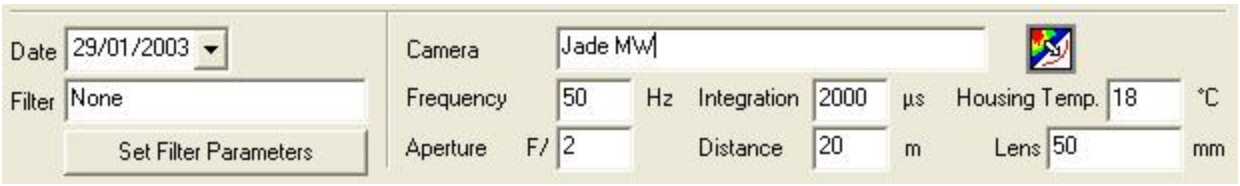

Figure 6 : General information input

Date: The date of the calibration. The default date is the date of today.

Camera: The camera name.

Lens: Lens focal in millimetres.

Filter: The filter name.

Set Filter Parameters: Open a window in which it is possible to define the filter. This is the **preferred method** since it set the filter parameters in standard format.

Aperture: The aperture number in F/#.

Frequency: Frame frequency in Hz.

Integration: Integration Time in µs.

Distance: Distance between the camera and the blackbody in meters.

Housing Temp: Temperature of the camera at calibration acquisition in °C.

Synchronize: Synchronize information with an Altair film. Open a dialog box to choose an Altair film. Calibration File Editor will replace the current information by the one stored in the Altair film.
This operation destroys previous information.

Calibration File Management

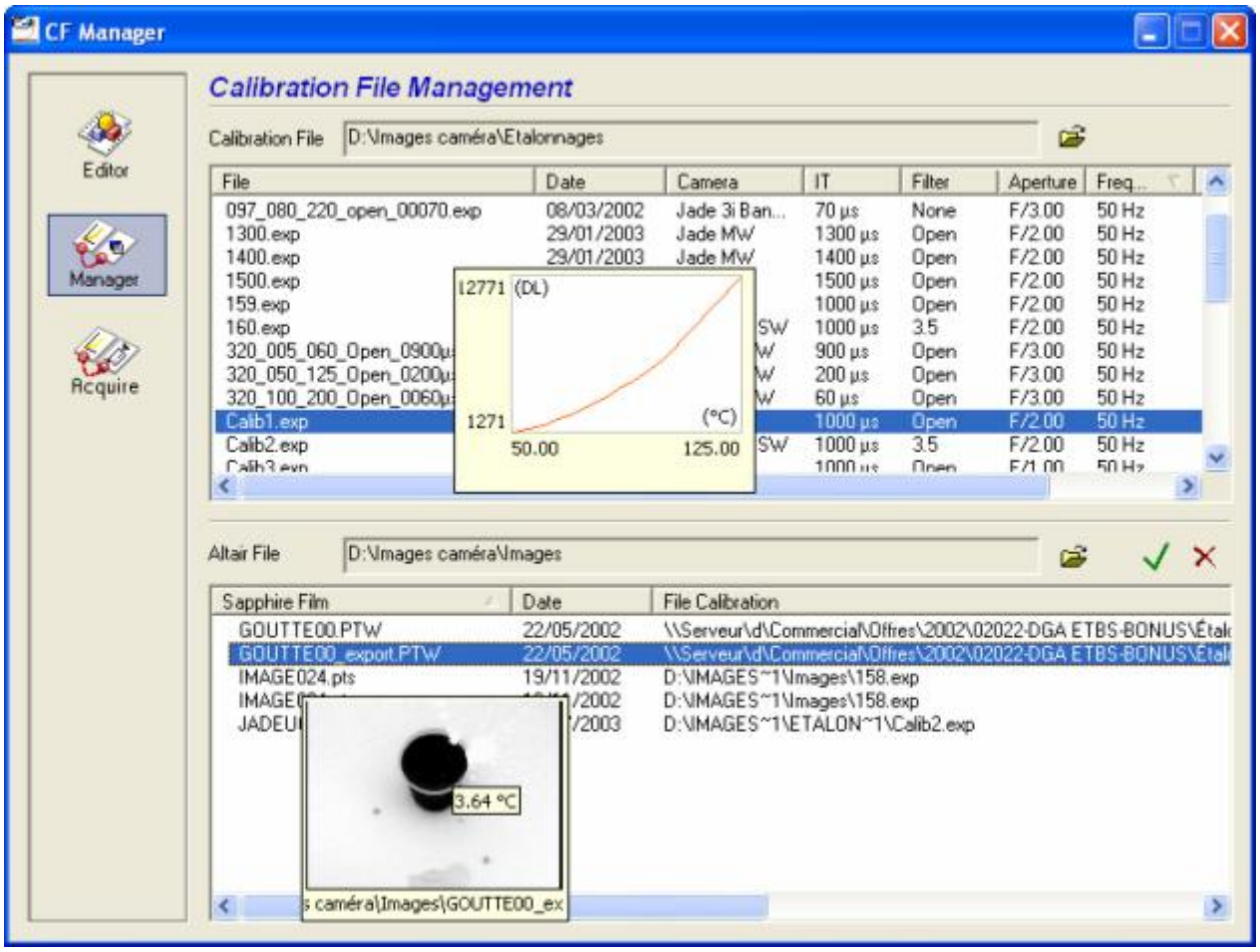

Figure 7 : Calibration Management Screen

This mode allows to easily associate calibration files to Altair files.

Calibration File Open:

Allow to select a directory where to search for calibration files. All calibration files found in the selected directory are listed with the main information about each file. When selecting a calibration file, a tool tip appears representing the shape of the calibration curve.

Altair File Open:

Allow to select a directory where to search for Altair files. All Altair files found in the selected directory are listed with the main information about each file. When selecting a film file, a tool tip appears representing the first image of the film.

A led is displayed in front of each file:

- Red Led: The calibration file that was read in the Altair film does not exist or is not valid.

- Yellow Led: The Altair film has no calibration file.
- Green Led: The calibration file that was read in the Altair film exists and is valid.

 **Associate** : Associate the selected calibration file with all the selected Altair files. The calibration file path is stored in the Altair file.

 **Delete Association** : Remove the calibration file path from the selected Altair files.

Calibration File Acquisition

WARNING: this mode only functions when connected to a CI SR80 blackbody connected through a GPIB interface. This acquisition does not handle temperature compensated calibration.

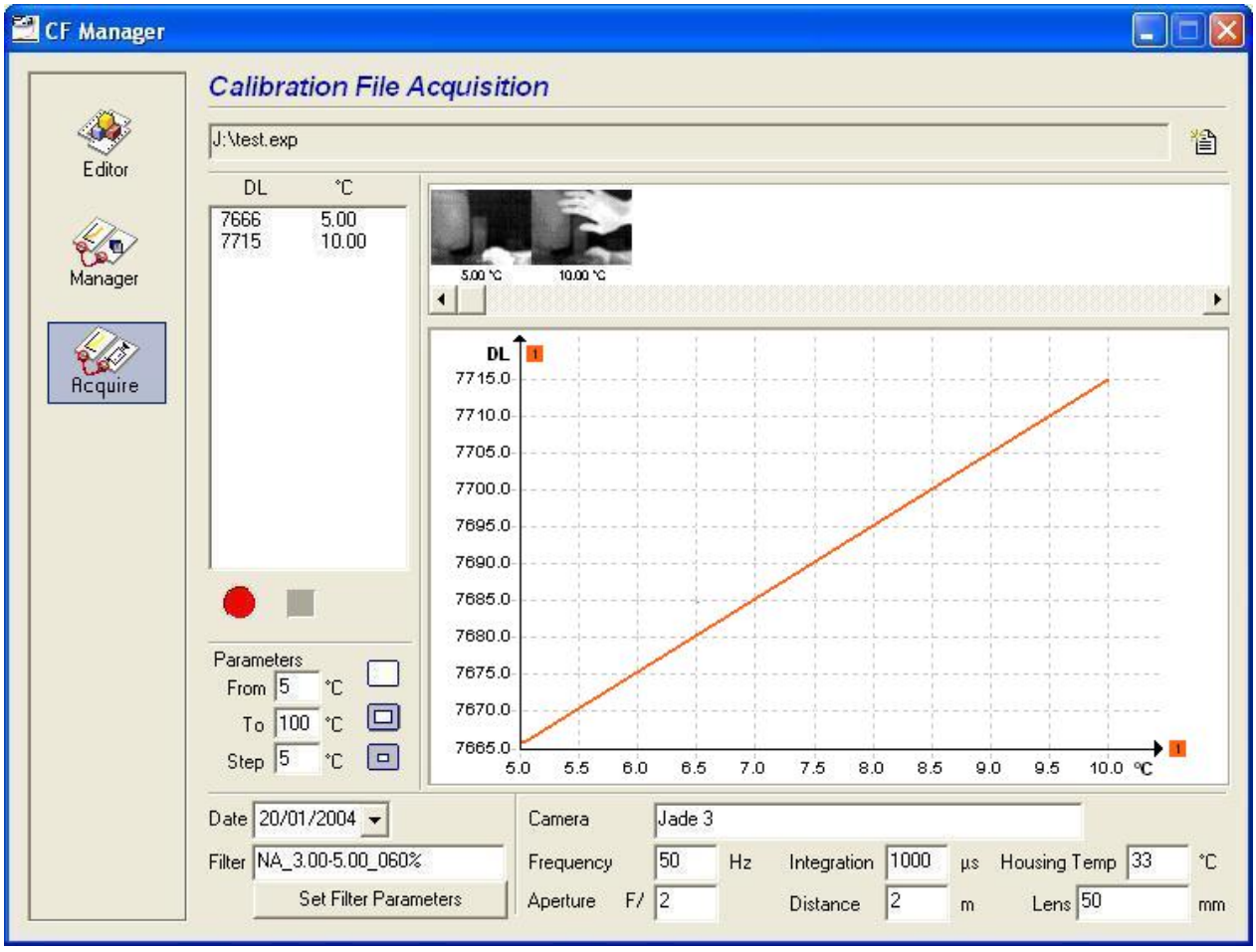

Figure 8 : Calibration Acquisition Screen

This mode allows creating calibration file with black body.
Each measured point is displayed in real time.

File Option

Generate File Calibration:

Create directory with the function “Browse Directory” and a sub-directory.

The sub-directory is built with the date of the day: e.g.: “\2001-09-28\”

Create file with the name of camera, the 1st and 2nd temperature of black body, lens, filter, integration time and file extension.

Example: Camera : "Jade MW"
1st Temp. : "20°C"
2nd Temp. : "50°C"
Lens : "200 mm"
Filter : "Open"
Int. Time : "1500 µs"
File ext. : ".exp"
⇒ "Jade MW_20_50_200_Open_01500.exp"
Finally, the path is: **C:\Images\2001-09-28\Jade MW_020_050_200_Open_01500.exp**

Parameters for Black Body

123 **From**: Set the 1st temperature for black body.

123 **To:** Set the maximal temperature of black body.

123 **Step:** Edit the interval in temperature between two points.