

(19) World Intellectual Property Organization
International Bureau



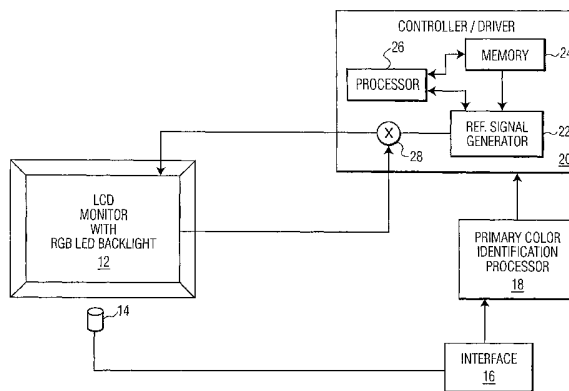
(43) International Publication Date
14 November 2002 (14.11.2002)

PCT

(10) International Publication Number
WO 02/090909 A3

- (51) International Patent Classification⁷: G01J 3/51 (74) Agent: DUSSELDORP, Jan, C.; Internationaal Octroibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (21) International Application Number: PCT/IB02/01492
- (22) International Filing Date: 25 April 2002 (25.04.2002) (81) Designated States (national): CN, JP, KR.
- (25) Filing Language: English (84) Designated States (regional): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- (26) Publication Language: English
- (30) Priority Data: 09/851,099 8 May 2001 (08.05.2001) US Published: — with international search report
- (71) Applicant: KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL). (88) Date of publication of the international search report: 25 September 2003
- (72) Inventor: CHANG, Chin; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). *For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: SYSTEM FOR MEASURING CHROMATICITY COORDINATES



(57) Abstract: A system and method for identifying primary color chromaticity coordinates of a red, green and blue light sources includes a tristimulus filter the receives the combined light generated by the light sources. The light sources are preferably a group of red, green and blue light emitting diodes. A processor is configured to generate a plurality of test control signals that sets a desired intensity value for each of the red, green and blue LEDs. Based on these test control signals, the system is configured to measure three sets of chromaticity coordinates corresponding to the combined light generated by these red, green and blue LEDs. The processor thereafter calculates the color chromaticity coordinates of the LEDs, based on the measured coordinates of the combined light, and the intensity values of the LEDs, and the intensity values of the combined light. This calculation in accordance with one embodiment of the invention is accomplished by solving a matrix equation. Once the color coordinates of the individual light sources is uniquely calculated, the system measures the intensity values of light for each of the light sources that is necessary to provide a combined light with a desired color chromaticity coordinates. These intensity values can be used in a feedback control circuit to maintain the desired combined light as the LEDs change their characteristics from batch to batch or over time.



WO 02/090909 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 02/01492

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G01J3/51				
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) IPC 7 G01J				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, PAJ, INSPEC				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
A	US 6 127 783 A (MARSHALL THOMAS M ET AL) 3 October 2000 (2000-10-03) abstract ---	1,9		
A	US 3 389 265 A (SCHRECKENDGUST JAY G) 18 June 1968 (1968-06-18) claim 1 ---	1,8		
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 01, 29 January 1999 (1999-01-29) & JP 10 281873 A (ROHM CO), 23 October 1998 (1998-10-23) abstract -----	1		
<input type="checkbox"/> Further documents are listed in the continuation of box C.				
<input checked="" type="checkbox"/> Patent family members are listed in annex.				
° Special categories of cited documents :				
<table style="width:100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed </td> <td style="width: 50%; border: none; vertical-align: top;"> *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family </td> </tr> </table>			*A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family
A document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family			
Date of the actual completion of the international search <p align="center">4 September 2002</p>	Date of mailing of the international search report <p align="center">11/09/2002</p>			
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer <p align="center">De Buyzer, H</p>			

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 02/01492

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 6127783	A	03-10-2000	CN	1291282 T	11-04-2001
			WO	0037904 A1	29-06-2000
			EP	1056993 A1	06-12-2000

US 3389265	A	18-06-1968	BE	680296 A	31-10-1966
			GB	1105192 A	06-03-1968

JP 10281873	A	23-10-1998	NONE		
