

Bridging the Gap - Webinar Series Part 1:

Generating insights from SEP Declaration Data

Tim Pohlmann IPlytics GmbH

Recording: <https://youtu.be/LzdlkHK2H00>

IPLYtics Webinar Series 2022

- I. Bridging the Gap Part 1: “Generating insights from SEP Declaration Data”
September 27th, 2022
Recording: <https://www.iplytics.com/events/past/>

- II. Bridging the Gap Part 2: “Generating insights from SEP Litigation Data”
October 25th, 2022
Register: <https://www.iplytics.com/events/upcoming/>

- III. Bridging the Gap Part 3: “Generating insights from Contribution Data”
November 29th, 2022
Register: <https://www.iplytics.com/events/upcoming/>

Today's Speaker



The World's Leading IP Strategists 2022

Tim Pohlmann
Chief Executive Officer, IPlytics GmbH

IAM says: As architect of the game-changing IPlytics intelligence platform, Tim Pohlmann has distinguished himself as one of the most forward-thinking minds in intellectual property today. He is a top expert on standard essentiality and has his finger on the pulse of technology industry developments.



- **PhD & Post Doc.** TU Berlin, CERN, MINES ParisTech.
- **CEO and founder of IPlytics.**
- **2022 IAM Strategist 300.** Panel speaker thought leader.
- **Economic expert** and author of studies for the EU Commission, WIPO and German government.
- Appointed **faculty lecturer** (TU Berlin, EPF Lausanne, CEIPI Strasbourg, Cleveland-Marshall College of Law)
- **Author** of over 50 industry articles published at IAM Magazine, IPWatchdog and Managing IP.



Agenda

- I How to retrieve declared SEP data
- II Which SSOs provide SEP data for which standards?
- III Patent declaration enhancement, bridging the gap to patent data
- IV Pitfalls when counting patent declarations
- V Patent declarations and essentiality tests – Claim Chart Sampling
- VI Patent declarations and essentiality tests – Essentiality Prediction
- VII How to leverage access to patents and standards data cross-departmental?

I. How to retrieve declared SEP data?

I. How to retrieve declared SEP data?

Standard Setting Organization (SSO) Websites

- Declarations of potential SEPs are hosted on specific IPR databases on the SSO's websites such as **IPR.ETSI.org, IEEE LOAs, IPR ITU-T, ISO Standards...**
- SSO's websites list all declaration letters that were submitted by SSO's members.
- As to the SSO's bylaws members must submit declarations in a "timely fashion" about patents potentially essential to the standard.
 - Some SSO's encourage **specific declarations** such as ETSI, ATSC, ISO, IEC
 - Other SSO's allow **blanket declarations** such as IEEE or ITU-T

Databases format differences - IEEE example

Blanket
declaration

Specific
declaration

Std No.	Patent Owner	Patent Serial No. (if indicated)	Letter Date
802.11be	NXP B.V.	not indicated	29 Sep 2020
802.11ah	KT Corporation	not indicated	24 Sep 2020
802.11ax	LG Electronics Inc.	not indicated	27 Aug 2020
802.11-2016	Google LLC	US7492753, US7165205, CA2564395, CN1934789, CN102647193, EP1747613, EP2405581, ES2400950, IL177439, IN2012KN00029, IN2012KN00028, IN253220, JP4558037, KR100861893, PL1747613, TWI348831, US7143333, BRPI0514179, CN101032082, EP2387157, ES2421942, IN260932, JP4516602, KR100884698, PL2387157, RU2370886, US7236477, AR052021, US7493548	11 Mar 2020
802.11ac	Microsoft Technology Licensing, LLC	9,215,599 (US)	20 Dec 2019

Databases format differences – IPlytics integration

➤ IPlytics data integration of all **specific** and **blanket** patent declaration

Blanket patent declaration

Specific patent declaration

2,198 Documents	502 SEPs	182 Families			
Publication No. ↕	Kind Type ↕	Title ↕	Decl. Da... ▾	Declaring Company ↕	Standard Doc. ... ↕
Not Available	Not Available	Not Available	2019-11-21	Apple Inc.	802.11-2012
Not Available	Not Available	Not Available	2019-11-21	Apple Inc.	802.11-2016
Not Available	Not Available	Not Available	2019-07-25	Huawei Technologies Co., Ltd.	802.11-1997.802.11-...
Not Available	Not Available	Not Available	2019-07-25	Huawei Technologies Co., Ltd.	802.11-1997.802.11-...
Not Available	Not Available	Not Available	2015-07-06	Intel Corporation	802.11
Not Available	Not Available	Not Available	2015-07-06	Intel Corporation	802.11
Not Available	Not Available	Not Available	2015-07-06	Not Available	IEEE 802.11
US20080031197A1	Patent Application	Relay-station assignment/re-assig...	2015-04-03	Nokia Corporation	802.11
US6738370B2	Granted Patent	Method and apparatus implementi...	2015-04-03	Nokia Corporation	802.11
US20050141494A1	Patent Application	Data transmission method, and sys...	2015-04-03	Nokia Corporation	802.11
Not Available	Not Available	Not Available	2015-04-03	Intel Corporation	802.11.2
US8023524B2	Granted Patent	Cooperative relay system enabling ...	2015-04-03	Nokia Corporation	802.11

Databases format differences - ETSI example

Work Item / Standard no.	Title	Version/Edition	Illustrative specific part of the Standard (e.g Section)
TS 38.331	NR; Radio Resource Control (RRC); Protocol specification	16.1.0	3.2 4.2.1 5.3.1.1 5.3.2 5.3.8.1 5.3.8.3 6.2.2 7.4

Declaration of **TS** (bracketed around TS 38.331)
 Declaration of **version** (bracketed around 16.1.0)
 Declaration of **sections** (bracketed around the list of sections)

Application Number	Publication Number	Title	Proprietors	Country of Registration
EP20190184674	EP3570628 A1	HANDLING A CONNECTION IN A WIRELESS COMMUNICATION SYSTEM	BLACKBERRY LTD	EP European Patent Office

Declaration of **other patents** (bracketed around EP20190184674)
 Declaration of **basis patent** (bracketed around EP3570628 A1)

Databases format differences - ETSI example

Basis
patent
declaration

Other
member
patent
declaration

Patent Family				
External ID :				
Application Number	Publication Number	Title	Proprietors	Country of Registration
Basis Patent				
US19930136760	USRE36017 E	Cellular digital mobile radio system and method of transmitting information in a digital cellular mobile radio system	ERICSSON TELEFON AB L M [SE]	US UNITED STATES
Other Members				
AU19890040740	AU505048 B2 AU4074089 A	CELLULAR DIGITAL MOBILE RADIO SYSTEM WITH PLURAL BASE STATION TRANSMITTERS AND METHOD OF TRANSMITTING INFORMATION IN SUCH A SYSTEM	ERICSSON TELEFON AB L M	AU AUSTRALIA
AU19890040740D		CELLULAR DIGITAL MOBILE RADIO SYSTEM WITH PLURAL BASE STATION TRANSMITTERS AND METHOD OF TRANSMITTING INFORMATION IN SUCH A SYSTEM	ERICSSON TELEFON AB L M	AU AUSTRALIA
DE19896005513T		DIGITALES ZELLULARES MOBILFUNKSYSTEM MIT VIELEN ORTSFESTEN FUNKSTATIONSENDERN UND VERFAHREN ZUR INFORMATIONSUEBERTRAGUNG EINES SOLCHEN SYSTEMS,	ERICSSON TELEFON AB L M [SE]	DE GERMANY
DE19896005513T	DE68905513 T2 DE68905513 T2	DIGITALES ZELLULARES MOBILFUNKSYSTEM MIT VIELEN ORTSFESTEN FUNKSTATIONSENDERN UND VERFAHREN ZUR INFORMATIONSUEBERTRAGUNG EINES SOLCHEN SYSTEMS,	ERICSSON TELEFON AB L M [SE]	DE GERMANY
DK19890005280	DK171427 B1 DK528089 A		ERICSSON TELEFON AB L M [SE]	DK DENMARK
EP19890850040	EP0335846 B1 EP0335846 A1	Cellular digital mobile radio system with plural base station transmitters, and method of transmitting information in such a system.	UnknownCompany (EP19890850040)	EP European Patent Office

Databases format differences – IPlytics integration

➤ IPlytics data integration of **basis** and **other patents** as well as **TS**, **version** and **section** information.

TS and Version

Basis patent

Other patents

Section

Standard Document Id	TS 36.440 v9.0.0
Declaring Company	Telefonaktiebolaget LM Ericsson
Application as to Declaration	US19930136760
Application as to Declaration other	AU19890040740 AU19890040740D DE19896005513T DE1989605513T DK19890005280 EP19890850040 ES19890850040T FI19890004818 JP19890503025 NO19890004314 NZ19890227826 SE19880000698 SE19880000698D US19900579283 US19980217577
Declaration Date	2010-04-06
ISLD	ISLD-201005-004
Disclosure Number	6
Section	5

Databases format differences

- PDF scan of disclosure letters e.g. ISO, ATSC, ARIB

Disclosure of Patents

In accordance with Sections 3 and 4 of the ATSC Patent Policy, please identify each patent or patent application forming the subject matter of any Potential Claim of which any Representative of the Discloser who is active in an ATSC technology group or specialist group has actual personal knowledge. The Discloser, in good faith, believes that the information may be relevant to the implementation of the Disclosure Statement.

Washington, DC 20006
202-872-9160 – Office
202-872-9161 – Fax

No.	Patent / Application No. and Country	Patent
1	KR-10-1929145	Saturn Licensing
2	KR-10-2023558	Saturn Licensing
3	US-10432225	Saturn Licensing
4	US-10320416	Saturn Licensing
5	KR-10-2023155	Saturn Licensing
6	KR-10-1929147	Saturn Licensing
7	KR-10-2023652	Saturn Licensing
	US-10411741	Saturn Licensing

Discloser:
Name of Participant Sony Corporation

Contact Information for Participant's Representative:
Name of Representative Shizuka Sayama
Address 1-7-1 Konan, Minato-ku Tokyo, 180-0075, Japan
Tel. +81-50-3750-4750
Fax +81-50-3807-0122
E-mail Shizuka.Sayama@sony.com
URL (optional) _____

Identification of ATSC Specification Document relevant to the Disclosure Statement:
Number A/322, A/330, A/331, A/332, A/341, A/342 Part 3, A/343
Title Physical Layer Protocol (A/322), Link-Layer Protocol (A/330), Signaling, Delivery, Synchronization, and Error Protection (A/331), Service Announcement (A/332), Video - HEVC (A/341), MPEG-H System (A/342 Part3), Captions and Subtitles (A/343)

Licensing Declaration
If the Discloser is the holder of a patent and/or pending patent application that is the subject of an Essential Claim, i.e., the use of which it believes would be required to implement the

Databases format differences – IPlytics integration

- IPlytics uses **OCR technology** to parse **PDF files** and **integrate and index** all declared patent numbers

The screenshot displays the IPlytics Query Builder interface. At the top, there is a 'Query Builder' section with an 'Untitled Query' dropdown. Below this, there are search criteria: 'Select All' with a search term 'e.g. biotech, 3D print*, car or vehicle', and 'AND Standard Setting Organiz...' with the value 'ATSC'. Below the search criteria, there is a 'Results:' section with three tabs: 'Analytics', 'Search Data', and 'Families'. The 'Search Data' tab is active, showing a summary of results: 16,111 Documents, 9,468 SEPs, and 2,307 Families. Below the summary, there is a search bar, 'Expand by Family' button, 'Show / Hide Columns' button, and 'View as:' menu. The main table displays search results with columns: Publication No., Title, Decl. Da..., Standard Doc. ..., SSO, and Grant. The first row is highlighted in blue and shows 'US8050347B2' with the title 'Digital broadcast transmitting/receiving system having an ...' and 'ATSC' as the SSO. Other rows include 'JP2015076277S5', 'EP3002751A1', and 'MY156223A'.

Publication No.	Title	Decl. Da...	Standard Doc. ...	SSO	Grant.
<input type="checkbox"/> US8050347B2	Digital broadcast transmitting/receiving system having an ...	2018-05-30	A/300 - A/321 - A/...	ATSC	Yes
<input type="checkbox"/> JP2015076277S5	Not Available	2016-09-12	A/322 - A/330 - A/...	ATSC	No
<input type="checkbox"/> EP3002751A1	AUDIO ENCODER AND DECODER FOR ENCODING AND DECOD...	2017-05-18	A/342	ATSC	No
<input type="checkbox"/> MY156223A	METHOD AND APPARATUS FOR ENCODING VIDEO BY USING ...	2017-11-03	A/322 - A/330 - A/...	ATSC	No

II Which SSOs provide SEP data for which standards?

II. Which SSOs provide SEP data for which standards?

- Information about potential SEPs is only provided by a limited number of SSO that operate in standards areas where patents matter:
 - Communication technology e.g. Wi-Fi or cellular technology (3G, 4G, 5G)
 - Audio or video coding technology (ITUT HEVC, VVC, AAC)
 - Broadcasting (DVB, ATSC, SMPTE)
- Such standards are of highest importance for the next technology revolution where everything will be connected through the Internet of Things.
- New upcoming standard project outside of the commutation world (e.g. Society of Automotive Engineers) increasingly provide information on potential SEPs.

Standard Essential Patent Data (1978-2022)

SSO	Example Standards	Declared SEPs
ETSI	2G, 3G, 4G, 5G, NB IoT, LTE-E, ITS, C-V2X, DVB, DMR, DECT, TERA	320,000
ITU-T	AVC H.264, HEVC H.265, VVC H.266	19,000
ATSC	ATSC -1.0- 3.0, Over the Air Internet TV Broadcasting	16,000
ISO	RFID, MPEG 1-4, mp3	7,000
ETSI	2G, 3G, 4G, 5G	4,700
IETF	Internet Protocol Standards	3,200
IEEE	Wi-Fi 1-7, DSRC, WAVE, LAN/MAN, Bluetooth, ZigBee, FireWire, WiMAX, Ethernet	2,520
ARIB	2G, 3G, 4G, 5G	2,500
IEC	Electric vehicle conductive charging, Industrial Networks, CQN series RF, RFID	1,500
Wireless Power Con.	Wireless Charging Qi Standard	1,400
OMA	GSM, UMTS or CDMA2000	1,300
ISO/IEC	MPEG Visual	1,100
SMPTE	Motion Picture and Television	950

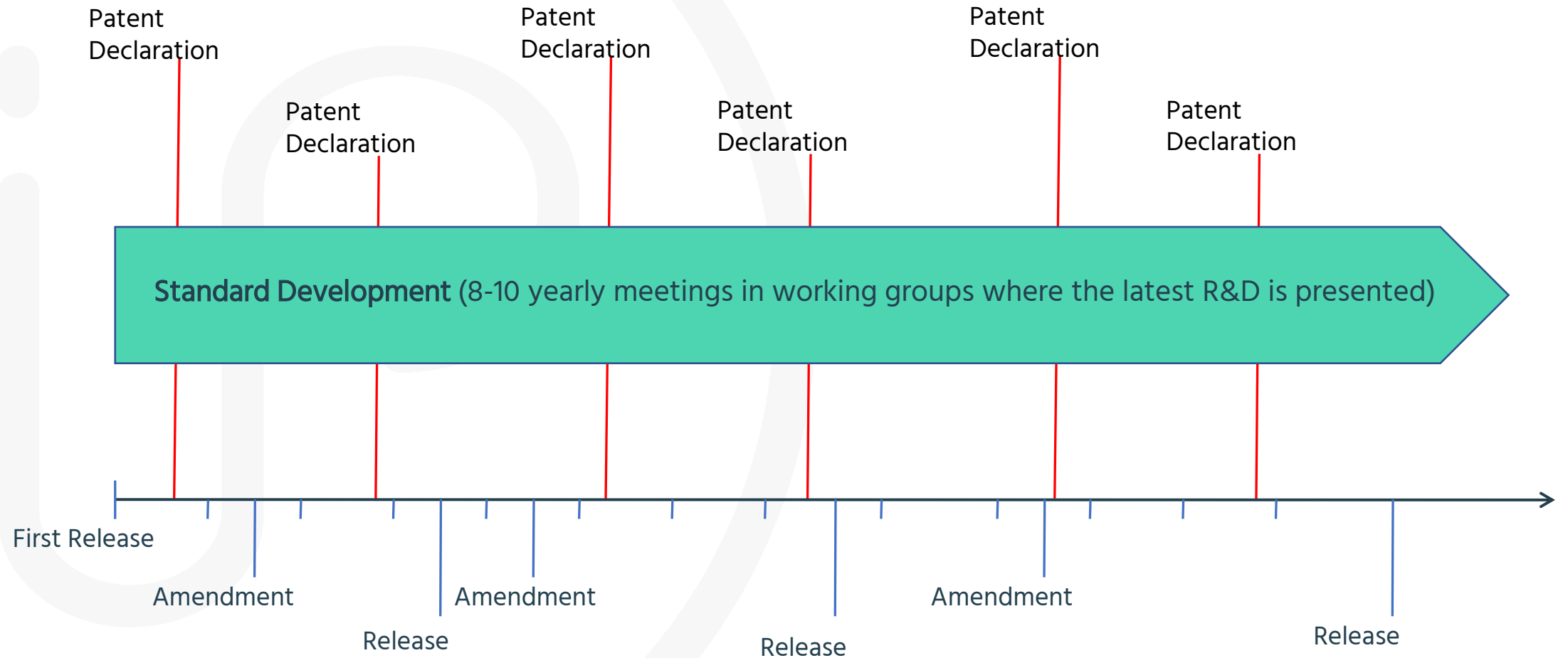
Standard Essential Patent Data (1978-2022)

SSO	Example Standards	Declared SEPs
ANSI	Wi-Fi 1-7, LAN/MAN, Bluetooth, ZigBee, FireWire, WiMAX, Ethernet	450
IEEE / IEC	Wi-Fi 1-7, DSRC, WAVE, LAN/MAN, Bluetooth, ZigBee, FireWire, WiMAX, Ethernet	260
ITU	Radio Transmission	120
VESA	DisplayPort	110
OASIS	XrML WSRP UOML UOML UDDI	100
Broadband Forum	Ethernet, ADSL, DSL, Optical Fiber	83
TIA	TDMA, CDMA, WCDMA	35
CEN	IST, Electronic Identification, Authentication and Trusted Services	35
SAE	Broadband PLC Communication for Plug-in Electric Vehicles, Mobile Fueling Station	8
ECMA	NFC	3



III Patent declarations practices and data implications

Standards development and patent declarations



Patent Declaration Practices

- **Specific declarations with all details**

Publication Number	Declaring Company	Standard Document	Section Number	Declaration Date
US8837381B2	Ericsson	TS 38.213 v17.1.0	10.2A	19.05.2017
EP2208384B1	Panoptis	TS 38.213 v17.1.0	19.2	07.05.2020
EP1952549B2	Huawei Technologies	TS 38.212 v17.1.0	5.5	23.10.2018
EP2234452B2	ZTE	TS 23.292 v17.0.0	7.4.2.1.2	24.10.2019
EP3496334B1	InterDigital	TS 23.502 v17.4.0	4.15.2	30.09.2021
EP2124499B1	Innovative Sonic	TS 38.331 v17.0.0	8	09.07.2020
US8228827B2	Samsung Electronics	TS 38.321 v15.6.0	5.1.5	23.08.2019
EP3557938B1	Guangdong Oppo	TS 38.331 v17.0.0	5.7.10.5	25.05.2021
EP1705828B2	Nokia Technologies	TS 33.220 v15.3.0	3.2	29.10.2018
EP2289268B8	Xiaomi	TS 24.008 v17.6.0	4.4.4.5	05.06.2020
US8000717B2	QUALCOMM	TS 38.473 v17.0.0	9.3.1.271	16.03.2018
US7643456B2	Conversant Wireless	TS 24.008 v11.8.0	9.5.15a	21.08.2018
US9426697B2	BlackBerry UK Limited	TS 24.301 v17.6.0	5.5.1.2.5C	06.11.2014
US7782818B2	Core Wireless	TS 24.301 v8.8.0	5.3.2	09.06.2017

Patent Declaration Practices

- **Specific declarations with no details**

Publication Number	Declaring Company	Standard Document	Section Number	Declaration Date
US8837381B2	Ericsson	TS 38.213		19.05.2017
EP2208384B1	Panoptis	TS 38.213		07.05.2020
EP1952549B2	Huawei Technologies	TS 38.212		23.10.2018
EP2234452B2	ZTE	TS 23.292		24.10.2019
EP3496334B1	InterDigital	TS 23.502		30.09.2021
EP2124499B1	Innovative Sonic	TS 38.331		09.07.2020
US8228827B2	Samsung Electronics	TS 38.321		23.08.2019
EP3557938B1	Guangdong Oppo	TS 38.331		25.05.2021
EP1705828B2	Nokia Technologies	TS 33.220		29.10.2018
EP2289268B8	Xiaomi	TS 24.008		05.06.2020
US8000717B2	QUALCOMM	TS 38.473		16.03.2018
US7643456B2	Conversant Wireless	TS 24.008		21.08.2018
US9426697B2	BlackBerry UK Limited	TS 24.301		06.11.2014
US7782818B2	Core Wireless	TS 24.301		09.06.2017

Patent Declaration Practices

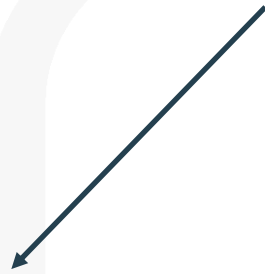
- **Blanket** declarations with **no details**

Publication Number	Declaring Company	Standard Document	Section Number	Declaration Date
	Ericsson	TS 38.213		19.05.2017
	Panoptis	TS 38.213		07.05.2020
	Huawei Technologies	TS 38.212		23.10.2018
	ZTE	TS 23.292		24.10.2019
	InterDigital	TS 23.502		30.09.2021
	Innovative Sonic	TS 38.331		09.07.2020
	Samsung Electronics	TS 38.321		23.08.2019
	Guangdong Oppo	TS 38.331		25.05.2021
	Nokia Technologies	TS 33.220		29.10.2018
	Xiaomi	TS 24.008		05.06.2020
	QUALCOMM	TS 38.473		16.03.2018
	Conversant Wireless	TS 24.008		21.08.2018
	BlackBerry UK Limited	TS 24.301		06.11.2014
	Core Wireless	TS 24.301		09.06.2017

Patent Declaration Practices

- **Specific declarations with all details**

Publication Number	Declaring Company	Standard Document	Section Number	Declaration Date
US8837381B2	Ericsson	TS 38.213 v17.1.0	10.2A	19.05.2017

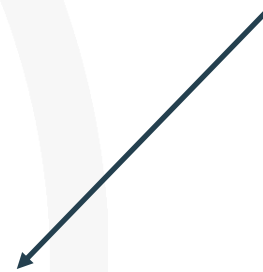


Publication Number	First Applicant/As signee	Assignee Highest Parent	Inventor(s)	Publication Date	Application Date	Expiration Date	CPC/IPC	Active (not lapsed or expired)	Granted	Litigation Case Name	Litigation Filed Date
US8837381B2	Ericsson	Ericsson	ENGLUND EVA	16.09.2014	27.09.2007	14.10.2030	H04W72/14	true	true	Ericsson Inc., LM Ericsson Telefonaktiebolaget (publ) v. Apple Inc.	2015-02-26

Patent Declaration Practices

- **Specific declarations with all details**

Publication Number	Declaring Company	Standard Document	Section Number	Declaration Date
US8837381B2	Ericsson	TS 38.213 v17.1.0	10.2A	19.05.2017



Standard Document ID	Standard Project	Technology Generation	Releases	Committee Groups	ISLD	Pooled?	FRAND	Reciprocity
TS 38.213 v17.1.0	3GPP NR Rel 17	5G	Release 17	RAN1	ISLD-201704-009	not true	true	true

Patent Declaration Practices

- **Specific declarations with all details**

Publication Number	Declaring Company	Standard Document	Section Number	Declaration Date
US8837381B2	Ericsson	TS 38.213 v17.1.0	10.2A	19.05.2017

Publication Number

US8837381B2

CLAIM 13



13. A user equipment (UE) for providing channel state feedback from the UE to a base station, the UE comprising: a determining unit configured to determine whether the UE has received an uplink grant from the base station; and a transmitting unit configured to transmit a first type of channel state feedback information to the base station on the granted resource when the UE has received an uplink grant, wherein the first type of channel state feedback information is a high-resolution type, and a second type of channel state feedback information on a dedicated resource when the UE has not received an uplink grant, wherein said second type of channel state feedback information is a low-resolution type, using a smaller number of bits than the first, high-resolution type.

Standard Document Id

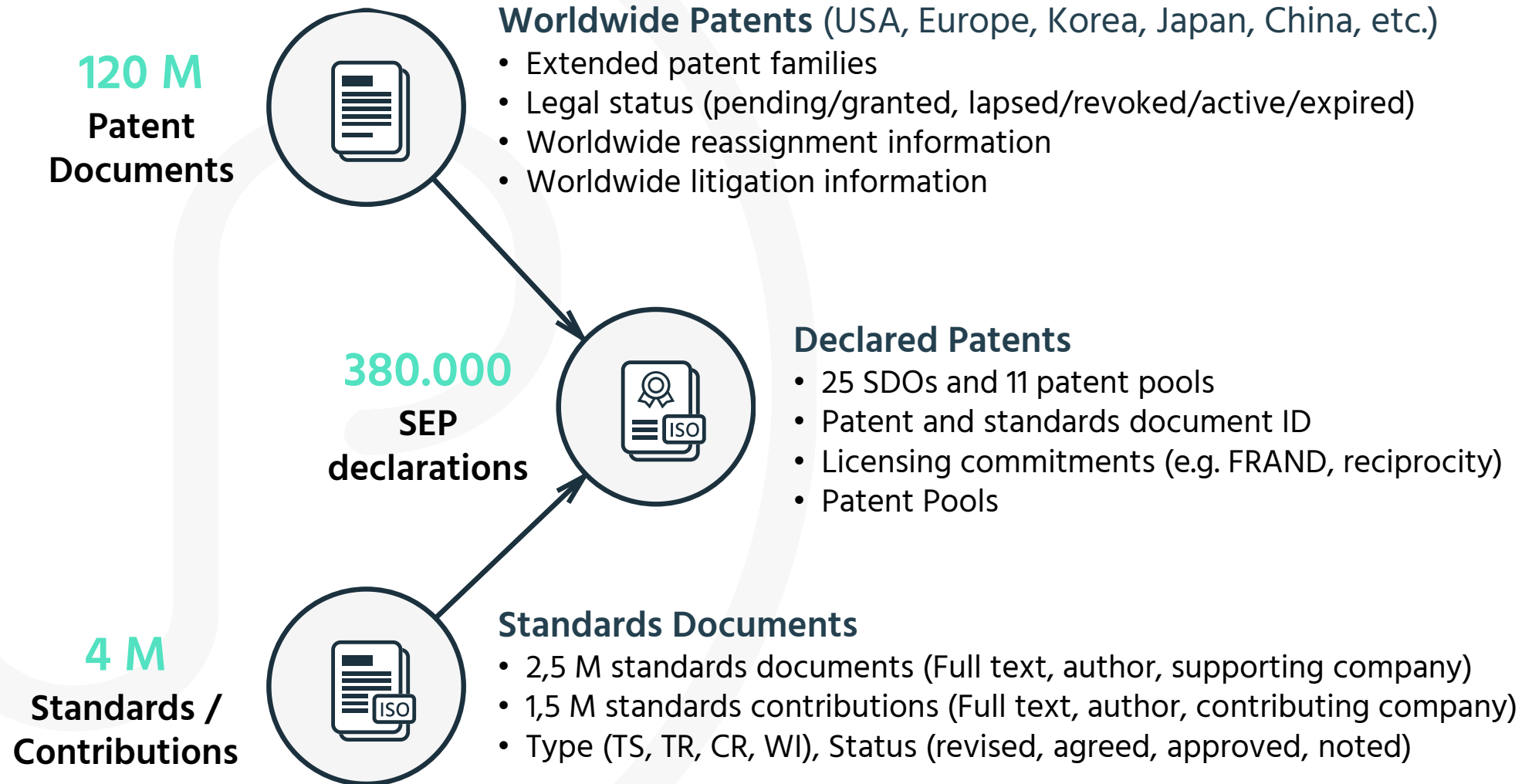
TS 38.213 v17.1.0

SECTION 10.2A

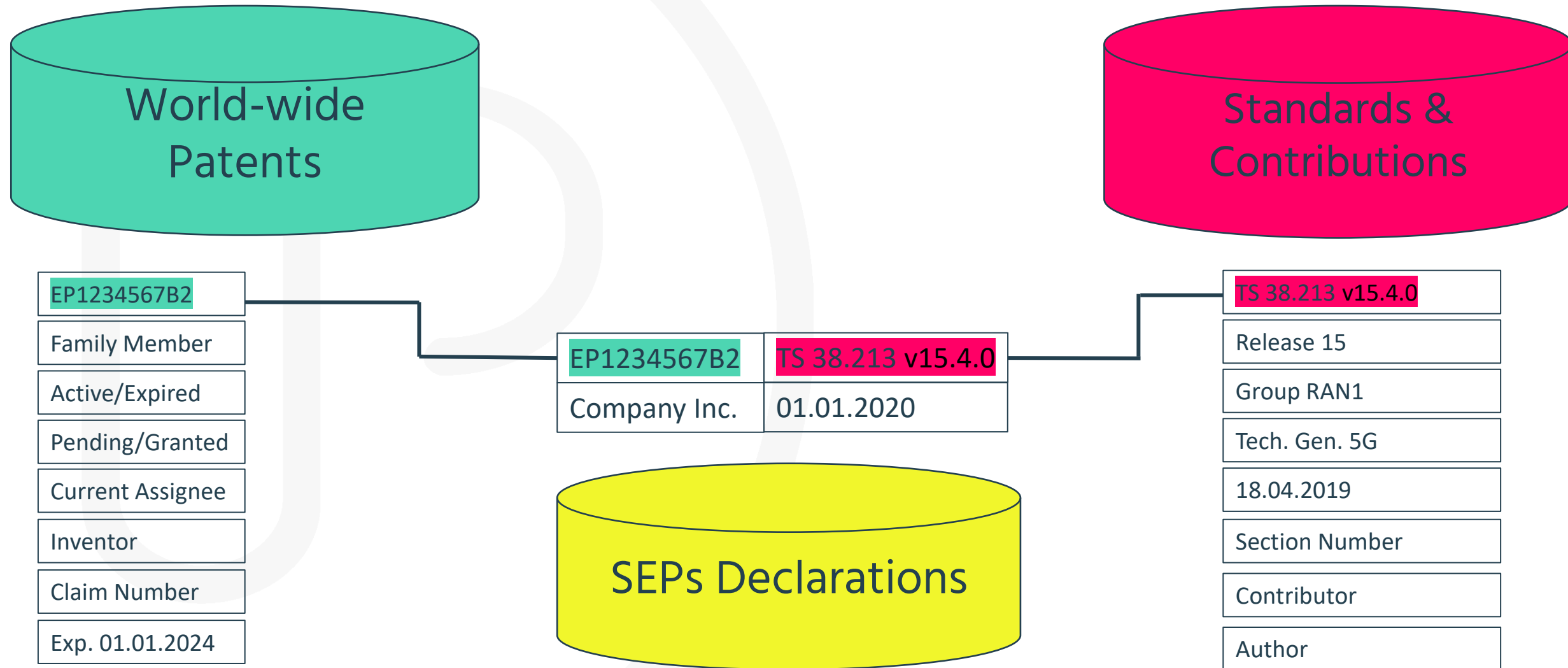


A UE validates, for scheduling activation or scheduling release, a SL configured grant Type 2 PDCCH if - the CRC of a corresponding DCI format 3_0 is scrambled with a SL-CS-RNTI provided by sl-CS-RNTI, and - the new data indicator field in the DCI format 3_0 for the enabled transport block is set to '0' Validation of the DCI format 3_0 is achieved if all fields for the DCI format 3_0 are set according to Table 10.2A-1 or Table 10.2A-2. If validation is achieved, the UE considers the information in the DCI format 3_0 as a valid activation or valid release of SL configured grant Type 2. If validation is not achieved, the UE discards all the information in the DCI format 3_0. ETSI ETSI TS 138 213 V17.1.0 (2022-05)1603GPP TS 38.213 version 17.1.0 Release 17 Table 10.2A-1: Special fields for SL configured grant Type 2 scheduling activation PDCCH validation DCI format 3_0 HARQ process number set to all '0's Table 10.2A-2: Special fields for SL configured grant Type 2 scheduling release PDCCH validation DCI format 3_0 HARQ process number set to all '1's Frequency resource assignment (if present) set to all '1's

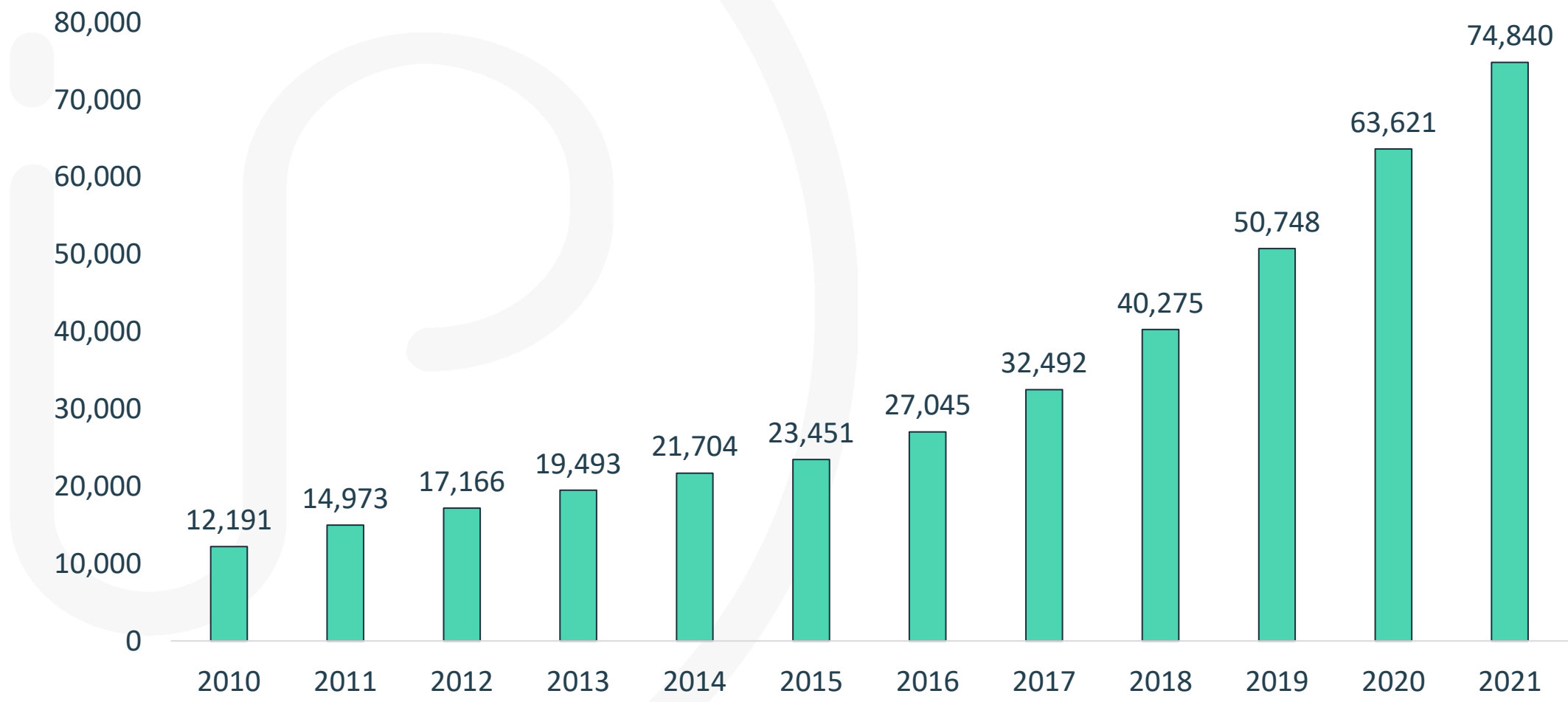
IPlytics Data Source



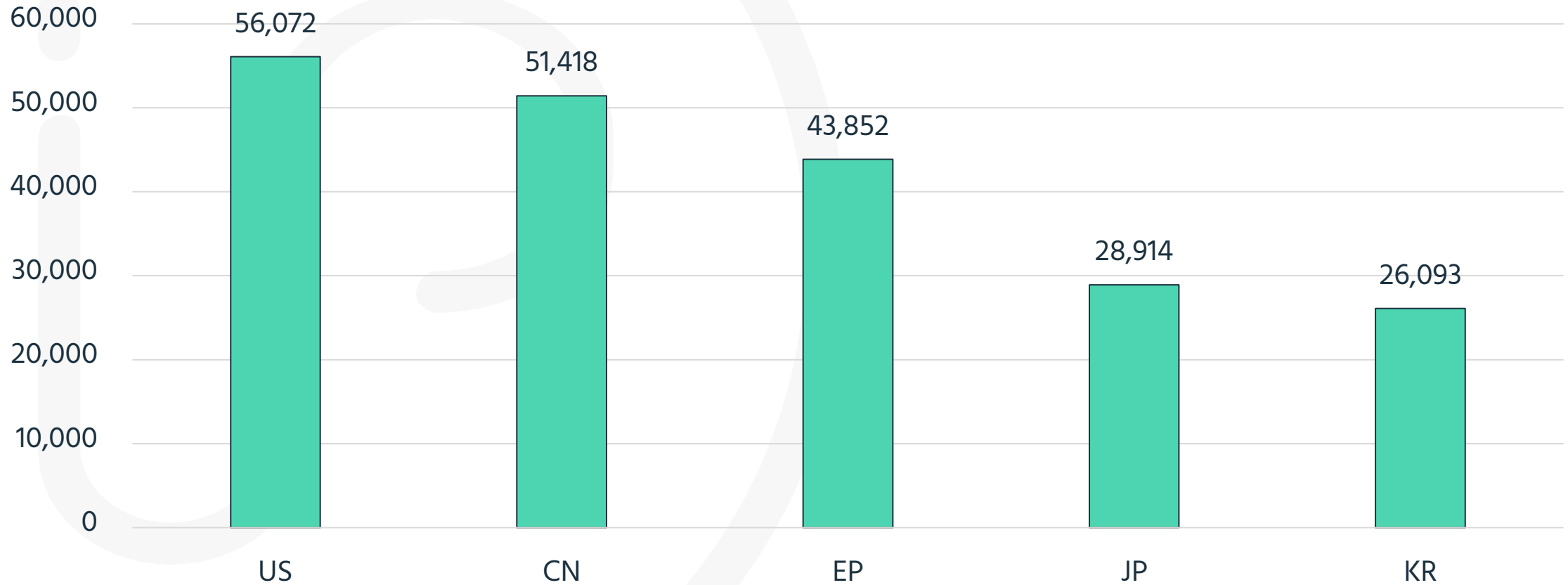
Data Sources



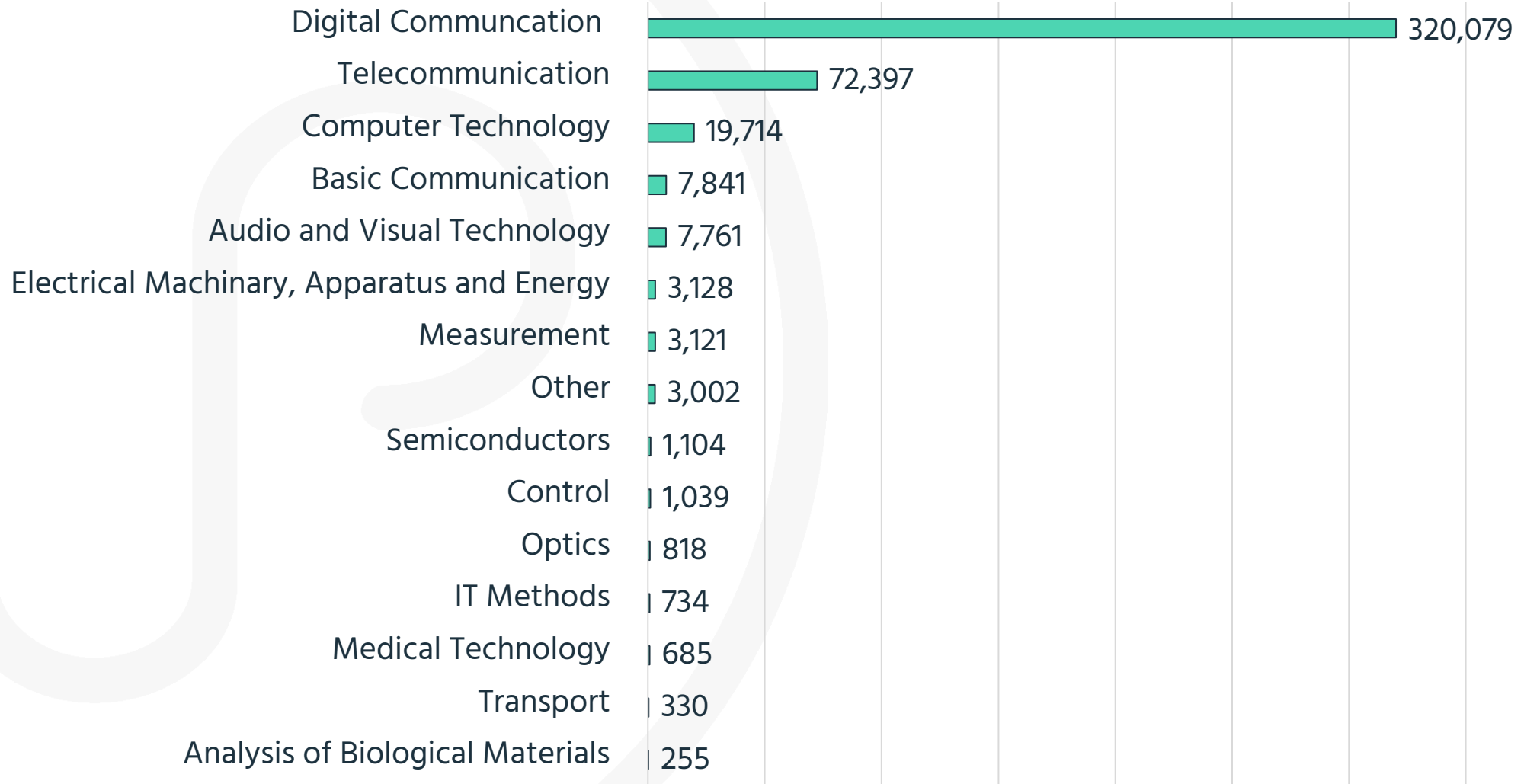
Patent family declarations by year of declaration



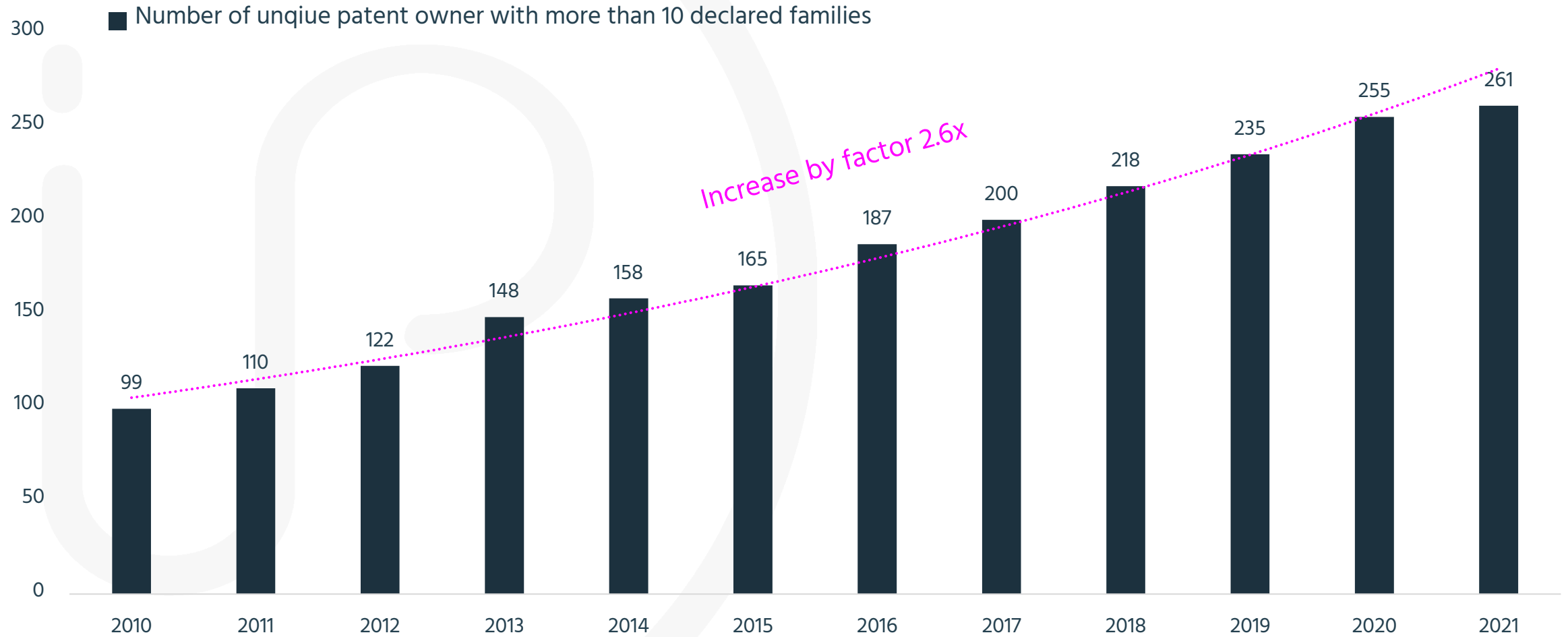
Patent declarations by patent office



Patent declarations by technology/industry



➤ Number of unique SEP holders over time increase

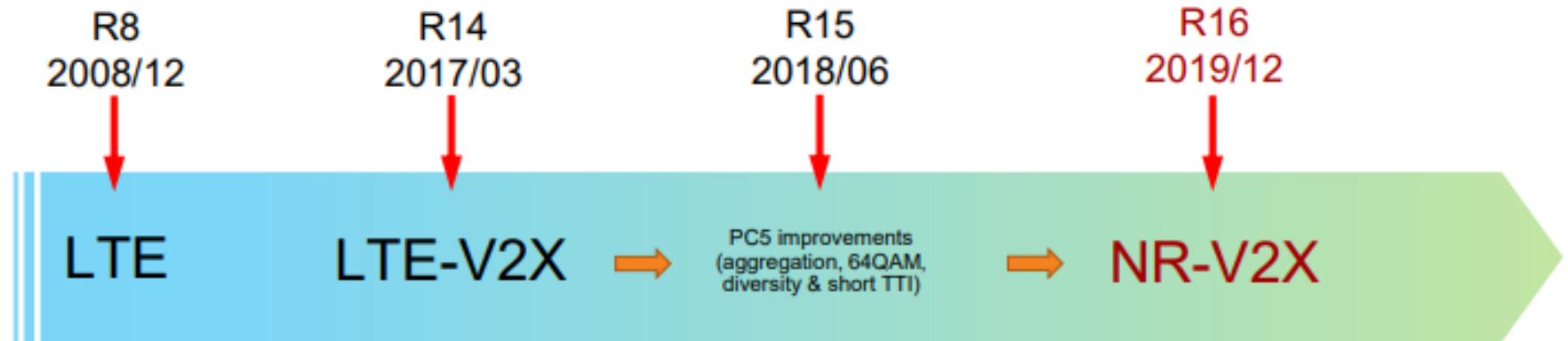


Source: <https://www.iptytics.com/report/rise-standard-essential-patents/>

How to identify main SEP holders for a specific standards application e.g. V2X?



- ❑ Current version of C-V2X is called **LTE-V2X** as part of 3GPP Rel-14 & 15
- ❑ **NR-V2X** as part of Rel-16 comes as an improvement to support autonomous driving
- ❑ NR-V2X will **complement and co-exist with** LTE-V2X i.e. operation of NR-V2X alone is not considered.



- ❑ NR-V2X **study item** started in **June 2018**.
- ❑ Subsequent NR-V2X work item by **December 2019**.

➤ V2X Technical Specification (TS) and V2X Technical Reports (TR)

V2X Technical Specification	V2X Technical Reports
TS 22.185	TR 22.885
TS 23.285	TR 36.785
TS 23.286	TR 22.886
TS 24.385	TR 37.985
TS 24.386	TR 23.786
TS 29.388	TR 38.885
TS 29.389	TR 38.886
TS 24.486	TR 23.776
TS 33.185	
TS 33.536	
TS 22.186	
TS 23.287	
TS 24.587	
TS 24.588	
TS 29.486	
TS 36.300	
TS 38.300	
TS 38.101	
TS 38.331	



III Pitfalls when analyzing and counting declared SEPs



Patent declarations may be declared more than once!



Common pitfalls when analyzing and counting declared SEPs

Redeclaration of patents

- Companies may “**re-declare**” patents they have already declared a years ago.
 - Some patents’ claims are relevant across different generations of standard e.g. 4G as well as 5G. These patents may be again declared to a new standard version or generation.
 - Sometimes patent ownership changes and the new owner again declares the patent.
- The “**re-declaration**” of patents e.g. across different generations of standards or across different patent owners **may cause double counting of patents.**

SEP declaration- the matter of redeclaration

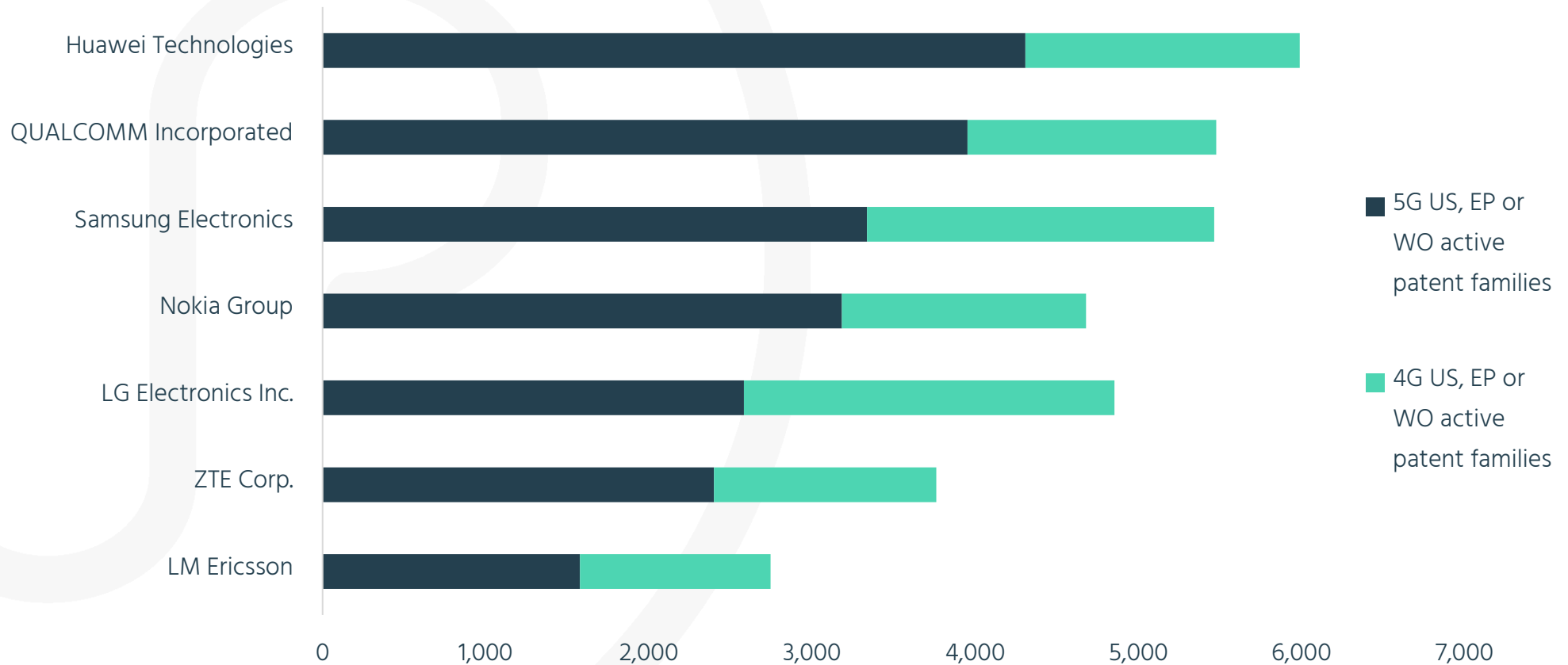
<input type="checkbox"/>	Publication No. ↕	Title ↕	Decl. Da... ↕	Standard Doc. ... ↕	SSO ↕	Technology
	US7657634B2	Quality of service support at an interface between mobi...	2018-09-15	TS 138 300 (RTS/T...	ETSI	5G
	US7657634B2	Quality of service support at an interface between mobi...	2018-09-15	TS 138 331 (RTS/TS...	ETSI	5G
	US7657634B2	Quality of service support at an interface between mobi...	2018-09-15	TS 38.331 v15.2.0	ETSI	5G
	US7657634B2	Quality of service support at an interface between mobi...	2018-09-15	TS 38.300 v15.2.0	ETSI	5G
	US7657634B2	Quality of service support at an interface between mobi...	2013-12-02	TS 36.331 v8.8.0	ETSI	4G

Patent declared to 5G in 2018

Patent declared to 4G in 2013

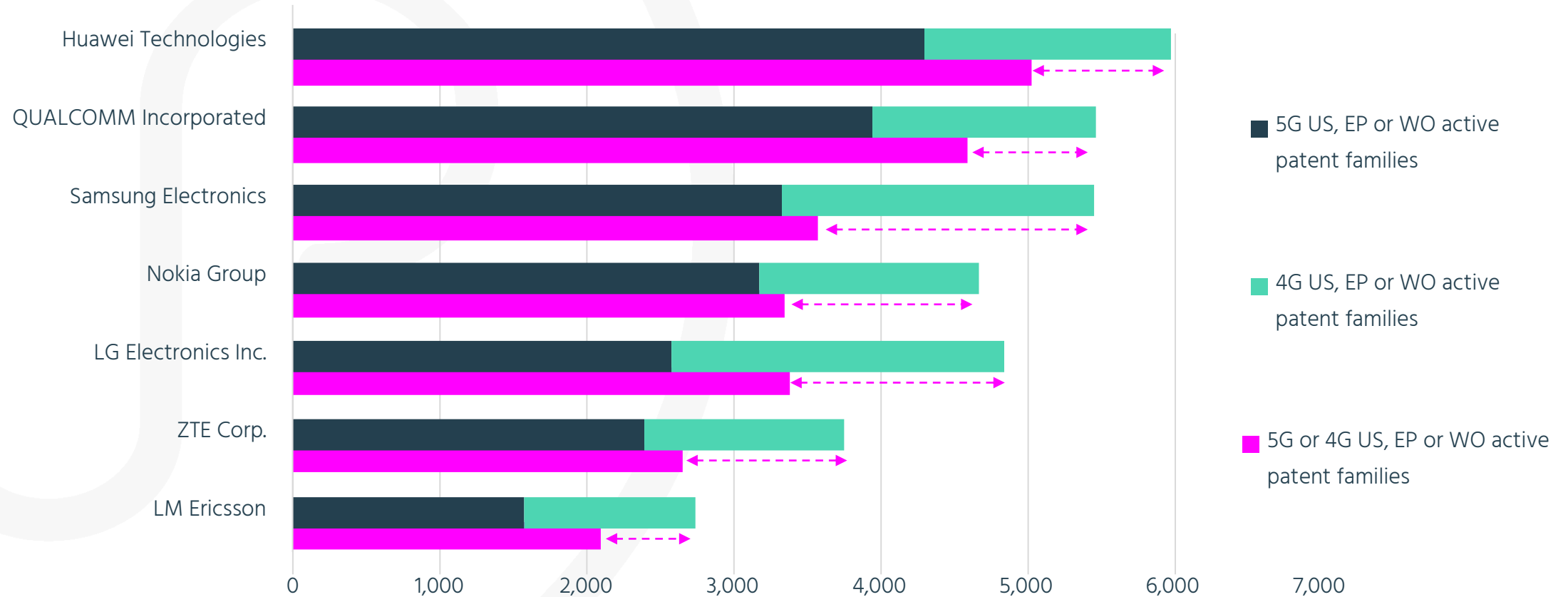
SEP declaration- the matter of redeclaration

4G vs 5G declared double counted patent families



SEP declaration- the matter of redeclaration

4G vs 5G declared uniquely counted patent families



SEP declaration to multiple standards

- The patent has been declared at **3 different SSO databases**
- The patent has been declared at **4 different standards**
- The patent has been declared at **9 different releases**
- The patent has been declared at **7 different technical specs**

Declaration Overview	
Publication Number	SE198800698D0
Standard Setting Organization	ARIB ETSI ITUR
Standard Project	UMTS M.1225 LTE IMT-2000 MC-CDMA System
Technology Generation	4G
Releases	Release 8 Release 13 Release 12 Release 9 Release 11 Release 10 Release 16 Release 15 Release 14
Groups	RAN3
Standard Document Id	M.1225 TS 136 440 (DTS/TSGR-0336440v900) v9.0.0 TS 136 300 (RTS/TSGR-0236300v920) v9.2.0 ARIB STD-T64 Ver.1.30 TS 36.440 v9.0.0 TS 36.300 v9.2.0 ARIB STD-T64 Ver.1.00
Declaring Company	Telefonaktiebolaget LM Ericsson Ericsson Ericsson Inc.

How to check single patents or a list of patents?

Query Builder

Untitled Query

Edit

Code Preview

Quick Help

Select All e.g. biotech, 3D print*, car or vehicle

ANC Technology Generation Select...

ANC Current Assignee e.g. Nokia, "Volkswagen AG" OR Siemens

Add Query

Related Keywords:

Search Save Load History Reset

Visual Expert

Results: Analytics Search Data



Results: Search Data

Currently no documents visible. Please use the query builder above to construct a relevant search.

Need Help?

Filters

0 applied

<input type="checkbox"/>	ACTIVE	Yes	6
<input type="checkbox"/>	GRANTED	Yes	6
<input type="checkbox"/>	TRANSFERRED	Yes	0
<input type="checkbox"/>	LITIGATED	Yes	6
<input type="checkbox"/>	POOLED	Yes	0
>	SEMANTIC ESSENTIALITY SCORE		
>	PATENT OFFICE		

Patent declaration data
**must not be interpreted as
verified standard essential
patent data!**



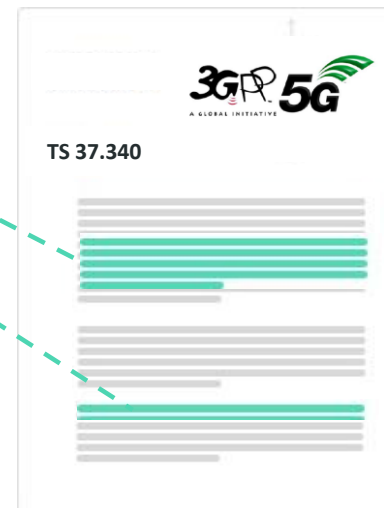
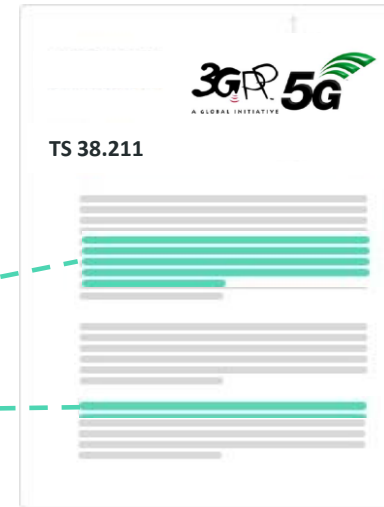
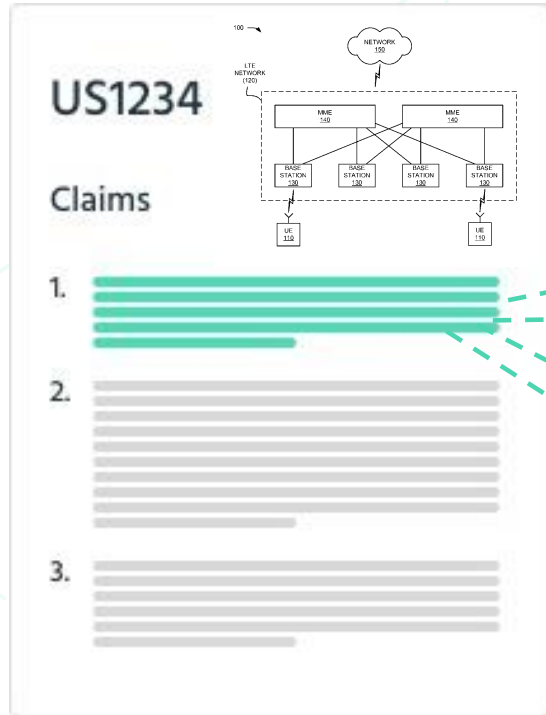
SEP Definition

*“A standard-essential patent (SEP) is a patent that **claims an invention that must be used to comply with a technical standard**”*

SEP Definition – Legal/Technical

*“A **SEP** is a patent that has at least one independent claim of which each **element** can be mapped on the standard specification.”*

SEP Definition – Legal/Technical



Patent declaration

1. A patent owner **self-declares** a patent to be potentially standard essential for the declared standard to comply with the FRAND obligation.
2. Not the SSO nor the patent owner **update** the declaration.
3. Not the SSO nor any other third party **validates** if the patent is standard essential.

SSO declaration practice: “maximal declaration” situation

- ❖ Often companies submit patent declarations when patents are **still pending**, and the standard is **still evolving**.
 - Thus, patent **claims** as well as **standards** specifications are likely **subject to change** after the declaration has already been submitted. By design of the declaration practice some of these self-declared **patents** end up being **not essential**.
 - Approximately only about 20-47% of all **ETSI** declared **2G/3G/4G** patents are essential (*Unwired Planet v. Huawei, TCL v. Ericsson*)
 - Approximately only about 10-15% of all **ETSI** declared **5G** patents are essential (*IPlytics sample data, Bird & Bird report*)

*“...in assessing a FRAND rate
counting patents is inevitable...”*

Justice Birss concludes in Unwired Planet vs. Huawei

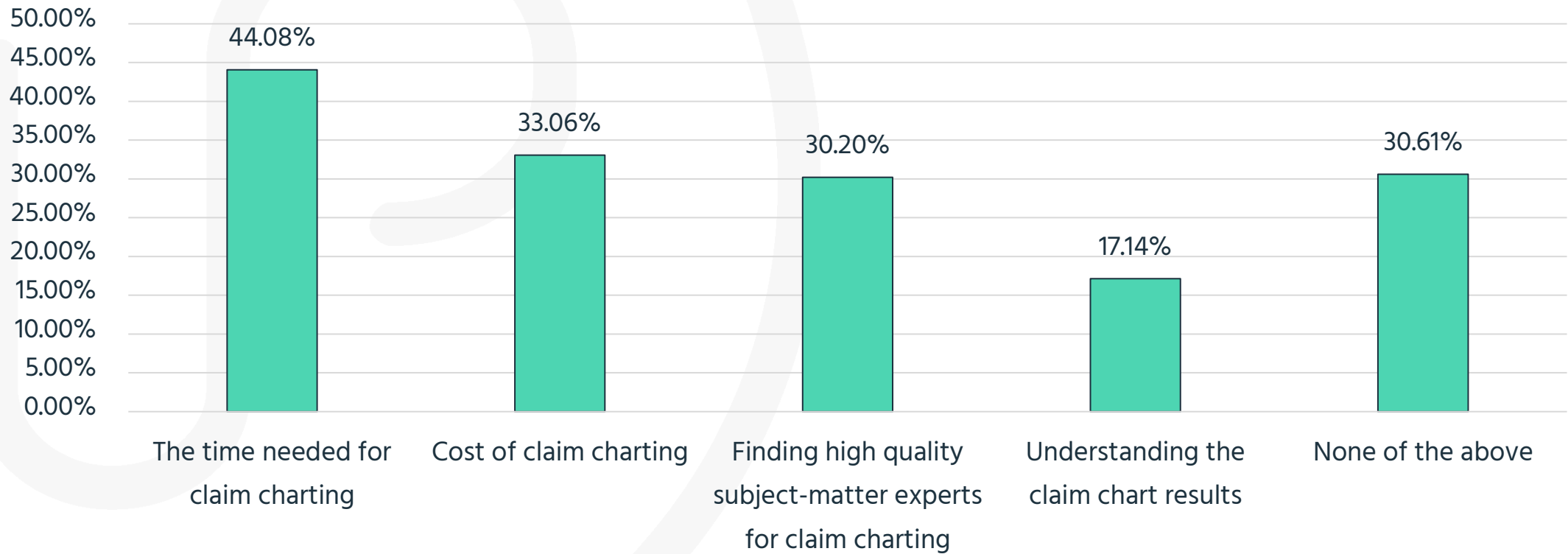
SEP determination is a challenge

- Understanding whether a patent is essential or not is **expensive** and **time-consuming** requiring:
 - **SME review**, claim charting, attorney legal opinion and review is very expensive when done rigorously
 - **Slow manual human** processes - Legal teams and SMEs are limited resources
 - **Claim charting a portfolio of e.g. 200 patents takes almost a year (for one SME) and may need budgets of \$500k-\$600k for outside SME and counsel.**

SEP determination is a challenge

What is your biggest challenge with regards to SEP determination?

Multiple answers possible, N=245



SEP Claim Charting according to international experts

	SEP evaluation rigorousness level description	Average costs in €	Median costs in €	Min. costs in €	Max costs in €
A	Light SEP evaluation: Rough determination whether any TS could be relevant for given patent at all	355 €	184 €	31 €	1,285 €
B	Quick SEP evaluation: Rough determination, which TS could be relevant for which claim features of the given patent	789 €	367 €	92 €	2,753 €
C	Specific SEP evaluation: Determination of specific standard sections for each claim feature of the given patent	1,486 €	734 €	734 €	3,670 €
D	Claim chart: Specific SEP evaluation plus arguments on mapping, i.e., specific correspondence	4,159 €	3,670 €	734 €	8,808 €
E	Claim chart as to d) covering 2 different standards (e.g. 4G/5G)	6,117 €	6,239 €	4,404 €	8,808 €
F	Claim chart as to d) with potential objections on essentiality	7,095 €	7,707 €	2,936 €	8,808 €
G	Claim chart as to d) with potential objections on novelty, inventive step, and/or added subject-matter	7,860 €	8,533 €	5,872 €	8,808 €

SEP Claim Charting according to international experts

	SEP evaluation rigorousness level description	Average minutes	Median minutes	Min minutes	Max minutes
A	Light SEP evaluation: Rough determination whether any TS could be relevant for given patent at all	58	30	5	210
B	Quick SEP evaluation: Rough determination, which TS could be relevant for which claim features of the given patent	129	60	15	450
C	Specific SEP evaluation: Determination of specific standard sections for each claim feature of the given patent	243	120	120	600
D	Claim chart: Specific SEP evaluation plus arguments on mapping, i.e., specific correspondence	680	600	120	1,440
E	Claim chart as to d) covering 2 different standards (e.g. 4G/5G)	1,000	1,020	720	1,440
F	Claim chart as to d) with potential objections on essentiality	1,160	1,260	480	1,440
G	Claim chart as to d) with potential objections on novelty, inventive step, and/or added subject-matter	1,285	1,395	960	1,440

V Patent declarations and
essentiality tests
→ **Claim Chart Sampling**

Statistical Sampling Methods

- ✓ Most statisticians agree that the **minimum sample size** to get any kind of meaningful result is **100**:
 - If your SEP declaration portfolio is less than 100 assets, then you really need to claim chart all of them.
- ✓ A good maximum sample size is usually around **10% of the population**, as long as this does **not exceed 1,000**:
 - For example, in a population of 5,000 patents, 10% would be 500. In a population of 200,000, 10% would be 20,000. This exceeds 1,000, so in this case the maximum would be 1,000.
 - Claim charting more than 1,000 patents won't add much to the accuracy given the extra time and money it would cost.

Statistical Sampling Methods

- The selection of patents to be mapped followed a **Statistical Sampling Methods** (used in Political Polling) ensuring no selection bias and providing both:
 - true positive values, patents fully mapped to a standard specification (verified SEPs) as well as
 - true negative values, patents that could not be mapped to any standard specification (verified non-SEPs).
- This method ensures a **balanced training data set** randomly selected proportionally across:
 - ✓ **Patent owners,**
 - ✓ **Technology modules** (as to groups e.g. RAN1, RAN2 and so on)
 - ✓ **IPC/CPC main classes**
 - ✓ **Patent priority dates**

IPlytics 5G Essentiality Sample

- IPlytics hosts a data set of **2,000** 5G declared **patent families (EP or US granted)** mapped by independent experts.
- The claim charting followed a **double-blind checking approach** where for each patent at least 2 experts mapped the patents:
 1. **Cellular technology expert** had on average 6 hours to conduct the initial claim section mapping.
 2. **US or EP patent attorneys** had on average 3 hours to double check and verify the mapping.
- In cases of disagreement both experts set up a call to discuss and conclude on a final **mapping status**: fully mappable, partially mappable, not mappable
- In total **18,000 hours** were spent on the mapping of the 2,000 5G declared **patent families**

Level of essentiality

- a) **Full Mapped:** All the claim elements were found in the standard specification. A claim chart was made to justify that the patent is essential (100% Mapping).
- b) **Partial Mapped:** Most of the claim elements were found in the standard specification, except one or two concepts. A mapping chart was made to justify that the patent is relevant (More than 60 % Mapping).
- c) **Not Mapped:** All the claim elements were not found in the standard specification and the patent is found to be not relevant (If less than 50% Mapped).

Statistical Sampling Methods

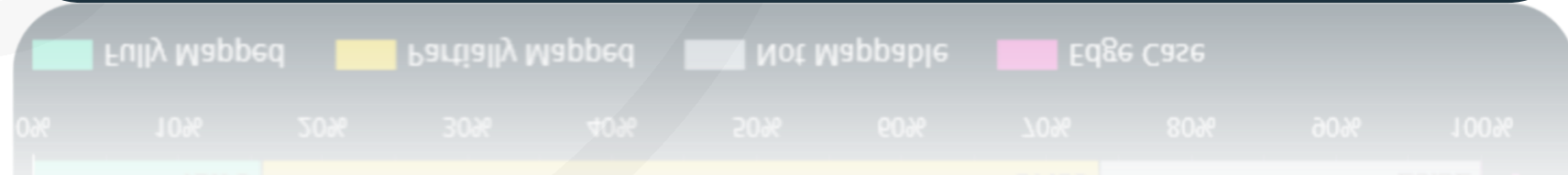
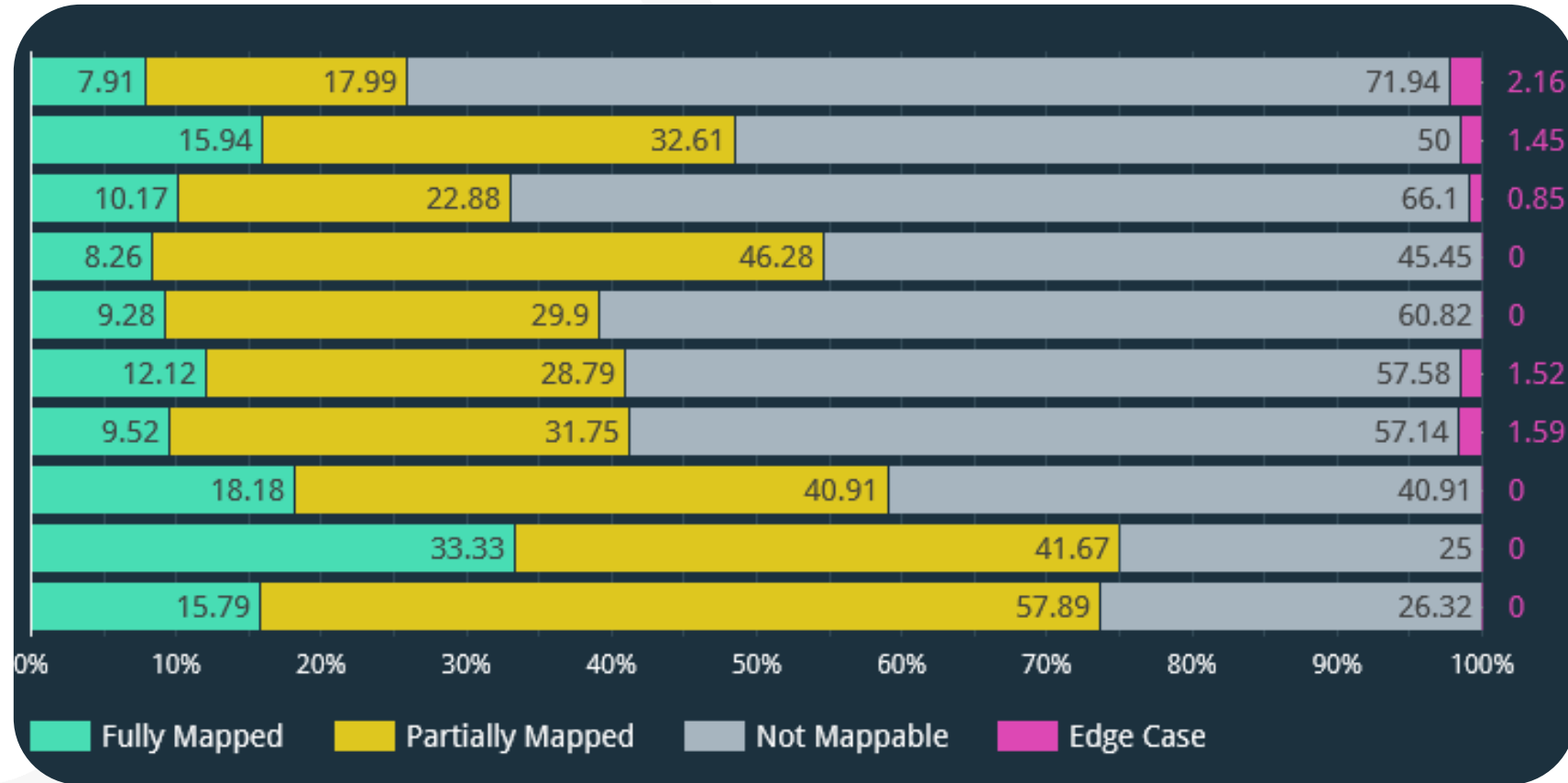
Random Sampling results:

- ✓ As to our random sampling of 2,000 5G declared EP or US granted patents we identify an overall:
 - **essentiality rate of 15% for 5G declared patents**, compared to about
 - **25% for 4G declared patents.**
- ✓ The essentiality rate very much differs across patent owners.

Random Sampling limitations:

- ✓ The essentiality rate only related to EP or US granted patents declared to 5G up until October 2021.
- ✓ Only the top 10 5G patent owner portfolios deliver accurate results as here more than 100 patents have been mapped.

Essentiality Rate Across top 10 SEP owners

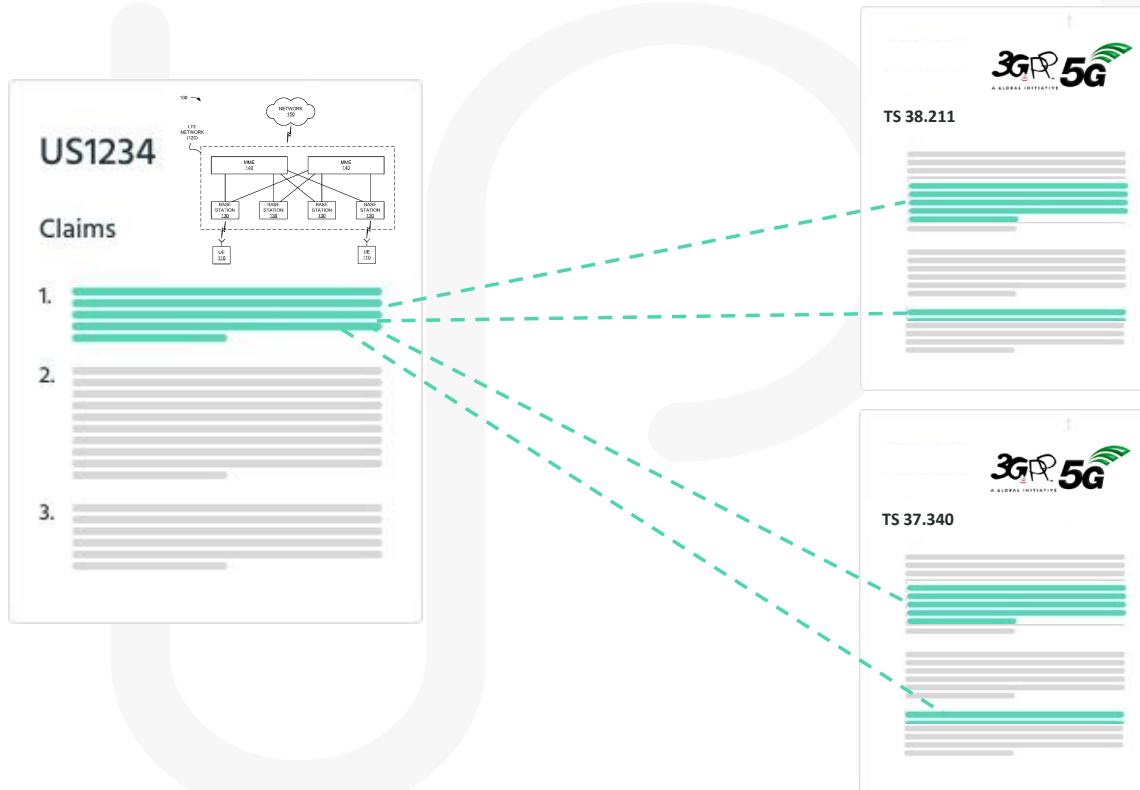


VI Patent declarations and
essentiality tests

→ **Data Driven Essentiality
Prediction**

Semantic Essentiality Scores (SES) can be a
first efficient step towards SEP portfolio
determination

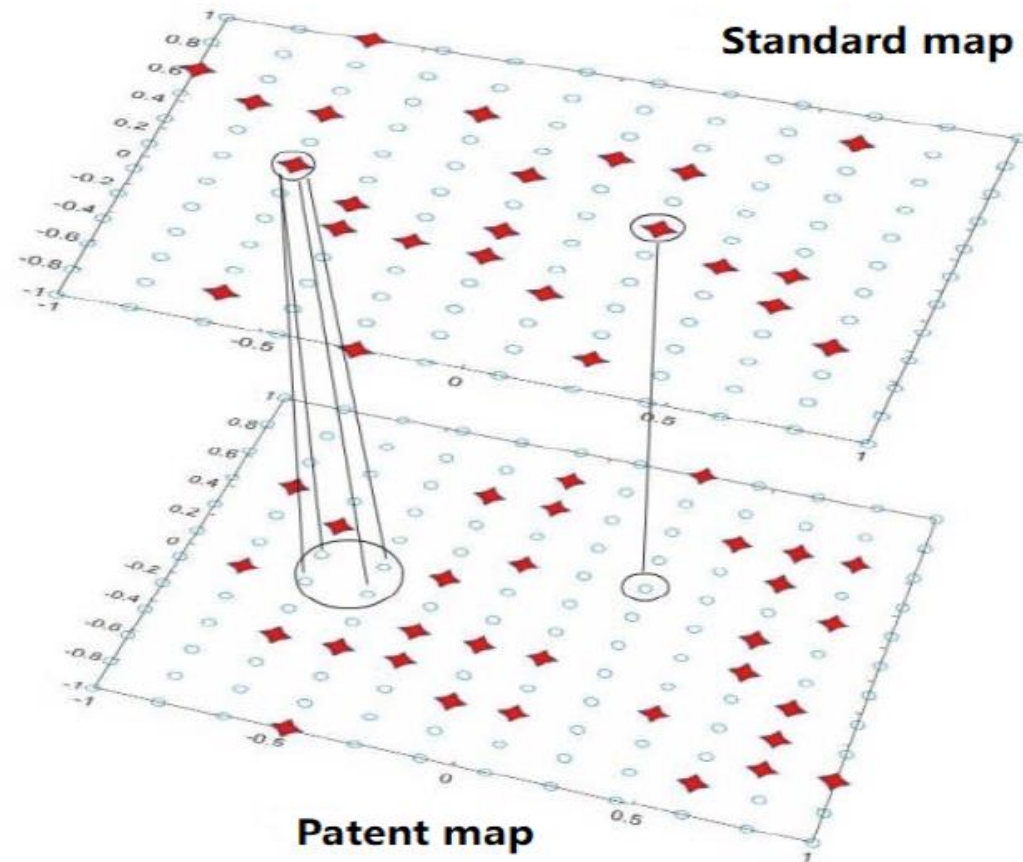
Claim language vs. standards language



Claim language and language in standard specifications may be very **different**:

- **Patent claims** are drafted by patent attorneys using **broad terminology** so that the claims apply to as many applications possible.
- **Standard specifications** or standards contributions are written by technical engineers that develop the standard and **use very specific language**.

Semantic analysis of patent claims and standards



- While claims and standards describe the very same topic and thus can be mapped and charted by experts – the **actual language used can be very different.**
- To overcome this, we **train a semantic model** that understands the context of claims and standards and recognizes the use of different expressions for certain concepts to identify claim elements.
- We use **claim charts** manually created by experts as **training data.**

SES – Patent claim and standard section side by side

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
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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.

SES – Sort and refine patents as to essentiality score

Declaring Co...	SSO	SE Publ. No.	SE Stand. Doc. ID	SE Section No.	SE Claim No.	SES		Yes	
Samsung Electronics Co. Ltd.	ETSI	US9049718B2	TS 38.322 v16.2.0	5.2.2.1	17	82%	<input type="checkbox"/>	Yes	15
Samsung Electronics Co. Ltd.	ETSI	US9049718B2	TS 38.322 v16.2.0	5.2.2.1	17	82%	<input type="checkbox"/>	Yes	15
Samsung Electronics Co. Ltd.	ETSI	US9049718B2	TS 38.322 v16.2.0	5.2.2.1	17	82%	<input type="checkbox"/>	Yes	0
InterDigital Holdings, Inc.	ETSI	US9641655B2	TS 38.322 v16.2.0	5.4	6	80%	<input type="checkbox"/>	LITIGATED	Yes 1
Samsung Electronics Co. Ltd.	ETSI	US10805048B2	TS 38.322 v16.2.0	5.6.1	5	79%	<input type="checkbox"/>	POOLED	Yes 0
Samsung Electronics Co. Ltd.	ETSI	US10602563B2	TS 38.322 v15.5.0	5.2.2.1	1	81%	ESSENTIALITY SCORE 62-100% 0% ————— 50% ————— 100% 62 ————— 100		
Samsung Electronics Co. Ltd.	ETSI	US10602563B2	TS 38.322 v16.2.0	5.2.2.1	1	81%	0 documents without Essentiality Score		

Connecting the data points

Correlating patents and standards – **First Applicant Contributor** comparison

- First applicant (**Company Inc.**)
- US1234567B1 declared to TS 38.473 - RAN3
- Contributor (**Company Inc.**)
- Submitted accepted and approved contribution for TS 38.473 at RAN3 meeting



Connecting the data points

Correlating patents and standards – **Inventor Attendee comparison**

- Inventor (Peter Brown, Company Inc.)
- US1234567B1 declared to TS 38.473 - RAN3
- Attendee (Peter Brown, Company Inc.)
- Attended RAN3 Meetings



Connecting the data points

Scoreboard to valuate declared patents:

- Claim sections similarity, inventor attendee overlap, first applicant contribution overlap, FWD citation, NPL citation, timing and classification.



How to use SES to value SEP portfolios?

VII How to make use of IPlytics across departmental

SEP licensors (patent owners)

SEP **licensors** use of IPlytics Platform:

- Align R&D investments, standards development, patent prosecution, patent portfolio management and licensing/monetization strategy to **file valid and essential patents** and to **commercialize SEPs** in world-wide licensing campaigns.
- Compare SEP portfolios for **cross-license** negotiations and **monitor competition** making sure to sustain revenues both on the downstream product market as well as upstream licensing market.
- Monitor **competitors' standards development** investments (contribution count) and identify new standards groups to maintain leading positions in standards development.



Use Cases

Patent portfolio manager:

- Compare and value your portfolios against competitors
- Identify strength and weaknesses to further develop your portfolio
- Support keep/kill decisions in patent portfolio pruning analysis



Licensing executives / deal maker:

- Find gold nuggets in your portfolio to prepare licensing negotiations
- Identify patent portfolios to commercialize/license or use for acquisition
- Use SES to weed out 'weaker' patents, focusing resources on higher ranked patents



SEP licensees (standards implementers)

SEP licensees use of IPlytics Platform:

- Value and determine SEP portfolios offered for license. Prepare for **FRAND negotiation**. Identify the numerator and denominator to measure the patent holder's market share.
- **Identify standards subject to SEPs** in the complex value chain of suppliers as SEP holder approach OEMs or at least Tier 1 supplier
- Monitor SEP filing, SEP change of ownership and litigation to **quantify risks and plan royalty payments**.
- **Identify** industry related (e.g. V2X or M2M) **standards development initiatives** to have a seat at the table when future connectivity technology is developed.



Use Cases



Strategic IP attorneys / legal divisions:

- Use IPlytics PES in discovery
- Use PES before claim charting/review to focus on most important patents first
- Make use of objective data to consider for FRAND preparation, negotiations, argument formulation



Licensing executives / deal maker:

- Use IPlytics to prepare for FRAND negotiations
- Use IPlytics to understand the share of third-party SEP portfolios
- Identify litigation trends in your industry for standards you integrate

Iplytics Europe and US

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

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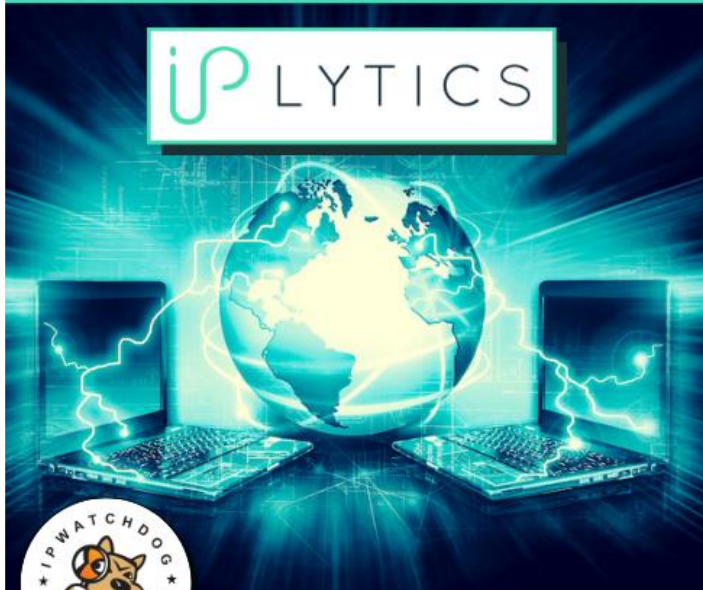


Hannah Kim
BD Manager
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M 82-10-4650-3240

Meet the IPlytics team in person

- ❖ [LES Annual Meeting](#) in San Francisco **USA**, Oct. 16th-19th, 2022
- ❖ [Global FRAND Symposium](#) in Palo Alto **USA**, Oct. 21st, 2022
- ❖ [IPBC Asia](#) in Tokyo **Japan**, 31 October -2 November 2022
- ❖ [Patent Information Fair & Conference](#) Tokyo **Japan**, 9th-11th November 2022
- ❖ [IPWatchdog Masters Standardization & Patents](#) in Ashburn Virginia **USA**, Nov. 14th ,2022

HOW TO NAVIGATE THE RISKS OF SEP LICENSING AND SEP LITIGATION



JOSUE ORTIZ-RAMIREZ



CLAUS MELARTI



BRIAN HINMAN



TIM POHLMANN



GENE QUINN

TUESDAY, OCTOBER 11 @ 12 PM ET

REGISTER

TUESDAY, OCTOBER 11 @ 12 PM ET

REGISTER



The
SEP
Couch

with Tim Pohlmann

Contact

Questions?

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