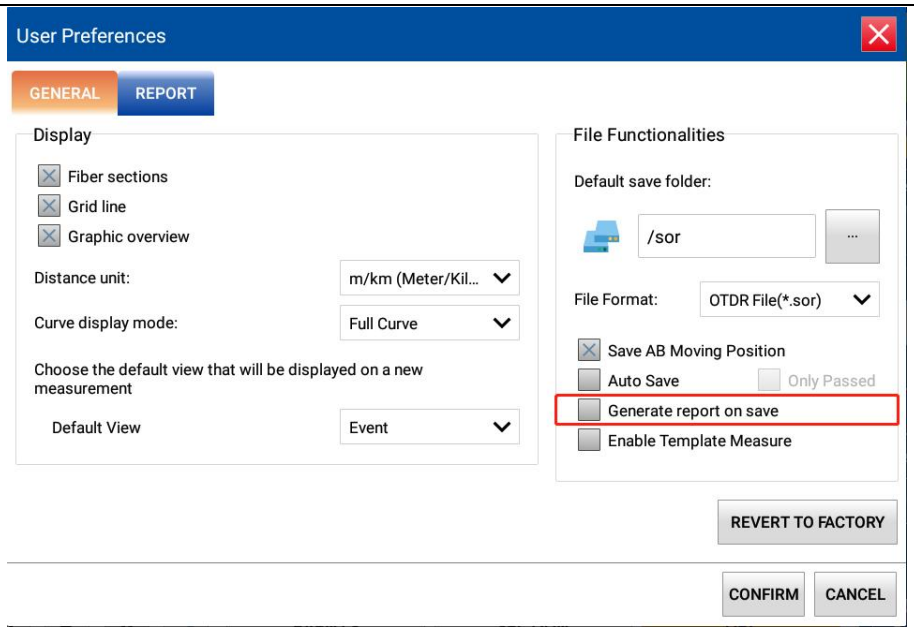


4. Tap "OK" to return to the main window.

Note： Thus, each time an OTDR file is saved, the application will automatically generate and save a report file

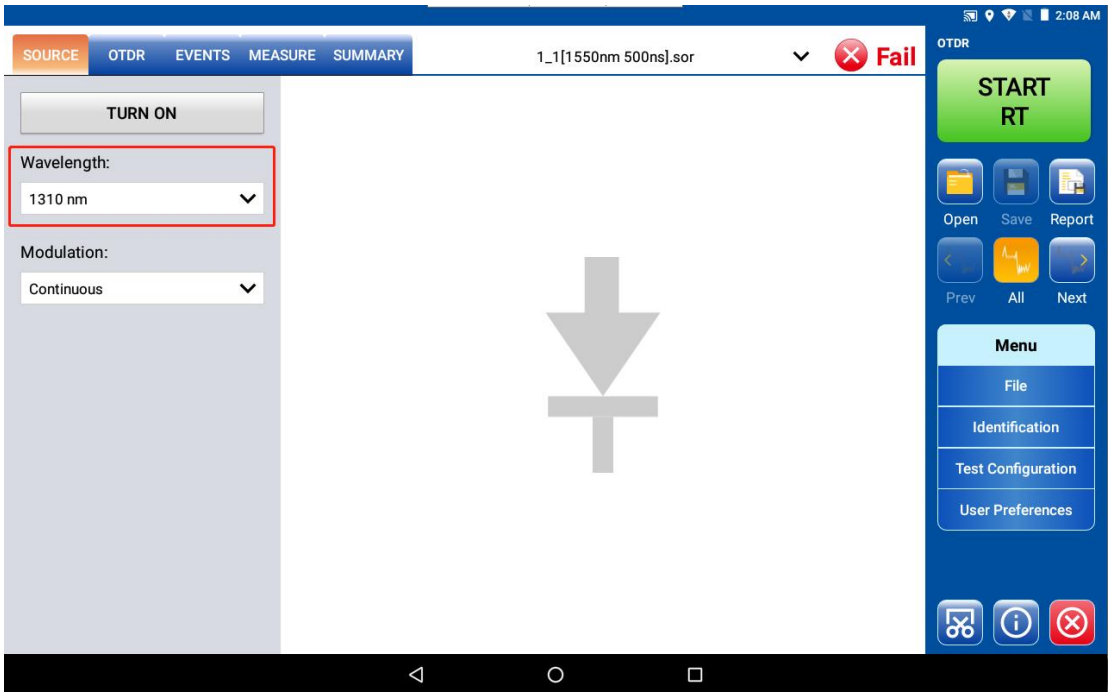
IX. Use the OTDR as a Light Source

If an OTDR is used as a light source for measurement, the OTDR port will emit a specially modulated light pulse. This port can only emit but cannot detect this light pulse.

Note
Do not connect the live fiber to the OTDR port unless proper settings have been made. Injection light with power ranging from -65 dBm to -40 dBm will affect the data acquisition results of the OTDR. The impact on data acquisition results depends on the selected pulse width. Injecting signals with a power greater than 10 dBm will cause permanent damage to the OTDR module.

Steps for Using an OTDR as a Light Source：

1. Properly clean the connector (for details, please refer to page 7, "Cleaning and Connecting Fiber Optics").
2. Connect one end of the fiber under test to the OTDR port.
   If the device has two OTDR ports, please ensure that the fiber is connected to the appropriate port according to the wavelength to be used (single-mode, single-mode inline, or multi-mode).
3. In the main window, tap the "Light Source" tab.
4. If you are using a standard Optical Time-Domain Reflectometer (OTDR), select the desired wavelength from the list of available options.
   or

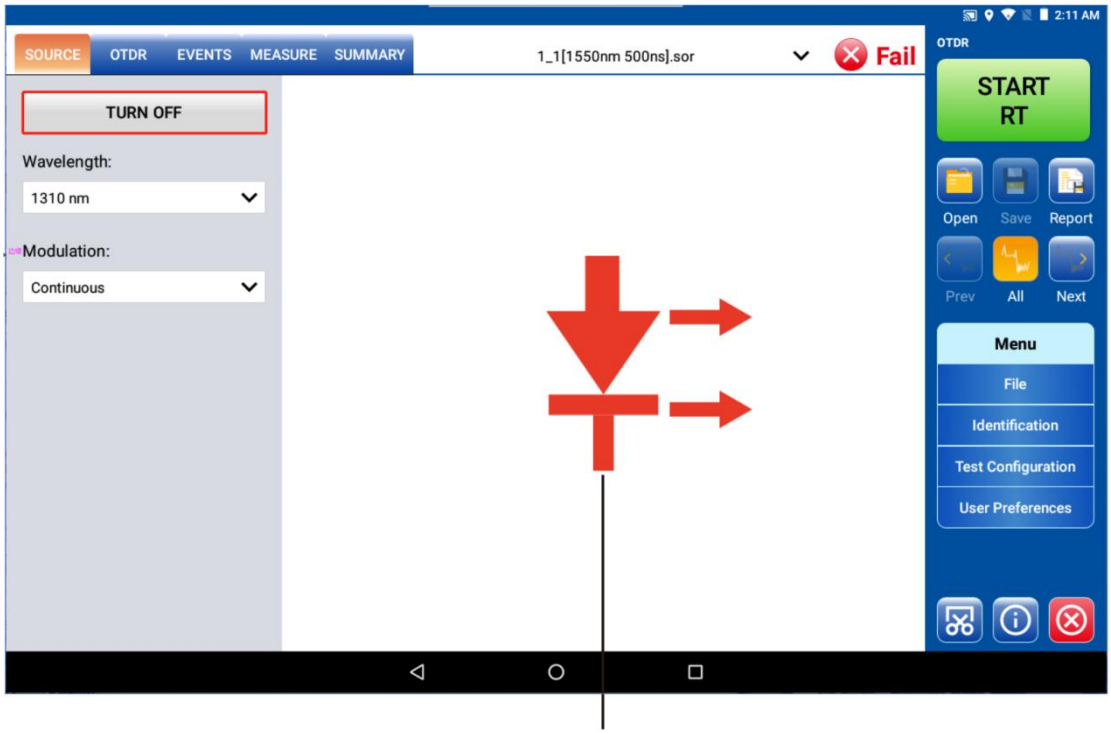


Note： If only one wavelength is available, it will be selected by default.

5. From the list of available options, select the desired modulation mode.

- For loss measurement, connect a power meter to the other end and select "Continuous."
- For fiber identification, select "270Hz," "1 kHz," or "2 kHz." This allows personnel at the other end of the link to identify the fiber being tested, which is especially useful for testing cables containing multiple fibers.
  To facilitate the identification of optical fibers, the application also provides a blinking mode. If this mode is selected, the OTDR will send a modulated signal (1 kHz or 2 kHz) for 1 second, then stop for 1 second, and repeat this cycle. To make the OTDR emit laser in blinking mode, select "1 kHz + Blink" or "2 kHz + Blink".

6. Tap "Open." You can tap "Close" at any time to stop the laser emission.



Displayed in red indicates that the light source is active

Using a power meter with modulation and detection capabilities, the operator at the other end can quickly and accurately locate the tested optical fiber or perform loss measurements.

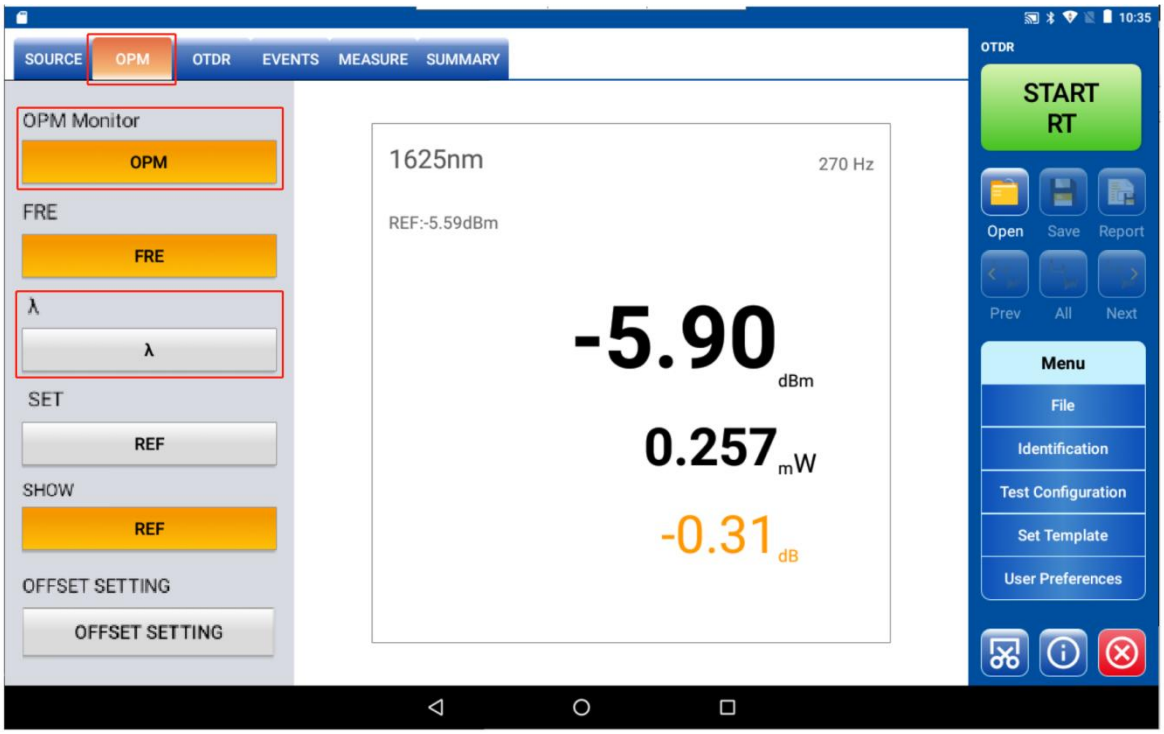
X. Use the OTDR as an Optical Power Meter (Optional)

If an OTDR is used as a power meter for measurements, this port can only detect and cannot emit light pulses.

10.1Setting the Wavelength on a Power Meter

Optical Power Meter Wavelength Setting Procedure:

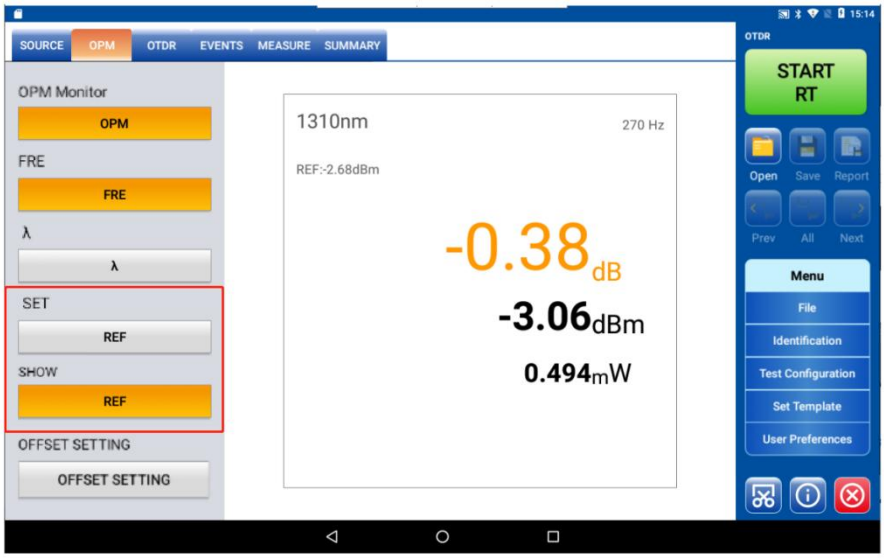
1. In the main window, tap the "OPM" tab.
2. Tap the "OPM" button under "Detect OPM" to enable the OPM.
3. Based on the needs of the project, we need to measure optical signals at different wavelengths. At this time, it is necessary to select the corresponding wavelength to measure the optical power. If the wavelength of the light being measured does not match the wavelength selected on the power meter, the measurement will be meaningless. Tapping the 'λ' button allows you to cycle through the calibration wavelengths. The device supports measurements at 6 calibration wavelengths: 1310nm, 1490nm, 1550nm, 1577nm, 1625nm, and 1650nm.



10.2 Viewing and Setting REF Values

Setting reference values is generally used before measuring actual lines to pre-eliminate attenuation values that are not considered in the actual line loss, or to compare differences with the set standard power.

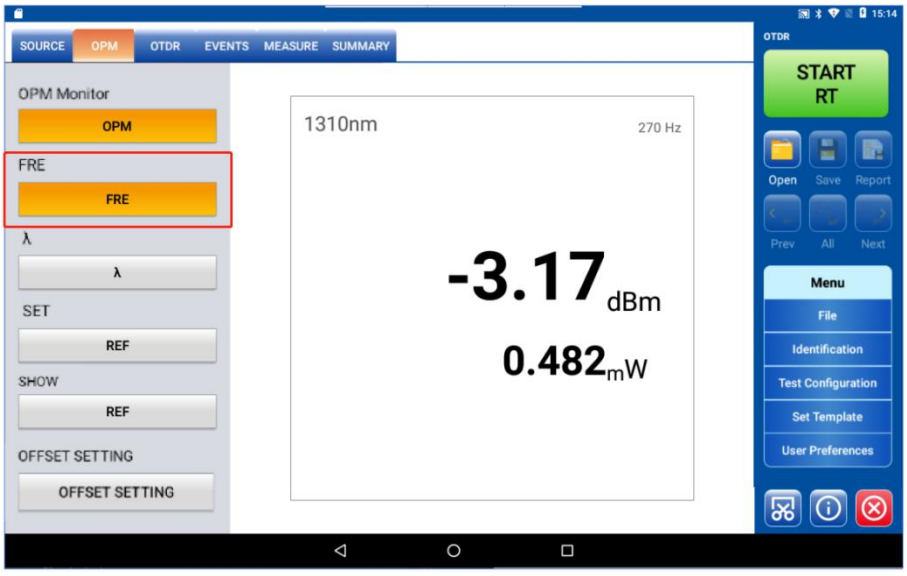
After enabling OPM, if there is light, you can tap the "REF" button under settings to set the REF reference value for the current wavelength. Each wavelength has its independent REF setting value. Tapping the "REF" button under the display will show the actual measured relative difference (dB) and the set new reference value, as shown in the following diagram:



10.3 Frequency Recognition

- Frequency Identification: Compatible with the carrier modulation signals emitted by our company's laser light source equipment, it can automatically identify the frequency values.

After enabling the Optical Power Meter (OPM), in the presence of light, you can tap the "FRE" button under frequency identification to enable or disable the frequency recognition feature.



XI. Event Type Description

This section describes all the possible types of events that can appear in the event table generated by the application. Below are explanations of the descriptions:

- Different types of events are represented by different symbols.
- Various types of events are represented on the optical fiber curve chart, which shows the relationship between the power reflected back to the light source and distance.
- The arrows in the curve chart indicate the positions of various events.
- Most graphs display a complete curve, covering the entire data collection range.
- Some graphs only display a portion of the measurement range so that you can more clearly view the event of interest.

11.1 Span Start Point

The "Span Start" on the curve marks the event of the start of a fiber span. By default, the "Span Start" is located at the first event of the fiber under test (usually the first connector of the OTDR).
You can also set other events as the starting points for segments to focus on analyzing the corresponding spans. This will align the starting row of the event table with the event on the curve.

11.2 Span End Point

The "Span End" on the curve marks the event at the end of the fiber span. By default, the "Span End" is located at the last event of the fiber under test, which is called the fiber end event.
You can also set other events as segment endpoints to focus on analyzing the corresponding segments. This will make the last row of the event table correspond to that event on the curve.

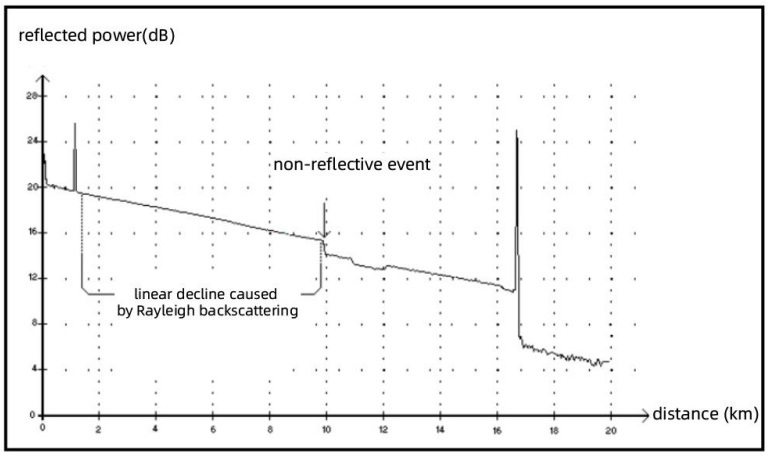
11.3 Starting Event

The first event of the tested optical fiber, typically the first connector of the OTDR.

11.4 End Event

An event where the loss value exceeds the end threshold is defined as an end event, which is typically the last event of the fiber under test.

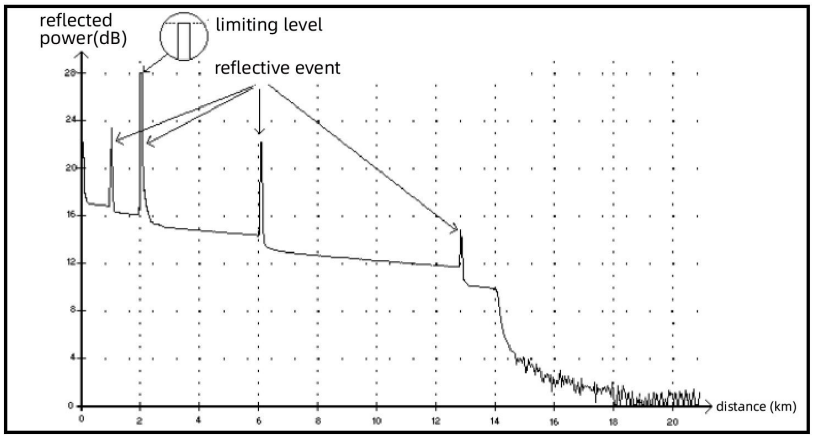
11.5 Non-reflective event



The characteristic of such events is that the Rayleigh backscattering signal level suddenly drops, manifesting as a discontinuity in the slope of the curve signal decrease.

- This type of event is usually caused by joints, macrobends, or microbends in the optical fiber.
- The application displays the loss values of non-reflective events but does not show the reflectivity.
- If a threshold is set, the application will indicate a non-reflective fault in the event table once a value exceeds the loss threshold.

11.6 Reflection event (possibly an echo)



Reflection events are displayed as sharp peaks in the fiber curve. They are caused by sudden changes in the refractive index.

- Reflection events can cause most of the energy initially injected into the fiber to be reflected back to the source.
- Reflection events indicate the possible presence of connectors, mechanical joints, or even poor-quality fusion splices or cracks.
- The application usually displays the loss values and reflectivity of reflection events.
- When the reflection peak reaches its maximum level, the peak will be truncated due to detector saturation. Therefore, the dead zone (the shortest distance between this event and the next detectable event or an event whose attenuation can be measured) will increase.
- If a threshold is set, once a value exceeds the reflectance or connector loss threshold, the application will indicate the presence of a reflection fault in the event table.

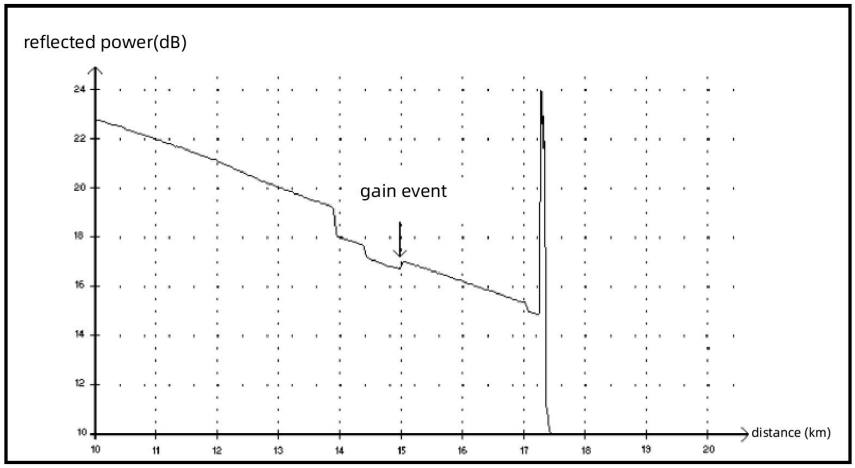
11.7 Macro bend event

The device can measure the event loss values at a given wavelength (for example, 1310 nm) and another wavelength (for example, 1550 nm) at the same location, and then compare these two loss values to locate macro bends.

If the following conditions occur when comparing two loss values, the device will confirm and display it as a macro bend event:

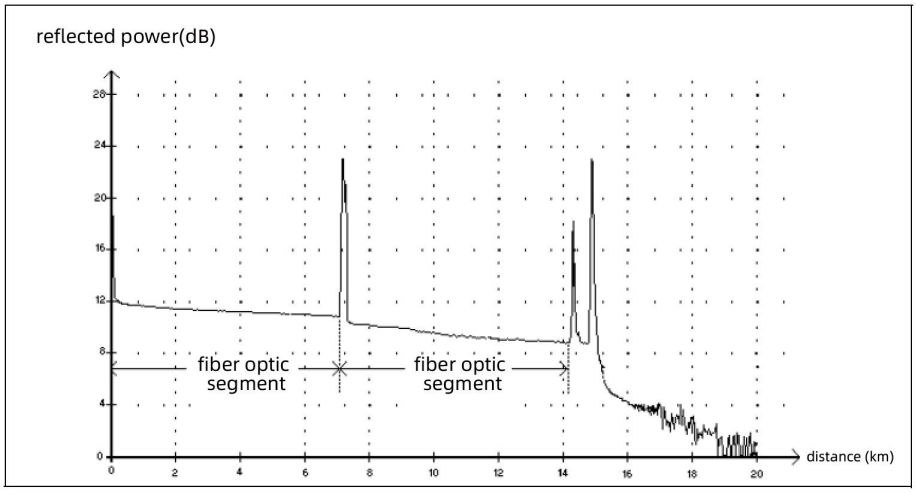
- Among the two loss values, the longer wavelength has greater loss.
  and
- The difference between the two loss values exceeds the specified loss difference. The default loss difference is 0.5 dB (suitable for most fibers). You can change this difference according to actual conditions.

11.8 Gain Event



This event indicates a joint with significant gain, which is caused by the joining of two sections of optical fibers with different backscattering characteristics (backscattering coefficient and backscattering capture coefficient).

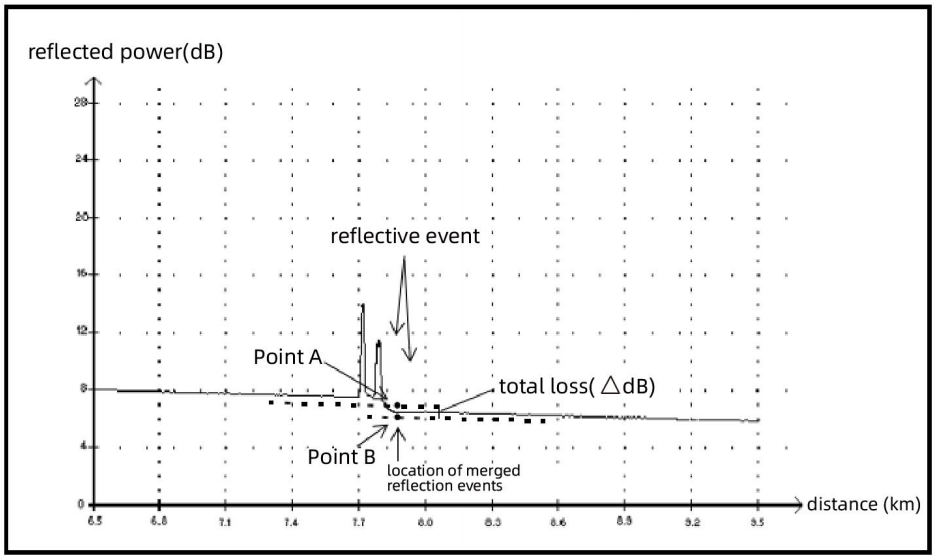
11.9 Optical Fiber Segment



This symbol indicates a fiber segment with no events.

- The total of all fiber segments contained within the entire fiber curve equals the total length of the fiber. Even if the detected events consist of multiple points, they are all distinct.
- The application displays the loss values of fiber segment events but does not show reflectivity.
- To calculate the attenuation value (dB/km), divide the loss value by the length of the fiber segment.

11.10 Merge Event Σ

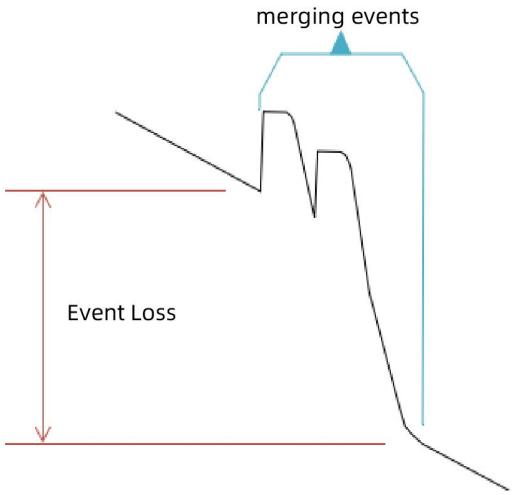


This symbol represents an event that is a combination of multiple events. In the event table, the total loss generated by the merged event will be displayed following the merge event symbol.

- The merged events consist of sub-events. If events are displayed, in the "Events" table, only the merged events have numerical attributes, while their sub-events do not.
- Reflective events indicate the possible presence of connectors, mechanical joints, poor-quality fusion splices, or cracks.
- Non-reflective events indicate the possibility of joints, splitters, or bends.
- The application will display the reflectivity of all merged events and the maximum reflectivity of sub-events, as well as the reflectivity of each sub-reflective event.
- Draw two lines to measure the total loss generated by the event (Δ dB).
- Using the least squares approximation method, fit all curve points to the first straight line within the linear region before the first event.
- Using the least squares approximation, fit all the curve points into a second straight line within the linear region after the second event. If there are more than two merging events, this line should be made within the linear region after the last merging event. Then, extend this line towards the direction of the first merging event.
- The total loss (Δ dB) is equal to the power difference between the starting point of the first event (Point A) and the point directly below the first event on the extension line (Point B).
- The application does not display the loss values of sub-events.

11.11 Pass/Fail Test

We use the following example to illustrate a pass/fail test:



merged sub-events:
second-order reflection loss
first-order non-reflective loss

Threshold:
Reflection Loss: 0.5 dB
Non-reflective Loss: 0.2 dB

For merged events, it is possible to determine the overall loss of the event, but not the loss of each sub-event. Therefore, pass/fail tests may sometimes produce false positive or false negative results.

When evaluating the status of events using thresholds, there may be the following two scenarios:

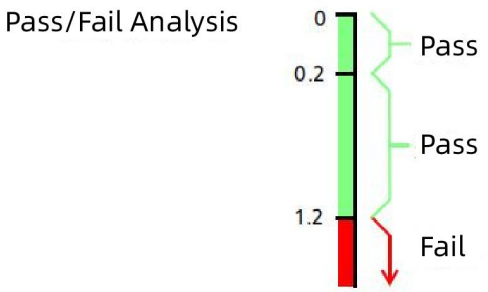
- Test all event types (reflective, non-reflective)
- Test only the selected event types (for example, do not test for reflection loss).

The third scenario involves not testing any event types, meaning there is no need to understand the status of the events.

11.12 Test all event types

In testing all event types, the criteria for pass/fail determination are as follows:

- If the event loss is less than or equal to the minimum threshold, then the event status is "Pass".
- If the event loss is greater than the product of the sum of the number of sub-events of a certain type and the threshold for that event type, then the event status is "not passed."
- If the event loss is 'between', since it is not possible to accurately determine the weights of sub-events in the merged event, the overall status of the event is considered 'passed'.



Fail Level
$= \sum (N_{Sub\text{-}event} \times Th_{Sub\text{-}event})$
$= (2 \times 0.5) + (1 \times 0.2)$
$= 1.2$

If the loss from the merging event is less than or equal to 1.2, it is considered 'Pass'. Otherwise, it is 'Fail'.

XII. Troubleshooting

The table below lists common problems and their solutions.

Problem	Reason	Solution
The program displays a message stating that an "unrecognizable fiber end" event was detected.	The fiber under test is too long.	Ensure that the length of the fiber under test is less than the maximum length that the OTDR can measure.
The program displays a message stating that an "online fiber error" occurred, and the fiber is not connected to the SM Live port.	Light is detected at the OTDR port during data acquisition or while monitoring the fiber in real-time mode.	Disconnect the fiber from the OTDR port. Press 'OK' to close the prompt message. Start a new round of data collection with the OTDR not connected to any fiber. At this point, there should no longer be messages about online fiber errors, and the OTDR curve should appear 'normal'. If the program still prompts an online fiber error message when the OTDR is not connected to any fiber, please contact the manufacturer. Do not connect the live fiber to the OTDR port unless it is properly set up. Injected light with power levels between -65 dBm and -40 dBm can affect the results of OTDR data collection. The impact on data collection results depends on the selected pulse width. Injected signals with power greater than -20 dBm can cause permanent damage to the OTDR module.
The program displays a message stating that an "online fiber error" has occurred, and the fiber is connected to the SM Live port.	The integrated power level in the SM Live port filter bandwidth is too high. The transmission wavelength of the network may be too close to the SM Live wavelength.	Disconnect the fiber from the OTDR port. Press 'OK' to close the prompt message. Start a new round of data collection with the OTDR not connected to any fiber. At this point, there should no longer be messages about errors with live fibers, and the OTDR curve should appear 'normal'. If the program still prompts an error message about live fibers when the OTDR is not connected to any, please contact the manufacturer. Single-mode live fiber testing requires the integrated power in the test channel (corresponding to the filter bandwidth of the SM Live port) to be as low as possible. Injected light with power ranging from -65 dBm to -40 dBm can affect the results of OTDR data collection. The impact on data collection results depends on the selected pulse width. Too high power will prevent data collection. Therefore, it is necessary to check the compatibility of the network and the wavelength of the SM Live port to ensure that the wavelength transmitted by the network does not exceed 1600 nm.

iOLA

I. Introduction to iOLA

Intelligent Optical Link Analysis (iOLA) is an application optimized for describing the characteristics of access networks and FTTx networks. Depending on the configuration of the iOLA module, this application can be used before or after network activation.

1.1 Working Principle

The iOLA application uses our company's hardware to perform data acquisition and displays various elements detected on the tested link. However, while a standard OTDR can only obtain one average curve at a time using a set of given test parameters, iOLA can capture a series of measurements and comprehensively display them in a simple and intuitive link view.

The test parameters for each sub-measurement are determined by a smart algorithm during the measurement process. The iOLA measurement varies with different links, and the test parameters are determined based on the link length, loss, and Optical Return Loss (ORL). The test time depends on the link being tested but is primarily affected by the total link loss. The application uses information from all sub-measurements to improve the characterization of each element found on the link, in order to produce accurate and complete results. Depending on the module configuration, you can perform single-wavelength data collection or multi-wavelength data collection. In the latter case, the application provides results for each wavelength and displays a composite pass/fail status for each element.

The application represents the link with a straight line and aggregates these results on it, displaying the position, loss, reflectivity, and type of each element.

1.2 Export data to other formats

The iOLA application can generate reports in PDF format, facilitating post-processing of measurement results.

1.3 Incident fiber and receiving fiber

Unlike traditional OTDRs, iOLA only requires a very short length of incident fiber (>50 meters) to enjoy all the advantages of this reference method, unaffected by link length and loss size. When testing Passive Optical Network (PON) links, it is recommended that the length of the incident fiber not exceed 200 meters. The loss and optical return loss performance at the OTDR output port may degrade after multiple connections, therefore, it is recommended to use an incident fiber.

In the link view, the first element of the tested link is marked with the letter (A). Using a launch fiber can accurately measure the first connector (A) on the tested fiber link and exclude the wear of the OTDR connector in the link evaluation. If an APC interface is used, a suitable decline in the performance of the OTDR connector can be accepted, because the angled polish maintains a lower optical return loss, thereby preventing too low end resolution. Using a launch fiber can exclude the loss of the OTDR connector from the measurement results. Each time a measurement is performed, iOLA evaluates the loss of the OTDR connector and reports the condition of the connector. Please note that if the connector's loss is too great, the instrument's measurement capability will be reduced. Additionally, using a launch fiber can reduce the number of times direct connections are made on the connector, thus protecting the OTDR connector. Because compared to replacing the OTDR connector, it is easier to repair or replace the launch cable.

In the link view, the last element of the link under test is marked with the letter (B). To measure the last connector (B) of the link and improve the accuracy of the total insertion loss by comparing the differences between two known fibers (to avoid errors caused by different backscatter coefficients in the link fibers), a receiving fiber can be connected at the fiber end opposite the test module. If a receiving fiber is not used, the iOLA application can measure the position and optical return loss of the connector without matching, but it cannot measure its loss, nor will it display the pass/fail status of the connector. The length requirement of the receiving fiber depends on the loss of the link being tested. Higher losses require longer pulses to reach the receiving fiber. Unlike the incident fiber, the receiving fiber has the same limitations as traditional OTDR. For testing a fiber span with a loss below 2 dB and a length of 1 km, the required length of the receiving fiber is only 100 m. For a PON link with a test loss of 23 dB, depending on the length of the fiber after each splitter, the required length of the receiving fiber ranges from 500 m to 2 km.

The iOLA application allows you to manually set the lengths of the incident and receiving optical fibers. It can also automatically measure the incident or receiving fibers. When performing calibration, the application conducts a quick measurement and calculates the fiber length. Therefore, during calibration, simply connect the fiber under test to the module.

If link elements are found on the calibrated fiber or an OTDR connector fault is detected, the calibration fails and the application will display an alarm explaining the reason for the failure. A shorter fiber patch cord (<5 m) can be used between the device and the calibrated fiber, and the length of this patch cord will be included in the calibration length. If the calibration is successful, the length of the incident or receiving fiber in the "Test Parameters" tab will be updated accordingly.

During the measurement, iOLA will attempt to match the elements found on the link to the specified incident and receiving fibers in order to set the positions of connectors A and B. If no events are found at the specified distance due to a "perfect" connection between the link and the incident or receiving fibers, iOLA will insert an element (zero loss and zero back reflection) at the specified position.

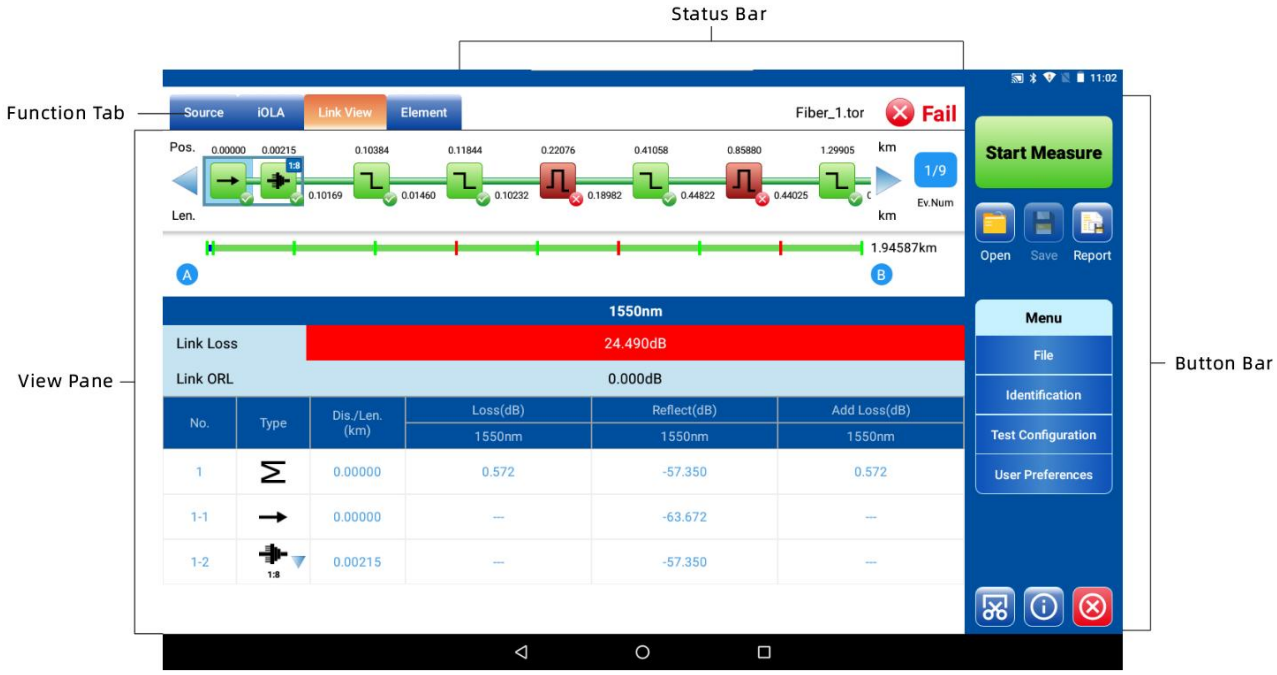
For more details, please refer to page 111, "Configuring iOLA."

II. Getting Started with iOLA

Note: For detailed information about inserting or removing test modules and launching applications, please refer to the user manual of the platform or device.

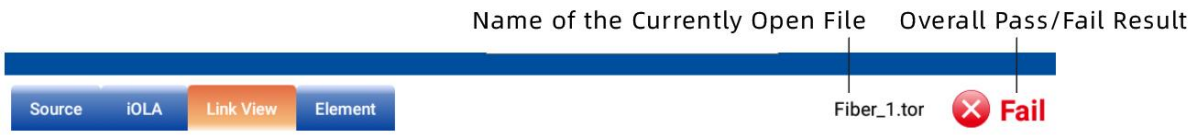
2.1 Main Window

The main window allows you to start data acquisition and view measurement results and values.



2.2 Status Bar

The status bar at the top of the main window displays the name of the currently loaded iOLA file, a data acquisition progress bar, and an overall pass/fail status.



III. Prepare iOLA for testing

3.1 Install or Replace Stainless Steel Flanges

Installation and Replacement Procedures for Stainless Steel Flanges:

1.Rotate the OTDR flange clockwise to remove it.

2.Select the flange head to be replaced and install it by rotating.

3.2 Clean and connect the optical fiber

Important Note

To ensure maximum power and avoid erroneous readings:

- "Before inserting the fiber end into the port, please make sure to check the fiber ends as described below to ensure they are clean. Our company is not responsible for any damage or errors caused by the use of incorrect fiber cleaning or handling methods.
- Please ensure that the fiber optic patch cord is equipped with the appropriate connector. Connecting mismatched connectors will damage the core.

Fiber Cable Connection to Port Steps:

1. Inspect the optical fiber using a fiber optic inspection probe. If the fiber is clean, insert it into the port. If the fiber is dirty, clean it using the following method.
2. Clean the fiber end face as follows:
   2a. Gently wipe the fiber end-face with a lint-free cotton swab dipped in optical cleaning solution.
   2b. Use a dry cotton swab to completely dry the connector.
   2c. Inspect the fiber optic end-face visually to ensure it is clean.
3. Carefully align the connector with the port to prevent the fiber optic end face from touching the outside of the port or rubbing against other surfaces.

If the connector has a latch, please ensure that it is fully inserted into the corresponding slot of the port.

4. Push the connector in to secure the optical cable in place and ensure full contact.

If the connector comes with a threaded sleeve, twist the connector until the fiber is securely fastened. Do not overtighten, as this may damage the fiber and the port.

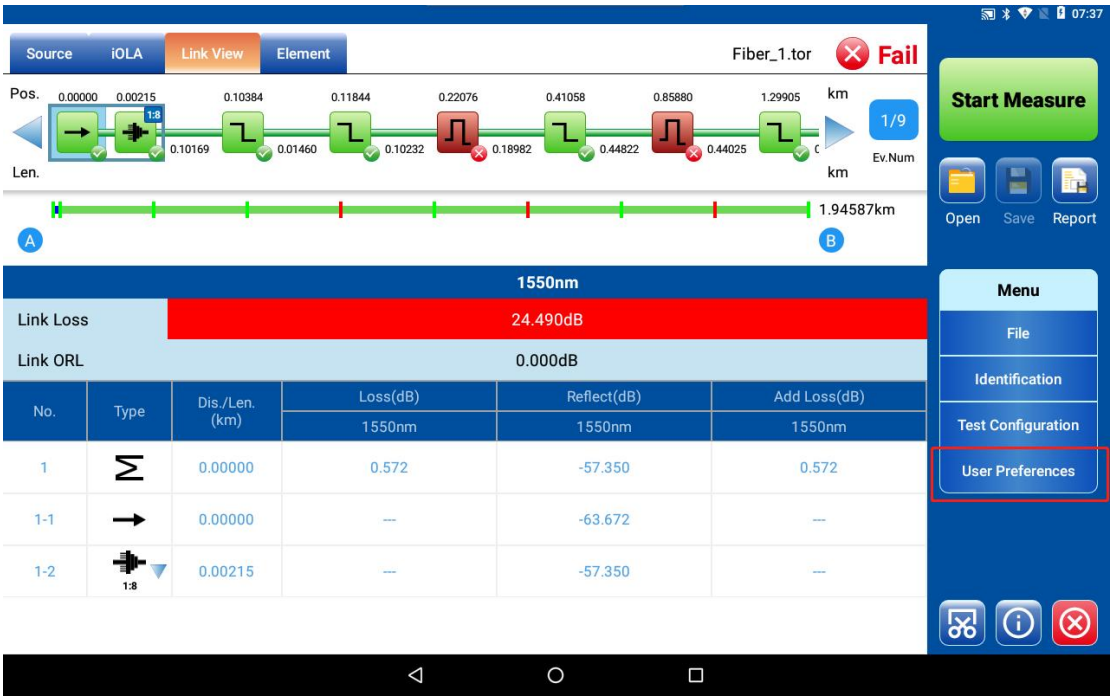
Note： If the optical cable is not locked and/or connected properly, significant losses and reflections will occur.

3.3 Set the "General Information" tab

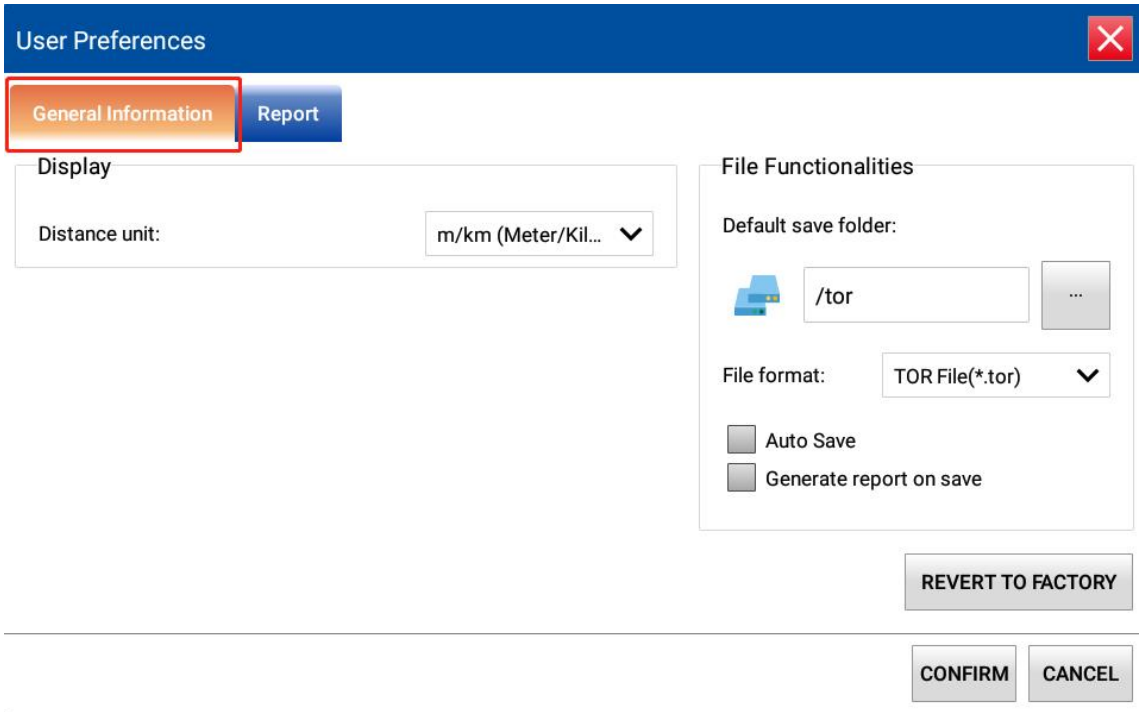
The "General Information" tab allows you to set the distance units and file functions of the application.

To set general information options:

1. In the "Menu," tap "User Preferences."



2. Select the "General Information" tab.



3. Under the "General Information" tab, configure the following options:

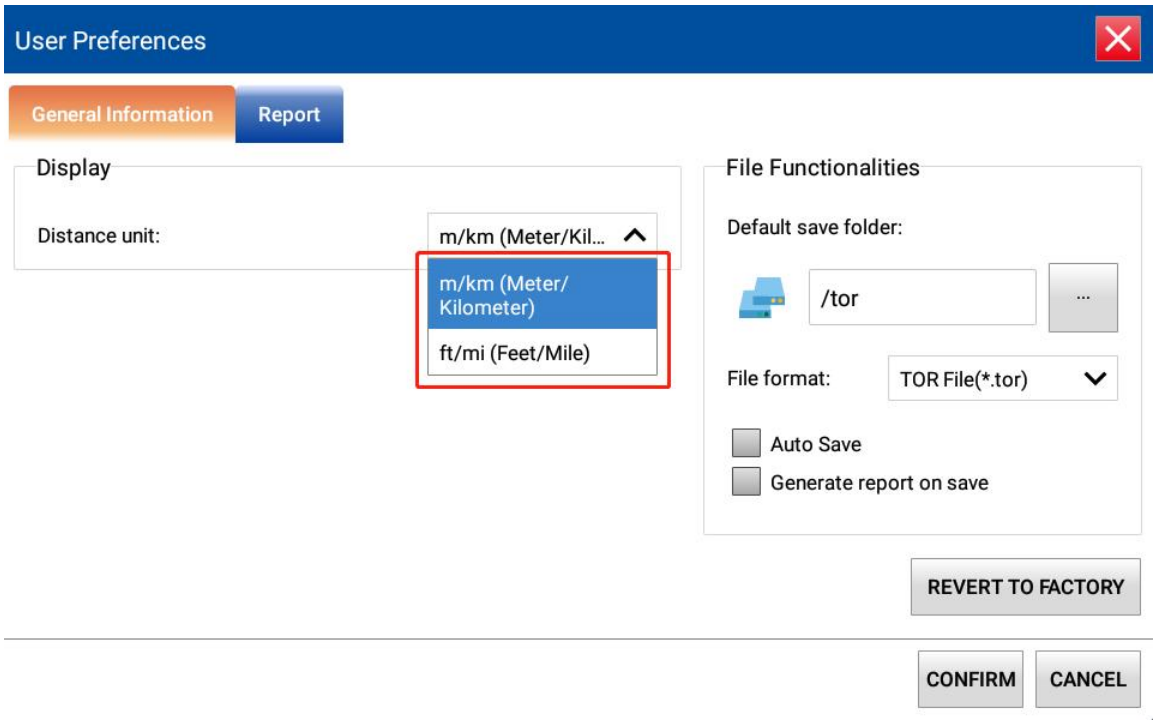
➢ "Distance Unit": Select the distance unit from the dropdown menu.

The default distance unit is kilometers.

You can select the measurement units to use in the application. The options include:

• m/km(Meter/Kilometer)

• ft/mi(Feet/Mile)



Note：The units used in the application and reports depend on the units selected here.

Note：Typically, distances less than 1 kilometer or 1 mile are converted to meters or feet. However, if listed, distances are uniformly presented in kilometers or miles, and those less than 1 kilometer or 1 mile will not be converted.

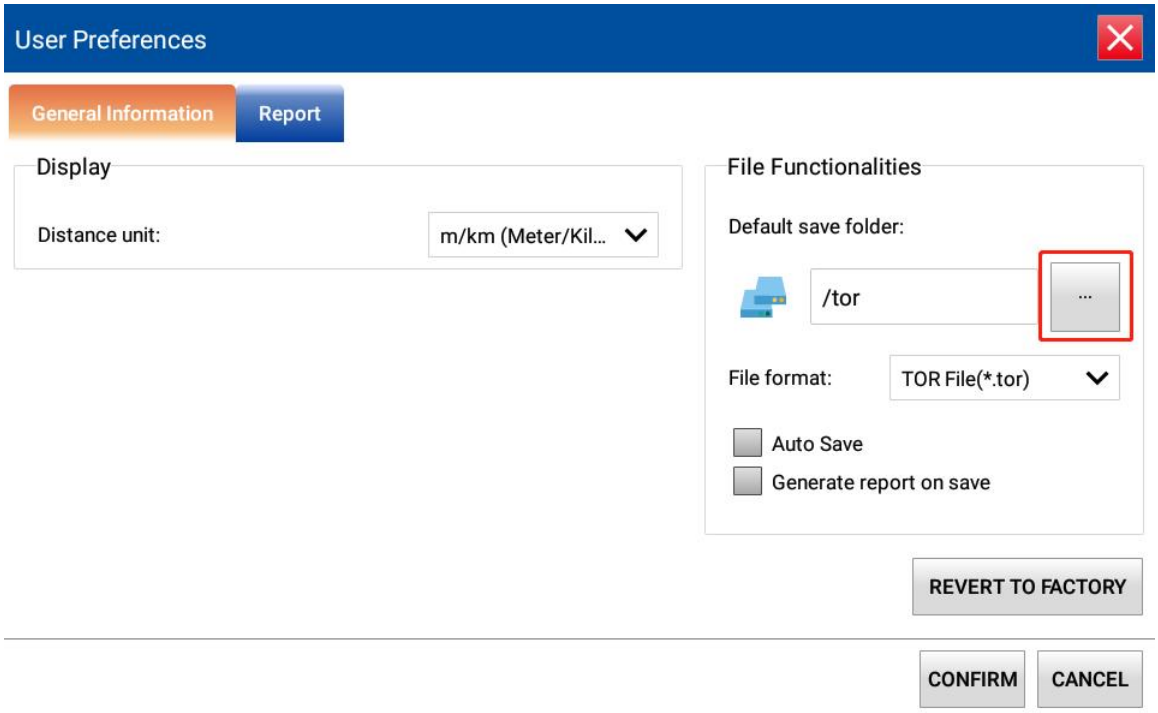
Note：Even if the selected distance unit is not kilometers, the attenuation values for fiber segments are always displayed in dB/km, as this is more in line with the standards of the fiber optics industry.

➢ "Default save folder"：Enter the location to save the file. This path is used to save the iOLA file after data collection.

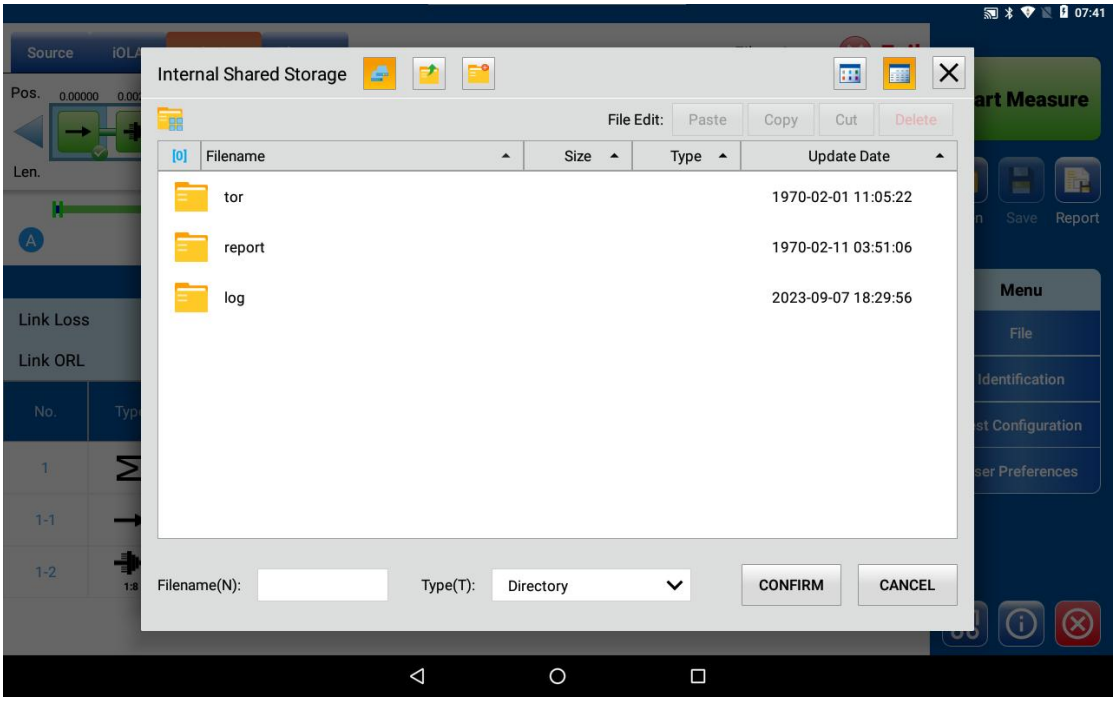
Note：If it is the first time starting data acquisition, the application will use the default path provided by the operating system to save files. The default storage folder is /tor. You can change this folder as needed, or you can use a USB drive.

Steps to Set the Default Save Folder:

1. In the "Menu," tap the "User Preferences" button.
2. Select the "General Information" tab.
3. Tap the "  " button next to "Default save folder".



4.In the "Browse Folder" window, select the location where you want to save the file.



5.Tap "CONFIRM" to exit the "Browse Folder" window.

6.Tap "CONFIRM" to return to the main window.

- "Default File Format": Saves in the default TOR file format by default.
- "Auto-Save Measurements": The application automatically saves the measurement files after the analysis is

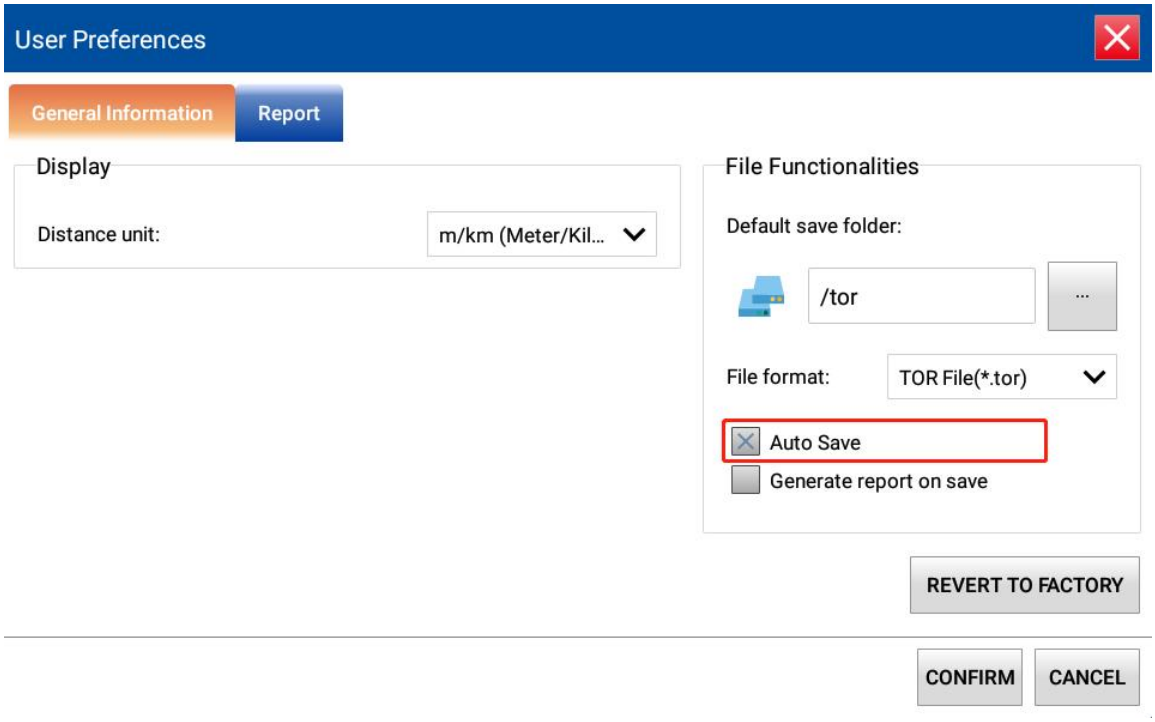
completed.

By default, the application does not automatically save measurements after analysis. However, you can configure it to automatically save measurements.

Note： The application cannot save files under the following circumstances: iOLA measurement results lack the required OTDR intermediate data, the iOLA data collection process is manually interrupted, or the presence of live fiber during iOLA measurement automatically interrupts the data collection process.

Steps to enable or disable the 'Auto-Save Measurements' feature:

1. In the " Menu", tap the "User Preferences" button.
2. Select the "General Information" tab.
3. Check the "Auto Save" checkbox.



Note： If the required measurements are not automatically saved, you will need to save them manually.

4. Tap "CONFIRM" to return to the main window.

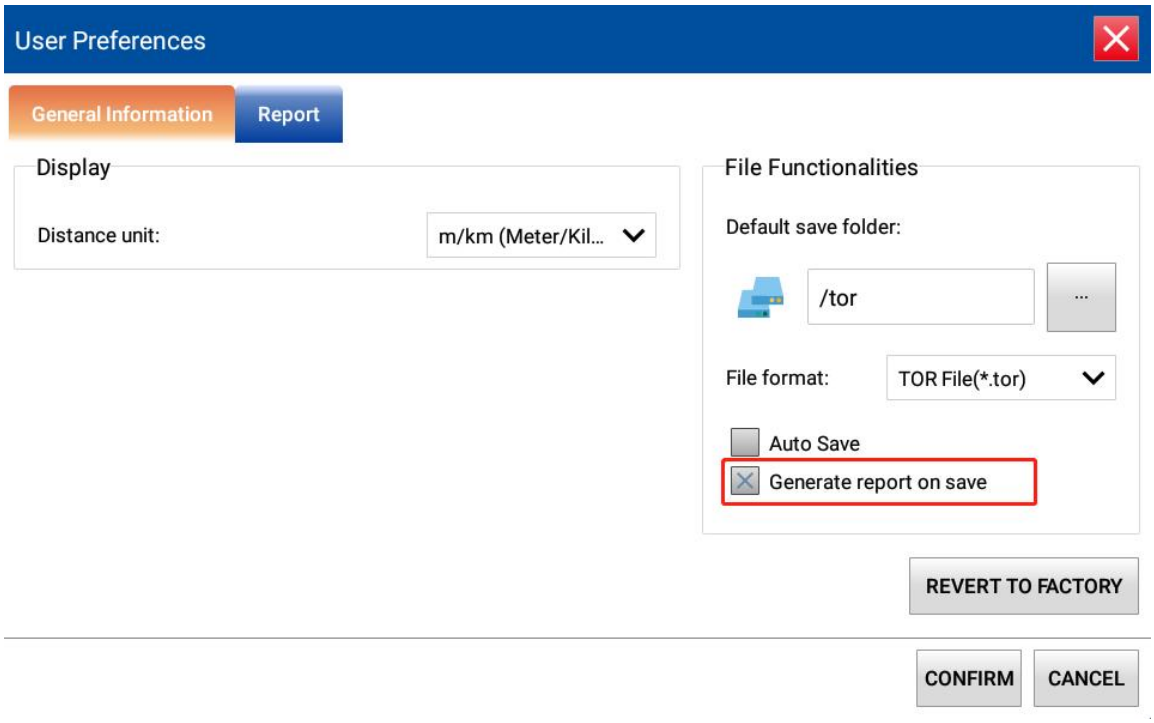
The application will automatically apply the changes made.

- "Generate report on save": The application automatically generates a report when the file is saved.

Enable or Disable the "Generate report on Save" Feature Operational Steps:

1. In the "Menu," tap the "User Preferences" button.
2. Select the "General Information" tab.

3. Check the "Generate report on save" checkbox.



4. Tap "OK" to return to the main window.

Each time an OTDR file is saved, the application automatically generates and saves a report file.

3.4 Customize iOLA Report

You can configure the content included in the PDF-format iOLA report generated on the device.

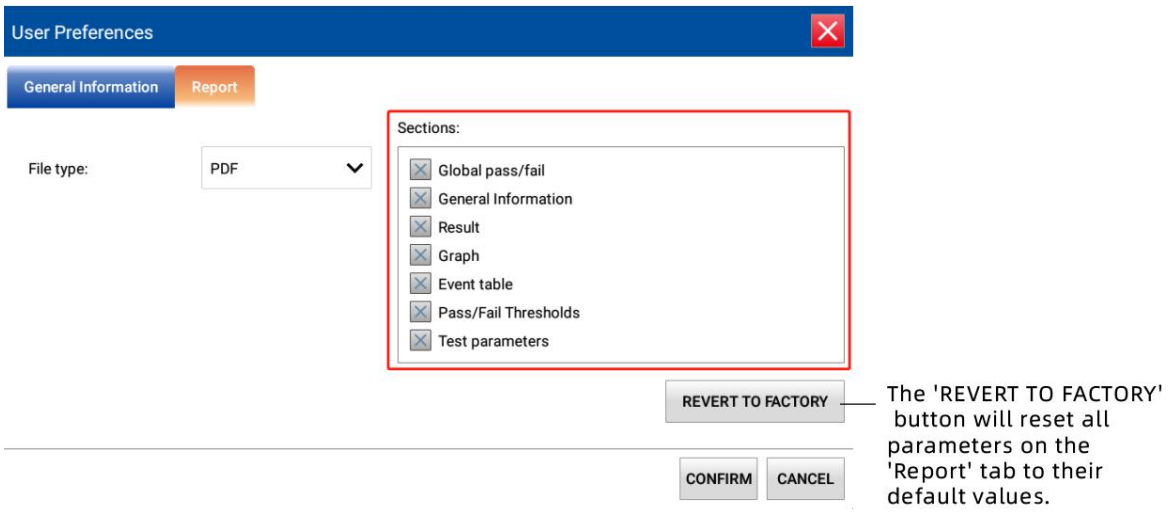
Note： The file report generation only supports the PDF format.

The list below shows the information options that can be included in the PDF report. All options are selected by default.

- Global pass/fail Status: Displays whether the results have passed the test. This status is shown in the top right corner of the report.
- General Information: Includes the file name, test date, and time.
- Result: Displays link measurement information such as span length, span loss, average loss, and span optical return loss.
- Graph: Generate link graphics that are exactly the same as those on the screen.
- Event table: Values with the status "Failed" are displayed with a red background and white text. Values with the status "Passed" are not highlighted. When the application detects a macro bend event at two wavelengths, it will be generated in the event table.
- Pass/Fail Thresholds: Displays the thresholds set in the "Pass/Fail Thresholds" tab of the "Test Configuration" window, including thresholds for joint loss, connector loss, reflectance, and fiber segment attenuation.
- Test Parameters: Display wavelength, range, pulse width, and duration.

Steps to Specify Report Content:

1. In the "Menu," tap the "User Preferences" button.
2. Select the "Report" tab.
3. Select the contents to be included in the report.



4.Tap "CONFIRM" to return to the main window.

3.5 Auto-Naming iOLA Files

Based on your settings, the file names are composed of one or two fixed parts (alphanumeric) and one or two variable parts (incrementing or decrementing numbers), as shown below:

If you choose to increase ...	if you choose to decrease ...
The variable part of the sequence increases incrementally until it reaches the maximum value for the specified number of digits, and then it starts again from 1.	The variable part decreases in order until it reaches 1, and then restarts from the maximum value of the specified number of digits.

Note：To make the values decrease, the starting value must be greater than the stopping value.

After saving the results, the device will increment (or decrement) the suffix of the current filename to be used as the new filename.

You can choose the number of digits displayed for incremental or decremental values.

One or more identifiers in the file name can be incremented.Selecting a marker will use the increment (decrement) value you have set.

If multiple identifiers are selected, starting from the second identifier, they will be displayed in the order you set, and will begin incrementing from the last item in the list (the item with the highest identifier number). For example, if the filename contains location identifier, cable identifier, and fiber identifier, in that order, the first item to increment will be the fiber identifier, followed by the cable identifier, and finally the location identifier:

location1，fiber cable1，fiber1

location1，fiber cable2，fiber1

location1，fiber cable2，fiber2

and so on.

Note：If the current curve file is not saved, the recommended file name will be used for the next curve file.

This feature is very useful when testing multi-fiber optic cables.

If the automatic file naming feature is disabled, the application will use a default filename.

The changes made to the automatic naming parameters are only effective for files that have not yet been saved. If the test is complete but not saved, you can only view the automatic naming parameters for the current and next data collection files; if the test is not complete, you can only view the parameters for the next data collection. In other cases, the application does not display the file automatic naming parameters.

You can also restore all parameter values to their default settings.

Steps for Automatic Profile Naming:

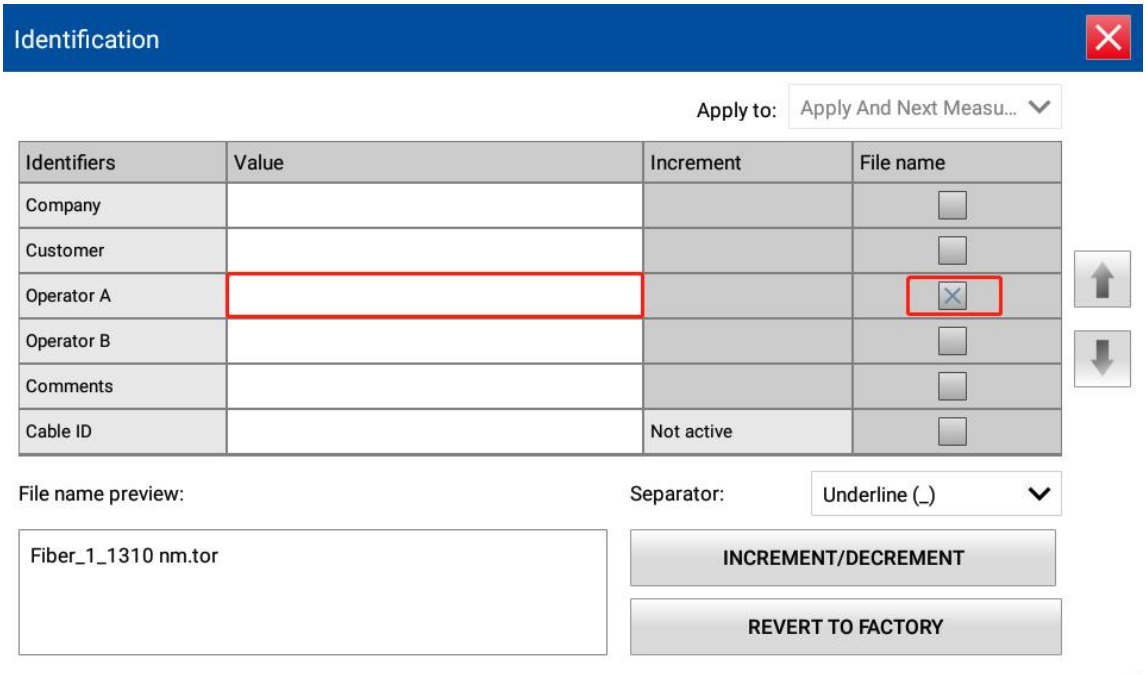
1. In the "Menu," tap "Identification".

2. Perform the following actions to enter all information:

2a. To change the identifier, locate the row containing the identifier you wish to change, and tap the checkbox in the "File Name" column to enable the identifier that needs to be changed.

2b. Tap the "Value" field corresponding to the desired identifier.

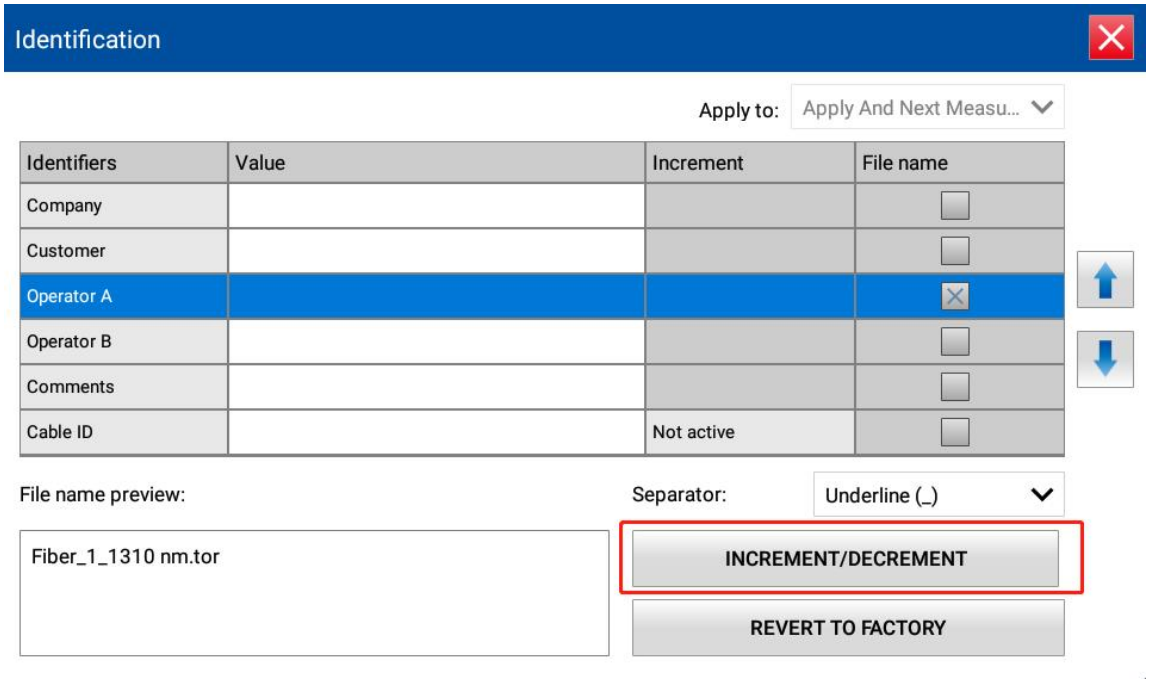
2c. Enter the corresponding information.



Note： The information inside the gray box cannot be changed.

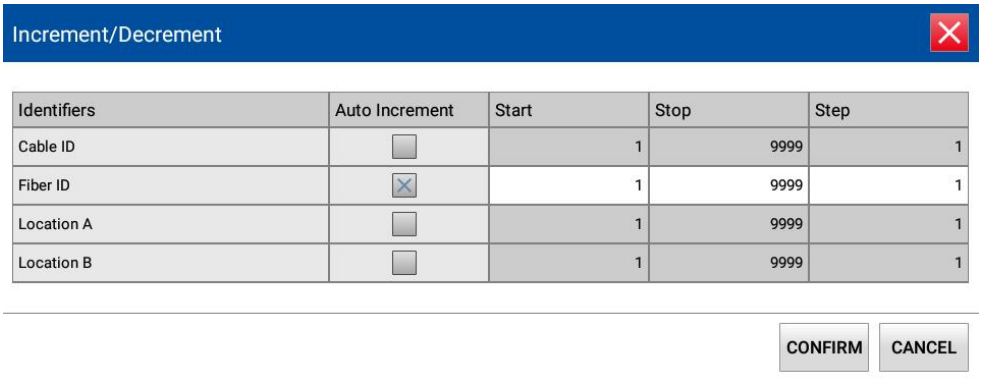
3. To enable automatic increment of the cable identification, fiber identification, or location (A and/or B), please perform the following steps:

3a. Tap the “INCREASE/DECREASE” button.



3b. In the "Increase/Decrease" window, check the "Auto Increment" checkbox corresponding to the target identifier.

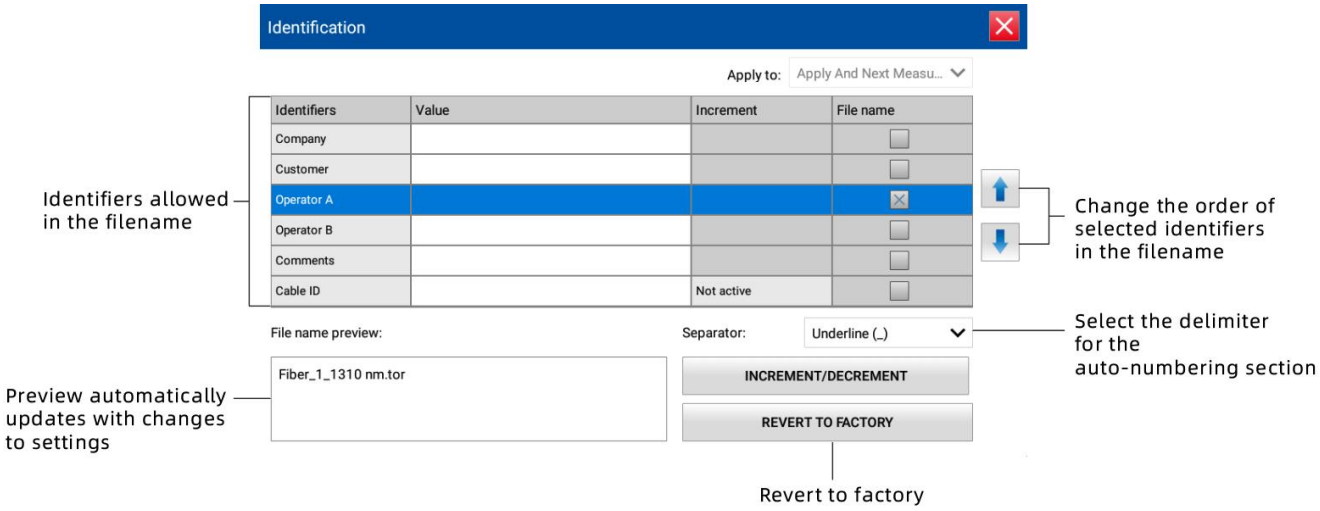
3c. Enter the start value, stop value, and step value as needed.



Note： To make the value decrease, the starting value must be greater than the stopping value.

3d. Tap "CONFIRM" to return to the "Identification" window.

4. Select the identifiers to include in the file name. Check the identifiers and then use the up or down arrow buttons to change their position in the file name.

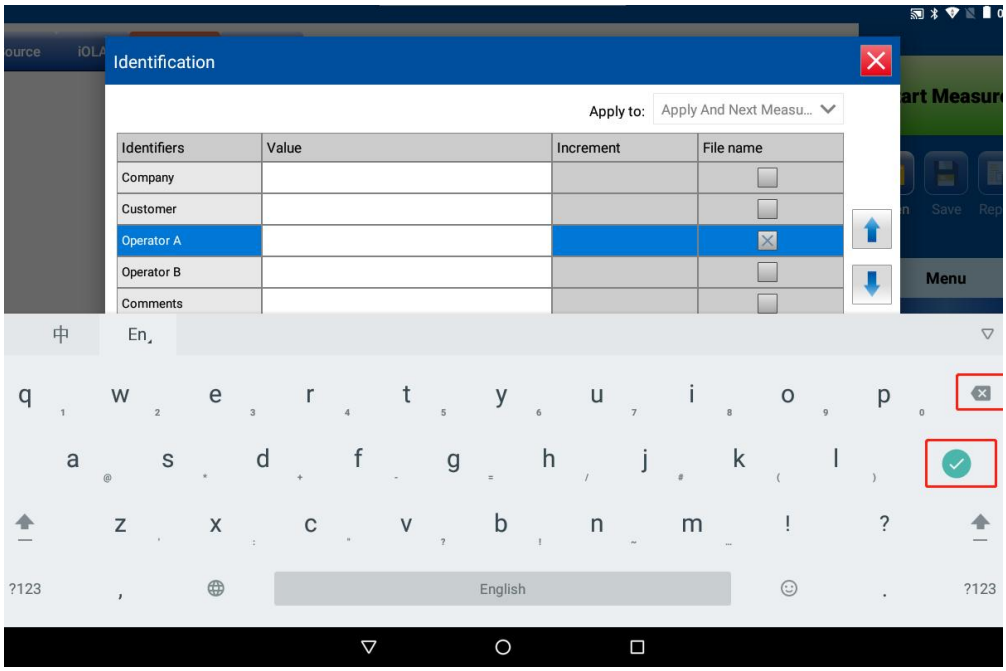


5. Tap "CONFIRM" to confirm the new settings and return to the main window.

Clear “Value” Steps:

1.In the”Menu”, tap “Identifiers”.

2. Tap the white box in the “Value” column that needs to be cleared, which brings up the soft keyboard. Tap “ ” to delete the contents of the ”Value” column, then tap “ ” to return to the Identify window.



3.Tap ” ” to return to the main window.

3.6 Set the IOR and RBS coefficient.

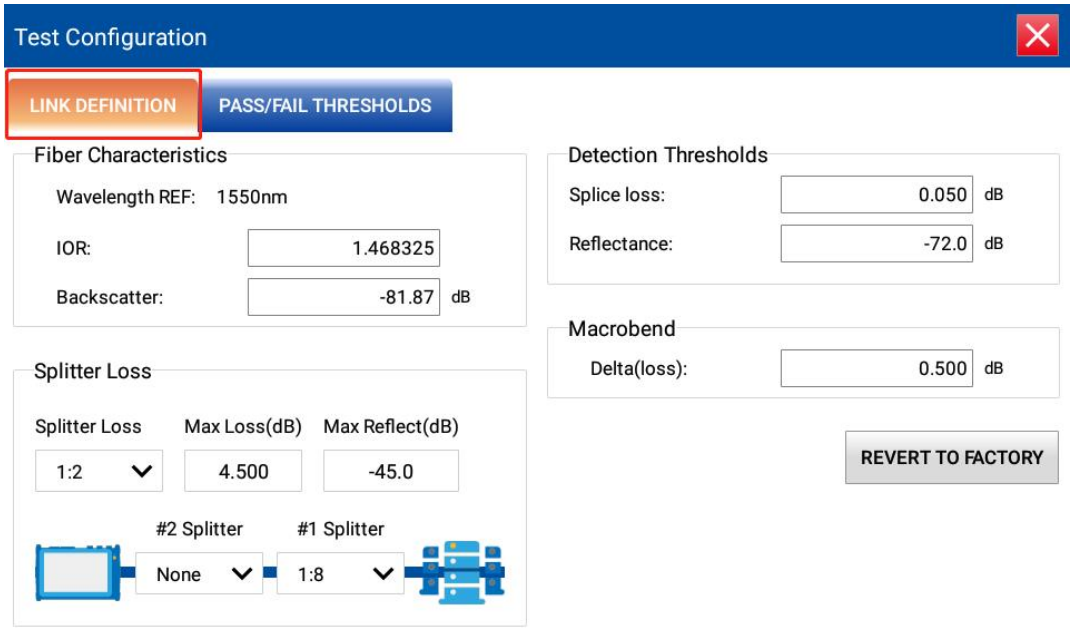
Before conducting the test, it is necessary to set the refractive index (group index) and the backscatter coefficient, so that these parameters can be applied to all newly collected curves.

- The refractive index (IOR), also known as the group index, is used to convert the propagation time of light into distance. For all distance-related OTDR measurements, such as event location, attenuation, segment length, total length, etc., the correct refractive index is crucial. The refractive index is provided by the cable manufacturer or fiber manufacturer.
  The testing application sets default values for each wavelength. You can also set the refractive index for each wavelength. This information should be confirmed before each test.
- The Backscatter (RBS) coefficient indicates the amount of backscatter in a specific fiber. This coefficient is used to calculate event loss and reflectance, and is typically provided by the cable manufacturer. The testing application sets default values for each wavelength. You can also set the RBS coefficient for each wavelength. The application saves the thresholds in the measurement result file. Thus, these thresholds can be viewed even when the measurement result file is opened on other devices. The refractive index and RBS coefficient can be reset to their default values.

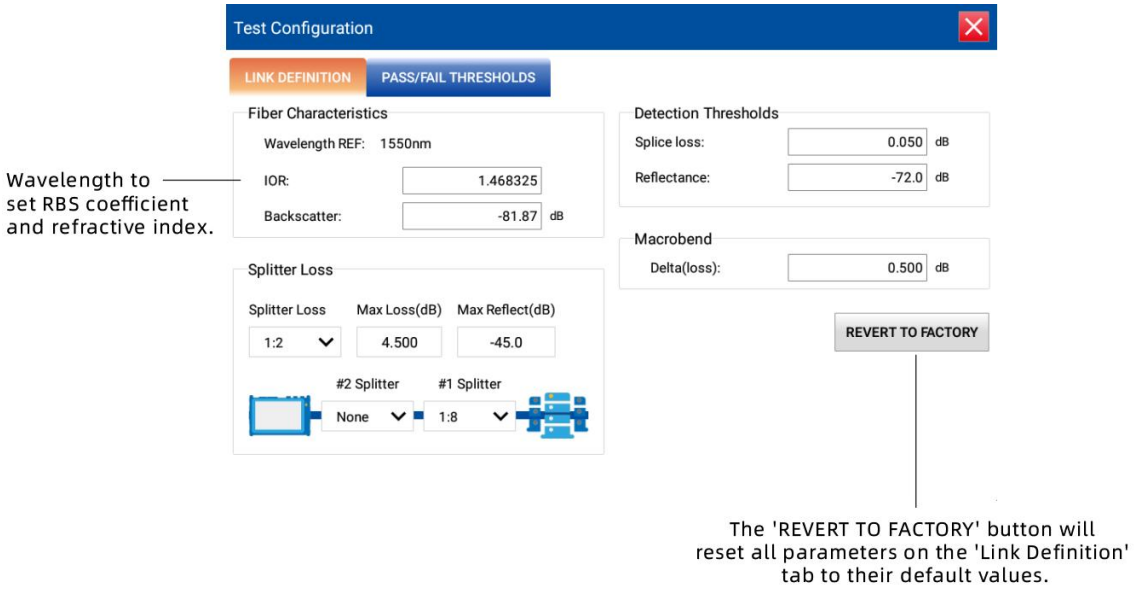
Steps to Set IOR and RBS Coefficient:

1.In the “Menu”, tap on “Test Configuration”.

2.In the "Test Configuration" window, open the "Link Definition" tab.



3.Under "Fiber Characteristics", set the IOR and RBS coefficient as needed.



Important Note

It is essential to have the RBS coefficient provided by the fiber manufacturer in order to change its default value. If this parameter is set incorrectly, the reflectivity measurements will be inaccurate.

4.Tap on the "  " to return to the main window.

3.7Set Analysis Detection Thresholds

Setting the following analysis detection thresholds can optimize the event detection function:

- Splice loss: Display or hide small non-reflective events.
- Reflectance : Used to hide false reflective events caused by noise, convert harmless reflective events into loss events, or detect reflective events that may endanger the network and other fiber optic equipment.

Setting thresholds helps to ignore events with known small measurements or ensures that all events are detected, even those with very small measurements.

The application saves the thresholds in the measurement result file. Therefore, these thresholds can be viewed even when the measurement result file is opened on other devices.

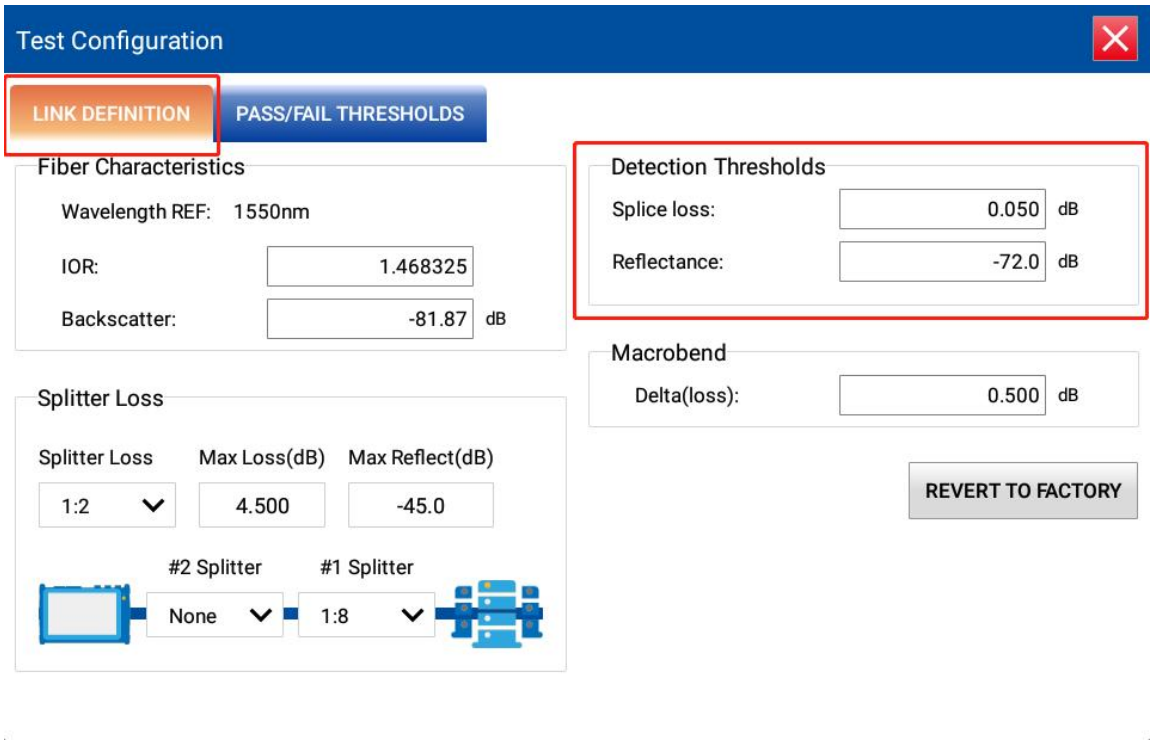
Teps to Set Analysis Detection Thresholds:

1. In the "Menu," tap "Test Configuration."
2. In the "Test Configuration" window, open the "Link Definition" tab.

Important Note
The "REVERT YO FACTORY" button will reset all parameters on the "Link Definition" tab to their default values.

3. Under "Detection Thresholds," enter the values for each parameter as needed.

If you want to reset all parameters to their default values, tap the "REVERT YO FACTORY" button.



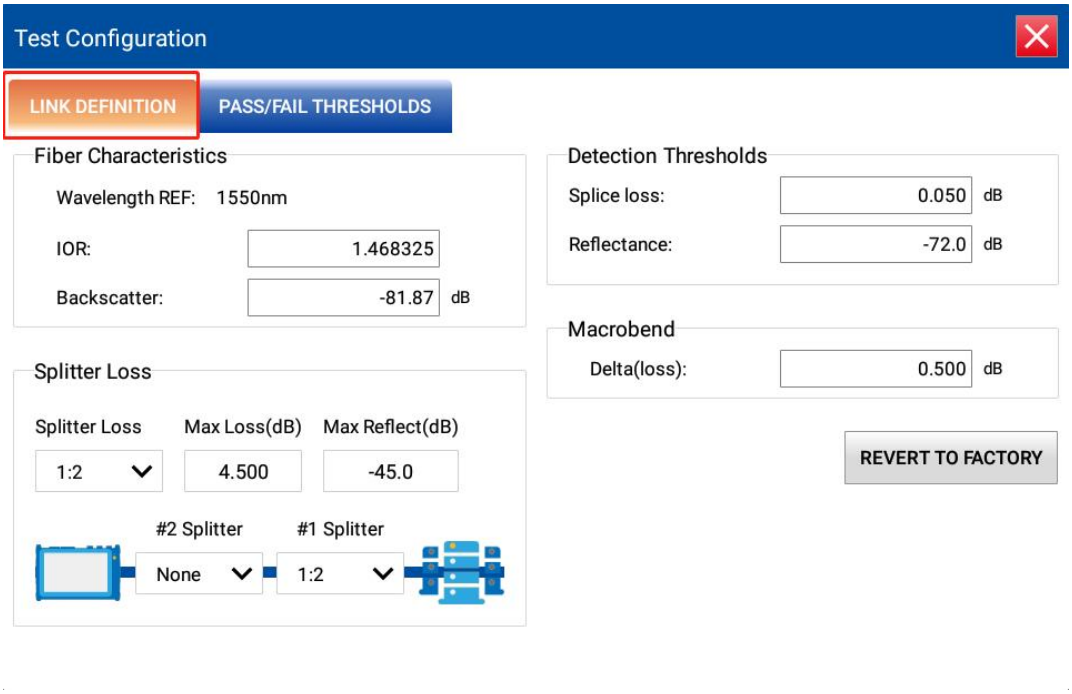
4.Tap the "  " to return to the main window.

Changes made to the analysis detection thresholds will apply to all new detections.

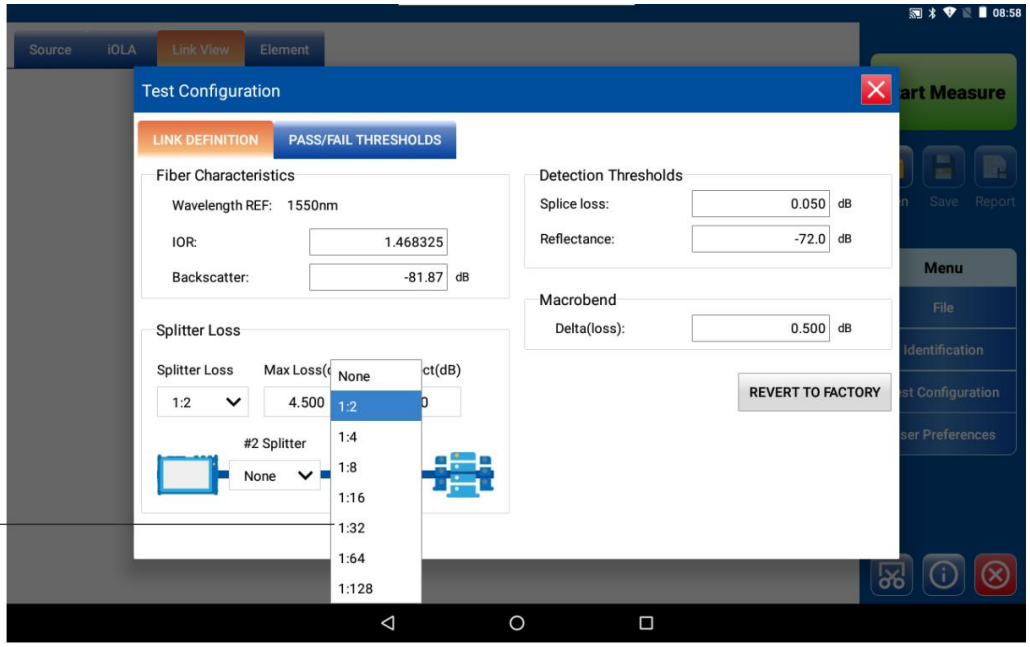
3.8 Set the splitter ratio

A splitter is a passive optical coupler used to divide the light from one fiber into multiple fiber channels.
The splitter ratio setting corresponds to the splitter ratio on the link. For example, if a 1:2 splitter is placed on the link and a 1:2 splitter along with its loss threshold is set in the program, then during measurement detection, it will determine whether the loss of the 1:2 splitter in the detection results exceeds the detection threshold. If the loss exceeds the threshold, it fails; otherwise, it passes.
Note： For detailed information regarding the setting of splitter loss thresholds, please refer to page 98, "Setting Pass/Fail Thresholds."
Note： Generally, the application measures and judges sequentially, evaluating each splitter's loss, etc., based on their order to determine if they are within the detection threshold range. It is not possible to skip the first splitter and set the second splitter directly.

Steps to Set the Splitter Ratio:
1. In the "Menu," tap "Test Configuration."
2. In the "Test Configuration" window, open the "Link Definition" tab.



3.Under "Splitter Loss," select the splitter ratio that needs to be set.
Note： "None" means the splitter is not enabled.


Source
iOLA
Link View
Element
Test Configuration
LINK DEFINITION
PASS/FAIL THRESHOLDS
Fiber Characteristics
Wavelength REF: 1550nm
IOR: 1.468325
Backscatter: -81.87 dB
Splitter Loss
Splitter Loss
Max Loss(
ct(dB)
1:2
4.500
#2 Splitter
None
Detection Thresholds
Splice loss: 0.050 dB
Reflectance: -72.0 dB
Macrobend
Delta(loss): 0.500 dB
REVERT TO FACTORY
None
1:2
1:4
1:8
1:16
1:32
1:64
1:128
Menu
File
Identification
Save
Report
Splitter Ratio Settings Dropdown Menu.

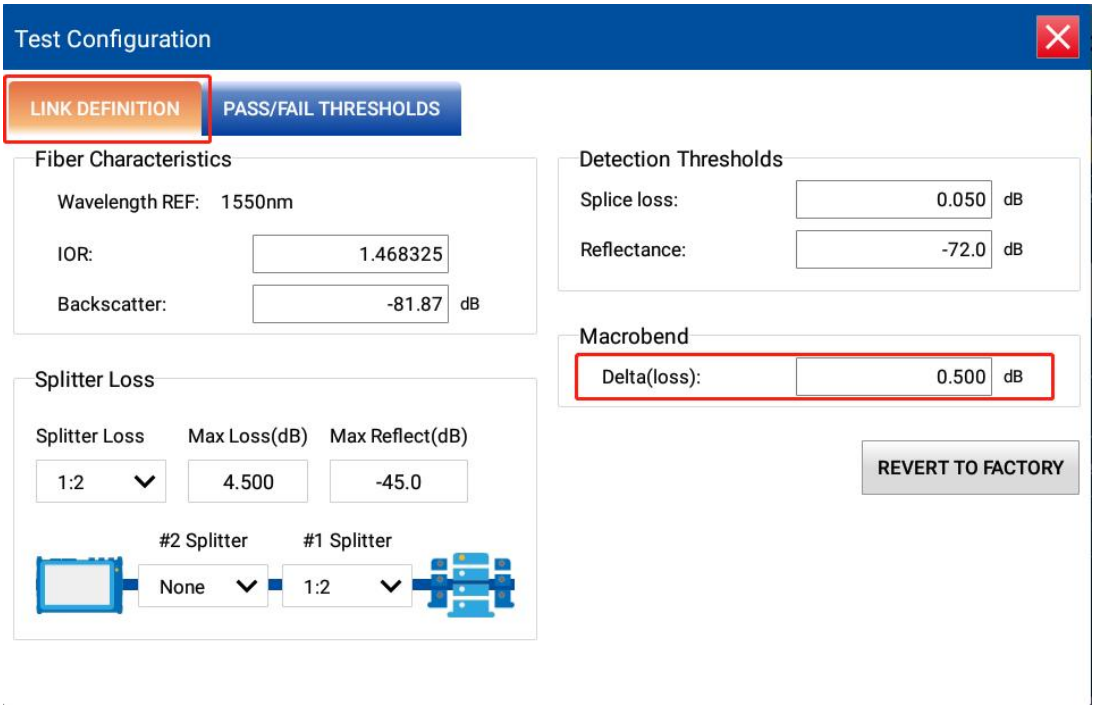
3.9 Set Macrobend

The device can measure the event loss values at a given wavelength (e.g., 1310 nm) and another wavelength (e.g., 1550 nm) at the same location, and then compare these two loss values to locate macro bends.
If the following conditions occur when comparing the two loss values, the device will confirm the presence of a macro bend:

- When the loss at the longer wavelength is greater than the loss at the shorter wavelength.
  and
- The difference between the two loss values exceeds a specified loss difference threshold. The default loss difference threshold is 0.5 dB (suitable for most fibers). You can adjust this threshold based on actual conditions.

Setting Macrobend Steps:

1. In the "Menu," tap "Test Configuration".
2. Select the "Link Definition" tab.
3.In the "Delta (Loss)" box, enter the desired value.



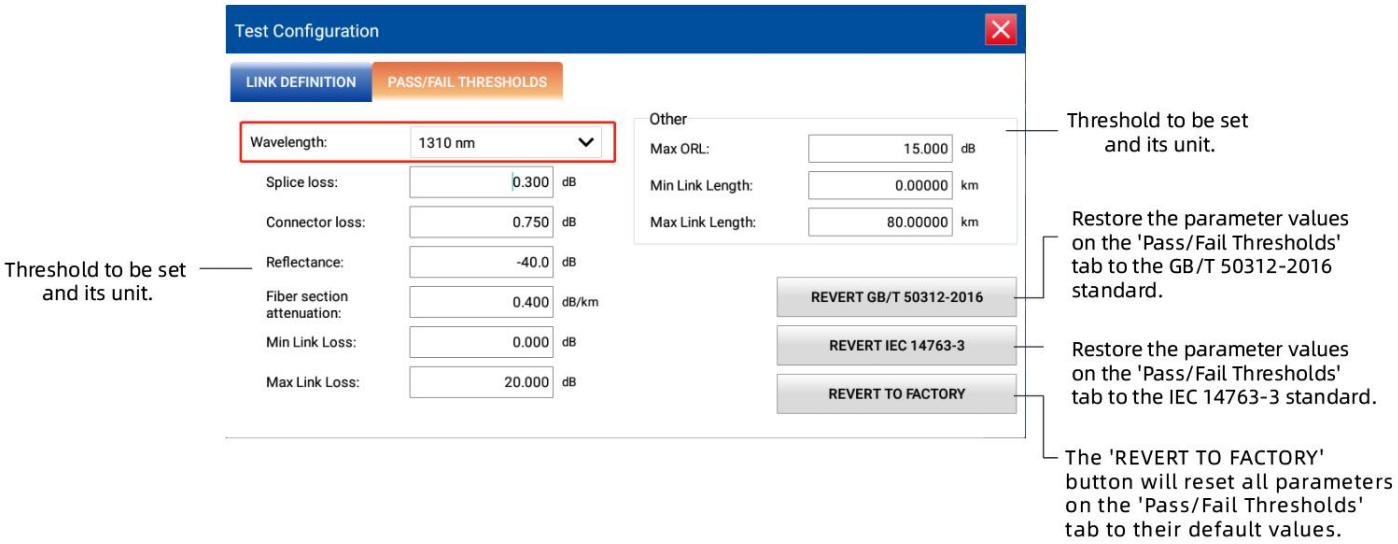
6.Tap "  " to return to the main window.

3.10 Set the pass/fail thresholds.

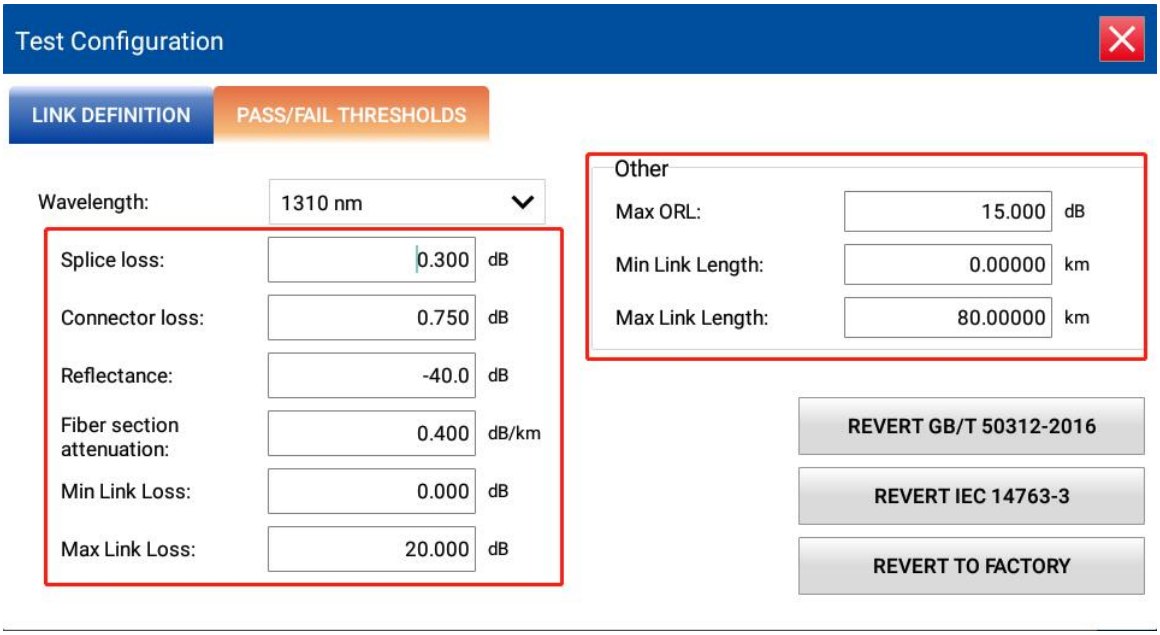
You can set the "pass/fail threshold" parameters for the test.
The application saves the thresholds in the measurement results file. Therefore, these thresholds can be viewed even when the measurement results file is opened on other devices.
You can set thresholds for connector loss, splitter loss, reflectance, fiber segment attenuation, minimum/maximum link loss, maximum link loss ORL, and minimum/maximum link length. You can apply different thresholds for each wavelength.
These pass/fail thresholds will be applied to the analysis results of the current curve and all new curves for the corresponding wavelengths.
If the processed file contains other wavelengths, the application will automatically add these wavelengths to the available wavelength list. You can then set thresholds for these new wavelengths. You also have the option to reset all thresholds to their default values.
The set thresholds for loss, reflectance, and attenuation apply to all events that can measure such values.
Once thresholds are set, the application is able to perform pass/fail tests to determine the status of the measurement results (either pass or fail).

Steps for Setting Pass/Fail Thresholds Tab:

1. In the "Main Menu," select "Test Configuration."
2. Select the "Pass/Fail Thresholds" tab.
3. n the "Wavelength" list, select the wavelength for which you want to set the threshold.



4. Enter the desired values in the corresponding threshold text boxes.

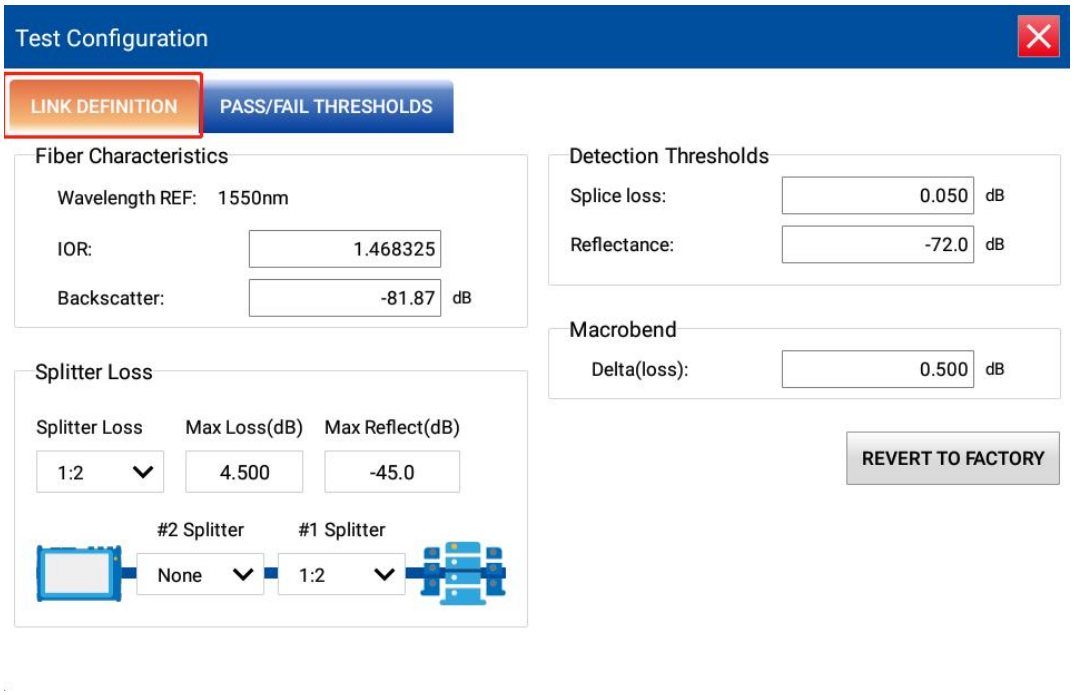


5.Tap "  " to return to the main window.

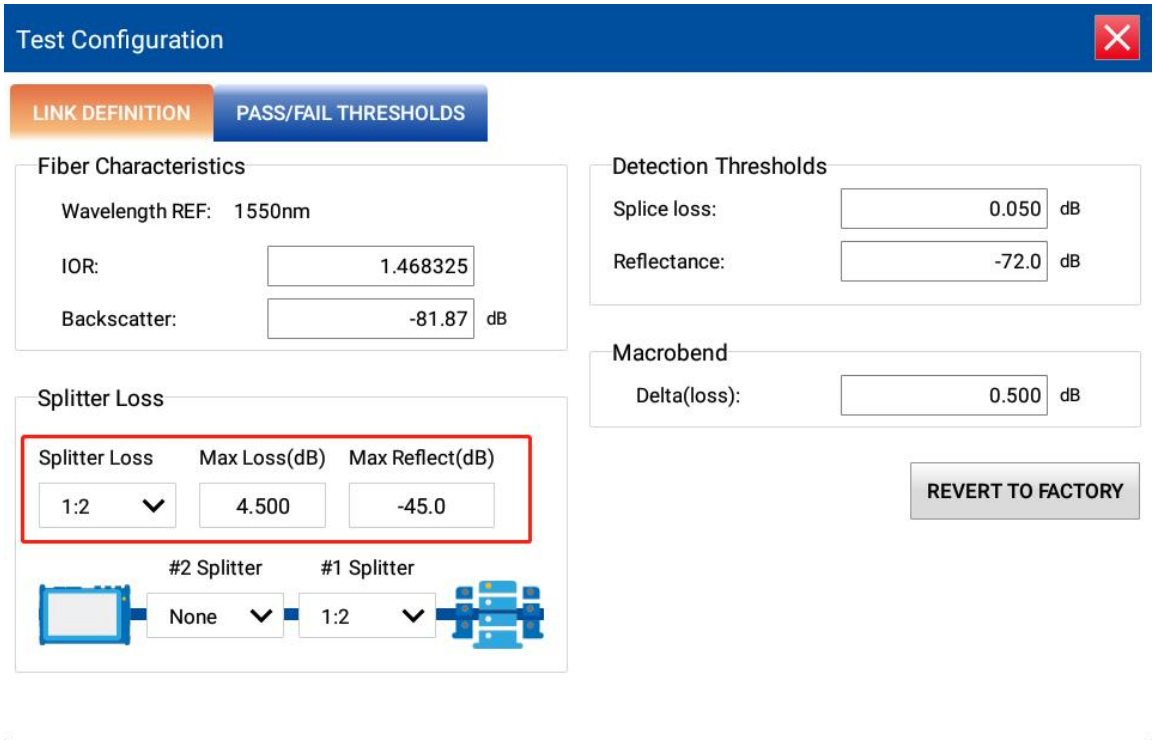
During measurement detection, the application will determine whether the loss in the splitter from the detection results exceeds the detection threshold. If it exceeds the threshold, it will fail; otherwise, it will pass.

Steps to Set the Splitter Loss Threshold:

1. In the "Main Menu", tap "Test Configuration".
2. Select the "Link Definition" tab.



3.After setting the splitter ratio, text boxes displaying the splitter loss and reflectance thresholds will appear. The text boxes will show the default thresholds (for detailed information on setting the splitter ratio, please refer to page 96, "Setting the Splitter Ratio").



4.Enter the desired values in the corresponding threshold text boxes as required.

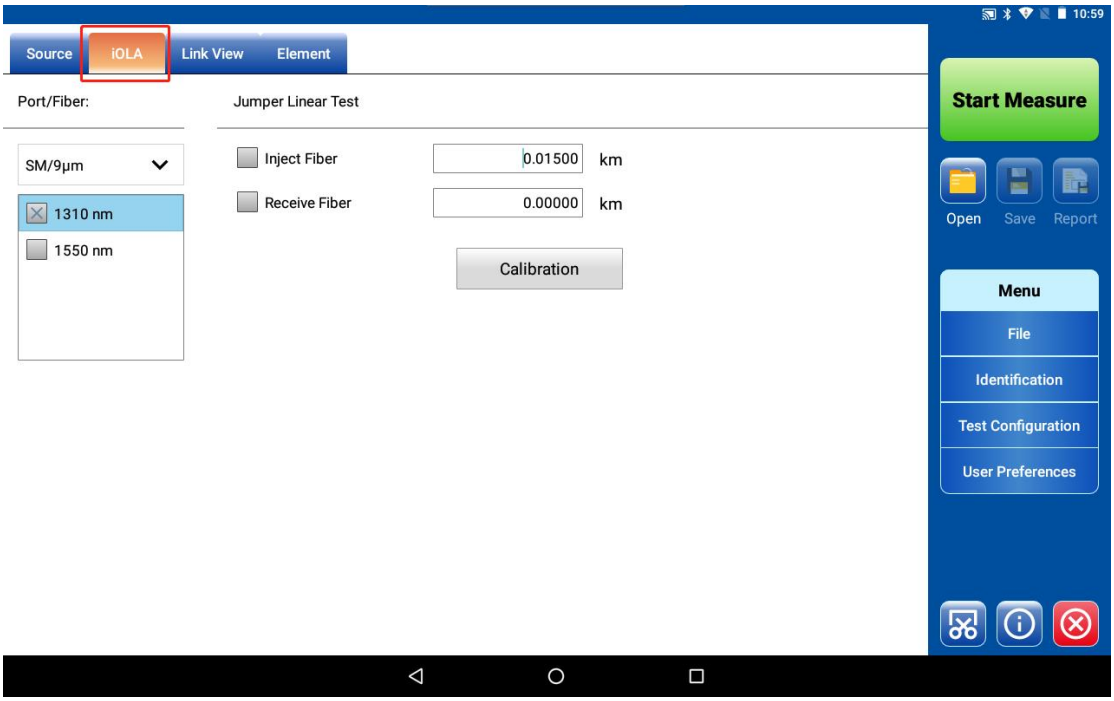
5.Tap "  " to return to the main window.

3.11Configure iOLA

The "iOLA" tab displays the settings used during measurement. The application will use the ports and wavelengths selected in the "iOLA" tab for data collection. These settings will also be used for the next data collection.

To configure iOLA:

1. In the main window, select the "iOLA" tab.



2. If there are two ports on the module, select one of them for testing. Also, select the core: for type C fiber, choose a 50μm core; for type D fiber, select a 62.5μm core.
3. Select the wavelength for the next data collection. The available wavelengths depend on the iOLA module.
4. Specify whether the test link connects the incident fiber and the receiving fiber, and enter their lengths. The effective length of the incident fiber is 0 to 5 km, and the effective length of the receiving fiber is 0 to 10 km. For more details, please refer to page 78, "Incident Fiber and Receiving Fiber."

IV. Start data collection

This chapter describes the steps for performing data collection using iOLA.

4.1Initiate iOLA data collection

This section describes the steps for iOLA data collection. iOLA can be used to display optical fiber spans as well as fiber segments connected through joints and connectors. iOLA can provide an internal view of the fiber condition, and it can also calculate fiber length, breakages, total return loss, joint loss, connector loss, and total loss.

If you want to perform iOLA data collection:
Tap "Start Measure"
Before starting a new data collection, the application will ask if you want to save any unsaved data (if any).
Note: If the file function is not enabled, you will not be prompted to save the file. For more details, please refer to page 91, "Settings" under the "General Information" tab."

After iOLA data collection is initiated, the "Link View" tab is displayed by default.

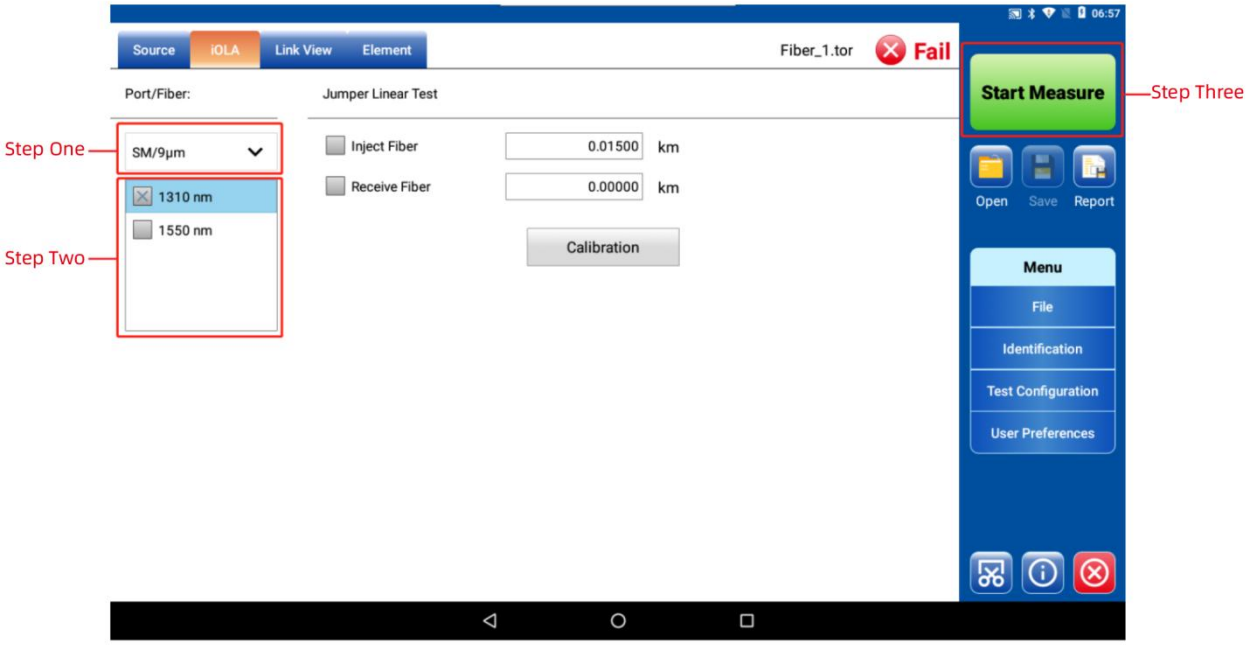
The status bar displays the overall data collection progress for all wavelengths. For example, if two wavelengths are being processed.
Then, when the data collection for the first wavelength is completed, the overall progress will be 50%.

4.2 Initiate single-wavelength data collection

If there are multiple wavelengths in the module, you can use the single-wavelength data collection feature to perform data collection for a specific wavelength.

To initiate single-wavelength data collection:

1. If your device supports it, in the "iOLA" tab, select the port you want to use. While selecting the port, also choose the fiber core. For type C fiber, select a 50 μm core; for type D fiber, select a 62.5 μm core.
2. Select a wavelength in "iOLA Wavelength."
3. Tap "Start Measurement."



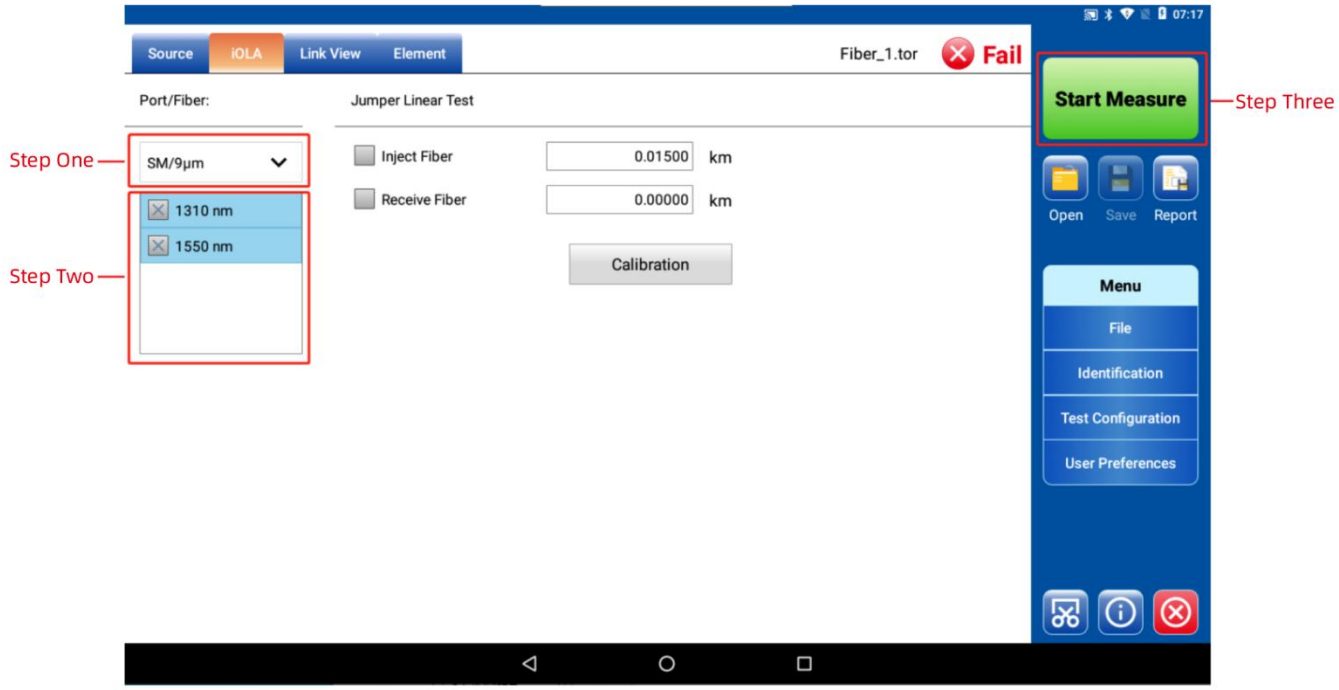
4.3 Initiate multi-wavelength data collection

If there are multiple wavelengths in the module, you can use the multi-wavelength data collection feature to perform data collection on multiple wavelengths.

In multi-wavelength data collection, the application will display the wavelengths for which data collection is in progress.

To initiate multi-wavelength data collection:

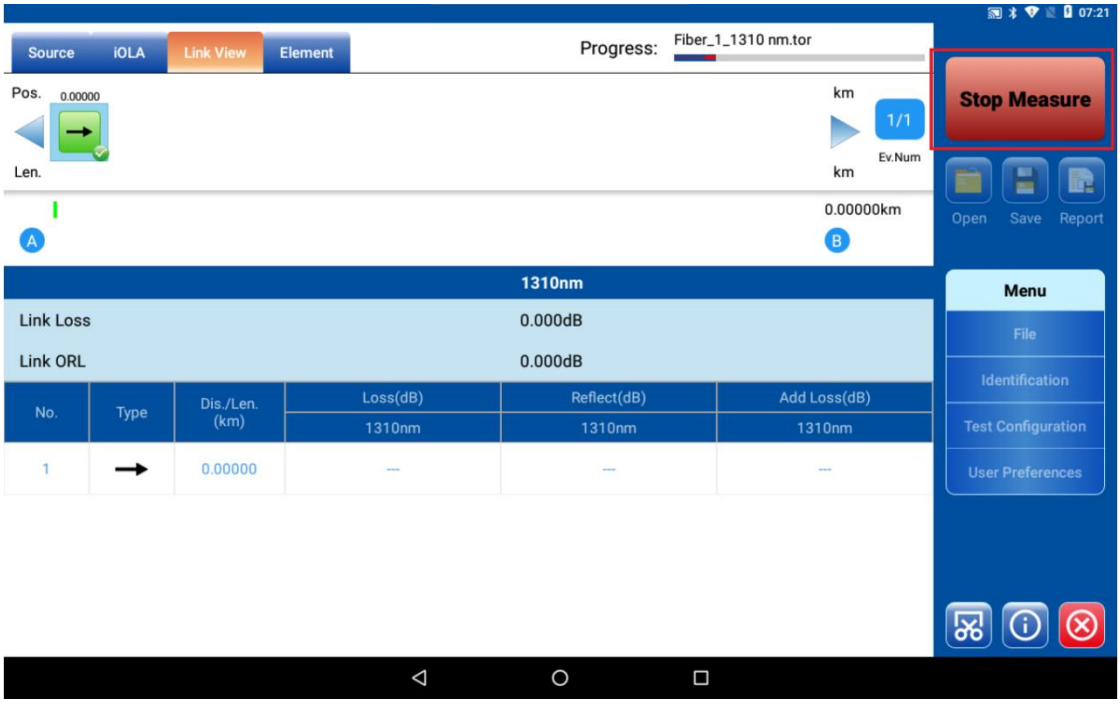
1. In the "iOLA" tab, select the port you want to use. While selecting the port, also choose the fiber core. For type C fibers, select a 50 µm core; for type D fibers, select a 62.5 µm core.
2. Select the wavelength in the "iOLA Wavelengths" section.
3. Tap "Start Measure".



4.4 Stop data collection

Data collection will stop automatically once completed.
You can also terminate the task at any time during the data collection process.
Note: If you manually stop the multi-wavelength data collection, the program will no longer process the unprocessed wavelengths.

To stop data collection:
In the main window, tap "Stop Measure".



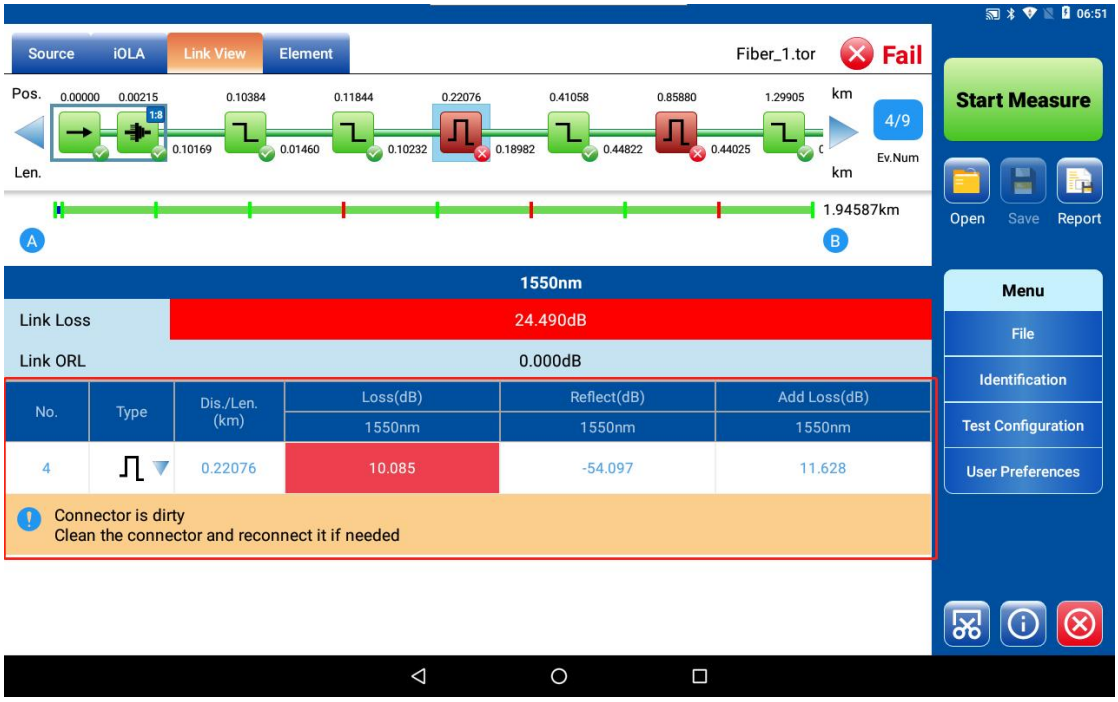
For manually stopped data collections, the overall pass/fail status will be displayed as failed.
Note: Data collections that are manually stopped cannot be considered reliable link measurement results. To fully characterize the link, a complete data collection should be performed.

V. Understanding Diagnostic Features

This chapter explains the diagnostic features provided by the iOLA application.

For detected issues or ambiguous measurement conditions, the diagnostic features can provide additional relevant information, such as the root causes that may lead to link elements being marked as failed. Diagnostic features help in troubleshooting connector faults, understanding why link elements are marked as failed, and indicating unexpected situations with instruments or tests.

The application marks link elements with relevant diagnostic information using an icon labeled , and displays the diagnostic information in the "Link View" and "Elements" tabs. A given element can have multiple pieces of diagnostic information.



The diagnostic information for elements is related to specific issues with the link elements. Each link element that is marked as failed will have relevant diagnostic information to help troubleshoot the issue. Some elements, such as macro bends, may have diagnostic information even if their status is marked as passed.

VI. Manage Results

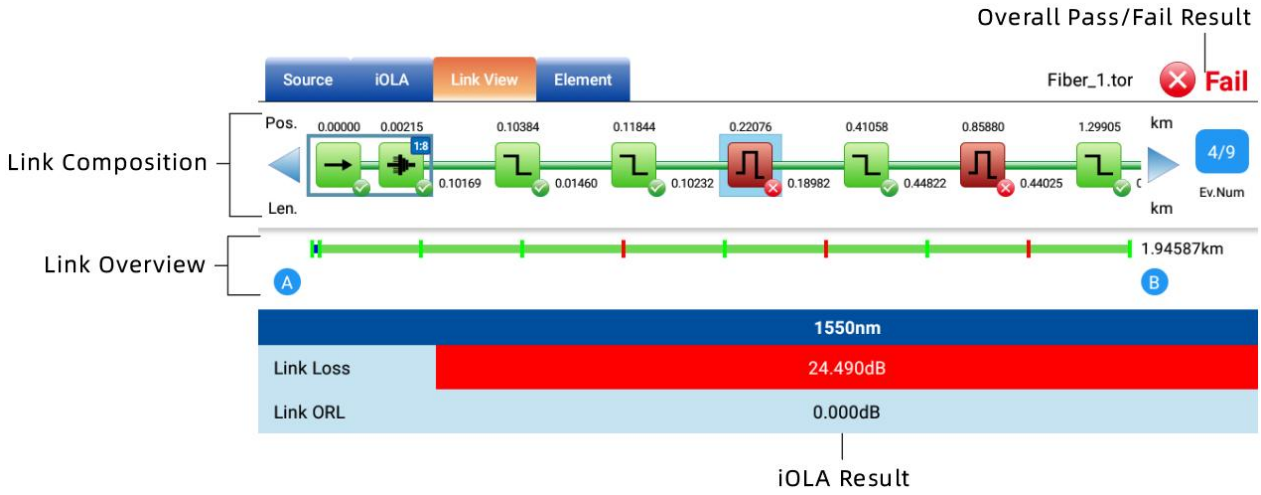
This chapter describes the link view, element details, and results displayed after data collection is completed.

6.1 Link View

The iOLA Link View is an intuitive representation that integrates various measurement results and values into a single view.

The "Link View" consists of three areas:

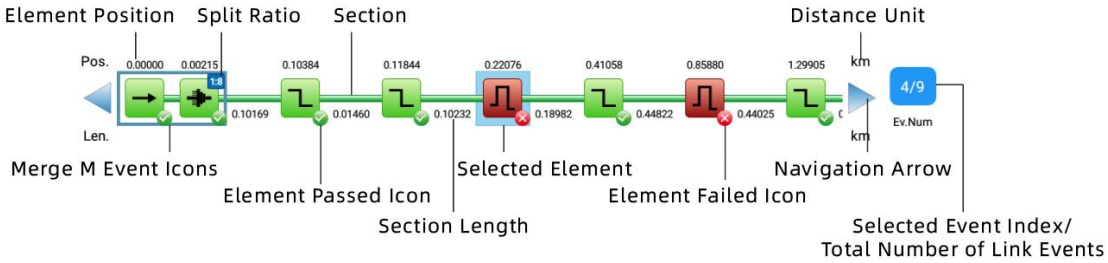
- Link Composition
- Link Overview
- iOLA Results
- Comprehensive Pass/Fail Status



Please refer to page 78, "Explanation of Event Types," for detailed information on the meanings of the element icons.

6.1.1Link Composition

The link composition is as follows:



- Element position: The distance from the element to the starting point of the link being tested.
- Splitting Ratio: If the element is a splitter, the splitting ratio is displayed.
- Section: Indicates a fiber segment icon with no events.
- Distance Unit: Information on the units of distance. For more details, refer to page 91, under the 'Settings' General Information tab.
- Merged Events Icon: This icon represents an event formed by merging multiple events. (For detailed information on merged events, please refer to page 78, 'Event Type Description').
- Pass/Fail Icons for Elements: The "  " icon indicates the event failed, while the "  "' icon indicates the event passed.
- Segment Length: Displays the length of the fiber with no events.
- Selected Element: A blue background indicates the currently selected element.
- Navigation Arrows: You can click on them to scroll through the link map.
- Event Count Preview Box: Displays the total number of events for the current link. If an element within the link is selected, it shows the selected event number and the total number of events.

Note： If the link is too long to display all elements on the screen, you can slide the link map left or right or click on the navigation arrows to view the elements.

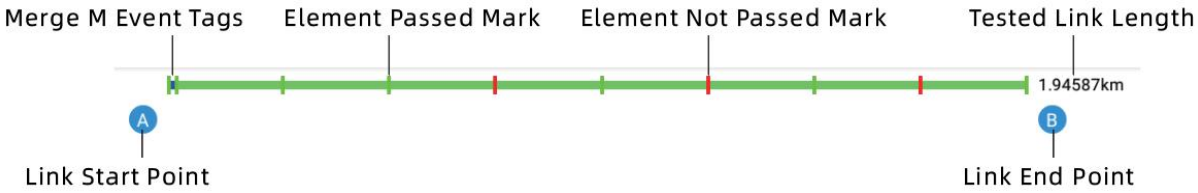
Note： The distances between elements are not displayed proportionally.

6.1.2 Link Overview

The link overview displays the entire link, so you do not need to scroll through the interface.

In the link overview, the colors used for markers and their meanings are as follows:

- Red: The element failed the test.
- Green: The element passed the test.
- Blue: Merge M events.

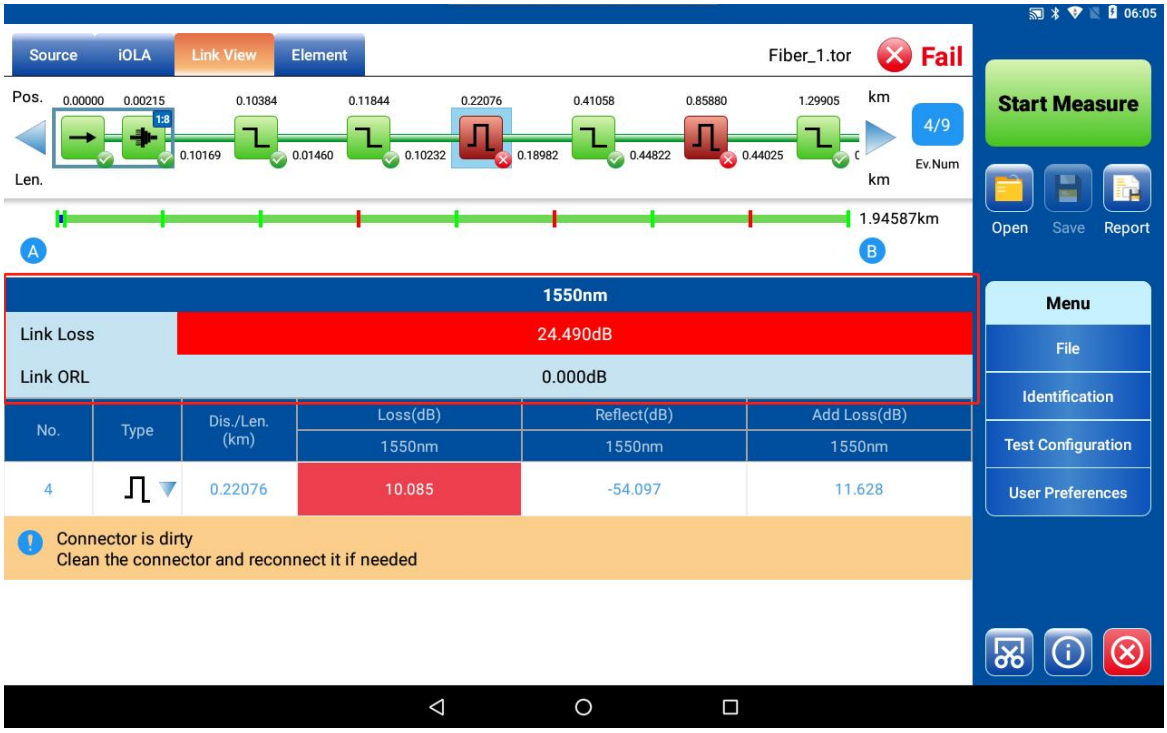


The length of the tested link (excluding the length of the incident and receiving fibers), that is, the fiber length between Point A and Point B.

6.1.3 iOLA results

After executing the wavelength for iOLA data collection, the application displays the results.

Note： If there are no iOLA data collection results, display as 0.



During multi-wavelength data collection, only the results of link loss and link optical return loss for the wavelengths currently being collected and those that have been completed are displayed. For link loss and optical return loss, the application tests and displays these results based on the current pass/fail settings.

6.1.4Overall pass/fail status

The overall pass/fail status depends on the link length, link loss, optical return loss, and the pass/fail status of link elements.

If any of these values are in a fail status, the overall pass/fail status is considered a fail.

If values are modified within the program, the status will automatically update. If the element type is changed in the “Element” tab, the application will recalculate the pass/fail status for each value, and the calculation results may affect the overall pass/fail status.

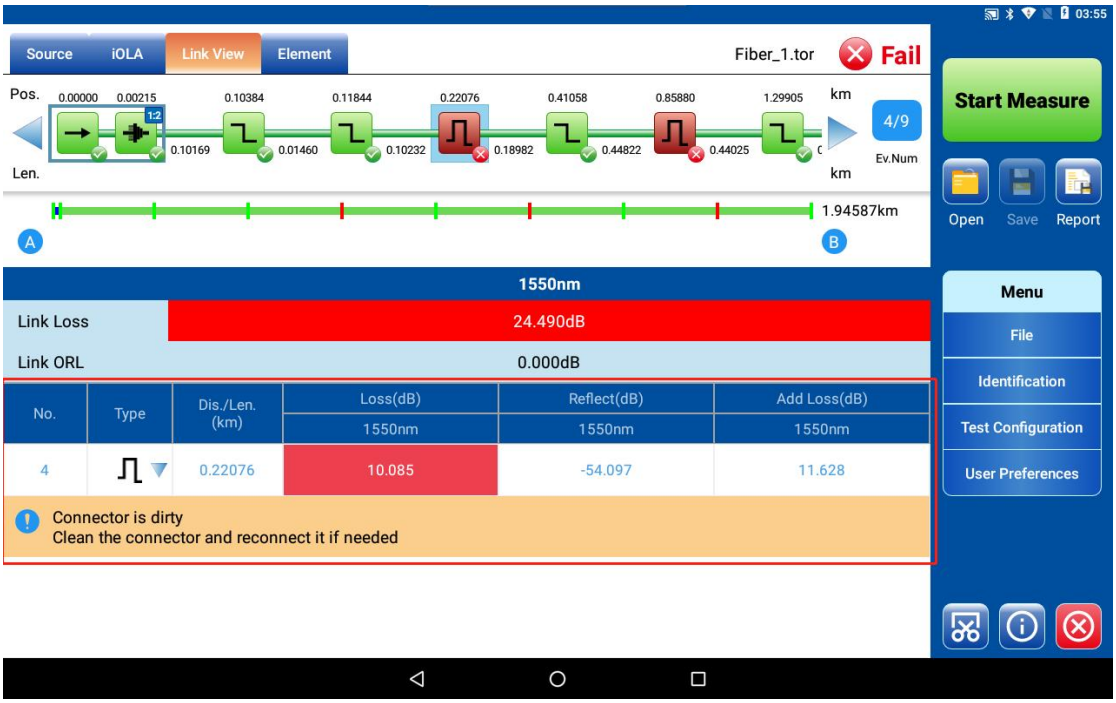
The iOLA application waits for data collection to be completed before displaying the “Pass” status. However, if the measured value is in a “Fai” state, it will immediately display the “Fail” status.

Note: To obtain the correct pass or fail status, it is necessary to wait for the entire data collection process to be completed.

6.2 View details of elements and segments.

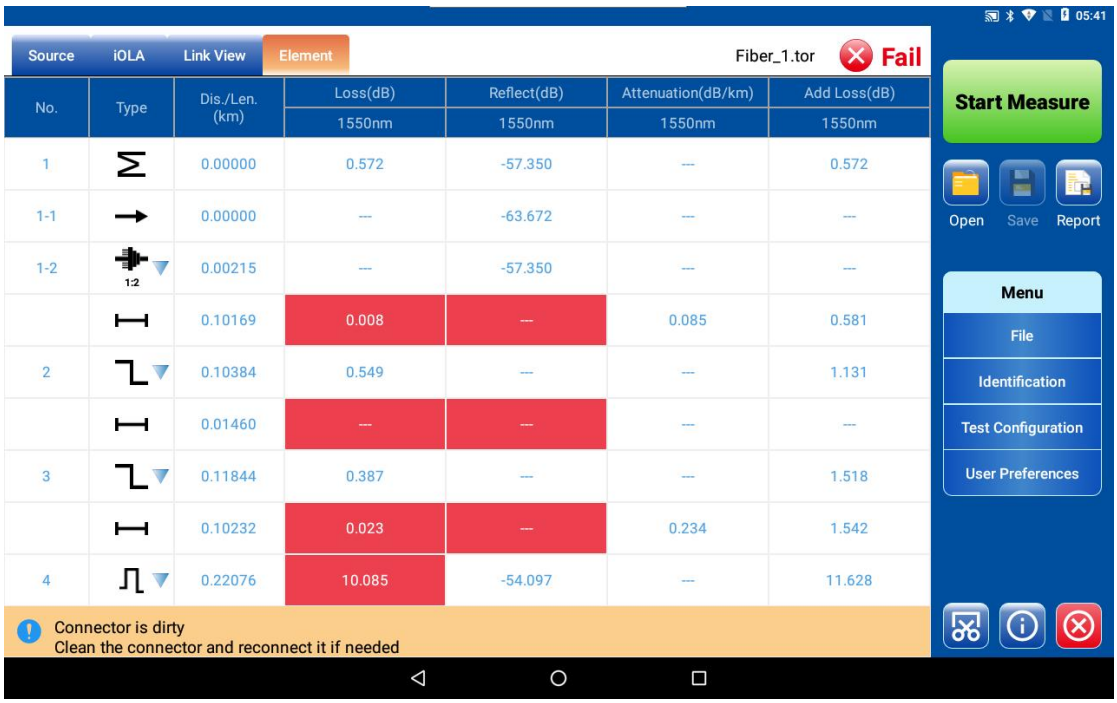
To view the details of an element or segment:

1.After selecting an element or segment in the “Link View” tab, the details of the corresponding element or segment will be displayed. If a fail event is detected, the application will also display diagnostic information. (For detailed information about the diagnostic features, please refer to page 116, “Understanding Diagnostic Features”).



or

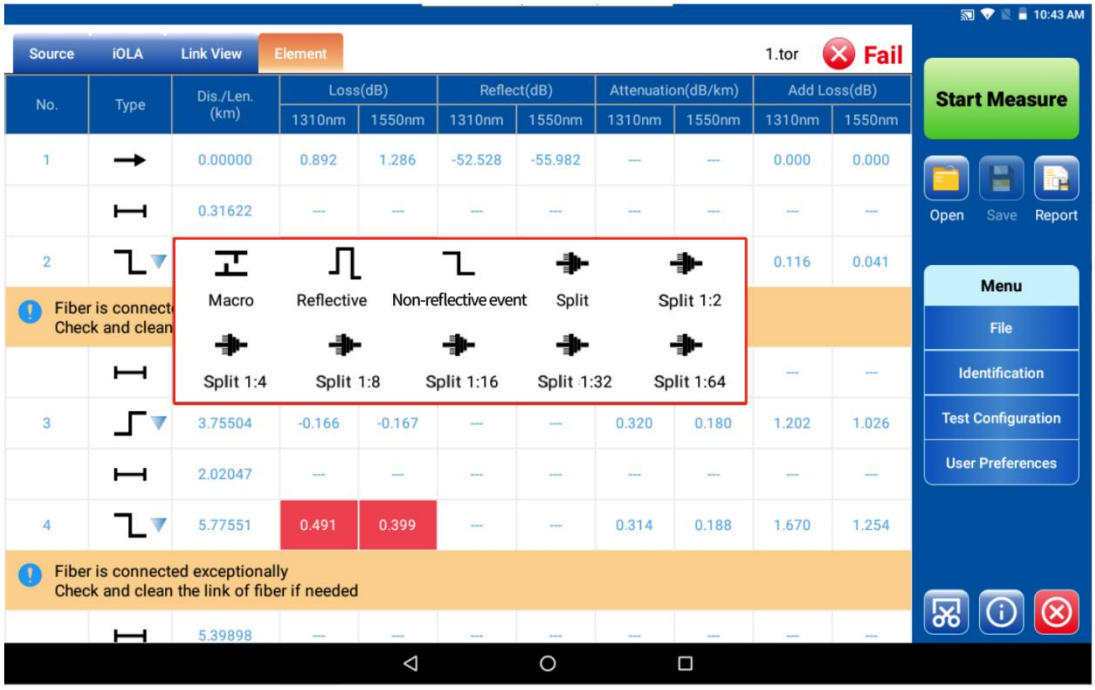
2.In the main window, tap the ”Element” tab to view the details of elements or segments.



Loss and reflectance failure states are displayed in red blocks.

The details of the element or segment display the following information:

- Serial Number: Events detected in the link are numbered in the order they are detected."
- Type: The type of element selected in the Link View. You can change the type of element using the dropdown list. If the selected element is a splitter, you can also change the split ratio.



- Distance/Length: The position of the element in the link and the length of the segment. If an incident fiber is connected, the position 0.00 is set at the first element.
- Loss: The loss at each wavelength.
- Reflectance: The reflectance at each wavelength.
- Attenuation: The “Element” table displays the attenuation values for each segment.
- Cumulative Loss: The 'Element' table displays the cumulative loss for each event type.

VII. Manage Files

7.1 Open iOLA File

When opening an iOLA file, the application automatically attempts to match the wavelength in the iOLA file with the wavelength selected in the module. If that wavelength is not available on the module, the application will choose the closest wavelength to that in the opened iOLA file.

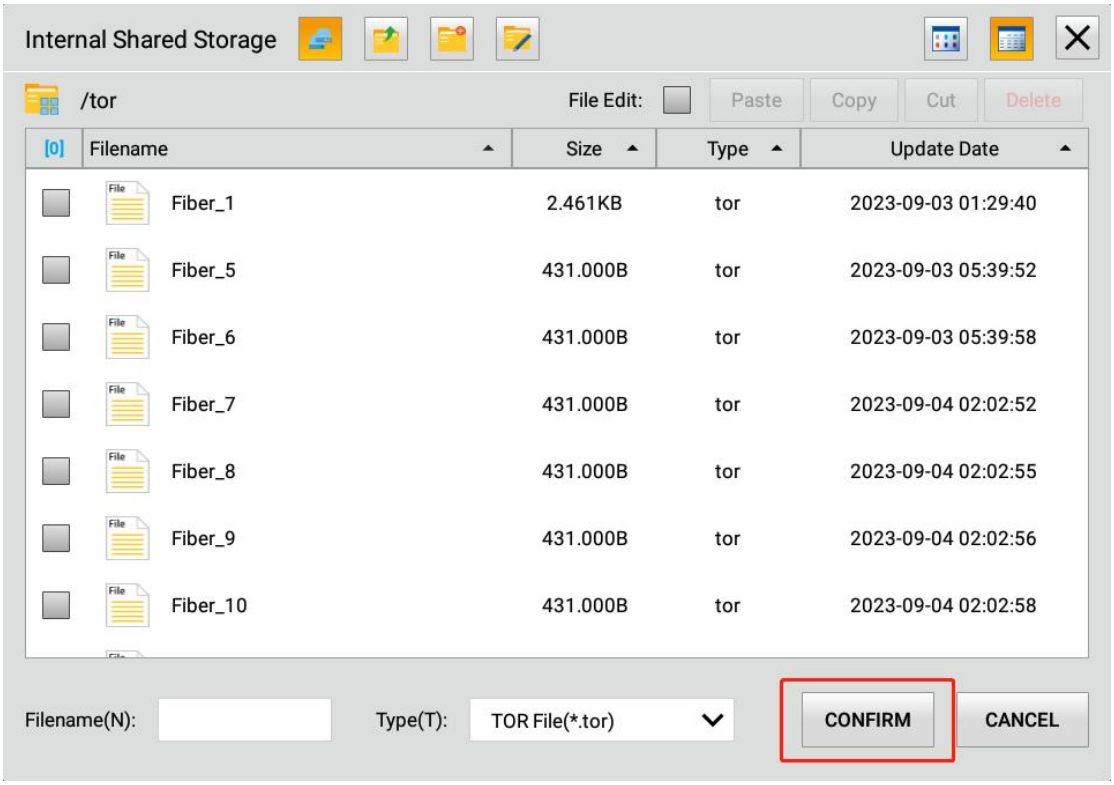
Steps to Open a Measurement File:

1.In the “Menu”, tap “Open”, and then select the file you need to open.

or

In the main window, tap “  ”.

2. Change the file path as needed.
3. Scroll through the file list and select the iOLA file you want to open.
4. Tap “CONFIRM”.



The application returns to the main window.

For measurements that have been taken but not saved, the application will prompt you to save. Tap “Save”.

Now, you can open other iOLA files.

7.2 Save the iOLA file.

Steps to Save an iOLA File：

1.After the measurement is finished, tap “  ” to save the current measurement file.

or

2.By default, the application does not automatically save measurements after analysis. However, you can configure it to automatically save measurements. For more details, please refer to page 82, “Settings” under the “General Information” tab.

Note：If the required measurements are not automatically saved, you need to save them manually.

7.3 Generate a report

The device only supports generating reports in PDF format.

You can manually or automatically generate PDF measurement reports directly on the device. For information on what can be included in the PDF reports and how to specify the report content, please refer to page 87, "Customizing iOLA Reports."

Steps for Manually Generating a Report:

In the main window, tap “  ”. The application will prompt you to save.

For information on how the application automatically generates reports, please refer to page 91, Setting the “General Information” Tab.

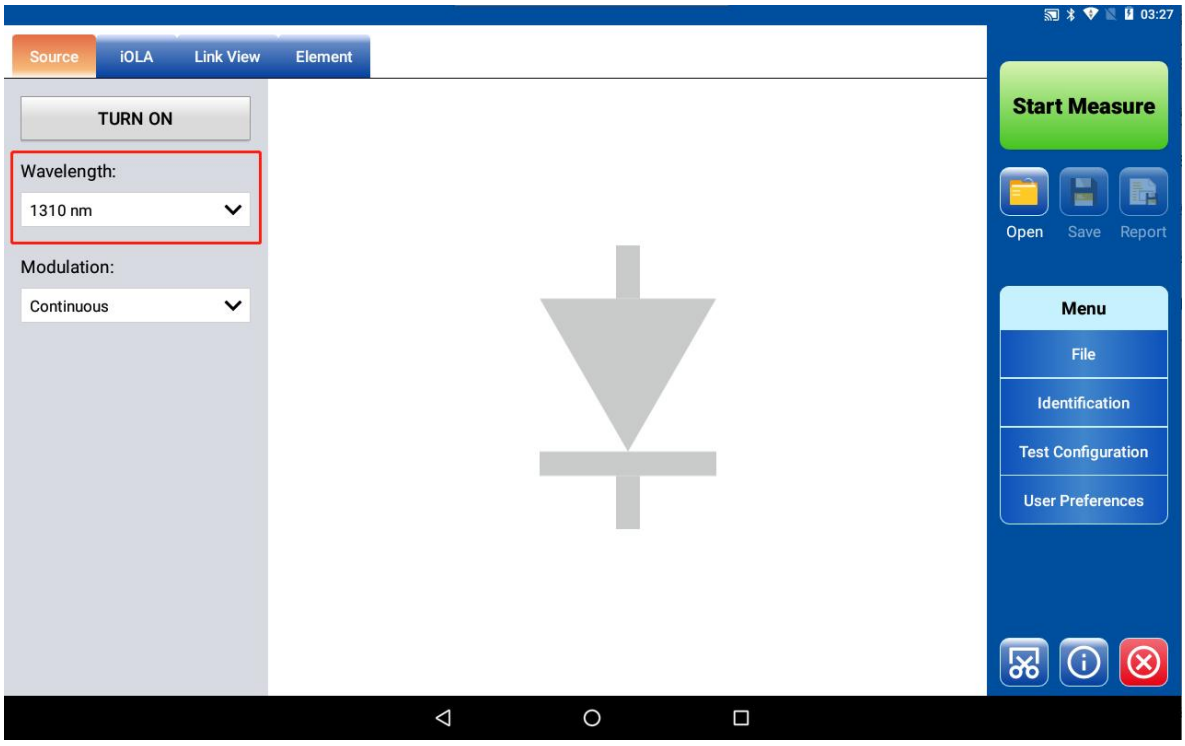
VIII. Use iOLA as Source

If iOLA is used as source for measurement, the OTDR port will emit a specially modulated light pulse. This port can only emit but cannot detect the light pulse.

Note
Do not connect live optical fibers to the OTDR port unless properly configured.
Injected light with power levels ranging from -65 dBm to -40 dBm will affect the data acquisition results of the OTDR. The impact on the data acquisition results depends on the selected pulse width.
An injected signal with a power greater than 10 dBm will cause permanent damage to the OTDR module.

Steps for using an OTDR as source:

1. Properly clean the connectors (for more details, see page 90, 'Cleaning and Connecting Fiber Optics').
2. Connect one end of the fiber under test to the OTDR port.
   If the device has two OTDR ports, make sure to connect the fiber to the appropriate port according to the wavelength to be used (single-mode, single-mode online, or multi-mode).
3. In the main window, tap the “Source” tab.
4. If you are using a standard OTDR, select the desired wavelength from the list of available options.
   or

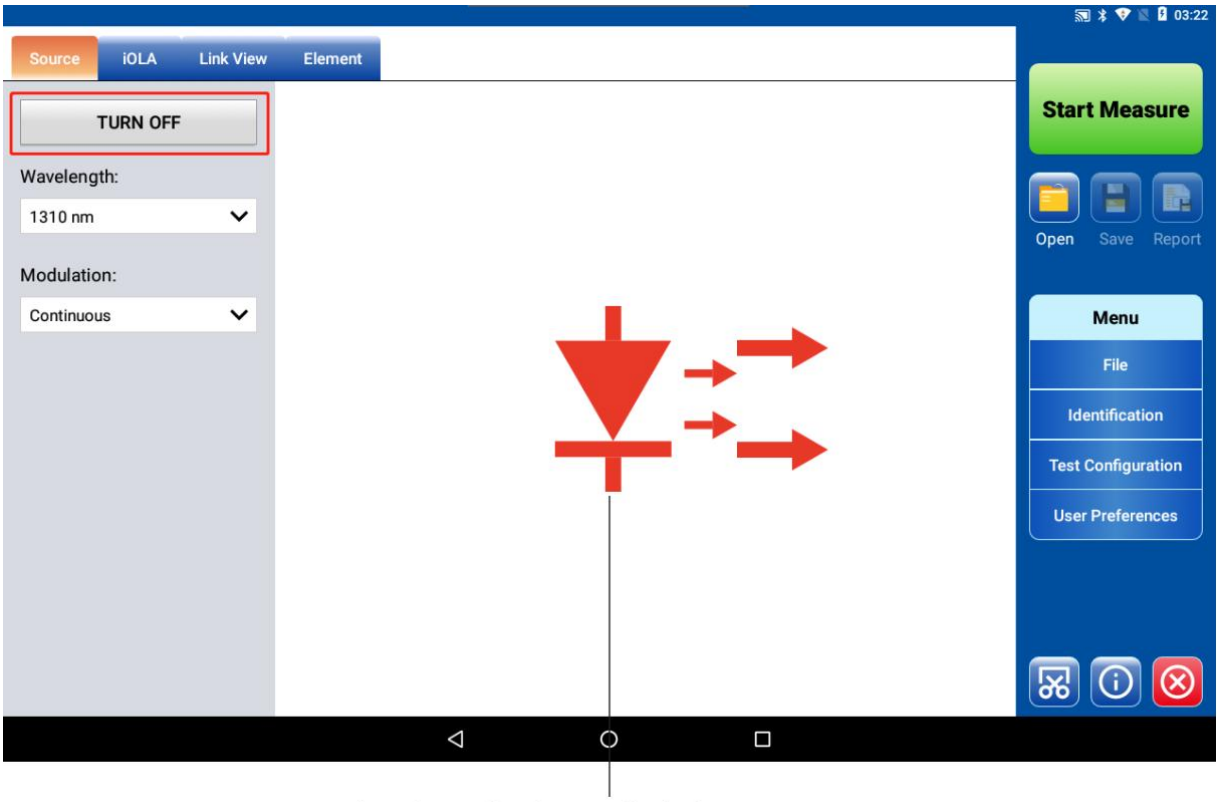


Note： If only one wavelength is available, it will be selected by default.

5. Select the desired modulation mode from the list of available options.

- For loss measurements, connect a power meter to the other end and select “Continuous”.
- For fiber identification, choose "270 Hz", "1 kHz", or "2 kHz". This allows personnel at the other end of the link to identify the tested fiber, which is particularly useful for testing cables that contain multiple fibers.
  To facilitate fiber identification, the application also provides a flashing mode. If this mode is selected, the OTDR will send a 1-second modulated signal (1 kHz or 2 kHz), pause for 1 second, and then repeat the cycle. To make the OTDR emit laser in flashing mode, select "1 kHz + Flash" or "2 kHz + Flash".

6. Tap "TURN ON". You can tap "TURN OFF" at any time to stop emitting the laser.



Displayed in red indicates the light source is active.

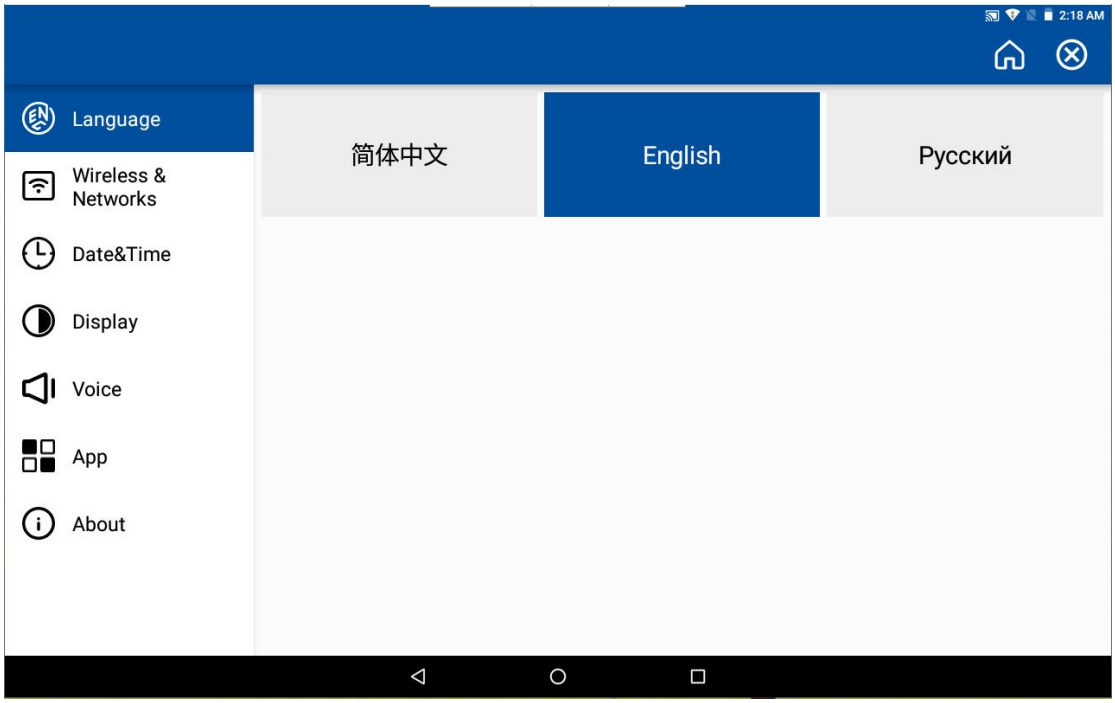
Using a power meter with modulation and detection capabilities, the operator at the other end can quickly and accurately locate the fiber under test or perform loss measurements.

Setting

I.Language

You can choose the language to be displayed on your device. Options include:

- Chinese
- English
- Russian



Language Setting Steps:

1. In “Settings”, tap “Language”.
2. Select Language Settings.

Note： Switching languages will reset the currently open applications.

II.Wireless & Networks.

Wireless and Networks includes four features.

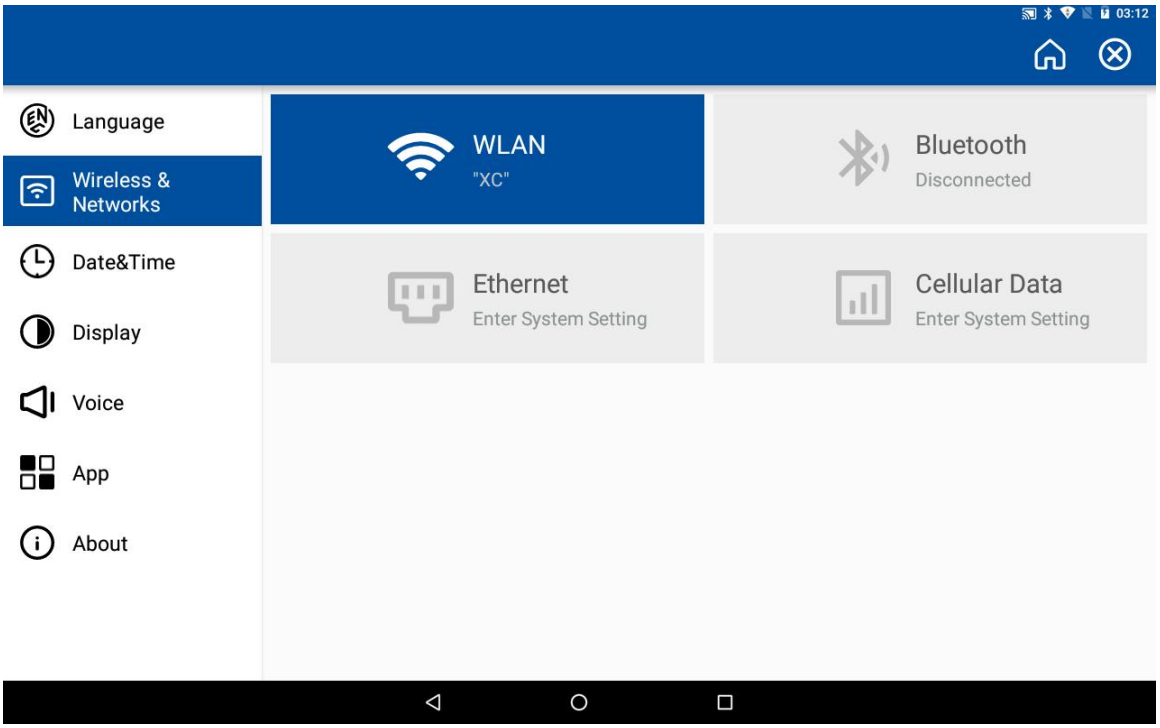
- WLAN
- Ethernet
- Bluetooth

When an internet connection is needed, you can connect via the following methods:

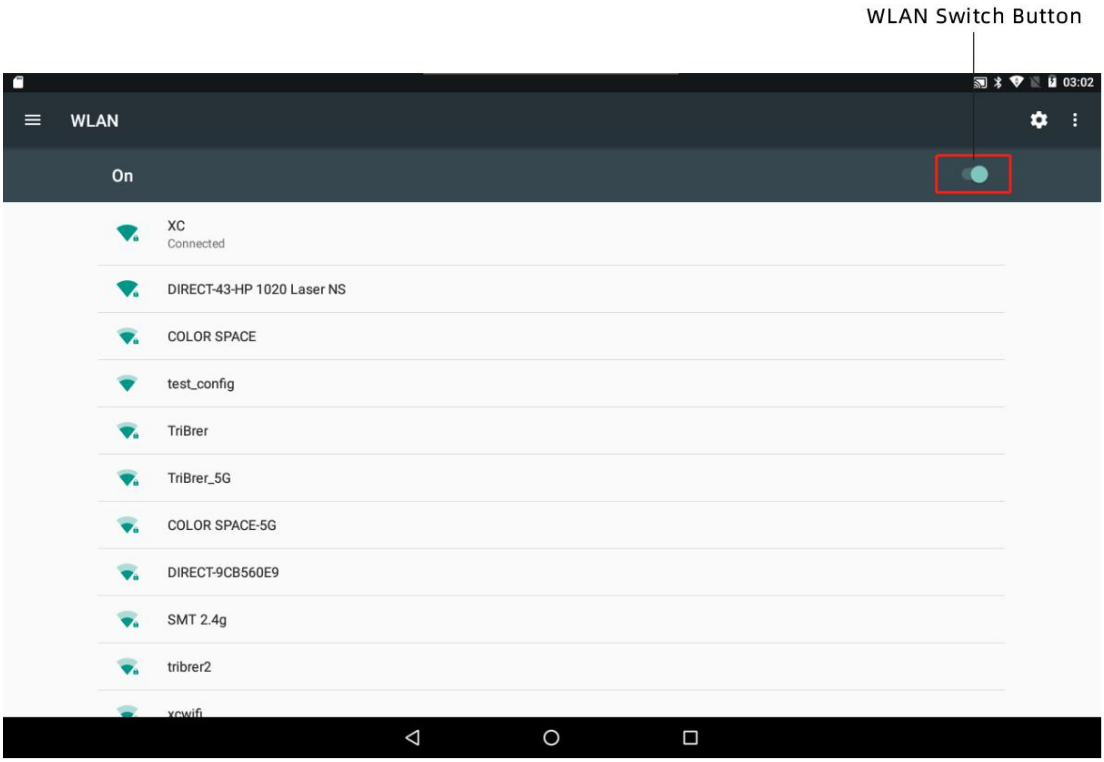
- WLAN
- Ethernet

When you need to receive files, you can do so through the following methods:

- Bluetooth



2.1 Connect the device to a wireless local area network (WLAN).



Steps to connect the device to a wireless local area network (WLAN):

1. In “Settings”, tap “Wireless & Networks”.
2. Select the “WLAN” option, then tap “  ” to turn it on.
3. Tap the following option:
   A.Network: Enter the password (if required)
   B.Add Network: To join a hidden network, enter the network name, security type, and password.

If “  ” appears at the top, it indicates that the device is connected to the WLAN.

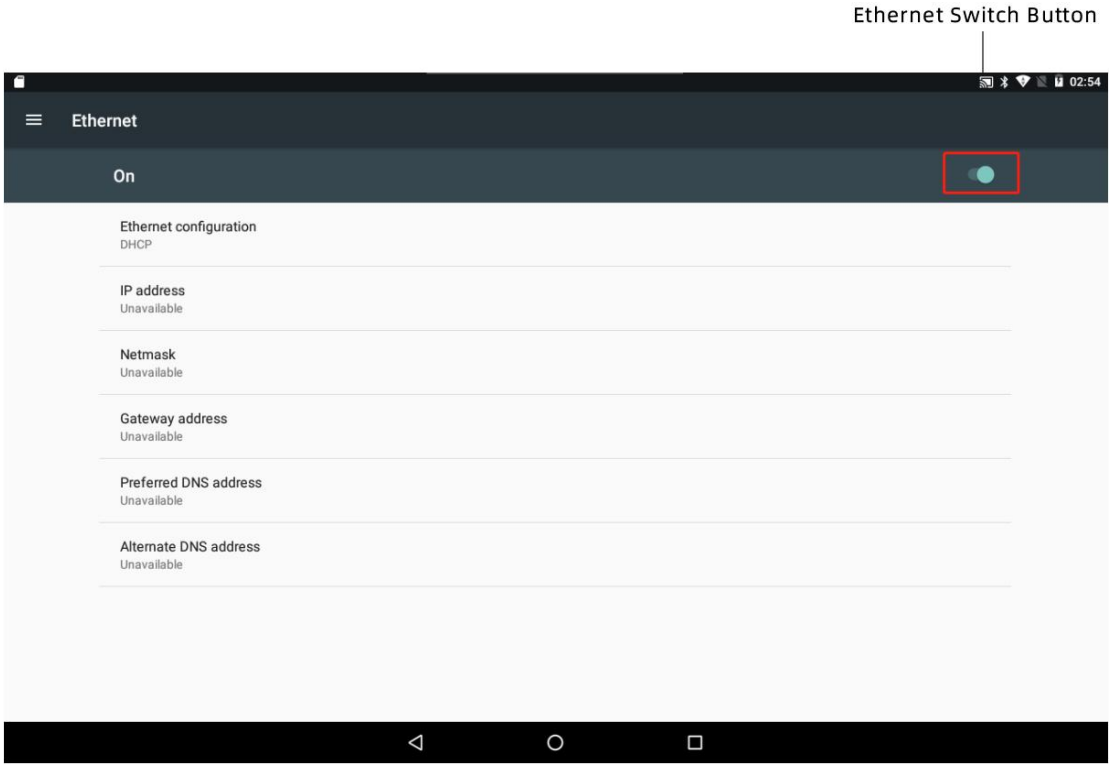
2.2 Connect the device to Ethernet

If the WLAN is unavailable and there is no SIM card, you can access the Internet via an Ethernet port.

Steps to connect the device to Ethernet:

1. Insert the network cable into the RJ45 port.
2. In “Settings”, tap “Wireless & Networks”.
3. Select the “Ethernet” option and tap “  ” to turn it on.
4. You can choose to configure the type of Ethernet:
   A. Obtain IP automatically
   B. Static IP

If “  ” appears at the top, it indicates that the device is connected to the Internet.



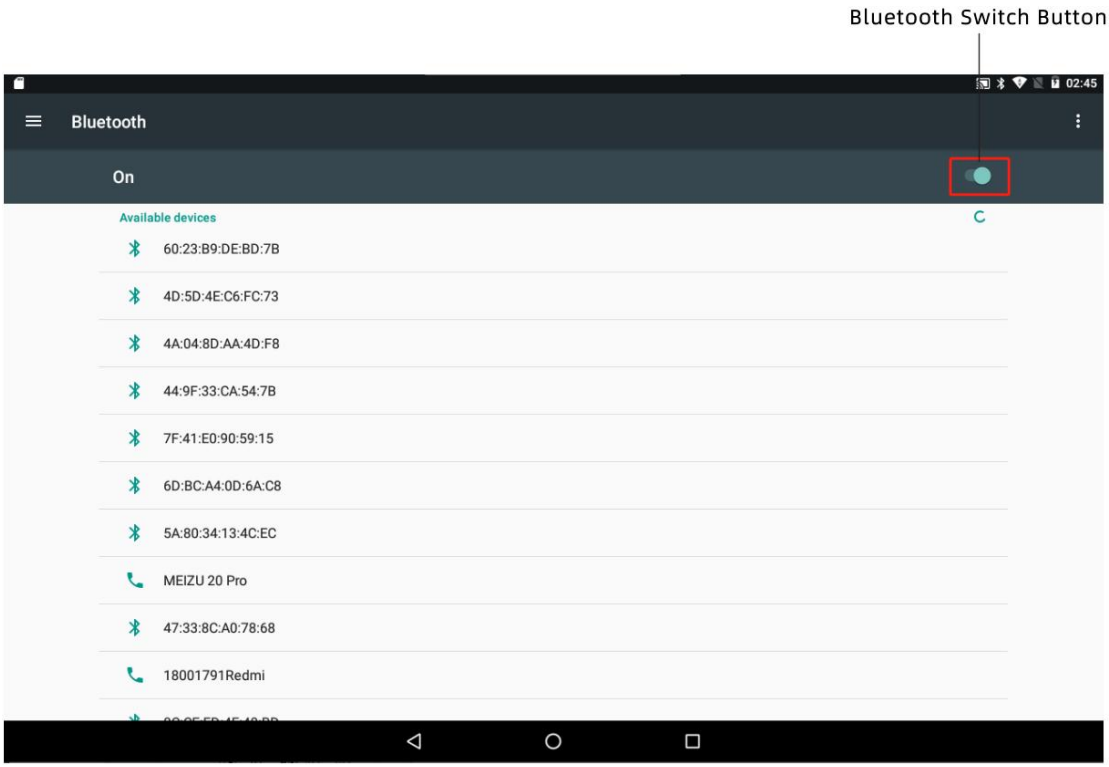
2.3 Connect Bluetooth

You can receive files via Bluetooth, but the devices must be close to each other.

Steps to connect a device via Bluetooth:

1. In “Settings”, tap “Wireless & Networks”.
2. Select the “Bluetooth” option and tap “  ” to turn it on.
3. Tap the device you want to pair with.

If “  ” appears at the top, it indicates that Bluetooth is turned on.

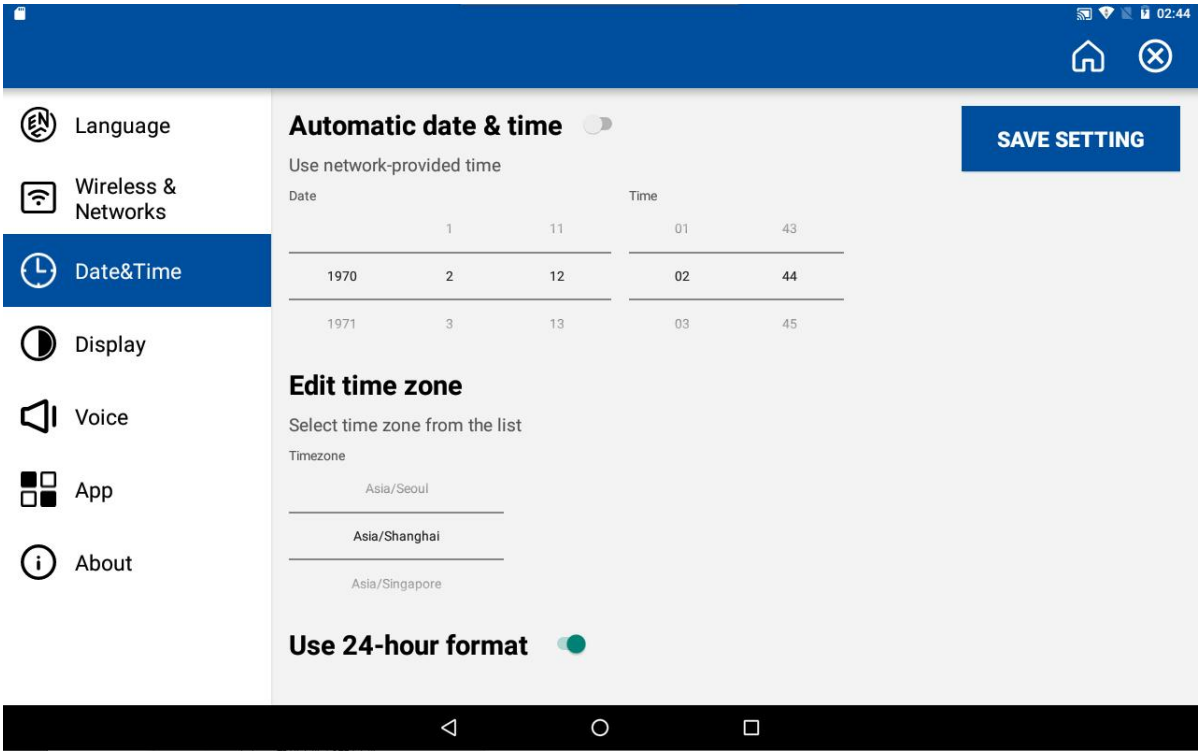


III.Date & Time

You can customize the time or use the time provided by the network.

Steps for Setting Time and Date:

1. In “Settings”, tap “Date & Time”.
2. The following items can be set:
   A. Time and date. If the device needs to automatically determine the time and date, it must be connected to the Internet.
   B. Time zone.
   Note： The time zone automatically obtained without a SIM card is the zero time zone.
   C. 24-hour format. The device displays from 0 to 23 hours.
3. After setting is complete, tap ”SAVE SETTING”.

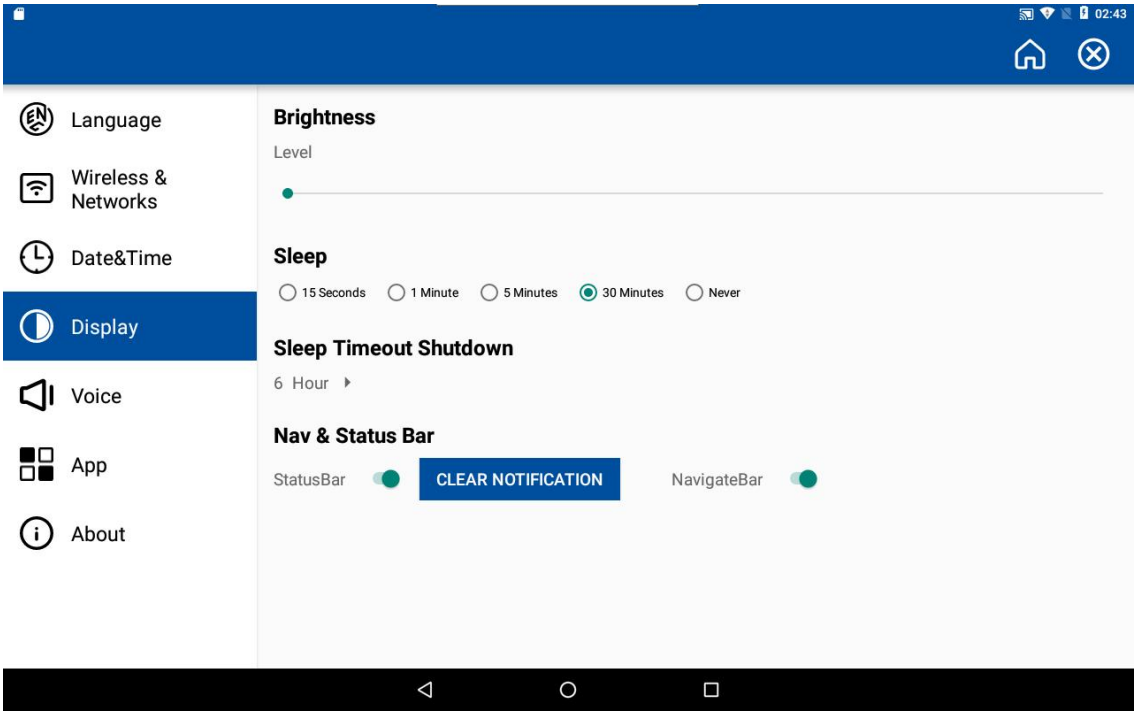


IV.Display

You can set the screen brightness, sleep duration, sleep timeout shutdown duration, and toggle the display and hiding of the navigation and status bar.

To set the display:

1. In “Settings”, tap “Display”.
2. The following items can be set:
   A. Brightness.
   B. Sleep.
   C. Sleep Timeout Shutdown.
   D. Nav & Status Bar.

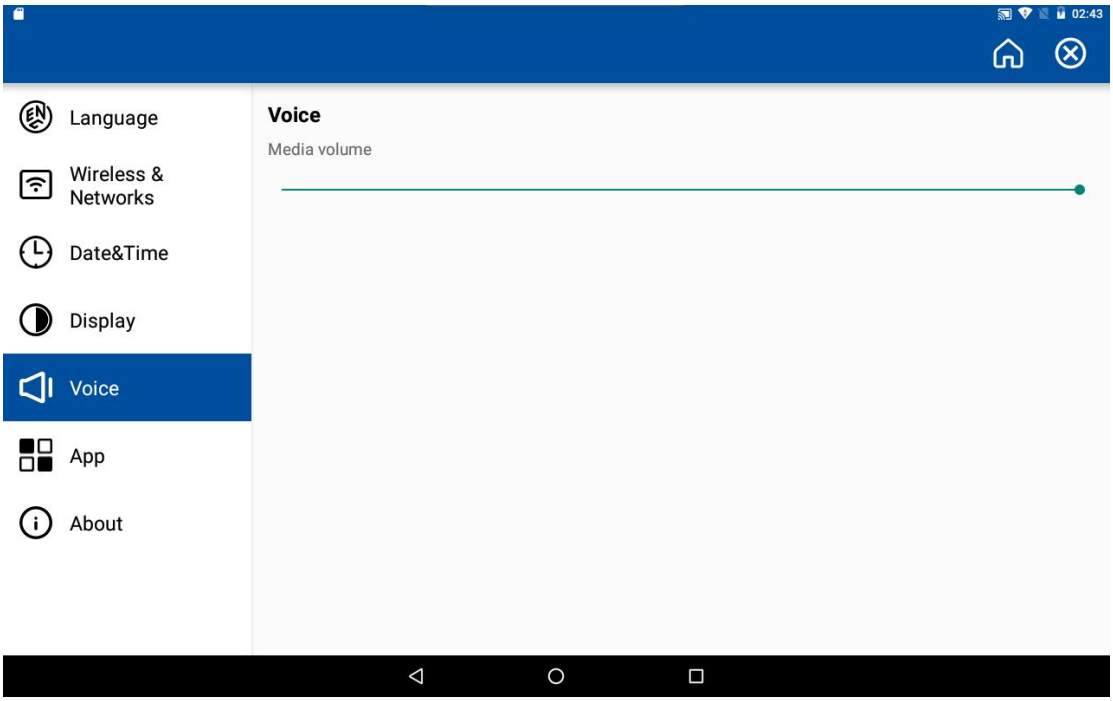


V. Voice

You can customize the media volume in “Settings”.

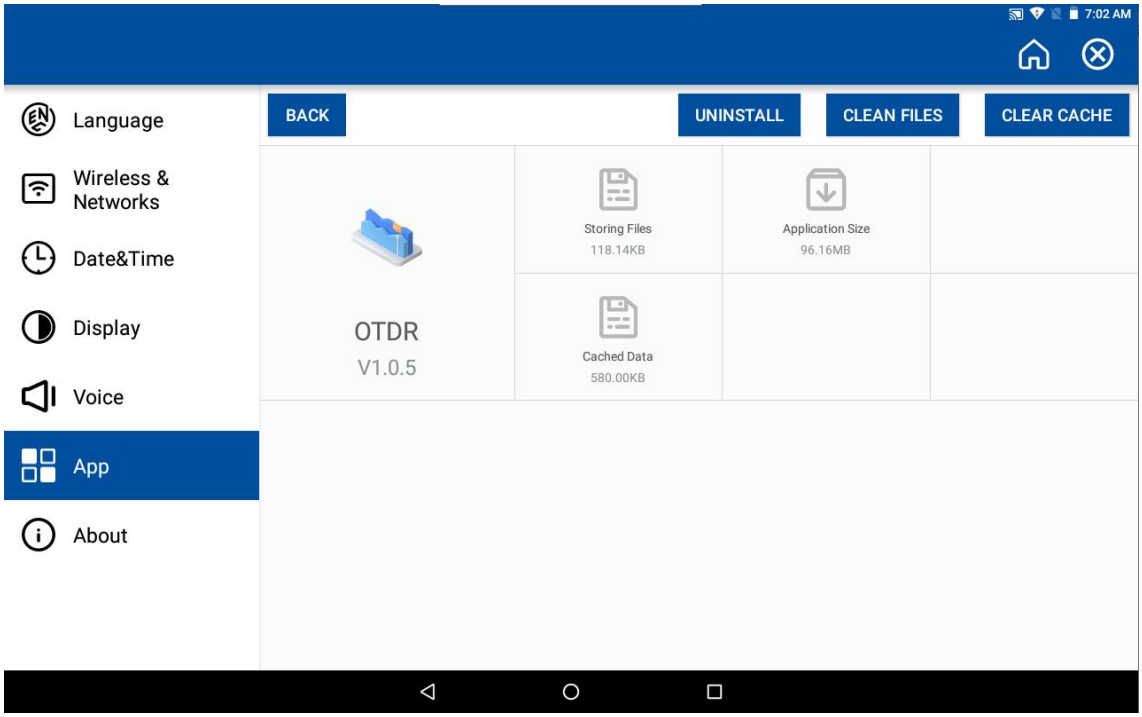
To customize the volume:

1. In “System Settings”, tap “Voice”.
2. Adjust the volume as needed.



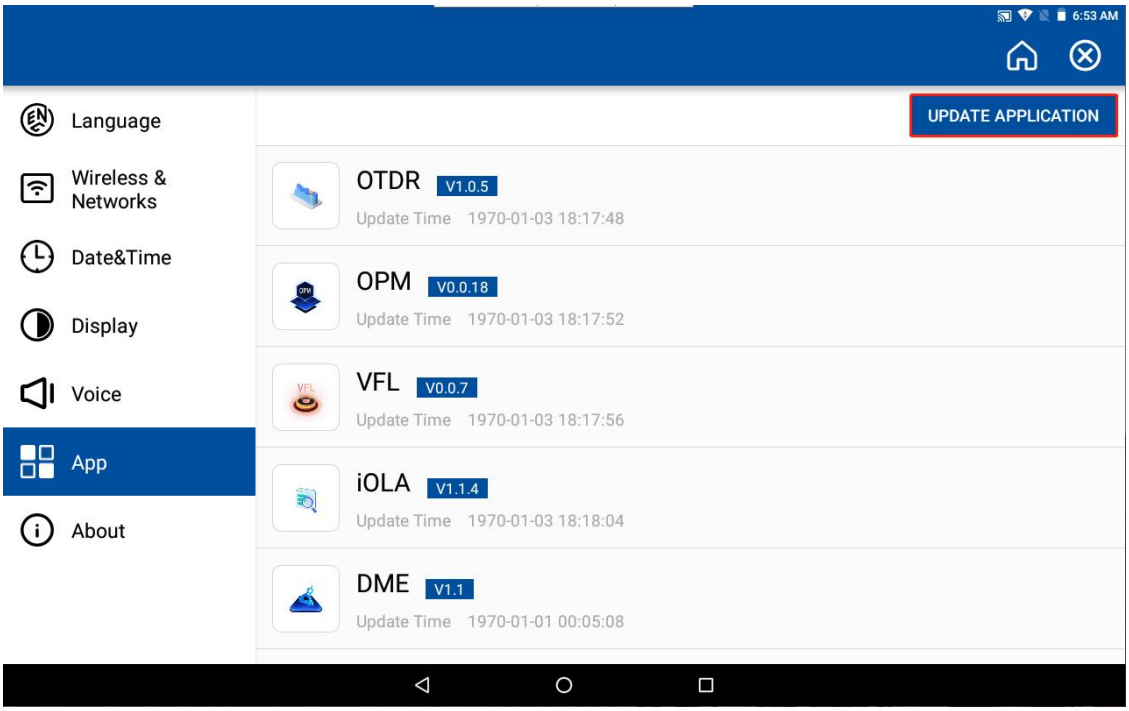
VI. App

In the “App”, you can access information about all apps on your device. You can update system apps. Click on an app to enter its details, where you can clear cache, clean files, or uninstall the app.

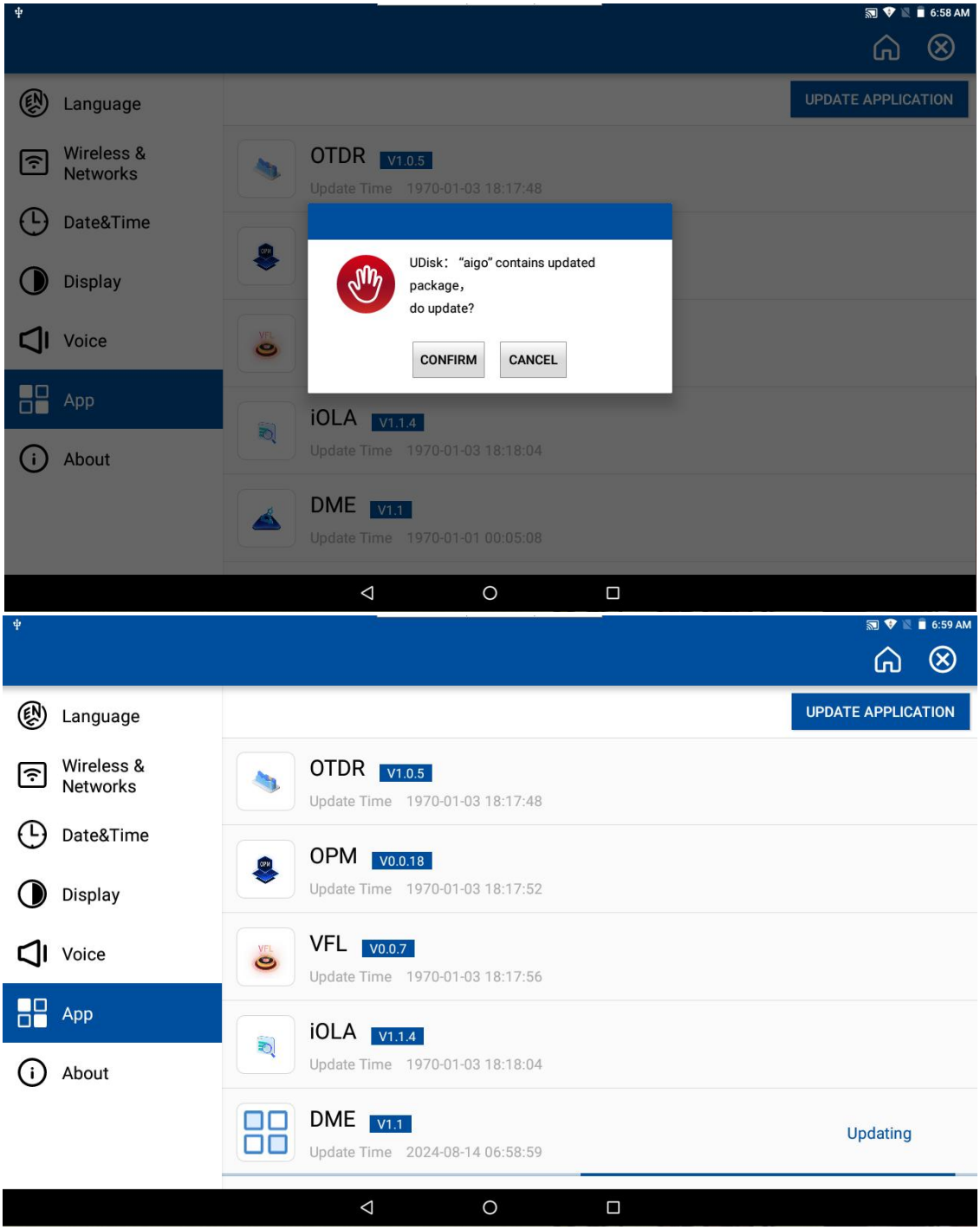


Steps to update system app:

1. Insert the USB drive containing the updater.
2. In “Settings”, tap “APP”.
3. Click “UPDATE APPLICATION”, and the system will automatically recognize the update package.



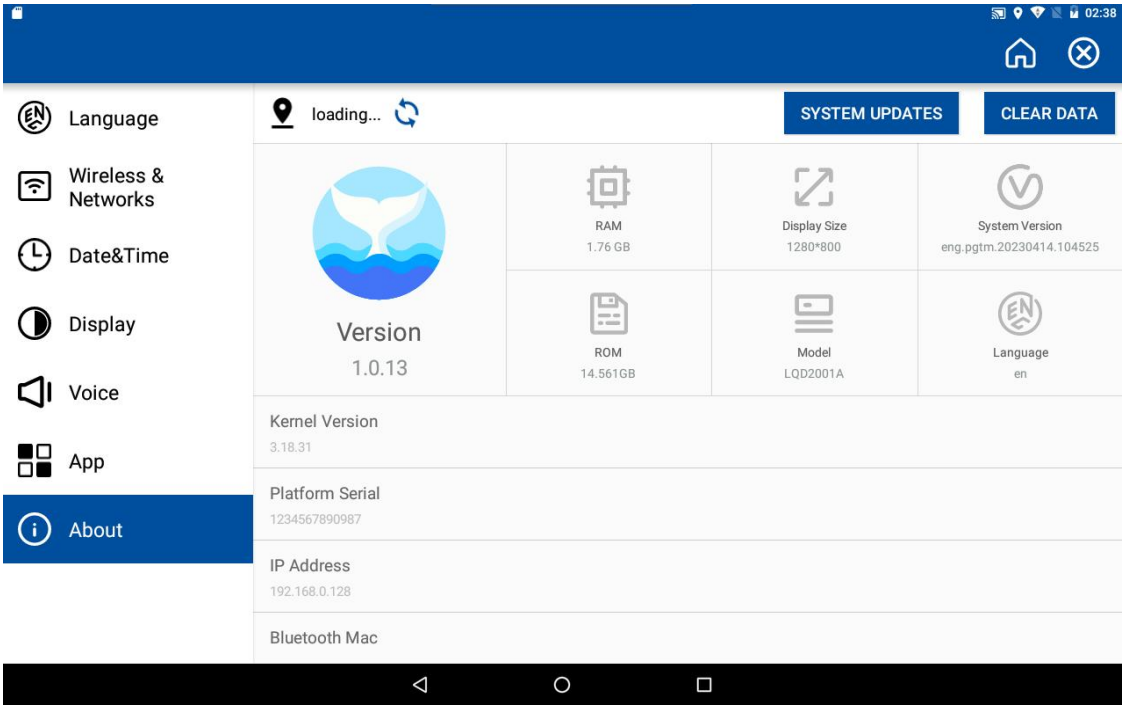
4.Tap “CONFIRM” and wait for the update.


6:58 AM
Language
Wireless & Networks
Date&Time
Display
Voice
App
About
UPDATE APPLICATION
OTDR V1.0.5
Update Time 1970-01-03 18:17:48
UDisk: "aigo" contains updated package,
do update?
CONFIRM
CANCEL
iOLA V1.1.4
Update Time 1970-01-03 18:18:04
DME V1.1
Update Time 1970-01-01 00:05:08
6:59 AM
Language
Wireless & Networks
Date&Time
Display
Voice
App
About
UPDATE APPLICATION
OTDR V1.0.5
Update Time 1970-01-03 18:17:48
OPM V0.0.18
Update Time 1970-01-03 18:17:52
VFL V0.0.7
Update Time 1970-01-03 18:17:56
iOLA V1.1.4
Update Time 1970-01-03 18:18:04
DME V1.1
Update Time 2024-08-14 06:58:59
Updating

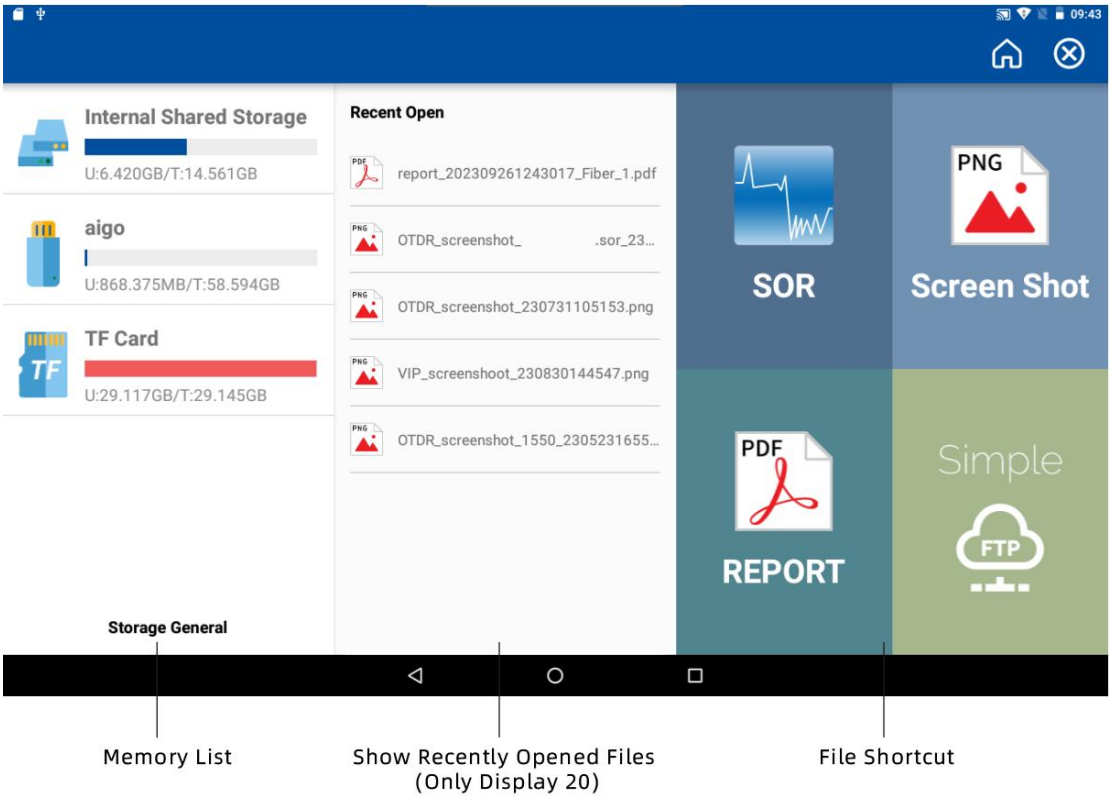
VII. About

To obtain information about the device:

1. In “Settings”, tap “About”.
2. Items you can view include:
   A. Version
   B. RAM
   C. Display Size
   D. System Version
   E. ROM
   F. Model
   G. Language
   H. Kernel Version
   I. Platform Serical
   J. IP Address
   K. Bluetooth Mac
   L. IMEI
   M. Location Information



File Manager



I.View Memory

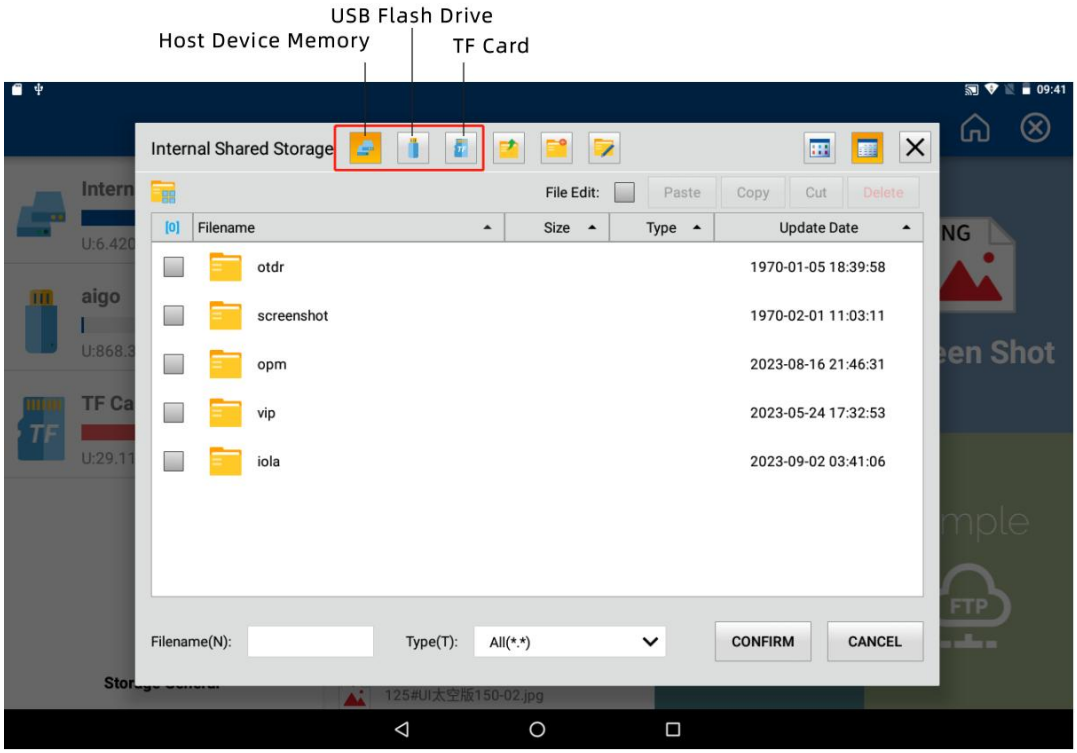
View Memory Steps:

1. Click on the memory you want to view to open a popup window.

2. If you need to switch the memory you are viewing, lightly tap the "  " button to close the popup, then click on the memory you want to view again.

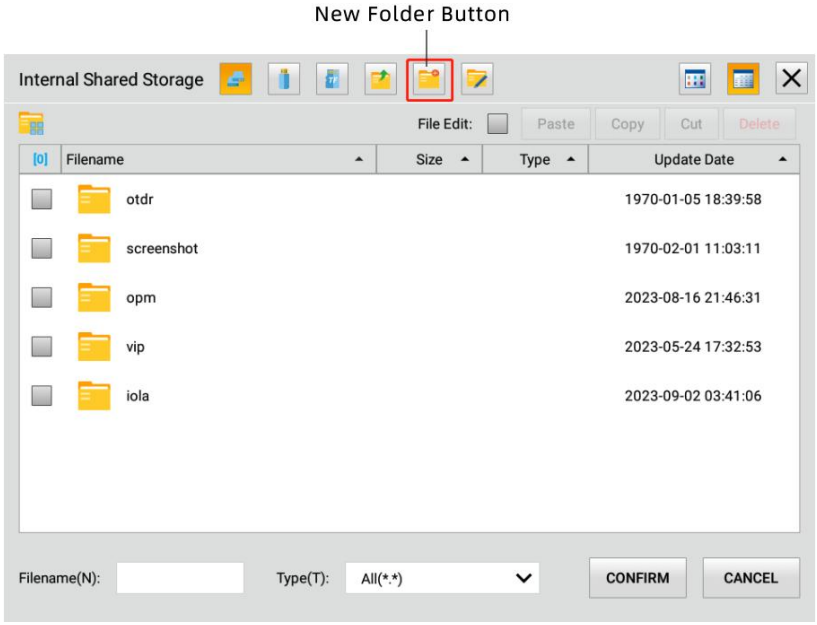
or

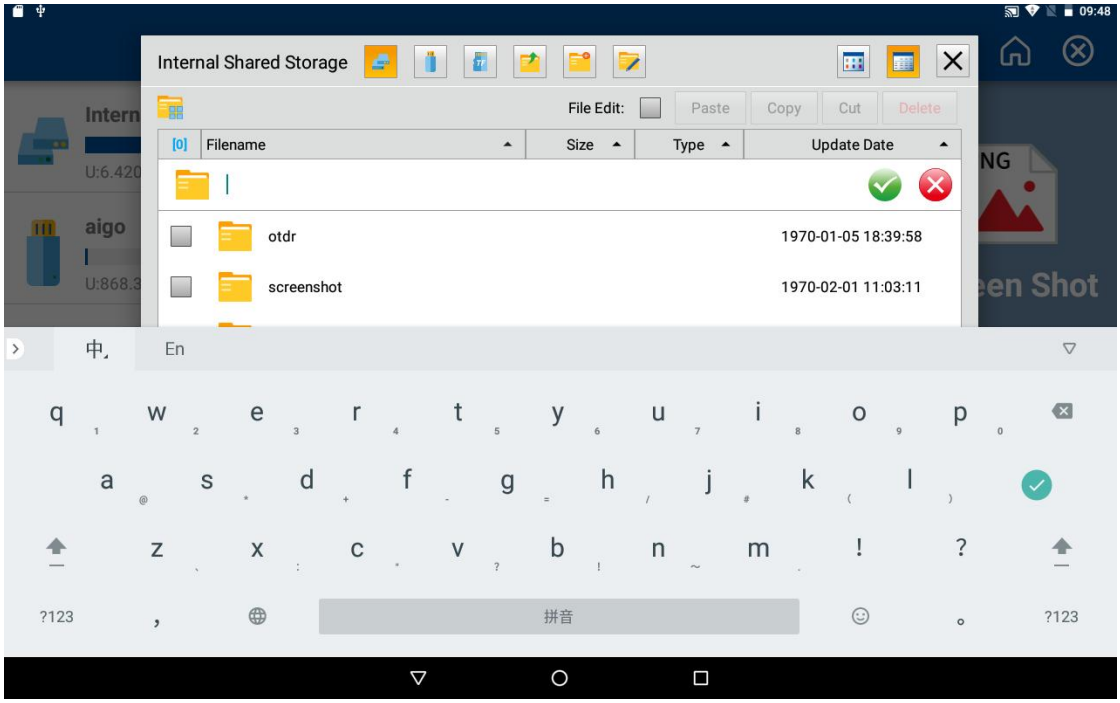
Tap the "  ", "  ", or "  " buttons to quickly switch to the memory you need to view.



II.Create new folders and rename, copy, paste, cut, delete, or make other modifications to files and folders.

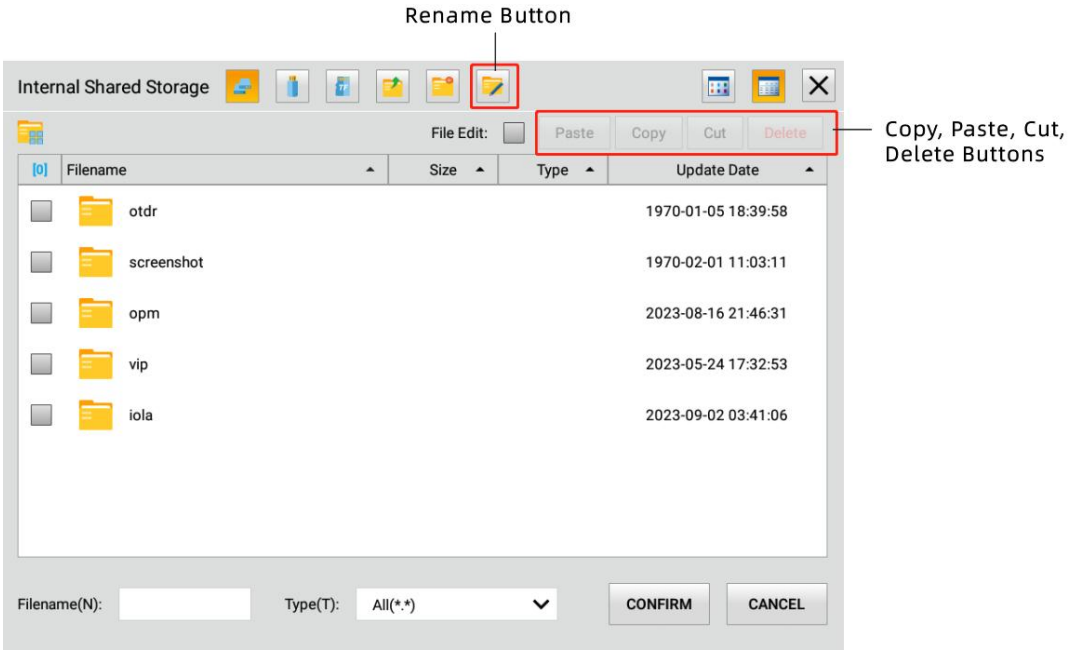
To create a new folder, tap the "  " button as shown in the image below:



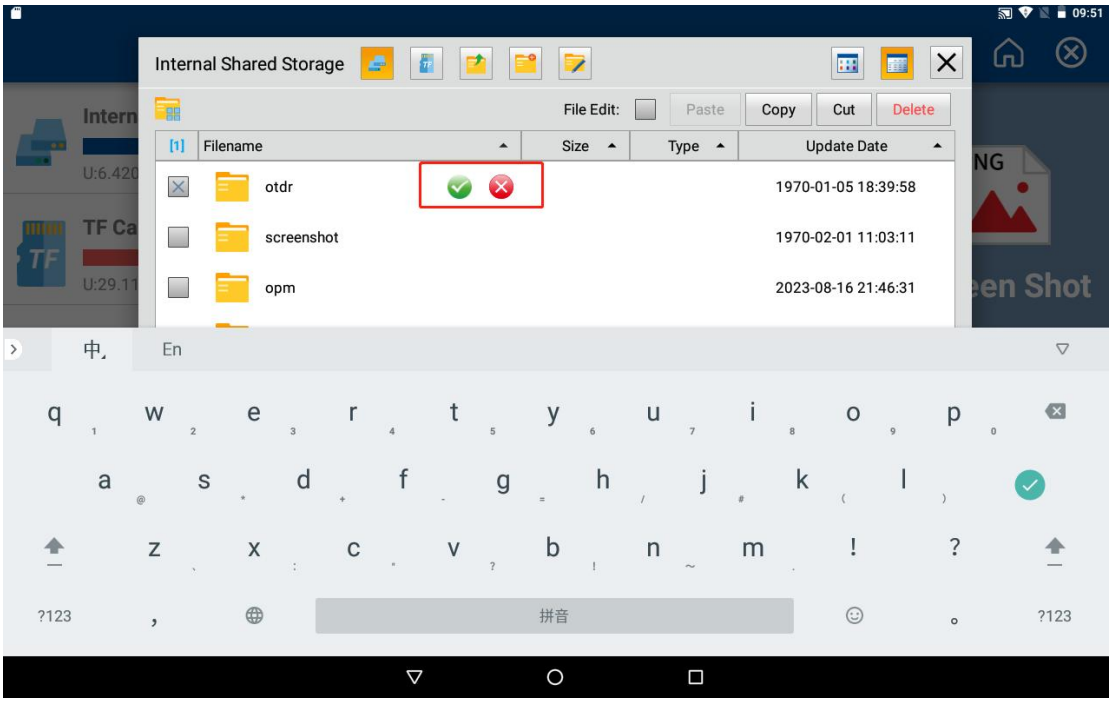


After entering the file name as required, tap the "  " button to confirm the creation of the new folder. To cancel the creation of the folder, tap the "  " button.

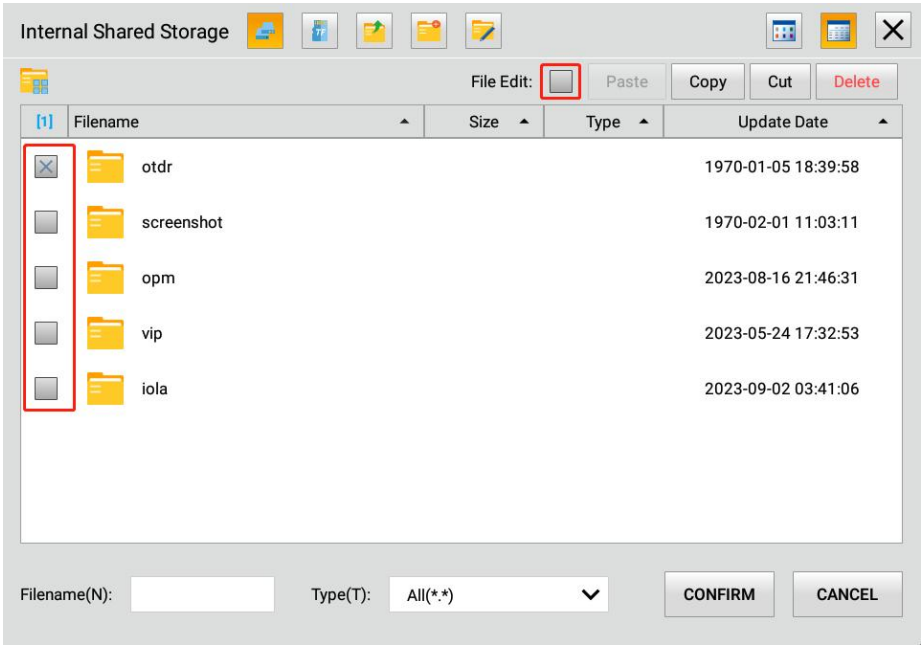
Select a folder or file, and then choose one of the following options: "Copy", "Paste", "Cut", "Delete", "Rename" buttons, as shown in the image below:



After tapping the "Rename" button, a soft keyboard will appear. Enter the new file name as required, and tap the "✓" button to confirm the renaming. To cancel the renaming, simply tap the "✗" button.



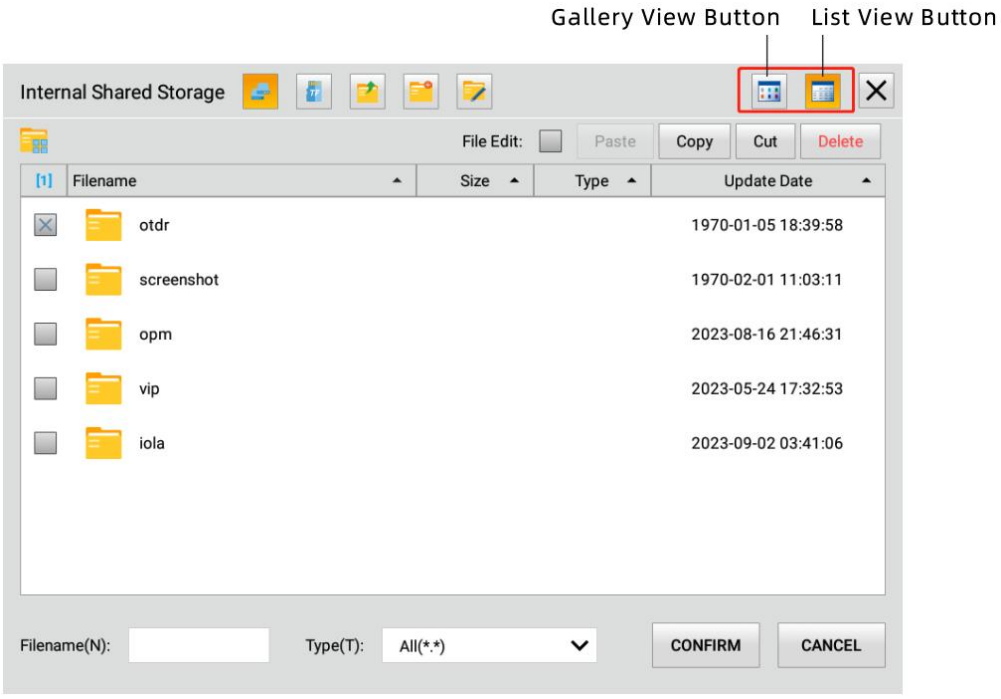
To modify multiple files or folders or to batch process, tap the "  " checkbox as shown in the image below:



To switch file views, tap the "  " or "  " button. The types of views you can switch to include:

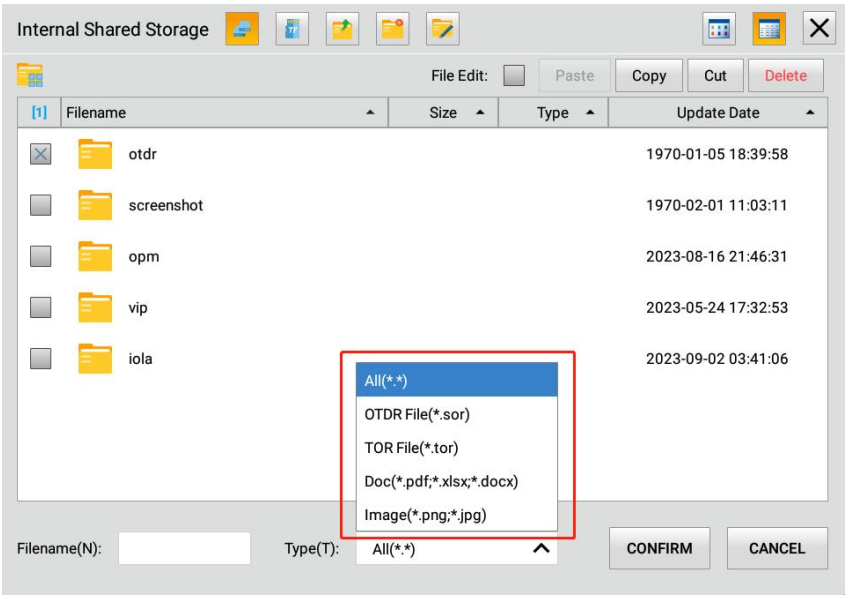
- List View
- Gallery View

The view switch button is shown in the image below:



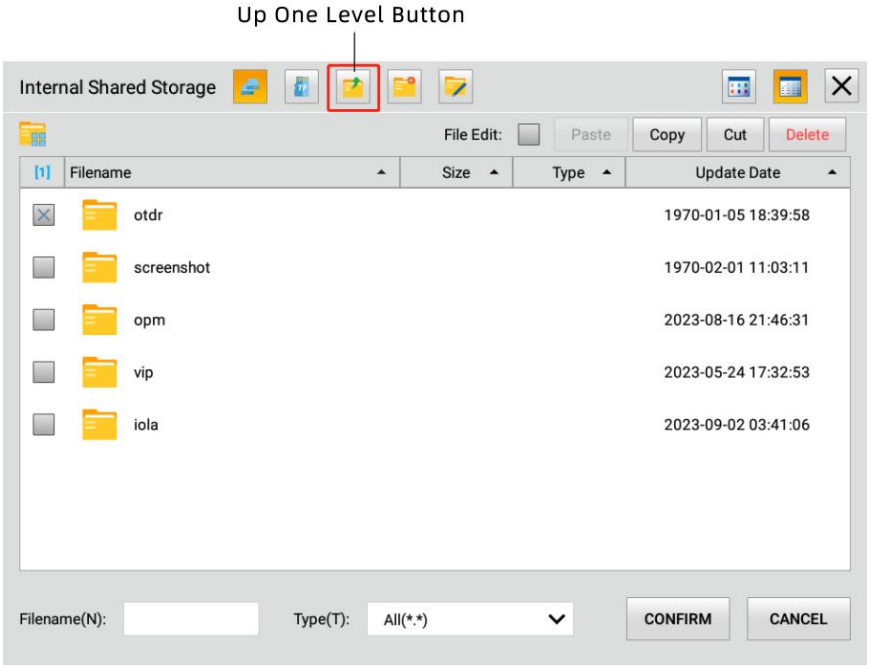
To filter by file type, tap the " 

" button and select the file type you wish to view, as shown in the image below:



Note： Filtering file types supports OTDR files (.sor), TOR files (.tor), documents (*.pdf, *.xlsx, .docx), and images (.png, *.jpg).

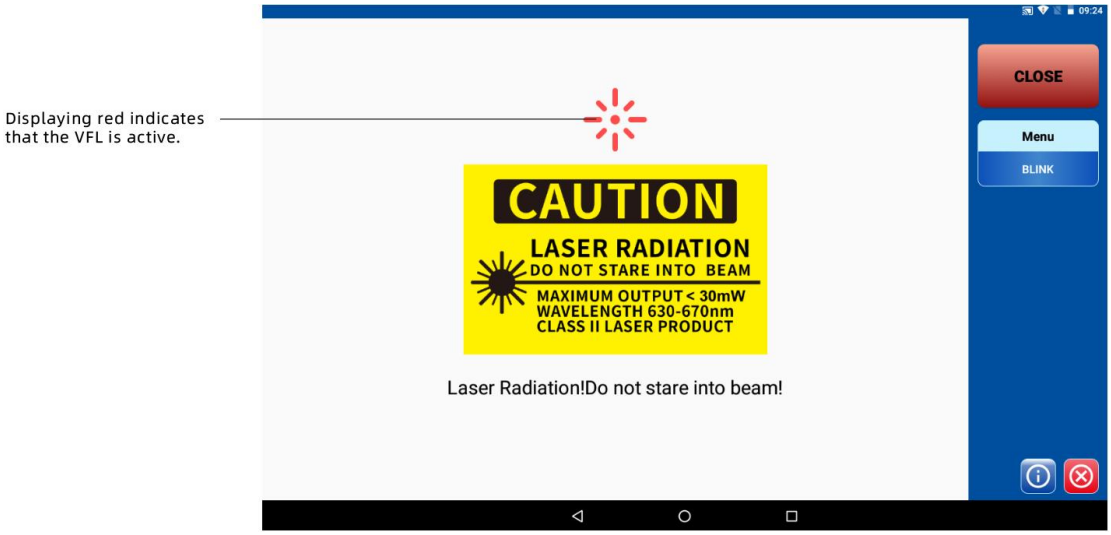
To return to the parent file directory, tap the "  " button, as shown in the image below:



VFL

The operating methods for VFL (Visual Fault Locator) include:

- Device Application Control
- Accessories Application (For detailed information about OPM/VFL accessories, please refer to page 154, "Instructions for Using OPM/VFL Accessories")



I.Instructions for Operating the VFL Application

Important Note
When using the VFL application, the VFL accessory must be connected to the device host, otherwise the application will not be usable.

Steps for Using a VFL:

1. Properly clean the connectors. (For details, please refer to page 7, "Cleaning and Connecting Fiber Optics")
2. Connect one end of the fiber under test to the VFL port.
3. Tap "Open" to start. You can tap "Close" at any time to stop the laser emission.

The application also supports a blinking feature.

Tap "Blink" in the "Menu".

Note： VFL blinking frequency: ≈4Hz.

OPM

The operating methods for OPM include:

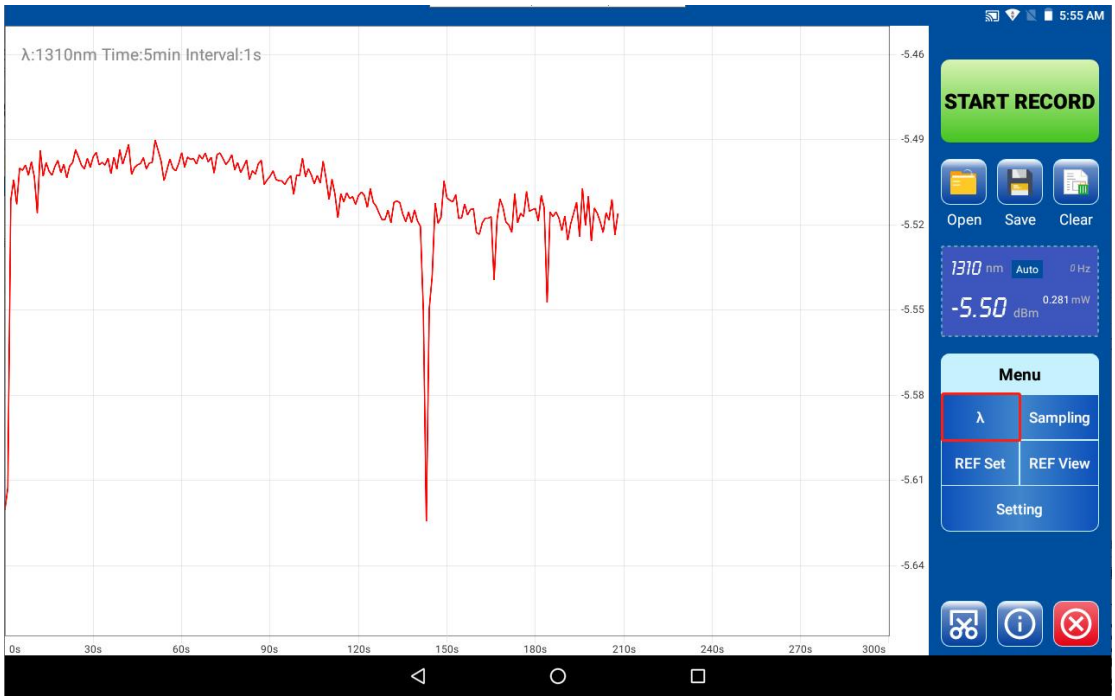
- Device Application Control
- Accessory Application (For detailed information about OPM/VFL accessories, please refer to page 143, 'Instructions for Using OPM/VFL Accessories')

I.OPM Application Operation Instructions

Important Note
When using the OPM application, the OPM accessory must be connected to the device host, otherwise the application will not be available.

1.1 OPM Wavelength Setting

In the “Menu”, tap the “Wavelength” button to cycle through the calibration wavelengths. The device supports measurements for 10 calibration wavelengths: 850nm, 980nm, 1270nm, 1300nm, 1310nm, 1490nm, 1550nm, 1577nm, 1625nm, and 1650nm.



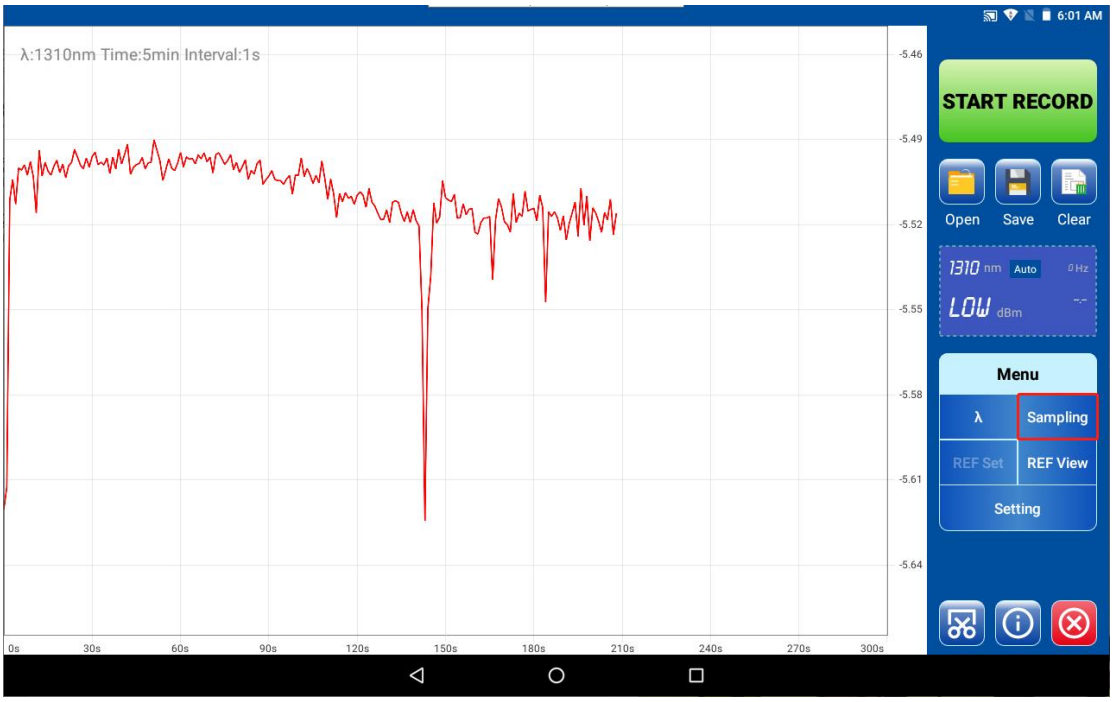
1.2 OPM Sampling Setting

OPM Sampling Settings include:

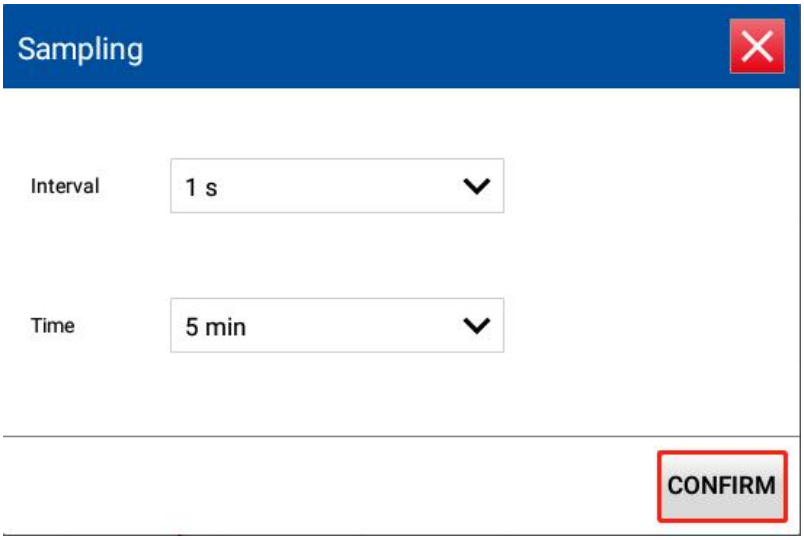
- Sampling Interval
- Sampling Time

Sampling Setting Steps:

1. In the "Menu," tap "Sampling" to bring up the sampling settings window.



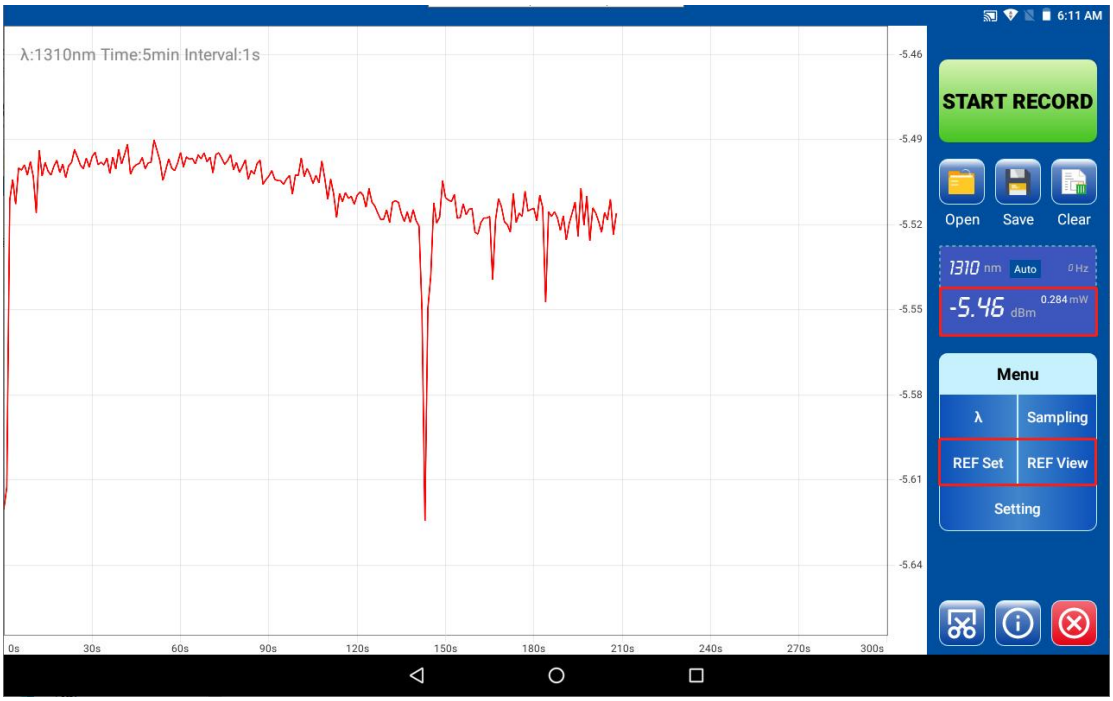
2. You can set the sampling parameters according to your needs.
3. Tap “CONFIRM” to save the sampling parameters.



1.3 Viewing and Setting REF Values

Under illuminated conditions, you can tap "REF Setting" to configure the REF reference value for the current wavelength. Each wavelength has its own independent REF setting value.

Tap "REF View" to view the REF value difference for the current wavelength, as illustrated below:

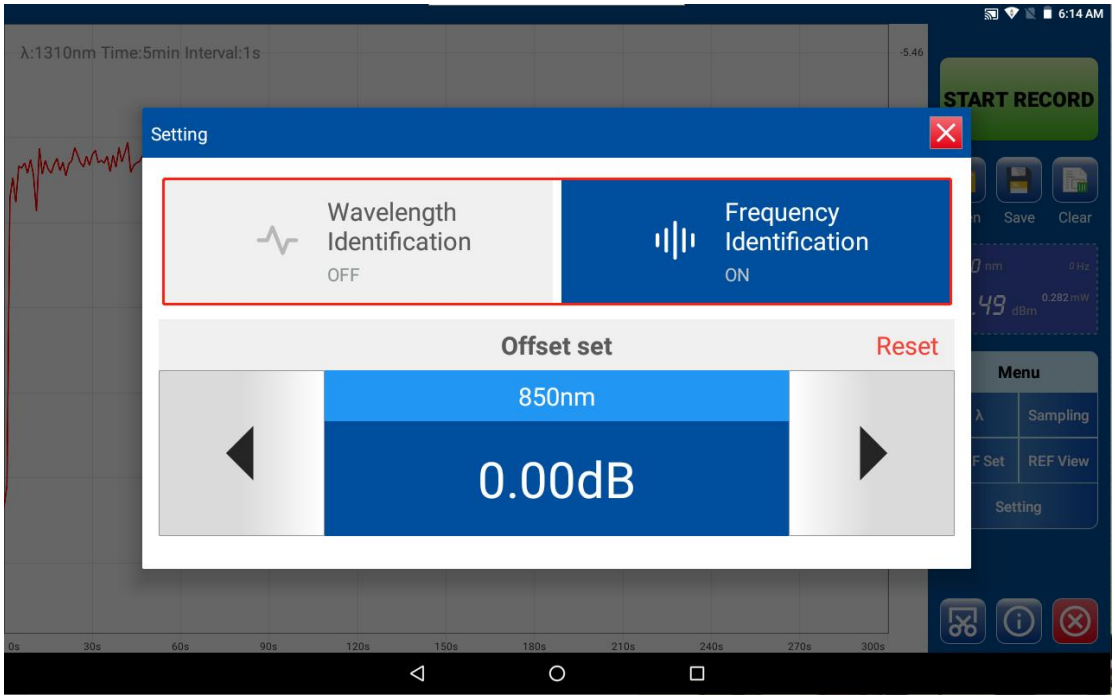


1.4 Wavelength/Frequency Identification Settings

- Wavelength Recognition: In conjunction with our company's laser light source equipment, it can automatically identify the current emitting wavelength value and automatically switch to that wavelength.
- Frequency Recognition: In conjunction with the carrier modulation signal emitted by our company's laser light source equipment, it can automatically identify the frequency value.

Wavelength/Frequency Identification Setup Steps:

1. In the "Main Menu," tap the "Function Settings" button.
2. In the "Function Settings" window, you can turn on or off the automatic identification of wavelength/frequency as shown in the following image:



3. Tap the "  " button to return to the main window.

1.5Offset Setting

Offset settings allow for manual calibration adjustments for each calibration wavelength.

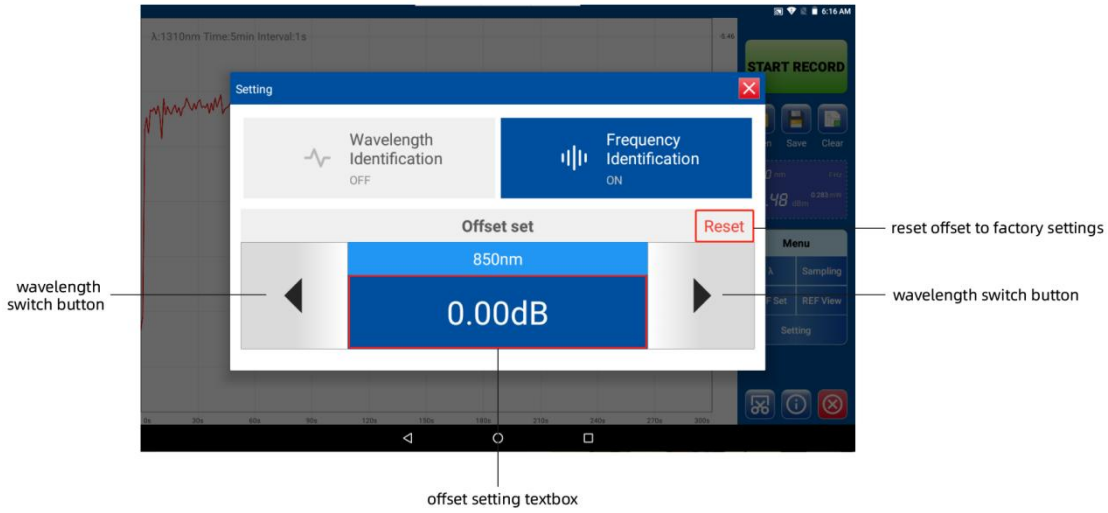
Note： The offset can be set within the range of (-5.00dB to 5.00dB).

Offset Setting Steps:

1. In the "Menu," tap the "Settings" button.
2. In the "Function Settings" window, tap "◀" or "▶" to switch to the desired setting wavelength.
3. Tap the offset parameter and set it.
4. Tap the "✕" button to return to the main window.

To reset the offset parameter, tap the "Reset" button.

Note： The "Reset" button restores the factory offset parameters for all wavelengths.



1.6 Waveform Recording

You can set the data acquisition parameters yourself; the wavelength and frequency can be used in conjunction with the application's automatic recognition feature.

Note： The wavelength/frequency recognition feature must be used in conjunction with our company's laser light source equipment.

Note： You can interrupt data acquisition at any time. The application will display all the information obtained up to the point of interruption.

After completing the data acquisition record, a complete waveform curve will be displayed in the waveform window.

Steps to acquire the curve:

1. Clean the connectors properly. (For details, please refer to page 7, "Cleaning and Connecting Fiber Optics")
2. Connect one end of the fiber under test to the OPM port.
3. Switch the wavelength as needed, adjust the sampling parameters, and REF values.
4. Manually calibrate the offset for each calibration wavelength as needed.
5. Tap "Start Recording."
6. After recording is complete, tap "Save" on the button bar to save the curve.
   Or tap "Clear" to delete the current record.

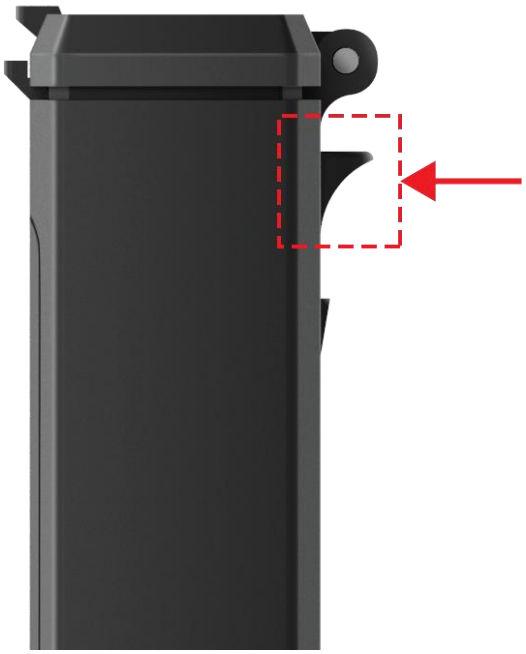
1.7 Open the record file.

Steps to open the record file:

1. Tap "  " in the main window.
2. Scroll through the file list and select the waveform file you wish to open.
3. Tap "CONFIRM."

For waveforms that have been acquired but not saved, the application will prompt you to save them.

Instructions for Using OPM/VFL Accessories



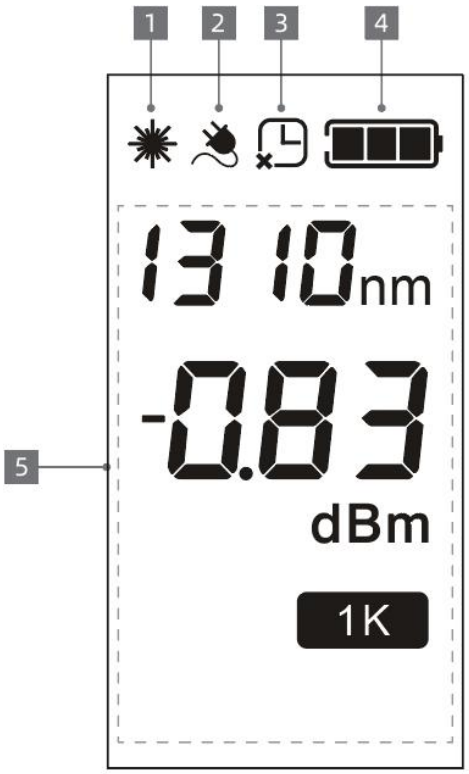
Hold the diagram area and remove the accessory from the device host.

I.Appearance

1 OPM Interface 2 VFL Interface 3 Function Key

4 Type-C Connector 5 Charging Indicator Light

II. Display Instructions



1 VFL Icon 2 Power Icon 3 Battery Saver Icon

4 Battery Indicator Icon 5 Optical Power Meter Information Area

III. Power On/Off and Energy Saving Features

Press the “  ” button briefly on the accessory to turn on the device, which will automatically activate the power-saving mode. When the power-saving mode is on, the device will automatically turn off after 10 minutes of inactivity, accompanied by three beeps as a shutdown alert.

To disable the power-saving feature:

Press and hold the "  " key while the device is off to turn it on. When the "  " icon lights up at the top of the screen, it indicates that the power-saving feature is turned off.

IV.Charging

- Accessories connect to the device host for automatic charging.

Note： The device host supports accessory charging both when it is on and off.

- It is recommended to use a 5V/1A power adapter and cable connected to the Type-C port.

When the accessory is off, the charging status can be determined by the charging indicator light. If the charging indicator light at the bottom is on, it means it is charging. If the charging indicator light is off, it means the accessory is fully charged.

When the accessory is charging while powered on, the "  " icon lights up, indicating that the power is connected. The "  " icon displays a dynamic increase, and when fully charged, the "  " icon remains static.

V. VFL

VFL Function Operation Steps:

1.Press and hold the "  " button to turn on.

2.Briefly press the "  " key to toggle the VFL status: on/blink/off. The "  " icon at the top of the screen will display the status synchronously.

Note： VFL Flicker Frequency: ≈4Hz.

VI.OPM

6.1OPM Wavelength Setting

Briefly pressing the "  " key cycles through the calibration wavelengths. The accessory supports measurement at 10 calibration wavelengths: 850nm, 980nm, 1270nm, 1300nm, 1310nm, 1490nm, 1550nm, 1577nm, 1625nm, 1650nm.

6.2REF Value Viewing and Setting

In the presence of light, long press the "  " key to set the REF reference value for the current wavelength. Each calibration wavelength has its own independent REF setting value.

Press the "  " key briefly to view the REF reference value and the difference in REF value for the current wavelength.