Microsoft

25 June 2010

Re: *Draft Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, SEC (2010) 528/2*

Dear Sirs/Madams:

Microsoft appreciates the opportunity to comment on the Commission's draft revised Horizontal Agreements Guidelines. Our comments (on the first 7 pages of this document, followed by two further document in Annex) focus on the section relating to standardization because we consider that this section has significantly changed compared to the currently applicable version of the Guidelines, and may well trigger concern in the marketplace of standards-setting organizations ("SSOs"). Our comments are written in recognition of the importance of the guidance to SSOs and their members, and the potential benefit of the Guidelines if a significant number of SSOs can benefit from the description of the safe harbor approach to standards-related IPR policies. It is our view, however, that the Guidelines as currently drafted run the risk of inadvertently depriving too many effective SSOs that presently are operational in Europe and other parts of the world of the Guidelines' intended benefits. The safe harbor provisions are very detailed, and as a result, if a SSO fails to meet any single aspect of one of those provisions, the standardization agreements adopted under its auspices will not benefit from that safe harbor and the legal security it provides. Even though SSOs which do not comply with all the safe harbor provisions might claim the benefit of Article 101(3) TFEU, the mere fact that they fall outside the safe harbor provided by the Guidelines may affect the incentives of innovators to contribute to standardization activities, the willingness of implementers to take advantage of the standards SSOs develop, and the readiness of SSOs to support these standardization efforts.

The intersection between standards setting and antitrust law has long been a subject of concern and much debate. We are, accordingly, grateful to the Commission for its recognition of the general pro-competitive effects of standards and its effort to bring more clarity to the antitrust analysis that would be applicable to potential anti-competitive conduct in the standards-setting context. We appreciate and support many of the Commission's observations about standardization generally, including:

- The positive economic effects that can result from standards (paragraph 258).
- The fact that standardization is both a competitive and a cooperative exercise (and therefore many SSOs have antitrust-related policies or guidelines that prohibit pricing and other inappropriate discussions) (paragraphs 259, 261, 267 and 270).

- The impact of different business models and companies' different approaches to the strategic use of intellectual property (paragraphs 271-274).

- The fact that standards (particularly overly broad ones) can actually limit innovation and competition (paragraph 260), which speaks to the benefits of having competing, voluntary standards available in the marketplace (paragraphs 260-262, 266 and 269).

- The possibility that "hold-up" can occur and the need for SSOs to undertake to reduce such risks with a clear and balanced IPR policy (paragraphs 275, 280).

While the Draft Guidelines recognize the efficiency gains that may come from standard-setting and provide needed direction and guidance, we suggest below a few specific areas where clarification by the Commission would benefit SSOs as well as other parties that participate in the development and implementation of standards.

Section 1 below provides some further information about the diversity of SSOs and their IPR policies, and the likely application of the proposed Guidelines across this range of approaches. This will help explain why a significant percentage of SSOs' IPR policies likely will not fall within the safe harbor as it currently is framed in the draft Guidelines. This may suggest that all of these policies are in part anti-competitive and deprive SSOs of the benefit of the safe harbor. Section 2 of these comments attempts to highlight areas where we believe that some additional clarification from the Commission would be very welcome.

Section 1 – Diversity of SSOs and IPR Policies

We appreciate that the Commission recognizes the diversity of SSOs that exist today, especially with regard to the information and communications technology (ICT) sector. These hundreds of SSOs have been formed in response to different technologies, market conditions and stakeholder needs. They have differing structures and degrees of formality, a wide diversity of standards development processes, and a broad range of IPR policies (in fact, almost no two are identical). Well-known SSOs include the formal international SSOs such as the ISO, IEC and ITU and European regional SSOs such as ETSI, CEN and CENELEC, and also formal national SSOs in Europe such as BSI, AFNOR and DIN.

In recent years, digital convergence, communications technology, and the internet have triggered greater need for interoperability among products and services and decreasing length of product life cycles. SSOs referred to as "consortia" or "fora" (collectively referred to herein as "consortia"), often more short-lived and more focused on the development of a particular standard or set of standards than more formal and accredited SSOs, began to form in increasing numbers. Consortia, often with leaner and more focused processes and development priorities, were often able to develop standards that met market needs in a timely manner. For example, many consortia do not have lengthy ballot periods that are open to non-members for feedback, but instead have technical committees or working groups that submit a draft standard directly to the Board or other governing body for final approval. In response to the proliferation of consortia, many of the formal and accredited SSOs began to offer more streamlined standards development processes themselves.

The IPR policies of most formal SSOs and many consortia are "disclosure-based". Under these types of IPR policies, participating companies generally are either required or encouraged to disclose either (a) patents they hold that are likely to contain patent claims that will be essential to implementing the final standard ("Essential Claims"), or (b) the fact that they likely hold such patents (but without identifying specific patents). The disclosing participant is then typically requested to declare its intention with regard to licensing such Essential Claims. If specific patents were disclosed, then the licensing commitment will apply to just the Essential Claims in the identified patents. In the case of a patent holder disclosing more generally that it likely will have Essential Claims, the licensing commitment generally will apply to any and all Essential Claims the patent holder has vis-à-vis the final standard.

Typically, because SSOs want to encourage disclosures as early as possible during the development of the standard, disclosure is not limited to just known Essential Claims because those Claims can only be accurately identified when the standard is almost final and the draft text is stable. So there often is a trade-off in terms of getting more information early on in the process (recognizing that some portion of it likely will end up not being relevant), as opposed to having most (if not all) of the disclosed information be accurate and directly applicable to the final standard.

Licensing commitments are usually expressed in terms of fair, reasonable and non-discriminatory terms and conditions ("FRAND").[1] Once a patent is disclosed, the patent holder is generally requested to declare its intent to (i) offer licenses on FRAND terms, (ii) offer licenses on FRAND terms without royalties or other fees ("FRAND-RF"), or (iii) not offer licenses on either FRAND or FRAND-RF terms.

A very large number of SSOs, including ISO/IEC/ITU, CEN/CENELEC, ETSI, AFNOR, Ecma International, OMG (Object Management Group), PWG (Printer Working Group), TTA (Telecommunications Technology Association of Korea), TTC (Telecommunication Technology Committee in Japan) and ANSI-accredited SSOs (such as the IEEE, TIA, ATIS and ASTM),[2] have some form of disclosure-based IPR policies.

It seems likely that many of the SSOs with a disclosure-based IPR policy may not satisfy the criteria set forth in paragraphs 281 and 282. First, while these policies generally encourage or require disclosures, they often permit the patent holder to disclose that it likely has patents that will contain Essential Claims without identifying specific patents. (See, for example, the IPR policies of ISO/IEC/ITU, Ecma International, I3A, IEEE, CEN/CENLEC, PWG and ETSI.) Second, disclosure-based policies generally may not be consistent with the criteria set forth in paragraph 282 because they do not require all participating patent holders to agree to be bound up-front by a FRAND or other specific licensing commitment. Instead, they often permit the patent holder to declare that it will not offer FRAND licenses. This is permitted in part to prevent a competitor from contributing technology that is covered by patents held by another

[1] Outside of Europe, the term "RAND" (reasonable and non-discriminatory) is used as an alternative to FRAND.
[2] Please see the attached table for links to the SSOs' websites and IPR Policies that are referenced within this document.

participant to the standardization effort (without the consent of that patent holder) in order to obtain access to that technology on FRAND terms. The IETF is another example of a different approach. The IETF IPR policy has a disclosure requirement, but the provision of a related licensing commitment is encouraged but not mandatory.

Some SSOs have adopted "participation-based" IPR policies. Under this type of IPR policy, a participating company undertakes a FRAND licensing commitment for any Essential Claims it may have vis-à-vis the final standard just by joining the SSO or by joining a technical committee of the SSO. Sometimes the automatic commitments are FRAND-RF, such was the case with the popular USB standard and the W3C standards, leaving other common FRAND conditions, such as field of use restrictions and defensive suspension clauses intact. Standardization efforts under a participation-based IPR policy typically are scoped very narrowly. Some examples of SSOs that use a participation-based approach are Bluetooth SIG, GS1, BIAN (Banking Industry Architecture Network), DVB, Infiniband Association, MIPI Alliance, SD Card Association, Serial ATA International Organization, SIGIS, WiFi Alliance, WiMAX Forum and the W3C.

Participation-based IPR policies may also require or encourage patent disclosure, although many do not because all participants already have committed to license whatever Essential Claims they have vis-à-vis the final version of the standard on at least FRAND terms. Participation-based policies, however, often include safeguards for participants to opt out or exclude certain Essential Claims by disclosing the patents containing those Essential Claims so the automatic commitment will not apply to them. This is to provide an important safeguard in the event that a patent holder's competitor seeks to contribute that patent holder's patented technology and the patent holder is not willing to license that technology on RAND or RAND-RF terms (depending on the SSO).

These participation-based IPR policies arguably would meet the criteria set forth in paragraph 282. However, they generally would not meet the criteria set forth in paragraph 281, as they often do not require disclosures.

The proposed Guidelines also highlight the need for SSOs to have rules and procedures that enable all stakeholders to participate actively in the standardization effort. (See, for example, paragraphs 278, 279, 301 and 307). This may call into question the activities of a significant number of consortia. Because consortia are often formed to only develop one or a small number of related standards, their only source of operating revenue might, especially initially, come from membership fees as they offer no fee-based services at the outset. As a result, consortia look for ways to benefit members and to encourage more parties to join. For example, only members of some consortia may have access to draft standards. Sometimes, the licensing commitments members undertake extend only to other members, reflecting a general principle of reciprocity, and not to other parties implementing the standard. Examples include the Bluetooth SIG, GS1, HomePlug Powerline Alliance, Infiniband Assocation, MIPI Alliance, Serial ATA, SIGIS and WiMedia Alliance. Other SSOs do not make their IPR policy publicly available, such as the 4C Entity, DLNA, GSMA and the WGA Alliance.

Over time, many consortia grew, expanded their focus, and needed more formal and robust operational and standards development procedures just like many formal and accredited SSOs.

Today the lines often blur between formal SSOs and consortia as each SSO adapts to market forces and stakeholder needs. Out of this competitive process came today's robust global standards ecosystem with standards developed and adopted in a variety of different ways within SSOs that operate under different policies, including those for intellectual property rights. The diversity and flexibility of this new standards ecosystem (i) produces voluntary consensus-based standards that meet market needs, thus enabling continued innovation, and (ii) adapts rapidly (often through creation of a new consortia) to changing requirements resulting from new technologies and business models.

While today's SSOs compete with one another through their technology focus, memberships, policies and procedures, they also cooperate. For example, a consortium may develop a standard but seek to have it more widely adopted by submitting the standard to a more formal SSO. This cooperation enables the global standards ecosystem to foster the dissemination of innovative technology and to benefit consumer welfare. Indeed, the differences among SSOs derive in large part from market forces, as well as the increasing demand for speed and agility in standard-setting. In turn, these variations enable the ecosystem to be responsive to market needs and facilitate competition (among SSOs, standards themselves and different products that implement standards).

As noted in detail above, the standards ecosystem is comprised of many SSOs with different membership and governance structures, standards development processes, and IPR and other policies. The flexibility and diversity of this ecosystem enables and promotes innovation, cost efficiencies and market responsiveness. As a general matter, therefore, it would be helpful if the Guidelines explained that certain attributes of standards IPR policies likely will either promote competitive conduct or minimize the risk of anticompetitive behavior, as opposed to promoting and accepting just one specific and detailed articulation of an IPR policy.

Section 2 – Possible Areas for Further Clarification

Use of the term "IPR" or "patents" versus "essential IPR", "essential patent" or "essential patent claims": Virtually all SSO IPR policies focus on patent-related issues. These IPR policies often seek the early disclosure of patents that likely will contain claims that will be essential vis-à-vis the final version of the standard (recognizing that the draft standard may undergo many revisions before it is finalized). That said, the licensing commitment (such as FRAND) usually only applies to those claims in the patent that end up being essential or necessary in order to implement the standard. If certain patent claims are not essential, then implementers do not need access to them in order to implement the standard (and therefore hold-up is not an implied risk). Accordingly, the Commission may decide to include the term "essential" or "necessary" in paragraphs 273, 274, 275, 277, 281, 282, 283, 284, 287, 288, and 289.

Use of the term "patent holders" or "members" versus "participating patent holders" or "participating members": We are not aware of any SSO IPR policies that seek to bind patent holders who are not participating in the standards development process or to bind non-members of the SSO in question. Indeed, we are not aware of any legal framework that could cause SSO IPR policies to be binding on non-participants. As a result, most IPR policies are very explicitly

limited to just those companies (and other stakeholders) who are participating directly in the specific technical committee that is producing the relevant standard. Most companies, when deciding whether to participate in a specific standardization technical committee, will typically assess the impact of the SSO's IPR policy on their patent portfolio with respect to the technical scope of the proposed standard. To mirror this important distinction and to avoid legal uncertainty, the Commission may decide to include the adjective "participating" in paragraphs 281, 282, and 283.

Requirement that participating patent holders use "reasonable efforts to make disclosures": Some SSOs encourage disclosures, and some require participating patent holders to use "reasonable efforts" or "best efforts" in making disclosures. We support the idea that SSOs should make disclosures a requirement (as opposed to an encouragement). That said, almost all SSOs' IPR policy specify that patent searches are not required so that the disclosure requirement is not absolute. For patent holders of any size, an explicit or implicit requirement to conduct a mapping of patents and patent searches against a developing (and changing) draft standard for every standards engagement would be extremely expensive. As one means of attempting to ameliorate this concern, many SSOs permit a patent holder to disclose that it likely holds patents that will have essential claims without disclosing specific patents. If the patent holder then makes a FRAND-type of licensing commitment, then that commitment will apply to <u>any</u> essential patent claims that it has vis-à-vis the <u>final standard</u>. (When a patent holder discloses specific patents, then its licensing commitment usually only applies to any essential patent claims in those specific patents and not to any patents that it inadvertently failed to disclose.) This observation would impact paragraph 281.

Different business models: It is very helpful for the Guidelines to note that different business models exist that can impact different companies' approaches to standards (see paragraphs 271-274). We would suggest that there are additional business models to consider as well, including services providers (whether they may provide network, communications or entertainment services, or even consulting services) who may seek to leverage standardized technology as a loss leader for their businesses. Efficiency gains in terms of lower costs for the standardized technology are therefore not necessarily passed on to consumers as the Commission has suggested in paragraph 311 but rather simply shifted from the product development firm to the service provider. Not surprisingly, in such markets there can be tension between those with services-based business models and those with product development business models concerning the "cost" of standardized technology, where firms operating under either model also may own and license intellectual property as well as manufacture or produce products. In addition, there are many companies that utilize several of the identified business models, so the applicable one for any specific analysis would be the one that most relates to the technology area being standardized. The existence of these additional business models could be recognized in paragraph 273.

Concerns about "jointly fix[ing] prices of products": We agree with the statements reflected in paragraphs 267 regarding possible competition law concerns relating to any attempt to jointly fix product prices. We also support the Commission's approach to the *ex ante* disclosure of specific licensing terms before the standard is finalized and the caveat that the rules should not allow for the joint negotiation or discussion of such terms. It might be helpful if the Commission would

point out that there is a concern that implementers could collectively seek to apply inappropriate pressure on disclosing patent holders to offer their essential patent claims on more favorable terms or risk not having the related technology included in the standard under a buyer cartel or group boycott theory.

Conclusion

Microsoft very much appreciates the opportunity to provide comments on the Commission's draft Guidelines.

We enclose additionally some specific information - written for convenient reference into a copy of the relevant section of the draft - in an Annex. This is to illustrate some selected points made above and identify which paragraphs in the Guidelines are implicated as a result.

Respectfully submitted

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Annex:

1. **Annotations to the Draft Horizontal Agreement Guidelines – Section 7.**
2. **List of SSOs and their IPR policies.**

Annex 1:

Annotated version – includes only those paragraphs relating to standardization.

7. STANDARDISATION AGREEMENTS

7.1. Definition

Standardisation agreements

252. Standardisation agreements have as their primary objective the definition of technical or quality requirements with which current or future products, production processes, services or methods may comply. Standardisation agreements can cover various issues, such as standardisation of different grades or sizes of a particular product or technical specifications in product or services markets where compatibility and interoperability with other products or systems is essential. The terms of access to a particular quality mark or for approval by a regulatory body can also be regarded as a standard. Agreements setting out standards on the environmental performance of products or production processes are also covered by this chapter.

253. The preparation and production of technical standards as part of the execution of public powers are not covered by these guidelines. The European standards bodies recognised under Directive 98/34/EC are subject to competition law to the extent that they can be considered to be an undertaking or an association of undertakings within the meaning of Articles 101 and 102. Standards related to the provision of professional services, such as rules of admission to a liberal profession, are not covered by these guidelines.

(…)

7.2. Relevant markets

256. Standardisation agreements may produce their effects on four possible markets, which will be defined according to the Market Definition Notice. First, standard setting may impact the product or service market(s) to which the standard(s) relate(s). Second, where the standard-setting involves the selection of technology and where the rights to intellectual property are marketed separately from the products to which they relate, the standard can have effects on the relevant technology market. Third, the service market for standard-setting may be affected if different standard setting bodies or agreements exist. Fourth, where relevant, a distinct market for testing and certification may be impacted by standard-setting.

(…)

7.3. Assessment under Article 101(1)
7.3.1. Main competition concerns

Standardisation agreements

258. Standardisation agreements generally have a positive economic effect, for example by promoting economic interpenetration on the internal market and encouraging the development of new markets and improved supply conditions. Standards may increase competition and lower output and sales costs, benefiting economies as a whole. Standards may maintain and enhance quality, provide information and ensure interoperability (thus increasing value for consumers).

259. Standard-setting can, however, give rise to restrictive effects on competition by potentially restricting price competition and limiting or controlling production, markets, innovation or technical development. Discussions in the context of standard-setting, like all meetings between competitors, can provide an opportunity to reduce or eliminate price competition in the markets concerned, thereby facilitating a collusive outcome on the market.

260. In addition, standards that set detailed technical specifications for a product or service may limit technical development and innovation. While a standard is being developed, alternative technologies can compete for inclusion in the standard. Once one technology has been chosen and the standard has been set, the competing technologies face a barrier to entry and are potentially excluded from the market.

261. Standard-setting can also give rise to restrictive effects on competition by way of foreclosure or in the form of limitation of innovation when the process for selecting the technologies in the standard is de facto controlled by one or more stakeholders or where the standard-setting process is biased towards one or more participants.

262. As a standard can constitute a barrier to entry, a company (or potentially more than one company) holding essential intellectual property rights (IPR) in a standard could control its use and thereby the product or service market to which the standard relates. This in turn could allow the company in question to abuse its dominant position by extracting excess rents by "holding-up" users after the adoption of the standard. Given the particular risks arising in this context, this chapter focuses on standardisation agreements involving IPR, but the rules apply to all standardisation agreements.

(…)

7.3.2. Restrictions of competition by object

266. Agreements that use a standard or standard terms as part of a broader restrictive agreement aimed at excluding actual or potential competitors restrict competition by object within the meaning of Article 101(1). For instance, an agreement whereby a national association of manufacturers sets a standard and puts pressure on third parties not to market products that do not comply with the standard would fall into this category. Another example would be where a trade association does not allow a new entrant access to its standard terms, the use of which is vital to ensure entry to the market.

267. Any efforts to reduce competition by using the disclosure of essential IPR or most restrictive licensing terms prior to the adoption of a standard as a cover to jointly fix prices of products will constitute restrictions of competition by object within the meaning of Article 101(1). Prior to the adoption of the standard, agreements by IPR holders on the licensing terms they will disclose will also constitute restrictions of competition by object within the meaning of Article 101(1).

(…)

7.3.3. Restrictive effects on competition
Standardisation agreements

269. The assessment of each standardisation agreement must in general take into account the nature of the standard and its likely effects on the markets concerned. Whether standardisation agreements may give rise to restrictive effects on competition depends, among other factors, on the extent to which the members remain free to develop alternative standards or products that do not comply with the agreed standard.

270. In the standard-setting process, some tension is inevitable as each firm desires to promote its own solutions as part of the standard. At the same time, each company also needs to work together with other members of the standard-setting organisation to develop, establish and promote the standard.

271. The tensions that may arise in standard-setting processes are magnified by the fact that companies involved in standard-setting might differ in the scope of their economic activities, sources of revenues and thus their incentives.

272. Upstream-only companies solely develop and market technologies. Normally, licensing revenue is their only source of income and hence their incentive is to maximise their royalties.

273. Conversely, downstream-only companies, solely manufacture products or offer services based on technologies developed by others and do not hold relevant IPR. As royalties represent a cost for them, and not a source of revenue, their incentive is to reduce royalties.

Comment [A1]: This is a business model that the Commission may decide to include in this paragraph.

274. Vertically integrated companies that both develop technology and sell products have mixed incentives. On the one hand, they can draw revenue from their IPR if they so choose. On the other hand, they may have to pay royalties to other companies holding IPR essential to the standard for the products they manufacture. When the bulk of the revenues (and profits) of these companies is generated downstream they are less dependent than upstream-only companies on the revenue they may obtain by licensing their essential IPR. They might therefore have a stronger incentive to cross license their own essential IPR in exchange or essential IPR held by other companies than in seeking royalties.

275. However, irrespective of the market positioning of the different IPR holders, the establishment of standards, which might take years to complete, can create or increase the market power of those IPR holders and in some circumstances lead to abuses of a dominant position. During the development of the standard, different patented technologies may be in competition with each other for inclusion in the standard. Up until the adoption of a standard, the industry may have flexibility with respect to the exact technical characteristics of the standards, and thus may be able to adjust the standard so that it avoids relying on certain patents. However, once a specific patented technology is included in a standard (and the alternatives rejected), the industry may be locked in, *inter alia*, because of the costs of reengineering or switching away from the standard.

276. In light of the above, the following paragraphs set out the conditions in which standard-setting agreements fall outside the scope of Article 101(1). It is not necessary for standard-setting agreements to fulfil these conditions, but normally they will be sufficient to avoid the application of Article 101(1). If a standard-setting agreement does not fulfil these conditions, an individual assessment is required to establish whether the agreement falls under Article 101(1) and in the affirmative, whether the conditions of Article 101(3) would be fulfilled such that the agreement falls within the legal exception to the Article 101(1) prohibition.

277. Where participation in standard-setting, as well as the procedure for adopting the standard in question, is unrestricted and transparent, standardisation agreements which set no obligation to comply with the standard and provide access to the standard on fair, reasonable and non-discriminatory terms do not restrict competition within the meaning of Article 101(1).

Comment [A2]: There are some SSOs that do not make all of their procedures known publicly. Sometimes the information is limited to members, as a value of membership and incentive to join the SSO.

278. First, with respect to unrestricted participation and the procedure for adopting the standard, the rules for the standard-setting organisation, and in particular its IPR policy, should guarantee that all relevant actors can participate in the process leading to the selection of the standard. Notably, the relevant rules should not exclude or discriminate against specific groups of IPR holders. There should be no bias in favour or against royalty free standards, depending on the relative benefits of the latter compared to other alternatives. The standard-setting organisations should also have objective and non-discriminatory procedures for allocating voting rights.

279. Second, with respect to transparency, the relevant standard-setting organisation should have procedures which allow stakeholders to inform themselves of upcoming, on-going and finalised standardisation work.

280. Third, the standard-setting organisation's rules must seek to avoid the misuse of the standardisation process through hold-ups and the charging of abusive royalty rates by IPR holders. These objectives should be ensured in standard-setting organisations through rules which are binding on the standard-setting organisation's members.

281. This requires a clear and balanced IPR policy that protects against companies abusing market power with respect to a standard. Thus, the IPR policy should require good faith disclosure of those intellectual property rights that might be essential for the implementation of a standard under development before that standard is agreed. This requires that the IPR holders make reasonable efforts to identify existing and pending IPR reading on the potential standard.

282. The IPR policy should also require that all holders of essential IPR in technology which may be adopted as part of a standard provide an irrevocable commitment in writing to license their IPR to all third parties on fair, reasonable and nondiscriminatory terms ("FRAND commitment").

283. The aim of FRAND commitments in the context of standard-setting is to ensure that patented technology incorporated in a standard is accessible to the users of that standard on fair, reasonable and non-discriminatory terms and conditions. In particular, FRAND commitments are intended to prevent IPR holders from making the implementation of a standard difficult by refusing to license or by requesting unfair or unreasonable fees (in other words excessive fees) after the industry has been locked-in to the standard and/or charging discriminatory royalty fees.

284. An abuse of the market power gained by virtue of IPR being included in a standard constitutes an infringement of Article 102. In this context and in case of a dispute, the assessment of whether fees imposed for patents in the standard-setting context are unfair or unreasonable, will be based on whether the fees bear a reasonable relationship to the economic value of the patents. Various methods may be available to make this assessment. In principle, cost-based methods are not well adapted to this context because of the difficulty in assessing the costs attributable to the development of a particular patent or groups of patents. Instead , it may be possible to compare the licensing fees charged by the undertaking in question for the relevant patents in a competitive environment before the industry has been locked into the standard (ex ante) with those charged after the industry has been locked in (ex post). This assumes that the comparison can be made in a consistent and reliable manner.

285. Another method of assessing the relationship of the IPR fees to the economic value of the patents could be to obtain an independent expert assessment of the relevant IPR portfolio's objective quality and centrality to the standard at issue. It may also be

Comment [A3]: There are a significant number of SSOs that provide some of this information to the public. However, there are a number of SSOs that may only provide access to drafts of the standard and other similar documents to members. This largely is to provide value to the members and encourage them to join the SSO.

Comment [A4]: There are many SSOs that do not require disclosures that are consistent with this paragraph. Their policies are participation-based, where the participants are not required to make disclosures but they all agree up-front that they will offer licenses for any and all essential patent claims they have that read on the final standard on FRAND (or FRAND-RF) terms and conditions. Often these policies provide that these patent holders only must make a disclosure if they want to "opt-out" certain patent claims from this up-front commitment.

Comment [A5]: Most disclosure-based SSO IPR policies would satisfy this criteria. However, there are some SSOs that only encourage disclosure.

Comment [A6]: Some SSOs give participating patent holders the choice of (a) disclosing specific patents (and then the licensing commitment only applies to any claims in those patents that end up being essential vis-à-vis the final standard, or (b) disclosing generally that the patent holder likely holds patents that will contain essential claims (and then the licensing commitment will apply to any and all essential claims that the patent holder has vis-à-vis the final standard).

Comment [A7]: Almost all disclosure-based IPR policies include a provision to the effect that patent searches are not required in order to fulfill the disclosure obligation.

Comment [A8]: This is an example of a place where the Commission may want to include the adjective "participating" before "holders".

Comment [A9]: While this probably is largely true for participation-based IPR policies (but they do typically permit a participating patent holder to "opt-out" specific patents if they are implicated by a contribution from someone else), many if not most disclosure-based IPR policies permit the disclosing patent holder to sel ...

Comment [A10]: As on observation, the term "ensure" is fairly strong. It is hard to see how a SSO can ensure this when there may be non-participating patent holders who are not bound by the SSO's IPR policy or any requirement to offer FRAND licenses. Also, as described above, unde ...

Comment [A11]: This may be a place where the adjective "essential" should be included before "patented technology".

possible to rely on previous unilateral ex ante disclosures of most restrictive licensing terms. This also assumes that the comparison can be made in a consistent and reliable manner. These guidelines do not seek to provide an exhaustive list of appropriate methods to assess whether the royalty fees are excessive.

286. To ensure the effectiveness of the FRAND commitment, there should also be a requirement on all IPR holders who provide such a commitment to take all necessary measures to ensure that any undertaking to which the IPR owner transfers its IPR (including the right to license that IPR) is bound by that commitment.

Comment [A12]: A number of SSOs who have looked at this issue have modified their IPR policy to require patent holders to use reasonable efforts to notify successors-in-interest of the prior licensing commitment. See, e.g., the ETSI IPR policy and the Guidelines to the implementation of the ISO/IEC/ITU harmonized policy.

287. In addition to fulfilling the above conditions that will normally be sufficient to avoid restrictive effects on competition, standard-setting agreements can contain additional rules which may or may not lead to a likely restriction of competition. To take a notable example, if standard-setting organisations provide for ex ante disclosures of most restrictive licensing terms, this will not (subject to the caveat set out above) lead to a restriction of competition within Article 101(1). In this regard, it is important that parties involved in the selection of a standard be fully informed not only as to the available technical options and the associated IPR, but also as to the likely cost of that IPR. Therefore, should a standard-setting organisation's IPR policy require, or allow, IPR holders to individually disclose their most restrictive licensing terms, including the maximum royalty rates they would charge, prior to the adoption of the standard this will not lead to a restriction of competition within the meaning of Article 101(1) as long as the rules do not allow for the joint negotiation or discussion of licensing terms in particular royalty rates. Such unilateral ex ante disclosures of most restrictive licensing terms would be one way to enable the standard-setting organisation to take an informed decision based on the disadvantages and advantages of different alternative technologies, not only from a technical perspective but also from a pricing perspective.

288. The inclusion in a standard of substitute technologies (i.e., technology which is regarded by users/licensees as interchangeable with or substitutable for another technology, by reason of the technologies' characteristics and intended use and which could, in the present context, be adopted in an alternative standard) may limit inter technology competition. Where a standard is composed of substitute technologies, the arrangement can in practice amount to foreclosure of competitors by excluding one potentially competing alternative technology from being included in a different standard. As a general rule, the inclusion of substitute technologies in a standard is likely to give rise to restrictive effects on competition within the meaning of Article 101(1).

Comment [A13]: A significant number of SSOs do permit the inclusion of substitute technologies. The standard may describe a result that must be accomplished, and then the standard sets forth different options for how to accomplish it. In this case, most SSOs treat these "options" as "required" (meaning it is required that you select one of them when implementing the standard) and any patent claims that read on any of the options are considered to be "essential" under these circumstances.

Comment [A14]: Usually there is no restriction that would prevent a patent holder from contributing the same technology to different SSOs.

289. Moreover, standards that are not accessible to third parties (i.e., non-members of the relevant standard-setting organisation) may discriminate or foreclose third parties or segment markets according to their geographic scope of application. Thus, the assessment whether the agreement restricts competition will focus on these elements.

290. As the effectiveness of standardisation agreements is often proportional to the share

of the industry involved in setting and/or applying the standard, high market shares held by the parties in the market(s) affected by the standard will not necessarily lead to the conclusion that the standard is likely to give rise to restrictive effects on competition.
(…)

7.4. Assessment under Article 101(3)
7.4.1. Efficiency gains

Standardisation agreements

300. Standardisation agreements can give rise to significant efficiency gains. For example, EU wide standards may facilitate market integration and allow companies to market their goods and services in all Member States, leading to increased consumer choice and decreasing prices. Standards which establish technological interoperability often encourage competition on the merits between technologies from different companies and help prevent lock-in to one particular supplier. Furthermore, standards may reduce transaction costs for sellers and buyers. Standards on for instance quality, safety and environmental aspects of a product may in addition facilitate consumer choice and can lead to increased product quality. Standards also play an important role for innovation. They can reduce the time it takes to bring a new technology to the market and facilitate innovation by allowing companies to build on top of agreed solutions.

301. To materialise those efficiency gains in the case of standardisation agreements, the necessary information to apply the standard must be effectively available to those wishing to enter the market and an appreciable proportion of the industry must be involved in the setting of the standard in a transparent manner. The rules of the standard-setting organisations should contain sufficient safeguards to prevent the standard-setting process from being biased towards one or several participants. The effects on innovation must be analysed on a case by case basis. However, for instance standards creating compatibility on a horizontal level between different technology platforms are considered to be likely to give rise to efficiency gains.

(…)

7.4.2. Indispensability
303. Restrictions that go beyond what is necessary to achieve the efficiency gains generated by a standardisation agreement or standard terms do not fulfil the criteria of Article 101(3).

Standardisation agreements

304. The assessment of each standardisation agreement must take into account the nature of the standard and its likely effect on the markets concerned, on the one hand, and the scope of restrictions that possibly go beyond the objective of achieving

efficiencies, on the other.

305. Standardisation agreements that entrust certain bodies with the exclusive right to test compliance with the standard, or impose restrictions on marking of conformity with standards, unless imposed by regulatory provisions, go beyond the objective of achieving efficiencies and may not be indispensable to the attainment of these objectives.

306. By their nature, standards will not (and should not) include all possible specifications or technologies. In cases where having only one technological solution would benefit consumers or the economy at large this standard must be set on a non-discriminatory basis. Technology neutral standards are presumed to lead to larger efficiency gains. In any event, it must be justifiable why one standard is chosen over another.

307. All competitors in the market(s) affected by the standard should have the possibility to take part in the setting of the standard. Therefore, participation in standard-setting should be open to all of them unless the parties demonstrate significant inefficiencies of such participation or unless recognised procedures are foreseen for the collective representation of interests.

308. As a general rule standardisation agreements should cover no more than what is necessary to ensure their aims, whether this is technical compatibility or a certain level of quality.

309. Standardisation agreements making a standard binding and obligatory for the industry are in principle not indispensable.

(…)

7.4.3. Pass-on to consumers
Standardisation agreements

311. Efficiency gains attained by indispensable restrictions must be passed on to consumers to an extent that outweighs the restrictive effects on competition caused by a standardisation agreement or by standard terms. A relevant part of the analysis of likely pass-on to consumers is which procedures are used to guarantee that the interests of the users of standards are protected. Where standards facilitate interoperability and competition between new and already existing products, services and processes, and secure multiple supply sources it can be presumed that the standard will benefit consumers.

(…)

7.4.4. No elimination of competition
314. Whether a standardisation agreement affords the parties the possibility of eliminating competition depends on the various sources of competition in the market, the level of

competitive constraint that they impose on the parties and the impact of the agreement on this competitive constraint. While market shares are relevant for this analysis, the magnitude of remaining sources of actual competition cannot be assessed exclusively on the basis of market share except in cases where a standard becomes a de facto industry standard. In the latter case competition may be eliminated if third parties are foreclosed from access on fair, reasonable and nondiscriminatory terms to this standard. Standard terms used by a majority of the industry might create a de facto industry standard and thus raise the same concerns.

7.5. Examples

315. Setting standards competitors cannot satisfy

Example 1
Situation: A standard-setting organisation sets and publishes quality standards that are widely used by the relevant industry. Most members of the industry take part in the setting of the standard. Prior to the adoption of the standard, a new entrant has developed a product that is technically equivalent in terms of the performance and functional requirements, which is recognised by the technical committee of the standard-setting organisation. However, the technical specifications of the quality standard are drawn up in such a way as to not allow for this or other new products to comply with the standard.

Analysis: This standardisation agreement is likely to give rise to restrictive effects on competition within the meaning of Article 101(1) and is unlikely to meet the criteria of Article 101(3). Although it is common that quality standards do not include all possible specifications, in this case the members of the standards development organisation have set the standard in such a way that products of their competitors which are based on other technological solutions cannot satisfy it, even though they have equivalent performance. Hence, this agreement, which has not been set on a non-discriminatory basis, will reduce or prevent innovation and product variety. It is unlikely that the way the standard is drafted will lead to greater efficiency gains than a neutral one.

316. A standard-setting organisation without clear rules on IPR
Example 2
Situation: The rules of the standards development organisation X encourage its members to disclose all their IPR (and pending IPR) which are essential to a proposed standard but does not require them do so. The IPR rules of X do not impose an obligation on its members to commit to license the IPR included in a standard.

Analysis: Standardisation agreements concluded by X are likely to give rise to restrictive effects on competition within the meaning of Article 101(1) and are unlikely to meet the criteria of Article 101(3). In order not to produce restrictive effects on competition, the parties to a standardisation agreement should ensure that

the IPR rules require that companies declare during the standard-setting process (i.e., before the standard is provisionally agreed) that they have (or believe to have) essential IPR (and pending IPR) which may read on a proposed standard, and that these companies identify what essential IPR (and pending IPR) they have (or believe to have) before that standard is formally published. Although there is no general requirement that parties to a standardisation agreement must declare that they are willing to licence their relevant IPR on a fair, reasonable and nondiscriminatory basis, failure to do so may restrict competition within the meaning of Article 101(1).

317. Unbinding and transparent standard covering a large part of the market

Example 3
Situation: A number of consumer electronics manufacturers with substantial market shares agree to develop a new standard for a product to follow up the DVD.

Analysis: Provided that (a) the manufacturers remain free to produce other new products which do not conform to the new standard, (b) participation in the standard-setting is unrestricted and transparent, and (c) the standardisation agreement does not otherwise restrict competition, then Article 101(1) is not infringed. If the parties agreed to only manufacture products which conform to the new standard, the agreement would limit technical development, reduce innovation and prevent the parties from selling different products, thereby creating restrictive effects on competition within the meaning of Article 101(1).

318. Standards in the insurance sector

Example 4
Situation: A group of insurance companies come together to agree non-binding standards for the installation of certain security devices (i.e., components and equipment designed for loss prevention and reduction and systems formed from such elements) for which there is currently no harmonised EU standard in place. Those non-binding standards may cover one Member State or a number of Member States. The insurers have brought the specific need for such standards to the attention of the relevant EU standards body and are involved with them with a view to putting an EU harmonised standard in place to address this need. The nonbinding standards set by the insurance companies (a) are agreed in order to address a specific need and to assist insurers to manage risk and keep insurance premiums low; (b) are discussed with the majority of installers in the affected Member States and their views are taken on board prior to finalisation of the standards; (c) are published by the relevant insurance association(s) on a dedicated section of its (or their) website(s) so that any installer or other interested party can access them easily and (d) will lapse as soon as a harmonised EU standard is adopted.

Analysis: The process for setting these standards is transparent and allows for the participation of interested parties. In addition, the result is easily accessible on a reasonable and non-discriminatory basis for anyone that wishes to have access to it.

Provided that the standard does not have negative effects on the downstream market (for example by excluding certain installers through very specific and not justified requirements for installations that cannot be fulfilled by certain installers) it is not likely to lead to a restrictive effect on competition. However, even if the standards led to a restrictive effect on competition the conditions set out in Article 101(3) may be fulfilled. The standards would assist insurers to analyse to what extent such installation systems reduce relevant risk and prevent losses so that they can reduce premiums. They would also, subject to the caveat set out above regarding the downstream market, be more efficient for installers, allowing them to comply with one set of standards for all insurance companies in the affected Member States rather than be tested by every insurance company separately. They could also facilitate consumers switching between insurers. In addition, they could be beneficial for smaller insurers who may not have the capacity to test separately. As regards the other conditions of Article 101(3), it seems that the non-binding standards do not go beyond what is necessary to achieve the efficiencies in question; that benefits would be passed on to the consumers (some would even be directly beneficial for the consumers); and that the restrictions would not lead to an elimination of competition. Therefore these standards may fulfil the criteria of Article 101(3) until such time as EU harmonised standards are in place to address the specific need that these standards address.

319. Environmental standards

Example 5
Situation: Almost all producers of washing machines agree, with the encouragement of a public body, to no longer manufacture products which do not comply with certain environmental criteria (e.g., energy efficiency). Together, the parties hold 90% of the market. The products which will be thus phased out of the market account for a significant proportion of total sales. They will be replaced with more environmentally friendly, but also more expensive products. Furthermore, the agreement indirectly reduces the output of third parties (e.g., electric utilities, suppliers of components incorporated in the products phased out).

Analysis: The agreement grants the parties control of individual production and concerns an appreciable proportion of their sales and total output, whilst also reducing third parties' output. Product variety, which is partly focused on the environmental characteristics of the product, is reduced and prices will probably rise. Therefore, the agreement is likely to give rise to restrictive effects on competition within the meaning of Article 101(1). The involvement of the public authority is irrelevant for this assessment. However, newer, more environmentally friendly products are more technically advanced, offering qualitative efficiencies in the form of more washing machine programmes which can be used by consumers. Furthermore, there are cost efficiencies for the purchasers of the washing machines resulting from lower running costs in the form of reduced consumption of water,

electricity and soap. These cost efficiencies are realised on markets which are different from the relevant market of the agreement. Nevertheless, these efficiencies may be taken into account as the markets on which the restrictive effects on competition and the efficiency gains arise are related and the group of consumers affected by the restriction and the efficiency gains is substantially the same. The efficiency gains outweigh the restrictive effects on competition in the form of increased costs. Other alternatives to the agreement are shown to be less certain and less cost-effective in delivering the same net benefits. Various technical means are economically available to the parties in order to manufacture washing machines which do comply with the environmental characteristics agreed upon and competition will still take place for other product characteristics. Therefore, the criteria of Article 101(3) are fulfilled.

320. Government encouraged standardisation
Example 6
Situation: In response to the findings of research into the recommended levels of fat in certain processed food conducted by a government-funded think tank in one Member State, several major manufacturers of the processed foods in the same Member State agree, through formal discussions at an industry trade association, to set recommended fat levels for the products. Together, the parties represent 70% of sales of the products within the Member State. The parties' initiative will be supported by a national advertising campaign funded by the think tank highlighting the dangers of a high fat content in processed foods.

Analysis: Although the fat levels are recommendations and therefore voluntary, as a result of the wide publicity resulting from the national advertising campaign, the recommended fat levels are likely to be implemented by all manufacturers of the processed foods in the Member State. It is therefore likely to become a *de facto* maximum fat level in the processed foods. Consumer choice across the product markets could therefore be reduced. However, the parties will be able to continue to compete with regard to a number of other characteristics of the products, such as price, product size, quality, taste, other nutritional and salt content, balance of ingredients, and branding. Moreover, competition regarding the fat levels in the product offering may increase where parties seek to offer products with the lowest levels. The agreement is therefore unlikely to give rise to restrictive effects on competition within the meaning of Article 101(1).

Annex 2 – List of SSOs and their IPR Policies

SSO Acronym	Complete Name	Main Webpage	IPR Policy
4C Entity	4C Entity, LLC	http://www.4centity.com/index.html	Not available online
AFNOR	AFNOR Groupe	http://www.afnor.org/en	http://www.afnor.org/en/legal-information#p13283
ASTM	ASTM International	http://www.astm.org/	http://www.astm.org/Itpolicy.pdf http://www.astm.org/COMMIT/Regs.pdf (Section 15) http://www.astm.org/COMMIT/Blue_Book.pdf (Sections F3-F5) http://publicaa.ansi.org/sites/apdl/Documents/News%20and%20Publications/Links%20Within%20Stories/ANSI%20Patent%20Policy.doc (ANSI Patent Policy)
ATIS	Alliance for Telecommunications Industry Solutions	http://www.atis.org/	http://www.atis.org/legal/Docs/OP/OP-%20Version%205%200%20Final%20(8-17-09).pdf http://www.atis.org/legal/Docs/Policy/ATIS%20Patent%20Assurance%20Form_Test%20Fields_semifinal.pdf (letter of assurance)
BIAN	Banking Industry Architecture Network	http://www.bian.org/content/	http://www.bian.org/content/e190/e217/e279/CBIANIPRv030_en.pdf
Bluetooth SIG	Bluetooth Special Interest Group	https://www.bluetooth.org/apps/content/	https://www.bluetooth.org/Membership/agreements.htm https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=67 (adopter) https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=68 (promoter)
BSI	British Standards Institution	http://www.bsigroup.com/	http://www.bsigroup.com/upload/Standards%20&%20Publications/NSB/BS0-1.pdf (Section 7.7.2)
CEN	European Committee for Standardization	http://www.cen.eu/cen/Pages/default.aspx	http://www.cen.eu/CEN/sectors/sectors/isss/pm/Pages/exploitation_rights.aspx (CEN and CENELEC have adopted the IPR policy of ISO, IEC and ITU-T) http://isotc.iso.org/livelink/livelink/fetch/2000/2122/3770791/Common_Policy.htm
CENELEC	European Committee for Electrotechnical Standardization	http://www.cenelec.eu/Cenelec/Homepage.htm	http://www.cen.eu/CEN/sectors/sectors/isss/pm/Pages/exploitation_rights.aspx (CEN and CENELEC have adopted the IPR policy of ISO, IEC and ITU-T) http://isotc.iso.org/livelink/livelink/fetch/2000/2122/3770791/Common_Policy.htm

SSO Acronym	Complete Name	Main Webpage	IPR Policy
DIN	Deutsches Institut für Normung e. V.	http://www.din.de/cmd;jsessionid=A55C3DCA852EB0BC226352BFF9238598.2?level=tpl-home&languageid=en	Not available online
DLNA	Digital Living Network Alliance	http://www.dlna.org/home	Not available online
DVB	Digital Video Broadcasting	http://www.dvb.org/	http://www.dvb.org/documents/MoU.English.2001.pdf (See Section 14)
Ecma	Ecma International	http://www.ecma-international.org/	http://www.ecma-international.org/memento/codeofconduct.htm
ETSI	European Telecommunications Standards Institute	http://www.etsi.org/WebSite/homepage.aspx	http://www.etsi.org/WebSite/document/Legal/ETSI_IPR-Policy.pdf http://www.etsi.org/WebSite/document/Legal/IPRforms.doc (Disclosure form)
GS1	GS1	http://www.gs1.org/	http://www.gs1.org/docs/ip/GS1_Intellectual_Property_Policy.pdf
GSMA	GSM Association	http://www.gsmworld.com/index.htm	Not available online
HomePlug	HomePlug Powerline Association	http://www.homeplug.org/home/	http://www.homeplug.org/join/
I3A	International Imaging Industry Association	http://www.i3a.org/	http://www.i3a.org/wp-content/uploads/2008/10/i3a-sop-2008_v2.pdf
IEC	International Electrotechnical Commission	http://www.iec.ch/	http://www.iec.ch/tctools/patent-common.html http://www.itu.int/dms_pub/itu-t/oth/04/04/T04040000020002PDFE.pdf (licensing declaration)
IEEE	Institute of Electrical and Electronics Engineers	http://www.ieee.org/index.html	http://standards.ieee.org/board/pat/pat-material.html
IETF	Internet Engineering Task Force	http://www.ietf.org/	http://www.ietf.org/ipr/policy.html http://www.ietf.org/rfc/rfc3979.txt http://www.ietf.org/rfc/rfc4879.txt
ITBA	Infiniband Trade Association	http://www.infinibandta.org/	http://www.infinibandta.org/img/pdfs/mem-agreement.pdf
ISO	International Organization for Standardization	http://www.iso.org/iso/home.html	http://isotc.iso.org/livelink/livelink/fetch/2000/2122/3770791/Common_Policy.htm http://www.itu.int/dms_pub/itu-t/oth/04/04/T04040000020002PDFE.pdf (licensing declaration)

SSO Acronym	Complete Name	Main Webpage	IPR Policy
ITU	International Telecommunication Union	http://www.itu.int/en/pages/default.aspx	http://www.itu.int/ITU-T/dbase/patent/patent-policy.html http://www.itu.int/dms_pub/itu-t/oth/04/04/T04040000020002PDFE.pdf (licensing declaration) http://www.itu.int/dms_pub/itu-t/oth/04/04/T04040000030002PDFE.pdf (general licensing declaration)
MIPI Alliance	Mobile Industry Processor Interface Alliance	http://www.mipi.org/	http://mipi.org/MIPI-MA-2006.pdf http://mipi.org/MIPI-Bylaws-2009.pdf
OMG	Object Management Group	http://www.omg.org/	http://www.omg.org/cgi-bin/doc?omg/06-02-01.pdf
PWG	Printer Working Group	http://www.pwg.org/	http://www.pwg.org/chair/membership_docs/pwg-ip-policy.pdf (IP Policy) http://www.pwg.org/chair/membership_docs/pwg-loa.pdf (Letter of Assurance)
SDA	SD Card Association	http://www.sdcard.org/home/	http://www.sdcard.org/developers/join/ippolicy32909.pdf
Serial ATA	Serial ATA International Organization	http://www.serialata.org/	http://www.sata-io.org/documents/SATA-IOBylaws_000.pdf
SIGIS	Special Interest Group fo IIAS Standards	http://www.sig-is.org/en/index.asp	http://www.sig-is.org/imwp/download.asp?ContentID=12502
TIA	Telecommunications Industry Association	http://www.tiaonline.org/index.cfm	http://www.tiaonline.org/standards/procedures/manuals/documents/tia_eng_manual-5th_edition_102009_final.pdf (IP Policy: pgs iii-vi, Annex H and H-1)) http://www.tiaonline.org/standards/procedures/manuals/documents/IPRGuidelines_edition1_companion_to_4th_ed_engmanual.pdf (guidelines)
TTA	Telecommunications Technology Association of Korea	http://www.tta.or.kr/English/	http://www.tta.or.kr/English/new/standardization/procedure.jsp http://www.tta.or.kr/English/new/standardization/procedure_sub02.htm
TTC	Telecommunication Technology Committee in Japan	http://www.ttc.or.jp/e/index.html	http://www.ttc.or.jp/e/intro/rules/ru6/index.html http://www.ttc.or.jp/e/intro/rules/ru6/pdf/ru603.pdf
USB	Universal Serial Bus	http://www.usb.org/home	http://www.usb.org/developers/docs/adopters.pdf
W3C	World Wide Web Consortium	http://www.w3.org/	http://www.w3.org/Consortium/Patent-Policy-20040205/
WGA (WiGig)	Wireless Gigabit Alliance	http://wirelessgigabitalliance.org/	Not available online

SSO Acronym	Complete Name	Main Webpage	IPR Policy
WFA	Wi-Fi Alliance	http://www.wi-fi.org/	http://www.wi-fi.org/files/gd_8_RevisedMarch1,2006WFAIPRPolicy.pdf
WiMAX Forum	WiMAX Forum	http://www.wimaxforum.org/about	http://www.wimaxforum.org/sites/wimaxforum.org/files/page/2009/12/WIMAX_Forum_IPR_Policy_2006_09_25_FINAL.pdf
WiMedia Alliance	WiMedia Alliance	http://www.wimedia.org/en/index.asp	http://www.wimedia.org/en/documents/WiMedia%20Contributor%20Agreement_1.7%20With%20Exhts-Privl,IPR,AntiTr.pdf (Exhibit 2)