

An Empirical Study of Ex Ante Licensing Behavior in the Development of Voluntary Technical Standards

Jorge L. Contreras

Overview

Ex ante disclosure of licensing terms has been proposed as a solution to the related problems of patent hold-up and indeterminacy of F/RAND licensing commitments in technical standards setting. While *ex ante* disclosure schemes have been criticized for their potential to facilitate anticompetitive conduct and to create inefficiencies in the standards-setting process, in 2006-07 the U.S. Department of Justice approved limited *ex ante* disclosure proposals by VITA and IEEE, two U.S.-based standards setting organizations (SSOs). With support from the National Institute for Standards and Technology (NIST), the author has conducted the first empirical study of the process effects of the VITA and IEEE *ex ante* policies on standards setting within the relevant SSOs.

Background

Voluntary Technical Standards. Technical standards are detailed sets of instructions, specifications or protocols that must be complied with in order to achieve a particular technical purpose. Depending on the standard, this purpose may be to achieve a minimum level of safety (e.g., security of automobile seatbelts), a desired environmental effect (e.g., reduction of carbon emissions), or interoperability among products and technologies provided by different vendors (e.g., TCP/IP, USB, WiFi, GSM and other computing, networking and telecommunications standards). This last category of standards, those that are intended to promote technological interoperability, are generally *voluntary* in that compliance is not mandated by any governmental or regulatory body. Rather, market participants elect to comply with voluntary interoperability standards to enable their products and technologies to be competitive in a networked, interdependent marketplace.

Development of Standards. Voluntary technical standards are typically developed in large, international SSOs such as the International Telecommunications Union (ITU), European Telecommunications Standards Institute (ETSI), Internet Engineering Task Force (IETF), Institute of Electrical and Electronics Engineers (IEEE), ASTM International, and the Worldwide Web Consortium (W3C). Membership in these SSOs is typically open to all interested parties and standards are developed through a collaborative consensus process.

SSO Patent Policies. SSOs typically hold no patent rights in standards developed by their members. Rather, participants in the standards development process (whether companies or individuals) retain their inventorship rights in

standardized technology and may obtain patents that claim implementations of technical standards. This ability to patent standardized technology is perceived to lead to a risk of patent “hold-up”, meaning that a participant in the standards development process may guide a standard toward its own patent position, or may subsequently seek patent protection over aspects of the standardized technology, and then seek to extract unanticipated royalty payments from other implementers of the standard. The legal and economics literature is rife with discussions of patent hold-up and its negative implications.

In order to avoid hold-up situations, and in response to several high profile instances of alleged patent hold-up (e.g., *Dell*, *Rambus*), many SSOs have implemented formal policies designed to alleviate the perceived risks of patent hold-up. These policies fall into two general categories, disclosure policies and licensing policies, and often include elements of both. Disclosure policies typically require participants in the standards development process to disclose patents they hold that would necessarily be infringed by an implementation of the standard. Licensing policies typically require that participants grant implementers licenses under patents that are infringed by implementations of the standard.

F/RAND Licensing. Following the example of the American National Standards Institute (ANSI), many SSO licensing policies require that patent holders grant licenses on terms that are “reasonable and non-discriminatory” (RAND) or “fair, reasonable and non-discriminatory” (FRAND). Despite the intuitive appeal of these designations, a consistent and practical definition of F/RAND terms has proven to be notoriously difficult to pin down. In several recent cases parties have disputed whether the terms under which licenses have been proffered violate or conform with F/RAND requirements (e.g., *Apple v. Nokia*, *Funai v. Vizio*, *Qualcomm*). These cases represent a recent and growing trend to dispute the F/RAND quality of patent licenses in the standards context.

F/RAND licensing commitments tend to fail because there is no universal, objective standard by which “reasonableness” (or “nondiscrimination”) can be measured. In order to make a F/RAND determination, the specific facts of each situation must be evaluated. These facts include not only relevant market norms for royalties, but also customary practices relating to non-royalty terms such as reciprocity, grantbacks, defensive suspension, confidentiality and the like. Also, given that a patent holder’s F/RAND licensing terms are generally not revealed until negotiations occurring *after* a standard has been adopted (i.e., “locked-in”), parties involved in standards setting can experience uncertainty regarding the ultimate cost of adopting a standard encumbered by patents. Put another way, the uncertainty of F/RAND licensing simply replaces the risk of patent hold-up arising from unknown patents with hold-up arising from unknown F/RAND licensing terms.

Is Ex Ante Disclosure of Terms a Solution? Several commentators have suggested that permitting or requiring patent holders to disclose their royalty

rates and licensing terms to SSO participants prior to the adoption of a standard (i.e., “*ex ante*”) would alleviate the F/RAND hold-up problems described above. Such advance disclosure, it is argued, would enable SSO participants to evaluate the cost of including particular patented technologies in a standard prior to adoption, and would thus enable more efficient decision making with respect to the technical design of the standard.

Critics of *ex ante* disclosure, however, have argued that *ex ante* structures in the standards context present both practical and legal issues. The introduction of legal licensing terms to the technical standards development process might cause the process to become more cumbersome, lengthy and expensive. Concerns have also been raised that allowing *ex ante* licensing negotiations could facilitate the improper exchange of information among competitors and might place too much power in the hands of licensees acting collectively. That is, potential implementers of a standard, in negotiating license terms with a patent holder, could collectively exert anticompetitive pressure on the patent holder, causing royalties to decrease below their fair (or optimal) level. Under this argument, group pressure would tend to drive all royalty rates toward zero, resulting in the devaluation of any patents covering the standard.

Despite these warnings, the U.S. Department of Justice (DOJ) has on two recent occasions issued Business Review Letters approving limited *ex ante* disclosure policies in SSOs. In the case of the VMEbus International Trade Association (VITA), the DOJ indicated in 2006 that it would not take enforcement action against an SSO that required participants to make *ex ante* declarations of the “most restrictive” licensing terms in their RAND licenses. In approving the VITA policy, the DOJ concluded that *ex ante* disclosure of restrictive licensing terms would promote, rather than hinder, competition among patent holders. Likewise, in its 2007 Business Review Letter to IEEE, the DOJ approved a proposed arrangement in which patent holders were given the *option* to disclose their most restrictive licensing terms, including royalty rates, prior to the adoption of a standard. The DOJ called the IEEE proposal “a sensible effort to preserve competition between technological alternatives before the standard is set in order to alleviate concern that commitments by patent holders to license on RAND terms are not sufficient to avoid disputes”.

Study

There is little empirical evidence regarding the actual effects of *ex ante* license negotiation on standards development, adoption or implementation. Therefore, with the support of the National Institute for Standards and Technology (NIST), the author has conducted the first empirical study of the effects that the above-described changes to the VITA and IEEE policies have had on standards development within these organizations. The study reviewed and analyzed quantitative variables relating to the standards-setting process within VITA and IEEE (as well as IETF, a major SSO without an express *ex ante* policy) over a

period from 2003 to 2010 (4 years pre- and post-adoption of the VITA/IEEE *ex ante* policies), including total standards proposed and adopted, mean time to adoption, type and number of *ex ante* disclosures made, and membership changes in the SSOs. In addition to this quantitative information, we conducted a survey of the VITA membership to assess participant reactions to the adoption of the *ex ante* policy, as well as interviews of selected standards developers at VITA, IEEE and elsewhere. The author believes that the results of this study will be useful to the increasing number of policy developers and standards-setting organizations assessing the value of *ex ante* licensing disclosure policies today.