

DTV Stream Analyzer

Overview

DTV Stream Analyzer is the powerful MPEG2 TS (Transport Stream) analyzer based on digital broadcasting transmission standard such as DVB, ATSC, Opencable and ISDB. Combining real-time monitoring, analyzing, video decoding and Play/Record capabilities is the perfect solution that helps users to use it conveniently. All functions are based on easy of use graphic user interfaces.

In addition, users can build their own DTV Test System up as selecting module options according to their purpose at reasonable budget.

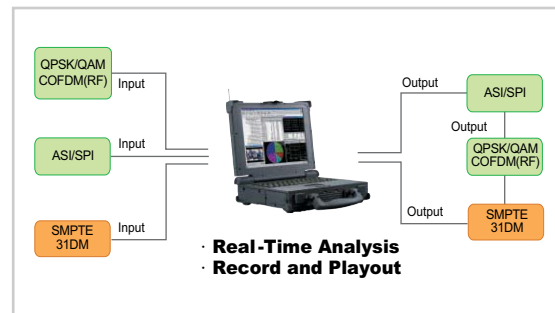
DTVinteractive's DTV Test solutions use ETR290 technology, the universal standard for MPEG test and measurement, for DTV video test. And, we've awarded NT (New Technology) certification with ETR290 analysis technology from the Korean Agency for Technology and Standards of the Ministry of Commerce, Industry and Energy.

Intended Application

- MPEG & DTV Test
- Digital Television
- Digital Set-top Box
- DTV Station Operation Monitoring
- Data Broadcasting Monitoring
- MHP Set Top Box Design
- Interactive Television
- MPEG2 Equipment Design and Verification

Multi I/O interface

DTV Stream Analyzer supports multiple stream I/O ports including DVB-ASI/SPI, SMPTE310M interfaces and QPSK/QAM/COFDM/8VSB demodulators.



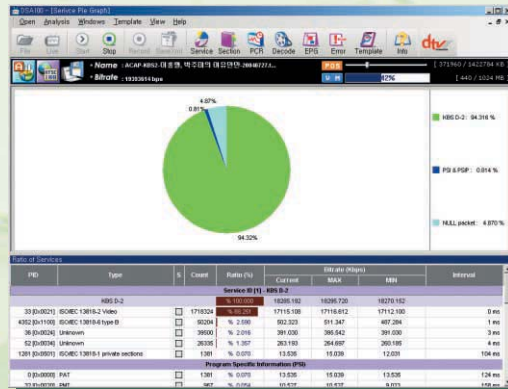
DTV Stream Analyzer

DSA100



Overall Service & Packet Analysis

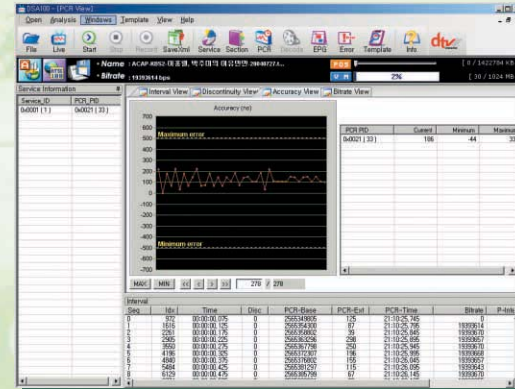
Overall Service & Packet Analysis shows you the global data information on each program and overall bandwidth's occupancy of the transport stream under analysis. On the service (channel) information tree, you can easily track down the information of all PIDs and services. Packet Analysis displays PID, PID type, bitrate, interval and percentage of use with a pie chart and data grids. By clicking on the PID in the grid, packet information and hex view are displayed automatically. Graph, list and its elements are dynamically updating in real time.



PCR/PTS Jitter Analysis

DTV Stream Analyzer offers real time PCR timing analysis with graphical results views.

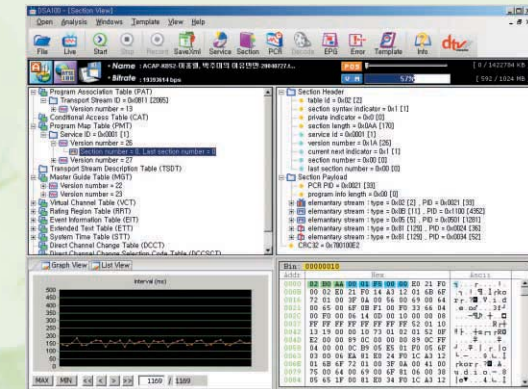
- PCR Overall Jitter
- PCR Accuracy
- PCR Drift Rate
- PCR Frequency Offset
- PCR Arrival Interval
- Discontinuity / Bitrate
- PTS Interval



PSI/SI, PSIP Analysis

Section Analysis provides in-depth PSI/SI/PSIP/ARIB SI/Openable SI analysis with tree structure that you can drill down to examine tables and service contents and detailed list of table repetition rates.

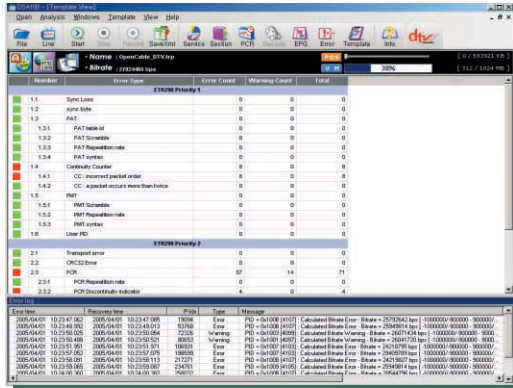
- MPEG2 TS Tables (PSI) : PAT, PMT, CAT, NIT, TSDT
- DVB SI Tables : SDT (actual/other), NIT (actual/other), BAT, EIT (actual P/F, other P/F, actual schedule, other schedule), TDT, TOT, RST
- ATSC PSIP Tables : MGT, RRT, TVCT, CVCT, EIT, ETT, STT



Error Monitoring

DTV Stream Analyzer offers specially designed TS error monitor with 'LED Light' display of the current status of all TS 101 290 Priority 1st, 2nd, and 3rd parameters. Also, an error log view with detailed information enables users track errors.

※ATSC Monitor : DTV Stream Monitor offers EN TR 101 290 compliance 1st and 2nd priority parameters.



A/V Decoding

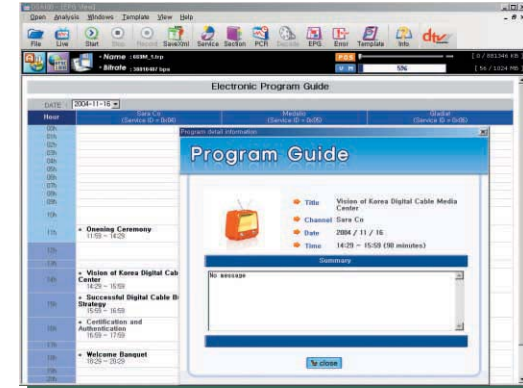
DTV Stream Analyzer offers S/W MPEG A/V decoding function of transport stream files and live transport stream feed. You can double check stream contents off-hand without Set-top or hardware decoders.

※Supporting Format : MPEG2 SD, HD MPTS & SPTS, MPEG4 Part10 (H.264, AVC), H.263, Dolby AC3



EPG Analysis

DTV Stream Analyzer offers EPG information from TS with graphical GUI. User can analyze detailed EPG information by date, time and channels.



Common Features

- **Support DVB, Opencable and ATSC standard (Users need to select one of them as an option)**
- Real-time DVB TS Analysis
 - ASI/SPI and QPSK/QAM/COFDM RF input
- Deferred-time (Off-line) TS Analysis
- Supports Monitor Mode (24/7 Real-Time-MPEG2/DVB)
- Packet Analysis (Interval/Bandwidth/Pie Graph)
- Tree display about analysis results (channel and table)
- Channel Tree Analysis
- Service Tree Analysis
- PCR/ Jitter Analysis with Graphs
- PES Header Analysis (PTS, DTS)
- Error Monitoring (TR 101 290 priority I II III)
- MPEG2 TS Tables (PSI) : PAT, PMT, CAT, NIT, TSST
- Displaying Hex code of Selected Packet
- Trigger & Capture Stream
- Transport Stream Recording
- TS Demuxing & AV Decoding (MPEG2 SD, HD / H.264, Dolby, AC3)
- User defined Tables
- EPG View
- Template View
- Saves PSIP information as XML
- T-STD Buffer Analysis (Optional)
- PES Analysis (Optional)
- TS Play-out & Recording (Optional - DIG200/300)
- TS Remultiplexer - On/Off - line (Optional - RMX300)
- TS Comparator (Optional - TCO100/200)
- ES Analyzer - MPEG2, MPEG4, H.264, H.263 (Optional - ESA100)

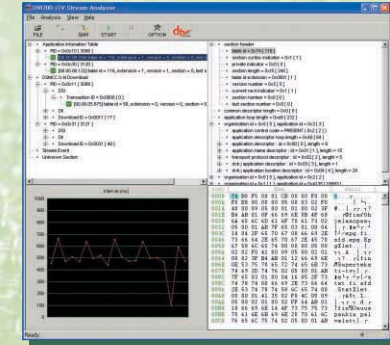
Main Features

Standard	DVB	ATSC	OCAP
Optional Features	<ul style="list-style-type: none"> - DVB SI Tables : SDT (actual, other), NIT (actual, other), BAT, EIT(actual P/F, other P/F, actual schedule, other schedule), TDT, TOT, RST - Teletext/Subtitles Decoding & Analysis (Optional) - PSI/SI Editing (Optional-SIG200) - iTV/Carousel Analyzer (Optional-DV1700) 	<ul style="list-style-type: none"> - Real-time ATSC TS Analysis - ASI/SPI, SMPTE310M and 8VSB RF Input - Error Monitoring (TR101 290 ATSC compliance check) - ATSC PSIP Tables : MGT, RRT, TVCT, CVCT, EIT, ETT, STT - All other Functions and Options are same as DVA100 	<ul style="list-style-type: none"> - Real-time ATSC TS Analysis : SI/SPI,SMPTE310M and QAM RF Input - Error Monitoring (TR101 290 ATSC compliance check) - ATSC PSIP Tables : MGT, RRT, TVCT, CVCT, EIT, ETT, STT - All other Functions and Options are same as DVA100

Option1. ES Analyzer - ESA100

- Support for many video standards including : H.264/AVC ; MPEG-4 Simple Profile and Advanced Simple Profile ; H.263 and H.263+ with Annexes A, B, C, D, F, I, J, K, S and T ; H.261
- Support for MPEG-2 Main Profile @ Main Level, including reading Packet Streams, PES data, and extracting video directly from VOBs
- Direct reading of MP4 and 3GPP files, and extraction of video from these
- Support for 'floating' licenses
- Direct viewing of the bit stream in a hex viewer

- Direct viewing of Trace files
- Enabling/disabling individual Warning and Alert pop-up
- Extended and new tutorials - now 8 tutorials in all, including for H.264/AVC, MPEG-4 Advanced Simple Profile and MP4/3GPP files
- Support for H.264/AVC Main Profile and all H.264/AVC Levels from 1 - 5.1
- Complete buffer analysis of VBV, VCV and VMV compliance in MPEG-4 (other standards to follow)



DVI700 User Interface

Option2. iTV Stream Analyzer - DVI700(DVB) AT700 (ATSC)

- DVB SI Data and Object Carousel Analysis
- Object Carousel Analysis
- Dynamic Object Carousel
- AIT Analysis
- Stream Event Analysis
- Extracting Application (Java ,HTML) or object from Transport Stream
- Loading object using external windows program
- BIOP, DSI, DII, DDB and DSM-CC section display and interpretation
- Bit rate and repetition rate display of DSMCC blocks, modules, objects, UN messages and SI tables

- Support view for object binding (dynamic mode)
 - initialize object binding
 - processing object binding step by step
 - rollback object binding step by step
- Error Analysis Support
- Section error
 - repetition section error
 - PAT error
 - PMT error
 - AIT error
 - undefined program number

- DSMCC section error
 - unknown message type
 - DSI error
 - DII error
 - DDB error
- Object carousel error
 - unknown message type
 - module error
 - BIOP object error
 - object binding error
- MHEG5 Analysis

Error Measurement Table (DTV)

TR 101 290			DTVinteractive defined
1 st Priority	2 nd Priority	3 rd Priority	
1.1 Ts_sync_loss - Loss of synchronization	2.1 Transport_error - Transport Error Indicator Is 1	3.1a NIT_actual_error 3.1b NIT_other_error	Adaptation Field Error - Transport packet adaptation field is invalid
1.2 Sync_byte_error - Sync Byte Not Equal 0x47	2.2 CRC_error - Invalid CRC Value	3.2 SI_repetition_error	Different section in same version
1.3a PAT_error_2 - Scrambling Control Field Error - Invalid Table ID - Repetition Error	2.3a PCR_Repetition_error 2.3b PCR_discontinuity_indicator_error	3.4a Unreferenced_PID	Private Section Data Error - Undefined table id of private section
1.4 Continuity_count_error - Incorrect Packet Order - Packet Occurs More Than Twice	2.4 PCR_accuracy_error	3.5a SDT_actual_error 3.5b SDT_other_error	More to come
1.5a PMT_error - Scrambling Control Field Error - Repetition Error	2.5 PTS_error - PTS Repetition Error	3.6a EIT_actual_error 3.6b EIT_other_error 3.6c EIT_PF_error More to come	More to come
1.6 PID_error	2.6 CAT_error - Scrambling Control Field Error - Invalid Table ID	3.7 RST_error	More to come
		3.8 TDT_error	

Error Measurement Table (iTV)

Section error	DSMCC section error	Object carousel error
Repetition section error	Unknown message type	Unknown message type
PAT error	DSI error	Module error
PMT error	DII error	BIOP object error
AIT error	DDB error	Object binding error
Undefined program number		

DVB-ASI Input PCI Card

- DVB/ASI Connector : 75Ω BNC (x2)
- Input Bit Rate : 0~216Mbps
- Provides Pass through Input port
- Error Free Cable Length : 100M (max)
- Packet Size in Bytes : Raw or 188 or 204

DVB-ASI Output PCI Card

- Output bit rate : ~ 108Mbps
- PCI DMA bus master mode
- Packet Size Conversion (188 <-> 204)
- 8MByte Buffer Memory for large Host CPU processing jitter
- Low Host CPU Occupation Architecture

DVB-SPI (LVDS) Input PCI Card

- Physical Layer : DVB/ASI-C
- DVB/ASI Connector : 25-pin sub-D
- Input Bit Rate : 0~216Mbps
- Packet Size in Bytes : Raw or 188 or 204

DVB-SPI (LVDS) Output PCI Card

- Output bit rate : ~ 108Mbps
- LED Indicator for short-circuit detection
- PCI DMA bus master mode
- 8MByte Buffer Memory for large Host CPU processing jitter
- Low Host CPU Occupation Architecture

DVB-ASI Input/Output PCI Card

- Input bit rate : ~ 216Mbps
- Output bit rate : ~ 108Mbps
- Packet Size Conversion (188 <-> 204)
- 8MByte Buffer Memory for large Host CPU processing jitter
- Low Host CPU Occupation Architecture
- LED Indicator displaying the card operation

SMPTE310M

- Connector : 75Ω BNC
- Data rate : 19,392,658.46 bits/sec (input/output)
- Data Input Voltage : 800mV +/-10% Peak

QAM Demodulator (Annex A&C)

- Input RF Frequency : 54 ~ 860MHz
- Input RF Connector: F-Connector
- IF Frequency : 44 MHz
- IF bandwidth : 6 MHz
- Demodulation
 - FEC: DVB-C (QAM Annex A/C) Support
 - 4, 16 32, 64, 128, 256 QAM Support
- 8MByte Buffer Memory for large Host CPU processing jitter

QAM Demodulator (Annex B)

- Input RF Frequency : 54 ~ 860MHz
- Input RF Connector: F-Connector
- IF Frequency : 44 MHz
- IF bandwidth : 6 MHz
- Demodulation
 - FEC : Opencable (QAM Annex B) Support
 - 4, 16 32, 64, 128, 256 QAM Support
- 8MByte Buffer Memory for large Host CPU processing jitter

8VSB Demodulator

- Input RF Frequency : 54 ~ 860MHz
- Input RF Connector: F-Connector
- Input RF Power Range : -5 ~ -75dBm
- IF Frequency : 44 MHz
- IF bandwidth : 6 MHz
- Demodulation
 - ATSC A/53 compatible with i/16 VSB and MMDS 2/4/8/16 VSB
 - QAM ANNEX B Support : 64, 256 QAM Support

COFDM Demodulator

- Format : DVB-T
- Frequency : 51~858MHz
- Bandwidth : 7MHz or 8MHz




QPSK Demodulator


- Receiving frequency : 950~2150 MHz tuning range
- Input level : -65~25dB
- Symbol rate : 2~45Msps
- FEC : 1/2, 2/3, 3/4, 5/6, 7/8

H/W Specification >>>

Frames

DTV Stream Analyzer

Type	Description	Specification	Model
Portable Expert	For Professional	<ul style="list-style-type: none"> - 1.6GHz CPU - 14.1" TFT LCD, 40G HDD, - Memory : 1GB - DVD/CD-RW COMBO, - OS : Windows XP - 12-32VDC car adapter - Expansion unit W/2*PCI (3/4 size) 	
Portable Standard	For R&D	<ul style="list-style-type: none"> - Processor : Pentium4 2.4GHz or Over - Display : 12.1~15.1 inch TFT LCD Front Panel (800x600~1600x1200) - Storage : 120GB ~ 500GB Max. - OS: MS Windows 2000 or XP - M/B : ATX , 5 PCI - CD Rom, Ethernet, USB 2.0 * CE, FCC, UL, CCC marked 	
4U Rack with LCD	High-End Development/ Manufacture	<ul style="list-style-type: none"> - Processor : Pentium4 2.4GHz or Over - Display : 6.4 inch TFT LCD Front Panel(640x480) - Memory : 1GB - Hard Drive : 240GB(120+120)~750GB Max. - OS : MS Windows 2000 or XP - M/B : ATX or SBC with 11 PCI Back Plane - DVD Rom : DVD & CD RW Combo - Ethernet, USB 2.0 	

Type	Description	Specification	Model
Travel Kit	1 Slot	<ul style="list-style-type: none"> - Dimensions : 13.8cm(W) x 4.3cm(H) x 20cm(D) - Weight : 1.14Kg - Notebook Computer Interface : PCMCIA - Standard Expansion Cable length : 1meter - Interconnect Bandwidth : 132 MB/sec - MTBF : 25,000 Hours - Cooling : One 4 CFM fan - Power Supply : 45W DC-ready locking barrel connector (Includes AC-DC power brick) - OS : MS Windows XP, Win2000, Win NT, Win ME, Win 98SE, Mac OS X (Ver 10.2.2 +), Mac OS 9.x *CE, FCC marked **We recommend you to purchase our pre-configured lap-top together with Travel Kit. Order Separately ! 	
Travel Kit	USB	<ul style="list-style-type: none"> - Physical Layer : DVB/ASI-C, SMPTE 259M-C(SDI) - Connectors : 75Ω BNC, USB-B - ASI Input Bit Rate range : 0..214 Mbit/s - SDI Input Bit Rate : 270 Mbit/s - Input Return Loss : 17 dB - Error Free Cable Length : 300 m - Dimensions in mm (LxWxH) : 87 x 104 x 30 - Weight (g) : 120 - Packet Size in Bytes : Arbitrary 	