

HOW DOES CELLULAR STANDARDS LICENSING WORK?

MAKING EUROPE THE WORLD'S LEADING DIGITAL INNOVATION ECOSYSTEM

The vision of Europe's telecommunication technology inventors is to make Europe the world's leading digital ecosystem. Industry practices and policies that support a virtuous circle of innovation and investment in cellular communications standards are essential to realising this goal.

World leading companies, universities and public research organisations have voluntarily contributed bespoke telecommunication technologies – designed to enable the development of the Internet of Things (IoT) or connected vehicles – to the 5G cellular standard. These technologies are expected to unleash consumer value estimated to be worth up to \$11.1 trillion.¹

For Europe to take advantage of this opportunity and become a leader in the fourth industrial revolution, new companies from sectors beyond ICT will need help to become more familiar with the principles and practices of cellular standards licensing.

LICENSING THE RIGHT TO MAKE CONNECTED DEVICES

Hardware companies that wish to make 'connected' components or products, can do so by implementing the technical specifications (a complex set of definitions and procedures, numbering thousands of pages) published in a cellular communication standard.

Having used (or "implemented") the standard, they may be approached by the inventors of the telecommunication technology used in the standard and asked to negotiate a licence.

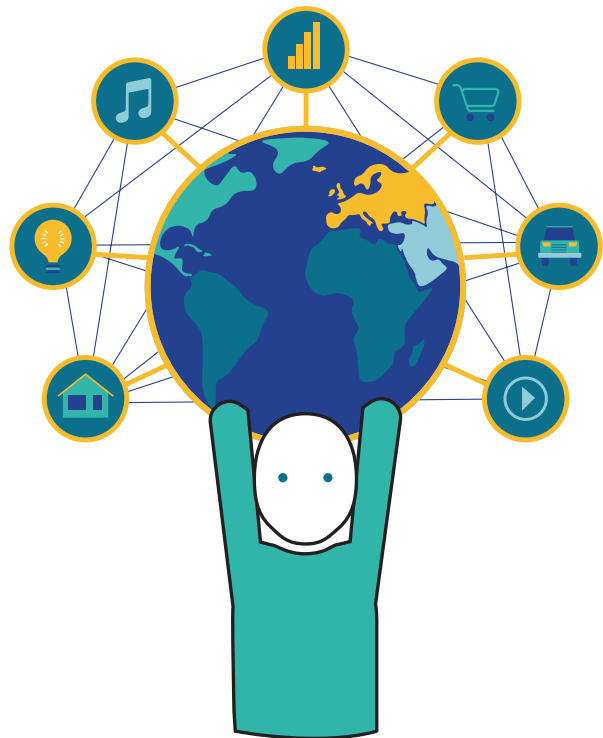
The patents which protect the many inventions that are used in a new cellular standard are described as Standard Essential Patents, or SEP. These are required to be made available for license on a Fair, Reasonable and Non-Discriminatory (FRAND) basis that ensures a balance of benefits between standards developers and implementers: the developers are guaranteed a fair return on their R&D investment, and implementers are guaranteed access to the latest and best cellular communications technologies under reasonable and non-discriminatory basis.

HELPING NEW ENTRANTS TO SEP LICENSING NAVIGATE THE PROCESS

Cellular standards developers have a commercial incentive to encourage the widest possible participation of new companies and sectors in the 5G-enabled Internet of Things (IoT). They recognise that cellular standards developers and implementers will succeed together in this enterprise.

In October 2017, IP Europe initiated a workshop involving cellular communication technology developers and implementers with over 20 years' experience of licensing negotiations from both sides of the table. Their shared goal was to develop practical guidance for companies wishing to implement cellular standards in their products for the first time in the 5G / IoT era. The workshop took place under the auspices of a CEN-CENELEC Workshop Agreement (CWA) procedure.

The result of the year-long workshop process and subsequent public consultation is a useful, short, and comprehensible guidance document called "Principles and Guidance for licensing Standard Essential Patents in the 5G and Internet of Things, including the Industrial Internet".



¹ <https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/The%20Internet%20of%20Things%20The%20value%20of%20digitizing%20the%20physical%20world/The-Internet-of-things-Mapping-the-value-beyond-the-hype.ashx>

WHO NEEDS TO TAKE AN SEP LICENCE IN THE 5G ERA?

In the 4G era, the licensing of SEP has predominantly taken place at the level of the end-device manufacturer within ICT value chains; for example, smartphone and tablet makers.

5G was conceived and designed specifically to enable a wide variety of new sectors and companies of all sizes to create connected products and participate in the Internet of Things (IoT).

As with previous generations of cellular standards, a licence for access to the cellular communication standard is usually taken at a single point in the value chain of a product. This is to simplify licensing, reduce costs for all parties and maintain a level playing field between licensees. An SEP owner must determine the most appropriate and efficient point in the value chain at which to license an SEP by considering licensing practices in both parties' specific industries.

HOW MUCH DO SEPS LICENCES COST?

Licence fees and other terms in SEP licences must be Fair, Reasonable and Non-Discriminatory (FRAND).

FRAND licence fees are a small proportion of the value which the technology used in the cellular standard generates for implementers. They vary from product to product, depending on the value that the cellular technology adds. For instance, a smart washing machine with sensors that detect low levels of detergent and automatically orders more before it runs out is extremely practical, but the value to the washing machine will be comparatively low compared to some other applications.

By comparison, in a self-driving vehicle, the wireless connection is crucial to the car's core performance

For the automotive industry, the full licensing rates for previous standards (2G-4G) are of just US\$15 per car for approximately 80% of all cellular technologies needed for connected cars, irrespective of the price of the car. That's a very small price to pay for total connectivity and to be able to access an entire world of markets and services.

and safety. Similarly, implementing the 5G standard in the next generation of smartphones will create more value than integrating it in simpler products like a connected vending machine. Whereas the smartphone will rely on cellular standards for its core functionality, a connected vending machine may only use the standard occasionally to order new stock.

The whole point of the value-based licensing process

is to make cellular technology standards affordable and available to anyone who wants to make a connected product. This availability of the standard enables the development of new products and services, increases competition, and delivers better, cheaper services to everybody.

FRAND SEP LICENCES ARE PRO-COMPETITIVE AND NON-DISCRIMINATORY

The FRAND principle for SEP licences is specifically designed to support competition and avoid market discrimination or the development of monopolies.

For standard developers, SEP licences on FRAND basis provide the necessary balance of technology protection and fair and reasonable return on investment to encourage them to voluntarily contribute cutting-edge cellular technologies to the competitive open standardisation process.

The FRAND commitment also means that chip, component, module, and device manufacturers which are not involved in cellular technology innovation can nonetheless compete to develop the latest and greatest connected devices.

GOOD FAITH NEGOTIATIONS

Concluding a FRAND licensing agreement efficiently is always made easier when SEP owners and potential licensees come together with the good faith aim of concluding a deal. To achieve this, each party should provide to the other all the information that is necessary to enable the timely conclusion of a FRAND licence, which may require parties to agree to a reasonable non-disclosure agreement.



The utility and efficiency of this tried and tested system based on licensing Standard Essential Patents on a FRAND basis has been demonstrated by the global success of the smartphone market. Consider that mobile phones were not widespread before 1990, but today there are over 2 billion smartphones users and over 5 billion mobile subscriptions world-wide. No company could have achieved this alone.