SM-8800 Multi-Function Electronic load (10 in 1)

Software User's manual

ATE Version

Sun Moon Technology Corp.

Contents

1. Introduction and installation

After connecting the computer's COM port, SM-8800ATE can automatically test the Operation Software in Windows operating system. Operation Softwear is functional integrity and easy to operate It.provides test results following the filing and printed statements, and other functions, and can be connected to AC Source for test.

1-1 Standard configuration

SM-8800ATE software user manual x 1.

Download SM-8800ATE testing software from the Company website: www.sunmoontec.com

SM-8800ATE dedicated RS-232C connecting cable x 1 (9 Pin D-Type female plugs).

1-2 System Requirements

The basic hardware requirement and computer operation for SM-8800ATE automatic test system:

Operating system: Microsoft Windows XP/2000.

Pentium III computer or above, at least 16 MB for memory size.

At least 1 GB or more than 1GB for storage capacity for hard disk.

3.5-inch / 1.44 MB floppy disk drive of high density

VGA or SVGA color display moniter

Mouse

Series connection COM ports and Print ports for parallel printer.

USB connection

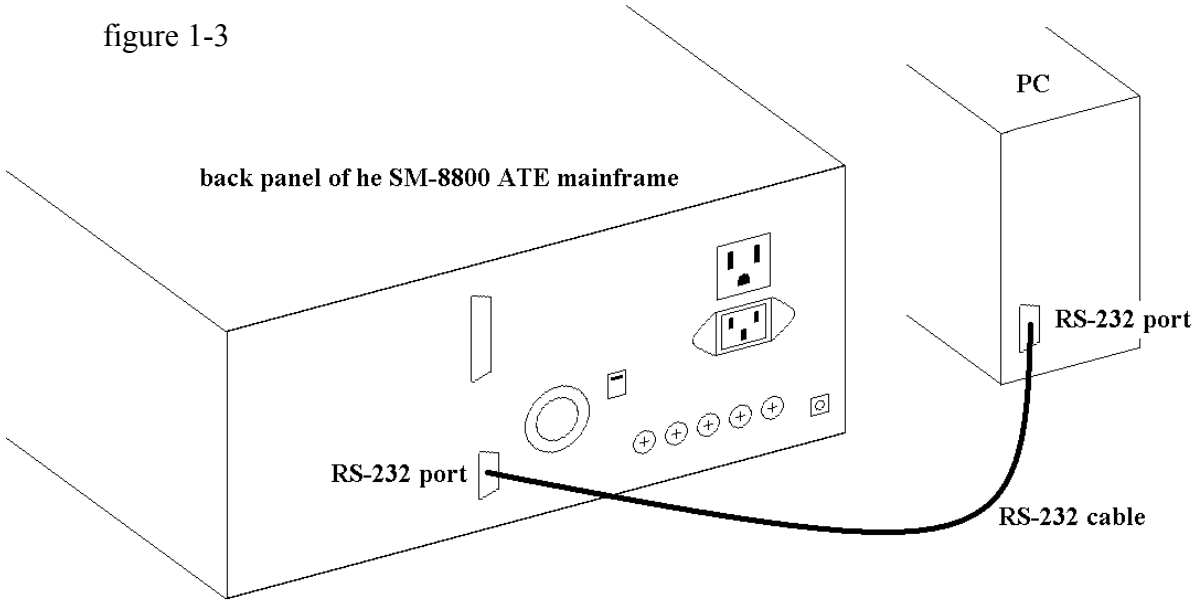
1-3 Connecting SM-8800 ATE mainframe connecting with computer

Completing the installation by following the SM-8800 user's manual.

Took out RS-232 connecting cable and refer to figure 1-3.

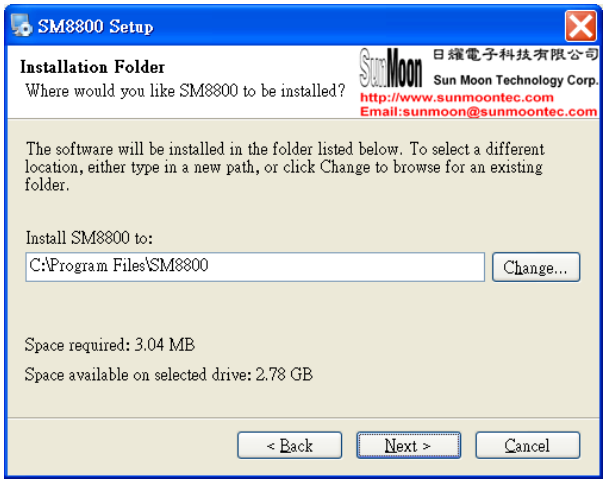
Connect RS-232 cable into the "RS-232 Port" output on the back panel of he SM-8800 mainframe, the other end of cable plugs into PC COM port sockets.

figure 1-3

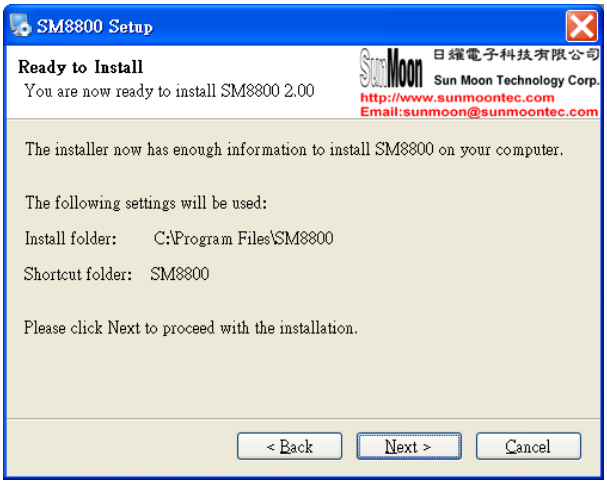


1-4 Software installation and operation

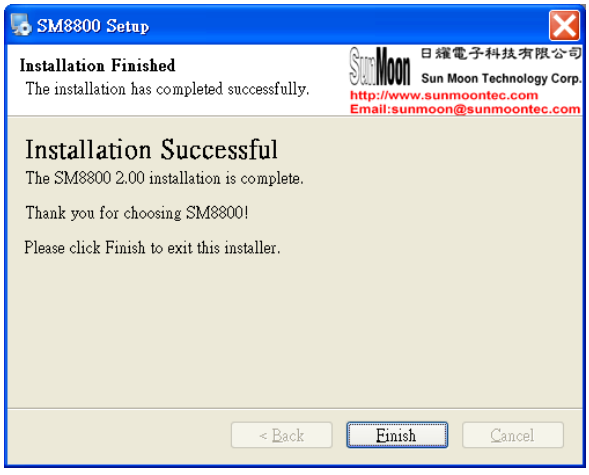
Please insert the SM-8800ATE testing software installation disk, and operate the setup program, so the installation browser will pop up (refer to the picture below). Please install in the folder you want (We recommend default folder. Do not alter this setting), and then press the button "NEXT" to next screen.



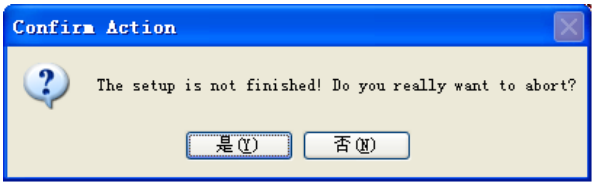
As the installation browser is shown below, the computer is ready to begin installation. You can press the "Back" button to return to the previous screen for checking or modifying the previous setting. If not, press the button "NEXT" to start the installation.



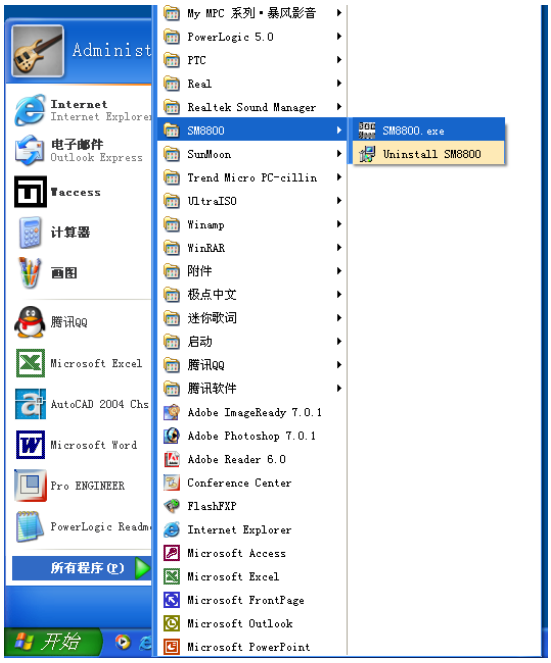
Installation is complete when shown the following installation browser, press the "Finish" button, to end the installation



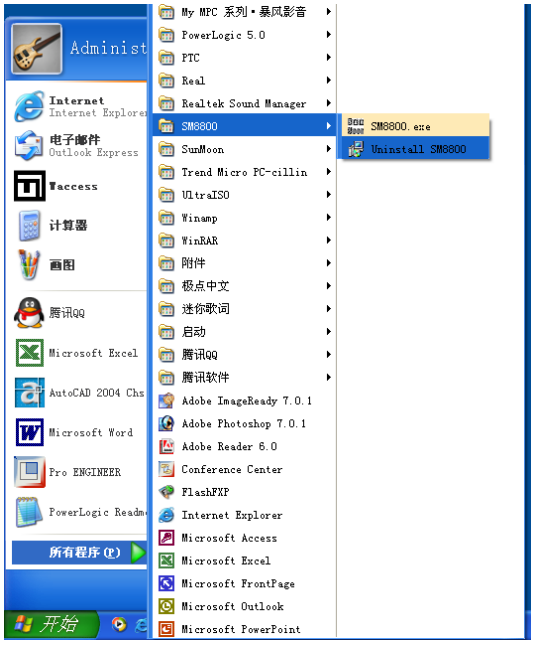
If you press button "Cancel" while installing, the confirmation browser will appear. Press button “YES” to cancel the installation. Press button "No" to move back to the previous browser and continue the installation.



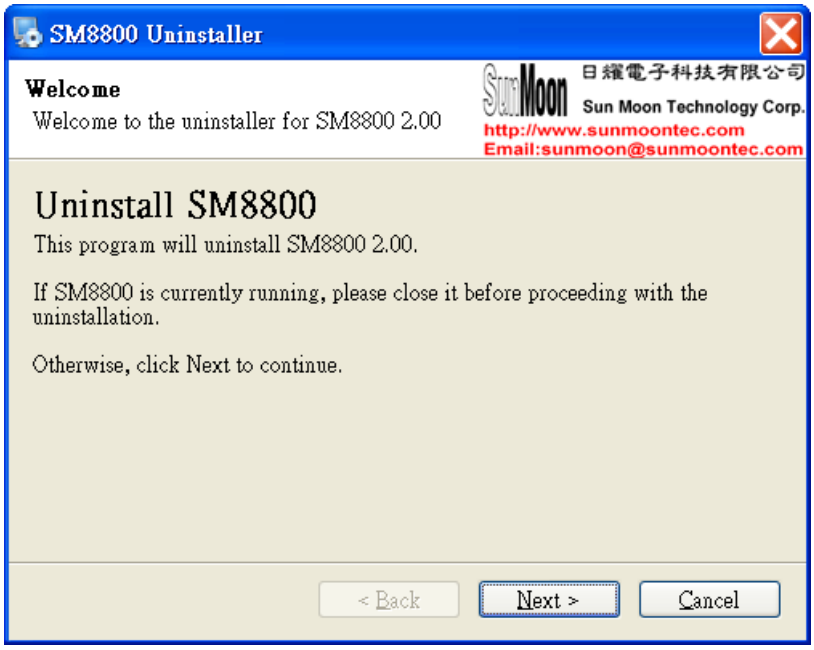
If you want to operate the test software, please click button “START” and select “ALL PROGRAM” and click [SM-8800] to the beginning of the testing software (Refer to the picture blow).



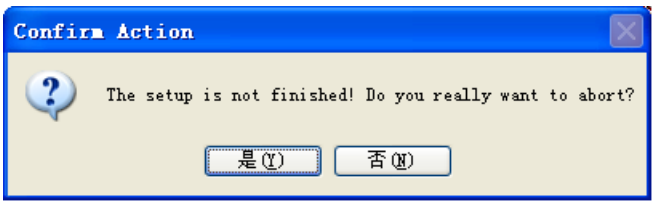
If you want to uninstall testing software, please click button “START” to select “ALL PROGRAM”, and click Uninstall [SM-8800] (Refer to the picture below).



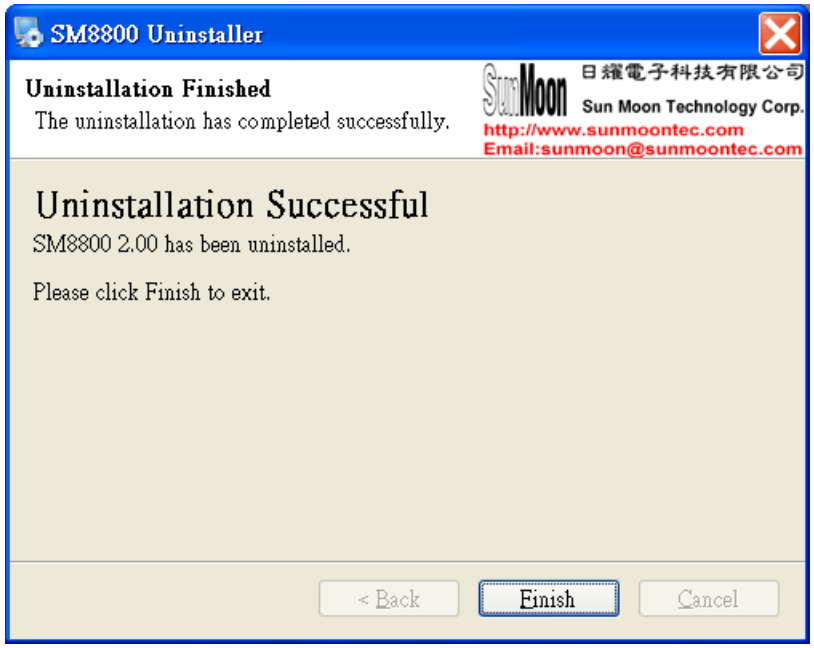
The system starts uninstalling the testing software (Refer to the picture below).



Press button "Cancel", so the uninstalling browser will pop up (Refer to the picture below). Press button “YES” to stop uninstalling and the program will quit. Press button "NO”, the program will move back to the previous browser and continue to uninstall.



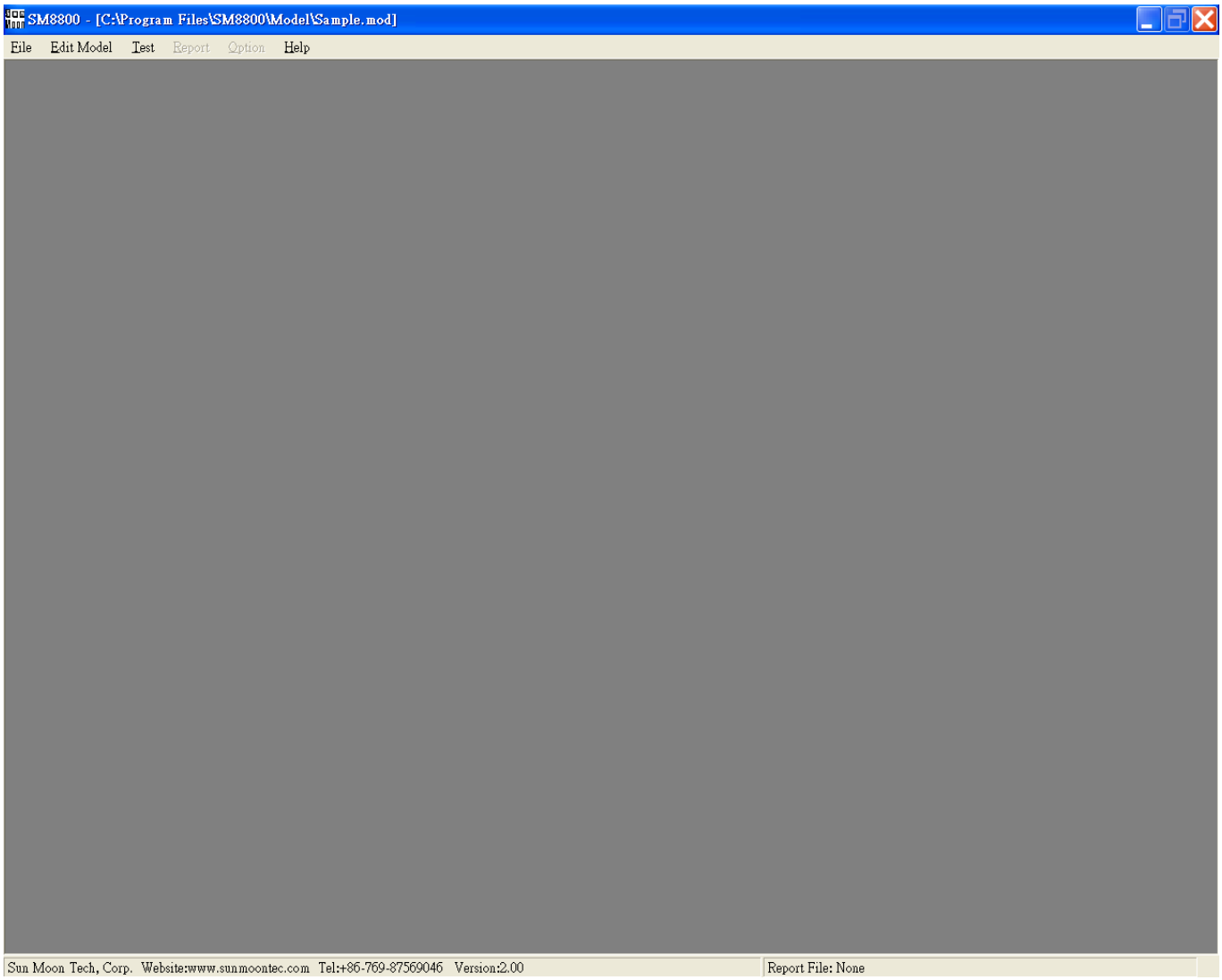
Instruction browser will be shown when the system is uninstalled completely. Press button "Finish" to end uninstalling.



2. Operate SM-8800 ATE automatic testing system software

After you start SM-8800 ATE automatic testing system software, the main window will turn up. (Refer to the picture below) You can select menu [File], [Edit Model], [Test], [Print], [Help] or [Exit] these options to operate each function.

2-1 Main menu



Main function:

File: Document management of testing program or quit the testing program.

Edit Model: Set up test environment parameter and edit testing program.

Test: Operate testing program.

Report: Read and print test reports.

Option: After entering Edit Model, you can set up the testing environment parameter and modify the password.

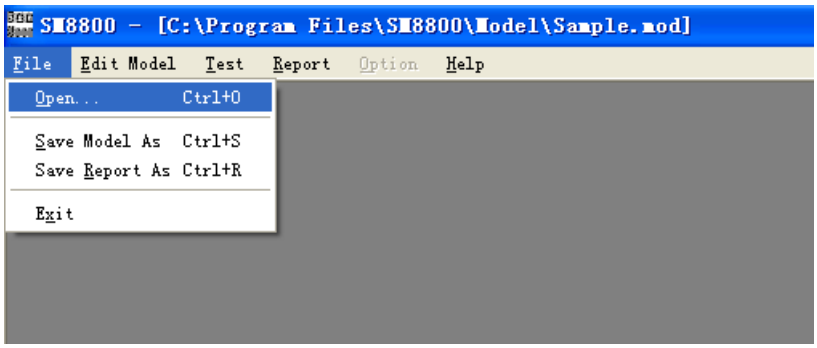
Help: Version specification

Press button “Cancel” in any browser. The program will return to the previous browser and keep the information unchanged.

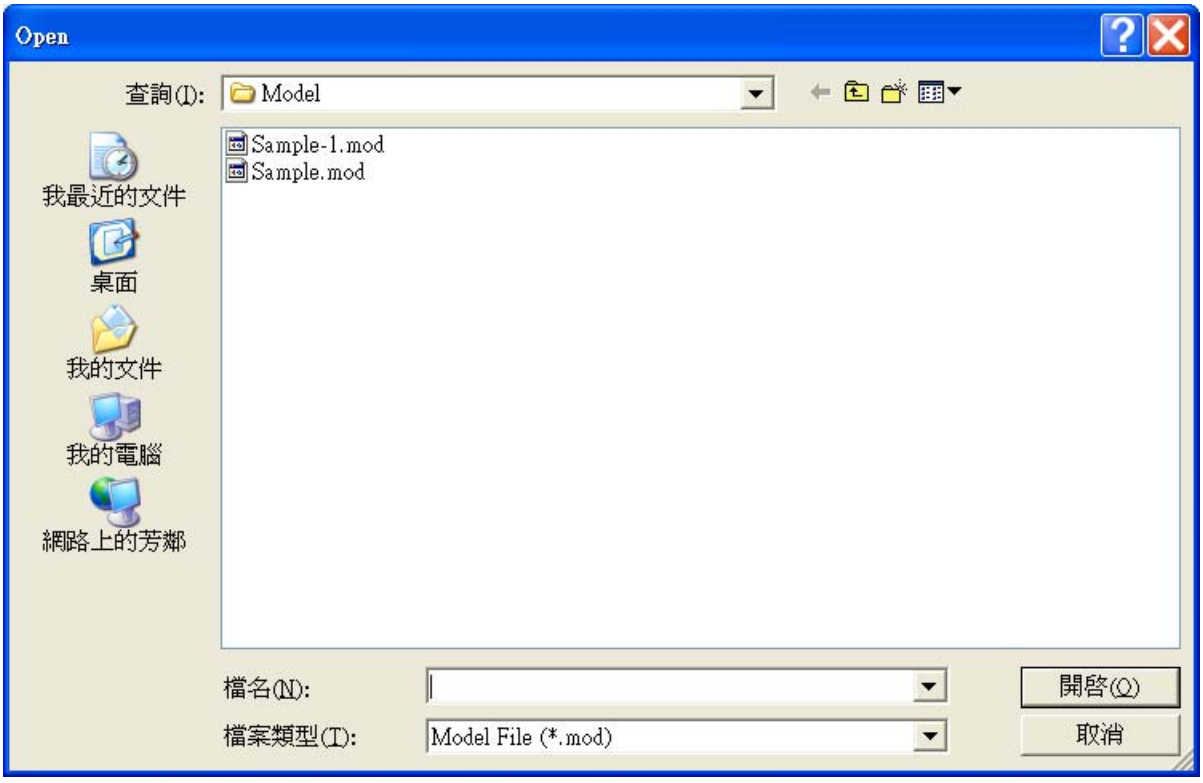
3. File menu

There are four directives in the menu list [File], [Open...], [Save Model As], [Save Report As] and [Exit].

3-1 [Open…] Open file

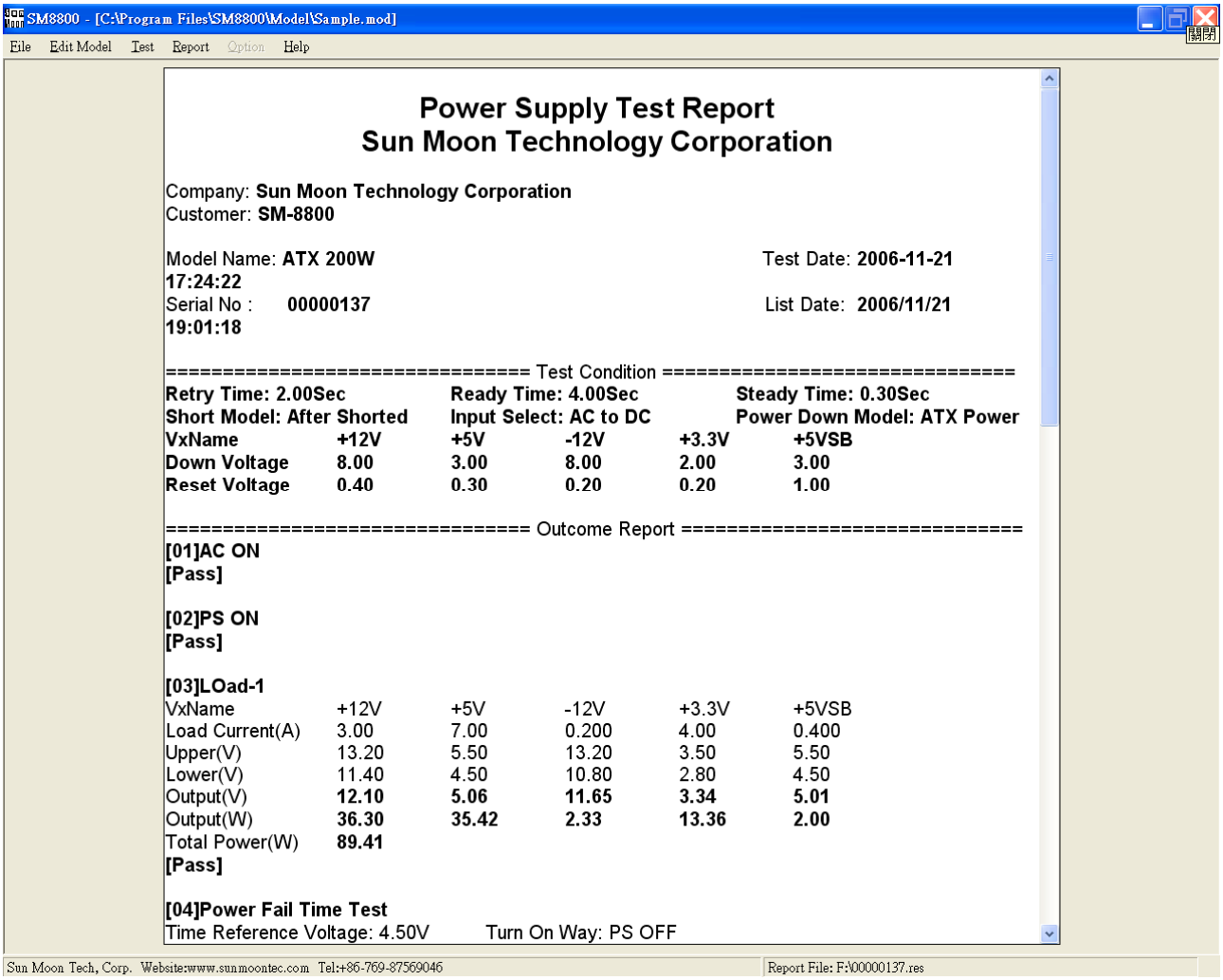


After operating directive “Open”, the system will turn up the window “Open” below.

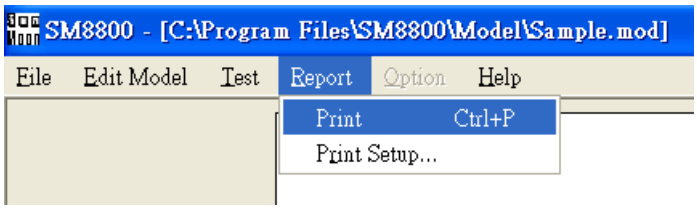


This open document window allows you to open the document for your choice of disk drive, path, file type (*.mod or *.res file) and file name, etc. After you press the button [open], the information contained in the file will be stored and copied into memory according to your designate path and file name. The file name of the testing program stored will be displayed as a title of the main window. If the file opened is the test report file (*. res), the content of the test reports (below) will be directly displayed on the window screen. Press the cancel button to quit the open file directive and then return to the main screen.

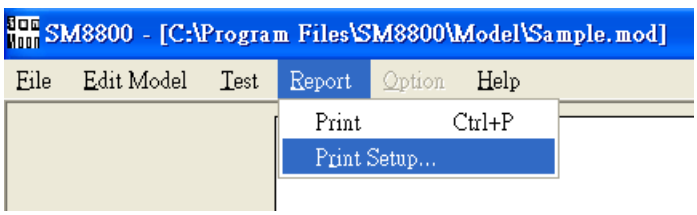
If the file opened is the test report file (*. res), the main browser [Report] Menu will be displayed. (Refer to the picture below)

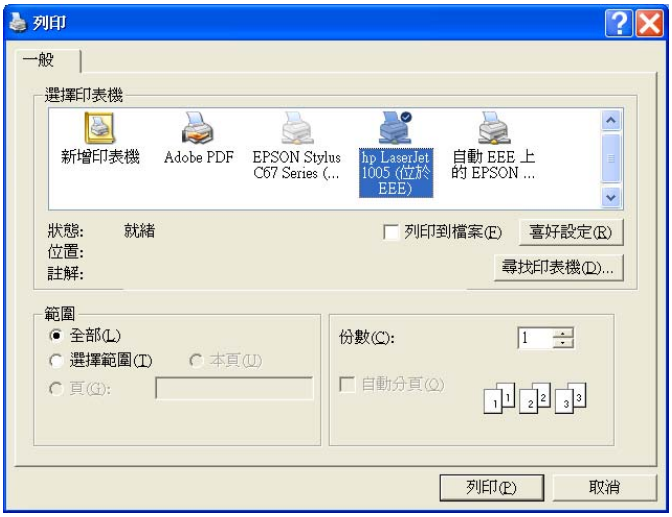


Select [Print] in the function menu [Report] to print the present report.

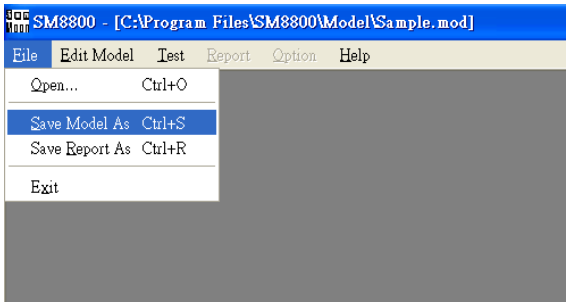


Select [Print setup] in the function menu [Report] to set up the printer and other printing functions.

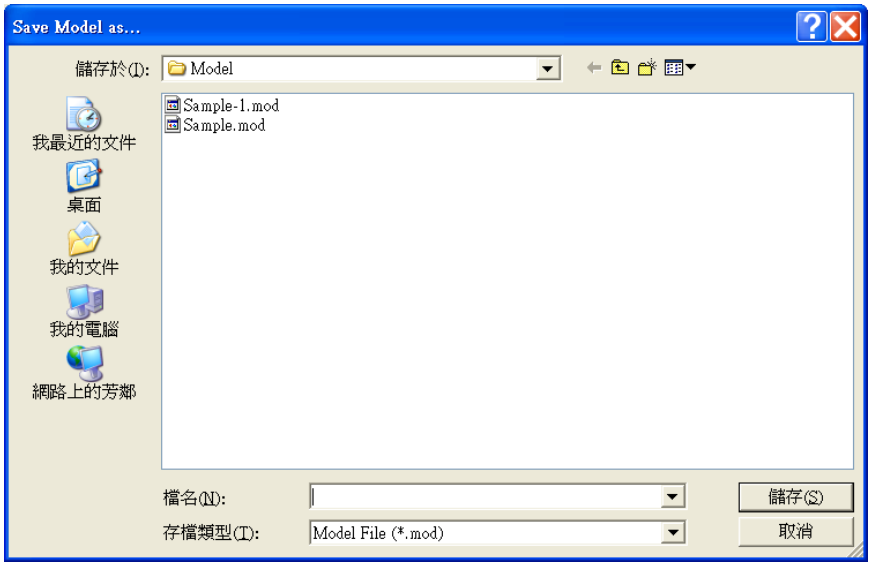




3-2 [Save Model As] Save the test program as a new file.

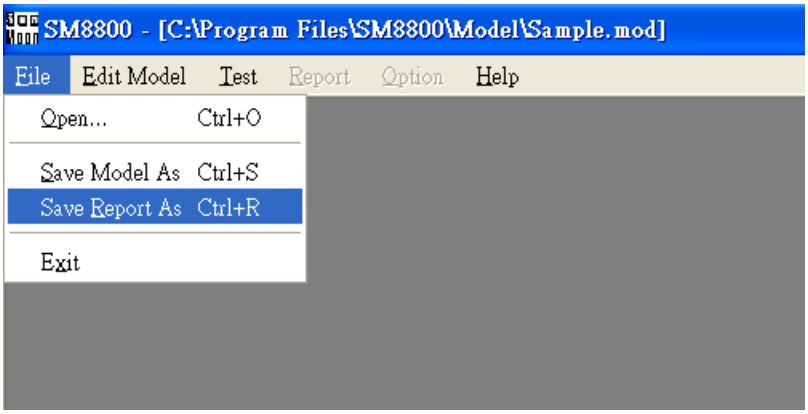


After executing directive [Save Model As ...], the window “Save Model As” will appear as shown in the following picture.

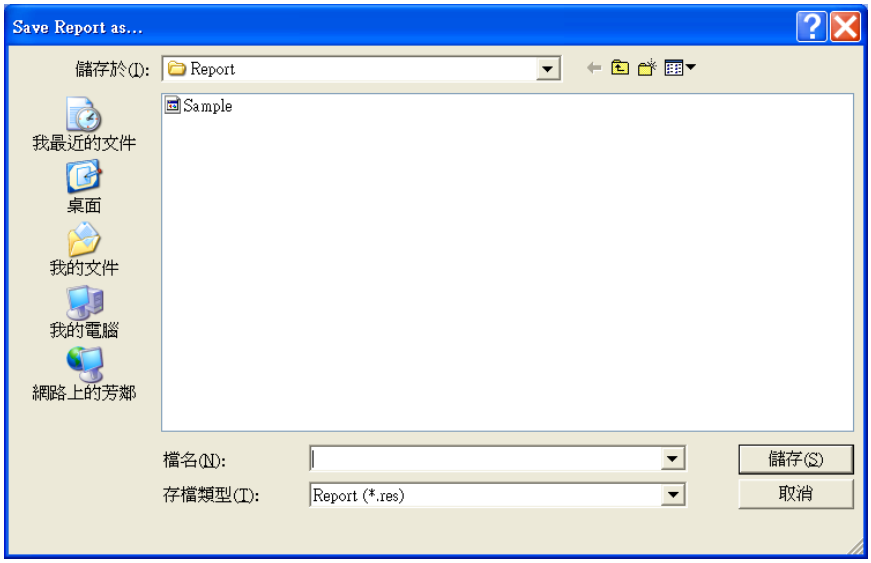


This window for new file saving allows you to save the file in your own choice of disk drives; path; file type (*.mod the file type for the testing program) and file name, etc. After you press the button [Save], the information contained in the file will be stored in accordance with your designated parallel paths and file name. The name of file that just has been stored will be displayed as a title of the main window. Or press the cancel button to abort the save file directive, return to the main screen.

3-3 [Save Report As] will save Report as a new file

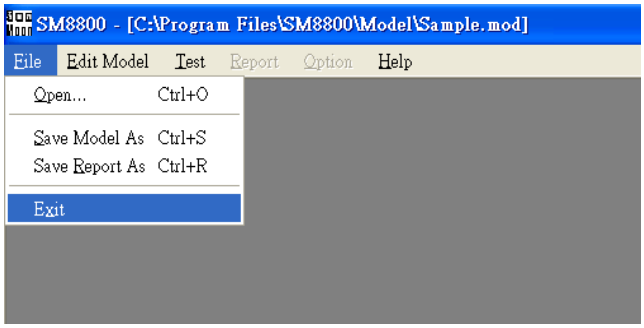


After the system operating directive [Save Model As ...], the window "Save Model As" will turn up. (Refer to the picture below)



This window for new file saving allows you to save the file in your own choice of disk drives; path; file type (*.mod—the file type for the testing program) and file name, etc. After you press the button [Save], the information contained in the file will be stored according to your designated parallel paths and file name. Press the button "Cancel" to quit the saving file directive and the system returns to the main screen.

3-4 [Exit] Withdraw from the test software



Press [Exit] to close testing software and return to the Windows operating system environment.

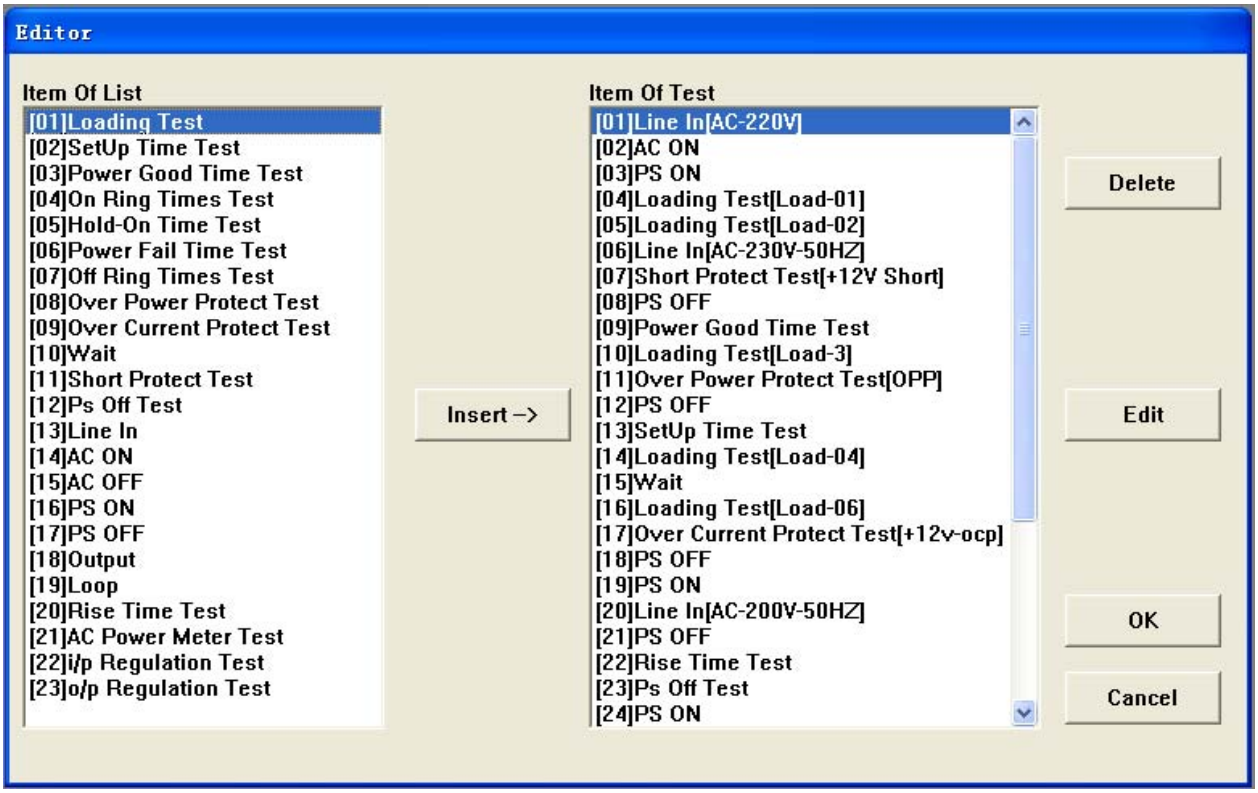
4. Edit Model

4-1 Enter Editor browser

When you operate directive [Edit Model] in the main function menu browser, the browser will appear (Refer to the picture below). The original case-insensitive password is: SunMoon

If you enter the wrong password, the system will respond nothing. Press keyboard button[Esc] to leave this browser and return to the main menu.

If you input the correct password, the browser will turn up in Editor browser.



The Editor browser is divided into two parts; the left part is “Item Of List” that comprises items that can be automatically tested by the system; the right part is “Item Of Test” which has already been scheduled in the test program. When the test begins, the test program will verify every item in the “Item OF Test” (right part) according to the sequence of the item in the list until the entire items are tested.

[Insert ->]: Select test item in the “Item of List” (left part) and make it change its color into white with blue background. Press button [Insert ->] to insert it to the right part of list “Item Of Test.”

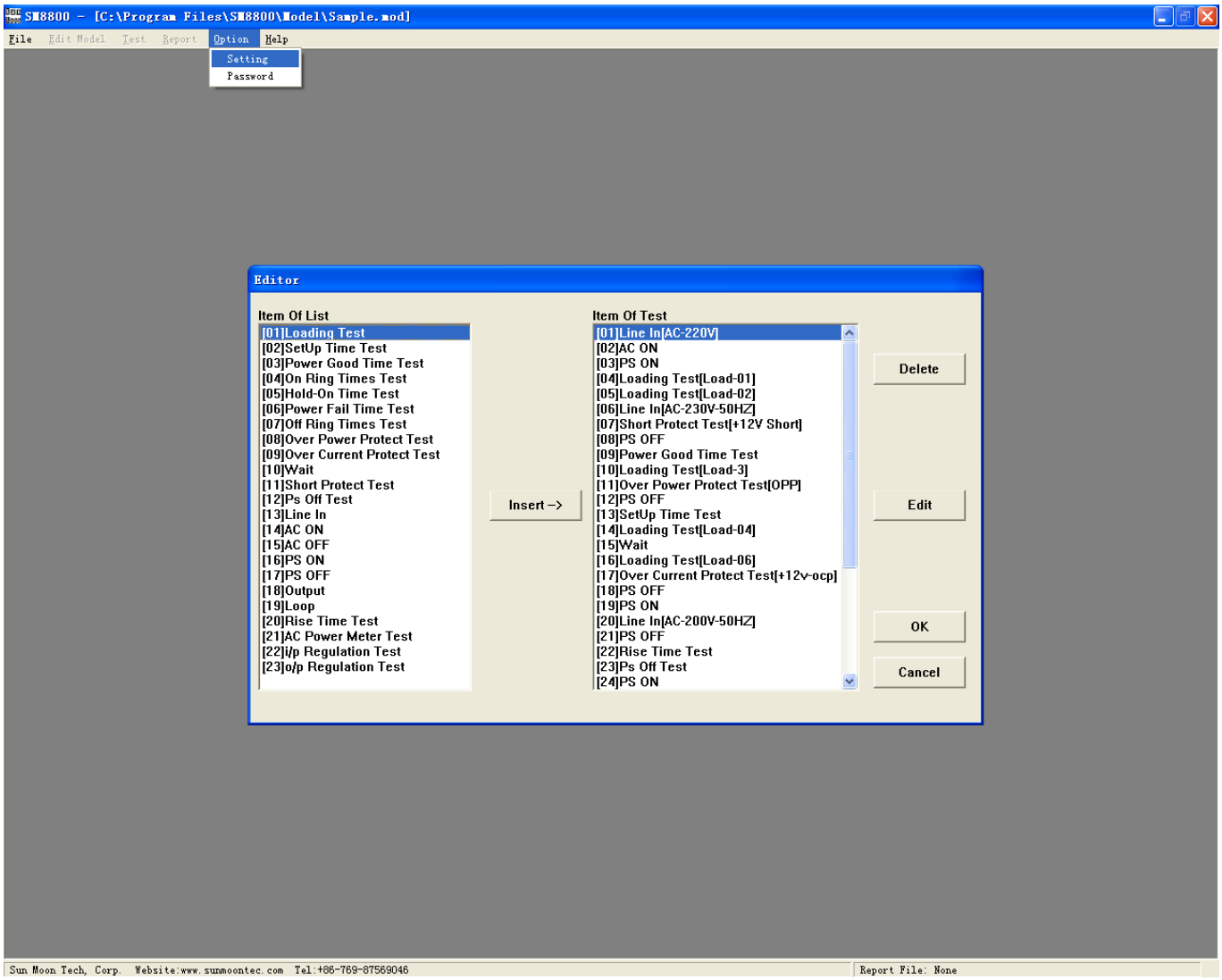
[Delete]: Select “Item of Test” (right part) and make it change the color into white with blue background. Press button [Delete] to delete the test item selected in the right part of list “Item Of Test”.

[Edit]: Enter Test Function browser to set your test items. (Please refer to setting system test item in 4-4)

[OK]: Promptly save all setting into file and leave “Edit Test List.”

[Cancel]: Quit all settings you do after entering the Edit Test List browser and leave Edit Test List.

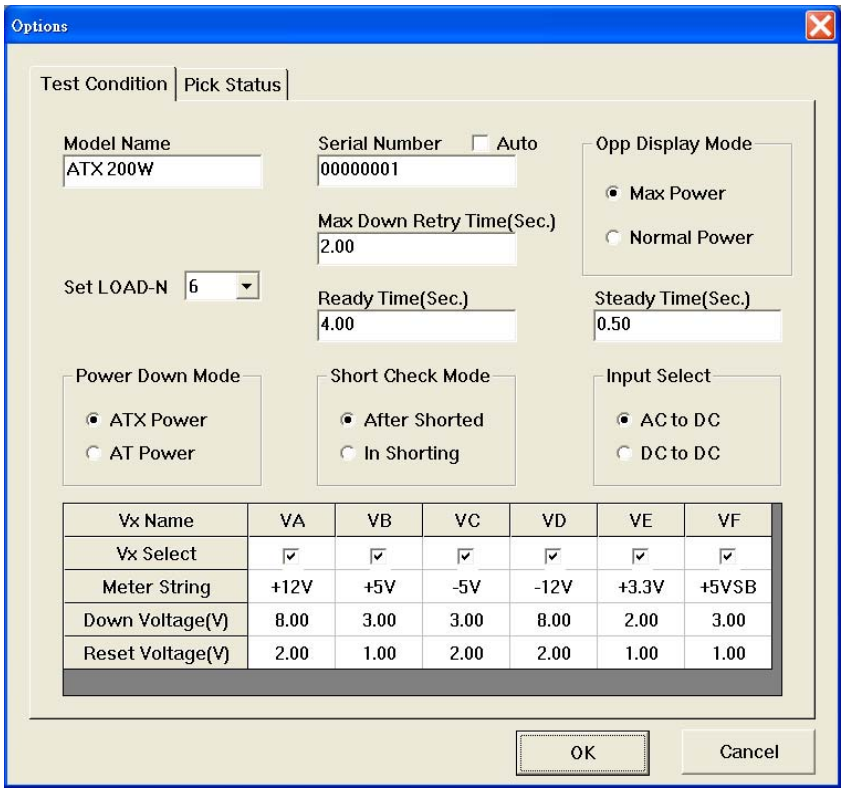
4-2 Set up common test parameters and system environment or change password.



After operating the directive [Setting…], you can set up:

Test Condition (Common parameter of test item setting)
Pick Status (system environment setting)
Ripple (Ripple test setting)

Test Condition (Common parameter of test item setting)



Model Name: Set the model of Power Supply for testing

The cluster letters or numbers will be printed on the list of Model Name. It will also be displayed on the Auto Test window. This Model of Power Supply is the path of saving the testing report as well.

Serial Number: Set the present serial number of Power Supply

Every time after implements the testing program, the serial number will automatically increase or not increase according to the Serial Number that be set in Pick Status labels. It means that the parameter does not need to be re-set.

If the ☐ Auto on the upper right hand side is ticked, the serial number will be required to be input when the automatic testing begins. The serial number may be read by bar code machine as well.

OPP Display Mode: When the OPP Test is tested automatically, the value of voltage read every time after the electric increment and calculation reserves the highest power value or the final power value.

Max Power: Reserve the highest power value.

Normal Power: Reserve the final power value.

Set LOAD-N: The number of total groups of instrument is set at 6, 8 or 10 respectively.

Max Down Retry Time (Sec.): The longest time for computer rebooting after the down condition of S.P.S. (Unit: second)

Ready Time (Sec.): Waiting time for booting

When starting Automatic Test, the system immediately starts counting time for turning on AC power or PsOn (depending on the Automatic Test schedule).Till Read time is up, the system starts reading the value of voltage. (Unit: second)

Steady Time (Sec.): Set the retention time for every item that needs to be tested. (Unit: second)

Power Down Mode groups: Select one S.P.S. that need to be tested between ATX Power SPS or AT Power.

Because when ATX Power takes the action of Protecting (e.g. Over Power Protect Test, Over Current Protect Test and Short Protect Test), the +5 VSB voltage will not decrease due to down condition of S.P.S. If ATX Power is set, the system will check whether the voltage of +5 VSB (VF) is within the voltage range of the maximum and minimum or not. If AT Power is set, the voltage of +5 VSB (VF) will not be checked.

Short Check Mode groups: Select short circuit protection inspection mode.

After Shorted: Check the voltage for each group after the short circuit.

In Shorting: Inspect the voltage for each group when short circuit occurs.

Input Select groups: Select input power supply for .S.P.S..

AC to DC: Alternating current

DC to DC: Direct current.

Vx Name: Title name of each group

Vx Select: Choose the groups that need to be used and tick √ the □

Meter String: Set the group name of S.P.S.

Group name of S.P.S. can be self-defined corresponding to the name of each voltage group in your company. This setting value is used as the name of pictures for each group and the name of group when the testing report is produced.

Down Voltage (V): Determine the Down Voltage

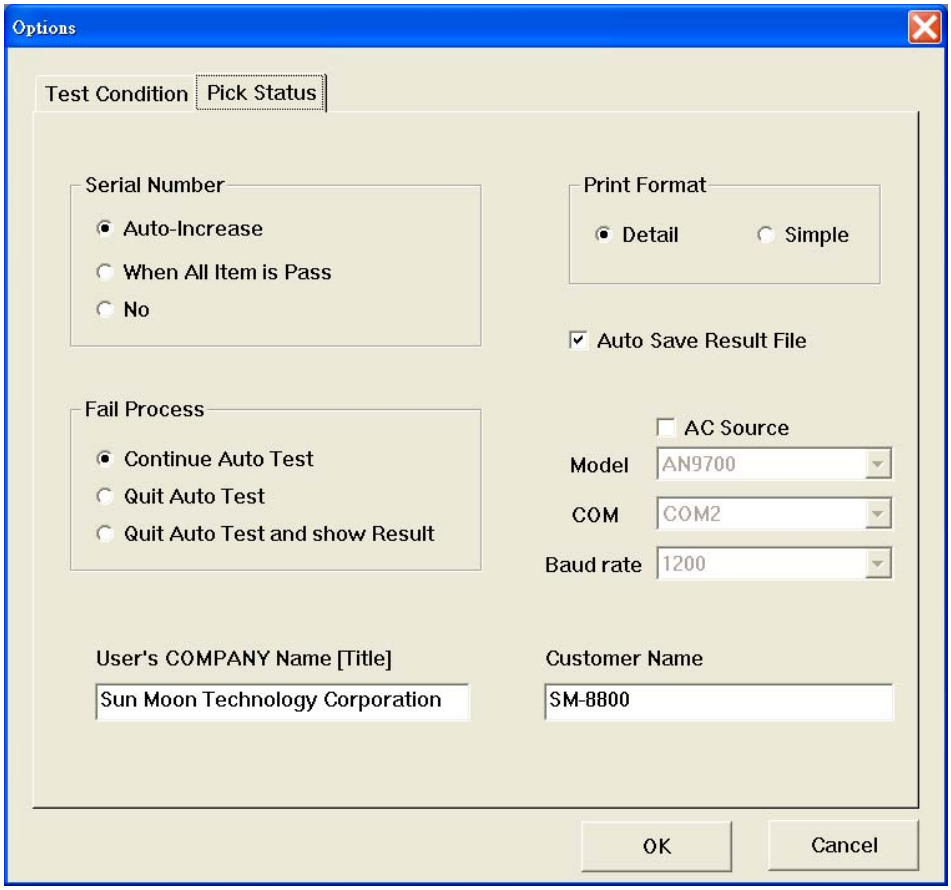
The functions of the setting is below.

1. After the S.P.S. down condition of automatic test happens, and all S.P.S. output voltage of each group or one voltage of groups is below this setting value, the down condition of S.P.S. can be confirmed.
2. After S.P.S boots when each output voltage of S.P.S. can not achieve this setting value in the limit time, the system determines the fail of S.P.S.

Reset Voltage (V): Determine the discharge voltage.

After S.P.S down condition of automatic test happens, the system determines the complete discharge by confirming the output voltage of eachl group is below this setting value. Restart to for next test.

Pick Status (setting the system environment)



Serial Number: After the system completing testing, choose to add one to Serial Number of next power supply or not.

Auto-Increase: After the system finishing operating test program, automatically add one to the Serial Number of next Power Supply no matter the test result is "PASS" or "FAIL".

When All Item: After the system finishing operating test program, add one to Serial Number of next power supply only if the testing result is “PASS”.

No: After the system finishing operating test program, do not add one to Serial Number of next Power Supply.

Print Format: Select the format of screen display and the printing format.

Detail: Print the parameter and results of testing item.

Simple: Only print the results of testing item.

Auto Save Result File: Set the result file of automatic saving

After the system completes the test, it saves the test result. This file will follow Serial Number mainly. It will be saved in the catalog Model Name.

Fail Process: If the testing of S.P.S fails:

the system continues testing Auto Test.

the system quits the condition of automatic testing

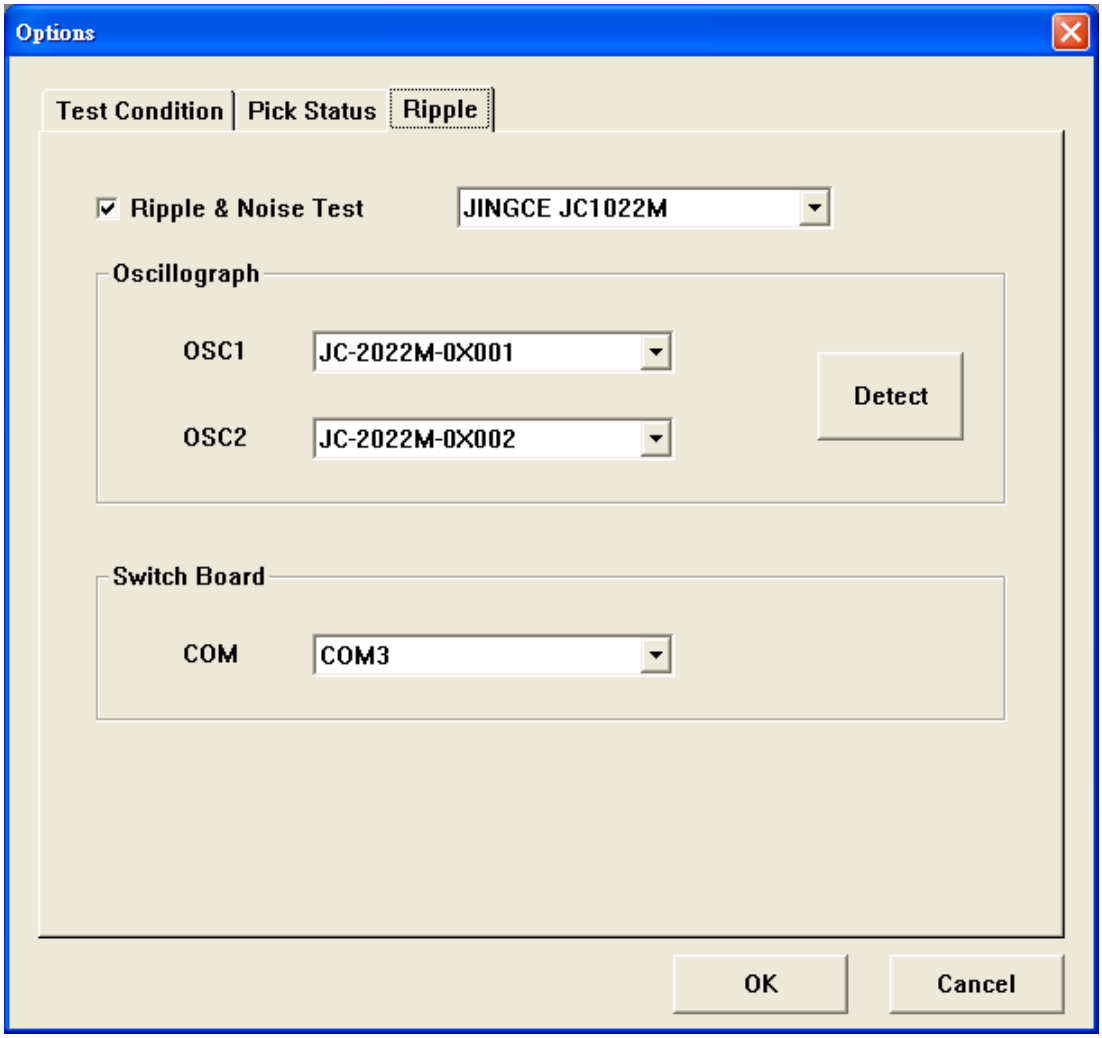
the system quits the condition of automatic test and shows the test result..

☐ AC Source: If used the AC Source, please select ☐ and √, and set the those 3 item.
Model: Model of AC Source.
COM: COM port RS-232 from PC to AC Source connecting.
Baud rate: COM port RS-232 from PC to AC Source connecting baud rate.

User's COMPANY Name [Title]: User's Company Name
This Title also can be the Title of main window.

Customer Name: These words will be printed on the Customer column

Ripple (Ripple test setting)

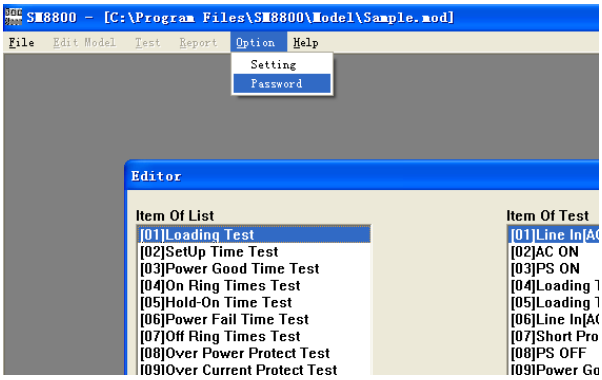


☐ Ripple & Noise Test: Set whether you need to test the ripple function or not. Thick in ☐ to select the model number.

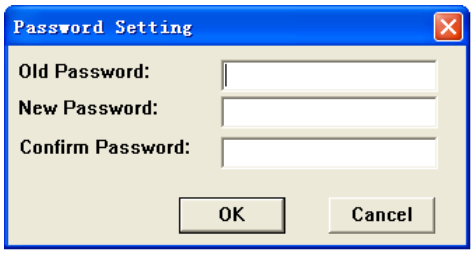
Oscillograph: Set the serial number of the first and the second oscillograph (OSCI). Press the button on the left hand side to re-search the oscillograph connected to the computer right now.

Switch Board: Set the COM port connected the oscillograph. (Range: COM1~COM9)

Change Password



After the system operating directive [Password…], the window “Change Password” turns up.(Refer to the picture below)



Old Password: Input current Password.
New Password: Input new password.
Confirm Password: Confirm new password

If the wrong “Old Password” is entered, a window will turn up.(Refer to the picture below) Press button “OK” to try again.

If the password that you entered as “Confirm Password” does not consistent with the “New Password” you entered, a window will appear shown as follows, Press “OK” button and enter again.

If “Confirm Password” is the same as “New Password”, press button “OK” to change the password or press the button “Cancel” to quit the window “Password Setting”.

4-3 System test item

There are 25 “automatic test items (test items in Item Of List on Editor window). This serves users to edit 50 “test program” (including Item Of Test list for Editor window to arrange test items) At least 50 test items can be edited in test program (including action items and test items). While starting testing, the system follows Item Of Test or Editor window’s arrangement to operate one by one till all items finish operating Item Of Test list. The screen will show PASS or FAIL and content of test report can be read. If test item boots unsuccessfully during the test, the system will stop testing and shows “S.P.S. Down.”

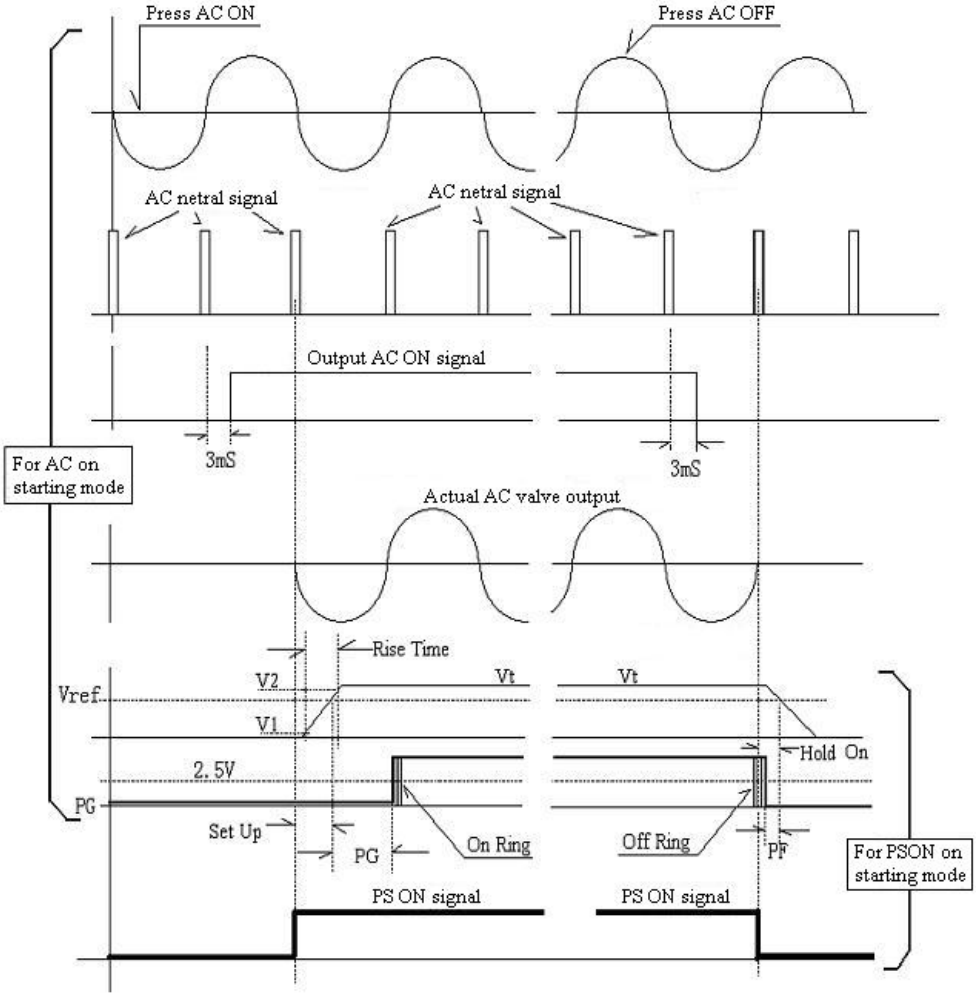
This is an automatic test system for testing power supply. You allow to edit and operate every item according to your requirement. Specification for test items provided by the system is below. (Action item: No.13~19; test item: 20~25)

※No test report for “Action Item.” Only Test Item produces test report.

1. Loading Test

Set up loading and then S.P.S. boots. Wait for a Steady Time and the system reads the entered voltage. If the value of Go-NoGo Upper > value > the value of Go-NoGo Lower, the test result will be PASS. If not, the result will be FAIL

The time testing is shown in the figure 4-2a



2. SetUp Time Test

According to the settings of Turn On Way in Test Function window, there are two types of test: AC ON and PS ON. Please pay attention to the following specifications in the brackets ():

Set load and zero the timer. Turn on the power of S.P.S. (If the Turn On Way setting in Test Function window is AC on, AC phase will be at zero. If PS is ON, PS ON signal will be issued). Start timing at the split second when S.P.S. is turned on. +5V of voltage testing terminal is kept testing to check whether it equals to voltage set by Reference Voltage (abbreviated as VREF) or not. If it equals to VREF, the reading of timer will be recorded. This is the test value of the Setup Time. If Go-NoGo Upper value of Setup Time > test values> Go NoGo Lower value of Setup Time, the test result will be PASS. If not, it will be FAIL.

3. Power Good Time Test (P.G. Time Test)

According to the setting of Turn On Way in Test Function window, there are two types of test: AC ON and PS ON. Please pay attention to the following specifications in the brackets ():

Set load and zero the timer. Turn on the power of S.P.S. (If the setting of Turn On Way in Test Function window is AC ON, AC phase will be at zero. If PS is ON, PS ON signal will be issued). Start testing +5V of voltage testing terminal at the split second when S.P.S. is turned on. +5V of voltage testing terminal is kept testing to check whether it equals to voltage set by VREF or not. If it equals to VREF, start timing. The reading value is recorded after output Power Good signal of S.P.S. turns to high from low. This is the test value of P.G. Time. If Go-NoGo Upper value of P.G. Time > test value> Go NoGo Lower value of P.G. Time, the test result will be PASS. If not, it will be FAIL.

4. ON Ring Times Test

According to the setting of Turn On Way in Test Function window, there are two types of test: AC ON and PS ON. Please pay attention to the following specifications in the brackets ():

Set load and zero the timer. Turn on the power of S.P.S. (If the setting of Turn On Way in Test Function window is AC ON, AC phase will be at zero. If PS is ON, PS ON signal will be issued). Start counting the times that output Power Good signal of S.P.S. turns to high from low at the split second when S.P.S. is turned on. The number of times is recorded. This is the test value of P.G. Ring. If Go-NoGo Upper value of P.G. Ring > test values> Go NoGo Lower value of P.G. Ring, the test result will be PASS. If not, it will be FAIL.

5. Hold-On Time Test

According to the setting of Turn On Way in Test Function window, there are two types of test: AC OFF and PS OFF. Please pay attention to the following specifications in the brackets ():

Set load and zero the timer. Turn off S.P.S. after turning on it. (If the setting of Turn On Way in Test Function window is AC OFF, AC phase will be at zero. If PS is OFF, PS OFF signal will be issued). Start timing at the split second when S.P.S. is turned on, +5V of voltage testing terminal is kept testing to check whether it equals to voltage set by VREF or not. If it equals to VREF, the reading of the timer will be recorded. This is the test value of Hold-On Time. If Go-NoGo Upper value of Hold-On Time > test value> NoGo Lower value of Hold-On Time, the test result will be PASS. If not, it will be FAIL.

6. Power Fail Time Test (P.F. Time Test)

According to the setting of Turn On Way in Test Function window, there are two types of test: AC OFF and PS OFF. Please pay attention to the following specifications in the brackets ():

Set load and zero the timer. Turn off S.P.S. after turning on it. (If the setting of Turn On Way in Test Function window is AC OFF, AC phase will be at zero. If PS is OFF, PS OFF signal will be issued). Start timing after output Power Good signal of S.P.S. is issued and turns to high from low. Start testing +5V of voltage testing terminal at the split second when S.P.S. is turned on and keeps detecting it to check whether it equals to voltage set by VREF.

If it equals to VREF, the reading of timer will be recorded. This is the test value of P.F. Time. If Go-NoGo Upper value of P.F. Time > test value> Go-NoGo Lower value of P.G. Time, the test result will be PASS. If not, it will be FAIL.

7. OFF Ring Times Test

According to the setting of Turn On Way in Test Function window, there are two types of test: AC OFF and PS OFF. Please pay attention to the following specifications in the brackets ():

Set load and zero the timer. Turn off S.P.S. after turning on it. (If the setting of Turn On Way in Test Function window is AC OFF, AC phase will be at zero. If PS is OFF, PS OFF signal will be issued). Start counting times that output Power Good signal of S.P.S. turns to high from low at the split second when S.P.P. is turned on. The number of times is recorded. This is the test value of P.F. Ring. If Go-NoGo Upper value of P.F. Ring > test value> Go-NoGo Lower value P.F. Ring, the test result will be PASS. If not, it will be FAIL.

8. Over Power Protect Test (OPP)

According to the given Step Current, set the load and turn on S.P.S. The current increases from the initial load current. Every step it climbs will stay for a while and the system records the power value of the first time. (Every input voltage read from voltage testing terminal multiplies the latest current value.) If the OPP Display Mode in Test Condition is set as Normal Power, the latest power value will be retained. If the OPP Display Mode in Test Condition is Max Power, the system will compare the latest value with the previous one and retains the higher one. The power value will continue increasing until the current reaches the value set by OPP End I. Otherwise, S.P.S. will be down to protect itself and to prevent the current from increasing further. The system reads the maximum of power value from the down condition of S.P.S. and records the value. This value is OPP test value. If the range of test value is between Go-NoGo Upper value of OPP and Go-NoGo Lower value of OPP, the result will be PASS. If not, it will be FAIL.

During the test, if the Upper value ≦ +5 VSB and voltage value ≧ Lower value, or the load current of any group reaches the value set by End Current when down protection of S.P.S. does not occur, the system will record zero as the test value and stop testing. The test result is FAIL.

9. Over Current Protect Test (OCP)

Set load and turn on S.P.S. to select the given Step Current corresponding to the group sellected by OCP-1 and OCP-2 for the test of increasing in current value. Every step it climbs will stay for a while and the system records the current value of OCP-1 and OCP-2. The current value will continue increasing until it reaches the value set by End Current corresponding to the group in OCP-1 and OCP-2. Otherwise, the increment of current value will stop when the down protection of S.P.S. occurs. The maximum of current is read and recorded (If select two groups, there will be two maximum value of current.) This value is the test value of OCP. If the Upper value ≦ +5 VSB and ≧ Lower value, or the load current of any group reaches the value set by End Current when the down protection of S.P.S. does not occur the system will record zero as the test value and stop OPP testing. The test result is FAIL.

The way to judge PASS or FAIL when one group is selected for increment of current value:

If the range of test value is between the Go-NoGo Upper value of OCP and Go-NoGo Lower value of OCP, the result will be PASS. If not, it will be FAIL.

The way to judge PASS or FAIL when two groups are selected for increment of current value:

The way to judge PASS or FAIL for two groups (OCP-1 and OCP-2) is the same way as one group selected. On condition that both of two groups must be PASS, or the result will be FAIL.

10. Wait

Set load and turn on S.P.S. The program temporarily stops to wait for user to adjust the voltage for all groups, read voltage ripple and test of vibration, wires and terminals etc. Input voltage value in test terminal of each group is recorded after the user presses the button AC On on host or Space on the keyboard. If Go-NoGo Upper value > test value > Go NoGo Lower value, the test result will be PASS. If not, it will be FAIL.

11. Short Protect Test

Set load turn on S.P.S. Make a short circuit for the group selected by Vx Select and check whether the S.P.S. is down or not (according to the setting inspection of Short Check Mode and Power Down Mode in Test Condition). If S.P.S. is down, PASS will be recorded. If not, FAIL will be recorded.

12. Ps Off Test

Set load, turn on S.P.S and operate action PS OFF. If Go-NoGo Upper value of S.P.S. > test value > Go NoGo Lower value, the test result will be PASS. If not, it will be FAIL.

13. Line in (This is for action only, no testing report)

First, operate action AC OFF to turn off AC output. Select external power supply for S.P.S. (i.e. IN-1、IN-2、IN-3 located in air socket on the back plate of SM-8800). Then operate action AC ON to turn on AC output and wait for Wait Time After the system finishing selection, the power supply selected for S.P.S. is used for every subsequent test until Line In is selected again or test is completed.

14. AC ON (This is for action only, no test report.)

Set load. AC power output on the socket of To S.P.S. at the back control panel is ON.

15. AC OFF (This is for action only, no test report.)

AC power output on the socket of To S.P.S. at the back control panel is OFF.

16. PS ON (This is for action only, no test report.)

Set load. PS ON input terminal on the control input panel is grounded for short circuit.

17. PS OFF (This is for action only, no test report.)

PS ON input terminal on the control input panel is grounded for short circuit.

18. Output (This is for action only, no test report.)

Send a 4-bit Hi or Low to control signal from “Out1” ~ “Out4” on the socket of “I/O Port” at the back panel to control the external equipment.

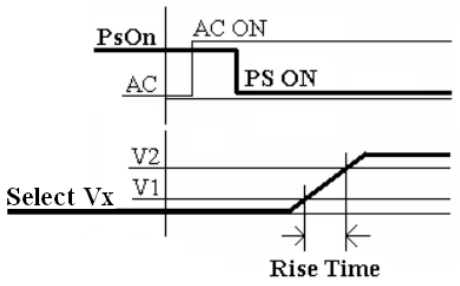
19. Loop (This is for action only, no test report)

According to the times set by Select Times, the system begins repeatedly testing from the first item in the testing program and then continues to test next one after completing the first one. Only one Loop can be scheduled for the test program.

20. Rise Time Test

Set Select Vx and First Reference Voltage (V1) and zero the timer. Set load and turn on S.P.S. to keep checking whether Select Vx equals to V1 after turning on it. Start timing if Select Vx=V1. At the same time, set Second Reference Voltage (V2) and keep checking whether Select Vx equals to V2 or not. Stop timing if Select Vx=V2 and the reading of timer is recorded (Refer to figure 4-2b). This is the test value of Rise Time. If Go-NoGo Upper value of Rise Time > test value > Go-NoGo Lower value of Rise Time, the test result will be PASS. If not, it will be FAIL.

figure 4-2b



21. AC Power Meter Test (Only those kinds of machines with built-in power meter have this function)

Set load and turn on S.P.S. Wait for Wait Time and then check the following 8 parameters:

1. Frequency(Freq)
2. AC peak voltage (PICK value) (Vp)
3. Power (RMS value) (Watt)
4. AC available voltage (RMS value) (Vrms)
5. AC available current (RMS value) (Irms)
6. Efficiency (Effi)
7. AC peak current (PICK value) (Ip)
8. Power factor (P.F.)

Those values above are the test values of AC Power Meter. If Go-NoGo Upper value of AC Power Meter > test value > Go-NoGo Lower value of AC Power Meter, the result will be PASS. If not, it will be FAIL.

22. i/p Regulation Test

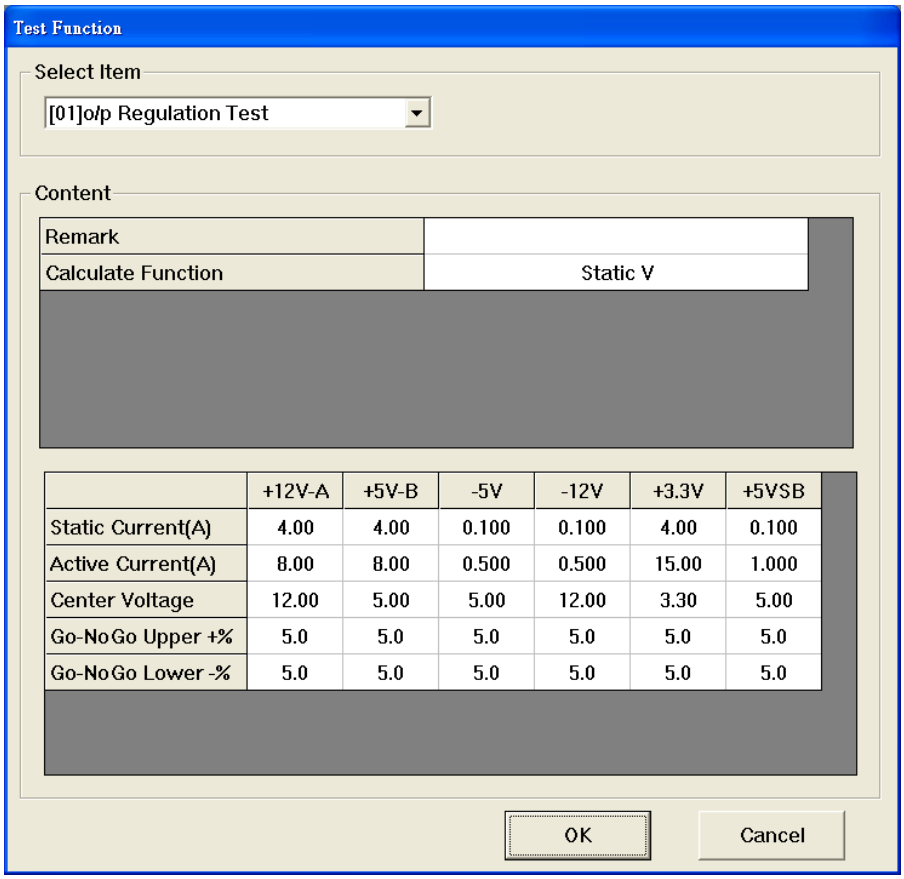
Turn on the analyte with AC voltage set by I/p Source Voltage after setting load, record output voltage (V1) of every group, then transfer the analyte's AC input voltage into AC voltage set by Change I/p Source Voltage, wait for some time, record output voltage (V2) of every group again, figure out the percentage of change between two output voltage by using the following formula, unit %:

Test value = [(V2-V1) / V1] × 100 (%)

If I/p Regulation Test Go-NoGo Upper + % value ＞ Test value ＞ I/p Regulation Test Go-NoGo Lower - % value, the test result is PASS, otherwise FAIL.

23. o/p Regulation Test

Turn on the analyte with the load current set by Static Current, record the output voltage of all groups as the value of Static V, according to the current value set by Active Current, change load current each time for only one group and record the output voltage of all groups until every group complete the changing in load current. Assuming the setting of Test Function is shown in the following Fig. (Supposing the setting of total load is 6 groups)



While the system operates the test item (The action is below), the parts of white word with black background are current values set by Active Current:

	+12V-A	+5V-B	-5V	-12V	+3.3V	+5VSB
First time change load current	8.00 A	4.00 A	0.1 A	0.1 A	4.00 A	0.1 A
Second time change load current	4.00 A	8.00 A	0.1 A	0.1 A	4.00 A	0.1 A
Third time change load current	4.00 A	4.00 A	0.5 A	0.1 A	4.00 A	0.1 A
Fourth time change load current	4.00 A	4.00 A	0.1 A	0.5 A	4.00 A	0.1 A
Fifth time change load current	4.00 A	4.00 A	0.1 A	0.1 A	15.00 A	0.1 A
Sixth time change load current	4.00 A	4.00 A	0.1 A	0.1 A	4.00 A	1 A

Output voltage read from the change of load is compared with the voltage of Static V or Center Voltage after the system completes the change of load. (According to the setting of Calculate Function, the system selects “Static V” or “Center Voltage”.)

Formula (Supposing that Calculate Function is set as “Static V”)

Test Value = {100 x [(Recorded V – Static V) / Static V]} %

If Go-NoGo Upper + % value of O/P Regulation Test ＞ Test value ＞ Go-NoGo Lower - % value of O/P Regulation Test, the test result will be PASS. If not, it will be FAIL.

24. Change AC Source Level

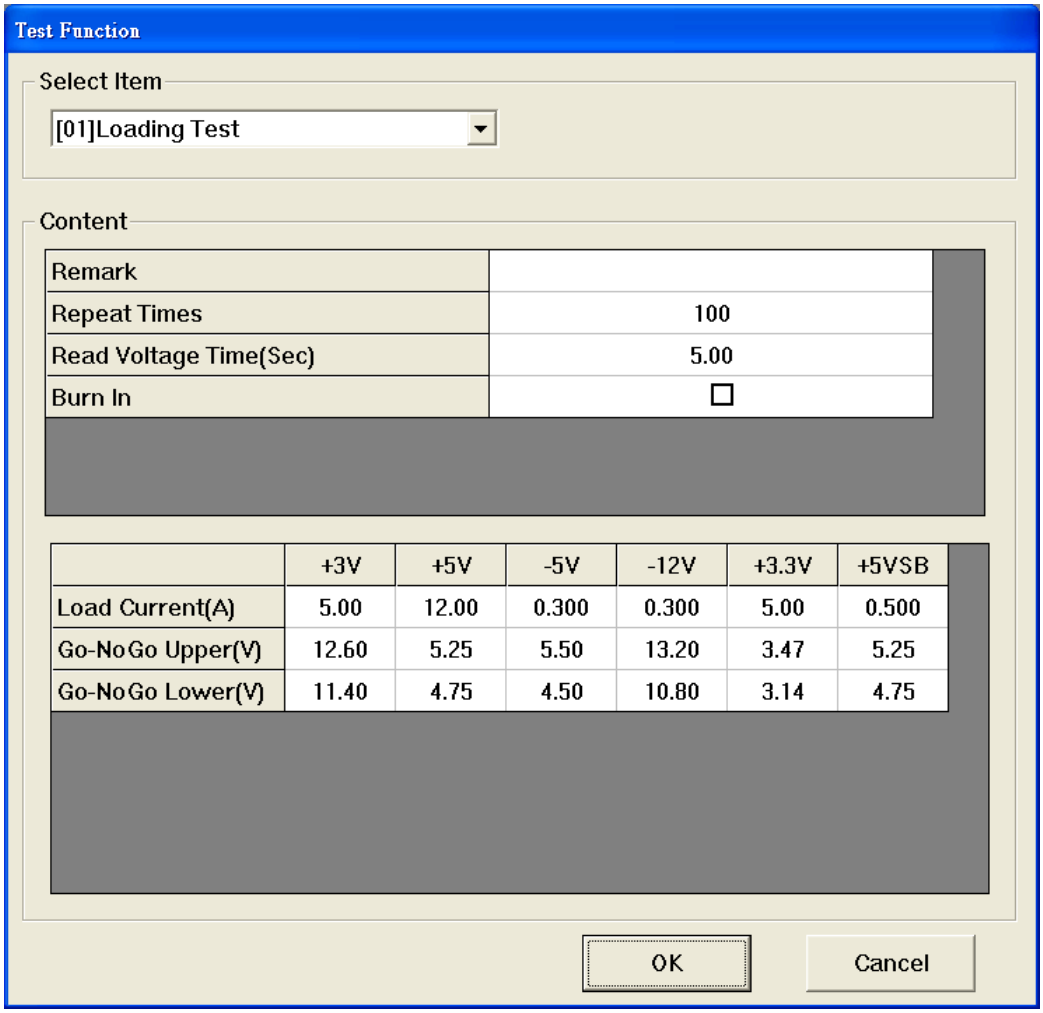
Change the range of AC source. Low gear: AC0~150V. High gear: AC0~300V

25. Ripple & Noise Test (※Oscillograph control box must be installed for this function)

Read the ripple value of every group’s power through the oscillograph control box. It can judge whether the ripple value is in the range between maximum and minimum.

4-4 Set up system test item in Test Function

Loading Test

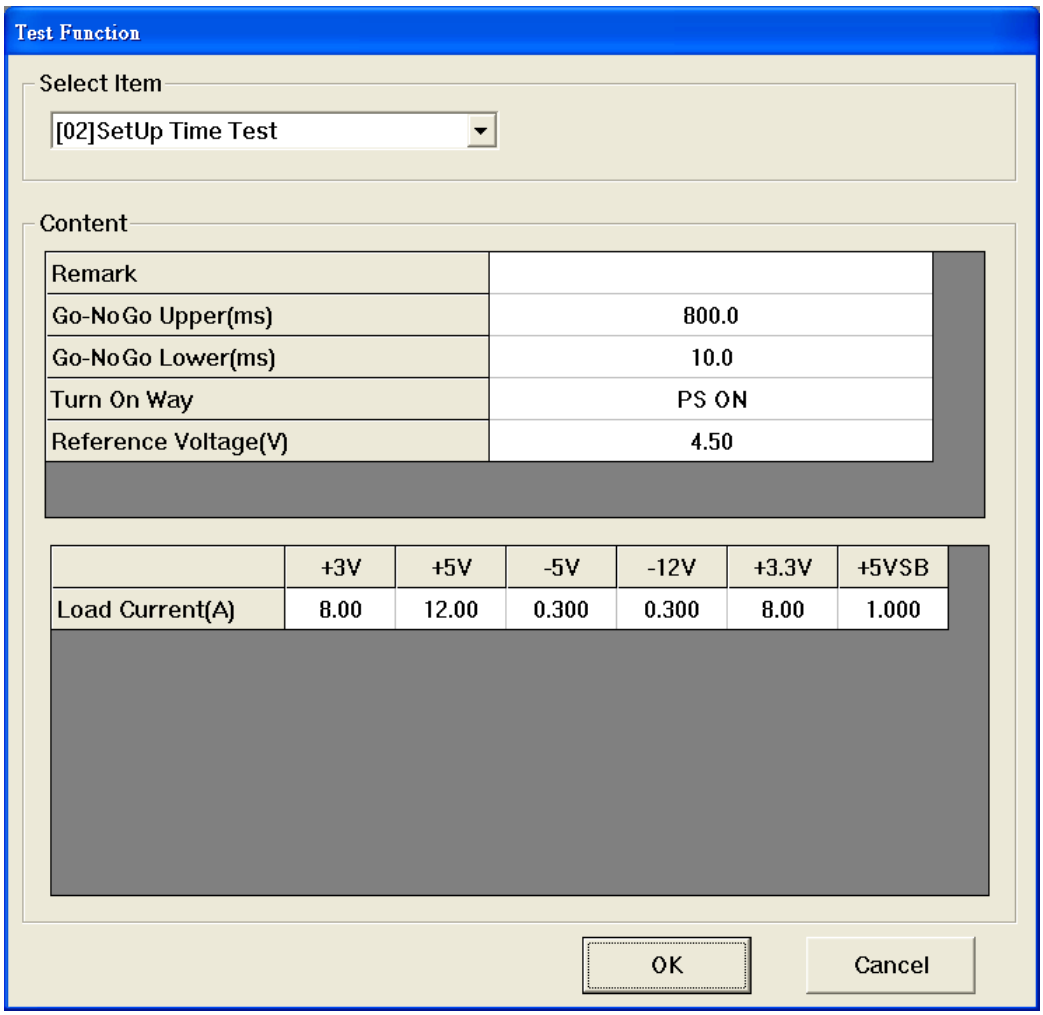


Select Item: Fast select “Item of Test” listed in the table.

Specification for parameters input:

Remark	: Remarks column of test item
Repeat Times	: Repeat times (Setting of Burn In).
Read Voltage Time(Sec)	: Time of voltage reading (Setting of Burn In).
Burn In	: Setting of burn in.
Load Current(A)	: Load current selected during the test operated
Go-NoGo Upper(V)	: Maximum of output voltage for every group
Go-NoGo Lower(V)	: Minimum of output voltage for every group

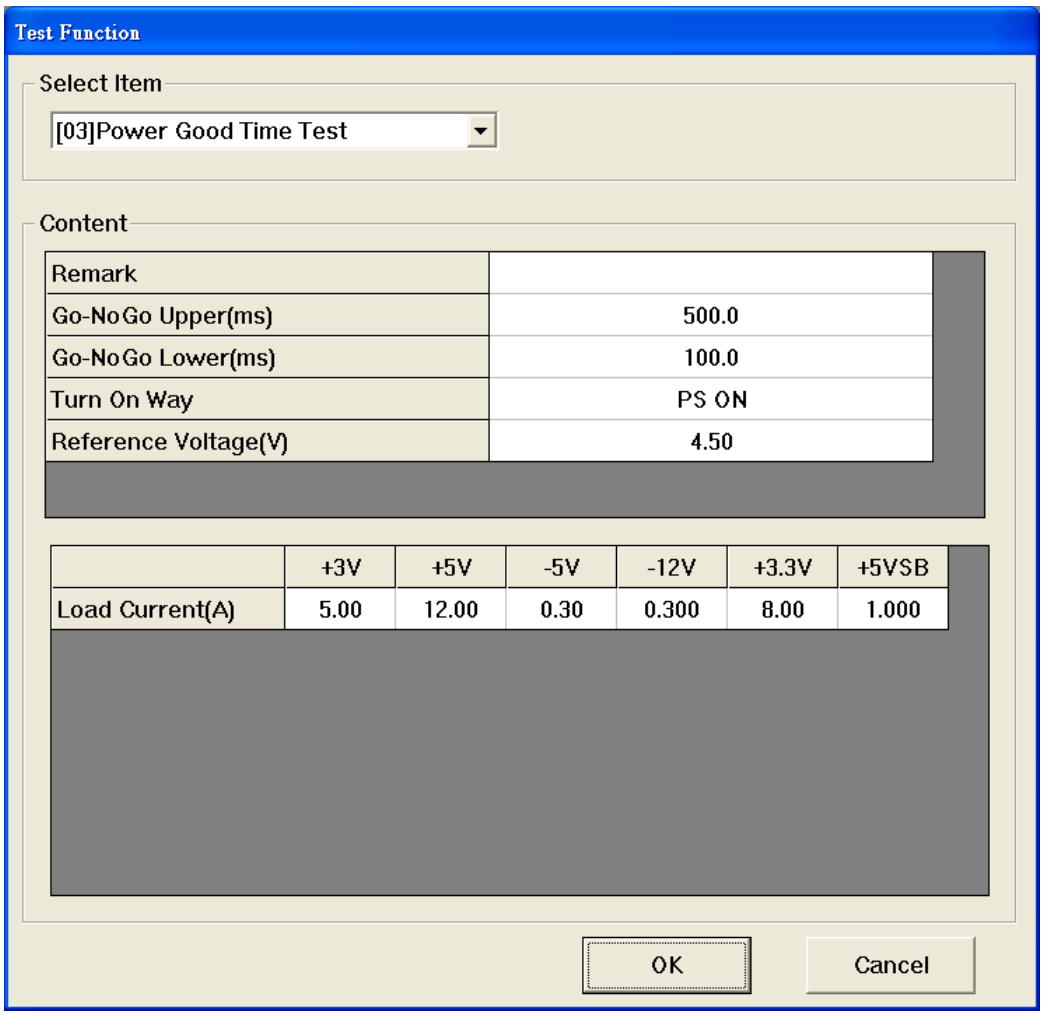
SetUp Time Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Go-NoGo Upper(mS)	: Maximum of SetUp Time.
Go-NoGo Lower(mS)	: Minimum of SetUp Time.
Turn On Way	: Select the way of turn on S.P.S.
Reference Voltage (V)	: Reference Voltage
Load Current(A)	: Load current selected during the test operated

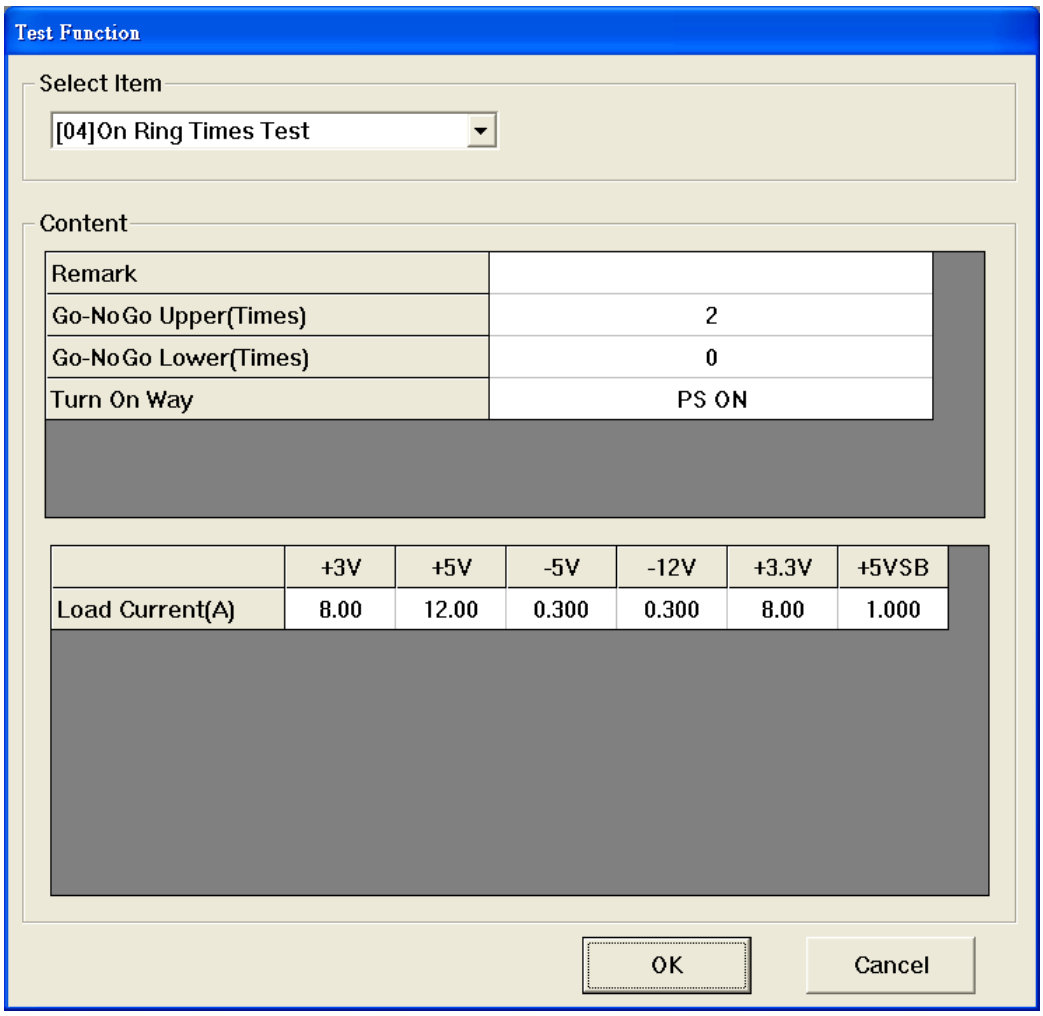
Power Good Time Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Go-NoGo Upper(mS)	: Delay maximum of Power Good signal
Go-NoGo Lower(mS)	: Delay minimum of Power Good signal
Turn On Way	: The way selected to turn on S.P.S
Reference Voltage (V)	: Reference Voltage
Load Current(A)	: Load current selected during the test operated

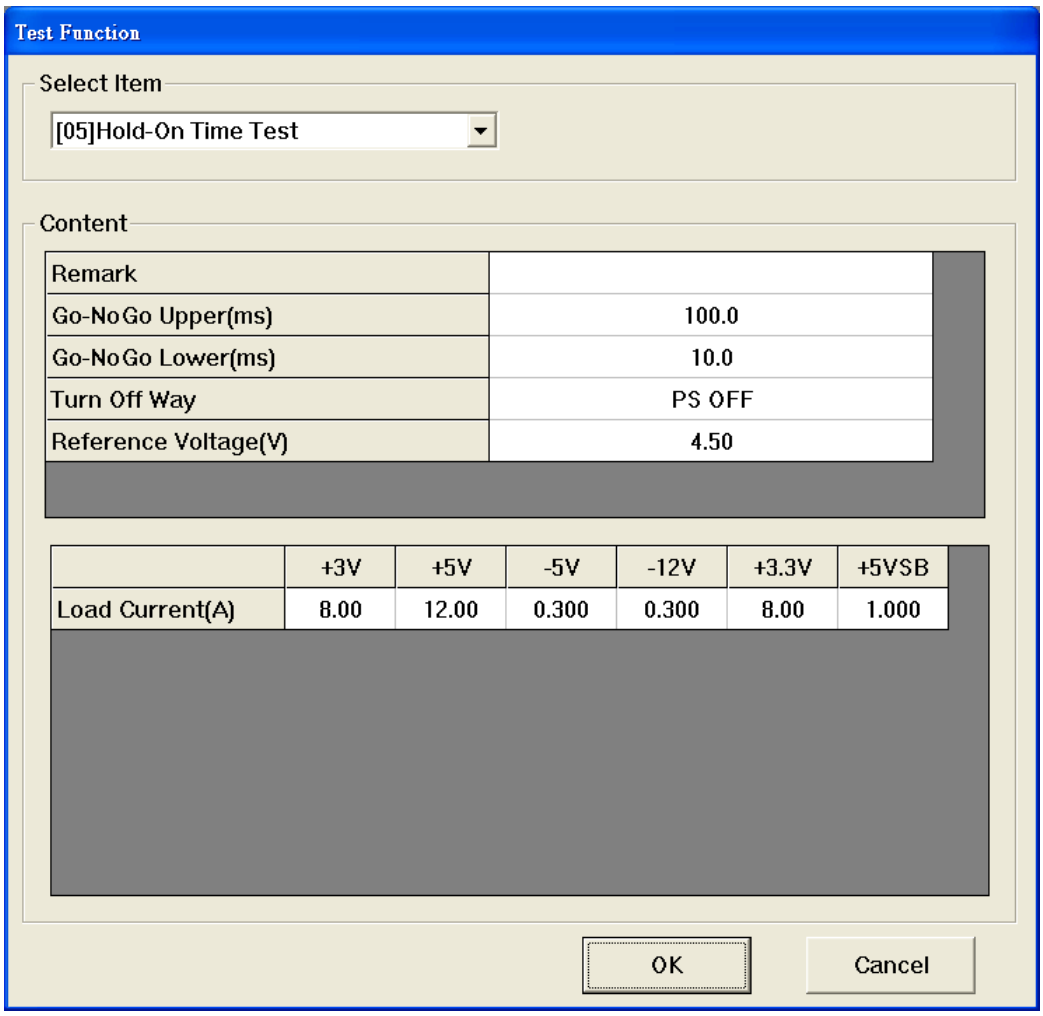
ON Ring Times Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Go-NoGo Upper(Times)	: Oscillation maximum of Power Good signal
Go-NoGo Lower(Times)	: Oscillation minimum of Power Good signal
Turn On Way	: The way selected to turn on S.P.S.
Load Current(A)	: Load current selected during the test operated

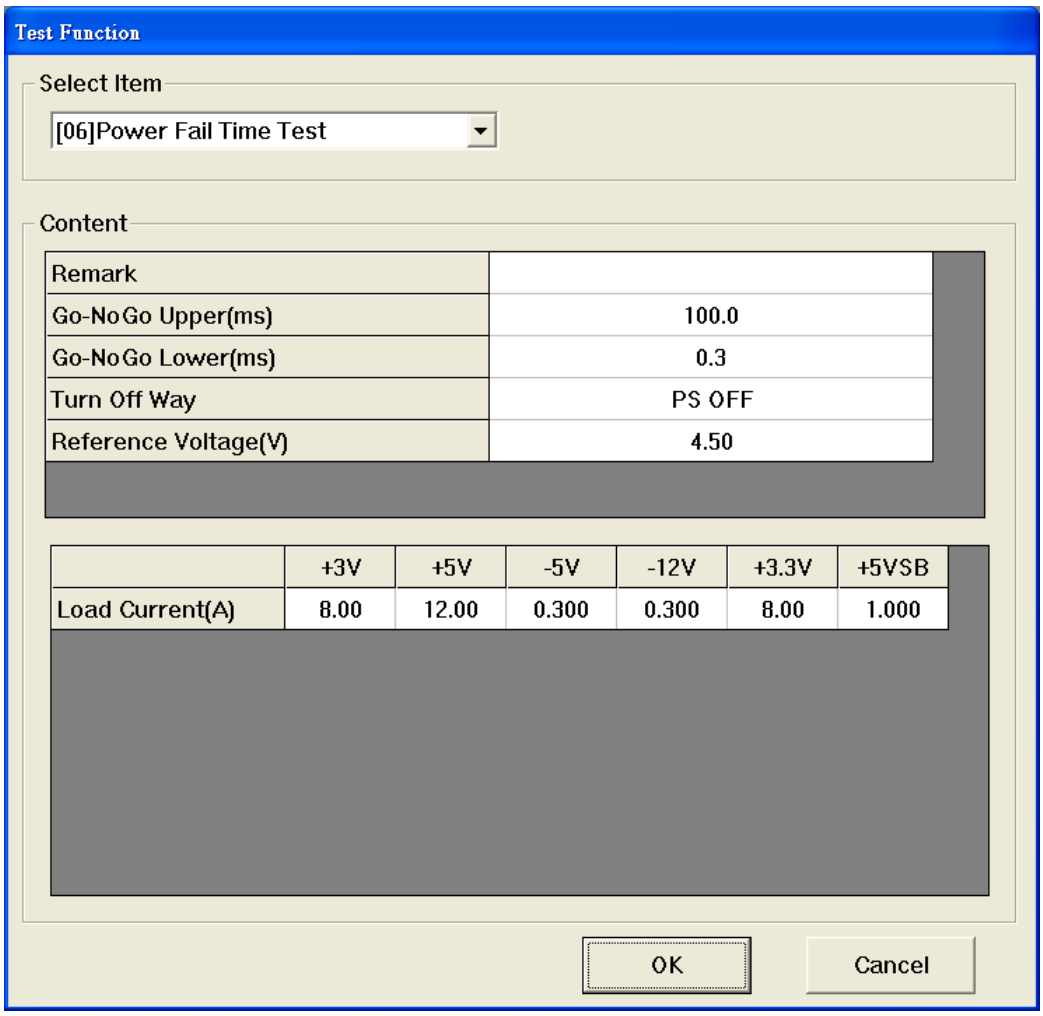
Hold-On Time Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Go-NoGo Upper(mS)	: Maximum of Hold-On Time
Go-NoGo Lower(mS)	: Minimum of Hold-On Time
Turn Off Way	: The way selected to turn off S.P.S.
Reference Voltage (V)	: Reference Voltage
Load Current(A)	: Load current selected during the test operated

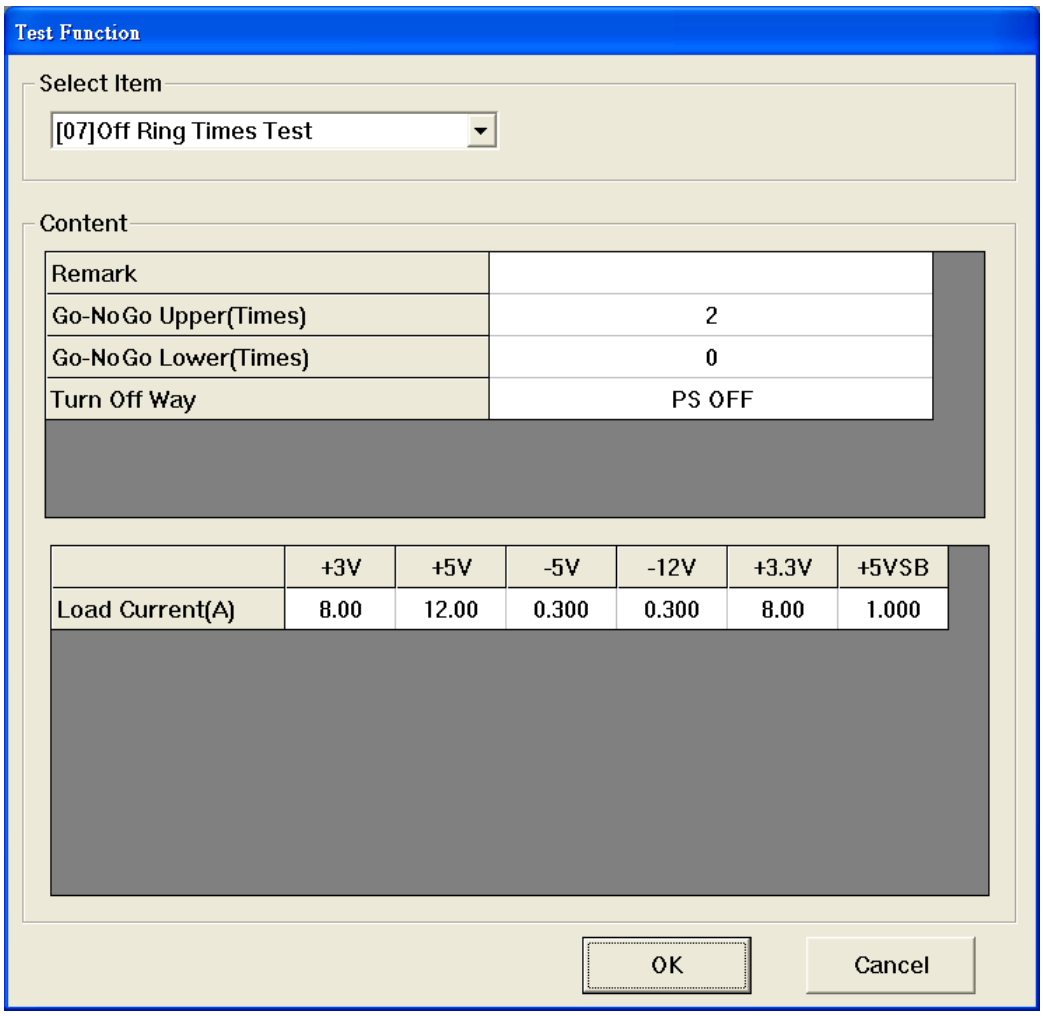
Power Fail Time Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Go-NoGo Upper(mS)	: Ahead of schedule maximum of Power Good signal’s failure
Go-NoGo Lower(mS)	: Ahead of schedule minimum of Power Good signal’s failure
Turn Off Way	: The way selected to turn off S.P.S.
Reference Voltage (V)	: Reference Voltage
Load Current(A)	: Load current selected during the test operated

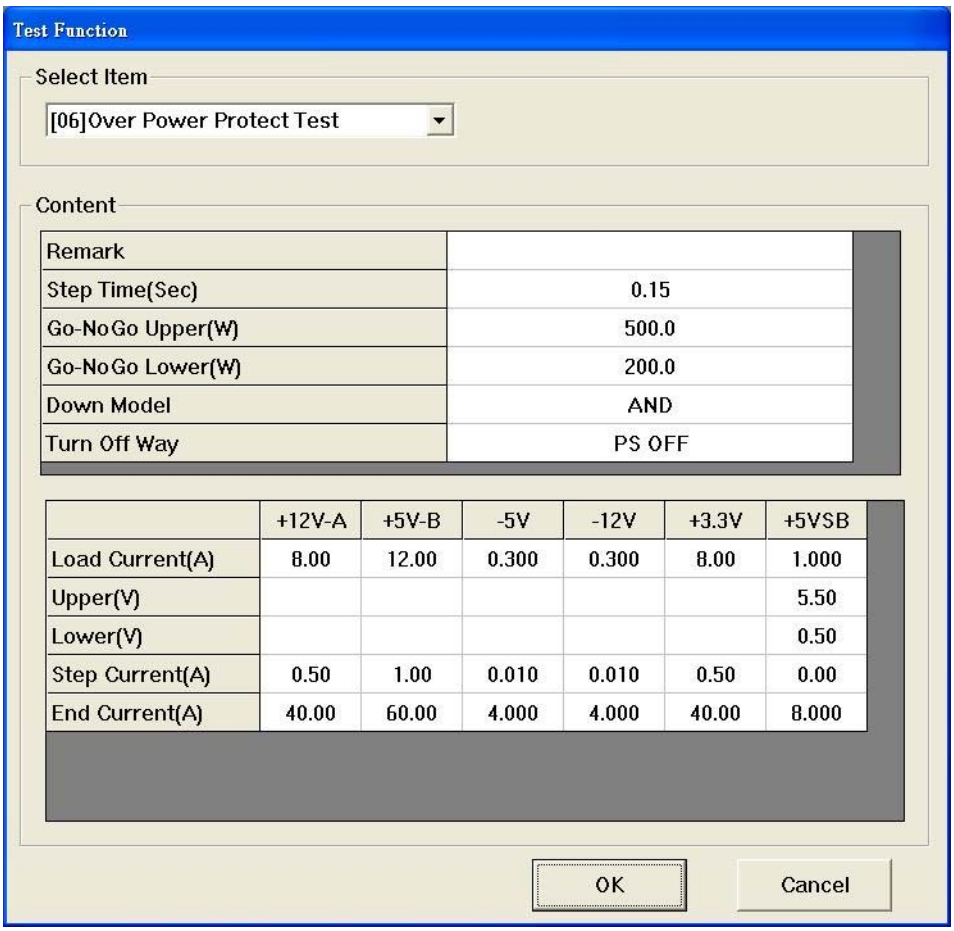
Off Ring Times Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Go-NoGo Upper(Times)	: Oscillation maximum of Power Good signal
Go-NoGo Lower(Times)	: Oscillation minimum of Power Good signal.
Turn Off Way	: The way selected to turn off S.P.S.
Load Current(A)	: Load current selected during the test operated

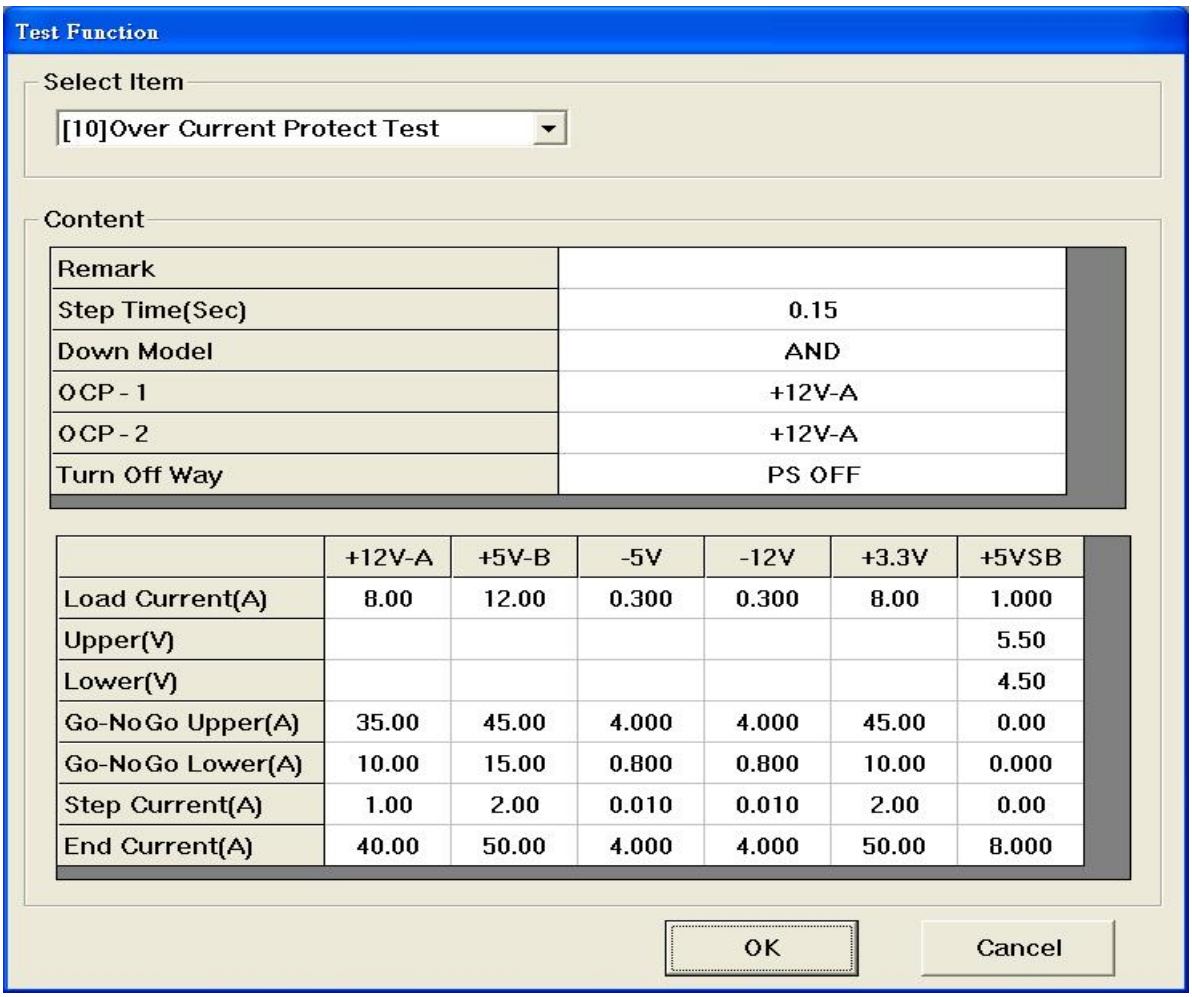
Over Power Protect Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Step Time(Sec)	: The retention time needed for every step of current increment
Go-NoGo Upper(W)	: The highest power Maximum of protecting test for over power
Go-NoGo Lower(W)	: The highest power Minimum of protecting test for over power
Down Mode	: Judgment on down mode of S.P.S.
Turn Off Way	: The way selected to turn off S.P.S. after OPP test completed
Load Current(A)	: Load current selected during the test operated
Upper(V)	: Output voltage maximum of S.P.S.
Lower(V)	: Output voltage minimum of S.P.S.
Step Current(A)	: Load current of every increment
End Current(A)	: Load current of increment toward maximum end point

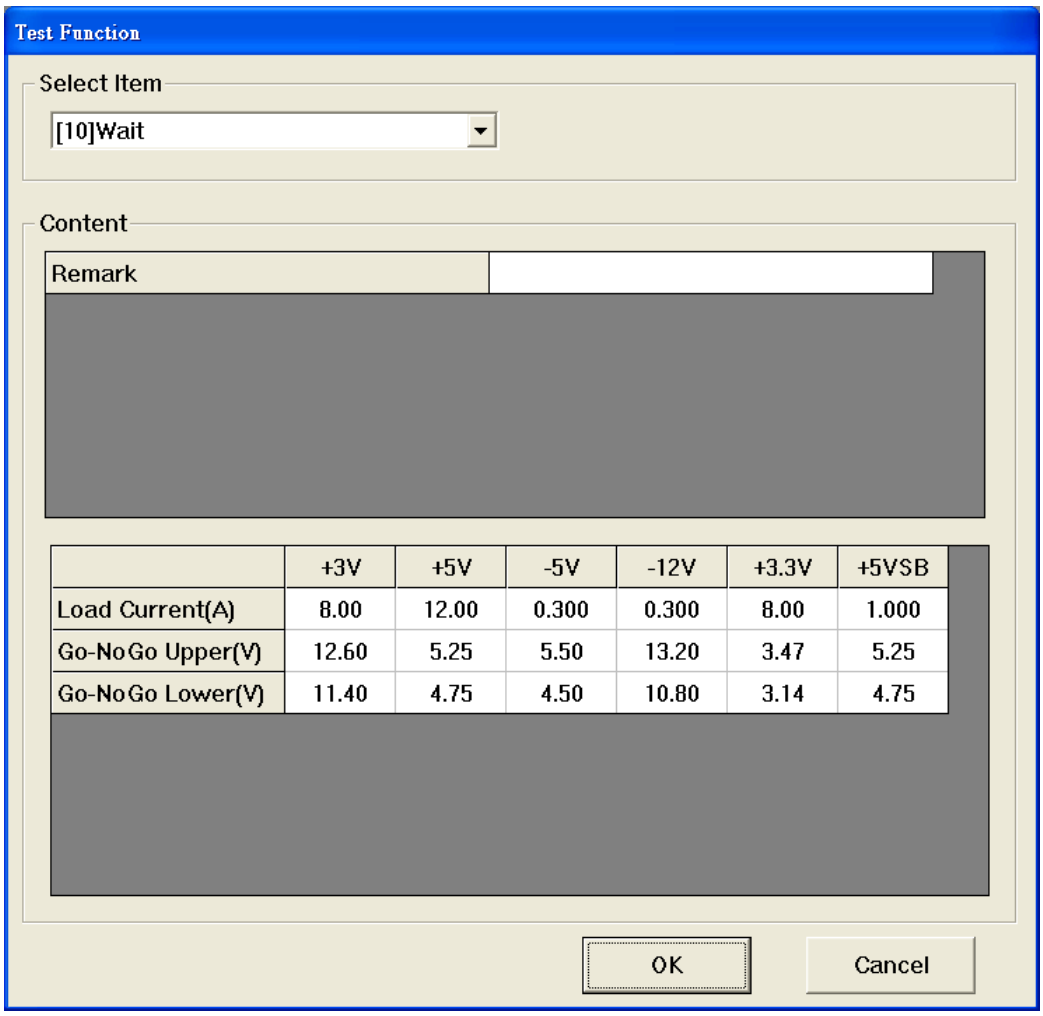
Over Current Protect Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Step Time(Sec)	: The retention time needed for every step of current increment
Go-NoGo Upper(W)	: The highest power Maximum of protecting test for over power
Go-NoGo Lower(W)	: The highest power Minimum of protecting test for over power
Down Mode	: Judgment on down mode of S.P.S.
OCP-1	: The first group of current increment
OCP-2	: The second group of current increment
Turn Off Way	: The way selected to turn off S.P.S. after OCP test completed
Load Current(A)	: Load current selected during the test completed
Upper(V)	: Output voltage maximum of S.P.S.
Lower(V)	: Output voltage minimum of S.P.S.
Go-NoGo Upper(A)	: Output current maximum of S.P.S. every group
Go-NoGo Lower(A)	: Output current minimum of S.P.S. every group
Step Current(A)	: Load current of every increment
End Current(A)	: Load current of increment toward maximum end point

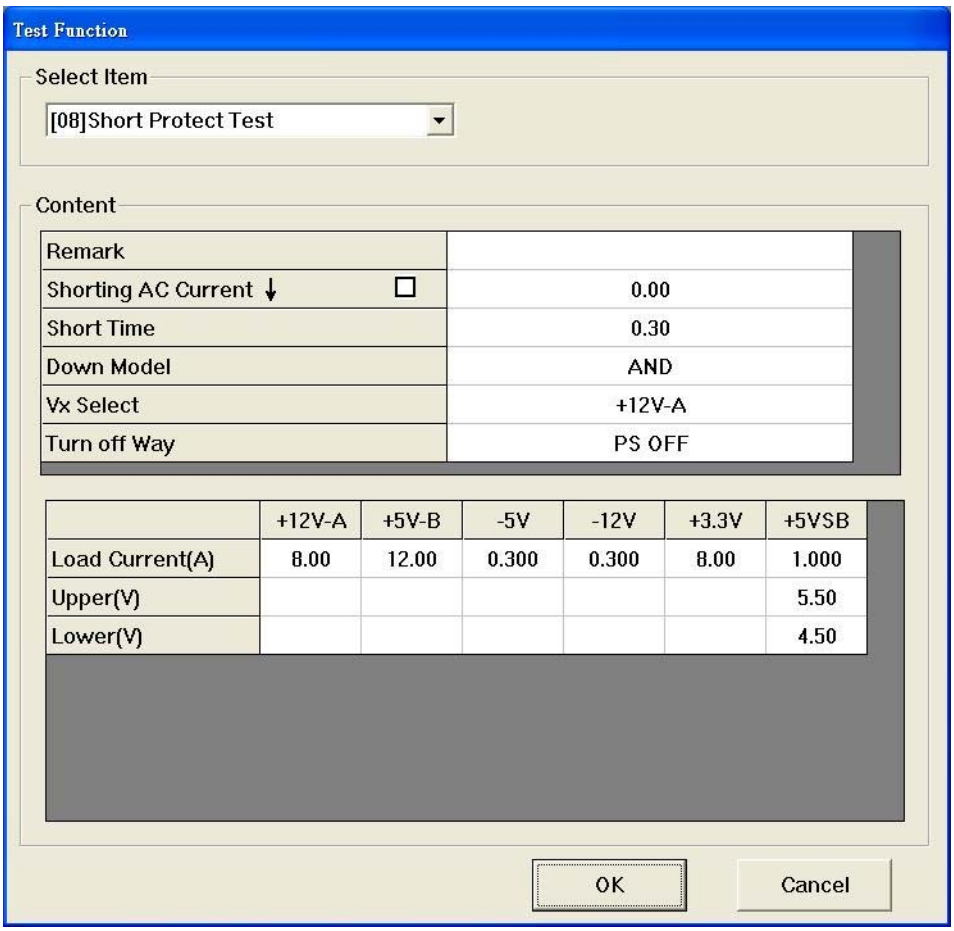
Wait



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Load Current(A)	: Load current selected during the test completed
Go-NoGo Upper(V)	: Output voltage maximum of S.P.S. every group
Go-NoGo Lower(V)	: Output voltage minimum of S.P.S. every group

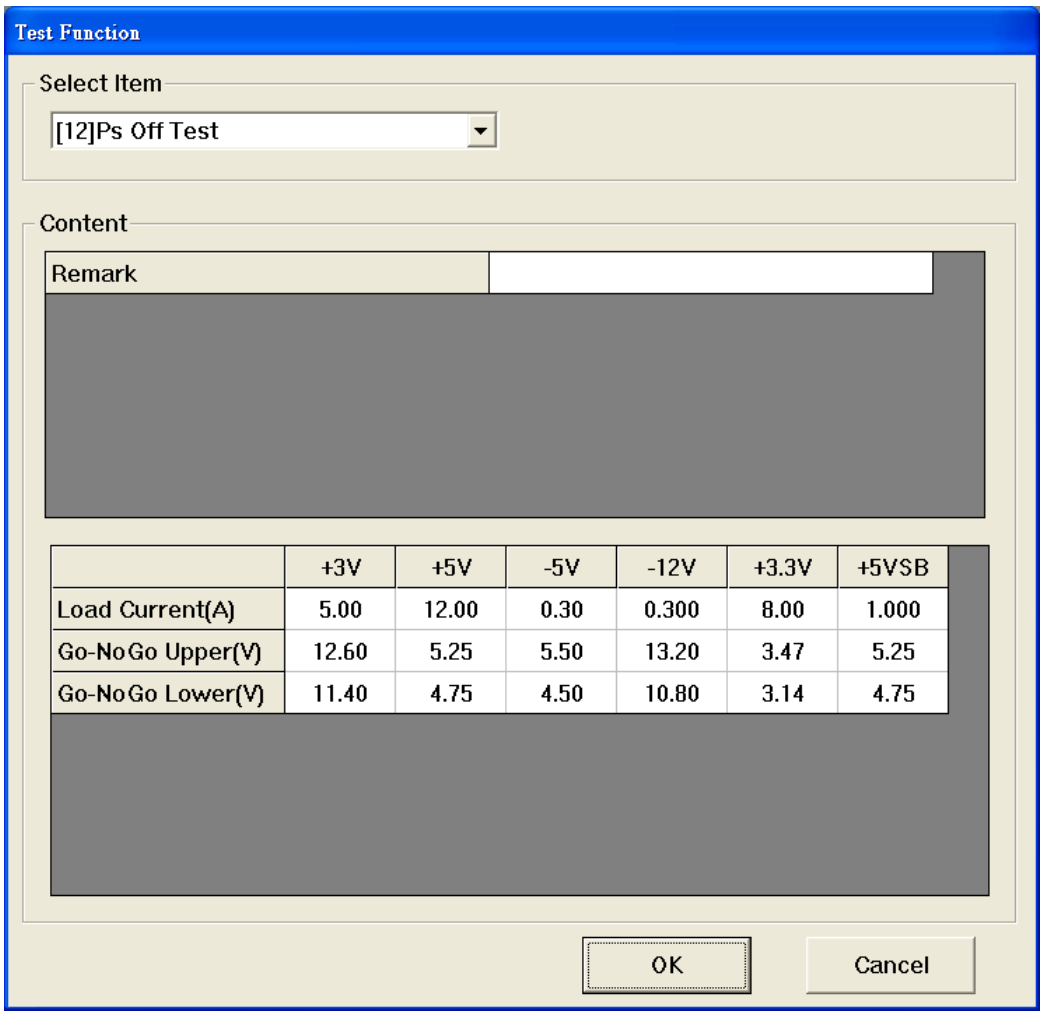
Short Protect Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Shorting AC Current ↓	: AC current minimum during the test operated
Short Time	: Time of short circuit
Down Mode	: Judgment on down mode of S.P.S.
Vx Select	: The group of short circuit selected
Turn Off Way	: The way selected to turn off S.P.S. after Short test completed
Load Current(A)	: Load current selected during the test completed
Upper(V)	: Output voltage maximum of S.P.S.
Lower(V)	: Output voltage minimum of S.P.S.

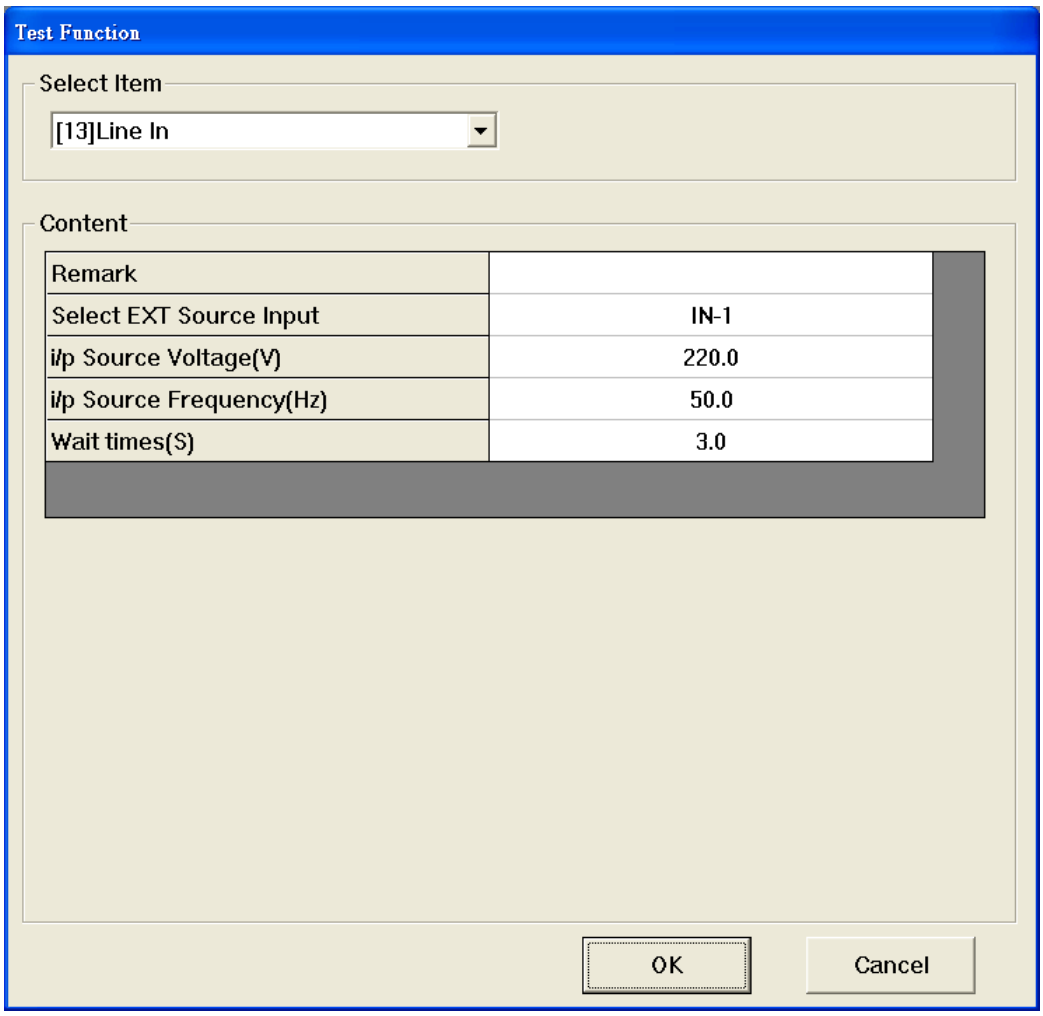
Ps Off Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Test item remark.
Load Current(A)	: Select the load current in actual test.
Go-NoGo Upper(V)	: The upper limited value of output voltage of every group of analyte.
Go-NoGo Lower(V)	: The lower limited value of output voltage of every group of analyte.

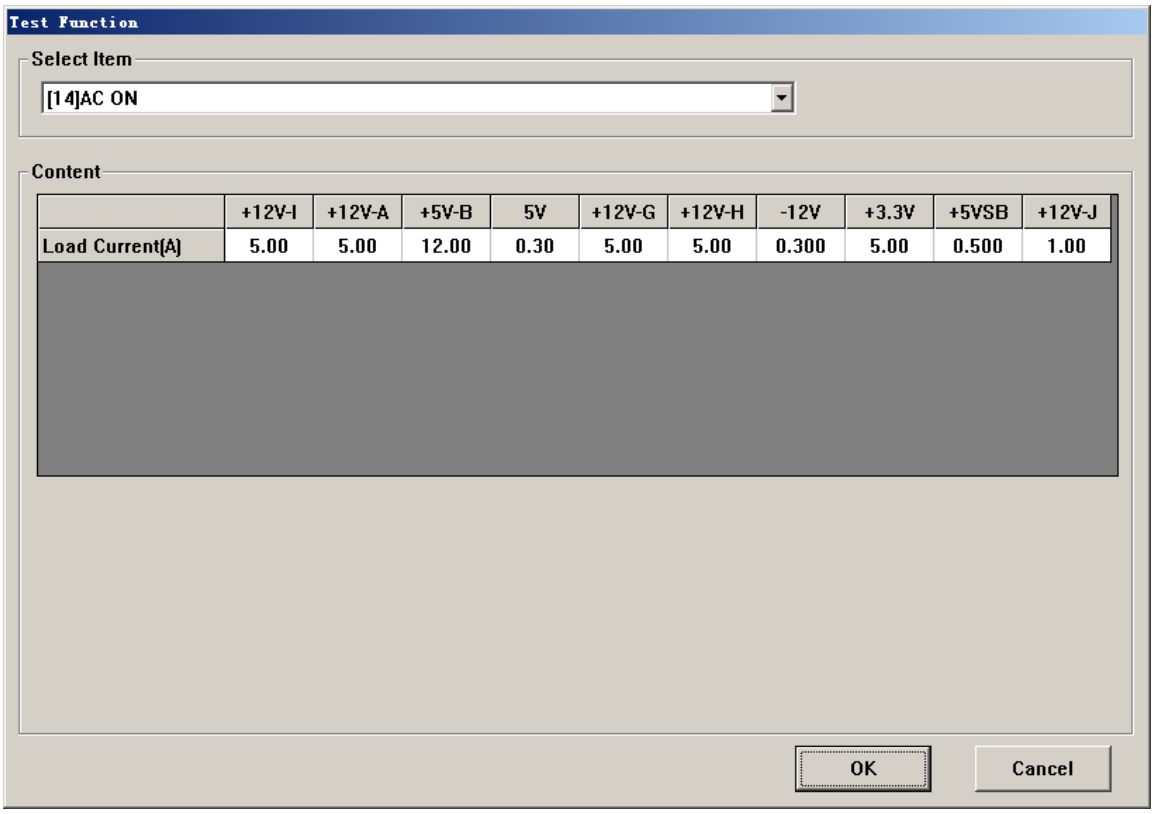
Line In



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Select EXT Source Input	: External power supply selected for S.P.S.
i/p Source Voltage(V)	: Voltage of S.P.S during the test operated
i/p Source Frequency(Hz)	: Frequency of S.P.S. during the test operated
Wait times(S)	: Waiting time

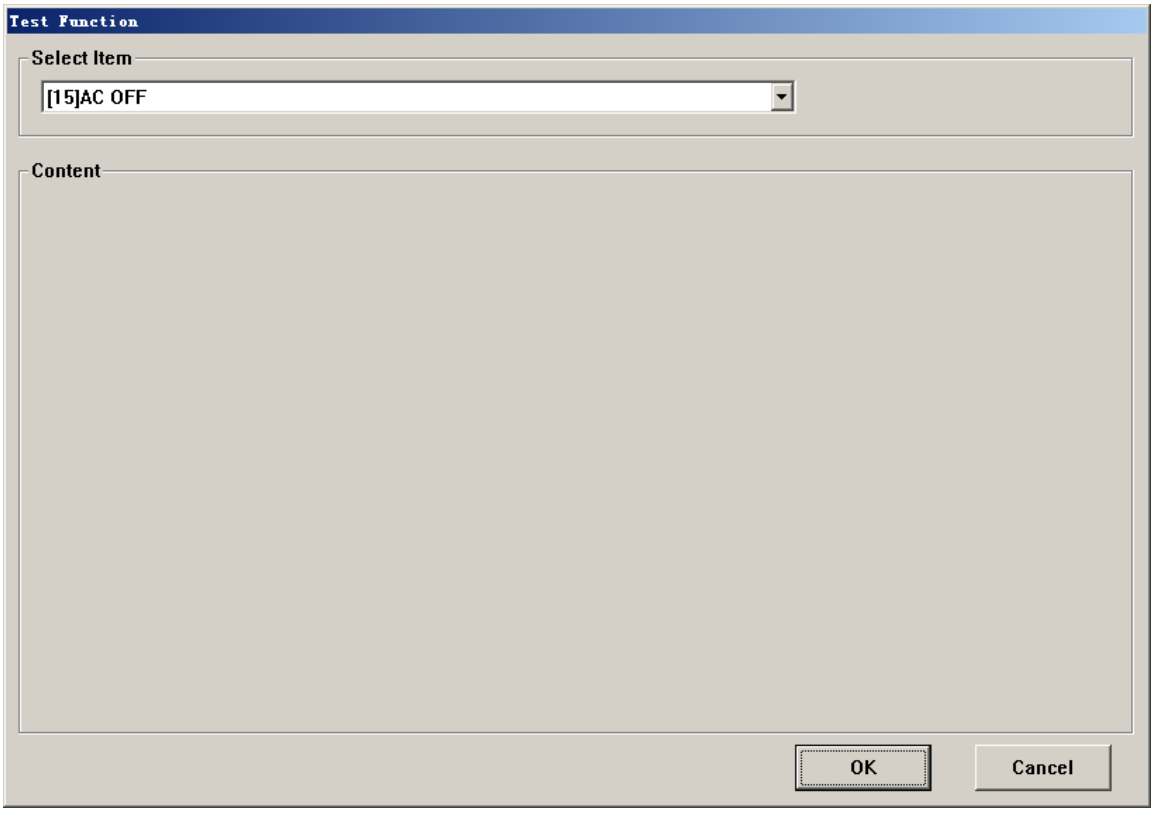
AC ON



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

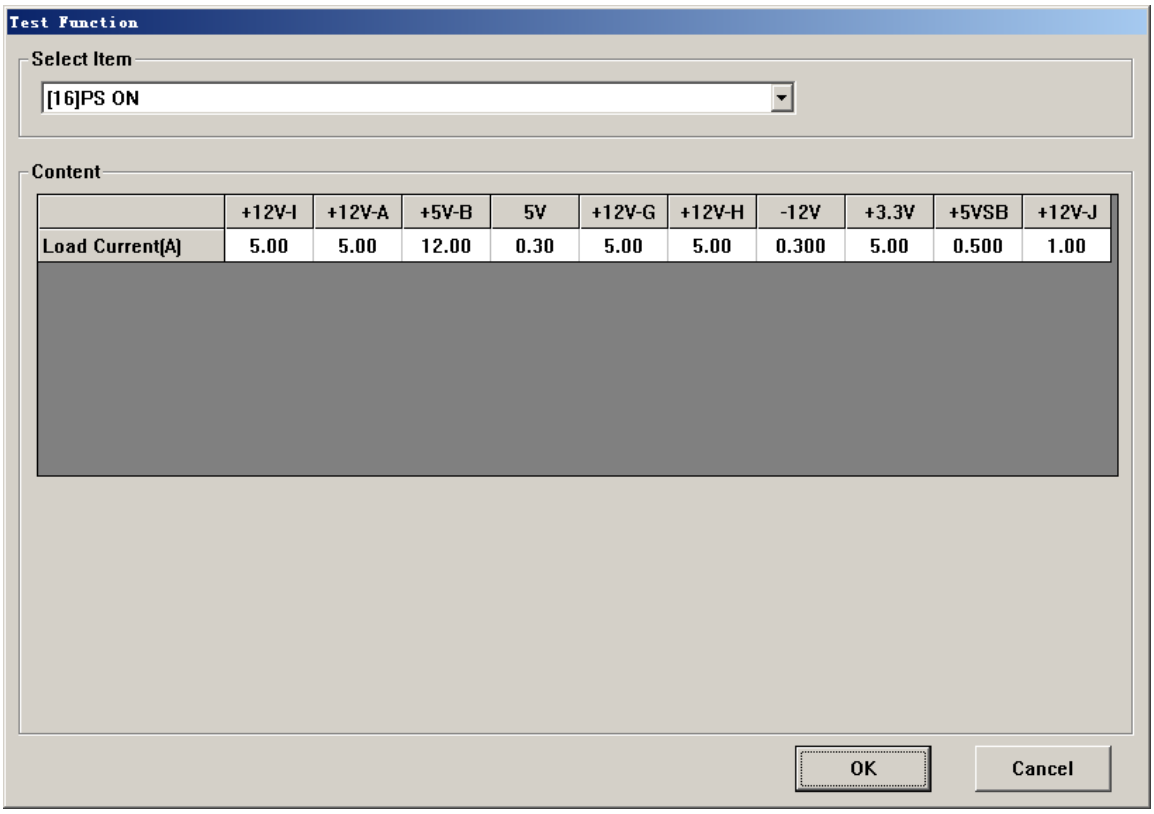
Load Current (A) : Load current selected during action AC ON operated

AC OFF



Select Item: Fast select “Item of Test” listed in the table

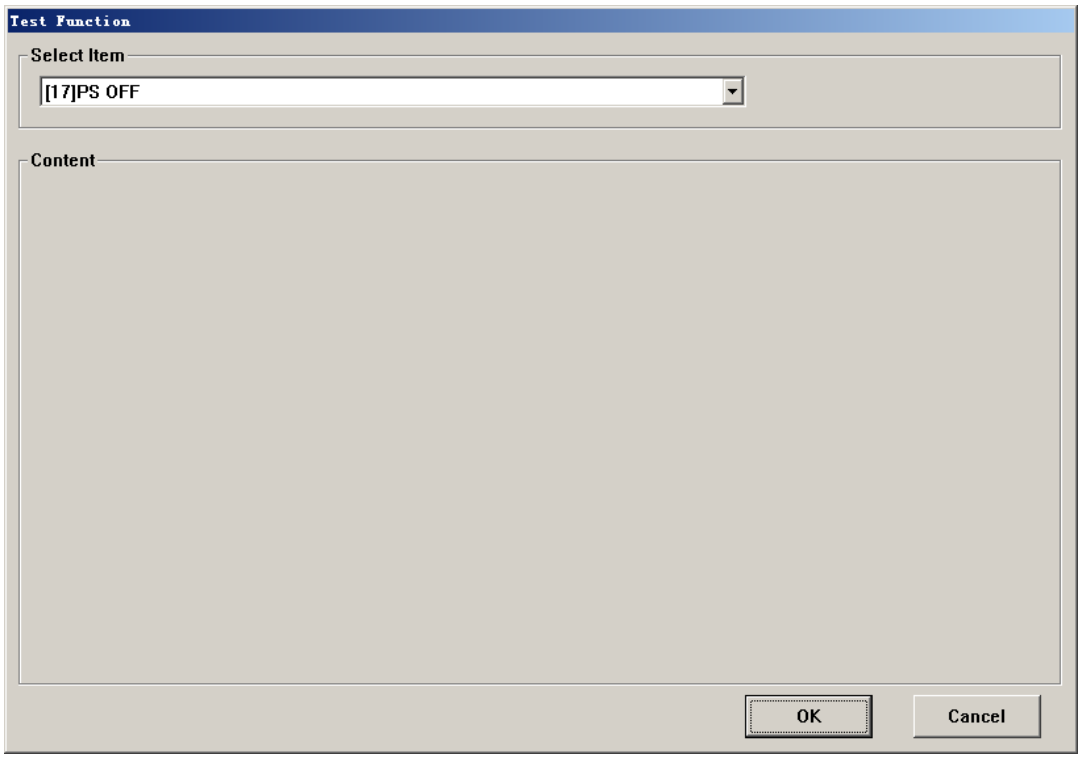
PS ON



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

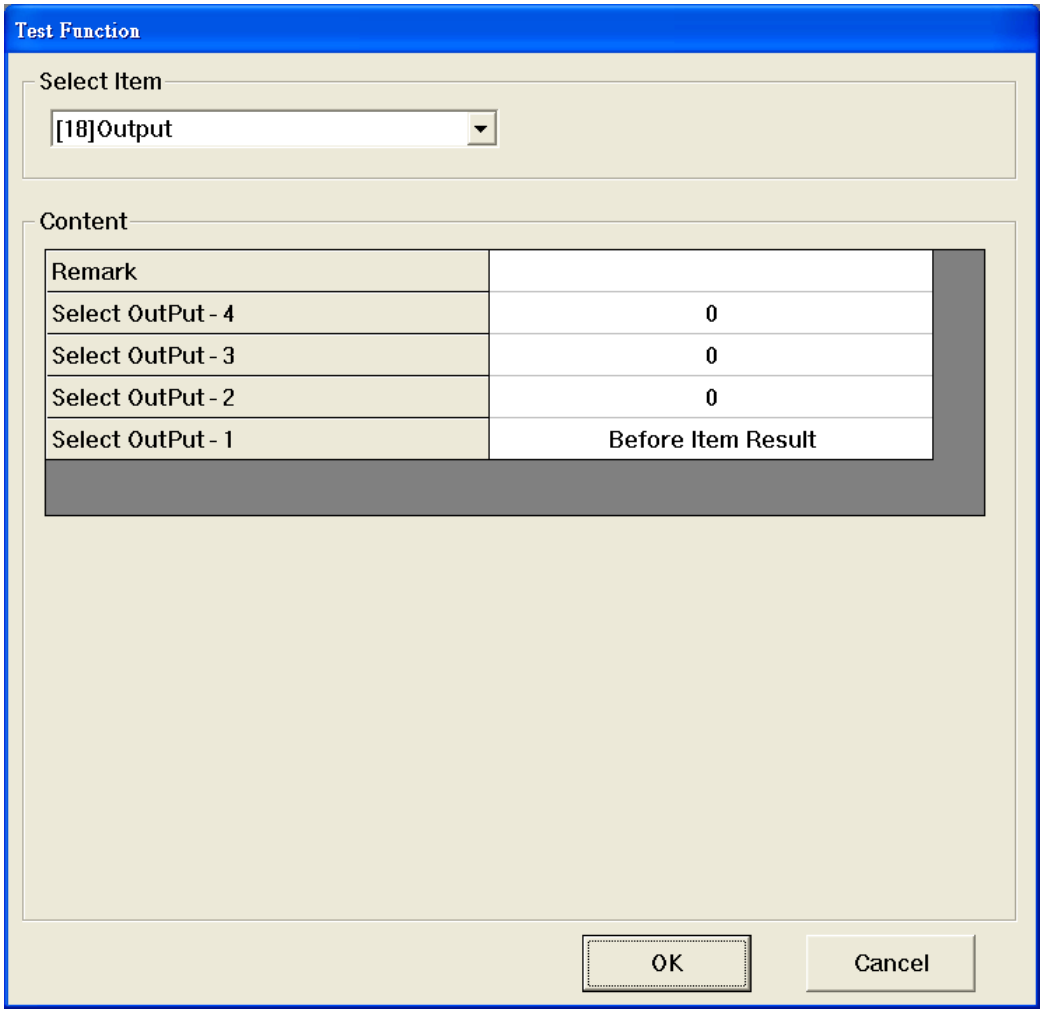
Load Current (A) : Load current selected during action PS ON operated

PS OFF



Select Item: Fast select “Item of Test” listed in the table

Output

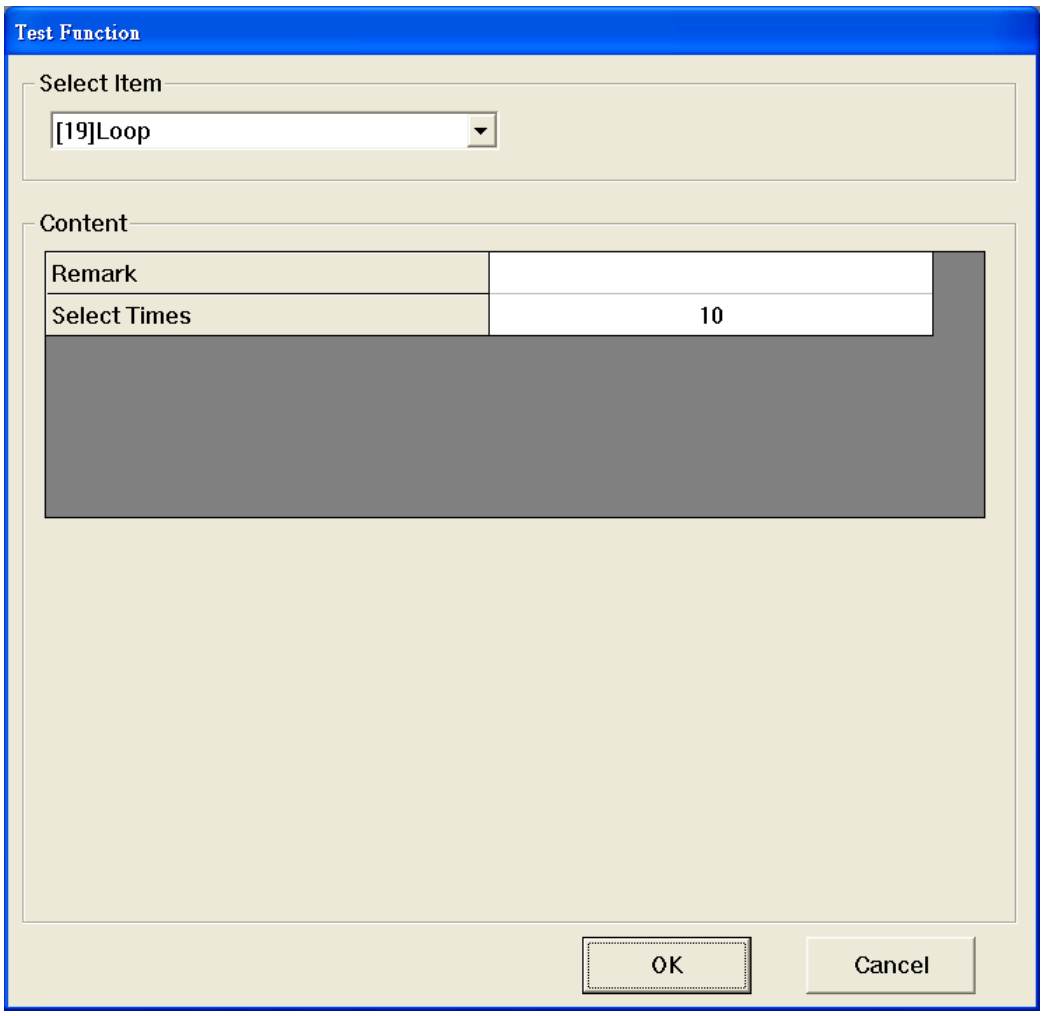


Select Item: Fast select “Item of Test” listed in the table.

Specification for parameters input:

Remark	: Remarks column of test item
Select Output - 4	: Select output of Out4 at the back penal is Lo = 0 or Hi = 1.
Select Output - 3	: Select output of Out3 at the back penal is Lo = 0 or Hi = 1.
Select Output - 2	: Select output of Out2 at the back penal is Lo = 0 or Hi = 1.
Select Output - 1	: The previous test item (without action item) decides the output result is FAIL = Lo or PASS = Hi.

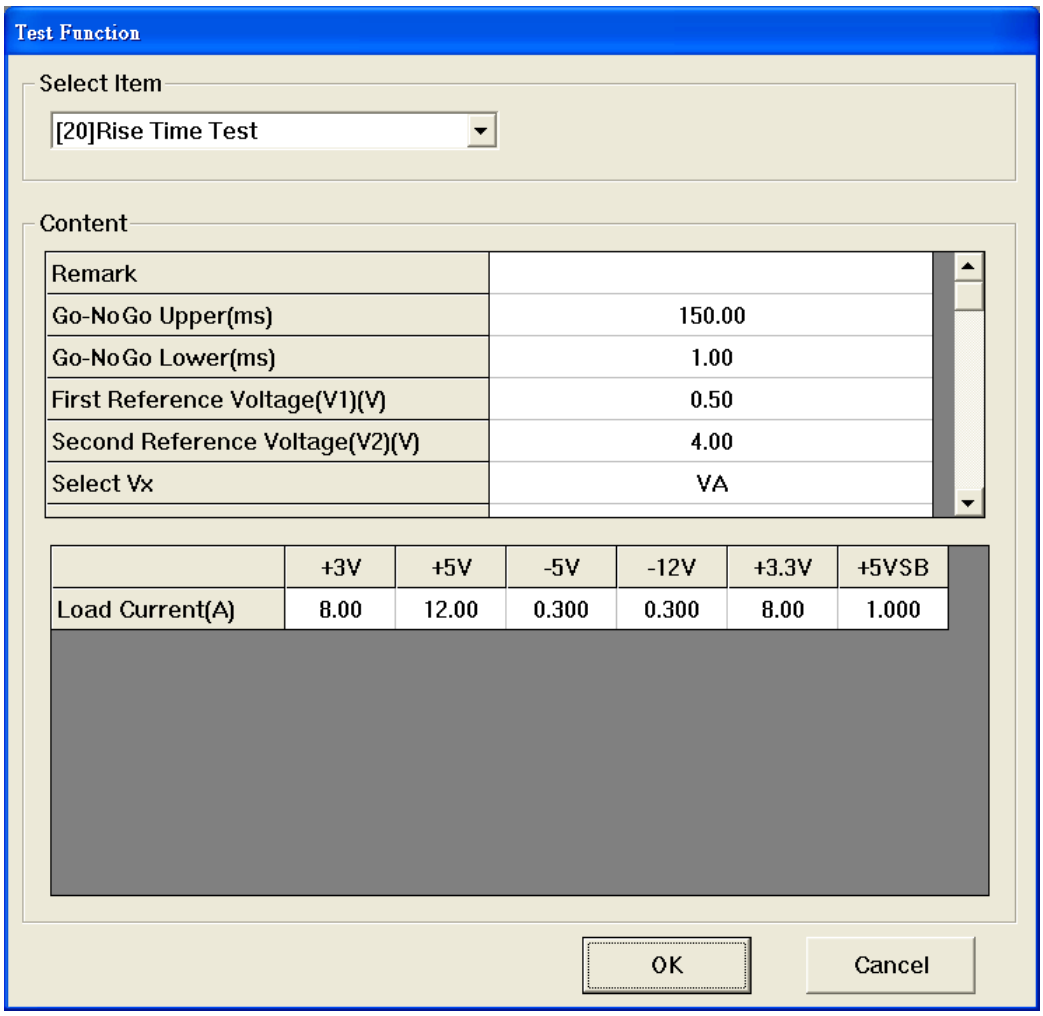
Loop



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Select Times	: Times of repeated tests

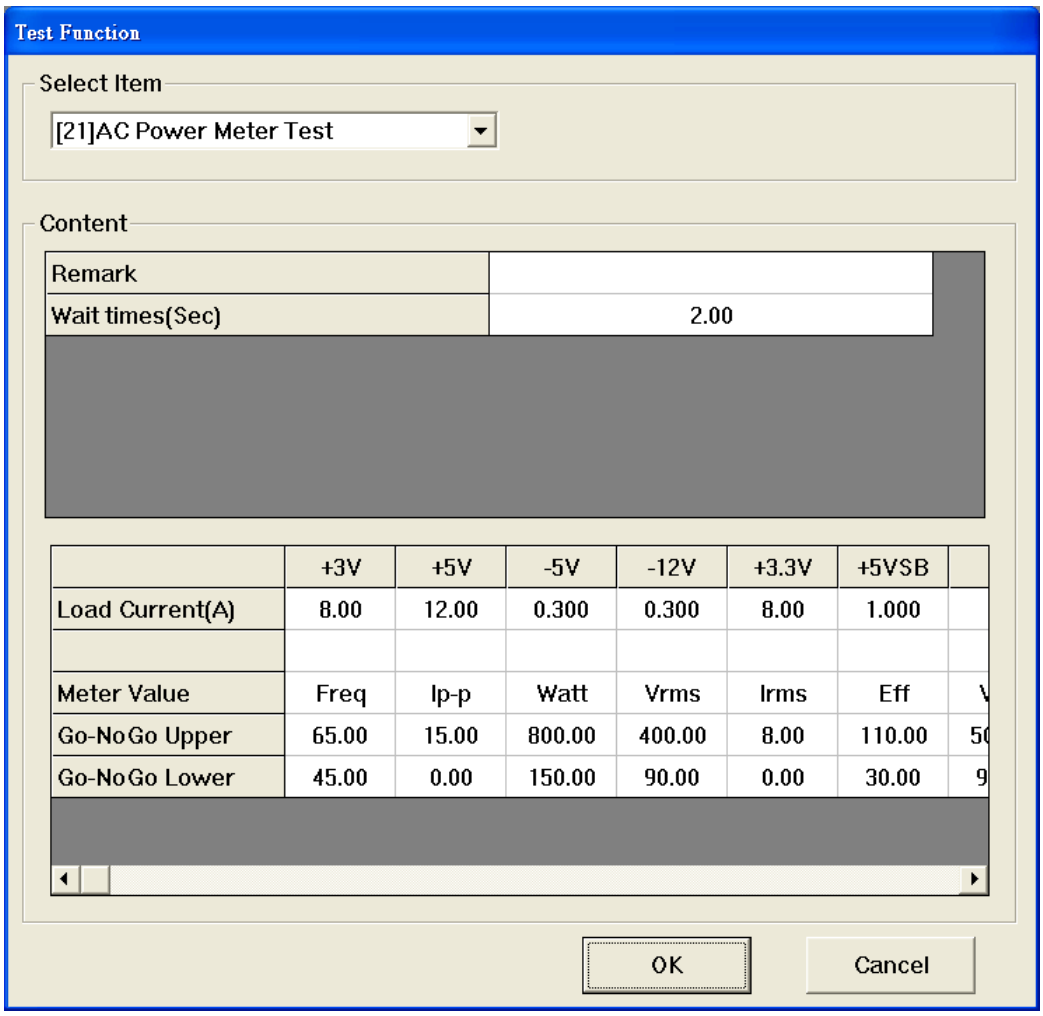
Rise Time Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remark column of test item
Go-NoGo Upper(mS)	: Maximum of Rise Time.
Go-NoGo Lower(mS)	: Minimum of Rise Time.
First Reference Voltage(V1)(V)	: Voltage comparison for the first time
Second Reference Voltage(V2)(V)	: Voltage comparison for the second time
Select Vx	: Comparison of input voltage selected between V1 and V2

AC Power Meter Test

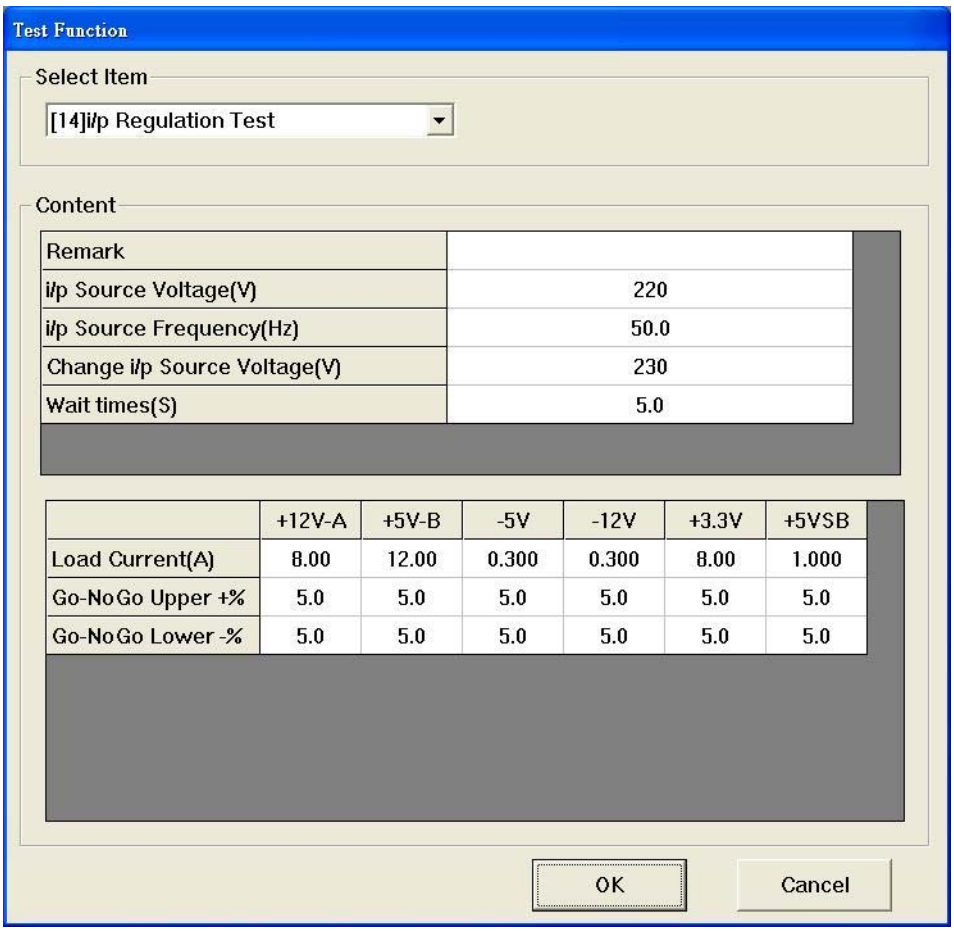


Select Item: Fast select “Item of Test” listed in the table.

Specification for parameters input:

Remark	: Remarks column of test item
Wait times(Sec)	: Waiting time
Load Current(A)	: Load current selected during the test operated
Meter Value	: Names of power meter for each parameters. No revision
Go-NoGo Upper	: Maximum of AC Power Meter.
Go-NoGo Lower	: Minimum of AC Power Meter.

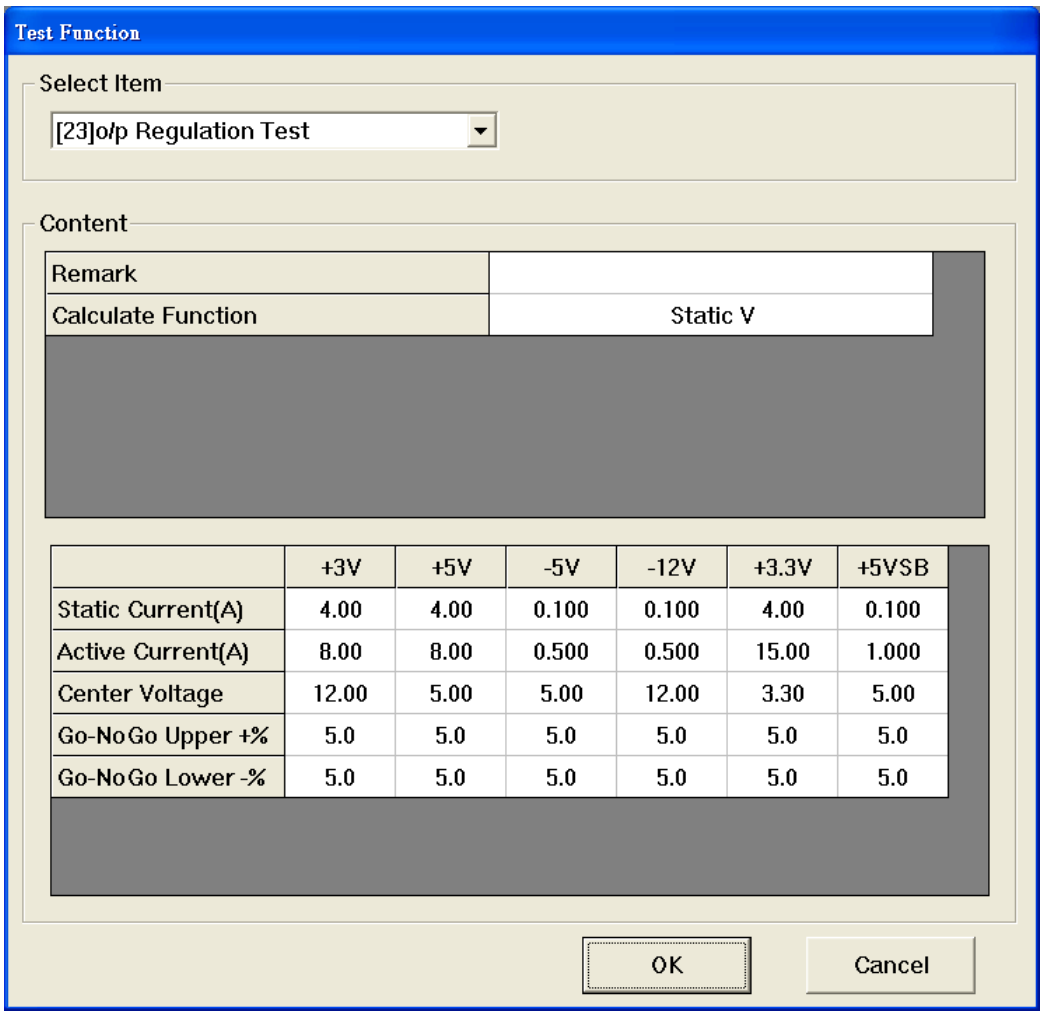
i/p Regulation Test



Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
i/p Source Voltage(V)	: Voltage of S.P.S. during the test operated
i/p Source Frequency(Hz)	: Frequency of S.P.S. during the test operated
Change i/p Source Voltage(V)	: Change power supply voltage of AC input testing materiel.
Wait times(S)	: Waiting time
Load Current(A)	: Load current in actual test.
Go-NoGo Upper +%	: Output voltage maximum of S.P.S. for percentage of increment
Go-NoGo Lower -%	: Output voltage minimum of S.P.S. for percentage of decrement

o/p Regulation Test

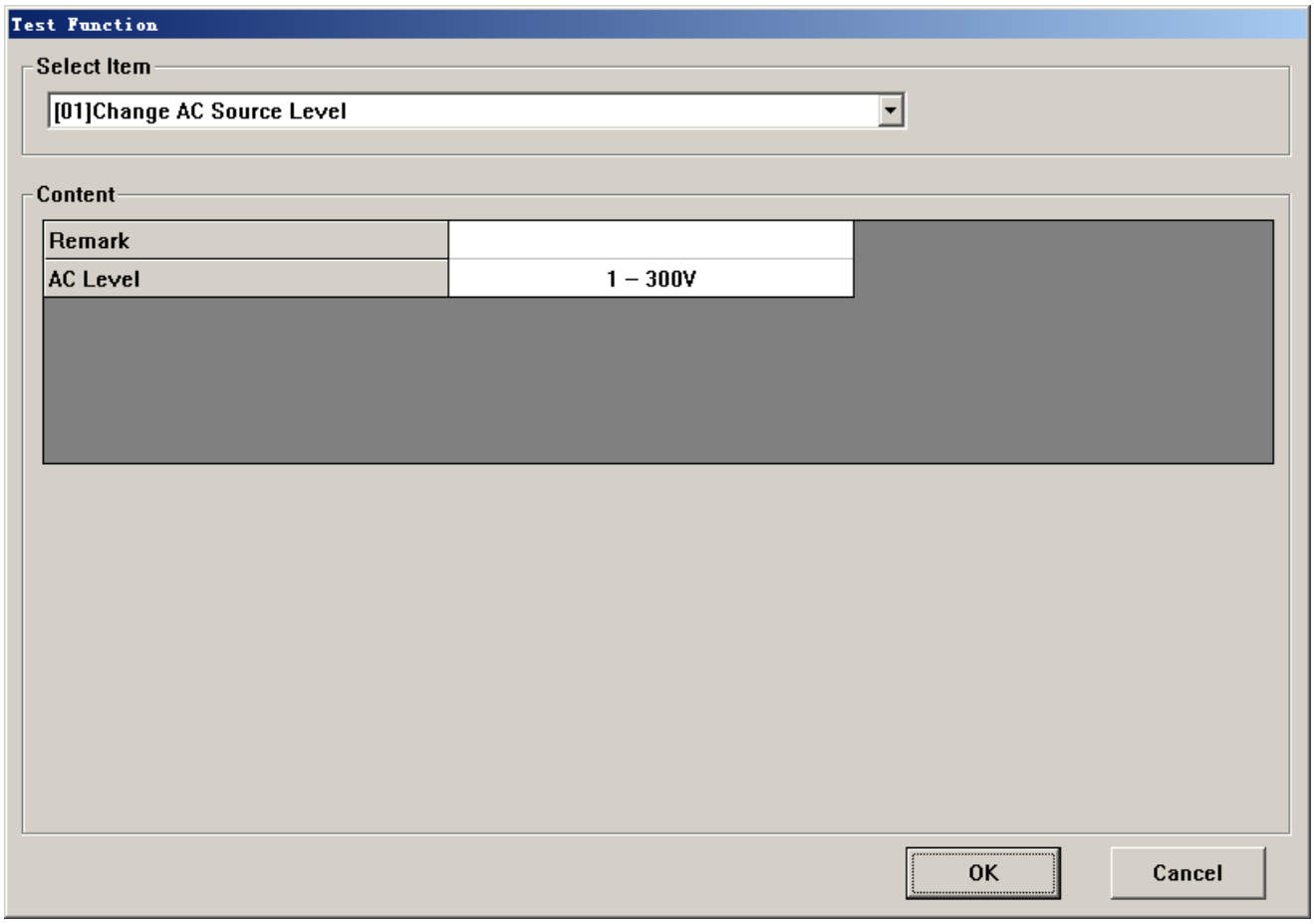


Select Item: Fast select “Item of Test” listed in the table.

Specification for parameters input:

Remark	: Remarks column of test item
Calculate Function	: Select “Static V” or “Center Voltage” to compare with each output voltage read during load change.
Static Current(A)	: Static load current during the test operated
Active Current(A)	: Dynamic load current selected during the test operated
Center Voltage	: Center voltage of S.P.S. output voltage for each group
Go-NoGo Upper +%	: Output voltage maximum of S.P.S. for percentage of increment
Go-NoGo Lower -%	: Output voltage minimum of S.P.S. for percentage of decrement

Change AC Source Level

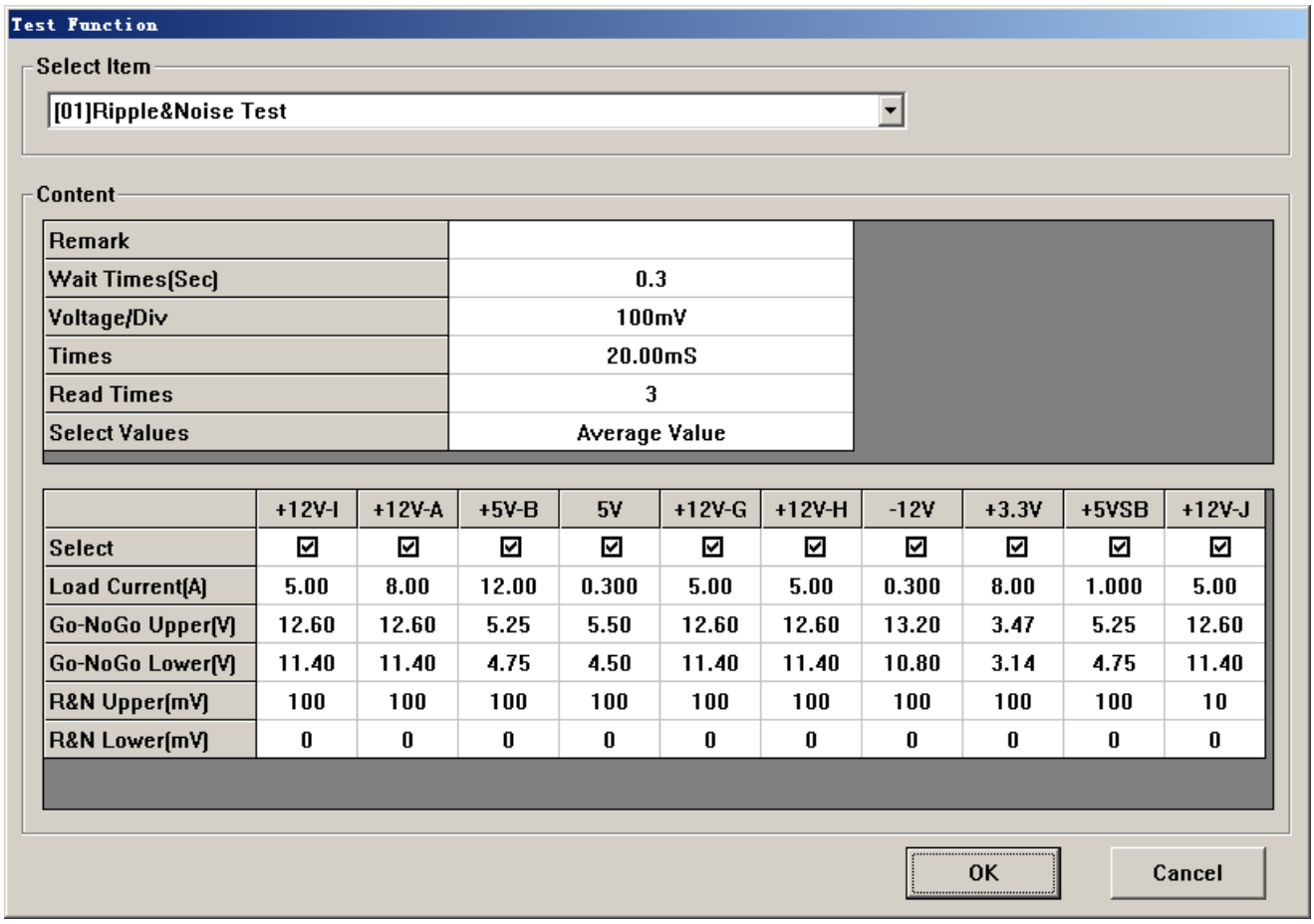


Select Item: Fast select “Item of Test” listed in the table.

Specification for parameters input:

Remark	: Remarks column of test item
AC Level	: Voltage current range of AC source selected. Low gear: AC0~150V; High gear: AC0~300V

Ripple & Noise Test



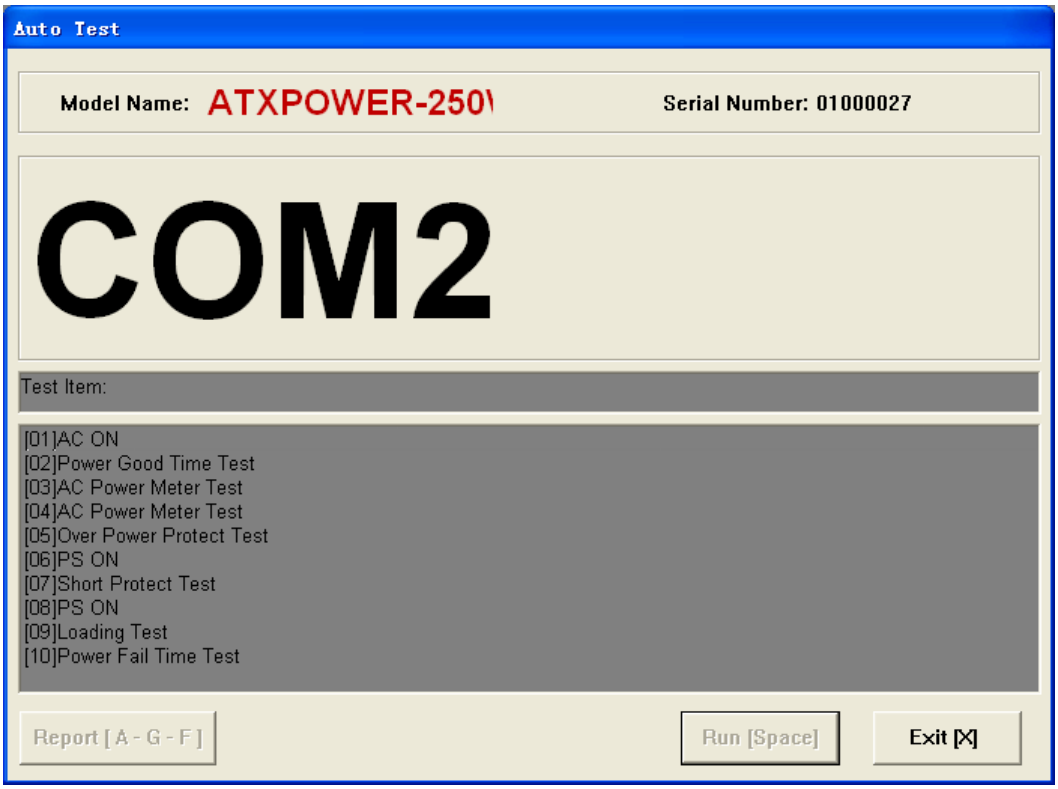
Select Item: Fast select “Item of Test” listed in the table.
Specification for parameters input:

Remark	: Remarks column of test item
Wait Times(Sec)	: Times read after staying for a period of time
Voltage/ Div	: Vertical voltage scale set for each channel of oscillograph
Times	: Horizontal scan time scale set for each channel oscillgraph
Read Times	: Read times
Select Value	: The way selected as result value
Max Value	: Maximum value selected after times read
Average Value	: Average value selected after times read
Min Value	: Minimum value selected after times read
Select	: Group selected for test
Load Current(A)	: Load current setting
Go-NoGo Upper(V)	: Output current maximum of S.P.S. every group
Go-NoGo Lower(V)	: Output current minimum of S.P.S. every group
R&N Upper(mV)	: Maximum judgment of ripple set
R&N Lower(mV)	: Minimum judgment of ripple set

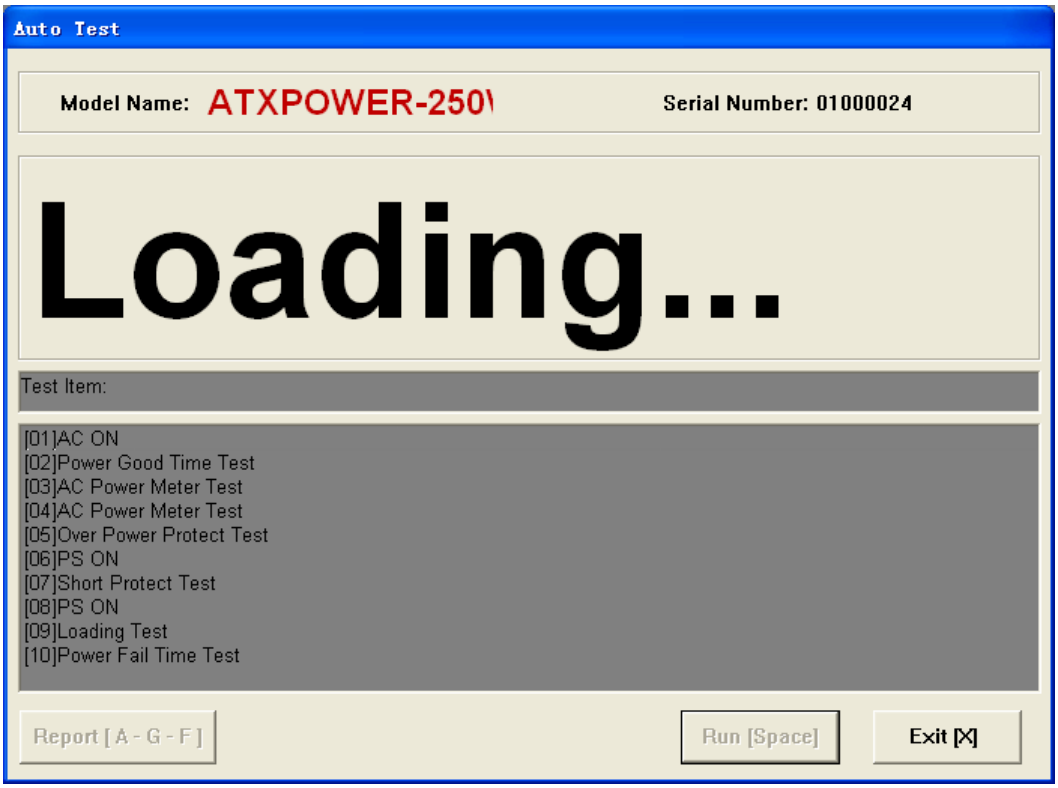
5 Test function table

5-1 SM-8800 ATE equipment to PC connection and test

When action detective [Test] is operated, the picture [Connecting] and [COM2] below turns up. The system is connecting with the host SM-8800 ATE. (It can search all COM ports on the computer automatically.) The test parameters of test programs been using will be transmitted to the host SM-8800 ATE. Please wait for a while.

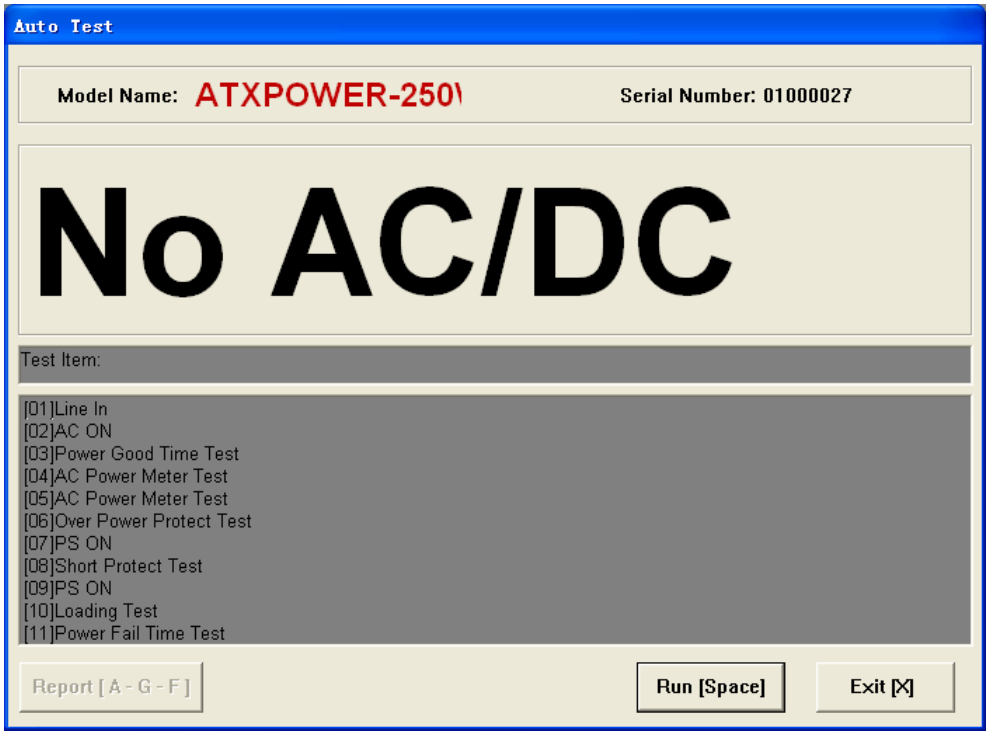


If the connection with the host succeeds, the picture [Loading] below turns up. The system starts downloading information into the host SM-8800

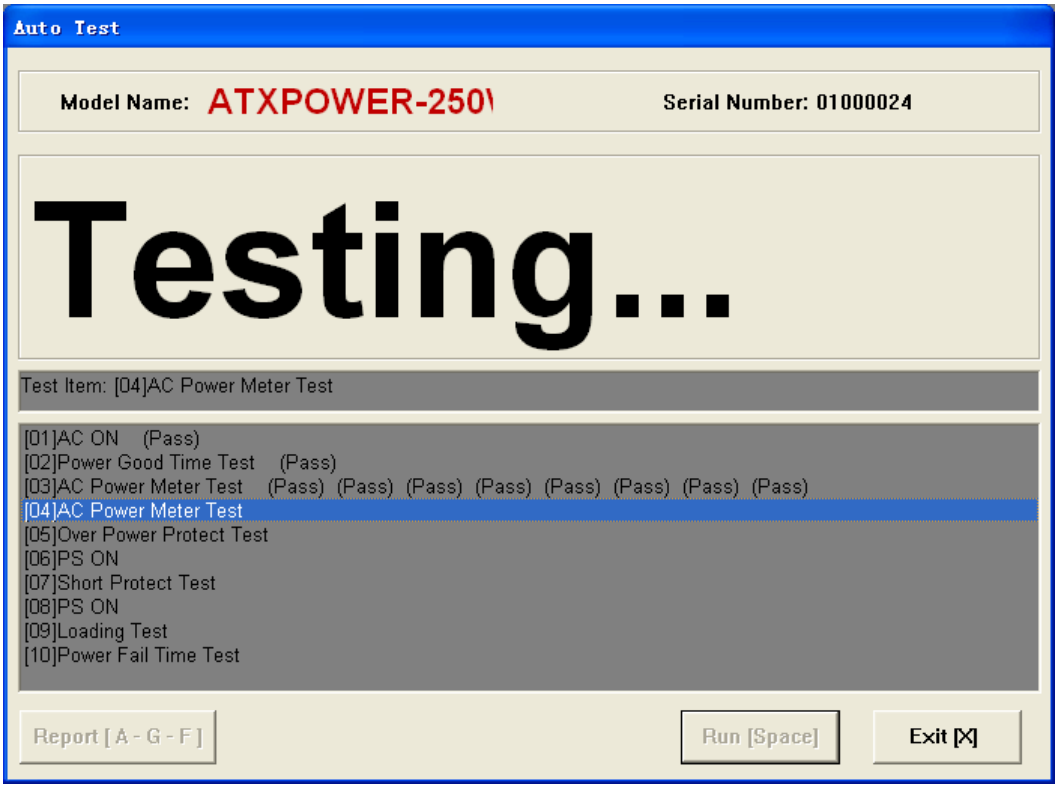


If the connection with the host fails, the picture [No Device] below turns up. Pleas make sure the connective wire is connected firmly or not. If there is still some problem, please solve it and try it again.

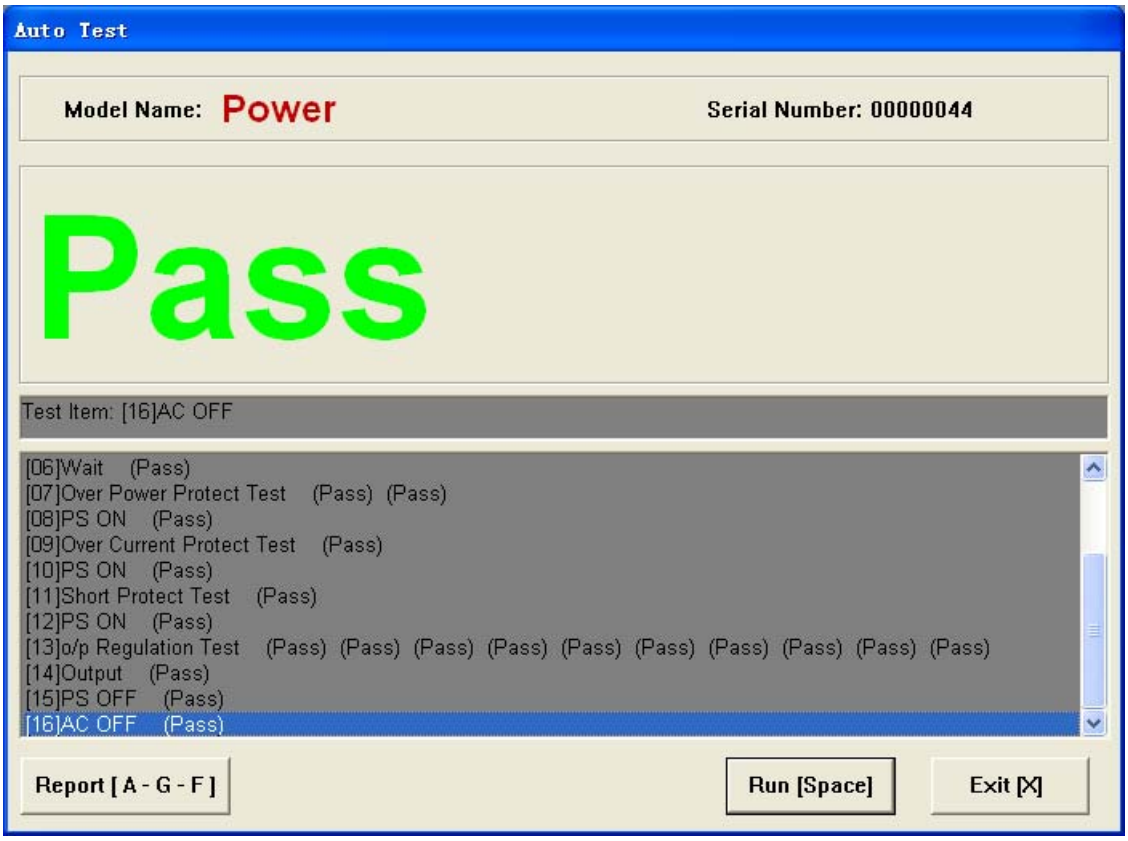
If the set of ☐ AC/DC Source in the window Pick Status is ticked but the system can not detect AC source or DC source, the picture [No AC/DC] will turn up. If there is still some problem, please solve it and try it again.

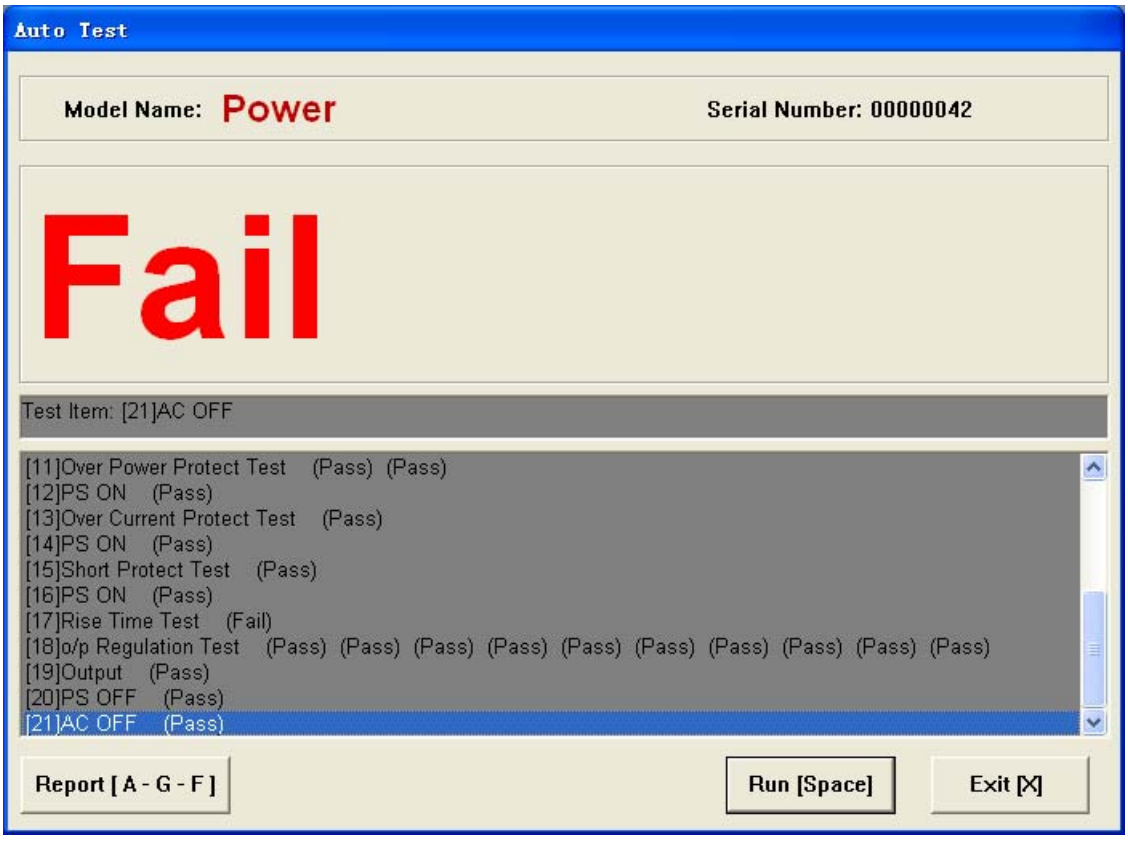


When the connection succeeds, the test starts and the picture [Testing…] below turns up. This picture will retain till every test item is completed testing.



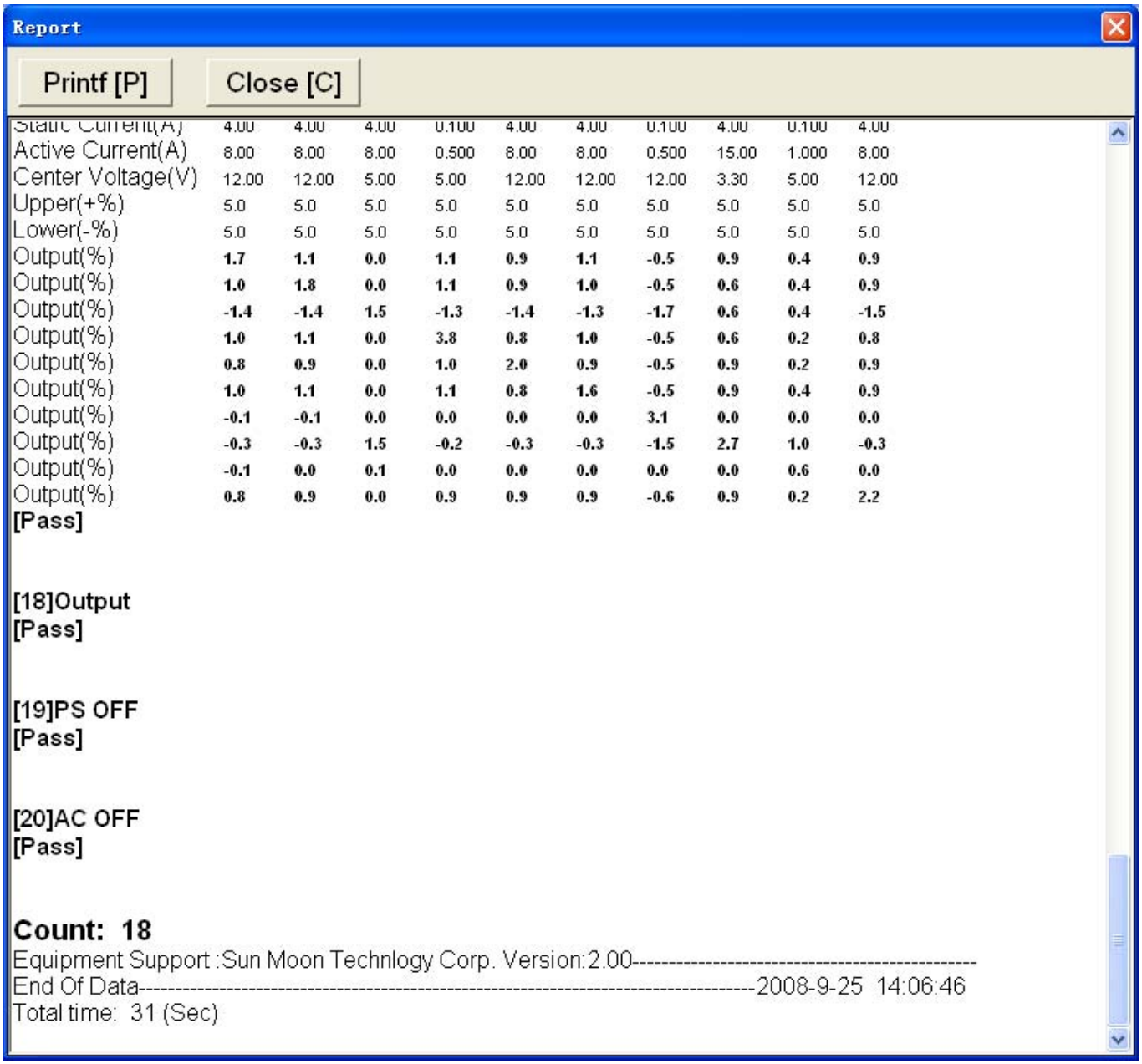
After every test item in the test program is completed testing, the picture [Pass] or [Fail] below turns up. If it is ready to continue next Power, please press the button [Run] or keyboard [Space]. (You can also press the button [ON] on the host SM-8800 ATE.)



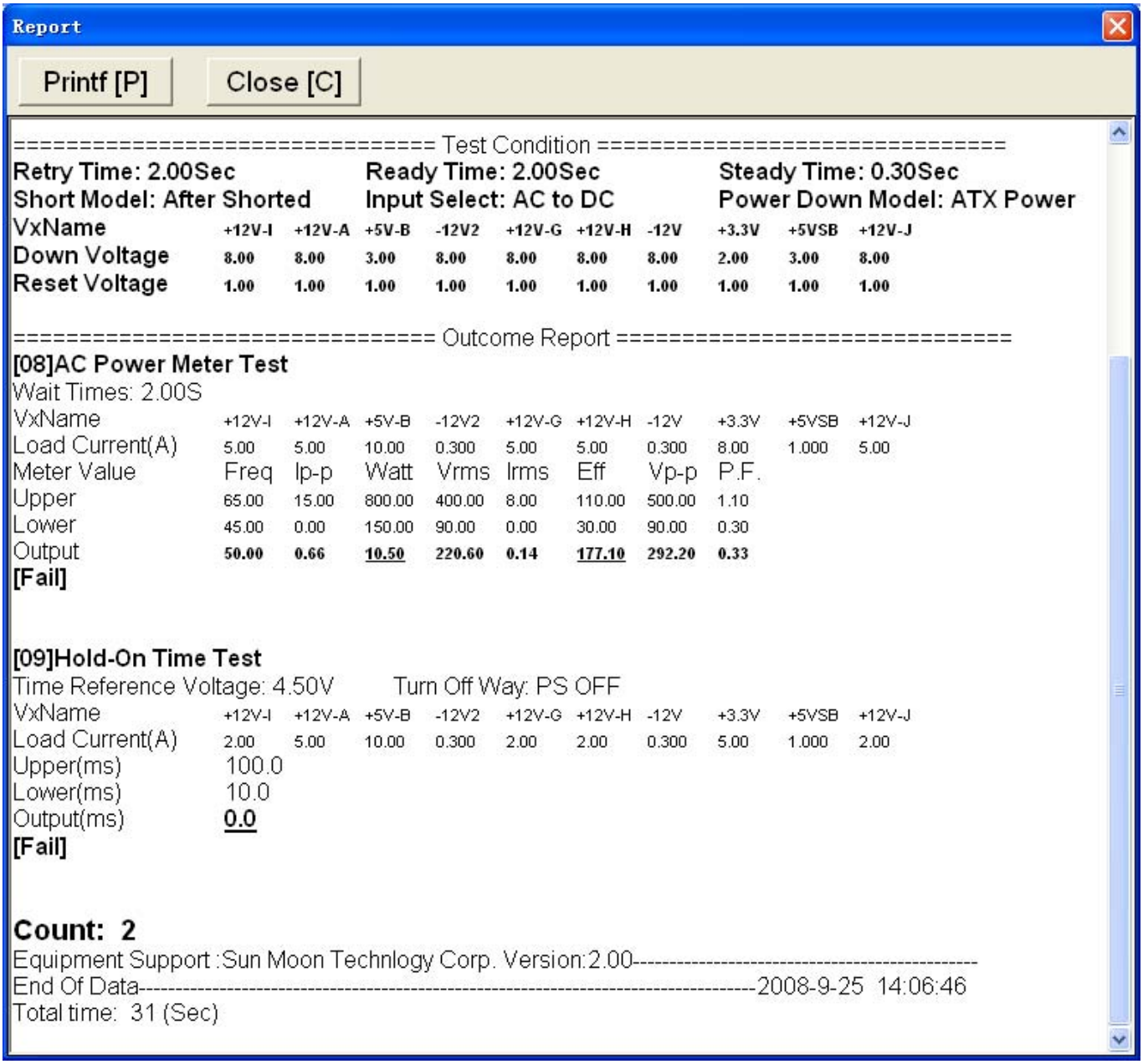


5-2 Review the last test result

The test is completed. If you press the keyboard [G], the picture below will turn up. All items of this test are showed. The amount of items is showed at the bottom of the window. Please refer to “Count: 18” below.



If you press keyboard [F], the picture below will turn up. All “Fail” items in this test are showed. The amount of “Fail” items is showed at the bottom of the window. Please refer to “Count: 2.”



Report

Printf [P] Close [C]

========== Test Condition ==========

Retry Time: 2.00Sec **Ready Time: 2.00Sec** **Steady Time: 0.30Sec**

Short Model: After Shorted **Input Select: AC to DC** **Power Down Model: ATX Power**

VxName	+12V-I	+12V-A	+5V-B	-12V2	+12V-G	+12V-H	-12V	+3.3V	+5VSB	+12V-J
Down Voltage	**8.00**	**8.00**	**3.00**	**8.00**	**8.00**	**8.00**	**8.00**	**2.00**	**3.00**	**8.00**
Reset Voltage	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

========== Outcome Report ==========

[08]AC Power Meter Test

Wait Times: 2.00S

VxName	+12V-I	+12V-A	+5V-B	-12V2	+12V-G	+12V-H	-12V	+3.3V	+5VSB	+12V-J
Load Current(A)	5.00	5.00	10.00	0.300	5.00	5.00	0.300	8.00	1.000	5.00

Meter Value	Freq	Ip-p	Watt	Vrms	Irms	Eff	Vp-p	P.F.
Upper	65.00	15.00	800.00	400.00	8.00	110.00	500.00	1.10
Lower	45.00	0.00	150.00	90.00	0.00	30.00	90.00	0.30
Output	**50.00**	**0.66**	**10.50**	**220.60**	**0.14**	**177.10**	**292.20**	**0.33**

[Fail]

[09]Hold-On Time Test

Time Reference Voltage: 4.50V Turn Off Way: PS OFF

VxName	+12V-I	+12V-A	+5V-B	-12V2	+12V-G	+12V-H	-12V	+3.3V	+5VSB	+12V-J
Load Current(A)	2.00	5.00	10.00	0.300	2.00	2.00	0.300	5.00	1.000	2.00

Upper(ms)	100.0
Lower(ms)	10.0
Output(ms)	**0.0**

[Fail]

Count: 2

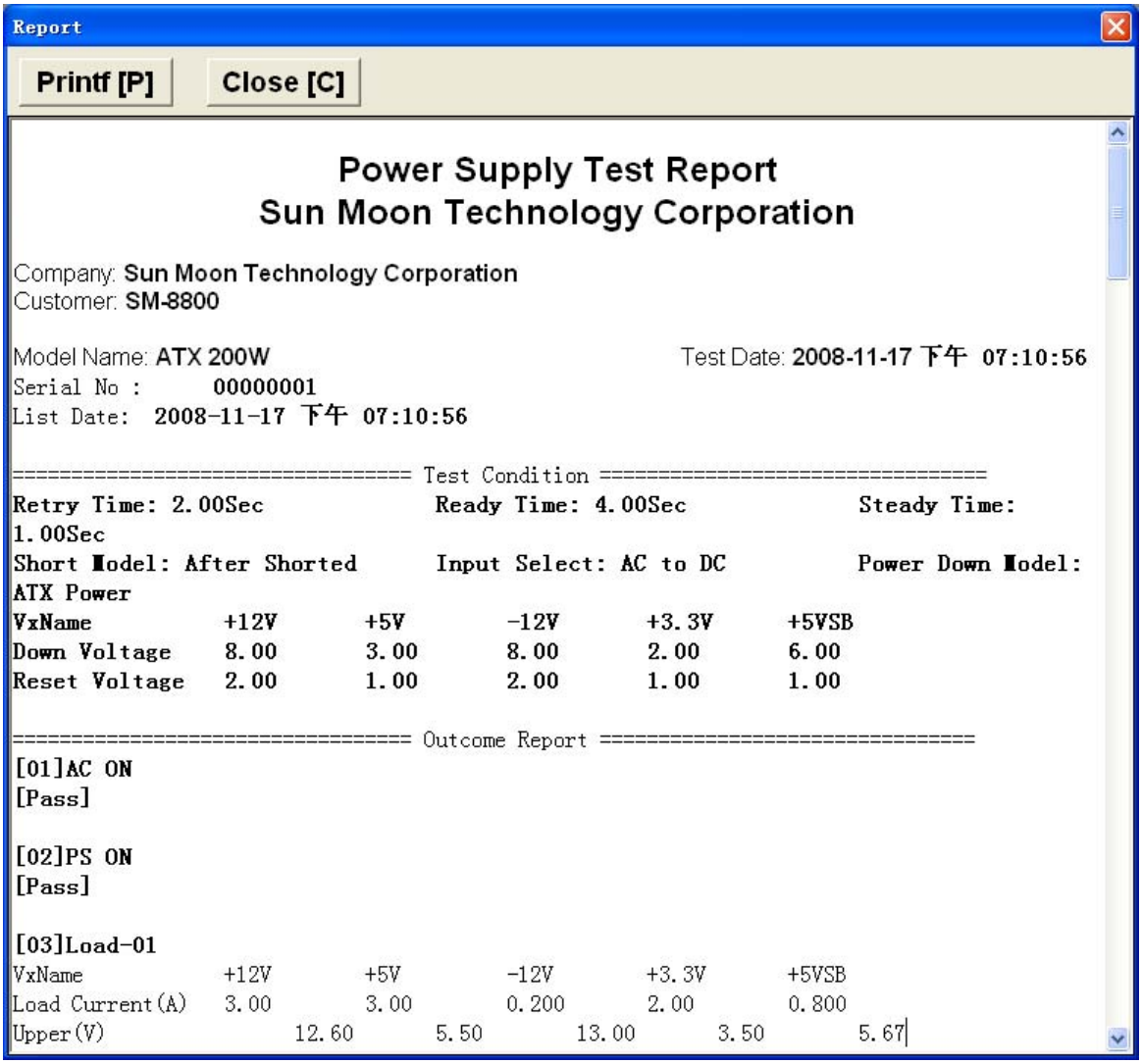
Equipment Support :Sun Moon Technlogy Corp. Version:2.00----------

End Of Data----------2008-9-25 14:06:46

Total time: 31 (Sec)

If press button [Report [A-G-F]], you can read the complete result of the latest test. According to the setting of Print Format in the window Pick Status， there are Simple and Detail reports. Press button [Print] to print out the report or press button [Close] to quit this window back to the test condition. The system continues to test next Power.

Former part of detail Report



The information in the report is a detailed test result of power supply. The content is below:

Company: Name of company

Customer: Name of customer

Test Date: Test date and time

List Date: Printing date and time

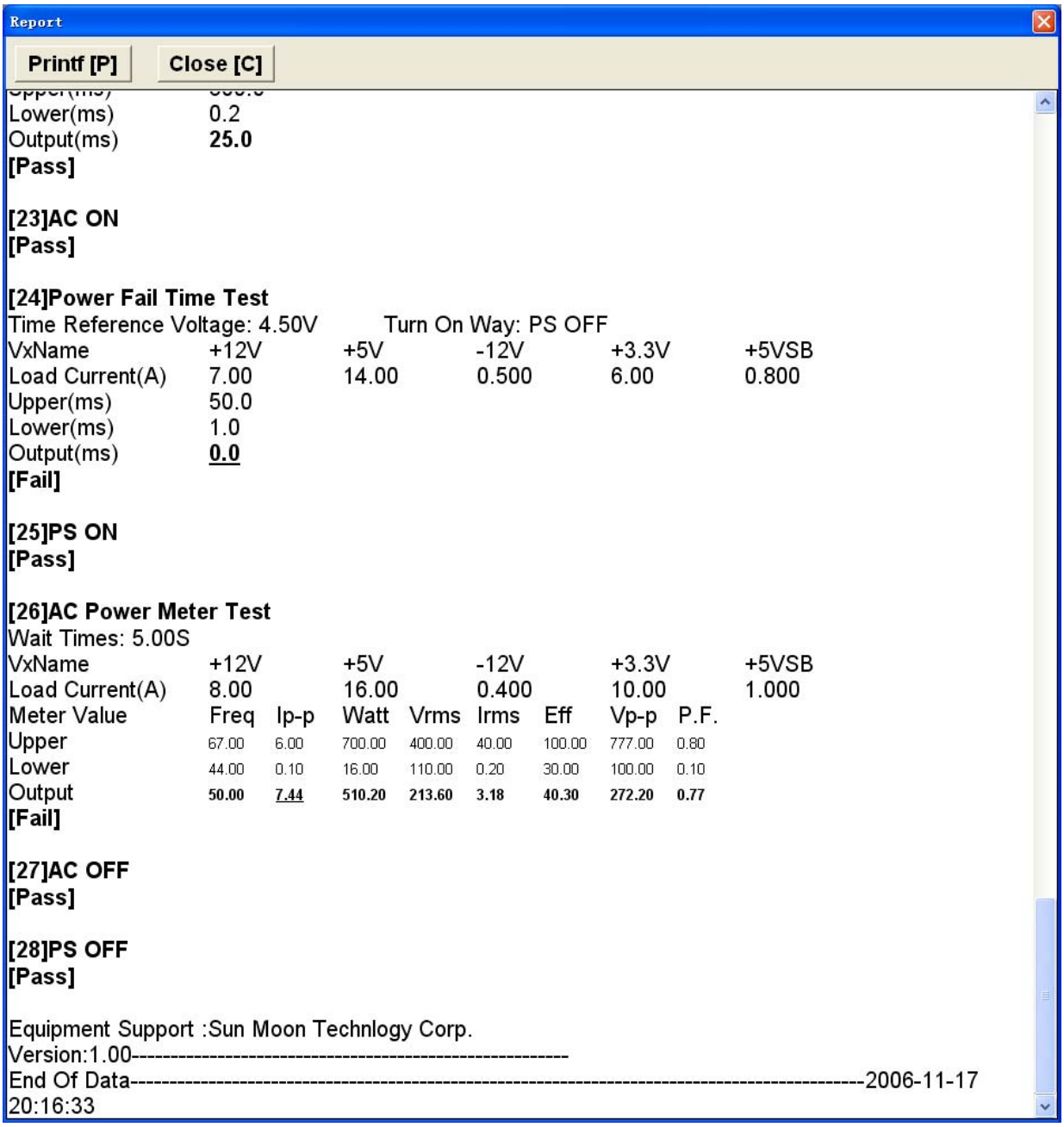
Serial No: Serial of Power

Test Condition: Test condition and shared parameters

Outcome Report: Test result

Model No.: Model number

The later part of detail report



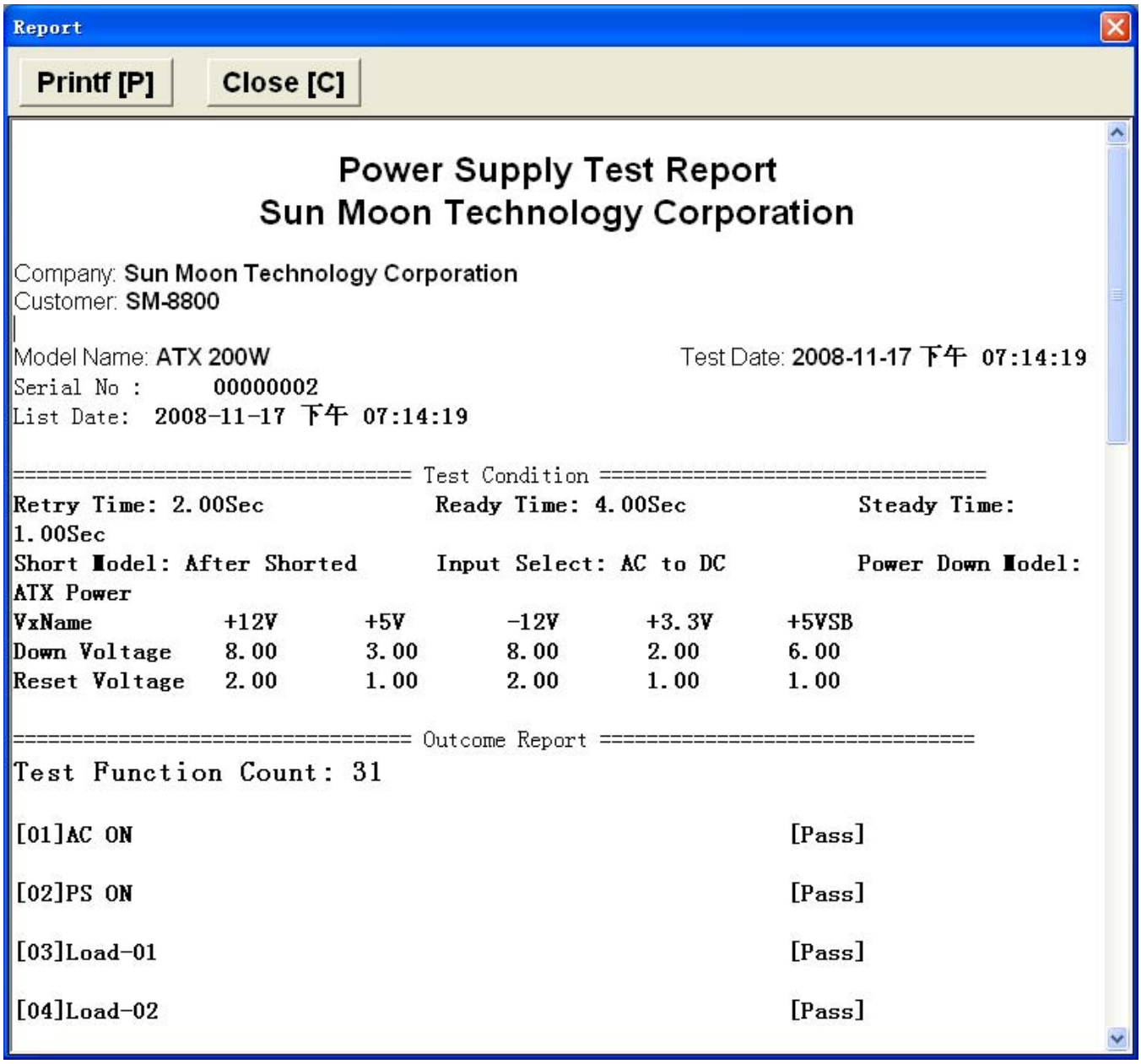
The information in the report is a detailed test result of power supply. The content is below:

Equipment Support: Equipment and manufacturer

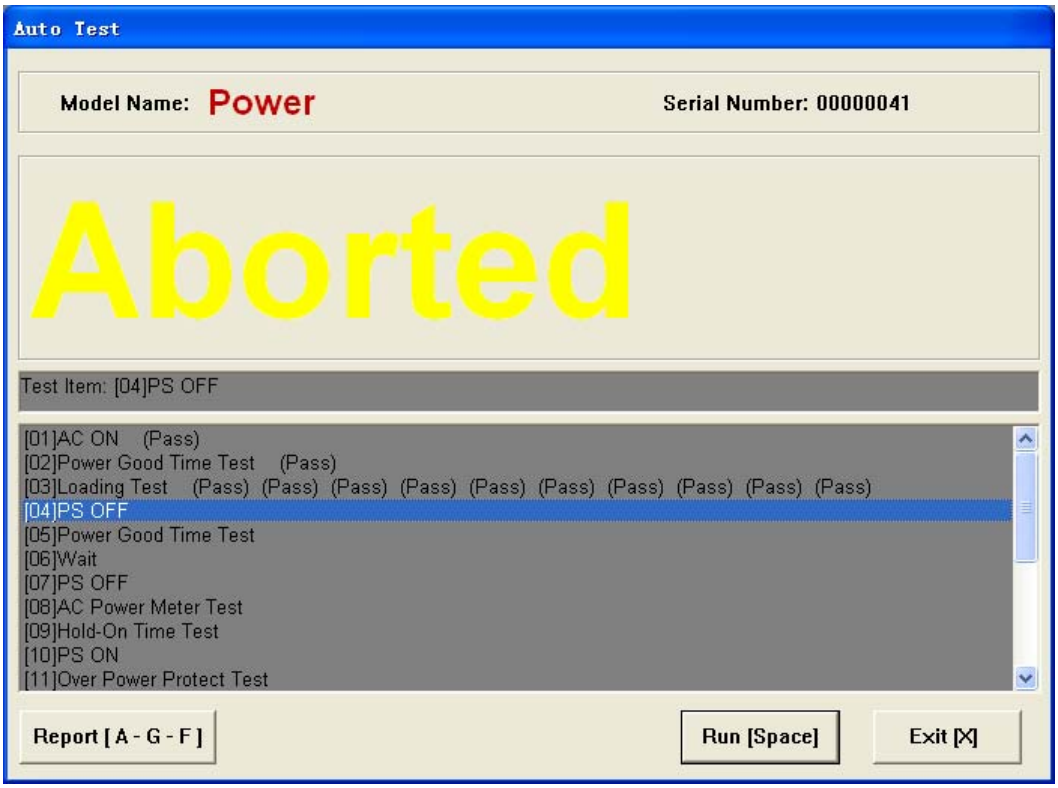
Version: Version

End of Data: Date and time of the report finished printing

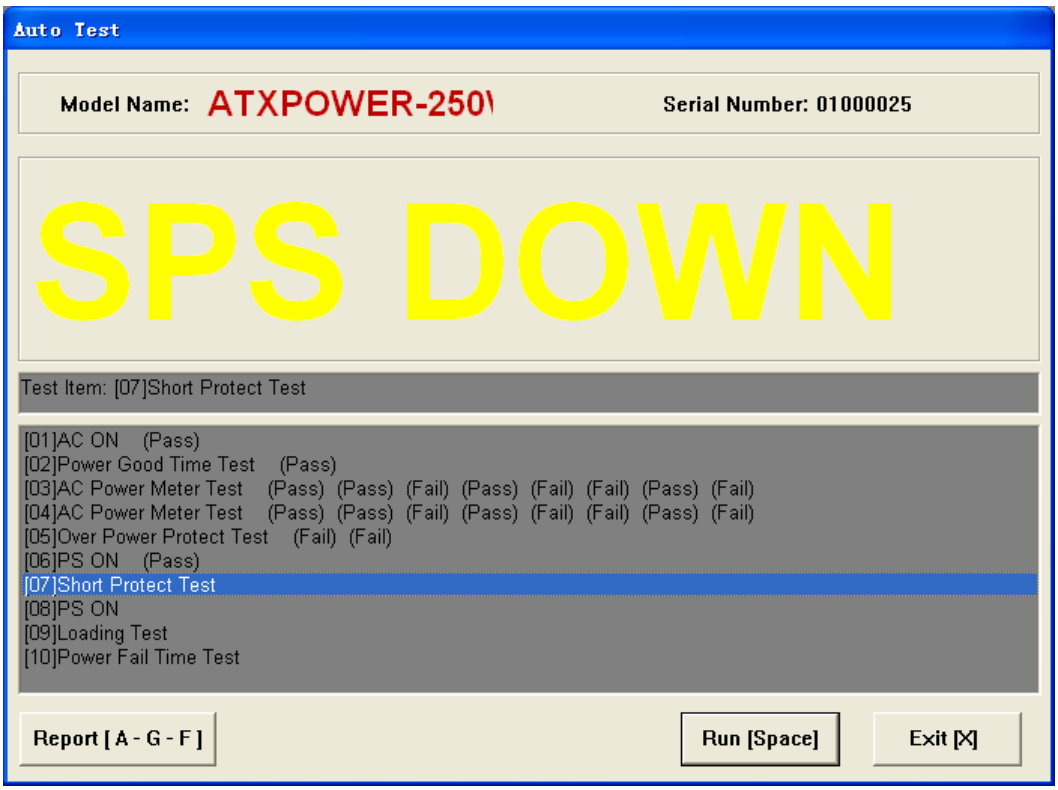
Simple report:



If you press keyboard [Esc] during the test, the picture below will turn up and the test will be stopped. If you press the button [Exit], the test will be stopped and you will quit the window.



If the condition unable to boot during the test occurs, the picture below will turn up.

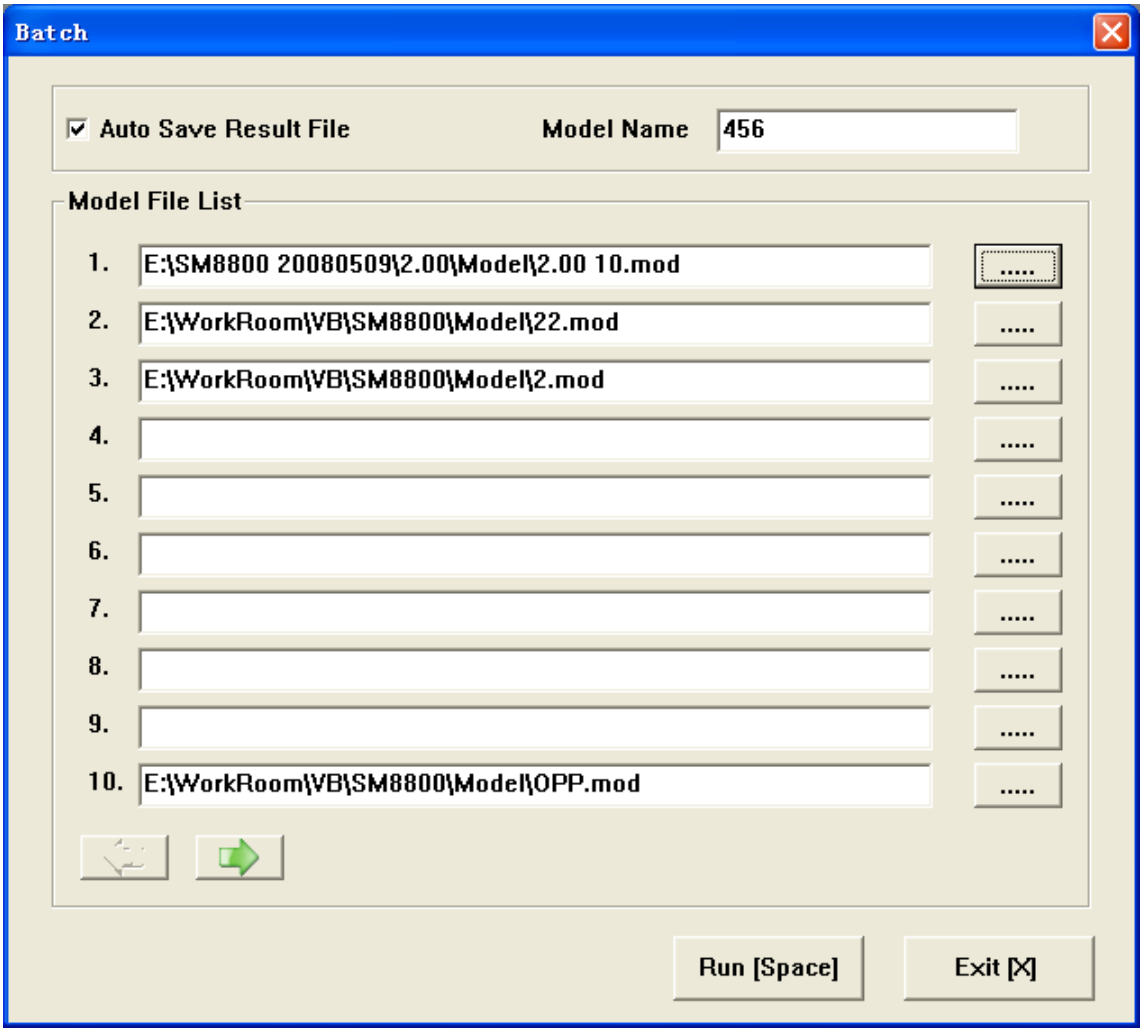


Pleas press button [Run] to try again or continue to test next power.

6 Batch Menu instruction

6-1 Automatic test function of batch

When the directive [Batch] is operated in the main window, the window below turns up.



The function of Batch can automatically load into different ".mod" file according to the order arranged by group Model File List and then tests them. It is useful for the department of research and development to conduct experiment

If you tick ˇ in ☐ Auto Save Result File， a new file named as "Model Name" can be created in the report file and the test report can be saved in it. If you don't tick ˇ in ☐ Auto Save Result File, the test report can not be saved. In the group Model File List, Each line can be set loading one file. The maximum is 50 lines. Press button "  ", "  " to move to last page or next page.

Press button [Run [Space]] to load into ".mod" file of the first line and the test starts. Test report is saved after the test is completed. The system continues loading into ".mod" file of the second line and the starts the test. Test report is saved after the test is completed. The test ends till one blank line appears.

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