

EXHIBIT 4

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

AIRE TECHNOLOGY LTD.

Plaintiff,

vs.

APPLE INC.

Defendant.

No. 6:21-cv-01101

Jury Trial Demanded

**DECLARATION OF DR. MICHAEL CALOYANNIDES
REGARDING CLAIM CONSTRUCTION FOR
U.S. PATENT NO. 8,174,360**

I, Michael Caloyannides, Ph.D., hereby declare and state as follows:

1. I have been retained by counsel for Apple Inc. (“Apple”) to prepare this declaration addressing the proper constructions of certain claim terms. I provide this declaration in support of Defendants’¹ claim construction brief.

I. QUALIFICATIONS AND EXPERIENCE

2. I received my Doctor of Philosophy (Ph.D.) Degree in Electrical Engineering, Applied Mathematics, and Philosophy from the California Institute of Technology (“Caltech”) in 1972. I also earned a Master’s of Science Degree in Electrical Engineering in 1968 and a Bachelor’s of Science Degree in 1967 with the highest honors, from the same. During the latter part of these studies, I taught graduate school classes in signal processing at California State University in Pomona, CA.

3. Upon receiving my Ph.D., I was hired at the top technical level (Member of Technical Staff Level 4) by Rockwell Int’l Corp. (subsequently acquired by Boeing Corp) in Anaheim, CA. In this role, I led efforts that included the following: (1) Signal processing for the acoustic detection of cruise missiles; (2) Missile Guidance signal processing using terrain mapping, (3) High Speed digital modem design (an effort for which I received a U.S. Patent (US4032762A); (4) Analysis and Design of a complete SIGINT (Signals Intelligence) system for a then U.S. ally nation, (5), Covert Communications signaling means, GPS signal processing and receiver design; (6) Analysis and Design of a global satellite communications system called “Ellipso” that was Boeing’s planned alternative to the Iridium satellite system; (7) Airborne

¹ I understand that Google LLC (“Google”) is a Defendant in separate litigation against Aire Technology Ltd. and has formed a joint defense group with Apple. For purposes of this declaration I will refer to Apple and Google, collectively, collectively as “Defendants.”

Direction Finding systems for the U.S. Department of Defense, and multiple other signal processing efforts.

4. After 14 years in that role, I was hired as a Senior Scientist for an Agency of the U.S. Intelligence Community. In that role, I oversaw the entire spectrum of developments by the U.S. in the telecommunications signal processing areas. I also personally developed a classified system for wireless covert communication. Additionally, I was awarded the coveted Scientist of the Year Award, as well as five separate Exceptional Accomplishment Awards, and the Meritorious Officer Award, all for various classified efforts in telecommunications and signal processing. While serving in that role for the U.S. Government I created and delivered classified courses in evolving communications and signal processing technologies. These courses were attended by many hundreds of employees within the U.S. Intelligence Community. During part of that time, I was also a paid consultant to NASA/NIAC tasked with evaluating the merits of technical proposals in signal processing that were being submitted to NASA for funding.

5. After almost 15 years in the above role for the U.S. Government, I returned to the commercial sector as a senior scientist at Boeing Aircraft, then as chief scientist at Ideal Innovations, Corp (a contractor to the U.S. Department of Defense during the 1st Gulf War). I was then hired as Senior Fellow at TASC Corp (then a division of Northrop Grumman Corp) in support of numerous classified efforts in telecommunications and signal processing.

6. During roughly the same time period, I was also an Adjunct Faculty member at George Washington University's Department of Computer Science, followed by a few years as adjunct faculty at Johns Hopkins University's Whiting School of Engineering. I taught Graduate School classes in digital signal processing and security.

7. While in the Government, and in the specific discipline of RFID devices, I designed and oversaw the development of an RFID-like device that was uniquely capable in that, when illuminated by special RF energy, it would reflect back a signal that relayed the ambient audio at the location of that custom-RFID device.

8. I have published two textbooks, as the sole author, on digital signal processing and security; one of those textbooks is in its second edition. Additionally, I was the monthly columnist for the IEEE Journal “Security And Privacy” during its entire first year of publication. I have published numerous technical papers in peer reviewed journals, such as a seminal paper titled “Encryption” that appeared in two successive issues of the IEEE flagship magazine “Spectrum”. Additionally, I have given countless invited presentations on RF telecommunications to audiences including NASA’s Jet Propulsion Laboratory, the Nuclear Research Center in Greece (“Demokritos”), and to technology business leaders in Singapore, Dubai, Thailand, and elsewhere.

9. Further to all of the foregoing, I designed and oversaw the development of a unique radio frequency system and apparatus for locating buried earthquake victims who were still alive by detecting their heartbeat under layers of rubble.

10. In addition to the technological advances in wireless signal processing summarized above, I have chaired an FCC Panel on cellular networks performance reporting requirements and required cellular carriers to report to the US government all substantive outages in service. That panel included top management representatives from all US cellular carriers.

II. MY ASSIGNMENT

11. I have been retained as an expert on behalf of Apple in the above captioned litigation. I am being compensated for my time at my usual consulting rate of \$300 per hour,

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