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(54) Title: SINGLE-POLARIZER, NORMALLY WHITE REFLECTIVE STN DISPLAY

(57) Abstract: The invention pertains to a single-polarizer, normally white reflective display comprising an STN-LCD cell, a reflector, one polarizer, and a twisted retardation layer, characterized in that the sing of the twist angle of the STN-LCD cell (T_{STN}) is opposite to the twist angle of the twisted retardation layer (T_{RL}) and that T_{STN} - T_{RL} is between 90 ° and 160 °, and $R_{STN}R_{RL}$ is 10 - 700 nm, wherein R_{STN} - R_{RL} stand for the retardation values of the STN-LCD cell and the retardation layer, respectively, and that the difference between the dispersion of the retardation layer and the STN-LCD cell is more than 5 %, wherein the dispersion is defined as the ratio of the retardation value at λ=436 nm to the retardation value at λ=668 nm.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G02F1/13363 G02F1/139

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 G02F G02B

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, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 091 477 A (KWOK HOI SING ET AL) 18 July 2000 (2000-07-18) column 1, line 46 -column 2, line 30; figure 12 ---	1-5
A	US 6 088 077 A (STEENBERGEN ANDRE ET AL) 11 July 2000 (2000-07-11) column 1, line 1 - line 62 column 13, line 34 - line 43 column 14, line 55 - line 67 ---	1-5
A	US 5 838 408 A (TSUCHIHASHI TOSHIHIKO ET AL) 17 November 1998 (1998-11-17) column 7, line 51 -column 8, line 26 column 12, line 19 -column 13, line 67 column 32, line 11 -column 35, line 6; figures 1,2,21-23 ---	1-5

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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PCT/EP 01/09460

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 54616 A (KONINKL PHILIPS ELECTRONICS NV ;PHILIPS SVENSKA AB (SE)) 3 December 1998 (1998-12-03) page 5, line 14 -page 6, line 27 page 9, line 15 - line 26; figures 1,8 -----	6

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INTERNATIONAL SEARCH REPORT

Information on patent family members

In. ational Application No
PCT/EP 01/09460

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6091477 A	18-07-2000	NONE	
US 6088077 A	11-07-2000	AT 201514 T	15-06-2001
		AU 719031 B2	04-05-2000
		AU 1376897 A	17-07-1997
		BR 9612174 A	13-07-1999
		CA 2241087 A1	03-07-1997
		CZ 9801966 A3	15-09-1999
		DE 69613001 D1	28-06-2001
		DE 69613001 T2	08-11-2001
		WO 9723805 A1	03-07-1997
		EP 0868680 A1	07-10-1998
		ES 2158373 T3	01-09-2001
		JP 2000512768 T	26-09-2000
		NO 982851 A	13-08-1998
		NZ 325285 A	29-09-1999
		PL 327231 A1	07-12-1998
US 5838408 A	17-11-1998	CN 1141678 A	29-01-1997
		EP 0740181 A1	30-10-1996
		WO 9613752 A1	09-05-1996
		TW 414869 B	11-12-2000
WO 9854616 A	03-12-1998	CN 1228167 T	08-09-1999
		EP 0922243 A1	16-06-1999
		WO 9854616 A1	03-12-1998
		JP 2000515265 T	14-11-2000