



PATENTI STANDARDS INTELLIGENCE

RESEARCH SERIES 01

C2PA Standards Intelligence 2026

A Claim-Level Assessment of the U.S. Patent Portfolio Through the C2PA Technical Architecture

Content Credentials • Soft Binding • Attestation

541

U.S. patent publications

1,642

publication-specific
independent-claim mappings

45

primary C2PA
technical references

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Executive Summary

Content Credentials combines assertions concerning an asset with a claim, claim signature and content-binding information within a C2PA Manifest. Content bindings may be hard bindings based on cryptographic hashes or soft bindings derived from characteristics of the digital content.

C2PA establishes a technical framework for recording, binding, signing, recovering and validating information concerning the provenance of digital content. Its architecture draws upon technologies developed across several established patent domains, including cryptographic signatures, content hashing, watermarking, fingerprinting, provenance records and platform attestation.

This creates a distinct patent-intelligence problem. Broad technology landscapes can identify patents associated with provenance, authentication, signing, watermarking and trusted computing. They do not, by themselves, establish how claimed inventions correspond to the defined technical architecture of C2PA.

Patenti's 2026 C2PA Standards Intelligence assessment addresses that question at the level of publication-specific independent claims.

The assessed U.S. portfolio comprises **541 patent publications and 1,642 independent-claim mappings**, resolved against a frozen technical corpus spanning **C2PA Content Credentials 2.3, Soft Binding 2.2 and Attestation 1.4**.

KEY FINDINGS

FINDING 01

57.2%

Concentration within a distributed technical architecture

Four primary C2PA technical references account for 940 of the 1,642 independent-claim mappings.

FINDING 02

63.8%

Soft Binding extends beyond watermarking

Watermarking accounts for 328 of 514 Soft Binding mappings; the remaining portfolio spans resolution, fingerprinting, combined binding mechanisms and related functions.

FINDING 03

468

Publication-level analysis conceals claim structure

468 of 541 publications contain more than one mapped independent claim; 78 contain claims mapped to more than one primary C2PA technical reference.

1. Research Context

C2PA is architecturally broader than a single authentication technology.

Content Credentials encompasses assertions, claims, manifests, cryptographic signatures, content bindings, actions and validation processes. Soft Binding provides mechanisms through which provenance information may remain discoverable when content and its directly associated credentials become separated. Attestation extends the trust architecture toward evidence concerning software, devices and execution environments involved in content creation or processing.

These mechanisms originate from patent domains that have developed independently.

Digital signatures have an extensive technical history distinct from watermarking. Fingerprinting, metadata management and content-authentication systems form separate areas of innovation. Trusted execution environments, platform measurement and remote attestation developed within hardware and security ecosystems.

A broad patent landscape can legitimately bring these technologies together under a wider provenance or content-authenticity theme.

A standards-resolved assessment asks a different question:

Where do the required limitations of independent patent claims correspond to technical mechanisms defined within C2PA?

This distinction is important because technological relevance does not necessarily imply architectural correspondence.

A patent directed to watermark embedding may be relevant to durable content identification without addressing the recovery structure defined by C2PA Soft Binding. A digital-signature claim may authenticate information without corresponding closely to the role of Claim Signing within Content Credentials. A remote-attestation invention may address platform trust without requiring the evidentiary structure contemplated by C2PA Attestation.

The technical architecture of the standard therefore provides an additional analytical reference point.

2. Portfolio Scope

The assessed portfolio contains **541 U.S. patent publications**.

For portfolio-level reporting, each publication is assigned a primary C2PA technical family.

Primary C2PA family	U.S. publications	Share
Content Credentials	286	52.9%
Soft Binding	162	29.9%
Attestation	93	17.2%
Total	541	100%

At independent-claim level, the portfolio resolves as follows:

C2PA family	Independent-claim mappings	Share
Content Credentials	860	52.4%
Soft Binding	514	31.3%
Attestation	268	16.3%
Total	1,642	100%

Those mappings extend across **45 primary C2PA technical references**.

The publication-level family assignments therefore serve as portfolio roll-ups rather than exclusive technical boundaries. Claim-level analysis retains the finer technical structure beneath those aggregates.

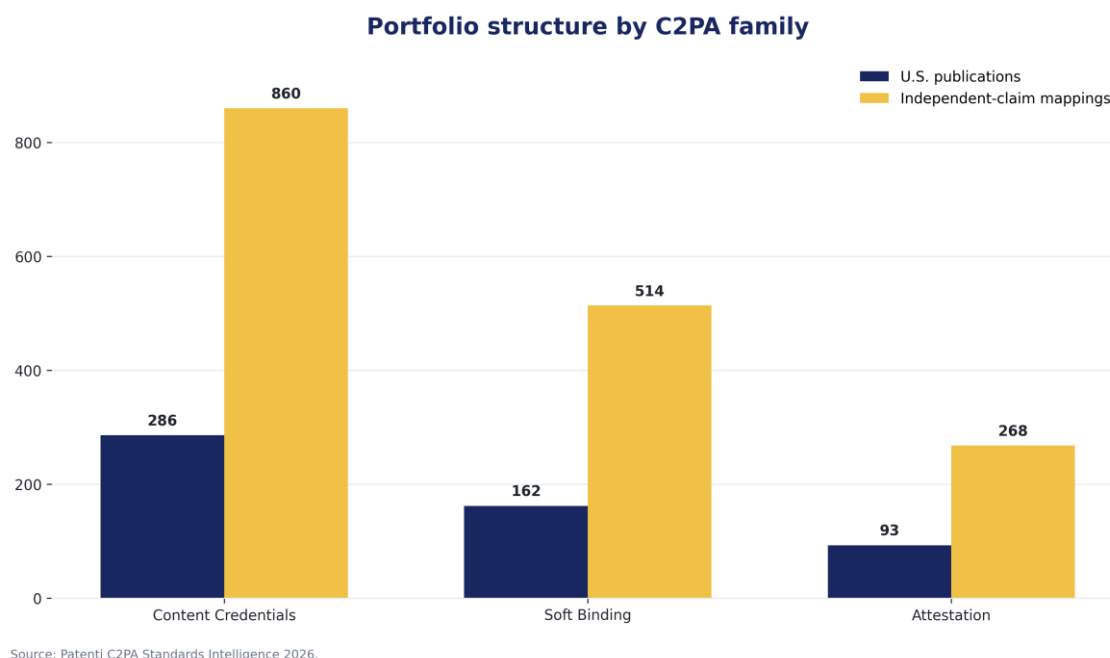


Figure 1. C2PA portfolio structure by technical family. Publication-level portfolio assignments and publication-specific independent-claim mappings across Content Credentials, Soft Binding and Attestation.

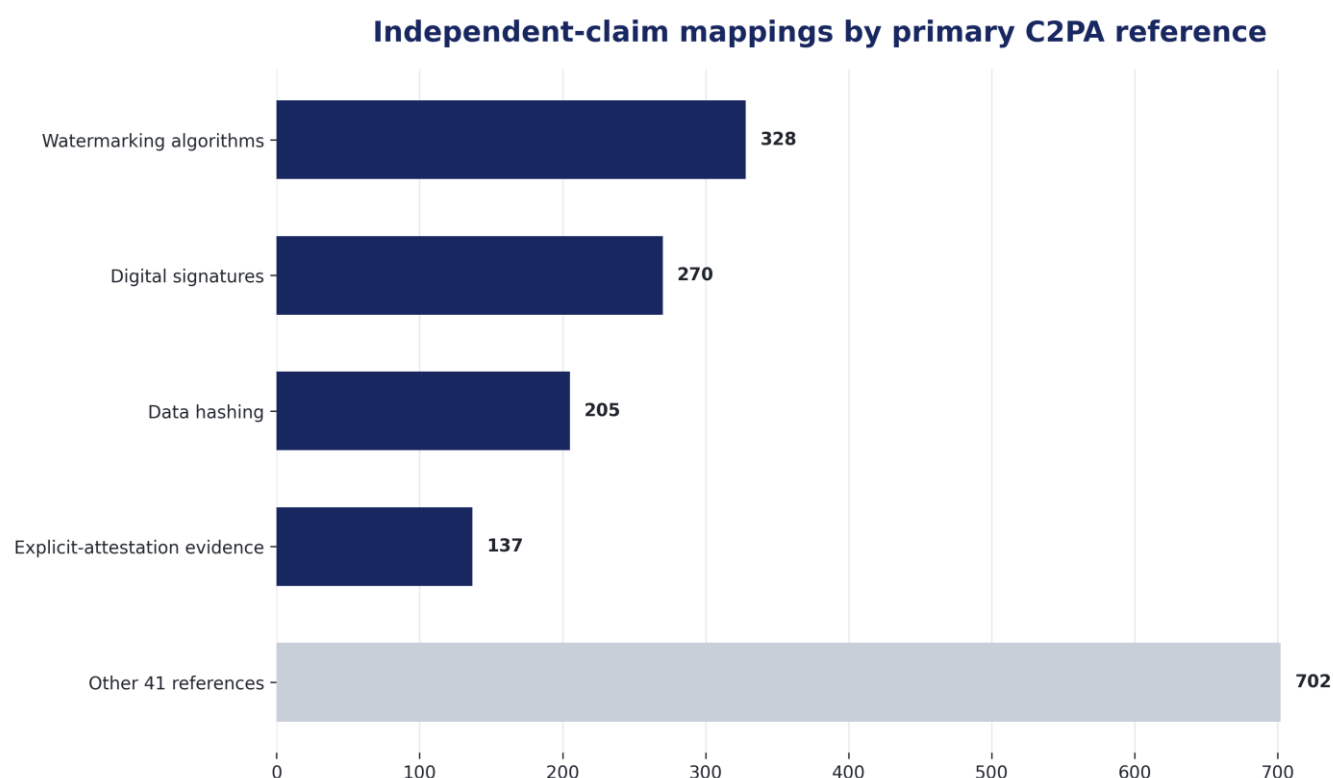
3. Finding 1 — Concentration Within a Distributed Technical Architecture

The assessed claim portfolio is broad but not uniformly distributed.

Four primary technical references account for **940 of the 1,642 mappings**.

Primary C2PA technical reference	Independent-claim mappings
Soft Binding 2.2 §1.2.1.1 — Watermarking algorithms	328
Content Credentials 2.3 §13.2 — Digital Signatures	270
Content Credentials 2.3 §18.5 — Data Hash	205
Attestation 1.4 §7.1 — What is Attested?	137
Total	940

Together, these references represent **57.2%** of the assessed claim-level portfolio.



Source: Patenti C2PA Standards Intelligence 2026.

Figure 2. Distribution of independent-claim mappings across the leading C2PA technical references. The four leading references account for 940 of 1,642 mappings (57.2%); the remaining 702 mappings extend across 41 additional primary references.

The concentration should not be interpreted as a single measure of technological importance.

Watermarking supports durable association and recovery. Digital signatures provide cryptographic integrity and signer-related evidence. Data hashes support binding between provenance information and a specific asset. Attestation introduces evidence concerning the software, platform or device associated with content creation or processing.

The remaining **702 mappings** extend across a further **41 technical references**, including manifests, actions, asset validation, fingerprinting, manifest recovery, live-video processes and platform-trust mechanisms.

The result is therefore one of **technical concentration without technical homogeneity**.

A conventional portfolio count can identify where patent activity is dense. An architecture-resolved assessment additionally identifies which function within the standard that density relates to.

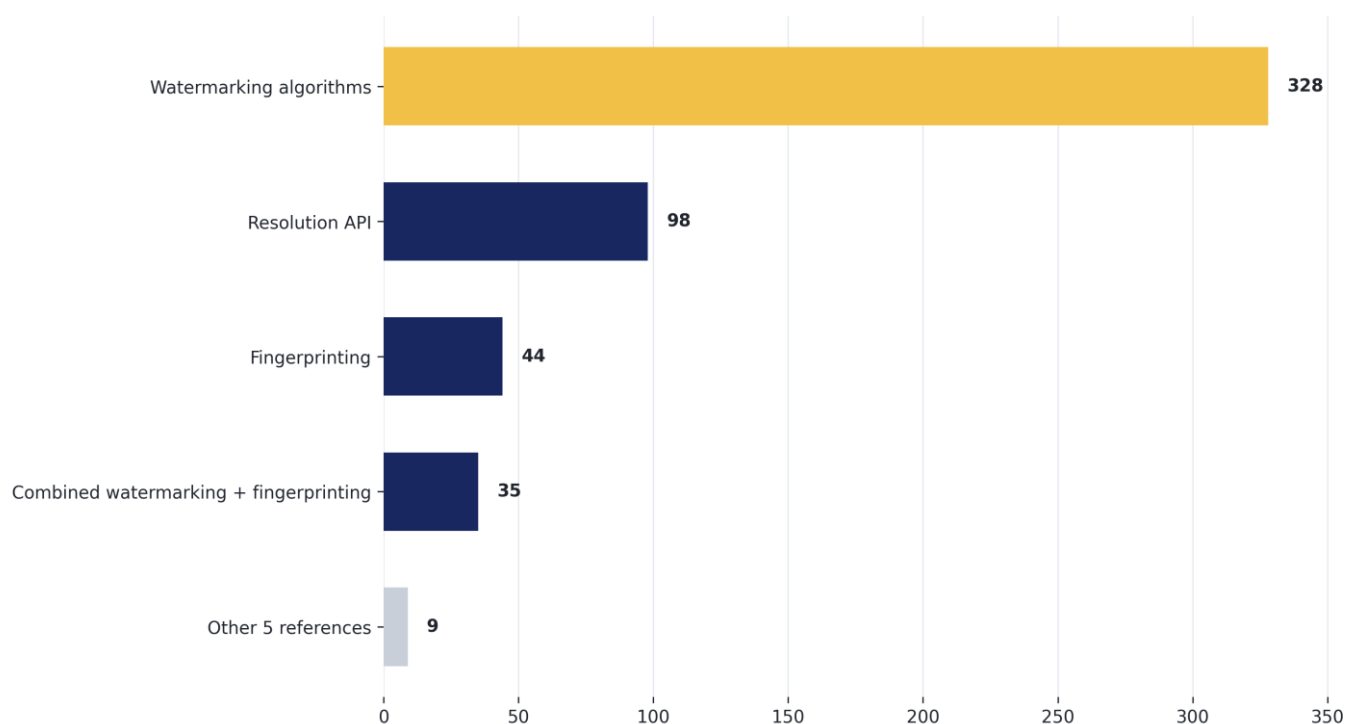
4. Finding 2 — Soft Binding Extends Beyond Watermarking

Soft Binding provides a particularly clear illustration of the difference between a broad technology category and a standards-defined technical architecture.

The assessed Soft Binding portfolio contains **514 independent-claim mappings across nine primary technical references**.

Soft Binding technical reference	Claim mappings
Watermarking algorithms	328
Soft Binding Resolution API	98
Fingerprinting algorithms	44
Combined Watermarking and Fingerprinting	35
Other Soft Binding references	9
Total	514

Soft Binding claim mappings by technical reference



Source: Patenti C2PA Standards Intelligence 2026.

Figure 3. Claim-level distribution within C2PA Soft Binding. Watermarking accounts for 328 of 514 mappings, while the remaining portfolio extends across resolution, fingerprinting, combined binding and other Soft Binding mechanisms.

Watermarking accounts for **63.8%** of the Soft Binding claim-level portfolio.

The balance is analytically significant.

Soft Binding is not defined solely by the insertion or detection of a durable signal. Its architecture also encompasses fingerprinting, combined binding mechanisms and processes through which detached provenance information can be discovered or recovered.

This produces several distinct technical positions within one C2PA family: durable identification, content matching, manifest discovery and provenance recovery.

A broad watermarking patent landscape may encompass inventions relevant to several of these functions. It does not establish where they sit within the Soft Binding architecture.

The distinction is material because two patents associated with watermarking can occupy very different positions when assessed against the standard. One may concern the robustness or embedding of the watermark itself; another may use the embedded identifier as part of a larger retrieval or provenance-resolution mechanism.

Standards-resolved analysis preserves that difference.

5. Content Credentials: Provenance Architecture Beyond Signing

Content Credentials forms the largest family in the assessed portfolio, comprising **286 publications and 860 independent-claim mappings**.

Digital Signatures represents its largest single technical anchor, with **270 mappings**.

The wider distribution demonstrates that the portfolio extends materially beyond signing.

Selected Content Credentials reference	Independent-claim mappings
Digital Signatures	270
Data Hash	205
Actions	96
Manifests	89
Validate the Asset's Content	69
Metadata	33
Ingredient	26
Live Video Validation Process	24

Additional mappings extend across claim creation, live-video generation and other specification-defined functions.

This structure distinguishes authenticated information from a broader provenance architecture.

A digital signature can establish integrity or signer-related evidence. A provenance system additionally requires structures defining what is asserted, how assertions relate to an asset, how transformations and ingredients are represented, how content is bound to provenance information and how that information is subsequently validated.

The Content Credentials portfolio therefore spans several layers of provenance construction and verification.

A patent landscape organized principally around signatures would capture only one part of that system.

6. Attestation: From Content Provenance to Trust Infrastructure

Attestation introduces a further shift in the technical character of the assessed portfolio.

The Attestation family contains **93 U.S. publications and 268 independent-claim mappings**.

Its largest primary anchor, **Attestation 1.4 §7.1 — What is Attested?**, accounts for **137 mappings**. The remaining portfolio extends across explicit attestation, TPM-related mechanisms, trusted-platform evidence, protected keys, trust-broker functions, enclave mechanisms and related platform-security functions.

This extends C2PA-related patent analysis beyond media-processing technologies into trust infrastructure.

Relevant technical domains include trusted execution environments, hardware roots of trust, platform measurement, device identity, secure key provisioning, remote attestation and verification services.

These technologies would ordinarily be examined within security, semiconductor or trusted-computing landscapes.

Within C2PA, they acquire an additional relationship to content provenance.

The result illustrates an important characteristic of standards-based patent intelligence: **a technical standard can connect patent domains that conventional technology taxonomies would normally analyze separately.**

7. Finding 3 — Claim-Level Resolution Alters the Portfolio View

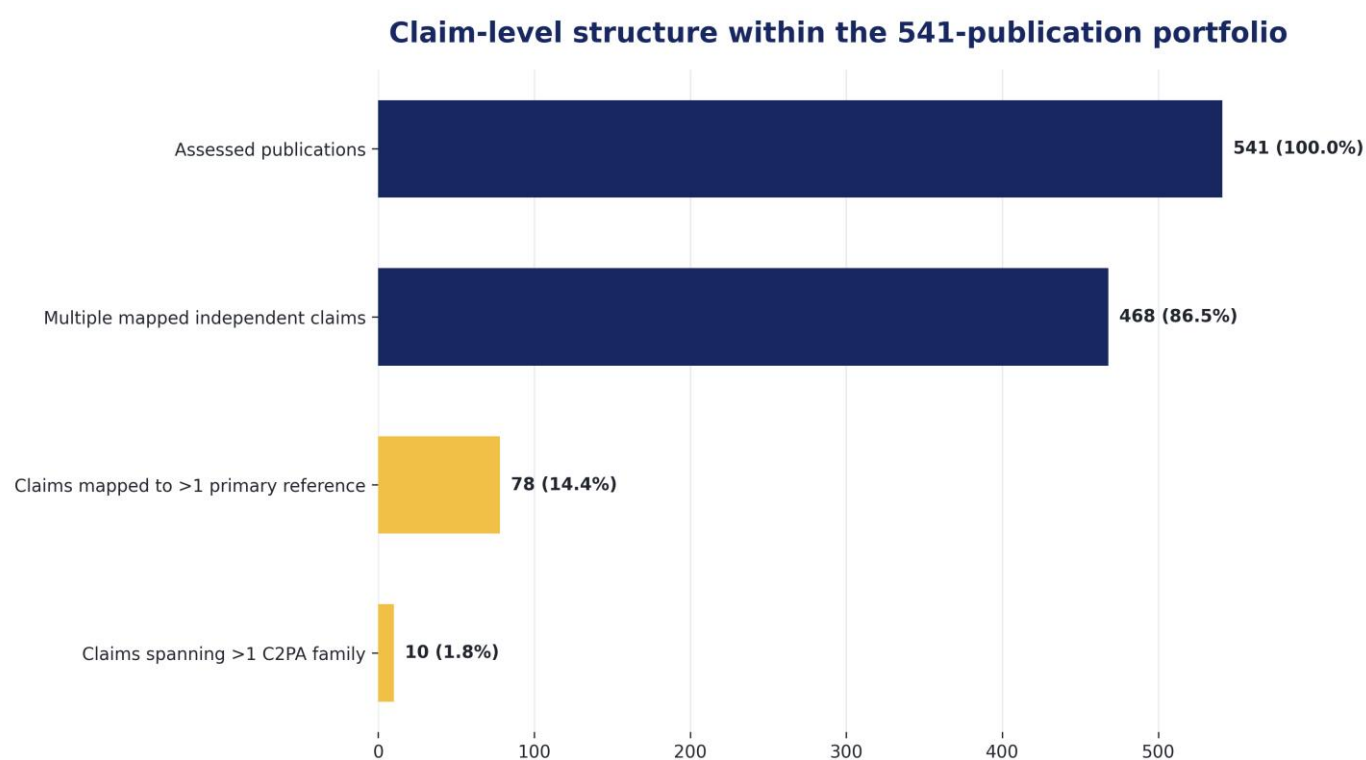
Publication-level analysis remains useful for portfolio management and reporting.

It does not always preserve the technical distinctions relevant to standards analysis.

Of the **541 publications**, **468 contain more than one mapped independent claim**.

More importantly, **78 publications contain independent claims mapped to more than one primary C2PA technical reference**.

In **10 publications**, the mapped independent claims extend across more than one principal C2PA family.



Note: Indicators are nested and are not mutually exclusive.

Source: Patenti C2PA Standards Intelligence 2026.

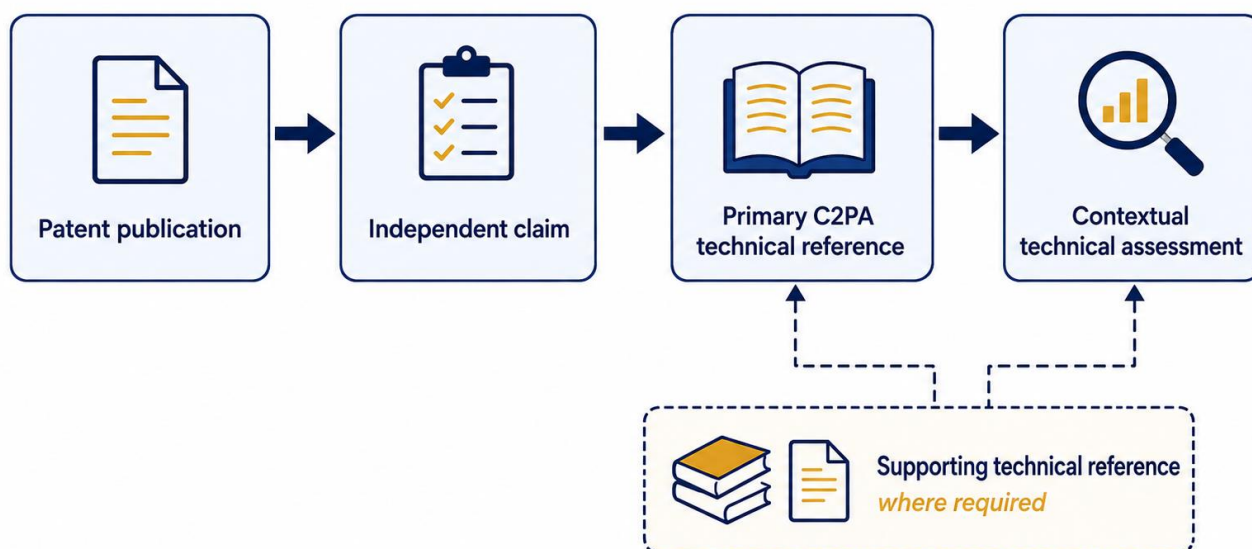
Figure 4. Publication-level aggregation and claim-level structure. Multiple independent claims, multiple technical references and cross-family mappings illustrate why publication-level portfolio labels can suppress standards-relevant technical distinctions.

This demonstrates that the analytical relationship between a patent publication and a technical standard cannot always be represented accurately through a single portfolio label.

A publication may contain separate independent claims addressing different stages of a provenance workflow. One claim may correspond primarily to a signing mechanism, another to binding or validation, and another to a separate process reflected elsewhere in the specification.

The Patenti assessment therefore retains publication-specific independent claims as the principal unit of technical mapping.

The resulting analytical structure is:



Publication-level counts are subsequently derived from that claim-level evidence.

8. Representative Evidence

A representative example is Microsoft's U.S. patent publication **US20240314367A1**, subsequently granted as **US12244875B2**, which describes live-stream provenance using manifest metadata containing live-stream public-key information together with signatures applied to portions of streamed media. The independent claims include corresponding generation- and validation-side mechanisms.

Within the Patenti assessment, those claim structures are mapped to the **Live Video Generation Process** and **Live Video Validation Process** in C2PA Content Credentials 2.3, with **Session Keys** retained as supporting technical architecture.

The correspondence is treated as **functional and architectural rather than protocol-identical**. The claims do not necessarily require every C2PA-specific field, container or implementation detail. The assessment therefore retains both the area of technical correspondence and the limits of that correspondence.

This evidence model is applied across the underlying portfolio. Only representative evidence is reproduced in this publication; the complete claim-to-reference dataset remains proprietary.

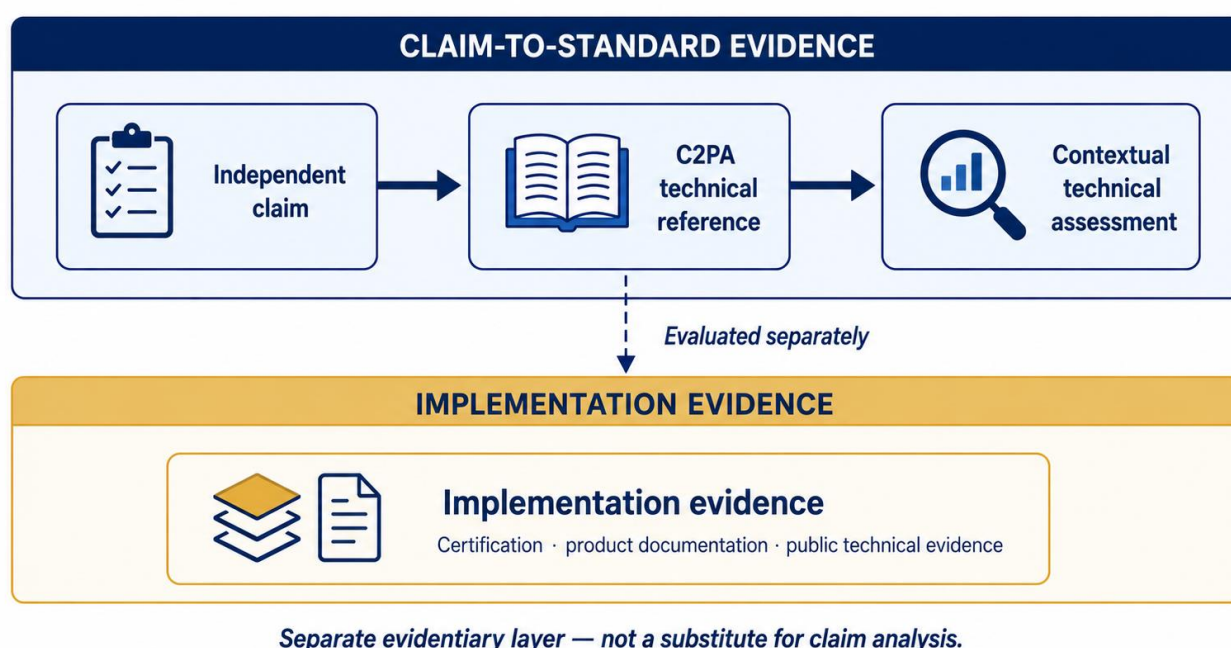
9. Implementation Evidence

Claim-to-standard correspondence and implementation evidence address different analytical questions.

The first concerns whether required limitations of an independent patent claim correspond technically to a defined C2PA mechanism.

The second concerns whether the corresponding standardized function is observable in a conforming or publicly documented implementation.

Patenti therefore maintains implementation evidence as a separate analytical layer.



This distinction prevents product evidence from being used as a substitute for patent analysis.

A conforming C2PA product may demonstrate that a standardized function is implemented. Public technical documentation may provide further evidence concerning the same function. Neither establishes, without additional claim-specific analysis, that a product practices every limitation of a particular patent claim.

Implementation evidence is therefore treated as an extension of standards intelligence, not as an infringement conclusion.

10. Research Method

Candidate publications were identified through a broader technical discovery process covering patent subject matter relevant to the mechanisms represented within the C2PA architecture.

Assessment was subsequently conducted at **publication-specific independent-claim level**.

Retention in the assessed portfolio required technical correspondence between required claim limitations and a defined mechanism in the frozen C2PA technical corpus. Thematic proximity alone—for example, a patent being generally concerned with authentication, watermarking, provenance or trusted computing—was not treated as sufficient.

Each retained mapping records a primary C2PA technical reference and contextual technical explanation. Supporting specification references are retained where necessary to interpret the technical relationship.

Implementation evidence is evaluated separately from claim-to-standard correspondence.

The portfolio is publication-specific rather than family-deduplicated. A patent application publication and subsequent grant publication may therefore both appear where publication-specific claim evidence is independently relevant.

The resulting **541-publication count should not be interpreted as 541 unique patent families or 541 unique inventions**.

The underlying candidate-generation process, complete claim mappings and evidence register are not reproduced in this publication.

10.1 Research Scope

The assessment is not presented as an exhaustive census of every patent that could relate broadly to content provenance. Candidate publications were identified through a broader technical discovery process, and retention required technical correspondence between required independent-claim limitations and a defined mechanism in the frozen C2PA corpus.

Assessment: Patenti C2PA Standards Intelligence 2026

ASSESSMENT PARAMETERS

Assessment	Patenti C2PA Standards Intelligence 2026
Jurisdiction	United States
Retained patent publications	541
Independent-claim mappings	1,642
Primary C2PA references	45
Technical corpus	Content Credentials 2.3 · Soft Binding 2.2 · Attestation 1.4

The assessment does not constitute an opinion concerning patent infringement, validity, enforceability, legal essentiality or licensing obligation.

The underlying publication-level, independent-claim-level, specification-reference and implementation-evidence datasets are proprietary and are not reproduced in this publication.

11. Interpretation and Scope

The C2PA assessment represents a standards-resolved view of a patent portfolio.

It should not be interpreted as an exhaustive census of every patent that could relate broadly to content provenance.

Nor does inclusion in the portfolio establish legal essentiality to C2PA.

The assessment is intended to support technical portfolio intelligence by identifying where independent patent claims correspond to mechanisms represented in the standard and by preserving reviewable technical evidence concerning those relationships.

This creates an analytical layer complementary to conventional patent landscaping.

Technology landscapes remain useful for assessing market scale, ownership, filing activity, geographic distribution and broader competitive structure.

Standards Intelligence introduces an additional question:

How is patent activity positioned within the technical architecture of an interoperable system?

For C2PA, that distinction is material because the standard integrates technologies that would otherwise be distributed across several independent patent domains.

Conclusion

A broad technology landscape and a standards-resolved patent portfolio represent different analytical objects.

The Patenti C2PA assessment comprises **541 U.S. patent publications and 1,642 publication-specific independent-claim mappings across 45 primary C2PA technical references**.

The resulting structure shows that patent activity around C2PA is distributed across distinct technical functions, while remaining concentrated around selected mechanisms. It also demonstrates that publication-level aggregation can obscure differences among independent claims relevant to standards analysis.

The technical architecture of the standard therefore provides an additional lens through which the patent portfolio can be interpreted.

Patenti Standards Intelligence applies that architecture-resolved approach to patent portfolio, competitive and implementation analysis around technical standards.

About Patenti

Patenti Technology Solutions develops AI-powered technology and intelligence solutions across **Patent Valuation and Standards Intelligence**. Patenti's work connects patent evidence with technical standards, implementation context, products and commercial decision-making.

Patent Valuation | Standards Intelligence | Product-to-Patent Mapping | IP Commercialization

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