Acterna Digital Broadcast Test Platform
Model DTS-300

Highlights

- *Provides a one-box solution that meets the widest variety of applications, eliminating the need to purchase additional test tools*
- *Performs analysis, evaluation, and troubleshooting in real time, minimizing the hassle and delay of capturing files for later detailed analysis*
- *Uses the familiar Windows® NT interface to provide beginners and experts with quick, easy access to needed information*
- *Allows engineers to quickly isolate and diagnose problems, providing faster response times for field service organizations*
- *Monitors, analyzes, records, creates, and plays transport streams at speeds from 1 kbps to 214 Mbps*

Product Highlights

- Continuous real-time monitoring and analysis of all transport stream data: PIDs, PCR/PTS timing, programs/channels, network information, conditional access, full PSI/SI/PSIP table and descriptor analysis, and complete private table decode at the industry's highest maximum input data rates of up to 214 Mbps. This eliminates the hassle and delay of capturing files for later detailed analysis
- Continuous real-time creation and emulation of a test stream, eliminating the storage-intensive and time-consuming "build-then-play" procedure required by all other stream- creation or manipulation devices. Offers industry-high output data rates of 214 Mbps
- Complete recording of transport streams with the original timing information for accurate playback and post-analysis. Performs PID filtering and records from memory at up to 214 Mbps
- Complete play out of transport streams using the original timing parameters Performs continuous loop operation and play-out from memory at up to 214 Mbps

Application Highlights

- Measures, interprets, and displays transport stream status, content and statistics for all PIDs, programs/channels, tables and PCR/PTS/DTS timestamps
- Plays and analyzes simultaneously for simulation and examination in real time
- Includes a wide range of standard interfaces (DVB ASI, DVB SPI, and SMPTE-310M)
- Offers additional interface options (DHEI, QPSK)
- Provides dual (simultaneous) analysis of two transport streams as an option
- Provides dual (simultaneous) play-out of two transport streams as an option

ACTERNA™
The Keepers of Communications

The Acterna Digital Broadcast Test Platform (DTS-300) is the industry's fastest, most flexible, and comprehensive solution for MPEG-2, DVB, and ATSC testing. This revolutionary, single-platform test set provides developers, broadcasters, system integrators, and field operators with multiple application modules that are easily configured to fit any test scenario. Due to the DTS-300's modular architecture and extensive set of application modules, users need only purchase the capabilities currently required, adding supplementary capabilities as new testing demands arise. Both desktop and portable versions of the DTS-300 are available.

Applications

Indispensable during equipment validation and acceptance testing, the DTS-300 verifies system performance by pinpointing and resolving equipment and system failures and interoperability issues while complying with the extremes of the MPEG-2, DVB, and ATSC standards. Its powerful stream creation, generation, and analysis tools combine to provide the complete solution for any test and measurement environment, including:

- R&D—provides rigorous, aggressive design validation that enables multiplexer, set-top box, and digital TV manufacturers to reach the market faster and guarantee system quality
- Deployment trials—assists in testing leading-edge technologies such as digital terrestrial TV and statistical multiplexing
- System installation—allows integrators to solve configuration, interworking, and performance issues prior to system acceptance and turn-up of the service
- Network operation—generates baselining reports and monitors quality of service in both contribution and distribution networks

The DTS-300 is easily configured with one or more of the following application modules:

- The Analyzer—for continuous, detailed, real-time analysis of all transport stream content and statics
- The Multiplexer—Continuous real-time transport stream creation
- The Generator—for real-time transport stream recording and play-out Recording and play out of transport streams

Continuous, Detailed, Real-Time Analysis of All Transport Stream Contents and Statistics

Because a single bit error can easily trickle through a densely packed transport stream, causing service degration or interruption, users rely on the DTS-300 Analyzer, which provides detailed, real-time analysis, to immediately pinpoint, isolate, and resolve these errors. The Analyzer dissects and displays each component of the transport stream in real time, enabling users to effectively "see inside" the complex MPEG-2 transport stream and rapidly detect and resolve errors.

Before the analysis process begins, the Analyzer verifies the presence of incoming data and tracks the transport packet synchronization. As it processes the data, the Analyzer measures transport stream content and statistics against ETR 290's three levels of priority measurements and alerts the operator when the stream falls outside these suggested parameters. It also displays PSI/SI/PSIP and private table and descriptor decodes in a hierarchical tree structure for rapid navigation, offers detailed reporting, captures on trigger, and performs continuous event logging in real time.

The Analyzer continuously collects statistics for every packet identifier (PID) detected in the stream. It analyzes an unlimited number of PIDs in real time and collects the following information for each PID:

- Packet content type (video, audio, table data, null packet)
- Percentage of bandwidth consumed
- Transmission rate (minimum, maximum, current)
- Total packets received
- Continuity counter errors detected
- Duration of time since detection of first packet
- Correctness of the scrambling indicator
- Rate of payload unit start indicators
- Status of the transport error indicator

In addition, the Analyzer documents missing PIDs and measures unexpected PIDs.

Timing/Synchronization

The Analyzer measures PCR rate, jitter, offset, drift, and the spacing between two PCR-bearing packets; compares PCR/PTS; and monitors all packets bearing PCR or PTS data to verify synchronization and detect timing problems. Because timing problems often cause service degradation or interruption, the Analyzer is used to detect these problems before they adversely affect system performance.

Standard and Private Tables and Descriptors

The Analyzer validates the syntax of all incoming tables and descriptors, extracts information about the incoming transport stream, and displays the content in easy-to-interpret formatted views.

For private tables and descriptors, the Analyzer uses operator-defined private definition files to parse private data. For each MPEG-2/PSI, ATSC/PSIP, DVB/SI, or user-private table, the Analyzer displays the following information:

- Complete decode of all table and descriptor content
- Total table instances received
- Total packets received for the table or descriptor
- Table rate (tables/sec)
- Total syntax errors found
- Transmission rate (Mbps)
- Table validity
- Total sections received

MPE/IP Encapsulation

The Analyzer addresses the convergence of Internet and broadcasting technology by supporting real-time analysis of MPE/IP data in the MPEG-2 transport stream. For each PID carrying an IP data stream, the Analyzer provides:

- MAC address
- Encapsulation method (LLC, IP, or both)
- Percentage of stream bandwidth consumed
- Transmission rate (minimum, maximum, current)
- Total megabytes received
- Scrambling status
- Duration of time during which packets have been arriving
- Error and event tracking on the data stream
- MAC/IP mapping
- Transmission mode (unicast, multicast, or broadcast)
- Source IP address
- Destination IP address
- Transport type (TCP or UDP)

The Analyzer's unique IP trigger extracts IP data from the MPEG-2 transport stream and saves it to a file for detailed off-line analysis using Acterna's DominoNAS IP test suite.

Conditional Access

Conditional access (CA) data in the transport stream protects broadcasters from unlicensed users attempting to access services illegally. For each CA system ID in the transport stream, the Analyzer provides data in a hierarchical tree structure with easy-to-interpret, formatted views that include:

- Summary of CA information in the stream
- Summary by program/channel of CA information from PSI/SI/PSIP tables
- EMM and ECM PIDs and rates
- ECM and scrambling key changes on a program-by-program basis
- Decode and display of private ECM contents
- Program/channel contents and characteristics

Event Logging

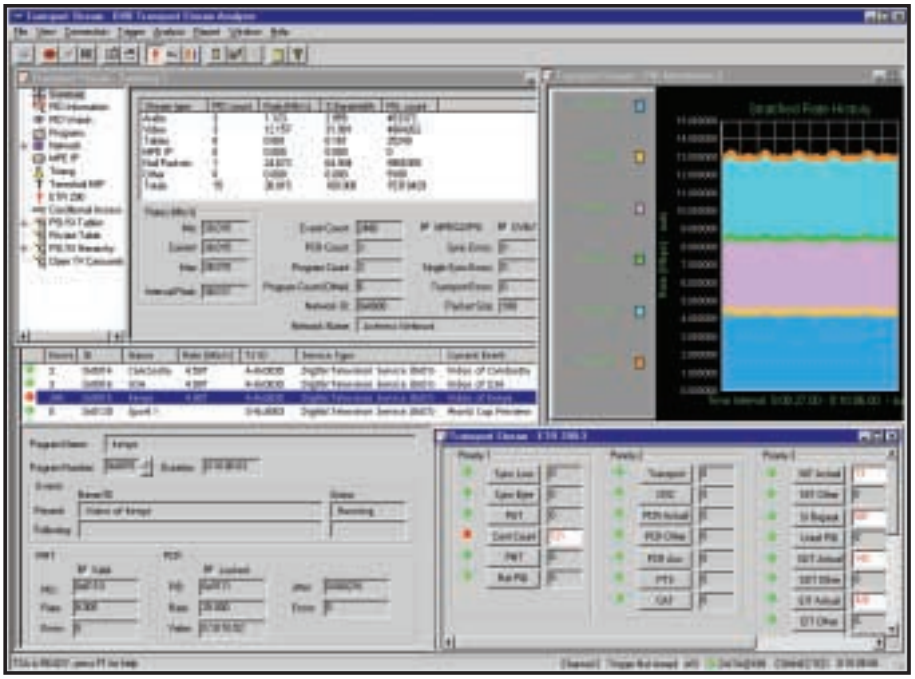
The Analyzer detects more than 200 different events as they occur on the transport stream. Because the user specifies the type of alarm each event should generate, alarms can be customized to alert the operator of events such as:

- Stream synchronization errors
- PCR lock, jitter, and spacing
- PID changes, missing PIDs, and PID bitrates out of range
- Transport packet and table structure errors
- Packet loss
- Errors in the transport packet header and adaptation field
- Inconsistency of table versions and content

Easy-to-Use Interface

The Analyzer's user interface offers a variety of top-level views that summarize stream contents and statistics and allow quick drill-down into detailed measurements for rapid and complete diagnostics. Its easy-to-interpret displays help users become familiar with the structure and content of an MPEG-2 transport stream and allow less experienced users to quickly verify the status of the transport stream and isolate and troubleshoot errors on the fly. With a single mouse click on the appropriate display, the user can directly access:

- Transport stream contents and statistics from a variety of clear displays
- All events that have occurred on the stream relative to any one of the measured parameters
- Graphical displays of PCR/PTS timing and historical or instantaneous rate calculations
- A freeze utility that freezes the display for investigation of the transport stream context at any time



Analyzer Multiple Views

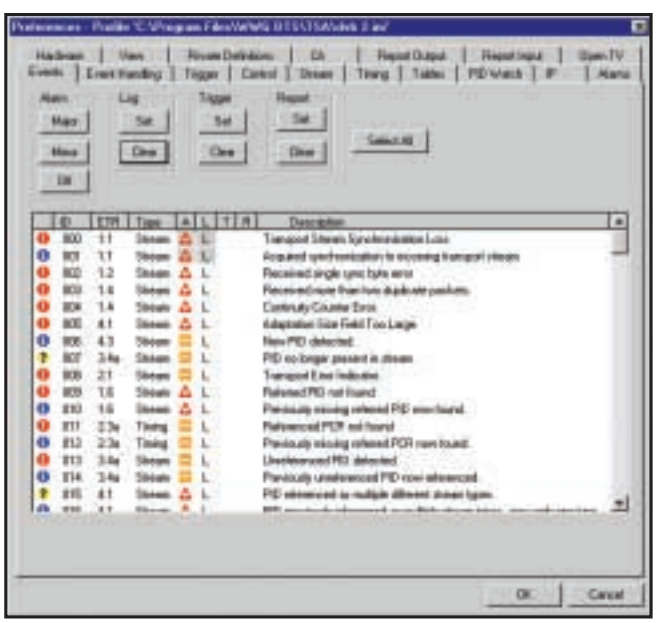
The Analyzer offers 9 to 13 main displays from which to view and analyze transport stream contents and statistics. Users can access all displays with a single mouse click and view statistics in standard and graphical formats. Each display also lists related events as they occur on the transport stream in real time. Displays include:

- Summary view
- PID information view
- PID watch view
- Program/Channel view
- Network view (DVB only)
- MPE IP view (DVB only)
- Timing view
- Terrestrial MIP view (DVB only)
- ETR 290/Monitoring view
- CA hierarchical views
- PSI/SI/PSIP table hierarchical views
- Private table hierarchical views
- OpenTV carousel hierarchical views (optional)

Customized Analysis

Users can create customized preferences to tailor the analysis process to meet the requirements of a specific test scenario or level of user expertise. Each set of customized preferences can be saved as a profile, so a single Analyzer can be quickly configured to meet the requirements of multiple testing scenarios. The user customizes the analysis process by:

- Defining alarm settings and rate thresholds for monitoring
- Defining reports for validation and acceptance testing
- Selecting the data to be displayed and choosing its format
- Scheduling and defining trigger captures and event logging



Event Listing and Control

Events Configuration

The Analyzer logs events in real time as they occur on the transport stream. The user completely customizes this process by selecting the events to be tracked and choosing the type of alarm each event will generate. From a single preferences dialog box, the user determines event settings and selects which events will generate reports and trigger captures.

User-Defined Thresholds

The Analyzer's flexible design allows users to set alarm-generating thresholds to fit the requirements of a specific test scenario. Users set thresholds for:

- Table repetition rates
- PCR spacing and jitter
- PID rates (Mbps)
- CA key change rates

Customized Trigger Captures and Post-Processing

The Analyzer performs customizable trigger captures, which allow users to study sporadic or hard-to-diagnose problems that occur on the transport stream. When these problems occur, the Analyzer automatically captures the surrounding portions of the transport stream, collecting timing information with the data to enable replay at the original incoming data rate, including synchronization variations. Captured files can be post-analyzed and played back into a network or system with the Generator.

Customized Reports

To chronicle system performance for baselining and acceptance testing or to document problems that appear in the transport stream, the Analyzer generates user-customized reports on command. The creation of these reports can be triggered by:

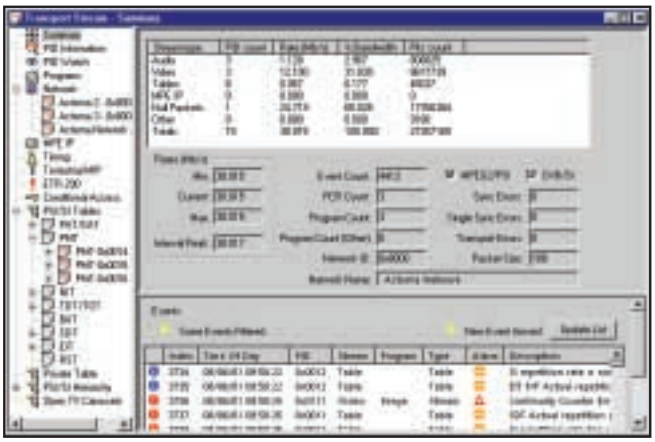
- Events that occur in the transport stream
- A user-defined schedule
- A manual toolbar button

Comprehensive Selection of Displays

The Analyzer provides a variety of displays from which to view and interpret transport stream contents and statistics. Each view offers a unique perspective of transport stream data, allowing users to tailor the analysis process to their specific application.

Summary Analysis

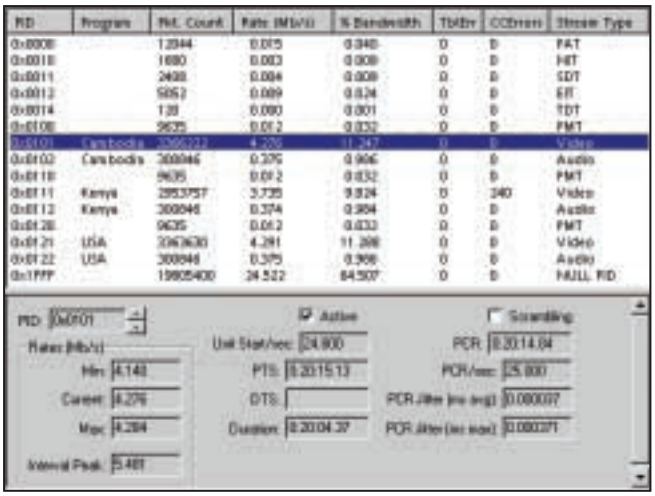
The summary view provides an overview of transport stream content and statistics, allowing users to quickly identify overall bitrate, bandwidth usage per stream type, and events as they occur on the transport stream.



Summary View

PID Analysis

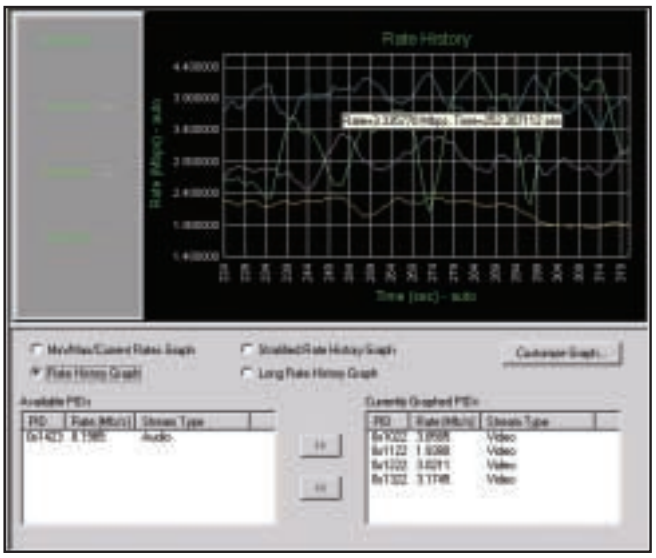
The PID information view shows the content and characteristics of all PIDs in the transport stream. For each PID, it provides the program name and stream type, bandwidth usage, bitrate (Mbps), PCR/PTS/DTS values, and jitter statistics.



PID Information View

PID Watch Analysis

The PID watch view allows users to closely track rate statistics on a group of user-selected PIDs. Users can set rate windows for these PIDs and generate alarms when the rate of a PID falls outside the specified window. For statistical multiplexing, users can track the instantaneous or historic rate statistics for specific PIDs.

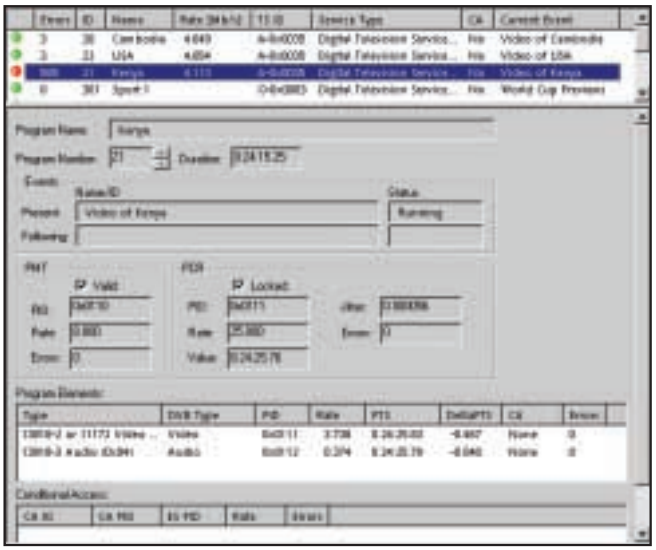


PID Watch View

Program/Channel Analysis

The program/channel view provides detailed program information extracted from MPEG-2 DVB and ATSC tables. It enables users to troubleshoot problems on a program or channel by:

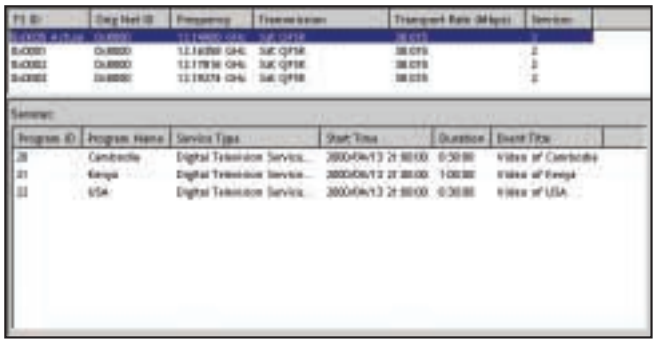
- Verifying program/channel contents and statistics
- Viewing all events related to a particular program or channel
- Using colored status indicators to quickly identify errors
- Accessing current and historical rate statistics for a program



Program and Channel View

Network Analysis (DVB only)

The network view offers a summary of all networks referenced in the transport stream, allowing users to verify network details and troubleshoot network-referencing errors.



Network View

MPE IP Analysis (DVB only)

The Analyzer enables users to locate and troubleshoot top-level IP-related errors and then capture IP data for detailed content analysis using the Acterna DominoNAS IP test suite.

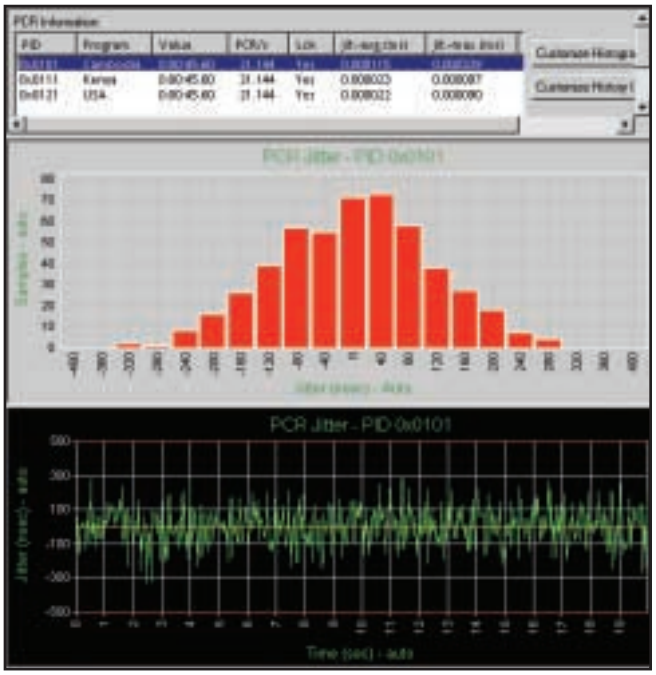
MPE/IP View

Timing Analysis

To isolate and resolve jitter problems before they affect transmission quality, the Analyzer continuously performs in-depth synchronization checks based on the intervals and accuracy of the presentation time stamps (PTS) and the program clock references (PCRs) in the transport stream. This allows users to:

- Troubleshoot buffer errors using PTS/PCR comparisons
- Troubleshoot service quality issues related to timing parameters such as PCR jitter and spacing
- Verify the timing stress threshold of a system

For rapid interpretation and diagnosis, the Analyzer graphs PCR jitter and offset over time and performs in-depth PCR/PTS analysis on a per-program/channel basis.

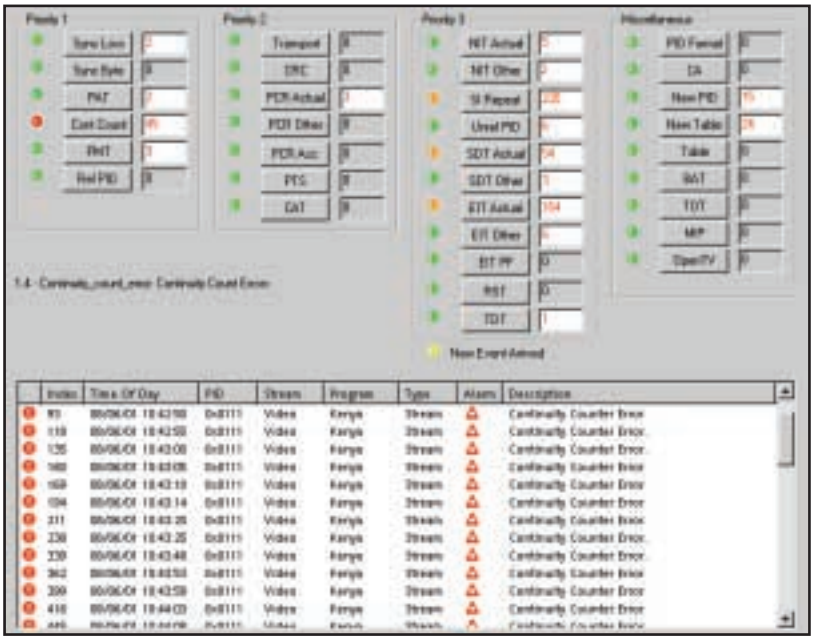


PCR Graphics View

ETR 290/Monitoring Analysis

In a single, easy-to-read display, the Analyzer shows transport stream status according to the three priority levels in DVB's ETR 290 recommendation for monitoring measurements. These cover the essential parameters of MPEG-2 DVB streams and have been adapted by Acterna to measure the status of ATSC streams as well.

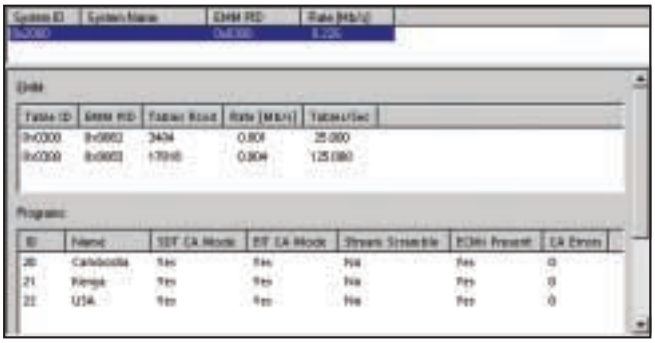
For quick and easy troubleshooting, users can directly access a list of all events that have occurred on the stream relative to any one of the monitoring measurements.



ETR290 View

CA Hierarchical Analysis

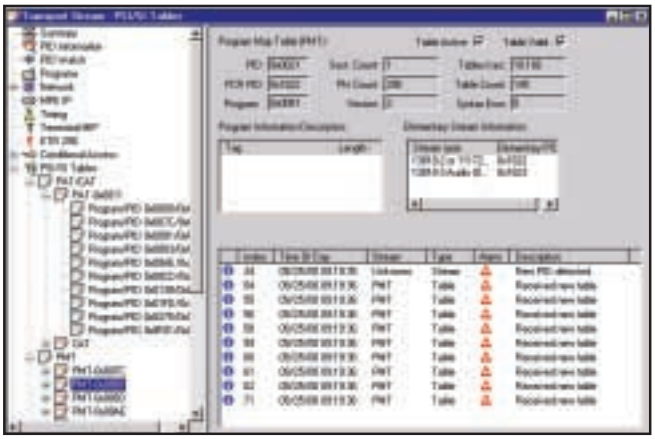
With a user-defined CA definition file, the Analyzer extracts CA data from the transport stream and displays it in a hierarchical tree structure with easy-to-interpret, formatted views. With the Analyzer, users can verify that the transport stream contains the correct CA data for each program.



CA Analysis View

PSI/SI/PSIP Table and Descriptor Decode Analysis

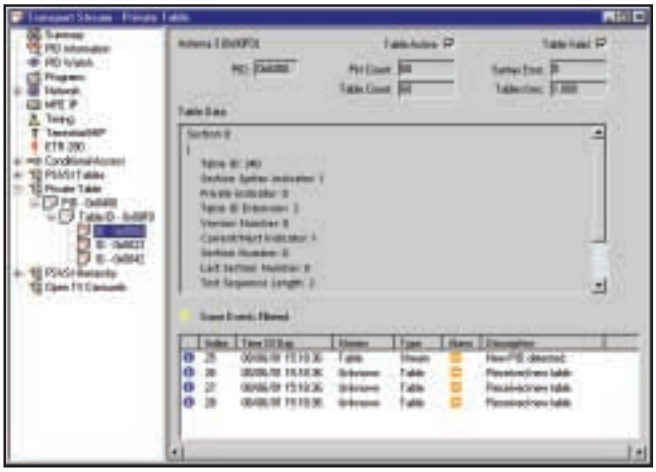
Accurate and complete PSI/SI/PSIP table and descriptor data is imperative for proper creation of the electronic program guide (EPG). Using the Analyzer's fully decoded table and descriptor displays, developers can verify proper creation and interpretation of these tables, while broadcasters can monitor their contents.



PSI/SI/PSIP Table Tree

Private Data Analysis

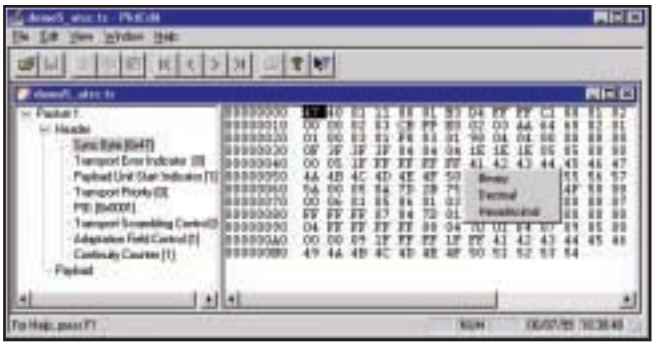
With user-defined private definition files, the Analyzer successfully parses private tables and descriptors, allowing users to validate proprietary data that would otherwise remain hidden in the transport stream. Together with PSI/SI/PSIP table and descriptor decoding performed by the Analyzer, private data decoding allows users to verify the creation and content of the EPG.



Private Table Tree

Packet-by-Packet Analysis

The Packet Editor application, provided with the Analyzer and Generator application modules, allows users to analyze data on a packet-by-packet basis and provides access to each bit in the transport packet header and payload. The Packet Editor also allows users to exercise the equipment under test by modifying parameters, corrupting packets, or including null packets at strategic locations in the multiplex.



Packet Editor

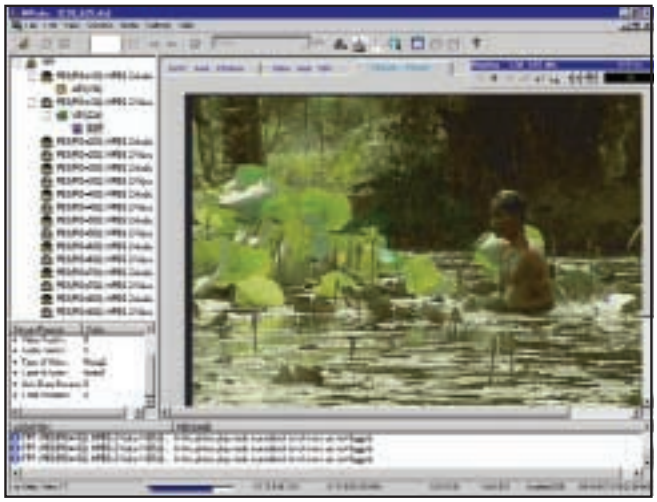
DTS-300 Analyzer Software Options

To expand the Analyzer's power, additional software options are available.

MProbe 110®

The MProbe 110 software option to the Analyzer analyzes and troubleshoots video and audio elementary stream data embedded in the transport stream. It offers:

- Comprehensive compliance checking against MPEG standards for all MPEG elementary stream types
- MPEG video and audio and Dolby Digital™ (AC-3) decode and display
- Buffer analysis
- Picture quality analysis
- Packetized elementary stream (PES) analysis



MProbe 110®

SyncCheck

Although monitoring lip sync has traditionally been a simple, manual process, MPEG-2 compression necessitates more sophisticated measurement equipment to monitor multiple audio and video pairs. The powerful SyncCheck software option to the Analyzer guarantees synchronization accuracy by performing detailed measurements of audio and video pairs in an MPEG-2 transport stream. It provides user-friendly visual interpretation of sync status for less experienced users.

SyncCheck

Real-Time Analysis for OpenTV®

Many broadcasters use OpenTV® data carousels to embed interactive applications such as EPG, home shopping, and interactive advertisement into the transport stream. The Analyzer is the only test instrument on the market that provides real-time analysis of OpenTV carousels for troubleshooting and validating embedded OpenTV data.

Analysis Views for OpenTV®

Continuous, Real-Time Stream Creation and Storage

The Multiplexer is the industry's only real-time stream creation device. It generates demanding, user-created test streams that measure system performance under extreme conditions and can be used to perform exhaustive stress tests on encoders, multiplexers, and set-top-boxes to guarantee component reliability and compliance with MPEG-2 DVB and ATSC standards. With the Multiplexer, users can continuously create and emulate a test stream in real time, eliminating the storage-intensive and time-consuming "build-then-play" procedure required by all other stream-creation or manipulation devices. The Multiplexer generates a transport stream from a small database file containing the necessary user-defined timing, table, and elementary stream content. Its unique database creation capability and continuous looping of elementary stream segments allow an entire library of custom test scenarios to be stored in the space needed for just one recorded transport stream. These test streams can be e-mailed from the lab to the field, or an entire test library can be mailed on a single CD-ROM.

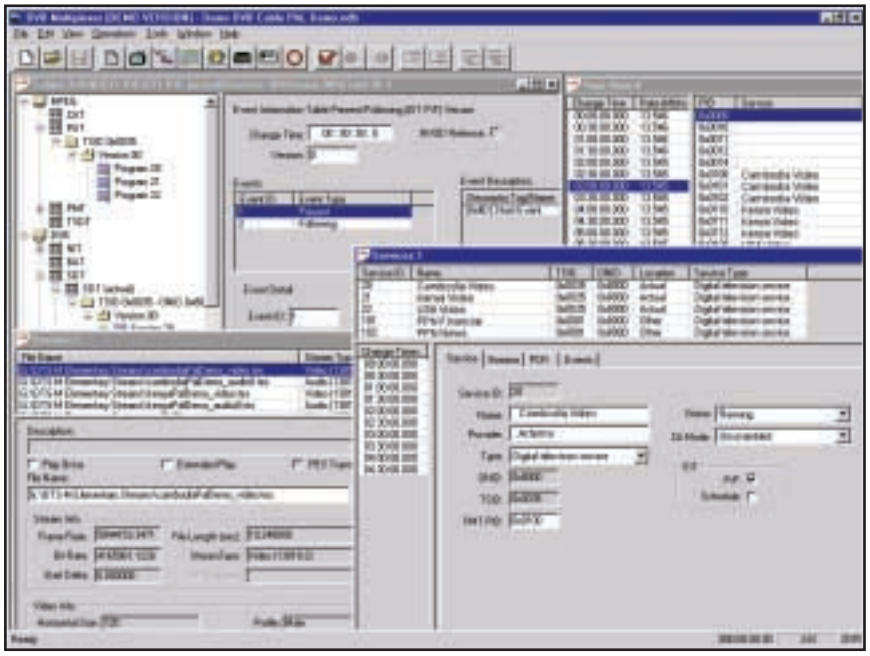
Testing a digital TV or set-top box requires long-duration test streams with dynamic changes over time. The Multiplexer creates an output transport stream in real time that can play continuously for days or weeks. At any time during transmission, users can stop the output multiplex, modify any values, and start transmission again within seconds. Unlike any other stream creation tool, the Multiplexer updates all timing parameters so the output multiplex is seamless.

Testing at data rates up to 214 Mbps, the Multiplexer allows users to create multiplexes containing:

- An unlimited number of PIDs, programs/channels, events, PCRs, and elementary streams
- PCR jitter, offset, and drift
- PSI/SI/PSIP tables and descriptors with user-defined content and rates
- Private tables and descriptors with user-defined content and rates
- Private data, including DSM-CC, teletext, subtitling, MPE/IP, and DVB data carousels
- Unlimited errors, including synchronization, continuity counter, transport, and PSI/SI/PSIP table errors

Additionally, with the Multiplexer, users do not have to wait for events to occur naturally in the transport stream. Instead, they can manipulate timing so a stream starts seconds before the scenario they want to test. For example, they can create a stream that starts at the PCR wrap point or seconds before the EIT changes.

All Multiplexer displays are based on the Windows NT interface and can be accessed with a single mouse click from the main Multiplexer window. Users can view database content from the following eight displays: summary, services/channels, tables, streams, errors, PCRs, PIDs, and time. New users can quickly and easily modify sample databases using the menu bar, toolbar, and right-click menus; more advanced users can create customized, advanced MPEG-2/ATSC/DVB transport streams using the Multiplexer's Wizard; and expert users can bypass the Wizard and start from scratch to specify all parameters in the transport stream. The Multiplexer offers a unique validation capability that warns the user when database content falls outside the specified standards. This prevents the insertion of unwanted errors and helps users become familiar with the limitations and the complexities of MPEG-2 transport streams.



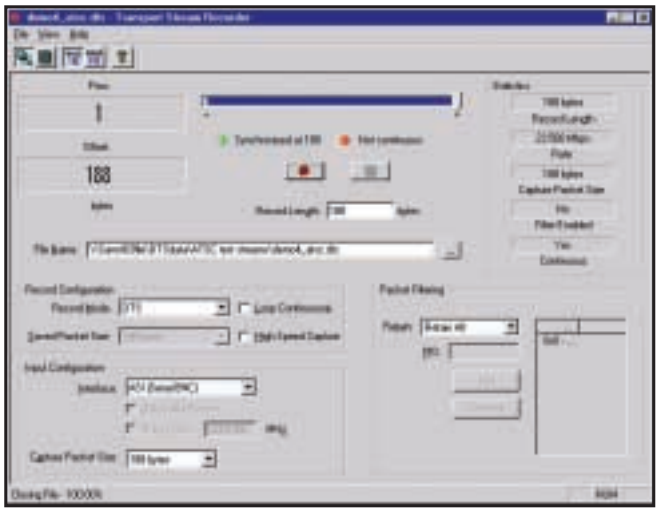
Multiplexer Views

Manufacturers and developers of set-top boxes and digital TVs can configure their DTS-300 with both the Multiplexer and Generator modules and create a library of user-defined test streams to rigorously stress test their equipment, record live streams, and play test streams into a unit.

By configuring the DTS-300 with the Analyzer, Multiplexer, and Generator application modules, developers can create a custom library of test streams for input and perform comprehensive analysis of a unit's output in real time. With this configuration, equipment errors are easily isolated, diagnosed, and resolved. Users can also perform acceptance testing by generating known good input sources and then using the Analyzer to create detailed reports for baselining.

Real-Time Transport Stream Recording and Play-Out

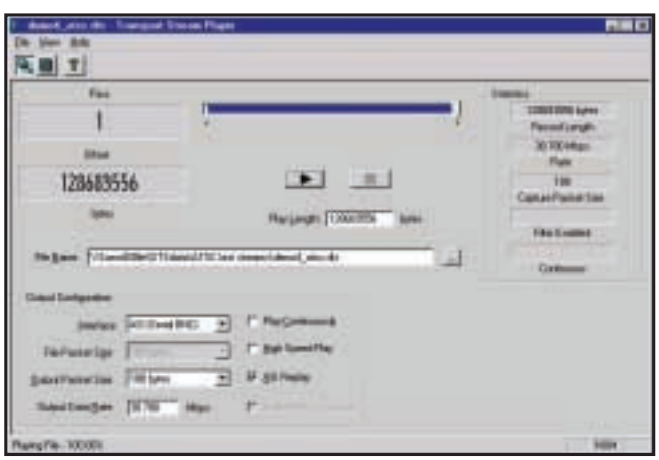
With the Generator, users can record and play bursty or synchronous transport streams at speeds up to 214 Mbps, providing stable, reproducible data sources for equipment and network validation.



Record View

When the Generator records a transport stream, it saves the original timing parameters with the stream for accurate post-analysis and playback. It also filters PIDs, allowing users to post-process specific portions of the transport stream, such as CA, EPG, or proprietary data services. Large transport streams can be recorded to disk while smaller streams are saved to DRAM for rates greater than 90 Mbps. The Generator processes any type of bitstream, including elementary streams, packetized elementary streams, and transport streams.

The Packet Editor application, provided with the Generator, allows users to analyze or modify data on a packet-by-packet basis and provides access to each bit in the transport packet header and payload.



Play View

When playing out transport streams, the Generator continuously loops files for long duration testing and performs real-time packet resizing with support for 204- and 208-byte packets. The Generator includes a built-in input clock for data receivers and provides transport stream statistics to help the user identify a file prior to play.

DTS-300 Hardware Options

Dual Analysis

The DTS-300 Dual Analysis option allows users to simultaneously analyze and compare the input and output streams of a system or network. Unique in the industry, this capability eliminates the cost and hassle of using two analyzers for simultaneous analysis. With dual analysis on a single platform, a user can also simultaneously compare multiple points within a transmission system for rapid troubleshooting and problem localization.

Dual Play

The DTS-300 Dual Play option, the only tool that allows users to effectively test frequency hopping on set-top boxes and digital TV, plays two different streams with independent PSIP/SI tables to two different carriers from the same unit. This type of testing greatly increases set-top box and digital TV reliability and eliminates the need to purchase two pieces of generation equipment to perform a single test.

DVB QPSK Receiver

The DTS-300 DVB QPSK interface option allows users to record and analyze MPEG-2-based satellite signals, eliminating the need for field-service personnel to carry additional QPSK receiving equipment. This built-in interface demodulates the signal to baseband and outputs the transport stream as a DVB SPI signal that is then input to the Analyzer or the Generator for analysis or recording. In addition, a QPSK application gives users control over carrier frequency, polarity, symbol rate, and LNB voltages as well as status information such as signal strength, signal lock, signal-to-noise ratio, and error status.

DHEI Interface

This built-in interface option to the DTS-300 eliminates the hassle and expense of carrying additional DHEI receiving equipment into the field. It converts a DHEI signal to DVB ASI, which is then input to the Analyzer or the Generator for analysis or recording.

System Specifications

The DTS-300 system is self-contained and based on the Microsoft Windows NT platform with disk drive, high-speed 18 GB SCSI, CD-ROM drive, floppy disk drive, external SCSI interface, and Ethernet interface (10/100 BaseT).

Portable . . . . . .TFT display, pointer and keyboard

Desktop . . . . . .monitor, mouse, and keyboard

BUILT-IN INPUT AND OUTPUT CONNECTIONS

(ASI and SPI interfaces support 188-, 204-, & 208-byte packets)

DVB ASI . . . . . .75 ohm BNC

DVB SPI (LVDS) DB25

SMPTE-310M . . . . . .BNC

SYSTEM CLOCK

Internal Clock . . . . . .27 MHz

Internal Clock accuracy . . . . . .5 ppm

Internal Clock stability . . . . . .1 ppm/year

Internal Clock resolution 1Hz

Output Clock (SPI) . . . . . .1 kHz to 15 MHz

Input Clock (SPI) . . . . . .up to 15 MHz

ELECTROMAGNETIC COMPATIBILITY (EMC)

CE . . . . . EN 50081-1, EN 50082-1

FCC . . . . . Part 15, Sub Part B, Class A

Safety . . . . . IEC 1010, EN 61010

MPEG-2 ISO/IEC Protocols . . . . . .13818-1 /-2 /-3 /-4/-9

ATSC Protocols A/52, A/53, A/65

DVB Protocols . . . . . .ETS 300 468, ETS 211, ETR 154 / 162 / 290

. . . . . .PrEN 50083-9, TS 101191

MAXIMUM DATA RATE

Real-time Analysis/Stream Creation . . . . . .214 Mbps

Recording/Playback (to SCSI disk) . . . . . .90 Mbps

Recording/Playback (to memory) . . . . . .214 Mbps

MAXIMUM FILE SIZE

Circular Capture Buffer . . . . . .128 MB

High-speed Mode . . . . . .128 MB

SCSI Disk . . . . . .disk capacity

Ordering Information

Systems

All systems are self-contained and delivered with cables, software, demonstration streams, and English user manual.

DTS-300 Analyzer

Analysis System for DVB and ATSC

Portable . . . . . .**BN 7551/21**

Desktop . . . . . .**BN 7551/22**

DTS-300 Generator

Play and Record System for DVB and ATSC

Portable . . . . . .**BN 7551/11**

Desktop . . . . . .**BN 7551/12**

DTS-300 Multiplexer

Stream Creation System for DVB and ATSC

Portable . . . . . .**BN 7551/61**

Desktop . . . . . .**BN 7551/62**

DTS-300 Analyzer/Generator

Allows for simultaneous play and analyze or record capabilities.

Portable . . . . . .**BN 7551/41**

Desktop . . . . . .**BN 7551/42**

DTS-300 Multiplexer/Generator

Allows for simultaneous create or play and record capabilities.

Portable . . . . . .**BN 7551/71**

Desktop . . . . . .**BN 7551/72**

DTS-300 Analyzer/Multiplexer/Generator

Allows for simultaneous create or play and analyze or record. capabilities

Portable . . . . . .**BN 7551/81**

Desktop . . . . . .**BN 7551/82**

Options

MProbe 110

BN 7551/94.04

Offline analysis and decode of MPEG-2 video/audio and AC-3 elementary streams (ES) including support for packetized elementary streams (PES).

SyncCheck

BN 7551/94.05

Audio/video synchronization analysis software for ATSC/DVB streams. Also includes one HD (1290x1080i, 29.97 FPS, and four audio channels) and one D1-PAL (720x576i, 25FPS, and four audio channels) lip-sync test video source tapes.

Real-Time Analysis for OpenTV

BN 7551/94.02

Real-time analysis of OpenTV applications and carousels over MPEG-2/DVB transport streams. Only available for configurations BN 7551/2x, /4x and /8x.

Dual Analysis

BN 7551/92.21 (portable); BN 7551/92.22 (desktop)

Simultaneous dual analysis option. Provides application software and additional SMPTE-310M, ASI, and SPI input hardware. Only available for analysis systems BN 7551/2x, /4x and /8x. Not available in conjunction with Dual Play, DHEI, or QPSK options.

Dual Play

BN 7551/92.11 (portable); BN 7551/92.12 (desktop)

Simultaneous dual play option. Provides application software, additional 18 GB SCSI hard drive, and additional SMPTE-310M, ASI, and SPI output hardware. Only available for desktop generator systems BN 7551/12, /42, /72 and /82. Not available in conjunction with Dual Analysis, DHEI, or QPSK options.

Continued on back page.

Options *(Continued)*

DHEI

BN 7551/92.74

Input interface that provides the ability for desktop and portable units to receive baseband signals in accordance with the ITU-T J83 standard for North American cable broadcast systems. Not available in conjunction with Dual Play, Dual Analysis, or QPSK options.

QPSK

BN 7551/92.70

Provides the ability for desktop and portable units to receive QPSK RF signals in accordance with the DVB-S standard for DVB satellite broadcast systems. Not available in conjunction with Dual Play, Dual Analysis, or DHEI options.

Hard Travel Case

BN 7551/90.32

Reinforced composite shipping container protects portable instruments while traveling. Highly recommended for all portable configurations. Only available for portable systems 7551/11, /21, /41, /61, /71, and /81.

Software Subscriptions

One-Year Software Subscription

BN **7551/97.01**

Provides major and minor software updates for one year after date of delivery for the applicable software purchased with the DTS-300 Test Platform, except Mprobe 110 and SyncCheck This does not include installation, and must be purchased in conjunction with the DTS-300.

Two-Year Software Subscription

BN **7551/97.02**

Provides major and minor software updates for two years after date of delivery for the applicable software purchased with the DTS-300 Test Platform, except Mprobe 110 and SyncCheck This does not include installation, and must be purchased in conjunction with the DTS-300.

Mprobe 110 & SyncCheck One-Year Software Subscription

BN 7551/97.11

Provides major and minor software updates for one year after date of delivery for the applicable software purchased. This does not include installation, and must be purchased in conjunction Mprobe 110 or SyncCheck.

Mprobe 110 & SyncCheck Two-Year Software Subscription

BN 7551/97.12

Provides major and minor software updates for two years after date of delivery for the applicable software purchased. This does not include installation, and must be purchased in conjunction Mprobe 110 or SyncCheck.

Note: Specifications, terms, and conditions are subject to change without notice.

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