

**LIGHT FOCUSING OPTICAL SYSTEM, OPTICAL PICKUP DEVICE AND
OPTICAL RECORDING AND REPRODUCING DEVICE USING THE SAME,
AS WELL AS LIGHT FOCUSING METHOD**

ABSTRACT

A light focusing optical system which focuses light, for recording to and/or reproducing from a plurality of optical recording media of different kinds, onto the recording media by using a diffraction element and lens; the diffraction element has at least first and second diffractive surfaces and; the first diffractive surface diffracts light whose wavelength is 630 nm or more and 670 nm or less to perform aberration correction on an optical recording medium whose cover layer has a thickness of approximately 0.6 mm; and the second diffractive surface diffracts light whose wavelength is 400 nm or more and 415 nm or less to perform aberration correction on an optical recording medium whose cover layer has a thickness of approximately 0.1 mm or approximately 0.6 mm.

Accordingly, a light focusing optical system having a combination of diffraction grating and an objective lens is used to obtain, using one objective lens, compatibility between a plurality of optical recording media each of which has the cover layer of a different thickness and uses a different wavelength of light for recording and/or reproduction.

FIG.1