A COMPARATIVE AND ECONOMIC ANALYSIS OF THE U.S. FTC'S COMPLAINT AND THE KOREA FTC'S DECISION AGAINST QUALCOMM

BY KOREN W. WONG-ERVIN, DOUGLAS H. GINSBURG, ANNE LAYNE-FARRAR, SCOTT ROBINS & ARIEL SLONIM[1]





I. INTRODUCTION

On January 17, 2017, the U.S. Federal Trade Commission ("FTC") filed a lawsuit against Qualcomm Incorporated based on a "monopoly broth" or course of conduct theory for alleged monopoly maintenance in certain narrowly defined baseband processor markets.[2] The vote to file the complaint was 2-1 over the dissent of now-Acting Chairman Maureen Ohlhausen, who described it as "an enforcement action based on a flawed legal theory (including a standalone Section 5 count) that lacks economic and evidentiary support, that was brought on the eve of a new presidential administration, and that, by its mere issuance, will undermine U.S. intellectual property rights in Asia and worldwide."[3]

In a jurisdiction on the other side of the globe, the Korean Fair Trade Commission ("KFTC") issued an administrative decision against Qualcomm on December 28, 2016, concluding that the company employed an "unfair business model" with respect to the licensing of its 2G ("CDMA"), 3G ("WCDMA"), and 4G ("LTE") standard-essential patents ("SEPs") and the sale of its baseband processors, and imposed global portfolio-wide remedies and a fine of KRW 1.03 trillion (approx. U.S. $853 million).[4]

---

1 Koren W. Wong-Ervin is the Director of the Global Antitrust Institute ("GAI") at Antonin Scalia Law School at George Mason University, an Adjunct Professor at Scalia Law, and former Counsel for Intellectual Property and International Antitrust at the U.S. Federal Trade Commission. Professor of Law Douglas H. Ginsburg is a Senior Judge, United States Court of Appeals for the District of Columbia Circuit, Chairman of the International Board of Advisors of GAI, and a former Assistant Attorney General in charge of the Antitrust Division of the U.S. Department of Justice. Anne Layne-Farrar is a Vice President at Charles River Associates and an Adjunct Professor at Northwestern University School of Law. Scott Robins is an LL.M. candidate at Scalia Law and a Legal Research Assistant at the GAI. Ariel Slonim is a Masters candidate in Economics at George Mason University and an MA Fellow at the GAI. The authors thank Anora Wang for her research assistance.

2 Complaint of Federal Trade Commission for Equitable Relief, *Federal Trade Commission v. Qualcomm, Inc.*, 5:17-CV-00220 (N.D. Cal 2017) [hereinafter FTC Complaint], https://www.ftc.gov/system/files/documents/cases/170117qualcomm_redacted_complaint.pdf. The FTC defines baseband processors as "semiconductor devices that enable cellular communications in cell phones and other products." Id. ¶ 1.

3 Dissenting Statement of Commissioner Maureen K. Ohlhausen, *In re Qualcomm, Inc.* File No. 121-0199 1-2 (Jan. 17, 2017), https://www.ftc.gov/system/files/documents/cases/170117qualcomm_mko_dissenting_statement_17-1-17a.pdf.

4 Information on the KFTC Decision is based upon its press release detailing the decision. Press Release, Korea Fair Trade Comm'n at 5-6 (Dec. 28, 2016) (Unofficial Translation) [hereinafter KFTC Press Release], https://www.qualcomm.com/documents/kftc-issued-press-release-dated-december-28-2016-unofficial-english-translation.

This article provides a legal and economic comparative analysis of the FTC's complaint and the KFTC's decision, highlighting the fundamental differences between the two and setting forth some of the main economic and legal problems with each. As an initial matter, it is important to bear in mind that the FTC's complaint is not a decision, but rather a set of allegations filed in court to initiate the court's resolution of the issues. Meanwhile, Qualcomm has stated that it will appeal the KFTC's administrative decision, and has requested a stay from the Seoul Central District Court.[5]

With respect to the substantive allegations, there are some similarities in the two cases but the main theories of harm differ significantly. For example, the KFTC concluded that Qualcomm possesses dominance in 2G, 3G, and 4G technologies: "As SEPs cannot be replaced by other technologies, a SEP holder gains complete monopolistic power by holding even a single SEP,"[6] while the FTC limited its market power allegations to CDMA baseband processors and premium LTE baseband processors.[7] Unlike the KFTC's decision, the FTC's complaint contains no allegation that Qualcomm engaged in unlawful tying or bundling by licensing on a portfolio basis, nor does the FTC allege that Qualcomm violated U.S. antitrust laws by allegedly requiring royalty-free cross-licenses.

To the extent that any other competition agency is relying upon the FTC's complaint to state a theory of harm with respect to SEP licensing practices, it would be well advised to read the complaint carefully. If a foreign agency is seeking FTC endorsement of any particular theory, it would be wise to reserve judgment until at least the appointment of new FTC Commissioners and, if the agency does not then withdraw the complaint, until the court has ruled on the FTC's ambiguous and highly controversial theories of harm.

II. THE FTC COMPLAINT

The FTC's Complaint is unclear but it appears to allege that Qualcomm unlawfully maintained its monopoly in certain baseband processor markets through a course of conduct consisting of: (1) the so-called "no-license, no-chip" policy; (2) refusal to license at the component, as opposed to the end-user device, level; and (3) a *de facto* exclusive dealing arrangement with Apple. As pleaded, with the possible exception of the third claim (which, as explained below, relies upon a problematic definition of the relevant market), none of the conduct alleged by the FTC is unlawful by itself. In other words, the FTC seems to rely upon the generally disfavored "monopoly broth" theory, whereby otherwise legal acts become illegal when done in combination.[8]

The FTC alleges that Qualcomm has "market power with respect to CDMA baseband processors and premium LTE baseband processors."[9] It does not allege that Qualcomm has market power in any SEP market, and in fact alleges that "Qualcomm's share of patents declared essential to LTE standards ... is roughly equal to the shares of other industry participants."[10] The closest the FTC comes to this is alleging that Qualcomm held a "high share of all patents declared essential" to 2G.[11] The share of declared essential patents is irrelevant, however, to measuring market power for two reasons.

First is the over-declaration stemming from two market forces. Standard development organization ("SDOs") commonly permit members to make blanket declarations; i.e. a patent holder may promise to license on certain terms, such as fair, reasonable, and non-discriminatory ("FRAND") terms, any and all patents that may be essential, without identifying any particular patents. SDO members

5 *Qualcomm files suit against FTC citing unfairness*, The Korean Herald (Feb. 22, 2017), http://www.koreaherald.com/view.php?ud=20170221000962.

6 KFTC Press Release, supra note 4, at 2.

7 FTC Complaint, supra note 2, ¶ 31.

8 See, e.g. Daniel A. Crane, *Does Monopoly Broth Make Bad Soup,* 76 Antitrust L.J. 663, 663-64 (2010) ("[T]he 'monopoly broth' maxim is susceptible to misuse, particularly if applied to species of conduct whose legality depends on a developed conduct-specific test. In such cases, the *prima facie* legality of the conduct should be determined on a practice-by-practice basis. Any conduct that does not meet the relevant conduct-specific test should not be allowed to count toward liability or any other issue. In particular, plaintiffs should not be allowed to invoke 'monopoly broth' rhetoric in order to defeat established legal tests applicable to different kinds of conduct."); Andrew I. Gavil et al., Antitrust Law in Perspective 648 (3rd Edition) (2017) ("Applying the pattern or practice theory poses the challenging task of defining what quantum of individual acts suffices to create the critical mass of legality.").

9 As discussed below, unlike the KFTC, the FTC does not allege that Qualcomm has market power in 3G or 4G SEPs but only that it held a high share of all patents declared essential.

10 FTC Complaint, supra note 2, ¶ 56 (referring to a study of declared LTE SEPs that found Qualcomm had a 13 percent share of "highly novel" essential LTE patents).

11 Id. ¶ 54.

over-declare their patents as SEPs in order to protect against allegations that they are engaging in a "patent ambush" when they later seek royalties for their patents.

The second problem with treating the share of declared essential patents as indicative of market power is that the relevant figure from the perspective of an implementer is the number of parties with which it must negotiate for a portfolio (SEP or SEP +) of licenses. The larger the number of declared SEP holders, the more forceful is an implementer's resistance to "high" royalty rates in negotiating licenses. Without a successful downstream market implementing the standard, declared SEP holders can not earn a return on their patents.

A. So-Called "No License, No Chips" Policy

The FTC alleges that "Qualcomm withholds its baseband processors unless a customer agrees to license SEPs on Qualcomm's terms, including elevated royalties that the customer must pay when using competitors' processors."[12] According to the FTC, this alleged policy,

> dramatically increases customers' costs of challenging Qualcomm's preferred license terms before a court or other neutral arbiter — including on the basis that those terms are non-FRAND — or to negotiate royalties in the shadow of such a challenge. This leaves Qualcomm's customers in a markedly different position than they would be in a typical patent licensing negotiation. As a result, Qualcomm's customers have accepted elevated royalties and other license terms that do not reflect an assessment of terms that a court or other neutral arbiter would determine to be fair and reasonable."[13]

The FTC goes on to allege that:

> The incremental royalty that OEMs pay to Qualcomm operates as a "tax" that raises OEMs' costs of using baseband processors supplied by Qualcomm's competitors, reduces demand for competitors' processors, and reduces the ability and incentive of competitors to invest and innovate. The tax thereby maintains Qualcomm's monopoly power and raises handset prices paid by consumers.[14]

The FTC further alleges that Qualcomm's practice is "anomalous" among chip makers and SEP holders,[15] which is an odd claim because Qualcomm is the only company in the relevant marketplace that both sells chips and has a SEP licensing business.

Although the redacted public version of the complaint never expressly alleges a margin squeeze, in her dissent now-Acting Chairman Ohlhausen characterized the FTC's "tax" allegations as a price squeeze.[16] Regardless, as Ohlhausen explains, the FTC's failure to allege that Qualcomm engaged in predatory pricing of any kind (presumably of chipsets), as required under the Supreme Court's decision in *Pacific Bell Telephone, Inc. v. Linkline Communications, Inc.*, is fatal to a price squeeze claim.[17]

The FTC never explicitly alleges tying, either, but the "no-license, no chip" allegations seem most akin to a tying or bundling claim. There are two fundamental problems with a tying theory, however. First, and again as Acting Chairman Ohlhausen pointed out in her dissent, "the complaint fails to allege that Qualcomm charges more than a reasonable royalty."[18] Indeed, the FTC fails to allege that Qualcomm charges supra-FRAND royalties, and instead relies upon alleged characterizations by OEMs, stating that "[m]any OEMs regard Qualcomm's royalties as non-FRAND."[19]

---

12 Id. ¶ 3.a.

13 Id. ¶ 4.

14 Id. ¶ 87.

15 The fact that such practice is anomalous is irrelevant to whether this is an antitrust claim and also explained by the fact that Qualcomm is the only vertically integrated company with a SEP licensing practice.

16 See Dissenting Statement of Commissioner Maureen K. Ohlhausen, supra note 3 at 1.

17 Id. at 1-2 (citing *Pacific Bell Telephone, Inc v. Linkline Communications, Inc.*, 555 U.S. 438, 453 (2009)).

18 Id. at 1.

19 FTC Complaint, supra note 2, ¶ 76.

In a recent paper, Jorge Padilla and Koren W. Wong-Ervin show through a simple model that a vertically integrated firm's *de facto* bundling of a component and its SEP portfolio will not result in foreclosure of the component market if: "(i) the vertically integrated SEP holder does not assert its patents at the component level, and (ii) it licenses its SEP portfolio to end-device manufacturers on FRAND terms irrespective of whether they source components from its own subsidiary or from the non-integrated rival."[20] As they explain,

> Intuitively, when (i) and (ii) hold, the bundle offered by the vertically integrated SEP holder can be replicated competitively by end-device manufacturers by mixing and matching the component sold by the non-integrated component supplier and the patent portfolio of the integrated SEP holder. In other words, the bundle is effectively constrained by the unbundled products and vice versa and, hence, it causes no distortion of the competitive process.[21]

The FTC does not allege that either of the two conditions identified by Padilla and Wong-Ervin is violated. When it is possible to obtain a license to declared SEPs on FRAND terms separate from purchasing components, the vertically integrated firm's offering of a bundle or a separate license does not affect competition.

> This is because the essential patents (the bundling products) are offered on a stand-alone basis (i.e. outside the bundle) on competitive terms and, therefore, the end product manufacturers can choose either the bundle of the vertically integrated SEP holder or create their own bespoke bundle by purchasing the component from a non-integrated component manufacturer and still license the SEPs of the vertically integrated SEP holder on fair and reasonable terms. As a result, the bundle is effectively constrained by the unbundled products and vice versa and, hence, it causes no distortion of the competitive process.[22]

Second, the one-monopoly-profit theory suggests that Qualcomm would be unable to increase its profits by collecting rents on the tied product (the license) because the license and the chips are used in fixed proportions. If the same consumers are buying both products in a fixed proportion, then the total price will determine both the monopolist's pricing decisions and hence consumer sales.[23] Therefore, the monopolist would have to lower the price of the tying product (the chips) to keep the price for the two products at the profit-maximizing level. As such, the motive for the tie could not be to monopolize the market for the tied product. Rather, the firm must be using the tie for some other purpose, such as price discrimination or to reduce transaction costs.[24]

B. Alleged Refusal to License at the Component Level

The FTC alleges that "Qualcomm's refusal to license competing manufacturers of baseband processors, in contravention of its FRAND commitments, contributes to its ability to tax its competitors' sales and maintain its monopoly."[25] The FTC made no allegation, however, of the pretext necessary under the applicable case law to overcome the presumption that a patentee's refusal to license is lawful. As the U.S. Court of Appeals for the Ninth Circuit said in *Image Technical Services, Inc. v. Eastman Kodak Co.*, "a monopolist's desire to exclude others from its [protected] work is a presumptively valid business justification for any immediate harm to consumers," and that presumption may be rebutted only by evidence of pretext.[26]

---

20 Jorge Padilla & Koren W. Wong-Ervin, *Portfolio Licensing at the End-User Device Level: Analyzing Refusals to License FRAND-Assured Standard-Essential Patents at the Component Level* (July 7, 2016), https://ssrn.com/abstract=2806688 (forthcoming in Antitrust Bulletin).

21 Id. at 2.

22 Id. at 19.

23 "Put simply, the single monopoly profit theory posits that, under certain market conditions, a firm with monopoly power in the tying market maximizes profit by charging a competitive price in the tied market. This pricing incentive holds even if the firm is the sole seller in the tied market. Consequently, according to this theory, if we observe tying, then it must be for a reason other than to leverage market power." International Competition Network Unilateral Conduct Workbook Chapter 6: Tying and Bundling 18-19 (April 2015), http://www.internationalcompetitionnetwork.org/uploads/2014-15/icn%20unilateral%20conduct%20workbook%20-%20chapter%206%20tying%20and%20bundling.pdf.

24 Alden Abbott & Joshua D. Wright, *Antitrust Analysis of Tying Arrangements and Exclusive Dealing*, Antitrust Law and Economics 10 (Keith N. Hylton, ed., Forthcoming). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1145529.

25 FTC Complaint, supra note 2, ¶ 115.

26 *Image Technical Services, Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1218 (9th Cir. 1997) (citing *Data General Corp. v. Grumman Systems Support,* 36 F.3d 1147, 1187 (9th Cir. 1994)).

The FTC appears instead to have based its refusal to license theory solely upon Qualcomm's alleged breach of the FRAND assurance, without alleging either that Qualcomm unlawfully acquired or maintained power in the markets for SEPs or that its refusal to license was by itself exclusionary. This position is at odds with the Supreme Court's teaching in *NYNEX Corp. v. Discon, Inc.*, that the evasion of a pricing constraint alone does not constitute an unlawful acquisition or exercise of monopoly power.[27] The Court distinguished the evasion of a pricing constraint from the unlawful acquisition or exercise of monopoly power by pointing out that "consumer injury naturally flowed . . . from the exercise of market power that is lawfully in the hands of a monopolist."[28] Assuming that the FTC's allegations are proven in court, as Bruce Kobayashi and Joshua Wright have explained, "a SEP holder['s] attempts to renegotiate or deviate from the original FRAND commitment made in good faith . . . to obtain higher royalty payments" amount to no more than post-contractual opportunism.[29] That conduct "is properly analyzed under contract, not antitrust law."[30]

The notion that the evasion of a FRAND assurance alone amounts to a standalone violation of the prohibition of unfair methods of competition ("UMC") in Section 5 of the FTC Act claim also conflicts with the FTC's 2015 *Statement of Enforcement Principles Regarding "Unfair Methods of Competition."*[31] As Koren Wong-Ervin and Joshua Wright have explained:

> The Statement sets forth three basic principles to limit and guide future applications of the Commission's standalone unfair methods of competition authority. The primary thrust of these principles is to link the FTC's standalone authority to the rule of reason as applied under the traditional antitrust laws and to not apply Section 5 to conduct if the U.S. antitrust laws (the Sherman Act or the Clayton Act) are sufficient to address the competitive concern at issue. Given U.S. case law on holdup by patent holders, which requires *ex ante* deception and but-for causation (i.e., but for the alleged deception, the SDO would not have adopted the technology at issue), the Sherman Act precedent will likely preclude future applications of Section 5 to patent holdup cases under the Statement.[32]

The FTC also failed to analyze the relevant SDO's policy on Intellectual Property Rights ("IPR"). As pointed out elsewhere, "[w]hile the debate often refers to 'the [F/]RAND commitment' as if it were a monolithic promise, there are in fact subtle, but important, differences" among SDOs with regard to IPR policy.[33] Indeed, SDO contract terms vary both across organizations and over time.[34] As the U.S. Court of Appeals for the Federal Circuit explained in *Ericsson v. D-Link* (a patent damages action), a court must consider the specific IPR Policy or FRAND assurance at issue.[35] Many SDO IPR policies are silent on whether a patent holder must license at all levels of the production chain.[36] At least one major SDO, the European Telecommunications Standards Institute ("ETSI"), requires licensing only to "any system, or device fully conforming to a standard" at issue. Padilla and Wong-Ervin explain that ETSI's policy does not imply, much less require, licensing at all levels of the value chain given that cellular standards, which are covered by ETSI, do not specify the circuitry of a chip; they specify how an operational cellular device must respond to and interact with a cellular network. Separate components cannot respond to and interact with a cellular network, and thus cannot conform to any cellular standard. There are suites of tests for determining whether a device is "fully conforming" to a standard, and no separate component could pass any of these tests.[37]

---

27 See *NYNEX Corp. v. Discon, Inc.*, 525 U.S. 128, 135-37 (1998).

28 Id. at 136.

29 Bruce H. Kobayashi & Joshua D. Wright, *Federalism, Substantive Preemption, and Limits on Antitrust: An Application to Patent Holdup*, 5 J. Competition L. & Econ. 469, 519–20 (2009), also available at: http://ssrn.com/abstract=1143602, page 25.

30 Joshua D. Wright & Douglas H. Ginsburg, *Comment on the Canadian Competition Bureau's Draft Updated Intellectual Property Enforcement Guidelines* 8 (Sept. 3, 2015), https://ssrn.com/abstract=2655754.

31 U.S. Federal Trade Comm'n, Statement of Enforcement Principles Regarding "Unfair Methods of Competition" Under Section 5 of the FTC Act (Aug. 13, 2015), https://www.ftc.gov/system/files/documents/public_statements/735201/150813section5enforcement.pdf.

32 Koren W. Wong-Ervin & Joshua D. Wright, *Intellectual Property and Standard Setting*, 17 Federalist Soc'y Rev. 46, 50 (Oct. 2016) (internal citations omitted), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2878955.

33 Anne Layne-Farrar & Koren W. Wong-Ervin, *An Analysis of the Federal Circuit's Decision in Ericsson v. D-Link*, CPI Antitrust Chronicle 3 (March 2015), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2669269.

34 Id. at 3.

35 *Ericsson, Inc. v. D-Link Systems, Inc.*, 773 F.3d 1201, 1235 (Fed. Cir. 2014).

36 Padilla & Wong-Ervin, supra note 20, at 11.

37 Id.

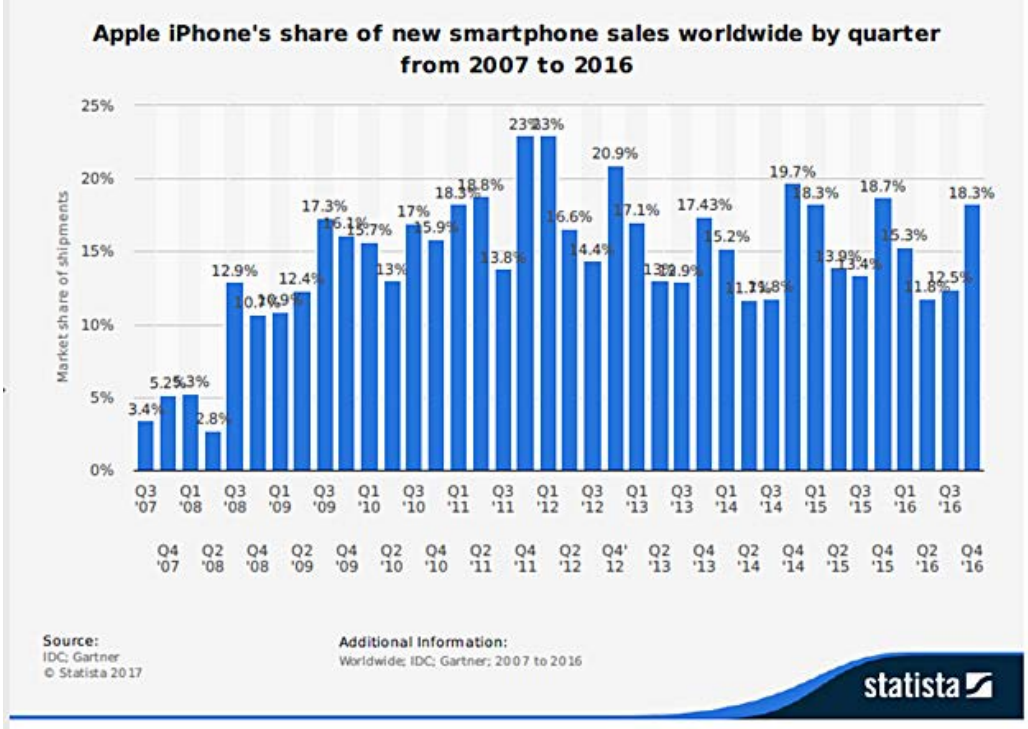
C. Alleged De Facto Exclusive Dealing with Apple

With regard to its exclusive dealing claims, the FTC alleges "Qualcomm's 2011 and 2013 agreements with Apple were, and were intended by Qualcomm to be, *de facto* exclusive deals that were as effective as express purchase requirements and that effectively foreclosed Qualcomm's competitors from gaining baseband processor business at Apple."[38] As described in the FTC's complaint, those agreements made partial relief from allegedly excessive royalties conditional upon Apple's using exclusively Qualcomm baseband processors for new iPhones and iPads, and allegedly provided that "[i]f Apple launched a new handset with a non-Qualcomm baseband processor, it would forfeit all future incentive payments and, depending on when a handset launched, could be required to refund past incentive payments."[39] Here the FTC's complaint is that,

> Qualcomm's agreements with Apple prevented Qualcomm's competitors from attaining . . . benefits [such as achieving "a scale of business that confers research-and-development flexibility, among other things"] during the term of the exclusivity period. The agreements also allegedly foreclosed competition for a substantial share of the market for premium LTE baseband processors.[40]

The FTC's allegation of substantial foreclosure is wholly dependent upon what appears to be a narrow definition of the relevant market, namely a market limited to "premium" LTE baseband processors. For a premium market to matter to competition, other suppliers of baseband processors would have to be unable to develop organically into effective competitors by first making non-premium processors.

The FTC's complaint does not provide information about Apple's market share at the time of the allegedly anticompetitive arrangements. However, publicly available information on global shares of the market for new smartphones shows that in 2011 and 2013, when Qualcomm and Apple entered into the agreements at issue, Apple accounted for less than 20 percent of new smartphone units sold worldwide.[41]



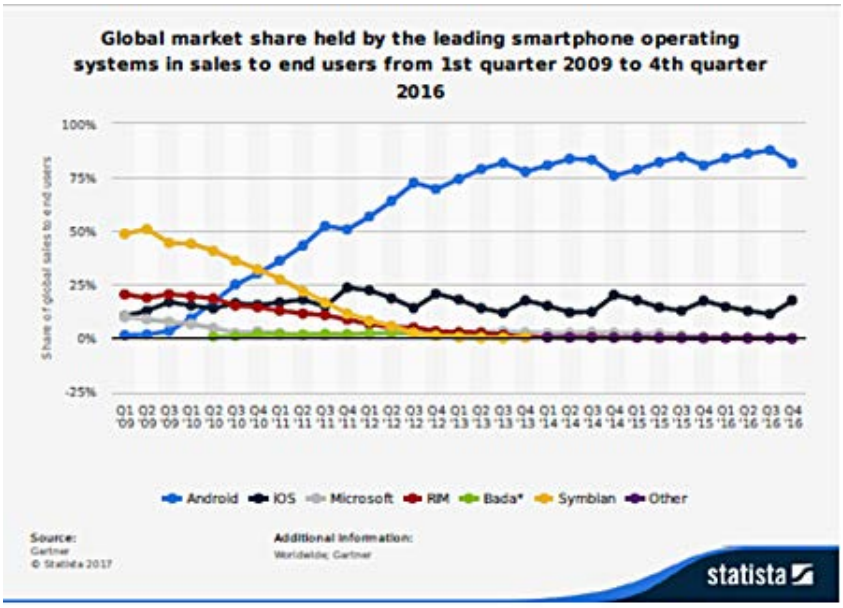
38 FTC Complaint, supra note 2, ¶ 125.

39 Id. ¶ 121-23.

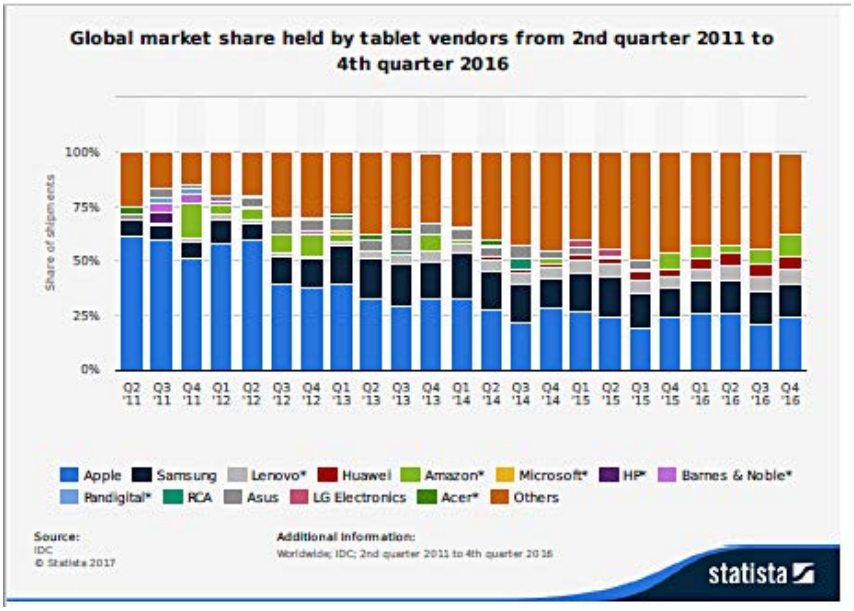
40 Id. ¶ 130.

41 As shown in the table, Apple iPhone's market share for Q1 '11 was 18.3%. For Q2 '11 Apple's share rose to 18.8%, and then dropped to 13.8% in Q3 '11. Only after the exclusive arrangement was reached (presumably prior to the exclusive sourcing that started Oct. 2011), did Apple's market share even cross the 20% mark to 23% in Q4 '11. In 2013, when Qualcomm and Apple revisited their arrangement, Apple iPhone's market share of new smartphone sales ranged from 12.9-17.43%. In the intervening year between the agreements, market share by quarter ranged from 14.4 to 23%.

Global market share by operating system also shows that Apple supplied no more than a modest portion of the smartphone market in 2011, in 2013, and between 2011 and 2016. Based upon these shares, Qualcomm's exclusivity arrangement with Apple could not have prevented "other baseband processor suppliers … from develop(ing) into effective competitors" in the market for premium LTE baseband processors. Nearly 80 percent of the market was available to Qualcomm's rival suppliers of baseband processors. A 23 percent or less share of the market is far from "substantial." Indeed, Apple's share of the global market in worldwide smartphone sales was below the U.S. Department of Justice Antitrust Division's 30 percent safe harbor for exclusive dealing arrangements.[42]

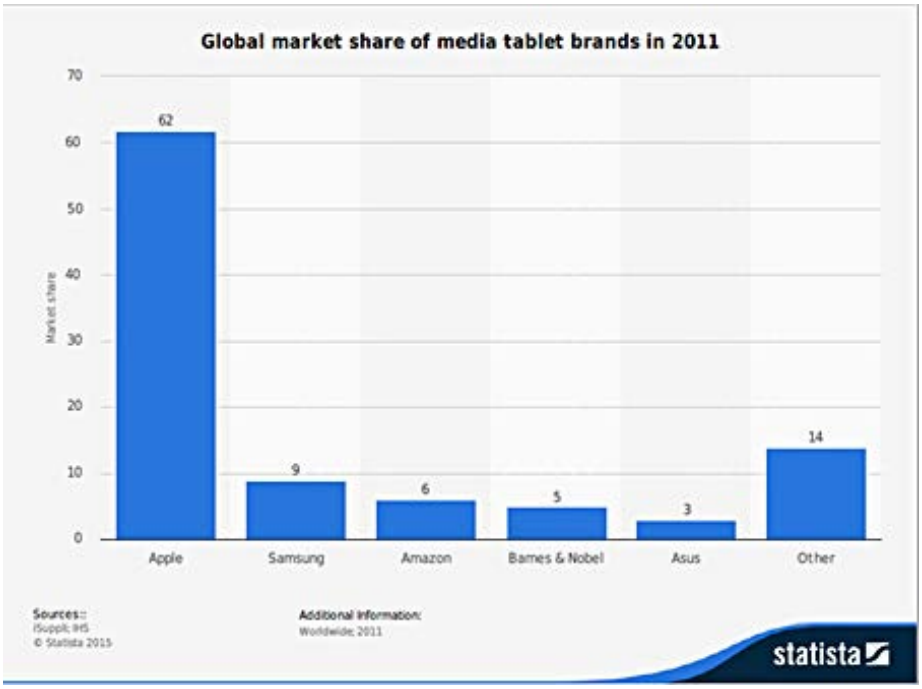


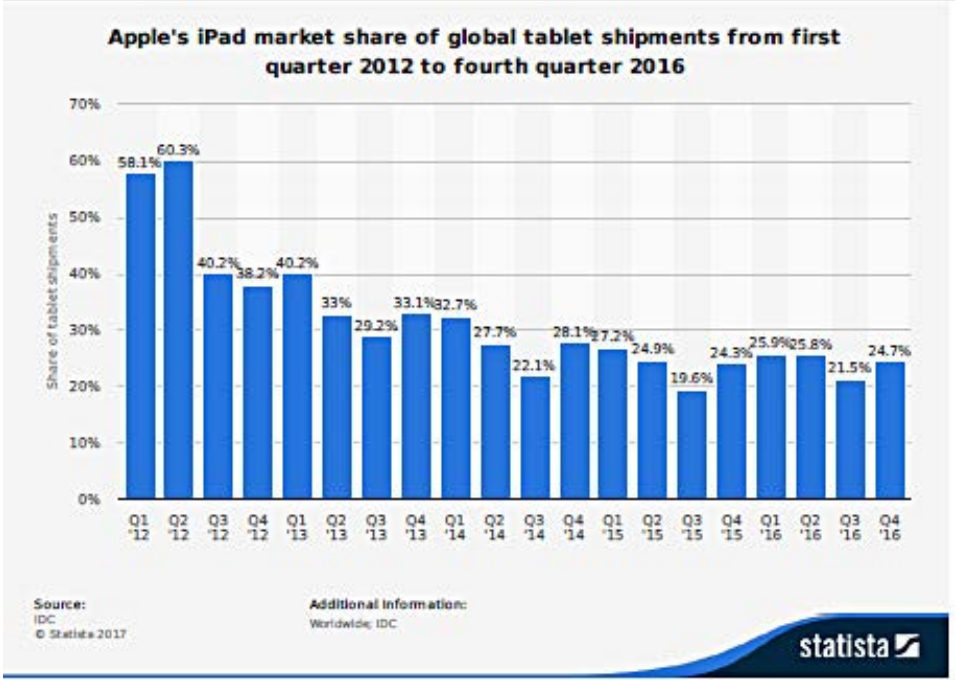
Apple did have a substantial (61.5 percent) share of the tablet market in Q2 '11, but the FTC does not allege that tablet chips are a separate market from phone chips. As a result, market share data in the tablet market do not accurately represent Apple's share of the relevant chip market at the relevant time.[43]



42 "The Department believes that exclusive-dealing arrangements that foreclose less than thirty percent of existing customers or effective distribution should not be illegal." U.S. Dep't of Justice, Competition and Monopoly: Single-Firm Conduct Under Section 2 of the Sherman Act: Chapter 8 Exclusive Dealing 141(2008), https://www.justice.gov/sites/default/files/atr/legacy/2008/09/12/236681_chapter8.pdf.

43 Apple's share of the global tablet industry declined to 40.2 percent in Q1 '13 and by Q4 '13 was only 33.1 percent.





In summary, with perhaps the exception of the *de facto* exclusive dealing claim (which, as we have shown, is fundamentally flawed), none of the conduct alleged by the FTC is unlawful on its own.

III. THE KFTC DECISION

For its part, the KFTC determined that Qualcomm was dominant in the 2G, 3G and 4G SEP markets as well as the market for CDMA modem chipsets. Based upon that determination, the KFTC derived several theories of harm. These in turn depended upon the following findings:

> (1) Despite requests by competing **modem chip companies,** Qualcomm has **refused to license**, or **imposed restrictions on the license** for, the cellular SEPs that are necessary for the manufacture and sale of chipsets;

> (2) By linking the chipset supply with patent license agreements, Qualcomm has **coerced** the execution and performance of unfair **license agreements** by using its chipset supply as leverage, while circumventing FRAND commitment;
>
> (3) Qualcomm has provided handset companies with **only comprehensive portfolio licenses** and coerced unilaterally determined royalty terms without conducting a procedure to calculate fair compensation, while **coercing unfair agreements,** e.g., demanding handset companies to license their patents for free [emphases in original].[44]

Like the FTC alleging antitrust violations and unfair methods of competition from Qualcomm's "course of conduct," the KFTC concluded that "[e]ach of the Conducts Organically Combines Together to Form One Unfair Business Model."[45]

Given the limited publicly available information about the KFTC's decision, we focus our analysis upon the KFTC's statements (in its press release) on SEPs and market power. The KFTC reasoned that "[a]s SEPs cannot be replaced by other technologies, a SEP holder gains complete power by holding even a single SEP" (while noting that Qualcomm holds "the largest number of SEPs).[46] As explained elsewhere, however, this claim is fundamentally flawed.

First, "SEPs are self-declared to SDOs yet no SDO evaluates essentiality."[47] Even firms making their best faith effort to identify essential patents in their portfolios are bound to make some mistakes. Moreover, when in doubt there are reasons for firms to err on the side of disclosure as potentially essential – namely the risk of FTC allegations of "patent ambush." These forces tend to lead to "over disclosure."

Second, essentiality can change over time for a number of reasons. Standards are developed over time, and the necessity of particular technologies will change as the standard evolves. Thus, what appeared to be essential at the time a patent holder declares certain patents essential may no longer appear so at the time the standard is finalized. As a result, an independent legal and technical review is necessary to establish whether a particular patent self-declared as "essential" is in fact essential for compliance with a standard when it reaches the commercialization stage.[48]

Third, "one cannot perfunctorily conclude that an individual SEP or a portfolio of SEPs constitutes a well-defined relevant market or that the owner possesses market power."[49] Every genuinely essential patent is needed to implement any given standard, rendering all essential patents what economists term "perfect complements," meaning products that must be used together in fixed proportions. Because genuine SEPs are perfect complements, "SEPs cannot be licensed in isolation;" individual SEPs are valuable only when used in combination with each other.[50] Because SEPs are FRAND-assured and perfect complements, license rates among the SEPs for a given standard are interdependent:

> Specifically, royalty rates consistent with FRAND are tied to the value the patented technologies contribute to the standard, which inherently accounts for all valuable contributions to the standard (i.e., the value contributed by all other SEPs). In contrast to monopolists, who can set prices without consideration of other firms, SEP holders must take into account the value of other SEPs when setting their own royalty rates. Reinforcing this dynamic, firms taking a license to SEPs know they must license all SEPs to be compliant with the standard. As a result, licensees push back in negotiations if they feel an SEP holder is attempting to ask for more than its share.[51]

---

44 KFTC Press Release, supra note 4, at 2.

45 Id. at 7.

46 Id. at 3.

47 Anne Layne-Farrar and Koren W. Wong-Ervin, *Standard-Essential Patents and Market Power*, George Mason Law & Economics Research Paper No. 16-47 at 2 (Nov. 18, 2016), https://ssrn.com/abstract=2872172.

48 Id.

49 Id. at 2; Anne Layne-Farrar & Michael Salinger, *The Policy Implications of Licensing Standard Essential FRAND-Committed Patents in Bundles* (July 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2846147 [hereinafter Layne-Farrar & Salinger].

50 Layne-Farrar & Salinger, supra note 49, at 7.

51 Id.

In other words, licensees manufacturing to a standard are aware of all potentially essential patent holders and know the universe of licenses they are likely to need to be compliant with the standard. This information provides licensees with countervailing bargaining power: no one makes a profit if the standard is not commercially successful, so all licensors have an incentive to moderate their royalty demands in order to ensure that commercial success.[52]

IV. BOTH AGENCIES IGNORE THE WELFARE EFFECTS OF LICENSING END-USER DEVICES

The common thread throughout both the FTC's complaint and the KFTC's decision is that a refusal to license at the component level (at least by a vertically integrated firm) harms competition. Economic theory, however, shows this concern to be far narrower than either the FTC or the KFTC acknowledge. Gerard Llobet and Padilla show that, compared to per-unit component royalties, ad-valorem royalties based upon the price of the end-user device tend to decrease the prices paid by consumers, particularly in the context of successive monopolies, which result in double-marginalization. Specifically, they find that "[t]he resulting price in the final market is never higher under ad-valorem royalties. The reason is that ad-valorem royalties are more similar to fixed fees than per-unit royalties. As a result, they make the double-marginalization problem less severe, generating lower distortions in the final market."[53]

They also conclude that ad-valorem rates tend to spur innovation. They tend to benefit upstream producers without hurting downstream producers. When there are multiple upstream developers with complementary innovations, "numerical results indicate that ad-valorem royalties typically work better because by increasing upstream profits they generate a positive feedback on the incentive to innovate of all parties."[54]

Licensing at the end-user device level is a common industry practice. One reason is that it allows for easy monitoring and enforcement,[55] which reduces the transaction costs of licensing. Another reason for end-user device licensing is that the licensed patents may read on the system or device level, rather than the component level. Many SEPs related to wireless cellular technologies incorporated in 2G, 3G, and 4G standards are designed to optimize the wireless system and network; their value therefore reaches well beyond a specific component in the device. In fact, one study that examined a representative sample of patents in a large portfolio of SEPs owned by Ericsson found that more than 80 percent of the SEPs read on the cellular network or the end device, not on an individual component.[56]

In short, although competition agencies are charged with furthering consumer welfare. Both the FTC's Complaint and the KFTC's Decision seem to ignore the effects on consumer welfare of licensing at the end-user device level.

V. CONCLUSION

The FTC's lengthy complaint, with its suspect timing and fundamentally flawed allegations, appears to boil down to a complaint about excessive pricing, which is not actionable under U.S. antitrust law. While the two agencies' main theories of harm differ, both take issue with the common industry practice of licensing at the end-user device level, as opposed to licensing at some component level, although economic theory suggests that common practice leads to lower prices for consumers and spurs innovation.

52 Id.

53 Gerard Llobet & Jorge Padilla, *The Optimal Scope of the Royalty Base in Patent Licensing* 5 (Jun. 25, 2014), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2417216.

54 Id. at 6-7.

55 Layne-Farrar & Wong-Ervin, supra note 33, at 4-5.

56 Jonathan D. Putnam & Tim A. Williams, *The Smallest Salable Patent-Practicing Unit (SSPPU): Theory and Evidence* at 41, tbl. 3 (Sept. 2016), https://ssrn.com/abstract=2835617.