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Attorneys for Plaintiff

**IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA**

BELL SEMICONDUCTOR, LLC

Plaintiff,

v.

QUALCOMM INC.; QUALCOMM
TECHNOLOGIES, INC.; ARUBA
NETWORKS, LLC; COMMSCOPE
TECHNOLOGIES LLC; HEWLETT
PACKARD ENTERPRISE COMPANY;
LINKSYS USA, INC.; NETGEAR, INC.;
AND TP-LINK USA CORPORATION

Defendants.

Case No. 8:22-cv-1519

ORIGINAL COMPLAINT

JURY TRIAL DEMANDED

1 Plaintiff Bell Semiconductor, LLC (“Bell Semiconductor” or “Plaintiff”) brings
2 this Complaint against Defendants Qualcomm Inc. and Qualcomm Technologies, Inc.
3 (collectively “Qualcomm”) for infringement of U.S. Patent Nos. 8,049,340;¹
4 8,288,269;² 7,646,091;³ and 7,345,245.⁴ Plaintiff also brings this Complaint against
5 the remaining Defendants, customers of Qualcomm, for infringement of the ’340
6 patent, the ’269 patent, and the ’245 patent. Plaintiff, on personal knowledge of its
7 own acts, and on information and belief as to all others based on investigation, alleges
8 as follows:

9 **SUMMARY OF THE ACTION**

10 1. This is a patent infringement suit relating to Qualcomm’s unauthorized
11 and unlicensed use of the Asserted Patents. The semiconductor packaging technology
12 claimed in the Asserted Patents is used by Qualcomm in the production of one or
13 more of the semiconductor chips used in its Networking Pro series Platforms,
14 including its IPQ8078A system-on-a-chip (“SoC”) products, and the QCN9024 WiFi
15 chipset products (each an “Accused Product”) used in, among other things, wireless
16 routers and access points manufactured, sold, used, and/or offered for sale by
17 Qualcomm’s downstream customers, including the other Defendants.

18 2. Bell Semiconductor brings this action to put a stop to the Defendants’
19 unauthorized and unlicensed use of the inventions claimed in the Asserted Patents.

20 **THE PARTIES**

21 3. Plaintiff Bell Semiconductor is a limited liability company organized
22 under the laws of the State of Delaware with a place of business at One West Broad
23 Street, Suite 901, Bethlehem, PA 18018.

24
25 ¹ “’340 patent”.

26 ² “’269 patent”.

27 ³ “’091 patent”.

28 ⁴ “’245 patent”. The ’340 patent, ’269 patent, and ’245 patent, collectively, are the
“Downstream Patents.” The Downstream Patents, collectively with the ’091 patent, are
the “Asserted Patents.”

1 4. Bell Semiconductor stems from a long pedigree that began at Bell Labs.
2 Bell Labs sprung out of the Bell System as a research and development laboratory,
3 and eventually became known as one of America’s greatest technology incubators.
4 Bell Labs employees invented the transistor in 1947 in Murray Hill, New Jersey. It
5 was widely considered one of the most important technological breakthroughs of the
6 time, earning the inventors the Nobel Prize in Physics. Bell Labs made the first
7 commercial transistors at a plant in Allentown, Pennsylvania. For decades, Bell Labs
8 licensed its transistor patents to companies throughout the world, creating a
9 technological boom that led to the use of transistors in the semiconductor devices
10 prevalent in most electronic devices today.

11 5. Bell Semiconductor, a successor to Bell Labs’ pioneering efforts, owns
12 over 1,900 worldwide patents and applications, approximately 1,500 of which are
13 active United States patents. This patent portfolio of semiconductor–related
14 inventions was developed over many years by some of the world’s leading
15 semiconductor companies, including Bell Labs, Lucent Technologies, Agere Systems,
16 and LSI Logic and LSI Corporation (“LSI”). This portfolio reflects technology that
17 underlies many important innovations in the development of semiconductors and
18 integrated circuits for high–tech products, including smartphones, computers,
19 wearables, digital signal processors, IoT devices, automobiles, broadband carrier
20 access, switches, network processors, and wireless connectors.

21 6. The principals of Bell Semiconductor all worked at Bell Labs’ Allentown
22 facility, and have continued the rich tradition of innovating, licensing, and helping the
23 industry at large since those early days at Bell Labs. For example, Bell
24 Semiconductor’s CTO was an LSI Fellow and Broadcom Fellow. He is known
25 throughout the world as an innovator with more than 300 patents to his name, and he
26 has a sterling reputation for helping semiconductor fabs improve their efficiency. Bell
27 Semiconductor’s CEO took a brief hiatus from the semiconductor world to work with
28 Nortel Networks in the telecom industry during its bankruptcy. His efforts saved the

1 pensions of tens of thousands of Nortel retirees and employees. In addition, several
2 Bell Semiconductor executives previously served as engineers at many of these
3 companies and were personally involved in creating the ideas claimed throughout Bell
4 Semiconductor’s extensive patent portfolio.

5 7. On information and belief, Qualcomm Inc. has its principal place of
6 business and headquarters at 5775 Morehouse Drive, San Diego, CA 92121. On
7 information and belief, Qualcomm Technologies, Inc., a wholly-owned subsidiary of
8 Qualcomm Inc., “operates, along with its subsidiaries, substantially all of
9 Qualcomm’s engineering, research and development functions, and substantially all
10 of its products and services businesses, including its QCT semiconductor business.”
11 About Qualcomm, <https://www.qualcomm.com/company/about> (last visited Aug. 12,
12 2022).

13 8. On information and belief, Qualcomm develops, designs, and/or
14 manufactures products in the United States, including in this District, that use the
15 structures and/or methods of the Asserted Patents; and/or uses structures and/or
16 methods of the Asserted Patents in the United States, including in this District, to
17 make products; and/or distributes, markets, sells, or offers to sell in the United States
18 and/or imports products into the United States, including in this District, that were
19 manufactured using the patented methods or include the patented structures
20 (collectively, “Qualcomm Accused Products”). Additionally, Qualcomm introduces
21 the Qualcomm Accused Products into the stream of commerce knowing that they will
22 be sold and/or used in this District and elsewhere in the United States.

23 9. On information and belief, Hewlett Packard Enterprise Company
24 (“HPE”) is a public corporation organized and existing under the laws of Delaware
25 with its principal place of business at 3000 Hanover Street, Palo Alto, California,
26 94304. HPE has a registered agent for service of process at CT Corporation System,
27 818 W 7th St Ste. 930, Los Angeles, CA 90017.

1 10. On information and belief, Aruba Networks, LLC (“Aruba”) is a limited
2 liability company organized and existing under the laws of Delaware with its principal
3 place of business at 3333 Scott Blvd, Santa Clara, California 95054. Aruba has a
4 registered agent for service of process at C T Corporation System, 818 W 7th St Ste.
5 930, Los Angeles, CA 90017. Aruba is a wholly owned subsidiary of HPE.

6 11. On information and belief, HPE operates Aruba as a “brand” of HPE,
7 integrates Aruba’s hardware and software products into HPE’s product offerings, use
8 the same office facilities, and share personnel. HPE consolidates Aruba’s financial
9 information with its own for the purpose of public reporting.

10 12. On information and belief, CommScope Technologies LLC
11 (“CommScope”) is a limited liability company organized and existing under the laws
12 of Delaware. CommScope has a registered agent for service of process at United
13 Agent Group Inc., 4640 Admiralty Way, 5th Floor, Marina Del Rey, CA 90292.

14 13. On information and belief, Linksys USA, Inc. (“Linksys”) is a
15 corporation organized and existing under the laws of Delaware with its principal place
16 of business at 121 Theory Drive, Irvine, CA 92617. Linksys has a registered agent
17 for service of process at C T Corporation System, 330 N Brand Blvd., Suite 700,
18 Glendale, CA 91203.

19 14. On information and belief, Netgear, Inc. (“Netgear”) is a public
20 corporation organized and existing under the laws of Delaware. Netgear has a
21 registered agent for service of process at C T Corporation System, 330 N Brand Blvd.,
22 Suite 700, Glendale, CA 91203.

23 15. On information and belief, TP-Link USA Corporation (“TP-Link”) is a
24 corporation organized and existing under the laws of California. TP-Link has a
25 registered agent for service of process (Deyi Shu) at 10 Mauchly, Irvine, CA 92618.

26 16. On information and belief, Aruba, HPE, CommScope, Linksys, Netgear,
27 and TP-Link (collectively, “Downstream Defendants”) each offers for sale, sells,
28 develops, designs, and/or manufactures products in the United States, including in this

1 District, that use the structures and/or methods of the Downstream Patents; and/or
2 uses structures and/or methods of the Downstream Patents in the United States,
3 including in this District, to make products; and/or distributes, markets, sells, or offers
4 to sell in the United States and/or imports products into the United States, including in
5 this District, that incorporate Qualcomm Accused Products were manufactured using
6 the patented methods and/or include the patented structures of the Downstream
7 Patents (collectively, “Downstream Accused Products”). Additionally, each
8 Downstream Defendant introduces the Qualcomm Accused Products into the stream
9 of commerce knowing that they will be sold and/or used in this District and elsewhere
10 in the United States.

11 **JURISDICTION AND VENUE**

12 17. This is an action for patent infringement arising under the patent laws of
13 the United States, Title 35 of the United States Code. Accordingly, this Court has
14 subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

15 18. This Court has personal jurisdiction over Qualcomm under the laws of
16 the State of California, due at least to its substantial business in California and in this
17 District. Qualcomm has purposefully and voluntarily availed itself of the privileges of
18 conducting business in the United States, in the State of California, and in this District
19 by continuously and systematically placing goods into the stream of commerce
20 through an established distribution channel with the expectation that they will be
21 purchased by consumers in this District. In the State of California and in this District,
22 Qualcomm, directly or through intermediaries: (i) performs at least a portion of the
23 infringements alleged herein; (ii) develops, designs, and/or manufactures products
24 according to claims of each Asserted Patent; (iii) distributes, markets, sells, or offers
25 to sell products that Asserted Patent; and/or (iv) imports products formed according to
26 the '269 patented processes/methodologies and/or the structures of the other Asserted
27 Patents.

1 19. On information and belief, venue is proper in this Court pursuant to 28
2 U.S.C. §§ 1391 and 1400 with respect to Qualcomm because Qualcomm has
3 committed, and continues to commit, acts of infringement in this District and has a
4 regular and established place of business in this District. For example, Qualcomm
5 maintains regular and established places of business at (1) 1100 Glendon Ave., Los
6 Angeles, CA 90024; and (2) 3347 Michelson Drive, Suite 250, Irvine, CA 92612–
7 both of which are located in this District. See Qualcomm Global Office Locations
8 (<https://www.qualcomm.com/company/facilities/offices?country=USA>) (last visited
9 Aug. 9, 2022).

10 20. In addition to the foregoing, Qualcomm has numerous other business
11 locations throughout California, to which this District is centrally located. More
12 specifically, 44 of Qualcomm’s 70 United States offices are located in California,
13 with locations in Carlsbad, Irvine, Los Angeles, Los Gatos, San Diego, San Francisco,
14 San Jose, Santa Clara, and Saratoga. See 70 Offices in USA, Qualcomm (available at
15 <https://www.qualcomm.com/company/facilities/offices?country=USA&page=3>) (last
16 visited Aug. 12, 2022).

17 21. Currently, Qualcomm is advertising over 1300 jobs in its California
18 locations. These positions include those that relate to the Asserted Patents’
19 technology, such as numerous positions for Packaging Engineer. See Transform Your
20 Career, Qualcomm (<https://qualcomm.wd5.myworkdayjobs.com/en-US/External>)
21 (last visited Aug. 12, 2022).

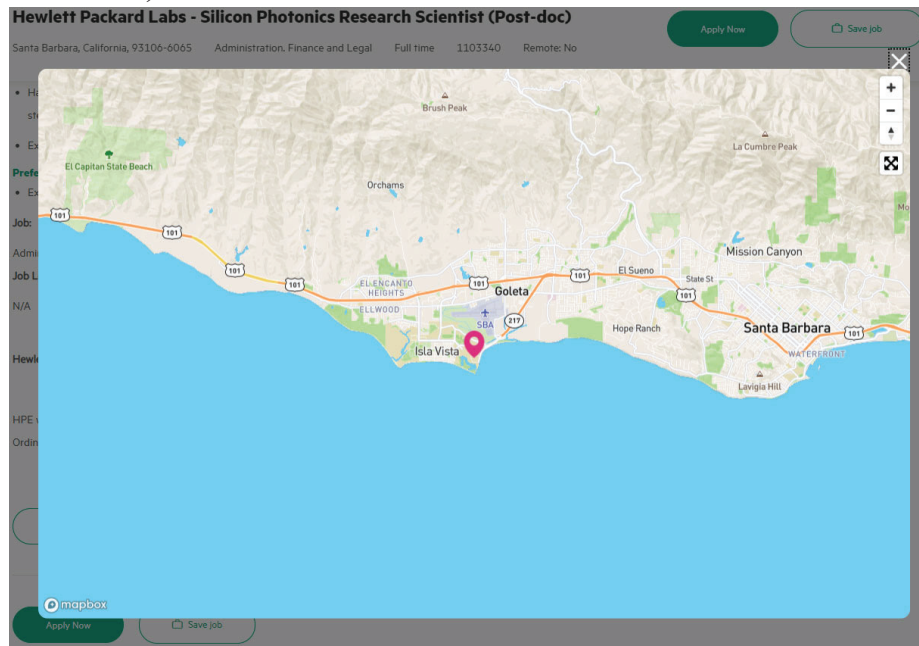
22 22. Venue is also convenient in this District. This is at least true because of
23 this District’s close ties to this case—including the technology, relevant witnesses,
24 and sources of proof noted above—and its ability to quickly and efficiently move this
25 case to resolution. Further, Qualcomm has purposely availed itself of the court system
26 in this District by, *inter alia*, intervening in disputes filed in this District (*see, e.g.,*
27 *TCL Commc’n Tech. Holdings, Ltd v. Telefonaktienbolaget LM Ericsson*, Case No.
28 8:14-cv-00341-JVS-DFM, Dkt. 1305 (C.D. Cal. Jan. 10, 2017)).

1 23. On information and belief, Bell Semiconductor’s cause of action arises
2 directly from Qualcomm’s circuit design work and other activities in this District.
3 Moreover, on information and belief, Qualcomm has derived substantial revenues
4 from its infringing acts occurring within the State of California and within this
5 District.

6 24. This Court has personal jurisdiction over Aruba and HPE under the laws
7 of the State of California, due at least to their substantial business in California and in
8 this District. Aruba and HPE have purposefully and voluntarily availed themselves of
9 the privileges of conducting business in the United States, in the State of California,
10 and in this District by continuously and systematically placing goods into the stream
11 of commerce through established distribution channels with the expectation that they
12 will be purchased by consumers in this District, including sales and offers for sale to
13 distributors and value-added resellers (such as CDW) located within this District. In
14 the State of California and in this District, Aruba and HPE, directly or through
15 intermediaries: (i) performs at least a portion of the infringements alleged herein; (ii)
16 develops, designs, and/or manufactures products according to at least one of the
17 claims of each Downstream Patent; (iii) distributes, markets, sells, or offers to sell
18 products that contain a Qualcomm Accused Product that infringes at least one claim
19 of each Downstream Patent; and/or (iv) imports products formed according to the
20 ’269 patented processes/methodologies and/or the structures of the other Asserted
21 Patents.

22 25. On information and belief, venue is proper in this Court pursuant to 28
23 U.S.C. §§ 1391 and 1400 with respect to Aruba and HPE because Aruba and HPE
24 have committed, and continue to commit, acts of infringement in this District and
25 have a regular and established place of business in this District. For example, HPE
26 also maintains a regular and established place of business in this District at its Hewlett
27 Packard Labs location in Santa Barbara, CA. *See* Leading Silicon Chip Innovation
28 From Santa Barbara (available at <https://community.hpe.com/t5/Advancing-Life->

1 Work/Leading-Silicon-Chip-Innovation-From-Santa-Barbara/ba-p/7113944) (last
2 visited Aug. 11, 2022).



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13 26. On information and belief, Aruba and HPE employ over 400 persons in
14 this District and are currently advertising for employment in this District. *See*
15 Hewlett Packard Labs – Silicon Photonics Research Scientist (Post-doc) Job listing
16 for Santa Barbara, California, 93106-6065 (available at
17 [https://careers.hpe.com/us/en/job/HPE1US1103340EXTERNALENUS/Hewlett-](https://careers.hpe.com/us/en/job/HPE1US1103340EXTERNALENUS/Hewlett-Packard-Labs-Silicon-Photonics-Research-Scientist-Post-doc)
18 [Packard-Labs-Silicon-Photonics-Research-Scientist-Post-doc](https://careers.hpe.com/us/en/job/HPE1US1103340EXTERNALENUS/Hewlett-Packard-Labs-Silicon-Photonics-Research-Scientist-Post-doc)) (last visited Aug. 11,
19 2022). Aruba and HPE also have numerous business locations throughout California,
20 to which this District is centrally located. More specifically, Aruba and HPE have
21 California business locations in at least Buena Park, Burbank, Milbank, Norco,
22 Pleasanton, Roseville, San Francisco, San Jose, Santa Ana, Santa Barbara, and Santa
23 Clara.

24 27. This Court has personal jurisdiction over CommScope under the laws of
25 the State of California, due at least to its substantial business in California and in this
26 District. CommScope has purposefully and voluntarily availed itself of the privileges
27 of conducting business in the United States, in the State of California, and in this
28 District by continuously and systematically placing goods into the stream of

1 commerce through an established distribution channel with the expectation that they
2 will be purchased by consumers in this District. In the State of California and in this
3 District, CommScope, directly or through intermediaries: (i) performs at least a
4 portion of the infringements alleged herein; (ii) develops, designs, and/or
5 manufactures products according to at least one of the claims of each Downstream
6 Patent; (iii) distributes, markets, sells, or offers to sell products that contain a
7 Qualcomm Accused Product that infringes at least one claim of each Downstream
8 Patent; and/or (iv) imports products formed according to the '269 patented
9 processes/methodologies and/or the structures of the other Asserted Patents.

10 28. On information and belief, venue is proper in this Court pursuant to 28
11 U.S.C. §§ 1391 and 1400 with respect to CommScope because CommScope has
12 committed, and continues to commit, acts of infringement in this District (including
13 but not limited to directly selling and offering for sale Downstream Accused Products
14 through its shop.surfboard.com website) and has a regular and established place of
15 business in this District. For example, CommScope maintains a regular and
16 established place of business at 3008 S Croddy Way, Santa Ana, CA 92704, which is
17 located in this District.

18 29. On information and belief, CommScope employs at least 70 persons in
19 this District and is currently advertising for employment in this District. These
20 employees include engineering personnel and others with knowledge relevant to the
21 claims at issue in this litigation. Additionally, CommScope has numerous business
22 locations throughout California, to which this District is centrally located. More
23 specifically, CommScope has additional California business locations in at least San
24 Diego, Santa Clara, and Sunnyvale.

25 30. This Court has personal jurisdiction over Linksys under the laws of the
26 State of California, due at least to its substantial business in California and in this
27 District. Linksys has purposefully and voluntarily availed itself of the privileges of
28 conducting business in the United States, in the State of California, and in this District

1 by continuously and systematically placing goods into the stream of commerce
2 through an established distribution channel with the expectation that they will be
3 purchased by consumers in this District. In the State of California and in this District,
4 Linksys, directly or through intermediaries: (i) performs at least a portion of the
5 infringements alleged herein; (ii) develops, designs, and/or manufactures products
6 according to at least one of the claims of each Downstream Patent; (iii) distributes,
7 markets, sells, or offers to sell products that contain a Qualcomm Accused Product
8 that infringes at least one claim of each Downstream Patent; and/or (iv) imports
9 products formed according to the '269 patented processes/methodologies and/or the
10 structures of the other Asserted Patents.

11 31. On information and belief, venue is proper in this Court pursuant to 28
12 U.S.C. §§ 1391 and 1400 with respect to Linksys because Linksys has committed, and
13 continues to commit, acts of infringement in this District (including but not limited to
14 directly selling and offering for sale Downstream Accused Products through its
15 linksys.com website) and has regular and established places of business in this
16 District. For example, Linksys maintains (1) its headquarters in Irvine, and (2) an
17 office at 12045 East Waterfront Drive, Playa Vista, CA 90094—each of which is
18 located in this District.

19 32. On information and belief, Linksys employs at least 60 persons in this
20 District and is currently advertising for employment in this District. These employees
21 include engineering personnel and others with knowledge relevant to the claims at
22 issue in this litigation.

23 33. This Court has personal jurisdiction over Netgear under the laws of the
24 State of California, due at least to its substantial business in California and in this
25 District. Netgear has purposefully and voluntarily availed itself of the privileges of
26 conducting business in the United States, in the State of California, and in this District
27 by continuously and systematically placing goods into the stream of commerce
28 through an established distribution channel with the expectation that they will be

1 purchased by consumers in this District. In the State of California and in this District,
2 Netgear, directly or through intermediaries: (i) performs at least a portion of the
3 infringements alleged herein; (ii) develops, designs, and/or manufactures products
4 according to at least one of the claims of each Downstream Patent; (iii) distributes,
5 markets, sells, or offers to sell products that contain a Qualcomm Accused Product
6 that infringes at least one claim of each Downstream Patent; and/or (iv) imports
7 products formed according to the '269 patented processes/methodologies and/or the
8 structures of the other Asserted Patents.

9 34. On information and belief, venue is proper in this Court pursuant to 28
10 U.S.C. §§ 1391 and 1400 with respect to Netgear because Netgear has committed, and
11 continues to commit, acts of infringement in this District (including but not limited to
12 directly selling and offering for sale Downstream Accused Products through its
13 netgear.com website) and has regular and established places of business in this
14 District. For example, Netgear maintains a place of business at 408 S Brea Canyon
15 Rd, City of Industry, CA 91789, which is located in this District.

16 35. On information and belief, Netgear employs at least 20 persons in this
17 District. These employees include engineering personnel and others with knowledge
18 relevant to the claims at issue in this litigation. Netgear additionally identifies its
19 warehouse in this District and two ports in this District—in Los Angeles and Long
20 Beach—as materially affecting its business.

21 36. This Court has personal jurisdiction over TP-Link under the laws of the
22 State of California, due at least to its substantial business in California and in this
23 District. TP-Link has purposefully and voluntarily availed itself of the privileges of
24 conducting business in the United States, in the State of California, and in this District
25 by continuously and systematically placing goods into the stream of commerce
26 through an established distribution channel with the expectation that they will be
27 purchased by consumers in this District. In the State of California and in this District,
28 TP-Link, directly or through intermediaries: (i) performs at least a portion of the

1 infringements alleged herein; (ii) develops, designs, and/or manufactures products
2 according to at least one of the claims of each Downstream Patent; (iii) distributes,
3 markets, sells, or offers to sell products that contain a Qualcomm Accused Product
4 that infringes at least one claim of each Downstream Patent; and/or (iv) imports
5 products formed according to the '340 patented process/methodology.

6 37. On information and belief, venue is proper in this Court pursuant to 28
7 U.S.C. §§ 1391 and 1400 with respect to TP-Link because TP-Link has committed,
8 and continues to commit, acts of infringement in this District (including but not
9 limited to directly selling and offering for sale Downstream Accused Products
10 through its shopus.tp-link.com website) and has regular and established places of
11 business in this District. For example, TP-Link maintains its principal place of
12 business at 10 Mauchly, Irvine, CA 92618, which is located in this District. TP-Link
13 additionally maintains an office in this District at 145 South State College Blvd. Suite
14 400, Brea, CA 92821.

15 38. On information and belief, TP-Link employs at least 25 persons in this
16 District. These employees include engineering personnel and others with knowledge
17 relevant to the claims at issue in this litigation. TP-Link additionally identifies its
18 warehouse in this District and two ports in this District—in Los Angeles and Long
19 Beach—as materially affecting its business.

20 **U.S. PATENT NO. 8,049,340**

21 39. Bell Semiconductor owns by assignment the entire right, title, and
22 interest in the '340 patent, entitled “Device for Avoiding Parasitic Capacitance in an
23 Integrated Circuit Package,” which issued on November 1, 2011.

24 40. The '340 patent issued to inventors Jeffrey Hall, Shawn Nikoukary,
25 Amar Amin, and Michael Jenkins from United States Patent Application No.
26 11/277,188, filed March 22, 2006. A true and correct copy of the '340 patent is
27 attached as Exhibit A.

1 41. The '340 patent is directed to solving the problem of signal deterioration
2 in integrated circuits such as a serializer/deserializer. At high frequencies, “the
3 parasitic capacitance between transmit (Tx) and receive (Rx) contact pads in the
4 contact pad layer and nearby metal layers of the integrated circuit package may result
5 in a deterioration of the signal waveform and a correspondingly reduced circuit
6 performance.” Ex. A at 2:52-60.

7 42. Parasitic capacitance results when parts in an electronic circuit are
8 proximate one another, potentially leading to interference with the input or output to a
9 device. Reducing parasitic capacitance has become increasingly necessary as
10 integrated circuit devices, particularly high-speed devices, have included more
11 external connections.

12 43. The '340 patent identifies the shortcomings of the prior art. More
13 specifically, the specifications describe that “metal layers that have a relatively large
14 metal area may produce significant parasitic capacitance.” Parasitic capacitance
15 between, e.g., the ball pad and the routing metal layer or between the underlying ball
16 pad and the ground return metal layer can produce “distortion of the switching
17 waveform of high-frequency signals used, for example, in serializing/deserializing
18 devices (SERDES). As a result, the maximum operating frequency that may be used
19 in the integrated circuit is disadvantageously limited” *Id.* at 3:21-25.

20 44. To reduce parasitic capacitance in the multi-layer packages, the '340
21 patent teaches the use of cutouts over the electrical contacts in electrically conductive
22 layers to substantially avoid overlap between the electrical contacts and metal in the
23 electrically conductive layers.

24 45. The '340 patent contains 3 independent claims and 19 total claims,
25 covering an integrated circuit substrate. Claim 1 reads:

26 1. An integrated circuit package substrate comprising:
27
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1 a first and a second electrically conductive layer separated
2 from each other by an electrically insulating layer with no
intermediate conductive layer therebetween;

3 a plurality of rows of contact pads formed in the first
4 electrically conductive layer for making a direct connection
5 between the integrated circuit package substrate and a printed
circuit board; and

6 a plurality of cutouts formed in the second electrically
7 conductive layer for reducing parasitic capacitance between
8 the second electrically conductive layer and the first
electrically conductive layer,

9 wherein each cutout encloses an electrically insulating area
10 within the second electrically conductive layer, and

11 wherein each electrically insulating area completely overlaps
12 a corresponding one of the contact pads formed in the first
electrically conductive layer such that there is substantially no
overlap of the rows of contact pads with metal in the second
electrically conductive layer.

13 46. This claim, as a whole, provides significant benefits and improvements
14 to the function of the semiconductor device, e.g., increasing the maximum operating
15 frequency that may be used in integrated circuits relative to prior art designs.

16 **U.S. PATENT NO. 8,288,269**

17 47. Bell Semiconductor owns by assignment the entire right, title, and
18 interest in the '269 patent, entitled "Methods for Avoiding Parasitic Capacitance in an
19 Integrated Circuit Package," which issued on October 16, 2012.

20 48. The '269 patent issued to inventors Jeffrey Hall, Shawn Nikoukary,
21 Amar Amin, and Michael Jenkins from United States Patent Application No.
22 13/252,632, filed October 4, 2011. A true and correct copy of the '269 patent is
23 attached as Exhibit B.

24 49. The '269 patent is related to and shares an identical specification with the
25 '340 patent. Where the '340 patent claims apparatuses for minimizing parasitic
26 capacitance, the '269 patent claims methods for directed to the same general problem.
27 More particularly, in order to reduce parasitic capacitance in the multi-layer packages,
28

1 the '269 patent teaches the use of cutouts over the electrical contacts in electrically
2 conductive layers to eliminate substantial overlap between the electrical contacts and
3 metal in the electrically conductive layers.

4 50. The '269 patent contains 2 independent claims and 20 total claims,
5 covering an integrated circuit substrate. Claim 1 reads:

6 1. A method, comprising steps of:

7 forming a first electrically conductive layer including a
8 plurality of rows of contact pads;

9 forming an electrically insulating layer on the first electrically
10 conductive layer; and

11 forming a second electrically conductive layer over the
12 electrically insulating layer such that there is no intermediate
13 conductive layer between the first and second electrically
14 conductive layers, the second electrically conductive layer
15 comprising metal and a plurality of cutouts wherein each
16 cutout encloses an electrically insulating area within the
17 second electrically conductive layer and wherein each
18 electrically insulating area completely overlaps a
19 corresponding one of the contact pads such that there is
20 substantially no overlap of the rows of contact pads with
21 metal in the second electrically conductive layer.

22 51. Similar to the '340 patent, this claim, as a whole, provides significant
23 benefits and improvements to the function of the semiconductor device, e.g.,
24 increasing the maximum operating frequency that may be used in integrated circuits
25 relative to prior art designs

26 **U.S. PATENT NO. 7,646,091**

27 52. Bell Semiconductor owns by assignment the entire right, title, and
28 interest in the '091 patent, entitled "Semiconductor Package and Method Using
Isolated Vss Plane to Accommodate High Speed Circuitry Ground Isolation," which
issued on January 12, 2010.

1 53. The '091 patent issued to inventors Maurice Othieno, Chok Chia, and
2 Amar Amin from United States Patent Application No. 11/399,723, filed April 6,
3 2006. A true and correct copy of the '091 patent is attached as Exhibit C.

4 54. Modern integrated circuits require both low-speed and high-speed
5 circuitry. Excessive noise generated by the high-speed circuitry interferes with the
6 operation of the low-speed circuitry sharing the same ground plane. At high data rates
7 this is a serious problem. Additionally, at high system performance the problem of
8 ground bounce is magnified.

9 55. In order to eliminate those problems, the '091 patent teaches the use of a
10 dedicated high-speed ground plane that is electrically isolated from the ground plane
11 used to ground the low-speed circuitry. As described in the '091 patent, a
12 semiconductor integrated circuit package includes a substrate which can have an
13 integrated circuit die attached to it. The package may include a dedicated high-speed
14 ground plane that is electrically isolated from the ground plane used to ground the
15 low-speed circuitry of the package.

16 56. The '091 patent contains 1 independent claim and 14 total claims,
17 covering an integrated circuit substrate. Claim 1 of the '091 patent reads:

- 18 1. A semiconductor integrated circuit (IC) package which comprises:
19 a substrate having a first surface and a second surface
20 wherein;
21 a first layer of the substrate includes,
22 a first ground plane enabling electrical connection with low
23 speed electronic circuitry, and
24 a second ground plane that is spatially separated and
25 electrically isolated from the first ground plane, the second
26 ground plane enabling electrical connection with high speed
27 electronic circuitry;
28 a second layer of the substrate includes,
a third ground plane configured for electrical connection with
low speed electronic circuitry, and

1 a fourth ground plane that is spatially separated and
2 electrically isolated from the third ground plane, the third
3 ground plane configured for electrical connection with high
4 speed electronic circuitry;

5 a plurality of electrical connections that electrically connect
6 the first ground plane with solder balls mounted on the second
7 surface of the substrate;

8 a plurality of additional electrical connections that electrically
9 connect the second ground plane with solder balls mounted
10 on the second surface of the substrate; and

11 peripheral electrical contacts arranged on the substrate and
12 configured for connection with electronic circuitry external to
13 the package; and

14 at least one reference plane associated with each layer of the
15 substrate and the ground planes included thereon.

16 57. This claim, as a whole, provides significant benefits and improvements
17 to the function of the semiconductor device, e.g., improving system performance by
18 reducing cross-talk and ground-bounce.

19 **U.S. PATENT NO. 7,345,245**

20 58. Bell Semiconductor owns by assignment the entire right, title, and
21 interest in the '245 patent, entitled "Robust High Density Substrate Design for
22 Thermal Cycling Reliability," which issued on March 18, 2008.

23 59. The '245 patent issued to inventors Anand Govind, Zafer Kutlu, and
24 Farsad Ghanghani from United States Patent Application No. 10/681,554, filed
25 October 8, 2003. A true and correct copy of the '245 patent is attached as Exhibit D.

26 60. Recent silicon technology advances have placed increased demand for
27 high density signal routing on organic BGA substrates. Increased signal routing
28 density in the substrate is obtained by using fine pitch vias through the core so that
routing layers below the core can be efficiently utilized. The via pitch reduction
requires the use of thin core substrates which are susceptible to warpage during
thermal excursions. Typically, the regions are under the die corner are regions of

1 stress concentration. Under cycled thermal excursions, cracks can initiate from the
2 ball pad edges and spread into the layers above the ball pad layer.

3 61. The '245 patent is generally related to a semiconductor package for a die
4 with improved thermal cycling reliability. To eliminate package failures and
5 occurrences cracks in signal traces, the '245 patent teaches routing of signals away
6 from the high stress area associated with the ball pads and the corner of the die.

7 62. The '245 patent contains 2 independent claims and 12 total claims,
8 covering an integrated circuit substrate. Claim 1 of the '245 patent reads:

9 1. A semi-conductor package comprising:

10 a top layer having a die mounted thereon, said die having a
11 corner; and

12 a plurality of layers under the top layer, said plurality of layers
13 comprising a bottom routing layer having signal traces
14 thereon, and a ball pad layer under the bottom routing layer,
15 said ball pad layer having a plurality of ball pads, wherein
16 none of the signal traces of the bottom routing layer are
located over ball pads of the ball pad layer which are disposed
in an area within two ball pad pitches of the corner of the die.

17 63. This claim, as a whole, provides significant benefits and improvements
18 to the function of the semiconductor device, e.g., improving system reliability by
19 avoiding functional failures from cracks in the signal traces caused by thermal cycling
20 stresses under the die corner.

21 **COUNT I – INFRINGEMENT OF U.S. PATENT NO. 8,049,340**

22 **(QUALCOMM)**

23 64. Bell Semiconductor re-alleges and incorporates by reference the
24 allegations of the foregoing paragraphs as if fully set forth herein.

25 65. The '340 patent is valid and enforceable under the United States patent
26 laws.

27 66. Bell Semiconductor owns, by assignment, all right, title, and interest in
28 and to the '340 patent, including the right to collect for past damages.

1 67. On information and belief, Qualcomm has and continues to directly
2 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
3 271(a) one or more claims of the '340 patent by making, using, offering to sell, or
4 selling within the United States, or importing into the United States, one or more
5 semiconductor devices, including as one example the Networking Pro series Platform
6 products incorporating the IPQ8078A SoC, in the United States.

7 68. A claim chart demonstrating Qualcomm's infringement of the '340
8 patent is attached hereto as Exhibit E.

9 69. Qualcomm's Accused Products infringed and continue to infringe one or
10 more claims of the '340 patent during the pendency of the '340 patent.

11 70. Qualcomm's infringement of the '340 patent was, and continues to be,
12 done with knowledge of the '340 patent and with knowledge of Bell Semiconductor's
13 contention that Qualcomm is infringing the '340 patent. On April 17 and June 3,
14 2020, a representative of Bell Semiconductor provided actual notice to Qualcomm of
15 the '340 patent. Qualcomm's infringement of the '340 patent is thus willful and
16 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys' fees.

17 71. Qualcomm's infringement of the '340 patent is exceptional and entitles
18 Bell Semiconductor to attorneys' fees and costs incurred in prosecuting this action
19 under 35 U.S.C. § 285.

20 72. Bell Semiconductor has been damaged by Qualcomm's infringement of
21 the '340 patent and will continue to be damaged unless Qualcomm is enjoined by this
22 Court. Bell Semiconductor has suffered and continues to suffer irreparable injury for
23 which there is no adequate remedy at law. The balance of hardships favors Bell
24 Semiconductor, and public interest is not disserved by an injunction.

25 73. Bell Semiconductor is entitled to recover from Qualcomm all damages
26 that Bell Semiconductor has sustained as a result of Qualcomm's infringement of the
27 '340 patent, including without limitation and/or not less than a reasonable royalty.

28

1 **COUNT II – INFRINGEMENT OF U.S. PATENT NO. 8,288,269**

2 **(QUALCOMM)**

3 74. Bell Semiconductor re-alleges and incorporates by reference the
4 allegations of the foregoing paragraphs as if fully set forth herein.

5 75. The '269 patent is valid and enforceable under the United States patent
6 laws.

7 76. Bell Semiconductor owns, by assignment, all right, title, and interest in
8 and to the '269 patent, including the right to collect for past damages.

9 77. On information and belief, Qualcomm has and continues to directly
10 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
11 271(a) one or more claims of the '269 patent by making, using, offering to sell, or
12 selling within the United States, or importing into the United States, one or more
13 semiconductor devices, including as one example the Networking Pro series Platform
14 products incorporating the IPQ8078A SoC, in the United States.

15 78. A claim chart demonstrating Qualcomm's infringement of the '269
16 patent is attached hereto as Exhibit F.

17 79. Qualcomm's Accused Products infringed and continue to infringe one or
18 more claims of the '269 patent during the pendency of the '269 patent.

19 80. Qualcomm's infringement of the '269 patent was, and continues to be,
20 done with knowledge of the '269 patent and with knowledge of Bell Semiconductor's
21 contention that Qualcomm is infringing the '269 patent. On April 17 and June 3,
22 2020, a representative of Bell Semiconductor provided actual notice to Qualcomm of
23 the '269 patent. Qualcomm's infringement of the '269 patent is thus willful and
24 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys' fees.

25 81. Qualcomm's infringement of the '269 patent is exceptional and entitles
26 Bell Semiconductor to attorneys' fees and costs incurred in prosecuting this action
27 under 35 U.S.C. § 285.
28

1 82. Bell Semiconductor has been damaged by Qualcomm’s infringement of
2 the ’269 patent and will continue to be damaged unless Qualcomm is enjoined by this
3 Court. Bell Semiconductor has suffered and continues to suffer irreparable injury for
4 which there is no adequate remedy at law. The balance of hardships favors Bell
5 Semiconductor, and public interest is not disserved by an injunction.

6 83. Bell Semiconductor is entitled to recover from Qualcomm all damages
7 that Bell Semiconductor has sustained as a result of Qualcomm’s infringement of the
8 ’269 patent, including without limitation and/or not less than a reasonable royalty.

9 **COUNT III – INFRINGEMENT OF U.S. PATENT NO. 7,646,091**

10 **(QUALCOMM)**

11 84. Bell Semiconductor re-alleges and incorporates by reference the
12 allegations of the foregoing paragraphs as if fully set forth herein.

13 85. The ’091 patent is valid and enforceable under the United States patent
14 laws.

15 86. Bell Semiconductor owns, by assignment, all right, title, and interest in
16 and to the ’091 patent, including the right to collect for past damages.

17 87. On information and belief, Qualcomm has and continues to directly
18 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
19 271(a) one or more claims of the ’091 patent by making, using, offering to sell, or
20 selling within the United States, or importing into the United States, one or more
21 semiconductor devices, including as one example the the QCN9024 WiFi chipset
22 products, in the United States.

23 88. A claim chart demonstrating Qualcomm’s infringement of the ’091
24 patent is attached hereto as Exhibit G.

25 89. Qualcomm’s Accused Products infringed and continue to infringe one or
26 more claims of the ’091 patent during the pendency of the ’091 patent.

27 90. Qualcomm’s infringement of the ’091 patent was, and continues to be,
28 done with knowledge of the ’091 patent and with knowledge of Bell Semiconductor’s

1 contention that Qualcomm is infringing the '091 patent. On June 17, 2022, a
2 representative of Bell Semiconductor provided actual notice to Qualcomm of the '091
3 patent. Qualcomm's infringement of the '091 patent is thus willful and deliberate,
4 entitling Bell Semiconductor to enhanced damages and attorneys' fees.

5 91. Qualcomm's infringement of the '091 patent is exceptional and entitles
6 Bell Semiconductor to attorneys' fees and costs incurred in prosecuting this action
7 under 35 U.S.C. § 285.

8 92. Bell Semiconductor has been damaged by Qualcomm's infringement of
9 the '091 patent and will continue to be damaged unless Qualcomm is enjoined by this
10 Court. Bell Semiconductor has suffered and continues to suffer irreparable injury for
11 which there is no adequate remedy at law. The balance of hardships favors Bell
12 Semiconductor, and public interest is not disserved by an injunction.

13 93. Bell Semiconductor is entitled to recover from Qualcomm all damages
14 that Bell Semiconductor has sustained as a result of Qualcomm's infringement of the
15 '091 patent, including without limitation and/or not less than a reasonable royalty.

16 **COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 7,345,245**

17 **(QUALCOMM)**

18 94. Bell Semiconductor re-alleges and incorporates by reference the
19 allegations of the foregoing paragraphs as if fully set forth herein.

20 95. The '245 patent is valid and enforceable under the United States patent
21 Laws.

22 96. Bell Semiconductor owns, by assignment, all right, title, and interest in
23 and to the '245 patent, including the right to collect for past damages.

24 97. On information and belief, Qualcomm has and continues to directly
25 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
26 271(a) one or more claims of the '245 patent by making, using, offering to sell, or
27 selling within the United States, or importing into the United States, one or more
28

1 semiconductor devices, including as one example the Networking Pro series Platform
2 products incorporating the IPQ8078A SoC, in the United States.

3 98. A claim chart demonstrating Qualcomm’s infringement of the ’245
4 patent is attached hereto as Exhibit H.

5 99. Qualcomm’s Accused Products infringe and continue to infringe one or
6 more claims of the ’245 patent during the pendency of the ’245 patent.

7 100. Qualcomm’s infringement of the ’245 patent was, and continues to be,
8 done with knowledge of the ’245 patent and with knowledge of Bell Semiconductor’s
9 contention that Qualcomm is infringing the ’245 patent. On June 1, 2022, a
10 representative of Bell Semiconductor provided actual notice to Qualcomm of the ’245
11 patent. Qualcomm’s infringement of the ’245 patent is thus willful and deliberate,
12 entitling Bell Semiconductor to enhanced damages and attorneys’ fees.

13 101. Qualcomm’s infringement of the ’245 patent is exceptional and entitles
14 Bell Semiconductor to attorneys’ fees and costs incurred in prosecuting this action
15 under 35 U.S.C. § 285.

16 102. Bell Semiconductor has been damaged by Qualcomm’s infringement of
17 the ’245 patent and will continue to be damaged unless Qualcomm is enjoined by this
18 Court. Bell Semiconductor has suffered and continues to suffer irreparable injury for
19 which there is no adequate remedy at law. The balance of hardships favors Bell
20 Semiconductor, and public interest is not disserved by an injunction.

21 103. Bell Semiconductor is entitled to recover from Qualcomm all damages
22 that Bell Semiconductor has sustained as a result of Qualcomm’s infringement of the
23 ’245 patent, including without limitation and/or not less than a reasonable royalty.

24 **COUNT V – INFRINGEMENT OF U.S. PATENT NO. 8,049,340**

25 **(ARUBA AND HPE)**

26 104. Bell Semiconductor re-alleges and incorporates by reference the
27 allegations of the foregoing paragraphs as if fully set forth herein.
28

1 105. On information and belief, Aruba and HPE have and continue to directly
2 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
3 271(a) one or more claims of the '340 patent by making, using, offering to sell, or
4 selling within the United States, or importing into the United States, one or more
5 Downstream Accused Products incorporating one or more Qualcomm Accused
6 Products, including as examples the Aruba AP-535, AP-555, AP-635, and AP-655
7 products incorporating the Qualcomm Networking Pro series Platform products in the
8 United States.

9 106. As of the date of this Complaint, Aruba and HPE's infringement of the
10 '340 patent is, and continues to be, done with knowledge of the '340 patent and with
11 knowledge of Bell Semiconductor's contention that Aruba and HPE are infringing the
12 '340 patent. Aruba and HPE's infringement of the '340 patent after this date is thus
13 willful and deliberate, entitling Bell Semiconductor to enhanced damages and
14 attorneys' fees.

15 107. Bell Semiconductor has been damaged by Aruba and HPE's
16 infringement of the '340 patent and will continue to be damaged unless Aruba and
17 HPE are enjoined by this Court. Bell Semiconductor has suffered and continues to
18 suffer irreparable injury for which there is no adequate remedy at law. The balance of
19 hardships favors Bell Semiconductor, and public interest is not disserved by an
20 injunction.

21 108. Bell Semiconductor is entitled to recover from Aruba and HPE all
22 damages that Bell Semiconductor has sustained as a result of Aruba and HPE's
23 infringement of the '340 patent, including without limitation and/or not less than a
24 reasonable royalty.

25 **COUNT VI – INFRINGEMENT OF U.S. PATENT NO. 8,288,269**

26 **(ARUBA AND HPE)**

27 109. Bell Semiconductor re-alleges and incorporates by reference the
28 allegations of the foregoing paragraphs as if fully set forth herein.

1 110. On information and belief, Aruba and HPE have and continue to directly
2 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
3 271(a) one or more claims of the '269 patent by making, using, offering to sell, or
4 selling within the United States, or importing into the United States, one or more
5 Downstream Accused Products incorporating one or more Qualcomm Accused
6 Products, including as examples the Aruba AP-535, AP-555, AP-635, and AP-655
7 products incorporating the Qualcomm Networking Pro series Platform products in the
8 United States.

9 111. As of the date of this Complaint, Aruba and HPE's infringement of the
10 '269 patent is, and continues to be, done with knowledge of the '269 patent and with
11 knowledge of Bell Semiconductor's contention that Aruba and HPE are infringing the
12 '269 patent. Aruba and HPE's infringement of the '269 patent after this date is thus
13 willful and deliberate, entitling Bell Semiconductor to enhanced damages and
14 attorneys' fees.

15 112. Bell Semiconductor has been damaged by Aruba and HPE's
16 infringement of the '269 patent and will continue to be damaged unless Aruba and
17 HPE are enjoined by this Court. Bell Semiconductor has suffered and continues to
18 suffer irreparable injury for which there is no adequate remedy at law. The balance of
19 hardships favors Bell Semiconductor, and public interest is not disserved by an
20 injunction.

21 113. Bell Semiconductor is entitled to recover from Aruba and HPE all
22 damages that Bell Semiconductor has sustained as a result of Aruba and HPE's
23 infringement of the '269 patent, including without limitation and/or not less than a
24 reasonable royalty.

25 **COUNT VII – INFRINGEMENT OF U.S. PATENT NO. 7,345,245**

26 **(ARUBA AND HPE)**

27 114. Bell Semiconductor re-alleges and incorporates by reference the
28 allegations of the foregoing paragraphs as if fully set forth herein.

1 115. On information and belief, Aruba and HPE have and continue to directly
2 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
3 271(a) one or more claims of the '245 patent by making, using, offering to sell, or
4 selling within the United States, or importing into the United States, one or more
5 Downstream Accused Products incorporating one or more Qualcomm Accused
6 Products, including as examples the Aruba AP-535, AP-555, AP-635, and AP-655
7 products incorporating the Qualcomm Networking Pro series Platform products in the
8 United States.

9 116. As of the date of this Complaint, Aruba and HPE's infringement of the
10 '245 patent is, and continues to be, done with knowledge of the '245 patent and with
11 knowledge of Bell Semiconductor's contention that Aruba and HPE are infringing the
12 '245 patent. Aruba and HPE's infringement of the '245 patent after this date is thus
13 willful and deliberate, entitling Bell Semiconductor to enhanced damages and
14 attorneys' fees.

15 117. Bell Semiconductor has been damaged by Aruba and HPE's
16 infringement of the '245 patent and will continue to be damaged unless Aruba and
17 HPE are enjoined by this Court. Bell Semiconductor has suffered and continues to
18 suffer irreparable injury for which there is no adequate remedy at law. The balance of
19 hardships favors Bell Semiconductor, and public interest is not disserved by an
20 injunction.

21 118. Bell Semiconductor is entitled to recover from Aruba and HPE all
22 damages that Bell Semiconductor has sustained as a result of Aruba and HPE's
23 infringement of the '245 patent, including without limitation and/or not less than a
24 reasonable royalty.

25 **COUNT VIII – INFRINGEMENT OF U.S. PATENT NO. 8,049,340**

26 **(COMMSCOPE)**

27 119. Bell Semiconductor re-alleges and incorporates by reference the
28 allegations of the foregoing paragraphs as if fully set forth herein.

1 120. On information and belief, CommScope has and continues to directly
2 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
3 271(a) one or more claims of the '340 patent by making, using, offering to sell, or
4 selling within the United States, or importing into the United States, one or more
5 Downstream Accused Products incorporating one or more Qualcomm Accused
6 Products, including as one example the Networking Pro series Platform products.
7 *See, e.g.*, SURFboard Thruster, <https://shop.surfboard.com/w6b-surfboard-thruster/>
8 (last visited Aug. 12, 2022); SURFboard WiFi 6e Network Adapter,
9 <https://shop.surfboard.com/w6u-surfboard-wi-fi-6e-network-adapter/> (last visited
10 Aug. 12, 2022).

11 121. As of the date of this Complaint, CommScope's infringement of the '340
12 patent is, and continues to be, done with knowledge of the '340 patent and with
13 knowledge of Bell Semiconductor's contention that CommScope is infringing the
14 '340 patent. CommScope's infringement of the '340 patent after this date is thus
15 willful and deliberate, entitling Bell Semiconductor to enhanced damages and
16 attorneys' fees.

17 122. Bell Semiconductor has been damaged by CommScope's infringement of
18 the '340 patent and will continue to be damaged unless CommScope is enjoined by
19 this Court. Bell Semiconductor has suffered and continues to suffer irreparable injury
20 for which there is no adequate remedy at law. The balance of hardships favors Bell
21 Semiconductor, and public interest is not disserved by an injunction.

22 123. Bell Semiconductor is entitled to recover from CommScope all damages
23 that Bell Semiconductor has sustained as a result of CommScope's infringement of
24 the '340 patent, including without limitation and/or not less than a reasonable royalty.

25 **COUNT IX – INFRINGEMENT OF U.S. PATENT NO. 8,288,269**

26 **(COMMSCOPE)**

27 124. Bell Semiconductor re-alleges and incorporates by reference the
28 allegations of the foregoing paragraphs as if fully set forth herein.

1 125. On information and belief, CommScope has and continues to directly
2 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
3 271(a) one or more claims of the '269 patent by making, using, offering to sell, or
4 selling within the United States, or importing into the United States, one or more
5 Downstream Accused Products incorporating one or more Qualcomm Accused
6 Products, including as one example the Networking Pro series Platform products.
7 *See, e.g.*, SURFboard Thruster, <https://shop.surfboard.com/w6b-surfboard-thruster/>
8 (last visited Aug. 12, 2022); SURFboard WiFi 6e Network Adapter,
9 <https://shop.surfboard.com/w6u-surfboard-wi-fi-6e-network-adapter/> (last visited
10 Aug. 12, 2022).

11 126. As of the date of this Complaint, CommScope's infringement of the '269
12 patent is, and continues to be, done with knowledge of the '269 patent and with
13 knowledge of Bell Semiconductor's contention that CommScope is infringing the
14 '269 patent. CommScope's infringement of the '269 patent after this date is thus
15 willful and deliberate, entitling Bell Semiconductor to enhanced damages and
16 attorneys' fees.

17 127. Bell Semiconductor has been damaged by CommScope's infringement of
18 the '269 patent and will continue to be damaged unless CommScope is enjoined by
19 this Court. Bell Semiconductor has suffered and continues to suffer irreparable injury
20 for which there is no adequate remedy at law. The balance of hardships favors Bell
21 Semiconductor, and public interest is not disserved by an injunction.

22 128. Bell Semiconductor is entitled to recover from CommScope all damages
23 that Bell Semiconductor has sustained as a result of CommScope's infringement of
24 the '269 patent, including without limitation and/or not less than a reasonable royalty.

25 **COUNT X – INFRINGEMENT OF U.S. PATENT NO. 7,345,245**

26 **(COMMSCOPE)**

27 129. Bell Semiconductor re-alleges and incorporates by reference the
28 allegations of the foregoing paragraphs as if fully set forth herein.

1 130. On information and belief, CommScope has and continues to directly
2 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
3 271(a) one or more claims of the '245 patent by making, using, offering to sell, or
4 selling within the United States, or importing into the United States, one or more
5 Downstream Accused Products incorporating one or more Qualcomm Accused
6 Products, including as one example the Networking Pro series Platform products.
7 *See, e.g.*, SURFboard Thruster, <https://shop.surfboard.com/w6b-surfboard-thruster/>
8 (last visited Aug. 12, 2022); SURFboard WiFi 6e Network Adapter,
9 <https://shop.surfboard.com/w6u-surfboard-wi-fi-6e-network-adapter/> (last visited
10 Aug. 12, 2022).

11 131. As of the date of this Complaint, CommScope's infringement of the '245
12 patent is, and continues to be, done with knowledge of the '245 patent and with
13 knowledge of Bell Semiconductor's contention that CommScope is infringing the
14 '245 patent. CommScope's infringement of the '245 patent after this date is thus
15 willful and deliberate, entitling Bell Semiconductor to enhanced damages and
16 attorneys' fees.

17 132. Bell Semiconductor has been damaged by CommScope's infringement of
18 the '245 patent and will continue to be damaged unless CommScope is enjoined by
19 this Court. Bell Semiconductor has suffered and continues to suffer irreparable injury
20 for which there is no adequate remedy at law. The balance of hardships favors Bell
21 Semiconductor, and public interest is not disserved by an injunction.

22 133. Bell Semiconductor is entitled to recover from CommScope all damages
23 that Bell Semiconductor has sustained as a result of CommScope's infringement of
24 the '245 patent, including without limitation and/or not less than a reasonable royalty.

25 **COUNT XI – INFRINGEMENT OF U.S. PATENT NO. 8,049,340**

26 **(LINKSYS)**

27 134. Bell Semiconductor re-alleges and incorporates by reference the
28 allegations of the foregoing paragraphs as if fully set forth herein.

1 135. On information and belief, Linksys has and continues to directly infringe,
2 either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. § 271(a) one
3 or more claims of the '340 patent by making, using, offering to sell, or selling within
4 the United States, or importing into the United States, one or more Downstream
5 Accused Products incorporating one or more Qualcomm Accused Products, including
6 as one example the Networking Pro series Platform products. *See, e.g.,* Velop
7 MX4200, [https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-](https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-router/MX4200.html)
8 [router/MX4200.html](https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-router/MX4200.html) (last visited Aug. 12, 2022); AXE8400 Mesh WiFi 6e Router,
9 <https://www.linksys.com/tri-band-axe8400-mesh-wifi-6e-router/MX8501.html> (last
10 visited Aug. 12, 2022).

11 136. As of the date of this Complaint, Linksys's infringement of the '340
12 patent is, and continues to be, done with knowledge of the '340 patent and with
13 knowledge of Bell Semiconductor's contention that Linksys is infringing the '340
14 patent. Linksys's infringement of the '340 patent after this date is thus willful and
15 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys' fees.

16 137. Bell Semiconductor has been damaged by Linksys's infringement of the
17 '340 patent and will continue to be damaged unless Linksys is enjoined by this Court.
18 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
19 there is no adequate remedy at law. The balance of hardships favors Bell
20 Semiconductor, and public interest is not disserved by an injunction.

21 138. Bell Semiconductor is entitled to recover from Linksys all damages that
22 Bell Semiconductor has sustained as a result of Linksys's infringement of the '340
23 patent, including without limitation and/or not less than a reasonable royalty.

24 **COUNT XII – INFRINGEMENT OF U.S. PATENT NO. 8,288,269**

25 **(LINKSYS)**

26 139. Bell Semiconductor re-alleges and incorporates by reference the
27 allegations of the foregoing paragraphs as if fully set forth herein.
28

1 140. On information and belief, Linksys has and continues to directly infringe,
2 either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. § 271(a) one
3 or more claims of the '269 patent by making, using, offering to sell, or selling within
4 the United States, or importing into the United States, one or more Downstream
5 Accused Products incorporating one or more Qualcomm Accused Products, including
6 as one example the Networking Pro series Platform products. *See, e.g.,* Velop
7 MX4200, [https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-](https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-router/MX4200.html)
8 [router/MX4200.html](https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-router/MX4200.html) (last visited Aug. 12, 2022); AXE8400 Mesh WiFi 6e Router,
9 <https://www.linksys.com/tri-band-axe8400-mesh-wifi-6e-router/MX8501.html> (last
10 visited Aug. 12, 2022).

11 141. As of the date of this Complaint, Linksys's infringement of the '269
12 patent is, and continues to be, done with knowledge of the '269 patent and with
13 knowledge of Bell Semiconductor's contention that Linksys is infringing the '269
14 patent. Linksys's infringement of the '269 patent after this date is thus willful and
15 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys' fees.

16 142. Bell Semiconductor has been damaged by Linksys's infringement of the
17 '269 patent and will continue to be damaged unless Linksys is enjoined by this Court.
18 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
19 there is no adequate remedy at law. The balance of hardships favors Bell
20 Semiconductor, and public interest is not disserved by an injunction.

21 143. Bell Semiconductor is entitled to recover from Linksys all damages that
22 Bell Semiconductor has sustained as a result of Linksys's infringement of the '269
23 patent, including without limitation and/or not less than a reasonable royalty.

24 **COUNT XIII – INFRINGEMENT OF U.S. PATENT NO. 7,345,245**

25 **(LINKSYS)**

26 144. Bell Semiconductor re-alleges and incorporates by reference the
27 allegations of the foregoing paragraphs as if fully set forth herein.
28

1 145. On information and belief, Linksys has and continues to directly infringe,
2 either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. § 271(a) one
3 or more claims of the '245 patent by making, using, offering to sell, or selling within
4 the United States, or importing into the United States, one or more Downstream
5 Accused Products incorporating one or more Qualcomm Accused Products, including
6 as one example the Networking Pro series Platform products. *See, e.g.*, Velop
7 MX4200, [https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-](https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-router/MX4200.html)
8 [router/MX4200.html](https://www.linksys.com/tri-band-ax4200-mesh-wifi-6-router/MX4200.html) (last visited Aug. 12, 2022); AXE8400 Mesh WiFi 6e Router,
9 <https://www.linksys.com/tri-band-axe8400-mesh-wifi-6e-router/MX8501.html> (last
10 visited Aug. 12, 2022).

11 146. As of the date of this Complaint, Linksys's infringement of the '245
12 patent is, and continues to be, done with knowledge of the '245 patent and with
13 knowledge of Bell Semiconductor's contention that Linksys is infringing the '245
14 patent. Linksys's infringement of the '245 patent after this date is thus willful and
15 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys' fees.

16 147. Bell Semiconductor has been damaged by Linksys's infringement of the
17 '245 patent and will continue to be damaged unless Linksys is enjoined by this Court.
18 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
19 there is no adequate remedy at law. The balance of hardships favors Bell
20 Semiconductor, and public interest is not disserved by an injunction.

21 148. Bell Semiconductor is entitled to recover from Linksys all damages that
22 Bell Semiconductor has sustained as a result of Linksys's infringement of the '245
23 patent, including without limitation and/or not less than a reasonable royalty.

24 **COUNT XIV – INFRINGEMENT OF U.S. PATENT NO. 8,049,340**

25 **(NETGEAR)**

26 149. Bell Semiconductor re-alleges and incorporates by reference the
27 allegations of the foregoing paragraphs as if fully set forth herein.
28

1 150. On information and belief, Netgear has and continues to directly infringe,
2 either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. § 271(a) one
3 or more claims of the '340 patent by making, using, offering to sell, or selling within
4 the United States, or importing into the United States, one or more Downstream
5 Accused Products incorporating one or more Qualcomm Accused Products, including
6 as one example the Networking Pro series Platform products. *See, e.g.*, Orbi
7 AXE11000 Mesh System, <https://www.netgear.com/home/wifi/mesh/rbke963b/> (last
8 visited Aug. 12, 2022); AX6000,
9 <https://www.netgear.com/business/wifi/mesh/sxk80b4/> (last visited Aug. 12, 2022).

10 151. As of the date of this Complaint, Netgear's infringement of the '340
11 patent is, and continues to be, done with knowledge of the '340 patent and with
12 knowledge of Bell Semiconductor's contention that Netgear is infringing the '340
13 patent. Netgear's infringement of the '340 patent after this date is thus willful and
14 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys' fees.

15 152. Bell Semiconductor has been damaged by Netgear's infringement of the
16 '340 patent and will continue to be damaged unless Netgear is enjoined by this Court.
17 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
18 there is no adequate remedy at law. The balance of hardships favors Bell
19 Semiconductor, and public interest is not disserved by an injunction.

20 153. Bell Semiconductor is entitled to recover from Netgear all damages that
21 Bell Semiconductor has sustained as a result of Netgear's infringement of the '340
22 patent, including without limitation and/or not less than a reasonable royalty.

23 **COUNT XV – INFRINGEMENT OF U.S. PATENT NO. 8,288,269**

24 **(NETGEAR)**

25 154. Bell Semiconductor re-alleges and incorporates by reference the
26 allegations of the foregoing paragraphs as if fully set forth herein.

27 155. On information and belief, Netgear has and continues to directly infringe,
28 either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. § 271(a) one

1 or more claims of the '269 patent by making, using, offering to sell, or selling within
2 the United States, or importing into the United States, one or more Downstream
3 Accused Products incorporating one or more Qualcomm Accused Products, including
4 as one example the Networking Pro series Platform products. *See, e.g.*, Orbi
5 AXE11000 Mesh System, <https://www.netgear.com/home/wifi/mesh/rbke963b/> (last
6 visited Aug. 12, 2022); AX6000,
7 <https://www.netgear.com/business/wifi/mesh/sxk80b4/> (last visited Aug. 12, 2022).

8 156. As of the date of this Complaint, Netgear's infringement of the '269
9 patent is, and continues to be, done with knowledge of the '269 patent and with
10 knowledge of Bell Semiconductor's contention that Netgear is infringing the '269
11 patent. Netgear's infringement of the '269 patent after this date is thus willful and
12 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys' fees.

13 157. Bell Semiconductor has been damaged by Netgear's infringement of the
14 '269 patent and will continue to be damaged unless Netgear is enjoined by this Court.
15 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
16 there is no adequate remedy at law. The balance of hardships favors Bell
17 Semiconductor, and public interest is not disserved by an injunction.

18 158. Bell Semiconductor is entitled to recover from Netgear all damages that
19 Bell Semiconductor has sustained as a result of Netgear's infringement of the '269
20 patent, including without limitation and/or not less than a reasonable royalty.

21 **COUNT XVI – INFRINGEMENT OF U.S. PATENT NO. 7,345,245**

22 **(NETGEAR)**

23 159. Bell Semiconductor re-alleges and incorporates by reference the
24 allegations of the foregoing paragraphs as if fully set forth herein.

25 160. On information and belief, Netgear has and continues to directly infringe,
26 either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. § 271(a) one
27 or more claims of the '245 patent by making, using, offering to sell, or selling within
28 the United States, or importing into the United States, one or more Downstream

1 Accused Products incorporating one or more Qualcomm Accused Products, including
2 as one example the Networking Pro series Platform products. *See, e.g.*, Orbi
3 AXE11000 Mesh System, <https://www.netgear.com/home/wifi/mesh/rbke963b/> (last
4 visited Aug. 12, 2022); AX6000,
5 <https://www.netgear.com/business/wifi/mesh/sxk80b4/> (last visited Aug. 12, 2022).

6 161. As of the date of this Complaint, Netgear’s infringement of the ’245
7 patent is, and continues to be, done with knowledge of the ’245 patent and with
8 knowledge of Bell Semiconductor’s contention that Netgear is infringing the ’245
9 patent. Netgear’s infringement of the ’245 patent after this date is thus willful and
10 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys’ fees.

11 162. Bell Semiconductor has been damaged by Netgear’s infringement of the
12 ’245 patent and will continue to be damaged unless Netgear is enjoined by this Court.
13 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
14 there is no adequate remedy at law. The balance of hardships favors Bell
15 Semiconductor, and public interest is not disserved by an injunction.

16 163. Bell Semiconductor is entitled to recover from Netgear all damages that
17 Bell Semiconductor has sustained as a result of Netgear’s infringement of the ’245
18 patent, including without limitation and/or not less than a reasonable royalty.

19 **COUNT XVII – INFRINGEMENT OF U.S. PATENT NO. 8,049,340**

20 **(TP-LINK)**

21 164. Bell Semiconductor re-alleges and incorporates by reference the
22 allegations of the foregoing paragraphs as if fully set forth herein.

23 165. On information and belief, TP-Link has and continues to directly
24 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
25 271(a) one or more claims of the ’340 patent by making, using, offering to sell, or
26 selling within the United States, or importing into the United States, one or more
27 Downstream Accused Products incorporating one or more Qualcomm Accused
28 Products, including as one example the Networking Pro series Platform products.

1 *See, e.g.*, Deco X20 AX1800 Whole Home Mesh Wi-Fi 6 System, [https://shopus.tp-](https://shopus.tp-link.com/products/deco-x20)
2 [link.com/products/deco-x20](https://shopus.tp-link.com/products/deco-x20) (last visited Aug. 12, 2022).

3 166. As of the date of this Complaint, TP-Link’s infringement of the ’340
4 patent is, and continues to be, done with knowledge of the ’340 patent and with
5 knowledge of Bell Semiconductor’s contention that TP-Link is infringing the ’340
6 patent. TP-Link’s infringement of the ’340 patent after this date is thus willful and
7 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys’ fees.

8 167. Bell Semiconductor has been damaged by TP-Link’s infringement of the
9 ’340 patent and will continue to be damaged unless TP-Link is enjoined by this Court.
10 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
11 there is no adequate remedy at law. The balance of hardships favors Bell
12 Semiconductor, and public interest is not disserved by an injunction.

13 168. Bell Semiconductor is entitled to recover from TP-Link all damages that
14 Bell Semiconductor has sustained as a result of TP-Link’s infringement of the ’340
15 patent, including without limitation and/or not less than a reasonable royalty.

16 **COUNT XVIII – INFRINGEMENT OF U.S. PATENT NO. 8,288,269**

17 **(TP-LINK)**

18 169. Bell Semiconductor re-alleges and incorporates by reference the
19 allegations of the foregoing paragraphs as if fully set forth herein.

20 170. On information and belief, TP-Link has and continues to directly
21 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
22 271(a) one or more claims of the ’269 patent by making, using, offering to sell, or
23 selling within the United States, or importing into the United States, one or more
24 Downstream Accused Products incorporating one or more Qualcomm Accused
25 Products, including as one example the Networking Pro series Platform products.
26 *See, e.g.*, Deco X20 AX1800 Whole Home Mesh Wi-Fi 6 System, [https://shopus.tp-](https://shopus.tp-link.com/products/deco-x20)
27 [link.com/products/deco-x20](https://shopus.tp-link.com/products/deco-x20) (last visited Aug. 12, 2022).

1 171. As of the date of this Complaint, TP-Link’s infringement of the ’269
2 patent is, and continues to be, done with knowledge of the ’269 patent and with
3 knowledge of Bell Semiconductor’s contention that TP-Link is infringing the ’269
4 patent. TP-Link’s infringement of the ’269 patent after this date is thus willful and
5 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys’ fees.

6 172. Bell Semiconductor has been damaged by TP-Link’s infringement of the
7 ’269 patent and will continue to be damaged unless TP-Link is enjoined by this Court.
8 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
9 there is no adequate remedy at law. The balance of hardships favors Bell
10 Semiconductor, and public interest is not disserved by an injunction.

11 173. Bell Semiconductor is entitled to recover from TP-Link all damages that
12 Bell Semiconductor has sustained as a result of TP-Link’s infringement of the ’269
13 patent, including without limitation and/or not less than a reasonable royalty.

14 **COUNT XIX – INFRINGEMENT OF U.S. PATENT NO. 7,345,245**
15 **(TP-LINK)**

16 174. Bell Semiconductor re-alleges and incorporates by reference the
17 allegations of the foregoing paragraphs as if fully set forth herein.

18 175. On information and belief, TP-Link has and continues to directly
19 infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. §
20 271(a) one or more claims of the ’245 patent by making, using, offering to sell, or
21 selling within the United States, or importing into the United States, one or more
22 Downstream Accused Products incorporating one or more Qualcomm Accused
23 Products, including as one example the Networking Pro series Platform products.
24 *See, e.g.,* Deco X20 AX1800 Whole Home Mesh Wi-Fi 6 System, [https://shopus.tp-](https://shopus.tp-link.com/products/deco-x20)
25 [link.com/products/deco-x20](https://shopus.tp-link.com/products/deco-x20) (last visited Aug. 12, 2022).

26 176. As of the date of this Complaint, TP-Link’s infringement of the ’245
27 patent is, and continues to be, done with knowledge of the ’245 patent and with
28 knowledge of Bell Semiconductor’s contention that TP-Link is infringing the ’245

1 patent. TP-Link’s infringement of the ’245 patent after this date is thus willful and
2 deliberate, entitling Bell Semiconductor to enhanced damages and attorneys’ fees.

3 177. Bell Semiconductor has been damaged by TP-Link’s infringement of the
4 ’245 patent and will continue to be damaged unless TP-Link is enjoined by this Court.
5 Bell Semiconductor has suffered and continues to suffer irreparable injury for which
6 there is no adequate remedy at law. The balance of hardships favors Bell
7 Semiconductor, and public interest is not disserved by an injunction.

8 178. Bell Semiconductor is entitled to recover from TP-Link all damages that
9 Bell Semiconductor has sustained as a result of TP-Link’s infringement of the ’245
10 patent, including without limitation and/or not less than a reasonable royalty.

11
12 **PRAYER FOR RELIEF**

13 WHEREFORE, Bell Semiconductor respectfully requests that this Court enter
14 judgment in its favor as follows and award Bell Semiconductor the following relief:

15 (a) a judgment declaring that Qualcomm has infringed one or more
16 claims of each of the Asserted Patents in this litigation pursuant to 35
17 U.S.C. § 271, *et seq.*;

18 (b) an award of damages adequate to compensate Bell Semiconductor
19 for infringement of each of the Asserted Patents by Qualcomm, in an
20 amount to be proven at trial, including supplemental post-verdict damages
21 until such time as Qualcomm ceases its infringing conduct;

22 (c) a permanent injunction, pursuant to 35 U.S.C. § 283, prohibiting
23 Qualcomm and its officers, directors, employees, agents, consultants,
24 contractors, suppliers, distributors, all affiliated entities, and all others
25 acting in privity with Qualcomm, from committing further acts of
26 infringement;

27 (d) a judgment requiring Qualcomm to make an accounting of damages
28 resulting from Qualcomm’s infringement of each of the Asserted Patents;

1 (e) a judgment declaring that each Downstream Defendant has
2 infringed one or more claims of each of the Downstream Patents in this
3 litigation pursuant to 35 U.S.C. § 271, *et seq.*;

4 (f) an award of damages adequate to compensate Bell Semiconductor
5 for infringement of the Downstream Patents by each Downstream
6 Defendant, in an amount to be proven at trial, including supplemental post-
7 verdict damages until such time as each Downstream Defendant ceases its
8 infringing conduct;

9 (g) a permanent injunction, pursuant to 35 U.S.C. § 283, prohibiting
10 each Downstream Defendant and its officers, directors, employees, agents,
11 consultants, contractors, suppliers, distributors, all affiliated entities, and
12 all others acting in privity with them, from committing further acts of
13 infringement;

14 (h) a judgment requiring each Downstream Defendant to make an
15 accounting of damages resulting from each Downstream Defendant's
16 infringement of the Asserted Patents

17 (i) enhanced damages for willful infringement;

18 (j) the costs of this action, as well as attorneys' fees as provided by 35
19 U.S.C. § 285;

20 (k) pre-judgment and post-judgment interest at the maximum amount
21 permitted by law;

22 (l) all other relief, in law or equity, to which Bell Semiconductor is
23 entitled.

24 **DEMAND FOR JURY TRIAL**

25 Plaintiff hereby demands a jury trial for all issues so triable.
26
27
28

1 Dated: August 12, 2022

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16 *Pro Hac Application forthcoming
17 *Attorneys for Plaintiff Bell Semiconductor,*
18 *LLC*

19 Exhibits:

- 20 • Ex. A – '340 Patent
- 21 • Ex. B – '269 Patent
- 22 • Ex. C – '091 Patent
- 23 • Ex. D – '245 Patent
- 24 • Ex. E – '340 Claim Chart
- 25 • Ex. F – '269 Claim Chart
- 26 • Ex. G – '091 Claim Chart
- 27 • Ex. H – '245 Claim Chart