



RTT TECHNOLOGY TOPIC February 2011

Patent litigation and cost

In a change to tradition, this month's technology topic features a guest contribution from Dr David Cooper. David Cooper is with [Hillebrand and Partners](#), an engineering consultancy specializing in mobile cellular. He has worked for major manufacturers including NEC and Panasonic, and participated in ETSI, 3GPP and OMA standards. This article expresses his own personal opinions. In our view these directly reflect present market reality.

Note that in the UK there is a government review of IPR in progress, and comments are requested by March 1. <http://www.ipa.gov.uk/ipreview.htm>

Patent Litigation: a continuing cost for the long term

Standards are vital to communication technology. Countries and regions which get their standards development right reap an enormous economic and technological payback. Those which get it wrong risk being left on the sidelines. Up to now the EU hasn't done too badly. But there is an increasing problem: the clash between standards and intellectual property rights (IPR).

IPR is equally vital. Patent law encourages inventors to publicly disclose an idea which advances the state of a technology, rather than to guard it as a secret. In return, the state grants the inventor a special form of property: a twenty year monopoly on the use of the technique. Society benefits by the diffusion of new ideas and the inventor benefits through a temporary monopoly. Not all inventors see a sufficient advantage in this; for example the Coca-Cola company protects its famous recipe by maintaining rigorous secrecy. But often inventors see a real advantage in obtaining a patent, and are willing to forgo secrecy in exchange for the protection and opportunities that a patent provides.

By its nature, Standardisation is a communal undertaking, whose purpose is to create competitive markets by ensuring that products from different manufacturers work with each other. Engineering standards need to be carefully crafted to deliver the best performance, and need to use the latest technical innovations, so by their nature they are likely to rely on ideas that have been patented. The problem arises when the communal world of engineering standardisation trespasses on the private property of patents.

History clearly illustrates the importance of standards. In the early 1980s Europe's consumer electronics industry seemed in long term decline. Economists declared that by the next decade a European consumer electronics would no longer exist; the future would be a post-industrial service based economy; banking, for example. Production of physical goods was passé.

Fast-forward a quarter century and the European electronics sector is a dynamic global force. The electronics giant Philips weathered the storm and is a leading manufacturer across the range of electronic consumer goods. And a huge new world force has entered the consumer electronics arena: Finnish based mobile phone manufacturer Nokia, which makes almost one third of all mobile phones world-wide. Elsewhere small companies such as the Tom-Tom satellite navigator, or Pure which makes DAB radios, show European innovation at its dynamic best.

What led to this turnaround? In one word: standards. The success of a standardized cellular system revitalized the consumer electronics industry, spawning a new breed of high-tech enterprises. It all began in the 1980s when the lumbering national monopolies that controlled Europe's telephone networks got together to agree on a European standard that would allow portable phones, at that time specific to each country, to work outside their country of origin. For the first time there would be Europe wide mass market for these products. The standard, developed by the [European Telecommunications Standards Institute](#) (ETSI) was named GSM. By the early 90's a traveller could visit many countries in Europe and expect a mobile to work seamlessly. Standards development continues apace, although now it is performed by the 3rd Generation Partnership Project (3GPP), an organisation that can trace its ancestry directly back to ETSI and GSM.

The acceptance of GSM as a multinational standard was made possible by very special circumstances that no longer exist. The leading parties were old fashioned state telecommunications monopolies who were not in competition. Although there was competition between mobile operators- Vodafone and Cellnet for example- there was a sufficient culture of co-operation that they made a gentlemen's agreement to produce something that worked, and to share the results equitably.

This model of co-operation is unsustainable in the modern commercial environment and it is not clear how it will be replaced. Network operators are now tough competitive rivals and take a hard nosed commercial approach to patent law and engineering standards. Manufacturers are becoming ever more aggressive in how they assert their intellectual property. Patent litigation is adding significant costs and uncertainties to IT and communication industries using open standards. Governments are rightly worried by this problem. In the UK, Prime Minister David Cameron launched a [review of IP and growth](#) which is due to report in April.

In the European mobile cellular industry, the 1990's were a period of relative "patent peace". Overwhelmingly, those companies which had been heavily involved in the development of the dominant standard, GSM, resolved IPR issues by negotiating cross-licensing agreements without recourse to legal action. The exceptions to this tended to involve companies that had not actively engaged in the ETSI standards process. For example, a US company, Interdigital, was able to show that TDMA patents it owned (one dating from as long ago as 1985) was used in GSM. Litigation regarding this continued as late as 2006, more than a decade after the standard was written, involving sums of hundreds of millions of dollars.

Korea, which launched the Qualcomm CDMA system in 1996, was an early harbinger of trouble. In 1998, a dispute broke out between Qualcomm and its local partner the Korean Electronics and Telecommunications Research Institute (ETRI). It was settled in 2000 for over eighty million dollars. Patent wars raged during the decade after 2000, and the money involved has increased. Internecine conflict rages between companies directly involved in the same standards process. As of October last year, the Economist [reported](#) ongoing litigation between Motorola and RIM; HTC and Microsoft; Motorola and Microsoft; Nokia and Apple. All of these companies are to a greater or lesser extent "inside" the UMTS standards process. The idea of a club of manufacturers who resolve issues without litigation has fallen by the wayside. Conflict also took place with companies outside the standards process: for example, in 2006 Nokia was sued by the small company ICom for €12 billion.

The standards organizations themselves have attempted to bring peace to the warring parties, but with limited success. ETSI made an attempt in the early 1990's to insist that all members should licence their IPR on a royalty free basis. This was successfully resisted by some major patent holders, and since 1994 its IPR policy has been based on a "FRAND" declaration, in which members agree to licence their IPR on "Fair, Reasonable and Non-Discriminatory" terms. Since IPR licensing terms are invariably confidential, the meaning of FRAND can vary widely, and there are few good legal precedents to guide the industry.

From at least the early 1990's there have been proposals in ETSI that IPR holders commit in advance ("ex-ante") to maximum royalty levels. These have foundered on EU competition law which forbids any sensible discussion between rival suppliers with the aim of setting an acceptable overall price for their IPR.

A recent attempt to implement ex-ante has been promoted by cellular industry body [NGMN](#). The process is carefully designed to conform to competition law. Each supplier provides a "self appraisal" of the royalty value of its patents. The trouble is that a self appraisal, however low, won't be rewarded by any sale. However it could be used in the future to limit royalty payments- in fact that is its only use. In such circumstances no rational participant would provide a low appraisal. Unsurprisingly the cumulative value of the self appraisals from suppliers was too high to be useful.

The last decade has seen trends that exacerbate the IPR conflict in mobile cellular. First, there are more organizations involved in standards; from a few tens of companies in the nineties, hundreds are now involved. Second, the organizations are more diverse, no longer dominated by operators and a few manufacturers. There is every reason to suppose that the problems will remain as 3G develops to 4G. The potential for conflict has increased, not decreased.

The FRAND approach used by 3GPP is not the only approach used in standards. There are significant standards organizations- the Bluetooth SIG and the Worldwide Web Consortium for example- that operate very successfully using royalty free licensing of IPR. In fact this approach was promoted by ETSI in the early 90's, but was fiercely resisted. Once a standards organization has chosen the key elements of its policy, it is extremely difficult to change this decision.

In fact the FRAND principle can work smoothly, even in competitive high technology industries. The standards from the [Internet Engineering Task Force](#) (IETF) that define the Internet have attracted far less litigation than 3GPP standards. It is instructive to examine why this is the case.

There is strong incentive which affects all participants of 3GPP standards: to strive to get least some of their IPR into the resulting specification. Companies often include their ideas as a defensive measure; this gives them the ability to cross-licence IPR with the other participants. There is almost no mechanism to prevent this. But this leads to long and convoluted specifications, and provides plenty of opportunities for litigation. A side effect is that the number of patents has grown dramatically: many are only marginally inventive and of dubious validity.

By contrast the standards processes of the IETF contain simple and pragmatic measures that actively discourage unnecessary complexity. The IETF only permits a document to reach the status of an approved standard once several separate and independent implementations exist. If a feature is not included in all implementations, it does not get into the approved standard. This discourages speculative inclusion of unnecessary features, and cuts out many litigation flashpoints.

In 3GPP legal cases have even arisen when participants removed unused features from the standard. For example, the American company Golden Bridge included a feature, the so called "common packet channel", in the 1999 release of the UMTS standards. A technical meeting in March 2005 noted that this feature, among others, had no prospect of being implemented and purged it. Golden Bridge sued. This litigation would have been impossible with the IETF rules, since an unused feature would never have made it into the final approved standard.

The inclusion of a technical solution within an industry standard can greatly increase the value of any patent which contains it. In practice, there are always a number of solutions to a given problem. The standards committee must select one of these solutions. Often the benefit of the best technique over rival techniques can be tiny. Yet the proponent of a winning and patented solution obtains a monopolist's advantage; the losers must risk the uncertain protection of FRAND declarations.

Ex-ante disclosure of patent costs would allow participants to assess the cost-benefit of different proposals including royalties. If one participant demanded an excessive patent royalty for a marginally better solution, participants would consider the total costs of the next best solution including the royalty demanded. This type of negotiation can only happen if participants are able to engage in a serious debate about the price and cost-benefit of specific technical solutions. It would be better and cheaper for this debate to take place at the time the standards were written, rather than years later in a court of law.

A change in competition law is needed to allow such debates between competing companies, but the prospect of this happening is small. It would not be sufficient to change the law in the EU only; standardization takes place internationally and the approach would have to be accepted at least in North America, China and Japan. For the foreseeable future the promising idea of using of ex-ante declarations is blocked.

Competition regulation is preventing sensible debate over IPR. But it is hardly lack of regulation applying to manufacturing and production that has recently brought western economies to their knees. Legislators in the western world seem to have a patrician outlook: industry is the realm of vulgar tradesmen – greedy manufacturers, dishonest sellers and avaricious patent holders- whose behaviour and rewards must be rigidly controlled. By contrast, bankers and financial speculators are gentlemen and need not be inconvenienced by regulation; let alone have their profits controlled. China at least appears to be more positive towards wealth creating industry.

In the foreseeable future, standardized systems will be subject to increasing litigation costs. Standards

created today include patents that will still be under dispute in many years time. The practical effect is that manufacturers should include provision for large potential liabilities in their business plans arising from patent litigation, for at least a decade into the future. There are some pragmatic measures the standards organizations could take that would improve things somewhat, but the effect would take years to filter through. The biggest win would be a change in competition law to allow meaningful ex-ante agreements. This is unlikely to happen.

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The study, 'LTE User Equipment, network efficiency and value' is available free of charge from the linked web site www.makingtelecomswork.com

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