Fig.1

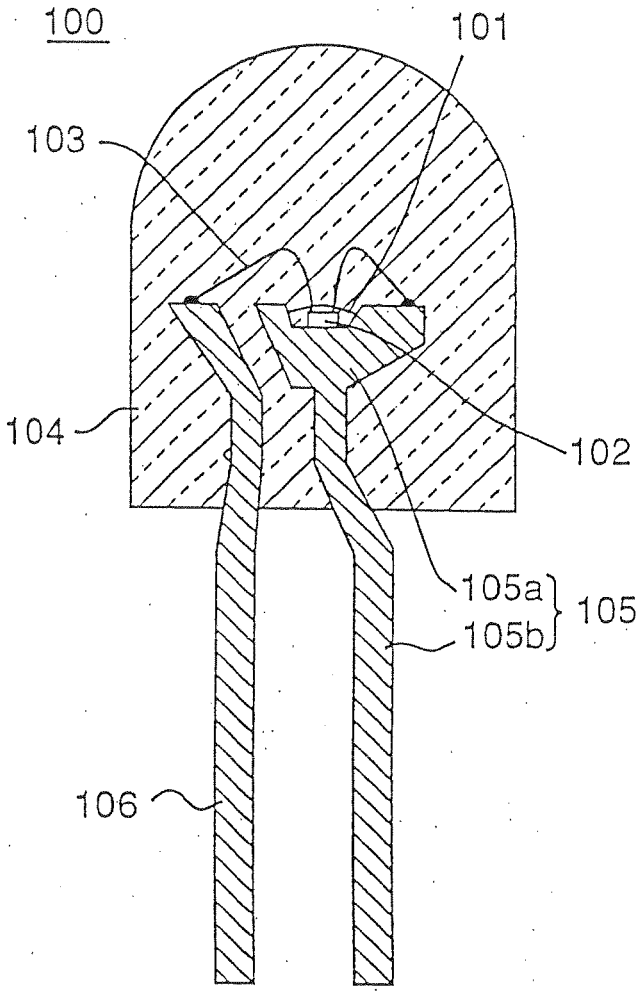


Fig.2

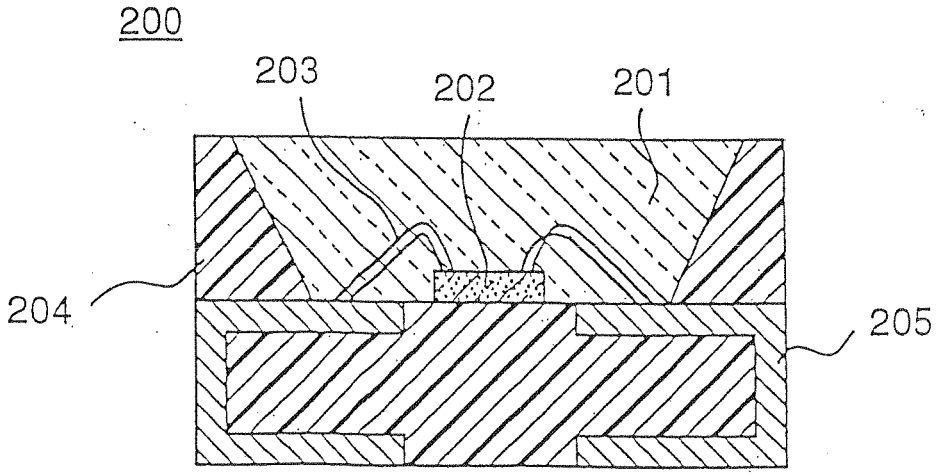


Fig.3A

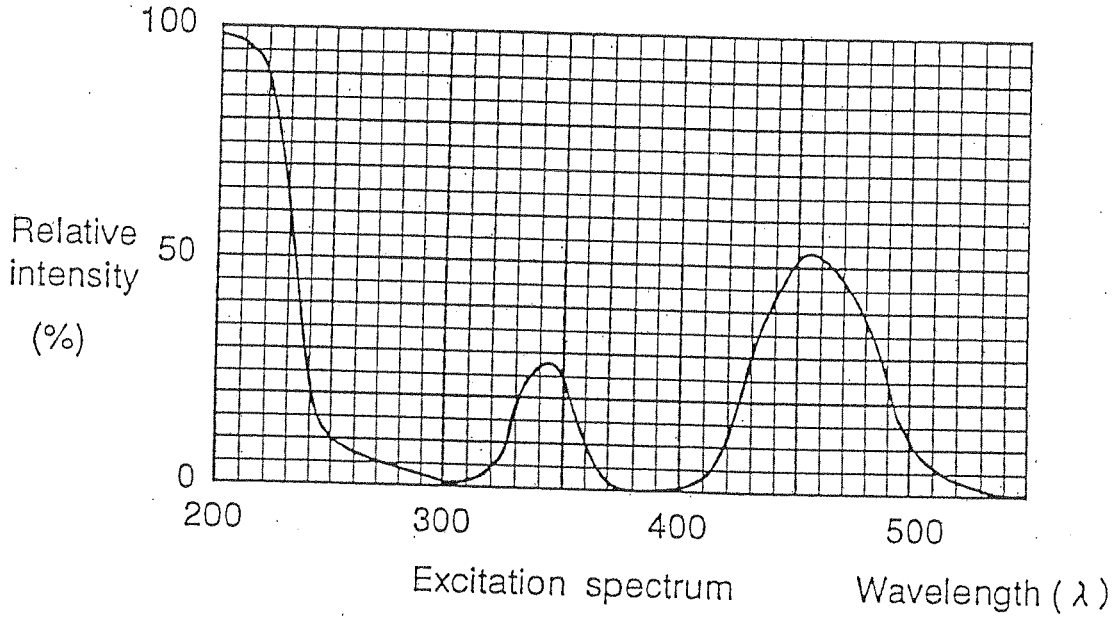

100
50
0
Relative intensity (%)
200
300
400
500
Excitation spectrum
Wavelength (λ)

Fig.3B

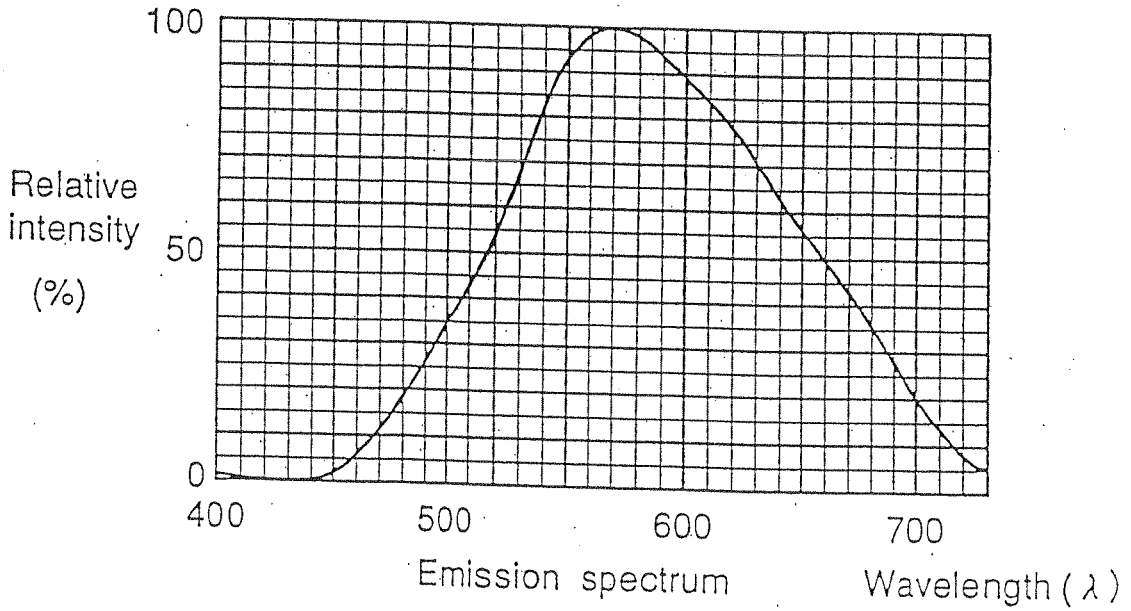

100
50
0
Relative intensity (%)
400
500
600
700
Emission spectrum
Wavelength (λ)

Fig. 4

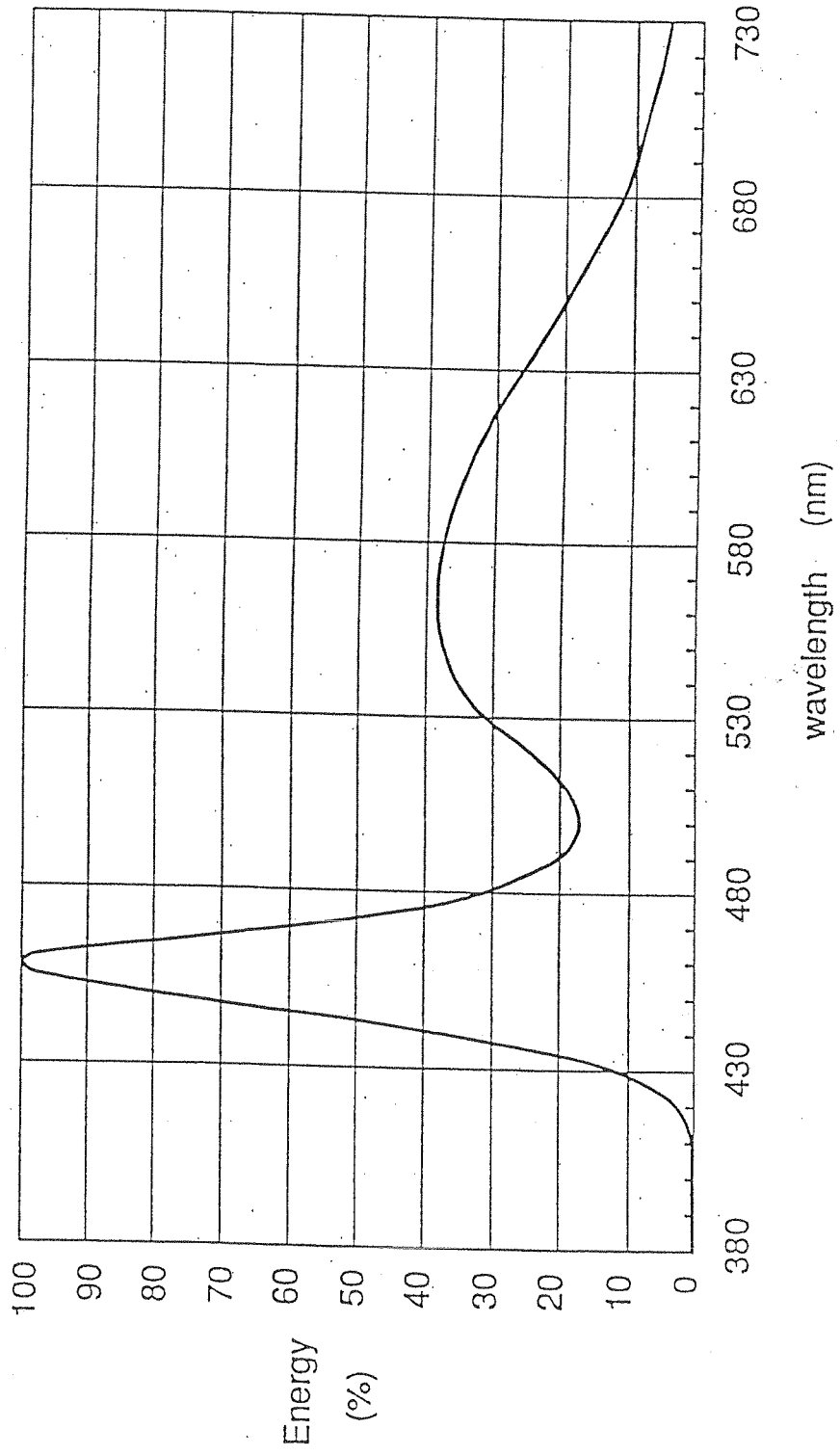

Emission spectrum
Energy (%)
100
90
80
70
60
50
40
30
20
10
0
380
430
480
530
580
630
680
730
wavelength (nm)

Fig.5A

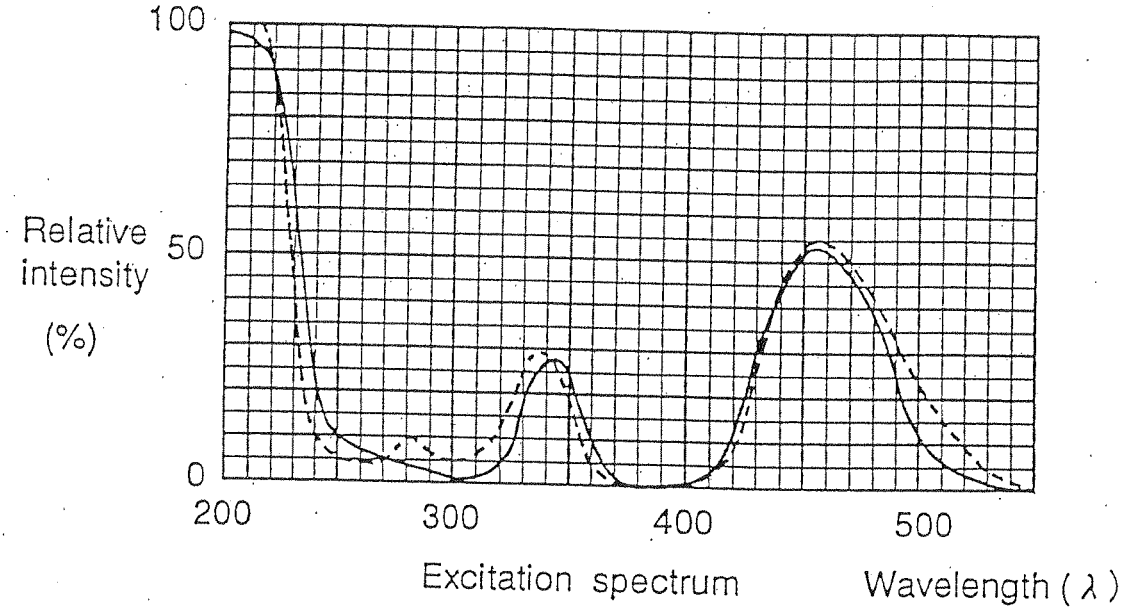

100
50
0
Relative intensity (%)
200
300
400
500
Excitation spectrum
Wavelength (λ)

Fig.5B

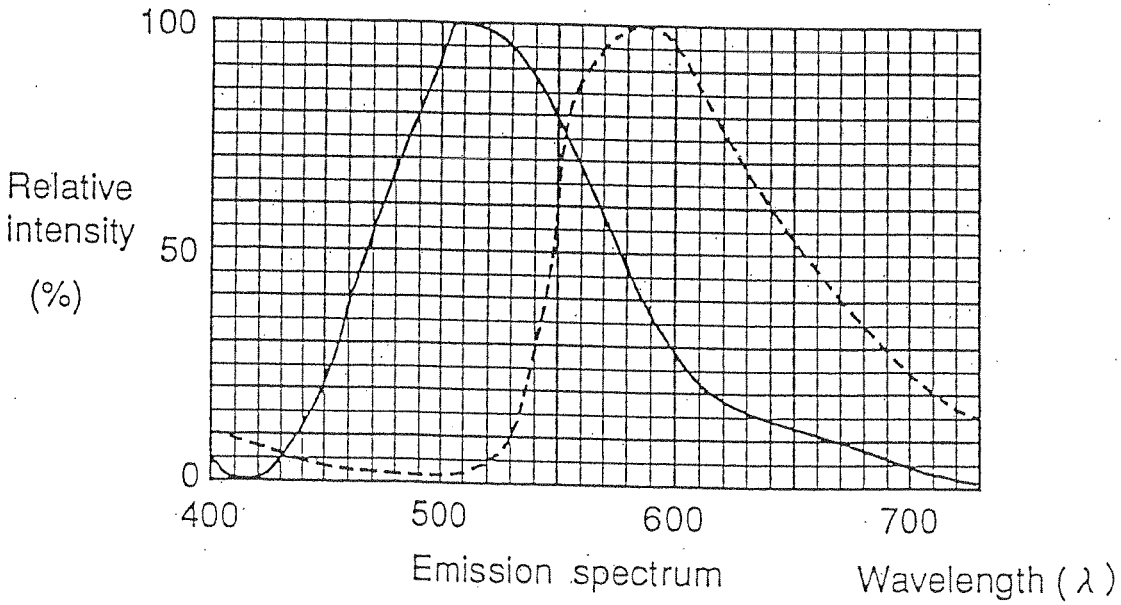

100
50
0
Relative intensity (%)
400
500
600
700
Emission spectrum
Wavelength (λ)

Fig.6

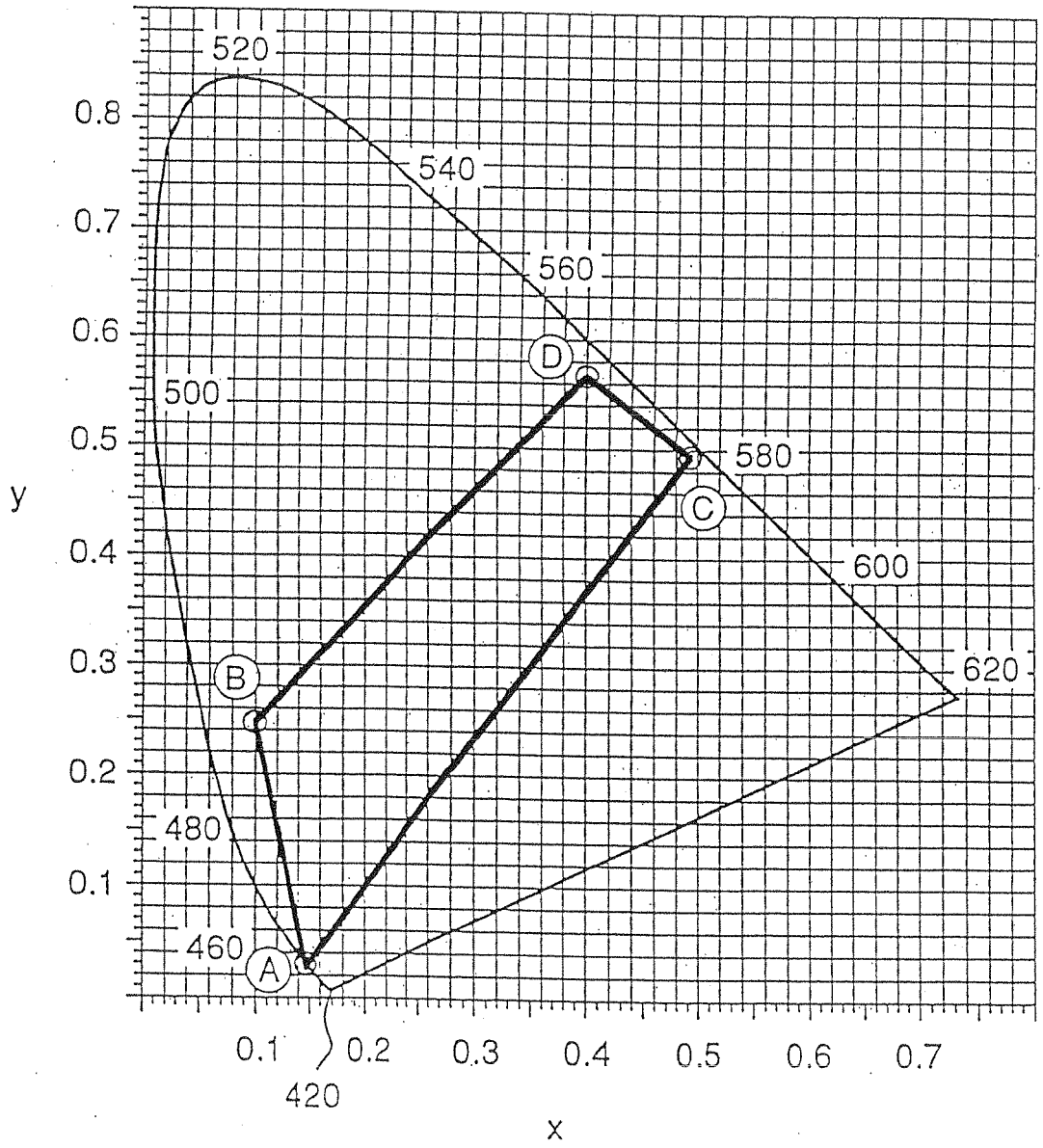

520
540
560
580
600
620
500
480
460
420
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
y
0.1
0.2
0.3
0.4
0.5
0.6
0.7
x
A
B
C
D

Fig.7

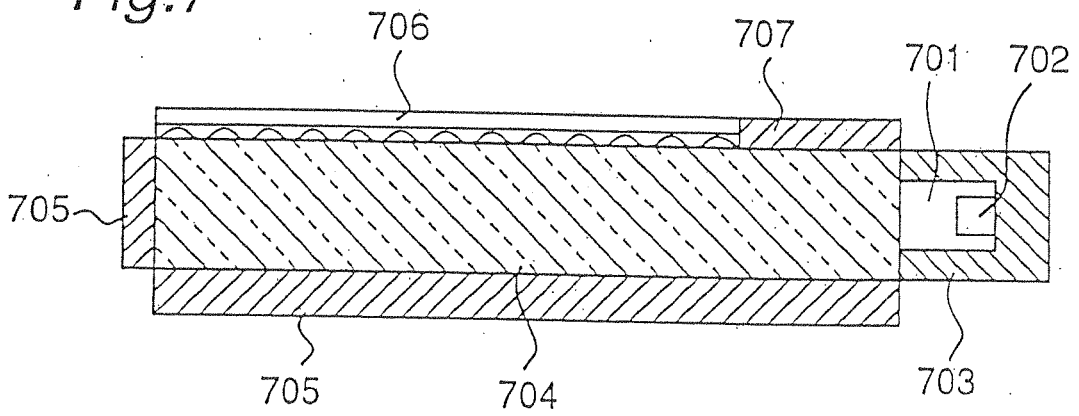


Fig.8

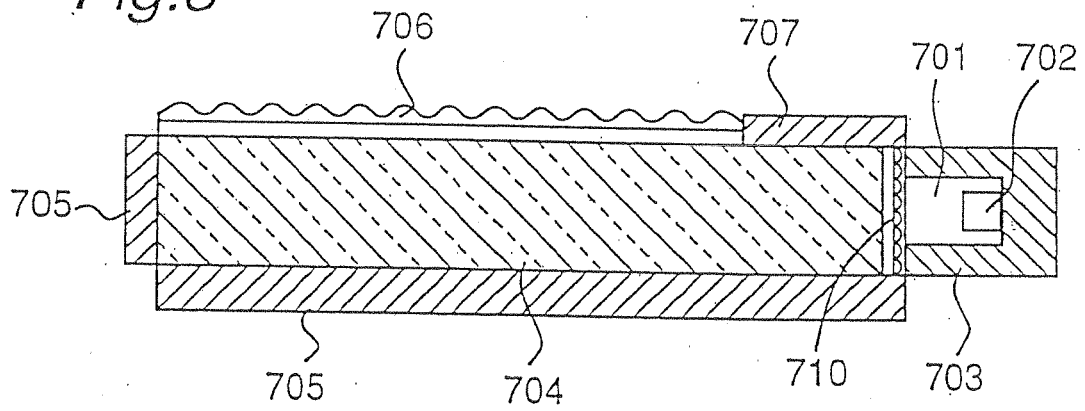


Fig.9

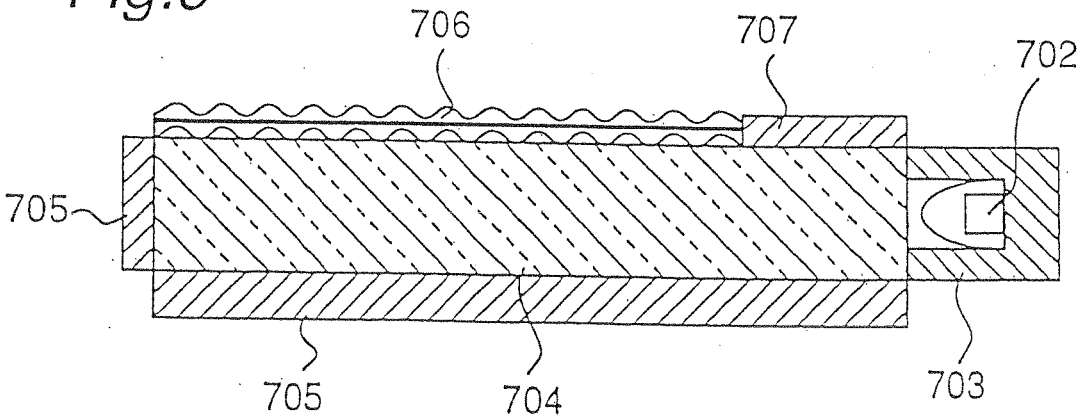


Fig.10

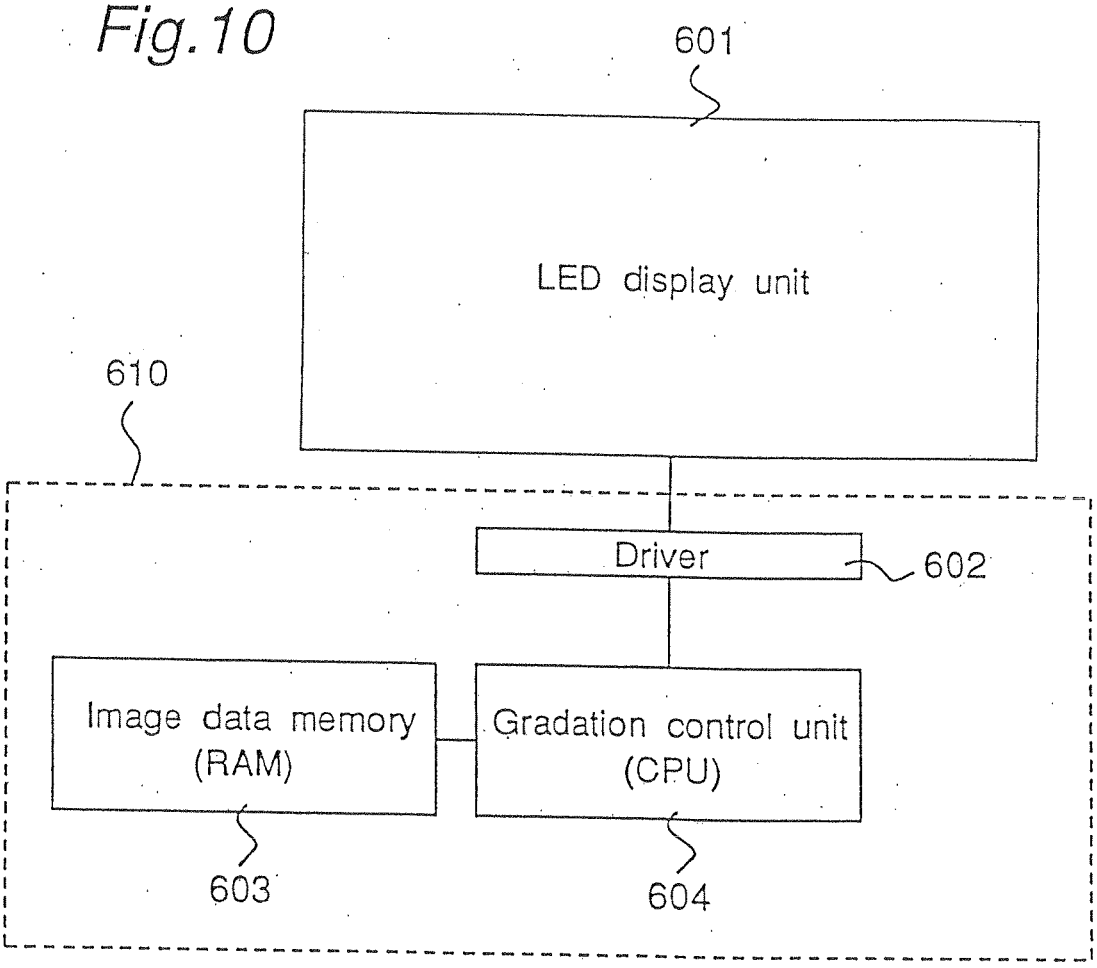

601
LED display unit
610
Driver
602
Image data memory
(RAM)
Gradation control unit
(CPU)
603
604

Fig.11

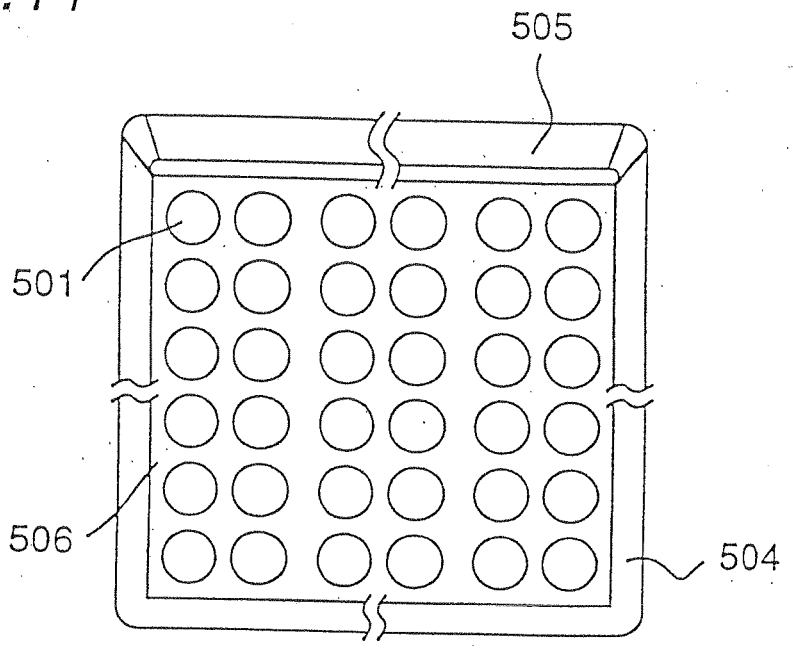


Fig.12

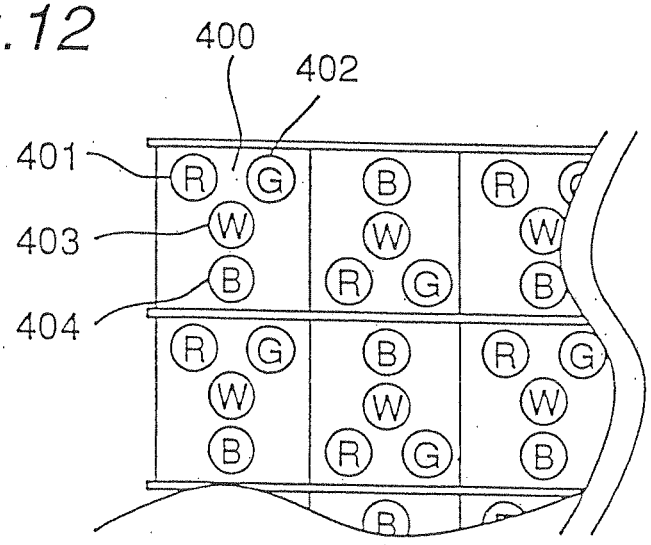


Fig.13A

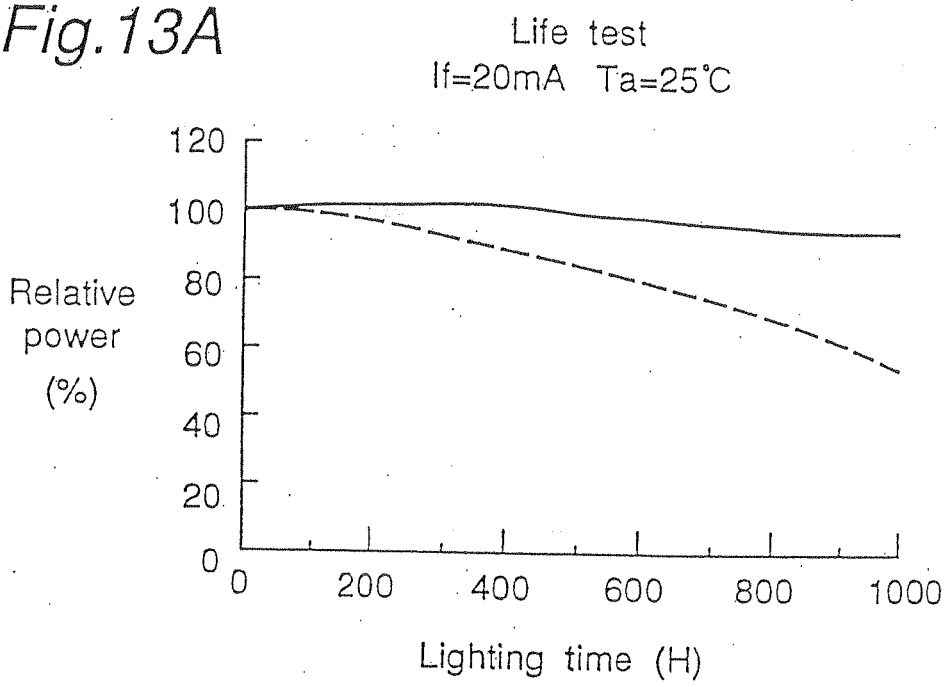


Fig.13B

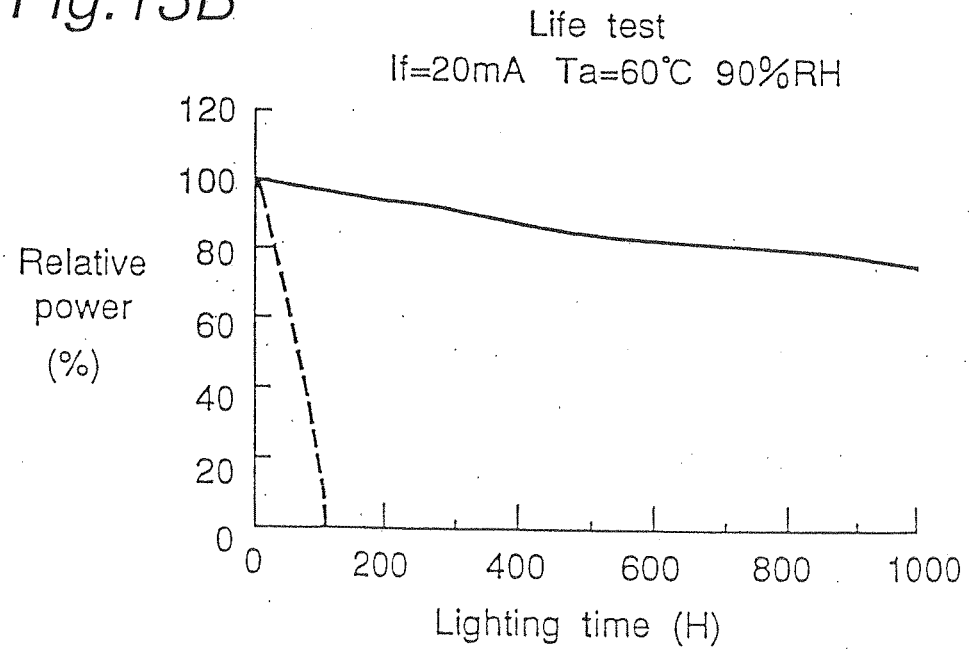


Fig.14A

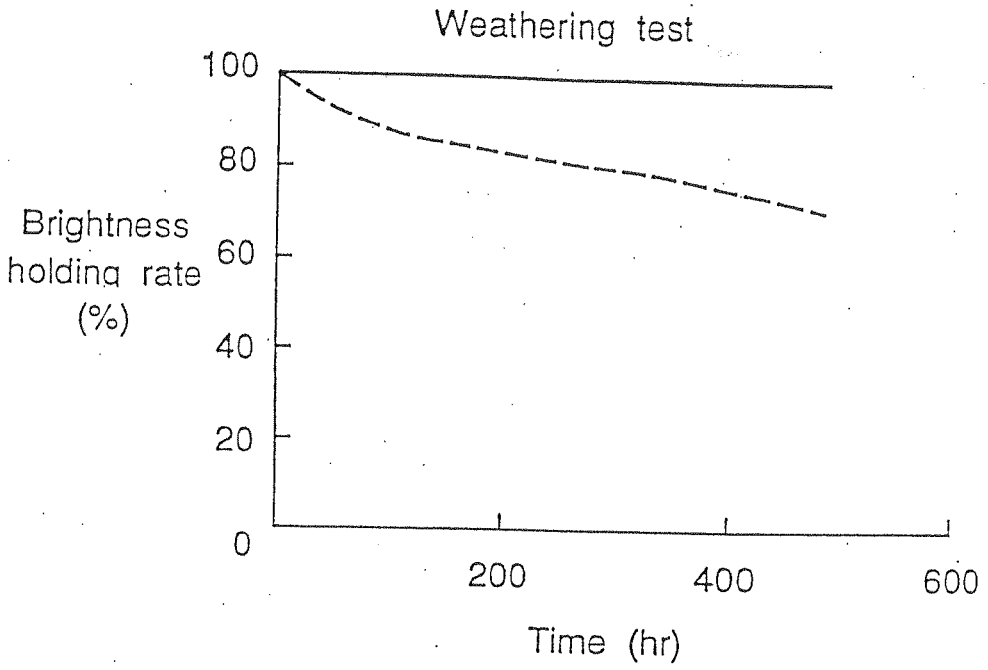


Fig.14B

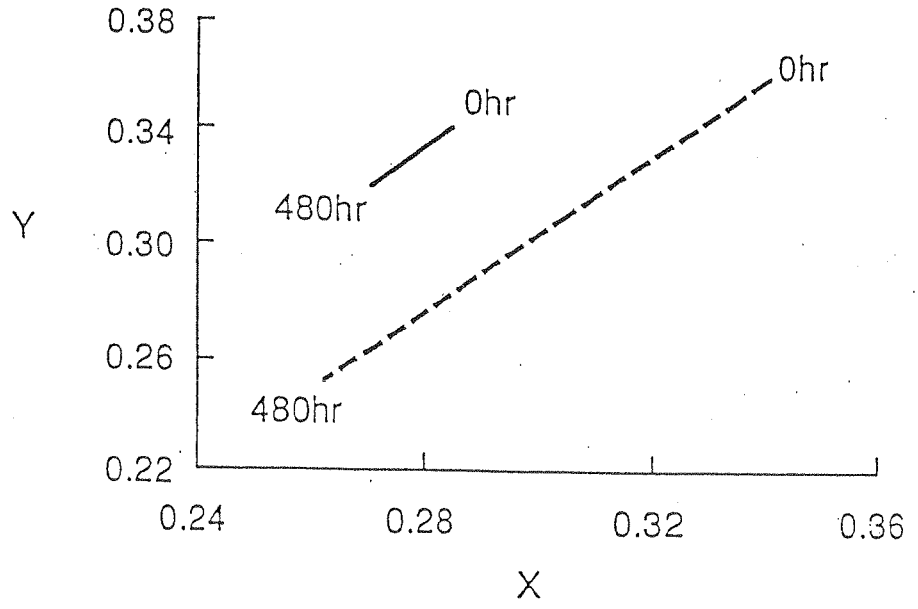


Fig.15A

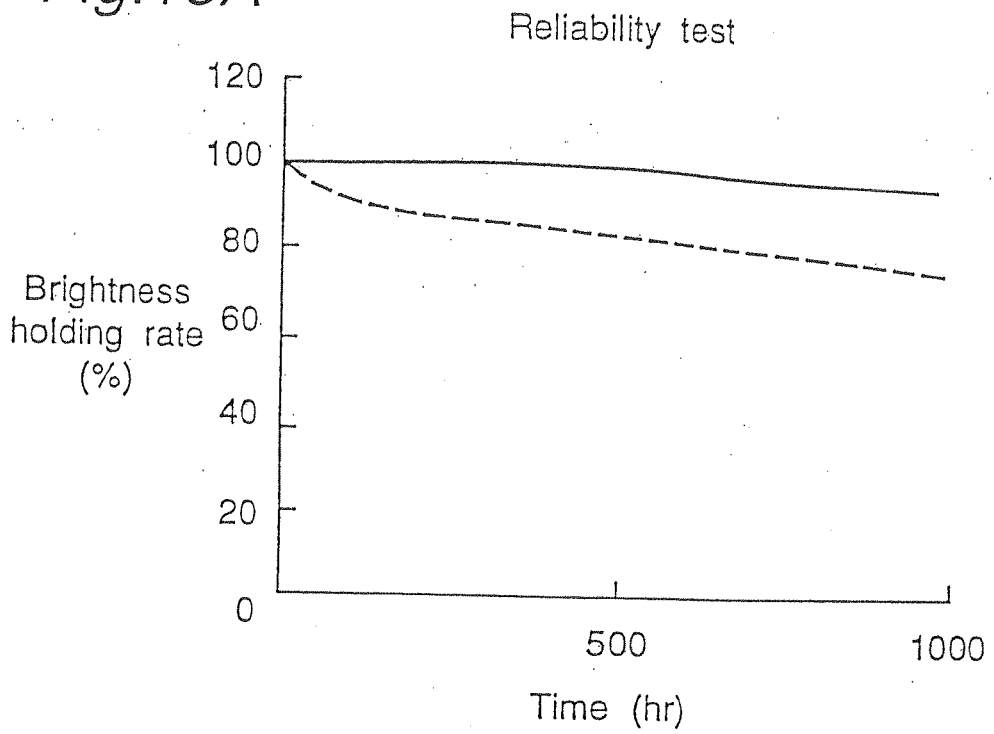


Fig.15B

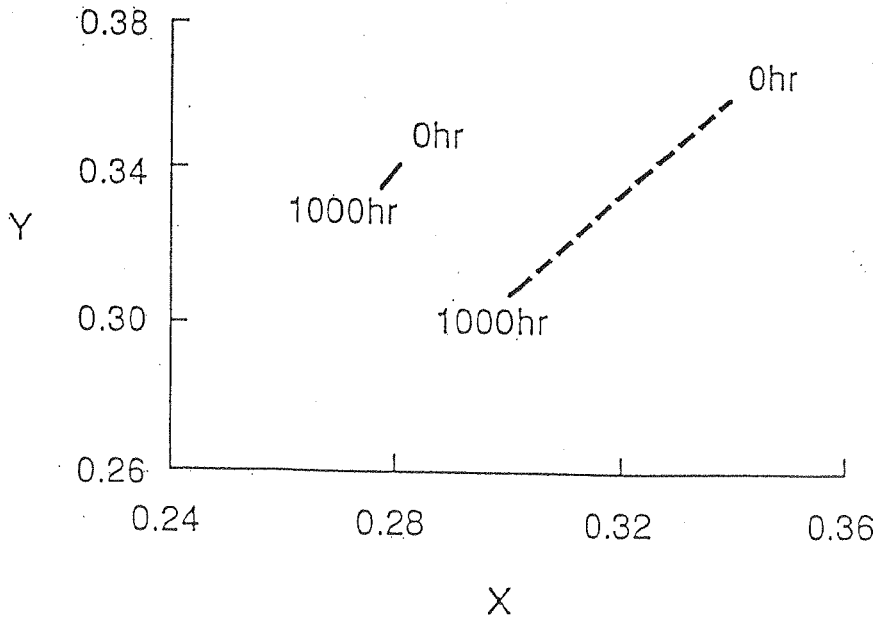


Fig. 16

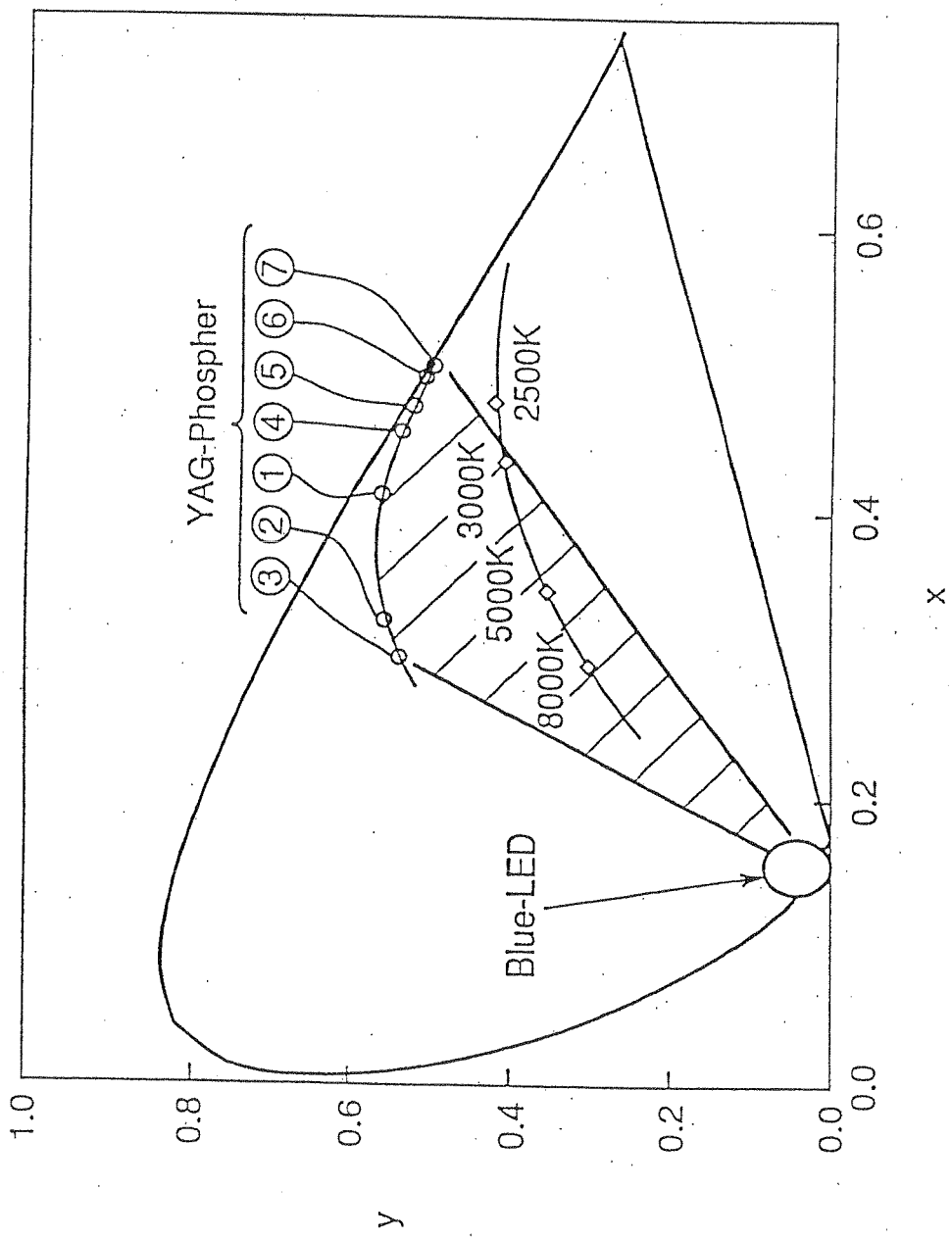

YAG-Phospher
③ ② ① ④ ⑤ ⑥ ⑦
2500K
3000K
5000K
8000K
Blue-LED
1.0
0.8
0.6
0.4
0.2
0.0
y
0.0
0.2
0.4
0.6
x

Fig.17

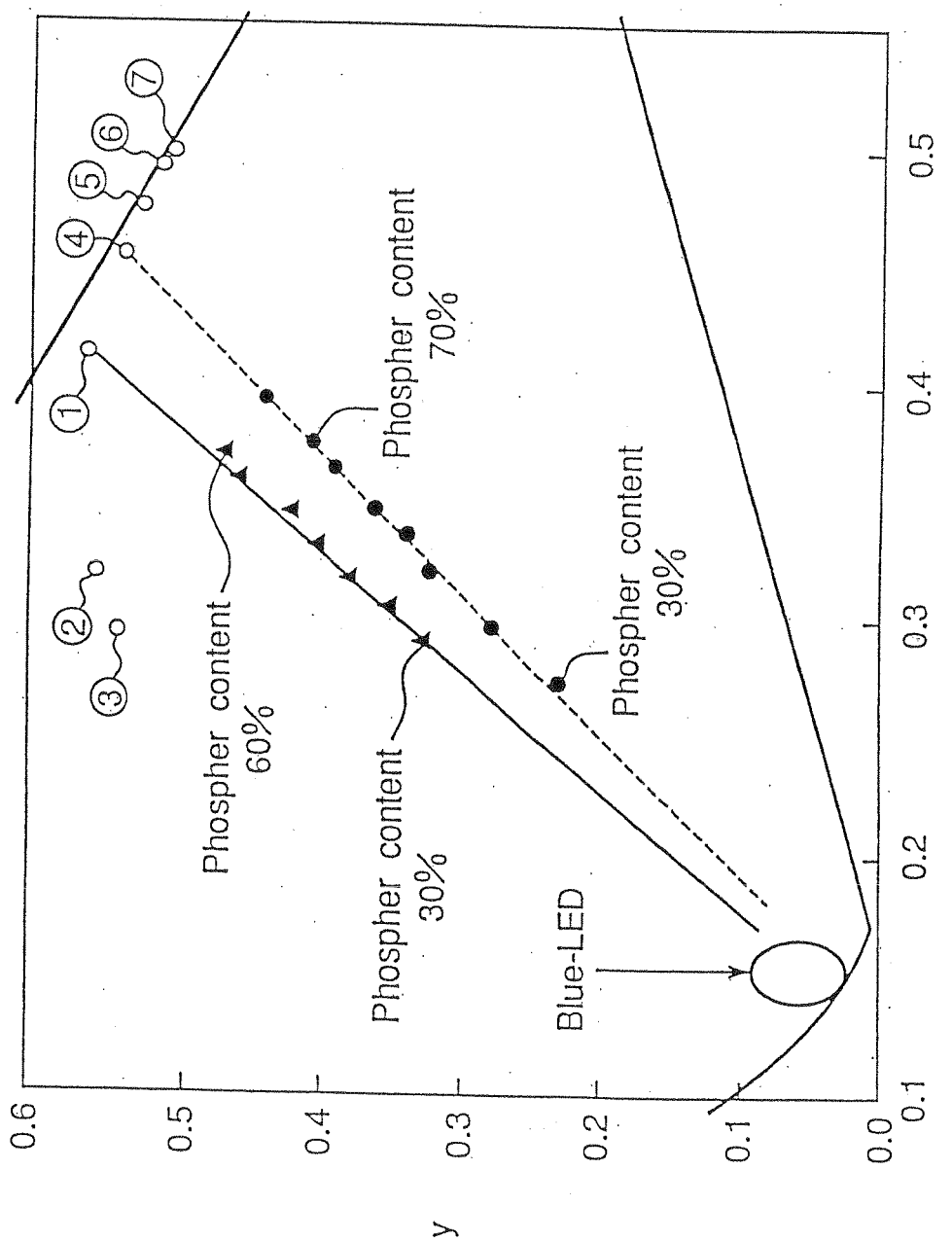

0.6
0.5
0.4
0.3
0.2
0.1
0.0
y
0.1
0.2
0.3
0.4
0.5
x
①
②
③
④
⑤
⑥
⑦
Phospher content
60%
Phospher content
30%
Phospher content
70%
Phospher content
30%
Blue-LED

Fig.18A

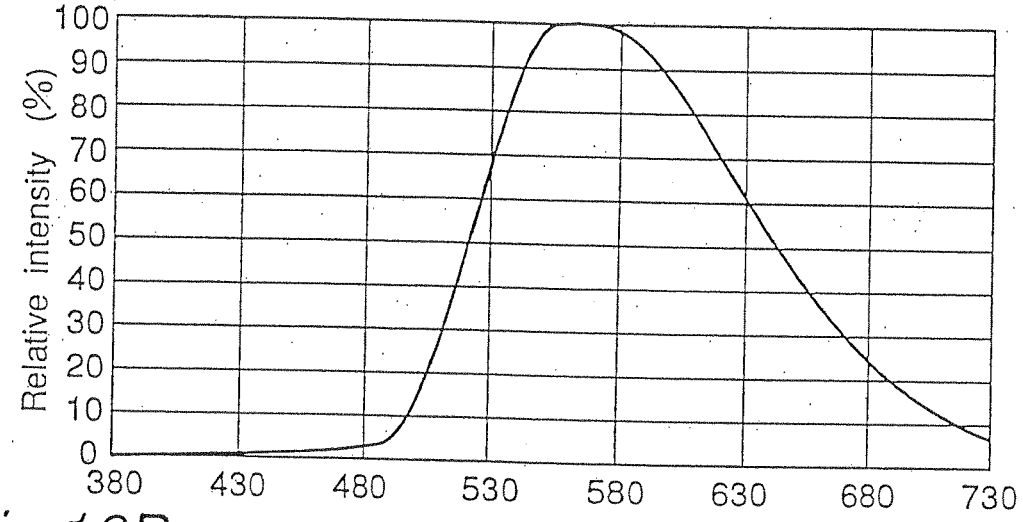


Fig.18B

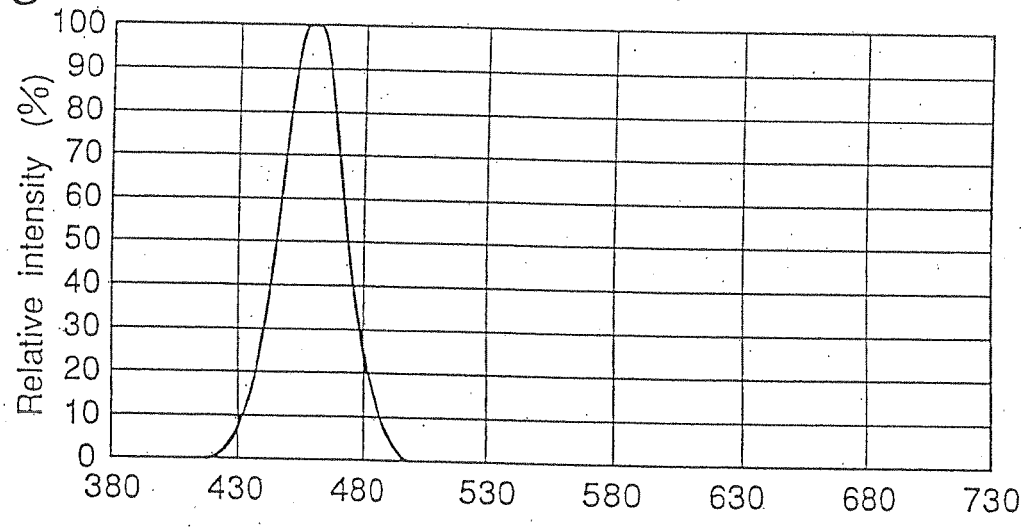


Fig.18C

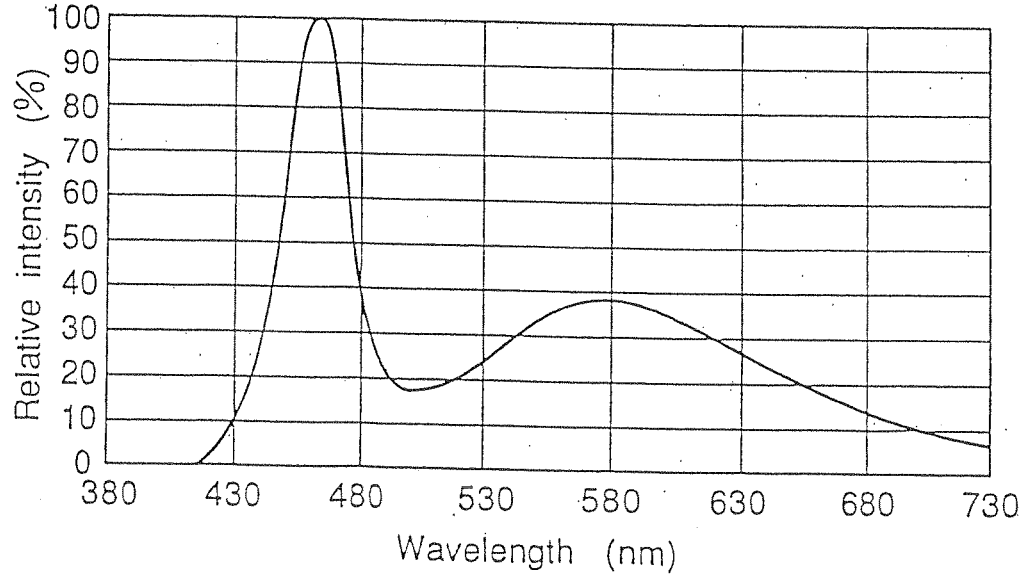


Fig.19A

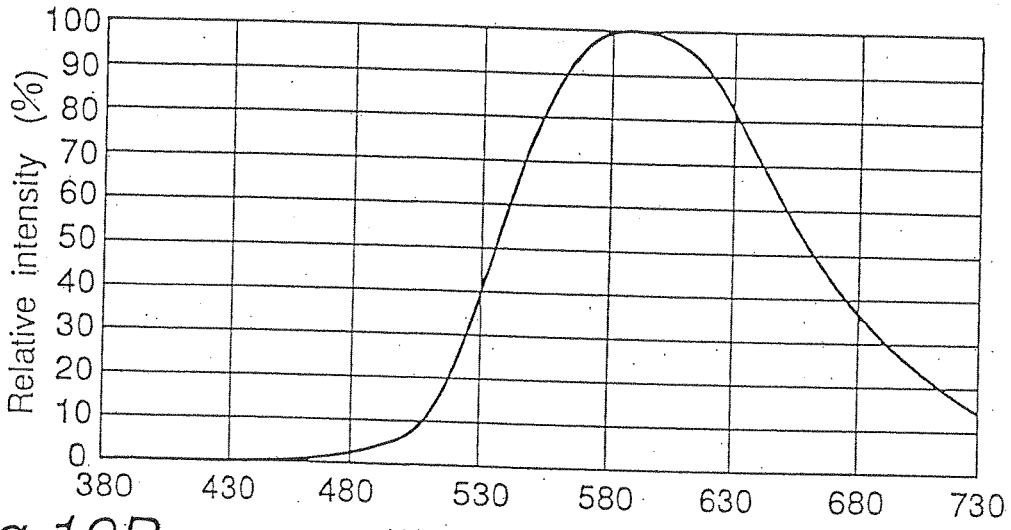


Fig.19B

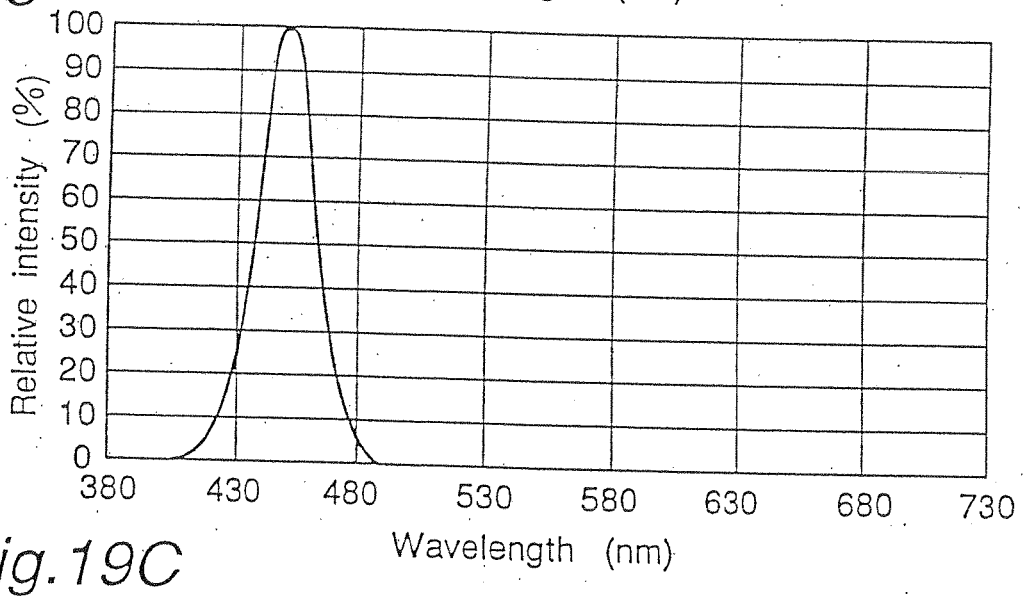


Fig.19C

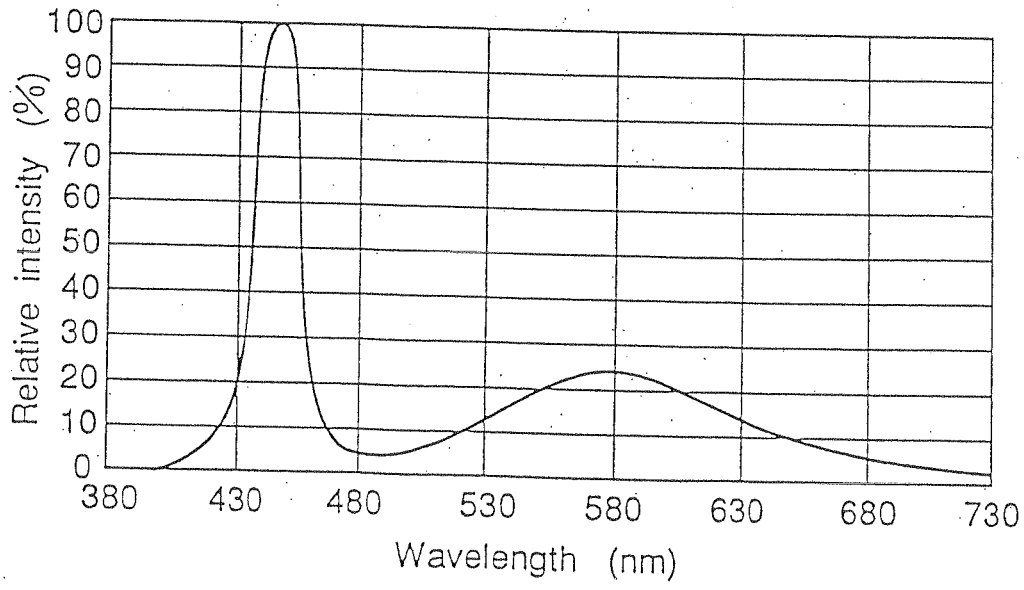


Fig.20A

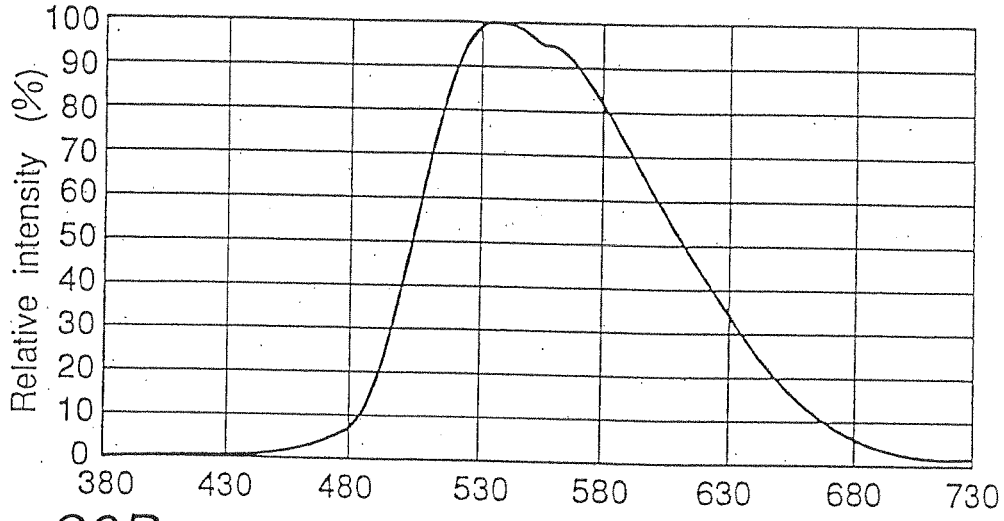


Fig.20B

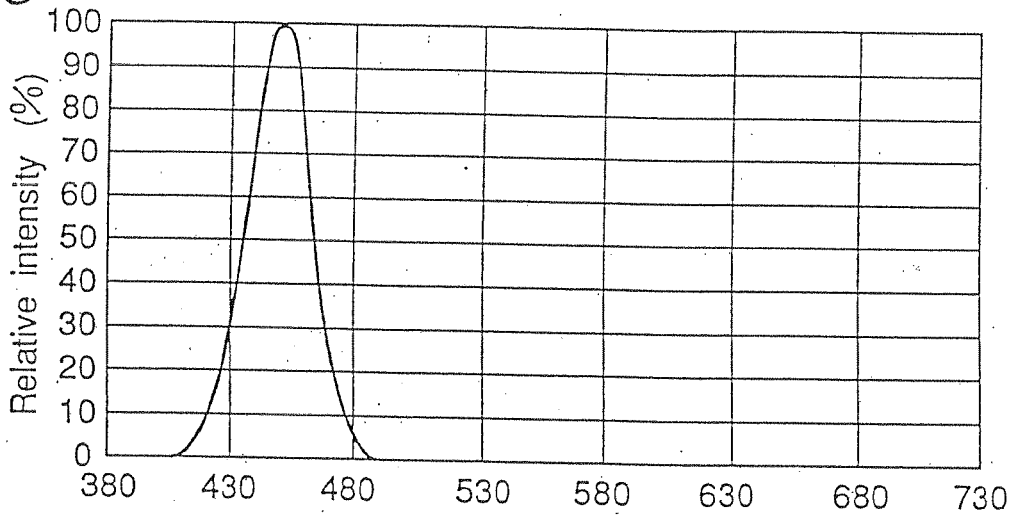


Fig.20C

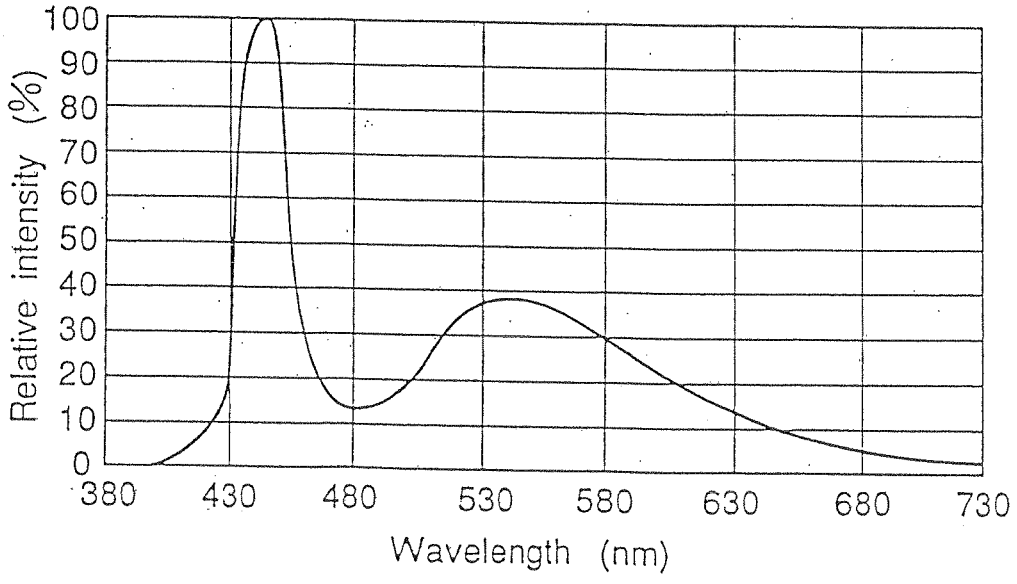


Fig.21A

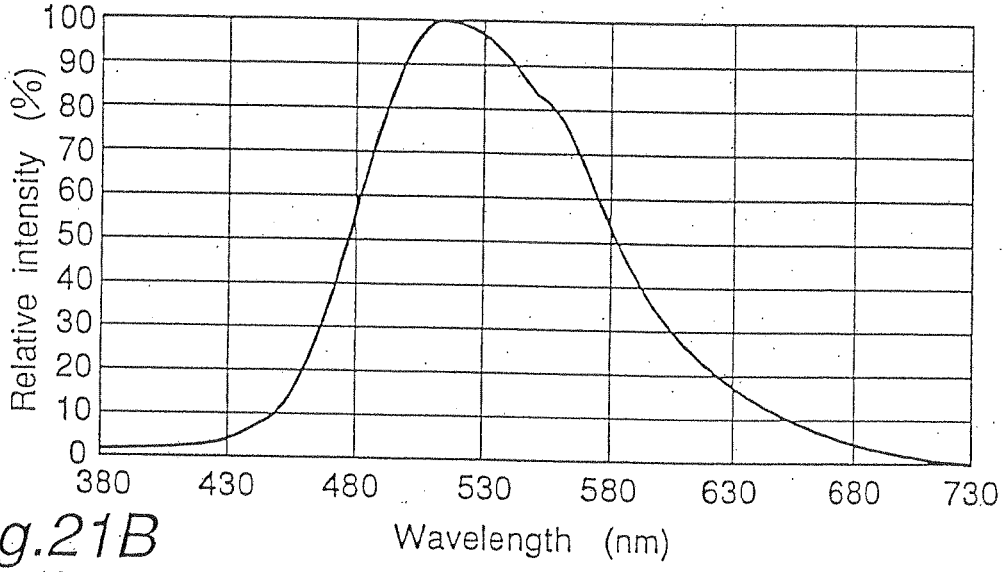


Fig.21B

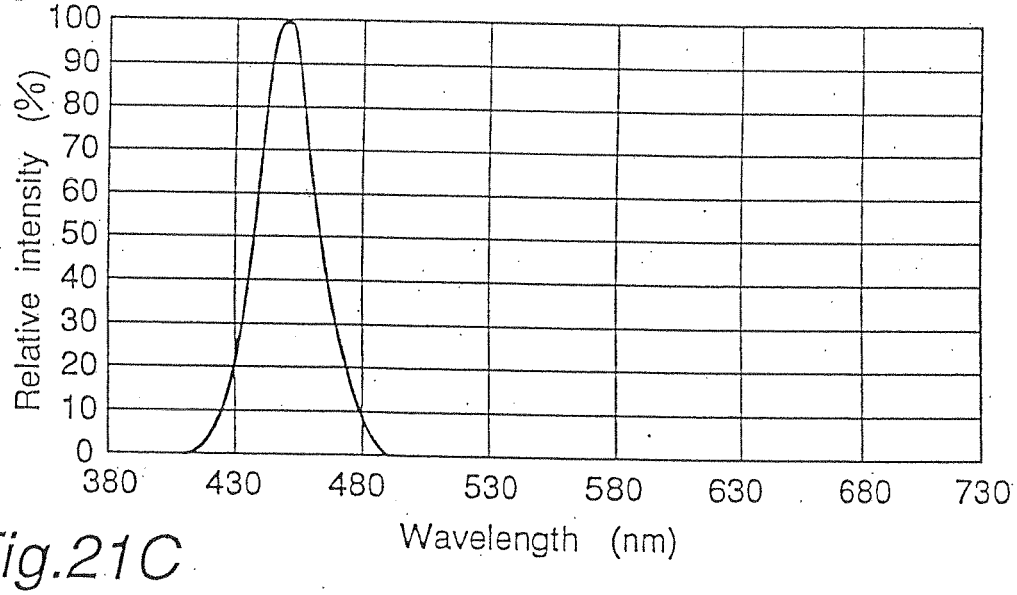


Fig.21C

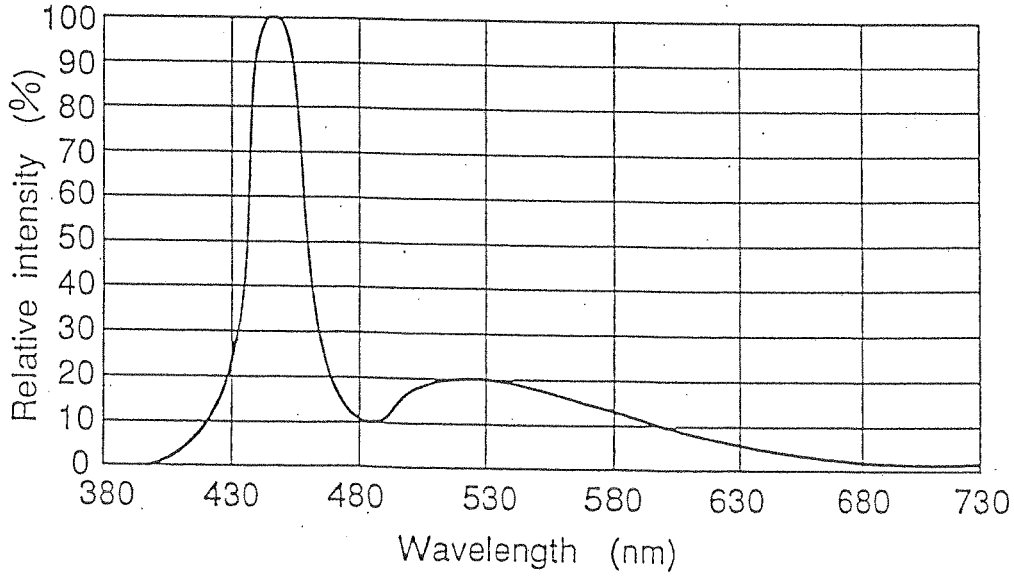


Fig.22A

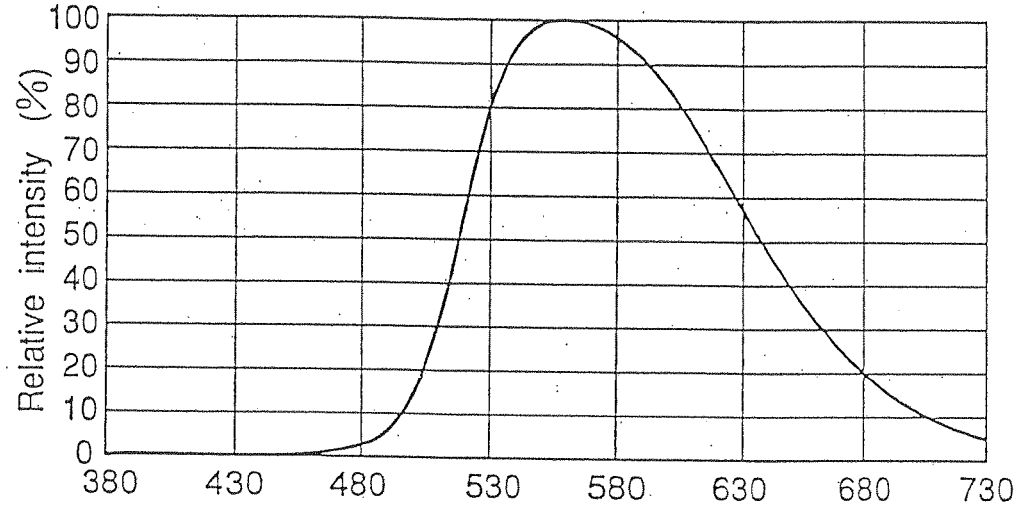


Fig.22B

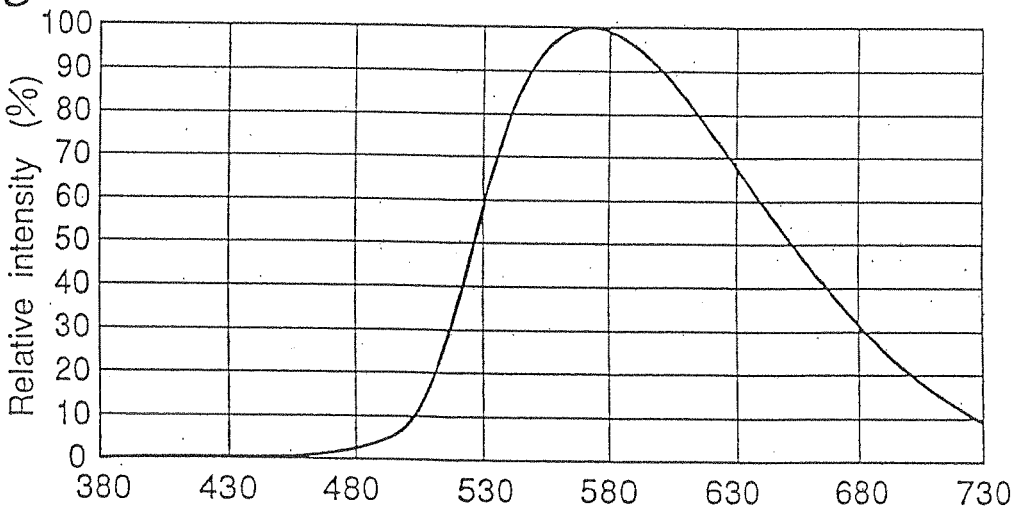


Fig.22C

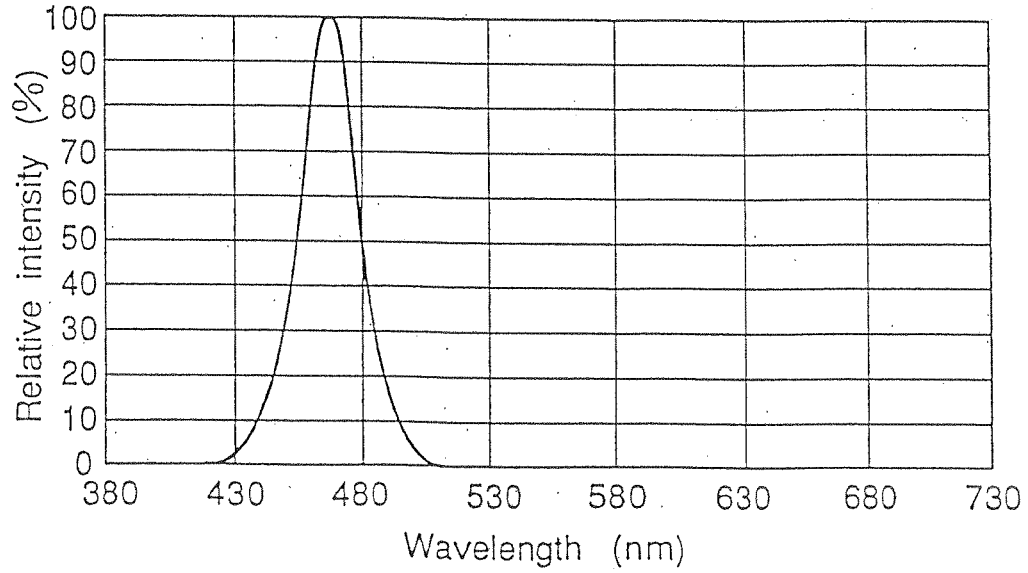
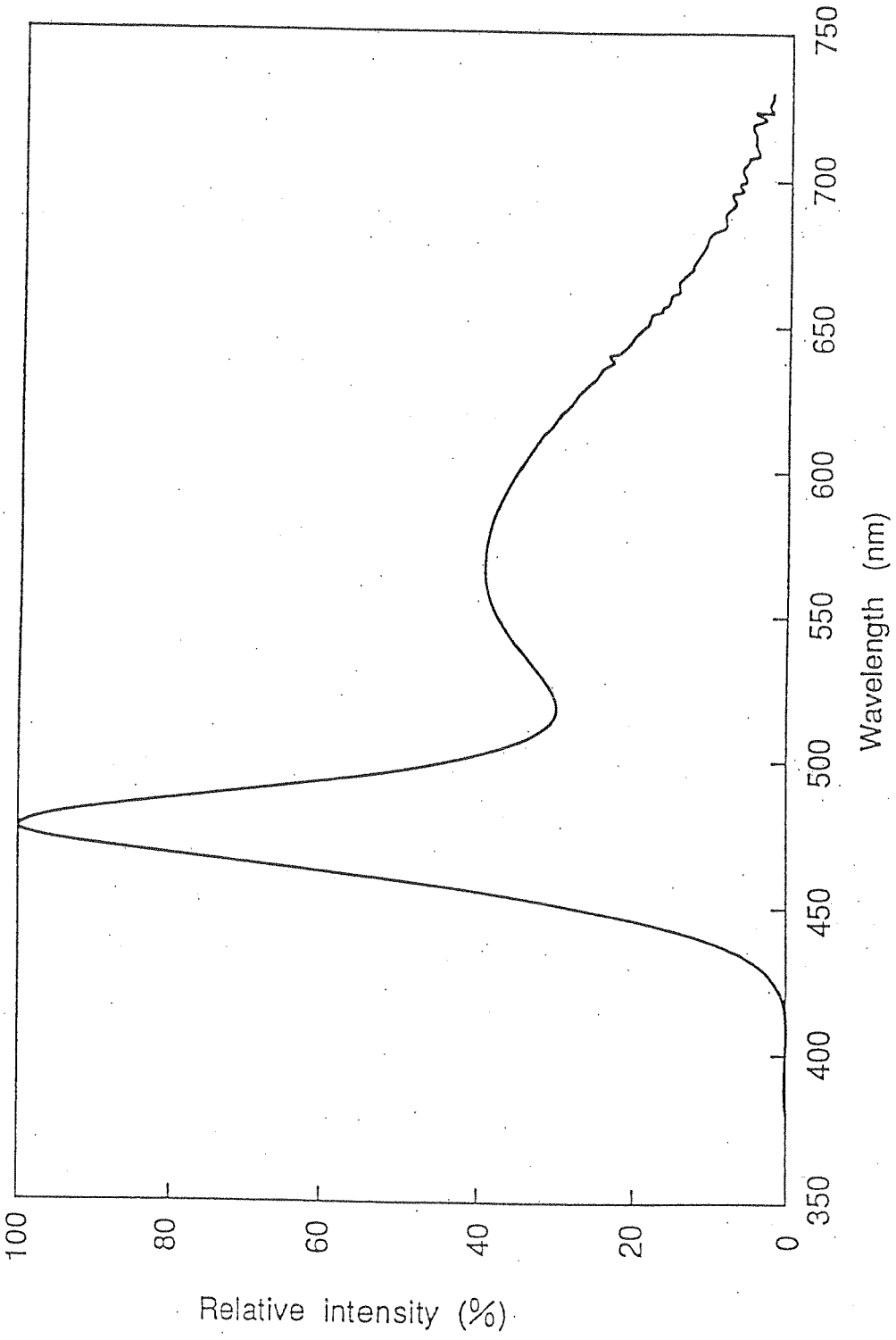


Fig.23


Relative intensity (%)
100
80
60
40
20
0
350
400
450
500
550
600
650
700
750
Wavelength (nm)