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UTILITY PATENT APPLICATION TRANSMITTAL LETTER
(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
84622/2000

To the Assistant Commissioner for Patents:

Transmitted herewith for filing is the patent application of:

Hirokazu FUKUYOSHI
corresponding to Japanese application No. 2000-84622, filed
March 24, 2000,
entitled: BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME
BACKLIGHT

Enclosed are:

- | | |
|-------------------------------------|--|
| ☒ | 15 pages of specification. |
| ☒ | 3 sheets of formal drawings. |
| ☒ | a newly-executed declaration of the inventor. |
| ☐ | a copy of an executed declaration of the inventor from prior application Serial No. , filed . |
| ☐ | incorporation by reference. The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied as indicated in the preceding box, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein. |
| ☒ | an assignment of the invention to NEC Corporation, including assignment cover sheet. |
| ☒ | Information Disclosure Statement with Form PTO-1449. |
| ☒ | copies of the Information Disclosure Statement citations. |
| ☐ | preliminary amendment. |
| ☒ | return receipt postcard (MPEP 503), specifically itemized. |
| ☐ | applicant claims small entity status under 37 CFR 1.27. |
| ☒ | a certified copy of the Japanese Priority Document. |
| ☒ | other: Application Data Sheet. |

If a CONTINUING APPLICATION, check appropriate box and supply the requisite information.

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP)

of prior application No. , filed .

☒	Customer No. 000466.
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UTILITY PATENT APPLICATION TRANSMITTAL LETTER

(continued)

Docket No.
84622/2000

CLAIMS AS FILED

	NO. FILED	NO. EXTRA	RATE	FEE
BASIC FEE			\$ 710	\$ 710
TOTAL CLAIMS	12 - 20 =	0	X\$ 18	
INDEPENDENT CLAIMS	1 - 3 =	0	X\$ 80	
MULTIPLE DEPENDENT CLAIM PRESENT			\$ 270	

TOTAL \$ 710

If applicant claims small entity status under 37 CFR 1.27, then divide total fee by 2, and enter amount here.

SMALL ENTITY TOTAL

\$

- ☒ A check in the amount of \$750 to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to Deposit Account No. 25-0120 in the name of Young & Thompson, as described below. A duplicate copy of this sheet is enclosed.
- ☐ Charge the amount of \$ as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional fee required under 37 CFR 1.16 and 1.17, during the pendency of this application.
- ☐ Charge the issue fee set in 37 CFR 1.18 at the mailing of the Notice of Allowance.

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March 19, 2001

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APPLICATION INFORMATION

Title Line One:: BACKLIGHT UNIT AND DISPLAY DEVICE USING
Title Line Two:: THE SAME BACKLIGHT
Total Drawing Sheets:: THREE
Formal Drawings?: Yes
Application Type:: UTILITY
Docket Number:: 84622/2000

REPRESENTATIVE INFORMATION

Representative Customer Number:: 000466

PRIOR FOREIGN APPLICATION

Foreign Application One:: 2000-84622
Filing Date:: MARCH 24, 2000
Country:: JAPAN
Priority Claimed:: Yes

BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT
UNIT

BACKGROUND OF THE INVENTION

5 1. Field of the Invention

The present invention relates to a display device and a backlight unit for use in the display device and, particularly, to a structure of a flat emission type backlight unit having a line-shaped light source.

10 2. Description of the Prior Art

The non-light emission type display device such as, for example, a liquid crystal display device is usually equipped with a flat light emission type backlight unit in order to make a display possible even in a place in which there is no external light or a state of an external light is inadequate. A general structure of such liquid crystal display device will be described with reference to FIG. 1.

15 As shown in FIG. 1, a backlight unit 10 for a liquid crystal display device includes a line-shaped light source 2 such as a cold cathode fluorescent lamp arranged on a side surface of a light guide panel 1 and a light reflection plate 3 for reflecting light from the light source 2 to the light guide panel 1. A reflection sheet 5 is arranged on a rear surface of the light guide panel 1.

20 The line-shaped light source 2 is connected to a connector terminal 32 through lead wires 33. A light collecting optical sheet 41 such as a prism sheet is arranged on the

25

surface side of the light guide panel 1 and a light
diffusing optical sheet 42 is provided between the light
collecting optical sheet 41 and the light guide panel 1.
These components are housed in a housing 6 to form the back
5 light unit 10.

A liquid crystal display panel 11 is provided on the
housing 6 and the liquid crystal display device is
completed by sandwiching the housing 6 between an upper
shield 12 and a lower shield 13 and fixing the shields 12
10 and 13 to the housing 6. The fixing of the shields 12 and
13 to the housing is performed by using known fixing means
such as threads and screws or detents and notches.

FIG. 2 is a cross section of the backlight unit 10,
which is of, for example, an edge illuminating type. The
light guide panel 1 is formed of a resin material such as
15 acrylic resin having high light transmittance and takes in
the form of a flat panel. The line-shaped light source 2 is
arranged along a side edge of the light guide panel 1 and
the light guide panel 1 functions to randomly reflect light
20 incident on the side edge thereof from the light source 2
within the light guide panel. The light reflection plate 3
having a U-shaped cross section is arranged on an opposite
side of the light source 2 to the side facing the side edge
of the light guide panel 1 to cover the line-shaped light
25 source 2 such that light from the light source 2 is
efficiently introduced into the side edge of the light
guide panel 1. The reflection sheet 5 for reflecting back

light coming through a lower surface of the light guide panel 1 toward a front, that is, upper surface thereof is arranged on the lower, that is, rear surface of the light guide plate 1. The light diffusing optical sheet 42 and the light collecting optical sheet 41 are laminated on the side of the upper surface of the light guide panel 1 and the assembly is housed in the housing 6.

Each of these optical sheets is as thin as 0.12 mm and a base material thereof is usually polyester resin. Since, in such case, light transmittance of one sheet is about 90%, the sheet has to be made as thin as possible, otherwise, light transmittance thereof is lowered.

When the backlight unit including such thin optical sheets is assembled together with a non-light emitting display device and operated in high temperature and high humidity environment or in low temperature environment, the light collecting and light diffusing optical sheets of the backlight unit are not only thermally expanded but also thermally deformed, resulting in wrinkles or flexion of the optical sheets. Therefore, the uniformity of luminance is degraded. Particularly, in a case where peripheries of the optical sheets are pressed to the light guide panel in the frame type housing 6 and fixed thereto, wrinkle or bending appears in center portions of the sheets, so that the display quality of the display device is degraded. Even if the optical sheets are not pressed by the frame and fixed thereto, it is necessary to provide a large clearance

between the frame and the optical sheets in order to avoid interference between the housing frame and the optical sheets. However, it is difficult to provide large clearance in the backlight unit in view of the commercial request of reducing the size and thickness of the display device. Therefore, the problem of degradation of display quality due to thermal deformation of the optical sheets cannot be solved.

Although techniques for compensating for a shortage of strength of a reflecting/deflecting plate and/or a light guide panel are disclosed in, for example, Japanese Patent Application Laid-open No. S59-52217 and Japanese Patent No. 2856276, these techniques are not related to the reinforcement of optical sheets used in a backlight unit, for diffusing light, collecting light and/or reflecting light, as in the present invention.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a backlight unit for use in a non-light emitting type display device such as a liquid crystal display device, which backlight unit includes a thin optical sheet as a light diffuser, a light collector or a light reflector and a reinforcing plate stuck on the optical sheet and having light transmittance higher than that of the one sheet and durability against thermal deformation so that luminance of the backlight unit becomes uniform without irregularity in high temperature and high humidity environment.

Another object of the present invention is to provide a display device using the same backlight unit.

According to the present invention, a backlight unit comprises an optical sheet for transmitting light from a light source and giving an optical change to the light, a transparent reinforcing plate in intimate contact with one of main surfaces of the optical sheet and a reflection member for reflecting the light emitted from the light source to the transparent reinforcing plate such that the light from the light source passed through the transparent reinforcing plate passes through the optical sheet.

The transparent reinforcing plate is preferably formed of a material having light transmittance higher than that of the optical sheet and thermal deformation larger than that of the optical sheet.

The optical sheet is a light collecting optical sheet for increasing a front surface luminance of the backlight unit and the backlight unit further comprises a light diffusing optical sheet arranged on a side of a surface of the reinforcing plate opposite to the side of the other surface thereof on which the light collecting optical sheet is arranged, for increasing the uniformity of luminance of a light emitting surface of the backlight unit and a flat light guide panel arranged between the reflecting member and the light diffusing optical sheet for randomly reflecting the incident light from the light source, within the flat light guide plate.

The light source is a line-shaped light source arranged on a side edge of the light guide panel and the backlight unit further comprises a curved light reflecting plate for reflecting light emitted from the light source toward the side edge of the light guide panel.

The reinforcing plate is preferably stuck on the optical sheet by a transparent tackiness agent. The transparent tackiness agent may be acrylic tackiness agent.

In a case where a base material of the optical sheet is polyester resin, the reinforcing plate is preferably formed of either polyethylene naphthalate resin or polycarbonate.

Particularly, light transmittance of the reinforcing plate for light from the light source is preferably 90% or more.

Glass transition temperature of the reinforcing plate is preferably 100°C or higher.

Furthermore, according to the present invention, a liquid crystal display device including the above mentioned backlight unit arranged on a rear surface of a liquid crystal display panel is provided.

In a case where the backlight unit is of the light-up type to be used below the liquid crystal display panel, the optical sheet is a light diffusing optical sheet for increasing the uniformity of luminance of the light-emitting surface of the backlight unit. The light source may be arranged immediately below the reinforcing plate and

between the reflecting member and the reinforcing plate. In such case, the light source preferably comprises a plurality of juxtaposed line-shaped light sources and the reflecting member is preferably constructed with a support plate and a white reflecting plate supported by the support plate.

According to another aspect of the present invention, the backlight unit comprising a flat light guide panel for randomly reflecting incident light, which is emitted from a line light source arranged on a side edge of the flat light guide panel, within the flat light guide panel, a reflecting plate provided on one of major surfaces of the light guide panel, for reflecting light toward the side of the other major surface, a light diffusing optical sheet provided on the side of the other major surface of the light guide panel, for improving uniformity of luminance of a light emitting surface of the backlight unit, a light collecting optical sheet for improving luminance of a front surface of the backlight unit, a housing for housing the flat light guide panel, the reflecting plate, the light diffusing optical sheet and the light collecting optical sheet is featured by further comprising a transparent reinforcing plate in intimate contact with at least one of the light diffusing optical sheet and the light collecting optical sheet.

According to a further aspect of the present invention, the backlight unit comprising at least one line-shaped

light source, a white reflecting plate for reflecting light emitted backward from the line-shaped light source and a light diffusing optical sheet for improving uniformity of luminance of a light emitting surface of light directly emitted from the line-shaped light source or reflected light by the white reflecting plate, is featured by further comprising a transparent reinforcing plate provided on a rear surface of the light diffusing optical sheet, which is a surface opposite to a beaded surface of the light diffusing optical sheet.

The reinforcing plate is formed of polyethylene naphthalate or polycarbonate having mechanical strength higher than that of the light diffusing optical sheet.

According to another aspect of the present invention, a non-light emitting type display device, which comprising a backlight unit and a liquid crystal display provided on the backlight unit and displays an image with light emitted from the backlight unit, is featured by that the backlight unit is the above mentioned back light.

BRIEF DESCRIPTION OF THE DRAWINGS

The above mentioned and other objects, features and advantages of the present invention will become more apparent by reference to the following detailed description of the invention taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a disassembled perspective view of a conventional non-light emitting type display device;

FIG. 2 is a cross section of a backlight unit used in the conventional display device;

FIG. 3 is a disassembled perspective view of a display device according to the first embodiment of the present invention;

FIG. 4 is a cross section of a backlight unit used in the display device shown in FIG. 3; and

FIG. 5 is a cross section of a backlight unit according to the second embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will be described in detail with reference to the drawings. FIG. 3 is a disassembled perspective view of a display device according to the first embodiment of the present invention. In FIG. 3, a line-shaped light source 2 is provided along a side edge of a light guide panel 1 and the line-shaped light source 2 is partially covered by a light reflecting plate 3. The line-shaped light source 2 is connected to a connector terminal 32 through lead lines 33. A reflecting sheet 5 is provided on one of major surfaces of the light guide plate 1, for reflecting light toward the other major surface thereof. On the other hand, a diffusing optical sheet 42 and a collecting optical sheet 41 are provided on the side of the other major surface of the light guide panel 1. A backlight unit 10 is formed by these components housed in a housing 6. The light collecting optical sheet 41 is stuck with a transparent reinforcing plate 71 of a material, which is

resistive to thermal deformation. A liquid crystal display panel 11 is arranged above the backlight unit 10 and a front shield 12 is put on the liquid crystal display panel 11. A rear shield 13 is arranged on a lower surface of the backlight unit 10. These components are fitted in the housing 6 below the liquid crystal display panel 11, completing the display device. In FIG. 3, although the reinforcing plate 71 is stuck on only the light collecting optical sheet 41, it is possible to stick reinforcing plates on both the light collecting optical sheet 41 and the light diffusing optical sheet 42.

FIG. 4 is a cross section of the backlight unit of the present invention. The line-shaped light source 2 is arranged on a side edge of the flat light guide panel 1, which is formed of a resin such as acrylic resin having high light transmittance and functions to randomly reflect light incident on the side edge within the light guide panel 1. As the line-shaped light source, a fluorescent lamp such as a hot cathode tube or a cold cathode tube is usually used. In order to efficiently guide light emitted from the line-shaped light source 2 to the light guide panel 1, the line-shaped light source 2 is partially covered by a light reflecting plate 3. A reference numeral 5 depicts a reflecting sheet arranged on one of major surfaces of the light guide panel 1 for reflecting light toward the other major surface.

The light diffusing optical sheet 42 for improving

uniformity of luminance of the light emitting surface and the light collecting optical sheet 41 for improving luminance of the front surface are arranged on the display side of the light guide panel 1. One surface of the light
5 collecting optical sheet 41 is in intimate contact with a reinforcing plate 71 formed of a material having high light transmittance and having higher resistivity against thermal deformation than that of the optical sheets, that is, a material having glass transition temperature higher than
10 that of the optical sheets.

Since glass transition temperature of polyester resin, which is a general material of the optical sheets, is about 80°C, the material of the reinforcing plate 71 preferably has glass transition temperature of 100°C or higher. For
15 example, polyethylene naphthalate has glass transition temperature as high as about 120°C and light transmittance as high as about 90% in a case where the thickness of the plate formed of polyethylene naphthalate is 0.2 mm. Therefore, polyethylene naphthalate is preferable as the
20 material of the reinforcing plate in the present invention. Alternatively, polycarbonate is also suitable as the material of the reinforcing plate.

The reinforcing plate 71 is stuck on a whole area of on the major surface of the light collecting optical sheet
25 41 by a tackiness agent such as acrylic tackiness agent having high light transmittance. In doing so, it is preferable to form the reinforcing plate of a material

having coefficient of linear expansion close to that of the optical sheet. Since coefficient of linear expansion of polyester resin is $1.5 \sim 4.5 \times 10^{-5}$, polyethylene naphthalate having coefficient of linear expansion of $1.0 \times 10^{-6} \sim 6 \times 10^{-5}$ is preferable as the material of the reinforcing plate.

Although the case where the reinforcing plate is stuck on only the light collecting optical sheet 41 is shown in FIG. 4, it is possible to stick another reinforcing plate on the light diffusing optical sheet 42 as well. Since it is usual, for the purpose of light collection or light diffusion, that one surface of the light collecting optical sheet 41 as well as the light diffusing optical sheet 42 is formed with prisms or a bead coat, the reinforcing plate is stuck on the other surface of the optical sheet having no such prisms or bead coat.

When a display device is operated in high temperature and high humidity environment, an optical sheet formed of resin is expanded. In such case, if a clearance between a frame formed of ABS resin or aluminum for housing and protecting a backlight unit and the optical sheet is small, the frame and the optical sheet interfere each other and the optical sheet may be warped or wrinkled. However, by sticking the reinforcing plate having high light transmittance and resistive to thermal deformation on such optical sheet, it is possible to prevent the optical sheet from being deformed in high temperature and high humidity

environment or in low temperature environment without degrading the effect of the optical sheet to thereby obtain a backlight unit having uniform luminance.

According to the experiment conducted by the present inventors with using an optical sheet combined with a reinforcing plate of polyethylene naphthalate, it has been confirmed that coefficient of linear expansion of the combined optical sheet and the reinforcing plate obtained by leaving the combined optical sheet and the reinforcing plate as they are for 240 hours in an environment of temperature of 60°C and humidity of 80% and then for 24 hours in an environment of normal temperature of 25°C and humidity of 60% or lower is $0.3 \sim 0.9 \times 10^{-5}$.

Although the thicker the reinforcing plate provides the higher the effect of preventing deformation of the optical sheet, light transmittance of the latter is lowered correspondingly. Therefore, the reinforcing plate is preferably thicker than the optical sheet and has light transmittance not lower than 90%. When the reinforcing plate is formed of polyethylene naphthalate, the thickness thereof is preferably in a range from 0.15 mm to 0.5 mm and, more preferably, in a range from 0.2 mm to 0.3 mm in view of practical balance between mechanical strength and light transmittance thereof.

It may be possible to increase the strength of the optical sheet by making the latter thicker. However, a sheet of polyester resin, which is suitable as a material

for the optical sheet, 0.12 mm thick has light transmittance as low as about 90%. If the thickness thereof is increased further more in order to obtain a desired mechanical strength, light transmittance thereof is substantially lowered to a level, which can not be accepted practically.

Next, the second embodiment of the present invention will be described with reference to FIG. 5. The second embodiment is an example of a backlight unit of the light-up type. A plurality of line-shaped light sources 21 to 24 such as fluorescent lamps are juxtaposed between a white reflecting plate 7 and a light diffusing optical sheet 43. The white reflecting plate 7 is supported by a support plate 8 and reflects lights from the line-shaped light sources 21 to 24 in one direction. The light diffusing optical plate 43 is provided to make luminance of lights from the line-shaped light sources uniform. Furthermore, a transparent reinforcing plate 72 is stuck on a rear surface of the light diffusing optical sheet 43 (opposite to a beaded surface thereof) by using a tackiness agent. It is preferable, as mentioned previously, that the reinforcing plate is formed of a material having mechanical strength higher than that of the light diffusing optical sheet, that is, higher resistivity against deformation than that of the light diffusing optical sheet, such as, for example, polyethylene naphthalate or polycarbonate. As another material of the reinforcing plate, which can be applied, is

a thin and low-density glass material. Portions of the light diffusing optical sheet 43 arranged in the vicinity of the line-shaped light sources 21 to 24 and having no reinforcing plate located immediately above the line-shaped light sources are expanded by heat generated by the light sources, causing local wrinkles to be occur. However, by using the reinforcing plate 72 stuck on the light diffusing optical sheet as in this embodiment, it is possible to restrict generation of wrinkles in the optical sheet.

As described in detail hereinbefore, according to the present invention, it is possible to restrict deformation of an optical sheet by sticking a reinforcing plate having mechanical strength resistive to deformation due to expansion of the optical sheet under high temperature and high humidity environment or shrinkage under low temperature environment on the optical sheet. Furthermore, according to the present invention, it is possible to make a clearance between the optical sheet and a frame for housing the optical sheet small compared with the conventional backlight unit, so that the size of the backlight unit can be reduced. Therefore, a compact and thin display device can be provided.

Although the display device having a liquid crystal display panel has been described, the backlight unit of the present invention can be employed in an electric sign or an electric billboard of the type lighted up from a back side.

What is claimed is:

1 1. A backlight unit comprising:
2 an optical sheet for transmitting light from a light
3 source and giving an optical change to the light,
4 a transparent reinforcing plate in intimate contact
5 with one of major surfaces of said optical sheet; and
6 a reflection member for reflecting the light emitted
7 from said light source to said transparent reinforcing
8 plate such that the light from said light source passed
9 through said transparent reinforcing plate passes through
10 said optical sheet.

1 2. A backlight unit as claimed in claim 1, wherein said
2 transparent reinforcing plate is preferably formed of a
3 material having light transmittance and glass transition
4 temperature higher than those of said optical sheet.

1 3. A backlight unit as claimed in claim 1, wherein said
2 optical sheet is a light collecting optical sheet for
3 increasing a front surface luminance of said backlight unit,
4 further comprising a light diffusing optical sheet arranged
5 on a side of a surface of said reinforcing plate opposite
6 to the side of the other surface thereof on which said
7 light collecting optical sheet is arranged, for increasing
8 the uniformity of luminance of a light emitting surface of
9 said backlight unit and a flat light guide panel arranged
10 between said reflecting member and said light diffusing

11 optical sheet for randomly reflecting the incident light
12 from said light source, within said flat light guide panel.

1 4. A backlight unit as claimed in claim 3, wherein said
2 light source is a line-shaped light source arranged on a
3 side edge of said light guide panel, further comprising a
4 curved light reflecting plate for reflecting light emitted
5 from said light source toward said side edge of said light
6 guide panel.

1 5. A backlight unit as claimed in claim 1, wherein said
2 reinforcing plate is stuck on said optical sheet by a
3 transparent tackiness agent.

1 6. A backlight unit as claimed in claim 5, wherein said
2 transparent tackiness agent is acrylic tackiness agent.

1 7. A backlight unit as claimed in claim 1, wherein a base
2 material of said optical sheet is polyester resin and said
3 reinforcing plate is formed of either polyethylene
4 naphthalate resin or polycarbonate.

1 8. A backlight unit as claimed in claim 1, wherein light
2 transmittance of said reinforcing plate for light from said
3 light source is 90% or more.

1 9. A backlight unit as claimed in claim 1, wherein glass

2 transition temperature of said reinforcing plate is 100°C
3 or higher.

1 10. A liquid crystal display device comprising a liquid
2 crystal display panel and a backlight unit claimed in claim
3 1, wherein said backlight unit is arranged on a rear
4 surface of said liquid crystal display panel integrally.

1 11. A backlight unit as claimed in claim 1, wherein said
2 optical sheet is a light diffusing optical sheet for
3 increasing the uniformity of luminance of said light-
4 emitting surface of said backlight unit and said light
5 source is arranged immediately below said reinforcing plate
6 and between said reflecting member and said reinforcing
7 plate.

1 12. A backlight unit as claimed in claim 11, wherein said
2 light source includes a plurality of juxtaposed line-shaped
3 light sources and said reflecting member is constructed
4 with a support plate and a white reflecting plate supported
5 by said support plate.

5
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FIG.1(PRIOR ART)

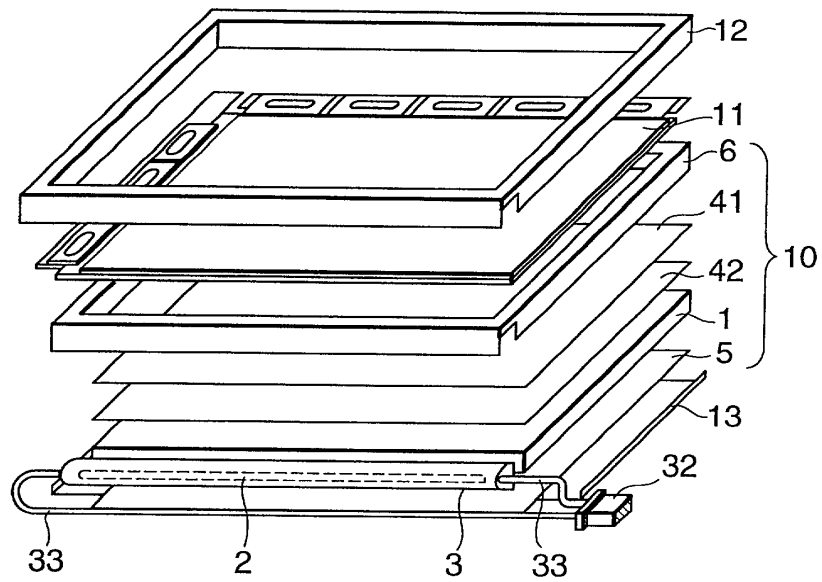


FIG.2(PRIOR ART)

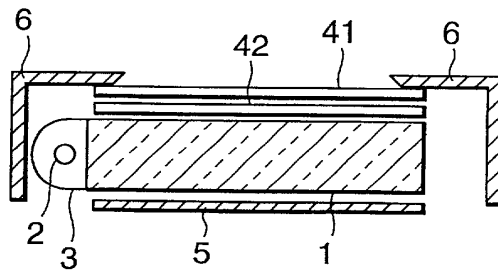


FIG.3

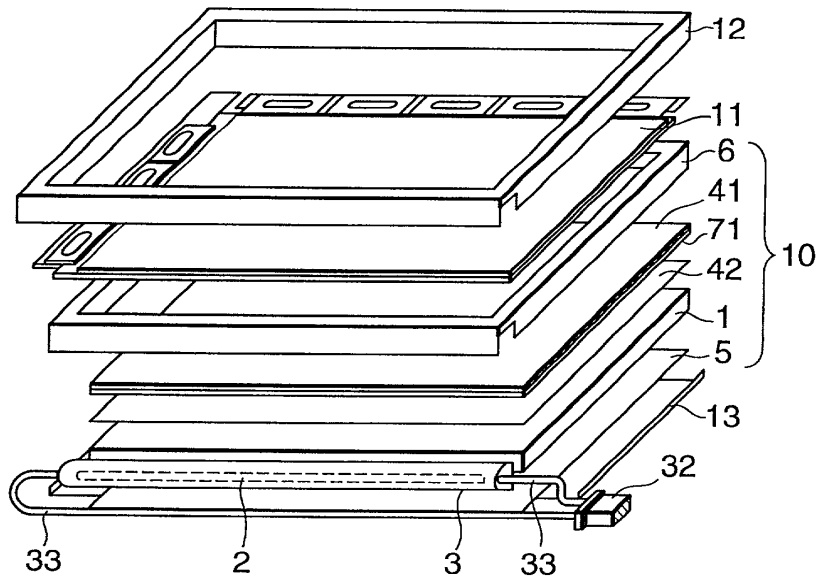


FIG. 3

FIG.4

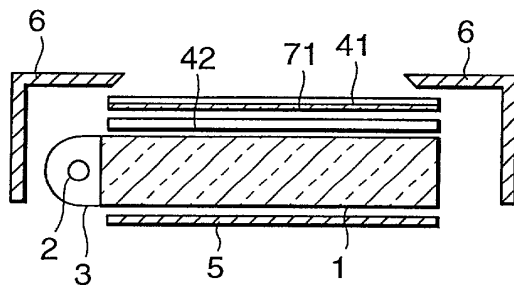
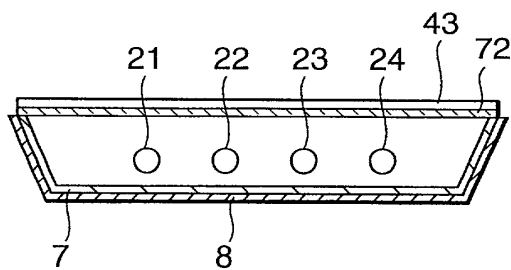


FIG.5



Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT UNIT
the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as

Application Serial No. _____

and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

<u>84622/2000</u>	<u>Japan</u>	<u>24/3/2000</u>
(Number)	(Country)	(Day/Month/Year Filed)
<u> </u>	<u> </u>	<u> </u>
(Number)	(Country)	(Day/Month/Year Filed)
<u> </u>	<u> </u>	<u> </u>
(Number)	(Country)	(Day/Month/Year Filed)

☒ Yes	☐ No
☐ Yes	☐ No
☐ Yes	☐ No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

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Full name of sole or first inventor	
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Inventor's signature	Date
<i>Hirokazu Fukuyoshi</i> 	3/9/2001
Residence	
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Citizenship	
Japanese	
Post Office Address	
c/o NEC Corporation, 7-1, Shiba 5-chome, Minato-ku, Tokyo, Japan	
Full name of second joint inventor, if any	
Second Inventor's signature	
Date	
Residence	
Citizenship	
Post Office Address	

(Supply similar information and signature for third and subsequent joint inventors.)

03/19/01
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03/19/01
J1040 U.S. PRO
09/18/0542

UTILITY PATENT APPLICATION TRANSMITTAL LETTER
(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
84622/2000

To the Assistant Commissioner for Patents:

Transmitted herewith for filing is the patent application of:

Hirokazu FUKUYOSHI
corresponding to Japanese application No. 2000-84622, filed
March 24, 2000,
entitled: BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME
BACKLIGHT

Enclosed are:

- | | |
|-------------------------------------|--|
| ☒ | 15 pages of specification. |
| ☒ | 3 sheets of formal drawings. |
| ☒ | a newly-executed declaration of the inventor. |
| ☐ | a copy of an executed declaration of the inventor from prior application Serial No. , filed . |
| ☐ | incorporation by reference. The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied as indicated in the preceding box, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein. |
| ☒ | an assignment of the invention to NEC Corporation, including assignment cover sheet. |
| ☒ | Information Disclosure Statement with Form PTO-1449. |
| ☒ | copies of the Information Disclosure Statement citations. |
| ☐ | preliminary amendment. |
| ☒ | return receipt postcard (MPEP 503), specifically itemized. |
| ☐ | applicant claims small entity status under 37 CFR 1.27. |
| ☒ | a certified copy of the Japanese Priority Document. |
| ☒ | other: Application Data Sheet. |

If a CONTINUING APPLICATION, check appropriate box and supply the requisite information.

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP)

of prior application No. , filed .

☒	Customer No. 000466.
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UTILITY PATENT APPLICATION TRANSMITTAL LETTER
(continued)Docket No.
84622/2000**CLAIMS AS FILED**

	NO. FILED	NO. EXTRA	RATE	FEE
BASIC FEE			\$ 710	\$ 710
TOTAL CLAIMS	12 - 20 =	0	X\$ 18	
INDEPENDENT CLAIMS	1 - 3 =	0	X\$ 80	
MULTIPLE DEPENDENT CLAIM PRESENT			\$ 270	

TOTAL \$ 710If applicant claims small entity status under
37 CFR 1.27, then divide total fee by 2, and
enter amount here.**SMALL ENTITY
TOTAL**

\$

- ☒ A check in the amount of \$750 to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge indicated fees and credit any over-
payments to Deposit Account No. 25-0120 in the name of Young & Thompson, as
described below. A duplicate copy of this sheet is enclosed.
- ☐ Charge the amount of \$ as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional fee required under 37 CFR 1.16 and 1.17, during the
pendency of this application.
- ☐ Charge the issue fee set in 37 CFR 1.18 at the mailing of the Notice of
Allowance.

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March 19, 2001

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APPLICATION INFORMATION

Title Line One:: BACKLIGHT UNIT AND DISPLAY DEVICE USING
Title Line Two:: THE SAME BACKLIGHT
Total Drawing Sheets:: THREE
Formal Drawings?: Yes
Application Type:: UTILITY
Docket Number:: 84622/2000

REPRESENTATIVE INFORMATION

Representative Customer Number:: 000466

PRIOR FOREIGN APPLICATION

Foreign Application One:: 2000-84622
Filing Date:: MARCH 24, 2000
Country:: JAPAN
Priority Claimed:: Yes

BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT
UNIT

BACKGROUND OF THE INVENTION

5 1. Field of the Invention

The present invention relates to a display device and a backlight unit for use in the display device and, particularly, to a structure of a flat emission type backlight unit having a line-shaped light source.

10 2. Description of the Prior Art

The non-light emission type display device such as, for example, a liquid crystal display device is usually equipped with a flat light emission type backlight unit in order to make a display possible even in a place in which there is no external light or a state of an external light is inadequate. A general structure of such liquid crystal display device will be described with reference to FIG. 1.

15 As shown in FIG. 1, a backlight unit 10 for a liquid crystal display device includes a line-shaped light source 2 such as a cold cathode fluorescent lamp arranged on a side surface of a light guide panel 1 and a light reflection plate 3 for reflecting light from the light source 2 to the light guide panel 1. A reflection sheet 5 is arranged on a rear surface of the light guide panel 1.

20 The line-shaped light source 2 is connected to a connector terminal 32 through lead wires 33. A light collecting optical sheet 41 such as a prism sheet is arranged on the

25

surface side of the light guide panel 1 and a light
diffusing optical sheet 42 is provided between the light
collecting optical sheet 41 and the light guide panel 1.
These components are housed in a housing 6 to form the back
5 light unit 10.

A liquid crystal display panel 11 is provided on the
housing 6 and the liquid crystal display device is
completed by sandwiching the housing 6 between an upper
shield 12 and a lower shield 13 and fixing the shields 12
10 and 13 to the housing 6. The fixing of the shields 12 and
13 to the housing is performed by using known fixing means
such as threads and screws or detents and notches.

FIG. 2 is a cross section of the backlight unit 10,
which is of, for example, an edge illuminating type. The
light guide panel 1 is formed of a resin material such as
15 acrylic resin having high light transmittance and takes in
the form of a flat panel. The line-shaped light source 2 is
arranged along a side edge of the light guide panel 1 and
the light guide panel 1 functions to randomly reflect light
20 incident on the side edge thereof from the light source 2
within the light guide panel. The light reflection plate 3
having a U-shaped cross section is arranged on an opposite
side of the light source 2 to the side facing the side edge
of the light guide panel 1 to cover the line-shaped light
25 source 2 such that light from the light source 2 is
efficiently introduced into the side edge of the light
guide panel 1. The reflection sheet 5 for reflecting back

light coming through a lower surface of the light guide panel 1 toward a front, that is, upper surface thereof is arranged on the lower, that is, rear surface of the light guide plate 1. The light diffusing optical sheet 42 and the light collecting optical sheet 41 are laminated on the side of the upper surface of the light guide panel 1 and the assembly is housed in the housing 6.

Each of these optical sheets is as thin as 0.12 mm and a base material thereof is usually polyester resin. Since, in such case, light transmittance of one sheet is about 90%, the sheet has to be made as thin as possible, otherwise, light transmittance thereof is lowered.

When the backlight unit including such thin optical sheets is assembled together with a non-light emitting display device and operated in high temperature and high humidity environment or in low temperature environment, the light collecting and light diffusing optical sheets of the backlight unit are not only thermally expanded but also thermally deformed, resulting in wrinkles or flexion of the optical sheets. Therefore, the uniformity of luminance is degraded. Particularly, in a case where peripheries of the optical sheets are pressed to the light guide panel in the frame type housing 6 and fixed thereto, wrinkle or bending appears in center portions of the sheets, so that the display quality of the display device is degraded. Even if the optical sheets are not pressed by the frame and fixed thereto, it is necessary to provide a large clearance

between the frame and the optical sheets in order to avoid interference between the housing frame and the optical sheets. However, it is difficult to provide large clearance in the backlight unit in view of the commercial request of reducing the size and thickness of the display device. Therefore, the problem of degradation of display quality due to thermal deformation of the optical sheets cannot be solved.

Although techniques for compensating for a shortage of strength of a reflecting/deflecting plate and/or a light guide panel are disclosed in, for example, Japanese Patent Application Laid-open No. S59-52217 and Japanese Patent No. 2856276, these techniques are not related to the reinforcement of optical sheets used in a backlight unit, for diffusing light, collecting light and/or reflecting light, as in the present invention.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a backlight unit for use in a non-light emitting type display device such as a liquid crystal display device, which backlight unit includes a thin optical sheet as a light diffuser, a light collector or a light reflector and a reinforcing plate stuck on the optical sheet and having light transmittance higher than that of the one sheet and durability against thermal deformation so that luminance of the backlight unit becomes uniform without irregularity in high temperature and high humidity environment.

Another object of the present invention is to provide a display device using the same backlight unit.

According to the present invention, a backlight unit comprises an optical sheet for transmitting light from a light source and giving an optical change to the light, a transparent reinforcing plate in intimate contact with one of main surfaces of the optical sheet and a reflection member for reflecting the light emitted from the light source to the transparent reinforcing plate such that the light from the light source passed through the transparent reinforcing plate passes through the optical sheet.

The transparent reinforcing plate is preferably formed of a material having light transmittance higher than that of the optical sheet and thermal deformation larger than that of the optical sheet.

The optical sheet is a light collecting optical sheet for increasing a front surface luminance of the backlight unit and the backlight unit further comprises a light diffusing optical sheet arranged on a side of a surface of the reinforcing plate opposite to the side of the other surface thereof on which the light collecting optical sheet is arranged, for increasing the uniformity of luminance of a light emitting surface of the backlight unit and a flat light guide panel arranged between the reflecting member and the light diffusing optical sheet for randomly reflecting the incident light from the light source, within the flat light guide plate.

The light source is a line-shaped light source arranged on a side edge of the light guide panel and the backlight unit further comprises a curved light reflecting plate for reflecting light emitted from the light source toward the side edge of the light guide panel.

The reinforcing plate is preferably stuck on the optical sheet by a transparent tackiness agent. The transparent tackiness agent may be acrylic tackiness agent.

In a case where a base material of the optical sheet is polyester resin, the reinforcing plate is preferably formed of either polyethylene naphthalate resin or polycarbonate.

Particularly, light transmittance of the reinforcing plate for light from the light source is preferably 90% or more.

Glass transition temperature of the reinforcing plate is preferably 100°C or higher.

Furthermore, according to the present invention, a liquid crystal display device including the above mentioned backlight unit arranged on a rear surface of a liquid crystal display panel is provided.

In a case where the backlight unit is of the light-up type to be used below the liquid crystal display panel, the optical sheet is a light diffusing optical sheet for increasing the uniformity of luminance of the light-emitting surface of the backlight unit. The light source may be arranged immediately below the reinforcing plate and

between the reflecting member and the reinforcing plate. In such case, the light source preferably comprises a plurality of juxtaposed line-shaped light sources and the reflecting member is preferably constructed with a support plate and a white reflecting plate supported by the support plate.

According to another aspect of the present invention, the backlight unit comprising a flat light guide panel for randomly reflecting incident light, which is emitted from a line light source arranged on a side edge of the flat light guide panel, within the flat light guide panel, a reflecting plate provided on one of major surfaces of the light guide panel, for reflecting light toward the side of the other major surface, a light diffusing optical sheet provided on the side of the other major surface of the light guide panel, for improving uniformity of luminance of a light emitting surface of the backlight unit, a light collecting optical sheet for improving luminance of a front surface of the backlight unit, a housing for housing the flat light guide panel, the reflecting plate, the light diffusing optical sheet and the light collecting optical sheet is featured by further comprising a transparent reinforcing plate in intimate contact with at least one of the light diffusing optical sheet and the light collecting optical sheet.

According to a further aspect of the present invention, the backlight unit comprising at least one line-shaped

light source, a white reflecting plate for reflecting light emitted backward from the line-shaped light source and a light diffusing optical sheet for improving uniformity of luminance of a light emitting surface of light directly emitted from the line-shaped light source or reflected light by the white reflecting plate, is featured by further comprising a transparent reinforcing plate provided on a rear surface of the light diffusing optical sheet, which is a surface opposite to a beaded surface of the light diffusing optical sheet.

The reinforcing plate is formed of polyethylene naphthalate or polycarbonate having mechanical strength higher than that of the light diffusing optical sheet.

According to another aspect of the present invention, a non-light emitting type display device, which comprising a backlight unit and a liquid crystal display provided on the backlight unit and displays an image with light emitted from the backlight unit, is featured by that the backlight unit is the above mentioned back light.

BRIEF DESCRIPTION OF THE DRAWINGS

The above mentioned and other objects, features and advantages of the present invention will become more apparent by reference to the following detailed description of the invention taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a disassembled perspective view of a conventional non-light emitting type display device;

FIG. 2 is a cross section of a backlight unit used in the conventional display device;

FIG. 3 is a disassembled perspective view of a display device according to the first embodiment of the present invention;

FIG. 4 is a cross section of a backlight unit used in the display device shown in FIG. 3; and

FIG. 5 is a cross section of a backlight unit according to the second embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will be described in detail with reference to the drawings. FIG. 3 is a disassembled perspective view of a display device according to the first embodiment of the present invention. In FIG. 3, a line-shaped light source 2 is provided along a side edge of a light guide panel 1 and the line-shaped light source 2 is partially covered by a light reflecting plate 3. The line-shaped light source 2 is connected to a connector terminal 32 through lead lines 33. A reflecting sheet 5 is provided on one of major surfaces of the light guide plate 1, for reflecting light toward the other major surface thereof. On the other hand, a diffusing optical sheet 42 and a collecting optical sheet 41 are provided on the side of the other major surface of the light guide panel 1. A backlight unit 10 is formed by these components housed in a housing 6. The light collecting optical sheet 41 is stuck with a transparent reinforcing plate 71 of a material, which is

resistive to thermal deformation. A liquid crystal display panel 11 is arranged above the backlight unit 10 and a front shield 12 is put on the liquid crystal display panel 11. A rear shield 13 is arranged on a lower surface of the backlight unit 10. These components are fitted in the housing 6 below the liquid crystal display panel 11, completing the display device. In FIG. 3, although the reinforcing plate 71 is stuck on only the light collecting optical sheet 41, it is possible to stick reinforcing plates on both the light collecting optical sheet 41 and the light diffusing optical sheet 42.

FIG. 4 is a cross section of the backlight unit of the present invention. The line-shaped light source 2 is arranged on a side edge of the flat light guide panel 1, which is formed of a resin such as acrylic resin having high light transmittance and functions to randomly reflect light incident on the side edge within the light guide panel 1. As the line-shaped light source, a fluorescent lamp such as a hot cathode tube or a cold cathode tube is usually used. In order to efficiently guide light emitted from the line-shaped light source 2 to the light guide panel 1, the line-shaped light source 2 is partially covered by a light reflecting plate 3. A reference numeral 5 depicts a reflecting sheet arranged on one of major surfaces of the light guide panel 1 for reflecting light toward the other major surface.

The light diffusing optical sheet 42 for improving

uniformity of luminance of the light emitting surface and the light collecting optical sheet 41 for improving luminance of the front surface are arranged on the display side of the light guide panel 1. One surface of the light
5 collecting optical sheet 41 is in intimate contact with a reinforcing plate 71 formed of a material having high light transmittance and having higher resistivity against thermal deformation than that of the optical sheets, that is, a material having glass transition temperature higher than
10 that of the optical sheets.

Since glass transition temperature of polyester resin, which is a general material of the optical sheets, is about 80°C, the material of the reinforcing plate 71 preferably has glass transition temperature of 100°C or higher. For
15 example, polyethylene naphthalate has glass transition temperature as high as about 120°C and light transmittance as high as about 90% in a case where the thickness of the plate formed of polyethylene naphthalate is 0.2 mm. Therefore, polyethylene naphthalate is preferable as the
20 material of the reinforcing plate in the present invention. Alternatively, polycarbonate is also suitable as the material of the reinforcing plate.

The reinforcing plate 71 is stuck on a whole area of on the major surface of the light collecting optical sheet
25 41 by a tackiness agent such as acrylic tackiness agent having high light transmittance. In doing so, it is preferable to form the reinforcing plate of a material

having coefficient of linear expansion close to that of the optical sheet. Since coefficient of linear expansion of polyester resin is $1.5 \sim 4.5 \times 10^{-5}$, polyethylene naphthalate having coefficient of linear expansion of $1.0 \times 10^{-6} \sim 6 \times 10^{-5}$ is preferable as the material of the reinforcing plate.

Although the case where the reinforcing plate is stuck on only the light collecting optical sheet 41 is shown in FIG. 4, it is possible to stick another reinforcing plate on the light diffusing optical sheet 42 as well. Since it is usual, for the purpose of light collection or light diffusion, that one surface of the light collecting optical sheet 41 as well as the light diffusing optical sheet 42 is formed with prisms or a bead coat, the reinforcing plate is stuck on the other surface of the optical sheet having no such prisms or bead coat.

When a display device is operated in high temperature and high humidity environment, an optical sheet formed of resin is expanded. In such case, if a clearance between a frame formed of ABS resin or aluminum for housing and protecting a backlight unit and the optical sheet is small, the frame and the optical sheet interfere each other and the optical sheet may be warped or wrinkled. However, by sticking the reinforcing plate having high light transmittance and resistive to thermal deformation on such optical sheet, it is possible to prevent the optical sheet from being deformed in high temperature and high humidity

environment or in low temperature environment without degrading the effect of the optical sheet to thereby obtain a backlight unit having uniform luminance.

According to the experiment conducted by the present inventors with using an optical sheet combined with a reinforcing plate of polyethylene naphthalate, it has been confirmed that coefficient of linear expansion of the combined optical sheet and the reinforcing plate obtained by leaving the combined optical sheet and the reinforcing plate as they are for 240 hours in an environment of temperature of 60°C and humidity of 80% and then for 24 hours in an environment of normal temperature of 25°C and humidity of 60% or lower is $0.3 \sim 0.9 \times 10^{-5}$.

Although the thicker the reinforcing plate provides the higher the effect of preventing deformation of the optical sheet, light transmittance of the latter is lowered correspondingly. Therefore, the reinforcing plate is preferably thicker than the optical sheet and has light transmittance not lower than 90%. When the reinforcing plate is formed of polyethylene naphthalate, the thickness thereof is preferably in a range from 0.15 mm to 0.5 mm and, more preferably, in a range from 0.2 mm to 0.3 mm in view of practical balance between mechanical strength and light transmittance thereof.

It may be possible to increase the strength of the optical sheet by making the latter thicker. However, a sheet of polyester resin, which is suitable as a material

for the optical sheet, 0.12 mm thick has light transmittance as low as about 90%. If the thickness thereof is increased further more in order to obtain a desired mechanical strength, light transmittance thereof is substantially lowered to a level, which can not be accepted practically.

Next, the second embodiment of the present invention will be described with reference to FIG. 5. The second embodiment is an example of a backlight unit of the light-up type. A plurality of line-shaped light sources 21 to 24 such as fluorescent lamps are juxtaposed between a white reflecting plate 7 and a light diffusing optical sheet 43. The white reflecting plate 7 is supported by a support plate 8 and reflects lights from the line-shaped light sources 21 to 24 in one direction. The light diffusing optical plate 43 is provided to make luminance of lights from the line-shaped light sources uniform. Furthermore, a transparent reinforcing plate 72 is stuck on a rear surface of the light diffusing optical sheet 43 (opposite to a beaded surface thereof) by using a tackiness agent. It is preferable, as mentioned previously, that the reinforcing plate is formed of a material having mechanical strength higher than that of the light diffusing optical sheet, that is, higher resistivity against deformation than that of the light diffusing optical sheet, such as, for example, polyethylene naphthalate or polycarbonate. As another material of the reinforcing plate, which can be applied, is

a thin and low-density glass material. Portions of the light diffusing optical sheet 43 arranged in the vicinity of the line-shaped light sources 21 to 24 and having no reinforcing plate located immediately above the line-shaped light sources are expanded by heat generated by the light sources, causing local wrinkles to be occur. However, by using the reinforcing plate 72 stuck on the light diffusing optical sheet as in this embodiment, it is possible to restrict generation of wrinkles in the optical sheet.

As described in detail hereinbefore, according to the present invention, it is possible to restrict deformation of an optical sheet by sticking a reinforcing plate having mechanical strength resistive to deformation due to expansion of the optical sheet under high temperature and high humidity environment or shrinkage under low temperature environment on the optical sheet. Furthermore, according to the present invention, it is possible to make a clearance between the optical sheet and a frame for housing the optical sheet small compared with the conventional backlight unit, so that the size of the backlight unit can be reduced. Therefore, a compact and thin display device can be provided.

Although the display device having a liquid crystal display panel has been described, the backlight unit of the present invention can be employed in an electric sign or an electric billboard of the type lighted up from a back side.

What is claimed is:

1 1. A backlight unit comprising:
2 an optical sheet for transmitting light from a light
3 source and giving an optical change to the light,
4 a transparent reinforcing plate in intimate contact
5 with one of major surfaces of said optical sheet; and
6 a reflection member for reflecting the light emitted
7 from said light source to said transparent reinforcing
8 plate such that the light from said light source passed
9 through said transparent reinforcing plate passes through
10 said optical sheet.

1 2. A backlight unit as claimed in claim 1, wherein said
2 transparent reinforcing plate is preferably formed of a
3 material having light transmittance and glass transition
4 temperature higher than those of said optical sheet.

1 3. A backlight unit as claimed in claim 1, wherein said
2 optical sheet is a light collecting optical sheet for
3 increasing a front surface luminance of said backlight unit,
4 further comprising a light diffusing optical sheet arranged
5 on a side of a surface of said reinforcing plate opposite
6 to the side of the other surface thereof on which said
7 light collecting optical sheet is arranged, for increasing
8 the uniformity of luminance of a light emitting surface of
9 said backlight unit and a flat light guide panel arranged
10 between said reflecting member and said light diffusing

11 optical sheet for randomly reflecting the incident light
12 from said light source, within said flat light guide panel.

1 4. A backlight unit as claimed in claim 3, wherein said
2 light source is a line-shaped light source arranged on a
3 side edge of said light guide panel, further comprising a
4 curved light reflecting plate for reflecting light emitted
5 from said light source toward said side edge of said light
6 guide panel.

1 5. A backlight unit as claimed in claim 1, wherein said
2 reinforcing plate is stuck on said optical sheet by a
3 transparent tackiness agent.

1 6. A backlight unit as claimed in claim 5, wherein said
2 transparent tackiness agent is acrylic tackiness agent.

1 7. A backlight unit as claimed in claim 1, wherein a base
2 material of said optical sheet is polyester resin and said
3 reinforcing plate is formed of either polyethylene
4 naphthalate resin or polycarbonate.

1 8. A backlight unit as claimed in claim 1, wherein light
2 transmittance of said reinforcing plate for light from said
3 light source is 90% or more.

1 9. A backlight unit as claimed in claim 1, wherein glass

2 transition temperature of said reinforcing plate is 100°C
3 or higher.

1 10. A liquid crystal display device comprising a liquid
2 crystal display panel and a backlight unit claimed in claim
3 1, wherein said backlight unit is arranged on a rear
4 surface of said liquid crystal display panel integrally.

1 11. A backlight unit as claimed in claim 1, wherein said
2 optical sheet is a light diffusing optical sheet for
3 increasing the uniformity of luminance of said light-
4 emitting surface of said backlight unit and said light
5 source is arranged immediately below said reinforcing plate
6 and between said reflecting member and said reinforcing
7 plate.

1 12. A backlight unit as claimed in claim 11, wherein said
2 light source includes a plurality of juxtaposed line-shaped
3 light sources and said reflecting member is constructed
4 with a support plate and a white reflecting plate supported
5 by said support plate.

5
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FIG.1(PRIOR ART)

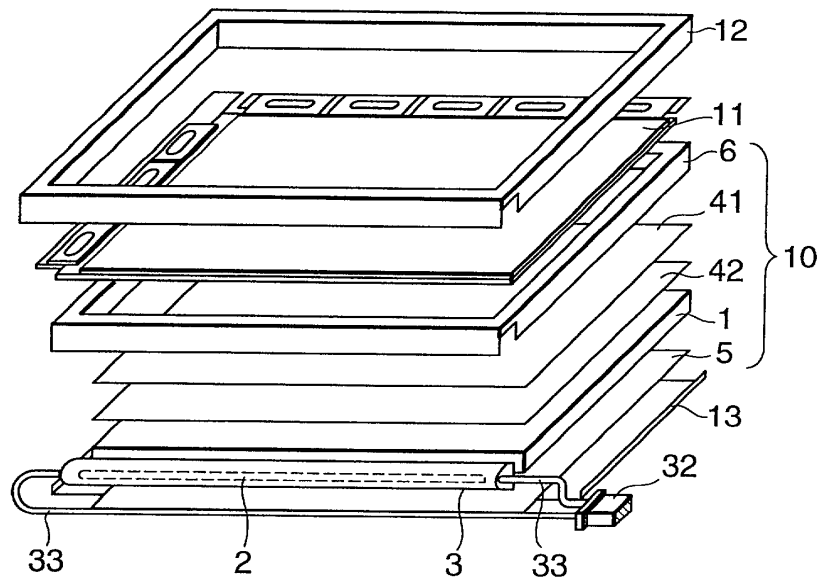


FIG.2(PRIOR ART)

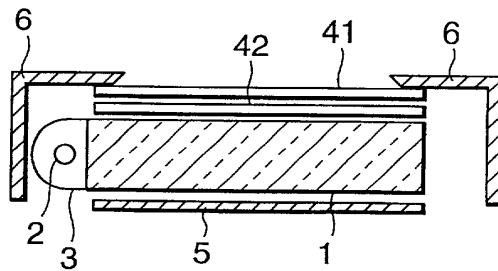


FIG.3

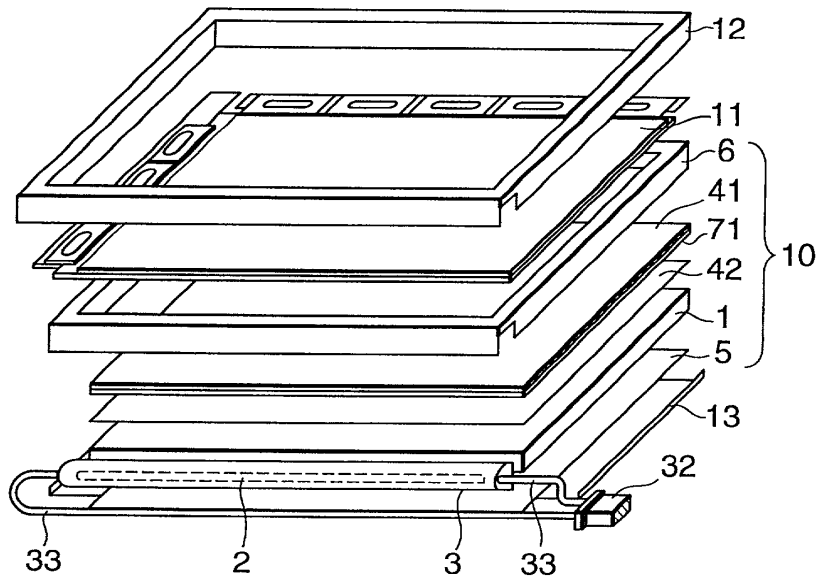


FIG. 3

FIG.4

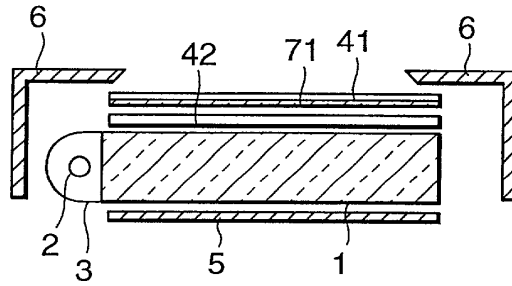
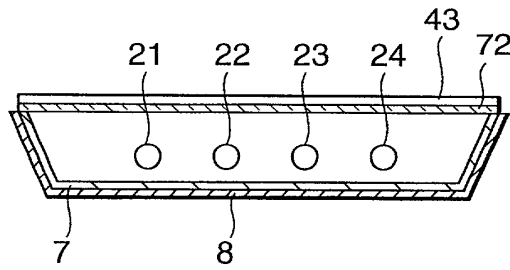


FIG.5



Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT UNIT
the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as

Application Serial No. _____

and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

<u>84622/2000</u>	<u>Japan</u>	<u>24/3/2000</u>
(Number)	(Country)	(Day/Month/Year Filed)
<u> </u>	<u> </u>	<u> </u>
(Number)	(Country)	(Day/Month/Year Filed)
<u> </u>	<u> </u>	<u> </u>
(Number)	(Country)	(Day/Month/Year Filed)

☒ Yes	☐ No
☐ Yes	☐ No
☐ Yes	☐ No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

ROBERT J. PATCH, REG. NO. 17,355; ANDREW J. PATCH, REG. NO. 32,925;

ROBERT F. HARGEST, REG. NO. 25,590; BENOIT CASTEL, REG. NO. 35,041

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Direct Telephone Calls to: *(name and telephone number)* ROBERT PATCH, 703/521-2297

Full name of sole or first inventor	
HIROKAZU FUKUYOSHI	
Inventor's signature	Date
<i>Hirokazu Fukuyoshi</i> 	3/9/2001
Residence	
Tokyo, Japan	
Citizenship	
Japanese	
Post Office Address	
c/o NEC Corporation, 7-1, Shiba 5-chome, Minato-ku, Tokyo, Japan	
Full name of second joint inventor, if any	
Second Inventor's signature	Date
Residence	
Citizenship	
Post Office Address	

(Supply similar information and signature for third and subsequent joint inventors.)

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☒ Practitioners associated with the Customer Number:

23623

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☒ The address associated with Customer Number:

23623

OR

☐ Firm or Individual Name	Turocy & Watson, LLP		
Address	127 Public Square, 57th Floor, Key Tower		
City	Cleveland	State	Ohio
Country	United States		
Telephone	(216) 696-8730	Email	watson@thepatentattorneys.com

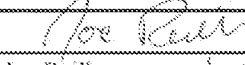
Assignee Name and Address:

Getner Foundation LLC
160 Greentree Drive, Suite 101
Dover, Delaware, 19904

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/98 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

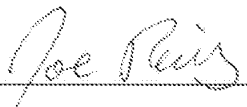
Signature		Date	May 16, 2011
Name	Joe Reilly	Telephone	
Title	Authorized Person for Getner Foundation LLC		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

DECLARATION REGARDING AUTHORITY TO SIGN
ON BEHALF OF A LEGAL ENTITY
37 C.F.R. 3.73(b)(2)(i)

I, Joe Reilly (whose title is supplied below), hereby declare that I am authorized to sign documents on behalf of Getner Foundation LLC.



Joe Reilly
Authorized Person for Getner Foundation LLC

May 26 2011
Date

Electronic Acknowledgement Receipt	
EFS ID:	10367854
Application Number:	09810542
International Application Number:	
Confirmation Number:	6746
Title of Invention:	BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT
First Named Inventor/Applicant Name:	Hirokazu Fukuyoshi
Customer Number:	00466
Filer:	Thomas Edward Watson
Filer Authorized By:	
Attorney Docket Number:	84622/2000
Receipt Date:	22-JUN-2011
Filing Date:	19-MAR-2001
Time Stamp:	21:57:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Assignee showing of ownership per 37 CFR 3.73(b).	373B.pdf	439498	no	2
			ca8f01cfddeadeb4c3fc76257980031d17b08368		
Warnings:					
Information:					

2	Assignee showing of ownership per 37 CFR 3.73(b).	373B-2.pdf	436459 2be7037d4a0b1dc003cd72ef564bf4d4bddf9ce9	no	2
Warnings:					
Information:					
3	Change of Address	feeaddressform.pdf	321035 a469ea212af573a61515bc9525bb424a59e4869a	no	2
Warnings:					
Information:					
4	Power of Attorney	VNECPOA.pdf	611872 30de6ffde514c7d9726a535209a80145ee536e12	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1808864		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Hirokazu Fukuyoshi

Application No./Patent No.: 09/810,542

Filed/Issue Date: 03-19-2001

Titled: **BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT**

GETNER FOUNDATION LLC

, a Limited Liability Company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Hirokazu Fukuyoshi

To: NEC CORPORATION

The document was recorded in the United States Patent and Trademark Office at

Reel 011622, Frame 0759, or for which a copy thereof is attached.

2. From: NEC CORPORATION

To: NEC LCD TECHNOLOGIES, LTD.

The document was recorded in the United States Patent and Trademark Office at

Reel 014108, Frame 0248, or for which a copy thereof is attached.

3. From: NEC LCD TECHNOLOGIES, LTD.

To: NEC CORPORATION

The document was recorded in the United States Patent and Trademark Office at

Reel 024492, Frame 0176, or for which a copy thereof is attached.

- ☒ Additional documents in the chain of title are listed on a supplemental sheet(s).

- ☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Thomas E. Watson/

2011-06-22

Signature

Date

Thomas E. Watson

Attorney - 43243

Printed or Typed Name

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Hirokazu Fukuyoshi

Application No./Patent No.: 09/810,542

Filed/Issue Date: 03-19-2001

Titled:

BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT

GETNER FOUNDATION LLC

, a Limited Liability Company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: NEC CORPORATION

To: GETNER FOUNDATION LLC

The document was recorded in the United States Patent and Trademark Office at

Reel 026254, Frame 0381, or for which a copy thereof is attached.

2. From: _____

To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____

To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Thomas E. Watson/

2011-06-22

Signature

Date

Thomas E. Watson

Attorney - 43243

Printed or Typed Name

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

"FEE ADDRESS" INDICATION FORM

Address to:
Mail Stop M Correspondence
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Fax to:
571-273-6500

- OR -

INSTRUCTIONS: The issue fee must have been paid for application(s) listed on this form. In addition, only an address represented by a Customer Number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application. **When to check the first box below:** If you have a Customer Number to represent the fee address. **When to check the second box below:** If you have no Customer Number representing the desired fee address, in which case a completed Request for Customer Number (PTO/SB/125) must be attached to this form. For more information on Customer Numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

For the following listed application(s), please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:



Customer Number:

23623

OR



The attached Request for Customer Number (PTO/SB/125) form.

PATENT NUMBER (if known)	APPLICATION NUMBER
6513943	09/810542

Completed by (check one):



Applicant/Inventor

/Thomas E. Watson/

Signature



Attorney or Agent of record 43243

(Reg. No.)

Thomas E. Watson

Typed or printed name



Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

216-696-8730

Requester's telephone number



Assignee recorded at Reel _____ Frame _____

2011-06-22

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.



* Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.363. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 5 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND COMPLETE D FORMS TO THIS ADDRESS.
SEND TO: Mail Stop M Correspondence, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
09/810,542	03/19/2001	Hirokazu Fukuyoshi	84622/2000

CONFIRMATION NO. 6746
POWER OF ATTORNEY NOTICE



466
YOUNG & THOMPSON
209 Madison Street
Suite 500
Alexandria, VA 22314

Date Mailed: 06/30/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/22/2011.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/deelliott/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
09/810,542	03/19/2001	Hirokazu Fukuyoshi	

23623
TUROC & WATSON, LLP
127 Public Square
57th Floor, Key Tower
CLEVELAND, OH 44114

CONFIRMATION NO. 6746
POA ACCEPTANCE LETTER



Date Mailed: 06/30/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/22/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/deelliott/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

**REVOCATION OF PREVIOUS POWERS OF ATTORNEY WITH NEW
GENERAL POWER OF ATTORNEY TO PROSECUTE APPLICATIONS AND REEXAMINATION
PROCEEDINGS BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE**

I hereby revoke all previous powers of attorney given in the application(s), reexamination proceeding(s) and/or patent(s) listed below and appoint:

Practitioners associated with the Customer Number

27571

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications and reexamination proceedings assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application(s), reexamination proceeding(s) and/or patent(s) listed below to the address associated with Customer Number 27571.

Assignee Name and Address:

Vista Peak Ventures, LLC
1400 Preston Road, Suite 472
Plano, TX 75201

A statement under 37 CFR 3.73 is attached.

List of application(s), reexamination proceeding(s) and/or patent(s):

See attached list

SIGNATURE OF ASSIGNEE OF RECORD

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature



Date: March 9, 2018

Name

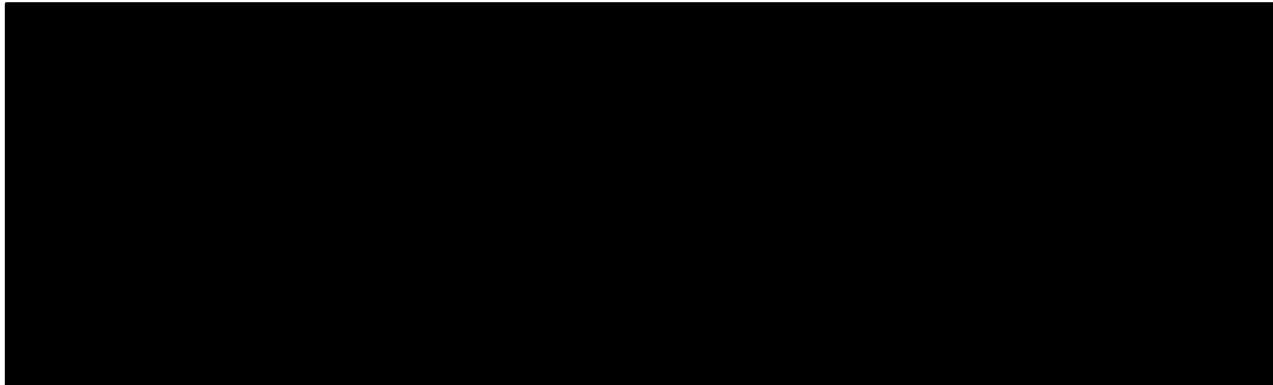
David Pridham

Telephone:

Title

CEO

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
[Redacted]			
6566154 (10/160071)	US	5/20/2003 (6/4/2002)	Method for manufacturing liquid crystal display device Yamamoto, Yuji
[Redacted]			
6756187 (10/035222)	US	6/29/2004 (1/4/2002)	Method for removing patterned layer from lower layer through reflow Kido, Shusaku
7214473 (10/773272)	US	5/8/2007 (2/9/2004)	Method for removing patterned layer from lower layer through reflow Kido, Shusaku
[Redacted]			
6704076 (10/173518)	US	3/9/2004 (6/17/2002)	Method for fabricating a liquid crystal display device Okamoto, Mamoru; Sakamoto, Michiaki; Kikkawa, Hironori

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7006065 (09/707816)	US	2/28/2006 (11/7/2000)	Gamma compensation method and circuit for color liquid crystal display Sugawara, Noriaki; Koga, Kouichi
7671829 (11/243626)	US	3/2/2010 (10/5/2005)	Driving method and driving circuit for color liquid crystal display Sugawara, Noriaki; Koga, Kouichi

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
7598939 (11/272663)	US	10/6/2009 (11/14/2005)	Liquid crystal display device, backlight used for same display device, method for driving same backlight and method for manufacturing same backlight Sumiyoshi, Ken; Yoshioka, Toshihiro; Hayama, Hiroshi; Matsushima, Jin
8599125 (12/381737)	US	12/3/2013 (3/16/2009)	Liquid crystal display device, backlight used for same display device, method for driving same backlight and method for manufacturing same backlight Sumiyoshi, Ken; Yoshioka, Toshihiro; Hayama, Hiroshi; Matsushima, Jin
9111495 (14/066560)	US	8/18/2015 (10/29/2013)	Liquid crystal display device, backlight used for same display device, method for driving same backlight and method for manufacturing same backlight Sumiyoshi, Ken; Yoshioka, Toshihiro; Hayama, Hiroshi; Matsushima, Jin
7589383 (11/441213)	US	9/15/2009 (5/26/2006)	Thin film semiconductor device and method of manufacturing the same Yanase, Jirou

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
7005916 (10/358245)	US	2/28/2006 (2/5/2003)	Amplifier circuit, driving circuit of display apparatus, portable telephone and portable electronic apparatus Nakahira, Yoshihiko; Tsuchi, Hiroshi
7586504 (11/294605)	US	9/8/2009 (12/6/2005)	Amplifier circuit, driving circuit of display apparatus, portable telephone and portable electronic apparatus Nakahira, Yoshihiko; Tsuchi, Hiroshi
8471794 (12/504981)	US	6/25/2013 (7/17/2009)	Driving circuit for display apparatus, and method for controlling same Nakahira, Yoshihiko; Tsuchi, Hiroshi
6023314 (09/088731)	US	2/8/2000 (6/2/1998)	Elliptically polarizing plate and liquid crystal display device using same Sumiyoshi, Ken

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6055324 (09/103502)	US	4/25/2000 (6/24/1998)	Fingerprint image entry device of electrostatic capacitance sensing type Fujieda, Ichiro
6005653 (09/169134)	US	12/21/1999 (10/9/1998)	Method and apparatus for sealing liquid crystal display element cell employing seal members with Z-shaped cross sections that form pressure regions Matsuzawa, Tadashi
6310668 (09/329559)	US	10/30/2001 (6/10/1999)	LCD wherein opening in source electrode overlaps gate electrode to compensate variations in parasitic capacitance Ukita, Tooru
6022110 (09/115669)	US	2/8/2000 (7/14/1998)	Projection color liquid crystal display apparatus Tsujikawa, Susumu
6031513 (09/019162)	US	2/29/2000 (2/6/1998)	Liquid crystal display Ikeda, Naoyasu
6073369 (09/049150)	US	6/13/2000 (3/27/1998)	Substrate drying apparatus and method Yasuvuki, Satou
6717630 (09/404705)	US	4/6/2004 (9/23/1999)	Liquid crystal display device and method of fabricating the same Ikeda, Munehiro

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6750895 (09/670596)	US	6/15/2004 (9/29/2000)	Optical printer head with integrated drive circuitry Otose, Tomohiko; Asada, Hideki; Uezono, Tsutomu; Oda, Atsushi; Toguchi, Satoru
6824285 (10/277930)	US	11/30/2004 (10/23/2002)	Light source and liquid crystal display device using this light source Saitoh, Goroh; Yagi, Yoshie; Mimura, Koji; Sumiyoshi, Ken
6930665 (10/353951)	US	8/16/2005 (1/30/2003)	Display device for D/A conversion using load capacitances of two signal lines Sekine, Hirovuki
6734943 (10/338829)	US	5/11/2004 (1/9/2003)	Liquid crystal display panel with sealing member on second partition wall and manufacturing method thereof Noiri, Yoshikazu

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7027121 (10/620125)	US	4/11/2006 (7/15/2003)	Method for manufacturing liquid crystal display device having the first substrate and support substrate pressed against each other under vacuum condition without use of an adhesive Horiuchi, Toshihiro; Noiri, Yoshikazu; Yoshizoe, Hidefumi; Ueebisu, Shinji; Mukai, Toshiaki
7218368 (10/990892)	US	5/15/2007 (11/17/2004)	Rubbing roll orientation processor for liquid crystal display manufacturing Mori, Makoto
6011860 (09/020908)	US	1/4/2000 (2/9/1998)	Small reliable image input apparatus incorporated in finger-print collation system of personal identification Fujieda, Ichiro; Suga, Michihisa
6573970 (09/617040)	US	6/3/2003 (7/14/2000)	Liquid crystal display device Saitoh, Goroh; Takatori, Ken-ichi
7146076 (10/201133)	US	12/5/2006 (7/24/2002)	Diffraction optical element and optical device using the same Fujieda, Ichiro

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7354810 (10/856275)	US	4/8/2008 (5/28/2004)	Method of and apparatus for manufacturing semiconductor thin film, and method of manufacturing thin film transistor Takaoka, Hiromichi; Nakata, Mitsuru
7193678 (10/948758)	US	3/20/2007 (9/24/2004)	Liquid crystal display device and method for manufacturing the same Ueyama, Hiroshi
7468765 (11/001240)	US	12/23/2008 (12/2/2004)	Electro-optical display device and image projection unit Shiota, Kunihiro; Tanabe, Hiroshi
7355323 (11/187964)	US	4/8/2008 (7/25/2005)	Piezoelectric device, droplet jetting device using the same, and image output device Otose, Tomohiko

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7626648 (11/242935)	US	12/1/2009 (10/5/2005)	Pixel circuit substrate, LCD apparatus and projection display apparatus having interlayer insulating film comprising a laminate of inorganic insulating material having a uniformly flat surface over TFT Shiota, Kunihiro; Tanabe, Hiroshi
7388625 (11/313955)	US	6/17/2008 (12/22/2005)	Thin-film transistor array substrate and liquid crystal display device Matsuzaki, Tadahiro; Sera, Kenji
6781643 (09/573185)	US	8/24/2004 (5/18/2000)	Active matrix liquid crystal display device Watanabe, Makoto; Watanabe, Takahiko
6445431 (09/732920)	US	9/3/2002 (12/11/2000)	Liquid crystal display with polarization layer interior to substrates Nose, Takashi; Kaneko, Setsuo; Suzuki, Shigeyoshi
6501520 (10/112947)	US	12/31/2002 (4/2/2002)	Liquid crystal display with polarization layer interior to substrates Nose, Takashi; Kaneko, Setsuo; Suzuki, Shigeyoshi
6822263 (10/457928)	US	11/23/2004 (6/9/2003)	Thin film transistor formed on a transparent substrate Sato, Yoshinobu; Yuda, Katsuhisa; Tanabe, Hiroshi
7119363 (10/911833)	US	10/10/2006 (8/5/2004)	Thin film transistor formed on a transparent substrate Sato, Yoshinobu; Yuda, Katsuhisa; Tanabe, Hiroshi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7585708 (11/512596)	US	9/8/2009 (8/30/2006)	Method for manufacturing a thin-film transistor Sato, Yoshinobu; Yuda, Katsuhisa; Tanabe, Hiroshi
6800541 (10/263771)	US	10/5/2004 (10/4/2002)	Pulse laser irradiation method for forming a semiconductor thin film Okumura, Hiroshi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6674093 (09/695321)	US	1/6/2004 (10/25/2000)	Active matrix substrate and manufacturing method therefore Tanaka, Hiroaki; Yamaguchi, Hirotaka; Kaneko, Wakahiko; Sakamoto, Michiaki; Ihida, Satoshi; Hayase, Takasuke; Yoshikawa, Tae; Kanou, Hiroshi
6891196 (10/617035)	US	5/10/2005 (7/11/2003)	Active matrix substrate and manufacturing method therefore Tanaka, Hiroaki; Yamaguchi, Hirotaka; Kaneko, Wakahiko; Sakamoto, Michiaki; Ihida, Satoshi; Hayase, Takasuke; Yoshikawa, Tae; Kanou, Hiroshi
7223622 (10/833153)	US	5/29/2007 (4/28/2004)	Active-matrix substrate and method of fabricating same Hirata, Kazumi
6512246 (09/656631)	US	1/28/2003 (9/7/2000)	Thin film transistor Tanabe, Hiroshi
6667188 (10/272071)	US	12/23/2003 (10/16/2002)	Thin film transistor and method for fabricating same Tanabe, Hiroshi
6797535 (10/693395)	US	9/28/2004 (10/24/2003)	Thin film transistor and method for fabricating same Tanabe, Hiroshi

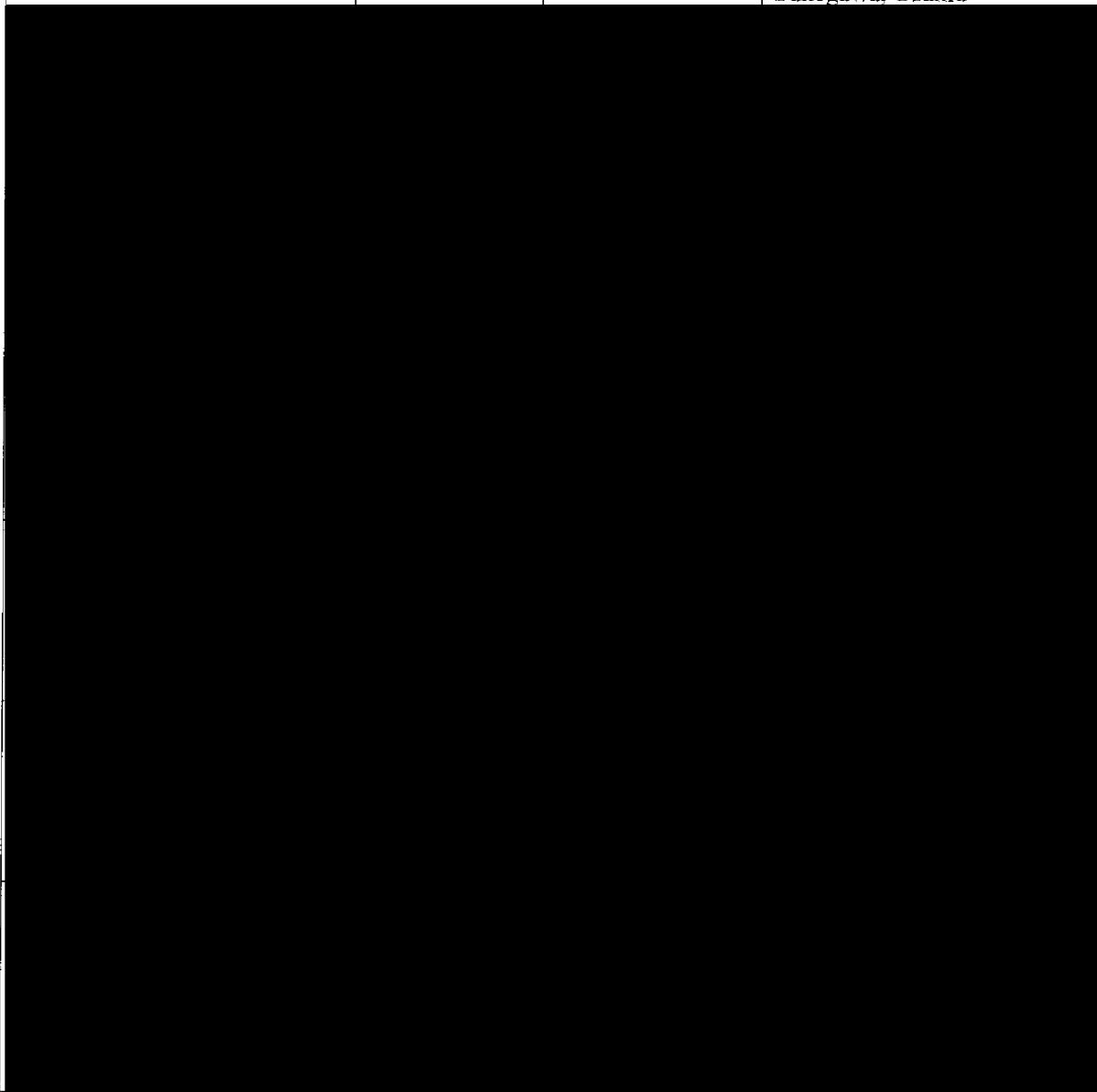
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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
[REDACTED]			
6583456 (09/956669)	US	6/24/2003 (9/20/2001)	Image sensor with light receiving elements of differing areas and image reader both having semiconductor device Haga, Hiroshi; Fujieda, Ichiro; Okumura, Fujio
[REDACTED]			

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6429916 (09/459010)	US	8/6/2002 (12/10/1999)	Liquid crystal display with filter and light shield separated from contact hole Nakata, Shinichi; Yamamoto, Yuji; Okamoto, Mamoru; Sakamoto, Michiaki; Watanabe, Takahiko; Ihara, Hirofumi; Kikkawa, Hironori; Maruyama, Muneo
6398610 (09/470398)	US	6/4/2002 (12/22/1999)	Display panel production line Inoue, Yoshiyasu
7012029 (10/745636)	US	3/14/2006 (12/29/2003)	Method of forming a lamination film pattern and improved lamination film pattern Katoh, Tsuyoshi; Kido, Syuusaku; Maeda, Akitoshi
7554207 (11/295462)	US	6/30/2009 (12/7/2005)	Method of forming a lamination film pattern and improved lamination film pattern Katoh, Tsuyoshi; Kido, Syuusaku; Maeda, Akitoshi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6734460 (10/114093)	US	5/11/2004 (4/2/2002)	Active matrix substrate and method of fabricating the same Okumura, Hiroshi; Sukegawa, Osamu
			

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6894311 (10/151544)	US	5/17/2005 (5/20/2002)	Active matrix substrate for liquid crystal display utilizing interconnection lines formed from multilayered films that include an aluminum-neodymium alloy layer Maeda, Akitoshi; Tanaka, Hiroaki; Kimura, Shigeru; Kimura, Satoshi
7037766 (10/793086)	US	5/2/2006 (3/4/2004)	Method of fabricating an active matrix substrate for liquid crystal display utilizing interconnection lines formed from multilayered films that include an aluminum-neodymium alloy layer Maeda, Akitoshi; Tanaka, Hiroaki; Kimura, Shigeru; Kimura, Satoshi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6632696 (09/745657)	US	10/14/2003 (12/20/2000)	Manufacturing method of active matrix substrate plate and manufacturing method therefor Kimura, Shigeru; Watanabe, Takahiko; Yoshikawa, Tae; Uchida, Hiroyuki; Kido, Shusaku; Nakata, Shinichi; Hamada, Tsutomu; Shimodouzono, Hisanobu; Doi, Satoshi; Harano, Toshihiko; Maeda, Akitoshi; Ihida, Satoshi; Tanaka, Hiroaki; Hayase, Takasuke; Kuroha, Shouichi; Ihara, Hirofumi; Takechi, Kazushige

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6649226 (09/877180)	US	11/18/2003 (6/11/2001)	Liquid crystal material and liquid crystal display Matsumoto, Kimikazu

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
6781647 (09/842580)	US	8/24/2004 (4/26/2001)	Liquid crystal display device having a front light unit Fujieda, Ichiro
7009673 (10/656138)	US	3/7/2006 (9/8/2003)	Active matrix liquid crystal display having a thin film transistor over which alignment of liquid crystal molecules does not change Matsumoto, Kimikazu; Nishida, Shinichi
7492431 (11/291997)	US	2/17/2009 (12/2/2005)	Active matrix liquid crystal display having a thin film transistor over which alignment of liquid crystal molecules does not change Matsumoto, Kimikazu; Nishida, Shinichi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6881894 (09/975791)	US	4/19/2005 (10/12/2001)	EMI shielding structures Kai, Takanobu
7271041 (11/102765)	US	9/18/2007 (4/11/2005)	Method for manufacturing thin film transistor Takahashi, Mitsuasa
7012849 (10/619594)	US	3/14/2006 (7/16/2003)	Semiconductor, image output device, and driving method of a functional device Otose, Tomohiko
7665816 (11/330968)	US	2/23/2010 (1/13/2006)	Image output device with an injector Otose, Tomohiko
7109554 (10/961094)	US	9/19/2006 (10/12/2004)	Thin film semiconductor device and method for manufacturing same Takahashi, Mitsuasa
7105905 (10/724040)	US	9/12/2006 (12/1/2003)	Thin film transistor, TFT substrate and liquid crystal display unit Matsunaga, Naoki; Sera, Kenji

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7369725 (11/521009)	US	5/6/2008 (9/14/2006)	Light source device and method for manufacturing the same, display device and method for manufacturing the same, and method for driving display device Takatori, Kenichi; Sumiyoshi, Ken
7656472 (12/050324)	US	2/2/2010 (3/18/2008)	Light source device and method for manufacturing the same, display device and method for manufacturing the same, and method for driving display device Takatori, Kenichi; Sumiyoshi, Ken
7212722 (11/299951)	US	5/1/2007 (12/13/2005)	Backlight unit and liquid-crystal display device using the same Shinohara, Toshiya

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7122444 (10/974932)	US	10/17/2006 (10/28/2004)	Manufacturing method of thin film device substrate Nakata, Mitsura; Takechi, Kazushige; Kanoh, Hiroshi
7579222 (11/503286)	US	8/25/2009 (8/14/2006)	Manufacturing method of thin film device substrate Nakata, Mitsura; Takechi, Kazushige; Kanoh, Hiroshi
7373834 (11/586512)	US	5/20/2008 (10/26/2006)	Pressure sensor Takahashi, Mitsuasa
6404474 (09/357060)	US	6/11/2002 (7/19/1999)	Horizontal electric field LCD with increased capacitance between pixel and common electrodes Watanabe, Makoto; Watanabe, Takahiko

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6594143 (09/459280)	US	7/15/2003 (12/13/1999)	Liquid crystal module mounting structure and mobile terminal mounted with the same Yano, Takakazu; Miwa, Tomoo; Sato, Yasuhiro; Ogawa, Toshihisa; Nishiyama, Michiaki; Baba, Masatake; Okabe, Hikaru; Fujishiro, Fumihiko; Kato, Katsuhiko; Mikami, Kazuaki; Fukuyoshi, Hirokazu
6853407 (10/196356)	US	2/8/2005 (7/17/2002)	Liquid crystal display device including a lightly doped drain region Sato, Tetsushi; Sekine, Hiroyuki; Yoshinaga, Kazuhide

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
6617263 (10/189571)	US	9/9/2003 (7/8/2002)	Pattern forming method for flattening an organic film for a liquid crystal display device Kido, Shusaku
7408135 (10/252407)	US	8/5/2008 (9/24/2002)	Imaging device having dual opening with open/close unit and electronic equipment incorporated therein the same Fujieda, Ichiro
6885439 (10/288925)	US	4/26/2005 (11/6/2002)	Fingerprint input devices and electronic devices provided with the same Fujieda, Ichiro
7301588 (10/376637)	US	11/27/2007 (3/3/2003)	Optical unit and LCD device using the optical unit Ogawa, Toshihisa
7593070 (11/984403)	US	9/22/2009 (11/16/2007)	Optical unit and LCD device using the optical unit Ogawa, Toshihisa

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
6950165 (10/397256)	US	9/27/2005 (3/27/2003)	In-plane switching mode liquid crystal display device Matsumoto, Kimikazu; Itakura, Kunimasa; Nishida, Shinichi
7476470 (10/987772)	US	1/13/2009 (11/12/2004)	Method for manufacturing thin film semiconductor device and method for forming resist pattern thereof Takahashi, Mitsuasa
7151516 (10/632713)	US	12/19/2006 (8/1/2003)	Liquid crystal display device Takeda, Hiroshi; Hirano, Youji

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6840647 (09/991600)	US	1/11/2005 (11/23/2001)	Lighting device, liquid crystal display device including the same, and method of fabricating the same Hayashi, Kazuhiko; Fujieda, Ichiro; Oda, Atsushi; Kaneko, Setsuo
6816140 (10/013263)	US	11/9/2004 (12/7/2001)	Displaying device and displaying method and manufacturing method of the device Fujieda, Ichiro
6815269 (10/430540)	US	11/9/2004 (5/6/2003)	Thin-film transistor and method for manufacturing the same Okumura, Hiroshi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7199780 (10/457374)	US	4/3/2007 (6/10/2003)	Field sequential driving type liquid crystal display apparatus capable of increasing brightness while suppressing irregularity, and its driving method Sekine, Hiroyuki
6967702 (10/633219)	US	11/22/2005 (8/1/2003)	Liquid crystal display device Ishii, Toshiya; Sakamoto, Michiaki; Hayakawa, Kiyomi
7071040 (10/639478)	US	7/4/2006 (8/13/2003)	Method of fabricating thin film transistor Matsunaga, Naoki; Sera, Kenji
7106394 (10/807245)	US	9/12/2006 (3/24/2004)	Backlight unit in a liquid crystal display device Ono, Shin-Ichirou; Fukuyoshi, Hirokazu

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7050020 (10/646799)	US	5/23/2006 (8/25/2003)	3D image/2D image switching display apparatus and portable terminal device Uehara, Shin-ichi; Takanashi, Nobuaki; Hayama, Hiroshi
7148871 (10/656297)	US	12/12/2006 (9/8/2003)	Liquid crystal display device, liquid crystal display device driving method, and liquid crystal projector apparatus Sekine, Hiroyuki
7046327 (10/833318)	US	5/16/2006 (4/28/2004)	Liquid crystal display device including columnar spacer above gate line Okamoto, Mamoru; Nishida, Shinichi; Konno, Takayuki; Maruyama, Muneo

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7057340 (10/838203)	US	6/6/2006 (5/5/2004)	Organic electroluminescence display device Imura, Hironori
7310127 (10/901206)	US	12/18/2007 (7/29/2004)	LCD device and LCD projector Sato, Yuko; Matsushima, Jin; Sugimoto, Mitsuhiro; Sumiyoshi, Ken
7554162 (10/873149)	US	6/30/2009 (6/23/2004)	Thin film transistor substrate with low reflectance upper electrode Hayashi, Kenichi; Shimamoto, Hirofumi; Matsuzaki, Tadahiro
7242450 (10/931560)	US	7/10/2007 (9/1/2004)	Orientation film rubbing apparatus and method to suppress scraping-off of the orientation film Mizoguchi, Chikaaki

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
7090365 (10/970737)	US	8/15/2006 (10/21/2004)	Backlight unit having an inclined light emission surface Ogawa, Toshihisa; Ono, Shin-ichirou
7511301 (11/000153)	US	3/31/2009 (12/1/2004)	Liquid crystal display unit Kimura, Shigeru

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7280178 (11/007157)	US	10/9/2007 (12/9/2004)	Liquid crystal display device and method of manufacturing the same Hashimoto, Yoshiaki
7294881 (11/047814)	US	11/13/2007 (2/2/2005)	Nonvolatile semiconductor memory having a charge accumulation layer connected to a gate Korenari, Takahiro; Sera, Kenji; Kanou, Hiroshi
7160003 (11/052765)	US	1/9/2007 (2/9/2005)	Illumination device and display device incorporating the same Saitoh, Goroh; Imai, Masao

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7339422 (11/093099)	US	3/4/2008 (3/29/2005)	Amplifier circuit and display device Tsuchi, Hiroshi
7183635 (11/086338)	US	2/27/2007 (3/23/2005)	Semiconductor device having a low-resistance bus interconnect, method of manufacturing same, and display apparatus employing same Toba, Tamaki
7405148 (11/610940)	US	7/29/2008 (12/14/2006)	Semiconductor device having a low-resistance bus interconnect, method of manufacturing same, and display apparatus employing same Toba, Tamaki
7483109 (11/102777)	US	1/27/2009 (4/11/2005)	Space saving on peripheral rim outside display pixel region in display device Ishibashi, Osamu

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7489295 (11/118432)	US	2/10/2009 (5/2/2005)	Liquid crystal display device, and light source driving circuit and method to be used in same Honbo, Nobuaki
7345432 (11/131231)	US	3/18/2008 (5/18/2005)	Inverter circuit for lighting backlight of liquid crystal display and method for driving the same Honbo, Nobuaki
7525618 (11/334681)	US	4/28/2009 (1/18/2006)	Liquid crystal display panel and liquid crystal display device Hiroya, Tsutomu; Sumiyoshi, Ken; Shigemura, Kouji

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
7350956 (11/345306)	US	4/1/2008 (2/2/2006)	Backlight unit and liquid-crystal display device using the same Sakaki, Yoshinobu
7473657 (11/361756)	US	1/6/2009 (2/24/2006)	Laser irradiation method and apparatus for forming a polycrystalline silicon film Okumura, Hiroshi
7372211 (11/362839)	US	5/13/2008 (2/28/2006)	Cold cathode tube lighting device and driving method and integrated circuit to be used in same Honbo, Nobuaki

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
7564531 (11/375112)	US	7/21/2009 (3/15/2006)	LCD device and method including a plastic substrate with metal layer containing copper surrounded by barrier metal film embedded in a groove within the plastic substrate Yasuda, Kyounai; Suzuki, Seiji
7551340 (11/461959)	US	6/23/2009 (8/2/2006)	Optical element, optical device, mobile information terminal, and manufacturing method Sumiyoshi, Ken; Mimura, Koji

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7446825 (11/490119)	US	11/4/2008 (7/21/2006)	Backlight unit, display device provided with the backlight unit, and method of manufacturing the display device Shinohara, Toshiya; Sugitani, Chouei
7499119 (11/582315)	US	3/3/2009 (10/18/2006)	Liquid-crystal display device with thin-film transistors and method of fabricating the same Yasuda, Kyounei

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
RE44063 (13/111815)	US	3/12/2013 (5/19/2011)	Light source device, display device, and terminal device Uehara, Shin-ichi; Imai, Masao
7520655 (11/526571)	US	4/21/2009 (9/26/2006)	Liquid crystal display module Morishita, Shizuo
RE45229 (13/292700)	US	11/4/2014 (11/9/2011)	Backlight for color liquid crystal display apparatus Takahashi, Mitsusasa
RE44118 (13/245678)	US	4/2/2013 (9/26/2011)	Backlight unit and liquid-crystal display device using the same Nishigaki, Eitaro
7568574 (11/798090)	US	8/4/2009 (5/10/2007)	Substrate transportation method and apparatus Nagatomo, Kazuya

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7491079 (11/822489)	US	2/17/2009 (7/6/2007)	Connector and method of connecting the same Uchida, Toshio
7518690 (11/802784)	US	4/14/2009 (5/24/2007)	Image display device Komaju, Manabu
6611092 (09/971994)	US	8/26/2003 (10/5/2001)	Flat fluorescent lamp having unique mating portion and liquid crystal display device incorporating such a flat fluorescent lamp Fujishiro, Fumihiko
6864947 (09/774921)	US	3/8/2005 (1/31/2001)	Method of fabricating liquid crystal display substrate and the same Shiraishi, Hideaki

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
6184966 (09/179654)	US	2/6/2001 (10/27/1998)	Semiconductor device and method for producing the same Fujita, Akira; Sugitani, Choei
6323931 (09/671414)	US	11/27/2001 (9/27/2000)	LCD with external circuit having anti-short-circuit pattern and particular structure Fujita, Akira; Sugitani, Choei
6683662 (10/003550)	US	1/27/2004 (10/24/2001)	Semiconductor device and method for producing the same Fujita, Akira; Sugitani, Choei

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6064458 (09/181641)	US	5/16/2000 (10/29/1998)	Rubbing apparatus and rubbing method Mori, Shigeru
6262436 (09/185640)	US	7/17/2001 (11/4/1998)	Semiconductor device and method of making the same Nakata, Shinichi

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
[REDACTED]			
6051815 (09/262340)	US	4/18/2000 (3/4/1999)	Apparatus for heat-treating substrate and method for separating the substrate from the apparatus Satou, Yasuyuki
[REDACTED]			
6078375 (09/154039)	US	6/20/2000 (9/16/1998)	Liquid crystal display device with wide viewing angle Matsumoto, Kimikazu; Fujimaki, Eriko
[REDACTED]			

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6104463 (09/181338)	US	8/15/2000 (10/28/1998)	In-plane switching type liquid crystal display and method of operating the same Shibahara, Hideo
7525732 (11/843677)	US	4/28/2009 (8/23/2007)	Method for forming finely- structured parts, finely- structured parts formed thereby, and product using such finely-structured part Uehara, Shin-ichi; Sato, Yuko; Sumiyoshi, Ken; Kaneko, Setsuo; Matsushima, Jin

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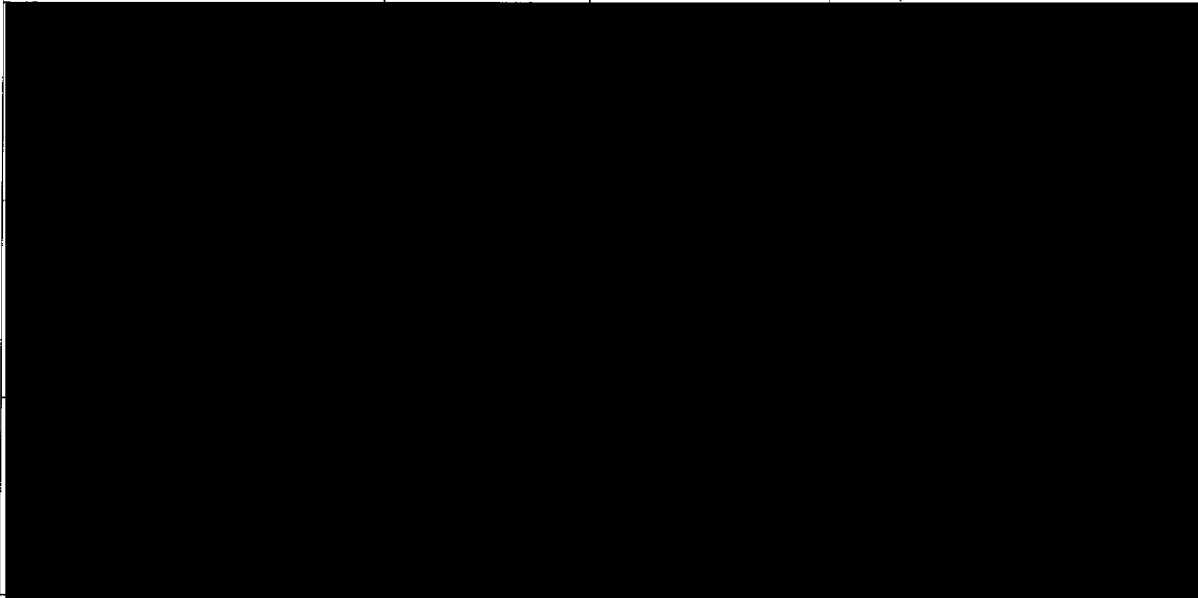
Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6172730 (09/262867)	US	1/9/2001 (3/5/1999)	Liquid crystal display apparatus having stepped section in glass substrate Fujita, Akira
6480254 (09/667786)	US	11/12/2002 (9/22/2000)	Liquid crystal display apparatus having stepped section in glass substrate Fujita, Akira
6624669 (09/578287)	US	9/23/2003 (5/25/2000)	Drive circuit and drive circuit system for capacitive load Tsuchi, Hiroshi
6618204 (10/254493)	US	9/9/2003 (9/25/2002)	Light modulator, light source using the light modulator, display apparatus using the light modulator, and method for driving the light modulator Takatori, Ken-ichi
6618027 (10/254710)	US	9/9/2003 (9/25/2002)	Light modulator, light source using the light modulator, display apparatus using the light modulator, and method for driving the light modulator Takatori, Ken-ichi

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
6707107 (09/888442)	US	3/16/2004 (6/26/2001)	Method of deforming a pattern and semiconductor device formed by utilizing deformed pattern Kido, Shusaku
7060623 (10/201132)	US	6/13/2006 (7/24/2002)	Method of deforming a pattern and semiconductor device formed by utilizing deformed pattern Kido, Shusaku
6953976 (10/300735)	US	10/11/2005 (11/21/2002)	Method of deforming a pattern and semiconductor device formed by utilizing deformed pattern Kido, Shusaku
6977422 (10/778038)	US	12/20/2005 (2/17/2004)	Method of deforming a pattern and semiconductor device formed by utilizing deformed pattern Kido, Shusaku

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7030467 (10/778039)	US	4/18/2006 (2/17/2004)	Method of deforming a pattern and semiconductor device formed by utilizing deformed pattern Kido, Shusaku
6949766 (10/778040)	US	9/27/2005 (2/17/2004)	Method of deforming a pattern and semiconductor device formed by utilizing deformed pattern Kido, Shusaku
7554164 (11/187978)	US	6/30/2009 (7/25/2005)	Semiconductor device having a gap between a gate electrode and a dummy gate electrode Kido, Shusaku
6791145 (10/778041)	US	9/14/2004 (2/17/2004)	Semiconductor device formed by utilizing deformed pattern Kido, Shusaku



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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6730970 (09/711504)	US	5/4/2004 (11/14/2000)	Thin film transistor and fabrication method of the same Katoh, Tsuoyoshi; Motoshima, Hideto
7049184 (10/838368)	US	5/23/2006 (5/5/2004)	Semiconductor thin film, thin film transistor, method for manufacturing same, and manufacturing equipment of semiconductor thin film Tanabe, Hiroshi
8377805 (13/359406)	US	2/19/2013 (1/26/2012)	Semiconductor thin film, thin film transistor, method for manufacturing same, and manufacturing equipment of semiconductor thin film Tanabe, Hiroshi
8710507 (13/761585)	US	4/29/2014 (2/7/2013)	Semiconductor thin film, thin film transistor, method for manufacturing same, and manufacturing equipment of semiconductor thin film Tanabe, Hiroshi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7138303 (10/815393)	US	11/21/2006 (4/1/2004)	Method for manufacturing a thin film transistor having high mobility and high on-current Tanabe, Hiroshi; Haga, Hiroshi
7285809 (11/410184)	US	10/23/2007 (4/24/2006)	Thin film transistor having high mobility and high on-current Tanabe, Hiroshi; Haga, Hiroshi
6665023 (09/323492)	US	12/16/2003 (6/1/1999)	Active matrix liquid crystal display device having particular capacitance patterns Watanabe, Makoto; Watanabe, Takahiko
6020214 (09/116213)	US	2/1/2000 (7/16/1998)	Method for manufacturing thin film transistor array substrate Watanabe, Takahiko; Sukegawa, Osamu
6137465 (09/195617)	US	10/24/2000 (11/19/1998)	Drive circuit for a LCD device Sekine, Hiroyuki; Okumura, Fujio
7079101 (09/290579)	US	7/18/2006 (4/13/1999)	Liquid crystal display device and driving method therefor Asada, Hideki
6567136 (09/461001)	US	5/20/2003 (12/14/1999)	Liquid crystal display device Sakuramoto, Tamaki; Okumura, Hiroshi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6597414 (09/513923)	US	7/22/2003 (2/28/2000)	Horizontal electric-field type LCD device Hasegawa, Fumio
6300996 (09/321454)	US	10/9/2001 (5/27/1999)	Liquid crystal display apparatus Matsuyama, Hiroaki; Kobayashi, Kazumi; Hirai, Yoshihiko; Ishii, Toshiya; Murai, Hideya; Suzuki, Masayoshi
5875009 (08/912790)	US	2/23/1999 (8/18/1997)	Sequential staggered type thin film transistor Shibahara, Hideo

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
6268898 (09/391151)	US	7/31/2001 (9/7/1999)	Liquid crystal display device and method of manufacturing the same Ihara, Hirofumi
5929947 (09/168085)	US	7/27/1999 (10/8/1998)	Liquid crystal display thin film transistor array with redundant film formed over a contact hole and method of fabricating the same Tani, Masatoshi
6441877 (09/413535)	US	8/27/2002 (10/6/1999)	Active matrix type liquid crystal display device and method of forming the same Watanabe, Takahiko

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6407728 (09/435968)	US	6/18/2002 (11/8/1999)	Active matrix liquid crystal display device having signal selectors and method of driving the same Sekine, Hiroyuki
6563481 (09/501685)	US	5/13/2003 (2/10/2000)	Active matrix liquid crystal display device, method of manufacturing the same, and method of driving the same Watanabe, Makoto; Watanabe, Takahiko

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
6633002 (09/575092)	US	10/14/2003 (5/19/2000)	Tape carrier having high flexibility with high density wiring patterns Atou, Noriaki
6876352 (09/577843)	US	4/5/2005 (5/25/2000)	Scanning circuit Sato, Tetsushi; Sekine, Hiroyuki

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
[REDACTED]			
6657619 (09/602182)	US	12/2/2003 (6/22/2000)	Clamping circuit for liquid crystal display device Shiki, Tatsuya
[REDACTED]			
6580486 (09/604610)	US	6/17/2003 (6/27/2000)	Active matrix liquid crystal display device having electrostatic shielding layer between data lines Sekine, Hiroyuki
6669809 (09/791793)	US	12/30/2003 (2/26/2001)	Apparatus for removing a coating film Hashimoto, Yoshiaki; Sato, Yasuyuki
[REDACTED]			

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6646691 (09/626114)	US	11/11/2003 (7/26/2000)	Active-matrix in-plane switching mode LCD panel having multiple common electrode voltage sources Watanabe, Makoto; Watanabe, Takahiko
6469754 (09/654624)	US	10/22/2002 (9/5/2000)	Liquid-crystal display with scanner Okumura, Fujio
6429910 (09/666819)	US	8/6/2002 (9/21/2000)	Liquid crystal display device and method for repairing breakage of circuit lines thereof Hirata, Tomoya; Miyahara, Tae
6788355 (09/695212)	US	9/7/2004 (10/25/2000)	Active matrix LCD panel Ihida, Satoshi; Yamaguchi, Hirotaka; Tanaka, Hiroaki; Hayase, Takasuke; Kanou, Hiroshi; Kaneko, Wakahiko; Miyahara, Tae; Sakamoto, Michiaki; Nakata, Shinichi
6661401 (09/711632)	US	12/9/2003 (11/13/2000)	Circuit for driving a liquid crystal display and method for driving the same circuit Sekine, Hiroyuki
6600172 (09/718603)	US	7/29/2003 (11/22/2000)	Image sensor and method of fabricating the same Matsuno, Fumihiko

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
6407730 (09/442455)	US	6/18/2002 (11/18/1999)	Liquid crystal display device and method for transferring image data Hori, Yoshihiko
6437370 (09/503176)	US	8/20/2002 (2/14/2000)	Image sensor structure and manufacturing process therefor Matsuno, Fumihiko
6429917 (09/513758)	US	8/6/2002 (2/25/2000)	Color liquid-crystal panel having a frame-shaped black matrix and manufacturing process therefor Okamoto, Mamoru; Yamamoto, Yuji; Sakamoto, Michiaki; Nakata, Shinichi; Kikkawa, Hironori; Watanabe, Takahiko; Ihara, Hirofumi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6330043 (09/552035)	US	12/11/2001 (4/19/2000)	Liquid crystal display device and method of fabrication TFT panel Kikkawa, Hironori; Watanabe, Takahiko; Ihara, Hirofumi; Nakata, Shinichi; Okamoto, Mamoru; Yamamoto, Yuji; Sakamoto, Michiaki

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6486936 (09/579321)	US	11/26/2002 (5/25/2000)	Liquid crystal panel with seal containing hard and soft spacers Sugimoto, Mitsuhiro
6870592 (09/594721)	US	3/22/2005 (6/16/2000)	Liquid-crystal display panel with spacer in pixel electrode contact hole and method for manufacturing same Yamamoto, Yuji; Okamoto, Mamoru; Sakamoto, Michiaki; Watanabe, Takahiko; Ihara, Hirofumi; Kikkawa, Hironori; Nakata, Shinichi

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	Title of Patent and Inventors
[REDACTED]			
6549259 (09/780382)	US	4/15/2003 (2/12/2001)	Liquid crystal display panel and fabrication method of the same Sato, Yuko; Sugimoto, Mitsuhiro
[REDACTED]			

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6822704 (09/870749)	US	11/23/2004 (6/1/2001)	Active matrix liquid crystal display device Sakamoto, Michiaki; Maruyama, Muneo; Yamamoto, Yuji; Okamoto, Mamoru
7224414 (10/761354)	US	5/29/2007 (1/22/2004)	Active matrix liquid crystal display device Sakamoto, Michiaki; Maruyama, Muneo; Yamamoto, Yuji; Okamoto, Mamoru
7136123 (10/985003)	US	11/14/2006 (11/10/2004)	Reflector formed with highly reliable conductive pattern, process for fabricating reflector and liquid crystal display unit using the same Sato, Yasuhiro; Kaneko, Hideki; Nishiyama, Michiaki

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Patent/Application Number	Country	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6930744 (09/568710)	US	8/16/2005 (5/11/2000)	LCD device having test contact pads Ukita, Tooru
6608664 (09/577702)	US	8/19/2003 (5/23/2000)	Vibration-proof liquid crystal display having mounting end regions of lower rigidity Hasegawa, Fumio
6760081 (09/577734)	US	7/6/2004 (5/23/2000)	Liquid crystal display device having uniform feedthrough voltage components Takagi, Kouji
6414740 (09/583730)	US	7/2/2002 (5/31/2000)	LCD having temperature detection elements provided on an active-substrate Hosoyamada, Shunichi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6633361 (09/587061)	US	10/14/2003 (6/2/2000)	LCD panel in which signal line terminals have slits to allow inspection of alignment of the terminals and the TCP leads Fujita, Akira
6486931 (09/592914)	US	11/26/2002 (6/13/2000)	LCD optical guide plate with a roughened back surface having projections that support a reflecting sheet Ueda, Shoichi
6542207 (09/599637)	US	4/1/2003 (6/23/2000)	Liquid crystal display Yoshizawa, Seiji
7088401 (09/609169)	US	8/8/2006 (6/30/2000)	Liquid crystal display device with less pixel error and method of manufacturing the same Ihara, Hirofumi; Kaneko, Wakahiko; Iida, Takayasu

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6249011 (09/513925)	US	6/19/2001 (2/28/2000)	Thin film transistor array with light shield layer Matsumoto, Seiichi
6352911 (09/619675)	US	3/5/2002 (7/19/2000)	Thin-film transistor array and method for producing the same Matsumoto, Seiichi
6760089 (09/522609)	US	7/6/2004 (3/10/2000)	Liquid crystal display and manufacturing method thereof Kuroha, Shoichi
6954250 (10/882286)	US	10/11/2005 (7/2/2004)	Liquid crystal display and manufacturing method thereof Kuroha, Shoichi

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6714271 (09/533075)	US	3/30/2004 (3/22/2000)	Liquid crystal display having an in a pixel electrode along a boundary of differently oriented regions Matsuyama, Hiroaki; Hirai, Yoshihiko
6809712 (09/802215)	US	10/26/2004 (3/8/2001)	Drive circuit of liquid crystal display, having clip circuit before polarity inversion circuit Takeda, Hiroshi
6778249 (09/621460)	US	8/17/2004 (7/21/2000)	Liquid-crystal display element and method for manufacturing same Kamosawa, Hirofumi; Shimizu, Takeya
6690446 (09/689901)	US	2/10/2004 (10/13/2000)	Color liquid crystal display panel, manufacturing method of the same, and liquid crystal display Okamoto, Mamoru; Yamamoto, Yuji; Sakamoto, Michiaki; Kikkawa, Hironori
6525786 (09/711043)	US	2/25/2003 (11/13/2000)	Transverse electric liquid crystal display device Ono, Shin-ichirou

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7202844 (09/726721)	US	4/10/2007 (11/30/2000)	Liquid crystal display controller and liquid crystal display Nakamigawa, Kazuhiro
6586873 (09/839118)	US	7/1/2003 (4/23/2001)	Display panel module with improved bonding structure and method of forming the same Mizutani, Kazuhiro; Kitazume, Eiichi
6468840 (09/841074)	US	10/22/2002 (4/25/2001)	Active matrix substrate and manufacturing method thereof Tanaka, Hiroaki; Uchida, Hiroyuki
6800872 (10/235493)	US	10/5/2004 (9/6/2002)	Active matrix thin film transistor Tanaka, Hiroaki; Uchida, Hiroyuki

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6812528 (09/874296)	US	11/2/2004 (6/6/2001)	Surge protection circuit for semiconductor devices Uchida, Hiroyuki
6621551 (09/892836)	US	9/16/2003 (6/27/2001)	Method and system for fabricating a liquid crystal display by optically detecting anisotropic angular misalignment Matsuzawa, Tadashi
6657699 (09/901034)	US	12/2/2003 (7/10/2001)	Liquid crystal display unit having pixel electrode encircled with partition wall and process for fabrication thereof Matsumoto, Kimikazu

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6740596 (09/903244)	US	5/25/2004 (7/11/2001)	Manufacturing method of active matrix substrate Hayase, Takasuke; Tanaka, Hiroaki; Kido, Shusaku; Harano, Toshihiko
6683661 (09/924059)	US	1/27/2004 (8/8/2001)	Liquid crystal display and image display device using the same Matsumoto, Seiichi
7518586 (09/925601)	US	4/14/2009 (8/10/2001)	Method and circuit for driving liquid crystal display and image display device Hosoyamada, Shunichi
6667777 (09/927501)	US	12/23/2003 (8/10/2001)	Liquid crystal display device and method for manufacturing the same Kikkawa, Hironori; Maruyama, Muneo; Yamamoto, Yuji; Okamoto, Mamoru; Sakamoto, Michiaki

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6873385 (09/949633)	US	3/29/2005 (9/12/2001)	Liquid crystal display with selectively placed barriers Matsumoto, Kimikazu
6831295 (10/008973)	US	12/14/2004 (11/8/2001)	TFT-LCD device having a reduced feed-through voltage Tsubo, Yumiko
6559917 (09/987088)	US	5/6/2003 (11/13/2001)	Pattern formation method using reflow enhancement layer and method for manufacturing reflective type liquid crystal display device using the same Ikeno, Hidenori
6583556 (09/994807)	US	6/24/2003 (11/28/2001)	Flat-type fluorescent lamp for illumination unit and liquid crystal device Oishi, Toshiya; Fujishiro, Fumihiko; Kanatsu, Tsutomu

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7033951 (10/077226)	US	4/25/2006 (2/15/2002)	Process for forming pattern and method for producing liquid crystal display apparatus Kido, Shusaku
7226865 (11/268811)	US	6/5/2007 (11/7/2005)	Process for forming pattern and method for producing liquid crystal display apparatus Kido, Shusaku

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7136116 (10/084355)	US	11/14/2006 (2/28/2002)	Liquid crystal display with control electrodes for preventing lateral leak of electric field Sakamoto, Michiaki; Hidehira, Masanobu; Okamoto, Mamoru
6767694 (10/084848)	US	7/27/2004 (2/25/2002)	Process for forming pattern and method for producing liquid crystal display apparatus employing process for forming pattern Kido, Shusaku
6894738 (10/087787)	US	5/17/2005 (3/5/2002)	Lamp unit, light guide plate, liquid crystal display, and method for assembling them Kasuga, Koji

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<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6909418 (10/119024)	US	6/21/2005 (4/10/2002)	Image display apparatus Arai, Nobuhiro
7030852 (10/122240)	US	4/18/2006 (4/16/2002)	Liquid crystal display unit having incoming pixel data rearrangement circuit Ito, Masahiro; Takami, Kazuhiko; Okuzono, Noboru
6867825 (10/122242)	US	3/15/2005 (4/16/2002)	Liquid crystal display device Kanatsu, Tsutomu; Ishida, Hiroshi
7057678 (10/123653)	US	6/6/2006 (4/16/2002)	Liquid crystal display device having backlight with return substrate above or below a portion of lamp tubes Ishida, Hiroshi; Kanatsu, Tsutomu
6811458 (10/142287)	US	11/2/2004 (5/9/2002)	Method for manufacturing liquid crystal display Kouya, Akiyoshi

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6707525 (10/226268)	US	3/16/2004 (8/23/2002)	Liquid crystal display device Miyazaki, Tatsuva
6870593 (10/242604)	US	3/22/2005 (9/13/2002)	Liquid crystal display cell with improved spacer structure Satoh, Hiroki
6982769 (10/638000)	US	1/3/2006 (8/8/2003)	Substrate for liquid-crystal display device and fabrication method thereof Ishino, Takayuki
6567327 (09/924609)	US	5/20/2003 (8/9/2001)	Driving circuit, charge/discharge circuit and the like Tsuchi, Hiroshi

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Patent/Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
6831627 (09/826252)	US	12/14/2004 (4/4/2001)	Driving method for liquid crystal display Hasegawa, Fumio; Aoki, Makoto
6727874 (09/988189)	US	4/27/2004 (11/19/2001)	Driving circuit and driving method of color liquid crystal display, and color liquid crystal display device Okuzono, Noboru
7116297 (10/413458)	US	10/3/2006 (4/14/2003)	Liquid crystal display device and driving method for liquid crystal display device Koga, Koichi; Okuzono, Noboru; Yamaguchi, Machihiko
6747617 (09/714300)	US	6/8/2004 (11/16/2000)	Drive circuit for an organic EL apparatus Kawashima, Shingo
6587089 (09/518797)	US	7/1/2003 (3/3/2000)	LCD panel and LCD device equipped therewith Nakajima, Keiichi

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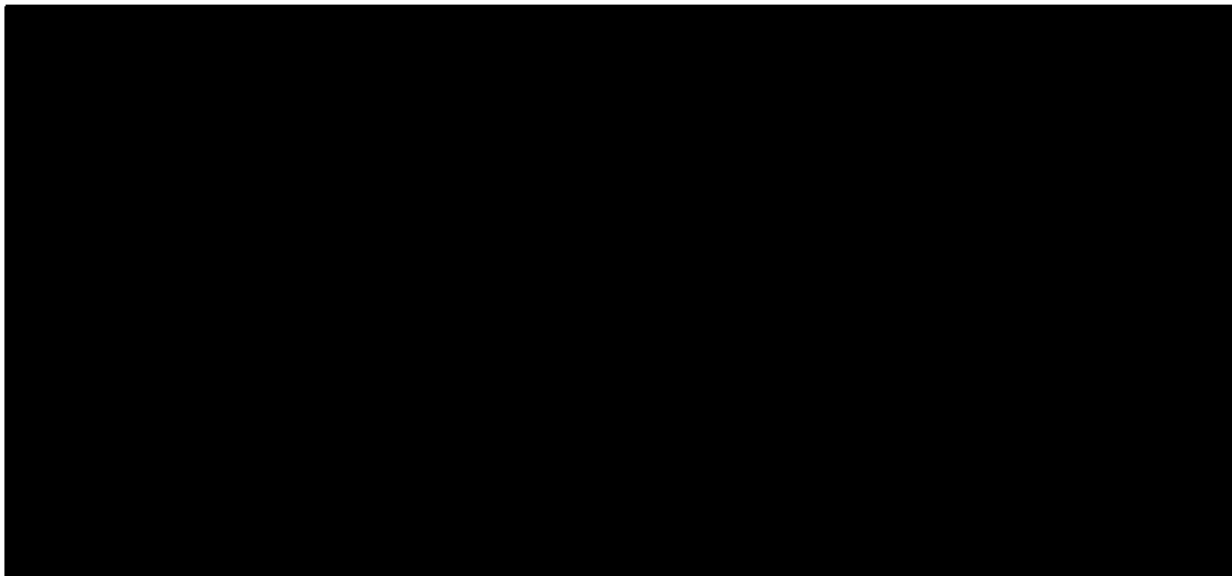
<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6127997 (09/123482)	US	10/3/2000 (7/28/1998)	Driver for liquid crystal display apparatus with no operational amplifier Tsuchi, Hiroshi
6380006 (09/878198)	US	4/30/2002 (6/12/2001)	Pattern formation method and method of manufacturing display using it Kido, Shusaku
6513943 (09/810542)	US	2/4/2003 (3/19/2001)	Backlight unit and display device using the same backlight unit Fukuyoshi, Hirokazu
6579749 (09/440615)	US	6/17/2003 (11/15/1999)	Fabrication method and fabrication apparatus for thin film transistor Takechi, Kazushige

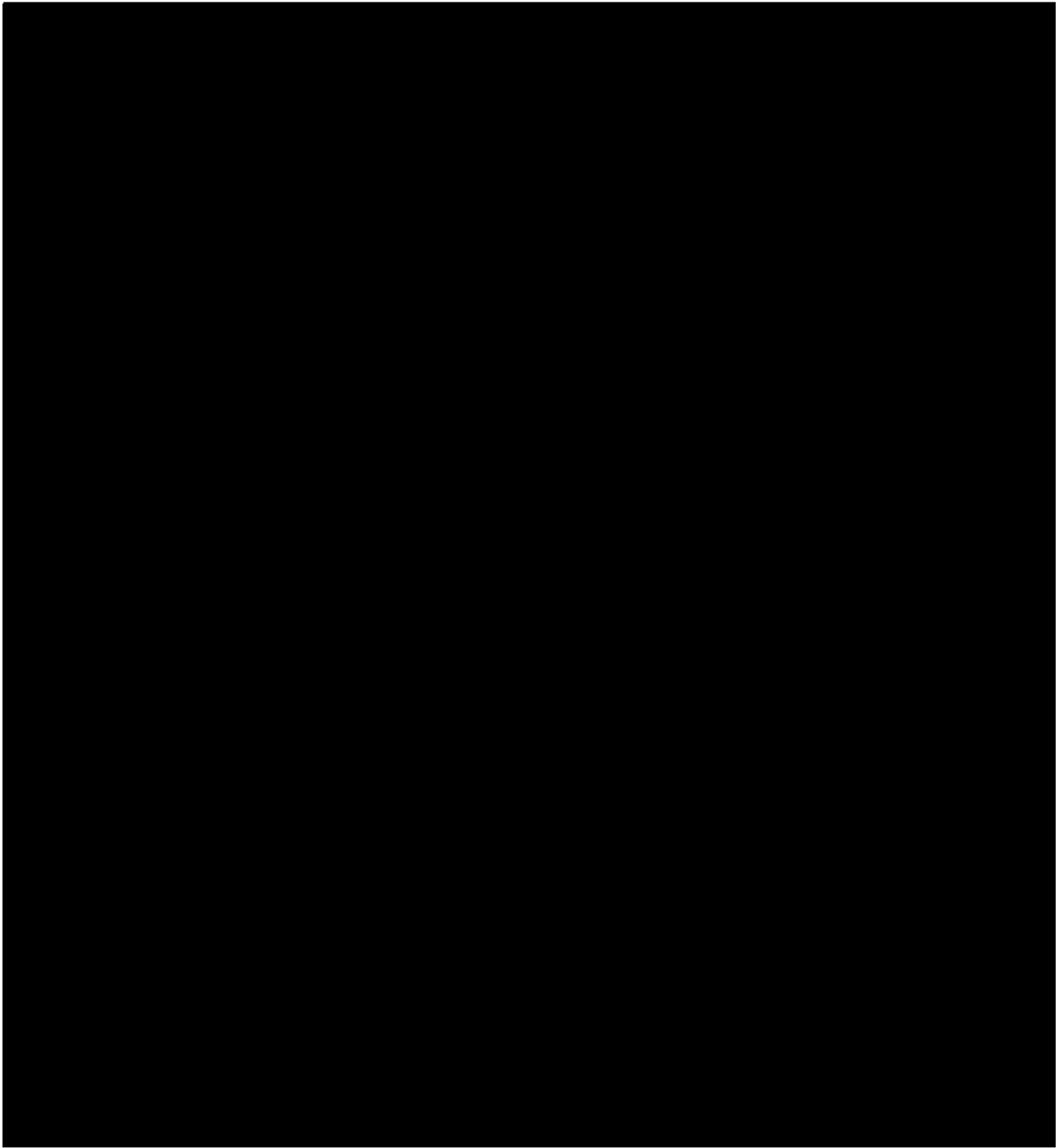
Revised Exhibit A

<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6693697 (10/042144)	US	2/17/2004 (1/11/2002)	Active-matrix type liquid crystal display device having thick and thin overcoat layers layered over a black matrix Sakamoto, Michiaki; Yamamoto, Yuji; Okamoto, Mamoru; Kimura, Shigeru; Nakata, Shinichi; Kuroha, Shouichi; Hidehira, Masanobu; Horie, Yoshitaka; Ishino, Takayuki
7145628 (09/855148)	US	12/5/2006 (5/14/2001)	Method for fabricating a liquid crystal panel comprising spacers having an initial size larger than an appropriate cell gap Sasaki, Takeshi
7123314 (10/871000)	US	10/17/2006 (6/21/2004)	Thin-film transistor with set trap level densities, and method of manufactures Matsunaga, Naoki; Sera, Kenji
6791656 (10/349937)	US	9/14/2004 (1/24/2003)	Liquid crystal display panel avoiding display unevenness and manufacturing method Akiyoshi Kouya

Revised Exhibit A

<u>Patent/Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6573972 (09/735806)	US	6/3/2003 (12/14/2000)	LCD panel and method of fabricating same Takeshi Sasaki
[REDACTED]			
6784456 (10/207765)	US	8/31/2004 (7/31/2002)	Field effect transistor as well as liquid crystal display using the same Kenji Sera





[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Feb 13, 2018 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
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[Redacted Table Content]			
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Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6859246 (10/173922)	US	2/22/2005 (6/19/2002)	OCB type liquid crystal display having transition nucleus area from splay alignment to bend alignment Konno, Takayuki; Sukegawa, Osamu; Suzuki, Masayoshi; Watanabe, Makoto

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5479208 (08/215719)	US	12/26/1995 (3/22/1994)	Image sensors and driving method thereof Okumura, Fujio
5708471 (08/511444)	US	1/13/1998 (8/4/1995)	Image sensors and driving method thereof Okumura, Fujio
5457420 (08/218125)	US	10/10/1995 (3/25/1994)	Inverter circuit and level shifter circuit for providing a high voltage output Asada, Hideki

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
5416341 (08/187471)	US	5/16/1995 (1/28/1994)	Substrate for a semiconductor device and method for manufacturing a semiconductor device from the substrate Hayama, Hiroshi
[REDACTED]			
6335492 (08/845612)	US	1/1/2002 (4/25/1997)	Tape carrier package with improved connecting terminals and a method of electrically interconnecting the tape carrier package to external circuitry Terasaka, Shinji; Hatazawa, Satoshi
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6137552 (08/861631)	US	10/24/2000 (5/22/1997)	Liquid crystal panel having a high aperture ratio and light-shielded channels Yanai, Kouichi
5995174 (08/883432)	US	11/30/1999 (6/26/1997)	Liquid crystal display apparatus with source/drain electrodes and pixel electrode formed by the same material Ukita, Tooru
5789761 (08/645816)	US	8/4/1998 (5/14/1996)	Thin-film transistor array having light shading film and antireflection layer Ihara, Hirofumi; Nakashima, Kohji; Ohi, Susumu; Koide, Shin

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
5885142 (08/883661)	US	3/23/1999 (6/27/1997)	Device for cleaning a liquid crystal panel Yoshida, Hitoshi
[REDACTED]			
5550659 (08/280332)	US	8/27/1996 (7/25/1994)	Active matrix liquid crystal display having a spatial coordinates input function Fujieda, Ichiro; Kaneko, Setsuo
[REDACTED]			
5751279 (08/784313)	US	5/12/1998 (1/16/1997)	Active matrix type liquid crystal display and method driving the same Okumura, Fujio
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5404151 (07/920783)	US	4/4/1995 (7/28/1992)	Scanning circuit Asada, Hideki
5295008 (07/926157)	US	3/15/1994 (8/6/1992)	Color LCD panel Mizobata, Eishi; Hirai, Yoshihiko
5714968 (08/512643)	US	2/3/1998 (8/8/1995)	Current-dependent light-emitting element drive circuit for use in active matrix display device Ikeda, Naoyasu
5940053 (08/941026)	US	8/17/1999 (9/30/1997)	Current-dependent light-emitting element drive circuit for use in active matrix display device Ikeda, Naoyasu
6011529 (09/291978)	US	1/4/2000 (4/15/1999)	Current-dependent light-emitting element drive circuit for use in active matrix display device Ikeda, Naoyasu
5723878 (08/702949)	US	3/3/1998 (8/26/1996)	Active matrix liquid crystal panel having thin film transistors Yanai, Koichi

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Patent/ Application Number	Country	Issue Date/ Filing Date	Title of Patent and Inventors
5517150 (07/955036)	US	5/14/1996 (10/1/1992)	Analog switch formed of thin film transistor and having reduced leakage current Okumura, Fujio
5329140 (07/954309)	US	7/12/1994 (9/30/1992)	Thin film transistor and its production method Sera, Kenji
5693961 (08/561334)	US	12/2/1997 (11/21/1995)	Top-gate type thin film transistor with dangling bonds of silicon partly combined with hydrogen Hamada, Koji
5888856 (08/636755)	US	3/30/1999 (4/19/1996)	Method of fabricating a top-gate type thin film transistor with dangling bonds of silicon partly combined with hydrogen Hamada, Koji
6087206 (09/187425)	US	7/11/2000 (11/6/1998)	Method of fabricating a top-gate type thin film transistor with dangling bonds of silicon partly combined with hydrogen Hamada, Koji

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5512494 (08/349993)	US	4/30/1996 (11/29/1994)	Method for manufacturing a thin film transistor having a forward staggered structure Tanabe, Hiroshi
5739593 (08/753425)	US	4/14/1998 (11/25/1996)	Voltage source circuit for generating a plurality of values of voltages Hayama, Hiroshi
6067128 (08/616346)	US	5/23/2000 (3/15/1996)	Liquid-crystal display projector including an optical path adjuster arranged in the light path from the light source to the liquid-crystal display element Imai, Masao
5867141 (08/624741)	US	2/2/1999 (3/27/1996)	Driving method for liquid crystal display of gate storage structure Asada, Hideki; Okumura, Fujio

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5677211 (08/626072)	US	10/14/1997 (4/1/1996)	Method for manufacturing a thin film transistor Kaneko, Wakahiko
6211866 (09/107286)	US	4/3/2001 (6/30/1998)	Grayscale voltage generating circuit Okutani, Shigeki
6130728 (08/915116)	US	10/10/2000 (8/20/1997)	Single panel color projection LCD having a plurality of reflectors Tsujikawa, Susumu; Ogura, Yukio

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6815654 (08/932238)	US	11/9/2004 (9/17/1997)	Image sensor device using thin film light source arranged between light receiving elements and image to be sensed Fujieda, Ichiro; Saito, Takeshi
5654659 (08/395859)	US	8/5/1997 (2/28/1995)	Scan circuit having a reduced clock signal delay Asada, Hideki
6043859 (08/978647)	US	3/28/2000 (11/26/1997)	Active matrix base with reliable terminal connection for liquid crystal display device Maeda, Akitoshi
5635723 (08/578496)	US	6/3/1997 (12/26/1995)	Fingerprint image input apparatus Fujieda, Ichiro; Kaneko, Setsuo

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5889569 (08/594233)	US	3/30/1999 (2/23/1996)	Device used for liquid crystal display Okamoto, Mamoru; Watanabe, Takahiko
6028577 (09/012054)	US	2/22/2000 (1/22/1998)	Active-matrix type liquid-crystal display Sakamoto, Michiaki
5844652 (08/672980)	US	12/1/1998 (7/1/1996)	Liquid crystal display using a liquid crystal showing a ferroelectric property or an anti-ferroelectric property Takatori, Ken-ichi
5877492 (08/713485)	US	3/2/1999 (9/13/1996)	Contact type image sensor comprising a plurality of microlenses Fujieda, Ichiro; Haga, Hiroshi

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6894743 (09/492231)	US	5/17/2005 (1/27/2000)	Liquid crystal optical modulation element, and color filter and liquid crystal display device using the same Takatori, Ken-ichi
6040889 (08/997232)	US	3/21/2000 (12/23/1997)	Liquid crystal display with continuous grayscale, wide viewing angle, and exceptional shock resistance Takatori, Ken-Ichi; Sumiyoshi, Ken

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6181312 (09/229214)	US	1/30/2001 (1/13/1999)	Drive circuit for an active matrix liquid crystal display device Sekine, Hiroyuki
6108461 (08/975082)	US	8/22/2000 (11/20/1997)	Contact image sensor and method of manufacturing the same Haga, Hiroshi

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7193679 (10/657099)	US	3/20/2007 (9/9/2003)	Liquid crystal display with photosensitive organic film having first, second and third thicknesses is corresponding its transmission, reflective and terminal regions Sakamoto, Michiaki; Kikkawa, Hironori; Toyomaki, Naohito
5283600 (08/020563)	US	2/1/1994 (2/22/1993)	LCD projector Imai, Masao
5409744 (08/122378)	US	4/25/1995 (9/16/1993)	Polymer dispersed liquid crystal optical devices Gotoh, Tomohisa; Murai, Hideya; Nakata, Taisaku
5440149 (08/234838)	US	8/8/1995 (4/28/1994)	Planar type image sensor having electrodes on a photoelectric conversion layer Shimizu, Kousaku; Kaneko, Setsuo
5446290 (08/240568)	US	8/29/1995 (5/11/1994)	Fingerprint image input device having an image sensor with openings Fujieda, Ichiro; Ono, Yuzo; Sugama, Seijin
5648293 (08/273156)	US	7/15/1997 (7/22/1994)	Method of growing an amorphous silicon film Hayama, Hiroshi; Uchida, Hiroyuki; Takechi, Kazushige

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5739886 (08/825814)	US	4/14/1998 (4/3/1997)	Liquid crystal display with reverse staggered thin film transistors and opposite electrode, and fabrication method thereof Shibahara, Hideo
5550501 (08/392257)	US	8/27/1996 (2/22/1995)	Current buffer circuit with enhanced response speed to input signal Ito, Masahiro; Hirano, Yoji
5691657 (08/600007)	US	11/25/1997 (2/14/1996)	Sample-and-hold circuit including a robust leakage current compensating circuit Hirano, Yoji; Ueda, Goro
5726727 (08/625189)	US	3/10/1998 (4/1/1996)	Liquid crystal display device capable of producing a display of high vignetting factor and excellent contrast Shibahara, Hideo; Ohi, Susumu; Maruyama, Muneco; Sakamoto, Michiaki
6058224 (08/982392)	US	5/2/2000 (12/2/1997)	Manual scanning type image input device and image signal processing method using thinned out line image data Haga, Hiroshi
5890598 (09/008323)	US	4/6/1999 (1/20/1998)	Substrate cassette Hayashida, Manabu; Fukudome, Takanobu

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6681062 (09/644561)	US	1/20/2004 (8/24/2000)	Handy type image scanner Yano, Akihiro
6633134 (09/669129)	US	10/14/2003 (9/25/2000)	Active-matrix-driven organic EL display device Kondo, Yuji; Kota, Atsushi
7042527 (09/943212)	US	5/9/2006 (8/30/2001)	Field sequential display of color video picture with color breakup prevention Imai, Masao
6801826 (10/202045)	US	10/5/2004 (7/25/2002)	System and method for manufacturing semiconductor devices controlled by customer Tanabe, Hiroshi

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5363118 (07/956963)	US	11/8/1994 (10/6/1992)	Driver integrated circuits for active matrix type liquid crystal displays and driving method thereof Okumura, Fujio
5299040 (07/714967)	US	3/29/1994 (6/13/1991)	Metal-insulator-metal type active matrix liquid crystal display free from image sticking Mizobata, Fishi
5933550 (08/548761)	US	8/3/1999 (10/26/1995)	Data inputting device Fujieda, Ichiro; Okumura, Fujio; Haga, Hiroshi

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6377715 (09/299579)	US	04-27-1999 (4-23-2002)	Data inputting device Fujieda, Ichiro; Okumura, Fujio; Haga, Hiroshi
5579184 (08/261120)	US	11/26/1996 (6/14/1994)	Playback clock signal generating circuit which uses a first and second phase lock loop Nakanishi, Shuichi; Kitahara, Shinichi
5724111 (08/661898)	US	3/3/1998 (6/12/1996)	Reflective LCD having a light scattering means formed on an electrode side surface of a counter substrate Mizobata, Eishi; Ikeno, Hidenori; Kanoh, Hiroshi
5796455 (08/852521)	US	8/18/1998 (5/7/1997)	Reflective LCD having a light scattering means formed on an electrode side surface of a counter substrate Mizobata, Eishi; Ikeno, Hidenori; Kanoh, Hiroshi
6018379 (08/923116)	US	1/25/2000 (9/4/1997)	Reflective LCD having a particular scattering means Mizobata, Eishi; Ikeno, Hidenori; Kanoh, Hiroshi
6266112 (09/479728)	US	7/24/2001 (1/7/2000)	Reflective liquid crystal display Mizobata, Eishi; Ikeno, Hidenori; Kanoh, Hiroshi
6069675 (08/960997)	US	5/30/2000 (10/30/1997)	Active matrix liquid crystal display Mizobata, Eishi; Ikeda, Naoyasu; Hirai, Yoshihiko

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6473140 (09/518987)	US	10/29/2002 (3/3/2000)	Active matrix liquid crystal display Mizobata, Eishi; Ikeda, Naoyasu; Hirai, Yoshihiko
5995172 (08/778268)	US	11/30/1999 (1/2/1997)	Tablet integrated liquid crystal display apparatus with less parallax Ikeda, Naoyasu; Mizobata, Eishi; Hirai, Yoshihiko
6295101 (09/393025)	US	9/25/2001 (9/9/1999)	Tablet integrated liquid crystal display apparatus with less parallax Ikeda, Naoyasu; Mizobata, Eishi; Hirai, Yoshihiko
6504584 (09/846257)	US	1/7/2003 (5/2/2001)	Tablet integrated liquid crystal display apparatus with less parallax Ikeda, Naoyasu; Mizobata, Eishi; Hirai, Yoshihiko
6133974 (08/912476)	US	10/17/2000 (8/18/1997)	Liquid crystal display with two areas of liquid crystal with orthogonal initial orientations Ishii, Toshiya
6344890 (09/626119)	US	2/5/2002 (7/26/2000)	Ferroelectric liquid crystal display with a reduced light-transmittance dependency upon a visible angle Ishii, Toshiya

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6630981 (10/015581)	US	10/7/2003 (12/17/2001)	Ferroelectric liquid crystal display with a reduced light-transmittance dependency upon a visible angle Ishii, Toshiya
6657154 (08/866331)	US	12/2/2003 (5/30/1997)	Semiconductor manufacturing apparatus and manufacturing method for thin film semiconductor device Tanabe, Hiroshi; Kaneko, Setsuo
5926286 (08/851458)	US	7/20/1999 (5/5/1997)	Image sensor apparatus with small convex portions Fujieda, Ichiro
6320628 (08/960037)	US	11/20/2001 (10/29/1997)	Projection type color liquid crystal display apparatus capable of enhancing optical utilization efficiency Tsujikawa, Susumu; Imai, Masao
6476880 (09/966602)	US	11/5/2002 (10/1/2001)	Projection type color liquid crystal display apparatus capable of enhancing optical utilization efficiency Tsujikawa, Susumu; Imai, Masao

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6243151 (09/127054)	US	6/5/2001 (7/31/1998)	Liquid crystal display with polarization layer interior to substrates Nose, Takashi; Kaneko, Setsuo; Suzuki, Shigeo
6245258 (09/058773)	US	6/12/2001 (4/13/1998)	Smectic liquid crystal material and liquid crystal optical element Takatori, Ken-Ichi; Sumiyoshi, Ken; Hatada, Yoriko; Matsushima, Jin

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6774399 (10/095074)	US	8/10/2004 (3/12/2002)	Active-matrix substrate and method of fabricating the same Hirata, Kazumi
6407418 (09/397738)	US	6/18/2002 (9/16/1999)	Semiconductor device, method of manufacturing the same, image sensor apparatus having the same and image reader having the same Haga, Hiroshi; Fujieda, Ichiro; Okumura, Fujio

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7157315 (10/778442)	US	1/2/2007 (2/13/2004)	Active matrix substrate and method of fabricating the same Okumura, Hiroshi; Sukegawa, Osamu
6890783 (10/242011)	US	5/10/2005 (9/12/2002)	Active matrix substrate plate and manufacturing method therefor Kimura, Shigeru; Watanabe, Takahiko; Yoshikawa, Tae; Uchida, Hiroyuki; Kido, Shusaku; Nakata, Shinichi; Hamada, Tsutomu; Shimodouzone, Hisanobu; Doi, Satoshi; Harano, Toshihiko; Maeda, Akitoshi; Ihida, Satoshi; Tanaka, Hiroaki; Hayase, Takasuke; Kuroha, Shouichi; Ihara, Hirofumi; Takechi, Kazushige

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6858978 (10/105337)	US	2/22/2005 (3/26/2002)	Manufacturing method of support frame of display panel, support frame of display panel and display device Fujishiro, Fumihiko; Fukuyoshi, Hirokazu
6993820 (10/860154)	US	2/7/2006 (6/4/2004)	Manufacturing method of support frame of display panel support frame of display panel and display device Fujishiro, Fumihiko; Fukuyoshi, Hirokazu

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6884665 (10/617170)	US	4/26/2005 (7/11/2003)	Method for manufacturing thin film transistor Takahashi, Mitsuasa
6972221 (10/383508)	US	12/6/2005 (3/10/2003)	Thin film semiconductor device and method for manufacturing same Takahashi, Mitsuasa
13/365095	US	2/2/2012	Light source device and method for manufacturing the same, display device and method for manufacturing the same, and method for driving display device Inventorship not available

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
7338911 (11/318519)	US	3/4/2008 (12/28/2005)	Method for etching and for forming a contact hole using thereof Kido, Shusaku
[REDACTED]			

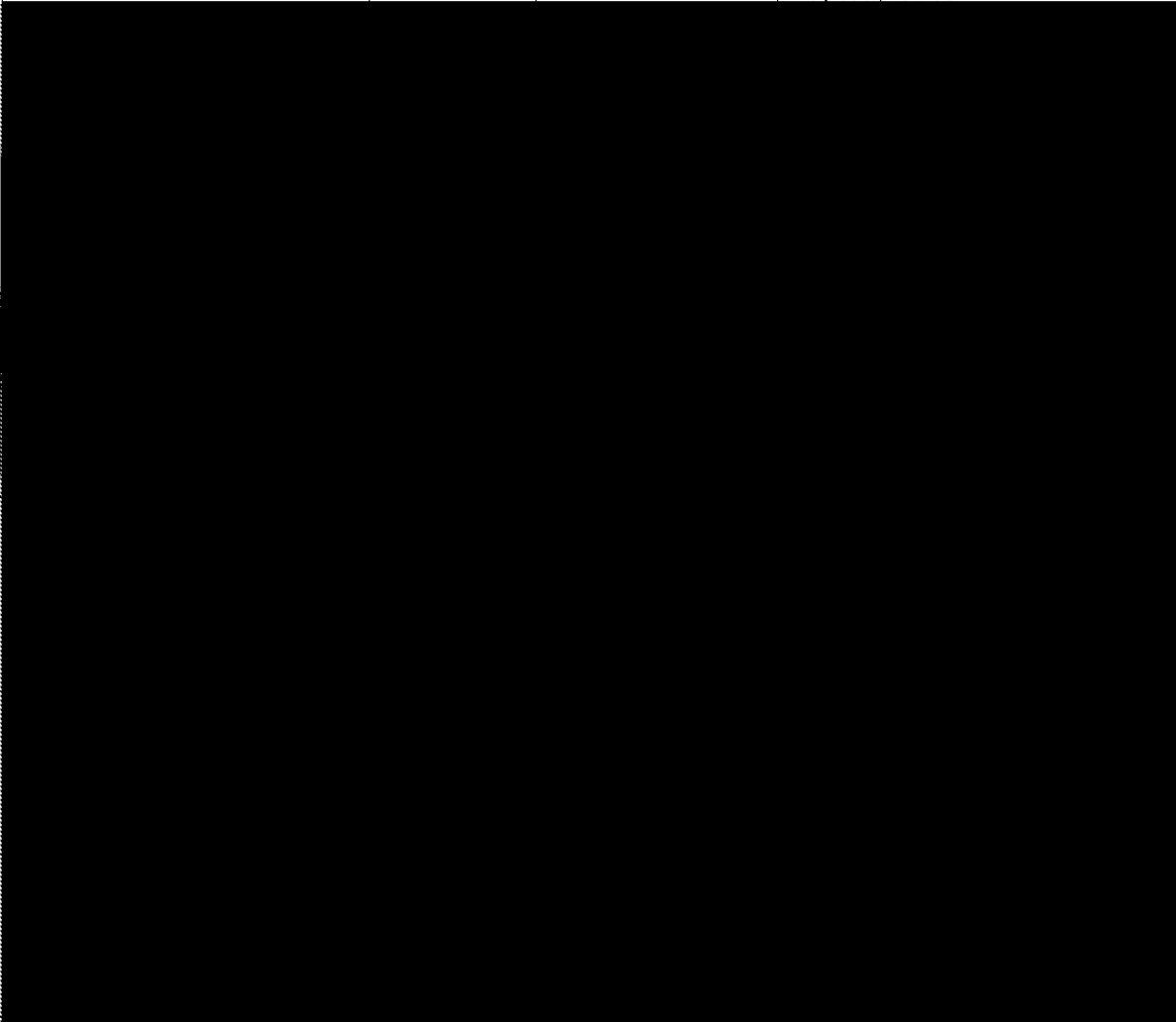
Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5742362 (08/262934)	US	4/21/1998 (6/21/1994)	Process for forming a photosensitive material and an exposure apparatus used for the process Chikamichi, Shoichi

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7178963 (10/205367)	US	2/20/2007 (7/26/2002)	Backlight unit uniformly illuminating object regardless of lapse of time and liquid crystal display panel device using the same Ueda, Shoichi; Sakaki, Yoshinobu

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7181052 (10/225844)	US	2/20/2007 (8/22/2002)	Fingerprint image input device and living body identification method using fingerprint image Fujieda, Ichiro
			
6987500 (10/357385)	US	1/17/2006 (2/4/2003)	Liquid crystal display and signal correcting circuit therefor Morita, Toshiyuki; Nishida, Shinichi

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6862061 (10/374601)	US	3/1/2005 (2/25/2003)	Rubbing device for providing uniform alignment in liquid crystal display Horiuchi, Toshihiro
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6869887 (10/454403)	US	3/22/2005 (6/4/2003)	Method for manufacturing thin film semiconductor device and method for forming resist pattern thereof Takahashi, Mitsuasa
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7011996 (10/444288)	US	3/14/2006 (5/22/2003)	Method of manufacturing thin film transistor Okumura, Hiroshi; Shiota, Kunihiro
6872603 (10/705864)	US	3/29/2005 (11/13/2003)	Method for forming interconnections including multi-layer metal film stack for improving corrosion and heat resistances Doi, Satoshi

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
7006068 (10/253974)	US	2/28/2006 (9/25/2002)	Sampling level converter circuit, 2-phase and multiphase expanding circuit, and display device Haga, Hiroshi
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6985199 (10/770017)	US	1/10/2006 (2/3/2004)	LCD device and method for manufacturing the same Takachi, Masayuki
[REDACTED]			

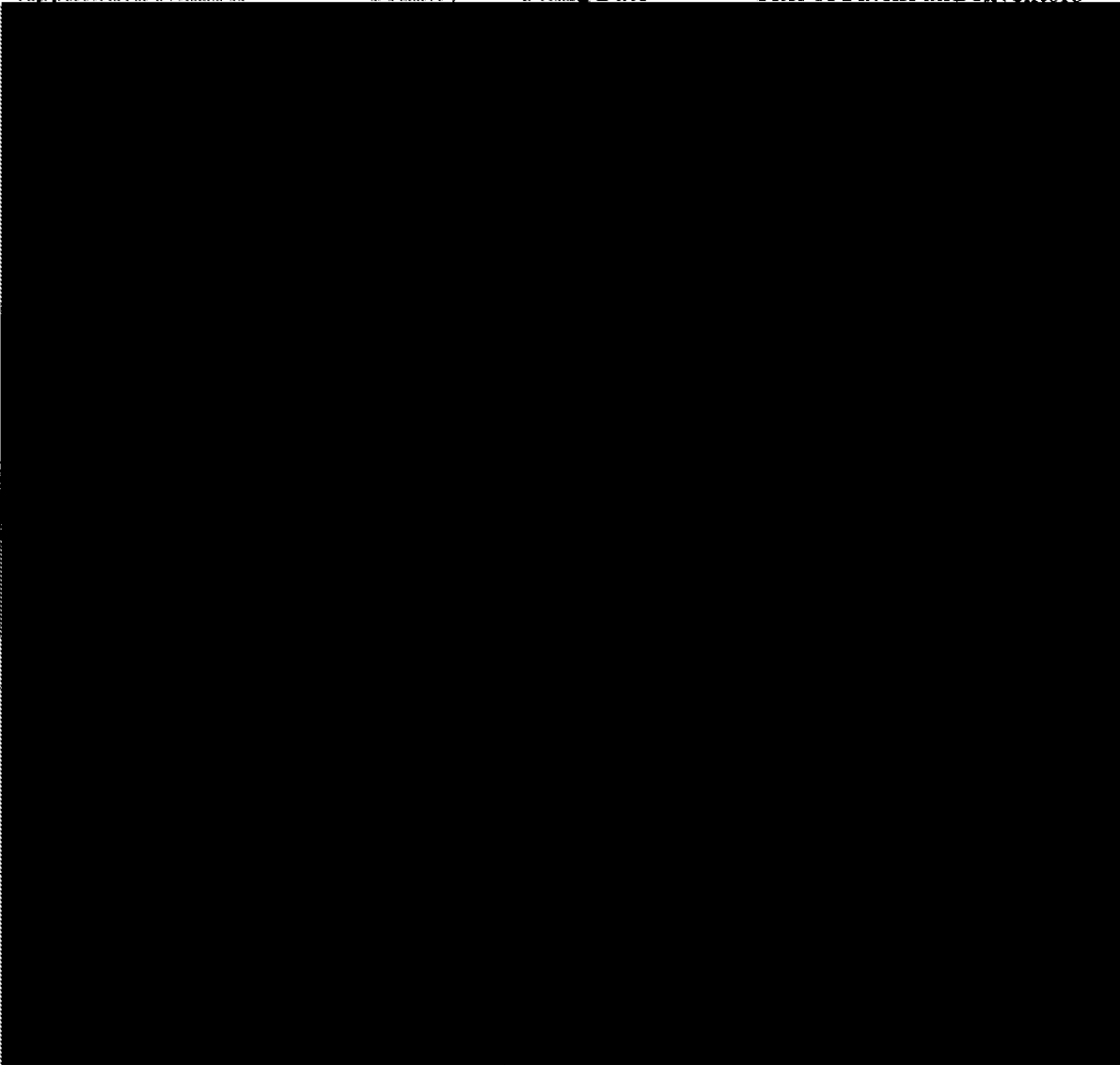
Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
7369206 (11/151349)	US	5/6/2008 (6/14/2005)	Method for manufacturing liquid crystal display device Inoue, Daisuke; Ito, Hideki; Tanaka, Hiromitsu; Kamino, Takashi
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
			
7341151 (11/398541)	US	3/11/2008 (4/6/2006)	Cushioning material and packing material for display module and transport method for display module Takagi, Koji

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7534026 (11/522970)	US	5/19/2009 (9/19/2006)	Light source device, display device, and terminal device Uehara, Shin-ichi; Imai, Masao
7614758 (11/566130)	US	11/10/2009 (12/1/2006)	Backlight for color liquid crystal display apparatus Takahashi, Mitsusa
7597469 (11/705832)	US	10/6/2009 (2/14/2007)	Backlight unit and liquid-crystal display device using the same Nishigaki, Eitaro

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>

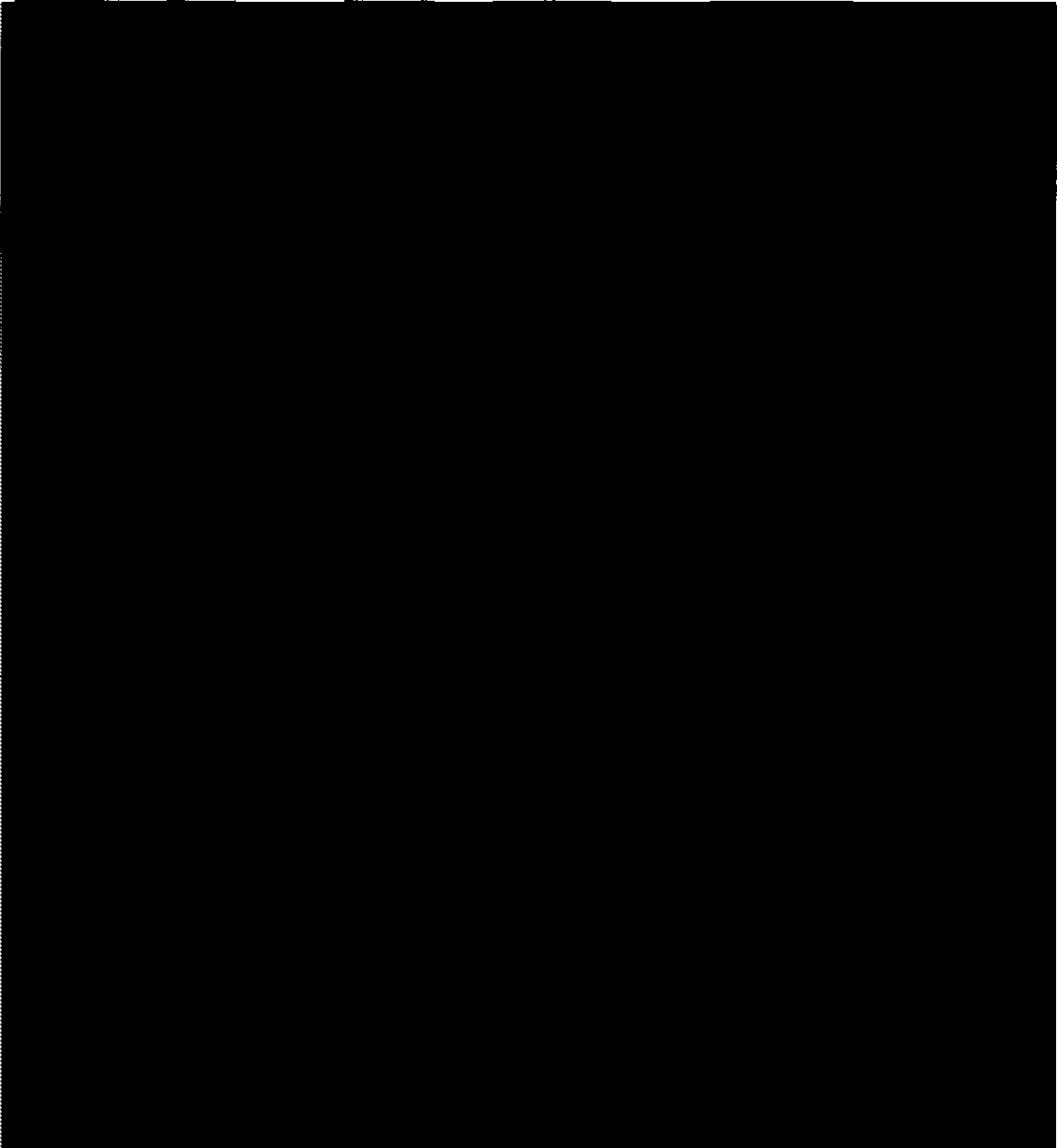
Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5499123 (08/141880)	US	3/12/1996 (10/27/1993)	Active matrix liquid crystal display cell with light blocking capacitor electrode above insulating layer Mikoshiba, Hiroaki
5648828 (08/510199)	US	7/15/1997 (8/2/1995)	Liquid crystal display apparatus having a pixel with areas of different orientation in which a spacer has a cylindrical profile for orienting Sakamoto, Michiaki; Onozawa, Tatsuo

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
			
5952675 (08/861538)	US	9/14/1999 (5/22/1997)	Thin film transistor element array Kato, Takuya

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6285041 (08/921044)	US	9/4/2001 (8/29/1997)	Thin-film transistor having a high resistance back channel region am) fabrication method thereof Noguchi, Kesao
6461901 (09/391514)	US	10/8/2002 (9/8/1999)	Method of forming a thin-film transistor having a high resistance back channel region Noguchi, Kesao
[REDACTED]			
6097379 (08/979801)	US	8/1/2000 (11/26/1997)	Liquid crystal display device Ichiraku, Tsuyoshi
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6268694 (09/181622)	US	7/31/2001 (10/29/1998)	Cold cathode fluorescent lamp, back-light emitting device with the cold cathode fluorescent lamp and note-type personal computer with the back-light emitting device Fujimoto, Kazushi
6538373 (09/875111)	US	3/25/2003 (6/7/2001)	Cold cathode fluorescent lamp, back-light emitting device with the cold cathode fluorescent lamp, and note-type personal computer with the back-light emitting device Fujimoto, Kazushi

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7329611 (10/410254)	US	2/12/2008 (4/10/2003)	Method for forming finely-structured parts, finely-structured parts formed thereby, and product using such finely-structured part Uehara, Shinichi; Sato, Yuko; Sumiyoshi, Ken; Kaneko, Setsuo; Matsushima, Jin
7643100 (11/927725)	US	1/5/2010 (10/30/2007)	Method for forming finely-structured parts, finely-structured parts formed thereby, and product using such finely-structured part Uehara, Shin-Ichi; Sato, Yuko; Sumiyoshi, Ken; Kaneko, Setsuo; Matsushima, Jin
7678454 (11/927730)	US	3/16/2010 (10/30/2007)	Method for forming finely-structured parts, finely-structured parts formed thereby, and product using such finely-structured part Uehara, Shin-Ichi; Sato, Yuko; Sumiyoshi, Ken; Kaneko, Setsuo; Matsushima, Jin

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6504651 (09/570354)	US	1/7/2003 (5/12/2000)	Light modulator, light source using the light modulator, display apparatus using the light modulator Takatori, Ken-ichi
6667567 (09/808007)	US	12/23/2003 (3/15/2001)	Light source unit Fujishiro, Fumihiko

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7173599 (10/127419)	US	2/6/2007 (4/23/2002)	Image display method in transmissive-type liquid crystal display device and transmissive-type liquid crystal display device Nishimura, Mitsuhsa
7633571 (11/029405)	US	12/15/2009 (1/6/2005)	Thin-film transistor with semiconductor layer and off-leak current characteristics Korenari, Takahiro; Tanabe, Hiroshi; Seko, Nobuya

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5943030 (08/756255)	US	8/24/1999 (11/25/1996)	Display panel driving circuit Minamibayashi, Seisaku
6989300 (09/614286)	US	1/24/2006 (7/12/2000)	Method for forming semiconductor films at desired positions on a substrate Tanabe, Hiroshi
7635894 (11/387709)	US	12/22/2009 (3/24/2006)	Semiconductor thin film, thin film transistor, method for manufacturing same, and manufacturing equipment of semiconductor thin film Tanabe, Hiroshi

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
8118937 (12/609786)	US	2/21/2012 (10/30/2009)	Semiconductor thin film, thin film transistor, method for manufacturing same, and manufacturing equipment of semiconductor thin film Tanabe, Hiroshi
5470763 (08/308447)	US	11/28/1995 (9/19/1994)	Method for manufacturing thin film transistor with short hydrogen passivation time Hamada, Koji
6100950 (09/013901)	US	8/8/2000 (1/27/1998)	Active matrix LCD with thin film transistor switches and method of producing the same Tanaka, Hiroaki

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5541119 (08/271785)	US	7/30/1996 (7/7/1994)	Manufacturing method of active circuit elements integrated type liquid crystal display Kodama, Noriyuki
5929959 (08/914327)	US	7/27/1999 (8/19/1997)	Liquid-crystal display panel Iida, Takayasu; Watanabe, Makoto
5652159 (08/548559)	US	7/29/1997 (10/26/1995)	Thin film transistor having improved switching characteristic Hirano, Naoto

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5726726 (08/759083)	US	3/10/1998 (11/29/1996)	Liquid crystal display and method of producing the same Nakanishi, Eutoshi
5874934 (08/767844)	US	2/23/1999 (12/17/1996)	Sample hold circuit for LCD driver Ito, Masahiro
6278506 (08/767870)	US	8/21/2001 (12/17/1996)	Holographic polymer dispersed liquid crystal structure having at least two phase gratings whose reflecting surfaces are not parallel to each other, color display unit using the same and process of fabricating thereof Sumiyoshi, Ken; Hayama, Hiroshi

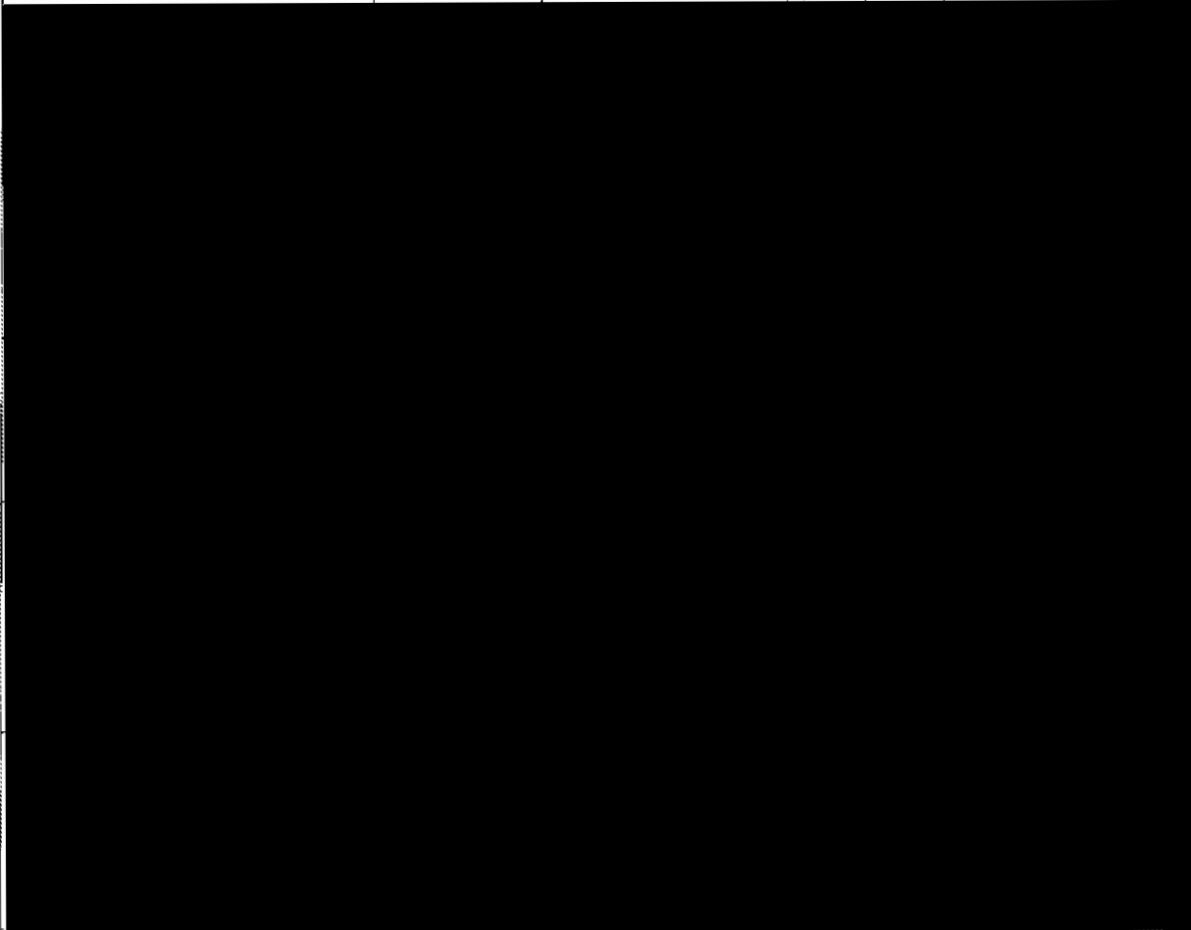
Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5821159 (08/773345)	US	10/13/1998 (12/26/1996)	Thin film transistor substrate having low resistive and chemical resistant electrode interconnections and method of forming the same Ukita, Tooru
6107668 (09/081442)	US	8/22/2000 (5/19/1998)	Thin film transistor substrate having low resistive and chemical resistant electrode interconnections and method of forming the same Ukita, Tooru

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
5828430 (08/834301)	US	10/27/1998 (4/15/1997)	Active matrix type liquid crystal display apparatus having optical shield layer capable of suppressing display distortion Nishida, Shinichi
[REDACTED]			

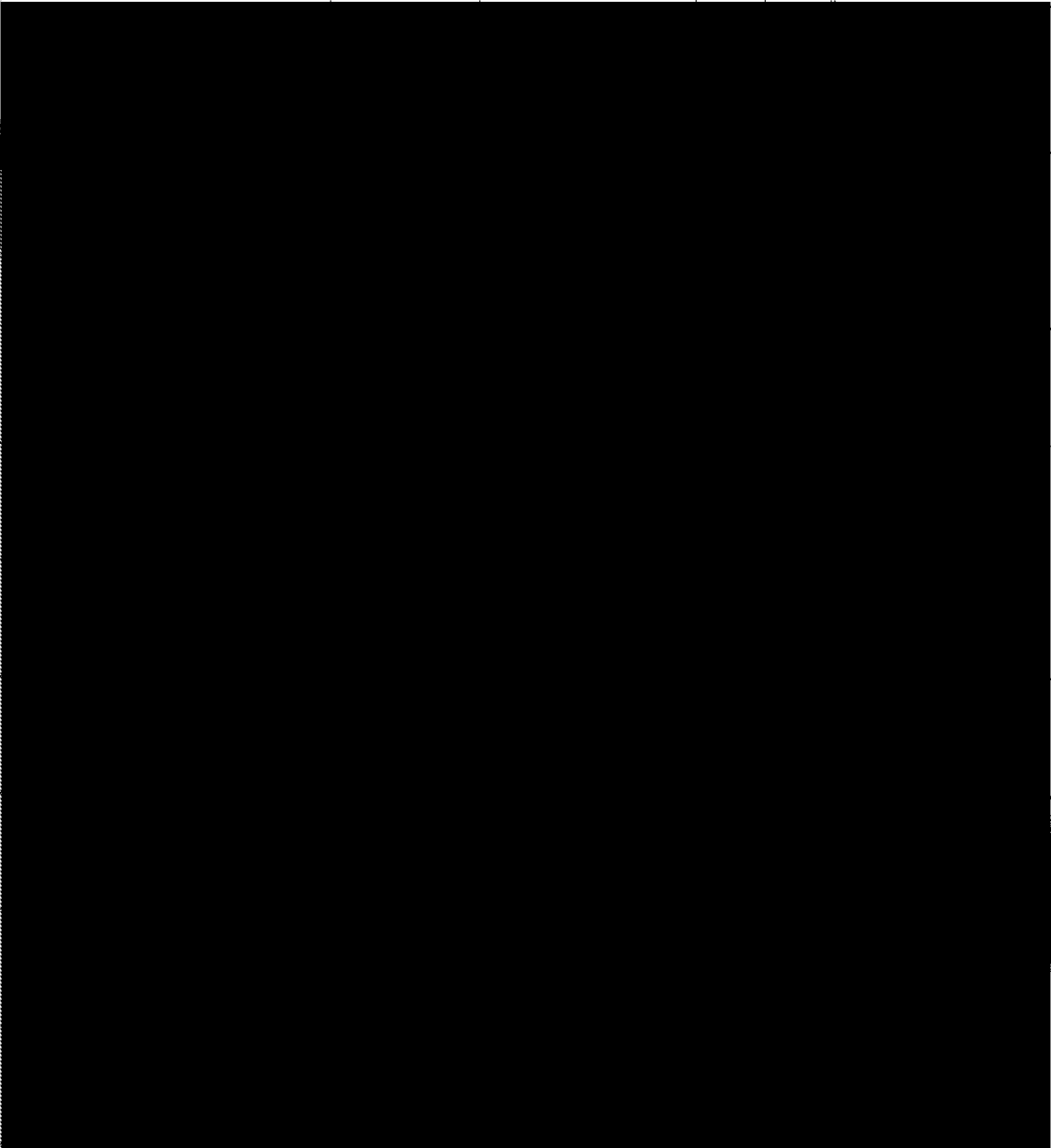
Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6292162 (08/869431)	US	9/18/2001 (6/6/1997)	Driving circuit capable of making a liquid crystal display panel display and expanded picture without special signal processor Shiki, Tatsuya
			
6110598 (09/178534)	US	8/29/2000 (10/26/1998)	Low resistive tantalum thin film structure and method for forming the same Maeda, Akiyoshi; Murata, Hideo; Hirakawa, Eiji

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
5805248 (08/920904)	US	9/8/1998 (8/29/1997)	Active matrix liquid crystal display Sakamoto, Mitiaki; Shiba, Hiroshi
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
RE37551 (09/473274)	US	2/19/2002 (12/23/1999)	Display controller and display control method for multiscan liquid crystal display Shiki, Tatsuya
			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6476882 (08/891385)	US	11/5/2002 (7/11/1997)	Liquid-crystal display panel and repair method thereof Sakurai, Hiroshi
[REDACTED]			
5967799 (08/928511)	US	10/19/1999 (9/12/1997)	Structure of printed circuit boards coupled through stacking connectors Arai, Nobuhiro
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6137300 (09/138331)	US	10/24/2000 (8/24/1998)	Test probe device for a display panel and test probe positioning method Hayashida, Manabu

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5847688 (08/326222)	US	12/8/1998 (10/20/1994)	Liquid crystal display apparatus having an increased viewing angle Ohi, Susumu; Shiba, Hiroshi
6278427 (09/201883)	US	8/21/2001 (11/30/1998)	Active matrix liquid-crystal display device Matsumoto, Kimikazu; Nishida, Shinichi; Shibahara, Hideo

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6133609 (09/251455)	US	10/17/2000 (2/17/1999)	High-voltage thin-film transistor with sub-gate elements Nakamura, Kenichi
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6330045 (09/503951)	US	12/11/2001 (2/14/2000)	Liquid-crystal display device with a gasket for controlling thermal gradient within the device Tanaka, Hideki
6154266 (09/040745)	US	11/28/2000 (3/18/1998)	Method of manufacturing liquid crystal display device Okamoto, Mamoru; Ishiyama, Toshiaki

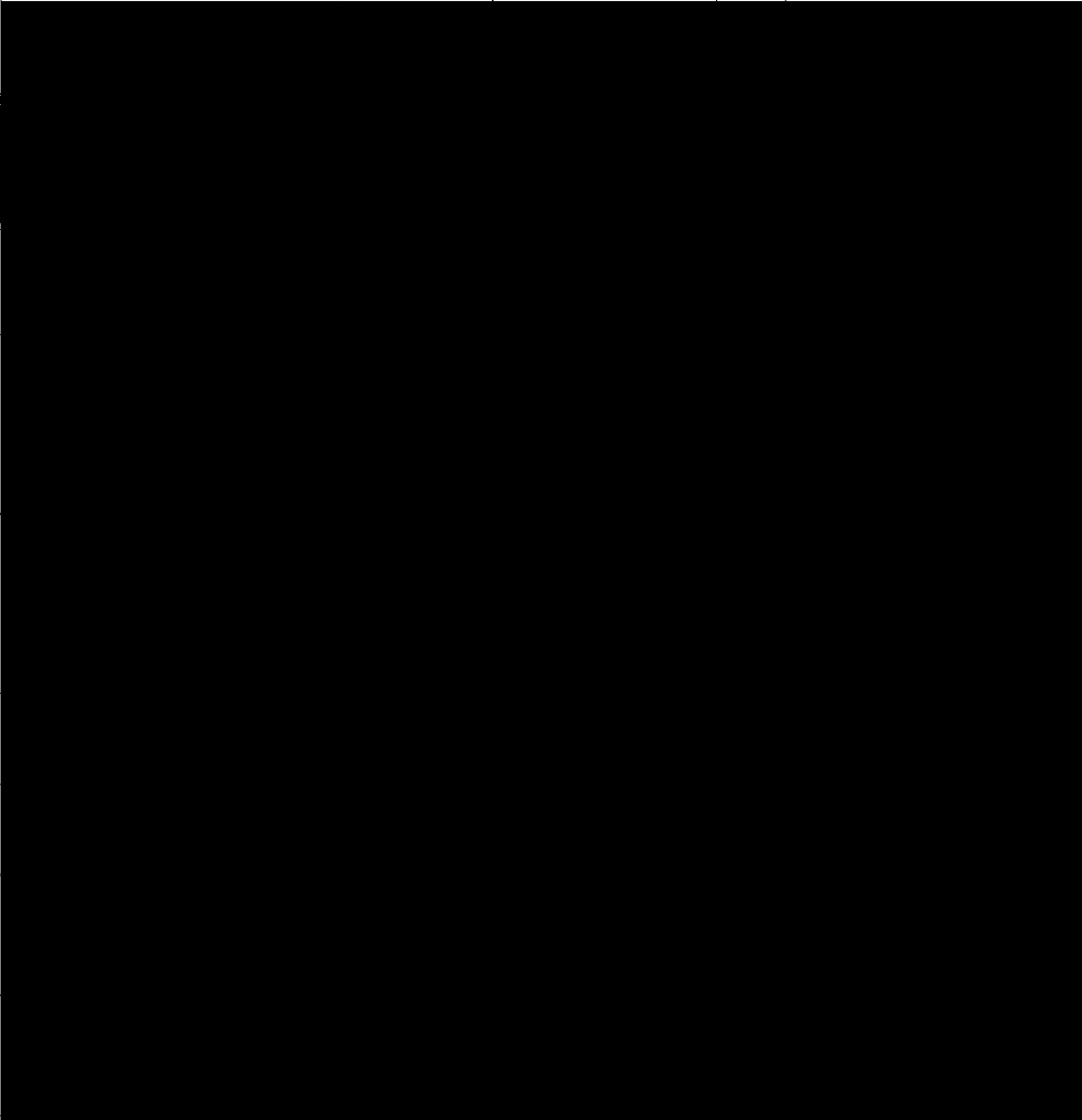
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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6867832 (09/897909)	US	3/15/2005 (7/5/2001)	Reflector formed with highly reliable conductive pattern, process for fabricating reflector and liquid crystal display unit using the same Sato, Yasuhiro; Kaneko, Hideki; Nishivama, Michiaki
6630783 (09/639460)	US	10/7/2003 (8/16/2000)	Electroluminescent panel with folded light emitting body Ono, Shinichirou
5677746 (08/515200)	US	10/14/1997 (8/15/1995)	Back light device for use in liquid crystal displays Yano, Takakazu

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5609691 (08/563113)	US	3/11/1997 (11/27/1995)	Plasma CVD apparatus for forming a thin film of uniform thickness Yamamori, Shuki
5867233 (08/828743)	US	2/2/1999 (3/26/1997)	Active matrix liquid crystal display substrate with island structure covering break in signal bus line and method of producing same Tanaka, Hiroaki

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6518691 (09/575093)	US	2/11/2003 (5/19/2000)	Area type light emitting device and manufacturing method thereof Baba, Masatake
			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6961034 (09/767149)	US	11/1/2005 (1/23/2001)	Liquid crystal display device for preventing an afterimage Kusanagi, Tomohiro
6888611 (10/878381)	US	5/3/2005 (6/29/2004)	Method of manufacturing a liquid-crystal display element Kamosawa, Hirofumi; Shimizu, Takeya
6329300 (09/626654)	US	12/11/2001 (7/27/2000)	Method for manufacturing conductive pattern layer by two-step wet etching process Yamamoto, Atsushi

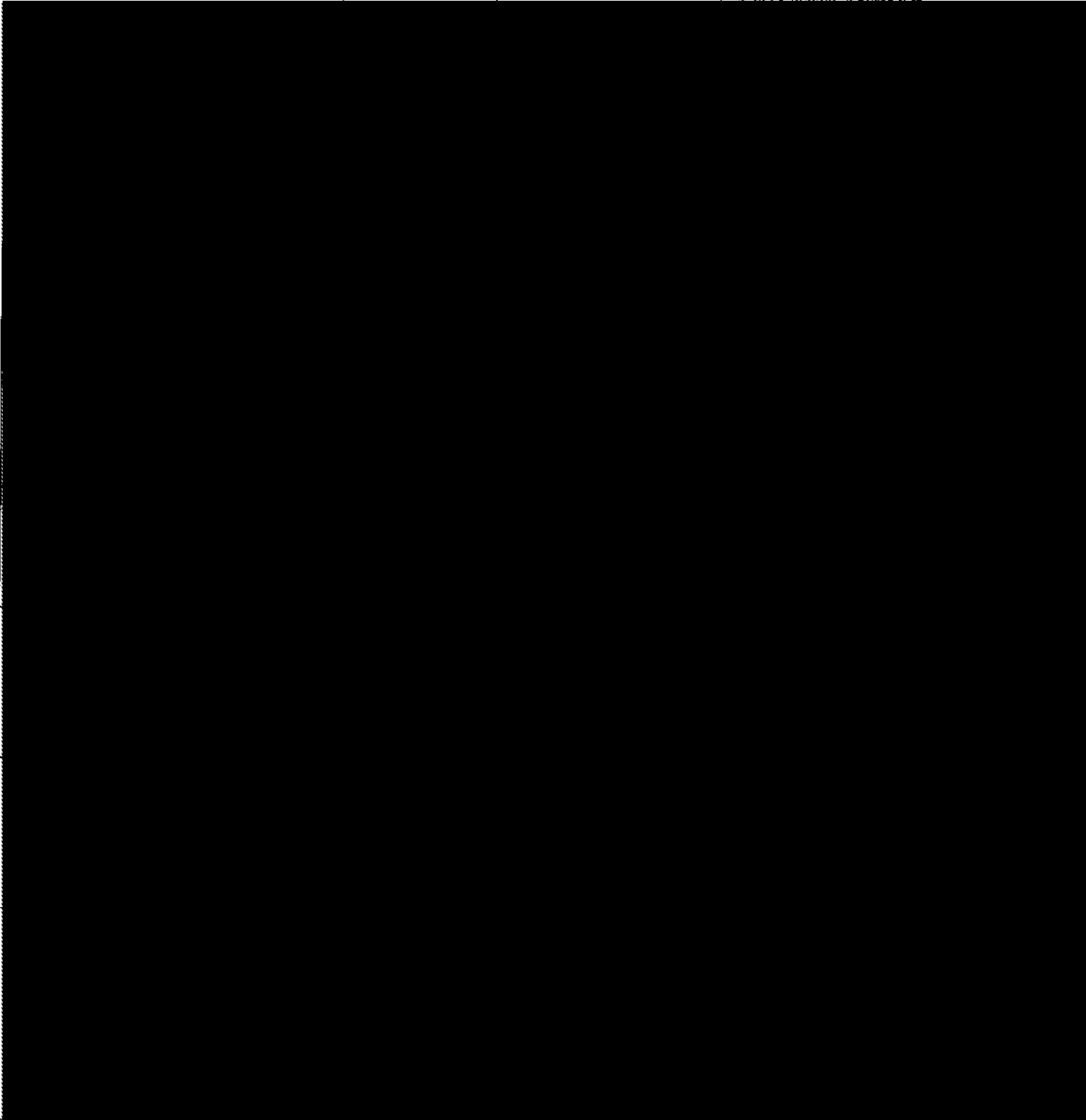
Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6533633 (09/902710)	US	3/18/2003 (7/12/2001)	Methods of manufacturing aperture fluorescent lamp and surface illuminator Ono, Shin-Ichirou
6830354 (10/247359)	US	12/14/2004 (9/20/2002)	Aperture fluorescent lamp, surface illuminator, manufacturing methods thereof, liquid crystal display device, and electronic device Ono, Shin-Ichirou

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6890087 (10/247735)	US	5/10/2005 (9/20/2002)	Aperture fluorescent lamp, surface illuminator, manufacturing methods thereof, liquid crystal display device, and electronic device Ono, Shin-Ichirou
			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6919869 (10/072688)	US	7/19/2005 (2/8/2002)	Liquid crystal display device and a driving method employing a horizontal line inversion method Yoshikawa, Fumitake
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6853408 (10/102871)	US	2/8/2005 (3/22/2002)	CF on TFT liquid crystal display having reduced dot defects Okamoto, Mamoru; Sakamoto, Michiaki; Hidehira, Masanobu

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6856306 (10/178589)	US	2/15/2005 (6/24/2002)	Display data processing circuit and liquid crystal display device Ito, Masahiro
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6911784 (10/630909)	US	6/28/2005 (1/30/2002)	Display apparatus Sasaki, Daigo; Asada, Hideki; Haga, Hiroshi
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6844866 (09/906087)	US	1/18/2005 (7/17/2001)	Method for driving liquid crystal display, driving circuit for liquid crystal display, and image display device using same Watanabe, Takashi
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
5561074 (08/425806)	US	10/1/1996 (4/20/1995)	Method for fabricating reverse-staggered thin-film transistor Koide, Shin; Ohi, Susumu
[REDACTED]			

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
5679493 (08/538118)	US	10/21/1997 (10/2/1995)	Method of producing an assembly including an anisotropic conductive film Kai, Takanobu
5708497 (08/692277)	US	1/13/1998 (8/5/1996)	Fingerprint image input apparatus and method of producing the same Fujieda, Ichiro
5936685 (08/607493)	US	8/10/1999 (2/27/1996)	Liquid crystal display device with pixel electrode overlapping drain wiring Ito, Masahiro; Ohi, Susumu
5852480 (08/411273)	US	12/22/1998 (3/27/1995)	LCD panel having a plurality of shunt buses Yajima, Akihiro; Nakashima, Kohji

Revised Exhibit B

<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6357904 (09/548150)	US	3/19/2002 (4/13/2000)	Linear illumination device Kawashima, Shingo
[REDACTED]			
6514804 (09/574407)	US	2/4/2003 (5/18/2000)	Thin-film transistor and fabrication method thereof Yamaguchi, Hirotaka
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
6866972 (10/438713)	US	3/15/2005 (5/15/2003)	Color layer forming method Ishino, Takayuki

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
7618898 (11/092611)	US	11/17/2009 (3/30/2005)	Method and apparatus for forming contact hole Shiraishi, Hitoshi
[REDACTED]			
5434671 (08/170152)	US	7/18/1995 (12/20/1993)	Birefringent member cell gap measurement method and instrument Sumiyoshi, Ken; Hatada, Yoriko
[REDACTED]			

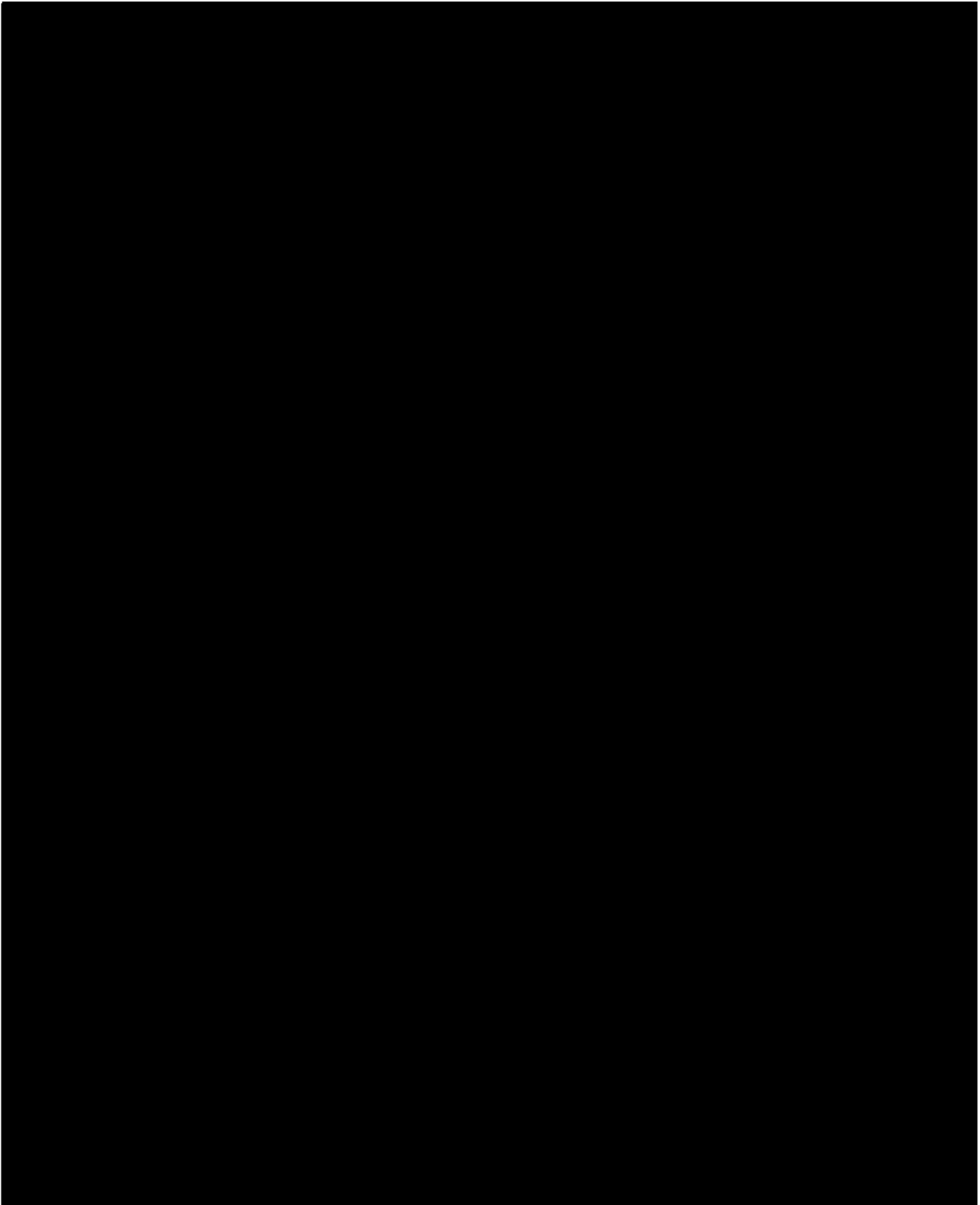
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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
[REDACTED]			
6552763 (09/667705)	US	4/22/2003 (9/22/2000)	Liquid crystal display panel avoiding display unevenness and manufacturing method Akivoshi Kouva
[REDACTED]			

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<u>Patent/ Application Number</u>	<u>Country</u>	<u>Issue Date/ Filing Date</u>	<u>Title of Patent and Inventors</u>
7015084 (10/893298)	US	3/21/2006 (7/19/2004)	Method of manufacturing a field effect transistor and a liquid crystal display using the same Kenji Sera

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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: VISTA PEAK VENTURES, LLC

Application No./Patent No.: 6,513,943

Filed/Issue Date: 02-04-2003

Titled: BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT

VISTA PEAK VENTURES, LLC, a

company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
 2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
 3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)
- the patent application/patent identified above, by virtue of either:
- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: FUKUYOSHI, HIROKAZU

To: NEC CORPORATION

The document was recorded in the United States Patent and Trademark Office at
Reel 011622, Frame 0759, or for which a copy thereof is attached.

2. From: NEC CORPORATION

To: NEC LCD TECHNOLOGIES, LTD.

The document was recorded in the United States Patent and Trademark Office at
Reel 014108, Frame 0248, or for which a copy thereof is attached.

3. From: NEC LCD TECHNOLOGIES, LTD.

To: NEC CORPORATION

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Reel 024492, Frame 0176, or for which a copy thereof is attached.

4. From: NEC CORPORATION

To: GETNER FOUNDATION LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 026254, Frame 0381, or for which a copy thereof is attached.

5. From: GETNER FOUNDATION LLC

To: VISTA PEAK VENTURES, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 045469, Frame 0023, or for which a copy thereof is attached.

Page 1 of 2

☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Tarek N. Fahmi, Reg. No. 41,402/

Signature

June 28, 2018

Date

Tarek N. Fahmi

Printed or Typed Name

Partner

Title

Page 2 of 2

Electronic Acknowledgement Receipt	
EFS ID:	33042635
Application Number:	09810542
International Application Number:	
Confirmation Number:	6746
Title of Invention:	BACKLIGHT UNIT AND DISPLAY DEVICE USING THE SAME BACKLIGHT
First Named Inventor/Applicant Name:	Hirokazu Fukuyoshi
Customer Number:	23623
Filer:	Tarek N. Fahmi/Sarah Zizzo
Filer Authorized By:	Tarek N. Fahmi
Attorney Docket Number:	
Receipt Date:	28-JUN-2018
Filing Date:	19-MAR-2001
Time Stamp:	19:51:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	Vista_Peak_Ventures_POA.pdf	3729541	no	165
			50de180cd972b82912d3e2351474fe55f5997cdc		
Warnings:					

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	6513943_Statement_3-73b.pdf	37516	no	2
			4f69f809179479d96500d260ae005e92b1f473b0		
Warnings:					
Information:					
Total Files Size (in bytes):			3767057		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. New Applications Under 35 U.S.C. 111 If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:18-cv-434	DATE FILED 10/18/2018	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF VISTA PEAK VENTURES, LLC		DEFENDANT BOE TECHNOLOGY GROUP CO., LTD.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 7,593,070		VISTA PEAK VENTURES, LLC
2 6,513,943		VISTA PEAK VENTURES, LLC
3 7,006,065		VISTA PEAK VENTURES, LLC
4 6,657,619		VISTA PEAK VENTURES, LLC
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

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2 6,513,943		VISTA PEAK VENTURES, LLC
3 7,006,065		VISTA PEAK VENTURES, LLC
4 6,657,619		VISTA PEAK VENTURES, LLC
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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT Court hereby DISMISSES WITH PREJUDICE all claims asserted by the Parties in Case No. 2:18-cv-00434-JRG
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CLERK <i>David A. O'Toole</i>	(BY) DEPUTY CLERK _____	DATE 5/31/19
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:19-cv-191	DATE FILED 5/23/2019	U.S. DISTRICT COURT Eastern District of Texas	
PLAINTIFF VISTA PEAK VENTURES, LLC		DEFENDANT TCL CORPORATION and TCL ELECTRONICS HOLDINGS LIMITED	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1 7,593,070		VISTA PEAK VENTURES, LLC	
2 6,513,943		VISTA PEAK VENTURES, LLC	
3 7,006,065		VISTA PEAK VENTURES, LLC	
4 6,594,143		VISTA PEAK VENTURES, LLC	
5 6,657,619		VISTA PEAK VENTURES, LLC	

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:19-cv-191	DATE FILED 5/23/2019	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF VISTA PEAK VENTURES, LLC		DEFENDANT TCL CORPORATION and TCL ELECTRONICS HOLDINGS LIMITED
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 7,593,070		VISTA PEAK VENTURES, LLC
2 6,513,943		VISTA PEAK VENTURES, LLC
3 7,006,065		VISTA PEAK VENTURES, LLC
4 6,594,143		VISTA PEAK VENTURES, LLC
5 6,657,619		VISTA PEAK VENTURES, LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT ORDERS that Vista Peak's claims in the above-captioned case are DISMISSED WITH PREJUDICE

CLERK <i>David A. O'Toole</i>	(BY) DEPUTY CLERK ch	DATE 10/7/19
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:20-CV-00251	DATE FILED 8/5/2020	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF VISTA PEAK VENTURES, LLC		DEFENDANT HANNSTAR DISPLAY CORPORATION
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,404,474	6/11/2002	VISTA PEAK VENTURES, LLC
2 7,009,673	3/7/2006	VISTA PEAK VENTURES, LLC
3 6,078,375	6/20/2000	VISTA PEAK VENTURES, LLC
4 6,657,699	12/2/2003	VISTA PEAK VENTURES, LLC
5 6,513,943	2/4/2003	VISTA PEAK VENTURES, LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:20-CV-00256	DATE FILED 8/5/2020	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF VISTA PEAK VENTURES, LLC		DEFENDANT TRULY INTERNATIONAL HOLDINGS LIMITED and TRULY SEMICONDUCTORS LIMITED
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,549,259	4/15/2003	VISTA PEAK VENTURES, LLC
2 7,046,327	5/16/2006	VISTA PEAK VENTURES, LLC
3 6,812,528	11/2/2004	VISTA PEAK VENTURES, LLC
4 6,513,943	2/4/2003	VISTA PEAK VENTURES, LLC
5 7,593,070	9/22/2009	VISTA PEAK VENTURES, LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

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TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:20-CV-00256	DATE FILED 8/5/2020	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF VISTA PEAK VENTURES, LLC		DEFENDANT TRULY INTERNATIONAL HOLDINGS LIMITED and TRULY SEMICONDUCTORS LIMITED
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,549,259	4/15/2003	VISTA PEAK VENTURES, LLC
2 7,046,327	5/16/2006	VISTA PEAK VENTURES, LLC
3 6,812,528	11/2/2004	VISTA PEAK VENTURES, LLC
4 6,513,943	2/4/2003	VISTA PEAK VENTURES, LLC
5 7,593,070	9/22/2009	VISTA PEAK VENTURES, LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT Court ACCEPTS AND ACKNOWLEDGES that all claims in the above-captioned case are DISMISSED WITH PREJUDICE

CLERK <i>David A. O'Toole</i>	(BY) DEPUTY CLERK ch	DATE 7/16/21
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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:21-cv-263	DATE FILED 7/14/2021	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF VISTA PEAK VENTURES, LLC		DEFENDANT XIANYANG CAIHONG OPTOELECTRONICS TECHNOLOGY CO., LTD., HISENSE CO. LTD., HISENSE VISUAL TECHNOLOGY CO., LTD., et al
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,549,259	4/15/2003	VISTA PEAK VENTURES, LLC
2 6,812,528	11/2/2004	VISTA PEAK VENTURES, LLC
3 6,513,943	2/4/2003	VISTA PEAK VENTURES, LLC
4 7,593,070	9/22/2009	VISTA PEAK VENTURES, LLC
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

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AO 120 (Rev. 08/10)

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4 6,657,699	12/2/2003	VISTA PEAK VENTURES, LLC
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT Dismissed with prejudice
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CLERK <i>David A. O'Poole</i>	(BY) DEPUTY CLERK ch	DATE 9/17/21
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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