

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
29 May 2008 (29.05.2008)

PCT

(10) International Publication Number
WO 2008/063353 A3

(51) **International Patent Classification:**
G02F 1/1335 (2006.01) **HO1L 27/32** (2006.01)
G02B 5/22 (2006.01)

(74) **Common Representative:** EASTMAN KODAK COM-
PANY; Eastman Kodak Company, 343 State Street,
Rochester, NY 14650-2201 (US).

(21) **International Application Number:**
PCT/US2007/022785

(22) **International Filing Date:** 29 October 2007 (29.10.2007)

(25) **Filing Language:** English

(26) **Publication Language:** English

(30) **Priority Data:**
11/595,199 10 November 2006 (10.11.2006) US

(71) **Applicant (for all designated States except US):** EAST-
MAN KODAK COMPANY [US/US]; 343 State Street,
Rochester, NY 14650-2201 (US).

(72) **Inventors; and**

(75) **Inventors/Applicants (for US only):** **HELBER, Mar-**
garet, Jones [US/US]; 445 Clarendon Court, Webster, NY
14580 (US). **ALESSI, Paula, Jane** [US/US]; 126 Gnage
Lane, Rochester, NY 14612 (US). **BURBERRY, Mitchell,**
Stewart [US/US]; 299 Maidstone Drive, Webster, NY
14580 (US). **DIEHL, Donald, Richard** [US/US]; 27
Kresswood Drive, Rochester, NY 14624 (US). **BRICK,**
Mary, Christine [US/US]; 483 Sun Hill Lane, Webster,
NY 14580 (US). **EVANS, Steven** [US/US]; 570 Sagamore
Drive, Rochester, NY 14617 (US). **COK, Ronald, Steven**
[US/US]; 36 Westfield Commons, Rochester, NY 14625
(US).

(81) **Designated States (unless otherwise indicated, for every
kind of national protection available):** AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK,
LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW,
MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL,
PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,
ZM, ZW

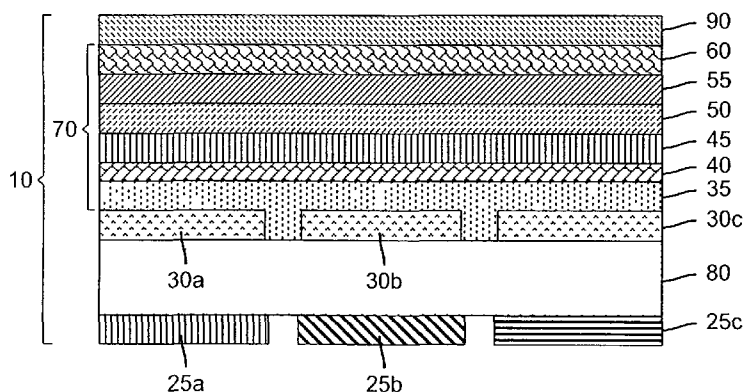
(84) **Designated States (unless otherwise indicated, for every
kind of regional protection available):** ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) **Date of publication of the international search report:**
16 October 2008

(54) **Title:** DISPLAY WITH RGB COLOR FILTER ELEMENT SETS



(57) **Abstract:** An electronic display containing a light source and a color filter set, the color filter set comprising: a green color filter having a green filter layer comprising particular first and second pigments; a blue color filter having a blue filter layer; a red color filter having a red filter layer; and wherein the color gamut defined by the electronic display has a %NTSC_{x,y} ratio greater than 88%.

WO 2008/063353 A3

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/022785

A. CLASSIFICATION OF SUBJECT MATTER

INV. G02F1/1335 G02B5/22 H01L27/32

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

B. REIDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G02F G02B HOIL G03F

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 , COMPENDEX, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	HATWAR T K ET AL: "Low-voltage white tandem structures for fabricating RGBW AMOLED displays" DIG. TECH. PAP. SID INT. SYMP.; DIGEST OF TECHNICAL PAPERS - SID INTERNATIONAL SYMPOSIUM; SOCIETY FOR INFORMATION DISPLAY - 44TH INTERNATIONAL SYMPOSIUM, SEMINAR, AND EXHIBITION, SID 2006 - INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS 2006, vol. 37, no. 4, 4 June 2006 (2006-06-04), - 9 June 2006 (2006-06-09) pages 1939-1942, XP002491116 abstract; figures 7-9 page 1966, right-hand column, paragraphs 2 and 3 ----- -/--	1-13



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"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

"T¹ 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

"Y¹ 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

5 August 2008

Date of mailing of the international search report

21/08/2008

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

Ammerl ahn , Dirk

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/022785

C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document with indication where appropriate of the relevant passages	Relevant to claim No
Y	US 2003/151708 AI (FUNAKURA SEIJI [JP] ET AL) 14 August 2003 (2003-08-14) paragraph [0107] - paragraph [0110] paragraph [0134] - paragraph [0139] figures 1-3; table 1 -----	1-6, 11, 12
Y	US 2006/098316 AI (TATSUZAWA MASAHIRO [JP] ET AL) 11 May 2006 (2006-05-11) paragraphs [0195] , [0196] , [0206] table 1 -----	1-6, 11, 12
Y	EP 0 359 934 A (MATSUSHITA ELECTRIC IND co LTD [JP]) 28 March 1990 (1990-03-28) figures 2,3; example 1 -----	3-9, 12
Y	US 2002/014183 AI (HALL-GOULLE VERONIQUE [CH] ET AL) 7 February 2002 (2002-02-07) column 4, line 30 - line 33; example 1 -----	3-9, 12
Y	EP 1 298 165 A (TODA KOGYO CORP [JP]) 2 April 2003 (2003-04-02) example 8; tables 4,5 ,7 -----	3-9 ,12
Y	wo 98/45756 A (CIBA GEIGY AG [CH]) 15 October 1998 (1998-10-15) page 19, line 25; examples 1,2,9, 13 page 20, line 29 - line 37 -----	3-9, 12
Y	US 5 897 981 A (KOBAYASHI KESANAO [JP] ET AL) 27 April 1999 (1999-04-27) column 6, line 19 - column 7, line 3; figure 3 -----	5,6,9-12
Y	EP 0 965 865 A (EASTMAN KODAK co [US]) 22 December 1999 (1999-12-22) example 2 -----	5,6,9-13
X, P	SPINDLER JEFFREY P ET AL: "Development of tandem white architecture for large-sized AMOLED displays with wide color gamut" DIG. TECH. PAP. SID INT. SYMP.; DIGEST OF TECHNICAL PAPERS - SID INTERNATIONAL SYMPOSIUM; 2007 SID INTERNATIONAL SYMPOSIUM - DIGEST OF TECHNICAL PAPERS 2007, vol . 38, no. 1, 23 May 2007 (2007-05-23) , - 25 May 2007 (2007-05-25) pages 89-92, XP002491117 the whole document -----	1-13
	-/--	

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/022785

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X,P	HELBER MARGARET J ET AL: "Color filter formulations for full-color OLED displays: High color gamut plus improved efficiency and lifetime" DIG. TECH. PAP. SID INT. SYMP.; DIGEST OF TECHNICAL PAPERS - SID INTERNATIONAL SYMPOSIUM; 2007 SID INTERNATIONAL SYMPOSIUM - DIGEST OF TECHNICAL PAPERS 2007, vol. 38, no. 2, 2007, pages 1022-1025, XP002491118 the whole document -----	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/022785

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003151708	AI	14-08-2003	AT 330239 T 15-07-2006
			CN 1460192 A 03-12-2003
			DE 60212345 T2 24-05-2007
			EP 1369712 AI 10-12-2003
			WO 02067022 AI 29-08-2002
US 2006098316	AI	11-05-2006	WO 2004010172 AI 29-01-2004
			KR 20050025658 A 14-03-2005
			TW 225163 B 11-12-2004
EP 0359934	A	28-03-1990	DE 68914370 DI 11-05-1994
			DE 68914370 T2 20-10-1994
			JP 2153353 A 13-06-1990
			US 5085973 A 04-02-1992
US 2002014183	AI	07-02-2002	AT 260956 T 15-03-2004
			AU 7060001 A 21-01-2002
			CN 1440445 A 03-09-2003
			DE 60102244 DI 08-04-2004
			DE 60102244 T2 29-07-2004
			WO 0204563 AI 17-01-2002
			EP 1299479 AI 09-04-2003
			JP 2004502855 T 29-01-2004
			TW 572972 B 21-01-2004
EP 1298165	A	02-04-2003	CN 1409133 A 09-04-2003
			JP 2003172815 A 20-06-2003
			KR 20030035866 A 09-05-2003
WO 9845756	A	15-10-1998	AU 7042198 A 30-10-1998
			DE 69810602 DI 13-02-2003
			DE 69810602 T2 03-07-2003
			EP 0974074 AI 26-01-2000
			JP 2001521563 T 06-11-2001
			US 6120944 A 19-09-2000
US 5897981	A	27-04-1999	GB 2313921 A 10-12-1997
			JP 9325209 A 16-12-1997
EP 0965865	A	22-12-1999	JP 2000002807 A 07-01-2000