

Bitstreams™ Product Suite

Digital Television Verification Tools

The logo for the Bitstreams Product Suite, featuring the word "VERIFY" in a bold, white, sans-serif font on a dark grey rectangular background. Above the grey background is a horizontal yellow bar.

Emmy®-winning and patented technology makes Sarnoff's Bitstreams™ a powerful set of tools that systematically and unambiguously test decoders, in a matter of seconds. Our Bitstreams are comprehensive and remarkably easy to use, evaluating performance and verifying the ability to decode complex digital video and HDTV signals reliably and accurately. Decoders can be tested at any stage of the development cycle, from simulation to integrated products. Sarnoff's patented visual verification techniques simplify and accelerate test procedures, eliminating the need for data capture and analysis, thus reducing risk and speeding time to market.

Capabilities

- De facto industry standard for compliance testing
- Up to 100-times faster testing
- Clear and unambiguous results
- Easy debugging of failures
- Detailed documentation and test references
- Supports automated visual verification
- Unaffected by most post-processing
- Patented visual techniques

Applications

From simulation designs to existing hardware and software products, our Bitstreams determine compliance with the established industry standards for virtually any application. Major manufacturers, service providers and IC designers use Sarnoff's Bitstreams to test decoder designs and verify their ability to decode complex digital video and HDTV signals.

H.264/AVC Syntax Bitstreams

- Systematic Video Decoding Tests
 - Profile Baseline, Main, High
 - Resolutions: 1080i, 720p, 480i, 480p, and 576i
 - Frame Rates: 25, 30 and 60 Hz
 - Form factors: Transport or Elementary
 - Types: Rapid/Simulation and Real-time

H.264/AVC Stress & Error Bitstreams

- Profile Baseline, Main, High
- Resolutions: 1080p, 1080i, 720p, 480i, 480p, 576p and 576i
- Stress Categories
 - Transform
 - Intra
 - De-blocking
 - Memory bandwidth
 - CABAC/CAVLC
 - SPS/PPS

- Error Streams Categories
 - SPS error
 - PPS error
 - Slice level errors
 - Block level errors
 - MB level errors
 - Sub MB level errors
 - Reference picture errors
 - MV range violations
 - Bits per MB violations
 - Miscellaneous limit violations
 - HRD violation
 - Random bit errors

VC-1 Format Bitstreams

- Systematic Video Decoding Tests
- Standard: VC-1 (SMPTE 421M)
- Resolutions and Frame rates: all 64 OpenCable Formats
- Form factor: MPEG-2 transport

MPEG-1/MPEG-2 Syntax Tests

- Original Compliance Bitstreams for Legacy Testing

ATSC Transport/Lipsync Bitstreams

- Complete Transport Stream Suitable for Lipsync Testing
 - Standard: MPEG-2 Main Profile; Main and High Levels
 - Resolutions: 1080i, 720p, 480i, and 480p
 - Frame Rates: 30 and 60 Hz
 - Form factor: Transport

ATSC Format Bitstreams

- Picture Format Tests for ATSC and DTV Logo
 - Standards: ATSC A/53 (and revisions) Table 3, DTV Check Logo



- Resolutions and frame-rates:
All 36 ATSC Formats

ATSC PSIP Program Guide Bitstreams

- US Program Guide and Digital “V-Chip” Tests Standards:
 - Standards: ATSC A/65b (and revisions), EIA-766-A
 - Form factor: ATSC Transport

Cable Format Bitstreams

- US Digital Cable Format Tests for OpenCable™
 - Standards: Compression Format Constraints for Set-top Terminal Processing and HD Decoding and Pass-through, EIA-849-A
 - Resolutions and frame-rates:
All 64 OpenCable Formats
 - US Satellite formats
(optionally available)

H.264/AVC Format Bitstreams

- 508 streams at multiple resolutions and frame rates, including all Blu-Ray formats
- Form factors
 - Transport or Elementary
- Types
 - Rapid/Simulation
 - Real-time

DTV Closed Captioning Bitstreams

- US Digital Television Closed Captioning Tests
 - Standard: EIA-708-B (and revisions)
 - Resolutions: 1080i, 720p, 480i, and 480p
 - Frame Rates:
All ATSC (23.976 – 60 Hz)
 - Form factor: ATSC Transport

MPEG-2/ATSC Syntax Bitstreams

- Systematic Video Decoding Tests
 - Standard: MPEG-2 Main Profile; Main and High Levels
 - Resolutions: 1080i, 720p, 480i, 480p, and 576i
 - Frame Rates: 25, 30 and 60 Hz
 - Form factors: Transport or Video Elementary

MPEG-2/ATSC Stress Bitstreams

- Corner Case and Error Condition Tests
 - Standard: MPEG-2 Main Profile; Main and High Levels
- Resolutions: 1080i, 720p, 480i, 480p, and 576i
- Frame Rates: 25, 30 and 60 Hz
- Form factors: Transport or Video Elementary

ATSC Mobile DTV

- Deblocking stress
- Entropy coding stress
- Intra frame coding stress
- Exceeding standard-specific limits
- Block errors
- Picture parameter set errors
- Macroblock errors
- Slice errors
- Sub-macroblock errors
- HRD violation errors
- Sequence parameter set errors

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SRI International

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