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**IP ON TECH'S CUTTING EDGE:
LEADERSHIP EU**

SMARTPHONE WARS: A PHANTOM MENACE



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I. LAW AND POLICY FOR 5G AND THE IoT

“When we get beyond 4G, 5G will make 3G look like 2G.” That was the prediction of one panelist at AIPPI’s Sydney conference in October. But he wasn’t talking about another leap in speed or capacity. His prediction concerned the volume of patent litigation.

One can understand the basis for his prediction. The 2G era (1990s and early 2000s) saw comparatively little patent litigation around wireless connected devices. From 2006 to 2012, 3G cellular networks started to make wireless data as fast as a desktop internet connection. We saw three industries converge. One was the mobile phone industry, which had created the fast wireless data connection. The other two industries involved in this convergence were the computer and consumer electronics industries. These industries made products that worked better when they were harnessed to the wireless connectivity of the mobile phone: cameras, media players and personal digital assistants. They became a single device: the smart phone.

And with that convergence we saw an increase in litigation: the Smartphone Wars. Why was that? Before convergence, the mobile telecommunications industry had been characterized by cross-licensing. Each participant needed others to pay for its technology: developing wireless cellular radio is probably the most expensive technological investment that we have ever made. Unless that investment is recouped as we go along, development will cease. But before convergence, each participant also needed the other participants’ technology to build its devices. And so both sides had an incentive to reach agreement, and each had something to trade. No one was incentivized to demand very high or very low royalties for intellectual property because what was sauce for the goose was sauce for the gander: what helped a company in one area would hurt them in another.

There was also little room for debate about where in the product chain to license. Most manufacturers were vertically integrated: they ultimately made end user consumer devices. If the company that made the end user product also designed the chip, there was little incentive to push the royalty cost up the supply chain. There was no room to push the royalty burden down the chain, because down the chain were the carriers. As everyone’s customers they wielded the power in the industry, and no patent owner dared assert patents against them. And so, before convergence, cross-licensing occurred, and it became understood that royalties were paid on the handsets.

The new entrants from the computer and consumer electronics industries had not played as much of a part in standards development, so they did not have as many patents to cross-license. Recognizing that they would be the net payers, they were understandably less keen to reach a deal. As a result, many launched their products without having licenses agreed, knowing that they could later obtain the licenses, on fair, reasonable and non-discriminatory (“FRAND”) terms. Coming from a different industry tradition, some also questioned whether they could push the royalty burden to a different place in the supply chain.

When deals could not be reached, patent owners brought infringement proceedings. Implementers complained to regulatory bodies that the patent owners were not offering their standards-essential patents (“SEPs”) at a rate that was fair, reasonable and non-discriminatory, and brought claims in competition law. These were the Smartphone Wars.

With the development of 5G we will see another convergence. 5G allows wireless telecommunication technologies to be incorporated into a whole range of products: cars, smart meters, domestic appliances and aircraft engines – the Internet of Things (“IoT”). It isn’t just one or two new companies that are entering the wireless arena, it is hundreds: some large, some very small, from start-ups to companies with over a century of tradition. All come from very different industry backgrounds. Many have no idea that the wireless technology being incorporated into their products comes with a technology cost. They buy the technology in component form and rely on indemnities from their various suppliers. But the suppliers, who are fiercely competing on price, cannot compete if they build the technology cost into the components that they supply. Each company in the supply chain points up or down the chain: someone else should pay.

And so, the cycle that led to the Smartphone Wars will repeat. With greater divergence among the technology developers and technology implementers, we will see more disputes. Patent owners, unable to reach agreement, will bring proceedings, or if they cannot justify the cost of doing so they will sell their patents to assertion entities. Investors, driven by low interest rates to look for alternative places to invest, will increasingly fund patent acquisition and litigation. The stage is set for Smartphone Wars II. That, at least, is the theory.

II. SMEs

Many of the new implementers in IoT are small to medium enterprises: start-ups with new ideas made possible by the use of wireless connectivity. They will, it is hoped, grow into the big employers of tomorrow. They face five immediate problems.

First, they are in a race. Conventional start-up wisdom is that speed is everything: the product must be launched and scaled as fast as possible, before cash runs out and before competitors catch up. That sort of timescale simply doesn't allow the negotiation and acquisition of licenses.

Second, they operate at a loss: they cannot afford to pay for anything that does not immediately and obviously contribute to launch and scaling of the product. While they are small, they can get away with that because the patent owners have limited resources and can't approach everyone.

Third, in Europe at least, they struggle to attract the investment that might alleviate these problems. All they have is an idea. Ideas are difficult for Europe's more conservative investors to value.

Fourth, they don't have the resources or expertise to involve themselves in Standards Development. Some argue that they cannot be part of SDOs: they know how to make products, not how to optimize wireless carrier channel selection, for example. This matters because they are the beneficiaries of the technology being developed on the SDOs. If they don't have a say in the process, the standard may not meet their needs. And if their innovations and new ideas do not contribute to the standard, they won't acquire a portfolio of SEPs that would make them a more attractive investment proposition, or strengthen their hand in cross-licensing negotiations.

When SMEs do participate in SDOs, they do well: a recent study² revealed that the rate of acceptance of technologies developed by SMEs into 3GPP standards was equal to the rate of acceptance by the more established members. But it is hard for a small company to justify spending time and money on long-term standards development projects when its main concern is trying to grow in the short-term.

Lastly, patent litigation is expensive. If an SME develops technology, and obtains patent protection, it cannot realistically assert the patents. There is a critical mass of patents necessary before the risk and cost of patent assertion becomes worthwhile. Even for those with enough patents, it is probably only worthwhile to assert against a large-scale implementer of the technology. Otherwise the costs of litigation exceed the possible royalties.

III. A COINCIDENCE OF TIMING

It is usually hard for SMEs to attract regulatory attention. SMEs have no lobbying budgets, and little opportunity to meet regulators or explain their problems. Even if they do have the opportunities, as newcomers to an area they are often unaware of the difficulties that they are likely to face.

But today's new entrants into the wireless technology world coincide in timing with the first wave of new entrants peaking in strength. The former computer and consumer electronics companies have become today's smartphone giants. The giants have the money and the political strength to lobby regulators.

The giants are facing price competition from the low cost manufacturers from China who are taking market share and (for the most part) not paying royalties. The giants are now paying (or recognizing that they need to pay) royalties to the original mobile phone companies who were more involved in the standards development. So it makes sense for the smartphone giants to use that money and political strength to lobby to bring down SEP royalties, or push the burden of patent licensing further up the chain to the component suppliers.

In this aim of reducing SEP royalties, the interests of the smartphone giants align with the interests of the new entrants. United in this common interest, they form lobbying groups. One such group, the Fair Standards Alliance, recently published a paper condemning use-based licensing, and discussing where in the chain licensing should occur.³

² Kirti Gupta, The Role of SMEs and Startups in Standards Development, July 12, 2017, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3001513.

³ www.fair-standards.org.

Use-based licensing is the idea that a person who makes a greater use of technology should pay more for it. So, the argument goes that a seller of a smartphone which is connected to the network for much of the day should pay more in dollars per device than the seller of a water meter which connects to the cellular network a few times per year. The FSA argues that if SEP holders would be able to charge different rates depending on the use of the technology, users would be required to pay a portion of the value they themselves create. The SEP holders argue that the FSA, if it achieves a single rate, will then insist on the lowest common rate across all products. The small manufacturer of a cellular connected meter may well have a good argument that cellular connectivity brings only a small value to his product, that profit margins are slim and that a fair royalty is only a few cents. The smartphone giants support a ban on use-based licensing because they can drive down their own royalty costs by arguing that their products (which make heavy use of wireless technology) should pay no more than the low rate sustainable on the product which makes only occasional use.

The FSA also raises concerns over any effort to license at a common point in the chain. It argues that all component manufacturers “have a right to” a FRAND license. It argues that unless European companies are able to sell and to purchase fully licensed standardized components, they would be disadvantaged as against their international competitors.

The SEP owners argue that this is again a ruse. A manufacturer of a component which sells for a few dollars can argue that he can only afford to pay a few cents on each product for wireless connectivity technology. If he can then sell a chip which carries with it the benefit of a license to all wireless technology patents, the smartphone giants can save themselves dollars per phone in royalty payments. In short, say the SEP owners, the argument about “entitlement for everyone” in the chain is simply a mechanism for the smartphone giants to drive down their own royalty payments. In contrast, there are good reasons to adopt the practice from the mobile phone industry of agreeing to a common point for licensing. This avoids double dipping (royalties being paid twice) or the problems of working out what is licensed and what is not. And, SEP owners argue, it is only once you have a fully functioning device that most SEPs are utilized.⁴ If components alone don’t infringe the SEPs, the component maker will not want to pay for them.

It is this coincidence of timing, with new entrants joining as the smartphone giants peak in strength, which allows the smartphone giants to put forward arguments that favor themselves in the guise of arguments that favor new entrants. The combination of large corporate lobbying dollars and the cause of “supporting SMEs” has proven to be an irresistible political force.

IV. THE DRAGON AWAKES

There have been two major changes in patent litigation during the Smartphone Wars. The first is the increasing willingness of government authorities to intervene.

In the case of most intellectual property rights, we associate government intervention with supporting the enforcement of rights. Our taxes fund customs authorities and trading standards officers, who seize infringing goods and prosecute infringers. And as a result, a consumer can walk into any drug store, music store or bookseller and be pretty confident that the product he or she picks off the shelf is lawful. The author, the composer or the pharmaceutical researcher will each get a share of the price that the consumer pays to buy the product.

But walk into a store selling high-tech goods, and the position is entirely reversed. The products on the shelves are often unlicensed to the patents that they use. And instead of supporting the rights holders, the tax dollars in this area of intellectual property are being spent on the other side.

How has this come about? Defendants in the Smartphone Wars have long complained to competition authorities that they believed that a patent owner was not offering them a license on FRAND terms. But in the first decade of the Smartphone Wars, the competition authorities, reluctant to intervene in what was essentially a commercial dispute between large companies, preferred to leave matters to the courts to resolve.

Today, in contrast, few patent disputes in the industry do not have some degree of regulatory involvement. Indeed in the litigation around Qualcomm a casual observer might be forgiven for not realizing there is a patent dispute at the heart of it: Apple infringes Qualcomm’s patents, and Apple isn’t paying. Ordinarily that would result in a patent litigation, and perhaps a court determining what Apple should pay. But instead we see a storm of competition law claims against Qualcomm, many brought by regulators at the instigation of Apple and others. The combined lobbying of the smartphone giants has raised the regulatory dragon from its sleep.

⁴ Puttnam & Williams, The Smallest Saleable Patent-Practising Unit (SSPPU): Theory and Evidence (September 6, 2016), available at: <https://ssrn.com/abstract=2835617>.

But dragons are clumsy creatures. Although effective at scaring off the raiders, they are apt to set fire to houses and trample the crops. By the time they have returned to their cave, there may not be much left of the village that they were summoned to save. This is the fear of the mobile phone industry. If competition regulators breathe fire on the SEP owners, there will be little incentive to participate in standardization. Innovators will revert to developing proprietary technology, which is less vulnerable to competition law arguments.

Taiwan's economics industry has said it is "deeply concerned" about its antitrust agency's "me too" fine against Qualcomm, recognizing the chilling effect it will have on foreign investment.⁵ The European Commission has been invited by the CJEU to reconsider its fine against Intel.⁶ Within the Commission, the Directorates-General of Internal Market and Industry and Research are reportedly trying to rein in Competition's desire to intervene in SEP licensing.⁷ The Federal Trade Commission's apparent political motivation in its case against Qualcomm raises eyebrows, and the Supreme Court is reconsidering the U.S. government's ability to revoke granted patents. Even the most ardent of advocates for SEP reform would probably agree that it may be the competition authorities themselves who now need reining-in.

V. PORTFOLIO DETERMINATION

The second change in patent litigation during the Smartphone Wars has been the rise of portfolio determination. The Smartphone Wars were characterized by patent-by-patent, country-by-country litigation. But litigating large numbers of patents actions in large numbers of countries is costly and inefficient, and for companies that wish to give or receive a patent license the real question is "how much?"

The first attempts at portfolio rate determination were in 2007/8, when Nokia and Bosch asked the Mannheim court to determine whether their respective offers for a license to the Bosch patent portfolio was FRAND. The Mannheim court declined to do so, and was supported in its decision by the Karlsruhe appeals court. Nokia and Qualcomm came close to a portfolio determination for a rate to Qualcomm's portfolio in the Delaware courts, but settled before trial.

Other licensees have shied away from standards-essential portfolio determination. It has often been a better negotiating tactic to put the SEP owner through the pain of patent litigation on multiple patents in many countries, because if the worst outcome of losing was paying a FRAND rate on the patent you lost, that was far better than paying FRAND on the entire portfolio, globally.

The change occurred with the *Huawei v. ZTE*⁸ case in Europe, and the Google consent order⁹ from the FTC. These established that if a patent owner was willing to go through independent third party portfolio determination, but the infringer was not, the infringer was at risk of being enjoined from selling products. Now, there was an incentive to both sides in having a third party set the rate.

Nokia arbitrated with Samsung and later LG. Another large company arbitrated rates with Ericsson and with Interdigital. These first four arbitrations showed that it was possible to set a rate even where the licensee challenged the extent of validity and infringement. Courts have also shown that they were prepared to set rates. Most recently the English Court in its *Unwired Planet* decision¹⁰ set the rate that Huawei must pay for a license to Unwired Planet's patent portfolio.

5 Reuters Wednesday Oct 18, 2017/6.23am.

6 C-413/14 P - *Intel v. Commission*.

7 IAM Magazine, blog October 26, 2017.

8 C170/13 <http://curia.europa.eu/juris/document/document.jsf?docid=165911&doclang=en>.

9 Motorola Mobility LLC, and Google Inc., In the Matter of FTC Matter/File Number: 1210120, available at: <https://www.ftc.gov/sites/default/files/documents/cases/2013/07/130724googlemotorolado.pdf>.

10 Neutral Citation Number: [2017] EWHC 711 (Pat).

VI. A SOLUTION?

This is good news, because it unblocks the bottleneck in licensing. If a court or tribunal can set a rate, it becomes easier to resolve the impasse in negotiations. An implementer cannot hold out indefinitely, arguing that the rate is excessive. A SEP holder cannot demand high royalties with a threat of injunction: the implementer can just ask the court to determine a fair rate.

For the SEP owner, there are good reasons to maintain a large portfolio. If the rate that he can secure in arbitration or litigation depends on the size and strength of his portfolio, the SEP holder will want to retain his patents, and not sell them on the secondary market to patent assertion entities. The incentives will be to aggregate patents, to obtain efficiencies of fewer transaction costs, and so models such as the Avanci licensing scheme or some large patent owners' patent accumulation strategies will become more common. With fewer licensors to deal with, patent licensees will have greater transparency: they will know who they have to deal with, and what the rates are.

It is good news for SDOs because there is now a business case for participating in standards-setting. Whether an industry participant is a large or small company, whether they are from a traditional wireless background or are a new entrant in the world of IoT, they can be relatively sure that patents that they create from standards development can be rewarded. They don't need to obtain the critical mass of patents needed for large-scale patent litigation, and it is not only the large-scale implementers who are worth approaching. This all makes it more likely that companies will invest in collaborative standards-development, and less likely that they will choose to develop proprietary technologies.

It is good news for implementers too. If innovators see a benefit in participating in SDOs, then there is a greater chance of SDOs developing the technology that implementers need. It remains true that most implementers may have little to contribute on the technical detail: the example of channel selection above. But they can and will be able to contribute by explaining what types of technology their idea needs, and steer the direction in which standards develop.

And finally, it is good news for us, the taxpayers. If a court can decide whether an offered rate is too high or too low there should be less need for taxpayer-funded intervention by the competition authorities.

VII. CONCLUSION

The current feeling among competition authorities that "something must be done about all this patent litigation" does not take into account the change that industry and the courts themselves have brought about in addressing the bottleneck in licensing. Following this change, the perceived problems may well work themselves out in the very near future. Competition regulators should allow time for that to happen before deciding whether further intervention is necessary.



