IPMX Product Qualification and Certification Requirements

Version 1.0 (December 2025)

Published by the Alliance for IP Media Solutions (AIMS)
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https://ipmx.io

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1. Purpose & Scope

This document defines IPMX product qualification and certification requirements, serving as the single authoritative source for both technical conformance and certification program rules.

The document:

- Specifies the normative requirements for IPMX compliance and certification.
- Describes the structure of IPMX in terms of Baseline Requirements, Profiles, and Capabilities, and how these elements are used to define product conformance.
- Defines the process by which products are tested, certified, and listed in the official registry.
- Provides guidance on claims, branding, and vendor obligations.

It works in concert with:

- **VSF TR-10** and related SMPTE ST 2110 documents, which define technical standards and behavior.
- **AMWA NMOS** specifications (e.g., IS-04, IS-05) and other required interoperability specifications and best practices.
- **VSF TR10 TP-1** IPMX Tested Test Plan, which describes the official test procedures and serves as the basis for both self-testing and formal certification testing.

This document does not restate the technical requirements in full. Instead, it references the authoritative specifications and organizes them into Baseline Requirements, Profiles, and Capabilities for certification purposes.

2. Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

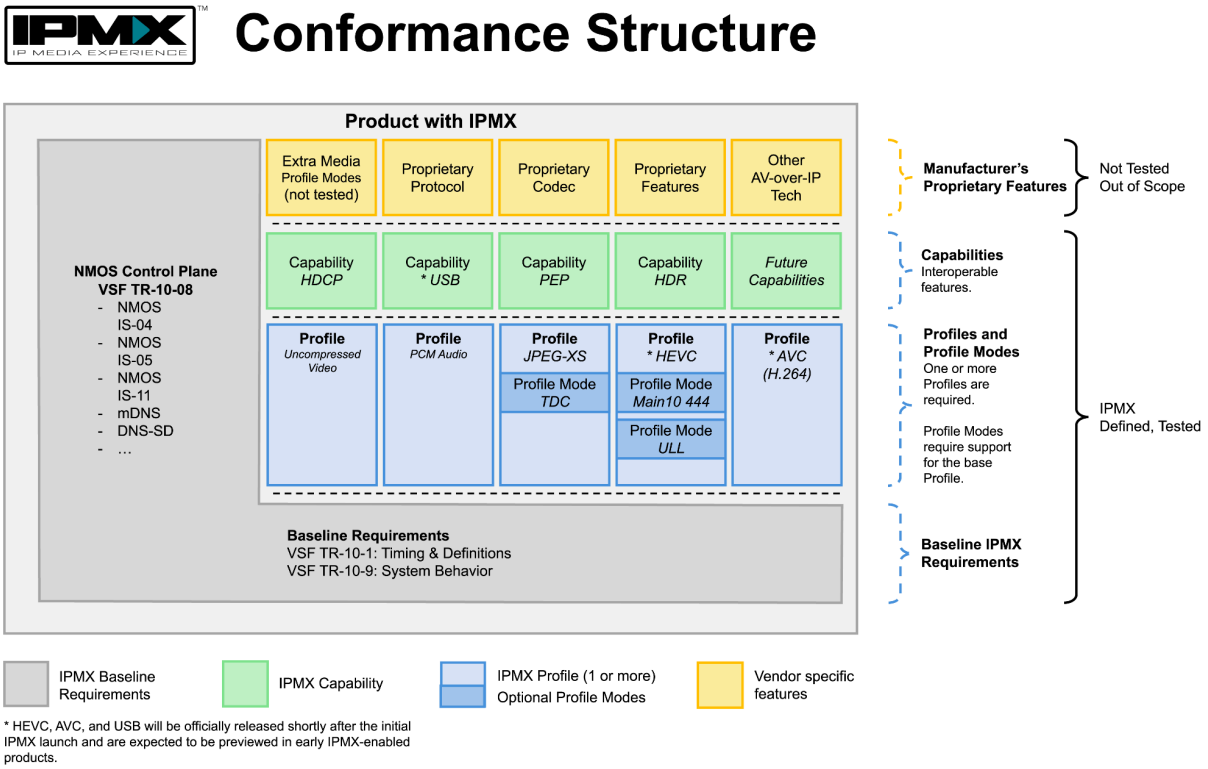
Note: Upon release of IPMX, AIMS Profile and Capability Requirements documents will serve as the normative entry point for implementers. These documents will reference the appropriate TR-10 specifications internally. Because this pre-release version predates the publication of all AIMS documents, references to external specifications (including AMWA and JT-NM) are temporarily retained here to assist early implementers. These external references will be removed once TR-10 and the AIMS documents fully incorporate the required material.

Reference	Title (edition)	Category	Notes
AIMS IPMX Uncompressed Video Profile Requirements	**Uncompressed Video Profile**	Profile	Normative entry point (references TR-10-2)
AIMS IPMX PCM Digital Audio Profile Requirements	**PCM Digital Audio Profile**	Profile	Normative entry point (references TR-10-3)
AIMS IPMX JPEG-XS Video Profile Requirements	**JPEG-XS Video Profile**	Profile	Normative entry point (references TR-10-11, TR-10-8 §7.s, BCP-006-01)
VSF TR-10 TP-1:2025	**IPMX Tested Event – Test Plan**	Test Plan	Companion test matrix
VSF TR-10-1:2024	**System Timing & Definitions**	Baseline Requirements	Underlying normative reference

Reference	Title (edition)	Category	Notes
VSF TR-10-8:2024	**NMOS Requirements for IPMX**	Baseline Requirements	Covers IS-04/05, BCP-002, BCP-006
VSF TR-10-9:2025	**System Environment & Device Behaviour**	Baseline Requirements	Full document
VSF TR-10-11:2024	**Constant Bit-Rate Compressed Video Transport**	Underlying Specification	Referenced by AIMS JPEG XS Profile
AMWA IS-11	**Stream Compatibility Management**	Temporary Reference	Retained until fully absorbed into TR-10-8
AMWA BCP-004-01	**Receiver Capabilities**	Temporary Reference	Required when implemented
AMWA BCP-004-02	**Sender Capabilities (WIP)**	Temporary Reference	Will become normative once included in TR-10
AMWA BCP-005-01	**EDID → Receiver Capabilities Mapping**	Temporary Reference	Normative only when EDID tests are added
VSF TR-10-5:2024	**HDCP Key Exchange Protocol**	Underlying Specification	

Reference	Title (edition)	Category	Notes
VSF TR-10-10:2024	**HDMI Infoframe Packet Transport**	Underlying Specification	
VSF TR-10-13:2024	**Privacy Encryption Protocol / PEP**	Underlying Specification	
VSF TR-10-14:2024	**USB Extension**	Underlying Specification	
VSF TR-10-16:2025	**HDR Info Block**	Underlying Specification	

3. Conformance Model



For the purposes of IPMX product qualification and certification, all requirements are organized into three categories:

3.1 Baseline Requirements

Mandatory requirements that all IPMX products claiming compliance or certification must meet. Baseline Requirements ensure a minimum level of interoperability, core functionality, and network behavior.

3.2 Profiles

Collections of requirements defining specific media format and transport capabilities (for example, Uncompressed Video, PCM Audio, JPEG XS). A product must implement and pass testing for at least one Profile in addition to the Baseline Requirements to qualify for IPMX certification.

3.3 Profile Modes

Each Profile may define one or more Profile Modes, which specify particular combinations of parameters (such as color space, bit depth, or special codec-specific features). A product declaring conformance to a Profile Mode must pass testing for the base Profile.

> **Example:** Within the JPEG XS Video Profile, TDC (Temporal Differential Coding) is a defined and tested IPMX Profile Mode. A device claiming JPEG XS TDC support must pass all JPEG XS Profile tests, as well as the additional tests specific to the TDC mode.

3.4 Capabilities

Optional features or behaviors that extend beyond Baseline Requirements and Profiles (for example, HDCP, HDR, USB transport). If implemented, they are subject to testing and certification, but they are not mandatory for certification eligibility.

3.5 Sender/Receiver Scope

Where applicable, requirements may apply specifically to Sender functionality, Receiver functionality, or both. Testing and certification will be performed according to the declared functional scope of the product.

3.6 Certification Basis

To be listed as IPMX Certified, a product must pass all Baseline Requirements and at least one Profile. Implemented Capabilities and additional Profiles may be tested and listed individually, but failures in optional areas do not affect certification status.

For additional explanatory background on Baseline Requirements, Profiles, and Capabilities, see the IPMX Definition and Implementation Guide.

4. Technical Requirements

This section lists the normative technical requirements for IPMX certification, organized into Baseline Requirements, Profiles & Profile Modes, and Capabilities.

References point to the authoritative specifications that define each requirement.

If a TR-10 document fully covers the requirement, only TR-10 is listed; other standards are cited only when TR-10 is silent.

> **Note**: Extra non-TR-10 references are temporary and will be removed once TR-10 documents incorporate them.

4.1 Baseline Requirements

> **Key:** Where “(S)” or “(R)” appears in the Name column, the requirement applies only to Seder or Receiver functions of the device, respectively. “(TX/RX)” indicates that the requirement applies to both transmit and receive functions.

Name	Reference
System timing and definitions (TX/RX)	TR-10-1
NMOS Requirements (TX/RX)	TR-10-8
Requirements for System Environments and Device Behavior (TX/RX)	TR-10-9
NMOS Stream Compatibility (IS-11) (TX/RX)	AMWA IS-11 (TR-10-8 in future)
NMOS Receiver Capabilities (S/R, when applicable)	BCP-004-01 (TR-10-8 in future)
NMOS Sender Capabilities (S/R, when applicable)	BCP-004-02 (TR-10-8 in future)

Name	Reference
EDID → Receiver Capabilities mapping (R, when applicable)	BCP-005-01 (TR-10-8 in future)

4.2 Profiles & Profile Modes

AIMS Profile Documents are the normative entry point for implementers. They incorporate and reference the relevant TR-10 and AMWA specifications. Certification is based on the AIMS documents listed below.

Name	Links
Uncompressed Video Profile Requirements (TX/RX)	IPMX Uncompressed Active Video Profile Requirements
PCM Digital Audio (TX/RX)	IPMX PCM Digital Audio Profile Requirements
JPEG XS video (TX/RX)	IPMX JPEG-XS Video Profile Requirements

4.3 Capabilities

AIMS will publish formal IPMX Capability Requirements documents for each defined Capability, similar to the AIMS Profile documents used for Profiles and Profile Modes. These Capability documents will serve as the normative entry point for implementers and will incorporate the relevant TR-10 and AMWA specifications.

As these documents are not yet available, the Capabilities listed in this section temporarily reference the underlying TR-10 specifications directly. Once the AIMS Capability Requirements documents are published, these references will be replaced with links to the AIMS documents, and the TR-10/AMWA references will be retained only within those documents.

Name	References
HDCP content protection / HKEP (TX/RX)	TR-10-5
HDMI Infoframe Packet Transport	TR-10-10
Privacy Encryption Protocol / PEP (TX/RX)	TR-10-13
USB Extension (TX/RX)	TR-10-14
HDR metadata transport (TX)	TR-10-16

5. Qualification & Certification Program

This section defines how products are assessed, and the process for obtaining and maintaining IPMX certification.

5.1 Certification Tiers

IPMX Certified

An IPMX Certified product is one that has passed formal testing at an official IPMX Test Event (or authorized lab), demonstrating conformance to all Baseline Requirements and at least one Profile, plus any declared Capabilities. Only Certified products are permitted to use the IPMX name and logo in marketing or product labeling. Certified products are listed in the official registry, with the Profiles and Capabilities for which they passed testing.

> **Note:** The IPMX Certification Registry has not yet been published. A link to this registry will be added to this document once it is available.

Non-Certified Products

Products that implement IPMX technologies but have not completed certification may not use the IPMX name or logo in marketing or product descriptions. Vendors may state conformance to the underlying technical specifications (e.g., *“conforms to VSF TR-10”*), but such products are not recognized within the IPMX program or listed in the registry.

> **Note:** Open-source or non-commercial reference implementations may be considered for special recognition through AIMS, subject to registration and potential review. These projects may not use the IPMX logo but may be referenced as “implementations of the IPMX specifications (VSF TR-10).”

5.2 Eligibility

Production-readiness

Certification applies to products that are shipping or substantially complete, with production-representative hardware and software. This ensures that results reflect real-world performance and integration quality. Engineering samples may be tested, but only if the manufacturer declares that the tested hardware/software is functionally identical to the intended shipping product.

Scope of certification

Certification applies to the complete, declared product as represented for testing — not to individual ports, channels, or isolated features.

Testing is performed on a representative configuration that exercises all Profiles and Capabilities the vendor wishes to have certified. For products with multiple configurations, software-defined options, or license-controlled features, the most capable configuration (superset of all declared certified functionality) must be tested.

Variants, configurations, or license levels that are strict subsets of the tested configuration inherit the certification, provided they do not introduce any new hardware, firmware, or capabilities that were not exercised during testing.

Component, module, and IP-core testing may be performed for development purposes but does not result in Compliant or Certified status for the component itself.

Certification testing verifies functionality, not total channel capacity. Each declared Profile, Profile Mode, and Capability is tested for conformance using at least one input and one output path. The test plan does not require simultaneous operation of all channels, or exhaustive

testing of every I/O combination. Multichannel capacity claims remain the responsibility of the manufacturer.

Products must declare the software and/or firmware versions tested. This version manifest will be published in the official certification record, published in the IPMX Product Registry.

> **Note:** The IPMX Certification Registry has not yet been published. A link to this registry will be added to this document once it is available.

Component-Level Testing and Marketing

While IPMX implementation components — such as IP cores, SoCs, or SDKs — are not eligible for IPMX Certification on their own, they may undergo testing at certification events or internal validation sessions.

The purpose of such testing is to

- Help vendors validate that their IPMX implementation conforms to specification.
- Increase the likelihood of successful certification for downstream products.
- Support integration efforts by OEMs and solution developers.

Vendors may reference these testing results in sales materials, technical documentation, and marketing content, provided the following conditions are met:

1. It is made explicitly clear that the component itself is **not** IPMX Certified.
2. Any language referring to successful testing must avoid suggesting that products built using the component are automatically certified.
3. References to IPMX should remain descriptive and factual, and must comply with the IPMX Branding & Trademark Usage Guidelines.

✅ **Example of acceptable language:**

> “The XYZ123 SoC has passed internal IPMX test suite coverage for JPEG XS and NMOS IS-04/05/11, making it ideal for use in IPMX Certified products.”

❌ **Example of unacceptable language:**

> “The XYZ123 SoC is IPMX Certified.”

Only finished products that undergo full certification testing and meet all criteria defined in this document are eligible to be labeled IPMX Certified.

5.3 Product Families and Variants

1. The most capable SKU (maximum declared Profiles and Capabilities) must be tested.
   Example: If a device supports uncompressed video, JPEG XS, HDR metadata, and HDCP, certification is based on testing one or more flows that exercise all of those Capabilities. Variants or license levels that offer only a subset (e.g., JPEG XS without HDR, or uncompressed without HDCP) inherit the certification without additional testing, since no new Profiles or Capabilities are introduced.

2. Variants that differ only in network interface type (e.g., 1 GbE vs 10 GbE, copper vs fiber) or baseband I/O format (e.g., HDMI vs SDI) do not require separate certification, provided their Profiles, Capabilities, and firmware/software behavior are otherwise identical.

3. If a variant adds Profiles or Capabilities not in the certified SKU, a delta test is required for the new items.
   Example: If a product family’s certified SKU supports uncompressed video and JPEG XS, but a new variant adds USB transport as an additional Capability, that variant must undergo a delta test covering USB functionality.

> **Note:** The new variant may claim IPMX compliance for all previously certified functionality, but the added Profile or Capability may not be included in that claim until it has passed the corresponding delta test.

Acceptable differences between certified and variant models include:

- Changes in physical I/O count or connector type, provided they do not alter certified Profiles or Capabilities.
- Cosmetic or enclosure differences (form factor, branding, finish).

Any variant introducing new Capabilities, Profiles, interfaces, media behaviors, or firmware changes that affect declared functionality must be separately tested and certified.

All variants covered under a single certification are grouped by a common Application Reference Number (ARN), assigned at the time of testing. The ARN identifies the representative product and all variants certified under the same test application. See Section 5.10 for registry details.

.5.4 OEM/ODM and Private Labeling

1. Certification may be extended to OEM/ODM variants if hardware and software are identical and declared Profiles/Capabilities match, with each brand/SKU listed separately in the registry.
2. Vendors must provide a declaration matrix mapping SKUs to the certified product.

> **Note:** Each certified product family is tracked under a single Application Reference Number (ARN) for internal verification. The declaration matrix associates all OEM/ODM SKUs with the corresponding ARN but is not made public.

3. **Modified versions** of a certified OEM/ODM design must be disclosed to the Certification Authority.

4. **Retesting is required** if the modification changes any aspect of the hardware or firmware/software that could affect compliance with Baseline Requirements, declared Profiles, or declared Capabilities.
5. **Delta testing** may be permitted when the change only affects a subset of Profiles/Capabilities.
6. Cosmetic or branding-only changes that do not affect compliance do not require retesting.

5.5 Testing Process

1. Testing follows the IPMX Test Plan (TR-10 TP-1:2025), using VSF-hosted Tested Events or authorized third-party certification authorities.
2. Vendors may not use the Certified logo or imply certification until results are confirmed. The public registry includes products only after certification is granted.
3. All test results, including failures in optional areas, are reported privately to the vendor. Only passing Profiles and Capabilities are listed in the public registry.
4. Vendors (or their designated representatives) must attend the Tested Event in order for a product to complete certification. Remote submission of equipment without on-site participation is not supported at this time.

> **Note:** Certification testing is currently conducted at official IPMX Tested Events administered by the European Broadcasting Union (EBU), acting as the independent Certification Authority. Additional accredited laboratories may be added in future revisions.

5.6 Pass/Fail Criteria

1. Passing certification requires meeting all Baseline Requirements and at least one Profile.
2. Optional Profiles and Capabilities are tested if declared. Failure in an optional area does not affect certification, but the failed capability, profile, or profile mode will not be listed in the registry.

3. All claimed Profiles must be fully implemented, stable at the time of testing, and exercised on at least one applicable transmit (TX) and/or receive (RX) path. When a device supports both TX and RX for a given Profile, testing will be performed in both directions. Where multiple TX or RX paths differ in capability, the most capable applicable path is used for testing.

   Optional Capabilities are tested in the same way: on at least one applicable TX and/or RX path, with both directions tested when supported, and using the most capable applicable path where capabilities differ.

5.7 Retesting and Appeals

Retesting is required when:

1. The manufacturer wishes to add newly implemented Profiles or Capabilities to a Certified product.
2. The manufacturer wishes to claim compliance with a revised version of the relevant TR-10 specifications or Test Plan.
3. The Certification Authority has credible evidence of non-conformance in the field and determines that re-testing is necessary to verify continued compliance.

Spec versioning

Certification is granted for the specific versions of TR-10 specifications and the Test Plan in effect at the time of testing. Products retain their certification for that version indefinitely, unless a loss of conformance is proven. To claim compliance with newer versions, the product must pass re-testing against the updated requirements.

Appeals

Vendors who wish to dispute a test result may submit an appeal to AIMS along with any supporting evidence they believe is relevant. AIMS will review the appeal and determine the appropriate course of action, which may include clarification, further evaluation, or retesting at the vendor’s expense.

The process and timeline for handling appeals are determined solely by AIMS. All decisions made by AIMS regarding appeals are final.

In-Event Retesting

Retesting during the same event is at the discretion of the event organizer and is not guaranteed.

5.8 Non-Compliance Policy

Certified products must continue to conform to the tested functionality. If material failures are discovered — whether through user reports, retesting, or interoperability events — the product's certification may be suspended or revoked.

A vendor will be notified of any issues and given a defined window (typically 90 days) to resolve or clarify the problem. The vendor may be required to submit the product for retesting to confirm the issue has been resolved. **All corrective actions and any required retesting are performed at the vendor's expense.**

If the issue is not addressed within the resolution period, AIMS reserves the right to remove the product's certification listing and require a full re-certification before reinstatement.

5.9 Brand Use and Claims

1. **Certified products** may display the IPMX Certified logo and logo lockups, in accordance with the IPMX Branding & Trademark Usage Guidelines.
2. **Non-certified** products may not display any IPMX logos or word-marks. Vendors of such products may reference the underlying technical specifications (e.g., conforms to VSF TR-10), but must not imply IPMX certification or use the IPMX name or logo in product branding or marketing.
3. All claims of certification must be truthful, must reflect the current registry status, and must be made in a way that does not imply that untested Profiles or Capabilities are certified.
4. All logo or word-mark use must conform to the IPMX Branding & Trademark Guidelines.

5. **Word-mark use**: Use of the term “IPMX” in product names, descriptions, or marketing is governed by the IPMX Branding & Trademark Guidelines. Misuse of the word-mark may result in suspension or revocation of certification.

6. **Misuse**: The Certification Authority may revoke logo or word-mark usage rights if branding rules are violated or if the product is found to be non-compliant with the requirements for its claimed status.

5.10 Registry Content

The official IPMX Certification Registry will contain a Core Listing for each Certified product, including at minimum:

1. Application Reference Number (ARN): a unique identifier assigned to each certification application and its associated product family, as defined in Section 5.3.
2. Product name and vendor
3. Tested firmware/software version
4. Certified Profiles
5. Certified Profile Modes
6. Certified Capabilities

> **Note:** The IPMX Certification Registry has not yet been published. A link to this registry will be added to this document once it is available.

This Core Listing forms the authoritative public record of certification and is required for all Certified products. It is intentionally concise to make it easy for customers, integrators, and partners to confirm certification status at a glance.

In addition, vendors may provide optional Extended Information for publication on a product-specific IPMX Device Declaration within the IPMX Certified Product Registry. This includes, but is not limited to:

- Supported color modes and bit depths
- Supported resolutions and frame rates
- Supported audio formats, sample rates, and bit depths

- Supported network interface speeds and media types
- Supported control and management protocols
- Additional capabilities or features relevant to IPMX specifications

The Extended Information serves as a technical and marketing reference for system designers, engineers, and other decision-makers who require deeper insight into a product's capabilities. While optional, it is strongly encouraged, as it increases transparency, aids interoperability planning, and reduces pre-sales technical friction.

The information used for both the Core Listing and the IPMX Device Declaration is collected as part of the IPMX Certification Application process. Vendors enter these details when submitting the application for testing, including all Profiles, Capabilities, and additional product data intended for publication. The ARN assigned at submission links this data set to the certified product family.

The Core Listing is maintained by AIMS.

The IPMX Device Declaration is vendor-supplied and must be accurate at the time of publication. Any changes to either set of data must be reported to AIMS to ensure the registry remains accurate.

6. Appendices (Informative)

All items within the Appendices are informative.

Appendix A: Definitions & Acronyms

Baseline Requirements

Mandatory requirements that all IPMX products must meet to be considered Compliant or Certified. These ensure core interoperability, basic functionality, and correct network behavior.

Capability

An optional feature or behavior that extends beyond Baseline Requirements and Profiles. If implemented, it is subject to testing and may be listed in the product's certification record. Examples: HDCP content protection, HDR metadata transport.

Certification Authority

The body designated by AIMS (or its successor) to administer the IPMX qualification and certification program, conduct tests, and enforce rules.

Certified (IPMX Certified)

A product that has met all Baseline Requirements, at least one Profile, and any declared Capabilities through formal testing at an IPMX Tested Event or authorized lab, and is listed in the official IPMX registry.

Core Listing

The required, concise set of information that appears in the public IPMX Certification Registry for each Certified product.

Includes: product name, vendor, tested firmware/software version, certified Profiles, and certified Capabilities.

Maintained and published byAIMS.

IPMX Device Declaration

Optional, vendor-supplied technical and feature data associated with a Certified product, published on a product-specific IPMX Device Declaration page.

May include supported formats, resolutions, audio specifications, network interfaces, control protocols, and other relevant capabilities.

Intended to assist integrators, engineers, and buyers in interoperability planning and purchasing decisions.

Delta Test

A targeted re-test covering only the Profiles or Capabilities added or modified since the product's last certification.

NMOS
Networked Media Open Specifications – a family of AMWA specifications for discovery, connection management, capability description, authorization, and related functions.

OEM/ODM
Original Equipment Manufacturer / Original Design Manufacturer – in this context, a company producing hardware or software that is rebranded and sold by another company.

Profile
A collection of requirements defining a specific media format and transport capability (e.g., Uncompressed Video, PCM Audio, JPEG XS).

Profile Mode
A specific combination of parameters (special codec features, latency related settings, color space, or bit depth) within a Profile. Certification testing must cover all declared Profile Modes, and each tested mode is listed in the official certification registry entry for the product.

TR-10 TP-1:2025
IPMX Test Plan. Defines the official procedures for testing IPMX products for compliance and certification.

TR-10
Technical Recommendations developed by VSF to define IPMX behavior, profiles, capabilities, and related interoperability requirements.

Variant
A model or SKU within a certified product family that has a subset of the tested product's Profiles/Capabilities.

Appendix B – Future Program Elements

The following program features are under consideration for future phases of the IPMX Certification Program. These are **not** currently available, and this section is provided solely to help members plan and align development roadmaps.

1. **Out-of-Cycle Retesting**
   A structured process for retesting previously submitted products between scheduled events, conducted by approved facilitators, potentially including remote testing.

2. **Additional Device Classes**
   Exploration of certification programs for products currently outside scope (e.g., network switches, control software) once baseline requirements are defined.

This appendix is non-binding and subject to change as the IPMX program evolves.

Appendix C: Change Log

Version	Date	Summary of Changes
1.0	2025-12-01	Public Release, added title page branding, page number, header, footer and CC BY-ND 4.0 license.
0.6		Updated links to URLs. All AIMS documents use `current` or `vX.Y`. See: AIMS Document Versio… When a version is linked, we assume 1.0. If not true, this will need to be updated again.
2025-12-01 0.5	2025-12-01	Changed references from TP-10-1 to TR-10 TP-1:2025
0.4	2025-09-01	Consolidated certification program rules and technical requirements into a single authoritative document;

Version	Date	Summary of Changes
		aligned with TR-10,TP-10-1, and AMWA NMOS specifications as listed above.
0.3		Introduced tier definitions (Compliant vs Certified), clarified product family/variant rules, OEM/ODM policy, and “Pending” certification for vendors with prior track records.
0.2		Added normative definitions for Baseline Requirements, Profiles, Profile Modes, and Capabilities; clarified use of TR-10-first referencing with NMOS direct citations where TR-10 is silent.
0.1		Updated retesting policy to align with industry practice (versioned spec model). Added Branding & Trademark summary section and expanded Appendices.