# Player Test Measures Viewer-side Quality and Validates Stream-level Cost Savings

Before now, no one has been able to show exactly what viewers would see when they clicked on play. Our new Player Test feature can do this, so you'll know exactly what your customers experience.

Every time a stream is started, new tools from SSIMWAVE® can confirm that viewers will receive great content quality for their exact network conditions and device. We do this by measuring content quality when content comes in, after it's processed and at the player.

✓ Know if viewers are getting the best content they can, for each and every device.

✓ Save on transmission costs by matching quality to network conditions.
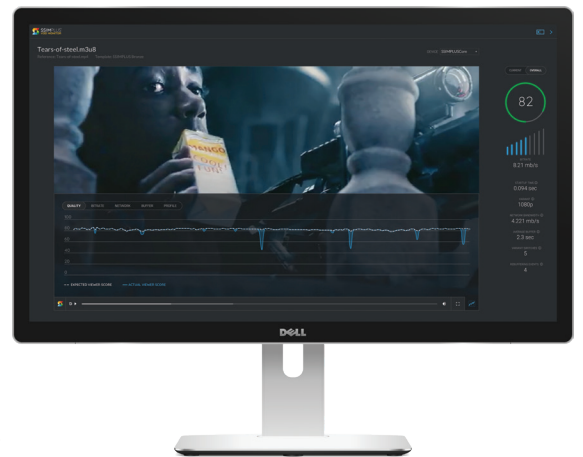
## Measuring What Good Looks Like

Packaging and delivery is costly because it scales with viewership. If your biggest cost (aside from content acquisition) is transmission, you're in control of the show—content processing is your responsibility. We can report on what your customer, the end-viewer, would say about this.

Previously, content distribution has gone to all sorts of convoluted steps to figure out what the viewer sees. People have measured buffering, variant switching, seconds to start-up. We can measure exactly what a viewer sees. The SSIMPLUS® Viewer Score is a linear score of 0–100 which measures how real viewers would see your content.

Our first version of the Player Test is for evaluating HLS content delivered to players developed on the video.js framework. Support for additional players and video formats will be available in the near future. Player Test is part of SSIMPLUS VOD MONITOR Inspector, a cloud-based tool that uniquely combines frame-by-frame and pixel-by-pixel analysis of video content. The new Player Test functionality allows distributors to achieve three-point monitoring—at the source; at the output of the encoder, transcoder or packager; and at the player output.
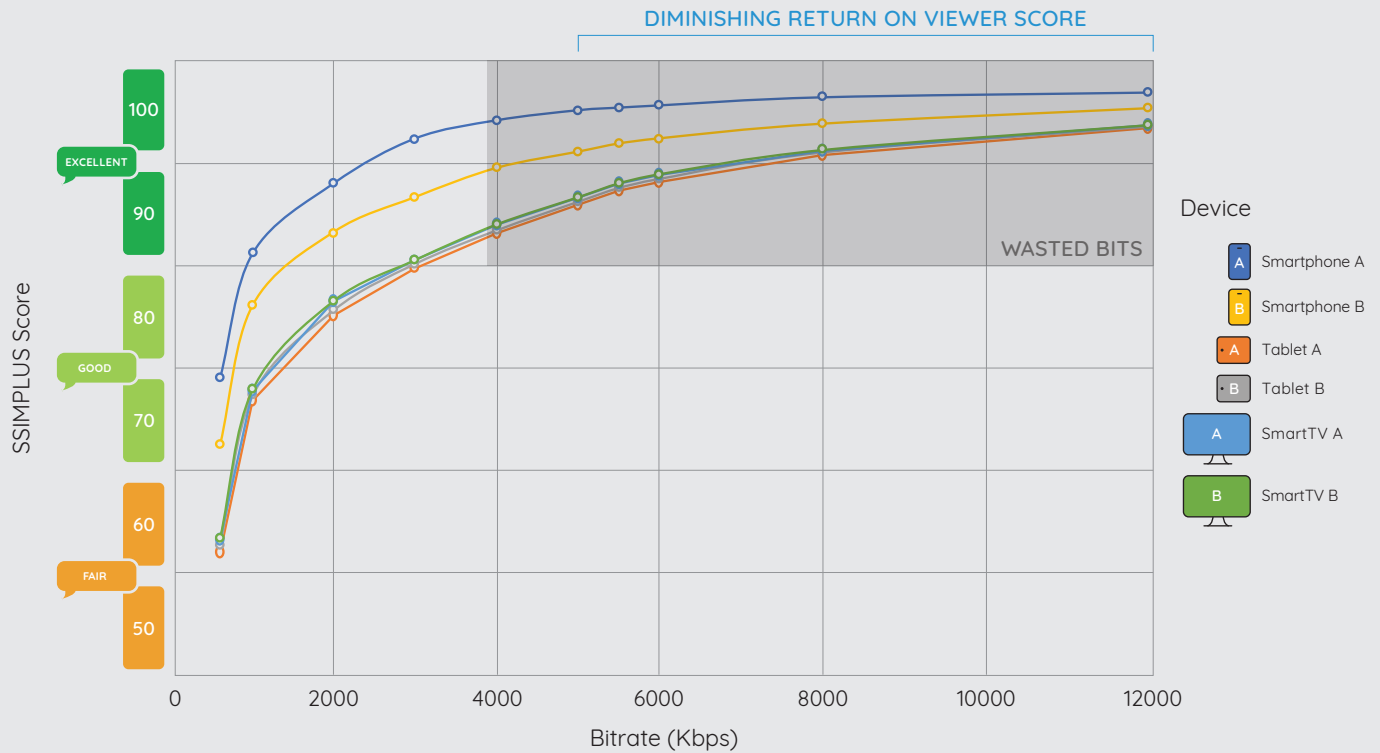
## Cost Savings

The resulting data from this three-point monitoring can enable optimization of profile ladders and content variants without noticeably impacting the viewer experience. For example, rather than treating all content equally, distributors can use the SSIMPLUS score to create and test multiple profile ladders or higher or lower quality variants, depending on the type of content being delivered and the device on which it is being viewed.

Our SSIMPLUS Viewer Score can determine how good a piece of content will look on the most common devices that your subscribers use. Reducing profiles doesn't yield much in the way of cost savings, but reducing bandwidth used by those profiles does, and in a big way. We can measure output and tell you there's a level of diminishing returns where more data will not bring more quality. The result is we can introduce cost savings by reducing the bitrate of existing profiles, rather than eliminating profiles altogether.

# The Perceptual Quality of hard-to-encode video content

By device and by bitrate

DIMINISHING RETURN ON VIEWER SCORE

WASTED BITS

SSIMPLUS Score

100
EXCELLENT
90
80
GOOD
70
60
FAIR
50

Bitrate (Kbps)

0    2000    4000    6000    8000    10000    12000

**Device**

- A — Smartphone A
- B — Smartphone B
- A — Tablet A
- B — Tablet B
- A — SmartTV A
- B — SmartTV B

**Title:** Tears of Steel – Mid Range Drama
**Devices used:** Roku, Chromecast, LG 55", Samsung 55", Windows 10, OS X 10.11, iPad Air, iPhone, Samsung Smart Phone, Nexus.
**1st Phase on Mac using Safari:** AMP, Bitmovin, Flowplayer, hls.js, JW, Shaka, Theoplayer, video.js.
**2nd Phase on Windows using Chrome:** AMP, Bitmovin, Flowplayer, JW, Theoplayer, video.js.

## Perceptual quality is impacted by genre and device.

For example, an output of 1920×1080 is encoded and delivered at 8,000 kbps. If SSIMPLUS could identify that a score of 80 (which is a very good score) could be achieved at 7,000 kbps rather than 8,000 kbps, those savings are realized every single time the profile is fetched by a viewer. Conservatively, a 10% bitrate reduction of the ladder yields savings of ~$8,000 per title, per year (assuming 1,000,000 annual viewers). Across 1,000 titles this is $8M annual savings.

Identifying what a viewer sees means knowing the exact level of processing a file can handle before a viewer starts to complain. The Player Test provides a simple, consistent score that shows how video quality has changed from source to playout, giving a clear indication of what the viewer sees, so for the first time ever, you know exactly what your viewers see. This is truly revolutionary.

**Video quality has a number.™** Tune it in.™

The most accurate measure of how humans perceive video.

## SSIMWAVE®