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SEPs Don't Need A Different Reasonable Royalty Analysis

Law360, New York (March 24, 2015, 10:41 AM ET) --

A modified Georgia-Pacific analysis? A different selection of Georgia-Pacific factors to include in the damages jury instruction for each case? A restriction on the date of hypothetical negotiation for any standard-essential patent? Please, courts, do not continue to impose these requirements or adopt any new "rules" specific to reasonable royalty damages for SEPs. The fact that a patented invention is essential to practicing a standard does not necessitate a change in the damages analysis, if carried out properly.

Several district courts have grappled with reasonable royalty damages for SEPs and in particular patents encumbered by reasonable and nondiscriminatory licensing obligations.[1] The introduction of a single fact — standardization — has thrown these analyses into deep and unnecessary complexity. The complexity reflects a tension arising from the dissonance between a "traditional" general damages methodology — the hypothetical negotiation and "Georgia-Pacific factors" — and the specific facts of each case. This tension is no different than what is felt in cases relating to multicomponent products in which only a single feature is covered by the asserted patent. That tension has resulted in a string of complex opinions for which one of the authors has proposed a solution through a paradigm shift instead of blunt-instrument "rules" directed at specific factual scenarios.[2]

The Federal Circuit's December 2014 opinion in Ericsson v. D-Link[3] illustrates the risks of defining a category of patents — SEPs — and assigning it specific rules for calculating reasonable royalty damages. The opinion appropriately exercises restraint in some areas, such as refusing to create new "Georgia-Pacific-like factors for all cases involving RAND-encumbered patents."[4] It adopts, however, two new bright-line requirements. First, for SEPs, the jury must be instructed on differentiating the value of the standard from the value of the invention.[5] Second, for all patents, the court must instruct the jury only on "factors that are relevant to the specific case at issue."[6] Ericsson further suggests, but does not

adopt, additional bright-line rules in other areas such as restricting the available range of hypothetical negotiation dates for SEPs[7] or requiring a "cautionary instruction" for the jury in all cases (involving SEPs or not) relating to licenses for multi-component products.[8]

These arbitrary and reactive restrictions on SEP reasonable royalty calculations are unnecessary and likely will emerge as counterproductive. Instead, using the "footprint" methodology as described in "A New 'Footprint' Paradigm for Reasonable Royalty Damages," Law360 (March 11, 2015),[9] reasonable royalty damages for SEPs (even those subject to RAND obligations) can be calculated the same way as in any other case. The existence of the standard is merely a fact to be used at certain steps in the analysis. The overall methodology remains the same.

Recap of the "Footprint" Methodology

The footprint methodology for reasonable royalty damages includes four steps:[10]

Four steps to a simplified "footprint" reasonable royalty paradigm:

Step in the Footprint Analysis	Simplified Question
Defining alternatives to the claimed feature	What could the infringer have done instead of practicing the claimed invention?
Determining the technical benefits of the invention compared to alternatives	What technical difference does the invention make?
Translating the additional technical benefits to the additional profit made by the infringer	How much additional money did the infringer make by using the invention instead of the alternative?
Allocating the additional profit between the patentee and infringer	How much would the infringer have been willing to invest to generate the additional money it made?

These four steps account for the requirements of the damages statute, 35 U.S.C. § 284, and its interpretations by the Federal Circuit. The footprint methodology is an alternative to the standard Georgia-Pacific analysis — one that avoids the messiness and complexity that arises when trying to apply a general 15-factor metric to a specific set of facts.[11]

The "footprint," which takes its name from the Federal Circuit's description in ResQNet,[12] quantifies the technical benefits of the invention compared to alternatives and then translates that technical difference into the additional profit enjoyed by the infringer from using the invention instead of the alternative.

The economic core of the footprint depends on the most basic and fundamental accounting equations. First, profit (P) equals revenue (R) – costs (C).

$$P = R - C$$

The infringer's profit achieved using the invention (PINV) equals the infringer's revenue using the invention (RINV) minus the infringer's costs using the invention (CINV):

PINV = RINV - CINV

The critical value is the additional profit achieved using the invention instead of an alternative. This additional profit (ΔP) equals the profit achieved using the invention (PINV) minus the profit that could have been achieved using an alternative (PALT):

$$\Delta P = PINV - PALT$$

The profit that could have been achieved using an alternative (PALT) equals the revenue that could have been achieved using an alternative (RALT) minus the costs that would have been incurred using the alternative (CALT):

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PALT = RALT - CALT
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By substituting the revenue and costs variables for the profit variables in the equation for additional profit, ΔP , the outcome is:

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\Delta P = PINV - PALT

\Delta P = (RINV - CINV) - (RALT - CALT)
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And rearranging the variables to line up the revenue variables and costs variables:

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\Delta P = (RINV - RALT) + (CALT - CINV)
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Thus, additional profit (ΔP) equals the increased revenue achieved by the invention over the alternative (RINV – RALT) plus the decreased costs achieved by the invention over the alternative (CALT – CINV).

Application of the Footprint Analysis to Standard-Essential Patents

The critical piece of reasonable royalty precedent that seems to have tripped up the analysis for standard-essential patents is that the royalty must correspond to "the use made of the invention by the infringer." [13] The act of standardization, and its economic impact, most often does not arise from a single infringer's "use" of the invention. [14] Thus, courts have expressed a worry that general damages methodologies might improperly encompass the value of standardization instead of focusing only on the technical merit of the claimed invention. [15] The footprint analysis can resolve this tension.

This article presumes that the reader has knowledge of the basic concepts of standardization, standard-essential patents, and RAND (reasonable and nondiscriminatory) licensing obligations. For this article, a standard-essential patent is one for which the standard cannot be practiced without infringing one or more claims. For additional background, the Ericsson opinion provides a description of the standardization process and related concepts.[16]

Step 1: Identifying Alternatives to the Claimed Invention

The footprint analysis avoids the overvaluation concern by explicitly accounting for the value of standardization at the outset. The first step in the analysis is identifying noninfringing alternatives. The alternative to an infringing standard-compliant product may be a noninfringing standard-compliant product. That is, the first step in the analysis may assume the infringer could, in a hypothetical analysis, practice the standard without the invention. In a sense, this basic concept transforms the SEP to a typical patent not essential to any standard, which a typical reasonable royalty analysis can address. The

methodology does not, however, ignore the existence of the standard; instead, the economic impact of standardization is addressed in subsequent steps.

In certain factual circumstances, however, the "use made of the invention by the infringer" might include choosing the patented feature to facilitate standardization because of a technical benefit over alternative technologies, such as interoperability.[17] The patentee might establish these facts only in specific situations, but if the facts exist, they properly may be considered and may appropriately demonstrate particular value for the invention. Indeed, Ericsson acknowledges this scenario as a possible exception to its general holding that the jury must be instructed to exclude the value of standardization from the royalty.[18]

The "alternatives" analysis also depends on the accused infringer's role in the standardization process. If the accused infringer merely practices the standard and did not influence its creation, non-infringing alternatives should be viewed through the lens of the choices of the standard-setting organization. If the accused infringer participated in the standard-setting organization, the patentee may be able to develop more specific facts around the infringer's choices to advocate for or against the adoption of the patented technology and what appropriately constitutes an "alternative" from the accused infringer's point of view.

Thus, when asking "what could the infringer have done instead of practicing the invention," the analysis should consider two issues. First, whether the standard could have adopted a noninfringing technology in the place of the infringing feature, and second, whether the infringer itself had the power to influence the adoption of an alternative technology in the standard and why the patented technology was adopted instead.

Step 2: Quantifying the Additional Technical Benefits Achieved by the Invention as Used by the Infringer

The second step in the analysis is quantifying the additional technical benefits achieved by the invention compared to an alternative.[19] The technical benefits analyzed typically will be those relied upon by the infringer to impact its bottom line — these could be features influencing consumer demand, like battery life, or they could be internal efficiencies, like a reduction in waste in a manufacturing process. The precise benefits to be measured depend on the facts of each case — the claimed invention and how it is put to use by the infringer.

For SEPs, two measures of technical benefits should be considered. First, the patentee should consider the traditional measure of the impact on external product features or internal efficiencies facilitated by the invention compared to the alternative. Second, the patentee should consider the degree to which the invention facilitated standardization compared to alternatives. If the invention's technical characteristics made standardization easier, then the invention might command additional value beyond the typical technical impacts of improved customer-facing features or more efficient internal processes.

The point of this analysis is to determine "what difference did the invention make" in two ways: first, whether the infringing technology adopted in the standard contributed technical value compared to alternative options, and second whether any portion of the value of standardization is, contrary to typical wisdom, attributable to the technical features of the claimed invention. It would be improper to assume that the value of a standard is never attributable to any particular invention, although the evidence necessary to prove this fact might be uncommon.

If the patentee produces the technical and economic evidence that its invention indeed contributed to standardization, then the Federal Circuit's bright-line rule in Ericsson that the "jury must be told to differentiate the added benefit from any value the innovation gains because it has become standard essential" [20] is imprecise at best, and possibly unduly prejudicial to the patent holder. Thus, this direction from the court should be interpreted to mean that the instruction must be given only if the patentee uses a traditional top-down approach for its royalty analysis, requiring apportionment at the back end. If the patentee uses the footprint approach to isolate the value of the invention at the front end, the instruction is unnecessary and likely should not be given.

Step 3: Translating the Invention's Additional Technical Benefits to the Infringer's Additional Profit

The existence of the standard has the most impact on the third step of the analysis, translating technical benefits to additional profit. The key consideration is that the market effects attributable to the standard should be factored into both the actual and alternative scenarios in order to ensure that the damages calculation does not inappropriately include that value.

The profit the infringer achieved using the invention (PINV) represents actual revenues (RINV) and actual costs (CINV),[21] and those values include the value added by the existence of the standard. The opportunity for success or error arises in the estimation of the profit that could have been achieved using an alternative (PALT) and its components, estimated revenues (RALT) and costs (CALT)[22] from using the noninfringing alternative instead of the invention. These must account for the value added by the standard so that standardization value factors out of the equation for additional profit (Δ P).[23]

Estimating revenue using an alternative (RALT) typically will require evaluating the downward price impact on standard-compliant products had the standard adopted the noninfringing alternative instead of the invention. The analysis may assume that the infringer's sales volume — facilitated by standardization — would remain the same even if it had used an alternative technology. Thus, the creation of the market by the standard factors out of the additional profit analysis and is not wrongly attributed to the claimed invention. If the invention truly carries no value (as some SEP damages opinions seem to suggest), then estimated revenue associated with the alternative (RALT) should come out identical (or nearly so) to actual revenue (RINV). Indeed, the patentee can do rough estimates of this analysis prior to filing suit to determine whether the potential recovery justifies the investment.

There is an exception to the general approach that revenue using an alternative (RALT) should presume the existence of the market created by standardization. If the invention facilitated the creation of the standard, and an alternative technology would not have driven that creation, then the creation of the market by the standard can be properly attributed to the invention. Revenue using an alternative (RALT) then should not attempt to factor out the market effects of standardization. The proof necessary to establish this scenario will be significant, and likely uncommon, because if a standard arises around a specific technology, the patentee typically will have participated in the creation of the standard and likely has an obligation to license its patents on RAND terms.[24]

If the invention reduces the infringer's costs (CINV) compared to the costs that would have been incurred using an alternative (CALT), the effects of the standard still should be considered. For example, if manufacturing equipment is configured to comply with a standardized process, and a change from the invention to a noninfringing alternative would deviate from that process and increase costs, then the alternative costs analysis (CALT) should generally assume the existence of the cost-decreasing effects of standardization. The difference in costs using an alternative instead of the invention then will focus on the precise cost decrease facilitated by using the invention separate and apart from the existence of

efficiencies arising from the standard.

As a result of this step, if performed correctly, the patentee should have determined a quantified amount of additional profit (ΔP)[25] reflecting the value of the invention alone and excluding value added solely by the existence of a standard. That is, the patentee will have calculated how much more money the infringer made by using the invention instead of a less suitable alternative.

Step 4: Allocating Additional Profit Between the Patentee and the Infringer

The final step is to determine how much of the additional profit attributable to the invention should go to the patentee and how much should go to the infringer. This step, as previously explained,[26] incorporates the concepts of an ex ante analysis (prior to infringement) and the hypothetical negotiation in which the parties would reach an arm's-length agreement.[27]

A straightforward way to determine a preliminary allocation of the additional profits is to look at what percentage return the infringer has expected from other investments for which evidence is available. For example, if the infringer has previously expected a 200 percent return on investment in intellectual property rights, then the additional profit it achieved from using the invention can be allocated 33 percent to the patentee (representing the infringer's investment in a patent license) and 67 percent to the infringer (representing the 200 percent return — double the investment). This preliminary allocation can also be adjusted based on evidence of what the patentee would have expected in similar transactions.

If a RAND obligation exists between the patentee and infringer, this step is where its impact is realized. If the patentee has agreed to license the patent-at-issue on RAND terms, that fact might weigh in favor of a lower allocation of the additional profit to the patentee and a higher allocation to the infringer. That is, the patentee may have been willing to accept a lower per-unit royalty in exchange for the expected higher volume of units based on the impact of standardization.

No presumptions or substantive legal rules are necessary for this analysis. Indeed, they probably would cause confusion and improper results because the allocation analysis depends on the unique facts of each case. In the Ericsson case, the Federal Circuit made note of an amicus brief that suggested that in cases involving SEPs, the hypothetical negotiation date should always be set before adoption of the standard.[28] The authors respectfully recommend that courts should not adopt this substantive "rule" — it would be a blunt instrument to be used for precision work.

In some cases, considering a hypothetical negotiation before adoption of a standard might be appropriate — for example, if the infringer participated in the creation of the standard and influenced the technologies that the standard would include. In other cases, an appropriate hypothetical negotiation date might occur after creation of the standard — for example, if the infringer did not participate in the standard's creation, but instead chose to sell compliant products after the standard issued. In any case, the patentee should introduce evidence of the choices facing the infringer at the time the infringer made the decision to begin infringing.

If the infringer participated in the creation of the standard, the patentee might have the opportunity to introduce evidence that the patented technology influenced the infringer to incorporate the technology in the standard instead of an alternative. If this occurred, the patentee might establish that the infringer would have been willing to pay a higher percentage of the additional profit attributable to the invention than a later standard-adopter that simply infringed because it sought to follow the standard. The

footprint analysis of reasonable royalty damages for SEPs can accommodate both situations because it appropriately allows for flexible application to the facts of each case without rigid presumptions or rules.

Benefits of the Footprint Methodology for Standard-Essential Patents

The footprint methodology avoids the problem that SEPs appear to be headed toward: the adoption of presumptions and rules to be applied to every damages calculation involving an SEP, even though all such calculations will turn on their own facts and not on generalizations. This problem arises from the application of an arbitrary methodology (the hypothetical negotiation and Georgia-Pacific factors) to situations with precise technical and economic facts.[29] It is the same problem that gave rise to the "smallest salable unit" analysis in Cornell and its progeny at the Federal Circuit and the seemingly unstoppable increasing complication in reasonable royalty analysis "rules."

Defendants and courts may ask how the footprint methodology deals with the alleged "problems" associated with damages for SEPs: "patent hold-up" and "royalty stacking." [30] The methodology adequately addresses both because it accounts for the value of standardization at the front end instead of trying to apportion it on the back end. When the footprint methodology is properly applied, it does not give any bonus based on "hold-up" because it assumes in most cases that standard compliance would have occurred with or without the invention, and if that assumption can be disproven by the patentee, then the patentee still only gains the additional value attributable to the benefit the patented invention contributed to standardization.

Further, "royalty stacking" is not a "problem" unique to SEPs; instead, it is a common defense damages argument for any product with multiple components, some infringing and some not. The footprint methodology isolates the value of the patented feature at the outset and therefore seeks the true economic value of the invention. If the patented feature does not contribute meaningful technical value, then there will be no royalty stacking "problem" because the value attributed to the invention will properly be low. If the patented feature contributes meaningful technical value, then the "stacking" defense becomes a disingenuous exercise because the patentee has demonstrated economic reality and the value of the "use of the invention by the infringer" under § 284.

Indeed, if the accused infringer attempts to argue "stacking" based merely on multiplying the patentee's damages model by the number of patents or other participants in the standard,[31] the court should consider excluding that argument under Rule 403 as unduly prejudicial just as courts have excluded certain of the patentee's royalty base evidence under the entire market value "rule" (itself mostly an application of Rule 403). If the accused infringer wants to introduce a "stacking" defense, it should shoulder the burden of itself applying the footprint analysis to demonstrate the actual value of other nonpatented features.[32]

Arguments like "royalty stacking" and "patent hold-up" arise from the dissonance created when an imprecise methodology (a hypothetical negotiation and the Georgia-Pacific factors) is applied to precise facts that never fit the mold. With the footprint analysis, the core reasonable royalty analysis for SEPs can be harmonized with the approach for all other patents and produce results that reflect the economic reality of the infringer's use of the invention.

Both Microsoft Corp. and Innovatio IP Ventures LLC suggested that a precise calculation of incremental value of the invention "is too complicated for courts to perform."[33] This burden is not the courts' to bear — it falls upon the parties. With a straightforward methodology, and evidence supporting each step, the patentee can reduce this burden upon the court. The footprint approach provides a solution to

the overwhelming complexity — and judicial frustration — that so far has haunted SEPs.

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- [1] Microsoft Corp. v. Motorola Inc., No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233 (W.D. Wa. Apr. 25, 2013) (Robart, J.); Ericsson Inc. v. D-Link Sys. Inc., No. 6:10-CV-473 (E.D. Tex. Aug. 6, 2013) (Davis, J.); In re Innovatio IP Ventures LLC Patent Litigation, No. 11-C-9308, 2013 U.S. Dist. LEXIS 144061 (N.D. Ill. Oct. 3, 2013) (Holderman, J.); Realtek Semiconductor Corp. v. LSI Corp., No. C-12-3451-RMW (N.D. Cal. June 16, 2014) (Whyte, J.); Commonwealth Sci. & Indus. Research Org. v.Cisco Sys., Inc., No. 11-cv-343 (E.D. Tex. July 23, 2014) (Davis, J.).
- [2] A. Fahrenkrog, A New 'Footprint' Paradigm for Reasonable Royalty Damages, Law360 (March 11, 2015).
- [3] Ericsson Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1209, 1225-35 (Fed. Cir. 2014).
- [4] Id. at 1232. The opinion does, however, explicitly suggest that courts should never use certain Georgia-Pacific factors in the royalty analysis for SEPs, somewhat contradicting the ultimate holding. Id. at 1231.
- [5] Id. at 1233.
- [6] Id. at 1235.
- [7] Id. at 1234 n.10.
- [8] Id. at 1228.
- [9] A. Fahrenkrog, A New 'Footprint' Paradigm for Reasonable Royalty Damages, Law360 (March 11, 2015).
- [10] Id.
- [11] The Federal Circuit in Ericsson recognized that the Georgia-Pacific factors often result in an arbitrary analysis untethered to the facts of the case. 773 F.3d at 1230.
- [12] ResQNet.com Inc. v. Lansa Inc., 594 F.3d 860, 868-873 (Fed. Cir. 2010).
- [13] 35 U.S.C. § 284.
- [14] It is, however, possible that a standard might arise around a particular claimed feature or group of claimed features because of their technical superiority and desirability. Although it is a special case, that

scenario also can be addressed using the footprint analysis, as discussed below.

- [15] See, e.g., Ericsson, 773 F.3d at 1232-35.
- [16] Id. at 1208-09.
- [17] In Innovatio IP Ventures, Judge Holderman appropriately recognized this factual scenario. 2013 U.S. Dist. LEXIS 144061, at *65-66. That opinion reflects a level of nuance more likely to track economic reality than the Federal Circuit's blanket assumptions in Ericsson about "special apportionment issues" for SEPs, including that a royalty award must exclude "any value added by the standard's adoption of the patented technology." Ericsson, 773 F.3d at 1232.
- [18] Ericsson, 773 F.3d at 1233 (explaining that apportionment might be inappropriate "if a patentee can show that his invention makes up the entire value of the standard" (quotation omitted)).
- [19] Existing district court analyses have considered alternatives in qualitative terms, see Microsoft, 2013 U.S. Dist. LEXIS 60233, at *46-47, *60-61, but none have attempted to quantify the technical benefits of the invention over those alternatives in the manner described here.
- [20] Ericsson, 773 F.3d at 1233.
- [21] Because PINV = RINV CINV.
- [22] PALT = RALT CALT.
- [23] $\Delta P = (RINV RALT) + (CALT CINV)$, and RINV and CINV reflect actual revenue and costs including the impact of standardization, so if the alternative scenario estimates RALT and CALT also assume the existence of the standard, then the value attributable to standardization appropriately factors out of ΔP .
- [24] It is possible that any invention contributed some incremental value to the creation of a standard, and the patentee conceivably could establish that value with rigorous economic analysis, but the cost of proving that value may exceed its return to the patentee in the form of damages.
- [25] Calculated by determining the increased revenues and/or decreased costs achieved by using the invention instead of an alternative while accounting for any value of standardization not attributable to the invention: $\Delta P = (RINV RALT) + (CALT CINV)$.
- [26] A. Fahrenkrog, A New 'Footprint' Paradigm for Reasonable Royalty Damages, Law360 (March 11, 2015).
- [27] The authors submit that the ex ante perspective adds value as part of this specific step instead of beginning the analysis by trying to recreate an entire hypothetical ex ante scenario. By addressing both what actually happened and the ex ante perspective, the "footprint" approach addresses the "reverse hold-up" issue in which the infringer refuses a RAND offer and proceeds with infringement with the hope that an ultimate damages award is disproportionately low compared to the value of the invention. See Innovatio IP Ventures, 2013 U.S. Dist. LEXIS 144061, at *70-73 (describing "reverse hold-up"). Looking at the amount of value the infringer actually enjoyed from the invention helps ensure that the patentee will receive fair compensation.

- [28] Ericsson, 773 F.3d at 1234 n.10.
- [29] The court acknowledged this problem in Ericsson. Id. at 1230. It then, however, focused on the specific issues with the Georgia-Pacific analysis instead of the fundamental underlying problem of defining an arbitrary "test" that almost never fits the specific facts of any case. Thus, the court then defined more bright-line rules for SEPs that likely will not fit the facts of any other case involving an SEP. See id. at 1230-31 (explaining that "[i]n a case involving RAND-encumbered patents, many of the Georgia-Pacific factors simply are not relevant" and "[s]everal other Georgia-Pacific factors would at least need to be adjusted . . . for SEP patents generally").
- [30] See id. at 1209 (describing these two as "potential problems that could inhibit widespread adoption of the standard").
- [31] See Microsoft, 2013 U.S. Dist. LEXIS 60233, at *213-14 (describing accused infringer's approach of multiplying the patentee's proposed royalty rate by the total number of entities holding SEPs).
- [32] See Ericsson, 773 F.3d at 1234 (articulating the accused infringer's burden to introduce evidence of actual royalty stacking). Innovatio IP Ventures articulated that "the court cannot undertake a full technical evaluation of the hundreds or thousands of patents that sometimes comprise a standard." 2013 U.S. Dist. LEXIS 144061, at *68-70. This is true, and it reflects a burden issue—the "stacking" defense should not be allowed unless the accused infringer produces evidence quantifying the value of the other patents required by the standard compared to the value of the patent-at-issue. This would reduce the court's burden in its analysis.

[33] Innovatio IP Ventures, 2013 U.S. Dist. LEXIS 144061, at *161-62 (quoting Microsoft, 2013 U.S. Dist. LEXIS 60233, at *46).

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