

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TIANMA MICROELECTRONICS CO. LTD.,
Petitioner,

v.

JAPAN DISPLAY INC. and PANASONIC LIQUID CRYSTAL
DISPLAY CO., LTD.,
Patent Owner.

Case No. IPR2021-01061
U.S. Patent No. 10,423,034

**DECLARATION OF DR. BRUCE W. SMITH
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 10,423,034**

Table of Contents

I.	Introduction.....	4
II.	Qualifications and Background	5
III.	Materials Considered.....	6
IV.	Legal Standards	7
	A. Claim Construction	8
	B. Obviousness Under 35 U.S.C. § 103.....	8
V.	The '034 Patent.....	12
	A. Overview of the '034 Patent.....	12
	B. Prosecution History of the '034 Patent	15
	C. Person of Ordinary Skill in the Art	15
VI.	Claim Construction of Terms of the '034 Patent	17
VII.	Summary of Opinions on Unpatentability.....	17
VIII.	Obviousness of Claims 1-4 and 6-8 over Ochiai and Ando	22
	A. Independent Claim 1	22
	B. Claim 2: A liquid crystal display device according to claim 1, wherein the scanning line is disposed between the semiconductor layer and the spacer in a cross-section view.	69
	C. Claim 3: A liquid crystal display device according to claim 1, wherein the spacer is formed on the first substrate.....	71
	D. Claim 4: A liquid crystal display device according to claim 1, wherein the second pixel electrode is overlapped with the scanning line.....	74
	E. Claim 6: A liquid crystal display device according to claim 1, wherein the organic film has a through hole, and the third contact hole is located in the through hole in the plan view.....	75

F. Claim 7: A liquid crystal display device according to claim 6,
wherein the second insulation film contacts the source electrode.78

G. Claim 8: A liquid crystal display device according to claim 1,
wherein the spacer is provided on the second substrate and located
away from the third contact hole.....80

IX. Obviousness of Claim 7 over Ochiai, Ando, and Hattori.....84

X. Obviousness of Claim 8 over Ochiai, Ando, and Yanagawa87

XI. Conclusion91

I. INTRODUCTION

1. I, Dr. Bruce W. Smith, submit this declaration to state my opinions on the matter described below.

2. I have been retained by Petitioner Tianma Microelectronics Co. Ltd., (“Tianma” or “Petitioner”), as an independent expert in this proceeding before the United States Patent and Trademark Office. Although I am being compensated at my usual and customary rate of \$500 per hour, no part of my compensation depends on the outcome of this proceeding, and I have no other interest in this proceeding.

3. I understand that this proceeding involves U.S. Patent No. 10,423,034 (the “’034 patent”), and I have been asked to provide my opinions as to the patentability of the claims of the ’034 patent. I understand that the application for the ’034 patent was filed on June 27, 2018, and claims priority to a foreign application having a filing date of February 26, 2008.

4. I have been asked to consider the validity of certain claims of the ’034 patent based on certain prior art references. I have also been asked to consider the state of the art and prior art available as of February 26, 2008. Based on the prior art discussed in this declaration, it is my opinion that claims 1-4 and 6-8 of the ’034 patent are unpatentable for the reasons provided below.

II. QUALIFICATIONS AND BACKGROUND

5. I believe that I am well qualified to serve as a technical expert in this matter based upon my over 30 years of research, academic, industry, and consulting engineering experience in IC (integrated circuit) processing, semiconductor device materials, microelectronics, microlithography, imaging science, thin film transistor (TFT) processing, and LCD-TFT flat panel display technology.

6. I am a professor of Microelectronic Engineering and the Director of the Ph.D. program in Microsystems Engineering at the Rochester Institute of Technology (RIT).

7. I am a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), a Fellow of the International Society for Optical Engineering (SPIE), and a Fellow of the Optical Society of America (OSA). I have received numerous awards including the IEEE Technology Innovation Award, the RIT Trustees Scholarship Award, the SPIE Research Mentoring Award, the RIT Creators Award, and the Rush Henrietta Outstanding Alumni Award, among others, and have been inducted into RIT's Innovator Hall of Fame.

8. I have published over 200 technical papers, articles, textbooks, and textbook chapters, and I hold 27 patents in the fields of microelectronics and semiconductor device process technology. My patented technologies have been licensed both nationally and internationally.

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.