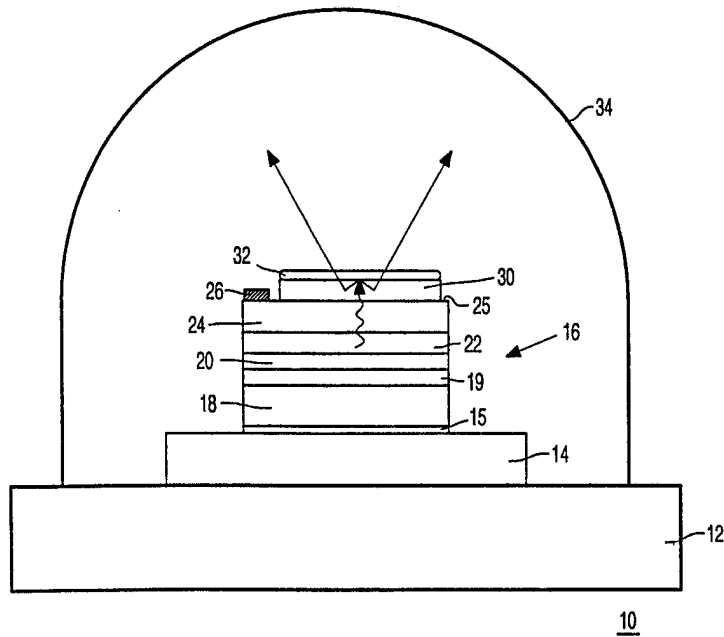




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/IB98/00746 (22) International Filing Date: 18 May 1998 (18.05.98) (30) Priority Data: 08/863,989 27 May 1997 (27.05.97) US (71) Applicant: KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL). (71) Applicant (for SE only): PHILIPS AB [SE/SE]; Kottbygatan 7, Kista, S-164 85 Stockholm (SE). (72) Inventors: SINGER, Barry; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). RONDA, Cornelis, Reinder; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). VRIENS, Leendert; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). (74) Agent: KOPPEN, Jan; Internationaal Octrooibureau B.V., P.O. Box 220, NL-5600 AE Eindhoven (NL).</p>		<p>(81) Designated States: JP, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). <b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 8 April 1999 (08.04.99)</p>

(54) Title: UV/BLUE LED-PHOSPHOR DEVICE WITH ENHANCED LIGHT OUTPUT



(57) Abstract

A visible light emitting device for use in lighting and/or display applications includes a UV LED, a phosphor layer on the upper, main light emitting surface of the LED, and a short wave pass (SWP) filter between the LED and the phosphor layer to transmit UV light from the LED to the phosphor layer, as well as to reflect visible light from the phosphor layer in a forward direction, thus enhancing the efficiency of the device. Additional optical filters located on the top of the phosphor layer further enhance efficiency and/or spectral characteristics of the emitted light.

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 98/00746

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: H01L 33/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4822144 A (VRIENS), 18 April 1989 (18.04.89) --	1-13
A	US 4882617 A (VRIENS), 21 November 1989 (21.11.89) --	1-13
A	US 5557115 A (SHAKUDA), 17 Sept 1996 (17.09.96) --	1-13
A	EP 0581232 A1 (STANLEY ELECTRIC CO., LTD.), 2 February 1994 (02.02.94) --	1-13

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Date of the actual completion of the international search

11 February 1999

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International application No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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