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EMI API Survey Results - Discussion with W3C and SVTA

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CTA WAVE DPCTF Interim Chair
December 16, 2025

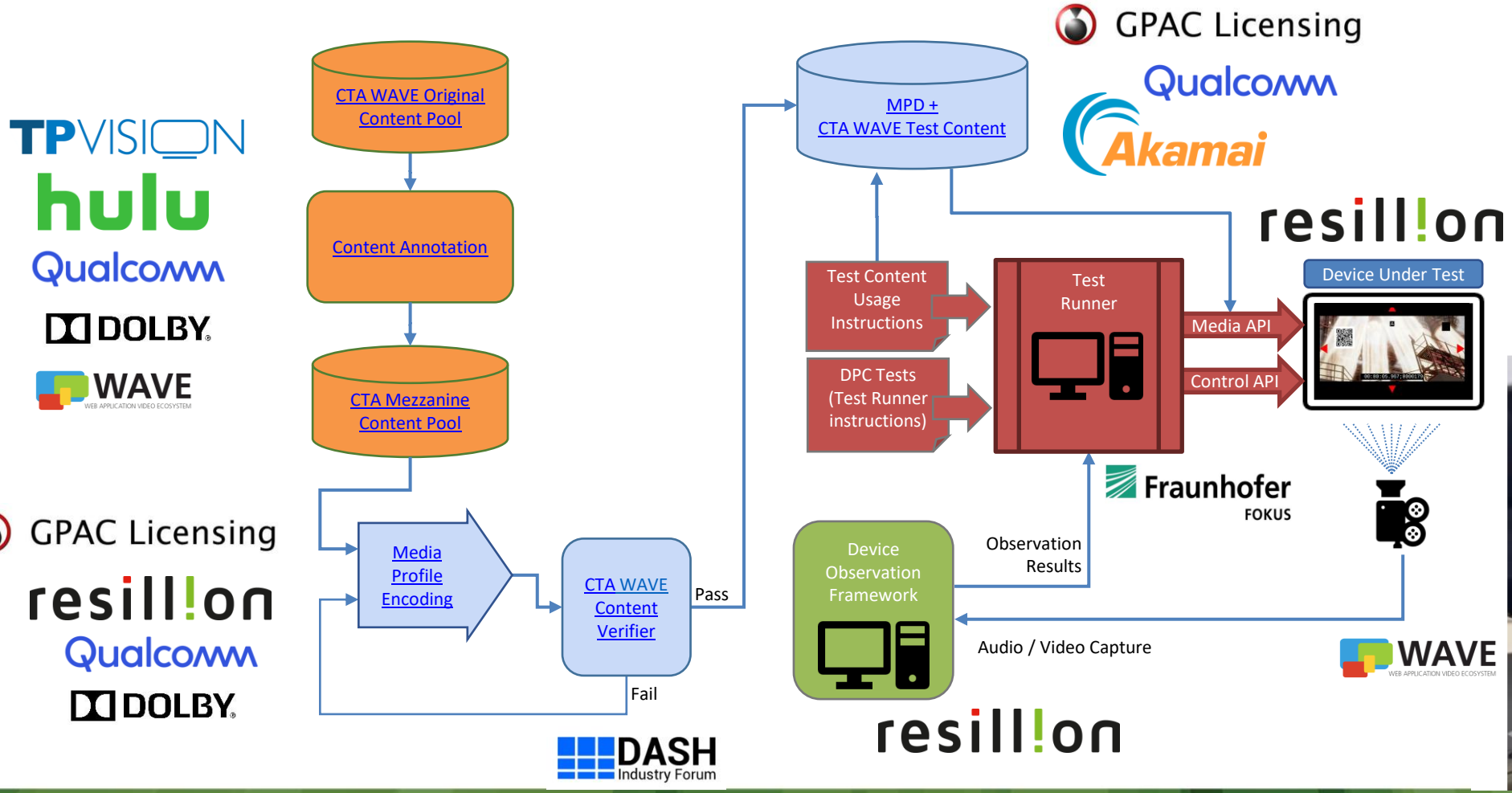
Overview

- Background: CTA WAVE Test Suite
- Survey on Commercial DRM Interop
- Results
  - High-level Summary
  - Details
- Next Steps

Test Suite

- The Consumer Technology Association (CTA) Web Application Video Ecosystem (WAVE) is continuously working on the creation of a set of automated unit tests for the integration of web browsers onto media consumption devices (Smart TVs, phones, tablets, sticks) based on CTA-5003-B
- Details on the WAVE Streaming Media Test Suite – Devices can be found here: https://www.cta.tech/about/wave-project/wave-streaming-media-test-suite-devices/.
- Today, these exercise the Media Source Extensions (MSE) API and, to a lesser extent, the Encrypted Media Extensions (EME) API.

Test Suite Release



Survey … *Your input is needed …*

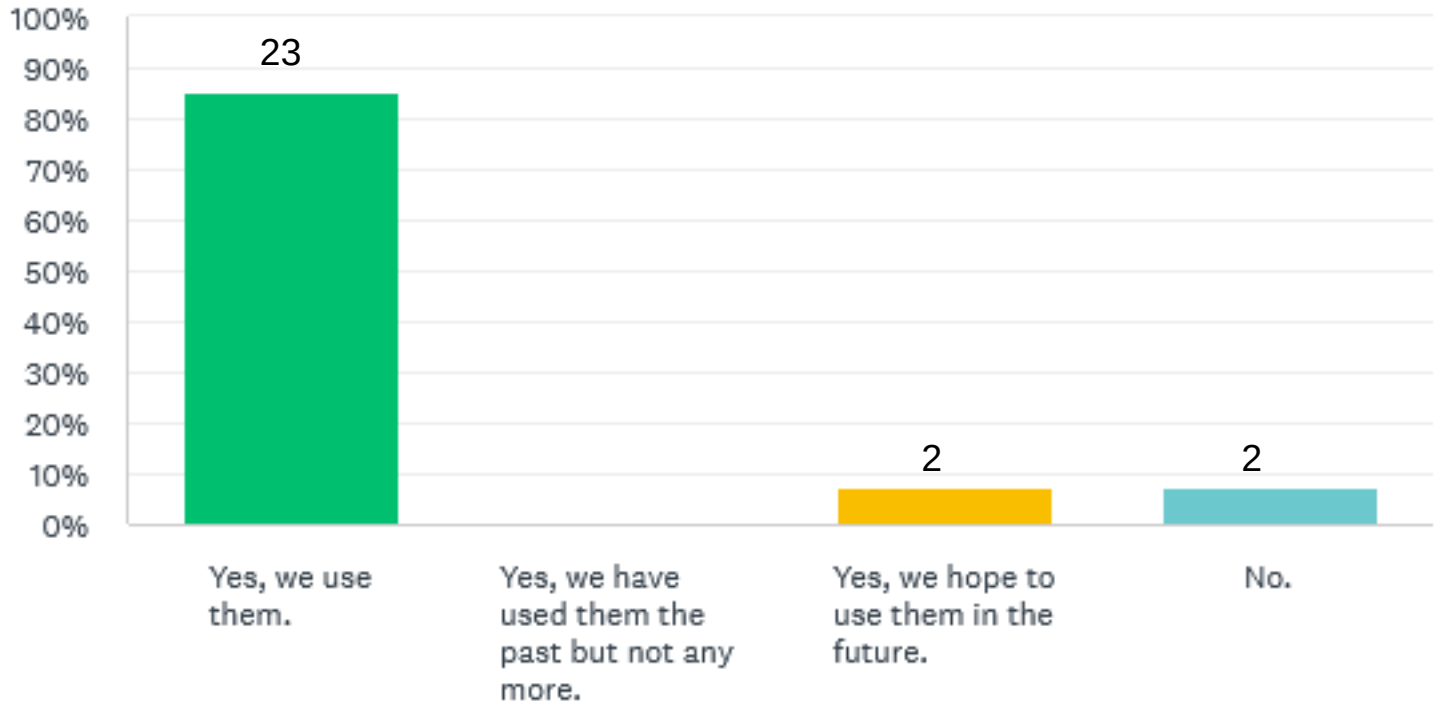
In April 2025, the following message was sent to several organizations and posted in public:

- the Consumer Technology Association WAVE (Web Application Video Ecosystem) has just launched a survey.
- Part of the work of the CTA WAVE Project is creating a set of unit tests for the integration of web browsers onto media consumption devices (Smart TVs, phones, tablets, sticks), details here: https://www.cta.tech/wave-project/wave-streaming-media-test-suite-devices/.
- Today these exercise the Media Source Extensions (MSE) API and, to a lesser extent, the Encrypted Media Extensions (EME) API.
- CTA WAVE is looking to extend the coverage of EME testing to include content protected by commercial DRM systems such as Fairplay, PlayReady and Widevine. CTA WAVE seeks input on people's experiences with the EME API to help guide this work.
- Here is the survey: https://www.surveymonkey.com/r/KCJ6GHG
- We will soft close the survey on May 2, 2025, so please respond and share with colleagues.

Notes

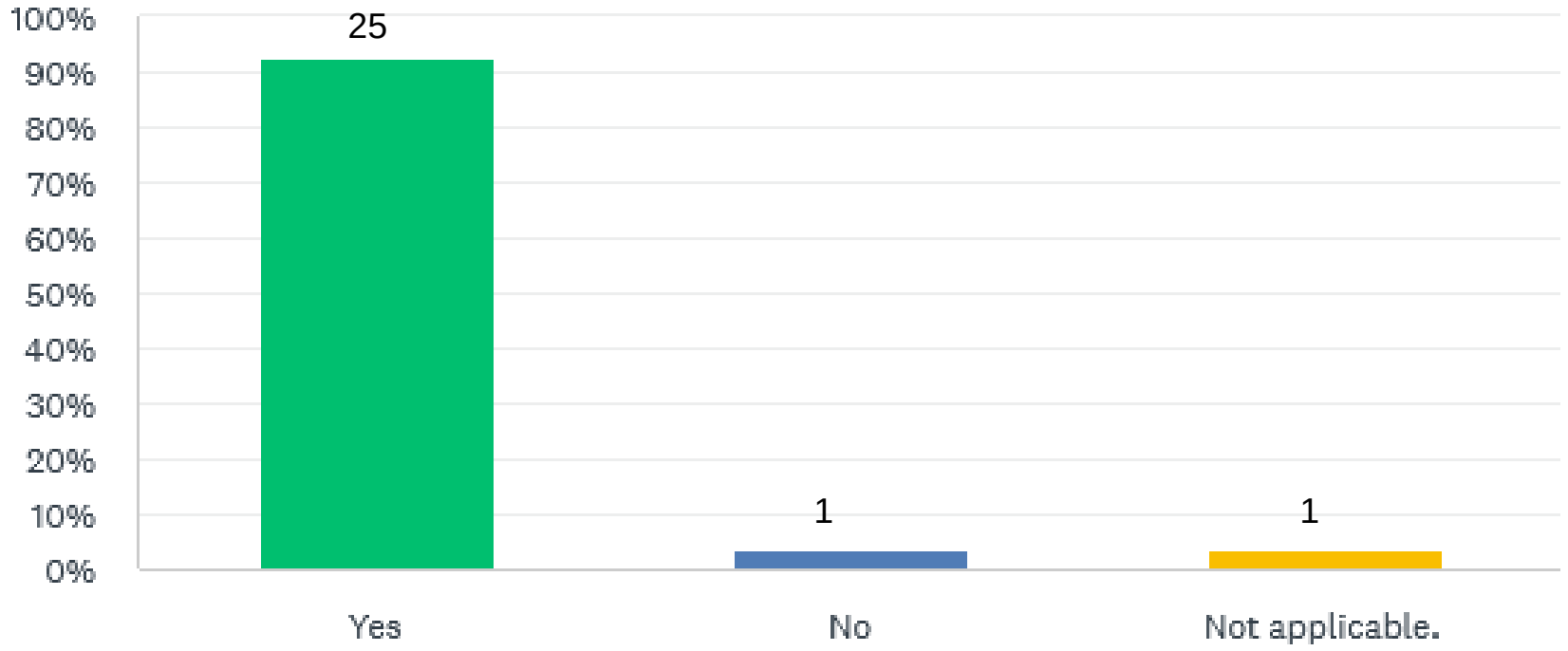
- All free-form responses (i.e., any responses to “Other” and the answers to Question 7) are verbatim from the survey participants and not edited in any way.
- Although some participants did provide contact information, WAVE has not yet reached out to any to discuss their responses.

Q1 Do you use, have you used, or do you want to use Web APIs (EME, MSE) for playback of encrypted media?

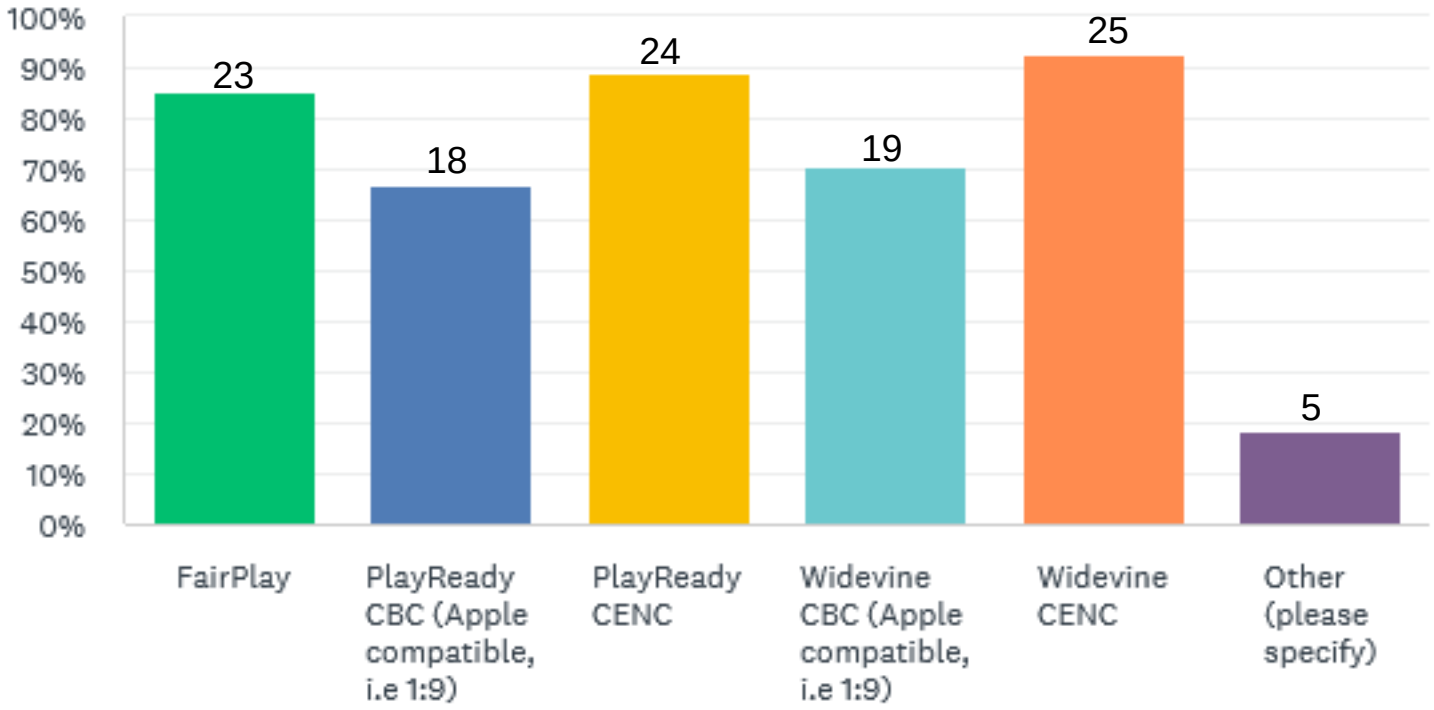


27 responses

Q2 Have you used these Web APIs or do you want to use them on media consumption devices (phones, tablets, sticks, Smart TVs...)?

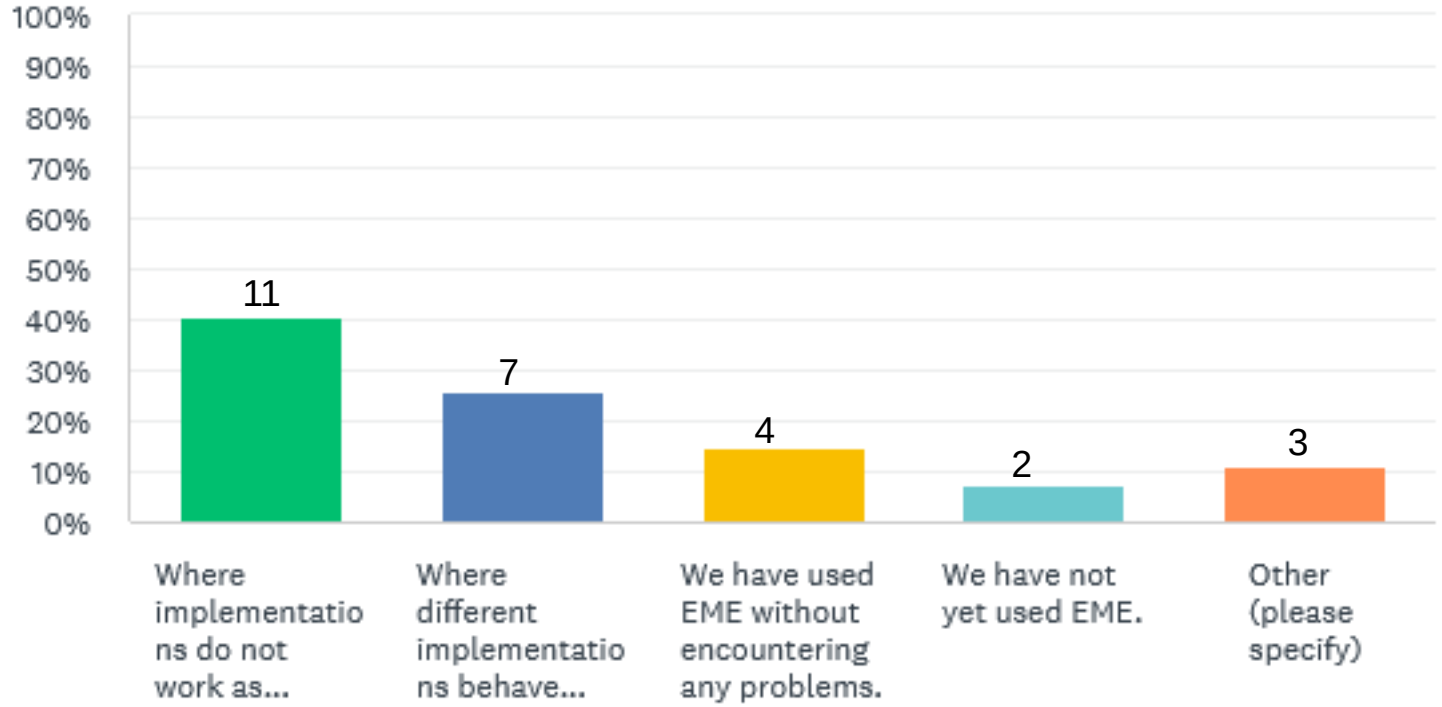


Q3 Which of the following DRM systems have you used (or do you hope to use) with EME?



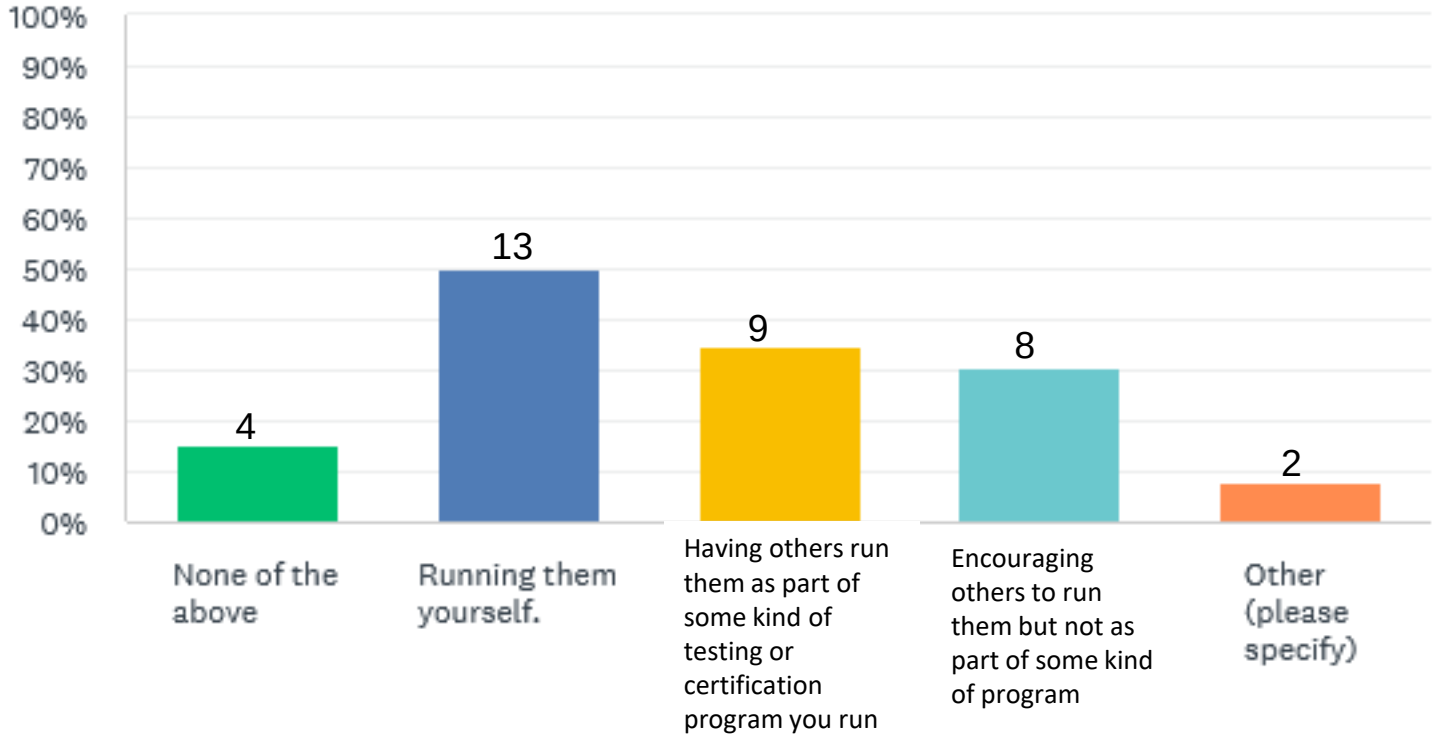
Other: ClearKey; have not used yet; Wiseplay

Q4 Have you encountered problems using EME either:



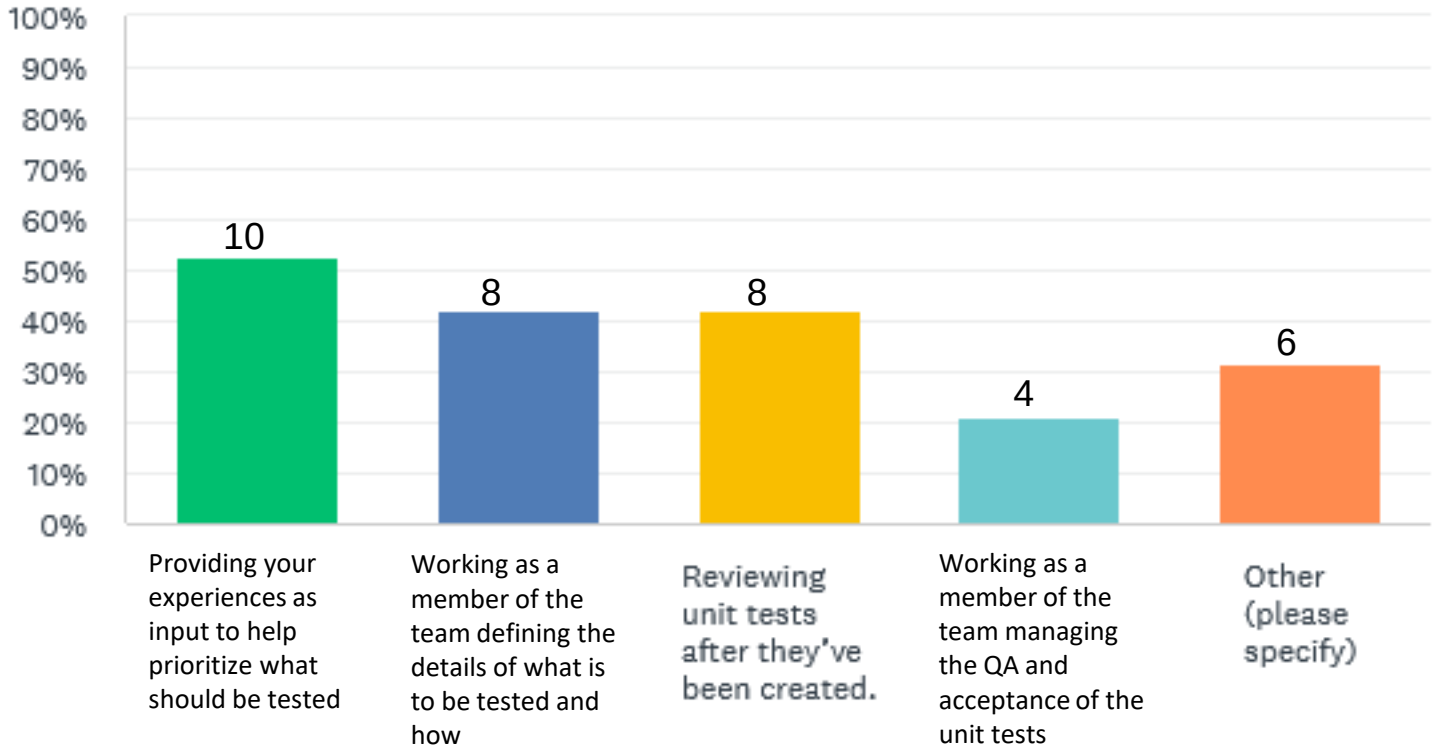
Other: have not used yet; WV + PR being hacked constantly, rights owners demand updates; FairPlay with EME is not directly supported in dash.js.

Q5 Would you have any interest in a set of unit tests for the integration of a web browser with DRM system(s) on media consumption devices?



Other: Already having some tests at https://livesim2.dashif.org, but FairPlay missing; I don't understand the question. Is it for the browser vendor? For the CDM vendor? For the app developer?

Q6 Would you have any interest in contributing to such a set of unit tests?



“Other” responses to Q6

- Some datatypes are supported on MSE but not with EME
- Working as a team member where it would apply in broadcast transmission sector
- This sounds like a good thing, but there seem to be a lot of "corner cases", so covering them and especially debating what is "okay" sounds like a decent amount of work and additional "job". So, I'm not sure I'm up for it. But it would be great to at least note down common differences and then see/decide what can be done about those.
- May add extra tests/commercial DRM providers to livsim2. Currently only EzDRM
- no interest at this stage
- Unavailable due to corporate policies

Q7 What are the key problems with DRMs in combination with EME on devices that would require consistent testing?

- Different codecs with the combination of DRMs and EME. Note that more complicated scenarios are emerging e.g. Multiperiod dash where the content may go in the clear and swap out to an external source.
- Distinguish if there is EME or native DRM playback from player side.
- When DRM causes a restriction on available codecs, outputs, performance that are not easily understood through the MSE/EME apis.
- It must be seamless to the user.
- In one word, transparent testing around 'decenc' type hacks
- Different DRMs support EME bit differently, from custom omissions to extensions, to slight modifications of behaviour of specific features.
- The combination of key systems with different codecs.
- Clear to Encrypted periods transitions.
- Persistence
- The main issue I see is lack of certificate server URL in DASH MPD, but that is being addressed in the DASH-IF content protection group.

Q7 continued

- Mixed clear and encrypted periods.
- APIs are not consistent. There are capabilities that are not covered by EME APIs on browsers. For example: query which keys are already available to the CDM, ability to return null for a license request where the requested key already exists.
- Interoperability with various use cases and stream formats.
- Regionally popular device support (Fetch in Australia, Sky in UK, HbbTV in places that support it) and aging hardware 2011-2017 that are still popular but not maintained.
- Implementations don’t behave as expected.

WAVE
WEB APPLICATION VIDEO ECOSYSTEM

Liaison Statement

From: CTA on behalf of the WAVE Project Steering Committee,
Zachary Cava, Chair, CTA WAVE Project Steering Committee
Alexandra Blasgen, Senior Manager, Technology & Standards, CTA
To: MPEG, 3GPP SA4, W3C Media Working Group, SCTE DVS, ATSC TG-3/S38, SVTA, DVB Technical Module, HbbTV Testing Group
Date: 18 June 2025
Subject: WAVE Project liaison on Commercial DRM Testing

Dear colleagues,

The Consumer Technology Association (CTA) Web Application Video Ecosystem (WAVE) is continuously working on the creation of a set of automated unit tests for the integration of web browsers onto media consumption devices (Smart TVs, phones, tablets, sticks). Details on the WAVE Streaming Media Test Suite – Devices can be found here: https://www.cta.tech/about/wave-project/wave-streaming-media-test-suite-devices/. Today, these exercise the Media Source Extensions (MSE) API and, to a lesser extent, the Encrypted Media Extensions (EME) API.

CTA WAVE is looking to extend the coverage of EME testing to include content protected by commercial DRM systems such as Fairplay, PlayReady and Widevine. CTA WAVE seeks input on people's experiences with the EME API to help guide this work. Based on a recently completed survey, we identified imminent needs of the industry for testing different commercial DRM features.

Summary

- The summary of the survey results (in total 25 responses) is attached. We highlight in particular the following findings:
  - The dominant commercial DRMs are FairPlay, PlayReady and Widevine.
  - Both CBC as well as CENC have broad usage.
  - Only a small portion of the respondents indicate that they use EME without encountering any problems.
  - There is a huge interest in developing unit tests for the integration of a web browser with DRM system(s) on media consumption devices, and further interest to participate in some form in the development of the tests.
- We also received a set of key problems with DRMs in combination with EME on devices that would benefit from consistent testing.

Response W3C (August 14, 2025)

- The W3C Media Working group has recently rechartered, adding the following new features to its scope of work:
  - Continuous license key rotation to support MPEG Common encryption (ISO/IEC 23001-7)
  - Support for media streams that contain a mixture of encrypted and unencrypted content
- This is in addition to existing work on HDCP policy version detection and Encryption scheme capability detection.
- We'd be interested to hear more detail about the problems mentioned in Q7 of your survey, e.g., API consistency, interoperability, implementations not behaving as expected, differences between DRM support of EME, etc.
- You're welcome to raise issues about the EME specification in GitHub at https://github.com/w3c/encrypted-media/issues, ideally giving as much detail as possible. Issues specific to particular browser implementations are probably best raisedwith each browser's own bug tracker instead.

Meeting invitation

If you'd like to, I'd also be happy to arrange a meeting soon, likely hosted by the W3C's Media & Entertainment Interest Group, with EME experts from Media WG, to talk through the issues you've found and your plans around testing and relationship to Web Platform Tests, https://wpt.fyi/results/encrypted-media.

Best regards,

Chris (co-chair, W3C Media Working Group, Media & Entertainment Interest Group)