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9 May 2022

FSA Comments on the European Commission Call for Evidence for an Impact Assessment: Intellectual property – new framework for standard-essential patents

Introduction

The Fair Standards Alliance (FSA) would like to thank the European Commission (Commission) for its continued engagement on these important topics and for providing the opportunity to comment. The Commission's New Framework for Standard Essential Patents (SEPs) policy initiative comes at a critical time for Europe's strategic position in today's increasingly digital and interconnected world. Standards play an increasingly important role across a broad range of sectors, including in new areas due to the rollout of 5G and the Internet of Things (IoT). It is all the more important that against this backdrop, the EU's standardisation policy response is effective and focused. We are concerned that in recent years, the balance of the EU's approach has shifted too much towards a small number of SEP-holders who are not representative of Europe's commercial perspective. We therefore consider that the ongoing initiative presents an excellent opportunity to redress this balance.

Europe's strategic interests

When considering various options for a new framework for SEPs, we urge the Commission to carefully reflect which policies would best serve the EU's strategic policy goals and facilitate truly innovative ecosystems.

The Commission's strategic policy direction is geared towards building a greener and more digital Europe, which is also expected to enable it to be stronger in the world.

Enabling technologies, such as semiconductors, are central to achieving both the digital and green transition are semiconductors, which are strategic assets for key industrial value chains, including automated cars, smart energy and a very broad range of other IoT offerings.¹

¹ European Commission's 2019-2024 Priorities. See, e.g, https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-chips-act_en.

In its Call for Evidence, the Commission notes that “there continue to be significant disagreements among stakeholders with regard to SEP licensing.” Most of these disagreements occur in relation to connectivity SEPs, particularly LTE standards.²

In Europe, manufacturers of semiconductors – chips, chipsets, and modules – that comply with connectivity standards, invest significant resources into R&D.³ As the Commission considers its policy options on standard essential patent (SEP) licensing, semiconductor manufacturer incentives to innovate must be preserved.

As part of Europe’s ambition to become greener, a move from a market driven by fossil fuels to a demand-driven ecosystem integrating smart energy management, renewables and storage solutions is underway. Smart energy solutions will play a focal role in this transformation. Smart grid, smart metering, smart storage solution providers and other related infrastructure players in Europe will be directly affected by policies governing connectivity through SEP licensing.

Europe leads the world in patents for self-driving vehicles, accounting for more than 33% of all patent applications around the world. The automotive sector is the EU’s number one investor in R&D, spending almost EUR 59bn on innovation per year.⁴

Most other industrial sectors among the top ten R&D investors in the EU offer products and services that rely upon connectivity standards: Technology Hardware & Equipment (almost EUR 16bn per year); Software & Computer Services (over EUR 10bn per year); Electronic & Electrical Equipment (EUR 9,6bn per year); Industrial Engineering (EUR 8,8bn per year); Aerospace & Defence (EUR 6.3bn).⁵

Europe’s lead R&D investor, the automotive sector, employs over 2.5m people in direct manufacturing alone.⁶ Budgets of the EU member states receive EUR 398,4bn per year from the sale and use of passenger cars. Almost 5,2m European cars were exported worldwide in 2020, worth over EUR 121bn – 25% of all cars produced around the world are built in Europe.⁷

These are just some examples of innovative industries in Europe, employing millions of people, that are at stake. For example, FSA members jointly invest more than EUR 130bn into R&D on an annual basis, and own over 500,000 patents, including SEPs.

With the emergence of the IoT, products become increasingly more complex and interconnected. They must comply with more standards than ever before, and it requires significant investment from companies to bring innovative products to markets. Products cannot be differentiated through standards compliance. Those additional innovation efforts cannot be disregarded.

As noted above, the most contentious disagreements in SEP licensing arise in relation to IPRs declared essential to connectivity standards. Based on various studies, there are many contributors to 5G standards. However, ownership of the largest 5G SEP portfolios are concentrated in the hands of a handful of companies.⁸

This list indicates that 5G SEPs are largely owned by companies headquartered outside of the EU. Moreover, nearly all of these companies are not only owners of the largest declared 5G SEP portfolios

² See e.g., Landscaping Study on Standard Essential Patents (SEPs) by IPLYtics, commissioned by DG GROW, available at: https://www.iplytics.com/wp-content/uploads/2017/04/Pohlmann_IPLYtics_2017_EU-report_landscaping-SEPs.pdf,

Figure 17.

³ For example, in 2021, a French SME semiconductor manufacturer Sequans invested more than 50% of its revenues into R&D; Nordic Semiconductor has invested cc EUR 380m over the past five years; more than 65% of the Swiss semiconductor manufacturer u-blox employees are dedicated to R&D; European automotive supplier Continental AG spent some EUR 2.6bn on R&D, over 40% of which was dedicated to the Autonomous Driving and Safety segment.

⁴ The 2020 EU Industrial R&D Investment Scoreboard.

⁵ Ibid.

⁶ See e.g., the [2021-2022 edition of the ACEA Pocket Guide](#).

⁷ Ibid.

⁸ Please see Annex I summarising results of studies on the 5G SEP landscape. As various studies arrive at varying results in terms of ‘ranking’, we refer to an overview of lists of companies that appear in the various studies as the top 5G SEP holders.

but also sell products and/or provide services implementing these technologies downstream – in other words, virtually all of them are vertically integrated.⁹

Europe has only two companies amongst the top 10 of those with patents declared essential to 5G standards, and yet the impression has been created in some areas that this should be the main focus of Europe’s commercial and strategic perspective in the standardisation sphere. In practice however, European industry is and will be a net licensee of standard-enabled products - numerous businesses in Europe across most innovative industry sectors will both be dependent on 5G SEP licences from companies headquartered mostly overseas as well as compete with those same companies in downstream markets.

It is important to bear this context in mind, as we increasingly see the notion of “‘balanced’ licensing regimes” shifting towards an imbalance within the broader innovation ecosystem to the detriment of the EU’s technological sovereignty. Europe’s strategic focus should be to support and foster investment into downstream innovation as a source of EU competitiveness and the current policy review provides the opportunity to redress the balance in this direction.¹⁰

Alarming developments as national courts make injunctions for SEPs readily available

In the problem statement in the Call for Evidence, the Commission indicates that the main problems are “inefficient licensing, including ‘hold-up’, ‘hold-out’ and ‘forum shopping’, and that “[t]hese problems stem mainly from: (i) insufficient transparency and predictability; (ii) uncertainty about FRAND terms and conditions; and (iii) high enforcement costs and inefficient enforcement”. The Commission therefore seeks to address these issues by focusing on “(1). Enhancing transparency on SEPs [...] (2). Providing clarity on various aspects of FRAND [... and] (3). Improving the effectiveness and efficiency of enforcement”.

Upfront, it should be noted that, rather than focusing on the concept of “inefficient licensing”, the focus should be on “non-FRAND licensing”. The term “Inefficient licensing” neglects the specificity of the licensing of SEPs, namely that a FRAND commitment has been provided by the owners of those SEPs as a reassurance to the broader standards community that the relevant patents will be licensed on fair and reasonable terms in order to promote the broad adoption of the standard. As mentioned in our response to the Consultation, FRAND licensing, rather than ‘efficient’ licensing promotes innovation and development.

While the above-mentioned problem statement covers some of the concerns our members see in their day-to-day business, we believe that it largely describes symptoms and omits a critical root cause of the problem – abusive practices, namely, the unjustified seeking and obtaining of injunctions in SEP licensing disputes.

We note that the Commission recognises patent hold-up as a major concern. Hold-up behaviour is significantly enabled by the availability of inappropriate injunctions. The Commission also accurately identifies potential effects of hold-up, including that companies may opt out from using standards altogether, that it slows the pace of innovation, hampers the “development in critical technologies,” and delays “the scaling up of start-ups and SMEs”. FSA members see these issues as real-life concerns on a daily basis.

However, we see little evidence within the Call for Evidence that the measures envisaged by the Commission will tangibly redress hold-up, unless it addresses the availability of injunctive relief which

⁹ For example, Huawei provides 5G automotive modules as well as various hardware and software solutions for 5G networks; LG Electronics is a lead player in the global market for telematics control units (TCU); ZTE supplies NB-IoT chipsets and modules and is branching into cellular vehicle-to-everything module market.

¹⁰ We also note that the Call for Evidence seems to adopt a relatively narrow definition of standards development, by focusing on the interests of a handful of companies that emphasise monetization of their SEP licensing portfolio, thereby entirely ignoring companies who do not actively seek to monetize their SEPs or other forms of standards development altogether. There exist various standardisation models (e.g., based on royalty free terms or Open Source development), which also contribute to innovation and competition in the EU.

SEP holders have been invoking within the EU. In fact, there appears to be a critical mismatch between the problem definition and the underlying reasons for those problems.

We currently observe the worrying development of injunctions for SEPs being readily granted by national courts in the EU, contrary to the European Commission's own decisional practice and CJEU case law. The EU has led the world on this issue in the past – at a time when many were questioning whether competition law had any place in the field of standardisation, the Commission's 2014 *Motorola* and *Samsung* Decisions¹¹ found that SEP-based injunctions against willing licensees could be an abuse of a dominant position. This was confirmed by the European Court of Justice in its 2015 *Huawei v ZTE* judgment.¹² However, the progress achieved through those cases has been severely compromised as SEP-based injunctions continue to be readily available contrary to both the Commission's policy intent and the letter of *Huawei v ZTE*. We urge the Commission to use this policy review to urgently address this issue.

For example, in Germany, following the *Sisvel v Haier* case, courts have largely deviated from *Huawei v ZTE* by not taking any or sufficient account of the SEP holder's actions in relation to its claimed SEPs but by exclusively or primarily looking at the actions of the potential licensee, and by placing excessive subjective requirements on the potential licensee to demonstrate its "willingness" without requiring that the initial offer from SEP holder is FRAND.¹³ Following the *Sisvel v Haier* courts have considered it irrelevant for their decision to render an injunction whether the SEP holder has offered access to its SEPs on FRAND terms. This has even occurred in cases where both parties have engaged in substantive negotiations and exchanged numerous offers. In practice, European companies may find themselves stuck between a rock and a hard place: either they accept a licensing offer for a licence that may not be FRAND, or face shutdown of production and a halt of sales.

We are therefore very concerned that the *Huawei v ZTE* framework, which was a case about abuse of a dominant position, is now through its misapplication being used as a blueprint for obtaining injunctions, even more so as courts are changing the burden of proof and modifying some of the steps that the CJEU had set forth. In this regard, it is most worrying that an extensive 'willingness' assessment is taking place irrespective of the SEP holder's actions and whether the offer on the table is FRAND or not. In fact, it now appears to be expected that the potential licensee provides an unequivocal commitment to take a licence, even if that licence is not based on FRAND terms and conditions. This does not make sense from a licensing nor business perspective – in particular when the sanction for not making such a commitment is that a company risks its products being blocked from the market. Whether a potential licensee ultimately is a 'willing licensee', i.e., a licensee willing to take a FRAND licence, can only be assessed once it has been established that a FRAND offer is on the table.

As the guardian of the EU Treaties, we urge the Commission to address this misapplication of the CJEU case law. At a very minimum, we consider it critical that the Commission provide guidance through this policy initiative on how *Huawei v ZTE* should be correctly interpreted. We also consider that the Commission should intervene as an *amicus curiae* in any relevant court case where *Huawei v ZTE* may be misapplied. We therefore urge the Commission to restore the balance that the EU institutions and the CJEU once sought to achieve by stating that:

Within the framework as outlined by the CJEU in Huawei v ZTE, and to the extent the alleged infringer has expressed to be generally willing to take a licence on FRAND terms, injunctions should not be available at least until a Court has adjudicated that the SEP holder's licensing offer is FRAND.

¹¹ Case AT.39985 – Motorola – Enforcement of GPRS standard essential patents (*Motorola*) and Case AT.39939 - Samsung - Enforcement of UMTS standard essential patents (*Samsung*)

¹² Judgment of 16 July 2015, Huawei Technologies Co. Ltd v ZTE Corp. and ZTE Deutschland GmbH, C-170/13, EU:C:2015:477 (*Huawei v ZTE*)

¹³ See *Sisvel v Haier*, Federal Court of Justice, judgment dated 5 May 2020, Case No. KZR 36/17.

Licences should be available to all third parties, irrespective of the level in the value chain

Due to the threat of an injunction being enforced, parties are pressured to settle on terms that they may otherwise not have accepted, and that are potentially non-FRAND. This has also prevented courts from providing further clarity on and enforcing the principle of availability of licences throughout the value chain.

As the CJEU stated in paragraph 53 of *Huawei v ZTE*, “having regard to the fact that an undertaking to grant licences on FRAND terms creates legitimate expectations on the part of third parties that the proprietor of the SEP will in fact grant licences on such terms, a refusal by the proprietor of the SEP to grant a licence on those terms may, in principle, constitute an abuse within the meaning of Article 102 TFEU”.¹⁴ There is no limitation in the Court’s reference to “third parties”. This is also reflected in the Commission’s Draft Revised Horizontal Guidelines, which state in para 482 that “In order to ensure effective access to the standard, the IPR policy would need to require participants wishing to have their IPR included in the standard to provide an irrevocable commitment in writing to offer to license their essential IPR to all third parties on fair, reasonable and non-discriminatory terms” [emphasis added].¹⁵

This requirement to license any third party seeking a licence is hugely important for businesses across a variety of sectors to ensure innovation. Indeed, if SEP holders could “pick and choose” potential licensees and at what level of the production chain to license, they could in effect control who succeeds and who fails in the market – in other words, become gatekeepers of innovation.

Without a direct licence to the relevant SEPs, companies are impeded in their ability to innovate on top of standards. Models that may be claimed to serve as substitutes to actual licences, such as “have made” rights, do not alleviate competition concerns because of the narrow scope of such rights. Under “have made” rights, a downstream SEP licensee can have components made by an upstream third party which is unlicensed, even if it is willing to take and actively seeks a licence. However, the right to “have” components “made” does not confer a licence to that third party to manufacture for its own use or indeed for any other party than the instructing licensee, and beyond the specifications of the downstream licensee. The “have made” rights therefore tie the supplier to its customer, prevent it from freely innovating and do not allow it to sell licensed products on the open market.¹⁶

For example, if a module company that develops cellular devices can sell only to one industry (e.g., automotive), or even to just one group of customers within that industry (e.g., particular downstream car manufacturers or manufacturers that make particular types of cars or trucks), then in practice they will only invest in R&D that they can recoup via sales to that industry or group of customers. If that company could develop innovative modules that could be used for other industries, customers, or applications, without its own SEP licence, it would be precluded from selling them as licensed modules to e.g., manufacturers of airplanes, trains or boats.

Efficient licensing

As an association representing companies of different sizes from multiple sectors and different levels of the value chain, we draw from ample and direct business experience. Our members’ experience from both century-old and younger innovative IPR-intensive industries confirms that when SEP licences are made available to any willing licensee, as required by competition law, businesses are able to practically work out the most appropriate level in the value chain that is most effective for a particular industry.

¹⁴ Judgment of 16 July 2015, *Huawei Technologies Co. Ltd v ZTE Corp. and ZTE Deutschland GmbH*, C-170/13, EU:C:2015:477 (*Huawei v ZTE*), para 53.

¹⁵ C(2022) 1159 final, “Approval of the content of a draft for a COMMUNICATION FROM THE COMMISSION Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements” (“Draft Horizontal Guidelines”), para. 482.

¹⁶ For further background, please see the FSA position paper “Competitive and Industry Harms Related to Refusals to License SEPs and Other Forms of “Level Discrimination” in SEP licensing”.

Some wireless technology SEP holders have argued that it is most efficient to license only downstream end-product manufacturers. However, business realities should dictate otherwise. Often, it is most efficient for SEPs to be licensed at the level in the supply chain where the standardised functionality is actually provided and enabled, e.g., video codecs on the camera level, OneBlue patents on the level of the BlueRay-disk player, or Bluetooth patents on chip level etc. Indeed, why would it not be more efficient to license a handful upstream suppliers if that allows tens, hundreds or even thousands of downstream product manufacturers to be covered?

That is why the FSA has long advocated that SEP licences should not be artificially restricted by players with market power conferred by standards to one specific level of a value chain. Indeed, it is precisely the change in SEP licensing practices whereby certain SEP holders started refusing licences to market players that led to a range of negative consequences.

For example, in digital cellular telephony, SEP holders previously granted licences to manufacturers of all types of equipment.¹⁷ Manufacturers in any part of the supply chain were able to obtain SEP licences. These licensees were then able to offer licensed products – whether they were complete end-use products or intermediate subsystem products – to their customers. Suppliers upstream were able to supply subsystems that complied with standards to downstream manufacturers who were able to focus on developing innovative products. This facilitated the widespread adoption of standardised technologies.

The automotive industry is another example. A vehicle consists of thousands of components – the vast majority of which are subject to standards. Most of the components are supplied by upstream component manufacturers, often single-sourced from a supplier specialising in a particular product or a type of product. For more than a hundred years, the industry has considered it most efficient for car OEMs to source components free of third-party rights sourced from its upstream suppliers and not to be forced to seek licences for standardised technology. Indeed, the ability of upstream manufacturers to obtain a licence enables business models where they can clear the patent landscape for their own products and indemnify their customers.

Despite the clear language in both the CJEU *Huawei v ZTE* ruling and the Commission’s own decisional practice,¹⁸ as well as in the Horizontal Guidelines, and despite their voluntary and irrevocable FRAND commitment, some SEP holders have in recent years been refusing to license both on their own, and collectively, to virtually all businesses in the value chain, except those at the downstream end-product level. This non-FRAND licensing strategy has caused legal uncertainty, which is stalling innovation, take-up of the IoT, and has led to extensive litigation in Europe and overseas, draining resources that could be used for R&D to bring to consumers new or improved products and services.

In this regard, we are concerned to see the Commission’s recent response¹⁹ to a parliamentary question,²⁰ which could be seen as inconsistent with both EU decisional practice and the Commission’s own guidance.

In *Huawei v ZTE*, the CJEU confirmed that a SEP holder may ‘in principle’ abuse a dominant position by seeking an injunction against a willing licensee. Whilst the judgment outlined a framework which gives guidance to how both SEP holders and implementers should act in the SEP licensing context, the purpose of the preliminary reference was to specify whether and when SEP-based injunctions could

¹⁷ See e.g., the *Federal Trade Comm’n v Qualcomm, Inc.*, Findings of Fact and Conclusions of Law, Case No. 5:17-cv-00220 (N.D. Cal. May 21, 2019) (*FTC v Qualcomm*). Evidence referenced in the ruling reveals that SEP holders granted licences to users of the standards across the value chain, including at chip level and that “following Qualcomm’s lead, other SEP licensors like Nokia and Ericsson have concluded that licensing only OEMs is more lucrative, and structured their practices accordingly.”

¹⁸ Case AT.39985 – Motorola – Enforcement of GPRS standard essential patents (*Motorola*), paras 417 and 521; Case COMP/M.6381 – Google/Motorola Mobility (*Google/Motorola Mobility*), para. 113.

¹⁹ Response by Executive Vice-President Dombrovskis on behalf of the European Commission on 4 April 2022 to a parliamentary question available at: https://www.europarl.europa.eu/doceo/document/E-9-2022-000559-ASW_EN.html.

²⁰ Parliamentary question of 8 February 2022 on “Licencing, protection of intellectual property rights, connected cars and a level playing field for EU companies in foreign markets” available at https://www.europarl.europa.eu/doceo/document/E-9-2022-000559_EN.html.

be an abuse of a dominant position. It is therefore surprising that the above-mentioned response seems to imply that the purpose of the preliminary reference was to “ensure[s] that any holder of EU SEPs can get injunctions before national courts in the EU.”

Moreover, the response goes as far as to suggest that SEP holders can “get injunctions” ... “against any implementer of the SEPs, including car manufacturers,” which seems to imply that SEP holders can ignore the requirement to license any third party and instead oblige an end-product manufacturer to take a licence under threat of injunction, having refused to license willing component manufacturers upstream that have sought a licence.

In light of the above, we urge the Commission to make it clear that no SEP-based injunctions can be granted against a manufacturer downstream if a licensee upstream has expressed a willingness to take a licence. Without such clarification, we fear that the purpose of the *Huawei v ZTE* ruling could be undermined.

Furthermore, as explained above, SEP licences should not be artificially restricted to one specific level of a value chain. Eventually, industry will work out at which level it is most efficient to conclude licences. We hope that we are misreading the Call for Evidence, but for the avoidance of doubt, the Commission should not seek to be “*determining appropriate level(s) of licensing in the value chain*”. Instead, it should confirm that under existing EU case law and its own decisional practice, SEP licences should be available to any party willing to take a licence on FRAND terms, regardless of the level in the value chain at which it operates.

FRAND valuation

Finally, injunctions may also be used as leverage to artificially inflate *ex post* royalties. This is concerning, given that one of the key valuation principles focuses on the idea that what could have been charged *ex ante* should be the benchmark for the *ex post* royalty rate. SEP owners that seek to monetize their patent portfolio get ample compensation based on the inclusion of the selected technology into the standard, and the broad adoption of that standard in the market. It is often forgotten that this is a significant revenue stream which would not have existed without the standard, and that there may have been many competing technologies prior to the selection of the standard. The FRAND commitment is designed to prevent that the compensation cannot artificially be increased based on the market power that the SEP owner may obtain from the selection of its technology as part of the standard and it should be given real meaning in this sense.

Furthermore, FRAND royalties should not seek to include compensation for innovations or features that are not inherent in the underlying patent claim. As the Commission itself acknowledges “[t]he economic value of the IPR could be based on the present value added of the covered IPR and should be irrespective of the market success of the products which is unrelated to the patented technology”.²¹ Deviation from this principle is a fundamental problem inherent in so-called “use-case based” or “application-dependent” licensing of SEPs. Such practices seek to calculate a royalty based not only on the value of the patented invention, but also on innovation created by others that goes into an end-user product – thus ‘taxing’ downstream innovation.

Whilst we generally welcome the Commission’s push for greater transparency in the field of SEPs, we consider that ensuring that courts appropriately define FRAND terms and conditions will have a more significant impact than initiatives such as the repository of licences referred to in the questionnaire. One of the concerns with such a repository is that prior licences do not necessarily reflect FRAND terms and conditions, just because they have been accepted in the past. While they may serve as an indication, FRAND valuation should not occur by merely looking at comparable licensing without assessing the context in which those licences were concluded, and whether they are truly FRAND or not.

²¹ Draft Revised Horizontal Guidelines (as well as the current Horizontal Guidelines); European Commission’s Communication Setting out the EU approach to Standard Essential Patents, COM (2017) 712 final, 29 November 2017.

Notably, if courts do define FRAND terms and conditions, in some cases, that will also serve as a reference point for other negotiations, and provide guidance and transparency to negotiating parties and the industry at large.²² The lack of such guidance by the courts is due to parties often settling under the threat of injunctions.

Definition of Hold Out

While we have aimed to streamline our submission as much as possible and not to comment on every sentence in the Call for Evidence, there is one specific point we would like to highlight in relation to the Commission's definition of hold out.

We disagree with the definition that the Commission provides on "hold out", defining it in footnote 17 as "a situation where an implementer of a standard refuses to pay royalties to SEP owners until forced to do so by a court". That should not be considered hold out. In fact, if a potential licensee believes that it does not infringe the SEP, or that the SEP is not valid or essential, it has the legal right to go to court and defend this right. This statement is therefore contrary to fundamental rights.

We urge the Commission to carefully assess whether it is promoting a truly balanced FRAND licensing ecosystem, in line with Europe's broader innovation ambitions, and address *hold up* by ensuring that injunctive relief for SEPs is only available in specific circumstances, in line with the CJEU's prior case law in *Huawei v ZTE*.

About FSA

The FSA is an international trade association that promotes licensing of standardised technology in the development and rollout of the IoT on a fair, reasonable, and non-discriminatory (FRAND) basis. Our membership is broad and diverse, ranging from multinationals to SMEs, and coming from different levels of the value chain across a diversity of industry sectors.

Our members significantly contribute to innovation in Europe and beyond. Annually, the aggregate turnover of FSA members is more than EUR 2 trillion, and in aggregate our members spend more than EUR 130 billion on R&D and innovation. Some of our members dedicate as much as a third of their annual revenues to R&D.

Our members have more than 500,000 patents, including standard essential patents (SEPs), that are either granted or pending. Our membership has strongly supported standardisation for decades, participating in hundreds of standard activities around the world, including the development of connectivity standards, such as cellular, Wi-Fi, and USB-C.

²² In fact, in US litigation, we have seen that adjudicated rates were often much lower. See, for example:

- *Unwired Planet v Huawei*, [2017] EWHC 711 (Pat): Offered rate of 0.13% (4G-LTE) and 0.065% (UMTS/GSM), awarded rate 0.062% for 4G-LTE and 0.032% for UMTS/GSM handsets;
- *Realtek Semiconductor Corp. v LSI Corp.*, 946 F. Supp. 2d 998 (United States District Court, N.D. California (2013)): offered rate of USD1-1.75, compared to the awarded rate of \$0.0019 to \$0.0033;
- *TCL Comm'n Tech. Holdings, Ltd. v Telefonaktiebolaget LM Ericsson*, No. SACV 14-341 (C.D. Cal. Dec. 21, 2017): Both FRAND offers [Option A (2.592%) and Option B (1.46%)] the Court found to be not FRAND. The Court awarded rates of 0.45% in the US and 0.314% for the rest of the world;
- *In re Innovatio IP Ventures, LLC Patent Litig*, MDL Docket No. 2303 Case No. 11 C 9308 (N.D. Ill. Sep. 27, 2013): Innovatio offered rates of \$3.39 per access point, \$4.72 per laptop, up to \$16.17 per tablet, and up to \$36.90 per inventory tracking device, as compared to the Court awarded rate of \$0.956 per device;
- *Ericsson Inc. v D-Link Sys., Inc.*, No. 10-CV-473, 2013 WL 4046225, (E.D. Tex. Aug. 6, 2013): the Court awarded rate of 15 cents per device;
- *Microsoft v Motorola*, 2013 WL 2111217 (W.D. Wash. Apr. 25, 2013): Motorola offered a rate of 2.25% based on the price of the end product, as compared to the Court awarded rate for 802.11 SEPs of \$0.03471 cents per unit;
- *Core Wireless Licensing S.A.R.L., v Apple Inc.*, Case No. 15-cv-5008 NC (United States District Court, N.D. California (2016)): Core Wireless offered a rate of \$0.085, whereas the Court awarded a rate of \$0.026.

Because many of the FSA members are both licensees and owners of SEPs we believe this allows us to bring a balanced perspective to this consultation. For further information about the FSA and its members, see <http://www.fair-standards.org/>.

FSA members include: Aira, airties, Amazon, Apple, BMW, Bullitt, Bury, Cisco, Continental, Crosscall, Daimler, Dell, Denso, Deutsche Telekom, Emporia, Fairphone, Ford, Google, Gramm Lins & Partner, Harman, Hitachi, Honda, HP, Hyundai, Intel, Juniper, kamstrupp, Landis+Gyr, Lenovo, Microsoft, N&M Consultancy, Nordic Semiconductor, Sagemcom, Sequans, Sierre Wireless, Sky, Tech Law Associates, Telit, Tesla, Thales SA, Titan, TomTom, Toyota, u-blox, Valeo, Visteon, Volkswagen Group, Xiaomi.

NOTE: The positions and statements presented in this paper do not necessarily reflect the detailed individual corporate positions of each member.

Annex I

I. Introduction

Studies analysing the 5G standard essential patent (SEP) landscape vary as to their results, particularly when it comes to the order of how the largest 5G SEP portfolio holders are ranked. However, cross-referencing the various studies reveals that regardless of which company is ranked higher than the other, the same set of companies consistently rank within the top ten firms as regards the number of their declared SEPs.

It should be noted that the size of a declared patent portfolio is one measure, among many, for measuring the relative strength of a firm's leadership in 5G standardisation.

This analysis aims to summarise the findings of those studies that have analysed which companies hold most 5G SEPs.¹

II. Study Results

Below are the results of four recent 5G patent landscaping studies. We have extracted the figures of total 5G declared patents (applications and granted) on a worldwide basis to demonstrate the overall trend that there is a relatively small group of companies who hold the 5G SEPs, most of which are non-European companies.²

IPLYtics, "Who is leading the 5G patent race? A patent landscape analysis on declared SEPs and standards contributions", (February 2021)³

- **Huawei**, 15.39% of 5G patents
- **Qualcomm**, 11.24% of 5G patents
- **ZTE**, 9.81% of 5G patents
- **Samsung Electronics**, 9.67% of 5G patents
- **Nokia**, 9.01% of 5G patents
- **LG Electronics**, 7.01% of 5G patents
- **Ericsson**, 4.35% of 5G patents
- **Sharp**, 3.65% of 5G patents
- **Oppo**, 3.47% of 5G patents
- **CATT Datang Mobile**, 3.44% of 5G patents

Clarivate Derwent, "Demystifying the 5G standard essential patent landscape with manual SEP analysis" (2021)⁴

- **Huawei**, 4845 declared patent families

¹ Other studies attempt to measure 5G leadership by examining standards development activity such as contributions and leadership roles within standards committees. See e.g., Ericsson; "Estimating the future 5G patent landscape" (October 2018); Strategy Analytics, "Who Are the Leading Players in 5G Standardization? An Assessment for 3GPP 5G Activities", (March, 2020).

² The SEP landscaping studies each use different methodologies. This may account for the variance in the results. In addition, each report analyses data over different time horizons which would also account for the discrepancy in results. The methodologies employed are included in each report, the links for which can be found in the footnotes below.

³ <https://www.iam-media.com/who-leading-the-5g-patent-race-patent-landscape-analysis-declared-seps-and-standards-contributions>

⁴ <https://clarivate.com/blog/demystifying-the-5g-standard-essential-patent-landscape-with-manual-sep-analysis/>

- **Samsung Electronics**, 3042 declared patent families
- **Nokia**, 2243 declared patent families
- **Ericsson**, 2187 declared patent families
- **LG Electronics**, 2091 declared patent families
- **Qualcomm**, 2076 declared patent families
- Others, 10630 declared patent families

Amplified and GreyB, “Updated Findings on Essentiality of 5G declared Standard Essential Patents” (2021)⁵

- **Huawei**, 3007 declared patent families
- **Samsung Electronics**, 2317 declared patent families
- **LG Electronics**, 2147 declared patent families
- **Nokia** 2047 declared patent families
- **Ericsson**, 1678 declared patent families
- **Qualcomm**, 1125 declared patent families

USPTO, “Patenting Activity by companies developing 5G” (February 2022)⁶

**the results below are from the graph (figure 1) which does not provide exact figures.*

- **Huawei**, 4600
- **LG Electronics**, 4100
- **Qualcomm**, 3750
- **Samsung Electronics**, 3050
- **ZTE**, 2000
- **Ericsson**, 1950
- **Nokia**, 1600

Conclusions

Cross-referencing the various 5G SEP landscaping studies reveals a consistent trend that there is a group of companies that hold the most declared 5G patents. Even if the studies reveal somewhat different rankings of those companies in their results, they demonstrate that the companies leading in 5G patenting are mostly headquartered outside Europe. These study results suggest that the European Union and its innovative industries will be almost entirely net licensees of 5G SEPs.

⁵ https://info.greyb.com/hubfs/Downloadable_Reports/5G%20Report%20-%201st%20Release.pdf

⁶ <https://www.uspto.gov/sites/default/files/documents/USPTO-5G-PatentActivityReport-Feb2022.pdf>