



Getting Started with *SEP OmniLytics*

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- More Tools for Working With Patents –
Patent Validity Check, Portfolio Analysis
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How to get started?

Choose the right product

SEP OmniLytics (SEP)
Up-to-date ETSI SEP market overview and Essentiality Rankings with automated claim charts

41,856 from 69,896 (total)	29,494 Simple Families	5,869 High Essentiality
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ETSIPulse | DD Due Diligence | QI Quality Insights | SEP SEP OmniLytics | PS Patent Search | DS Design Search | PV Patent Vault

InQuartik | Patentcloud

Need Help? Drop us a message!

Help

Find answers quickly

Search articles

Your Chats

We typically reply in a few hours

InQ Support 5 mo. ago

Your chat has ended.

A Quick Tour

1. Search for the patents you want to examine

The screenshot shows the ETSI SEP Overview dashboard. On the left sidebar, three items are highlighted with orange boxes and arrows pointing to callout boxes: 'ETSI SEP Overview' (pointing to 'The market landscape'), 'Company Profile' (pointing to 'Individual company profiles'), and 'SEP Claim Charting' (pointing to 'Upload and map your own claims'). The dashboard displays various metrics and filters. The filters at the top include '5G (NR)', '5G (NR + LTE)', '4G (LTE)', 'Newly Declared', 'Widely Deployed', and 'Well Maintained'. The main content area shows several data cards: 'Declarations' (1,447 from 3,328 total), 'Declaring Company' (67 from 121 total), 'Inventor' (13,062 from 29,661 total), 'Radio Technologies' (5G, LTE, 3G, 2G), '3GPP Tech Bodies' (15 RAN, CT, SA), '3GPP Specifications' (212 from 1,224 total), 'Simple Families' (41,856 from 69,896 total), 'Essentiality Analysis Scope' (29,494 Simple Families), 'Essentiality Rank' (5,869 High Essentiality, 19,548 Low Essentiality), and 'Active Patents' (71,529 in 44 Countries). A 'Declaration Pulse' section is also visible at the bottom.

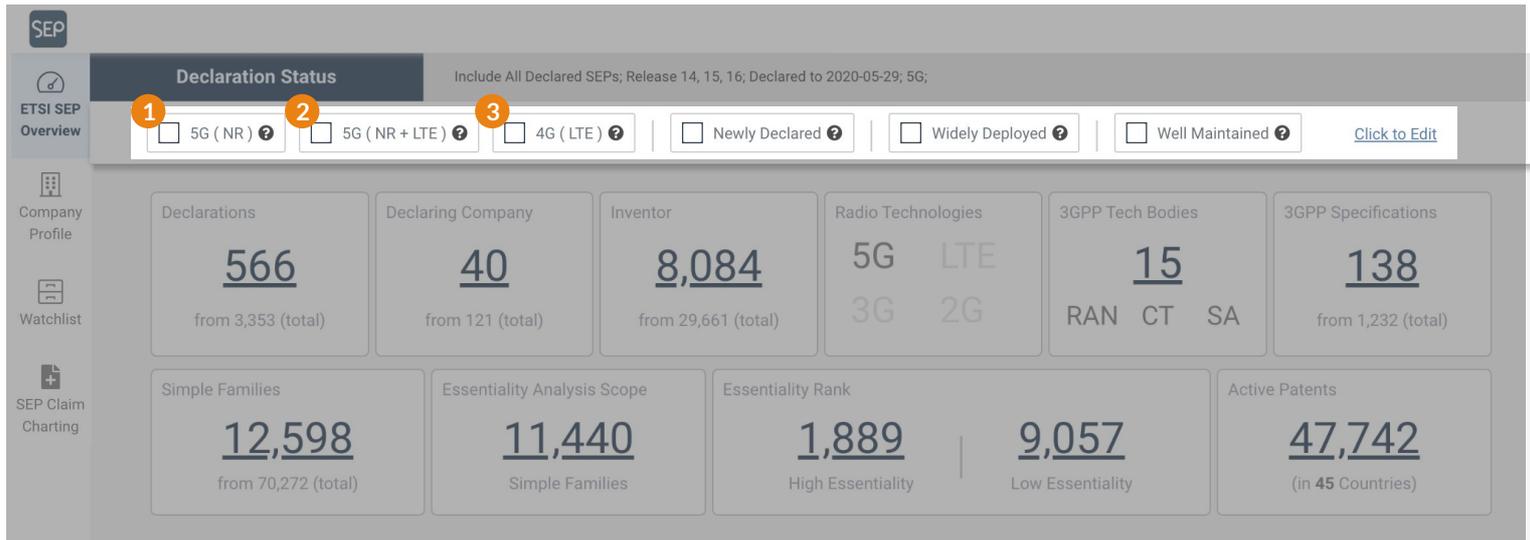
2. Define the data scope

The screenshot shows the ETSI SEP Overview dashboard with a callout box highlighting the filter options. The callout box is an orange-bordered rectangle that encompasses the filter bar at the top of the dashboard. The filter bar includes the following options: '5G (NR)' (checked), '5G (NR + LTE)', '4G (LTE)', 'Newly Declared' (checked), 'Widely Deployed', and 'Well Maintained'. There is also a 'Click to Edit' link to the right of the filters. The rest of the dashboard content is visible in the background, showing the same data cards as in the previous screenshot.

Quick Filter Definitions

Save more time with...

Exclusive filters for identifying SEP Analysis Scope



1 5G (NR) Landscape Filter



Which patents are declared as 5G (NR)?

The **5G (NR) Landscape** filter includes only SEPs that meet the following criteria:

1. Patents that declared and correspond to Release 15 and after, or marked as unavailable (N/A)
2. Declared on or after June 1, 2016 (3GPP R15 starting date)
3. Radio Tech: 5G, indicating 5G-related TS

2 5G (NR+LTE) Landscape Filter



Which patents are declared as 5G (NR+LTE) ?

The **5G (NR+LTE) Landscape** filter includes only SEPs that meet the following criteria:

1. Patents that declared and correspond to Release 15 and after, or marked as unavailable (N/A)
2. Declared on or after June 1, 2016 (3GPP R15 starting date)
3. Radio Tech: 5G/LTE, indicating 5G/LTE-related TS

3 4G (LTE) Landscape Filter



Which patents are declared as 4G (LTE)?

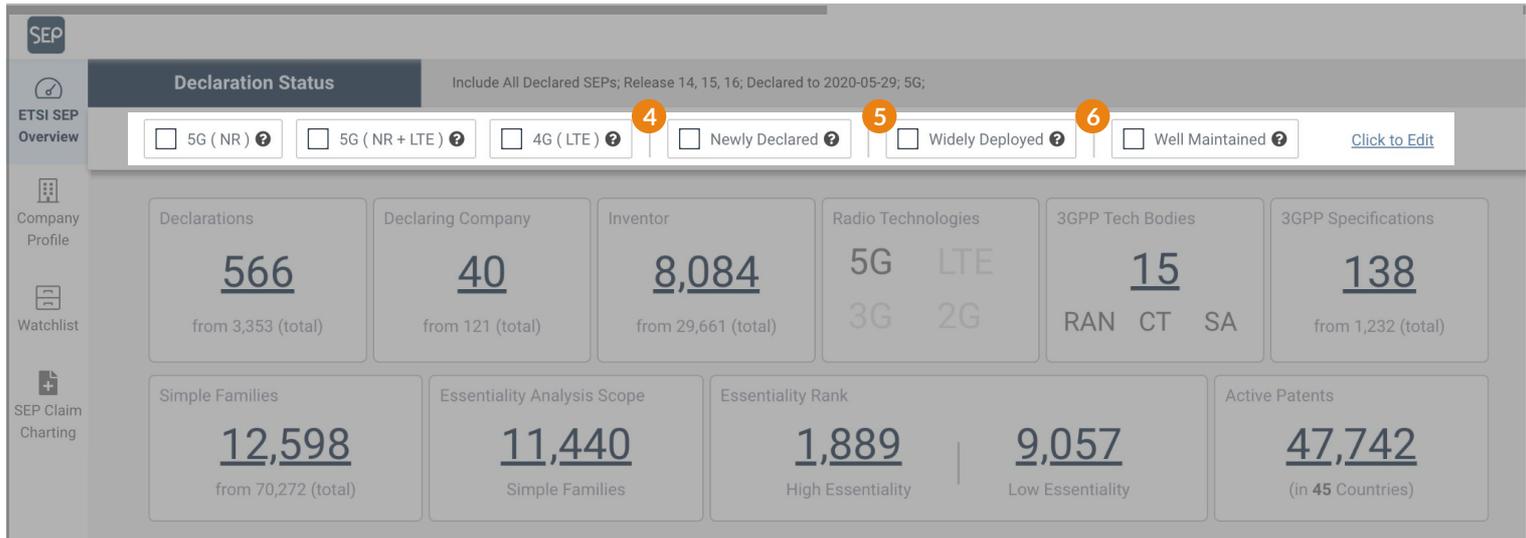
The **4G (LTE) Landscape** filter includes only SEPs that meet the following criteria:

1. Patents that declared and correspond to Release 8 and after, or marked as unavailable (N/A)
2. Declared on or after Jan., 23, 2006 (3GPP R8 starting date)
3. Radio Tech: LTE, indicating LTE-related TS

Quick Filter Definitions

Save more time with...

Exclusive filters for identifying SEP Analysis Scope



4 Newly Declared Filter Newly Declared ?

Which patents are 5G-exclusive?

Over declaration is inevitable, as some SEP owners might declare a patent in 2G, 3G, LTE, and 5G. The **Newly Declared** filter can find patents that were not declared before. If used with a radio tech filter, you can find SEPs first declared in a certain radio technology generation.

5 Widely Deployed Filter Widely Deployed ?

Which inventions have the most coverage?

This filter includes only SEP families having active or pending members in 10 or more jurisdictions. The **Widely Deployed** filter highlights SEPs with high essentiality based on behavioral data of the patent owners.

6 Well Maintained Filter Well Maintained ?

Which patents are so valuable that their owners keep them well maintained?

This filter includes only SEP families without members abandoned, lapsed, withdrawn, or revoked (PCT applications are not considered). The **Well Maintained** filter highlights SEPs with higher quality and essentiality based on behavioral data of the patent owners.

SEP OmniLytics'

ETSI SEP Overview

Define the Data Scope

Declaration Status

Include All Declared SEPs; Release 14, 15, 16; Declared to 2020-05-29; 5G;

5G (NR) ?
 5G (NR + LTE) ?
 4G (LTE) ?
 Newly Declared ?
 Widely Deployed ?
 Well Maintained ?
 [Click to Edit](#)

Include All Declared SEPs; Release 14, 15, 16; Declared to 2020-05-29; 5G; [Reset](#)

Release: 14, 15, 16
Radio Tech: 5G
Tech Body: All Tech Body
3GPP Spec: All 3GPP Spec

Declaring Company: All Declaring Company
Country: All Country
Legal Status: All Legal Status

Essentiality Rank: All Essentiality Rank
TS Relevancy: All TS Relevancy
Claim Scope Support: All Claim Scope Support

The latest declarations were declared on 2022-05-18.
 For more details about our dataset, please check [SEP OmniLytics Data Quality Report](#)

Select All Series Clear

Search

- 38 Radio technology beyond LTE
- 37 Multiple radio access technology aspects
- 36 LTE (Evolved UTRA), LTE-Advanced, LTE-Advanced Pro radio technology
- 35 Security algorithms (3)
- 34 UE and (U)SIM test specifications
- 33 Security aspects
- 32 OAM&P and Charging
- 31 Subscriber Identity Module (SIM / USIM), IC Cards. Test specs.
- 30 Programme management

Dashboard

Click on the information on the dashboard for a detailed list.

Declaration Status

Include All Declared SEPs; Release 14, 15, 16; Declared to 2020-05-29; 5G;

5G (NR) ?
 5G (NR + LTE) ?
 4G (LTE) ?
 Newly Declared ?
 Widely Deployed ?
 Well Maintained ?
 [Click to Edit](#)

Declarations: 566 from 3,353 (total)
Declaring Company: 40 from 121 (total)
Inventor: 8,084 from 29,661
Radio Technologies: 5G, LTE, 3G, 2G
3GPP Tech Bodies: 15 RAN, CT, SA
3GPP Specifications: 138 from 1,232 (total)

Simple Families: 12,598 from 70,272 (total)

8,084 records X

#	Inventor	Declaring Company	Ultimate Parent	Declarations	Declared Families	Declarat
1	CHEN WANSHI	APPLE INC ERICSSON QUALCOMM INC	APPLE INC TELEFONAKTIEBOLAGET LM ERICSS... QUALCOMM INC	118	688	2008
2	GAAL PETER	QUALCOMM INC	QUALCOMM INC	120	645	2004
3	LUO TAO	QUALCOMM INC	QUALCOMM INC	112	630	2008
4	NAGATA SATOSHI	NTT DOCOMO	NIPPON TELEGR & TELEPH CORP NTT	52	336	2009
5	LI JUNYI	NOKIA CORP QUALCOMM INC	NOKIA CORP QUALCOMM INC	101	301	2008

Top SEP Declaring Companies

Click on a company name to examine the company's SEP profile.

The screenshot displays the SEP OmniLytics interface. At the top, there's a 'Declaration Status' section with filters for 5G (NR), 5G (NR + LTE), 4G (LTE), Newly Declared, Widely Deployed, and Well Maintained. Below this is a 'Top SEP Declaring Companies' section with a 'Rank in:' dropdown set to 'Selected Period' and a note that there are 12,350 simple families in this chart. A list of companies is shown, with 'QUALCOMM INC' highlighted in a white box and an orange arrow pointing to its profile. The profile for 'QUALCOMM INC' is shown in a separate window, detailing its status as an ultimate parent and corporate affiliates. It features several key metrics: 51 declarations, 1 declaring company, 1,907 inventors, 5G and LTE radio technologies, 10 3GPP tech bodies, and 64 3GPP specifications. A line chart shows the number of declarations from 2005 to 2020, with a significant increase starting in 2017. An 'Essentiality Analysis' bar chart shows that 95.5% of simple families are covered, with 9% high, 38.7% medium, and 83.9% low essentiality.

Declaring Company	Simple Family	pct (%)	Patent Appl.
QUALCOMM INC	3,302	26.2%	32,668
SAMSUNG ELECTRONICS	1,995	15.8%	9,360
LG ELECTRONICS	1,512	12.0%	10,590
ERICSSON	1,436	11.4%	11,912
NOKIA CORP	1,221	9.7%	7,397

Metric	Value
Declarations	51
Declaring Company	1
Inventor	1,907
Radio Technologies	5G, LTE, 3G, 2G
3GPP Tech Bodies	10 (RAN, CT, SA)
3GPP Specifications	64
Simple Families	3,302
Essentiality Analysis Scope	3,154
Essentiality Rank	283 (High Essentiality) 2,646 (Low Essentiality)
Active Patents	15,300 (in 35 Countries)

Year	Number of Simple Families
2005	0
2006	0
2007	0
2008	0
2009	0
2010	0
2011	0
2012	0
2013	0
2014	0
2015	0
2016	0
2017	0
2018	~1,200
2019	~1,100
2020	~1,400

Essentiality Level	Percentage
High	9%
Medium	38.7%
Low	83.9%

Top Inventors from SEP Declarations

Click the dropdown button to view the top inventors by their declaring companies.

Top Inventors from SEP Declarations

Who are the most active inventors of SEPs?

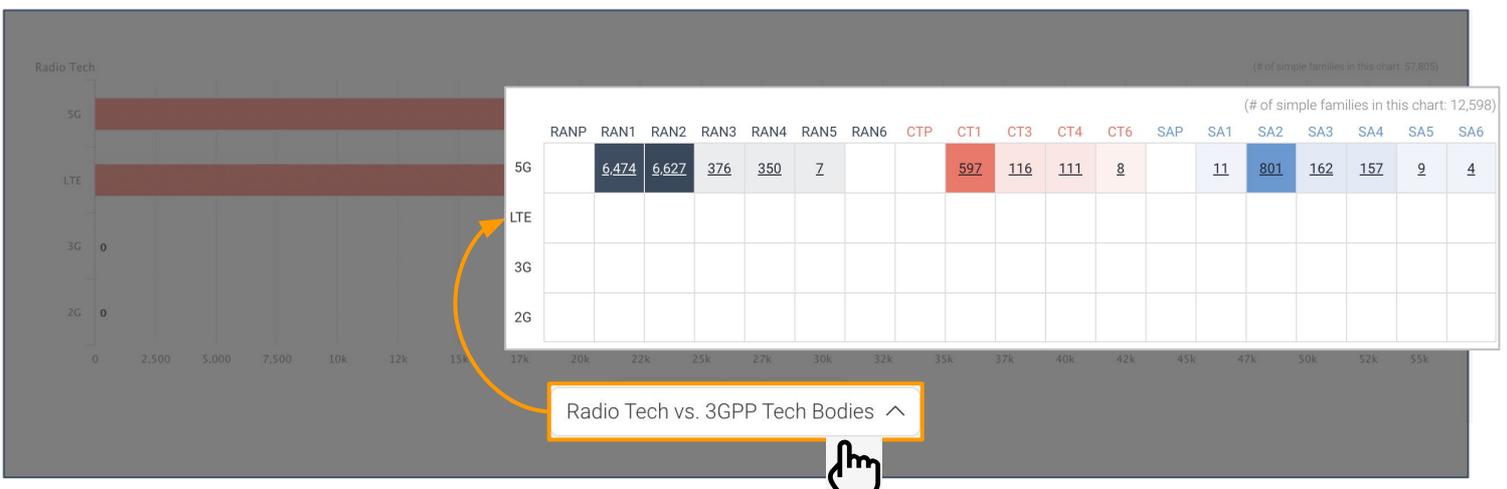


SEP Declarations by Radio Technologies

Click the dropdown button to view the detailed matrix chart for each radio tech vs. 3GPP tech body.

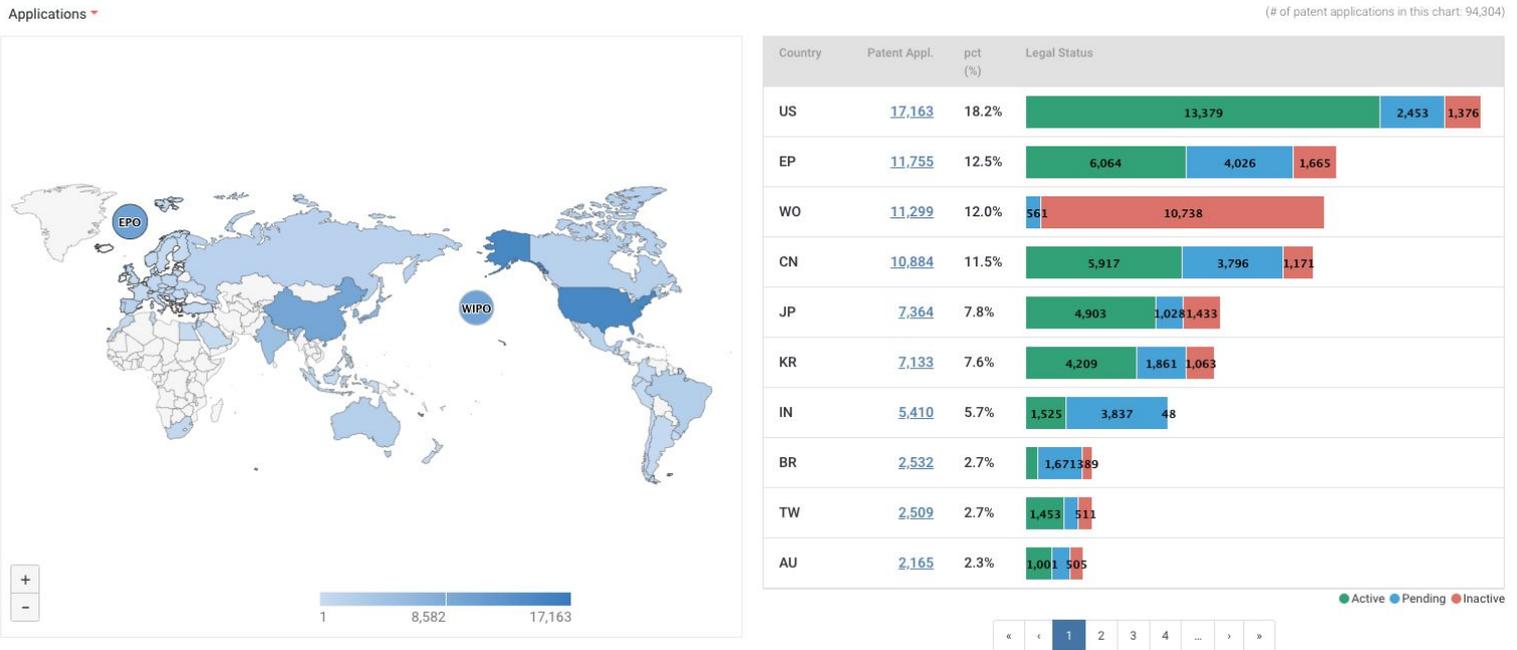
SEP Declarations by Radio Technologies

Which generation of radio technologies are involved in the SEPs? 5G or LTE?



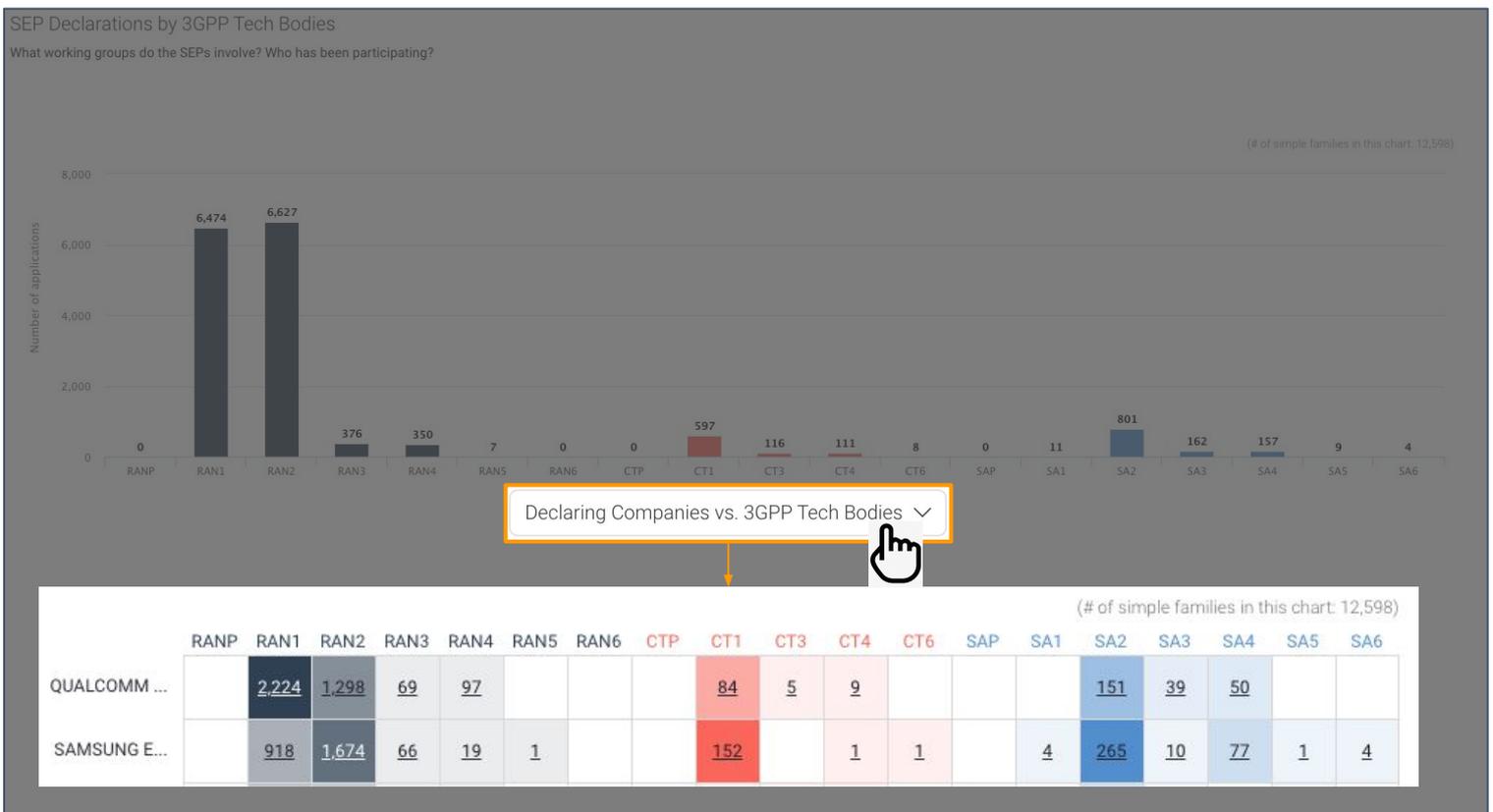
Global Coverage of SEP Declarations

Click on the numbers to get a detailed list of the corresponding SEPs.



SEP Declarations by 3GPP Tech Bodies

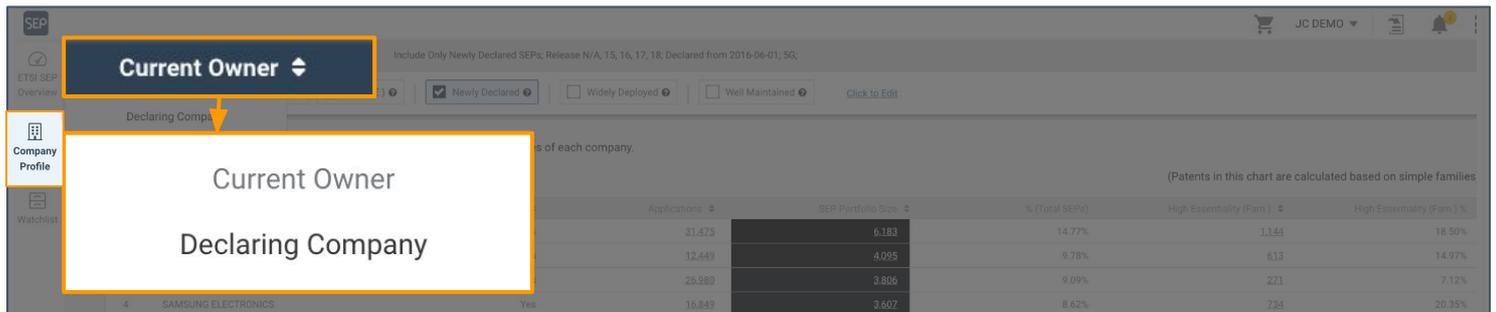
Click the dropdown button to view the detailed matrix chart for each tech body vs. declaring company.



SEP OmniLytics'
Company Profiles

Company Profile

On the upper left, you can switch between the Current Owner view and Declaring Company view of the SEP landscape.



Company Info:

Examine a company's affiliates and subsidiaries, along with each entities' 3GPP membership status.

As a Declaring Company: Evaluate your own contributions by radio technology, working group, and specifications.

Understand the competition better by examining the working groups or specifications other companies are most focused on.



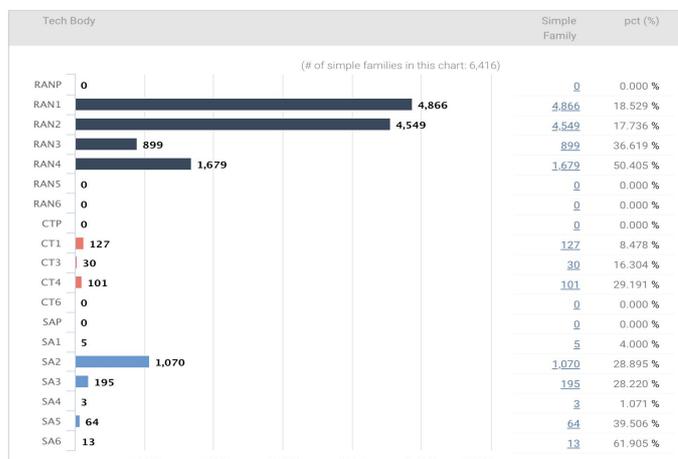
SEP Declarations by Radio Technologies

Which generation of radio technologies has HUAWEI been involved in? Proportion of SEPs involved?



SEP Declarations by 3GPP Tech Bodies

Which working groups has HUAWEI been involved in? Proportion of SEPs?



SEP Declarations by 3GPP Specifications

Which specifications has HUAWEI been involved in? Which technology?

3GPP Spec: All 3GPP Spec

(# of simple families in this chart: 6,416)

3GPP Spec	Spec Title	Simple Family
1.	TS 38 331 NR; Radio Resource Control (RRC); Protocol specification	4,437
2.	TS 38 211 NR; Physical channels and modulation	4,096
3.	TS 38 212 NR; Multiplexing and channel coding	3,916
4.	TS 38 213 NR; Physical layer procedures for control	3,261
5.	TS 38 214 NR; Physical layer procedures for data	2,996
6.	TS 38 300 NR; NR and NG-RAN Overall description; Stage-2	2,850
7.	TS 38 321 NR; Medium Access Control (MAC) protocol specification	2,317
8.	TS 38 322 NR; Radio Link Control (RLC) protocol specification	1,228
9.	TS 38 101 NR; User Equipment (UE) radio transmission and reception; ...	1,196
10.	TS 23 501 System architecture for the 5G System (5GS)	970
11.	TS 38 413 NG-RAN; NG Application Protocol (NGAP)	761
12.	TS 38 215 NR; Physical layer measurements	754
13.	TS 38 423 NG-RAN; Xn Application Protocol (XnAP)	697

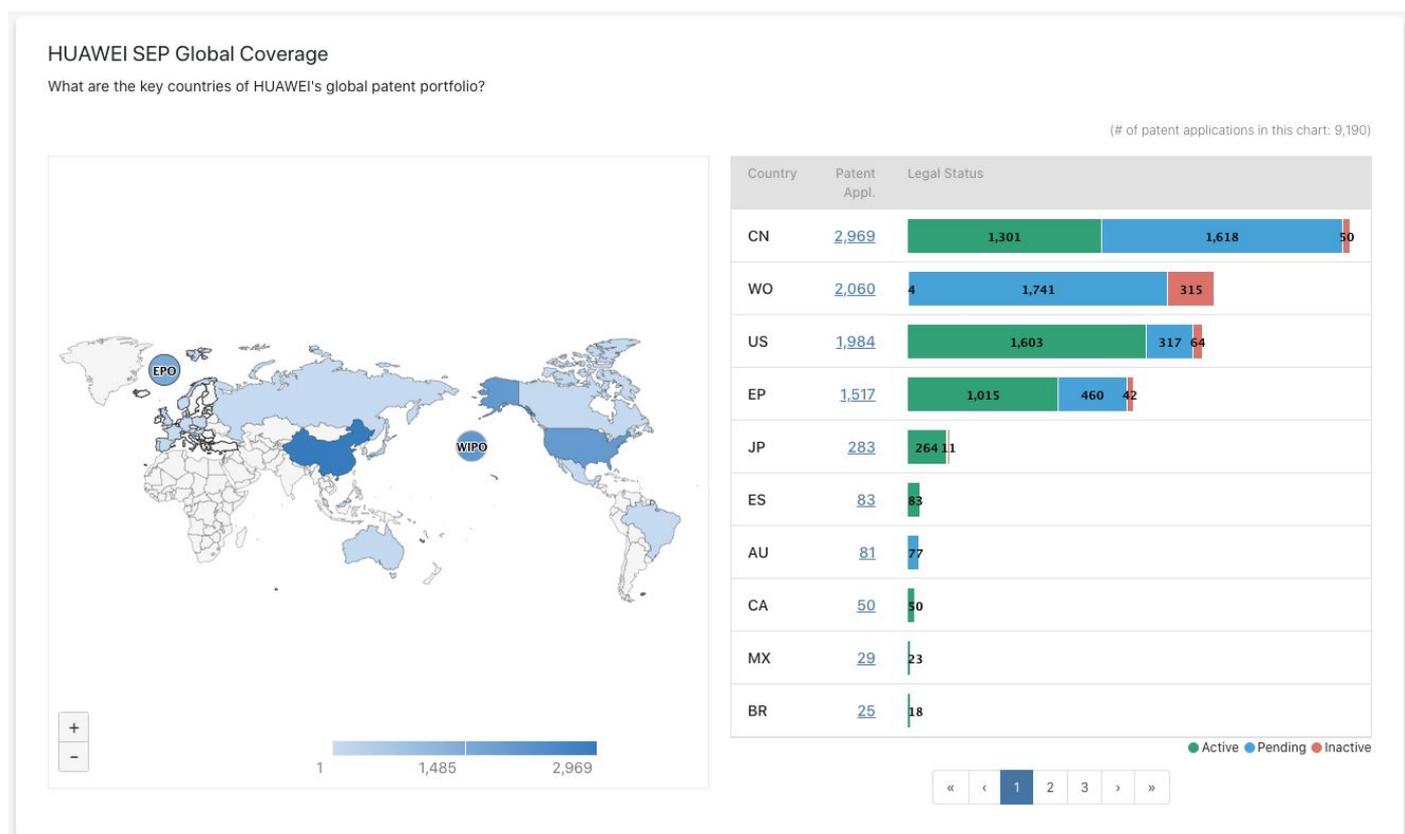
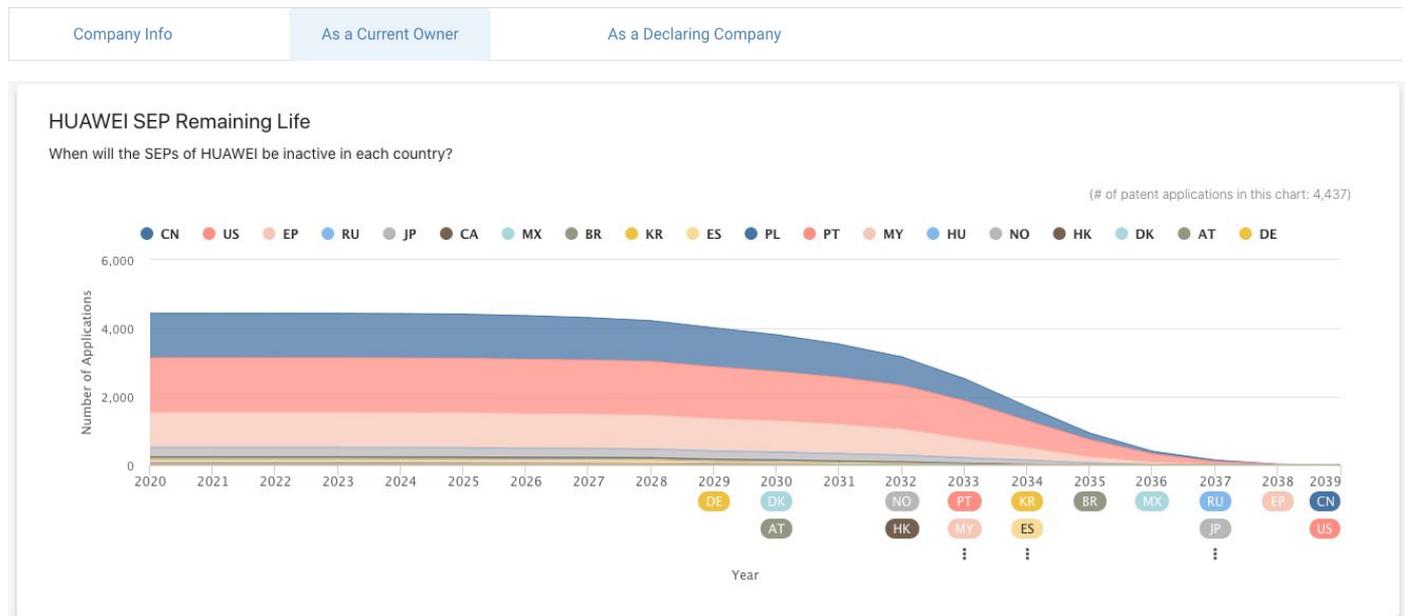
Company Profile

As a Current Owner:

Know your portfolio – global coverage, legal status, and remaining life of your SEPs.

Know others' portfolios – where their main market is and how much longer they can assert their SEPs.

In these two dashboards, you can examine the market contribution of a company's SEPs and their legal status in each local market.



Understanding

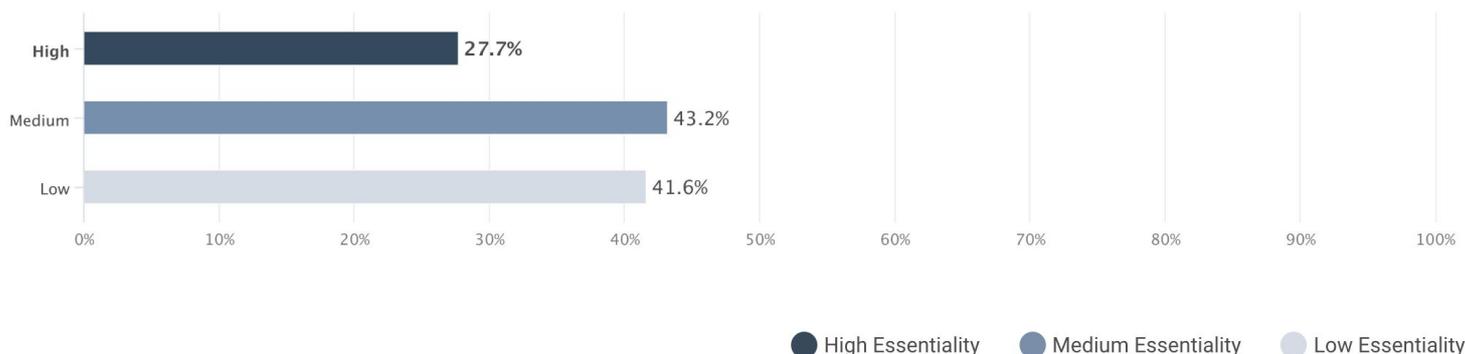
SEP OmniLytics' Essentiality

Rankings

What is SEP OmniLytics' Essentiality Rankings?

To help alleviate the [over declaration issue](#) with standard essential patents, InQuartik's Team has come up with **Essentiality Rankings** to conduct preliminary discernment of SEP essentiality.

98.2% of all simple families are covered in this analysis



SEP OmniLytics' Essentiality Rankings is a validation indicator based on the results of claim chart mapping. The rankings are given according to the degree of relevancy found by mapping a declared SEP's independent claims to its specification or the 3GPP TS in its declaration.

In other words, **the calculation is based on each independent claim**. The highest-ranking result is selected to represent the Essentiality Ranking of a declared SEP.

SEP OmniLytics' Essentiality Rankings reflects how evident a declared SEP's essentiality is through literal mapping (seen in SEP OmniLytics' claim charts).

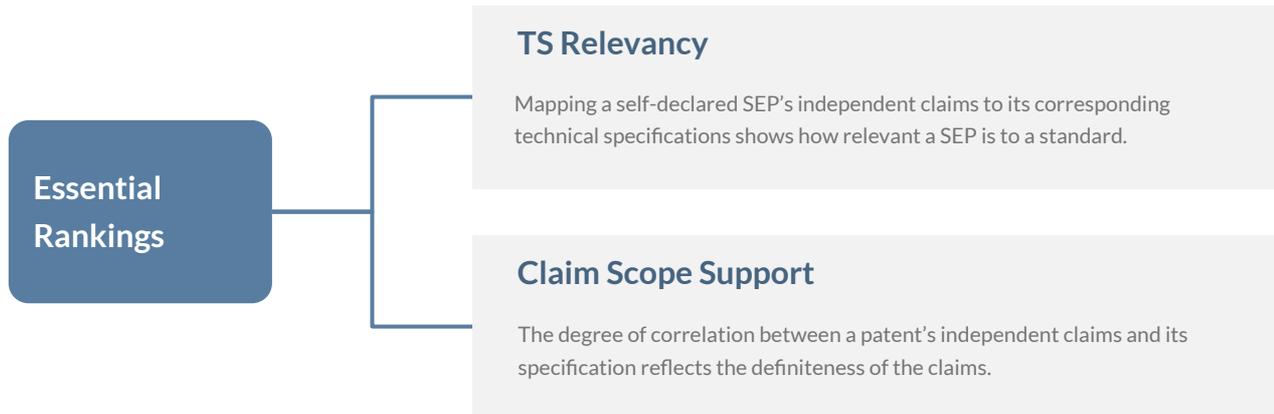
A higher ranking indicates that a claim chart can be created through literal mapping. On the other hand, a lower ranking suggests that the SEP-at-issue may need more testification from experts or further citations and references.

A few notes on SEP OmniLytics' statistics and scope:

- **SEP OmniLytics' statistics are based on the ETSI SEP Declarations; therefore, the scope of calculation is based on declared SEPs.**
- **Mapping of the claims is limited to the TS in a SEP's declaration, using only the latest claim. I.e., we only select one public patent or one publication for mapping.**
- **SEP OmniLytics' data scope for Essentiality Rankings only includes English patents from US, EP, and WO.**

How do Essentiality Rankings work?

SEP OmniLytics' Essentiality Rankings are derived from the combination of two indicators – TS Relevancy and Claim Scope Support.



How is Claim Chart Mapping Done?

What is mapped?

TS Relevancy – a SEP's independent claims vs. a declared TS

Claim Scope Support – a SEP's independent claims vs. its patent specification



Mapped keywords include critical keywords and general keywords.

- Critical keywords indicate terms, abbreviations, and related terms that can be found and defined in 3GPP technical specifications.
- General keywords are other technical terms that can be found in patents.

The screenshot shows a patent analysis interface for claim #1.03. The claim text is: "a first message including information for paging configuration of a second communication system". The keywords are categorized into Critical Keywords (4) and General Keywords (1). The critical keywords are: information, message, configuration, and communication system. The general keyword is: paging. A pop-up window titled "Related terms for 'communication system'" lists several terms, with "new radio" highlighted. The pop-up also shows "NR: new radio" under "TS 22.822 (Abbreviation)". Arrows indicate the mapping from the claim text to the keywords and from the keywords to the related terms.

For both the TS Relevancy and Claim Scope Support indicators, the mapping scope is the paragraphs in a subclause and not the entire subclause. This can ensure that the claim terms mapped are not evenly dispersed in each paragraph of a subclause but need to be found in a specific or adjacent paragraph to indicate relevancy.

How are SEPs ranked with Essentiality Rankings?

SEP OmniLytics' Essentiality Rankings include High, Medium, and Low rankings for the ETSI-declared SEPs in our database. A "High" ranking can only be derived from "High" rankings for both the TS Relevancy and Claim Scope Support indicators.

		TS Relevancy		
		High	Partial	Low
Claim Scope Support	High	High	Medium	Low
	Partial	Medium	Medium	Low
	Low	Low	Low	Low

High Essentiality
 Medium Essentiality
 Low Essentiality

As the Essentiality Rankings are derived from the TS Relevancy and Claim Scope Support indicators, here is how the two indicators are calculated and ranked.

TS Relevancy

An independent claim ranks "High" for TS Relevancy indicates that over 90% of its claim terms can be found in its corresponding TS through claim chart mapping. As for a "Partial" ranking, only two-thirds to 90% of the claim terms can be successfully mapped.

TS Relevancy	
Ranking	% of Claim Terms Mapped
High	> 90%
Partial	66.6% ($\frac{2}{3}$) ~ 90%
Low	0% ~ 66%

Claim Scope Support

An independent claim ranks "High" for Claim Scope Support indicates that 100% of its claim terms can be found in its specification through claim chart mapping.

Claim Scope Support	
Ranking	% of Claim Terms Mapped
High	100%
Partial	80% ~ 99%
Low	< 80%

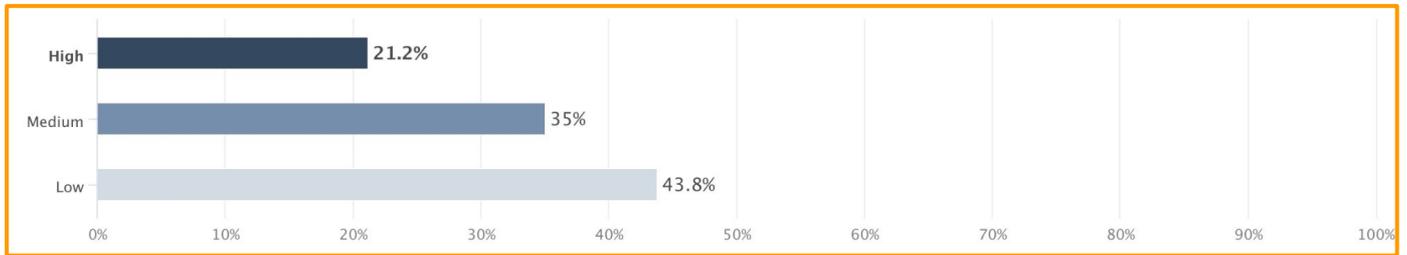
Viewing the Essentiality Indicators and Automated Claim Charts

1. Find the list of patents by clicking on the corresponding bar or group in the Essentiality Analysis Chart.

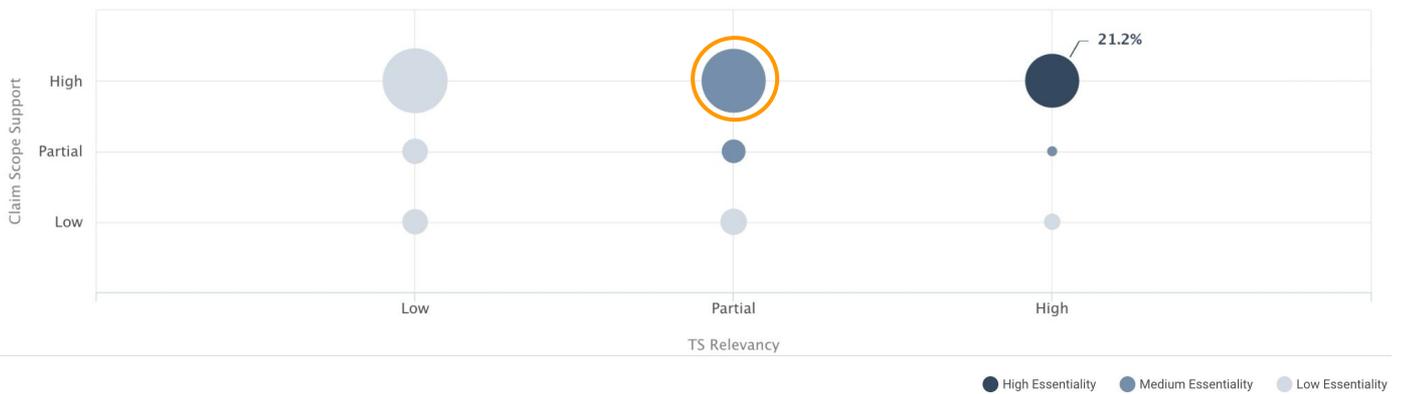
Essentiality Analysis

Are these declared SEPs essential? Can their essentiality be established through the automated Claim Chart, or is additional evidence required to prove essentiality?

by Simple Family by Application



<TS Relevancy> vs. <Claim Scope Support>



2. Click on any of the the indicator rankings on the patent list to view the Claim Chart Summary page for a specific SEP.

#	Patent No.	Title	Essentiality Rank	TS Relevancy	Claim Scope Support	Ind. Claim	TS (Version)
1	WO2022/046331A1	SPATIAL MEASUREMENTS ASSOCIATED WITH TRACKING REFERENCE SIGNALS	High	High	High	#16, #80	TS 38 214 (R17) TS 38 331 (R17)
2	US20220052906A1	TECHNIQUES FOR RADIO LINK FAILURE RECOVERY AND BEAM FAILURE RECOVERY ON SECONDARY CELL GROUP IN DORMANCY STATE	High	High	High	#28	TS 37 340 (R17) TS 38 331 (R17)
3	US20220053329A1	TRIGGERING OF UNMANNED AERIAL VEHICLE AUTHENTICATION AND AUTHORIZATION PROCEDURE	High	High	High	#1, #8, #16, #23	TS 23 501 (R17) TS 23 502 (R17) TS 23 503 (R17)
4	US20220045723A1	TECHNIQUES FOR MANAGING BEAMS IN	High	High	High	#96	TS 20 122 (R17)

Viewing the Essentiality Indicators and Automated Claim Charts

- The Claim Chart Summary page shows how each independent claim in this patent is ranked. Use the dropdown menu to select a corresponding document/Technical Specifications for claim chart mapping.
- Click on any of the rankings (High, Partial, Low) to view the Automated Claim Charts.

The High, Partial, and Low rankings seen on this page are determined using the same criteria mentioned on page 20, except that the scope is of each claim element. The ranking for an entire independent claim is determined by taking the minimum value of the claim element, which highlights the elements where any vulnerabilities may be found in a SEP.

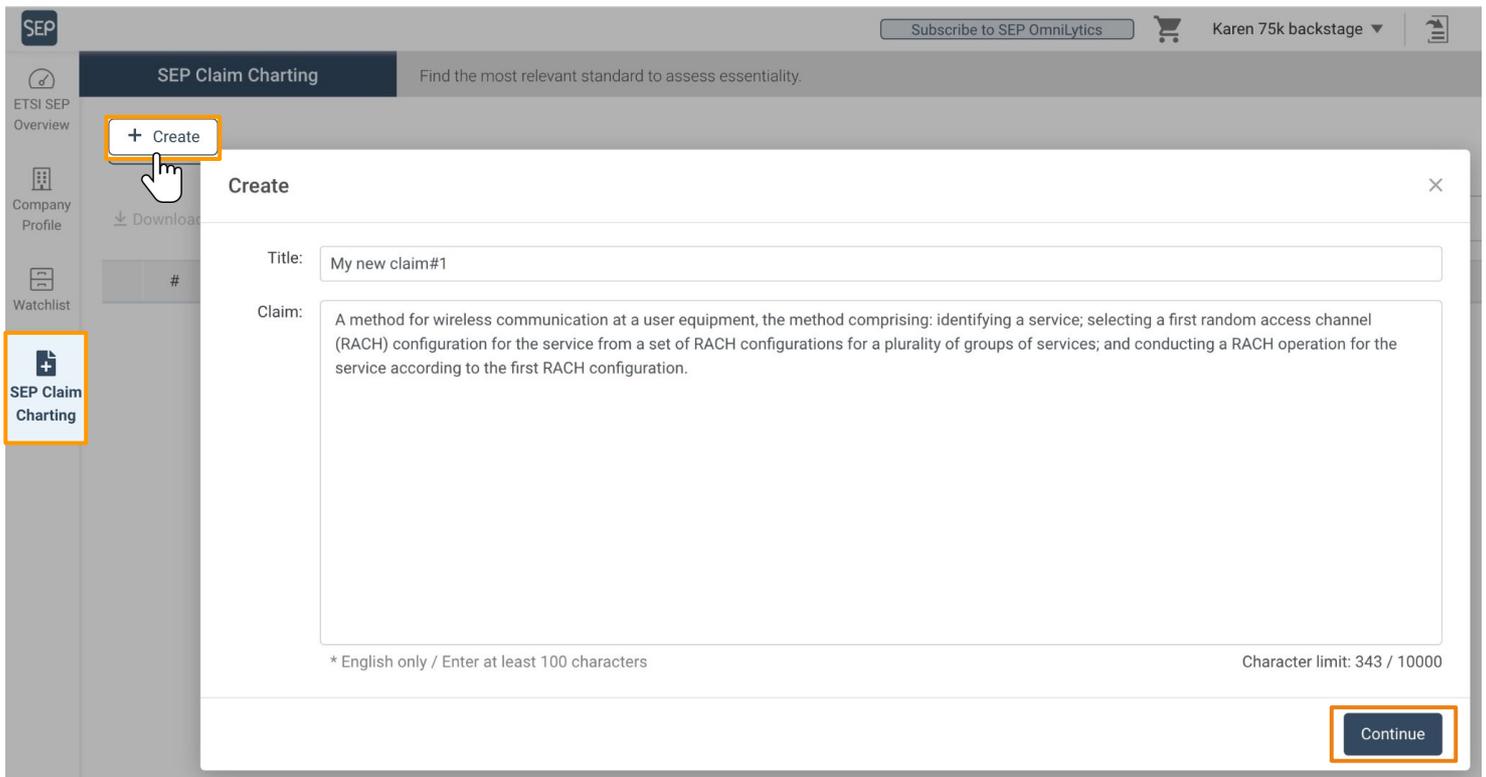
SEP Claim Charting — Uploading and Mapping Your Own Claims to Technical Specifications

SEP Claim Charting

Upload and map your own claims to any 3GPP technical specifications/reports with the SEP Claim Charting feature.

Input claim contents :

1. Click the “ + Create” button on the upper left to open a pop-up window.
2. Enter the title and any claim into the text boxes and click “Continue.”



The screenshot displays the SEP Claim Charting application interface. At the top, there is a navigation bar with the SEP logo, a 'Subscribe to SEP OmniLytics' button, and a user profile 'Karen 75k backstage'. Below this is a header for 'SEP Claim Charting' with the subtitle 'Find the most relevant standard to assess essentiality.' The left sidebar contains navigation options: 'ETSI SEP Overview', 'Company Profile', 'Watchlist', and 'SEP Claim Charting' (highlighted with an orange box). A '+ Create' button is also highlighted with an orange box and a hand cursor. The main content area shows a 'Create' pop-up window with a title field containing 'My new claim#1' and a claim text area containing: 'A method for wireless communication at a user equipment, the method comprising: identifying a service; selecting a first random access channel (RACH) configuration for the service from a set of RACH configurations for a plurality of groups of services; and conducting a RACH operation for the service according to the first RACH configuration.' At the bottom of the pop-up, there is a note '* English only / Enter at least 100 characters' and a character limit indicator 'Character limit: 343 / 10000'. A 'Continue' button is highlighted with an orange box at the bottom right of the pop-up.

Note: Please enter English claims only and at least 100 characters. (Character limit: 10,000)

SEP Claim Charting

Scope Settings

To define the mapping scope, select the scope or the desired 3GPP technical specifications/reports to map the claim to and the number of results to be displayed.

Click “More+” for more settings.

Click “Confirm” after confirming the settings.

Create

Scope Settings

Release: 15, 16, 17, 18

Publication date from: 2016-06-01 ~ Publication date to: []

Type: Technical Specification (TS) Technical Report (TR)

Version: Latest Most relevant

Radio Tech: All Radio Tech | Tech Body: All Tech Body

3GPP Spec: All 3GPP Spec

Display results: Show the top 3 10 documents

Reset to default | Back | Confirm

After clicking "Confirm," the mapping will start and the following system message will appear:

System Messages

The job will be completed in the background.

Confirm

You can see the finished or processing claim charts on the dashboard.

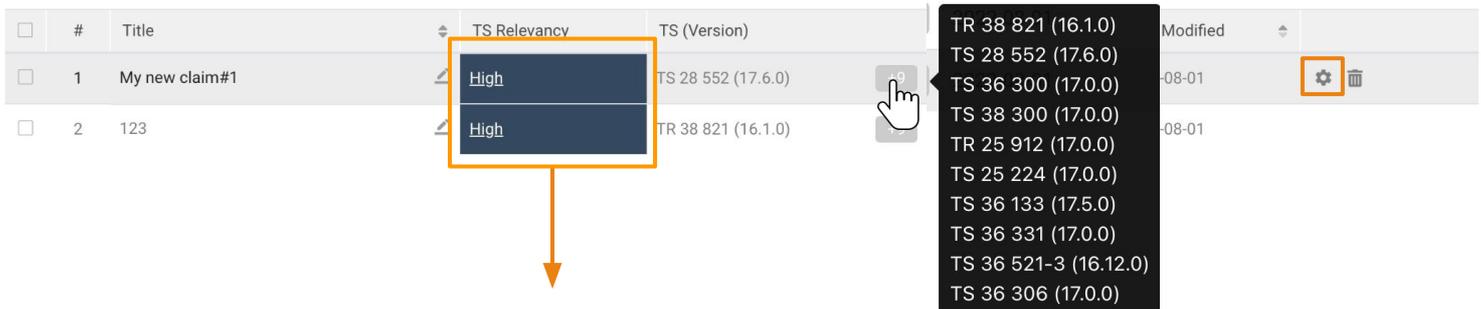
#	Title	TS Relevancy	TS (Version)	Date Created	Last Modified
1	My new claim#1	Processing ...	-	2022-08-01	2022-08-01
2	123	High	TR 38 821 (16.1.0)	2022-08-01	2022-08-01

SEP Claim Charting

Viewing the Mapping Results

The list will show the TS Relevancy ranking and the technical specifications/reports that are most relevant to the uploaded claim. Hover over the number by the TS (version) to view the list of the most relevant technical specifications. The number of TS/TR displayed will be according to the display settings you set (either the top 3 or 10 documents).

Click on the setting icon on the right to modify the current claim's contents and scope.*



Viewing the Claim Chart Summary

Click on the TS Relevancy ranking ([High](#)/[Partial](#)/[Low](#)) to view the Claim Chart Summary for the TS relevancy rankings generated by mapping the claim to each most relevant TS/TR.

Claim Chart Summary
Which independent claims are essential to the claim?

My new claim#1

You can select which technical specifications/reports to include in the summary. (Note: Only TS/TR already included in the mapping scope can be selected.)

TS 28 552 (17.6.0)	High	TS 36 300 (17.0.0)	High	TS 38 300 (17.0.0)	High	TS 25 224 (17.0.0)	Medium	TS 25 305 (17.0.0)	Medium
TS 25 331 (17.0.0)	Medium	TS 36 133 (17.5.0)	Medium	TS 36 331 (17.0.0)	Medium	TS 36 423 (17.0.0)	Medium	TS 36 521-3 (16.12.0)	Medium

Overall: Essentiality Rank - | TS Relevancy **High** | Claim Scope Support -

Claims #	TS Relevancy	Claim Scope Support
Claims # 1	High	-
Claims #1.01	High	-
Claims #1.02	N/A – Insufficient for evaluation	-
Claims #1.03	High	-
Claims #1.04	High	-
Claims #1.05	High	-

Claims
A method for wireless communication at a user equipment, the method comprising: identifying a service; selecting a first random access channel (RACH) configuration for the service from a set of RACH configurations for a plurality of groups of services; and conducting a RACH operation for the service according to the first RACH configuration.

*If you change the contents or scope of an existing claim chart, the new claim will be re-mapped and may take some time.

Essentiality Validation, Data Status, & Definitions

Validation of SEP OmniLytics' Essentiality Rankings

Of the 55,003 patents involved in U.S. patent infringement lawsuits between 2012/01/03 ~ 2022/02/28, 563 patents are SEPs.

Of the 8,565 patents asserted in IPRs petitioned from 2012/09/16 to 2022/03/01, 222 patents-in-suit are SEPs.

Essentiality Rankings — TS Relevancy	High
SEPs involved in U.S. litigation (563 SEPs)	29.7%
SEPs involved in IPRs (222 SEPs)	31.78%
*All SEPs	14.63%

*All SEPs indicate the number of independent claims of granted SEPs and not the number of applications

The percentage of SEPs with high TS Relevancy more than doubles in infringement and IPR cases, compared to the percentage of all high TS Relevancy SEPs.

SEP OmniLytics' Data Completeness and Timeliness

Data Completeness

InQuartik's team strives to provide our clients with the most comprehensive ETSI SEP data. We work to maintain a **Disclosure Rate** of 97%* and above, with 99% as our goal.

To do this, we filter out the noise (or dirty data) from the raw data retrieved from the ETSI IPR database.

We first exclude disclosures with non-3GPP-related/withdrawn technical reports/specifications or disclosures with missing technical reports/specifications information from the disclosures extracted from the ETSI IPR database to obtain **Qualified 3GPP-related disclosures**.

The **Effective disclosures adopted in SEP OmniLytics** are SEP disclosures that correspond to the numbers in Patentcloud's database and have undergone IPC testing to confirm no misclassification or error has occurred.

Here is how our Disclosure Rate is calculated:

$$\text{Disclosure Rate} = \frac{\text{Effective disclosures adopted in SEP OmniLytics}}{\text{Qualified 3GPP-related disclosures}}$$

We have also excluded the following from *SEP OmniLytics*:

- Disclosures with patent numbers inferred as U.S. provisional patents
- Disclosures with patent numbers inferred as unpublished applications**
- Non-patent-related disclosures

* Immediate action will be taken if the disclosure rate drops below 97%.

** Unpublished applications are continuously monitored for new updates to their statuses.

Data Timeliness

We update declaration documents from the ETSI IPR Declaration Database on a weekly basis.

Please see [our data status page](#) (updated daily) for the most updated Disclosure Rate and numbers.

SEP OmniLytics' Definitions

Family Definition

SEP OmniLytics uses the [EPO DOCDB Simple family definition](#) of "... a collection of patent documents that are considered to cover a single invention."

SEP OmniLytics uses simple families as the basic unit since a patent that consists of the same technical content as a declared SEP implies that the patent is also a SEP. Also, a SEP's essentiality which can be proven through a Claim Chart does not necessarily indicate that its family members can also be proven thuswise. This also applies to the indirect priority of the patents.

Therefore, only the simple family of a SEP is considered in each SEP disclosure and not [INPADOC extended families](#) (defined as "A collection of patent applications covering similar technical content"). In data adoption, all of the considerations listed here aim to retain data integrity and prevent fueling the over-declaration situation.

5G/LTE Definition

In SEP OmniLytics, the criteria for 5G/LTE SEP landscape includes only SEPs that meet the following criteria:

1. The technical specification must include at least one 3GPP specified 5G or LTE technical report/specification.
2. The SEP must have relevant release info:

5G Release 15 ~ 18 or N/A	LTE Release 8 ~ 18 or N/A
--	--

3. The SEP must be declared after the starting date of R15 for 5G (2016-06-01), and R8 for LTE (2006-01-23).

5G Declared on or after 2016-06-01	LTE Declared on or after 2006-01-23
---	--

For more details: <https://app.patentcloud.com/data-status.html?tab=SepDataQuality>

Most up-to-date Patent Status and Assignee Status

Patent status

Legal status coverage (65 jurisdictions)

CN, JP, US, EP, KR*, WO*, AE, AM, AP, AT*, AU*, BE*, BG, BR*, BY, CA*, CH, CZ*, DE*, DK*, DZ, EC, EG, EM, ES*, FI*, FR*, GB*, GC, GR*, HK*, HN, HU*, ID, IL*, IN, IT*, KE, MC*, MN, MO, MT, MW, MX*, MY, NL*, NO*, NZ*, OA, PA, PH*, PL*, PT*, RU*, SA, SE*, SG, SM, TH, TJ, TW*, UA, VN, ZM, ZW

● From local patent offices (11)

* From INPADOC (31)

Assignee Status

Current assignee (24 jurisdictions)

CN, JP, US, EP, AT, AU, BE, BR, CH, DE, ES, FI, FR, GB, HK, HU, IL, MX, NL, NO, NZ, PL, PT, TW

For more details about the collection and definitions of our [Legal Status Data](#) and [Patent Transactions](#), please see the [Timely Data Completeness](#) webpage.

Setting Up and Managing Watchlists

Setting Up a Watchlist

1. Use the “Click to Edit” link to open the dropdown menu for the filters .
2. Select the set of filters you want to save as a watchlist.
3. Then click on the “+ Save to Watch” to save the current set of filters as a watchlist.

Declaration Status Include All Declared SEPs; Release 14, 15, 16; Declared to 2020-05-29; 5G;

Include All Declared SEPs; Release 14, 15, 16; Declared to 2020-05-29; 5G; [Reset](#)

Release: 14, 15, 16; Radio Tech: 5G; Tech Body: All Tech Body; 3GPP Spec: All 3GPP Spec; Declaring Company: All Declaring Company; Country: All Country; Legal Status: All Legal Status; Declared from: ~ 2020-05-29; Declared to: 2020-05-29; Essentiality Rank: All Essentiality Rank; TS Relevancy: All TS Relevancy; Claim Scope Support: All Claim Scope Support; Specs Included in Claim Chart: All Specs Included in Claim Chart

The latest declarations were declared on 2022-05-18.
For more details about our dataset, please check [SEP Omnilytics Data Quality Report](#)

+ SAVE TO WATCH **SUBMIT**

Managing Your Watchlists

1. By selecting the Watchlist page on the left, you can see and manage your saved watchlists.
2. By clicking the “Default” button, you can set a specific set of filters as your default dashboard.
3. You can also set up the time and frequency of updates, which will be emailed to you.

Watchlist 6 Boards saved in watchlist

ETSII SEP Overview

Company Profile

Watchlist

Declaration Status Company Profile

Update and Notifications: Weekly Monday Submit

Board Name	Last Updated	Date Created	Set as Default	Share Link	Delete
5G Widely Deployed	0 families	Include Only Newly Declared, Widely Deployed SEPs; Release N/A, 15, 16, 17; Declared from 2016-06-01; 5G; 2021-02-19	Default	Share	Delete
LTE SEP	0 families	Include Only Newly Declared SEPs; Release N/A, 8, 9, 10, 11, 12, 13, 14; Declared from 2008- 2021-02-17		Share	Delete

Note: Watchlists can be set up for Declaration Status or Company Profile. Switch between the two using the tabs at the top of this page.

More Tools for Working With Patents —

Patent Validity Check, Portfolio Analysis

Export SEP Data for Further Analysis — Patent Vault



Dive deeper with Patent Vault

Directly import the selected standard essential patents into [Patent Vault](#) for more operations such as: saving the patent portfolio into customizable folders for clearer organization, conducting patent analysis with the PatentMatrix Dashboard, and sharing the analysis with your colleagues.

Simply click on any number or point from within the charts to bring up the patent list, select the patents that you need and click “Save to Patent Vault” at the top left corner of the pop-up window.

You can customize the folder structure by year, company, or any other categorization type you require.

11,170 patent families; 37,663 applications; 54,303 records X

#	Patent No.	Title	Legal Status	Appl. Date	Declarations	Declaring Companies	Specifications (Release)
1	CN110536455A	一种资源选择方法、装置及存储介质	Pending	2019-10-16	ISLD-201912-085	ZTE	TS 38 213 (N/A) TS 38 214 (N/A)
2	CN110536474A	随机接入方法、装置、第一通信节点和第二通信节点	Pending	2019-09-30	ISLD-201912-085	ZTE	TS 36 213 (N/A) TS 36 331 (N/A) TS 38 213 (N/A) TS 38 331 (N/A)
3	CN110535617A	一种信息确定方法、装置、第一通信节点和存储介质	Pending	2019-09-30	ISLD-201912-085	ZTE	TS 38 213 (N/A) TS 38 214 (N/A)
4	CN110545138A	一种信息指示方法、装置及计算机可读存储介质	Pending	2019-09-29	ISLD-201912-085	ZTE	TS 38 213 (N/A) TS 38 331 (N/A)
5	CN110536453A	数据传输方法、装置和系统	Pending	2019-09-16	ISLD-201912-085	ZTE	TS 38 211 (N/A) TS 38 213 (N/A) TS 38 331 (N/A)
6	CN110545168A	上行传输方法和装置	Pending	2019-09-12	ISLD-201912-085	ZTE	TS 38 211 (N/A) TS 38 213 (N/A) TS 38 331 (N/A)
7	CN110519853A	切换指示方法、切换方法、装置、服务节点、终端及介质	Exam.	2019-09-06	ISLD-201912-045	ZTE	TS 38 212 (N/A) TS 38 213 (N/A) TS 38 321 (N/A) TS 38 331 (N/A)

Select Folder

Select Project
illumina

Select Folder
Add Folder

Patent list (10,937/200,000)

- Co-own Patents (743)
- illumina Patents (8,810)
- 產品線與技術分類 (0)
- Solexa Patents (867)

Folder Note (Optional)

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Check patent details

Want to find out more about a patent’s litigation history or ETSI declaration info?

Click on a patent number in any of *SEP OmniLytics*’ patent lists to instantly access [Patent Search](#) for more data.

13,852 patent families; 19,758 applications; 35,471 records ✕

#	Patent No.	Title	Legal Status	Appl. Date	Declarations	Declaring Companies	Specifications (Release)
1	US20190149294A1	CSI-RS SEQUENCE GENERATION AND MAPPING AND DMRS SCRAMBLING ID CONFIGURATION	Exam.	2019-01-14	ISLD-201905-023	INTEL CORP	TS 38 211 (R15)
2	US10523287B1	Transmission parameter assignment for MU-MIMO wireless devices	Active				
3	US20200162979A1	RESOURCE EXCLUSION FOR DEVICE TO DEVICE COMMUNICATION	Pending				
4	US20200154430A1	CONFIGURATION OF SIDELINK RADIO RESOURCES	Exam.				
5	US20200153554A1	RESOURCE EXCLUSION IN A HALF DUPLEX BASED WIRELESS COMMUNICATION SYSTEM	Exam.				

US11139872B2 Active

Quality: AAA Value: A Risk Rel...

Codebook subset restriction signaling

Full Text Simple Family Extended Family Citations History **SEP Declarations** Litigation Original Document

Abstract (Other language versions are not available.)
A network node signals to a wireless communication device which precoders in a codebook are restricted from being used. The network node in this regard generates codebook subset restriction signaling that, for each of one or more groups of precoders, jointly restricts the precoders in the group by restricting a certain component (e.g., a certain beam precoder) that the precoders in the group have in common. This signaling may be for instance rank-agnostic signaling that jointly restricts the precoders in a group without regard to the precoders' transmission rank. Regardless, the network node sends the generated signaling to the wireless communication device.

Specification (Other language versions are not available.)

RELATED APPLICATIONS

RELATED APPLICATIONS

[0001] The present application is a continuation of U.S. patent application Ser. No. 17/001,133, which was filed on Aug. 24, 2020, which is a continuation of U.S. patent application Ser. No. 16/239,870, which was filed on Jan. 4, 2019, and issued as U.S. Pat. No. 10,756,792 on Aug. 25, 2020, which is a continuation of U.S. patent application Ser. No. 15/105,648, which was filed on Jun. 17, 2016, and issued as U.S. Pat. No. 10,193,600 on Jan. 29, 2019, which is a national stage application of PCT/SE2016/050009, filed Jan. 11, 2016, and claims benefit of U.S. Provisional Application 62/103,101, filed Jan. 14, 2015, the disclosures of each of which are incorporated herein by reference in their entirety.

Figure (15)

US11139872B2 Active

Quality: AAA Value: A Risk Rel...

Codebook subset restriction signaling

Full Text Simple Family Extended Family Citations History **SEP Declarations** Litigation Original Document

ETSI SEP Declarations: 3 (Essentiality is evaluated based on all TS included in the declaration.)

ISLD-201711-016 (2017-12-08)	Low Essentiality	TELEFONAKTIEBOLAGET LM ERICSSON PUBL
ISLD-201712-013 (2017-12-15)	Low Essentiality	TELEFONAKTIEBOLAGET LM ERICSSON PUBL

Full Text Simple Family Extended Family Citations History **Litigation** Original Document

US Litigations : 3

337-TA-3595 (Filing: 0-) | ITC Court

Petitioner	Respondent	Judge
Apple Inc. - Cupertino , CA , United States of America, Ericsson Inc. - Plano , TX , United States of America, Telefonaktiebolaget LM Ericsson - Stockholm , , Sweden	Apple Inc. - Cupertino , CA , United States of America	

Patents-in-Suit: 4

#	Patent No.	Title	Legal Status	Appl. Date	Appl. No.	Family ID
1	US8102805B2	HARQ in spatial multiplexing MIMO system	Active	2007-10-26	12/447522	39344554

Check for Validity Issues – Quality Insights



Check for any validity issues in a patent

You can obtain an assessment of a patent's quality using [Quality Insights](#) – a one-click solution to examine a patent's history, claim scope changes, and potential prior art references that can be used to challenge or invalidate the patent.

Simply proceed to *Quality Insights* from a patent's page in *Patent Search* or search for a specific patent on *Quality Insights* main page.

The screenshot shows a patent page for US11139872B2. A Quality Insights overlay is present, highlighting the patent's quality assessment. The overlay includes a 'Litigated' status, 'Partially Disclosed' claim disclosure, and 'Medium', 'Low', and 'High' potential issue levels. It also includes a 'Bibliography' section with inventor and applicant information.

Quality Insights Overlay:

- Litigation Record:** Litigated
- Claim Disclosure:** Partially Disclosed
- Potential Issue:** §112 (Medium), §102 (Low), §103 (High)

Bibliography:

Inventor (Std)	FAXÉR SEBASTIAN(SE), JÖNGREN GEORGE(SE), WERNERSSON NIKLAS(SE), FRENNE MATTIAS(SE), JÄRMYR SIMON(SE) [+Inventor]	Earliest Priority	2015-01-14
Issue Date	2021-10-05	Appl. No.	17/168616
Legal Status	Active Last Updated On 2022-03-04	Appl. Date	2021-02-05
Estimated Exp. Date	2036-01-11 . 20 years from filing date 2016-01-11 of PCT/SE2016/050009	Curr. Assignee	TELEFONAKTIEBOLAGET LM ERICSSON PUBL 2022-03-03
		Assignee (Std)	TELEFONAKTIEBOLAGET LM ERICSSON PUBL [+Orig. Assignee]

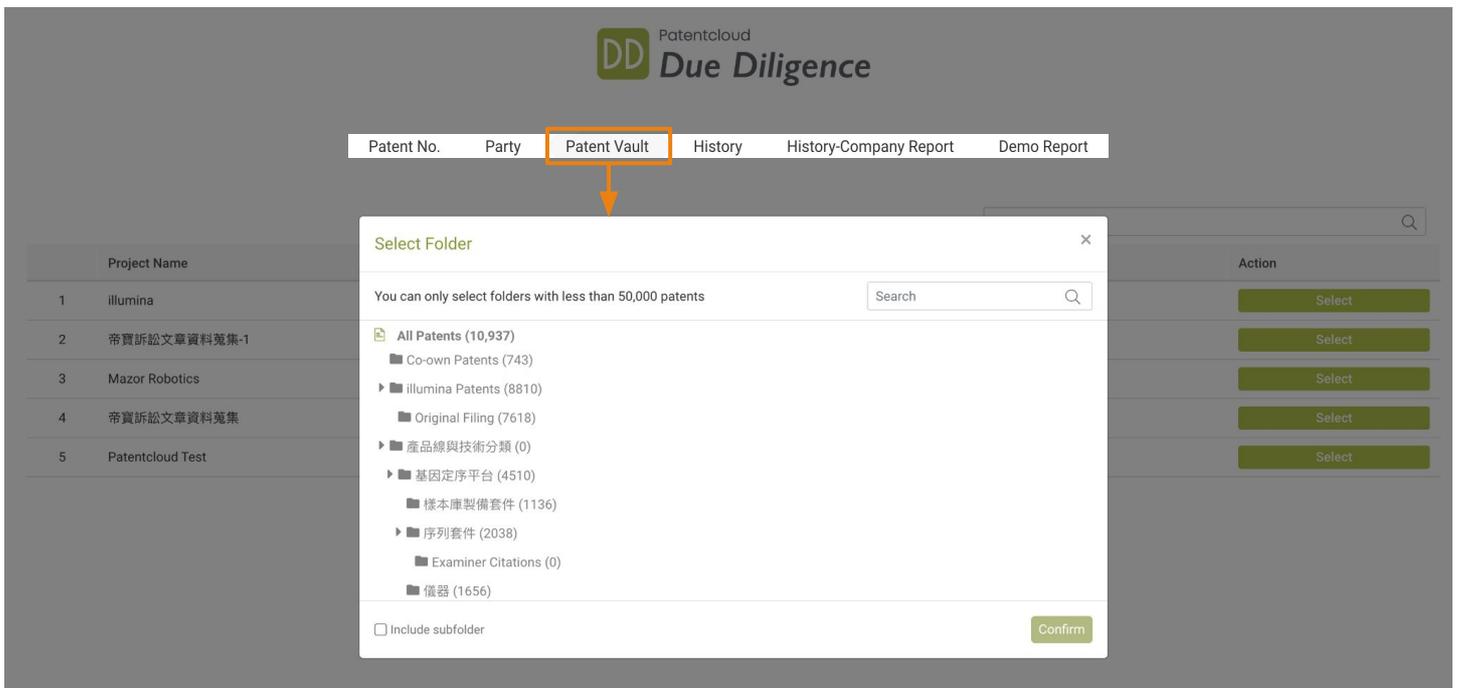
Analyze a SEP portfolio – *Due Diligence*



Obtain an evaluation report with just one-click

After importing a patent portfolio to *Patent Vault*, you can get a comprehensive evaluation of the patent portfolio with [Due Diligence](#).

Simply use the “Patent Vault” tab in *Due Diligence* to access the folders in *Patent Vault*, and select the patent portfolio that you want to analyze.

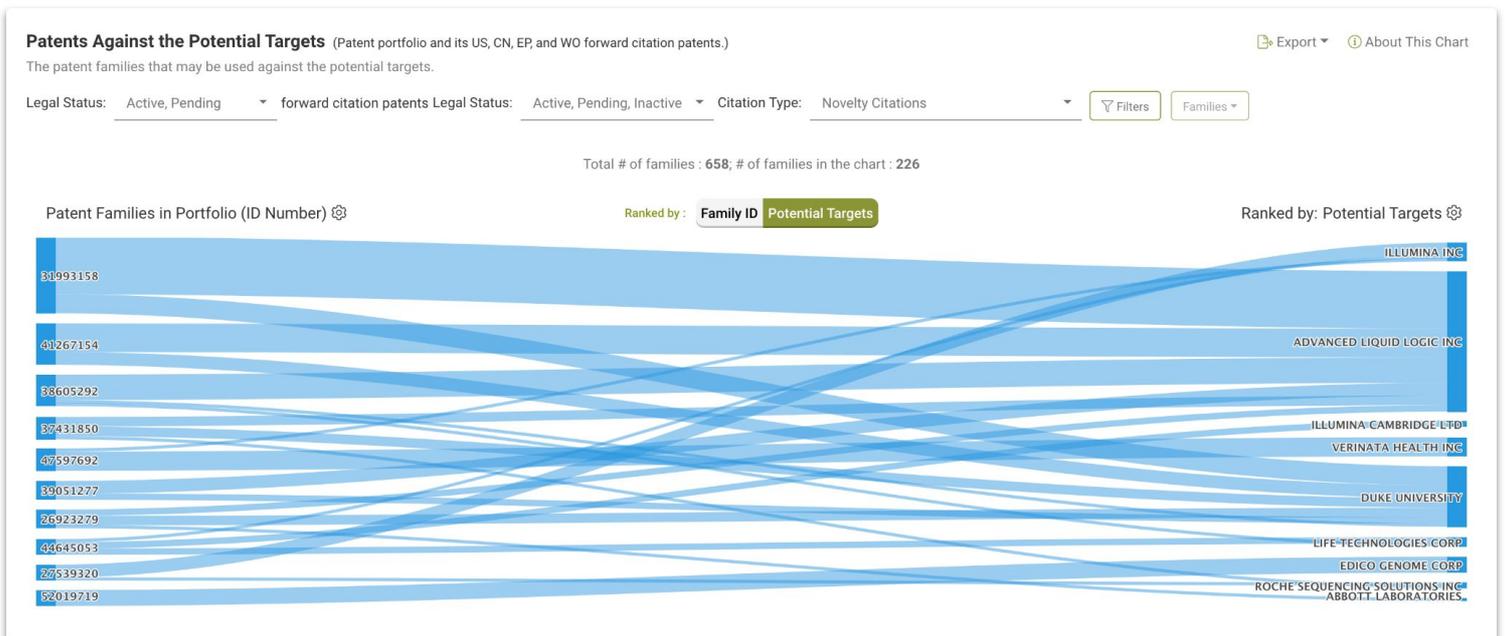


Analyze a SEP portfolio – *Due Diligence*



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- Coverage, legal status, ownership status
- Transaction and litigation history
- Technology fields
- Quality and value assessment
- Potential monetization/litigation targets



Everything you need to know about a patent portfolio and for future utilization!

SEP OmniLytics' Tutorial Videos



Declaration Overview



Company Profile



Essentiality Rankings



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