

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TIANMA MICRO-ELECTRONICS CO., LTD.,  
Petitioner,

v.

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

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Case IPR2016-00991  
Patent 8,758,871 B2

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Before GRACE KARAFFA OBERMANN, JO-ANNE M. KOKOSKI, and  
KRISTINA M. KALAN, *Administrative Patent Judges*.

KALAN, *Administrative Patent Judge*.

DECISION  
Institution of *Inter Partes* Review  
37 C.F.R. § 42.108

## I. INTRODUCTION

Tianma Micro-electronics Co., Ltd. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–14 of U.S. Patent No. 8,758,871 B2 (Ex. 1001, “the ’871 patent”). Paper 2 (“Pet.”). Japan Display Inc. and Panasonic Liquid Crystal Display Co., Ltd. (collectively, “Patent Owner”) did not file a Preliminary Response.

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon considering the Petition and the evidence of record, we determine that Petitioner has shown a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the claims challenged in the Petition. Accordingly, we institute *inter partes* review.

### A. *Related Proceedings*

The parties do not identify any other proceedings related to the ’871 patent. A patent related to the ’871 patent, U.S. Patent No. 7,718,234 B2 is the subject of IPR2016-00990, also filed by Petitioner.

### B. *The ’871 Patent*

The ’871 patent, titled “Liquid Crystal Display and Method for Manufacturing Same,” issued on June 24, 2014. Ex. 1001, at [54]. The ’871 patent relates to a liquid crystal display capable of “reducing the occurrence of defective display due to variations in the initial alignment direction of a liquid crystal alignment control film in a liquid crystal display of an IPS scheme, realizing the stable liquid crystal alignment, providing excellent mass productivity, and having high image quality with a higher contrast

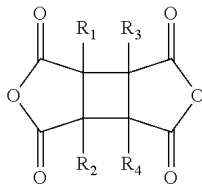
ratio.” *Id.* at [57]. Specifically, the patent relates to a liquid crystal display of an In-Plane Switching (“IPS”) scheme in which an electric field substantially in parallel with a substrate is applied to a liquid crystal layer for operation, and a production process thereof. *Id.* at 1:15–19. The “uniformity of alignment is a very important factor in the IPS scheme, and problems in the currently used rubbing technique have become apparent.” *Id.* at 4:1–3. For example, one alternate alignment technique realizes the alignment of liquid crystal molecules in a predetermined direction through irradiation of polarized light. *Id.* at 4:20–22. Regarding the composition of the alignment control films, the ’871 patent states that “it is desirable that the photoreactive alignment control film is polyamic acid or polyimide comprising at least cyclobutanetetracarboxylic acid dianhydride as acid anhydride and at least aromatic diamine as diamine.” *Id.* at 5:61–64.

C. *Challenged Claims*

Claim 1 recites:

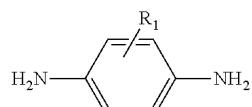
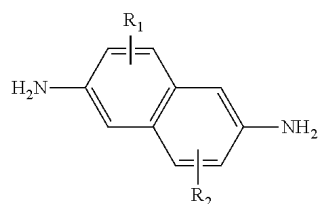
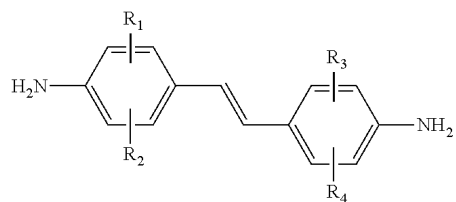
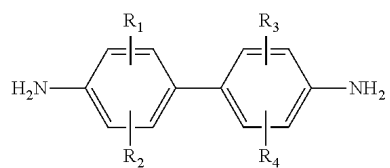
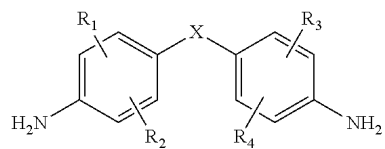
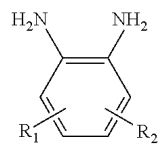
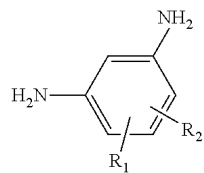
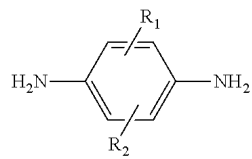
1. An alignment control film, adapted to be an alignment control film of a liquid crystal display to drive a liquid crystal with an electric field arising between a pair of electrodes formed on a substrate, comprising a polyamic acid or polyimide that includes cyclobutanetetracarboxylic acid dianhydride and/or its derivative and aromatic diamine; and

wherein the cyclobutanetetracarboxylic acid dianhydride and/or its derivative is a compound represented by a formula [1]:



[1]

where R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> of the compound of the formula [1] each independently represent a hydrogen atom, a fluorine atom, an alkyl group or alkoxy group with a carbon number of 1 to 6, with the proviso that at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> of the compound of formula [1] is not hydrogen,  
wherein the alignment control film has a thickness of from 1 nm to 100 nm, and  
wherein the aromatic diamine compound contains at least one of compounds selected from a group of compounds consisting of ones represented by formulas [2] to [16]:



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