EXPERT DECLARATION OF DOUGLAS A. CHRISSAN, Ph.D.

Case No. IPR2016-01760
Patent No. 9,094,268

I. INTRODUCTION & SUMMARY OF OPINIONS

1. My name is Douglas A. Chrissan. I have been engaged by TQ Delta, LLC in connection with IPR number 2016-01760 which relates to U.S. Pat. No. 9,094,268 ("the '268 patent"). In this declaration I provide my opinion that the challenged claims of the '268 patent would not have been obvious in view of the references and grounds asserted by the Petitioner Cisco Systems, Inc. ("Cisco" or "Petitioner").

II. PROFESSIONAL QUALIFICATIONS

A. Background and Experience

2. I am presently a technical consultant in the areas of communications systems, multimedia systems, computer systems, and digital signal processing.

3. I earned a B.S. and M.S. in Electrical Engineering from the University of Southern California in 1988 and 1990, respectively, and a Ph.D. in Electrical Engineering from Stanford University in 1998.

4. A copy of my current CV is attached as Ex. 2006.

5. I was a Masters Fellow and Member of the Technical Staff at Hughes Aircraft Company in El Segundo, California, from 1988–1993. While at Hughes Aircraft, I designed and developed communication systems for commercial and military spacecraft, including for the MILSTAR satellite program.

6. Between 1992 and 1993, while at Hughes Aircraft Company, I designed and built a state-of-the-art, 800 megabit-per-second (Mbps) telecommunications modem for the NASA Lewis Research Center.

7. From 1997–2003, I worked at 8x8, Inc., starting as a DSP software engineer in 1997, becoming a manager in 1998, a director in 1999, and Vice President of Engineering in 2000 (managing a team of approximately 60 engineers in the company's microelectronics group). I played a key role in developing several semiconductor products used worldwide in multimedia and communications devices, mainly for video conferencing systems and Internet Protocol ("IP") telephones. Some of these semiconductor products were in production more than ten years.

8. From 2003–2007, I was a Systems Architect and Engineering Program Manager at Texas Instruments in the Digital Subscriber Line ("DSL") product business unit. At Texas Instruments, I was directly involved in the architecture, design, development and production of multicarrier DSL modem products. My work specifically included architecting a multicarrier DSL semiconductor and software product and managing all aspects of its development from inception to production.

9. My Ph.D. dissertation and related publications are in the fields of statistical signal processing and communication systems, and more specifically in the area of impulsive noise modeling for communication systems.

10. In 1995 I was the instructor for the graduate Statistical Signal Processing class (EE278) in the Electrical Engineering department at Stanford University. Prior to teaching this class, I was a teaching assistant for ten different classes in signal processing and radio frequency electronics at Stanford.

11. I have developed, and managed the development of, several successful semiconductor, software and systems products in the communications and multimedia fields. These products are listed in the attached *curriculum vitae*.

B. Compensation

12. I am being compensated for my time in this case at the rate of $250 per hour (plus expenses) for analysis, depositions, and, if necessary, trial testimony. My compensation for this matter is not determined by or contingent on the outcome of this case.

C. Materials Relied Upon

13. In the course of preparing this expert declaration, I have considered the ’268 Patent, its file history, the Petition and its exhibits (including the Declaration of Dr. Kiaei), the Patent Owner’s Preliminary Response, the Board’s

Institution Decision, the transcript of the deposition of Dr. Kiaei, as well as any additional documents I cite or refer to in this declaration.

III. THE BOARD'S INSTITUTION DECISION

14. I understand the Board instituted inter partes review of claims 1, 2, 4, 11, 12, 14, 16, and 18 of the '268 patent as unpatentable over U.S. Patent No. 5,956,323 ("Bowie") in view of U.S. Patent No. 6,075,814 ("Yamano").

IV. BACKGROUND

15. The '268 patent discloses improvements to a multicarrier transceiver. Specifically, the '268 patent describes inventions that allow a transceiver to enter a low power mode during which the transmitter portion of the transceiver does not transmit data but the receiver portion receives data, or that allow the transmitter portion of a transceiver to enter a low power mode while the receiver portion of the transceiver remains in a full power mode. In embodiments of the '268 patent the transceiver stores, while in the low power mode, parameters associated with the full power mode. In additional embodiments, the transceiver maintains synchronization with another transceiver while in the low power mode. To facilitate an understanding of the prior art and the inventions of the '268 patent, a brief overview of multicarrier technology is set forth below.

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