IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

PERSONALIZED MEDIA COMMUNICATIONS, LLC,	)))	
Plaintiff	)))	
v.	))	Case No. 2:15-cv-01366-JRG-RSP
APPLE, INC.,	))	
Defendant	)))	

**DECLARATION OF ALFRED C. WEAVER, PH.D., IN SUPPORT OF
PMC'S OPPOSITION TO APPLE'S MOTION TO DISMISS**

I, Alfred C. Weaver, Ph.D., declare as follows:

1.   I have been retained by counsel for Personalized Media Communications, LLC

("PMC") as an expert witness to document the state of the art of data communication networks,

data encryption/decryption and streaming media in the 1980s, and, in particular, 1981 and 1987.

I have also been asked to consider whether the inventions claimed in the asserted claims of the

Patents-In-Suit are directed to abstract ideas or whether they amount to significantly more than

the purported abstract ideas posited by Defendant in its pending Motion to Dismiss.

Additionally, I have been asked to analyze whether, assuming the claims to be directed to some

abstract idea, they nevertheless include inventive concepts beyond what was conventional at the

relevant times.

2.   I am being compensated for my review of materials in this case and the

preparation of this declaration at the rate of $400 per hour (plus expenses). My compensation is

not determined by, contingent on or otherwise affected by the outcome of this case.

I.   QUALIFICATIONS

3.   My qualifications for forming the opinions set forth in this declaration are summarized here and further detailed in my *curriculum vitae*, which is attached hereto as Exhibit 1. Also included in Exhibit 1 is a list of my publications.

4.   I earned a Bachelor of Science in Engineering Science in 1971 from the University of Tennessee. I also earned a Master of Science in Computer Science from the University of Illinois at Urbana-Champaign in 1973. Thereafter, I earned a Ph.D. in Computer Science at the University of Illinois at Urbana-Champaign in 1976.

5.   I am currently a Professor of Computer Science and the Associate Chair of the Department of Computer Science at the University of Virginia ("UVa"). I have been employed at UVa continuously since 1977. Over the period of my employment at UVa, I have taught 28 different courses, including electronic commerce, operating systems, computer networks, and various programming courses. Moreover, I have been the graduate advisor for 69 Ph.D. and master's students, all in Computer Science.

6.   In addition to my teaching duties, I am also the Founding Director of UVa's Applied Research Institute, a group of faculty engaged in research areas related to national security and funded by both government and industry. To date, I have published 16 books and book chapters, 30 refereed journal articles, 139 refereed conference publications, and 80 technical reports. I currently serve on the Advisory Council of the Editorial Board of IEEE *Computer* magazine.

7.   As a researcher, I have served as Principal Investigator or co-Principal Investigator of 130+ research projects funded by the federal government and private industry. Recent research projects include 3D printing, automated analysis of published scientific literature, secure mobile computing, crowdsourcing, data integrity, and trustworthy computing.

8.   I have founded five companies. One of these, Network Xpress, Inc., was a spin-off from research work in computer networks funded by the U. S. Navy at UVa. At its peak, another company, Reliacast, Inc., employed 90 people and developed software for secure streaming of multimedia. Reliacast was ultimately sold to Comcast.

9.   I have served as an expert witness in 20+ patent infringement cases since 1988. Six of those cases have gone to trial. In the past four years I have testified in court in two cases:

- *VS Technologies v. Twitter, Inc.*, No. 2:11-cv-00043-HCM-TEM in the United States District Court for the Eastern District of Virginia (Norfolk). In that case, I testified on behalf of Twitter.

- *ePlus, Inc. v. Lawson Software, Inc.*, No. 3:09-cv-00620-REP in the United States District Court for the Eastern District of Virginia (Richmond). In that case, I testified on behalf of ePlus.

A complete list of cases in which I have testified at deposition, hearing or trial in the past 4 years is attached hereto as Exhibit 2.

II.   MATERIALS REVIEWED AND RELIED UPON

10.   In preparing my opinions detailed in this declaration, I have reviewed and considered the claims and specification of U.S. Patent Nos. 8,191,091 (the "'091 Patent"); 8,559,635 (the "'635 Patent"); 7,752,649 (the "'649 Patent") and 8,752,088 (the "'088 Patent") that PMC has asserted in this litigation (collectively, the "Asserted Patents"). I have also reviewed Apple's Motion to Dismiss and the exhibits thereto.

11.   I have also relied on my personal experience. I was born in 1949 and grew up in an era when radio, television, and telephones were already deployed and in widespread commercial use. The ARPAnet, the precursor to today's Internet, was developed in 1969 when I was an undergraduate at the University of Tennessee. While cryptography is an ancient topic,

commercial-grade computer-based encryption *(e.g.*, the Data Encryption Standard) was first certified by the National Bureau of Standards in 1975 while I was a Ph.D. student at the University of Illinois.

12.   I have also relied on years of education, teaching, and research experience concerning software, programming, encryption, streaming media, circuit design, computer architecture, digital logic design, embedded systems, distributed computing, consumer electronics and networks as a basis for forming my opinions. Of particular relevance is my teaching experience. I taught the first microcomputer course at UVa when I joined the Department of Computer Science as an Assistant Professor in 1977. In my microcomputer lab, I employed self-developed telephone transmission networks as well as the Ethernet local area network. Additionally, I taught UVa's first computer networks course in 1980.

III.   LEGAL STANDARDS

13.   I am informed and understand that under the Patent Act an inventor may patent any new and useful process, machine, manufacture, or composition of matter.

14.   I am further informed and understand that there are certain exclusions from patentable subject matter for laws of nature, natural phenomena and abstract ideas.

15.   I am informed and understand, however, that an invention is not rendered ineligible for a patent simply because it involves an abstract concept. That is because, at some level, all inventions embody, use, reflect, rest upon, or apply laws of nature, natural phenomena or abstract ideas. Therefore, I am informed and understand that for abstractness to invalidate a patent claim it must exhibit itself so manifestly as to override the broad statutory categories of eligible subject matter. I am informed and understand that the rationale is one of preemption, namely, a concern that patent law not inhibit further discovery by tying up the future use of the building blocks of human ingenuity.

16.   I am informed and understand that the U.S. Supreme Court has set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible *applications* of those concepts. Thus, I am informed and understand that the *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection. Therefore, I am informed and understand that in a first step in the patent eligibility analysis, one must determine whether the claim is directed to one of those patent-ineligible concepts. If not, the claim is patent-eligible.

17.   I am informed and understand that even if a patent claim is directed to one of the patent-ineligible concepts, then, in a second step, one must consider the elements of the claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible one. This step of the inquiry asks whether the elements of the claim add an "inventive concept" that is sufficient to ensure that the claim in practice amounts to significantly more than a patent upon the ineligible concept itself. This inquiry includes evaluating the other claim limitations to determine whether they are merely conventional or routine in the relevant field at the time of the invention. If not conventional and routine, the other limitations ensure that the claim is something more than an attempt to patent the abstract idea itself. My understanding is that we do not employ hindsight from today in evaluating whether claim limitations are routine or conventional; rather, we conduct that inquiry as of the priority date of the claimed inventions, which in this case is 1981 or 1987.

18.   I am further informed and understand that technological solutions to problems arising out of new technologies can be patent-eligible. By contrast, some business practice known from the pre-Internet world does not become patentable with the routine instruction to "perform it on the Internet" or implement it on a generic computer.

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