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Institute of Technology
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12 UNITED STATES DISTRICT COURT
13 CENTRAL DISTRICT OF CALIFORNIA
14

15 The CALIFORNIA INSTITUTE OF
TECHNOLOGY, a California
16 corporation,

17 Plaintiff,

18 vs.

19 BROADCOM LIMITED,
BROADCOM CORPORATION,
20 AVAGO TECHNOLOGIES LIMITED,
APPLE INC., AND CYPRESS
21 SEMICONDUCTOR CORPORATION

22 Defendants.
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CASE NO. 2:16-cv-3714-GW(AGR_x)

**AMENDED COMPLAINT FOR
PATENT INFRINGEMENT**

JURY TRIAL DEMANDED

1 Plaintiff the California Institute of Technology (“Caltech” or “Plaintiff”), by
2 and through its undersigned counsel, complains and alleges against Broadcom
3 Limited (“Broadcom Ltd.”), Broadcom Corporation (“Broadcom Corp.”), and
4 Avago Technologies Limited (“Avago Technologies Ltd.”) (collectively,
5 “Broadcom”), Apple Inc. (“Apple”), and Cypress Semiconductor Corporation
6 (“Cypress”), (collectively “Defendants”) as follows:

7 **NATURE OF THE ACTION**

8 1. This is a civil action for patent infringement arising under the patent
9 laws of the United States, 35 U.S.C. §§ 1 *et seq.*

10 2. Broadcom has infringed and continues to infringe, contributed to and
11 continues to contribute to the infringement of, and/or actively induced and continues
12 to induce others to infringe Caltech’s U.S. Patent No. 7,116,710, U.S. Patent No.
13 7,421,032, U.S. Patent No. 7,916,781, and U.S. Patent No. 8,284,833 (collectively,
14 “the Asserted Patents”). Apple has infringed and continues to infringe, contributed
15 to and continues to contribute to the infringement of, and/or actively induced and
16 continues to induce others to infringe the Asserted Patents. Broadcom and Apple
17 have jointly infringed and continue to jointly infringe, jointly contributed to and
18 continue to jointly contribute to the infringement of, and/or jointly actively induced
19 and jointly continue to induce others to infringe the Asserted Patents.

20 3. Cypress has infringed and continues to infringe, contributed to and
21 continues to contribute to the infringement of, and/or actively induced and continues
22 to induce others to infringe the Asserted Patents.

23 4. Caltech is the legal owner by assignment of the Asserted Patents, which
24 were duly and legally issued by the United States Patent and Trademark Office.
25 Caltech seeks injunctive relief and monetary damages.

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THE PARTIES

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2 5. Caltech is a non-profit private university organized under the laws of
3 the State of California, with its principal place of business at 1200 East California
4 Boulevard, Pasadena, California 91125.

5 6. Caltech is a world-renowned science and engineering research and
6 education institution, where extraordinary faculty and students seek answers to
7 complex questions, discover new knowledge, lead innovation, and transform our
8 future. To date, 34 Caltech alumni and faculty have won a total of 35 Nobel Prizes.
9 Caltech's 124-acre campus is located in Pasadena, California including 300
10 professorial faculty and 600 research scholars. The mission of Caltech is to expand
11 human knowledge and benefit society through research integrated with education.
12 Caltech investigates the most challenging, fundamental problems in science and
13 technology in a singularly collegial, interdisciplinary atmosphere, while educating
14 outstanding students to become creative members of society. Caltech's investment
15 in research has led Caltech to have more patent invention disclosures per faculty
16 member than any other university in the nation and to be consistently ranked as one
17 of the top university patent portfolios in strength and number of patents issued.

18 7. On information and belief, Broadcom Ltd. is a corporation organized
19 under the laws of the country of Singapore with its principal places of business at
20 1320 Ridder Park Dr., San Jose, California 95131 and 1 Yishun Avenue 7,
21 Singapore 768923.

22 8. On information and belief, Broadcom Corp. is a California corporation
23 with a principal place of business at 5300 California Avenue, Irvine, California
24 92617. On information and belief, Broadcom Corp. is an indirect subsidiary of
25 Broadcom Ltd.

26 9. On information and belief, Avago Technologies Ltd. is a corporation
27 organized under the laws of the country of Singapore with its principal places of
28 business at 1320 Ridder Park Dr., San Jose, California 95131 and 1 Yishun Avenue

1 7, Singapore 768923. On information and belief, Avago Technologies Ltd. is an
2 indirect subsidiary of Broadcom Ltd.

3 10. On information and belief, Apple Inc. is a corporation organized under
4 the laws of the State of California, with its principal place of business at 1 Infinite
5 Loop, Cupertino, California 95014.

6 11. On information and belief, Cypress Semiconductor Corporation is a
7 corporation organized under the laws of the State of Delaware, with its principal
8 place of business at 198 Champion Court, San Jose, California 95134.

9 **JURISDICTION AND VENUE**

10 12. This Court has jurisdiction over the subject matter of this action under
11 28 U.S.C. §§ 1331 and 1338(a).

12 13. Broadcom Ltd. is subject to this Court's personal jurisdiction. On
13 information and belief, Broadcom Ltd. regularly conducts business in the State of
14 California, including in the Central District of California, and has committed acts of
15 patent infringement and/or contributed to or induced acts of patent infringement by
16 others in this District and elsewhere in California and the United States. As such,
17 Broadcom Ltd. has purposefully availed itself of the privilege of conducting
18 business within this District; has established sufficient minimum contacts with this
19 District such that it should reasonably and fairly anticipate being haled into court in
20 this District; has purposefully directed activities at residents of this State; and at
21 least a portion of the patent infringement claims alleged herein arise out of or are
22 related to one or more of the foregoing activities.

23 14. Broadcom Corp. is subject to this Court's personal jurisdiction. On
24 information and belief, Broadcom Corp. regularly conducts business in the State of
25 California, including in the Central District of California, and has committed acts of
26 patent infringement and/or contributed to or induced acts of patent infringement by
27 others in this District and elsewhere in California and the United States. As such,
28 Broadcom Corp. has purposefully availed itself of the privilege of conducting

1 business within this District; has established sufficient minimum contacts with this
2 District such that it should reasonably and fairly anticipate being haled into court in
3 this District; has purposefully directed activities at residents of this State; and at
4 least a portion of the patent infringement claims alleged herein arise out of or are
5 related to one or more of the foregoing activities.

6 15. Avago Technologies Ltd. is subject to this Court's personal
7 jurisdiction. On information and belief, Avago Technologies Ltd. regularly
8 conducts business in the State of California, including in the Central District of
9 California, and has committed acts of patent infringement and/or contributed to or
10 induced acts of patent infringement by others in this District and elsewhere in
11 California and the United States. As such, Avago Technologies Ltd. has
12 purposefully availed itself of the privilege of conducting business within this
13 District; has established sufficient minimum contacts with this District such that it
14 should reasonably and fairly anticipate being haled into court in this District; has
15 purposefully directed activities at residents of this State; and at least a portion of the
16 patent infringement claims alleged herein arise out of or are related to one or more
17 of the foregoing activities.

18 16. Apple Inc. is subject to this Court's personal jurisdiction. On
19 information and belief, Apple Inc. regularly conducts business in the State of
20 California, including in the Central District of California, and has committed acts of
21 patent infringement and/or contributed to or induced acts of patent infringement by
22 others in this District and elsewhere in California and the United States. As such,
23 Apple Inc. has purposefully availed itself of the privilege of conducting business
24 within this District; has established sufficient minimum contacts with this District
25 such that it should reasonably and fairly anticipate being haled into court in this
26 District; has purposefully directed activities at residents of this State; and at least a
27 portion of the patent infringement claims alleged herein arise out of or are related to
28 one or more of the foregoing activities.

1 application that led to the '032 patent, which is a continuation of the application that
2 led to the '710 patent.

3 22. On October 9, 2012, the United States Patent Office issued U.S. Patent
4 No. 8,284,833, titled "Serial Concatenation of Interleaved Convolutional Codes
5 Forming Turbo-Like Codes" (the "'833 patent"). A true and correct copy of the
6 '833 patent is attached hereto as Exhibit D. The '833 patent is a continuation of the
7 application that led to the '781 patent, which is a continuation of the application that
8 led to the '032 patent, which is a continuation of the application that led to the '710
9 patent.

10 23. The Asserted Patents identify Hui Jin, Aamod Khandekar, and Robert
11 J. McEliece as the inventors (the "Inventors").

12 24. Caltech is the owner of all right, title, and interest in and to each of the
13 Asserted Patents with full and exclusive right to bring suit to enforce the Asserted
14 Patents, including the right to recover for past damages and/or royalties.

15 25. The Asserted Patents are valid and enforceable.

16 **BACKGROUND**

17 **Caltech's IRA Code Patents**

18 26. The Asserted Patents disclose a seminal improvement to coding
19 systems and methods. The Asserted Patents introduce a new type of error correction
20 codes, called "irregular repeat and accumulate codes" (or "IRA codes"). The
21 claimed methods and apparatuses generate an IRA code from information bits of a
22 message by reordering repeated instances of those bits in a randomized but known
23 way, and then performing logical operations on the reordered bits. These IRA codes
24 are at least as effective at correcting errors in transmissions as prior coding
25 techniques, such as turbo codes, but use simpler encoding and decoding circuitry
26 and provide other technical and practical advantages, allowing for improved
27 transmission rates and performance. Indeed, the IRA codes disclosed in the
28 Asserted Patents enable a transmission rate close to the theoretical limit.

1 modern electronic products, including smartphones, laptops, routers, televisions,
2 cameras, cars and other devices that have wireless connections.

3 31. The IEEE Wi-Fi standards are set forth in IEEE 802.11. The 802.11
4 standardization process began in the 1990s and the first version of 802.11 was
5 referred to as 802.11a. In the following years, subsequent versions of the 802.11
6 standard were adopted.

7 32. One of the key improvements to the 802.11n version of the standard
8 involved a “High Throughput (HT)” mode that is implemented using a specific type
9 of LDPC (Low-Density Parity Check) code. This LDPC code used in 802.11n
10 implements Caltech’s patented IRA code technology.

11 33. This key improvement to the 802.11n version of the standard was also
12 incorporated into the subsequent 802.11ac version of the standard. The 802.11ac
13 version describes a “Very High Throughput (VHT)” mode that implements
14 Caltech’s patented IRA code technology.

15 34. The High Throughput and Very High Throughput modes provide
16 significant advantages over earlier versions of the 802.11 standard. These modes
17 allow for faster data transmissions while at the same time reducing the complexity
18 of the encoders and decoders required to process the IRA/LDPC signals.

19 35. The IRA/LDPC codes specified by the 802.11n and 802.11ac standards
20 include (1) irregular repeat, and (2) an accumulate operations, meaning they are IRA
21 codes.

22 **Broadcom**

23 36. Broadcom manufactures, uses, imports, offers for sale, and/or sells Wi-
24 Fi products that incorporate IRA/LDPC encoders and/or decoders and infringe the
25 Asserted Patents. Broadcom products that incorporate IRA/LDPC encoders and/or
26 decoders and infringe the Asserted Patents include, but are not limited to, the Wi-Fi
27 products listed in Appendix 1 (“Broadcom Accused Products”).
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1 release of the iPhone 5 in September 2012 in a press release titled: “Thinnest,
2 Lightest iPhone Ever Features All-New Aluminum Design, Stunning 4-Inch Retina
3 Display, A6 Chip & Ultrafast Wireless.” On information and belief, the iPhone 5
4 incorporates a Broadcom BCM 4334 chip that is compliant with 802.11n and uses
5 IRA/LDPC codes.

6 **Broadcom’s Relationship With Apple**

7 43. Apple is one of Broadcom’s largest customers. In 2012, 2013 and
8 2014, sales to Apple represented 14.6%, 13.3% and 14.0% of Broadcom Corp.’s net
9 revenue, respectively. (Broadcom Corporation 2014 Form 10-K). During this
10 timeframe, Broadcom’s Wi-Fi products that incorporate IRA/LDPC encoders and
11 decoders and infringe the Asserted Patents were incorporated into Apple’s key
12 products including iPhones, iPads, and Mac computers. On information and belief,
13 sales from these Apple products generated hundreds of billions of dollars in
14 revenue.

15 44. On information and belief, Broadcom markets, offers to sell, and sells
16 its products to Apple in the United States and has secured numerous Apple design
17 wins for its Wi-Fi products in the United States. Broadcom’s Wi-Fi design wins for
18 Apple products include design wins for iPhones, iPads, Mac computers, and the
19 Apple Watch.

20 45. Broadcom and Apple are jointly and severally liable for infringement
21 of the Asserted Patents through sales of the Broadcom Accused Products and the
22 Apple Accused Products that incorporate Broadcom Accused Products. As such,
23 Broadcom’s and Apple’s joint infringement of the Asserted Patents raise common
24 questions of fact and law.

25 **Cypress**

26 46. According to Cypress’s website “On July 5, 2016, Cypress acquired
27 Broadcom’s IoT business, creating the No. 1 supplier of IoT and embedded system
28 solutions worldwide.”

1 '710 patent. These products include the Broadcom Accused Products, and any other
2 products that incorporate IRA/LDPC encoders and/or decoders. Broadcom has
3 infringed and is currently infringing literally and/or under the doctrine of
4 equivalents.

5 53. In violation of 35 U.S.C. § 271, Apple has infringed and is currently
6 infringing, directly and/or through intermediaries, the '710 patent by making, using,
7 selling, offering for sale, and/or importing into the United States, without authority,
8 products that practice at least claims 1, 8, 10-17, and 19-33 of the '710 patent.
9 These products include the Apple Accused Products and any other products that
10 incorporate IRA/LDPC encoders and/or decoders. Apple has infringed and is
11 currently infringing literally and/or under the doctrine of equivalents.

12 54. In violation of 35 U.S.C. § 271, Cypress has infringed and is currently
13 infringing, directly and/or through intermediaries, the '710 patent by making, using,
14 selling, offering for sale, and/or importing into the United States, without authority,
15 products that practice at least claims 1, 8, 10-17, and 19-33 of the '710 patent.
16 These products include the Cypress Accused Products and any other products that
17 incorporate IRA/LDPC encoders and/or decoders. Cypress has infringed and is
18 currently infringing literally and/or under the doctrine of equivalents.

19 55. On information and belief, Broadcom, Apple, and Cypress have had
20 actual knowledge of their infringement of the '710 patent since no later than the
21 filing date of this Complaint.

22 56. Notwithstanding Broadcom's actual notice of infringement, Broadcom
23 continues to sell the Broadcom Accused Products, directly and/or through
24 intermediaries, to others such as Apple that make, use, sell, offer for sale, or import
25 into the United States the Broadcom Accused Products or other products
26 incorporating the Broadcom Accused Products with knowledge of or willful
27 blindness to the fact that its actions will induce others, including but not limited to
28 its customers, partners, and/or end users, to directly infringe the '710 patent.

1 Broadcom induces others including Apple to infringe the '710 patent in violation of
2 35 U.S.C. § 271(b) by encouraging and facilitating others to perform actions that
3 Broadcom knows to be acts of infringement of the '710 patent with intent that those
4 performing the acts infringe the '710 patent. On information and belief, Broadcom,
5 directly and/or through intermediaries, advertises and distributes the Broadcom
6 Accused Products, publishes instruction materials, specifications and promotional
7 literature describing the operation of the Broadcom Accused Products, offers
8 technical assistance, training, and/or consulting services regarding the Broadcom
9 Accused Products to their customers, partners, and/or end users. At least
10 consumers, partners, and/or end users of these Broadcom Accused Products then
11 directly infringe the '710 patent by making, using, selling, offering for sale, and/or
12 importing into the United States, without authority, the Broadcom Accused Products
13 or products incorporating the Broadcom Accused Products.

14 57. Notwithstanding Apple's actual notice of infringement, Apple
15 continues to sell the Apple Accused Products, directly and/or through
16 intermediaries, to others that make, use, sell, offer for sale, or import into the United
17 States the Apple Accused Products with knowledge of or willful blindness to the
18 fact that its actions will induce others, including but not limited to its customers,
19 partners, and/or end users, to directly infringe the '710 patent. Apple induces others
20 including its customers to infringe the '710 patent in violation of 35 U.S.C. § 271(b)
21 by encouraging and facilitating others to perform actions that Apple knows to be
22 acts of infringement of the '710 patent with intent that those performing the acts
23 infringe the '710 patent. On information and belief, Apple, directly and/or through
24 intermediaries, advertises and distributes the Apple Accused Products, publishes
25 instruction materials, specifications and promotional literature describing the
26 operation of the Apple Accused Products, offers technical assistance, training,
27 and/or consulting services regarding the Apple Accused Products to their customers,
28 partners, and/or end users. At least consumers, partners, and/or end users of these

1 Apple Accused Products then directly infringe the '710 patent by making, using,
2 selling, offering for sale, and/or importing into the United States, without authority,
3 the Apple Accused Products.

4 58. Notwithstanding Cypress's actual notice of infringement, Cypress
5 continues to sell the Cypress Accused Products, directly and/or through
6 intermediaries, to others that make, use, sell, offer for sale, or import into the United
7 States the Cypress Accused Products with knowledge of or willful blindness to the
8 fact that its actions will induce others, including but not limited to its customers,
9 partners, and/or end users, to directly infringe the '710 patent. Cypress induces
10 others including its customers to infringe the '710 patent in violation of 35 U.S.C. §
11 271(b) by encouraging and facilitating others to perform actions that Cypress knows
12 to be acts of infringement of the '710 patent with intent that those performing the
13 acts infringe the '710 patent. On information and belief, Cypress, directly and/or
14 through intermediaries, advertises and distributes the Cypress Accused Products,
15 publishes instruction materials, specifications and promotional literature describing
16 the operation of the Cypress Accused Products, offers technical assistance, training,
17 and/or consulting services regarding the Cypress Accused Products to their
18 customers, partners, and/or end users. At least consumers, partners, and/or end
19 users of these Cypress Accused Products then directly infringe the '710 patent by
20 making, using, selling, offering for sale, and/or importing into the United States,
21 without authority, the Cypress Accused Products.

22 59. On information and belief, Broadcom knows that the Broadcom
23 Accused Products are especially made or especially adapted for use in the
24 infringement of the '710 patent. The infringing components of these products are
25 not staple articles or commodities of commerce suitable for substantial non-
26 infringing use, and the infringing components of these products are a material part
27 of the invention of the '710 patent. Accordingly, in violation of 35 U.S.C. § 271(c),
28 Broadcom is also contributing, directly and/or through intermediaries, to the direct

1 infringement of the '710 patent by at least the customers such as Apple, partners,
2 and/or end users of these Broadcom Accused Products. The customers such as
3 Apple, partners, and/or end users of these Broadcom Accused Products directly
4 infringe the '710 patent by making, using, selling, offering for sale, and/or importing
5 into the United States, without authority, the Broadcom Accused Products or
6 products incorporating the Broadcom Accused Products.

7 60. On information and belief, Apple knows that the Apple Accused
8 Products are especially made or especially adapted for use in the infringement of the
9 '710 patent. The infringing components of these products are not staple articles or
10 commodities of commerce suitable for substantial non-infringing use, and the
11 infringing components of these products are a material part of the invention of the
12 '710 patent. Accordingly, in violation of 35 U.S.C. § 271(c), Apple is also
13 contributing, directly and/or through intermediaries, to the direct infringement of the
14 '710 patent by at least the customers, partners, and/or end users of these Apple
15 Accused Products. The customers, partners, and/or end users of these Apple
16 Accused Products directly infringe the '710 patent by making, using, selling,
17 offering for sale, and/or importing into the United States, without authority, the
18 Apple Accused Products.

19 61. On information and belief, Cypress knows that the Cypress Accused
20 Products are especially made or especially adapted for use in the infringement of the
21 '710 patent. The infringing components of these products are not staple articles or
22 commodities of commerce suitable for substantial non-infringing use, and the
23 infringing components of these products are a material part of the invention of the
24 '710 patent. Accordingly, in violation of 35 U.S.C. § 271(c), Cypress is also
25 contributing, directly and/or through intermediaries, to the direct infringement of the
26 '710 patent by at least the customers, partners, and/or end users of these Cypress
27 Accused Products. The customers, partners, and/or end users of these Cypress
28 Accused Products directly infringe the '710 patent by making, using, selling,

1 offering for sale, and/or importing into the United States, without authority, the
2 Cypress Accused Products.

3 62. As but one example of Broadcom’s contributory and/or induced
4 infringement, Broadcom explicitly encourages customers such as Apple to use, sell,
5 offer for sale and/or import into the United States products that infringe the ’710
6 patent by incorporating Broadcom Accused Products. For example, Broadcom’s
7 website advertises that the BCM 4350 product implements the 802.11ac standard
8 and highlights its use of “low-density parity check codes (LDPC).” On information
9 and belief, through materials such as these, Broadcom actively encourages
10 customers such as Apple, partners, and/or end users to infringe the ’710 patent
11 through at least the use, sale, offer for sale and importation of products that
12 incorporate the Broadcom Accused Products into the United States knowing those
13 acts to be infringement of the ’710 patent with intent that those performing the acts
14 infringe the ’710 patent.

15 63. As but one example of Apple’s contributory and/or induced
16 infringement, Apple explicitly encourages its customers to infringe the ’710 patent
17 by using the Apple Accused Products. For example, Apple’s website advertises that
18 the iPhone 6, implements the 802.11n and 802.11ac standard. On information and
19 belief, through materials such as these, Apple actively encourages customers,
20 partners, and/or end user to infringe the ’710 patent through at least the use of Apple
21 Accused Products incorporating Broadcom Accused Products such as the iPhone 6,
22 knowing those acts to be infringement of the ’710 patent with intent that those
23 performing the acts infringe the ’710 patent.

24 64. As but one example of Cypress’s contributory and/or induced
25 infringement, Cypress explicitly encourages customers to use, sell, offer for sale
26 and/or import into the United States products that infringe the ’710 patent by
27 incorporating Cypress Accused Products. For example, Cypress’s website
28 advertises that the BCM 4334 product implements the 802.11n standard and

1 highlights its use of “LDPC (low-density parity check).” On information and belief,
2 through materials such as these, Cypress actively encourages customers, partners,
3 and/or end users to infringe the ’710 patent through at least the use, sale, offer for
4 sale and importation of products that incorporate the Cypress Accused Products into
5 the United States knowing those acts to be infringement of the ’710 patent with
6 intent that those performing the acts infringe the ’710 patent.

7 65. Broadcom is not licensed or otherwise authorized to practice the claims
8 of the ’710 patent.

9 66. Apple is not licensed or otherwise authorized to practice the claims of
10 the ’710 patent.

11 67. Cypress is not licensed or otherwise authorized to practice the claims of
12 the ’710 patent.

13 68. By reason of Broadcom’s, Apple’s, and Cypress’s individual and joint
14 infringement, Caltech has suffered, and will continue to suffer, substantial damages.

15 69. Caltech is entitled to recover from Broadcom, Apple, and Cypress the
16 damages sustained as a result of their wrongful acts in an amount subject to proof at
17 trial.

18 70. Broadcom’s, Apple’s, and Cypress’s continuing acts of infringement
19 are irreparably harming and causing damage to Caltech, for which Caltech has no
20 adequate remedy at law, and will continue to suffer such irreparable injury unless
21 Broadcom’s, Apple’s, and Cypress’s continuing acts of infringement are enjoined by
22 the Court. The hardships that an injunction would impose are less than those faced
23 by Caltech should an injunction not issue. The public interest would be served by
24 issuance of an injunction. Thus, Caltech is entitled to a preliminary and a permanent
25 injunction against further infringement.

26 71. Broadcom’s, Apple’s, and Cypress’s infringement of the ’710 patent is
27 exceptional and entitles Caltech to attorneys’ fees and costs incurred in prosecuting
28 this action under 35 U.S.C. § 285.

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COUNT II

Infringement of the '032 Patent

72. Caltech re-alleges and incorporates by reference the allegations of the preceding paragraphs of this Complaint as if fully set forth herein.

73. In violation of 35 U.S.C. § 271, Broadcom has infringed and is currently infringing, directly and/or through intermediaries, the '032 patent by making, using, selling, offering for sale, and/or importing into the United States, without authority, products that practice at least claims 1-8 and 10-22 of the '032 patent. These products include the Broadcom Accused Products, and any other products that incorporate IRA/LDPC encoders and/or decoders. Broadcom has infringed and is currently infringing literally and/or under the doctrine of equivalents.

74. In violation of 35 U.S.C. § 271, Apple has infringed and is currently infringing, directly and/or through intermediaries, the '032 patent by making, using, selling, offering for sale, and/or importing into the United States, without authority, products that practice at least claims 1-8 and 10-22 of the '032 patent. These products include the Apple Accused Products and any other products that incorporate IRA/LDPC encoders and/or decoders. Apple has infringed and is currently infringing literally and/or under the doctrine of equivalents.

75. In violation of 35 U.S.C. § 271, Cypress has infringed and is currently infringing, directly and/or through intermediaries, the '032 patent by making, using, selling, offering for sale, and/or importing into the United States, without authority, products that practice at least claims 1-8 and 10-22 of the '032 patent. These products include the Cypress Accused Products, and any other products that incorporate IRA/LDPC encoders and/or decoders. Cypress has infringed and is currently infringing literally and/or under the doctrine of equivalents.

1 76. On information and belief, Broadcom, Apple, and Cypress have had
2 actual knowledge of their infringement of the '032 patent since no later than the
3 filing date of this Complaint.

4 77. Notwithstanding Broadcom's actual notice of infringement, Broadcom
5 continues to sell the Broadcom Accused Products, directly and/or through
6 intermediaries, to others such as Apple that make, use, sell, offer for sale, or import
7 into the United States the Broadcom Accused Products or other products
8 incorporating the Broadcom Accused Products with knowledge of or willful
9 blindness to the fact that its actions will induce others, including but not limited to
10 its customers, partners, and/or end users, to directly infringe the '032 patent.
11 Broadcom induces others including Apple to infringe the '032 patent in violation of
12 35 U.S.C. § 271(b) by encouraging and facilitating others to perform actions that
13 Broadcom knows to be acts of infringement of the '032 patent with intent that those
14 performing the acts infringe the '032 patent. On information and belief, Broadcom,
15 directly and/or through intermediaries, advertises and distributes the Broadcom
16 Accused Products, publishes instruction materials, specifications and promotional
17 literature describing the operation of the Broadcom Accused Products, offers
18 technical assistance, training, and/or consulting services regarding the Broadcom
19 Accused Products to their customers, partners, and/or end users. At least
20 consumers, partners, and/or end users of these Broadcom Accused Products then
21 directly infringe the '032 patent by making, using, selling, offering for sale, and/or
22 importing into the United States, without authority, the Broadcom Accused Products
23 or products incorporating the Broadcom Accused Products.

24 78. Notwithstanding Apple's actual notice of infringement, Apple
25 continues to sell the Apple Accused Products, directly and/or through
26 intermediaries, to others that make, use, sell, offer for sale, or import into the United
27 States the Apple Accused Products with knowledge of or willful blindness to the
28 fact that its actions will induce others, including but not limited to its customers,

1 partners, and/or end users, to directly infringe the '032 patent. Apple induces others
2 including its customers to infringe the '032 patent in violation of 35 U.S.C. § 271(b)
3 by encouraging and facilitating others to perform actions that Apple knows to be
4 acts of infringement of the '032 patent with intent that those performing the acts
5 infringe the '032 patent. On information and belief, Apple, directly and/or through
6 intermediaries, advertises and distributes the Apple Accused Products, publishes
7 instruction materials, specifications and promotional literature describing the
8 operation of the Apple Accused Products, offers technical assistance, training,
9 and/or consulting services regarding the Apple Accused Products to their customers,
10 partners, and/or end users. At least consumers, partners, and/or end users of these
11 Apple Accused Products then directly infringe the '032 patent by making, using,
12 selling, offering for sale, and/or importing into the United States, without authority,
13 the Apple Accused Products.

14 79. Notwithstanding Cypress's actual notice of infringement, Cypress
15 continues to sell the Cypress Accused Products, directly and/or through
16 intermediaries, to others that make, use, sell, offer for sale, or import into the United
17 States the Cypress Accused Products with knowledge of or willful blindness to the
18 fact that its actions will induce others, including but not limited to its customers,
19 partners, and/or end users, to directly infringe the '032 patent. Cypress induces
20 others including its customers to infringe the '032 patent in violation of 35 U.S.C. §
21 271(b) by encouraging and facilitating others to perform actions that Cypress knows
22 to be acts of infringement of the '032 patent with intent that those performing the
23 acts infringe the '032 patent. On information and belief, Cypress, directly and/or
24 through intermediaries, advertises and distributes the Cypress Accused Products,
25 publishes instruction materials, specifications and promotional literature describing
26 the operation of the Cypress Accused Products, offers technical assistance, training,
27 and/or consulting services regarding the Cypress Accused Products to their
28 customers, partners, and/or end users. At least consumers, partners, and/or end

1 users of these Cypress Accused Products then directly infringe the '032 patent by
2 making, using, selling, offering for sale, and/or importing into the United States,
3 without authority, the Cypress Accused Products.

4 80. On information and belief, Broadcom knows that the Broadcom
5 Accused Products are especially made or especially adapted for use in the
6 infringement of the '032 patent. The infringing components of these products are
7 not staple articles or commodities of commerce suitable for substantial non-
8 infringing use, and the infringing components of these products are a material part
9 of the invention of the '032 patent. Accordingly, in violation of 35 U.S.C. § 271(c),
10 Broadcom is also contributing, directly and/or through intermediaries, to the direct
11 infringement of the '032 patent by at least the customers such as Apple, partners,
12 and/or end users of these Broadcom Accused Products. The customers such as
13 Apple, partners, and/or end users of these Broadcom Accused Products directly
14 infringe the '032 patent by making, using, selling, offering for sale, and/or importing
15 into the United States, without authority, the Broadcom Accused Products or
16 products incorporating the Broadcom Accused Products.

17 81. On information and belief, Apple knows that the Apple Accused
18 Products are especially made or especially adapted for use in the infringement of the
19 '032 patent. The infringing components of these products are not staple articles or
20 commodities of commerce suitable for substantial non-infringing use, and the
21 infringing components of these products are a material part of the invention of the
22 '032 patent. Accordingly, in violation of 35 U.S.C. § 271(c), Apple is also
23 contributing, directly and/or through intermediaries, to the direct infringement of the
24 '032 patent by at least the customers, partners, and/or end users of these Apple
25 Accused Products. The customers, partners, and/or end users of these Apple
26 Accused Products directly infringe the '032 patent by making, using, selling,
27 offering for sale, and/or importing into the United States, without authority, the
28 Apple Accused Products.

1 82. On information and belief, Cypress knows that the Cypress Accused
2 Products are especially made or especially adapted for use in the infringement of the
3 '032 patent. The infringing components of these products are not staple articles or
4 commodities of commerce suitable for substantial non-infringing use, and the
5 infringing components of these products are a material part of the invention of the
6 '032 patent. Accordingly, in violation of 35 U.S.C. § 271(c), Cypress is also
7 contributing, directly and/or through intermediaries, to the direct infringement of the
8 '032 patent by at least the customers, partners, and/or end users of these Cypress
9 Accused Products. The customers, partners, and/or end users of these Cypress
10 Accused Products directly infringe the '032 patent by making, using, selling,
11 offering for sale, and/or importing into the United States, without authority, the
12 Cypress Accused Products.

13 83. As but one example of Broadcom's contributory and/or induced
14 infringement, Broadcom explicitly encourages customers such as Apple to use, sell,
15 offer for sale and/or import into the United States products that infringe the '032
16 patent by incorporating Broadcom Accused Products. For example, Broadcom's
17 website advertises that the BCM 4350 product implements the 802.11ac standard
18 and highlights its use of "low-density parity check codes (LDPC)." On information
19 and belief, through materials such as these, Broadcom actively encourages
20 customers such as Apple, partners, and/or end users to infringe the '032 patent
21 through at least the use, sale, offer for sale and importation of products that
22 incorporate the Broadcom Accused Products into the United States knowing those
23 acts to be infringement of the '032 patent with intent that those performing the acts
24 infringe the '032 patent.

25 84. As but one example of Apple's contributory and/or induced
26 infringement, Apple explicitly encourages its customers to infringe the '032 patent
27 by using the Apple Accused Products. For example, Apple's website advertises that
28 the iPhone 6, implements the 802.11n and 802.11ac standard. On information and

1 belief, through materials such as these, Apple actively encourages customers,
2 partners, and/or end user to infringe the '032 patent through at least the use of Apple
3 Accused Products incorporating Broadcom Accused Products such as the iPhone 6,
4 knowing those acts to be infringement of the '032 patent with intent that those
5 performing the acts infringe the '032 patent.

6 85. As but one example of Cypress's contributory and/or induced
7 infringement, Cypress explicitly encourages customers to use, sell, offer for sale
8 and/or import into the United States products that infringe the '032 patent by
9 incorporating Cypress Accused Products. For example, Cypress's website
10 advertises that the BCM 4334 product implements the 802.11n standard and
11 highlights its use of "LDPC (low-density parity check)." On information and belief,
12 through materials such as these, Cypress actively encourages customers, partners,
13 and/or end users to infringe the '032 patent through at least the use, sale, offer for
14 sale and importation of products that incorporate the Cypress Accused Products into
15 the United States knowing those acts to be infringement of the '032 patent with
16 intent that those performing the acts infringe the '032 patent.

17 86. Broadcom is not licensed or otherwise authorized to practice the claims
18 of the '032 patent.

19 87. Apple is not licensed or otherwise authorized to practice the claims of
20 the '032 patent.

21 88. Cypress is not licensed or otherwise authorized to practice the claims of
22 the '032 patent.

23 89. By reason of Broadcom's, Apple's, and Cypress's individual and joint
24 infringement, Caltech has suffered, and will continue to suffer, substantial damages.

25 90. Caltech is entitled to recover from Broadcom, Apple, and Cypress the
26 damages sustained as a result of their wrongful acts in an amount subject to proof at
27 trial.

28

1 incorporate IRA/LDPC encoders and/or decoders. Apple has infringed and is
2 currently infringing literally and/or under the doctrine of equivalents.

3 96. In violation of 35 U.S.C. § 271, Cypress has infringed and is currently
4 infringing, directly and/or through intermediaries, the '781 patent by making, using,
5 selling, offering for sale, and/or importing into the United States, without authority,
6 products that practice at least claims 3-19 and 21-22 of the '781 patent. These
7 products include the Cypress Accused Products, and any other products that
8 incorporate IRA/LDPC encoders and/or decoders. Cypress has infringed and is
9 currently infringing literally and/or under the doctrine of equivalents.

10 97. On information and belief, Broadcom, Apple, and Cypress have had
11 actual knowledge of their infringement of the '781 patent since no later than the
12 filing date of this Complaint.

13 98. Notwithstanding Broadcom's actual notice of infringement, Broadcom
14 continues to sell the Broadcom Accused Products, directly and/or through
15 intermediaries, to others such as Apple that make, use, sell, offer for sale, or import
16 into the United States the Broadcom Accused Products or other products
17 incorporating the Broadcom Accused Products with knowledge of or willful
18 blindness to the fact that its actions will induce others, including but not limited to
19 its customers, partners, and/or end users, to directly infringe the '781 patent.
20 Broadcom induces others including Apple to infringe the '781 patent in violation of
21 35 U.S.C. § 271(b) by encouraging and facilitating others to perform actions that
22 Broadcom knows to be acts of infringement of the '781 patent with intent that those
23 performing the acts infringe the '781 patent. On information and belief, Broadcom,
24 directly and/or through intermediaries, advertises and distributes the Broadcom
25 Accused Products, publishes instruction materials, specifications and promotional
26 literature describing the operation of the Broadcom Accused Products, offers
27 technical assistance, training, and/or consulting services regarding the Broadcom
28 Accused Products to their customers, partners, and/or end users. At least

1 consumers, partners, and/or end users of these Broadcom Accused Products then
2 directly infringe the '781 patent by making, using, selling, offering for sale, and/or
3 importing into the United States, without authority, the Broadcom Accused Products
4 or products incorporating the Broadcom Accused Products.

5 99. Notwithstanding Apple's actual notice of infringement, Apple
6 continues to sell the Apple Accused Products, directly and/or through
7 intermediaries, to others that make, use, sell, offer for sale, or import into the United
8 States the Apple Accused Products with knowledge of or willful blindness to the
9 fact that its actions will induce others, including but not limited to its customers,
10 partners, and/or end users, to directly infringe the '781 patent. Apple induces others
11 including its customers to infringe the '781 patent in violation of 35 U.S.C. § 271(b)
12 by encouraging and facilitating others to perform actions that Apple knows to be
13 acts of infringement of the '781 patent with intent that those performing the acts
14 infringe the '781 patent. On information and belief, Apple, directly and/or through
15 intermediaries, advertises and distributes the Apple Accused Products, publishes
16 instruction materials, specifications and promotional literature describing the
17 operation of the Apple Accused Products, offers technical assistance, training,
18 and/or consulting services regarding the Apple Accused Products to their customers,
19 partners, and/or end users. At least consumers, partners, and/or end users of these
20 Apple Accused Products then directly infringe the '781 patent by making, using,
21 selling, offering for sale, and/or importing into the United States, without authority,
22 the Apple Accused Products.

23 100. Notwithstanding Cypress's actual notice of infringement, Cypress
24 continues to sell the Cypress Accused Products, directly and/or through
25 intermediaries, to others that make, use, sell, offer for sale, or import into the United
26 States the Cypress Accused Products with knowledge of or willful blindness to the
27 fact that its actions will induce others, including but not limited to its customers,
28 partners, and/or end users, to directly infringe the '781 patent. Cypress induces

1 others including its customers to infringe the '781 patent in violation of 35 U.S.C. §
2 271(b) by encouraging and facilitating others to perform actions that Cypress knows
3 to be acts of infringement of the '781 patent with intent that those performing the
4 acts infringe the '781 patent. On information and belief, Cypress, directly and/or
5 through intermediaries, advertises and distributes the Cypress Accused Products,
6 publishes instruction materials, specifications and promotional literature describing
7 the operation of the Cypress Accused Products, offers technical assistance, training,
8 and/or consulting services regarding the Cypress Accused Products to their
9 customers, partners, and/or end users. At least consumers, partners, and/or end
10 users of these Cypress Accused Products then directly infringe the '781 patent by
11 making, using, selling, offering for sale, and/or importing into the United States,
12 without authority, the Cypress Accused Products.

13 101. On information and belief, Broadcom knows that the Broadcom
14 Accused Products are especially made or especially adapted for use in the
15 infringement of the '781 patent. The infringing components of these products are
16 not staple articles or commodities of commerce suitable for substantial non-
17 infringing use, and the infringing components of these products are a material part
18 of the invention of the '781 patent. Accordingly, in violation of 35 U.S.C. § 271(c),
19 Broadcom is also contributing, directly and/or through intermediaries, to the direct
20 infringement of the '781 patent by at least the customers such as Apple, partners,
21 and/or end users of these Broadcom Accused Products. The customers such as
22 Apple, partners, and/or end users of these Broadcom Accused Products directly
23 infringe the '781 patent by making, using, selling, offering for sale, and/or importing
24 into the United States, without authority, the Broadcom Accused Products or
25 products incorporating the Broadcom Accused Products.

26 102. On information and belief, Apple knows that the Apple Accused
27 Products are especially made or especially adapted for use in the infringement of the
28 '781 patent. The infringing components of these products are not staple articles or

1 commodities of commerce suitable for substantial non-infringing use, and the
2 infringing components of these products are a material part of the invention of the
3 '781 patent. Accordingly, in violation of 35 U.S.C. § 271(c), Apple is also
4 contributing, directly and/or through intermediaries, to the direct infringement of the
5 '781 patent by at least the customers, partners, and/or end users of these Apple
6 Accused Products. The customers, partners, and/or end users of these Apple
7 Accused Products directly infringe the '781 patent by making, using, selling,
8 offering for sale, and/or importing into the United States, without authority, the
9 Apple Accused Products.

10 103. On information and belief, Cypress knows that the Cypress Accused
11 Products are especially made or especially adapted for use in the infringement of the
12 '781 patent. The infringing components of these products are not staple articles or
13 commodities of commerce suitable for substantial non-infringing use, and the
14 infringing components of these products are a material part of the invention of the
15 '781 patent. Accordingly, in violation of 35 U.S.C. § 271(c), Cypress is also
16 contributing, directly and/or through intermediaries, to the direct infringement of the
17 '781 patent by at least the customers, partners, and/or end users of these Cypress
18 Accused Products. The customers, partners, and/or end users of these Cypress
19 Accused Products directly infringe the '781 patent by making, using, selling,
20 offering for sale, and/or importing into the United States, without authority, the
21 Cypress Accused Products or products incorporating the Cypress Accused Products.

22 104. As but one example of Broadcom's contributory and/or induced
23 infringement, Broadcom explicitly encourages customers such as Apple to use, sell,
24 offer for sale and/or import into the United States products that infringe the '781
25 patent by incorporating Broadcom Accused Products. For example, Broadcom's
26 website advertises that the BCM 4350 product implements the 802.11ac standard
27 and highlights its use of "low-density parity check codes (LDPC)." On information
28 and belief, through materials such as these, Broadcom actively encourages

1 customers such as Apple, partners, and/or end users to infringe the '781 patent
2 through at least the use, sale, offer for sale and importation of products that
3 incorporate the Broadcom Accused Products into the United States knowing those
4 acts to be infringement of the '781 patent with intent that those performing the acts
5 infringe the '781 patent.

6 105. As but one example of Apple's contributory and/or induced
7 infringement, Apple explicitly encourages its customers to infringe the '781 patent
8 by using the Apple Accused Products. For example, Apple's website advertises that
9 the iPhone 6, implements the 802.11n and 802.11ac standard. On information and
10 belief, through materials such as these, Apple actively encourages customers,
11 partners, and/or end user to infringe the '781 patent through at least the use of Apple
12 Accused Products incorporating Broadcom Accused Products such as the iPhone 6,
13 knowing those acts to be infringement of the '781 patent with intent that those
14 performing the acts infringe the '781 patent.

15 106. As but one example of Cypress's contributory and/or induced
16 infringement, Cypress explicitly encourages customers to use, sell, offer for sale
17 and/or import into the United States products that infringe the '781 patent by
18 incorporating Cypress Accused Products. For example, Cypress's website
19 advertises that the BCM 4334 product implements the 802.11n standard and
20 highlights its use of "LDPC (low-density parity check)." On information and belief,
21 through materials such as these, Cypress actively encourages customers, partners,
22 and/or end users to infringe the '781 patent through at least the use, sale, offer for
23 sale and importation of products that incorporate the Cypress Accused Products into
24 the United States knowing those acts to be infringement of the '781 patent with
25 intent that those performing the acts infringe the '781 patent.

26 107. Broadcom is not licensed or otherwise authorized to practice the claims
27 of the '781 patent.

28

1 108. Apple is not licensed or otherwise authorized to practice the claims of
2 the '781 patent.

3 109. Cypress is not licensed or otherwise authorized to practice the claims of
4 the '781 patent.

5 110. By reason of Broadcom's, Apple's, and Cypress's individual and joint
6 infringement, Caltech has suffered, and will continue to suffer, substantial damages.

7 111. Caltech is entitled to recover from Broadcom, Apple, and Cypress the
8 damages sustained as a result of their wrongful acts in an amount subject to proof at
9 trial.

10 112. Broadcom's, Apple's, and Cypress's continuing acts of infringement
11 are irreparably harming and causing damage to Caltech, for which Caltech has no
12 adequate remedy at law, and will continue to suffer such irreparable injury unless
13 Broadcom's, Apple's, and Cypress's continuing acts of infringement are enjoined by
14 the Court. The hardships that an injunction would impose are less than those faced
15 by Caltech should an injunction not issue. The public interest would be served by
16 issuance of an injunction. Thus, Caltech is entitled to a preliminary and a permanent
17 injunction against further infringement.

18 113. Broadcom's, Apple's, and Cypress's infringement of the '781 patent is
19 exceptional and entitles Caltech to attorneys' fees and costs incurred in prosecuting
20 this action under 35 U.S.C. § 285.

21 **COUNT IV**

22 **Infringement of the '833 Patent**

23 114. Caltech re-alleges and incorporates by reference the allegations of the
24 preceding paragraphs of this Complaint as if fully set forth herein.

25 115. In violation of 35 U.S.C. § 271, Broadcom has infringed and is
26 currently infringing, directly and/or through intermediaries, the '833 patent by
27 making, using, selling, offering for sale, and/or importing into the United States,
28 without authority, products that practice at least claims 1-4, 6-11, and 13-14 of the

1 '833 patent. These products include the Broadcom Accused Products, and any other
2 products that incorporate IRA/LDPC encoders and/or decoders. Broadcom has
3 infringed and is currently infringing literally and/or under the doctrine of
4 equivalents.

5 116. In violation of 35 U.S.C. § 271, Apple has infringed and is currently
6 infringing, directly and/or through intermediaries, the '833 patent by making, using,
7 selling, offering for sale, and/or importing into the United States, without authority,
8 products that practice at least claims 1-4, 6-11, and 13-14 of the '833 patent. These
9 products include the Apple Accused Products and any other products that
10 incorporate IRA/LDPC encoders and/or decoders. Apple has infringed and is
11 currently infringing literally and/or under the doctrine of equivalents.

12 117. In violation of 35 U.S.C. § 271, Cypress has infringed and is currently
13 infringing, directly and/or through intermediaries, the '833 patent by making, using,
14 selling, offering for sale, and/or importing into the United States, without authority,
15 products that practice at least claims 1-4, 6-11, and 13-14 of the '833 patent. These
16 products include the Cypress Accused Products and any other products that
17 incorporate IRA/LDPC encoders and/or decoders. Cypress has infringed and is
18 currently infringing literally and/or under the doctrine of equivalents.

19 118. On information and belief, Broadcom, Apple, and Cypress have had
20 actual knowledge of their infringement of the '833 patent since no later than the
21 filing date of this Complaint.

22 119. Notwithstanding Broadcom's actual notice of infringement, Broadcom
23 continues to sell the Broadcom Accused Products, directly and/or through
24 intermediaries, to others such as Apple that make, use, sell, offer for sale, or import
25 into the United States the Broadcom Accused Products or other products
26 incorporating the Broadcom Accused Products with knowledge of or willful
27 blindness to the fact that its actions will induce others, including but not limited to
28 its customers, partners, and/or end users, to directly infringe the '833 patent.

1 Broadcom induces others including Apple to infringe the '833 patent in violation of
2 35 U.S.C. § 271(b) by encouraging and facilitating others to perform actions that
3 Broadcom knows to be acts of infringement of the '833 patent with intent that those
4 performing the acts infringe the '833 patent. On information and belief, Broadcom,
5 directly and/or through intermediaries, advertises and distributes the Broadcom
6 Accused Products, publishes instruction materials, specifications and promotional
7 literature describing the operation of the Broadcom Accused Products, offers
8 technical assistance, training, and/or consulting services regarding the Broadcom
9 Accused Products to their customers, partners, and/or end users. At least
10 consumers, partners, and/or end users of these Broadcom Accused Products then
11 directly infringe the '833 patent by making, using, selling, offering for sale, and/or
12 importing into the United States, without authority, the Broadcom Accused Products
13 or products incorporating the Broadcom Accused Products.

14 120. Notwithstanding Apple's actual notice of infringement, Apple
15 continues to sell the Apple Accused Products, directly and/or through
16 intermediaries, to others that make, use, sell, offer for sale, or import into the United
17 States the Apple Accused Products with knowledge of or willful blindness to the
18 fact that its actions will induce others, including but not limited to its customers,
19 partners, and/or end users, to directly infringe the '833 patent. Apple induces others
20 including its customers to infringe the '833 patent in violation of 35 U.S.C. § 271(b)
21 by encouraging and facilitating others to perform actions that Apple knows to be
22 acts of infringement of the '833 patent with intent that those performing the acts
23 infringe the '833 patent. On information and belief, Apple, directly and/or through
24 intermediaries, advertises and distributes the Apple Accused Products, publishes
25 instruction materials, specifications and promotional literature describing the
26 operation of the Apple Accused Products, offers technical assistance, training,
27 and/or consulting services regarding the Apple Accused Products to their customers,
28 partners, and/or end users. At least consumers, partners, and/or end users of these

1 Apple Accused Products then directly infringe the '833 patent by making, using,
2 selling, offering for sale, and/or importing into the United States, without authority,
3 the Apple Accused Products.

4 121. Notwithstanding Cypress's actual notice of infringement, Cypress
5 continues to sell the Cypress Accused Products, directly and/or through
6 intermediaries, to others that make, use, sell, offer for sale, or import into the United
7 States the Cypress Accused Products or other products incorporating the Cypress
8 Accused Products with knowledge of or willful blindness to the fact that its actions
9 will induce others, including but not limited to its customers, partners, and/or end
10 users, to directly infringe the '833 patent. Cypress induces others to infringe the
11 '833 patent in violation of 35 U.S.C. § 271(b) by encouraging and facilitating others
12 to perform actions that Cypress knows to be acts of infringement of the '833 patent
13 with intent that those performing the acts infringe the '833 patent. On information
14 and belief, Cypress, directly and/or through intermediaries, advertises and
15 distributes the Cypress Accused Products, publishes instruction materials,
16 specifications and promotional literature describing the operation of the Cypress
17 Accused Products, offers technical assistance, training, and/or consulting services
18 regarding the Cypress Accused Products to their customers, partners, and/or end
19 users. At least consumers, partners, and/or end users of these Cypress Accused
20 Products then directly infringe the '833 patent by making, using, selling, offering for
21 sale, and/or importing into the United States, without authority, the Cypress
22 Accused Products or products incorporating the Cypress Accused Products.

23 122. On information and belief, Broadcom knows that the Broadcom
24 Accused Products are especially made or especially adapted for use in the
25 infringement of the '833 patent. The infringing components of these products are
26 not staple articles or commodities of commerce suitable for substantial non-
27 infringing use, and the infringing components of these products are a material part
28 of the invention of the '833 patent. Accordingly, in violation of 35 U.S.C. § 271(c),

1 Broadcom is also contributing, directly and/or through intermediaries, to the direct
2 infringement of the '833 patent by at least the customers such as Apple, partners,
3 and/or end users of these Broadcom Accused Products. The customers such as
4 Apple, partners, and/or end users of these Broadcom Accused Products directly
5 infringe the '833 patent by making, using, selling, offering for sale, and/or importing
6 into the United States, without authority, the Broadcom Accused Products or
7 products incorporating the Broadcom Accused Products.

8 123. On information and belief, Apple knows that the Apple Accused
9 Products are especially made or especially adapted for use in the infringement of the
10 '833 patent. The infringing components of these products are not staple articles or
11 commodities of commerce suitable for substantial non-infringing use, and the
12 infringing components of these products are a material part of the invention of the
13 '833 patent. Accordingly, in violation of 35 U.S.C. § 271(c), Apple is also
14 contributing, directly and/or through intermediaries, to the direct infringement of the
15 '833 patent by at least the customers, partners, and/or end users of these Apple
16 Accused Products. The customers, partners, and/or end users of these Apple
17 Accused Products directly infringe the '833 patent by making, using, selling,
18 offering for sale, and/or importing into the United States, without authority, the
19 Apple Accused Products.

20 124. On information and belief, Cypress knows that the Cypress Accused
21 Products are especially made or especially adapted for use in the infringement of the
22 '833 patent. The infringing components of these products are not staple articles or
23 commodities of commerce suitable for substantial non-infringing use, and the
24 infringing components of these products are a material part of the invention of the
25 '833 patent. Accordingly, in violation of 35 U.S.C. § 271(c), Cypress is also
26 contributing, directly and/or through intermediaries, to the direct infringement of the
27 '833 patent by at least the customers, partners, and/or end users of these Cypress
28 Accused Products. The customers, partners, and/or end users of these Cypress

1 Accused Products directly infringe the '833 patent by making, using, selling,
2 offering for sale, and/or importing into the United States, without authority, the
3 Cypress Accused Products or products incorporating the Cypress Accused Products.

4 125. As but one example of Broadcom's contributory and/or induced
5 infringement, Broadcom explicitly encourages customers such as Apple to use, sell,
6 offer for sale and/or import into the United States products that infringe the '833
7 patent by incorporating Broadcom Accused Products. For example, Broadcom's
8 website advertises that the BCM 4350 product implements the 802.11ac standard
9 and highlights its use of "low-density parity check codes (LDPC)." On information
10 and belief, through materials such as these, Broadcom actively encourages
11 customers such as Apple, partners, and/or end users to infringe the '833 patent
12 through at least the use, sale, offer for sale and importation of products that
13 incorporate the Broadcom Accused Products into the United States knowing those
14 acts to be infringement of the '833 patent with intent that those performing the acts
15 infringe the '833 patent.

16 126. As but one example of Apple's contributory and/or induced
17 infringement, Apple explicitly encourages its customers to infringe the '833 patent
18 by using the Apple Accused Products. For example, Apple's website advertises that
19 the iPhone 6, implements the 802.11n and 802.11ac standard. On information and
20 belief, through materials such as these, Apple actively encourages customers,
21 partners, and/or end user to infringe the '833 patent through at least the use of Apple
22 Accused Products incorporating Broadcom Accused Products such as the iPhone 6,
23 knowing those acts to be infringement of the '833 patent with intent that those
24 performing the acts infringe the '833 patent.

25 127. As but one example of Cypress's contributory and/or induced
26 infringement, Broadcom explicitly encourages customers to use, sell, offer for sale
27 and/or import into the United States products that infringe the '833 patent by
28 incorporating Cypress Accused Products. For example, Cypress's website

1 advertises that the BCM 4334 product implements the 802.11n standard and
2 highlights its use of “LDPC (low-density parity check).” On information and belief,
3 through materials such as these, Cypress actively encourages customers, partners,
4 and/or end users to infringe the ’833 patent through at least the use, sale, offer for
5 sale and importation of products that incorporate the Cypress Accused Products into
6 the United States knowing those acts to be infringement of the ’833 patent with
7 intent that those performing the acts infringe the ’833 patent.

8 128. Broadcom is not licensed or otherwise authorized to practice the claims
9 of the ’833 patent.

10 129. Apple is not licensed or otherwise authorized to practice the claims of
11 the ’833 patent.

12 130. Cypress is not licensed or otherwise authorized to practice the claims of
13 the ’833 patent.

14 131. By reason of Broadcom’s, Apple’s, and Cypress’s individual and joint
15 infringement, Caltech has suffered, and will continue to suffer, substantial damages.

16 132. Caltech is entitled to recover from Broadcom, Apple, and Cypress the
17 damages sustained as a result of their wrongful acts in an amount subject to proof at
18 trial.

19 133. Broadcom’s, Apple’s, and Cypress’s continuing acts of infringement
20 are irreparably harming and causing damage to Caltech, for which Caltech has no
21 adequate remedy at law, and will continue to suffer such irreparable injury unless
22 Broadcom’s, Apple’s, and Cypress’s continuing acts of infringement are enjoined by
23 the Court. The hardships that an injunction would impose are less than those faced
24 by Caltech should an injunction not issue. The public interest would be served by
25 issuance of an injunction. Thus, Caltech is entitled to a preliminary and a permanent
26 injunction against further infringement.

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1 134. Broadcom's, Apple's, and Cypress's infringement of the '833 patent is
2 exceptional and entitles Caltech to attorneys' fees and costs incurred in prosecuting
3 this action under 35 U.S.C. § 285.

4 **PRAYER FOR RELIEF**

5 WHEREFORE, Plaintiff respectfully prays for the following relief:

6 (a) A judgment that Defendants have infringed each and every one of the
7 Asserted Patents;

8 (b) A preliminary and permanent injunction against Defendants, their
9 respective officers, agents, servants, employees, attorneys, parent and subsidiary
10 corporations, assigns and successors in interest, and those persons in active concert
11 or participation with them, enjoining them from infringement, inducement of
12 infringement, and contributory infringement of each and every one of the Asserted
13 Patents, including but not limited to an injunction against making, using, selling,
14 and/or offering for sale within the United States, and/or importing into the United
15 States, any products, methods, equipment and/or services that infringe the Asserted
16 Patents;

17 (c) Damages adequate to compensate Caltech for Defendants' infringement
18 of the Asserted Patents pursuant to 35 U.S.C. § 284;

19 (d) Prejudgment interest;

20 (e) Post-judgment interest;

21 (f) A declaration that this Action is exceptional pursuant to 35 U.S.C.
22 § 285, and an award to Caltech of its attorneys' fees, costs and expenses incurred in
23 connection with this Action; and

24 (h) Such other relief as the Court deems just and equitable.

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DATED: August 15, 2016

Respectfully submitted,

QUINN EMANUEL URQUHART &
SULLIVAN, LLP

By /s/ James R. Asperger
James R. Asperger
*Attorneys for Plaintiff California Institute
of Technology*

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DEMAND FOR JURY TRIAL

Pursuant to Rule 38 of the Federal Rules of Civil Procedure and Local Rule 38-1 of this Court, Plaintiff hereby demands a trial by jury as to all issues so triable.

DATED: August 15, 2016

Respectfully submitted,

QUINN EMANUEL URQUHART &
SULLIVAN, LLP

By /s/ James R. Asperger
James R. Asperger
*Attorneys for Plaintiff California Institute
of Technology*