

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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LG ELECTRONICS, INC. and LG ELECTRONICS U.S.A., INC.,  
Petitioner,

v.

TOSHIBA SAMSUNG STORAGE TECHNOLOGY KOREA  
CORPORATION,  
Patent Owner.

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Case IPR2015-01653  
Patent RE43,106 E

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Before KALYAN K. DESHPANDE, MICHAEL R. ZECHER, and  
TREVOR M. JEFFERSON, *Administrative Patent Judges*.

DESHPANDE, *Administrative Patent Judge*.

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

## I. INTRODUCTION

LG Electronics, Inc. and LG Electronics U.S.A., Inc. (collectively, “Petitioner”) filed a Petition requesting an *inter partes* review of claims 7–19 of U.S. Patent No. RE43,106 E (Ex. 1001, “the ’106 patent”). Paper 1 (“Pet.”). Toshiba Samsung Storage Technology Korea Corporation (“Patent Owner”) did not file a Preliminary Response.

We have jurisdiction under 35 U.S.C. § 314(a), 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.” After considering the Petition and associated evidence, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing unpatentability of all the challenged claims. Thus, we authorize institution of an *inter partes* review of claims 7–19 of the ’106 patent.

### A. Related Proceedings

Petitioner indicates that the ’106 patent is involved in the following district court cases: (1) *LG Electronics, Inc. v Toshiba Samsung Storage Tech. Korea Corp.*, Case No. 1:12-cv-01063 (LPS) (D. Del.) and (2) *Toshiba Samsung Storage Tech. Korea Corp. v. LG Electronics, Inc.*, Case No. 1:15-cv-0691 (LPS) (D. Del.). Pet. 2; Paper 6, 1.

### B. The ’106 Patent (Ex. 1001)

The ’106 patent describes an optical pickup apparatus that can compatibly record information on and read information from a digital video disk (DVD) and a recordable compact disk (CD-R) using a holographic lens. Ex. 1001, 1:28–34. The optical pickup apparatus is set forth in Figure 3 of the ’106 patent as follows:

FIG. 3

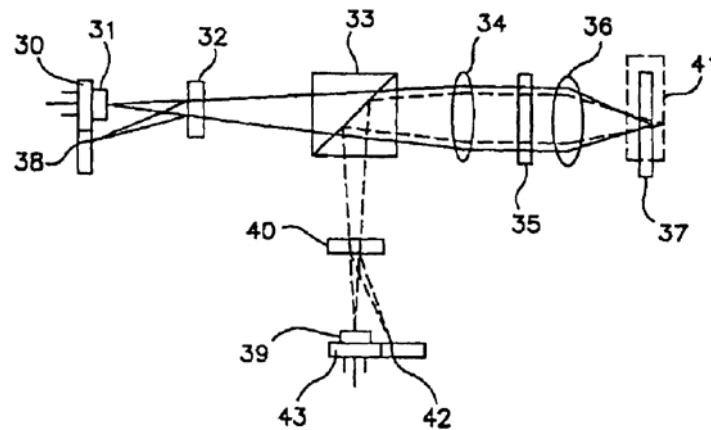


Figure 3 shows an optical system of an optical pickup according to one embodiment. *Id.* at 4:33–34. The optical pickup apparatus includes laser light sources 31 and 39 for emitting light beams having different wavelengths. *Id.* at 4:34–47. Laser light source 31 emits a wavelength of 650nm, suitable for a DVD. *Id.* at 4:55–59. Laser light source 39 emits a light beam having a 780 nm wavelength suitable for a CD-R. *Id.* at 4:62–67. Holographic beam splitters 32 and 40 alter the optical path of the light beams reflected information recording surfaces, beam splitter 33 completely transmits or reflects the incident light beam according to wavelength, and collimating lens 34 collimates the incident light beam to be in a parallel form. *Id.* at 4:34–47. Holographic lens 35 diffracts the incident light beam according to its wavelength and objective lens 36 focuses the light beams on the respective information recording surfaces of optical disks 37 and 41. *Id.*

Holographic lens 35 selectively diffracts the incident light beam in order to prevent the generation of spherical aberration with regard to the light beam's focus on the information recording surfaces of optical disks 37 and 41. *Id.* at 5:6–10. The relationship between holographic lens 35,

objective lens 36, and optical disks 37 and 41 is illustrated in Figure 4A of the '106 patent as follows:

**FIG. 4A**

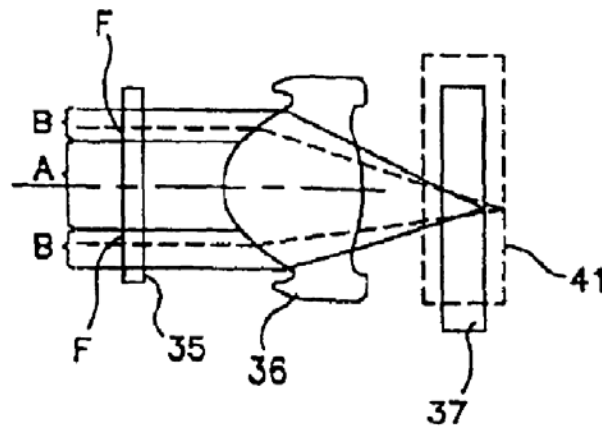


Figure 4A describes that objective lens 36 is partitioned in to regions A and B. *Id.* at 5:13–14. Region A is closer to the optical axis of objective lens 36 and has little effect on spherical aberration, whereas region B is farther from the optical axis of objective lens 36 and has a large effect on spherical aberration. *Id.* at 5:14–18. Objective lens 36 is most appropriate for an optical disk having a thickness such as a DVD. *Id.* at 5:18–20. The light beam incident to region A passes through objective lens 36 without any diffraction by holographic ring lens 35 and is focused directly on the disk. *Id.* at 5:33–36. The light beam incident to region F is wavelength-selectively diffracted by holographic ring lens 35 and then proceeds to objective lens 36. *Id.* at 5:36–39.

#### *C. Illustrative Claim*

Petitioner challenges claims 7–19 of the '106 patent. Pet. 4–60. Claim 7 is an independent claim, and claims 8–19 directly or indirectly depend from independent claim 7. Claim 7 is illustrative of the claims at

issue and is reproduced below:

7. An objective lens to form beam spots of different sizes using corresponding first and second light beams of respectively different wavelengths, the objective lens comprising:

an inner region including an optical center of the objective lens which has an optical property optimized to focus the first light beam onto a first optical recording medium of a first thicknesses and to focus the second light beam onto a second optical recording medium of a second thickness other than the first thickness; and

a diffractive region surrounding said inner region and comprising an optical property optimized so as to selectively diffract the first and second light beams as a function of wavelength so as to change a numerical aperture of the objective lens.

Ex. 1001, 8:18–8:31.

*D. The Alleged Grounds of Unpatentability*

The information presented in the Petition sets forth proposed grounds of unpatentability of claims 7–19 of the '106 patent under 35 U.S.C. § 103(a) as follows (*see* Pet. 3, 22–59):<sup>1</sup>

References	Claims Challenged
APA <sup>2</sup> and Katayama <sup>3</sup>	7–19

<sup>1</sup> Petitioner supports its challenge with the Declaration of Masud Mansuripur, Ph.D. Ex. 1012.

<sup>2</sup> The '106 patent includes Admitted Prior Art (“APA”) describing a conventional optical pickup apparatus and a thin-film type variable aperture. *See* Ex. 1001, 1:58–3:29, Figs. 1, 2.

<sup>3</sup> U.S. Patent No. 5,696,750, issued on December 9, 1997 (Ex. 1002) (“Katayama”).

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