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UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

CALIFORNIA INSTITUTE OF TECHNOLOGY, a California Corporation,

Plaintiff,

vs.

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

Defendants.

CASE NO. 2:16-cv-3714-GW-AGR

JOINT RULE 26(F) REPORT

Hon. George H. Wu

Date: September 26, 2016
Time: 8:30 a.m.
Courtroom: 10 (Spring Street)

Pursuant to Rule 26(f), Local Rule 26.1, and this Court's Orders (Docket No. 35, 46), Plaintiff California Institute of Technology ("Plaintiff" or "Caltech") and Defendants Broadcom Limited ("Broadcom Ltd."), Broadcom Corporation ("Broadcom Corp."), Avago Technologies Limited ("Avago"), (collectively, "Broadcom"), Apple Inc. ("Apple"), and Cypress Semiconductor Corporation ("Cypress"), (collectively, "Defendants") submit this Joint Rule 26(f) Report. Counsel have conferred pursuant to Rule 26(f).

I. STATEMENT OF THE CASE

a. Plaintiff's Statement of its Claims

Caltech is a world-renowned research and education institution focused on science and engineering, where faculty and students pursue new knowledge about the world and search for the kinds of bold and innovative advances that will transform the future. The scientific, engineering, and technological contributions of Caltech's faculty and alumni have earned national and international recognition, including 34 Nobel Prizes.

Caltech's innovations include those in the field of coding systems and methods. Relevant to this case, retired Caltech professor Dr. Robert J. McEliece, and two of his former graduate students, Dr. Hui Jin and Dr. Aamod Khandekar, disclosed a new type of error correction codes, called "irregular repeat and accumulate codes" (or "IRA codes"). The claimed methods and apparatuses generate an IRA code from information bits of a message by reordering repeated instances of those bits in a randomized but known way, and then performing logical operations on the reordered bits. These IRA codes are at least as effective at correcting errors in transmissions as prior coding techniques, but use simpler encoding and decoding circuitry and provide other technical and practical advantages, allowing for improved transmission rates and performance. The IRA codes enable a transmission rate close to the theoretical limit.

Caltech contends that Defendants are infringing, directly and/or indirectly, literally and/or under the doctrine of equivalents, four Caltech patents (the "Patents-in-Suit") describing IRA codes using novel encoders and decoders: U.S. Patent Nos. 7,116,710; 7,421,032; 7,916,781; and 8,284,833. Each of these patents is entitled "Serial Concatenation of Interleaved Convolutional Codes Forming Turbo-Like Codes." The Patents-in-Suit share a common patent application, claiming different aspects of the application.

Caltech accuses Defendants' products that incorporate encoders and/or decoders and infringe the Asserted Patents (the "Accused Instrumentalities"). The Accused Instrumentalities include those that implement certain versions of the IEEE standard for wireless communications over local area networks (also referred to as "Wi-Fi")—the 802.11n and 802.11ac versions of the standard. One of the key improvements to the 802.11n and 802.11ac versions of the standard involved modes that implement Caltech's patented IRA code technology.

Caltech is seeking damages adequate to compensate Caltech for Defendants' infringement of the Patents-in-Suit. Caltech is also seeking a permanent injunction to prevent Defendants from continuing to use Caltech's inventions. Finally, Caltech is seeking prejudgment interest, post-judgment interest, and a declaration that this action is exceptional pursuant to 35 U.S.C. § 285.

Caltech denies that Defendants' affirmative defenses have any merit and further denies Defendants' counterclaims.

Contrary to Defendants' assertions below, the error correction codes described in the Patents-in-Suit are not generic irregular codes, and cannot be arrived at merely by reviewing prior art teachings regarding irregularity. Two authors of the prior art papers on irregular coding cited in Defendants' counterclaim have previously testified that the superior performance of IRA codes was unpredictable at that time, and that the prior art did not teach or suggest the IRA codes. Indeed, Caltech's development of IRA code technology has been widely

hailed as a significant advancement in the field of error correction codes, and are distinct from prior work in the field.

As further evidence of the nonmateriality of prior art disclosing "irregular codes," the PTAB declined to institute *inter partes* review proceedings on all four of the Patents-in-Suit based on these references, thereby concluding that there was no reasonable likelihood that the references would invalidate any of the Patents-in-Suit. The PTAB determination was rendered after Judge Pfaelzer's decision in the previous case finding that a question of fact precluded summary judgment on inequitable conduct. Accordingly, there can no longer be any dispute that the alleged "irregularity" prior art was not but-for material to the patentability of any of the claims of the Patents-in-Suit, and the inventors could not have committed inequitable conduct by failing to disclose them to the PTO.

In addition, there was no inequitable conduct because the inventors did not possess a requisite intent to deceive the patent office. The alleged "irregularity" prior art identified by defendants in this and the previous case was disclosed in two documents submitted to the PTO: first, in the provisional application to which the Patents-in-Suit claim priority, which identifies the same prior art as background on the topic of irregularity; and second, in the inventors' paper on IRA codes, which was formally disclosed and submitted to the patent office. Whether or not the inventors were required to formally disclose each of the references in an Information Disclosure Statement, the inventors' other disclosures cannot be reconciled with the intent to deceive required for a showing of inequitable conduct.

b. Defendants' Statement

Defendant Broadcom[1] is a leading designer, developer, and global supplier of semiconductor devices, including semiconductor devices capable of assisting with communications over wireless networks. Broadcom has more than fifty years of history of innovation, dating back to its origins as part of the Hewlett-Packard Company. Broadcom offers thousands of components used in end products such as smartphones and computers. Broadcom has design and product development facilities in multiple locations in the United States, Asia, and Europe, which allows Broadcom to leverage its worldwide engineering expertise.

Defendant Apple is committed to bringing the best user experience to its customers through its innovative hardware, software, and services. Apple leverages its unique ability to design and develop its own operating system, hardware, application software, and services to provide its customers products and solutions with innovative designs, superior ease-of-use, and seamless integration. The products Apple designs include products that can communicate over Wi-Fi networks.

Defendant Cypress delivers high-performance, high-quality solutions at the heart of today's most advanced embedded systems, from automotive, industrial, and networking applications, to highly interactive consumer and mobile devices. Through a recent acquisition of Broadcom's wireless internet of things (IoT) business, Cypress is now selling several products that Caltech asserts infringe the Patents-in-Suit.

[1] Caltech has sued Avago Technologies Limited. As a result of an amalgamation completed in Summer 2016, Avago Technologies Limited no longer exists. Assets and liabilities of Avago Technologies Limited have been passed to Avago Technologies Finance Pte Ltd.

Each of the Defendants is at the forefront of developing innovative wireless products and sets the standards by which many companies are judged. Broadcom, in particular, has been a leader in developing wireless capabilities of products, including the development of error correction protocols and software. As part of its leadership, Broadcom has committed itself to the development of various industry standard setting groups, including the IEEE's Working Group for WLAN Standards, which defines and administers the 802.11 standards. As part of its commitment to this Working Group, Broadcom committed resources and its employees' efforts to the development of the 802.11n and 802.11ac standards. Part of Broadcom's efforts included helping to develop the error correction methodology in the 802.11n and 802.11ac standards. Contrary to Caltech's claims, the error correction codes in the 802.11n and 802.11ac standards are not "irregular repeat and accumulate" codes.

The Patents-in-Suit list Hui Jin, Aamod Khandekar, and Robert J. McEliece as inventors. The Patents-in-Suit describe several pre-existing error correction codes, including Turbo codes. In the summary, the specification explains that the purportedly new code developed by the inventors apportions a data block into two or more sub-blocks, and bits in different sub-blocks are repeated a different number of times. Based upon the repetition of a different number of bits in the sub-block, this code is referred to as an "irregular" repeat and accumulate code.

But publications before the filing date of the applications for the Patents-in-Suit had described this concept of "irregular" coding. During the prosecution of the Patents-in-Suit, the inventors failed to disclose prior art, including prior art that disclosed irregular coding, to the Patent Office. During a previous case involving the Patents-in-Suit, Judge Pfaelzer concluded there was "at least a question of fact as to whether Caltech omitted these prior art references or misrepresented their relevance." *Cal. Inst. of Tech. v. Hughes Commc'ns*, No. 2:12-cv-07245-MRP-JEM, 2015 WL 111089495, at *7 (C.D. Cal. May 5, 2015). Judge Pfaelzer noted

that "the patentees distinguished their invention from the . . . prior art reference because [it] did not disclose irregular repetition of bits. While [the prior art reference] does not disclose irregular repetition, the three [withheld] references do disclose irregular repetition. Had the PTO considered these references, the PTO may have issued a rejection under § 103." *Id.* Although Caltech claimed that it disclosed these references twice, Judge Pfaelzer found that neither action "necessarily fulfilled Caltech's duty to disclose this prior art to the PTO" and that adopting Caltech's rule would mean that "brief citations to prior art ***somewhere*** in a patentee's submission would satisfy the patentee's duty," creating a "perverse incentive for patentees to bury harmful prior art in their filings." *Id.* (emphasis in original).

Besides asserting that the Patents-in-Suit are unenforceable for inequitable conduct, Defendants deny that the error correction code in their products infringes the claims of the Patents-in-Suit and deny that claims of the Patents-in-Suit are valid. Finally, Defendants assert that Caltech is not entitled to the relief it has requested, including any damages or injunctive relief.

II. CASE MANAGEMENT SCHEDULE

The parties have conferred regarding the case schedule and have reached agreement on many dates as set forth in **Exhibit A**. **Exhibit A** also identifies where the parties were unable to reach agreement.

a. Plaintiff's Position

Caltech seeks a prompt resolution of its claims. Caltech's asserted patents cover the same invention—implementing IRA codes using novel encoders and decoders—and are all related to a common application, facilitating an efficient resolution of this case.

The parties have commenced fact discovery. Caltech proposes that fact discovery continue until August 18, 2017, and reserves the right to seek a brief extension of this deadline to complete all outstanding discovery.

Caltech will require discovery regarding Defendants' Accused Instrumentalities, among other topics. For example, Caltech will require discovery to identify each Accused Instrumentality and discovery regarding the design, development, structure, operation and function of each Accused Instrumentality. Further, Caltech will require discovery of marketing and sales information, including financial information relating to Defendants' Accused Instrumentalities. Discovery regarding each Defendant's role in the development, marketing, sale, and distribution of the Accused Instrumentalities, among other activities, is further essential for the evaluation of direct and indirect infringement positions. Discovery of Defendants' contentions regarding non-infringement and invalidity is also required. This discovery will further allow Caltech to supplement its initial infringement contentions with a more detailed identification of the Accused Instrumentalities, where each element of each asserted claim is found within each Accused Instrumentality, and its indirect infringement contentions.

b. Defendants' Position

Caltech has sued multiple parties, and Caltech's amended complaint includes a long list of accused products for each of the Defendants. Defendants will require time to collect, review, and produce discovery. Further, Defendants will require time to obtain discovery concerning the purported inventions in the Patents-in-Suit, as further detailed below.

Defendants' schedule gives sufficient time for fact and expert discovery, for the parties to brief claim construction and argue pre-trial motions, and to allow the Court time to rule on complex motions. Defendants believe that the case will be ready for a final pretrial conference by May 3, 2018. Defendants need discovery concerning the research and development related to (1) the purported inventions of the Patents-in-Suit, (2) the prosecution of the Patents-in-Suit, (3) the licensing, including through settlement, of the Patents-in-Suit, and (4) the relief to which

Caltech asserts that it is entitled. A more detailed description of the necessary discovery is provided below.

III. DISCOVERY PLAN

a. Changes in the Disclosures under Rule 26(a) — Initial Disclosures

The parties agree to exchange Initial Disclosures pursuant to Federal Rule 26(a) on the date set forth in **Exhibit A**.

The parties agree that all supplementations or corrections to a party's disclosure or discovery responses must be made as provided in Federal Rule 26(e).

b. Subjects on which Discovery may be Needed

i. Plaintiff's Position

In this case, Caltech will seek discovery of the following facts:

1. Evidence of Defendants' Accused Instrumentalities for the purposes of proving infringement, including literal infringement and infringement under the doctrine of equivalents;
2. Evidence of Defendants' activities with respect to the Accused Instrumentalities for the purposes of proving that each Defendant has committed the acts of direct and indirect infringement;
3. Marketing, sales, and financial information relating to the Accused Instrumentalities;
4. Evidence relating to Caltech's damages;
5. Evidence related to Caltech's request for injunctive relief;
6. Evidence relating to Defendants' defenses and counterclaims;
7. Discovery of the opinions of any expert to be relied upon by Defendants; and
8. Any of the subjects identified by Defendants and any additional discovery that may become necessary as the parties' facts and arguments are developed.

ii. Defendants' Position

Defendants will seek discovery on the following subjects:

1. The inventors' knowledge related to the prior art;
2. The ownership of the patents;
3. Caltech's licensing, including settlement agreements, of the patents-in-suit;
4. Information concerning the purported irreparable harm to Caltech;
5. Third-party discovery concerning publicly-available information that described error correction systems that pre-date the alleged inventions of the Patents-in-Suit;
6. Alleged damages to Caltech;
7. Caltech's communications with other companies, including Defendants, concerning potential infringement of the Patents-in-Suit;
8. Caltech's knowledge of the Defendants' products that are compatible with the 802.11n and 802.11ac standards;
9. Caltech's knowledge related to the development of the error correction components of versions of the 802.11 standard; and
10. Any of the subjects identified by Caltech and any additional discovery that may become necessary as the parties' facts and arguments are developed.

c. Discovery Limitations

i. Agreed-upon Limitations

Document Requests: There are no limitations on the number of document requests than can be served by the parties.

Interrogatories: Caltech shall be permitted to serve 15 common interrogatories on all Defendants,[2] 15 individual interrogatories on Broadcom, 15 individual interrogatories on Apple, and 15 individual interrogatories on Cypress.

Defendants shall be permitted to serve 15 common interrogatories on Caltech. Each of Broadcom, Apple, and Cypress shall be permitted to serve 15 individual interrogatories on Caltech.

Requests for Admission: Caltech may serve 100 requests for admission on each defendant. Each defendant may serve 100 requests for admission on Caltech. This limitation does not apply to the requests for admission to authenticate documents. There is no limit on such requests.

Party Depositions:

The parties agree that Caltech shall be permitted to take 90 hours of party fact depositions from Broadcom, including depositions of witnesses deposed under Rule 30(b)(6). Caltech shall be permitted to take 50 hours of party fact depositions from Apple and Cypress, including depositions of witnesses deposed under Rule 30(b)(6).

Defendants shall be permitted to take 80 hours of common party fact depositions from Caltech, including depositions of witnesses deposed under Rule 30(b)(6). Broadcom, Apple, and Cypress shall each be permitted to take 20 hours of individual party fact depositions from Caltech, including depositions of witnesses deposed under Rule 30(b)(6).

Party Depositions – Caltech's Position:

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[2] Common interrogatories may require separate responses from some or all Defendants.

There should be no limits on the number of witnesses each party can depose.

Party Depositions – Defendants' Position:

There should be limits on the number of witnesses who may be deposed. Specifically:

Caltech shall be permitted to take the depositions of no more than 15 Broadcom witness, no more 6 Apple witness, and no more than 6 Cypress witnesses.

Defendants shall be permitted to take common party fact depositions of no more than 15 Caltech witnesses. Broadcom may take individual party fact depositions of no more than 3 Caltech witnesses. Apple may take individual party fact depositions of no more than 3 Caltech witnesses. Cypress may take individual party fact depositions of no more than 3 Caltech witnesses.

Third-Party Depositions: The number and/or hours of third-party depositions may be agreed upon by the parties as reasonably necessary at a later time.

The parties agree that the parties may amend or deviate from any of the limits on discovery above upon agreement of the parties or by leave of Court for good cause shown.

d. Expert Reports and Discovery

The parties propose that reports from any expert required to provide a report under Rule 26(a)(2) will be due from each party with respect to issues for which that party bears the burden of proof on or before the date set forth in **Exhibit A**. Rebuttal reports will be due on or before the date set forth in **Exhibit A** and all expert discovery and depositions will be completed on or before the date set forth in **Exhibit A**.

e. Discovery of Electronically Stored Information

The parties agree to use their best efforts to negotiate a joint proposal addressing electronically-stored information. The parties anticipate submitting their joint or respective proposals to the Court by no later than October 13, 2016.

f. Privilege Protection

The parties agree to use their best efforts to negotiate a proposed protective order. The parties anticipate submitting their joint or respective proposals to the Court by no later than October 13, 2016.

The parties agree that privileged communications created on or after the date of the filing of this action need not be included on any privilege log, absent agreement of the parties or a showing of good cause. The parties agree that Caltech's privileged communications created on or after the date of the filing of *California Inst. of Technology v. Hughes Communications, Inc. et. al.*, Case No. 2:13-cv-7245-MRP-JEM (C.D. Cal.) and *California Inst. of Technology v. Hughes Communications, Inc. et. al.*, Case No. 2:15-cv-01108-MRP-JEM (C.D. Cal.) relating to those litigations need not be included on any privilege log, absent agreement of the parties or a showing of good cause.

g. Electronic Service

The parties consent to electronic service under Federal Rule 5(b)(2)(E). Electronic service shall be deemed personal service on the parties. Electronic service completed prior to midnight Pacific Standard Time will be considered timely served on that day. Each party will identify an e-mail address or addresses for service.

h. Complex Case

The parties agree that this is not a complex case requiring any of the procedures of the Manual for Complex Litigation.

IV. CLAIM CONSTRUCTION

a. Claim Construction Discovery

The parties have set forth competing schedules for claim construction in **Exhibit A**. Caltech believes that the claim construction briefing and hearing should be limited to ten terms. Defendants believe that ten terms is likely too few terms with four patents. However, the parties are willing to further confer with

regarding limitations on the number of terms, use of expert testimony, and other logistics relating to the claim construction tutorial and hearing after the claim construction process has begun.

b. Format for Claim Construction Hearing

The parties believe that a claim construction hearing can be completed in one court day. The parties have agreed to discuss the order of presentation closer to the claim construction hearing.

c. Education of Court on Technology

The parties propose a live tutorial with each side setting forth an argument-free presentation of the technology prior to the claim construction hearing.

d. Management of Summary Judgment Motions

The parties may file one or more summary judgement motions by the deadline set forth in **Exhibit A**. Should any further management of summary judgment motions be required, the parties propose that the parties request a conference with the Court at such time.

V. OTHER PRE-TRIAL AND TRIAL SCHEDULING

a. Cut-off for Joining Parties

The cut-off date for joining parties is set forth in **Exhibit A**.

b. Estimated Trial Length

The parties anticipate that trial will take approximately eight (8) to ten (10) court days.

VI. SETTLEMENT AND ADR SELECTION

The parties agree to ADR Procedure No. 3.

DATED: September 19, 2016 Respectfully submitted,

By */s/ James R. Asperger*

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FILER'S ATTESTATION

I, James Asperger, am the ECF user whose ID and password were used to file JOINT RULE 26(F) REPORT. Pursuant to L.R. 5-4.3.4(a)(2), I hereby attest that counsel for Defendants concurred in the filing of this document.

By */s/ James R. Asperger*