UNITED STATES PATENT AND TRADEMARK OFFICE

_____

BEFORE THE PATENT TRIAL AND APPEAL BOARD

_____

APPLE, INC.
PETITIONER

V.

PAPST LICENSING GMBH & CO., KG
PATENT OWNER

_____

CASE IPR2016-01843

U.S. PATENT NO. 6,470,399

_____

DECLARATION OF DR. KENNETH FERNALD UNDER 37 C.F.R. § 42.53

I. TABLE OF CONTENTS

II. INTRODUCTION

1. My name is Kenneth Fernald, Ph.D. I have been retained by counsel for Papst Licensing GmbH & Co., KG as an expert witness in the above-captioned proceeding.

2. I understand that Apple, Inc. (“Petitioner”) has alleged claims 1, 3, 5, 11, and 14 of U.S. Patent No. 6,470,399 ("the ‘399 Patent") are unpatentable over the prior art cited in the above-captioned *inter partes* review.

3. I have been asked to provide an opinion regarding the sufficiency of the March 1997 German application (“the ‘755 application”) in supporting certain claimed features on the ‘399 patent.

III. QUALIFICATIONS

4. My qualifications are summarized here and are addressed more fully in my CV attached as EXHIBIT A. I earned my Bachelor of Science and Master of Science degrees in Electrical Engineering from North Carolina State University (NCSU) in 1985 and 1987. During this period, I worked for the Space Electronics Group developing software for predicting the effects of radiation environments on integrated circuits. I also consulted for the Naval Research Laboratory (NRL). My services to NRL included the design of dosimetry instrumentation and the execution of radiation studies on electronic devices at various facilities around the Unit-

ed States. I joined NASA Langley Research Center in 1987 where I designed motor control instruments and firmware for ground and space station experiments.

5. I returned to NCSU in 1988 to earn my Ph.D. in Electrical Engineering. My doctoral research efforts were funded by the National Science Foundation and focused on the development of medical systems utilizing wireless digital telemetry. My work included a thorough investigation of medical telemetry technology and design of a microprocessor-based system for the fast prototyping of implantable medical instruments. I also completed the design and testing of various components of this system, including a bidirectional digital telemetry integrated circuit (IC) and a general-purpose sensor interface and conversion IC. I completed my Ph.D. in 1992, after which I joined Intermedics Inc. in Angleton, Texas.

6. My responsibilities at Intermedics included system and circuit design of telemetry, signal-processing, and control ICs for medical devices. Examples include the design of a sensor acquisition, compression, and storage IC for implantable pacemakers and defibrillators. I also worked on advanced wireless digital telemetry technology, control ICs for therapy delivery in defibrillators, and software development for sensor waveform compression and recovery. I left Intermedics in 1998 to join Analog Devices Inc. in Greensboro, NC.

7. My work at Analog Devices included the design of advanced ICs for wireless digital communication devices. Specific projects included the design, de-

bug, and testing of a base-band receiver IC for digital satellite systems. This IC performed QPSK demodulation, symbol recovery, and forward-error correction for high-bandwidth wireless video signals. I also performed system design for a CDMA base-band transceiver IC for personal communication devices.

8. I rejoined Intermedics in 1998 as the first employee of an IC design group in Austin, Texas. I continued to work on next-generation medical telemetry ICs until Intermedics was acquired by Guidant in 1999. At that time I joined Cygnal Integrated Products, a startup company in Austin, Texas. My responsibilities at Cygnal included the design and development of mixed-signal embedded products for industrial and instrumentation applications. Specific projects included the design of a proprietary communication system for in-system debug, a proprietary clock recovery method for USB devices, and the design of numerous analog and digital circuits and systems. I remained at Cygnal until its acquisition by Silicon Laboratories Inc. in 2003, at which time I joined Zilker Labs, a start-up company in Austin, Texas, as their first VP of Engineering and later became their Chief Technical Officer.

9. My responsibilities at Zilker Labs included the development of advanced IC technologies for power management and delivery for board-level electronic systems. Specific duties included architecture design and firmware development for all Zilker Labs products. I left Zilker Labs in 2006 to join Keterex as their first VP

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.