SEP & FRAND discussions in 2022 - A Year In Review

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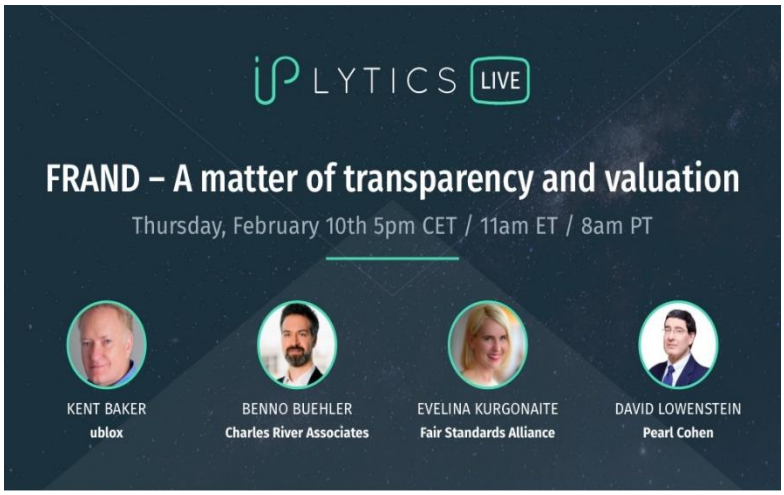
The topics around SEPs and FRAND also dominated IP conferences, webinars, or symposiums in the year 2022. While many panel discussions covered similar topics as in the year before, discussion in the year 2022 in most cases was always in relation to the industry where standards subject to SEPs were implemented. May that be for smart phones and updates of new 5G licenses or across industries such as automotive, energy, home appliances, or the application in various IoT use cases. This article is a summary of SEP and FRAND discussions during conferences, webinars or symposiums that took place in 2022.

A matter of transparency – contradicting perspectives from net-licensees & net-licensors

The wide use of connectivity technologies has become crucial across many industries. New industry applications implement standards for specific use cases including V2X (vehicle to X), M2M (machine to machine), NB-IoT or LTE-M, relevant for a diverse set of IoT (Internet of Things) applications. Standards projects such as 4G, 5G, Wi-Fi or HEVC/VVC are subject to tens of thousands of SEPs (standard essential patents). But not all cellular or wireless SEPs are essential for all use cases

Starting off 2022 IPlytics organized two virtual panel discussions. One panel representing the views and interest of standards implementers (Kent Baker, ublox, Benno Buehler, Charles River Associates, Evelina Kurgonaite, Fair Standards Alliance, David Lowenstein, Pearl Cohen.) and one panel with invited experts representing SEP owners (Speakers: Bowman Heiden, Professor at CIP and Berkeley, Clemens Heusch, VP Litigation at Nokia, Jorge Padilla, Senior Director at Compass Lexecon, Richard Vary, Partner at Bird & Bird). Standards implementers argue that there is a lack of transparency. In their view SEP owners often declare patents years after publication and standards release with no information about specific standard versions or sections that are so important to distinguish use cases (such as V2X, NB-IoT or LTE-M) and the actual implementation of a standard subject to SEPs. Also, they argue SEP owners often do not disclose all SEP license agreements during bilateral FRAND negotiations to compare the rate in the industry.

Figure 1: IPlytics Webinar 2022 - [FRAND – A matter of transparency and valuation]



On the other hand, SEP owners argue that providing more patent declaration details is not only burdensome for their internal experts it's also a matter of timing where patents are yet pending, standards not final and even once that is the case claims may still change due to oppositions or PTAB.

Figure 2: IPlytics Webinar 2022 - [What do FRAND experts think of SEP valuation?]

Also, early declaration as e.g. as stated by ETSI in a "timely manner" is only possible when SEP owners declare without charting patents beforehand and when only providing broad information like a patent application number and a broader standard project or release. By design this results in what people consider "over-declaration". With regards to disclosing SEP license contracts, SEP holders argue that these are under strict NDAs. Also, SEP owners fear a cherry-picking approach, where implementers would choose and pick the most favorable terms from all disclosed contracts. Also, transparency is not a one-way

street. Also, implementers sometimes are not willing to provide information e.g. on their product sales activities or at least cover them with extensive NDAs that again prevent to share SEP licensing agreements with others.

FRAND negotiation seems to create issues on both sides of the tables. Implementers feel that they are often is the dark and fear to agree to terms where they eventually pay more than their competitors. SEP owners on the other hand criticize that some implementers are not willingly join real negotiations, delaying the process which makes SEP owners wait for several years without receiving any royalties. The most drastic and probably unexpected outcome of a FRAND dispute in 2022 was the decision by Oppo and its subsidiary OnePlus to stop selling smartphones and smartwatches through their German online stores. The product withdrawal followed defeats in two SEP cases at the Regional Court Munich. In other words, OPPO decided to rather not pay FRAND royalties, than selling its products in Germany. However, OPPO's withdrawal from the German market has been described as temporary with no official date set for the return of OPPO's products. Presumably it depends on what happens in litigation, especially but not only in the dispute with Nokia.

A matter of when and where – Why SEP portfolio size is dynamic

In the year 2022, 56,000 new patents were declared breaking down to 16,000 newly declared patent families (as to the IPlytics database). Overall, this results to a total number of 448,361 worldwide declared patents breaking down to a total of 87,153 worldwide declared patent families. 73% of the declared patent families have been granted in at least one jurisdiction. ETSI alone published over 3,000 new standard documents and over 100,000 new standards contribution documents in the year 2022. The numbers show that the overall number of patent declarations well as the development of standards is ongoing and very dynamic.

The challenge with SEPs is that there are always two moving targets: the pending patent with changing claims and the standard subject to new versions until a new release crystallizes. Therefore, SEP portfolios are dynamic in size, legal status, and market share because: Patents may expire, lapse, or be revoked or invalidated, reducing the portfolio

size; Patents are filed and pending patents are granted, increasing the portfolio size; and the change of patent ownership (SEPs are twice as likely to be subject to a change of title than other patents) may decrease or increase SEP portfolio size. When it comes to standards, new versions are published, where newly integrated sections are eventually fully mappable to patent claims that were not essential before. At the same time, new approved and accepted standards contributions are subject to newly filed SEPs that increase the overall stack of SEPs per standard.

The dynamics of patent portfolio valuation were discussed in a panel hosted by Licensing Society Annual Meeting in San Francisco in October 2022. The panel presented a multi-disciplinary view of the challenges of promoting innovation through standards that fairly rewards innovators and incentivizes implementers. The discussion included the use of advanced data and analytics as they are being used in FRAND negotiations. Among the panel experts were Taraneh Maghamé, founder Maghame IP Consulting PLLC, Tim Pohlmann, CEO IPltytics GmbH, David Yurkerwich, Senior Managing Director Ankura Consulting Group and Xuyang Zhu, Senior Associate at Taylor Wessing LLP.

Figure 3: Licensing Society Annual Meeting San Francisco 2022 Panel Discussion

The overall number of active and valid SEPs for a specific standard (in a fraction analysis the denominator) is subject to change as well as the SEP owner's SEP portfolio (in a fraction analysis the numerator) which changes the market share (numerator over denominator). Understanding the SEP portfolio market share thus always requires access to patent declaration data, to identify the patent and standards identification number; patent data, to identify the legal status (lapsed, expired, active, revoked or abundant) and

change of title across all jurisdictions and corporate tree data (to consider M&A activities); and standards data, to identify the approval of contributions, freeze of standards releases and publication of new standards versions.

A matter of SEP essentiality – A big data problem?

A discussion that dominated the year 2022 was about how to determine the essentiality of large SEP portfolios. Publicly self-declaring all potentially essential patents for a given standard is an important part of company's obligation under standard setting IPR policies and allows ensuring that all potential SEPs are subject to a FRAND commitment. Still, such patent declarations must not be confused with verified SEPs. Self-declarations of SEPs however may not provide reliable information on whether a license is required. Several studies indicate that only a fraction of the declared patent families is essential. Declarations are often insufficiently specific to support the work of technical experts tasked with verifying whether patents are standard essential. To check the actual essentiality of a patent, one would need the version of the relevant specifications, and the specific sections thereof to which the patent most specifically relates. Ideally, the expert would also need the specific claims of the patent which are believed to be potentially essential.

A panel during the IAM SEP Summit 2022 discussed the empirical approaches for the determination of SEPs.

Figure 4: IAM SEP Summit 2022 Panel Discussion on empirical Top-Down approaches

Tim Pohlmann moderated the session with, Elisabeth Opie, International Technology Lawyer Opie, John Sideris, Principal Licensing Counsel Philips, Ran Xu, General Manager of Corporate Business Development and IP Strategy Xiaomi Group. The experts discussed approaches of how to make use of data during FRAND negotiations.

A recent study shows that only 7.2% of the patent declarations at ETSI specify a section number. 5G alone is currently subject to about 40,000 declared granted patent families and 1,200 standards specification documents (not even considering all versions) that on average have between 98-671 pages and 80-350 different sections. Subject matter experts must read through all documents to identify relevant sections to be mapped to relevant claims. Here it is not only difficult to find the right experts for claim charting, but the hourly rates can be as high as 500€ outside of litigation (technical expert witnesses often request even higher rates during litigation). A recent survey showed that claim charting challenges are not only about the budgets. The experts surveyed were both working for SEP holder as well as SEP implementers and here the majority of the surveyed experts reported that the time needed for claim charting is the most challenging part. Indeed, subject matter experts may need more than one day just to conduct one claim chart. If that expert works alone, claim charting a portfolio of 300 patents may need a whole year. While maybe larger teams of claim charting experts provide faster result, surveyed experts reported to have difficulties with finding such experts and that limited budgets to be spent on claim charting also creates challenges.

An IPWachtdog webinar invited experts such as Hon. Theodore Essex, Judge, U.S. International Trade Commission (ret.) and presently Senior Counsel at Hogan Lovells in Washington, D.C. as well as Shawn Ambwani COO at Unified Patents and Tim Pohlmann CEO at IPlytics in a wide-ranging conversation moderated by Gene Quinn (IPWatchdog) how semantics patent claim standard section comparisons may support essentiality checks of thousands of patents. Semantic based algorithms and AI base SEP prediction have started to support the process of understanding how patent claims relate to specifications for standards such as 3G, 4G, 5G, Wi-Fi and HEVC/VVC to determine essentiality rates of larger SEP portfolios without spending weeks or months and staggering sums of money on manual reviews by technical SMEs and counsel. The industry understands experts spending significant amounts of time on claim mapping are currently

more accurate than AI prediction models. Here patent claim construction is a very complex undertaking, and it needs the expert's abstract understanding of the standardize technology. AI SEP determination is not yet intended to replace experts, but to support them when manual claim charting is economically unfeasible. One example of an AI-based SEP prediction model being used today is to allow a patent portfolio manager to understand how a portfolio including thousands of self-declared SEPs compares to a similar sized portfolio of a competitor.

Figure 5: IPWatchdog Webinar 2022 – Using AI to Evaluate a SEP Portfolio

Patent essentiality checks differ from patent infringement analysis because patent infringement depends on the specific implementation of a standard in a device. Here, not every device category needs to incorporate all the elements of a standard. It depends on whether the patent in question is only essential to an optional or a normative feature which may or may not have been implemented in the device. With the application of standards such as 4G and 5G across different industry verticals some use cases may e.g. not require all technical specifications of 4G or 5G. E.g. the mobile's device-to-device communication features of LTE are specifically aimed at public safety applications, hence irrelevant to a smartphone. Another example is that Machine Type Communication devices cannot use high end 5G features and thus will not need such patented technology in a 5G implementation. Same as SEPs essential to base stations may or may not be used in a smartphone.

The 5G standard will have an increasing number of application layers compared to LTE, the essentiality check of patents will depend very much on how the 5G technology

specifications are implemented (for example in a vehicle compared to a smart phone or smart meter). Various subject matter experts state that with an increasing number of 5G implementations for different use cases, claim charting must consider these use cases and thus the different implementations of a standard.

A matter of SEP value – How to measure patent value?

After a pause of almost 3 years the UCL Institute of Brand and Innovation Law held their 6th conference on Patents in Telecoms in London on 26 & 27 May 2022. The event like in the previous years gathered the who the who of the European SEP experts.

Figure 6: Conference on Patents in Telecoms London 2022 – FRAND determination

The conference had 3 panels alone on FRAND determination which shows the level importance on how FRAND is determined. One panel focused on the empirical approach how to identify essentiality ratios for numerator and denominator, discussing the top-down approach. Here the big question that was discussed was: Are all SEPs equal or are some more equal than others? The panel gathered some of the most respected economist with a wide experience in SEP and patent value analysis including Avantika Chowdbury (Oxera), Keith Mallinson (WiseHarbor), Jorge Padilla (Compass Lexecon), Tim Pohlmann (IPlytics) and Prof. Mark Schankerman (London School of Economics). The discussion concluded that there may be different approaches to measure patent value, while no approach is perfect data does provide an indication or at least provides guidance that can

be the basis of an analysis. Here what's important is that any data analysis must be reviewed as to not including any systematic bias.

Last year's Global Standards Leadership Conference 2022 organized by IPlytics and Northwestern University gathered leading IP professionals, licensing executives, economists and standards experts to discuss the importance of leadership in technology standards and the role of SEP licensing, as well as the economic rationales and approaches to determine the value of standards and SEPs. With C-level licensing executives and patent portfolio managers from both sides of the table: net-licensor (Qualcomm, Interdigital, Nokia, Ericsson, and others) and net licensee (u-blox, Wilmer Hale representing Apple and others) experts discussed the current state of the SEP licensing negotiations and ongoing challenges. While data and analysis on 4G seems well understood for the smart-phone market, yet there is little consensus on value of 5G SEPs as well as on the value of standards subject to SEPs adopted in new industry verticals.

Figure 7: Global Standards Leadership Conference Chicago 2022

The industry overall agrees that simple patent counting is not enough to identify patent value. A panel of experts discussed different examples how patent counting is often inaccurate due to inflating numbers of patent filings. Andrei Iancu, Senior Adviser at CSIS, introduced a panel discussion moderated by Kirti Gupta, Chief Economist at Qualcomm including discussants such as Mark Cohen, Director and Senior Fellow, Berkeley Center of Law and Technology, Jonathan Putnam, CEO, Competition Dynamics and Tim Pohlmann, CEO, IPlytics. The panel of experts debated about how journalists, policy makers, judges, or informed citizens should make sense of claims of patent leadership to look behind the

headlines. The panel explained how experts and business analysts employing various methodologies for dissecting big data and making sense out of it.

Figure 8: Technological Leadership and Patents: What Can the Data Tell Us?

A matter of industry – Dispute and resolution in the auto industry

The implementation of potentially large numbers of SEP-encumbered standards in a single product is no longer limited to traditional telecommunication industries. The auto industry is one of the first sectors to rely on Internet of Things (IoT) technologies, which connect devices, machines, buildings and other items with electronics, software or sensors. Interconnectivity across multiple vehicle parts and units relies on the specification of technology standards such as 4G or 5G, Wi-Fi, video compression (HEVC/VVC), Digital Video Broadcasting (DVB) and Near Field Communication (NFC) or the wireless charging Qi, standard to name a few. The already significant number of standards implemented in vehicles is bound to increase. Most market experts predict dramatic changes in the auto industry because of shifting consumer preferences, new business models and emerging markets. The sector is also poised to be affected by new upcoming regulations on sustainability, environmental impact, and security issues. These forces may further exacerbate disruptive technology trends, such as driverless vehicles, electrification and interconnectivity. As a consequence, the share of connected vehicles among new car sales is rapidly increasing, and new cars increasingly implement a wider range of connectivity features.

OEM vehicle makers have the buying power to push responsibility for patent licensing largely onto their suppliers. This buying power is so strong that most suppliers include indemnification provisions in their contracts. In other words, connectivity technology coming from automotive suppliers that e.g. supports 3G, 4G and 5G standards was in the past contractually indemnified even though suppliers did not have a license agreement with SEP owners yet. But in the world of telecommunications, SEP licensing targets the OEM level and not the supplier level. Avanci, a patent pool which covers the portfolios of many SEP owners, offers a license to the OEM vehicle makers only.

A battle of where to license in the value chain was fought in U.S. courts between automotive supplier Continental, and Avanci and Nokia. Much of the heat was taken out of the dispute when Daimler opted to take a license from Avanci. A flood of other OEM car makers followed, so that by summer 2022 almost all major car makers had an Avanci license with 80+ auto brands summing up 100 million licensed connected vehicles under the Avanci license and 50+ patent owners participating as licensors. The European Commission did not open an investigation.

Figure 9: Wiesn IP Forum Munich 2022 – SEP and Patent Pools Panel

A panel on SEPs and patent pools at the Wiesn IP Forum Munich 2022 moderated by Tim Pohlmann CEO at IPlytics featured SEP experts such as Gabriele Mohsler VP Patent Development at Ericsson, Clemens Heusch VP Head of Global Litigation at Nokia, Laurie Fitzgerald Senior VP at Avanci, Benno Buehler - VP, Charles River Associates and Michael Schlögl Head of IP SEP at Continental Automotive. The heated discussed showed how the

automotive industry is still is dispute with the telecommunications industry on many topics but in particular on the price of an Avanci license of 15 and now 20 USD per vehicle.

A panel discussion at the 2022 Auto IP Legal World Summit in Frankfurt featured Clemens Heusch VP Head of Global Litigation at Nokia, Laurie Fitzgerald Senior VP at Avanci and Volkswagen corporate IP director Uwe Wiesner. Uwe Wiesner brought up the idea of Licensing Negotiation Groups ("LNGs"), where the licensees can group together to negotiate FRAND terms. Clemens Heusch was worried about anti-competitive market behavior and again explained that patent pools are not anti competitive because they always have to allow licensing outside pools.

Figure 10: Auto IP Legal World Summit Frankfurt 2022 – Panel on SEPs in the Auto Industry

A matter of jurisdiction – Global SEP/FRAND disputes

In October 2022 an agenda-neutral symposium was organized for professionals whose job functions relate directly or indirectly to standards and the wide variety of products that implement the same. Panelists such as judges, in-house counsel, scholars, and practitioners from different countries helped participants sharpen their skills and understanding of SEP and FRAND related issues. One panel provided a global update about FRAND across the US, European and Chinese jurisdictions. The panel featured Cono Carrano partner at Arkin Group, He Jing partner at GEN Law firm, Irene Yang partner at

Sidley Austin, Tim Pohlmann CEO at IPlytics moderate by Jane Bu Sr. Director at Via Licensing.

Figure 11: Global FRAND Symposium Mountain View 2022

A matter of risks – Implementing standards subject to SEPs

SEP-related global royalty income was estimated at over $20 billion in 2022 and will likely increase in the next years when standards subject to SEPs are implemented widely across industries. Consequently, most SEP holders will actively monetize and enforce their SEP portfolios. But what is a reasonable royalty for a SEP portfolio and how should standards implementers and SEP holders navigate the risks of SEP licensing and SEP litigation. Gene Quinn, patent attorney and Founder of IPWatchdog.com moderated a wide-ranging conversation about "How to Navigate the Risks of SEP Licensing and SEP Litigation". The conversation was joined by Josue Ortiz-Ramirez, Partner with the IP Advisory at Deloitte, Claus Melarti, Senior Vice President of Acquisitions at RPX Corporation, Brian Hinman, Chief Commercial Officer at Aon IP Solutions, and Tim Pohlmann CEO at IPlytics. The panel discussed SEP related risk due to lack of transparency. Since there is no public information about SEP essentiality, conducting claim charts is a manual, expensive and time-consuming exercise. The panel discussed how the lack of SEP claim chart data creates risks for companies in the industry. At the time of standards adoption, it is often unknown

how much royalties the implementer will have to pay. The panel discussed how the lack of information about future royalty rates creates risks.

Figure 12: IPWatchdog Webinar How to Navigate Risks 2022

Licensing takes place on different levels in the value chain and especially with the implementation of standards subject to new industry verticals it is yet unknown where in the value chain standards implementers will need to pay the SEP license. Litigation is always a risk in any industry where patents matter but for widely adopted standards subject to SEPs litigation may be a much bigger threat, as there is no invent around option. This risk is especially high for small and medium sized businesses. The panel presented data on how big the risk of SEP litigation is. Even if SEP litigation is only the exception the question was discussed if the existence of the threat of a Preliminary Injunction is creating legal risks that may create costs even without litigation. The panel also discussed the expectation for the adoption of SEP heavy standards such as 5G, Wi-Fi 6 or VVC for IoT use cases where other standards compete and how standard adoption differs across industry verticals. Some of the advances of the latest standards generations such as increase bandwidth, reduced latency or higher resolutions quality are not important for connectivity of rather simple IoT devices that send a signal every hour, without video or heavy data streams. The question was discussed: Must SEP licensing and risks associated with that consider standards competition with standards much less subject to SEP licensing or litigation such as such as Bluetooth, DECT NR+, or other mesh-networks.

IP professionals as well as directors in standards development should bear in mind some key considerations:

- Future technologies that enable connectivity will increasingly rely on patented technology standards (eg, 4G and 5G, Wi-Fi, VVC, NFC, RFID and Bluetooth).
- IP professionals need to be aware that, while the market for IoT standards such as 5G is fairly new, it is now time to be thinking about what the business will need, two, five and 10 years in the future., as well as what patent portfolios will need to support this.
- Not all declared patents are essential and not all essential patents are declared. Patent declaration data needs refinement, filtering and SEP determination.
- It may not always be feasible for subject matter experts to determine SEP essentiality at scale; AI-based SEP prediction models solve time and budgetary constraints.

For further information, please contact us.

IPlytics - The Gold Standard for SEPs and Standards

Empowering IP professionals to understand the complexity of patents and standards in the connected world.

IPlytics is the first solution on the market to bring together comprehensive, highly indexed technical standards information, declared SEPs, patent pools, global patents and standards contribution data, to provide industry-leading analysis on the past, present and future of standards-essential technology. Unlike other tools that are overly complex, IPlytics provides fast, intuitive access to patents and standards to empower the user to strategically align patent portfolios to protect innovations and proactively engage in continuous strategic portfolio development as it relates to SEP assets, for initiatives such as licensing, acquisitions and joining patent pools, or to understand the respective positions of the competition. The next technology revolution will connect everything making it even more challenging to understand how technologies and IP rights overlap. IP professionals need to rethink – even revolutionize – how to approach both patent and standards data, to provide business-ready insights for actionable decision making across the organization.