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Where's the Economics Behind *Lucent v. Gateway et al.*?

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In a recent verdict, a jury in the U.S. District Court for the Southern District of California held Microsoft liable for infringement of two patents held by Alcatel-Lucent (Lucent). It ordered Microsoft to pay just over $1.5 billion in reasonable royalty damages, the largest patent damage award in history. The case, *Lucent Technologies et al. v. Gateway Inc. et al.*, focused on two patents relating to MP3 audio technology and the ability of computers running Microsoft's Windows Media Player (WMP) to both create and use audio files encoded in MP3 format. This ruling has been the focus of intense scrutiny.

The economic and business analysis presented to the jury to support each side's damages opinions was, in our view, inadequate. More precisely, the arguments put forth by both sides' damages experts failed to apply basic economic principles to estimate the value of the patent at issue to either Lucent or Microsoft. Instead, they relied on rules of thumb, purportedly comparable rates and licensor policies. Given both sides' damages presentations, it appears from the public transcript that the jury was left without a sound economic basis upon which to base an award.

Summary of Damage Claims

The public record of the case indicates that Lucent's damages expert argued that (1) standard royalty rates for relevant audio licenses were 0.5 percent,[1] and (2) these rates should be applied to the entire value of any computer incorporating the patents in suit using the so-called "entire market value rule." This argument rested on an "industry standard" to license based on the fair market value of the "computer system within which the patent was to be found."[2] These two factors,

[1] See trial transcript of *Lucent Technologies et al. v. Gateway Inc., et al.*, February 1, 2007, pp. IV135 and IV222–223.

[2] See trial transcript of *Lucent Technologies et al. v. Gateway Inc., et al.*, February 1, 2007, p. IV138. Later testimony indicates that Lucent's policy was to apply the 1 percent rate to the "fair market value of the entire product sold by the licensee." *Ibid.*, p. IV138. Although Microsoft would be the licensee in this negotiation, Lucent had argued that because Microsoft was acting as an agent for Gateway and Dell in this case, the ultimate licensees would have been with Gateway and Dell.

however, should not be determined *independently*. Doing so can result in damage awards that are likely to diverge not only from basic economic principles but from common sense as well. In the real world, these factors are related, since there is a limit on the total amount that a patent is worth.

On the other side, Microsoft's damages expert argued that a reasonable royalty would be a lump-sum payment of between $1.55 million and $3.75 million per patent.[3] His arguments rested on comparable royalties either paid by Microsoft for other technologies related to MP3 audio or paid for software rights for the two patents at issue.[4] He cited various licensing agreements in which Microsoft paid a lump-sum royalty for access to MP3 technology. These lump-sum royalties ranged from approximately $1 million to $15 million. Unfortunately, it is not clear from trial testimony exactly how Microsoft's expert reached his range based on these comparables.

In sum, Lucent relied on purported standard rates while Microsoft presented royalty payments made under other licenses. Neither presentation provided an analysis of the fundamental economic value of the intellectual property that, in turn, would provide the jury an economic basis for determining the reasonable royalty.

An Economic Analysis of a Reasonable Royalty

From an economic perspective, a royalty should both compensate the damaged party for the infringing use and allow the infringer some gains from the use of the technology. This can be considered in the context of the hypothetical negotiation framework set forth in G*eorgia-Pacific Corp. v. United States Plywood Corp*. In summary, the damages expert should consider the *incremental* gain to the licensee and the *incremental* loss to the patent holder flowing from their agreement.[5] Whenever possible the damages presentation should make clear that the claimed royalties fall within these bounds.

Despite the economic and business logic of this type of analysis, at trial neither expert apparently presented information about the incremental gain to Microsoft[6] or the incremental loss to Lucent from entering into a hypothetical license agreement. Based primarily on the public transcripts of the trial, it is difficult to know the precise value of these negotiating boundaries. However, some of the evidence cited by the experts sheds light on the subject.

To understand Microsoft's bargaining position in the hypothetical negotiation, and thus the most it would have been willing to pay for a license, it is important to know what level of sales and profits it would have placed at risk if it failed to get a license. Absent a license, Microsoft apparently would not have been able to provide full MP3 functionality inside WMP or the Windows XP operating system.[7] However, Windows XP users would have had the option of using other media software to

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3 See trial transcript of *Lucent Technologies et al. v. Gateway Inc., et al.*, February 12, 2007, pp. 86–87.

4 See, generally, trial transcript of *Lucent Technologies et al. v. Gateway Inc., et al.*, February 12, 2007, pp. 67–121.

5 See Christine Meyer and Bryan Ray, "A Critique of Noneconomic Methods of Reasonable Royalty Calculation" and Gregory K. Leonard and Lauren J. Stiroh, "A Practical Guide to Damages" in *Economic Approaches to Intellectual Property: Policy, Litigation, and Management*, Gregory K. Leonard and Lauren J. Stiroh, Eds. National Economic Research Associates, Inc., 2005.

6 And, thus, Gateway and Dell.

7 This assumes that there are no non-infringing alternative methods of incorporating MP3 functionality into WMP and Windows XP. If so, then the next best alternative would be producing WMP and Windows XP without MP3 functionality, though possibly including Microsoft's proprietary audio format. If there are available non-infringing alternatives, then the total economic cost of switching to the best of these non-infringing alternatives would represent the most Microsoft would have been willing to pay.

play MP3s.[8] While removing the MP3 functionality from WMP may have caused some consumers to use these alternative software programs, it is not clear whether there would have been substantial defections to different operating systems.[9] The incremental profits placed at risk had Microsoft included only its own proprietary audio format represent the most it would be willing to pay for all licenses necessary to provide the MP3 format.[10] Any demand by Lucent for a royalty that exceeds this amount would cause Microsoft to decline a license and turn to its next-best alternative.

Microsoft used a number of its licenses as benchmarks, *i.e.*, as evidence of its willingness to pay for patent rights it claimed were (at least implicitly) comparable to the situation envisioned in the hypothetical negotiation. These transactions, along with other evidence,[11] suggest that the most Microsoft would have been willing to pay may have been far less than the $1.5 billion the court awarded. The firm's maximum willingness to pay is difficult to evaluate, however. Microsoft did not appear to provide analysis to compare the implied incremental value of the intellectual property identified in those other licenses with the incremental value to the parties in the hypothetical negotiation for the patents in suit.

An additional consideration in determining the licensor's willingness to pay and the licensee's willingness to accept is the question of "royalty stacking." When a large number of potentially valid patents may be incorporated into a single product, the manufacturer faces the possibility of paying many parties for the right to practice those patents. Such a possibility, of course, obviously lowers the manufacturers' willingness to pay for any subset of those patents. The patent holder itself will also recognize that the manufacturer would not be able to make any product if the sum of royalties were greater than its future margin. All other things being equal, rather than see the manufacturer not make any product, each putative licensor would be willing to accept a lower royalty. Due to the extent of the intellectual property involved in WMP, Windows XP, and the infringing computer systems, in addition to audio formats, these considerations may be relevant.[12]

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[8] While these other software programs may have also infringed on Lucent's technology—a reading of the trial transcripts do not indicate the availability of a non-infringing alternative—many of these other software programs were sold or were freely available as aftermarket products during most of the time period in question (for example, media software such as RealPlayer, WinAmp and Apple's iTunes, among others). Applying Lucent's 0.5 percent standard rate to the price of each of these end products, these companies could conceivably have paid far less than Microsoft has been ordered to pay under the damages award. This asymmetry would need to be explained by an analysis of the profits at risk to each prospective company if it failed to obtain a license.

[9] Lucent claimed that the value of the patent is indicated by the fact that Microsoft offered a version of Windows XP without WMP (XP-N) which sold extremely poorly relative to the version that included WMP. Lucent concluded that the MP3 functionality offered by the license was a vital and necessary component for operating system sales. This conclusion cannot be drawn from these facts alone, since the XP-N system sold poorly *when the full XP systems were available*. In the but-for world, XP-N would not be competing with full XP systems, but rather only with alternative operating systems from other companies.

[10] This admittedly oversimplifies the situation somewhat. Microsoft likely also is able to obtain additional revenues and profits by embedding MP3 functionality into WMP, through alliances with music publishers to sell music/advertisements through the software, through the sale of add-on hardware (such as the recently released Zune music player), or through other, similar methods. The value of these lost opportunities should also be included in the incremental profitability of MP3 functionality to Microsoft and thus their willingness to pay.

[11] See Ted Bridis, "Tech Industry Aims to Render MP3 Obsolete," *The Wall Street Journal*, April 12, 2001, p. A3 and John Healey, "Microsoft Takes New Tack on MP3 Files," *Los Angeles Times*, July 6, 2001, p. C3.

[12] For an overview of the many patent holders of the MP3 technology, see "Patent Fights Are a Legacy of MP3's Tangled Origins," by Douglas Heingartner, *New York Times*, March 5, 2007. See also, Mark A. Lemley and Carl Shapiro, "Patent Hold-Up and Royalty Stacking," January 2007, forthcoming in *Texas Law Review*.

Standard Licensing Policies and the Entire Market Value Rule

A royalty award is often represented as the product of two components: a royalty rate and a royalty base. The result of this multiplication must generally be less than the value to the defendant of incorporating the feature into the product, including the benefits of selling complementary goods such as post-sale services. Indeed, the sum of all royalty payments must normally be less than such a value, a value that is incremental to using the next-best alternative. If royalty rates are chosen without consideration of the economic environment in which the intellectual property is expected to be used, the result can be a damage award that lies outside the parties' bargaining range. Lucent argued that the proper royalty should be its standard rate times the market value of the computer systems that utilize the MP3 technology at issue. It made these arguments with apparently little, if any, reference to the fundamental considerations of incremental value.

Once the incremental value of the technology has been determined within an appropriate economic context, the value of the technology can be represented as a share of an appropriate royalty base. If Lucent was for some reason constrained to maintain a rigid 0.5 percent licensing rate, the hypothetical negotiators for both sides would have argued over how to structure a deal that (a) provides for an agreeable total license value above Lucent's minimum acceptable rate and below Microsoft's maximum willingness to pay, and (b) allows Lucent to maintain their licensing policy. Once the first has been determined, an appropriate economic question for a damage award is "what is the royalty base to which both sides can agree that would deliver that value?"

Conclusion

In *Lucent Technologies et al. v. Gateway Inc. et al.*, neither Microsoft nor Lucent provided at trial an *economic* analysis of the parties' positions during the hypothetical negotiation. Instead, both sides relied on standard rates and comparables. If Lucent's expert was right that Lucent would have insisted on a 0.5 percent royalty rate, then the economic context of the negotiation is necessary to determine an appropriate base for such a rate. While the value of computers sold that embodied the Windows operating system may ultimately have been the right base, the trial transcripts do not, in our opinion, provide the jury a reasonable economic basis for making that determination. Instead, an analysis of each side's incremental gains and losses from a license, relative to their next-best alternatives in the but-for world, would have provided the proper context in which to evaluate the "requirement" of a 0.5 percent rate. Similarly, Microsoft's expert focused on pointing to comparable, benchmark license agreements, apparently without providing testimony that properly delineated the parties' bargaining positions, and he therefore also provided an opinion that lacked economic support.

Without the economic underpinnings to either side's damages arguments, the jury apparently sided with Lucent and awarded a record $1.5 billion in damages. The testimony that we have reviewed indicates, however, that the jury was presented with little rigorous economic evidence as a basis to choose either the plaintiffs or the defendant's suggested damage award.

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