



# Greenlee GVIS Software Manual

## Introduction

When connected to Greenlee's GVIS-400HDP or GVIS-300 field connector inspection system, the Greenlee GVIS software allows the user to inspect and save fiber connector end face images and pertinent data. GVIS also provides automated pass/fail analysis according to the IEC-61300-3-35 specification.

## Operating System Compatibility

- Windows Vista
- Windows 7
- Windows 8

## Software Requirements

- Microsoft .Net Framework 4 or newer
- Microsoft Visual C++ 2010 x86 Redistributable

## Windows Driver Requirements

- Imager Support
  - The Greenlee GVIS-400HDP Probe utilizes the UVC 1.1 driver included with Windows. No other driver installation is needed.
  - Videology driver for Greenlee GVIS-300.
- Serial Port Support
  - If Greenlee's GRP-460 power meter is to be used, FTDI serial port driver can be downloaded from  
[http://www.ftdichip.com/Drivers/CDM/CDM20824\\_Setup.exe](http://www.ftdichip.com/Drivers/CDM/CDM20824_Setup.exe).

## GVIS Installation

### CD Installation

1. Insert the Greenlee GVIS CD into a PC running Windows Vista, Windows 7 or Windows 8.
2. If the setup program does not start automatically, open the *Greenlee/GVIS* folder on the CD.
3. Double-click *setup.exe* and follow the software installation instructions.

## Microsoft .NET Framework

If you are prompted for a newer version of .NET Framework and you are not provided with a link during GVIS installation, it can be downloaded from Microsoft at <http://www.microsoft.com/download/en/details.aspx?id=24872>. Alternately, it is included on the GVIS installation CD in folder *Microsoft .NET Framework 4*. To install it, double click on *dotNetFx40\_Client\_x86\_x64-1*.

## Microsoft Visual C++ Redistributable

If you are prompted that you need to install Microsoft Visual C++ Redistributable and you are not provided with a link during GVIS installation, it can be downloaded from Microsoft at <http://www.microsoft.com/en-us/download/details.aspx?id=5555>. Alternately, it is included on the GVIS installation CD in folder *Microsoft C++ Redistributable*. To install it, double click on *vc redistrib\_x86.exe*.

## Manual Installation of GVIS Software

If you want to install GVIS manually, you can do so by navigating to folder *\Greenlee\GVIS* on the installation CD and double clicking *setup.exe*.

If you downloaded the software from Greenlee's website extract the files on your PC by running the installer. After the installer is finished close it then navigate to *C:\Greenlee Software\GVIS* and double click on *setup.exe*.

## Manual Installation of Software Drivers

Before connecting your Greenlee devices to your PC, please load the required drivers by following the instructions below.

### Installation of FTDI Chip Driver for the Greenlee GRP-460

To install the FTDI Chip Windows driver for the RP-460, navigate to the *FTDICHIP* folder of the CD included in the installation package and double-click on *CDM20824\_Setup* and follow the installation instructions. If you don't have a CD, you can download the FTDI Chip driver at [http://www.ftdichip.com/Drivers/CDM/CDM20824\\_Setup.exe](http://www.ftdichip.com/Drivers/CDM/CDM20824_Setup.exe).

### Installation of UVC Driver for GVIS-400HDP

No driver installation is required for the GVIS-400HDP; it is included with Windows Vista, Windows 7 and 8.

### Installation of Videology Driver for the GVIS-300

Greenlee's GVIS-300 requires a Videology Windows driver for proper operation. If the serial number on the GVIS-300 has a "C" appended to the end, navigate to the *Videology/Windows 32-*

64-bit Cypress folder of the installation package and double-click on *SetupVid* and follow the installation instructions.

If there is no “C” after the serial number, then go to web page <http://www.videologyinc.com/download.htm> and download the SFT-04040 Windows driver and follow the installation instructions.

## **Connecting Greenlee Devices to Your PC**

### **GVIS-400HDP**

Connect the Greenlee GVIS-400HDP cable to the PC’s USB port. Wait for Windows to load the UVC driver. You should see Windows report a message indicating the driver loaded successfully.

### **GVIS-300**

Connect the Greenlee GVIS-300 to a USB port on your PC using the supplied USB cable. Wait for Windows to load the driver you installed in the section above. You should see Windows report a message indicating the Videology Camera driver loaded successfully.

### **GRP-460**

Connect the Greenlee GRP-460 power meter to a USB port on your PC using the supplied USB cable. Wait for Windows to load the driver you installed in the section above. You should see Windows report two messages indicating the drivers loaded successfully.

## GVIS Main Screen

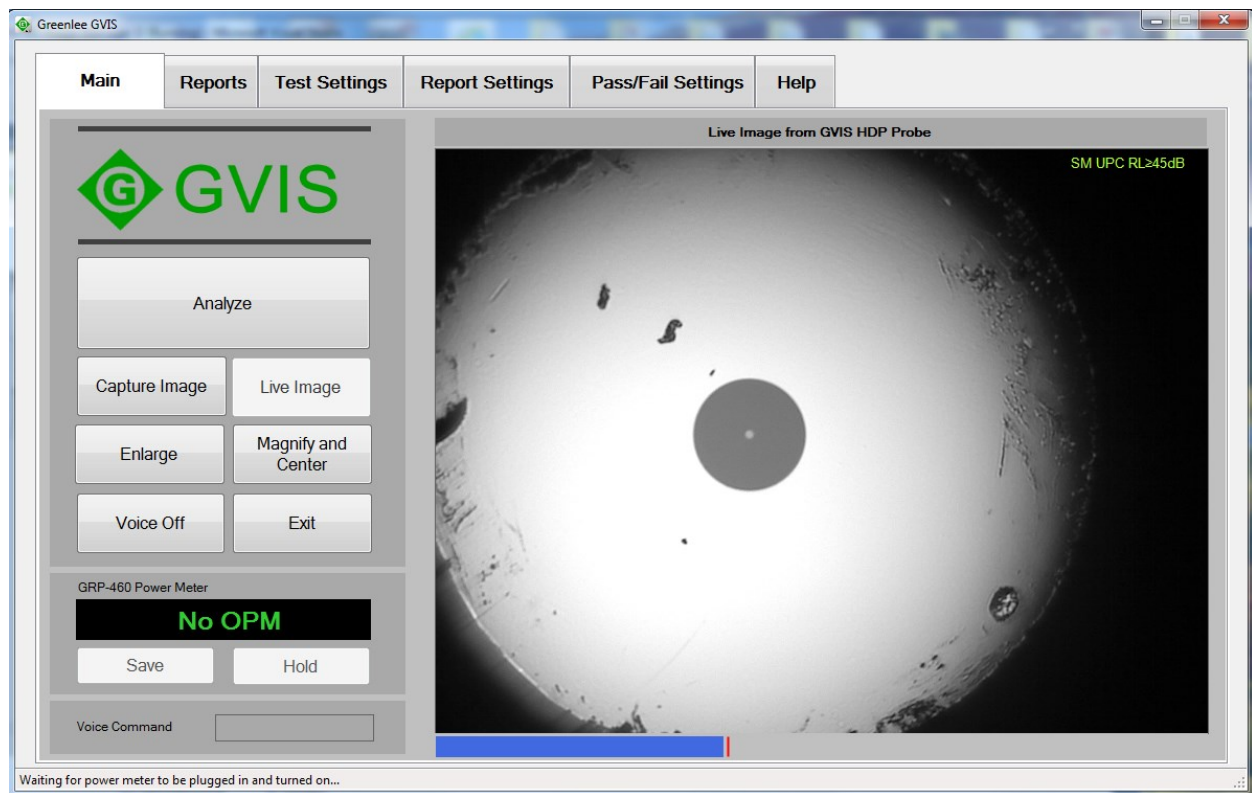


Figure 1: GVIS Main Screen – Landscape Mode

### GVIS Tablet Support

GVIS is designed to be touch-friendly and supports screen rotation to make it more convenient when used with tablets. Figure 1 illustrates the main screen in the landscape mode; Figure 2 illustrates the main screen in the portrait mode.

In this manual, all subsequent figures will be illustrated in the landscape mode but the operation of GVIS will be the same in the portrait mode. Only the button sizes and locations are changed to accommodate the different orientation.

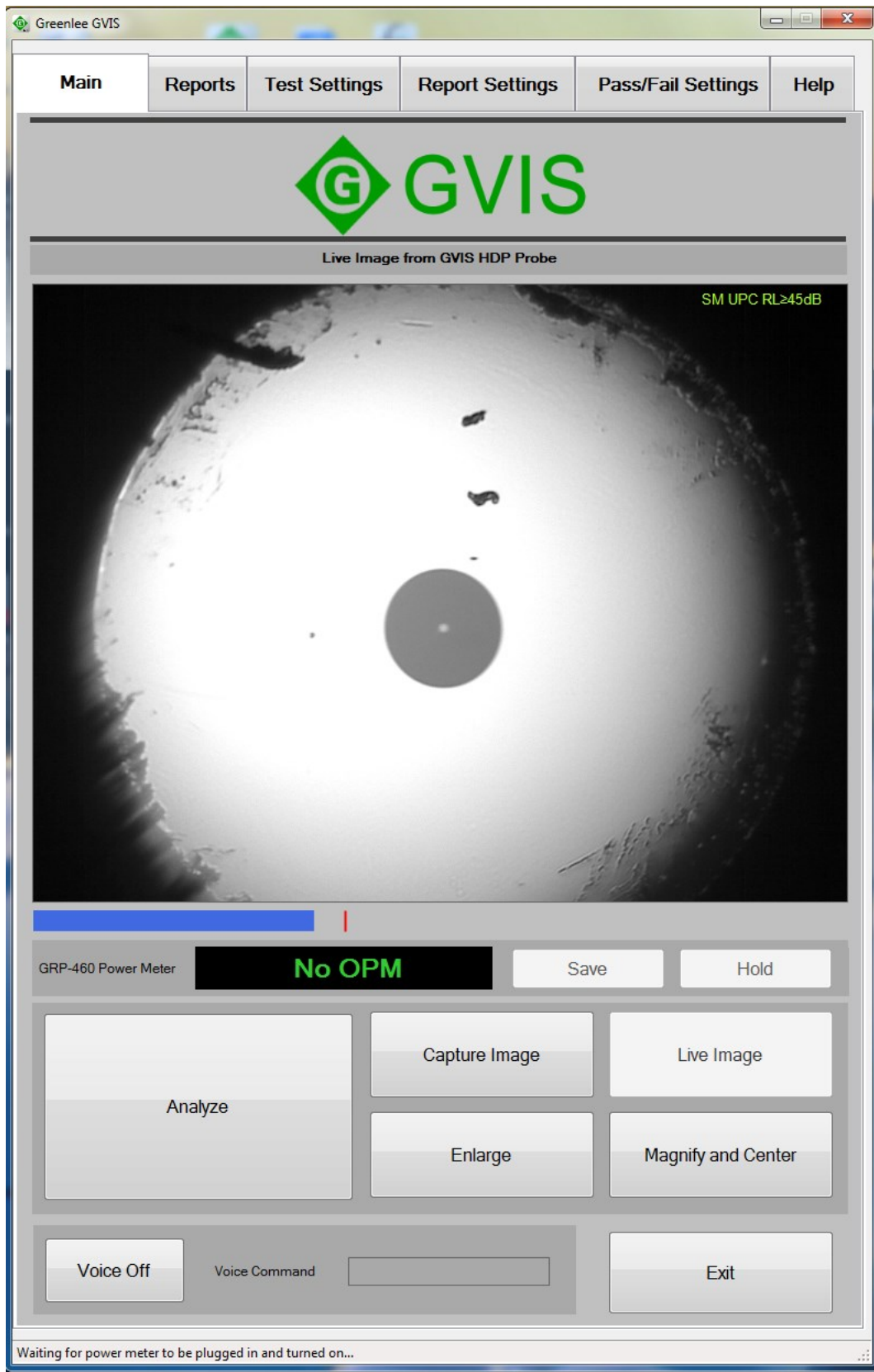


Figure 2: GVIS Main Screen – Portrait Mode

## Test Equipment

A GVIS-400HDP or GVIS-300 can be used for visual inspection with the Greenlee GVIS software. The GRP-460 power meter can be used to record power (dBm) or loss (dB) measurements.

### GVIS-400HDP Visual Inspection Scope

Plug the GVIS-400HDP into a USB port of the PC. Power is supplied by the USB port.

### GVIS-300 Visual Inspection Scope

Using the supplied USB cable, plug the Greenlee GVIS-300 into a USB port on the PC. Apply power to the device.

### GRP-460 Optical Power Meter

Using the supplied USB cable plug GRP-460 into a USB port of the PC. Apply power to the device.

## Starting GVIS

Run Greenlee GVIS by double clicking on the GVIS icon on your desktop. Figures 3 and 4 illustrate the functions for each item on the main screen.

## GVIS Overview

### Grading the Fiber End

GVIS allows you to grade a fiber end face in two ways, automatic grading and technician (manual) grading. Automatic grading requires a Greenlee GVIS-400HDP probe. To perform automatic grading, the technician connects the fiber to the GVIS-400HDP, focuses the image and presses the Analyze button. The Greenlee software performs and reports the analysis by comparing defects to the IEC61300-3-35 2009 specification. See [Automatic Analysis](#) in the Performing a Test section for more information.

A GVIS-400HDP or GVIS-300 can be used for the manual graded method. For manual grading the technician connects the fiber to the probe, focuses the image and grades the fiber end by visually inspecting the image. See [Manual Grading](#) in the Performing a Test section for more information.

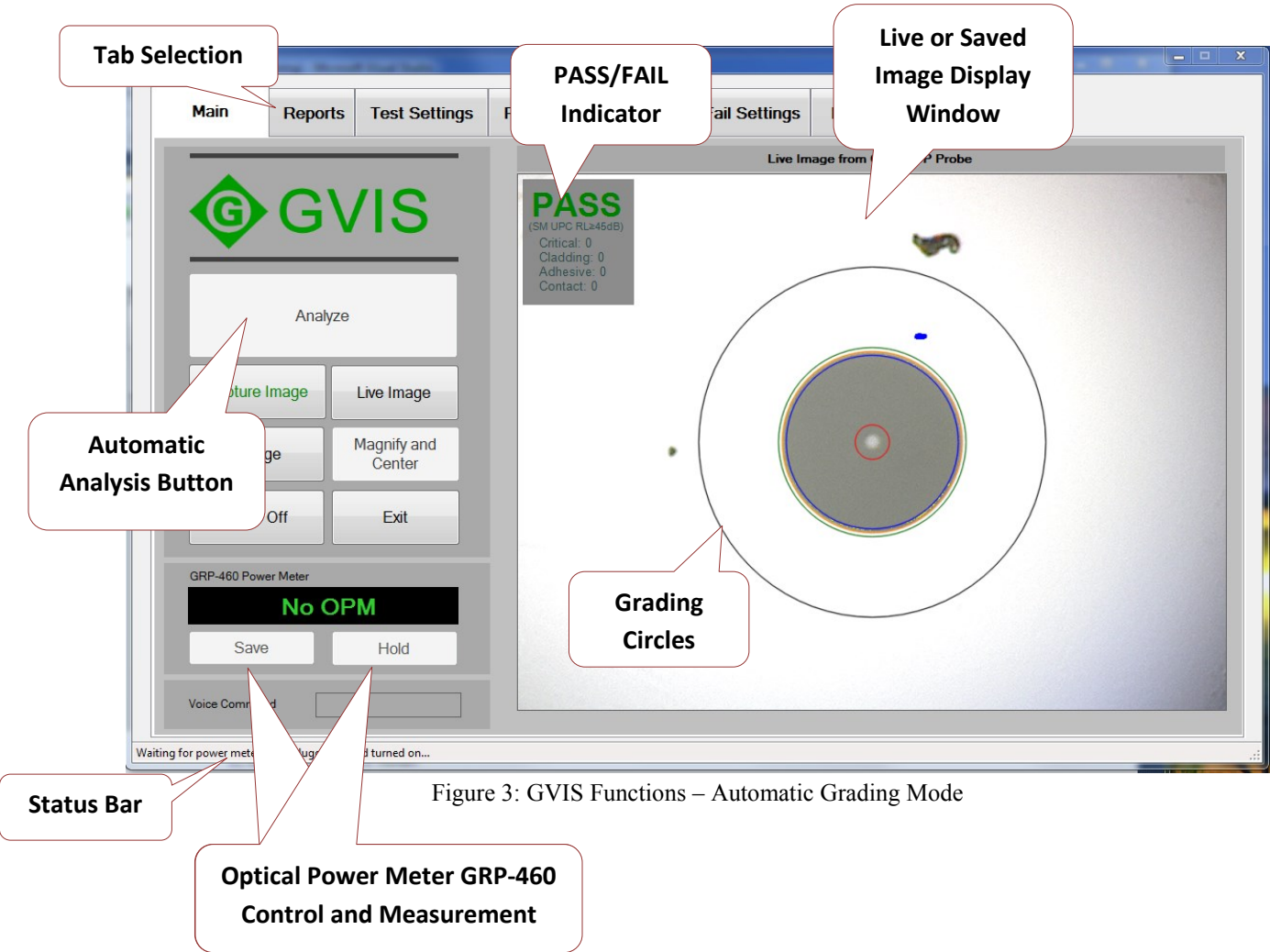


Figure 3: GVIS Functions – Automatic Grading Mode





## Main Tab

The Main tab contains all of the functions to perform a test, but before starting a test, the technician should set up the appropriate settings by selecting the settings tabs. See the [Settings Tabs](#) descriptions below.

## Analyze

After the appropriate setup has been made under the settings tabs, the technician can perform an analysis of a fiber end face.

The *Analyze* button is enabled when a fiber cable is plugged into the Greenlee 400HDP and it's focused.

## Capture Image

When a live image is displayed in the image window, the *Capture Image* button will be enabled on the Main tab. Clicking on *Capture Image* will cause the Save File window to open. Here you can create a new folder to save the image or save it in an existing folder.

When a fiber end image is saved, the information under the Report Settings tab, Customer Company Name for example, is saved as well. Clicking on any of the saved images will load that image and the information about the image into GVIS. When a report is created, the customer information is reported with the image.

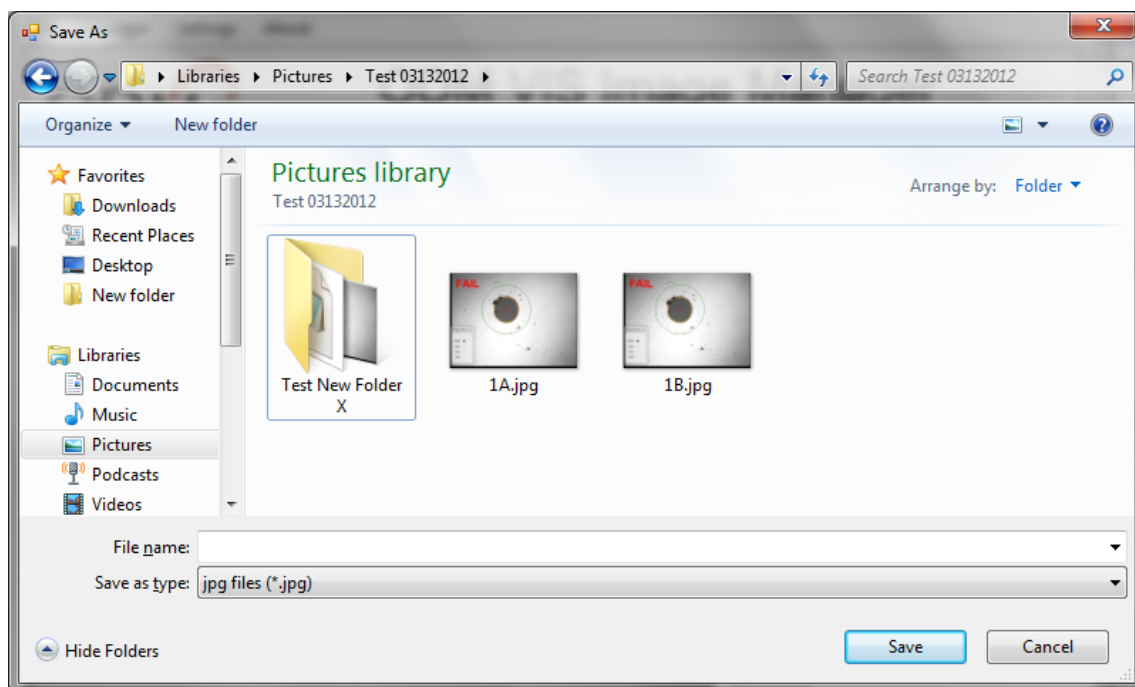


Figure 6: Capture Image File Screen

### Live Image

If a saved or analyzed image is displayed on the main tab, clicking on the *Live Image* button will display the live stream from the GVIS 400HDP or GVIS-300.

### Enlarge

Clicking the *Enlarge* button will display a larger version of the image displayed on the main screen, as shown in Figure 7, below. Click the Windows X button in the upper right corner or click the *Exit* button to close the Enlarge image window

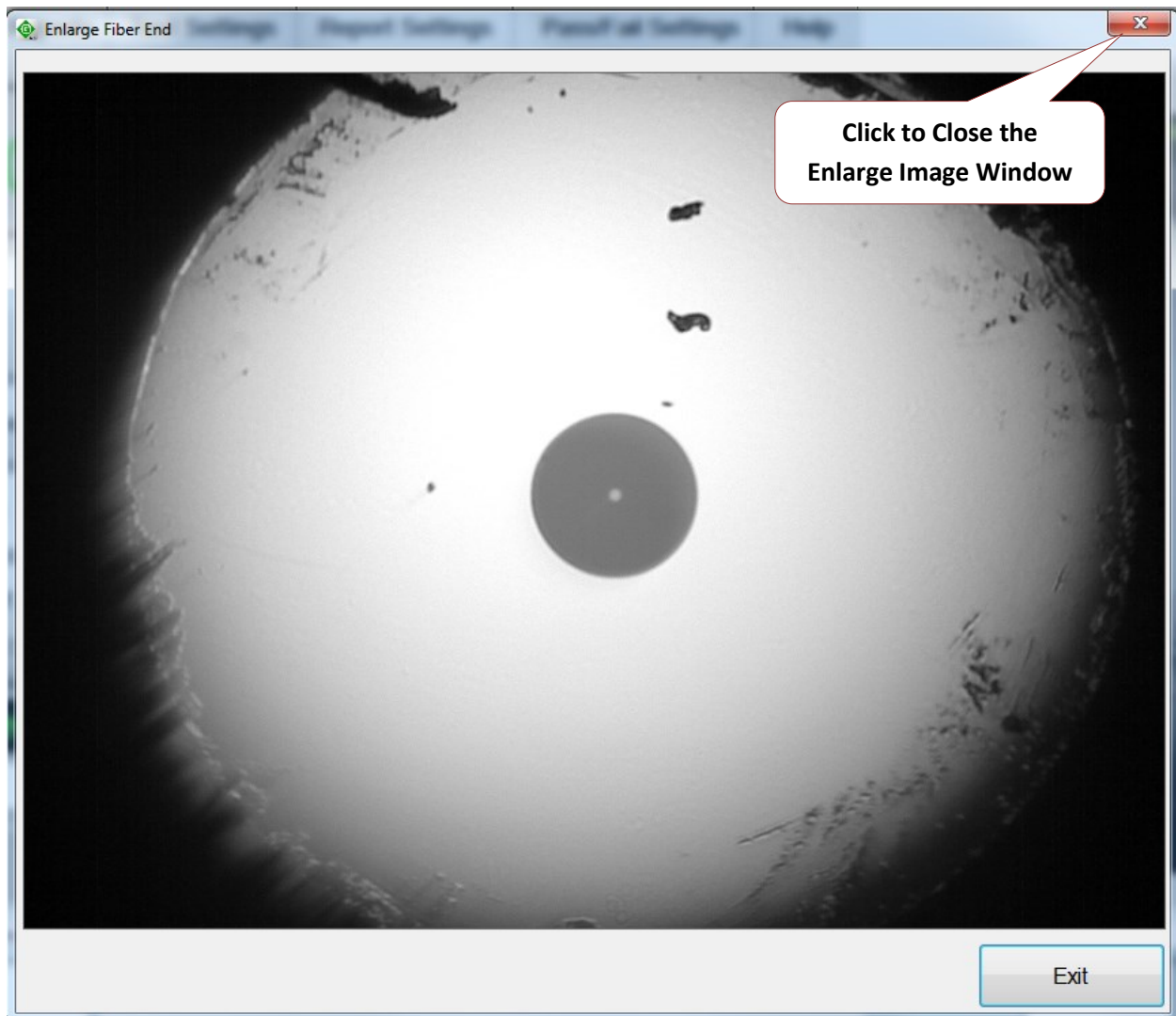


Figure 7: Enlarged Image Window

### Magnify and Center

Clicking the *Magnify and Center* button magnifies the image displayed approximately 2.5 times and centers the fiber end face. See Figure 8 below.

To return to the normal view, click the *Full Field of View* button.

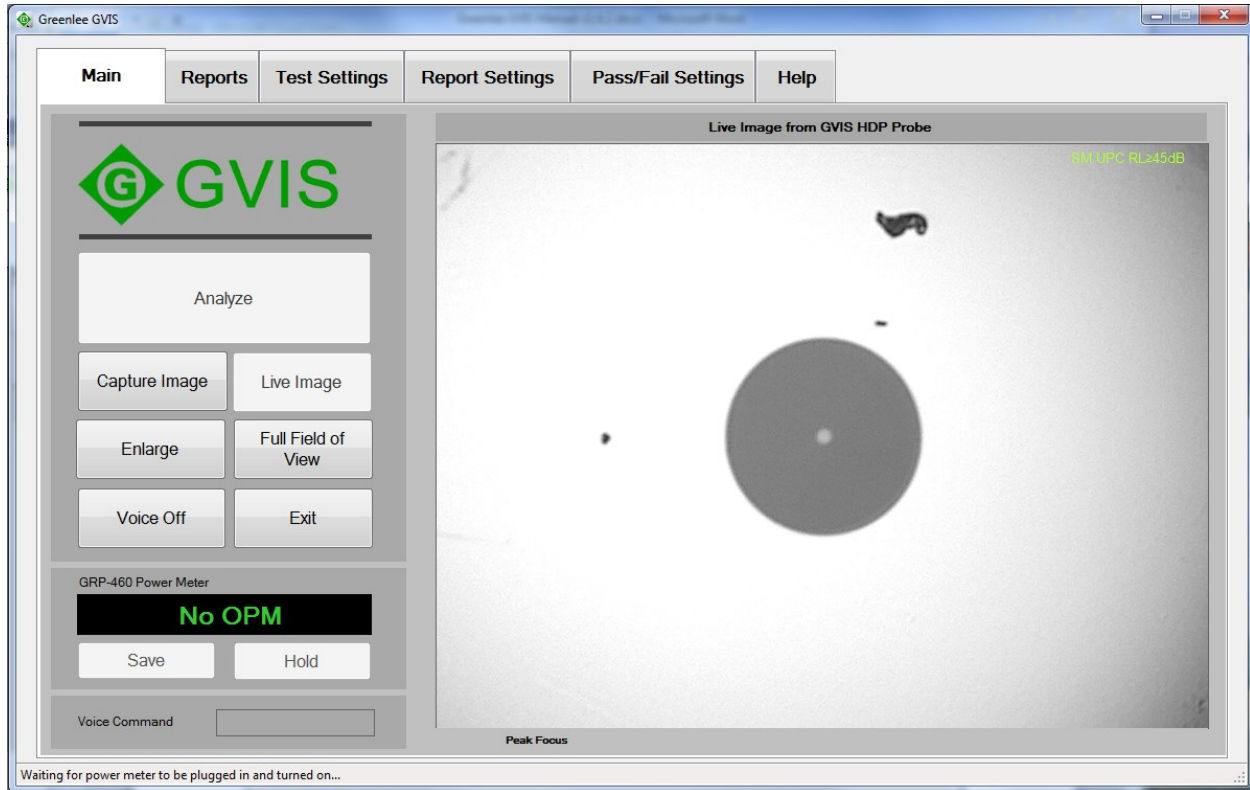


Figure 8: Magnify and Center Screen

### Voice On/Off

Voice commands can be used in situations when both hands are busy. Voice commands can be turned on and off by clicking the Voice Commands button. When on, command feedback is given as illustrated in Figure 9. When green, the command was understood. Yellow, a command was understood but may have been misinterpreted. Red indicates the command was not understood.

Below are a few voice commands that can be used rather than clicking on a button.

Button	Voice Command
Capture Image	“Capture Image” or “Cheese”
Hold/Read*	“Hold” or “Read”
Save/Measure*	“Save” or “Measure”
Magnify & Center*	“Center Image” or “Full View”

Analyze	"Analyze"
Voice Commands On	"Disable Voice"

\*For these commands you can use the same command to toggle between button states. For example: When you say "Center Image" GVIS will magnify and center the image. Rather than saying "Full View", you can say "Center Image" again to return back to full view.

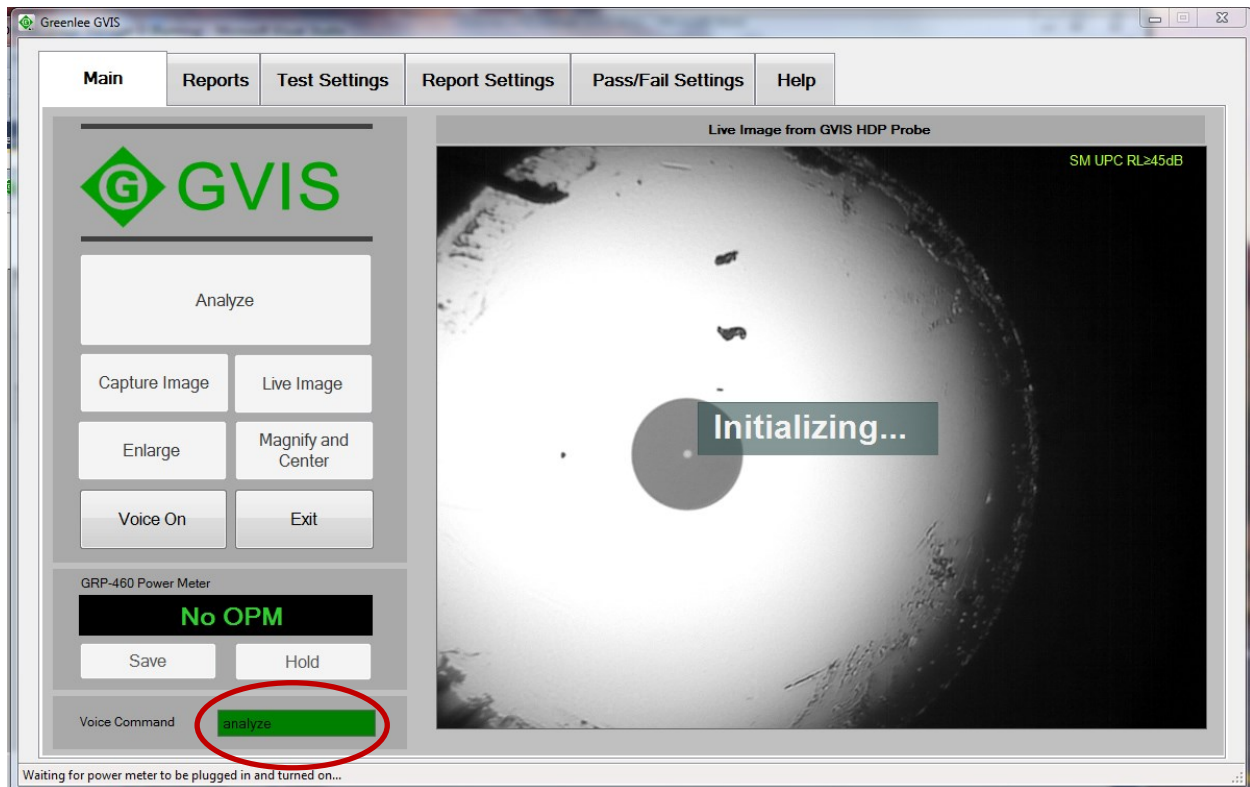


Figure 9: Voice Command Feedback

### Focus Bar

The blue focus bar is located below the fiber end image on the Main tab. It is visible when a live image is displayed and the image is not totally blurred. It is an aid to help focus the image. When the focus ring on the Greenlee probe is rotated and the image becomes more focused, the red peak bar stays at the best focus achieved. Each time a new peak is reached the image associated with the peak is saved in a temporary buffer. If the image becomes unfocused again after a peak is reached, the peak focused image is still saved. When the Analyze button is pressed the best focused image is used not the image displayed at the time the Analyze button was pressed. This helps to ensure the best focused image is used for the analysis.

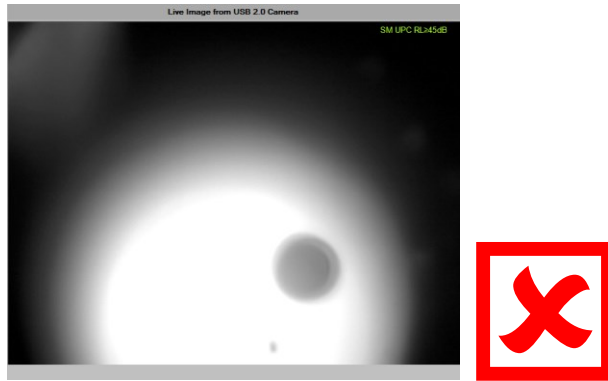


Figure 10: Unfocused Fiber End

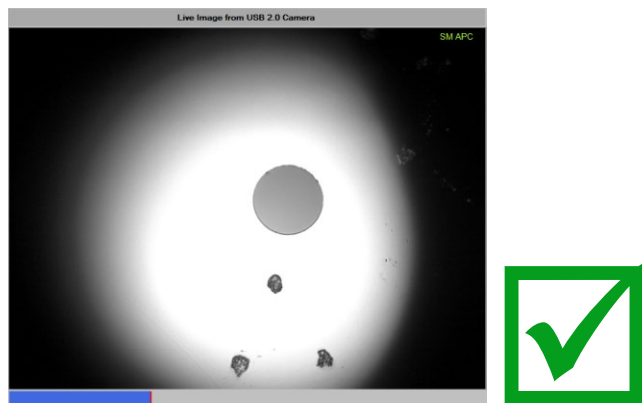


Figure 11: Focused Fiber End

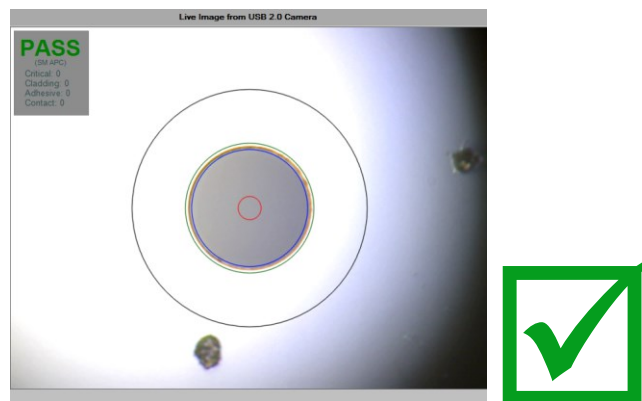


Figure 12: A Focused Image Is Needed to Perform a Successful Automated Analysis

### Exit

GVIS is closed when *Exit* is clicked.

## Reports Tab

The Reports tab contains the list of saved fiber end images. Using these images, there are two reports that can be created, GVIS and Site Loss.

GVIS Report information includes fiber end face image(s) and power meter measurements for the selected test. See section [GVIS Report](#).

Site Loss report creates an Excel report of all the images stored in the present selected folder. See section [Site Loss Report](#).

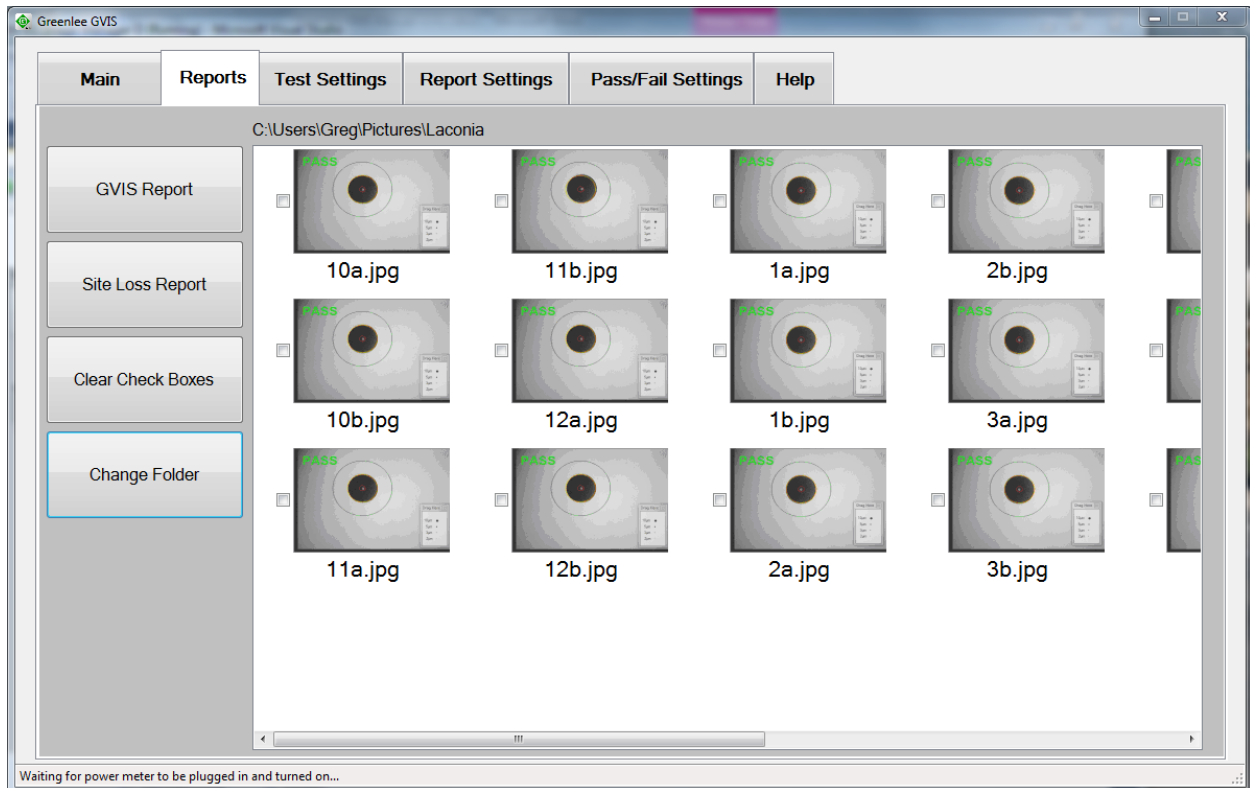


Figure 13: Reports Tab

### ***GVIS Report Button***

To create a GVIS report, select one or two fiber end images and click *GVIS Report*.

### **Power measurements**

To include power measurements in a report, the technician must first select one or two images that he or she would like to associate with the power measurement, then click the Save button on the Main tab when an appropriate loss measurement is displayed.

### ***Site Loss Report Button***

Creates an Excel report of all fiber end images in the selected folder.



***Clear Check Boxes Button***

Clears all check boxes.

***Change Folder Button***

Permits the technician to change or create a new folder. Ideally, a folder should be created for each test site; doing this will allow site loss reports to be created easily. See section [Site Loss Report](#).

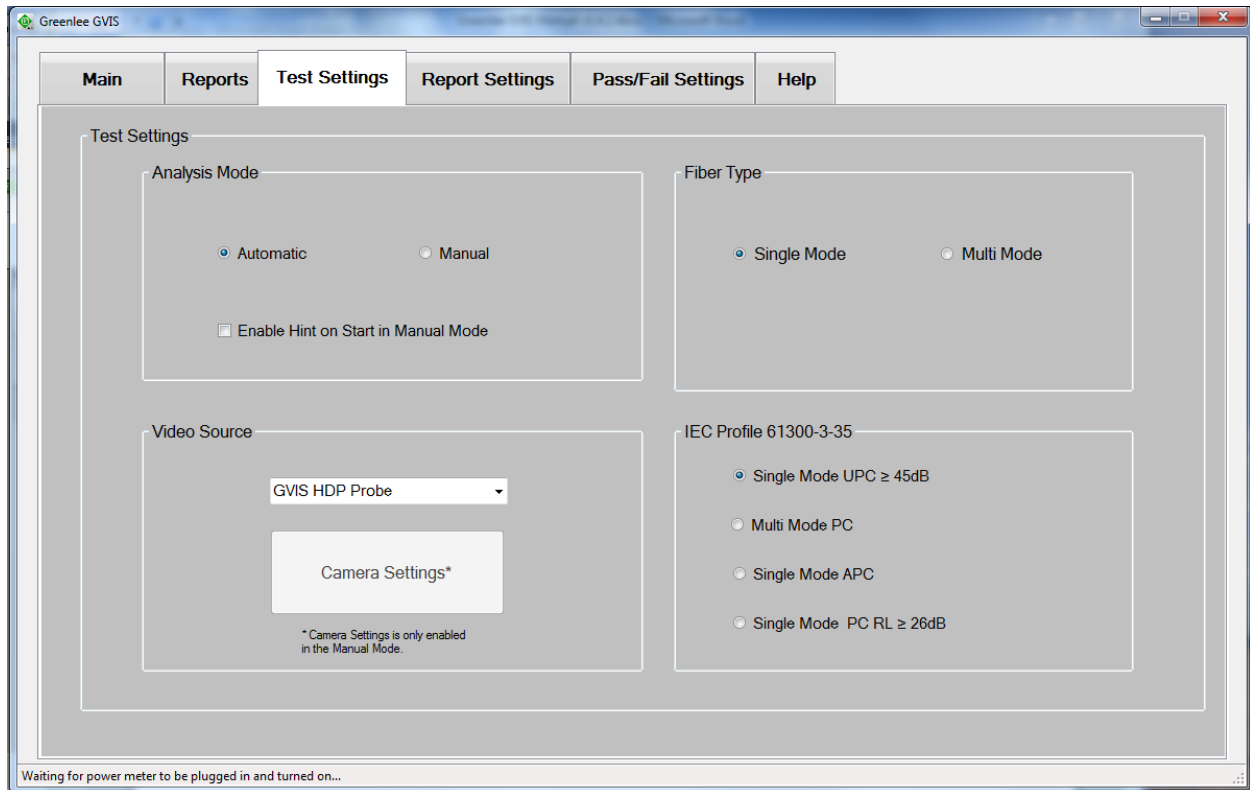


Figure 14: GVIS Test Settings Tab

**Settings Tabs****Test Settings Tab*****Analysis Mode***

To change the mode of grading click the Test Settings tab and choose Automatic or Manual in the Analysis Mode group. If a GVIS-300 is selected for a video source, you will not be allowed to choose the Automatic mode.



### *Fiber Type*

The two types of fiber the technician may choose are single-mode and multi-mode. So that the correct size critical zone is used during analysis, the technician must choose the correct fiber type. Single-mode diameter is 25 $\mu$ m, multi-mode is 65 $\mu$ m.

### *Choosing a Video Source*

The technician can select a video source by clicking on the drop-down box in the Video Source group. Greenlee probe names are Greenlee HDP Probe, USB 2.0 Camera and Videology Camera.

### *Image Controls*

Image controls are only available when GVIS is in the manual analysis mode. You can adjust image brightness, contrast, sharpness and gamma using these controls.

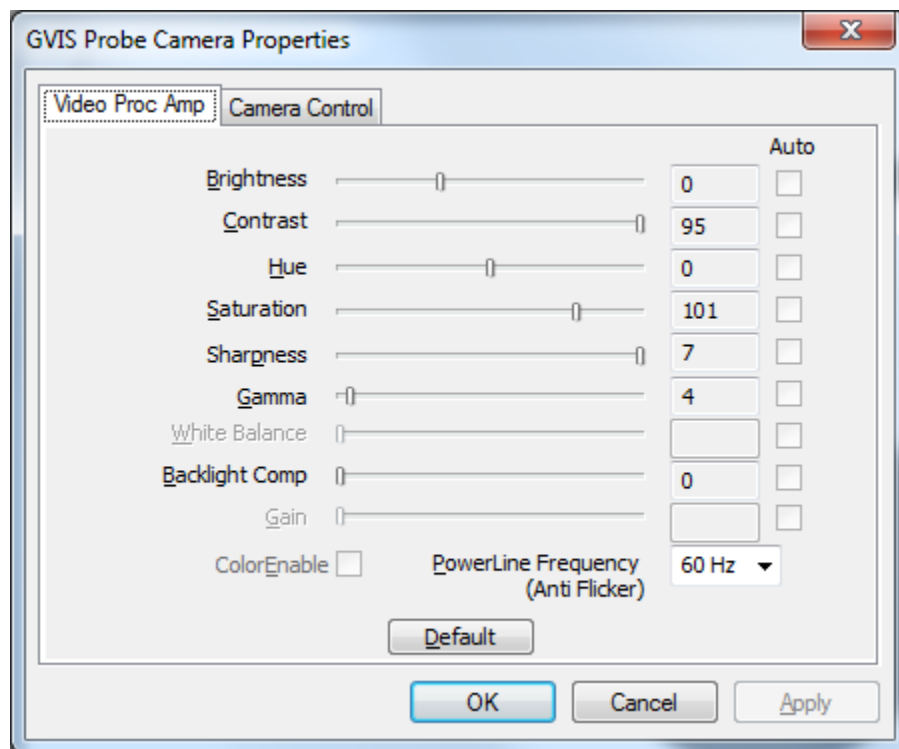


Figure 15: Image Controls

### **IEC Profile 61300-3-35**

When performing a test using automatic analysis, you have to choose the IEC specification to compare defect sizes and locations. The specification is used to determine whether the end face passes or fails the test. The test choices are:

- Single-mode UPC  $\geq 45\text{dB}$
- Multi-mode PC
- Single-mode APC
- Single-mode PC RL  $\geq 26\text{dB}$

### **Report Settings Tab**

Greenlee GVIS

Main Reports Test Settings **Report Settings** Pass/Fail Settings Help

Report Settings

Customer Company Name  
Customer Company Name Add Del

Contact Name  
Contact Name Add Del

Testing Company Name  
Testing Company Name Add Del

Tester's Name  
Tester Name Add Del

Test Location  
Test Location Add Del

Fibers From  
Fibers From

Fibers To  
Fibers To

Comment  
Comment

Waiting for power meter to be plugged in and turned on...

Figure 16: GVIS Report Settings Tab

### **Test Information**

Information on the Report Settings tab contains information to help annotate a saved fiber end face image.

Drop-down boxes contain information that is likely to be repeated. These lists can be added to by clicking the *Add* button next to the item. These are labeled *Customer Company Name*, *Contact Name*, *Testing Company Name*, *Tester's Name* and *Test Location*. To delete an item from a list, select the item and press the *Del* button next to the item.

Text boxes labeled *Fibers From*, *Fibers To* and *Comment* can be updated to reflect your test location.

On the top header portion of the reports there is a space for a company name. The name that is entered into the Customer Company Name on the Report Settings tab will be used to fill the header.

## Pass/Fail Settings Tab



Figure 17: Pass/Fail Settings Tab

Loss measurement pass/fail limits can be set and enabled on this tab as shown in Figure 17. If enabled and the power meter measurement exceeds the set limit, the measurement is marked as Fail on the reports.

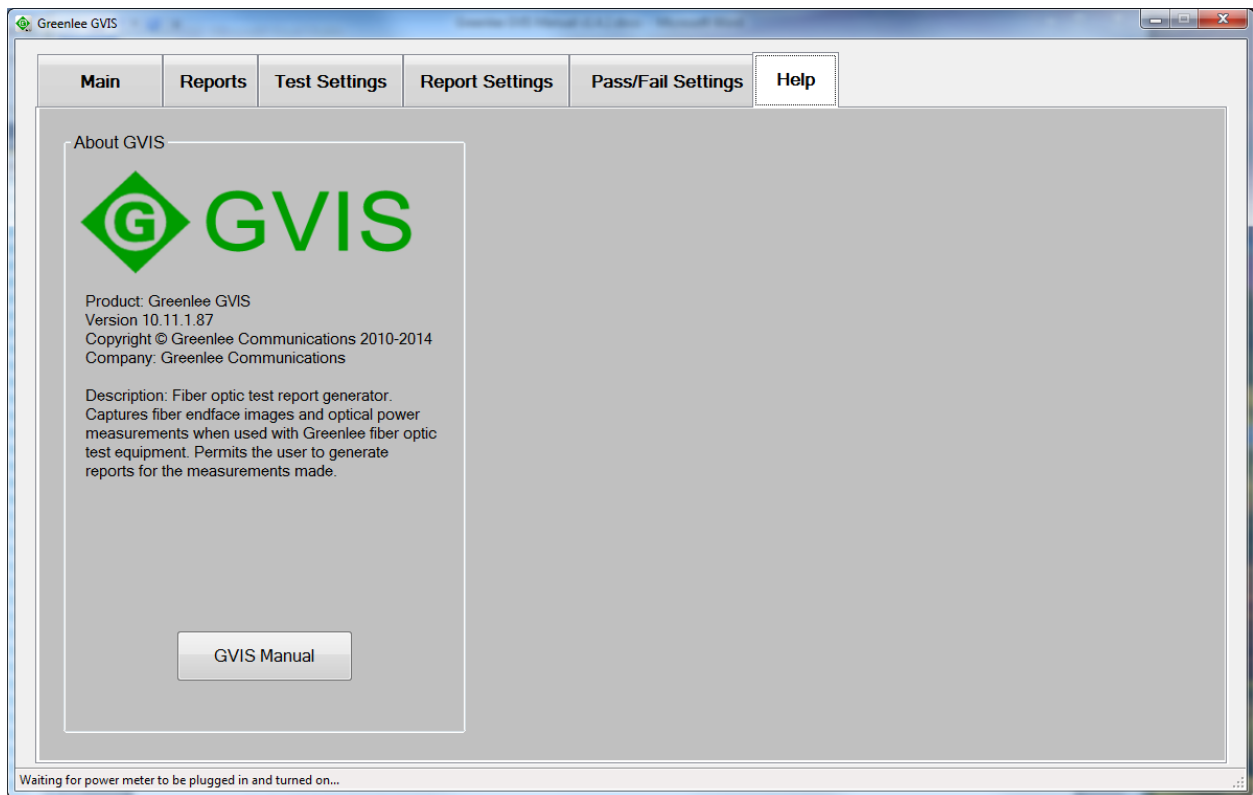


Figure 18: Help Tab

## Help Tab

The Help tab contains the GVIS version number and software manual. It also contains user specific guides and end face zone details.

## Performing a Test

### Automatic Analysis

To perform automatic grading, connect the fiber to the GVIS-400HDP and focus the image. If the fiber needs cleaning do so and reconnect the fiber to the GVIS-400HDP, focus and press the *Analyze* button. The GVIS software performs and reports the analysis by comparing defects to the IEC61300-3-35 2009 specification and reports Pass or Fail with the number of defects that caused a failure in each zone.

Defects that are colored in blue were found but are less than the specified size for the zone and are not considered a failure. Defects colored red are equal to or larger than the specified size and cause a failure. See IEC-61300-3-35 2009 specification for detailed information.

To show detailed information about a defect, mouse-over the defect so that a pop-up window appears below the Pass/Fail box in the upper left hand corner. See Figure 19.

To change the specification that is used to determine pass or fail, choose Test Settings tab and choose the desired specification before performing a test.

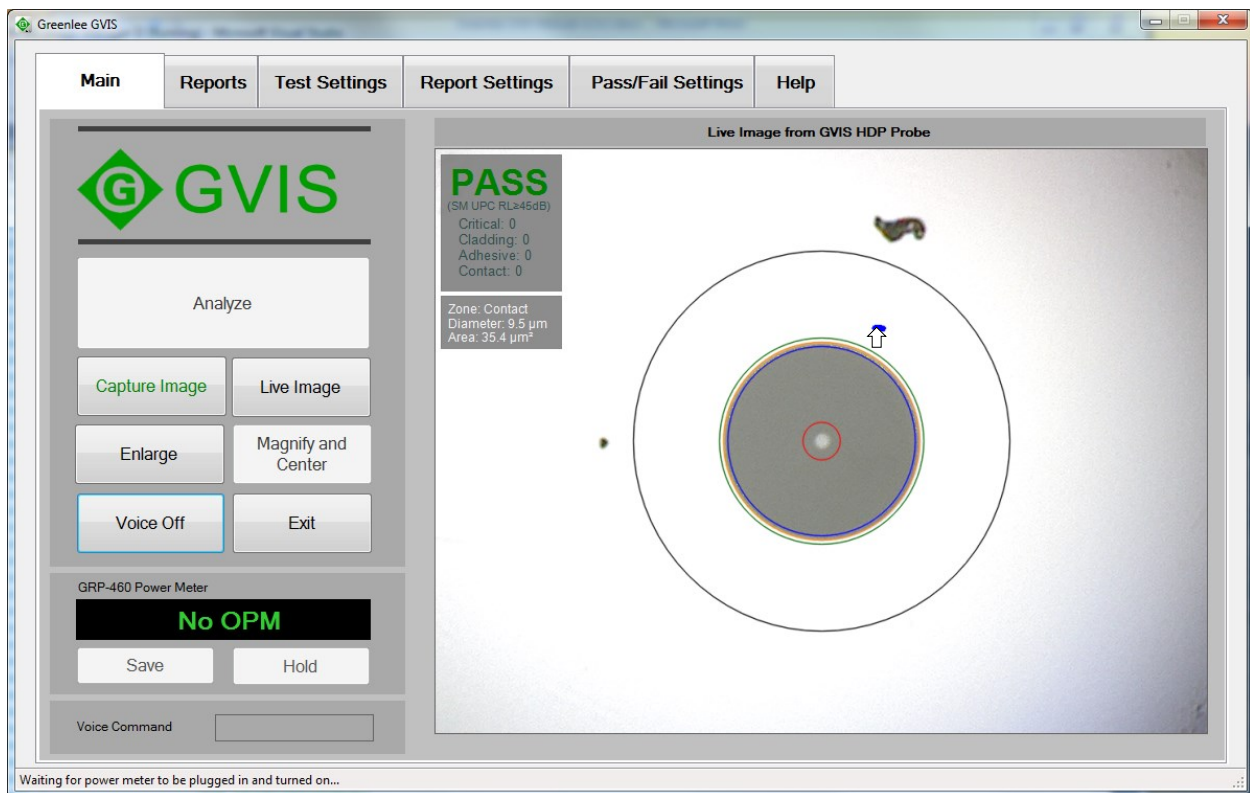


Figure 19: Automatic Grading Screen

## Manual Grading

### Grading Obstruction Overlay

The overlay is used to judge the size of any particles or scratches in the grading zones. The zones are based on the IEC-61300-3-35 specification.

Clicking the *Show Grading* button will display grading circles as illustrated below. The overlay can be moved by clicking and dragging on the top bar of the overlay. To move the overlay to the home position, the lower right-hand corner of the image, click the *Home* button.

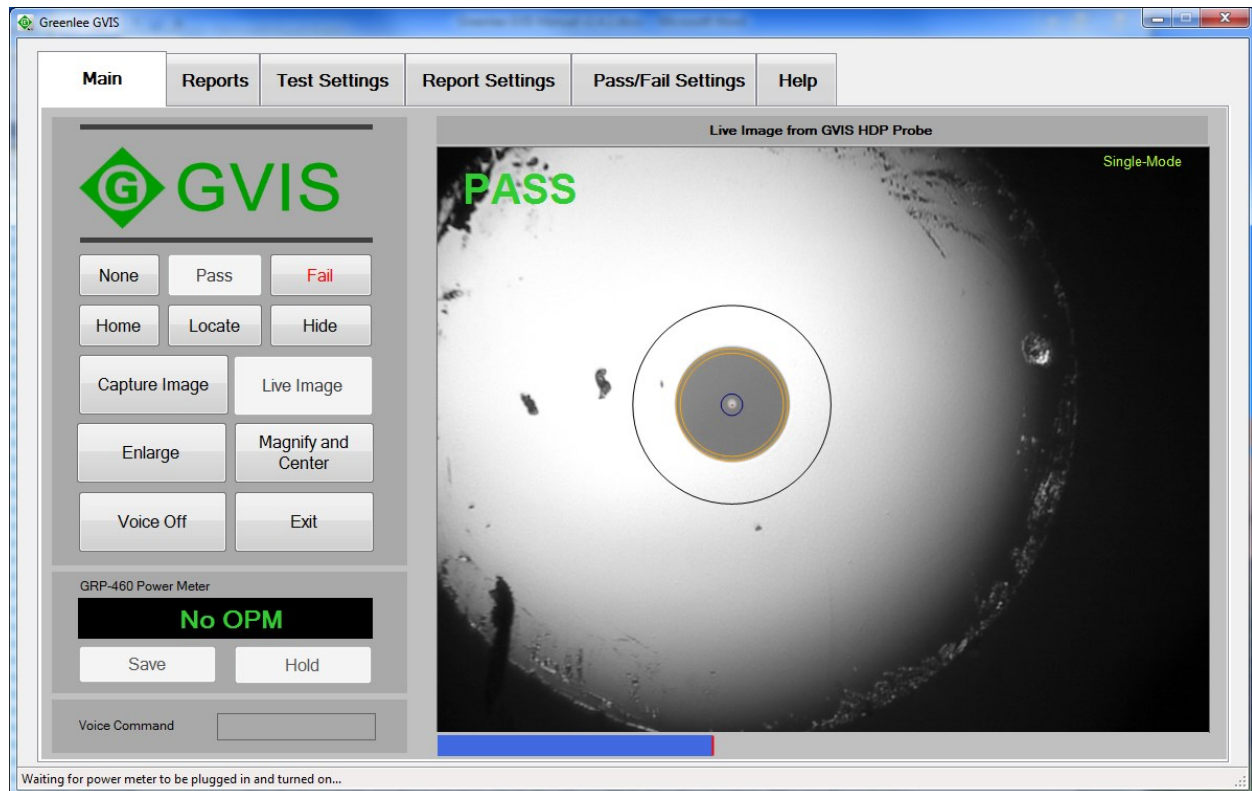


Figure 20: Sample Obstruction Overlay

### Grading Circles

To show or hide grading circles, click the Show/Hide Grading button. The grading circles (zones) are based on the IEC-61300-3-35 specification.

Using the grading circles provided as a guide, the technician can judge and mark a fiber end face image Pass or Fail by clicking the appropriate button. If no grading is desired, press the *None* button.

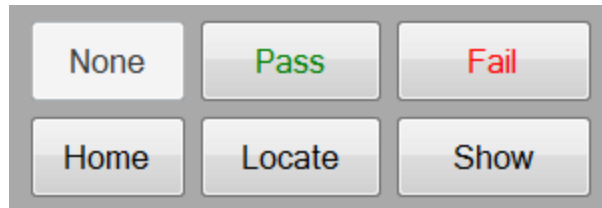


Figure 21: None/Pass/Fail and Show/Hide Buttons

The grading circles can be centered on the fiber core by pointing the mouse at core center and right-clicking or by clicking the *Locate* button. They also can be nudged left, right, up or down by first clicking the fiber image then using the arrow keys on your keyboard. Pressing and holding the *Shift* key and pressing the arrow keys will move the grading circles by ten pixels.

The grading circles can be resized by first clicking the fiber image and then using the mouse wheel or pressing and holding the *Ctrl* key and pressing the Up or Down arrows on the keyboard.

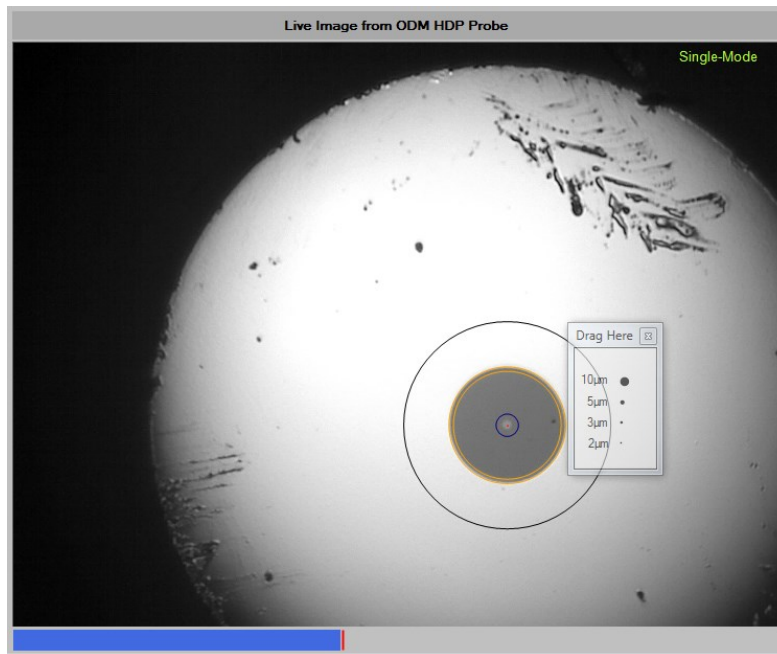


Figure 22: Grading Circles Displayed

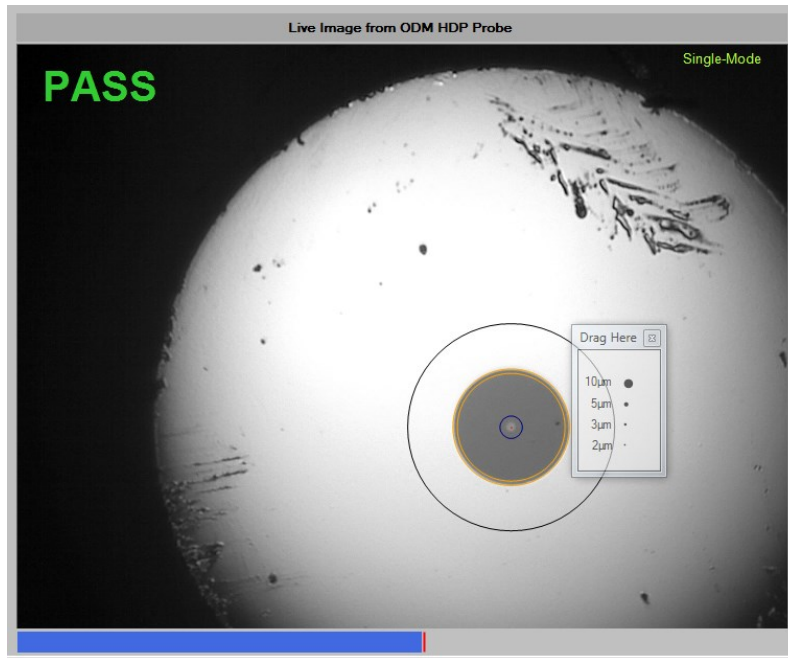


Figure 23: Grading Circles and Pass or Fail Displayed



## OPM Hold/Read

Clicking the OPM Read/Hold button will freeze or resume reading of the Greenlee GRP-460 power meter.

## OPM Save

To save the power meter measurement, first select one or two fiber end images on the Reports tab and click OPM *Save* on the Main tab. You will be prompted by the screen in Figure 25. (Hint: Press and hold the *Shift* key and click the image if you want to select two images.)

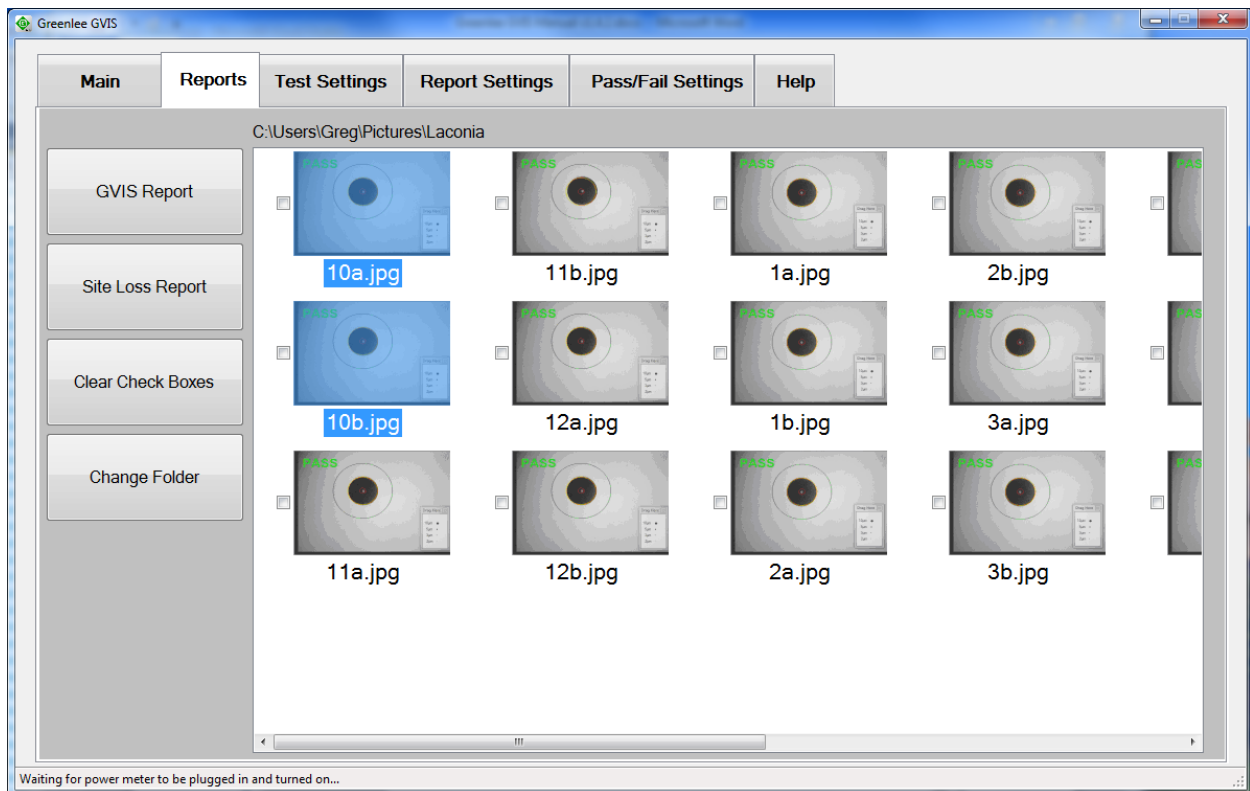


Figure 24: Two Fiber End Images Selected to Save Power Measurements to those Images

## Loss Measurement Prompt

The Loss Measurement prompt assists you to save the power meter measurement for reports. When you choose *No*, in Figure 25, you are indicating the measurement is just for the trunk portion of the cable. If you choose *Yes*, you are indicating that the measurement includes the top sector jumper.

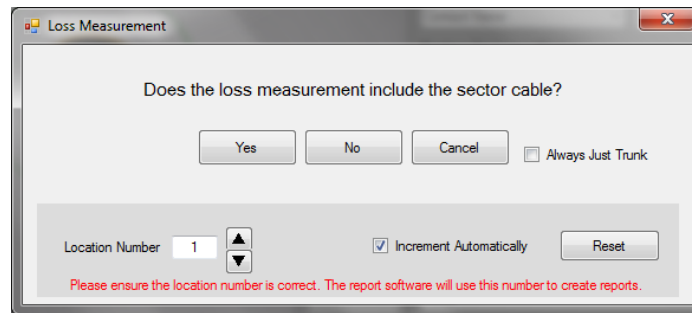


Figure 25: Loss measurement Location Prompt – Always Just Trunk Disabled

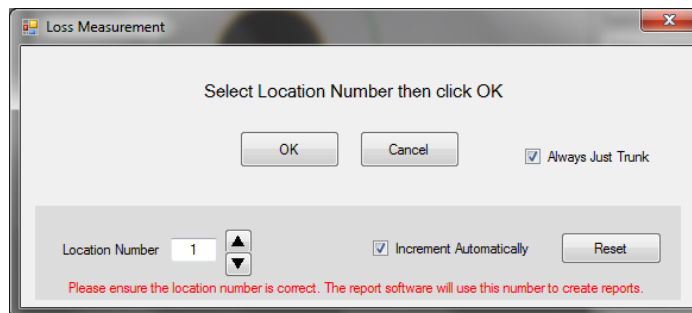


Figure 26: Loss measurement Location Prompt – Always Just Trunk Enabled

*Location Number:* Indicates the location you are making the measurement, for example location 1 of 12. It is important that you enter the correct location number, if you do not your reports will not be accurate.

*Increment Automatically:* Check this if you want the location number to increment by one every time you make a measurement and save it to an image file.

*Reset:* Resets the Location Number to 1.

*Always Just Trunk:* Check this if your measurements are always trunk and do not include the top sector. If checked, you will not be prompted for top sector measurements as shown in Figure 26.

## Change Folder

To change the folder where images are saved or create a new folder, click *Change Folder*.

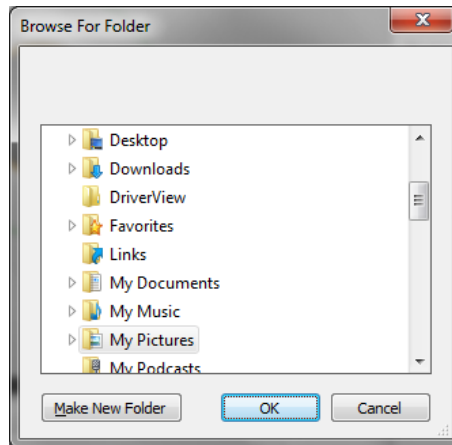


Figure 27: Change Folder Window.

## Reporting

GVIS permits the user to create reports. Two types of reports are provided: GVIS Report and Site Loss Report. The GVIS Report information includes fiber end face image(s) and power meter measurements for the selected test. The Site Loss Report information includes all the tests for the folder selected and displayed at the bottom of the GVIS screen, Figures 28 and 29 illustrate these reports.

### GVIS Report

Clicking on the *GVIS Report* button will display results similar to the figure below. To display the results you must first select one or two images in the image list before clicking *GVIS Report*. (Hint: Hold *Shift* or *Ctrl* key while clicking for two images.)


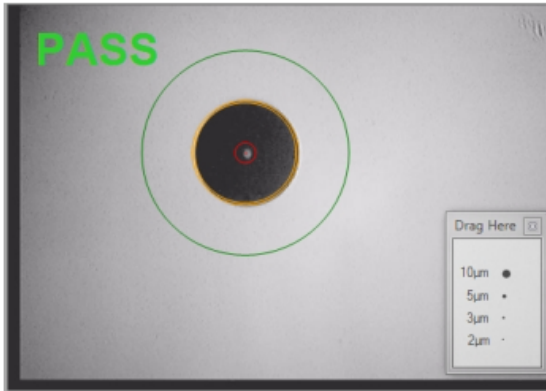
GVIS IMS Loss Report

**GVIS Loss Report**

**Customer Company Name**  
Report Date: 1:29:50 PM Thursday, January 30, 2014

Parameter	Test Data
File Name	10a.vis
Testing Company	Testing Company Name
Tester's Name	Tester Name
Test Location	Test Location
Fibers From	1AB
Fibers To	12AB
Loss - Trunk Cable	0.60 dB $\lambda$ 1550
Loss - Trunk/Sector	0.60 dB $\lambda$ 1550
Comment	Trunk and sector rooftop

Parameter	Test Data
File Name	10b.vis
Testing Company	Testing Company Name
Tester's Name	Tester Name
Test Location	Test Location
Fibers From	1AB
Fibers To	12AB
Loss - Trunk Cable	0.60 dB $\lambda$ 1550
Loss - Trunk/Sector	0.60 dB $\lambda$ 1550
Comment	Trunk and sector rooftop

Drag Here

10 $\mu$ m •  
5 $\mu$ m •  
3 $\mu$ m •  
2 $\mu$ m •

Save as JPEG Print Close

Figure 28: Loss Report Screen

### Site Loss Report

If you have Microsoft Excel installed on your computer, clicking on the *Site Loss Report* button will create a site loss report of all the optical power measurements made that are associated with the end face images presently displayed in the selected folder.

Greenlee\_GVIS\_Excel\_Template-R2.xlt [Read-Only] [Compatibility Mode] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Add-Ins Team

Clipboard Font Alignment Number Styles Cells Editing

B26 Trunk and sector rooftop

**GREENLEE COMMUNICATIONS** **GVIS IMS OPM Site Report**

Customer Name	Contact Name	Testing Company	Tester's Name							
Customer Company Name	Contact Name	Testing Company Name	Tester Name							
Test Location	Date/Time									
Test Location	Thursday, January 30, 2014 - 1:52:48 PM									
Fibers From	Fibers To									
1AB	12AB									
Pass/Fail Settings										
850 Min/Max: 0.0dB /3.0dB	ENABLED									
1310 Min/Max: 0.0dB /3.0dB	ENABLED									
1490 Min/Max: 0.0dB /3.0dB	ENABLED									
1550 Min/Max: 0.0dB /3.0dB	ENABLED									
Test Equipment Model										
GRP-460-02										
GRP 460 Test Data										
Location	Comment	Include Sector	850 nm	Unit	1310 nm	Unit	1490 nm	Unit	1550 nm	Unit
1a	Trunk and sector rooftop	No							2.88	dB
2a	Trunk and sector rooftop	No							3.83 (Fail)	dB
3a	Trunk and sector rooftop	No							2.95	dB
4a	Trunk and sector rooftop	No							2.95	dB
5a	Trunk and sector rooftop	No							2.74	dB
6a	Trunk and sector rooftop	No							2.00	dB

Figure 29: Excel Site Loss Report

## Greenlee Communications Contact Information

Tempo Europe Limited  
Brecon House  
Llantarnam Park  
William Brown Close  
Cwmbran  
South Wales NP44 3AB

Voice: +44 (0) 1633 627710

Fax: +44 (0) 1633 627711

Email: <mailto:tempo@klauke.textron.com>

Website: <http://www.tempo.textron.com>