



**AUTOMATED CONFLICT MONITOR TESTER
MODEL PCMT 8000
Rev 2.1**

- 1) The Tester shall be capable of automated testing of Conflict Monitor Units (CMU/MMU) as defined by NEMA TS1, NEMA TS2, FHWA/CalTrans System 170, and ODOT/TXDOT 2070 Standards. The Tester shall include all required hardware and software to perform testing of CMU/MMUs when the proper cables are provided. Cables to be provided with this Tester are specified in Section 2.
- 2) The Tester shall include Tester-to-CMU/MMU cables for the following CMU/MMU types. *Cables from older models of CMU/MMU testers will NOT work with the PCMT 8000.* (Please note that some cables will test multiple CMU/MMU types) (check boxes below):

- NEMA TS1: 3-channel 6-channel 12 channel 18 channel
- NEMA TS2: 16 channel (All MMU's except Rack Mount 16 Channel MMUs such as the Safetran brand MMU16LEiP model)
- 16 channel Rack Mount (Will only test Rack Mount 16 Channel MMUs such as the Safetran brand MMU16LEiP model)
- 8-channel (MMU-8RM)
- System 170: 16/18 channel (Will also test monitors with the LA or NC modification)
- 208 Ramp Monitor
- System 2070: 16/18 channel

- 3) An older model of conflict monitor tester and CMU/MMU cable(s) WILL WILL NOT be sent to ATSI for a trade-in value. Details of the trade-in unit follow.

Conflict Monitor Tester Brand: ATSI Model: PCMT 2600 S/N: 2600-1223

CMU/MMU Cables: 4 - cables total: 2 - A&B, 1 - ABC, 1 - ABCD

Only cables from ATSI models are given a trade-in value. If you are unsure of the types of cables, just note the number of cables. Please note that a trade-in value is given per cable. Please make certain of the number of cables that will in fact be traded. *Cables from older models of CMU/MMU testers will NOT work with the PCMT 8000.*

- 4) The Tester shall require a Microsoft Windows-based computer (PC) to process the supervisory software during testing process. The PC operating system must be Windows XP or newer and include a HTML browser. The minimum PC hardware specification shall be Pentium (or equivalent) processor at 150 MHz, 32 MB RAM, 1.0 GB hard drive, 4X CDROM drive (for software installation), USB 2.0 Port and 640 X 480 monitor resolution.
NOTE: The PC for use with this Tester IS IS NOT a part of this equipment specification.

- 5) The supervisory software running on the PC shall provide the user interface for the Tester, allowing test setup, data entry, test report storage, retrieval, and review. The supervisory software shall automatically sequence the Tester through the selected tests, accumulate results and assemble the test report. The testing process shall proceed automatically after the initial test setup. Visual confirmation of the CMU/MMU indicators may be required at the end of the test if applicable. The user interface shall provide for selection of CMU/MMU standard, CMU/MMU type, manufacturer, model, and other information pertinent to the test via menus that list the available options for each selection. The supervisory software shall automatically sense the PC port used by the Tester hardware.

- 6) The test report shall be stored on disk as an Adobe Acrobat PDF file at the conclusion of the test sequence. The PDF file can be viewed and printed using the free Adobe Acrobat Reader software. The Acrobat Reader software can

be downloaded at www.adobe.com. The Acrobat Reader should be at version 6.0 or higher in order for the test reports to display properly.

- 7) The available test modes shall include Certification testing, Diagnostic testing, Single and Multiple-lap testing. Diagnostic test groups shall include System/Timing tests, Conflict/Voltage tests, and Optional tests.
- 8) The Tester shall utilize the "window" testing method to determine that the voltage thresholds of the CMU/MMU under test conform to the applicable Standards. "Window" testing is defined as providing test conditions to the CMU/MMU that lie outside of the voltage threshold ranges defined by the standard. The Tester shall provide test voltages which are less than and greater than the proper voltage threshold limits, and determine if the CMU/MMU under test is in compliance with the appropriate standard.
- 9) The Tester shall be packaged in a 3U rackmount chassis. The dimensions are 19"(W) x 14.5"(D) x 5.25"(H).
- 10) An optional Tester carrying case may be provided for CMU/MMU field-testing.
The carrying case IS IS NOT part of this equipment specification.
An optional pullout laptop shelf for the carrying case may also be provided.
The carrying case shelf IS IS NOT part of this equipment specification.
- 11) Tester supervisory software shall be capable of creating and storing a test report detailing the nature and number of tests applied to the monitor. The test report shall include; the start/stop time and date of the test, a listing of each test performed and the test result (PASS, FAIL). The report shall include operator-entered text for the name of the jurisdiction, agency, or firm that is responsible for the testing; the CMU/MMU under test by Manufacturer, Model, and Serial Number; the person performing the test, and the location where the tests were performed. Additional text fields for Device ID (30 characters), and comments or notes (110 characters) will be available. The test report shall form a self-sufficient, easily understood document that can be interpreted without the use of separate instruction sets or code explanation tables.
- 12) Multiple testers running simultaneous but independent tests can be controlled by one computer.
- 13) During actual testing, the controlling PC's display shall show the following information pertinent to the test in progress:
 - The monitor standard being used as the test basis.
 - The make, model, type, and serial number of monitor being tested.
 - The date and time of the beginning of the test.
 - The Tester serial number and firmware version number.
 - The test results of completed tests and title of the current test.
 - The number of laps completed in the continuous testing mode.
 - The number of tests failed.
- 14) The Tester shall perform the following pre-testing measures:
 - Voltage self-test and timing self-test of the Tester to assure the accuracy of the test conditions and response measurement.
 - Pre-test the CMU/MMU for the presence of incorrect return voltages that could damage the Tester.
 - If these tests are not passed, the Tester shall alert the operator and halt the testing process.
- 15) The Tester shall include a Getting Started Guide describing all steps in the setup of the Tester as well as unlimited telephone technical support for the purchasing agency or firm.
- 16) The Tester shall provide extensive on-screen prompting and Help files to extend ease of use to novice or infrequent operators.
- 17) The purchaser's interest in the Tester shall be protected by a one-year limited warranty on parts and labor. The continuing utility of the Tester shall be further protected by the availability of repair, update, calibration, and extended warranty services from the manufacturer.
- 18) Software and Firmware updates for the tester shall be made available to download at no charge from the Internet (www.atsi-tester.com).
- 19) It is recommended that the tester be calibrated every twelve (12) months.