

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl. ⁷ H05B 33/26			(11) (43)	2003-0094101 2003 12 11
(21)	10-2003-0035726			
(22)	2003 06 03			
(30)	10/161,586	2002 06 03		(US)
(71)			343	
(72)	14612		147	
	14621		164	
	- 14620		6	
(74)				
	:			
(54)				

(emissive layer),

(OLED)

1

1 (OLED)

2 RbNO₃ Mg

poration) EP 0 876 086 A2 , EP 0 880 305 A1 EP 0 880 307 A2 ((TDK Cor
 aya)) , (Nak
 ,
 , Cu, Mg Zr 가 , , 0.1
 20% Li Al OLED /
 , (dark spot) 가
 (Grothe) DE 198 07 370 C1 Li , Mn, P
 b, Pd, Si, Sn, Zn, Zr, Cu SiC 가 Al:Li
 , 가
 가 가

ys. Lett. 72, 2138[1998]])	(Parthasarathy) ([Appl. Ph
(ZnPc)	(CuPc)
CuPc ([J. Appl. Phys. 86, 4607 [1999]])	가
0 982 783 A2 Al:Li	Li
	가

· CuPc

가, OLED

OLED

, a) ; b) ; c) ,
 ; d)
 ; e)

OLED ,

가

1

[1]

OLED	
ITO	
HIL	
HTL	
EML	
ETL	
NPB	4,4'- [N - (1-) - N -] (NPB)
Alq	(8-)
LiF	
RbNO ₃	
CsNO ₃	
Cs ₂ SO ₄	
CsOOCCH ₃	
KIO ₃	
Al	
Mg	

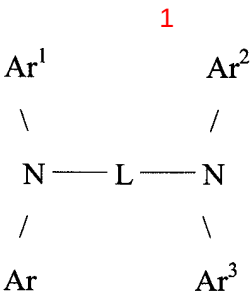
1, OLED (100) (101), (102), (HIL)(103), (HTL)(104), (EML)(105), (ETL)(106), (107) (108) . (109) (102) OLED (100) (108) (100) (102) OLED (100) (102) . (108) (102) . (108) - , (108) . OLED (100) . (101) , . OLED , 1 00 , 가 (101) (backplane) 01) , 가 , CMOS , OLED , (102) (108) 가 OLED (100) 가 4,720,432 , (ITO) OLED 가 ITO 가 , ITO Au, Pt, Pd (HIL)(103) (102) 가 4,885,211 (103) 가 CF_x (, x 0 2 HIL) . CF_x 6,208,077 .

(HTL)(104)
4,720,432
1

(EML)(105)

. HTL
. HTL

:



,

Ar, Ar¹, Ar² Ar³, ;

L 2가 d_n ;

d ;

n 1 4 ;

Ar, Ar¹, Ar² Ar³ .

() :

4,4'- [N-(1-)-N-] (NPB),

4,4'- [N-(1-)-N-]-p- ,

4,4'- [N-(2-)-N-] ,

1,5- [N-(1-)-N-] ,

4,4'- [N-(2-)-N-] ,

4,4'- [N-(2-)-N-] ,

2,6- (-p-) ,

2,6- [-(1-)] .

1 (105) . (105)

, OLED
EL 4,769,292
Alq OLED
4,769,292

Al, Mg, Li Zn 8-
(Shi) 5,935,721

70

PR650

V() L(cd/m²) 20mA/cm² 가

1

2

(20) 24) ITO, HIL, HTL EML/ETL EL

5nm LiF 60nm Al 가 (20) 600cd/m² 0.6

.2V (21) 0.5nm Rb

NO₃ 60nm Mg (20)

Mg

Mg가 Alq

, 0.5nm RbNO₃ (20)

, (21) 1.6V 33% (22) 1nm RbNO₃ (20)

6cd/m² (21) 60nm Mg (22) 45

Mg (22) (23) 2nm RbNO₃ (22)

(23) (20) RbF 3nm 가 가

(23) (20) 6% , 3nm (20)

가 Mg (20) 2

RbNO₃ (21 24) 3nm

RbNO₃ Mg

[2]

ID		LiF(nm)	RbNO ₃ (nm)	Al(nm)	Mg(nm)	(V)	(cd/m ²)
20		0.5		60		6.2	600
21			0.5		60	7.8	404
22			1.0		60	7.2	456
23			2.0		60	6.5	523
24			3.0		60	6.2	564

2

3

RbNO₃ EL

1 (30) 33) ITO, HIL, HTL EML/ETL

, 가 (30) 608cd/m² 0.5nm LiF 60nm Al

, (31) 2nm RbNO₃ 5.7V

, 60nm Mg (31) 545cd/m² 5.9V

, 2nm RbNO₃ 10% (32) 4nm RbNO₃ (31)

(32) (32) (30) (32)

nm RbNO₃ Mg RbNO₃ 8nm 가 가 , 4

RbNO₃ (31 33) 3 (30)

[3]

ID		LiF(nm)	RbNO ₃ (nm)	Al(nm)	Mg(nm)	(V)	(cd/m ²)
30		0.5		60		5.7	608
31			2.0		60	5.9	545
32			4.0		60	5.7	613
33			8.0		60	6.1	618

3

4 EL (40
45) ITO, HIL, HTL EML/ETL , - - . 0.5nm
LiF 60nm Al 가 (40) 571cd/m² 6.5V
sNO₃ , 60nm Mg (41) 0.5nm C
0.5nm CsNO₃ (41) 485cd/m² 8.0V
(40) EL 1.5V 15%
. CsNO₃ 1.0nm 가 , 1.0nm
. 4nm CsNO₃ , Mg
(40) CsNO₃ (41 45)
4 .

[4]

ID		LiF(nm)	CsNO ₃ (nm)	Al(nm)	Mg(nm)	(V)	(cd/m ²)
40		0.5		60		6.5	571
41			0.5		60	8.0	485
42			1.0		60	7.6	534
43			2.0		60	7.1	589
44			3.0		60	6.9	618
45			4.0		60	6.7	610

4

5 EL .
(50 55) ITO, HIL, HTL EML/ETL , - - . 0.
5nm LiF 60nm Al 가 (50) 495cd/m²
5.6V (51) , 60nm Mg Alq ETL
6V (52) 330cd/m² EL (50) 7.
(52) 1nm Cs₂SO₄ , 60nm Mg
(52) 554cd/m² 5.7V Cs₂SO₄ 1nm Cs₂SO₄ Mg
. Cs₂SO₄ 1.0nm 가

(51 55) 가 , 5 (50) Cs₂SO₄

[5]

ID		LiF(nm)	Cs ₂ SO ₄ (nm)	Al(nm)	Mg(nm)	(V)	(cd/m ²)
50		0.5		60		5.6	495
51					60	7.6	330
52			1.0		60	5.7	554
53			2.0		60	6.6	491
54			3.0		60	7.0	448
55			4.0		60	8.7	413

5

6 (60 65) ITO, HIL, HTL EML/ETL EL , 0.
5nm LiF 60nm Al 가 (60) 590cd/m²
5.8V KIO₃ 가 , 60nm Mg (61) 0.5nm
(60) (62) 1.5nm KIO₃ ,
(61) (62) 638cd/m² 6.7V
(61) (62) 61 62
(63 65) KIO₃ 1.5nm 가
가 (60) KIO₃ (
61 65) 6

[6]

ID		LiF(nm)	KIO ₃ (nm)	Al(nm)	Mg(nm)	(V)	(cd/m ²)
60		0.5		60		5.8	590
61			0.5		60	6.5	610
62			1.5		60	6.7	638
63			3.0		60	7.3	630
64			4.0		60	7.1	643
65			5.0		60	7.9	663

6

7 (70 73) ITO, HIL, HTL EML/ETL EL , - -
0.5nm LiF 60nm Al 가 가 (
70) 612cd/m² 6.5V (70) 가

(71) 0.5nm CsOOCCH₃ 가 , 60nm Mg
 (72) (73) CsOOCCH₃ 2 3nm 가 (70)
 , 7 (70) CsOOCCH₃ (71 73)
 , 3nm CsOOCCH₃
 Mg

[7]

ID		LiF(nm)	CsOOCCH ₃ (nm)	Al(nm)	Mg(nm)	(V)	(cd/m ²)
70		0.5		60		6.5	612
71			0.5		60	7.5	647
72			2.0		60	6.9	609
73			3.0		60	6.6	630

7

8
 (80 81) ITO, HIL, HTL EML/ETL EL
 (80) 0.5nm LiF 60nm Al 가 (80)
 514cd/m² 5.9V (81) 2nm RbNO₃ , 72nm Al
 (81) 491cd/m² 6.6V , 2nm RbNO₃
 Al

[8]

ID		LiF(nm)	RbNO ₃ (nm)	Al(nm)	Al(nm)	(V)	(cd/m ²)
80		0.5		60		5.9	514
81			2.0		72	6.6	491

8

9
 (90 92) ITO, HIL, HTL EML/ETL EL
 5nm LiF 60nm Al 가 가 (90) 612cd/m²
 6.4V (90) 가 (91)
 2nm CsOOCCH₃ , 72nm Al (91)
 499cd/m² 8.3V , 2nm CsOOCCH₃ Al
 (92) . EL . 2.5nm RbNO₃ . Al

[9]

ID		LiF(nm)	(nm)	Al(nm)	Al(nm)	(V)	(cd/m ²)
90		0.5		60		6.4	612
91			CsOOCCH ₃ (2.0)		72	8.3	499
92			RbNO ₃ (2.5)		72	7.3	613

Alq ETL
EL
CCH₃
ETL
EL
ETL
RbNO₃, CsNO₃, Cs₂SO₄, KIO₃, CsOO
nm
0nm 10nm
0.5nm 5.0nm
LiF/Al
OLED
가 가
EL

- (57)
- 1.
- a) ;
- b) ;
- c) , ;
- d) , ;
- e) ,
- (OLED) .
- 2.
- 1 ,
- RbNO₃, CsNO₃, Cs₂SO₄, KIO₃ CsOOCCH₃,
OLED .
- 3.
- 2 ,

0nm 10nm OLED .

4.

2 ,

0.5nm 5nm OLED .

5.

1

OLED .

6.

1

가 OLED .

7.

a) ;

b) ;

c) ;

d) ;

e) $\frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) = \frac{1}{2}$

f) ;

g) _____, _____;

h) _____ ,

OLED .

8.

7 ,

0nm 10nm OLED .

9.

7 ,

0.5nm 5nm OLED .

10.

7,

RbNO₃, CsNO₃, Cs₂SO₄, KIO₃ CsOOCCH₃,
OLED .

11.

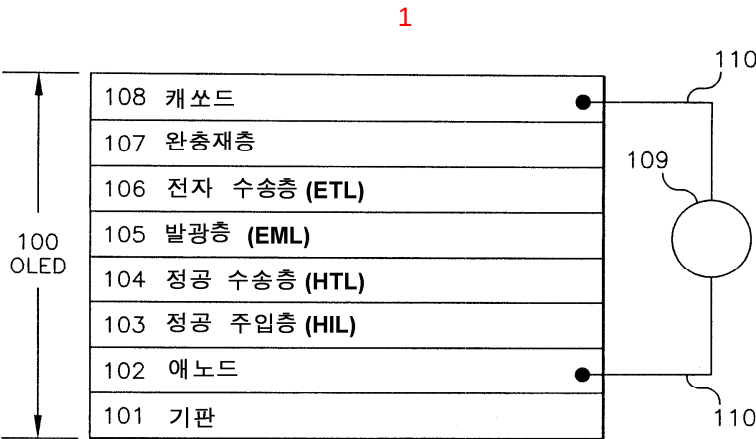
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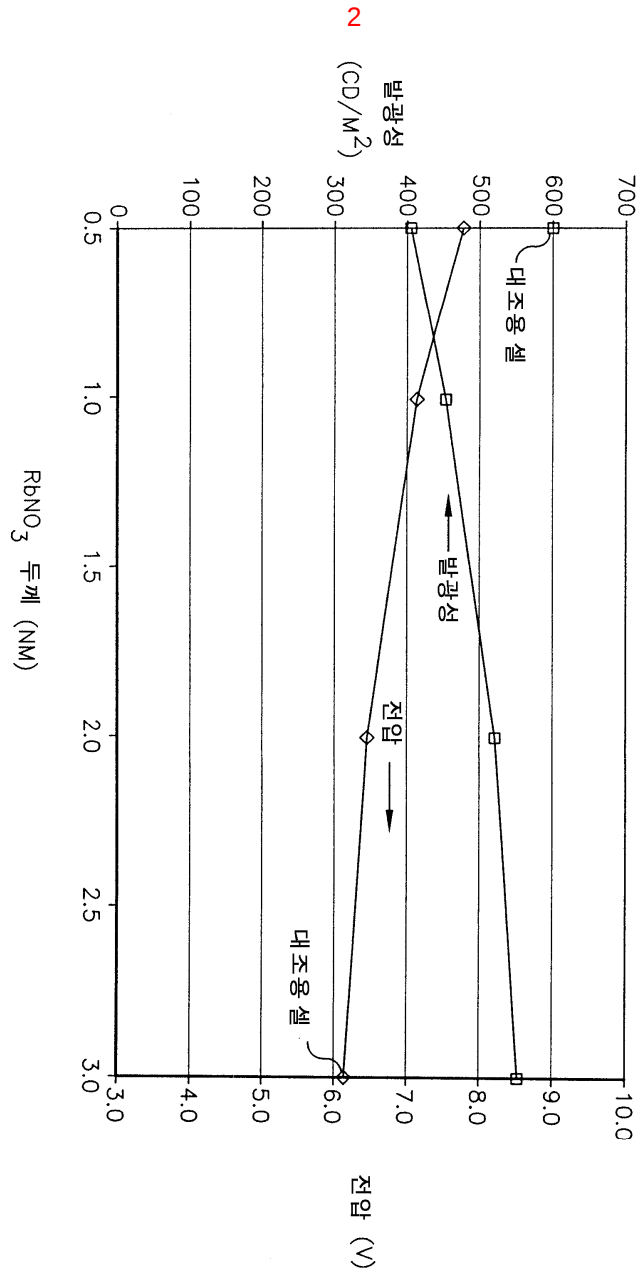
OLED

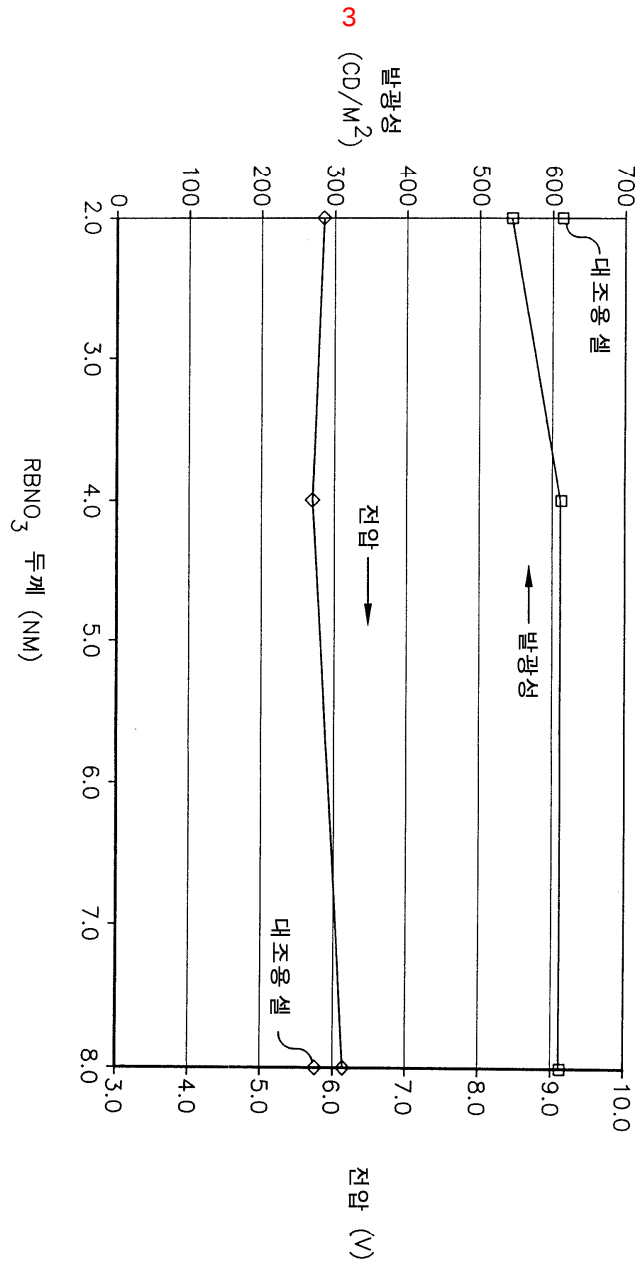
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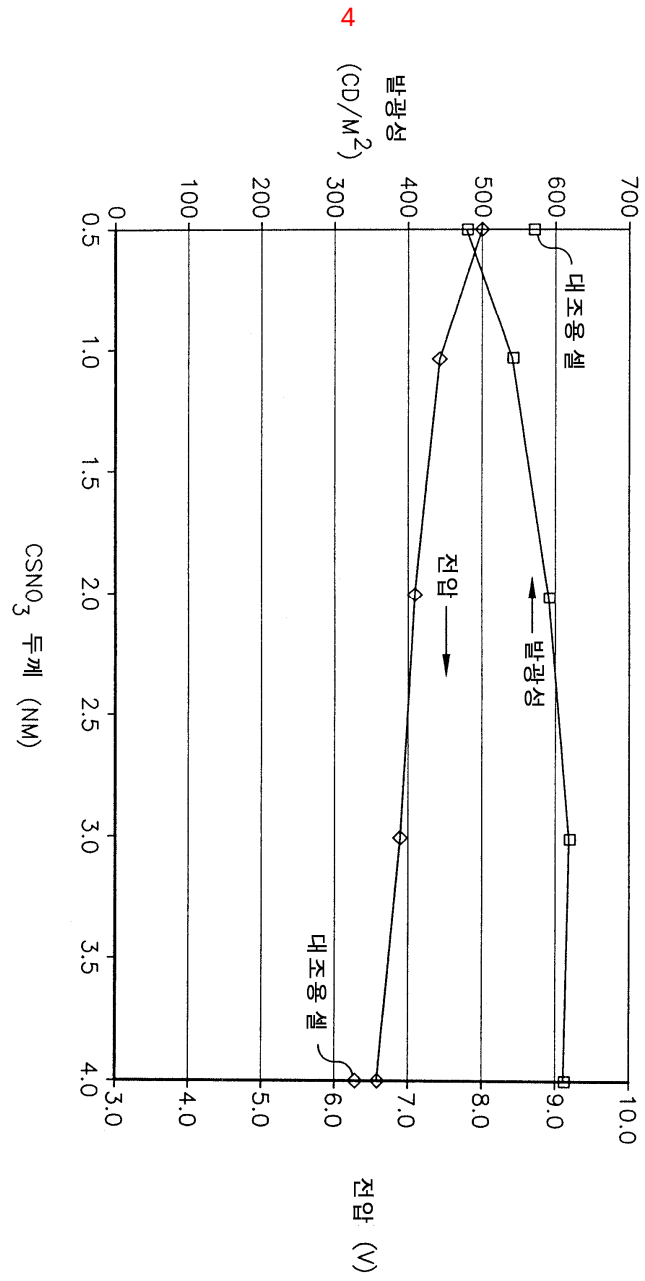
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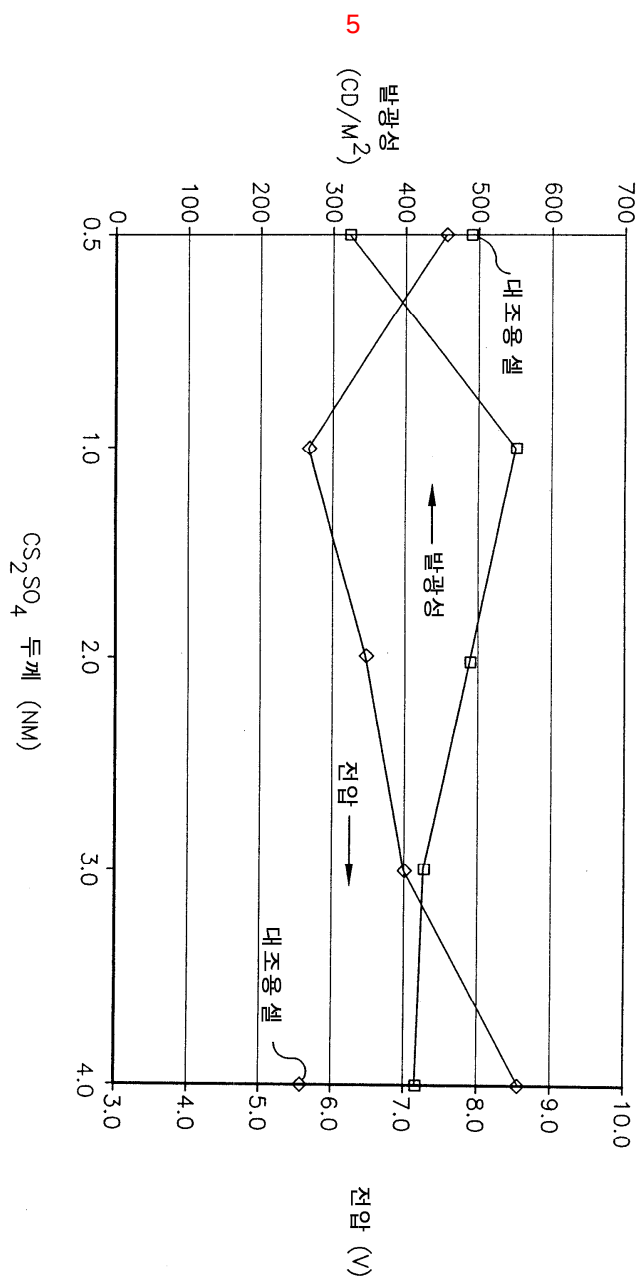
가 OLED

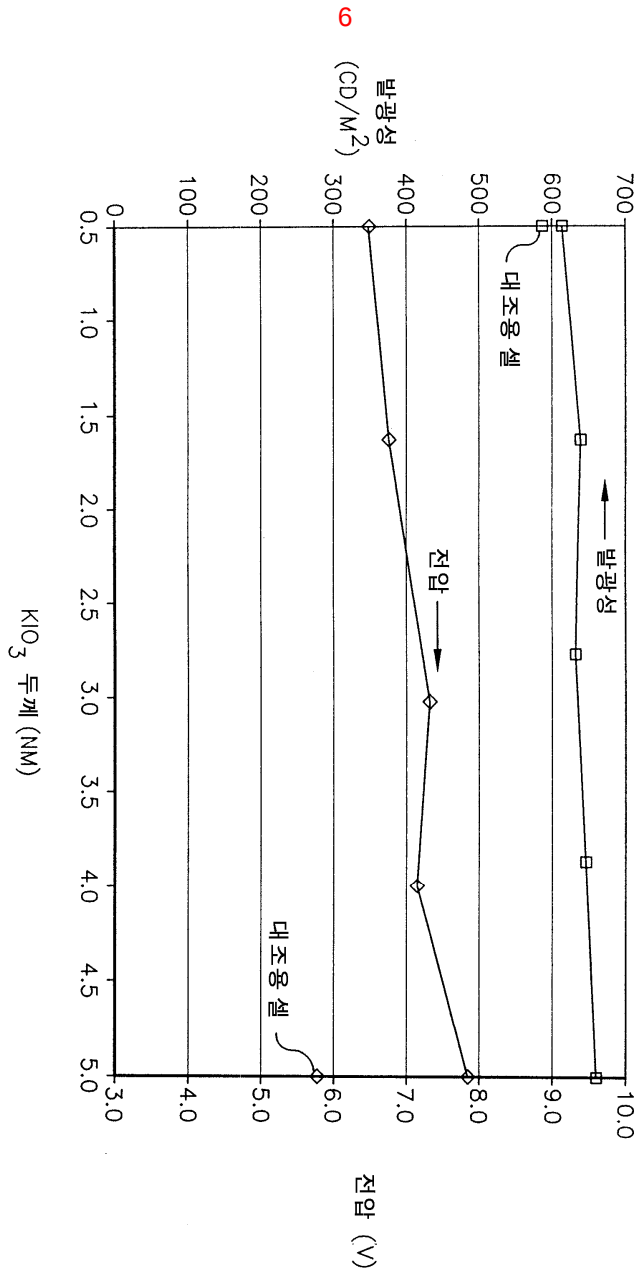


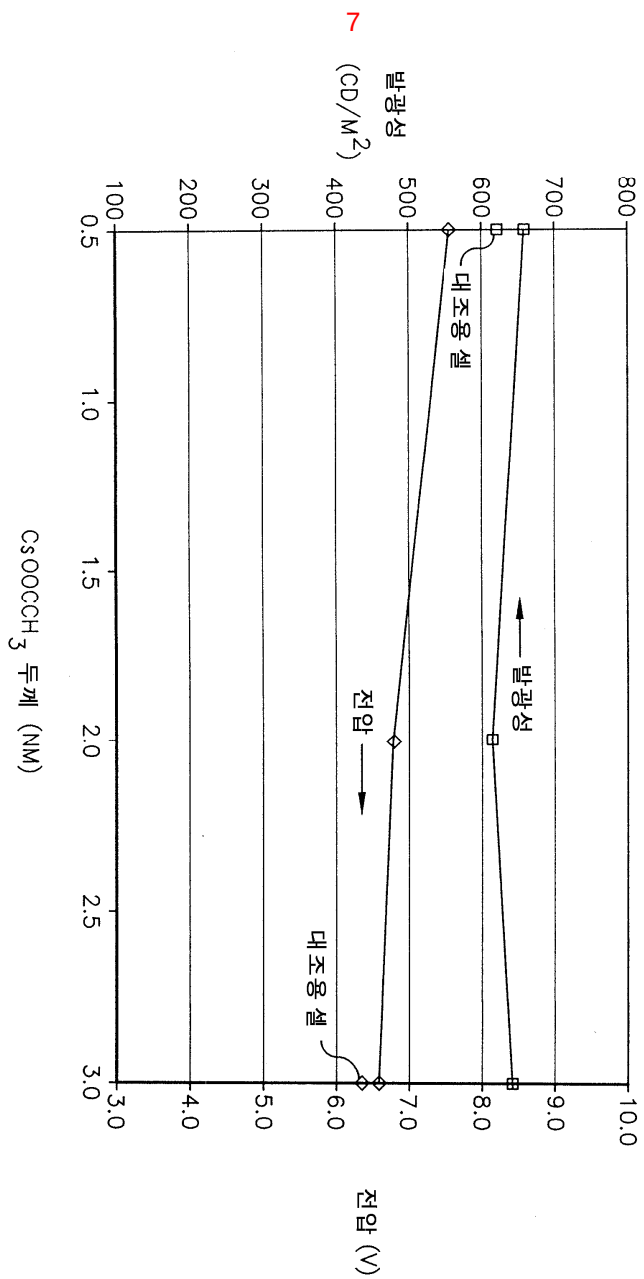












专利名称(译)	一种用于有机发光器件的溅射阴极，其在有机发光器件结构中具有碱金属化合物		
公开(公告)号	KR1020030094101A	公开(公告)日	2003-12-11
申请号	KR1020030035726	申请日	2003-06-03
[标]申请(专利权)人(译)	伊斯曼柯达公司		
申请(专利权)人(译)	柯达公司针		
当前申请(专利权)人(译)	柯达公司针		
[标]发明人	RAYCHAUDHURI PRANABKUMAR 레이차우드후리프라나브쿠마르 MADATHIL JOSEPHKURU 마다틸조셉쿠루 LIAO LIANG SHENG 리아오리양 썩		
发明人	레이차우드후리프라나브쿠마르 마다틸조셉쿠루 리아오리양 썩		
IPC分类号	H05B33/26 H01L51/52 H01L51/50		
CPC分类号	H01L51/5221 H01L51/5092 Y10T428/26 Y10T428/31678		
代理人(译)	KIM, CHANG SE 张居正, KU SEONG		
优先权	10/161586 2002-06-03 US		
外部链接	Espacenet		

摘要(译)

本发明提供一种发光装置，包括基板，在基板上由导电材料形成的阳极，设置在阳极层上的发光层，电致发光材料，设置在发光层上的缓冲材料，在缓冲层上提供的层和金属或金属合金的溅射层，并选择与缓冲层一起作用以注入电子。 1

