#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

### BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG DISPLAY CO., LTD. AND DELL INC., Petitioner,

v.

SOLAS OLED, LTD., Patent Owner.

Patent No. 6,072,450

DECLARATION OF ADAM FONTECCHIO, PH.D.



I.	BAC	ACKGROUND AND QUALIFICATIONS		
II.	MAT	MATERIALS CONSIDERED		
III.	RELEVANT LEGAL STANDARDS			
	a.	Anticipation	6	
	b.	Obviousness	7	
IV.	BACKGROUND OF MATRIX DISPLAYS			
	a.	Passive Matrix Displays	10	
	b.	Active Matrix Displays	11	
V.	OVERVIEW OF U.S. PATENT 6,072,450			
	a.	Summary	14	
	b.	File History	21	
	c.	The Claims at Issue	22	
VI.	LEV	EL OF ORDINARY SKILL IN THE ART	28	
VII.	CLA	CLAIM CONSTRUCTION		
VIII.	OVERVIEW OF THE PRIOR ART		30	
	a.	Utsugi (U.S. Patent No. 5,670,792)	30	
	b.	Manabe (Ex. 1004)	35	
	c.	Eida (WO 96/25020)	36	
IX.	DISC	CLOSURE OF CLAIMS 1–2, 4–8, AND 15–16 BY UTSUGI	39	
	a.	Claim 1	39	
	b.	Dependent Claim 2	51	



	c.	Dependent Claim 4	51
	d.	Dependent Claim 5	54
	e.	Dependent Claim 6	55
	f.	Dependent Claim 7	57
	g.	Dependent Claims 8 and 16	63
	h.	Claim 15	65
X.	THE	SUGGESTION OF CLAIMS 1–2, 4–8, AND 15–16 BY UTSUGI	79
	a.	Claim 1[c]	79
	b.	Dependent Claims 8 and 16	81
	c.	Claim 15[f] and 15[j/k]	83
XI.	THE	COMBINATION OF UTSUGI AND MANABE (CLAIM 3)	85
	a.	Dependent Claim 3	89
XII.		COMBINATION OF UTSUGI AND EIDA (CLAIMS 9, 11–13, an 8)	
	a.	Dependent Claim 9	94
	b.	Dependent Claim 11	95
	c.	Dependent Claim 12	98
	d.	Dependent Claim 13	99
	e.	Dependent Claim 17	102
	f.	Dependent Claim 18	103



#### I, Adam Fontecchio, Ph.D., declare as follows:

- 1. I have been retained as a technical consultant by Samsung Display Co., Ltd., who I have been informed is one of the petitioners in the present proceeding, as well as on behalf of Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., who I have been informed are identified as "real parties in interest" in the present proceeding. For ease of reference, throughout my declaration, I will refer to these entities collectively as "Samsung." I am also informed that Dell Inc. is a co-petitioner in the present proceeding. Again, for ease of reference, throughout my declaration, I will refer to Samsung Display Co., Ltd. and Dell Inc. together as "Petitioner."
- 2. I have been asked by counsel for the Petitioner to consider whether the references listed as Exhibits 1001-1006 and 1009–1011 below disclose or suggest, alone or in combination, the limitations recited in the claims of U.S. Patent 6,072,450 (the "'450 patent"). I have also been asked to consider the state of the art and the prior art available before the filing of the '450 patent. I have provided my opinions below.
- 3. I have been informed that a company known as Solas OLED Ltd. alleges to be the owner of the '450 patent. To the best of my knowledge, I have no financial interest in Samsung, Dell, Solas OLED Ltd., or the '450 patent. To the best of my recollection, I have had no contact with Solas OLED Ltd. or the named



inventors of the patent, Hiroyasu Yamada, Tomoyuki Shirasaki, and Yoshihiro Kawamura. To the extent any mutual funds or other investments that I own have a financial interest in Samsung, the Patent Owner, or the '450 patent, I am not aware of, nor do I have control over, any financial interest that would affect or bias my judgment.

4. I am being compensated at my standard consulting rate for my time, and my compensation is in no way contingent on the results of these or any other proceedings relating to the above-captioned patent.

## I. BACKGROUND AND QUALIFICATIONS

- 5. I am a professor of electrical engineering specializing in electro-optics and displays. I have studied and researched the function and use of numerous types of display technologies, including TFT-LCD, Holographically-formed Polymer Dispersed Liquid Crystal (H-PDLC) displays, Electrophoretic Displays (EPD), nano-Field Emission Displays (nFED), and novel electroluminescent displays including organic light emitting materials. I have conducted extensive research on color filtering, reflective and transmissive displays, and the fundamental interactions of light and matter. I have published numerous articles and delivered many lectures and research talks on these subjects.
- 6. I have been employed as a faculty member at Drexel University since 2002. Currently, my rank is that of tenured Full Professor. I served as the Vice-



# DOCKET

# 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.

