User's Manual

EasyMatch® QC

Version 4.88 and Above

The world's true measure of color

HunterLab

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Safety Notes

For your safety when using your color measurement equipment, you should pay attention to the following types of statements in the hardware section of this User's Manual. Each description is shown in its representative typeface.

Notice: General safety instruction that should be observed always while operating the instrument.

CAUTION
Specific safety instruction critical to the type of instrument operation being explained in the manual where the caution appears.

Note: Additional clarification of instructions, not safety-related.

The following symbol indicates that there may be a danger of electric shock from high voltage if the given instructions are not followed carefully.

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Getting Started with EasyMatch QC

What is EasyMatch QC?

EasyMatch QC is a comprehensive color quality control package designed for 32- or 64-bit Windows Operating Systems. The software allows you to control your spectrophotometer instrument, make color measurements, and display, print, and store results, both in spreadsheet format and graphically.

How to Install EasyMatch QC

Confirm that the computer meets the following minimum requirements:

Table1: Minimum Computer Requirements

Component	Minimum Requirements for EasyMatch QC 4.88 and above
Operating System	Windows 7 32/64 Professional and above.
Processor	1.0 gigahertz (GHz) or faster, 32-bit (x86) or 64-bit (x64)
RAM	2 gigabyte (GB) RAM (32-bit) or 4 GB RAM (64-bit)
Hard Drive	500 GB minimum Hard Disk Space
DVD/CD	DVD/CD or CD Optical Drive
COM Ports	Multiple COM ports, including at least one available USB or Serial port for sensor and one available USB port for software key
Network Card	Network Card 10/100
Monitor	19-inch or larger Color (110V/220V) supported by Video Card

Install the Software

Complete the following steps:

1. Log into the system using an account that has full 'Administrator' privileges for the PC — network or local. If any antivirus package is installed, please close/disable protection for installation. Antivirus software can be reenabled after installation.

2. Insert the installation CD into the CD-ROM drive.

3. Select the Easy Match QC Icon or from Windows, go to ***Start > Run >EZMQC_Menu*** and ***Open***. The following screen will be shown.

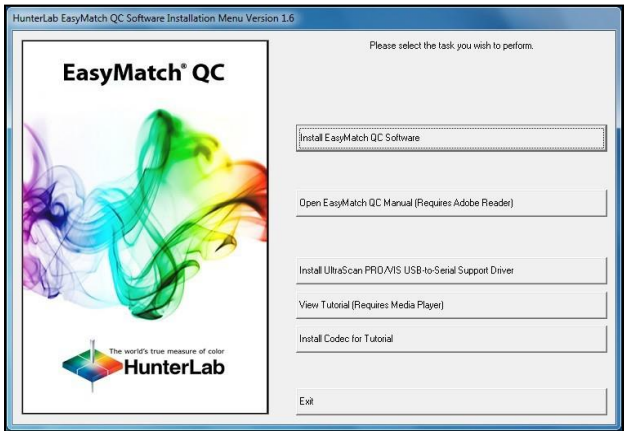


Figure 1. EasyMatch Installation

4. Select '***Install EasyMatch QC Software***' and follow the screen prompts.
5. Select '***SoftKey License'*** as the type of key to use with the software. (*Note: You can select Sentinel Key to use if you have this key from a previous purchase.*)

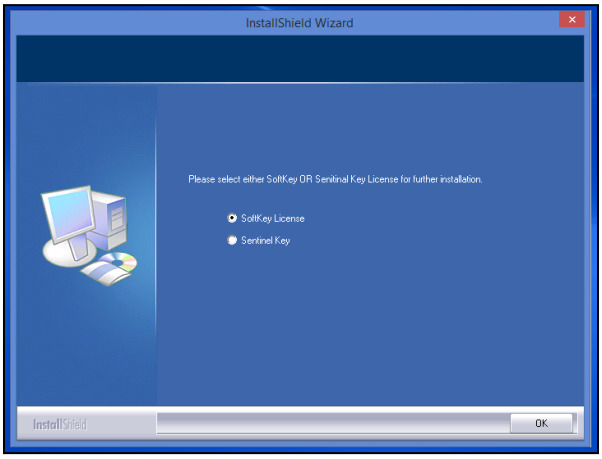


Figure 2. Software Key License

6. When the EasyMatch QC installation is finished, select the ***Option Button*** next to '***Yes, I want to restart my computer now***' and then ***Finish*** to restart the computer and log back in.

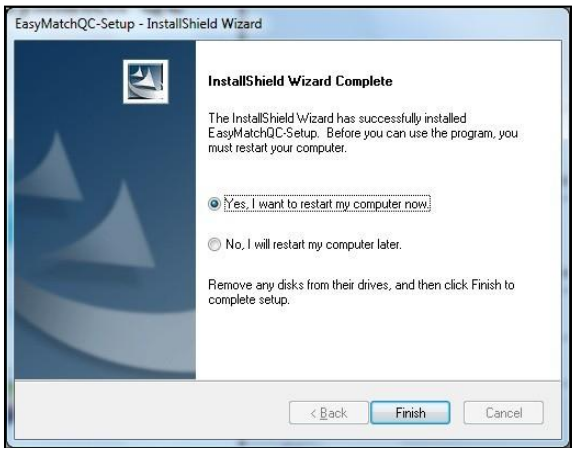


Figure 3. Completed Install

7. The CD can now be removed.

Activate the SoftKey License

1. From the Desktop, select the EasyMatch QC Icon or from the Windows Start menu, choose the following to open the software:

   Start > Programs > HunterLab > EasyMatch QC

2. A warning message to activate the license will be displayed as shown in Figure 4.

Note: EZMQC functions are unavailable before key activation.

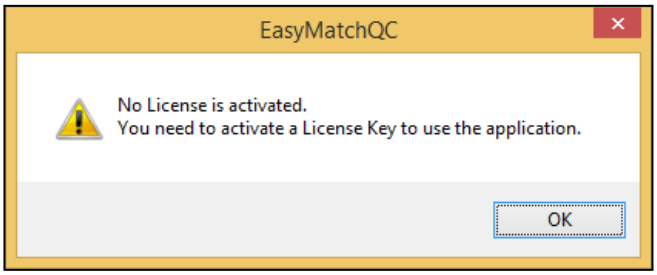


Figure 4. No License Warning

3. The SoftKey License is uniquely associated with the sensor serial number and is provided on a thumb drive supplied with EasyMatch QC or via email from HunterLab.
4. Go to ***Help > License Registration/Activation***.
5. Select ***Activate License***.

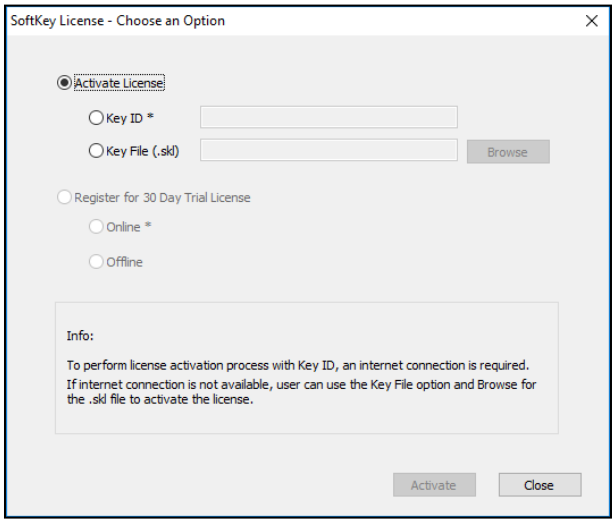


Figure 5. Activate License

i. Option #1: Key ID.

This method is for copying the ID from an email or writing down the 32-digit code. This requires an internet connection.

a. From the ***Choose an Option*** page (Figure 5), select ***Key ID***.

b. Paste-in or type-in the License Key ID and click ***Activate***.

c. An acknowledgement will be displayed showing the activation status.

ii. Option #2: Key File (.skl)

This method is for using the SoftKey License (.skl file) on the thumb drive.

a. Place the thumb drive with the SoftKey License in the USB port.

b. From the ***Choose an Option*** page (Figure 5), select ***Key File*** (.skl).

c. Browse the USB to find the SoftKey License (.skl) file, then click ***Activate***.

d. An acknowledgement will be displayed showing the activation status.

iii. Option #3: Sentinel Key

a. If the user has a HunterLab USB hardware key, then it can be used with a new sensor on the same computer. Return to Install the Software, Step 5 (Figure 2), and select ***Sentinel Key*** to continue.

iv. *Option #4: 30-day trial*

a. Fill out the registration form provided for the 30-day trial. Connect to the internet. Hunterlab will approve the trial and email the SoftKey license back. Follow the directions for Option #1 or #2 to complete.

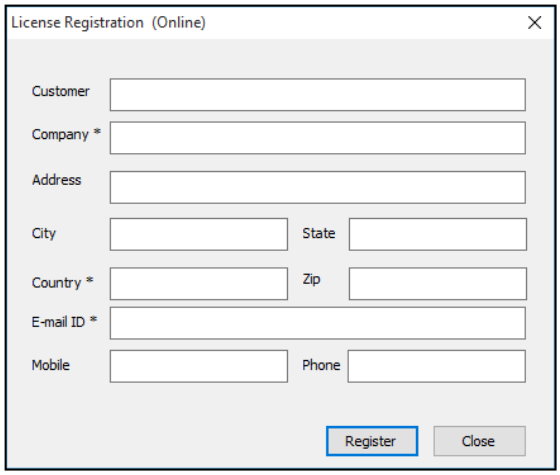


Figure 6. Request 30-day Trial

Add the Sensor

1. Upon initial startup, the following message will be displayed: '***Sensor not yet installed***. ***Please install a sensor to take measurements***'. This message will remain until you proceed to the Install/ Configure command in the Sensor menu and install a new sensor.

2. The Sensor Manager appears first:

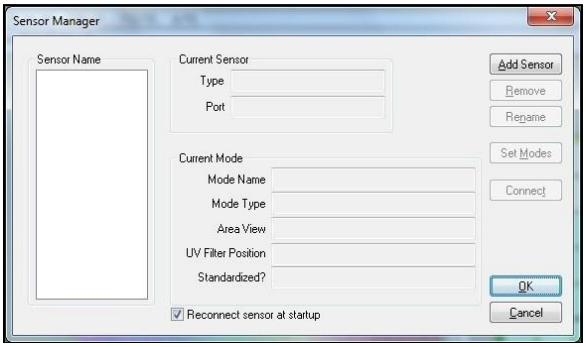


Figure 7. Sensor Manager

3. Select ***Add Sensor*** to install a new sensor. The Setup Sensor screen allows selection of the instrument model and the communications port. Select ***Next*** when ready.

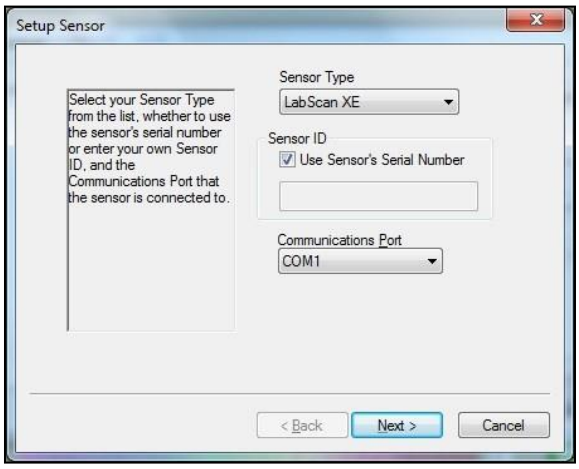


Figure 8. Setup Sensor

Note: *If using a typical 9-pin serial cable for communications between the sensor and PC, select COM1. If using USB-to-serial adapter, then select the highest number COM Port No. offered. If using USB communications, the COM port will automatically be selected.*

Standardization Setup

1. Next, configure a Standardization Mode for the sensor. Select the type of mode, a Name for The Mode, the Area of View and the UV Filter Position.

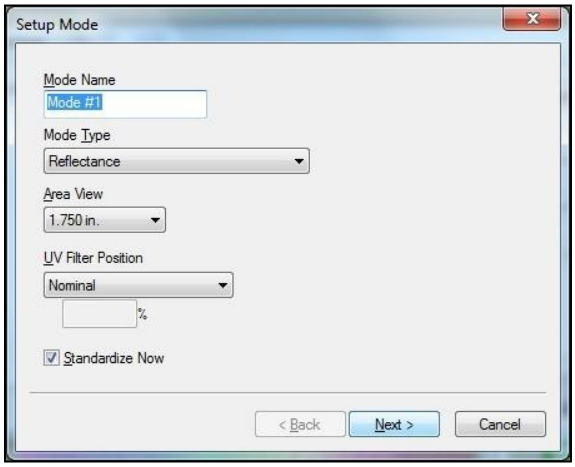


Figure 9. Setup Mode

2. Select the option next to ***Standardize Now*** to proceed immediately to standardization upon completion of sensor configuration. Select ***Next*** to complete the installation.

Standardization

General

Standardization sets the top and bottom of the photometric scale. During standardization, the bottom of the scale is set first. For this, you simulate the case where all the light is absorbed by the sample. Tools used to set the bottom of scale include a black glass, light trap or black card.

The top of the scale is then set by measuring the light which is reflected from or transmitted through a calibrated standard. This is done using a calibrated white tile for reflectance measurements and air or a solvent-filled cell for transmittance measurements.

Standardization can be done through EasyMatch QC (by selecting ***Sensor > Standardize*** or by clicking the ***Standardize*** button on the default toolbar). Re-standardization is recommended per the interval in Table 2. An overview of HunterLab instruments and their standardization modes are shown below in Table 2.

Table 2. HunterLab Instrument Modes & Geometry

Instrument	Geometry: Diffuse			Directional	Standardization Interval
	RSIN	RSEX	TTRAN/ RTRAN	Reflectance	
ColorFlex EZ				X	4 hours
ColorQuest XE	X	X	X		8 hours
ColorQuest XT			X		8 hours
LabScan XE				X	8 hours
MiniScan EZ 4000	X				4 hours
MiniScan EZ 4500				X	4 hours
UltraScan PRO	X	X	X		8 hours
UltraScan VIS	X	X	X		8 hours
Vista			X		8 hours

Instrument Geometry: As referenced in CIE Publication 15.2:2004, the geometry of an instrument defines the relative position of light source, sample plane and detector. There are two broad categories of instrument geometries - directional and diffuse.

Instrument Mode: For an instrument of a defined geometry, a mode is a configuration of the optical path of the sensor that defines all optical elements such as sample measurement position at the reflectance port in RSIN specular-included or RSEX specular-excluded, or at the TTRAN or RTRAN transmission ports.

Standardization of 45°/0° or 0°/45°

Standardization on an instrument with 45°/0° or 0°/45° geometry requires reading of the black glass and the calibrated white tile that are contained in the standards box.

Figure 10. LabScan Standardization

Standardization of d/8° sphere

To standardize for reflectance measurements and set the Bottom of Scale, place the light trap at the reflectance port.

Figure 11. Standardizing on the Light Trap to set Bottom of Scale

To standardize for Total Reflectance measurements and set the Bottom of Scale, place the light blocker card inside the transmittance chamber at the sphere side. This is shown in the next photo. The transmittance compartment door may be closed or left open.

Figure 12. Setting Bottom of Scale for TTRAN

To standardize for RTRAN measurements and set the Bottom of Scale, place the light blocker inside the transmittance chamber over the lens as shown in the figure below.

Figure 13. Setting Bottom of Scale for RTRAN Mode

To set the Top of Scale, measure the white tile at the reflectance port with the Transmittance Chamber closed.

Figure 14. Setting Top of Scale with the White Tile

When standardizing in transmittance modes you are prompted to place the white calibrated standard at the reflectance port. Alternatively, a plug of barium sulfate ($BaSO_4$) or magnesium oxide (MgO) may be used to more closely approximate the actual sphere wall reflectance. When taking transmittance measurements, the calibrated white tile or the plug used during standardization must be kept at the reflectance port. When the instrument is to be used for transmission measurements of liquids, a clear liquid (distilled water for water-based samples, toluene or benzene for resins, or mineral oil for oils) in a cell of the desired size should be used to set the top of the scale. Place the cell in the transmission compartment as close to the **sphere** as possible for measuring total transmittance. Place it as close to the **lens** as possible when measuring regular transmittance.

Note: Closing the transmission compartment door while making transmittance measurements is the best practice for this instrument. However, when measuring the transmittance of liquids that are volatile and/or toxic, it may be more important to measure the samples quickly than to eliminate ambient room light. To see if leaving the door open will adversely affect your color measurements, standardize the instrument in the desired transmittance mode with the transmission compartment door closed, then measure either air or a typical sample with the door open and then with the door closed. Compare the measurements. If the difference is acceptable under your measurement method, you may measure your samples with the door open. This test should be repeated if the instrument is moved to a new location.

Care of Instrument Standards

It is important that the standards be treated with extreme care. When a standard is used, center it carefully at the measurement port. Never use a calibrated standard to back samples being measured. The sample clamp or a white uncalibrated tile should be used as a backing.

When not using the standards, keep them in the standards case. Inspect the standards for dust and fingerprints before standardizing your instrument. If using a white tile and black glass for standardization, inspect these tiles for dust and fingerprints. Do the same for the diagnostic green tile prior to running the green tile test. If a tile is lost or damaged, contact HunterLab concerning replacement. *Note: significant scratches may cause standardization to be in error.*

Standard White Tiles and Black Glass

Clean the tiles and black glass using a soft nylon bristle brush, a solution of warm water, and a laboratory grade detergent such as SPARKLEEN. Rinse the tiles in a stream of warm tap water. Blot the tiles dry using a clean, non-optically brightened, lint-free paper towel such as Kim Wipes. Fingerprints may be removed with isopropyl alcohol.

Note: SPARKLEEN is manufactured by Fisher Scientific Co., Pittsburgh, PA 15219 and may be ordered from them using catalog number 04-320-4. One tablespoon of SPARKLEEN should be added to every gallon of water.

Light Trap

If using a light trap, please keep it in the standards case when not in use to prevent it from becoming scratched or collecting dust. Before standardizing, check the light trap for scratches and dust.

Fluorescent Standards

The fluorescent standard used with the UV control option must be cleaned as well. This Spectralon standard may be air brushed with a jet of clean, dry air or nitrogen, NOT FREON. If air brushing is insufficient, sand the standard under running water with 220-240 grit waterproof emery cloth until water immediately beads and runs off the surface. Then blow the standard dry with clean air or nitrogen.

Cleaning the Lens Surface and Didymium Filter

The lens and filter may be cleaned using photographic-quality lens solution and lens paper. Put a few drops of solution on the lens paper and gently wipe the lens or filter in a circular motion for a few seconds. Then wipe the lens or filter with a dry lens paper to remove streaks and any hazy film.

Haze Standard Care

To maintain the surface properties, it is important that the surfaces of this standard are not damaged during normal usage. If the surface is contaminated, a cotton cloth moistened with isopropyl alcohol,

or a laboratory glass cleaner such as Sparkleen can be used to gently wipe the surface. After wiping allow to dry for a minimum of 60 minutes.

Software Features

The sections below examine some of the most important concepts and features related to operation of EasyMatch QC.

Jobs

A job is a collection of all the data views (displays) and measurements (standards and samples) that you use for a task, product, or customer. Jobs are the 'documents' of EasyMatch QC, analogous to word processing documents containing text and its formatting or spreadsheet documents containing fields of data and formulas. If you wanted to transfer a job to another computer or another user who also has EasyMatch QC, the job file (with a .JSD file extension) would contain all the information needed to examine and/or reproduce your results.

You can create new jobs for many reasons, such as to hold data for a certain customer or a specific product line. Each operator may maintain his own job with his own preferences, or you can create separate jobs for different operations, such as measuring plastic pellets before extrusion and then the final extruded product. You can be creative in maintaining and organizing your job files.

You may have multiple jobs open and in use at the same time; each job will be shown as a separate tab on your screen. You can switch easily between jobs by clicking the tab of the job you wish to see.

To set up a job, you will need to complete the following tasks:

1. Open the new job.
2. Save the job under the desired name. (Long file names and spaces are acceptable.)
3. Configure the desired data views (see the 'Data Views' section), including setting the location, size, shape, and properties of each view on the screen.
4. Read or recall the desired standard and samples into the job and view the results. The number of standards and samples that can be housed in a single job is virtually unlimited—restricted only by the amount of memory available on the computer.

It is difficult to 'picture' a job file, but a screen capture of a job is provided below as an illustration.

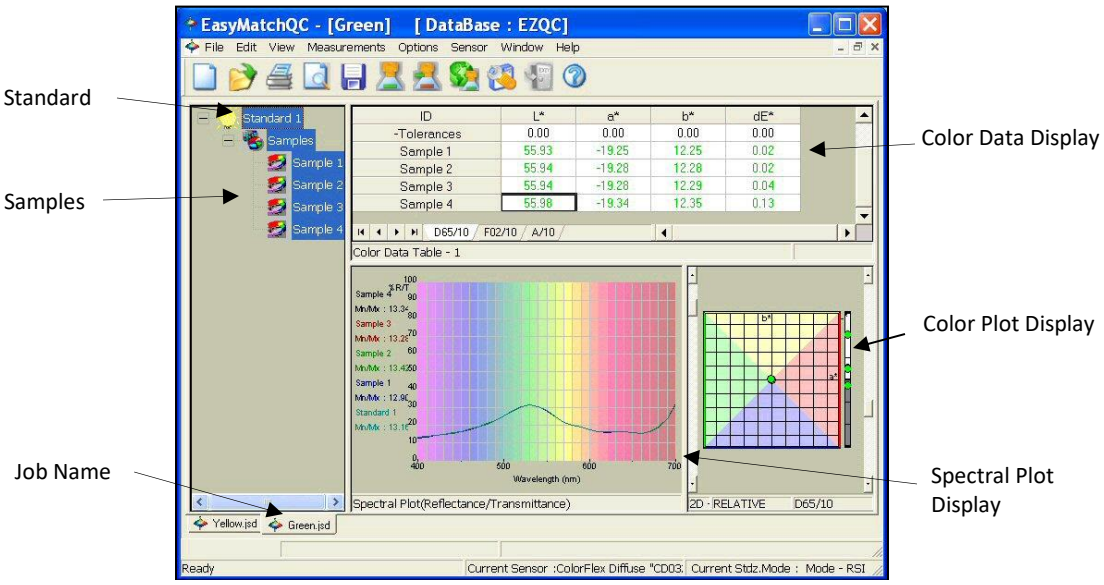


Figure 15. Parts of a Job

As you can see on the tab, this job is called 'Green.' You can see that the job contains a standard called 'Standard 1' and four numbered samples. A 2D Color Plot has been configured to display the CIELAB color scale for D65/10° with a colored background. The Color Data Table display is displaying L*, a*, b*, and dE* for the samples related to the standard. The Spectral Plot is displaying spectral reflectance at 10 nm increments with the colored background. The location, size, and shape of each view are also saved as part of the job, along with the measurements and the properties of each view.

A second job, called 'Yellow' is contained on the tab behind this one and you can switch to it simply by clicking the tab at the bottom of the screen.

Job Conventions

Although great flexibility has been incorporated into the concept of a job, there are some attributes that all jobs will share.

- Each individual job may contain all the information necessary to complete that job if the operator has included that data. All information recalled from the database or read in through the instrument for use in that job will be saved with that job.
- When you open a job, it will reappear looking the same as when it was last closed.

Note: It is recommended that you back up your database, job, and template files periodically, particularly prior to upgrading or making other major changes to your system computer.

Templates

Job templates can be thought of as subsets of jobs. They contain some of the pieces of information contained in jobs, but not all of them. Templates are analogous to 'style lists' or 'style sheets' that are available in some word processing and desktop publishing programs because they can be used to control the cosmetic appearance of a job. A template houses configuration information for the data views and screen, such as locations, sizes, shapes, and properties, but does not contain any measurements. A template is saved whenever a job is saved.

A template is meant to be used as a starting point in creating a new job when the same views are used for many jobs. You can then 'fill' the template with measurements and configuration settings. Several application-specific templates are installed with EasyMatch QC. These templates provide a starting point for new jobs.

To set up a template, you will need to complete the following tasks:

1. Open a new job.
2. Configure the desired data views. This includes setting the location, size, shape, and properties of each view on the screen.
3. Configure the desired options you wish to use for this template using the ***Options*** menu.
4. Save the job as a template using the ***Save Job Template As*** command in the ***File*** menu. The extension for a template is .JTP.

Whenever you want to use a template to create a new job, simply choose the ***File > Open Job Template*** command, choose the desired template from the list of available templates, fill the template with your measurements, and save it as a job.

To apply a template to an existing job, choose the ***File > Apply Template to Job*** and the configuration of the job screen will adjust to match the template while retaining the measurements.

The types of information a template may house are illustrated in the picture below.

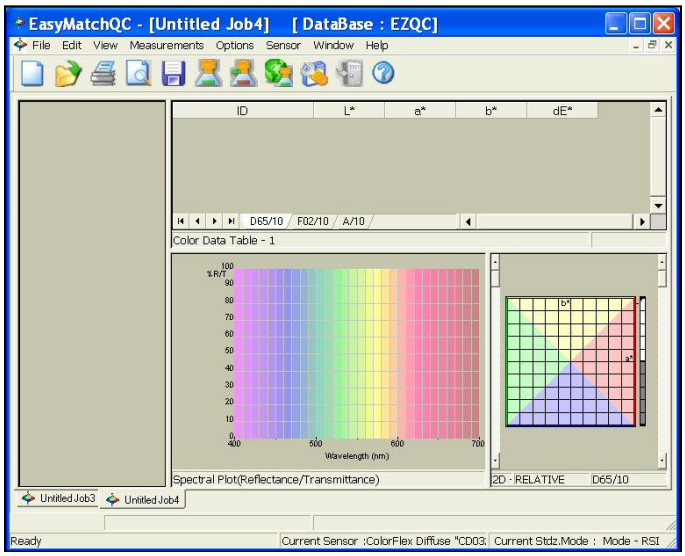


Figure 16. Example of a Template

Templates contain no standards or samples. The measurements would be added to the job as they are made. The screen configuration and options for each data view comprise the template and will be part of any job created using the template.

There are four menu options allowing you to utilize templates: **Open Job Template**, **Save Job Template**, **Save Job Template As**, and **Apply Template to Job**.

Note: It is recommended that you back up your database, job, and template files periodically, particularly prior to upgrading or other major changes to your system computer.

Data Views

Each of the smaller panes shown on a job tab is a data view. Each data view displays unique information about the standard and/or samples. You may resize any data view to fill as much or as little of the screen as you like. The types of data views that are available are:

- Job Tree
- Color Data Table
- 2D Color Plot
- 3D Color Plot
- Color Render
- EZ View
- Memo View
- Spectral Data Table
- Spectral Plot
- Trend Plot

These views are described in the subsections below.

Job Tree

The information displayed in the Job Tree view includes the name of each standard and each sample contained in the job. Samples affiliated with a standard will be shown as branches under the standard.

*Note: The Job Tree is only visible when **Job Tree** is checked in the **View** menu.*

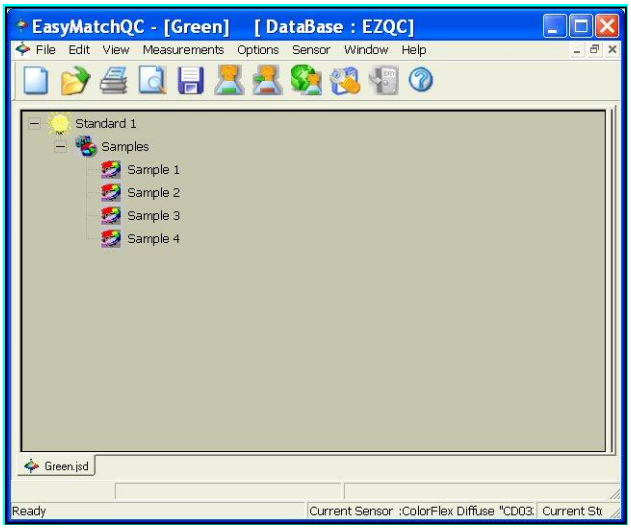


Figure 17. Job Tree

Single or multiple items may be highlighted in this view. Click the '**+**' next to an item to open the branches below it or the '**-**' sign to close the branches. Click the left mouse button on any item to highlight it. To highlight multiple items, hold the ***Ctrl*** key while clicking on each desired item or hold the ***Shift*** key and click on the first and last items desired to highlight all items in between. Then click the right mouse button for various options concerning the highlighted

items. These options are described below. In addition, the items that are highlighted in the Job Tree are those displayed in the other views in the job.

Note: To keep data views clean and not cluttered, and for speed of measurements, it is recommended that you limit the number of items highlighted in the Job Tree at any one time to 500 or less.

- ***Cut*:** This command removes the highlighted items from the Job Tree and from the job and places them on the Windows clipboard. If desired, the cut items may then be pasted into another job using the ***Paste*** command.
- ***Copy*:** This command copies the highlighted items from the Job Tree to the Windows clipboard. If desired, the copied items may then be pasted into another job using the ***Paste*** command. Items may also be dragged and dropped from one job to another to copy and then paste them.
- ***Paste*:** This command allows you to place items previously cut or copied to the Windows clipboard onto the Job Tree and into this job. Items may also be dragged and dropped from one job to another to copy and then paste them.
- ***Delete*:** This command allows you to **permanently** delete the currently highlighted items from the Job Tree and from the job. **No copies of the items are kept on the Windows clipboard.**
- ***Properties*:** This command allows you to view the measurement properties of the currently highlighted item. If the standard or sample is the result of averaging several readings, the standard deviation and range of those readings are included. For standards, you may also set tolerances for as many scales, indices, and differences in as many illuminant/observer combinations as you wish and/or indicate hitch factors to apply to the standard and its samples.

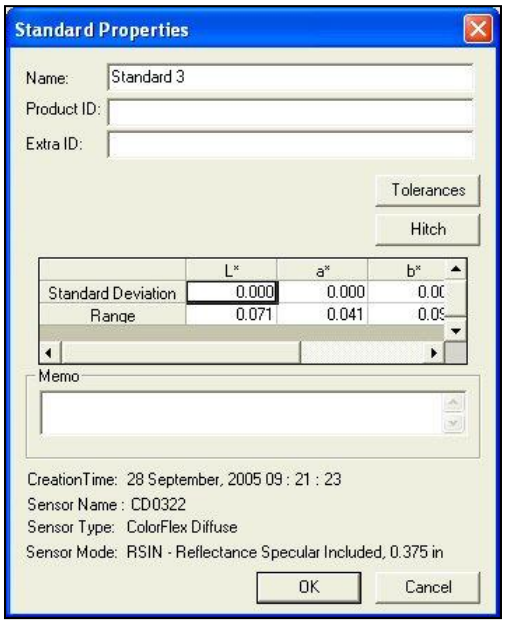


Figure 18. Properties of a Standard

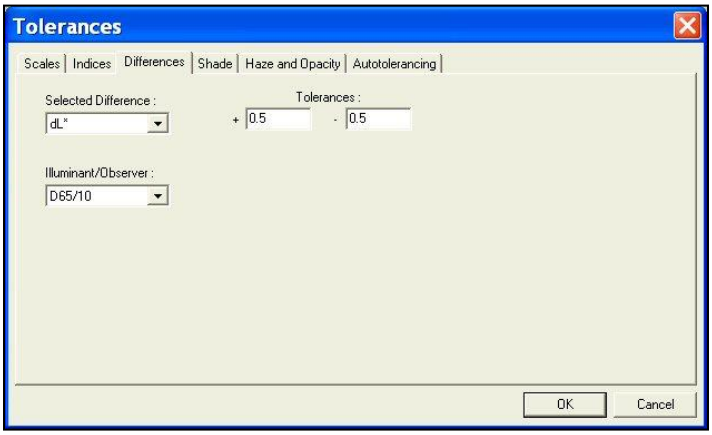


Figure 19. Tolerances

See the 'Default Tolerances' section in the Options Menu chapter for instructions on setting tolerances.

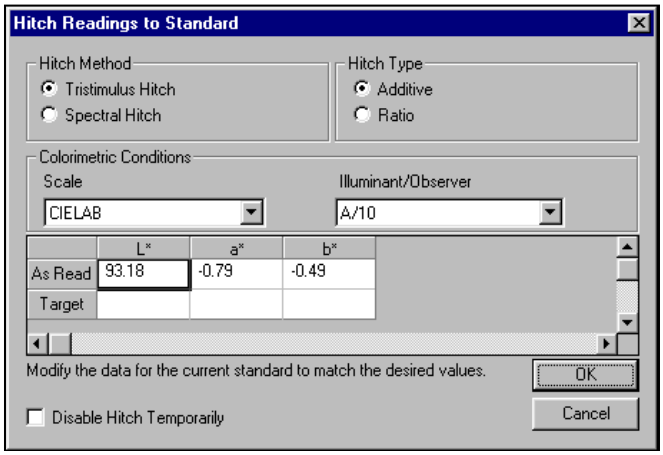


Figure 20. Hitch Standardization

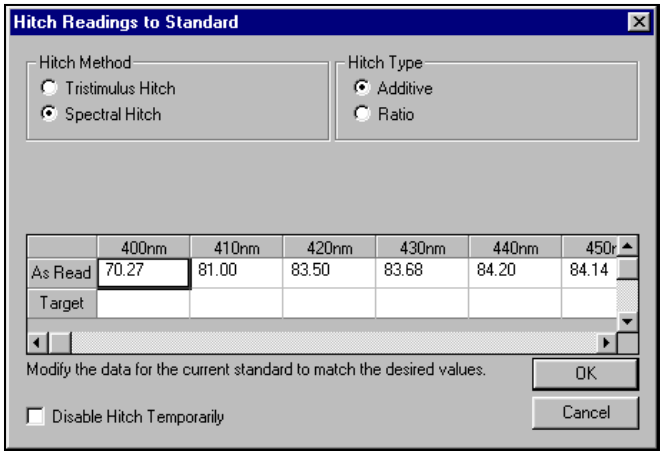


Figure 21. Setting Up a Hitch Standard

- ***Show This Item Only*:** This command appears for standards only and causes the chosen standard and its associated samples alone to be displayed in the Job Tree. All other standards and samples are removed from the Job Tree display.
- ***Copy Sample to Standard*:** This command appears for samples only and causes the highlighted sample measurement to replace the current standard measurement in the Job Tree, while retaining the sample's ID.
- ***Copy Sample to New Standard*:** This command appears for samples only and causes the highlighted sample measurement to be added to the job as a standard as well, while retaining the sample's ID.
- ***Copy Standard to Sample*:** This command appears for standards only and causes the highlighted standard measurement to be placed in the Job Tree as a sample on that standard's branch. You are given the opportunity to name the new sample.
- ***Copy Standard to New Standard*:** This command appears for standards only and causes the highlighted standard measurement to be added to the job as a second instance of the standard, while retaining the original standard's ID.

When the right mouse button is clicked on an open area of the Job Tree view (an area other than a sample or standard), further commands are available, as follows:

- ***Print Preview*:** This command shows on-screen what the Job Tree will look like when printed.

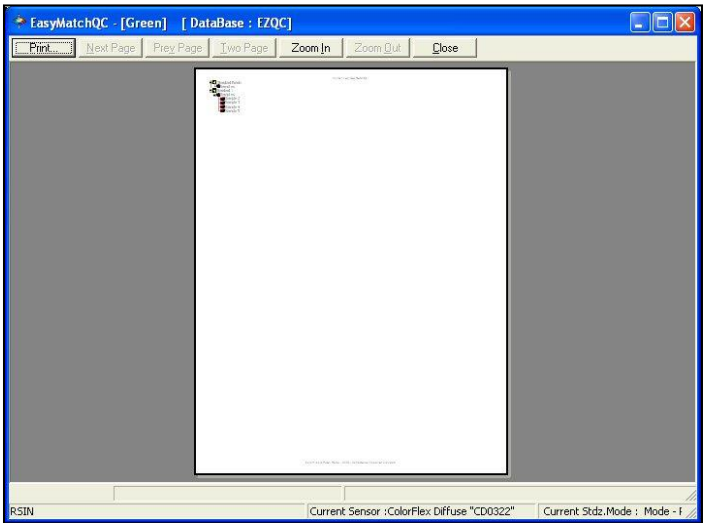


Figure 22. Print Preview

- ***Print this View*:** This command prints the Job Tree view in a fashion similar to that shown below.

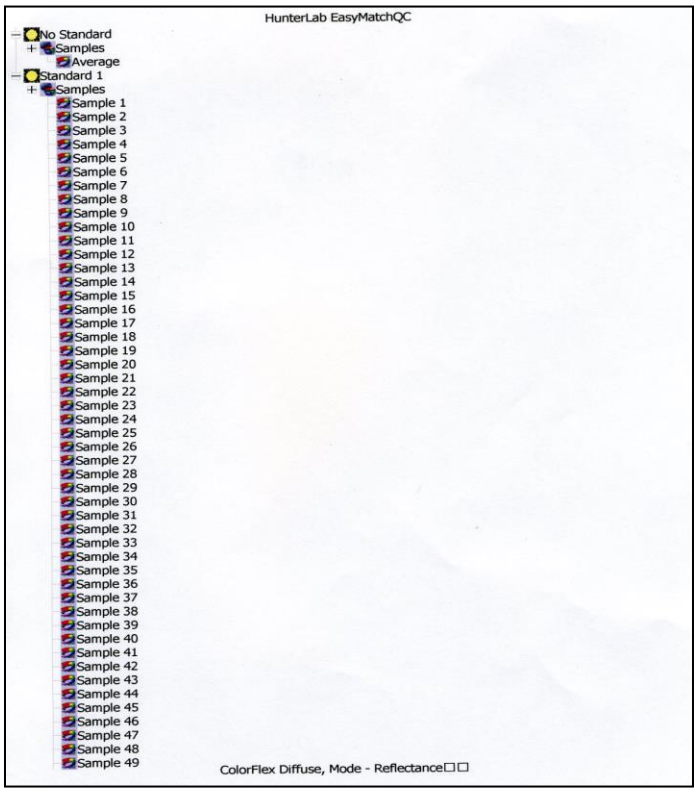


Figure 23. Printing the Job Tree

- ***Icon Sizes*:** Choosing this command allows you to choose to display small icons, large icons, or no icons to represent each standard and sample in the Job Tree.
- ***Show All Items*:** This command opens all the branches of the Job Tree so that every standard and sample is visible.
- ***Enter Standard Data***: This command allows you to hand enter colorimetric or spectral data to create a new standard.

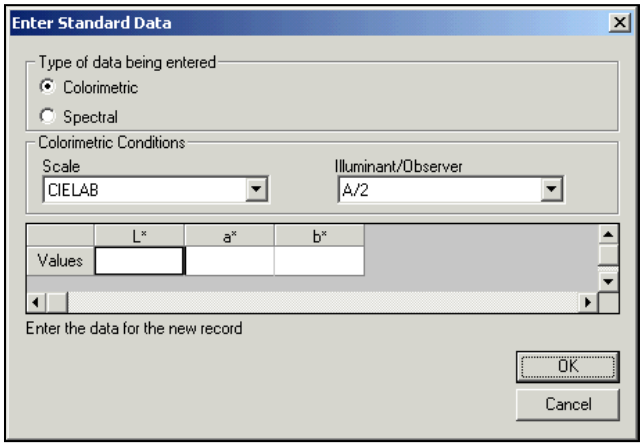


Figure 24. Enter Colorimetric Data for a Standard

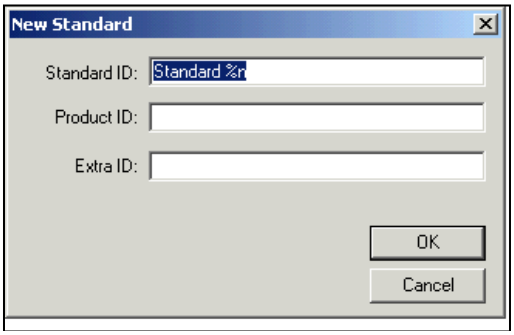


Figure 25. Entering Standard ID

- ***Enter Sample Data*:** This command allows you to hand enter colorimetric or spectral data to create a new sample.

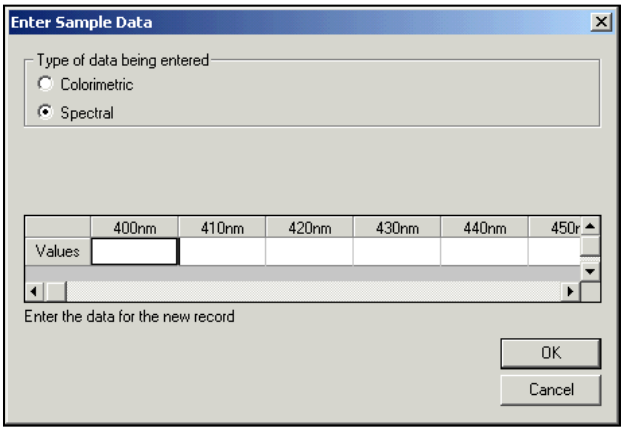


Figure 26. Entering Spectral Data for a Standard

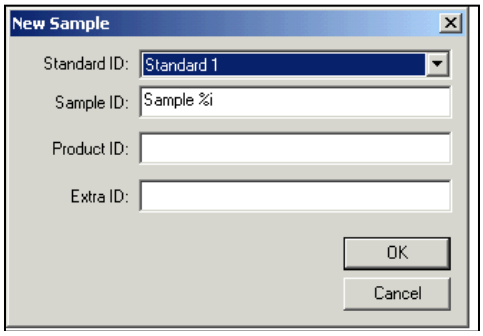


Figure 27. Entering Sample ID

- ***Collapse the tree*:** This command closes all the branches of the Job Tree so that only the standards are visible.
- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.
- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

Color Data Table

The Color Data Table view shows color scale, color difference, and index data for the standards and samples in the job. The items in the Color Data Table may be sorted by clicking the column header (for row major) or row header (for column major) of interest.

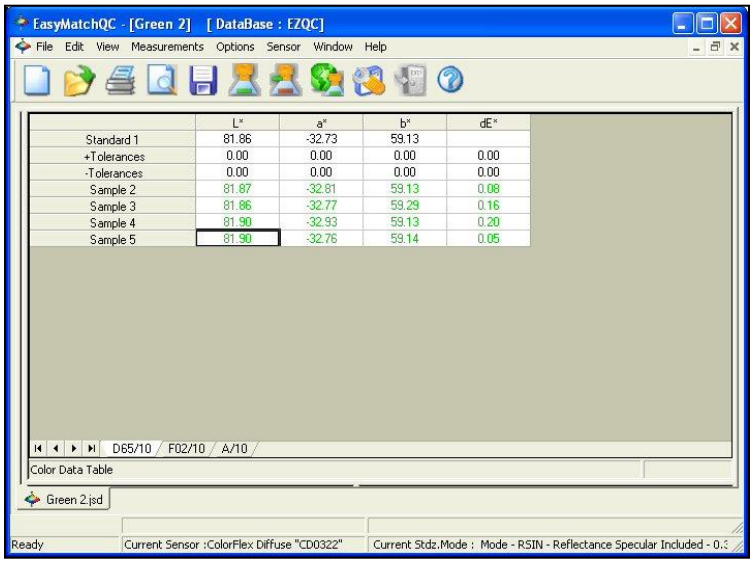


Figure 28. Color Data Table

Click on this view to make it active. While this view is active, the following options are available by clicking the right mouse button:

- ***Copy to Clipboard*:** Before you initiate this command, you must highlight one or more of the samples and standards shown in the spreadsheet. When ***Copy to Clipboard*** is then selected, the highlighted data is then copied to the Windows

Clipboard. If desired, the copied data may then be pasted into another application (such as Microsoft Excel) using its ***Paste*** command.

- **Configure:** This command allows you to set various preferences pertaining to the Color Data Table view.

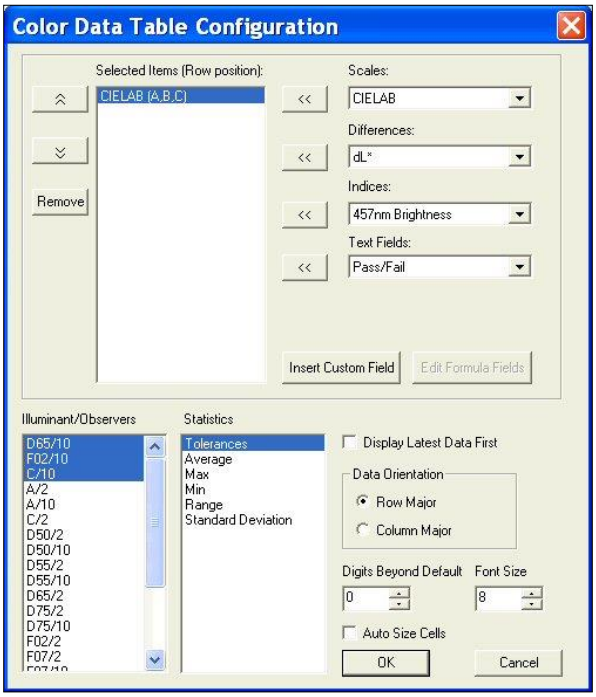


Figure 29. Configure the Color Data Table

Select each scale, difference, index, and text field parameter you would like to display from the drop-down boxes and click the left arrow (**<<**) button after each selection to move it to the Selected Items box. Once all desired items are shown in the Selected Items box, you may move them up and down in the display order using the up and down arrows. Items may also be removed from the Selected Items box using the ***Remove*** button.

Highlight (select) each illuminant/observer combination you wish to display. Choose your statistics the same way. You may indicate the order in which you would like the illuminant/observer tabs and statistical parameters displayed by deselecting all items that have already been chosen and then selecting the items for display in the order desired.

Configure other settings at the bottom right of the screen. When Display Latest Data First is checked, the most recent reading is shown at the top of the display rather than the bottom. When Auto Size Cells is checked, the spreadsheet cells will be automatically sized based on the data contained in them.

You may also insert custom fields into the Color Data Table using *the* ***Insert Custom Field*** button. These fields may consist of data obtained from outside EasyMatch QC or calculated formulas. Follow the instructions below to insert a custom field.

- **Custom Data Field**

1. Click ***Insert Custom Field***. The Configure Custom Field box appears.

Figure 30. Configure Custom Field

2. Click the radio button next to Data Field and then the radio button next to New. Type a label for the data field into the Label box. In this example, 'Oven Temperature' was used.

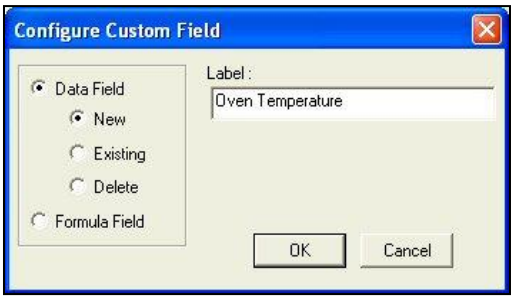
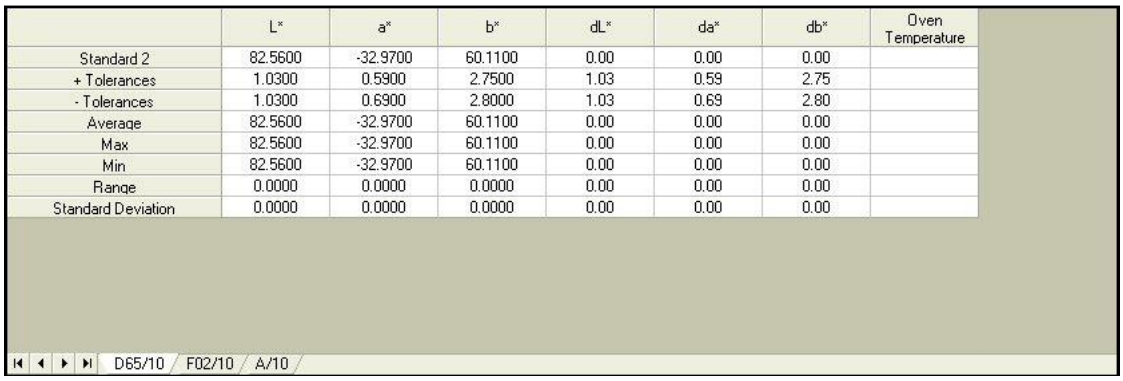


Figure 31. Select a Custom Label

3. Click ***OK***. Add 'Data Fields' to your display as a text field, then click ***OK*** from the Color Data Table Configuration screen. The Oven Temperature field is added to the Color Data Table.



	L*	a*	b*	dL*	da*	db*	Oven Temperature
Standard 2	82.5600	-32.9700	60.1100	0.00	0.00	0.00	
+ Tolerances	1.0300	0.5900	2.7500	1.03	0.59	2.75	
- Tolerances	1.0300	0.6900	2.8000	1.03	0.69	2.80	
Average	82.5600	-32.9700	60.1100	0.00	0.00	0.00	
Max	82.5600	-32.9700	60.1100	0.00	0.00	0.00	
Min	82.5600	-32.9700	60.1100	0.00	0.00	0.00	
Range	0.0000	0.0000	0.0000	0.00	0.00	0.00	
Standard Deviation	0.0000	0.0000	0.0000	0.00	0.00	0.00	

Figure 32. Custom Field Added to Color Data Table

4. Enter the oven temperature for each item desired by right-clicking on the item in the ***Job Tree*** > ***Enter Oven Temperature Data*** from the menu that appears. ('Oven Temperature' will be replaced by whatever label was entered on the Configure Custom Data screen.) Once you click ***OK***, the entered data will be displayed.

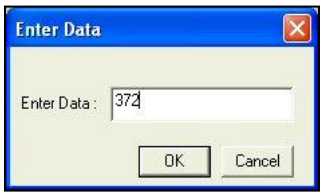


Figure 33. Inserting Data for Custom Field

	L*	a*	b*	dL*	da*	db*	Oven Temperature
Standard 2	82.5600	-32.9700	60.1100	0.00	0.00	0.00	372
+ Tolerances	1.0300	0.5900	2.7500	1.03	0.59	2.75	
- Tolerances	1.0300	0.6900	2.8000	1.03	0.69	2.80	
Average	82.5600	-32.9700	60.1100	0.00	0.00	0.00	
Max	82.5600	-32.9700	60.1100	0.00	0.00	0.00	
Min	82.5600	-32.9700	60.1100	0.00	0.00	0.00	
Range	0.0000	0.0000	0.0000	0.00	0.00	0.00	
Standard Deviation	0.0000	0.0000	0.0000	0.00	0.00	0.00	

D65/10 F02/10 A/10

Figure 34. Display of Data for Custom Field

- **Custom Formula Field**
  1. Click ***Insert Custom Field***. The Configure Custom Field box appears.

Figure 35. Custom Field Configuration

  2. Click the radio button next to Formula Field. Type a label for the formula field into the Label box. In this example, 'ABC Index' was used.

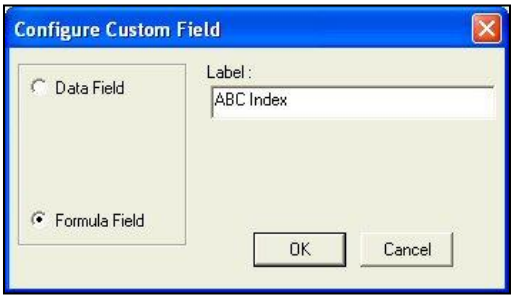


Figure 36. Label for Formula Field

  3. Click ***OK***. The Configure Formula Field box is shown.

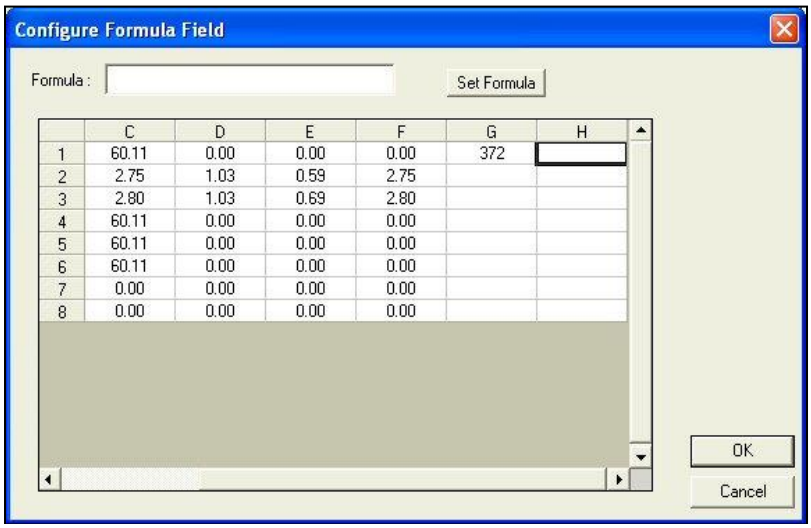


Figure 37. Enter Custom Formula

4. The outlined cell represents where your custom field will be inserted. Place your cursor in the Formula box at the top of the screen and type '**=**'(equals).

5. ***Type the formula***. Further information follows.
   A formula is a text string defining how the value of the cell is to be calculated. Only cells containing numeric data may be referenced in a formula. A cell is referenced in a formula by specifying the column letter and then the row number. The columns are counted as A to Z from left to right of the spreadsheet. The rows are numbered from 1 to n from the top of the spreadsheet down. For instance, the top left cell of the spreadsheet is 'A1.' You may use the pound sign (#) instead of a column letter or row number to indicate that you wish to use the same row or column as the cell containing the formula. For instance, in the example below, 'C#' indicates that the same formula will apply to each cell of the column in which the formula was entered, using the data from Column C's cell in the same row. It is useful to specify formulas in this manner if you want to assign formulas to entire rows or columns.

Note: The row or column letter or number for each parameter selected in the Color Data Configuration was shown after that parameter in the Selected Items box.

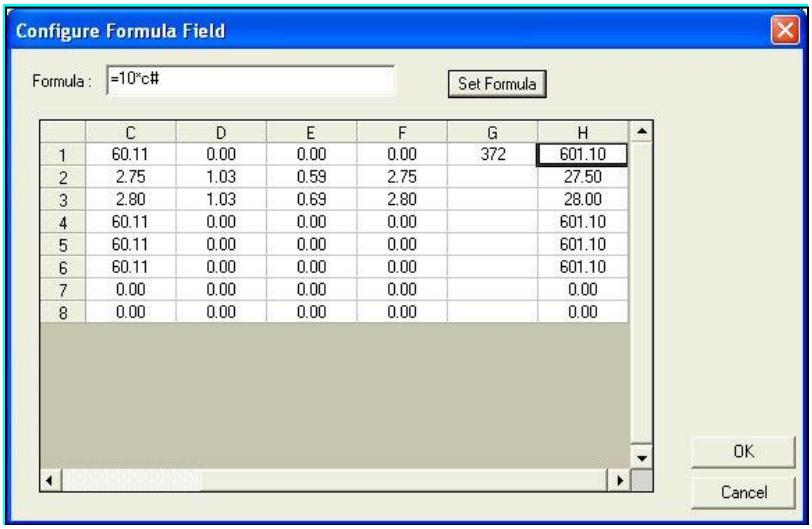


Figure 38. Display of Custom Formula in the Field

The operators you may use in your formulas are:

+	Addition
-	Subtraction
^	Power operator
*	Multiplication
/	Division
&	Logical And
|	Logical Or
!	Negation
>	Greater than
<	Less than
=	Equality
:	Sum a range of cells.

Use parentheses as necessary to indicate the desired order of operations. The functions you may use in your formulas include:

ABS(Coord)	Returns the absolute value of the cell.
ADD(a,b)	Adds the two elements.
ACOS(Coord)	Returns the arccosine of the value in the cell
ASIN(Coord)	Returns the arcsine of the value in the cell
ATAN(Coord)	Returns the arctangent of the value in the cell
AVERAGE(a:b)	Averages the range of cells
COS(Coord)	Returns the cosine of the value in the cell
EXP(X)	Returns raised to the power X
IF(a,b,c)	If a is true, cell is assigned b, else assigned c.
LOG10(Coord)	Returns the logarithm (base 10) of the value in the cell
LN(Coord)	Returns the natural logarithm of the value in the cell
MAX(a:b)	Returns the largest of the cell values
MEDIAN(a:b)	Returns the median of the cell values

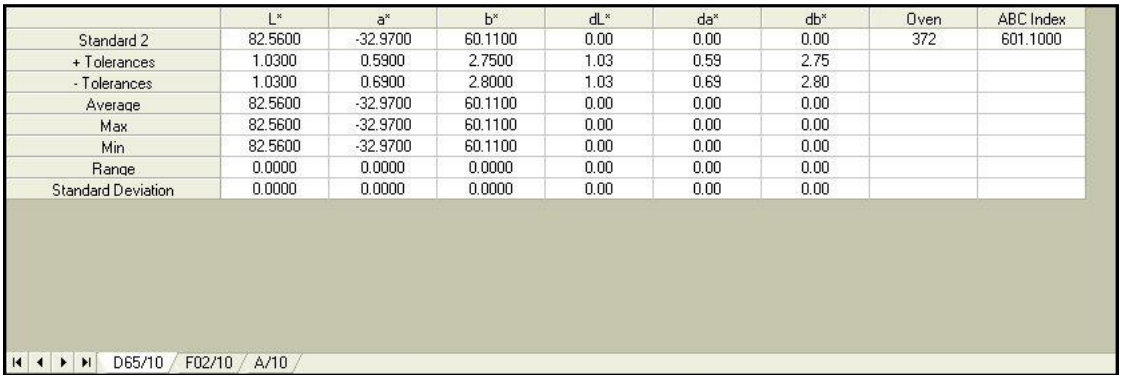
MIN(a:b)	Returns the smallest of the cell values
NEG(Coord)	Returns the negative of the value in the cell.
NOT(Coord)	Returns the logical NOT of the cell's value
PI	Pi (3.14159...)
POWER(B, P)	Returns base B raised to power P
RADIAN(Coord)	Converts the value in the cell from degrees to radians
SIN(Coord)	Returns the sine of the value in the cell
SQRT(Coord)	Returns the square root of the value in the cell
SQUARE(Coord)	Returns the square of the value in the cell
STDEV(a:b)	Returns the standard deviation of the range of cells
TAN(Coord)	Returns the tangent of the value in the cell.

Following are examples of valid formulas.

A1:A10	Sums the first column, rows 1 through 10.
3.1415*C6	Pi times the value in C6.
A#*G#	The cell in column A, this row, multiplied by the value of the cell at Column G, same row.
(A1+B1)*C1	Adds the first two cells and multiplies the result by the third.
IF(A1>5, A1*2, A1*3)	If the contents of A1 are greater than 5, then multiply A1 by 2, else multiply A1 by 3.

Remember that your formulas are based on cell location, NOT the value in the cell (i.e., your formula uses cell C1, regardless whether L, a, or b values are in it.) If you reconfigure your display, you may need to adjust your formula.

Click ***Set Formula***, then ***OK*****.** Add 'Formula Fields' to your display as a text field, then click ***OK*** from the Color Data Table Configuration screen. The formula will fill cells as indicated.



	L*	a*	b*	dL*	da*	db*	Oven	ABC Index
Standard 2	82.5600	-32.9700	60.1100	0.00	0.00	0.00	372	601.1000
+ Tolerances	1.0300	0.5900	2.7500	1.03	0.59	2.75		
- Tolerances	1.0300	0.6900	2.8000	1.03	0.69	2.80		
Average	82.5600	-32.9700	60.1100	0.00	0.00	0.00		
Max	82.5600	-32.9700	60.1100	0.00	0.00	0.00		
Min	82.5600	-32.9700	60.1100	0.00	0.00	0.00		
Range	0.0000	0.0000	0.0000	0.00	0.00	0.00		
Standard Deviation	0.0000	0.0000	0.0000	0.00	0.00	0.00		

Figure 39. Color Data Table with Custom Fields

- ***Print Preview*****:** This command shows on-screen what the Color Data Table will look like when printed.

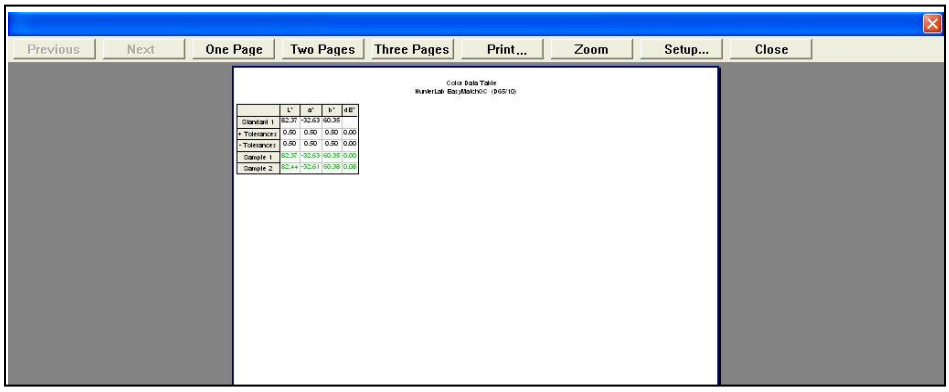
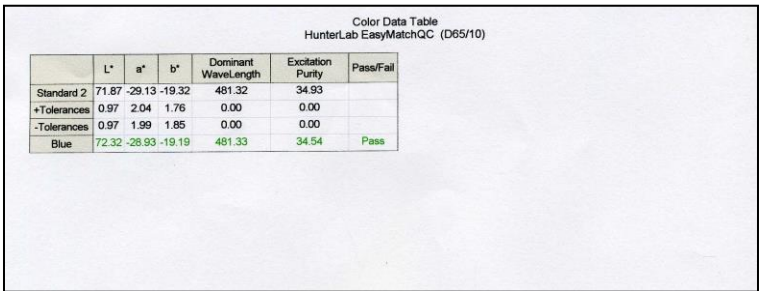


Figure 40. Print Preview of Color Data Table

- ***Print this View*:** This command prints the Color Data Table view in a fashion like that shown below.



Color Data Table
HunterLab EasyMatchQC (D65/10)

	L*	a*	b*	Dominant WaveLength	Excitation Purity	Pass/Fail
Standard 2	71.87	-29.13	-19.32	481.32	34.93	
+Tolerances	0.97	2.04	1.76	0.00	0.00	
-Tolerances	0.97	1.99	1.85	0.00	0.00	
Blue	72.32	-28.93	-19.19	481.33	34.54	Pass

Figure 41. Printed View of Color Data Table (Truncated page)

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 2D Color Plot with a Spectral Plot).
- ***Delete View*:** This command allows you to remove the current view from the job display.
- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.
- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.
- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.
- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

2D Color Plot

The 2D color plot displays a two-dimensional representation of color space with the standard as the center point of the plot and the samples plotted on the graph. In the example below, the 'a*' of the L*a*b* scale is plotted on the x axis and the 'b*' of L*a*b* is plotted on the y axis. Just to the right of this square portion of the plot is a 'thermometer' graph that plots L*. The samples in the job are shown on the plot relative to the standard and each other. If tolerances have been set, the tolerance limits will be shown as a red box (for rectangular tolerances), ellipse (for elliptical tolerances), or 'pie segment' (for polar tolerances) around the standard position. Placing the mouse over a point causes the sample ID, its pass or fail status, and its color values to be displayed.

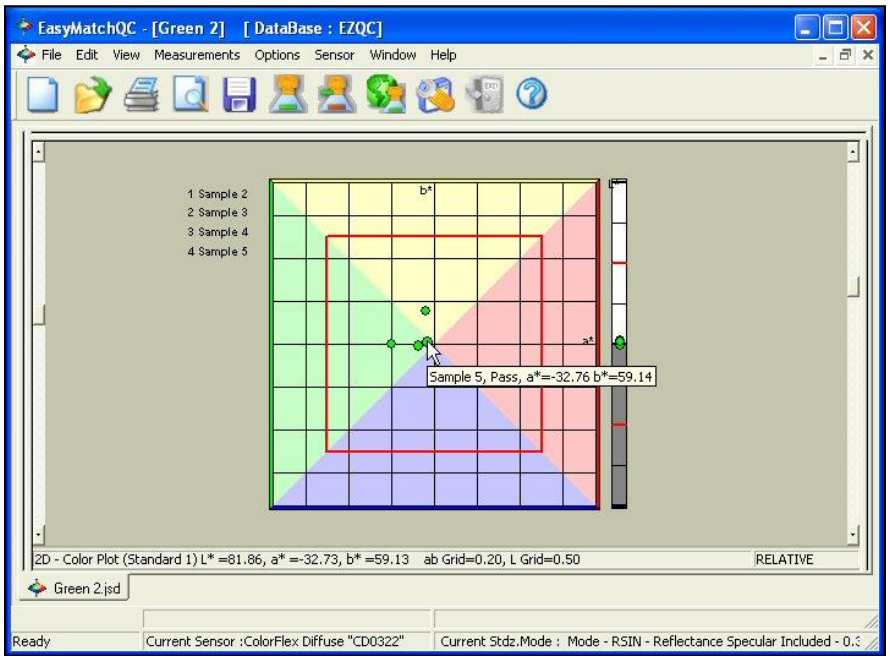


Figure 42. 2D Color Plot

Click on this view to make it active. While this view is active, the following options are available by clicking the right mouse button:

- ***Show Background*****:** This item, when checked, causes the colored background to be shown on the 2D Color Plot. When unchecked, the background is white.

- ***Show Legend*****:** This item, when checked, causes the legend (the list of which samples are currently displayed) to be shown to the left of the 2D Color Plot. When unchecked, the legend is not shown.

- ***Configure*****:** This command allows you to set various preferences pertaining to the 2D Color Plot view.

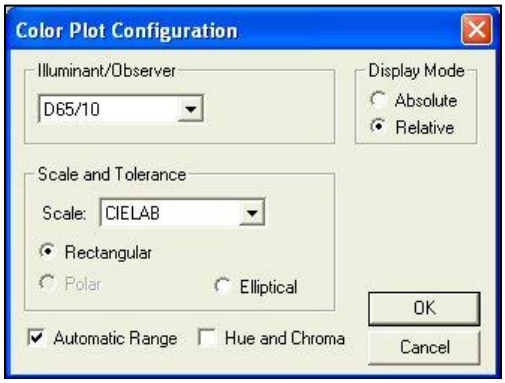


Figure 43. 2D Color Plot Configuration

Make your selections for each parameter, including the illuminant, observer, and color scale for display and the whether the hue circle and chroma line should be displayed.

- ***Print Preview*:** This command shows on-screen what the 2D Color Plot will look like when printed.

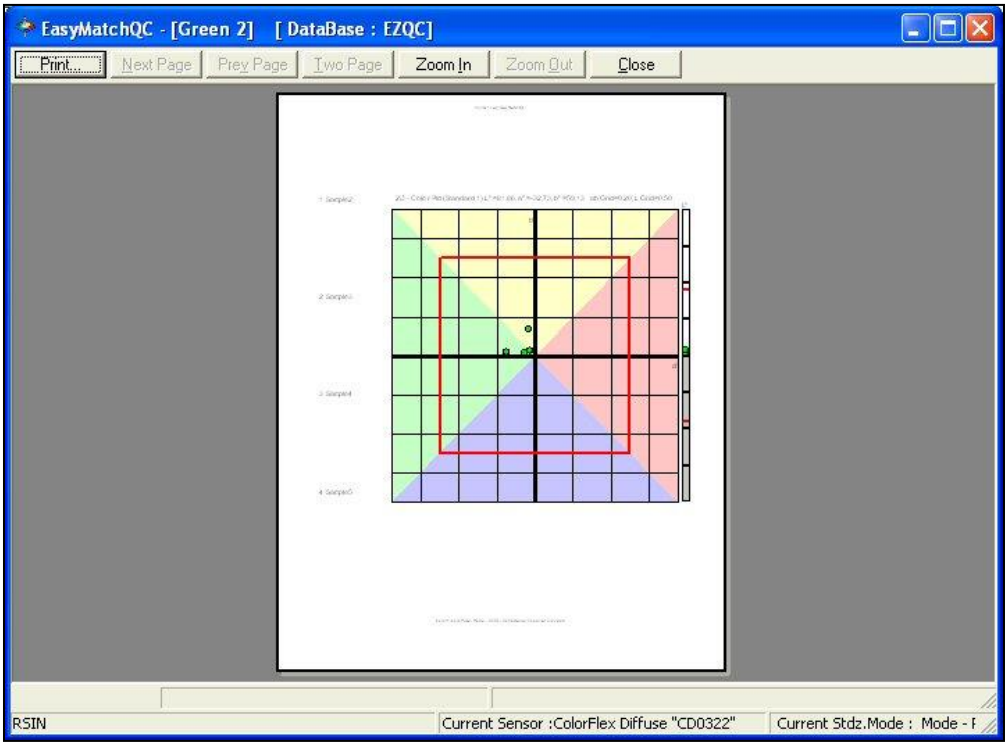


Figure 44. Print Preview of 2D Color Plot

- ***Print this View*:** This command prints the 2D Color Plot view in a fashion like that shown in the next figure.

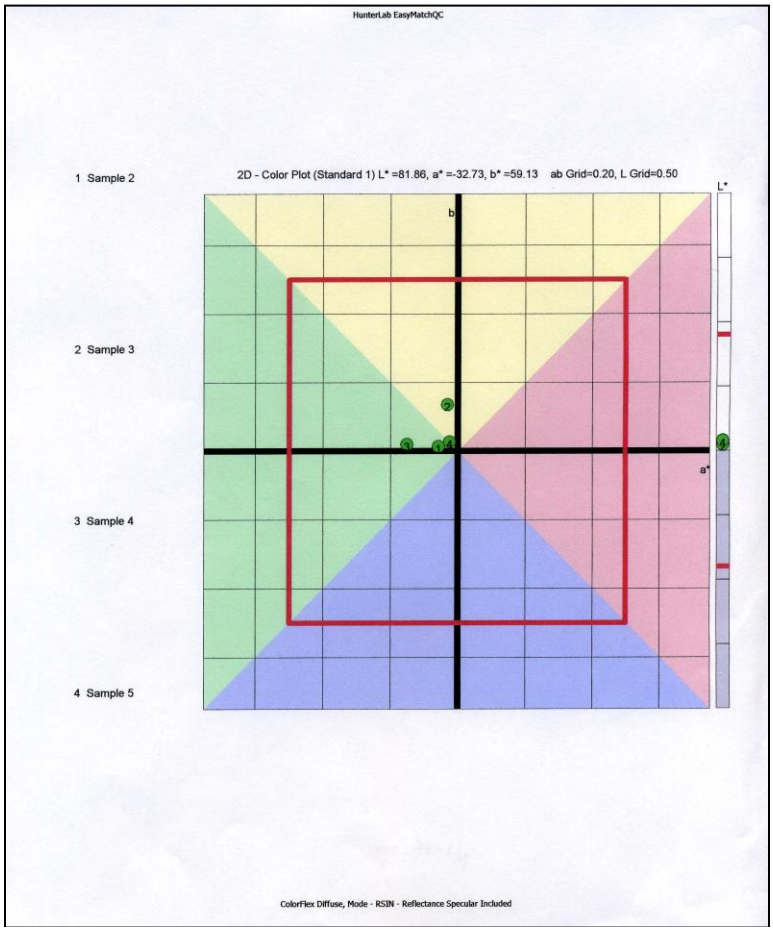


Figure 45. Printed Output of 2D Color Plot

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 2D Color Plot with a Spectral Plot).
- ***Delete View*:** This command allows you to remove the current view from the job display.
- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.
- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.
- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.
- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

3D Color Plot

The 3D color plot displays a three-dimensional representation of color space with the standard as the center point of the plot and the samples plotted on the graph. As shown in Figure 46, L*, a*, and b* are shown on the axes as labeled. The samples in the job are shown on the plot relative to the standard and each other. If tolerances have been set, the tolerance limits will be shown as a magenta box (for rectangular tolerances), ellipsoid (for elliptical tolerances), or 'pie segment' (for polar tolerances) around the standard position.

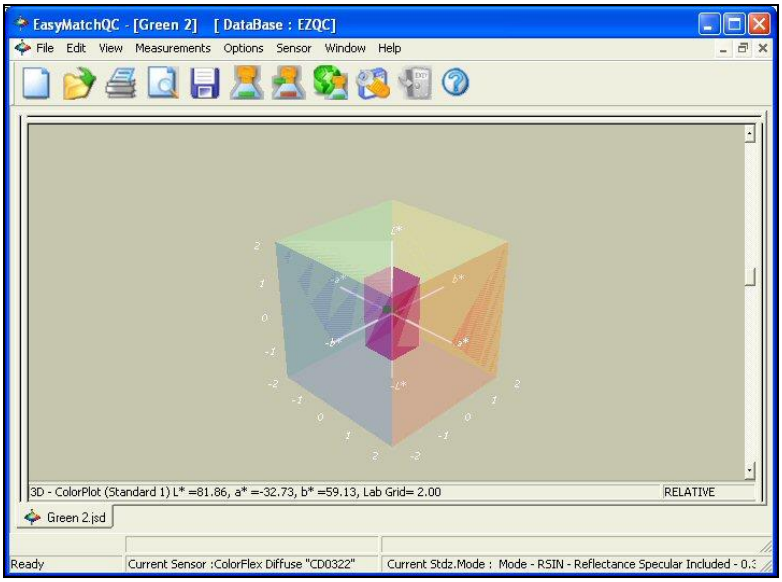


Figure 46. 3D Color Plot

Click on this view to make it active. While this view is active, the following options are available by clicking the right mouse button:

- ***Configure*****:** This command allows you to set various preferences pertaining to the 3D Color Plot view.

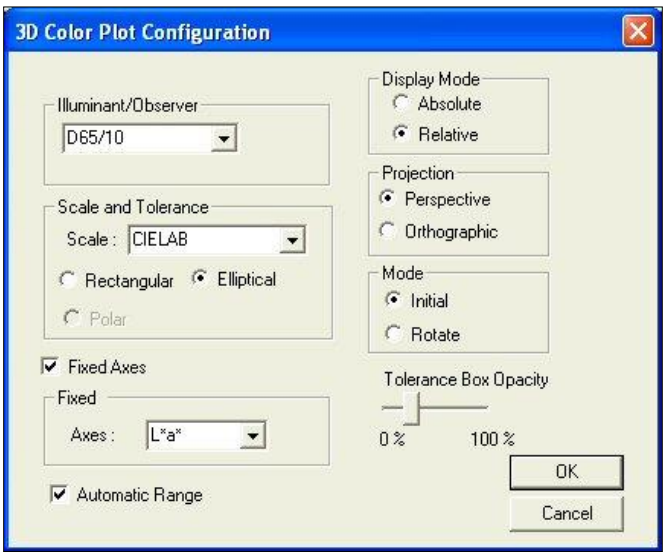


Figure 47. 3D Color Plot Configuration

Make your selections for each parameter, including the illuminant, observer, and color scale for display and whether you wish to display a flat representation of two fixed axes. You may also choose whether you wish to view a perspective projection (where data points that are further away from you are smaller than those that are closer) or an orthographic one (where all data points appear at the same scale), opt to turn on rotate mode, in which you may click on the plot and drag it to rotate it, and increase or decrease the opacity of the tolerance indicator.

- **Print Preview:** This command shows on-screen what the 3D Color Plot will look like when printed as shown in the next figure.

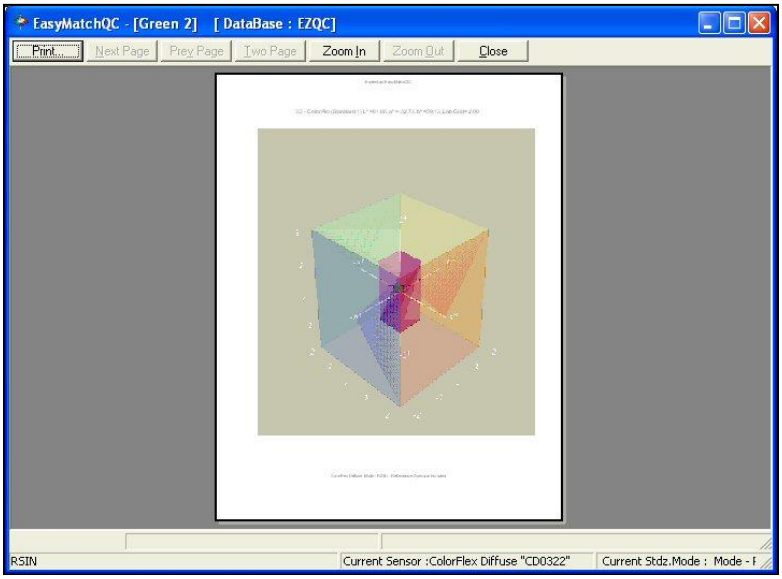


Figure 48. Print Preview of 3D Color Plot

- ***Print this View*:** This command prints the 3D Color Plot view in a fashion like that shown in the next figure.

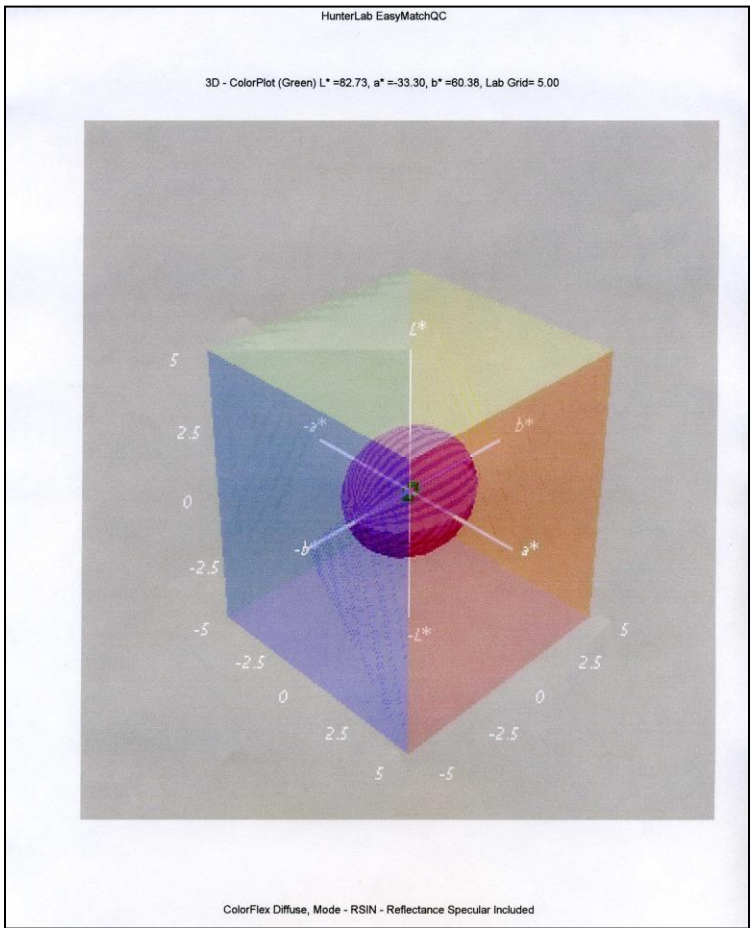


Figure 49. Printer Output of 3D Color Plot

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 3D Color Plot with a Spectral Plot).
- ***Delete View*:** This command allows you to remove the current view from the job display.
- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.
- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.
- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.
- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

Color Render

The Color Render view shows an accurate color rendering of items highlighted in the Job Tree view. This makes it easy to visually compare standards and samples even when the physical standards and samples are no longer available. By placing the mouse cursor over an area of the Color Render view, you may display a flag indicating the name of the item displayed and the illuminant/observer combination shown.

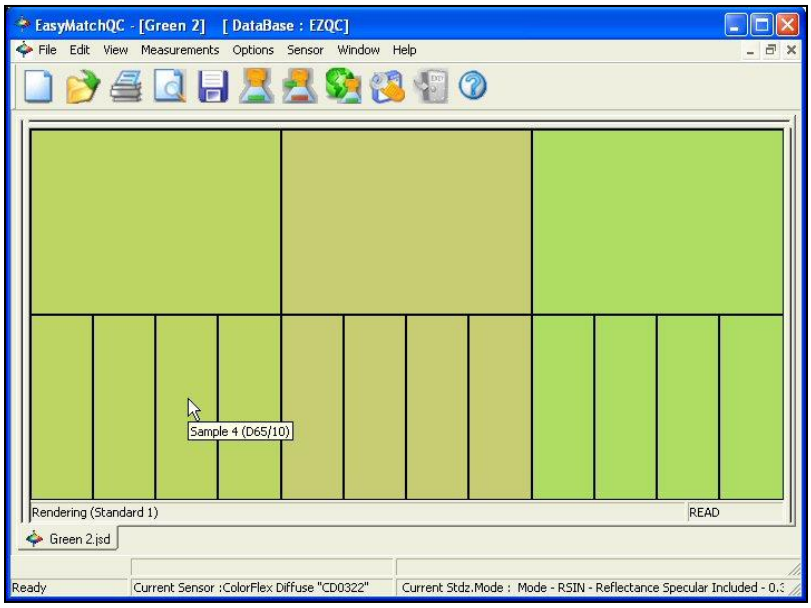


Figure 50. Color Rendering Plot

The following options are available by clicking the right mouse button within the boundaries of the view:

- ***Configure*:** Selection of ***Configure*** brings up the following dialog box, which allows you to set various preferences pertaining to the Color Render view:

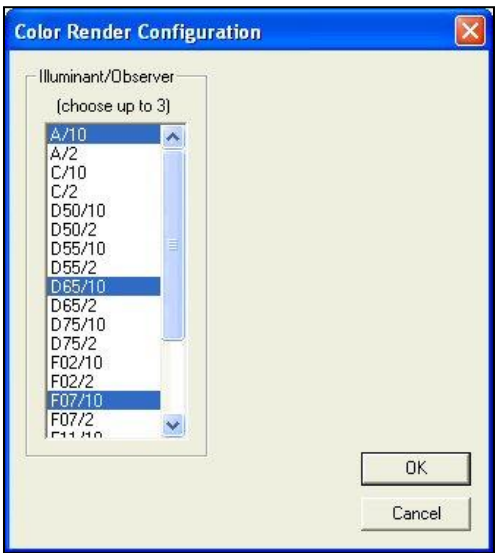


Figure 51. Color Rendering Configuration

Choose one, two, or three illuminant/observer combinations to render. If more than one combination is chosen, they are displayed side by side on the rendering display.

- ***Print Preview*:** This command shows you on-screen what the view will look like when printed as shown in the next figure.

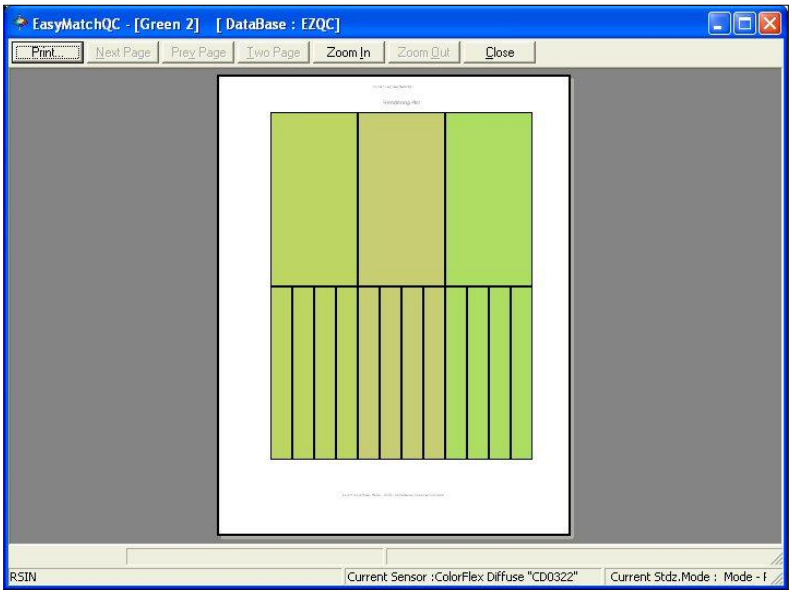


Figure 52. Color Rendering Print Preview

- **Print this View:** This command prints the Color Render view in a fashion like that shown in the next figure.

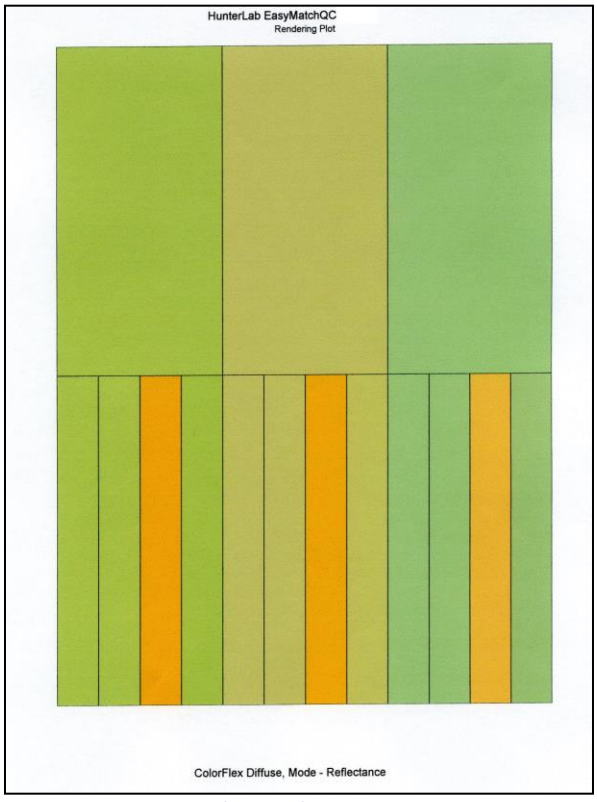


Figure 53. Color Rendering Printer Output

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 2D Color Plot with a Spectral Plot).

- ***Delete View*:** This command allows you to remove the current view from the job display.

- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.

- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.

- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.

- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

EZ View

The EZ View is a simple, eye-catching display of a limited amount of color data: up to four fields of color scale, difference, and/or index data, as well as pass/fail status if tolerances have been defined for the standard.

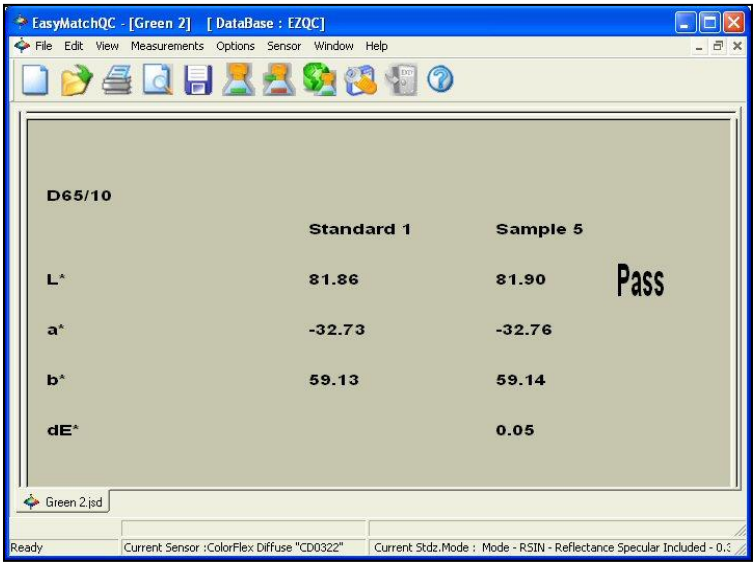


Figure 54. Easy View Screen

Click on this view to make it active. While this view is active, the following options are available by clicking the right mouse button:

- ***Configure*:** This command allows you to set various preferences pertaining to the EZ View.

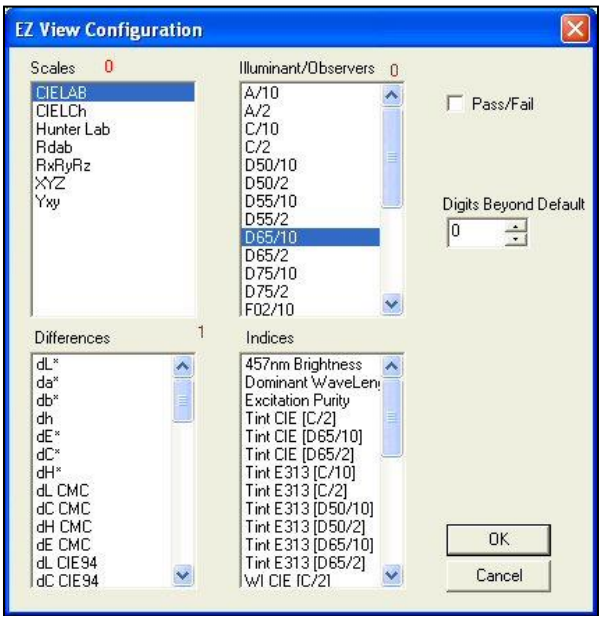


Figure 55. EZ View Configuration

Make one selection in the Illuminant/Observers box and then select either one color scale and one difference or index or a total of four differences and indices. The red number next to each parameter indicates how many more selections you have available.

- ***Print Preview*:** This command shows you on-screen what the view will look like when printed. The preview is shown in the next figure.

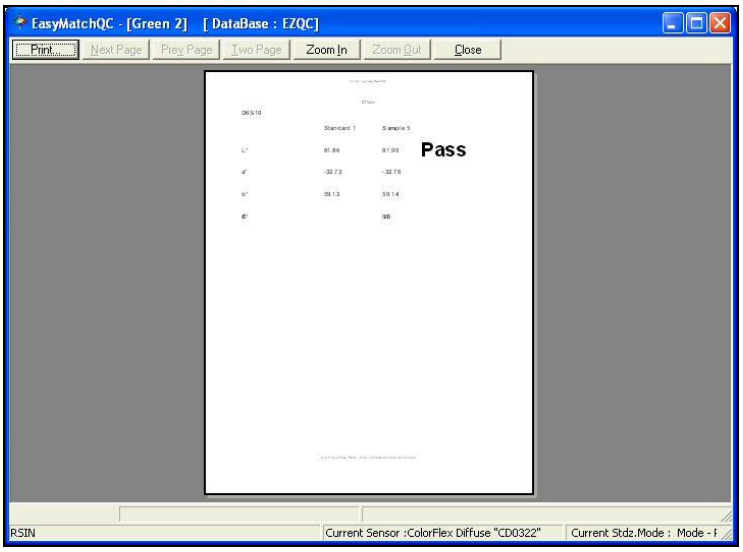
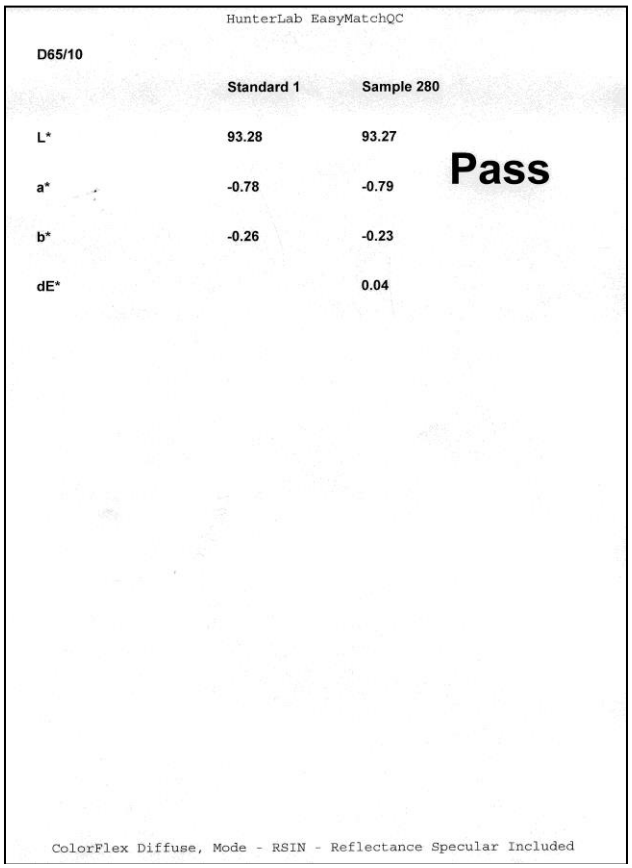


Figure 56. EZ View Print Preview

- ***Print this View*:** This command prints the EZ View in a fashion like that shown in the next figure.


HunterLab EasyMatchQC

D65/10

	Standard 1	Sample 280
L*	93.28	93.27
a*	-0.78	-0.79
b*	-0.26	-0.23
dE*		0.04

Pass

ColorFlex Diffuse, Mode - RSIN - Reflectance Specular Included

Figure 57. EZ View Printer Output

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 2D Color Plot with a Spectral Plot).
- ***Delete View*:** This command allows you to remove the current view from the job display.
- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.
- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.
- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.
- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

Memo View

The Memo View is a blank view in which text, such as comments on the measurement method, may be entered using the keyboard and then stored in the job. An example of this view is shown below (Figure 58).

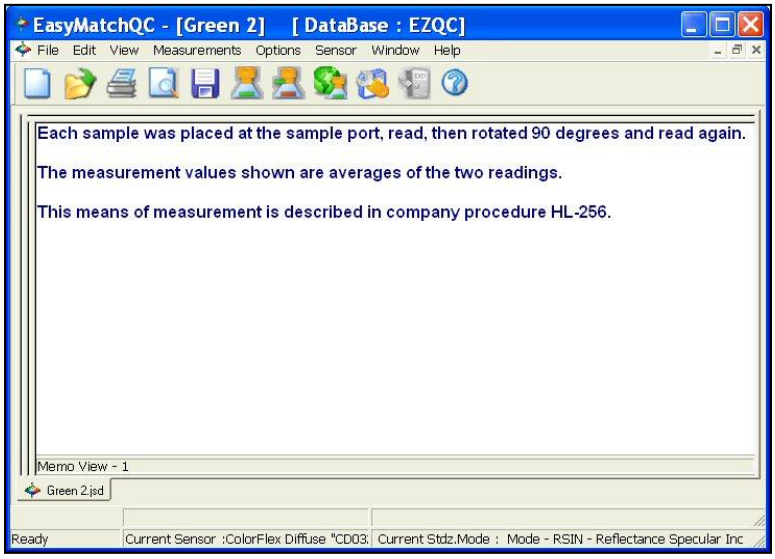


Figure 58. Memo View

Click anywhere in the white portion of the view and begin typing to enter your memo. Text does not wrap, so you will want to use the ***Enter*** key at the end of each line to proceed to the next line. While this view is active, the following options are available by clicking the right mouse button:

- ***Cut*****:** Before using the ***Cut*** command, use the mouse to highlight the text you wish to remove from the Memo View. Then select ***Cut*** to permanently remove it from the view. If you wish, you may paste the text elsewhere, such as in a word processing program.

- ***Copy*****:** Before using the ***Copy*** command, use the mouse to highlight the text you wish to copy to the Windows clipboard. Then select ***Copy*** to copy it. If you wish, you may paste the text elsewhere, such as in a word processing program.

- ***Paste*****:** Before you may use the ***Paste*** command, you must have copied text to the Windows clipboard from another job or another program. Then, select ***Paste*** to paste it into the Memo View.

- ***Select All*****:** This command allows you to highlight (select) all the text currently in the Memo View, such as selecting a font or copying.

- ***Delete*****:** Before using the ***Delete*** command, use the mouse to highlight the text you wish to remove from the Memo View. Then select ***Delete*** to permanently remove it from the view.

- ***Font*:** Before using the ***Font*** command, use the mouse to highlight the text for which you wish to modify the font. Then select ***Font*** to obtain the following screen on which you may select the text font, size, and color for the highlighted text.

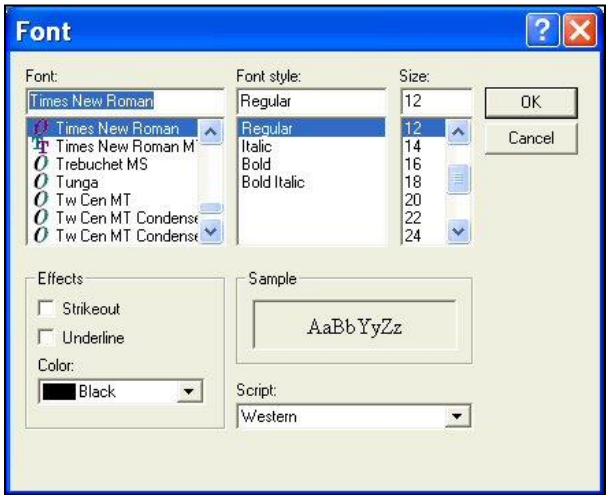


Figure 59. Memo View Configuration

- ***Print Preview*:** This command shows you on-screen what the view will look like when printed.

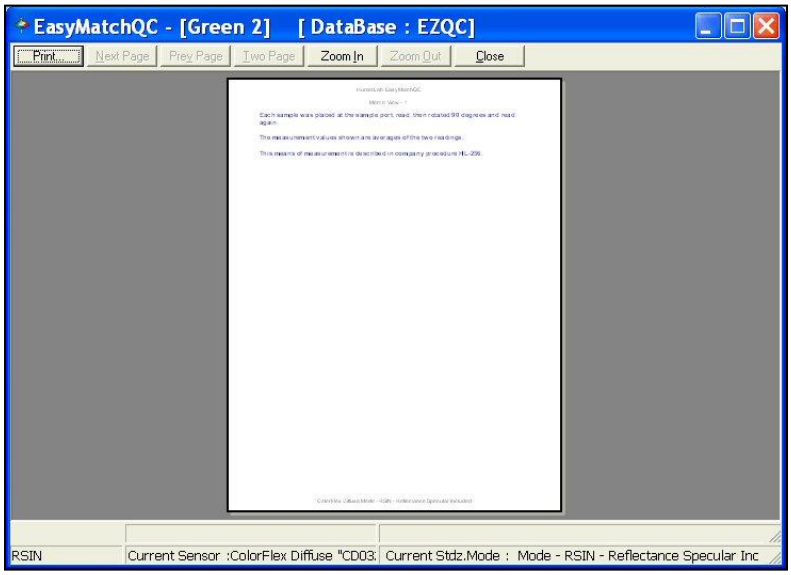


Figure 60. Memo View Print Preview

- ***Print this View*:** This command prints the Memo View in a similar fashion to that shown in the next figure.

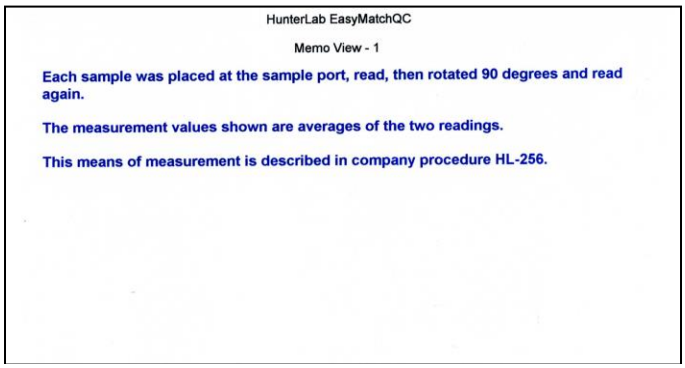


Figure 61. Memo View Printer Output

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 2D Color Plot with a Spectral Plot).

- ***Delete View*:** This command allows you to remove the current view from the job display.

- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.

- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.

- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.

- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

Spectral Data Table

The Spectral Data Table displays percent reflectance, percent transmittance, K/S, or absorbance values for each selected measurement at the wavelengths being measured. When reflectance, transmittance, or absorbance is being displayed, the cell representing the wavelength of minimum reflectance or transmittance (maximum absorbance) for each measurement is shaded pink. An example of this view is shown in the next figure.

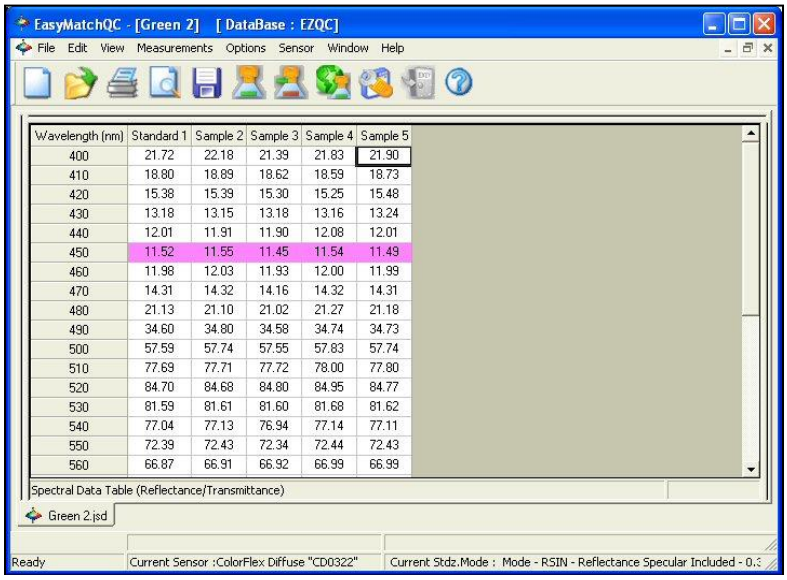


Figure 62. Spectral Data View

Click on this view to make it active. While this view is active, the following options are available by clicking the right mouse button:

- ***Copy to Clipboard*****:** Before you initiate this command, you must highlight one or more of the samples and standards shown in the spreadsheet. When ***Copy to Clipboard*** is then selected, the highlighted data is then copied to the Windows Clipboard. If desired, the copied data may then be pasted into another application (such as Microsoft Excel) using its Paste command.
- ***Configure*****:** This command allows you to set various preferences pertaining to the Spectral Data Table view.

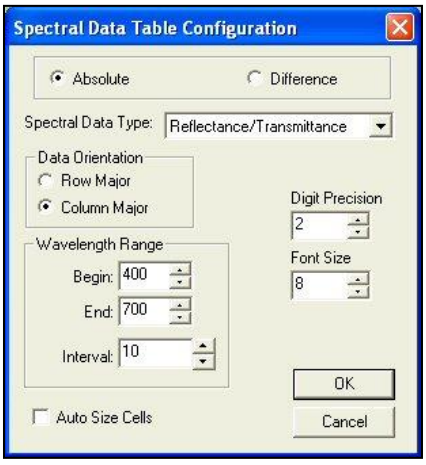


Figure 63. Spectral Data Configuration

Make your selections for each parameter, including the wavelength range and precision and whether you wish to view absolute or difference spectral data. (Difference is available only when the Spectral Data Type is Reflectance/Transmittance.) When Auto Size Cells is checked, the spreadsheet cells will be automatically sized based on the data contained in them.

- ***Print Preview*:** This command shows you on-screen what the view will look like when printed.

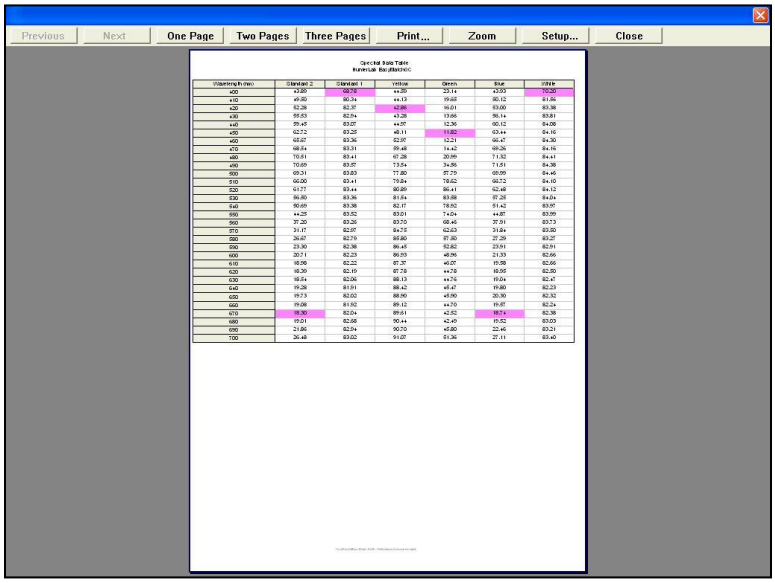


Figure 64. Spectral Data Print Preview

- ***Print this View*:** This command prints the Spectral Data Table in a similar fashion to that shown below.

Spectral Data Table
HunterLab EasyMatchQC

Wavelength (nm)	Standard 2	Standard 1	Yellow	Green	Blue	White
400	43.89	68.78	44.59	23.14	43.93	70.20
410	49.50	80.34	44.13	19.65	50.12	81.56
420	52.28	82.37	42.86	16.01	53.00	83.38
430	55.53	82.94	43.28	13.66	56.14	83.81
440	59.45	83.07	44.97	12.36	60.12	84.08
450	62.72	83.25	48.11	11.82	63.44	84.16
460	65.67	83.36	52.97	12.21	66.47	84.30
470	68.54	83.31	59.48	14.42	69.26	84.16
480	70.51	83.41	67.28	20.99	71.32	84.41
490	70.69	83.57	73.54	34.56	71.51	84.38
500	69.31	83.83	77.80	57.79	69.99	84.46
510	66.00	83.41	79.84	78.62	66.72	84.10
520	61.77	83.44	80.89	86.41	62.48	84.12
530	56.50	83.36	81.54	83.58	57.25	84.04
540	50.69	83.38	82.17	78.92	51.42	83.97
550	44.25	83.52	83.01	74.04	44.87	83.99
560	37.20	83.26	83.70	68.46	37.91	83.73
570	31.17	82.97	84.75	62.63	31.84	83.50
580	26.67	82.79	85.80	57.50	27.29	83.27
590	23.30	82.38	86.45	52.82	23.91	82.91
600	20.71	82.23	86.93	48.96	21.33	82.66
610	18.98	82.22	87.37	46.07	19.58	82.66
620	18.39	82.19	87.78	44.78	18.95	82.50
630	18.54	82.06	88.13	44.76	19.04	82.47
640	19.28	81.91	88.42	45.47	19.80	82.23
650	19.73	82.02	88.90	45.90	20.30	82.32
660	19.08	81.92	89.12	44.70	19.57	82.24
670	18.30	82.04	89.61	42.52	18.74	82.38
680	19.01	82.68	90.44	42.49	19.52	83.03
690	21.86	82.94	90.70	45.80	22.46	83.21
700	26.48	83.02	91.07	51.36	27.11	83.40

Figure 65. Spectral Data Printer Output

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 2D Color Plot with a Spectral Plot).

- ***Delete View*:** This command allows you to remove the current view from the job display.

- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.

- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.

- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.

- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

Spectral Plot

The Spectral Plot shows a plot of wavelength versus reflectance, transmittance, K/S, or absorbance for the entire scanning range of the spectrophotometer. The minimum and maximum values and their corresponding wavelengths are shown to the left of the plot.

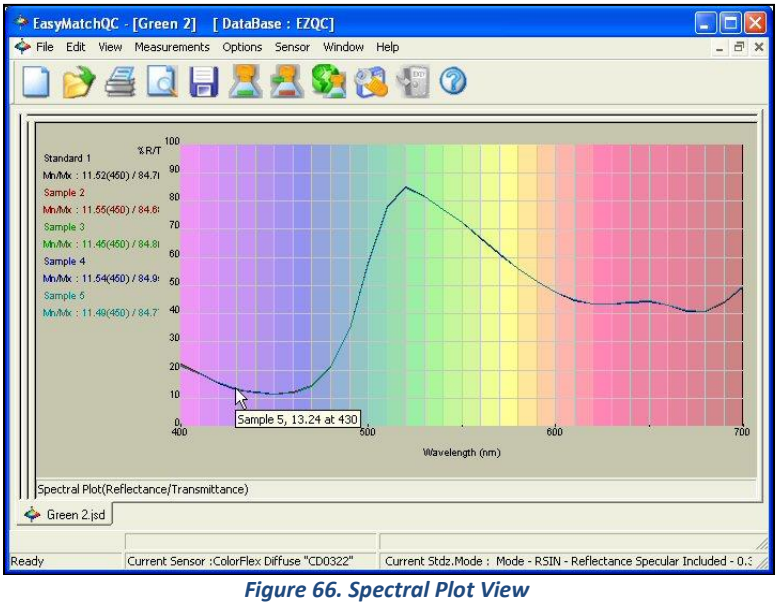


Figure 66. Spectral Plot View

Click on this view to make it active. While this view is active, the following options are available by clicking the right mouse button:

- ***Show Background*:** This item, when checked, causes the colored background to be shown on the Spectral Plot. When unchecked, the background is white.

- ***Show Legend*:** This item, when checked, causes the legend (the list of which samples are currently displayed) to be shown to the left of the Spectral Plot. When unchecked, the legend is not shown.

- ***Configure*:** This command allows you to set various preferences pertaining to the Spectral Plot view. Make your selections for each parameter, including the wavelength and percent ranges

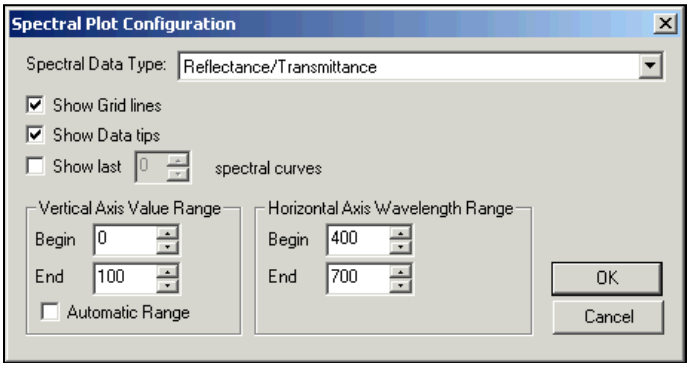


Figure 67. Spectral Plot Configuration

- ***Print Preview*:** This command shows you on-screen what the view will look like printed.

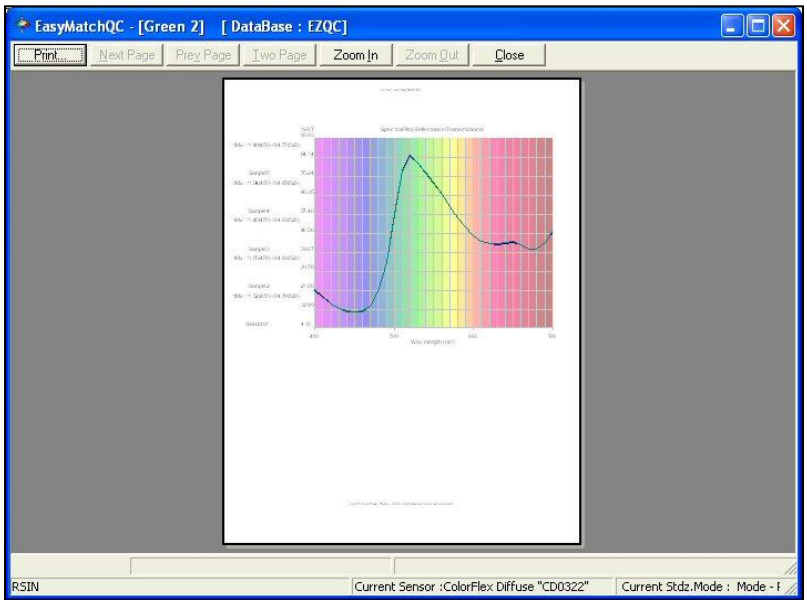


Figure 68. Spectral Plot Print Preview

- ***Print this View*:** This command prints the Spectral Plot view in a similar fashion to that shown below.

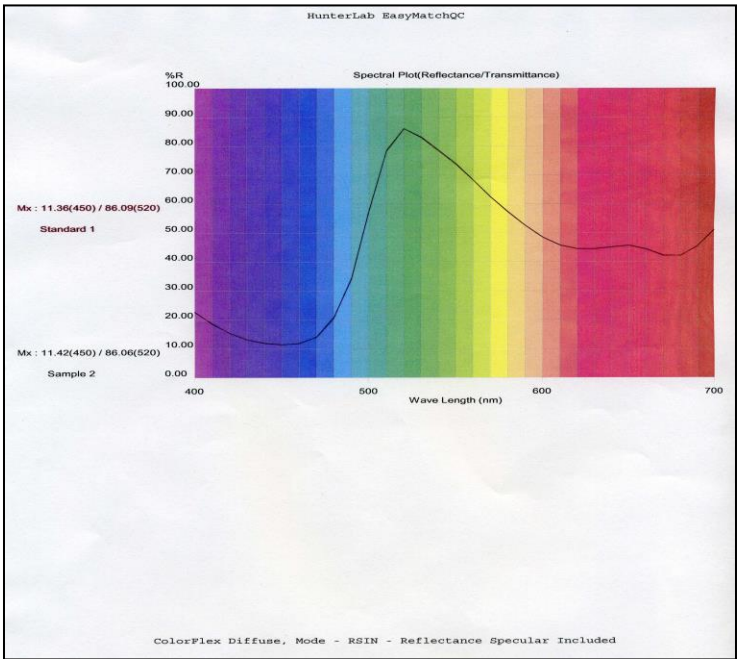


Figure 69. Spectral Plot Printer Output

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 2D Color Plot with a Spectral Plot).

- ***Delete View*:** This command allows you to remove the current view from the job display.

- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.

- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.

- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.

- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

Trend Plot

The trend plot displays the trend of the data for each sample relative to the current standard. An example is shown in the next figure.

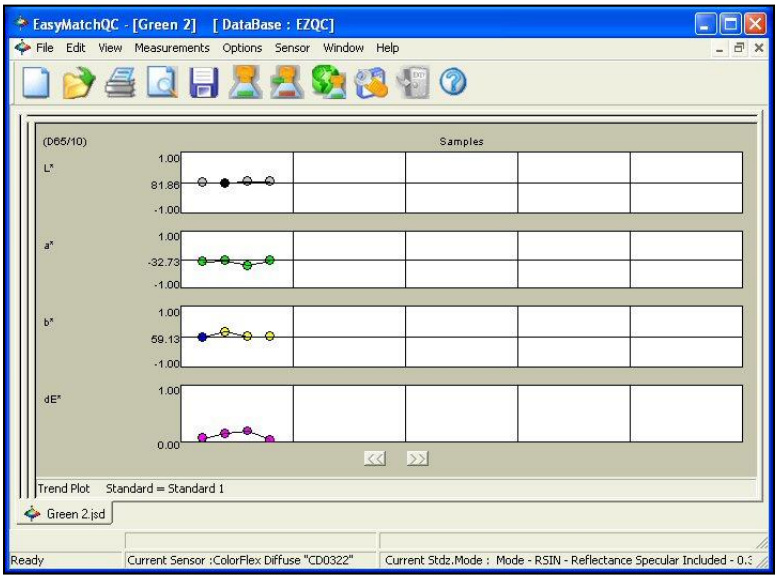


Figure 70. Trend Plot View – Line and Point

In this example, 'Standard 1' is the name of the standard. Four separate graphs are shown, each with three samples displayed. The top graph shows the change in lightness/darkness, or L*. The standard is plotted as the center line of this graph. Samples that are lighter than the standard are shown above this line in white, and samples that are darker are shown below the line in black. The L* value can be estimated based on the scale given to the left of the graph.

Similarly, the second graph shows the change in redness/greenness, or a*. Samples in red above the standard line are redder than the standard and samples in green below the standard line are greener. Yellowness/blueness (b*) is shown on the third graph. dE* is shown at the bottom.

Click on this view to make it active. While this view is active, the following options are available by clicking the right mouse button:

- ***Configure*****:** This command allows you to set various preferences pertaining to the Trend Plot view.

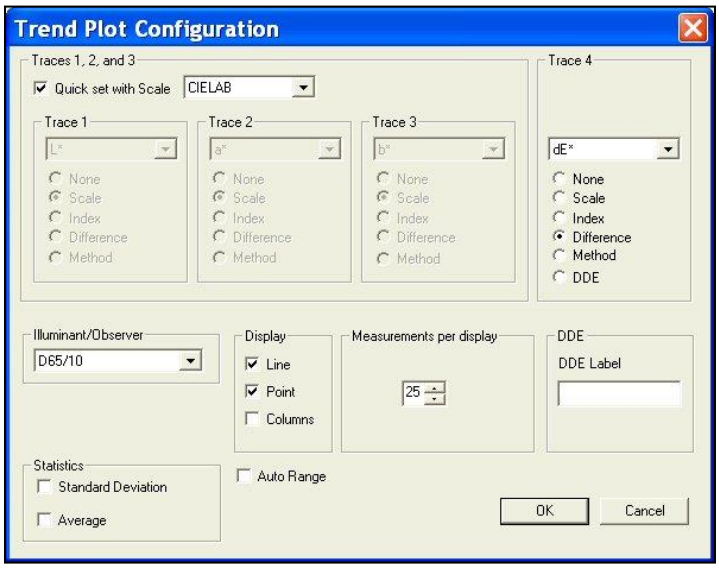


Figure 71. Trend Plot Configuration

Make your selections for each parameter, including the color scale, fourth trace, and illuminant/observer combination. A line and point display is shown in the example at the beginning of this section. A column display graphs each data point as a rectangle above or below the standard line.

Note: When Statistics are displayed in the Trend Plot, they are calculated based on the values of all the samples shown. The standard values are not included.

- ***Limits*:** This command allows you to set parameters regarding the scale and limits of the trend plot.

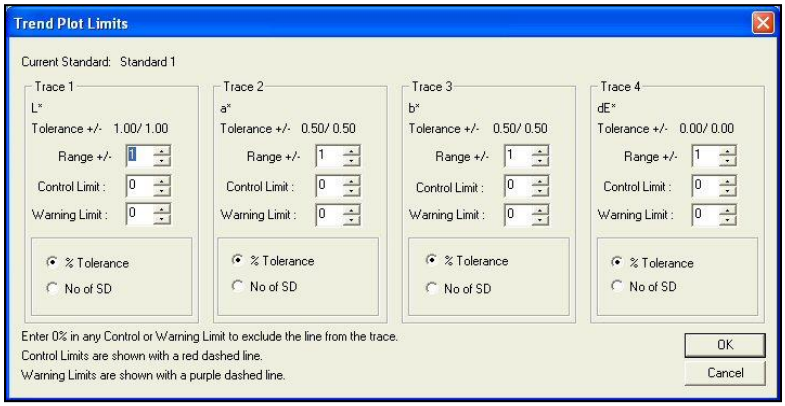


Figure 72. Trend Plot Limits

Make your selections for each parameter. The range for each trace is the number of trace units that will be displayed around the standard for the trace. The control limit and warning limit are percentages of the tolerance for the trace or the number of standard deviations from the sample average where indicator lines will be shown (red for the control limit and purple for the warning limit).

- ***Print Preview*:** This command shows you on-screen what the view will look like when printed.

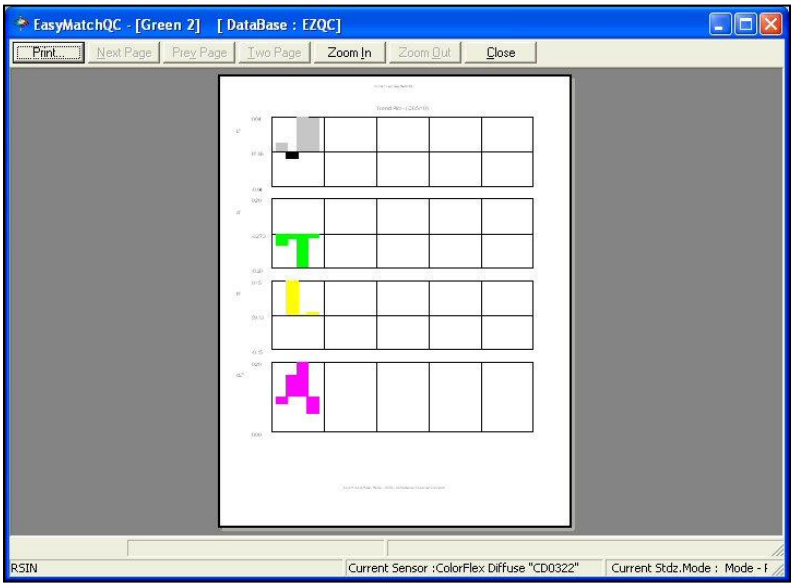


Figure 73. Trend Plot Print Preview

- ***Print this View*:** This command prints the Trend Plot view in a fashion like that shown in the next figure.

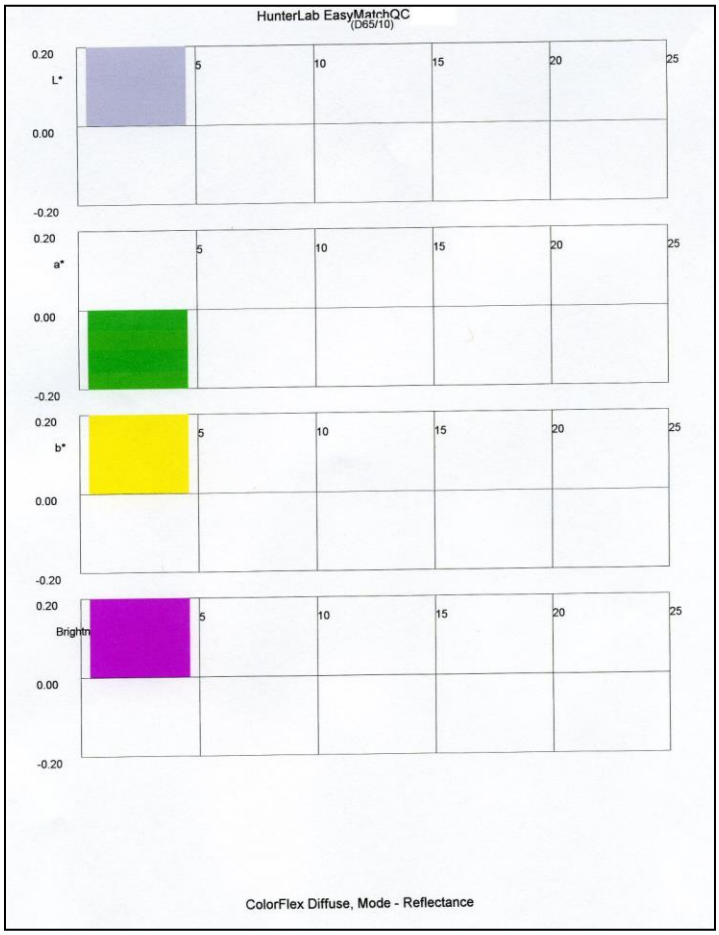


Figure 74. Trend Plot Printout

- ***Change View*:** This command allows you to replace the current view with another type of view (i.e., replace the 2D Color Plot with a Spectral Plot).

- ***Delete View*:** This command allows you to remove the current view from the job display.

- ***Split View Vertically and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed side by side.

- ***Split View Horizontally and Add*:** This command splits the current view into two and adds a new view so that the old view and the new view are displayed with one above the other.

- ***Maximize this View*:** This command causes the currently-selected view to be enlarged to the full size of the job.

- ***Restore View*:** This command restores the screen to its previous configuration after one view has been maximized.

Database

The database is a permanent repository of all spectral data and ID information for standards and samples that have been specifically saved to the database. When tolerances are assigned to standards, the tolerances can also be saved to the database with the standard. Data that has been saved to the database may be recalled in any job, but data that has been saved into a job has not necessarily been saved to the database. Use of the database is not required. Measurements may be permanently stored only in jobs if desired. The database is in a Microsoft Access (.MDB) or SQL Server format. See the File Menu chapter for information on saving data to the database and recalling data from the database and the Options Menu chapter for information on configuring the database type and location. Once the database is configured, its name is displayed on the EasyMatch QC title bar after the job name.

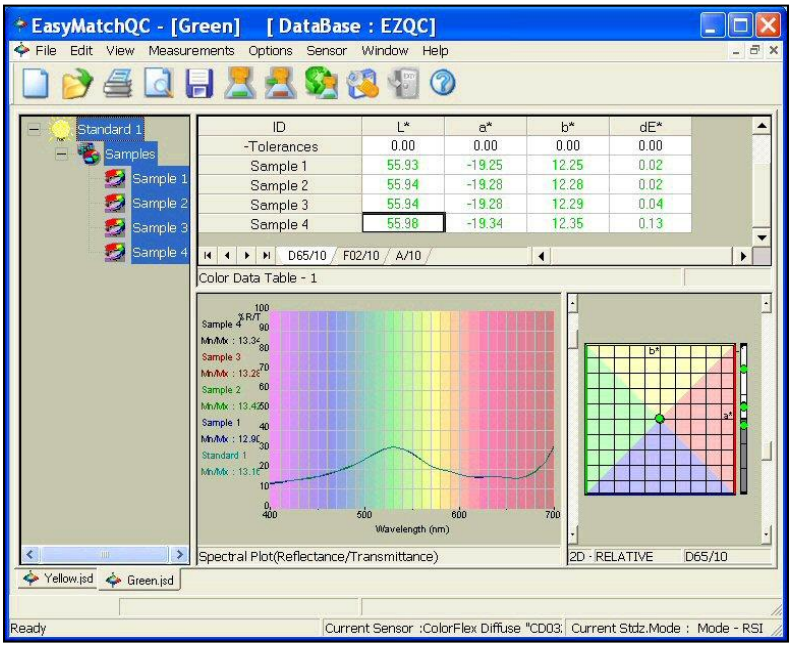


Figure 75. Database Title

Note: It is recommended that you back up your database, job, and template files periodically, particularly prior to upgrading or other major changes to your system computer.

Toolbar Buttons

The toolbar at the top of the screen provides quick access to many functions in EasyMatch QC via its buttons. All functions incorporated into the toolbar may also be accessed through the drop-down menus. The default buttons on the toolbar are shown below in order from left to right on the toolbar, along with a brief explanation of each button's function. The functions of the buttons may be altered, if desired, using the ***Options > Customize Toolbar*** command.

Default Toolbar Buttons

Opens a new job based on the default template.

Yields a dialog box that allows you to open an existing job.

Prints the current job to the Windows default printer.

Provides a print preview for the current job.

Saves the current job.

Reads a standard from the instrument.

Reads a sample from the instrument.

Initiates instrument standardization.

Opens the sensor diagnostics module for the instrument installed.

Logs the current user out of EasyMatch QC.

Opens the HTML help file.

Keyboard Shortcuts

Function keys have been assigned to some frequently used items and can be used to speed operation.

New Job	Ctrl + N
Open Job	Ctrl + O
Recall Measurement from Database	Ctrl + R
Save Job	Ctrl + S
Save Job As	Ctrl + A
Save Job Template	Ctrl + J
Apply Template to Job	Ctrl + T
Save Measurement to Database	Ctrl + M
Print Job	Ctrl + P
Cut	Ctrl + X
Copy	Ctrl + C
Paste	Ctrl + V
Return to English	Ctrl + E
Delete	Del
Read Standard	F2
Read Sample	F3
Standardize	F4
Read Series	F5
Help Topics	F1

In addition, the EasyMatch QC menus may be opened using *Alt +* the first letter of the menu name and then the desired menu command may be selected by typing the underlined letter in the name of the command. These shortcuts are outlined below.

Open File Menu	Alt + F
Open Edit Menu	Alt + E
Open View Menu	Alt + V
Open Measurements Menu	Alt + M
Open Options Menu	Alt + O
Open Sensor Menu	Alt + S
Open Window Menu	Alt + W
Open Help Menu	Alt + H

Commands from an Open File Menu:

New Job	N
Open Job	O
Open Job Template	T
Recall Measurement from Database	R
Delete Measurement from Database	D
Close Job	C
Save Job	S
Save Job As	A
Save Job Template	J
Save Job Template As	B
Save Measurement to Database	M
eSignature	E
Print Job Setup	N
Print Job Preview	V
Print Job	P
Printer Setup	U
Time Synchronization	Y
Database/Backup Database	B
Log Off	L
Open This Job	1-4
Exit	X

Commands from an Open Edit Menu:

Cut	T
Copy	C
Paste	P
Delete	D

Commands from an Open View Menu:

Toolbar	T
Status Bar	S
Job Tree	J
Audit Log	L

Commands from an Open Measurements Menu:

Read Standard	S
Read Sample	R
Average	A
Timed Read	T
Average Selected to Measurement	U
Average Selected to Standard	N
Average Selected to New Standard	W

Commands from an Open Options Menu:

Naming Conventions	N
Average Method	A
Read Method	R
Configure Timed Read	G
Default Tolerances	T
Adjust Scale Factors	L
Application Preferences	P
Customize Toolbar	Z

Commands from an Open Sensor Menu:

Install/Configure	C
Standardize	S
Set Modes	M
Import Logged Reads	L
Configure Setups	P
Configure Multi Mode	C

Commands from an Open Window Menu:

New Window	N
Cascade	C
Tile	T
Bring this Job to the Front	1 - 4

Commands from an Open Help Menu:

Help Topics	H
About	A

The File Menu

From the ***File Menu***, you can open, save, and close jobs, as well as access the database, control the printer, e-mail jobs, and exit EasyMatch QC. The functions available through the ***File Menu*** are described in the remainder of this chapter.

File/New Job

The ***File > New Job*** command opens a new job based on the default template. This new job is presented on a new, untitled tab. The keyboard shortcut for this command is ***Ctrl + N***.

File/Open Job

The ***File > Open Job*** command allows you to open a pre-existing job that has been saved to your computer. The keyboard shortcut for this command is ***Ctrl + O***.

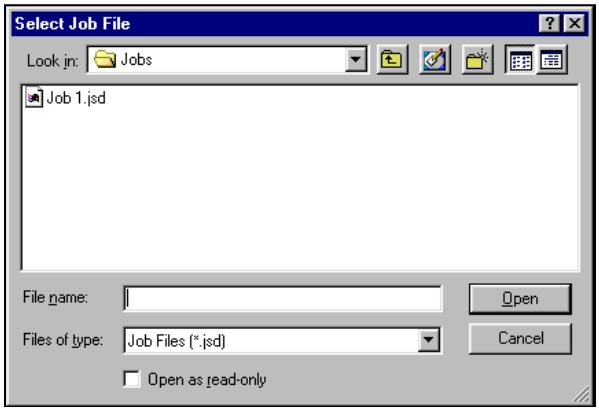


Figure 76. Open Job Menu

When the Select Job File dialog box appears, locate the job you wish to open from any drive or folder accessible by your computer. Highlight the job name and then click ***Open***. The job is opened into EasyMatch QC.

File/Open Job Template

The ***File > Open Job Template*** command allows you to select a template to open and modify or use as the basis of a new job.

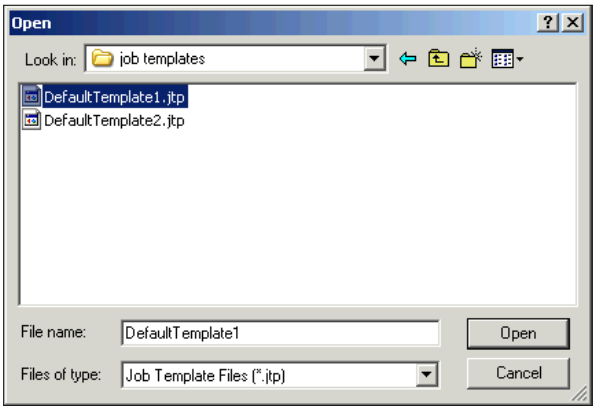


Figure 77. Job Template: Open

When the Open dialog box appears, locate the template you wish to open from any drive or folder accessible by your computer. Highlight the template name and then click ***Open***. The template is opened into EasyMatch QC.

File/Recall Measurement from Database

When you choose ***File >*** **Recall Measurement from Database**, a window appears where you must first choose whether you wish to recall a standard, sample, or series by choosing the appropriate radio button at the top right of the screen. On the left, you can enter the ID, Product ID, and/or Extra ID for the measurement(s) to be recalled. You can also use (* and ?) wildcards to recall measurements. For example, to recall all measurements that start with 'T' you would enter 'T*' for the ID.

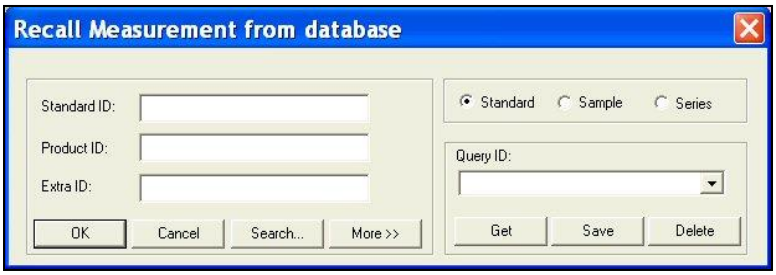


Figure 78. Recall Measurement

Click ***More*** if you wish to add information concerning the sensor, date and time, or other data parameters to your query.

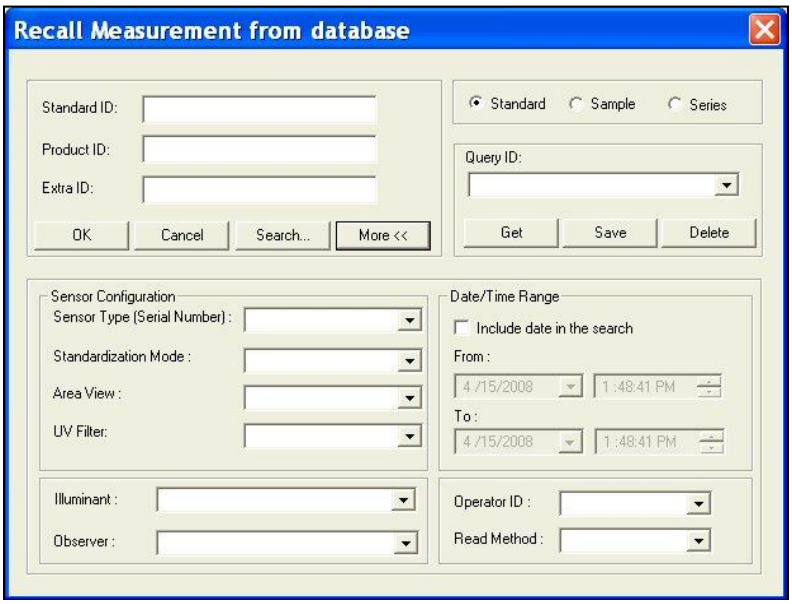


Figure 79. Recall Measurement with Detail

Select the Sensor Type and make sure that there is at least one standard or sample in the job. Click ***Search*** if you wish to recall items based on their color difference from a standard or sample that is contained in the current job. The following screen appears.

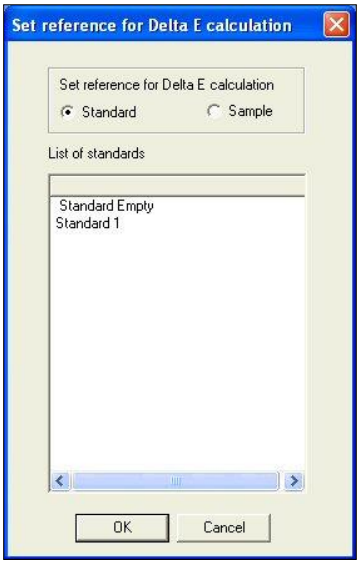


Figure 80. Recall Measurement based on dE

Choose whether you wish to search based on differences from a standard or sample and then highlight the standard or sample for comparison in the white box. Then click ***OK***. The Search Criteria screen appears.

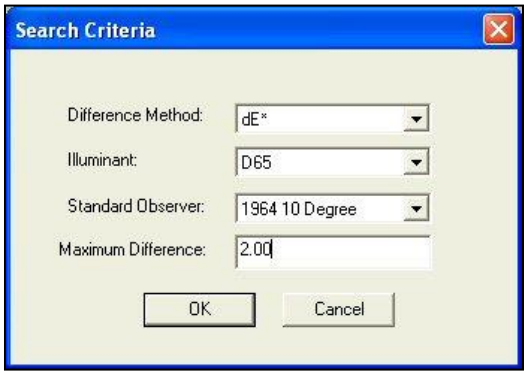


Figure 81. Search Criteria for dE

Select the color difference parameter, illuminant, and observer you wish to use for the comparison and then enter the maximum color difference value from the selected sample or standard you wish to see. In the example shown in Figure 60, all standards within 2.00 dE units using D65/10° from Sample 1 will be recalled. Click ***OK***.

You can save a set of search parameters as a query available for future use by typing in a Query ID and clicking ***Save***. Later, select the Query ID from the drop-down box and click ***Get*** to recall the query.

After you have entered your selection parameters or recalled a query, click ***OK*** to display a list of the items in the database that match your recall parameters. You may sort this list, if you like, by clicking on the column header for the parameter by which you want to sort.

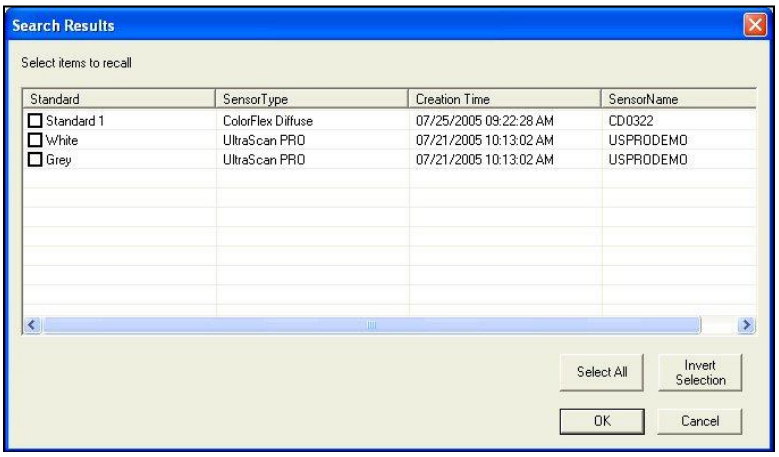


Figure 82. Search Results

Select (check) the items you wish to recall into the current job and click ***OK***. They will be recalled and placed in the job.

The keyboard shortcut for the ***Recall Measurement from Database*** command is ***Ctrl + R***.

File/Delete Measurement from Database

When you choose ***File > Delete Measurement from Database***, a window appears where you must first choose whether you wish to delete a standard, sample, or series by choosing the appropriate radio button at the top right of the screen. On the left, you can enter the ID, Product ID, and/or Extra ID for the measurement(s) to be deleted. You can also use (* and ?) wildcards to recall measurements. For example, to delete all measurements that start with 'T' you would enter 'T*' for the ID.

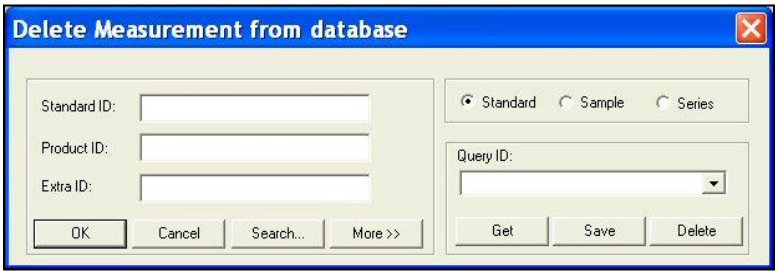


Figure 83. Delete from Database

Click ***More*** if you wish to add information concerning the sensor, date and time, or other data parameters to your query.

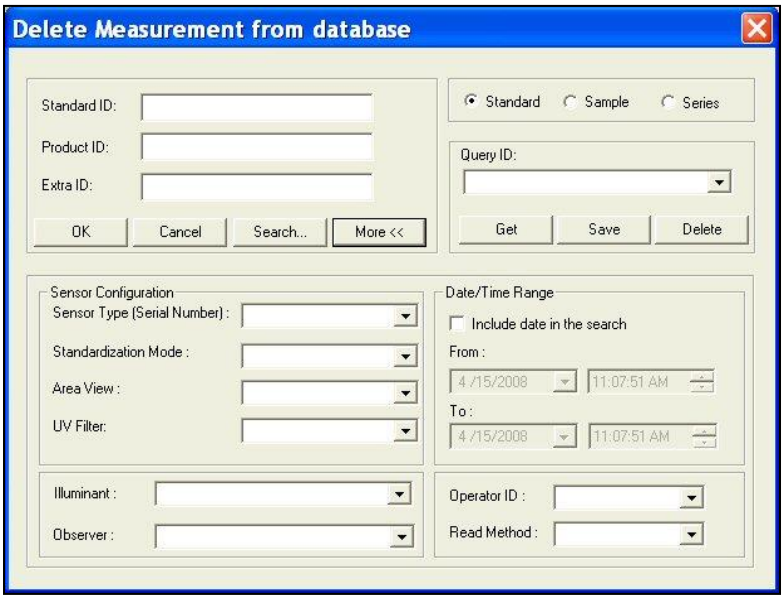


Figure 84. Criteria for Deletion

Click ***Search*** if you wish to delete items based on their color difference from a standard or sample that is contained in the current job. The following screen appears.

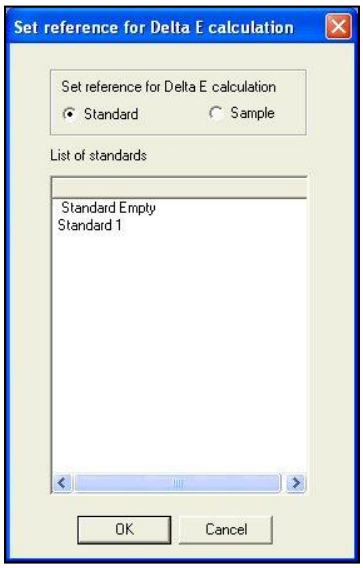


Figure 85. Delete based on dE

Choose whether you wish to search based on differences from a standard or sample and then highlight the standard or sample for comparison in the white box. Then click ***OK***. The Search Criteria screen appears.

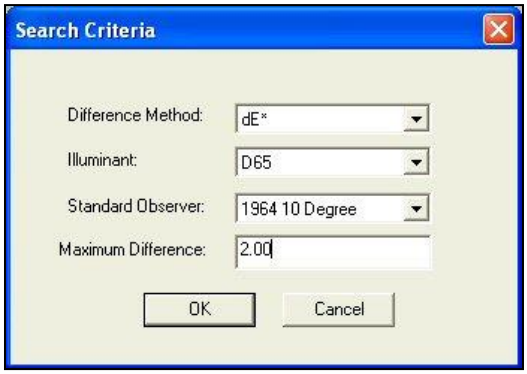


Figure 86. Search Criteria for Deletion

Select the color difference parameter, illuminant, and observer you wish to use for the comparison and then enter the maximum color difference value from the selected sample or standard you wish to see. In the example shown above, all standards within 2.00 dE units using D65/10° from Sample 1 will be deleted. Click ***OK***.

You can save a set of search parameters as a query available for future use by typing in a Query ID and clicking ***Save***. Later, select the Query ID from the drop-down box and click ***Get*** to recall the query.

After you have entered your selection parameters or recalled a query, click ***OK*** to display a list of the items in the database that match your delete parameters. You may sort this list, if you like, by clicking on the column header for the parameter by which you want to sort.

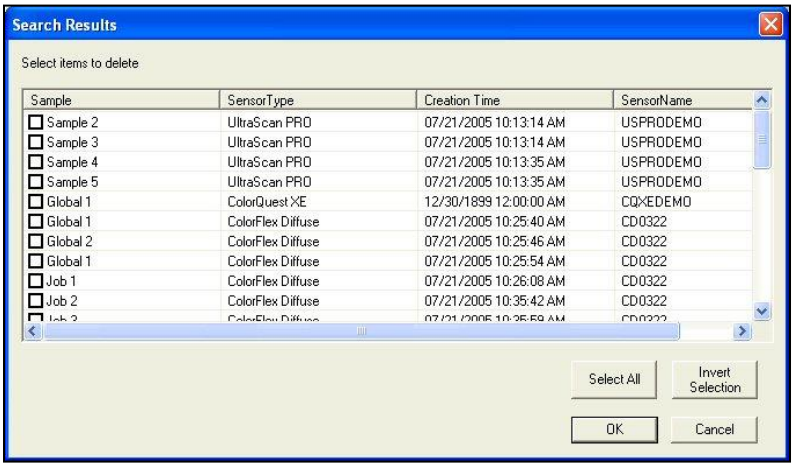


Figure 87. Search Results for Deletion

Select (check) the items you wish to delete from the database and click ***OK***. They will be deleted from the database.

File/Close Job

The ***File > Close Job*** command saves the current job using its pre-established name and then closes the job. If the job is untitled, it prompts for a job name and then saves the job using its new name before closing the job.

File/Save Job

The ***File > Save Job*** command saves the current job, including its measurements and screen configuration. If the job has been saved previously, it will automatically be saved under the same name. Otherwise, you will be prompted to enter a name. The keyboard shortcut for this command is ***Ctrl + S***.

File/Save Job As

The ***File > Save Job As*** command allows you to save the current job under a new name or to name a previously untitled job. The complete job, including its measurements and screen configuration, is saved. The keyboard shortcut for this command is ***Ctrl + A***.

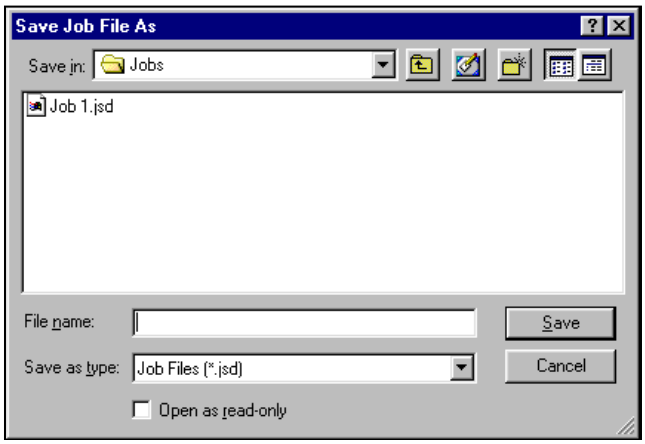


Figure 88. File Save As

When the ***Save Job File As*** dialog box appears, locate the drive and folder where you wish to save the job (any that are accessible by your computer). Type the desired job name into the File name box and then click ***Save***. (Long file names and spaces are acceptable.) The job is saved.

File/Save Job Template

The ***File > Save Job Template*** command saves the screen configuration of the current job as a template. If the template has been saved previously, it will automatically be saved under the same name. Otherwise, you will be prompted to enter a name. The keyboard shortcut for this command is ***Ctrl + J.***

File/Save Job Template As

The ***File > Save Job Template As*** command allows you to save the job template currently in use under a new name.

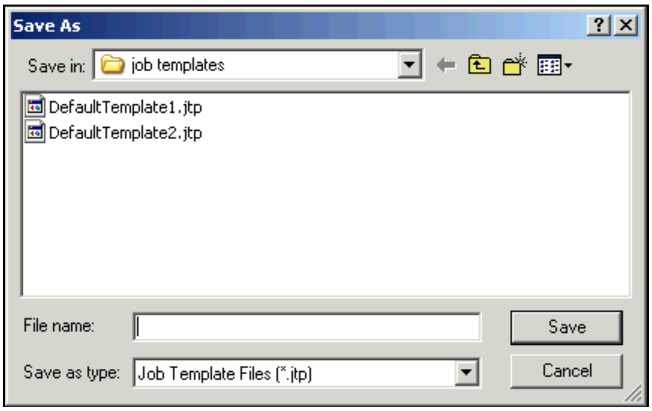


Figure 89. Job Save As

When the ***Save As*** dialog box appears, locate the drive and folder where you wish to save the template (any that are accessible by your computer). Type the desired template name into the File name box and then click ***Save***. (Long file names and spaces are acceptable.) The template is saved using the new name.

File/Apply Template to Job

The ***File > Apply Template to Job*** command allows you to apply a template to an existing job and have the configuration of that job change accordingly. The keyboard shortcut for this command is ***Ctrl + T***.

File/Save Measurement to Database

The ***File > Save Measurement to Database*** command saves any standards and samples currently selected (highlighted) in the Job Tree to the database. Once the measurement(s) are saved, the following message is shown. The keyboard shortcut for this command is ***Ctrl + M***.

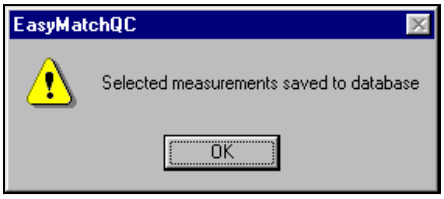


Figure 90. Measurements Saved

File/eSignature (-ER Version Only)

The ***File > eSignature*** command allows you to apply an electronic signature to the job. The following screen appears:

Figure 91. eSignature

Enter your EasyMatch QC ***User Name*** and ***Password***, and type in the meaning of the signature or choose the meaning of the signature (creation, review, approval, etc.) from the drop-down box in the Comments box. These choices were configured by your System Administrator using the CFR Facile Admin tool (see the Validation and Compliance Notebook for more information). Click ***Sign***. After a moment, the signature is permanently applied to the job and can be viewed and printed by selecting ***View > Audit Log***.

File/Configure Company Logo

The ***File > Configure Company Logo*** command allows you add a bitmap (.BMP) company logo or other graphic to printouts created using the ***File > Print Job Setup*** command. The following screen appears:

Figure 92. Company Logo Configuration

Click the Browse (**...**) button to find the file name and location for the logo file. The file can then be previewed on the Configure Company Logo screen.

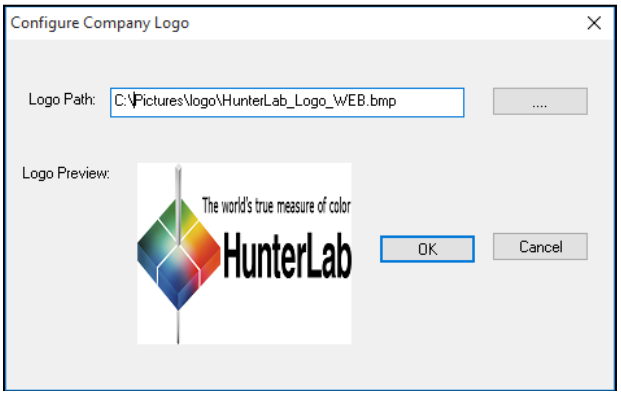


Figure 93. Select Company Logo

Click ***OK***. This logo will now be available as an item available for printing in print jobs.

File/Header/Footer Setup

The ***File > Header/Footer Setup*** command allows you to configure the headers and footers that will be applied to all printouts in this job.

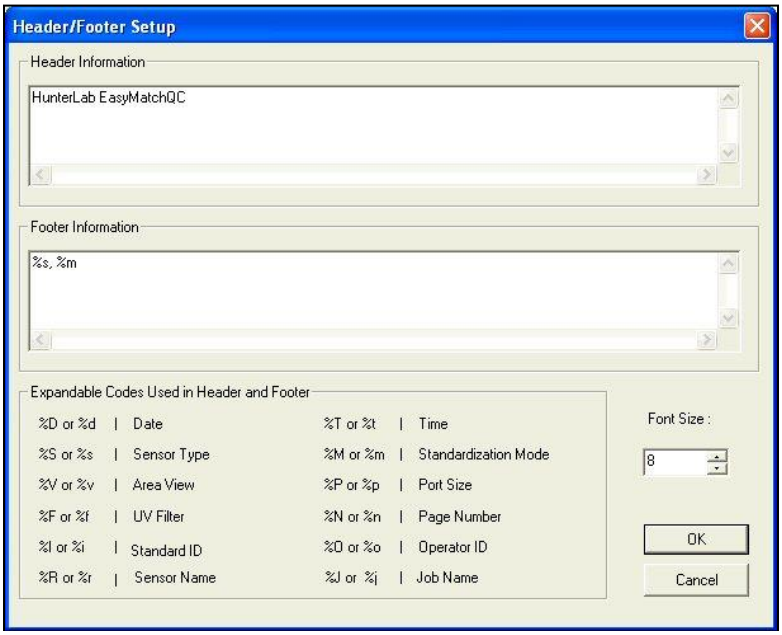


Figure 94. Report Header & Footer

You may type any information into the Header Information and Footer Information boxes that you wish to have displayed on every page of your printouts. Type any of the codes listed at the bottom of the screen to have that information automatically inserted. For example, type '%t' to have the time of printing shown on the printout.

File/Print Job Setup

The ***File > Print Job Setup*** command allows you to lay out a report that will be printed when you select ***File >* Print Job** or click the ***Print*** button on the default toolbar. All data views currently in your job except the Job Tree may be printed as part of your report. When you print the report, data for all the samples and standards currently selected in your Job Tree for display in the other views will be printed.

When ***Print Job Setup*** is selected, the Print Job Setup screen is obtained. The printer and paper size as designated for your Windows default printer will be shown at the top of the screen and all data views in the current job are shown under Available Items. The header and footer configured in ***Header/Footer Setup*** and company logo configured in ***Configure Company Logo*** (discussed earlier in this chapter) may also be placed in the report.

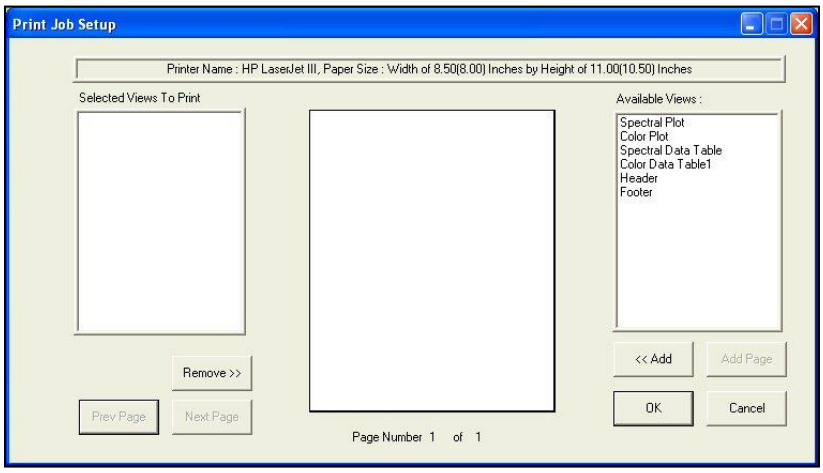


Figure 95. Print Job Setup

To add an item to your report, highlight it in the Available Items list on the right side of the display by clicking on its name and then click the ***<<Add*** button. The item is moved to the Selected Items box and is assigned a representative color. You may remove an item added in error by highlighting it in the Selected Items list and using the ***Remove>>*** button.

To configure the size and location of an item on the page, ***highlight*** it in the Selected Items list on the left side of the screen. Then ***click*** the mouse on the page representation in the middle of the screen where you wish to locate one of the corners of the view. Hold the mouse button and drag to the location of the opposite corner. Then release the mouse button. The colored box indicates the location and size of that data view. It may be altered at any time using the same procedure.

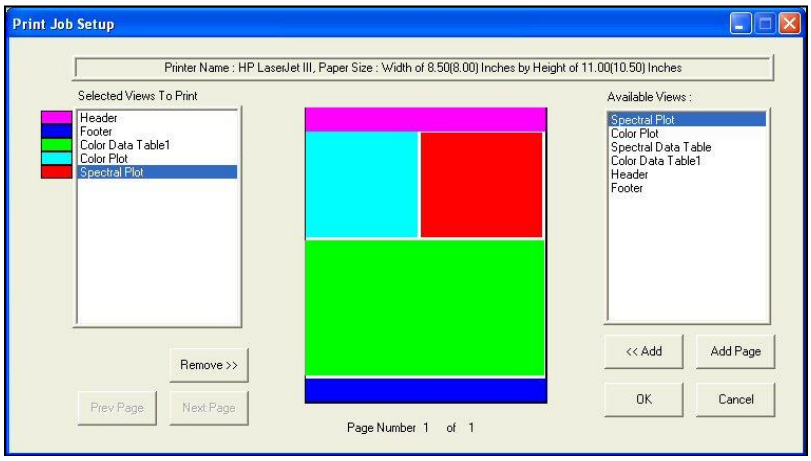


Figure 96. Selected Views to Print

You may click the ***Add Page*** button to add a new page to your report and scroll through the pages of your report using the ***Prev Page*** and ***Next Page*** buttons.

When a Spectral Data Table has been added to the Selected Items box and is highlighted, a ***Configure*** button appears next to the ***Remove>>*** button. When the ***Configure*** button is clicked, the Configure Spectral Data screen appears on which you can alter the wavelength range and interval that will be shown in this part of the screen. You may include multiple Spectral Data Tables with different wavelength ranges if you wish to fit all the data in the print job.

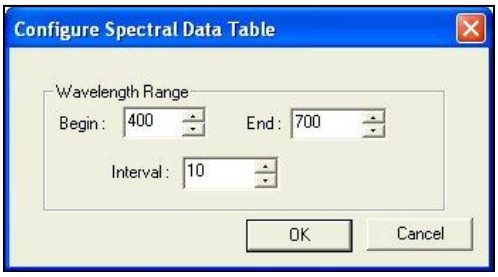


Figure 97. Printing Spectral Data Table

File/Print Job Preview

The ***File > Print Job Preview*** command allows you to view your configured print job on-screen as it will appear when printed. If you select this command without having configured the print out using the ***Print Job Setup*** command, you will be prompted to do so.

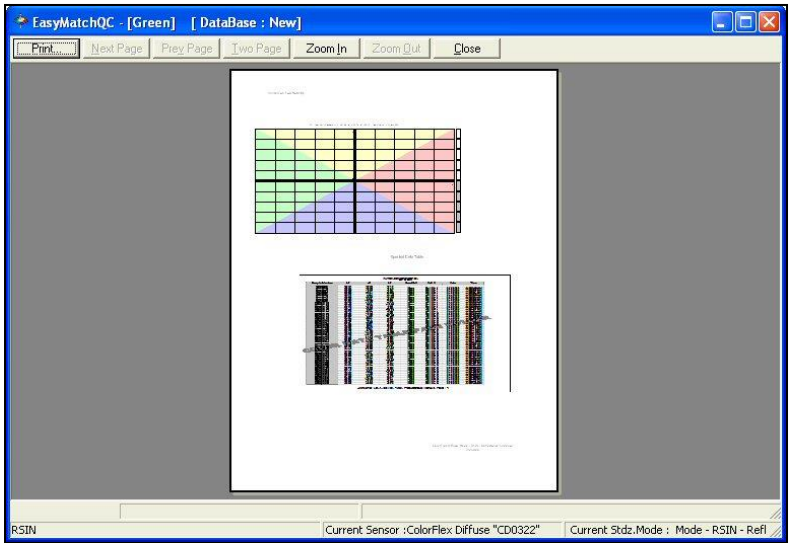


Figure 98. Print Job Preview

File/Print Job

The ***File > Print Job*** command initiates printing of the print job that was configured using the ***Print Out Setup*** command. The job is printed to the Windows default printer. The keyboard shortcut for this command is ***Ctrl + P***. If you select this command without having configured the print out using the ***Print Out Setup*** command, you will be prompted to do so.

File/Printer Setup

The ***File > Printer Setup*** command causes the Windows Print Setup dialog box to be displayed so you can configure your printer parameters without printing anything. Click ***OK*** when your configuration is complete. The configuration indicated here is used for all printing in EasyMatch QC, regardless of job.

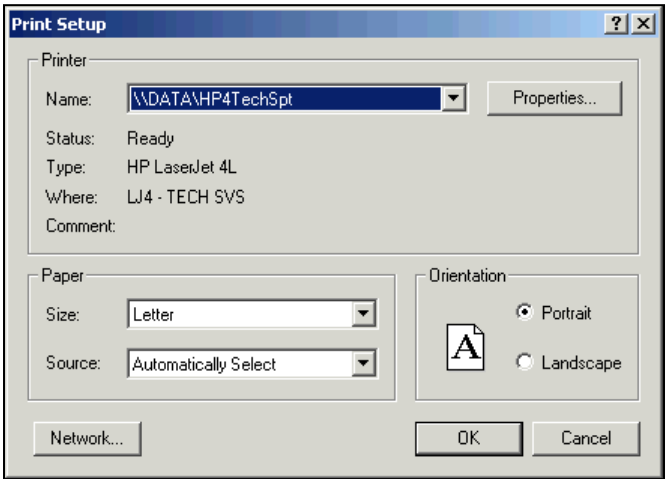


Figure 99. Printer Setup

File/Page Setup

The ***File > Page Setup*** command opens the Page Setup window in which you can set the margins you wish to leave on each page when printing the print job configured using the ***Print Job Setup*** command described earlier in this chapter. Click ***OK*** when your configuration is complete.

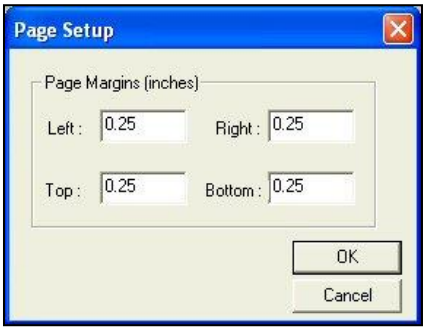


Figure 100. Printer Margins

File/Import QTX Format

The ***File > Import QTX Format*** command opens the Windows Open box that allows you to choose an existing QTX file for import into the current EasyMatch QC job. Once you click ***Open***, the data records in the QTX file will be added to the current job.

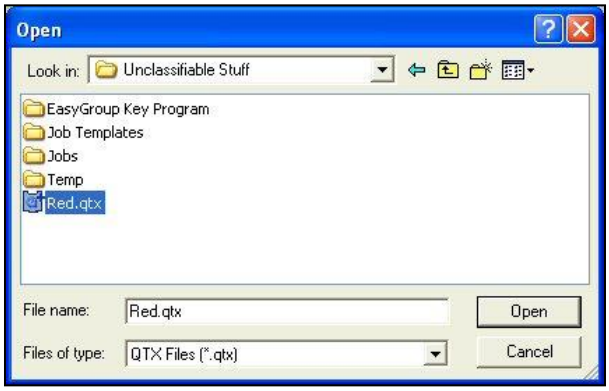


Figure 101. Import File into Current Job

Note: A sensor of the same type (i.e., ColorQuest XE or UltraScan PRO) as the one used in making the measurements contained in the QTX file must be the current active sensor in EasyMatch QC for the QTX file to import.

File/Export

The ***File > Export*** command allows you to export job data to either the QTX format . A submenu appears from which you can make this selection.

QTX Format

Select ***QTX Format*** to export the data in the job to a QTX color communication file that, when opened in Windows Notepad, resembles the following:

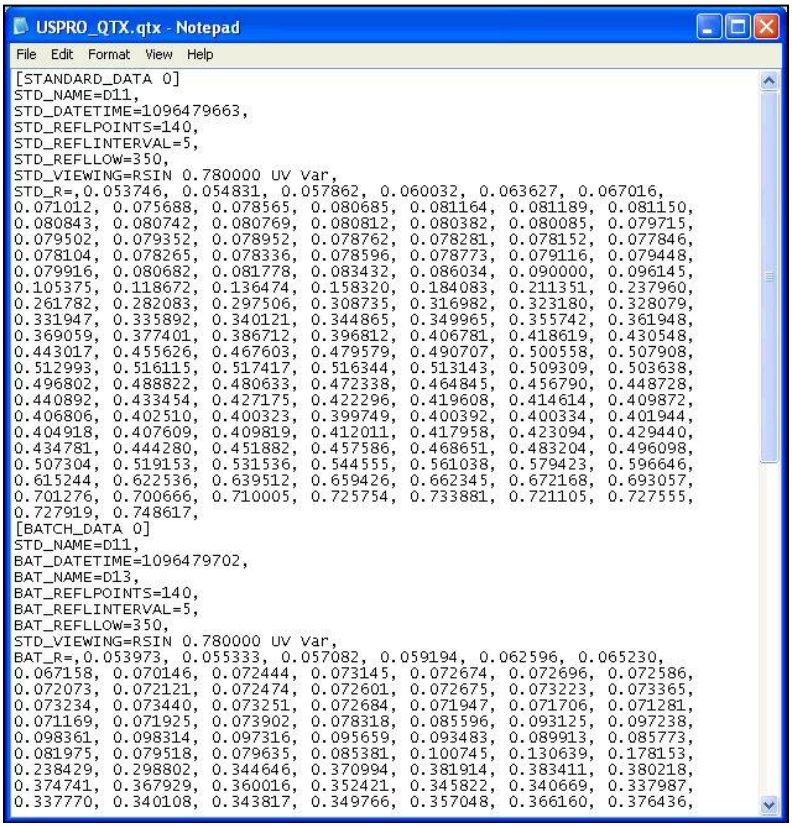


Figure 102. QTX Format

File/Email

The ***File > Email*** command, and then the choice of ***Job*** or ***Template*** from the submenu that appears opens a new e-mail message and attaches the current job or template to that message. This command appears in the ***File*** menu only if an e-mail program is installed and available on your computer. The picture below uses Microsoft Outlook 98. Compose and send your e-mail as you normally would be using your e-mail program.

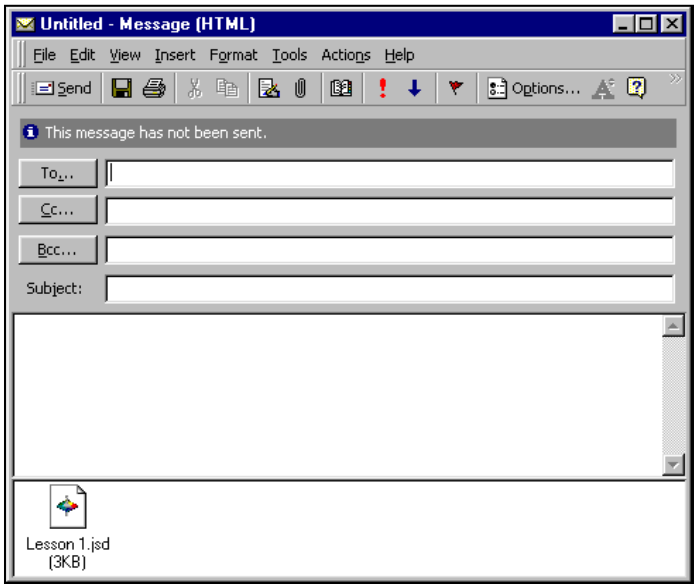


Figure 103. Email Command

Note: If **Job** is chosen from the submenu, the job is e-mailed with its screen configuration (template) intact. If **Template** is chosen, only the template is e-mailed.

File/Time Synchronization (-ER Version Only)

The ***File > Time Synchronization*** command causes your client computer's clock to be synchronized with the server computer. Your system administrator should check the time and date on the server periodically to ensure that it is correct.

File/Database

The ***File > Database*** command allows you to manually back up your Access database file, import data stored in a Universal Software or EasyMatch Textiles database into EasyMatch QC, or create a new Access database. A submenu appears containing these four choices.

Backup Database

Select ***Backup Database*** to save a second copy of your EasyMatch QC Access database file to a location other than the one where it is currently stored. The following screen appears.

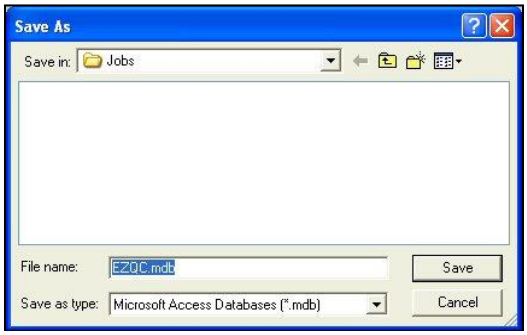


Figure 104. Database Backup

Browse for the location where you wish the backup copy of the database to be stored and then click ***Save***. The file will be copied to this location.

Universal Database Import

Select ***Universal Database Import*** to import measurements from a Universal Software database. Universal Software must be installed on this computer to complete the import, as the Universal installation provides necessary information to the import tool.

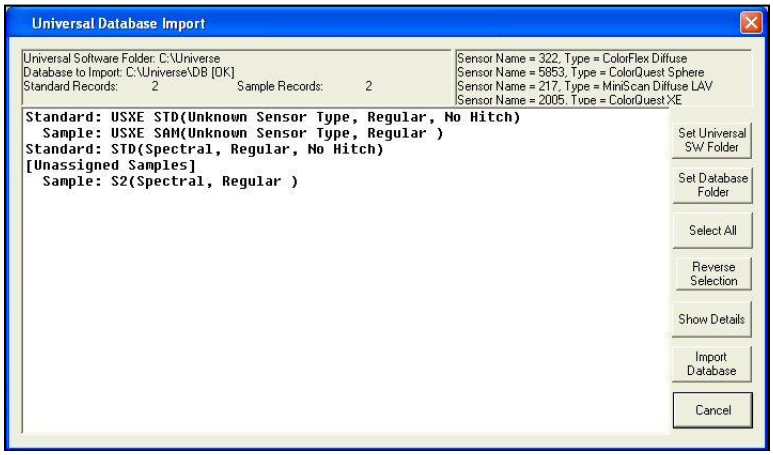


Figure 105. Database Import

The import tool automatically looks for a database in the C:\Universe\DB folder on your hard drive. If this is the database you wish to import, you need not use the ***Set Universal SW Folder*** or ***Set Database Folder*** buttons. If, on the other hand, your Universal Software was installed into a folder other than C:\Universe, click the ***Set Universal SW Folder*** button and select the folder where Universal Software was installed. If the Universal database you wish to import is in a folder other than C:\Universe\DB, click the ***Set Database Folder*** button and select the folder where the database is located. When both folders have been indicated correctly, the sensor(s) with which the database measurements were made will be shown in the upper right corner of the screen and a list of samples and standards stored in the database will be shown below.

To examine the details (date and time of reading, plus spectral data) of any sample or standard, highlight it and click the ***Show Details*** button.

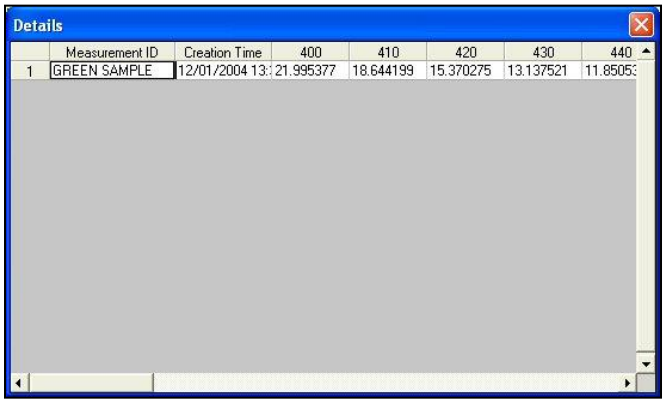


Figure 106. Import Measurement

Select all the records you wish to import into EasyMatch QC using the ***Ctrl*** key plus clicking on each individual record, by holding the ***Shift*** key and clicking on the first and then the last record desired, or by clicking the ***Select All*** button. Then click ***Import Database***. You will be given the choice to place the records in your EasyMatch QC database, in your current job, or in a new job. When you click ***OK***, the records will be imported to the location you chose.

Figure 107. Import Dialog Box

Figure 108. Import Completed

Create New Database

Select ***Create New Database*** to create a new, empty Access database with the name and location desired. This new database will not be used for storing measurements until you select it using ***Options*** > ***System Configuration > Data Storage***.

Figure 109. Save New Database

Import Textiles Database

Select ***Import Textiles Database*** to import measurements from an EasyMatch Textiles database. The following screen appears first.

*Note: Select Textiles Database must be checked with a Textiles Database Path set in **Options >System Configuration > Data Storage** before the **File > Import Textiles Database** command will be available.*

Figure 110. Import Database

Indicate whether you wish to import the standards that are in the database or the samples, then click ***OK***.

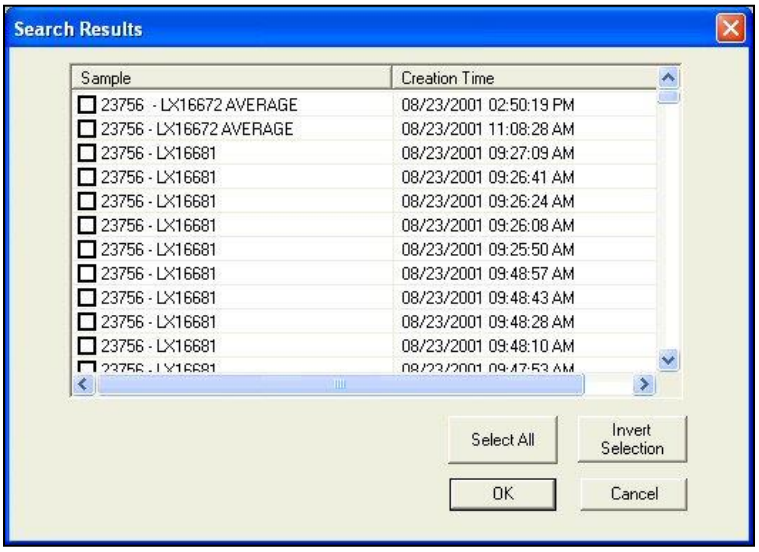


Figure 111. Results of Searching a Database

The samples or standards available in the EasyMatch Textiles database are listed and you may select the ones you wish to import. Then click ***OK***.

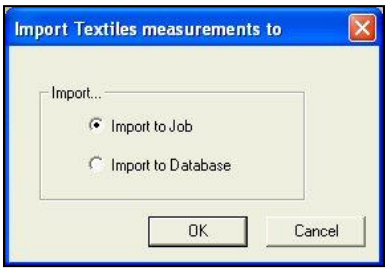


Figure 112. Import File to . . .

Indicate whether you wish to import the EasyMatch Textiles measurements into the current EasyMatch QC job or the EasyMatch QC database. Then click ***OK***. The measurements will be imported as you instructed.

If you imported sample(s) to a job, you will be asked to link the sample(s) to a standard before they are inserted into the job.

File/Log Off

The ***File > Log Off*** command logs the current user out of EasyMatch QC and returns to the EasyMatch QC splash screen so that the next user may log on. If the current job has not yet been saved, you will be prompted to save it before log off occurs.

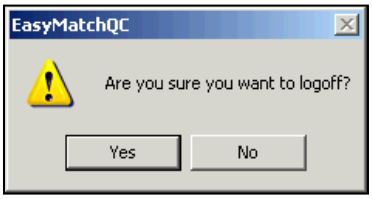


Figure 113. Log Off for User

*Note: This command is available only if Login Required is checked on the Startup Defaults tab available by choosing **Options > Application Preferences**.*

File > Most Recently Opened Jobs

The most recently opened jobs area of the ***File Menu*** lists the four most recently opened jobs. You may select the name of any of these jobs to open it quickly and easily.

File/Exit

The ***File > Exit*** command allows you exit EasyMatch QC. If the current job has not yet been saved, you will be prompted to save it before exit occurs.

The Edit Menu

From the ***Edit Menu***, you can cut or copy the samples and standards highlighted in the Job Tree to the Windows clipboard for use in another job. Likewise, you can paste measurements from another job into this one. You may also delete measurements. The functions available through this menu are described in the remainder of this chapter.

Edit/Cut

The ***Edit > Cut*** command allows the measurement(s) highlighted in the Job Tree to be removed and placed on the Windows clipboard. The measurements can then be pasted into another job. The keyboard shortcut for this command is ***Ctrl + X***.

Note: If you cut measurement(s) and then don't paste them elsewhere, they will be permanently deleted.

Edit/Copy

The ***Edit > Copy*** command allows the measurement(s) highlighted in the Job Tree to be copied to the Windows clipboard. The measurement(s) can then be pasted into another job. The keyboard shortcut for this command is ***Ctrl + C***.

Items may also be dragged and dropped from one job to another to copy and then paste them.

Edit/Paste

The ***Edit > Paste*** command allows you to paste measurement(s) from one job into another. Before you select ***Paste***, select the job in which you would like the measurement to be placed and click in the Job Tree (in a blank area if you cut or copied a standard or on the desired 'Samples' branch header for a sample). Then, when you select ***Paste***, the measurement(s) from the clipboard are placed in that job. The keyboard shortcut for this command is ***Ctrl + V***.

Items may also be dragged and dropped from one job to another to copy and then paste them.

Edit/Delete

The ***Edit > Delete*** command deletes the measurement(s) that are highlighted in the Job Tree from the current job. You are prompted to confirm that you wish to delete.

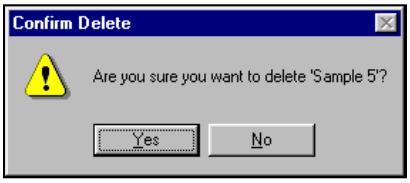


Figure 114. Confirming Deletion

The keyboard shortcut for this command is ***Del***.

The View Menu

The ***View*** menu allows you to turn on or off display of the toolbar, status bar, and Job Tree on your EasyMatch QC screen. The functions available through this menu are described in the remainder of this chapter.

View/Toolbar

The ***View > Toolbar*** command allows you to choose whether to display the toolbar beneath the menu bar at the top of your EasyMatch QC screen. When a check appears next to ***Toolbar***, the toolbar is displayed. When no check appears, the toolbar is not displayed. The setting chosen here applies to this installation of EasyMatch QC regardless what job is in use.

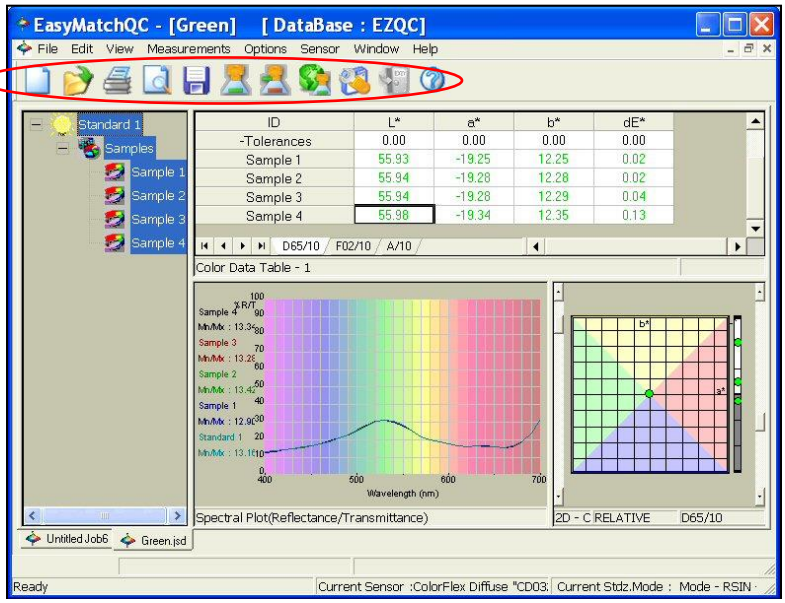


Figure 115. Display of Toolbar

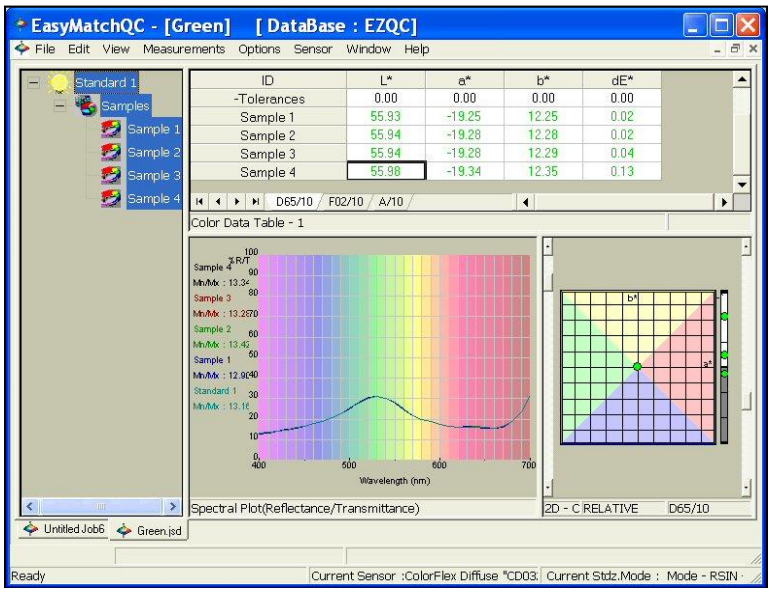


Figure 116. Toolbar Not Displayed

View/Status Bar

The ***View > Status Bar*** command allows you to choose whether to display the status bar at the bottom of your EasyMatch QC screen. When a check appears next to ***Status Bar***, the bar is displayed. When no check appears, the status bar is not displayed. The setting chosen here applies to this installation of EasyMatch QC regardless what job is in use.

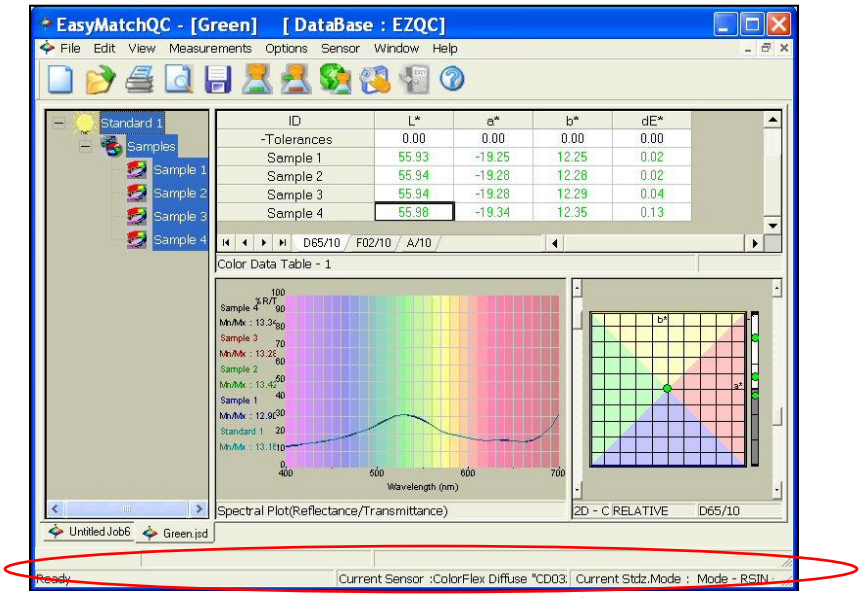


Figure 117. Status Bar is Displayed

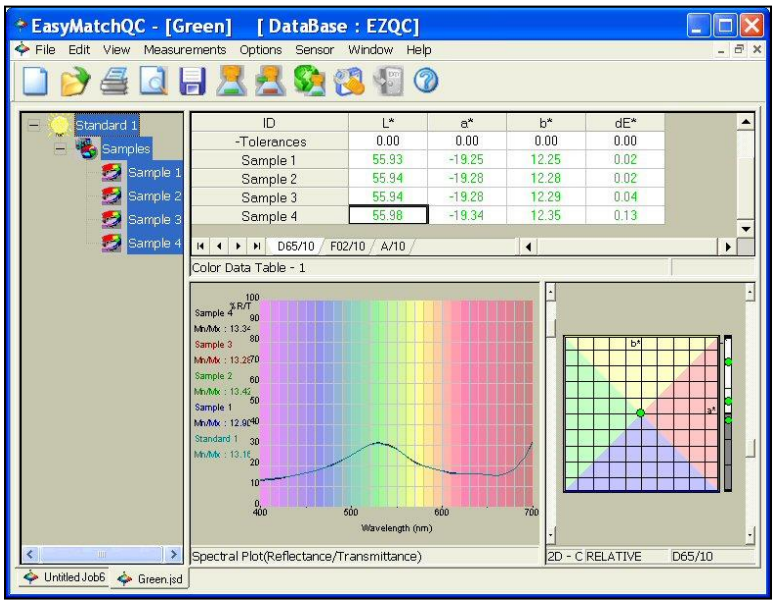


Figure 118. No Status Bar Displayed

View/Job Tree

The ***View > Job Tree*** command allows you to choose whether to display the Job Tree at the left of your EasyMatch QC screen for the current job. When a check appears next to ***Job Tree***, the Job Tree is displayed. When no check appears, the Job Tree is not displayed.

Note: Some software functions require use of the Job Tree.

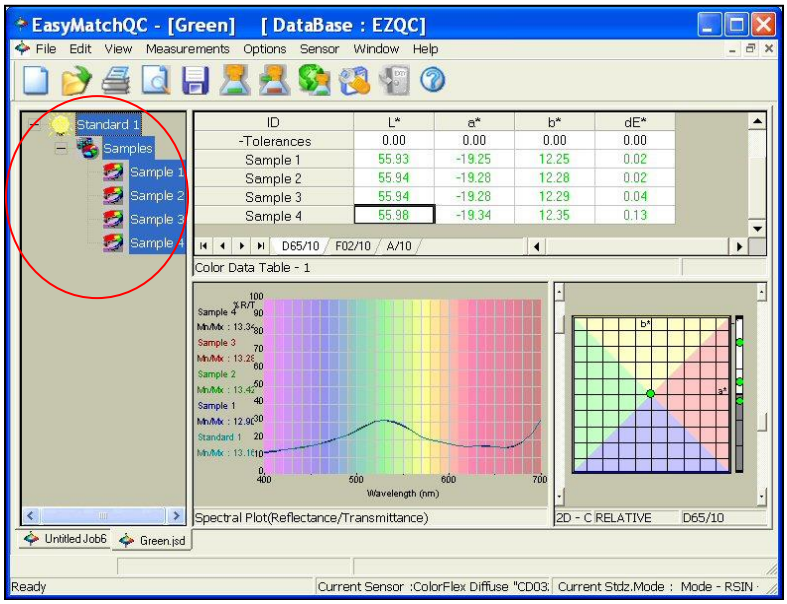


Figure 119. Job Tree is Displayed

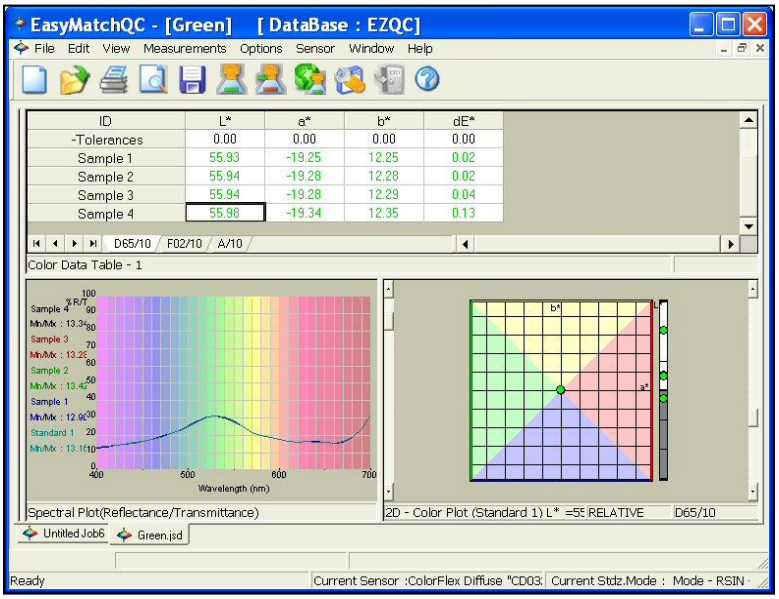


Figure 120. Job Tree Not Displayed

View/Audit Log (-ER Version Only)

The ***View > Audit Log*** command allows you to view the audit log for the current job. Select the types of events you would like to view from the drop-down box next to 'Filter By.' The available choices are Save (the job), Edit, Print (the job or a view), Signature, and All. Click ***Print Audit Log*** to print the log to the Windows default printer in a fashion like that shown at the bottom of this page.

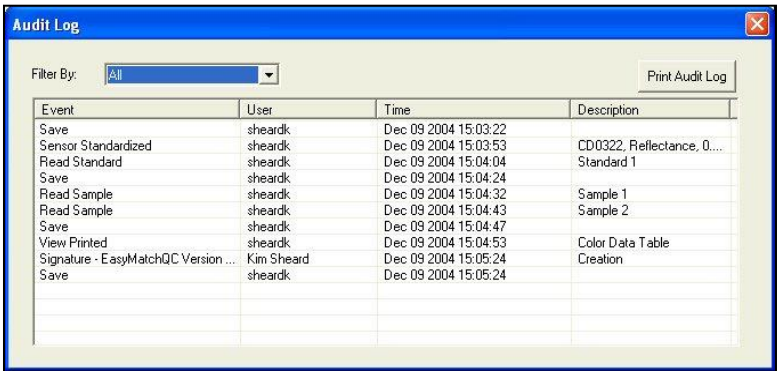
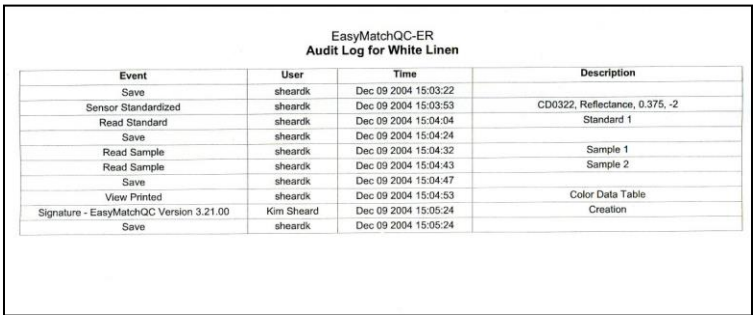


Figure 121. View Audit Log



EasyMatchQC-ER
Audit Log for White Linen

Event	User	Time	Description
Save	sheardk	Dec 09 2004 15:03:22	
Sensor Standardized	sheardk	Dec 09 2004 15:03:53	CD0322, Reflectance, 0.375, -2
Read Standard	sheardk	Dec 09 2004 15:04:04	Standard 1
Save	sheardk	Dec 09 2004 15:04:24	
Read Sample	sheardk	Dec 09 2004 15:04:32	Sample 1
Read Sample	sheardk	Dec 09 2004 15:04:43	Sample 2
Save	sheardk	Dec 09 2004 15:04:47	
View Printed	sheardk	Dec 09 2004 15:04:53	Color Data Table
Signature - EasyMatchQC Version 3.21.00	Kim Sheard	Dec 09 2004 15:05:24	Creation
Save	sheardk	Dec 09 2004 15:05:24	

Figure 122. Printout of Audit Log

View/Event Log (-ER Version Only)

The ***View > Event Log*** is a log of events taken by a user within the EasyMatch QC-ER application that are generally steps outside a Job with codes for the different application operations. If a client selects the item + code; then selects 'Details' at the bottom of the screen, the full details for the Event Log item are listed.

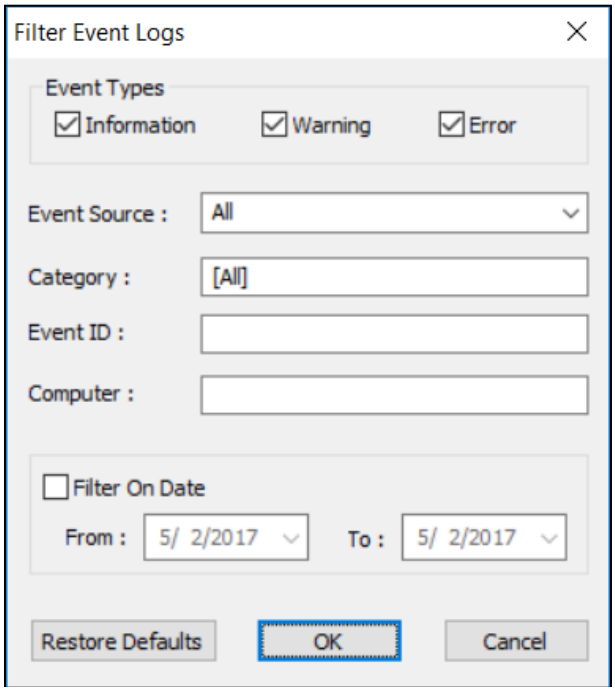


Figure 123. Event Log Filters

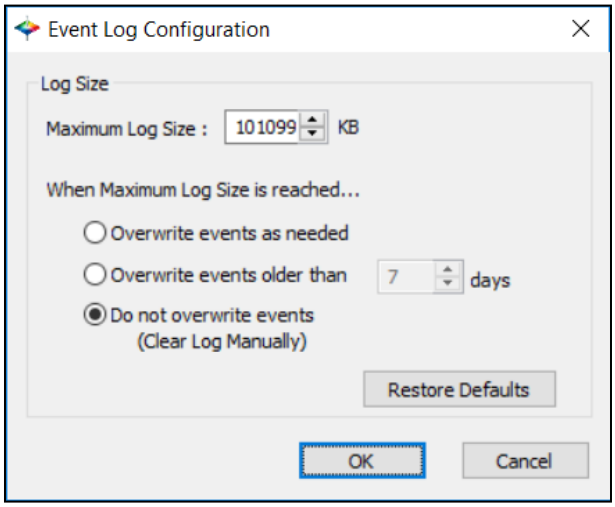


Figure 124. Event Log Configuration

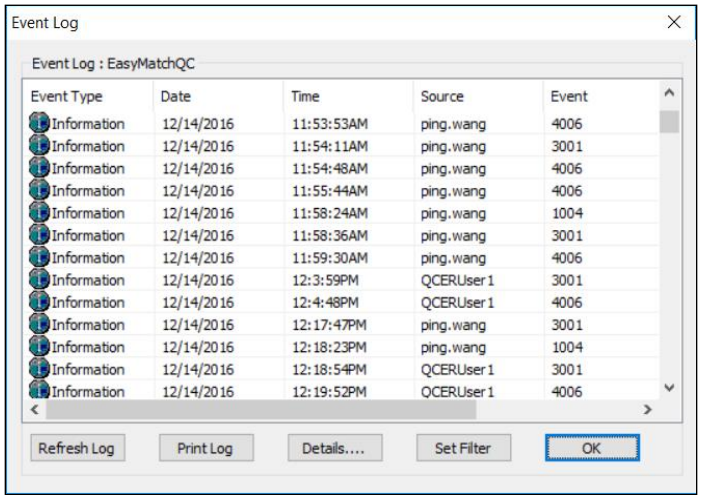


Figure 125. Event List

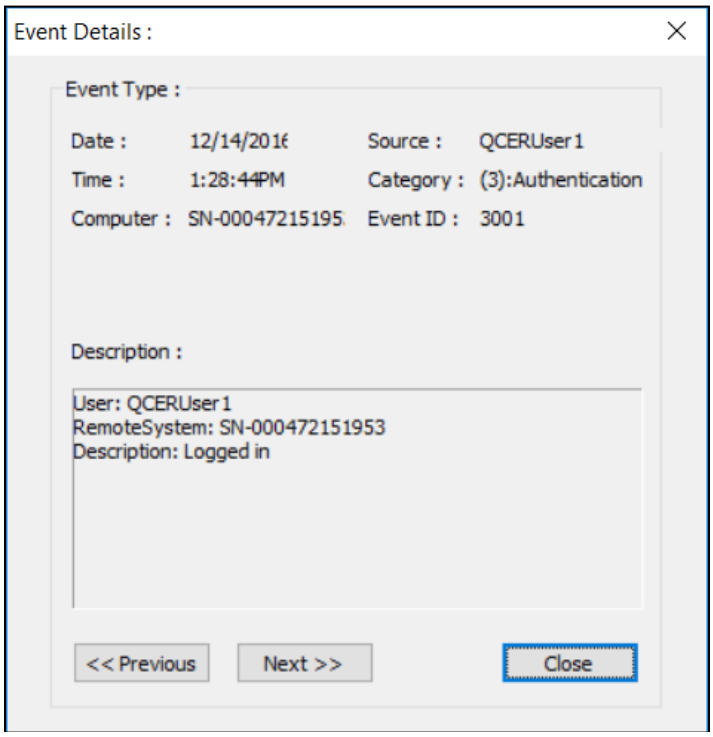


Figure 126. Event Details

The Measurements Menu

From the ***Measurements Menu***, you may read either a standard or a sample. You may also average data. The functions available through the ***Measurements Menu*** are described in the remainder of this chapter.

Measurements/Read Standard

The ***Measurements > Read Standard*** command initiates reading of a standard. Place the standard before initiating the ***Read Standard*** command. If Prompt for standard name was checked in ***Options > Naming Conventions***, you will then be prompted to enter a name for the standard (as well as a Product ID and Extra ID, if you wish). You may simply accept the name defined using the ***Naming Conventions*** command, if desired. The measurement is then accepted and added to the current job. The keyboard shortcut for this command is ***F2***.

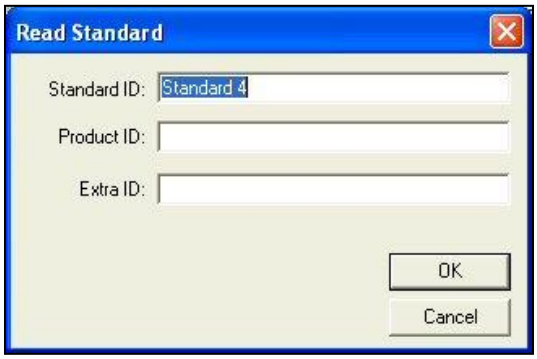


Figure 127. Enter Standard ID

Measurements/Read Sample

The ***Measurements > Read Sample*** command initiates reading of a sample. Place the sample before initiating the ***Read Sample*** command. If Prompt for sample name was checked in ***Options > Naming Conventions***, you will then be prompted to enter a name for the sample (as well as a Product ID and Extra ID, if you wish) and to choose the standard with which the sample should be linked. ('Standard Empty' is a choice if you do not want to link to a standard.) You may simply accept the name defined using the ***Naming Conventions*** command and the suggested standard, if desired. The measurement is then accepted and added to the current job. The keyboard shortcut for this command is ***F3***.

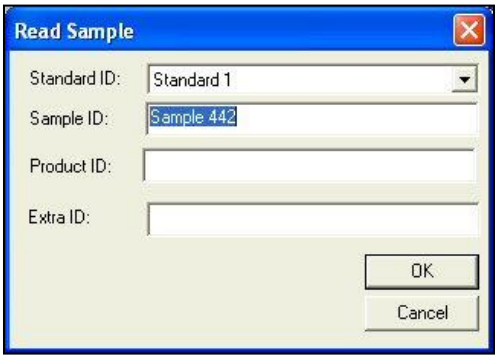


Figure 128. Enter Sample ID

Measurements/Read Series

The ***Measurements > Read Series*** command creates a new standard in the current job. This standard has no color values (i.e., L=0, a=0, b=0), but can be used to indicate a tolerance box of color values within which samples must fall to be considered 'in-spec.' Once the standard is created, select it (and only it) in the Job Tree. Then, ***right-click*** on the standard and choose ***Properties***. Click the ***Tolerances*** button to obtain a Tolerances screen on which you can enter the tolerance box desired by entering the minimum (min) and maximum (max) acceptable values for each parameter of the color scale. Samples that are read and assigned to this standard will then be compared to this tolerance box.

The keyboard shortcut for this command is ***F5***.

Measurements/Average

The ***Measurements > Average*** command, when checked, initiates on reading the ***Options > Average Method*** selected. After the first reading is taken, the following screen appears.

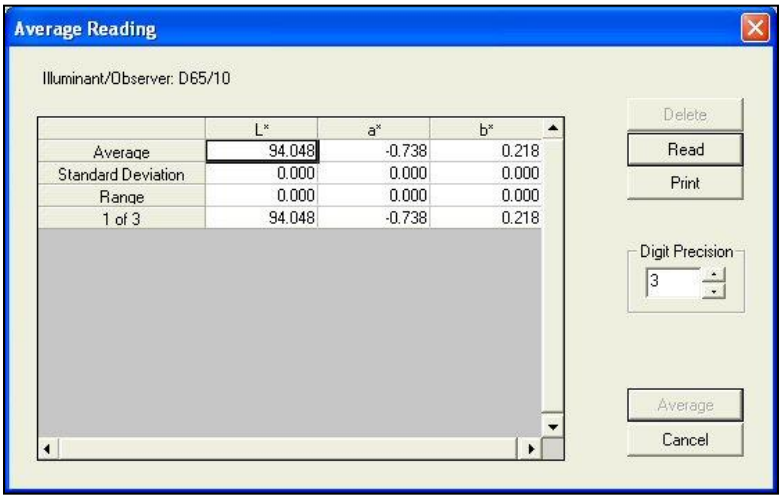


Figure 129. Measurement Average

Click ***Read*** to initiate each additional reading in the set of readings and ***Average*** to complete the average and add the averaged measurement to the job. You may also delete individual readings in the set by highlighting them and clicking ***Delete***.

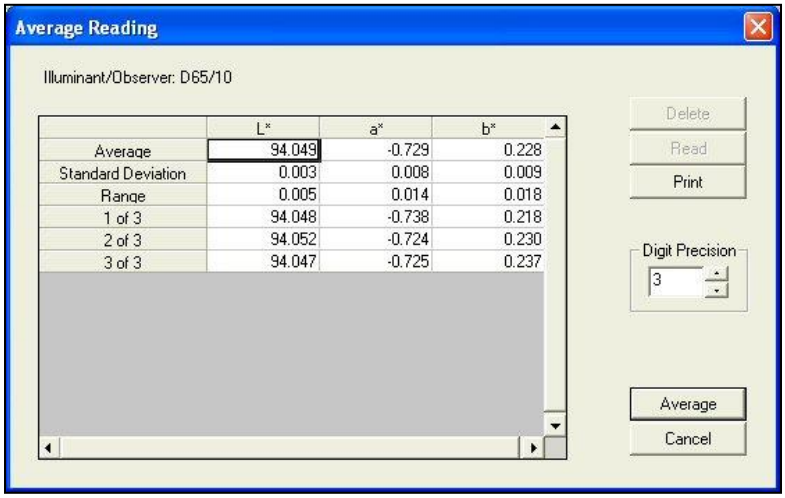


Figure 130. Calculating Measurement Average

The setting chosen here applies to the current job only.

Measurements/Timed Read

The ***Measurements > Timed Read*** command, when checked, initiates on reading the timed read method selected using the ***Options > Configure Timed Read*** command. When ***Read Sample*** is chosen, measurements are made at the interval chosen until the number of measurements indicated have been made or until the ***Read Sample*** button on the toolbar is clicked. The setting chosen here applies to the current job only.

Measurements/Automatic Standard Search

The ***Measurements > Automatic Standard Search*** command, when checked, initiates the automatic standard search function as configured using the ***Options > Configure*** **Automatic Standard Search** command. When ***Automatic Standard Search*** is chosen and measurement of a sample is initiated, either the one standard contained in the database that is closest to that read sample is automatically recalled into the job and linked to the sample, or the closest five standards are offered for selection. The setting chosen here applies to the current job only.

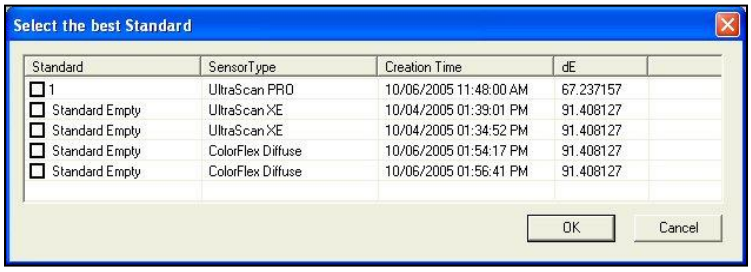


Figure 131. Search Results for Best Standard Fit

Measurements/Average Selected to Measurement

The ***Measurements > Average Selected to Measurement*** command creates a new sample that is the arithmetic average of all the measurements currently highlighted in the Job Tree. You are prompted to choose the standard to which this new sample will be linked and allowed to name the sample.

Figure 132. Standard to Compare Average

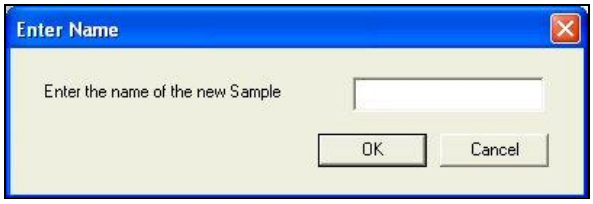


Figure 133. Calculated Measurement Average

If spectral reflectance or transmittance data is available for all the measurements being averaged, this spectral data will be averaged in creating the new sample. If spectral reflectance or transmittance data is not available for any or all the measurements being averaged, CIE XYZ data will be averaged in creating the new sample.

Measurements/Average Selected to Standard

The ***Measurements > Average Selected to Standard*** command averages the items that are currently selected (highlighted) in the Job Tree and replaces the current standard on the branch with the averaged measurement, while retaining the current standard name.

If spectral reflectance or transmittance data is available for all the measurements being averaged, this spectral data will be averaged in creating the standard. If spectral reflectance or transmittance data is not available for any or all the measurements being averaged, CIE XYZ data will be averaged in creating the standard.

Measurements/Average Selected to New Standard

The ***Measurements > Average Selected to New Standard*** command averages the items currently selected (highlighted) in the Job Tree and creates a new standard for the averaged measurement, which you are prompted to name.

Figure 134. Measurement Average Saved as Standard

If spectral reflectance or transmittance data is available for all the measurements being averaged, this spectral data will be averaged in creating the new standard. If spectral reflectance or transmittance data is not available for any or all the measurements being averaged, CIE XYZ data will be averaged in creating the new standard.

The Options Menu

From the ***Options Menu***, you can set various preferences concerning your use of the software, such as your naming conventions and default tolerances. The functions available through the ***Options Menu*** are described in the remainder of this chapter.

Options/Naming Conventions

The ***Options > Naming Conventions*** command allows you to establish naming conventions that will be used when standards and samples are read in all jobs by default (when ***Global*** is chosen from the submenu) or in the current job (when ***Job*** is chosen from the submenu).

There are five tabs available on the Naming Conventions screen: Sample, Standard, Series, Product ID and Extra ID. The ***Sample*** tab allows you to set the default naming convention for your samples. You may type any desired text into the Sample ID String Layout box. You may also insert a number to be automatically incremented with each sample read, and/or insert the date and time the sample is read to be automatically applied to the sample. You may override the default name by typing a new one into the box that appears when reading is initiated as long as the Prompt for sample name box is checked. If this box is unchecked, the naming convention will be used automatically without allowing you to override it.

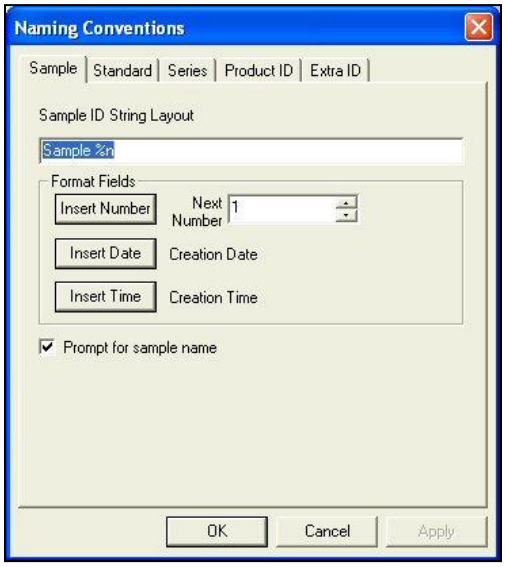


Figure 135. Setting Up Naming Rules

The ***Standard*** tab allows you to set the default naming convention for your standards. You may type any desired text into the Standard ID String Layout box. You may also insert a number to be automatically incremented with each standard read, and/or insert the date and time the standard is read to be automatically applied to the standard. You may override the default name by typing a new one into the box that appears when reading is initiated if the Prompt for standard name box is checked. If this box is unchecked, the naming convention will be used automatically without allowing you to override it.

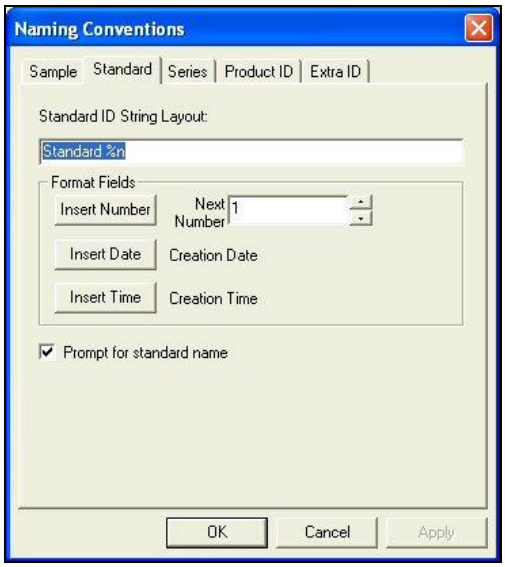


Figure 136. Rules for Naming Standards

The ***Series ID*** tab allows you to set the default naming conventions for your data series. You may type any desired text into the Series ID String Layout box. You may also insert a number to be automatically incremented with each series created, and/or insert the date and time the series is created to be automatically applied to the series. You may override the default name by typing a new one into the box that appears when reading is initiated if the Prompt for series name box is checked. If this box is unchecked, the naming convention will be used automatically without allowing you to override it.

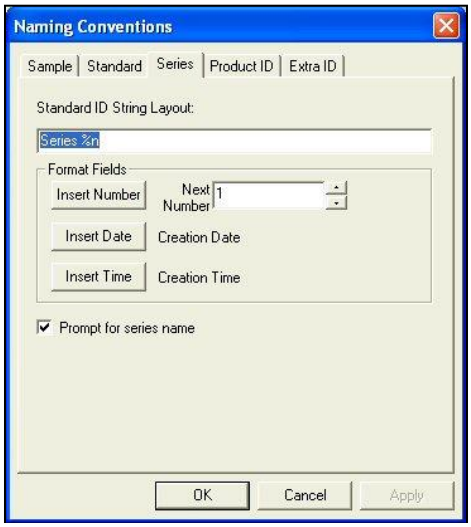


Figure 137. Rules for Naming Series

The ***Product ID*** tab allows you to set the default product IDs for your standards and samples. A list of Product IDs may be maintained and chosen on this tab. Type text for a new Product ID into the box and then click ***Add Selection*** to add it to the list. Choose an ID to be deleted from the drop-down box and click ***Remove Selection*** to remove it from the list. The ID that is currently selected from the drop-down box is the one that will be automatically applied on reading.

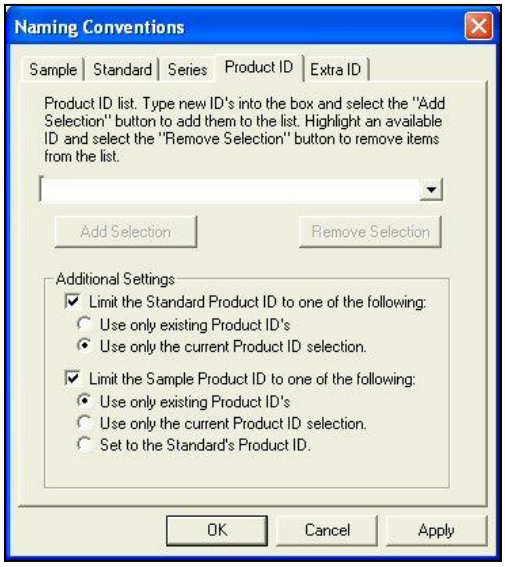


Figure 138. Rules for Naming Products

At the bottom of the screen, you may choose to limit your Standard Product IDs to only those that already exist, to the current selection in the drop-down box, or neither. You may choose to limit your Sample Product IDs to those that already exist, to the current selection in the drop-down box, to the Standard Product ID, or none of these options.

The ***Extra ID*** tab allows you to set the default extra IDs for your standards and samples. A list of Extra IDs may be maintained and chosen on this tab. Type text for a new Extra ID into the box and then click ***Add Selection*** to add it to the list. Choose an ID to be deleted from the drop-down box and click ***Remove Selection*** to remove it from the list. The ID that is currently selected from the drop-down box is the one that will be automatically applied on reading.

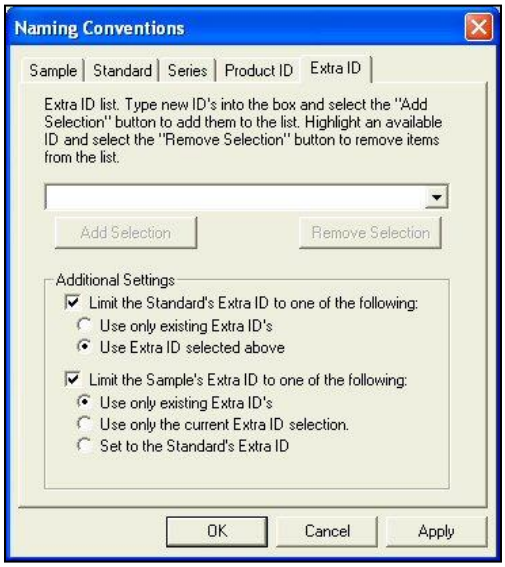


Figure 139. Extra ID Rules

At the bottom of the screen, you may choose to limit your Standard Extra IDs to only those that already exist, to the current selection in the drop-down box, or neither. You may choose to limit your Sample Extra IDs to those that already exist, to the current selection in the drop-down box, to the Standard Extra ID, or none of these options.

Options/Average Method

The ***Options > Average Method*** command allows you to indicate the method by which you wish to average when standard and sample measurements are made in the current job.

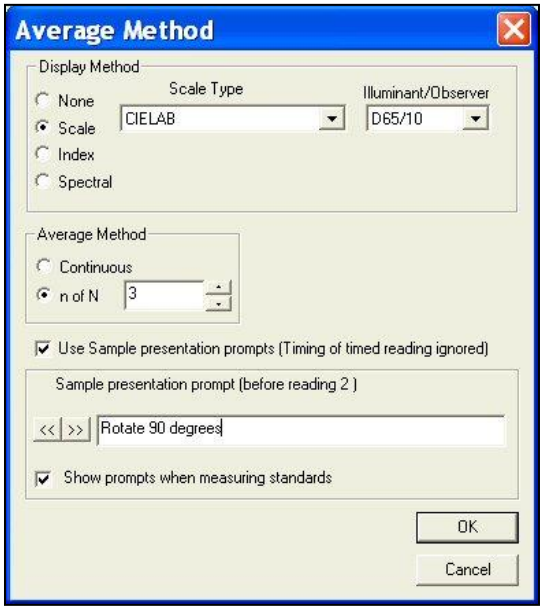


Figure 140. Selecting a Method for Averaging

The ***Display Method*** controls the information shown in the averaging window while you are taking measurements. For Display Method, you can select None, Scale, Index, or Spectral. For Scale or Index, you must also choose the scale or index, illuminant, and observer that will appear in the averaging window while you are taking readings.

Note: The Average box will display color values based on the parameters set using the ***Average Method*** *command. These color values will not match those shown in the Color Data Table unless the scale, illuminant, and observer match for the average method and the Color Data Table.*

In the Average Method area, you may select ***Continuous*** or ***n of N***. If you select ***Continuous***, then you can monitor the running average of the measurements each time you choose to read and terminate the readings (by clicking ***Average***) when the running average stabilizes. If you select ***n of N***, then you can average a specified number of readings for each measurement.

Check the box next to ***Use Sample Presentation Prompts*** if you wish to enter a helpful prompt to be shown before each reading to guide your users through the averaging sequence. Once the box is checked, ***enter the prompt for the first reading*** into the white box. Click the ***right arrow*** (**>>**) button and enter each successive prompt until the last reading in the sequence is reached. Check ***Show Prompts*** when measuring standards if you wish your prompts to be shown when measuring standards, in addition to when measuring samples.

Note: If the timed read feature is also being used, its timing will be ignored to give you a chance to follow the prompts before each reading.

Options/Read Method

When you select ***Options > Read Method*** you can choose a special read method for the sensor in use. These are types of measurements that require more than one reading to obtain a result. If you select ***Normal***, then the measurement is either a single reading or an average of multiple readings.

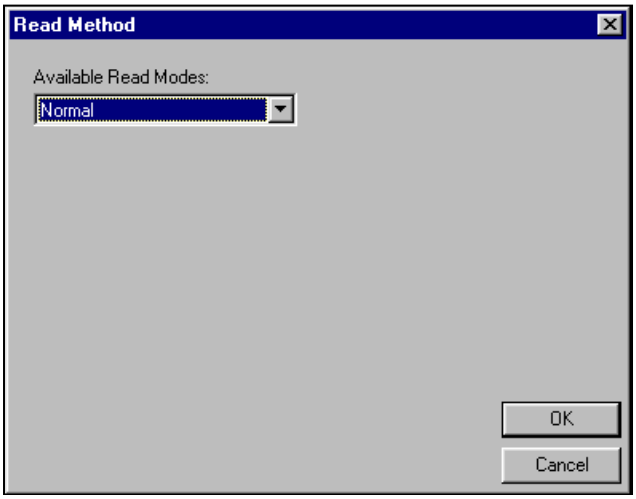


Figure 141. Selecting Special Read Method

After standardizing in reflectance, if you select ***Opacity***, you will perform two readings -- one with the sample backed by white and one with the sample backed by black. In the ***Opacity Selections*** area, you may choose to display ***Y White*** and/or ***Y Black*** in your Color Data Table view in addition to ***Opacity*** by checking the desired boxes. Also, choose the ***Illuminant/Observer*** combination for which you would like to display opacity.

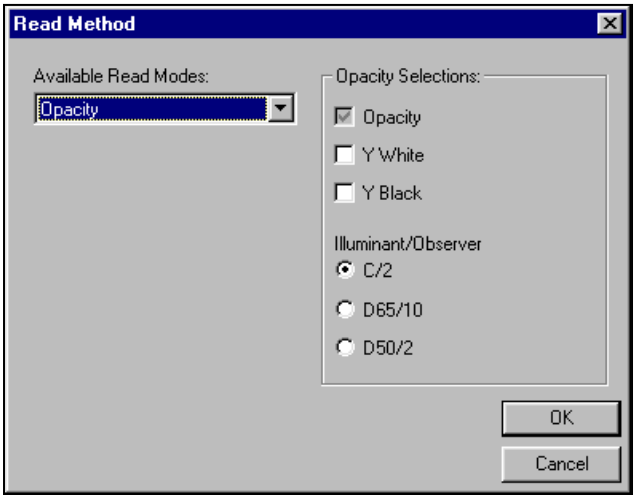


Figure 142. Read Method Menu: Opacity

Note: Opacity is not available with the ColorQuest XT. When opacity is chosen, the colorimetric values displayed after both readings represent the sample over white.

After standardizing in transmittance, if you select ***Haze*** you will perform two readings -- one with the instrument white tile at the reflectance port and one with the light trap at the port. In the Haze Selections area, you may choose to display ***Y Total*** and/or ***Y Diffuse*** in your Color Data Table view in addition to Haze by checking the desired boxes. Also, choose the ***Illuminant/Observer*** combination for which you would like to display Haze.

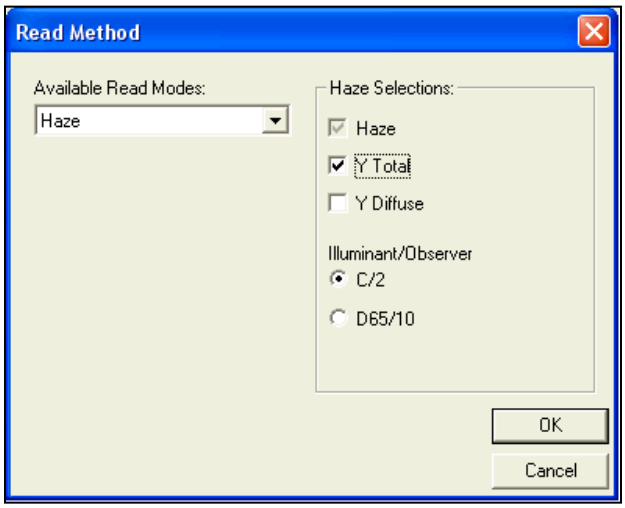


Figure 143. Read Method Menu: Haze

Note: Haze is available only with the ColorQuest XE, UltraScan PRO, and UltraScan VIS sensors.

If you select ***Multiple Read Mode***, two readings are made and displayed each time measurement is initiated, one in each of the two standardization modes chosen using the ***Sensor > Configure Multi Mode*** command.

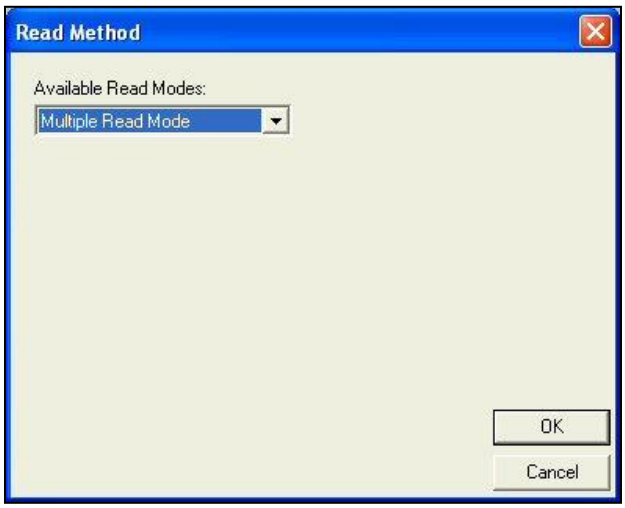


Figure 144. Multimode Read Option

*Note: Multiple Read Mode is available only with the ColorQuest XE, LabScan XE, UltraScan PRO, and UltraScan VIS sensors. The averaging feature activated by clicking **Average** in the **Measurements** menu cannot be used in conjunction with multimode reading. You can average selected readings that result from the multimode reading after the readings are completed by using the **Average Selected to** command in the **Measurements** menu.*

Options/Configure Timed Read

The ***Options > Configure Timed Read*** command allows you to select how you wish EasyMatch QC to automatically perform sample readings within the current job at a specified time interval.

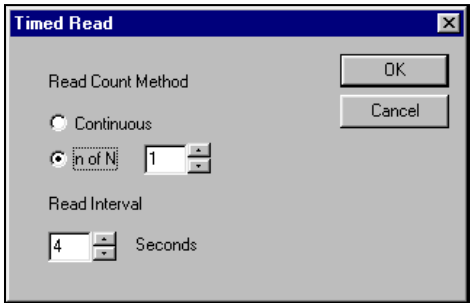


Figure 145. Timed Readings

Select the ***Read Count Method*** desired. You may choose either ***Continuous Readings*** or a ***Fixed Number*** of readings between 1 and 1000. Also, select the ***Read Interval*** (time between the end of one reading and the beginning of the next reading) desired. You may choose from 4 to 60 seconds. Click on ***OK*** to accept the parameters.

*Note: Also select (check) **Timed Read** in the **Measurements** menu to activate the timed readings you configured here.*

Options/Configure Automatic Standard Search

The ***Options > Configure Automatic Standard Search*** command allows you to specify how you would like automatic standard searching to be performed in the current job. This feature is initiated when you read a sample, at which time the sample is compared to all standards currently saved in the database. The standard that is closest in color to the sample is recalled into the current job and linked to the read sample.

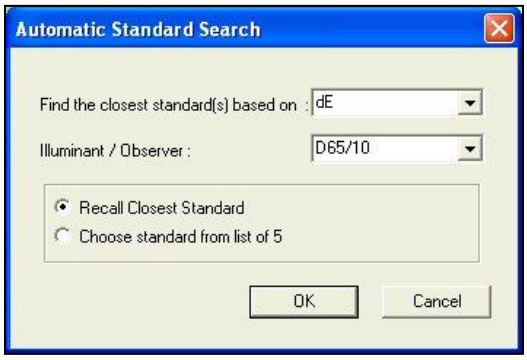


Figure 146. Automatic Standard Search

Select the parameter for which the sample-standard comparison will be performed. Your choices are dE, dE CMC, and dE*. Also, select the ***illuminant/observer*** combination under which the comparison will be performed and whether you wish to ***automatically recall the closest standard*** to the sample or ***choose from a list of the closest five standards***. Click ***OK*** to accept the parameters.

*Note: Also select (check) **Automatic Standard Search** in the **Measurements** menu to activate the automatic standard searching you configured here.*

Options/Default Tolerances

The ***Options > Default Tolerances*** command allows you to set the tolerances that will be assigned to new standards in the current job by default. You may set tolerances for as many scales, indices, and differences for as many illuminant/observer combinations as you wish. You may override the default tolerances after a standard is read by choosing ***Properties*** from the menu that appears when right-clicking on the standard in the Job Tree.

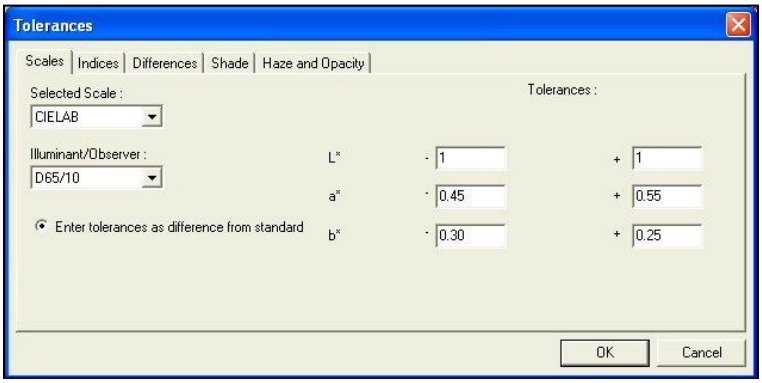


Figure 147. Setting Tolerances

On the ***Scales*** tab, set all tolerances you wish to assign based on color scales. Choose the color scale from the ***Selected Scale*** drop-down box and the ***illuminant/observer*** combination from the Illuminant/Observer drop-down box. Then enter the ***upper and lower tolerance limits*** (the allowable differences from the standard values) for each of the three components of the color scale for this illuminant/observer combination. Then enter tolerances for all other scales and illuminant/observer combinations desired by choosing each one individually and typing the tolerance values. It is not necessary to click ***OK*** after entering each set of tolerances. Clicking ***OK*** once will cause all tolerances entered to be accepted.

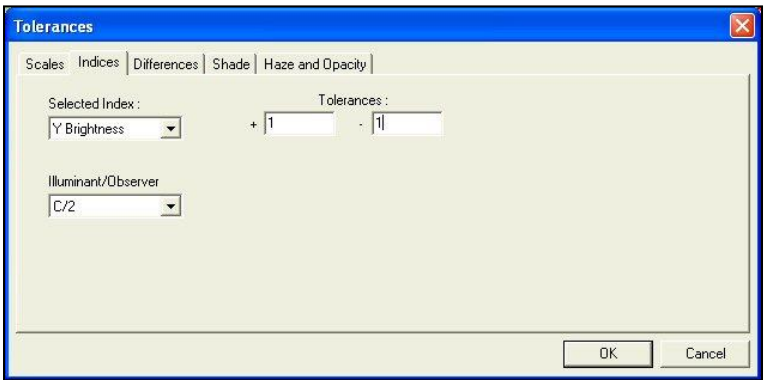


Figure 148. Setting Tolerances for an Index

On the ***Indices*** tab, set all tolerances you wish to assign based on indices. Choose the index from the Selected Index drop-down box and the ***illuminant/observer*** combination from the Illuminant/Observer drop-down box. Then enter the upper and lower tolerance limits (the allowable difference from the standard value) for the index for this ***illuminant/observer*** combination. Then enter tolerances for all other indices and ***illuminant/observer*** combinations desired by choosing each one individually and typing the tolerance values. It is not necessary to click ***OK*** after entering each set of tolerances. Clicking ***OK*** once will cause all tolerances entered to be accepted.

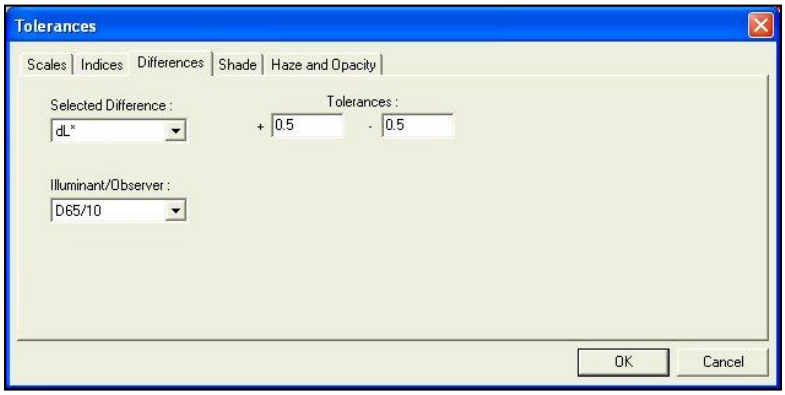


Figure 149. Setting Tolerances for a Difference

On the ***Differences*** tab, set all tolerances you wish to assign based on color differences. Choose the difference from the ***Selected Difference*** drop-down box and the ***illuminant/observer*** combination from the ***Illuminant/Observer*** drop-down box. Then enter the ***upper and lower tolerance limits*** for the difference for this ***illuminant/observer*** combination. Then enter tolerances for all other differences and illuminant/observer combinations desired by choosing each one individually and typing the tolerance values. It is not necessary to click ***OK*** after entering each set of tolerances. Clicking ***OK*** once will cause all tolerances entered to be accepted.

Note: EasyMatch QC pre-sets dE CMC to 1. If you are using your own tolerances, change dE CMC to zero to turn it off.

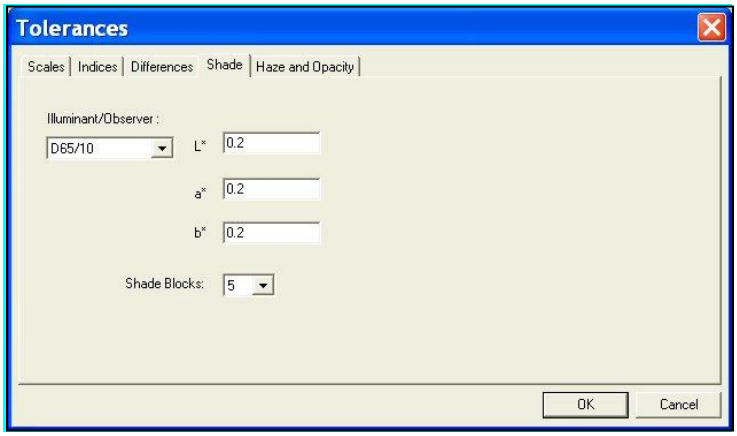


Figure 150. Setting Shade Tolerances

On the ***Shade*** tab, ***enter the tolerance*** you wish to use for the first, second, and third traces, which will be the three parameters of your color scale (i.e., L*a*b*, L*C*h). Also, ***select the number of shade blocks*** to be contained within your pass/fail tolerance. For instance, if you choose 5, the blocks within your tolerance will be 3, 4, 5, 6, and 7. In the example shown in Figure 147, the pass/fail tolerance is 0.2 for each color scale parameter, and 5 shade blocks will fit within that tolerance value.

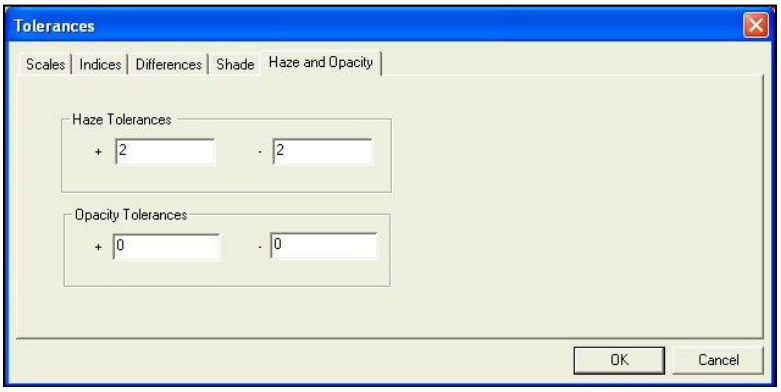


Figure 151. Setting Haze & Opacity Tolerances

On the ***Haze*** and ***Opacity*** tab, ***enter the tolerances*** you wish to use for the haze and opacity read methods.

Click ***OK*** to accept the default tolerances and close the Tolerances screen.

Options/Adjust Scale Factors

The ***Options > Adjust Scale Factors*** command allows you to set various factors used in the calculations for dE CMC, dE CIE94, DIN99, and dE* 2000 differences, plus the ASTM D1500-33mm, Saybolt-50/100mm indice, LOVIBOND® and AOCS RY when using a ColorQuest XE, ColorQuest XT, UltraScan PRO, UltraScan VIS or Vista. These factors apply to all jobs used in this installation of EasyMatch QC.

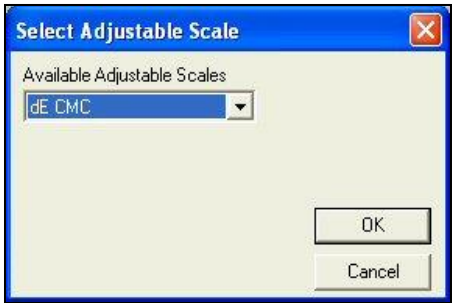


Figure 152. Select Adjustable Scale

When the Select Adjustable Scale screen appears, first choose the scale of interest from the drop-down box. Then, click ***OK***. The screen where the desired factors may be entered appears.

Note: LOVIBOND is a trademark of Tintometer LTD, UK.

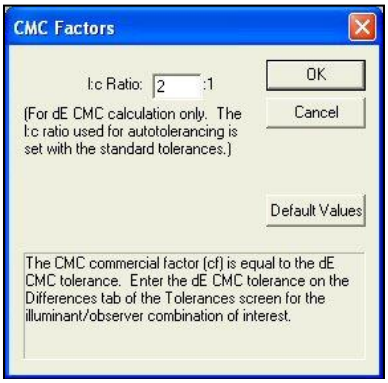


Figure 153. Enter CMC Factors

Enter the factors desired or click the ***Default Values*** button to return the factors to their default values. Click ***OK*** to begin using the new factors.

Options/ASCII Export

The ***Options > ASCII Export*** command opens a submenu with two commands*:* ***Export Data*** and ***Configure***.

The ***Export Data*** option initiates export of the readings that are currently highlighted in the Job Tree in the format that was chosen using the ***Configure*** command, described below. You are first prompted for the output file name, and then the data is sent to the file when you click ***OK***.

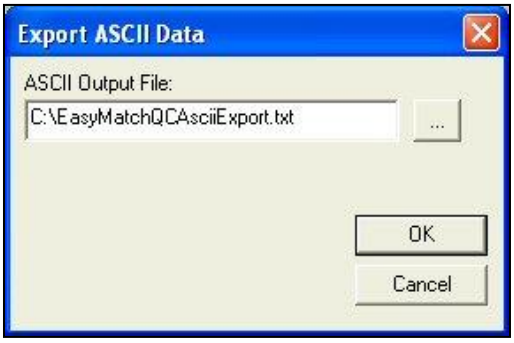


Figure 154. Export ASCII

The ***Configure*** option allows you to choose the parameters you would like to export when ***Export Data*** is selected. The screen below is obtained.

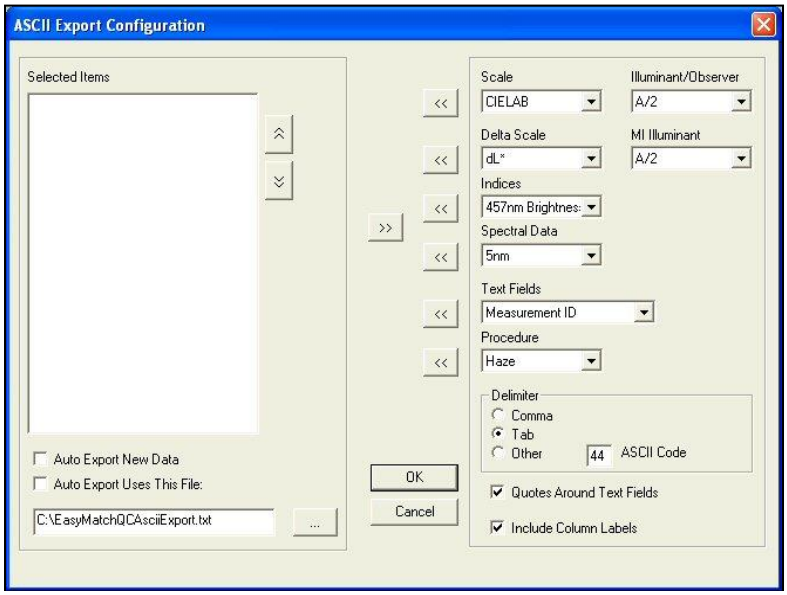


Figure 155. ASCII Export Configuration

The information currently selected for export is displayed on the left side of this window, and all available parameters are listed on the right side of the window. Select each desired item from the drop-down menus on the right side of the window and then click on the ***left arrow*** (**<<**) button nearest to the item to move the item into the ***Selected Items*** list. Highlight each item to delete on the left side of the window and click the ***right arrow*** (**>>**) button to remove it from the list. The ***up arrow*** and ***down arrow*** buttons allow you to move selected items up or down the list. Also, enter (or browse for) the directory and name for the export file in the box below "Auto Export Uses This File." The file extension .CSV will automatically be appended if you chose to export to a comma-delimited file. .TXT will be appended for all other types of files. Long file names with spaces and network paths are all acceptable for use. Click ***OK*** when all selections have been made. A sample output is shown below.

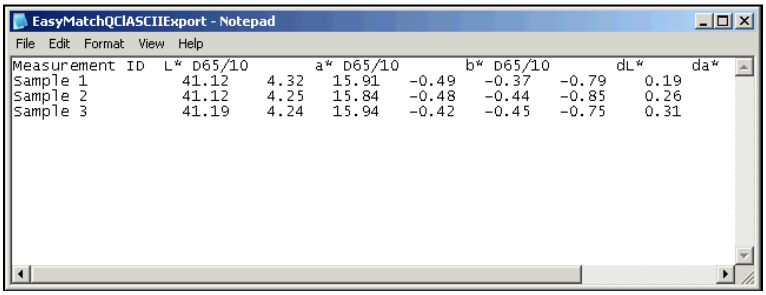


Figure 156. ASCII Export to Notepad

Each job may have its own ASCII export configuration. Multiple jobs may export to the same file as long as all the jobs have the same ASCII export configuration.

Column headers are written to the top of the file when the file is first created. From that point on, only data is appended to the file (not headers).

Note: Beware that if you later change the ASCII export configuration without opening a new file, the file header may no longer accurately reflect the contents of the file.

When differences are exported, they are relative to the standard to which the sample is linked, NOT the standard currently being displayed in your data views.

Options/Data Send

The ***Options > Data Send*** command opens a submenu with two commands: ***Send Data*** and ***Configure***.

The ***Send Data*** option initiates sending the readings that are currently highlighted in the Job Tree in the format that was chosen using the ***Configure*** command, described below. You are first prompted for the output device, and then the data is sent to the device when you click ***OK***.

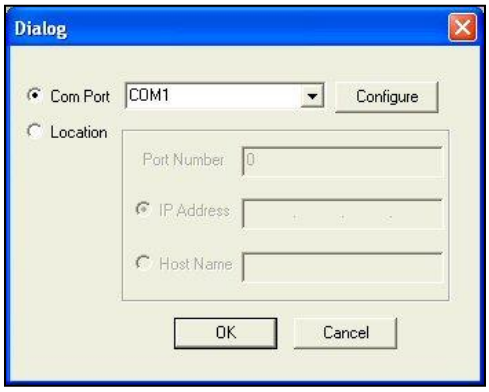


Figure 157. Data Send COM Port Selection

The ***Configure*** option allows you to choose the parameters you would like to send when ***Data Send*** is selected. The screen below is obtained.

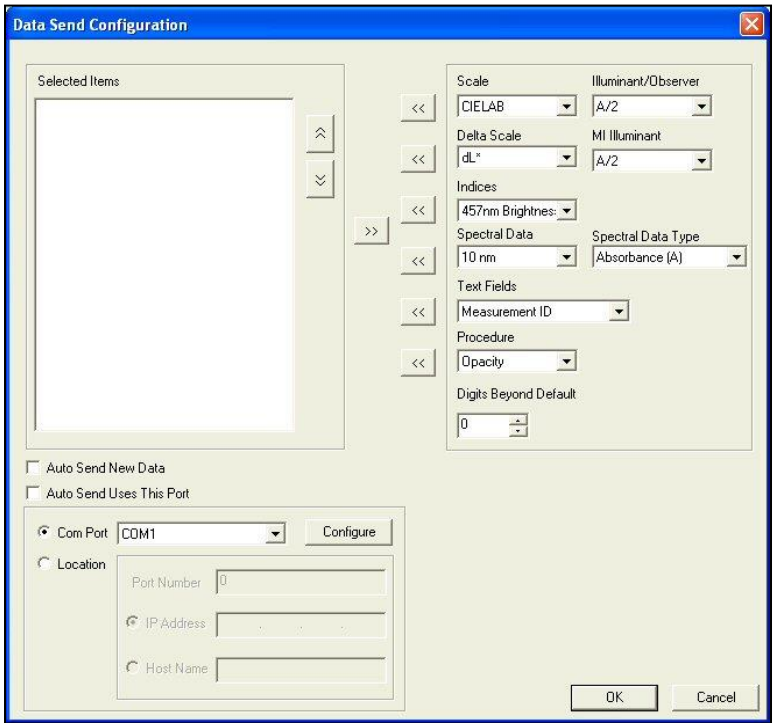


Figure 158. Data Send Configuration

The information currently selected for sending is displayed on the left side of this window, and all the available parameters are listed on the right side of the window. Select each desired item from the drop-down menus on the right side of the window and then click on the ***left arrow*** (**<<**) button nearest the item to move the item into the ***Selected Items*** list. ***Highlight*** each item to delete on the left side of the window and click the ***right arrow*** (**>>**) button to remove it from the list. The ***up arrow*** and ***down arrow*** buttons allow you to move selected items up or down the list. Enter the device definition for the send in the box below 'Auto Send Uses This Port.' Click ***Configure*** to define all COM port parameters. Click ***OK*** when all selections have been made.

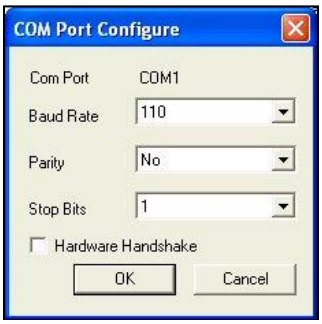


Figure 159. Data Send COM Port Configuration

Each job may have its own data send configuration. Multiple jobs may be sent to the same device if the device is ready.

When differences are exported, they are relative to the standard to which the sample is linked, NOT the standard currently being displayed in your data views.

Options/Application Preferences

The ***Options > Application Preferences*** command allows you to set various preferences concerning your use of the software. These preferences apply globally when EasyMatch QC is in use, no matter which job or jobs are open.

Figure 160. Global Preferences Menu

On the ***Units*** tab shown above, choose the date format and type of length units (English or metric) you wish to use.

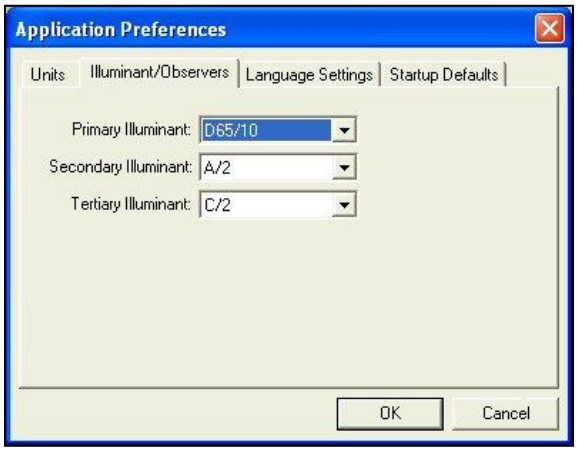


Figure 161. Global Preferences for Illuminants

On the ***Illuminant/Observers*** tab, choose the three ***illuminant/observer*** combinations you would like to use in new data views by default. These illuminants may later be changed in individual views as desired.

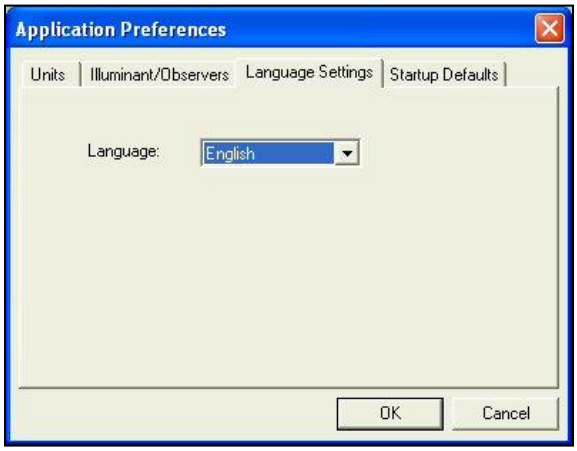


Figure 162. Global Preferences for Language

On the ***Language Settings*** tab, you may set the language in which the software text will presented. Choices are English, Spanish, German, Italian, French, Japanese, and Chinese.

*Note: The keyboard shortcut **Ctrl** + **E** returns the software to English.*

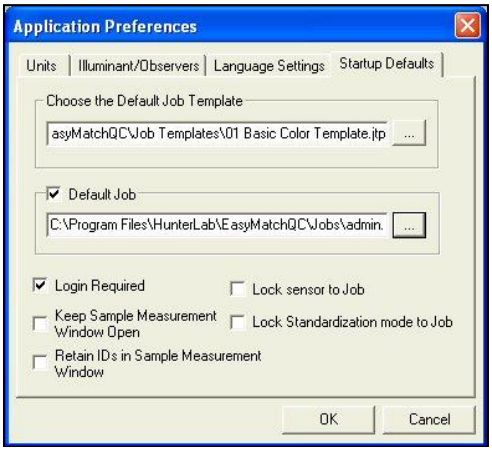


Figure 163. Global Preferences - Default Job Template

On the ***Startup Defaults*** tab, you may indicate the name of the job template you would like to use by default when new jobs are opened. Clicking the button with three dots on it allows you to browse for the appropriate template file.

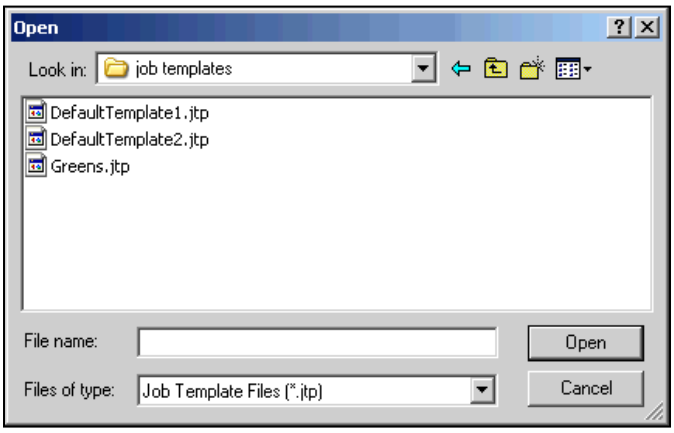


Figure 164. Global Preferences - Open Job Template

You may also choose to have the software open a specific job or jobs each time it is booted. Clicking the button with three dots on it allows you to browse for the appropriate job file(s). To select more than one job to open, press and hold the ***Ctrl key*** on your keyboard while ***clicking your mouse*** on each desired job.

Figure 165. Global Preferences - Browse for Job File

Indicate whether you wish software **log-in** to be required (checked) or not required (unchecked) for the software to open.

Note: When Login Required is checked, the default administrator user name 'admin' and password 'hunterlab' may be used for initial entry to the software and configuration of user accounts.

When the ***Keep Sample Measurement Window Open*** box is checked, a ***Read*** button is added to the Read Sample screen and this window remains open after a sample is read. You may then click ***Read*** to make another reading. This change applies to the reading of samples only, not standards.

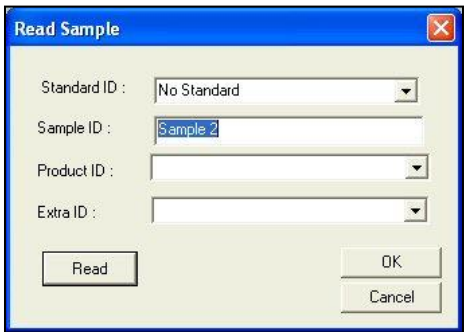


Figure 166. Global Template - Sample ID

When the ***Retain IDs in Sample Measurement Window*** is checked, the last sample ID used is displayed on the Read Sample screen when another sample reading is initiated. This allows you to use the ID again or modify it without having to retype it. This retention applies to the reading of samples only, not standards.

When the ***Lock Sensor to Job*** box is checked, the current job may be used to hold only readings made with the sensor type (i.e., LabScan XE or UltraScan PRO) attached to the job. Measurements made with other sensor types may not be read or recalled into this job.

When the ***Lock Standardization Mode to Job*** box is checked, the current job may be used to hold only readings made using the standardization mode (i.e., RSIN, 1.000-inch area of view, UV filter nominal) attached to the job. In fact, when a job that is locked to a standardization mode is opened or made active, the sensor automatically switches to the locked standardization mode without requiring use of the ***Sensor/Set Modes*** command.

If both boxes are checked at the same time, the current job will be locked to a single sensor type and standardization mode.

When either or both boxes are checked, a second level of status bar is shown at the bottom of the EasyMatch QC screen, showing the job's sensor type and the job's standardization mode. The lower status bar continues to show the current sensor and standardization mode.

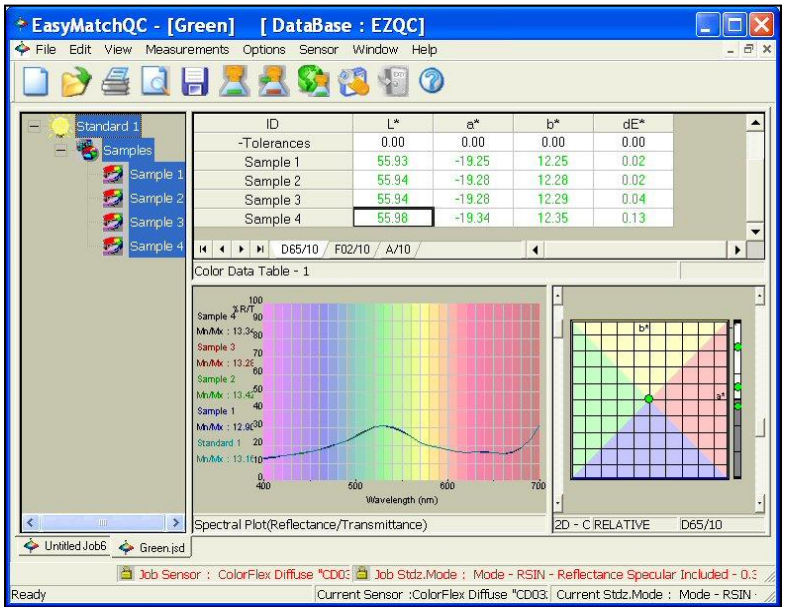


Figure 167. Global Preferences Current Sensor & Standardization Mode Options

The ***Options > System Configuration*** command yields a submenu that allows you to choose to configure user accounts and privileges or configure data storage. These parameters will be used throughout the software, no matter what job or jobs are in use. /System Configuration

User Manager

The user manager allows you to configure accounts for system users and assign specific software privileges to those accounts. When the ***User Manager*** screen appears, you may click on ***Users*** to view the users already in the system.

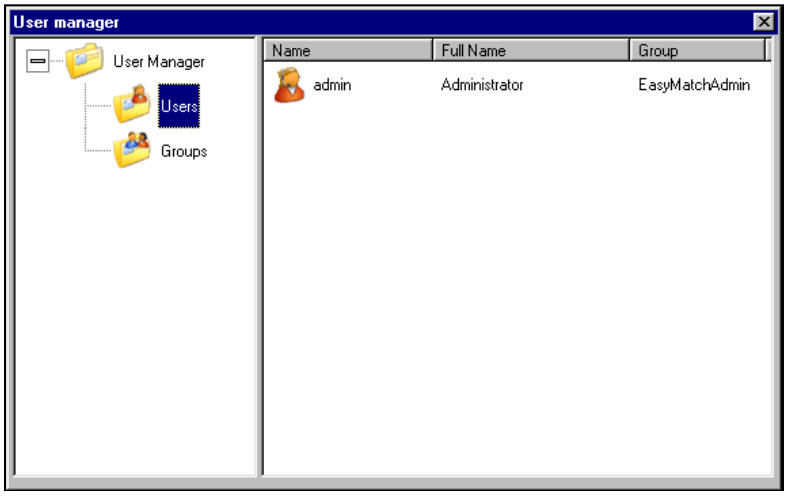


Figure 168. User Manager

Note: The User Manager command is available only if Login Required is checked on the Startup Defaults tab available by choosing Application Preferences from the Options menu.

Right-click on ***Users*** to display a pop-up menu with one command: ***New User***. ***New User*** brings up a screen on which you may create a new user account. Click ***Create*** to create the account. This user may log into EasyMatch QC using the account name and password chosen here.

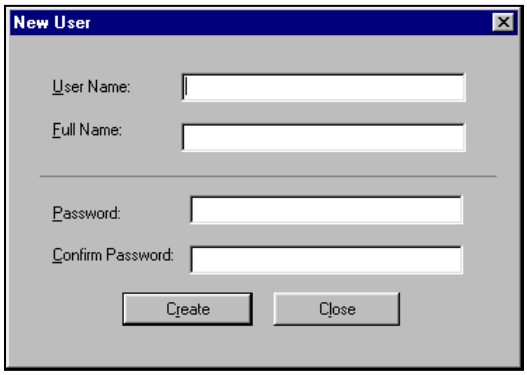


Figure 169. User Manager: New User

On the right side of the screen, ***right-click*** on a user name to receive a pop-up menu containing the following commands:

- ***Set Password*:** Choose this command and enter the old password then the new password twice to change this user's password.

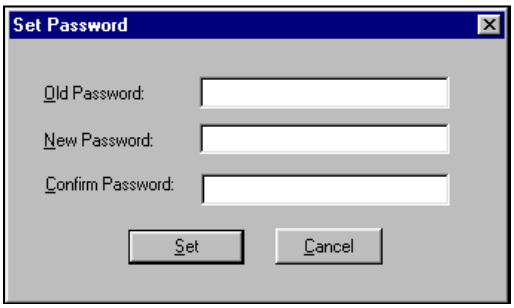


Figure 170. User Manager: Set Password

- ***Edit*:** Choose this command to edit the full name for this user.

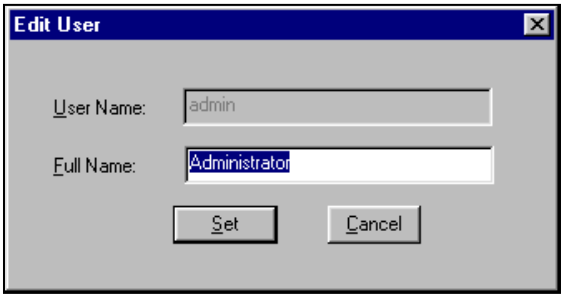


Figure 171. User Manager: Edit User Name

- ***Delete*:** Choose this command to delete this user.

- ***Add to Group:*** Choose this command to obtain a list of available groups. Click on the group desired and then ***OK*** to add this user to the chosen group.

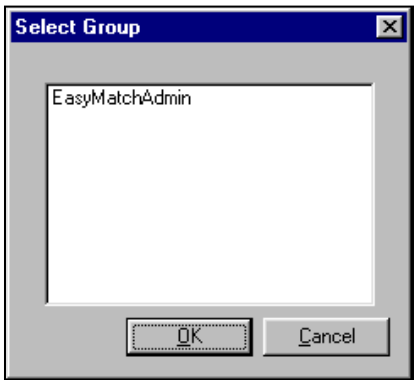


Figure 172. User Manager: Select Group

Click on ***Groups*** to view the groups already in the system.

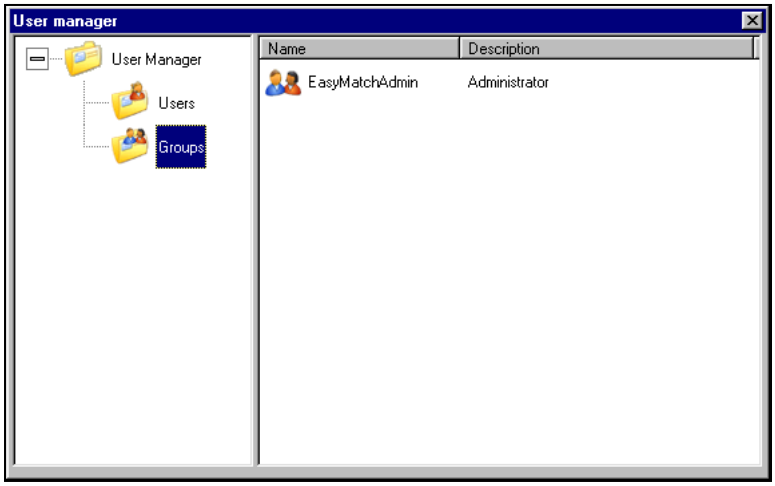


Figure 173. User Manager: View Groups

Right-click on ***Groups*** to display a pop-up menu with one command: ***New Group***. ***New Group*** brings up a screen on which you may create a new group. Click ***Add*** to add users to the group and ***Remove*** to remove any highlighted users from the group. Click ***Create*** to create the group.

Figure 174. User Manager: Add New Group

Click ***Set Privileges*** to configure the privileges for the group. Each menu command may be allowed or prohibited individually. Click the plus (+) sign next to an item to open a list of its subitems. Check the box near each command that should be allowed and clear the box for each command that should be prohibited.

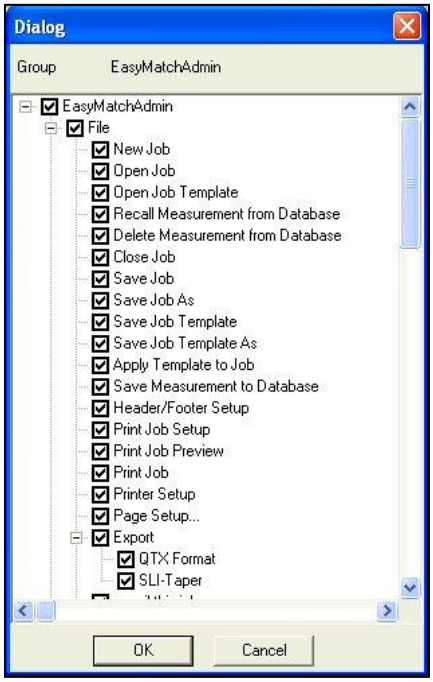


Figure 175. Add New Group Privileges

For 21 CFR 11 compliance, the following commands should be prohibited for users that are not the system administrator:

- File/Delete Measurement from Database
- File/Time Synchronization
- Edit/Cut
- Edit/Delete
- View/Audit Log
- Sensor/Set Interval
- Options/User Manager
- Options/Data Storage.

You may wish to further limit the privileges of lower-level operators.

On the right side of the User manager screen, right-click on a group name to receive a pop-up menu containing the following commands:

- ***Add User*:** Choose this command to add an existing user to this group. A list of users that have not yet been assigned to a group appears. Select the desired user and click ***Add***.

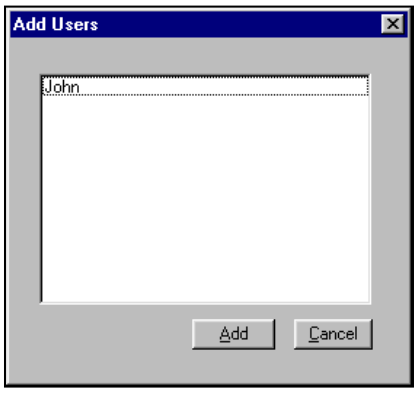


Figure 176. User Manager: Add Users

- ***Edit Privileges:*** Choose this command to edit the privileges of this group. The same screen that was displayed when you initially set the privileges is received.
- ***Delete:*** Choose this command to delete this group.

Data Storage

The ***Data Storage*** command allows you to indicate the location where your database will be stored and other parameters related to the database.

Note: Use of a database is optional.

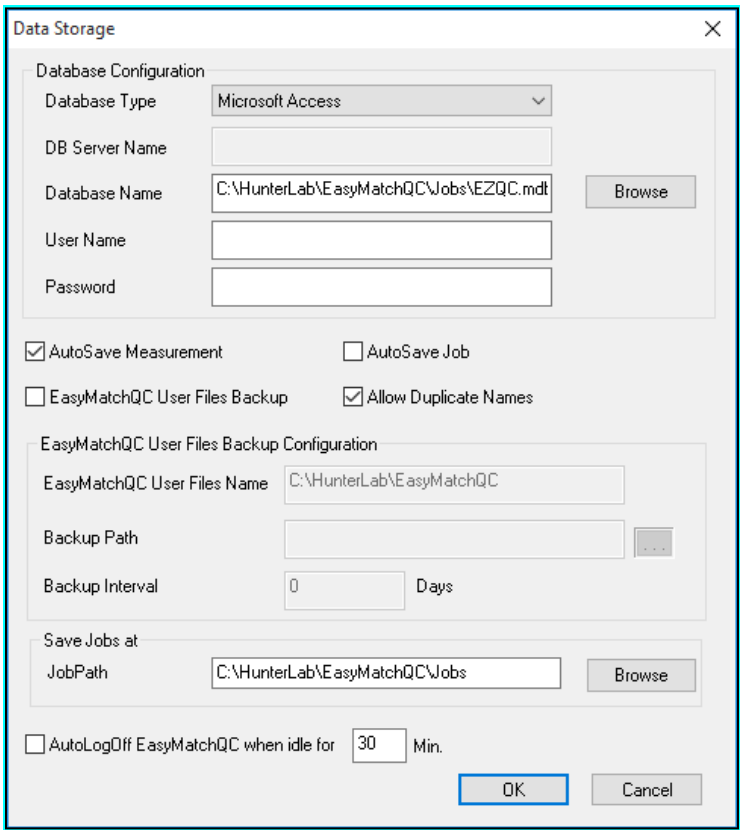


Figure 177. Default Storage Location

Choose the type of database you wish to use and indicate the location of the database, which may be housed at any location accessible by your computer. If required for database access, enter the user name and password for the database. If you wish to have all measurements saved to the database automatically as they are made, check ***Auto Save Measurement***. You may also have all measurements in all open jobs automatically saved by checking ***Auto Save Job***. If you wish to use the same sample and standard IDs multiple times in a single job or database without receiving an error message, check ***Allow Duplicate Names***. If you wish to periodically have the software back up your database automatically, check ***Database Backup*** and indicate where you would like the back-up file to be stored and how often. Indicate the path where you would like your jobs saved by default and, if you wish to import an EasyMatch Textiles database, check ***Select Textiles Database*** and indicate the database and its location. Click ***OK***. When ***File > Save Measurement to Database*** is then chosen, the chosen measurement(s) will be saved to the configured database.

Note: Microsoft Access need not be installed on the system to use the Access database feature. Create and configure a SQL database as described in the Appendix.

Server Settings (-ER Version Only)

At the end of the installation of the EasyMatch QC-ER Client software, the server name was entered. However, if the server name should change or require re-entry, use the ***Server Settings*** command to do so, then click ***OK***.

Figure 178. ER Version: Server Settings

Options/Customize Toolbar

The ***Options > Customize Toolbar*** command allows you to modify the icons of the buttons on the toolbar and the commands performed by the buttons on the toolbar. This configuration applies to this installation of the software, no matter what job or jobs are in use.

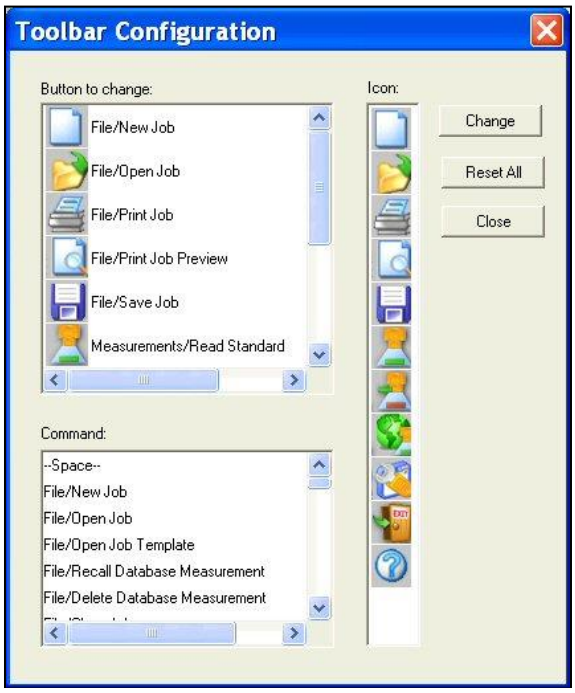


Figure 179. Defining the Toolbar

In the Button to change box, ***select the button you wish to change*** and then ***click the icon*** for the button in the Icon box. Then select a ***new command*** for that button from the Command box. Click ***Change*** to initiate the changes. Click ***Reset All*** to return all buttons to their default settings. Click ***Close*** to exit the window after you have made your changes.

Options/EasyGroup

The ***Options > EasyGroup*** command allows you to launch HunterLab's tapering and grouping program, EasyGroup, if you purchased and installed that package. Refer to the User's Guide for EasyGroup for complete operational instructions.

Options/Import EasyGroup Sequence

The ***Options > Import EasyGroup Sequence*** command allows you, once a collection of samples has been grouped or tapered in EasyGroup, to bring the grouping or tapering information back into EasyMatch QC and display it as a new column in the Color Data Table view. The column header is 'Group' for grouped samples and 'Group/Sequence' for group + tapered samples.

Note: EasyGroup version 1.82 or higher is required to use this feature.

The Sensor Menu

From the ***Sensor Menu***, you can select and configure a new sensor, set its standardization modes, and standardize the sensor. You may also set the standardization interval for the instrument and calibrate the optional UV filter. The functions available through the ***Sensor Menu*** are described in the remainder of this chapter.

Sensor/Install/Configure

The ***Sensor > Install/Configure*** command allows you to install a new sensor or change the configuration of an existing sensor. The Sensor Manager appears first.

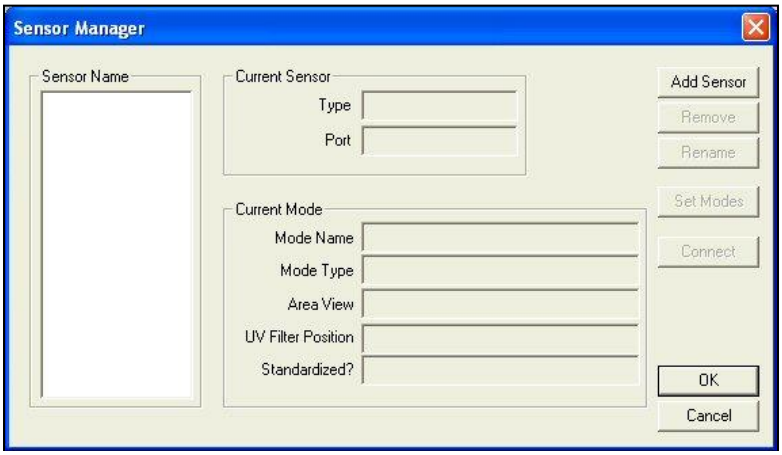


Figure 180. Sensor Manager

Click ***Add Sensor*** to install a new sensor. The Setup Sensor screen appears on which you can select your instrument model, name the sensor (using the sensor's serial number is recommended), and indicate the communications port where it will be installed. Click ***Next*** when these items are as desired.

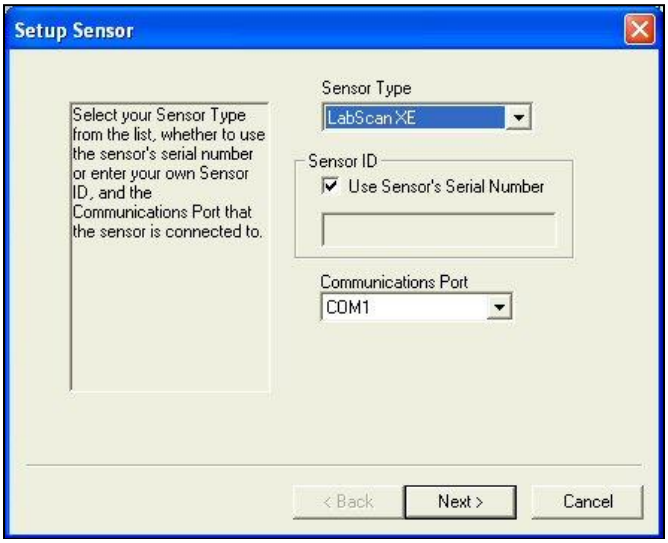


Figure 181. Configuring Sensor Type & ID

Next, you are prompted to configure a standardization mode for the sensor. ***Enter a name for the mode***, and indicate the ***other mode parameters***. Check the box next to ***Standardize Now*** if you would like standardization to proceed immediately upon completion of sensor configuration. Click ***Next*** or ***Finish*** to complete the installation. For instruments with more than one available standardization mode, you will receive a check box asking if you would like to set up additional modes. Do so if desired. Then you are either prompted through the standardization process (as described later in this chapter) or returned to the Sensor Manager screen.

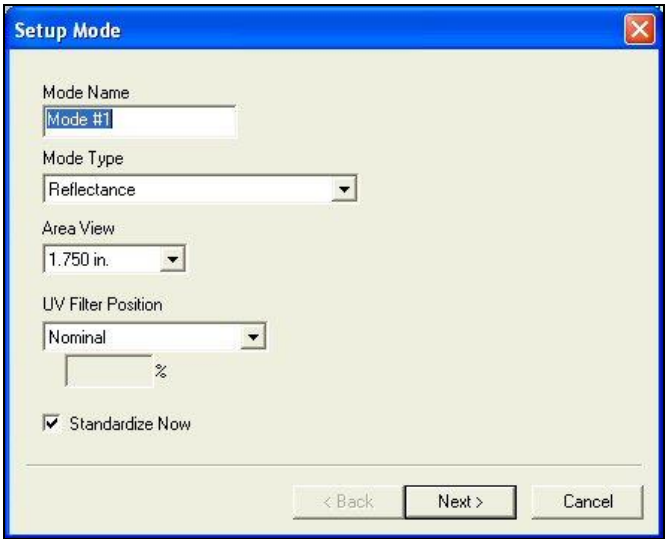


Figure 182. Setup Mode for Sensor

To delete a sensor, highlight it in the Sensor Name box and click ***Remove***. Confirm that you really wish to remove the sensor by clicking ***Yes***.

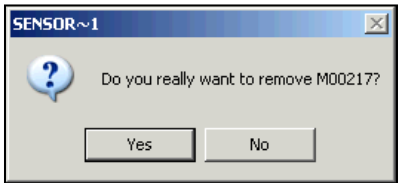


Figure 183. Sensor Deletion

To rename a sensor, ***highlight*** it in the Sensor Name box and click ***Rename***. Type the new name into the New Name box and click ***OK*** to implement the change.

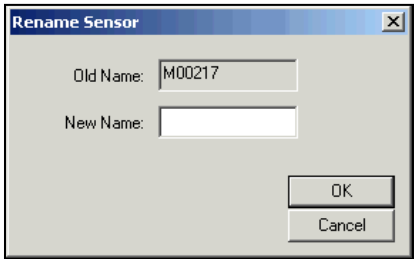


Figure 184. Renaming a Sensor

To set the standardization modes for a sensor, highlight it in the Sensor Name box and click ***Set Modes***.

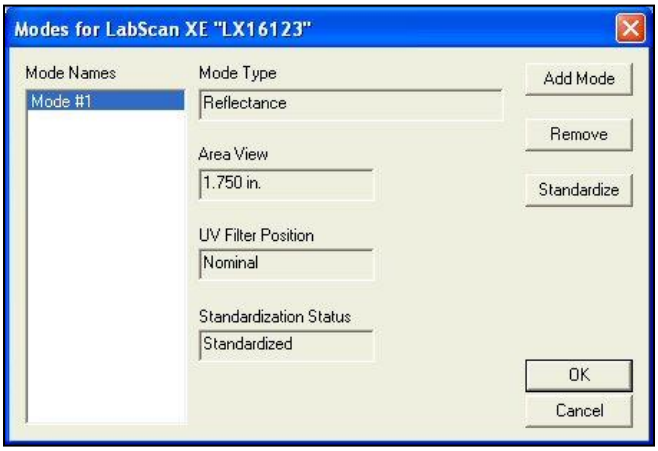


Figure 185. Set Modes for a Sensor

To connect to a different sensor than the one that is currently in use, first check your sensor cables to ensure that they are linking the desired new sensor to the computer. Then, ***highlight*** the desired new sensor name in the Sensor Name box and click ***Connect***. The new sensor will then be in use.

Sensor/Standardize

The ***Sensor > Standardize*** command yields prompts that lead you through the standardization procedure for the standardization mode currently selected using the ***Set Modes*** command. The prompts will appear slightly differently depending on the instrument in use and the standardization mode. The keyboard shortcut for this command is ***F4***.

First, the bottom of scale must be set. Click ***Next*** when you are ready to read the zero.

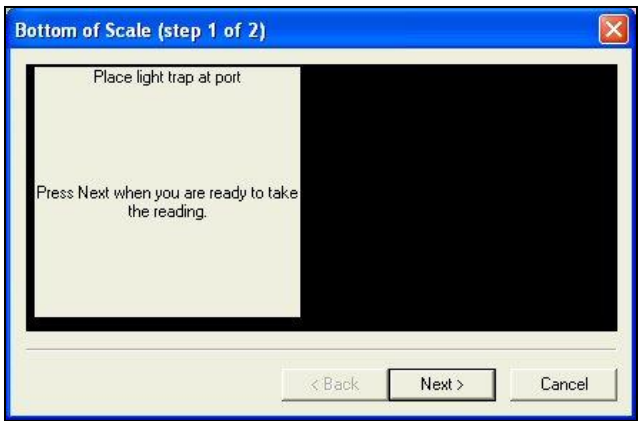


Figure 186. Standardization: Bottom of Scale

Then, the top of scale must be set. Click ***Next*** when you are ready to read the standard or blank.

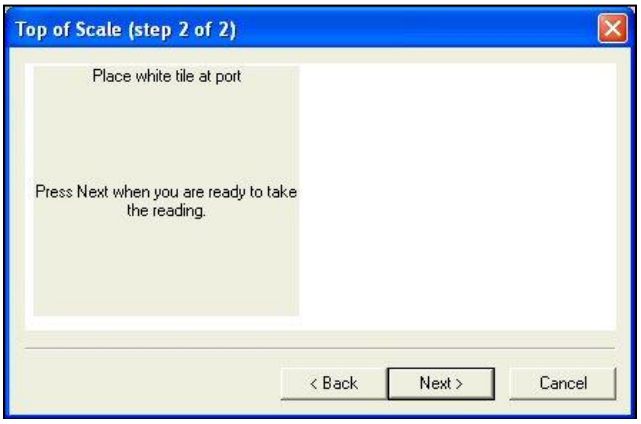


Figure 187. Standardization: Top of Scale

Click ***Finish*** when standardization is complete.

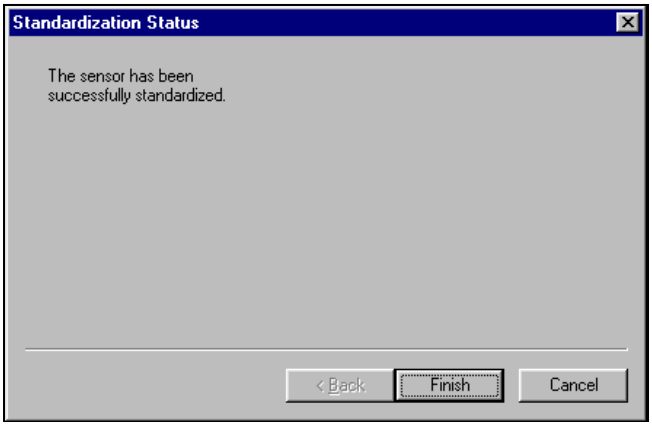


Figure 188. Confirming that Standardization is Completed

Sensor/Set Modes

The ***Sensor > Set Modes*** command allows you to configure standardization modes for the currently active sensor.

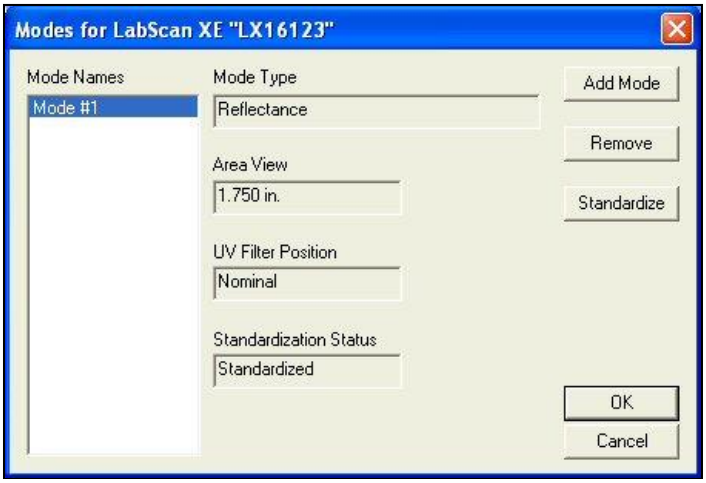


Figure 189. Set Modes for a Sensor

To add a new mode, click the ***Add Mode*** button. To remove an already configured mode, highlight it in the Mode Names box and click ***Remove***. To standardize in a mode, highlight it in the Mode Names box and click ***Standardize***. Follow the prompts to complete standardization.

Sensor/Set Interval

The ***Sensor > Set Interval*** command allows you to set the standardization interval for the currently active sensor. When that interval has elapsed, the software will prompt you to standardize before more readings can be made. The interval indicated here applies to EasyMatch QC regardless of the job currently in use.

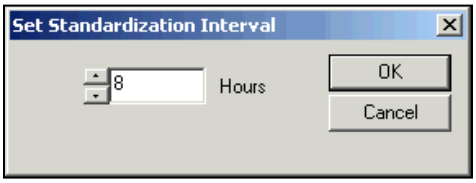


Figure 190. Restandardization Interval

Note: A standardization interval of no longer than 8 hours is recommended.

If your installed sensor is a LabScan XE, you may also set the secondary standardization interval, which is the interval at which the secondary white tile 'paddle' is automatically checked. Zero disables reading of this tile entirely.

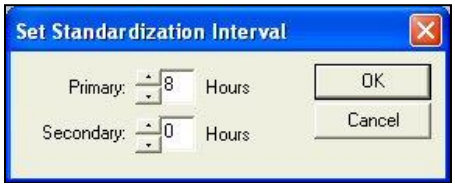


Figure 191. Secondary Standardization for LabScan XE

Sensor/UV Filter Calibration

The ***Sensor > UV Filter Calibration*** command appears only when the connected instrument is a ColorQuest XE, LabScan XE, UltraScan PRO, or UltraScan VIS with the UV control option installed. The instrument must also be standardized in a mode for which the UV Filter Position is indicated as 'Calibrated.'

Note: Before calibrating the UV filter of a ColorQuest XE, UltraScan PRO, or UltraScan VIS, standardize the instrument in the mode referenced on the label of the fluorescent standard. If the label does not specify a standardization mode, standardize in RSEX.

UV filter calibration should be performed weekly and after lamp replacement. Once ***UV Filter Calibration*** is chosen from the ***Sensor Menu***, the following screen appears.

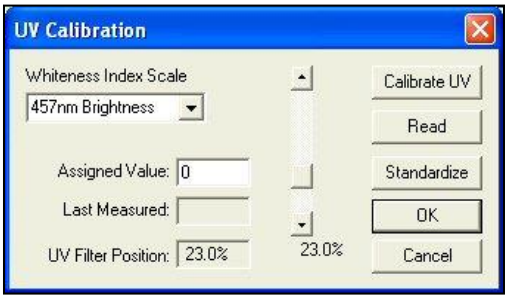


Figure 192. Calibration of UV Filter: 457 Brightness

Enter the standard's assigned value into the appropriate box on the UV Calibration screen. This value has been assigned at the factory if you are using the HunterLab-supplied fluorescent standard. Choose whether the value is for Brightness 457, Whiteness Index CIE (and the illuminant/observer combination), Whiteness Index Ganz, or Z%. The scale used will be WI Ganz for a HunterLab standard.

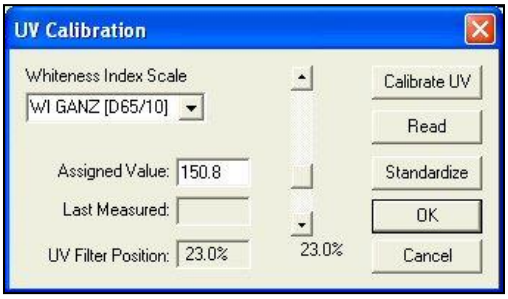


Figure 193. Calibration of WI GANZ

Select ***Calibrate UV*** to automatically adjust the UV filter to the appropriate position after several readings of the fluorescent standard. First you are prompted to place the fluorescent standard.

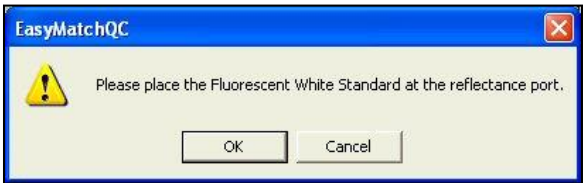


Figure 194. Prompt for Calibration of UV Filter

Place the fluorescent standard at the instrument port. For the ColorQuest XE, UltraScan PRO, or UltraScan VIS, center spot 3 at the reflectance port. Use the dotted guides on the labeled side of the standard to properly center the standard under the sample clamp. Select ***Read*** to read the fluorescent standard with the UV filter in the position indicated at the bottom of the screen. If desired, the slider bar may be used to change the filter position between manual readings.

Click ***Standardize*** to initiate standardization. You will be returned to the UV Calibration screen after standardization is complete.

For the ColorQuest XE, UltraScan PRO, and UltraScan VIS, measure both spot 3 and spot 4 of the fluorescent standard every six months. Compare the results. If spot 3 has faded beyond tolerable limits for your application, use spot 4 for UV filter calibration from this point on and order a new fluorescent standard (HL#A02-1011-126 [calibrated] for ColorQuest XE, UltraScan PRO, and UltraScan VIS.

Note: If you choose to employ the 'calibrated' filter position, this position should be employed for all routine measurements using this instrument. If you calibrated the UV filter with an open port and then you wish to use a cover glass, you must recalibrate the UV filter with the cover glass in place.

Sensor/Configure Multi Mode

The ***Sensor > Configure Multi Mode*** command appears only when the connected instrument is a ColorQuest XE, LabScan XE, UltraScan PRO, or UltraScan VIS. This command is used to set up the process by which the instrument can standardize and read in two separate but similar modes when the standardization and read commands, respectively, are given.

The following screen first appears that allows you to indicate how you would like the multimode readings to be performed.

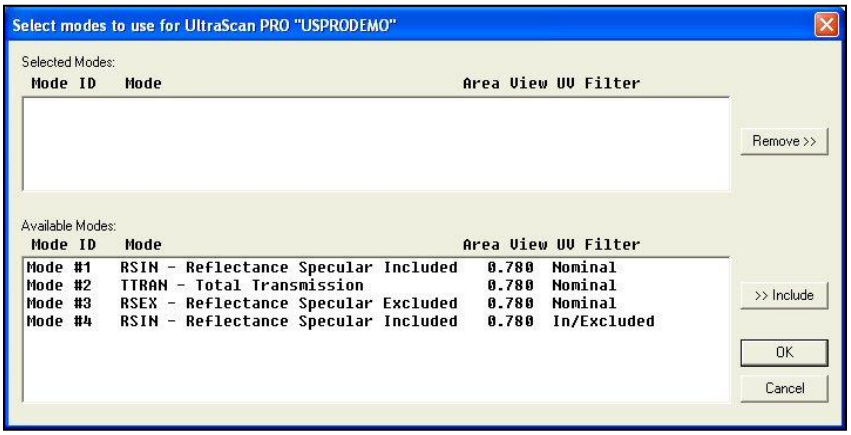


Figure 195. Multimode Configuration

When this screen first opens, all the standardization modes you have configured for your instrument (using ***Sensor > Set Modes***) are listed in the Available Modes box. Click on the first mode you wish to use and then click the ***Include*** button to move the mode from the Available Modes box to the Selected Modes box. Only modes that are similar enough to the already-selected mode that no user intervention is required for the dual measurements will remain available. Select the second desired mode and click ***Include*** again to include it. Click ***OK***. Then, when the ***Options > Read Method*** is set as Multiple Read Mode, the instrument will be standardized in the two modes when you initiate standardization and will read in the two modes when you initiate readings. The multiple readings are placed in the job as separate measurements.

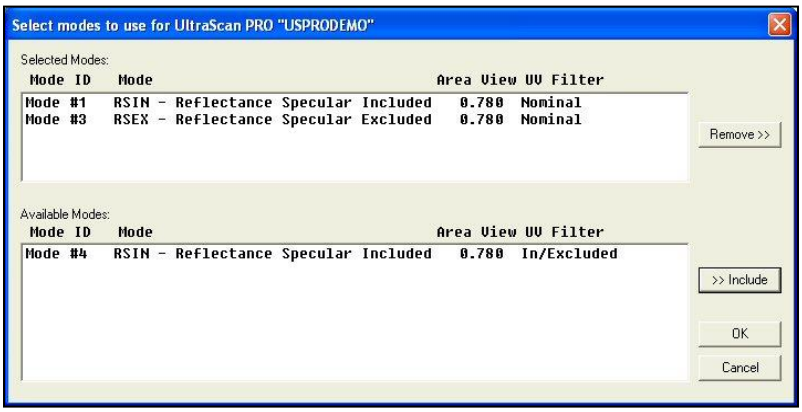


Figure 196. Multimode: Mode Selection

Sensor/Import Logged Reads

The ***Sensor > Import Logged Reads*** command appears only when the connected instrument is a ColorFlex, ColorFlex EZ or MiniScan EZ. There must be items saved to the instrument Data log to use this command.

The Data log screen appears first.

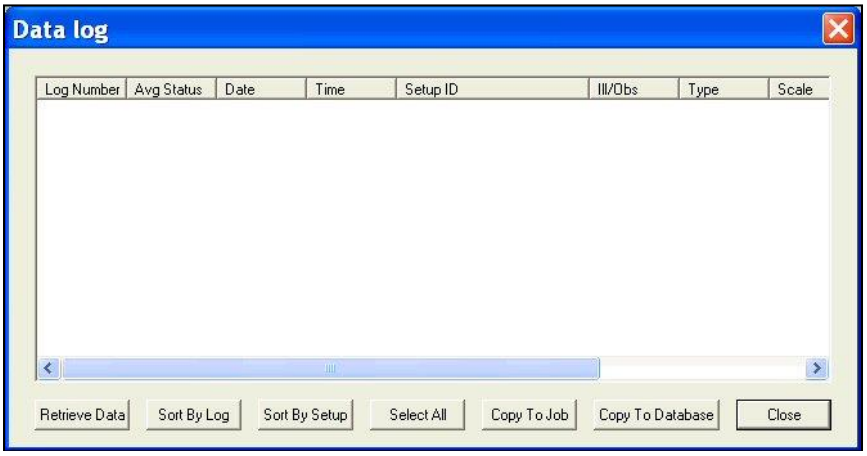


Figure 197. Data log: Import Readings

Click ***Retrieve Data*** to copy all the measurements stored in the instrument's Data log to the Data log screen.

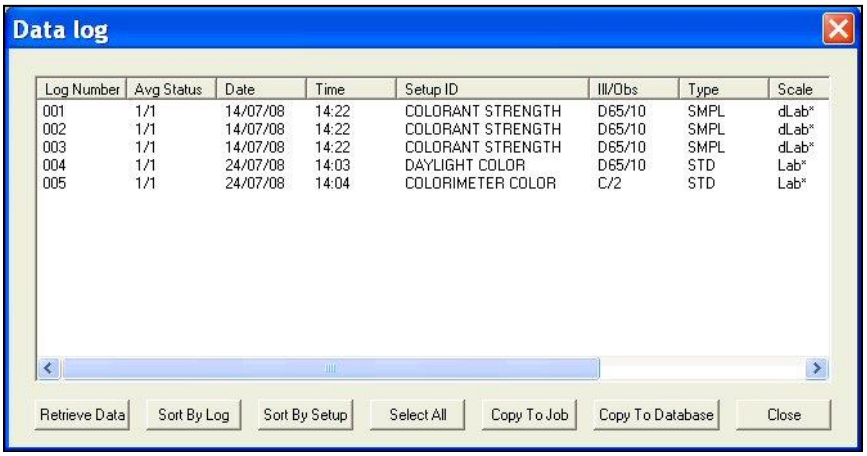


Figure 198. Data log: Available Data

Once the measurements are shown, the remainder of the buttons at the bottom of the screen become active and serve the following functions:

- ***Sort by Log*:** Causes the measurements shown in the Data log window to be sorted by their instrument Data log ID numbers for easier viewing.
- ***Sort by Setup*:** Causes the measurements shown in the Data log window to be sorted by their instrument setup numbers for easier viewing.
- ***Select All***: Selects (highlights) all the measurements shown on the Data log screen so that the ***Copy to Job*** or ***Copy to Database*** command may be applied to all of them

at once. (The alternative to ***Select All*** is to use the Windows convention of clicking on a single item to select it, ***Ctrl +*** clicking on multiple items to select them, or ***Shift +*** clicking on the first and last of a list of items to select all the items between.

- ***Copy to Job*****:** Places the measurements that are currently selected into the active job. Standards are automatically placed in the job as standards. You are prompted to indicate the standard under which samples should be saved.

- ***Copy to Database*****:** Places the measurements that are currently selected into the database. Standards are saved as standards and samples as samples, and the Data log ID number is used as the item ID.

  The measurements copied to the job or EasyMatch QC database are NOT deleted from the instrument's Data log. If you wish to delete them, you must do so manually though the instrument firmware.

Sensor/Configure Setups

The ***Sensor > Configure Setups*** command appears only when the connected instrument is a ColorFlex, ColorFlex EZ or MiniScan EZ. When you select it, the Setup Groups window appears where you can choose to create, edit, or delete setup groups and upload, modify, and download individual setups.

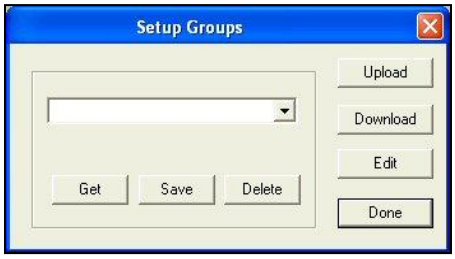


Figure 199. Configure Setups: Groups

Upload

When you click ***Upload***, all the setups stored in the instrument are brought into EasyMatch QC. These setups can then be edited, if desired. The setups can also be saved as a setup group by typing a name into the white box or selecting a name from the drop-down list and clicking ***Save***. Later, you can select the desired group and click ***Get*** to retrieve that saved group of setups or ***Delete*** to delete the group of setups.

Download

When you click ***Download***, the setups in the current EasyMatch QC setup group are sent back to the instrument.

Edit

When you click ***Edit***, the Product Setup Configuration screen appears.

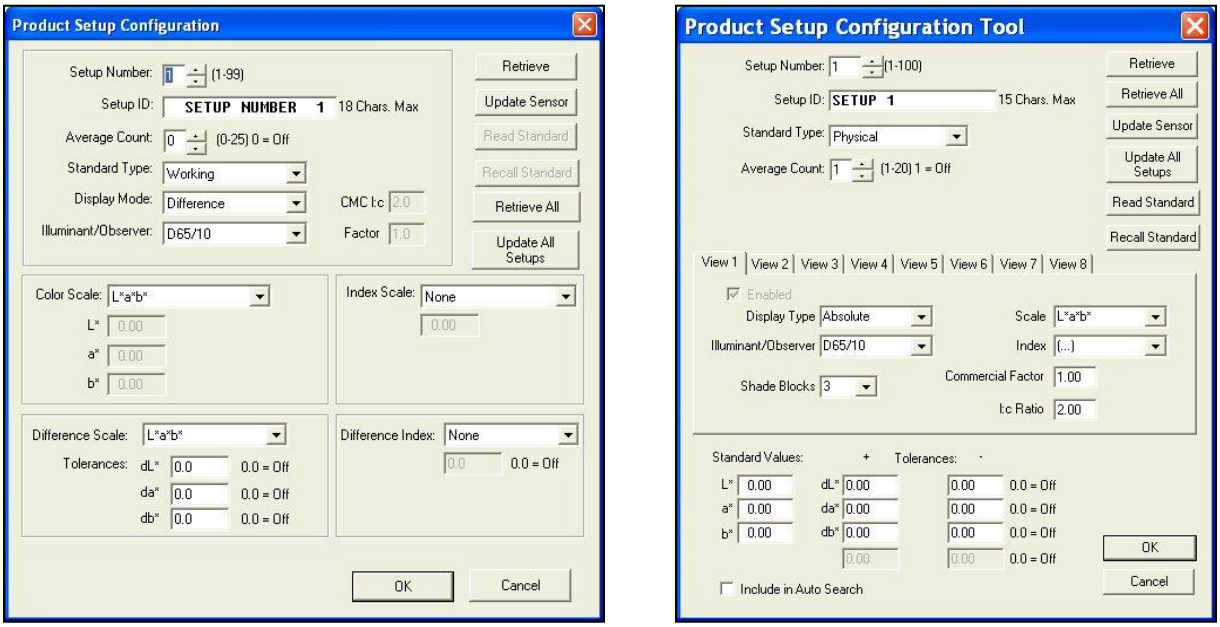


Figure 200. Product Setup by Instrument: ColorFlex, ColorFlex EZ (left), MiniScan EZ (right)

Use the scroll bar next to Setup Number or type a setup number into the box to choose a setup with which to work. If you wish to begin working with the version of the setup that is already resident in your instrument, click ***Retrieve***. If you wish to work with the version of the setup that is shown on-screen, do not click ***Retrieve***.

Alter the setup parameters as desired. The parameters and selections available are the same as those configured through your instrument firmware. If you are using a physical standard, you may click the ***Read Standard*** button to read the standard to be saved with the setup using your instrument or ***Recall Standard*** to recall a standard from your EasyMatch QC database to be saved with the setup.

When all parameters are as desired for this setup, click ***Update Sensor*** to send the setup to your instrument. You may retrieve all the setups from the instrument at once using the ***Retrieve All*** button or send all the setups back to the instrument at once using the ***Update All*** Setups button.

Sensor/Diagnostics

The ***Sensor > Diagnostics*** command opens to a submenu allowing access to the various diagnostic tests available to verify performance of your instrument. Those tests are described below.

Green Tile Test

Note: This is available for all instruments except ColorQuest XT.

When ***Diagnostics > Green Tile Test*** is selected, a special job is opened in EasyMatch QC and, if this is the first time you have run the green tile test for this instrument, the following screen will be shown.)

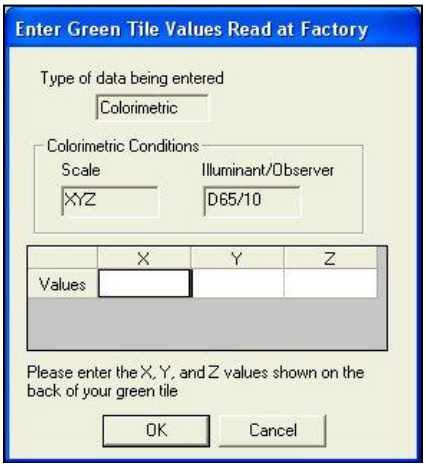


Figure 201. Green Tile Test

As prompted, enter the values read at factory for your green tile in XYZ. These values can be found on the back of the green diagnostics tile. Once all three numbers have been entered, click ***OK***. A standard called 'Green Tile Values Read at Factory' will be created in a Green Tile Test Job. The following prompt then appears.

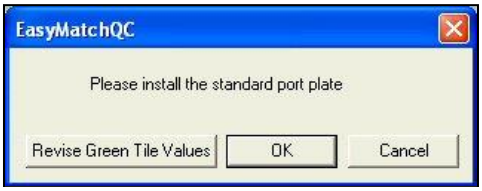


Figure 202. Reminder to Install Standard Port Plate

As instructed, make sure that the standard port plate for your instrument is currently installed. This will generally be the port insert with the largest opening that is not covered by glass. Click ***OK*** when this port plate is installed. If you need to adjust your green tile values, click ***Revise Green Tile Values*** before clicking ***OK***.

Follow the on-screen prompts to perform a normal standardization in reflectance/RSIN mode. When standardization is complete, the following prompt will be shown.

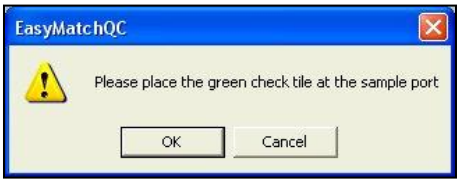


Figure 203. Prompt to Read the Green Tile

Center the green tile over the sample port/reflectance port with the colored side facing the instrument. Click ***OK***.

The green tile will be read and the measurement added to the green tile check job. Its pass/fail status will also be shown. Should this test 'Fail', a different message will appear suggesting actions to take.

Figure 204. Results of Diagnostics: Green Tile

Click ***Yes*** to close the Green Tile Job. The following pdf report will appear documenting the results of the test. As an option, this report can be printed as a hardcopy for your records. In addition, this ***Green Tile Report*** is automatically saved in C:\HunterLab\EasyMatchQC-ER Client\Reports or C:\HunterLab\EasyMatchQC\Reports with a unique data/time stamp for future reference.

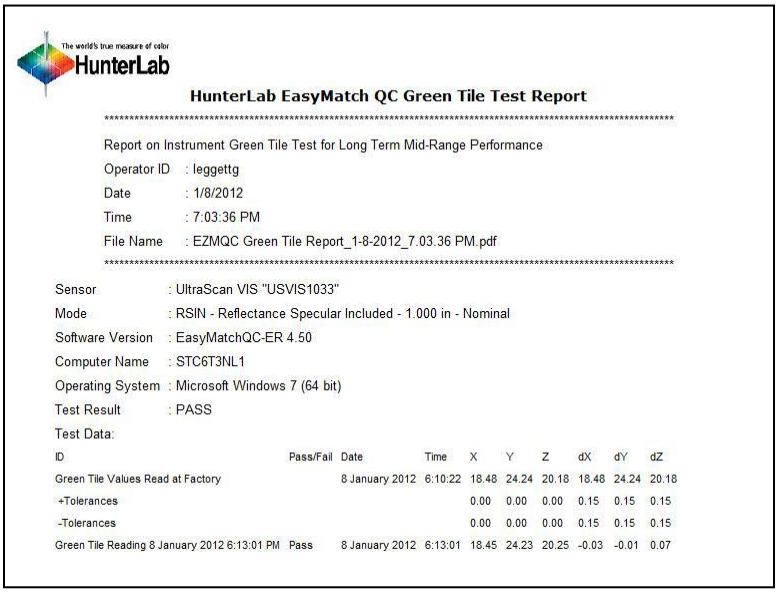


Figure 205. Diagnostics Report

File/Exit to close the report and finish the test.

Repeatability Test

Note: This is available for all instruments except ColorQuest XT.

When ***Diagnostics > Repeatability Test*** is selected, a special job is opened in EasyMatch QC and the following prompt is shown.)

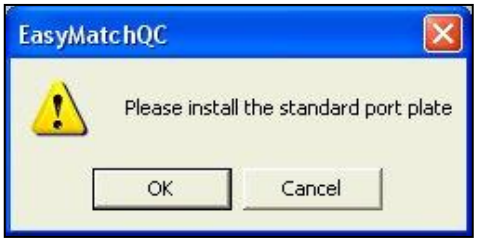


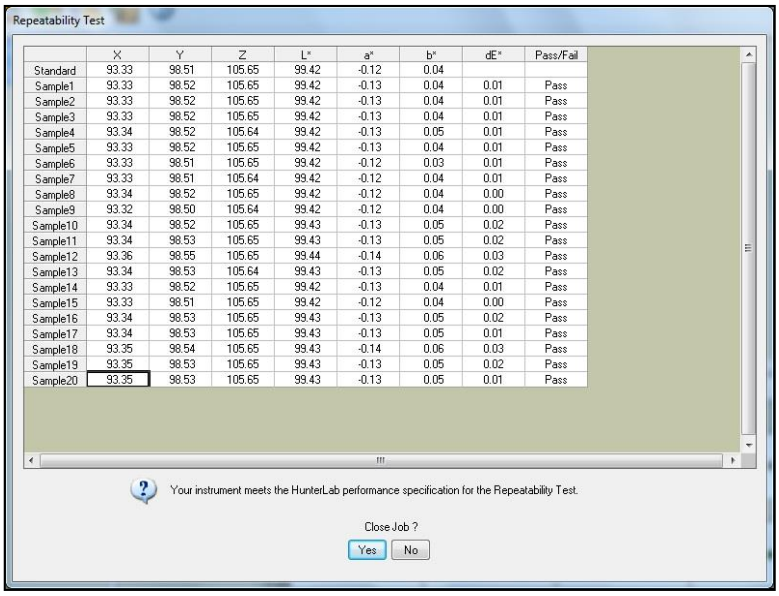
Figure 206. Reminder to Use Standard Port Plate

As instructed, make sure that the standard port plate for your instrument is currently installed. This will generally be the port insert with the largest opening that is not covered by glass. Click ***OK*** when this port plate is installed.

Follow the on-screen prompts to perform a normal standardization in reflectance/RSIN mode. When standardization is complete, the following prompt will be shown.

Figure 207. Repeatability Test: White Tile

Center the white calibrated tile over the sample port/reflectance port with the white side facing the instrument. Click ***OK***. The Repeatability Test screen appears.



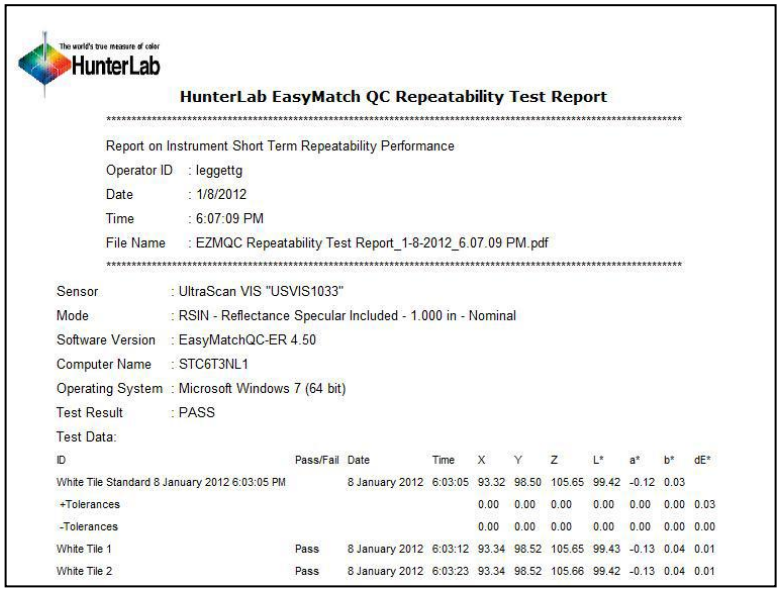
	X	Y	Z	L*	a*	b*	dE*	Pass/Fail
Standard	93.33	98.51	105.65	99.42	-0.12	0.04		
Sample1	93.33	98.52	105.65	99.42	-0.13	0.04	0.01	Pass
Sample2	93.33	98.52	105.65	99.42	-0.13	0.04	0.01	Pass
Sample3	93.33	98.52	105.65	99.42	-0.13	0.04	0.01	Pass
Sample4	93.34	98.52	105.64	99.42	-0.13	0.05	0.01	Pass
Sample5	93.33	98.52	105.65	99.42	-0.13	0.04	0.01	Pass
Sample6	93.33	98.51	105.65	99.42	-0.12	0.03	0.01	Pass
Sample7	93.33	98.51	105.64	99.42	-0.12	0.04	0.01	Pass
Sample8	93.34	98.52	105.65	99.42	-0.12	0.04	0.00	Pass
Sample9	93.32	98.50	105.64	99.42	-0.12	0.04	0.00	Pass
Sample10	93.34	98.52	105.65	99.43	-0.13	0.05	0.02	Pass
Sample11	93.34	98.53	105.65	99.43	-0.13	0.05	0.02	Pass
Sample12	93.36	98.55	105.65	99.44	-0.14	0.06	0.03	Pass
Sample13	93.34	98.53	105.64	99.43	-0.13	0.05	0.02	Pass
Sample14	93.33	98.52	105.65	99.42	-0.13	0.04	0.01	Pass
Sample15	93.33	98.51	105.65	99.42	-0.12	0.04	0.00	Pass
Sample16	93.34	98.53	105.65	99.43	-0.13	0.05	0.02	Pass
Sample17	93.34	98.53	105.65	99.43	-0.13	0.05	0.01	Pass
Sample18	93.35	98.54	105.65	99.43	-0.14	0.06	0.03	Pass
Sample19	93.35	98.53	105.65	99.43	-0.13	0.05	0.02	Pass
Sample20	93.35	98.53	105.65	99.43	-0.13	0.05	0.01	Pass

Figure 208. Repeatability Test: White Tile Readings

The white tile is read as a standard and then twenty times as a sample. The color values for each reading are displayed on the Repeatability Test screen as they are made. The pass/fail result for each reading is also shown. Once all the readings have been made, you are provided with instructions concerning what you should do if your instrument fails the repeatability test. Click ***Yes*** if you wish to save the test data to the job or ***No*** if you wish the data to be discarded. The pass/fail tolerances for each instrument are listed below.

Instrument	Pass Criteria for Repeatability
ColorFlex	dE* ≤ 0.04 for the average reading
ColorFlex EZ	dE* ≤ 0.05
ColorQuest XE	dE* ≤ 0.03
LabScan XE	dE* ≤ 0.09
MiniScan EZ	dE* ≤ 0.05
UltraScan PRO	dE* ≤ 0.03
UltraScan VIS	dE* ≤ 0.03
Vista	dE* ≤ 0.02

Click ***Yes*** to close the Repeatability Job. The following pdf report will appear documenting the results of the test. As an option, this report can be printed as a hardcopy for your records. This ***Repeatability Test Report*** is automatically saved in c:\HunterLab\EasyMatchQC-ER Client\Reports with a unique data/time stamp for future reference.



HunterLab EasyMatch QC Repeatability Test Report

Report on Instrument Short Term Repeatability Performance

Operator ID : leggettg
Date : 1/8/2012
Time : 6:07:09 PM
File Name : EZMQC Repeatability Test Report_1-8-2012_6.07.09 PM.pdf

Sensor : UltraScan VIS "USVIS1033"
Mode : RSIN - Reflectance Specular Included - 1.000 in - Nominal
Software Version : EasyMatchQC-ER 4.50
Computer Name : STC6T3NL1
Operating System : Microsoft Windows 7 (64 bit)
Test Result : PASS
Test Data:

ID	Pass/Fail	Date	Time	X	Y	Z	L*	a*	b*	dE*
White Tile Standard 8 January 2012 6:03:05 PM		8 January 2012	6:03:05	93.32	98.50	105.65	99.42	-0.12	0.03	
+Tolerances				0.00	0.00	0.00	0.00	0.00	0.00	0.03
-Tolerances				0.00	0.00	0.00	0.00	0.00	0.00	0.00
White Tile 1	Pass	8 January 2012	6:03:12	93.34	98.52	105.65	99.43	-0.13	0.04	0.01
White Tile 2	Pass	8 January 2012	6:03:23	93.34	98.52	105.66	99.42	-0.13	0.04	0.01

Figure 209. Report on Repeatability Test

File/Exit to close the report and finish the test

Didymium Filter Test

When ***Diagnostics > Didymium Filter Test*** is selected, a special job is opened in EasyMatch QC and the following prompt is shown.

Note: This is available for ColorQuest XE, ColorQuest XT, UltraScan PRO, and UltraScan VIS only.)

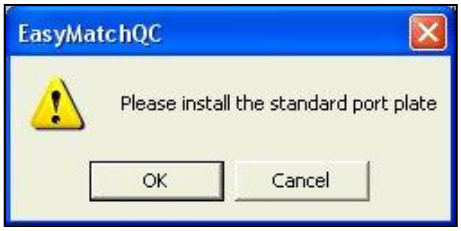


Figure 210. Didymium Filter Test: Reminder to Use Standard Port Plate

As instructed, make sure that the standard port plate for your instrument is currently installed. This will generally be the port insert with the largest opening that is not covered by glass. Click ***OK*** when this port plate is installed.

Follow the on-screen prompts to perform a normal standardization in ***RTRAN*** mode. When standardization is complete, the following prompt will be shown.

Figure 211. Didymium Filter Test: Place filter at RTRAN port

Screw the didymium filter, in its threaded tune, into the matching threads at the lens. Shut the transmission compartment door. Click ***OK*** when you have done so. The Didymium Filter Test screen appears.

Figure 212. Inserting the Didymium Filter at RTRAN port (lens side)

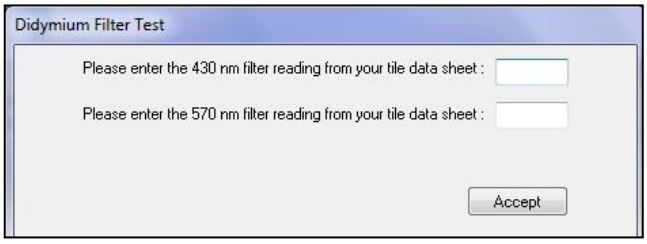


Figure 213. Didymium Filter Test: Enter Data Sheet Values

As instructed, enter the 430 nm and 570 nm transmission values from the Didymium Filter area of your tile data sheet. For an UltraScan PRO, also enter the 820nm reading. Click ***Accept*** to enter these values. (Click ***Accept*** on future instances of the test to acknowledge the correct values). Twenty readings of the didymium filter will be made and then averaged.

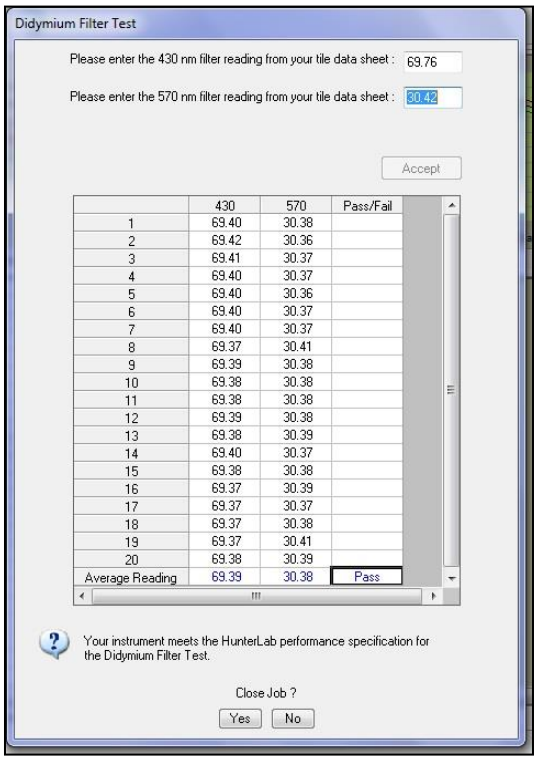


Figure 214. Display of Didymium Filter Readings & Average

A pass/fail assessment is provided for the averaged reading along with instructions concerning what to do if your instrument failed the test. Click ***Yes*** if you wish to save the test data to the job or ***No*** if you wish the data to be discarded. The pass/fail tolerances for each instrument are listed below.

Sensor	430nm	570nm
ColorQuest XE	Average reading ≤ 1.00 %T	Average reading ≤ 3.10 %T
ColorQuest XT	Average reading ≤ 1.00 %T	Average reading ≤ 3.10 %T
UltraScan VIS	Average reading ≤ 1.00 %T	Average reading ≤ 3.10 %T
UltraScan PRO	Average reading ≤ 1.20 %T	Average reading ≤ 4.50 %T

- For the UltraScan PRO, the 820-nm average reading differs from the entered 820 nm value by no more than 2.0 %T else fail.

The following prompt is given next.

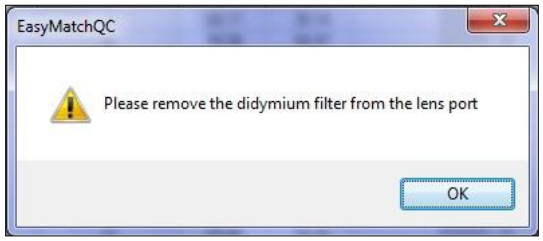
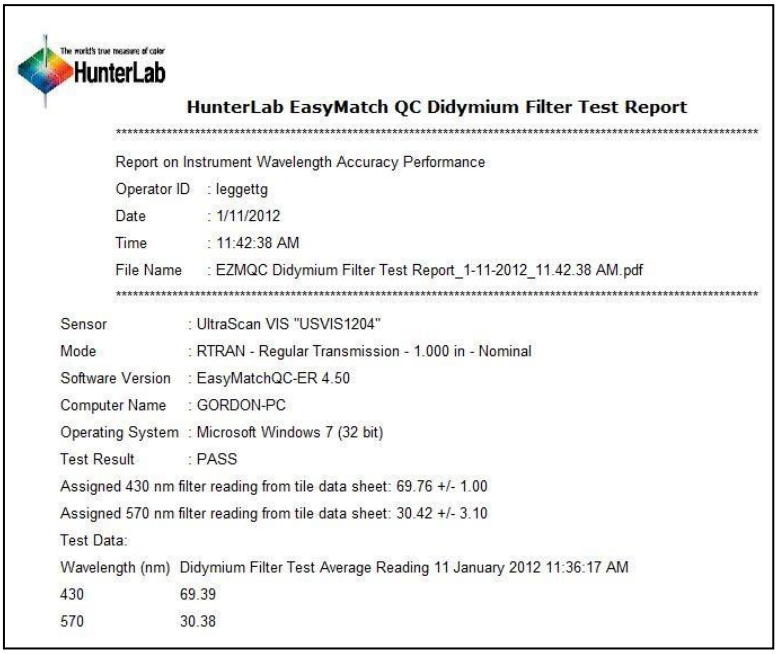


Figure 215. Reminder to Remove the Didymium Filter

Remove the didymium filter from the lens port and click ***OK***.

Click ***Yes*** to close the Didymium Filter Job. The following pdf report will appear documenting the results of the test. As an option, this report can be printed as a hardcopy for your records. This Wavelength Accuracy Didymium Filter Report is automatically saved in C:\HunterLab\EasyMatchQC-ER Client\Reports or C:\HunterLab\EasyMatchQC\Reports with a unique data/time stamp for future reference.



HunterLab EasyMatch QC Didymium Filter Test Report

Report on Instrument Wavelength Accuracy Performance

Operator ID : leggettg
Date : 1/11/2012
Time : 11:42:38 AM
File Name : EZMQC Didymium Filter Test Report_1-11-2012_11.42.38 AM.pdf

Sensor : UltraScan VIS "USVIS1204"
Mode : RTRAN - Regular Transmission - 1.000 in - Nominal
Software Version : EasyMatchQC-ER 4.50
Computer Name : GORDON-PC
Operating System : Microsoft Windows 7 (32 bit)
Test Result : PASS
Assigned 430 nm filter reading from tile data sheet: 69.76 +/- 1.00
Assigned 570 nm filter reading from tile data sheet: 30.42 +/- 3.10
Test Data:

Wavelength (nm)	Didymium Filter Test Average Reading 11 January 2012 11:36:17 AM
430	69.39
570	30.38

Figure 216. Report on Didymium Filter Readings

File/Exit to close the report and finish the test.

Hardware Checks

Note: This is available for all instruments.

When ***Diagnostics > Hardware Checks*** is selected, a utility by which the various hardware components of your instrument may be checked is opened. Example screens for the LabScan XE are shown below. These screens will appear slightly differently for other instrument types.

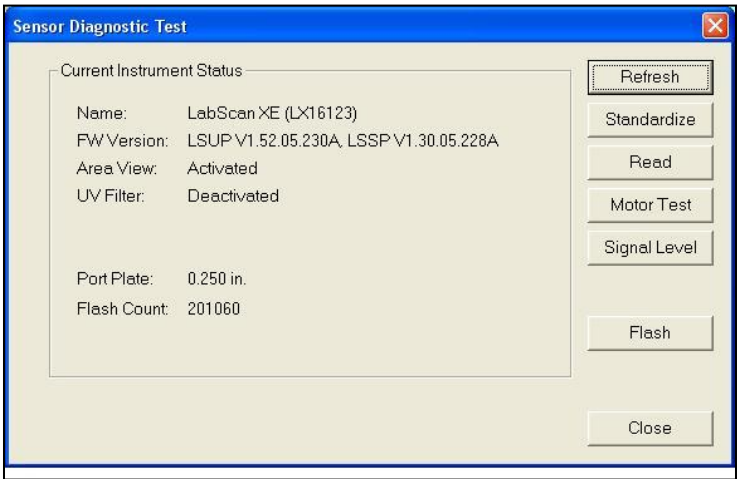


Figure 217. Instrument Status Information

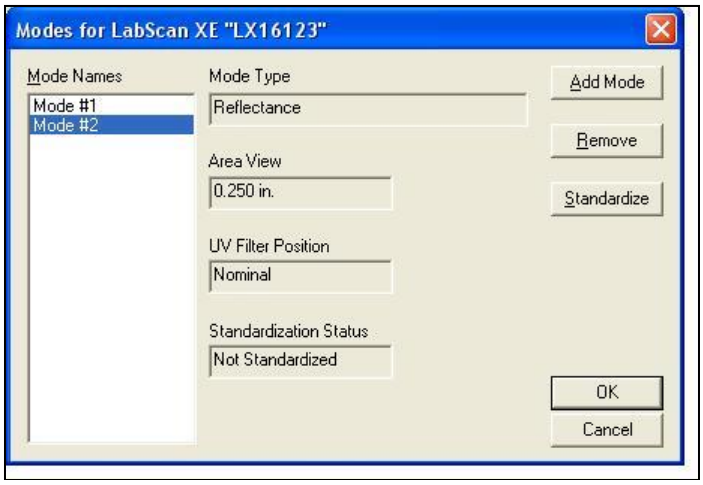


Figure 218. Hardware Checks: Standardization Modes

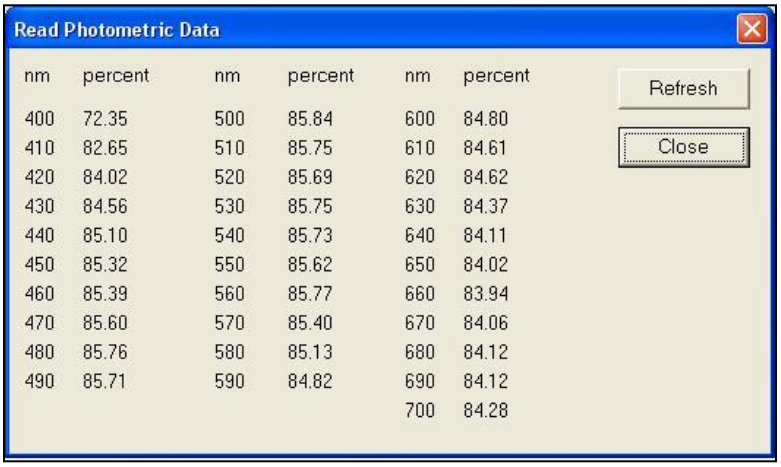


Figure 219. Hardware Checks: Read Photometric Data

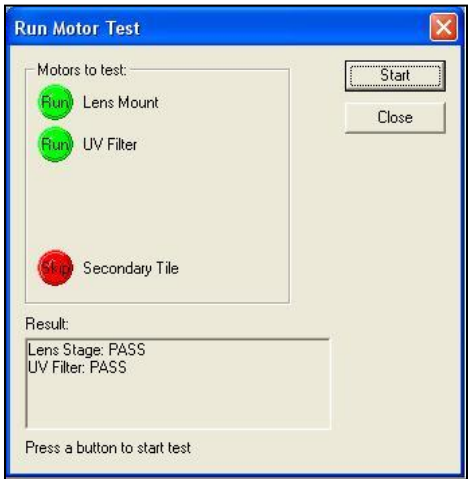


Figure 220. Hardware Checks: Motor Test

Click ***Motor Test*** to test the instrument motors. Click the button to the left of each test name to toggle between Run (perform the test) and Skip (do not perform the test), then click ***Start*** to begin the chosen test(s). These tests are not available for ColorFlex, ColorFlex EZ ColorQuest XT, and MiniScan EZ, as there are no motors in these instruments to test. Results are shown at the bottom of the screen.

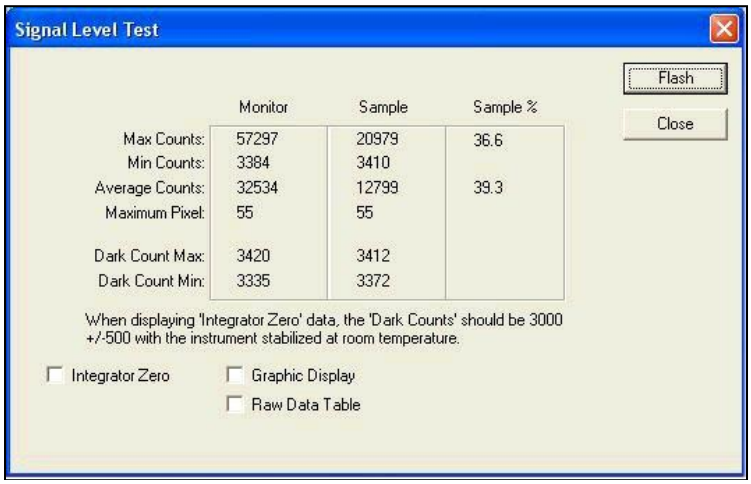


Figure 221. Hardware Checks: Signal Level Test

Click ***Signal Level*** and then click ***Flash*** to display raw signal level counts for the sample that is currently at the sample port. Check any of the available boxes to show the data a different way, such as in a graph.

The Window Menu

From the ***Window Menu***, you can arrange the data views on the screen, open a new window, or go to a specific job. The functions available through the ***Window Menu*** are described in the remainder of this chapter.

Window/New Window

The ***Window > New Window*** command allows you to open a second window for the current job on your EasyMatch QC screen. This allows you to create additional displays for the job, if you wish, without running out of room on the screen.

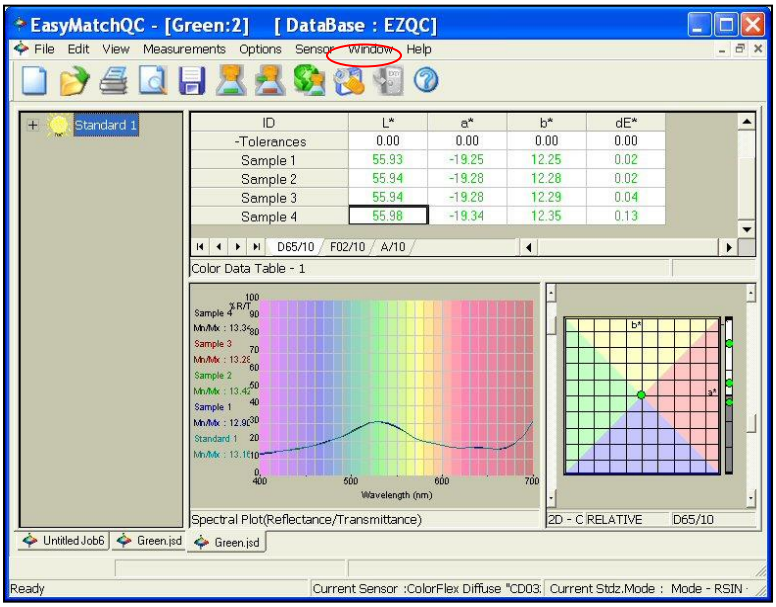


Figure 222. Creating a New Window

Window/Cascade

The ***Window > Cascade*** command moves the current jobs so that they are cascaded one on top of the other and only the title bar of each job is visible. You may click on any of the title bars to show that job as the top job. Pressing ***Ctrl*** and ***Tab*** simultaneously toggles each job to the top in turn.

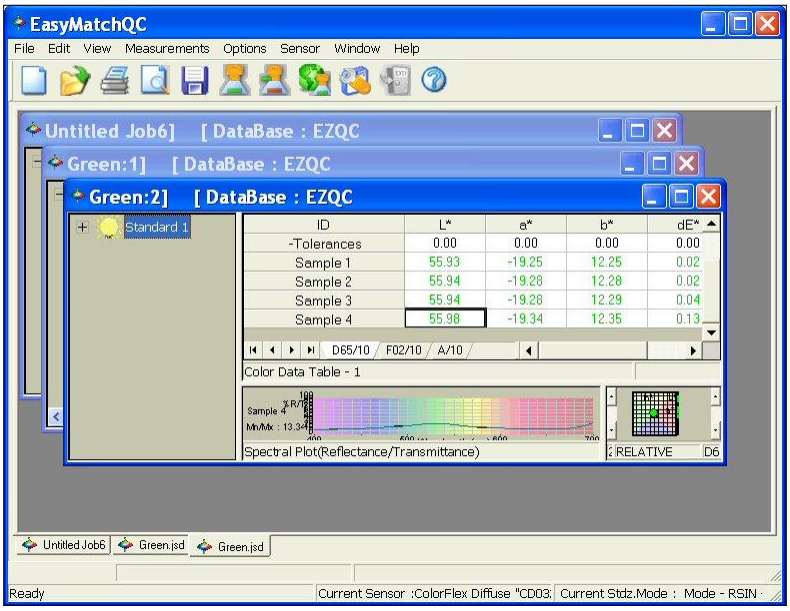


Figure 223. Cascading of Windows

Window/Tile

The ***Window > Tile*** command moves the current jobs so that they are displayed on the screen with one on top of the other. The sizes of the jobs are adjusted so that they all fit on the screen. The currently selected job is always placed in the upper portion of the screen area.

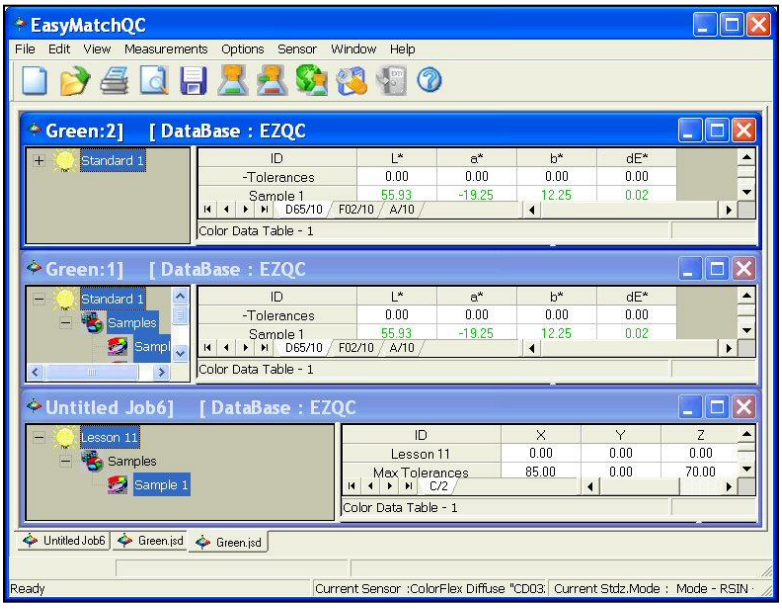


Figure 224. Window Tile for Multiple Windows

Window/List of Open Jobs

You can make any job active by selecting it from the ***Window*** menu. A check will appear next to that job in the ***Window Menu***, the title bar of the active job will be highlighted, and the job will come to the front.

The Help Menu

From the ***Help Menu***, you can view the EasyMatch QC help file and information about your version of the program. The functions available through the ***Help Menu*** are described in the remainder of this chapter.

Help/About

The ***Help > About*** command brings up the About EasyMatch QC Software box specifying the version of EasyMatch QC being run and giving copyright and contact information.

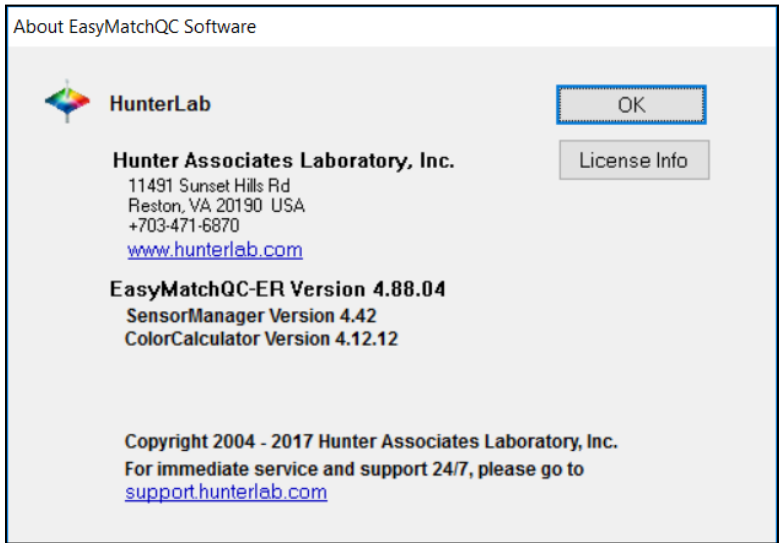


Figure 225. Help Menu: About

Help/License Information

The ***Help > About > License Info*** command brings up a box specifying the type of SoftKey license and the instrument interface. For information on installing a SoftKey license, see ***How to Install EasyMatch QC.***

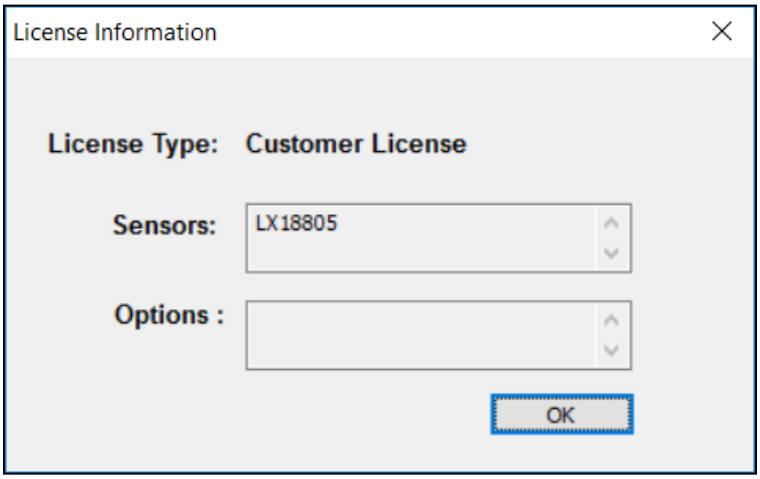


Figure 226. License Information

Help/HunterLab on the Web

The ***Help > Hunterlab On the Web*** command opens your web browser and takes you to the HunterLab web site in case you need to get information on color measurement, instruments, or technical assistance.

Help/Help Topics

The ***Help Topics*** command in the ***Help Menu*** opens the EasyMatch QC help file in which you can locate information on how to operate your instrument and software by searching for keywords, using the index, or using the table of contents. To use the help file, you must have a web browser (such as Internet Explorer or Netscape Navigator) installed on your computer. The keyboard shortcut for this command is ***F1***.

Note: If you are running Windows XP with Service Pack 2 installed and are viewing the help file using Microsoft Internet Explorer, you will need to allow blocked content to view the help correctly. See the yellow bar at the top of the browser for instructions on how to do so.

APPENDIX A: Software Messages

Occasionally you may receive an error or warning message on your computer screen. A message can help you determine if you have a setup, instrument, or software problem. This appendix lists some of the more prevalent messages for EasyMatch QC. If any error message is displayed which is not described in this chapter, it may be a Windows message. Refer to your Windows User's Guide for a possible explanation. Contact HunterLab Technical Support if the error message cannot be found or the problem persists. Please read 'When You Need Assistance', prior to telephoning HunterLab.

Message Text	Meaning	Possible Solution(s)
An error occurred during the move data process.	This message indicates that one or more files are not registering in the system (Windows) registry during the installation process. This generally occurs when you are attempting to install while logged into Windows using an account that does not have administrator privileges.	Cancel the installation and log into Windows using an administrator account, then perform the installation.
Cannot execute the application due to Invalid license. Please contact HunterLab.	You are attempting to open EasyMatch QC with a defective hardware key connected to your computer. .	Obtain a new key from HunterLab.
Did not receive a status message from the sensor.	The sensor is not responding to the software's attempt to connect to it.	Follow the instructions on the screen below the message to check the status of the sensor and its connections. If you are connecting to a MiniScan EZ, confirm that the instrument is turned on. If you are connecting to an UltraScan PRO or UltraScan VIS using a USB cable, also consider whether the FTDI USB-to-serial adapter is installed properly. If, after checking and attempting to connect again, this message is still received, contact HunterLab concerning instrument service.

Message Text	Meaning	Possible Solution(s)
Difference data cannot be retrieved from the data log when it is in tristimulus mode.	You are attempting to copy a Difference Tristimulus sample from a ColorFlex, ColorFlex EZ or MiniScan EZ Data log into a job or into the database. The software does not know what standard values were used to calculate the sample's difference data.	Save all data to the ColorFlex, ColorFlex EZ or MiniScan EZ Plus Data log as Spectral Data or Absolute Tristimulus data.
Failed to detect HunterLab key. Insert and try again.	You are attempting to open EasyMatch QC without the SoftKey connected to your computer.	Install the EasyMatch QC key provided with your system onto your computer.
Not an EasyMatch QC key.	You are attempting to open EasyMatch QC with a hardware key connected to your computer that is either not a HunterLab key or is not programmed to allow access to EasyMatch QC.	Install the EasyMatch QC key provided with your system onto your computer.
Standard's standardization mode doesn't match the sample's standardization mode. Sample will not be read.	You are attempting to link a sample read in one mode (i.e., TTRAN 1.00-in with UV filter nominal) to a standard read in another mode (i.e., RSIN 1.00-in with UV filter nominal).	If the mode of the sample is correct, link it to a standard read in that mode. If the mode of the sample is incorrect, standardize the instrument in the proper mode before reading the sample again. Uncheck 'Lock Standardization Mode to Job' in Application Preferences.
The job's sensor type and the current sensor type do not match. Standard cannot be read.	The current job is linked to one sensor type (i.e., LabScan XE), but you are trying to make measurements using a sensor of a different type (i.e., ColorQuest XE).	Open a job that is linked to the sensor type with which you wish to read. Uncheck 'Lock Sensor to Job' in Application Preferences. Connect licensed sensor.
You have not yet installed a sensor. Please install a sensor if you wish to take measurements.	You are opening the software for the first time or for the first time after removing all installed sensors.	Use the ***Sensor > Install/Configure*** command to install the desired sensor.
Your license has expired. Please contact HunterLab.	You are attempting to open EasyMatch QC with SoftKey that has expired on your computer.	Obtain an updated key from HunterLab and install it onto your computer.

Message Text	Meaning	Possible Solution(s)
No license is activated.		Need to activate a license key to use the application.

APPENDIX B: Creating and Configuring a SQL Database

This appendix describes how to create and configure a SQL database for use with EasyMatch QC. A working knowledge of SQL server is recommended for performing these steps. A copy of SQL Server (Microsoft SQL Server is typical) should be installed first followed by EasyMatch QC, as described in the EasyMatch QC Installation Guide.

1. In SQL Server, select ***File > Open*** and choose to open the C:\Program Files\HunterLab\EasyMatchQC\SQL Database Script\EZMQC.sql script file. This is the location of the file if you installed EasyMatch QC to the default folder. If you installed elsewhere, you will find the SQL Database Script subfolder in your installation folder.

2. Execute the EZMQC.sql script file and the EZMQC SQL database will be created.

3. You can use the SQL Server to view this database and see that tables have been created within it.

4. In the ***Tree View***, expand the ***Security Branch***.

5. Right-click on ***Security > Logins*** and choose ***New Login***.

6. Change Default Database to EZMQC and do User Mapping to set each User with data read and write roles for the EZMQC SQL database.

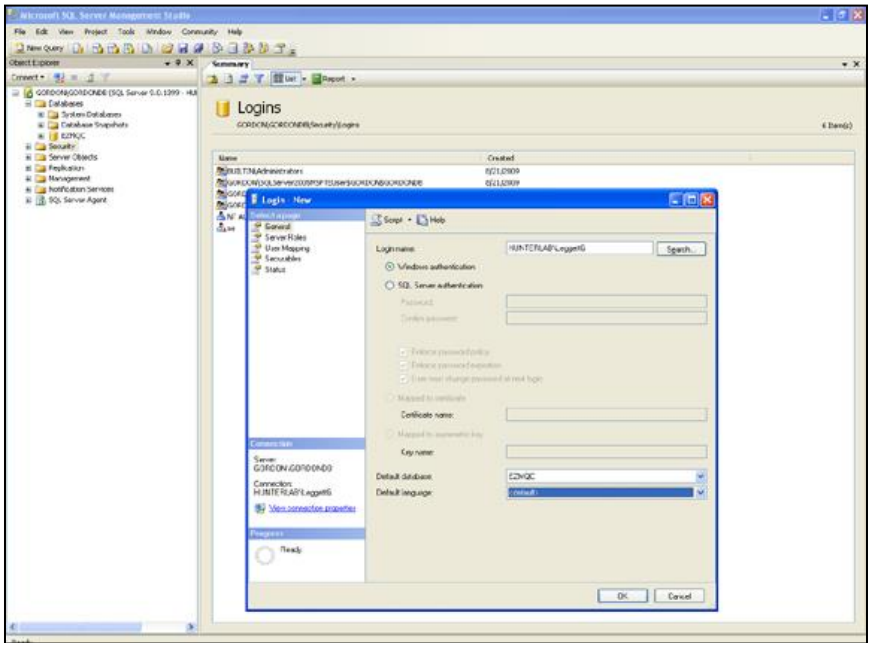


Figure 227. Creating an SQL Database

7. Close SQL Server.

8. On the computer where EasyMatch QC will be run, open EasyMatch QC.

9. Select ***System Configuration > Options***, and then ***Data Storage***. The Data Storage Screen appears.

10. Select the ***SQL Server***, enter the server and database name (EZMQC). Click ***OK***.

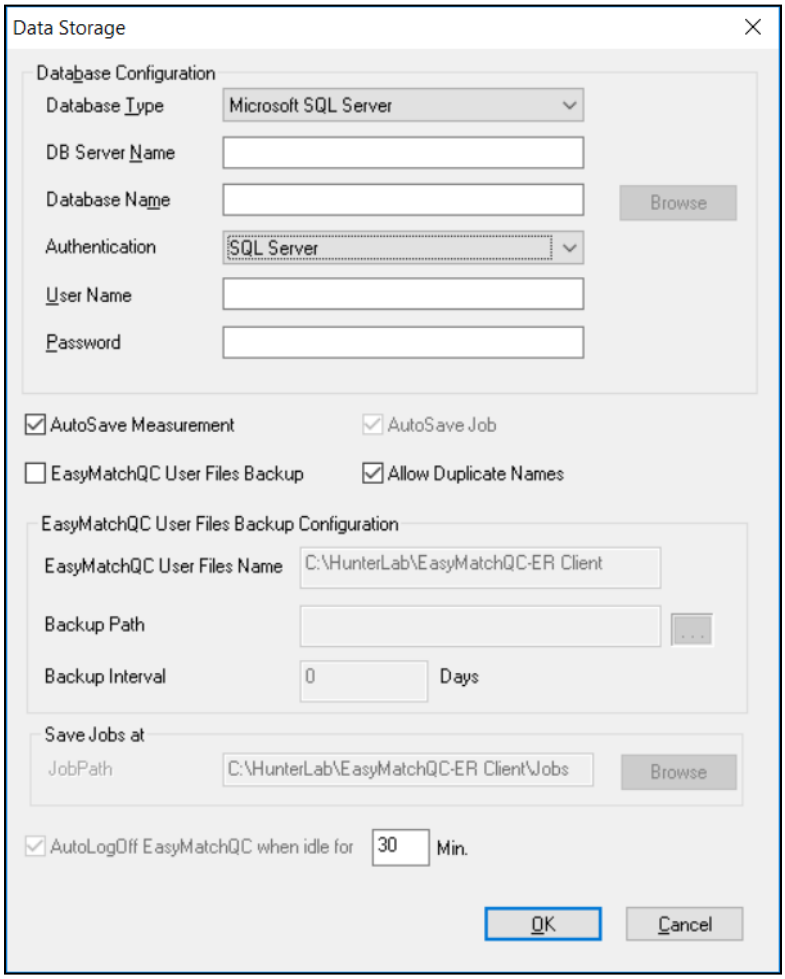


Figure 228. SQL Database Storage

When the SQL Database Server is selected, a new option is provided to select the Authentication type as 'Windows' or 'SQL server' in the Data Storage Dialog. If 'Windows' is selected, the current system login in user credentials will be used to login to the SQL server, then there is no need to specify the user name and password. When 'SQL Server' option is selected, the database server credentials need to be specified.

11. Restart EasyMatch QC and the SQL database is ready for use.

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