

1. Objectives and Benefits of Standardization

“Without standardization there wouldn’t be a modern economy.”¹³

Standards influence our every day life as most products today consist of parts originating from multiple sources. The importance of standards is growing particularly within the area of information and telecommunication technology. It is a consequence of the increasing demand for interoperable networks, systems and handhelds, which allows consumers to use their handsets worldwide regardless of their origin. In turn, this allows for compatibility between complementary products and even between various parts of a particular product.¹⁴ Also, the interoperability leads to increased network efficiency. As the former European Commissioner for Competition, Mrs Neelie Kroes recently stated, standards are the “foundation of interoperability”.¹⁵

For the purposes of this paper, I have chosen to define standards rather broadly, as referring to any set of technical specifications, which identify a common design of a product or a process. In the field of network environment, where interoperability is absolutely essential, markets are prone to lean to a dominant design.¹⁶ When a standard has become prevalent most, and in many cases, all market participants will make use of it in their product implementations. In fact, it may even become impossible to offer non-compliant products to the market, i.e. products that do not support the prevailing standards, since there may be not any consumer demand for such products. This is especially true in “network markets”, where the value of the product to the consumer is entirely dependent on its compatibility functions.¹⁷ Contrary, in the absence of standardization, inter-technology competition often results in only one of few technologies dominating the market. This means that consumers are faced with the risk of purchasing equipment that rapidly may become obsolete if the technology contained in the product they have chosen is marginalized. Indeed, the benefits of network efficiency and the increase in consumer benefits resulting from competitive supply,

13 James Surowiecki, “*Turn of the Century*”, Wired Magazine, January 2002, <http://www.wired.com/wired/archive/10.01/standards.html>, [cited on July 18, 2009].

14 Niklas Bruun, *Intellectual Property Beyond Rights* (WSOY 2005), p.160.

15 Speech delivered at the 2009 ABA Antitrust Spring Meeting in Washington.

16 Supra note Niklas Bruun, p.162.

17 Niklas Bruun, *Intellectual Property Beyond Rights* (WSOY 2005), p.160.

constitute strong public policy arguments in favour of standard based interoperability within the telecommunication industry.

1.1 ETSI GSM Standards

In the following, I will use the GSM industry as an example because this industry clearly demonstrates the tension that exists between intellectual property rights and competition law.

The GSM standard facilitates mainly telephony but also circuit switching, packet-switched data transmission, and the exchange of short messages.¹⁸ GSM is nowadays, the most widely used mobile communication standard and covers roughly 4700 patents.¹⁹

In a GSM research project from 2002²⁰, *Rudi Bekkers, Geert Duysters and Bart Verspagen* have represented a statistical overview of the standard-essential IPRs used in the GSM standard by listing 140 patents held by 23 companies.²¹ According to this overview, Motorola is the largest in terms of sheer numbers, with 27 patents. The next largest holders of standards-essential patents are Nokia with 19 patents, Alcatel with 14, Philips with 13, and Telia with 10.²²

This overview further shows that overall five players hold approximately 85% of the GSM market. The same phenomenon is highlighted in an article “*Intellectual Property Rights, Strategic Technology Agreements and Market Structure, The Case of GSM*” according to which the high market shares of Motorola, Nokia and Siemens are directly correlated to their strong patent portfolios providing them with an essential competitive advantage.

The establishment of the 3G systems worldwide, required several years of work and massive capital investment by the operators. According to *Goldstein* and

18 See “ETSI World Class Standards”, *Mobile technologies GSM*, available at: <http://www.etsi.org/WebSite/Technologies/gsm.aspx> (as of July 2009).

19 Rudi Bekkers, Geert Duysters, Bart Verspagen, “*Intellectual Property Rights, Strategic Technology Agreements and Market Structure, The Case of GSM*”, Research Policy 31 (2002) 1141-1161.

20 Ibid.

21 According to the authors, this listing indicates a fair representation of essential IPRs.

22 Supra note Rudi Bekkers, Geert Duysters, Bart Verspagen, p.1149.

Kearsey²³, when first GSM mobile handset appeared to the market place, cumulative royalties amounted to as much as 35 to 40 percent of the selling price of the actual equipment.²⁴ This range has been alleviated by approximately 10 to 15 percent, but is still substantially higher than the rate commonly applied within the telecommunications industry, which is about 2-5 percent.²⁵ Assuming that the average cumulative royalty cost is 10 percent of the selling price of the equipment, Goldstein and Kearsey estimate that the actual costs of acquiring all needed 3G IPRs will exceed 100 billion U.S. dollars measured against the estimated technology life cycle.²⁶

With multiple companies, owning essential IPRs embodied in a specific standard, strategic technology alliances are of crucial importance. The important role of strategic technology alliances in standardization has been particularly evaluated by Goldstein and Kearsey under the heading “*Technology Patent Licensing: An International Reference on 21st Century Patent Licensing, Patent Pools and Patent Platforms*”.²⁷ According to Goldstein and Kearsey, holders of standard-essential IPRs may have strong incentives to cross-license from each other. Therefore, companies without standard-essential patents are forced to make use of strategic technology alliances, such as patent pools and platforms in order to gain access to the concerned technology markets and still they might be in a relatively weak position compared to their competitors holding the standard-essential patents.²⁸ According to Goldstein and Kearsey, even if cross-licensing and patent pools can help to solve the problems created by the overlapping patent rights to some extent, it is still apparent that high cumulative royalties act as a market entry barrier. They produce a distorted field of competition, since the major manufactures, which have large patent portfolios, can, and do, achieve substantial royalty reductions through cross-licensing.²⁹ In essence, according to these authors, the companies excluded are those without significant portfolios of standard-essential patents.

23 Both authors have extensive experience within the 3G patent licensing, since they have been actively involved in the launch of the Patent Platform for 3G W-CDMA technology. Mr. Goldstein is legal advisor and Mr. Kersey is the Managing Director within the 3G Patents Ltd.

24 Larry M. Goldstein & Brian N. Kearsey, “*Technology Patent Licensing: An International Reference on 21st Century Patent Licensing, Patent Pools and Patent Platforms*” (Aspatore Inc. 2004), p.44.

25 Ibid, p.44.

26 Ibid, p.56-57.

27 Ibid, p.44.

28 Ibid, p.29.

29 Ibid, p.44.

Most of the essential patents included in the GSM standard have been declared³⁰ as “standard essential”. To determine whether a patent is essential to a certain standard the following ETSI definition provides guidance:

“ESSENTIAL” means that it is not possible on technical grounds (but not commercial) grounds, taking into account normal technical practice and the state of art generally available at the time of standardization, to make, sell, lease, otherwise dispose of, use or operate EQUIPMENT or METHODS which comply with a STANDARD without infringing that IPR”.³¹

The main significance of essentiality for an implementer is that the use of the patent is not a matter of choice, and therefore for purposes of the standard compliant implementation, the implementer must obtain licenses for all relevant patents. All of these circumstances in turn have a huge impact on the dynamics of the licensing negotiations between implementers and patent holders. Therefore, as soon as a patent is included in a standard in such way that application of the standard necessarily requires the use of the patent in question, conflicts of interest are unavoidable

This is the reason why, standard-essential patent holders are obliged to adhere to royalty levels that are “*fair and reasonable*”. This requirement highlights an important principle from a competition law point of view. Namely, that patent holders are not allowed to take undue advantage of their market power by misusing the standardization process to restrict market access and thereby contravene the purpose of competition law. However, as current litigation in several jurisdictions indicate, in the absence of specific rules, companies involved in standard setting processes may try to unduly influence the process so as to create an overlap between the standard and their “essential” patents.³²

30 Decision made between the participants on the contents of the standard specification, e.g. which IPRs are described by standard in order for implementations to be compatible with each other, will determine which patents become essential of the standard.

31 See ETSI Guide on Intellectual Property Rights (IPRs), adopted by Board #70 on 27 November 2008, available at http://www.etsi.org/WebSite/document/Legal/ETSI_Guide_on_IPRs.pdf (as of July 2009).

32 In practice, essentiality is issued for a large number of patents that are not, in fact, essential. Such over declaration may occur in good faith but it may also be abusive. This aspect is outside the scope of this paper.

1.2 The Role of SSOs and Rational Behind the FRAND Commitments

In general, standards come in a variety of forms. This paper is primarily concerned with market-defining standards, because this type of standards most clearly demonstrates the very material anticompetitive effects that successful standardization may lead to.

One way to create new standards is through private standardization setting organizations. The organizations are open to all members of the markets wishing to take part in the creation of a single standard. In order to address the tension between standard-essential patents and effective competition within the market, SSOs make use of IPR and patent licensing policies. Such policies attempt to support a wide market implementation of standards and to solve, at least to some extent, antitrust conflicts through self-regulation. Since a very significant and important part of today's global standardization relies on FRAND commitments, the main purpose of self-regulation is to anticipate the *ex post* effects of standardization on licensing negotiations between implementers and holders of standard-essential patents.³³

Although there are several dozen of SSOs that rely on FRAND type licensing policies, for the purposes of this paper the best example is the IPR policy developed within ETSI, and therefore the scope of this paper is limited hereto. ETSI is a leading international body for telecommunication technology standardization and the body responsible for the creation of harmonized standards in Europe.³⁴ As of today, ETSI has nearly 800 members drawn from 63 countries across 5 continents worldwide.³⁵ ETSI's IPR Policy implementation guidelines illustrate very clearly the fundamental issues arising from the intersection between IPR and antitrust law, *i.e.* the inherent conflict of numerous individual companies trying to impose their technologies in the standards in order to achieve commercial advantages as well as the strategic and business significance of defensive or offensive use of patent rights.

33 Timo Ruikka, "*FRAND*" Undertakings in Standardization- A Business Perspective", N.Y. Fordham IP Conference, March 28, 2008.

34 ETSI Guidelines for Antitrust Compliance, adopted on 27 November 2008, available at: http://www.etsi.org/WebSite/document/Legal/ETSI_Guidelines_for_Antitrust_Compliance.pdf (as of July 2009).

35 ETSI Guidelines for Antitrust Compliance, adopted on 27 November 2008, available at: http://www.etsi.org/WebSite/document/Legal/ETSI_Guidelines_for_Antitrust_Compliance.pdf (as of July 2009).