Contents

1. Overview

In the process of optical fiber installation and system operation, the RL is an important performance parameter. In the actual optical communication system, usually there are several insertion devices. Reflection energy produced by each of those devices returns to the reflector partly or fully. So it’s harmful to the reflector. optical RL unit is designed to measure various optical components, refection attenuation in the optical link and control the quality of optical fiber connectors. It’s also the on-site optimization solution as the optical RL measurement, IL meter, optical power meter, optical source. has the data storage function.

2. Product Features

1、Multifunction testing mode（RL、IL、OPM、OLS）。

2、Testing data can be stored and upload

3、Supporting USB power supplying

4、Simple interface, easy to operate

3. Tech Specifications[1]

Optical RL Measurement	
Test wavelength(nm)	1310/1550（±20）
Spectral Width（nm）	<5
Output Power（dBm）	≥-5
Stability（dB/30min）[2]	±0.05
Test range（dB）	0～70
Accuracy（dB）[3]	±0.5
Resolution （dB）	0.01
Connection Type	FC/APC
Optical IL(meter) Mode	
Wavelength range（nm）	800 ～ 1700
Calibration wavelength（nm）	850、1300、1310、1490、 1550、 1625
Display unit	dBm、dB、xW
Test range（dBm）	+6 ～-70
uncertainty（dB）[4]	±0.25

display	LCD
Communication interface	USB
Power（V）	Three 1.5V AA batteries/USB powered
Working temp（℃）	-10～+60
Storage temp（℃）	-25～+70
Relative humidity	0~85%（non-condensing）
dimensions（mm，L*W*H）	180*90*36.5
weight（g，excluding protective coat, battery）	380

Notes：

1.the above Tech specifications are all tested in the T=23±2℃。

2.requirement of 15mins warm up before testing。

3.RL is tested in 0-60dB。

4.tested when 入=1310nm， input power in the +6～-50dBm。

4. Standard Configuration

1. unit---------- 1piece

2. operation instructions---------- 1copy

3. Protective coat---------- 1piece

4. 1.5V AA battery---------- 3pieces

5. USB data wire---------- 1piece

6. label---------- 1pack

7. desiccant---------- 1pack

8. 5V USB adaptor---------- 1piece

9. Certificate---------- 1piece

10. Warrant Card---------- 1piece

11. CD disc---------- 1piece

12 FC/APC-FC/PC standard fiber---------- 1cord

5. Operation Instructions

5.1. Appearance

5.2. Key pressing instructions

Power on/off button

MENU ENTER — Enter the menu selection screen or confirm the current operation

▲/λ — Select menu or change wavelength

▼/λ — Select menu or change wavelength

REF — In RL test interface for calibration; in the power meter interface for setting the reference.

CANCEL — Cancel the current operation and return to the previous

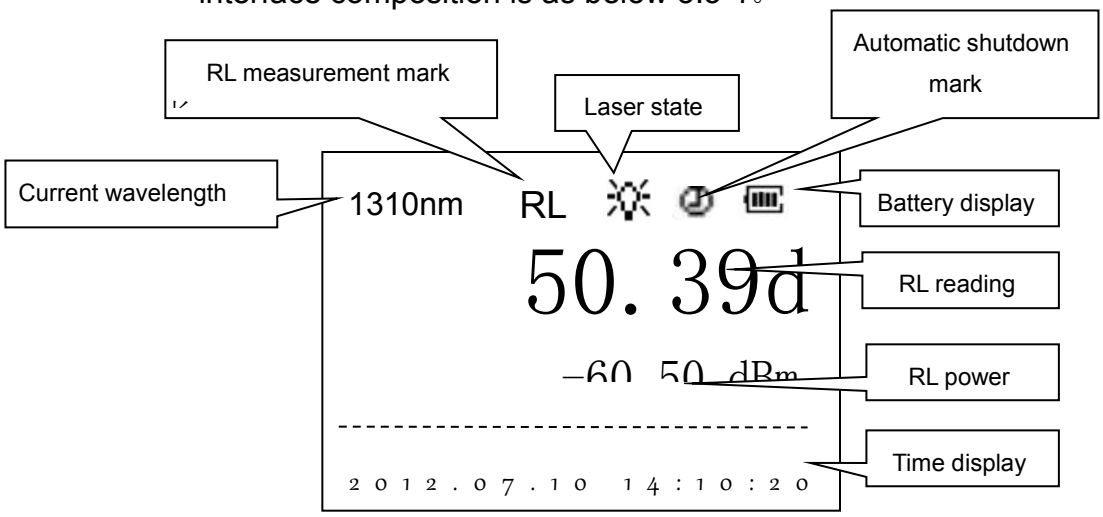
STORE — Storing test data and save time

UNITS — Switching unit in power meter mode

5.3. Operation instructions

5.3.1. Measurement mode change

Press button，open the instrument，displaying the state of the last shutdown。Take the RL measurement interface as an example，interface composition is as below 5.3-1。



5.3-1 RL Interface

When in IL measurement, the unit needs to be changed to IL measurement mode. Operation as follows:

1、 press MENU/ENTER button to enter the menu interface, as is shown in 5.3-2.

1. Mode selection
2. Data setting
3. Backlit
4. Language option

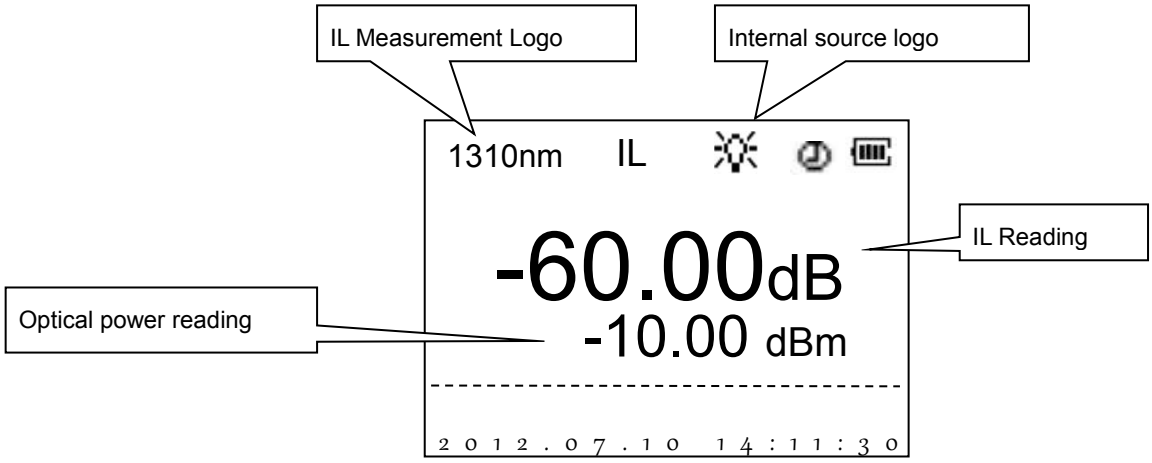
5.3-2 menu

2、 press ▲/λ ▼/λ to choose mode，press MENU/ENTER to enter the mode selection interface, as is shown in 5.3-3。

1. RL Measurement Mode
2. IL Measurement Mode
3. Power Meter Mode

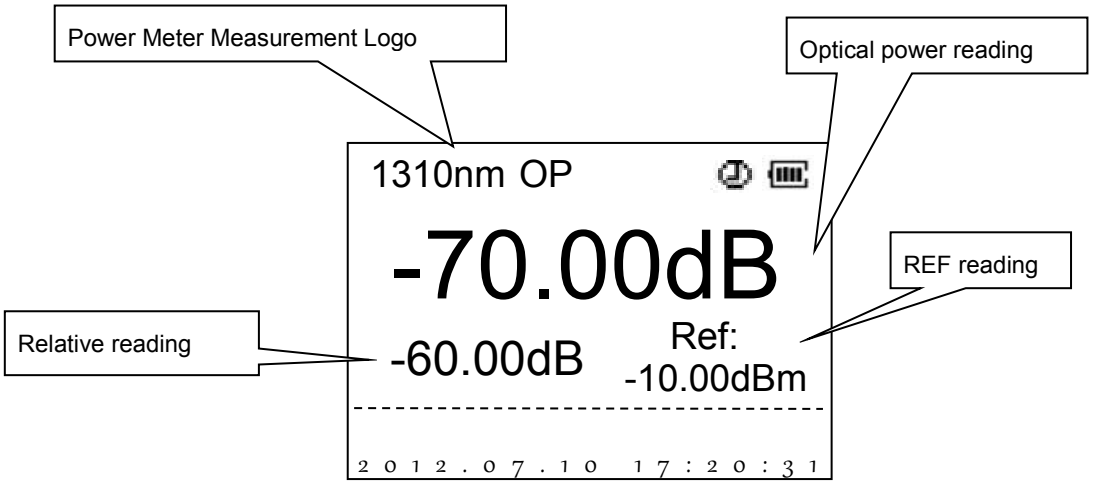
5.3-3 mode selection interface

3、press ▲/λ ▼/λ to choose IL Measurement Mode，press MENU ENTER to enter the IL Measurement Interface, as is shown in5.3-4。



5.3-4 IL Measurement Mode Interface

4、 In 5.3-3,press ▲/λ ▼/λ to choose power meter mode，press MENU ENTER to enter power meter mode interface, as is shown in 5.3-5。



5.3-5 power meter measurement mode interface

5.3.2. RL Measurement

1、choose RL Measurement Mode, the interface as in 5.3-1。

2、connect the standard fiber to the out port of the instrument（APC），and then connect the other end of the standard fiber to the measured circuit（Calibration needed before measurement, please see the introduction of RL Calibration），Reading in the instrument is the RL of this circuit。

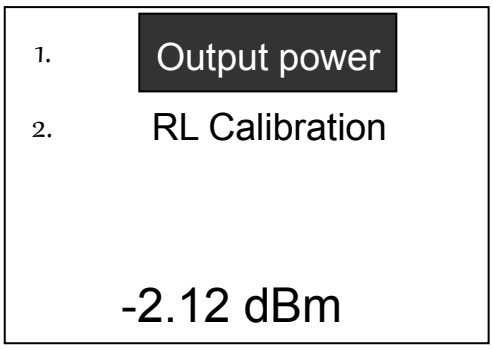
3、When connecting PC to the RL Meter, the laser will be shut down，And the laser state will be ，Only restart the instrument after the disconnection, the laser will be open。

5.3.3. RL Calibration

RL Calibration needs a standard fiber，The purpose is to measure the port RL of the instrument itself so as to reduce the difference when to measure the circuit RL.。Furthermore, we can also judge through the standard fiber if the system measurement status is normal.。Calibration procedure is as follows：

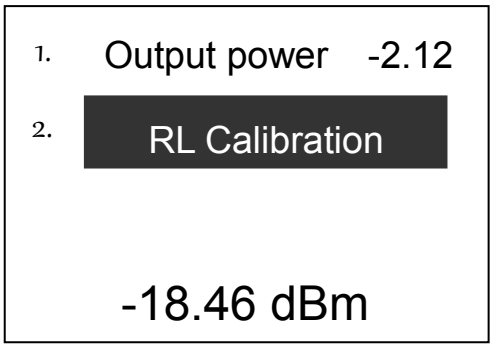
1、connect “OUT”port and “IN”port of the instrument through the standard fiber。

2、In the RL Measurement Mode, press REF to enter the RL Calibration Interface，in 5.3-6。The screen bottom reading is the laser output power。



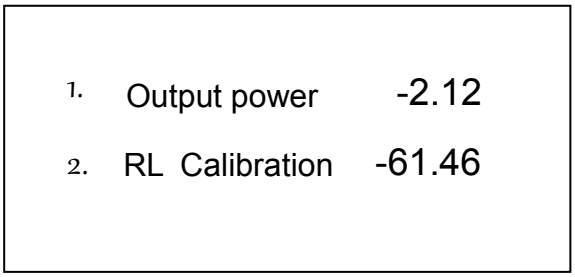
5.3-6 RL Calibration

3、When the reading is stable， press REF , this reading will be calibrated。The interface after calibration is as in 5.3-7。



5.3-7 Output power calibration finished interface

4、Remove the standard fiber connected to the“IN”port，and wrap the mandrel in more than three laps （The Mandrel Diameter≤5mm），When the return wave power displayed in the instrument is sbout -60dBm，press“REF”to calibrate。As in 5.3-8。



5.3-8 RL Calibration finished interface

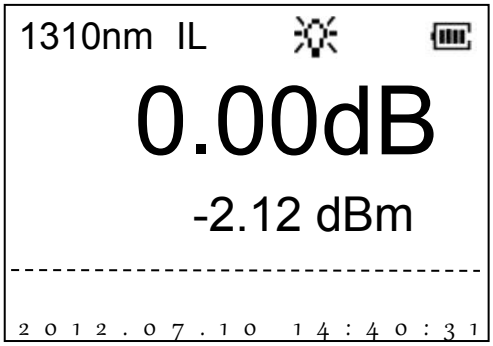
5 、 Press“REF”again to finish the calibration and enter to measurement interface。

5.3.4. IL Measurement

IL Measurement either use the internal or external source ， below is mainly about the measurement using the internal source， To enter the IL Measurement Mode by the menu ：

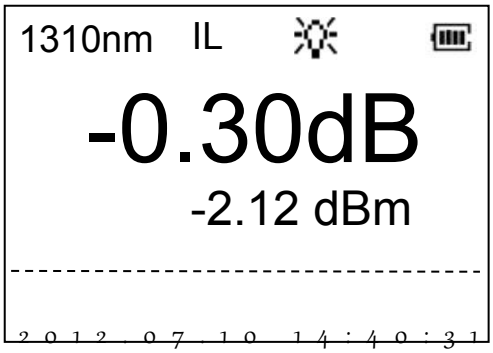
1.To connect“OUT”port and“IN”port of the instrument through the sample line，then to select 1310 or 1550，and to judge if the internal source is emitting by the laser status indicator。

2.press REF to calibrate the present absolute power reading as in 5.3-9。



5.3-9 IL Calibration finished interface

3.After connecting the device under test through the flange or other ways, insert them into the“IN”port， The dB reading now is the IL value of the device measured as in 5.3-10。



5.3-10 IL Measurment Finished Interface

Note：When using external source，just insert the source circuit into the “IN”port after connection，Operation is as above。

5.3.5. Power meter measurement

In power meter measurement mode，insert the signal under test into the“IN”port，Then read the value directly。In this mode，press REF to set the power reading now as the Ref，UNITS is to change the power unit。

5.3.6. Time Setting

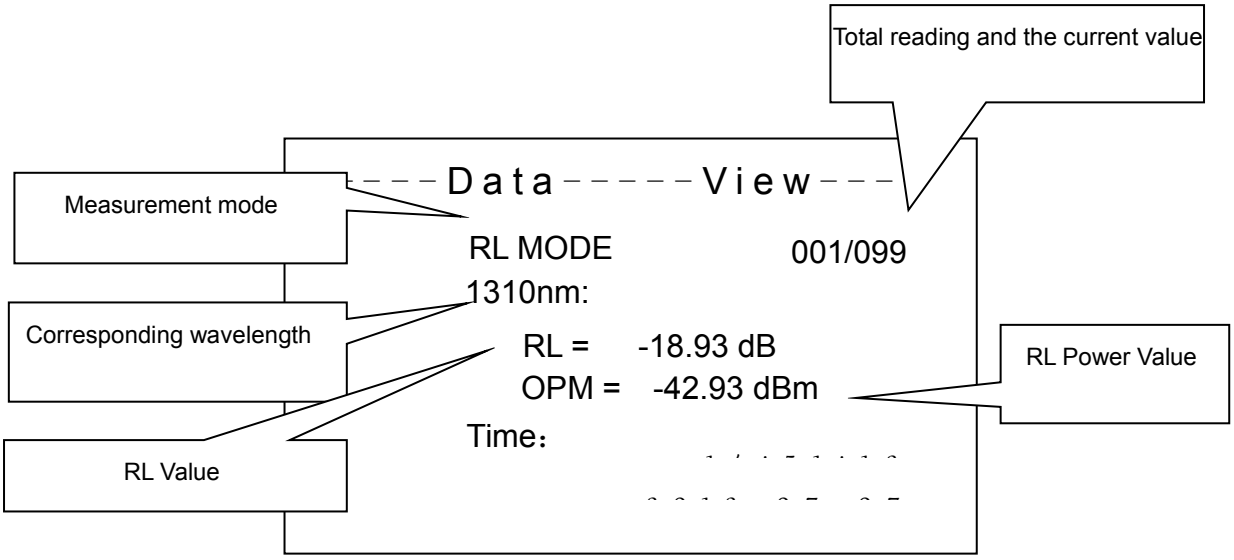
Time setting interface is in“main menu->data setting->time setting”as in 5.3-11 。Detailed cooperation please see the interface instructions。

```
----Time-Set-View----

[MENU]:set and switch
[UP,DOWN]:resize
[CANCEL]:exit
[STORE]:save time

2012.07.10 14:50
```

5.3-11 Time Set Interface

5.3.7. Data save and view

When in the measurement of RL or power meter，press STORE ，the save mark will appear in the top right of the screen，After the mark disappeared, the current value on the interface will be saved。This information can be viewed in“main menu\data setting\data view”，The view interface is as in 5.3-12。



5.3-12 recorded data view interface

The system can record up to 999pieces of data，If to delete 如 these data， you can operate in“main menu\data set\delete all the recordings”。

5.3.8. Backlight set

When using the instrument，we can control the backlight according to the light conditions。Set path“main menu\backlight set”。When the backlight is set in Auto Mode， and is powered by the battery， the system will automatically turn off the backlight one minute after no key operation，If powered from outside，backlight won’t be turned off；When the set is “open the backlight”，backlight will remain open。

5.3.9. Language option

The instrument support the language of “Simple Chinese” and “ENGLISH”，Set path “main menu\language option”。

5.3.10. Switch

Long press , character is displayed on the screen， then release ,the instrument is switched on 。 And we enter the measurement interface，press for a short time，the clock logo“ ” appears or disappears on the top of the screen， When the logo appears， it means that the instrument starts automatic shutdown function ，When no outside USB power is connected，the system will be automatically shut down 10 minutes after no key operation， otherwise, the system won’t be turned off。When need to switch off the instrument manually，long press until the screen becomes dark to finish shutdown。

5.3.11. Sampling rate setting

Users can change the sampling rate based on the using situation There are three choices：fast，medium，slow。You can set in“main menu\data set\sampling rate set\”。

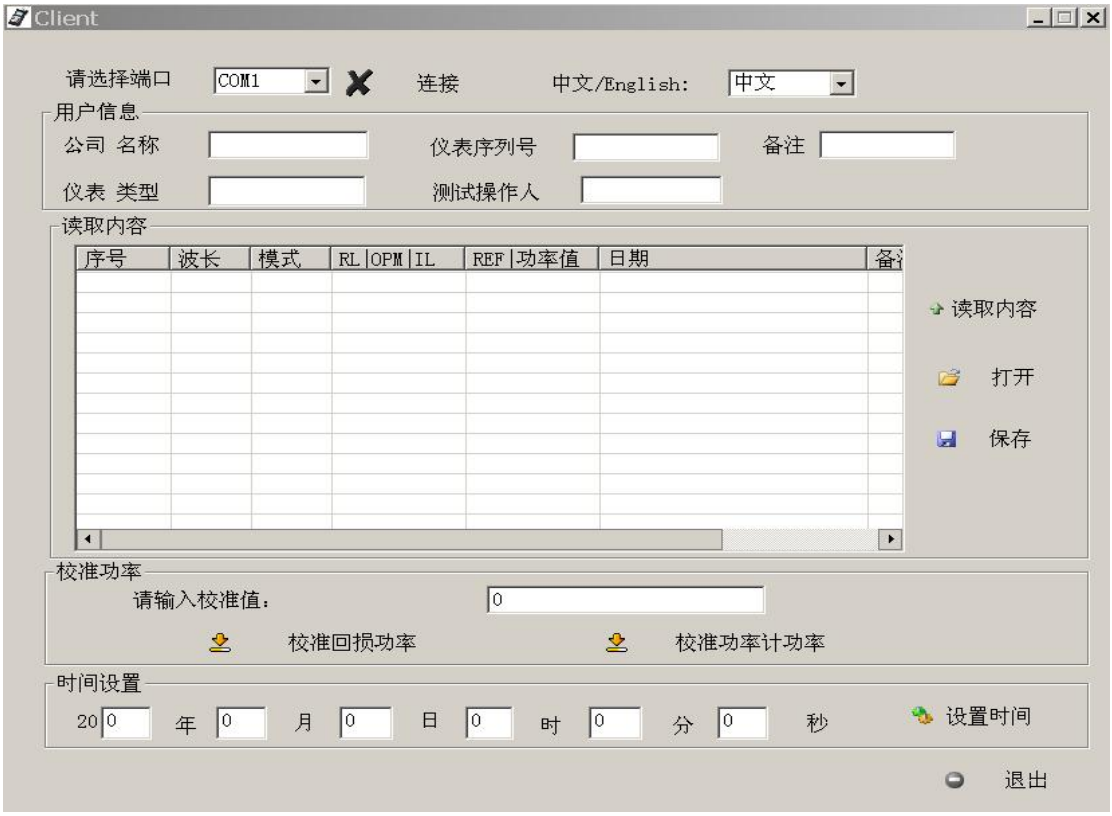
6. Data communications

6.1. Port selection process

1. Executable program icon as in 6.1-1

6.1-1executable program

2. After double click，the interface is just as in 6.1-2



6.1-2 program interface

3. Click the select port drop-down box to choose the appropriate port, as in 6.1-3：

6.1-3 port selection

4. After selecting the proper port number, click the connection button. When the connection is successful, the instrument will shut down the internal source automatically，source indicator displayed in6.1-4：

图 6.1-4 “port selection”button

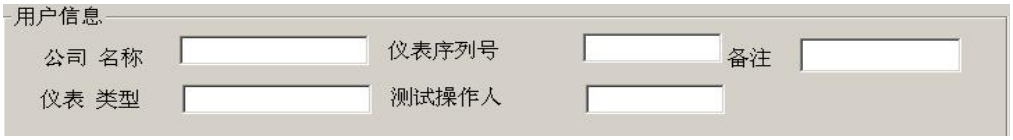
6.2. Language option

Ater successful connection，click the language selection drop-down box to choose Chinese or English as in 6.2-1：

6.2-1 language select

6.3. User information

In the list box，you can choose to write the required company name, instrument type, instrument serial number, test operator or notes, etc, as in 6.3-1：

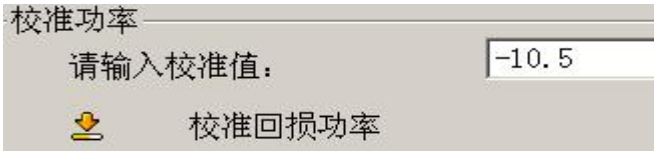


6.3-1 fill in user information

6.4. Calibration power

6.4.1. RL Power Calibration（take 1310nm for example）

After successful operation， to choose the RL Measurement Mode of instrument， After setting the calibrated wavelength at1310nm，and the stable desktop source（1310nm wavelength）is emitting through the jumper（the end must be FC/APCport）, connect the source to the standard optical power meter to read the absolute power，Then remove the jumper and insert into the instrument“OUT”port，and fill the value measured just now in the box“please fill in the calibration value”，at last to click“RL Power Calibration”button，the successful calibration will be displayed on the screen，Now we can see if the reading of instrument is the same as the calibration value（the suggested value is about-15dBm， before the light in, the internal source must be turned off through the PC connection, which can be judged by the indicator as in 6.4-1 ：



6.4-1 Calibration of return loss power

6.4.2. Calibration power meter power

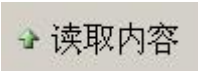
The method is the same as the RL calibration, but to connect the source to the “IN”port， and put the instrument in the “power meter mode”，then enter the optical power value needed to calibrate in the text box，click the “calibration power meter power” button to finish the process as in 6.4-2：

6.4-2 calibration power meter power

6.5. Other settings 其它设置

6.5.1. Data reading

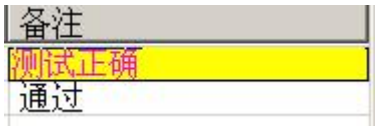
Click the “content reading”button to finish reading the data stored in the instrument as in 6.5-1：



6.5-1 power reading button

6.5.2. Add or modify notes

After the power reading， double click the cell in the column of notes to add or modify the notes as in 6.5-2：



6.5-2 To add or change the note

6.5.3. Data open and save

Click the “open” button，you can open the Excel file。

Click the “save” button，you can save all the contents in the list, the path is of your choices。

6.5.4. Time setting

Enter the year, month, day, hour, minute and second in the input box，then click the ”time set” button to set the time as in 6.5-3：

6.5-3 time set

6.5.5. Exit

Click the “exit” button to close the program as in 6.5-4：

6.5-4 “Exit” button

7. Care and Maintenance

1、the instrument needs to be operated in the condition without clear vibration。

2、To ensure the port face clean when to connect the instrument channel. The port face must be without fat, contamination, and not to use dirty, non-standard adapter connector, otherwise it will damage the instrument。

3、Carefully insert and remove the optical adapter connector to avoid scratching the port。

4、To clean the instrument port regularly， When clean the instrument internal port，please use the special cleaning swab to gently wipe along the circumferential direction。

5、Once the instrument is not used，remember to cover it in the protective cap immediately to keep the [ort clean and to avoid the measurement difference due to dust attachment in the long exposure to the air。

8. Quality assurance

Caution: Repair it in the field is Forbidden.

8.1, 18 months warranty for Insertion loss/Return loss test station

We warrant that Insertion loss/Return loss test station will be free from defects in material and workmanship for 18 months. Should the device fail at any time during this warranty period, we will, at its sole discretion, replace, and repair or refund the purchase price of the product. The worth of the repair or replace will not be higher than purchasing price of this unit.

8.2 If the problems occurred can not be solved by the trouble shooting methods, please contact us or the local distributor directly.

8.3 This warranty is limited to defects in our production, workmanship or material, we will repair or replace the unit free of charge. This warranty only applies to the unit under normal operation without any damage or wrong operation.

The warranty does not include the following problems:

1. Repair the unit by yourself without our official authorization.
2. Wrong operation or accident,

8.4 As to the freight cost caused by repair or replace the unit under the warranty, it will be shared by the customer and our company.

Warranty Registration Card

A warranty registration card is included with the original shipment of equipment. Please take a few moments to fill out the card and mail or fax it to us to ensure proper initiation of your warranty term and our maintenance, calibration or tracking of this unit.

Technical Support

To get technical support from Our company .

Product model：_____
product serial number：_____
date of purchase：_____
user name：_____
tel：_____ **fax：** _____
addr：_____
zip code：_____ **E——mail:** _____

stamp：

（ plaese keep _this _piece, _and _cut_ the _bleow _piece _to_ send _it out）_ ……)

please cut along the dotted line and send it to the company

Product model：_____
product serial number：_____
date of purchase：_____
user name：_____
tel：_____ **fax：** _____
addr：_____
zip code：_____ **E——mail:** _____

Notes：users please send this part to the company within one month of the purchase, otherwise, ii won't be valid