



A RIPLEY® BRAND

# TTK 720

## Wireless Industry Fiber Test Kit User Guide



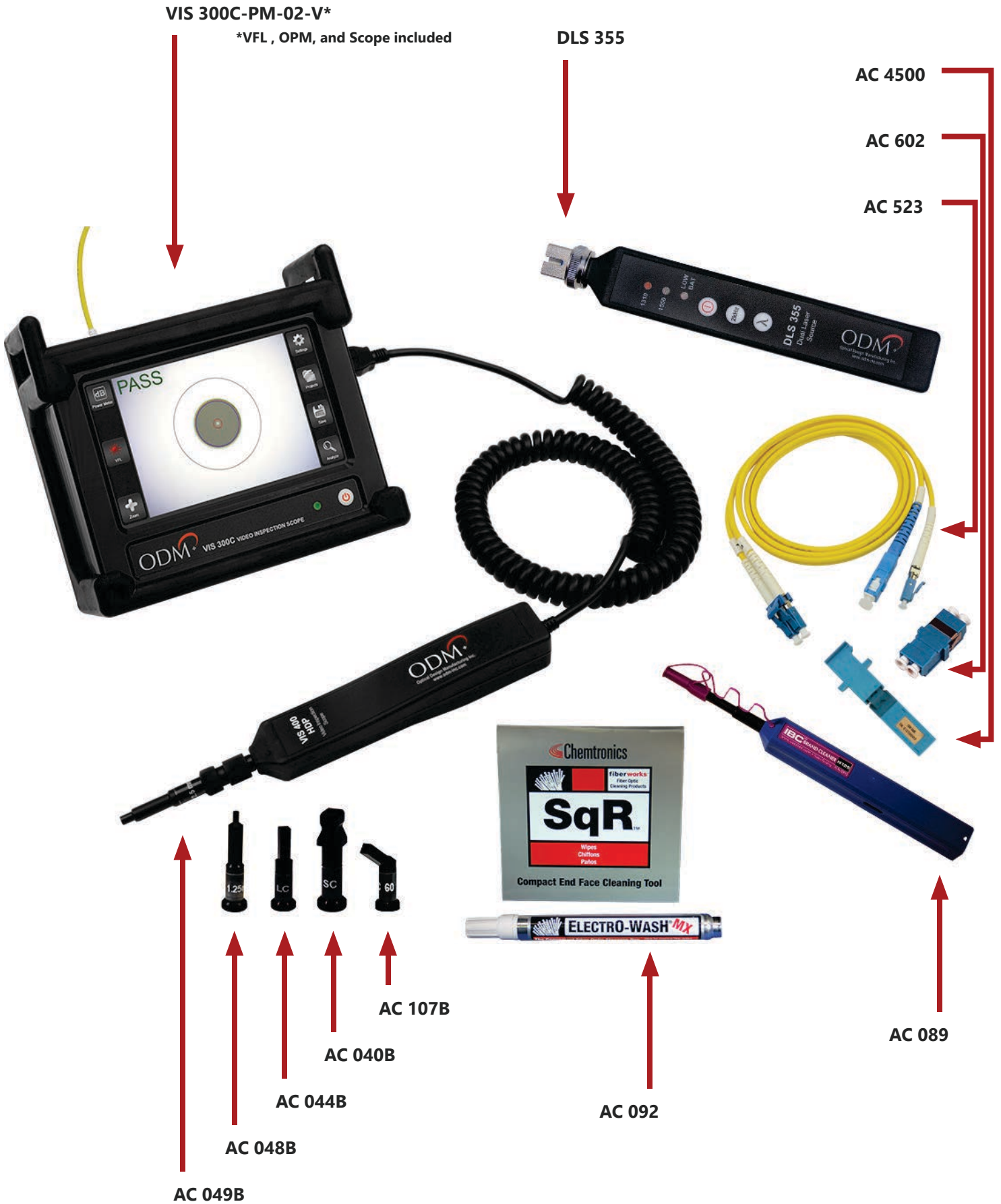
# Introduction

The TTK 720 test kit is an all-in-one solution for performing fiber inspection, insertion (dB) loss testing, and red laser continuity testing. This kit has been specifically designed to meet the needs of technicians working in the wireless communications field.

## Kit Overview

Item	Description
VIS 300C-PM-02-V	All-in-one test platform for fiber scoping, dB loss testing, and red laser continuity testing. Includes touchscreen monitor with customized software and high-definition inspection probe. Power meter and VFL included.
DLS 355	Dual laser source - outputs 1310 and 1550nm wavelengths for dB loss testing singlemode fiber.
AC 029	LC adapter for OPM port on VIS 300C unit.
AC 107B	LC 60-degree bulkhead inspection adapter for VIS 300C probe. May be used to scope difficult bulkheads, such as those in tower-top enclosures.
AC 048B	1.25mm universal inspection adapter for VIS 300C probe.
AC 049B	2.5mm universal inspection adapter for VIS 300C probe.
AC 040B	SC bulkhead inspection adapter for VIS 300C probe.
AC 044B	LC bulkhead inspection adapter for VIS 300C probe.
AC 4500	Loopback module - single mode. Used to loop signal at tower top in order to test both fibers in the pair.
AC 523	Loopback test jumper - plugs into DLS 355 and OPM port on VIS 300C unit in order to plug onto the fiber trunk pair at the tower bottom.
AC 602	LC duplex bulkhead. Used to connect AC 523 to trunk bottom.
AC 089	One-click cleaner for all 1.25mm ferrules. Dry-clean method.
AC 092	Fiber cleaning pad and pen for all exposed ferrules. Wet/Dry clean method.
AC 802	USB cable for data transfer to computer.
AC 015	Large hard carry case.

# Kit Overview



# Test Procedures Overview

The following section will provide an overview of the workflow and recommended procedures for each test that can be performed with the TTK 720 kit. Some procedures may have more importance placed on them by the carrier: please use these procedures only as a guideline. Wireless carrier requirements supersede ODM's recommended procedures in all circumstances.

## 1 Proper Equipment Care Between Uses

This section explains how to properly maintain the TTK 720 test kit components between uses. VIS 300C charging, equipment cleaning, and storage are discussed.

## 2 Creating a New Folder in VIS 300C Software

When arriving at a new test site or when starting a new project, the user should create a new "Project Folder" on the VIS 300C unit. This stores all relevant site information (scope images, loss readings, etc. in one place. This section covers setting up for a new test site.

## 3 Fiber Scoping

Fiber inspection should be performed before making any connections onsite. Analysis and saving of images may be required for closeout packages. This section explains how to inspect and clean fiber.

## 4 dB Loss Testing

Also known as "insertion loss" or "fiber sweep" testing, dB loss testing allows the technician to validate that all fiber pairs are in working condition. Saving of dB loss test results may be required for closeout packages. This section explains the necessary steps for testing fiber.

## 5 VFL Testing

An onboard red laser allows users to verify proper continuity of fiber cables. This is a troubleshooting task only. This section gives an overview of the VFL functionality.

## 6 Creating and Sharing Reports

The VIS 300C has built-in report creation software. This section explains how to create reports for closeout packages.

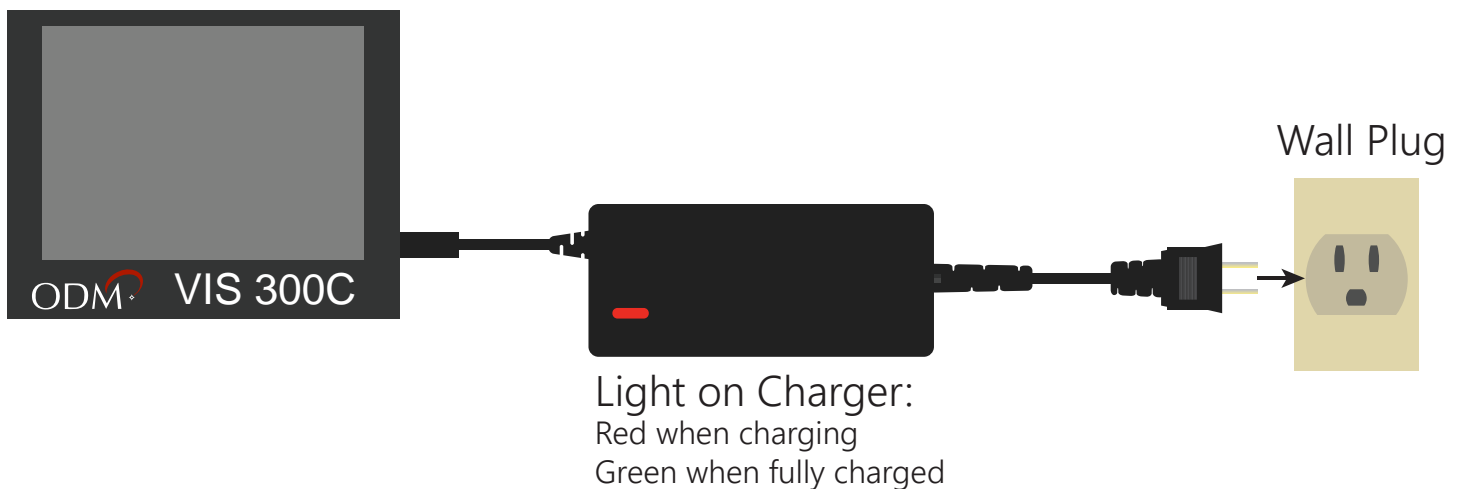
# 1 Proper Equipment Care Between Uses

## 1a - Charging the VIS 300C

The VIS 300C charger comes in two pieces. See diagram below. The cable on the right will be plugged into the power brick to create the charging device.



Allow the VIS 300C to charge fully between uses. The VIS 300C can be used while charging; please be aware that an internal fan may activate to regulate temperature. 4-5 hours battery life typical for a single charge.



## 1b - Cleaning the DLS 355

The DLS 355 laser source is a high-end test laser, capable of outputting 1310 and 1550nm wavelengths. The output port of this unit utilizes a physical connection, which means that it can become soiled if used improperly. When needed, the DLS 355 adapter may be removed for inspection and cleaning of the fiber ferrule.

DLS 355 is stored with adapter ON to protect ferrule inside.

Remove adapter by unscrewing until it spins freely, then pull off.

Inspect ferrule with VIS 300C and clean with appropriate tools. Always replace adapter.

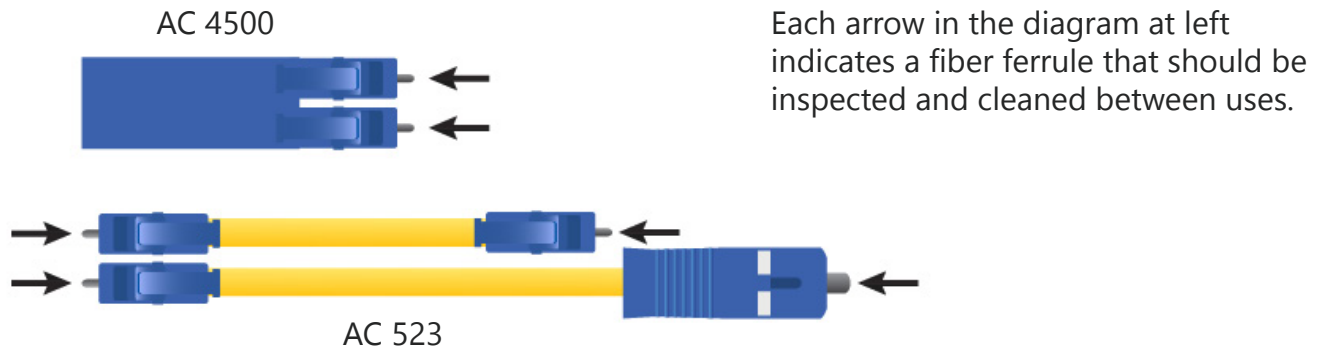


Regular inspection and cleaning of the output port of the DLS 355 may not be necessary if appropriate procedures are followed. Always inspect test jumpers before they are plugged into the DLS 355 and store it properly to ensure continued performance.



### 1c - Inspecting and Cleaning Fiber Jumpers and Loopback

Special care should be taken to ensure the continued function of all test jumpers and loopbacks. A regular inspection and cleaning regimen will keep kit components functional for a longer period of time.



### 1d - Equipment Storage

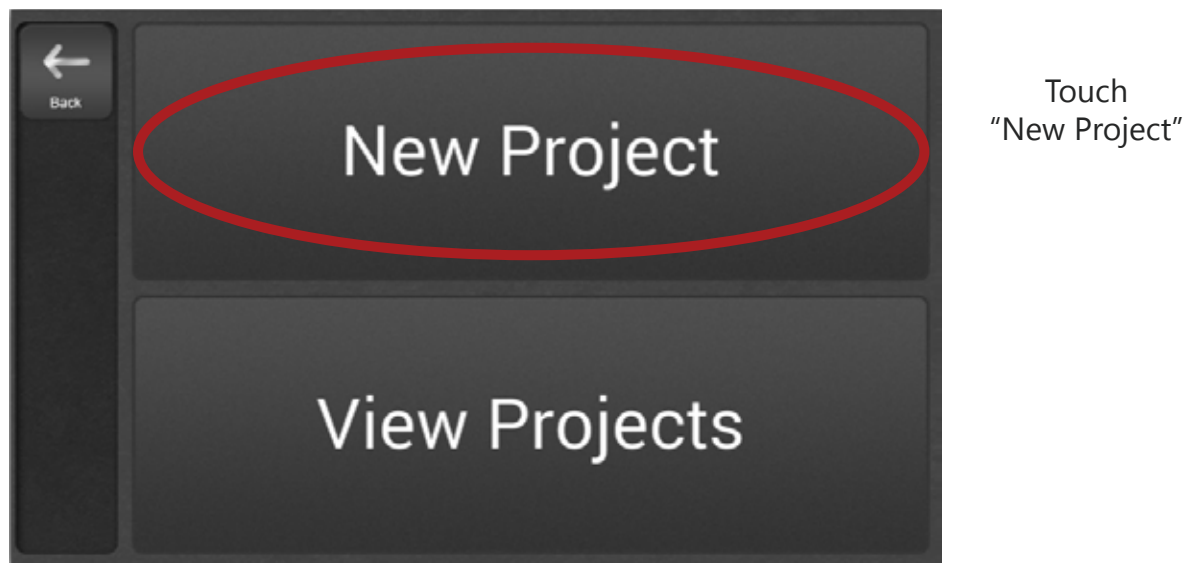
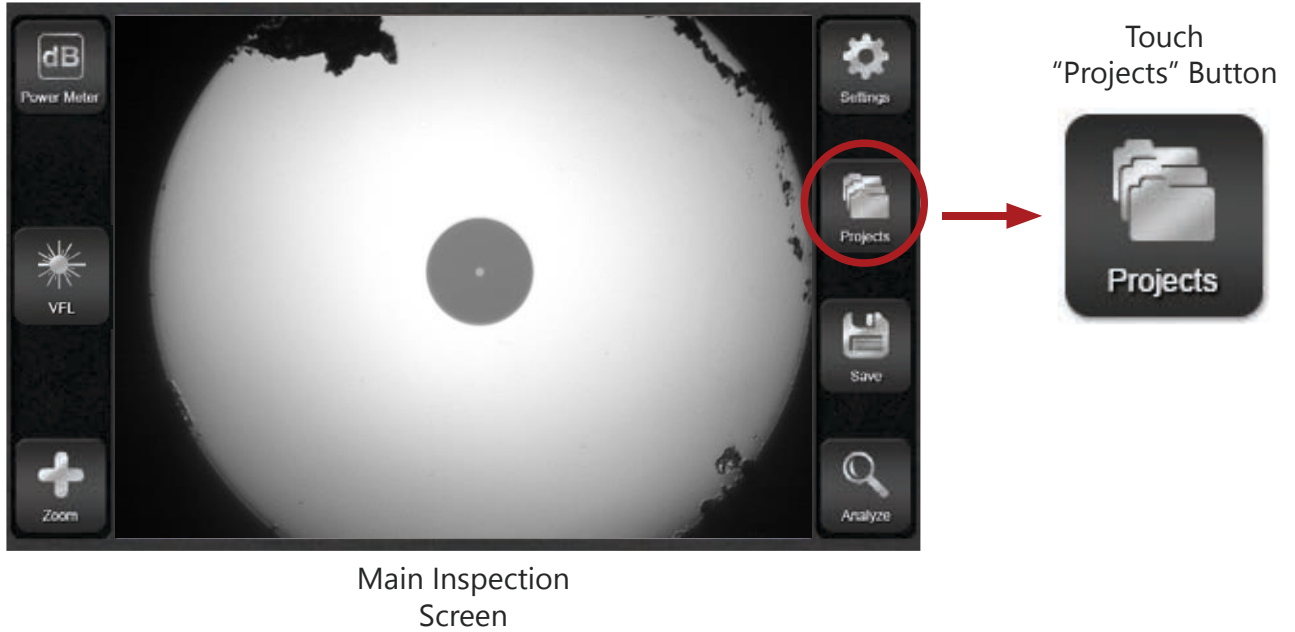
All equipment should be stored in the airtight case provided by ODM. Keep the case in a cool, dry location and remove battery from the DLS 355 if it must be stored for over 6 weeks.



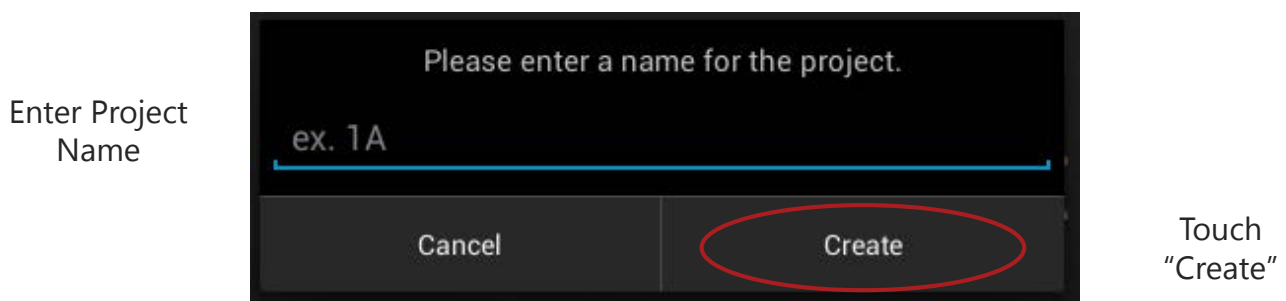
## 2 Creating a New Folder in VIS 300C Software

The VIS 300C platform saves all test information in a folder system onboard. The internal memory is capable of saving thousands of images and power meter readings. Follow the steps below to create a new folder when beginning a project.

### 2a - Create a New Project



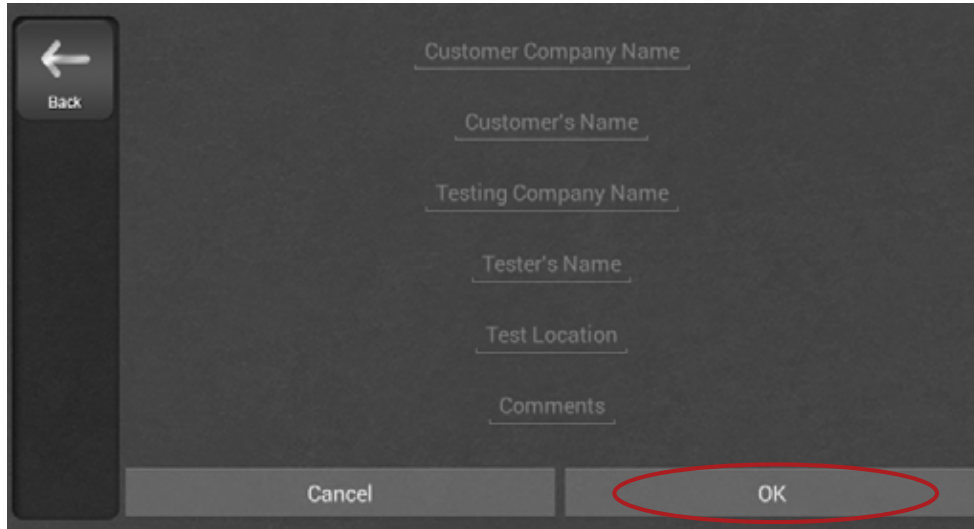
Give the project a name using the onscreen keyboard. Touch "Create" to make the project folder.





The next screen contains several text fields which help make the project unique. Fill out these fields using the onscreen keyboard as appropriate, then touch "OK". You'll be taken back to the Main Inspection Screen.

Enter all Project Details



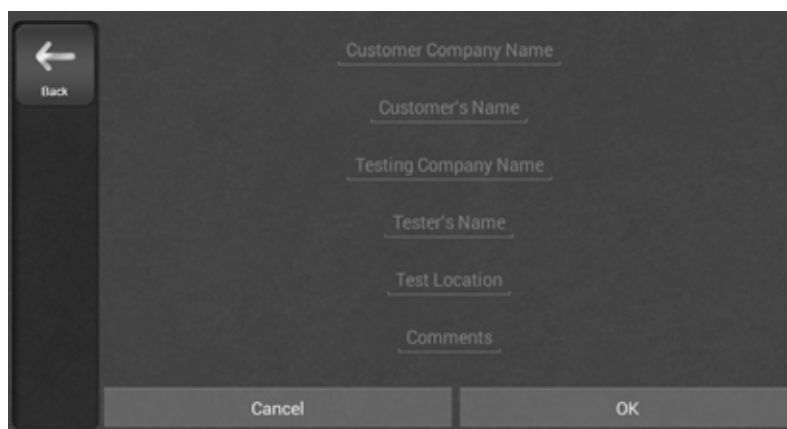
Touch "OK"

### 2b - Change Project Information

If you ever need to change this information, touch "Projects" on the main screen of the unit, then touch "View Projects," then choose the appropriate project name. The screen shown below will appear. Touch the settings icon in the top right of the window to make changes to this information.



Touch Settings Icon

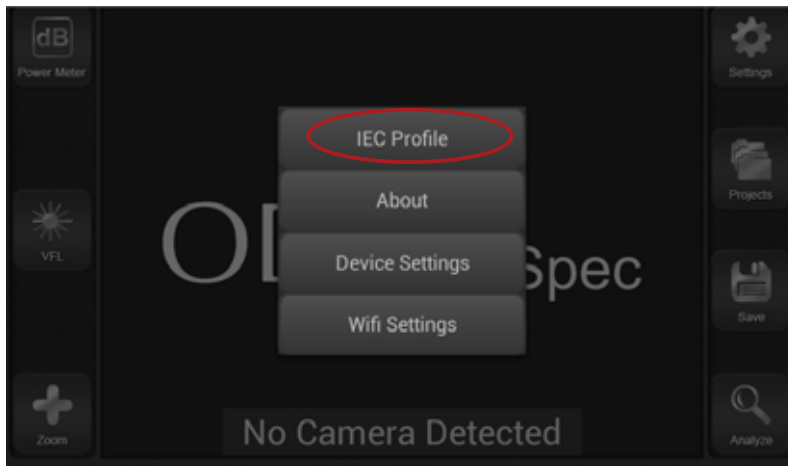
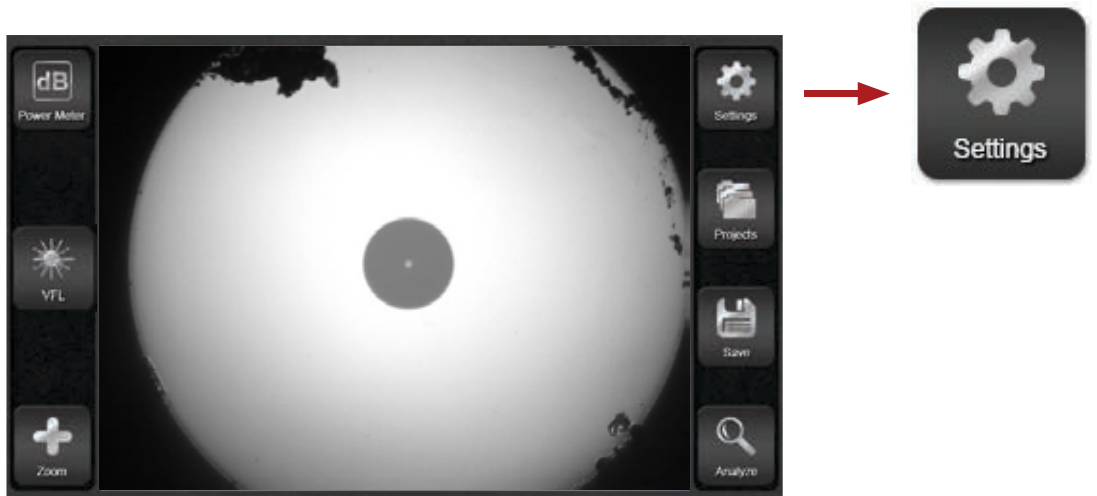


### 3 Fiber Scoping

The VIS 300C probe and monitor combination allows users to inspect fiber endfaces using an automated analysis algorithm. This section gives an overview of inspection procedures.

#### 3a - Adjust Settings

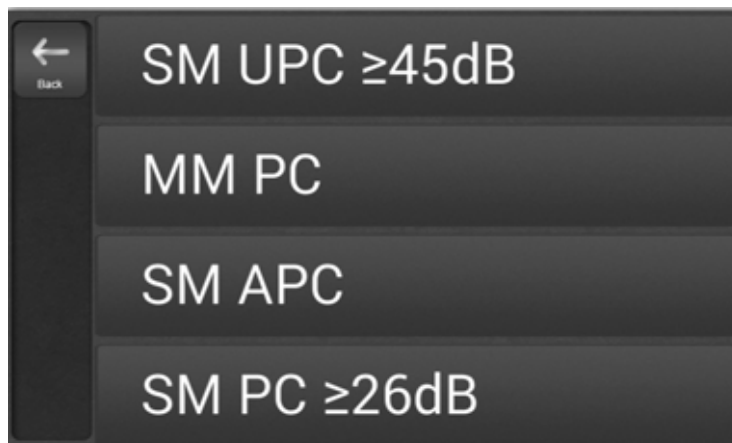
The VIS 300C has several automated analysis algorithms available. Choose from the available options in the "Settings" menu under "IEC Profile."



Touch  
"IEC Profile"

Choose from a list of algorithms to use for automated analysis. All algorithms are based on the IEC standards document 61300-3-35.

Touch  
Appropriate  
IEC Profile



**NOTE:**  
SM UPC  $\geq 45\text{dB}$  is by far the most common fiber type used in the wireless industry. Contact ODM if you are unsure of which algorithm to use.

### 3b - Inspect the Fiber

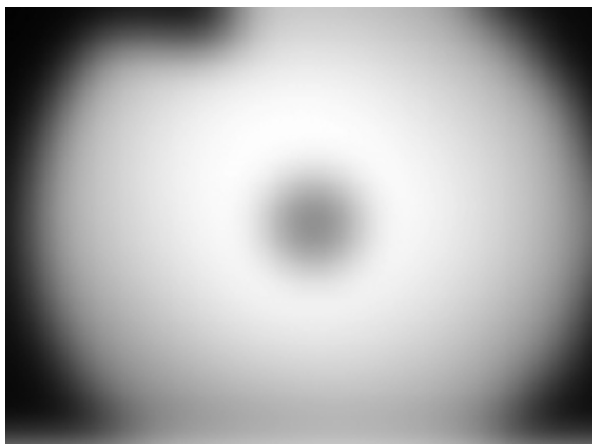
ODM's automated analysis feature makes short work of fiber inspection. Follow these steps to determine if a fiber is acceptable for use.



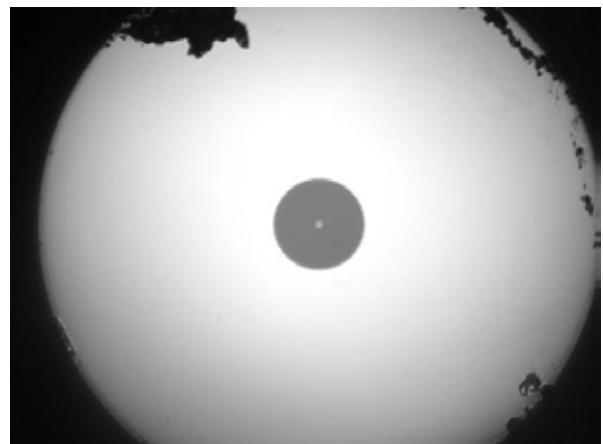
Insert the fiber ferrule into the inspection tip on the VIS 300C inspection probe as shown above. The ferrule should be inserted fully, until it "stops" inside the tip.



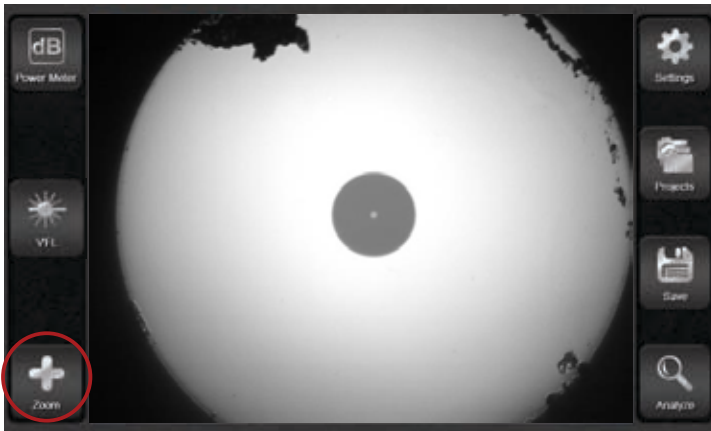
Use the focus knob on the inspection probe to obtain an appropriate focus level. The focus knob is the larger of the two knurled knobs on the end of the probe.



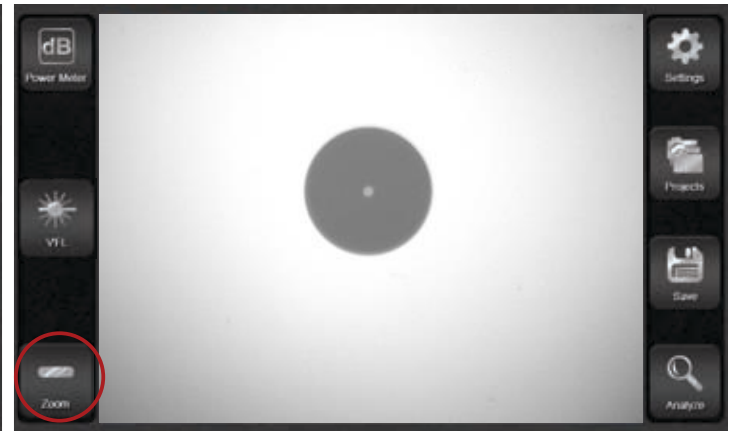
Out of Focus



In Focus



Low Magnification

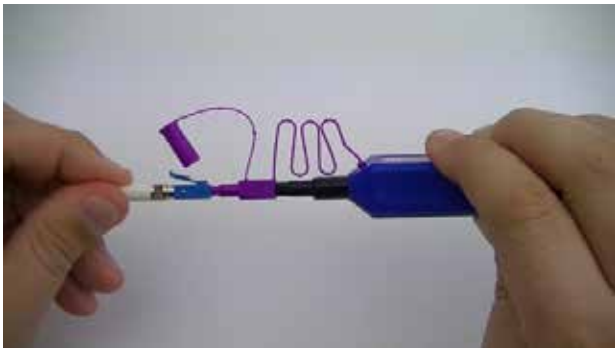


High Magnification

Once focused, the software will automatically center the fiber core onscreen. If a closer view of the live image is desired, touch the "+ Zoom" button in the bottom left corner of the screen. To go back to the original zoom level, touch the "- Zoom" button. Zoom/Magnification has no effect on the final analyzed image.

### 3c - Clean the Endface if Necessary

When the fiber endface image is focused onscreen, it may be apparent that it needs to be cleaned. Follow these instructions to clean the fiber endface.



#### AC 089 One-Click Cleaner

##### "Dry Clean Method"

Insert fiber ferrule into one-click cleaner. Press fiber and cleaner together until a **click** is heard. There is no need to rotate the cleaner. Re-inspect the fiber after one click to see if debris has been cleared from the endface.



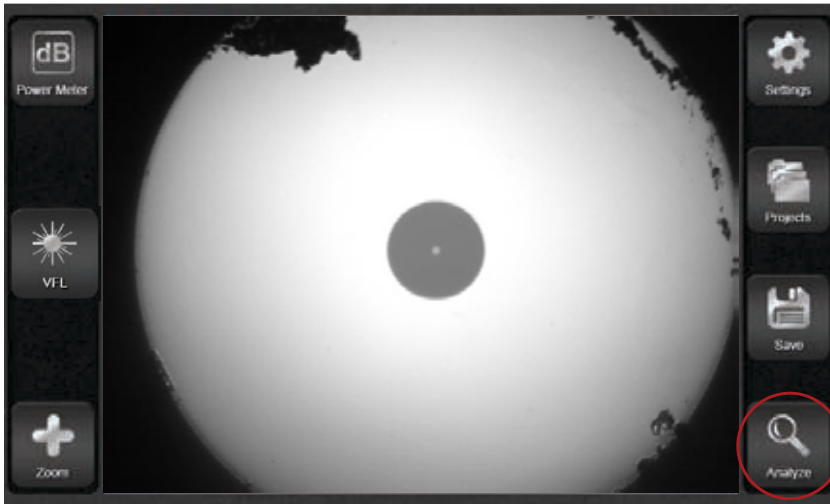
#### AC 092 Pad and Fiber Wash Pen

##### "Wet/Dry Clean Method"

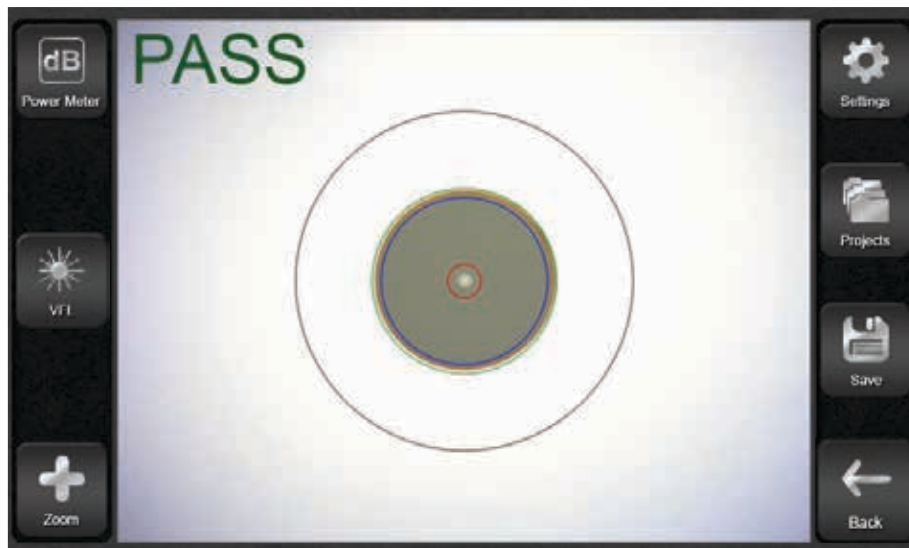
Isolate a single wipe on the pad. Press liquid pen onto the wipe to soak the top 1/3. Press the fiber ferrule at a 90° angle into the wet spot on the pad. Drag the fiber ferrule from the wet part of the wipe to the dry part of the wipe. Re-inspect the fiber to see if debris has been cleared from the endface.

### 3d - Run Automated Analysis

When the fiber has been cleaned to the best of your ability (using dry and wet/dry methods), the image may be analyzed.



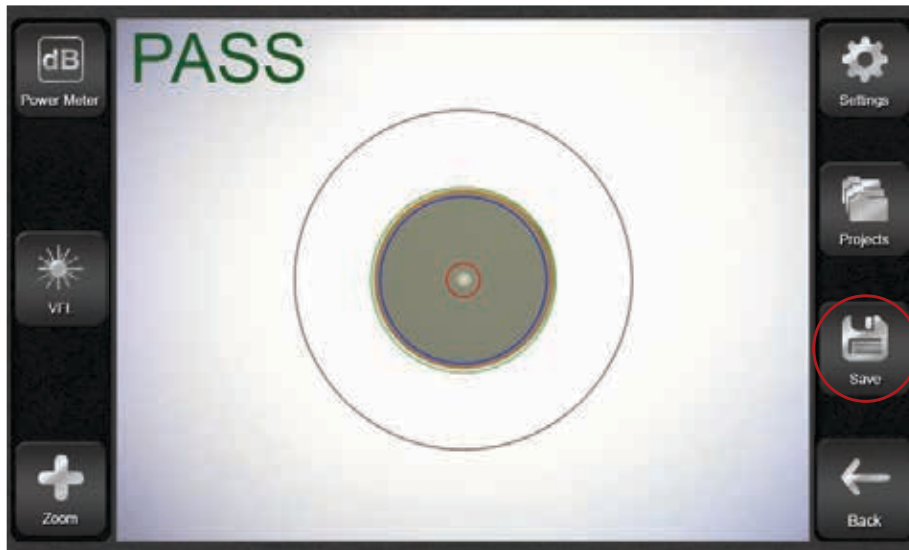
Touch "Analyze" onscreen,  
OR  
press button on VIS 300C probe



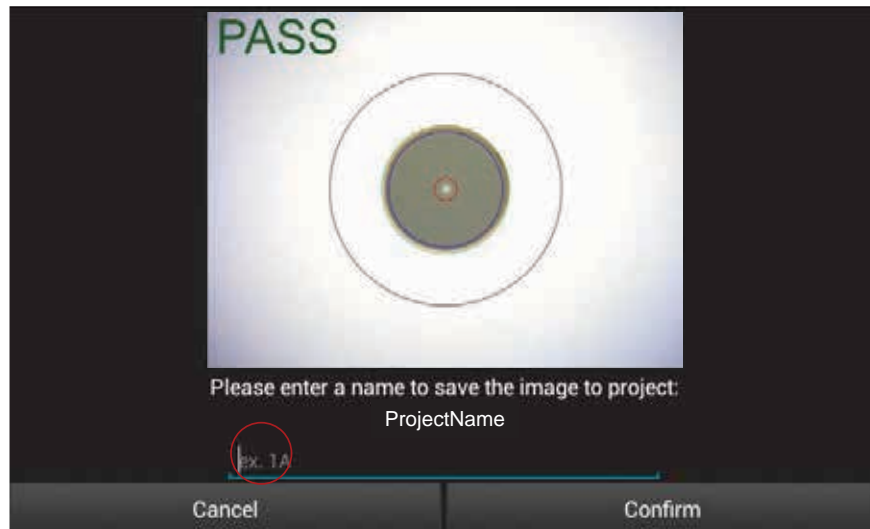
The software will run an automated analysis of the endface image and provide a PASS or FAIL designation. If you want to try cleaning again, or if the image does not need to be saved, press the "Back" button onscreen or the button on the VIS 300C probe to return to a live image.

### 3e - Save Image to Folder

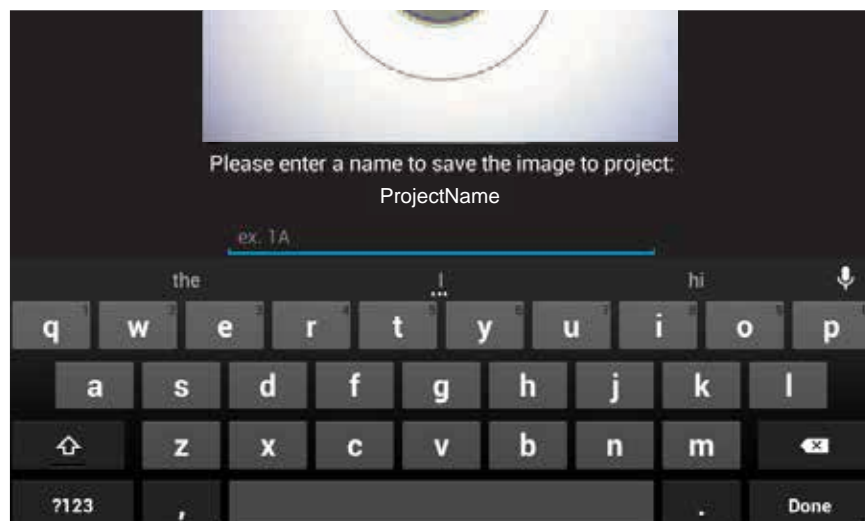
If the image needs to be saved for closeout reporting, follow these steps to save the image.



Touch "Save"



Touch the text line to bring up the keyboard



Enter a name for the image. Touch "Done" to close the keyboard, then touch "Confirm"

Follow these procedures for each fiber endface that must be saved for closeout reports.

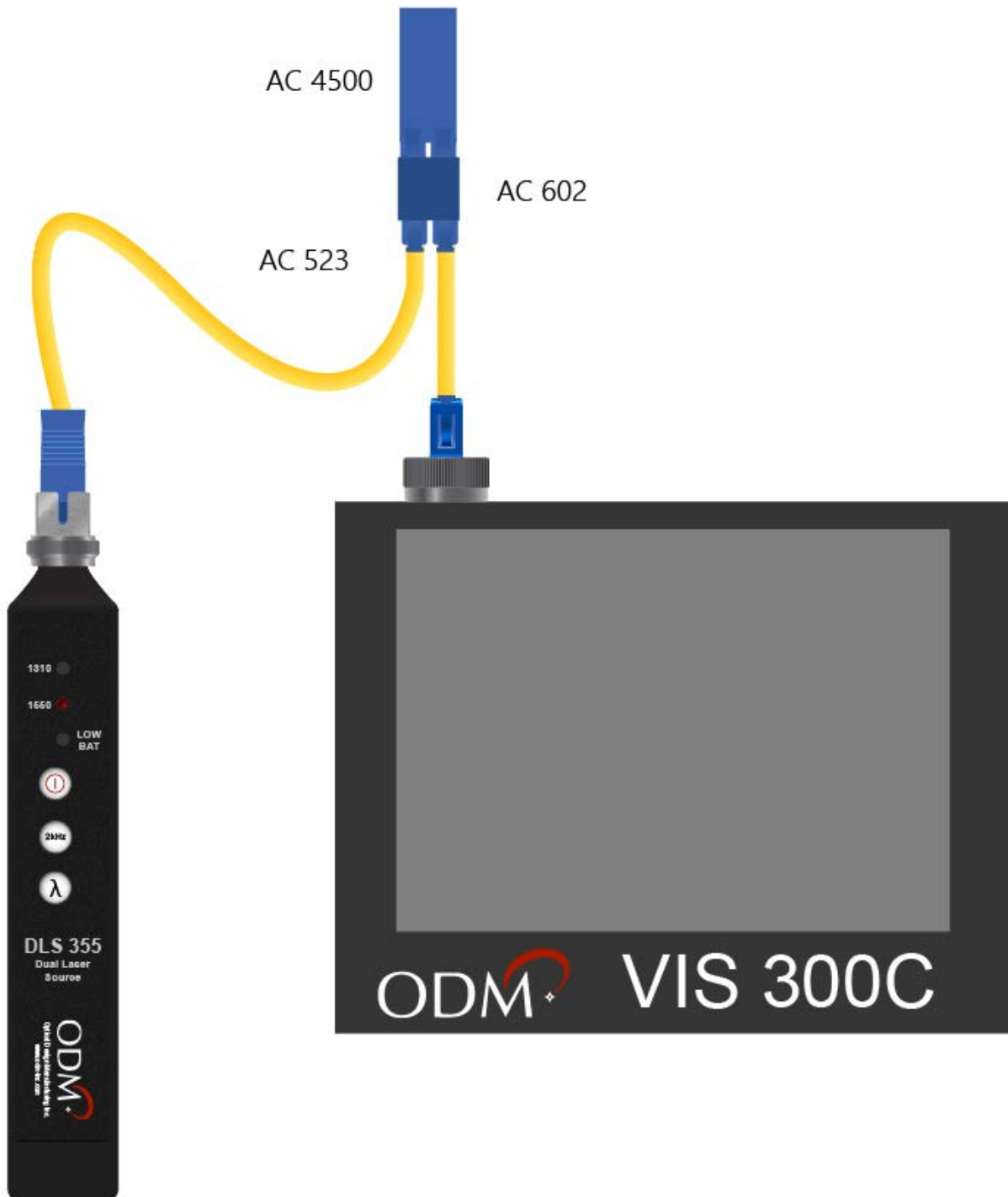


## 4 dB Loss Testing

Also known as “insertion loss” or “fiber sweep” testing, dB loss testing allows the technician to validate that all fiber pairs are in working condition. Saving of dB loss test results may be required for closeout packages. This section explains the necessary steps for testing fiber.

### 4a - Connect Test Jumpers for Referencing

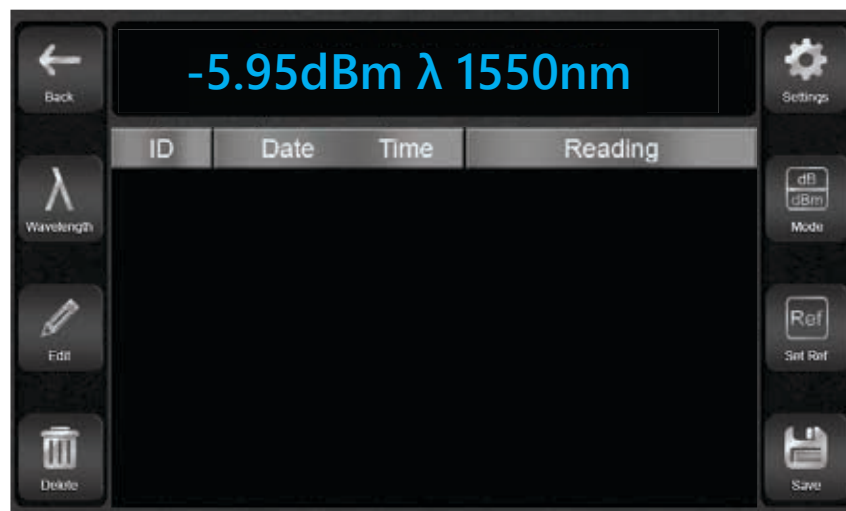
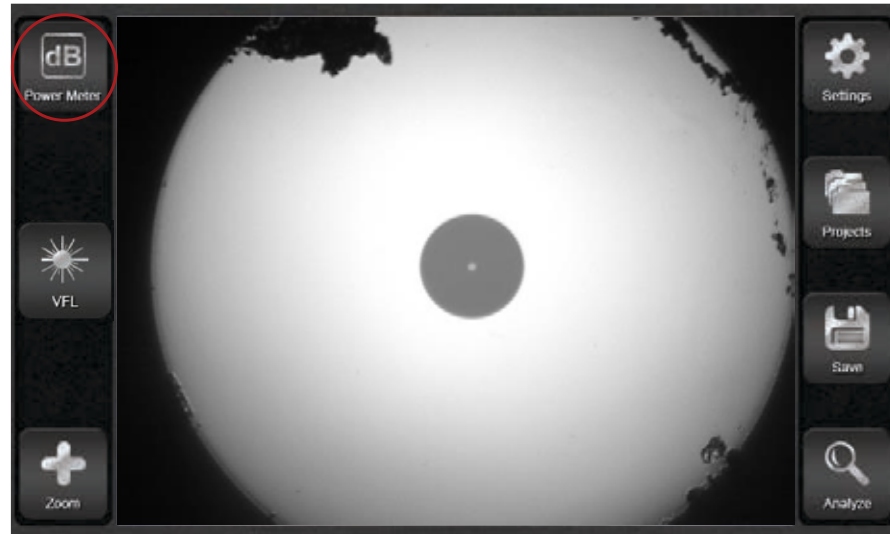
The equipment must be referenced before testing begins. Plug the AC 523 into the DLS 355 and VIS 300C OPM port. Connect the paired LC end of the AC 4500 loopback as shown below. Turn the DLS 355 on and choose an appropriate wavelength. For SM fiber testing, 1310 and 1550 wavelengths are most common. Consult your build documentation to determine which wavelength to use. This guide will show the use of the 1550 wavelength.



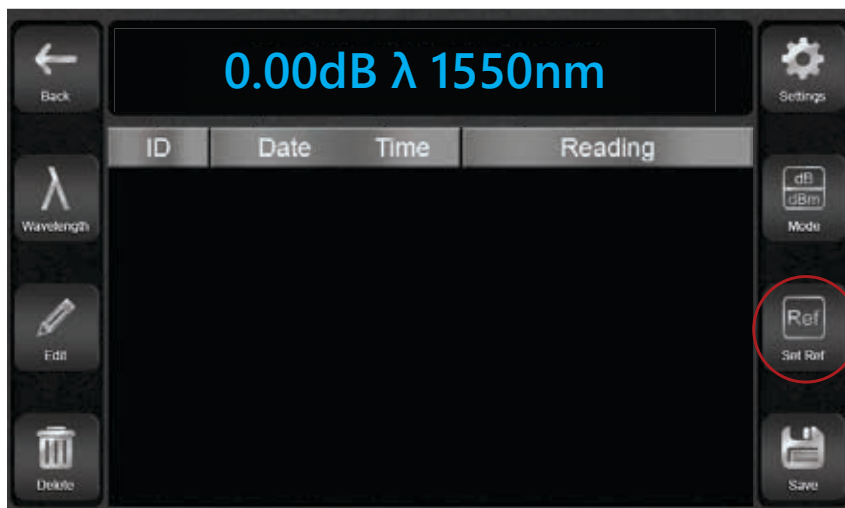
#### 4b - Set Reference in VIS 300C Software

When the test jumpers and loopback have been connected correctly, a reference must be set before testing can begin.

Touch "Power Meter" onscreen



The Power Meter screen interface will appear. All power meter testing (dB loss testing) will be done from this screen.



#### IMPORTANT:

Ensure DLS 355 is turned on. Press the "λ Wavelength" button to choose the wavelength onscreen. This must match the wavelength light on the DLS 355.

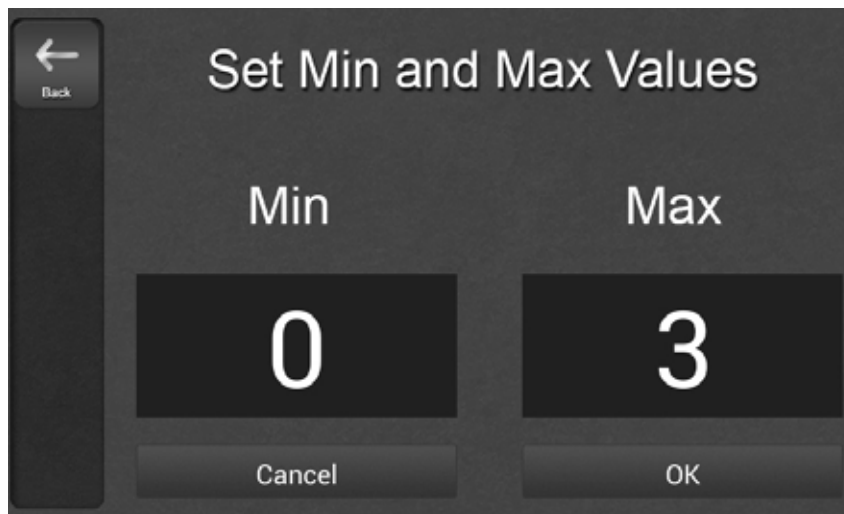
If the dBm value onscreen is between -3dBm and -8dBm, press the "SetRef" button onscreen. The reading will immediately change to 0.00dB. This is the mode you will use to test.

#### 4c - Set PASS/FAIL Parameters

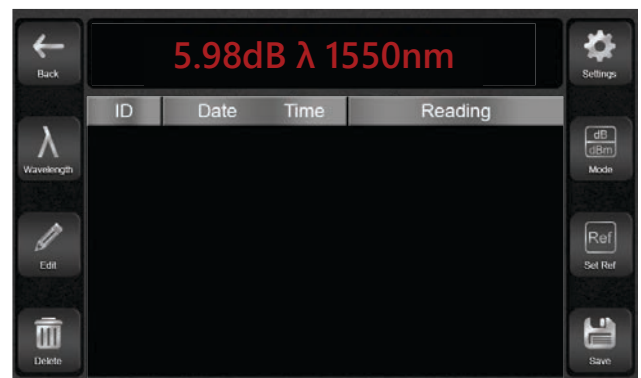
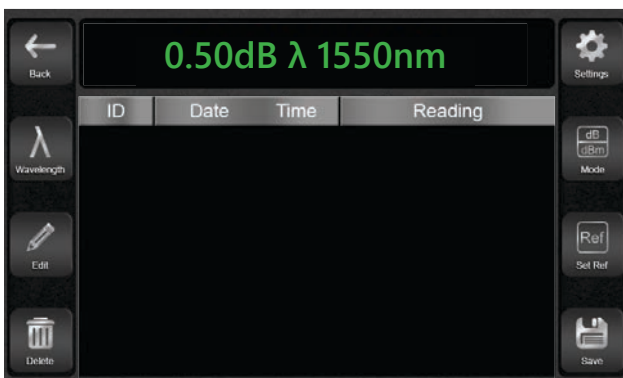
Use the Settings menu to set PASS/FAIL parameters.



Touch "Settings"



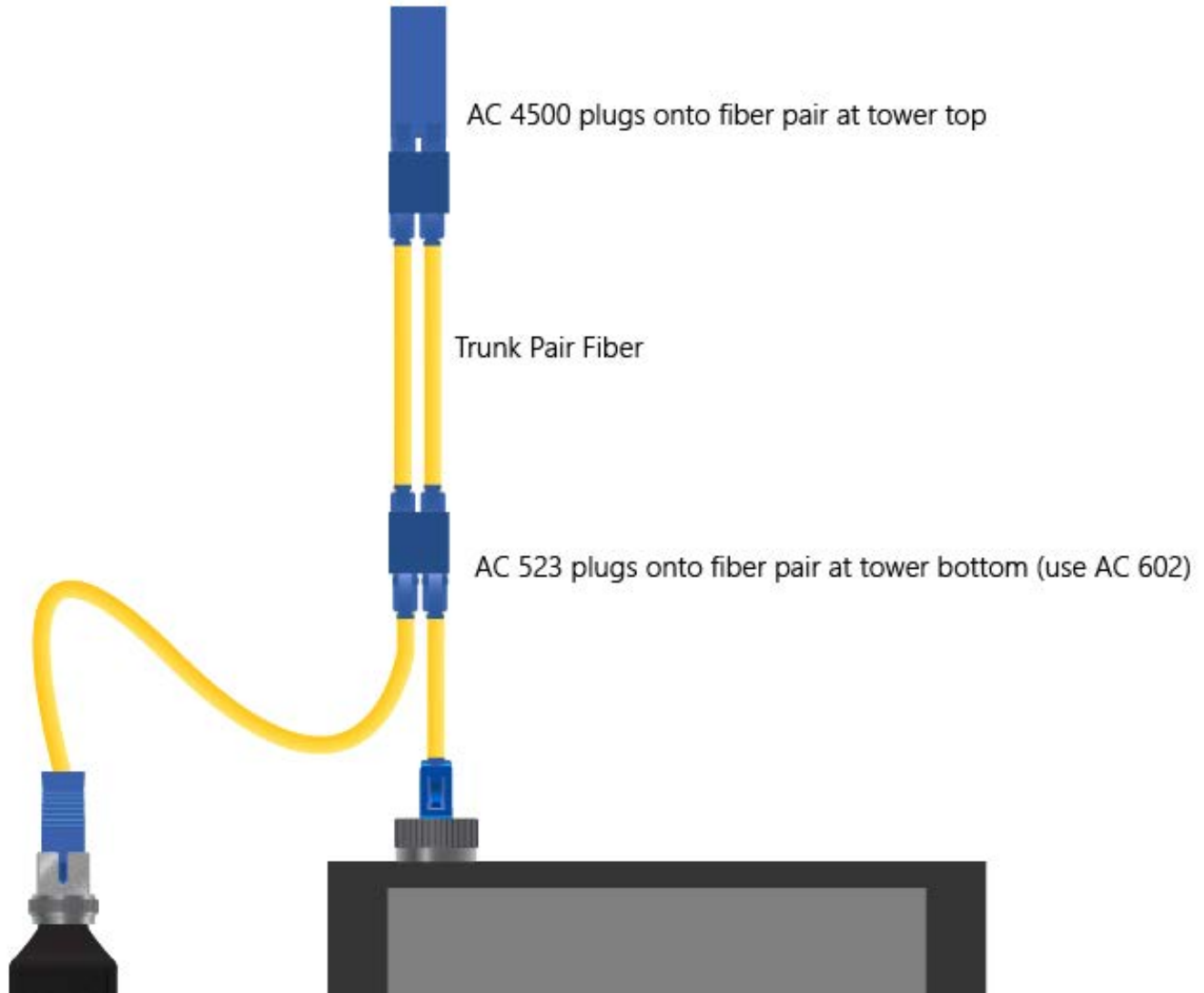
Touch each dark rectangle to set a MIN and MAX for testing. MIN should be set to zero. MAX allowable loss varies by build. Check your build documentation if you are not sure what to set for a MAX loss. The most common MAX loss setting is 3dB. Touch OK when finished.



Any readings which fall between the MIN and MAX will be displayed in **GREEN**. Any readings which are below the MIN or above the MAX will be displayed in **RED**. This is effectively a PASS/FAIL test.

#### 4d - Set Up Insertion Loss Test

Once the reference has been set with the test instruments, the loopback module AC 4500 will be inserted onto the fiber pair at the tower top, and the AC 523 will be plugged onto the same fiber pair at the tower bottom. See diagram below.



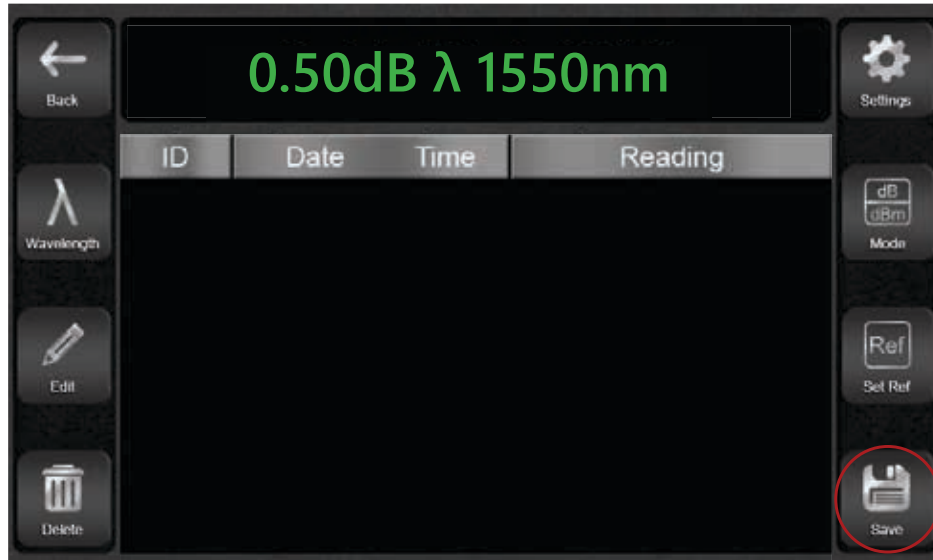
#### **NOTE:**

Wireless carrier preferences vary on how these tests should be conducted. The diagram above represents the most common (and most basic) test scenario. Always conduct carrier build guidelines if unsure of the necessary procedures.

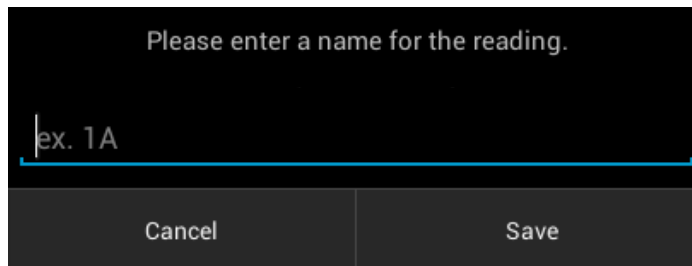
Contact ODM if you encounter test scenarios or connector types that are unfamiliar. We have many accessory kits to match the requirements of major wireless carrier fiber architectures.

#### 4e - Save Insertion Loss Readings

When the test jumper and loopback are connected to the trunk fiber pairs, a live insertion loss value will be shown on the power meter screen. This number represents how much light is lost between the DLS 355 and VIS 300C OPM (up one side of the pair, through the loopback, and back down the other side of the pair.)



Touch "Save"



This box will appear. Touch the text area to bring up the keyboard and give the reading a name. There is a 4-character limit. Touch "Save" to save the reading.



Connect the test jumper and loopback to each fiber pair and save the reading for each pair.

#### 4f - Edit Insertion Loss Readings

If a reading is saved in error, or if a reading needs to be entered between two listed readings, it is possible to edit the list onscreen. Follow the instructions below to edit the list.



Touch any reading in the list. It will darken; this means it is currently selected.

Touch "Delete" to delete the reading, or touch "Edit" to bring up the Editing menu.



The Editing menu allows the user to insert a reading above the currently-selected one, below the currently-selected one, or in place of the currently-selected one.



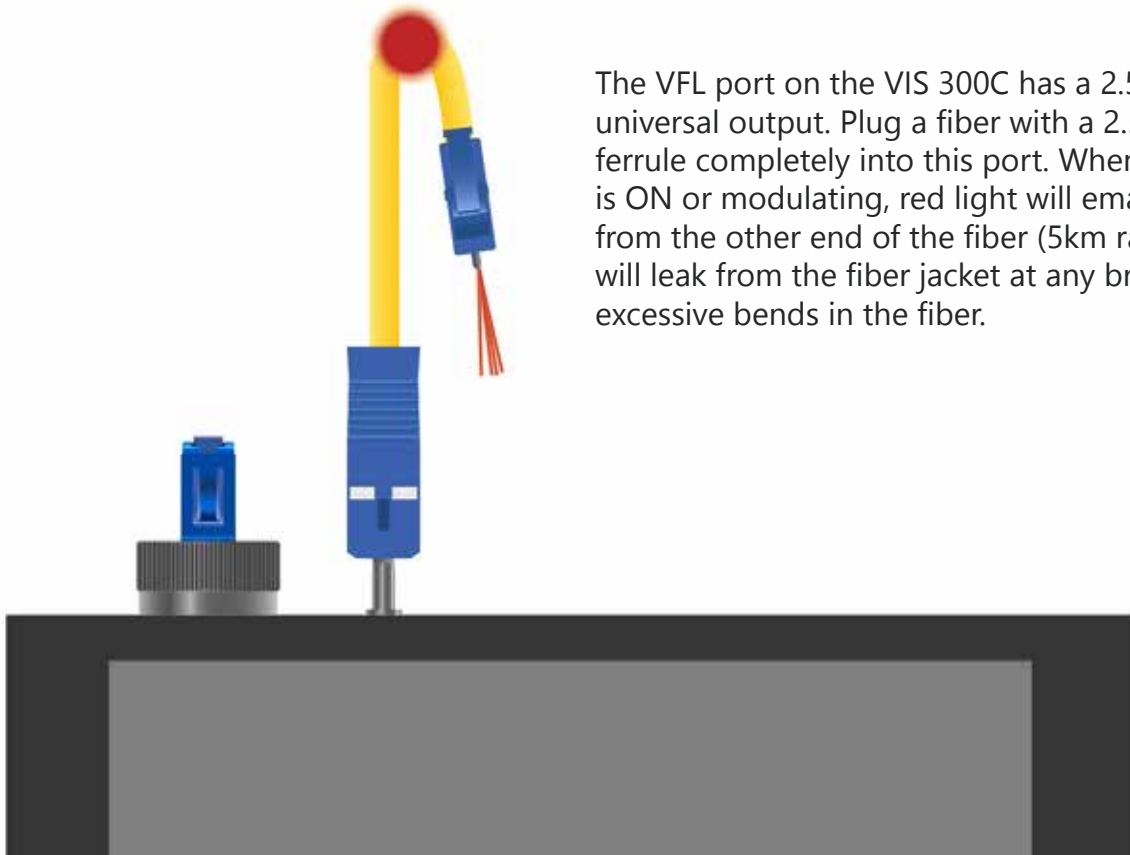
EXAMPLE:

In the example shown here, a reading was inserted ABOVE the selected reading.

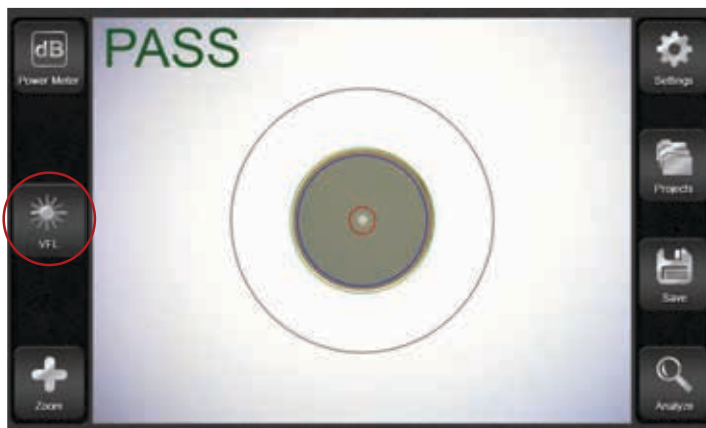


## 5 VFL Testing

An onboard red laser allows users to verify proper continuity of fiber cables. This is a troubleshooting task only. This section gives an overview of the VFL functionality.



The VFL port on the VIS 300C has a 2.5mm universal output. Plug a fiber with a 2.5mm ferrule completely into this port. When the VFL is ON or modulating, red light will emanate from the other end of the fiber (5km range) and will leak from the fiber jacket at any breaks or excessive bends in the fiber.



Touch the "VFL" button on the main VIS 300C screen to toggle between three modes.



VFL is OFF



VFL is ON



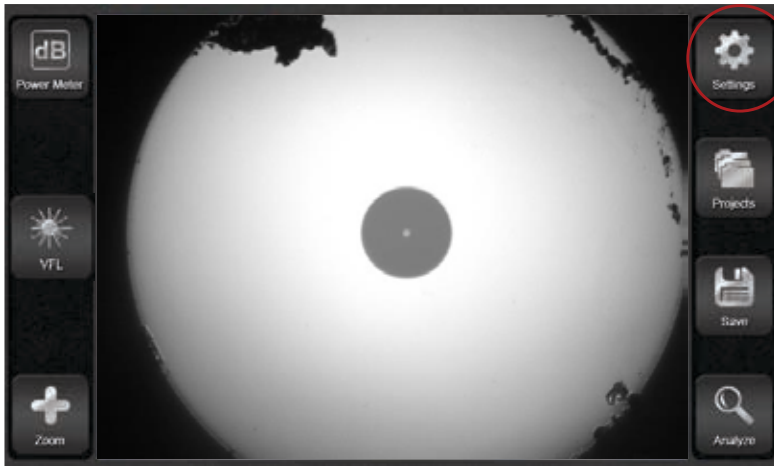
VFL is modulating at 2Hz. It will blink twice per second.

## 6 Creating and Sharing Reports

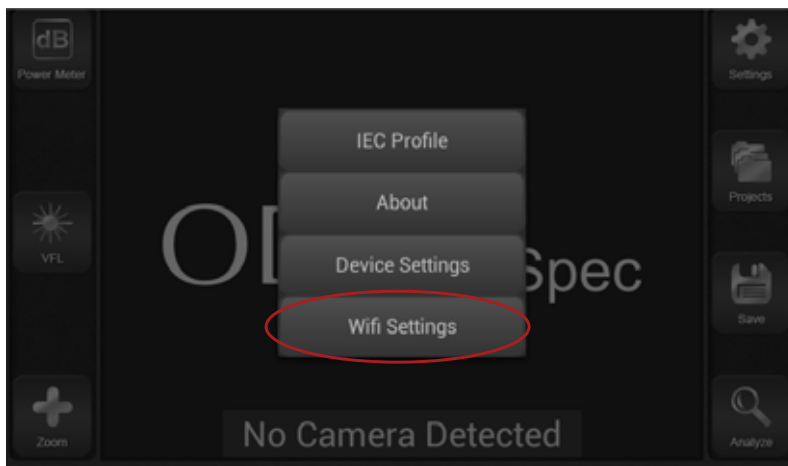
The VIS 300C has built-in report creation software. This section explains how to create reports for closeout packages.

### 6a - Connect to Wi-Fi (Optional)

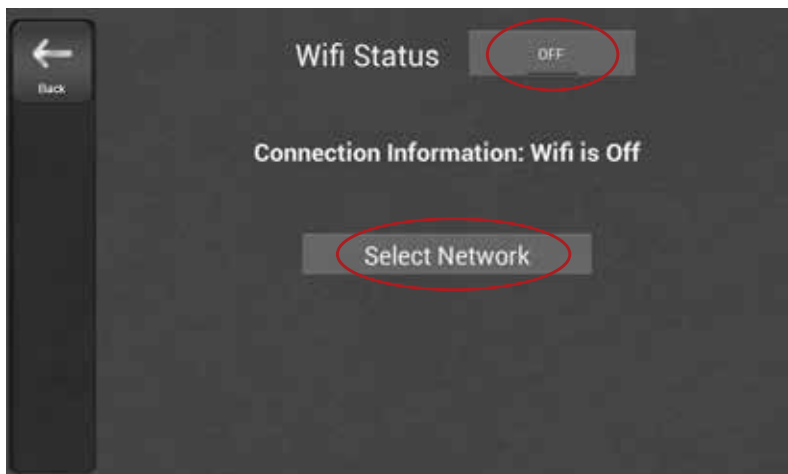
If the reports will be shared via email or cloud storage, connect to a Wi-Fi network before continuing. If you are not near a Wi-Fi network or will offload the reports via USB, skip this step.



Touch "Settings"



Touch "WiFi Settings"

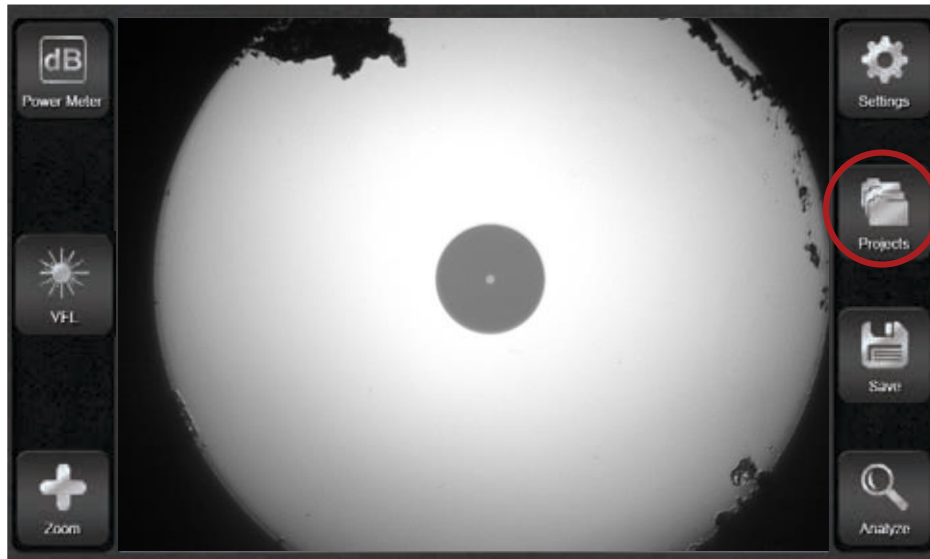


Touch the button to the right of "WiFi Status" to turn WiFi ON.

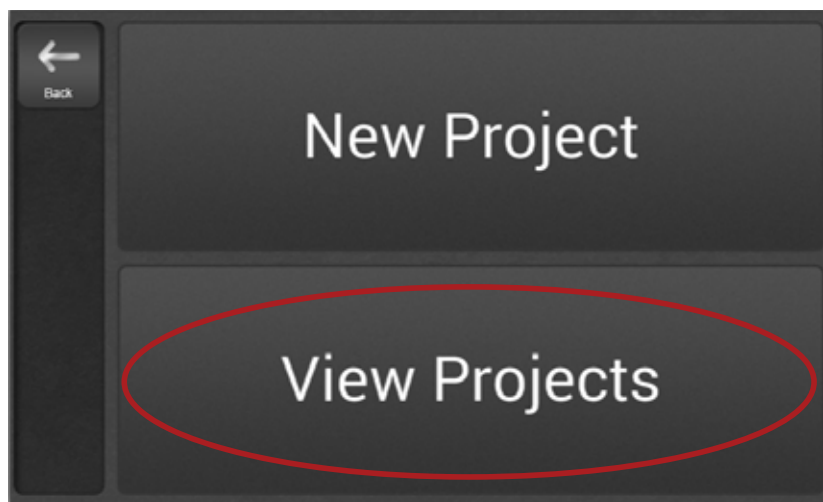
Touch "Select Network" to see a list of available networks. Touch a network name to connect to it. If your network is password protected, you may need to enter the password.

## 6b - Create Reports

If the reports will be shared via email or cloud storage, connect to a Wi-Fi network before continuing. If you are not near a Wi-Fi network or will offload the reports via USB, skip this step.



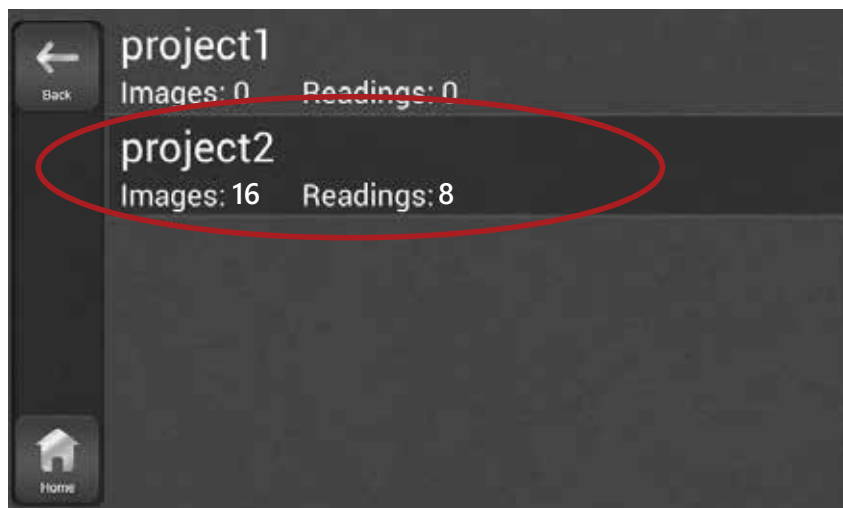
Touch "Projects"



Touch "View Projects" to See all Project Folders

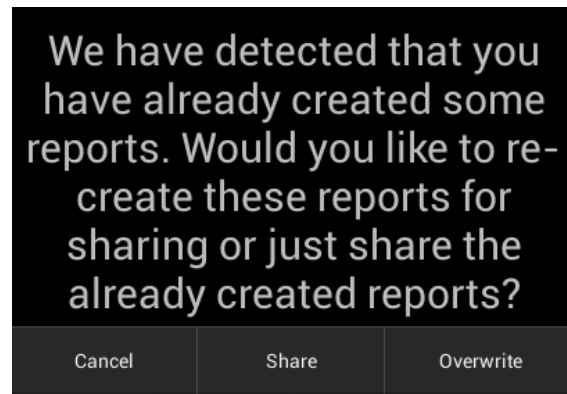
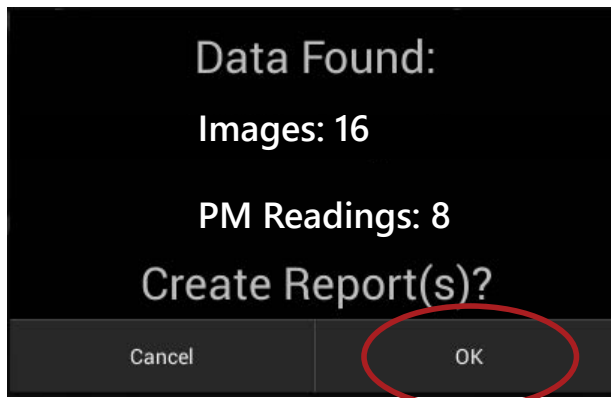
You will see a list of all saved project folders. Touch the project folder which contains all of the data to be included in the closeout report.

Touch Current Project



Touch the Share button on the Project Overview page to create closeout reports. You will be prompted to create new reports or overwrite existing reports.

Touch "Share" to Begin Closeout Report Creation

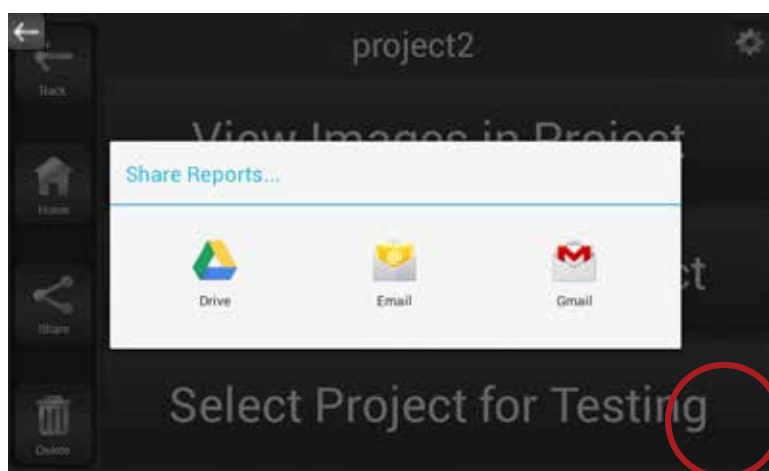


If reports have never been created using the data in the project folder, a prompt will appear to create reports.

If reports have been created previously, a prompt will appear to either Overwrite (create new reports) or Share (send already-created reports via Wi-Fi).

There are several options for sharing closeout reports. Select one of the options shown on the next screen to send the reports via Wi-Fi, or touch another part of the screen to skip Wi-Fi sharing. The results can be offloaded via USB at a later date.

Touch a Wi-Fi Share Option to Share Reports Wirelessly

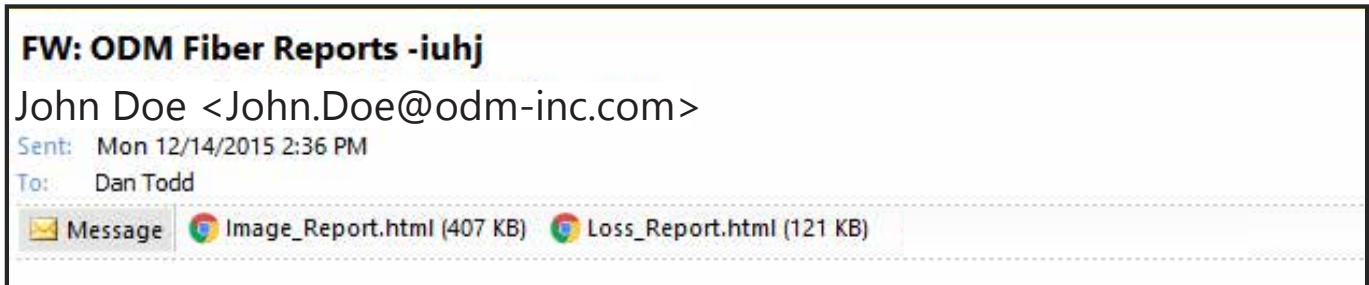


Touch Another Part of the Screen to Cancel Wi-Fi Sharing

## 6c - More Report Options

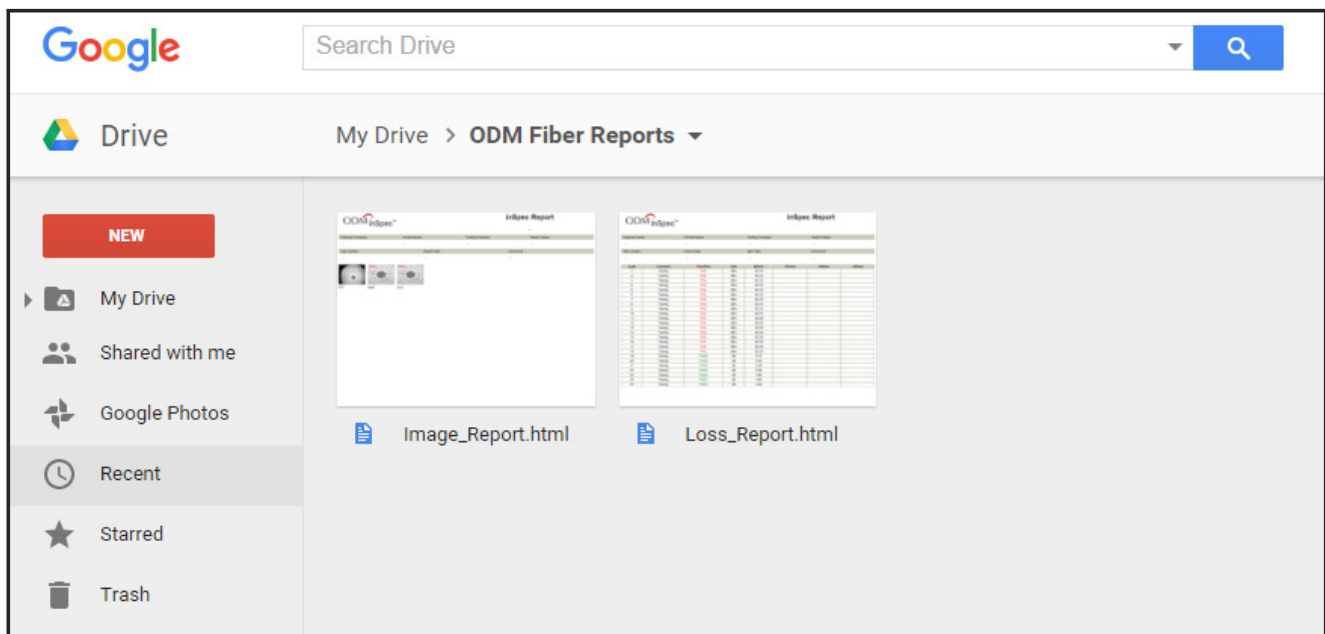
Once closeout reports have been created and sent using the “Share” button on the VIS 300C the reports can be viewed in any web browser.

### Email



If emailed, the reports will arrive in the recipient’s Inbox as HTML files. If you sent the files to yourself, simply double-click the file to open it in your preferred browser.

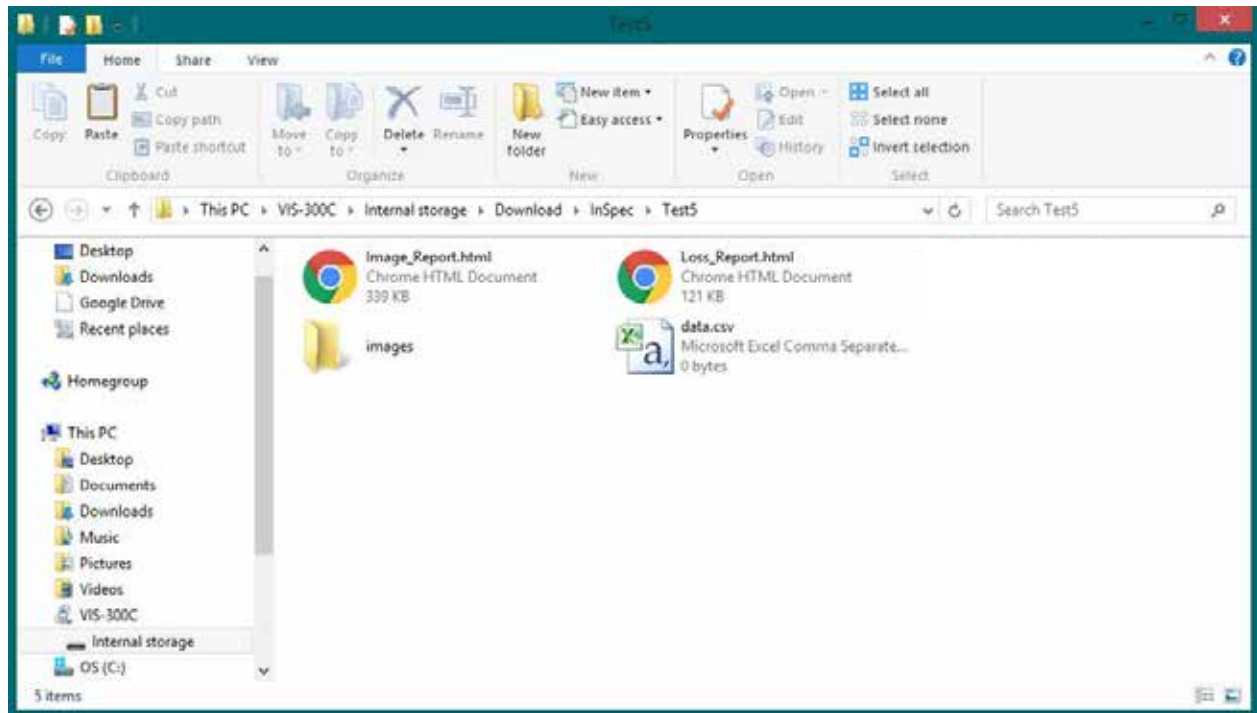
### Google Drive



If uploaded to Google Drive or another cloud service, the files should appear in the selected folder immediately. Simply click the file to view it in the browser.

## USB

To offload results via USB, plug the VIS 300C into a computer using the included Micro USB cord. The Micro USB cord plugs in to the VIS 300C on the top panel, **not** in the port labeled “Probe Input” on the side panel.



The VIS 300C will be recognized as an external storage device. If given the option, select “Open Folder to View Files.”

Navigate to the file path **[VIS 300C>Internal Storage>Download>inSpec>(ProjectName)]** to see the data and reports saved to the project folder. HTML report files must be copied to a location on the computer to be viewed. Once copied, click a report to open it in a web browser.



## Image Reports

Image Reports will contain all images saved in the Project Folder, along with any information entered when the Project Folder was created.



## inSpec Report

Customer Company	Contact Name	Testing Company	Tester's Name
ODM Inc	DMT	AAA Testing	John Doe
Test Location	Report Date	Comments	
Harrisburg	01-01-2000_12-10-37		



AR1A



AR1B



AR2A



AR2B



AR3A



AR3B



AR4A



AR4B



AR5A



AR5B

## Power Meter Reports

Power Meter Reports will contain all power meter readings saved in the Project Folder, along with any information entered when the Project Folder was created. PASS/FAIL parameters will be noted alongside any results.

Loc#	Comment	Pass/Fail	Unit	850nm	1310nm	1490nm	1550nm
1	Testing	PASS	dBm	-64.45			
2	Testing	PASS	dBm		-4.52		
3	Testing	PASS	dBm	-64.45			
4	Testing	PASS	dBm		-4.52		
5	Testing	PASS	dBm	-64.45			
6	Testing	PASS	dBm		-4.52		
7	Testing	PASS	dBm	-64.45			
8	Testing	PASS	dBm		-4.52		
9	Testing	PASS	dBm	-64.45			
10	Testing	PASS	dBm		-4.52		
11	Testing	PASS	dBm	-64.45			
12	Testing	PASS	dBm		-4.52		
13	Testing	PASS	dBm	-64.45			
14	Testing	PASS	dBm		-4.52		
15	Testing	PASS	dBm	-64.45			
16	Testing	PASS	dBm		-4.52		
17	Testing	PASS	dBm	-64.45			
18	Testing	PASS	dBm		-4.52		
19	Testing	PASS	dBm	-64.45			
20	Testing	PASS	dBm		-4.52		
21	Testing	PASS	dBm	-64.45			
22	Testing	PASS	dBm		-4.52		
23	Testing	PASS	dBm	-64.45			
24	Testing	PASS	dBm		-4.52		
25	Testing	PASS	dBm	-64.45			

## Sharing Closeout Reports from the Desktop

The closeout reports can be shared as HTML files once they have arrived in your Inbox or cloud storage account. If you would prefer to save the results as PDF files, follow the instructions below.

1. With the report open in a browser, press CTRL+P on your keyboard to open the Print dialogue. Note that the report appears formatted to an 8.5 x 11" page.

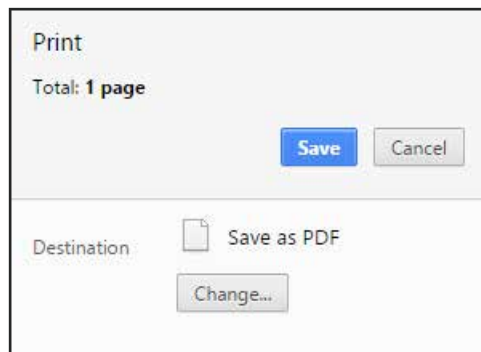
The image shows a browser print dialog on the left and an inSpec Report page on the right. The print dialog has a 'Destination' section with a 'Save as PDF' option and a 'Change...' button. The report page is titled 'inSpec Report' and contains a table of test results.

Test Location	GPS Coordinates	Report Date
Test Location	28°22'39.8"N 81°30'39.3"W	01-01-2008_09-23-03

Lot#	Comment	Pass/Fail	Unit	850mm	1310mm	1490mm	1550mm
1	Testing	PASS	dflm	-64.45			
2	Testing	PASS	dflm		-4.52		
3	Testing	PASS	dflm	-64.45			
4	Testing	PASS	dflm		-4.52		
5	Testing	PASS	dflm	-64.45			
6	Testing	PASS	dflm		-4.52		
7	Testing	PASS	dflm	-64.45			
8	Testing	PASS	dflm		-4.52		
9	Testing	PASS	dflm	-64.45			
10	Testing	PASS	dflm		-4.52		
11	Testing	PASS	dflm	-64.45			
12	Testing	PASS	dflm		-4.52		
13	Testing	PASS	dflm	-64.45			
14	Testing	PASS	dflm		-4.52		
15	Testing	PASS	dflm	-64.45			
16	Testing	PASS	dflm		-4.52		
17	Testing	PASS	dflm	-64.45			
18	Testing	PASS	dflm		-4.52		
19	Testing	PASS	dflm	-64.45			
20	Testing	PASS	dflm		-4.52		
21	Testing	PASS	dflm	-64.45			
22	Testing	PASS	dflm		-4.52		
23	Testing	PASS	dflm	-64.45			
24	Testing	PASS	dflm		-4.52		
25	Testing	PASS	dflm	-64.45			

2. Look to the top left side of the page. If the "Destination" is not set for "Save as PDF," click the "Change" button and select the "Save as PDF" option. Click the blue "Save" button.



3. Name the report and choose where to save it on your computer. Click "Save" to save the report.

# VIS 300C-PM-02-V Specifications

Monitor/System	
Screen	5" Multi-touch LCD
Storage	8 GB (30,000 images)
Battery	Lithium Ion
Battery Life	4-5 hr continuous
Battery Charge Time	2 hr
Size	5.5" x 5.75" x 2.25"
Weight	1.8 lb
Operating Temp.	0 to 50 C
Storage Temp.	-40 to 70 C
Inspection Scope Probe	
FOV (Field of View)	860µm x 640µm
Resolution	<1 micron
Lighting Technique	Coaxial
Size	7"x 1"x .75"
Weight	0.35 lb
Connector	USB 2.0 Type A
Tip Style	Interchangeable

Power Meter (Optional)	
Wavelength Range	850nm to 1625nm
Calibrated Wavelengths	850/1310/1490/1550
Measurement Range	-02: +6 to -60 dBm -04: +23 to -40 dBm
Resolution	0.01 dB
Results Displayed	dB/dBm
Detector Type	-02: Germanium -04: Filtered InGaAs
Optical Interface	2.5mm Universal (Adapters Available)
Visual Fault Locator (Optional)	
Wavelength	635nm
Output Power	1mW - FDA 2 / IEC 2
Power Toggle	Onscreen Button

## Accessories

Inspection Tip Adapters	
Part Number	Description
AC 040B	SC Adapter
AC 041B	SC / APC Adapter
AC 109B	SC 60-Degree Angle Adapter
AC 042B	FC Adapter
AC 043B	FC/APC Adapter
AC 104B	FC, 60-Degree Angle Adapter
AC 044B	LC Adapter
AC 045B	LC/APC Adapter
AC 107B	LC, 60-Degree Angle Adapter
AC 051B	OptiTap Adapter
AC 046B	ST Adapter
AC 047B	MTP/APC Adapter
AC 050B	MTP/MPO Straight Adapter
AC 048B	1.25mm Universal Adapter
AC 049B	2.5mm Universal Adapter
AC 114B	1.25mm Universal HR Adapter
AC 115B	2.5mm Universal APC Adapter
AC 116B	1.25mm Universal APC Adapter

Power Meter Adapters	
Part Number	Description
AC 020	2.5 mm Universal Adapter
AC 021	1.25 mm Universal Adapter
AC 026	SC Adapter for Optical Power Meter
AC 027	ST Adapter for Optical Power Meter
AC 028	FC Adapter for Optical Power Meter
AC 029	LC Adapter for Optical Power Meter
AC 126	SC/APC Adapter for Optical Power Meter

Patch Cord Accessories	
Part Number	Description
AC 500	SM SC-LC - 1m simplex
AC 501	SM SC-SC - 1m simplex
AC 502	SM LC-LC - 1m simplex
AC 550	MM SC-LC - 1m simplex
AC 552	MM LC-LC - 1m simplex
AC 600	SC-SC simplex bulkhead adapter
AC 601	LC-LC simplex bulkhead adapter
AC 602	LC-LC duplex bulkhead adapter

Cleaning Tools	
Part Number	Description
AC 089	One-Click cleaner for 1.25mm and ODC ferrules/bulkheads
AC 099	One-click cleaner for 2.5mm ferrules/bulkheads
AC 090	1.25mm swabs - 100 per pack
AC 091	2.5mm swabs - 100 per pack
AC 092	SqR Pad and Fiber Wash pen
AC 190	CleTOP cleaner - Type B - Blue Tape

# Warranty Information

All ODM equipment comes with a two-year warranty which extends from the date of purchase. The warranty covers defective material and/or poor workmanship only. The warranty does not cover devices which have been mishandled, destroyed, opened, or otherwise abused.

Contact ODM to schedule repair or recalibration of warranty and non-warranty equipment.

# Certification Training

ODM offers a certification training course to help familiarize test technicians with core concepts and test procedures for fiber optic installations. The course covers:

## 1. Fiber Optic Theory

Multimode and Single Mode Fiber; Construction of Fiber Optic Cables; Connectors and Ferrule Types

## 2. Connector Inspection - IEC 61300-3-35 Standard

Understanding the IEC Specification; Inspection Methods; Connector Cleaning Methods

## 3. Test Equipment and Methods

Inspection Scopes; Optical Power and Loss Measurement; Lasers and LED Light Sources; Fault Detection; Live Fiber Identification; Optical Time Domain Reflectometers (OTDRs)

## 4. Hands-On Training

Inspection Process; Connector Cleaning; dB Loss Testing

## 5. Classroom Exam

Certification is valid for two years after the training session. ODM maintains a database of certified technicians for the QA groups of major wireless carriers. ODM will only issue replacement certificates to the company or individual who initially paid for the training course.

Contact ODM to receive more information or to set up a certification course.

# Contact ODM

## Tech Support

### E-mail 24/7

[tech.support@odm.ripley-tools.com](mailto:tech.support@odm.ripley-tools.com)

### Call M-F, 7AM to 5PM

603-524-8350

## Sales

### E-mail 24/7

[sales@odm.ripley-tools.com](mailto:sales@odm.ripley-tools.com)

### Call M-F, 7AM to 5PM

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