

ASPT-5300

ATC Cabinet Switch Pack Tester (HV) for Model 2202-HV (High Voltage Unit)



User's Manual
Revision 1

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1. Explanation of Symbols, Terms, and Abbreviations

Graphical Symbols

The following symbols are used on the ASPT-5300 enclosure and in this manual. Anytime one of these symbols is encountered the user should be aware of the condition described here next to each symbol.



Caution. Risk of danger.



Caution. Risk of electric shock.

Terms and Abbreviations

The following terms and abbreviations may be used throughout this manual and on the test reports.

| <u>Term or Abbreviation</u> | <u>Definition</u> |
|-----------------------------|--|
| AASHTO | American Association of State Highway and Transportation Officials |
| ATC | Advanced Transportation Controller. |
| ATCC | Advanced Transportation Controller Cabinet |
| ATSI | Athens Technical Specialists, Inc. |
| CMU | Cabinet Monitor Unit |
| computer | Desktop or laptop computer running Windows 7 or later |
| frame | A digital message containing multiple bytes of data sent from or to the CMU. |
| HDSP/FU | High Density Switch Pack / Flasher Unit |
| ITE | Institute of Transportation Engineers |
| mA | milliamperes (thousandths of an amp) |
| ms | milliseconds (thousandths of a second) |
| NEMA | National Electrical Manufacturers Association |
| SB#1 | Serial Bus #1. The communication path between the ATC and the CMU |
| SB#3 | Serial Bus #3. The communication path between the CMU and the HDSPs. |
| software | ASPT-5300 Test Manager Software. |
| tester | The ATSI ASPT-5300 ATC Cabinet Switch Pack Tester |
| VDC | Volts DC |
| Vrms | Volts RMS (root-mean-squared) |

2. Safety Information



IMPORTANT SAFETY INFORMATION!
READ BEFORE ATTEMPTING TO USE THE ASPT-5300!

The ASPT-5300 (Tester) should only be used by qualified and authorized traffic signal technicians or engineers who are familiar with generally accepted electrical safety practices as well as local and national safety codes. To avoid possible electric shock, burns, or fire, read all information contained in this manual before attempting to use the tester.

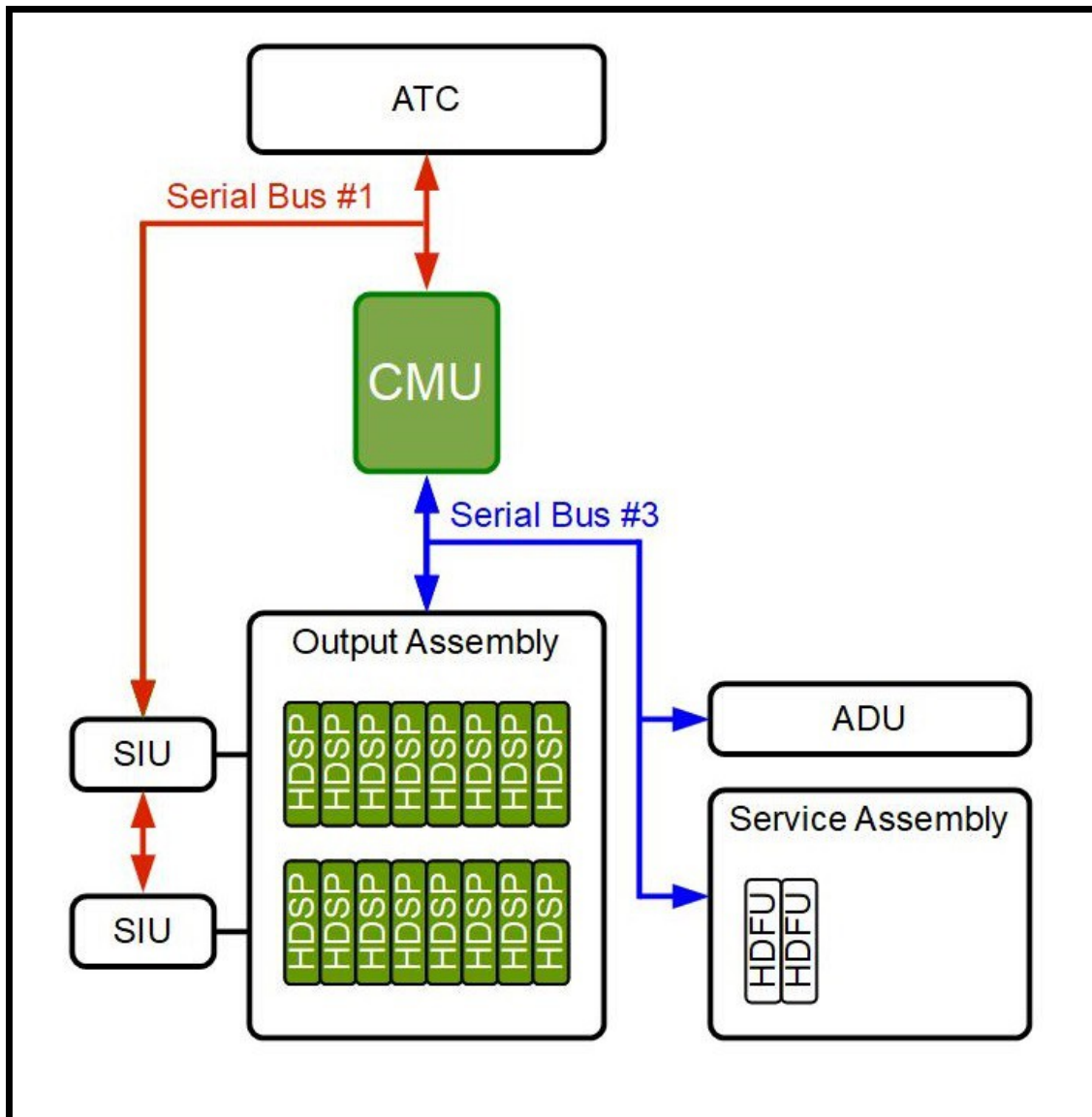
- Do not use the Tester around explosive gas, vapor, or dust.
- Do not use the Tester in a wet environment.
- Do not attempt to open any part of the Tester enclosure.
- Do not put hands or place any object other than a CMU into the slot on the front of the tester.
- Only test HDSP/FU devices that are designed in accordance with ATC Cabinet Standards.
- Only use the power cord provided with the Tester.
- The Tester should only be powered from 120V AC.



READ THE USER'S MANUAL BEFORE ATTEMPTING TO USE THE ASPT-5300!

3. Overview

The HDSP/FU (HDSP) plays a critical role in the in the ATC Cabinet monitoring system. The HDSP drives the field signal head outputs and collects load voltage and current data for each output. This data is reported to the CMU via Serial Bus #3. The CMU can communicate with a maximum of 16 HDSP units. The CMU will poll each HDSP for its voltage and current readings many times per second. Based off of the data reported by each HDSP, the CMU evaluates the state of the field signals for fault conditions and places the cabinet in flashing operation if an unsafe condition is detected.



In previous generations of traffic signal control cabinets (i.e. TS1, TS2, Caltrans) the conflict monitor measured the field signal voltages and used the results of those measurements to make the logical decisions necessary for detecting an unsafe condition. The field signal voltages were controlled by the “load switch”. The “load switch” was essentially a “dumb” device. It was either on or off, but the verification was left to the conflict monitor. However, in the ATC Cabinet the voltage measurement function has been moved to the HDSP. Unlike the old style “load switch”, the HDSP is an active device that provides critical load voltage and current data to the CMU. **Unless the CMU receives accurate data from each HDSP it will not be able to properly detect an unsafe condition.**

The ASPT-5300 (Tester) will run a series of comprehensive tests on the HDSP/FU Model 2202-HV to verify that it is providing accurate voltage and current measurements and is functioning in compliance with the ATC standard. The ATC standard that defines HDSP operation is a joint publication of NEMA, AASHTO and ITE. The tests are subject to the limitations of what is feasible and practical in a simulated testing environment.

Note:

The ASPT-5300 tests the HDSP/FU Model 2202-HV (High Voltage) unit only.
For testing of the Model 2202-LV (Low Voltage) unit, contact ATSI for the proper tester.

The Tester connects to a computer with a USB connection. During each HDSP test, a detailed report is generated. The test report may be saved as a PDF file in terse (condensed) or verbose (detailed) format.

The Tester is housed in a standard 19" rackmount type enclosure. An optional rugged carrying case is available for ease of transport when testing at the intersection.

Note:

The CMU and the HDSP both perform critical roles in the ATC Cabinet monitoring system. Unless the CMU receives accurate voltage and current data from each HDSP, it will not be able to properly detect an unsafe condition. Therefore, it is essential for a testing program to include both devices. For testing the CMU, ATSI manufactures the ACMT-5000.

4. Test Manager Software Installation

Before using the Tester, the ASPT-5300 Test Manager software must be installed on the computer that will be connected to the Tester. The computer requirements are as follows:

- Windows 7 (minimum)
- At least one available USB port. The ATSI USB driver must be installed
- A PDF file reader must be installed. Many free PDF readers can be downloaded from the web.

The Tester comes with a software CD which can be used to install the software. If the CD is not available, the software can be downloaded from the Internet. To download the software visit our website: www.atsi-tester.com. Installation of the software may require administrative access to the computer.

To install the software from a CD insert it into the CD drive of the PC. A start-up screen should open automatically. In the start-up screen click the "ASPT-5300" button, then follow the instructions in the software installation wizard.

To install the software that was downloaded from our website double-click the downloaded executable file to run the installation. Follow the instructions in the software installation wizard.

Note: Do not forget to install the ATSI USB driver for ASPT-5300.

To communicate with the Tester an *ATSI USB driver* needs to be installed. The same driver is used with several ATSI products and is included on the software installation CD. The latest version of the driver can also be downloaded from our website: www.atsi-tester.com. The driver installation package is also copied to the computer during the software installation.

To install the USB driver, insert the software installation CD that came with your ASPT-5300. Click on the "ATSI USB Device Driver" button and follow the instructions to install the driver. If you do not have the software installation CD, the USB driver may be downloaded from www.atsi-tester.com

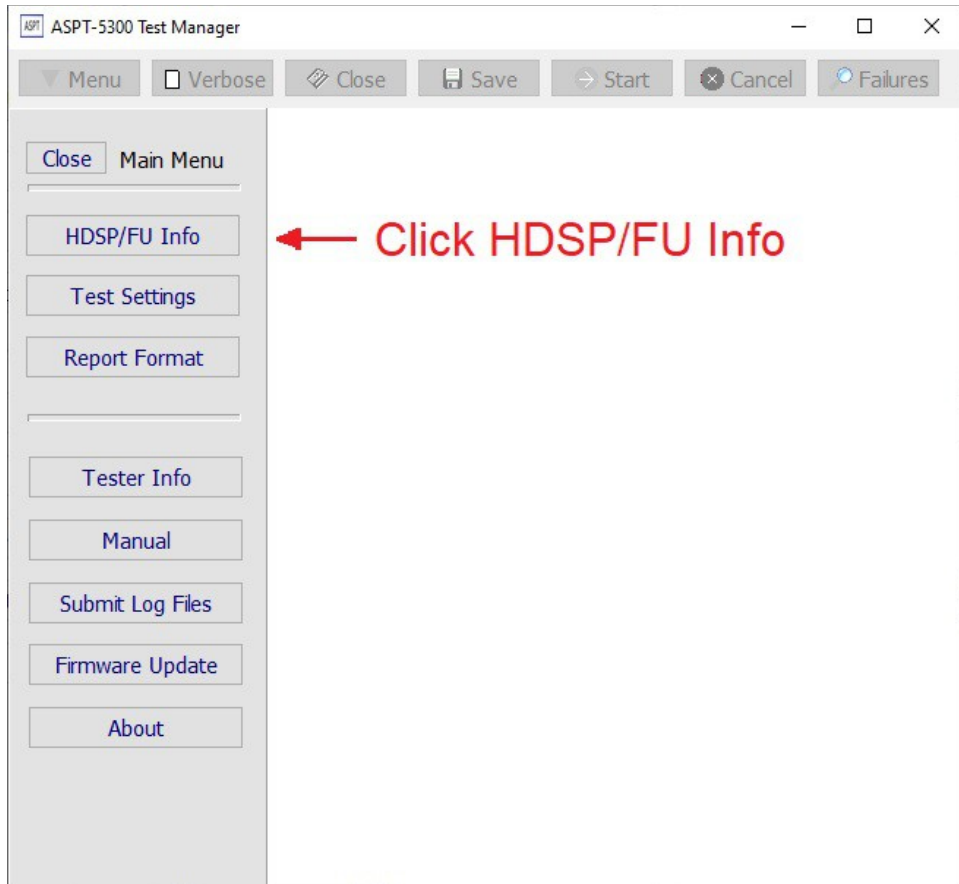
5. Preparing to Test

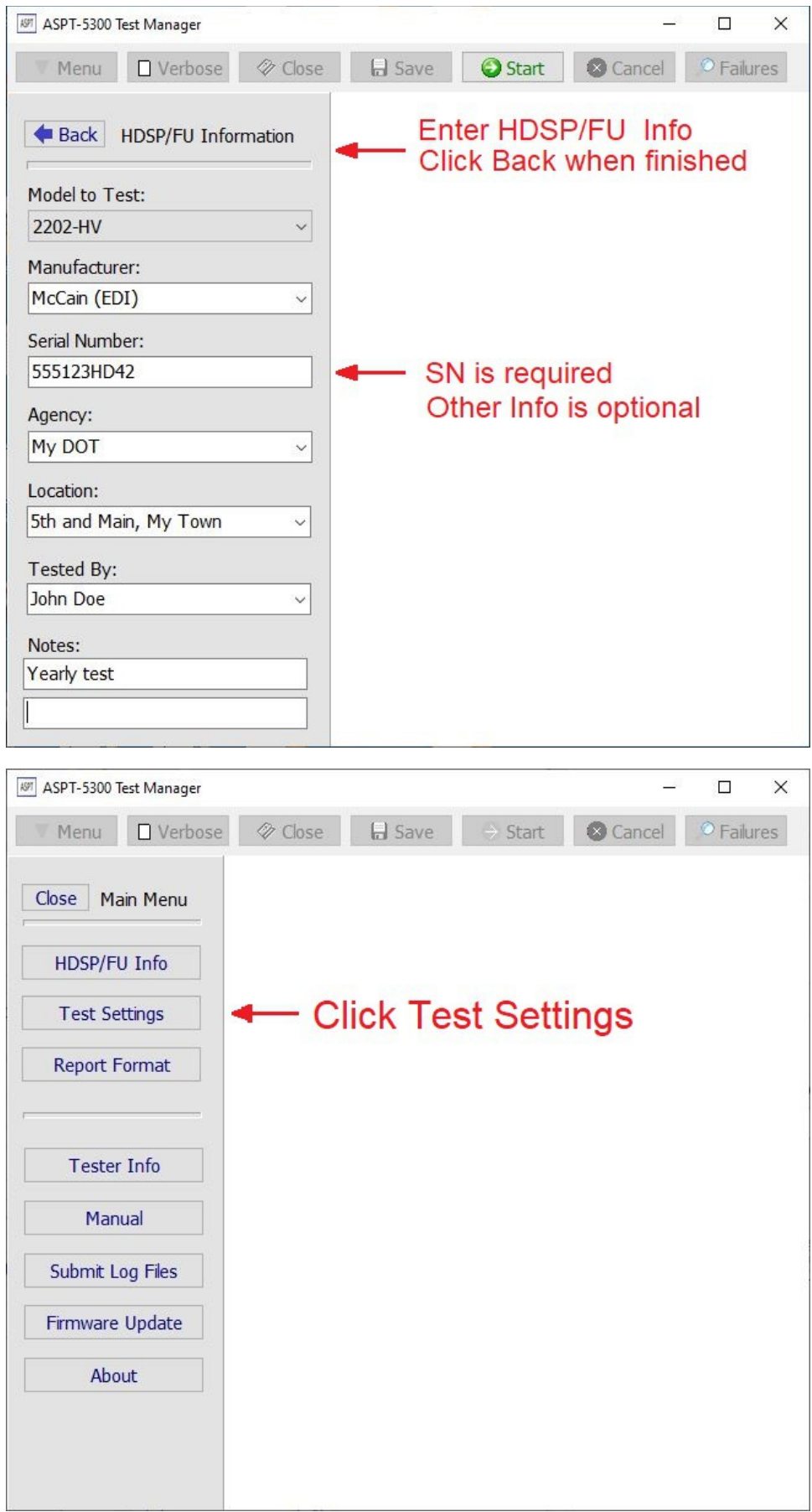
Before testing an HDSP you must:

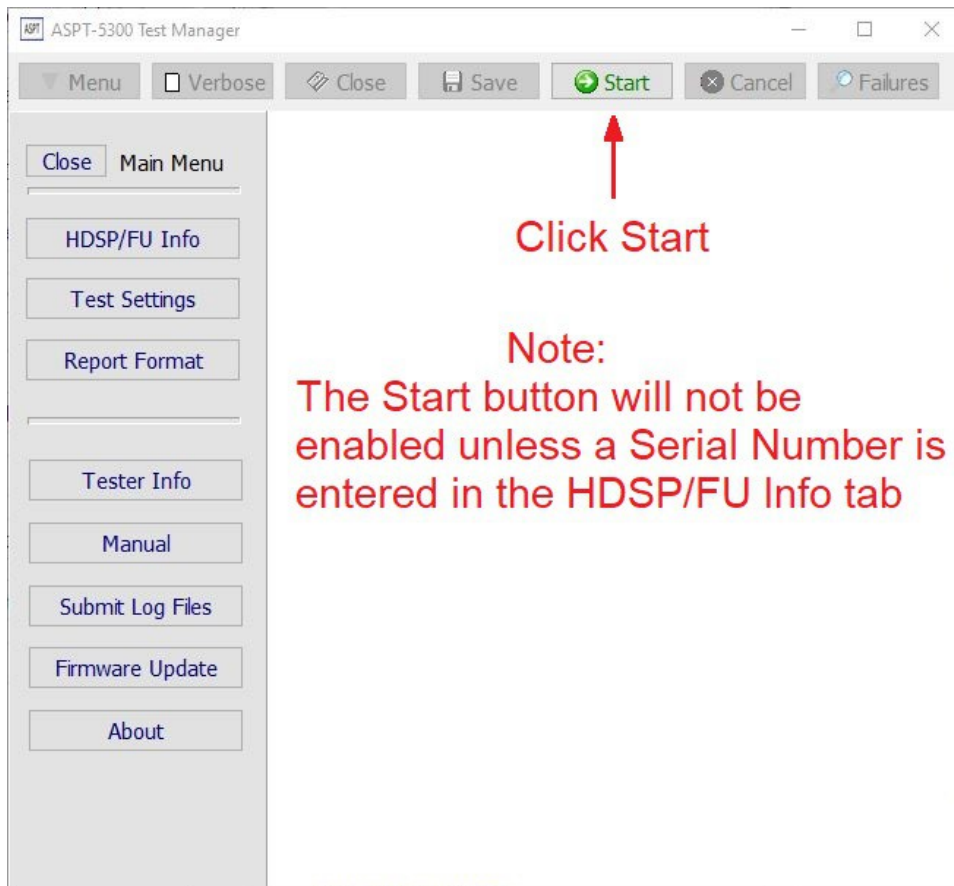
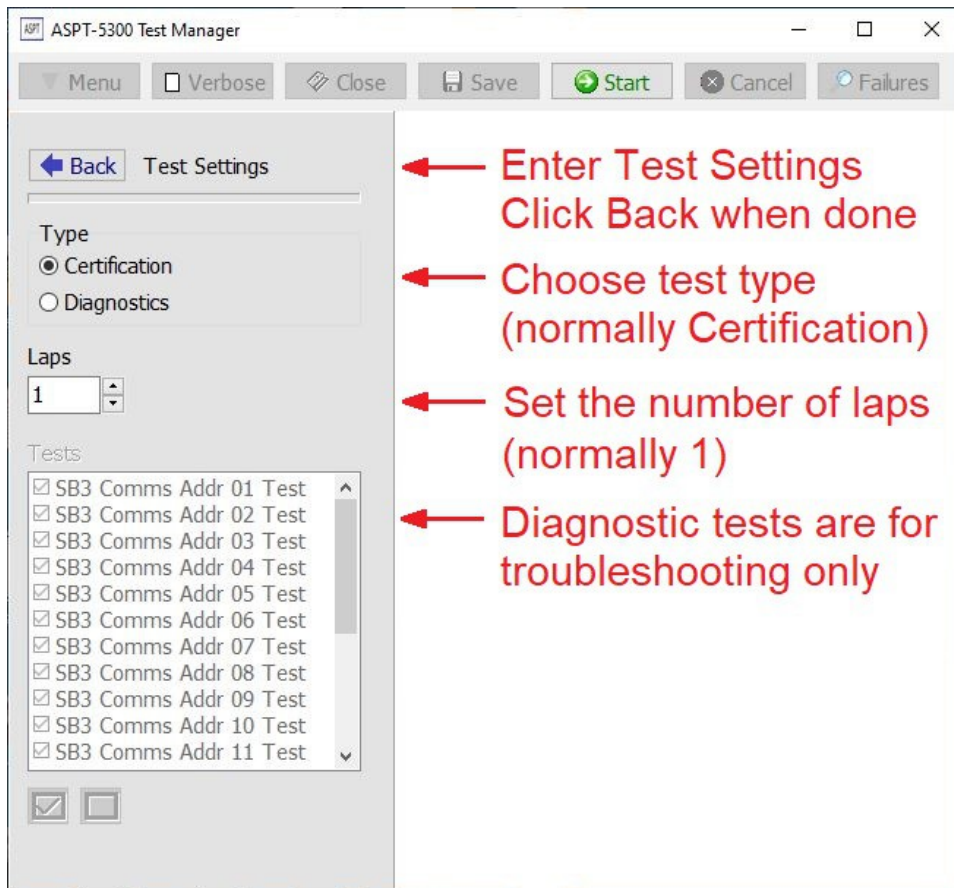
- Install the software on the computer that will be connected to the tester.
- Connect the computer to the USB port on the front of the tester using the supplied USB cable.
- Connect the supplied power cable to the rear of the tester and plug into a 120Vac, 60Hz outlet.
- Insert the HDSP to be tested into the slot in the front of the Tester using the card guides.
- Turn the power switch to the ON position.



6. Starting a Test

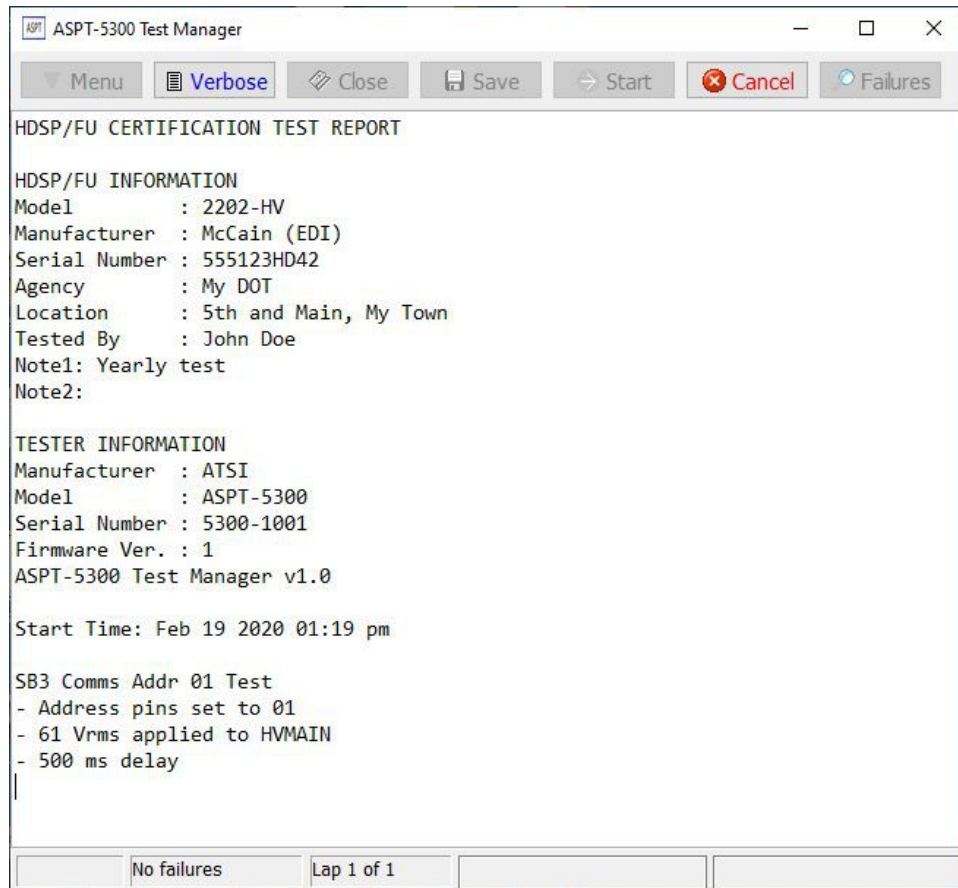




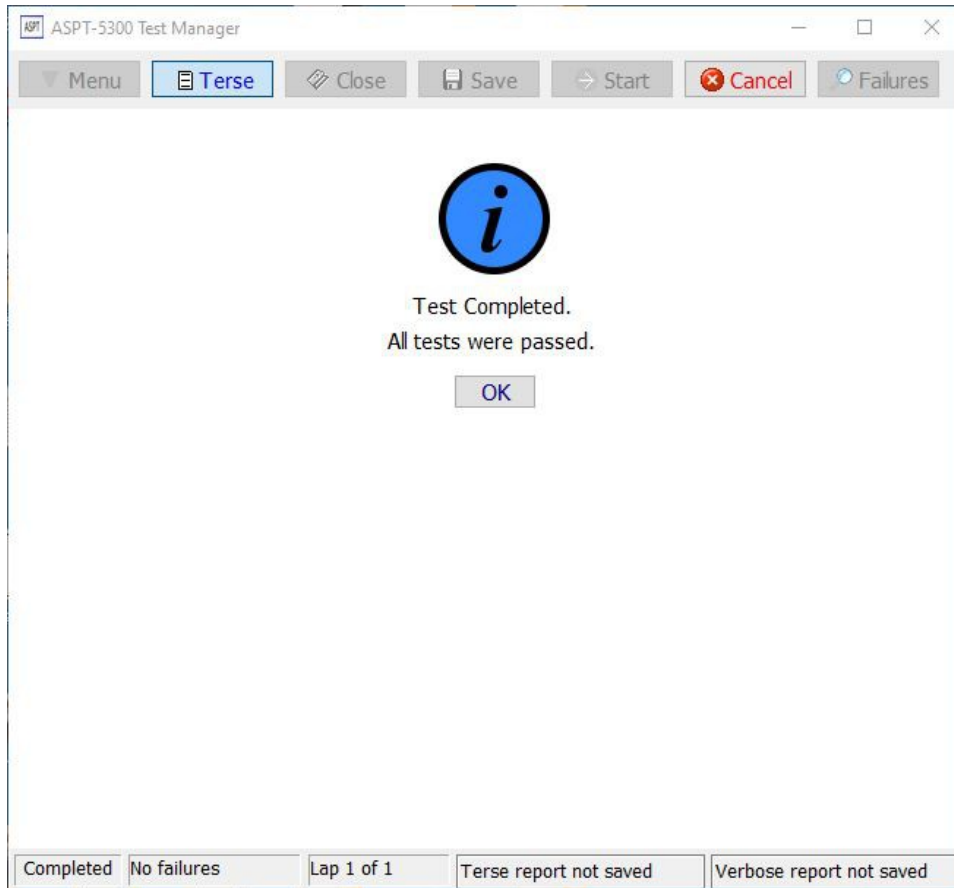


7. Test Report

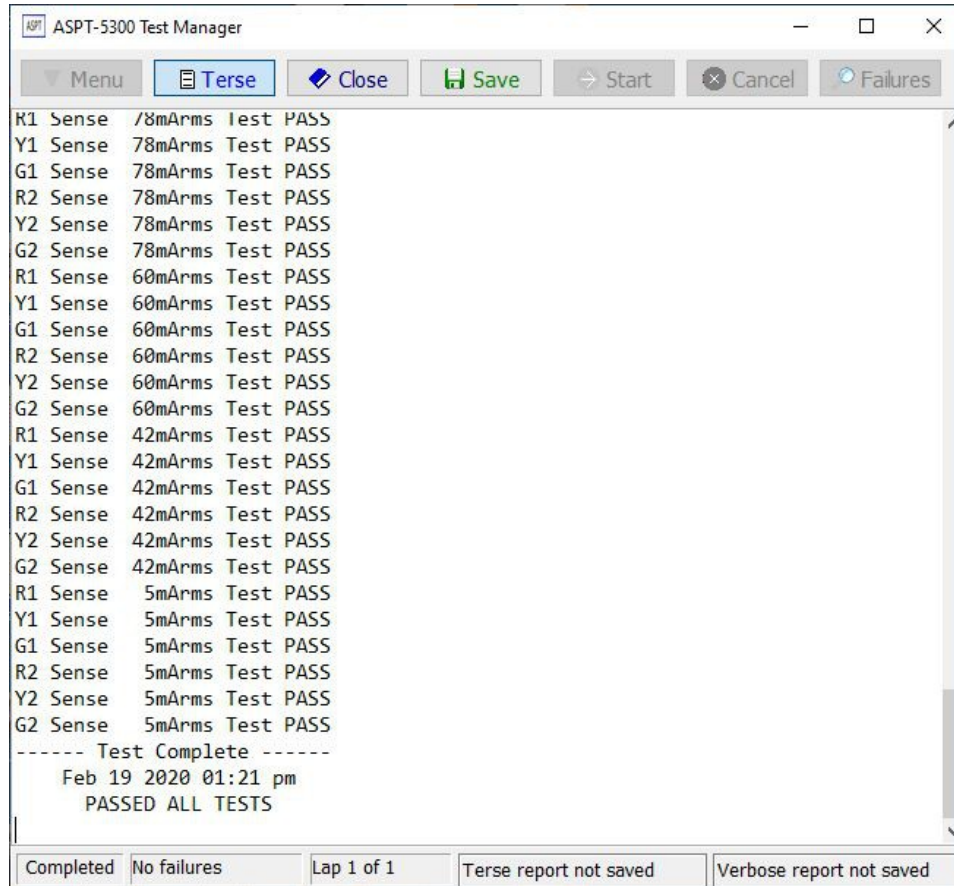
Once the test is started, the progress will be shown in the test report window. At the bottom of the window, a status bar will show the failure count and the lap count. A flashing green button will indicate that a test is in progress. If necessary, the test may be canceled by clicking the Cancel button at the top of the window. The test report may be toggled between the verbose and terse view at any time by clicking the Verbose/Terse button at the top of the window. The verbose view will show a listing of all the steps of each test. The terse view will only show the name of the test and the pass or fail result.



When the test completes, the report window will indicate that all tests were passed. Click the OK button to return to the test report.

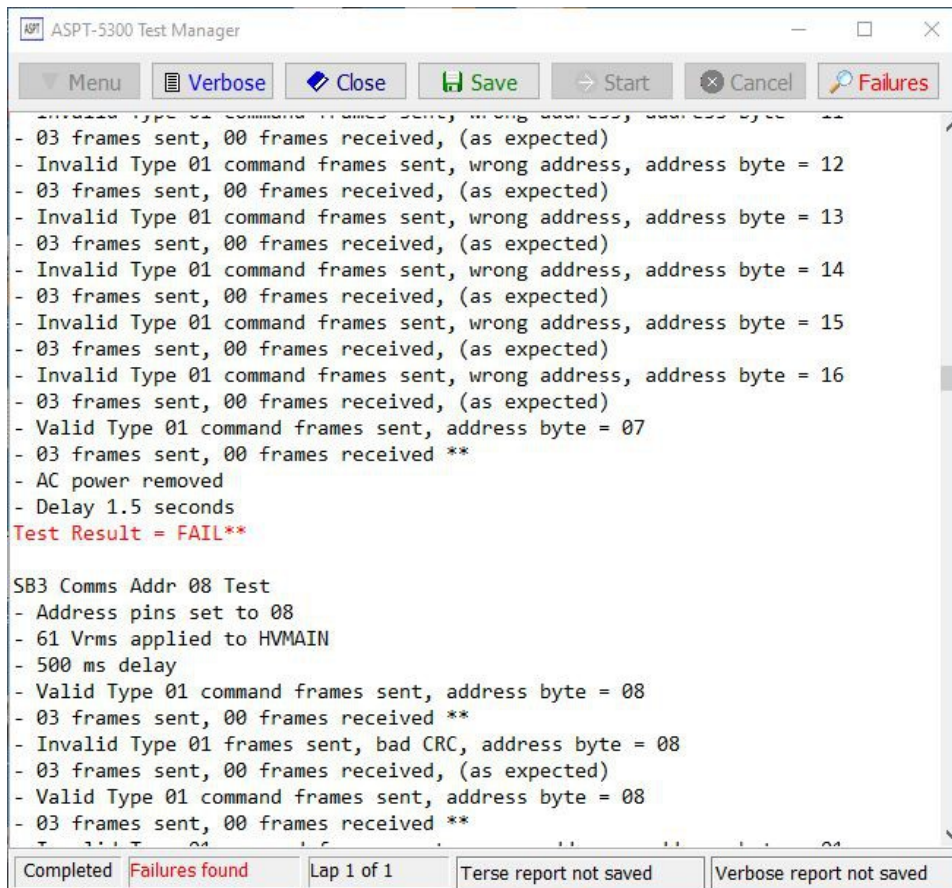


The report may be saved by clicking the Save button. The report may be saved in verbose, terse, or both formats. The view that is currently shown in the window is the one that will be saved when the button is clicked. The report is saved as a PDF file. The software will assign a default filename. This name may be changed if necessary. The reports may be viewed using any PDF viewer. Many free PDF viewers are available for download from the web.



When you are finished viewing the report click the Close button to return to the main software window. If the report has not been saved, you will be prompted to confirm that you want to close without saving.

If the report contains failures, clicking the Failures button will jump the cursor to the next failure listed in the report.



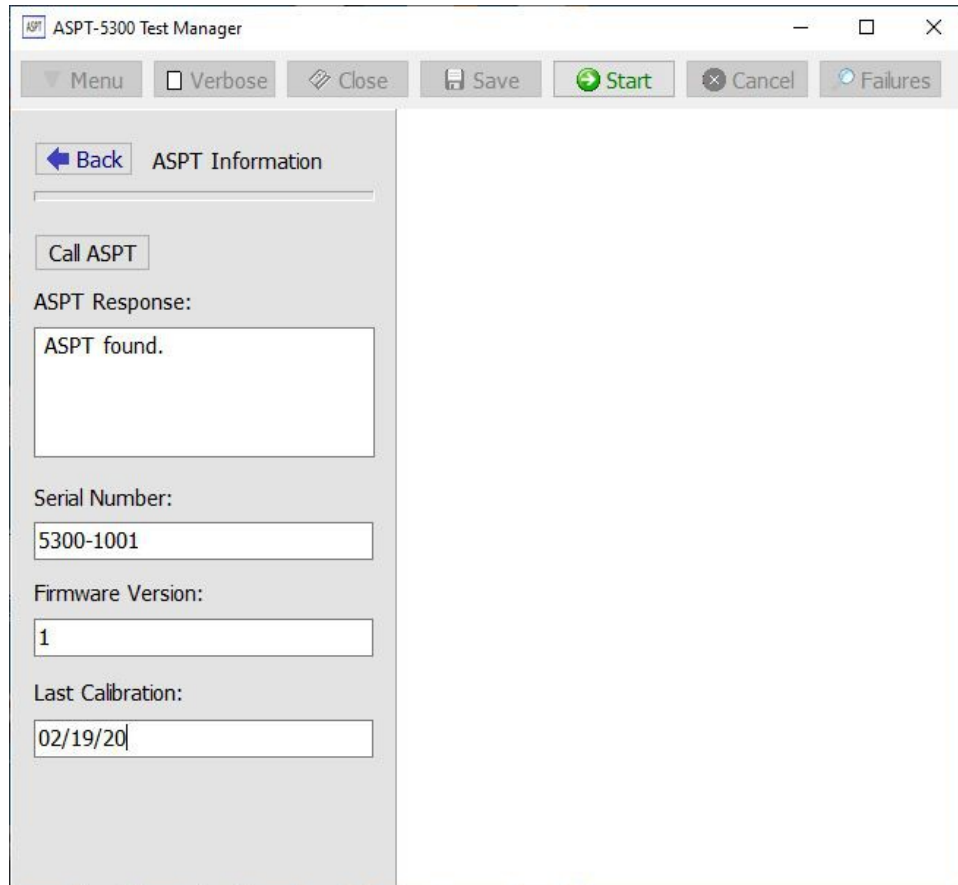
Note: If the report contains failures, the HDSP/FU should be taken out of service until they can be resolved.

8. ASPT Information

From the Main Menu click the Tester Info button to access the ASPT Information tab.

Click the Call ASPT button to get the Tester Serial Number, Firmware Version, and Last Calibration date. If the tester is overdue for calibration, a warning message will appear.

The Call ASPT button is also useful to verify that the USB connection is functioning properly. If the computer is not able to connect to the tester, an error message will appear in the ASPT Response.

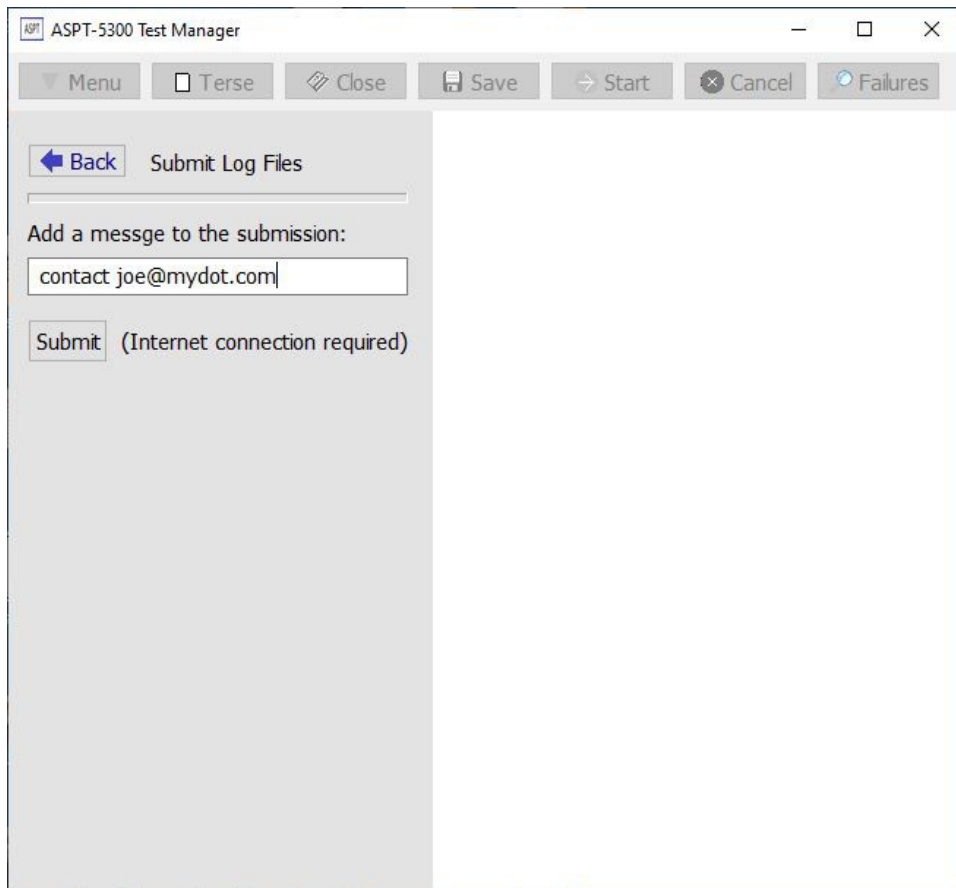


9. Submit Log Files

Before contacting ATSI for technical support, please submit the Tester log files if possible (an Internet connection is required). These files will contain the current test settings and any internal error messages that may have been generated by the software. These files will help the support technicians to resolve your issue quickly.

From the Main Menu, click the the Submit Log Files button to access the Submit Log Files tab.

Add a message that includes an email address or other contact information. Then click the Submit button.

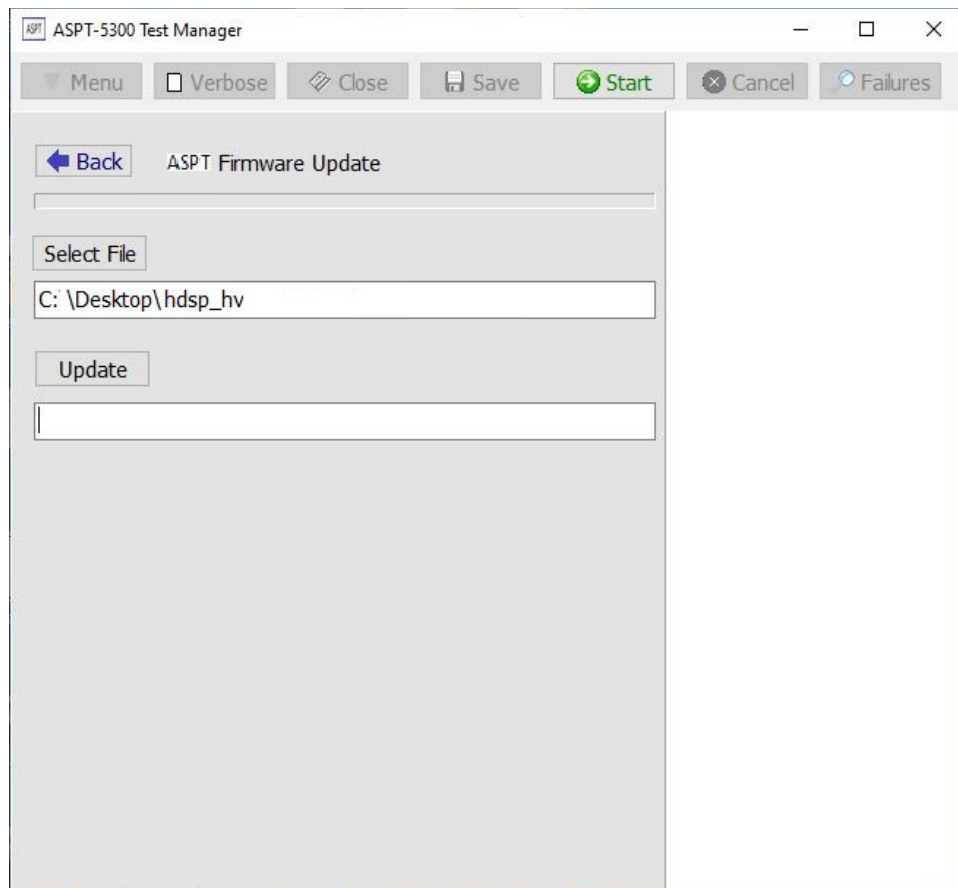


10. Firmware Update

The firmware is the operating code that is programmed into the Tester to make it function. From time to time new tests or features may be added that will require the Tester firmware to be updated. These firmware updates will be made available at www.atsi-tester.com.

From the Main Menu, click the Firmware Update button to access the Firmware Update tab.

In order to update the firmware, click the Select File button to browse to the location where the file resides on your computer. Once the file has been located, click the Update button to begin the process. Once the process is complete you will be prompted to power cycle the tester.



11. Tech Support and Troubleshooting

For tech support call 866-325-8175 or 740-592-2874 Monday – Friday from 8:00 – 5:00 pm, US EST.

You may also go to www.atsi-tester.com and fill out the *Contact Us* form.

Before contacting ATSI for technical support, please submit the Tester log files if possible (an Internet connection is required). These files will help the support technicians to resolve your issue quickly.

There are also additional training videos available at www.atcc-testing-course.com

12. Service and Calibration



Note: The ASPT-5300 has no user serviceable parts.

Under no circumstances should the user attempt to open the enclosure. If the Tester appears to be malfunctioning, contact ATSI to make arrangements for repair. See the *Limited Warranty and Liability* section of this manual for details.

Note: ATSI strongly recommends that each tester be calibrated annually.

An annual calibration will verify that your Tester is operating within the original manufacturers specifications and provide you with a detailed calibration report for documentation.

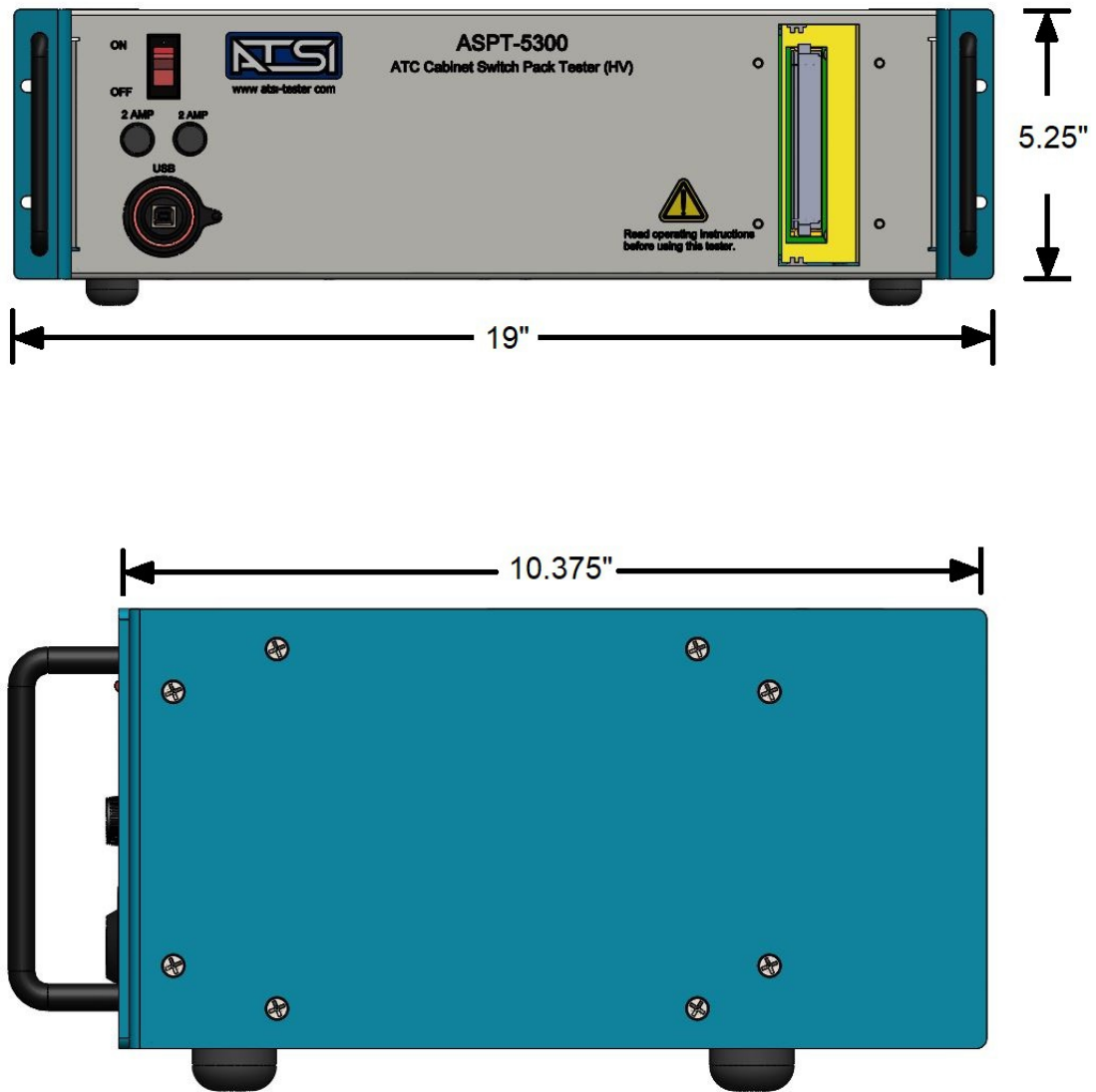
Please visit www.atsi-tester.com for the latest pricing of calibration services and extended maintenance plans.

When shipping your Tester back to ATSI for annual calibration or service, proper packing will help insure that the Tester arrives without damage.

Preparing Your Tester for Shipment

- It is highly recommended to keep the original shipping box and foam for use when shipping the Tester back to ATSI.
- If the original packing materials are not available, place the Tester inside of a large cardboard box with at least two inches of cushioning on all sides.
- UPS recommends a MINIMUM of two inches of cushioning on all sides of the box. If UPS determines the package was insufficiently packed, they will not pay for damages.
- Fill out the Equipment Service and Calibration form at www.atsi-tester.com

13. Electrical and Mechanical Specifications



Dimensions +/- 0.125". Drawing not to scale.

Electrical

Operating voltage: 120 VAC, 60 Hz

Operating current: 2 Amps (maximum)

Connectivity: USB 2.0 Full Speed compatible

Mechanical:

Enclosure: 3U rackmount type

Dimensions: 19" x 5.25" x 10.375"

Operating Temperature: 32°F to 110°F ambient air temperature

14. Limited Warranty and Liability

The **ASPT-5300 ATC Cabinet Switch Pack Tester** (Product), distributed by Athens Technical Specialists, Inc. (ATSI), is warranted to the original purchaser (Purchaser) to be free of defects in materials and workmanship for a period of one year from the purchase date stated on the invoice. Within this period, in the event of a defect, malfunction, or other failure of the Product while in the custody of the Purchaser, ATSI will remedy the defect or cause of failure without charge to the Purchaser. The Purchaser's sole remedy is restoration of product operation. ATSI accepts no liability for incidental or related expenses. Under no circumstances will ATSI's liability exceed the purchase price for items claimed to be defective.

This Limited Warranty does not extend to any Product that has been damaged or rendered defective as a result of accident, misuse, abuse, modification of the product, or service by anyone other than ATSI.

EXCEPT AS EXPRESSLY SET FORTH IN THIS WARRANTY, ATSI MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT AND ANY DEVICE TESTED BY THE PRODUCT. ATSI EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED IN THIS LIMITED WARRANTY. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED TO THE TERMS OF THIS EXPRESS LIMITED WARRANTY.

Warranty Repair

To return the Product for repairs covered under the Limited Warranty :

Request a Return Merchandise Form by phone, fax, or email from the ATSI Service Department or complete the form at www.atsi-tester.com. Return the Product along with the completed form with prepaid postage to :

ATSI

8157 US Hwy 50

Athens, OH 45701

Phone: (740) 592 - 2874

Fax: (740) 594 - 2875

Email: service@atsi-tester.com