UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DELL INC. and DELL TECHNOLOGIES, INC.,
Petitioners

v.

AX Wireless.
Patent Owner.

IPR2024-00685
U.S. Patent 10,079,707

DECLARATION OF THOMAS LAPORTA, PH.D. IN SUPPORT OF INTER PARTES REVIEW OF U.S. PATENT 10,079,707

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

I. QUALIFICATIONS 2

II. UNDERSTANDING OF RELEVANT LEGAL PRINCIPLES 8

III. '707 PATENT 11

A. Overview of '707 Patent 11

B. Technical Background 16

1. Communications System Overview 17

2. Physical Medium 19

3. ITU G.hn 21

a. G.9960 22

(i) Physical Coding Sub-Layer (PCS) 24

(ii) Physical Medium Attachment (PMA) Sub-Layer 25

(iii) Physical Medium Dependent (PMD) sub-layer 26

b. "G.hn: Extended PHY Frame Header" Contribution (July 2009) 27

c. "G.hn: Using Two Symbols for the Header of a PHY frame on Coax" Contribution 28

4. IEEE 802 30

a. OFDM PHY (802.11a) 30

(i) Operating Channels 30

(ii) Physical Layer 31

b. IEEE 802.11n 33

C. Level Of Ordinary Skill In The Art 34

D. Claim Construction 35

IV. GROUND 1: THE COMBINATION OF HANSEN AND JULY 2005 WWISE 35

A. Overview of the Combination 35

TABLE OF CONTENTS
(continued)

Page

1. Hansen 35
   a. TGn Sync Proposal 38
   b. January 2005 WWiSE Proposal 42
   c. Hansen's "Compromise" Greenfield PPDU 44
2. July 2005 WWiSE 45
3. Motivation to Combine 50

B. Independent Claim 1 60
1. Preamble 62
2. "*Wireless OFDM Receiver*" Limitations 64
   a. First and Second Packet Types 64
   b. "Wireless OFDM Receiver" 67
3. "*Packet Type*" Limitations 71
   a. "First Packet Type" 72
      (i) Content 72
      (ii) Order of Transmission/Reception 79
   b. "Second Packet Type" 82
      (i) Content 82
      (ii) Order of Transmission/Reception 86
4. "*Demodulator*" Limitations 91
   a. "First Packet Type" - Order of Symbol Demodulation 94
   b. "Second Packet Type" - Order of Symbol Demodulation 96
   c. "Received in a Different Order" Limitations [1K]/[1L] 99

C. Independent Claim 9 103
D. Dependent Claims 107

TABLE OF CONTENTS
(continued)

Page

1. Claims 2, 3, 10, and 11 107
2. Claims 5, 13 110
3. Claims 7 and 8 111

V. GROUND 2: THE COMBINATION OF HANSEN, JULY 2005 WWISE, AND CHOI RENDERS CLAIMS 1-3, 5, 7-11, AND 13 OBVIOUS 112

A. Overview of the Combination 113
1. Choi 113
2. Motivation to Combine 116

B. Independent Claim 1 119

C. Independent Claim 9 121

D. Dependent Claims 121

VI. CONCLUSION 122

EXHIBIT LIST

Exhibit	Reference
1001	U.S. Patent 10,079,707
1002	File History of the '707 patent
1003	Declaration of Thomas LaPorta, Ph.D. in Support of *Inter Partes* Review of U.S. Patent 10,079,707
1004	Curriculum Vitae of Dr. Thomas LaPorta
1005	U.S. Patent Publication 2006/0182017 to Hansen, et al ("Hansen")
1006	IEEE 802.11-05/0149r5, "WWiSE Proposal: High Throughput Extension to the 802.11 Standard" to Kose, et al, uploaded and publicly available on July 9, 2005 ("July 2005 WWiSE")
1007	Declaration of James L. Lansford, Ph.D.
1008	U.S. Patent Publication 2005/0243774 to Choi, et al ("Choi")
1009	U.S. Provisional Application 61/235,909 ("the '707 Provisional")
1010	U.S. Patent 8,737,189 to Hansen, et al ("Hansen Patent')
1011	U.S. Provisional Application 60/653,429 ("Hansen Provisional")
1012	IEEE 802.11-04/0889r3, "TGn Sync Proposal Technical Specification" to Mujtaba, uploaded and publicly available on January 20, 2005
1013	IEEE 802.11-04/0886r6, "WWiSE Proposal: High Throughput Extension to the 802.11 Standard" to Hansen, et al, uploaded and publicly available on January 6, 2005 ("January 2005 WWiSE")
1014	U.S. Patent Publication 2007/0115802 to Yu ("Yu")
1015	IEEE Std. 802.11a-1999, "Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications: High-Speed Physical Layer in the 5 GHz Band", approved September 16, 1999 ("802.11a")
1016	Declaration of David Ringle for 802.11a-1999 - IEEE Standard for Telecommunications and Information Exchange Between Systems – LAN/MAN Specific Requirements - Part 11: Wireless Medium Access Control (MAC) and physical layer (PHY) specifications:

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.