
A MILLION UNLICENSED PIECES: NONDISCRIMINATION COMMITMENTS IN THE SUPPLY CHAIN

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Rarely must patent infringers demand their right to pay royalties. But several multinational manufacturers have gone to court to insist that they – and not other participants in the supply chain – make payment of any patent royalties. From a contractual perspective, judicial analysis of such claims has focused on the non-discrimination prong of the fair, reasonable, and non-discriminatory (“FRAND”) patent licensing commitment. In other words, some manufacturers have argued, and some courts and administrative agencies have agreed, that a patentee’s refusal to provide FRAND licenses at all levels of the supply chain constitutes discrimination and, as such, violates the patentee’s contractual obligation to license their patents in a nondiscriminatory manner.¹ This Essay argues that such claims are misplaced – the principle of nondiscrimination provides no easy framework for analyzing such selective licensing of the supply chain. Rather, such questions must be examined through the more complex empirical, legal, and economic factors in specific circumstances.

I. STANDARDS & SUPPLY CHAINS

Patentees most often make FRAND commitments in the context of technological standard-setting. To take a common example, firms may hold patents that are “essential” for the implementation of cellular telecommunication standards. Manufacturers will not produce equipment for such telecommunication standards unless they can be sure of obtaining a license to such patents. On the other hand, patentees want to be sure they obtain fair compensation for their efforts in the research and development of the standard. Industry has typically tried to balance these conflicting interests by requiring patentees to license their standard-essential patents (often abbreviated as SEPs) pursuant to terms that are “fair, reasonable and non-discriminatory”.²

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1. See *infra* text accompanying notes 8–24.

2. See generally Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J., 1135, 1137 (2013).

But supply chains for the manufacture of standard-compliant equipment are often complex, and can involve several levels of manufacturing and integration.³ Current legal doctrine provides that patentees can only require a license from a single firm in such chains of manufacture, and that firms positioned later in the chain do not need additional licenses.⁴ As such, patentees must choose upon which element of the supply chain to bestow their licensing grace – and patentees have often chosen to maximize licensing revenue by choosing the last link of the chain. Patentees have reasoned that end manufacturers (often referred to as original equipment manufacturers or OEMs) sell their products at the highest price and, as such, are best placed to reward the patentee with the highest royalty payments.⁵

Firms in intermediate positions in the supply chain have attacked the choice of FRAND-committed patentees to license only the final, OEM entity. Debates over such practices have looked at their economic impact, as well as possible alternative arrangements in which the patentee neither snubs the intermediate manufacturers nor provides an actual license.⁶ Courts and commentators have also asked the more factual questions of whether intermediate components actually infringe FRAND-encumbered patents, and whether the language of any specific FRAND commitment addresses intermediate components.⁷ In practice, however, courts have defaulted to the perhaps simpler argument that ignoring intermediate manufacturers violates the contractual FRAND nondiscrimination commitment – that a patentee discriminates against intermediate supply links when it refuses to license those firms. This Essay argues, however, that the principle of nondiscrimination provides no easy response to the demand for

3. For example, questions of intermediate-level licensing have arisen with respect to the automotive supply chain. *See, e.g., Cont'l Auto. Sys. v. Avanci, LLC*, 2019 U.S. Dist. LEXIS 214608 (N.D. Cal. Dec. 11, 2019) (summarizing plaintiff's claims that the Avanci patent pool and its members only offered licenses to "manufacturers at the very end of a supply chain, like car OEMs"). For a description of the complexity of the automotive supply chain, see Omri Ben-Shahar & James J. White, *Boilerplate and Economic Power in Auto Manufacturing Contracts*, 104 MICH. L. REV. 953, 955–56 (2006).

4. *See* Jorge L. Contreras & Anne Layne-Farrar, *Non-Discrimination and FRAND Commitments*, in I THE CAMBRIDGE HANDBOOK OF TECHNICAL STANDARDIZATION LAW: COMPETITION, ANTITRUST AND PATENTS 201 (Jorge Contreras, ed., 2018) (noting that "once a license is granted to any link in the supply chain, the patent holder could be prevented . . . from suing or extracting any royalties from any subsequent downstream purchaser").

5. *Id.* (asserting that licensing at the end of the supply chain allows a patentee to "receive a royalty based on the relatively higher end product price").

6. *See, e.g.,* Damien Geradin, *SEP Licensing After Two Decades of Legal Wrangling: Some Issues Solved, Many Still to Address*, COMPETITION POL'Y. INT'L (Mar. 24, 2020), <https://www.competitionpolicyinternational.com/sep-licensing-after-two-decades-of-legal-wrangling-some-issues-solved-many-still-to-address/> [<https://perma.cc/FE3J-VGL7>] (discussing the different positions on component-level licensing requirements); Jorge Padilla & Koren W. Wong-Ervin, *Portfolio Licensing to Makers of Downstream End-User Devices: Analyzing Refusals to License FRAND-Assured Standard-Essential Patents at the Component Level*, 62 ANTITRUST BULL. 494, 500 (2017) (analyzing whether refusals to provide component-level licenses should constitute an antitrust violation); Anne Layne-Farrar & Richard J. Stark, *License to All or Access to All? A Law and Economics Assessment of Standard Development 2 Organizations' Licensing Rules*, GEO. WASH. L. REV. (forthcoming 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3612954# [<https://perma.cc/N7SK-PF5C>] (analyzing whether "all entities in the chain of production require licenses to SEP . . .").

7. *See generally* Layne-Farrar & Stark, *supra* note 6.

component-level licensing, and that nondiscrimination cannot be used as a simple proxy to elide analysis of the more complex economic, legal and factual questions.

II. NONDISCRIMINATION

Caselaw has used the nondiscrimination prong of the FRAND commitment to require the licensing of SEPs at all levels of the supply chain. For example, in the recent case of *FTC v. Qualcomm*, the Federal Trade Commission (FTC) asserted that Qualcomm was required to license its patents covering wireless telecommunications standards to all levels of the supply chain.⁸ Qualcomm, in contrast, argued that its FRAND commitments extended “only to device suppliers and not modem chip suppliers”, the latter occupying a different rung on the supply chain.⁹ The district court dismissed Qualcomm’s position, asserting that these distinctions along the supply chain violated Qualcomm’s FRAND non-discrimination obligations.¹⁰ The court further held that Qualcomm’s refusal to grant licenses to all entities in the supply chain constituted “an example of discriminatory conduct.”¹¹ However, aside from summary statements that Qualcomm’s alleged discrimination against modem chip suppliers would have allowed Qualcomm to “achieve a monopoly” and “limit competing implementations,” the court did not actually examine whether this interpretation of the nondiscrimination commitment would indeed quash economic inequalities in the royalty burdens borne by modem chip suppliers.¹²

The *Qualcomm* interpretation of the nondiscrimination commitment was quickly brandished by plaintiffs in the recent case of *Continental v. Avanci*.¹³ Avanci is a patent pool that provides licenses to cellular standards for use in

8. *FTC v. Qualcomm Inc.*, 2018 U.S. Dist. LEXIS 190051 (S.D. Cal. Nov. 6, 2018). The Qualcomm decision was vacated on appeal by the Ninth Circuit. The appeals court did not examine the merits of the district court decision, but rather held that district court’s contractual interpretation of the FRAND commitment was moot given the appellate courts reversal on matters of antitrust law. *Fed. Trade Comm’n v. Qualcomm Inc.*, 969 F.3d 974, 1005 (9th Cir. 2020). Competition agencies in several other countries have opened similar investigations. See Padilla & Wong-Ervin, *supra* note 6, at 495.

9. *Qualcomm*, 2018 U.S. Dist. LEXIS 190051, at *45.

10. *Id.* Beyond the ambiguous commitment to “nondiscrimination”, the texts of the specific FRAND commitments at issue in *Qualcomm* did not contain any express component-level licensing requirements. At least one other standard-setting organization has made clear that its own FRAND commitments do require component-level licensing. See *infra* text accompanying notes 21–23 (describing changes to the IEEE patent policy). The interpretation of the texts of other FRAND commitments may be highly contested. Compare KARL HEINZ ROSENBRÖCK, WHY THE ETSI IPR POLICY REQUIRES LICENSING TO ALL (2017), https://www.fair-standards.org/wp-content/uploads/2017/08/Why-the-ETSI-IPR-Policy-Requires-Licensing-to-All_Karl-Heinz-Rosenbrock_2017.pdf [<https://perma.cc/7XB3-6GES>], with BERTRAM HUBER, WHY THE ETSI IPR POLICY DOES NOT AND HAS NEVER REQUIRED COMPULSORY “LICENSE TO ALL”: A REBUTTAL TO KARL HEINZ ROSENBRÖCK (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3038447 [<https://perma.cc/RW25-A54X>].

11. *Qualcomm*, 2018 U.S. Dist. LEXIS 190051, at *40.

12. *Id.* at *41. Aside from the question of nondiscrimination, the Qualcomm parties advanced other arguments regarding the interpretation of the FRAND commitments at issue, including whether such commitments demanded the provision of FRAND licenses for device components that did not implement an entire standard. *Id.* at *45–46. Such arguments are beyond the scope of this article.

13. *Cont’l Auto. Sys. v. Avanci*, 2020 U.S. Dist. LEXIS 173799 (N.D. Tex. Sept. 10, 2020).

automotive vehicles.¹⁴ Avanci generally restricts the grant of FRAND licenses to automotive original equipment manufacturers (OEMs) – the final link in the automotive supply chain – and does not grant FRAND licenses to intermediate component manufacturers.¹⁵ Continental, a supplier of components to automotive OEMs, argued that this practice breached contractual FRAND commitments and violated antitrust law. Specifically, the plaintiff argued that in refusing to license intermediate component suppliers, Avanci (and its members) discriminated between potential licensees and violated the contractual nondiscrimination requirement of the FRAND commitment.¹⁶

The court in *Innovatio IP Ventures* used similar logic in establishing FRAND royalties.¹⁷ In that case, the plaintiff brought a patent infringement suit against a wide range of commercial end users of the Wi-Fi technology standard. The plaintiff argued that any FRAND royalty awarded by the court should be calculated as a percentage of the value of the end use product that included wireless functionality, such as “laptops, tablet computers, printers” and wireless “access points.”¹⁸ The court, however, held rather that the royalty rate should rather be based on the value of an intermediate component – the wireless chip incorporated within the end products – that actually provided the infringing wireless functionality.¹⁹ The court reasoned that this focus on the value of the smaller semiconductor component would serve the FRAND goal of non-discrimination, since the resulting FRAND royalty rate would be identical for all end products that incorporated the wireless chip.²⁰ While the court was not called upon to determine whether a FRAND commitment required a patentee to provide component-level licensing, the court did make the economically similar holding that the

14. For a general description of Avanci’s business, see Business Review Letter from Makan Delrahim, Assistant Att’y Gen., U.S. Dep’t Just. to Mark H. Hamer, Counsel for Avanci LLC, Baker McKenzie (July 28, 2020), <https://www.justice.gov/atr/page/file/1298626/download> [<https://perma.cc/KM9U-DSPU>].

15. *Id.* at 18 (noting that Avanci generally limits its licensing to “connected vehicles and not other components in the supply chain, such as telematics units . . .”). See also *Cont’l Auto. Sys. v. Avanci, LLC*, 2019 U.S. Dist. LEXIS 214608, at *8 (N.D. Cal. Dec. 11, 2019) (summarizing plaintiff’s assertions that Avanci members restricted the patent pool to licensing only the “very end of a supply chain”).

16. Complaint at ¶¶ 13–14, *Cont’l Auto. Sys., Inc. v. Avanci, LLC*, No. 5:19-cv-02520 (N.D. Cal. May 10, 2019) (asserting that a policy against licensing standards to “categories of implementers” violates FRAND non-discrimination requirements); *id.* at ¶ 146 (asserting that defendants’ policy against component-level licensing violates the FRAND requirement to grant licenses to “all users of [cellular] standards.”). The district court declined to exercise jurisdiction over the state-law contractual claims against Avanci, after holding that such allegations of discrimination did not raise claims under the federal antitrust laws. *Cont’l Auto. Sys.*, 2020 U.S. Dist. LEXIS 173799, at *36–37. Continental’s antitrust and unfair competition claims against Avanci are beyond the scope of this article. Similar complaints regarding the automotive industry have been filed in German courts and with the European Union Directorate-General for Competition. See generally Geradin, *supra* note 6.

17. *In re Innovatio IP Ventures, LLC*, 2013 U.S. Dist. LEXIS 144061 (N.D. Ill. Oct. 3, 2013).

18. *Id.* at *74.

19. *Id.* at *164.

20. *Id.* (noting that FRAND licensors “cannot discriminate between licensees on the basis of their position in the market”).

FRAND nondiscrimination requirement required the calculation of royalties to be made at the level of those components.²¹

The nondiscrimination requirement has also been employed by standards organizations looking to include component-level licensing requirements within the organization's intellectual property policy. For example, in 2015 the Institute of Electrical and Electronic Engineers (IEEE) implemented changes to its patent policy which expressly required SEP holders to commit to licensing "components" and "sub-assemblies" of products.²² As a result of these changes, SEP holders subject to the IEEE patent policy may not limit FRAND licenses to the end user product, but must also provide FRAND licenses at intermediate points along the supply chain.²³ The IEEE justified the change requiring component-level licensing by noting that the new language provided "greater clarity on discrimination", by making clear that any implementer along the supply chain could "invoke the benefits" of the FRAND commitment.²⁴

III. DISCRIMINATION AND DIFFERENCES

The consequences of employing the principle of nondiscrimination to require component-level licensing are not clear. First, demanding that patentees license all levels of the supply chain is unlikely to result in all intermediate manufacturers paying identical royalties. The limited United States case law on point has held that FRAND royalty rates need not be indistinguishable across licensees.²⁵ Similarly, scholarship has generally agreed that the non-discrimination

21. It is unclear whether *Innovatio* had also licensed intermediate chipset manufacturers or only pursued OEMs. The court noted testimony that "three major Wi-Fi chip manufacturers" were licensed under *Innovatio*'s patents. *Id.* at *164. However, some commentators have asserted that such licenses were actually cross-licenses entered into by the prior owner of the patents. See David J. Teece & Edward F. Sherry, *A Public Policy Evaluation of RAND Decisions in the U.S. Courts*, 1 CRITERION J. INNOVATION 113, 149 n.230 (2016).

22. IEEE Standards Board Bylaws § 6.1 (2019), https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/sb_bylaws.pdf [<https://perma.cc/2SLR-7TQ7>] (defining a "Compliant Implementation", to which an SEP holder must grant a license pursuant to the Bylaws, as including a "component, sub-assembly, or end-product").

23. At least one court found that an earlier version of the IEEE patent policy did not require component-level licensing. See, *Ericsson Inc. v. D-Link Sys.*, 2013 U.S. Dist. LEXIS 110585, at *80–82 (E.D. Tex. Aug. 6, 2013), *aff'd in part, rev'd in part*, 773 F.3d 1201 (Fed. Cir. 2014). The court's holding was in part based on the fact that Ericsson had made clear within its contractual FRAND commitment that it would not provide component-level licensing, and in part on the similar policies of other patentees to only license end products. These issues were not addressed on appeal.

24. Letter from Michael A. Lindsay, Esq., Dorsey & Whitney LLP, to Hon. William J. Baer, Assistant Att'y Gen., U.S. Dep't Just., (Sept. 30, 2014), <http://www.justice.gov/atr/public/busreview/request-letters/311483.pdf> [<https://perma.cc/74MM-QTMS>] (requesting a Business Review Letter on the new IEEE policy from the United States Department of Justice).

25. *TCL Comm'n. Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson*, 2017 U.S. Dist. LEXIS 214003, at *177 (C.D. Cal. Nov. 8, 2017), *rev'd in part, vacated in part*, 943 F.3d 1360 (Fed. Cir. 2019) (holding that "different rates offered to different licensees may well be FRAND given the economics of the specific license"); *St. Lawrence Commc'ns. LLC v. Motorola Mobility LLC*, 2018 U.S. Dist. LEXIS 25229, at *20 (E.D. Tex. Feb. 15, 2018) (holding that a patentee does not engage in patent misuse "by negotiating different rates and terms for different licensees when presented with different circumstances"); *In re Certain Wireless Devices with 3G Capabilities and Components Thereof*, Inv. No. 337-TA-800, USITC Pub. 4475 (June 2014) (final), 432

requirement does not demand that all manufacturers be subject to identical royalty payments.²⁶ Some commentators have further argued that imposing identical FRAND royalty payment obligations on all manufacturers could itself be unfair.²⁷

Indeed, component manufacturers can themselves be expected to advocate for differential royalty terms and structures. Each manufacturer comes with its own unique risk preferences and particular costs of capital and production.²⁸ Those manufacturers with more cash on hand may appeal for higher up-front payments, while manufacturers in a cash crunch may seek to delay payments by structuring royalties as a percentage of sales. Other manufacturers may be able to reduce their royalty payments by providing some consideration in the form of cross-licenses of their own intellectual property. Given these differences between the royalty structures that manufacturers are able to bear and the consideration they are able to pay, each individual manufacturer is likely to press for tweaks in the FRAND royalty structure.

In an ironic contrast, limiting FRAND licensing to the end device level will often mean the application of identical royalty amounts and structures to all standard-implementing intermediate components. End device licenses generally do not distinguish between the various manufacturers of the components included in that end device.²⁹ For example, FRAND licenses that are publicly available³⁰ generally impose identical royalties on all products that implement an SEP, without distinguishing between the origin of the components within the product.³¹ Court-determined FRAND license agreements have adopted language

(“The FRAND nondiscrimination requirement . . . does not require uniform treatment across licensees, nor does it require the same terms for every manufacturer or competitor.”).

26. Daniel A. Crane, *Patent Pools, RAND Commitments, and the Problematics of Price Discrimination*, in *WORKING WITHIN THE BOUNDARIES OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY* 371, 373 (Rochelle C. Dreyfuss et al. eds. 2010); Richard J. Gilbert, *Deal or No Deal? Licensing Negotiations in Standard Setting Organizations*, 77 *ANTITRUST L.J.* 855, 875 (2011) (asserting that “non-discrimination . . . does not have to be interpreted rigidly”).

27. See, e.g., Gilbert, *supra* note 26, at 875 (arguing that requiring the payment of identical lump sum patent fees could discriminate against firms with low output).

28. See, e.g., *Kimble v. Marvel Ent., LLC*, 576 U.S. 446, 453 (2015) (noting that extended royalty payments at a lower rate “may bring the price the patent holder seeks within the range of a cash-strapped licensee” or “better allocate the risks and rewards” between the parties); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1326 (Fed. Cir. 2009) (discussing how royalty structures differ depending on the risk preferences of the parties).

29. Padilla & Wong-Ervin, *supra* note 6, at 506 (asserting that most SEP holders “offer FRAND terms to downstream manufacturers irrespective of the supplier of their components”).

30. Unfortunately, many FRAND licenses remain confidential and are not made publicly available. Scholarship has criticized such confidential treatment as facilitating violations of the FRAND nondiscrimination commitment. See Mark R. Patterson, *Confidentiality in Patent Dispute Resolution: Antitrust Implications*, 93 *WASH. L. REV.* 827, 832 (2018) (noting the FRAND problems with confidentiality terms that make “it difficult for participants in these markets to determine the license terms that have been granted to others”).

31. Norman V. Siebrasse & Thomas F. Cotter, *Judicially Determined FRAND Royalties*, in *CAMBRIDGE HANDBOOK OF TECHNICAL STANDARDIZATION LAW: ANTITRUST AND PATENTS* 366, 376 (Jorge L. Contreras ed. 2017) (noting that “many real world licenses use the end product as the royalty base”). Similarly, template agreements made available by patent pools that license SEPs typically use the end product as the royalty base. For

similar to industry-negotiated contracts, and also calculate royalties based on whether a product has infringed an SEP, without discriminating between the various manufacturers of a product.³² The Ninth Circuit in the Qualcomm court itself noted that Qualcomm's FRAND licenses were "chip supplier neutral"—in that the royalties payable by end device manufacturers were independent "of which company they choose to source their chips from."³³

In sum, current industry practices suggest that requiring patentees to license intermediate component manufacturers will not eliminate inequalities in the economic licensing burden borne by such manufacturers. Rather, requiring the licensing of intermediate levels of the supply chain can be expected to result in a broader range of royalties and other arrangements for component manufacturers, as both sides of the FRAND licenses jockey for commercial advantage in each separate licensing transaction. In other words, demanding component-level licensing may limit a theoretical form of vertical discrimination between levels of the supply chain, but it also risks an increase in horizontal discrimination between firms situated in the same position within the supply chain.

IV. DISCRIMINATION AND DISADVANTAGE

Much of the likely impact of component level licensing, including the practical effect that component-level licensing will have on differential licensing terms, has perhaps been obscured by the identities of the current parties to these disputes. In the telecommunications industry, for example, advocates for component-level licenses have often been large semiconductor chip manufacturers and larger end device producers.³⁴ Similarly, in the automotive field, supporters of component licensing have generally been large Tier 1 automotive suppliers.³⁵ In both situations, proponents of component-licensing requirements have been

example, the template AVC Patent Portfolio License of the MPEG-LA patent pools calculates royalties on end products based on whether such products encode or decode videos that used the AVC video standard. *See* AVC Patent Portfolio License, § 3.1 (providing that royalties are payable on products incorporating an "AVC Encoder," "AVC Decoder" or "AVC Codec").

32. In *TCL v. Ericsson*, the district court issued an injunction that essentially imposed a detailed license agreement with running royalties between the parties. The injunction stated that TCL would pay royalties on all "End User Terminals" compliant with certain wireless standards. *TCL Comm'n. Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson*, 2017 U.S. Dist. LEXIS 214003, at *177 (C.D. Cal. Nov. 8, 2017), *rev'd in part, vacated in part*, 943 F.3d 1360 (Fed. Cir. 2019). The identity of the manufacturers of the components included in the End User Terminals was irrelevant to the calculation of the royalties. Similarly, in the Unwired Planet decision in England, the High Court imposed a patent license agreement which provided that Huawei would make payment of ongoing royalties on "End User Devices" compliant with wireless standards, again without distinguishing between the origin of the components of those devices. *See Unwired Planet Int'l Ltd. v. Huawei Tech. Co. Ltd.* [2017] EWHC 3083 (Pat).

33. *FTC v. Qualcomm Inc.*, 969 F.3d 974, 985 (9th Cir. 2020).

34. In the *Qualcomm* decision, the district court's analysis of Qualcomm's refusal to license intermediate-level manufacturers focused on the harm to several "rival modem chip suppliers", all of which were large multi-national companies. *FTC v. Qualcomm Inc.*, 411 F. Supp. 3d 658, 744–51 (N.D. Cal. 2019).

35. The litigation between Continental and Avanci, for example, does not involve lower Tier 2 or Tier 3 automotive suppliers.

well-capitalized companies with worldwide footprints. Smaller and less sophisticated companies have largely been absent from the judicial debates.

Given that smaller firms have fewer resources to participate in transnational patent litigation, this judicial focus on large industry participants is unsurprising. However, the consequences of component-level licensing requirements are unlikely to be limited to only the largest and most sophisticated elements of the supply chain. For example, in the automotive field, industry practice has generally required all suppliers to deliver components free of all intellectual property infringement claims – in other words, each automotive supplier has been responsible for obtaining patent licenses for the components that it supplies.³⁶ However, to the extent that patentees have only offered FRAND licenses to original equipment manufacturers, such licenses simply have not been available to the smaller companies populating the lower levels of the supply chain. However, if FRAND licenses must be provided to all links in the supply chain, then automotive suppliers are likely to follow industry practice in requiring all such links – including the smallest chipset suppliers – to themselves obtain the FRAND licenses and make payment of FRAND royalties.

Smaller chipset companies, however, will generally be at a disadvantage in negotiating FRAND license agreements. For example, smaller firms will generally have less negotiating leverage, will be less able to afford sophisticated legal counsel, and may have less visibility into the royalty payments made by other industry participants.³⁷ Moreover, such firms will generally have smaller patent portfolios and, as such, will be less able to lower their FRAND licensing burden through cross-licensing their own intellectual property.³⁸ As such, there is no guarantee that demanding intermediate level licensing will serve the goal of non-discrimination between component suppliers. Rather, such a requirement could instead reinforce the disadvantages of smaller firms and increase inequities in those markets.

V. CONCLUSION

Notwithstanding the ongoing debate regarding the practical interpretation of the FRAND nondiscrimination commitment, there remains less controversy regarding its substantive goals – the commitment generally serves as a pledge

36. Geradin, *supra* note 6 (“[V]ehicle manufacturers expect their parts to be free of third party rights.”).

37. Patterson, *supra* note 30, at 864 (asserting that in FRAND licensing, differential pricing could be the result of “lack of access to royalty information” or the ‘parties’ relative bargaining power”).

38. See, e.g., Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135, 1141 (2013) (asserting that a cross-license can be an “alternative licensing arrangement” permitted under FRAND); Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, 1 INNOVATION POL’Y & ECON. 119, 133 (2000) (noting that cross-license arrangement can “represent efforts by powerful firms to . . . make it more difficult for upstarts to challenge” their dominance); see also FOSS Patents, Huawei’s automotive component-level patent license deal with Sharp reduces Daimler’s injunction-related exposure by 86%, July 24, 2020 (speculating that, in contrast to other implementers, Huawei was able to obtain a component-level licensing agreement from Sharp, since Huawei’s patent portfolio constituted a strong “bargaining chip”); Teece & Sherry, *supra* note 24 (speculating that certain chipset manufacturers may have obtained cross-licenses to Innovatio’s patents).

not to distort market competition, and as a bulwark against charging unreasonable royalties.³⁹ But there is less consensus when the nondiscrimination principle is applied between firms at different positions on the supply chain. Instead, in the context of component-level licensing, the application of the nondiscrimination commitment devolves into a debate regarding the principle's substantive objectives. In what sense is it unreasonable to charge differential royalty rates between products that provide different end uses?⁴⁰ How does nondiscrimination prevent the distortion of competition between two firms that in any event do not directly compete?⁴¹ Given these debates, the FRAND nondiscrimination commitment should not be used as a proxy to obscure the underlying substantive controversies. Rather, any examination of component-level licensing requirements must look instead to the practical consequences of such licensing obligations, and the normative objectives they are intended to achieve in the specific circumstances of each situation.

39. See, e.g., Contreras & Layne-Farrar, *supra* note 4, at 188–89 (discussing rationales for FRAND nondiscrimination requirements).

40. Eli Greenbaum, *Nondiscrimination in 5G Standards*, 94 NOTRE DAME L. REV. ONLINE 55 (2019), https://scholarship.law.nd.edu/ndlr_online/vol94/iss2/1/ [<https://perma.cc/S262-89AD>] (discussing debates regarding charging differential FRAND royalty rates for different uses).

41. Layne-Farrar & Stark, *supra* note 6 (discussing the application of antitrust law to component-level licensing requirements).