

Jennifer Milici, D.C. Bar No. 987096
J. Alexander Ansaldo, Va. Bar No. 75870
Joseph R. Baker, D.C. Bar No. 490802
Wesley G. Carson, D.C. Bar No. 1009899
Kent Cox, III. Bar No. 6188944
Elizabeth A. Gillen, Cal. Bar No. 260667
Geoffrey M. Green, D.C. Bar No. 428392
Nathaniel M. Hopkin, N.Y. Bar No. 5191598
Mika Ikeda, D.C. Bar. No. 983431
Rajesh S. James, N.Y. Bar No. 4209367
Philip J. Kehl, D.C. Bar No. 1010284
Daniel Matheson, D.C. Bar No. 502490
Kenneth H. Merber, D.C. Bar No. 985703
Aaron Ross, D.C. Bar No. 1026902
Connor Shively, Wash. Bar No. 44043
Mark J. Woodward, D.C. Bar. No. 479537
Federal Trade Commission
600 Pennsylvania Avenue, N.W.
Washington, D.C. 20580
(202) 326-3695; (202) 326-3496 (fax)
jmilici@ftc.gov

Attorneys for Plaintiff Federal Trade Commission

**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 OF
DOCUMENT SOUGHT TO BE SEALED**

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

TABLE OF AUTHORITIES

Cases

Aerotec Int’l, Inc. v. Honeywell Int’l, Inc., 836 F.3d 1171 (9th Cir. 2016) 3

Allied Tube & Conduit Corp. v. Indian Head, Inc., 486 U.S. 492 (1988) 16

Amarel v. Connell, 102 F.3d 1494 (9th Cir. 1996) 3

Bhan v. NME Hospitals, Inc., 929 F.2d 1404 (9th Cir. 1991) 3

Broadcom Corp. v. Qualcomm, Inc., 501 F.3d 297 (3d Cir. 2007) 16

Caldera, Inc. v. Microsoft Corp., 87 F. Supp. 2d 1244 (D. Utah 1999) 14

CFTC v. Hunt, 591 F.2d 1211 (7th Cir. 1979)..... 21

CFTC v. Yu, No. 12-CV-3921-YGR, 2012 WL 3283430 (N.D. Cal. Aug. 10, 2012)..... 21

E.I. du Pont de Nemours & Co. v. FTC, 729 F.2d 128 (2d Cir. 1984) 3

E.I. du Pont de Nemours & Co. v. Kolon Indus., 637 F.3d 435 (4th Cir. 2011)..... 18

Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451 (1992) 3

Free FreeHand Corp. v. Adobe Sys., Inc., 852 F. Supp. 2d 1171 (N.D. Cal. 2012)..... 4, 9

FTC v. Brown Shoe Co., 384 U.S. 316 (1966)..... 2-3

FTC v. Evans Prods. Co., 775 F.2d 1084 (9th Cir. 1985) 21

FTC v. Ind. Fed’n of Dentists, 476 U.S. 447 (1986)..... 2

McWane, Inc. v. FTC, 783 F.3d 814 (11th Cir. 2015) 4

Microsoft Corp. v. Motorola, Inc., 795 F.3d 1024 (9th Cir. 2015)..... 16

Premier Elec. Constr. Co. v. Nat’l Elec. Contractors Ass’n, 814 F.2d 358 (7th Cir. 1987) 14

Realcomp II, Ltd. v. FTC, 635 F.3d 815 (6th Cir. 2011) 3

United States v. Dentsply Int’l, Inc., 399 F.3d 181 (3d Cir. 2005)..... 4

United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001)..... 3, 4, 20, 22

United States v. United Shoe Mach. Corp., 391 U.S. 244 (1968)..... 22

United States v. W.T. Grant Co., 345 U.S. 629 (1953)..... 21

ZF Meritor, LLC v. Eaton Corp., 696 F.3d 254 (3d Cir. 2012)..... 3, 9

1 **Statutes**

2 15 U.S.C. § 1 3

3 15 U.S.C. § 2 3

4 15 U.S.C. § 45(a) 2

5 **Treatises**

6 3 Phillip E. Areeda & Herbert Hovenkamp, Antitrust Law (1996 ed.) 4

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

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.¹ 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).²

23
24
25 ¹ 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 ² 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,³ 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

27 ³ 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, [REDACTED]
19 [REDACTED] 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 [REDACTED]

23 [REDACTED]
24 [REDACTED]
25 [REDACTED] 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. [REDACTED]

3 [REDACTED]
4 [REDACTED] 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. [REDACTED]

20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]
26 [REDACTED]
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 [REDACTED]
3 [REDACTED], 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. [REDACTED]

18 [REDACTED]
19 [REDACTED]
20 The market for premium LTE modem chips is subject to distinct competitive conditions.

21 [REDACTED]
22 [REDACTED]
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 [REDACTED]
9 [REDACTED] 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, [REDACTED]

21 [REDACTED]
22 [REDACTED]
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 [REDACTED]

15 [REDACTED]⁴ 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. [REDACTED]

20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]

25 _____
26 ⁴ [REDACTED].

27 ⁵ 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, [REDACTED], it
7 was purchasing all of its CDMA chips from Qualcomm, because it could not find a suitable
8 alternative. [REDACTED]

9 [REDACTED]
10 [REDACTED]
11 [REDACTED].

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 [REDACTED]
19 [REDACTED]
20 [REDACTED]

21 Although Qualcomm may argue that some of these funds served other purposes,

22 [REDACTED]
23 [REDACTED]

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 [REDACTED]
26 [REDACTED], that their dependence on Qualcomm for modem chip supply
27 heavily influenced license negotiations and led to elevated effective royalties. For example,

28 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]

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. [REDACTED]

10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]

17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]
26 [REDACTED]
27 [REDACTED]
28 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]

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 
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, [REDACTED]

26 [REDACTED] As the evidence at trial will show, this is not because rivals have
27 never requested licenses. To the contrary, [REDACTED]

28 [REDACTED]

1 [REDACTED]
2 [REDACTED]

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 [REDACTED]
25 [REDACTED]
26 [REDACTED]
27 [REDACTED]
28 [REDACTED]

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

[REDACTED]

Evidence will show that Qualcomm’s refusal to make licenses available to modem-chip suppliers also disadvantaged its competitors in other ways. Qualcomm’s refusal to make licenses available to its competitors has exposed those competitors to business uncertainty. [REDACTED]

[REDACTED]

When Qualcomm’s modem-chip rivals requested patent licenses from Qualcomm, Qualcomm used to respond by offering them patent agreements (which were not licenses) that offered rivals limited protections in exchange for onerous conditions that weakened rivals’ ability to compete. For example, [REDACTED]

[REDACTED]

[REDACTED]

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

1 in other ways. [REDACTED]
 2 [REDACTED]
 3 [REDACTED]
 4 [REDACTED]
 5 [REDACTED]
 6 [REDACTED]
 7 [REDACTED]
 8 [REDACTED]

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. [REDACTED]

14 [REDACTED]
 15 [REDACTED]
 16 [REDACTED] 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 [REDACTED]
 23 [REDACTED]
 24 [REDACTED]
 25 [REDACTED]
 26 [REDACTED]
 27 [REDACTED]
 28 [REDACTED]

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

[REDACTED]

See ECF 134 at 47 (rebates conditioned on a promise of exclusivity or on purchase of a specified quantity or market share of the seller’s goods or services may be understood as *de facto* exclusive dealing contracts).

The Court will hear testimony from Apple COO Jeff Williams that Apple understood the 2011 Transition Agreement to be exclusive, and [REDACTED]

[REDACTED] The same was true of the 2013 First Amended Transition Agreement. The Court will hear from Apple witnesses that Apple had an interest in working with multiple suppliers of modem chips; that Apple was intensively engaged with Intel during 2012 to develop modem chips for possible use in Apple products in 2014 and/or 2015; and that Apple suspended that engagement in early 2013 as a result of its entry into the First Amended Transition Agreement and the related Business Cooperation and Patent Agreement.

Qualcomm recognized, and through these agreements successfully neutralized, Apple’s potential to strengthen rivals. Before signing the Transition Agreement, Qualcomm’s strategic plans stated that [REDACTED]

[REDACTED]

[REDACTED] The evidence will show that Apple requires its suppliers to meet rigorous technical requirements, and engagement with Apple helps modem-chip suppliers improve the quality of their products. Other handset OEMs, recognizing the rigorous standards to which Apple holds its suppliers, regard a modem-chip supplier’s engagement with Apple as an indicator of its product quality. [REDACTED]

[REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]

12 [REDACTED] 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). [REDACTED]

19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]

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. [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [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.) [REDACTED]

10 [REDACTED]
11 [REDACTED] 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. [REDACTED]

16 [REDACTED]
17 [REDACTED] 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

7 /s/ Jennifer Milici
8 Jennifer Milici
9 J. Alexander Ansaldo
10 Joseph R. Baker
11 Wesley G. Carson
12 Kent Cox
13 Elizabeth A. Gillen
14 Geoffrey M. Green
15 Nathaniel M. Hopkin
16 Mika Ikeda
17 Rajesh S. James
18 Philip J. Kehl
19 Daniel Matheson
20 Kenneth H. Merber
21 Aaron Ross
22 Connor Shively
23 Mark J. Woodward
24 FEDERAL TRADE COMMISSION
25 600 Pennsylvania Avenue, N.W.
26 Washington, D.C. 20580
27 (202) 326-2912; (202) 326-3496 (fax)
28 jmilici@ftc.gov

Attorneys for Federal Trade Commission