

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re *inter partes* review of:

U.S. Patent 7,477,624 to Gan, *et al*

Atty. Docket: 3559.001IPR2

Filed: Herewith

For: **Approach for Managing the Use
of Communications Channels
Based on Performance**

**Declaration of Dr. Zhi Ding in Support of
Petition for *Inter Partes* Review of U.S. Patent No. 7,477,624**

Mail Stop Inter Partes Review

Attn: Patent Trial and Appeal Board

Commissioner for Patents

PO Box 1450

Alexandria, VA 22313-1450

Commissioner:

I, Dr. Zhi Ding, declare as follows:

1. I have been retained on behalf of Marvell Semiconductor, Inc., MediaTek Inc., and MediaTek USA, Inc. for the above-captioned *inter partes* review proceeding. I understand that this proceeding involves U.S. Patent No. 7,477,624 to Gan, *et al*, titled “Approach for Managing the Use of Communications Channels Based on Performance” (“the ’624 patent”) and that the ’624 patent is currently assigned to Bandspeed, Inc.

Marvell Semiconductor, Inc.
MediaTek Inc.
MediaTek USA, Inc.

2. I have reviewed and am familiar with the specification of the '624 patent filed on April 3, 2006. I will cite to the specification using the following format: ('624 patent, 1:1-10). This example citation points to the '624 patent specification at column 1, lines 1-10.

3. I have reviewed and am familiar with the file history of the '624 patent. I have also reviewed the reexamination of U.S. Patent No. 7,027,418 ("the '418 patent"). I understand that the '624 patent is a continuation of the '418 patent. I understand that the '624 patent and the '418 patent share a common specification.

4. I have reviewed and am familiar with the following prior art used in the Petition for *Inter Partes* Review of the '624 patent and/or referenced below:

U.S. Patent No. 6,760,319 to Gerten, *et al* ("Gerten"), titled "Fixed Frequency Interference Avoidance Enhancement." (Exhibit 1003.)

U.S. Patent No. 6,418,317 to Cuffaro, *et al* ("Cuffaro"), titled "Method and System for Managing Frequencies Allocated to a Base Station." (Exhibit 1004.)

U.S. Patent No. 6,115,407 to Gendel, *et al* ("Gendel"), titled "Frequency Hopping Communication Method and Apparatus for Modifying Frequency Hopping Sequence in Accordance with Counted Errors." (Exhibit 1005.)

U.S. Patent No. 7,280,580 to Haartsen, *et al* (“Haartsen”), titled “Hop Sequence Adaptation in a Frequency-Hopping Communication System.” (Exhibit 1006.)

U.S. Patent No. 5,781,582 to Sage, *et al* (“Sage”), titled “Frequency Agile Transceiver with Multiple Frequency Synthesizers Per Transceiver.” (Exhibit 1007.)

5. I have also reviewed the pages cited below from the Microsoft Dictionary, Third Edition (Microsoft Press 1997), provided as Exh. 1010.

6. The ’624 patent describes “managing the use of communications channels based on channel performance” in a communications network. (’624 patent, 1:46-48.) I am familiar with the technology described in the ’624 patent as of its earliest possible priority date of January 25, 2001.

7. I have been asked to provide my technical review, analysis, insights, and opinions regarding the ’624 patent and the above-noted references that form the basis for the grounds of rejection set forth in the Petition for *Inter Partes* Review of the ’624 Patent.

I. Qualifications

8. I have 3 decades of experience in wireless communications and signal processing and have authored over 100 journal papers and 2 technical books on communication technologies.

9. I earned a Bachelor of Engineering degree from Nanjing Institute of Technology in Nanjing, China in 1982. I later received a Master of Applied Science degree from the University of Toronto in Toronto, Canada in 1987 and a Doctor of Philosophy degree from Cornell University in Ithaca, New York in 1990, both in Electrical Engineering.

10. I have been a professor of Electrical (and Computer) Engineering since 1990. For over two decades, I have taught classes that cover fundamentals of signal detection, communications, and systems. I am currently a professor in the Department of Electrical and Computer Engineering at University of California at Davis in Davis, California.

11. I have served as the steering committee chair of The Institute of Electrical and Electronics Engineers (IEEE) Transactions on Wireless Communications (1.2009 – 1.2011). I was elevated to Fellow of IEEE in 2002 by the IEEE Signal Processing Society. I have also served as the Technical Program Chair of the IEEE Globecom 2006 (the flagship conference of the IEEE Communications Society). In 2013, I received the IEEE Communications Society Wireless Communications Technical Committee Recognition Award. This annual award is presented to a person with a high degree of visibility and contribution in the field of “Wireless and

Mobile Communications Theory, Systems, and Networks” according to the WTC Award website <http://bbcr.uwaterloo.ca/~wtc/awards.html>.

12. I am the co-author of the text book: B.P Lathi and Zhi Ding, “Modern Digital and Analog Communication Systems,” Fourth Edition, Oxford University Press, January 23, 2009. This textbook contains discussions on frequency hopping and its application in Bluetooth.

13. My Curriculum Vitae is provided as Exhibit 1011, which contains further details on my education, experience, publications, and other qualifications to render an expert opinion. My work on this case is being billed at a rate of \$475 per hour, with reimbursement for actual expenses. My compensation is not contingent upon the outcome of this *inter partes* review.

II. Level of Ordinary Skill in the Art

14. I understand that the person of ordinary skill in the art is viewed at the time of invention. Based on the disclosure of the '624 patent, one of ordinary skill in the art would have a B.S. degree in Electrical and/or Computer Engineering, or an equivalent field, as well as at least 3-5 years of academic or industry experience in the communications field.

15. By equivalent field, I mean that the required levels of educational and industry experience are on a sliding scale relative to each other. For example, a

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