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Why *Unwired Planet* Might Revolutionize the Resolution of FRAND Licensing Disputes

*J. Gregory Sidak**

In October 2018, the Court of Appeal of the High Court of Justice of England and Wales delivered its much-awaited decision in *Unwired Planet International Ltd v. Huawei Technologies Co.*[1] With minor caveats, the decision affirmed the opinion that Mr. Justice Colin Birss rendered in April 2017 in a dispute over Huawei's infringement of Unwired Planet's standard-essential patents (SEPs). Mr. Justice Birss' decision, together with the decision of the Court of Appeal, provide the first instance (and, as of November 2018, the only instance) in which a U.K. court has determined the terms of a license for SEPs that are subject to their owner's commitment to offer to license on fair, reasonable, and nondiscriminatory (FRAND) terms. Read together, the two decisions provides a framework of unprecedented sophistication for resolving disputes over FRAND-committed SEPs—not only in the United Kingdom, but worldwide.

The litigation before Mr. Justice Birss began in 2014. Unwired Planet, an SEP holder seeking to monetize its patent portfolio by licensing telecommunication equipment manufacturers in the wireless industry, sued Google, Samsung, and Huawei for allegedly infringing six patents, five of which were allegedly SEPs.[2] Unwired Planet acquired most of its patents in 2013, when it executed a Master Sale Agreement with Ericsson, pursuant to which Ericsson agreed to transfer to Unwired Planet 2185 patents and patent applications.[3] The transferred portfolio included patents declared essential to practice the Global System for Mobile Communications (GSM, or 2G) standard, the

* Chairman, Criterion Economics, Washington, D.C. Email: jgsidak@criterioneconomics.com. I thank Joseph Linfield, Douglas Maggs, Jihyuon Park, Urška Petrovčič, Pengyu Qin, Marc Richardson, Jeremy Skog, Blount Stewart, Andrew Vassallo, and Xiuying Yu for helpful research and comments. No client or third party has commissioned or funded or exercised editorial control over this article. The views expressed here are solely my own.

1 [2018] EWCA (Civ) 2344 (Eng.).

2 Unwired Planet Int'l Ltd v. Huawei Techs. Co. [2017] EWHC (Pat) 2988 [1] (Eng.).

3 *Id.* [4]; *see also id.* [64].

Universal Mobile Telecommunications Service (UMTS, or 3G) standard, and the Long-Term Evolution (LTE, or 4G) standard, all of which the European Telecommunications Standards Institute (ETSI) administers.[4] Before trial, both Samsung and Google settled their respective disputes with Unwired Planet and each took a license to Unwired Planet's portfolio of SEPs.[5] Huawei and Unwired Planet proceeded to trial.

The main dispute between Unwired Planet and Huawei concerned (in addition to the essentiality, validity, and infringement of the asserted patents) the FRAND terms of a license to Unwired Planet's SEPs.[6] During the litigation, Unwired Planet extended (upon the court's suggestion) several license offers to Huawei, including an offer to license Unwired Planet's worldwide SEP portfolio, an offer to license a U.K.-only portfolio license, and an offer to enter into an *á la carte* license in which Huawei could pick the Unwired Planet SEPs that it wanted to license.[7] The royalties in the offers for a U.K.-only license and the *á la carte* license were higher than the royalties in the offer for a worldwide license.[8] Unwired Planet clarified that it preferred to execute with Huawei a worldwide license if it had the right to insist on such a license.[9]

Huawei rejected each of Unwired Planet's offers, arguing that none was FRAND.[10] Huawei also made several counteroffers, which were limited to either Unwired Planet's U.K. SEPs in suit or its U.K.-only portfolio.[11]

Thus, the dispute between the parties concerned both the proper level of a FRAND royalty for a license to Unwired Planet's SEPs and the proper geographical scope of such a license. Mr. Justice Birss said that determining whether any of the offers was FRAND was relevant to determining whether Unwired Planet was entitled to an injunction against Huawei or whether Huawei had a valid defense against such a remedy under EU competition law.[12]

[4] *Id.* [1], [4]. Justice Birss refers to the 2G standard interchangeably with the GSM standard, the 3G standard interchangeably with the UMTS (or W-CDMA) standard, and the 4G standard interchangeably with the LTE standard. *Id.* [1] ("Unwired Planet have a worldwide patent portfolio which includes numerous patents which are declared essential to various telecommunications standards (2G GSM, 3G UMTS, and 4G LTE)."); *id.* [6] ("Sometimes in this case the terms 2G, 3G and 4G are used to refer to different standards and sometimes GSM, UMTS (or WCDMA) and LTE respectively. They are not the same but the distinction rarely matters. In this judgment I have tried to use the terms which reflect the way the argument and evidence went in any given context but it is impossible to be consistent."). To avoid confusion, I refer to those standards as the 2G, 3G, and 4G standards in this article, except in circumstances where the use of such terminology would be clearly erroneous.

[5] *Id.* [9]–[10].

[6] *Id.* [17].

[7] *Id.* [7]; *see also id.* [11].

[8] *Id.* [7].

[9] *Id.* [23].

[10] *Id.* [5].

[11] *Id.* [8]; *see also id.* [13]–[14].

[12] *Id.* [18] ("Depending on the outcome of the main dispute the question of an injunction to restrain patent infringement may arise together with the issue of whether Huawei have a defence to a claim for an injunction under competition law.").

In the decision issued in April 2017, Mr. Justice Birss determined the FRAND terms of a license to Unwired Planet's SEPs.[13] He relied on comparable licenses to determine a FRAND royalty that Huawei ought to pay for a license to Unwired Planet's SEPs. Huawei presented an alternative procedure to calculate a FRAND royalty using a variation of a top-down methodology[14] (in which one derives a FRAND royalty by multiplying the estimated aggregate royalty for a license to all SEPs for a given standard by the SEP holder's relative contribution to that standard[15]). Mr. Justice Birss rejected Huawei's proposal, but he nonetheless used the top-down methodology as a "cross-check" on the FRAND rate that he derived from his analysis of comparable licenses.[16]

Mr. Justice Birss concluded that the royalties in Unwired Planet's offers were above FRAND.[17] Moreover, he found that Unwired Planet had the right to insist that Huawei execute a license for Unwired Planet's worldwide portfolio.[18] He acknowledged that the court had no ability to force Huawei to execute a license for Unwired Planet's worldwide SEP portfolio. However, he emphasized that, if Huawei declined to enter into a license on terms that the court found to be FRAND, Unwired Planet would obtain an injunction against Huawei to prevent the infringement of the SEPs in suit.[19]

Although Mr. Justice Birss' decision addressed many important issues regarding the licensing of SEPs subject to a FRAND commitment, I focus in this article on the methodology that he adopted to calculate a FRAND royalty.[20] Because Mr. Justice Birss' methodology and calculation of a FRAND royalty were not challenged on appeal (and the Court of Appeal upheld almost every other aspect of his decision), it appears likely that U.K. courts will follow Mr. Justice Birss' approach if asked to determine a FRAND royalty in future disputes. It is therefore important to understand the methodology and the assumptions inherent in each step of Mr. Justice Birss' calculation.

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[13] *Id.* [5].

[14] *Id.* [235]–[238].

[15] *Id.* [178]; J. Gregory Sidak, *The Meaning of FRAND, Part I: Royalties*, 9 J. Competition L. & Econ. 931, 1011 (2013); J. Gregory Sidak, *Hedonic Prices and Patent Royalties*, 2 Criterion J. on Innovation 601, 636 (2017).

[16] *Unwired Planet* [2017] EWHC (Pat) 2988 [806].

[17] *Id.* [807].

[18] *Id.* [572].

[19] *Id.* [793].

[20] I have previously commented at length on two other aspects of Mr. Justice Birss' decision. First, I have analyzed Mr. Justice Birss' reasoning in *Unwired Planet* that a FRAND royalty must be a single royalty rate, as opposed to a range of royalties. *See* J. Gregory Sidak, *Is a FRAND Royalty a Point or a Range?*, 2 Criterion J. on Innovation 401, 403–06 (2017). Second, I have analyzed Mr. Justice Birss' decision as it concerns the SEP holder's obligation arising from ETSI's FRAND commitment to offer to license its SEPs to implementers on nondiscriminatory terms. *See* J. Gregory Sidak, *Fair and Unfair Discrimination in Royalties for Standard-Essential Patents Encumbered by a FRAND or RAND Commitment*, 2 Criterion J. on Innovation 301, 305–08 (2017).

In addition, Mr. Justice Birss' opinion and the opinion of the Court of Appeal together outline important principles that should guide the identification of FRAND terms of a license not only in the United Kingdom, but also abroad. Courts outside the United Kingdom are of course constrained by the laws of the jurisdiction in which they reside. Yet, because a FRAND commitment is a contractual undertaking, and because many disputes involve interpretation of the very same contract (between a generic SEP holder and a specific standards-setting organization (SSO), such as ETSI), it is useful for courts outside of the United Kingdom to observe and, if appropriate, follow the FRAND principles that the U.K. courts recognized in the *Unwired Planet* decisions.

In Part I of this article, I examine the criteria that Mr. Justice Birss used to identify the license agreements that he considered to be sufficiently comparable to inform his calculation of a FRAND royalty for Unwired Planet's portfolio of SEPs. In Part II, I explain how, on the basis of his analysis of comparable license agreements, Mr. Justice Birss computed a FRAND royalty that Huawei should pay for a license to Unwired Planet's SEPs. In Part III, I analyze Mr. Justice Birss' rejection of Huawei's top-down methodology, and I examine his use of a variation of that methodology as a cross-check to his calculated FRAND royalty based on comparable licenses. In Part IV, I analyze the decision of the Court of Appeal and the important principles that the court recognized with respect to the licensing of FRAND-committed SEPs.

I. Identification of License Agreements That Are Sufficiently Comparable

Mr. Justice Birss relied on royalties from comparable license agreements to determine a FRAND royalty for Huawei's license to Unwired Planet's SEPs. He said that "arriving at a FRAND royalty rate is not different conceptually from assessing what a reasonable royalty would be in a patent damages enquiry albeit the particular factors applicable in setting a FRAND royalty . . . may differ from assessing damages."[21] The relevant question, Mr. Justice Birss said, is "what a willing licensor and a willing licensee in the relevant circumstances acting without holding out or holding up would agree upon."[22] Mr. Justice Birss said that licenses that parties have executed for the SEPs at issue are "evidence of what real parties in real negotiations have agreed upon"[23] and,

21 *Unwired Planet* [2017] EWHC (Pat) 2988 [169].
22 *Id.* [170].
23 *Id.*

therefore, those licenses can aid the court in determining a FRAND royalty for SEPs.[24]

Mr. Justice Birss' reliance on comparable licenses to determine a FRAND royalty for Unwired Planet's SEP portfolio is economically sound. As I have explained elsewhere, royalties determined in real-world licenses provide reliable information of what market participants considered to be FRAND compensation for the use of the technologies covered by the licensed SEPs.[25] The analysis of comparable licenses thus enables the adjudicator to determine a FRAND royalty through empirical observation and reduces the risk of error relative to more speculative methods for calculating FRAND royalties. Not surprisingly, U.S. courts have recognized that analysis of comparable licenses is a reliable methodology to determine damages for patent infringement,[26] as well as to determine a FRAND royalty for SEPs.[27]

Mr. Justice Birss acknowledged, nonetheless, that not all license agreements are equally probative when determining a FRAND royalty for the SEPs at issue. He said that "judgments will have to be made about how closely comparable any given license is to the relevant circumstances."[28] Mr. Justice Birss did not identify a comprehensive list of factors that could inform the comparability of a given license agreement. However, with respect to the license agreements proffered as evidence of a FRAND royalty in *Unwired Planet*, he examined four specific factors to determine whether a license was sufficiently comparable to inform the calculation of a FRAND royalty for Unwired Planet's SEPs: (1) the patents licensed as part of the agreement, (2) the date of the agreement, (3) the consideration exchanged as part of the agreement, and (4) the circumstances in which the parties negotiated and executed the agreement. Mr. Justice Birss also considered and rejected the argument that he should limit his analysis of comparable licenses to only those executed with licensees similarly situated to Huawei. In total, Mr. Justice Birss considered twelve license agreements; he determined that

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24 *Id.*

25 *See* J. Gregory Sidak, *Apportionment, FRAND Royalties, and Comparable Licenses After* Ericsson v. D-Link, 2016 U. Ill. L. Rev. 1809, 1825–27. This proposition follows from the nature of voluntary exchange. *See, e.g.*, Robert S. Pindyck & Daniel L. Rubinfeld, Microeconomics 595 (Pearson 9th ed. 2018) ("As a rule, voluntary trade between two people or two countries is mutually beneficial."); Joseph E. Stiglitz, Economics 54–55 (W. W. Norton & Co. 1st ed. 1993) (explaining that, if one of the parties to an agreement expected to be made worse off, that party would not enter into the agreement).

26 *See, e.g.*, Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1325 (Fed. Cir. 2014) ("As we have held many times, using sufficiently comparable licenses is a generally reliable method of estimating the value of a patent."), *overruled on other grounds*, Williamson v. Citrix Online, LLC, 792, F.3d 1339 (Fed. Cir. 2015); *see also* LaserDynamics, Inc. v. Quanta Comput., Inc., 694 F.3d 51, 79 (Fed. Cir. 2012); Georgia-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (finding that "royalties received by the patentee for the licensing of the patent in suit" are relevant evidence for determining a reasonable royalty for patent infringement).

27 *See, e.g.*, Commonwealth Sci. & Indus. Research Org. v. Cisco Sys., Inc., 809 F.3d 1295, 1303–04 (Fed. Cir. 2015); Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1227–28 (Fed. Cir. 2014); *Apple v. Motorola*, 757 F.3d at 1325.

28 *Unwired Planet* [2017] EWHC (Pat) 2988 [170].

only six of those agreements had any probative value for setting a FRAND royalty for a license to Unwired Planet's SEP portfolio.[29]

A. The SEPs Included in the License Agreement

From an economic perspective, the probative value of a license agreement depends foremost on the technology that is licensed as part of that agreement. In principle, licenses that grant the right to use the same SEPs will be most informative for the determination of a FRAND royalty. Those licenses most directly reveal what market participants considered to be FRAND compensation for the licensed SEPs. Conversely, licenses for *other* SEPs (or perhaps implementation patents) will have more limited probative value. However, in some cases, even a license for different SEPs might be probative of a FRAND royalty, provided that one adopts an appropriate methodology to account for any material differences between the licensed SEP portfolios.

In *Unwired Planet*, Mr. Justice Birss recognized this economic insight. He agreed that "[t]he most directly comparable licences will be licences the patentee has already entered into for the portfolio in question."[30] He found that Unwired Planet executed two license agreements for the SEPs in suit: one with Lenovo in 2014 and another with Samsung in 2016.[31] Mr. Justice Birss said that those licenses could indeed help determine a FRAND royalty for Unwired Planet's SEP portfolio. Nonetheless, as I will explain in Parts I.C and I.D, he ultimately concluded, for other reasons, that those two licenses were of limited probative value for the calculation of a FRAND royalty for Unwired Planet's SEPs.

Mr. Justice Birss then considered licenses that Ericsson executed with third parties.[32] He observed that "most" of Unwired Planet's SEPs were from Ericsson's portfolio, and that "Ericsson licences at one time included all the SEPs in issue."[33] That fact alone, he said, made the Ericsson licenses relevant for his analysis.[34] Mr. Justice Birss acknowledged that the relationship between Ericsson's licenses and the determination of a FRAND royalty for Unwired Planet's SEPs was "indirect."[35] Therefore, he emphasized that, to rely on the Ericsson license agreements for the calculation of a FRAND

29 *Id.* [382]–[462] (showing that Mr. Justice Birss evaluated twelve license agreements).

30 *Id.* [179].

31 *Id.*

32 *Id.* [71] ("[T]he Ericsson-Huawei 2009 licence had expired at the end of 2012 and . . . as a result of the MSA [Master Sale Agreement], by 2013 certain Ericsson SEPs were now held by Unwired Planet.").

33 *Id.* [180].

34 *Id.* It worth noting, however, that at least one of the Ericsson licenses that Mr. Justice Birss considered—specifically, the 2014 Ericsson-Samsung license—was executed *after* Ericsson transferred a portion of its SEP portfolio to Unwired Planet, meaning that that license included SEPs that did not become a part of Unwired Planet's portfolio. *Id.* [63].

35 *Id.* [180].

royalty for Unwired Planet's SEPs, one must assess the "relative value of the portfolios licensed in them as against Unwired Planet's portfolio."[36]

Unwired Planet contended that the court should also consider licenses that other SEP holders, including Qualcomm and InterDigital, executed for patents essential to the same standards.[37] Although none of those licenses granted the right to use Unwired Planet's SEPs, Mr. Justice Birss did not consider those licenses categorically unhelpful.[38] However, he ultimately did not rely upon any of those license agreements to calculate a FRAND royalty,[39] perhaps because he found Ericsson's licenses sufficiently probative to enable him to determine a FRAND royalty for Unwired Planet's SEPs. In other words, Mr. Justice Birss limited his analysis to licenses that included Unwired Planet's SEPs.

B. *The Date of the License Agreement*

Mr. Justice Birss considered the effective date of the license agreement to be another important factor in determining the probative value of a license agreement. He agreed with Huawei that the court should confine its analysis to "recent" licenses that Unwired Planet and Ericsson had executed for the SEPs in suit.[40] However, he did not identify criteria for determining whether a particular license was "recent." Mr. Justice Birss rejected a license that Ericsson executed with Samsung in 2001, saying the license was "so old that" he would "not rely on it."[41] In contrast, he relied upon a license that Ericsson executed with Huawei in 2009 (eight years before he issued his opinion).[42] The decision to rely on the 2009 Ericsson-Huawei license suggests that Mr. Justice Birss considered a license that was less than a decade old to be sufficiently "recent" to inform the calculation of a FRAND royalty for the use of Unwired Planet's SEP portfolio.

In the decision issued in April 2017, Mr. Justice Birss did not explain why old license agreements could not inform the calculation of a FRAND royalty for Unwired Planet's SEPs. In a subsequent opinion in *Unwired Planet* issued in June 2017, however, Mr. Justice Birss did discuss how the passage of time degrades the probative value of a license agreement (although he did not address the issue specifically in the context of analyzing the comparability of license agreements). He said that, with time, the relevant circumstances that could affect the outcome of a license negotiation for a given portfolio of SEPs

36 *Id.*
37 *Id.* [260].
38 *Id.*
39 *Id.* [468].
40 *Id.* [175].
41 *Id.* [461].
42 *Id.* [462].

change.[43] For example, "[o]ld patents expire and new ones are granted," and even "[s]tandards themselves change."[44] Thus, Mr. Justice Birss found that, with time, a license might lose its probative value in informing the calculation of a FRAND royalty.

From an economic perspective, the date of the license agreement is indeed a relevant factor in determining the probative value of a license agreement. Holding all other factors constant, the royalty for a given SEP portfolio should decline over time, as the SEPs age and eventually expire.[45] When a patent's expiration date is near, waiting to practice the given technology until that patent expires becomes an increasingly viable noninfringing alternative to taking a license. The availability and acceptability of that alternative consequently decreases the licensee's maximum willingness to pay for a license to an SEP portfolio—that is, the maximum royalty that the licensee would be willing to pay (while still being better off than without procuring a license)[46]—as the SEPs contained in the portfolio approach expiration. Hence, a license signed 20 years earlier might not provide reliable information of what currently constitutes a FRAND royalty for a given portfolio of SEPs.

However, a portfolio's value will decline at a slower rate (or might even increase) if the SEP holder adds to its portfolio new patents that subsequently become essential to the same standard. For example, an SEP holder might obtain a patent that covers a technology essential to the LTE standard after the release of the standard. In fact, IPlytics, a market research company specializing in intellectual property analytics, reports that 71.21 percent of all declared SEPs are granted only *after* a standard's release.[47] In addition, a telecommunications standard, such as the LTE standard, undergoes constant changes and developments before a new generation of technologies produces the next standard. During the standard's lifetime, new technologies (and, consequently, new patents) become essential to practice subsequent releases of the same standard. When an SEP holder adds to its portfolio new patents that are essential to practice new iterations of the same standard, the portfolio's value will decrease at a slower rate (or might even increase). Therefore, in some cases, even an old license might be informative for the calculation of a FRAND royalty.

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43 Unwired Planet Int'l Ltd v. Huawei Techs. Co. [2017] EWHC (Pat) 1304 [15] (Eng.).

44 *Id.*

45 *See* Sidak, *Fair and Unfair Discrimination in Royalties for Standard-Essential Patents Encumbered by a FRAND or RAND Commitment*, *supra* note 20, at 368.

46 J. Gregory Sidak, *Bargaining Power and Patent Damages*, 19 Stan. Tech L. Rev. 1, 10 (2015). In Part I.D.2, I explain the bargaining framework for analyzing a hypothetical negotiation for a license to a patented technology.

47 IPlytics GmbH, Landscaping Study on Standard Essential Patents (SEPs) 44 (2016), https://www.iplytics.com/wp-content/uploads/2017/04/Pohlmann_IPlytics_2017_EU-report_landscaping-SEPs.pdf.

C. Consideration Exchanged as Part of the License Agreement

Mr. Justice Birss acknowledged that a license agreement for an SEP portfolio might lose its probative value if it includes additional consideration of an undefined value. A license might include various consideration, such as a license to the SEP holder's implementation patents, a cross-license to the licensee's SEPs (or implementation patents), a patent-transfer agreement, or an agreement to cooperate in the development of a specified technology. Often, economic methodologies permit an economic expert to disaggregate the value of different components of the license agreement to determine the effective royalty that the licensee agreed to pay solely for the licensed SEPs.[48] However, if the value of the additional consideration included in the agreement is unknown or unquantifiable, it might be impossible for the court (or an expert economic witness) to identify, with a sufficient degree of certainty, the implicit one-way FRAND royalty that the licensee agreed to pay for the use of the technologies covered by the licensed SEPs. In those circumstances, a given license might provide little useful information for the calculation of a FRAND royalty.

Mr. Justice Birss recognized this economic insight in *Unwired Planet*. He observed that components of a license agreement, such as cross-licenses, patent sales, or a license to implementation patents, are "source[s] of uncertainty" regarding the implicit FRAND royalty that the parties agreed the licensee should pay for a license to the SEPs.[49] He said that the mere presence of additional consideration does not justify categorically rejecting such licenses as uninformative. However, after examining the available licenses in *Unwired Planet*, Mr. Justice Birss found that the inability to isolate the compensation that the parties agreed to allocate for the use of the licensed SEPs supported his exclusion of two agreements from the universe of comparable licenses.

The first license agreement that Mr. Justice Birss rejected due to the uncertainty in the value of the exchanged consideration was a 2014 license agreement that Unwired Planet executed with Lenovo. Pursuant to the 2014 agreement, Lenovo agreed to pay Unwired Planet a lump sum of $100 million in addition to a running royalty, the level of which was not disclosed in the public version of the judgment.[50] In exchange, Unwired Planet agreed (1) to transfer 21 patent families to Lenovo and (2) to grant Lenovo the right to use Unwired Planet's SEPs and implementation patents.[51] Mr. Justice Birss found that the Lenovo agreement failed to provide reliable information about the

[48] *See, e.g.*, J. Gregory Sidak, *Converting Royalty Payment Structures for Patent Licenses*, 1 Criterion J. on Innovation 901, 902 (2016).

[49] Unwired Planet Int'l Ltd v. Huawei Techs. Co. [2017] EWHC (Pat) 2988 [187] (Eng.); *id.* [196].

[50] *Id.* [383].

[51] *Id.* [75]; *see also id.* [259].

portion of the lump-sum payment that the parties allocated to the patent purchase and the portion that they allocated to the license for Unwired Planet's SEPs.[52] He also observed that neither Unwired Planet nor Huawei presented evidence of the implied one-way royalty that Lenovo agreed to pay for Unwired Planet's SEPs.[53] Similarly, neither Unwired Planet nor Huawei sought to identify the value of the patents that Unwired Planet transferred to Lenovo and thereby estimate the value of Unwired Planet's portfolio.[54] Mr. Justice Birss found that, in those circumstances, the license between Unwired Planet and Lenovo provided no helpful information for calculating a FRAND royalty for Unwired Planet's SEPs vis-à-vis Huawei.[55]

Mr. Justice Birss reached a similar conclusion regarding a second license that Unwired Planet executed with Samsung in 2016. As part of that license, Samsung agreed (1) to transfer 20 patent families to Unwired Planet and (2) to pay a royalty (the amount of which was not disclosed in the public version of the judgment) for the use of Unwired Planet's portfolio of SEPs and implementation patents.[56] Mr. Justice Birss found that, to use that license to calculate a FRAND royalty, one would need to determine, at a minimum, (1) the value of the patent families that Samsung transferred to Unwired Planet and (2) the value of Unwired Planet's implementation patents.[57] Although Huawei's expert witness on FRAND royalties, Mr. Michael Lasinski, attempted to estimate the disaggregated value of the various components of the license agreement, Mr. Justice Birss found that there were "major uncertainties" in deriving the implied rate that Samsung agreed to pay for the use of Unwired Planet's SEPs.[58] Unfortunately, the public version of the judgment does not reveal the specific uncertainties that concerned Mr. Justice Birss. However, it is evident that, because of Mr. Lasinski's failure to identify the implied FRAND royalty with a sufficient degree of certainty, as well as for other reasons that I examine in Part I.D, Mr. Justice Birss concluded that the 2016 license agreement between Unwired Planet and Samsung did not inform the calculation of a FRAND royalty for Unwired Planet's SEP portfolio vis-à-vis Huawei.[59]

In sum, Mr. Justice Birss recognized that the presence of additional components of consideration in a license agreement can reduce the certainty with which one can claim to have reliably disaggregated the implicit FRAND royalty that the licensee agreed to pay to use the licensed SEPs. When the

52 *Id.* [386].
53 *Id.*
54 *Id.*
55 *Id.* [389].
56 *Id.* [392].
57 *Id.* [393].
58 *Id.* [397].
59 *Id.* [399] ("[T]he terms on their face raise a question mark over this licence as evidence of the fair and reasonable value of the Unwired Planet portfolio in 2016.").

inclusion of additional components of consideration renders identification of the implicit FRAND royalty too speculative, it is appropriate to deem that license as uninformative for the calculation of a FRAND royalty.

D. The Circumstances Under Which Parties Executed the License Agreement

Mr. Justice Birss found that a license might also lose its probative value if it was executed in circumstances that differ substantially from those surrounding the litigation between the SEP holder and the alleged infringer. That dissimilarity of circumstances might exist if, for example, a license was executed at a time when either of the parties was under financial duress. The question of whether the circumstances in which the parties executed a license agreement are relevant for assessing the probative value of that agreement is often a controversial issue in litigation involving SEPs.[60] Consequently, it is worth explaining why Mr. Justice Birss' decision not to rely on those licenses is economically sound.

1. The Circumstances Surrounding the 2016 License Agreement Between Unwired Planet and Samsung

As explained in Part I.C, Mr. Justice Birss found that the 2016 Unwired Planet-Samsung license did not provide reliable evidence of a FRAND royalty for Unwired Planet's SEP portfolio, because Huawei's FRAND expert, Mr. Lasinski, could not determine with sufficient certainty the implied one-way royalty that Samsung agreed to pay to license Unwired Planet's SEP portfolio.[61] Unwired Planet further argued, and Mr. Justice Birss agreed, that the 2016 Unwired Planet-Samsung license had limited probative value for the calculation of a FRAND royalty because of the circumstances surrounding the execution of the Unwired Planet-Samsung license.[62]

Specifically, Unwired Planet argued that the court should consider the 2016 Unwired Planet-Samsung license "in the context of a wider arrangement" between Samsung and PanOptis—a company that had acquired Unwired Planet in April 2016, three months before Unwired Planet's execution of the 2016 license with Samsung—and "the distressed financial position Unwired

[60] *See, e.g.*, Complaint ¶ 19, at 8–9, Certain Memory Modules and Components Thereof, and Products Containing Same, Inv. No. 337-TA-1023 (USITC Sept. 1, 2016); Complaint ¶ 82, at 26, Certain Memory Modules and Components Thereof, and Products Containing Same, Inv. No. 337-TA-1089 (USITC Oct. 31, 2017).

[61] *Unwired Planet* [2017] EWHC (Pat) 2988 [397]. Mr. Justice Birss found some of Mr. Lasinski's calculations lupine. *See id.* ("Mr Lasinski's purported generosity to Unwired Planet in his calculations is a wolf in sheep's clothing.").

[62] *Id.* [241].

Planet was in when acquired by PanOptis."[63] Mr. Justice Birss agreed.[64] He found that PanOptis acquired Unwired Planet in 2016 primarily because it believed that the acquisition would facilitate the development of the wider strategic cooperation between Samsung and PanOptis,[65] the prospect of which PanOptis considered to be "potentially very valuable."[66] Mr. Justice Birss also found that the price at which PanOptis acquired Unwired Planet did not reflect the market value of Unwired Planet's SEP portfolio.[67] He observed that Unwired Planet was in "serious financial trouble" at the time of its acquisition.[68] Unwired Planet had executed only a single license (with Lenovo) and "was engaged in very expensive multinational patent litigation in an effort to establish its rights."[69]

Unwired Planet argued that, because of these circumstances, the royalty contained in the 2016 Unwired Planet-Samsung license agreement was significantly lower than the royalties specified in other licenses.[70] Mr. Justice Birss accepted this argument, reasoning that the "findings about the context of the licence together with the findings about low rates in the licence itself support one another."[71] He concluded that the 2016 Unwired Planet-Samsung license was not a good comparable for determining a FRAND royalty for Unwired Planet's licensing of its SEPs to Huawei.[72]

Mr. Justice Birss' decision to examine the circumstances in which the parties executed a license to determine the probative value of that agreement comports with basic economic principles. As I will explain in Part I.D.2, economic principles teach that a license agreement executed when either party was experiencing financial distress will typically contain an artificially suppressed royalty for the licensed portfolio. Similarly, as I will explain in Part I.D.3, a license agreement that furthers the broader commercial goals of one or both of the parties might have limited probative value for determining

[63] *Id.* [392]. In March 2015, PanOptis offered to purchase Unwired Planet's portfolio for $75 million. However, no transaction occurred between the parties because Unwired Planet was unwilling to sell its portfolio for less than $100 million. *Id.* [404]. Subsequently, Unwired Planet's financial position deteriorated, and in March 2016 PanOptis offered to purchase Unwired Planet for $40 million. *Id.* [403]. One month later, in April 2016, PanOptis acquired Unwired Planet. *Id.* [408]. Shortly thereafter, Unwired Planet, then owned by PanOptis, executed the license agreement with Samsung. *Id.*

[64] *Id.* [408].

[65] *Id.*

[66] *Id.*

[67] *Id.*; *see also id.* [69].

[68] *Id.* [408].

[69] *Id.*; *see also id.* [69].

[70] *Id.* [392]; *see also id.* [397] ("These [derived rates for the 2016 Unwired Planet-Samsung license] are all far lower than the other rates . . . relied on by Huawei as best comparables. It supports Unwired Planet's case that the Unwired Planet-Samsung 2016 licence is an outlier.").

[71] *Id.* [409].

[72] *Id.*; *see also id.* [490] ("Mr Ware's evidence explains the motives leading to the 2016 Unwired Planet-Samsung licence and explains why it was entered into on the terms it contains. I have accepted that this shows why the terms are not reliable evidence of the value of the portfolio."). Leslie Ware is CEO of PanOptis.

what those same parties would consider in isolation to be FRAND compensation for the licensed portfolio. Therefore, a court or economic expert should consider the circumstances in which the parties executed a license to assess the probative value of that license for determining a FRAND royalty for SEPs.

2. *Licenses Executed During a Period of the SEP Holder's Financial Distress*

Evidence that the parties executed a license agreement during a period of the SEP holder's financial distress will typically support the conclusion that the license has limited probative value for determining what other market participants consider to be FRAND compensation for the licensed SEPs.

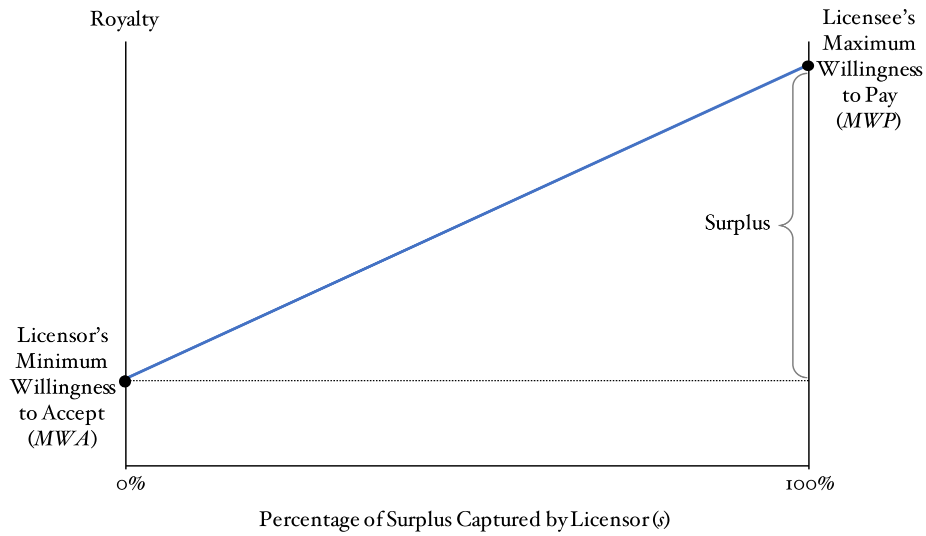
I have explained elsewhere that a fundamental principle of economics is that voluntary exchange mutually benefits the parties to the transaction, who divide their aggregate gains from trade, which economists call surplus.[73] In any negotiation, the total surplus from a successful transaction equals the difference between the licensee's maximum willingness to pay and the licensor's minimum willingness to accept. The licensor's minimum willingness to accept is the lower bound on the bargaining range and represents the minimum royalty that the licensor would be willing to accept to license its patent that would make the licensor better off than had it never issued the license to the counterparty in question. The licensee's maximum willingness to pay is the upper bound on the bargaining range and represents the maximum royalty that the licensee would be willing to pay to use that patent that would make it better off than had it never procured the license.

Figure 1 illustrates the bargaining range.[74]

[73] *See* Sidak, *Is a FRAND Royalty a Point or a Range?*, *supra* note 20, at 407–09; *see also* Jack Hirshleifer, Amihai Glazer & David Hirshleifer, Price Theory and Applications: Decisions, Markets, and Information 203–04 (Cambridge Univ. Press 7th ed. 2005).

[74] The original explication of this framework is Sidak, *Bargaining Power and Patent Damages*, *supra* note 46, at 14–15, which the Federal Court of Canada expressly embraced in its March 2, 2017 decision in Airbus Helicopters, S.A.S. v. Bell Helicopter Textron Canada Limitée, 2017 F.C. 170, [99] (Can.), https://decisions.fct-cf.gc.ca/fc-cf/decisions/en/223697/1/document.do.

Figure 1. The Bargaining Range



Because a voluntary transaction necessarily makes both parties better off, a negotiated royalty must be situated between the licensor's minimum willingness to accept and the licensee's maximum willingness to pay. To determine how the licensee and the licensor would divide the surplus (and thus find the agreed-upon royalty) from a successful agreement, one analyzes the parties' relative bargaining power.[75] The two parties will strike a bargain at a price closer to the licensee's maximum willingness to pay (a higher *s* in Figure 1) if the *licensor* has relatively greater bargaining power. Conversely, the two parties will strike a bargain at a price closer to the licensor's minimum willingness to accept (a lower *s* in Figure 1) if the *licensee* has relatively greater bargaining power.

The financial distress of either party might alter both (1) the bargaining range of royalties for a given portfolio of SEPs and (2) the parties' relative bargaining power in the license negotiation; therefore, such distress might artificially suppress the negotiated royalty for the licensed SEPs. (As I will explain below, the suppression of the royalty owing to the licensor's financial distress is fairly obvious, but the suppression of the royalty owing to the licensee's financial distress is subtler (though, in my experience in actual patent litigation, significant as a practical matter)). Consequently, a license agreement executed during a period of financial distress will typically not provide reliable evidence of what other market participants consider a FRAND royalty for the licensed SEP portfolio.

[75] *See, e.g.*, Pindyck & Rubinfeld, *supra* note 25, at 540.

a. The Effect of the SEP Holder's Financial Distress on the Negotiated Royalty

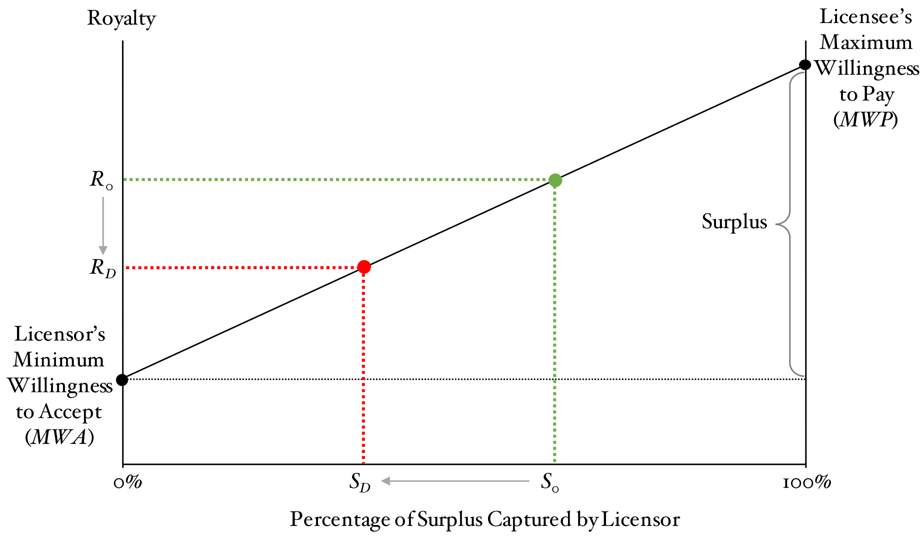
An SEP holder's financial distress might reduce both the SEP holder's bargaining power and its minimum willingness to accept and, therefore, result in a lower negotiated royalty for the licensed SEP portfolio. Two separate economic phenomena might be present.

First, the SEP holder's financial distress might decrease the SEP holder's bargaining power. In a license negotiation, the party that suffers less from delaying the agreement will typically have more bargaining power.[76] In economic terms, the cost that each party bears from a delay is measured by its respective discount rate[77]—that is, how much the party values costs and benefits in the present relative to how much the party values them in the future.[78] All other factors remaining constant, the party with the lower cost of delay will have more bargaining power because it suffers less from a delay in executing an agreement.

When experiencing financial distress, the SEP holder might have an urgent need to execute a license agreement with the infringer, because doing so would enable the SEP holder to obtain financial resources that would help to mitigate a liquidity crisis. Put differently, a financially distressed SEP holder will typically have less bargaining power in a license negotiation relative to the counterfactual world in which it is not financially distressed. All other factors remaining constant, the SEP holder's reduced bargaining power causes the parties to negotiate a royalty that is closer to the SEP holder's minimum willingness to accept. Figure 2 demonstrates that effect.

[76] *See* Robert Gibbons, Game Theory for Applied Economists 68–71 (Princeton Univ. Press 1992).
[77] *See, e.g.*, Ariel Rubinstein, *Perfect Equilibrium in a Bargaining Model*, 50 Econometrica 97, 108 (1982).
[78] *See, e.g.*, Pindyck & Rubinfeld, *supra* note 25, at 561.

Figure 2. The Effect of the SEP Holder's Financial Distress
on the SEP Holder's Bargaining Power and the Negotiated Royalty



As Figure 2 shows, when the SEP holder's financial distress reduces its bargaining power, the SEP holder captures a lower percentage of the surplus (S_D, as opposed to S_0) and negotiates a lower royalty for the licensed SEPs (R_D, as opposed to R_0).

Second, the SEP holder's financial distress might also artificially suppress the SEP holder's minimum willingness to accept—that is, the minimum value that the SEP holder will accept to license its SEP portfolio while still being better off than it would have been had it not executed a license. If the SEP holder's financial problems risk forcing the SEP holder to shut down its business, then the SEP holder faces a high opportunity cost of failing to reach an agreement with the infringer. To avoid the risk of bankruptcy, the SEP holder might be compelled to accept a royalty that is below its minimum willingness to accept in normal circumstances.

Although I use the term "minimum *willingness* to accept" for simplicity, that term is a misnomer in the scenario of widespread infringement of the SEP holder's patents. If the patent holder is facing widespread infringement, then the patent holder's ability to commercialize and monetize its invention is diminished. It is a misuse of language to imply that, in a world where infringers are widely using the patent holder's patents or where infringers are challenging the patent holder's title to valid patents, a patent holder would willingly accept a diminution of the returns that it could receive from its patents. Thus, in the scenario of widespread infringement, the patent holder's minimum willingness to accept should be seen as *artificially* lowered as a result of coercion, such that it is not a true measure of the patent holder's *willingness*.

Because a financially distressed SEP holder places a higher value on money that it can obtain more quickly, it might be coerced to accept a lower payment sooner, rather than accept a higher payment later, when the money might be less valuable (in present value terms, because the money is discounted at a high rate). In some circumstances, the SEP holder might even have a short-run incentive to accept a royalty that fails to recover its sunk costs, including its costs of participating in the standardization process as well as its costs of developing (or acquiring) the patented technology.[79] An SEP holder will operate in the short run, as long as its licensing revenues cover its variable costs of licensing.[80] In other words, the SEP holder's financial distress empowers the licensee to appropriate the SEP holder's quasi rents.[81]

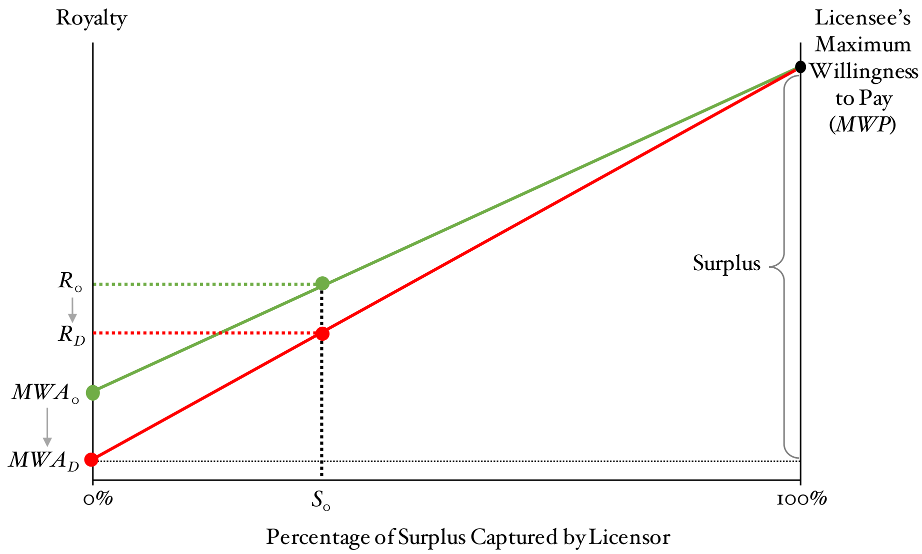
Figure 3 shows that a financially distressed SEP holder might accept a royalty with a lower net present value than the minimum royalty it would have accepted under better financial circumstances.

[79] For an explanation of the SEP holder's costs of participating in the standardization process, see J. Gregory Sidak, *Tournaments and FRAND Royalties*, 1 Criterion J. on Innovation 101, 108 (2016) ("In a repeat-play setting, the FRAND royalty must be high enough to cover the direct and indirect costs of participating in an SSO, such as the original research and development costs, particularly those related to a particular standard."); J. Gregory Sidak & Jeremy O. Skog, *Hedonic Prices and Patent Royalties*, 2 Criterion J. on Innovation 601, 659 (2017) ("Another factor affecting a licensor's minimum willingness to accept is whether the licensor has incurred a participation cost—that is, the sunk cost that a firm incurs to participate in standard setting.").

[80] *See* N. Gregory Mankiw, Principles of Economics 273–75 (Cengage Learning 8th ed. 2018).

[81] This appropriation of quasi rents could constitute *reverse* patent holdup, which is commonly dubbed "patent holdout." *See* J. Gregory Sidak, *Is Patent Holdup a Hoax?*, 3 Criterion J. on Innovation 401, 447–48 (2018); Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & Econ. 297, 315 (1978).

Figure 3. The Effect of the SEP Holder's Financial Distress on the SEP Holder's Minimum Willingness to Accept and the Negotiated Royalty



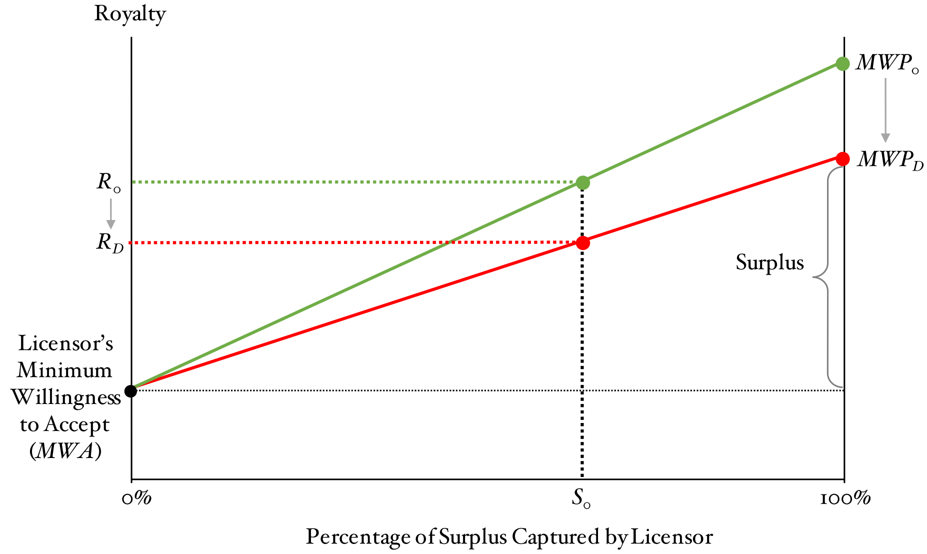
As Figure 3 shows, financial distress might compel the SEP holder to lower—artificially and involuntarily—its minimum willingness to accept, thereby resulting in a lower negotiated royalty (R_D, as opposed to R_o) even if the distribution of bargaining power—as indicated by the percentage of surplus captured by the licensor (S_o)—remains constant.

Of course, when the SEP holder's financial distress reduces both the SEP holder's bargaining power *and* the SEP holder's minimum willingness to accept, the negotiated royalty would be even lower.

b. The Effect of the Licensee's Financial Distress on the Negotiated Royalty

Similarly, the *licensee's* financial distress could also suppress the compensation for the use of the SEP portfolio if it reduces the licensee's willingness (or, more accurately, the licensee's *ability*) to pay. Because an artificial decrease in the licensee's maximum willingness to pay reduces the upper bound on the bargaining range, a lower negotiated royalty will eventuate, holding all other things constant. Figure 4 demonstrates that effect.

Figure 4. The Effect of the Licensee's Financial Distress on the Licensee's Maximum Willingness (Ability) to Pay and the Negotiated Royalty



In some cases, the licensee might be so financially distressed that the negotiated royalty might equal the licensor's minimum willingness to accept, because there would be no benefit to the licensor from attempting to use its bargaining power to extract a higher royalty from the financially constrained licensee.[82] In that case, the diagonal line in Figure 4 would become coincident with the dotted horizontal line corresponding to the licensor's minimum willingness to accept.

In cases where the licensee cannot afford to pay even an amount equal to the licensor's minimum willingness to accept, the infringer's maximum ability to pay is lower than the SEP holder's minimum willingness to accept, such that there exists a "negative bargaining range" between the two parties. In that situation, no voluntary transaction will occur in a hypothetical negotiation. If the SEP holder is compelled to accept from the infringer compensation below the SEP holder's minimum willingness to accept, the royalty paid would not be probative of the FRAND compensation that would emerge from voluntary exchange.

c. *Summation*

The financial distress of either party might alter the parties' relative bargaining power, the licensor's willingness to accept, or the licensee's willingness to

82 *See* Sidak, *Bargaining Power and Patent Damages*, *supra* note 74, at 14–15.

pay, or it might produce some combination of these factors, thereby artificially suppressing the negotiated royalty for the licensed portfolio. Consequently, a license agreement executed during a period of financial distress might not be probative of a FRAND royalty upon which a willing licensee and willing SEP holder facing no financial distress would have agreed. From an economic perspective, it might therefore be appropriate to give little weight to a license agreement that is executed during a period when either party was experiencing financial distress, particularly when the royalty in such a license differs from the royalties observed in other comparable license agreements.

3. Licenses That Are Executed as Part of a Broader Cooperation Agreement

Mr. Justice Birss found that evidence that PanOptis expected that the execution of the 2016 Unwired Planet-Samsung license would facilitate broader cooperation between PanOptis and Samsung further undermined the probative value of that license for purposes of determining a FRAND license for Unwired Planet's SEPs. Mr. Justice Birss' decision to consider the parties' expected benefits from future cooperation when assessing the probative value of a license agreement comports with sound economic reasoning.

I have explained in Part I.C that an agreement that includes consideration beyond a license for the patent portfolio at issue (such as patent transfers, a cross-license, licensing of trade secrets, or consideration unrelated to intellectual property rights) might not reliably reveal what the parties consider to be FRAND compensation for the licensed SEPs in isolation if the value of those other components of consideration is unknown.[83] That outcome might result when a license is part of a broader cooperation agreement between the SEP holder and the licensee. Economic theory explains that the parties' gain from cooperation might exceed the consideration specified in the agreement.[84] Thus, the terms of a license that is part of a broader cooperation agreement might not accurately reflect what the parties consider to be a FRAND royalty for a stand-alone license to the SEP portfolio, because either party might have an incentive to cross-subsidize among the various components of value within the cooperation agreement.

A similar economic rationale applies when a license *facilitates* future cooperation between the two parties, although the parties do not contractually agree to such cooperation when executing the license. For example, Mr. Leslie Ware, CEO of PanOptis, testified in *Unwired Planet* that one of the "considerable benefits" that PanOptis gained from executing the 2016 Unwired Planet-Samsung license was that it "strengthen[ed] the foundations

[83] *See* Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 15, at 1003.

[84] *See*, *e.g.*, Kalpesh K. Desai & Kevin L. Keller, *The Effects of Ingredient Branding Strategies on Host Brand Extendibility*, 66 J. Marketing 73, 73 (2002); Akshay R. Rao & Robert W. Ruekert, *Brand Alliances as Signals of Product Quality*, 36 Sloan Mgmt. Rev. 87, 87 (1994).

for a far wider commercial relationship with Samsung in the future."[85] Mr. Justice Birss found that, although the license "did not give PanOptis a contractually enforceable right to the benefits derived from building trust with Samsung," the benefits to PanOptis nevertheless were "potentially very valuable."[86] In circumstances like those surrounding the 2016 Unwired Planet-Samsung license, the SEP holder might have an incentive to agree to a less favorable royalty than it would absent the possibility of future cooperation, because it expects to derive greater economic benefits in the long run by virtue of its cooperation with the counterparty. If the value of that expected benefit from potential cooperation is unknown, it might be impossible for a court (or an expert economic witness) to identify with sufficient certainty the implied one-way royalty to which the parties would agree for a license to the SEPs in question, and it might therefore be impossible for a court to use the terms of that license to calculate a FRAND royalty.

Of course, a party's willingness to deviate from a FRAND royalty that it would accept in the absence of potential cooperation will depend on the expected profit from such cooperation, which in turn depends on (1) the party's anticipated profits from cooperating and (2) the perceived likelihood that the cooperation will eventuate. When the expected profit is low (either because the anticipated profit from cooperation is low or because it is unlikely that the envisioned cooperation will eventuate) the royalty is unlikely to deviate much from a royalty upon which the parties would agree in the absence of an expectation of such cooperation. In contrast, when the party expects to derive substantial benefits from the envisioned cooperation and believes that there exists a high likelihood that such cooperation will eventuate, the party's willingness to deviate from a FRAND royalty that it would demand in the absence of the envisioned cooperation might be high. In those circumstances, the license agreement will not provide reliable information of what the parties consider to be a FRAND royalty for a stand-alone license to the SEP portfolio.

In sum, Justice Birss' decision to consider the potential cooperation between PanOptis and Samsung when assessing the probative value of their license agreement was economically sound. From an economic perspective, when a license facilitates a broader cooperation agreement, either party might have an incentive to cross-subsidize the terms of the license with revenues flowing from the expected future economic benefits, such that the negotiated royalty might not accurately reflect what the parties would consider to be a FRAND royalty for a stand-alone license for the SEPs.

85 Unwired Planet Int'l Ltd v. Huawei Techs. Co. [2017] EWHC (Pat) 2988 [405] (Eng.).
86 *Id.* [408].

4. *Does the Nondiscrimination Requirement of a FRAND Commitment Render the Circumstances in Which the Parties Execute a License Agreement Irrelevant?*

Despite acknowledging the circumstances surrounding the execution of the 2016 Unwired Planet-Samsung license, Huawei contended that this license was evidence of what a similarly situated licensee paid for a license to Unwired Planet's SEPs, such that the 2016 Unwired Planet-Samsung license was relevant for the calculation of a FRAND royalty that Huawei ought to pay Unwired Planet.[87] In other words, Huawei argued that the nondiscrimination requirement of a FRAND commitment obligated Unwired Planet to offer to Huawei the same or similar rate that Unwired Planet had specified in its license with Samsung, regardless of the surrounding circumstances and underlying motivations of Unwired Planet and Samsung when they executed their license in 2016.[88]

Mr. Justice Birss acknowledged that the 2016 Unwired Planet-Samsung license would be relevant for the determination of a FRAND royalty if the ETSI FRAND commitment contained, as Huawei argued it did, a "hard-edged non-discrimination obligation."[89] However, Mr. Justice Birss rejected Huawei's contention that ETSI's FRAND commitment imposes such a strict requirement.[90] He agreed with Huawei that Huawei and Samsung were similarly situated licensees of Unwired Planet's SEPs.[91] Nonetheless, he found that the nondiscrimination requirement of ETSI's FRAND commitment did not grant to a licensee the right to demand a certain rate on the basis that a similarly situated licensee had executed a license with the SEP holder at that rate.

Instead, Mr. Justice Birss tied the nondiscrimination requirement to the establishment of a benchmark "fair and reasonable" rate for access to an SEP holder's patented technology.[92] Specifically, he said that "the true interpretation of the ETSI FRAND undertaking from the point of view of non-discrimination is that a benchmark FRAND rate should be derived which is applicable to all licensees seeking the same kind of licence."[93] In other words, Mr. Justice Birss reasoned that the derived benchmark rate measuring the

87 *Id.* [391]; *see also id.* [481], [489].
88 *Id.* [481].
89 *Id.* [489]; *see also id.* [481].
90 *Id.* [502] ("[I]t is not necessary to read this hard-edged non-discrimination obligation into the ETSI FRAND undertaking at all provided one takes a benchmark rate approach to assessing a royalty under the ETSI FRAND undertaking. That approach is itself non-discriminatory.").
91 *Id.* [488] ("[Huawei and Samsung] are both very large multinational telecoms manufacturers active in the same handset and RAN [radio access network] infrastructure markets. They are both in the top three handset vendors worldwide (the other is Apple) and while Huawei is the top 4G RAN infrastructure maker, Samsung is another major supplier in that market.").
92 *Id.* [503].
93 *Id.*

value of the SEP holder's technology—not the lowest rate actually granted to another implementer—is the relevant comparator for determining whether a license or offer is discriminatory. Therefore, although Mr. Justice Birss found that Samsung and Huawei were similarly situated, he concluded that Unwired Planet was *not* obliged to offer Huawei the same (or a similar) royalty that Unwired Planet offered to Samsung.

In sum, Mr. Justice Birss concluded that the nondiscrimination requirement of ETSI's FRAND commitment did not alter his conclusion that the circumstances surrounding the execution of the 2016 Unwired Planet-Samsung licensee agreement diminished the probative value that that license had for determining a FRAND royalty for Unwired Planet's SEPs.

E. *License Agreements Resulting from a Settlement to End Litigation or from Arbitration*

Mr. Justice Birss also considered whether a license agreement that the parties executed to end an ongoing litigation could inform the calculation of a FRAND royalty. In addition, he examined whether a license specifying a royalty determined through arbitration could be probative of a FRAND royalty for the licensed portfolio. Although Mr. Justice Birss found that a settlement license could provide probative evidence to determine a FRAND royalty for Unwired Planet's SEP portfolio, he declined to rely on a license agreement whose terms had been set through a binding arbitration. However, Mr. Justice Birss' reasoning suggests that there is no categorical rule for examining the probative value of those licenses. Instead, whether they can aid the court in determining a FRAND royalty will depend on the specific circumstances of each case.

1. *License Agreements Resulting from a Settlement to End Litigation*

When evaluating the existing license agreements, Mr. Justice Birss examined a settlement license that Ericsson had executed with Samsung in 2014 for the use of Ericsson's SEPs.[94] Although the publicly available version of the judgment gives limited information about that license, one can infer that the license was executed as part of a larger settlement to end the legal disputes between Ericsson and Samsung that they had initiated against each other in multiple fora, including the U.S. International Trade Commission[95] and

[94] *Id.* [417]–[420].

[95] *See* Complaint of Ericsson Inc. and Telefonaktiebolaget LM Ericsson Under Section 337 of the Tariff Act of 1930, as Amended, Certain Electronic Devices, Including Wireless Communication Devices, Tablet Computers, Media Players, and Televisions, and Components Thereof, Inv. No. 337-TA-862 (USITC Nov. 30, 2012); Complaint of Samsung Electronics Co., Ltd. and Samsung Telecommunications America, LLC Under Section 337 of the Tariff Act of 1930, as Amended, Certain Wireless Communications

the U.S. District Court for the Eastern District of Texas.[96] Mr. Justice Birss acknowledged that there had been litigation between Ericsson and Samsung before they executed the 2014 license, but he said it was unlikely that "parties of the size and sophistication [of Ericsson and Samsung] . . . were troubled by that [litigation]."[97] In other words, he found that, because Ericsson and Samsung are large, sophisticated companies that are unlikely to face significant financial distress from participating in litigation, the settlement license provided reliable evidence of what the parties considered to be a FRAND royalty for the licensed SEPs.[98]

Mr. Justice Birss' decision to admit into evidence a license that was executed to end an ongoing legal dispute comports, at least in part, with the approach that U.S. courts have adopted in patent litigation. Although U.S. courts have been cautious about admitting settlement licenses into evidence,[99] the Federal Circuit emphasized in its 2017 decision in *Prism Technologies LLC v. Sprint Spectrum L.P.* that there is no categorical prohibition against reliance on evidence from settlement licenses for calculating damages from patent infringement.[100] The Federal Circuit explained that Rule 403 of the Federal Rules of Evidence provides that a court "may exclude relevant evidence if its probative value is substantially outweighed by a danger of . . . unfair prejudice, confusing the issues, [or] misleading the jury."[101] Therefore, Rule 403 "call[s] for a weighing of [the] probative value" of a settlement license, rather than its automatic exclusion.[102] To determine whether a settlement license should be admitted into evidence, a U.S. court must examine the probative value of the license as well as the circumstances under which the parties executed the license and, on the basis of that analysis, assess whether the probative value of that license outweighs the risk of unfair prejudice, confusing the issues,

Equipment and Articles Therein, Inv. No. 337-TA-866 (USITC Dec. 21, 2012). I was an expert economic witness on FRAND issues for Ericsson in the 862 and 866 Investigations.

96 *See* Original Complaint for Patent Infringement, Ericsson Inc. v. Samsung Elecs. Co., No. 6:12-cv-894 (E.D. Tex. Nov. 27, 2012); Original Complaint, Ericsson Inc. v. Samsung Elecs. Co., No. 6:12-cv-895 (E.D. Tex. Nov. 27, 2012).

97 *Unwired Planet* [2017] EWHC (Pat) 2988 [420].

98 *Id.* ("This licence is solid evidence from which one can infer what a fair and reasonable value of the portfolio under licence might be.").

99 *See, e.g.*, LaserDynamics, Inc. v. Quanta Comput., Inc., 694 F.3d 51, 78 (Fed. Cir. 2012); *In re* Innovatio IP Ventures, LLC Patent Litig., No. 11 C 9308, 2013 WL 5593609, at *33 (N.D. Ill. Oct. 3, 2013).

100 849 F.3d 1360, 1370 (Fed. Cir. 2017) ("[A]s a logical matter, the mere filing of a complaint—shifting from potential to actual litigation—does not automatically turn the prejudice side of the [Federal] Rule [of Evidence] 403 balance into one that substantially outweighs the probativeness side."); *see also* AstraZeneca AB v. Apotex Corp., 782 F.3d 1324, 1336 (Fed. Cir. 2015) ("[T]here is no per se rule barring reference to settlements simply because they arise from litigation.").

101 *Prism*, 849 F.3d at 1368 (citing Fed. R. Evid. 403).

102 *Id.*; *see also id.* ("By declaring that the district court 'may' exclude what is by assumption relevant evidence, the Rule commits the weighing to the district court's 'broad discretion,' which the Supreme Court has said is 'generally not amenable to broad *per se* rules.'" (quoting Sprint/United Mgmt. Co. v. Mendelsohn, 552 U.S. 379, 384, 387 (2008))).

or misleading the jury.[103] Indeed, in *Prism*, the Federal Circuit found that the district court had correctly admitted into evidence a settlement license.[104]

Thus, Mr. Justice Birss' decision to rely on the 2014 Ericsson-Samsung license agreement comports with the general principle that a license does not categorically lose its probative value simply because it was executed as part of a settlement to end litigation. Depending on the circumstances under which the license was executed, a settlement license can provide reliable information for determining a FRAND royalty for the SEPs in suit.[105]

2. *FRAND Royalties Set Through Arbitration*

In contrast, Mr. Justice Birss rejected considering a license agreement whose terms "were the product of an arbitration" (rather than the product of a voluntary, bilateral negotiation).[106] For simplicity, I will refer to a license agreement with terms that are the result of a binding arbitration between the SEP holder and the implementer as an "arbitrated" license agreement. Note that a settlement license differs from an arbitrated license or a court-determined license. Mr. Justice Birss was referring to a license agreement whose terms an arbitrator set pursuant to binding arbitration between parties that could not reach an agreement on their own. Mr. Justice Birss was *not* referring to the case in which parties initially submitted to binding arbitration, but later voluntarily ended their dispute with a mutually agreeable settlement license *before* the arbitrator issued a decision.[107]

Mr. Justice Birss examined the probative value of an arbitrated license agreement when examining a cross-license agreement that Ericsson and Huawei had executed following arbitration in 2016.[108] Huawei argued that the 2016 Ericsson-Huawei license was relevant to determining FRAND compensation for Unwired Planet's SEPs, because the license was "evidence of what a party was actually paying" for the use of Unwired Planet's SEPs.[109] However, Mr. Justice Birss said that "evidence of what a party is paying as a result of a *binding* arbitration will [not] carry much weight."[110] Mr. Justice Birss based his conclusion on two lines of reasoning.

First, Mr. Justice Birss reasoned that license terms of an arbitrated license are "not evidence of what willing, reasonable business people would

103 *Id.*
104 *Id.* at 1370.
105 *Id.* at 1368–69 ("[D]epending on the circumstances, a license agreement entered into in settling an earlier patent suit sometimes is admissible in a later patent suit involving the value of the patented technology, and sometimes is not.").
106 Unwired Planet Int'l Ltd v. Huawei Techs. Co. [2017] EWHC (Pat) 2988 [411] (Eng.).
107 *Cf.* J. Gregory Sidak, *Evading Portfolio Royalties for Standard-Essential Patents*, 39 World Competition 191, 195 n.16 (2016) ("A settlement's purpose is to end litigation.").
108 *Unwired Planet* [2017] EWHC (Pat) 2988 [410]–[413].
109 *Id.* [171].
110 *Id.* (emphasis added).

agree in a negotiation."[111] To the contrary, he observed, "[i]f a licence is the product of an arbitration then the paying party has no choice" but to pay the amount that the arbitrator awards.[112] Thus, Mr. Justice Birss concluded that "the royalty in the [arbitrated] license is not probative of the market value of the portfolio under licence at all."[113] Put simply, he found that an arbitrated license has limited probative value, because it does not necessarily reflect a FRAND royalty that market participants would willingly agree to pay for the licensed SEPs.[114]

Second, Mr. Justice Birss said that he lacked access to the reasoned arbitral award underlying the 2016 Ericsson-Huawei license, which prevented him from assessing whether that license arose from circumstances comparable to the circumstances in which Huawei and Unwired Planet were negotiating a FRAND license. He observed that "[d]ecisions of other courts may have persuasive value" in determining a FRAND royalty, but he cautioned that how much value one can glean from such decisions "will largely depend on the reasoning that [a] court has given to reach its conclusion."[115] Mr. Justice Birss recognized that "[a]n arbitral award is at least capable of having a similar persuasive value."[116] His statement suggests that he might have given more weight to the terms of the arbitrated license between Ericsson and Huawei had he had access to the corresponding arbitral award. Reasoning that "an arbitrated licence without the arbitral award is not much use," Mr. Justice Birss declined to assign any weight to the 2016 Ericsson-Huawei license.[117]

In sum, although Mr. Justice Birss found that an arbitrated license might fail to reflect a FRAND royalty to which market participants would willingly agree for the use of the licensed portfolio, he did not categorically reject the relevance of such a license. Rather, his reasoning indicates that an arbitrated license could be probative of a FRAND royalty if the court has access to the arbitrator's reasoned decision.

F. Should the Analysis Focus on License Agreements Executed with Similarly Situated Licensees?

Mr. Justice Birss evaluated, but ultimately rejected, Huawei's proposal that he limit his analysis of license agreements to those executed with licensees that are situated similarly to Huawei.[118] Specifically, Huawei urged the court to confine the analysis of comparable licenses to those that Unwired Planet

111 *Id.* [411].
112 *Id.* [171].
113 *Id.* [411].
114 *Id.*
115 *Id.*
116 *Id.*
117 *Id.* [171].
118 *Id.* [175].

or Ericsson executed with Huawei, Samsung, and other large smartphone manufacturers. However, Mr. Justice Birss found that it would be "unfair (and discriminatory)" to select the compared license agreements based on the licensee's characteristics.[119]

Mr. Justice Birss reasoned that a FRAND royalty should be determined on the basis of the value of the licensed SEPs, such that "all licensees who need the same kind of licence will be charged the same kind of rate."[120] He said that a FRAND royalty must be "equally applicable to a major player like Huawei as to a new entrant."[121] Mr. Justice Birss added that "it would not be FRAND . . . for a small new entrant to the market to have to pay a higher royalty rate than an established large entity."[122] Thus, he found that it would be inappropriate "to elevate a small subset [of licenses] above the other" and limit the analysis to licenses executed with similarly situated smartphone manufacturers.[123]

Mr. Justice Birss acknowledged that the licensee's market position could be relevant to the determination of a FRAND royalty if the ETSI FRAND commitment contained, as Huawei argued it did, a "hard-edged non-discrimination obligation."[124] However, as explained in Part I.D, Mr. Justice Birss rejected Huawei's argument,[125] and he thus declined to limit his analysis to the license agreements that Unwired Planet or Ericsson had executed with smartphone manufacturers situated similarly to Huawei.

In sum, Mr. Justice Birss found that all recent license agreements for either Ericsson's or Unwired Planet's SEPs were potentially relevant for determining a FRAND royalty for Huawei's use of Unwired Planet's SEP portfolio.[126] Although Mr. Justice Birss concluded that not every license he examined was sufficiently comparable, he declined to exclude a given license from consideration simply because the licensee was not a smartphone manufacturer situated similarly to Huawei.

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119 *Id.*
120 *Id.*
121 *Id.* [481].
122 *Id.* [175].
123 *Id.* [173].
124 *Id.* [177]; *see also id.* [481].
125 *Id.* [502] ("[I]t is not necessary to read this hard-edged non-discrimination obligation into the ETSI FRAND undertaking at all provided one takes a benchmark rate approach to assessing a royalty under the ETSI FRAND undertaking. That approach is itself non-discriminatory.").
126 *Id.* [175].

II. Portfolio-Strength Metrics and the Determination of a FRAND Royalty for Unwired Planet's SEP Portfolio

After examining the probative value of the presented license agreements, Mr. Justice Birss concluded that only six licenses that Ericsson had executed with third parties were sufficiently comparable to inform his calculation of a FRAND royalty for Unwired Planet's SEP portfolio. He said that, to rely on the Ericsson licenses to determine a FRAND royalty for Unwired Planet's SEP portfolio, one must first identify the implied one-way royalty that each licensee agreed to pay for a license to Ericsson's SEP portfolio.[127] Next, one must estimate the value of Unwired Planet's portfolio relative to the value of Ericsson's portfolio.[128] Mr. Justice Birss then determined what he called a "benchmark" FRAND royalty that Huawei should pay for a license to Unwired Planet's SEP portfolio by multiplying a FRAND royalty for Ericsson's SEP portfolio (a variable he called *E*) by the value of Unwired Planet's portfolio relative to Ericsson's portfolio (a variable that he called *R*).[129] He then adjusted that benchmark FRAND rate based on the geographical region in which Huawei would be selling its product and Unwired Planet's number of SEPs in each of these regions.[130]

*A. A FRAND Royalty for Ericsson's SEP Portfolio (*E*)*

The six Ericsson license agreements that Mr. Justice Birss found informative for the calculation of a FRAND royalty for a license to Unwired Planet's SEP portfolio included: (1) the Ericsson-Samsung 2014 license; (2) the Ericsson-Huawei 2009 license; (3) the Ericsson-Yulong 2013 license, (4) the Ericsson-ZTE 2011 license; and (5) the Ericsson-RIM 2010 license.[131] In the sixth Ericsson license, the name of the licensee and year were redacted from the publicly available version of Mr. Justice Birss' opinion.[132] Using those six license agreements, Mr. Justice Birss computed *E*—that is, a FRAND royalty for Ericsson's SEP portfolio.[133]

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127 *Id.* [188].

128 *Id.* [180] ("[T]o use [third-party licenses] a view has to be formed about the relative value of the portfolios licensed in them as against Unwired Planet's portfolio.").

129 *Id.* [475].

130 *Id.* [582]–[592].

131 *Id.* [462].

132 *Id.*

133 *Id.*

1. Unpacking the Comparable Licenses

Mr. Justice Birss identified two main problems when comparing the royalty payments specified in each of the six license agreements that Ericsson had executed with third parties. First, he observed that the agreements that Ericsson executed with third parties specified the payment using different royalty structures; second, some license agreements contained a cross license and consequently did not specify a one-way royalty for a license to Ericsson's SEP portfolio.[134] Thus, Mr. Justice Birss said that it was necessary to first "unpack[]" the six license agreements.[135] That is, one must identify, using the same royalty structure, the implied one-way royalty that each licensee agreed to pay to use Ericsson's SEP portfolio.

To address the first problem, Mr. Justice Birss said that one must convert the royalties specified in the six Ericsson license agreements into a common royalty structure.[136] The parties to a license agreement may choose from a variety of royalty structures to determine the royalty payment that the licensee owes the patent holder for the use of its patents, including a lump-sum royalty, an *ad valorem* royalty, a fixed per-unit royalty, or some combination of those three structures. Converting royalty payments to like terms permits one to compare the royalties specified using different structures. In *Unwired Planet*, the parties' expert witnesses converted the royalties specified in the six Ericsson license agreements into a running royalty rate expressed as (1) a percentage of the average selling price (ASP) of the licensee's mobile devices implementing the relevant standard and (2) a percentage of the licensee's revenue from selling infrastructure equipment implementing the relevant standard.[137]

Next, Mr. Justice Birss addressed Ericsson's cross licenses.[138] The difficulty in relying on cross licenses to determine a FRAND royalty arises because a cross-license agreement typically specifies only a balancing royalty payment—that is, the ultimate royalty that one party (the net payor) must pay to the counterparty (the net payee).[139] Mr. Justice Birss said that, to rely on cross licenses, one must identify the implied one-way royalties that each party

[134] *Id.* [187].
[135] *Id.* [187]–[188].
[136] For a detailed explanation of how to convert royalty structures, see J. Gregory Sidak, *Converting Royalty Payment Structures for Patent Licenses*, *supra* note 48; *see also* J. Gregory Sidak & Urška Petrovčič, *Will the CJEU's Decision in* MEO *Change FRAND Disputes Globally?*, 3 Criterion J. on Innovation 301, 325–26 (2018).
[137] *See Unwired Planet* [2017] EWHC (Pat) 2988 [5] ("The percentages related to average selling price (ASP) for mobile devices and revenue for infrastructure.").
[138] *Id.* [189].
[139] *See, e.g.*, Sidak, *Converting Royalty Payment Structures for Patent Licenses*, *supra* note 48, at 907; Gregory Sidak, *How Licensing a Portfolio of Standard-Essential Patents Is Like Buying a Car*, WIPO Mag., June 2015, at 10.

agreed to pay for the use of the counterparty's portfolio.[140] He added that, to do so, it is necessary to compare the relative value of each party's patent portfolio.[141] Mr. Justice Birss reasoned that, "if A has 100 Relevant SEPs and B has 200 then the ratio is 1:2 and that allows one mathematically to derive figures for the underlying one way rates."[142] However, one must also account for each party's expected sales at the time of the negotiation. The party with the weaker portfolio might still be the net payee if the counterparty's sales are so large as to outweigh the differences in the portfolios' strengths.[143]

Mr. Justice Birss found that, despite "all the uncertainties and assumptions which go into these unpacking exercises, the spread of [the experts'] figures [for the unpacked licenses] is remarkably close."[144] In other words, he observed that, after unpacking the six Ericsson license agreements, Unwired Planet's and Huawei's expert witnesses reached similar conclusions regarding the implied one-way royalties that each licensee agreed to pay for Ericsson's SEP portfolio. Mr. Justice Birss said "the spread is about [plus or minus] 20 [percent] around the midpoint."[145] Unfortunately, the publicly available version of his opinion does not specify the royalties that each expert witness derived from unpacking Ericsson's six license agreements. It also does not disclose whether Mr. Justice Birss ultimately relied on the estimates of the implied one-way royalty offered by Unwired Planet's expert witness or those presented by Huawei's expert witness.

2. *Using the Unpacked Licenses to Compute a Royalty Rate for Ericsson's SEPs*

To estimate a FRAND royalty for Ericsson's SEP portfolio, Mr. Justice Birss relied on the implied one-way royalty identified in one of the six license agreements that Ericsson executed with third parties and then adjusted this royalty based on evidence observed in the other five Ericsson licenses.

Specifically, Mr. Justice Birss said that he started his analysis from the range of rates specified in one of the six license agreements, which he called the "*[Q]* licence." [146] He found that that license presented "the best place

[140] *Unwired Planet* [2017] EWHC (Pat) 2988 [189].
[141] *Id.*
[142] *Id.*
[143] *See* Sidak, *Converting Royalty Payment Structures for Patent Licenses*, *supra* note 48, at 910 ("It bears emphasis that the net-receiving party is determined on the basis of both (1) the relative strength of each party's patent portfolio and (2) the amount of each party's sales. Assume, for example, that Party *A* charges a royalty rate of 10 percent, while Party *B* charges a rate of 1 percent. Assume further that Party *A* generates sales revenues of $1,000 from its patent-practicing product and that Party *B* generates only $100. . . . [A]lthough Party *A* possesses a stronger patent portfolio, the balancing royalty in this situation would be zero percent. Therefore, the net recipient is not necessarily the party with the strongest patent portfolio.").
[144] *Unwired Planet* [2017] EWHC (Pat) 2988 [192].
[145] *Id.*
[146] *Id.* [464].

to start" his calculation.[147] In other words, Mr. Justice Birss considered the royalties specified in the *[Q]* license to be the most accurate valuation of Ericsson's 4G SEPs for multimode handsets—that is, 4G handsets that are also compatible with 2G and 3G standards.[148] Mr. Justice Birss said that the *[Q]* license contained "a range of rates," and that he started from the top of that range because doing so comported with Mr. Lasinski's figure and for other reasons that are redacted from the public version of the opinion.[149]

Mr. Justice Birss then adjusted that royalty upward to account for the fact that the royalties in the five other licenses were "much higher" than the rates in the *[Q]* license.[150] However, his upward adjustment did not produce a royalty that was as high as the royalty in any of the five other license agreements.[151] In limiting the upward adjustment, Mr. Justice Birss relied on the opinion of Mr. Lasinski, who said that royalties for FRAND-committed SEPs have decreased since 2013.[152] Mr. Lasinski said that four significant cases regarding FRAND rates in the United States (*Microsoft v. Motorola*, *In re Innovatio IP Ventures*, *Realtek v. LSI*, and *Ericsson v. D-Link*) as well as important cases outside the United States (such as *Huawei v. InterDigital* in China, *Samsung v. Apple* in Japan, *St. Lawrence v. Vodafone* in Germany, and the decision of the Court of Justice of the European Union in *Huawei v. ZTE*) spurred this "general decline in [FRAND] rates."[153]

Mr. Justice Birss agreed that there was some evidence that the royalties for SEPs had decreased since 2013.[154] He also agreed that this decline was "at least [in] part" due to "the emergence by 2013 of decisions in which courts were prepared to set FRAND rates," a development that, in his opinion, "strengthened the bargaining position of licensees by reducing the power of the threat of an injunction."[155] Mr. Justice Birss acknowledged that "the trend is not simple," but nonetheless declined to increase the royalty up to the levels of the royalties identified in five of the other Ericsson license agreements to account for the general decrease in royalties after 2013.[156]

Under that analysis, Mr. Justice Birss concluded that the value of *E* for Ericsson's SEP portfolio implemented in 4G multimode handsets was 0.80 percent of the ASP of the licensee's handset.[157] He also found that the value of *E* for Ericsson's SEP portfolio implemented in 2G and 3G handsets

147 *Id.*
148 *Id.* [6].
149 *Id.* [463]–[464].
150 *Id.* [464].
151 *Id.*
152 *Id.*; *see also id.* [431] ("Mr Lasinski said he had observed a general decline in [FRAND] rates since 2013.").
153 *Id.* [431].
154 *Id.* [432].
155 *Id.*
156 *Id.*
157 *Id.* [464].

was 0.67 percent of the handset ASP. Mr. Justice Birss arrived at this rate using a different procedure—that is, "by scaling" the multimode 4G rate of 0.80 percent, by the ratio of Mr. Lasinski's "2G/3G rate to his 4G rate" in one of the examined license agreements.[158] Regrettably, the public version of the opinion does not explain why Mr. Justice Birss derived the 2G and 3G rates from the 4G rate, as opposed to using comparable licenses that Ericsson executed for its 2G and 3G SEPs. Mr. Justice Birss also considered, but ultimately rejected, the argument that *E* should differ for infrastructure equipment.[159]

In addition, Mr. Justice Birss found that *E* in China should be half the rate for the rest of the world.[160] He reasoned that "comparable licenses show that rates are often lower in China," although he did not explain why dividing the rate by half was the appropriate adjustment.[161]

Table 1 summarizes Mr. Justice Birss' estimates of *E* for Ericsson's 4G, 3G, and 2G SEPs for handsets and infrastructure.

Table 1. Mr. Justice Birss' Estimates of a FRAND Royalty for Ericsson's 4G, 3G, and 2G SEPs for Handsets and Infrastructure

Standard(s)	A FRAND Royalty for Ericsson's SEPs (*E*)
4G	0.80%
4G (China)	0.40%
2G & 3G	0.67%
2G & 3G (China)	0.335%

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [464]–[466].

As I explain in Part II.C, Mr. Justice Birss then used *E* to compute a FRAND royalty for Unwired Planet's SEP portfolio.

B. *The Strength of Unwired Planet's SEP Portfolio Relative to Ericsson's SEP Portfolio (*R*)*

Mr. Justice Birss observed that, to derive a FRAND royalty for Unwired Planet's SEP portfolio based on licenses that Ericsson executed with third parties, one would need to compare the value of Unwired Planet's SEP portfolio with the value of Ericsson's SEP portfolio. He said that, "if the rate for Ericsson's portfolio is *E* and the relative value of Unwired Planet's portfolio

[158] *Id.* [465].
[159] *Id.*
[160] *Id.* [467].
[161] *Id.* [583].

to Ericsson's portfolio is R, the Unwired Planet rate is ExR."[162] Thus, having obtained an estimate of E, Mr. Justice Birss' analysis focused next on estimating R.

Mr. Justice Birss found that patent counting was an appropriate methodology to compare the relative values of Unwired Planet's and Ericsson's SEP portfolios. He said that, when a portfolio includes hundreds of patents and patent applications, it would be impractical to assess the portfolio's strength by examining the value of each individual technology included in the portfolio.[163] Instead, one must rely on indirect methodologies. Mr. Justice Birss observed that both Unwired Planet and Huawei proposed a patent-counting procedure that "treat[s] all patents in a given category as of equal value."[164] He also said that there was "ample evidence" that (with the exception of Ericsson) parties that negotiate a license for SEPs use "methods which are based on patent counting."[165] Consequently, Mr. Justice Birss concluded that patent counting was a reliable methodology for assessing relative portfolio strength and, therefore, for estimating R.[166]

Nonetheless, Mr. Justice Birss said that it would be inappropriate to "simply add[] up patents" contained in ETSI's database.[167] He was particularly concerned that not all patents that have been declared essential to practice a given standard are, in fact, essential to practice that standard.[168] To correct for this upward bias in the number of declared patents, Mr. Justice Birss said that one must identify the number of SEPs that are in fact essential to practice the relevant standard. I will refer to those SEPs as "relevant SEPs," as Mr. Justice Birss did in his opinion.[169]

1. Procedures to Estimate the Number of Relevant SEPs Families

Unwired Planet and Huawei proposed different patent-counting procedures to estimate the number of relevant SEP families for the 2G, 3G, and 4G standards. Huawei used the so-called Huawei Patent Analysis (HPA), discussed below. In contrast, Unwired Planet relied on three different procedures: the so-called Modified Numeric Proportionality Approach (MNPA), a third-party report to obtain estimates of the number of relevant SEPs, and a "detailed analysis" of Unwired Planet's portfolio. Mr. Justice Birss accepted Unwired Planet's submission about the number of Unwired Planet's relevant SEP families, but he adjusted the estimates from the HPA to determine the

162 *Id.* [180] (italics for variables added).
163 *Id.*
164 *Id.* [181].
165 *Id.* [182].
166 *Id.*
167 *Id.* [200].
168 *Id.* [200]–[201].
169 *Id.* [186].

total number of families of relevant SEPs as well as the total number of SEPs belonging to Ericsson.

a. The MNPA

Unwired Planet presented two versions of the MNPA to identify the relevant SEP families for 4G handsets and infrastructure. The first version included seven steps:

(1) identify all declared SEPs from ETSI's IPR database as of March 12, 2014;
(2) define "LTE" and limit the pool to "LTE-specific" SEPs;[170]
(3) group the patents into families and remove duplicate SEPs;
(4) exclude abandoned or expired patent applications as well as patent families that have no pending or issued U.S. or European patent;
(5) remove any "non-Core" SEPs (that is, according to Unwired Planet's expert, SEPs with a priority date after December 31, 2008);
(6) separate handset families from infrastructure families; and
(7) apply three "essentiality filters" that sought to address more directly the problem of overdeclaration.[171]

In turn, the essentiality filters in the seventh step of the MNPA included three adjustments. First, Unwired Planet multiplied the calculated number of relevant SEPs by 0.28 because third-party reports stated that only 28 percent of the declared patents were relevant to practice a standard.[172] (Unwired Planet derived the 28 percent estimate from a report from Fairfield Resources International estimating the relevant number of SEPs for the 2G and 3G standard.[173]) Second, Unwired Planet multiplied the calculated number of relevant SEPs by 0.90 to exclude patents that are essential for optional features of the standard.[174] Third, Unwired Planet multiplied this calculated number by 0.80 to account for patents that are essential for features of the standard that are not deployed.[175]

Unwired Planet subsequently revised the MNPA, adopting two main changes.[176] First, the revised MNPA changed "the way the standards are

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170 Note that Mr. Justice Birss uses "LTE" and "4G" interchangeably. To avoid confusion, I will use "4G," unless my use of that term would be clearly erroneous.

171 *Unwired Planet* [2017] EWHC (Pat) 2988 [274]. A "Handset" family included patents having handset claims and patents have both handsets and infrastructure-equipment claims. An "Infrastructure Only" family included patents with only infrastructure-equipment claims. *Id.*

172 *Id.*

173 *Id.*; *see also id.* [283] (citing Fairfield Resources International, Analysis of Patents Declared as Essential to GSM as of June 6, 2007 (Dec. 31, 2007); Fairfield Resources International, Review of Patents Declared Essential to WCDMA Through December, 2008 (2009)).

174 *Id.* [274].

175 *Id.*

176 *Id.* [275].

identified," a revision that, as Mr. Justice Birss noted, "incorporate[d] more standards."[177] Second, the revised MNPA used a different essentiality filter. Dr. David Cooper, Unwired Planet's technical expert, replaced the three sequential multiplications (28 percent, 90 percent, and 80 percent) in the seventh step of the original MNPA with a single multiplication of 0.166 that sought to identify the declared SEPs that were relevant to practice the 4G standard.[178] Dr. Cooper derived this number by reviewing a sample of Samsung's patents that had been declared essential to the 4G standard. He found that 16.6 percent of those patents were relevant SEPs, and he used that figure as a measure of the industry-average essentiality rate.[179] Using the same procedure, Dr. Cooper identified the SEP families relevant to 4G infrastructure equipment.[180]

Unwired Planet used a different procedure to identify the number of SEP families relevant to 2G and 3G products. It relied on figures from studies published by Fairfield Resources International, an intellectual property consulting firm.[181] In 2007, Fairfield Resources published a study that found that 27 percent of the patent families that were declared essential to the 2G (GSM) standard were relevant SEPs.[182] Similarly, in a report published in 2008, Fairfield found that 28 percent of the patent families declared essential to the 3G (WCDMA) standard were relevant SEPs.[183] Unwired Planet categorized the 2G and 3G SEPs identified by Fairfield Resources into two groups—(1) those that are essential for handsets and (2) those that are essential for infrastructure equipment—and then estimated the number of relevant SEPs for each of those product types.[184]

Table 2 summarizes Unwired Planet's estimates of the total number of relevant SEPs for handsets and infrastructure equipment.

177 *Id.* ("[T]he way the standards are identified was changed in such a way as to incorporate more standards.").

178 *Id.* Note that this single value of 16.6 percent is lower than the sequential multiplications as $0.28 \times 0.9 \times 0.8 = 0.2016$ or 20.16 percent.

179 *Id.* [333].

180 *Id.* [282].

181 *Id.* [283].

182 Fairfield Resources International, Analysis of Patents Declared as Essential to GSM as of June 6, 2007, at 7 (2007). Note that there seems to be an error in Fairfield's reported numbers. The report says that Fairfield's panel of expert engineers studied 561 patent families that were declared essential to the GSM standard and found 158 of these families to be technically essential to implementing the standard. *Id*. Therefore, the correct percentage of relevant SEPs is 28 rather than 27 (that is, $158 \div 561 = 0.28$).

183 Fairfield Resources International, Review of Patents Declared Essential to WCDMA Through December 2008, at 1 (2009).

184 *Unwired Planet* [2017] EWHC (Pat) 2988 [283]–[285].

Table 2. The MNPA's Estimates of the Total Number of Relevant SEP Families

Standard	Handsets	Infrastructure
4G (revised MNPA)	355	306
3G	324	274
2G	102	85

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [276]–[285].

Mr. Justice Birss criticized several aspects of the MNPA. For example, he said that two of the essentiality filters used in the original MNPA—90 percent and 80 percent—were completely arbitrary.[185] (In contrast, Mr. Justice Birss found both the 28 percent filter used in the original MNPA and the 16.6 percent essentiality filter applied in the revised MNPA to be appropriate.[186]) He also criticized both the original MNPA and the revised MNPA for removing patents with priority dates falling after December 31, 2008.[187] Unwired Planet argued that "LTE Release 8," which was fixed before 2009, determined the fundamental technology on which the LTE standard is based, such that patents essential for practicing subsequent releases should not be considered as relevant SEPs.[188] Mr. Justice Birss rejected this argument and found it inappropriate to assign no value at all to SEPs with priority dates falling after the publication of Release 8.[189] He was also unpersuaded by Unwired Planet's decision to limit the analysis to only U.S. and EU patents without considering Chinese SEPs.[190] Mr. Justice Birss thus concluded that the MNPA underestimated the total number of relevant SEP families for 4G handsets.[191]

Nonetheless, Mr. Justice Birss emphasized that "the results of the MNPA are not meaningless and do not systematically favour Unwired Planet."[192] He reasoned that, "as long as one does not think the results are the true essentiality rates," the MNPA's estimates were still helpful for estimating the number of relevant SEPs families.[193]

185 *Id.* [331].
186 *Id.* [329]; *id.* [336] ("In my judgment the evidence, as best it is, is that the rates for different companies can differ considerably . . . but there is no systematic reason why one company's rate should be different from another. In my judgment using a rate for Samsung as representative of the industry is not illegitimate given that Samsung is a major player. I doubt Samsung has an essentiality rate which is significantly below average. There are significant uncertainties in all these exercises and this is another but it does not render the technique meaningless.").
187 *Id.* [308].
188 *Id.* [319].
189 *Id.* [320]–[321].
190 *Id.* [367].
191 *Id.*
192 *Id.*
193 *Id.*

b. The HPA

Huawei relied on the HPA to identify the number of relevant SEP families for the 2G, 3G, and 4G standards. The HPA involved five steps:

(1) identify all declared SEPs from ETSI's database and the Korean Telecommunications Technology Association's database;
(2) add patents not explicitly declared to ETSI as essential but identified in the public INPADOC database;[194]
(3) identify patent families that contain issued, non-expired patents in the English or Chinese language;
(4) group such patent families into categories by "LTE/4G, UMTS/3G, and GSM/2G" standards and classify each patent as relevant to either the radio access network (RAN) (which included handset patents in the HPA) or the core network (CN); and
(5) have a team of "evaluators" review each patent family for approximately thirty minutes to determine its essentiality to the relevant standard specification.[195]

If the evaluator determined that the specification did not provide a clear reason to find the patent nonessential, then the family was deemed a relevant SEP family.[196] Table 3 summarizes the HPA's results as presented in Huawei's FRAND Statement of Case.[197]

Table 3. HPA's Estimates of the Total Number of Relevant SEP Families

Standard	Handset	Infrastructure
4G	1862	1585
3G	1154	937
2G	362	312

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [288].

The results of the HPA did not persuade Mr. Justice Birss. He said that the HPA was a "coarse filter" that sought to exclude patents that were clearly

[194] INPADOC is a database maintained by the European Patent Office that contains information on the legal status of patent families collected from 40 patent authorities worldwide. *EPO Worldwide Legal Status Database (INPADOC)*, Eur. Patent Office, https://www.epo.org/searching-for-patents/data/bulk-data-sets/inpadoc.html#tab-1.

[195] *Unwired Planet* [2017] EWHC (Pat) 2988 [286].

[196] *Id.*

[197] Mr. Justice Birss said that the numbers presented in Huawei's FRAND Statement of Case "differ[ed] slightly from the numbers used in the figures set out in this judgment." *Id.* [289]. He explained that the difference was due to "adjustments . . . made during the proceedings." *Id.* However, Mr. Justice Birss said that the changes were small and did "not alter the substance [of the numbers]." *Id.*

nonessential to the relevant standards, rather than a procedure that sought to identify the relevant SEP families.[198] Consequently, Mr. Justice Birss said, the HPA "inevitably err[ed]" on the side of including SEPs.[199] However, he did not find the procedure flawed or unreliable.[200] Mr. Justice Birss said that the procedure "applied a consistent yardstick" and was "a reasonable attempt" to address the problem of overdeclaration of patents as standard-essential.[201]

c. *Mr. Justice Birss' Procedure to Identify the Total Number of Relevant SEPs*

Although Mr. Justice Birss found that both the MNPA and HPA produced unreliable results, he did not completely dismiss the results of the two procedures.[202] Instead, he found that the appropriate way to estimate the total number of relevant SEP families was to apply adjustments to the results from the HPA.[203]

In adjusting the HPA's estimates, Mr. Justice Birss compared the results of the MNPA and HPA with respect to the number of relevant SEPs for 4G handsets and observed that the two estimates from the MNPA and HPA were "out by about a factor of two."[204] He then multiplied Unwired Planet's figure (355) by two to obtain a figure of 710, and he divided Huawei's figure (1812) by two to obtain a figure of 906.[205] Then, he took the average of 710 and 906 to obtain approximately 800 relevant SEPs as the end result.[206] Mr. Justice Birss said, without providing further explanation, that "800 is fair and in my judgment an appropriate figure for the pool of 4G/LTE patents," and he concluded that 800 was the number of relevant SEPs families for4G handsets.[207]

Mr. Justice Birss reasoned that he needed to adopt a consistent procedure to identify the number of relevant SEPs families for 2G and 3G handsets. He observed that 800 represented 44 percent of the HPA's estimate of SEPs relevant to 4G handsets (1812).[208] Thus, he applied this 44 percent adjustment to the HPA's estimates of relevant SEPs for 2G and 3G handsets as well as for 2G, 3G, and 4G infrastructure equipment.[209] Table 4 reports the results of Mr. Justice Birss' calculation.

198 *Id.* [361].
199 *Id.*
200 *Id.*
201 *Id.*
202 *Id.* [374].
203 *Id.* [376].
204 *Id.* [377].
205 *Id.*
206 *Id.*
207 *Id.*
208 That is, 800 ÷ 1812 = 44%.
209 *Unwired Planet* [2017] EWHC (Pat) 2988 [377].

Table 4. Mr. Justice Birss' Conclusions Regarding the Number of Relevant SEP Families

Standard	Number of Relevant SEP Families for Handsets	Number of Relevant SEP Families for Infrastructure
4G	800	684
3G	479	390
2G	154	134

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [378].

As I will explain in Part III.C, Mr. Justice Birss subsequently used his estimates of the total number of relevant SEP families to verify the reasonableness of the FRAND royalties that he calculated on the basis of comparable licenses.

Unfortunately, Mr. Justice Birss provided limited explanation for his adjustments to the HPA's estimates. For example, he did not explain why he considered 800 to be the correct number of SEPs relevant to 4G handsets. He also did not explain why he found the application of the 44-percent adjustment to the HPA's estimates to be a more appropriate way to assess the number of relevant SEPs families for 2G and 3G products than the averaging calculation that he performed for 4G handsets. Without a more detailed explanation for his reasoning, it is unclear whether Mr. Justice Birss' analysis is any more defensible than the procedures that he rejected as being too speculative.

2. *Ericsson's Relevant SEPs Families*

Using their respective patent-counting procedures (MNPA and HPA), both Unwired Planet and Huawei estimated the number of Ericsson's relevant SEP families for the 2G, 3G, and 4G standards.[210] Unsurprisingly, the parties reached different estimates.[211]

Mr. Justice Birss found that the appropriate way to determine the number of Ericsson's relevant SEP families was to adjust the HPA's estimates.[212] However, he did not find it appropriate to multiply the HPA estimates by 44 percent—the adjustment that, as explained in Part II.B.1.c, he used to determine the total number of relevant SEP families.[213] Instead, Mr. Justice

[210] *Id.* [199].
[211] *Id.* [379].
[212] *Id.*
[213] *Id.* [377].

Birss said that a "smaller proportionate adjustment" was appropriate.[214] He found that he should adjust the HPA's estimates by two thirds (that is, by 66.66 percent), but he provided no explanation for his conclusion.[215] Using this adjustment, Mr. Justice Birss concluded that there were 21, 42, and 67 relevant SEP families in Ericsson's portfolio for the 2G, 3G, and 4G standards respectively, as Table 5 shows.[216]

Table 5. Mr. Justice Birss' Conclusions Regarding the Number of Ericsson's Relevant SEP Families

Standard	Number of Relevant SEP Families for Handsets
4G	67
3G	42
2G	21

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [379].

Mr. Justice Birss then compared his estimates of the number of Ericsson's relevant SEP families with the estimates of the number of Unwired Planet's relevant SEP families.

3. *Unwired Planet's Relevant SEP Families*

Whereas Huawei employed the HPA to determine the number of Unwired Planet's relevant SEP families, Unwired Planet made "detailed assessments" of its 4G portfolio to derive the total number of relevant SEP families.[217] Mr. Justice Birss observed that, despite the use of different approaches, the parties reached similar conclusions about the number of relevant SEP families owned by Unwired Planet.[218] Each party contended that Unwired Planet's portfolio included six patent families that were essential to the 4G standard implemented in a 4G handset. The parties' estimates of the number of relevant SEPs with respect to 3G and 4G infrastructure and their estimates of the number of relevant SEPs for 2G and 3G handsets differed slightly, as Table 6 shows.[219]

214 *Id.* [379].
215 *Id.*
216 *Id.*
217 *Id.* [207].
218 *Id.* [204].
219 *Id.*

Table 6. Unwired Planet's and Huawei's Estimates
of the Number of Unwired Planet's Relevant SEP Families

Standard	Handsets	Radio Access Network Infrastructure
Unwired Planet's Estimates		
2G	2	1
3G	1	2
4G	6	7
Huawei's Estimates		
2G	1	1
3G	2	4
4G	6	5

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [205].

Ultimately, Mr. Justice Birss accepted Unwired Planet's submission on the number of relevant SEP families owned by Unwired Planet, although he provided no detailed explanation for his decision to rely on those numbers.[220]

4. *Determining* R *and Multimode Weighting*

Mr. Justice Birss used the counts of Ericsson's relevant SEP families (obtained by adjusting the HPA's estimates) and Unwired Planet's relevant SEP families (obtained from Unwired Planet's "detailed analysis" of its SEP portfolio) to calculate the value of *R*—the value of Unwired Planet's SEP portfolio relative to that of Ericsson's SEP portfolio.

Specifically, Mr. Justice Birss calculated *R* for each standard by dividing the number of Unwired Planet's relevant SEP families for a given standard by the number of Ericsson's relevant SEP families for that same standard, as Equation 1 shows:

$$R = \frac{\textit{Number of Unwired Planet's Relevant SEPs Families}}{\textit{Number of Ericsson's Relevant SEPs Families}} \qquad (1)$$

In performing this calculation, Mr. Justice Birss did not distinguish between Unwired Planet's handset SEPs and its infrastructure SEPs. Instead, he used the number of Unwired Planet's relevant *handset* SEPs as the numerator for all calculations.[221]

Using Equation 1, Mr. Justice Birss computed values of *R* for each of the 4G, 3G, and 2G standards. He found that (1) the value of Unwired Planet's

[220] *Id.* [207]–[208].
[221] *Id.* [379].

4G SEP portfolio represented 8.95 percent of the value of Ericsson's 4G SEP portfolio,[222] (2) the value of Unwired Planet's 3G SEP portfolio represented 2.38 percent of the value of Ericsson's 3G portfolio,[223] and (3) the value of Unwired Planet's 2G SEP portfolio represented 9.52 percent of the value of Ericsson's 2G SEP portfolio.[224]

Mr. Justice Birss then adjusted those estimates for multimode handsets.[225] He said that the parties agreed "that one needs some weighting method in order to deal with multimode devices."[226] Mr. Justice Birss applied the same weighting approach that both parties used in their submissions, which assigned weights of 70 percent to 4G SEPs, 20 percent to 3G SEPs, and 10 percent to 2G SEPs for 4G multimode handsets.[227] On the basis of that weighting method, he concluded that the value of Unwired Planet's 4G multimode handset SEPs was 7.69 percent of the value of Ericsson's portfolio for 4G multimode handsets.[228] For 3G multimode handsets, he assigned weights of 67 percent to 3G and 33 percent to 2G, and he found that the value of Unwired Planet's 3G multimode handset SEPs was 4.76 percent of the value of Ericsson's portfolio for 3G multimode handsets.[229]

Table 7 summarizes Mr. Justice Birss' conclusions regarding *R*.

Table 7. Mr. Justice Birss' Calculated Values of *R*

Standard(s)	Unwired Planet Value Ratio (*R*)
2G	9.52%
3G	2.38%
4G	8.95%
Handsets	
2G	9.52%
2G/3G	4.76%
2G/3G/4G	7.69%

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [478].

Mr. Justice Birss did not make a similar adjustment for infrastructure equipment, because he found that only handsets typically have a multimode functionality.[230]

222 *Id.* That is, 6 ÷ 67 = 0.0895.
223 *Id.* That is, 1 ÷ 42 = 0.0238.
224 *Id.* That is, 2 ÷ 21 = 0.0952.
225 *Id.* [220]–[222].
226 *Id.* [220].
227 *Id.*
228 *Id.* [478]. That is, (70% × 8.95%) + (20% × 2.38%) + (10% × 9.52%) = 7.69%.
229 *Id.* That is, (67% × 2.38%) + (33% × 9.52%) = 4.76%.
230 *Id.* [221].

As I will explain in detail in Part II.C, Mr. Justice Birss used these obtained values of *R* to calculate a FRAND royalty that Huawei should pay for a license to Unwired Planet's SEPs.

C. A FRAND Royalty for a Worldwide License to Unwired Planet's SEP Portfolio

After estimating a FRAND royalty for Ericsson's SEP portfolio (*E*) and the ratio of the value of Unwired Planet's SEP portfolio to the value of Ericsson's SEP portfolio (*R*), Mr. Justice Birss used those estimates to derive a "benchmark" FRAND royalty for a license to Unwired Planet's SEP portfolio (a variable that he called *U*). Mr. Justice Birss found that Unwired Planet had the right to insist that Huawei execute a worldwide license, but he found that such a license would specify different royalties for different regions. Thus, he subsequently adjusted the benchmark FRAND royalty according to the geographic regions in which Huawei would be selling its products and the number of relevant SEP families that Unwired Planet held in each region.

*1. The Benchmark FRAND Royalty (*U*)*

Mr. Justice Birss used the formula shown in Equation 2 to derive a benchmark FRAND royalty for Unwired Planet's portfolio:[231]

$$U = E \times R. \tag{2}$$

As shown in Equation 2, Mr. Justice Birss multiplied (1) the estimated FRAND royalty for Ericsson's SEP portfolio (*E*) by (2) the ratio of the value of Unwired Planet's SEP portfolio to the value of Ericsson's SEP portfolio (*R*) to derive a benchmark FRAND royalty for Unwired Planet's SEP portfolio.

He calculated the following benchmark FRAND royalties for a license to Unwired Planet's portfolio of handset SEPs: 0.062 percent of the ASP for Huawei's 4G multimode handsets;[232] 0.032 percent of the ASP for Huawei's 3G multimode handsets;[233] and 0.064 percent of the ASP for Huawei's 2G handsets.[234] Using the same equation, Mr. Justice Birss also calculated a benchmark FRAND royalty for a license to Unwired Planet's portfolio of infrastructure SEPs: 0.072 percent of Huawei's revenue from 4G infrastructure;[235] 0.016 percent of Huawei's revenue from 3G infrastructure;[236] and 0.064 percent of Huawei's revenue from 2G infrastructure.[237] Table 8 summa-

[231] *Id.* [197].
[232] 0.062% = 0.80% × 7.69%. *Id.* [475].
[233] 0.032% = 0.67% × 4.76%. *Id.* [478].
[234] 0.064% = 0.67% × 9.52%. *Id.*
[235] 0.072% = 0.80% × 8.95%. *Id.*
[236] 0.016% = 0.67% × 2.38%. *Id.*
[237] 0.064% = 0.67% × 9.52%. *Id.*

rizes the benchmark FRAND royalties that Mr. Justice Birss calculated for Unwired Planet's portfolio of infrastructure and handset SEPs.

Table 8. Mr. Justice Birss' Calculated Benchmark FRAND Rates for Unwired Planet's 2G, 3G, and 4G SEPs for Handsets and Infrastructure

Standard(s)	Benchmark FRAND Royalty for Unwired Planet's SEPs (*U*)
Handsets	
2G	0.064%
2G/3G	0.032%
2G/3G/4G	0.062%
Infrastructure	
2G	0.064%
3G	0.016%
4G	0.072%

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [478].

On the basis of the benchmark FRAND rates reported in Table 8, Mr. Justice Birss concluded that none of the offers that Unwired Planet extended to Huawei was FRAND, because the royalties in those offers were "too high."[238] Similarly, he concluded that none of Huawei's counteroffers to Unwired Planet was FRAND, because the royalties contained in those counteroffers were "too low."[239]

2. *Regional Adjustments to the Benchmark FRAND Royalty*

Although Unwired Planet and Huawei agreed that the correct way to determine a FRAND royalty for the use of Unwired Planet's SEPs was first to determine the benchmark rate for a *worldwide* license, they disagreed about the proper geographic scope for a FRAND license to Unwired Planet's SEPs.[240] Unwired Planet emphasized that its "clear preference was for a global licence"[241] and argued that, in fact, it had the right to insist that Huawei take such a license.[242] In contrast, Huawei was willing to execute only a license for the SEPs that Unwired Planet held in the United Kingdom.[243] Thus,

238 *Id.* [522].
239 *Id.*
240 *Id.* [176].
241 *Id.* [22].
242 *Id.* [523].
243 *Id.* [524].

Mr. Justice Birss needed to determine what the proper geographic scope would be for a FRAND license to Unwired Planet's SEPs.

Huawei argued that it was not FRAND for Unwired Planet to bundle its U.K. SEPs with the SEPs that it held in other jurisdictions.[244] Huawei contended that, by insisting on a global license, Unwired Planet abused its dominant position in violation of European competition law.[245] In addition, Huawei argued that, because Unwired Planet's portfolio of SEPs was "geographically limited," and because Huawei was making "a very considerable volume of sales" in countries in which Unwired Planet did not own any relevant SEPs, it was inappropriate for Unwired Planet to insist on a worldwide license.[246] However, Mr. Justice Birss rejected Huawei's arguments.

Mr. Justice Birss found that, although Unwired Planet did not own SEPs in every country, its "geographical coverage [was] very wide."[247] He said that Unwired Planet's portfolio was "sufficiently large and ha[d] sufficiently wide geographical scope that a licensor and licensee acting reasonably and on a willing basis would agree on a worldwide licence."[248] He added that the parties would consider "country by country licensing as madness," because "[a] worldwide licence would be far more efficient."[249] Mr. Justice Birss said that "[t]he real inefficiency of country by country licensing is the effort required to negotiate and agree [to] so many different licences and then to keep track of so many different royalty calculations and payments."[250] He emphasized that "[n]o rational business would do this if it could be avoided."[251] In other words, Mr. Justice Birss found that, to avoid transaction costs, a willing SEP holder and a willing licensee in a position comparable to Unwired Planet and Huawei would agree to a worldwide license.

Moreover, when rejecting Huawei's argument that Unwired Planet violated EU competition law by tying a license for its U.K. SEPs to a license for its SEPs in different jurisdictions, Mr. Justice Birss emphasized that it is common industry practice to license an SEP portfolio on a worldwide basis.[252] He observed that all license agreements presented at trial were worldwide in scope,[253] and he said that, if the SEP holder's portfolio covers patents worldwide, then insisting on a worldwide license "is unlikely to be abusive."[254] Thus, Mr. Justice Birss concluded that a worldwide license "is *the*

244 *Id.* [22].
245 *Id.*
246 *Id.* [33].
247 *Id.* [538].
248 *Id.* [543].
249 *Id.*
250 *Id.* [544].
251 *Id.*
252 *Id.* [533].
253 *Id.* [534].
254 *Id.* [535].

FRAND licence for a portfolio like Unwired Planet's and an implementer like Huawei."[255] Having found that "there is only one set of FRAND terms in a given situation,"[256] he found that a license limited to Unwired Planet's SEPs in the United Kingdom could not be FRAND.[257]

After determining that a FRAND license to Unwired Planet's SEPs would be worldwide in geographic scope, Mr. Justice Birss considered whether he needed to further adjust his calculated benchmark FRAND rates for a worldwide license. In particular, he observed that "at least one comparable licence" that he had analyzed specified different royalties for three different geographic regions.[258] He found that such a royalty payment structure was "fair and reasonable," and he concluded that a worldwide license for Unwired Planet's SEP portfolio would similarly specify different royalties for different regions.[259] Thus, Mr. Justice Birss adjusted his benchmark rates based on the regional patent strength of Unwired Planet's portfolio for each of the following three regions: (1) China, (2) "Major Market" (MM) countries, and (3) "Other Market" (OM) countries.

a. Adjusting the FRAND Royalty for Huawei's Use of Unwired Planet's SEP Portfolio in China

For each relevant standard, Mr. Justice Birss found that a FRAND royalty for a license to Unwired Planet's portfolio of SEPs for products that Huawei would sell in China should be lower than the benchmark FRAND royalty. To derive what he deemed to be an appropriate royalty for products that Huawei would sell in China, he made two adjustments to his benchmark rates.

First, as I explained in Part II.A.2, Mr. Justice Birss determined that a FRAND rate for Ericsson's SEP portfolio in China was 50 percent lower than in other regions. Thus, to calculate a FRAND royalty for the use of Unwired Planet's Chinese SEP portfolio, Mr. Justice Birss reduced each benchmark rate by 50 percent.[260]

Second, Mr. Justice Birss found that it was "fair and reasonable" to further reduce the royalty for Unwired Planet's SEPs in China, because Unwired Planet owned fewer SEPs in China than it owned in other regions.[261] Therefore, he multiplied each benchmark rate by a second factor equal to the ratio of (1) the number of Unwired Planet's relevant SEP families in China to (2) the total number of Unwired Planet's relevant SEP families.[262]

255 *Id.* [572] (emphasis added).
256 *Id.* [552].
257 *Id.*
258 *Id.* [587].
259 *Id.*
260 *Id.* [586].
261 *Id.* [584].
262 *Id.*

In addition, Mr. Justice Birss found it "fair" to scale his benchmark rates for multimode handsets "by reference to the Relevant SEP numbers in the highest relevant standard."[263] Put differently, he adjusted his benchmark rate for 4G multimode handsets using the ratio of (1) the number of Unwired Planet's 4G SEP families in China to (2) the total number of Unwired Planet's 4G SEP families. Similarly, Mr. Justice Birss adjusted his benchmark rate for 3G multimode handsets using the ratio of (1) the number of Unwired Planet's 3G SEP families in China to (2) the total number of Unwired Planet's 3G SEPs. Table 9 summarizes the results of Mr. Justice Birss' calculation of FRAND royalties that Huawei ought to pay Unwired Planet for each of Huawei's licensed sales in China.

Table 9. Mr. Justice Birss' Calculated FRAND Rates
for Unwired Planet's 2G, 3G, and 4G SEPs
for Handsets and Infrastructure in China

Standard(s)	Benchmark FRAND Royalty for Unwired Planet's SEPs	Unwired Planet's Relevant SEP Families	Unwired Planet's Relevant SEP Families in China	China FRAND Royalty for Unwired Planet's SEPs
	[*U*]	[*N*]	[N_C]	[U_C] = [*U*] × 50% × ([N_C] / [*N*])
		Handsets		
2G	0.064%	2	1	0.016%
2G/3G	0.032%	1	1	0.016%
2G/3G/4G	0.062%	6	5	0.026%
		Infrastructure		
2G	0.064%	1	1	0.032%
3G	0.016%	2	1	0.004%
4G	0.072%	7	5	0.026%

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [586].

As Table 9 shows, Mr. Justice Birss found that a FRAND royalty for a license to Unwired Planet's SEPs for Huawei products sold in China would be less than or equal to half of the benchmark FRAND rates for each relevant standard.

[263] *Id.*

b. A FRAND Royalty for Huawei's Use of Unwired Planet's SEP Portfolio in "Major Market" Countries and "Other Market" Countries Under a Worldwide License

Next, Mr. Justice Birss examined "whether any other regions of the world should have lower rates than the benchmark rate"[264]—that is, in countries he categorized as either major market (MM) countries or other market (OM) countries.[265] Mr. Justice Birss identified a country as either an MM country or an OM country on the basis of the number of declared SEPs that Unwired Planet held in that country for each relevant standard. Specifically, he defined a 2G MM country as a country in which Unwired Planet held two or more declared 2G SEPs, a 3G MM country as a country in which Unwired Planet held two or more declared 3G SEPs, and a 4G MM country as a country in which Unwired Planet held three or more declared 4G SEPs.[266] He concluded that "[a]ny country below the threshold would be OM for that standard."[267] Notably, Mr. Justice Birss excluded from his patent count any declared SEPs that another court previously found to be invalid or not essential.[268] Table 10 lists the MM countries for each cellular standard.

Table 10. MM Countries for the 2G, 3G, and 4G Standards

MM Countries for 2G, 3G, and 4G	MM countries for 3G and 4G Only	MM Countries for 4G Only	MM Countries for 3G Only
France	Canada	Ireland	Argentina
Germany	Italy	Netherlands	Australia
India	Spain	New Zealand	South Korea
Japan	Taiwan	Switzerland	–
United Kingdom	–	–	–
United States	–	–	–

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [587].
Notes: For multimode handsets, Mr. Justice Birss said that "the royalty will be the higher of the possible applicable rates." *Id.* [590]. For example, he said that, for a 2G/3G multimode handset in a country that is an MM country for 3G, Huawei would need to pay the 3G MM country rate. *Id.* Similarly, for a 2G/3G/4G multimode handset in a country that is an OM country for 4G and is an MM country for 3G, Huawei would need to pay the 3G MM country rate rather than the 4G OM country rate. *Id.*

For each cellular standard, Mr. Justice Birss identified any country that was not an MM country for that standard as an OM country for that

264 *Id.* [587].
265 *Id.*
266 *Id.*
267 *Id.* [587].
268 *Id.* [588] ("Any declared SEP in a country which is determined by a relevant court to be invalid or not essential would cease to count as a declared SEP. This is a simple way of ensuring that the licensee can, if they wish, challenge validity (etc.) while the agreement is in force.").

standard.[269] Mr. Justice Birss determined that a FRAND royalty for a particular standard in an OM country would be equal to the rate for China.[270] He reasoned that it was appropriate to set the OM country rate equal to the China rates because Huawei manufactured its products (and components for its products) in China and subsequently sold (or assembled) them in OM countries.[271] Thus, the Chinese rate served as a floor on the rate for a worldwide license.

In contrast, for MM countries, Mr. Justice Birss used the same scaling procedure for handsets that he used to calculate a FRAND royalty in China.[272] That is, he multiplied his benchmark FRAND royalty by the share of Unwired Planet's SEP families in MM countries relative to all of Unwired Planet's relevant SEP families. Table 11 summarizes Mr. Justice Birss' calculations of FRAND royalties for the use of Unwired Planet's SEPs in MM countries.

Table 11. Mr. Justice Birss' Calculated FRAND Rates for Unwired Planet's 2G, 3G, and 4G SEPs for Handsets and Infrastructure in "Major Market" Countries

Standard(s)	Benchmark FRAND Royalty	Unwired Planet's Relevant SEP Families	Unwired Planet's Relevant SEP Families in MM Countries	MM Country FRAND Royalty
	[U]	[N]	[N_{MM}]	[U_{MM}] = [U] × ([N_{MM}] / [N])
Handsets				
2G	0.064%	2	2	0.064%
2G/3G	0.032%	1	1	0.032%
2G/3G/4G	0.062%	6	5	0.052%
Infrastructure				
2G	0.064%	1	1	0.064%
3G	0.016%	2	2	0.016%
4G	0.072%	7	5	0.051%

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [591].

269 *Id.*
270 *Id.* [589].
271 *Id.* ("The rate of OM countries would be the China rate on the basis that the products are made in China under license. That will also apply to products in which the components are made in China but the products are assembled in an OM country.").
272 *Id.* [590].

As Table 11 shows, Mr. Justice Birss found that a FRAND royalty for a license to Unwired Planet's SEPs from Huawei products sold in MM countries would equal his benchmark FRAND royalty for 2G handsets and 3G multimode handsets, and for 2G and 3G infrastructure. For 4G multimode handsets and 4G infrastructure equipment sold in MM countries, however, he derived FRAND royalties that were lower than his benchmark FRAND royalties.

3. *A FRAND Royalty for a National License to Unwired Planet's SEP Portfolio in the United Kingdom*

Mr. Justice Birss concluded that the United Kingdom was an MM country for all three cellular standards, because Unwired Planet owned more than two declared 2G SEPs, more than two declared 3G SEPs, and more than three declared 4G SEPs in the United Kingdom.[273] Thus, under a worldwide license, the MM country rate would apply to products that Huawei would sell in the United Kingdom. However, Mr. Justice Birss found that such a royalty would be appropriate only if Huawei agreed to execute a worldwide license with United Planet. He said that if, contrary to his findings, Huawei had the right to insist on a license limited in scope to the United Kingdom, then a FRAND royalty for a license to Unwired Planet's U.K. SEPs should exceed the benchmark FRAND rate.[274]

Mr. Justice Birss reasoned that "the inefficiency and inconvenience of state by state licensing is very substantial. Scores or hundreds of licences would be required."[275] Put simply, he recognized that licensing on a country-by-country basis would raise negotiation costs and monitoring costs for the parties, thereby justifying charging a higher royalty. Indeed, both Unwired Planet and Huawei agreed that a FRAND royalty for a U.K. license would exceed the benchmark FRAND royalty.[276] Therefore, Mr. Justice Birss increased the royalty that Huawei would need to pay for a license only to Unwired Planet's U.K. SEPs: "It is clear that if the licence was to be only for one territory, such as the UK, then the rate should be higher than the benchmark rate. That is because there are plainly significant efficiencies in global licensing."[277]

The parties disagreed over the extent to which the court should raise the benchmark FRAND royalty to derive a FRAND rate for a U.K. license. Huawei proposed that the U.K. rate should be 1.5 times the benchmark FRAND royalty.[278] In contrast, Unwired Planet argued that the U.K. rate for handsets should be 2.5 times the benchmark FRAND royalty, and that

273 *Id.* [587].
274 *Id.* [596]; *see also id.* [618].
275 *Id.* [602].
276 *Id.* [597].
277 *Id.*
278 *Id.*

the U.K. rate for infrastructure equipment should be twice the benchmark FRAND royalty.[279] Ultimately, Mr. Justice Birss rejected both parties' proposals and concluded, without providing a detailed explanation, that a FRAND royalty for a U.K. license would be double the benchmark FRAND royalty.[280]

4. *Summation*

In sum, to derive a FRAND royalty for a worldwide license to Unwired Planet's SEP portfolio, Mr. Justice Birss first derived a benchmark FRAND royalty for Huawei's use of Unwired Planet's SEPs by multiplying his estimated FRAND royalty for Ericsson's SEP portfolio by the ratio of the value of Unwired Planet's SEP portfolio to the value of Ericsson's SEP portfolio. He then adjusted the benchmark FRAND royalty for a worldwide license for each geographic region where Huawei sells its products—that is, China, an MM country, or an OM country—based on the number of relevant SEP families that Unwired Planet owned in those geographic regions.[281] In addition, Mr. Justice Birss separately determined a FRAND royalty for a U.K.-only license in the event that, contrary to his finding, Huawei had the right to demand a FRAND license for Unwired Planet's SEPs that was limited in scope to the United Kingdom. Mr. Justice Birss found that a FRAND royalty under a U.K.-only license would be twice the benchmark FRAND royalty.

III. Mr. Justice Birss' Rejection of the Top-Down Methodology

In *Unwired Planet*, Huawei suggested that the court determine a FRAND royalty for a license to Unwired Planet's SEPs using a variation of the top-down methodology. However, Mr. Justice Birss found Huawei's proposed approach to be too speculative, and he declined to rely on it. Nonetheless, he used the top-down methodology "as a cross-check."[282] That is, relying on the FRAND royalties for Unwired Planet's SEP portfolio that he calculated on the basis of his analysis of comparable licenses, Mr. Justice Birss estimated the aggregate royalty burden for implementing the relevant SEPs included in 2G, 3G, and 4G standards. Because he found that the aggregate SEP royalty burdens implied by his calculated FRAND royalties for Unwired Planet's share of SEPs would be consistent with the aggregate royalty burdens deemed reasonable by both Unwired Planet and Huawei, Mr. Justice Birss concluded that his rates were FRAND.

279 *Id.* [602].
280 *Id.*
281 *Id.* [593].
282 *Id.* [476].

A. The Basic Reasoning of the Top-Down Methodology

The top-down methodology provides a simple framework for calculating a FRAND royalty for an SEP portfolio. As Mr. Justice Birss explained, the methodology "starts with a number representing what the appropriate total aggregate royalty burden" should be for a license to *all* relevant SEPs for a given standard (a variable that he defines as *T*).[283] After identifying *T*, "one can then share out the royalty across all licensors in proportion to the value of each licensor's patent portfolio based on assessing that value as a share (call it *S*) of the total relevant patent portfolio essential to that standard."[284] As Mr. Justice Birss explained, a FRAND royalty for a license to an SEP portfolio is then calculated under the top-down methodology as $T \times S$.[285]

Several courts have adopted variations of the top-down methodology to calculate a FRAND royalty. For example, in the 2013 decision in *Innovatio*, Judge James Holderman used a top-down methodology to calculate a FRAND rate for Innovatio's SEP portfolio. Judge Holderman relied on the opinion of the defendants' economic expert, Dr. Gregory Leonard, who calculated a RAND royalty by (1) identifying the average profit that a chipmaker earns on the sale of each chip that practices the Wi-Fi standard, and (2) multiplying that profit by an estimate of Innovatio's relative contribution to the value of the Wi-Fi standard,[286] which was determined through patent counting adjusted according to the importance of the patents to the standard.[287]

More recently, in the 2018 decision in *TCL v. Ericsson*, Judge James Selna used a top-down methodology to calculate a FRAND royalty for Ericsson's SEP portfolio.[288] Judge Selna relied on prior public statements by SEP holders concerning the expected aggregate royalty burden for the 2G, 3G, and 4G standards to determine the aggregate royalty for each standard. He then calculated Ericsson's proportional share of SEPs using patent counting, dividing the number of Ericsson's relevant SEPs by the total number of relevant SEPs in that standard.[289] (As of November 2018, Judge Selna's decision is on appeal to the U.S. Court of Appeals for the Federal Circuit.)

283 *Id.* [178].
284 *Id.* (italics for variables added).
285 *Id.*
286 *In re* Innovatio IP Ventures, LLC Patent Litig., No. 11 C 9308,2013 WL 5593609, at *37–39 (N.D. Ill. Oct. 3, 2013).
287 *See id.* at *38 ("Dr. Leonard also provided several alternative calculations for this step by varying the denominator of the fraction to account for varying conclusions about the value of Innovatio's patents to the 802.11 standard."); *id.* at *43 ("Dr. Leonard provided three calculations for the court's consideration, depending on whether the court determined that Innovatio's patents were in the top 50% of the 3000 802.11 patents, in the top 20%, or in the top 10%.").
288 TCL Commc'ns Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson, No. 14-341, 2017 WL 6611635, slip op. at *14 (C.D. Cal. Dec. 17, 2017) (Selna, J.), *amended by* 2018 WL 4488286, at *14 (C.D. Cal. Sept. 14, 2018) (Selna, J.), *appeal docketed*, No. 18-1363 (Fed. Cir. Jan. 2, 2018).
289 *Id.* at *14.

From an economic perspective, the top-down methodology provides a scientific and rigorous means for determining a FRAND royalty *if* one can reliably determine the values of *T* and *S*. However, if one lacks a cogent rationale for what *T* should be, or if one lacks the data to determine the value of *T* or *S*, a top-down methodology can produce speculative results. If the determination of *T* or *S* becomes too speculative, the royalty calculated using the top-down methodology might deviate significantly from a royalty upon which the parties would have willingly agreed in a hypothetical negotiation. Mr. Justice Birss recognized this economic insight in *Unwired Planet*.

Mr. Justice Birss' primary concern with using a top-down methodology to determine a FRAND royalty stemmed from the speculative nature of deriving *T*.[290] Huawei suggested that the court determine *T* on the basis of public statements that SEP holders made about the expected aggregate royalty for each of the relevant standards.[291] For example, Huawei observed that, in April 2008, Ericsson issued a press release in which it said that "'wireless industry leaders' (Ericsson, Alcatel Lucent, NEC Corporation, NextWave Wireless, Nokia, Nokia Siemens Networks and Sony Ericsson) . . . supported the idea that a reasonable maximum aggregate royalty level for essential IPR in [LTE] handsets is a 'single digit percentage of the sales price.'"[292] In a separate press release from the same year, Ericsson said that it believed "the market will drive all players to . . . a reasonable maximum aggregate royalty level of 6–8 [percent of the price] for handsets."[293] In addition, in 2009, Huawei said that it anticipated that the maximum aggregate royalty for the 4G standard would be a low single-digit percentage of sales prices and that its own royalty would not exceed 1.5 percent of the product's sales price.[294] On the basis of these and other statements, Huawei argued that *T* for the SEPs included in 4G products should be 8 percent of (presumably) the handset's ASP, and 5 percent or less of 3G handsets' ASP.[295] (Huawei did not present public statements from 2G SEP holders.)

However, Mr. Justice Birss found that the SEP holders' public statements did not provide a reliable method for determining the value of *T*. He said that the SEP holders' statements "are obviously self-serving" and that they "are statements about other people's money . . . [that] say[] at the same time that the cake is quite small but [the SEP holder is] entitled to a large piece

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290 Unwired Planet Int'l Ltd v. Huawei Techs. Co. [2017] EWHC (Pat) 2988 [178] (Eng.).

291 *Id.* [267] ("Huawei submit that the court should attach particular weight to early declarations by major patent owners who were predicting what their ownership would be and what the total [royalty] stack should be.").

292 *Id.* [264] (quoting Press Release, Ericsson, Wireless Industry Leaders Commit to Framework for LTE Technology IPR Licensing (Apr. 14, 2008), https://www.ericsson.com/en/press-releases/2008/4/wireless-industry-leaders-commit-to-framework-for-lte-technology-ipr-licensing).

293 *Id.*

294 *Id.*

295 *Id.* [265].

of it."[296] He also observed that some portions of a given SEP holder's statements were logically inconsistent. For example, he noted that in Huawei's statement from 2009, Huawei supported "[a] low single digit percentage aggregate" royalty for the 4G standard (which Mr. Justice Birss assumed to mean "a figure of no more than 5 [percent]").[297] Huawei also said that it expected to produce 15 to 20 percent of the relevant SEPs and therefore charge a 1.5 percent royalty.[298] However, with an aggregate royalty of 5 percent or less, a 15 to 20 percent share of that aggregate would produce an individual royalty between 0.75 and 1 percent. Huawei's expected royalty of 1.5 percent would imply a 7.5 to 10 percent aggregate royalty.[299] Mr. Justice Birss consequently gave "little value" to SEP holders' statements about T and Huawei's top-down methodology more generally.[300]

In sum, Mr. Justice Birss declined to use the top-down methodology to determine a FRAND royalty for Unwired Planet's SEPs.

B. Using the Top-Down Methodology as a Cross-Check

Although Mr. Justice Birss declined to rely on the top-down methodology to compute a FRAND rate for Unwired Planet's SEP portfolio, he used the principles of that methodology to "cross-check" the results of his analysis of comparable licenses. Specifically, he divided the "benchmark" FRAND royalty for a license to Unwired Planet's SEP portfolio by Unwired Planet's estimated share of all relevant SEP families. That calculation permitted Mr. Justice Birss to estimate the implied aggregate royalty burden that Huawei would face for obtaining a license to all relevant SEP families included in the 2G, 3G, and 4G standards. He found that the implied aggregate royalty burden would be reasonable and that this evidence confirmed that the calculated royalties for Unwired Planet's SEP portfolio were FRAND.

1. Estimating Unwired Planet's Share of All Relevant SEPs (S)

Mr. Justice Birss estimated Unwired Planet's share of all relevant SEPs (S) for the three standards by dividing the number of Unwired Planet's relevant SEP families for each standard (N_{UP}) by the total number of relevant SEP families for each standard (N_{total}),[301] as Equation 3 shows:

[296] *Id.* [269].
[297] *Id.*
[298] *Id.*
[299] *Id.* ("The figures in Huawei's own claim are not closely internally consistent either. A low single digit percentage aggregate sounds like a figure of no more than 5% but to produce that with a 15–20% share of Relevant SEPs represents a royalty of 0.75%–1%. To produce a royalty close to the 1.5% limit referred to requires an aggregate of 7.5%–10%.").
[300] *Id.*
[301] *Id.* [378].

$$S = N_{UP} \div N_{total}. \qquad (3)$$

In calculating *S*, Mr. Justice Birss relied on Unwired Planet's estimates of the number of relevant SEP families that Unwired Planet owned for 2G, 3G, and 4G handsets and infrastructure equipment that I described in Part II.B.3.[302] In contrast, he used his own set of estimates for the total number of relevant SEP families, which, as explained in Part II.B.1.c, he obtained by adjusting the results of the HPA.[303]

Using Equation 3, Mr. Justice Birss found that Unwired Planet owned 0.75 percent of all relevant SEP families implemented in 4G handsets, 0.21 percent of all relevant SEP families implemented in 3G handsets, and 1.30 percent of all relevant SEP families implemented in 2G handsets.[304] He then concluded, using the methodology for multimode weighing that I analyzed in Part II.C.1, that Unwired Planet owned 0.70 percent of all relevant SEP families implemented in 4G multimode handsets and 0.57 percent of all relevant SEP families implemented in 3G multimode handsets.[305] In addition, Mr. Justice Birss found that Unwired Planet held 1.02 percent of all relevant SEP families for 4G infrastructure equipment, 0.51 percent of all relevant SEP families for 3G infrastructure equipment, and 0.75 percent of all relevant SEP families for 2G infrastructure equipment.[306] Table 12 reports Mr. Justice Birss' estimates of *S*.

302 *Id.*
303 *Id.* [377].
304 *Id.* [378]. That is, 0.75% = 6 ÷ 800; 0.21% = 1 ÷ 479; and 1.30% = 2 ÷ 154.
305 *Id.* Mr. Justice Birss weighted Unwired Planet's share of SEPs for 4G, 3G, and 2G handsets by a ratio of 70:20:10 to derive Unwired Planet's share of all SEPs practiced in 4G multimode handsets. *See id.* [220]. That is, (0.7 × 0.75%) + (0.2 × 0.21%) + (0.1 × 1.30%) = 0.70%. Similarly, he weighted Unwired Planet's share of SEPs for 3G and 2G handsets by a ratio of 67:33 to derive Unwired Planet's share of all SEPs practiced in 3G multimode handsets. *See id.* That is, (0.67 × 0.21%) + (0.33 × 1.30%) = 0.57%.
306 *Id.* That is, 1.02% = 7 ÷ 684; 0.51% = 2 ÷ 390; and 0.75% = 1 ÷ 134.

Table 12. Mr. Justice Birss' Estimated Values for *S*

Standard	Unwired Planet's Share of Relevant SEP Families [*S*]
Handsets	
4G/3G/2G	0.70%
3G/2G	0.57%
2G	1.30%
Infrastructure	
4G	1.02%
3G	0.51%
2G	0.75%

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [378].

Mr. Justice Birss used his derived values of *S* to compute the total aggregate royalty burden that Huawei would face for implementing the 2G, 3G, and 4G standards in its handsets and infrastructure equipment.

2. *The Aggregate SEP Royalty Burden (*T*)*

Mr. Justice Birss estimated the aggregate SEP royalty burden (*T*) by dividing the benchmark FRAND royalty for Unwired Planet's SEP portfolio (*U*) by Unwired Planet's share of all relevant SEPs (*S*), as Equation 4 shows.[307]

$$T = U \div S. \tag{4}$$

Using Equation 4, Mr. Justice Birss found that the aggregate SEP royalty burden that corresponds to the benchmark rate and Unwired Planet's share of all relevant SEP families would equal (1) 8.8 percent of the ASP of Huawei's 4G multimode handsets, (2) 5.6 percent of the ASP of Huawei's 3G multimode handsets, and (3) 4.9 percent of the ASP of Huawei's 2G handsets.[308] For infrastructure equipment, he found that the total royalty burden for 4G, 3G, and 2G devices would be, respectively, 7 percent, 3.1 percent, and 8.5 percent of Huawei's revenue.[309]

Table 13 reports Mr. Justice Birss' findings on the implied aggregate royalty burdens.

[307] *Id.* [475]–[478].
[308] *Id.* [478].
[309] *Id.*

Table 13. Mr. Justice Birss' Estimated Values for *T*

Standard	Benchmark Royalty Rate [*U*]	Unwired Planet's Share of Relevant SEPs [*S*]	Implied Aggregate Royalty Burden [*T*] = [*U*] ÷ [*S*]
Handsets			
4G/3G/2G	0.062%	0.70%	8.8%
3G/2G	0.032%	0.57%	5.6%
2G	0.064%	1.30%	4.9%
Infrastructure			
4G	0.072%	1.02%	7.0%
3G	0.016%	0.51%	3.1%
2G	0.064%	0.75%	8.5%

Source: *Unwired Planet* [2017] EWHC (Pat) 2988 [478].
Note: The implied aggregate royalty burden is calculated as a percentage of the ASP of the licensee's mobile device and as a percentage of the revenue from selling infrastructure equipment.

Mr. Justice Birss found that, overall, each of his estimated values of *T* "falls within an appropriate range."[310] He found that the 8.8-percent aggregate SEP royalty for 4G multimode handsets was "lower than the aggregate implied by either party's case (Huawei's 13% and Unwired Planet's 10.4%)."[311] Mr. Justice Birss acknowledged that such an aggregate SEP royalty rate exceeded the estimated aggregate SEP royalty burdens for 4G handsets announced by various SEP holders in 2008, "but not so far as to be out of line."[312] Similarly, he found that the total SEP royalty burden for 3G multimode handsets (5.6 percent) was "not far out of line with the judgment of the internationally respected IP High Court of Japan."[313] Thus, Mr. Justice Birss concluded that the cross-check analysis corroborated his estimated benchmark FRAND royalty for Unwired Planet's SEP portfolio determined on the basis of comparable licenses.

IV. The Court of Appeal's Affirmance of Mr. Justice Birss' Decision

Huawei appealed some of Mr. Justice Birss' findings in *Unwired Planet* to the Court of Appeal of England and Wales. However, Huawei did not challenge Mr. Justice Birss' approach to calculating a FRAND royalty, nor did Huawei

310 *Id.* [479].
311 *Id.* [476].
312 *Id.*
313 *Id.* [479].

challenge the specific royalty rates that he found Huawei should pay for a license to Unwired Planet's SEPs.[314] Rather, Huawei appealed three particular findings concerning the licensing of FRAND-committed SEPs: (1) that a FRAND license for Unwired Planet's SEP portfolio would be global in scope, (2) that the nondiscrimination requirement of the FRAND commitment did not impose on Unwired Planet a "hard-edged" requirement, and (3) that Unwired Planet did not abuse its dominant position in violation of Article 102 of the Treaty on the Functioning of the European Union (TFEU) by failing to offer a license on FRAND terms before initiating a legal action against Huawei. The Court of Appeal dismissed all three grounds for appeal and affirmed Mr. Justice Birss' findings.

Although the Court of Appeal's decision did not address specific methods for determining a FRAND royalty, it recognized some important principles for determining whether an SEP holder has complied with the obligations arising from its FRAND commitment. Because the decision provides guidance for courts that will be asked to determine the terms of a FRAND license, it is worth examining the Court of Appeal's reasons for rejecting some of the key arguments that Huawei raised in its appeal.

A. *The Court of Appeal's Affirmance of Mr. Justice Birss' Finding That a FRAND License for Unwired Planet's SEPs Would Be Global in Scope*

The Court of Appeal devoted the majority of its opinion to addressing Huawei's contention that Mr. Justice Birss incorrectly concluded that a FRAND license for Unwired Planet's SEPs would cover Unwired Planet's worldwide portfolio of SEPs, rather than only the SEPs that Unwired Planet held in the United Kingdom.[315] The Court of Appeal found no error in Mr. Justice Birss' conclusion. In rejecting Huawei's arguments, the court addressed two important questions: (1) whether an SEP holder's offer of a worldwide license for its SEP portfolio is consistent with its FRAND commitment, and (2) whether a U.K. court has the authority to determine the terms of a worldwide FRAND license.

1. *Can an SEP Holder Comply with Its FRAND Obligation by Offering a Worldwide License to Its SEP Portfolio?*

During the trial before Mr. Justice Birss, Huawei argued that Unwired Planet had failed to comply with its FRAND commitment by offering a worldwide

[314] Unwired Planet Int'l Ltd v. Huawei Techs. Co. [2018] EWCA (Civ) 2344 [17] (Eng.) ("We should say that the issue of licence rates was one to which a large part of the evidence and submissions of the parties at trial were directed. Subject to the grounds of appeal to which we will come in a moment, the judge's conclusions on this issue are not challenged on this appeal.").

[315] *Id.* [19].

license for Unwired Planet's SEPs, instead of offering a license limited to only its U.K. SEPs. As explained in Part II.C, Mr. Justice Birss rejected Huawei's arguments. The Court of Appeal agreed with Mr. Justice Birss both that (1) depending on the circumstances of the case, an offer for a worldwide license could be FRAND, and that (2) the specific facts of the case supported the conclusion that Unwired Planet's worldwide offer was indeed FRAND. Therefore, the Court of Appeal found that Unwired Planet could comply with its FRAND obligations by offering a worldwide license, rather than a license limited to the United Kingdom.

a. *Did Mr. Justice Birss Correctly Find That an Offer for a Worldwide License Can Be FRAND?*

The Court of Appeal confirmed that, in principle, an offer to license an SEP portfolio on a worldwide basis can be FRAND.[316] The court found that several considerations supported its conclusion.

First, the Court of Appeal said that, in determining the terms of a FRAND license, Mr. Justice Birss correctly assessed the terms to which a willing SEP holder and a willing implementer could agree.[317] The court agreed with Mr. Justice Birss that two parties "acting fairly and reasonably" could agree to a worldwide license for a portfolio of SEPs.[318] The Court of Appeal reasoned that "[i]t may be wholly impractical for [an] SEP owner to seek to negotiate a licence of its patent rights country by country, just as it may be prohibitively expensive for it to seek to enforce those rights by litigating in each country in which they subsist."[319] In other words, the court agreed that it might be more efficient for the parties to agree to a global license, rather than negotiate a license for each individual jurisdiction, and the court found that such evidence supported Mr. Justice Birss' conclusion that a worldwide license could be FRAND.

The Court of Appeal also observed that, in at least some cases, "it would not be fair and reasonable" to require the SEP holder to negotiate a license or enforce its patents in each individual jurisdiction.[320] Although the court did not elaborate further, one could expect that such would be the case when an SEP holder holds SEPs in multiple jurisdictions and the implementer manufacturers or sells its products in most of those jurisdictions—conditions met by Unwired Planet and Huawei, respectively. The Court of Appeal also acknowledged (in a different part of its judgment) that, in such circumstances, negotiating licenses that are limited to individual jurisdictions would

[316] *Id.* [56].
[317] *Id.* [28].
[318] *Id.* [56].
[319] *Id.* [55].
[320] *Id.* [56].

place an SEP holder in a position in which it "would face not just the needless expense of negotiating and managing licences on a country by country basis but also the problem of dealing with a potential licensee which is holding-out and refusing to engage in a reasonable way with the negotiation process."[321] The court emphasized that, in such a circumstance, "*only* a global license or at least multi-territorial license would be FRAND."[322]

Second, the Court of Appeal said that evidence of general industry practice is also probative of whether the licensing terms comply with a FRAND commitment.[323] It then observed that the execution of a worldwide license, or at least a license that covers multiple jurisdictions, is a common industry practice for SEP holders and implementers negotiating a FRAND license for SEPs.[324] The Court of Appeal found that evidence of industry practice provided further support for Mr. Justice Birss' conclusion that a worldwide license could be FRAND.[325]

Third, the Court of Appeal found that Mr. Justice Birss' conclusion comported with the decisions adopted by other courts and "decision making bodies."[326] For example, the court noted that, in the November 2017 Communication titled *Setting Out the EU Approach to Standard Essential Patents*, the European Commission expressly recognized the need to consider "the practice in that sector . . . and efficiency considerations" when determining whether a license offer is FRAND.[327] The Court of Appeal also observed that two German courts adopted a similar approach when determining the geographic scope of a FRAND license.

In *Pioneer v. Acer*, the Regional Court of Mannheim found that it is common industry practice for cases in which the licensor holds SEPs in various jurisdictions and the implementer is active in a number of those jurisdictions to agree on a worldwide license.[328] The regional court found that a license offer limited to Germany was not FRAND.[329] Similarly, in *St. Lawrence v. Vodafone*, the District Court of Düsseldorf said that, in determining whether an offer is FRAND, a court must consider evidence from industry practice and that, if "worldwide portfolio licences are the normal practice[,] then an offer of such a licence will be FRAND unless the circumstances of the case justify a different conclusion."[330] The Court of Appeal found that

321 *Id.* [111].
322 *Id.* [56] (emphasis in original).
323 *Id.* [28].
324 *Id.* [55].
325 *Id.*
326 *Id.* [49].
327 *Id.* [61] (quoting European Commission, Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee: Setting Out the EU Approach to Standard Essential Patents (Nov. 29, 2017)).
328 *Id.* [63] (citing Landgericht [LG] [Regional Court] Mannheim Jan. 8, 2016, 7 O 96/14 (Ger.)).
329 *Id.*
330 *Id.* [64] (citing Landgericht [LG] [Regional Court] Düsseldorf Mar. 31, 2016, 4a O 73/14 (Ger.)).

those decisions supported Mr. Justice Birss' conclusion that a worldwide license could be FRAND.

The Court of Appeal agreed with Huawei that in some cases—including *Ericsson v. D-Link*, *In re Innovatio IP Ventures*, and *Realtek Semiconductor v. LSI*—U.S. courts have determined FRAND royalties for U.S. SEPs only.[331] However, those three decisions concerned damages for the infringement of the asserted SEPs.[332] Unlike Mr. Justice Birss, the judges in these U.S. cases were not asked to determine whether any particular offer, including an offer for a worldwide license, complied with a FRAND (or RAND) commitment. Thus, the Court of Appeal found, correctly in my view, that those cases did not undermine Mr. Justice Birss' conclusion that an SEP holder could discharge its FRAND obligation by offering a worldwide license.[333] Furthermore, the Court of Appeal noted that, in another U.S. case involving RAND-committed SEPs, *Microsoft v. Motorola*, Judge James Robart was asked to determine whether an SEP holder's offer complied with its RAND commitment to the Institute of Electrical and Electronics Engineers (IEEE) and the International Telecommunication Union (ITU) and, in doing so, he calculated a RAND royalty for a *global* license.[334]

In sum, the Court of Appeal found no errors in Mr. Justice Birss' conclusion that Unwired Planet's offer to license its SEP portfolio on a worldwide basis could in principle discharge its commitment to ETSI as an SEP holder to offer to license its SEPs on FRAND terms.

b. *Did the Facts of the Case Support Mr. Justice Birss' Conclusion That Unwired Planet's Offer for a Worldwide License Is FRAND?*

Having determined that an SEP holder could, in principle, comply with its FRAND commitment by offering to license its SEPs on a worldwide basis, the Court of Appeal next examined whether the specific facts of the case in *Unwired Planet* supported Mr. Justice Birss' conclusion that Unwired Planet's offers to license its portfolio of SEPs to Huawei on a worldwide basis were in fact FRAND. He found that, after considering the scope of Unwired Planet's portfolio and the geographical allocation of Huawei's sales, reasonable and willing parties in positions comparable to those of Unwired Planet and Huawei would have agreed to enter into a global license.[335] As noted above,

331 *Id.* [65]–[71] (citing *In re* Innovatio IP Ventures, LLC Patent Litig., No. 11 C 9308, 2013 WL 5593609 (N.D. Ill. Oct. 3, 2013); Realtek Semiconductor Corp. v. LSI Corp., 946 F. Supp. 2d 998 (N.D. Cal. 2013); Ericsson Inc. v. D-Link Sys., Inc., 773 F.3d 1201 (Fed. Cir. 2014)).

332 I examine these three decisions in J. Gregory Sidak, *Is Patent Holdup a Hoax?*, 3 J. Criterion J. on Innovation 401, 441–45 (2018).

333 *Unwired Planet* [2018] EWCA (Civ) 2344 [65]–[68].

334 *Id.* [69] (citing Microsoft Corp. v. Motorola, Inc., 2013 WL 2111217 (W.D. Wash. Apr. 25, 2013) (Robart, J.), *aff'd*, 795 F.3d 1024 (9th Cir. 2015)).

335 *Id.* [110].

Mr. Justice Birss also found that a different approach "would be needlessly inefficient because of the effort required to negotiate and agree [on] so many licences and then to keep track of so many different royalty calculations and payments."[336]

The Court of Appeal found no reason to disagree with Mr. Justice Birss' findings.[337] The court agreed that a worldwide license could be FRAND, and it confirmed that the geographic scope of Unwired Planet's SEP portfolio and Huawei's sales in various jurisdictions supported Mr. Justice Birss' conclusion that a worldwide license for Unwired Planet's portfolio was appropriate. The Court of Appeal therefore affirmed Mr. Justice Birss' decision regarding the proper territorial scope of the license that Unwired Planet offered to Huawei for its SEP portfolio.

2. *Can Multiple Sets of Terms Be FRAND?*

Although the Court of Appeal upheld Mr. Justice Birss' finding that a global license was FRAND, it rejected his conclusion that, for a given set of circumstances, there can be only one set of FRAND terms.[338] Mr. Justice Birss had rejected Huawei's argument that a license limited to the United Kingdom could also be FRAND, because, among other things, he had already found that a worldwide license was FRAND and concluded that there could be only one set of FRAND licensing terms.[339] Huawei argued that the conclusion that only one set of terms could be FRAND led Mr. Justice Birss "to discard all indicators of principle and practice that a national licence is capable of being FRAND."[340]

The Court of Appeal agreed with Huawei that more than one set of terms could be FRAND:

> Patent licences are complex and, having regard to the commercial priorities of the participating undertakings and the experience and preferences of the individuals involved, may be structured in different ways in terms of, for example, the particular contracting parties, the rights to be included in the licence, the geographical scope of the licence, the products to be licensed, royalty rates and how they are to be assessed, and payment terms.[341]

[336] *Id.*
[337] *Id.*
[338] *Id.* [121] For an in-depth discussion of this question, see Sidak, *Is a FRAND Royalty a Point or a Range?*, *supra* note 20.
[339] *Unwired Planet* [2018] EWCA (Civ) 2344 [118] ("Put another way, the judge rejected a country by country licensing approach at least in part because he was of the view that, in any one case, a national and a worldwide licence cannot both be FRAND.").
[340] *Id.*
[341] *Id.* [121].

The Court of Appeal further said that "it is unreal to suggest that two parties, acting fairly and reasonably, will necessarily arrive at precisely the same set of licence terms as two other parties, also acting fairly and reasonably and faced with the same set of circumstances."[342] "To the contrary," the court added, "the reality is that a number of sets of terms may all be fair and reasonable in a given set of circumstances."[343]

The Court of Appeal observed that Mr. Justice Birss' conclusion that only one set of terms could be FRAND was based on two main sources. First, Mr. Justice Birss' conclusion was based on what he called "the *Vringo* problem,"[344] which refers to the question of how a court should resolve the dispute between an SEP holder and an infringer when it finds that both parties extended license offers that were FRAND.[345] Mr. Justice Birss said that, if there can be a range of FRAND terms, a court could not solve the *Vringo* problem—and, hence, the court could not resolve the specific dispute before it.[346]

However, the Court of Appeal disagreed with Mr. Justice Birss. It emphasized that, if both offers are FRAND, "the SEP owner will satisfy its obligation to ETSI if it offers either one of them"—meaning either of two offers that are both legitimately within the FRAND range.[347] Since it would be rare (and perhaps irrational) for the SEP holder to offer the lower rather than the higher FRAND rate, the reasoning of the Court of Appeal implies that the SEP holder's offer of the higher (but still legitimately FRAND) rate discharges the SEP holder's FRAND obligation. Put differently, the Court of Appeal understood that the *Vringo* problem becomes moot as soon as one recognizes that an SEP holder that has extended to the implementer a legitimately FRAND offer has discharged its obligations under the FRAND commitment.[348] With less patience than the Court of Appeal displayed, I have argued elsewhere that the *Vringo* problem is a red herring because it arises from one's failure to treat the FRAND obligation as a true contract,

342 *Id.*
343 *Id.* This legal reasoning by the Court of Appeal dovetails with the economic reasoning that I previously presented in Sidak, *Is a FRAND Royalty a Point or a Range?*, *supra* note 20, at 406–11, for why a FRAND royalty may permissibly occupy any point along the range bounded by the licensor's minimum willingness to accept and the licensee's maximum willingness to pay. As an economic matter, the FRAND royalty will be a unique point only if the licensor's minimum willingness to accept precisely equals the licensor's maximum willingness to pay, which would be a rare circumstance.
344 *Unwired Planet* [2018] EWCA (Civ) 2344 [124].
345 Unwired Planet Int'l Ltd v. Huawei Techs. Co. [2017] EWHC (Pat) 711 [149] (Eng.) ("In *Vringo v. ZTE* . . . and in earlier judgments in these proceedings I considered what happens if each side in a patent dispute makes a FRAND offer. . . . This problem (the *Vringo* problem), in which offers presented by each party differ but are both FRAND, necessarily presupposes that different terms can both be FRAND.").
346 *Id.* [150].
347 *Unwired Planet* [2018] EWCA Civ 2344 [125].
348 J. Gregory Sidak, *The Meaning of FRAND, Part II: Injunctions*, 11 J. Competition L. & Econ. 201, 217 (2015) (explaining that an SEP holder that has made a FRAND offer has discharged its obligations under the FRAND commitment).

whose formation depends on a precise sequence of offer (by the SEP holder) and acceptance (by the implementer).[349] Resorting to basic contract principles can remove most of the mystery that currently shrouds the FRAND contract.

The second source on which Mr. Justice Birss' conclusion relied was "the economist's view," namely statements made by both parties' experts, to support his conclusion that FRAND is a point.[350] However, the Court of Appeal found that "economic evidence did not support such an inflexible approach."[351] The court observed that Dr. Gunnar Niels, the economic expert for Unwired Planet, said in his second report that FRAND was a "range for all practical purposes."[352]

The Court of Appeal was absolutely correct on the economics. Basic principles of bargaining theory show that multiple reasonable outcomes will occupy a bargaining range.[353] An SEP holder's commitment to license its SEPs on FRAND terms generates a range of reasonable royalties upon which the negotiating parties could voluntarily agree. As explained in Part IV.A.2, any set of terms and royalties within that prescribed range may be deemed to be legitimately FRAND. Furthermore, as the Court of Appeal observed,[354] because companies have heterogeneous preferences, they will place different values on different contract terms. For example, the geographic scope of a license might be most important to one company, whereas the length of a license might be most important to another. Thus, different sets of terms could provide similar values to companies with different preferences and still be within the FRAND range.[355] Therefore, the Court of Appeal was correct

349 Sidak, *Is a FRAND Royalty a Point or a Range?*, *supra* note 20, at 404 n.17; J. Gregory Sidak, *The FRAND Contract*, 3 Criterion J. on Innovation 1, 13–15 (2018). The *Vringo* problem can become complicated if the principles of contract formation under the applicable law differ from the precise Anglo-American jurisprudence on offer and acceptance. Still, in practical terms, one would need to demonstrate that the body of law controlling interpretation of the FRAND commitment in question generates materially different answers regarding the necessary process for, and the precise moment of, contract formation. Which is to say that the precise wording of the SSO's FRAND or RAND obligation, and the precise choice-of-law provision controlling the interpretation of that obligation, matter critically to the resolving a given dispute over the alleged breach of a FRAND or RAND contract.

350 *Unwired Planet* [2018] EWCA (Civ) 2344 [122].

351 *Id.* [123].

352 *Id.*

353 *See* Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 15, at 935; Sidak, *Is a FRAND Royalty a Point or a Range?*, *supra* note 20, at 401; Chryssoula Pentheroudakis & Justus A. Baron, Joint Research Centre, European Commission, Licensing Terms of Standard Essential Patents: A Comprehensive Analysis of Cases 12 (Nikolaus Thumm ed., 2017), http://publications.jrc.ec.europa.eu/repository/bitstream/JRC104068/jrc104068%20online.pdf; *see also supra* note 46.

354 *Unwired Planet* [2018] EWCA (Civ) 2344 [118].

355 Several U.S. courts have found that a FRAND royalty is a range rather than a point. *See* Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217, at *3 (W.D. Wash. Apr. 25, 2013) ("[A] fact-finder must be able to compare [Motorola's offers] with a reasonable RAND royalty rate and, because more than one rate could conceivably be RAND, a reasonable RAND royalty range."); TCL Commc'n Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson, Nos. SACV 14-341 JVS, CV 15-2370 JVS, 2018 WL 4488286, at *54 (C.D. Cal. Sept. 14, 2018) ("The Court concludes there is no single rate that is necessarily

to reverse Mr. Justice Birss' finding that only one set of license terms could be FRAND.

Nonetheless, the Court of Appeal found that Mr. Justice Birss' error was harmless. It had no practical implications for the dispute between Huawei and Unwired Planet. Huawei argued that, if both a global license and a license limited to the United Kingdom could be FRAND, then the court should "limit its consideration to the particular jurisdiction where it is situated,"[356] which in this case would of course be the United Kingdom. The Court of Appeal rejected Huawei's claim, reasoning that, given the specific facts of the case, a license limited only to the United Kingdom would *not* be FRAND because it would be commercially nonsensical.[357] The court reiterated that Mr. Justice Birss correctly found that "a licensor and a licensee acting willingly and reasonably would have regarded country by country licensing as madness" and that "no rational business" would engage in country-by-country licensing.[358]

Therefore, the Court of Appeal confirmed that, although multiple sets of license terms could be FRAND in a given negotiation between two parties, in the case between Huawei and Unwired Planet, a license limited to the United Kingdom would be irrational as an economic matter and thus, in this case, would never be fair, reasonable, and nondiscriminatory for Huawei to demand of Unwired Planet. Put in more precise economic terms than the Court of Appeal used, the implementer's demand for country-by-country licensing would not comply with the FRAND commitment because it would imply terms having a value less than the SEP holder's minimum willingness to accept.

3. *Does a U.K. Court Have the Authority to Determine the Terms of a Global License for FRAND-Committed SEPs?*

Huawei contended that, although the parties to a license agreement might voluntarily agree to execute a worldwide license, a U.K. court lacks the authority to set the terms of that license without the parties' agreement. In particular, Huawei said that "nothing in the FRAND undertaking . . . either creates a global portfolio right or . . . alters the basic legal characteristics of [an] SEP which is a territorially limited intellectual property right."[359] Huawei further said that "FRAND royalties should match the territorial scope of

FRAND, and different rates offered to different licensees may well be FRAND given the economics of the specific license.").

356 *Unwired Planet* [2018] EWCA Civ 2344 [126].
357 *Id.* [128]–[129].
358 *Id.* [128].
359 *Id.* [47].

the SEP, and of the injunction forgone by the SEP owner."[360] Thus, Huawei argued that its willingness to execute a license on FRAND terms for Unwired Planet's U.K. SEPs sufficed to entitle it to avoid an injunction against infringing products that Huawei sold in the United Kingdom.

Huawei also contended that Mr. Justice Birss' decision to set the terms of a global license was wrong in principle for several reasons. In particular, Huawei said that Mr. Justice Birss' decision "pa[id] insufficient heed to the principle of comity"[361]—a legal principle concerning the recognition that a particular jurisdiction will give to the effects of the executive, legislative, and judicial acts of another jurisdiction.[362] In addition, Huawei argued that a U.K. court cannot adjudicate the validity and infringement of foreign SEPs and "ought not to grant relief of what amounts to damages and royalties under those [foreign] rights."[363] Mr. Justice Birss, Huawei alleged, did exactly that by setting the terms of a global license for Huawei's use of Unwired Planet's entire SEP portfolio.

The Court of Appeal rejected Huawei's arguments. The court found that, when a global license for a portfolio of SEPs would result from a hypothetical negotiation between a willing licensor and willing licensee, a court may determine the FRAND royalty of such a license even without the agreement of all parties. Furthermore, the Court of Appeal found that a U.K. court's determination of the FRAND terms of a worldwide license does not violate the principle of comity. In addition, the court found that such a determination would not inappropriately grant remedies for the infringement of foreign SEPs or undermine Huawei's ability to challenge the validity and infringement of those SEPs. I consider in turn each of these findings by the Court of Appeal.

a. *Was It Appropriate for Mr. Justice Birss to Determine the Terms of a Global License to Resolve the FRAND Dispute Between Huawei and Unwired Planet?*

The Court of Appeal first rejected Huawei's argument that it was inappropriate for Mr. Justice Birss to determine the FRAND terms of a worldwide license for Huawei's use of Unwired Planet's portfolio of SEPs.

The Court of Appeal acknowledged at the outset that "a UK SEP has limited territorial scope and that courts in this jurisdiction will generally only

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360 *Id.* [48].
361 *Id.* [75].
362 *Comity*, Black's Law Dictionary 324 (10th ed. 2014) ("A practice among political entities (as countries, states, or courts of different jurisdictions), involving esp. mutual recognition of legislative, executive, and judicial acts."); *see also* Animal Sci. Prods. v. Hebei Welcome Pharm., 138 S. Ct. 1865, 1868 (2018) ("In the spirit of 'international comity,' a federal court should carefully consider a foreign state's views about the meaning of its own laws.") (citing Societe Nationale Industrielle Aerospatiale v. U.S. Dist. Court for S. Dist. of Iowa, 482 U.S. 522, 543 & n.27 (1987)).
363 *Unwired Planet* [2018] EWCA (Civ) 2344 [76].

determine disputes concerning the infringement and validity of UK or EP UK patents."[364] It also said that, "[i]f a UK SEP is found valid and infringed, a UK court will only grant relief in respect of the infringement of that patent."[365] The Court of Appeal added that, because "the injunction must equate to the statutory right given," a court "will only grant an injunction to restrain infringement of the SEP in issue in the proceedings."[366] The court emphasized that the same principles would apply to damages for patent infringement: "they will only be awarded for infringement of that SEP [in suit]."[367] In other words, the Court of Appeal agreed with Huawei that, when determining questions of patent infringement and remedies for infringement, the court must focus exclusively on the asserted U.K. patents.

However, the Court of Appeal said that "[t]he position in relation to a FRAND undertaking is rather different."[368] The court reasoned that, because firms typically sell standard-compliant products in multiple countries, the FRAND commitment of an SEP holder that owns SEPs in several jurisdictions cannot be limited to an individual jurisdiction; thus, the court concluded, the SEP holder's FRAND commitment must have an "international effect."[369] The Court of Appeal said that a FRAND commitment must apply to all SEPs that "belong to the same family irrespective of the territory in which they subsist."[370] Consequently, determining whether a given licensing offer is FRAND might require the court to analyze the terms of a license that extends beyond the territorial restrictions that would apply when determining damages for patent infringement.

In reaching that conclusion, the Court of Appeal recognized that allowing a court to determine the FRAND terms of a worldwide license was essential to protect both the implementer and the SEP holder. Recognizing the international effect of a FRAND commitment ensures that an implementer can obtain access to *all* the relevant SEPs that it needs to produce and sell a standard-compliant product globally.[371] It also ensures that the SEP holder receives reasonable compensation for the patented technology that it contributes to the standard. The Court of Appeal said that SEP holders "are entitled to an appropriate reward for carrying out their research and development activities and for engaging with the standardisation process, and they must be able to prevent technology users from free-riding on their innovations."[372] As I explained in Part IV.A.1, both Mr. Justice Birss and the Court of

364 *Id.* [52].
365 *Id.*
366 *Id.*
367 *Id.*
368 *Id.* [53].
369 *Id.* [26]; *see also id.* [53].
370 *Id.* [53].
371 *Id.*
372 *Id.* [54].

Appeal acknowledged that it might be impractical for an SEP holder to offer to license its SEPs separately for each jurisdiction in which it owns SEPs.

After concluding that certain circumstances would require a court to determine the FRAND terms for a worldwide license, the Court of Appeal next considered whether a U.K. court could do so in the *specific* case where the SEP holder has asserted only a subset of SEPs from its portfolio in a specific jurisdiction. Huawei argued that, by choosing to assert individual SEPs in a particular forum, the SEP holder cannot then ask the court to determine the terms of a worldwide license for other unasserted SEPs in the portfolio.[373] However, the Court of Appeal rejected Huawei's argument, reasoning that, when the facts of the case show that a FRAND license would be global in scope, determining the terms of that license is dispositive of whether the SEP holder's licensing offers to the implementer comply with the FRAND commitment.[374]

When a FRAND license would be global in scope, the Court of Appeal explained, the SEP holder's refusal to offer a global license would support denying the SEP holder an injunction for the implementer's infringement. Conversely, if the implementer refuses to execute a global license, the SEP holder would be entitled to an injunction, but only for "the particular SEPs in issue in those proceedings."[375] The Court of Appeal concluded that granting an injunction in those circumstances "would not involve any alteration of the territorially limited characteristics of any SEP; nor would it involve any jurisdictional expansionism."[376] Instead, the Court of Appeal said that the issuance of an injunction in that case

> would amount to a recognition by the court (i) that the SEP owner has complied with its undertaking to ETSI to offer a licence on FRAND terms; (ii) that the implementer has refused or declined to accept that offer without any reasonable ground for so doing; and (iii) that in these circumstances the SEP owner is entitled to the usual relief available for patent infringement including an injunction to restrain further infringement of the particular SEPs in issue in the proceedings.[377]

Thus, the Court of Appeal found that the SEP holder's assertion of individual SEPs in a particular jurisdiction does not preclude the petitioned court from further determining the FRAND terms of a license encompassing nonasserted SEPs.

373 *Id.* [48].
374 *Id.* [58].
375 *Id.*
376 *Id.*
377 *Id.*

b. Does the Decision of the Court of Appeal Comport with Sound Economic and Legal Principles?

The decision of the Court of Appeal to reject Huawei's argument that a U.K. court cannot set the FRAND terms of a global license for an international patent portfolio is sound, from both a legal perspective and an economic perspective.

First, the conclusion that a U.K. court can determine the FRAND terms of a global license properly distinguishes between disputes involving patent law and disputes involving contract law. The Court of Appeal noted that Mr. Justice Birss had correctly recognized that a FRAND commitment constitutes a binding contract between the SEP holder and the SSO.[378] An implementer of a standard, as a third-party beneficiary of a FRAND contract, has the right to enforce the obligations arising from that contract.[379] Thus, the question of whether an SEP holder's licensing offer complies with a FRAND commitment is a question of contract law, *not* patent law. When determining whether an offer is FRAND, a court should follow principles of contract interpretation. If those principles show that an SEP holder could discharge the obligations arising from a FRAND commitment by offering a global license, then the court should determine the terms of a global license. In doing so, the court would not exceed its authority, because it would merely be interpreting the obligations arising from an enforceable contract and determining whether the SEP holder has complied with those obligations.

Second, allowing a U.K. court to set the FRAND terms of a global license is rational from an economic perspective. As the Court of Appeal recognized, it would be inappropriate to limit the court's determination of FRAND terms to only the SEPs relevant for the particular jurisdiction in which the court resides, because such an approach would undermine the SEP holder's ability to obtain reasonable compensation for its contribution to the standard:

> We must also consider the position on the basis that a willing licensor and willing licensee in the position of the parties to the proceedings would agree [to] a *global* FRAND license, that such a license would conform to industry practice and that it would not be discriminatory. . . . Were the position otherwise then the SEP owner seeking to recover the FRAND license monies for all of the SEPs in the same family from an uncoopera-

[378] *See id.* [27] ("Secondly, it was common ground at the trial that UP was bound in law to license its ESSENTIAL IPR on FRAND terms. The ETSI IPR Policy is governed by French law and the judge found (and there is no appeal against his finding) that the FRAND undertaking given by UP was binding upon UP and enforceable by Huawei and, indeed, any third party."). For similar analysis, see J. Gregory Sidak, *A FRAND Contract's Intended Third-Party Beneficiary*, 1 Criterion J. on Innovation 1001, 1005–07 (2016); Sidak, *The FRAND Contract*, *supra* note 349, at 6–15.

[379] *See* Sidak, *A FRAND Contract's Intended Third-Party Beneficiary*, *supra* note 378, at 1004–05; Sidak, *The FRAND Contract*, *supra* note 349, at 15–19.

> tive implementer who is acting unreasonably would be required to bring proceedings in every jurisdiction in which those rights subsist, which might be prohibitively expensive for it to do.[380]

If in setting the FRAND terms of a license the court were restricted such that it could consider only the SEPs patented within the court's jurisdiction, then an SEP holder would need to file suit in every jurisdiction in which it owned SEPs to compel an unwilling licensee to take a license to the full portfolio. Of course, such an interpretation of the FRAND commitment would make the enforcement of an SEP portfolio containing more than a handful of patents prohibitively costly for the SEP holder. When parties negotiate a royalty for a large patent portfolio, it would be time-consuming and prohibitively costly for the parties to obtain complete information about the value (including the validity) of each of the hundreds or thousands of patents included in the portfolio. In some cases, examining the value of each patent could make the negotiation process costlier than the value of the license itself. To avoid such exorbitant transactions costs, the parties knowingly negotiate licensing terms with incomplete information.[381]

An SEP holder facing an unwilling licensee with deep pockets might exhaust all its financing for litigation before it can obtain reasonable compensation for its contributions to the standard. Indeed, as the Court of Appeal observed, requiring Unwired Planet "to bring proceedings in each territory in which its SEPs subsist" would "be a blue print for hold-out."[382] The SEP holder's inability to obtain reasonable compensation would undermine its ability and incentive to participate in the standards-setting process. Thus, allowing courts to set the FRAND terms of a worldwide license for an SEP portfolio, thereby obviating massive multi-fora patent litigation, is far more efficient from an economic perspective.

c. *Did Mr. Justice Birss Violate the Principle of Comity?*

The Court of Appeal also rejected Huawei's argument that Mr. Justice Birss' decision "usurped the right of foreign courts to decide issues of infringement

380 *See Unwired Planet* [2018] EWCA (Civ) 2344 [58] (emphasis in original).
381 *See* Sidak, *Evading Portfolio Royalties for Standard-Essential Patents*, *supra* note 107, at 203; Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 15, at 1050–52.
382 *Unwired Planet* [2018] EWCA (Civ) 2344 [88]; *see also* American Intellectual Property Law Association [AIPLA], AIPLA 2015 Report of the Economic Survey 1 (2015), http://www.patentinsuranceonline.com/wp-content/uploads/2016/02/AIPLA-2015-Report-of-the-Economic-Survey.pdf. The AIPLA explains in the survey report that the reported costs "consist of outside and local counsel, associates, paralegal services, travel and living expenses, fees and costs for court reporters, copies, couriers, exhibit preparation, analytical testing, expert witnesses, translators, surveys, jury advisors, and similar expenses." *Id.* The reported costs also "exclude any costs related to associated settlements and/or damages." *Id.* The cost (in terms of both resources and time) would also be prohibitively high for the adjudicators asked to resolve each set of disputes, whether they are courts, arbitrators, or some other kind of dispute-resolution forum.

and validity," by determining the infringement and validity of foreign SEPs and awarding damages and ongoing royalties for a license to those foreign SEPs.[383] The court said that Huawei's criticism conflated two separate issues: (1) the proceeding concerning Huawei's infringement of SEPs and (2) the proceeding concerning Unwired Planet's compliance with the FRAND commitment that it made to ETSI.[384]

With respect to the first proceeding, the Court of Appeal observed that the only patents involved in the dispute were Unwired Planet's U.K. SEPs. Mr. Justice Birss found that the two SEPs were valid and essential and that Huawei's sales in the United Kingdom infringed those two SEPs.[385] However, he made no findings regarding the validity and infringement of any foreign SEPs.[386]

The second proceeding concerned the determination of whether the offers that Unwired Planet extended to Huawei discharged the FRAND commitment that Unwired Planet had made to ETSI. To answer that question, Mr. Justice Birss had to determine, among other things, whether the FRAND commitment imposed on Unwired Planet a duty to offer a license for its SEPs "territory by territory," or whether Unwired Planet could discharge its obligations under the FRAND commitment by offering a worldwide license.[387] As explained in Part IV.A.1, Mr. Justice Birss found that Unwired Planet could meet its FRAND obligation by offering a worldwide license. The Court of Appeal agreed. Mr. Justice Birss "was not adjudicating on issues of infringement or validity concerning any foreign SEPs."[388] He "was simply determining the terms of the licence that [Unwired Planet] was required to offer to Huawei pursuant to its undertaking to ETSI."[389]

The Court of Appeal also rejected Huawei's argument that Mr. Justice Birss' decision awarded Unwired Planet a remedy for the infringement of foreign SEPs.[390] The court emphasized that it was up to Huawei to decide whether to execute a license on terms that Mr. Justice Birss found to be FRAND.[391] Huawei could not be compelled to do so. The Court of Appeal added that, if Huawei declined to execute a FRAND license with Unwired Planet, the "only relief to which [Unwired Planet] would be entitled would be relief for infringement of the two UK SEPs the judge had found to be

383 *Unwired Planet* [2018] EWCA (Civ) 2344 [81]. For Huawei's arguments, see *id.* [75]–[79].
384 *Id.* [79].
385 *Id.*
386 *Id.*
387 *Id.* [80].
388 *Id.*
389 *Id.*
390 *Id.*
391 *Id.*; *see also id.* [105].

valid and essential."[392] In other words, Unwired Planet would be entitled to an injunction to prevent Huawei's infringement of Unwired Planet's SEPs in suit—that is, its U.K. SEPs.

In sum, the Court of Appeal confirmed that a U.K. court does not "usurp[] the right of foreign courts" by determining the terms of a worldwide license for a SEP portfolio.[393] It is within the court's jurisdiction to determine the terms of a such a license when the facts of the case show that a worldwide license would be FRAND. Although a court has no ability to compel an implementer to execute a FRAND license, the Court of Appeal confirmed that it is appropriate for a court to enjoin an implementer that refuses to execute a license agreement on terms that the court has determined to be FRAND.

d. *Did Mr. Justice Birss' Decision Preclude Challenges to the Validity and Infringement of Unwired Planet's Non-U.K. SEPs?*

Huawei also argued that Mr. Justice Birss' determination of the terms for a worldwide license to Unwired Planet's SEP portfolio precluded Huawei from challenging the validity or essentiality of Unwired Planet's non-U.K. SEPs.[394] Huawei argued that an implementer that agrees to a global license "may have effectively consented to forgo its right to challenge the validity and essentiality of the patents owned by the prospective licensor."[395] However, the Court of Appeal rejected those arguments.[396]

The Court of Appeal concurred with Mr. Justice Birss that a FRAND license would permit Huawei to challenge the validity or essentiality of non-U.K. SEPs.[397] In addition, as explained in Part II.C, Mr. Justice Birss found that the royalty that Huawei would need to pay for a license to Unwired Planet's SEPs would depend on the region in which Huawei would sell its products and the number of relevant SEPs that Unwired Planet owned in that region. Specifically, he determined that Huawei would pay a lower royalty than the benchmark FRAND rate in China as well as in any OM country (which, as explained Part II.C, was a country in which Unwired Planet had only one SEP for 3G and 2G and one or two SEPs for 4G).[398] The Court of Appeal observed that Mr. Justice Birss found that a FRAND license would permit Unwired Planet and Huawei to make annual adjustments to determine "which territories are in the upper and lower tiers to take account

[392] *Id.* [80]. This reasoning is consistent with my previously published analysis in Sidak, *The FRAND Contract*, *supra* note 349, at 10, 18–19.
[393] *Unwired Planet* [2018] EWCA (Civ) 2344 [81].
[394] *Id.* [84].
[395] *Id.*
[396] *Id.* [88].
[397] *Id.*
[398] *Unwired Planet* [2017] EWHC (Pat) 2988 [583]–[586], [589].

of any change in the patent landscape."[399] Because the parties would review the classification of each country on an annual basis, they could account for Unwired Planet's SEPs that might later be found to be invalid or not infringed when determining a FRAND royalty that Huawei would need to pay in a given jurisdiction. Consequently, the Court of Appeal rejected the argument that Mr. Justice Birss' determination of a FRAND royalty for a worldwide license prevented Huawei from challenging the validity of Unwired Planet's SEPs in non-U.K. jurisdictions.[400]

B. The Court of Appeal's Affirmance of Mr. Justice Birss' Interpretation of the Nondiscrimination Requirement of ETSI's FRAND Commitment

As I explained in Parts I.D and I.F, Mr. Justice Birss rejected Huawei's interpretation of the nondiscrimination requirement of ETSI's FRAND commitment. Huawei's proposed hard-edged nondiscrimination would impose on Unwired Planet a duty to offer to Huawei the same (or a similar) royalty that Unwired Planet offered to any licensee situated similarly to Huawei, such as Samsung. On appeal, Huawei argued that Mr. Justice Birss should have set a royalty rate for Huawei's use of Unwired Planet's SEP portfolio "no higher than the range of royalties represented by the Samsung license."[401] Huawei contended that, by not doing so, Mr. Justice Birss' determination of a FRAND royalty "robbed the non-discrimination limb of FRAND of any content independent of the fair and reasonable limb."[402] The Court of Appeal rejected Huawei's arguments and affirmed Mr. Justice Birss' interpretation of the nondiscrimination requirement.[403]

The Court of Appeal agreed with Mr. Justice Birss that the nondiscrimination requirement of a FRAND commitment is "general."[404] The court observed that, under general nondiscrimination, "once a benchmark rate is identified, the SEP owner is precluded by the [FRAND] undertaking from attempting to secure higher rates from licensees, but there is nothing to prevent it from granting licences at lower rates."[405] The court said that such an interpretation of the nondiscrimination requirement comports with the "object and purpose" of the FRAND commitment, which seeks to ensure (1) that an SEP owner offers a license "on terms which reflect the proper valuation of the portfolio," and (2) that the SEP owner offers "those terms

[399] *Unwired Planet* [2018] EWCA (Civ) 2344 [89].
[400] *Id.* [88].
[401] *Id.* [132].
[402] *Id.* [186].
[403] *Id.* [207] ("It follows that the judge was right to hold that the licence on offer to Huawei was on non-discriminatory terms."); *id.* [210] ("In the result, Huawei's appeal on ground 2 [nondiscrimination] fails.").
[404] *Id.* [195]–[196].
[405] *Id.* [195].

generally (i.e. in a non-discriminatory manner) to all implementers seeking a licence."[406] The Court of Appeal emphasized that the FRAND commitment does not seek "to remove [the SEP holder's] discretion to agree [to] lower royalty rates if it chooses to do so."[407] The court reasoned that, once a "licence is available at a rate which does not exceed that which is fair and reasonable, it is difficult to see any purpose in preventing the patentee from charging less than the licence is worth if it chooses to do so."[408]

The Court of Appeal found that the hard-edged nondiscrimination requirement that Huawei advocated could frustrate the purpose of the FRAND commitment by undermining the SEP holder's ability to obtain "a fair return" for its contribution to the standard.[409] Consider, for example, a case in which an SEP holder has licensed its SEP portfolio for a royalty below its minimum willingness to accept because, at the time that it executed the license agreement, the SEP holder was in financial distress. The SEP holder's *need* to accept in that case would produce a price lower than its *willingness* to accept when not facing a liquidity crisis. (Consider, further, the possibility that the SEP holder's liquidity crisis directly results from the infringer's refusal to take a license and pay royalties.) Forcing the SEP holder to license thereafter all similarly situated licensees at the same fire-sale rate would necessarily limit the SEP holder's ability to obtain fair compensation for its contribution to the standard. As the Court of Appeal observed, imposing on the SEP holder such an obligation would "abandon the principle of fair reward to the SEP owner."[410] The court emphasized that the FRAND commitment does not aim "to level down the royalty to a point where it no longer represents a fair return for the SEP owner's portfolio."[411]

The Court of Appeal succinctly explained that a hard-edged nondiscrimination rule "has the potential to harm the technological development of standards if it has the effect of compelling the SEP owner to accept a level of compensation for the use of its invention which does not reflect the value of the licensed technology."[412] The court thus recognized that the application of an "excessively strict" interpretation of the nondiscrimination requirement might undercompensate an SEP holder for the value of its licensed technology and thus reduce the incentive for companies to invest in the research and development of standardized technologies or reduce the incentive for companies to contribute their innovative technologies to industry standards.[413]

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406 *Id.* [196].
407 *Id.*
408 *Id.* [197].
409 *Id.* [196].
410 *Id.* [204].
411 *Id.* [196].
412 *Id.* [198].
413 *Id.*

The Court of Appeal also observed that "differential pricing is not *per se* objectionable" and that, in some circumstances, differential pricing can "be beneficial to consumer welfare."[414] It added that Unwired Planet persuasively argued "that there is no point in mandating equal pricing for its own sake"[415] and that "[c]ondemning discrimination normally requires clear evidence of actual or likely harm to consumer welfare."[416] The Court of Appeal did acknowledge that, in some cases, differentiated pricing could harm competition; however, the court emphasized that, in those cases, a party can seek redress through competition law.[417] In short, the Court of Appeal seemed to embrace the proposition that it is beyond the purview of the FRAND commitment to prohibit an SEP holder from engaging in differential pricing, as long as the SEP holder offers to license its portfolio on FRAND terms to every implementer.

In sum, the Court of Appeal affirmed Mr. Justice Birss' rejection of Huawei's hard-edged interpretation of the nondiscrimination requirement of ETSI's FRAND commitment. The Court of Appeal confirmed that the nondiscrimination requirement is not hard-edged, but rather general: pursuant to ETSI's FRAND commitment, an SEP holder must offer to license its portfolio on terms and conditions that reflect the value of its portfolio, but the SEP holder need not offer the same rate to all implementers.

Conclusion

In October 2018, the Court of Appeal of the High Court of Justice of England and Wales issued its decision in *Unwired Planet International v. Huawei Technologies* affirming Mr. Justice Colin Birss' determination of the fair, reasonable, and nondiscriminatory (FRAND) terms for Huawei's license to Unwired Planet's portfolio of standard-essential patents (SEPs). Despite being the first U.K. judge to determine the FRAND terms of a license to a portfolio of SEPs, Mr. Justice Birss issued a decision that analyzes in an intellectually rigorous manner many complex legal and economic questions typically posed in FRAND licensing disputes. The Court of Appeal's decision upholding Mr. Justice Birss' decision mirrors that intellectual rigor. Courts and administrative agencies in other jurisdictions should strive to emulate the high degree of economic and legal sophistication that those two

[414] *Id.* [197].
[415] *Id.*
[416] *Id.* [188]. I previously have made the same arguments. *See* Sidak, *Fair and Unfair Discrimination in Royalties for Standard-Essential Patents Encumbered by a FRAND or RAND Commitment*, *supra* note 20, at 317–19; Sidak & Petrovčič, *Will the CJEU's Decision in* MEO *Change FRAND Disputes Globally?*, *supra* note 136, at 312–14.
[417] *Unwired Planet* [2018] EWCA (Civ) 2344 [200].

decisions, taken together, display. So should panels in international commercial arbitrations over FRAND or RAND licensing disputes.

To determine a FRAND royalty in *Unwired Planet*, Mr. Justice Birss relied upon the well-established principle that royalties observed in comparable license agreements typically have the greatest probative value for identifying the FRAND terms of a license. In contrast, he found to be speculative the top-down methodology proposed by Huawei—whereby the court estimates an aggregate royalty for a license to all SEPs implicated in the relevant standard and then apportions that royalty according to each SEP holder's relative contribution to the standard. Specifically, Mr. Justice Birss found that he lacked a sound estimate of the aggregate royalty for all patents essential to the standards at issue, which precluded him from relying upon the top-down approach. Having admitted into the evidentiary record many comparable license agreements, Mr. Justice Birss reasoned that the top-down approach was unnecessary.

The Court of Appeal did not review Mr. Justice Birss' methodology for calculating a FRAND royalty for Unwired Planet's SEPs. However, the appellate court identified other important legal and economic principles for resolving FRAND licensing disputes that some commentators and scholars (including myself) have recognized since the late 2000s. Two principles deserve particular attention.

First, the Court of Appeal affirmed Mr. Justice Birss' conclusion that, given the economic efficiencies that can flow from executing a worldwide license, the SEP holder's offer to license a portfolio of SEPs on a worldwide basis (as opposed to a country-by-country basis) could be consistent with the SEP holder's FRAND commitment. The Court of Appeal also emphasized that, when evidence shows that a FRAND license would be global in scope, a court has the authority to determine the FRAND terms of a worldwide license, and that an implementer that refuses to execute a license on terms that the court deems to be FRAND would face an injunction.

Second, Mr. Justice Birss emphasized (and the Court of Appeal agreed) that the nondiscrimination requirement of a FRAND commitment does not obligate an SEP holder to offer to license similarly situated licensees under the same or similar terms. Rather, he said that, although the nondiscrimination requirement imposes on the SEP holder a duty to offer to license its SEPs to all implementers on terms that accurately reflect the value of the SEPs, it does not preclude the SEP holder from offering some licensees a lower royalty than it has offered others.

As I have written elsewhere, a race has begun among government agencies in various countries (including China, Japan, and the United States) to define the best legal framework for resolving FRAND licensing disputes. Taken together, Mr. Justice Birss' decision and the affirmance of that decision by the Court of Appeal in *Unwired Planet* appear to have catapulted the United Kingdom into first place.

Of course, Mr. Justice Birss' decision adopts certain assumptions that might fail to hold on the facts in other cases; any judge is obviously bound by the facts of the specific case before him. However, both Mr. Justice Birss and the Court of Appeal demonstrated that U.K. courts are capable of fostering a sophisticated economic and legal understanding of the FRAND commitment that illustrates how one ought to determine a FRAND royalty. The approach that Mr. Justice Birss adopted, and that the Court of Appeal upheld, in *Unwired Planet* strikes a wise and learned balance among the competing interests of the implementer, the SEP holder, and the consumer by promoting the widespread adoption of industry standards while protecting the private firm's incentive to participate in the development of voluntary standards.