Anritsu

Quick Guide

Network Master Series
MT9090A Mainframe
MU909014A/A1/B/B1/C/C6
MU909015A6/B/B1/C/C6
µOTDR Module

Eighth Edition

Additional safety and warning information is provided within the "Network Master Series MT9090A Mainframe MU909014A/A1/B/B1/C/C6 MU909015A6/B/B1/C/C6 µOTDR Module" Operation Manual.
Please also refer to this document before using the equipment.
Keep this manual with the equipment.

Document No.: M-W3585AE-8.0

Table of Contents

Part Names 1

Power-Up/Power-Down 6

Investigating Fiber Abnormalities (Faults) 8

Saving Trace 15

File Operations 16

Using Fiber Visualizer 18

Locating Drop Cable Faults 21

Using VFL (Visual Fault Locator) 23

Using PON Power Meter 24

Using Light Source 26

Using Power Meter 27

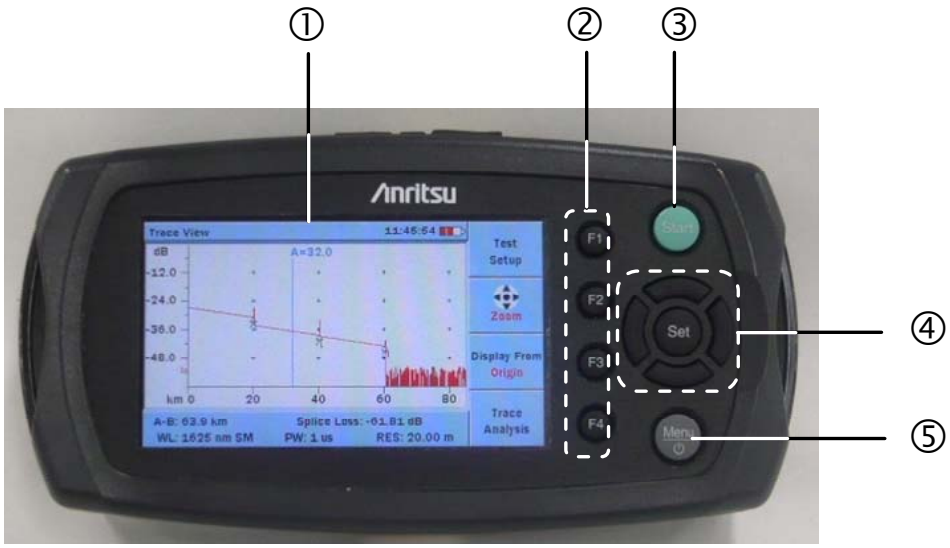
Using Loss Test Set 29

Inspecting Fiber Optic Terminations . 30

Quick Guide

Part Names

Front Panel



① LCD

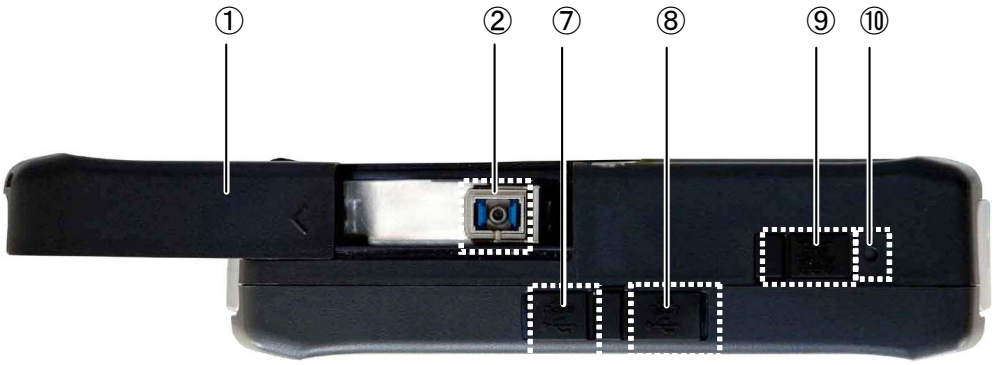
② Soft keys

③ Start key

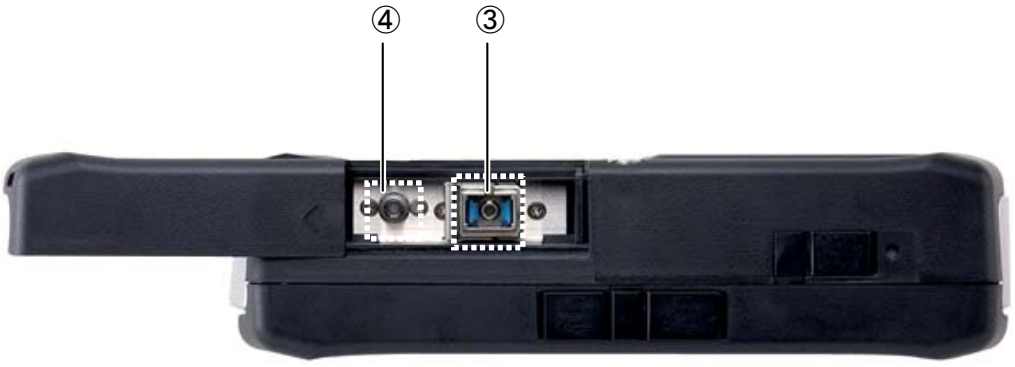
④ Arrow keys and Set key

⑤ Menu/Power key

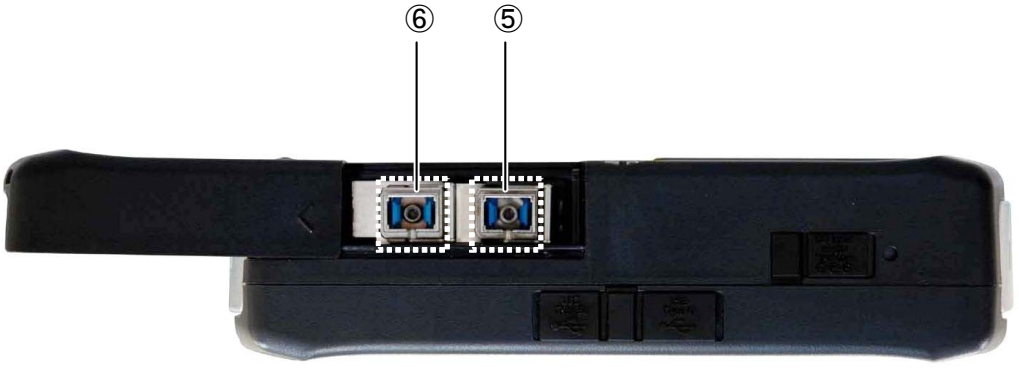
Top Panel



MU909014A/B, MU909015A6/B
MU909015C (1490 nm Model)



MU909014A1/B1, MU909015B1



MU909014C/C6, MU909015C/C6

① Slide Cover

② Measurement Port
1625 or 1650 nm OTDR (MU909014A, MU909015A6)
1310/1550 nm OTDR
(MU909014B, MU909015B)
1310/1490/1550 nm OTDR
(MU909015C 1490 nm Model)

③ Measurement Port
1625 or 1650 nm OTDR
(MU909014A1)
1310/1550 nm OTDR
(MU909014B1, MU909015B1)

④ Visual Fault Locator Port (Option)

⑤ Measurement Port
1310/1550 nm OTDR
(MU909014C/C6, MU909015C/C6)
1310/1490/1550 nm OTDR
(MU909015C6 1490 nm Model)

⑥ Measurement Port
1625 or 1650 nm OTDR
(MU909014C/C6, MU909015C/C6)
Optical Power Meter
(MU909015C6 1490 nm Model)

⑦ USB (Type B) Port

⑧ USB (Type A) Port

⑨ External power –9 V DC input

⑩ Battery Status LED

Back Panel

① Battery Compartment

② Fastener

③ Module model/serial label

④ Compliance and warning labels

Power-Up/Power-Down

To Power-Up:

1. Press the **Menu/Power** key.
2. The first splash screen shows the diagnostic self-test.
3. When the test is passed, **Top Menu** is displayed including **OTDR**, **Fiber Visualizer**, **PON Power Meter**, **Power Meter**, **Light Source** and **Loss Test Set** application buttons*. Some application can be launched automatically by setting in the **Auto Launch, F3** key at **Top Menu**.

   The message **Initialization Failed** is displayed if the power-up self test is failed.

*Displayed application buttons depend on module type

To Power-Down:

1. Press the **Menu/Power** key to display the menu.
2. Highlight **Power Down** and press the **Set** key.
3. Highlight **Yes** and press the **Set** key.

Help Message Displays

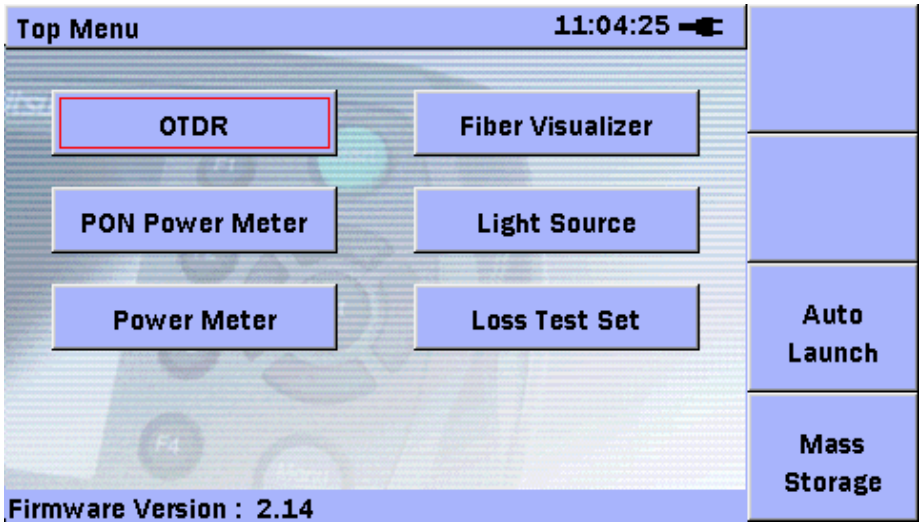
1. After power-up, press the **Menu/Power** key at each screen to display the pop-up window.
2. Highlight **Help** and press the **Set** key to display the help for each screen including the pop-up window.

Investigating Fiber Abnormalities (Faults)

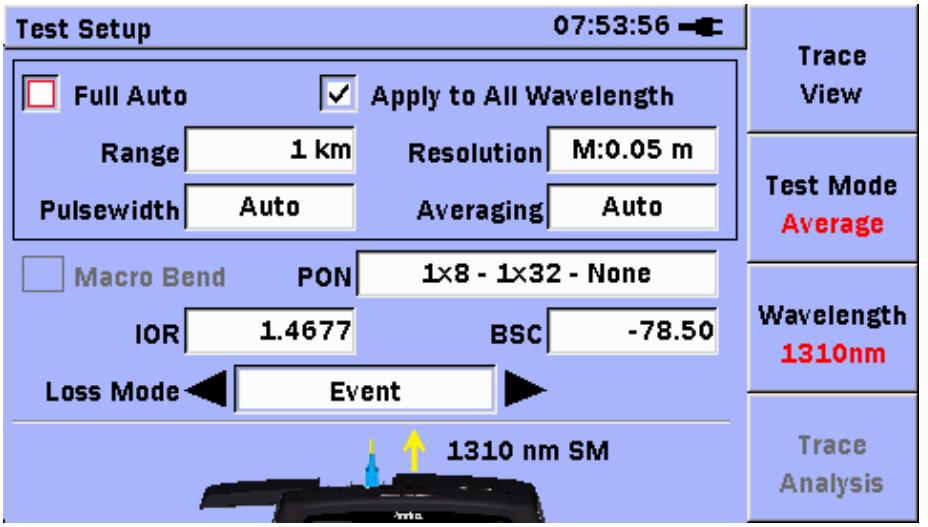
Fault locations in the fiber with loss and reflection can be checked.

Setting Measurement Conditions

1. Press the **Menu/Power** key.
2. Use the arrow keys to select **OTDR** and press the **Set** key.



3. OTDR Test Setup screen is displayed, press **F2** to select **Test Mode**.



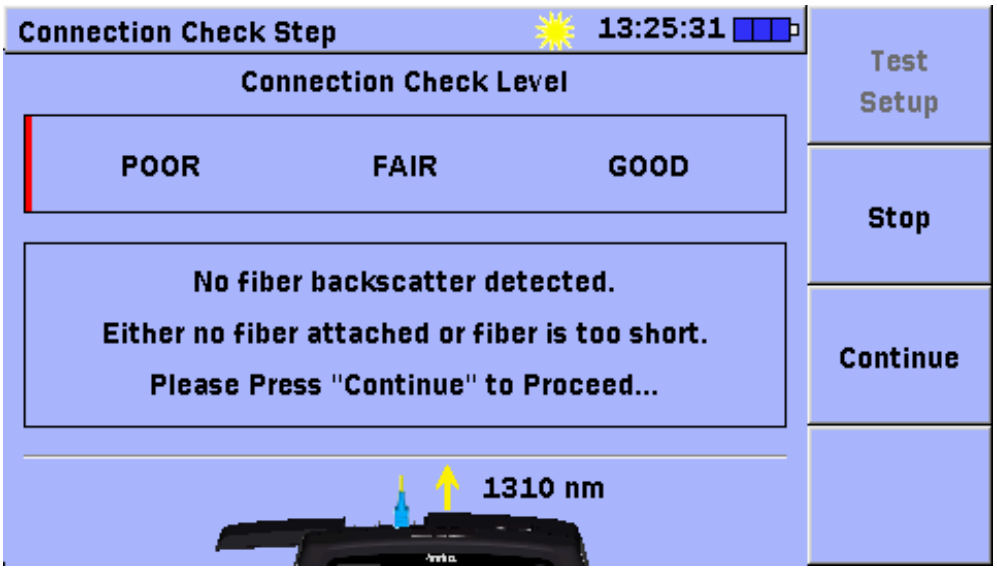
4. To switch wavelength, press **F3**.

5. Select the setting item using the arrow keys. If you select **Full Auto**, measurement parameters will be set automatically.

6. For IOR and BSC, press **Set** key and enter numerical value on the dialog. For other parameters, select the value using the right and left arrow keys.

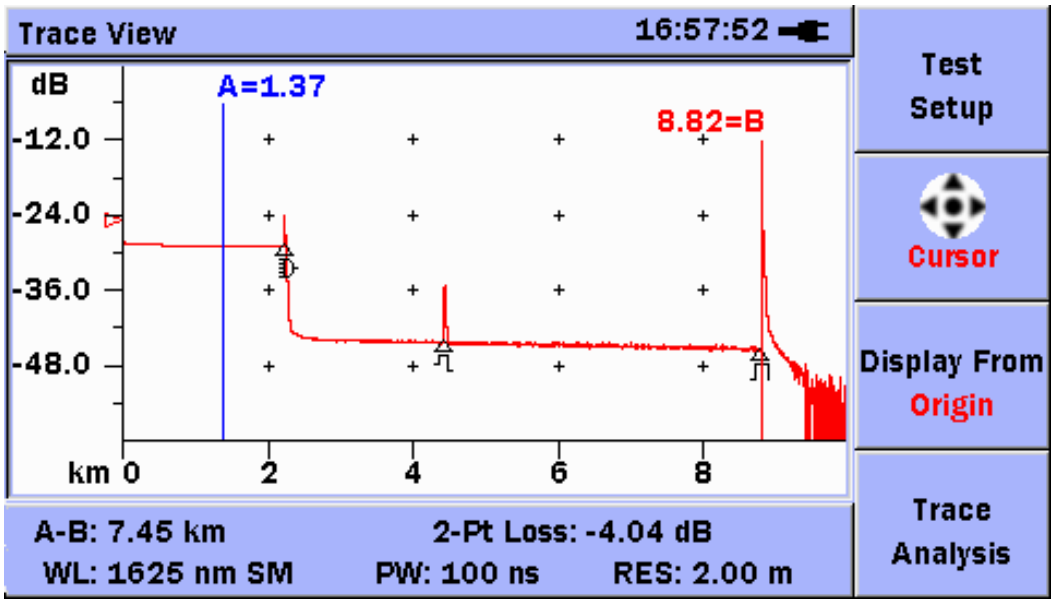
Starting Measurement

1. Press **Start**.
2. Measurement starts automatically when **Good** is displayed at the **Connection Check** screen. If **FAIR** or **POOR** is displayed, press either the **F3 Continue** or the **Start** key to start measurement. If a "live" communications signal is detected, it needs to be off before proceeding the test.



Trace View Screen

- When the measurement is finished, the **Trace View** screen appears.
- If you look at Trace Analysis screen, press **F4 Trace View** to move Trace View Screen.



At bottom of screen, followings are displayed.

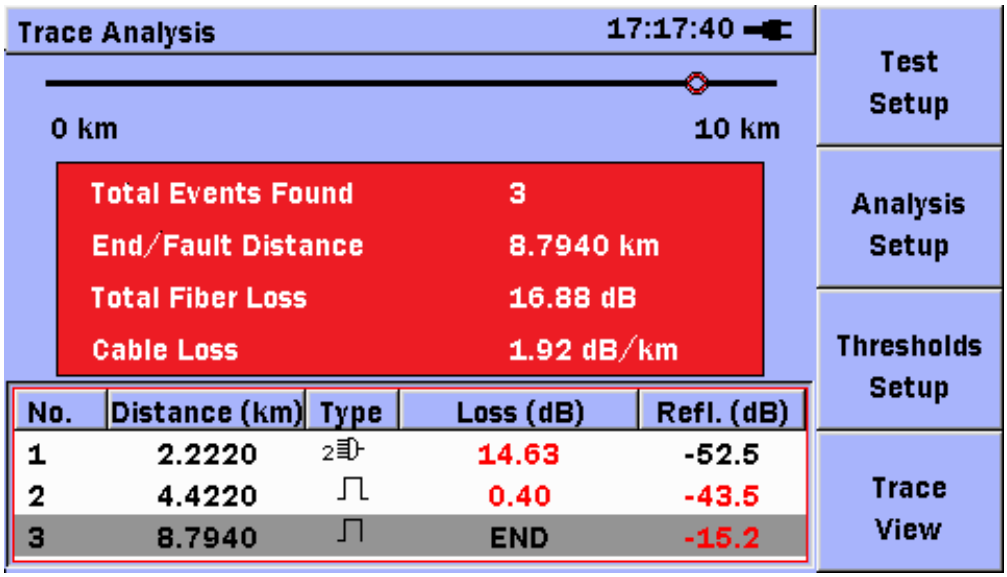
- Distance between cursors, or the distance to far end point
- Measured loss result

When mode is set to **Averaging**, average process progress bar appears during the measurement.

To stop measurement, press **Stop** key.

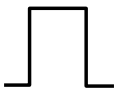
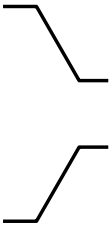
Trace Analysis screen

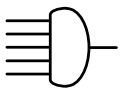
- When the measurement is finished, the **Trace Analysis** screen appears.
- If you look at Trace View screen, press **F4 Trace Analysis** to move Trace Analysis Screen.



Some fault locations can be shown as an event list including No, Distance, Type (Refer to the next page), Loss and Reflection of the fault point.

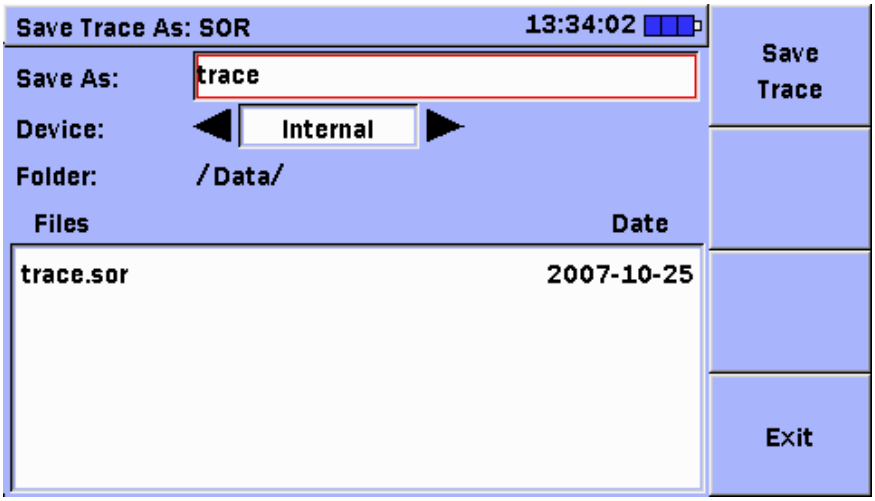
Event Type

Icon	Type	Description
	Reflective	Reflection from splice point
	Non-Reflective	Non-reflective events include such low loss events as fusion splices and Macro Bends.
	Grouped	Events spaced too close to each other for analysis to distinguish them as separate events are reported as Grouped events.
	Far End	Any event with a loss equal to or greater than the Fiber End threshold is reported as the Far End event.

	Question-able End	Far end event not detected 1. When distance range reached 2. When noise level reached
	Splitter	Loss due to optical splitter
	Macro Bend	Reports as an event “Macro Bend” when the detected event exceeds the specified threshold for the Macro Bend.

Saving Trace

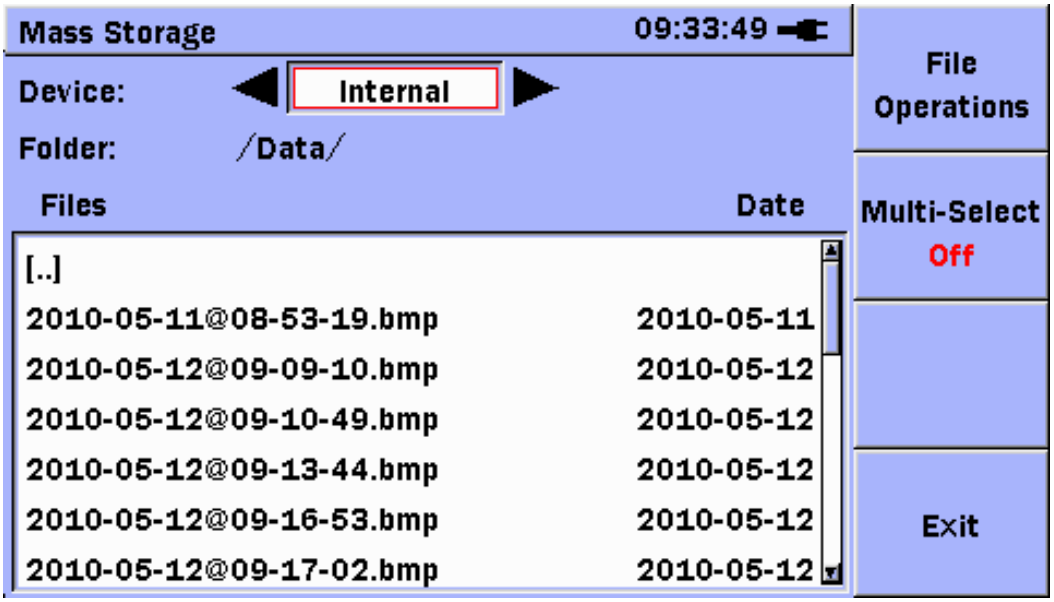
1. Press the **Menu/Power** key to highlight **Save** and press the **Set** key.



2. Use the up and down arrow keys to select **Save As** and press the **Set** key.
3. Input the file name at the separate window.
4. When **F4** is pressed the file name is displayed at **Save As**.
5. Use the up and down arrow keys to select the media and select the save destination folder using the up and down, and left and right arrow keys.
6. Press **F1** to save the trace to the folder.

File Operations

1. Press the **Menu/Power** key to highlight **Mass Storage** and press the **Set** key.



2. Use the up and down, and left and right arrow keys to select the **Device** and file and press **F1**.

3. Use the up and down arrow keys to select the file operation and press the **Set** key.

4. New Folder:
   A new folder is created.

For Delete:
If a confirmation dialog is displayed, use the left and right arrow keys to select **Yes** and press the **Set** key.

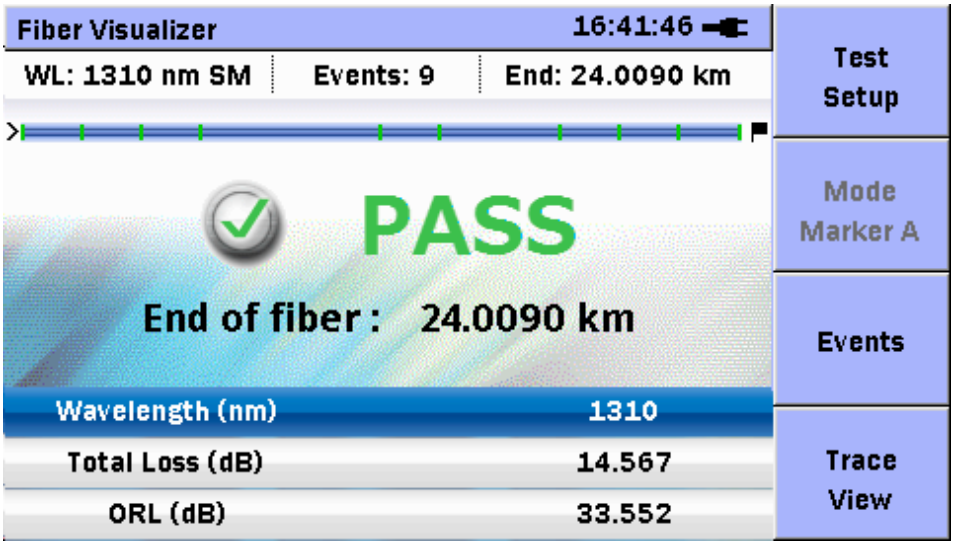
For Copy:
Use the left and right arrow keys to select **Device** for the copy source and press **F1**.
If a dialog is displayed, press the **Set** key.

For Rename:
The entry screen for the character strings appears. Press **F2** to erase characters input previously.

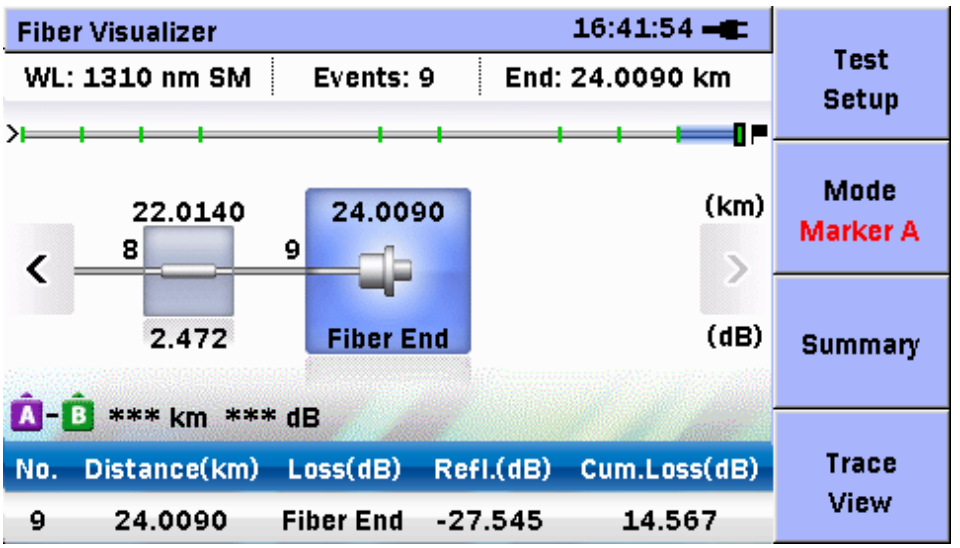
Use the arrow keys to select the characters and press the **Set** key.
After inputting the file name press **F4**.

Using Fiber Visualizer

1. Press the **Menu/Power** key to highlight Top Menu and press the Set key.
2. Use the up and down arrow keys to select **Fiber Visualizer** and press the **Set** key.
3. Press the Start key to start measurement. If you want to start the manually, change the measurement parameters on **Test Setup** screen.
4. When the measurement is finished, the **Summary** screen is appears.



5. When press **F3**, the **Event** screen is appears.



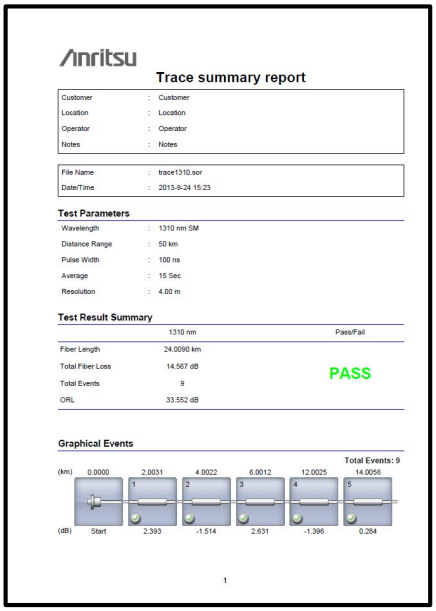
6. Use the left and right arrow keys to select the event icon.

7. When all the events PASS, output the measurement data in the report.

8. Press the **Menu/Power** key to highlight **Create Report** and press the Set key.

9. Set **Contents**, **Comments** and **Logo**, then press **F1**.

10. Press **F1** to create the report on **Mass Storage** screen.



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Trace summary report

Customer	:	Customer
Location	:	Location
Operator	:	Operator
Notes	:	Notes

File Name	:	trace1310.sor
Date/Time	:	2013-9-24 15:23

Test Parameters

Wavelength	:	1310 nm SM
Distance Range	:	50 km
Pulse Width	:	100 ns
Average	:	15 Sec
Resolution	:	4.00 m

Test Result Summary

	1310 nm	Pass/Fail
Fiber Length	24.0090 km	
Total Fiber Loss	14.567 dB	PASS
Total Events	9	
ORL	33.552 dB	

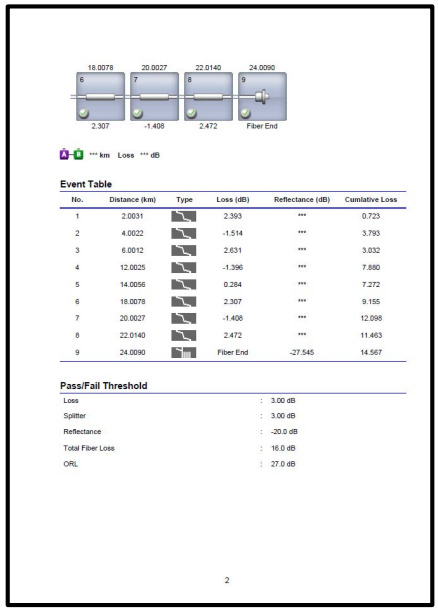
Graphical Events

Total Events: 9

(km) 0.0000 2.0031 4.0022 6.0012 12.0025 14.0056

(dB) Start 2.393 -1.514 2.631 -1.396 0.284

1



18.0078 20.0027 22.0140 24.0090

2.307 -1.408 2.472 Fiber End

*** km Loss *** dB

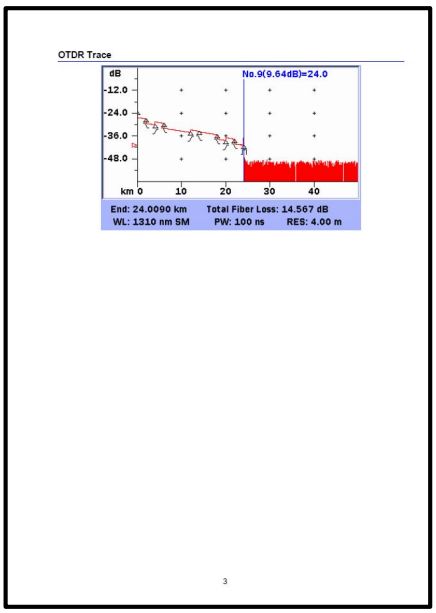
Event Table

No.	Distance (km)	Type	Loss (dB)	Reflectance (dB)	Cumlative Loss
1	2.0031		2.393	***	0.723
2	4.0022		-1.514	***	3.793
3	6.0012		2.631	***	3.032
4	12.0025		-1.396	***	7.880
5	14.0056		0.284	***	7.272
6	18.0078		2.307	***	9.155
7	20.0027		-1.408	***	12.098
8	22.0140		2.472	***	11.463
9	24.0090		Fiber End	-27.545	14.567

Pass/Fail Threshold

Loss	:	3.00 dB
Splitter	:	3.00 dB
Reflectance	:	-20.0 dB
Total Fiber Loss	:	16.0 dB
ORL	:	27.0 dB

2



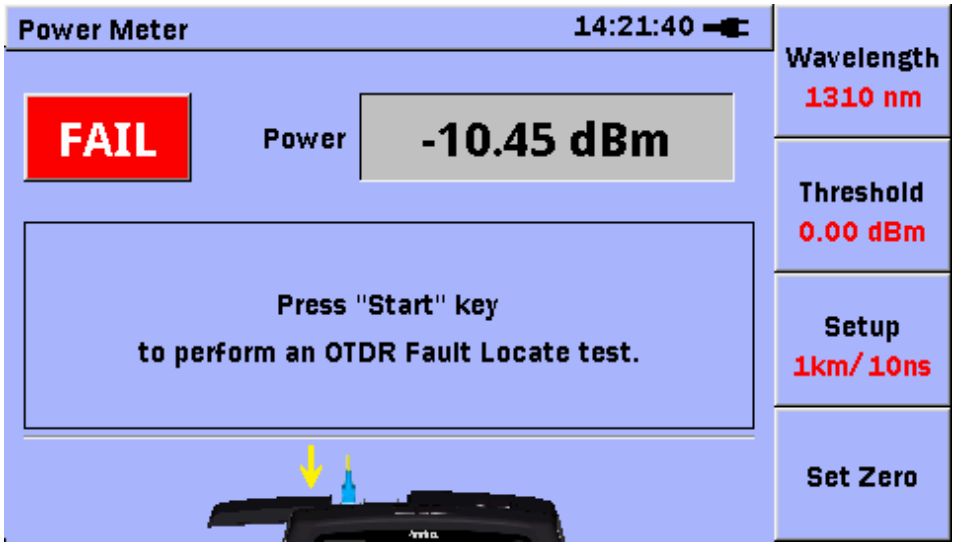
OTDR Trace

End: 24.0090 km Total Fiber Loss: 14.567 dB
WL: 1310 nm SM PW: 100 ns RES: 4.00 m

3

Locating Drop Cable Faults

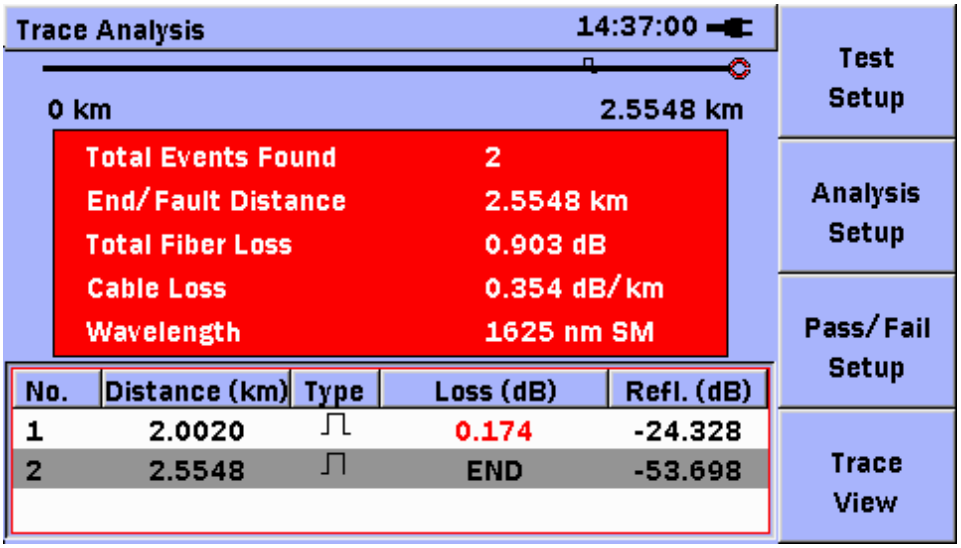
1. Press the **Menu/Power** key to highlight Top Menu and press the Set key.
2. Use the up and down arrow keys to select **DCFL** and press the **Set** key.
3. Check that a sufficient optical power is output from the drop cable. When executing a pass/fail evaluation of the measured optical power value, set the threshold.



4. When a sufficient output power is not detected, press the **Start** key to start OTDR measurement.

If you want to change the measurement parameters, press **F3** key to display the **Test Setup** screen.

5. When the measurement completes, analysis results are displayed.



6. If you want to check the trace, press **F4** key to display the **Trace View** screen. If you press **F1** key on **Trace View** screen, start the real-time measurement.

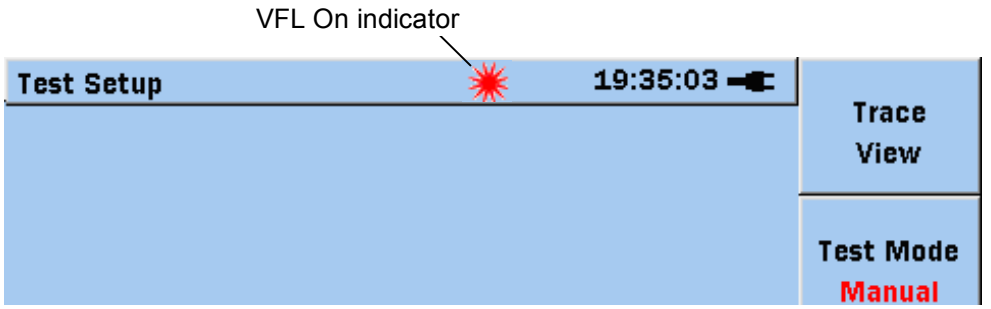
7. To return to the **Power Meter** screen, press the **Start** key.

Using VFL (Visual Fault Locator)

The Visual Fault Locator (VFL) is a visible (red) light source. It is easy to find fault on the fiber by visual check.

The VFL can be used with the MU909014A1/B1 and MU909015B1.

1. Press the **Menu/Power** key to highlight VFL and press the Set key.
2. Use the up and down arrow keys to select OFF, CW and MOD and press the **Set** key.
3. When CW or MOD is selected, the flashing red VFL Laser On icon appears at the top of the screen during VFL is operating.

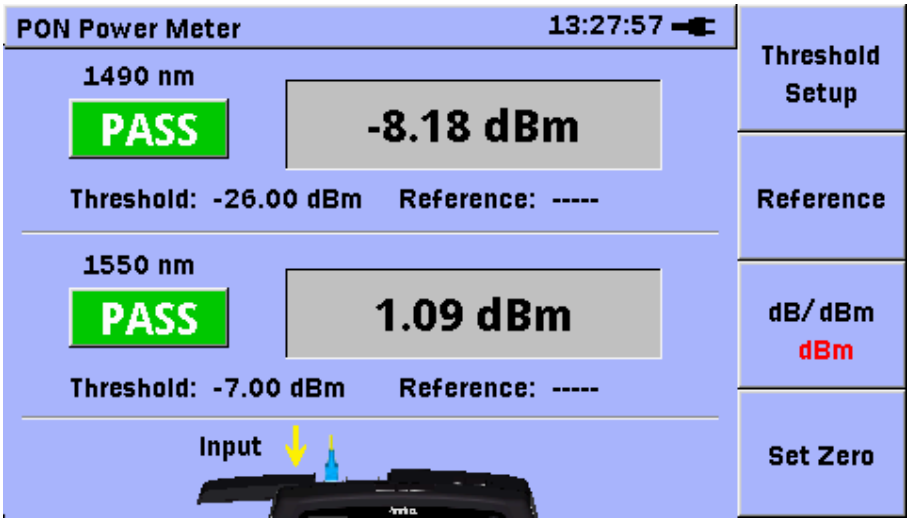


Using PON Power Meter

The PON Power Meter can be measured the optical power level of 1490nm and 1550nm respectively even if the signal is inputted simultaneously in the FTTx PON network.

The PON power meter can be used with the MU909014C6 and MU909015A6/C6.

1. Press the **Menu/Power** key to highlight Top Menu and press the Set key.
2. Use the up and down arrow keys to select **PON Power Meter** and press the **Set** key.



3. Before testing disconnect the fiber from the optical connector and close the cover to calibrate the zero level.
4. Press **F4**. Zeroing.. is displayed during the calibration.
5. Open the cover and connect the fiber to the optical connector. The optical input power level of both wavelengths is displayed respectively.

The Pass/Fail test can be performed to set the threshold value.

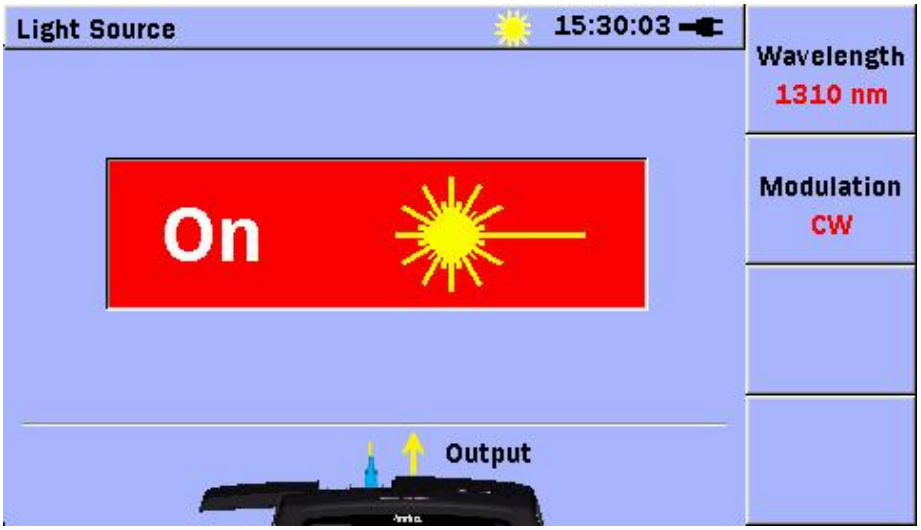
Note:

To measure the correct power, to execute **set Zero** is recommended before the test.

Using Light Source

The light source can be used with the MU909014C6 and MU909015A6/C6.

1. Press the **Menu/Power** key to highlight Top Menu and press the **Set** key.
2. Use the left and right arrow keys to select Light Source and press the **Set** key.



3. Press **F1** to set Wavelength.
4. Press **F2** to set Modulation.
5. Press **Start** to set On/Off of the light source. The optical output status is displayed on the screen.

Using Power Meter

The power meter can be used with the MU909014B/B1/C/C6 and MU909015A6/B/B1/C/C6.

1. Press the **Menu/Power** key to highlight **Top Menu** and press the **Set** key.
2. Use the left and right arrow keys to select **Power Meter** and press the **Set** key.

3. Press **F1** to set **Wavelength**.
4. Press **F2** to set **Modulation**. The Modulation function can be used with MU909014C6, MU909015A6/C6.

5. Before testing disconnect the fiber from the optical connector and close the cover to calibrate the zero level.
6. Press **F4**. Zeroing.. is displayed during the calibration.
7. Connect the fiber to the optical connector. The optical input power level is displayed.

The Pass/Fail test can be performed to set the threshold value. The difference power level between reference level and current level is displayed to set the reference value.

Note:

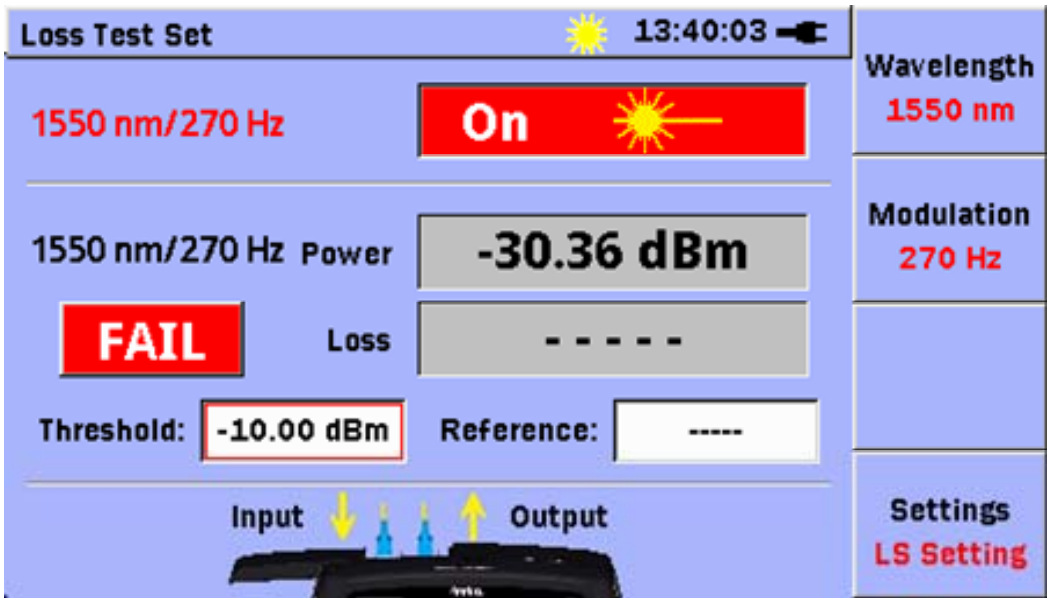
To measure the correct power, to execute set **Zero** is recommended before the test.

Using Loss Test Set

Loss Test Set can be measured optical loss of DUT. Light source and optical power meter can be used at one time.

Loss Test Set can be measured with the MU909014C6 and MU909015C6.

1. Press the **Menu/Power** key to highlight **Top Menu** and press the Set key.
2. Use the left and right arrow keys to select **Loss Test Set** and press the **Set** key.



3. Press F4 to toggle between the **Light Source** and **Power Meter** settings.

4. The wavelength and modulation of the power meter are set to the same values.

Refer to **Using Light Source** to use the light source.

Refer to **Using Power Meter** to use the power meter.

Inspecting Fiber Optic Terminations (Option)

There is sometimes a trouble when using optical instrument caused by defects of the optical connector. The VIP (Video Inspection Probe) can be observed the surface of the optical connector to check clean or not. Besides it can be performed Pass/Fail judgment based on IEC standard.

① Video Inspection Probe (VIP)

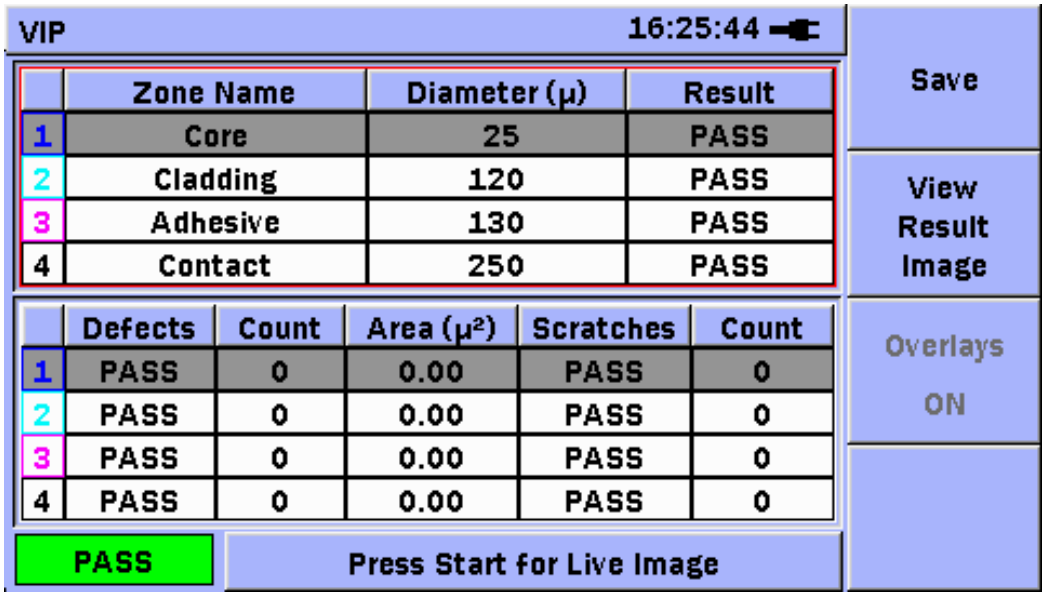
② USB converter

③ USB connector

1. Connect VIP to USB port (type A).
2. Adjust the focus of the image, if the image is not in clear focus.
3. Press **Start** again to capture and analyze the image of the connector.
4. The Pass or Fail result based on IEC standard is displayed. Press F2 View Result Table to show the detail defects.

5. The result can be saved or reported by the PDF file.

The result of the image



The defect table of result

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