

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Tianma Microelectronics Co. Ltd.,

Petitioner

v.

Japan Display Inc.

Patent Owner

Patent No. 9,310,654
Case No. IPR2021-01029

**DECLARATION OF E. FRED SCHUBERT, PH.D.
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 9,310,654**

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I. Introduction

1. I, E. Fred Schubert, Ph.D., submit this declaration to state my opinions on the matters described below.

2. I have been retained by Petitioner Tianma Microelectronics Co. Ltd. as an independent expert in this proceeding before the United States Patent and Trademark Office.

3. I understand that this proceeding involves U.S. Patent No. 9,310,654 (“the ’654 patent”), and I have been asked to provide my opinions as to the patentability of the claims of the ’654 patent. I have been informed that a copy of the ’654 patent is attached to the petition as Exhibit 1001.

4. This declaration sets forth the opinions that I have formed in this proceeding based on my study of the evidence, my understanding as an expert in the field, and my education, training, research, knowledge, and personal and professional experience.

5. I am being compensated for my time at the rate of \$500 per hour for my work. This compensation is not contingent in any way upon the nature of my findings, the presentation of my findings in testimony, or the outcome of this proceeding, nor does it affect the substance of my statements in this declaration.

6. I have no financial interest in the Petitioner, the Patent Owner Japan Display Inc., or the '654 Patent, and I have not had any contact with the named inventors of the '654 Patent, Takao Atarashiya and Hayato Kurasawa.

II. Qualifications and Background

7. Based upon my educational and work experience, I believe I am well qualified to serve as a technical expert in this matter.

8. I expect to testify further, if requested, regarding the subject matter set forth in this declaration.

9. I am currently an active tenured full professor in the Department for Electrical, Computer, and Systems Engineering at the Rensselaer Polytechnic Institute (RPI) located in Troy, New York.

10. I also held other positions at RPI. For example, from 2002 to 2012, I was a professor in the Department of Physics, Applied Physics, and Astronomy. In 2008-2009, I served as the founding director for RPI's Engineering Research Center for Smart Lighting, which was funded by the National Science Foundation (NSF).

11. Before I moved to RPI, I was a professor in the Department of Electrical and Computer Engineering at Boston University, from 1995 to 2002. I also served as the director of Boston University's Semiconductor Devices Research Laboratory.

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