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RAND Royalty Valuation for Netlist's  
JEDEC Standard-Essential Patents

*James F. Holderman\**

August 25, 2017

To All Interested Readers:

I write regarding the reasonable and nondiscriminatory (RAND) royalty commitment of Netlist, Inc. (“Netlist”) as a part of my engagement with Netlist’s attorneys, Mintz Levin Cohn Ferris Glovsky & Popeo PC (“Mintz Levin”) to conduct a neutral analysis as a neutral evaluator in pending litigation. In this letter when commenting on my analysis, I assume all interested readers are familiar with the terminology employed in Netlist’s field of endeavor. As you may be aware, Netlist is the assignee of a portfolio of patents and applications declared essential to the JEDEC standards for RDIMM and LRDIMM. Netlist’s participation in the JEDEC committees that promulgated this standard and Netlist’s signing JEDEC’s License Assurance/Disclosure Form regarding Netlist’s declared standard-essential patents (SEPs) and applications in its portfolio essential to JEDEC’s standards gave rise to certain encumbrances on this portfolio. Among these encumbrances, Netlist is contractually required to “offer[] [a license to the essential portfolio], with compensation, to applicants desiring to utilize the license for the purpose of implementing the JEDEC Standard under reasonable terms and conditions that are demonstrably free of any unfair discrimination.”<sup>1</sup> As discussed below, it is my opinion that the methodology employed by Netlist to determine a range of RAND royalties for this portfolio is sound from evidentiary, policy, and common sense perspectives. Moreover, under

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<sup>1</sup> Joint Electron Device Engineering Council [JEDEC], JEDEC Manual of Organization and Procedure app. A.3, at 37 (July 2015), <https://www.jedec.org/sites/default/files/JM21R.pdf>.

the circumstances here, it is my view that Netlist's approach is preferable to other alternatives.

## I. BACKGROUND

### *A. My Experience*

From May 1, 1985 through June 1, 2015, I served as a United States District Judge for the Northern District of Illinois. I was personally appointed by President Ronald Reagan, unanimously confirmed by the United States Senate, and bestowed judicial life tenure pursuant to Article III of the U.S. Constitution. I served as the Chief Judge of the Northern District of Illinois for the maximum period of time allowed by law. I also, on occasion, served on judicial appellate panels of the United States Court of Appeals for the Federal Circuit and the Seventh Circuit by designation of the Chief Justice of the United States.

During my judicial tenure, I also served in academia. I taught intellectual property courses at several law schools. I was the James C. Wood Distinguished Lecturer in Intellectual Property Law at the University of Illinois College of Law where I taught for more than twenty years. Additionally, I was an Adjunct Professor of Law at the Chicago Kent College of Law and the John Marshall Law School where I taught Intellectual Property Trial Advocacy courses. I also taught a course titled "Major Civil Litigation" for more than fifteen years at the University of Chicago Law School. All of these courses addressed the preparation, presentation, and admissibility of expert testimony in intellectual property cases applying the Federal Rules of Evidence.

I retired from the United States District Court on June 2, 2015, maintained my license to practice law, and affiliated with JAMS (which is an acronym for Judicial Arbitration and Mediation Services) to assist litigants in resolving their cases through arbitration and mediation, as well as by providing a neutral evaluation of their cases from the perspective of an experienced jurist.

During my 30-year service as a United States District Judge, I resolved more than 10,000 federal cases in all areas of federal court jurisdiction filed in my district court. I also resolved hundreds of additional cases not initially filed in my district, but specifically consolidated for pretrial purposes and assigned to me by the United States Judicial Panel on Multi-District Litigation because of my experience and expertise in the law that was the subject matter of the particular cases. Among those Multi-District Litigation cases assigned me were the *Innovatio* cases, a large group of related patent infringement cases which required a RAND royalty determination.

## B. Innovatio

As I mentioned above, among the matters over which I presided during my service as a United States District Judge was *In re Innovatio IP Ventures, LLC Patent Litigation*,<sup>2</sup> a well-publicized case which concerned a RAND royalty rate for a portfolio of patents declared essential to the IEEE standard 802.11, known as “Wi-Fi.” To my knowledge, this was one of the first opportunities for any United States District Judge to address the question of how to determine a RAND royalty rate for SEPs.<sup>3</sup>

In my October 3, 2013 ruling in that case, I had no comparable RAND royalty licenses in evidence to assist my determination. Therefore, I applied what was called “the Top-Down Approach” to arrive at a RAND royalty rate.<sup>4</sup> Using this approach, I endeavored, first, to identify the portion of profits from the sale of accused products due to incorporation of the feature of Wi-Fi support; and, second, to determine what apportionment of those profits is properly due the SEPs in question. The former step required isolating the value of one feature out of many that drive consumer buying decisions. The latter required comparing the contributions of one portfolio to the standard relative to all other contributions. The evidence before me indicated that (1) the average profit margin for Wi-Fi chips at issue was 12.1 percent; (2) the top 10 percent of patents declared essential to the standard account for 84 percent of the total value of the standard; (3) each of the 19 patents-in-suit, all declared essential to the standard, was within this top 10 percent; and (4) altogether, approximately 3000 patents were declared essential to relevant versions of the Wi-Fi standard. From that evidence, I determined that a royalty rate of 0.064 percent of the average price per chip was consistent with Innovatio’s RAND royalty commitment.<sup>5</sup>

As previously stated, the Top-Down Approach was necessitated by a lack of reliable data points. Comparable licenses are typically the most probative data for determining a RAND rate, but whether a license is comparable, and to what degree, hinges on, among other things, (1) the license arising out of a RAND framework; and (2) the proffering party reliably reducing the license to a useful data point. In *Innovatio*, none of the licenses proffered by either side as probative of a RAND rate passed muster. An *ex ante* comparison of the value of the patented technology to the value of alternative technology under consideration at the time was also impossible, as the alternatives simply did not result in comparable performance.

<sup>2</sup> *In re Innovatio IP Ventures, LLC Patent Litig.*, No 11 C 9308, 2013 WL 5593609 (N.D. Ill. Oct. 3, 2013).

<sup>3</sup> Judge James Robart also calculated RAND rates for SEPs in *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217, at \*74–75 (W.D. Wash. Apr. 25, 2013).

<sup>4</sup> *Innovatio*, 2013 WL 5593609, at \*43.

<sup>5</sup>  $12.1\% \times 84\% \times 19 / 3000 = 0.064\%$ .

The reaction to my ruling from the legal, business, and economic communities was, in my perception, generally positive. The matter settled before any appeal, but my ruling has been followed by at least three other district courts<sup>6</sup> and cited by many more. Economists like David Teece have cited the ruling positively,<sup>7</sup> and accountant Michael Lasinski has gone so far as to call it “seminal.”<sup>8</sup> The U.K. High Court of Justice recently cited the ruling in applying a version of the Top-Down Approach to arrive at a worldwide RAND royalty rate for a standard-essential portfolio.<sup>9</sup>

### C. *This Engagement*

For purposes of this engagement with Mintz Levin, I am providing a neutral analysis and evaluation of Netlist’s methodology in determining a RAND royalty range for Netlist’s SEPs in connection with recent JEDEC standards. As part of this engagement, I have reviewed galley proofs of an article entitled “Hedonic Prices and Patent Royalties,” by J. Gregory Sidak & Jeremy O. Skog (“Sidak Article”), intended for publication in the *Criterion Journal on Innovation*.<sup>10</sup> The Sidak Article discusses the approach taken by Mr. Sidak as an expert witness for Netlist in the International Trade Commission Investigation No. 337-TA-1023, captioned *Certain Memory Modules and Components Thereof, and Products Containing Same*. In that case, Mr. Sidak derived a RAND royalty range for Netlist’s portfolio of SEPs. I understand that this article sets forth the fundamental aspects of Mr. Sidak’s analysis and the relevant data but does not include any confidential business information.

I arrived at all the conclusions discussed in this letter independently and without any input from Netlist, its attorneys, Mr. Sidak, or anyone else. My compensation in this engagement is at my standard hourly rate and in no way depends on any of the opinions expressed herein or the outcome of any pending litigation.

## II. NETLIST AND ITS SEP TECHNOLOGY IMPLEMENTING THE JEDEC STANDARDS

Netlist is an innovator and provider of high-performance modular memory subsystems, including dual inline memory modules (“DIMMs”) intended for

<sup>6</sup> *Odyssey Wireless, Inc. v. Apple Inc.*, No. 15-cv-01735-H-RBB, 2016 U.S. Dist. LEXIS 187982 (S.D. Cal. Sept. 14, 2016); *Realtek Semiconductor Corp. v. LSI Corp.*, No. C-12-3451-RMW, 2014 U.S. Dist. LEXIS 81673 (N.D. Cal. June 16, 2014); *GPNE Corp. v. Apple, Inc.*, No. 12-CV-02885-LHK, 2014 U.S. Dist. LEXIS 53234 (N.D. Cal. Apr. 16, 2014).

<sup>7</sup> See, e.g., David J. Teece & Edward F. Sherry, *A Public Policy Evaluation of RAND Decisions in the U.S. Courts*, 1 *CRITERION J. ON INNOVATION* 113 (2016).

<sup>8</sup> *Unwired Planet Int’l Ltd v. Huawei Techs. Co.* [2017] EWHC (Pat) 711 [431] (Eng.).

<sup>9</sup> *Id.* [94], [97], [431].

<sup>10</sup> J. Gregory Sidak & Jeremy O. Skog, *Hedonic Prices and Patent Royalties*, 2 *CRITERION J. ON INNOVATION* 601 (2017).

use in servers. DIMMs use the storage medium DRAM, or dynamic random access memory. The current generation of DRAM are called “DDR4.” The server industry has trended towards the use of particular types of DIMM—registered DIMM (“RDIMM”) and load reduced DIMM (“LRDIMM”) that offer higher performance than RDIMMs.

An RDIMM unit includes a register that aids in efficient utilization of DRAM. An LRDIMM unit includes the components of an RDIMM, as well as additional technology that further improves performance. In the JEDEC-promulgated DDR4 LRDIMM standard, the “additional technology” included is a set of nine “distributed buffers.” Netlist’s portfolio includes patents that purport to claim novel features of the register, distributed buffer, and related technology of the sort implemented in JEDEC DDR4 RDIMM and LRDIMM standard-compliant products. Netlist has declared those patents essential to the JEDEC standards.

### III. THE APPROPRIATENESS OF NETLIST’S APPROACH TO DETERMINING A RAND ROYALTY RANGE FOR ITS SEP PORTFOLIO FROM EVIDENTIARY AND POLICY PERSPECTIVES

#### A. Summary of Netlist’s Approach

Netlist engaged Mr. Sidak to determine a range of royalties for its LRDIMM SEP portfolio that would be consistent with its RAND commitment to JEDEC. Mr. Sidak, in turn, applied the logic of the Top-Down Approach I employed in *Innovatio*, adapted to the available data.

First, Mr. Sidak determined the incremental value of the feature of support for LRDIMM. To do so, he used an econometric analysis known as “hedonic regression.” This technique compares pricing data, which shows consumers’ willingness to pay, over time, for products with similar, but varying, feature sets. Differences in feature sets accompany differences in pricing, from which the regression model calculates what consumers were willing to pay for each given feature.

The additional features of LRDIMM over the base case have attendant costs as well, namely, the nine distributed buffers included in a module. To account for this, Mr. Sidak estimated the cost to the module manufacturer of incorporating the buffers, about \$20. The incremental profit of LRDIMM over RDIMM, then, was about \$80 (\$100 – \$20).

Then, Mr. Sidak apportioned this \$80 incremental profit between Netlist and other owners of patents declared essential to the LRDIMM standard. JEDEC maintains a repository of all patents and applications its members declare essential to its standards. Mr. Sidak searched this JEDEC repository

and identified a total of fifty patents, including Netlist's seventeen, declared essential to LRDIMM and valid as of January 1, 2017. Consequently, by a simple arithmetic patent count, Netlist's SEP portfolio constituted 34 percent of the patents declared essential to the JEDEC standards. Mr. Sidak appropriately did not stop there. He ranked all fifty patents by certain metrics, including forward-citations<sup>11</sup> of the fifty identified SEPs listed in subsequently issued patents and forward-citations exclusive of self-citations, meaning a particular patent holder citing its own patents in its subsequently issued patents. Mr. Sidak determined that the Netlist portfolio accounted for 30.77 to 42.96 percent, or \$24.55 to \$34.27 of this \$80 incremental profit per module.

Based on this analysis, Mr. Sidak concluded, a license to Netlist's LRDIMM-essential portfolio at a royalty in the range of \$24.55 per unit would be consistent with Netlist's RAND obligation.

### *B. Evidentiary Discussion*

In my view, Mr. Sidak's methodology is reliable and would be admissible in the United States District Courts, who act as gatekeepers for expert testimony and are required, under the Federal Rules of Evidence, to exclude expert testimony that would not be helpful to the trier of fact. The seminal Supreme Court opinion in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*<sup>12</sup> gave a non-exhaustive list of considerations relevant to the admissibility of expert testimony: Whether the theory or technique employed by the expert is generally accepted in the scientific community; whether it has been subjected to peer review and publication; whether it can be and has been tested; whether the known or potential rate of error is acceptable; and whether the research was conducted independent of the particular litigation or dependent on an intention to provide the proposed testimony.

Following *Daubert*, Rule 702 of the Federal Rules of Evidence governs the admissibility of expert testimony and states:

A witness who is qualified as an expert by knowledge, skill, experience, training or education may testify in the form of an opinion or otherwise if:

(a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;

(b) the testimony is based on sufficient facts or data;

<sup>11</sup> Mr. Sidak defines forward-citations as "the number of citations that an issued patent receives from subsequently issued patents." *Id.* at 640.

<sup>12</sup> 509 U.S. 579 (1993).

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- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.<sup>13</sup>

With these factors in mind, Mr. Sidak's approach is, in my view, reliable and admissible. Put simply, Mr. Sidak implemented the judicially accepted Top-Down Approach using accepted econometric techniques and presumably reliable data.

1. *Hedonic Regression*

A key reason I conclude that Mr. Sidak's use of hedonic regression in this instance would be admissible is that the technique of hedonic regression itself has been judged reliable, and its application here complies with the requirements of Rule 702 of the Federal Rules of Evidence.

Mr. Sidak acknowledges that hedonic regression has never been used to determine a RAND royalty range in any public proceeding, but that fact alone does not render the analysis unreliable. Hedonic regression itself is a well-known econometric tool and the subject of a significant body of peer-reviewed scholarship, and the United States District and Appellate Courts in other contexts, such as class actions, have accepted expert testimony based on hedonic regression.<sup>14</sup> In sum, hedonic regression is considered reliable in other relevant contexts, even if no court has yet been asked to endorse it in determining a RAND royalty range. In fact, I believe hedonic regression, in this instance in the absence of comparable licenses, is perhaps the *most* reliable way to adduce such a range.

One purpose of the RAND royalty encumbrance, as the United States Court of Appeals for the Federal Circuit and other authorities have stated, is to prevent the owners of SEPs from extracting extra royalties above the value of the technology. Some commentators have suggested that achieving this purpose requires a comparison of the value of the patented technology to whatever alternatives were available to and considered by the standard-setting organization at the time of standardization. These commentators say that the RAND royalty analysis should be limited to data points that were available before standardization. I disagree. For policy reasons discussed below, that limitation is at odds with how we determine reasonable royalty rates in general, and in the RAND context, the analysis should not be so limited because that sort of counterfactual construction injects substantial uncertainty into the RAND royalty analysis, rendering it unreliable in many cases.

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<sup>13</sup> FED. R. EVID. 702.

<sup>14</sup> See, e.g., *Briseño v. ConAgra Foods, Inc.*, 674 F. App'x 654, 657 (9th Cir. 2017), *petition for cert. filed*, 2017 WL 1353282 (U.S. Apr. 10, 2017) (No. 16-1221).

United States District Courts and the Federal Circuit routinely consider data points that post-date standardization or the date of first infringement, such as comparable licenses, because these arms-length transactions reliably reveal what the parties to those licenses believed to be the value of the patented technology. Confining the RAND royalty analysis to pre-standardization data points adds an unreliable fiction from reality by ignoring relevant post-standardization data points—a marked shift from appropriate, existing and judicially accepted analysis. Limiting a RAND analysis to pre-standardization data points requires evaluation of multiple hypothetical negotiations that purportedly previously should have, but did not take place at hypothetical prior times. On occasion, the alternative technology considered by the standard-setting organizations falls by the wayside, meaning that post-standardization data shows it to be without value. Disregarding post-standardization data requires one to ignore how the market has actually treated the technology in question. Furthermore, disregarding a method for which actual evidence exists, such as the Top-Down Approach, in favor of one which requires the fictionalized construction of a counterfactual is likely to hinder, rather than aid, the trier of fact.

Mr. Sidak's use of hedonic regression is, in my view, a better and more reliable approach here. He neatly accounts for the value that technology in the LRDIMM standard might derive from incorporation into a standard by comparing LRDIMM with its predecessor standard standardized technology, RDIMM. By doing so, the value from standardization nets out to zero. In addition, his analysis is derived from actual pricing data and therefore reflects how the market has treated the technology in question. This pricing data, like comparable licenses, is probative of a reasonable royalty because it reflects the market's real treatment of the technology in question.

Mr. Sidak's use of hedonic regression provides other bases supporting its reliability. One of the virtues of hedonic regression is that it calculates its own error rate—the R-squared value lists the portion of demonstrated willingness to pay for a given product not captured by the variables in the model. In Mr. Sidak's analysis, the observed variables account for nearly 90 percent of total demand, a proportion that exceeds many hedonic regressions published in peer-reviewed journals.

Also, while I have not reconstructed the model myself, I have no reason to believe that one could use it to predict what a particular module with specific characteristics would cost. This, however, is irrelevant. Hedonic regression reliably arrives at aggregate values; the fact that it does not produce an equation that can predict the price of, for instance, a 32 GB DDR4 RDIMM in 2015 does not affect the model's reliability in the aggregate.

Finally, I believe Mr. Sidak has properly and reliably accounted for the difference in costs between LRDIMM and RDIMM. On a component level,



the only difference between the two standardized modules is the presence of nine data buffers in LRDIMM. From a bill-of-materials (“BOM”) perspective, then, the price of these nine data buffers is the difference in cost of the modules for the manufacturer. I understand that the costs associated with setting up an assembly line for a given module—labor, machining, and so forth—tend to be similar or the same for operations of the same scale manufacturing similar modules. That is, the cost a given factory would incur to set up an LRDIMM assembly line is the same as the cost of setting up an RDIMM line. Assuming that the data buffers have no material weight, the cost of shipping and storage would be the same for LRDIMM and RDIMM as well. The difference in BOM costs, then, is the real difference in the costs connected with manufacturing the different LRDIMM and RDIMM standardized modules.

## 2. *Forward-Citation Analysis*

I also endorse the admissibility of Mr. Sidak’s use of forward-citation analysis as a reliable indicator of patent value. Forward-citation has been used for years by economists to estimate the value of patent portfolios.<sup>15</sup> Several United States District Courts that have addressed the issue have ruled that forward-citation analysis may be helpful to a finder of fact.<sup>16</sup>

Some critics may argue that limiting the analysis to valid patents undermines the reliability of the exercise by excluding the value of technology in the public domain, but I disagree. What Mr. Sidak apportions between the owners of SEPs is the incremental value of LRDIMM over RDIMM. This incremental value already accounts for the value of predecessor technology. Moreover, even if one assumes that the LRDIMM standard incorporates valuable technology in the public domain that Mr. Sidak’s regression does not disaggregate, there is no reason to conclude that the value of that public

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<sup>15</sup> See, e.g., Manuel Trajtenberg, *A Penny for Your Quotes: Patent Citations and the Value of Innovations*, 21 RAND J. ECON. 172 (1990); Adam B. Jaffe, Manuel Trajtenberg & Rebecca Henderson, *Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations*, 108 Q.J. ECON. 577 (1993); Dietmar Harhoff, Francis Narin, F.M. Scherer & Katrin Vopel, *Citation Frequency and the Value of Patented Inventions*, 81 REV. ECON. & STATS. 511 (1999). Moreover, even if forward-citation data were not considered to be admissible by a particular district court, Federal Rule of Evidence 703 provides that if experts offering their opinion in a particular field “reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be admitted.” FED. R. EVID. 703.

<sup>16</sup> See, e.g., *Intel Corp. v. Future Link Sys., LLC*, No. 14-377-LPS, 2017 WL 2482881, at \*5 (D. Del. June 1, 2017) (“In cases where a forward citation analysis has been found unreliable, it was because the expert failed to ‘tie the methodology to the facts.’” (quoting *Finjan, Inc. v. Blue Coat Sys., Inc.*, No. 13-cv-03999-BLF, 2015 WL 4272870, at \*8 (N.D. Cal. July 14, 2015)); *Comcast Cable Commc’ns, LLC v. Sprint Commc’ns Co.*, 218 F. Supp. 3d 375, 383 (E.D. Pa. 2016) (“[C]ourts have not rejected forward citation analysis outright.”); *Better Mouse Co. v. SteelSeries ApS*, No. 2:14-cv-198-RSP, 2016 WL 3611528, at \*2 (E.D. Tex. Jan. 5, 2016) (“To the extent Plaintiff claims that forward citation analysis is never relevant for patent valuation, the Court rejects that claim. No binding authority states that forward citation analysis is per se not relevant to the facts of any case.”); *Finjan*, 2015 WL 4272870, at \*7 (“[A] qualitative analysis of asserted patents based upon forward citations may be probative of a reasonable royalty in some instances.”).

domain technology should belong to the implementers of the standard (in the form of lower royalty rates) and not the standard setters.

*C. Mr. Sidak's Approach to Computing a RAND Royalty Range Is Sound from a Policy Perspective*

In my estimation, Mr. Sidak's approach improves on previously existing solutions to the issue of computing a RAND royalty range in the absence of comparable licenses.<sup>17</sup> Mr. Sidak's approach provides an objective, transparent, predictable, reproducible, and fair way to compute this range and thereby could provide cost certainty to implementers, assurance of value to contributors to standards, and a clear line of demarcation between good faith licensing discussions and patent hold-up.

The law is well established that a RAND obligation arises out of the contract between the party contributing technology to the standard and the standard-setting organization, with implementers of the standard becoming third-party beneficiaries. Standards need good technology to be viable, which means that they must provide a mechanism for patent holders to receive adequate compensation for their contributions. At the same time, onerous licensing costs will impede a standard's acceptance in the market. Balancing these competing interests requires, above all, predictability in outcome. When a contributor's licensing expectations are unmet, or when the cost of implementation exceeds an implementer's expectations, bilateral licensing discussions break down and litigation ensues.

Mr. Sidak proposes a formula to determine the upper bound of a RAND royalty range. From the contributors' perspective, the value of their SEPs would be tied to the success of the standard in the market and the contributions of others to that success, a fair proposition. From the implementers' perspective, they could compute the upper bound of the cost of implementation before bilateral discussions begin. Besides cost certainty, this would ensure that one implementer was not materially advantaged or disadvantaged relative to another by negotiating a superior or inferior bilateral license with

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<sup>17</sup> As I mentioned earlier, it can be difficult to show that a given license is sufficiently comparable to a given RAND negotiation to be probative of a RAND rate. The proffering party must show that the parties to the license negotiated under a RAND framework and reliably reduce the license to a one-way royalty rate for the patents in question. Much of the time, patent licenses are complex and difficult to unpack reliably. Further, in many cases, questions about the comparability of a given license or the reliability of its unpacking may remain, even if it meets the minimum standards for admissibility. Under those circumstances, it should be accorded reduced weight in calculating a RAND royalty, leaving room for other evidence to inform the rate. I note that The U.K. High Court of Justice very recently employed this hybrid technique—taking account of somewhat-comparable licenses, then employing the Top-Down Approach. *Unwired Planet Int'l Ltd v. Huawei Techs. Co.* [2017] EWHC (Pat) 711 (Eng.). Finally, there are many instances where one would not expect any comparable licenses, such as with a new standard. Implementers and contributors alike in these situations would benefit from an approach to determining a RAND range like Mr. Sidak's.

the contributor—what the contributor could exact in reasonable royalties would be constrained in all cases by the same upper bound.<sup>18</sup>

Given a reliable dataset, the use of hedonic regression to isolate the incremental value of the standard is a good way to measure the value of the standard. I discussed above the reasons why limiting the analysis to data that predates standardization is ill-advised. Mr. Sidak's approach, which takes advantage of the fact that actual transactions are the best evidence of value, is far less speculative than others that limit themselves in this way.

Likewise, Mr. Sidak's use of forward-citation analysis as a methodology to apportion the incremental value of LRDIMM is less speculative than others and makes good policy sense. Forward-citation information provides an objective basis that serves as a reasonable proxy for the value and importance, which are subjective concepts and difficult to quantify, that people place on a portfolio of SEPs. On an individual basis, the fact that one patent is cited more heavily than another does not necessarily mean that the former patent is more valuable than the latter. In the aggregate, though, there appears to be a relationship between how heavily a large number of patents are cited compared to another large group. Valuing large portfolios relative to one another requires one to take advantage of tendencies like this, which is why economists and certain United States Courts that have addressed the issue have relied on this technique for years.

To summarize, I believe Mr. Sidak's approach is a promising addition to the methodologies available to those who need to determine a RAND royalty range, including SEP contributors and implementers. It is more objective, transparent, reliable, and fair than alternatives. If widely accepted, I believe litigation over RAND royalties would significantly decrease, as contributors would contribute technology to a standard with a better awareness of its value and implementers would adopt the use of standardized technology with a better awareness of the cost of doing so.

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<sup>18</sup> Any royalty beneath that upper bound would be consistent with RAND. My *Innovatio* ruling arose in the context of allegations of infringement of certain patents, and it was therefore appropriate to compute a single rate there. I arrived at this single rate by assuming that these enumerated patents were valid, infringed, and essential, among other things. In practice, though, one rarely can make these assumptions in the course of bilateral negotiations. There is generally uncertainty inherent to patent valuation and damages, and so the question of whether a contributor has breached its RAND obligations—a question not before me in *Innovatio*—really redounds to the question of whether the contributor has negotiated in good faith towards a license that *could* be considered RAND.

## CONCLUSION

From my perspective as an experienced, and now retired, federal jurist, Netlist has articulated an admissible and fair methodology for determining a RAND royalty range for its portfolio.

Thank you for your time and attention.

Sincerely,

Hon. James F. Holderman (Ret.)  
Retired U.S. District Judge  
JAMS Neutral