

Standards—An Important Patent Portfolio Licensing Opportunity

By Robert A. Myers

Introduction

In the 1980s, Texas Instruments and, somewhat later, IBM showed that it is possible for a company with a strong patent portfolio to reap large added rents for their sunk R&D costs through patent assertion and licensing. Seeing this opportunity, enterprises and universities throughout the world have tried to emulate those trailblazers and somehow monetize their patent portfolios profitably. In spite of reports of astonishing settlements and awards for patent infringement, however, the great majority of patentees have been disappointed. So-called “patent trolls”—accumulators of large numbers of third party patents—have arisen to attempt to remedy this problem with the business model of monetizing by sale, licensing or litigation patents obtained by others while extracting hopefully substantial transaction fees in the process. An important if less well appreciated licensing opportunity can be found in patents that may read on standards. Following a discussion of where such patents fit into patent portfolio management, we will then review the challenges facing patentees looking for standards based licensing revenue.

Reasons for Patenting

Historically, the United States patent system was established, as stated in the U.S. Constitution, [Article 1, Section 8] “to promote the progress of Science and useful Arts by securing for limited times to Authors and Inventors the exclusive Right to their respective Writings and discoveries.” This was primarily a reaction to the mercantile practices of their former British colonial masters, to whom keeping innovation secret—at the time, in areas such as spinning and weaving—was a key source of private wealth. The founding fathers believed, and two hundred years of experience have confirmed, that society benefits tremendously when inventors are well rewarded by a system in which inventions are publicized through the *exclusionary right* awarded by a patent.

Thus, one use of a patent is to establish and maintain a monopoly for a limited period of time. The U.S. courts have almost without exception given this patent monopoly priority over possible antitrust violations. Exercising one’s patent rights does not constitute an illegal monopoly unless the patentee has through other means secured impermissible market power.¹

But what does this mean in practice? Clearly, if the patent is valid and enforceable (more about these later), the owner has the ability to establish and maintain an exclusionary monopoly on all products and services which would otherwise infringe *all of the elements of at least one claim* of the patent. That is, he can *prevent others from practicing his invention* in the United States for a period of twenty years from its date of file in the patent office. However, since this is an exclusionary monopoly, it does not necessarily permit the patentee to practice the patent himself should that practice entail infringing other valid patents. In modern technology, such infringement is almost inevitable.

This situation immediately suggests a second important use of a patent (or, more commonly, a patent portfolio): *cross licensing*. When access to patents owned by two parties is needed in order to make or sell something, this is readily rectified by the parties giving each other a license. The terms and conditions of such a license (including which if any party pays, and how much), of course, can be quite complex and are not our subject here.

The most media attention is paid to those instances in which a patentee has asserted that another party—often a competitor—is practicing a patented product

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1. The most significant instances in which antitrust took precedence were in 1956 consent decrees with AT&T [<http://www.issues.org/15.2/hart.htm>] and IBM [<http://www.cptech.org/at/ibm/ibm1956cd.html>] in which they agreed to make licenses available to their patents on reasonable and non-discriminatory terms.

or service. As just noted, the patentee may, after potentially major legal expenses, profitably enjoy such infringement and collect damages for past infringement. On the other hand, it is more common for a patentee to negotiate to obtain compensation from the infringer for the right to continued use of his patent i.e., to grant a license for some kind of payment (which might well include a cross license). It is important to keep in mind the fact that intellectual property is just another asset of a business, and the decision as to how to exploit that asset is, simply, “just business.” Maintaining a monopoly through risky and expensive litigation in some cases may be more costly than negotiating a profitable license.

A possibly more controversial use for a patent arises when the patentee does not make or sell anything himself. An obvious example is a university. Another compelling example is a patent owned by a manufacturer in a field where he does no business. The sticking point for many observers, however, is the case in which the patentee is simply an inventor or, even more troubling, an entity that buys patents from others.² All such patentees are legally entitled to the same exclusionary monopoly as any industrial company. The underlying but persuasive use of the patent in such cases is that the ability to get a patent (and, of course, a payment) motivates inventors to invent and universities to carry out potentially useful research.³

In sum, the primary uses of a patent are (1) to protect a business or service monopoly, (2) to trade for other patent rights which facilitate entering or maintaining a business (3) to extract payment (“rents”) from others using or wishing to use the patent and (4) to reward “inventors” and other innovators financially in return for their publicizing useful inventions.

Patents and Standards—Strange Bedfellows⁴

Patents are rarely worth much if no one other than the patent owner is interested in practicing the covered invention. This is obvious if the objective of patenting is to maximize licensing revenue, but it also applies if an organization patents to exercise its exclusionary patent monopoly. In this case, too, if no one wants to copy a product or service, the “protection”

2. See, for example, Amol Sharma and Don Clark, *The Wall Street Journal*, September 17, 2008, “Tech Guru Riles the Industry By Seeking Huge Patent Fees.”

3. University research, of course, has other purposes as well. I discuss them in *University Technology Transfer Challenges and Solutions—A U.S. Perspective*, Invited Lecture at Institute for Intellectual Property Symposium, Tokyo, Japan, March 10, 2005 (unpublished but available from the author).

provided by the patent is practically worthless. Where a patent is “essential” to the practice of a standard, this precondition is automatically met. Such patents are almost by definition valuable.

Thus, a very difficult but potentially very rewarding payoff for an active patenting program occurs when one can obtain a patent on a technology, method, or process which is central to a new or evolving standard. The bigger reward will most often be earned by an organization which is adequately prepared. For example, contention between researchers and management may arise when a researcher’s work is a candidate for a new standard. Standards bodies almost invariably assert that they will only consider proposals which are royalty free. The researcher’s personal and professional interest primarily lies in having his or her work recognized by his or her peers, and future royalties may be of little or no concern.

On the other hand, most standards organizations will agree to a reasonable, non-discriminatory royalty.⁵ A royalty of even one percent on a major standard can be very profitable,⁶ and intellectual property management must take a firm position against giving away a potentially valuable asset. No less important, even when the patents which are deemed essential for a standard have to be licensed for a nominal royalty, patents on features and enhancements can nevertheless be licensed for what the traffic will bear. Thus, patenting organizations need to be conscious of possible standards implications, and of the value opportunity they provide, so as to make their patenting decisions clearly appreciating any potential standards implications.

The Contrast.

As we showed above, a patent has several primary uses:

4. See the following for some recent studies of patents essential to wireless standards: *Analysis of Patents Declared as Essential to GSM as of June 6, 2007*, David J. Goodman and Robert A. Myers, (unpublished) available at http://frlicense.com/GSM_FINAL.pdf. *Analysis of Patents Declared as Essential to WCDMA as of December 31, 2005*, (unpublished) David J. Goodman and Robert A. Myers, available from the author, 3G Cellular Standards and Patents. David J. Goodman and Robert A. Myers, IEEE Wireless 2005 Proceedings, available at <http://www.frlicense.com/wireless-com2005.pdf>; Tobias Kaufman, *Intellectual Property in Broadband Mobile Telecommunications: Predictions on 4G WiMAX*, <http://www.frlicense.com/IntellectualPropertyinBroadbandMT.pdf>.

5. Simply because, as a practical matter, there is no alternative.

6. Qualcomm is widely believed to receive royalties of the order of 4% for its wireless CDMA portfolio. These royalties produce more than half Qualcomm’s revenue.

- Protecting a business model from new competition,
- Cross licensing to obtain access to patents owned by other parties,
- Extracting rents (royalties) from competitors already practicing the invention,
- Earning an additional return from other entrepreneurs (sale or royalty) from sunk R&D cost.

Patents may also be used as contributors to the value of an enterprise in an M&A situation, or as collateral for borrowing, but these derive directly from the above uses.

On the other hand, an *Open Technical Standard* is

- A recipe or prescription to allow interoperability of products and services from different providers,
- Developed by a voluntary collaboration of technical experts,
- From different companies and organizations,
- Both national and international.

And a *Proprietary Technical Standard* (e.g., WINDOWS) is

- Intellectual property owned by a single entity or group of entities,
- Ordinarily developed at its own expense,
- Expecting to make a profit,
- Adopted by third parties out of necessity,
- Accepted as a *de facto* standard,
- Because it is the best solution to a pervasive problem.

Thus, there is a disconnect. Patents keep people out, or make them pay a toll, whereas standards let (not all) people in for a reasonable price. There is, therefore, a fine balance, not all that different from the case of patents and antitrust, where a patent is a legal monopoly. A standard is, in a sense, a legal monopoly operated by the “Committee” and, in the U.S., Justice Department supervision is assumed.

Some Important (Open) Standards

- GSM—Second Generation wireless
- WCDMA—Third Generation Wireless
- Blue Tooth
- Wi-Fi
- Wi-Max (4th generation wireless)
- LTE (Alternative 4th generation wireless standard)
- IP-Internet Protocol
- VHS-Videotape

- DVD [and its variants]
- FAX

Standards Development

Standards are generally developed by committees chartered by standard setting bodies such as those listed below. Particularly in Europe, they may be facilitated (or mandated) by government(s), as in the case of the second generation wireless standard, GSM. Anecdotally, it is not so different from sausage making. Committee members have diverse, conflicting interests including

- Personal glory,
- Employer success,
- Desire to be associated with an acceptable standard, while not violating anti-trust regulations,
- Cannot mention “price” or “market,”
- Not so easy for engineers,
- And maintaining a semblance of technical integrity.

Bodies Promoting Standardization

The following are only some of the major standardization bodies. They can all be found on the Internet by searching on the acronym.

- ANSI (USA)—American National Standards Institute
- IEEE (Global)—Institute of Electrical and Electronics Engineers
- ETSI (Europe)—European Telecommunications Standards Institute
- ARIB (Japan)—Association of Radio Industries and Broadcasters
- TTC (Japan)—Telecommunications Technology Committee
- TTA (Korea)—Telecommunications Technology Association
- ISO (Global)—International Standards Organization
- ITU (Global)—International Telecommunications Union
- 3GPP (Global)—Third Generation Partnership Project
- 3GPP2 (Global)—Third Generation Partnership Project2
- W3C (Global)—Worldwide Web Consortium

Technically Essential Patents

A valuable patent in the world of standards is a patent that must be practiced in order to meet the

standard. Two types of essentiality are recognized: *Technical Essentiality* and *Commercial Essentiality*. A patent which is commercially essential to practicing a standard is little different from any valuable patent. It embodies an improvement which enables a valuable feature (manufacturing cost, very desirable functionality, etc) without which a product or service is not competitive.

On the other hand, a technically essential patent cannot be avoided at any price. The European Telecommunications Standards Institute (ETSI) thus provides this definition: “*ESSENTIAL*” as applied to IPR means that it is not possible on technical (but not commercial) grounds, taking into account normal technical practice and the state of the art generally available at the time of standardization, to make, sell, lease, otherwise dispose of, repair, use or operate EQUIPMENT or METHODS which comply with a STANDARD without infringing that IPR.

A technically essential patent would be welcome in any portfolio. In the following, we will discuss how to make one, how to find one, how to confirm essentiality, how to validate its essentiality, and how to monetize it. For the most part, these will be seen to be a specific instance of good portfolio management processes, and may function as general guidelines.

Making an Essential Patent

Apart from being lucky, there are a number of measures one can take to increase chances for an invention that will be the basis for an essential patent. Clearly, R&D staff need to be cognizant of technology trends in areas where standardization is important. These are typically fields such as telecommunications and Internet where interoperability and interconnectability are required. Although surrounding technical personnel by a high security wall might pay dividends in development of a proprietary standard, where an open standardization environment is in place, the key is participation. Engineers need to be at technical meetings, advocating their new solutions and learning what others are doing so that they are in a position to invent improvements. This cross fertilization is an important ingredient in facilitating inventions that might find their way into an evolving standard.

In the early years of an evolving technology, the course its standardization will follow is unsure. For that reason, an expansive patenting policy is appropriate. File for virtually any patentable concept. As the standardization develops, lesser ideas can be discarded, while those inventions supporting broader claims should be refined, amended, and continued as appropriate so that when they issue they are more

likely to have been incorporated into the standard. Likewise, in negotiation with patent examiners as little as possible should be conceded to maintain claim coverage in possible future litigation.

Until a standard is formalized, it is desirable to extend the life of the application. Whether through continuations, amendments, or simply not rushing the examination process, the more opportunities there are to “tune” the claims to a standard, the more likely it is that the patent will, in fact, read on the standard.

Finding an Essential Patent

Frequently a client will contact us and request that we find an essential patent that they can buy. “Finding” an essential patent is relatively easy in some fields, such as WCDMA, where standards bodies such as ETSI maintain online lists of patents which have been “declared” as essential by the patentees.⁷ Even if such a patent is validated as essential (see below), however, it is difficult to put a price on it and (in our experience) almost impossible to arrive at a mutually acceptable price. One somewhat promising approach is to monitor bankruptcy filings although even in such cases a genuine essential patent would surely be the subject of a spirited auction.

Another possible approach is to actually search the patent database, starting with key words, then doing high level filtering and, finally, subjecting the remainder to an expert technical review. At best this is expensive and, in general, it is very wasteful of valuable resources.

The most promising approach for a “cold” search is to emulate a patent troll, and buy as many patents in the field as one can for as low a price as possible. If the portfolio is large enough, there is probably an essential patent or two there, one that its inventors or owners were unaware of and, in any case, they might welcome some quick money.

A relevant observation was made many times by Ralph Gomory, then IBM Director of Research. To paraphrase his thought,⁸ “since we rarely know in

7. The list of patents declared to ETSI as essential to WCDMA has of the order of 10,000 properties, including applications as well as granted patents in as many as 50 different national jurisdictions.

8. For example, Ralph E. Gomory, *Moving IBM's Technology from Research to Development*, Research-Technology Management, November-December, 1989, pp. 27-32, Turning Ideas Into Products, *The Bridge*, official journal of the National Academy of Engineering, Spring, 1988, and From the “Ladder of Science” to the Product Development Cycle, *Harvard Business Review*, November 1, 1989.

advance which inventions will be important, and the percentage of “good” patents is substantially invariant to the number of patents one has, ***the surest way to get more good patents is to get more patents.***” This is no less relevant to the specific case of patents reading on a standard. In the real world, of course, this mantra is subject to often rigorous budget constraints.

Several challenges remain to be considered: ensuring that the patent is essential, and ensuring that it is valid.

Validating Essentiality

Abstractly, the process is straightforward. Examination of the independent claims readily points an expert to the relevant section(s) of the standard.⁹ A technical expert then generates a “claim chart”, listing on one side the steps that are mandated by the standard and on the other side the elements of a claim that may read on it. The expert then renders an opinion as to whether the standard can be practiced without practicing every element of at least one claim of the patent.

Note that there are, in fact, three distinct judgments that must be made. The expert must parse the wording of the standard to understand what it requires. He must then interpret the patent’s claim(s) [in a form of solo Markman¹⁰ exercise] and only then can he judge whether there is an avoidance path. When the opinion is positive, further legal analysis is needed to confirm that the patent is valid (or, at least, that it is plausibly valid, short of litigation).

Organizations that formally vet the essentiality of declared patents (such as, for example, patent pools, where including a non-essential patent exposes the pool to patent misuse allegations) argue that due to the fundamental importance of the procedure, an investment of several days by experts in the technology and the standard (i.e., engineers), in the patents and in the prior art in the field (i.e. an attorney). Normally, more than one opinion would be needed to ensure a defensible result. The cost for competent experts can easily exceed \$25K per patent. Even after such a rigorous process, however, such a patent isn’t “really essential” unless and until it has been litigated, as IP practitioners well know.

Fairfield Resources and our clients concluded that this rigorous approach is an expensive luxury, since

any result is liable to be arguable in any case.¹¹ We believe that a practical alternative is to obtain an expert opinion as to essentiality in a constrained time frame. We have found that even one hour on average is sufficient. With experts who are already familiar with the standards as well as the technology, it is highly probable that one expert’s opinion is of comparable credibility to the opinion of a committee of experts. Even so, the investment for validating essentiality where thousands of patents have been declared is expensive.

Ensuring the Patent is Valid

Good patenting “hygiene” requires paying attention to a number of bread-and-butter measures. Many engineers and inventors, however, are often unaware of such requirements or—perhaps more seriously—don’t appreciate their importance. It is important in any facility which as part of its regular work invents and patents that staff are made aware of these matters. Although there are many factors to be kept in mind when filing for a patent, we find two to be important to discuss: inventorship and searching for prior art.

If an issued patent has incorrect inventorship, it can be declared invalid, short of a complex correction process. Often, a supervisor’s or manager’s name will be routinely added to a patent application. In other cases, to minimize staff conflicts, anyone with even a vague claim to inventorship may have his or her name added to an application. Routine best practices avoid any problems by having the patent attorney quiz each inventor and determine which of the claims that individual actually contributed to. Occasionally, where each named inventor was not an inventor of all claims, prosecution of the application may require modification of the named inventors, or even a divisional application, if the examiner disallows some claims.

However, the most common validity issue we have identified is that of “undiscovered prior art”, or a prior offering for sale of a product or service embodying the patented invention. Naturally, discovering a clear instance of anticipatory art can be a major factor in having a patent disallowed or—more likely—reducing negotiated royalty payments. As a practical matter, it is virtually impossible for an inventor and his attorney to accomplish an exhaustive search. Even when, as is usual, this searching is

9. The WCDMA standard’s latest release 7.0 contains several GBytes of text.

10. <http://www.law.cornell.edu/supct/html/95-26.ZO.html>

11. Our experts did not agree with a significant percentage of the patents judged as essential by the 3G patent platform experts.

delegated to a service, the results of the search are necessarily incomplete.

The emergence of the World Wide Web has greatly facilitated the search process, particularly for searching issued patents. We routinely recommend that an inventor carry out a Web search even before writing a disclosure. At the very least this eliminates resources wasted prosecuting an application that is bound to fail. Moreover, an experienced inventor can often tune his disclosure such that it is less likely to run afoul of an existing patent. However, the Web is not nearly as useful for discovering art reading on an adverse issued patent. This is discussed further below.

We have found that the main function of most prefiling search is to validate the inventor's required attestation that the application includes all prior art reasonably known to him. Once that hurdle is cleared, the more thorough searching is left to the examiner. Since examiners are normally extremely busy, and they rarely search outside of the issued U.S. patent database, the probability of undiscovered art is quite high. The recent experiment of the U.S. patent office in which applications are laid open to comment by third parties was a reasonable attempt to address the resulting problems of "obvious" software and business method patents, where the existing patent art was minimal at best.

Although a U.S. examiner may consult the European patent data, he appears to rarely consult non-English patents (e.g., Japanese or Chinese). Since there is an enormous corpus of Japanese patents, this leaves open the reasonable probability that there is existing Japanese prior art (as we have found in numerous cases). Equally likely is the case in which the prior art is in the technical literature. That could be a publication—not always in English—or an abstract of a technical meeting. Much of this art may actually be found in a retired inventor's garage or attic. The key is to locate the right expert. In one matter, we located a killer document in a master's thesis submitted to a Norwegian university archived in the French *Bibliothèque Nationale*. Although one fluent in Japanese can readily search the JPO'S database, prior art of this type is almost never found via an internet search.

In summary, the question of a patent's validity, as is well known, is not firmly established until and unless the patent has been fully litigated. We do not advocate applying for a patent in the absence of a thorough search, but it is important to recognize that when a patent is asserted against you, it is a good bet that you will be able to discover some potentially

disqualifying art. The Supreme Court's KSR ruling¹² makes this even more probable, as it permits arguing the relevance of art in an "unrelated" field.

Monetizing or Asserting an Essential Patent

Most IP practitioners are aware of the usual downside to asserting a patent against an alleged infringer, starting with the cost. Another major concern is that asserting a patent exposes it to the risk that the alleged infringer may succeed in having the patent declared invalid (for reasons noted above). Where the patent at issue is essential to a standard, however, the challenges are greatly increased. That is because a valid essential patent poses a financial risk to every company practicing the standard. The patentee can easily find himself up against a consortium of (rich) opponents, who have a lot to lose if the patentee prevails.

These risks are magnified if the patentee only owns a single essential patent. In theory, the owner of a single essential patent can "hold up" the industry if he so chooses since one can argue that all essential patents are "equal" in some sense. However, this is not a universally accepted position. Some parties argue that some patents are more essential than others, and should be weighted disproportionately.¹³ For example, in the case of an automobile, it has been argued that a patent on an automobile windshield wiper (assuming there were a standard for windshield wipers) would be less "essential" than a patent covering the transmission (again, assuming there were a standard for transmissions).¹⁴

The analogy is fatally flawed in our opinion. Although the transmission is in some sense more central to the operation of an automobile, there are hundreds if not thousands of patents covering various variations and improvements on the transmission whereas there may only be a few dozen such patents on the wiper. Many of the transmission patents may in some sense be technically essential, but any single one is unlikely to be more "essential" than one of a few dozen wiper patents. What we find to be a key message is this: a single essential patent is considerably less *valuable* than a *portfolio* of essential

12. <http://www.supremecourtus.gov/opinions/06pdf/04-1350.pdf>.

13. The process by which some "essential" patents are determined to be more fundamental is, of course, undefined and, by default, would probably end up in court.

14. Donald L. Martin and Carl de Meyer, "Patent Counting, a Misleading Index of Patent Value: A Critique of Goodman & Myers and its Uses," http://papers.ssrn.com/sol3/papers.cfm?abstract_id=949439.

patents simply because the single patent is much more vulnerable to invalidity challenges. The cost of challenging the validity of a dozen patents is much higher than that cost for a single patent.

The lesson in the standards context, even more so than in a generic assertion of infringement, is that a patentee should exercise great care before assertion, and an agreement of some sort, whether a cross license or a payment, is almost always preferable to the risks of litigation.

Participating in Standardization

We have already discussed some of the reasons why a patent reading on a standard can be very valuable. The chances of one's patents being found essential to an emerging standard can be greatly improved if he participates in the group creating the standard. However, the question of whether or not to participate is not a black and white one.¹⁵ For example although participating in setting a standard does not require foregoing all royalties, it does limit one's recoveries to fair, reasonable, and non-discriminatory ("FRAND") royalties. We briefly discuss what this may actually mean in the next section, but there is no question that the financial payoff is not unlimited although—as in the cases of Qualcomm and Interdigital, for example—it can be high.

What has developed in recent years, however, is a risk that participants in standard setting can be subject to costly litigation, possibly including being found guilty of patent misuse and precluded from collecting any royalties. One possible source of this problem arises when the engineer participating in the standards group attests that he has communicated to the group all his employer's relevant patenting activity. In a large corporation, it is unlikely that *anyone*, much less a middle level engineer, knows everything that is going on in the company, even in his field. Thus, if the company, after the standard has been fixed, "discovers" a new essential patent and attempts to assert it, there is a good chance that other participants will cry "foul", and litigate to halt this assertion.

Hence, some companies threaten to completely avoid participating in standards setting.¹⁶ Clearly there are risks in such an approach. For example, the company will not have an intimate knowledge of

the content of the standard until it has been promulgated, thus introducing a delay in the introduction of relevant products. On the other hand, staying out of the process virtually eliminates the risk of a patent (or antitrust) fight.

Fair, Reasonable and Nondiscriminatory Royalties ("FRAND")

Parsing the meaning of "Fair, Reasonable and Non-discriminatory" is a favorite activity of intellectual property consultants. Papers and books galore discuss it with the most recent¹⁷ being particularly helpful, albeit with an openly biased viewpoint. The only unarguable interpretation of FRAND is "no royalties for anything" and occasionally that actually is the case. Otherwise, there are probably as many approaches as there are parties involved in a standards licensing negotiation. One "definition": is that *FRAND is whatever the parties agree to, with or without litigation*. Indeed, as noted above, one way for a patentee to avoid stumbling over this hurdle is simply to avoid any participation in standardization. Of course, that is hardly insurance against having to pay another patentee what he has determined is FRAND.

In view of space limitations, we forego any further discussion of this question here.

A Last Word on IP and Standards—Government Intervention

The interplay of patents and standards is, as one can see, already quite complex, but this has been complicated in recent years by the involvement of government entities, the European Commission in particular. We have already mentioned the role of the EC in the creation of a European-wide second generation wireless standard, GSM. More recently, the Commission has inserted itself into the debate over whether Qualcomm's wireless patent monopoly should continue to take precedence over the interests of European consumers—and suppliers.¹⁸ Although there are U.S. companies on both sides of the issue, it is not out of the question that anti-Americanism may also play a supporting role.

Concluding Comments

What remains true is that an essential patent on an important standard can be a very valuable asset, and obtaining such patents is therefore a very important part of a company's patenting strategy. ■

15. See, for example, Jeremy Kirk, "IBM Threatens to Leave Standards Bodies," *The New York Times*, September 23, 2008.

16. <http://slashdot.org/article.pl?sid=08/09/23/1727235&from=rss>.

17. See Timo Ruikka, "FRAND Undertakings in Standardization—A Business Perspective," in *les Nouvelles*, September, 2008, p. 188, for an enlightening discussion of this topic.

18. <http://economie.moldova.org/stiri/eng/73515/>.