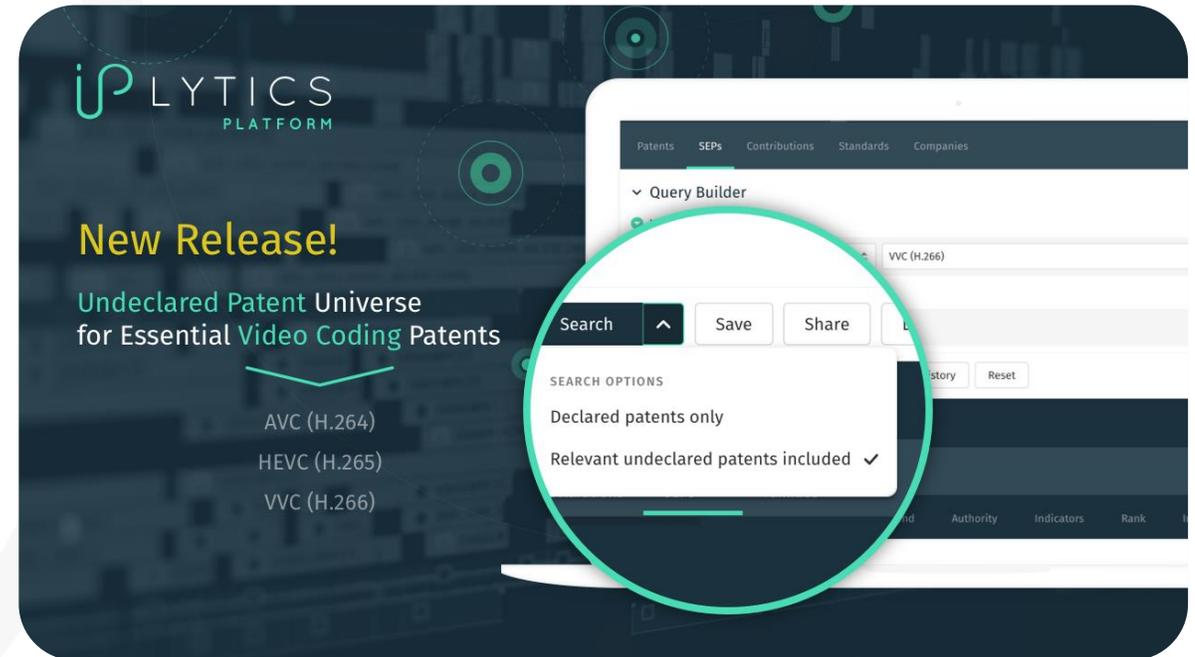


Undeclared patents for video codec technologies (AVC, HEVC, VVC)

IPLYtics GmbH

[Video Recordings:](#)

<https://youtu.be/B0krsLqVrD8>



The Video Codec SEP

Data Challenge

Transparency Situation

The “minimal declaration” situation due to blanket statements

- Approximately only about 20-30% of all AVC /HEVC or VVC SEPs are declared at ITU-T

**The numbers quoted above are examples of expert reports and may vary when considering other reports. No matter what the percentages are all reports show that patent declaration databases either include non-essential patents (e.g. ETSI and others) or are incomplete (e.g. IEEE, ITUT and others).*

Challenges with video codec patent declaration data

Available video codec declaration data:

- **IUT-T patent declaration** database include over **70%** so called “blanket” declarations → Companies state to own video codec SEPs without proving lists of declared patents.
- **Patent pools** such as MPEG LA, Access Advance or Velos Media only cover a **fraction** of the video codec patent owners.
- We identify almost **150 entities** that have submitted **standards contributions** for video codec technologies. Patent declaration information or patent pools are missing over for over **60% of these** companies.



The Video Codec SEP

Market Pain Points

Use cases for video codec **patent owners**

Patent portfolio manager:

- How to compare and value your portfolios against competitors for HEVC or VVC patents?
- What is my market share for VVC patents compared to others?
- How can I identify strength and weaknesses to further develop my video codec portfolio?



Licensing executives / deal maker:

- How do I find all relevant HEVC or VVC patents in my portfolio?
- How do I identify patents to commercialize/license, sell or which ones should I abandon?
- How can I weed out 'weaker' patents, focusing resources on higher ranked patents



Use cases for video codec licensees



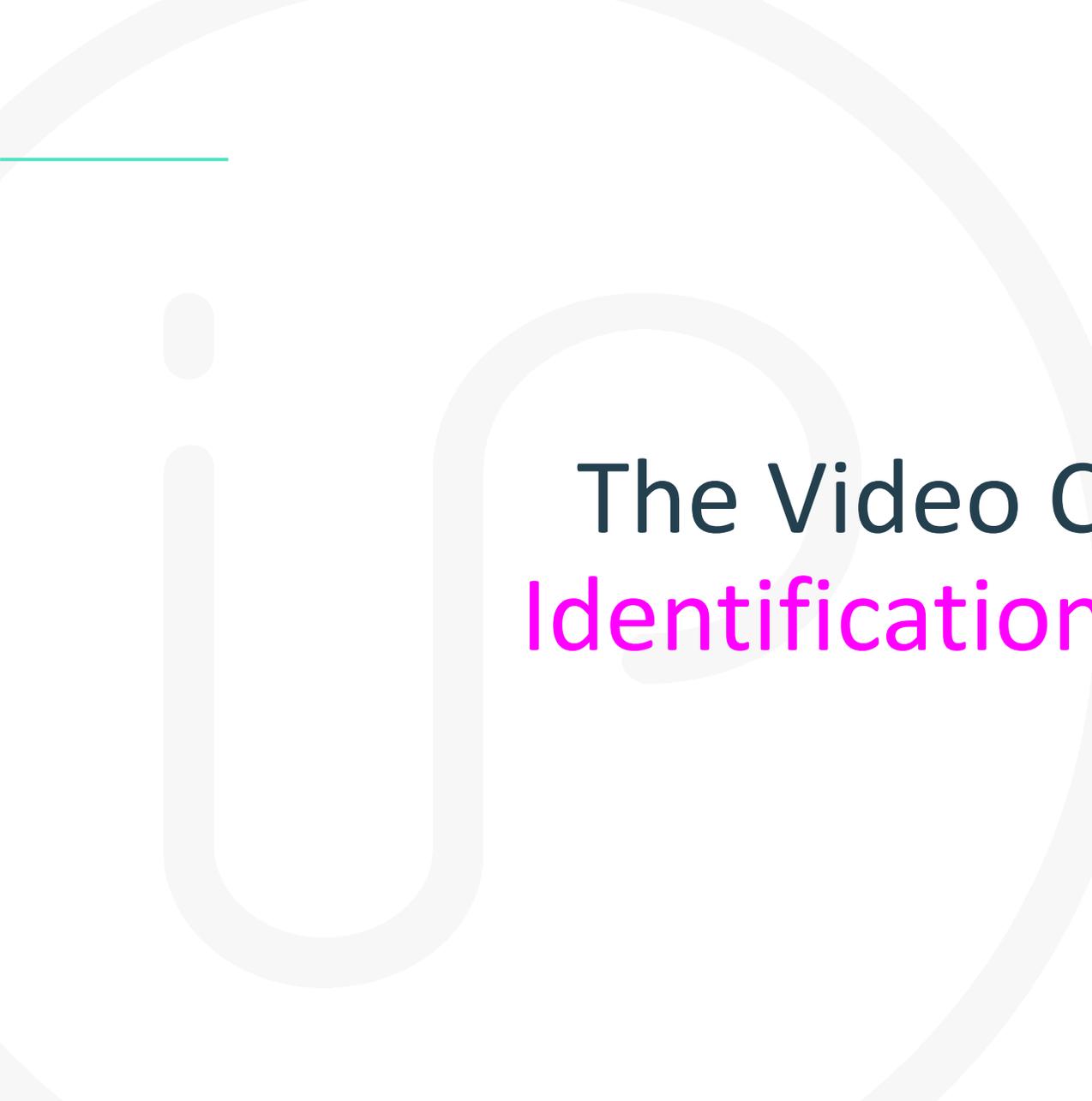
Licensing manager / legal division:

- How do I identify the market share of patents offered for licensing-in technologies like HEVC and VVC?
- How can I get access to objective data to consider for FRAND preparation, negotiations, argument formulation
- How do I know the offered SEP portfolio is “essential”?



Strategic IP attorneys / legal divisions:

- Which SEPs are in fact relevant for my products?
- Who are the leading patent owners for AVC / HEVC /VVC and how many patents do the patent pools (Access Advance / MPEGLA or Velos Media) cover?
- What are the risk to be litigated in that market?

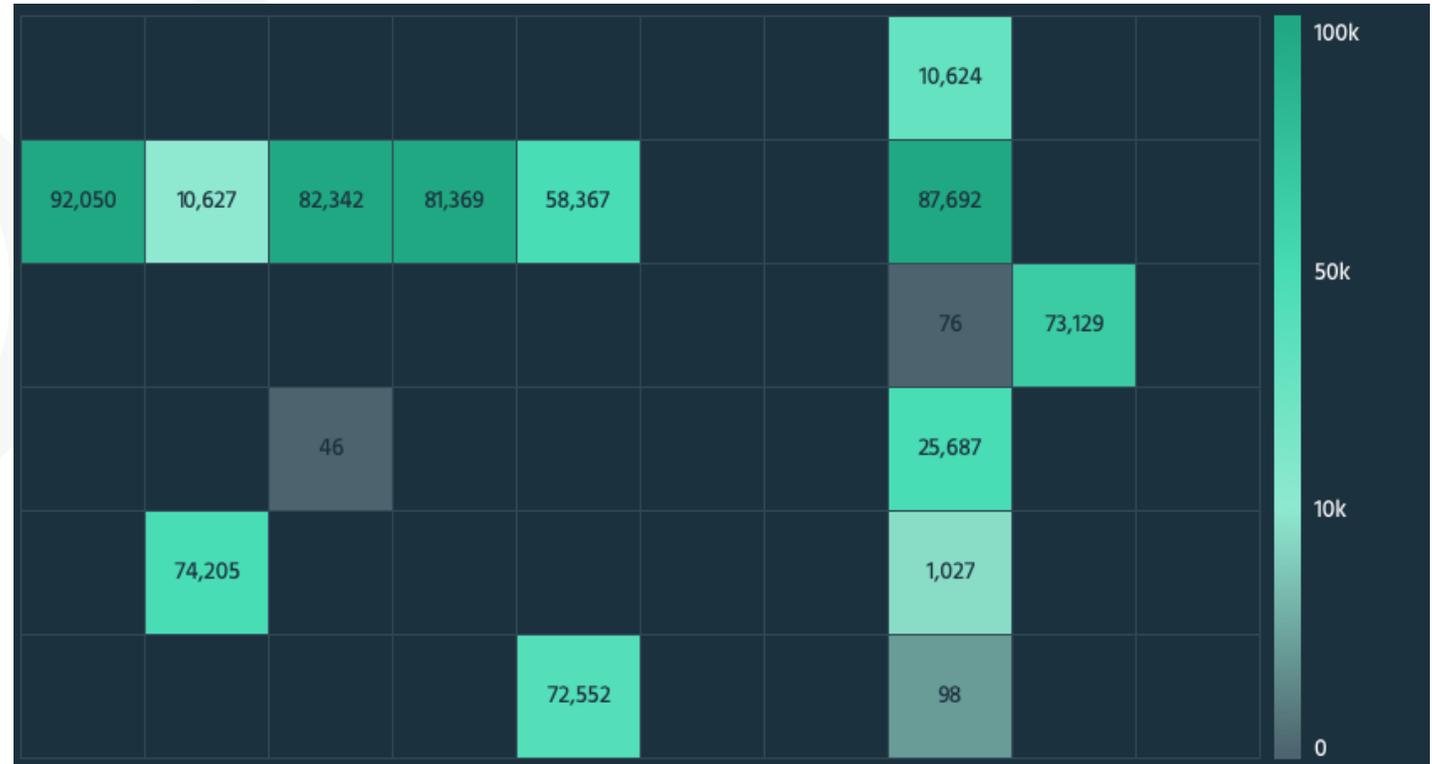


The Video Codec SEP Identification Approach

The IPlytics data team has been utilizing different inputs including a smart combination of **IPC/CPC**, **time ranges**, tested against **contribution** and **inventor** data from video codec patent declarations, patent pool programs, and standards contributions.

CPC/IPC concentration

- We make use of **pooled patents** and **declared patents' main IPC/CPC classes**



CPC/IPC concentration

- We utilize the **time periods** during which the video codec **standard generations** were developed

Patent application

18 months until public

On average 32 months until granted

Standard contribution

*Often submitted and **published** a few months (0-2) after the provisional application*

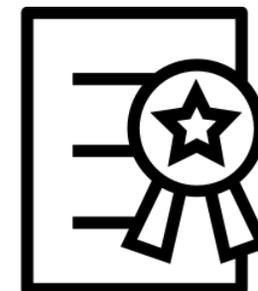
*Often approved and **accepted** with a few weeks after the meeting*

Contributor Applicant Correlation

➤ We correlate patents' first applicants and inventors with standards contributors

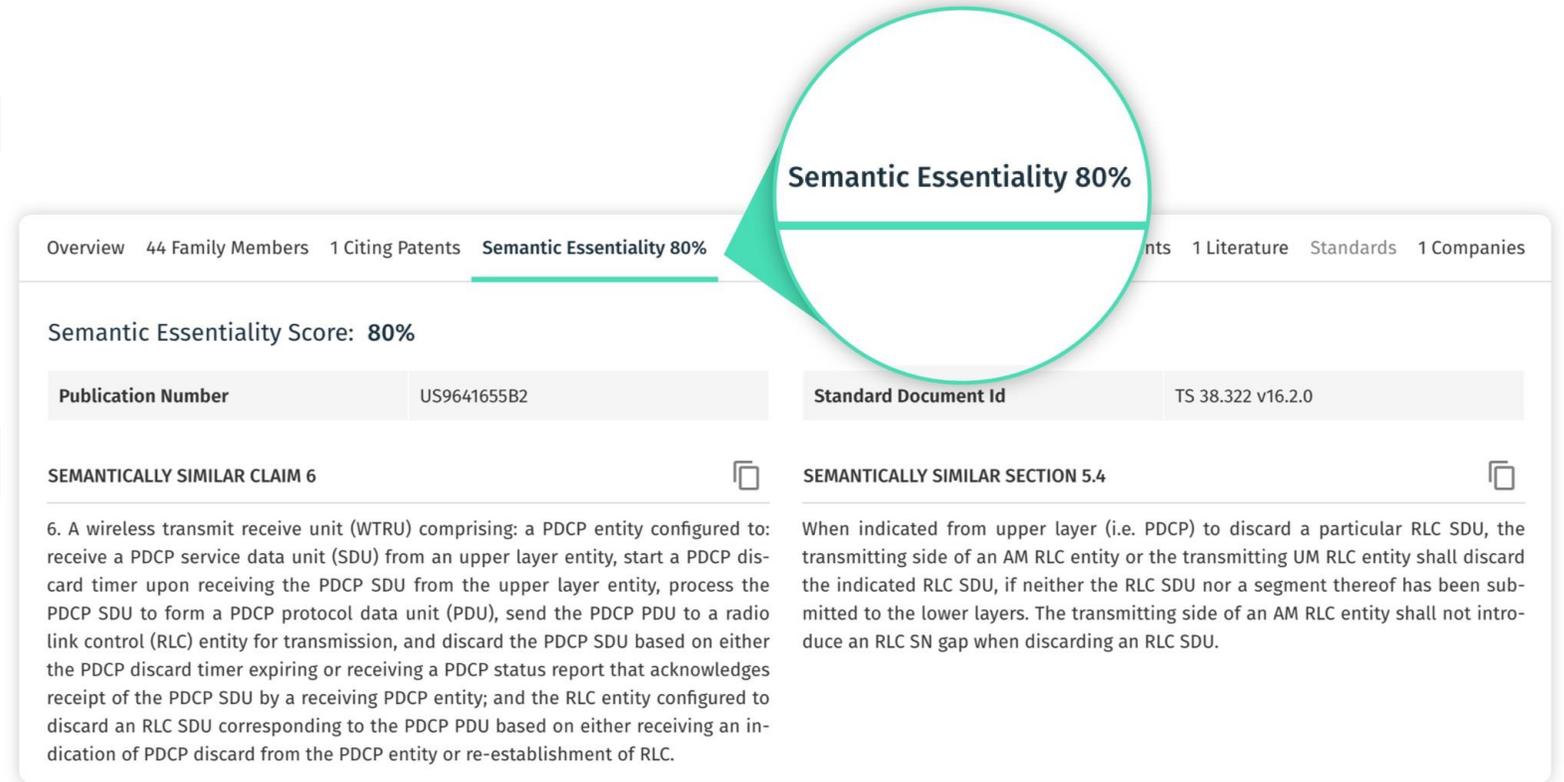
- Submitted **approved and incorporated VVC (H.266)** contribution at meeting

- Patent filed by same applicant or inventor



Semantic analysis of patent claims and standards

➤ We semantically map patent claims to video codec standard sections



Overview 44 Family Members 1 Citing Patents **Semantic Essentiality 80%** 1 Literature Standards 1 Companies

Semantic Essentiality Score: **80%**

Publication Number	US9641655B2	Standard Document Id	TS 38.322 v16.2.0
--------------------	-------------	----------------------	-------------------

SEMANTICALLY SIMILAR CLAIM 6

6. A wireless transmit receive unit (WTRU) comprising: a PDCP entity configured to receive a PDCP service data unit (SDU) from an upper layer entity, start a PDCP discard timer upon receiving the PDCP SDU from the upper layer entity, process the PDCP SDU to form a PDCP protocol data unit (PDU), send the PDCP PDU to a radio link control (RLC) entity for transmission, and discard the PDCP SDU based on either the PDCP discard timer expiring or receiving a PDCP status report that acknowledges receipt of the PDCP SDU by a receiving PDCP entity; and the RLC entity configured to discard an RLC SDU corresponding to the PDCP PDU based on either receiving an indication of PDCP discard from the PDCP entity or re-establishment of RLC.

SEMANTICALLY SIMILAR SECTION 5.4

When indicated from upper layer (i.e. PDCP) to discard a particular RLC SDU, the transmitting side of an AM RLC entity or the transmitting UM RLC entity shall discard the indicated RLC SDU, if neither the RLC SDU nor a segment thereof has been submitted to the lower layers. The transmitting side of an AM RLC entity shall not introduce an RLC SN gap when discarding an RLC SDU.

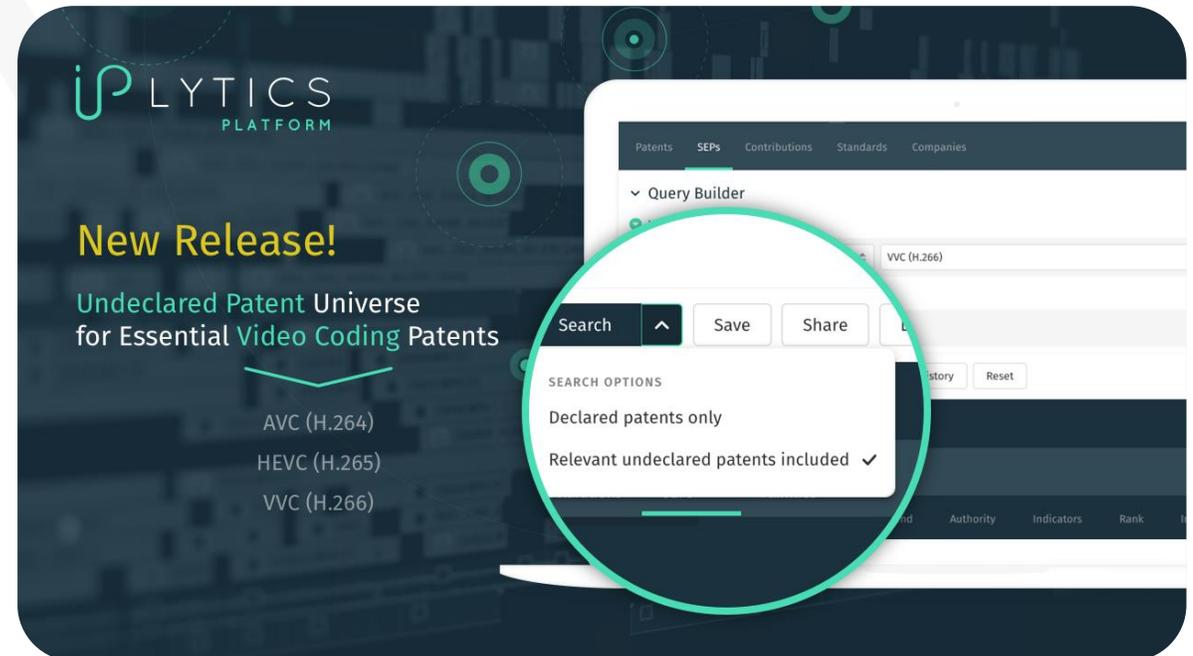


The Video Codec SEP Identification Solution

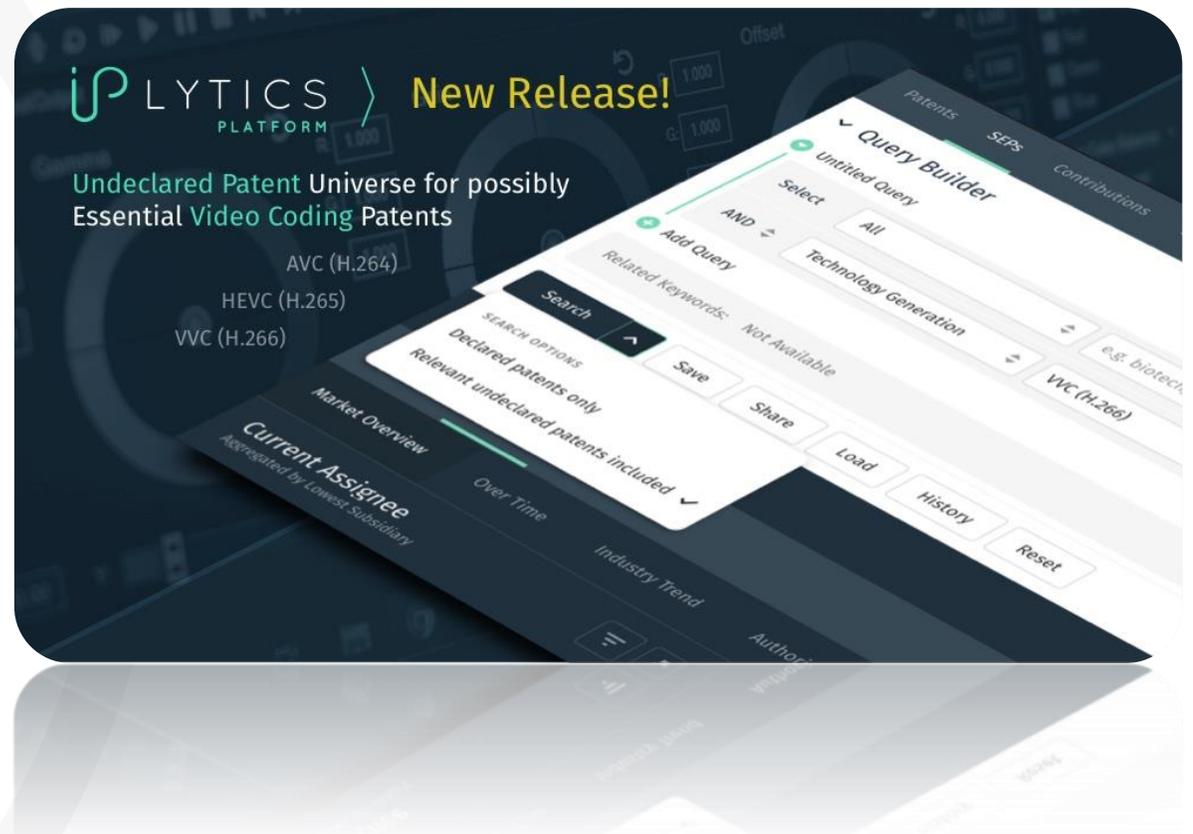
➤ **IPlytics Undeclared Patent Universe** provides a **video coding landscape** of potentially essential patents.



- It allows to **discover patents** that may be essential, even though they're hidden behind blanket declarations.
- It enables to gain a clear view of the **competition** in the video coding sector.



- It empowers users to easily recognize the **proportion of the landscape** of players in the video coding space.
- It enables users to adjust the **portfolio strategy** for video coding based on more accessible data.



The Video Codec Data Limitation

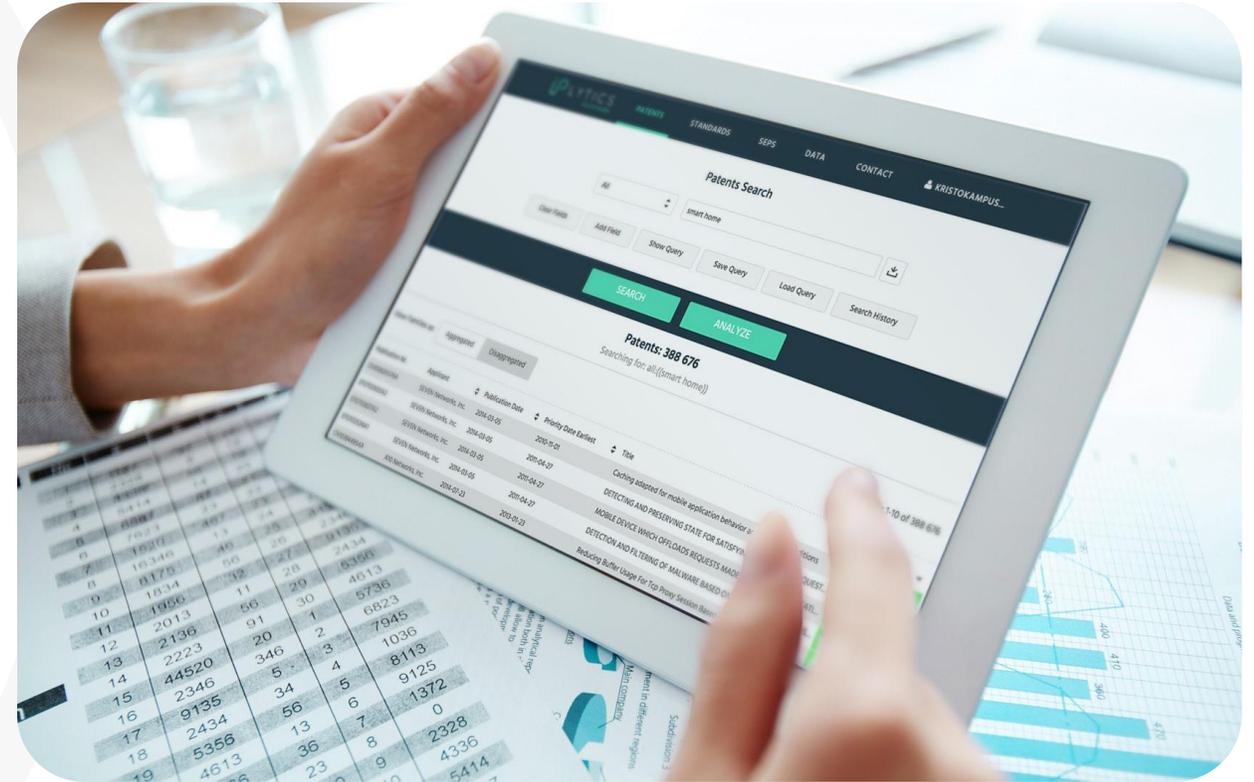
Limitations

- The IPlytics undeclared patents identification follows a **precision/recall approach**.
- Patent characteristics like IPC/CPC, priority dates, inventors or patent applicants are utilized to identify potentially essential video codec patents.
- Our approach identifies 96% of all declared or pooled patents with a data noise rate of 2% (known false positives).
- The Semantic Essentiality Score (SES) provides accurate results only for English original language patents (e.g. US, EP, CA, GB and so on)
- **Not all identified undeclared video patents are essential!**

I Plytics

For more information on I Plytics Products and Services, please contact us on:

<https://www.iplytics.com/request-a-demo/>



Contact

Questions?

IPLYtics GmbH