ShinewayTech®
Dependable Partner for Future Networks

OCC-50 CWDM
Optical Channel Checker
User's manual

Safety Instructions

The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personnel injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

The **CAUTION** sign denotes a hazard. It calls attention to an operating procedure, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or the entire product. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

The **NOTE** sign information that may be beneficial during the use and maintenance of the instrument.

Users should avoid looking directly into optic output of any working laser source or live fiber. And the use of microscope or magnifier should also be avoided, for the use of such devices can focus a highly intense beam onto the retina, which may result in permanent eye damage

Battery: Battery for this instrument is rechargeable NiMH battery. If unused for a long time, battery should be recharged before being used. If the instrument is left idle for more than two months, it should be recharged to maintain adequate battery volume**.** Do not recharge batteries for more than 8 hours. Do not take batteries out without technical staff's help. Do not expose batteries to fire or intense heat. Do not open or mutilate batteries. Avoid touching the electrolyte in the batteries, which is corrosive and may cause injuries to eyes, skin or damage to clothes.

External Power: OCC-50 supports external power. Power requirements: DC 13.8V/1.2A.

Laser Radiation: To avoid serious eye injury, never look directly into the optical outputs

of fiber optic network equipment, test equipment, patch cords, or test jumpers.

- Always avoid looking directly into the optical output port, when the instrument is working
- Always replace protective dust cap on the detector port when the instrument is not being used
- Always avoid looking directly at unconnected end of optic fiber in testing and make the unconnected end pointing at a non-reflective object, if possible

Table of Contents

Table of Figure

1. General Information

1.1 Scope of this Manual

Thank you for purchasing ShinewayTech® instrument. Please read this manual carefully before using ShinewayTech® fiber optic instrument. Always be aware of the **Warning** and **Caution** sign appearing throughout this manual.

This manual contains the information necessary for proper operation and maintenance of ShinewayTech® instrument, troubleshooting instructions as well as information regarding maintenance services.

All ShinewayTech® instruments are carefully assembled and undergo rigorous mechanical, electrical, and optical inspection prior to shipment. Beside the instrument, the package also includes a lithium battery pack, a charging/data transfer cable, a power adapter, a FC/PC flange and this user's manual. For detailed information, please refer to the packing list.

Upon receiving the instrument, please check for any obvious signs of physical damage that may have occurred during shipment. Report any damage to the shipping agent or the representative of Shineway Technologies Inc. immediately. Retain the original packing materials in case reshipment is necessary.

1.2 Unpacking and Inspection

This instrument has been carefully packed in accordance with standard shipping procedures. Examine the instrument for damage that may have occurred during shipment. If you find any damage or the instrument is not working, or if any of the following items are not included, please contact your representative of Shineway Technologies, Inc.

If necessary, you may contact Shineway Technologies, Inc via this email:
support@shinewaytech.com.

1.3 Introduction

OCC-50 Handheld CWDM Optical Channel Checker is specially designed for CWDM installation, maintenance and troubleshooting, which is able to measure and monitor power values of up to 18 CWDM channels. OCC-50 can replace high-cost Spectrometers and conduct quick and reliable measurements in all environments. Thanks for its light, compact

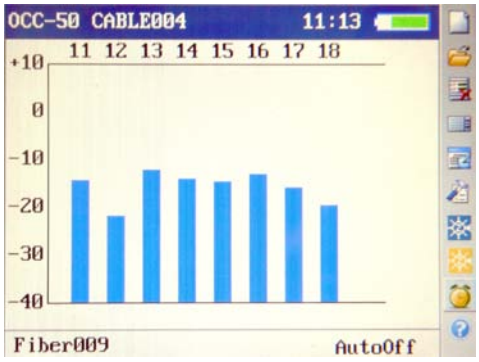
and sturdy design, OCC-50 is the ideal tool for CWDM installation and maintenance technicians.

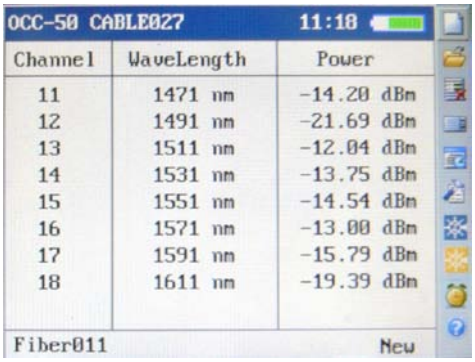
Features:

- Clear TFT LCD display (320×240)
- 18-channel measurement:
  Model OCC-50B, 1271-1611nm
- 8-channel measurement:
  Model OCC-50A, 1471-1611nm
- Result display in histogram and list
- Applicable to normal optical power measurement
- Internal clock & fiber S/N editable
- User definable threshold setting
- Data Transfer to PC via USB
- No warm-up, quick start
- Backlight
- 10 hours continuous operation
- Pocketsize, lightweight and easy-to-use
- CE, FCC certificates

Result display in histogram and list

Straightforward result display for easy understanding.





Internal clock & fiber S/N editable

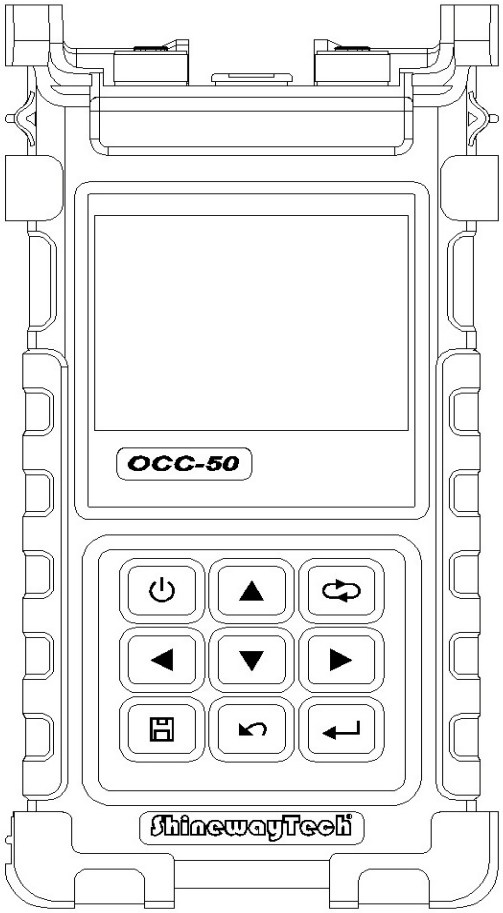
Internal clock enables OCC-50 to save test data with time and editable fiber SN information for convenient archiving and editing.

2. Basic Operation

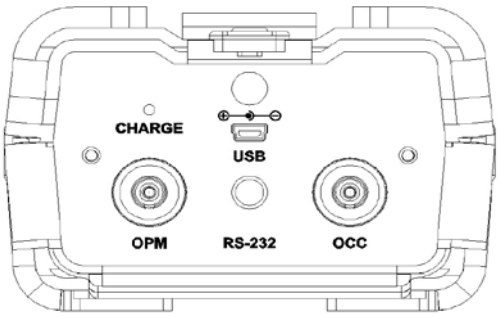
2.1 Forward

This part introduces the basic operation on OCC-50. Specific operations of each type instrument are elaborated in Chapter 3 of this manual. Please read this manual carefully for optimal operation. Should you encounter any problems during operation, you are welcome to contact the technical staff of our company or representatives.

2.2



2.2.1 INSTRUCTION INTERFACES



① OPM & OCC Optical Input:: Type FC/PC
② Power Input: 13.8V DC @1.2A
③ RS-232 Port: Program upgrade
④ USB Port: Data transfer to PC

2.2.2 Keypad Operation

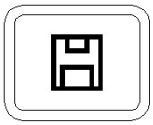
Power on/off

Toggle between OPM interface, CWDM Channel Checker interface and histogram display

1. Select toolbar functions in measurement interfaces
2. Change value in [Set Time] & [Set] interfaces (Threshold & Reference setting)
3. Scroll records in [View] interface
4. Select characters in [New] interface
5. Select file in [Open] & [Delete] interfaces

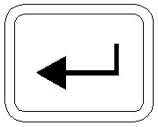
1. Shift digit positions in [Set Time] & [Set] interfaces

2. Select characters in [New] interface
3. Select "OK" or "Cancel" in [Open] & [Delete] interfaces
4. Toggle between calibrated wavelengths in OPM interface



Save result in CWDM Channel Checker interface

1. Quit current operation or interface
2. Toggle between units in OPM & CWDM Channel Checker interface



Run selected function

2.2.3 Indicator

CHARGE: Red while charging/Green when charging completed

2.3 Use of battery

OCC-50 works on NiMH rechargeable battery, please make sure the battery is mounted properly before use.
When battery is low, low battery indicator will appear on LCD. You can still use OCC-50 as long as its display on LCD is identifiable. Please charge as soon as possible when battery is low to ensure accurate measurement.

NOTE Please take out the battery if OCC-50 is not in use for a long time.

2.4 Connector Cleaning

Please follow the instructions below when cleaning:

- Turn off the instrument before cleaning.
- Non-compliant operation may result in hazardous radiation exposure.
- Turn off laser source before cleaning optical interface.
- Always avoid looking directly into the optical output port when the instrument is

working, laser is invisible and can cause serious eye damage.

- Disconnect instrument from power supply before cleaning to prevent electric shock.
- Do not install unauthorized parts or make unauthorized adjustments on instrument.
- Please consult qualified professional about maintenance and repair services.

Always clean optical connector before using optical power meter to ensure accurate measurement. Clean the optical connector gently with cleaning swab.

Inappropriate maintenance may result in low performance or error:

- Distance error increases;
- Linearity error;
- Extra optical power attenuation;
- Received optical power is beyond normal range.

3. Operation

3.1 Interfaces

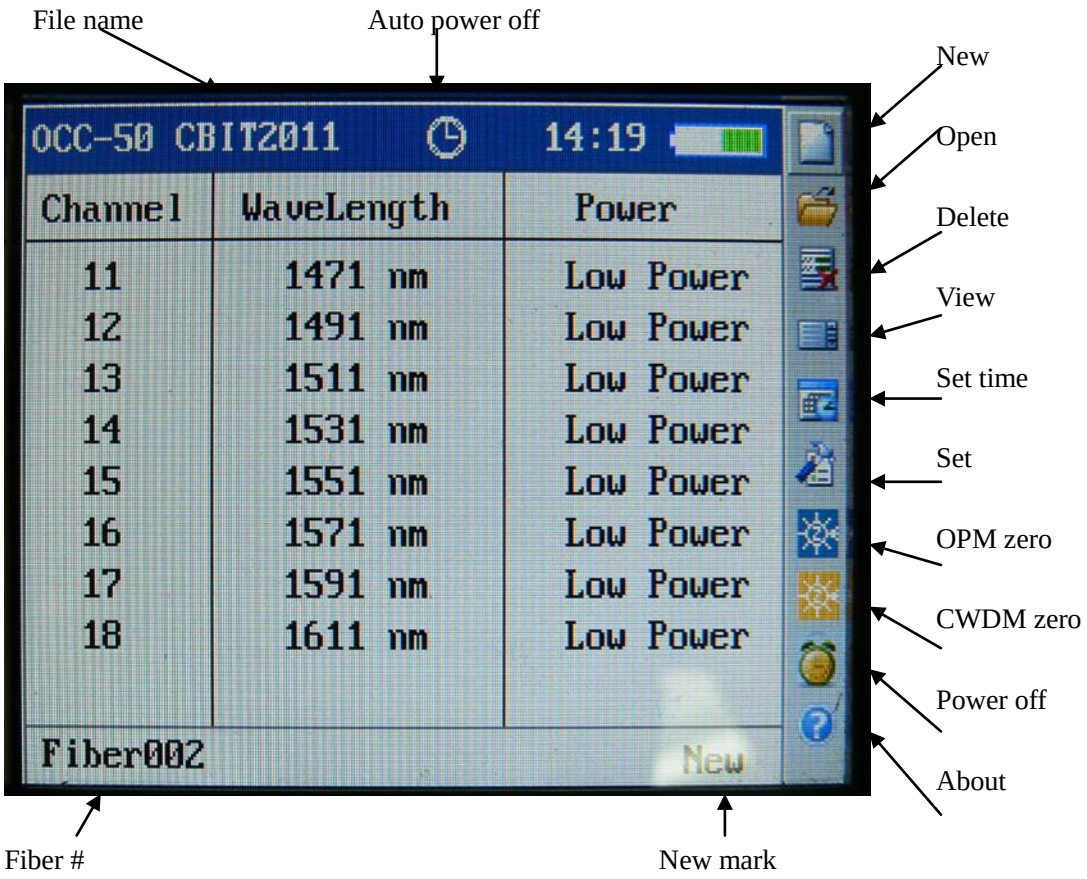


FIGURE 3.1

3.2 Power on

Press  button and loading screen appears, entering OCC-50 module, see Figure 3.2.

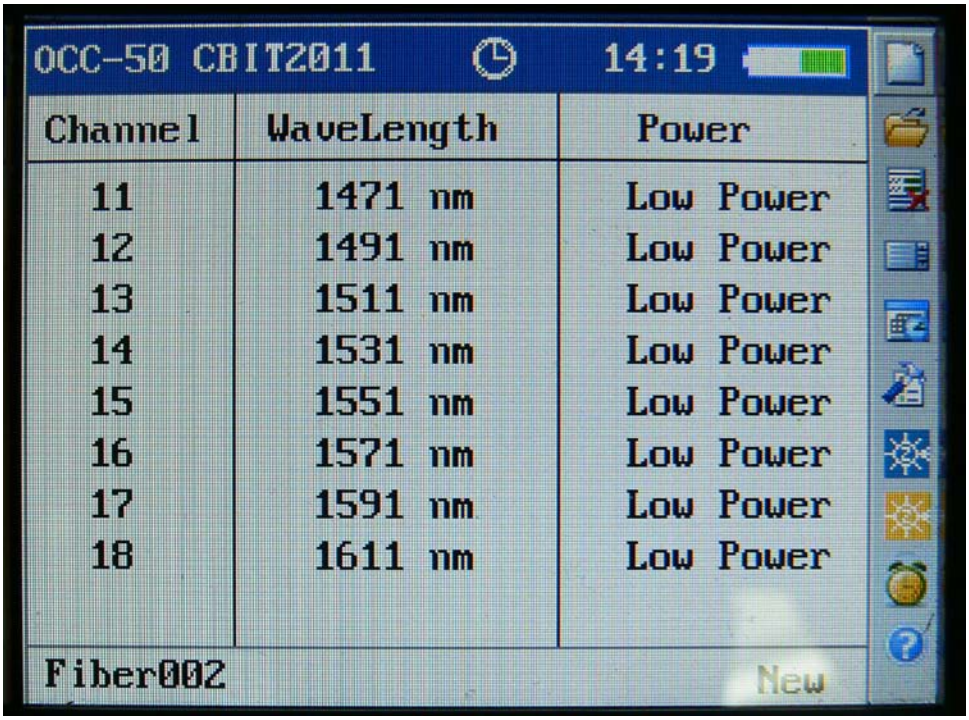


FIGURE 3.2

When measuring, just connect the fiber well, the power value of each channel appears, see Figure3.3

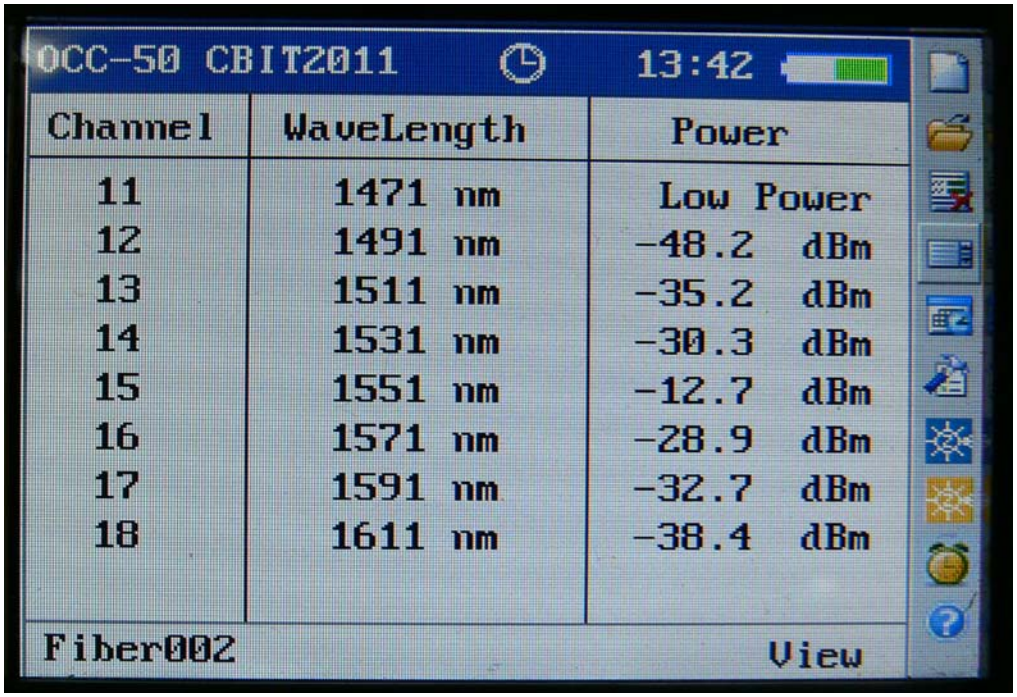


FIGURE 3.3

Pres button to switch to histogram display of power value, see Figure 3.4:

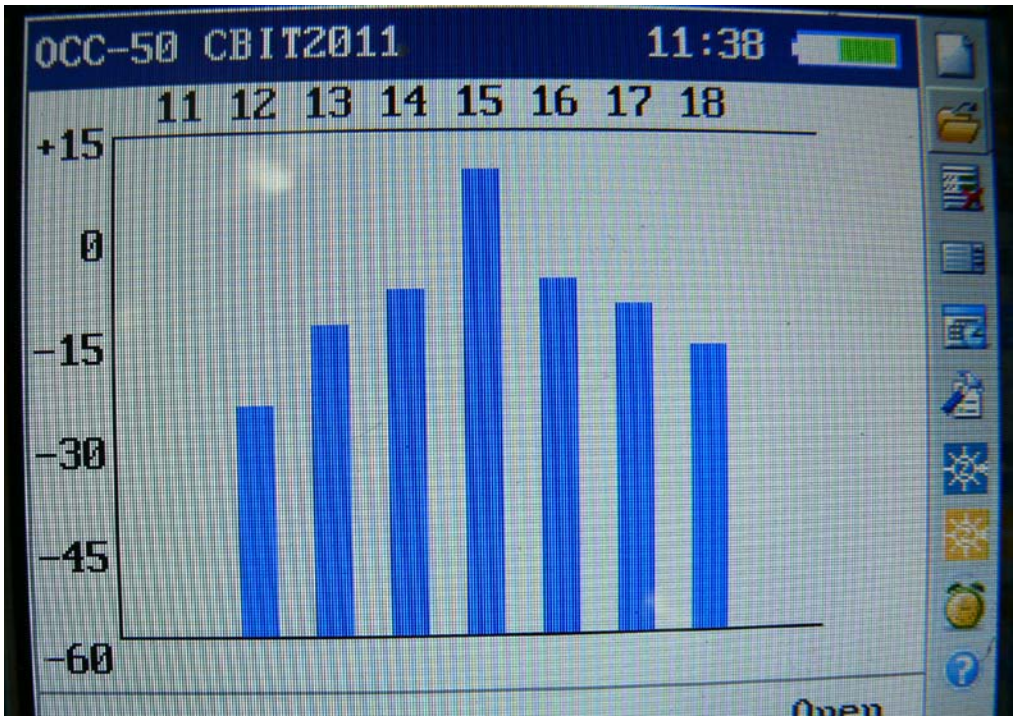


FIGURE 3.4

Press button again to switch to OPM module, to start power measurement, see Figure 3.5 below.

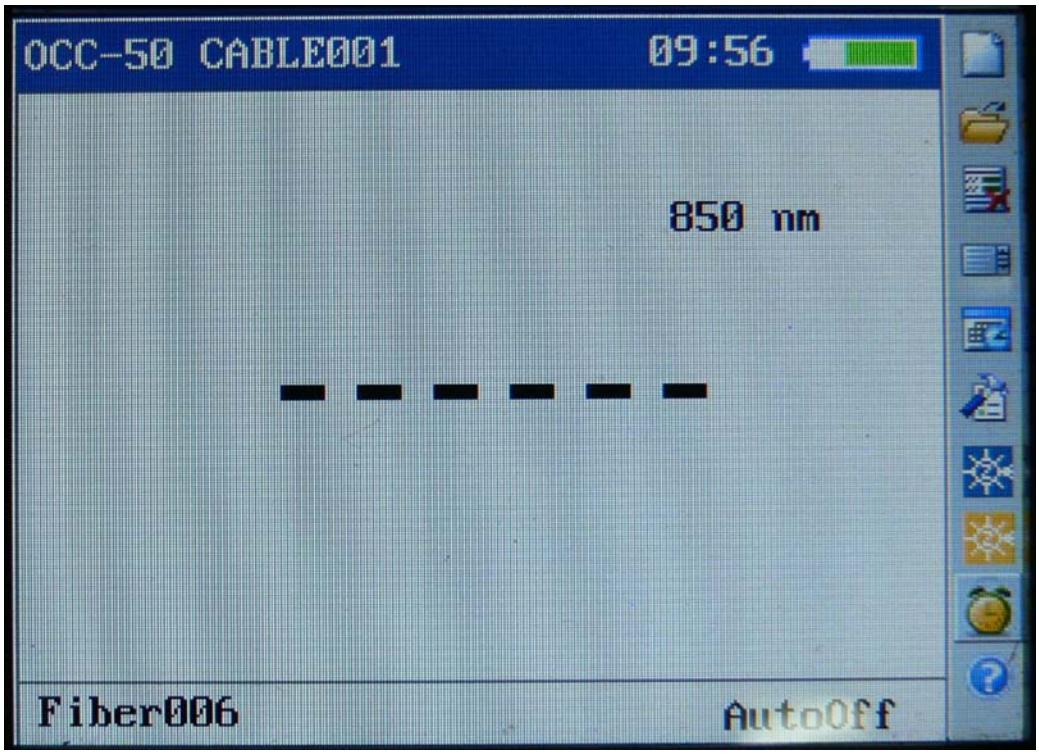


FIGURE 3.5

Press and button to circularly select wavelengths in OPM interface

After switching to the selected interface, press button to run the selected function. Please refer to the detailed operation instructions under each function interface below.

3.3 CWDM Module

3.3.1 "New" file

Select "New" icon, then press button to set a new file name, the first five digit must input in English alphabet, then click "OK" button and ; button to confirm the operation.

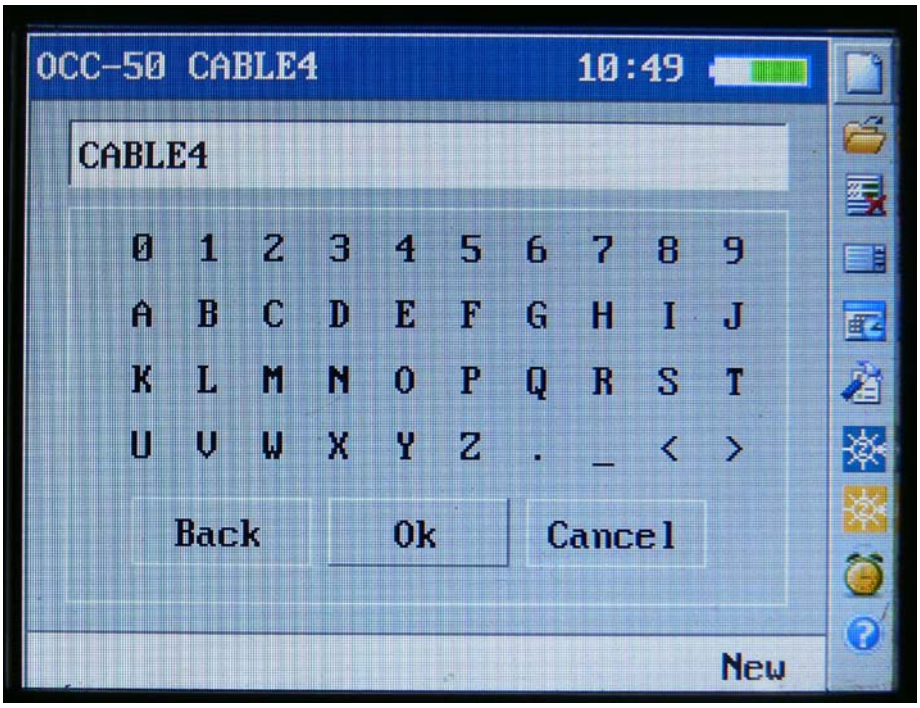


FIGURE 3.6

3.3.2 Save file

In measurement, if you want to save the measured data, you need to set a file name first or open a saved file, then press button to save the file. All data in 8 channels or 18 channels can be saved.

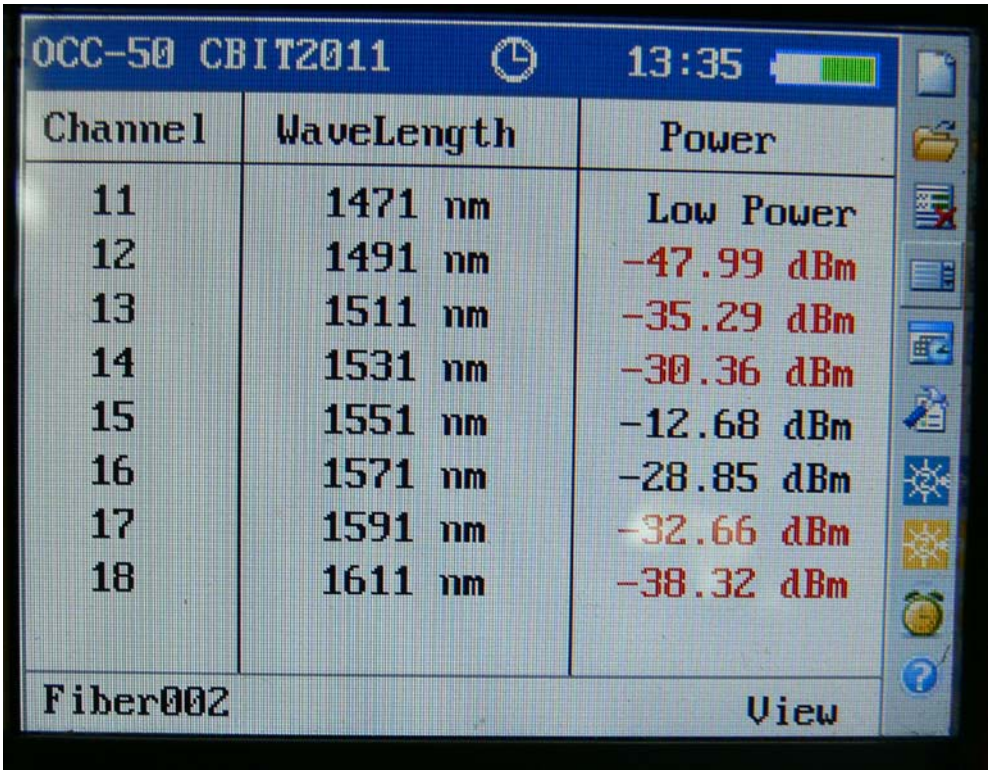


FIGURE 3.7

3.3.3 "Open" file

Select "Open" icon on the right side of toolbar list, press button to enter the selected interface, select the file to be opened, click "OK" button, then press button. See Figure 3.8.

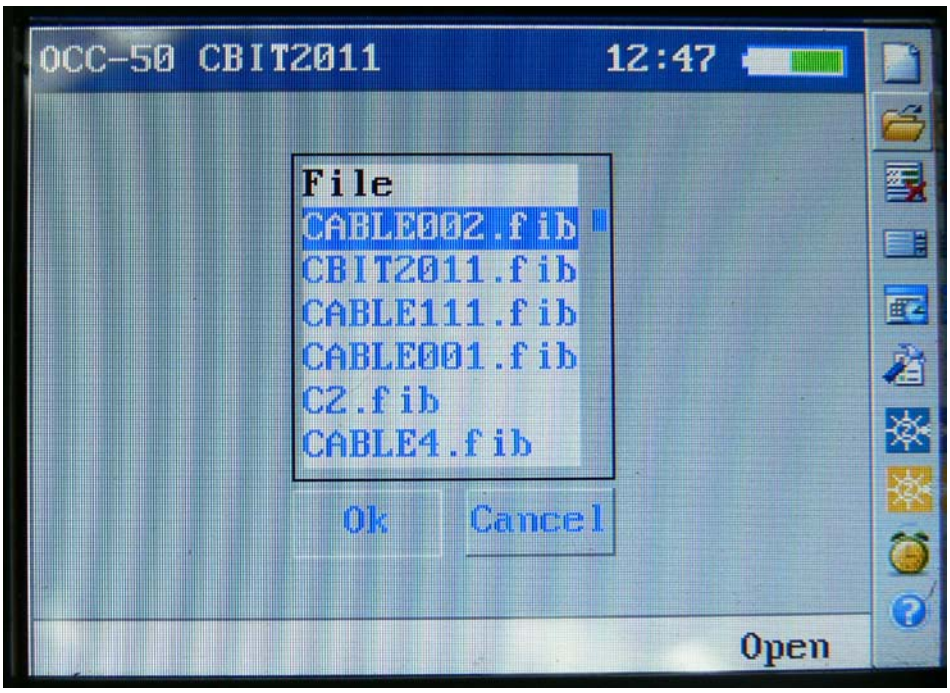


FIGURE 3.8

3.3.4 "Delete" File

Select delete icon on the right side of toolbar, press button to enter delete interface, select the file to be deleted, click "OK", then press button to delete the file.

3.3.5. "View" file

Open the file first, then select "View" icon, press button to view the interface contents. If you want to view the powers of 18 channels, press and key button, then press button to view the contents of next channel, press and key button to view content of each fiber.

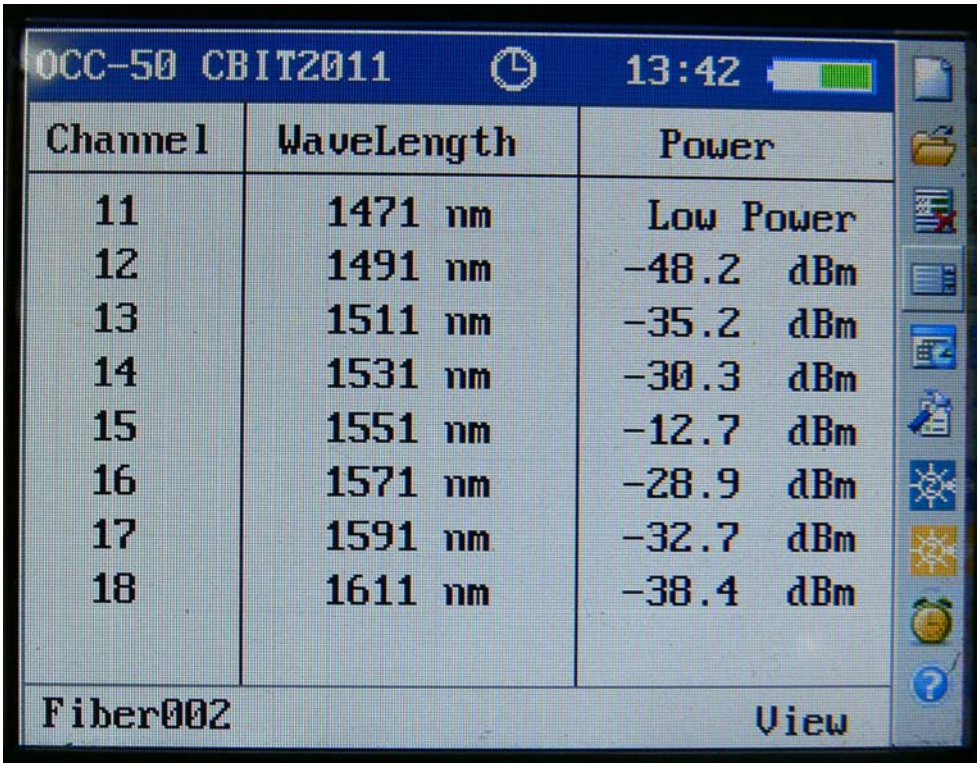


FIGURE 3.9

3.3.6 Set Time

Select "Set Time" icon, then press button to enter set time interface. See Figure 3.10

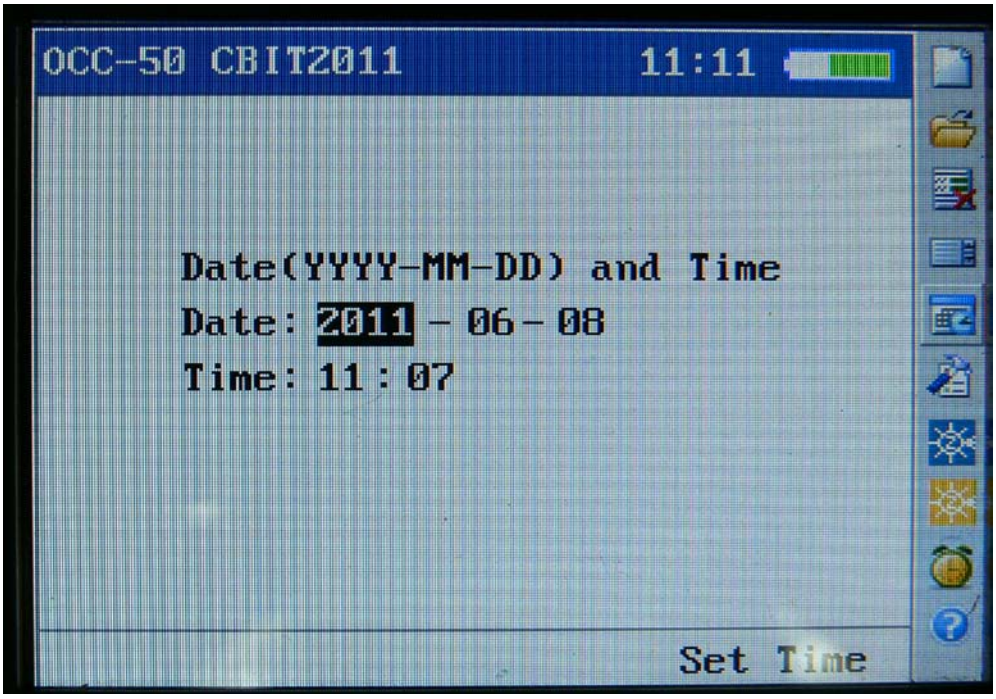


FIGURE 3.10

3.3.7 Reference

Select "Set" icon. then press button to enter Reference Setting interface, Press and button to shift the digit position to be adjusted; press and button to adjust the value and press button to confirm.. Press button to switch the wavelength.

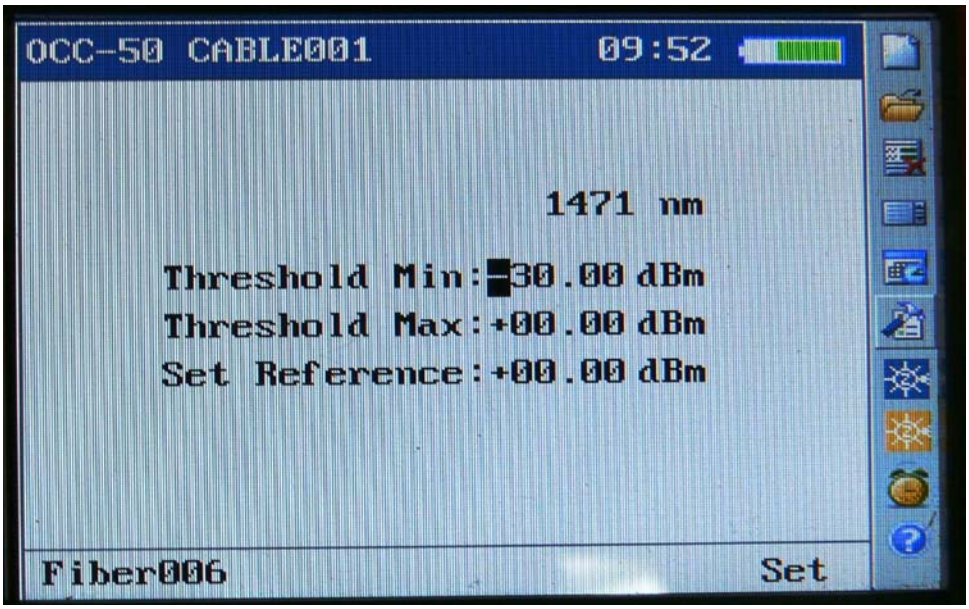


FIGURE 3.11

3.3.8 CWDM Zero

Select "CWDM Zero" icon, press button to zero CWDM, see Figure 3.12, the zeroed voltage value will be shown..

Note: when perform zeroing, screw the dust cap tightly.

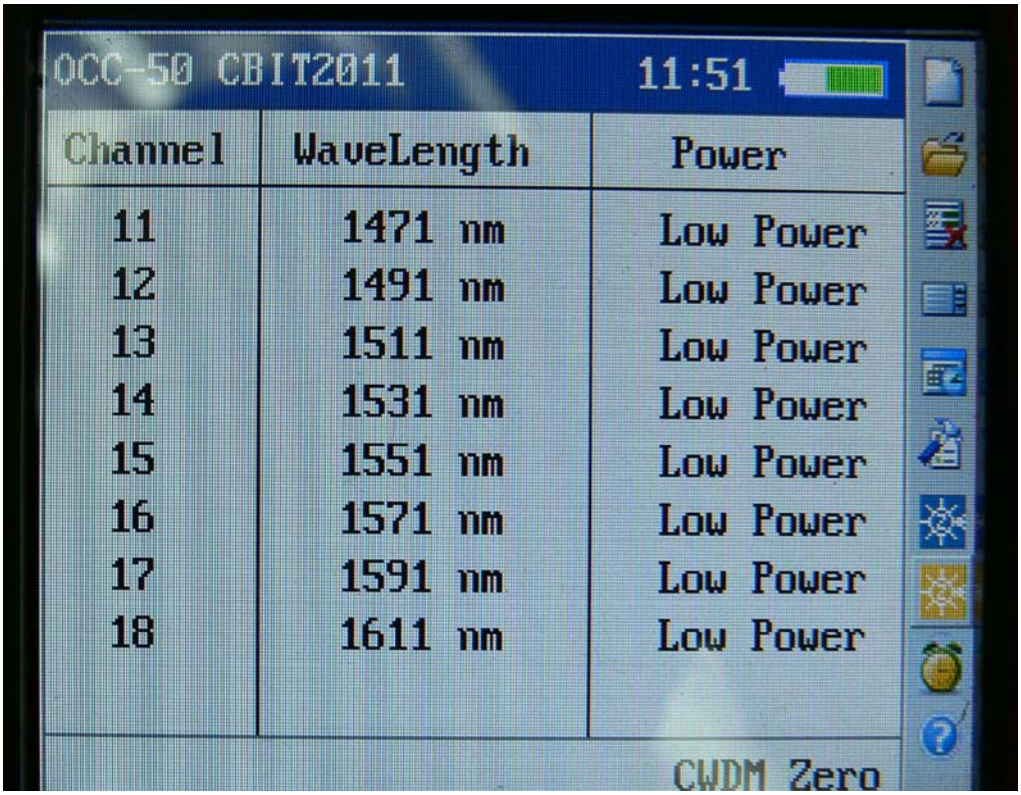


FIGURE 3.12

3.3.9 Auto off

Select "Auto off" icon, press button, the auto off icon will disappear, press button again, the auto off icon will appear again.

3.4 OPM module

Press button to switch to OPM module which can measure the power value, press and button to select each wavelength, the power value can not be saved. See Figure 3.13 below:

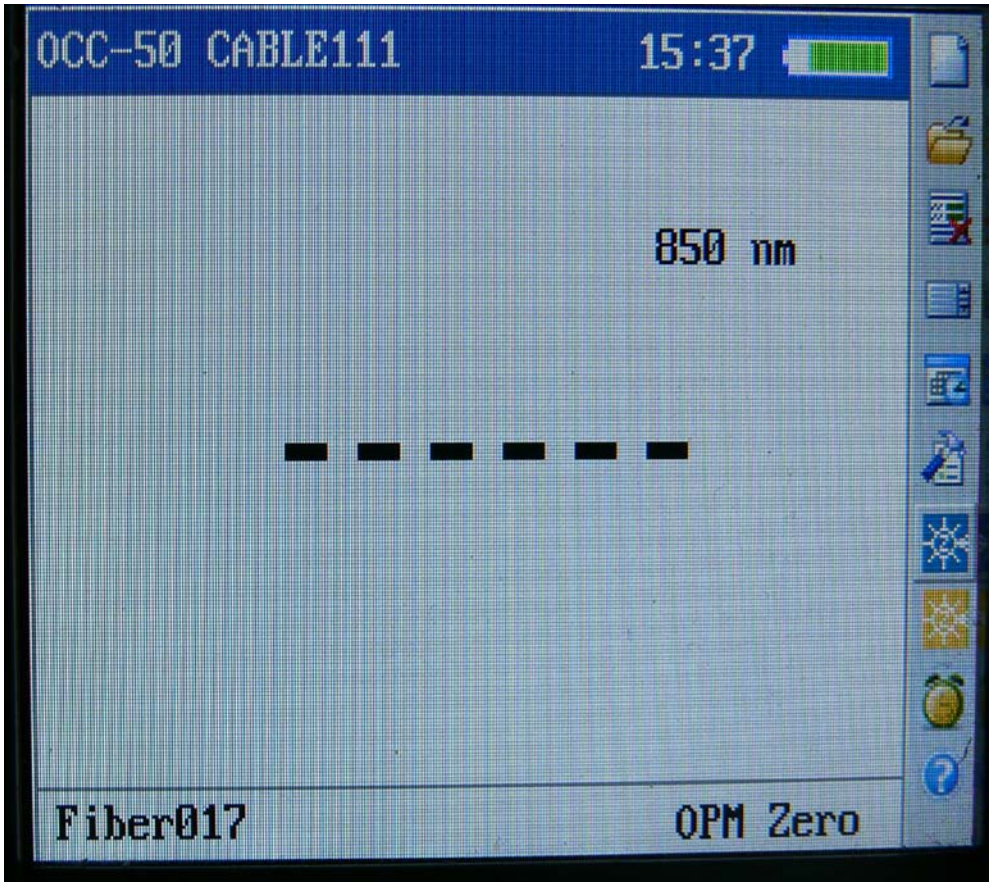


FIGURE 3.13

Select "OPM Zero" icon，press  button to perform zero, the zeroed power value will be shown the interface below.

Note: when perform zeroing, screw the dust cap tightly.

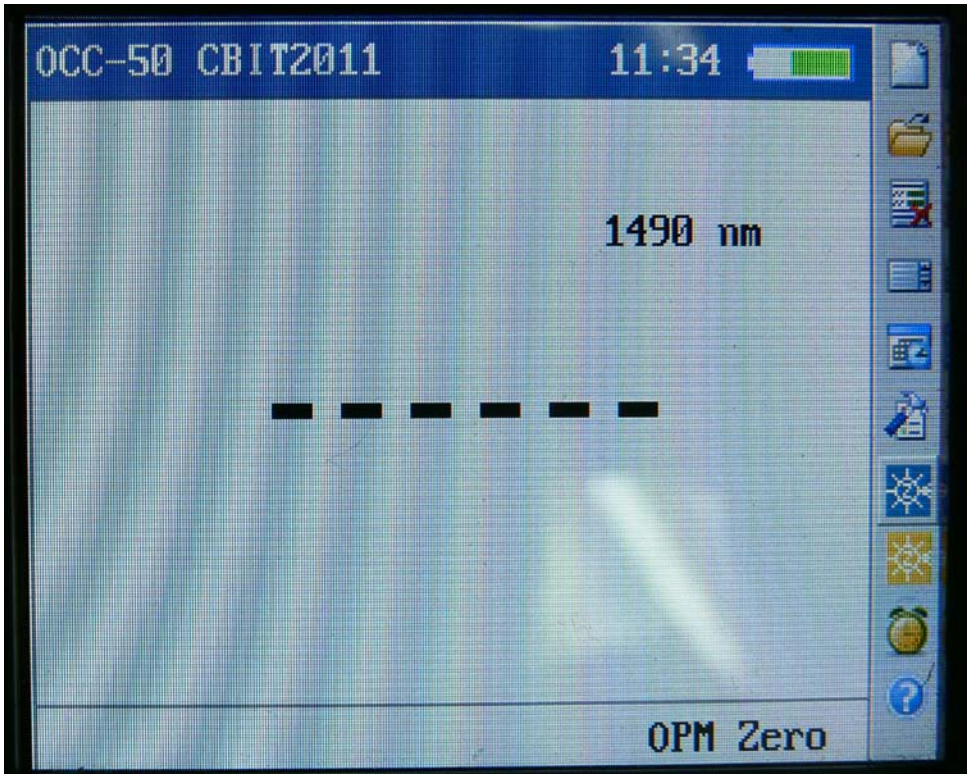


FIGURE 3.14

4. Maintenance and Calibration

4.1 Optical Interface Cleaning

Optical interface must be always kept clean. Always put protective dust cap on when the unit is not in use, and keep the protective dust cap clean.

4.2 Calibration Requirements

Calibration of the instrument is recommended every 3 years. Please contact our representatives or customer service centers for proper calibration.

5. Performance:

Model	OCC-50A	OCC-50A+	OCC-50B	OCC-50B+
CWDM Module				
Wavelength(nm)	1471~1611		1271~1611	
Power range (dBm)	-40~+10	-50~+10	-40~+10	-50~+10
Channel Number	8		18	
Channel Spacing	20nm			
Central Wavelength	ITU			
Channel Band-pass	ITU±6.5nm			
Channel Power Resolution	±0.01 dB			
Channel Power Accuracy	±0.5 dB			
Channel Power Repeatability	±0.5 dB			
Max. Input Power	13dBm			
ORL	>45dB			
Measurement Unit	W/mW/uW/nW/pW/dBm/dB(REF)			

Data Storage	1000 组
Connectivity	USB
Detector Type	InGaAs
Application Range	SM fiber
Connector	FC/PC(interchangeable SC,ST)
Back light	Yes
Power saving	Auto-off after 5 minute idle
OPM Module	
Calibrated Wavelength(nm)	850,1300,1310,1490,1550,1625
Power Range (dBm) (1)	-70~+10
Accuracy	±0.25 dB (5%) @25℃& -10dBm(±0.5 dB@850nm)
Resolution	0.01dB
General Specifications	
Power Supply	NiMH Rechargeable Battery / AC Adaptor
Battery life	Support ≥10 hours for continuously testing operating on one charge
Working Temp.	0℃ ~50℃
Storage Temp.	-20℃ ~ 70℃
Relative Humidity	0~95%(non-condensing)
Weight	1kg (2.2 lbs)
Size (H×W×T)	220×110×70mm (8.7×4.3×2.7 inch)

Note: At 850nm, the lower limit of measurement range is -60dBm.

* Specifications subject to change without notice

6. Warranty Information

6.1 Warranty Period

All ShinewayTech® products are warranted against defective material and workmanship for a period of one (1) year from the date of shipment to the original customer. Any product found to be defective within the warranty period would be repaired or replaced by Shineway Technologies Inc free of charge.

In no case will Shineway Technologies, Inc liabilities exceed the original purchase price of the product.

6.2 Exclusion

The warranty on your equipment shall not apply to defects resulting from the following:

- *Unauthorized repair or modification*
- *Misuse, negligence, or accident*

Shineway Technologies, Inc. reserves the right to make changes to any of its products at any time without having to replace or change previously purchased units.

6.3 Warranty Registration

A warranty registration card is included with the original shipment of equipment. Please take a few minutes to fill out the card and mail or fax it to the local Customer Service Center of Shineway Technologies, Inc. for your product warranty activation.

6.4 Returning Instrument

To return instrument for yearly calibration or other purposes, please contact the local Customer Service Center of Shineway Technologies, Inc to obtain additional information and a RMA (Return Materials Authorization) number. And describe brief reasons for the return of the equipment to help us offer you efficient services.

NOTE To return the instrument in the case of repair, calibration or other maintenance, please note the following:

- Be sure to pack the instrument with soft cushion like Polyethylene, so as to protect the shell of the instrument.
- Please use the original hard packing box. If you use other packing material, please ensure at least 3 cm soft material around the instrument.
- Be sure to correctly fill out and return the warranty registration card, which should include the following information: company name, postal address, contact, phone number, email address and problem description.
- Be sure to seal the packing box with exclusive tape.
- Be sure to ship to your representative or agent of Shineway Technologies, Inc in a reliable way.

6.5 Contact Customer Service

Please check our web site **(www.shinewaytech.com)** for updates to this manual and additional application information. If you need technical or sales support, please contact local Shineway Technologies Customer Service.

Shineway Technologies (China), Inc.:
Address: Fl.7, Zhongtai Plaza, No.3 Shuangqing Rd, Haidian District, Beijing, China
Postal code: 100085
Tel: +86-10-62953388
Fax: +86-10-62958572
Email: support@shinewaytech.com
WEB: www.shinewaytech.com

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