

DIGITAL BROADCAST

TEST AND MONITORING SOLUTIONS



ACTERNA™
The Keepers of Communications

THE DIGITAL BROADCASTING REVOLUTION—
**OPPORTUNITIES FOR INCREASED REVENUE
AND SERVICE-DELIVERY OPTIONS**

Today, the broadcast industry is subject to the constant pull of change as digital television gains a stronghold in the marketplace. To keep pace with this revolution, cable, satellite, and terrestrial broadcasters are transitioning from analog to digital technology and adopting the MPEG-2 transmission protocol—the industry standard for carrying broadcast quality compressed digital video, audio, and data over broadband networks.

Not only does MPEG-2 enable broadcasters to carry digital signals with the utmost speed and precision, it also enhances program security, image quality, and service-delivery options.

Going digital with MPEG-2 holds great revenue promise. However, because traditional analog testing and monitoring methods do not effectively detect, isolate, and prioritize errors in digital transmission, maximizing this potential requires a new generation of measurement and analysis tools. To fill this need, Acterna—the industry innovator in communications test and management solutions—offers MPEG-2 analysis and monitoring tools that help developers, system integrators, network operators, and field service personnel “see inside” the MPEG-2 transport stream.

ACTERNA



Acterna—The Industry Expert for MPEG-2 Testing Solutions

Acterna's technical experience in digital broadcast technology stretches back to the late 1980s. Since developing the first real-time MPEG-2 analyzer in 1995, Acterna has continued to provide the most powerful, comprehensive MPEG-2 testing and monitoring solutions.

Today, Acterna offers a complete family of MPEG-2 products that provides the fastest real-time transport stream recording, analysis, creation, and playout capabilities available. From hardware development and field service to system integration and network management, Acterna's MPEG-2 testing and monitoring solutions assure the successful, cost-effective development and deployment of digital broadcast systems.

Acterna's customers include manufacturers, carriers, and service providers in the cable, satellite, and terrestrial broadcasting industries:

- ◆ EchoStar
- ◆ Harmonic
- ◆ Panasonic Broadcast & Television Systems
- ◆ Philips
- ◆ Scientific-Atlanta
- ◆ Thomson

COMPREHENSIVE TESTING FOR PRODUCT DEVELOPMENT, SYSTEM INTEGRATION, FIELD OPERATIONS, AND BROADCASTING



The MPEG-2-based transport stream is a highly complex data structure. In addition to carrying the compressed video and audio signals for as many as ten or more TV programs, it also carries the elaborate, table-based instructions required by the set-top box to find, re-assemble, and synchronize the video and audio for the viewer. Data in the stream provides user access authorization as well as content and tuning information for the other transport streams in the service provider's network. One MPEG-2 transport stream can simultaneously carry video and audio content for multiple programs, IP data, information for interactive TV applications, and a host of other data that supports an array of services.

Not only is the digital content in the transport stream complex and densely packed, it also changes constantly. The periodic addition or removal of national programming, local content, advertisements, EPG data, and viewer authorizations, as well as balancing bandwidth demands across carrier frequencies, results in anything but a steady-state environment.

In the highly interdependent MPEG-2 transport stream, even a single bit error can cause a range of problems from simple momentary 'blockiness' in a picture to trouble switching channels, accessing the on-screen program guide, or receiving a pay-per-view program.

To meet the demanding needs of this data environment, Acterna offers three comprehensive digital broadcasting test solutions that can be applied across the entire digital broadcast chain—from hardware development and field service to the installation, maintenance, and monitoring of broadcast networks.

DTS-300

DTS-300—Product Developers' and System Integrators' Most Flexible and Comprehensive Testing Solution for MPEG-2, DVB, and ATSC

Acterna's DTS-300's ability to record, analyze, create, and playout on a single platform provides developers, system integrators, and field operators with clear, powerful advantages unequaled in the MPEG-2 testing arena.

It is the most comprehensive, powerful real-time analysis and stream creation system available, containing in a single box all the tools necessary to effectively test digital broadcast networks and systems.

In addition, the DTS-300 simultaneously provides input to a system while allowing developers, system integrators, field operators, and broadcasters to analyze the output transport stream in real time. Indispensable during equipment validation and acceptance testing, the DTS-300 verifies system performance by pinpointing and resolving equipment and system failures and interoperability issues.



DTS-300 Benefits

- ◆ One-Box Solution—meets the widest variety of applications and eliminates the need to purchase additional test tools
- ◆ Real-Time Analysis—performs evaluation and troubleshooting in real time, minimizing the hassle and delay of off-line analysis
- ◆ Flexible, Modular Design—minimizes cost and provides add-on capabilities as testing requirements change
- ◆ Easy-to-Use Windows® NT Interface—provides beginners and expert users with quick, easy access to needed information

The DTS-300's revolutionary approach to creating and implementing effective testing libraries is ideal for product developers who exhaustively stress test encoders, multiplexers, and set-top boxes to guarantee component and system performance, reliability, and compliance to the extremes of the MPEG-2 standard. Since captured transport streams do not stress test a system to the boundaries of the protocol, developers use the DTS-300's stream creation device to generate demanding test streams systematically. This allows system performance to be measured under extreme conditions. And to eliminate the difficulty in storing the volume of test streams that are needed to accurately stress test a system, the DTS-300 offers a unique database storage capability that allows developers to store an entire library of custom test scenarios in the space needed for just one captured transport stream.

Functions

- ◆ 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. This eliminates the hassle and delay of capturing files for later, detailed analysis. Offers the industry's highest maximum input data rate of up to 214 Mbps
- ◆ 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. Performs weeks of non-stop testing at data rates up to 214 Mbps
- ◆ Complete recording of transport streams with the original timing information for accurate playback and post analysis. Performs PID filtering and records to memory at up to 214 Mbps
- ◆ Complete playout of transport streams using the original timing parameters. Performs continuous loop operation and playout from memory at up to 214 Mbps

DTS-400/480—Network Operators' Indispensable Tool for Top-Level Monitoring and Detailed Problem Diagnosis

The DTS-400/480 Digital Broadcast Monitoring System (DBMS) provides continuous status monitoring of live networks and continuous real-time analysis of all transport streams in the network. Scalable from one to hundreds of transport streams, the system offers broadcasters a global, turnkey supervision solution for cable, terrestrial, and satellite networks.

Since the structure of the digital broadcast chain contains fundamentally new failure modes, it forces network operations managers to reevaluate their approach to monitoring. Simply applying the old analog tools and approach will not accurately assess viewers' service quality. And neither a monitoring wall nor a waveform analyzer will warn operations personnel if digital customers cannot change channels or if they cannot receive programs for which they have paid.

DTS-400/480



DTS-400/480 Benefits

- ◆ Rapid Error Detection and Immediate Fault Isolation—improves customer satisfaction and reduces costs
- ◆ Turnkey Global Supervision Solution—integrates easily into a system to minimize implementation costs and downtime
- ◆ Centralized Monitoring of Distributed Networks—eliminates the cost of having highly trained personnel at each site
- ◆ Fully Scalable System—grows with your network from one to hundreds of transport streams
- ◆ Familiar Windows® NT Interface—provides both beginners and experts with quick, easy access to needed information

The DBMS quickly finds errors, isolates faults, and alerts operators to system design or configuration issues, which are difficult, if not impossible, to detect with periodic monitoring. Through its continuous surveillance of the constantly changing environment of the transport stream, the DBMS finds and resolves problems before they affect the viewer, keeping customer satisfaction high while lowering costs at customer call centers.

The DBMS monitors remote digital broadcast sites from a single location and gives operators access to comprehensive real-time analysis of each transport stream in the network. It effectively combines global network supervision with real-time network analysis and instantaneous troubleshooting. The DBMS displays its easy-to-interpret results on a single screen, and its powerful, real-time analysis capabilities make it an indispensable tool for top-level monitoring and detailed problem diagnosis.

Functions

- ◆ Overall supervision of programs and services
- ◆ Remote detailed analysis of any MPEG-2/DVB transport stream at a mouse click
- ◆ Full decode and analysis of PSI/SI tables and descriptors in real time
- ◆ User-definable configuration, alarm settings, and measurement thresholds
- ◆ ETR 290, PCR jitter, and bit rate monitoring in real time
- ◆ User-defined alarm configuration per PID and event type
- ◆ Automatic generation of customizable reports and captures on trigger
- ◆ Long-term continuous event logging
- ◆ SNMP integration into a network management system

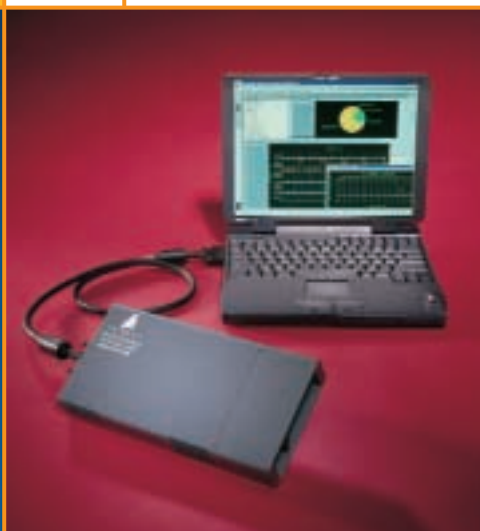
DTS-100—Field Engineers' User-Friendly, Comprehensive Analyzer for Quickly Pinpointing and Resolving Errors in the Field

The DTS-100 Digital Broadcast Field Instrument offers the analysis and record capabilities of the DTS-300 in an easily portable, 2.5 pound (1.1 kg.) package. Used by field engineers to quickly isolate and diagnose the source of service disruptions, the DTS-100's user-friendly interface and comprehensive displays make pinpointing and resolving transmission and equipment errors easy.

Functions

- ◆ 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. Offers the industry's highest maximum input data rate of up to 214 Mbps
- ◆ Transport stream recording with the original timing parameters at data rates up to 214 Mbps

DTS-100



DTS-100 Benefits

- ◆ Cost-Effective Platform—enables companies to outfit an entire team and avoid sharing more expensive equipment
- ◆ Real-Time Analysis—allows quick error isolation and troubleshooting in the field and eliminates the hassle and delay of capturing files for off-line analysis
- ◆ Accurate Recording with Original Timing Parameters—provides accurate playback and post analysis
- ◆ Familiar Windows® NT Interface—makes using the system easy for both non-expert and expert users

GLOBAL SERVICES AND SOLUTIONS

Acterna is built on a combined, century-long tradition of quality and innovation in the communications test and management industry. Now, the excellence you have come to expect in our products forms the cornerstone of an integrated suite of services and solutions developed to drive your business performance to new levels. Our comprehensive solutions can be tailored to meet your business requirements for product support, service deployment, training, process improvement, program management, and custom software applications.

At Acterna, we use a consultative approach to define your exact service needs. We then leverage an unmatched depth of knowledge

and experience in communications, products, systems, and processes to provide solutions that solve your unique business challenges.

From basic instrument support for the field technician, to complex program management and consulting for company-wide operation initiatives, Acterna's service professionals are committed to exceeding your expectations. Whatever your needs—Education Services, Program Services, Consulting Services, Product Support Services, or Innovative Software Development Services—we can be a part of your solution.



Regional Sales Headquarters

Global Headquarters

20400 Observation Drive
Germantown, Maryland 20876-4023 USA
Toll Free: 1-800-638-2049
Tel: +1-301-353-1550
Fax: +1-301-444-8468
www.acterna.com

North America

20400 Observation Drive
Germantown, Maryland
20876-4023 USA
Toll Free: 1-800-638-2049
Tel: +1-301-353-1550
Fax: +1-301-444-8468

Latin America

Av. Eng. Luis Carlos Berrini
936 8/9. Andar
04571-000 Sao Paulo, SP
Brazil
Tel: +55 11 5503 3800
Fax: +55 11 5505 1598

Asia/Pacific

42 Clarendon Street
PO Box 141
South Melbourne, Victoria 3205
Australia
Tel: +61 3 9690 6700
Fax: +61 3 9690 6750

Western Europe

Arbachtalstrasse 6
72800 Eningen u.A.
Germany
Tel: +49 7121 86 2222
Fax: +49 7121 86 1222

Eastern Europe, Middle East & Africa

Elisabethstrasse 36
PO Box 13
2500 Baden
Austria
Tel: +43 2252 85 521 0
Fax: +43 2252 80 727

1st Neopalimovskiy Per. 15/7 (4th floor)
119121 Moscow
Russia
Tel: +7 095 248 2508
Fax: +7 095 248 4189

Acterna is present in more than 80 countries. To find your local sales office, go to www.acterna.com

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