



WHAT ARE STANDARD ESSENTIAL PATENTS?

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Standards ensure the interoperability of products relating to the same technology from different manufacturers.

Examples of standards based technologies range from the connectors on cables, such as USB or HDMI cables, to more complex technologies such as Bluetooth® wireless communication and wireless telecommunication standards for cellular mobile phone communications, such as 5G.

Standards technologies are defined by a standards setting organisation (SSO), also known as a standard development organization (SDO), in a standard-setting process. Examples of SSOs include IEEE

and the 3rd Generation Partnership Project (3GPP) who are responsible for developing protocols and standard setting for cellular wireless communication technologies, including mobile broadband technologies.

The standard-setting process is usually carried out by industry representatives from different companies within the technology area who, over time, work together to come to a consensus on a new technology. These companies will be working on their own technologies at the same time, but standards are needed to make sure all their individual technologies can work together seamlessly to provide their customers with the best possible user experience.



To put this into an everyday context, you will already have come into contact with a whole range of standards today.

The Wi-Fi communication technology on your phone is standardised to enable any phone to communicate with any Wi-Fi router or access point. If you plug your phone into your PC or laptop with a USB cable, the USB cable is standardised to enable any USB cable to operate with the USB port on your laptop. The video you watched online or via apps like YouTube or BBC iPlayer are powered by standards. Most critically, being able to make mobile phone calls from your Apple® phone to a friend's Samsung® phone is made possible by standards technologies.

Patents are used by companies to protect their technology innovations, and a patent that protects technology defined in a standard is called a Standards Essential Patent (SEP).

Standards are set by industry specific SSOs. These bodies will usually include the industry's most innovative companies. They decide what technology will be used in a particular standard and it is in each company's interest to have their technology adopted as the standard so that they have patents that cover the standard (SEPs).

PATENTS ARE USED BY COMPANIES TO PROTECT THEIR TECHNOLOGY INNOVATIONS, AND A PATENT THAT PROTECTS TECHNOLOGY DEFINED IN A STANDARD IS CALLED A STANDARDS ESSENTIAL PATENT (SEP).



It is common for a standard to be covered by multiple SEPs all owned by different companies, and the ownership of a SEP often corresponds to a technical contribution made to the standard by a particular company. In other words, the more technical contributions a member company can have accepted into a standard, the more SEPs the member company is likely to own.

It is common practice for each company to self-declare the patents it owns that it believes are SEPs (i.e. patents that cover the standard). For example, Nokia have declared in excess of 4,500 patent families to be

essential to the 5G cellular communication standard. These self-declared SEPs do not have an independent evaluation to determine whether they actually cover the standard technologies.

Usually, these other companies will continue to innovate with their own technologies while implementing technologies covered by SEPs.

If a patent is an SEP, it is easy for a patent holder to spot any infringement as any company implementing the standard must by definition have implemented the technology covered by the SEP.



The licensing of SEPs enables other companies to use industry standard technologies.

Because SEPs protect an industry's core technology and others are required to implement that core technology to be standards compliant, it is necessary for others to obtain licenses for the SEPs covering that technology.

Generally, the standards-setting body have rules which set out how their members can implement a standards technology protected by SEPs owned by other members of the standards-setting body. This usually involves a licensing agreement, and it is common for SEPs to be licensed on fair, reasonable and non-discriminatory (FRAND) terms.

These licenses are designed to allow a technology to become standard by permitting companies who don't own the necessary patents to implement the technology to support their businesses. While there are no set rules as to the content of FRAND terms, the license must be able to support the commercial needs of both the industry and the patent owner.

The financial terms should allow the patent owner to continue to profit from their inventions but not so high that their licensors feel inventing around the patent is a more viable commercial option.

WHEN IT COMES TO SEPS, WHAT DO BUSINESSES NEED TO WATCH OUT FOR?

Although the concept of SEPs may seem a little strange, when you think about all the technologies manufacturers use that are consistent - or standard - between even the fiercest competitors, it makes more sense.

It's not that these inventions aren't protected by patents. They are. It's just that they have been declared essential to the industry standard and are therefore being licensed for use by the rest of that industry under FRAND terms.

However, while you might assume this is a neat solution, it's not always as easy as it should be in practice. There are a range of issues that the businesses who develop and manufacture standards-compliant products must bear in mind.

Firstly, you should consider the composition of an SSO.

Not all innovators will necessarily be part of an SSO. This means that while the SSO

will have set a standard; anyone who hasn't participated in this standard setting also has to make their patent available on FRAND terms.

Several high-profile disputes have arisen questioning the standardisation system over the last few years including Unwired Planet v Huawei, Conversant Wireless v Huawei & ZTE and Nokia v Daimler. These cases addressed not only the involved parties' ability to agree on the fairness, reasonability and non-discriminatory nature of the 'FRAND' terms but also whether the SEPs actually covered the standard.

This highlights another aspect of SEPs. Because SEPs are self-declared by the owner, it can also mean that patents which have been declared as essential to the standard do not actually cover the standard. In some instances, they could have been classed as SEPs to drive up licensing costs and increase the price of the end-product. This is commonly known as over declaration.



Over declaration happens when the patent owner asserts that patents are essential to a standard but the standard concerned can actually be implemented without involving the patents. This means those paying for licenses to use the technology often don't need to pay. Due to the volume of SEPs necessary to cover certain technologies, especially mobile broadband technologies, it is often impossible for a licensee to determine which SEPs are not actually essential to the standard.

In many of these cases, it is the end user who suffers, either having to pay more for air time or for the hardware.

The issue of whether a licensor is paying a fair licensing fee is fundamental to the future of SEPs so it is interesting to see patent pools starting to spring up. A patent pool is a cooperative made up of multiple SEP holders. If a user is potentially interested in implementing a standard, they can negotiate with the pool instead of having to negotiate with each SEP owner individually.

The only problem is that in some cases, patents can be licensed through a pool without their essentiality to the standard being validated. This can also lead to higher licensing fees which increase the ultimate cost for the consumer.



Aside from these watchouts, perhaps the main thing a business needs to remain mindful of is the common misconception that innovation automatically becomes more valuable once it has been declared to be standard essential.

Statements like this are a fundamental misunderstanding of what SEPs were set up to do.

Technology becomes a standard because it solves a particular problem and presents a solution that can be used successfully by all businesses operating in the same area. However, economics dictate that this will almost always lead to the owner wanting to be paid more by people wanting to use their ideas while those using the ideas want to pay less to use it.

Those who initially develop standard essential technologies (the innovators) often need to invest massive amounts of money into their R&D to progress their industry's technology, and many other businesses (the implementers) who wish to use that innovation to build products simply wouldn't be able to - or progress their products as quickly and successfully - without the ingenuity, endeavour and financial investment from the innovators.

Until this is recognised and appreciated by both sides, we are at risk of increasing cross-border patent litigation and antitrust actions that will only become bigger, more complicated, more expensive and more disruptive for both the innovators and the implementers.

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WHY SHOULD THE COMMUNICATIONS INDUSTRY PAY ATTENTION TO SEPS?

For many communications businesses, SEPs are the crown jewels in their patent portfolio.

The main reason for this is the enormous commercial potential of a licensing model. Once every element of the patent claim has been defined as standard and the patent has been categorised as an SEP, the subsequent licensing and generation of royalties becomes much easier.

With a traditional patent, if you want to get someone to pay you to use your patented technology, you must go through the laborious and costly process of working out if their product or service infringes your patent. With a SEP you don't have to do any of that.

If a competitor's product or service is compliant with a standard, you don't need to prove what they are doing as long as they remain compliant with the standard and they will have to pay the patent holder according to the FRAND terms agreed.

SEPs are big business and an important revenue source for companies that hold large number of SEPs. For example, Nokia and Qualcomm, have patent licensing as a major component of their business models. It was forecast that in 2021 Qualcomm's annual revenue from patent licensing would be roughly \$6 billion, and Nokia had patent licensing revenues of €1.5 billion in 2021.

IT WAS FORECAST THAT IN 2021 QUALCOMM'S ANNUAL REVENUE FROM PATENT LICENSING WOULD BE ROUGHLY \$6 BILLION, AND NOKIA HAD PATENT LICENSING REVENUES OF €1.5 BILLION IN 2021.

WHAT OF THE FUTURE? WILL SEPS HAVE AN IMPACT ON MORE THAN JUST TELECOMS?



The Internet of Things (IoT) is something that continues to grow in popularity. Many of us are starting to connect our fridges, freezers, washing machines and dishwashers. This means the manufacturers of white goods are stepping out of the historic confines of FMCG and entering the communications business.

So even though standards have never been a concern before, they certainly are now.

Without the ability to utilise the latest comms technology, white goods will not be able to talk to one another or be operated remotely. If this functionality isn't made available by certain manufacturers, they

could quickly find themselves overtaken by their competitors. This trend would instantly impact their market share and revenue.

The automotive industry has also caught on to IoT and connected devices with more and more vehicles using wireless communication technologies, and especially mobile broadband.

One only needs to open a newspaper to see just how close the advent of self-driving cars is. Vehicles are already digitally interconnected products with their GPRS, Bluetooth and other software-driven functions. Once self-drive is perfected, it will be almost exclusively reliant on the ability to communicate with other vehicles and traffic systems.



This inevitably results in implementation of mobile broadband standards in vehicles and the requirement to licence SEPs.

SEPs are also set to play an increasing part in healthcare and, more specifically, digital therapeutics.

Instead of your doctor having to send off test results for analysis, new technologies enable that analysis there and then in the surgery. The results can then be fed into wireless devices owned by the patients that control and continue to monitor the relevant vital statistics and administer the required treatments.

There are undoubtedly a whole host of other applications we haven't even considered. However, what all these sectors have in common is the enormous commercial potential offered by standards technologies, or more pointedly, the almost unlimited potential licensing revenue SEPs represent.

Although 3G and 4G licensing has already proved highly lucrative for many, 5G will be even more so. 5G is designed to enable a wireless communication between any type of product which will transform the FMCG, automotive and healthcare industries as well as, potentially, any other market you can think of.

WHAT ALL THESE SECTORS HAVE IN COMMON IS THE ENORMOUS COMMERCIAL POTENTIAL OFFERED BY STANDARDS TECHNOLOGIES, OR MORE POINTEDLY, THE ALMOST UNLIMITED POTENTIAL LICENSING REVENUE SEPS REPRESENT.



HOW CAN YOU TAKE FULL COMMERCIAL ADVANTAGE OF SEPS?

The telecommunications industry has provided a strong yet simple business model for every sector planning to utilise wireless communication and interconnectivity to follow:

- › **YOU INNOVATE**
- › **YOU PROTECT YOUR INNOVATION WITH PATENTS**
- › **YOU HELP SET INDUSTRY STANDARDS SO OTHERS CAN ADOPT YOUR TECHNOLOGY**
- › **BY PLAYING AN ACTIVE PART IN AN SSO AND MAKING TECHNICAL CONTRIBUTIONS COVERED BY YOUR PATENTS, YOU OBTAIN SEPS**
- › **YOU GENERATE LICENSING REVENUE FROM THE ADOPTION OF THESE STANDARDS IN RELATION TO THOSE SEPS**

If you are thinking about developing new technologies to enable digital interconnectivity you need to review how you protect and commercialise your ideas.

WE'D SUGGEST THIS PROCESS SHOULD INCLUDE:

01

REVIEWING YOUR IP STRATEGY

02

REVISING YOUR IP STRATEGY ACCORDINGLY

03

ENGAGING AND EDUCATING YOUR TEAM

04

LOOKING TO INCREASE YOUR PATENT PORTFOLIO

05

REVIEWING YOUR IP AND LEGAL BUDGETS

06

ENSURING YOU CAN RESPOND PROPERLY TO FRAND TERMS



01

REVIEWING YOUR IP STRATEGY

A review of your IP and patenting strategies to ensure that all the new ideas or improvements you come up with are fully protected and to identify any aspects of your technology that you haven't previously sought to protect are protected.

In particular, consider standards relevance when assessing the commercial value of new innovations.

02

REVISING YOUR IP STRATEGY ACCORDINGLY

Revising your patenting processes to highlight the areas you're actively looking to develop but may not have protected in the past, and deciding how you will progress these.



03

ENGAGING AND EDUCATING YOUR TEAM

Make sure everyone in your organisation - from your engineers to your board - understands your new strategy, why you've put it in place and what their part in the implementation will be.

04

LOOKING TO INCREASE YOUR PATENT PORTFOLIO

Consider pursuing a patent for any invention involving digital interconnectivity. While it may be difficult to obtain patent protection if you work in telecoms, if you are active in another field, you may be able to get a patent. Once you have a patent, you may be able to get a standard essential patent which in turn could give you a valuable asset to licence or even sell.



05

REVIEWING YOUR IP AND LEGAL BUDGETS

Re-assess your legal budget to cover a possible increase in patents, licensing fees and even litigation costs should you find your FRAND terms are not being adhered to or you are being forced into over-zealous terms by those who own the SEPs for the digital interconnectivity technology you want to use to further your products.

06

ENSURING YOU CAN RESPOND PROPERLY TO FRAND TERMS

Be prepared to take a firm position regarding any FRAND terms you receive or offer. There are very specific ways you need to respond to suggested terms and if these aren't met, you could seriously damage your position. To preserve your position, talk through the terms with an IP solicitor who specialises in negotiating SEP licensing terms.

You could also consider getting involved in a standard-setting organisation. Participation will show you the direction of travel in the industry and give you an opportunity to directly influence what happens.

This will involve a cost, but the cost could be worth it given the insight and influence you could gain.

YOUR CORE TEAM



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A PROVEN APPROACH

OUR ACCOLADES

You can be truly confident in our abilities – we are recognised as a top-tier firm in Europe, having received accreditations from the IP profession’s leading benchmarking organisations and programmes.



“An excellent firm to deal with. They have invested in gaining a thorough understanding of our approach to projects, their communication is timely and concise, and their advice is easy to understand.”

CHAMBERS & PARTNERS, 2022



“A key strength of Potter Clarkson is their combination of expert attorneys with solicitors, which gives comprehensive advice on highly technical matters using patent attorney expertise and solicitor know-how, as well as commercial and branding matters with trade mark attorneys and solicitors working together.”

LEGAL 500, 2022



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