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SKYSHL SS304T-2A1

SKYSHL SS304T-2A1 SM Fibre OTDR Tester User Manual

Model: SS304T-2A1

1. Introduction

The SKYSHL SS304T-2A1 is a compact and intelligent Optical Time Domain Reflectometer (OTDR) designed for comprehensive testing and analysis of single-mode fiber optic networks. This device integrates multiple essential functions, including an Optical Power Meter (OPM), Optical Light Source (OLS), Visual Fault Locator (VFL), RJ45 Cable Tracker, and Optical Loss Test capabilities. It provides high-precision data for fiber length, optical attenuation, and event detection, making it an indispensable tool for the construction, maintenance, and troubleshooting of fiber optic systems.

2. Safety Information

Please read and understand all safety instructions before operating the device. Failure to follow these instructions may result in injury or damage to the equipment.

- **Laser Safety:** This device emits invisible laser radiation. Avoid direct exposure to the laser beam. Never look directly into the optical output ports. Use appropriate eye protection when operating the VFL or OLS functions.
- **Battery Safety:** Use only the specified charger and battery type. Do not disassemble, crush, or expose the battery to extreme temperatures. Dispose of batteries according to local regulations.
- **Environmental Conditions:** Operate the device within the specified temperature and humidity ranges. Avoid exposure to water, dust, or corrosive substances.
- **Maintenance:** Refer to the maintenance section for cleaning and care instructions. Do not attempt to service the device yourself; contact qualified personnel for repairs.

3. Package Contents

Verify that all items listed below are included in your package. If any items are missing or damaged, contact your supplier.

- SKYSHL SS304T-2A1 OTDR Unit
- SC/UPC & FC/UPC Adapter for OTDR Port
- 2.5mm Universal Interface for OPM & VFL Ports (2 units)
- Fiber Optic Adapters:
  - 1x FC-LC UPC&APC Adapter
  - 1x FC-SC UPC&APC Adapter
  - 1x FC-ST UPC&APC Adapter
  - 1x FC-FC UPC&APC Adapter
- Fiber Optic Jumpers:
  - 1x FC/UPC-FC/UPC Jumper
  - 1x FC/UPC-FC/APC Jumper
- RJ45 Cable Tracker Unit
- USB Type-C Cable
- Power Adapter
- User Manual (this document)
- Calibration Report
- Carrying Bag
- Alcohol Cleaning Pads

Figure 3.1: Complete package contents of the SKYSHL SS304T-2A1 OTDR Tester, including the main unit, various fiber adapters, jumpers, RJ45 tracker, charging accessories, and carrying case.

4. Product Overview

The SKYSHL SS304T-2A1 is designed for portability and robust performance in field environments. It features a user-friendly interface and a durable casing.

4.1 Key Features

- **Dual Wavelength OTDR:** 1310nm/26dB and 1550nm/24dB for single-mode fiber.
- **Extended Test Range:** Maximum test distance of 96km.
- **Short Dead Zones:** Event Dead Zone (EDZ) of 2.5m and Attenuation Dead Zone (ADZ) of 8m.
- **Integrated Functions:** Optical Power Meter (OPM), Optical Light Source (OLS), Visual Fault Locator (VFL), RJ45 Cable Tracker, and Optical Loss Test.
- **High-Resolution Display:** 4.3-inch capacitive touchscreen for clear data visualization.
- **Long Battery Life:** 3.7V/4000mAh lithium battery providing 11-15 hours of continuous operation.
- **Data Management:** Stores up to 200,000 curve groups, supports data transfer via USB Type-C, and report generation.

- **Rugged Design:** Shock-resistant and water-resistant casing suitable for outdoor use.
- **Multi-language Support:** Includes English, Russian, Spanish, French, and Portuguese.

4.2 Device Layout

Figure 4.1: Front view of the OTDR unit, showing the touchscreen display and control buttons.

Figure 4.2: Top view of the device, illustrating the protected ports for VFL, OPM, OTDR/OLS, LAN1, LAN2, USB, and TF card slot.

Figure 4.3: Side view of the OTDR unit, showing the integrated kickstand for convenient desktop use.

Figure 4.4: Back view of the OTDR unit, displaying the product label with model number, wavelengths, dynamic range, connector type, and input power specifications.

5. Setup

Follow these steps to prepare your SKYSHL SS304T-2A1 for first use.

5.1 Charging the Battery

1. Connect the provided USB Type-C cable to the device's USB port (located under the protective cover on the top).
2. Connect the other end of the USB cable to the power adapter.
3. Plug the power adapter into a standard electrical outlet.
4. The 'CHARGE' indicator light on the device will illuminate during charging. A full charge typically takes several hours.

5.2 Powering On/Off

- **To Power On:** Press and hold the red power button ( ) until the screen illuminates.
- **To Power Off:** Press and hold the red power button ( ) until the shutdown prompt appears, then

confirm.

5.3 Initial Configuration

Upon first power-on or after a factory reset, you may need to configure basic settings.

1. **Language Selection:** Navigate to the 'System' menu and select your preferred language (English, Russian, Spanish, French, Portuguese).
2. **Date and Time:** Set the correct date and time in the 'System' settings.
3. **Screen Brightness:** Adjust the display brightness for optimal visibility.

6. Operating Instructions

The SS304T-2A1 offers a main interface with various function icons. Use the touchscreen or the navigation buttons to select the desired function.

Figure 6.1: The main interface displaying icons for various functions such as Auto OTDR, Expert OTDR, Event Map, OPM, VFL, Laser Source, Loss Test, RJ45 Length, RJ45 Tracking, End Face Detection, File Management, and System settings.

6.1 OTDR Function (Optical Time Domain Reflectometer)

The OTDR function is used to characterize fiber optic links, measure length, attenuation, and locate events

like splices, connectors, and breaks.

1. **Connect Fiber:** Clean the fiber connector end-face thoroughly. Connect the fiber under test to the OTDR port using the appropriate adapter (SC/UPC or FC/UPC provided).
2. **Select OTDR Mode:** From the main interface, select 'Auto OTDR' for simplified testing or 'Expert OTDR' for advanced parameter configuration.
3. **Configure Parameters (Expert OTDR):** If using Expert OTDR, set parameters such as wavelength (1310nm or 1550nm), pulse width, range, and measurement time. For Auto OTDR, the device will automatically select optimal parameters.
4. **Start Test:** Press the 'Start' button to begin the OTDR measurement. The device will display the trace curve and event list.
5. **Analyze Results:** Review the displayed curve and event map. The event map graphically represents events along the fiber, while the list provides detailed numerical data for each event (distance, loss, reflectance).

Figure 6.2: Examples of OTDR curve analysis, showing total length, total loss, average loss, and detailed event lists for different fiber segments.

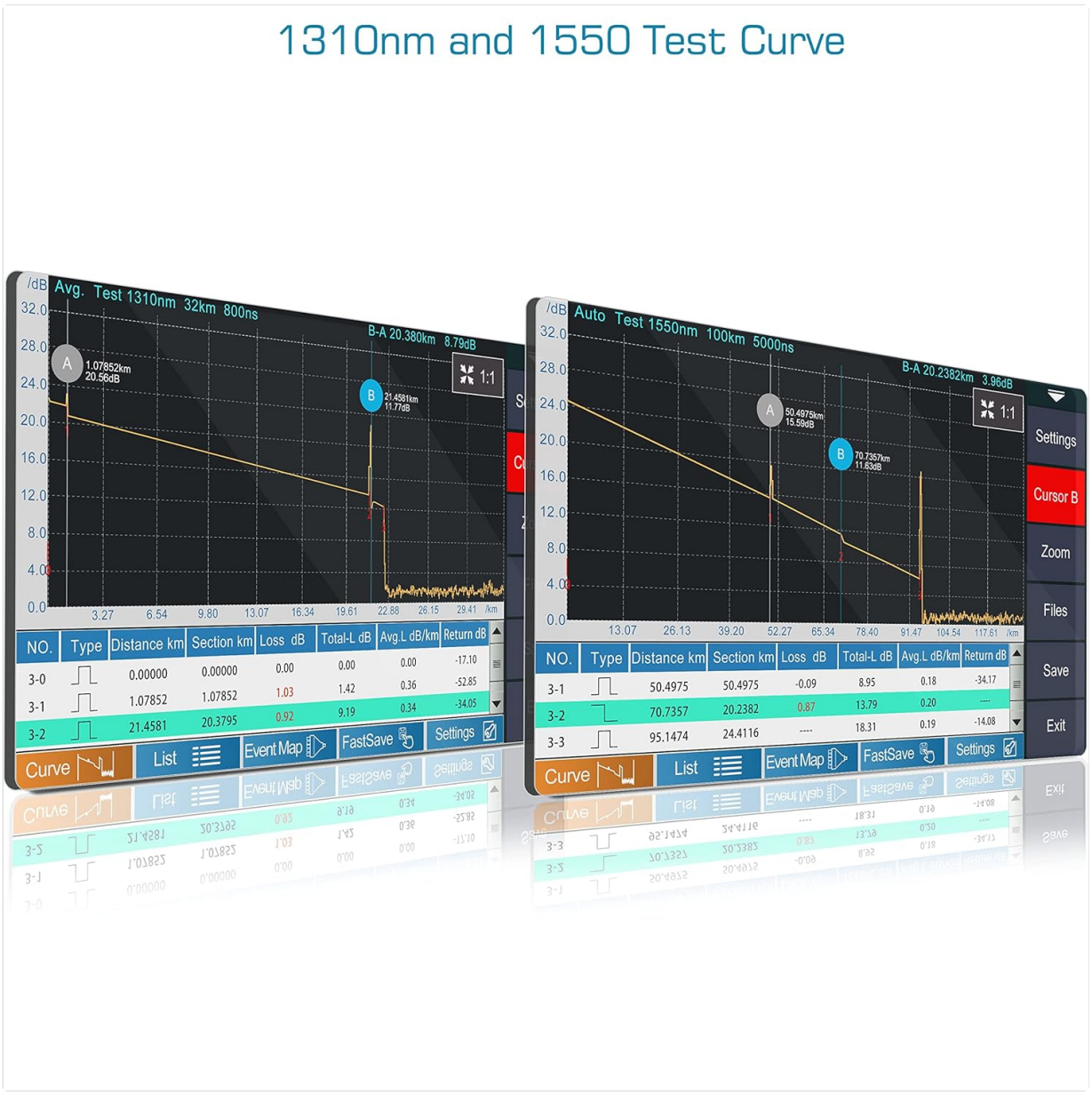

Figure 6.3: A comparison of OTDR test curves at 1310nm and 1550nm, illustrating how different wavelengths can reveal distinct characteristics of the fiber link.

Figure 6.4: A typical OTDR curve displayed on the device screen, showing events and measurement data.

6.2 OPM Function (Optical Power Meter)

The OPM measures the optical power of a fiber optic signal.

1. **Connect Fiber:** Clean the fiber connector and connect it to the OPM port using the 2.5mm universal interface.
2. **Select OPM:** From the main interface, select the 'OPM' icon.
3. **Measure Power:** The device will display the optical power in dBm or mW. You can select the measurement wavelength if needed.

6.3 OLS Function (Optical Light Source)

The OLS emits a stable optical signal for loss measurement or continuity testing.

1. **Connect Fiber:** Clean the fiber connector and connect it to the OLS port (shared with OTDR port).
2. **Select Laser Source:** From the main interface, select the 'Laser Source' icon.
3. **Configure Wavelength:** Select the desired output wavelength (1310nm or 1550nm).
4. **Activate Source:** Turn on the laser source. The device will emit a continuous wave.

6.4 VFL Function (Visual Fault Locator)

The VFL emits a visible red laser to locate breaks, bends, or poor connections in short fiber segments.

1. **Connect Fiber:** Clean the fiber connector and connect it to the VFL port using the 2.5mm universal interface.
2. **Select VFL:** From the main interface, select the 'VFL' icon.
3. **Activate VFL:** Turn on the VFL. A red light will be emitted. Observe the fiber for any visible light leakage, which indicates a fault.

6.5 RJ45 Cable Tracker

The RJ45 Cable Tracker is used to identify and locate network cables.

1. **Connect Cable:** Connect one end of the RJ45 cable to the LAN1 or LAN2 port on the main unit. Connect the other end to the remote tracker unit.
2. **Select RJ45 Tracking:** From the main interface, select the 'RJ45 Tracking' icon.
3. **Start Tracking:** Activate the tracking function. The remote unit will emit a signal, allowing you to trace the cable.

6.6 Optical Loss Test

This function measures the total optical loss of a fiber link.

1. **Connect Reference:** Connect a known good fiber patch cord from the OLS port to the OPM port to establish a reference power level.
2. **Set Reference:** In the 'Loss Test' menu, set the reference power.
3. **Connect Fiber Under Test:** Disconnect the OPM from the OLS. Connect the fiber link to be tested between the OLS and OPM ports.
4. **Measure Loss:** The device will display the optical loss of the connected fiber link.

7. Maintenance

Proper maintenance ensures the longevity and accuracy of your SKYSHL SS304T-2A1.

- **Cleaning Optical Ports:** Always clean fiber optic connectors and adapters before use. Use lint-free wipes and optical-grade alcohol. Never use abrasive materials.
- **Screen Care:** Clean the touchscreen with a soft, dry, lint-free cloth. Avoid using harsh chemicals or abrasive cleaners.
- **Storage:** When not in use, store the device in its carrying bag in a cool, dry place, away from direct sunlight and extreme temperatures. Ensure all port covers are closed to prevent dust ingress.
- **Battery Care:** For long-term storage, charge the battery to approximately 50% every three months to maintain battery health.
- **Software Updates:** Periodically check the manufacturer's website for any available firmware updates to ensure optimal performance and access to new features.

8. Troubleshooting

This section addresses common issues you might encounter. For problems not listed here, contact customer support.

Problem	Possible Cause	Solution
Device does not power on.	Low battery; Power button not pressed long enough.	Charge the battery. Press and hold the power button for at least 3 seconds.
OTDR trace is noisy or inaccurate.	Dirty fiber connectors; Incorrect test parameters; Fiber too long for selected range.	Clean all fiber connectors. Adjust pulse width and range settings. Ensure proper connection.
No VFL light output.	VFL function not activated; Dirty VFL port; Damaged fiber.	Ensure VFL is turned on. Clean the VFL port. Check the fiber for damage.
RJ45 tracker not working.	Cable not properly connected; Remote unit battery low; Incorrect function selected.	Verify cable connections. Check remote unit battery. Select 'RJ45 Tracking' function.
Screen unresponsive.	Software glitch; Extreme temperature.	Perform a soft reset by holding the power button until the device restarts. Move to a suitable operating environment.

9. Specifications

Detailed technical specifications for the SKYSHL SS304T-2A1.

Feature	Specification
Model	SS304T-2A1
Wavelengths	1310nm / 1550nm
Dynamic Range	26dB (1310nm) / 24dB (1550nm)
Event Dead Zone (EDZ)	2.5m
Attenuation Dead Zone (ADZ)	8m
Maximum Test Distance	96km
Pulse Width Options	3ns to 20us
Sampling Rate	Up to 128K
Data Storage	200,000 curve groups
Display	4.3-inch Capacitive Touchscreen
Battery	3.7V/4000mAh Lithium-polymer (11-15 hours operation)
Dimensions (L x W x H)	170 x 110 x 45 mm
Weight	0.5 kg (with battery)

Feature	Specification
Optical Power Meter (OPM)	800nm~1700nm; -50~+26dB
Optical Light Source (OLS)	1310nm + 1550nm
Visual Fault Locator (VFL)	10km range
RJ45 Cable Tracker	>300m range
Connectivity	USB Type-C
Compatible Connectors	SC/UPC, ST/UPC, FC/UPC, LC/UPC, SC/APC, ST/APC, FC/APC, LC/APC
Operating Voltage	3.7 Volts (Min.)
UPC	767853021421
Country of Origin	China

10. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the contact details provided in your product packaging or visit the official SKYSHL website. Keep your purchase receipt and calibration report for warranty claims.

- **Customer Service Email:** Refer to the contact information provided with your product.
- **Online Resources:** Check the manufacturer's website for FAQs, updated manuals, and software downloads.

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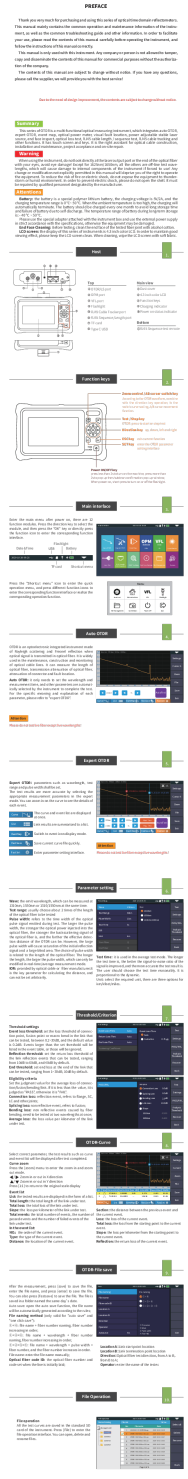
Related Documents - SS304T-2A1

[SKYSHL SS304T Mini PRO Series Optical Time Domain Reflectometer User Manual]

Comprehensive user manual for the SKYSHL SS304T Mini PRO Series Optical Time Domain Reflectometer, detailing its features, operation, maintenance, and troubleshooting for optical cable construction and maintenance.



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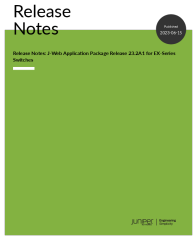	Juniper Networks J-Web Application Package Release 23.2A1 for EX-Series Switches Release Notes This document provides release notes for the Juniper Networks J-Web Application Package Release 23.2A1 for EX-Series Switches. It details new and changed features, known issues, and limitations.
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