



# **CERTIFIER40G**

## **MPO Certification Testing**

User Manual

## Certifier Series (C40G)



## Notices

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Viavi Solutions as governed by international copyright Laws.

## Warranty

The material contained in this document is provided “as is,” and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Viavi Solutions shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Viavi Solutions and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these Terms, the warranty terms in the separate agreement shall control.



### WARNING

A CAUTION notice denotes a hazard.

It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.



### CAUTION

Operating procedure, practice, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

## General Safety Information



### WARNING

Do not use the device if it is damaged. Before you use the device, inspect the casing. Look for cracks or missing plastic. Do not operate the device around explosive gas, vapor, or dust.

Always use the device with the cables provided.

Observe all markings on the device before establishing any connection.

When servicing the device, use only the specified replacement parts.

Do not operate the device with the cover removed or loosened.

Use only the power adapter provided by the manufacturer to avoid any unexpected hazards.



### CAUTION

If the device is used in a manner not specified by the manufacturer, the device protection may be impaired.

Always use dry cloth to clean the device. Do not use ethyl alcohol or any other volatile liquid to clean the device.

Do not permit any blockage of the ventilation holes of the device.

## Environmental Conditions

This instrument is designed for indoor use and in an area with low condensation. The table below shows the general environmental requirements for this instrument

---

---

| Environmental conditions | Requirements                 |
|--------------------------|------------------------------|
| Operating Temperature    | 0 °C to 40 °C                |
| Operating humidity       | 20% to 85% RH non-condensing |
| Relative humidity        | 10% to 80%                   |

---

### NOTE


The CERTIFIER40G, CERTIFIER10G complies with the following Safety and Regulatory requirements.

DIN EN 55024, Edition:2003-10 (IEC/CISPR 24:1997, modified + A1:2001 + A2:2002); EN 55024:1998 + A1:2001 + A2:2003

DIN EN 55022; VDE 0878-22:2008-05 (IEC/CISPR 22:2005, modified + A1:2005); EN 55022:2006 + A1:2007

---

## Regulatory Markings

|                                                                                   |                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>The CE mark is a registered trademark of the European Community. This CE mark shows that the product complies with all the relevant European Legal Directives.</p> |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# Declaration of Conformity



Manufacturer's Name

Psiber Data Pte. Ltd

Manufacturer's Address

3 Science Park Drive #03-08,  
The Franklin Singapore Science Park 1,  
Singapore 118223

Declares under sole responsibility that the product as originally delivered

Description

Cable Certification Tester Kit

Equipment

Cable Certifier

Complies with the essential requirements of the following applicable European Directives and carries the CE marking accordingly:

DIN EN 55024, Edition:2003-10 (IEC/CISPR 24:1997, modified + A1:2001 + A2:2002); EN 55024:1998 + A1:2001 + A2:2003

DIN EN 55022;

VDE 0878-22:2008-05 (IEC/CISPR 22:2005, modified + A1:2005);

EN 55022:2006 + A1:2007

Signature

Arvind C Patel

Quality Management

Psiber Data Pte. Ltd.

[www.psiberdata.com](http://www.psiberdata.com)

Date :

December 14, 2010

## Contents

|                                                       |           |
|-------------------------------------------------------|-----------|
| <b>Chapter 1: Getting Started</b> .....               | <b>8</b>  |
| Unpacking the box.....                                | 8         |
| <b>Chapter 2: Configuring Certifier</b> .....         | <b>9</b>  |
| Certifier User Interface.....                         | 9         |
| Touch Screen Layout.....                              | 9         |
| The One Touch Access Buttons .....                    | 11        |
| <b>Chapter 3: Setting Reference</b> .....             | <b>17</b> |
| <b>Chapter 4: Configuring an AUTOTEST</b> .....       | <b>19</b> |
| Testing Guide for 12-core MPO Testing.....            | 20        |
| <b>Chapter 5: Performing an AUTOTEST</b> .....        | <b>21</b> |
| Managing test result(s) .....                         | 23        |
| Exporting test results into J-Report PC Software..... | 24        |

## Chapter 1: Getting Started

### Unpacking the box

MPO



Power Meter (Local)  
Adapter  
Light Source (Remote)  
Adapter



Type A Tail Cords  
Type A Reference Cord  
Type B Reference Cord  
Mating Couplers



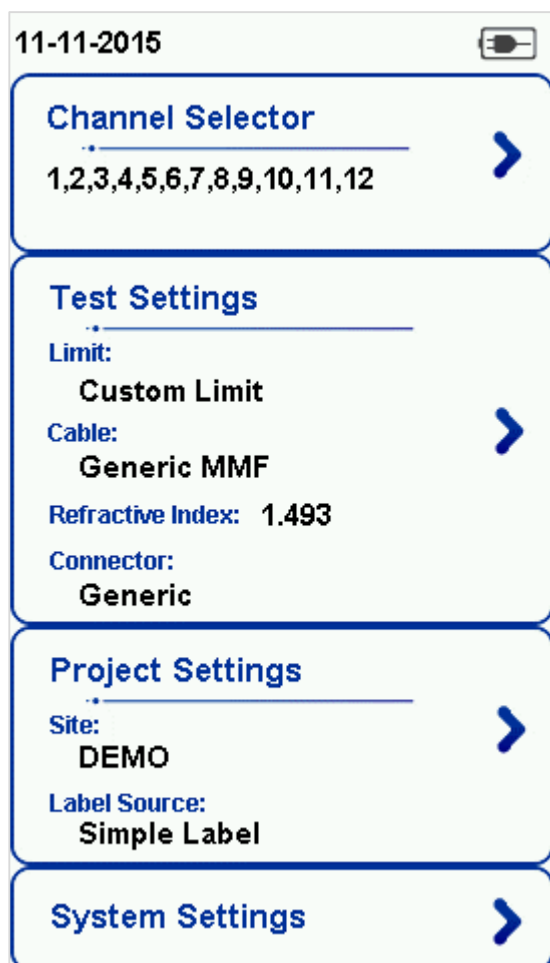
## Chapter 2: Configuring Certifier

### Certifier User Interface

#### *Touch Screen Layout*

The Graphical User Interface (GUI) in version 7.0's firmware has been updated with a more responsive system and quick-access menus.

Certifier boots up to the SETUP screen. It is categorised into 5 groups:



1. Status bar
2. Configuration group
3. Test Settings group
4. Project Settings group
5. System Settings group



1. The **Status bar** displays the current date, talkset and battery level.
2. The **Channel Selector** provides selection on which channel loss limit will be applied on a 12 core MPO cable during an AUTOTEST.
3. The **Test Settings** group provides results oriented configurations necessary to perform an AUTOTEST.
4. The **Project Settings** group provides non-results oriented configurations before performing an AUTOTEST.
5. The **System Settings** group settings provides device, time, localization and device related configurations. The Information group at the top provides hardware information such as the device Information (Local/Remote), name, battery level, etc.

### **The One Touch Access Buttons**



The fundamental philosophy behind the Certifier User Interface is simplicity in its ease of use. The main functions of the One-Touch access buttons as follows:



#### **AUTOTEST**



The “**AUTOTEST**” button will perform an immediate certification test on the last configured settings. If no settings were configured, default settings will be used.

Test results will be generated automatically after the test is completed.

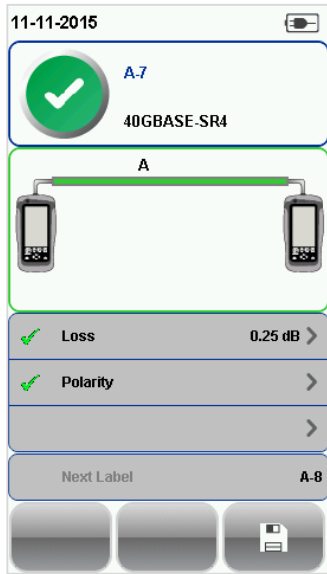
You will receive any of the following 4 results after the “AUTOTEST”:

-  Green “PASS” – Good test result in accordance to pre-defined settings.
-  Red “FAIL” – Unacceptable results with severe disturbance on one or more test parameters.

You will be given the following option after performing an AUTOTEST:

- “Save” test results to device

An “AUTOTEST” will fail in the event of missing connection between the Local and Remote units, wrong settings configured, “dirty” end connectors or broken cables.



*MPO AUTOTEST results*

| Channels | Absolute Power | Loss  |
|----------|----------------|-------|
| 1        | -5.60          | 0.00  |
| 2        | -3.85          | 0.35  |
| 3        | -4.30          | 0.85  |
| 4        | -4.15          | 0.60  |
| 5        | -5.65          | 1.65  |
| 6        | -4.60          | 0.95  |
| 7        | -4.80          | -0.15 |
| 8        | -4.00          | 0.55  |
| 9        | -5.30          | 1.40  |
| 10       | -4.20          | 0.45  |
| 11       | -4.30          | 0.55  |
| 12       | -4.45          | 0.50  |

*Detailed loss results*

| Connection Map      |                    | A |
|---------------------|--------------------|---|
| Remote (Tx) Channel | Local (Rx) Channel |   |
| 1                   | 1                  |   |
| 2                   | 2                  |   |
| 3                   | 3                  |   |
| 4                   | 4                  |   |
| 5                   | 5                  |   |
| 6                   | 6                  |   |
| 7                   | 7                  |   |
| 8                   | 8                  |   |
| 9                   | 9                  |   |
| 10                  | 10                 |   |
| 11                  | 11                 |   |
| 12                  | 12                 |   |

*Detailed polarity results*

## SETUP



The “**SETUP**” button provides setting options necessary to conduct an AUTOTEST and configure the device.

These options include –

### Channel Selector

Channel Selector provides selection on which channel(s) loss limit will be applied on during an AUTOTEST. Passed and failed result(s) will be indicated in green and red respectively. Deselected channels will be indicated in yellow.



*Channel Selector*

| Channels | Abs Power (dBm) | Loss (dB) |
|----------|-----------------|-----------|
| 1        | -6.05           | 0.40      |
| 2        | -3.45           | 0.25      |
| 3        | -3.85           | 0.60      |
| 4        | -4.25           | 0.60      |
| 5        | -4.65           | 0.95      |
| 6        | -4.30           | 0.65      |
| 7        | -4.30           | 0.95      |
| 8        | -4.95           | 1.45      |
| 9        | -4.20           | -0.25     |
| 10       | -5.05           | 1.05      |
| 11       | -3.90           | -0.05     |
| 12       | -4.25           | 0.40      |

*Passed AUTOTEST result with all channels selected*

| Channels | Absolute Power | Loss |
|----------|----------------|------|
| 1        | -6.10          | 0.50 |
| 2        | -3.95          | 0.55 |
| 3        | -3.75          | 0.40 |
| 4        | -4.50          | 0.65 |
| 5        | -4.35          | 0.90 |
| 6        | -5.40          | 1.80 |
| 7        | -4.65          | 1.05 |
| 8        | -4.30          | 0.65 |
| 9        | -4.45          | 0.80 |
| 10       | -5.20          | 0.65 |
| 11       | -4.40          | 0.60 |
| 12       | -5.10          | 1.20 |

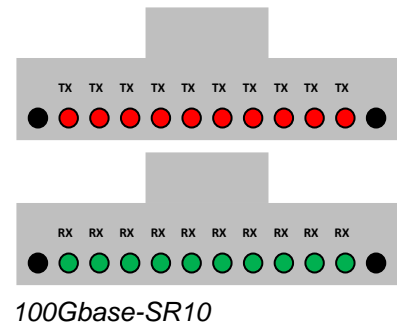
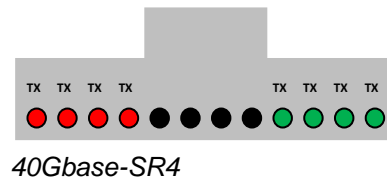
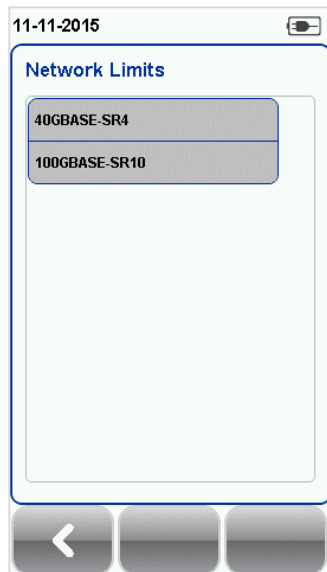
*Failed AUTOTEST result with channels 2, 4, 6, 8, 10, 12 deselected*

## Test Settings

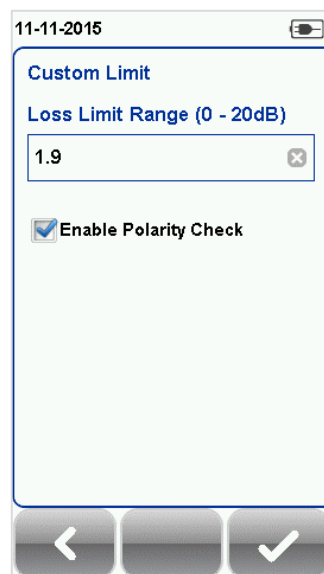
Test Settings provides results oriented configurations necessary to perform an AUTOTEST.

### Network Limit

Choose from 40GBASE-SR4 and 100GBASE-SR10 limit to perform MPO test. SR4 uses a single MPO ribbon with four strands to transmit and four strands to receive. SR10 uses a 24 strand MPO cable with ten strands to transmit and 10 strands to receive.



Custom Limit: Enter Loss Limit to perform custom limit test. Uncheck "Enable Polarity Check" to bypass polarity check for customized cable.



Channel Selector: Loss limit will be applied to selected channels during an AUTOTEST.



### *Cable*

Select "Generic MMF" cable.

### *Connector*

Select "Generic" connector.

### *Label Source*

Refer to *User Manual – Certifier Copper Certification* or *User Guide – List Based Testing* for more information.

### *List Based Testing*

List based testing allows creation of label list in the J-Report software on PC and then bring the list to Certifier. It further allows easy selection of labels from the list to help technician select the cables to be tested quickly. This testing method is carefully optimized for typical test work-flow, and it significantly improves productivity.

Refer to *User Manual – Certifier Copper Certification* or *User Guide – List Based Testing* for more information.

### *Project Settings*

Project Settings provides non-results oriented configurations before performing an AUTOTEST.

Refer to *User Manual – Certifier Copper Certification* for more information on Project Settings.

### *System Settings*

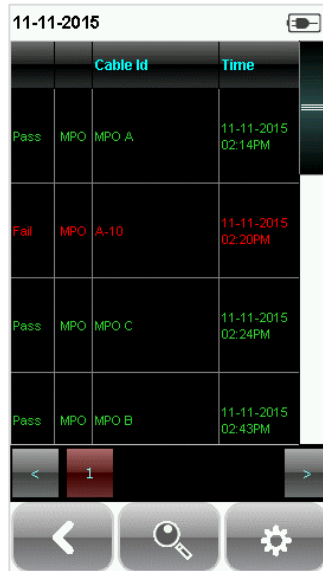
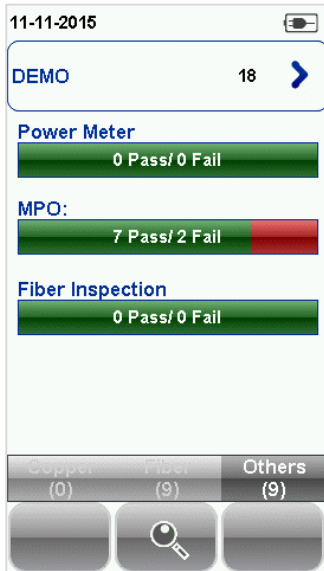
Refer to *User Manual – Certifier Copper Certification* for more information on System Settings.

## DATA



The “**DATA**” button provides archive and data management ability to saved sites and test results. Saved test results can be renamed or deleted in this option.

Test results for MPO can be found in the “Others” tab.



*View results*

*Note: Deleting a site will also delete its containing test results.*

## TOOLS



The “**TOOLS**” button provides advanced options for in-depth troubleshooting and advanced Certifier users. These options include-



Requires:  
Local and Remote

**Set Reference** – Establish test conditions between reference cords and cord to be tested to ensure low insertion loss using Power Meter and Light Source



Requires:  
Local and Remote

**Power Meter** –Measures the power loss from a 850nm wavelength light source.



Requires:  
Local and Remote

**Fiber Map** – Performs test to verify mapping and absolute power of each channel.



Requires:  
1. Local or Remote  
2. Inspection Probe

**Inspect Fiber** – Performs visual verification of fiber’s quality using an external scope probe.



Requires:  
Local or Remote

**About** – Displays worldwide contact information.

### Power Meter Mode

1. Press the “TOOLS” button > Power Meter on the Local unit to launch Power Meter mode.
2. Press the “TOOLS” button on the Remote unit to launch Light Source mode.
3. Select light source channel(s) on the Remote unit to enable light transmission.
4. Deselected channel(s) will not be tested and indicated with a red dash (-).

Note, do not confuse Light Source mode with “Channel Selector” on the Local unit. Channel Selector provides selection on which channel(s) loss limit will be applied on during an AUTOTEST. Deselected channel(s) will be indicated in yellow on both AUTOTEST and Power Meter mode.

To ensure the right mode is selected,

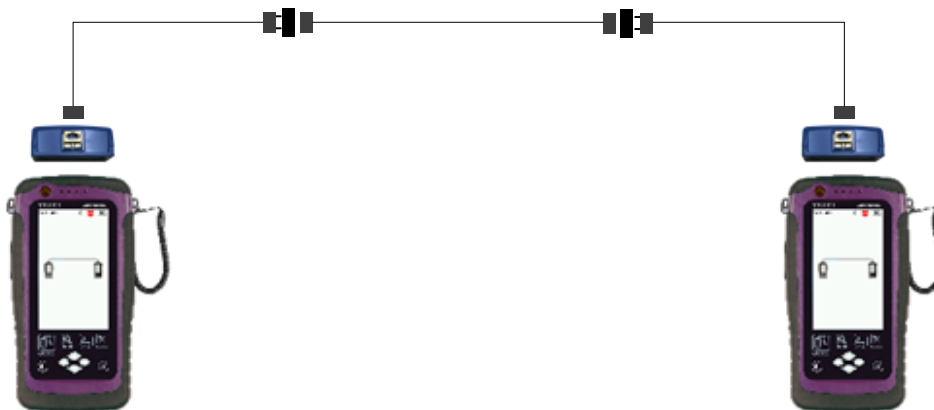
|                         | Local Unit                            | Remote Unit                                   |
|-------------------------|---------------------------------------|-----------------------------------------------|
| <b>AUTOTEST</b>         | Press “AUTOTEST” after configuration. | Press “AUTOTEST” to begin light transmission. |
| <b>Power Meter mode</b> | Press “TOOLS” > Power Meter           | Press “TOOLS” to select channel(s).           |



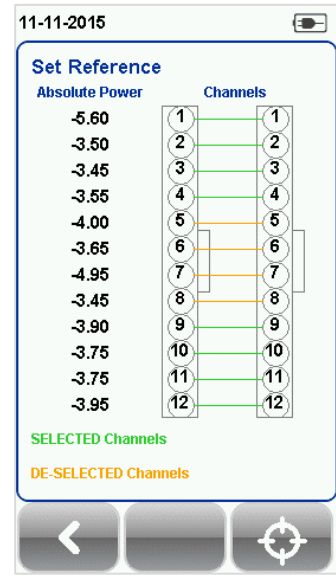
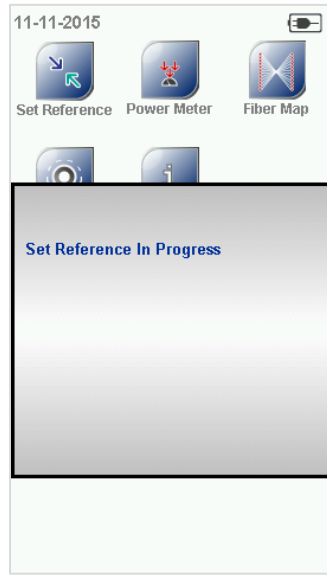
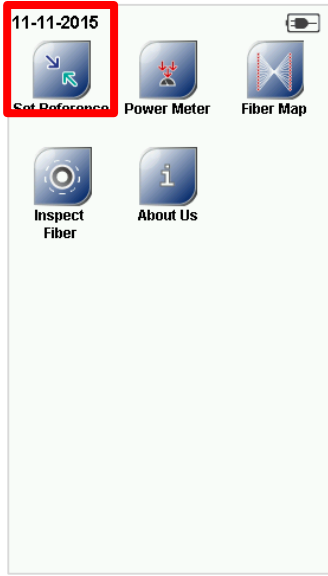
## Chapter 3: Setting Reference

It is necessary perform a set reference measurement when reference cords or adapters are removed and re-attached. If there is a mismatch in firmware versions, Certifier will deny Autotest. Please also check that calibration is not expired before testing.

1. Connect the unpinned end of the tail cords to the Local and Remote units.
2. Connect each pinned end of the tail cord to a connector.
3. Connect a Type A or Type B reference cord to the other end of the connectors.



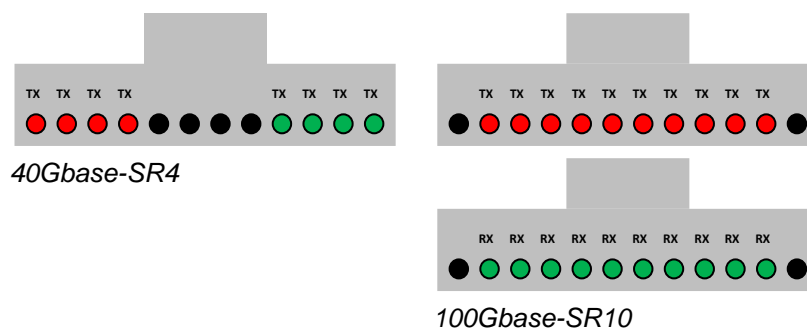
4. Press the TOOLS button > Set Reference to begin set reference.  
Reference cord type should be the same as the MPO cable to be tested.



## Chapter 4: Configuring an AUTOTEST

After configuring the system settings, follow these steps to set up an autotest.

1. Press the SETUP button > Project Settings
  - a. **Site** – Create or select a Site
  - b. **Operator** – Create or select an Operator
  - c. **Label Source** – Select cable labelling scheme. Load labels from USB flash drive if using List Based Testing (LBT).
  - d. **AutoSave** – Enable option for Certifier to auto save every PASS result.
2. Press the SETUP button > Test Settings
  - a. **Test Limit** – Select a test limit



- b. **Channel Selector** – Select Channel(s) of cable where loss limit will be applied
- c. **Cable** – Select “Generic”
- d. **Connector** – Select “Generic”

Please ensure you have the following components before conducting the test;

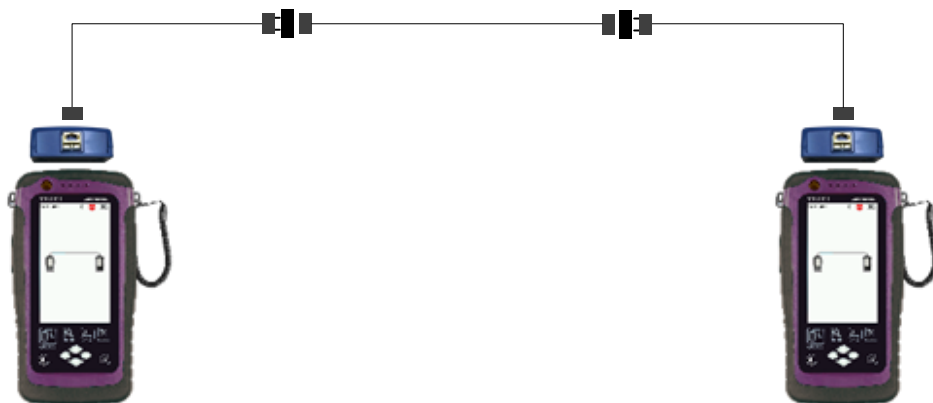
- Certifier, Local & Remote units
- MPO Testing Kit

Please ensure you have the following components before conducting the test;

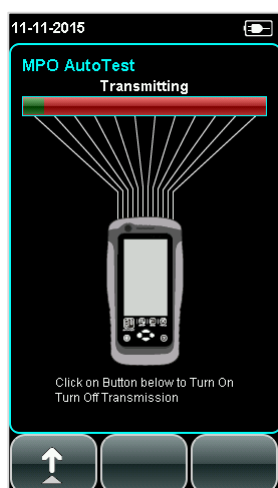
- Certifier, Local & Remote units
- MPO Testing Kit

## Testing Guide for 12-core MPO Testing

1. Replace the reference cord with the trunk cable of the same type to be tested. Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit .



2. Toggle the light transmission on the Remote unit.



3. Press the AUTOTEST button on the Local unit to begin test.

### CAUTION

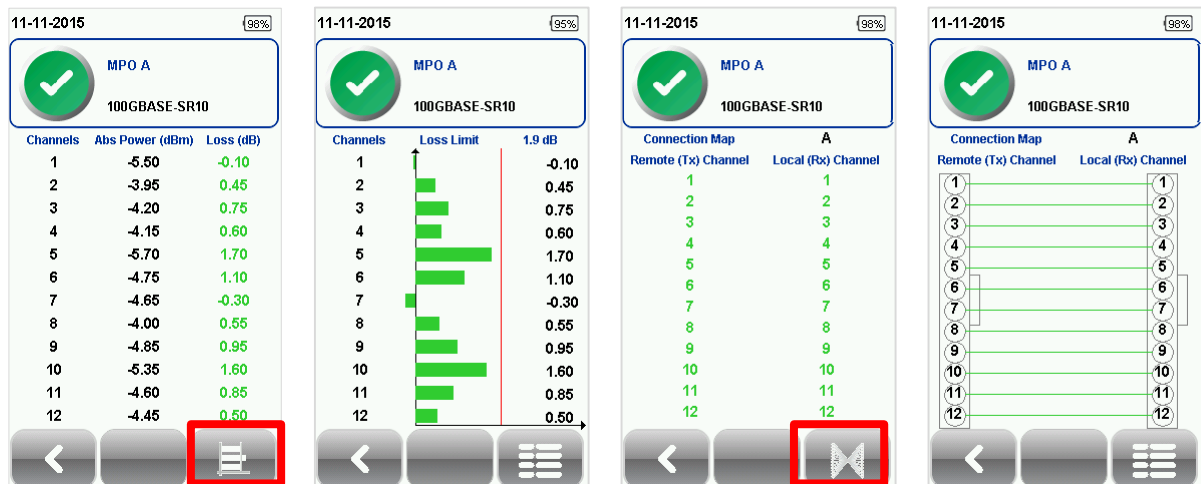
Exercise caution when coupling MPO connectors. Always use a coupler when mating a pinned and unpinned connector. Mating two pinned connectors with a coupler will damage the pins.

## Chapter 5: Performing an AUTOTEST

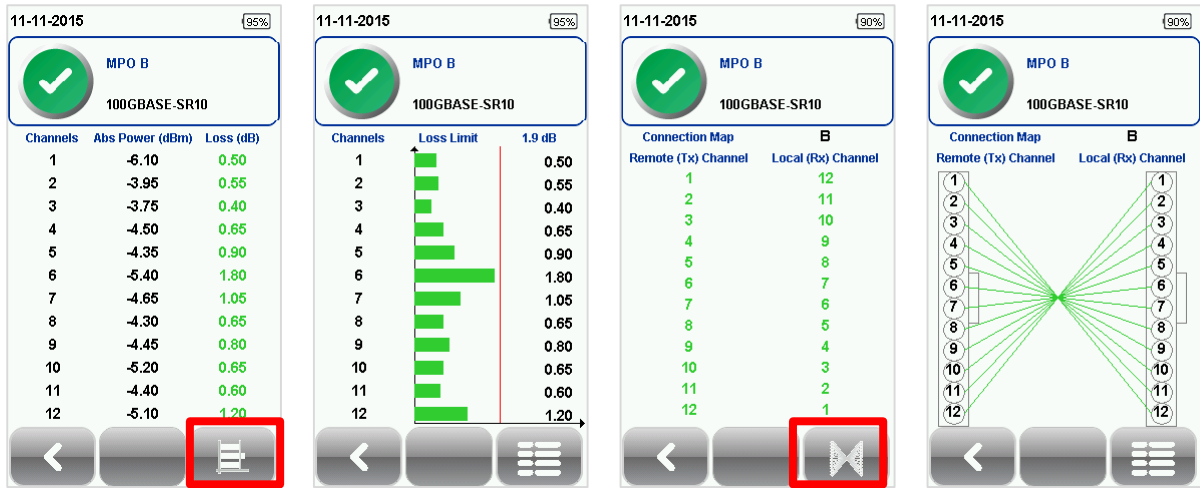
Press the AUTOTEST button once settings and limits have been selected. Certifier will use the last configuration or factory settings to perform the AUTOTEST if new settings are not configured.

Certifier will display summarized result with PASS or FAIL once autotest is completed. Press the “Loss” or “Polarity” button to view the detailed result or the “Save” button to save the results.

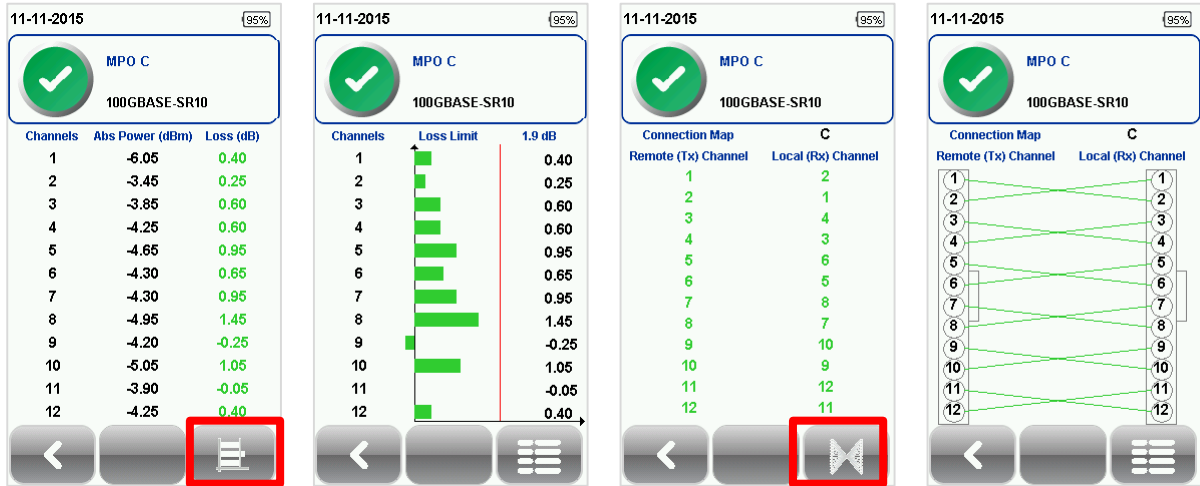
Depending on the type of MPO cable is under test, Type A, B and C will return different results. By pressing the buttons in the lower right corner, test results displayed will toggle between absolute power, loss, polarity and fiber map of the MPO cable.



Type A MPO cable



Type B MPO cable



Type C MPO cable

**NOTE**

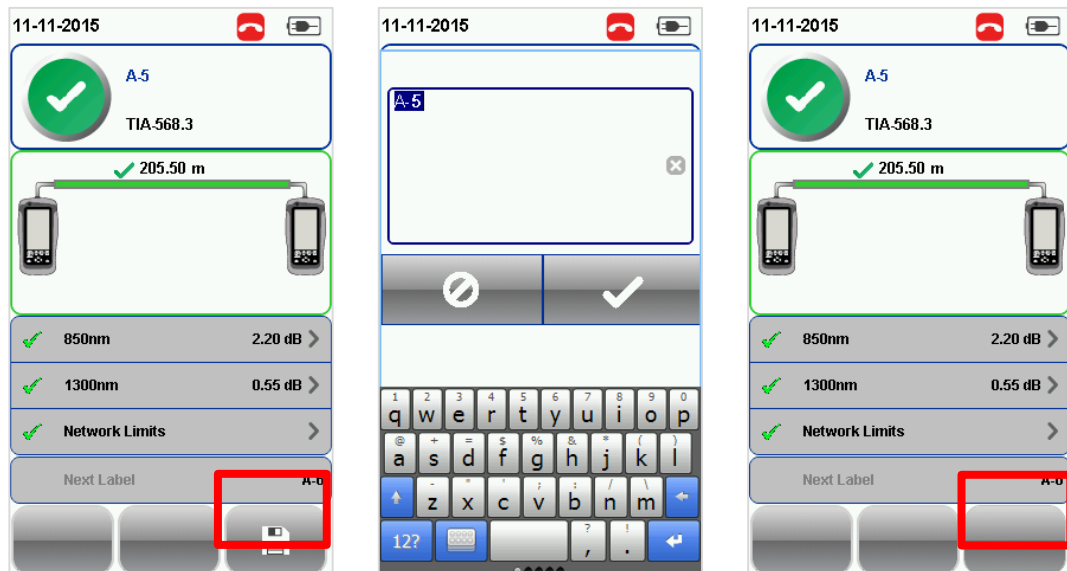
If 40GBase-SR4 or 100GBase-SR10 limits are selected, channels 5, 6, 7, 8 and 1, 12 will be deselected automatically.

Click on the parameter to display a more comprehensive individual result.

In detailed view, the absolute power and loss values can be displayed in grid or chart format and polarity can be displayed in simplified text or map format.

## Managing test result(s)

Test results can be manually saved by pressing the “Save” button after an AUTOTEST is completed. When prompted, enter label name and click “OK” to save.



*The “Save” icon will disappear once saving is completed.*

To view saved results,

1. Press the “DATA” button.
2. Select “Fiber” and press the “View” button.
3. Select the test results click “View” button to view results.
4. Select next page for more results.

To delete a saved result,

1. Press the “DATA” button.
2. Select “Others” and press the “View” button.
3. Press the “Manage” button.
4. Select result(s) and press the “Delete” button to delete result(s).

To rename a saved result,

1. Press the “DATA” button.
2. Select “Fiber” and press the “View” button.
3. Press the “Manage” button.
4. Select result and press the “Rename” button to rename result.



## Exporting test results into J-Report PC Software

Refer to *User Manual – Certifier Copper Certification* for more information on exporting test results into J-Report PC Software.

Refer *User Manual – J-Report* for more information on how to use the software.





**Viavi Solutions**

**North America: (Toll Free) 1-844-GO-VIAMI / 1-844-468-4284**

**All other regions: [www.viavisolutions.com/contacts](http://www.viavisolutions.com/contacts)**

**Email: [customer.care@viavisolutions.com](mailto:customer.care@viavisolutions.com)**