No. 19-16122

In the United States Court of Appeals
for the Ninth Circuit

FEDERAL TRADE COMMISSION,

***Plaintiff-Appellee*,**

v.

QUALCOMM INCORPORATED,

***Defendant-Appellant*.**

Appeal from the United States District Court for the Northern District of California, Case No. 5:17-cv-00220-LHK The Honorable Lucy H. Koh, United States District Judge

BRIEF OF INTEL CORPORATION AS *AMICUS CURIAE* IN SUPPORT OF APPELLEE AND AFFIRMANCE

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Pursuant to Federal Rules of Appellate Procedure 26.1 and 29(a)(4)(A), amicus curiae Intel Corporation states that it has no parent corporation and that no publicly held corporation owns 10% or more of its stock.

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This brief is submitted under Federal Rule of Appellate Procedure 29(a) with the consent of the Federal Trade Commission and Qualcomm Incorporated.

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STATEMENT OF INTEREST OF AMICUS CURIAE

Amicus curiae Intel Corporation is a global leader in developing and manufacturing semiconductor devices. Over the last decade, Intel invested billions of dollars in developing premium modem chips for cellular devices—a market Qualcomm has dominated for years. Despite Intel's investment and commitment, competing on Qualcomm's distorted playing field proved so untenable that, not long after the trial below, Intel exited the market. As the latest victim of Qualcomm's conduct, Intel is uniquely positioned to assist this Court by describing how its experience reinforces the District Court's conclusion that Qualcomm has maintained its chip monopoly only by frustrating the normal operation of the competitive process.

INTRODUCTION

This case concerns premium cellular modem chips, and Qualcomm's scheme to maintain its monopoly in successive generations of those chips. Competition authorities around the globe have condemned Qualcomm's conduct with good reason: Qualcomm has maintained its dominance for years, destroying its rivals by subverting competition. Qualcomm uses its power in the chip market to coerce its chip customers to deal on terms that have nothing to do with competition on the merits, and everything to do with preventing rivals like Intel from contesting Qualcomm's chip monopoly. Such conduct is unlawful under well-established antitrust principles.

Lacking any persuasive justification for the pattern of anticompetitive conduct found by the District Court, Qualcomm seeks to change the subject from chips to intellectual property (IP). But this case is not about Qualcomm's right to earn returns on its IP. It is about how Qualcomm coerces chip customers to license IP on terms that exclude Qualcomm's chip competitors. The District Court correctly found that Qualcomm's scheme begins with its power in the chip markets, and ends with Qualcomm entrenching its dominance in chips.

Intel suffered the anticompetitive effects of Qualcomm's scheme firsthand. Despite nearly a decade of unrelenting engineering efforts, "billions of dollars, and an army of engineers worldwide," ER41, Intel could not overcome the artificial barriers to competition Qualcomm erected in the premium modem-chip market. Intel has exited that market, just like many other manufacturers that tried to contest Qualcomm's dominance over many years. Intel offers its experience in the marketplace to help this Court understand how Qualcomm destroys competition and maintains its power over modem chips.

The core of Qualcomm's long-running monopoly-maintenance plot is its "no license, no chips" (NLNC) policy. Qualcomm refuses to sell modem chips to a third-party handset manufacturer (OEM) unless the OEM takes a separate license to Qualcomm's standard-essential patents (SEPs) on Qualcomm's preferred terms—including the payment of a royalty to Qualcomm on every handset an OEM sells, even if the handset uses a rival's chip. That coercion allows Qualcomm to shift part of its chip revenues into its royalty rates, overcharging on the patent royalty, while undercharging for chips. That manipulation of prices in turn destroys the normal competitive process in the chip

market. It artificially limits OEMs' interest in buying modem chips from suppliers like Intel because OEMs must pay Qualcomm's manipulated royalty *on top of* whatever the competing supplier charges for the chip itself. At the same time, because Qualcomm has funneled its monopoly chip profits into coerced "royalties," rivals like Intel cannot engage in meaningful price competition in the sale of modem chips. Overall, even when Intel won business away from Qualcomm, Intel could not enjoy its share of the market's rewards. That is the very definition of a market where competition has been subverted.

Qualcomm links chips and IP, and it charges separate prices for the chips and the IP substantially embodied in the chips. Qualcomm says it does this to capture the full value of its IP. Nonsense; no other patentee does the things Qualcomm does. For example, one way for SEP holders to earn revenue from their inventions is to sell products that use their inventions. The standard, efficient manner is selling products at a price that reflects both the hardware and IP. *No other modem chip maker* charges a separate price for chips and the IP substantially embodied in the chips. Even Qualcomm itself doesn't charge two prices for products other than its modem chips.

Another way SEP holders earn revenue from their inventions is by licensing them for use in others' products (*e.g.*, licensing Qualcomm's SEPs for use in a handset with an Intel chip). The usual way to do that is to simply negotiate a royalty rate in the shadow of what a court would award as damages for infringement. *No other cellular SEP holder* comes to that negotiation making threats about cutting off its supply of products. In truth, Qualcomm takes a radically different approach from other SEP holders because it has a radically different purpose: to maintain its chip monopoly.

The other practices condemned by the District Court, although each independently unlawful for the reasons explained below, are even better understood as measures that reinforce Qualcomm's NLNC-based barrier to competition in the chip market. Qualcomm labors to atomize its practices, the better to obscure how each piece of the scheme fits precisely together to achieve Qualcomm's anticompetitive ends. But the connections are too striking to ignore: For example, manipulating royalty rates through NLNC is feasible only because Qualcomm shields those rates from challenge by frustrating OEMs' legitimate resort to judicial or arbitral resolution of licensing disputes. Likewise,

Qualcomm's refusal to license rival chip makers like Intel ensures that licensing remains at the OEM level where Qualcomm can impose NLNC. And, as the FTC's expert economist explained, Qualcomm's incentive payments to Apple reflected below-cost pricing and arrived just as Intel threatened to break through as a competitive force that would weaken the chip-supply leverage Qualcomm has so devastatingly used against OEMs through NLNC.

In short, the injunction below puts an end to practices that Qualcomm has used to exclude rivals and maintain its chip monopoly, and which threatened to distort the markets for generations of wireless technologies to come. It should be affirmed.

BACKGROUND

Intel assumes familiarity with the conduct the FTC challenged at trial below. Intel briefly recounts its own experience of Qualcomm's anticompetitive practices and explains how Intel—among the world's most storied and successful innovators—was blocked from competing on the merits against Qualcomm in the premium modem-chip market.

A. Intel's Exit from the Premium Modem-Chip Market

For nearly a decade, Intel committed its resources and innovative prowess to challenge Qualcomm's dominance over modem chips—in

particular, in the market for premium modem chips sold by independent chip makers to OEMs. *See* ER41, ER120-ER121, ER197 (describing Intel investments). That market appeared ripe for entry: Qualcomm held a monopoly and had extracted enormous profits for years. Such a market should, and did, attract vigorous competition—and not just from Intel. Notable technology companies Ericsson, Marvell, Nvidia, Broadcom, and Texas Instruments all tried to contest Qualcomm's dominance in modem-chip markets, and one by one, failed. *See* ER11, ER122-ER123. When the FTC brought this action, Intel was the last independent supplier of premium modem chips standing.

In the months since trial, Intel has become the latest victim to succumb to Qualcomm's scheme, in just the way the District Court and the FTC predicted. Despite investing billions of dollars, dedicating thousands of engineers to develop top-tier modem chips, and acquiring two modem businesses along the way, *see* ER41, ER104, ER121, Intel could not surmount the artificial barriers to competition that Qualcomm erected. In July 2019, Intel sold most of its modem business to Apple at a multi-billion dollar loss. *See, e.g.*, https://www.apple.com/newsroom/2019/07/apple-to-acquire-the-majority-of-intels-smartphone-modem-

business/; http://wirelessone.news/10-r/1383-intel-s-us-20b-loss-on-5g. From Intel's perspective, exiting was the only way forward in the face of Qualcomm's relentless efforts to warp the playing field and make the business rewards of breaking into the premium modem market illusory.

B. Qualcomm's Core Anticompetitive Practice of "No License, No Chips"

Competition on the merits does not exist in the premium modem-chip market because Qualcomm uses NLNC to make it comparatively more expensive for an OEM to buy a rival's chips, while Qualcomm siphons off all the rewards of the chip business for itself, regardless of whose chip a handset OEM buys. Aicha Evans, then Intel's Chief Strategy Officer, testified at length about how NLNC and the monopoly-profit shifting it facilitates makes it "tough and very different" to compete against Qualcomm. SER0281. The District Court noted how credible it found Evans' live trial testimony. ER99.

Evans explained that "with other…component suppliers or competitors, it's essentially a battle of features and price," whereas Qualcomm tilts the "playing field" by charging royalties on every chip a handset OEM uses—on top of the nominal "chip price." SER0281-SER0283. As a result, the "all-in price" for using an Intel chip is

"[Intel's] chipset price, plus the Qualcomm royalty," SER0283, over which Intel has "no control," SER0284-SER0285. By contrast, Qualcomm collects and controls both price components and "can shift the price from chipset to royalty, which then undercuts [Intel] as the competitor." SER0284. This price shifting "doesn't really matter" if an OEM wishes to buy only Qualcomm modem chips, which cost the same all-in price regardless, but it creates a "very, very unfair…playing field" for competing chip vendors. *See* SER0284-SER0285.

C. Qualcomm's Other Practices that Reinforce "No License, No Chips"

As the District Court recognized, Qualcomm uses several other practices to bolster NLNC and its exclusionary effects.

First, Qualcomm flouts its obligation to license its SEPs to rivals like Intel on "fair, reasonable, and non-discriminatory" (FRAND) terms. Intel itself requested—and was refused—a license to Qualcomm's SEPs in both 2004 and 2009. *See* ER120-ER121. The District Court found this delayed rivals, including Intel, from introducing competing modem chips. *See* ER115-ER125. Had such competing chips been available, Qualcomm's ability to inflate royalties by threatening to withhold chips from OEMs would have been undermined. And, as Qualcomm admits,

it is "humongously more…lucrative" to license only OEMs that are subject to its monopoly power than to license competing chip suppliers like Intel. ER131 (ellipses in original). Ensuring that it collects those "humongous[]" royalties regardless of whose chip an OEM uses is essential to Qualcomm's strategy of siphoning monopoly profits away from chips and into royalties.

Second, Qualcomm interferes with handset OEMs' access to regulatory, judicial, and arbitral rights-enforcement mechanisms, both directly (by contractual restrictions) and indirectly (by threatening to cut off chip supply access). *See* ER49, ER62-ER63, ER105-ER106, ER178-ER183. This shields Qualcomm's patents and royalty rates from scrutiny, which again sustains its ability to control chip and license prices. *See, e.g.*, ER158 ("Because of Qualcomm's chip monopoly power, Qualcomm's royalty rates are untested by litigation.").

Third, Qualcomm offered payments to Apple that resulted in below-cost pricing and blocked Intel from launching its modem chip in the 2014 iPad Mini. *See* ER95-ER99. By late 2012, Intel's chips were so promising that Apple wanted Intel to supply the modem chip for that product—a "test run before using Intel in an iPhone." ER95. For Intel,

this was a critical opportunity to get a foot in the door. Apple's high-volume business would not only generate revenues Intel needed to fund further research and development, but would also provide pivotal opportunities to collaborate with Apple engineers to develop "best-in-class products," ER96. *See* ER95-ER96, ER104-ER105, ER151-ER152, ER202.

Qualcomm's efforts to prevent Apple from working with Intel culminated in a promise of $640 million under a 2013 agreement conditioned on Apple buying exclusively from Qualcomm. *See* ER93, ER143-ER144, ER187, ER672-ER673. The FTC's expert economist testified that those payments (and earlier related incentives) were so large that an equally efficient competitor to Qualcomm could not have recovered its costs selling chips for the 2014 iPad Mini to Apple, while compensating Apple for the loss of incentives. In other words, "the incentive payments…[we]re far in excess of [Qualcomm's] margins, [so] this was profit sacrifice [by Qualcomm]," and, conversely, Intel could have made sales only by "buy[ing] Apple out of the contract [with Qualcomm]," at "a big loss." SER0138; *see* SER0128-SER0140. The District Court found that "Qualcomm *sacrificed* short-term profit

margins" for what Qualcomm itself described as "the '[s]trategic importance of Apple modem design-win.'" ER158 (citation omitted).

Those incentive payments "forced Apple to disengage" from Intel for *two years*. *See, e.g.*, ER98, ER101-ER103. Evans explained how devastating losing the 2014 iPad Mini launch was to Intel's research and development efforts: "We went back to the kid's table.… [I]t set us back two years, and, frankly, it was a near-death experience." ER99. It was only in late 2016 that Apple launched a handset containing an Intel chip. ER101-ER103. That was a milestone for Intel: It attracted the attention of other handset OEMs; it increased Intel's standing with standard-setting organizations (SSOs) and carriers; and it enabled Intel to acquire VIA Telecom, a CDMA chip supplier, and begin building CDMA chips that would make further inroads against Qualcomm's chip monopoly. ER104. But unsurprisingly, in an industry marked by relatively rapid product evolution, that two-year setback handicapped Intel's development efforts in 4G and beyond.

D. The District Court's Decision

The District Court found that the sum effect of Qualcomm's core anticompetitive NLNC policy and its other reinforcing measures was to

reduce competing chip suppliers' incentives and ability to make competing sales. Qualcomm's tactics "foreclose[] rivals from the revenue necessary to invest in research and development," deprive rivals of "opportunities to engage with OEMs' engineering teams, customize products for an OEM, and win year-after-year business from an OEM," and "harm rivals' standing with SSOs and network vendors," all of which "further reduce[] rivals' sales" and box competitors out of the market. ER192, ER195. All these effects ultimately reinforce and perpetuate the starting point for Qualcomm's scheme: its dominance over chips, and the power that dominance gives Qualcomm to coerce its chip customers. *See* ER192-ER195.

With Intel's exit shortly after the District Court's decision, Qualcomm continues its record of thwarting every potential challenger to its dominance. The FTC's suit came too late to save Intel's premium modem-chip business. But the industry is only just starting to adopt and spread the use of 5G technology. The District Court's injunction is calculated to loosen Qualcomm's stranglehold and restore conditions that will incentivize investment, inspire innovation, and promote vibrant competition for future generations of chips.

ARGUMENT

This case was tried based on Qualcomm's conduct in the markets for CDMA and premium LTE modem chips, and the injunction below is calculated to foster the return of competition in future generations of chips. This Court must analyze Qualcomm's practices and their effects in those markets. *See Ohio v. Am. Express Co.*, 138 S. Ct. 2274, 2285 (2018). The result is clear: Qualcomm has maintained a chip monopoly through exclusionary conduct—that is, "conduct, other than competition on the merits or restraints reasonably necessary to competition on the merits, that reasonably appears capable of making a significant contribution to creating or maintaining monopoly power." *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 230 (1st Cir. 1983) (Breyer, J.) (quoting 3 Phillip Areeda & Donald Turner, *Antitrust Law* ¶ 626 at 83 (1978)) (quotation marks omitted).

I. The District Court Correctly Found that the Conditions Qualcomm Imposes Through "No License, No Chips" Unlawfully Maintain Its Modem-Chip Monopoly

Having tried to compete fairly against Qualcomm, Intel knows how NLNC works, why it is exclusionary under established antitrust principles, and why Qualcomm's defenses of NLNC are meritless.

A. Qualcomm Uses "No License, No Chips" to Block Rival Chip Makers from Contesting Its Chip Monopoly

1. Qualcomm has monopoly power over modem chips that OEMs need. Qualcomm conditions the purchase of those chips on taking a license to Qualcomm's patents on Qualcomm-dictated terms. That conditioning of chip sales is not normal; it may be completely unprecedented in any industry. Certainly, no other chip maker conditions the sale of its product on such a license agreement. *See, e.g.*, ER47, ER57, ER63, ER78, ER164-ER165; SER0282 (testimony of Intel executive Evans). Indeed, even Qualcomm sells components such as Wi-Fi chips without requiring a separate license. ER89, ER163-ER164.

Linking modem chips and licenses is brazen coercion: Qualcomm uses its power over chips to manipulate chip and license prices to lock in monopoly profits in ways that competition ordinarily would contest. In particular, Qualcomm shifts part of its chip revenues into its royalty rates. Handset OEMs may be indifferent to how Qualcomm classifies the prices they pay to use Qualcomm chips. That is because, for an OEM, the "all-in" cost for a chip has two components: a hardware price for the chip itself and a license price for practicing any patents the chip substantially embodies. ER186. That all-in cost to use a Qualcomm

chip is the same no matter how Qualcomm divides the price between these components—OEMs must still pay both Qualcomm's hardware price and license price. *Id.*; SER0284-SER0285.

By contrast, Qualcomm distorts the competitive process in the chip market by manipulating the division of its price between these components. Qualcomm conditions its chip sales on paying royalties to Qualcomm on every handset, regardless of who supplies the chip inside. ER46, ER184. By moving its chip profits out of its chip price and into its royalty rate, Qualcomm (1) decreases the hardware price for *its own chips* and (2) increases the license price for *all chips*, including Intel's. The result is that Qualcomm continues extracting chip-monopoly profits even when competitors like Intel win sales away. *See* ER184, ER186.

Moreover, because rivals like Intel have, as Evans put it, "no control," SER0285, over the license price, they must decrease the hardware price for *their chips* just as Qualcomm does. Viewed in isolation, that may appear to be price competition between Qualcomm and its rivals. But it isn't. Critically, as Evans explained, in contrast to what happens in a competitive market, these lower prices do not take sales away from the monopolist or reduce its profits, because they do

not "result[] in[] a lower price for the customer." SER0284. Rather, OEMs pay the same all-in price and Qualcomm is just putting revenue into its left pocket instead of its right. By switching pockets, Qualcomm insulates its monopoly from being competed away, no matter how rivals price their chips. That is an abuse of Qualcomm's monopoly, not price competition.

2. The immediate effects of NLNC can be described in various ways: Rivals' chips appear comparatively more expensive to their customers, *see* ER184, ER186-ER187, competitors must forgo sales and profits, *see* ER186, ER195, or part of the royalty Qualcomm collects functions as a "tax" or "surcharge" on rivals' chip sales, *see* ER46, ER184-ER187, ER370-ER371, ER668.

All these descriptions come down to the same thing for a rival like Intel that would contest Qualcomm's chip monopoly: The high costs of competing in the chip market may be unchanged by Qualcomm's practices, but the rewards of revenue from competing chip sales are diverted to Qualcomm under the label "royalties." The result is that rivals lose sales, market experience, and market credibility—and they earn less on the sales that they do make. Indeed, because revenue and

cost are the twin considerations that determine whether rivals will invest and produce, Qualcomm's practices depressing rivals' revenue can be expected to have effects quite like practices that raise rivals' costs—practices Qualcomm concedes are anticompetitive. *See* Opening Br. 62-63 (acknowledging that "shift[ing] onto its rivals costs that the defendant should have borne in the ordinary course of the competitive process" is unlawful).

Qualcomm's frustration of rivals' ability to enter a new market, to innovate, to compete on the merits, and to reap the full benefits of their success, reflects precisely the sort of "injury to the competitive process itself" that the antitrust laws condemn. *NYNEX Corp. v. Discon, Inc.*, 525 U.S. 128, 134 (1998); *see, e.g.*, *United States v. LSL Biotechs.*, 379 F.3d 672, 696 (9th Cir. 2004) (explaining that the antitrust laws are concerned with distortions of the competitive process, such as conduct that "stifle[s] new entry or innovation"). Qualcomm's conduct not only "reasonably appears capable of making a significant contribution to creating or maintaining monopoly power" in the chip market, *Barry Wright*, 724 F.2d at 230, but has in fact done so—as Intel, and Qualcomm's other victims, can attest.

3. Economists and commentators concur that schemes like NLNC exclude competition and maintain existing monopoly.

The leading antitrust treatise, for example, describes as exclusionary a scheme very much like Qualcomm's. It assumes an incumbent monopolist (here, Qualcomm) of product *M* (Qualcomm's chips) seeking to maintain its *M* monopoly against the threat of competing substitute product *S* (rivals' chips). The monopolist will tie *M* to a complementary product *C* (license to Qualcomm's patents), which buyers of both *M* and *S* need, regardless of whether they buy *M* or *S*. By tying *M* and *C*, the monopolist can elevate the price of *C* (just as Qualcomm elevates its royalties) while charging a competitive price for the monopoly product *M*, which discourages buyers from switching to *S* (buying rivals' chips). This maintains the seller's monopoly power in *M* and allows the scheme to continue. 9 Phillip Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 1705f2 (2d ed. 2004).

Likewise, economists studying innovation and monopoly identified the risks of a scheme strikingly similar to Qualcomm's—long before Qualcomm's practices were visible. *See* Joseph Farrell & Michael L. Katz, *Innovation, Rent Extraction, and Integration in Systems Markets*,

48 J. Indus. Econ. 413, 423-24 (2000). They consider an incumbent firm (here, Qualcomm) that produces two complementary components, *A* (the license to Qualcomm's patents) and *B* (chips), and conclude that the firm can use power in market *A* to suppress competition in market *B*. In particular, they conclude that the incumbent will *capture all of its rents* through the pricing of *A* (the license), while cutting the price of *B* (chips), destroying incentives for rivals to innovate in *B* (chips). Qualcomm simply takes that scheme a step further by using its existing power over modem chips to enforce the pricing structure that destroys competition to supply those chips.

The District Court's prospective injunction is especially appropriate given that economists have observed that such practices are likely effective in entrenching monopolies across successive product generations in dynamic industries. *See, e.g.*, Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. Econ. 194 (2002). That concern is vividly illustrated by Qualcomm's success in smothering Intel's presence in the premium LTE chip market and excluding Intel altogether from the premium 5G chip market.

B. Qualcomm and Its Amici's Defense of "No License, No Chips" Is Unresponsive to the Anticompetitive Effects that the District Court Found

1. Qualcomm's primary defense to the exclusionary effects of NLNC is based on *Pacific Bell Telephone Co. v. linkLine Communications, Inc.*, 555 U.S. 438 (2009). The *linkLine* plaintiffs challenged a vertically integrated monopolist's practice of charging them high wholesale prices and competing with them by offering low retail prices, "squeezing" their profit margins. *Id.* at 442-44. Such a vertical "price squeeze" is not actionable under the antitrust laws absent below-cost pricing in the downstream market or an "antitrust duty to deal" in the upstream market. *Id.* at 449-52.

Qualcomm's scheme differs from the *linkLine* "price squeeze" in every relevant respect. Unlike the *linkLine* plaintiffs, which needed to purchase from the defendant monopolist, victims like Intel were not squeezed by paying high prices to Qualcomm. Intel bought *nothing* from Qualcomm. The relationship between the wrongdoer and the victim here simply does not implicate *linkLine*'s key premise that demanding a high price from a rival cannot be actionable because antitrust law generally would not impose liability for a "unilateral

refusal to deal" outright with that rival. 555 U.S. at 448. The harm to Qualcomm's rivals from NLNC arose not because Qualcomm *refused* to sell chips to its *rivals*, but because Qualcomm *coerced* its *customers* to deal with it on terms that excluded rivals by imposing an inflated royalty on those rivals' products.

These distinctions make all the difference where harm to competition is concerned. After a successful *linkLine* price squeeze, the monopolist will simply sell directly to downstream consumers—vertically integrating by cutting out the middleman (its supposed victim)—making it "difficult to see any competitive significance [of a price squeeze] apart from the [generally benign] consequences of vertical integration itself." *linkLine*, 555 U.S. at 455 (quoting 3A Phillip Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 767c (2d ed. 2002)) (first set of brackets in original). But here, Qualcomm is not seeking to vertically integrate—Intel was obviously not Qualcomm's middleman in selling modem chips to OEMs (Qualcomm sells directly to OEMs), nor for that matter is Qualcomm trying to take over the OEMs' business of making handsets. Qualcomm's practices are all about excluding horizontal competition from rival chip makers.

2. Qualcomm also asserts its freedom as a patent holder to license to whomever it likes, on whatever terms it likes. *See, e.g.*, Opening Br. 41, 55. But this case is not ultimately about unlawful monopolization of a market for patents or technology. It is about monopolization of markets for chips. For that reason, the Department of Justice's (DOJ) argument that inflated royalties are not inherently anticompetitive, *see* U.S. Amicus Br. 9-10 (citing *Nynex*, *supra*), fundamentally misconceives the issue in this case. The same is true of Qualcomm's observation that antitrust law does not condemn "charging of monopoly prices," as such. Opening Br. 37 (quoting *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004)). The *reason* that antitrust law is unconcerned with monopoly prices alone is faith that they will attract competition. That cannot happen if an incumbent monopolist denies rivals a fair shot to contest its monopoly, which is why such conduct is unlawful. Here, the District Court found that Qualcomm's sin was not charging monopoly prices but blocking rivals from contesting them.

Myopic focus on patent rights here would produce a result that is antithetical to the public interest in vigorous competition that the

antitrust laws exist to promote. IP rights do not confer antitrust immunity to impair competition in other markets. As DOJ itself contended, and the en banc D.C. Circuit agreed, in the government's landmark monopolization case against Microsoft, "[such an argument] is no more correct than the proposition that use of one's personal property, such as a baseball bat, cannot give rise to tort liability." *United States v. Microsoft Corp.*, 253 F.3d 34, 62-63 (2001) (per curiam). Or, as Intel's Evans put it at trial: Qualcomm may have "excellent technical engineers," but "[t]hat doesn't give them the God-given right to be…using unfair business practices." SER0263.

3. Recognizing that its extraordinary NLNC policy requires some defense, Qualcomm pleads "there cannot be any tying violation here." Opening Br. 41. The gist of this argument is that a "tying" claim requires harm to competition in the tied market for Qualcomm patent licenses, yet there is no market for those licenses from which competition could be excluded. *Id.* at 41, 100-01.

Qualcomm's doctrinaire pigeonholing ignores that "the means of illicit exclusion, like the means of legitimate competition, are myriad." *Trinko*, 540 U.S. at 414 (quoting *Microsoft*, 253 F.3d at 58). Courts,

commentators, and economists alike have recognized that tying can achieve what Qualcomm's exclusion of rivals like Intel has done here—"entrench[] its initial *tying-product* monopoly." 9 Phillip Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 1703d1 (4th ed. 2019) (emphasis added); *supra*, pp. 19-20 (discussing commentators and literature).

For example, in DOJ's enforcement action against Microsoft, using a tie to maintain a monopoly in the tying product was among the most notable liability findings upheld by the en banc D.C. Circuit: Microsoft maintained its dominance in computer operating systems (the tying product) by "[t]echnologically binding" the Internet Explorer browser (the tied product) to the Windows operating system, to prevent other browsers from competing with Windows as a platform on which users could access computer applications. *Microsoft*, 253 F.3d at 60-67. *Microsoft* shows that there is no rule that conditioning the sale of one product on another can be unlawful only if it meets the standards for a traditional tying claim. Rather, courts must actually assess the practice's effects in the monopolized market—here, chips.

4. Qualcomm also argues that antitrust law does not recognize a monopoly "leveraging" claim, *i.e.*, that a dominant position in one

market has been used to obtain a competitive advantage in another. Opening Br. 41, 102. But this case is not about Qualcomm acquiring power in a second market; it is about maintaining power in the existing market. Qualcomm uses its power *in chips*, to siphon off *chip revenue*, to prevent rivals from contesting its monopoly *in chips*, which entrenches its dominance *in chips*.

II. Qualcomm's Other Abusive Practices Found by the District Court Cement the Anticompetitive Effects of "No License, No Chips"

The District Court found that Qualcomm uses various anticompetitive practices besides NLNC to maintain its monopoly. Qualcomm would defend the pieces of its scheme in isolation, but that is like arguing that the dismembered parts of Dr. Frankenstein's monster were harmless on the laboratory table. That discussion tells only half of the story. In addition to asking whether Qualcomm's other practices are independently unlawful (which they are, as explained below), this Court should pay particular attention to how those practices work together to reinforce NLNC, and thus confirm the District Court's finding that NLNC is exclusionary.

A. Qualcomm Abuses the Private Standard-Setting Process by Flouting Its FRAND Commitment to License Rival Chip Manufacturers

Qualcomm refused to license its SEPs to Intel and other chip makers. This both reinforced NLNC and was unlawful in its own right.

1. Qualcomm's recent and contrived position that its refusal to license was proper (Opening Br. 132-39) contradicts settled understandings. On summary judgment, the District Court had no difficulty concluding, correctly, that "Ninth Circuit precedent, the plain text of the IPR policies, and the relevant extrinsic evidence"—including Qualcomm's own prior statements—all show that Qualcomm's relevant FRAND commitments "require Qualcomm to license its SEPs to modem chip suppliers." ER264-ER265.

Whatever the source of Qualcomm's duty to license—whether contractual (*see* ER6) or a matter of antitrust law (*see* ER124; *infra*, pp. 29-33)—the extraordinary refusal itself illuminates the anticompetitive nature of NLNC. If Qualcomm licensed chip makers like Intel, then *NLNC would not work*: Competing modem-chip makers are immune to the coercive power of Qualcomm's NLNC policy because they do not buy

chips from Qualcomm. Accordingly, rivals would negotiate or litigate royalties that accurately value Qualcomm's SEPs.

This effect is undisputed. Qualcomm admits it could not command the same royalty rates through chip-level licenses that it does through its NLNC-distorted handset-level licensing regime. *See* Opening Br. 40, 49-50. Indeed, a senior Qualcomm executive admitted that "to license rivals would have 'the potential of threatening our entire revenue stream at the handset level,'" and that, as between chip-level licensing and handset-level licensing, "obviously the handset is humongously more…lucrative.'" ER194 (citations omitted).

Equally important, licensing rivals would undermine the exclusionary effect of NLNC. As explained, NLNC depends on Qualcomm's ability to control the terms on which OEMs obtain licenses. But licensed chips from rivals would create an alternative for OEMs and weaken Qualcomm's control. And if nothing else, the admittedly far lower royalties that chip makers would pay would reveal the true value of Qualcomm's IP for OEMs that choose to take a license themselves. Overall, this cascade of effects would tend to disable Qualcomm from funneling chip revenues to the licensing side of its

business, opening the door to price competition in the chip market and eroding its dominant market position.

2. Qualcomm's refusal to license its SEPs to rival chip makers would, in any event, be independently actionable under the antitrust laws because that refusal's exclusionary effect traces to power Qualcomm's patents acquired through a horizontal standard-setting process. Although the District Court did not address the antitrust implications of standard-setting in detail, and this Court need not reach that issue to affirm, the Court should take special care not to foreclose the development of the law on a subject so vital to a modern economy in which standards are ubiquitous and ripe for anticompetitive exploitation.

a. "Agreement on a product standard is, after all, implicitly an agreement [among horizontal competitors and firms with vertical supply relationships] not to manufacture, distribute, or purchase certain types of products." *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 500 (1988). Such collaboration often promotes innovation and benefits consumers, but it comes with "economic

incentives to restrain competition" and "a serious potential for anticompetitive harm." *Id.*

Where patent rights are present, private standard-setting inevitably reflects agreement among competitors that their products will practice some firms' patents to the exclusion of other firms' patents. Thus, "standards threaten to endow holders of standard-essential patents with disproportionate market power." *Microsoft Corp. v. Motorola Inc.* ("*Motorola*"), 696 F.3d 872, 876 (9th Cir. 2012). "[O]nce a standard has gained…widespread acceptance…anyone holding a standard-essential patent could extract unreasonably high royalties"—or other preferred licensing terms—"from suppliers of standard-compliant products and services." *Id.* This widely acknowledged problem of "patent holdup," *id.*, demands "'meaningful safeguards' that 'prevent the standard-setting process from being biased by members with economic interests in stifling product competition,'" *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297, 310 (3d Cir. 2007) (quoting *Allied Tube*, 486 U.S. at 501).

In part to address this concern about exclusion, many SSOs require contributors to license their SEPs to *all comers* on FRAND

terms. *See Motorola*, 696 F.3d at 876. That aspect of the FRAND commitment has deep historical roots in antitrust remedial decrees requiring patent licensing to "all applicants"; "the courts, and the DOJ that brought [such] suits, believed that open licensing to the marketplace would promote competition and remedy ill-gained market concentration." Jorge L. Contreras, *A Brief History of FRAND*, 80 Antitrust L.J. 39, 77 (2015). Qualcomm's and DOJ's patent-supremacy arguments are a passing fringe theory compared to this tested wisdom.

The FRAND commitment thus recognizes a bargain with competitors and the public: A patent-holder can reap the lucrative benefits of agreeing with its rivals that they will all use its patented technology to the exclusion of others', but the patent-holder commits not to, and must not, exploit its position to exclude rivals. Without that protection against exclusion, most private collaborative standard-setting would be unlawful.

b. Qualcomm engaged in exactly this sort of exclusion: pledging to license its SEPs on FRAND terms, and then, once its technology was incorporated into the relevant standards, blocking rival chip makers like Intel from competing effectively.

Qualcomm would justify its exclusion of Intel as the prize for its risk-taking and investments in research and development, asserting that it need not "share the source of its advantage with rivals." Opening Br. 5. After laboring to *prevent* judicial scrutiny of the value of its technology, *see infra*, pp. 33-36, Qualcomm should not be heard now to argue the merits of its technology as a justification for excluding its rivals.

Rather, standardization itself has handsomely rewarded Qualcomm for its investments by creating a market for royalty-bearing standardized products and enabling Qualcomm to collect a royalty on every one of those products. *See* A. Douglas Melamed & Carl Shapiro, *How Antitrust Law Can Make FRAND Commitments More Effective*, 127 Yale L.J. 2110, 2118 (2018) ("When patent holders do make [FRAND] commitments, they are voluntarily choosing to gain volume…in exchange for [limited] price…. If the standard is successful, that bargain is generally very profitable….").

Any additional advantage Qualcomm might enjoy from excluding rival chip makers would exist only because Qualcomm and its competitors *agreed to use Qualcomm's technology*. But Section 1 of the

Sherman Act forbids Qualcomm from agreeing with others on industry-wide standards that would allow Qualcomm to use its SEPs to stifle competition from rival standard-implementers like Intel. *See Allied Tube*, 486 U.S. at 500-01; *Am. Soc'y of Mech. Eng'rs, Inc. v. Hydrolevel Corp.*, 456 U.S. 556, 572 (1982).

B. Qualcomm Impedes Access to Judicial, Arbitral, and Regulatory Enforcement Mechanisms

1. Qualcomm simply ignores the District Court's findings that it prevented OEMs from challenging its licensing practices both indirectly, through the threat of cutting off chip supply, and directly, through contractual agreements. By ordering that Qualcomm "submit, as necessary, to arbitral or judicial dispute resolution to determine [FRAND] terms," ER230, the District Court made clear that these practices were integral to Qualcomm's anticompetitive scheme.

Although an OEM cannot make a handset without a chip, it could make a handset without a license and opt to resolve Qualcomm's patent claims in another way; the license "is in essence nothing more than a promise by [Qualcomm] not to sue the [OEM]." *Transcore, LP v. Elec. Transaction Consultants Corp.*, 563 F.3d 1271, 1275 (Fed. Cir. 2009). But testimony by numerous OEMs confirmed that the risk of a

potentially fatal chip-supply cutoff made the prospect of initiating FRAND litigation against Qualcomm unthinkable. *See* ER69, ER75, ER80; *see also* ER49 (cutoff of LGE chip supply); ER105-ER106 (cutoff of Apple chip supply and other retaliation); ER97 (conditioning of rebates to Apple on not asserting FRAND challenges). The FTC's licensing expert likewise testified that Qualcomm's leverage over "chips that were commercially necessary for [OEMs] to continue in business…essentially took the risk of litigation off the table." SER0248.

As the FTC's licensing expert noted at trial, "where courts have considered FRAND rates for standard essential patents, they typically have been *significantly lower* than what had been demanded by the patent owner." SER0247-SER0248; *see Microsoft Corp. v. Motorola, Inc.*, 2013 WL 2111217, at *2, *4 (W.D. Wash. Apr. 25, 2013) (finding RAND rates less than 1/100th of what patentee claimed), *aff'd* 795 F.3d 1024 (9th Cir. 2015); *compare Realtek Semiconductor Corp. v. LSI Corp.*, 946 F. Supp. 2d 998, 1002 (N.D. Cal. May 20, 2013) (describing SEP holder's demand of "a royalty that exceeds the selling price of [the microchip in question]"); *with Realtek Semiconductor Corp. v. LSI*

Corp., 2014 WL 2738226, at *6 (N.D. Cal. June 16, 2014) (in same case, declaring RAND royalty rate to be 0.19% of the chip's price).

Even if few disputes reach litigation, the availability of neutral dispute resolution of this sort naturally pushes the parties in FRAND licensing negotiations toward a reasonable royalty. Appropriately testing patent validity and infringement, and setting reasonable royalty rates would in turn normalize pricing and incentives in the chip market, restoring the ordinary competitive process.

2. Courts have recognized in a wide variety of contexts that competition depends on well-functioning private and governmental enforcement and dispute-resolution mechanisms. When efforts to bypass, frustrate, or abuse that machinery reflect collusion or exclusion, they have been correctly condemned as anticompetitive.

For example, payments to suppress patent litigation that could lead to competition can be anticompetitive. *FTC v. Actavis, Inc.*, 570 U.S. 136 (2013). Analogously, public policy requires that licensees be able to challenge patent validity without terminating their licenses. *Lear, Inc. v. Adkins*, 395 U.S. 653 (1969). And even where governmental process is invoked, its abuse "as an anticompetitive

weapon" can be a basis for antitrust liability, *City of Columbia v. Omni Outdoor Advert., Inc.*, 499 U.S. 365, 380 (1991), a doctrine with special force in the patent context, *see Walker Process Equip., Inc. v. Food Machinery & Chemical Corp.*, 382 U.S. 172, 177 (1965).

Qualcomm's stifling of patent and FRAND challenges is of a piece with these practices because it frustrates the lawful dispute-resolution processes that lubricate the machinery of competition. To the extent the exclusionary effect of that conduct can be isolated from the effects of Qualcomm's other practices, that suppression of competition-promoting dispute resolution processes should be regarded as independently unlawful under the antitrust laws. Just as in *Actavis*, "it would be incongruous to determine antitrust legality" here by testing "solely against patent law policy, rather than by measuring…against procompetitive antitrust policies as well." 570 U.S. at 148.

C. Qualcomm Has Excluded Rivals Through Below-Cost Pricing

The District Court was also correct to hold that Qualcomm's loyalty incentives to Apple independently violate the antitrust laws. Those strategically timed incentives well illustrate how such practices can prevent competitors from keeping pace and competing in the future.

See ER95-ER99. Qualcomm nonetheless contends that the FTC did not prove, and the District Court did not find, that those arrangements resulted in pricing below cost, or foreclosed a substantial share of competition in the market. Opening Br. 104, 109-12. That is incorrect.

Qualcomm's discounting practices *completely* foreclosed rivals at a critical moment from selling to Apple—the customer making the dominant share of purchases in the market for premium modem chips sold by chip makers to OEMs. *See, e.g.*, ER189; *see also* ER96 (discussing internal Qualcomm documents recognizing that "Apple is Important" because it is "[t]he largest consumer of high-tier modems"). Moreover, Intel's Evans specifically and credibly testified that the loss of Apple's business in 2014 had "cascading negative effects" that set Intel's development efforts back two years. ER99.

With respect to below-cost pricing, the FTC's expert economist testified at length that Qualcomm's incentives to Apple entailed "a profit sacrifice by Qualcomm," and would "block an equally efficient competitor from making…contestable sales" without "los[ing] a substantial amount of money." SER0138; *see* SER0135-SER0140. Intel *was* that competitor trying to make contestable sales. *See also*

SER0277 (Qualcomm executive acknowledging that "keeping 100 percent share" with Apple was "expensive" and cost Qualcomm profits); SER0277A (Qualcomm executive testifying that volume discounts to Apple were a "pretty substantial investment"); ER96 (discussing 2013 internal communication acknowledging that incentive payments to Apple would sacrifice short-term profits).

The District Court repeatedly referred to profit sacrifice in connection with securing exclusivity from Apple. *See* ER96, ER100-ER101, ER158. Although this Court could remand for the District Court to elaborate those findings, the better course here—especially in light of the expert testimony at trial linking Qualcomm's profit sacrifice and the inability of an equally efficient competitor to sell profitably—is to understand those findings as confirming the below-cost pricing that Qualcomm claims is absent.

CONCLUSION

The judgment of the district court should be affirmed.

Respectfully submitted.

DATED: November 29, 2019 By: *s/ Donald B. Verrilli, Jr.*
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