

Intellectual Property Rights in Standardization Activities

Establishment of specifications for standard technology has generally been handled by public standardization organizations, such as ITU. However, establishment of specifications by public standardization organization is a lengthy process, and as a result, may lag behind the pace of today's technological innovations. For this reason, corporations have begun to form forums and other similar organizations and set standard specifications for products and methods in specific fields within such forums in an increasing number of cases. In the meantime, attention is focused on issues relating to the handling of intellectual property rights that pertain to standard technology of individual organizations. The following report discusses the trends concerning the handling of intellectual property rights by both public standardization organizations and voluntary organizations including forums.

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1. Introduction

Standardization of technology is an indispensable process for improving utility through technological innovations and compatibilities, as well as cost reductions of products resulting from the expansion of the technology. Standardization of technology is actively pursued in the telecommunications field just as in any other fields. Standard specifications are established with contributions from a number of organizations, including government agencies, corporations, universities, and research institutions. Consequently, technologically advanced standard specifications entail a large number of patents that are contained in the pertinent technology. In contrast to the fact that the objective of standardization efforts is to permit the technology specifications to be used as widely as possible, patent rights, which are exclusive rights, tend to significantly restrict their use by third parties. It is therefore necessary to balance the two.

Standardization organizations do not have any legally enforceable power over the assets of participating organizations. For this reason, issues involving intellectual property rights are generally resolved by negotiations between individual corporations when standardized technology is to be adopted. However, such problems as those associated with lengthy contract negotiations that delay market entry, and a rise in product prices, resulting from accumulation of licensing fees that are paid to multiple patent holders, are feared to limit the proliferation of standardized technology. Consequently, it has become impossible to side step this issue in the process of promoting standardized technology in light of the current global trend in which intellectual property rights have become a matter of serious consideration.

As stated before, standardization efforts are generally led by organizations that belong to the United Nations (such as the International Telecommunication Union (ITU) in the telecommunications field) and leading standardization organizations that are commissioned by national governments (de jure standards). In an increasing number of cases, however, multiple corporations now independently form forums, consortiums and other similar organizations (hereinafter "Forums") and jointly establish standard specifications for products and methods in specific fields, with an aim toward de facto standards.

In this article, trends of policies concerning intellectual property rights among public standardization organizations

and such voluntary organizations as Forums are examined.

2. IPR Policies of Public Standardization Organization and the Declaration Process

Standardization efforts are promoted by such international organizations as ITU and public standardization organizations of various governments. Standard specifications that are established through such channels can be said to be global assets. However, there is concern that corporations that were engaged in the standardization efforts can unduly monopolize such standardized technology by claiming their rights to restrict licensing of essential patents (which are patents whose implementation cannot be avoided in realizing the specifications). In order to prevent such unfair claiming of rights, public standardization organizations have set policies concerning the handling of intellectual property rights, or Intellectual Property Rights policies (IPR policies). **Table 1** lists the IPR policies that have been adopted by various standardization organizations. The majority of the standardization organizations have adopted a method under which the holder of essential patent selects one of the following three declarations and submits it:

(1) Permits free use (Option 1),

- (2) Grants permission on a non-discriminatory basis on reasonable terms and conditions (Option 2),
(3) Neither (1) nor (2) (Option 3).

With respect to terms and conditions of (3), the organizations respect the exclusive nature of intellectual property rights and permit declaration to that effect. In the event an essential patent holder selects Option 3, standardization organizations typically revise the standard specifications so as to exclude the essential patent from the standard specifications. In the recent past, the majority of corporations have selected Option 2 with respect to any standard specifications.

Table 2 shows the contents of the Patent Declaration Form established by the Telecommunication standardization sector of the ITU (ITU-T).

The declaration form of ITU-T consists of the “General Patent Declaration Form,” which is used to make comprehensive declaration, and the “Patent Declaration Form,” which is used for individual patents. In addition, a form used by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), titled the “Patent Declaration Form for use with the ITU-T | ISO/JEC common text,” is also used [1].

Patent holders which make a declaration are not permit-

Table 1 IPR policies of major public standardization organizations

Organization	Option			Condition of reciprocity
	#1	#2	#3	
ARIB	Grant unconditional licenses with no assertion of claims (*)	Grant licenses on a non-exclusive and non-discriminatory basis under reasonable terms and conditions (*)	Other than Option 1 or Option 2 (*)	Yes
TTC	Grant unconditional licenses with no assertion of claims (*)	Grant licenses on a non-exclusive basis under reasonable terms and conditions (*)		
ITU-T	Grant a free license on a non-discriminatory basis	Grant a license on a worldwide, non-discriminatory basis and on reasonable terms and conditions		
ETSI	(No clear description.)	Grant irrevocable licenses on fair, reasonable and non-discriminatory terms and conditions	Declaration is possible but, ① The general assembly shall review the standard specification. ② The director general shall request the declaring party to reconsider its position. ③ The matter is considered with ETSI counselors if declaring party decides not to withdraw its refusal to license.	

(*Patent number, standards and the scope of industrial property claims must be clearly stated.)

Table 2 Declaration forms in ITU-T essential patent confirmation

Option	Content
#1	The Patent Holder is prepared to grant-on the basis of reciprocity for the above ITU-T Recommendation-a free license to an unrestricted number of applicants on a worldwide, non-discriminatory basis to manufacture, use and/or sell implementations of the above ITU-T Recommendation.
#2	The Patent Holder is prepared to grant-on the basis of reciprocity for the above ITU-T Recommendation-a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to manufacture, use and/or sell implementations of the above ITU-T Recommendation. Such negotiations are left to the parties concerned and are performed outside the ITU-T.
#3	The Patent Holder is unwilling to grant licenses according to the provisions of either 1 or 2 above. In this case, the following information must be provided as part of this declaration: <ul style="list-style-type: none"> • patent registration/application number, • an indication of which portions of the Recommendation are affected, • a description of the patent claims covering the Recommendation.

ted to alter the contents of the declaration stated in the above-mentioned forms. Option 2 of the ITU-T form specifies “a license to an unrestricted number of applicants on a world-wide, non-discriminatory basis and on reasonable terms and conditions.” However, the declaration is contingent upon the requirement of a bilateral condition, i.e. “on the basis of reciprocity for the above ITU-T Recommendation.” In other words, a patent holder grants licenses to a third party on the above-described terms and conditions if the third party grants its licenses on the same terms and conditions as its own. If the third party which has essential patents grants a license to the patent holder on terms that substantially differ from its own, it is interpreted that there is no restriction on claiming of rights under the declaration. The same holds true when Option 1 is selected.

Such national and regional public standardization organizations as Association of Radio Industries and Businesses (ARIB) and Telecommunication Technology Committee (TTC) of Japan, and the Telecommunications Industry Association (TIA) of the United States have adopted the selection method that is fundamentally based on the IPR policy of the ITU. The IPR policy of the European Telecommunications Standards Institute (ETSI) additionally stipulates specific procedures to be applied in the event when a patent holder refuses to license its essential patent [2].

Figure 1 shows the ARIB’s process up to the declaration of essential industrial property rights.

First, when there is a plan for establishing or revising standard specifications, ARIB requests the Standard Assembly members to fill a “confirmation form relating to a license to the use of the essential IPR ” (hereinafter “Confirmation Form”)

and submit it [3].

Patent holders who receive the request would make required entries in the confirmation form that corresponds to the desired Option (1 through 3), and submit it to the Standard Assembly chairman within a specified period of time by appending a patent list that enables identification of patents, including those that are pending (by way of patent numbers, and application/publication numbers). As a general rule, the submission deadline is the date that is stated by the Standard Assembly, or the date that is set by a working group of the Standard Assembly and prior to the approval of a proposal by the working group. In the event that patents cannot be identified by the designated deadline, a “general confirmation form relating to a license to the use of the essential IPR ” (hereinafter “General Confirmation Form”) is submitted in accordance with operation guidelines [4] set forth separately. The General Confirmation Form does not need to be accompanied by a patent list. Either Option 1 or Option 2 is selected with respect to all patents held by the patent holder that pertain to the (draft) standard specifications examined. At this stage, the intent to license essential patents on a non-exclusive and non-discriminatory basis is confirmed. The essential patent holder submits a Confirmation Form within six months from either the adoption or revision date of the standard specifications.

After confirming that no Confirmation Form selecting Option 3 in connection with the (draft) standards specification was submitted, ARIB approves the draft and establishes standard specifications officially. **Table 3** shows the selection criteria of ARIB concerning IPR guidelines.

All essential patent holders of the STD-27 (for PDC sys-

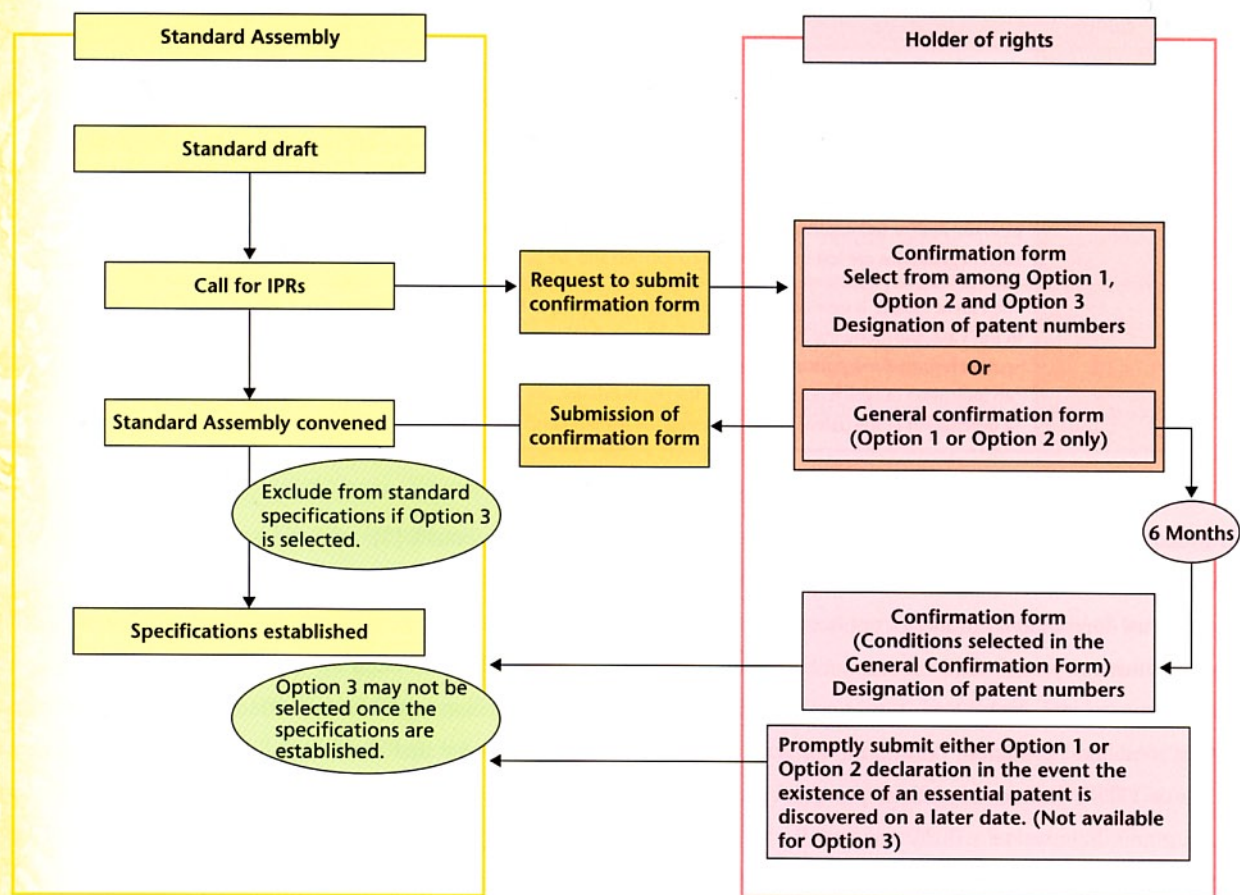


Figure 1 Process up to declaration of essential industrial property rights of ARIB

Table 3 Selection criteria in IPR basic guidelines of ARIB

Organization	Content
#1	The right holder agrees not to assert such essential IPR and to grant a license unconditionally to the use of such essential IPR to anyone who uses such an ARIB standard. However, if anyone who uses such an ARIB standard owns any other essential IPR which covers any or all parts of the contents of the provisions of such an ARIB standard, and lays claims thereto, such user may be excluded from the application of the aforesaid provision by the right holder.
#2	The right holder, upon disclosing the contents and the terms and conditions of such essential IPR, agrees to grant a non-exclusive and non-discriminatory license to use of such essential IPR on reasonable terms and conditions to anyone who uses such an ARIB standard. However, if anyone who uses such an ARIB standard owns any other essential IPR which covers any or all parts of the contents of the provisions of such an ARIB Standard, and lays claims thereto, such user may be excluded from the application of the aforesaid provision by the right holder.
#3	The right holder does not agree to either of the aforesaid alternative referred to in (1) or (2).

Association of Radio Industries and Businesses: Basic guideline for handling of Industrial Property Rights (IPR) regarding the ARIB standards
(Note: For reference only. Original text in Japanese.)

tem), STD-28 (for PHS system), and STD-43 (for radio paging system) selected Option 1.

In contrast, the majority of essential patent holders selected Option 2 with respect to PDC system specifications that were added after Version H of STD-27 (revised

in February 1999). Likewise, essential patent holders of STD-T63 (for W-CDMA system) and those of STD-T64 (for cdma 2000 system) generally selected Option 2.

3. Intellectual Property Rights Policies of Forums

While standard specifications for technology that pertains to infrastructures, such as networks, are established by public standardization organizations, there is a trend for corporations to voluntarily form Forums aiming to jointly establish de facto standards for service and application technologies. Just as public standardization organizations, many Forums impose declarations based on their IPR policies to their members. **Table 4** shows licensing terms and conditions of major Forums.

As an example, the IPR policy of the Open Mobile Alliance (OMA) is clearly stated on its website along with a list of essential patents. Patent licensing policies are stated to be equivalent to ITU's Option 2. Another example is the Internet Engineering Task Force (IETF), which states its IPR policy in Section 10 of the Internet Standards Process (RFC 2026). Instead of specifying declaration forms, the IETF allows applicants to write their own declarations and submit them. Declarations made by patent holders can be viewed on IETF's website [5].

In the case of the MultiMediaCard Association (MMCA), a notation "license fee included in membership fee" can be seen

on its website. [6].

On the other hand, free licensing of technology is also being adopted with the hope of improving the market competitiveness of standardized technology. For example, Bluetooth Special Interest Group (Bluetooth SIG) gives free use of any patents on specifications that are established by the group for all its members who sign a contract [7]. Liberty Alliance Project stipulates an option in its agreement to make a for-charge declaration within 45 days of the publication of draft specification. However, free of charge is the general rule [8].

Many Forums impose the IPR policies on the affiliates (including the parent company and subsidiaries) of participating corporations. This blanket requirement is a way to prevent participating corporations to have their affiliates manage essential patents so as to license them exclusively.

As these examples show, an increasing number of organizations stipulate more specific licensing terms and conditions than public organizations do, and require execution of an agreement which articulates these terms and conditions in advance in order to prevent the standard specifications from becoming inaccessible as the result of some essential patent holders claiming their rights.

Table 4 Licensing terms of forums

Name	Technology contents	IPR policy
3D Consortium	3D display contents	Select Option #1, #2 or #3
Mobile Wireless Internet Forum (MMIF)	Mobile Internet	Select Option #1, #2 or #3
Open Mobile Alliance	Mobile Internet	Option #2
Mobile Computing Promotion Consortium (MCPC)	Mobile computing	Option #2
TV-Anytime Forum	Audio-visual contents storage and distribution	Option #2
Web Service Interoperability Organization (WS-I)	Web service	Option #2
Liberty Alliance Project	Identity federation for E-commerce	Option #1 (Option #2 can be selected by making a declaration within 45 days of the publication of specifications.)
MultiMediaCard Association	Storage card	Option #1 (included in the membership fee)
Bluetooth SIG	Short-distance wireless	Option #1
Energy Conservation and Home Network (ECHONET) Consortium	Home network	Not disclosed.
Mobile Payment Forum	Mobile E-commerce	—
T-Engine Forum	Ubiquitous computing	—
Japan Multi-Payment Network Promotion Association (JAMPA)	E-commerce	—
Mobile IT Forum	Mobile E-commerce	—

4. Patent Licensing Organization

The majority of both public standardization organizations and private Forums have adopted IPR policies regarding licensing of essential patents on a "Fair, Reasonable and Non-Discriminatory" basis (which is commonly referred to as "RAND" or "FRAND"). However, some ambiguity remains, such as the fact that no determination is made as to whether a declared patent is essential for realizing the pertinent standard specifications, or that specific royalty terms and conditions are not stipulated. For this reason, the actual execution of a licensing agreement entails enormous burden for specifying patents to be licensed and negotiating the terms and conditions of the agreement.

One way to lighten this burden is for a patent licensing organization to pool the patents that are held by multiple corporations and to license the bundle of patents through the patent pool.* 3G Patent Platform, which was introduced in Vol. 11, No.1 of this journal, resembles a patent pool.

In general, patent licensing organizations disclose detailed licensing terms and conditions that are stipulated to fulfill the RAND condition. **Table 5** lists major patent

licensing organizations. Participation in these organizations is voluntary. Although it is possible to negotiate individually, a rising number of patent holders now use these organizations so as to reduce negotiation cost and license their patents widely.

5. Conclusion

The ambiguity in the legal binding power of declarations makes it difficult to establish uniform licensing terms and conditions for those that are established by public standardization organizations. This can result in heightened product cost, due to accumulation of licensing fees for the use of technology. For this reason, there is a risk that technology specifications that are born out of the labor of numerous organizations become accessible to only a small number of corporations.

In contrast, the Forums offer an advantage of enabling participants to use technology under fair conditions by restricting them from claiming rights with prior execution of agreements. On the other hand, patent holders' rights

* Patent pool: A method used when there are more than one essential patent holder in connection with one set of standards. Holders pool their essential patents and let a representative manage such patents. The representative licenses the pool of such patents on any terms and conditions which had been decided by the patent holders. Royalty receipts are distributed among patent holders.

Table 5 Major patent licensing organizations

Organization name	Technology	Corporations
3G Patent platform	Air interfaces using the IMT-2000 method	Corporations yet to be finalized as patents are being solicited.
MPEG-LA	MPEG-2 Video and System	Columbia University, NTT, Canon, Mitsubishi Electric, Matsushita Electric Industrial, Sony, France Telecom, etc. (22 corporations)
	MPEG-4 Visual	Canon, France Telecom, Mitsubishi Electric, Matsushita Electric Industrial, Sony, etc. (20 corporations)
	MPEG-4 System	Apple Computer, ETRI, France Telecom, Mitsubishi Electric, Phillips, etc. (8 corporations)
VIA Licensing	MPEG-2 AAC (Advanced Audio Coding)	AT&T, Dolby Laboratories, Fraunhofer IIS, Sony (4 corporations)
DVB-LA	Digital Video Broadcasting	France Telecom, Phillips (Netherlands, US), Matsushita Electric Industrial, Victor Company of Japan (5 corporations)
1394-LA	IEEE-1394	Apple Computer, Canon, Hitachi, Phillips, Matsushita Electric Industrial, Sony, STMicroelectronics, Toshiba (8 corporations)
Sipro Lab Telecom	G.729 speech codec	NTT, Sherbrooke University, France Telecom, Mitsubishi Electric, Nokia, NEC (6 corporations)
DVD-6c	DVD	Hitachi, Matsushita Electric Industrial, Victor Company of Japan, Toshiba, Mitsubishi Electric, AOL Time Warner, IBM (7 corporations)
DVD-3c	DVD	Phillips, Sony, Pioneer (3 corporations)

might be unexpectedly impaired depending on the terms of restrictions.

Many of the patent licensing organizations of today are engaged in audio-visual related patents. Looking ahead, Internet and mobile multimedia technology development will give birth to a variety of network products and services. It is desired that active debate will be held to solve patent issues concerning standard specifications in diverse fields.

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