

# The demise of the 25% rule

The Federal Circuit's recent decision in *Uniloc v Microsoft* regarding the 25% reasonable royalty rule is not only on point, but also long overdue. But the court did not get everything right

By **Mohan Rao** and **Jonathan Tomlin**

Because it eliminated future use of the 25% rule in calculating reasonable royalty damages in the United States, the recent decision of the US Court of Appeals for the Federal Circuit in *Uniloc USA Inc v Microsoft Corp* has been of great interest to patent litigators, patent holders and damages experts. The 25% rule, which postulates a benchmark whereby licensees pay a royalty rate equal to 25% of their profits to patent holders, has been used by many damages experts and accepted in several federal courts since the 1990s. Its demise has raised important questions about the appropriateness of the court's ruling and the future course of damages calculations in patent infringement cases in the United States.

Created by certain damages experts, the rule is a fiction that never had solid theoretical or empirical support for its broad use. Indeed, both economic theory and empirical data on licences and profitability refute the 25% rule. Unfortunately, it can take years – even decades – for the US judicial system to recognise junk science methods in the courtroom and begin excluding them. The 25% rule is an example of this. The court's opinion will certainly help lead to more accurate damages outcomes in the future.

The Federal Circuit in *Uniloc v Microsoft* also opined on the use of the entire market value rule. This portion of the court's

opinion has been relatively overlooked in recent blogs and articles. Unlike the court's opinion regarding the 25% rule, broad application of this part of the opinion would lead to inaccurate reasonable royalty calculations in patent infringement litigation.

## The Federal Circuit's opinion

Plaintiff Uniloc USA accused Microsoft of infringing a patent regarding product activation software that helps to register a software user's computer with its manufacturer and inhibits copying of the software. Uniloc's damages expert purported to calculate damages by employing the hypothetical negotiation approach typically contemplated in assessing reasonable royalty damages. He began with an internal Microsoft document which mentioned a value to product keys (assumed to incorporate the allegedly infringing software) of between US\$10 and US\$10,000. He then applied a 25% rule of thumb to the lower value of US\$10 to arrive at a US\$2.50 per unit licensing fee, and total damages of US\$565 million. He purported to check his damages estimate by dividing it by Microsoft's total revenues on Windows and Office products.

The jury awarded damages of more than US\$300 million, but in response to post-trial motions the federal district court awarded Microsoft a new trial on damages. The case was appealed to the Court of Appeals for the Federal Circuit, which was faced with the questions of the appropriateness of the 25% rule and whether the check performed by Uniloc's damages expert of examining Microsoft's total revenues represented an improper application of the entire market value rule, which allows damages on the entire market value of an allegedly infringing product

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when the patented feature acts as the basis for customer demand for that product.

With regard to the 25% rule, the court opined that it failed to “tie a reasonable royalty base to the facts of the case at issue, and therefore was inadmissible under the Federal Rules of Evidence”. With regard to the use by Uniloc’s expert of Microsoft’s total revenues as a check on his reasonable royalty calculations, the court opined that this was an improper application of the entire market value rule.

The decision now sends the case back to the federal district court. A new trial on damages is set to take place.

### The 25% rule is bad in theory

The 25% rule postulates that a reasonable running royalty for the holder of a patent is equal to 25% of the expected operating profits of the infringer for the product incorporating the patented technology. This is illustrated in Figure 1. Operating profits are equal to gross revenues minus cost of goods sold and overhead expenses such as selling, general and administrative expenses and R&D. The patent holder is supposed to receive 25% of this measure of profits because the infringer has supposedly borne (or will bear) risks and costs not borne by the patent holder. Some proponents of the rule have proposed that it has some flexibility and can be revised upwards or downwards based on individual case circumstances. The 25% rule has been an important part of the calculation of reasonable royalty damages in patent infringement litigation in the United States. It has been used by numerous experts as a basis for calculating reasonable royalties and has been accepted by several federal courts since the 1990s.

Reasonable royalty damages in patent infringement litigation are commonly calculated through the hypothetical negotiation paradigm. Under this, a reasonable royalty is equal to the amount to which a willing licensor and licensee would have agreed at the time of first infringement and under the assumption that the patent at issue is valid and infringing.

Several factors can be important in determining the reasonable royalty under this approach. From the patent holder/licensor’s standpoint, these include the licensor’s ability to license the technology to others; its own ability to utilise the technology (and any lost profits that it would incur if it licensed the technology to others); and its bargaining ability. From the infringer/licensee’s standpoint, they include the value of the

technology at issue relative to alternative technologies; the cost to the licensee of designing around the patent at issue; any lost sales incurred due to a delay in licensing; and its bargaining ability. Figure 2 shows how these and other factors can interact to determine the appropriate reasonable royalty.

How does the 25% rule match up with the factors that determine a proper reasonable royalty? As Figure 2 demonstrates, horribly! The only inputs under the 25% rule used to determine a reasonable royalty are the expected operating profits of the infringer and a number – 25% – seemingly pulled out of thin air. There is no consideration of alternative technologies, design around or the alternatives available to the licensee (infringer). Because the 25% rule does not consider the factors necessary to determine a proper reasonable royalty, it cannot possibly be up to the task. There is no shortcut to coming up with the right answer. An *ad hoc* application of 25% or any other arbitrarily chosen royalty rate cannot be appropriate.

### Examples of absurdity

The inadequacy of the 25% rule can be demonstrated quite readily through *reductio ad absurdum*. As shown in Figure 3, consider a product that yields a profit of, say, US\$90 per unit (putting aside the question of the correct measure of profits to which one should apply the 25% rule, something that proponents of the rule have not adequately addressed). The manufacturer of this product makes an incremental improvement that infringes a patent held by someone else. Assume that the patented improvement allows the manufacturer to increase price, but does not garner additional sales. This improvement yields a new, higher profit of US\$100 – that is, a US\$10 per unit increase in profits. The maximum total value of this patent to the manufacturer is therefore US\$10 per unit (it could actually be much less due to design-around options or alternative technologies). What reasonable royalty does the 25% rule imply? As shown in Figure 3, it yields a reasonable royalty of US\$25 – significantly more than the maximum value of the patent to the manufacturer and, of course, significantly more than an infringing manufacturer would ever be willing to pay in negotiating a licence. In fact, the principal drawback of the 25% rule is that it fails to take into account the *incremental* value of the patented invention to the licensee. By applying 25% to some measure of total profits of the product, the

Figure 1. The 25% rule

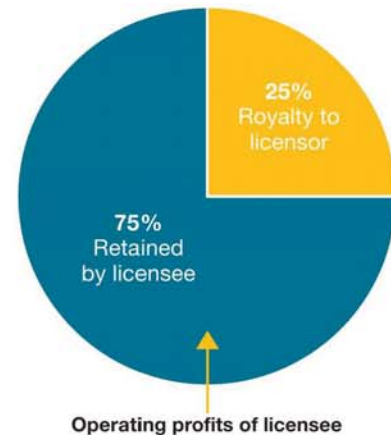
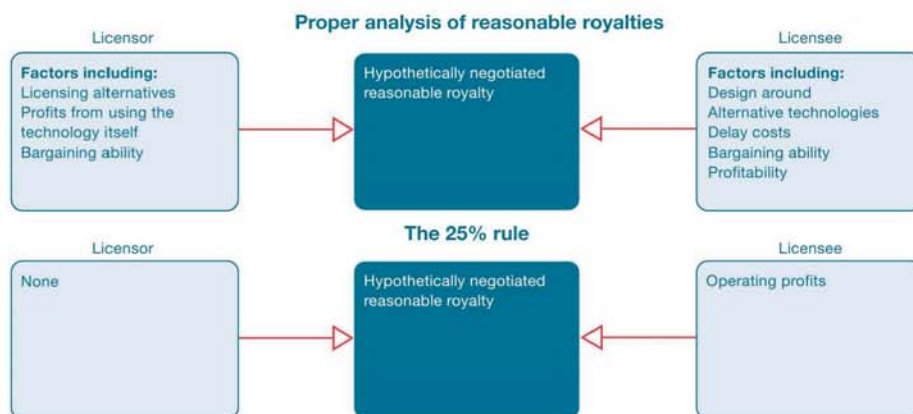


Figure 2. The 25% rule is bad in theory



25% rule generates inflated or irrelevant royalty damages.

Absurd conclusions also result from the 25% rule when a licensee needs to obtain licences for multiple patents. Suppose that a licensee needs to license patents from four different firms in order to produce and sell its product. Under the 25% rule, each of the licensors would be entitled to 25% of the licensee's profits, thereby leaving it with no profit. If the number of licensors becomes greater than four, then the licensors as a group end up entitled to more than the entire profits of the licensee under the 25% rule.

Some experts have attempted to resolve this problem of multiple licences in the context of the 25% rule by first subtracting out the licensee fees paid to other licence holders and then applying 25% to the remaining profit. But this does not strengthen the inherent logical frailties of the 25% rule. Now the sequence in which a licence is obtained becomes critical in determining the reasonable royalty rate. Figure 4 provides an example. Suppose that

the profits obtained for a product are equal to US\$100, and that the manufacturer of this product relies on the technology described in two patents: patent A and patent B. Calculating the royalties first to patent A and then to patent B under the 25% rule leads to a royalty of US\$25 for patent A (US\$100 x 25%) and US\$18.75 to patent B (US\$75 profit remaining after paying the licence fee for patent A x 25%). However, considering things in reverse order (patent B and then patent A) flips the result. Here, the reasonable royalty to patent A is US\$18.75 and the reasonable royalty to patent B is US\$25. Nothing has changed except the order in which the patents were considered. Yet the 25% rule results in very different results. It is hard to imagine that real-world licensing transactions are driven more by sequence of the negotiation rather than the incremental value added by the licensed technology.

#### The 25% rule is bad in practice

Given that the 25% rule does not have

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reasonable economic underpinnings, it should be of no surprise that it does not match up to actual licensing practices. Some proponents of the rule, however, have purported to demonstrate that it does. One such study (co-authored by the initial proponent of the 25% rule) examined 15 industries by dividing the authors' calculation of actual royalty rates by operating profits. Using this approach, the authors calculated the median royalty as a percentage of operating profits across industries at 26.7%. They argued that this provided evidence in support of the 25% rule. In fact, their results (even under their chosen method) demonstrate just the opposite.

None of the 15 industries studied by the authors had a royalty rate of 25% and only four of the industries were even within 5%. One industry, which they classified as internet, had a calculated royalty rate of more than 400%; and another, media and entertainment, had a calculated negative royalty rate. What may appear to be even small differences between 25% and the true royalty rate are not trivial when it comes to calculating damages. Suppose, for example, that the appropriate reasonable royalty rate is 20% of operating profits, but an analyst instead applies the 25% rule. Damages are overestimated not by 5% (25% minus 20%), but instead by 25% (the 5% error divided by the 20% base). More generally, calculated damages deviate from true damages by at least four times the difference between the calculated royalty rate and the proper royalty rate.

Examining median outcomes across industries is not a proper way to examine the applicability of 25% to a particular patent, at a particular time, for a particular licensor and licensee. As a simple example, the median price of a new home in the United States today is approximately US\$220,000. Is this median price of any use to a particular prospective purchaser with their eye on a particular new home in a particular neighbourhood? Obviously, it is not. It fails to consider neighbourhood, character of the house, size, number of bedrooms and bathrooms and so on. Applying a median royalty rate (even assuming, hypothetically, that it were correct) across time periods and industries to a particular licence is no more helpful to the analyst attempting to properly calculate a reasonable royalty.

#### How did it happen? Is the problem solved?

If the 25% rule is so poor, why did so many experts employ it and why did so many

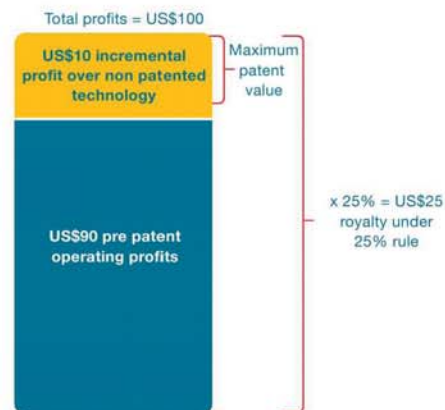
courts accept (or at least tolerate) it? With regard to its use by experts, the answer can lie in any number of areas, including error, misunderstanding and the desire to support a royalty rate that was otherwise not supportable. With regard to its acceptance by several courts, the answer lies in the difficulty that many judges can have in recognising and excluding unreliable damages methods.

In the federal judicial system, expert testimony is governed by Rule 702 of the Federal Rules of Evidence and the associated Supreme Court decision in *Daubert v Merrill Dow Pharmaceuticals*. Under *Daubert* and the Federal Rules of Evidence, federal judges are put in a gatekeeping role and asked to exclude unreliable expert testimony. While the law on the admissibility of expert testimony can differ at the individual state level, state laws typically conform substantially with federal law in this area. However, judges can have a difficult time assessing the reliability of often conflicting and complex expert testimony presented in their courtrooms. Indeed, one survey of state court judges found that about one-half felt that they had not been adequately prepared to handle the range of scientific evidence presented in their courtrooms.

Because of this difficulty, methods such as the 25% rule can and do persist for years or decades. One example of this is the S curve approach to calculating damages. In this method, a damages expert assumes (often with little or no support) that the revenues or profits for a particular firm will follow an S shape – that is, start off slow, rapidly increase, slow down in growth and then peak. Such a method can yield an unlimited number of damages estimates based on different assumed shapes of the S, and some damages experts had employed this method successfully for years to justify otherwise unsupportable (and often far too high) damages estimates. However, two federal decisions excluded testimony from damages experts employing this method and its use without proper support appears to have been curtailed.

The demise of the 25% rule in patent infringement litigation is certainly a positive development towards more accurate damages outcomes. Damages experts who properly testify to the inherent faults of this rule will likely no longer be cross-examined on its acceptance by the courts. It is a junk science approach that will no longer be employed, and experts who have advocated this rule in the past may have difficulty in obtaining future testifying roles.

Figure 3. The 25% rule can lead to absurd results



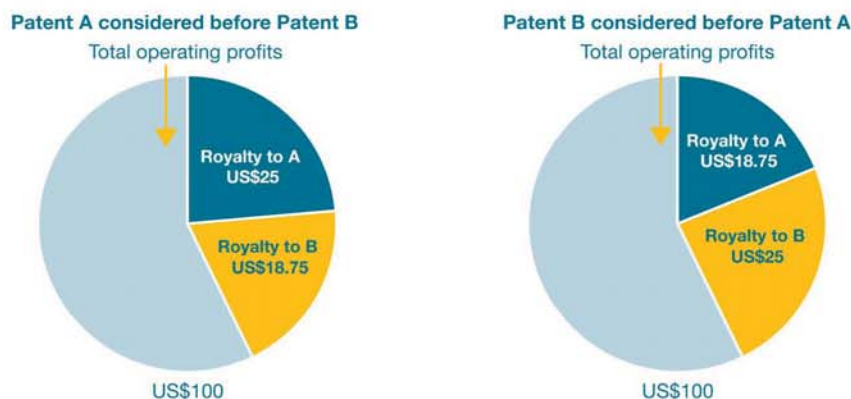
## Action plan

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The Federal Circuit's recent opinion in *Uniloc v Microsoft* has important implications for patent infringement litigation in the United States:

- The decision eliminated the 25% rule which formed the basis of a junk science approach to calculating reasonable royalties.
- Reasonable royalty damages calculations should be fundamentally based on the incremental value generated by a patented innovation and not the 25% rule.
- The demise of the 25% rule will lead to more accurate damages outcomes in US patent litigation.
- The court denied the plaintiff's use of total product revenues in calculating a reasonable royalty as an improper application of the entire market value rule. But broad application of this opinion would be inappropriate. Reasonable royalties can often be properly calculated based on the total revenues of an infringing product.

Figure 4. The order matters (but shouldn't!) under the 25% rule



### The court's opinion on the entire market value rule

The Federal Circuit also opined on the use of the entire market value rule. This rule allows a patentee to claim damages based on the entire market value of the accused product if it can show that the patented feature creates the basis for customer demand or substantially creates the value for the component parts. Federal court opinions on this rule are based on Supreme Court precedent that the patentee must show that "the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature". Uniloc's expert claimed support for the reasonableness of his US\$565 million damages estimate by comparing it to the total revenue of approximately US\$19.28 billion for Windows and Office products during the relevant time period. His conclusion was that the resulting royalty rate of 2.9% was reasonable based on his experience that royalty rates for software are "generally above" 10%.

Microsoft argued that in making this comparison between the calculated royalty and total revenues on Windows and Office, Uniloc's expert effectively employed the entire market value rule, despite undisputed evidence that the patented feature at issue ("product activation") did not create the basis for customer demand. Microsoft also argued that Uniloc's reference to the US\$19.28 billion total revenue figure and Uniloc's attorneys' belittlement of Microsoft's expert's royalty figure as representing only 0.0003% of total revenue tainted the jury's damages deliberations, regardless of whether the 2.9% royalty rate calculation was used as a check.

Like the district court before it, the Federal Circuit agreed with Microsoft that

the check was improper under the entire market value rule. The Federal Circuit reiterated its previous position that in order for the entire market value rule to apply, "the patentee must prove that the patent-related feature is the basis for customer demand". The court opined that in the present case, the disclosure that Microsoft made more than US\$19 billion in revenue from the infringing products "cannot help but skew the damages horizon for the jury, regardless of the contribution of the patented component to this revenue". As a result of this ruling, the mere expression of a calculated reasonable royalty as a share of total revenues of the infringing product is likely to trigger *Daubert* challenges to expert testimony contesting whether entire market value rule standards have been met. This is unfortunate, as both economic theory and licensing practice provide much clearer guidance on how reasonable royalty rates should be calculated in patent infringement litigation.

As we discussed above, the key fault with the 25% rule is its failure to base a royalty split on the incremental value generated by the patented invention. From an economic perspective, potential incremental value is derived in one of three ways: increased profits from more sales, higher price or reduced costs. Once this incremental value has been apportioned between the licensor and licensee (using factors we discussed above), the licensor's share can be expressed as a proportion of total revenues of the infringing products in order to arrive at a reasonable royalty rate. In fact, real-world licensees and licensors most often set royalty rates as a proportion of revenues (rather than profits or unit sales), for transparency and simplicity. A low royalty rate as a proportion of total revenues would signify relatively low value added to the profits of the patented product

and a high royalty rate would indicate high value added. From an economic perspective, there is no need to determine a threshold basis for customer demand that would trigger the use of the entire market value rule.

In *Uniloc v Microsoft*, Uniloc's expert does not seem to have determined the incremental value of the patented feature. Uniloc seems to have conceded that customers do not buy Office or Windows products because of the product activation feature and there is no evidence – based on the public record – that Uniloc's expert determined whether, instead, Microsoft enjoys higher prices or lower costs as a result of the patented feature. Moreover, there is no discussion of design-around options available to Microsoft which would constrain its willingness to pay Uniloc US\$565 million to license Uniloc's product activation patent. Therefore, the primary fault in Uniloc's royalty analysis appears to be the failure to calculate the incremental value of the patented feature to Microsoft, rather than the expression of the (mis)calculated royalty as a proportion of

total revenues.

However, the Federal Circuit's misplaced emphasis on whether Uniloc met the standards of the entire market value rule – rather than basic principles of economic theory – is likely to lead to confusion in how experts and counsel deal with reasonable royalty calculations in litigation. We hope that the Federal Circuit brings the same degree of clarity and certainty to the entire market value rule in a future opinion that it did to the 25% rule in *Uniloc v Microsoft*.

#### The final assessment

The Federal Circuit's elimination of the 25% rule should be a welcome development to anyone interested in obtaining accurate damages awards in patent infringement litigation. It marks the death of a junk science approach that has plagued patent litigation for years. Although certainly not an end to inappropriate damages calculations, it is a clear improvement. Caution, however, should be exercised in future application of the court's opinion regarding the entire market value rule. **iam**

**Mohan Rao** is an LES member and former chair of the Valuation Committee. He is also managing director at Navigant Economics and teaches financial economics at Northwestern University, both in Chicago. **Jonathan Tomlin** is an LES member and a principal in the Los Angeles office of Navigant Economics.

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