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2004 12 08(21) 10-2003-0005467
(22) 2003 01 28(65) 10-2004-0069046
(43) 2004 08 04

(73)

20

(72)

203

,

6 201

107 1501

(74)

:

(54) 가

가

(Vertically aligned liquid crystal display)

,
 (n_x, n_y)
 (+A-plate)(-A-plate), $n_x = n_y > n_z$ $(n_z)^2$ $n_x > n_y = n_z$ $(-C-plate)$ $n_x < n_y = n_z$ 1
 가
 VA-LCD 2 (-C-Plate)
 $(R_{-C} + R_{VA})$ -10nm -180nm 가
 (black state),

3

, , 가 , ,

1	1	가	VA-LCD	.
2	2	가	VA-LCD	.
3	3	가	VA-LCD	.
4	가	VA-LCD	-C-Plate	.
5	1	가	VA-LCD	0 ° ~ 80 °
6	1	가	VA-LCD 45 °	0 ° ~ 80 °
2 °	,	(black)		
7	2	3	가	VA-LCD 0 ° ~ 80 °
8	2	3	가	VA-LCD 45 ° 0 ° ~ 80 °
2 °	,	(black)		
*	.	*		
11,12,21,22,31,32 :	11c,12c,21c,22c,31c,32c :			
13,23,33 :	14,24a,24b,34a,34b :	1		
14c, 24c :	15,25,35a,35b :	2		
43 :	2	(-C-Plate)		
43' :	2	(-C-Plate)		
45 :				
46 :				
46' :				

(Vertically aligned liquid crystal display; VA-LCD)

VA-LCD
가 (Achromatic) VA-LCD
가 VA-LCD (Black state) -C-plate
A-plate , -C-plate VA-LCD
4,889,412
-C-Plate VA-LCD
-C-Plate A-Plate VA-LCD
6,141,075
-C-Plate (Black) A-Plate VA-LCD 가 VA-LCD
D 가 (Achromatic) VA-LCD
VA-LCD , VA-LC

(VA) 3 8μm
 (VA-LCD) 1
 (n_x, n_y)
 (+A-plate)(-A-plate), n_x
 (reversed wavelength dispe
 (+
 (-A-plat
 (-C-Plate) 550nm
 (R_{-C} (550))
 (-C-Plate)
 -10nm -180nm

[illegible]

(azimuth angle) $0^\circ \sim 80^\circ$, 45° , $0^\circ \sim 80^\circ$, 2° ,
 5, 6
 VA-LCD (black)
 [1 1]
 1 (a) 1 (A-Plate) 2 (-C-Plate) VA-LCD
 1 VA-LCD $3\mu\text{m}$ VA- (13) 89° ,
 $= -4.9$, $n = 0.099$, $n_{400} / n_{550} = 1.05$ VA-LCD
 $, VA$ $R_{VA,550} = 297\text{nm}$
 2 (-C-Plate) $R_{-C}(550\text{nm}) = -316\text{nm}$ TAC
 Plate (in-Plane) $R_{-C}(450\text{nm})/R_{-C}(550\text{nm}) = 1.01$ A-
 A-Plate $R_A(550\text{nm}) = 316\text{nm}$ TAC
 $R_A(450\text{nm})/R_A(550\text{nm}) = 0.79$
 (azimuth angle) $0^\circ \sim 80^\circ$, 45° , $0^\circ \sim 80^\circ$, 2° ,
 5, 6
 VA-LCD (black)
 [1 2]
 1 (-A-Plate) 2 (-C-Plate) VA-LCD
 1 (a) VA-LCD $3\mu\text{m}$ VA- 89° ,
 $= -4.9$, $n = 0.099$, $n_{400} / n_{550} = 1.05$ VA-LCD
 $, VA$ $R_{VA,550} = 297\text{nm}$
 2 (-C-Plate) $R_{-C}(550\text{nm}) = -352\text{nm}$ TAC
 2 (-C-Plate) $R_{-C}(450\text{nm})/R_{-C}(550\text{nm}) = 1.01$
 1 (-A-Plate) (in-Plane) $R_A(550\text{nm}) = -150\text{nm}$ (polystyrene)
 rene) $R_A(450\text{nm})/R_A(550\text{nm}) = 0.82$ 1 (A-Plate) $R_A(450\text{nm})/R_A(550\text{nm}) = 0.82$
 TAC(Triacetate cellulose) COP(cycloolefin)
 (azimuth angle) $0^\circ \sim 80^\circ$, 45° , $0^\circ \sim 80^\circ$, 2° ,
 5, 6
 VA-LCD (black)
 [1 3]
 1 (-A-Plate) 2 (-C-Plate) VA-LCD
 1 (b) VA-LCD $3\mu\text{m}$ VA- 89° ,
 $= -4.9$, $n = 0.099$, $n_{400} / n_{550} = 1.05$ VA-LCD
 VA $R_{VA,550} = 297\text{nm}$
 2 (-C-Plate) $R_{-C}(550\text{nm}) = -390\text{nm}$ TAC
 2 (-C-Plate) $R_{-C}(450\text{nm})/R_{-C}(550\text{nm}) = 1.01$ 1
 (-A-Plate) (in-Plane) $R_A(550\text{nm}) = -206\text{nm}$ (polystyrene)
 $nm) = 0.92$ 1 (A-Plate) $R_A(450\text{nm})/R_A(550\text{nm}) = 0.92$
 TAC(Triacetate cellulose) COP(cycloolefin)
 (azimuth angle) $0^\circ \sim 80^\circ$, 45° , $0^\circ \sim 80^\circ$, 2° ,
 5, 6
 VA-LCD (black)
 [2]
 1 (A-Plate) 2 (-C-Plate) VA-LCD
 2 (a) VA-LCD $3\mu\text{m}$ VA- (23) 89° ,
 $= -4.9$, $n = 0.099$, $n_{400} / n_{550} = 1.05$ VA-LCD
 $, VA$ $R_{VA,550} = 297\text{nm}$
 VA-LCD $R_{-C}(550\text{nm}) = -425\text{nm}$ 2 (-C-Plate)
 2 (-C-Plate) $R_{-C}(550\text{nm})/R_{-C}(550\text{nm}) = 1.02$
 1 (A-Plate) (in-plane) $R_A(550\text{nm}) = 436\text{nm}$
 1 (A-Plate) $R_A(450\text{nm})/R_A(550\text{nm}) = 0.82$
 (21,22) TAC(Triacetate cellulose) COP(cycloolefin)
 (azimuth angle) $0^\circ \sim 80^\circ$, 45° , $0^\circ \sim 80^\circ$, 2° ,
 7, 8
 VA-LCD (black)
 [2 1]
 1 (-C-Plate) 2 (-C-Plate) VA-LCD

2 (b) VA-LCD 3 μ m VA- 89°,
 = -4.9, n = 0.099, n₄₀₀ / n₅₅₀ = 1.05 VA-LCD
 VA R_{VA,550} = 297nm
 2 (-C-Plate) R_{-C} (550nm) = -390nm TAC
 1 (-A-Plate) (in-Plane) R_{-C} (450nm)/R_{-C} (550nm) = 1.01
 ene) R_A (550nm) = -80nm (polystyr
)/R_A (550nm) = 0.82 R_A (450nm)
 TAC(Triacetate cellulose) COP(cycloolefin)
 (azimuth angle) 0° ~ 80°
 7, 45° 0° ~ 80° 2°
 VA-LCD (black) 8
 [3]
 1 (A-Plate) 2 (-C-Plate) VA-LCD
 3 VA-LCD 3 μ m VA- (33) 89°,
 = -4.9, n = 0.099, n₄₀₀ / n₅₅₀ = 1.05 VA-LCD
 A (33) R_{VA,550} = 297nm
 VA-LCD 2 (-C-Plate) R_{-C} (550nm
) = -212nm 2 (-C-Plate) R
 -C (450nm)/R_{-C} (550nm) = 1.01 1 (A-Plate) (in-Plane) R_A (4
 550nm) = 436nm 1 (A-Plate) R_A (4
 50nm)/R_A (550nm) = 0.82
 (31,32) TAC(Triacetate cellulose) COP(cycloolefin)
 (azimuth angle) 0° ~ 80°
 7, 45° 0° ~ 80° 2°
 VA-LCD (black) 8
 [3]
 1 (-A-Plate) 2 (-C-Plate) VA-LCD
 3 VA-LCD 3 μ m VA-Panel 89°,
 -4.9, n = 0.099, n₄₀₀ / n₅₅₀ = 1.05 VA-LCD
 R_{VA,550} = 297nm
 2 (-C-Plate) R_{-C} (550nm) = -195nm TAC(Triac
 etate cellulose) 2 (-C-Plate) R_{-C} (4
 50nm)/R_{-C} (550 nm) = 1.01 1 (-A-Plate) (in-Plane) R_A (55
 0nm) = -80nm (polystyrene) 1 (A-
 Plate) R_A (450nm)/R_A (550nm) = 0.82
 TAC(Triacetate cellulose) COP(cycloolefin)
 (azimuth angle) 0° ~ 80°
 7, 45° 0° ~ 80° 2°
 VA-LCD (black) 8

VA-LCD VA-LCD 1 (A-Plate) 2 (-C-Plate) 가
 RGB (dark) 가, (dark) , (white)

가

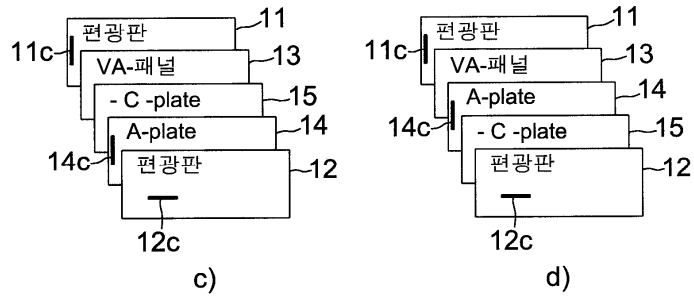
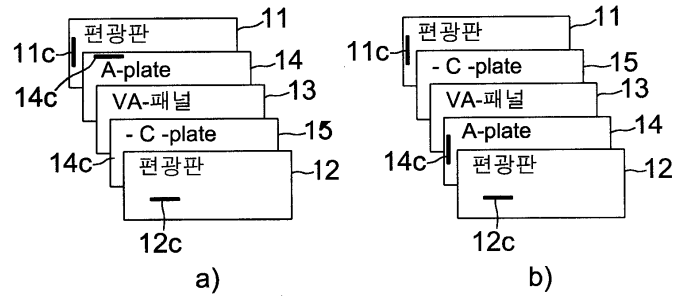
(57)

1.

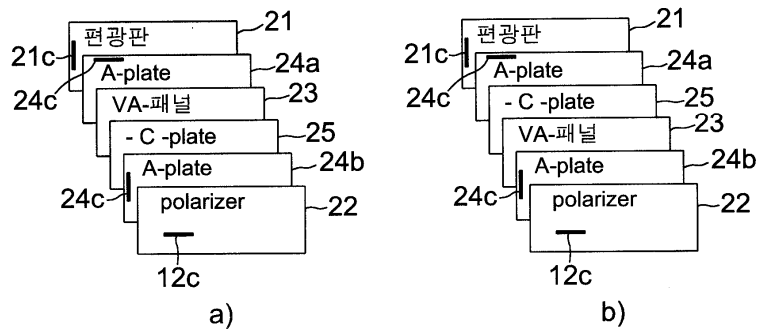
(< 0) (> 0)
 (MVA) 가 (chiral additive) 3 8 μ m
 (VA-LCD)
 (n_x, n_y) (n_z) n_x > n_y = n_z n_x < n_y = n_z 1
 (+A-plate) (-A-plate), n_x = n_y > n_z 2 (-C-plate)

가		가		가		가		(reversed wave)	
length dispersion)	1	(+A-plate)	550nm	(Optical Axis)	250nm	$R_A(550)$	500nm		
	1	(-A-plate)	550nm		250nm		가		
	2	(-C-Plate)	550nm		-500nm	$R_{-C}(550)$	-180nm		
		($R_{-C}(550)$)						($R_{VA}(550)$)	
	2	(-C-Plate)						($R_{-C} + R_{VA}$)	
		-10nm	-180nm	가			가		
	2.								
	1		2	(-C-Plate)		$R_{450}, R_{550}, R_{650}$			
	450nm, 550nm, 650nm		450nm, 550nm			(R_{450}/R_{550})			
			550nm, 650nm			(R_{650}/R_{550})			
				가					
	3.								
	2	가							
		, 75 90		(pretilt angle)			가		
	4.								
	3		87~90		가				
	5.								
	3		89~90		가				
	6.								
	1				550nm		80nm 400nm		
	가								
	7.								
	6				550nm		80nm~300nm		가
	8.								
	1					45			가
	9.								
	1								
	1	(A-Plate)	450nm		$R_{A,450}, 550nm$			$R_{A,5}$	
	50, 650nm		$R_{A,650}$						
		450nm, 550nm		($R_{A,450}/R_{A,550}$)		가 0.6 0.9			
		550nm, 650nm		($R_{A,650}/R_{A,550}$)		가 1.1 1.5			가
	10.								
	1								
	2	(-C-Plate)	450nm		$R_{-C,450}, 550nm$				
		$R_{-C,550}, 650nm$		$R_{-C,650}$					
		450nm, 550nm		($R_{-C,450}/R_{-C,550}$)		0.9 1.2			가
		550nm, 650nm		($R_{-C,650}/R_{-C,550}$)		0.9 1.2			
		가							

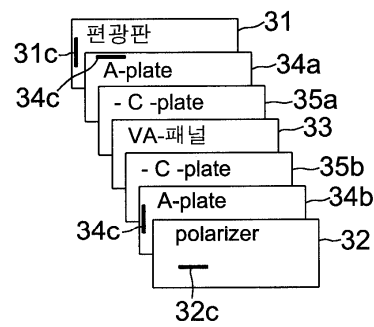
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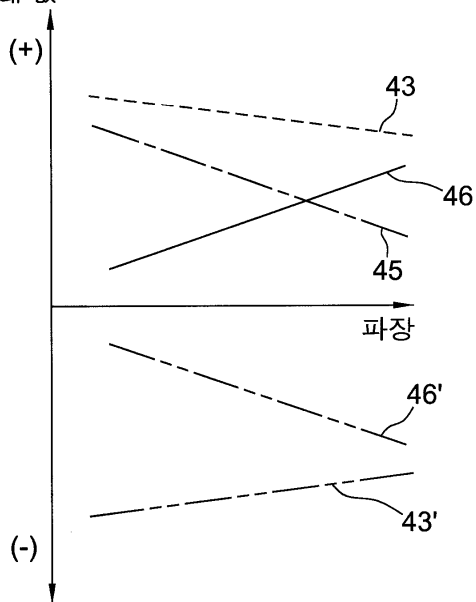


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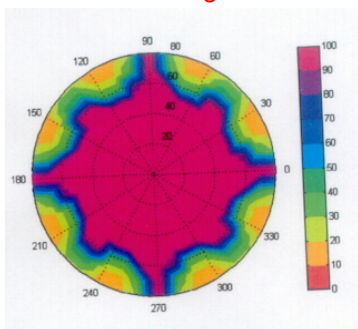


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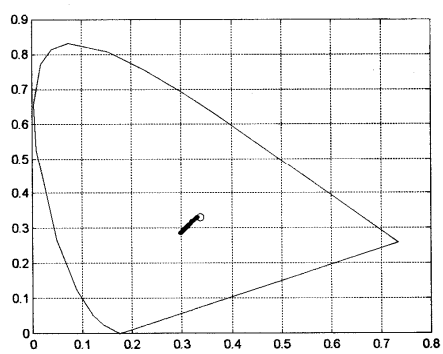
두께 방향의 위상차
절대 값



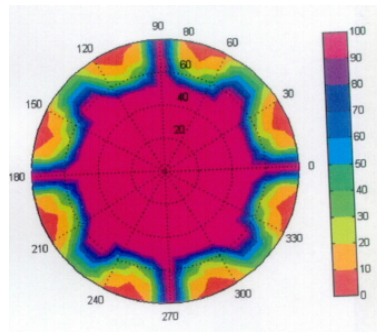
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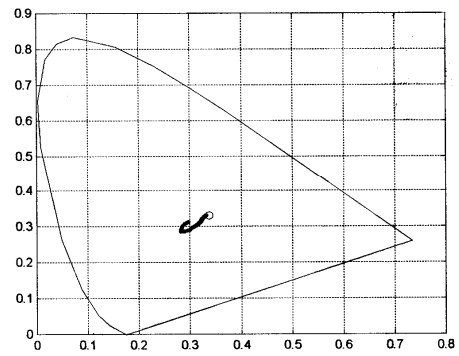
6



7



8



专利名称(译)	具有负补偿膜的垂直排列的液晶显示装置		
公开(公告)号	KR100462326B1	公开(公告)日	2004-12-18
申请号	KR1020030005467	申请日	2003-01-28
[标]申请(专利权)人(译)	乐金化学股份有限公司		
申请(专利权)人(译)	LG化学有限公司		
当前申请(专利权)人(译)	LG化学有限公司		
[标]发明人	JEON BYOUNGKUN 전병건 BELYAEV SERGEY 벨리아에프세르게이 YU JEONGSU 유정수		
发明人	전병건 벨리아에프,세르게이 유정수		
IPC分类号	G02F1/13363 G02F1/139		
CPC分类号	G02F1/133634 G02F1/1393		
代理人(译)	Joinje		
其他公开文献	KR1020040069046A		
外部链接	Espacenet		

摘要(译)

具有负补偿膜的垂直取向液晶显示器技术领域本发明涉及具有负补偿膜的垂直取向液晶显示器(垂直取向液晶显示器),第一相差膜(+A板)(-A板),其中膜平面上的折射率(n_x , n_y)和厚度方向上的折射率(n_z)为 $n_x > n_y = n_z$ 或 $n_x < n_y = n_z$,或者通过在垂直取向板与上下偏振板之间布置由具有 $n_x = n_y > n_z$ 的第二相差膜(-C板)中的至少一个构成的负补偿膜,从而使VA具有负值的相差补偿特性。-由LCD单元组成,包括第二相差膜(-C-Plate)和垂直取向板的厚度方向上的相差值($R-C + R_{VA}$)之和在与波长成比例的-10nm至-180nm的范围内。通过具有负值,根据本发明,可以改善在前角和倾斜角处的对比度特性,并获得最小化根据黑色状态下的视角的颜色变化的效果。图3 索引词 LCD,垂直方向,负,相位差,补偿膜

