



**OPTICAL DISC AND METHODS FOR RECORDING AND REPRODUCING
ESSENCIAL INFORMATION OF OPTICAL DISC**

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An optical disc and methods for recording essential information in and reproducing essential information from an optical disc are provided. The optical disc includes as a pattern of crystalline and amorphous marks storing essential information. The essential information recording method involves: heating an amorphous recording layer above the temperature of crystallization by radiating a beam according to a photoelectrically converted signal; and slowly cooling the heated recording layer to the temperature of crystallization or below to form a pattern of crystalline and amorphous marks. The essential information reproducing method involves: radiating a beam onto a pattern of crystalline and amorphous marks in which essential information of the optical disc is recorded; receiving the beam reflected from the pattern of crystalline and amorphous marks and photoelectrically converting the received beam to detect a signal; filtering the detected signal through a high-pass filter; and reproducing the essential information of the optical disc from the filtered signal. Essential information can be recorded in a recordable optical disc by phase change using an existing disc initializing apparatus after deposition of a recording layer and before initialization of the optical disc. Therefore, an additional recording apparatus and process is not necessary, and no damage caused by a high energy of laser occurs in the optical disc.

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FIG. 4