



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 1 124 216 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**05.10.2005 Bulletin 2005/40**

(51) Int Cl.7: **G09G 3/28**, G09G 3/20

(43) Date of publication A2:  
**16.08.2001 Bulletin 2001/33**

(21) Application number: **00127839.9**

(22) Date of filing: **19.12.2000**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE TR**  
Designated Extension States:  
**AL LT LV MK RO SI**

(72) Inventors:  
• **Suzuki, Masahiro, c/o Pioneer Corporation  
Nakakoma-gun, Yamanashi (JP)**  
• **Saegusa, Nobuhiko, c/o Pioneer Corporation  
Nakakoma-gun, Yamanashi (JP)**

(30) Priority: **10.02.2000 JP 2000033496**

(74) Representative:  
**Manitz, Finsterwald & Partner GbR  
Postfach 31 02 20  
80102 München (DE)**

(71) Applicant: **Pioneer Corporation  
Tokyo (JP)**

(54) **Method for driving display panel**

(57) A method of driving a display panel that is capable of displaying pictures while suppressing the occurrence of pseudo contour without causing flicker even when the vertical synchronization frequency of the input video signal is low. When each of a plurality of light emitting elements that constitute a display screen of the display panel are caused to emit light only for a light emitting period corresponding to the luminance level of the input video signal within the unit display period, with the

unit display period comprised of a first drive period of the first half and a second drive period of the second half, each of the light emitting elements is driven to emit light continuously for a first part of the light emitting period in the first drive period, and driven to emit light continuously for the remaining part of the light emitting period in the second drive period.

**EP 1 124 216 A3**



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 00 12 7839

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	FR 2 740 253 A (FUJITSU LTD) 25 April 1997 (1997-04-25)	1,2,8-10	G09G3/28 G09G3/20
Y	* abstract *	3	
A	* page 26, line 19 - page 27, line 7 * * page 44, line 29 - page 46, line 19 * * page 46, line 29 - page 52, line 11; figures 16,39-41,48-56 * -----		
Y	EP 0 952 569 A (PIONEER ELECTRONIC CORP) 27 October 1999 (1999-10-27) * abstract * * column 6, line 52 - column 7, line 11 * * column 14, line 55 - column 15, line 6; figures 15,16 *	3	
A	EP 0 698 874 A (TEXAS INSTRUMENTS INC) 28 February 1996 (1996-02-28) * column 1, line 37 - column 2, line 59 * * column 4, line 51 - column 5, line 9 * * abstract * * column 6, line 14 - line 34; figures 2,6 *	1-3,8-10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	EP 0 834 856 A (LG ELECTRONICS INC) 8 April 1998 (1998-04-08) * abstract *	1-3,8-10	G09G
A	US 5 818 419 A (TAJIMA ET AL) 6 October 1998 (1998-10-06) * abstract * * column 3, line 38 - line 55 * * column 4, line 43 - line 59 *	4-7	
A	EP 0 851 400 A (NEC CORPORATION) 1 July 1998 (1998-07-01) * abstract * * claims 1,2 *	4-7	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 29 June 2005	Examiner O'Reilly, D
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

 3  
EPO FORM 1503 03.92 (P04C01)



European Patent  
Office

Application Number

EP 00 12 7839

### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



European Patent  
Office

**LACK OF UNITY OF INVENTION**  
**SHEET B**

Application Number  
EP 00 12 7839

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3 8-10

Method of suppressing image flicker using plural light  
emission periods.  
---

2. claims: 4-7

Method of driving a display with different frame rates.  
---

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 12 7839

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

29-06-2005

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2740253	A	25-04-1997	JP 3322809 B2	09-09-2002
			JP 10031455 A	03-02-1998
			FR 2740253 A1	25-04-1997
			JP 3365630 B2	14-01-2003
			JP 2002278511 A	27-09-2002
			US 2002130826 A1	19-09-2002
			US 6417835 B1	09-07-2002
			US 2001045923 A1	29-11-2001
			US 6144364 A	07-11-2000
			US 2004263434 A1	30-12-2004
EP 0952569	A	27-10-1999	JP 2000227778 A	15-08-2000
			JP 3618571 B2	09-02-2005
			JP 2000231362 A	22-08-2000
			CN 1495688 A	12-05-2004
			CN 1234577 A ,C	10-11-1999
			EP 0952569 A2	27-10-1999
			US 2002054000 A1	09-05-2002
			JP 2005018096 A	20-01-2005
EP 0698874	A	28-02-1996	DE 69524502 D1	24-01-2002
			DE 69524502 T2	06-06-2002
			EP 0698874 A1	28-02-1996
			JP 8063122 A	08-03-1996
			US 5619228 A	08-04-1997
EP 0834856	A	08-04-1998	KR 234034 B1	15-12-1999
			CN 1178359 A ,C	08-04-1998
			EP 0834856 A1	08-04-1998
			JP 3328769 B2	30-09-2002
			JP 10116054 A	06-05-1998
			US 6133903 A	17-10-2000
US 5818419	A	06-10-1998	JP 3408680 B2	19-05-2003
			JP 9127910 A	16-05-1997
			JP 3375473 B2	10-02-2003
			JP 9127911 A	16-05-1997
			FR 2740598 A1	30-04-1997
			KR 263960 B1	16-08-2000
EP 0851400	A	01-07-1998	JP 2962253 B2	12-10-1999
			JP 10187094 A	14-07-1998
			EP 0851400 A1	01-07-1998
			US 6037917 A	14-03-2000

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82