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**(54) Title (EN):** HEAD-MOUNTED DISPLAY WITH ELECTROCHROMIC DIMMING MODULE FOR AUGMENTED AND VIRTUAL REALITY PERCEPTION

**(54) Title (FR):** VISIOCASQUE COMPRENANT MODULE DE GRADATION ÉLECTROCHROMIQUE POUR UNE PERCEPTION DE RÉALITÉ AUGMENTÉE ET VIRTUELLE

**(57) Abstract:**

**(EN):** The technology provides a dimming module (198) for a near-eye display, NED, device (14r, l) that controls an amount of ambient light (170) that passes through the transmissive near-eye display (112) to a user. The dimming module (198) includes at least one electrochromic cell (400) that enables variable density dimming so that the NED device (14r, l) may be used in an augmented reality (AR) and/or virtual reality (VR) application. The electrochromic cell (400) may be a monochrome electrochromic cell having stacked layers of a monochrome electrochromic compound layer (453a) and insulator (454a) sandwiched between a pair of transparent substrates (450a, b) and conductors (451a, b). A current may be applied to the conductor layers (451a, b) to control the amount of dimming in response to a dimming value. A NED device (14l, r) having a dimming module (198) may be included in a visor (8), or other type of head-mounted display, HMD (2). The dimming module (198) may be flat and supported by a flat waveguide mount (123) in the user's field of view.

**(FR):** La présente invention concerne sur une technologie qui prévoit un module de gradation (198) pour un dispositif d'affichage proche de l'œil, NED, (14r, l) qui commande une quantité de lumière ambiante (170) qui passe à travers le dispositif d'affichage proche de l'œil (112) à destination d'un utilisateur. Le module de gradation (198) comprend au moins une cellule électrochromique (400) qui permet une gradation de densité variable, de telle sorte que le dispositif NED (14r, l) puisse être utilisé dans une application de réalité augmentée (RA) et/ou réalité virtuelle (RV). La cellule électrochromique (400) peut être une cellule électrochromique monochrome comportant des couches superposées d'une couche de composé électrochrome monochrome (453a) et un isolant (454a) pris en sandwich entre une paire de substrats transparents (450a, b) et des conducteurs (451a, b). Un courant peut être appliqué aux couches conductrices (451a, b) afin de commander la quantité de gradation en réponse à une valeur de gradation. Un dispositif NED (14l, r) comportant un module de gradation (198) peut être inclus dans une visière (8), ou autre type de visiocasque, HMD (2). Le module de gradation (198) peut être plat et porté par un support de guide d'ondes plat (123) dans le champ de vision de l'utilisateur.

**International search report:**

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**Declarations:**

Declaration made as applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate

Declaration made as applicant's entitlement, as at the international filing date, to claim the priority of the earlier application, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51bis.1(a)(iii))