Installation and User Manual

INT5500CS Programming Utility

And

Production Test System

CONTENTS

Definitions
1. Installation Instructions
2. Introduction
3. Systems Components
4. System Description
4.1. Modes of Operation
4.2. Input Files
4.3. Output Files
5. System Setup 10
5.1. PTS software restoration/ upgrade procedure 10
5.2. Hardware Setup
5.3. Creating an ODM Database File
5.4. Test Configuration File 17
5.5. Modifying the Test Definition Files
6. Device Testing
6.1. Production vs. Verification Testing
6.2. Testing Different Device Types
6.3. Disabling Windows Networking and TCP/IP
7. Testing Procedures
7.1. Test Results
7.2. Viewing the Log File
8. Standalone Applications
Appendix A: Sample Test Configuration File
Appendix B: Sample Test Definition File 40
Appendix C: Sample Database File 44
Appendix D: TLC License Agreement

Definitions

DUT Device Under Test. A device (adapter or embedded product) to be tested by Production Test System.

ODM Original Design Manufacturer.

OEM Original Equipment Manufacturer.

INT5500CS Intellon turbo powerline networking chipset.

EK5500CS Intellon INT5500CS based evaluation kit

Production Test System (PTS) The Production Test System runs performance tests on products that are based on Intellon's INT5500CS chipset.

TD Test Device A reference device (EK5500CS Golden Node) of known characteristics. The performance of the DUT is measured against the Test Device.

1. Installation Instructions

This Guide is intended to assist the test engineer in system setup and the operator in system operation.

1.1. Important Safety Instructions for the INT5500CS Production Test System

This product is intended for connection to the AC power line. Hazardous voltages are present in this system. For installation instructions, refer to the Installation section. The following precautions should be taken when using this product.

- Read all instructions before installing and operating this product.
- Save all instructions for later reference.
- Follow all warnings and instructions marked on the product.
- Unplug all AC line cords from the wall outlet before cleaning. Use a damp cloth for cleaning. Do not use liquid cleaners or aerosol cleaners.
- Do not operate this product near water.
- This product should never be placed near or over a radiator or heat register
- This product relies on the building's electrical installation for short-circuit (over current) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15 A for 120V installations or 240VAC, 7.5A for 240 V installations is used on the phase conductors (all current-carrying conductors).
- Do not allow anything to rest on the product interconnect cords. Do not locate this product where people may walk on the cords.
- Only a qualified technician should service this product. Opening or removing covers may result in exposure to dangerous voltage points or other risks.
- Modifications to the product may create unsafe conditions.
- Unplug the AC coupler from the wall outlet and refer the product to qualified service personnel for the following conditions:
 - When the interconnect cords are damaged or frayed.
 - If liquid has been spilled into the product.
 - If the product has been exposed to rain or water.
 - If the product does not operate normally when the operating instructions are followed.
 - If the product exhibits a distinct change in performance.

2. Introduction

The PTS5500CS Production Test System (PTS) provides a platform for production testing of the products incorporating Intellon's INT5500CS chipset. The PTS provides simple go/no-go production test results or more detailed throughput data rates for device's performance verification. The tests are managed by a software application running on a Windows XP based PC. Additionally the same software can be used to program/ upgrade the device's flash without requiring the PTS hardware (these application will be referred as standalone applications throughout this document). The customers without the PTS hardware however cannot test the device performance using the INT5500CS programming utility software. Section 8 of this user guide explains the programming/ upgrading the flash procedure for the standalone applications.

PTS Test sessions can be specifically tailored using the test configuration and test definition files. The files can be modified by ODMs to customize test parameters and add or remove steps specific to their product. Products designed for 120V AC or 240V AC environments may be tested using the PTS without making any hardware modification. A universal adaptor is provided with the PTS package in order to accommodate test devices with different prongs.

The PTS is not meant to determine whether a product design is HomePlug compliant. PTS tests are designed to quickly establish whether the product has been assembled as intended.

3. Systems Components

Unpack the test system and compare contents to Table 1.

Table 1: List of Components Supplied with the Production Test System

Description	Intellon P/N	Quantity
A fully configured Control PC (Windows XP OS)	Generic	1
PTS hardware Module		1
INT5500CS Programming utility and Production test system		
Software CD		1
INT5500CS Programming utility and Production test system		
Software and Documentation CD		1
Power cable		1
Ethernet cable		2
Universal power adaptor		1
Installation and User Manual	24002845	1

Verify that the customer-supplied equipments listed in Table 2 are available in order to complete the PTS installation.

Table 2: Customer Supplied Equipment to Complete Production Test System

Description	Manufacturer	QTY Required
Control PC Video Monitor	Generic	1
600 VA UPS	APC BackUps 600	1
Microsoft excel software) suggested for viewing ODM database and log files)		1
Label Printer: Zebra model LP2824 (Optional)	Zebra Technologies, Inc.	1
Work Bench, particle board top, 36x48 inches	Customer Supplied	1

4. System Description

4.1. Modes of Operation

The PTS uses a reference (EK5500CS) or test device (TD) of known characteristics and measures the performance of the device under test (DUT) against it. The PTS incorporates its own power line filtering and a programmable attenuator. The entire system is enclosed in metal to shield the devices from electrical noise. Figure 1 shows the functional representation of the system.



Figure 1. PTS Functional Overview

The PTS has the following modes of operations. Two of these modes involve loading firmware and configuration data to a devices' non-volatile memory (NVM).

• **Test Mode.** Only selected tests are run. No data is written to the devices' NVM. This mode is targeted for embedded device testing or device debugging.

This mode is selected by setting the "TEST_CFG (Operation)" parameter to "0" in the test configuration file.

In this mode the test system will use sequence number (instead of MAC address) to add the test result entries in the log file. It is recommended to disable the printer option in the test configuration file (TEST_CFG (NumLabelsToPrint) = 0). The system will generate a error message if the printer option is enabled in this mode.

Installation and User Manual

• Initialize. Any selected tests are run.

Firmware and configuration data is programmed to the device's NVM. The MAC address and Default Encryption Key (DEK) programmed to the device are read from the customer created database file.

This mode is intended for the manufacturing environment, where devices with empty flashes are programmed.

This mode is selected by setting the "TEST_CFG (Operation)" parameter to "1" in the test configuration file.

Note: PTS tests the device before programming the flash. The flash will not be programmed until the DUT pass all the PTS tests successfully. This will ensure that a bad device does not consume a MAC address from the database file. This way ODM can easily separate the bad devices at the production line for further debugging.

• Upgrade. Any selected tests are run.

Firmware and configuration data are loaded to the NVM. The configuration data uses existing MAC identity information previously programmed to the device.

This mode is selected by setting the "TEST_CFG (Operation)" parameter to "2" in the test configuration file.

This mode is intended to load a new version of firmware onto a device, while preserving the key identification settings (MAC address, NEK, DEK, Manufacturer and product name strings). Customers can either preserve the entire identity configuration section or the part of it, while updating the firmware, depends upon the setting of the "TEST_CFG (PreserveEntireIdentitySection)" parameter in the test configuration file as explained below:

- **TEST_CFG (PreserveEntireIdentitySection) is set to "0"**. Only the device's MAC address and DEK will be preserved. The remainder of the identity section will come from the new configuration file specified in the test configuration file.
- **TEST_CFG (PreserveEntireIdentitySection) is set to "1"**. The entire identity section will be preserve while upgrading the MAC firmware.

4.2. Input Files

The PTS (ProdTest) software application running on the control PC requires three input files as shown in Figure 2.



Figure 2. PTS Data Flow

The ODM database file indicates which devices are to be tested by tracking the device MAC and DEK. During testing, the database is updated to indicate which devices have been tested.

The test configuration file controls the type of tests to be performed. This file specifies user-configurable options that indicate what type of tests to perform.

The test definition file specifies user configurable options such attenuation settings and threshold limits for each test. It also defines the number and the level of data to be captured for tests .

Test results and performance data are displayed on screen and are also written to a log file.

Later sections of this document explain all the above-mentioned files in detail.

4.3. Output Files

During testing, session test results are written to a log file in the Results directory. The log file records pass/fail information and performance data rates for tests. The log filename is identical to the ODM database filename but uses the .log as extension (e.g. C:\Program Files\Intellon\PTS\Results\MyODMDB.log)

The log file contains tab-separated data and can be imported into Microsoft Excel.

The PTS5500CS also has the ability to print labels utilizing the recommended printer and by enabling the print label function within the Test Configuration file. This feature is only available during production testing the when the device flash is programmed.

5. System Setup

Before starting device tests, complete these setup tasks:

- PTS software restoration/ upgrade procedure
- Setting up PTS hardware.
- ODM database file creation
- Customization of test configuration file and test definition files

5.1. PTS software restoration/ upgrade procedure

The PTS ships with a fully configured control PC that has the **ProdTest** test application and all the required support files installed. A restore CD is included in the event that support software must be re-installed. To re-install the test software and utilities, place the restore CD in the CD drive, view the CD contents and run the file **"install.bat"**. All previously installed files on the control PC will be replaced during the restore procedure. All the customers generated database and configuration files will not be deleted/ updated during this procedure.

The same (above mentioned) procedure should be followed in order to upgrade the PTS software.

5.2. Hardware Setup

A recommended PTS equipment layout is depicted in Figure 3. Refer to this figure for configuring your hardware. Items shown under red area are provided with the system. The remaining items are not included and must be provided by the installer.



Figure 3: Turbo PTS Equipment Layout

- Place UPS on the back left corner of the 36" x 48" worktable free of other electronics.
- Plug UPS into an *Intellon Line Filter (Part # A0001395)* and plug the line filter into the power outlet.
- Place the *Control PC* on the back left corner of the table. Connect the keyboard and monitor. Plug the PC and monitor into the UPS.
- Place the label printer on top of the Control PC. Plug the printer's power supply into the UPS. Connect the printer to the Control PC's parallel port with a parallel printer cable.
- Connect the serial cable to the serial port on the PTS and a serial port on the PC.
- Connect the Ethernet cable between PTS and Ethernet port of the control PC. This will connect the reference node to the PC.
- Open the PTS lid and connect the device under test (DUT) to the PTS. Connect the second Ethernet cable (This cable should be routed through an access hole in the side of the PTS lid. The cover plate should be adjusted to leave the smallest possible opening around the cable) between the DUT and the PC.
- Plug the DUT into the power outlet on the top of the PTS and close the PTS lid.
- Plug PTS into an Intellon Line Filter and plug line filter into a power outlet.

- Turn on the PTS (using the power switch located near the power cord). The green power indicator on the front of the PTS will light.
- Turn on the PC.

At this point in the installation, the PTS should be connected as shown in Figure 4.



Figure 4. Hardware Installation of the PTS System

Installation and User Manual

5.3. Creating an ODM Database File

The ODM database file defines the set of devices to be tested. Each line of the file corresponds to a single device. Each entry must include the device MAC address and DEK password.

Production Test Software includes the **DB Builder** application which is an automated ODM database file builder. Alternatively the ODM database file can be created manually. Example database files are located in the Example folder of the Software CD.

To create an ODM database file:

• Open the PTS database directory (C:\program files\Intellon\PTS\db) and double click the DBBuilder utility. Alternatively an icon for the **DBBuilder** application can also be found on the desktop of the control PC.

🏟 DB Builder	
Details	
Database name	C:\Documents and Settings\ Open
Starting MAC Address	00A05436B9AC
# Devices	20 -
	Build and View

Figure 5. ODM Database File Generator

- Enter a filename for the database in the Database name entry. Use a .db extension. If no extension is provided .db extension will be added automatically. By default, the file will be saved in C:\Program Files\Intellon\PTS\dB. To select another location to save this database file, click Open... and browse to the new directory.
- Enter the first MAC address in the **Starting MAC Address** entry. Sequential addresses will be added for each entry in the database.
- Enter the number of entries to be created in this database in the **# Devices** entry (Max entries that can be created using this application is 10,000).
- Click **Build and View** to create the database file.
- In order to view an existing ODM database file
 - Enter the name of an existing ODM database file in the **Database name** entry. To select a file in another directory, click **Open...** to browse to the new directory.

• Click **View.** This will display the contents of the database file. A samples database file's contents are shown in Figure 6.

Ex	ample.d	lb		×
Ex	Tised 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MAC Address 00: A0: 54: 36: B9: DE 00: A0: 54: 36: B9: DF 00: A0: 54: 36: B9: DF 00: A0: 54: 36: B9: E1 00: A0: 54: 36: B9: E1 00: A0: 54: 36: B9: E2 00: A0: 54: 36: B9: E3 00: A0: 54: 36: B9: E3 00: A0: 54: 36: B9: E4 00: A0: 54: 36: B9: E5 00: A0: 54: 36: B9: E4 00: A0: 54: 36: B9: E5 00: A0: 54: 36: B9: E5	DEK Password TEQN-RYPE-TREG-BAQV WANM-NGHW-VNIY-UKOZ ZXJL-KPWL-SJMQ-RQIH DTBL-KCKE-UFUI-KBGP GPXK-HLZS-RBYE-HLFT JMTJ-ETNL-TXGW-ARZB NIPJ-EGBE-RTKO-XCXJ QFMI-BPQT-SPOG-PMVS TBEH-XYIL-QLWY-MSPW WTAH-UKXA-RGAQ-FDNE AQWG-UTLT-PCIM-CNLM DMSF-RCAI-RUNF-VTKU GJKF-000A-0QVX-SEEY JFHE-0XDT-QMZP-LKCG NBDD-LGVI-NIDH-IUA0 QYZD-HTKA-PELD-AFUS TUVC-EBYP-MAPV-XLSA WRNB-EKMI-0WXN-QVRI	
	Ő	00:A0:54:36:B9:F1	DJGA-YGPP-NOJX-GMJV	_

Figure 6. Samples ODM Database File View

ODM database file structure and fields are explained in next sections.

5.3.1. ODM Database File Structure

The ODM database file defines the set of devices to be tested. Each line of the file corresponds to a single device using the following structure:

<Status> tab <MAC Address> tab <DEK Password> line return

Entry fields are separated by tabs. This structure allows the data to be imported into Microsoft Excel.

The name and location of the ODM database file to be used during a testing session is set in the test configuration file. Example database file can be fund at C:\Program Files\Intellon\PTS\dB\exampleDB.db

5.3.2. ODM Database Fields

Status

Required: Required field.

Contents: 0.

Function: Once a device is tested, ProdTest changes the field from "0" to a "1" to indicate that a DUT has been tested.

MAC address

Required: Required field.

Contents: The MAC address of the DUT.

Function: The Initialize mode uses this field to program a device's MAC address.

DEK password

Required: Required field.

- Contents: A unique password containing 4 to 24 alphanumeric characters.
- Function: This password is used to program the DEK password into the INT5500CS for stand-alone devices. The PTS generates the DEK from the DEK password.

5.4. Test Configuration File

The test configuration file (TestConfig.tcl) is used to control the type of tests to run, indicates the name and location of the ODM database file to be used, and control what performance data is displayed and recorded in the log file.

A test configuration file is provided with the Production Test System. This file must be modified for each device type that will be tested. Modifications are also required to change the type of tests to be run.

TestConfig.tcl is a TCL file but can be edited with any text editor.

Sample test configurations files are provided that illustrate how to configure the PTS in the Initialize and Upgrade modes at C:\Program Files\Intellon\PTS\Examples.

A few tips for working with test configuration files:

- Be careful to maintain the basic structure of the original file. If a field requires no data, leave it blank. Do not remove the line.
- Text (such as adapter names or database names) must be surrounded by quotes. Example: "**dB/example.db**". Note the forward slash here. TCL requires the use of a forward slash when specifying file locations.
- Complete the ODM database file setup before modifying the test configuration file. The filename and directory name of the ODM database file are required to setup the test configuration file.

5.4.1. Modifying the Test Configuration File

In order to modify the test configuration file:

- Open C:\Program Files\Intellon\PTS\TestConfig.tcl file with a text editor.
- Set the adapter name for the Test Device (TD). In order to do that:
 - a. Locate the line in the test configuration file that starts with "set TEST_CFG (TD_AdapterName)". This entry is followed by a text string in quotes e.g. "Intel® PRO/100 VE Network Connection".
 - b. To determine the name of the adapter:
 - Right click on My Network Places.
 - Select Properties.
 - ▶ Right-click on the name of the adapter used by the TD.
 - Select Properties.
 - > Copy the name displayed under "Connect using".
 - c. Remove the text between the quotes. Paste the name of the adapter copied in between the quotes in the text file.

- Set the adapter name for the Device Under Test (DUT).
 - a. Locate the line that starts with "set TEST_CFG (DUT_AdapterName)". This entry is followed by a text string in quotes. Example "Intel® PRO/100 VE Network Connection".
 - b. To determine the name of the adapter:
 - Right click on My Network Places.
 - Select Properties.
 - Right-click on the name of the adapter used by the TD.
 - Select Properties.
 - Copy the name displayed under "Connect using".
 - c. Remove the text between the quotes. Paste the name of the adapter copied in between the quotes in text file.
- Set the location and file name of the ODM database file to be used.
 - a. Locate the line that starts with "set TEST_CFG (DB_FILENAME)".
 - b. This entry is followed by a text string in quotes. Modify the test string to point to the location and database file name created, e.g. set TEST_CFG(DB_FILENAME) "db/ODM_DB.db".
- Set the location and file name of the configuration data file to be used in order to program the flash.
 - a. Locate the line that starts with "set TEST_CFG (DUT_CFGFILE)".
 - b. This entry is followed by a text string in quotes. Modify the test string to point to the location and file name of the configuration file, e.g. set TEST_CFG(DUT_CFGFILE) "Firmware/1_4/direct_connect.cfg ".
- Set the location and file name of the MAC image data file to be used.
 - a. Locate the line that starts with "set TEST_CFG (DUT_MACIMAGE)".
 - b. This entry is followed by a text string in quotes. Modify the test string to point to the location and file name of the MAC image file, e.g. set
 TEST_CFG(DUT_MACIMAGE)"
 Firmware/1 4/INT5500CS-MAC-1-4-3-19.bin ".

- Set the testing mode.
 - a. Locate the line that starts with "set TEST_CFG(Operation)".
 - b. This entry is followed by a number. Select from the following values: 0 Test only mode, 1 Initialize mode, or 2 Upgrade mode.
- Set the Stop-on-failure mode.
 - a. Locate the line that starts with "set TEST_CFG(StopOnFailure)".
 - b. This entry is followed by a number. Select from the following values: 0 Run remaining tests even when one fails, or 1 Stop testing on failure.
- Set the number of labels to print.
 - a. Locate the line that starts with "set TEST_CFG (NumLabelsToPrint)".
 - b. This entry is followed by a number. Set the values to 0 -for no labels printed or to the number of labels to print.
- Save the TestConfig.tcl file.

A sample test configuration file is provided in Appendix A.

If the test configuration file is modified while ProdTest is running, close and re-launch ProdTest to have changes take effect.

5.4.2. Test Configuration Fields

TEST_CFG(DEVICE_TYPE) "PTS"

- Required: Required Field
- Contents: Name of the DUT (Mode or product name of the device)
- Function: Information to be printed on DUT label.

TEST_CFG(DB_FILENAME)

Required: Required field.

Contents: Enter the ODM database directory and filename.

- Function: Sets the name and location of the ODM database file to be used during testing.
 - The location/filename must include the dB prefix. Example: To specify a file named ODM_DB located in C:\Program Files\Intellon\PTS\dB, enter "dB/ODM_DB.db".
 - *A forward slash must be included before the filename.*

TEST_CFG(Operation)

Required: Required field.

- Function: Defines the mode of operation of the PTS software, particularly with regards to programming devices Non Volatile Memory.
- Values: 0 Test Only: No programming of the NVM, only selected tests are run.

1 – Initialize: Runs any tests specified and programs the secondary loader, the MAC image and the configuration data using the MAC address and DEK specified in the ODM database file.

2 – Upgrade: Runs any tests specified and programs the secondary loader, the MAC image and the configuration data using the MAC address and DEK previously programmed in the device.

- Use Initialize when programming a device that has not been previously programmed.
- Use Upgrade when programming a device that has had a MAC address previously assigned with an updated release of the firmware.

TEST_CFG (PreserveEntireIdentitySection)

Required: Required field.

- Function: Defines how the identity configuration settings are saved during the Upgrade mode of operation.
- Values: 0 Only the devices MAC address and DEK are saved. The remainder of the Identity section comes from the new configuration file specified.
 - 1 The devices entire Identity configuration section will be preserved.

TEST_CFG(TD_AdapterName)

Required: Required when performing tests.

Contents: Enter the name of the PC network adapter that is connected to the Test Device (TD).

Function: Sets the name of the PC network adapter connected to the TD.

To determine the name of the adapter:

- Right-click on My Network Places located on the Desktop.
- Select Properties.
- Right-click on the name of the adapter.
- Select Properties.
- Note the name displayed under **Connect using**. Example: Intel(R) PRO/100 VE Network Connection
- Enter this name in the TD_AdapterName field. The adapter name is case-sensitive.

TEST_CFG(DUT_AdapterName)

Required: Required field.

Contents: Enter the name of the PC network adapter that is connected to the Device Under Test (DUT).

Function: Sets the name of the PC network adapter connected to the DUT.

To determine the name of the adapter:

- Right-click on My Network Places located on the Desktop.
- Select Properties.
- Right-click on the name of the adapter.
- Select Properties.
- Note the name displayed under **Connect using**. Example: 3Com 3C920 Integrated Fast Ethernet Controller (3C905C-TX Compatible)
- Enter this name in the DUT_AdapterName field.

TEST_CFG(DUT_MACIMAGE)

Required: Required field.

Contents: Enter the name of the MAC image file (*.bin) used during tests and to program the DUT MAC.

Function: Sets the name and location of the MAC image file. Example: Firmware/MAC 1.2/1-2-INT5500CS.bin

TEST_CFG(DUT_CFGFILE)

Required: Required field.

- Contents: Enter the name of the configuration file (*.cfg) used to program the DUT.
- Function: Sets the name and location of the DUT configuration file.
 - Example: Firmware/MAC 1.2/1-2-INT5500CS.cfg

Note: Three different configuration files can be found in the firmware folder. These are default.cfg, six_foot_AC_cord.cfg and direct_connect.cfg. The direct connect and default files should be used for the devices with directplug in while the six_foot_AC_cord.cfg file should be used for the devices with six foot AC cord.

TEST_CFG(DUT_SECONDARYLOADER)

Required: Required field when in Initialize or Upgrade modes of operation.

- Contents: Contains the name of the secondary loader binary file (*.bin) programmed into the device.
- Function: Sets the name and location of the secondary loader image file. Example: Firmware/MAC 1.2/1-2-INT5500CS-loader.bin

TEST_CFG(NumLabelsToPrint)

Required: Required field.

Contents: $\geq=0$.

Function: Specifies the number of labels to print feature. Use 0 for no printing. Only applicable when configured to program device's NVM

TEST_CFG(PowerControl)

Required: Required field.

- Function: Determines how the power is controlled during operation.
- Values: 0 Do not attempt to turn power on (DUT should be powered externally. Used for programming the standalone devices. Refer section 8).

1 - Power is applied when ProdTest is launched and turned off when application is shut down.

2 - Power is applied only during testing (on when the start button is pressed, off after all tests complete).

TEST_CFG(PowerOnDelay)

Required: Required field.

Function: Delay in ms for the certain adapters to be recognized after applying Power Default value: 3500ms

TEST_CFG(StopOnFailure)

Required: Required field.

Contents: 1 or 0.

Function: Controls PTS behavior when a DUT fails a subtest.

Values: 1 - DUT test stops on first rate test failure.

0 - DUT test runs to completion even if multiple rate tests fail.

ODMs can use this feature to reduce test time for production testing.

TEST_CFG(MarkFailedEntryInDbFile)

Required: Optional.

- Contents: 0 or 1 (default 0).
- Function: Controls how entries are used from the database file when a device fails a test.
- Values: 0 Do not mark an entry as used in the database file if the device fails. 1 - Mark the corresponding entry in the database file as used if the device fails the test.

TEST_CFG(RunRxRateTest)

Required: Required field.

Contents: 0 or 1.

Function: Determines whether to run receive rate tests.

Values: 0 - Do not run receive rate tests.

1 -Run receive rate tests.

TEST_CFG(RunTxRateTest)

Required: Required field.

Contents: 0 or 1

Function: Determines whether to run transmit rate tests.

- Values: 0 Do not run transmit rate tests.
 - 1 Run transmit rate tests.

5.5. Modifying the Test Definition Files

A detailed description of each field that can be modified in the test configuration file is shown on Appendix C.

In order to modify the test configuration file:

- Open TestDefinition.tcl with a text editor. The default location is C:\Program Files\Intellon\PTS\Source\ TestDefinition.tcl.
- Set the display mode for production or advanced.
 - a. Locate the line that starts with "set TDTRACE_ENABLE".
 - b. This entry is followed by a number. Select either 0 Standard production (terse) setting or 1 Advanced (verbose) setting.
- Define tests 0 through 7. There are a total eight (8) tests that are defined in the supplied test definition file. Each test has five (5) parameters that must be set. The following steps describe how to set the five parameters for Test 0. The same steps can be used to set the parameters for the remaining tests.
 - a. Locate the comment line "#Rate Test 0".
 - b. The five parameters for Test 0 follow the comment line and can be set to meet the test needs of the DUT.
 - Set RateTest(PlantLoss) is a number that sets the attenuation value for the test in dB. Minimum allowed value for this parameter is 2dB.
 - Set RateTest(PacketSize) is a number that sets the number of bytes used in each packet. (Minimum allowed value is 64 while the max allowed value is 1514)
 - Set RateTest(Duration) is a number that sets the number of seconds that the test should run. The minimum is 3 seconds.
 - Set RateTest(MinRate) is a number that sets the minimum allowable data rate in Mbps. The minimum allowed value for this parameter is 1Mbps.
 - Set RateTest(MaxRate) is a number that sets the Maximum allowable data rate in Mbps. The maximum allowed value for this parameter is 45Mbps.
 - c. Set the parameters for the remaining 7 tests.
 - Select which tests are included in the receive-testing sequence
 - a. Locate the line that starts with "set TEST_CFG(RxRateTest)".
 - b. This entry is followed by set of braces "{}". Inside the braces are space-delimited numbers. The numbers identify the tests that were defined in step 3. For example {0 2 4} causes Test 0, Test 2, and Test 4 to be run as the receive-testing sequence. To skip the receive-testing sequence, use empty braces {}.

Installation and User Manual

- Select which tests are included in the transmit-testing sequence
 - a. Locate the line that starts with "set TEST_CFG(TxRateTest)".
 - b. This entry is followed by set of braces "{}". Inside the braces are space-delimited numbers. The numbers identify the tests that were defined in step 3. For example {1 6 7} causes Test 1, Test 6, and Test 7 to be run as the transmit-testing sequence. To skip the transmit-testing sequence, use empty braces {}.
- Save the TestDefintion.tcl file.

5.5.1. Test Definition Fields

TDTRACE_ENABLE

Required: Required field.

- Contents: 1 or 0.
- Function: Enables or disables Advanced Display mode. Advanced Display prints more detailed performance data to the screen during testing.

Values: 1 - Advanced Display.

0 - Standard Production Display.

TEST_CFG(RxRateTest)

Required: Required field.

Contents: {RateTest0 RateTest1 RateTest2 RateTest3 ... RateTest7} Example: {0 2 3} means "Perform tests: 0, 2 and 3".

Function: Selects the receive rate tests to perform when testing the DUT receiver.

- To skip this set of tests, use empty braces { }. Do not remove the line.
- The rate tests attenuate the powerline communications signal to test receiver sensitivity.

TEST_CFG(TxRateTest)

Required: Required field.

Contents: {RateTest0 RateTest1 RateTest2 RateTest3 ... RateTest7} Example: {0 1 3 } means "Perform tests: 0, 1, and 3".

Function: Selects the transmit rate tests to perform when testing the DUT transmitter.

- To skip this set of tests, use empty braces {}. Do not remove the line.
- The rate tests attenuate the powerline communications signal to test DUT transmit amplitude.

RateTest(PlantLoss)

Required: Required field. Contents: Attenuation is measured in dB. Function: Controls the PTS variable attenuator settings. Range: minimum value is 2dB

RateTest(PacketSize)

Required: Required field. Contents: Packet size. Function: Selects the Ethernet packet size for the rate tests. Valid Range: 64 – 1514 bytes

RateTest(Duration)

Required: Required field.

Contents: Time in seconds..

Function: Sets the time for the rate tests. Measured in seconds.

Valid range: Minimum value allowed is 3s.

Increasing the duration increases the test time. Test accuracy increases slightly with increased duration.

RateTest(MinRate)

Required: Required field.

Contents: Minimum rate.

Function: Sets the threshold minimum rate used to determine rate test failure. Measured in Mbps.

Valid range: Minimum allowed value is 1Mbps.

Any measured rates below this value are declared a failed rate test.

RateTest(MaxRate)

Required: Required field.

- Contents: Maximum rate.
- Function: Sets the threshold maximum rate used to determine rate test failure. Measured in Mbit/s.

Valid range: Maximum allowed value is 45 Mbps.

Any measured rates above this value are declared a failed rate test.

6. Device Testing

The Production Test System can be used to test Ethernet-based INT5500CS adapters, routers or other embedded devices. The device is attached to the PTS via the appropriate cables and plugged into the power socket on top of the PTS.

As each device is tested, results are displayed in the **Session Log** window. A summary of results for the current session is displayed at bottom of the **Session Log** window. Figure 7 shows the session log window

6.1. Production vs. Verification Testing

The PTS can be used for production testing or for verification and validation testing. For production testing, simple pass/fail results are displayed. For verification and validation testing, more detailed results can be displayed (Advanced Display). To enabled Advanced Display, set the TDTRACE_ENABLE field in the Test Definition File to "1". Detailed results will be shown on the Test Status window and the log file.

The PTS as shipped is configured to run four basic tests in order to check the DUT receive and transmit performance. The test# 1 and 2 check the device's receive performance while test # 3 and 4 check device's transmit performance. The description of these tests is listed below:

PTS tests	Description	Attenuation level in dB	Threshold limits in Mbps
1	Clean line receive test	45	37 - 45
2	Noisy line receive test	72	1 - 5
3	Clean line transmit test	45	37 - 45
4	Noisy line transmit test	72	1 - 5

6.2. Testing Different Device Types

The PTS is designed to test one type of device per session (e.g. Ethernet wall adapters, HomePlug routers etc). The test configuration file which controls testing parameters must be customized for the current "device under test" type. To test another device type: modify TestConfig.tcl, then close and re-launch ProdTest to have the new test configuration file take effect.

6.3. Disabling Windows Networking and TCP/IP

When testing wall adapters and routers, Windows networking must be disabled. The Windows network interferes with packet transmission and causes anomalous rate test failures. This procedure must be performed on the adapters connected to both the test device (TD) and the device under test (DUT).

To disable Windows networking:

- Right-click My Network Places.
- Select Properties.
- Right-click on the NIC card that is connected to the PTS reference node (TD)
- Select Properties.
- Disable (uncheck) the following:
 - Client for Microsoft Networks
 - o File and Printer Sharing for Microsoft Networks
 - Internet Protocol (TCP/IP)
- Repeat the above for the NIC card attached to the device under test (DUT).

7. Testing Procedures

Before beginning device tests, ensure that both the ODM database and test configuration files have been created and installed. Refer to section 6.2 for details on creating an ODM database file. Refer to Section 6.3 for information on the test configuration file. The windows networking should be disabled before testing any device. Refer to section 7.3 for more details.

In order to test a device:

- Double click the ProdTest icon on the desktop in order to launch the PTS software application.
- The Intellon Production Test System and Session Log windows will be displayed as shown in Figure 7. The MAC address (and optionally the serial number and Default Password) of the first device to be tested will also displayed in the Device Under Test window.
- Connect the indicated device to the PTS via Ethernet cable. Plug the DUT into the PTS power socket.
- Close the lid before testing to ensure maximum shielding from electrical noise and interference
- Press **Start** to execute the test.
- If the Advanced Display is feature is enabled, detailed performance results are displayed while the test is running. These detailed results are also written to the session log file. To enable Advanced Display, set TDTRACE_ENABLE in the Test Definition File to 1. If the advanced display feature is disabled then test results will not be displayed. After completion of the tests the PTS will indicate whether device under test has passed or failed the tests.
- Click **Continue** to prepare to test the next device. The MAC address of the next device to be tested is displayed in the **Device Under Test** window.
- Disconnect the previous device and connect the device whose MAC address is currently displayed.
- Click **Start** to execute the next performance test.
- When finished testing, click **Exit** to close ProdTest.



Figure 7. ProdTest and Session Log Windows in advanced Display Mode

7.1. Test Results

The test configuration and test definition files control the type and number of tests that are performed as well as the rate thresholds used to determine a pass or fail result.

During testing, test results are displayed in the ProdTest window. These results can be either a simple Pass/Fail notice (suitable for production testing), or detailed test results (suitable for verification and validation testing).

To report simple pass/fail results, set TDTRACE_ENABLE in the Test Definition File to 0 (Production Display).

To report detailed test results, set TDTRACE_ENABLE in the Test Definition File to 1 (Advanced Display).

In addition, a summary of pass/fail results during the current session is displayed at the bottom of the Session Log window.

Complete test results are written to a log file stored in PTS\Results\xxx.log where xxx is the name of the ODM database file used during the testing session.

7.2. Viewing the Log File

Test results are logged by MAC Address. Each line of the log file indicates the results for a different device.

As the log file can be quite large (up to 30 fields for each device), it is recommended to import the data into Microsoft Excel. Fields are tab-separated so the data will be imported into a spreadsheet with each row representing a different device.

To view the log file in Microsoft Excel:

- Launch Microsoft Excel.
- Select File \rightarrow Open. Enter the name of the log file.
- Select **Delimited** as the data type. Click **Next**.
- Select **Tab** as the delimiter. Click **Next**.
- Click Finish.
- Save the file using **.xls** extension.

Parameter of the log file is described in next section.

7.2.1. Log File Fields

Address

Indicates: The MAC address of the device.

Values: Device MAC address as read from the ODM database file.

Pass

Indicates: A Pass or Fail results for the entire list of tests.

Values: 1 - Pass.

0 - Failure.

DUTConfigError

Indicates: Whether a communication error occurred between the PTS and the DUT.

- Values: 1 A communication error occurred.
 - 0 No communication error occurred.

TDConfigError

- Indicates: Whether a communication error occurred between the PTS and the TD inside the PTS.
- Values: 1 A communication error occurred.

0 - No communication error occurred.

Rx 0-7_Rate

Indicates: The results for each of the DUT receive rate tests. Measured in Mbps. Values: ReceiveRate_Test1 ReceiveRate_Test2 ReceiveRate_Test3 ReceiveRate_Test4 ReceiveRate_Test5 ReceiveRate_Test6 ReceiveRate_Test7

Up to seven tests can be administered. A separate result field is written for each test.

Tx 0-7_Rate

Indicates: The results for each of the DUT receive rate tests. Measured in Mbps. Values: TransmitRate_Test1 TransmitRate_Test2 TransmitRate_Test3 TransmitRate_Test4 TransmitRate_Test5 TransmitRate_Test6 TransmitRate_Test7

Up to seven tests can be administered. A separate result field is written for each test.

8. Standalone Applications

The INT5500CS programming and production test system software can be used to program/ upgrade a device's flash without requiring the PTS hardware. The customers without the PTS hardware should follow the procedure described below in order to program / upgrade the device's flash:

- Locate a PC with Windows XP OS and a CD ROM drive.
- Insert the INT5500CS programming and production test system software CD into the CD ROM drive of your computer.
- Double click the "install. bat" file on the CD. This will install all the required files onto your computer.
- Open the PTS database directory (C:\program files\Intellon\PTS\db) and double click the DBBuilder utility. Alternatively an icon for the **DBBuilder** application can also be found on the desktop of your PC.

🍘 DB Builder	
Details	
Database name	C:\Documents and Settings\ Open
Starting MAC Address	00A05436B9AC
# Devices	20 .
	Build and View View

ODM Database File Generator

- Enter a filename for the database in the Database name entry. Use a .db extension. If no extension is provided .db extension will be added automatically. By default, the file will be saved in C:\Program Files\Intellon\PTS\dB. To select another location to save this database file, click Open... and browse to the new directory.
- Enter the first MAC address in the **Starting MAC Address** entry. Sequential addresses will be added for each entry in the database.
- Enter the number of entries to be created in this database in the **# Devices** entry (Max entries that can be created using this application is 10,000).
- Click **Build and View** to create the database file.
- Click **View.** This will display the contents of the database file. A samples database file's contents are shown in the Figure below. *Database file structure and fields are explained in section 5.3.1 of this document.*

Installation and User Manual

Example.db	
$\begin{tabular}{ c c c c c } \hline Used & MAC Address \\ \hline 0 & 00: A0: 54: 36: B9: DE \\ 0 & 00: A0: 54: 36: B9: DF \\ 0 & 00: A0: 54: 36: B9: E0 \\ 0 & 00: A0: 54: 36: B9: E1 \\ 0 & 00: A0: 54: 36: B9: E2 \\ 0 & 00: A0: 54: 36: B9: E4 \\ 0 & 00: A0: 54: 36: B9: E5 \\ 0 & 00: A0: 54: 36: B9: E5 \\ 0 & 00: A0: 54: 36: B9: E6 \\ 0 & 00: A0: 54: 36: B9: E7 \\ 0 & 00: A0: 54: 36: B9: E8 \\ 0 & 00: A0: 54: 36: B9: E8 \\ 0 & 00: A0: 54: 36: B9: E8 \\ 0 & 00: A0: 54: 36: B9: E8 \\ 0 & 00: A0: 54: 36: B9: E8 \\ 0 & 00: A0: 54: 36: B9: E8 \\ 0 & 00: A0: 54: 36: B9: E8 \\ 0 & 00: A0: 54: 36: B9: E9 \\ 0 & 00: A0: 54: 36: B9: E8 \\ 0 & 00: A0: 54: 36$	DEK Password TEQN-RYPE-TREG-BAQV WANM-NGHW-VNIY-UKOZ ZXJL-KPWL-SJMQ-RQIH DTBL-KCKE-UFUI-KBGP GPXK-HLZS-RBYE-HLFT JMTJ-ETNL-TXGW-ARZB NIPJ-EGBE-RTKO-XCXJ QFMI-BPQT-SPOG-PMVS TBEH-XYIL-QLWY-MSPW WTAH-UKXA-RGAQ-FDNE AQWG-UTLT-PCIM-CNLM DMSF-RCAI-RUNF-VTKU GJKF-000A-0QVX-SEEY JFHE-0XDT-QMZP-LKCG NBDD-LGVI-NIDH-IUAO QYZD-HTKA-PELD-AFUS TUVC-EBYP-MAPV-XLSA WRNB-EKMI-0WXN-QVRI ANJA-BXBX-MSBF-NGLR DJGA-YGPP-NOJX-GMJV

Samples ODM Database File View

- Open C:\Program Files\Intellon\PTS\TestConfig.tcl file with a text editor.
- Set the location and file name of the ODM database file to be used.
 - Locate the line that starts with "set TEST_CFG (DB_FILENAME)".
 - This entry is followed by a text string in quotes. Modify the test string to point to the location and database file name created, e.g. set TEST_CFG(DB_FILENAME) "db/ODM_DB.db".
- Set the testing mode.
 - Locate the line that starts with "set TEST_CFG(Operation)".
 - This entry is followed by a number. Select from the following values mode:

1 – Initialize mode, or 2 – Upgrade mode ("0" is not a valid entry here).

For more details about the "Initialize" and "Upgrade" modes, please refer to section 4.1 of this document.

- Set the adapter name for the Device Under Test (DUT).
 - Locate the line that starts with "set TEST_CFG (DUT_AdapterName)". This entry is followed by a text string in quotes. Example "Intel® PRO/100 VE Network Connection".
 - To determine the name of the adapter:
 - > Right click on **My Network Places.**
 - Select Properties.
 - > Right-click on the name of the adapter used by the DUT.
 - Select Properties.
 - > Copy the name displayed under "Connect using".

Remove the text between the quotes. Paste the name of the adapter copied in between the quotes in text file.

- Disable Windows networking. In order to do that:
 - Right-click My Network Places.
 - Select Properties.
 - Right-click on the NIC card that is connected to the PTS reference node (TD)
 - Select Properties.
 - Disable (uncheck) the following:
 - Client for Microsoft Networks
 - File and Printer Sharing for Microsoft Networks
 - Internet Protocol (TCP/IP)
 - Repeat the above for the NIC card attached to the device under test (DUT).
- Set the location and file name of the configuration data file to be used in order to program the flash.
 - c. Locate the line that starts with "set TEST_CFG (DUT_CFGFILE)".
 - d. This entry is followed by a text string in quotes. Modify the test string to point to the location and file name of the configuration file, e.g. set TEST_CFG(DUT_CFGFILE) "Firmware/1_4/direct_connect.cfg ".
- Set the location and file name of the MAC image data file to be used.
 - c. Locate the line that starts with "set TEST_CFG (DUT_MACIMAGE)".
 - d. This entry is followed by a text string in quotes. Modify the test string to point to the location and file name of the MAC image file, e.g. set
 TEST_CFG(DUT_MACIMAGE) "
 Firmware/1 4/INT5500CS-MAC-1-4-3-19.bin ".

- Set the following parameters to "0"
 - TEST_CFG(NumLabelsToPrint)
 - TEST_CFG(PowerControl)
 - TEST_CFG(bRxRateTest)
 - TEST_CFG(bTxRateTest)
- Save the TestConfig.tcl file. *An example test configuration file for the standalone application can be found at C:\ProgramFiles\Intellon\PTS\Examples.*
- Double click the ProdTest icon on the desktop in order to launch the PTS software application. The **Intellon Production Test System** and **Session Log** windows will be displayed as shown in the following Figure
- Connect the DUT to the NIC card of the PC via Ethernet cable. Plug the DUT into any AC outlet.
- Hit **Start** in order to initiate the programming procedure. The production test system window should show the device MAC address and test status as "PASS" after the successful programming.
- Click **Continue** to prepare to program the next device.
- When finished testing, click **Exit** to close ProdTest.

Appendix A: Sample Test Configuration File

The following is a sample test configuration file. Refer to section 6.2 for details on how to modify the test configuration file. Additional example files are provided in: C:\Program Files\ Intellon\ PTS\Source\lib\ SampleConfigFiles.

# Example Configuration file for initializing devices.	
# This is the most typical mode of operation where the devices	
# are tested, programmed with secondary loader, mac firmware	
# and configuration data using MAC addresses and Default	
# Encryption Keys derived from passwords provided in the	
# database file. Labels are also printed.	
#	
#	
# This File Defines the test	
#	=====
#	
# Database File	
#	
set TEST_CFG(DEVICE_TYPE) "PTS"	
set TEST_CFG(DB_FILENAME) "dB/exampleDb.db"	
#	
# Mode of operation	
#	
# 0 - Test only	
# 1 - Initialize (runs any test specified and programs empty device)	
# 2 - Upgrade (runs any test specified and programs device conserving	MAC
# identity configuration data).	
set TEST_CFG(Operation) 1	
# Upgrade behaviour	
# when in upgrade mode this flag is used to determine how the	
# identity section of the device begin upgraded is preserved.	
# 0 - Only the devices MAC address and DEK are saved. The remainde	er
# of the Identity section comes from the new configuration file	
# specified.	

Installation and User Manual

#1 - The devices entire Identity configuration section is re-used.

set TEST_CFG(PreserveEntireIdentitySection) 0

#-----

Reference Device Info

#-----

Adapter name that the reference ethernet device is

attached to. This will change depending on the network

card. Use My Network Places open up the adapter to

extract adapter name.

set TEST_CFG(TD_AdapterName) "3Com EtherLink XL 10/100 PCI For Complete PC Management NIC (3C905C-TX)"

#-----

Device Under Test Configuration

#-----

Adapter name will change depending on the vendors adapter

name. Use My Network Places open up the adapter to

extract adapter name.

set TEST_	CFG(DU]	Γ_AdapterN	ame)
Managem	ent NIC (3	C905C-TX)	#2"

"3Com EtherLink XL 10/100 PCI For Complete PC

Image and configuration file to load to the Device Under# Test (DUT) that will be used during testing and to program# to the device when this option is selected.

set TEST_CFG(DUT_MACIMAGE) set TEST_CFG(DUT_CFGFILE) set TEST_CFG(SECONDARYLOADER) "Firmware/1_4/INT5500CS-MAC-1-4-3-19.bin" "Firmware/1_4/ewa.cfg" "Firmware/1_4/INT5500CS-SFLD-1-4-3-19.bin"

Label Printing set TEST_CFG(NumLabelsToPrint) 1 #------

Test Setup Configuration

Installation and User Manual

#-----

PowerControl- determines how the power is controlled

during operation.

0 - Do not attempt to turn power on.

1 - Power is applied when the application is launched and disabled when the application exits.

2 - Power is applied only during testing.

set TEST_CFG(PowerControl) 2

Delay in mS to allow time for the certain adapters

to be recognized after applying Power

set TEST_CFG(PowerOnDelay) 3500

#-----

Tests to Run

#-----

A value of 0 indicates to continue running remaining tests

even when one fails. If this option is selected, then if

a device fails it will not be programmed.

set TEST_CFG(StopOnFailure) 0

#error handling

#Controls how entries are used from the database file when

#a device fails a test.

#0 - Do not mark an entry as used in the database file if the device fails.

1

#1 - Mark the corresponding entry in the database file as used if the device fails the test

set TEST_CFG(MarkFailedEntryInDbFile) 0

Flag indicating to run the Receive Rate tests# (from Refrence device to Device under test)

set TEST_CFG(bRxRateTest)

Flag indicating to run the Transmit Rate tests# (from Device under test to Refrence device)set TEST_CFG(bTxRateTest)1

Appendix B: Sample Test Definition File

The following is a sample test definition file.

#======================================		
# This File Defines the to	est	
#======================================		
#		
#		
# Advanced Settings		
#		
#Flag enabling further diagnos	stic feedback. A setting	
#of I enables the advanced dis	splay.	
set TDTRACE_ENABLE 1		
#Network password to use du	ring tests,	
set TEST_CFG(DefaultNetwo	rkPassword) HomePlug	
#device adapter discovery dela	ay for	
set TEST_CFG(DUT_Device.	AdapterDiscoveryDelay)	[list 0 2000 6000]
set TEST_CFG(TD_DeviceAd	lapterDiscoveryDelay)	[list 0 0 0]
#		
# Rate Tests Definitions		
<pre># # Receive Rate Tests to Run (</pre>	from REF -> DUT)	
set TEST_CFG(RxRateTest)	{0123}	
# Transmit Rate Tests to Run	(from DUT -> REF)	
set TEST CFG(TxRateTest)	{ 4 5 6 7 }	
# Rate Test 0	× /	
set RateTest(PlantLoss)	45	
set RateTest(PacketSize)	1514	
set RateTest(Duration)	5	
× /		

		Man
set RateTest(MinRate)	30	
set RateTest(MaxRate)	40.0	
set RateTestDefs(0) [array ge	t RateTest]	
#		
# Rate Test 1		
set RateTest(PlantLoss)	60	
set RateTest(PacketSize)	1514	
set RateTest(Duration)	5	
set RateTest(MinRate)	10	
set RateTest(MinRate) set RateTest(MaxRate) set RateTestDefs(1) [array go	10 20.0 t RateTest]	
set RateTest(MinRate) set RateTest(MaxRate) set RateTestDefs(1) [array ge	10 20.0 t RateTest]	
set RateTest(MinRate) set RateTest(MaxRate) set RateTestDefs(1) [array go # # Rate Test 2	10 20.0 t RateTest]	
set RateTest(MinRate) set RateTest(MaxRate) set RateTestDefs(1) [array go # # Rate Test 2 set RateTest(PlantLoss)	10 20.0 t RateTest] 	
set RateTest(MinRate) set RateTest(MaxRate) set RateTestDefs(1) [array go # # Rate Test 2 set RateTest(PlantLoss) set RateTest(PacketSize)	10 20.0 t RateTest] 67 1514	
set RateTest(MinRate) set RateTest(MaxRate) set RateTestDefs(1) [array go # # Rate Test 2 set RateTest(PlantLoss) set RateTest(PacketSize) set RateTest(Duration)	10 20.0 tt RateTest] 67 1514 5	
set RateTest(MinRate) set RateTest(MaxRate) set RateTestDefs(1) [array go # # Rate Test 2 set RateTest(PlantLoss) set RateTest(PacketSize) set RateTest(Duration) set RateTest(MinRate)	10 20.0 At RateTest] 67 1514 5 2.7	

Rate Test 3

set RateTest(PlantLoss)	74
set RateTest(PacketSize)	1514
set RateTest(Duration)	5
set RateTest(MinRate)	0.5
set RateTest(MaxRate)	5

set RateTestDefs(3) [array get RateTest]

#-----

Installation and User Manual

Rate Test 4

set RateTest(PlantLoss)	45
set RateTest(PacketSize)	1514
set RateTest(Duration)	5
set RateTest(MinRate)	30
set RateTest(MaxRate)	40.0

set RateTestDefs(4) [array get RateTest]

#

# Rate Test 5	
set RateTest(PlantLoss)	60
set RateTest(PacketSize)	1514
set RateTest(Duration)	5
set RateTest(MinRate)	10
set RateTest(MaxRate)	20.0

set RateTestDefs(5) [array get RateTest]

#-----

# Rate Test 6	
set RateTest(PlantLoss)	67
set RateTest(PacketSize)	1514
set RateTest(Duration)	5
set RateTest(MinRate)	2.7
set RateTest(MaxRate)	10.0

set RateTestDefs(6) [array get RateTest]

#	
# Rate Test 7	
set RateTest(PlantLoss)	74
set RateTest(PacketSize)	1514
set RateTest(Duration)	5
set RateTest(MinRate)	0.5
set RateTest(MaxRate)	5
set RateTestDefs(7) [array get RateTest]	
#	

Appendix C: Sample Database File

The following is a sample ODM database file. Refer to Section 6.3 for details on how to create a database file.

Status	MAC Address	DEK Password
1	00B0520B0005	WCCY-8S2G-QDSV-CLQQ
1	00B1520B0005	WCCY-9S2G-QDSV-CLQQ
1	00B2520B0005	WCCY-AS2G-QDSV-CLQQ
1	00B3520B0005	WCCY-BS2G-QDSV-CLQQ
1	00B4520B0005	WCCY-CS2G-QDSV-CLQQ
1	00B5520B0005	WCCY-DS2G-QDSV-CLQQ
1	00B0520B0005	WCCY-8S2G-QDSV-CLQQ
0	00B1520B0005	WCCY-9S2G-QDSV-CLQQ
0	00B2520B0005	WCCY-AS2G-QDSV-CLQQ
0	00B3520B0005	WCCY-BS2G-QDSV-CLQQ
0	00B4520B0005	WCCY-CS2G-QDSV-CLQQ
0	00B5520B0005	WCCY-DS2G-QDSV-CLQQ
0	00B0520B0005	WCCY-8S2G-QDSV-CLQQ
0	00B1520B0005	WCCY-9S2G-QDSV-CLQQ
0	00B2520B0005	WCCY-AS2G-QDSV-CLQQ
0	00B3520B0005	WCCY-BS2G-QDSV-CLQQ
0	00B4520B0005	WCCY-CS2G-QDSV-CLQQ
0	00B5520B0005	WCCY-DS2G-QDSV-CLQQ

Appendix D: TLC License Agreement

The Intellon PTS5500 software package includes the TCL scripting engine. The following license agreement is applicable to the TCL software.

This software is copyrighted by the Regents of the University of California, Sun Microsystems, Inc., Scriptics Corporation, and other parties. The following terms apply to all files associated with the software unless explicitly disclaimed in individual files.

The authors hereby grant permission to use, copy, modify, distribute, and license this software and its documentation for any purpose, provided that existing copyright notices are retained in all copies and that this notice is included verbatim in any distributions. No written agreement, license, or royalty fee is required for any of the authorized uses. Modifications to this software may be copyrighted by their authors and need not follow the licensing terms described here, provided that the new terms are clearly indicated on the first page of each file where they apply.

IN NO EVENT SHALL THE AUTHORS OR DISTRIBUTORS BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS SOFTWARE, ITS DOCUMENTATION, OR ANY DERIVATIVES THEREOF, EVEN IF THE AUTHORS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

THE AUTHORS AND DISTRIBUTORS SPECIFICALLY DISCLAIM ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. THIS SOFTWARE IS PROVIDED ON AN "AS IS" BASIS, AND THE AUTHORS AND DISTRIBUTORS HAVE NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.

GOVERNMENT USE: If you are acquiring this software on behalf of the U.S. Government, the Government shall have only "Restricted Rights" in the software and related documentation as defined in the Federal Acquisition Regulation (FARs) in Clause 52.227.19 (c) (2). If you are acquiring the software on behalf of the Department of Defense, the software shall be classified as "Commercial Computer Software" and the Government shall have only "Restricted Rights" as defined in Clause 252.227-7013 (c) (1) of DFARs. Notwithstanding the foregoing, the authors grant the U.S. Government and others acting in its behalf permission to use and distribute the software in accordance with the terms specified in this license.



Intellon Corporation

5100 West Silver Springs Blvd. Ocala, FL 34482 (352) 237-7416 (352) 237-7616 (Fax)

1731 Technology Drive Suite #560 San Jose, CA 95110 (408) 501-0320 (408) 501-0323 (Fax)





www.intellon.com

©2005 Intellon Corporation. Intellon Corporation reserves the right to make changes to this document without notice. Intellon Corporation makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose. Intellon Corporation assumes no liability arising out of the application or use of any product or circuit. Intellon Corporation specifically disclaims any and all liability, including without limitation consequential or incidental damages.

Intellon, PowerPacket, and No New Wires are registered trademarks of Intellon Corporation. HomePlug is a registered trademark of the HomePlug Powerline Alliance.