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Groundhog Day: Recurring Themes on Reasonable Royalties in Recent IP Damage Cases

By Dr. Elizabeth M. Bailey, Dr. Alan Cox, and Dr. Gregory K. Leonard¹



Judges of the Court of Appeals for the Federal Circuit (CAFC) are giving increased scrutiny and guidance on the standards for reasonable royalty damage awards in patent matters. This appears to be in response to the widely-held perception that district courts, in awarding damages, have tolerated the use of methodologies that are not based upon sound economic and business principles and thus are unscientific. Three cases are indicative of the trend toward higher standards for damage calculation: *Lucent Technologies, Inc. v. Gateway, Inc.*, *i4i Limited Partnership v. Microsoft Corp.*, and *Cornell University v. Hewlett-Packard Co.* The latter case is a district court case that was presided over by Judge Randall Rader and is currently up on appeal. In this note, we describe some of the economic themes that emerge from these cases. Litigants in patent cases will need to consider the heightened standards for damage awards when formulating their damage cases.

Three Opinions on Reasonable Royalty Damages from CAFC Judges

On 11 September 2009, the CAFC issued its opinion in Microsoft's appeal of the \$358 million damage award in *Lucent*. In a jury trial, Microsoft was found to have infringed a patent that describes a method to enter information on a computer screen without using a keyboard (e.g., by using a stylus). Lucent contended that Microsoft's use of a drop-down calendar in Outlook and other programs infringed its patent. Microsoft appealed the damage award to the CAFC. Finding that the "damages calculation lacked sufficient evidentiary support," the CAFC remanded the matter for a new trial on damages.²

¹ Dr. Bailey is a Vice President in NERA's Boston office, and Dr. Cox and Dr. Leonard are Senior Vice Presidents in NERA's San Francisco office.

² *Lucent Technologies, Inc., et al. v. Gateway, Inc., et al.*, 580 F.3d 1301 (Fed. Cir. 2009) ("*Lucent Opinion*") at 1308.

On 23 September 2009, the CAFC heard oral arguments in Microsoft’s appeal of the District Court’s decision in *i4i*.³ The patent that Microsoft was found to have infringed describes a method to edit Extensible Markup Language (“XML”) files. XML provides indicators that are embedded in a document to denote how text is to be displayed.⁴ The patented technology was claimed by *i4i* to facilitate the editing of documents created in XML. The jury found that Microsoft incorporated the technology described in the patent and awarded damages in the amount of \$200 million to *i4i*. Microsoft appealed the damage award and, in its questioning at the hearing, the CAFC took up several issues related to the appropriate standard for estimating damages.

In March 2009, Judge Rader, sitting by designation, made a ruling related to damages in the *Cornell* matter. A jury had found that Hewlett-Packard infringed a patent that describes a method to read a component of a processor’s instruction reorder buffer (IRB). The technology in Cornell University’s patent was claimed to enhance the throughput of a processor. The jury awarded damages in the amount of \$184 million to Cornell. In response to a post-trial motion by Hewlett-Packard, Judge Rader reduced the damage award to \$53 million, less than one-third of the amount awarded by the jury.

While the details differ, several common themes emerge from the CAFC judges’ consideration of the damage methodologies in these three matters. As we discuss below, these common considerations have general applicability in matters involving patent damages. First, the economic approach to calculating reasonable royalty damages, because it focuses on the incremental value provided by the patented technology, does not depend on whether the patented technology is a “large” or “small” component of the overall product. Second, it is not economically sensible to determine the royalty base and royalty rate independently of one another because a mismatched rate and base can lead to an unreasonable dollar amount of royalties. Finally, non-economic approaches to calculating reasonable royalties, such as the use of non-comparable benchmarks and the “25% rule,” are unreliable because they are not based on factual support for the patent’s use in the specific cases at hand. Each of these themes is discussed in turn below.

Theme 1: Reasonable Royalty Damages Should Depend on the Value of the Patented Technology, Not Whether the Patented Technology is a “Large” or “Small” Part of the Overall Product

In each of these three matters, the patented technology represented a single “small” feature of the overall product into which it was incorporated. In *Lucent*, “the infringing feature contained in Microsoft Outlook is but a tiny feature of one part of a much larger software program,” i.e., Outlook.⁵ Similarly, in *i4i*, XML (let alone the editing feature covered by the patent) “is only a tiny portion of the huge functionality offered by Microsoft Word.”⁶ Finally, in *Cornell*, the patented technology is “a small part of the IRB, which is a part of a processor, which is part of a CPU module, which is part of a ‘brick,’ which is itself only part of the larger server.”⁷

³ Audio files of the oral arguments (case number 2009-1504) are available at <http://oralarguments.cafc.uscourts.gov/searchscript.asp> (“*i4i* Oral Arguments”). In addition, a transcript of the damages portion of the hearing is available at www.nera.com/upload/Transcribed_all_WK_final.pdf.

⁴ As an example, `<Para>` and `</Para>` are computer markup codes that indicates the start of a paragraph and the end of a paragraph, respectively.

⁵ *Lucent* Opinion at 1332.

⁶ *i4i* Oral Arguments (Audio Transcript 1 at 0:51:30).

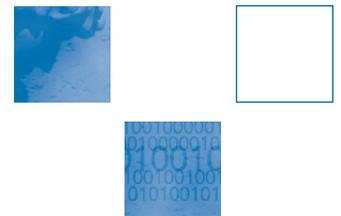
⁷ *Cornell Univ. v. Hewlett-Packard Co.*, 609 F.Supp.2d 279 (N.D.N.Y. 2009) (“*Cornell* Amended Order”) at 283. The “CPU brick” is Hewlett-Packard’s term for the combination of the processor, a temperature controlling thermal solution, external cache memory, and a power converter.



Whether the patented feature is “small” or “large” is not the right question. Instead, the reasonable royalty analysis should seek to determine the economic value generated by the patented feature relative to the next best (non-infringing) alternative. In principle, a “small” feature might generate substantial value. Indeed, the product may not be commercially feasible without the feature. Conversely, a “large” feature might have a very similar next best alternative, making its economic value small.

The economic value of the patented technology derives from the licensee being able to earn higher profits (through, for example, charging a higher price for or making greater sales of the product) with the patented component than without it. If the patented component is unimportant (to customers and the licensee), it will not have a substantial impact on demand for the product, and thus it will not have a substantial effect on the licensee’s price, sales, and profits.⁸ It is the link between the patent and the licensee’s profits (in dollars) that should be the focus of the reasonable royalty analysis. There are many accepted and rigorous economic approaches that can be used to determine how the demand for the product would change, if at all, when an additional feature is added to, or removed from, the product. These economic approaches do not depend on whether the patented technology is a “large” or “small” part of the overall product—they measure the economic value in either case. In this analysis, it is typically important to consider demand for the product, and the impact of the feature on demand for the *product*, rather than trying to consider “demand” for the *feature*. The latter concept is not economically meaningful in circumstances where consumers purchase (i.e., demand) the entire product, and do not pay a separate price for the individual features or subcomponents of the product.⁹

The CAFC judges appear to be focusing increasingly on the economic value of the patented technology to the defendant rather than whether the patented component is a “large” or “small” part of the overall product. For example, in *Lucent*, the CAFC pointed out, in the context of discussing *Georgia-Pacific* Factor 13 (the portion of the profit of the product that should be credited to the invention), that “numerous features other than the date-picker appear to account for the overwhelming majority of the consumer demand [for the product] and therefore significant profit.”¹⁰ The court went on to conclude that the “portion of the profit that can be credited to the infringing use of the date-picker tool is exceedingly small.”¹¹



⁸ In general, the supply side must also be considered. For example, a patented technology that was invisible to consumers, so that it did not affect demand, may be quite valuable to the licensee if it affected the licensee’s costs or ability to supply the product. A cost-saving technology is an example.

⁹ An exception would be where the feature is offered as an option for an additional price. Then, the feature can be separately purchased (demanded) and it would be sensible to talk about demand for the feature.

¹⁰ *Lucent* Opinion at 1333.

¹¹ *Lucent* Opinion at 1333.

Theme 2: It Is Not Economically Sensible to Determine the Royalty Base and Royalty Rate Independently of One Another

In the past, whether the patented component is a “small” or “large” part of the overall product has been debated in the context of whether the “Entire Market Value Rule” can be invoked to argue that the royalty base should be the entire product as opposed to something smaller. However, the focus on the royalty base misses the point as a matter of economics. Parties engaged in licensing negotiations, as well as litigants, care about the total dollar amount of royalties. The royalty rate and the royalty base must be chosen in conjunction so that the product of multiplying them will yield a dollar amount that reflects the economic value of the patented technology.¹²

In the context of the *Cornell* case, suppose that the patented technology resulted in an increase in a server’s processing speed relative to what was achievable with the next best technology. Enhanced speed may result in greater sales of, and higher prices for, servers; that is, it leads to incremental profits due to the patented technology.¹³ These incremental profits represent the largest *dollar amount* that a rational licensee would pay for the right to use the patented technology. The choice of the royalty base should be largely irrelevant as long as the royalty rate is set, *conditional on the choice of royalty base*, so as to reflect the economic value (in dollars) of the patented technology. Problems arise, however, when the royalty base and the royalty rate are chosen independently of each other and with no connection to the economic value of the patented technology.

The CAFC in *Lucent* endorsed this theme when it stated that “[t]here is nothing inherently wrong with using the market value of the entire product [as the royalty base], especially when there is no established market value for the infringing component or feature, so long as the multiplier [i.e., the royalty rate] accounts for the proportion of the base represented by the infringing component or feature.”¹⁴

The CAFC may reinforce this reasoning in *Lucent* in its review of *Cornell* on appeal. In *Cornell*, Cornell’s damages expert had applied a 0.8 percent royalty to Hewlett-Packard’s sales of servers. Having been told by the court that servers were not an appropriate base for a reasonable royalty, Cornell’s damages expert applied the same 0.8 percent royalty rate to the value of “CPU bricks,” giving damages for past infringement of \$184 million. The jury awarded this amount. Judge Rader was troubled by the size of the damage award and addressed the overstatement of damages by applying the “jury’s uncontroverted royalty rate of 0.8 percent”¹⁵ to a reduced royalty base. This appears to be a different approach than was implied by the CAFC decision in *Lucent*, under which a royalty rate, reduced in accordance with the actual incremental value of the patented technology to Hewlett-Packard, could have been applied to the same royalty base of CPU bricks. Judge Rader, however, may have been constrained in *Cornell* by the information available in the trial record, limitations that may have made it impossible to measure the economic value of the patented technology.

¹² The procedure we would typically propose is to define the royalty base as the sales of the smallest product that both incorporates the patented feature and can be separately priced, and to then choose the royalty rate given this royalty base so as to reflect properly the economic value of the patented technology. This choice of royalty base is consistent with real-world licensing practices. In situations where the parties would agree to a running royalty as opposed to a lump-sum royalty payment, licensors prefer to have a royalty base that is easily verifiable and not subject to manipulation; licensees prefer to limit the royalty base to the smallest possible product to limit the distortionary effects of the royalty “tax” on their incentives.

¹³ This analysis should also take into account any incremental costs associated with using the patented technology as well.

¹⁴ *Lucent* Opinion at 1339.

¹⁵ *Cornell* Amended Order at 292.



Theme 3: Expert Testimony Based on Unsubstantiated Comparables, Purported Industry Average Royalty Rates, and Rules of Thumb Should Not be Admissible

Debates between plaintiffs and defendants over the royalty base have often been a result of damages experts first choosing a royalty rate based on purportedly comparable licenses or industry average royalty rates, and then applying the chosen rate to a royalty base that is chosen independently of the royalty rate. Specifically, the damages expert compiles license agreements involving patents that are claimed to be similar to the technology at issue or typical of an industry. These compilations are used to determine an “average” or “benchmark” royalty rate.

This non-economic approach suffers from a number of problems. First, as discussed above, it makes no economic sense to determine a royalty rate independently of the royalty base because the product of the two independently determined numbers may yield a dollar royalty that has no relationship to the incremental value of the patented technology. Second, the purportedly comparable licenses may not, in fact, be comparable. Licensing agreements and the patents that underlie them vary in their attributes. Unless the important attributes are the same across two licenses, they will generally not be comparable. Similarly, the economic circumstances surrounding the typical or “industry average” licensing negotiation that led to the typical or “industry average” royalty rate are unlikely to correspond to the economic circumstances surrounding the hypothetical negotiation at issue.¹⁶ Before an existing license can be used as a benchmark, one must carefully analyze whether it is truly comparable in terms of factors such as the technology covered, the product of the licensee, the degree of competition between the licensor and licensee, cross-licensing arrangements, and other considerations.¹⁷

The recent cases demonstrate that the CAFC has recognized the problems with using a non-economic approach to calculating reasonable royalties. For example, in *Lucent*, plaintiffs claimed a reasonable royalty on the basis of purportedly comparable license agreements. The CAFC determined that some of these supposedly comparable benchmark licenses were in fact “radically different from the hypothetical agreement under consideration” for the patent at issue.¹⁸ As to the remainder of licenses, the CAFC wrote that they could not “understand how the jury could have adequately evaluated the probative value of those agreements,” characterizing the evidence presented as “superficial” and “doubtful that the technology of those license agreements is in any way similar to the technology being litigated here.”¹⁹

Similarly, in *i4i*, the CAFC questioned the reasonableness of a so-called benchmark on which i4i’s damages expert relied. i4i claimed that it needed to use a benchmark product to estimate the profitability of offering XML because Microsoft offered XML capability in Word at no additional cost. i4i’s damages expert used a purportedly comparable product to provide an indication of the price that Microsoft could have received (and the profit it could have earned) had it charged separately for its XML editor. The “benchmark” product that it chose as a comparable was a product called XMetaL Author, which had a list price of \$499 (compared to the zero additional price actually charged by



¹⁶ Another, more subtle, issue is that the sample of licenses on which the industry average royalty rate is based likely suffers from substantial sample selection bias. The samples of licenses are typically drawn from databases maintained by services that collect the licenses from publicly available sources such as US Securities and Exchange Commission filings. Licenses included in such filings are likely to be “material,” i.e., involved large royalties or other consideration. Thus, the sample of licenses is likely not a representative sample of all industry licenses.

¹⁷ Even if the use of such “comparables” is appropriate, the royalty rate and the royalty base should be jointly considered.

¹⁸ *Lucent* Opinion at 1327.

¹⁹ *Lucent* Opinion at 1328-1329.

Microsoft). *i4i*'s damages expert then simply used Microsoft's average profit margin of 80 percent to calculate a profit of \$400 for every one of the estimated two million users of the XML capability of Word. In its hearings, the CAFC judges pointedly questioned whether XMetaL Author was a "reasonable one-to-one substitute" for Microsoft Word because it seemed "totally irrational" that "every person that bought and used Microsoft Word for an infringing use would have alternatively bought the \$500 XML XMetaL product as an alternative if Word did not offer that functionality."²⁰

In some situations, damages experts apply the so-called "25% rule," that is, the royalty rate is assumed to equal 25 percent of the operating profit of the product into which the patented technology is incorporated.²¹ The 25% rule makes no economic sense. A fundamental problem is that it ignores the value of the technology because it is based on operating profits of the product rather than the incremental value provided by the patented technology. Furthermore, it imposes a one-size-fits-all approach to determining the royalty rate. In the real world, each patent, in principle, has a different economic value. Moreover, the economic circumstances that influence the negotiated royalty typically differ substantially from negotiation to negotiation, even if the same patent is involved. As with non-comparable licenses, failure to take these negotiation-specific economic circumstances into account can lead to a substantial error in the resulting royalty. During oral arguments in *i4i*, the CAFC appears to concur that the 25% rule lacks a scientific foundation. One of the CAFC judges questioned whether the 25% rule was a methodology that was "just something pulled out of the air."²²

A reasonable royalty is one which makes the patentee whole with respect to the infringement. In contrast to the use of non-comparable benchmark licenses and the 25% rule, the economic approach to calculating a reasonable royalty is reliable because it is grounded in the specific economic conditions and facts of the case and focuses on the value of the patented technology. The economic approach takes into account the alternatives available to both parties to determine the range of royalty payments over which the parties would have bargained. As these three cases illustrate, using a damages expert who utilizes approaches that do not account for economic and business realities, such as non-comparable benchmark licenses or the 25% rule, can result in damage calculations that run the risk of being overturned on appeal.

²⁰ *i4i* Oral Arguments (Audio Transcript 1 at 0:51:30).

²¹ See R. Goldscheider, et al., "Use of the 25 Per Cent Rule in Valuing IP," 37 *Les Nouvelles* 123 (2002).

²² *i4i* Oral Arguments (Audio Transcript 1 at 0:51:30).

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Contact

For more information, please contact:

Dr. Elizabeth M. Bailey

Vice President
NERA Boston
+1 617 927 4585
elizabeth.bailey@nera.com

Dr. Alan Cox

Senior Vice President
NERA San Francisco
+1 415 291 1009
alan.cox@nera.com

Dr. Gregory K. Leonard

Senior Vice President
NERA San Francisco
+1 415 291 1015
gregory.leonard@nera.com