

TechComplete™ Home Certification Testing Solution

Key Features

- Automate test procedures on instruments
- Provide value added reports for the analysis of this data
- Helps reduce repeat service calls by “facilitating” a process for the technician to do a comprehensive and consistent process for each job, every time, verified by test data
- Automatic integration of test data with existing work order management system – requires no manual intervention
- Create a system wide standard for initiating & interpreting test results
- Results in standards and consistent procedures that ensure quality based on quantitative test data
- Central repository for test data provides management reports, trends for data analysis, efficiency of technician and productivity

Global Communications
Company of the Year Award

With the advent of new technologies, test equipment is capable of doing more than traditional test measurements. Test equipment has become a multifunctional device that can function as a mobile terminal for technicians in the field. These instruments can now send and receive information over the RF plant's DOCSIS® channel. This technology is a primary driver of JDSU's TechComplete™ Solutions portfolio.

TechComplete Home Certification Test Solution empowers operators to increase customer satisfaction by utilizing customized, automated testing procedures to significantly reduce repeat calls and increase productivity.

With the additional use of coaching reports supervisors can provide the specific training and coaching to the field workforce required to improve efficiency and drive repeatable, successful results.

DSAM Home Certification Test Results Screen

With TechComplete™ Home Certification Testing Solution the DSAM family of test instruments is able to provide electronic methods and procedures that automate Home Certification testing on the instrument, reduce capital expenditures, and eliminate costly rework. Results are uploaded remotely over the existing RF plant's DOCSIS® channel to a central, management-accessible, MySQL® database. By enforcing consistent and clear procedures for Home Certification testing, uploading results immediately to a central database, integrating test results with work order detail, and providing reports on the test data, operators can significantly reduce their repeat service call rates. This saves valuable time and money and allows operators to proactively establish a repeatable quality work process. It also improves customer satisfaction by ensuring the service call is done correctly the first time. With the DSAM Home Certification testing option in conjunction with the TechComplete Test Productivity Pack (TPP) software, a complete end-to-end solution is available. In addition to automated test procedures, the TPP Server Software generates coaching reports based on job Home Certification tests that can be customized to individual company processes and centered on specific work group activities. This brings the highest levels of test functionality and efficiencies to the daily activities of the field workforce.

DSAM Home Certification Test Summary Screen

As a result, technicians can perform more work faster, more accurately, and with less cost. Supervisors, on their part, have accurate data on each technician's performance, and are alerted when work orders are completed. This information enables them to quickly measure daily performance, isolate problem areas or training issues, and proactively address customer problems. By gaining better management control and reducing paperwork, supervisors decrease time to repair, increase customer satisfaction, and reduce costs.

TechComplete Home Certification Testing Solution provides the following user benefits:

- Reduce failure frequency and repeat dispatch visits due to misprovisioning or improper testing
- Increase compliance to rigorous test standards
- Improve efficiency of customer care, dispatch and NOC workforces
- Meet regulatory requirements
- Improve time-to-repair and decrease service downtime rebates
- Improve productivity by provisioning new services quickly and accurately
- Lower training costs by bringing automation and consistent test procedures to the instrument
- Easy access to test data by creation of a central repository for test data that provides management reports and trends for data analysis
- Create a system wide standard for initiating & interpreting test results

The TechComplete Home Certification testing Solution reduces operators repeat service calls through the following methods:

- Establish clear and standard test procedures that all technicians must adhere to before a call can be completed. These result in standards and consistent procedures that ensure quality based on quantitative test data.
- Enforce the test in the instrument while ensuring that each installation and service call is done right the first time – with proper performance margin tested and recorded
- Establish the test parameters and criteria from a central location so consistency is maintained.
- Automate the process for the technician in the instrument so it is simple and easy to follow.
- Provide coaching reports on this test data that summarize the results/performance by technician and allows managers to quickly assess trends and problem areas before reviewing individual test file details.

Product Features and Benefits

DSAM Family of Test Instruments

The TechComplete Home Certification Test solution is comprised of five main components—The DSAM family of test instruments, the DSAM Home Certification Testing Option, the Test Productivity Pack (TPP) Field Data Management Software and professional service and training. The family of DSAM Digital Services Activation Meter is a lightweight, durable advanced services test set for cable operators. The DSAM incorporates state-of-the-art DSP and DOCSIS technologies to test cable modem services, digital video, analog video and PacketCable™ VoIP. With just one meter you can test virtually all of your services. There is no need for technicians to have multiple meters or have to change test equipment—even with VoIP services—so you save money. Technicians can certify homes are “digital 2-way ready” during routine installations allowing customer “self installs” of HSD to be more reliable and faster and therefore reducing future service and install calls.

Simply being able to test complete Digital and IP services is not enough in today’s marketplace. With the DSAM’s advanced and unique test features, however, you are able to take customer satisfaction to the next level by performing both traditional tests and advanced tests during the same call, with the same meter, by the same technician. Some of the highlights of the DSAM family of test instruments include:

- Test to and from the CMTS verifying upstream transmits and downstream receive levels.
- Emulate the subscriber’s PC by connecting to a live Internet site via DSAM’s embedded web browser, through the subscriber’s cable modem, to verify Internet access
- Validate the network by acting as the customer’s CM with a MAC address emulation
- Perform IP throughput and packet loss tests on both the upstream and downstream
- View return path spectrum to analyze ingress. The DSAM even integrates with PathTrak Return Path Monitoring System (Field View option)
- Full web browser capability, with mouse based navigation, to allow technicians to connect and view other applications while remote in the field. The connection is done via DOCSIS channel or via Ethernet LAN and eliminates need for multiple PCs, PDAs or wireless data charges (Browser option)

DSAM Home Certification Testing Option

This option on the DSAM provides automated test functionality in the instrument. This gives technicians the unique ability to run a 'one-button' Home Certification test in the meter that performs a pre-defined test (s) according to a pre-defined set of limit plans. The Home Certification test option gives the user the ability to easily configure what tests to run with what pass/fail criteria. Therefore, operators can create custom Home Certification tests based on their own criteria. One of the most important criteria of Home Certification testing is to ensure technicians take tests according to clear and consistent criteria; therefore all configuration of the Home Certification test(s) and limit plans are established at a supervisor/manager level via the Test Productivity Pack (TPP) software in a simple graphical user interface. These are deployed to the DSAM meter from TPP through the unique synchronization process.

The DSAM's automation guides the technician through the testing and synchronization sequence and limits the potential for user error, while still giving them the information and flexibility they need to fix problems in the field. The technician is guided through the process with screens that prompt them for information such as the correct work folder name, review of test setup information and when to conduct the save and synchronization process. Once the test is complete, pass/fail results are clearly displayed to the technician along with the ability to store the test results according to a unique naming scheme (such as customer or account number) that will correlate back to the work order system for the creation of management level reports via the TechComplete TPP Server Software.

The DSAM Home Certification option puts the control and flexibility into the hands of the customer for creation of custom Home Certification tests. Users decide based on their own individual criteria what tests to run as part of their Home Certification process. For example, a manager can choose to create a Home Certification test that consists of a range, registration and throughput DOCSIS® test and VoIPCheck or just a measurement level on a combination of analog and digital channels, including MER and BER. The decision is entirely up to each customer! But the DSAM Home Certification option does not stop there. It even allows the user to name the limit plan associated with the test via TPP hence creating a unique naming scheme for each system. For example, managers can create limit plans such as platinum for commercial accounts with one set of limits and bronze for residential accounts with a different set of limits for things such as maximum throughput.

TechComplete™ Test Productivity Pack (TPP) Field Data Management Software

The TPP is a next-generation PC software platform that provides an advanced tool for field service supervisors and managers to manage testing activities, maintain an accurate inventory of DSAMs and manage field test data. TPP supports multiple client access from remote locations in a client server environment.

TPP software supports traditional instrument functions, such as a simplified way to configure test setups for DSAM instruments, all via its management software. In support of this, channel plans and limit plans for the DSAM can be configured and stored in the TPP software. The supervisor does this once and then deploys the central configuration to any instruments they choose.

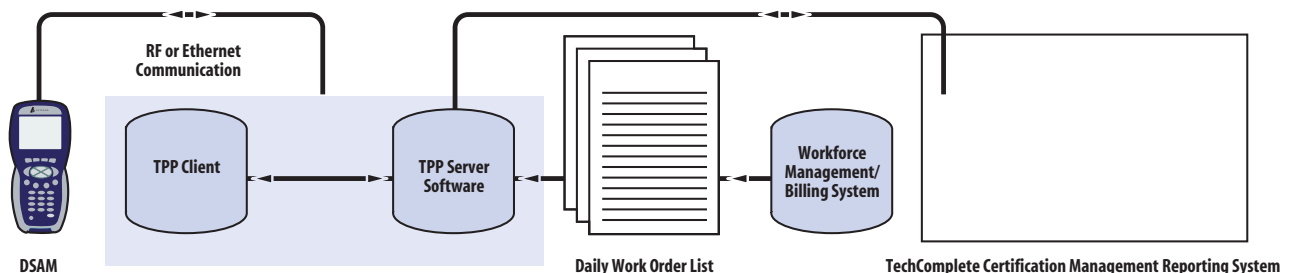
Unique to the TPP software and DSAM is the communication process to send information from DSAM back to the central location of TPP via the DOCSIS channel on the RF plant or via the Ethernet network. Once the test results are taken and recorded, the technician must have the capability to send the results to a central repository from a remote location. It is impractical to require a technician to physically return to a central location where a computer resides and transfer the data to a database. TPP software makes it easy and practical for technicians to send test data back frequently, ensuring all test data is recorded. Most companies existing procedures result in large gaps and discrepancies in test data. Manually recording of test data also contributes to this problem. Remote communication ensures data is recorded as it is tested via the instrument in the field and eliminates the risk for user interpretation.

The value of TPP is further enhanced when integrated with the Home Certification testing option in DSAM and the TechComplete TPP Server Software.

Integration with DSAM Home Certification Test Option

- Supervisors can configure the DSAM Home Certification test option and all parameters on DSAM from the TPP client while ensuring consistency across all technicians
- Limit plans are centrally managed ensuring correct pass/fail criteria as well as adherence to the limit plans
- Ability to deploy not only physical limit plans for video channels, but also data limit plans for DOCSIS testing. The data limit plans can be custom named through the TPP client.

TechComplete Home Certification Testing Solution



| Supervisor: 169 | | Start Date: 8/14/2003 | End Date: 8/14/2003 | |
|-----------------|------------|-----------------------|---------------------|---------------|
| Tech ID | Total Jobs | Number Require Test | Tests Ran | Tests Passed |
| | | | Number % | # % |
| 128 | 13 | 11 | 11 100% | 11 100% |
| 334 | 11 | 11 | 11 100% | 11 100% |
| 451 | 12 | 8 | 7 88% | 6 88% |
| 567 | 8 | 8 | 8 100% | 7 88% |
| 568 | 9 | 8 | 3 38% | 3 100% |
| 569 | 15 | 11 | 11 100% | 11 100% |
| 702 | 12 | 12 | 11 92% | 11 100% |
| 801 | 4 | 4 | 4 100% | 4 100% |
| 803 | 16 | 12 | 12 100% | 8 67% |
| 880 | 18 | 14 | 13 93% | 13 100% |
| Total | 118 | 98 | 91 92% | 85 93% |

Supervisor Home Certification Test Comparison Report

TechComplete™ Test Productivity Pack Server Software

The TechComplete Test Productivity Pack (TPP) Server Software is a critical component to the TechComplete Home Certification Testing Solution. This software provides two areas of functionality:

1. Generation of coaching reports using the Home Certification tests from TPP
2. Integration to the billing\work order system in order to correlate jobs or work orders to the Home Certification test data

The TechComplete TPP Server Software consists of a web based client that provides access to the Certification Management Reporting System (CMRS) coaching reports. Standard 'out of the box' reports are provided with the TechComplete TPP Server software. The CMRS coaching reports are generated utilizing the individual test data that is taken by DSAM and stored in TPP as well as the job\order codes from the billing system. This process is automated by the TechComplete TPP Server Software.

The TPP software is used for analysis of individual test files. With large numbers of technicians, it is inconceivable for supervisors or managers to review every technician's individual test files. TechComplete TPP Server Software provides higher level management reports for supervisors to look for trends and problem areas. These reports are available on different levels such as all technicians for a supervisor or all supervisors for a manager. After a problem area is identified in the coaching reports, TPP can be used for further analysis. The CMRS coaching reports help supervisors ensure technicians are taking the tests, they are passing (or failing), and ensure that they are adhering to predefined quality standards. This translates back into a reduction of repeat rates and higher customer satisfaction levels. Users merely have to select which type of report to view and the associated report parameters.

The TechComplete CMRS Coaching report web client also provides a user management section for clients to create the relationships between technicians and supervisors. This relationship is necessary in order to view an accurate report for detail such as all technicians for a specific supervisor or all supervisors for a manager. Without this relationship it is impossible to generate the correct report. A table in the web client helps administer and edit all of these users.

Integration to the billing or work order system is a critical piece of the TechComplete TPP Server Software. It tells the users the number of tests that passed relative to the number of jobs that required a test. Without this correlation, reports are misleading and inaccurate. Another benefit of integrating to the billing or work order management system is the ability to send each technician a list of their work orders for the day to their DSAM work folder list via the TPP synchronization process. This eliminates the need for technicians to manually enter the naming scheme to save their test results. This saves the technicians time and reduces the risk of user error hence further enhancing the automation of the Home Certification test process. It also ensures consistency across all technicians when saving test results and storing them in TPP for further analysis.

Professional Services and Training

JDSU's professional services staff works closely with customers to identify areas where improved operations, streamlined methods and procedures, and staff development will provide corporate-wide benefits. In addition, JDSU has a range of training programs that are delivered in a variety of environments. Structured around the needs of the customer and its personnel, these training programs ensure that all WorkFlow Solutions are used properly and achieve maximum effectiveness in expanding both network and business performance.

Various levels of support are available for the deployment and maintenance of the TechComplete Home Certification Testing Solution. JDSU support services will vary depending on the size of the installation, scope of the project and available resources of each individual operator. Therefore, there is no standard support package that applies to every customer. Installations at each system must be evaluated on an individual case basis to determine the level of support services required. JDSU sales personnel will work with each customer to determine the support that is required. The deployment services that are available include program management, training, installation and system configuration.

Minimum System Requirements

The minimum system requirements for the various components are listed below. Because operating system and hardware platform requirements change over time, please contact your JDSU representative for further information on the latest system requirements.

DSAM Home Certification Option

This option is available on the entire family of DSAMs with firmware version 2.1 or later.

It is licensed to individual meters based on serial number.

TechComplete™ Test Productivity Pack (TPP) Server Software

Operating system: Windows 2000 (server or professional) XP (professional) or 2003 Server

RAM: 1 GB minimum

Available hard drive space: 250 MB*

(*depends on number of tests stored in MySQL database , approximately 30 MB of hard drive space per DSAM per year)

Connectivity: Ethernet

Screen Resolution: 1024 x 768

IP assignments: Static IP address

TechComplete™ Test Productivity Pack (TPP) Client

Operating system: Windows 2000 (server or professional) or XP (home or professional)

RAM: 256 MB

Available hard drive space: 55 MB

Connectivity: Ethernet

Screen Resolution: 1024 x 768

TechComplete Test Reporting System (TRS) and Certification Management Reporting System (CMRS) Client

Internet Explorer 6.0 or later

Ordering Information

| Model | Part Number | VIAS BN | Description |
|--|--------------|------------|--|
| DSAM Home Certification Option | 1019-00-1513 | IDSAMOPCLO | DSAM Home Certification option when made with original DSAM purchase |
| DSAM Home Certification Upgrade – Field Upgrade | 1019-00-1523 | IDSAMCLOSE | DSAM Home Certification upgrade - ordered when customer already possesses DSAM and wants to add Home Certification option to unit in the field |
| Test Productivity Pack Server And Client Software: | 1010-00-0926 | ITPPSRV5 | Support for up to 5 DSAMs, includes 5 client licenses |
| Test Productivity Pack Client | 1019-00-1512 | IFDM250CLT | Additional TPP client license (maximum of thirty clients per TPP server) |
| Test Productivity Pack Server Upgrade | 1019-00-1538 | ITPP10MTR | Upgrade TPP to support 10 additional DSAMs This will increase the meter count on top of existing meter licenses |
| Test Productivity Pack Server Upgrade | 1019-00-1525 | ITPP50MTR | Upgrade TPP to support 50 additional DSAMs This will increase the meter count on top of existing meter licenses |
| Test Productivity Pack Server Upgrade | 1019-00-1526 | ITPP250MTR | Upgrade TPP to support 250 additional DSAMs This will increase the meter count on top of existing meter licenses |
| Test Productivity Pack Server Upgrade | 1019-00-1525 | ITPP500MTR | Upgrade TPP to support 500 additional DSAMs This will increase the meter count on top of existing meter licenses |

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