

Standard Essential Patents and Their Role in Enabling the Internet of Things

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The 5G network continues to be rolled out around the world. As it becomes more ubiquitous, innovative companies are racing to develop new products and technologies that will take advantage of the greater speed, responsiveness, and connectivity that the fifth generation of wireless technology offers.

For example, 5G will be (at least until the onset of 6G) the backbone of the "Internet of Things" (IoT). From household appliances to cars, 5G will power communication between connected physical objects and the cloud, and different components within those objects will need to incorporate chips and software subject to different patents held by different patent holders. Unless that technology is properly licensed, an appliance maker or car manufacturer would almost certainly face multiple patent infringement suits that would cripple its production and lead to significant damages.

In order to enable innovation, such as what is happening with the build-out of the IoT through the implementation of 5G, standard-setting organizations ("SSO") establish technological standards. For example, the European Telecommunications Standards Institute sets the standard for 5G. The IEEE Standards Association set the standard for WiFi, another technology that is broadly used by the general public.

When a new technological standard that will be broadly used by the general public is developed, patents that control parts of the technology used in the standard are called standard-essential patents ("SEP").

SSOs require owners of SEPs to commit to license their patents on fair, reasonable and non-discriminatory ("FRAND") terms in order to prevent patent holders from seeking to extract high royalties after receiving SEP status. In short, SEPs allow technologies to become standard by decreasing the barriers to implementation for companies that don't hold the necessary patents. Owners of SEPs trade off the potential gains from holding an exclusive patent in return for a steady stream of royalties. Companies typically self-declare SEPs to SSOs.

While SEPs enable innovation, and remove barriers for companies building products according to a technological standard, disputes do arise between patent licensors and licensees.

Disagreement Over Royalty Rates

An issue of frequent dispute—and litigation—among patent licensors and licensees is whether a patent owner may license its SEPs based on the sales price of the end product (e.g., a connected appliance) or if the patent owner must license its SEPs based on the sales price of a component within that end product (e.g., a sensor). From a patent owner's perspective, it would be more beneficial to establish a royalty based on the sales price of a 5G-connected \$5,000 refrigerator rather than a \$500 component that is being incorporated into the refrigerator.

In patent infringement litigation, different jurisdictions around the world rely upon various legal doctrines to assess and calculate damages.

In the United States, one of those doctrines is the "smallest salable patent practicing unit" ("SSPPU"), which determines the economic base used to establish damages from the smallest unit or component within a product that embodies the patent that is allegedly being infringed upon, not the end product in which those units or components have been incorporated into. The SSPPU doctrine also plays an important role in private negotiations for SEP licenses.

In recent years, courts have weighed in on whether the SSPPU is a hard-and-fast rule, or merely a helpful guideline, in determining a royalty base. In the case of *Commonwealth Scientific and Industrial Research Organisation* ("CSIRO") v. *Cisco*, a three-judge panel of the U.S. Court of Appeals for the Federal Circuit rejected as "untenable" the idea that, as a rule, patent damages calculations must always start with the SSPPU. The Federal Circuit explained that while the SSPPU can be a helpful guideline that assists courts in determining damages, it is not the only approach that can be considered, and the facts and circumstances of each case should be taken into account to fashion the right solution.^[1] In a more recent case, *Exmark v. Briggs-Stratton*, the Federal Circuit reinforced the notion that there is no absolute rule requiring use of the SSPPU doctrine when determining damages.^[2]

Different jurisdictions also approach other issues in patent infringement litigation involving SEPs, such as injunctions, in different ways. In Europe, the Court of Justice of the European Union ("CJEU"), in the case of *Huawei v. ZTE*, CJEU 2015, established a process for seeking injunctive relief involving SEPs. The court held that before seeking any injunction, an SEP owner must (i) notify the alleged infringer of the infringement by designating the patent in question and specifying the way in which it has been infringed and (ii) and make a written offer for a license on FRAND terms, specifying the royalty and how it would be calculated. In the United States there is no similar specific process for seeking injunctive relief for infringement of an SEP.

Over-Declaration of Patents as Essential

The ostensible benefit of the SEP framework to licensees is that they can have a certain level of confidence about the costs associated with licensing patented technology.

The challenge licensees face is knowing whether that technology is, in fact, "essential" to a given technological standard. Because there are economic incentives for patent holders to assert that a patent is essential to a standard, there are instances where patent holders over-declare SEPs, which leads licensees to overpay.

The Future of SEPs and the Internet of Things—Globally and in Turkey

Interoperability between systems is key to unlocking the full potential of the IoT. Indeed, McKinsey asserts that without interoperability the IoT industry could lose out on as much as 40% of its potential value. And interoperability requires an effective framework for establishing, licensing and enforcing SEPs.

Moving forward, SSOs will need to continue to refine standards for establishing FRAND pricing. Governing bodies—and not just SSOs—may need to step in and begin certifying which patents are standard-essential. Courts will continue to play a role in determining how disputes are resolved.

IOT Analytics [found that](#) overall enterprise Internet of Things (IoT) spending grew 12.1% in 2020 to \$128.9 billion. It estimates that IoT spending will grow at 26.7% annually moving forward. With so much money at stake, and so many patents being sought to capture some of this value, SEPs will play a critical role in shaping the future of the global IoT industry.

In Turkey, SEPs currently don't play a big role, in part because much of the manufacturing and other economic activity here has not, historically, involved the integration of technology covered by an SEP. But that is changing. As the Turkish economy continues to become more advanced, the focus on SEPs will grow. For example, as Turkey becomes an even larger player in the automotive industry ([110,000 vehicles](#) were produced in Turkey in October, 2021), including the production of the country's first electric vehicle, a great deal of technology subject to SEPs will be implicated. Accordingly, it's critical for Turkish companies—and foreign companies doing business in Turkey—to know how to navigate the SEP landscape.

[\[1\]](#) 809 F.3d 1295, 1299 (Fed. Cir. 2015)

[\[2\]](#) 2018 U.S. App. LEXIS 783 (Fed. Cir. Jan. 12, 2018)

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