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Intellectual Property Watch

(a) The Internet of Things (IoT), which will connect billions of devices in coming years, may offer incredible opportunities for businesses and consumers but it also raises significant intellectual property issues, IP lawyers, mobile operators and others say. One key question is whether patenting and licensing strategies will have to change to adapt to the myriad standards being developed and patents being sought for IoT products and services, and for the coming rollout of 5G technologies.

“The transformation of the global economy to a digital economy affects all industrial and service sectors,” the European Commission said in a 19 April 2016 communication on information and communication technology (ICT) standardisation priorities for the digital single market ([available here](#)). “Common standards ensure the interoperability of digital technologies and are the foundation of an effective Digital Single Market,” it said.

Industry will need to expend \$4 trillion by 2020 to make the DSM a reality, but that will only happen if they receive return on their investment, Ericsson IPR Policy Director Claudia Tapia said at a 23 March OxFirst webinar on the DSM and IoT licensing. Standards development requires huge investment and strong commitments by the companies involved, she said, noting that it took around 3.5 million man-hours to develop 3G telecom standards.

Such standards frequently refer to technologies protected by patents, the EC said in a June 2014 competition policy brief. A patent that protects technology essential to a standard is called a standard-essential patent (SEP). Companies that own SEPs are required by many standards development organisations (SDOs) to licence them on fair, reasonable and non-discriminatory (FRAND) terms.

EU, US Working on SEP, FRAND Issues

“Using multiple technologies and standards inherent to the deployment of complex IoT systems may naturally involve patented or protected technologies. It can be anticipated that service or higher layer technologies may be deployed under ‘free’ licensing schemes...,” the EC said in a staff working paper accompanying its April 2016 communication ([available here](#)).

But other technologies, which involve huge investment in research and standards development, may be licensed under FRAND terms, which ensure fair access to the standard for technology implementers and fair return for SEP holders, it said.

Some stakeholders have noted that with the multitude of technologies involved in putting in place a complete IoT value chain, there are “possible risks of uncertainty” regarding who is the relevant community of SEPs holders; how much all the IP needed to implement the IoT system will cost; and how to calculate the value introduced by the patented technology for the use in question, the staff document said. Another issue is how to settle disputes.

“Against this background, industrial efforts are ongoing to develop a transparent, innovative and globally acceptable licensing scheme for all players of the value chain and for the relevant protected technologies of an IoT system,” the EC staff document said.

The EC intends to work with stakeholders on possible measures to improve accessibility to and reliability of information on patent scope, including ways to boost the transparency and quality of SEP declarations, the EC told *Intellectual Property Watch*. That work should also clarify the core elements of an equitable, effective and enforceable licensing mechanism around FRAND principles and facilitate the efficient and balanced settlement of disputes, it said. The EC is now discussing what form its action will take and a more detailed timing, it said.

The US is also considering how to move forward on the IoT. In a January 2017 “green paper” for the National Telecommunications and Information Administration (NTIA), the Department of Commerce Internet Policy Task Force and Digital Economy Leadership Team said that, “as with any technological field, patents can be expected to play a key role in IoT development” by giving inventors incentive to develop better devices, manufacturing processes and infrastructure. Moreover, “several patent policy issues have the potential to impact IoT industries going forward.”

As IoT standards are developed in the US and abroad, “issues around standard essential patents and licensing may arise,” the green paper said. Some standards development organisation (SDOs) encourage or require participants to declare any patents they own that would be needed to implement a standard, but the US defers to private sector SDOs to adopt approaches that meet the needs of participating members and the industries where those standards will be used while balancing the various interests involved and fairly compensating patent owners for use of their technology, it said.

Patent quality “is another critical issue,” particularly with regard to litigation, and the IoT may also present challenges for patent enforcement as its distributed nature potentially raises questions about multi-party infringement liability, the paper said.

The US government paper [is here](#) [pdf].

Does the IoT Raise Patenting or Licensing Issues?

The European Telecommunications Standards Institute’s (ETSI) IPR objectives seek to include the most suitable technology into its standards, so it asks IPR holders to licence their technologies on FRAND terms and licensees to accept that rights owners must be adequately

and fairly rewarded for the use of their patents, ETSI Chairman Dirk Weiler said last fall.

ETSI (and the 3rd Generation Partnership Project as a part of ETSI standards) “have enabled a highly competitive and successful mobile communication ecosystem,” he said. Other industries intending to use IoT/5G standards and technologies, such as the automotive, “have a much lower degree of standardized solutions so far and are not so familiar with the concept of SEP portfolio licensing,” he emailed.

Weiler said he sees more differentiation in the IoT in how standards are used, and that in some areas, patented technologies won't play as important a role. “The industry needs to find consensus for which standards forefront technologies are continuously needed, and where patented technologies are not so important,” he said.

Asked whether SEPs will be more or less important in the IoT and 5G, Weiler said, “A lot of brand new technology is necessary to fulfill the promises of 5G, so either the value of SEPs will be kept, or the promises are endangered. I expect that there are significant areas where SEP continues to be very important, while other areas might use different mechanisms.”

There are several different ways of looking at the patent landscape in the IoT, Mammen said.

At one level, there are consumer devices such as smart toasters and lightbulbs. In this sector, the massive number of devices also corresponds to “plummeting per-unit prices, and correspondingly low per-unit value ascribable to any particular technology,” he said.

If IoT patents in this sector are to be monetized, there will likely have to be new market mechanisms such as patent licensing pools, which are usually associated with standards and corresponding FRAND obligations, to be able to manage huge numbers of tiny payments efficiently so transaction costs don't overwhelm actual licence value. Specialised sectors of the IoT, such as industrial supply chain applications, where the per-unit value is high and the number of units low, might be more amenable to more traditional case-by-case valuations, he said.

There are other factors to consider as well, Mammen said. Patents are typically enforceable against those who make, use, sell, offer for sale or import infringing items. It may turn out that there are particular points in the IoT supply chain where the number of market players is small, which could be a pressure point for IP enforcement.

Licensing Platforms Emerge

Ericsson saw the need for more transparency in the IoT world, so it took the lead in creating a new platform for licensing similar technologies for the IoT, Tapia said. Along with Qualcomm, Sony and others, it helped created Avanci (avanci.com), an independent entity which seeks to attract different kinds and sizes of businesses to share and access SEPs at flat per-unit rates, she said.

The idea is to provide access to SEP wireless patents in a way that helps companies innovate more quickly, Tapia said. Avanci offers predictable and non-discriminatory terms at a fair and reasonable rate, and it removes barriers to market entry, she said. Once the platform secures its first deal, it will publish the royalty rates, she said. Avanci didn't respond to a request for comment.

The Fair Standards Alliance <http://www.fair-standards.org> formed in 2015 to “strengthen the voice in Europe of companies” that believe that the licensing of SEPs must be done on a FRAND basis. FSA members include Google, Dell, VW, and Cisco.

In response to Avanci’s launch, the FSA said last September that the licensing patent pool “might not yet go far enough to solve industry wrangling over patent licensing.” The FSA wants to avoid a licensing system that tries to charge “different prices for using the same technology depending on the use to which it is put, for example, a different price for a wireless unit in a car compared to the same wireless unit in a smartmeter,” said FSA Chairman Robert Pocknell.

IoT Platform Solutions also Pose IP Questions

Platforms are changing the IP landscape, Excelerated Technology Consulting’s Kurt Kelley said at a 19 January OxFirst webinar on the economic role for patents in the IoT space. Platforms provide hubs that connect IoT devices and services, but the “big question in the sky” is who owns the total solution, he said.

“There are a lot of interesting directions” in which IoT platforms could go,” Mammen said. He sees several major market players trying to develop and propagate their own or favoured IoT standards: “We might end up with one dominant ecosystem around one of these platforms, or we may end up with a number of competing platforms.”

A platform might be proprietary, with the IP controlled by a single company or consortium, or it might be more open, with either an industry standard built on proprietary technology subject to FRAND commitments, or possibly even an open source platform, he told *Intellectual Property Watch*.

Case Law Still Key

Despite efforts to ease royalty negotiations for the IoT, case law on FRAND remains centre stage.

One key ruling was the July 2015 European Court of Justice decision in *Huawei v. ZTE* (C-170/13), which set out the obligations on SEP holders and alleged infringers in FRAND talks. Among other things, Tapia said, it confirmed that FRAND is a two-way street in which both parties must act in good faith in licensing negotiations.

The EU and US have differing perspectives on FRAND, Hogan Lovells (San Francisco) patent and technology litigator Christian Mammen emailed. In Europe, the issue of complying with FRAND obligations is seen primarily as a problem of competition law, while in the US, it’s viewed mostly as one of damages and remedies in patent infringement lawsuits, he said. Mammen said he has seen some movement in the US toward more of a competition law approach.

Tapia is also the chairperson of the 4iP Council, www.4ipcouncil.com which identifies itself as representing leading technology inventors in Europe who believe that IP rights “enable innovation and increase social and economic welfare.” The council on 27 March rolled out an information resource to help IP stakeholders find national case law that applies the “seminal” *Huawei v. ZTE* ruling.

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