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**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN JOSE DIVISION**

FEDERAL TRADE COMMISSION,  
  
Plaintiff

v.

QUALCOMM INCORPORATED, a Delaware  
Corporation,  
  
Defendant.

Case No. 5:17-cv-00220-LHK-NMC

**FEDERAL TRADE COMMISSION'S  
PRETRIAL BRIEF**

**REDACTED VERSION PER ECF 1183**

Date: January 4, 2019  
Time: 9:00 a.m.  
Courtroom: 7, 4th Floor  
Judge: Hon. Lucy H. Koh

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## I. INTRODUCTION

For over a decade, Qualcomm has been the dominant supplier of modem chips that allow cellular handsets to communicate with wireless networks. Over the same period, Qualcomm has collected royalties for its cellular standard essential patents (“SEPs”) that far exceed the royalties collected by holders of comparable SEP portfolios. These phenomena are not unrelated. Qualcomm requires cell phone manufacturers (“OEMs”) to enter and maintain licenses to its cellular SEPs in order to retain access to Qualcomm’s modem chips—“no license, no chips.” This strategy, which sets Qualcomm apart from both other semiconductor suppliers and other SEP licensors, allows Qualcomm to use its market power in modem chips to extract a “surcharge” on top of its legitimate patent royalties.

Normally, SEP holders negotiate royalties and other license terms in the “shadow of the law,” *i.e.*, against a backdrop of a judicial determination of fair, reasonable, and non-discriminatory (“FRAND”) royalties. Qualcomm, in contrast, has not negotiated in the shadow of the law. The evidence at trial will show that Qualcomm’s no license-no chips policy substantially diminishes OEMs’ ability and incentive to challenge Qualcomm’s royalty demands. Unable to negotiate licenses in the shadow of the law, and instead threatened with loss of access to critical modem chips, OEMs have accepted Qualcomm’s unreasonable royalty demands, which require OEMs to pay Qualcomm a surcharge on their use of competitors’ chips. Qualcomm enhances its ability to collect a surcharge through related conduct, including through payments of funds designed to induce OEMs to accept Qualcomm’s preferred royalty terms.

In other words, in order to maintain access to Qualcomm modem chips—which OEMs have required for certain handsets, including their flagship phones—OEMs must pay Qualcomm a surcharge even when they do not use Qualcomm chips. By wielding market power to collect a fee when customers use its competitors’ products, Qualcomm raises its rivals’ costs, thereby harming competition and consumers.

Qualcomm also forecloses an avenue that its customers might otherwise employ to avoid Qualcomm’s required surcharge. Although Qualcomm promised standard-setting organizations that it would make cellular-SEP licenses available to competing modem chip suppliers,

1 Qualcomm has repeatedly refused to do so. The evidence will show that Qualcomm recognized  
2 that making licenses available to its competitors would have hindered Qualcomm's ability to  
3 collect elevated royalties from OEMs. Qualcomm's breach of its FRAND commitments further  
4 weakened competitors by making their chips less attractive and by deterring entry and  
5 investment.

6 In addition to using elevated royalties to raise its rivals' costs, Qualcomm also used those  
7 royalties to secure exclusivity commitments from Apple, an OEM otherwise uniquely capable of  
8 sponsoring modem-chip entry. These exclusivity commitments further hindered and delayed  
9 rivals from entering and expanding their presence in relevant modem-chip markets.

10 Qualcomm's exclusionary conduct has contributed to the maintenance of its monopoly in  
11 the sale of modem chips that OEMs need to make CDMA-enabled handsets and premium LTE-  
12 enabled handsets. By raising its rivals' costs, Qualcomm has weakened rivals, forestalled entry  
13 and expansion, and harmed competition. A number of Qualcomm's competitors have exited the  
14 relevant modem-chip markets, and Qualcomm's exclusionary conduct has vitiated the threat that  
15 its remaining competitors would otherwise pose to its modem-chip monopoly.

16 As the industry shifts to 5G cellular communications, a significant danger exists that  
17 Qualcomm's ongoing anticompetitive conduct will entrench its dominant position in a new  
18 generation of modem chips. Despite years of worldwide law enforcement and regulatory  
19 scrutiny, Qualcomm continues to engage in the anticompetitive practices challenged in this case.  
20 Trial will establish the harm this has caused to competition and consumers and the injury it  
21 threatens to cause in the future. The Court should therefore enjoin Qualcomm's anticompetitive  
22 sales and licensing practices.

## 23 **II. LEGAL FRAMEWORK**

24 Qualcomm's conduct violates Section 5 of the Federal Trade Commission Act ("FTC  
25 Act"). Section 5 prohibits "[u]nfair methods of competition." 15 U.S.C. § 45(a). "Unfair methods  
26 of competition" under the FTC Act include violations of the Sherman Act, *FTC v. Ind. Fed'n of*  
27 *Dentists*, 476 U.S. 447, 454-55 (1986), and also conduct that, although not a violation of the  
28 letter of the Sherman Act, conflicts with that Act's basic policies. *See FTC v. Brown Shoe Co.*,

1 384 U.S. 316, 321 (1966); *E.I. du Pont de Nemours & Co. v. FTC*, 729 F.2d 128, 138-40 (2d Cir.  
2 1984) (conduct may be an unfair method of competition if it is “collusive, coercive, predatory or  
3 exclusionary in character” or possesses other “indicia of oppressiveness”).

4 Section 2 of the Sherman Act prohibits monopolization, which consists of (1) the  
5 possession of monopoly power in a relevant market; and (2) anticompetitive conduct—“the  
6 willful acquisition or maintenance of that power as distinguished from growth or development as  
7 a consequence of a superior product, business acumen, or historic accident.” *Eastman Kodak Co.*  
8 *v. Image Tech. Servs., Inc.*, 504 U.S. 451, 481 (1992); *see also* 15 U.S.C. § 2. Section 1 of the  
9 Sherman Act prohibits “[e]very contract, combination . . . or conspiracy, in restraint of trade or  
10 commerce.” 15 U.S.C. § 1. Thus, proof of a Section 1 violation requires evidence (1) of the  
11 existence of an agreement, *i.e.*, concerted action; and (2) that the agreement unreasonably  
12 restrained competition. *See Aerotec Int’l, Inc. v. Honeywell Int’l, Inc.*, 836 F.3d 1171, 1178 (9th  
13 Cir. 2016). An agreement is *prima facie* “unreasonable” if (1) a defendant has market power in  
14 the relevant market; and (2) the challenged agreement tends to harm competition. *See Bhan v.*  
15 *NME Hospitals, Inc.*, 929 F.2d 1404, 1413 (9th Cir. 1991); *Realcomp II, Ltd. v. FTC*, 635 F.3d  
16 815, 827 (6th Cir. 2011).

17 The legal analysis of Qualcomm’s conduct under Sections 1 and 2 of the Sherman Act is  
18 similar. *Cf. United States v. Microsoft Corp.*, 253 F.3d 34, 59 (D.C. Cir. 2001). Section 1,  
19 however, requires an agreement among two or more firms.<sup>1</sup> In addition, a lesser showing is  
20 required to establish market power for Section 1 purposes than to establish monopoly power for  
21 Section 2 purposes. *See Eastman Kodak*, 504 U.S. at 481; *Amarel v. Connell*, 102 F.3d 1494,  
22 1522 (9th Cir. 1996).<sup>2</sup>

23  
24  
25 <sup>1</sup> Agreements coerced or “essentially forced” by a defendant nonetheless constitute concerted  
26 action under Section 1. *ZF Meritor, LLC v. Eaton Corp.*, 696 F.3d 254, 277 (3d Cir. 2012).

27 <sup>2</sup> In addition, exclusive dealing by a monopolist may violate Section 2 even if the relevant  
28 contracts foreclose less than the roughly 40% to 50% of the relevant market typically deemed  
“substantial” and thus anticompetitive for Section 1 purposes. *See, e.g., Microsoft*, 253 F.3d at  
70; *infra* IV.C.

1 Under the Sherman Act, conduct that “harm[s] the competitive *process*, and thereby  
 2 harm[s] consumers” is anticompetitive. *McWane, Inc. v. FTC*, 783 F.3d 814, 835-36 (11th Cir.  
 3 2015) (quoting *Microsoft*, 253 F.3d at 58). A government plaintiff need not, however,  
 4 “reconstruct the hypothetical marketplace absent a defendant’s anticompetitive conduct.”  
 5 *Microsoft*, 253 F.3d at 79 (quoting 3 Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law*  
 6 ¶ 651c, at 78 (1996 ed.)). Rather, a government plaintiff must show that the “defendant has  
 7 engaged in anticompetitive conduct that “reasonably appear[s] capable of making a significant  
 8 contribution to . . . maintaining monopoly power.” *Id.*; accord *McWane*, 783 F.3d at 833; *United*  
 9 *States v. Dentsply Int’l, Inc.*, 399 F.3d 181, 187 (3d Cir. 2005). When a defendant has engaged in  
 10 multiple acts or practices that may be anticompetitive, a court must consider their interactions  
 11 and combined effects. *Free FreeHand Corp. v. Adobe Sys., Inc.*, 852 F. Supp. 2d 1171, 1180  
 12 (N.D. Cal. 2012).

### 13 III. QUALCOMM POSSESSES MONOPOLY POWER IN THE MARKETS FOR 14 CDMA AND PREMIUM LTE MODEM CHIPS

15 Qualcomm’s anticompetitive conduct has entrenched and prolonged Qualcomm’s  
 16 monopoly power in two markets: (1) the market for “CDMA modem chips,” *i.e.*, modem chips  
 17 that comply with 2G or 3G CDMA standards,<sup>3</sup> and (2) the market for “premium LTE modem  
 18 chips,” LTE-compliant modem chips that OEMs deploy in premium handsets.

19 At trial, the FTC will present evidence demonstrating that these markets constitute  
 20 relevant antitrust product markets, and that Qualcomm possessed monopoly power in the market  
 21 for CDMA modem chips from 2006 through 2016 and in the market for premium LTE modem  
 22 chips from 2011 through 2016.

23 Evidence at trial will show that these markets exhibit practical indicia of relevant antitrust  
 24 product markets. In addition, the FTC’s economic expert, Professor Carl Shapiro, will testify  
 25 regarding the hypothetical monopolist test (“HMT”), the standard methodology that antitrust  
 26

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27 <sup>3</sup> CDMA modem chips include modem chips that comply with other cellular communications  
 28 standards, such as UMTS and LTE, in addition to CDMA.

1 economists employ to identify relevant markets. Professor Shapiro will explain that his  
2 implementation of the HMT confirms that CDMA modem chips and premium LTE modem chips  
3 constitute relevant antitrust markets. Professor Shapiro will further testify that Qualcomm's high  
4 shares in these antitrust markets, in combination with other evidence, support the conclusion that  
5 Qualcomm possessed monopoly power in the market for CDMA modem chips from 2006  
6 through 2016 and in the market for premium LTE modem chips from 2011 through 2016.

#### 7 **A. CDMA Modem Chips**

8 Evidence at trial will demonstrate that OEMs selecting chips to deploy in their handsets  
9 do not consider other modem chips to be reasonable substitutes for CDMA modem chips.  
10 Wireless carriers around the world, including Verizon, Sprint, KDDI of Japan, and China  
11 Telecom, developed communications networks that require the use of handsets that comply with  
12 CDMA standards. OEMs need CDMA modem chips to supply handsets that meet these carriers'  
13 requirements. While an OEM could in theory abandon the business of supplying CDMA-capable  
14 handsets, testimony presented at trial will show that major OEMs have not viewed this as a  
15 commercially viable option.

16 Qualcomm has dominated the sale of CDMA modem chips. Between 2008 and 2014,  
17 Qualcomm's only competitor was Via Telecom, which never accounted for more than 10% of  
18 the CDMA modem chips sold in a given year. MediaTek, which licensed CDMA technology  
19 from Via in 2013, began supplying CDMA modem chips for use in handsets sold in China in  
20 2015 and for use in handsets sold in the United States in 2016.

21 Qualcomm, like other industry participants, recognizes CDMA modem chips as a distinct  
22 industry segment and has separately monitored competitors and their market shares within this  
23 segment. Although their manufacturing costs are similar, CDMA modem-chip prices have been  
24 significantly higher than prices of comparable modem chips that support the 3G UMTS standard  
25 but lack CDMA capability. Qualcomm and its OEM customers refer to the premium that  
26 Qualcomm's CDMA modem chips command over similar non-CDMA chips as Qualcomm's  
27 "CDMA Adder." [REDACTED]

28 [REDACTED]

1 Qualcomm and its OEM customers recognize that the size of the “CDMA Adder” reflects  
2 the anemic competitive conditions in the market for CDMA modem chips. In 2008, current  
3 Qualcomm President Cristiano Amon acknowledged that prices for UMTS modem chips were  
4 “lower than CDMA not [due] to cost or volume but due to competition” (CX8257). Professor  
5 Shapiro will testify, based on his investigation of Qualcomm’s “CDMA Adder,” that the market  
6 for CDMA modem chips satisfies the HMT and constitutes a relevant antitrust market.

7 Evidence at trial will show that Qualcomm possessed monopoly power in the market for  
8 CDMA modem chips in the period from 2006 through 2016. Professor Shapiro will testify that  
9 Qualcomm maintained a share exceeding 90% of the market for CDMA modem chips in each  
10 year from 2008 through 2014 and exceeding 80% in 2015, on both a unit and revenue basis; in  
11 2016, Professor Shapiro will testify that Qualcomm’s share exceeded 60% on a unit basis and  
12 74% on revenue basis. [REDACTED]

13 [REDACTED]  
14 [REDACTED]  
15 Evidence that OEMs lacked acceptable alternatives to Qualcomm’s CDMA modem chips  
16 further supports the conclusion that Qualcomm possessed monopoly power in the relevant  
17 market. Via Telecom was the only alternative to Qualcomm from 2008 through 2014. Via  
18 Telecom’s modem chips lagged behind Qualcomm’s, however, and lacked complementary  
19 functionality, such as LTE capability. Thus, in a 2009 email assessing Apple’s alternatives for  
20 CDMA-modem chip supply, Mr. Amon wrote: “Can’t imagine Via would be an option.”  
21 (CX6839.) In a 2010 email, Mr. Amon similarly stated that “the only way [BlackBerry] will  
22 deliver a LTE/CDMA at [Verizon] is through us.” (CX5282.) In a 2014 email to Qualcomm  
23 CEO Steve Mollenkopf, Qualcomm CTO Jim Thompson likewise noted that Apple needed  
24 Qualcomm modem chips to supply handsets in regions served by CDMA networks: “[W]ithout  
25 us they would lose big parts of North America, Japan and China. That would really hurt them.”  
26 (CX5402.)

27 Considerable barriers have limited entry into the market for CDMA modem chips.  
28 Potential entrants face technical barriers to entry. Moreover, participation in the market for

1 CDMA modem chips requires developing complementary multimode technology; thus, entry  
2 requires considerable time and commitment of R&D resources. While MediaTek licensed Via  
3 Telecom’s CDMA technology in late 2013, it did not sell modem chips for use in handsets sold  
4 in China until 2015 and for use in handsets sold in the United States until October 2016. Finally,  
5 the Qualcomm practices that the FTC has challenged have created additional barriers to entry  
6 into the market for CDMA modem chips.

7 **B. Premium LTE Modem Chips**

8 Evidence at trial will also show that, from 2011 (when LTE modem chips were first sold  
9 in commercial quantities) through 2016, Qualcomm maintained monopoly power in a relevant  
10 antitrust market for premium LTE modem chips.

11 Qualcomm and other industry participants recognize that premium LTE modem chips,  
12 which are LTE-compliant modem chips used in premium handsets, constitute a distinct  
13 economic segment. Premium LTE modem chips support features—including advanced carrier  
14 aggregation and multiple in-multiple out—that modem chips used in lower-tier LTE handsets do  
15 not support.

16 OEMs do not consider other modem chips to be reasonable substitutes for premium LTE  
17 modem chips. Motorola, for example, has not considered selling a premium handset without a  
18 premium LTE modem chip because a premium handset that failed to support advanced LTE  
19 functionality would not be a commercially viable product.

20 The market for premium LTE modem chips is subject to distinct competitive conditions.  
21 As a result, Qualcomm business-planning documents monitor competition and market shares by  
22 tier, including separate assessments of the premium tier.

23 Different competitive conditions translate into different pricing. [REDACTED]

24 [REDACTED]

25 [REDACTED]

26 [REDACTED]

27 [REDACTED]

28 [REDACTED]

1 Professor Shapiro will testify that the HMT confirms that premium LTE modem chips  
2 constitute a relevant antitrust market. To implement the HMT (and assess Qualcomm's share of  
3 the premium LTE market), Professor Shapiro adopted Qualcomm's own definition of a premium  
4 handset [REDACTED]  
5 and defined a modem chip as a premium LTE modem chip if it appeared in a premium handset.  
6 This approach is consistent with industry participants' understanding that premium LTE modem  
7 chips correspond to LTE-compliant modem chips used in premium handsets. By analyzing  
8 Qualcomm's forecasts of the impact that MediaTek entry would have on the prices of  
9 Qualcomm's premium LTE modem chips, Professor Shapiro concluded that a candidate market  
10 for premium LTE modem chips satisfies the HMT.

11 Professor Shapiro will also explain that Qualcomm possessed monopoly power in the  
12 market for premium LTE modem chips from 2011 through 2016. Professor Shapiro will testify at  
13 trial that he calculated that Qualcomm maintained market shares exceeding 80% from 2011  
14 through 2015, on both a unit and revenue basis, and market shares of 57% on a unit basis and  
15 63% on a revenue basis in 2016. [REDACTED]  
16 [REDACTED]  
17 [REDACTED]

18 Professor Shapiro's conclusion that Qualcomm possessed monopoly power in the market  
19 for premium LTE modem chips is corroborated by evidence that OEMs lacked acceptable  
20 alternatives to Qualcomm's premium LTE modem chips. For example, a 2013 Qualcomm  
21 business-planning document concluded that Intel lacked adequate scale and that other potential  
22 modem-chip competitors lagged behind Qualcomm in the premium and high tiers.

23 Substantial barriers hinder entry into the market for premium LTE modem chips.  
24 Developing premium LTE modem chips requires large, ongoing R&D expenditures, upward of a  
25 billion dollars a year. And entry into the market takes several years. Given the critical role that  
26 OEMs play in "maturing" a modem-chip supplier's technology, establishing relationships with  
27 major OEMs is a critical step in entering the market for premium LTE modem chips. And  
28 Qualcomm's challenged business practices have created additional barriers to entry by denying

1 rivals such relationships.

2 **IV. QUALCOMM ENGAGED IN ANTICOMPETITIVE CONDUCT**

3 Qualcomm has used several interrelated practices to maintain its monopoly over CDMA  
4 and premium LTE modem chips. The “combined effect” of these practices has been to weaken  
5 Qualcomm’s rivals and entrench its monopoly. *Free FreeHand Corp.*, 852 F. Supp. 2d at 1180.

6 **A. Qualcomm’s no license-no chips policy and use of incentive funds have  
7 dramatically impacted the terms of Qualcomm’s patent license agreements**

8 ***1. No license-no chips is a matter of Qualcomm corporate policy***

9 As evidence at trial will show, Qualcomm’s practice of conditioning the sale of modem  
10 chips on its customers’ entry into and maintenance of a separate patent license with Qualcomm  
11 (“no license-no chips”) is admitted, long-standing, and implemented as a matter of corporate  
12 policy. Current and former Qualcomm executives acknowledge the policy. And Qualcomm  
13 implements the policy through component supply agreements that govern modem chip sales. For  
14 example, Qualcomm’s supply agreement with LG Electronics provides that Qualcomm “may  
15 terminate this Agreement if [LGE] is in default under the License” (CX0104).<sup>4</sup> Other supply  
16 agreements contain similar terms.

17 The supply risk to OEMs is clear enough from their supply agreements. But the evidence  
18 will show also that Qualcomm expressly advises OEMs of its no license-no chips policy in  
19 license negotiations. Former heads of Qualcomm’s licensing business, including Eric  
20 Reifschneider and Steve Altman, informed OEMs that chip supply could be in jeopardy if the  
21 OEMs did not sign new license agreements or challenged the terms of existing agreements. For  
22 example, Mr. Reifschneider reminded one OEM several times in a single month that it would  
23 lose access to Qualcomm’s chips if it did not sign a license extension—and the OEM signed the  
24 extension shortly thereafter.<sup>5</sup>

25 \_\_\_\_\_  
26 <sup>4</sup> A term to this effect appears in virtually all of Qualcomm’s Component Supply Agreements.

27 <sup>5</sup> The license agreements that Qualcomm executed in reliance on its no license-no chips policy  
28 are concerted action for purposes of Section 1 of the Sherman Act. *See, e.g., ZF Meritor*, 696  
F.3d at 277.

1                   **2. OEMs were heavily dependent on Qualcomm’s CDMA and Premium LTE**  
2                   **modem chips during license negotiations**

3                   Consistent with Qualcomm’s monopoly power in relevant modem-chip markets, evidence  
4 at trial will show that major OEMs were heavily dependent on Qualcomm for CDMA and  
5 premium LTE modem chips when they negotiated license agreements or extensions with  
6 Qualcomm. For example, when Samsung negotiated a key license amendment in 2008-2009, it  
7 was purchasing all of its CDMA chips from Qualcomm, because it could not find a suitable  
8 alternative. Sony Mobile faced a similar situation during its 2012 license negotiations, with 83%  
9 of its “roadmap” (existing and future products) reliant on Qualcomm modem chips. And in 2013,  
10 Huawei and Lenovo found themselves dependent on Qualcomm’s CDMA and premium LTE  
11 modem chips when they were engaged in license negotiations.

12                   **3. Qualcomm used incentive funds to secure OEMs’ acceptance of licensing**  
13                   **terms**

14                   Evidence at trial will show that, in some cases, Qualcomm used incentive funds to secure  
15 acceptance of its patent licensing terms. Qualcomm paid these incentive funds through strategic  
16 and marketing fund agreements entered on the same day as patent license agreements, with funds  
17 often accruing through rebates on future purchases of Qualcomm chips. As the Court will hear,  
18 Qualcomm offered incentive funds linked to license-agreement acceptance to a number of  
19 OEMs, including Blackberry, ZTE, Lenovo, and LGE. Qualcomm executives understood that  
20 these funds induced OEMs to accept higher royalties.

21                   Although Qualcomm may argue that some of these funds served other purposes,  
22 Qualcomm’s internal documents acknowledge that any other purposes were “secondary to  
23 getting the overall [licensing] deal done.” (CX6785.)

24                   **4. Qualcomm’s chip leverage in license negotiations raises royalties**

25                   At trial, the court will hear testimony from a number of OEMs, including Samsung,  
26 Huawei, Lenovo, and Apple, that their dependence on Qualcomm for modem chip supply  
27 heavily influenced license negotiations and led to elevated effective royalties. For example,  
28 during its 2008-2009 license negotiations, Samsung did not believe that Qualcomm’s royalties

1 reflected its patent position, and instead viewed Qualcomm’s royalty as disproportionate to other  
2 major licensors’ royalties. Yet Samsung ultimately signed the license with terms it did not  
3 believe were a fair reflection of the parties’ patent positions because it could not risk losing  
4 access to Qualcomm’s CDMA modem chips. Huawei similarly signed a license amendment in  
5 2013 to ensure access to CDMA modem chips, even though it believed the terms were unfair.  
6 Other OEMs will also testify that they accepted unreasonable license terms to ensure access to  
7 Qualcomm’s modem chips.

8 Evidence at trial will also show that Qualcomm’s executives recognized the effectiveness  
9 of its no license-no chips policy. The head of Qualcomm’s licensing business, Mr. Reifschneider,  
10 discussing license renewal negotiations with Huawei in 2013, explained to colleagues that the  
11 “only thing we need to do now is remind them of the consequences of becoming unlicensed if  
12 they refuse to extend” because they would not “dare to let the agreement expire.” (CX6498.) Mr.  
13 Reifschneider thereafter reminded Huawei that its failure to extend would result in a disruption  
14 of chip supply, and Huawei promptly acceded to the extension. Qualcomm’s strategy documents  
15 also recognized that Qualcomm’s royalties benefited from its ability to “[c]ease supply of chips  
16 . . . [to] nonpaying entities.” (CX6974 at -071.)

17 Qualcomm considered whether to split its licensing and chip businesses (“QTL” and  
18 “QCT,” respectively) into separate companies in 2007-2008 (codenamed “Project Berlin”) and in  
19 2015 (codenamed “Project Phoenix”), but decided not to do so in each case based in part on the  
20 role that the no license-no chips policy played in sustaining Qualcomm’s royalty revenues.  
21 During “Project Berlin,” Qualcomm’s management was concerned that “[p]ost spin, many  
22 current QCT customers may more aggressively seek to challenge certain aspects of our licensing  
23 business and / or their agreements with QUALCOMM.” (CX6992 at -035.) Qualcomm  
24 management nonetheless recommended that QCT and QTL be split until management learned  
25 that China planned to reorganize its telecommunications carriers in a way that would  
26 significantly enhance the importance of the CDMA modem-chip market that Qualcomm  
27 dominated. Following this development, management reversed its recommendation. Qualcomm  
28 President Steve Altman explained that, by maintaining its corporate structure, Qualcomm could

1 continue to leverage its market power in CDMA modem chips to deter OEMs from challenging  
2 Qualcomm's royalties.

3 In Project Phoenix, Qualcomm again decided against separating its chip and licensing  
4 businesses. Qualcomm executive David Wise, who played a lead role in Project Phoenix,  
5 determined that “[h]igh modem share drives compliance and royalty rate,” and “[r]educes  
6 dependence on legal and regulatory structures to sustain royalty rates.” (CX5953 at -011.) For  
7 that reason, he wrote that “IT’S CRITICAL THAT WE MAINTAIN HIGH MODEM SHARE  
8 TO SUSTAIN LICENSING.” (CX8299.)

9 The FTC’s experts will explain how and why Qualcomm’s no license-no chips policy  
10 allows it to secure elevated royalties from OEMs that are dependent on Qualcomm modem chips.  
11 The FTC’s licensing expert, Mr. Richard Donaldson, has decades of experience negotiating  
12 patent licenses in the semiconductor industry. Mr. Donaldson will explain that real-world license  
13 negotiations typically focus on patent value, with an eye toward the legal remedies available for  
14 patent infringement (as OEMs confirm). But when outside business interests—such as an OEM’s  
15 need for Qualcomm chips—are injected into license negotiations, the focus of negotiations shifts  
16 from patent value to overall business considerations. Because negotiations are driven by a  
17 comparison of the proposed license terms to potential alternatives, Qualcomm’s no license-no  
18 chips policy provided Qualcomm with substantial leverage, as OEMs dependent on Qualcomm’s  
19 chips faced the immediate and certain loss of lines of business as the alternative to accepting  
20 Qualcomm’s proposed license terms.

21 Professor Shapiro will provide an economic analysis of Qualcomm’s leverage. Professor  
22 Shapiro will explain that, absent its no license-no chips policy, Qualcomm would negotiate  
23 licenses as other cellular-SEP holder do—in the shadow of the law. A potential licensee that  
24 failed to reach agreement with Qualcomm would face the prospect of paying litigation costs and  
25 court-ordered reasonable royalties, but would not face the prospect of a modem-chip supply  
26 disruption. In that setting, negotiations would lead to royalties close to those that the negotiating  
27 parties expect a court would impose, especially if litigation costs are small relative to the royalty  
28 payments at stake.

1 Qualcomm's no license-no chips policy fundamentally alters the bargaining dynamic.  
2 Qualcomm's monopoly power in premium CDMA and premium LTE modem chips means that  
3 OEMs would find losing the ability to purchase modem chips from Qualcomm extremely costly.  
4 In this setting, basic bargaining theory predicts that Qualcomm's no license-no chips policy, by  
5 allowing Qualcomm to bring leverage from its market power in modem chips to bear on license  
6 negotiations, will lead to royalties that exceed the reasonable royalties that Qualcomm would  
7 otherwise obtain.

8 The FTC's patent valuation expert, Mr. Michael Lasinski, will explain that OEMs'  
9 testimony and economic theory are borne out by quantitative analysis: Qualcomm's royalties are  
10 disproportionate to the value of its patent portfolio. Mr. Lasinski studied license agreements  
11 between major OEMs and major cellular SEP licensors other than Qualcomm, and compared the  
12 effective royalty rates in those agreements to Qualcomm's royalty rates with those same OEMs.  
13 After accounting for variations in portfolio strength utilizing metrics used in industry  
14 negotiations and by courts adjudicating FRAND disputes, Mr. Lasinski found that Qualcomm's  
15 rates significantly exceed the range of potential FRAND royalties.

16 **5. *Qualcomm's contention that its long-standing practices have no effect on***  
17 ***royalties is implausible***

18 Despite evidence from its own documents, its customers, and the FTC's experts,  
19 Qualcomm contends that its long-standing policy has had no effect on its negotiated royalties. To  
20 support this contention, Qualcomm cites royalty rates in license agreements dating from the early  
21 1990s (for CDMA) and from the early 2000s (for UMTS). Licenses from that era do not provide  
22 a valid benchmark for assessing Qualcomm's royalty rates over a 28-year period. As the FTC's  
23 experts will explain, the cellular industry has changed dramatically since those early licenses  
24 were executed: smartphones, which offer cameras, touch-screen displays, and applications and  
25 graphics processors, have supplanted feature phones, which offered only cellular connectivity to  
26 support voice calls and text messages; fundamental Qualcomm CDMA patents have expired; and  
27 new standards have been implemented (with Qualcomm holding a smaller share of essential  
28 patents). Qualcomm's ability to sustain its handset-based royalty rates in the face of these

1 developments—which would have been expected to lower those rates—is evidence of its success  
2 in using modem-chip leverage to elevate its royalties.

3 To the extent Qualcomm argues that the relative stability of its royalty rates is evidence  
4 that those rates are unaffected by modem-chip leverage, this argument ignores both the  
5 multifaceted character of Qualcomm’s license negotiations and Qualcomm’s strong incentives to  
6 maintain a consistent headline royalty rate. Qualcomm’s negotiations with OEMs are not limited  
7 to a single, headline royalty rate; they encompass other license terms and incentive funds, among  
8 other things. Moreover, maintaining a consistent headline royalty rate allowed Qualcomm to  
9 claim compliance with “most favored royalty rate” clauses in its license agreements and to  
10 proffer that rate as a benchmark in future license negotiations. Accordingly, Qualcomm typically  
11 has not negotiated its headline royalty rates, as Mr. Donaldson will explain based on his analysis  
12 of Qualcomm’s negotiations. Instead, if necessary, Qualcomm has negotiated over other business  
13 terms, such as incentive funds. As a result of these factors, the stability of Qualcomm’s royalty  
14 rates does not support Qualcomm’s argument.

15 **6. *Qualcomm’s royalty surcharge raises rivals’ costs and harms competition***

16 Qualcomm’s imposition of a royalty surcharge raises its rivals’ costs and harms  
17 competition. By bringing leverage from Qualcomm’s modem-chip monopoly to bear on license  
18 negotiations, Qualcomm has been able to negotiate royalties that exceed the reasonable royalties  
19 that Qualcomm would otherwise have negotiated in the shadow of judicial enforcement of its  
20 FRAND commitments (*supra* § IV.A.4). As a result, the royalties that OEMs pay effectively  
21 consist of two components: a reasonable royalty reflecting the value of Qualcomm’s cellular  
22 SEPs, and an added surcharge that OEMs pay Qualcomm to maintain access to Qualcomm chips.  
23 Imposition of a surcharge of this nature is anticompetitive. *See Premier Elec. Constr. Co. v. Nat’l*  
24 *Elec. Contractors Ass’n*, 814 F.2d 358, 368 (7th Cir. 1987) (association fee applied to members  
25 and non-member contractors raised non-members’ costs and harmed competition); *Caldera, Inc.*  
26 *v. Microsoft Corp.*, 87 F. Supp. 2d 1244, 1249-50 (D. Utah 1999) (“per-processor” royalty  
27 charged on all computers, including those on which OEMs installed rival operating systems, was  
28 exclusionary); ECF 134 at 33. Professor Shapiro will testify at trial that this surcharge weakens

1 rival chipmakers and allows Qualcomm to raise prices paid by OEMs.

2 Professor Shapiro will testify that, to analyze the economic effects of Qualcomm's  
3 conduct on an OEM's modem-chip selection, it is important to consider a modem chip's "all-in  
4 price," which is the modem-chip price plus the per-handset royalty. Qualcomm controls both  
5 components of its own all-in price, and it makes no economic difference how Qualcomm  
6 allocates the all-in price of its own chips between the chip price and royalty. But Qualcomm also  
7 controls a component of its rivals' all-in price—the royalty that the OEM must pay Qualcomm  
8 when using a rival's chip. Thus, leveraging its modem-chip monopoly power to raise the royalty  
9 that applies to rivals' chips allows Qualcomm to raise rivals' all-in prices in an economically  
10 meaningful way.

11 Professor Shapiro will testify that raising the royalties paid by rivals' customers through  
12 the no license-no chips policy and incentive funds is economically equivalent to raising the costs  
13 of rivals themselves by the same amount. As Professor Shapiro will explain, in the short run,  
14 Qualcomm's conduct depresses the profits that rivals can make from selling modem chips and  
15 thereby reduces output of rival modem chips. At the same time, rather than reducing OEMs'  
16 costs of using modem chips, Qualcomm conduct produces higher all-in modem-chip prices,  
17 thereby reducing overall output. In the long run, Qualcomm's exclusionary conduct also reduces  
18 investments by rival modem chip suppliers, leading those rivals to offer lower quality modem  
19 chips and/or to have reduced capacity to serve customers. In time, the excess royalty can induce  
20 exit from the market altogether and discourage potential entrants.

21 **B. Qualcomm's refusal to license rivals bolsters its high royalties**

22 As the Court held on summary judgment, Qualcomm's FRAND commitments to U.S.  
23 standard-setting organizations require Qualcomm to make SEP licenses available on FRAND  
24 terms to modem-chip suppliers that request them. ECF 931 at 25. Yet as Qualcomm  
25 acknowledges, it "has never granted exhaustive licenses under its patents with respect to modem  
26 chipsets." (CX8215 at -040.) As the evidence at trial will show, this is not because rivals have  
27 never requested licenses. To the contrary, according to Qualcomm's former president: "[W]e  
28 were also asked for licenses by Intel and TI at a minimum, probably others (e.g., Samsung,

1 Mediatek) as well, and we refused to enter into anything other than a non-exhaustive covenant  
2 (or covenant to sue last in the case of SS and MT).” (CX8285.)

3 While private standard-setting can offer significant, procompetitive benefits, the  
4 realization of these benefits depends on the institution and observance of “meaningful  
5 safeguards” that prevent subversion of the standard-setting process “by members with economic  
6 interests in stifling product competition.” *Broadcom Corp. v. Qualcomm, Inc.*, 501 F.3d 297,  
7 309-10 (3d Cir. 2007) (quoting *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492,  
8 501 (1988)); *see Broadcom*, 501 F.3d at 313 (identifying FRAND commitments as among these  
9 safeguards); *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024, 1031, 1041 (9th Cir. 2015)  
10 (same). Conduct that breaches or circumvents these safeguards can form a basis for antitrust  
11 liability when such conduct involves an agreement that unreasonably restrains trade, *e.g.*, *Allied*  
12 *Tube*, 486 U.S. at 501, or contributes to the acquisition or maintenance of monopoly power, *e.g.*,  
13 *Broadcom*, 501 F.3d at 313-14; *see also* ECF 134 at 41-46 (concluding that the voluntary nature  
14 of Qualcomm’s FRAND commitments and the administrability of a judicial remedy, among  
15 other factors, distinguish Qualcomm’s breach of its FRAND commitments from refusals to deal  
16 outside the standard-setting context).

17 Evidence at trial will show that Qualcomm’s refusal to make licenses available to its  
18 competitors, in breach of its FRAND commitments, contributes to the maintenance of  
19 Qualcomm’s modem-chip monopolies by preserving Qualcomm’s royalties, which include its  
20 anticompetitive surcharge. Professor Shapiro will testify that, if Qualcomm made licenses on  
21 FRAND terms available to its competitors, which do not rely on Qualcomm for modem-chip  
22 supply, those licenses would hamper Qualcomm’s ability to employ modem-chip leverage to  
23 impose an anticompetitive surcharge on OEMs.

24 Qualcomm’s internal documents recognize the impact that offering competitors FRAND  
25 licenses would have on Qualcomm’s ability to secure elevated royalties from OEMs. In 2005,  
26 Qualcomm’s Marvin Blecker explained that making a license available to a chip competitor  
27 would impair Qualcomm’s ability to collect high royalties from OEM customers: “we absolutely  
28 cannot give a chip supplier a full license to our IP with pass through rights to his customers as

1 that would have the potential of severely impacting our subscriber licensing program.”  
2 (CX8284.) Qualcomm’s views were unchanged in 2015, when it concluded that granting a  
3 FRAND license to Intel “would destroy the whole current QTL [licensing] business.” (CX3758.)

4 Evidence will show that Qualcomm’s refusal to make licenses available to modem-chip  
5 suppliers also disadvantaged its competitors in other ways. Qualcomm’s refusal to make licenses  
6 available to its competitors has exposed those competitors to business uncertainty. Qualcomm  
7 itself acknowledged the impact of uncertainty on modem-chip suppliers’ investment decisions  
8 when requesting a modem-chip license from Motorola in 2000. Qualcomm’s Steve Altman  
9 dismissed as insufficient Motorola’s assurance that it “does not presently intend to assert its  
10 essential patents” against chip suppliers; Altman observed that, absent a license, “Motorola can  
11 later change its position and assert its patents against chipset suppliers . . . and such chipset  
12 suppliers will not know what Motorola’s terms are until after they have invested substantial  
13 amounts of money and are supplying products. I frankly don’t understand this logic.” (CX7799.)

14 When Qualcomm’s modem-chip rivals requested patent licenses from Qualcomm,  
15 Qualcomm used to respond by offering them patent agreements (which were not licenses) that  
16 offered rivals limited protections in exchange for onerous conditions that weakened rivals’  
17 ability to compete. For example, Qualcomm’s agreement with Via Telecom confined Via’s sales  
18 to Qualcomm licensees, thereby preserving Qualcomm’s ability to use the no license-no chips  
19 policy even in negotiations with OEMs that used Via’s modem chips. Qualcomm included  
20 similar terms in an agreement with MediaTek, with an aim to “Reduce # of MTK’s 3G customer  
21 to ~50.” (CX5809 at -041.) In negotiations with Samsung over a modem-chip patent agreement,  
22 Qualcomm proposed terms that would restrict Samsung from using third-party technology in its  
23 modem-chip designs. Samsung’s negotiators had never encountered such terms and sought to  
24 remove them. As a Samsung executive will testify, Qualcomm’s Eric Reifschneider was angered  
25 by Samsung’s response and conveyed that Qualcomm would under no circumstances agree to  
26 patent-agreement terms that might accelerate Samsung’s development of a competitive modem  
27 chip.

28 Qualcomm’s refusal to make licenses available to competitors also harmed competition

1 in other ways. The inability to obtain an exhaustive license made competitors' chips less  
2 attractive to customers, because sellers could offer less favorable indemnification, or feared an  
3 attack from Qualcomm. Furthermore, evidence at trial will show that, in one case, the inability to  
4 obtain a license from Qualcomm contributed to the dissolution of a joint venture intended to sell  
5 modem chips. In 2011, Samsung sought to develop a modem chip in conjunction with several  
6 major companies in a joint venture termed "Dragonfly." The venture's funding was conditioned  
7 on a Japanese carrier, NTT DoCoMo, obtaining a chip-level license from Qualcomm. When that  
8 license could not be obtained, the venture died.

9 **C. Qualcomm's elevated royalties led to contracts with Apple that contributed**  
10 **to Qualcomm's monopoly power**

11 In the case of Apple, a particularly significant OEM, Qualcomm leveraged its elevated  
12 royalties into contract terms that effectively required Apple to use only Qualcomm modem chips  
13 in new handsets. Apple witnesses will describe three occasions—in 2007, 2011, and 2013—on  
14 which Apple sought relief from Qualcomm's standard royalty terms. In each case, Qualcomm  
15 offered partial relief from Qualcomm's royalties, but only in exchange for commitments that  
16 strengthened and protected Qualcomm's dominant position in modem chips. In combination with  
17 Qualcomm's royalty surcharge and refusal to license rivals, Qualcomm's agreements with Apple  
18 further impaired competition by foreclosing rival modem-chip suppliers' access to a key  
19 customer. *See E.I. du Pont de Nemours & Co. v. Kolon Indus.*, 637 F.3d 435, 452 (4th Cir. 2011)  
20 (exclusive dealing harmful where it "severely limit[s] . . . competition for the most important  
21 customers" that potential entrants "need[] to gain a foothold for effective competition").

22 In 2007, as Apple was preparing to launch the first iPhone, Apple and Qualcomm entered  
23 a Marketing Incentive Agreement: Qualcomm agreed to rebate to Apple a portion of the royalty  
24 payments that Apple's contract manufacturers made (and which Apple reimbursed) in exchange  
25 for Apple's agreement publicly to renounce a form of 4G technology disfavored by Qualcomm.  
26 In 2011 and 2013, as Apple's iPhone business grew and Apple became dependent upon  
27 Qualcomm for supply of CDMA and Premium LTE modem chips, Qualcomm extended and  
28 modified the royalty relief it had previously granted, but only on the condition that Apple agree

1 to exclusivity.

2 The evidence will show that Qualcomm's 2011 and 2013 "Transition Agreements" with  
3 Apple were *de facto* exclusive deals. The agreements provided for modem chip rebates totaling  
4 billions of dollars, conditioned on Apple using Qualcomm chips exclusively in its new products.  
5 See ECF 134 at 47 (rebates conditioned on a promise of exclusivity or on purchase of a specified  
6 quantity or market share of the seller's goods or services may be understood as *de facto*  
7 exclusive dealing contracts).

8 The Court will hear testimony from Apple COO Jeff Williams that Apple understood the  
9 2011 Transition Agreement to be exclusive, and Qualcomm's documents confirm that it had an  
10 "objective of exclusivity" through 2015 (CX7968). The same was true of the 2013 First  
11 Amended Transition Agreement. The Court will hear from Apple witnesses that Apple had an  
12 interest in working with multiple suppliers of modem chips; that Apple was intensively engaged  
13 with Intel during 2012 to develop modem chips for possible use in Apple products in 2014  
14 and/or 2015; and that Apple suspended that engagement in early 2013 as a result of its entry into  
15 the First Amended Transition Agreement and the related Business Cooperation and Patent  
16 Agreement.

17 Qualcomm recognized, and through these agreements successfully neutralized, Apple's  
18 potential to strengthen rivals. Before signing the Transition Agreement, Qualcomm's strategic  
19 plans stated that its principal competitive threat came from "thin" modem chips under  
20 development by competitors. To mitigate that risk, Qualcomm CEO Steve Mollenkopf discussed  
21 the importance of locking up future business at Apple, because Qualcomm believed that any  
22 competitor that won Apple's UMTS business would become stronger and more competitive in  
23 the market. The evidence will show that Apple requires its suppliers to meet rigorous technical  
24 requirements, and engagement with Apple helps modem-chip suppliers improve the quality of  
25 their products. Other handset OEMs, recognizing the rigorous standards to which Apple holds its  
26 suppliers, regard a modem-chip supplier's engagement with Apple as an indicator of its product  
27 quality. Qualcomm believed a deal with Apple for CDMA and UMTS modem chip sales would  
28 have "significant strategic benefits" because without Apple's business there would not be

1 “enough standalone volume” for a CDMA competitor to enter the market. (CX5348.)

2 Similarly, Qualcomm’s documents show that before Qualcomm and Apple entered the  
3 2013 amended Transition Agreement, Qualcomm was concerned that Intel would win Apple’s  
4 business and become a competitor for the supply of modem chips used in premium handsets.  
5 Qualcomm recognized that the supplier that won Apple’s business would benefit from a  
6 “leadership halo” and “wall street credibility [and] momentum,” and be “uniquely enabled to  
7 fund R&D to maintain leadership.” (CX8236 at -023 to -024.) In recognition of this concern,  
8 Qualcomm’s Mollenkopf wrote that it was worth short-term economic sacrifice to achieve long-  
9 term strategic objectives: “[e]conomically, our best outcome is that they [Apple] second SKU  
10 [i.e., use a rival’s modem chips for certain handset models] and we maintain the high-end via  
11 collection of features. Strategically, we are better off keeping them on our stuff.” (CX5381.)  
12 Qualcomm met its strategic objective. Its exclusive deals with Apple kept competitors from  
13 working with this key OEM for a critical period.

14 Qualcomm’s exclusive-dealing agreements with Apple succeeded in entrenching and  
15 prolonging Qualcomm’s monopoly power. In the years surrounding Qualcomm and Apple’s  
16 entry into the First Amended Transition Agreement, Apple purchased between 48% and 50% of  
17 premium LTE modem chips. *See, e.g., Microsoft*, 253 F.3d at 70 (foreclosure of 40% to 50% of  
18 relevant market substantial for Sherman Act purposes). Moreover, because Intel was unable to  
19 participate in even a low-volume collaboration with Apple, its modem-chip development was  
20 delayed. Had Apple selected Intel to supply a modem chip for a 2014 or 2015 Apple product,  
21 Intel would have been technically capable of providing Apple with a modem chip on schedule.  
22 As Intel’s witnesses will testify, if Intel had won an Apple design before the 2016 iPhone, Intel  
23 would have been more competitive for design wins for other handset OEMs during the relevant  
24 time period, from both a reputational and technical perspective.

25 **D. Modem-chip markets reflect the consequences of Qualcomm’s**  
26 **anticompetitive conduct**

27 Market structure reflects the harmful impact of Qualcomm’s course of conduct. A  
28 number of Qualcomm’s former modem-chip competitors—including Broadcom, Texas

1 Instruments, Nvidia (Icera), Marvell, and ST-Ericsson—have shuttered their businesses, citing  
2 insufficient scale and inadequate margins. And Qualcomm’s remaining competitors operate at  
3 margins well below those needed to sustain a viable modem-chip business. In 2017, MediaTek’s  
4 most advanced modem chips, the X-Series, earned gross margins that MediaTek regarded as far  
5 too low to pay for R&D and other expenses. MediaTek placed development of its X-series  
6 modem chips on hold. Intel was only able to obtain a portion of Apple’s business in 2016 by  
7 offering modem chips at “engineering cost,” i.e., the materials cost, as opposed to the fully  
8 burdened cost with R&D. [REDACTED]

9 [REDACTED]

10 Though Qualcomm may posit “alternative” explanations for the difficulties faced by its  
11 rivals, Qualcomm’s arguments confuse cause and effect. As Professor Shapiro will explain,  
12 Qualcomm’s practices reduced rivals’ sales and margins, reduced their investment incentives,  
13 and reduced OEMs’ incentives to engage with rivals; Qualcomm’s practices thereby predictably  
14 tend to weaken rivals’ product features and overall competitiveness. Qualcomm therefore cannot  
15 point to its rivals’ financial difficulties or deficiencies in their product roadmaps as “alternative”  
16 causes of their market exits—these are precisely the *effects* that Qualcomm’s challenged conduct  
17 is calculated to achieve.

## 18 V. INJUNCTIVE RELIEF IS WARRANTED

19 As the Court has explained, “[i]njunctive relief should be granted if ‘there exists some  
20 cognizable danger of recurrent violation.’” ECF 997 at 5 (quoting *United States v. W.T. Grant*  
21 *Co.*, 345 U.S. 629, 633 (1953)). “In a case governed by the Federal Trade Commission Act . . . ,  
22 ‘an injunction will issue only if the wrongs are ongoing or likely to recur.’” *Id.* (quoting *FTC v.*  
23 *Evans Prods. Co.*, 775 F.2d 1084, 1087 (9th Cir. 1985)). In addition, “regardless of whether any  
24 unlawful conduct is presently occurring, evidence of Qualcomm’s past conduct is sufficient to  
25 show whether any violations are ‘likely to recur.’” *Id.* at 7 (quoting *Evans Prods. Co.*, 775 F.2d at  
26 1087); *see also, e.g., CFTC v. Yu*, No. 12-CV-3921-YGR, 2012 WL 3283430, at \*4 (N.D. Cal.  
27 Aug. 10, 2012) (past unlawful conduct is “highly suggestive of the likelihood of future  
28 violations” (quoting *CFTC v. Hunt*, 591 F.2d 1211, 1220 (7th Cir. 1979))).

1 Evidence at trial will show that Qualcomm’s conduct is ongoing. Despite law  
2 enforcement and regulatory scrutiny in several jurisdictions worldwide, including injunctive  
3 orders, Qualcomm maintains its policy of conditioning the sale of modem chips on entry and  
4 maintenance of a patent license, and continues to withhold licenses from modem-chip suppliers.

5 Qualcomm argues that the FTC cannot prove that it will have market power in the future.  
6 The proof that Qualcomm appears to demand is not required by law. Even so, evidence at trial  
7 will show that there is a cognizable danger that Qualcomm will have market power in the supply  
8 of 5G modem chips. In early 2018, Qualcomm publicly stated that it is “12-24 months ahead of  
9 our merchant competitors in the transition to 5G.” (CX8198.) Internal Qualcomm documents  
10 show that, just as in past transitions, Qualcomm expects to retain leadership as the industry shifts  
11 to a new standard, which translates into additional chip margins and higher royalties. OEMs are  
12 concerned that a new technology gap is forming that will, once again, put Qualcomm in a  
13 dominant position.

14 In addition, equitable relief is required to redress the ongoing harmful effects of  
15 Qualcomm’s past conduct. Many OEMs entered long-term license agreements with terms driven  
16 by Qualcomm’s anticompetitive policies, including licenses that Qualcomm claims apply to 5G  
17 products. A number of these agreements extend well into the future, some perpetually. Absent  
18 equitable relief, Qualcomm will continue to enjoy “the fruits of its statutory violation,” contrary  
19 to law. *See Microsoft*, 253 F.3d at 103 (an antitrust remedy must “terminate the illegal  
20 monopoly, deny to the defendant the fruits of its statutory violation, and ensure that there remain  
21 no practices likely to result in monopolization in the future” (quoting *United States v. United*  
22 *Shoe Mach. Corp.*, 391 U.S. 244, 250 (1968)) (internal quotation marks omitted)).

## 23 VI. CONCLUSION

24 Qualcomm is entitled to seek fair compensation for use of its intellectual property. It is  
25 also entitled to market-based returns, even premium returns, on sales of its modem chips when it  
26 wins those returns through competition on the merits. But maintaining a monopoly in relevant  
27 modem-chip markets through anticompetitive conduct is unlawful. Trial will establish that  
28 Qualcomm has engaged in unlawful conduct. A remedy that ends Qualcomm’s unfair methods of

1 competition and requires it to negotiate license terms with customers and competitors based on  
2 the strength of its patents is warranted.

3  
4 Respectfully submitted,

5  
6 Dated: December 28, 2018

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