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A60-1018-812 Version 2.3 For EasyMatch Essentials 1.07.0105 and Above

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Safety Notes



Caution: If the equipment is used in a manner not specified by the HunterLab, the overall safety and protection provided by the equipment may be impaired. The instrument is for indoor use only and not suitable for a wet location.



Caution: There is a potential of a UV Light hazard in using this instrument. Please avoid looking directly at the light. The frequency of this flashing light is in the range of sensitivity for those prone to epileptic seizures.



For your safety when using the Agera, you should pay attention to the following types of statements in this User's Manual:

- General safety instruction that should be observed at all times while operating the instrument.
- Specific safety instruction critical to the type of instrument operation being explained in the manual where the caution appears.
- Use of this equipment in a manner not specified by the manufacturer may impair the protection afforded by the equipment.
- Danger of electric shock if liquids are spilled and fire if volatile or flammable liquids are spilled. Use care when measuring liquid samples.

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Setting Up the Agera

The Agera is a dual beam 0-degree illumination and 45-degree circumferential detection spectrocolorimeter with a wavelength range from 400 to 700 nanometers (nm). It is designed for use with the sample port facing up or forward.

The optical delivery and collection system combined with port openings of nominally 51 mm (2 in), 25.4 mm (1 in), and 16.9 mm (0.625 in) delivers measurement of semi non-homogenous samples such as pellets, granules, and textured flat samples including textiles, plastics, paper. The multiple viewing area accommodate powders, opaque and semi-opaque sauces and liquids.

Standard Accessories

- Calibration Box with calibrated Agera white tile, calibrated Agera black glass and Agera green diagnostics tile
- Area of View Port Plates Set of 3
- Certificate of Traceability
- Power Supply
- Agera Quick Start Guide
- USB Flash Drive

Selecting A Space for the Agera

The Agera can be setup in a laboratory setting with controlled, consistent temperature and humidity. A laboratory bench is recommended with easy access to the rear connectors.

Unlocking the Shipping Bolt

Before measurements can be taken, the shipping bolt must be unlocked. Located on the underside of the instrument, a Phillips screw driver is needed to turn the bolt counterclockwise.

Note: The shipping bolt has been recently added to the instrument. Please ignore this step if there is no shipping bolt in Agera.

If the instrument is to be shipped, then the go to Essentials **WORKSPACE MENU > DIAGNOSTICS > ADVANCED DIAGNOSTICS**. Then select **PARK FOR SHIPPING** to move carousel to the parked position. Then lock the shipping bolt, and power off the Agera.

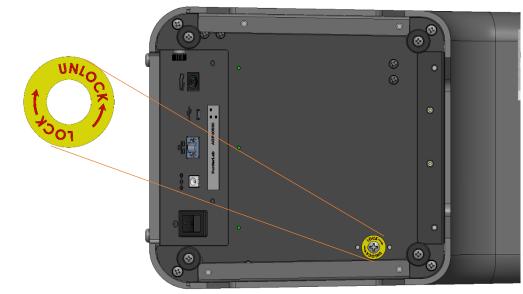


Figure 1. Shipping Bolt

Power Jack

• The instrument is supplied with a 24 VDC (3.75A) power supply. The power supply is plugged into the back of the instrument as shown along with the Ethernet port and the USB port.



CAUTION

Note: Use only the power cord included with this instrument or a replacement obtained from HunterLab. Be certain that the power cord is in good condition before connecting it.

Power Switch

• To turn the instrument on, press the rocker switch on the back of the instrument.

Port Forward Orientation

• The Essentials screen is default setup for port up Agera. If port forward orientation is required, then go to *Workspace > Preferences* and check *REVERSE SCREEN ORIENTATION* and click *APPLY*. Power off/on Agera to get the screen orientation changed.

Keyboard and Mouse

- The Agera works with the following keyboard and mouse:
 - L02-1017-434 Wireless keyboard and mouse kit.
- To use this accessory, turn the power off. Plug in the micro USB adaptor into the instrument and then attach the nano-receiver for the keyboard into the USB port. Install the batteries into the keyboard/mouse and turn the power back on.

Front and Rear USB Connectors

• There are two USB connectors on the Agera. The one in the front is typically used to connect a printer or a keyboard to the Agera. If the user wants to connect multiple devices at the same time, a USB hub can be plugged in to the front of the instrument. Either port can be used for exporting jobs and workspaces, backing up the instrument and updating software



Figure 3. USB Port on Front of Instrument

Ethernet Port

- This port is used to connect the Agera to:
 - Computer or to a network with the purpose of sending data (ASCII) to a server
 - Connect with EasyMatch QC and EasyMatch QC Electronic Records
 - Remote Support
 - Network printer
 - Email data

Navigating the Essentials Screen

View Standard Workspace Options Search/Recall Jobs Color Data Table [D65/10] {<u>}</u> \bigcirc a* Name L* b* Gloss **View Flippers** Floating Read Button Job/Workspace Standardization Sensor UV Status/Port Plate Button w/Name Mode Information UV Nominal Job: Untitled* i Standardized - 2.00" WorkSpace: Default

The EasyMatch Essentials Tools and Status features are shown below.

Figure 4. User Interface Screen for Agera & Essentials

Tools: Status Bar

This area shows the current mode settings.

- **UV STATUS** To change the UV mode, press this button.
- **STANDARDIZATION** To re-standardize, press this button. The standardization status and current port plate size will be shown.
- **WORKSPACE** To open a new Job, press this button. The software will prompt to select a Workspace for a new Job. Workspace Name is reported on this button.
- JOB To open an existing Job, press this button. Job Name is reported on this button.

Tools: Read

Read Measurement Icon



- Samples are read using this key.
- This tool can be moved around the screen by pressing and moving the icon.

Tools: View Flippers

View Flippers Icon



Switching between Views can be accomplished by using the semi-transparent *NEXT* and *PREV* buttons placed at the side edges of the screen or by swiping left or right with two fingers on the screen.

Tools: Information





• The sensor type and serial number is shown at the bottom left side of the System Bar when the *i* is pressed. When application security is enabled and the user logs into Essentials, the User Account will also be shown in the Information box.



Figure 5. Sensor Serial Number

The *INFO* button can also show warnings and error messages as a dot. If the dot is red, it means that error(s) exists. If the dot is yellow, it means that no error while have warning(s). When any error or alert message occurs, see *PREDICTIVE DIAGNOSTICS* to export data for HunterLab to check.



Figure 6. Error Message Dot

Tools: Standard Recall

Search/Recall Icon



• This menu option provides a selection of saved standards to recall a standard from the database for use in measuring samples.

Tools: View Options

View Options Icon



• This menu shows the configuration options for the active view A total of six views are available. Each view shows a different option. Views can be added or removed in *WORKSPACE > VIEWS*. .

Tools: Workspace & System Settings

Workspace/Systems Settings Icon



- The Workspace menu sets up the data screen with measurement color scales, read options, standards, tolerances and views.
- Systems Settings initiates Standardization, Diagnostics, Preferences, and the User Manager for System Security.

Tools: Jobs



• A job is a collection of all the sample measurements and a workspace used for a task, product, or customer. Jobs are the 'readings' of EasyMatch Essentials. Jobs can be created for many different reasons, such as to hold data for a certain customer or a specific product line. Each operator may maintain their own job with preferences or create separate jobs for different operations. A workspace is a collection of the measurement parameters for a job along with tolerances and the standard, i.e. analogous to word processing documents containing text and formatting. Each job has only one workspace.

Taking a Simple Measurement

What is HunterLab Agera & EasyMatch Essentials?

Agera is a multi-purpose 0/45° color and appearance measurement system that provides users with 400-700 nm reflectance color, ASTM 60-degree gloss, and sample imaging capabilities in either a port up or port forward configurations. UV controlled LED illumination provides superior color accuracy and repeatability on standard and fluorescent samples. An internal camera provides on-screen 45/0° sample viewing during the measurement preparation and will capture and save a sample image for retrieval with the sample data. All measurement results are simultaneously displayed on a 7" high resolution touch screen interface via the embedded EasyMatch Essentials quality control software, which includes most color scales, indices and Illuminant/observer combinations desired for industrial applications. With Ethernet, wireless and USB connectivity, data results can be saved, emailed directly from the Agera instrument, printed to local or networked printers, and streamed to LIMS and SPC systems.

Connecting the Sensor and Taking a Measurement

After unpacking and setting up the instrument, turn on the power using the rocker switch on the back of the instrument base.

Once inside the software, the main measurement screen is displayed – Color Data Table • (D65/10).



Figure 7. Measurement Screen

• The instrument is automatically connected, and this is reported on the status bar. Next, the unit must be Standardized.

Standardization

- Configure UV MODE: The UV mode is shown in the status bar. To change the mode, click the • UV BUTTON and select a UV mode. Then click APPLY.
- Press the **STANDARDIZATION BUTTON** on the status bar to initiate standardization. The port • plate size and UV mode is shown in the standardization dialog. To change the port plate, place the new port plate on Agera and click **BACK** to update the port plate information.

Read Black Glass: Place the Agera black glass at the sensor port and press *READ*.
 Make sure that the line on the tile matches the port plate white line.



Figure 8. Read the Black Glass for Bottom-of-Scale

 Read White Tile: Remove the black glass and place the Agera white tile at the port. Press *READ* to continue.



Figure 9. Read the White Tile for Top-of-Scale

- Remove the calibrated white tile when standardization is completed. Click OK.
- Standardization is updated and reported as STANDARDIZED in the bottom status bar along with UV Mode and Port Plate Size.

Note: Agera supports multiple UV modes allowing for switching among different valid UV modes after standardization.

Color Data Table [D65/10]				ð	•	ŝ	
	Name	L*	a*	b*	Gloss			
	Alert							
<	Sta	Indardizatio		leted.				$\left \right>$
		C	iκ					
<i>i</i> UV Nominal Standard	ized - 2.00"				Jo	b: Untitled*	WorkSp	ace: Default

Figure 10. Standardization Status Bar

• To update Standardization Status for a new port plate, place the new port plate on the instrument and click the *READ* button. The standardization status will be updated. If the standardization of this new mode is valid, then the sample will be read. If the standardization is not valid, a dialog box will be shown so prompt for new Standardization.

Create a Workspace

From the WORKSPACE MENU, press NEW WORKSPACE and ENTER A NAME for this Workspace



Note: The active Workspace name is displayed in the lower right corner of the screen.

• **Default Workspace Settings**: The default settings for a new Workspace are shown in the Table below:

Parameter	Selection		
Color Scales	CIE L*a*b*		
Illuminant	D65/10		
Indices	None		
Differences	None		
Read Options > Options	Prompt for Sample Name, Auto Save Job		
Read Options > Measurement Config	UV Nominal		
Standard and Tolerances	None		
Views	Color Data Table only		
View Options for Color Data Table	Latest Data First selected, Precision = 2		

Table 1. Workspace Parameters

• **Configure the New Workspace**: With this new workspace open, you can start to change the following settings:

To change measurement scales, select **WORKSPACE > COLOR SCALES**. This configures the desired color scales, indices, and differences.

To change measurement procedure, select **WORKSPACE > READ OPTIONS**. To add tolerances, select **WORKSPACE > STANDARDS & TOLERANCES**.

To select the view screens, go to **WORKSPACE > VIEWS**. To configure each view screen, click **VIEW OPTIONS** in the toolbar.

 Now your instrument is ready to read your product under this new workspace. If you'd like to start a new job for this product, you can press *NEW JOB* and load this configured workspace to continue.

Read Sample

• **Prepare Sample**: Place the sample at the port. The *IMAGE VIEW* on *READ OPTIONS* and *VIEW OPTIONS* can assist in the placement of your sample. .Use the *READ MEASUREMENT*

button 🤍 to read samples.

• If **IMAGE VIEWER** is enabled, the camera preview dialog will be prompted before color measurement. To see the Image on the screen, go to **READ OPTIONS** and check the Image Viewer selection. Press **APPLY** to continue.

-\$-	Color Data Table [C/2] Read Options	≣ © © €
	Options Averaging Continuous Read Interval Auto Save Job Image Viewer	Measurement Configuration Prompt for Sample Name Default Sample Name Prompt for Product and Extra IDs Index Bias Configuration Config
		Defaults Apply Cancel
<i>(i)</i>	UV Nominal Standardized - 1.00*	Job: Untitled* WorkSpace: Default

Figure 12.Read Options > Image Viewer

							me: Sam ckLight:
Т	Name	Image Status	L*	a*	b*	YI D1925 [C/2]	YI E313 [C/2]
	Sample1	FALSE	51.5839	-28.2613	9.6425	-4.4393	-4.4393
	Sample2	TRUE	51.5840	-28.2596	9.6405	-4.4428	-4.4428
	Sample3	TRUE	51.5782	-28.2600	9.6378	-4.4508	-4.4508

Figure 13. Image Viewer with Sample Reading

• Main Measurement Screen: The Color Data Table view shows the configured Color Scale results for the standard and sample measurements in the job. The configured tolerances can be applied to the Job and Pass/Fail results will also be displayed.

Note: Agera includes a built-in 60-degree gloss meter with a single LED illumination (filtered to C/2°)/detector pair in conformance with ASTM D523 and located right below the sample port plate. Gloss is measured for each sample and standard measurement. To show the Gloss value, please select Gloss index in WORKSPACE > COLOR SCALES > INDICES.

- To output data, select the *JOBS* icon from the upper right corner. Under Jobs, data can be saved, sent to a printer, emailed to the network or exported to a flash drive.
- Sample Name: The default sample name is Sample + numerical increment. To customize the sample name, go to WORKSPACE > READ OPTIONS > PROMPT FOR SAMPLE/STANDARD NAME. Select the PROMPT for SAMPLE NAME to manually input the name during the measurement cycle. Or change the default Sample Name to another name for numerical sequence. Press APPLY when done.



Figure 14. Prompt for Sample (Standard) Name

Note: The standard/sample name in Essentials should not be empty and should not contain any of the characters , : ; ' " + = ? * < > \ /.

- A long press on the Sample name will show a menu with the following options:
 - SET AS STANDARD to set the sample as Standard
 - **RENAME** to rename the sample
 - **DELETE** to delete the sample.

Name	Set as standard	b*	Gloss		
blue	Rename	-29.07	90.46		
green12	Delete	10.86	8.08		
green1	Delete	10.87	8.12		

Figure 15. Changing, Renaming or Deleting a Sample

- A long press on the Standard name will show a menu with the following options:
 - EDIT to edit the standard. If Edit is selected, the WORKSPACE > STANDARD AND TOLERANCES dialog box is presented to allow for editing the name, assigning tolerances or changing the type of standard.
 - DELETE to delete the standard. The deleted Standard is reverted into the samples list with its original name.

Name	1.	a*	b*	Gloss	
Standard_202001 20164625	Edit	-17.78	-29.07	90.46	
blue	Delete	-17.78	-29.07	90.46	
green12	52.86	-27.08	10.86	8.08	
green1	52.88	-27.13	10.87	8.12	

Figure 16. Edit/Delete a Standard

Toolbar: Search/Recall Standards



Allows for efficient recall of standards from the main screen. Each standard is shown with color scale values based on current configured III/Obs and rendering color. If a standard is selected, the details are shown on the right side of the screen. Details include:

- ➤ Standard Name,
- Category, Type (Numeric Or Hitched),
- ≻ Time Created,
- ➢ Sensor Type,
- Sensor Serial Number,
- ➤ Sensor Mode,
- ➤ Illuminant/Observer.

Customer can filter standard search by CATEGORY and/or by STANDARD NAME.

Select Category A	11	Standard Name				
Blue	Red	Blue2	Red2	Details		
L*: 64.38	L*: 46.34	L*: 37.88	L*: 47.79	Standard Name	e : Green2	2[H]
a*: -34.61	a*: 74.56	a*: 28.48	a*: 74.91	Category	: Green	
b*: -39.90	b*: 79.49	b*: -83.31	b*: 82.01	Is Numeric	: false	
				is Hitched	: true	
Yellow	Green	Green2[H]	Orange[H]	As Read	:	
L*: 94.04	L*: 39.01	L*: 70.00	L*: 80.00	L*: 77.2	7, a*: -42.	58, b *: -12.5
a*: -11.12	a*: -65.06	a*: -40.00	a*: 10.00	Created Time	: 11/16/	2021_3:45 P
b*: 24.11	b*: 40.49	b*: -10.00	b*: 27.00	Sensor Type	: Vista	
				Serial No :	: VTS00	105
Gray	Gray2	Air 1	Std 1 air	Sensor Mode	: TTRAN	1
L*: 76.76	L*: 57.70	L*: 99.95	L*: 100.00	III/Obs	: D65/10	D
a*: -3.50	a*: -3.05	a*: 0.03	a*: -0.00			
b*: 2.92	b*: 3.88	b*: -0.11	b*: -0.00			
					lecall	Close

Figure 17. Recall Standard

CHAPTER FIVE

Toolbar: View Options

View Options Icon



Views are selected using a dialog box under Workspace. Simply check on the box of the screen needed. Press **APPLY** to save one or all of the screens. The default screen is the Color Data Table. To navigate between screens once the selections have been applied, use the VIEW FLIPPERS on the left and right of the screen.



Figure 18. Workspace > select Views

Once the views have been selected, then VIEW OPTIONS are available to configure the views on the screen. Each screen has a unique set of view options associated with it.

Views: EZ View

This view provides a simple display of **STANDARD** vs. **SAMPLE** and **PASS/FAIL** results.

EZ View[D65/10]			()	@ ■
	Name	Sample1		
	L*	17.61		
	a*	0.00		
	b*	-1.04		_
\leq				\geq
0				
UV Nominal Standardized - 1.	00*	Job: 20200120_171	711_AGR00120_Default	WorkSpace: Default
	Fiaure 19. l	EZ View Displa	v	

VIEW OPTIONS includes the selection of NO COLOR SCALE, PASS/FAIL, IMAGE VIEW, **PRECISION** and **FONT SIZE**.



Figure 20. EZ View Options

Views: Color Data Table

The COLOR DATA TABLE view shows COLOR SCALE, COLOR DIFFERENCE, and INDICE data for the **STANDARDS** and **SAMPLES** in the job.



Figure 21. Color Data Display

• Options such as UV MODE, UV COMPARE DIFFERENCES, IMAGE STATUS, PORT PLATE SIZE, TOLERANCES, DATA ORDER, USER NAME, NO COLOR SCALE, DATE, IMAGE VIEW, SENSOR NUMBER, TIME and PASS/FAIL can be selected for viewing using the VIEW OPTIONS.

Color Data Table [D65/10]	View Options	9	٢	ŝ	≡
	UV Mode	1			
	UV Compare Differences				
	Image Status				
	Port Plate				
	Tolerances				
	Latest Data First				
1	User Name				1
	No Color Scale				/
	Date				
	Image View				
	Sensor Number				
	Time				
	Pass/Fail				
	Precision 2 OK				
<i>i</i> UV Nominal Standardized - 1.00*			Untitled*	WorkSp	ace: Default

Figure 22. Color Data Screen: View Options

IMAGE STATUS is reported as you read a sample. This means that the image is saved (True) or not saved (False).



Figure 23. Image Status

IMAGE VIEW is used to show the picture of samples and standards. A long press on the **SAMPLE** can enable the user to make the sample into a standard, change the name or delete the reading.

Name		Set as standard	b*
Sample 3	<	Rename	0.02
Sample 2		Delete	0.00
Sample 1		Delete	0.00

Figure 24. Changing a Sample into a Standard

• To delete a sample (or standard), select **DELETE** and then confirm the action.



Figure 25. Delete the Sample Measurement

• A long press on the **STANDARD** will enable the user to edit or delete the standard. Edit opens the Standard and Tolerances dialog box. Delete will delete the standard from the current workspace.

Views: Spectral Data Table

The **SPECTRAL DATA TABLE** displays percent reflectance or absorbance values for each selected measurement at the wavelengths being measured.



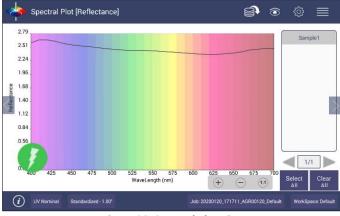
Figure 26. Spectral Data Table

• Selections include **ABSOLUTE** or **DIFFERENCE** for **REFLECTANCE**, **STRENGTH** or **K/S**. Enter the start and stop wavelength, the interval and the precision and press *OK* to continue.



Figure 27. Spectral Data Table Options

Views: Spectral Plot



This view provides a plot of wavelength vs. spectral measurement parameter.

Figure 28. Spectral Plot View

- Press *CLEAR ALL* to remove all the samples to display. Press *SELECT ALL* to enable display of all samples. To select an individual sample, click on the respective Sample in the list located on the right edge of the screen.
- The Sample List is paginated. Click the left and right arrow buttons below the samples list to navigate between pages.
- Press and hold on the left/right **PAGE NUMBER ARROWS** under the sample list to show a small dialog box. This dialog allows you to select the number of records per page to display and the page number to display.



Figure 29. Spectral Plot Options

- SPECTRAL PLOT OPTIONS: There are three choices for spectral plot options:
 - K/S mathematical calculation based on reflectance and determined at each wavelength for the standard and sample.
 - REFLECTANCE Displays the reflectance value at each wavelength.
 - % STRENGTH Percentage of the ratio of the K/S of the sample to the K/S of the standard.

- Uncheck the **OPTIONS**: **SHOW BACKGROUND**, to display the plot with white background color.
- Check **OPTIONS**: **AUTO RANGE** to automatically scale the contents to fit. If **AUTO RANGE** is not selected, then enter the **Y**-and **X**-axis range to display.

Views: Trend Plot

This tool can be used to study the trends in production and identify color variations. There are four parameters of color measurement (three scale values and optional indice) which can be represented in four traces. If a sample point is selected in one of the four traces, it is highlighted in the other 3 traces in blue. The name is shown at the bottom right hand corner of the View. The **AVERAGE** and **STANDARD DEVIATION** can be shown as per the view configuration settings. XE "Trend Plot"

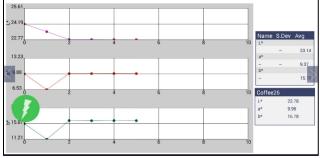


Figure 30. Trend Plot

• VIEW OPTIONS for the Trend Plot include the TYPE OF DISPLAY, the STATISTICS and the NUMBER OF READINGS per display.

View Options						
Display	Statistics					
☑ Line	🖂 Avera	ige				
🗹 Point	Std. Deviation					
Measurements per Display 10						
	ок	Close				

Figure 31. Trend Plot Options

• VIEW OPTIONS > TRACES set the ranges for the traces or allow selection of AUTO RANGE. Trace 1 to 3 uses the current Color Measurement Scale and Trace 4 will allow for measurement of differences or an index. The user can select which Traces to view and set control limits as a percent.

Traces						
Trace Ranges		Trace13				
Trace1(L*) +/-	1.0 -1.0	Illuminant/Obse	rver D65/10			
Trace2(a*) +/-	1.0 -1.0	Scale	CIELAB			
Trace3(b*) +/-	1.0 -1.0	Trace4				
Trace4(None) +/-	1.0 0.0	Indices	None 🔻			
🗹 Auto Range		ODifferences	None 🔻			
Visible Traces						
☐ Trace1	☑ Trace2	🗹 Trace3 🛛 🗌	Trace4			
Control Limits (Per	Control Limits (Percentage)					
Trace1 0	Trace1 0 Trace2 0 Trace3 0 Trace4 0					
		ок	Cancel			

Figure 32. Trend Plot Traces

Views: Color Plot

This shows the sample location in two-dimensional Color Space with respect to the standard for difference measurements or the samples in absolute measurement. For differences, the standard is the center point of the plot and the samples are plotted separately on the graph.

- The displayed samples are shown in a list box on the right of the screen. The Color Plot can be zoomed, and the data points can be viewed in detail.
- Press and hold on the left/right **PAGE NUMBER ARROWS** to show a small dialog box. This dialog allows you to select the number of records per page to display and the default page number to display.

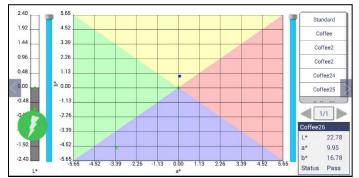


Figure 33. Color Plot View

Color Plot Options			Color Plot C	Options		
Illuminant/ Scale	Observer D6	5/10 ELAB	Illuminant/ Scale	Observer D	65/10 IELAB	
Display Mo		osolute	Display Mode		Difference 🔻	
		Tolerance	1	Rectangular 🔻		
🗹 Auto Range		🗹 Auto R	ange			
	ОК	Close		ОК	Close	

Figure 34. Color Plot View Options

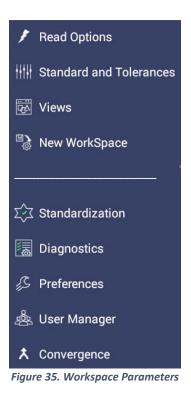
• The Tolerance Plot is available in rectangular and elliptical color space. The **PASS/FAIL** sample points are shown in green and red when in difference mode, respectively. In Absolute Mode, they are shown in green.

Tool Bar: Workspace & System Settings

Workspace Icon



Under the WORKSPACE & SYSTEMS SETTINGS, the following tasks can be accomplished:



Workspace > Color Scales

Color Scales provide four tabs in which the **SCALES**, **INDICES**, **DIFFERENCES** AND **ILLUMINANT/OBSERVER** (**ILL/OBS**) can be configured.

Color Scales				
Scales	III/Obs	Indices	Di	fferences
CIELAB				۲
CIELCh				0
HunterLab				0
XYZ				0
Үху				0
Show Color E)ifference Scales			
		Defaults	Apply	Cancel

Figure 36. Color Measurement Scales

- The **SCALES** Tab shows the five scales available for measurement. Select the absolute scale or color difference scales (if a standard is selected). Press **APPLY** and begin to read your samples.
- The **ILLUMINANT/OBSERVER** tab displays combination selections for these parameters. To see all of the choices, you can scroll through the selections by viewing the screen.

Color Scales			
Scales	III/Obs	Indices	Differences
D65/10			۲
C/2			0
F02/10			0
A/10			0
A/2			0
C/10			0
D50/10			0
		Defaults	Apply Cancel

Figure 37. Illuminant/Observer Configuration

- To select indices, go to the **INDICES** tab and check the corresponding box on the right side. Multiple selections are available. To remove all selections, press **CLEAR ALL**. To see more choices, the screen can be scrolled. Custom Indices allows the user to input a %R at a wavelength as an indice.
- The Bias configuration in **READ OPTIONS** can then be used to adjust the value of any index by applying a slope and gain to the measured value. Press **APPLY** to continue.

Color Scales				
Scales	III/Obs	Indices	Differences	
Gloss				1
Opacity				
457nm Brightness				
Tint E313 [C/2]				
Tint E313 [C/10]				
Tint E313 [D65/2]				
Tint E313 [D65/10]				
Show Difference Inc	dices	Clear	All Custom Indices	
		Defaults	Apply Cancel	

Figure 38. Index Configuration



Figure 39. Custom Indices

• To select differences, go to the **DIFFERENCES** tab and check the corresponding box on the right side. Press **APPLY** to continue.

Scales	III/Obs	Indices	Differences
dE			
dE*			
dE CMC			
dE* 2000			

Figure 40. Color Measurement Differences

EZ View, Color Data Table, Trend Plot & Color Plot					
Illuminant	Observer	Scales	Differences	Indices	View Options
D65	2/10	CIE Lab	dL*a*b*	457nm Brightness	Pass/Fail ¹
С	2/10	CIE LCh	dL*C*h	Tint E313	Tolerances
F02	2/10	Hunter Lab	dLab	WI E313	Time ³
D50	2/10	XYZ ¹	dXYZ	WI Ganz	Date ³
D55	2/10	Yxy ¹	dYxy	Tint Ganz	Port Plate
D75	2/10	Rdab	dE	Y Bright	Image Status
F07	2/10		dE CMC	YI D1925	UV Mode
F11	2/10		dE* 2000	YI E313	Image View
TL84	2/10		dE*	Z%	Latest Data First
ULT 30	2/10			SCAA/C	Trace Range 1 ²
ULT 35	2/10			SCAA/G	Trace Range 2 ²
	2/10			HCCI	Trace Range 3 ²
				BCU	Trace Range 4 ²
				Gloss	Auto Range ²
				Opacity	Display: Line ²
				Tomato Scores ^₄	Display: Point ²
				Tomato Dice Score	Zoom
				My, Mc, dM	Average ²
					Std. Deviation ²
					Meas per Display ²

Table 3. Overview of Color Measurement Parameters forEZ View. Color Data Table. Trend Plot & Color Plot

¹Not Available on Color Plot, ²Trend Plot Only, ³Color Data Table Only

⁴Tomato Scores available with option: Fresh Tomato Color Index (C/2), Tomato Paste (C/2), Ketsup (C/2), Tomato Sauce (C/2), Tomato Juice (C/2), Tomato a/b Ratio (C/2)

Workspace > Read Options

Read Options > Options

Shows a dialog box to configure AVERAGING, CONTINUOUS READ INTERVAL, AUTO SAVE, IMAGE VIEWER, INDEX BIAS CONFIGURATION, SAMPLE NAME, and STANDARD NAME. The Read command performs the operation based on the configured options.

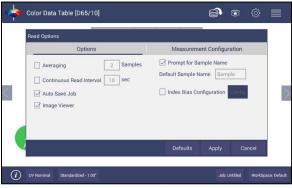


Figure 41. Read Options

AVERAGING

Select the number of readings to average to produce the final measurement. The total number of readings to be averaged can be no less than two. Press **APPLY** to close the screen

and press Read

to initiate Readings.

Name	L*	a*	b*	Bead
Coffee Std	24.19	9.88	15.87	
Sample 1	22.78	9.95	16.80	Average
Sample 2	22.79	9.95	16.80	

Figure 42. Reading and Averaging

Once the **READ** button is pressed, the instrument will display a unique dialog box to **READ** and **AVERAGE** the readings. The second reading is taken using the dialog box button, Read. Once all the readings are taken, press **AVERAGE** to obtain the results. Average and Continuous Read are mutually exclusive.

CONTINUOUS READ INTERVAL

This feature performs measurements continuously. In **CONTINUOUS READ** mode, measurements are initiated and stopped using the *READ* Button. The minimum value of the Read interval is 5 seconds and it will read as fast as it can update. When in **CONTINUOUS READ** mode, the Read Button is enhanced with a checkmark.

When taking measurements, the Read button is greyed out. When waiting to take the next measurement, the Read button turns green.

Standard_201901 21172028 36.21 6.14 16.63 2.00* Sample5 36.22 6.15 16.63 2.00*
Sample5 36.22 6.15 16.63 2.00*
0011preb 4 00.22 0.10 10.00 2.00
Sample4 36.21 6.15 16.63 2.00'
Sample3 _ 36.21 6.14 16.61 2.00"
Sample2 36.20 6.14 16.62 2.00*
Sample1 36.21 6.14 16.63 2.00"

Figure 43. Continuous Read

To stop the Continuous Read, press the *READ* button when the button is green.

AUTO SAVE JOB

This selection will automatically save a job. Once this feature is selected, a dialog box will be displayed to name the job. If there is no name for a job yet, the file name will be default with the date, time, instrument and workspace.

Options		Measurement Configuration			
Averaging Continuous Read Interval Auto Save Job Image Viewer	0 Samples 5 sec	Prompt for Sample Default Sample Name Index Bias Configu	Sample	nfig	
		Defaults	Apply	Cance	

Figure 44. Auto Save Job

IMAGE VIEWER

To preview/capture an image of each sample prior to measurement, go to **WORKSPACE** > **READ OPTIONS** > **IMAGE VIEWER.** Check the **IMAGE VIEWER** and press **APPLY**.

When this option is checked, the camera will look on sample before taking each measurement. You can just view the sample's area without any capture or capture an image and save it together with a measurement. Note that the box is unchecked by default.

Note: When Averaging or Continuous Read is selected with Image Viewer, the camera will only view the sample once at the first measurement.

Note: The Camera preview dialog can only last 30 seconds maximum each time. This dialog will automatically close and take sample measurement once it passes 30 seconds.

• To take an image of a sample, place the sample on the port plate, and click the **READ** button. A **CAMERA PREVIEW** dialog will be prompted in your screen.



Figure 45. Camera Preview

- If the image shown in your screen appears to be fuzzy, tap on the image to perform auto-focus.
- Set the back-light level by adjusting the -/+ button and position your sample in the right place. Then, click on CAPTURE to save an image.

Note: To fix the camera's auto focus, we use a sample with a sharp image (for example a paper with characters). Do not use the white tile or black glass for auto focus.

• INDEX BIAS CORRECTION

This option allows the user to input a custom slope and intercept correction for indices. To begin, select the indices *WORKSPACE > COLORSCALES > INDICES*. Then go to *WORKSPACE > READ OPTIONS* and select *INDEX BIAS CORRECTION*. Select *CONFIG* and check the indice to modify and then input the desired *GAIN and BIAS* values. Press *APPLY* to save the selected Indices values and update the Views accordingly. The Bias-corrected Indices will be marked with * (e.g.: HCCI *) in the respective view display.

To calculate the slope and bias correction, read a series of samples around the target values of interest. Three methods can be used to provide corrected values:

1. **One standard data point**: In this case, the single data point is compared to the expected value. The Gain remains at 1.0 and the Bias is corrected:

Bias = Expected Value- Measured Value

2. **Two data points**: In this case, the two readings are compared to the expected values.

Bias Correction=Expected Value 1-(Measured Value 1*Gain)

Gain Correction= (Expected Value 1-Expected Value 2)/ (Measured Value 1- Measured Value 2) Linear regression: Create a y=mx + b relationship comparing actual readings to target values, where target values is on the Y-axis and actual readings are on the xaxis. Enter the slope correction under Gain and the intercept correction under Bias.

Read Options							
	Options		ement Configur	ration			Select In
Averagi	ng 0 Samples	Prompt for Default Sampl	e Name Sample Sam			_	Bias
Continu	ous Read Interval 0 sec	Derault Sampi					Configura
Auto Sa	ve Job	Index Bias	Configuration	Config	>		conngui
🗌 Image V	fiewer	\bigcirc					
		Defaults	Apply	Cancel			
UV Compare	UV Exc: Standardized; UV Cal: Standardized 1.00	j- Job: 20200123_	152418_AGR00120_	Default Work	kSpace: efault		
	Figure 46. Slope	& Bias Co		101		1	
Color Data Ta		& Bias Co	rrection	n ම @			
Color Data Ta	ble [D65/10]	& Bias Co		101			
Color Data Ta	ble [D65/10] Index Bias Correction		6	101			
Color Data Ta	ble [D65/10] Index Bias Correction Index	Gain	Bias	© ©	=		
Color Data Ta Read Options	ble [D65/10] Index Bias Correction Index 457nm Brightness BCU Fresh Tomato Color Index	Gain	Bias 0.0	© ©			
Color Data Ta Read Options	ble [D65/10] Index Bias Correction Index 457nm Brightness BCU Fresh Tomato Color Index	Gain 1.0	Bias 0.0 ⁴	ි (ාූ ation	=		
Color Data Ta Read Options	ble [D65/10] Index Bias Correction Index 457m Brightness BCU Fresh Tomato Color Index [C/2] Gloss	Cain 1.0 [1.0 [1.0 [Bias 0.0 0.0 0.0	Tation			
Color Data Ta Read Options Averagine Continuo Auto Sav	ble [D65/10] Index Bias Correction Index 457m Brightness BCU Fresh Tomato Color Index [C/2] Gloss	Cain 1.0 [1.0 [1.0 [1.0]	Bias 0.0 0.0 0.0 0.0	Tation	=		
Color Data Ta Read Options Averagine Continuo Auto Sav	ble [D65/10] Index Bias Correction Index 457nm Brightness BCU Fresh Tomato Color Index [C/2] Gloss HCCI	Cain 1.0	Bias 0.0 0.0 0.0 0.0 0.0	Tation			
Color Data Ta Read Options Averagin Continuo Auto Sav Image Vi	ble [D65/10] Index Bias Correction Index	Cain 1.0 [1.0 [1.0 [1.0 [1.0 [1.0 [1.0 [1.0 [1.0 [Bias 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Tation			

Figure 47. Input Gain & Bias

The indices with bias correction include: 457nm Brightness, BCU, HCCI, SCAA/C, SCAA/G, Tint E313, WI E313, Y Brightness, YI D195, YI E313, Z%.

• PROMPT FOR SAMPLE/STANDARD NAME

Select this feature to input the Sample (or Standard) name manually during the measurement cycle so that the Sample measurement will be inserted with the specified name. If this option is not selected, the Samples will be inserted with the specified default sample name suffixed with the auto incremented index number. Press **APPLY** when done.



1	Color Data Table [D65/10]	<u> </u>	=
	Read Options Options	Measurement Configuration	
	Averaging 0 Samples Continuous Read Interval 0 sec Auto Save Job Image Viewer	Prompt for Sample Name Default Sample Name Index Bias Configuration	
		Defaults Apply Cancel	
	UV Compare UV Exc: Standardized; UV Cal: Standardized - 1.00'	Job: 20200123_152418_AGR00120_Default Def	

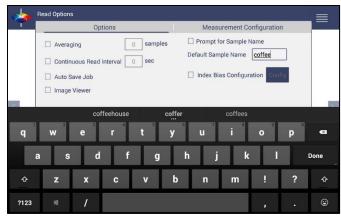


Figure 49. Input Sample Name

Read Options > Measurement Configuration

• UV Mode

Agera uses LEDs to determine UV-nominal, UV-excluded and UV-calibrated content. UV compare will take two measurements automatically: one by UV-excluded mode and UV-calibrated mode for one sample. Both measurements will be saved with the same name. If the Image View is captured, the sample image will be saved for both measurements. The procedure is to standardize in 2 modes – one with the UV-excluded and one with the UV-calibrated. In this way, a numerical value for the ultraviolet contribution can be documented. To begin, select *UV STATUS* from the Status bar or go to *WORKSPACE > READ OPTIONS > MEASUREMENT CONFIGURATION*.

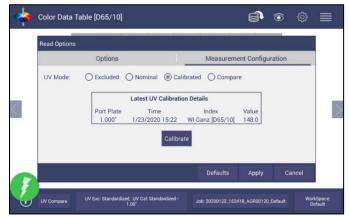
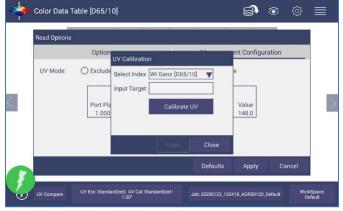


Figure 50. UV Mode Settings

- UV-Nominal This mode includes UV. The UV for this mode can only be calibrated/updated at HunterLab.
- UV-Excluded This option allows the user to negate the effect of opticallybrightened agents or when used in multi-mode with UV-nominal or UV-calibrated, determines the amount of optical brightening agents present.

 UV-Calibrated - This UV calibration procedure optimizes the UV content to match D65 Daylight over time using a Fluorescent Standard with an assigned whiteness index value such as WI Ganz [D65/10] and WI E313 [D65/10]. When UV calibration is done correctly (i.e. the measurement is <0.5 from the calibration value), it will show port plate size, calibrate date and Whiteness index in this dialog as a stamp. If the measurement is >0.5, then the user will be asked to re-standardize and re-read the fluorescent standard. If the tolerance is not met, then this procedure will repeat 2 more times.





 UV-Compare – This UV procedure automatically takes two measurements for one sample: one by UV-excluded and one by UV-calibrated. On the View Options Screen select UV Mode and UV Compare.



Figure 52. Select UV Compare

Read the sample for results UV-excluded and UV-calibrated.

Name	L*	a*	b*	UV Mode	dE*	UV Compare dWI Ganz [D65/10]
Sample 1	99.45	-1.52	2.64	Compare - Excluded		
Sample1	100.09	0.24	-4.47	Compare - Calibrated		70.01

Figure 53. UV-compare Measurement

Workspace: Standard and Tolerances

Standard and **Tolerances**. Standards can be one of four types: retrieved from database, physical (measured), and ad hoc and numeric. A standard that is retrieved from Database has been previously stored. A physical standard is one that has been read as a sample and made into a standard. An Ad Hoc (or working) standard is one that is read at the beginning of a job and becomes the standard for a run. In this case, auto tolerances are recommended. A numeric standard is one that has color measurement values but is not present and cannot be read. A subset of this is the Hitch Standard. All types of standards can apply Hitch.

 A Standard is saved with standard name, standard color value and standard tolerances to the database by pressing the button at the bottom of the screen. When there is a standard applied in a job, you must delete it first if you want to change the standard type (Recall. Physical, Adhoc and Numeric). You can click the *CALC AUTO TOLERANCES* here to calculate the tolerances of standards.

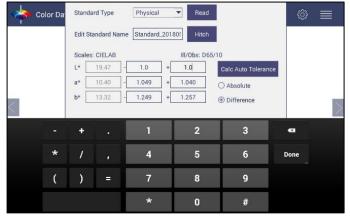


Figure 54. Tolerances Configuration

• **Tolerances** can be entered manually for a selected scale, index and difference.

Standa	rd and Toler	ances					
S	cales	Indi	ces	Difference	es	Auto	Tolerances
Stan	dard Type	Phys	ical	 Read 			
Edit	Standard Na	ime Stani	dard_2017	Hitch			
Scale	es: CIELAB			III/Obs: D65	/10		
L* [94.86	- 2.18	0 +	2.180	Cal	c Auto 1	olerance
a* [-0.92	- 0.75	7 +	0.754		bsolute	
b* [2.06	- 0.77	4 +	0.773	@ D	ifferenc	e
		Delet	e Save	e to Database	Ap	ply	Close

Figure 55. Enter Tolerances

 Tolerances will be displayed on the measurement screen if enabled under VIEW OPTIONS for the Color Data and the Color Plot Screens.

Name	L*	a*	b*	Distance (mm)	Height (mm)	Turntable	BCU	dBCU	HCCI	dHCCI	SC
tandard_201805 03164247	19.47	10.40	13.32	83.04	20.40	On	0.19		6.18		46.
+ Tolerance	0.89	1.04	1.26	0	0	0	1.2	0	8.5	0	0
- Tolerance	0.89	1.05	1.25	0	0	0	1.2	0	8.5	0	C
Coffee58	29.52	4.82	3.32	82.90	20.54	On	1.27	1.08	8.37	2.20	70.
Coffee57	29.51	4.81	3.32	82.34	21.10	On	1.27	1.08	8.37	2.19	73.
Coffee56	29.51	4.82	3.31	82.35	21.09	On	1.27	1.08	8.37	2.19	70
Coffee5	29.47	4.83	3.32	82.35	21.09	On	1.27	1.07	8.35	2.17	70.
Coffee4	29.34	4.87	3.36	82.67	20.78	On	1.26	1.06	8.30	2.13	69.
Coffee3	27.36	6.72	5.63	81.79	21.65	On	1.06	0.87	8.21	2.04	65.
Coffee2	18.28	9.11	10.95	84.37	19.07	On	0.05	-0.15	5.29	-0.88	42.
Coffee	19.47	10.40	13.32	83.04	20.40	On	0.19	0.00	6.18	0.00	46.

Figure 56. Indices & Tolerances on CDT

- **PASS/FAIL** based on these tolerances can be used on the EZ View as well as Color Data View.
- Hitch Standardization
 - Hitch Standardization is a process by which two or more instruments of similar design can be made to read the same color values on a group of specimens. This process is very useful in expanding the communications of color around the world or between vendor and customer.
 - The process of Hitch Standardization (also known as transfer standardization) involves assigning one instrument to be the reference, or master, unit and mathematically adjusting the secondary, or slave, unit(s) to read the same values. In this way, two or more instruments can be hitched together. Hitching a secondary unit to a reference instrument requires that a specimen be read on both units and the values compared and adjusted accordingly. This specimen, known as the hitch standard, is first read on the reference instrument and its values recorded as spectral data or colorimetric (tristimulus) data. The hitch standard is then physically moved to the secondary instrument where it is reread and the values from the reference unit are input into the secondary instrument's processor.

- Steps for Hitch Standardization:
 - Read a standard.
 - Go to WORKSPACE > STANDARD AND TOLERANCES and select HITCH.
 - The Standard is displayed under *AS READ*. Enter the *TARGET VALUES*.
 - Check the **APPLY HITCH** box and press **OK**.

Hitch Method		Hitch Typ	е
Tristimulus	s Hitch	Addition ORatio	ve
Colorimetric C	onditons		
Illuminant/Obs	erver D65/1	D	
Scale	CIELA	3	
Readings			
Readings	L*	a*	b*
Readings As Read	L* 94.86	a* -0.92	b* 2.06
	_		
As Read	94.86 94	-0.92	2.06

Figure 57. Hitch Standardization

	r Ratio Application

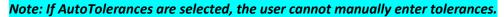
			Calculate	Calculate		Apply Hitch	Apply Hitch
	Hitch	Standard	Additive	Ratio		Additive	Ratio
	Target	Measured	Hitch	Hitch	New Read	New Read	New Read
Х	80.27	78.29	= +1.98	=*1.025	70.84	72.82	72.63
Y	81.00	79.21	= + 1.79	=*1.022	72.25	74.04	73.88
Z	50.71	47.76	= +2.95	=*1.061	46.07	49.02	48.91
			Hitch Factor	Hitch Factor		Hitch Calc	Hitch Calc
			1.98	1.025290586		70.84+1.98	=72.84*1.025
			1.79	1.022598156		72.25+1.79	=72.25*1.022
			2.95	1.061767169		46.07+2.95	=46.07*1.061

AutoTolerances Setting

Using Tab 4, AutoTolerances are calculated for a Color Scale using CMC. The default values of I:C - 2:1 with auto correction factor = 0.75 and commercial factor = 1. However, these ratios can be modified as needed.



Figure 58. AutoTolerance Configuration



Tolerances

Tolerances can be manually entered for Scales, Indices and Differences. Tolerances will be displayed on the measurement screen if enabled under *VIEW OPTIONS* for the Color Data and EZ View Screens. Pass/Fail based on these tolerances can also be viewed on these screens.

	Name	Scales	Indices	Differenc	es Auto	Tolerances	dE*	Tint E313 [C/2]	
	Blue Standard	Differences:	da*	.▼ III/Obs:	D65/10			-8.61	
	Sample19		dL*				0.06	-8.58	
	Sample18		da*	-			0.82	-8.41	
	Sample17						0.58	-8.51	
<	Sample16		db*				0.29	-8.55	
	Sample15		dE*				1.00	-8.38	1
	Sample14						0.38	-8.53	
	Sample13		- 0	+	0		0.45	-8.50	
	Sample12		L				0.96	-8.38	
	Sample 11						0.18	-8.56	
	mple10						0.51	-8.46	
Ĵ	ample9						0.79	-8.43	
	Sample8		Delete	Save to Database	Apply	Close	0.08	-8.59	
G) Standardized					Job: Untitled*	Works	space: Defau	dit 1

Figure 59. Difference Tolerance Configuration

l	Name	Scales	Indices	Differences	Auto Tolerance	dE*	Tint E313 [C/2]
1	Blue Standard	Index:	Tint E313 [C/2 🔻	III/Obs:	D65/10		-8.61
1	Sample 19					0.06	-8.58
I	Sample18					0.82	-8.41
	Sample17					0.58	-8.51
I	Sample16					0.29	-8.55
ų	Sample15					1.00	-8.38
	Sample14					0.38	-8.53
1	Sample 13		- 0.5	+ 0.	5	0.45	-8.50
	Sample12					0.96	-8.38
ł	Sample11					0.18	-8.56
	mple10					0.51	-8.46
)	ample9					0.79	-8.43
1	Sample8		Delete Save	to Database	Apply Close	0.08	-8.59

Figure 60. Indices Tolerance Configuration

Workspace: Views

This option can be used to select the screen views to be used. Simply check on the box of the screen needed. Press **APPLY** to save one or all of the screens. The default screen is the **COLOR DATA TABLE**. To navigate between screens once the selections have been applied, use the **VIEW FLIPPERS** on the left and right of the screen.



Figure 61. Workspace Views

Workspace: New Workspace

This allows the user to create a new workspace. A warning is shown to make sure that the current Job is saved. All settings in the previous workspace will be loaded in the new workspace.

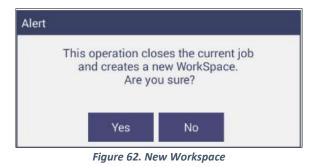




Figure 63. Name the New Workspace

System Settings: Standardization

From the *WORKSPACE* menu, select *STANDARDIZATION*. You can also press the Standardization button in the Status bar as a shortcut. The instrument can report the current port plate and UV Mode on the status bar. Agera can save multiple modes contains different UV settings (nominal, excluded and calibration) and Area of View (xLAV1, LAV, and MAV).

Each Agera has a specific set of Black Glass and White Tile unique to the instrument. These are not interchangeable with other instruments. Position the standard tiles on the instrument with the white line matching the white line on the port plate.

• **READ BLACK GLASS**: Place the Agera black glass on the sensor port. Press **READ** to continue.



Figure 64. Read Black Glass

• **READ WHITE TILE**: Remove the black glass and place the Agera white tile at the port. Press **READ** to continue.



Figure 65. Change to White Tile

• Remove the calibrated white tile when standardization is complete. The instrument is ready to Read Samples.

Multi-Standardization Mode

Agera can save multiple modes with UV Modes and Area of View (Port Plate Settings). Based on the UV-status and the port plate standardization, the nine modes can be stored and recalled for measurement.

Table 5. Multiple Modes

Mode	UV	Port Plate
1	Nominal	xLAV: 51mm (2.0 in)
2	Nominal	LAV: 25.4mm (1.0 in)
3	Nominal	MAV: 16.9mm (0.625 in)
4	Calibrated	xLAV: 51mm (2.0 in)
5	Calibrated	LAV: 25.4mm (1.0 in)
6	Calibrated	MAV: 16.9mm (0.625 in)
7	Excluded	xLAV: 51mm (2.0 in)
8	Excluded	LAV: 25.4mm (1.0 in)
9	Excluded	MAV: 16.9mm (0.625 in)

To update Standardization Status for a new mode, place the new port plate on the instrument and/or change UV status by UV button and click the *READ* button. The standardization status will be updated. If the standardization of this new mode is valid, then the sample will be read. If the standardization is not valid, a dialog box will be shown so prompt for new Standardization.

When using **UV COMPARE**, there are two standardization modes associated – one for **UV-CALIBRATED** and one for **UV-EXCLUDED**. Both modes must be valid before measurements can be taken.

Standardization and Port Plate/Area of View

Each Agera can determine the port plate in view and adjust accordingly. The sizes are as follows:

- xLAV 54 mm (2.125 in) illumination; 51 mm (2.0 in) measured
- LAV 28.6 mm (1.125 in) illumination; 25.4 mm (1.0 in) measured
- MAV 17.46 mm (0.6875 in) illumination; 16.9 mm (0.625 in) measured

Gloss Standardization

Gloss standardization is automatically done while performing instrument color standardization and uses the Black Glass as the reference.

Agera includes a built-in 60-degree gloss meter with a single LED illumination (filtered to $C/2^{\circ}$)/detector pair in conformance with ASTM D523and located right below the sample port plate.

Gloss measurement works with all three port plates. Agera reports gloss when selected as an index in **WORKSPACE > COLOR SCALES > INDICES > GLOSS**.

System Settings: Diagnostics

Diagnostics in the Agera are grouped as **PERFORMANCE**, **ADVANCED** and **PREDICTIVE diagnostics**. The performance diagnostics includes Repeatability, Green Tile, Gloss Tile Test and Validation using EasyCal[™]. All performance diagnostics tests use the 1.00" port plate and UV nominal.

Color Data Table [C/2]		()	� ■
Performance	Advanced	Predicti	ve
Repeatability Green Tile Gloss Tile Run Auto-Diag Validate			
			Close
<i>i</i> UV Nominal Standardized - 1.00"		Job: Untitled*	WorkSpace: Default

Figure 66. Performance Diagnostics Menu

Performance Diagnostics

Colorimetric Repeatability

The Repeatability Test assesses how consistently the instrument can measure color. To begin the sample pan should be free of samples and obstacles. Click **NEW** button to start the repeatability test and the user is prompted to press **OK** to standardize. All sample readings must be within the tolerances to pass the test.

READ the Agera black glass and then the Agera white tile.

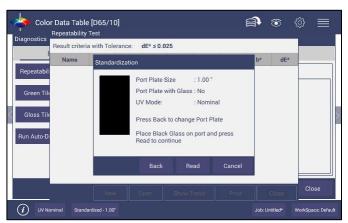


Figure 67. Standardize the Instrument



Figure 68. Read White Tile

Leave the white tile at the port and press **OK** to initiate the repeatability readings. The white tile is read 30 times and the individual results reported. A table of the difference between the current reading and Standard is shown after every measurement. By comparing each reading to the tolerance, a Pass/Fail assessment is shown.

agnostics	Result criteria	a with Tole	rance:	dE* ≤ 0.0	25					
	Name	Result	x	Y	z	L*	a*	b*	dE*	
Repeatabili	Standard		92.07	97.17	104.62	98.90	-0.11	-0.22	-	
	Sample1	Pass	92.06	97.17	104.59	98.89	-0.12	-0.21	0.01	
Green Tile	Sample2	Pass	92.06	97.17	104.61	98.90	-0.12	-0.22	0.01	
	Sample3	Pass	92.07	97.17	104.60	98.89	-0.11	-0.21	0.01	
Gloss Tile	Sample4	Pass	92.06	97.17	104.60	98.89	-0.11	-0.21	0.01	
	Sample5	Pass	92.06	97.17	104.60	98.90	-0.11	-0.21	0.01	
Run Auto-Di	Sample6	Pass	92.07	97.17	104.60	98.90	-0.11	-0.21	0.01	
In Auto-Di	Sample7	Pass	92.07	97.17	104.61	98.90	-0.11	-0.21	0.01	
	Sample8	Pass	92.07	97.17	104.60	98.89	-0.11	-0.21	0.01	
	Sample9	Pass	92.06	97.17	104.60	98.89	-0.11	-0.21	0.01	
	Sample10	Pass	92.07	97.18	104.61	98.90	-0.11	-0.21	0.01	
		New	1	Opern	Show T		Print		lose	Close

Figure 69. Repeatability Readings with Pass/Fail

When all 30 readings have been made, the final test result is shown and saved automatically. To print the results, press the **PRINT** button or click to open the file and then Print.

Perf	ormance	Advar	nced			Predic	ctive	
Repeatability	Results / Status	Data						
		Name	Result	х	Y	z	L*	a*
Green Tile	Repeatability Test	Standard	1	92.07	97.17	104.60	98.90	-0.11
	Result criteria with Tolerance:	Sample1	Pass	92.06	97.17	104.59	98.89	-0.11
Gloss Tile	dE* ≤ 0.025	Sample2	Pass	92.07	97.17	104.59	98.90	-0.11
		Sample3	Pass	92.07	97.17	104.59	98.89	-0.11
Run Auto-Diag	Test Result: Pass	Sample4	Pass	92.06	97.17	104.59	98.89	-0.11
		Sample5	Pass	92.06	97.17	104.59	98.89	-0.12
		Sample6	Pass	92.06	97.17	104.60	98.89	-0.11
		Sample7	Pass	92.07	97.17	104.60	98.89	-0.10

Figure 70. Diagnostics Repeatability Test Results

Reading the Green Tile

		ginning new test, le targets below:	Name	x	Y	Z	
Scale	Target	Standardization					
x: [14.45	Standar	rdization Done.				
Y: [20.45	Place Green Tile o	n port and click OK	to read			
Z: [16.15	ок	Cancel				
			·	-			

This test requires entry of the target values for the green tile.

Figure 71. Input Target Values for Green Tile

Once the target values have been entered, press **NEXT**. Standardize the instrument and attach the Green Tile. Press **OK** to continue.

Ten readings are taken and compared to the tolerance as an average. This test is then automatically saved and can be printed by pressing **PRINT**.

	Defere her	inning new t	inet	Name	x	Y	Z
		e targets bel		Sample1	16.15	22.29	16.81
-				Sample2	16.15	22.29	16.81
Scale	Target	Tolerance	Difference	Sample3	16.15	22.29	16.78
		7		Sample4	16.15	22.29	16.82
X:	16.16	± 0.30	0.01	Sample5	16.15	22.29	16.80
Y:		1		Sample6	16.15	22.29	16.80
Y:	22.25	± 0.30	-0.04	Sample7	16.15	22.29	16.81
Z:	16.68	± 0.30	-0.12	Sample8	16.15	22.29	16.80
]		Sample9	16.15	22.29	16.81
				Sample10	16.15	22.29	16.80
Te	st Result:	Pass		Average	16.15	22.29	16.80

Figure 72. Green Tile Readings

Gloss Test

This test can read a gloss standard 10 times and compare the tile value to an averaged value. To begin, select 1" port plate and then enter the target value found on the back of the gloss standard.



Figure 73. Insert Target Value

Press **DONE** and the software will then prompt the user to standardize using the Black Glass and then the White Tile.



Figure 74. Standardize with Black Glass



Figure 75. Standardize with White Tile

Then place the standard at the port and press **OK** to measure. Ten readings will be taken and compared to the input value.



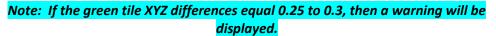
Figure 76. Place Gloss Tile at Port

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Per		Name	Gloss	re
	Before beginning new test,	Sample1	96.73	100 C
Repeatability	Enter Gloss target	Sample2	96.74	
		Sample3	96.73	
Green Tile	Target 97.50	Sample4	96.72	
		Sample5	96.71	
Gloss Tile	Tolerance ± 3.00	Sample6	96.72	
1000000000	Difference 0.78	Sample7	96.72	
Run Auto-Diag		Sample8	96.71	
	Test Result: Pass	Sample9	96.70	
		Sample10	96.70	
		Average	96.72	

Figure 77. Gloss Tile Results

When all readings have completed, choose **PRINT** to output results, **SHOW TREND** to view a graph of results and press **CLOSE** to finish.



		eginning new test, ale targets below:	Sample		Y 21.47	Z 16.43	
Scale		Warning					
X:	Target 15.29	The Green Check Tile is limits.Before the next S remove the port plate a	tandardization p nd check and cl	olease ean the			
Y: [21.32	check tile. Ensure that properly seated on the	he Green Check	Green Check Tile is			
Z: [16.22	standardization.	out plate during				
		-	Export	Close			

Figure 78. Warning on Green Tile Readings

Run Auto Diagnostics

Auto Diagnostics is for use by the service department at HunterLab and not recommended for customer use. It runs all tests and detailed readings for **SHORT TERM REPEATABILITY**, and **GREEN TILE PERFORMANCE** are available by opening the CSV file.

EasyCal[™] Qualification

EasyCal programs allows users to:

- Qualify new and existing color measurement equipment
- Verify instrument performance
- Document instrument performance to support compliance audits
- Calibrate instrument with industry specific standards

Instrument qualification standards are available in individual or three-sample sets, representative of the end user's working color range. Each standard is supplied with a Certificate of Analysis with traceable values and uncertainties.

The EasyCal Qualification Standards Kits Include:

- Software & License
- Measurement Accessories (if needed)
- Certification Label

The detail of EasyCal processes can be found in their specific EasyCal User's Manual.

Advanced Tests

Advanced Tests are primarily for use by HunterLab's Service Department. The Service Department might find it useful to diagnose a problem using the Performance tests of **READ**, **CAROUSEL**, **SAMPLE DETECTION**, **AND LOG FUNCTIONS**. Each of these tests can be shown in **DATA VIEW** or in **CHART VIEW**. **SIGNAL/DARK/ZERO** can be exported in CSV format. Under the System menu, you can **STANDARDIZE**, **MEASURE**, **UPLOAD PRINTER DRIVERS**, **RESTART COMM** with a computer, **RESTORE TILE DATA**, **PARK FOR SHIPPING** and **RESET TO DEFAULT**.

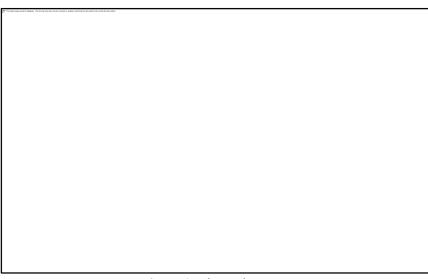


Figure 79. Advanced Menu

<u>Read Signal, Dark, Zero</u>: This function will enable the Service Department to determine proper performance of the instrument. The **SIGNAL DATA** and **CHART** for the white tile are shown in the next figure. These measurements can be put on a continuous **LOOP**. Also, the UV LEDs can be included/excluded in the measurement by checking/unchecking the **UV OPTION**.

iagnostics					0	iagnostics				
Performance	Advanced	_	Predic	ctive		Performa	ance	Advanced	Predictive	
Gloss Port Plate Camera AOV	Standardize Measure	Signal	Data O C	thart Export		Gloss Po	ort Plate Camera AOV	Standardize Measure	Signal 🔿 Data 🛞 Chart	Expor
ad 🔤 🔤 🗌 Lo		SNo	Sample	Monitor		ead	[] Lo	A TRANSPORT OF A DECK	48.0 k 41.1 k	
Signal Dark Zero 🗌 UV	Printer Drivers	1	111	110	ш	Signal Da		Deleter Deleter	342k	
irousel	Restart COMM	2	107	113		arousel		Restart COMM	27.3 k	
LAV SAV Camera Back Ligh		3	112	112	ITTI I				20.4 k	
CAV SAV Califera Back Ligh	t Support Region	4 5	112	141		LAV SAV	Camera Back Ligh	t Support Region	6.5 k.	/
g	Restart Remote	6	109	192		og		Restart Remote	-0.4 k	99 113
Enable Export Size : 38.355 KB	Restore Tile Data	7	110	295 Ens		Enable Ex	kport Size : 38.355 KB	Restore Tile Data	Y Axis: Sa	
				Close						Close

Figure 80. Read Signal

	Color Data Table [A/2]) ()	⊚ ≣		A Color Data Tab	ble [A/2]		i 💿 💿 🗐	
	Diagnostics Performance	Advanced	_	Predicti	ve		Diagnostics Performanc	e	Advanced	Predictive	
	Gloss Port Plate Camera AOV	Standardize	Zero 🛞) Data 🔿 Cha	rt Export		Gloss Port I	Plate Camera AOV	Standardize Measure	Dark O Data Chart Export	
	Read Loop Signal Dark Zero UV		S No 1	Sample 2772	Monitor 2771		Read Signal Dark	Zero UV	Printer Drivers	2341.6 2013.0 1684.4	
<	Carousel	Restart COMM	2 3	2774 2770	2771 2773	> <	Carousel		Restart COMM	1355.8	
	LAV SAV Camera Back Light	Support Region	4	2772	2773 2771		LAV SAV	Camera Back Light	Support Region	698.6.	
	Log	Restart Remote	6	2774	2772		Log		Restart Remote	41.4 0 14 28 42 56 71 85 99 113 1	27
	Enable Export Size : 41.992 KB	Restore Tile Data	7	2769	2773		Enable Expo	t Size : 40.814 KB	Restore Tile Data	Y Axis: Sample - Moni	tor
1					Close					Close	
	UV Nominal Standardized - 0.625"			Job: Untitled*	WorkSpace: Defau	t	UV Nominal Sta	ndardized - 0.625*		Job: Untitled* WorkSpace: De	fault

Figure 81. Dark Data and Chart

agnostics					Diagnostics		
Performance	Advanced		Predic	tive	Performance	Advanced	Predictive
Gloss Port Plate Camera		Zero 🛞) Data 🔿 Ch	art Export	Gloss Port Plate Camera AOV	Standardize	Zero Data Chart Export
ead	Loop	S No	Sample	Monitor	Read	Measure	2786.2
Signal Dark Zero	UV Printer Drivers	1	2772	2771	Signal Dark Zero	Drinter Drivere	2783.6 2780.9
	Restart COMM	2	2774	2771		Restart COMM	2778.3
arousel	Restant COMM	3	2770	2773	Carousel	Hestart COMM	2775.7
LAV SAV Camera E	Back Light Support Region	4	2772	2773	LAV SAV Camera Back Lig	ht Support Region	2773.1 2770 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		5	2772	2771	None in the second s		2767.8
g	Restart Remote	6	2774	2772	Log	Restart Remote	0 14 28 42 56 71 85 99 113
Enable Export Size : 41	Restore Tile Data	7	2769	2773	Enable Export Size : 41.992 K	B Restore Tile Data	Y Axis: Sample - Mi
				Close			Close

Figure 82. Zero Data and Chart

<u>Carousel</u>: Provides the current **PORT PLATE INDEX** and size in the **DATA VIEW**. Each port plate has a unique index. If the port plates are being read incorrectly, please contact the Service Department.

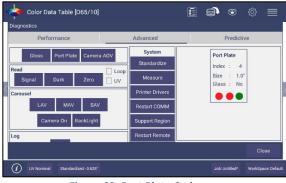


Figure 83. Port Plate Code

Moves the carousel to LAV LENS/MAV LENS/CAMERA position. For example, if you click on *LAV*, it will move to the LAV lens. The Backlight is used to check if the MAV/LAV LENSES are aligned correctly. Camera On is used to calculate the sampling area of each port plate. To use this feature each port plate should be read with a white translucent sample at the plate.

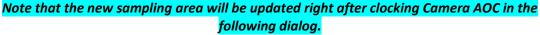




Figure 84. Camera AOV Dialog

<u>Log</u>: After enabling Log feature, all the commands and response will be recorded here. User can attach the thumb drive to the instrument and click **EXPORT** here to get the log file (.txt) exported.

<u>Standardize</u>: Initiates **STANDARDIZATION** from the Diagnostics screen.

<u>Measure</u>: Initiates the measurement of a sample from the Diagnostics screen. The reflectance spectra data will be showed in this Data View.

<u>Printer Drivers</u>: To upload a new print driver or apk file, download the apk file needed from the internet onto a flash drive. Place the flash drive into the instrument (front port) so that it can access the list of apk files. Select the driver to upload and press **OK**.



Figure 85. Insert USB with Printer Driver

Path: /storage/udisk
E [2016-11-04 16:26:00]
Uista Essentials APKs [2016-10-14 11:49:00]
Biogen data [2016-10-12 13:54:00]
System Volume Information [2016-08-08 16:03:00]
LOST.DIR [2016-10-10 15:02:00]
EZMQCEssentials.apk [2017-04-24 18:02:00] 4.29MB
Canon Print Service_v2.3.1_apkpure.com.apk [2016-08-18 14:07:00] 18.31MB

Figure 86. Select Printer Driver

🧮 Canon Print Se	rvice			
Do you want to install an update to this built-in application? Your existing data will not be lost. The updated application will get access to:				
	NEW	ALL		
This update i	requires	no new permissior	15.	
Cancel		Inst	all	

Figure 87. Updating Printer Drivers

The Agera will install the new printer driver.

Canon Print Service	
✓ App installed.	
Done	Öpen

Figure 88. Printer Driver Installed

COPIES	PAPER SIZE
1	Letter
COLOR	ORIENTATION
Black & White	Portrait
PAGES (5)	
All	4
Printer settings	

Figure 89. Printer Page

Restart Comm can be used to reset the ethernet communications for EasyMatch QC.

<u>Support Region</u>: Select SUPPORT REGION. A dialog is displayed with three options for region selection. Select the region (from USA, EUROPE OR ASIA PACIFIC) and then press OK. To apply this change, please restart support using the method below.

Note: Your instrument must be connected to the internet.

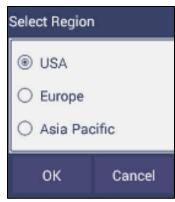


Figure 90. Select Region

<u>Restart Remote</u>: Click **RESTART REMOTE** to view the Netops Host Screen. From the top right side of the Netops Host screen, select the 3 dots. From the list menu, select **RESTART.**



Figure 91. Remote Access Screen

 To ensure that **REMOTE SUPPORT** is successfully restarted, make sure that you see the message *WebConnect: 'hunterlabs' online*. If this message does not appear, please contact our support team. To exit press the floating back button.

A Netop Host	
.	0
Host service is connected	d to a Guest
Host ID: VTS-00108 Device ID: NIT6X	
Network: UDP, TCP	
WebConnect: "hunterlabs" online	
IP addresses: 172.16.20.147	

Figure 92. Web connect to HunterLab

<u>**Restore Tile Data</u>**: This button is used to upload the new white tile data from the attached Thumb drive into Agera sensor. The new white tile data will be sent together with the white tile to an end user.</u>

Predictive Tests

HunterLab Predictive Diagnostic is designed to monitor the software and hardware components of the Agera. Predictive Diagnostic is used to capture different low-level and user-initiated data during normal operation. Following are predictive diagnostics features that have in Agera 1.03.0084 and above.

- 1. In WORKSPACE MENU > DIAGNOSTICS > PREDICTIVE.
- Select a trend and press SHOW to display the data trend for repeatability, green tile, gloss tile or monitor channel. Press APPLY to view the data trends over time. Export the predictive diagnostics data in csv files to thumb drive.

Color Data Table [D65/10]		e 🕫 💿 🕸
gnostics		
Performance	Advanced	Predictive
Reminder interval (days) for Tests Repeatability Green Tile	30 30	
Monitor Channel Trend	Show	
White Tile Trend		
Gloss Tile Trend		Apply Export Close

Figure 93. Predictive Diagnostics

- 3. Set up Reminder intervals for the white tile (repeatability) and green tile test. Select the number of days for the reminder. Select to *DISABLE/ENABLE* the **TEST EXPIRY ALERT**.
- 4. View trend plots of repeatability diagnostics tests (white tile), green tile diagnostics, gloss tile diagnostics and monitor channel (TOS) collected from each standardization. In each trend plot, select the time range, then select the SHOW button to display the data. In the plot, select each data point to get the details showing on the right side.

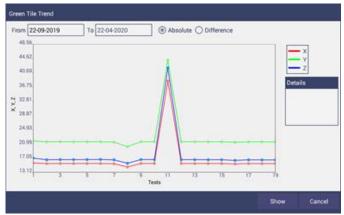


Figure 94. Green Tile Trend

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Figure 95. White Tile Trend

 Select *EXPORT* to send the predictive diagnostics data to a thumb drive. It is recommended to share the predictive diagnostic files when users contact <u>support@hunterab.com</u> with instrument issues. There are three types of predictive diagnostic files.

Color Data Table [D65/10	1	<u>S</u>	()	‡ ⊜
Performance	Advanced		Predictiv	e
White Tile reminder interval (day Green Tile reminder interval (day ☑ Disable White/Green Tile Tes Alert Green Tile Trend	Export All Diagnostics Data Standardization vector log Initial Data OK			
		Apply	Export	t Close
(i) UV Nominal Standardized - 1.00*		Job: U	ntitled*	WorkSpace: Default

Figure 96. Predictive Test Options

Diagnostics Data: Records all of the diagnostics tests (i.e. White Tile Repeatability, Green Tile test and Gloss Tile tests.

Standardization Vector Log: Records raw data from the sample and monitor channel during each standardization.

Initial Data: The original raw data from the sample and monitor channel. This data should not be modified by users.

Test	Sample to Measure	Warning alert
Gloss Data	Black Glass	Gloss value is below 20000
Sample channel signal Data	Black Glass	Max BOS is above 700.
Monitor Channel Signal Data	White Tile	Max monitor data from pixel 32-96 is below 21500.
Sample Channel Signal Data	White Tile	Max monitor data is below 20000
XYZ Difference	Green Tile	Between 0.25 – 0.3
Service Date	Green Tile	Within 1 month

6. Warning Messages – Collect the following raw data:

Once

the Disable Error/Warning Alerts is unchecked and applied in Workspace Menu > Diagnostics > Predictive, the info button in the tool bar will list all of the existing warning and error messages. It will be labeled with a different colored dot - Red dot for errors, a yellow dot for warnings and no color for no error or warning,

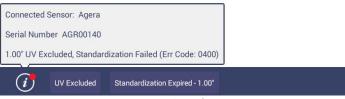


Figure 97. Red Dot for Errors



Figure 99. No Error or Warning

System Settings: Preferences

Preferences: General

This allows the user to set preferences to:

	General	Print
J	Load Last WorkSpace at Startup Load Last Job at Startup Standardization Time Interval (hrs) Brightness 100% Date 1/20/2020 Adjust Clock Time 17:12 Language Settings	Configure Network Settings Configure Network Settings
-		Defaults Apply Close

Figure 100. System Settings > Preferences > General Page

- To Load the LAST WORKSPACE AT STARTUP check this box and press APPLY.
- To Load the LAST JOB AT STARTUP, check this box and press APPLY.
- The **STANDARDIZATION TIME INTERVAL** is a useful reminder to re-standardize. Press **APPLY** to set the new interval. When the time has lapsed, a prompt to re-standardize will be displayed before measurements can be taken.
- Set the screen BRIGHTNESS using a sliding scale and press APPLY.
- Use LANGUAGE SETTINGS to select Chinese, Japanese and German as alternate languages.
- Set the Date and Time, time zone, and format use the **ADJUST CLOCK** feature.
- **ENABLE NOVICE TOOLTIPS** by checking on the box. Once enabled, on screen tips are displayed for 3 seconds. To display again, roll over the **LIGHTBULB ICON** on the lower right part of the screen.

Preferences		
General	Print	
Load Last WorkSpace at Startup Load Last Job at Startup Standardization Time Interval (hrs) Brightness Date 1/20/2020 Adjust Clock Time 17:12 Language Settings	Enable Novice Tooltip Enable Application Security Use Last Login Credentials Reverse Screen Orientation Auto Export Measurement Configure Network Settings	
	Defaults Apply Close	

Figure 101. Enable Novice Tool Tips



Figure 102. Example of Novice Tool Tip

- ENABLE APPLICATION SECURITY. This selection is available after the User Manager has been set up. Please refer to the SYSTEM SETTINGS > USER MANAGER for more information.
 - When this is selected, the application will require valid login credentials at startup. On successful login, the user name will be shown in the status bar. If USE LAST LOGIN CREDENTIALS is checked, the user will be automatically logged in on subsequent startups.
- REVERSE SCREEN ORIENTATION. The Essentials screen is default setup for port up Agera. If
 port forward orientation is required, then go to WORKSPACE > PREFERENCES and check
 REVERSE SCREEN ORIENTATION and click APPLY. Power off/on Agera to get the screen
 orientation changed.
- To **CONFIGURE AND ENABLE THE NETWORK DATA EXPORT**, the Configuration menu is presented.

For direct connection to a computer, *CONNECT AS CLIENT*. Enter the SERVER IP ADDRESS, **PORT NUMBER** and **DELIMITER** and press *APPLY*.

For connection to a network, select **ACT AS SERVER**. Enter the Port number and delimiter and press **APPLY**.

Network Data Export Config	juration	
Connect as Client	OAct as Server	
Server IP Address	169.254.113	8.144
Server Port Number	10001	
Delimiter	\$T	•
	Apply	Cancel

Figure 103. Data Export Configuration

• In Network settings, one can use an Ethernet cable.

	General		1	Print	
	Load Last WorkSpace	e at Startup	🗹 Enable No	vice Tooltip	
	Load Last Job at Co	nfigure Network	Settings	ation Security	
	Standardization Time	Configure E	thernet Settings	n Credentials n Orientation	
	Brightness	Configure	Wifi Settings	easurement Config	
	Date 1/20/2020 Time 17:13		Close	rk Settings	
Fe	Language Settings				

Figure 104. Network Settings

Preferences: Print

The Print page allows the user to configure:

- Enter a **TITLE** for the printout.
- Select **PORTRAIT OR LANDSCAPE** orientation.
- Select LAST MEASUREMENT or ALL READINGS for the job.
- The option to **PREVIEW** before print.
- Select the VIEW to print, i.e. EZ VIEW, COLOR DATA TABLE, SPECTRAL DATA TABLE, SPECTRAL PLOT, TREND PLOT and COLOR PLOT.
- Select LOGO. To apply a logo, import the logo first and then **BROWSE** to select. This logo can be used as a **DEFAULT LOGO** for all printouts or selected for each printout using the **SELECTION BOX TO PRINT** the Logo.
- To save changes, press APPLY. To use a default setup, press DEFAULTS.

	lor Data Table [D65/10	1		ð	•	¢	≡
	Preferences Genera	al		Print			
< J e	Title EasyMatchQC Esse Orientation (a) Portrait (b) LandScape Readings (c) Last Measurement (a) All Readings (c) Preview before Print	Antials Select Views EZ View Color Data Table Spectral Data Table Spectral Plot Trend Plot Color Plot	Logo Se Logo Pre		Brow	se	
(i) uv	Nominal Standardized - 1.00*		Defaults	Apply Jo	Close	WorkSpa	ice: Default

Figure 105. System Settings > Preferences > Configure Print Page

System Settings: User Manager

Security can be enabled on the Agera to ensure that operators cannot modify/delete folders or files and limit their functionality. An administrator is identified to set up the users/groups with selected privileges.

• To begin, go to **WORKSPACE > USER MANAGER** to set up Create Administrative Groups first followed by Create User Groups.

User Manager			
	Group	Use	r
Create	Group Name		
Privileges	Type Adr	ministrative 🔻	
Delete	Description		1
Reset Password]
		Create	Close

Figure 106. Create a Group

• Once the groups have been established, then individual users with **USER NAMES** and **PASSWORDS** can be setup for both Administrator and User Groups.

User Manager		
	Group	User
Create	User Name	
Privileges	Password	
Delete	Confirm Password Group	Administrators 🔻
Reset Password	Description	
		Create Close

Figure 107. Setup Administrative & General Users

• Users in Administrative Groups have all features enabled. For Users in User Groups, Privileges can be setup as shown below. Press **UPDATE PROFILE** to complete.



Figure 108. User Privileges

- If a printer is attached, you can **PRINT** a list of Privileges selected.
- To complete enabling security, go to WORKSPACE > PREFERENCES and ENABLE SECURITY on the right side.

Preferences				
General		Print		
 Load Last WorkSpace at Startup Load Last Job at Startup 	Enable Novi		,	
Standardization Time Interval (hrs) 8	Enable Application Security Use Last Login Credentials			
Brightness 40%	Automatic N	Network Data E	xport Config	
Date 2017/02/23 Time 14:29	Configure Netw	work Settings		
	Defaults	Apply	Cancel	

Figure 109. Enabling Security

• After enabling security, each user must enter a name and password when logging into the Agera. For convenience, the user can check the box under *WORKSPACE > PREFERENCES > GENERAL* to use the LAST LOGIN CREDENTIALS.



Figure 110. Login Credentials

Preferences	
General	Print
Load Last WorkSpace at Startup Load Last Job at Startup Standardization Time Interval (hrs)	Enable Novice Tooltip Enable Application Security Use Last Login Credentials Automatic Network Data Export
Date 2017/03/09 Time 13:34	Configure Network Settings
	Defaults Apply Cancel

Figure 111. Enable Last Login Credentials

• If needed, the administrative user can delete groups / users and reset passwords of all Groups & Users.

System Settings: Convergence

Currently, the **ESSENTIALS** and **EZMQC** applications use independent data storage formats and database locations. With Convergence, the measurements performed by either Essentials or EasyMatch QC will be saved to a common database. This database will be updated to both Essentials and EasyMatch QC in parallel upon measurement completion. This feature is very helpful if the user takes measurements in Essentials but later wants to use EasyMatch QC to analyze data.

The Common Data Storage is updated as measurements are taken from both connected applications.

- 1. Whenever a measurement is performed from any connected application, a Data Update notification is sent to both the connected applications.
- 2. The operation can be carried out only when the system status changes to 'active'. A 'busy' status is shown when any operation is in process.
- Once convergence is setup, EZMQC and Agera Essentials can talk to each other: If both software packages are open, the measurement data is shown at the same time. All data measured from two software packages will be saved into the Common SQL Database. Both software packages can recall data from the Common DB.
- 4. Convergence is currently only available in English.

To begin, enable the Convergence feature in *ABOUT > INFO > CMR*. Select *WORKSPACE > CONVERGENCE* to display the below options as shown in the below list of options

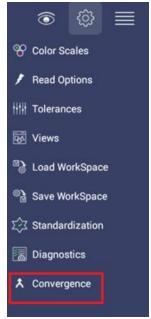


Figure 112. Select Convergence

- Common DB Settings
- Recall
- Connected Clients



Figure 113. Convergence Sub-menu

Convergence > Common DB Settings

Select type as *LOCAL DATABASE* or *NETWORK DATABASE*. The Local DB option can be selected to save the measurement records on the instrument side.

Common DB Settings				
Please select Commo	n DB location			
○ Local DB				
Network DB				
Server IP Address	10.33.50.120	Test Connection		
Server Port Number	1433	Connected		
User Name	COMMONDBUSER			
Password	•••••			
		_		
	Apply	Cancel		

Figure 114. Select Database Type

The **NETWORK DB** option can be used to configure the network information (**IP ADDRESS**, **SERVER PORT NUMBER, USERNAME, PASSWORD**) and save the measurements. Click **TEST CONNECTION** to verify the Database connection then click **APPLY** to save the configuration settings.

Note: Please use Server Port number as 1433 (for below SQL Server 2012). For SQL Server 2012 and above, please follow the below steps to find the port number to be used.

- Run SQL SERVER CONFIGURATION MANAGER on the SQL SERVER system.
- Click on *PROTOCOLS FOR SQLEXPRESS* item and open the *TCP/IP* Properties dialog.
- Now, use the port number mentioned in **TCP DYNAMIC PORTS** under **IPAII** section.

File Action View Help			TCP/IP Properties		8	X
⇐ ➡ ☎ 🖾 🗟 🛛			Protocol IP Addresses			
 SQL Server Configuration Manager (Local) SQL Server Services SQL Server Network Configuration Protocols for SQLEXPRESS Protocols for MSSQLSERVER SQL Native Client 11.0 Configuration 	Protocol Name ""S" Naned Memory "Named Pipes "TCP/IP	Status Enabled Enabled Enabled	TCP Dynamic Ports TCP Port PP4 Active Enabled IP Address TCP Port Active Enabled IP Address TCP Port PP5 Active Enabled IP Address TCP Dynamic Ports TCP Port TCP Port TCP Port Active Indicates whether the select OK	0 Ves Yes 127.0.0.1 0 41 433 Ves No re80::5efe:10.33.50.120% 0 49401 1433 ed IP Address is active. Сапсеі <u>Арріу</u>	12 Hel	Ē

Figure 115. SQL Configuration Manager

Convergence > Recall Measurements

Click **RECALL** to select the Samples/Standards from the Common DB. Select individual samples using the radio buttons next to the sample name or type the text in the **FILTER BY NAME** text box and filter the list of the populated list of measurement records whose names matching to the text typed as shown below.

Recall Measurements				
	Sensor: Vista			
	Filter By Name:			
	Samples			
	Sample 1_20190508_10:34:43			
Sample 1_20190508_10:35:44				
Sample 1_20190508_10:38:34				
Sample1_20190508_23:00:19				
Sample2_20190508_23:01:23				
Sample3_20190508_23:02:07				
	Set Filter Clear All Select All			
	Recall Cancel			

Figure 116. Recall Measurements

Recall Measurements					
Sensor: Vista					
Filter By Name:					
Sample 1_20190508_10:34:43					
Sample 1_20190508_10:35:44					
Sample 1_20190508_10:38:34					
Sample2_20190508_23:00:19					
Sample3_20190508_23:02:07					
Set Filter Clear All Select All					
Recall Cancel					

Figure 117. Filter by Name

To **SET FILTER**, press this option on the bottom of the dialog box. Then select the type of measurements (i.e. Standard or Sample) or specify the dates. Then press **OK** to continue.

Set Filter		
Select Type Samples	1	•
🗌 Filter On Date		
From 09-05-2019	To 09-05	5-2019
	ОК	Cancel



After selecting the records from the populated list, press *RECALL* to bring the selected measurements into the current Job.

Convergence > Connected Clients

CONNECTED CLIENTS is used to display the list of the current connected active clients using the convergence service.

Connected Clients Info				
S.NO	Info	Status		
1	/10.33.50.129	Connected		
2	/127.0.0.1	Connected		
		Close		

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Figure 119. Connected Clients Info

Measurement data is shown in both connected clients when they are connected to the sensor. When reading samples, both clients are updated with data and both can recall data from the common database.

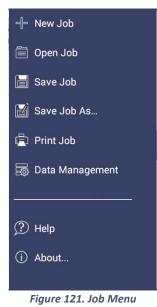
🔶 Color Data Table	e [D65/10]					٢	<u>ن</u>	
	Name	L*	a*	b*				
	Convergence Test 1_20191101_10:55: 13	100.00	-0.01	0.01				
🗣 Legilating: se ASMT - (Unified Juli) - (Database ()	990							
🔶 File Edit View Measurements Options Sensor								
Convergence Test 1,25101101,10.55:13	ID L ^a of Convergence Test 102.00 -0.01	0* 0.01	dL*	da*	db* dE*	OE CMC	dE CMC (I.c.)	

Figure 120. Convergence Showing Data in Essentials and EasyMatch QC

Tool Bar: Jobs Function

Jobs Icon

Under the Job function, the following tasks can be accomplished:



Jobs

Jobs vs. Workspace: A job consists of samples measured according to a specific workspace. A workspace is a template with measurement conditions such as standard & tolerances, color scale, index, illuminant, etc. There can be only one workspace associated with a job. The main tool bar provides the options to create a new job, open an existing job and save a job.

Jobs > New

 When click NEW JOB (Shortcut: press Workspace name in the lower right status bar), the Load Workspace dialog will pop out. The default selected workspace is the current workspace. User can change the workspace and click LOAD. Then the selected Workspace is opened in the NEW JOB. Once the Workspace has been loaded to the New Job, the Workspace name associated with this job cannot be edited.

Jobs > Open

- **OPEN** a saved Job: A list of available jobs under the current path are displayed for selection. If the job that is needed exists in another folder, then it is an option to change the folder. When the job to be opened is displayed select the file and press **OPEN**.
- Shortcut: press job name in the status bar on the lower right.



Figure 122. Open A Job

Jobs > Save & Save As

• **SAVE** the Job under the desired name: To save a job, select the folder, name the Job and save the Job contents into a file. These files have an '.ezm' extension. There will be a default name filled in Filename box as date&time&instrument#&workspace. You can edit it if needed.



Figure 123. Save A Job

Jobs > Print

• **PRINT** an open Job using the parameters set up under **WORKSPACE & SYSTEMS SETTINGS** > **PREFERENCES**.

Ge	neral	Pr	rint	
Title EasyMatchQC E Orientation © Portrait LandScape Readings O Last Measurement @ All Readings Preview before Proving Statement Preview before Preview Before Preview Before Proving Statement Preview Before Preview Befor	Select Views EZ View Color Data Table Spectral Data Table Trend Plot Color Plot	Copy Set Default F		owse
)efaults Ap	clos	

Figure 124. Workspace & System Settings > Preferences > Print

• Drivers included in the Agera are shown below. Additional printer drivers can be added under *WORKSPACE > DIAGNOSTICS > ADVANCED*.

Printer	Driver
Canon	Canon Print Service 4.4+
HP	HP Print Service Plugin 4.1+
Epson	Epson Print Enabler 4.4+
Konica Minolta	Konica Minolta Print Service Plugin 4.4+
Kyocera	Kyocera Print Service Plugin 4.4+
Lexmark	Lexmark Print Service Plugin 4.4+
Sharp	Sharp Print Service Plugin 4.4+
Xerox	Xerox Print Service Plugin 4.4+

Table	2:	Printer	Drivers	Included
TUDIC	۷.	1 miller	DINCIS	melaca

Printing can be downloaded to a pdf file by selecting, SAVE AS PDF. Once this is selected, the
parameters for the output are presented. Please save the file to the download folder. To access
these files, see DATA MANAGEMENT > EXPORT > OTHERS.



Figure 125. Save as PDF

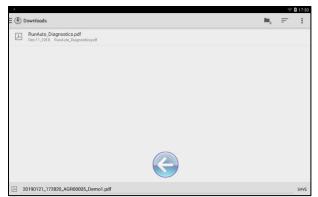


Figure 126. Save PDF to Downloads File

1		7:12
Save to		:
() Recent		
Downloads		
	Noitems	
	NO REMS	
	\leftarrow	
	0018_Default.pdf	

Figure 127. Download File Contents

Jobs > Data Management

Standard(s) and sample measurements are saved in Job files and database along with the sensor information. The saved measurements are also associated with a respective Workspace and Job.

- **DATA MANAGEMENT** contains the features to Recall, Import, Export, Email a Job and Backup/Restore. **RECALL** the measurements from the database.
 - IMPORT a selected Job(s), Standard(s), Workspace(s)Diagnostics, photos for logo print setup and others from a USB flash drive.
 - EXPORT the Job(s), Standard(s), Workspace(s), Diagnostics, pdf reports and others to a USB flash drive.
 - EMAIL the selected Job(s), pdf reports and other files.
 - DELETE Job(s), Standard(s), Workspace(s), Diagnostics, pdf reports and others.
 - BACKUP the HunterLab folder (all jobs, database and user manager settings) into a USB Flash drive.
 - **RESTORE** the Hunterlab folder (all jobs, database and user manager settings) from a USB flash drive.



Figure 128. Data Management Menu

• JOBS > DATA MANAGEMENT > RECALL

Recall measurements that have been stored to a job.

Since the Recall standard feature is available, the Recall Measurement dialog is used to recall samples only.

Users can enter sample name or use the filter by workspace or job to search for a specific sample.

Sample Name			
Select Workspace All		V	
Select Job All		•	
Sample Name	Sensor Type	Sensor Number	Created Time
🗌 Gyt & zr	Vista	VTS00105	10/27/2021_3:04 PM
/& ty nb	Vista	VTS00105	10/28/2021_4:32 PM
Sample2	Vista	VTS00105	11/9/2021_9:55 AM
Sample3	Vista	VTS00105	11/9/2021_9:56 AM
Sample4	Vista	VTS00105	11/9/2021_9:58 AM
Sample5	Vista	VTS00105	11/9/2021_9:58 AM
Sample6	Vista	VTS00105	11/9/2021_9:59 AM
Sample7	Vista	VTS00105	11/9/2021_9:59 AM
Sample8	Vista	VTS00105	11/9/2021_10:00 AM
Comple0	Vieto	VTENDIDE	11/0/2021 10:00 444
			Recall Cancel

Figure 129. Recall Measurements

• JOBS > DATA MANAGEMENT > IMPORT

This feature allows the user to import the below data from a USB flash drive into the instrument. Data can be one file or multiple files. All selected files should be in the same file path location. The following data can be imported:

- Job
- Standard
- Workspace
- Diagnostics

Others

IMPORT JOB

This option allows the user to browse and select a Job file(s) (.ezm) from the USB flash drive and import into the instrument. If a file name already exists, then the name will be incremented numerically.

Select Job to Import				
Path: /storage/udisk				
E [unterlab(1) [2016-07-29 18:50:00]				
System Volume Information [2016-07-23 17:13:00]				
Hunterlab [2016-07-29 15:20:00]				
Android [2016-07-25 14:38:00]				
Select Back	Cancel			

Figure 130. Import Job

IMPORT STANDARD

This option allows the user to browse and select a Standard(s) (extension *.std*) from the USB flash drive and import into the database. If required, the Standard Name can be changed.

IMPORT WORKSPACE

This option allows the user to browse and select a Workspace(s) (extension .wsp) from the USB flash drive and import into the database. If the workspace already exists, then the user is prompted to specify a different name.

Select Import Workspace
Path: /storage/udisk
Hunterlab(1) [2016-07-29 18:50:00]
System Volume Information [2016-07-23 17:13:00]
Hunterlab [2016-07-29 15:20:00]
Android [2016-07-25 14:38:00]
Select Back Cancel

Figure 131. Import Workspace

To use the above functions, a USB flash drive must be present in the port.

- IMPORT DIAGNOSTICS: This option allows the user to browse and select a Diagnostics file from the USB flash drive for import into the instrument database.
- IMPORT OTHERS: This function is available to import other items such as a logo for the printed report. Once the logo is imported, go to WORKSPACE & SYSTEM SETTINGS > PREFERENCES > PRINT to add the logo to a report.
- JOBS > DATA MANAGEMENT > EXPORT. This feature allows the user to export the below data from instrument into a USB flash drive. Data can be one file or multiple files. All selected files should be in the same file path location. The following data can be exported:
 - Job
 - Standard
 - Workspace
 - Diagnostics
 - Others (e.g. all files in HunterLab folder, and all pdf reports in Download folder)
 - EXPORT JOB: This option allows the user to browse and select an existing Job(s) (*.ezm*) or the current active Job data and copy into a USB flash drive either in CSV or EZM file format. While exporting into EZM format, the current active Workspace settings can be applied. The color data shown in the Color Data View and the Spectral Data is saved in a CSV file.

Export Job		
Export Current Job		
Use Current Workspace		
Job Source		
		Browse
	Export	Close

Figure 132. Export Current Job

EXPORT STANDARD

This option allows the user to browse and select an existing Standard(s) in the database and copy into the USB flash drive as a file (*.std*).

Standard_201805031642 🕢	Details Record Name	: Standar	4 201905021	64047
	Sample Name Sample Name is Hitched Group Job Sensor Name Serial Number Sensor Mode	: Coffee : false : Default : coffee s : Aeros D : ARS000	amples ata Acquisitio 124	
	Se	lect All	Export	Close

Figure 133. Export Standard

EXPORT WORKSPACE

This option allows the user to browse and select an existing Workspace(s) in the database and copy into the USB flash drive as a file (*.wsp*). To use the above functions, a USB flash drive must be present in the port.

EXPORT PDF

This allows the user to select a PDF file from the Downloads folder to export. Switch to the Download folder in the dropdown list and then select the pdf files to export.

Open File			
	age/emulated/0/	/HunterLab_Ae	os
Switch to:	Hunterlab		
Jobs [2018	Hunterlab Download 0:00	1	
	ILE-journal 3-04-24 19:12:00] 8.52KB	
E ezmq [2018	c.db 3-04-24 19:12:00] 72.0KB	
PROF	ILE 3-04-24 19:12:00] 16.0KB	
	c.db-journal 3-04-24 19:12:00] 12.52KB	
100.400	Open	Back	Cancel

Figure 134. Select Download Folder for PDF File Export

 JOBS > DATA MANAGEMENT > EMAIL. Saved Jobs can be emailed if there is an active internet connection. When the EMAIL option is clicked, the following screen is shown prompting the user to browse and select a user and enter the recipient mail address. Data can be one file or multiple files. All selected files for one email should be in the same file path location. You can email any file in HunterLab folder as well as in the downloads folder.

A Color Data	a Table [D65/10]) ()	\$ ■
	Compose Email From To	Settings Send Email	
$\langle $	Subject O No Attachments Compose	Cancel	>
Ø			
<i>i</i> UV Nominal	Standardized - 1.00"	Job: Untitleo	d WorkSpace: Default

Figure 135. Enter an Address to Email a Job

MAIL SETTINGS

Click **MAIL SETTINGS** button to configure the SMTP mail server configuration (Port, Server) as shown below. The mail settings configuration is mandatory to enable the mail job feature in the application. When done, press **SEND**.

-	Color Data	Subject	Email Setting	gs			a	incel	6)	
		0 No A	Name	Agera Contro	oller_AGR0000	15		O+	دي، -	
			Server	smtp.gmail.c	com			U +		
		Compose	Port	465						
			From							
			Password							
<			Enable S		on					
Q	W	E	R	Т	Y	U	I	0	Р	•
	A S	D	F	G	H	J	к	L		Next
+	z	x	С	۷	В	N	м	!	?	+
?123	#	7								٢

Figure 136. Enter SMTP Mail Server Information

- JOBS > DATA MANAGEMENT > DELETE. The Delete function will allow deletion of Jobs, Standards, Workspace, Diagnostics and others. Data can be one file or multiple files. All selected files must be in the same file path location. In addition, one can delete PDF files from the Downloads folder.
- JOBS > DATA MANAGEMENT > BACKUP/RESTORE. The Backup function will copy the entire HunterLab folder to a thumb drive. Restore enables the user to copy the backup folder of a thumb drive and upload to the Agera.

Jobs > Help

To access the onboard manual, use *JOBS > HELP*. Novice Help can also be enabled under *PREFERENCES > GENERAL*.

Jobs > About

The ABOUT menu provides information about HunterLab and the current software version.



Figure 137. Job > About the Software

To update the software version from a USB flash drive, insert the USB flash drive into the port on the front of the instrument. Open the *JOBS > ABOUT* menu and press *UPDATE* to continue. After update, open Essentials and it will prompt to enter or create an Administrator Account. If needed, you can edit this account in User Manager later.

For detailed information on firmware and more, please press the *INFO* button on the screen. To add a CMR option, insert the software update on a flash drive and press the button on the screen below to access the update.

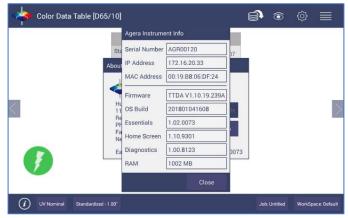


Figure 138. Instrument Info

Electronic Records (ER only)



HunterLab's EasyMatch Essentials Electronic Records allows communication with the Agera to measure samples and standards, while providing electronic signature capabilities and an audit trail. The special software considerations are described below.

Login Feature

EasyMatch Essentials-Electronic Records contains a login feature. The EasyMatch Essentials Electronic Records login feature has several benefits that may be helpful to some companies.

Once a user logs into EasyMatch Essentials Electronic Records, a user ID is stored as an Operator ID and may be displayed and printed as desired. These actions are also recorded in the Audit Log.

By assignment of individual user accounts and configuration of EasyMatch Essentials-Electronic Records menu items may be configured to allow and disallow specific EasyMatch Essentials Electronic Records software functions.

Storing Data/Permanent Records

Creating Job Files

Job files store the measurements made using EasyMatch Essentials-Electronic Records. While individual sample measurements are saved within EasyMatch Essentials-Electronic Records jobs, these readings are considered work in progress, not end products.

Storing

In EasyMatch Essentials-Electronic Records, users cannot delete job files. Further, they do not have access to the android operating system to delete the folder.

Altering

Modification of job files beyond adding measurements, configuring the screen display, and signing is not allowed by EasyMatch Essentials Electronic Records. The raw data behind stored measurements may not be altered in any way within the software. EasyMatch Essentials-Electronic Records alerts the user if a job has been modified from outside the software and then disallows opening of the job, in which case it should be considered invalid and restored from an earlier back-up, if available.

Deleting

The EasyMatch Essentials Electronic Records job files are retained (and backed up) for the period indicated by predicate rule. The job and database files in EasyMatch Essentials Electronic Records. are protected from deletion.

Displaying

EasyMatch Essentials Electronic Records jobs may be displayed on screen from within the software and e-mailed to other users with the same software version of EasyMatch Essentials Electronic Records.

Printing

EasyMatch Essentials-Electronic Records jobs and/or displays may be printed to any installed printer.

Standardization

EasyMatch Essentials Electronic Records prompts for standardization at intervals set by the system administrator and will not allow measurements to be made unless the instrument has been successfully standardized.

Signatures and Audit Trail

Each job will be electronically signed with the name of the signer, date and time of signing, and the meaning of the signature. The electronic signatures applied to the jobs are linked to the jobs, may not be deleted, and are always available for display or printing. Only a user with e-signature access can sign a job file.

IQ/OQ/PQ Protocols for EasyMatch Essentials-Electronic Records

The following steps define the IQ/OQ/PQ process.

IQ – **Installation Qualification of Hardware and Software** is accomplished by verifying that Administrative group can log in and standardize the sensor indicating that power and communications have been established.

OQ – **Operation Qualification** occurs after a member of the Administrative group can operate the instrument and run all sensor diagnostic tests with a **PASS** rating.

PQ – Performance Qualification is defined by establishing a measurement method for the application and successfully measuring the client's samples – typically transparent and translucent liquids.

Installing Essentials ER

If the Agera was ordered with EasyMatch Essentials ER, then the instrument will be ready to go. HunterLab will load the software at the factory and create a User Name and Password. These will ship with the sensor and are needed to access the software when it is first started. HunterLab recommends changing these as soon as possible.



Figure 139. Initial Login for Admin

To upgrade or install the software, place a thumb drive with the software upgrade into the front USB on the Agera. Go to **JOBS > ABOUT > UPGRADE** to install ER.

If the upgrade is from a non-ER version, passwords of all previous accounts will become expired. Users must change their password. When the software has finished the update, please **RESTART** the instrument by powering off and then powering on.

If the upgrade is from an older ER version, all user accounts are saved and applied. There is no need to restart the instrument.



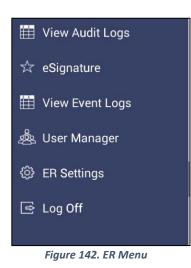
Figure 140. Jobs > About

The initial screen will require entry of a **PASSWORD** and **CONFIRMATION** of this password for the Administrator. You can enter an existing administrator account or create a new administrator account in this dialog.

7 0	Configure - Adminis	trator Account			12:38
	User Name	Administrator			
	Password				
	Confirm Password				
		Finish			
q w e	r t	y u i	0 0	P	Ø
a s d	f g	h j	k I	Nex	t
☆ z x	c v	b n m	!	?	Ŷ
?123 ≢ /					٢

Figure 141. Opening Screen Requiring an Administrator Password

A new ER menu will be shown on the tool bar. Under the **ER MENU**, the following functions can be accomplished:



ER: View Audit Logs

The audit log can be used to monitor activity on the instrument along with User, type of activity and date/time. Steps taken within a Job such as naming a standard or sample are stored with each Job in the order taken with the description. A data filter can be used to isolate Sample and Standards, Save, Edits, e-Signatures and Printing.

Iter By	/: All	-		
udit Lo	ogs:			
S.No	User	Event	Description	Date
1	Hladmin	Job Open	20160920 lovibond 20mm#119	2017-Oct-12 09:13:56
2	Hladmin	Diagnostic Tests	RestartEthernet	2017-Oct-12 01:06:54
3	Hladmin	Diagnostic Tests	RestartEthernet	2017-Oct-12 01:06:55
4	Hladmin	Job Saved	20160920 lovibond 20mm#119	2017-Oct-12 01:07:05
5	Admin	Job Open	20160920 lovibond 20mm#119	2017-Oct-23 11:49:33

Figure 143. Audit Log

AuditLogs					
Filter By:	All	T			
Audit Log	All				
S.No	Read Sample	ent	Description		Date
	Read Standard				
	Save Document				
	Edit				
	eSignature				
	Print				
				Print	Cancel

Figure 144. Audit Filter

ER: e-Signature

All users with access to *e-SIGNATURE* can create an e-Signature for a job. Enter the *USER NAME*, *PASSWORD* and *COMMENT*. The latest e-Signature information can be printed in the job report.

Note that e-Signatures cannot be deleted.



ER: View Event Logs

The *EVENT LOG* provides a list of **ACTIVITIES** with **DATE** and **TIME**, **USER TYPE** (EVENT SOURCE) and **CATEGORY** that are recorded. This list can be filtered and printed.

		g:					
	S No	Event Types	Date	Time	Source	Category	Description
	1	Information	2019-Oct-14	11:16:15	Administrator	Operations	Updated Application From 1.01.0065 To Agera ER 1.01.0065
r II	2	Information	2019-Oct-14	11:16:15	Administrator	Operations	New Job
	3	Information	2019-Oct-14	11:17:00	Administrator	Operations	Configure ER Settings
	4	Information	2019-Oct-14	11:21:51	Administrator	Authentication	Logged Off
	5	Information	2019-Oct-14	01:45:28	Administrator	Authentication	Logged In
	6	Information	2019-Oct-14	01:45:38	Administrator	Operations	New Job
	-						<

Figure 146. Event Log

User's Manual for Agera and EasyMatch Essentials v 2.3

Event Lo	g:		Filter Event Log	S			
S.NO	Event Types		Event Types			gory	Description
1	Error	201	Informatio	on 🗹 Warning 🖂	Error	itication	LoginFailed-Incorrect Password
2	Error	201	Event Source	All	•	itication	LoginFailed-Incorrect Password
3	Information	201	Category	All	T	itication	Logged In
4	Information	201	Filter On D	All		ations	New Job
5	Information	201		Operations		itication	Logged Off
б	Information	201	From 21-12-2017	Authentication		itication	Logged In
7	Information	201		Application optio		ations	New Job

Figure 147. Event Log Category

ER: User Manager

Create

For Essentials ER, the User Manager is moved from the Job menu to the ER menu. Select *ER MENU > USER MANAGER > CREATE* to set up **GROUPS.** All users of EasyMatch Essentials Electronic Records software must be assigned to a Group as either an Administrative Type or a User type to define their level of privilege within EasyMatch Essentials Electronic Records.

- Enter the GROUP NAME, then select the GROUP TYPE (Administrative or User).
- There can be multiple Administrative and User Groups.
- Groups can be changed, added or deleted by a System Administrator at any time.

Color Data	a Table [D65/10] User Manager			e 7	<u>ن</u> ې ک	∘ ≣
		Group	Us	er		
	Create	Group Name				
	Privileges		iinistrative	V		
<	Disable	Description		٦		>
	Reset Password					
	Unlock User					
	Enable					
J)			Create	Close		
UV Nominal	Standardized - 2.00*			Job: Uni	titled Wor	kSpace: Default

Figure 148. Administrative Groups

Once the Groups have been defined, users can be added with passwords through the User tab. Select **USER MANAGER > USER TAB** and **NAME THE USER, SELECT A PASSWORD** and **ASSIGN THE USER GROUP**. Click **CREATE** to continue.

_	Group	_	Use	er
Create	User Name	ER Tes	at User	
Privileges	Password			
Disable	Conform Password			
Disable	Group	ER Te	st Group	*
Reset Password	Description			
Unlock User				
Enable				
-			Create	Clos

Figure 149. Adding a User

Privileges

For each **USER GROUP**, go to **ER MANAGER > USER MANAGER > PRIVILEGES** to assign the functions. Check a box next to each allowable function.

Note that Administrative Groups have all privileges which cannot be edited.

When all Privileges have been selected press **UPDATE PROFILE** to continue.



Figure 150. Assign Privileges

Disable/Enable

A Group or List of Users or a single User can be **DISABLED** or **ENABLED** as needed by the Admin. To Disable a user or group, select the *GROUP* > *LIST THE USER* to identify and then press *DISABLE*. These accounts can no longer be used while still saved in the database. If needed, admin users can enable them again through *USER MANAGER* > *ENABLE*.



Figure 151. Disable a Group or Users

Reset Password

To reset a password, *IDENTIFY THE GROUP* and the *USER* and then *ENTER THE NEW PASSWORD* with confirmation of the new password

Jser Manager			=
Create	Select Group	Administrators	¥
Privileges	Select User	Administrator	•
Disable	Confirm Password		4
Reset Password	Description		
Unlock User			
Enable			
		Reset	Cancel

Figure 152. Reset Password

Unlock User

User accounts can be locked when they failed to login more than configured maximum attempts times. Admin users can unlock these users if needed through **USER MANAGER > UNLOCK.**

User Manager		
Create	Group ER Test Group	
Privileges	List of Users	
Disable	ER Test User 🕢	
Reset Password		
Unlock User		
Enable		
	Unlock	Close

Figure 153. Unlock User

ER: Settings

From the *ER MENU > ER SETTINGS* to set **PASSWORD AGE, LENGTH, LOCKING THRESHOLD** and **AUTO LOG-OFF DURATION**.

Enter Maximum Password age	:	30	days
Enter Minimum Password lengt	:h :	8	characters
Enter Account Locking Thresho	ld :	10	attempts
Enter AutoLogOff Duration whe	n Idle for :	5	minutes
-			
	Configure		Cancel
Figure	154. ER Se	ettina	s

MAXIMUM PASSWORD AGE can be set to the desired length of time from 1 to 365 between required password changes (determined by company policy). Set the MINIMUM PASSWORD LENGTH to the desired minimum password length (determined by company policy) from 8 and up to 15. Set the ACCOUNT LOCKING THRESHOLD to the desired allowable number of password entry attempts from 3 to 100 before account lockout (determined by company policy).

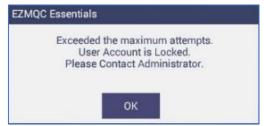


Figure 155. Locking Threshold Exceeded

Set the **ACCOUNT LOCKING DURATION** to the desired length of time between 5 and 30 minutes (determined by company policy).

CHAPTER EIGHT

Special Functions

Auto-Exporting Data through a Network Connection

Connect Agera to a network. You can connect Agera to a network hub using the Ethernet cable . The computer must be connected to the same network as the Agera.

Option A: Connect to a network hub using an Ethernet

• Hardware needed: Ethernet cable plugged into the back of the Agera and the other end to a network hub.



Figure 156. Ethernet Cable

 To connect Agera to network, go to WORKSPACES > PREFERENCES and Select CONFIG NETWORK SETTINGS.



Figure 157. Preferences (General) > Network Settings

- Select CONFIGURE ETHERNET SETTINGS.
- Check USE DHCP FOR ETHERNET CONFIG. Please write down the IP address showing in the Ethernet Setting dialog. You can also check the IP address of Agera in JOBS > ABOUT > INFO.

Use DHCP fo	or Ethernet Config			
IP Address	172.16.20.54			
Subnet Mask	255.255.255.0			
Gateway	172.16.20.1			

Figure 158. Select DCHP

 Go to WORKSPACE > PREFERENCES and select AUTO NETWORK DATA EXPORT MEASUREMENT using a check and select Config. Choose ACT AS SERVER and PORT NUMBER AS 11111. You can also choose a delimiter to mark your data.

1	r Data Table [D65/10] Preferences	Í	،	@ ≡
	General	Print		
	Load Last WorkSpace at Startup Load Last Job at Startup Standardization Time Interval (hrs) Brightness 100% Date 1/20/2020 Time 17:12 Language Settings	Enable Novice Tooltip Enable Application Sec Use Last Login Credent Reverse Screen Orienta Auto Export Measurem Configure Network Setting	tials ation ent Config	
		Defaults Apply	Close	
	ominal Standardized - 1.00*	J	lob: Untitled*	WorkSpace: Default

Figure 159. Auto Export Measurement

Network Data Export Configuration			
OConnect as Client	Act as Server		
Use Port Number	11111		
Delimiter	\$T 🔻		

Figure 160. Network Data Export

- Configure the computer with the following settings:
 - Set **COMPUTER AS CLIENT**.

- Enter the **IP ADDRESS** of Agera as recorded above.
- Set the PORT NUMBER as 11111.
- After all have been set, the data is ready to be exported from Agera to the computer.

		Name	L*	a*	b*		
		Sample1	99.99	-0.00	-0.02		
	Sock Server / Client						
_	Mode C TCP Ser	ver @ TCP Clien		IP 172 .	16 . 20	. 87	Port 11111
	Send Data						
	Received Data						
		65/10\$TName\$TSample1\$	TL×\$T99.99\$	Ta×\$T-0.00ST	b×\$T-0.025T1	15 CI	

Figure 161. Data Export

Auto-Exporting Data via Direct Connection between Agera and a Computer

Ethernet cable is plugged into the back of the Agera and the other end is connected to the computer. Ethernet adapter USB can be applied here if the computer does not have available Ethernet port.

• Materials needed: Ethernet cable and Ethernet adapter to USB can be applied here if the computer does not have available Ethernet port. Hardware needed: Ethernet cable and Ethernet adapter to USB can be applied here if the computer does not have available Ethernet port.



Figure 162. Ethernet Cable & Ethernet to USB Adapter

Connect Agera to Computer:

• Plug Ethernet cable into RJ-45 Ethernet connection at rear of Agera.

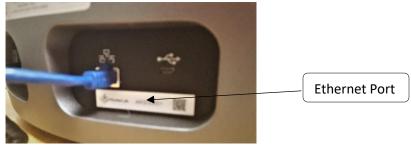


Figure 163. Rear View of Agera

• Plug the other end into the computer or into the Ethernet adapter

Open Command Prompt in the PC

• Type in *IPCONFIG* to find the right ethernet (in this case, it is **ETHERNET ADAPTER ETHERNET**) and write down **AUTOCONFIGURATION IPV4 ADDRESS** as well as the **SUBNET MASK**.

Command Prompt	-	×
C:\Users\ping.wang.HUNTERLAB> C:\Users\ping.wang.HUNTERLAB>ipconfig		^
Windows IP Configuration		
Ethernet adapter Ethernet 2:		
Connection-specific DNS Suffix .: Link-local IPv6 Address : fe80::1420:851b:44d0:7190x25 Autoconfiguration IPv4 Address : 169.254.113.144 Submet Mask : 255.255.0.0 Default Gateway	,	
Wireless LAN adapter Local Area Connection* 3:		
Media State : Media disconnected Connection-specific DNS Suffix . :		
Wireless LAN adapter Local Area Connection* 2:		
Media State : Media disconnected Connection-specific DNS Suffix . :		
Ethernet adapter Bluetooth Network Connection:		
Media State : Media disconnected Connection-specific DNS Suffix . :		
Wireless LAN adapter Wi-Fi:		
Media State : Media disconnected Connection-specific DNS Suffix . :		
Ethernet adapter Ethernet:		~

Figure 164. Command Prompt ipconfig

Configure the Agera

Open Agera Essentials, go to *WORKSPACES > PREFERENCES > CONFIGURE NETWORK SETTINGS*. First, select the **ETHERNET CONFIGURATION**. Uncheck **USE DHCP FOR ETHERNET CONFIG.** Type in **IP ADDRESS** and **SUBNET MASK** manually. The IP address here should be same as the autoconfiguration IPv4 Address in the PC, except changing the last number. The Subnet Mask is the exact same. Restart Agera to get network setting applied.

Preferences	Ethernet Settings	1				
Ge	Use DHCP fo	or Ethe	ernet Config		t	
🗌 Load Last Wo					oltip	
🗌 Load Last Jol	IP Address	1	69.254.113.1	42	n Secu	ırity
Standardization 7	Subnet Mask		255.255.0.0		edenti	als
Standardization	Gateway				ureme	nt Config
Brightness	Preferred DNS					
Date 5/16/2018	Alternate DNS				etting	3
Time 3:37 PM						-2
			_	_		
			Apply	Cancel	ly	Cancel

Figure 165. Configuration Parameters for Ethernet

- Press **APPLY** on the Ethernet Configuration and then **APPLY** on the Preferences Page to complete.
- Turn the instrument off and then back on.
- Go to **PREFERENCES > AUTO NETWORK DATA EXPORT**.

	Preferences		
	General	Print	
	Load Last WorkSpace at Startup	Enable Novice Tooltip Enable Application Security Use Last Login Credentials	
<	Standardization Time Interval (hrs) 8 Brightness 100%	Reverse Screen Orientation Auto Export Measurement Config	
	Date 1/20/2020 Adjust Clock Time 17:12	Configure Network Settings	

Figure 166. Read Options> Auto Export Measurements

- For a direct connection between Agera and data collection computer, set up the Agera as a **CLIENT**.
- Enter the computer IP address here, in this case 169.254.113.144 and the PORT as 11111. Press *APPLY* on the screen to continue.

Network Data Export Configuration				
Onnect as Client	OAct as Server			
Server IP Address	ress 169.254.113.144			
Server Port Number	10001			
Delimiter	\$T	•		
	Apply	Cancel		

Figure 167. Read Options Export

• Agera is now ready to send data.

Configure the Computer

- Connection configurations differ depending on data collection software. The data collection computer will be set up as a Server.
- Connect as follows:
 - Set computer as SERVER.
 - Enter the computer IP address 169.254.113.144.
 - Put the port number as **11111**.

Send Data from the Agera:

• CONFIGURE THE COLOR DATA TABLE with the color scale and parameters to be measured.

a de la companya de l	Sock Server / Clien	t	
C TOP Server C TOP O	ent IP 169 . 254 . 113 . 144	Port 10001	Start Stop
Send Data			~
Received Data			Clear Send
			Cesr OK
	Figure 168. Data	a Output	

Tips & Tricks: Recover Unsaved Measurement Data

In the case where the application is closed unexpectedly, the data is temporarily stored in a table along with the Job details. When the application restarts, a prompt allows the user to recover the data.



Figure 169. Recover Data

If the user answers **YES**, all measurements are recovered into a new job or appended to a saved job.

HunterLab File Service Package

The HunterLab File Service is a customized background service which provides the network storage facility for Essentials-AGERA to back up a File or Folder to a networked PC. This package contains:

- HunterLab File Service Installer (FileServiceInstaller.exe)
- A package file *HLFSPACKAGE.PKG*.

To Install the File Service Package

- Copy the above installation package files into a networked PC.
- Run the executable *FILESERVICEINSTALLER.EXE* and follow the guided steps to complete the installation process.

 After installation a shortcut for HUNTERLAB FILE SERVICE CONFIG TOOL will be created on Desktop. Double click on the shortcut HUNTERLAB FILE SERVICE CONFIG TOOL.



Figure 170. File Service Tool

Select the ROOT FOLDER by clicking on the BROWSE button. The Essentials Backup will be stored in the configured Root Folder path. Enter the PORT NUMBER for the network File service. Click on the APPLY button. The File service will be restarted with the new settings.

	HunterLab File Service Configuration	
Root Path	C:\HunterLab\BackUpFolder	Browse
Service Port No.	8888	
Ver:1.0.0.3	Cano	Apply

Figure 171. Select Root Folder

Note: Make sure that the configured port number is added to Exceptions in the firewall. The configured port number in the server must be same at the client side (Essentials-AGERA).

Setting up File Storage from Agera (Client) Side

In Agera Essentials, navigate to *JOBS > DATA MANAGEMENT > BACKUP (or RESTORE).* The *SELECT ACTION* dialog will be displayed. The user can choose between **USB DRIVE** or **NETWORK STORAGE**. When *USB DRIVE* option is selected, the Backup and Restore operations will be performed into the USB flash drive plugged into the system.

Select Action		
OUSB Drive	O Network	Storage
₩ļ	Backup	
₩ †	Restore	
		Close

Figure 172. Select USB Option

When **NETWORK STORAGE** is selected, the Backup and Restore operations are performed into a network folder of the specified system where the HunterLab File Service is installed. Click on **NETWORK STORAGE SETTINGS** Button

Select Action	
O USB Drive	Network Storage
₽Ļ	Backup
₩ †	Restore
oo Network	Storage Settings
	Close

Figure 173. Network Storage Settings

In the next screen enter the **IP ADDRESS** and **PORT NUMBER**. Click on **TEST CONNECTION** button to verify the connectivity. Click **APPLY** to save the settings. The saved network settings will be used for the Network Backup and Restore operations.

Network Storage Setting	gs	
Server IP Address	10.33.50.131	Test Connection
Server Port Number 8888		
	Appl	ly Cancel

Figure 174. Network Storage Settings

After successful configuration of network settings, click **BACKUP** (or **RESTORE**) to perform the complete backup of **HUNTERLAB** folder in Essentials-Agera to the specified network server's folder.

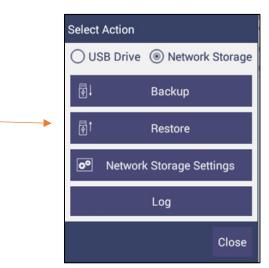


Figure 175. Select Restore

Select the files to be restored.

	Select Restore Directory			
	Hunterlab_VTS00105_Jul08_2019_162242	۲]	
	Hunterlab_VTS00105_Jul09_2019_162038	0	1	
	Hunterlab_VTS00119_Aug12_2019_105425	0	1	
	Hunterlab_VTS00119_Jul08_2019_162228	0	1	
	temp	0	1	
Ŧ	Apply	Cancel		

Figure 176. Select Files to be Restored.

	Restore					
	2019-Aug-12 11:05:338:576: Restoring ApIn data from: 2019-Aug-12 11:05:338:156: Dis created: CommonDB.db 2019-Aug-12 11:05:338:166: Dis created: Abing 2019-Aug-12 11:05:339:164: Dis created: Abing and the second 2019-Aug-12 11:05:39:164: Dis created: Abing and the second 2019-Aug-12 11:05:39:176: Copied 10:240 bytes of PROFIL 2019-Aug-12 11:05:39:176: Copied 21:060 bytes of errang: 2019-Aug-12 11:05:30:276: Copied 21:060 bytes of PROFIL 2019-Aug-12 11:05:30:276: Copied 21:060 bytes of PROFIL 2019-Aug-12 11:05:40:276: Copied 21:060 bytes of bytes 2019-Aug-12 11:05:40:276: Copied 21:060 bytes of bytes 2019-Aug-12 11:05:40:276: Copied 21:060 bytes of Dytes 2019-Aug-12 11:05:40:276: Copied 21:060 bytes of U0:197 2019-Aug-12 11:05:41:206: Copied 21:060 bytes of 20:1907 2019-Aug-12 11:05:41:206: Copied 31:20 bytes of 20:1907 2019-Aug-12 11:05:42:276: Sopied 31:20 bytes of 20:1907 2019-Aug-12 11:05:42:276: Sopied 31:20 bytes of 20:1907 2019-Aug-12 11:05:42:276: Sopied 31:00 bytes of 20:1907 2019-Aug-12 11:05:42:276: Copied 31:00 bytes of 20:1907 2019-Aug-12 11:05:42:276: Sopied 31:00	db-journal adb E TTINGS-jou 12_162818 TTINGS asv	8_VTS00119,			
ų		Restore	Print	Export	Cancel	

Figure 177. Files Restored

Specifications

The specifications and characteristics of the instrument are given in this chapter. For best performance, the instrument should be placed where there is ample work space with medium or subdued illumination and no drafts. The operating conditions (temperature and humidity ranges) are given in the Operating Conditions section below.

Note: Do not leave Agera in an area where temperature or humidity extremes are possible.

Operating Conditions

Storage Temperature (3weeks)	-20°C to 65°C (-5°F to 150°F)
Operating Temperature	4°C to 38°C (40°F to 100°F)
Noncondensing Humidity	10% to 85%
Standard Accessories	Calibrated instrument White Tile with Certificate of Traceability, Black Glass Standard, Green Diagnostic Tile, Standards Box, Port Plates of xLAV, LAV and MAV, Power Supply, Quick Start Guide, Agera User's Manual on USB

Physical Characteristics

Weight	6.35 kg (14.0 lbs.)
Dimensions	28 cm x 21.6 cm x 31 cm
(Height x width x depth)	(11.0 in x 8.75 in x 12.25 in)
Communications I/O:	
USB	Connectivity to thumb drive, printer, keyboard, mouse, and other peripherals.
Ethernet RJ45	Print directly to standalone or network printers; email directly from the instrument; stream data to LIMS and SPC systems. Enabled via internet-based support tool
Remote Access Support	Computer, Wireless Mouse & Keyboard
External Inputs:	Remote footswitch or similar closed contact switching device.
System Power	100 – 240 VAC, 47 – 63 Hz to universal power supply @ 24 VDC/3.75A
Display	Touch screen, high resolution 1280x800
External PC Software	Compatible with HunterLab EasyMatch QC and EasyMatch QC- Electronic Records Quality Control Software

Light Source	Full spectrum balanced LED system array; 5 year typical LED life
Dual Beam Spectrophotometer	256 element diode array and high resolution, concave holographic grating Sealed optics,
Geometry	0°/45° circumferential ASTM E1164
Measurement Conditions	Port Forward, Port Up

Conditions of Illumination and Viewing

Instrument Performance

Spectral Data	Range: 400 nm -700 nm; Reporting Interval (nm): 10 nm
Illumination Range	360 nm – 700 nm
Spectral Resolution	<3 nm
Effective Bandwidth	10 nm equivalent triangular
Photometric Range	0 to150%
Measurement Duration	<3 second; <5 sec interval
LED life	5 years typical
Inter-instrument Agreement	Color: ∆E 2000 < 0.15 CIE L*a*b* (Avg) on BCRA II Tile Set Gloss: 0-100; ≤ 0.5 GU
Colorimetric Repeatability	Color: ΔE 2000*< 0.03 CIE L*a*b* (Max) on White Tile Gloss: 0-100 GU: ≤0.1 GU
UV Control	UV Nominal, UV-Calibrated; UV-Excluded; UV-Compare

Measurement

Image Capture	High-resolution, D65 illuminated, 0°/45° image viewing, image capture and image recall
Area Measured	xLAV - 54 mm (2.125 in) illumination; 51 mm (2.0 in) measured; LAV - 28.6 mm (1.125 in) illumination; 25.4 mm (1.0 in) measured; MAV - 17.46 mm (0.6875 in) illumination; 16.9 mm (0.625 in) measured
Data Views	Color Data, Spectral Plot, EZ View, Tristimulus Color Plot, Trend Plot; Pass/Fail Color indication, time and date stamp, aut-naming, auto-saving, data backup and recovery.
Illuminants	A, C, D50, D55, D65, D75, F02, F07, F11,
Observers	2° and 10°
Color Scales	CIE L*a*b*, Hunter Lab, CIE L*C*h, CIE Yxy, CIE XYZ and Differences
Color Difference Indices	ΔΕ*, ΔC*, ΔΕ, ΔΕ CMC, ΔΕ 2000
Indices and Metrics	Gloss (ASTM D423, ASTM D2457, ISO 2813, ISO 7668, JIS 28741), E313 Yellowness, E313 Whiteness, YI D1925, Y Brightness, Z%,

	457nm Brightness, Baking Contrast Units, Tint, HCCI, SCAA/G, SCAA/C, Custom Indice, ASTM E1349
Gloss	60° Gloss conformance to ASTM D523 and ISO2813
Data Storage	1 million Records max; 8 GB
Languages	English, Japanese

Regulatory Notice

	Declara	tion of Conformance
Applicable Directives:		2014/30/EU Electromagnetic Compatibility 2014/53/EU Radio Equipment Directive EN61010-1 Product Safety
Manufacturer:		Hunter Associates Laboratory, Inc. 11491 Sunset Hills Rd, Reston, VA, USA
European Representative: Representative's Address:		Christian Jansen Dr. August Einsele Ring 15 D-82418 Murnau, Germany
Type of Equipment:		Reflectance Spectrophotometer
Model No.:		Agera
		ereby declare that the equipment specified above the Directive(s) and Standard(s) above
Place:	Reston, VA, USA	Signature Tun Barrens
Date:	January 22, 2019	Full Name Tim Barrett
		Position Senior Electrical Engineer

Features, Accessories & Maintenance

Agera Maintenance & Safety

The Agera is engineered to be virtually maintenance free. This section outlines the few parts of the sensor that are to be maintained for the instrument to function properly.

- **Cleaning the Agera**: The Agera is NOT waterproof, but the exterior of the case may be wiped with a damp cloth.
- Cleaning the White Tile

The White Standard is an optical coating and should be handled in much the same way as other optical surfaces. Although the material is very durable, care should be taken to prevent contaminants such as finger oils from contacting the material's surface. If the surface appears lightly soiled, it may be air brushed with a jet of clean dry air. For heavier soil, the material can be cleaned by scrubbing with a soft brush under running water. Blow dry with clean air or allow the material to air dry. If the material is heavily stained, soak with either an extremely mild mix of soap and water, 5% white distilled vinegar, or hydrogen peroxide. Then run under water while scrubbing with a soft brush. Always keep tiles in the Standards box when not in use

• Cleaning the Black Glass and Green Tile

The **Green tile and Black Glass** can be cleaned using a soft nylon-bristle brush, warm water, and laboratory grade detergent such as SPARKLEEN. Wipe the tiles dry using a clean, non-optically brightened, lint free paper towel, or use warm water as a rinse and let stand to airdry in a couple of minutes.

Note: SPARKLEEN is manufactured by Fisher Scientific Co., Pittsburgh, PA 15219, and may be ordered from them using catalog number 4-320-4. Add one tablespoon of SPARKLEEN to a gallon of water.

The above procedure is particularly useful if the lab area is not clean. If, however, the lab is clean, an equally effective method for occasional tile cleaning is to use IPQ (isopropyl alcohol) sprayed onto a clean, non-optically brightened, lint free paper towel such as a Kim wipe. Wipe tile thoroughly watching for fingerprints and let air dry.

Keep the **Black Glass** in the standards case when not in use to prevent it from becoming scratched or collecting dust. Before standardizing the instrument, check the black tile for scratches and dust. Significant scratches that result in a hazy appearance to the finish may cause standardization to be in error. If the black tile is scratched, call the HunterLab Order Processing Department or contact your local HunterLab representative to order a replacement.

- Power Required: Voltage: 100-240 VAC, 3.75A, 47/63 Hz; Single Phase; 60 VA maximum.
- Installation Category (Over Voltage): II
- Safety
 - Do not view the instrument LED's directly as it may be damaging to the eyes.
 - Do not submerge the instrument in water.

- Do not take the instrument apart as there are 'no user serviceable parts' in the instrument.
- Do not disassemble the instrument and attempt to clean the optical components.
- Do not open the instrument or remove any covers except using the instructions given in this User's Manual or under the direction of HunterLab Technical Support.

Options and Sample Devices

There are many options and devices available for positioning samples at the measurement port of the Agera and for making the instrument easier to use. Any or all of the following options and sample devices may be purchased for use with the Agera. HunterLab part numbers are provided for convenience in ordering.

- EasyMatch Quality Control Software
- Ring and Disk Set
- Disk Assembly
- Ring Only
- Glass Sample Cup
- Sample Cup Opaque Cover
- Agera Sample Cup Set
- Skein/Swatch Holder
- Footswitch Assembly
- Sample Clamp
- 50% Gloss Check Tile

Easy Match Quality Control Software (EZMQC-OPT)

Used on: CFEZ/MSEZ/Vista/Aeros/Agera EZMQC-OPT should be purchased as an option. Easy Match QC is a Window's based color quality control package. EZMQC interfaces directly with your HunterLab instrument for instrument control and data collection. Product features include simple operation with standard vs samples and Pass/Fail displays for quick QC analysis and automatic Pass/Fail tolerancing based on color standard. Advanced features include multiple configurable data views, customized templates for color data and display, customizable print job reports, data records stored to data base with standard and user defined search fields, automatic data output to Microsoft Excel, and data protection with definable user and supervisor access privileges.

Disk Assembly (02-4522-00)

From Ring and Disk set.



Figure 178. Disk Assembly

Ring and Disk Set (02-4579-00)

For use in the glass sample cup (purchased separately). Used for transparent and translucent liquids or semi-solids where the sample path length must be fixed. The minimum sample volume required for the ring and disk in the sample cup is 25ml.



Figure 179. Ring and Disk Set

Sample Cup Opaque Cover (04-4000-00)

Provides a light trap to exclude the interference of external ambient light on the sample.



Figure 180. Sample Cup Cover

Ring Only (04-4230-00)

From Ring and Disk set (92-4579-00) to hold light inside sample cup.



Figure 181. Ring Only

Glass Sample Cup (04-7209-00)

Optically clear glass cup for sample presentation of liquids, powders, granules and pellets. The sample cup measures 64mm (2.5 inch).



Figure 182. 64mm Glass Sample Cup

Sample Cup Set (Agera-SC-Assy)

Consists of a 2.5 inch glass sample cup, sample cup opaque cover, ring and disk set and port insert.



Figure 183. Sample Cup Set

Skein/Swatch Holder (02-7396-00)

Sample Presentation Device used for measuring swatches, yarns and string skeins.



Figure 184. Skein/Swatch Holder

Foot switch Assembly (D02-1010-327)

The footswitch is used to initiate sample measurement without the use of hands.



Figure 185. Foot Switch

Sample Clamp (D02-1018-462)

Used to hold sample in place in standard and port-forward orientation.



Figure 186. Sample Clamp

Gloss Check Tile (D02-1018-997)

Nominal 50 Gloss Units Check tile for Agera.

Tomato Option (Agera-Tomato)

This features the measurement of Tomato Scores: Fresh Tomato Color Index (C/2), Tomato Paste (C/2), Catsup (C/2), Tomato Sauce (C/2), Tomato Juice (C/2), Tomato a/b Ratio (C/2). This option includes: HunterLab Tomato Tile (L02-1014-594), (2) 64 mm (2.5 in) OD Glass Sample Cups (04-7209-00), (Port for Sample Cup (D02-1018-615) and Sample Cup Cover (04-4000-00).

User's Manual for Agera and EasyMatch Essentials v 2.3

When You Need Assistance

If you need for technical or sales assistance on applications, troubleshooting, , service, warranty, accessory pricing and more, please contact the office nearest you:

For the Americas, Support@hunterlab.com

For Asia, <u>AsiaSupport@hunterlab.com</u>

For Europe, EuropeSupport@hunterlab.com

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Additionally, our global support website offers 24/7 assistance with a library of information on various color measurement and appearance topics such as applications, instrument operation, and troubleshooting. The HunterLab global support website is located at <u>support.hunterlab.com</u>.

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User's Manual for Agera and EasyMatch Essentials v 2.3

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