

UNIVERSAL DISPLAY CORP \PA\  
Form 10-K  
February 28, 2012

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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF  
1934

For the fiscal year ended December 31, 2011

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT  
OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission File Number 1-12031

UNIVERSAL DISPLAY CORPORATION  
(Exact name of registrant as specified in its charter)

Pennsylvania  
(State or other jurisdiction of incorporation or  
organization)

23-2372688  
(I.R.S. Employer Identification No.)

375 Phillips Boulevard, Ewing, New Jersey  
(Address of principal executive offices)

08618  
(Zip Code)

Registrant's telephone number, including area code: (609) 671-0980

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class Name of Each Exchange on Which Registered  
Common Stock, \$0.01 par value The NASDAQ Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.  
Yes  No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the  
Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the  
Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was  
required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if

any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes  No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

L a r g e a c c e l e r a t e d f i l e r  
 Accelerated filer  
N o n - a c c e l e r a t e d f i l e r ( D o n o t c h e c k i f a s m a l l e r r e p o r t i n g  
company) Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes  
No

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant computed by reference to the closing sale price of the registrant's common stock on the NASDAQ Global Market as of June 30, 2011, was \$1,159,835,981. Solely for purposes of this calculation, all executive officers and directors of the registrant and all beneficial owners of more than 10% of the registrant's common stock (and their affiliates) were considered affiliates.

As of February 23, 2012, the registrant had outstanding 46,144,532 shares of common stock.

#### DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the 2012 Annual Meeting of Shareholders, which is to be filed with the Securities and Exchange Commission no later than April 29, 2012, are incorporated by reference into Part III of this report.

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CAUTIONARY STATEMENT  
CONCERNING FORWARD-LOOKING STATEMENTS

This report and the documents incorporated by reference in this report contain some “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements concern possible or assumed future events, results and business outcomes. These statements often include words such as “believe,” “expect,” “anticipate,” “intend,” “plan,” “estimate,” “seek,” “will,” “may” expressions. These statements are based on assumptions that we have made in light of our experience in the industry, as well as our perceptions of historical trends, current conditions, expected future developments and other factors we believe are appropriate under the circumstances.

As you read and consider this report, you should not place undue reliance on any forward-looking statements. You should understand that these statements involve substantial risk and uncertainty and are not guarantees of future performance or results. They depend on many factors that are discussed further under Item 1A below (Risk Factors), including:

- successful commercialization by organic light emitting diode (OLED) manufacturers of products incorporating our OLED technologies and materials and their continued willingness to utilize our OLED technologies and materials;
- our ability to form and continue strategic relationships with manufacturers of OLED products;
- the payments that we expect to receive under our existing contracts with OLED manufacturers and the terms of contracts that we expect to enter into with OLED manufacturers in the future;
- the adequacy of protections afforded to us by the patents that we own or license and the cost to us of maintaining, enforcing and defending those patents;
- our ability to obtain, expand and maintain patent protection in the future, and to protect our non patented intellectual property;
- our exposure to and ability to withstand third-party claims and challenges to our patents and other intellectual property rights;
- our ability to maintain and improve our competitive position following the expiration of our fundamental OLED patents;
- the potential commercial applications of and future demand for our OLED technologies and materials, and of OLED products in general;
- the comparative advantages and disadvantages of our OLED technologies and materials versus competing technologies and materials currently on the market;
- the nature and potential advantages of any competing technologies that may be developed in the future;
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the outcomes of our ongoing and future research and development activities, and those of others, relating to OLED technologies and materials;

·our ability to access future OLED technology developments of our academic and commercial research partners;

·our ability to compete against third parties with resources greater than ours;

·our future capital requirements and our ability to obtain additional financing if and when needed;

·our future OLED technology licensing and OLED material revenues and results of operations; and

·general economic and market conditions.

Changes or developments in any of these areas could affect our financial results or results of operations, and could cause actual results to differ materially from those contemplated by any forward-looking statements.

All forward-looking statements speak only as of the date of this report or the documents incorporated by reference, as the case may be. We do not undertake any duty to update any of these forward-looking statements to reflect events or circumstances after the date of this report, or to reflect the occurrence of unanticipated events.

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PART I

ITEM 1. BUSINESS

Our Company

We are a leader in the research, development and commercialization of organic light emitting diode, or OLED, technologies and materials. OLEDs are thin, lightweight and power-efficient solid-state devices that emit light, making them highly suitable for use in full-color displays and as lighting products. OLED displays are capturing a growing share of the flat panel display market. We believe that this is because OLEDs offer potential advantages over competing display technologies with respect to power efficiency, contrast ratio, viewing angle, video response time, form factor and manufacturing cost. We also believe that OLED lighting products have the potential to replace many existing light sources in the future because of their high power efficiency, excellent color rendering index, low operating temperature and novel form factor. Our technology leadership and intellectual property position should enable us to share in the revenues from OLED displays and lighting products as they enter mainstream consumer and other markets.

Our primary business strategy is to further develop and license our proprietary OLED technologies to manufacturers of products for display applications, such as cell phones, portable media devices, tablets, laptop computers and televisions, and specialty and general lighting products. In support of this objective, we also develop new OLED materials and sell the materials to those product manufacturers. Through our internal research and development efforts and our relationships with world-class partners such as Princeton University (Princeton), the University of Southern California (USC), the University of Michigan (Michigan) and PPG Industries, Inc. (PPG Industries), we have established a significant portfolio of proprietary OLED technologies and materials. We currently own, exclusively license or have the sole right to sublicense more than 1,400 patents issued and pending worldwide.

We sell our proprietary OLED materials to customers for evaluation and use in commercial OLED products. We also enter into agreements with manufacturers of OLED display and lighting products under which we grant them licenses to practice under our patents and to use our proprietary know-how. At the same time, we work with these and other companies who are evaluating our OLED technologies and materials for possible use in commercial OLED display and lighting products.

Market Overview

The Flat Panel Display Market

Flat panel displays are essential for a wide variety of portable consumer electronics products, such as cell phones, portable media devices, digital cameras, tablets and laptop computers. Due to their narrow profile and light weight, flat panel displays have also become the display of choice for larger product applications, such as desktop computer monitors and televisions.

Liquid crystal displays, or LCDs, continue to dominate the flat panel display market. However, we believe that OLED displays are an attractive alternative to LCDs because they offer a number of potential advantages, including:

- higher power efficiencies, thereby reducing energy consumption;
- a thinner profile and lighter weight;
- higher contrast ratios, leading to sharper picture images and graphics;

- wider viewing angles;
- faster response times for video; and
- lower cost manufacturing methods and materials.

Based on these characteristics, product manufacturers have adopted small-area OLED displays for use in portable electronic devices, such as smartphones and tablets. Manufacturers are also working to commercialize OLED displays for use in larger applications, such as computer monitors and televisions. We believe that if these efforts are successful, they could result in sizeable markets for OLED displays.



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In addition, due to the inherent transparency of organic materials and through the use of transparent electrode technology, OLEDs eventually may enable the production of transparent displays for use in products such as automotive windshields and windows with embedded displays. Organic materials also make technically possible the development of flexible displays for use in an entirely new set of product applications. Such applications include display devices that can be conformed to certain shapes or even rolled up for storage.

### The Solid-State Lighting Market

Traditional incandescent light bulbs are inefficient because they convert only about 5% of the energy they consume into visible light, with the rest emerging as heat. Fluorescent lamps use excited gases, or plasmas, to achieve a higher energy conversion efficiency of about 20%. However, the color rendering index, or CRI, of most fluorescent lamps – in other words, the quality of their color compared to an ideal light source – is inferior to that of an incandescent bulb. Fluorescent lamps also pose environmental concerns because they typically contain mercury.

Solid-state lighting relies on the direct conversion of electricity to visible light using semiconductor materials. By avoiding the heat and plasma-producing processes of incandescent bulbs and fluorescent lamps, solid-state lighting products can have substantially higher energy conversion efficiencies.

There are currently two basic types of solid-state lighting devices: inorganic light emitting diodes, or LEDs, and OLEDs. Current LEDs are very small in size (about one square millimeter) and are extremely bright. Having been developed about 25 years before OLEDs, they are already employed in a variety of lighting products, such as traffic lights, billboards, replacements for incandescent lighting and as border or accent lighting. However, the high operating temperatures and intense brightness of LEDs may make them less desirable for many general illumination and diffuse lighting applications.

OLEDs, on the other hand, are larger in size and can be viewed directly, without using diffusers that are required to temper the intense brightness of LEDs. OLEDs can be built on any suitable surface, including glass, plastic or metal foil, and could be cost-effective to manufacture in high volume. Given these characteristics, product manufacturers are working to develop OLEDs for diffuse specialty lighting applications and ultimately general illumination. If these efforts are successful, we believe that OLED lighting products could begin to be used for applications currently addressed by incandescent bulbs and fluorescent lamps, as well as for new applications that take advantage of the OLED form factor.

### Our Competitive Strengths

We believe our position as one of the leading technology developers in the OLED industry is the direct result of our technological innovation. We have built an extensive intellectual property portfolio around our OLED technologies and materials, and are working diligently to enable our manufacturing partners to adopt our OLED technologies and materials for expanding commercial usage. Our key competitive strengths include:

**Technology Leadership.** We are a recognized technology leader in the OLED industry. We and our research partners pioneered the development of our UniversalPHOLED® phosphorescent OLED technologies, which can be used to produce OLEDs that are up to four times as efficient as traditional fluorescent OLEDs and significantly more efficient than current LCDs, which are illuminated using backlights. We believe that our phosphorescent OLED technologies and materials are well-suited for industry usage in the commercial production of OLED displays and lighting products. Through our relationships with companies such as PPG Industries and our academic partners, we have also developed other important OLED technologies, as well as novel OLED materials that we believe will facilitate the adoption of our various OLED technologies by product manufacturers.

Broad Portfolio of Intellectual Property. We believe that our extensive portfolio of patents, trade secrets and non-patented know-how provides us with a competitive advantage in the OLED industry. Through our internal development efforts and our relationships with world-class partners such as Princeton, USC, Michigan and PPG Industries, we own, exclusively license or have the sole right to sublicense more than 1,400 patents issued and pending worldwide. In 2011, we purchased 74 issued U.S. patents from Motorola Solutions, Inc. (f/k/a Motorola, Inc.) (Motorola), together with foreign counterparts in various countries, which patents we had previously licensed from Motorola. We also continue to accumulate valuable non-patented technical know-how relating to our OLED technologies and materials.

Focus on Licensing Our OLED Technologies. We are focused on licensing our proprietary OLED technologies to product manufacturers on a non-exclusive basis. Our current business model does not involve the direct manufacture or sale of OLED display or lighting products. Instead, we seek license fees and royalties from OLED product manufacturers based

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on their sales of licensed products. We believe this business model allows us to concentrate on our core strengths of technology development and innovation, while at the same time providing significant operating leverage. We also believe that this approach may reduce potential competitive conflicts between us and our customers.

**Licenses with Key Product Manufacturers.** We have licensed our OLED technologies and patents to several manufacturers for use in commercial products. In 2011, we entered into a new license agreement with Samsung Mobile Display Co., Ltd. (SMD) for its manufacture of active matrix OLED (AMOLED) display products, which agreement superseded our 2005 license agreement with SMD. We also entered into license agreements with Lumiotec, Inc. (Lumiotec), Pioneer Corporation (Pioneer) and Panasonic Idemitsu OLED Lighting Co., Ltd. (PIOL) for the manufacture of OLED lighting products, as well as a collaborative arrangement with Moser Baer Technologies, Inc. (Moser Baer) to support its development and manufacture of OLED lighting products. Previously, we entered into license agreements with Showa Denko K.K. (Showa Denko) for its manufacture of OLED lighting products by solution processing methods (2009), Konica Minolta for its manufacture of OLED lighting products (2008) and DuPont Displays for its manufacture of solution-processed OLED display products using proprietary OLED materials obtained through us (2002). We also licensed one of our ink-jet printing patents and certain related patent filings to Seiko Epson Corporation (Seiko Epson) in 2006.

**Leading Supplier of UniversalPHOLED Emitter Materials.** We are the leading supplier of phosphorescent emitter materials to OLED product manufacturers. The emitter material, which is designed to efficiently convert electrical energy to a desired wavelength of light, is the key component in an OLED device. PPG Industries currently manufactures our proprietary emitter materials for us, which we then qualify and resell to OLED product manufacturers. We record revenues based on our sales of these materials to OLED product manufacturers. This allows us to maintain close technical and business relationships with the OLED product manufacturers purchasing our proprietary materials, which in turn further supports our technology licensing business.

**Complementary UniversalPHOLED Host Material Business.** We also supply certain of our proprietary phosphorescent host materials to OLED product manufacturers. In one design, the emitter material is disbursed into a host material, with the resulting mixture consisting of predominantly host material. PPG Industries also currently manufactures our proprietary host materials for us, which we then qualify and resell to OLED product manufacturers. We believe that host material sales can be complementary to our phosphorescent emitter material sales business. However, our customers are not required to purchase our host materials in order to utilize our phosphorescent emitter materials, and in addition the host material business is more competitive than the phosphorescent emitter material sales business. Thus, our long-term prospects for host material sales are uncertain.

**Established Material Supply Relationships.** We have established relationships with well-known manufacturers that are using, or are evaluating, our OLED materials for use in commercial products. In 2011, SMD, LG Display Co., Ltd. (LG Display), Tohoku Pioneer Corporation (Tohoku Pioneer) and Konica Minolta Holdings, Inc. (Konica Minolta) purchased our proprietary OLED materials for use in commercial OLED display and lighting products. We continue to work with many product manufacturers that are evaluating our OLED materials and technologies for use in commercial OLED displays and lighting products, including AU Optronics Corporation (AU Optronics), Chimei Innolux Corporation (CMI) and Sony Corporation (Sony).

**Strong U.S. Government Program Support.** We perform a significant amount of work under research and development contracts with U.S. government agencies, such as the U.S. Department of the Army and the U.S. Department of Energy. Under these contracts, the U.S. Government funds a portion of our efforts to develop next-generation OLED technologies for applications such as flexible displays and solid-state lighting. This enables us to supplement our internal research and development budget with additional funding.

Experienced Management and Scientific Advisory Team. Our management team has significant experience in developing business models focused on licensing disruptive technologies in high growth industries. In addition, our management team has assembled a Scientific Advisory Board that includes some of the leading researchers in the OLED industry, such as Professor Stephen R. Forrest of Michigan (formerly of Princeton) and Professor Mark E. Thompson of USC.

#### Our Business Strategy

Our current business strategy is to promote and continue to expand our portfolio of OLED technologies and materials for widespread use in OLED displays and lighting products. We generate revenues primarily by licensing our OLED technologies and selling our proprietary OLED materials to display and lighting product manufacturers. We presently are focused on the following steps to implement our business strategy:

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**Target Leading Product Manufacturers.** We are targeting leading manufacturers of flat panel displays and lighting products as potential commercial licensees of our OLED technologies and purchasers of our OLED materials. We also supply our proprietary OLED materials to manufacturers of OLED displays and lighting products for evaluation and for use in product development and for pre-commercial activities, and we provide technical assistance and support to these manufacturers. We concentrate on working closely with OLED product manufacturers because we believe that the successful incorporation of our technologies and materials into commercial products is critical to their widespread adoption.

**Enhance Our Existing Portfolio of PHOLED Technologies and Materials.** We believe that a strong portfolio of proprietary OLED technologies and materials for both displays and lighting products is critical to our success. Consequently, we are continually seeking to expand this portfolio through our internal development efforts, our collaborative relationships with academic and other research partners, and other strategic opportunities. One of our primary goals is to develop new and improved phosphorescent OLED technologies and materials with increased efficiencies, enhanced color gamut and extended lifetimes, which are compatible with different manufacturing methods, so that they can be used by various manufacturers in a broad array of OLED display and lighting products.

**Develop Next-Generation Organic Technologies.** We continue to conduct research and development activities relating to next-generation OLED technologies for both displays and lighting products. Our current research and development initiatives involve flexible OLED displays and lighting, transparent or top-emitting OLED displays and thin-film encapsulation for OLEDs. We also are funding research by our academic partners on the use of organic thin-film technology in other applications. Our focus on next-generation technologies is designed to enable us to maintain our position as a leading provider of OLED and other organic electronics technologies and materials as new markets emerge.

## Business and Geographic Markets

We derive revenue from the following:

- intellectual property and technology licensing;
- sales of OLED materials for evaluation, development and commercial manufacturing;  
and
- technology development and support, including government contract work and support provided to third parties for commercialization of their OLED products.

Most manufacturers of flat panel displays and lighting products who are or might potentially be interested in our OLED technologies and materials are currently located outside of the United States, particularly in the Asia-Pacific region. To provide on-the-ground support to these manufacturers, we have established wholly-owned subsidiaries in Korea and Japan, as well as a representative office in Taiwan. We have also formed a subsidiary in Hong Kong, where we operate a world-class chemistry laboratory to support our expanding research and development initiatives in OLED materials and technologies.

We receive a majority of our revenues from external customers that are domiciled outside of the United States, and our business is heavily dependent on our relationships with these customers. In particular, three of our key customers located in the Asia-Pacific region, SMD, LG Display and Nippon Steel Chemical Co., Ltd. (NSCC) each accounted for more than 10%, and collectively accounted for 80%, of our consolidated revenues for 2011. Substantially all revenue derived from these customers is denominated in U.S. dollars.

For more information on our revenues, costs and expenses associated with our business, as well as a breakdown of revenues from North America and foreign sources, please see our Consolidated Financial Statements and the notes thereto, as well as “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” included elsewhere in this report.

#### Our Phosphorescent OLED Technologies

Phosphorescent OLEDs utilize specialized materials and device structures that allow OLEDs to emit light through a process known as phosphorescence. Traditional fluorescent OLEDs emit light through an inherently less efficient process. Theory and experiment show that phosphorescent OLEDs exhibit device efficiencies up to four times higher than those exhibited by fluorescent OLEDs. Phosphorescence substantially reduces the power requirements of an OLED and is potentially useful in displays for hand-held devices, such as smartphones, where battery power is often a limiting factor.

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Phosphorescence is also important for large-area displays such as televisions, where higher device efficiency and lower heat generation may enable longer product lifetimes and increased energy efficiency.

We have a strong intellectual property portfolio surrounding our existing PHOLED phosphorescent OLED technologies and materials for both displays and lighting products. We devote a substantial portion of our efforts to developing new and improved proprietary PHOLED materials and device architectures for red, green, blue and white OLED devices. In 2011, we continued our commercial supply relationships with companies such as SMD and LG Display to use our PHOLED materials for their manufacture of OLED displays. In addition, we continued to work closely with customers evaluating and qualifying our proprietary PHOLED materials for commercial usage in both displays and lighting products, and with other material suppliers to match our PHOLED emitters with their phosphorescent hosts and other OLED materials.

### Our Additional Proprietary OLED Technologies

Our research, development and commercialization efforts also encompass a number of other OLED device and manufacturing technologies, including the following:

**FOLED™ Flexible OLEDs.** We are working on a number of technologies required for the fabrication of OLEDs on flexible substrates. Most OLED and other flat panel displays are built on rigid substrates such as glass. In contrast, FOLEDs are OLEDs built on non-rigid substrates such as plastic or metal foil. This enhances durability and enables conformation to certain shapes or repeated bending or flexing. Eventually, FOLEDs may be capable of being rolled into a cylinder, similar to a window shade. These features create the possibility of new flat panel display product applications that do not exist today, such as a portable, roll-up Internet connectivity and communications device. Manufacturers also may be able to produce FOLEDs using more efficient continuous, or roll-to-roll, processing methods. We currently are conducting research and development on FOLED technologies internally, under several of our U.S. government programs and in connection with the government-sponsored Flexible Display Center at Arizona State University (ASU).

**Thin-Film Encapsulation.** We recently announced our proprietary, patented encapsulation technology for the packaging of flexible OLEDs and other thin-film devices, as well as for use as a barrier film for plastic substrates. Addressing a major roadblock to the successful commercialization of flexible OLEDs, our hybrid, single-layer approach provides barrier performance required for OLEDs using a potentially cost-effective process. In addition to accelerating the commercial viability of flexible OLEDs, our thin-film encapsulation technology has the potential to provide benefits for a variety of other flexible thin-film devices, including photovoltaics and thin-film batteries.

**UniversalP2OLED® Printable Phosphorescent OLEDs.** The standard approach for manufacturing a small molecule OLED, including a PHOLED, is based on a vacuum thermal evaporation, or VTE, process. With a VTE process, the thin layers of organic material in an OLED are deposited in a high-vacuum environment. An alternate approach for manufacturing a small molecule OLED involves solution processing of the various organic materials in an OLED using techniques such as spin coating or inkjet printing onto the substrate. Solution-processing methods, and inkjet printing in particular, have the potential to be lower cost approaches to OLED manufacturing and scalable to large area displays. For several years, we worked on P2OLEDs under joint development agreements with Seiko Epson. We are continuing to develop novel P2OLED materials and device architectures for evaluation by OLED manufacturers, and to collaborate with other material manufacturers who are working on host and other OLED materials to match our P2OLED emitters.

**OVJP® Organic Vapor Jet Printing.** OLEDs can be manufactured using other processes as well, including OVJP. As a direct printing technique, OVJP technology has the potential to offer high deposition rates for any size or shaped OLED. In addition, OVJP technology avoids the OLED material wastage associated with use of a shadow mask (i.e., the waste of material that deposits on the shadow mask itself when fabricating an OLED). By comparison to inkjet

printing, an OVJP process does not use solvents and therefore the OLED materials utilized are not limited by their viscosity or solvent solubility. OVJP also avoids generation of solvent wastes and eliminates the additional step of removing residual solvent from the OLED device. We have installed a prototype OVJP tool at our Ewing, New Jersey facility and we continue to collaborate on OVJP technology development with Professor Forrest of Michigan.

OVPD® Organic Vapor Phase Deposition. Another approach for manufacturing a small molecule OLED is based on OVPD. The OVPD process utilizes a carrier gas, such as nitrogen, in a hot walled reactor in a low pressure environment to deposit the layers of organic material in an OLED. The OVPD process may offer advantages over the VTE process or solution processing methods through more efficient materials utilization and enhanced deposition control. We have partnered with Aixtron AG, a leading manufacturer of metal-organic chemical vapor deposition equipment, to develop and qualify equipment for the fabrication of OLED displays utilizing the OVPD process.



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TOLED Transparent OLEDs. We have developed a technology for the fabrication of OLEDs that have transparent cathodes. Conventional OLEDs use a reflective metal cathode and a transparent anode. In contrast, TOLEDs use a transparent cathode and either a transparent, reflective or opaque metal anode. TOLEDs utilizing transparent cathodes and reflective metal anodes are known as “top-emission” OLEDs. In a “top-emission” AMOLED, light is emitted without having to travel through much of the device electronics where a significant portion of the usable light is lost. This results in OLED displays having image qualities and lifetimes superior to those of conventional AMOLEDs. TOLEDs utilizing transparent cathodes and transparent anodes may also be useful in novel flat panel display applications requiring semi-transparency or transparency, such as graphical displays in automotive windshields.

### Our Strategic Relationships with Product Manufacturers

We have established early-stage evaluation programs, development and pre-commercial programs, and commercial arrangements with a substantial number of manufacturers or potential manufacturers of OLED display and lighting products. Many of these relationships are directed towards tailoring our proprietary OLED technologies and materials for use by individual manufacturers. Our ultimate objective is to license our OLED technologies and sell our OLED materials to these manufacturers for their commercial production of OLED products. Our publicly announced relationships with product manufacturers include the following:

SMD. We have been working with SMD and providing our next generation PHOLED materials to SMD for evaluation since 2001. In 2011, we entered into a new patent license agreement with SMD for its manufacture and sale of AMOLED display products. This agreement superseded our 2005 license agreement with SMD and has a term that extends through December 31, 2017. We also supply our proprietary PHOLED materials to SMD for its use in manufacturing licensed products. Under a separate supplemental agreement, SMD has agreed to purchase a minimum amount of phosphorescent emitter material from us for the manufacture of licensed products. This minimum purchase commitment is subject to SMD’s requirements for phosphorescent emitter materials and our ability to meet these requirements over the term of the supplemental agreement, which is concurrent with the term of the license agreement.

LG Display. We have been providing our proprietary PHOLED materials to LG Display for evaluation and we have been supporting LG Display in its OLED product development activities for several years. In 2007, we entered into an agreement to supply LG Display with our proprietary PHOLED materials for use in AMOLED display products. This agreement, which has been extended several times, allows us to recognize commercial chemical sales and license fee revenues from our supply of materials to LG Display.

AU Optronics. We have a longstanding collaborative relationship with AU Optronics, dating back to 2001. We are providing our proprietary PHOLED materials to AU Optronics for evaluation and we are working with AU Optronics to help accelerate its introduction of commercial OLED products into the market.

Sony. We have been supporting Sony in its development of AMOLED display products for many years. We continue to supply our proprietary PHOLED materials to Sony for evaluation.

Chimei Innolux. In 2007, we entered into an agreement to supply our proprietary PHOLED materials and technologies to Chi Mei EL Corporation (CMEL) for use in its manufacture of commercial AMOLED display products. The term of that agreement continued through the end of 2009, at which time CMEL became part of CMI. We continue to supply our proprietary PHOLED materials to CMI in support of their OLED development efforts.

Pioneer. We have been supplying our proprietary PHOLED materials to Tohoku Pioneer, a subsidiary of Pioneer, for the commercial production of passive matrix OLED (PMOLED) display products since 2003. In 2011, we entered into a separate license agreement with Pioneer for its manufacture and sale of OLED lighting products.

Panasonic Idemitsu OLED Lighting. In 2011, we entered into a license agreement with PIOL, a subsidiary of Panasonic Corporation (Panasonic), as successor to Panasonic Electric Works Co., Ltd., and Idemitsu Kosan Co., Ltd. (Idemitsu Kosan), for the manufacture and sale of OLED lighting products. We also continue to work with and supply our proprietary PHOLED materials to Panasonic for evaluation and for use in the Japanese National Project for OLEDs.

Moser Baer Technologies. In 2011, we signed a Memorandum of Agreement with Moser Baer for technology licensing, material supply and technology assistance to support Moser Baer's initiatives in white OLED lighting. We are also working with Moser Baer on U.S. Department of Energy programs to improve OLED manufacturing yield, and for Moser Baer to design and build the first white OLED lighting pilot manufacturing facility in the United States.

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Konica Minolta. We have been supplying our proprietary PHOLED materials to Konica Minolta for evaluation and we have been supporting Konica Minolta in its efforts to develop OLED lighting products for several years. In 2008, we entered into a technology license agreement with Konica Minolta for its manufacture and sale of OLED lighting products that utilize our phosphorescent and other OLED technologies.

Showa Denko. In 2009, we entered into an agreement with Showa Denko under which we granted Showa Denko license rights to make and sell OLED lighting products manufactured by solution processing methods.

Lumiotec. In January 2012, we entered into a technology license agreement with Lumiotec for its manufacture and sale of OLED lighting products utilizing our phosphorescent and other OLED technologies.

LG Chem. In February 2012, we entered into a short-term agreement to supply LG Chem, Ltd. (LG Chem) with our proprietary PHOLED materials for use in the manufacture of OLED products. This agreement allows us to recognize commercial chemical sales and license fee revenues from our supply of materials to LG Chem.

NEC Lighting. We have been supplying our proprietary PHOLED materials to NEC Lighting, Ltd. (NEC Lighting) for the manufacture of sample OLED lighting products. NEC Lighting has publicly exhibited OLED lighting panels that utilize our proprietary PHOLED materials and technology.

Seiko Epson. In 2004, we began conducting joint development work with Seiko Epson on the application of our proprietary PHOLED technologies and materials to ink-jet printing processes used by Seiko Epson. That arrangement ended in 2009; however, we are continuing to supply our proprietary PHOLED materials to Seiko Epson for evaluation. In addition, we licensed one of our ink-jet printing patents and certain related patent filings to Seiko Epson in 2006.

DuPont Displays. In 2005, we completed work under an agreement with DuPont Displays for the development of novel phosphorescent materials and device structures for solution-processed OLEDs. In 2002, we entered into a cross license agreement with DuPont Displays for its manufacture of solution-processed OLED display products using proprietary OLED materials obtained through us. We have not received any royalties from DuPont under that agreement.

## Our OLED Materials Supply Business

In support of our OLED licensing business, we supply our proprietary UniversalPHOLED materials to display manufacturers and others. We qualify our materials in OLED devices before shipment in order to ensure that they meet required specifications. We believe that our inventory-carrying practices, along with the terms under which we sell our OLED materials (including payment terms) are typical for the markets in which we operate. In 2009, our OLED materials business received certification in accordance with ISO 9001:2008 Quality Management Systems standards and guidelines.

## PPG Industries

We have maintained a close working relationship with PPG Industries since 2000. In 2011, we entered into a new agreement with PPG Industries, the term of which continues through December 31, 2014. Under that agreement, PPG Industries is responsible, under our direction, for manufacturing scale-up of our proprietary OLED materials, and for supplying us with those materials for research and development, and for resale to our customers, both for their evaluation and for use in commercial OLED products. Through our collaboration with PPG Industries, key raw materials are sourced from multiple suppliers to ensure that we are able to meet the needs of our customers on a timely

basis.

#### Our OLED Material Customers

Throughout 2011, we continued supplying our proprietary UniversalPHOLED materials to SMD for use in its commercial AMOLED display products and for its development efforts. SMD is currently the largest manufacturer of AMOLED displays for handset and other personal electronic devices. SMD's customers for these products have included many well-known consumer electronics companies throughout the world.

In 2011, we also supplied our proprietary UniversalPHOLED materials to LG Display for use in its commercial AMOLED display products, to Tohoku Pioneer for use in its commercial PMOLED display products, and Konica Minolta for its manufacture of commercial OLED lighting products. During the year, we also supplied our proprietary OLED materials to these and various other product manufacturers for evaluation and for purposes of development, manufacturing qualification and product testing.

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### Collaborations with Other OLED Material Manufacturers

We continued our non-exclusive collaborative relationships with other manufacturers of OLED materials during 2010, including NSCC, Idemitsu Kosan, LG Chem and SFC Co., Ltd. All of these relationships are focused on matching our proprietary PHOLED emitters with the host and other OLED materials of these companies. We believe that collaborative relationships such as these are important for ensuring success of the OLED industry and broader adoption of our PHOLED and other OLED technologies.

### Research and Development

Our research and development activities are focused on the advancement of our OLED technologies and materials for displays, lighting and other applications. We conduct this research and development both internally and through various relationships with our commercial business partners and academic institutions. In the years 2011, 2010 and 2009, we incurred expenses of \$24,129,233, \$21,695,139 and \$21,122,156 respectively, on both internal and third-party sponsored research and development activities with respect to our various OLED technologies and materials.

### Internal Development Efforts

We conduct a substantial portion of our OLED development activities at our state-of-the-art development and testing facility in Ewing, New Jersey. At this 40,200 square-foot facility, we perform technology development, including device and process optimization, prototype fabrication, manufacturing scale-up studies, process and product testing, characterization and reliability studies, and technology transfer with our business partners.

Our Ewing facility houses six OLED deposition systems, including a full-color flexible OLED system, a system for fabricating solution-processible OLEDs, and an OVJP organic vapor jet printing system. In addition, the facility contains equipment for substrate patterning, organic material deposition, display packaging, module assembly and extensive testing in Class 100 and 100,000 clean rooms and opto-electronic test laboratories. Our facility also includes state-of-the-art synthetic chemistry laboratories in which we conduct OLED materials research and make small quantities of new materials that we then test in OLED devices.

As of December 31, 2011, we employed a team of 62 research scientists, engineers and laboratory technicians at our Ewing facility. This team includes chemists, physicists, engineers with electrical, chemical and mechanical backgrounds, and highly-trained experimentalists.

### University Sponsored Research

We have long-standing relationships with Princeton and USC, dating back to 1994, for the conduct of research relating to our OLED and other organic thin-film technologies and materials for applications such as displays and lighting. This research has been performed at Princeton under the direction of Professor Forrest and at USC under the direction of Professor Thompson. In 2006, Professor Forrest transferred to Michigan, where we continue to fund his research.

We funded research at Princeton under a research agreement executed in 1997 (the 1997 Research Agreement). The 1997 Research Agreement was allowed to expire in 2007, after Professor Forrest had transferred to Michigan. We have exclusive license rights to all OLED and other thin-film organic electronic patents (other than for organic photovoltaic solar cells) arising out of research conducted under that agreement.

In connection with Professor Forrest's transfer to Michigan, in 2006 we entered into a new sponsored research agreement with USC under which we are funding organic electronics research being conducted by Drs. Forrest and Thompson (the 2006 Research Agreement). Work by Professor Forrest is being funded through a subcontract between USC and Michigan. As with the 1997 Research Agreement, we have exclusive license rights to all OLED and thin-film organic electronic patents (other than for organic photovoltaic solar cells) arising out of this research.

The original three-year term of the 2006 Research Agreement ran through April 2009. During that three-year period, we paid the universities \$2,155,570 for research conducted under the agreement. In May 2009, we extended the term of the agreement for an additional four years, through April 2013. As of December 31, 2011, we are obligated to reimburse the universities for up to \$2.6 million in actual costs to be incurred for research conducted under the remaining term of the agreement.

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In 2005, we entered into a separate sponsored research agreement with Princeton to fund research under the direction of Professor Sigurd Wagner on thin-film encapsulation and fabrication of OLED devices. Like our other relationships with Princeton, we have exclusive license rights to all patents arising out of the research. This research program has been extended several times and currently runs through the end of 2012.

We entered into a sponsored research agreement with the Yuen Tjing Ling Industrial Research Institute of National Taiwan University in 2004. Under that agreement, we funded a research program under the direction of Professor Ken-Tsung Wong relating to new OLED materials. We have exclusive rights to all intellectual property developed under that program, which we are in the process of extending for an additional year.

We entered into a contract research agreement with the Chitose Institute of Science and Technology of Japan (CIST) in 2004. Under that agreement, we funded a research program headed by Professor Chihaya Adachi relating to high-efficiency OLED materials and devices. We were granted exclusive rights to all intellectual property developed under this program. Our relationship with CIST ended in 2006 when Professor Adachi transferred to Kyushu University. However, we have continued our relationship with Professor Adachi under a separate consulting arrangement.

In 2006 and 2007, we entered into one-year research agreements with Kyung Hee University to sponsor research programs on flexible, amorphous silicon thin-film transistor (TFT) backplane technology. The programs were directed by Professor Jin Jang. In 2008 and 2009, we entered into contract research agreements with Silicon Display Technology, Ltd. (SDT), a company founded by Professor Jang. We continue to maintain a good working relationship with Professor Jang.

### Aixtron

In 2000, we entered into a development and license agreement with Aixtron AG of Aachen, Germany to develop and commercialize equipment used in the manufacture of OLEDs using the OVPD process. Under this agreement, we granted Aixtron an exclusive license to produce and sell its equipment for the manufacture of OLEDs and other devices using our proprietary OVPD process. Aixtron is required to pay us royalties on its sales of this equipment. Purchasers of the equipment also must obtain rights to use our proprietary OVPD process to manufacture OLEDs and other devices using the equipment, which they may do through us or Aixtron. If these rights are granted through Aixtron, Aixtron is required to make additional payments to us under our agreement.

Aixtron has reported to us the delivery of six OVPD systems since 2002. These include two second-generation systems, one of which was sold to the Fraunhofer Institute for Photonic Microsystems in Dresden, Germany in 2007, and the other of which was sold to RiTdisplay Corporation of Taiwan in 2003. We record royalty income from Aixtron's sales of these various systems in the quarters in which Aixtron notifies us of the sale and the related royalties are due.

### U.S. Government-Funded Research

We have entered into several U.S. government contracts and subcontracts to fund a portion of our efforts to develop next-generation OLED technologies. On contracts for which we are the prime contractor, we subcontract portions of the work to various entities and institutions, including Princeton, Michigan, L-3 Communications Corporation — Display Systems (L-3DS), Acuity Brands, Inc. (Acuity) and Moser Baer. We also serve as a subcontractor under certain of our government contracts, such as with Trident Systems, Inc. (Trident), PPG Industries and Moser Baer. All of our government contracts and subcontracts are subject to termination at the election of the contracting governmental agency.

Our government-funded programs are concentrated primarily in two areas: flexible OLEDs and OLEDs for lighting. We receive support for our work on flexible OLED technology through various U.S. Department of Defense (DOD) agencies, including the Army Research Laboratory (ARL), the Air Force Research Laboratory (AFRL), the Army Communications-Electronics Research Development and Engineering Center (CERDEC) and the National Science Foundation (NSF). The U.S. Department of Energy (DOE) supports our work on white OLEDs for lighting, including through its Solid State Lighting (SSL) initiative. Several of our key U.S. government program initiatives in 2011 were as follows:

**Flexible OLED Display Prototypes.** We continued our work during 2011 to develop and deliver next-generation prototype AMOLED displays on flexible substrates. These include, for example, prototype wrist-mounted communications devices for the U.S. Army and prototype displays for use by Air Force pilots in tactical cockpit settings. The flexible OLED displays utilize amorphous silicon TFT backplanes supplied by LG Display. L-3DS and Trident were responsible for designing, building and ruggedizing the prototype devices into which these displays were incorporated.



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Technology Development for OLED Lighting. During 2011, we continued working to develop technical approaches for using our proprietary PHOLED and other OLED technologies for high-efficiency white lighting applications. We received funding from the DOE to continue our demonstration of a thin, highly-efficient white OLED lighting concept for under-cabinet applications. In addition, we received funding from the DOE to scale our PHOLED technology for large-area usage and to demonstrate the fabrication of OLED light sources with enhanced outcoupling designs and on novel substrates. In recognition for this work, the DOE again honored us at its annual SSL workshop entitled “Transformations in Lighting” in February 2011.

Novel Encapsulation Technology for OLEDs. Using technology pioneered at Princeton, we have demonstrated the feasibility of a novel encapsulation process based on plasma-enhanced chemical vapor deposition (PECVD). Flexible encapsulation technology is an important element on the development roadmap for commercialization of flexible OLED displays, and may be a cost-effective solution for high-volume OLED lighting products. In 2011, we received additional funding from ARL and NSF to continue working with Princeton to develop this technology for application to flexible OLED displays, and we applied this technology to our prototype flexible OLED devices.

U.S. Based Manufacturing of OLEDs for Lighting. In 2011, we continued working with Moser Baer as our subcontractor on a \$4.0 million DOE program for the creation of a U.S. PHOLED lighting panel manufacturing facility. Under the program, we are demonstrating the scalability of our proprietary UniversalPHOLED technology and materials for the manufacture of white OLED lighting panels that meet commercial lighting targets. Moser Baer is tasked with designing and building the U.S.-based pilot facility, and we are providing technical support to Moser Baer for this work. In 2011, we also began work with Moser Baer on a second DOE program to improve OLED manufacturing yield. Under this program, we are working with Moser Baer under a \$1.0 million subcontract.

Prototype Commercial OLED Lighting System. In 2011, we continued working with Acuity under a DOE contract to demonstrate a prototype PHOLED lighting system for commercial application. Under this program, Acuity is responsible for designing and fabricating OLED lighting prototypes that can be tuned across a range of color temperatures by using our proprietary architecture and high-efficiency PHOLED panels. These prototypes are targeted for high-end commercial spaces, including office, retail and health-care buildings, to take advantage of several key attributes of OLEDs – including a thin, sleek form factor and high quality of light.

### The Army Flexible Display Center

We have been a Principal Member of The Army Flexible Display Center (FDC) since its establishment in 2004. The FDC is being supported through a \$51.5 million cooperative agreement between Arizona State University and ARL. This agreement was recently renewed to provide an additional \$50 million in funding to the FDC through 2014. The goal of the FDC is to develop flexible, low power, light-weight, information displays for future usage by soldiers and for other military and commercial applications.

We believe our involvement with the FDC enhances our flexible OLED display technology development efforts. In 2011, we continued to work with the FDC under an ARL-sponsored program on flexible AMOLED displays using our proprietary PHOLED technology and materials and the FDC’s proprietary bond-debond manufacturing technology. Dr. Michael Hack, our Vice President of Strategic Product Development and the General Manager of our OLED Lighting and Custom Displays Business, is a member of the Governing Board of the FDC.

### The FlexTech Alliance

We are a member of the FlexTech Alliance, Inc. (formerly the United States Display Consortium), an organization devoted to fostering the growth, profitability and success of the electronic display and the flexible, printed electronics supply chain. The role of the FlexTech Alliance is to offer expanded collaboration between and among industry,

academia, government and research organizations for advancing displays and flexible, printed electronics from R&D to commercialization. The FlexTech Alliance has approximately 82 members, including companies, universities and R&D organizations.

#### OLED Association

We are a charter member of the newly-established OLED Association (OLED-A). OLED-A is a trade association whose mission involves serving as an OLED information resource, driving OLED technology development, and promoting interest in OLED products. We are one of 10 members of OLED-A, and we actively participate on its marketing and technology committees. Steven V. Abramson, our President and Chief Executive Officer, is a member of the Board of

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Directors of OLED-A, and Janice K. Mahon, our Vice President of Technology Commercialization and General Manager of our Material Supply Business, serves as chairperson of the Marketing Committee of OLED-A.

### Next Generation Lighting Industry Alliance

We joined the Next Generation Lighting Industry Alliance (NGLIA) in 2009. NGLIA was formed in 2003 to foster industry-government partnership to accelerate the technical foundation, and ultimate commercialization, of solid state lighting systems. NGLIA was designated in 2005 as the “industry partner” by DOE for its SSL program. The SSL program is being undertaken to research, develop and conduct demonstration activities on advanced solid state white lighting technologies based on LEDs and OLEDs. We are one of 17 members of NGLIA.

### Intellectual Property

Along with our personnel, our primary and most fundamental assets are patents and other intellectual property. This includes numerous U.S. and foreign patents and patent applications that we own, exclusively license or have the sole right to sublicense. It also includes a substantial body of non-patented technical know-how that we have accumulated over time.

### Our Patents

Our research and development activities, conducted both internally and through collaborative programs with our partners, have resulted in the filing of a substantial number of patent applications relating to our OLED technologies and materials. As of December 31, 2011, we owned, through assignment to us alone or jointly with others, 149 pending U.S. applications (active U.S. cases and international applications designated in the U.S.) and 153 U.S. patents, together with counterparts filed in various foreign countries. These owned patents will start expiring in the U.S. in 2020.

### Patents We License from Princeton, USC and Michigan

We exclusively license the bulk of our patent rights, including our key PHOLED technology patents, under a license agreement we executed with Princeton and USC in 1997 (the 1997 License Agreement). In 2006, based on Professor Forrest’s transfer to Michigan that year, Michigan was added as a party to this agreement. As of December 31, 2011, the patent rights we license from these universities included 60 pending U.S. applications (active U.S. cases and international applications designated in the U.S.) and 177 U.S. patents, together with counterparts filed in various foreign countries. The earliest of these patents will expire in the U.S. in 2014, while our key PHOLED technology patents licensed from these universities will start expiring in the U.S. in 2017.

Under the 1997 License Agreement, Princeton, USC and Michigan granted us worldwide, exclusive license rights to specified patents and patent applications relating to OLED technologies and materials (including our PHOLED technology and materials). Our license rights also extend to any patent rights arising out of the research conducted by Princeton, USC or Michigan under our various research agreements with these entities. We are free to sublicense to third parties all or any portion of our patent rights under the 1997 License Agreement. The term of the 1997 License Agreement continues for the lifetime of the licensed patents, though it is subject to termination for an uncured material breach or default by us, or if we become bankrupt or insolvent.

Princeton is primarily responsible for the filing, prosecution and maintenance of all patent rights licensed to us under the 1997 License Agreement pursuant to an inter-institutional agreement between Princeton, USC and Michigan. However, we manage this process and have the right to instruct patent counsel on specific matters to be covered in any patent applications filed by Princeton. We are required to bear all costs associated with the filing, prosecution and

maintenance of these patent rights.

We are required under the 1997 License Agreement to pay Princeton royalties for licensed products sold by us or our sublicensees. These royalties amount to 3% of the net sales price for licensed products sold by us and 3% of the revenues we receive for licensed products sold by our sublicensees. These royalty rates are subject to renegotiation for products not reasonably conceivable as arising out of the research agreements if Princeton reasonably determines that the royalty rates payable with respect to these products are not fair and competitive. Princeton shares portions of these royalties with USC and Michigan under their inter-institutional agreement.

We have a minimum royalty obligation of \$100,000 per year during the term of the 1997 License Agreement. Royalties under the 1997 License Agreement with Princeton were \$1,219,256 for 2011. We also are required under the 1997 License Agreement to use commercially reasonable efforts to bring the licensed OLED technology to market. However, this

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requirement is deemed satisfied if we invest a minimum of \$800,000 per year in research, development, commercialization or patenting efforts respecting the patent rights licensed to us under the 1997 License Agreement.

### Patents We Acquired from Motorola

In 2000, we entered into a license agreement with Motorola whereby Motorola granted us perpetual license rights to what are now 74 issued U.S. patents relating to Motorola's OLED technologies, together with foreign counterparts in various countries. These patents will expire in the U.S. between 2012 and 2018.

We were required under our license agreement with Motorola to pay Motorola annual royalties on gross revenues received by us on account of our sales of OLED products or components, or from our OLED technology licensees, whether or not these revenues relate specifically to inventions claimed in the patent rights licensed from Motorola.

On March 9, 2011, we purchased these patents from Motorola, including all existing and future claims and causes of action for any infringement of the patents. This effectively terminated our license agreement with Motorola, including any obligation to make royalty payments to Motorola. In consideration for Motorola assigning and transferring the patents to us, we made a one-time cash payment to Motorola, and we granted Motorola a royalty-free, non-exclusive and non-sublicensable license under the patents for use by Motorola and its affiliates in their respective businesses.

### Intellectual Property Developed under Our Government Contracts

We and our subcontractors have developed and may continue to develop patentable OLED technology inventions under our various U.S. government contracts and subcontracts. Under these arrangements, we or our subcontractors generally can elect to take title to any patents on these inventions, and to control the manner in which these patents are licensed to third parties. However, the U.S. government reserves rights to these inventions and associated technical data that could restrict our ability to market them to the government for military and other applications, or to third parties for commercial applications. In addition, if the U.S. government determines that we or our subcontractors have not taken effective steps to achieve practical application of these inventions in any field of use in a reasonable time, the government may require that we or our subcontractors license these inventions to third parties in that field of use.

### Non-patented Technical Know-How

We have accumulated, and continue to accumulate, a substantial amount of non-patented technical know-how relating to OLED technologies and materials. Where practicable, we share portions of this information with display manufacturers and other business partners on a confidential basis. We also employ various methods to protect this information from unauthorized use or disclosure, although no such methods can afford complete protection. Moreover, because we derive some of this information and know-how from academic institutions such as Princeton, USC and Michigan, there is an increased potential for public disclosure.

### Competition

The industry in which we operate is highly competitive. We compete against alternative flat panel display technologies, in particular LCDs, as well as other OLED technologies. We also compete in the lighting market against incumbent technologies, such as incandescent bulbs and fluorescent lamps, and emerging technologies, such as inorganic LEDs.

### Flat Panel Display Industry Competitors

Numerous domestic and foreign companies have developed or are developing and improving LCD, plasma and other flat panel display technologies that compete with our OLED display technologies. We believe that OLED display technologies ultimately can compete with LCDs and other display technologies for many product applications on the basis of lower power consumption, better contrast ratios, faster video rates, form factor and lower manufacturing cost. However, other companies may succeed in continuing to improve these competing display technologies, or in developing new display technologies, that are superior to OLED display technologies in various respects. We cannot predict the timing or extent to which such improvements or developments may occur.

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### Lighting Industry Competitors

Traditional incandescent bulbs and fluorescent lamps are well-entrenched products in the lighting industry. In addition, compact fluorescent lamps and solid-state LEDs have recently been introduced into the market and would compete with OLED lighting products. Having attributes different than fluorescent lamps and LEDs, OLEDs may compete directly with these products for certain lighting applications. However, manufacturers of LEDs and compact fluorescent lamps may succeed in more broadly adapting their products to various lighting applications, or others may develop competing solid-state lighting technologies that are superior to OLEDs. Again, we cannot predict whether or when this might occur.

### OLED Technology and Materials Competitors

Eastman Kodak Company (Kodak) developed and patented the original fluorescent OLED technology in 1987. Cambridge Display Technology, Ltd. (CDT), which was acquired by Sumitomo Chemical Company (Sumitomo) in 2007, developed and patented polymer OLED technology in 1989. Display and lighting manufacturers, including customers of ours, are engaged in their own OLED research, development and commercialization activities, and have developed and may continue to develop proprietary OLED technologies that are necessary or useful for commercial OLED devices. In addition, other material manufacturers, such as Sumitomo, Idemitsu Kosan, Merck KGaA and BASF Corporation, are selling or sampling competing OLED materials to customers, including companies to which we sell our proprietary PHOLED materials.

Our existing business relationships with SMD and other product manufacturers suggest that our OLED technologies and materials, particularly our PHOLED technologies and materials, may achieve a significant level of market penetration in the flat panel display and lighting industries. However, others may succeed in developing new OLED technologies and materials that are required in addition to ours, or that may be utilized in place of ours. We cannot be sure of the extent to which product manufacturers will adopt and continue to utilize our OLED technologies and materials for the production of commercial flat panel displays and lighting products.

### Employees

As of December 31, 2011, we had 90 full-time employees and three part-time employees, none of whom are unionized. We believe that relations with our employees are good.

### Our Company History

Our corporation was organized under the laws of the Commonwealth of Pennsylvania in 1985. Our business was commenced in 1994 by a company then known as Universal Display Corporation, which had been incorporated under the laws of the State of New Jersey. In 1995, a wholly-owned subsidiary of ours merged into this New Jersey corporation. The surviving corporation in this merger became a wholly-owned subsidiary of ours and changed its name to UDC, Inc. Simultaneously with the consummation of this merger, we changed our name to Universal Display Corporation. UDC, Inc. now functions as an operating subsidiary of ours and has overlapping officers and directors. We have also formed other wholly-owned subsidiaries, including Universal Display Corporation Hong Kong, Ltd. (2008), Universal Display Corporation Korea, Inc. (2010) and Universal Display Corporation Japan, K.K. (2011), and we established a representative office in Taiwan (2011).

### Our Compliance with Environmental Protection Laws

We are not aware of any material effects that compliance with Federal, State or local environmental protection laws or regulations will have on our business. We have not incurred substantial costs to comply with any environmental

protection laws or regulations, and we do not anticipate having to do so in the foreseeable future.

#### Our Internet Site

Our Internet address is [www.universaldisplay.com](http://www.universaldisplay.com). We make available through our Internet website, free of charge, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 as soon as reasonably practicable after we file such material with the Securities and Exchange Commission (the SEC). In addition, we have made available on our Internet website under the heading “Corporate Governance” the charter for the Audit Committee of our Board of Directors, as well as our Code of Ethics and Code of Conduct for Employees, and our Code of Conduct for Directors. We intend to make available on our website any future amendments or waivers to our Code of Ethics and Code of



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Conduct for Employees, and our Code of Conduct for Directors within four business days after any such amendments or waivers. The information on our Internet site is not part of this report.

ITEM 1A. RISK FACTORS

You should carefully consider the following risks and uncertainties when reading this Annual Report on Form 10-K. The following factors, as well as other factors affecting our operating results and financial condition, could cause our actual future results and financial condition to differ materially from those projected.

If our OLED technologies and materials are not feasible for broad-based product applications, we may never generate revenues sufficient to support ongoing operations.

Our main business strategy is to license our OLED technologies and sell our OLED materials to manufacturers for incorporation into the flat panel display and lighting products that they sell. Consequently, our success depends on the ability and willingness of these manufacturers to develop, manufacture and sell commercial products integrating our technologies and materials.

Before product manufacturers will agree to utilize our OLED technologies and materials for wide-scale commercial production, they will likely require us to demonstrate to their satisfaction that our OLED technologies and materials are feasible for broad-based product applications. This, in turn, may require additional advances in our technologies and materials, as well as those of others, for applications in a number of areas, including, without limitation, advances with respect to the development of:

- OLED materials with improved lifetimes, efficiencies and color coordinates for full-color OLED displays and general lighting products;
- more robust OLED materials for use in more demanding large-scale manufacturing environments; and
- scalable and cost-effective methods and technologies for the fabrication of OLED products.

We cannot be certain that these advances will ever occur, and hence our OLED technologies and materials may never be feasible for broad-based product applications.

Even if our OLED technologies are technically feasible, they may not be adopted by product manufacturers.

The potential size, timing and viability of market opportunities targeted by us are uncertain at this time. Market acceptance of our OLED technologies will depend, in part, upon these technologies providing benefits comparable or superior to current display and lighting technologies at an advantageous cost to manufacturers, and the adoption of products incorporating these technologies by consumers. Many potential licensees of our OLED technologies manufacture flat panel displays and lighting products utilizing competing technologies, and may, therefore, be reluctant to redesign their products or manufacturing processes to incorporate our OLED technologies.

During the entire product development process for a new product, we face the risk that our technology will fail to meet the manufacturer's technical, performance or cost requirements or will be replaced by a competing product or alternative technology. For example, we are aware that some of our licensees and prospective licensees have entered into arrangements with our competitors regarding the development of competing technologies. Even if we offer technologies that are satisfactory to a product manufacturer, the manufacturer may choose to delay or terminate its

product development efforts for reasons unrelated to our technologies. In addition, our license agreements do not require our customers to purchase our host materials in order to utilize our phosphorescent emitter materials, and those customers may elect not to purchase our host materials.

Mass production of OLED products will require the availability of suitable manufacturing equipment, components and materials, many of which are available only from a limited number of suppliers. In addition, there may be a number of other technologies that manufacturers need to utilize to be used in conjunction with our OLED technologies in order to bring OLED products containing them to the market. Thus, even if our OLED technologies are a viable alternative to competing approaches, if product manufacturers are unable to obtain access to this equipment and these components, materials and other technologies, they may not utilize our OLED technologies.

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There are numerous potential alternatives to OLEDs, which may limit our ability to commercialize our OLED technologies and materials.

The flat panel display market is currently, and will likely continue to be for some time, dominated by displays based on LCD technology. Numerous companies are making substantial investments in, and conducting research to improve characteristics of, LCDs. Plasma and other competing flat panel display technologies have been, or are being, developed. A similar situation exists in the solid-state lighting market, which is currently dominated by LED products. Advances in any of these various technologies may overcome their current limitations and permit them to become the leading technologies in their field, either of which could limit the potential market for products utilizing our OLED technologies and materials. This, in turn, would cause product manufacturers to avoid entering into commercial relationships with us, or to terminate or not renew their existing relationships with us.

Other OLED technologies may be more successful or cost-effective than ours, which may limit the commercial adoption of our OLED technologies and materials.

Our competitors have developed OLED technologies that differ from or compete with our OLED technologies. In particular, competing fluorescent OLED technology, which entered the marketplace prior to ours, may become a viable alternative to our phosphorescent OLED technology. Moreover, our competitors may succeed in developing new OLED technologies that are more cost-effective or have fewer limitations than our OLED technologies. If our OLED technologies, and particularly our phosphorescent OLED technology, are unable to capture a substantial portion of the OLED product market, our business strategy may fail.

If we cannot form and maintain lasting business relationships with OLED product manufacturers, our business strategy will fail.

Our business strategy ultimately depends upon our development and maintenance of commercial licensing and material supply relationships with high-volume manufacturers of OLED products. We have entered into only a limited number of such relationships. Our other relationships with product manufacturers currently are limited to technology development and the evaluation of our OLED technologies and materials for possible use in commercial products. Some or all of these relationships may not succeed or, even if they are successful, may not result in the product manufacturers entering into commercial licensing and material supply relationships with us.

Many of our agreements with product manufacturers last for only limited periods of time, such that our relationships with these manufacturers will expire unless they continually are renewed. These product manufacturers may not agree to renew their relationships with us on a continuing basis. In addition, we regularly continue working with product manufacturers after our existing agreements with them have expired while we are attempting to negotiate contract extensions or new agreements with them. Should our relationships with the various product manufacturers not continue or be renewed, or if we are not able to identify other product manufacturers and enter into contracts with them, our business would suffer.

Our ability to enter into additional commercial licensing and material supply relationships, or to maintain our existing technology development and evaluation relationships, may require us to make financial or other commitments. We might not be able, for financial or other reasons, to enter into or continue these relationships on commercially acceptable terms, or at all. Failure to do so may cause our business strategy to fail.

We or our licensees may incur substantial costs or lose important rights as a result of litigation or other proceedings relating to our patent and other intellectual property rights, or with respect to our OLED materials business.

There are a number of other companies and organizations that have been issued patents and are filing patent applications relating to OLED technologies and materials, including, without limitation, Kodak (substantially all of whose OLED assets were sold to a group of LG companies in 2009), CDT (acquired by Sumitomo in 2007), Fuji Film Co., Ltd., Canon, Inc., Semiconductor Energy Laboratories Co., Idemitsu Kosan and Mitsubishi Chemical Corporation. As a result, there may be issued patents or pending patent applications of third parties that would be infringed by the use of our OLED technologies or materials, thus subjecting our licensees to possible suits for patent infringement in the future. Such lawsuits could result in our licensees being liable for damages or require our licensees to obtain additional licenses that could increase the cost of their products. This, in turn, could have an adverse effect on our licensees' sales and thus our royalties, or cause our licensees to seek to renegotiate our royalty rates. In addition, we have agreed to indemnify customers purchasing our OLED materials for commercial usage against certain claims of patent infringement by third parties, as a result of which we may incur substantial legal costs in connection with defending these customers from such claims.

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Our licensees may also seek to avoid paying future royalties by attempting to have our patents declared invalid and unenforceable by a court. Our licensees may be more likely to file such declaratory actions in light of the U.S. Supreme Court's decision in *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118 (2007), in which the Court found that a licensee need not refuse to pay royalties and commit material breach of the license agreement before bringing an action to declare a licensed patent invalid and unenforceable.

In addition, we may be required from time-to-time to assert our intellectual property rights by instituting legal proceedings against others. We cannot be assured that we will be successful in enforcing our patents in any lawsuits we may commence. Defendants in any litigation we may commence to enforce our patents may attempt to establish that our patents are invalid or are unenforceable. Thus, any patent litigation we commence could lead to a determination that one or more of our patents are invalid or unenforceable. If a third party succeeds in invalidating one or more of our patents, that party and others could compete more effectively against us. Our ability to derive licensing revenues from products or technologies covered by these patents would also be adversely affected.

Whether our licensees are defending the assertion of third-party intellectual property rights against their businesses arising as a result of the use of our technology, or we are asserting our own intellectual property rights against others, such litigation can be complex, costly, protracted and highly disruptive to our or our licensees' business operations by diverting the attention and energies of management and key technical personnel. As a result, the pendency or adverse outcome of any intellectual property litigation to which we or our licensees are subject could disrupt business operations, require the incurrence of substantial costs and subject us or our licensees to significant liabilities, each of which could severely harm our business. Costs associated with these actions are likely to increase as AMOLED products using our PHOLED and other OLED technologies and materials enter the consumer marketplace.

Plaintiffs in intellectual property cases often seek injunctive relief in addition to money damages. Any intellectual property litigation commenced against our licensees may force them to take actions that could be harmful to their businesses and thus to our royalties, including the following:

- stop selling their products that incorporate or otherwise use our allegedly infringing technology or materials;
- attempt to obtain a license to the relevant third-party intellectual property, which may not be available on reasonable terms or at all; or
- attempt to redesign their products to remove our allegedly infringing technology or materials to avoid infringement of the third-party intellectual property.

If our licensees are forced to take any of the foregoing actions, they may be unable to manufacture and sell their products that incorporate our technology or materials at a profit or at all. Furthermore, the measure of damages in intellectual property litigation can be complex, and is often subjective or uncertain. If our licensees were to be found liable for infringement of proprietary rights of a third party, the amount of damages they might have to pay could be substantial and is difficult to predict. Decreased sales of our licensees' products incorporating our technology or materials would have an adverse effect on our royalty revenues under existing licenses. Any necessity to procure rights to the third-party intellectual property might cause our existing licensees to seek to renegotiate the royalty terms of their licenses with us to compensate for this increase in their cost of production or, in certain cases, to terminate their licenses with us entirely. Were this to occur, it would likely harm our ability to compete for new licensees and would have an adverse effect on the terms of the royalty arrangements we could enter into with any new licensees.

As is commonplace in technology companies, we employ individuals who were previously employed at other technology companies. To the extent our employees are involved in research areas that are similar to those areas in

which they were involved at their former employers, we may be subject to claims that such employees or we have, inadvertently or otherwise, used or disclosed the alleged trade secrets or other proprietary information of the former employers. Litigation may be necessary to defend against such claims. The costs associated with these actions or the loss of rights critical to our or our licensees' businesses could negatively impact our revenues or cause our business to fail.

If we cannot obtain and maintain appropriate patent and other intellectual property rights protection for our OLED technologies and materials, our business will suffer.

The value of our OLED technologies and materials is dependent on our ability to secure and maintain appropriate patent and other intellectual property rights protection. Although we own or license many patents respecting our OLED technologies and materials that have already been issued, there can be no assurance that additional patents applied for will be obtained, or that any of these patents, once issued, will afford commercially significant protection for our OLED technologies and materials, or will be found valid if challenged. Also, there is no assurance that we will be successful in defending the

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validity of our current or future patents in pending and future patent oppositions, invalidation trials, interferences, reexaminations, reissues, or other administrative or court proceedings. Moreover, we have not obtained patent protection for some of our OLED technologies and materials in all foreign countries in which OLED products or materials might be manufactured or sold, and recent U.S. Supreme Court case law has restricted the extraterritorial reach of U.S. patent law in certain instances. In any event, the patent laws of other countries may differ from those of the United States as to the patentability of our OLED technologies and materials and the degree of protection afforded.

We believe that the strength of our current intellectual property position results primarily from the essential nature of our fundamental patents covering phosphorescent OLED devices and certain materials utilized in these devices. Our existing fundamental phosphorescent OLED patents expire in the United States in 2017 and 2019, and in other countries of the world in 2018 and 2020. While we hold a wide range of additional patents and patent applications whose expiration dates extend (and in the case of patent applications, will extend) beyond 2020, many of which are also of importance in the OLED industry, none are of an equally essential nature as our fundamental patents, and therefore our competitive position may be less certain, as these patents expire.

We may become engaged in litigation to protect or enforce our patent and other intellectual property rights, or in International Trade Commission proceedings to abate the importation of goods that would compete unfairly with those of our licensees. In addition, we are participating in or have participated in, and will likely have to participate in the future in, interference, reissue, or reexamination proceedings before the U.S. Patent and Trademark Office, and opposition, nullity or other proceedings before foreign patent offices, with respect to our patents or patent applications. All of these actions place our patents and other intellectual property rights at risk and may result in substantial costs to us as well as a diversion of management attention from our business and operations. Moreover, if successful, these actions could result in the loss of patent or other intellectual property rights protection for the key OLED technologies and materials on which our business depends.

We rely, in part, on several non-patented proprietary technologies to operate our business. Others may independently develop the same or similar technologies or otherwise obtain access to our unpatented technologies. Furthermore, these parties may obtain patent protection for such technology, inhibiting or preventing us from practicing the technology. To protect our trade secrets, know-how and other non-patented proprietary information, we require employees, consultants, financial advisors and strategic partners to enter into confidentiality agreements. These agreements may not ultimately provide meaningful protection for our trade secrets, know-how or other non-patented proprietary information. In particular, we may not be able to fully or adequately protect our proprietary information as we conduct discussions with potential strategic partners. If we are unable to protect the proprietary nature of our technologies, it will harm our business.

Recent court decisions in various patent cases may make it more difficult for us obtain future patents, enforce our patents against third parties or obtain favorable judgments in cases where the patents are enforced.

Recent case law may make it more difficult for patent holders to secure future patents and/or enforce existing patents. For example, in *KSR International Co. vs. Teleflex, Inc.*, the U.S. Supreme Court mandated a more expansive and flexible approach to determine whether a patent is obvious and invalid. As a result of the less rigid approach to assessing obviousness, defending the validity of or obtaining patents may be more difficult.

Recent court decisions may also impact the enforcement of our patents. For example, we may not be able to enjoin certain third party uses of products or methods covered by our patents following the initial authorized sale, even where those uses are expressly proscribed in an agreement with the buyer. Also, we may face increased difficulty enjoining infringement of our patents. The U.S. Supreme Court has held that an injunction should not automatically issue based on a finding of patent infringement, but should be determined based on a test balancing considerations of the patentee's interest, the infringer's interest, and the public's interest. Obtaining enhanced damages for willful infringement of our

patents may also be more difficult even in those cases where we successfully prove a third party has infringed our patents, as a recent case set a more stringent standard for proving willful infringement.

Conflicts may arise with our licensees or joint development partners, resulting in renegotiation or termination of, or litigation related to, our agreements with them. This would adversely affect our revenues.

Conflicts could arise between us and our licensees or joint development partners as to royalty rates, milestone payments or other commercial terms. Similarly, we may disagree with our licensees or joint development partners as to which party owns or has the right to commercialize intellectual property that is developed during the course of the relationship or as to other non-commercial terms. If such a conflict were to arise, a licensee or joint development partner might attempt to compel renegotiation of certain terms of their agreement or terminate their agreement entirely, and we might



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lose the royalty revenues and other benefits of the agreement. Either we or the licensee or joint development partner might initiate litigation to determine commercial obligations, establish intellectual property rights or resolve other disputes under the agreement. Such litigation could be costly to us and require substantial attention of management. If we were unsuccessful in such litigation, we could lose the commercial benefits of the agreement, be liable for other financial damages and suffer losses of intellectual property or other rights that are the subject of dispute. Any of these adverse outcomes could cause our business strategy to fail.

The consumer electronics industry experiences significant downturns from time to time, any of which may adversely affect the demand for and pricing of our OLED technologies and materials.

Because we do not sell any products to consumers, our success depends upon the ability and continuing willingness of our licensees to manufacture and sell products utilizing our technologies and materials, and the widespread acceptance of those products in the marketplace. Any slowdown in the demand for our licensees' products would adversely affect our royalty revenues and thus our business. The markets for flat panel displays and lighting products are highly competitive. Success in the market for end-user products that may integrate our OLED technologies and materials also depends on factors beyond the control of our licensees and us, including the cyclical and seasonal nature of the end-user markets that our licensees serve, as well as industry and general economic conditions.

The markets that we hope to penetrate have experienced significant periodic downturns, often in connection with, or in anticipation of, declines in general economic conditions. These downturns have been characterized by lower product demand, production overcapacity and erosion of average selling prices. Our business strategy is dependent on manufacturers building and selling products that incorporate our OLED technologies and materials. Industry-wide fluctuations and downturns in the demand for flat panel displays and solid-state lighting products could cause significant harm to our business.

Any downturn in U.S. or global economic conditions may have a significant adverse effect on our business.

There have been significant and sustained economic downturns in the U.S. and globally in recent years. This has placed pressure on consumer demand, and the resulting impact on consumer spending has had a material adverse effect on the demand for consumer electronic products. Similar downturns in the future may have a significant adverse effect on one or more of our licensees as an enterprise, which could result in those licensees reducing their efforts to commercialize products that incorporate our OLED technologies and materials. Consumer demand and the condition of the flat panel display and lighting industries may also be impacted by other external factors such as war, terrorism, geopolitical uncertainties and other business interruptions. The impact of these external factors is difficult to predict, and one or more of these factors could adversely impact the demand for our licensees' products, and thus our business.

Many of our competitors have greater resources, which may make it difficult for us to compete successfully against them.

The flat panel display and solid-state lighting industries are characterized by intense competition. Many of our competitors have better name recognition and greater financial, technical, marketing, personnel and research capabilities than us. Because of these differences, we may never be able to compete successfully in these markets.

If we fail to make advances in our OLED research and development activities, we might not succeed in commercializing our OLED technologies and materials.

Further advances in our OLED technologies and materials depend, in part, on the success of the research and development work we conduct, both alone and with our research partners. We cannot be certain that this work will

yield additional advances in the research and development of these technologies and materials.

Our research and development efforts remain subject to all of the risks associated with the development of new products based on emerging and innovative technologies, including, without limitation, unanticipated technical or other problems and the possible insufficiency of funds for completing development of these products. Technical problems may result in delays and cause us to incur additional expenses that would increase our losses. If we cannot complete research and development of our OLED technologies and materials successfully, or if we experience delays in completing research and development of our OLED technologies and materials for use in potential commercial applications, particularly after incurring significant expenditures, our business may fail.

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If we cannot keep our key employees or hire other talented persons as we grow, our business might not succeed.

Our performance is substantially dependent on the continued services of our executive officers and other key technical and managerial personnel, and on our ability to offer competitive salaries and benefits to these and our other employees. We do not have employment agreements with any of our executive officers or other key technical or managerial personnel. Additionally, competition for highly skilled technical and managerial personnel is intense. We might not be able to attract, hire, train, retain and motivate the highly skilled employees we need to be successful. If we fail to attract and retain the necessary technical and managerial personnel, our business will suffer and might fail.

We rely solely on PPG Industries to manufacture the OLED materials we use and sell to product manufacturers.

Our business prospects depend significantly on our ability to obtain proprietary OLED materials for our own use and for sale to product manufacturers. Our agreement with PPG Industries provides us with a source for these materials for development and evaluation purposes, as well as for commercial purposes. This agreement, however, is scheduled to expire at the end of 2014. Our inability to continue obtaining these OLED materials from PPG Industries or another source would have a material adverse effect on our revenues from sales of these materials to OLED product manufacturers, as well as on our ability to perform future development work.

We may require additional funding in the future in order to continue our business.

Our capital requirements have been and will continue to be significant. We may require additional funding in the future for the research, development and commercialization of our OLED technologies and materials, to obtain and maintain patents and other intellectual property rights in these technologies and materials, and for working capital and other purposes, the timing and amount of which are difficult to ascertain. Our cash on hand may not be sufficient to meet all of our future needs. When we need additional funds, such funds may not be available on commercially reasonable terms or at all. If we cannot obtain more money when needed, our business might fail. Additionally, if we attempt to raise money in an offering of shares of our common stock, preferred stock, warrants or depositary shares, or if we engage in acquisitions involving the issuance of such securities, the issuance of these shares will dilute our then-existing shareholders.

Because the vast majority of OLED product manufacturers are located in the Asia-Pacific region, we are subject to international operational, financial, legal and political risks which may negatively impact our operations.

Many of our licensees and prospective licensees have a majority of their operations in countries other than the United States, particularly in the Asia-Pacific region. Risks associated with our doing business outside of the United States include, without limitation:

- compliance with a wide variety of foreign laws and regulations;
- legal uncertainties regarding taxes, tariffs, quotas, export controls, export licenses and other trade barriers;
- economic instability in the countries of our licensees, causing delays or reductions in orders for their products and therefore our royalties;
- political instability in the countries in which our licensees operate, particularly in South Korea relating to its disputes with North Korea and in Taiwan relating to its disputes with China;

- difficulties in collecting accounts receivable and longer accounts receivable payment cycles; and

- potentially adverse tax consequences.

Any of these factors could impair our ability to license our OLED technologies and sell our OLED materials, thereby harming our business.

Therefore, as a result of such rulings, it may be more difficult for us to defend our currently issued patents, obtain additional patents in the future or achieve the desired competitive effect even when our patents are enforced. If we are unable to so defend our currently issued patents, or to obtain new patents for any reason, our business would suffer.

The U.S. government has rights to intellectual property derived from our government-funded work that might prevent us from realizing the full benefits of our intellectual property portfolio.

The U.S. government, through various government agencies, has provided and continues to provide funding to us, Princeton, USC and Michigan for work related to certain aspects of our OLED technologies. Because we have been provided

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with this funding, the government has rights to any intellectual property derived from this work that could restrict our ability to market OLED products to the government for military and other applications, or to license this intellectual property to third parties for commercial applications. Moreover, if the government determines that we have not taken effective steps to achieve practical application of this intellectual property in any field of use in a reasonable time, the government could require us to license this intellectual property to other parties in that field of use. Any of these occurrences would limit our ability to obtain maximum value from our intellectual property portfolio.

The market price of our common stock may be highly volatile.

The market price of our common stock may be highly volatile, as has been the case with our common stock in the past as well as the securities of many companies, particularly other emerging-growth companies in the technology industry. We have included in the section of this report entitled “Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities,” a table indicating the high and low closing prices of our common stock as reported on the NASDAQ Global Market for the past two years. Factors such as the following may have a significant impact on the market price of our common stock in the future:

- our revenues, expenses and operating results;
- announcements by us or our competitors of technological developments, new product applications or license arrangements; and
- other factors affecting the flat panel display and solid-state lighting industries in general.

Our operating results may have significant period-to-period fluctuations, which would make it difficult to predict our future performance.

Due to the current stage of commercialization of our OLED technologies and materials, and the significant development and manufacturing objectives that we and our licensees must achieve to be successful, our quarterly operating results are difficult to predict and may vary significantly from quarter to quarter.

We believe that period-to-period comparisons of our operating results are not a reliable indicator of our future performance at this time. Among other factors affecting our period-to-period results, our license and technology development fees often consist of large one-time or annual payments, which may result in significant fluctuations in our revenues. If, in some future period, our operating results or business outlook fall below the expectations of securities analysts or investors, our stock price would be likely to decline and investors in our common stock may not be able to resell their shares at or above their purchase price. Broad market, industry and global economic factors may also materially reduce the market price of our common stock, regardless of our operating performance.

The issuance of additional shares of our common stock could drive down the price of our stock.

The price of our common stock could decrease if:

- shares of our common stock that are currently subject to restriction on sale become freely salable, whether through an effective registration statement or based on Rule 144 under the Securities Act of 1933, as amended; or
- we issue additional shares of our common stock that might be or become freely salable, including shares that would be issued upon conversion of our preferred stock or the exercise of outstanding stock options.

We can issue shares of preferred stock that may adversely affect the rights of shareholders of our common stock.

Our Articles of Incorporation authorize us to issue up to 5,000,000 shares of preferred stock with designations, rights and preferences determined from time-to-time by our Board of Directors. Accordingly, our Board of Directors is empowered, without shareholder approval, to issue preferred stock with dividend, liquidation, conversion, voting or other rights superior to those of shareholders of our common stock. For example, an issuance of shares of preferred stock could:

- adversely affect the voting power of the shareholders of our common stock;
- make it more difficult for a third party to gain control of us;
- discourage bids for our common stock at a premium; or
- otherwise adversely affect the market price of our common stock.

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As of February 23, 2012, we have issued and outstanding 200,000 shares of Series A Nonconvertible Preferred Stock, all of which are held by an entity controlled by members of the family of Sherwin I. Seligsohn, our Founder and Chairman of the Board of Directors. Our Board of Directors has authorized and issued other shares of preferred stock in the past, none of which are currently outstanding, and may do so again at any time in the future.

Because we do not currently intend to pay dividends, shareholders will benefit from an investment in our common stock only if it appreciates in value.

We have never declared or paid any cash dividends on our common stock. We currently intend to retain our future earnings, if any, to finance further research and development and do not expect to pay any cash dividends in the foreseeable future. As a result, the success of an investment in our common stock will depend upon any future appreciation in its value. There is no guarantee that our common stock will appreciate in value or even maintain the price at which current shareholders purchased their shares.

Our executive officers and directors own a significant percentage of our common stock and could exert significant influence over matters requiring shareholder approval, including takeover attempts.

Our executive officers and directors, their respective affiliates and the adult children of Sherwin Seligsohn, our Founder and Chairman of the Board of Directors, beneficially own, as of February 23, 2012, approximately 13% of the outstanding shares of our common stock. Accordingly, these individuals may, as a practical matter, be able to exert significant influence over matters requiring approval by our shareholders, including the election of directors and the approval of mergers or other business combinations. This concentration also could have the effect of delaying or preventing a change in control of us.

### ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

### ITEM 2. PROPERTIES

Our corporate offices and research and development laboratories are located at 375 Phillips Boulevard in Ewing, New Jersey. In 2004, we acquired the building and property at which this facility is located. During 2005, we conducted a two-stage expansion of our laboratory and office space in the building. We currently occupy the entire 40,200 square feet facility.

### ITEM 3. LEGAL PROCEEDINGS

Opposition to European Patent No. 0946958

On December 8, 2006, Cambridge Display Technology Ltd. (CDT), which was acquired in 2007 by Sumitomo Chemical Company (Sumitomo), filed a Notice of Opposition to European Patent No. 0946958 (EP '958 patent). The EP '958 patent, which was issued on March 8, 2006, is a European counterpart patent to U.S. patents 5,844,363, 6,602,540, 6,888,306 and 7,247,073. These patents relate to our FOLED™ flexible OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

The European Patent Office (the EPO) conducted an Oral Hearing in this matter on October 6, 2009. No representative from CDT attended the Oral Hearing. At the conclusion of the Oral Hearing, the EPO panel announced its decision to reject the opposition and to maintain the patent as granted. The minutes of the Oral Hearing were

dispatched on October 27, 2009, and a written decision was issued on November 26, 2009.

CDT filed an appeal to the EPO panel decision on January 25, 2010. CDT timely filed its grounds for the appeal with the EPO on or about April 1, 2010. The EPO set August 12, 2010 as the due date for filing our reply to this appeal. Our reply was timely filed.

At this time, based on our current knowledge, we believe that the EPO panel decision will be upheld on appeal. However, we cannot make any assurances of this result.



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Opposition to European Patent No. 1449238

On March 8, 2007, Sumation Company Limited (Sumation), a joint venture between Sumitomo and CDT, filed a first Notice of Opposition to European Patent No. 1449238 (EP '238 patent). The EP '238 patent, which was issued on November 2, 2006, is a European counterpart patent, in part, to U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent application 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011. These patents and patent applications relate to our UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

Two other parties filed additional oppositions to the EP '238 patent just prior to the August 2, 2007 expiration date for such filings. On July 24, 2007, Merck Patent GmbH, of Darmstadt, Germany, filed a second Notice of Opposition to the EP '238 patent, and on July 27, 2007, BASF Aktiengesellschaft, of Mannheim, Germany, filed a third Notice of Opposition to the EP '238 patent. The EPO combined all three oppositions into a single opposition proceeding.

The EPO conducted an Oral Hearing in this matter on November 3, 2011. At the conclusion of the Oral Hearing, the EPO panel announced its decision to maintain the patent with claims directed to OLEDs comprising phosphorescent organometallic iridium compounds. The official minutes from the oral hearing and written decision were published on January 13, 2012. The EPO panel decision is open to appeal.

At this time, based on our current knowledge, we believe that the EPO panel decision, if appealed, would be upheld on appeal. However, we cannot make any assurances of this result.

Invalidation Trial in Japan for Japan Patent No. 3992929

On April 19, 2010, we received a copy of a Notice of Invalidation Trial from the Japanese Patent Office (the JPO) for our Japan Patent No. 3992929 (the JP '929 patent), which was issued on August 3, 2007. The request for the Invalidation Trial was filed by Semiconductor Energy Laboratory Co., Ltd. (SEL), of Kanagawa, Japan. The JP '929 patent is a Japanese counterpart patent, in part, to the above-noted EP '238 patent and to the above-noted family of U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent applications 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011. These patents and patent applications relate to our UniversalPHOLED phosphorescent OLED technology. Under our license agreement with Princeton, we are required to pay all legal costs and fees associated with this proceeding.

An Oral Hearing in this matter was held on November 16, 2010. On February 28, 2011, we learned that the JPO had issued a decision recognizing our invention and upholding the validity of most of the claims, but finding the broadest claims in the patent invalid. We believe that the JPO's decision invalidating these claims was erroneous, and we filed an appeal to the Japanese IP High Court.

Both parties filed appeal briefs in this matter with the Japanese IP High Court. A technical explanation hearing was held on February 1, 2012. At the hearing, both parties filed technical materials supporting their respective positions.

At this time, based on our current knowledge, we believe that the JPO decision invalidating certain claims in our JP '929 patent should be overturned on appeal as to all or a significant portion of the claims. However, we cannot make any assurances of this result.

Opposition to European Patent No. 1394870

On about April 20, 2010, five European companies filed Notices of Opposition to European Patent No. 1394870 (the EP '870 patent). The EP '870 patent, which was issued on July 22, 2009, is a European counterpart patent, in part, to U.S. patents 6,303,238; 6,579,632; 6,872,477; 7,279,235; 7,279,237; 7,488,542; 7,563,519; and 7,901,795; and to pending U.S. patent application 13/035,051, filed on February 25, 2011. These patents and this patent application relate to our UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding. The five companies are Merck Patent GmbH; BASF Schweiz AG of Basel, Switzerland; Osram GmbH of Munich, Germany; Siemens Aktiengesellschaft of Munich, Germany; and Koninklijke Philips Electronics N.V., of Eindhoven, The Netherlands.

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The EPO combined the oppositions into a single opposition proceeding. The matter has been briefed and we are waiting for the EPO to provide notice of the date of the Oral Hearing. We are also waiting to see whether any of the other parties in the opposition file additional documents, to which we might respond.

At this time, based on our current knowledge, we believe there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, we cannot make any assurances of this result.

### Invalidation Trials in Japan for Japan Patent Nos. 4357781 and 4358168

On May 24, 2010, we received copies of two additional Notices of Invalidation Trials against Japan Patent Nos. 4357781 (the JP '781 patent) and 4358168 (the JP '168 patent), which were both issued on August 14, 2009. The requests for these two additional Invalidation Trials were also filed by SEL. The JP '781 and '168 patents are also Japanese counterpart patents, in part, to the above-noted family of U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent applications 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011. These patents and patent applications relate to our UniversalPHOLED phosphorescent OLED technology. Under our license agreement with Princeton, we are also required to pay all legal costs and fees associated with these two proceedings.

An Oral Hearing in this matter was held on February 1, 2011. On March 31, 2011, we learned that the JPO had issued decisions finding all claims in the JP '781 and JP '168 patents invalid. We believe that the JPO's decisions invalidating these claims were erroneous, and we filed appeals for both cases to the Japanese IP High Court.

Both parties are in the process of filing appeal briefs in this matter with the Japanese IP High Court. The Japanese IP High Court held an initial hearing for this matter on November 22, 2011, and we are preparing for a technical explanation hearing in this matter.

At this time, based on our current knowledge, we believe that the JPO decisions invalidating all the claims in our JP '781 and JP '168 patents should be overturned on appeal as to all or a significant portion of the claims. However, we cannot make any assurances of this result.

### Interference No. 105,771 involving Claims 48-52 of US Patent No. 6,902,830

Patent Interference No. 105,771 was declared by the United States Patent and Trademark Office (the USPTO) on November 17, 2010 between The University of Southern California and The Trustees of Princeton University (the Universities), Junior Party, and Fujifilm Holding Corporation (Fuji), Senior Party. The dispute is between the Universities' U.S. Patent No 6,902,830 (the '830 patent), claims 48-52, and Fuji's Patent Application No. 11/802,492, claims 1-5 (the Fuji application). The '830 patent relates to our UniversalPHOLED phosphorescent OLED technology. It is exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

The USPTO declares an interference when two or more parties claim the same patentable invention. The objective of an interference is to contest which party, if any, has both a right to participate in the proceeding and a right to the claimed invention and, if more than one party does, then to contest which party has the earliest priority date for the claimed invention.

Subsequent to the filing of motions and responsive motions in this matter, the interference was concluded by our purchase of the Fuji application. As a result of this purchase, the Fuji application was assigned to us effective September 13, 2011. We then requested that adverse judgment be entered against the Fuji application, which was

entered by the USPTO on October 4, 2011. Thus, our claims 48-52 of the '830 patent, and the '830 patent as a whole, remain intact as granted.

Invalidation Trial in Korea for Patent No. KR-0998059

On March 10, 2011, we received informal notice from our Korean patent counsel of a Request for an Invalidation Trial from the Korean Intellectual Property Office (KIPO) for our Korean Patent No. 10-0998059 (the KR '059 patent), which was issued on November 26, 2010. The Request was filed by a certain individual petitioner, but we still do not know which company, if any, was ultimately responsible for filing this Request. The KR '059 patent is a Korean counterpart patent to the OVJP, Organic Vapor Jet Printing, family of U.S. patents originating from US 7,431,968.

On April 21, 2011, our Korean patent counsel received a copy of the Appeal Brief for the Request from KIPO. We filed a response to the Request on June 20, 2011. The petitioner filed a rebuttal brief on August 8, 2011, and we filed a

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response to the rebuttal brief on October 12, 2011. The petitioner filed a second rebuttal brief on February 3, 2012, and we are preparing our response to this brief.

At this time, based on our current knowledge, we believe there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, we cannot make any assurances of this result.

### Invalidation Trials in Korea for Patent Nos. KR-558632 and KR-963857

On May 11 and May 31, 2011, respectively, we learned that further Requests for Invalidation Trials were filed in Korea, on May 3 and May 26, 2011, respectively, for our Korean Patent Nos. KR-558632 (the KR '632 patent), which issued on March 2, 2006, and KR-963857 (the KR '857 patent), which issued on June 8, 2010. The Requests were filed by Duk San Hi-metal, Ltd. (Duk San) of Korea. The KR '632 and KR '857 patents are both Korean counterpart patents, in part, to U.S. patents 6,303,238; 6,579,632; 6,872,477; 7,279,235; 7,279,237; 7,488,542 and 7,563,519; and to pending U.S. patent application 12/489,045, filed on June 22, 2009; to the EP '870 patent, which is subject to one of the above-noted European Oppositions; and to the JP '024 patent, which is subject to the below-noted Japanese Invalidation Trial. These patents and the pending U.S. patent application relate to our UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

We timely filed our formal responses to the Requests by the due dates of August 27, 2011 and September 8, 2011, respectively.

At this time, based on our current knowledge, we believe there is a substantial likelihood that the patents being challenged will be declared valid, and that all or a significant portion of their claims will be upheld. However, we cannot make any assurances of this result.

### Invalidation Trials in Korea for Patent Nos. KR-744199 and KR-913568

On May 10 and May 31, 2011, respectively, we learned that further Requests for Invalidation Trials were filed in Korea, on May 3 and May 26, 2011, respectively, for our Korean Patent Nos. KR-744199 (the KR '199 patent), which issued on July 24, 2007, and KR-913568 (the KR '568 patent), which issued on August 17, 2009. The Requests were also filed by Duk San. The KR '199 and KR '568 patents are both Korean counterpart patents, in part, to U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent applications 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011; to the EP '238 patent, which is subject to one of the above-noted European Oppositions; and to the JP '929 patent, which is subject to one of the above-noted Japanese Invalidation Trials. These patents and patent applications relate to our UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

We timely filed our formal responses to the Requests by the due dates of September 1, 2011 and August 23, 2011, respectively. Both parties are in the process of filing briefs in these matters with the Korean Patent Office.

At this time, based on our current knowledge, we believe there is a substantial likelihood that the patents being challenged will be declared valid, and that all or a significant portion of their claims will be upheld. However, we cannot make any assurances of this result.

### Invalidation Trial in Japan for Japan Patent No. 4511024

On June 16, 2011, we learned that a further Request for an Invalidation Trial was filed in Japan for our Japanese Patent No. JP-4511024 (the JP '024 patent), which issued on May 14, 2010. The Request was filed by SEL, the same opponent as in the above-noted Japanese Invalidation Trial for the JP '929 patent. The JP '024 patent is a counterpart patent, in part, to U.S. patents 6,303,238; 6,579,632; 6,872,477; 7,279,235; 7,279,237; 7,488,542; 7,563,519; and 7,901,795; and to pending U.S. patent application 13/035,051, filed on February 25, 2011; to the EP '870 patent, which is subject to one of the above-noted European Oppositions; and to the KR '632 and KR '857 patents, which are subject to one of the above noted Korean Invalidation Trials. These patents and the pending U.S. patent application relate to our UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

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We timely filed a Written Reply to the Request for Invalidation Trial by the due date of November 2, 2011.

At this time, based on our current knowledge, we believe there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, we cannot make any assurances of this result.

### Opposition to European Patent No. 1252803

On July 12 and 13, 2011, Oppositions were filed to our European Patent No. 1252803 (the EP '803 patent). These Oppositions were filed by Sumitomo, Merck Patent GmbH and BASF SE, of Ludwigshaven, Germany. The EP '803 patent, which was issued on October 13, 2010, is a European counterpart patent, in part, to U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent application 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011. These patents and patent applications relate to our UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

The EPO combined the oppositions into a single opposition proceeding and set December 18, 2011 as the due date for us to file our response, subject to extension. Our response to the oppositions was timely filed prior to the February 18, 2012, extended due date.

At this time, based on our current knowledge, we believe there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, we cannot make any assurances of this result.

### Invalidation Trials in Korea for Patent Nos. KR-794,975, KR-840,637 and KR-937,470

On August 8, 2011, we received information indicating that further Requests for Invalidation Trials were filed against our Korean Patent Nos. KR-840,637 (the KR '637 patent) and KR-937,470 (the KR '470 patent), which issued on June 17, 2008 and January 11, 2010, respectively. On December 12, 2011, we received information that a further Request for an Invalidation Trial was filed against our Korean Patent No. KR-794,975 (the KR '975 patent). The Requests were also filed by Duk San. The KR '975, KR '637 and KR '470 patents are Korean counterpart patents, in part, to U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent application 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011; to the EP '803 patent, which is subject to one of the above-noted European Oppositions; and to the JP '781 and JP '168 patents, which are subject to the above-noted Japanese Invalidation Trials. These patents and patent applications relate to our UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

Formal, substantially non-substantive responses relating to KR '637 and KR '470, originally due in Korea on September 7 and 8, 2011, respectively, were extended until December 7 and 8, 2011, respectively. Our responses were timely filed. We are in the process of preparing our response for KR '975.

At this time, based on our current knowledge, we believe there is a substantial likelihood that the patents being challenged will be declared valid, and that all or a significant portion of their claims will be upheld. However, we cannot make any assurances of this result.

### Opposition to European Patent No. 1390962

On November 16, 2011, Osram AG and BASF SE each filed a Notice of Opposition to European Patent No. 1390962 (EP '962 patent). The EP '962 patent, which was issued on February 16, 2011, is a European counterpart patent to U.S. patents 7,009,338 and 7,285,907. These patents relate to our white phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

The EPO combined the oppositions into a single opposition proceeding. We are in the process of preparing our response to the oppositions.



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At this time, based on our current knowledge, we believe there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, we cannot make any assurances of this result.

## Opposition to European Patent No. 1933395

On February 24, 2012, the European Patent Office posted an Acknowledgement of Receipt of a Notice of Opposition by Sumitomo to European Patent No. 1933395 (EP '395 patent). The EP '395 patent is a counterpart patent to the above-noted Japan Patent No. 4358168, and to the above-noted Patent Nos. KR-840,637 and KR-937,470, and the related U.S. patents cited therewith. These patents and patent applications relate to our UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to us by Princeton, and under the license agreement we are required to pay all legal costs and fees associated with this proceeding.

No further knowledge of this newly-reported opposition is available to us at this time.

## EXECUTIVE OFFICERS OF THE REGISTRANT

The following table sets forth certain information with respect to our executive officers as of February 23, 2012:

| Name                 | Age | Position   |
|----------------------|-----|--|
| Sherwin I. Seligsohn | 76  | Founder and Chairman of the Board of Directors   |
| Steven V. Abramson   | 60  | President, Chief Executive Officer and Director  |
| Sidney D. Rosenblatt | 64  | Executive Vice President, Chief Financial Officer, Treasurer, Secretary and Director                 |
| Julia J. Brown       | 50  | Senior Vice President and Chief Technical Officer  |
| Janice K. Mahon      | 54  | Vice President of Technology Commercialization and General Manager, PHOLED Material Sales Business   |
| Michael G. Hack      | 55  | Vice President of Strategic Product Development and General Manager, OLED Lighting & Custom Displays |

Our Board of Directors has appointed these executive officers to hold office until their successors are duly appointed.

Sherwin I. Seligsohn is our Founder and has been the Chairman of our Board of Directors since June 1995. He also served as our Chief Executive Officer from June 1995 through December 2007, and as our President from June 1995 through May 1996. Mr. Seligsohn serves as the sole Director, President and Secretary of American Biomimetics Corporation, International Multi-Media Corporation, and Wireless Unified Network Systems Corporation. He is also Chairman of the Board of Directors, President and Chief Executive Officer of Global Photonic Energy Corporation. From June 1990 to October 1991, Mr. Seligsohn was Chairman Emeritus of InterDigital Communications, Inc. (InterDigital), formerly International Mobile Machines Corporation. He founded InterDigital and from August 1972 to June 1990 served as its Chairman of the Board of Directors. Mr. Seligsohn is a member of the Industrial Advisory Board of the Princeton Institute for the Science and Technology of Materials (PRISM) at Princeton.

Steven V. Abramson is our President and Chief Executive Officer, and has been a member of our Board of Directors since May 1996. Mr. Abramson served as our President and Chief Operating Officer from May 1996 through December 2007. From March 1992 to May 1996, Mr. Abramson was Vice President, General Counsel, Secretary and Treasurer of Roy F. Weston, Inc., a worldwide environmental consulting and engineering firm. From December 1982 to December 1991, Mr. Abramson held various positions at InterDigital, including General Counsel, Executive Vice President and General Manager of the Technology Licensing Division. Mr. Abramson has also been a member of the

Board of Directors of the OLED Association since its inception in 2008.

Sidney D. Rosenblatt is an Executive Vice President and has been our Chief Financial Officer, Treasurer and Secretary since June 1995. He also has been a member of our Board of Directors since May 1996. Mr. Rosenblatt was the owner of S. Zitner Company from August 1990 through August 2010 and served as its President from August 1990 through December 1998. From May 1982 to August 1990, Mr. Rosenblatt served as the Senior Vice President, Chief Financial Officer and Treasurer of InterDigital.

Julia J. Brown, Ph.D. is a Senior Vice President and has been our Chief Technical Officer since June 2002. She joined us in June 1998 as our Vice President of Technology Development. From November 1991 to June 1998, Dr. Brown was a Research Department Manager at Hughes Research Laboratories where she directed the pilot line production of high-

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speed Indium Phosphide-based integrated circuits for insertion into advanced airborne radar and satellite communication systems. Dr. Brown received an M.S. and Ph.D. in Electrical Engineering/Electrophysics at USC under the advisement of Professor Stephen R. Forrest. Dr. Brown has served as an Associate Editor of the Journal of Electronic Materials and as an elected member of the Electron Device Society Technical Board. She co-founded an international engineering mentoring program sponsored by the Institute of Electrical and Electronics Engineers (IEEE) and is a Fellow of the IEEE. Dr. Brown has served on numerous technical conference committees and is presently a member of the Society of Information Display.

Janice K. Mahon has been our Vice President of Technology Commercialization since January 1997, and became the General Manager of our PHOLED Material Sales Business in January 2007. From 1992 to 1996, Ms. Mahon was Vice President of SAGE Electrochromics, Inc., a thin-film electrochromic technology company, where she oversaw a variety of business development, marketing and finance and administrative activities. From 1984 to 1989, Ms. Mahon was a Vice President and General Manager for Chronar Corporation, a leading developer and manufacturer of amorphous silicon photovoltaic (PV) panels. Prior to that, Ms. Mahon worked as Senior Engineer for the Industrial Chemicals Division of FMC Corporation. Ms. Mahon received her B.S. in Chemical Engineering from Rensselaer Polytechnic Institute in 1979, and an M.B.A. from Harvard University in 1984. Ms. Mahon was a member of the Technical Council of the FlexTech Alliance from 1997 through 2010, and a member of its Governing Board from 2008 through 2010. Ms. Mahon has also served as chairperson of the Marketing Committee for the OLED Association since the beginning of 2009.

Michael G. Hack, Ph.D. has been our Vice President of Strategic Product Development since October 1999, and became the General Manager of OLED Lighting & Custom Displays in January 2010. Prior to joining us, Dr. Hack was associated with dpiX, a Xerox Company, where from 1996 to 1999 he was responsible for manufacturing flat panel displays and digital medical imaging products based on amorphous silicon TFT technology. Previously, Dr. Hack was a Principal Scientist with Xerox PARC, engaged in the research of material and device aspects of amorphous- and poly-silicon as related to flat panel displays. Dr. Hack received his Ph.D. degree from Cambridge University, England in 1981, and in 2007 he was elected a Fellow of the Society for Information Display. Dr. Hack is also a member of the Governing Board of The Army Flexible Display Center at Arizona State University.

## ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

## PART II

## ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

## Our Common Stock

Our common stock is quoted on the NASDAQ Global Market under the symbol "PANL." The following table sets forth, for the periods indicated, the high and low closing prices of our common stock as reported on the NASDAQ Global Market.

|                     | High<br>Close | Low<br>Close    |
|---------------------|---------------|-----------------|
| 2011                |               |                 |
| Fourth Quarter..... | \$...53.31... | \$...33.08..... |
| Third Quarter.....  | 58.36.....    | 22.80.....      |
| Second Quarter..... | 60.07.....    | 31.74.....      |

|                     |                    |            |
|---------------------|--------------------|------------|
| First Quarter.....  | 55.04.....         | 31.88..... |
| 2010                |                    |            |
| Fourth Quarter..... | \$...31.98...\$... | 22.34..... |
| Third Quarter.....  | 24.25.....         | 17.52..... |
| Second Quarter..... | 19.35.....         | 11.83..... |
| First Quarter.....  | 14.24.....         | 10.53..... |

As of February 23, 2012, there were approximately 311 holders of record of our common stock.

We have never declared or paid cash dividends on our common stock. We currently intend to retain any future earnings for the operation and expansion of our business. We do not anticipate declaring or paying cash dividends on our common stock in the foreseeable future. Any future payment of cash dividends on our common stock will be at the discretion

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of our Board of Directors and will depend upon our results of operations, earnings, capital requirements, contractual restrictions and other factors deemed relevant by our Board of Directors.

## Withholding of Shares to Satisfy Tax Liability

During the quarter ended December 31, 2011, we acquired 562 shares of common stock through transactions related to the vesting of restricted share awards previously granted to employees of ours. Upon vesting, the employees turned in shares of common stock in amounts sufficient to pay the minimum statutory tax withholding at rates required by the relevant tax authorities.

The following table provides information relating to the shares we received during the fourth quarter of 2011.

| Period                   | Total Number of Shares Purchased | Weighted Average Price Paid per Share | Total Number of Shares Purchased as Part of Publicly Announced Program | Approximate Dollar Value of Shares that May Yet Be Purchased Under the Program |
|--------------------------|----------------------------------|---------------------------------------|--|--|
| October 1 – October 31   | 562                              | \$ 48.76                              | n/a  | --   |
| November 1 – November 30 | --                               | --                                    | n/a  | --   |
| December 1 – December 31 | --                               | --                                    | n/a  | --   |
| Total                    | 562                              | \$ 48.76                              | n/a  | --   |

## Performance Graph

The performance graph below compares the change in the cumulative shareholder return of our common stock from December 31, 2006 to December 31, 2011, with the percentage change in the cumulative total return over the same period on (i) the Russell 2000 Index, and (ii) the Nasdaq Electronics Components Index. This performance graph assumes an initial investment of \$100 on December 31, 2006 in each of our common stock, the Russell 2000 Index and the Nasdaq Electronics Components Index.

|                              | Cumulative Total Return |        |       |       |        |        |
|------------------------------|-------------------------|--------|-------|-------|--------|--------|
|                              | 12/06                   | 12/07  | 12/08 | 12/09 | 12/10  | 12/11  |
| Universal Display Corp.      | 100.00                  | 137.71 | 62.96 | 82.35 | 204.20 | 244.44 |
| Russell 2000                 | 100.00                  | 98.43  | 65.18 | 82.89 | 105.14 | 100.75 |
| NASDAQ Electronic Components | 100.00                  | 117.33 | 60.16 | 96.77 | 110.84 | 99.75  |

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## ITEM 6. SELECTED FINANCIAL DATA

The following selected consolidated financial data has been derived from, and should be read in conjunction with, our Consolidated Financial Statements and the notes thereto, and with “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” included elsewhere in this report.

|  | Year Ended December 31, |              |              |              |               |
|--|-------------------------|--------------|--------------|--------------|---------------|
|  | 2011                    | 2010         | 2009         | 2008         | 2007          |
| <b>Operating Results:</b>  |                         |              |              |              |               |
| Total revenue.....   | \$61,288,678            | \$30,544,380 | \$15,786,617 | \$11,075,224 | \$11,305,907  |
| Research and development expense.....  | 24,129,233              | 21,695,139   | 21,122,156   | 19,220,653   | 18,360,509    |
| Selling, general and administrative expense.....   | 18,839,916              | 13,041,438   | 10,921,859   | 10,170,593   | 9,569,381     |
| Interest income.....   | 994,221                 | 279,474      | 669,633      | 2,607,897    | 3,599,229     |
| Income tax benefit.....  | 714,053                 | 134,349      | 129,915      | 962,478      | 804,980       |
| Net income (loss).....   | 3,155,153               | (19,917,410) | (20,505,320) | (19,139,736) | (15,975,841)  |
| Net income (loss) per share, basic.....  | 0.07                    | (0.53)       | (0.56)       | (0.53)       | (0.47)        |
| Net income (loss) per share, diluted.....  | 0.07                    | (0.53)       | (0.56)       | (0.53)       | (0.47)        |
| <b>Balance Sheet Data:</b>   |                         |              |              |              |               |
| Total assets.....  | \$373,877,725           | \$92,327,131 | \$80,139,887 | \$96,228,505 | \$105,000,071 |
| Current liabilities.....   | 19,517,296              | 25,044,687   | 13,965,959   | 15,769,505   | 12,790,531    |
| Shareholders’ equity.....  | 342,227,200             | 57,429,519   | 59,627,526   | 76,714,463   | 89,215,957    |
| <b>Other Financial Data:</b>   |                         |              |              |              |               |
| Working capital.....   | 342,786,731             | \$57,354,822 | \$53,663,617 | \$64,600,256 | \$73,979,638  |
| Capital expenditures.....  | 2,623,992               | 369,145      | 258,761      | 1,277,098    | 1,225,857     |
| Weighted average shares used in computing<br>basic net income (loss) per common share.....   | 43,737,968              | 37,567,374   | 36,479,331   | 35,932,372   | 33,759,581    |
| Weighted average shares used in computing<br>diluted net income (loss) per common share..... | 45,140,394              | 37,567,374   | 36,479,331   | 35,932,372   | 33,759,581    |
| Shares of common stock outstanding, end of<br>period.....                                    | 46,113,296              | 38,936,571   | 36,818,440   | 36,131,981   | 35,563,201    |

## ITEM 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the section entitled “Selected Financial Data” in this report and our Consolidated Financial Statements and related notes to this report. This discussion and analysis contains forward-looking statements based on our current expectations, assumptions, estimates and projections. These forward-looking statements involve risks and uncertainties. Our actual results could differ materially from those indicated in these forward-looking statements as a result of certain factors, as more fully discussed in Item 1A of this report, entitled “Risk Factors.”

## Overview

We are a leader in the research, development and commercialization of organic light emitting diode, or OLED, technologies for use in flat panel display, solid-state lighting and other applications. Since 1994, we have been exclusively engaged, and expect to continue to be exclusively engaged, in funding and performing research and development activities relating to OLED technologies and materials, and in attempting to commercialize these technologies and materials. We derive our revenue from the following:

- intellectual property and technology licensing;
- sales of OLED materials for evaluation, development and commercial manufacturing;  
and
- technology development and support, including government contract work and support provided to third parties for commercialization of their OLED products.

While we have made significant progress over the past few years developing and commercializing our family of OLED technologies (PHOLED, TOLED, FOLED, etc.) and materials, we have incurred significant losses since our inception, resulting in an accumulated deficit of \$213,870,962 as of December 31, 2011.

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We anticipate fluctuations in our annual and quarterly results of operations due to uncertainty regarding:

- the timing of our receipt of license fees and royalties, as well as fees for future technology development and evaluation;
- the timing and volume of sales of our OLED materials;
- the timing and magnitude of expenditures we may incur in connection with our ongoing research and development activities; and
- the timing and financial consequences of our formation of new business relationships and alliances.

## Critical Accounting Policies and Estimates

The discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles. The preparation of these financial statements requires us to make estimates and judgments that affect our reported assets and liabilities, revenues and expenses, and other financial information. Actual results may differ significantly from our estimates under other assumptions and conditions.

We believe that our accounting policies related to revenue recognition and deferred license fees, stock-based compensation and accounting for warrants and our Supplemental Executive Retirement Plan, as described below, are our “critical accounting policies” as contemplated by the SEC. These policies, which have been reviewed with our Audit Committee, are discussed in greater detail below.

## Revenue Recognition and Deferred Revenue

Technology development and support revenue is revenue earned from government contracts, development and technology evaluation agreements and commercialization assistance fees, which includes reimbursements by the U.S. government for all or a portion of the research and development expenses we incur related to our government contracts. Revenue is recognized proportionally as research and development expenses are incurred or as defined milestones are achieved. In order to ascertain the revenue associated with these contracts for a period, we estimate the proportion of related research and development expenses incurred and whether defined milestones have been achieved. Different estimates would result in different revenues for the period.

We receive non-refundable cash payments under certain commercial, development and technology evaluation agreements with our customers. These payments are generally recognized as revenue over the term of the agreement. On occasion, however, certain of the payments under development and evaluation agreements are creditable against license fees and/or royalties payable by the customer if a commercial license agreement is subsequently executed with the customer. These payments are classified as deferred revenues, and are recorded as liabilities in the consolidated balance sheet until such time as revenue can be recognized. Revenue is deferred until a commercial license agreement is executed or negotiations have ceased and there is no appreciable likelihood of executing a commercial license agreement with the customer. If a commercial license agreement is executed, payments are recorded as revenue over the term of the agreement or the estimated useful life of the licensed technology, for perpetual licenses, and the revenue is classified based on the terms of the license. Otherwise, payments deferred pending a commercial license are recorded as revenue at the time negotiations with the customer show that there is no appreciable likelihood of executing a commercial license agreement. If we used different estimates for the useful life of the licensed technology, reported revenue during the relevant period would differ. As of



December 31, 2011, \$9,407,715 was recorded as deferred revenue, of which \$3,366,667 is creditable against future commercial license agreements that have not yet been executed or deemed effective. For the years ended December 31, 2010 and 2009, \$2,100,000 and \$1,500,000, respectively, of revenue was recognized relating to cash payments received that were creditable against license fees and/or royalties for which we determined there was no appreciable likelihood of executing a license agreement with the customer. For the year ended December 31, 2011, no such revenue was recognized. For arrangements with extended payment terms where the fee is not fixed and determinable, revenue is recognized when the payment is due and payable.

#### Valuation of Stock-Based Compensation

We recognize in the statement of operations the grant-date fair value of equity-based compensation issued to employees and directors (see Notes 2, 9 and 10 of the Notes to Consolidated Financial Statements). We also record an expense for equity-based compensation grants to non-employees, in exchange for goods or services, and stock appreciation rights (SARs) issued to employees, based on the fair value, which is remeasured over the vesting period of such awards.

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We use the Black-Scholes option-pricing model to estimate the fair value of SARs, options and warrants we have granted for purposes of recording charges to the statement of operations. In order to calculate the fair value of the SARs, options and warrants, assumptions are made for certain components of the model, including expected volatility, expected dividend yield rate and expected life. Expected volatilities utilized in the model are based on the historical volatility of our stock price over a period commensurate with the expected life of the stock option. The risk-free interest rate is derived from the U.S. Treasury yield curve in effect at the time of grant. In the case of stock options granted to employees, we estimate the expected term of options granted based on our historical experience with our employees' exercise of stock options. In the case of stock options and warrants granted to non-employees, the contractual life is used. Although we use our best estimates when setting these assumptions, changes to the assumptions could cause significant adjustments to the valuation of future grants or the remeasurement of non-employee awards.

### Accounting for Warrants

On January 1, 2009, we adopted certain revised provisions of Accounting Standards Codification (ASC) 815, Derivatives and Hedging. These provisions apply to freestanding financial instruments or embedded features that have the characteristics of a derivative and to freestanding financial instruments that are potentially settled in an entity's own common stock. As a result, certain stock purchase warrants that we issued, but which are no longer outstanding, were considered to be derivatives since they contained "down-round" provisions requiring remeasurement at fair value at the end of each period as they were recorded as liabilities. Due to the exercise of all remaining stock purchase warrants in 2011, the stock warrant liability was \$0 at December 31, 2011.

The fair value of the stock warrant liability was determined using the Black-Scholes option pricing model using assumptions for certain components of the model, including expected volatility and expected annual dividend yield. Expected volatilities utilized in the model were based on the historical volatility of our stock price over a period commensurate with the remaining contractual life of the warrant. The risk-free interest rate was derived from the U.S. Treasury yield curve. The term of the warrants was based on the remaining contractual life. Although we used our best estimates when setting these assumptions, changes in assumptions could have caused significant adjustments to the valuation of the stock warrant liability. The change in fair value of the stock warrant liability was recorded as a gain or loss on the statement of operations, until all warrants were exercised.

### Retirement Plan

We have recorded a significant retirement plan benefit liability that is developed from actuarial valuations. The determination of our retirement plan benefit liability requires key assumptions regarding discount rates, as well as rates of compensation increases, retirement dates and life expectancies used to determine the present value of future benefit payments. We determine these assumptions in consultation with, and after input from, our actuaries and considering our experience and expectations for the future. Actual results for a given period will often differ from assumed amounts because of economic and other factors.

The discount rate reflects the estimated rate at which the benefit liabilities could be settled at the end of the year. The discount rate is determined by selecting a single rate that produces a result equivalent to discounting expected benefit payments from the plan using the Citigroup Above-Median Pension Discount Curve (Curve). Based upon this analysis using the Curve, we used a discount rate to measure our retirement plan benefit liability of 4.44% at December 31, 2011. A change of 25 basis points in the discount rate would increase or decrease the expense on an annual basis by approximately \$39,000.

### Results of Operations

Year Ended December 31, 2011 Compared to Year Ended December 31, 2010

We had operating income of \$5,686,737 for the year ended December 31, 2011, compared to an operating loss of \$10,226,297 for 2010. The change to operating income was due to:

- an increase in revenue of \$30,744,298;
- offset by an increase in operating expenses of \$14,831,264.

We had net income of \$3,155,153, or \$0.07 per diluted share, for the year ended December 31, 2011, compared to a net loss of \$19,917,410, or \$0.53 per diluted share for 2010. The change to net income was primarily due to:

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- an increase of operating income of \$15,913,034;
- a decrease in loss on stock warrant liability of \$5,886,782;
- an increase in interest income of \$714,747; and
- an increase in income tax benefit of \$579,704.

Our revenues were \$61,288,678 for the year ended December 31, 2011, compared to \$30,544,380 for the year ended December 31, 2010. The increase in our overall revenue was primarily due to additional OLED material sales and licensing revenues from the expanded adoption of our technology and materials in the marketplace by display manufacturers, particularly SMD.

Material sales increased to \$37,443,329 for the year ended December 31, 2011, compared to \$17,271,749 for 2010. Material sales relates to the sale of our OLED materials for incorporation into our customers' commercial OLED products or for their OLED development and evaluation activities.

Material sales included sales of both phosphorescent emitter and host materials. Phosphorescent emitter sales were 70% of our total material sales in 2011, compared to 88% of our total material sales in 2010. Host material sales were 30% of our total material sales in 2011, compared to 12% of our total material sales in 2010. We believe we can participate in the host material business due to our long experience developing emitter materials, which are used together with host material in the emissive layer of an OLED. However, our customers are not required to purchase our host materials in order to utilize our phosphorescent emitter materials, and in addition the host material business is more competitive than the phosphorescent emitter material sales business. Thus, our long-term prospects for host material sales are uncertain.

We cannot accurately predict how long our phosphorescent emitter material sales or host material sales to particular customers will continue, as our customers frequently update and alter their product offerings in response to market demands. Continued sales of our OLED materials to these customers will depend on several factors, including pricing, availability, continued technical improvement and competitive product offerings.

Royalty and license fees increased to \$15,345,281 for the year ended December 31, 2011, compared to \$4,605,512 for 2010. A substantial portion of the increase was due to royalty and license fee payments received under our patent license agreements with SMD, including our new agreement with SMD executed in August 2011. This new agreement superseded our prior patent license agreement with SMD, which was entered into in 2005. At the same time, we entered into a supplemental material purchase agreement with SMD. Both new agreements have terms that run through December 31, 2017. Based upon the arrangement containing payment terms over the course of the agreement, such amounts are not considered fixed and determinable for revenue recognition purposes. As a result, the recognition of license fees under our new agreement with SMD is based on receipt of payment; therefore our quarterly license fees will fluctuate accordingly, depending on the timing of such payments.

Our new patent license agreement with SMD covers the manufacture and sale of specified OLED display products. Under the agreement, SMD has agreed to pay us a fixed license fee, payable in installments over the agreement term. These installments increase on an annual basis over the term of the license agreement. The installment amounts were determined through negotiation based on a number of factors, including, without limitation, estimates of SMD's OLED business growth as a percentage of published OLED market forecasts, the use of red and green phosphorescent materials in SMD's OLED display products, and appropriate royalty rates relating to SMD's practice under the licensed patents. For the year ended December 31, 2011, we received and recognized \$8,246,315 in license fees from SMD under the new patent license agreement and \$3,550,390 in royalties from SMD under the old

patent license agreement.

Pursuant to the new supplemental agreement, SMD agreed to purchase from us a minimum dollar amount of phosphorescent emitter materials for use in the manufacture of licensed products. This minimum purchase commitment is subject to SMD's requirements for phosphorescent emitter materials and our ability to meet these requirements over the term of the supplemental agreement. The minimum purchase amounts increase on an annual basis over the term of the supplemental agreement. These amounts were determined through negotiation based on a number of factors, including, without limitation, estimates of SMD's OLED business growth as a percentage of published OLED market forecasts and SMD's projected minimum usage of red and green phosphorescent emitter materials over the term of the agreement. SMD purchased phosphorescent emitter materials from us in excess of the minimum purchase amount for the year ended December 31, 2011.

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Cost of material sales increased to \$3,730,840 for the year ended December 31, 2011, compared to \$887,509 for 2010, based on the aforementioned increase in material sales. Cost of material sales includes the cost of producing materials that have been classified as commercial and shipping costs for such materials, but excludes the cost of producing certain materials which costs have already been expensed as research and development expense. Commercial materials are materials that have been validated by the Company for use in commercial OLED products.

Depending on the amounts, timing and stage of materials being classified as commercial, we expect the costs of materials sold to fluctuate from quarter to quarter. As a result of these timing issues, and due to increased sales of commercial materials, cost of material sales increased for the year ended December 31, 2011, compared to the same period in 2010. For the years ended December 31, 2011 and 2010, costs associated with \$25,338,711 and \$5,739,670, respectively, of material sales relating to commercial materials were included in cost of material sales.

We incurred research and development expenses of \$24,129,233 for the year ended December 31, 2011, compared to \$21,695,139 for 2010. The increase was mainly due to:

- increased employee costs of \$2,170,386, due primarily to new employees, increased salaries, costs associated with retirement benefits and incentive stock awards for certain executive officers;
- increased costs of \$943,392 due to overall expanded research and development efforts to support the growth of our business; and
- costs of \$705,491 resulting from commencement of research and development activities at certain of our foreign subsidiaries; offset by
- decreased amortization costs of \$1,185,423 due to part of our acquired technology being fully amortized as of December 31, 2010.

Selling, general and administrative expenses were \$18,939,916 for the year ended December 31, 2011, compared to \$13,041,438 for 2010. The overall increase in these costs was driven in part by increased commercial activities and non-cash expenses related to stock compensation and in part by costs incurred to establish new subsidiaries in Hong Kong, Korea and Japan. Specifically, we incurred increased costs in the following areas:

- increased employee costs of \$2,043,221, due primarily to increased salaries, costs associated with retirement benefits and incentive stock awards for certain executive officers;
- costs of \$572,737 resulting from the incorporation and commencement of operations of certain of our foreign subsidiaries;
- increased costs of \$545,616 related to stock compensation for members of our Board of Directors;
- increased legal fees of \$484,340, due in large part to expanded licensing negotiations;
- increased expense of \$449,569 due to costs associated with certain prototypes; and
- increased international consulting fees of \$382,363, resulting from increased revenues.

Patent costs increased to \$7,442,374 for the year ended December 31, 2011, compared to \$4,270,689 for 2010. The increase was mainly due to increased costs associated with our defense of certain ongoing and new challenges to our issued patents, as well as the timing of prosecution and maintenance costs associated with a number of patents and patent applications.

Royalty and license expense increased to \$1,359,578 for the year ended December 31, 2011, compared to \$875,902 for 2010. The increase consisted mainly of royalties incurred under an amended license agreement with Princeton, USC and Michigan, resulting from increased revenues. See Note 3 in Notes to Consolidated Financial Statements for further discussion.

Interest income increased to \$994,221 for the year ended December 31, 2011, compared to \$279,474 for 2010. The increase was mainly attributable to interest earned on higher average cash and investment balances as a result of proceeds received from the completion of our public offering in March 2011.

In 2011, all remaining outstanding stock warrants to purchase shares of our common stock were exercised. The warrants, which contained a “down-round” provision, were previously recorded as a liability. The change in fair value of

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these warrants during the period prior to the exercise date resulted in a \$4,190,283 non-cash loss on our statement of operations for the year ended December 31, 2011, compared to a \$10,077,065 non-cash loss for 2010.

During the year ended December 31, 2011, we sold approximately \$45.2 million of our state-related income tax net operating losses (NOLs) and \$232,000 of our research and development tax credits under the New Jersey Technology Tax Certificate Transfer Program. We recorded the amount of the completed sale as an income tax benefit for the year ended December 31, 2011 and received the proceeds of \$2,660,512 in January 2012. During the year ended December 31, 2010, we sold approximately \$3.8 million of our state-related income tax NOLs and \$194,088 of our research and development tax credits under the New Jersey Technology Tax Certificate Transfer Program. We received proceeds of \$464,162 from our sale of these NOLs and research and development tax credits, and we recorded these proceeds as an income tax benefit for the year ended December 31, 2010.

The above-mentioned income tax benefit was offset by foreign income tax withholdings in connection with payments received from SMD. We had previously filed for and were granted a five-year exemption from withholding tax on royalties and license fees received from SMD under our 2005 patent license agreement as part of a tax incentive program in Korea. The exemption remained in effect until May 2010. Since then, SMD has been required to withhold tax upon payment of royalties to us. This is also the case under our new patent license agreement with SMD, which we entered into in August 2011.

In 2011 and 2010, the withholding tax rate for royalties and license fees paid by SMD was 16.5%. For the years ended December 31, 2011 and 2010, foreign income taxes of \$1,946,456 and \$329,813, respectively, were withheld in connection with these payments. We anticipate the amount of withholding taxes to increase as associated payments received from SMD increase in the future.

Year Ended December 31, 2010 Compared to Year Ended December 31, 2009

We had an operating loss of \$10,226,297 for the year ended December 31, 2010, compared to an operating loss of \$20,266,794 for 2009. The decrease in operating loss was due to:

- an increase in revenue of \$14,757,763;
- offset by an increase in operating expenses of \$4,717,266.

We had a net loss of \$19,917,410, or \$0.53 per diluted share, for the year ended December 31, 2010, compared to a net loss of \$20,505,320, or \$0.56 per diluted share, for 2009. The decrease in net loss was primarily due to:

- a decrease in operating loss of \$10,040,497;
- offset by an increase in loss on stock warrant liability of \$9,046,010.

Our revenues were \$30,544,380 for the year ended December 31, 2010, compared to \$15,786,617 for 2009.

Material sales increased to \$17,271,749 for the year ended December 31, 2010, compared to \$5,668,752 for 2009. Material sales relates to the sale of our OLED materials for incorporation into our customers' commercial OLED products or for their OLED development and evaluation activities.

Material sales included sales of both phosphorescent emitter and host materials. Phosphorescent emitter sales were 88% of our total material sales in 2010, compared to 94% of our total material sales in 2009. Host material sales were 12% of our total material sales in 2010, compared to 6% of our total material sales in 2010. We cannot accurately



predict how long our phosphorescent emitter material sales or host material sales to particular customers will continue, as our customers frequently update and alter their product offerings in response to market demands. Continued sales of our OLED materials to these customers will depend on several factors, including pricing, availability, continued technical improvement and competitive product offerings.

Royalty and license fees increased to \$4,605,512 for the year ended December 31, 2010, compared to \$2,656,326 for 2009. A substantial portion of the increase was due to additional royalty payments received under our 2005 patent license agreement with SMD. As previously discussed, the 2005 patent license agreement was superseded by a new patent license agreement we entered into with SMD in August 2011.

We filed for and were granted a five-year exemption on withholding tax on royalty payments received from SMD under our 2005 patent license agreement as part of a tax incentive program in Korea. The exemption was granted in May

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2005 and remained in effect until May 2010. Since then, SMD has been required to withhold tax upon payment of royalties to us. In 2010, the withholding tax rate for royalty payments made by SMD was 16.5%.

Cost of material sales increased to \$887,509 for the year ended December 31, 2010, compared to \$374,322 for the year ended December 31, 2009, based on the aforementioned increase in material sales.

We incurred research and development expenses of \$21,695,139 for the year ended December 31, 2010, compared to \$21,122,156 for 2009. The increase in research and development expenses was consistent with our expectations based on the growth of our business.

Selling, general and administrative expenses were \$13,041,438 for the year ended December 31, 2010, compared to \$10,921,859 for 2009. The increase in selling, general and administrative expenses was mainly due to:

- increased employee costs of \$1,383,653, due primarily to increased salaries and stock compensation for certain executive officers; and
- expenses of \$1,026,244 related to net periodic benefit costs of the Universal Display Corporation Supplemental Executive Retirement Plan (SERP) for certain executive officers, which was implemented in 2010. See Note 11 in the Notes to Consolidated Financial Statements.

Patent costs increased to \$4,270,689 for the year ended December 31, 2010, compared to \$3,239,795 for 2009. The increase was mainly due to the timing of prosecution and maintenance costs associated with a number of patents and patent applications, as well as the timing of costs for certain ongoing and new patent matters.

Interest income decreased to \$279,474 for the year ended December 31, 2010, compared to \$669,633 for 2009. The decrease was mainly attributable to decreased rates of return on investments during 2010, compared to rates of return during 2009.

At December 31, 2010, we had outstanding warrants to purchase 586,972 shares of common stock, which warrants contained a “down-round” provision requiring liability classification. The change in fair value of these warrants during the period resulted in a \$10,077,065 non-cash loss on our consolidated statements of operations for the year ended December 31, 2010 compared to a \$1,031,055 non-cash loss for the year ended December 31, 2009. The warrants continued to be reported as a liability, with changes in fair value recorded in the statement of operations, until these warrants were exercised in 2011.

During the year ended December 31, 2010, we sold approximately \$3.8 million of our state-related income tax net operating losses (NOLs) and \$194,088 of our research and development tax credits under the New Jersey Technology Tax Certificate Transfer Program. We received proceeds of \$464,162 from our sale of these NOLs and research and development tax credits, and we recorded these proceeds as an income tax benefit. In past years, we completed our sales of state-related tax NOLs during the fourth quarter of the year. The income tax benefit was offset by foreign income taxes of \$329,813 withheld in connection with our royalty revenues, as noted above.

## Liquidity and Capital Resources

As of December 31, 2011, we had cash and cash equivalents of \$111,795,229 and short-term investments of \$234,294,041, for a total of \$346,089,270. This compares to cash and cash equivalents of \$20,368,852 and short-term investments of \$52,794,545, for a total of \$73,163,397, as of December 31, 2010. The increase in cash and cash equivalents and short-term investments of \$272,925,873 was primarily due to the completion in March 2011 of our

public offering of 5,750,000 shares of our common stock at a price of \$46.00 per share. The offering resulted in net proceeds to us of \$249,628,814.

Cash provided by operating activities was \$16,409,427 for 2011, compared to cash used in operating activities of \$4,200,138 for 2010. The increase in cash provided by operating activities was primarily due to the following:

- a decrease in net loss of \$15,917,122, which amount excludes the impact of non-cash items;
- the impact of the timing of payment of accounts payable and accrued expenses of \$4,386,746;
- the impact of the timing of receipt of accounts receivable of \$424,967;
- a decrease in other current assets of \$1,915,958; and
- an increase of \$1,873,499 in deferred revenue and licensing fees received; offset by

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·an increase in inventory of \$3,838,952.

Cash used in investing activities was \$183,789,448 for 2011, compared to \$11,829,817 for 2010. The increase in cash used in investing activities was mainly due to increased purchases of short-term investments as a result of the completion of our public offering in March 2011, as well as purchases of property and equipment of \$2,623,992.

Cash provided by financing activities was \$258,806,398 for 2011, compared to \$13,697,681 for 2010. The increase in cash provided by financing activities was due primarily to the completion of our March 2011 public offering. The offering resulted in proceeds to us of \$249,628,814, which was net of \$14,871,186 in underwriting discounts and commissions and other costs associated with the completion of the offering. In addition, for the year ended December 31, 2011, we received proceeds of \$13,342,791 from the exercise of options and warrants to purchase shares of our common, compared to proceeds of \$14,618,569 from the exercise of options and warrants to purchase shares of our common stock in 2010. In connection with stock-based employee compensation and option exercises for the years ended December 31, 2011 and 2010, we made payments of \$4,472,549 and \$1,166,572, respectively, in withholding taxes.

Working capital was \$342,786,731 as of December 31, 2011, compared to \$57,354,822, which included a stock warrant liability of \$10,659,755, as of December 31, 2010. The stock warrants associated with this liability were all exercised in 2011, resulting in no cash outlay by us. Working capital, excluding the stock warrant liability, was \$68,014,577 as of December 31, 2010. The increase in working capital was primarily due to proceeds from the completion of our public offering in March 2011.

We anticipate, based on our internal forecasts and assumptions relating to our operations (including, among others, assumptions regarding our working capital requirements, the progress of our research and development efforts, the availability of sources of funding for our research and development work, and the timing and costs associated with the preparation, filing, prosecution, maintenance, defense and enforcement of our patents and patent applications), that we have sufficient cash, cash equivalents and short-term investments to meet our obligations for at least the next 12 months.

We believe that potential additional financing sources for us include long-term and short-term borrowings, public and private sales of our equity and debt securities and the receipt of cash upon the exercise of outstanding stock options. It should be noted, however, that additional funding may be required in the future for research, development and commercialization of our OLED technologies and materials, to obtain, maintain and enforce patents respecting these technologies and materials, and for working capital and other purposes, the timing and amount of which are difficult to ascertain. There can be no assurance that additional funds will be available to us when needed, on commercially reasonable terms or at all, particularly in the current economic environment.

## Contractual Obligations

As of December 31, 2011, we had the following contractual commitments:

| Contractual Obligations                    | Total         | Payments due by period |            |            |                   |
|--|---------------|------------------------|------------|------------|-------------------|
|  |               | Less than 1 year       | 1-3 years  | 3-5 years  | More than 5 years |
| Estimated retirement plan benefit payments | \$ 20,006,000 | \$ 164,000             | \$ 786,000 | \$ 786,000 | \$ 18,270,000     |
| Sponsored research obligation              | 2,601,278     | 1,944,995              | 656,283    | —          | —                 |
|  | 500,000       | 100,000                | 200,000    | 200,000    | 100,000/year(1)   |

Minimum royalty  
obligation (1)

|           |               |              |              |            |               |
|-----------|---------------|--------------|--------------|------------|---------------|
| Total (2) | \$ 23,107,278 | \$ 2,208,995 | \$ 1,642,283 | \$ 986,000 | \$ 18,270,000 |
|-----------|---------------|--------------|--------------|------------|---------------|

- (1) Under the 1997 License Agreement, we are obligated to pay Princeton minimum royalties of \$100,000 per year until such time as the agreement is no longer in effect. The agreement has no scheduled expiration date.
- (2) See Note 12 to the Consolidated Financial Statements for discussion of obligations upon termination of employment of executive officers as a result of a change in control of the Company.

Off-Balance Sheet Arrangements

As of December 31, 2011, we had no off-balance sheet arrangements in the nature of guarantee contracts, retained or contingent interests in assets transferred to unconsolidated entities (or similar arrangements serving as credit, liquidity or

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market risk support to unconsolidated entities for any such assets), or obligations (including contingent obligations) arising out of variable interests in unconsolidated entities providing financing, liquidity, market risk or credit risk support to us, or that engage in leasing, hedging or research and development services with us.

Recently Issued Accounting Pronouncements

Recently issued accounting pronouncements are addressed in Note 2 in the Notes to Consolidated Financial Statements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We do not utilize financial instruments for trading purposes and hold no derivative financial instruments, other financial instruments or derivative commodity instruments that could expose us to significant market risk other than our short-term investments disclosed in “Fair Value Measurements” in Note 2 to the consolidated financial statements included herein. We invest in investment grade financial instruments to reduce our exposure related to investments. Our primary market risk exposure with regard to such financial instruments is to changes in interest rates, which would impact interest income earned on investments. However, based upon the conservative nature of our investment portfolio and current experience, we do not believe a decrease in investment yields would have a material negative effect on our interest income.

Substantially all our revenue is derived from outside of North America. All revenue is primarily denominated in U.S. dollars and therefore we bear no significant foreign exchange risk.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our Consolidated Financial Statements and the relevant notes to those statements are attached to this report beginning on page F-1.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2011. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures, as of the end of the period covered by this report, are effective to provide reasonable assurance that the information required to be disclosed by us in reports filed or submitted under the Securities Exchange Act of 1934, as amended, is (i) recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and (ii) accumulated and communicated to our management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding disclosure. However, a controls system, no matter how well designed and operated, cannot provide absolute assurance that the objectives of the controls system are met, and no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within a company have been detected.

Management's Report on Internal Control over Financial Reporting and Report of Independent Registered Public Accounting Firm on Internal Control over Financial Reporting

The report of management on our internal control over financial reporting and the associated attestation report of our independent registered public accounting firm are set forth in Item 8 of this report.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2011 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information with respect to this item is set forth in our definitive Proxy Statement for the 2012 Annual Meeting of Shareholders, which is to be filed with the Securities and Exchange Commission no later than April 29, 2012, (our “Proxy Statement”), and which is incorporated herein by reference. Information regarding our executive officers is included at the end of Part I of this report.

ITEM 11. EXECUTIVE COMPENSATION

Information with respect to this item will be set forth in our Proxy Statement, and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information with respect to this item will be set forth in our Proxy Statement, and is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Information with respect to this item will be set forth in our Proxy Statement, and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Information with respect to this item will be set forth in our Proxy Statement, and is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this report:

(1) Financial Statements:

|   |      |
|---|------|
| Management’s Report on Internal Control Over Financial Reporting                | F-2  |
| Reports of Independent Registered Public Accounting Firm                        | F-3  |
| Consolidated Balance Sheets   | F-5  |
| Consolidated Statements of Operations   | F-6  |
| Consolidated Statements of Shareholders’ Equity and Comprehensive Income (Loss) | F-7  |
| Consolidated Statements of Cash Flows   | F-9  |
| Notes to Consolidated Financial Statements                                      | F-10 |



(2) Financial Statement Schedules:

None.

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## (3) Exhibits:

The following is a list of the exhibits filed as part of this report. Where so indicated by footnote, exhibits that were previously filed are incorporated by reference. For exhibits incorporated by reference, the location of the exhibit in the previous filing is indicated parenthetically, together with a reference to the filing indicated by footnote.

| Exhibit<br>Number | Description  |
|-------------------|--|
| 3.1               | Amended and Restated Articles of Incorporation of the registrant (1)   |
| 3.2               | Bylaws of the registrant (2)   |
| 10.1#             | Amended and Restated Change in Control Agreement between the registrant and Sherwin I. Seligsohn, dated as of November 4, 2008 (3)   |
| 10.2#             | Amended and Restated Change in Control Agreement between the registrant and Steven V. Abramson, dated as of November 4, 2008 (3)     |
| 10.3#             | Amended and Restated Change in Control Agreement between the registrant and Sidney D. Rosenblatt, dated as of November 4, 2008 (3)   |
| 10.4#             | Amended and Restated Change in Control Agreement between the registrant and Julia J. Brown, dated as of November 4, 2008 (3)         |
| 10.5#             | Amended and Restated Change in Control Agreement between the registrant and Janice K. Mahon, dated as of November 4, 2008 (3)        |
| 10.6#             | Second Amended and Restated Change in Control Agreement between the registrant and Michael G. Hack, dated as of January 11, 2010 (4) |
| 10.7#             | Non-Competition and Non-Solicitation Agreement between the registrant and Sherwin I. Seligsohn, dated as of February 23, 2007 (5)    |
| 10.8#             | Non-Competition and Non-Solicitation Agreement between the registrant and Steven V. Abramson, dated as of January 26, 2007 (5)       |
| 10.9#             | Non-Competition and Non-Solicitation Agreement between the registrant and Sidney D. Rosenblatt, dated as of February 7, 2007 (5)     |
| 10.10#            | Non-Competition and Non-Solicitation Agreement between the registrant and Julia J. Brown, dated as of February 5, 2007 (5)           |
| 10.11#            | Non-Competition and Non-Solicitation Agreement between the registrant and Janice K. Mahon, dated as of February 23, 2007 (3)         |
| 10.12#            | Non-Competition and Non-Solicitation Agreement between the registrant and Michael G. Hack, dated as of February 5, 2007 (4)          |

- 10.13# Equity Retention Agreement between the registrant and Steven V. Abramson, dated as of March 18, 2010 (6)
- 10.14# Equity Retention Agreement between the registrant and Sidney D. Rosenblatt, dated as of March 18, 2010 (6)
- 10.15# Equity Retention Agreement between the registrant and Julia J. Brown, dated as of January 6, 2011 (7)
- 10.16# Equity Retention Agreement between the registrant and Janice K. Mahon, dated as of January 6, 2011 (7)
- 10.17# Equity Retention Agreement between the registrant and Michael G. Hack, dated as of January 6, 2011 (7)
- 10.18# Supplemental Executive Retirement Plan, dated as of April 1, 2010 (6)
- 10.19 Equity Compensation Plan, last amended effective as of June 23, 2011 (8)
- 10.20 Sponsored Research Agreement between the registrant and the University of Southern California, dated as of May 1, 2006 (9)

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- 10.21 Amendment No. 1 to the Sponsored Research Agreement between the registrant and the University of Southern California, dated as of May 1, 2006 (3)
- 10.22 Amendment No. 2 to the Sponsored Research Agreement between the registrant and the University of Southern California, dated as of May 7, 2009 (10)
- 10.23 1997 Amended License Agreement among the registrant, The Trustees of Princeton University and the University of Southern California, dated as of October 9, 1997 (11)
- 10.24 Amendment #1 to the Amended License Agreement among the registrant, the Trustees of Princeton University and the University of Southern California, dated as of August 7, 2003 (12)
- 10.25 Amendment #2 to the Amended License Agreement among the registrant, the Trustees of Princeton University, the University of Southern California and the Regents of the University of Michigan, dated as of January 1, 2006 (12)
- 10.26 Termination, Amendment and License Agreement by and among the registrant, PD-LD, Inc., Dr. Vladimir S. Ban, and The Trustees of Princeton University, dated as of July 19, 2000 (13)
- 10.27 Letter of Clarification of UDC/GPEC Research and License Arrangements between the registrant and Global Photonic Energy Corporation, dated as of June 4, 2004 (5)
- 10.28+ Amended and Restated OLED Materials Supply and Service Agreement between the registrant and PPG Industries, Inc., dated as of October 1, 2011 (14)
- 10.29+ OLED Patent License Agreement between the registrant and Samsung Mobile Display Co., Ltd., dated as of August 22, 2011 (15)
- 10.30+ Supplemental OLED Material Purchase Agreement between the registrant and Samsung Mobile Display Co., Ltd., dated as of August 22, 2011 (15)
- 10.31+ Settlement and License Agreement between the registrant and Seiko Epson Corporation, dated as of July 31, 2006 (16)
- 10.32+ Amendment No. 1 to the Settlement and License Agreement between the registrant and Seiko Epson Corporation, dated as of March 30, 2009 (17)
- 10.33+ Commercial Supply Agreement between the registrant and LG.Philips LCD Co., Ltd. (now known as LG Display Co., Ltd.), dated as of May 23, 2007 (18)
- 10.34 Amendment No. 1 to the Commercial Supply Agreement between the registrant and LG Display Co., Ltd., dated as of November 21, 2008 (3)
- 10.35 Amendment No. 2 to the Commercial Supply Agreement between the registrant and LG Display Co., Ltd., dated as of August 11, 2009 (19)
- 10.36 Amendment No. 3 to the Commercial Supply Agreement between the registrant and LG Display Co., Ltd., dated as of March 10, 2010 (6)

- 10.37 Amendment No. 4 to the Commercial Supply Agreement between the registrant and LG Display Co., Ltd., dated as of July 23, 2010 (20)
- 10.38 Amendment No. 5 to the Commercial Supply Agreement between the registrant and LG Display Co., Ltd., dated as of January 6, 2011 (7)
- 10.39\* Amendment No. 6 to the Commercial Supply Agreement between the registrant and LG Display Co., Ltd., dated as of July 6, 2011
- 10.38+ OLED Technology License Agreement between the registrant and Konica Minolta Holdings, Inc., dated as of August 11, 2008 (21)
- 10.39+ OLED Technology License Agreement between the registrant and Showa Denko K.K., dated as of December 17, 2009 (22)
- 10.40+ Memorandum of Agreement between the registrant and Moser Baer Technologies Inc., dated as of February 4, 2011 (7)
- 10.41+ Limited-Term OLED Technology License Agreement between the registrant and Panasonic Idemitsu OLED Lighting Co., Ltd., dated as of August 23, 2011 (14)

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- 10.42+ OLED Technology License Agreement between the registrant and Pioneer Corporation, dated as of September 27, 2011 (23)
- 21\* Subsidiaries of the registrant
- 23.1\* Consent of KPMG LLP
- 31.1\* Certifications of Steven V. Abramson, Chief Executive Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)
- 31.2\* Certifications of Sidney D. Rosenblatt, Chief Financial Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)
- 32.1\*\* Certifications of Steven V. Abramson, Chief Executive Officer, as required by Rule 13a-14(b) or Rule 15d-14(b), and by 18 U.S.C. Section 1350. (This exhibit shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section. Further, this exhibit shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.)
- 32.2\*\* Certifications of Sidney D. Rosenblatt, Chief Financial Officer, as required by Rule 13a-14(b) or Rule 15d-14(b), and by 18 U.S.C. Section 1350. (This exhibit shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section. Further, this exhibit shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.)

Explanation of footnotes to listing of exhibits:

- \* Filed herewith.
  - \*\* Furnished herewith.
  - # Management contract or compensatory plan or arrangement.
  - + Confidential treatment has been accorded to certain portions of this exhibit pursuant to Rule 406 under the Securities Act of 1933, as amended, or Rule 24b-2 under the Securities Exchange Act of 1934, as amended.
- (1) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, filed with the SEC on August 9, 2010.
  - (2) Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2003, filed with the SEC on March 1, 2004.
  - (3) Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2008, filed with the SEC on March 12, 2009.
  - (4) Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2009, filed with the SEC on March 15, 2010.
  - (5)

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Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2006, filed with the SEC on March 15, 2007.

- (6) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2010, filed with the SEC on May 10, 2010.
- (7) Filed as an Exhibit to a Current Report on Form 8-K, filed with the SEC on March 21, 2011.
- (8) Filed as an Exhibit to the Definitive Proxy Statement for the 2011 Annual Meeting of Shareholders, filed with the SEC on April 29, 2011.
- (9) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, filed with the SEC on August 9, 2006.
- (10) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2009, filed with the SEC on August 10, 2009.
- (11) Filed as an Exhibit to the Annual Report on Form 10K-SB for the year ended December 31, 1997, filed with the SEC on March 31, 1998.
- (12) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2003, filed with the SEC on November 10, 2003.

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- (13) Filed as an Exhibit to the amended Quarterly Report on Form 10-Q for the quarter ended September 30, 2000, filed with the SEC on November 20, 2001.
- (14) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed with the SEC on November 8, 2011.
- (15) Filed as an Exhibit to an Amended Current Report on Form 8-K, filed with the SEC on December 19, 2011.
- (16) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2006, filed with the SEC on November 6, 2006.
- (17) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2009, filed with the SEC on May 7, 2009.
- (18) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2007, filed with the SEC on August 9, 2007.
- (19) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2009, filed with the SEC on November 9, 2009.
- (20) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2010, filed with the SEC on November 4, 2010.
- (21) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2008, filed with the SEC on November 6, 2008.
- (22) Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2009, as amended, filed with the SEC on June 23, 2010.
- (23) Filed as an Exhibit to Amendment No. 1 to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed with the SEC on January 27, 2012.

Note: Any of the exhibits listed in the foregoing index not included with this report may be obtained, without charge, by writing to Mr. Sidney D. Rosenblatt, Corporate Secretary, Universal Display Corporation, 375 Phillips Boulevard, Ewing, New Jersey 08618.

- (b) The exhibits required to be filed by us with this report are listed above.
- (c) The consolidated financial statement schedules required to be filed by us with this report are listed above.



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## SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized:

UNIVERSAL DISPLAY  
CORPORATION

By: /s/ Sidney D. Rosenblatt  
Sidney D. Rosenblatt  
Executive Vice President, Chief  
Financial Officer,  
Treasurer and Secretary

Date: February 28, 2012

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

| Name  | Title   | Date                 |
|---|---|----------------------|
| /s/<br>Sherwin I. Seligsohn                         | Founder and Chairman of the Board of<br>Directors   | February 28,<br>2012 |
| Sherwin I. Seligsohn                                |   |                      |
| /s/ Steven V.<br>Abramson<br>Steven V. Abramson     | President, Chief Executive Officer and<br>Director (principal executive officer)  | February 28,<br>2012 |
| /s/ Sidney D.<br>Rosenblatt<br>Sidney D. Rosenblatt | Executive Vice President, Chief Financial<br>Officer, Treasurer, Secretary and Director<br>(principal financial and accounting officer) | February 28,<br>2012 |
| /s/ Leonard<br>Becker<br>Leonard Becker             | Director  | February 28,<br>2012 |
| /s/ Elizabeth H.<br>Gemmill<br>Elizabeth H. Gemmill | Director  | February 28,<br>2012 |
| /s/ C. Keith Hartley<br>C. Keith Hartley            | Director  | February 28,<br>2012 |
| /s/ Lawrence<br>Lacerte<br>Lawrence Lacerte         | Director  | February 28,<br>2012 |



UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES  
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for the Company. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with generally accepted accounting principles. Our system of internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management performed an assessment of the effectiveness of our internal control over financial reporting as of December 31, 2011 based upon criteria in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, management determined that the Company's internal control over financial reporting was effective as of December 31, 2011, based on the criteria in Internal Control-Integrated Framework issued by COSO.

The effectiveness of our internal control over financial reporting as of December 31, 2011, has been attested to by KPMG LLP, an independent registered public accounting firm, as stated in its report which appears on the following page.

Steven V. Abramson  
President and Chief Executive Officer

Sidney D. Rosenblatt  
Executive Vice President and Chief Financial  
Officer

February 28, 2012

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders  
Universal Display Corporation:

We have audited Universal Display Corporation's internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Universal Display Corporation's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Universal Display Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Universal Display Corporation and subsidiaries as of December 31, 2011 and 2010, and the related consolidated statements of operations, shareholders' equity and comprehensive income (loss), and cash flows for each of the years in the three-year period ended December 31, 2011, and our report dated February 28, 2012 expressed an unqualified opinion on those consolidated financial statements .

/s/ KPMG LLP

Philadelphia, Pennsylvania  
February 28, 2012

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders  
Universal Display Corporation:

We have audited the accompanying consolidated balance sheets of Universal Display Corporation and subsidiaries as of December 31, 2011 and 2010, and the related consolidated statements of operations, shareholders' equity and comprehensive income (loss), and cash flows for each of the years in the three-year period ended December 31, 2011. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Universal Display Corporation and subsidiaries as of December 31, 2011 and 2010, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2011, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Universal Display Corporation's internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated February 28, 2012 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP

Philadelphia, Pennsylvania  
February 28, 2012

Financial Table of ContentsUNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES  
CONSOLIDATED BALANCE SHEETS

|  | December 31,<br>2011  | 2010                 |
|--|-----------------------|----------------------|
| <b>ASSETS</b>  |                       |                      |
| <b>CURRENT ASSETS:</b>   |                       |                      |
| Cash and cash equivalents  | \$ 111,795,229        | \$ 20,368,852        |
| Short-term investments   | 234,294,041           | 52,794,545           |
| Accounts receivable  | 10,726,524            | 7,247,873            |
| Inventory  | 3,842,729             | 2,209                |
| Other current assets   | 1,645,504             | 1,986,030            |
| Total current assets   | 362,304,027           | 82,399,509           |
| PROPERTY AND EQUIPMENT, net  | 10,883,939            | 9,711,093            |
| ACQUIRED TECHNOLOGY, net   | 390,795               | —                    |
| OTHER ASSETS   | 298,964               | 216,529              |
| <b>TOTAL ASSETS</b>  | <b>\$ 373,877,725</b> | <b>\$ 92,327,131</b> |
| <b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>  |                       |                      |
| <b>CURRENT LIABILITIES:</b>  |                       |                      |
| Accounts payable   | \$ 4,776,446          | \$ 2,155,489         |
| Accrued expenses   | 9,019,722             | 6,906,289            |
| Deferred revenue   | 5,534,176             | 5,323,154            |
| Stock warrant liability (Note 2)   | -                     | 10,659,755           |
| Other current liabilities  | 186,952               | -                    |
| Total current liabilities  | 19,517,296            | 25,044,687           |
| DEFERRED REVENUE   | 3,873,539             | 2,775,024            |
| RETIREMENT PLAN BENEFIT<br>LIABILITY   | 8,259,690             | 7,077,901            |
| Total liabilities  | 31,650,525            | 34,897,612           |
| <b>COMMITMENTS AND<br/>CONTINGENCIES (Note 12)</b>   |                       |                      |
| <b>SHAREHOLDERS' EQUITY:</b>   |                       |                      |
| Preferred Stock, par value \$0.01 per<br>share, 5,000,000 shares authorized,<br>200,000 shares of Series A<br>Nonconvertible Preferred Stock issued<br>and outstanding (liquidation value of<br>\$7.50 per share or \$1,500,000) | 2,000                 | 2,000                |
| Common Stock, par value \$0.01 per<br>share, 100,000,000 shares authorized,  | 461,133               | 389,366              |



46,113,296 and 38,936,571 shares  
issued and outstanding at December 31,  
2011 and 2010, respectively

|   |                           |                          |
|---|---------------------------|--------------------------|
| Additional paid-in capital                                | 561,492,336               | 280,102,227              |
| Accumulated deficit                                       | (213,870,962)             | (217,026,115)            |
| Accumulated other comprehensive loss                      | (5,857,307 )              | (6,037,959 )             |
| <br>Total shareholders' equity                            | <br>342,227,200           | <br>57,429,519           |
| <br><b>TOTAL LIABILITIES AND<br/>SHAREHOLDERS' EQUITY</b> | <br><b>\$ 373,877,725</b> | <br><b>\$ 92,327,131</b> |

The accompanying notes are an integral part of these consolidated financial statements.

Financial Table of ContentsUNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES  
CONSOLIDATED STATEMENTS OF OPERATIONS

|  | Year Ended December 31, |                        |                        |
|--|-------------------------|------------------------|------------------------|
|  | 2011                    | 2010                   | 2009                   |
| <b>REVENUE:</b>  |                         |                        |                        |
| Material sales   | \$ 37,443,329           | \$ 17,271,749          | \$ 5,668,752           |
| Royalty and license fees   | 15,345,281              | 4,605,512              | 2,656,326              |
| Technology development and support revenue   | 8,500,068               | 8,667,119              | 7,461,539              |
| <b>Total revenue</b>   | <b>61,288,678</b>       | <b>30,544,380</b>      | <b>15,786,617</b>      |
| <b>OPERATING EXPENSES:</b>   |                         |                        |                        |
| Cost of material sales   | 3,730,840               | 887,509                | 374,322                |
| Research and development   | 24,129,233              | 21,695,139             | 21,122,156             |
| Selling, general and administrative  | 18,939,916              | 13,041,438             | 10,921,859             |
| Patent costs   | 7,442,374               | 4,270,689              | 3,239,795              |
| Royalty and license expense  | 1,359,578               | 875,902                | 395,279                |
| <b>Total operating expenses</b>  | <b>55,601,941</b>       | <b>40,770,677</b>      | <b>36,053,411</b>      |
| Operating income (loss)  | 5,686,737               | (10,226,297)           | (20,266,794)           |
| INTEREST INCOME  | 994,221                 | 279,474                | 669,633                |
| INTEREST EXPENSE   | (49,575 )               | (27,871 )              | (7,019 )               |
| LOSS ON STOCK WARRANT LIABILITY  | (4,190,283 )            | (10,077,065 )          | (1,031,055 )           |
| <b>INCOME (LOSS) BEFORE INCOME TAX BENEFIT</b>                                       | <b>2,441,100</b>        | <b>(20,051,759)</b>    | <b>(20,635,235)</b>    |
| <b>INCOME TAX BENEFIT</b>  | <b>714,053</b>          | <b>134,349</b>         | <b>129,915</b>         |
| <b>NET INCOME (LOSS)</b>   | <b>\$ 3,155,153</b>     | <b>\$ (19,917,410)</b> | <b>\$ (20,505,320)</b> |
| <b>NET INCOME (LOSS) PER COMMON SHARE:</b>   |                         |                        |                        |
| BASIC  | \$ 0.07                 | \$ (0.53 )             | \$ (0.56 )             |
| DILUTED  | \$ 0.07                 | \$ (0.53 )             | \$ (0.56 )             |
| <b>WEIGHTED AVERAGE SHARES USED IN COMPUTING NET INCOME (LOSS) PER COMMON SHARE:</b> |                         |                        |                        |
| BASIC  | 43,737,968              | 37,567,374             | 36,479,331             |
| DILUTED  | 45,140,394              | 37,567,374             | 36,479,331             |

The accompanying notes are an integral part of these consolidated financial statements.

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UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES  
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY AND COMPREHENSIVE INCOME (LOSS)

|  | Series A<br>Nonconvertible |          | Common Stock |            | Additional<br>Paid-in<br>Capital |
|--|----------------------------|----------|--------------|------------|----------------------------------|
|  | Preferred Stock<br>Shares  | Amount   |              |            |                                  |
| BALANCE, JANUARY 1, 2009   | 200,000                    | \$ 2,000 | 36,131,981   | \$ 361,320 | \$ 256,696,849                   |
| Net loss   | —                          | —        | —            | —          | —                                |
| Unrealized loss on<br>available-for-sale securities                                      | —                          | —        | —            | —          | —                                |
| Comprehensive loss   |                            |          |              |            |                                  |
| Cumulative effect of the adoption<br>of revisions to ASC 815, see Note<br>2              | —                          | —        | —            | —          | (6,557,928 )                     |
| Exercise of common stock options<br>and warrants, net of tendered<br>shares              | —                          | —        | 340,279      | 3,403      | 1,698,735                        |
| Stock-based employee<br>compensation, net of shares<br>withheld for employee taxes       | —                          | —        | 147,078      | 1,471      | 2,446,034                        |
| Stock-based non-employee<br>compensation   | —                          | —        | 450          | 4          | 7,007                            |
| Issuance of common stock to<br>Board of Directors and Scientific<br>Advisory Board       | —                          | —        | 61,742       | 617        | 750,298                          |
| Issuance of common stock in<br>connection with materials and<br>license agreements       | —                          | —        | 122,854      | 1,228      | 1,169,492                        |
| Issuance of common stock to<br>employees under an Employee<br>Stock Purchase Plan (ESPP) | —                          | —        | 14,056       | 141        | 130,043                          |
| BALANCE, DECEMBER 31,<br>2009  | 200,000                    | 2,000    | 36,818,440   | 368,184    | 256,340,530                      |
| Net loss   | —                          | —        | —            | —          | —                                |
| Other comprehensive (loss)<br>income:  |                            |          |              |            |                                  |
| Unrealized loss on<br>available-for-sale securities                                      | —                          | —        | —            | —          | —                                |
| Initial prior service cost for<br>retirement plan  | —                          | —        | —            | —          | —                                |
| Amortization of prior service cost<br>for retirement plan                                | —                          | —        | —            | —          | —                                |
| Actuarial loss on retirement plan  | —                          | —        | —            | —          | —                                |
| Comprehensive loss   |                            |          |              |            |                                  |

|   |                |                 |                   |                   |                       |
|---|----------------|-----------------|-------------------|-------------------|-----------------------|
| Exercise of common stock options and warrants, net of tendered shares               | —              | —               | 1,304,654         | 13,047            | 17,742,998            |
| Stock-based employee compensation, net of shares withheld for employee taxes        | —              | —               | 651,384           | 6,514             | 3,125,844             |
| Stock-based non-employee compensation   | —              | —               | 491               | 5                 | 47,217                |
| Issuance of common stock to Board of Directors and Scientific Advisory Board        | —              | —               | 61,946            | 619               | 1,346,331             |
| Issuance of common stock in connection with materials and license agreements        | —              | —               | 80,073            | 801               | 1,253,819             |
| Issuance of common stock to employees under an ESPP                                 | —              | —               | 19,583            | 196               | 245,488               |
| <b>BALANCE, DECEMBER 31, 2010</b>   | <b>200,000</b> | <b>2,000</b>    | <b>38,936,571</b> | <b>389,366</b>    | <b>280,102,227</b>    |
| Net income  | —              | —               | —                 | —                 | —                     |
| Other comprehensive income (loss):  |                |                 |                   |                   |                       |
| Unrealized loss on available-for-sale securities                                    | —              | —               | —                 | —                 | —                     |
| Amortization of prior service cost and actuarial loss for retirement plan           | —              | —               | —                 | —                 | —                     |
| Actuarial loss on retirement plan   | —              | —               | —                 | —                 | —                     |
| <b>Comprehensive income</b>   |                |                 |                   |                   |                       |
| Exercise of common stock options and warrants, net of tendered shares               | —              | —               | 1,266,191         | 12,662            | 27,742,456            |
| Stock-based employee compensation, net of shares withheld for employee taxes        | —              | —               | 103,112           | 1,031             | 2,105,297             |
| Stock-based non-employee compensation   | —              | —               | 174               | 2                 | 6,323                 |
| Issuance of common stock to Board of Directors and Scientific Advisory Board        | —              | —               | 46,536            | 465               | 1,648,303             |
| Issuance of common stock in connection with materials and license agreements        | —              | —               | 181               | 2                 | 9,179                 |
| Issuance of common stock to employees under an ESPP                                 | —              | —               | 10,531            | 105               | 307,237               |
| Issuance of common stock through a public offering, net of expenses of \$14,871,186 | —              | —               | 5,750,000         | 57,500            | 249,571,314           |
|   | <b>200,000</b> | <b>\$ 2,000</b> | <b>46,113,296</b> | <b>\$ 461,133</b> | <b>\$ 561,492,336</b> |

BALANCE, DECEMBER 31,  
2011

The accompanying notes are an integral part of these consolidated financial statements.

(Continued)

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UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES  
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY AND COMPREHENSIVE INCOME (LOSS)  
(Continued)

|  | Accumulated<br>Deficit | Accumulated<br>Other<br>Comprehensive<br>Income (Loss) | Total<br>Shareholders'<br>Equity |
|--|------------------------|--|----------------------------------|
| BALANCE, January 1, 2009   | \$ (180,472,203)       | \$ 126,497   | \$ 76,714,463                    |
| Net loss   | (20,505,320 )          | —  | (20,505,320 )                    |
| Unrealized loss on available-for-sale securities                             | —                      | (100,980 )   | (100,980 )                       |
| Comprehensive loss   |                        |  | (20,606,300 )                    |
| Cumulative effect of the adoption of revisions to ASC 815, see Note 2        | 3,868,818              | —  | (2,689,110 )                     |
| Exercise of common stock options and warrants, net of tendered shares        | —                      | —  | 1,702,138                        |
| Stock-based employee compensation, net of shares withheld for employee taxes | —                      | —  | 2,447,505                        |
| Stock-based non-employee compensation  | —                      | —  | 7,011                            |
| Issuance of common stock to Board of Directors and Scientific Advisory Board | —                      | —  | 750,915                          |
| Issuance of common stock in connection with materials and license agreements | —                      | —  | 1,170,720                        |
| Issuance of common stock to employees under an ESPP                          | —                      | —  | 130,184                          |
| BALANCE, DECEMBER 31, 2009   | (197,108,705)          | 25,517   | 59,627,526                       |
| Net loss   | (19,917,410 )          | —  | (19,917,410 )                    |
| Other comprehensive (loss) income:   |                        |  |                                  |
| Unrealized loss on available-for-sale securities                             | —                      | (11,819 )  | (11,819 )                        |
| Initial prior service cost for retirement plan                               | —                      | (5,611,079)  | (5,611,079 )                     |
| Amortization of prior service cost for retirement plan                       | —                      | 438,366  | 438,366                          |
| Actuarial loss on retirement plan  | —                      | (878,944 )   | (878,944 )                       |
| Comprehensive loss   |                        |  | (25,980,886 )                    |
| Exercise of common stock options and warrants, net of tendered shares        | —                      | —  | 17,756,045                       |
| Stock-based employee compensation, net of shares withheld for employee taxes | —                      | —  | 3,132,358                        |
| Stock-based non-employee compensation  | —                      | —  | 47,222                           |
| Issuance of common stock to Board of Directors and Scientific Advisory Board | —                      | —  | 1,346,950                        |
| Issuance of common stock in connection with materials and license agreements | —                      | —  | 1,254,620                        |
| Issuance of common stock to employees under an ESPP                          | —                      | —  | 245,684                          |

|   |                  |                |                |
|---|------------------|----------------|----------------|
| BALANCE, DECEMBER 31, 2010  | (217,026,115)    | (6,037,959)    | 57,429,519     |
| Net income  | 3,155,153        | —              | 3,155,153      |
| Other comprehensive income (loss):  |                  |                |                |
| Unrealized loss on available-for-sale securities                                    | —                | (886 )         | (886 )         |
| Amortization of prior service cost and actuarial loss for retirement plan           | —                | 599,999        | 599,999        |
| Actuarial loss on retirement plan   | —                | (418,461 )     | (418,461 )     |
| Comprehensive income  |                  |                | 3,335,805      |
| Exercise of common stock options and warrants, net of tendered shares               | —                | —              | 27,755,118     |
| Stock-based employee compensation, net of shares withheld for employee taxes        | —                | —              | 2,106,328      |
| Stock-based non-employee compensation   | —                | —              | 6,325          |
| Issuance of common stock to Board of Directors and Scientific Advisory Board        | —                | —              | 1,648,768      |
| Issuance of common stock in connection with materials and license agreements        | —                | —              | 9,181          |
| Issuance of common stock to employees under an ESPP                                 | —                | —              | 307,342        |
| Issuance of common stock through a public offering, net of expenses of \$14,871,186 | —                | —              | 249,628,814    |
| BALANCE, DECEMBER 31, 2011  | \$ (213,870,962) | \$ (5,857,307) | \$ 342,227,200 |

The accompanying notes are an integral part of these consolidated financial statements.



Financial Table of ContentsUNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES  
CONSOLIDATED STATEMENTS OF CASH FLOWS

|  | Year Ended December 31, |                 |                 |
|--|-------------------------|-----------------|-----------------|
|  | 2011                    | 2010            | 2009            |
| <b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>   |                         |                 |                 |
| Net income (loss)  | \$ 3,155,153            | \$ (19,917,410) | \$ (20,505,320) |
| Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities: |                         |                 |                 |
| Amortization of deferred revenue   | (3,275,064 )            | (4,890,555 )    | (3,986,490 )    |
| Depreciation   | 1,451,146               | 1,706,816       | 2,069,626       |
| Amortization of intangibles  | 48,849                  | 1,234,272       | 1,695,072       |
| Amortization of premium and discount on investments, net   | (774,570 )              | (172,737 )      | (426,065 )      |
| Stock-based employee compensation  | 4,372,673               | 4,553,713       | 3,156,420       |
| Stock-based non-employee compensation  | 6,325                   | 47,222          | 7,011           |
| Non-cash expense under materials and license agreements  | 9,181                   | 1,173,347       | 1,170,039       |
| Stock-based compensation to Board of Directors and Scientific Advisory Board                       | 1,376,963               | 1,332,712       | 755,294         |
| Loss on stock warrant liability  | 4,190,283               | 10,077,065      | 1,031,055       |
| Retirement plan benefit expense  | 1,526,872               | 1,026,244       | —               |
| (Increase) decrease in assets:   |                         |                 |                 |
| Accounts receivable  | (3,478,651 )            | (3,903,618 )    | (893,811 )      |
| Inventory  | (3,840,520 )            | (1,568 )        | 1,568           |
| Other current assets   | 340,526                 | (1,575,432 )    | 52,309          |
| Other assets   | (82,435 )               | 10,747          | (157,504 )      |
| Increase (decrease) in liabilities:  |                         |                 |                 |
| Accounts payable and accrued expenses  | 6,774,688               | 2,387,942       | (210,939 )      |
| Other current liabilities  | 23,407                  | —               | —               |
| Deferred revenue   | 4,584,601               | 2,711,102       | 1,631,527       |
| Net cash provided by (used in) operating activities  | 16,409,427              | (4,200,138 )    | (14,610,208)    |
| <b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>   |                         |                 |                 |
| Purchases of property and equipment  | (2,623,992 )            | (369,145 )      | (258,761 )      |
| Purchases of intangibles   | (439,644 )              | —               | —               |
| Purchases of short-term investments  | (337,442,466)           | (91,393,656)    | (61,345,251)    |
| Proceeds from sale of short-term investments   | 156,716,654             | 79,932,984      | 69,630,000      |
| Net cash (used in) provided by investing activities  | (183,789,448)           | (11,829,817)    | 8,025,988       |

**CASH FLOWS FROM FINANCING  
ACTIVITIES:**

|   |                       |                      |                      |
|---|-----------------------|----------------------|----------------------|
| Proceeds from issuance of common stock                                    | 249,936,156           | 245,684              | 130,184              |
| Proceeds from the exercise of common stock options and warrants           | 13,342,791            | 14,618,569           | 1,702,138            |
| Payment of withholding taxes related to stock-based employee compensation | (4,472,549 )          | (1,166,572 )         | (868,557 )           |
| <b>Net cash provided by financing activities</b>                          | <b>258,806,398</b>    | <b>13,697,681</b>    | <b>963,765</b>       |
| <b>INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS</b>                   | <b>91,426,377</b>     | <b>(2,332,274 )</b>  | <b>(5,620,455 )</b>  |
| <b>CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR</b>                       | <b>20,368,852</b>     | <b>22,701,126</b>    | <b>28,321,581</b>    |
| <b>CASH AND CASH EQUIVALENTS, END OF YEAR</b>                             | <b>\$ 111,795,229</b> | <b>\$ 20,368,852</b> | <b>\$ 22,701,126</b> |

The accompanying notes are an integral part of these consolidated financial statements.

Financial Table of ContentsUNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES  
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

## 1. BUSINESS:

Universal Display Corporation (Company) is engaged in the research, development and commercialization of organic light emitting diode (OLED) technologies and materials for use in flat panel display, solid-state lighting and other product applications. The Company's primary business strategy is to develop and license its proprietary OLED technologies to product manufacturers for use in these applications. In support of this objective, the Company also develops new OLED materials and sells those materials to product manufacturers. Through internal research and development efforts and relationships with entities such as Princeton University (Princeton), the University of Southern California (USC), the University of Michigan (Michigan), Motorola Solutions, Inc. (f/k/a Motorola, Inc.) (Motorola) and PPG Industries, Inc. (PPG Industries), the Company has established a significant portfolio of proprietary OLED technologies and materials (Notes 3, 5 and 7).

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

## Principles of Consolidation

The consolidated financial statements include the accounts of Universal Display Corporation and its wholly owned subsidiaries, UDC, Inc., Universal Display Corporation Hong Kong, Ltd., Universal Display Corporation Korea, Inc., and Universal Display Corporation Japan, Inc. All intercompany transactions and accounts have been eliminated.

## Management's Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles (GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. The estimates made are principally in the area of revenue recognition for license agreements, useful life of acquired technology, stock-based compensation and the valuation of stock warrant and retirement benefit plan liabilities. Actual results could differ from those estimates.

## Cash, Cash Equivalents and Short-term Investments

The Company considers all highly liquid debt instruments purchased with an original maturity of three months or less to be cash equivalents. The Company classifies its remaining short-term investments as available-for-sale. These securities are carried at fair market value, with unrealized gains and losses reported in shareholders' equity. Gains or losses on securities sold are based on the specific identification method.

Short-term investments at December 31, 2011 and 2010 consist of the following:

| Investment Classification | Amortized<br>Cost | Unrealized<br>Gains | (Losses)    | Aggregate Fair<br>Market Value |
|---------------------------|-------------------|---------------------|-------------|--------------------------------|
| <b>December 31, 2011-</b> |                   |                     |             |                                |
| Certificates of deposit   | \$ 5,797,322      | \$ 158              | \$ (5,112 ) | \$ 5,792,368                   |
| Corporate bonds           | 223,260,232       | 42,461              | (25,118 )   | 223,277,575                    |
| U.S. Government bonds     | 5,223,675         | 432                 | (9 )        | 5,224,098                      |

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|                         |                |           |              |                |
|-------------------------|----------------|-----------|--------------|----------------|
|                         | \$ 234,281,229 | \$ 43,051 | \$ (30,239 ) | \$ 234,294,041 |
| December 31, 2010-      |                |           |              |                |
| Certificates of deposit | \$ 7,167,818   | \$ 62     | \$ (7,919 )  | \$ 7,159,961   |
| Corporate bonds         | 30,423,518     | 19,964    | (642 )       | 30,442,840     |
| U.S. Government bonds   | 15,189,511     | 3,040     | (807 )       | 15,191,744     |
|                         | \$ 52,780,847  | \$ 23,066 | \$ (9,368 )  | \$ 52,794,545  |

All short-term investments held at December 31, 2011 will mature within one year.

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## Trade Accounts Receivable

Trade accounts receivable are stated at the amount the Company expects to collect and do not bear interest. The Company considers the following factors when determining the collectability of specific customer accounts: customer credit-worthiness, past transaction history with the customer, current economic industry trends, and changes in customer payment terms. The Company's accounts receivable balance is a result of chemical sales, royalties, license fees and U.S. government contract revenues. These receivables have historically been paid timely. Due to the nature of the accounts receivable balance, the Company believes there is no significant risk of collection. If the financial condition of the Company's customers were to deteriorate, adversely affecting their ability to make payments, allowances for doubtful accounts would be required. The Company recorded no bad debt expense in the years ended December 31, 2011, 2010 and 2009.

## Inventory

Inventory, which consists of materials that have been classified as commercial, is valued at the lower of cost or market using the first-in, first-out method. Commercial materials are materials that have been validated by the Company for use in commercial OLED products.

## Fair Value Measurements

The following table provides the assets and liabilities carried at fair value measured on a recurring basis as of December 31, 2011:

|                        | Total carrying value as of December 31, 2011 | Fair Value Measurements, Using Significant |                                   |   |
|------------------------|--|--|-----------------------------------|---|
|                        |  | Quoted prices in active markets (Level 1)  | other observable inputs (Level 2) | Significant unobservable inputs (Level 3) |
| Cash equivalents       | \$ 96,538,248                                | \$ 96,538,248                              | \$ —                              | \$ —                                      |
| Short-term investments | 234,294,041                                  | 234,294,041                                | —                                 | —   |

The following table provides the assets and liabilities carried at fair value measured on a recurring basis as of December 31, 2010:

|                         | Total carrying value as of December 31, 2010 | Fair Value Measurements, Using Significant |                                   |   |
|-------------------------|--|--|-----------------------------------|---|
|                         |  | Quoted prices in active markets (Level 1)  | other observable inputs (Level 2) | Significant unobservable inputs (Level 3) |
| Cash equivalents        | \$ 8,234,698                                 | \$ 8,234,698                               | \$ —                              | \$ —                                      |
| Short-term investments  | 52,794,545                                   | 52,794,545                                 | —                                 | —   |
| Stock warrant liability | 10,659,755                                   | —  | —                                 | 10,659,755                                |

Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument. Level 3 inputs are unobservable inputs based on management's own assumptions used to measure assets and liabilities at fair value. A financial asset or liability's classification is determined based on the lowest level input that is

significant to the fair value measurement.

The following table is a reconciliation of the changes in fair value of the Company's stock warrant liability for the years ended December 31, which had been classified in Level 3 in the fair value hierarchy:

|   | 2011          | 2010          | 2009         |
|---|---------------|---------------|--------------|
| Fair value of stock warrant liability, beginning of year  | \$ 10,659,755 | \$ 3,720,165  | \$ —         |
| Cumulative effect of reclassification of stock warrant liability under ASC 815, see "Stock Warrant Liability" below | —             | —             | 2,689,110    |
| Loss for period   | 4,190,283     | 10,077,065    | 1,031,055    |
| Warrants exercised  | (14,850,038)  | (3,137,475)   | —            |
| Fair value of stock warrant liability, end of year  | \$ —          | \$ 10,659,755 | \$ 3,720,165 |

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The fair value of the stock warrant liability was determined using the Black-Scholes option pricing model with the following inputs at December 31:

|                          | 2010 |   | 2009       |
|--------------------------|------|---|------------|
| Contractual life (years) | 0.6  |   | 0.1- 0.6   |
| Expected volatility      | 55.6 | % | 40.5-76.7% |
| Risk-free interest rate  | 0.2  | % | 0.1-0.8 %  |
| Annual dividend yield    | —    |   | —          |

## Fair Value of Financial Instruments

The carrying values of accounts receivable, other current assets, and accounts payable approximate fair value in the accompanying financial statements due to the short-term nature of those instruments. The Company's other financial instruments, which include cash equivalents, short-term investments and stock warrant liability are carried at fair value as noted above.

## Property and Equipment

Property and equipment are stated at cost and depreciated on a straight-line basis over the estimated useful life of 30 years for building, 15 years for building improvements, and three to seven years for office and lab equipment and furniture and fixtures. Repair and maintenance costs are charged to expense as incurred. Additions and betterments are capitalized.

## Impairment of Long-Lived Assets

Company management continually evaluates whether events or changes in circumstances might indicate that the remaining estimated useful life of long-lived assets may warrant revision, or that the remaining balance may not be recoverable. When factors indicate that long-lived assets should be evaluated for possible impairment, the Company uses an estimate of the related undiscounted cash flows in measuring whether the long-lived asset should be written down to fair value. Measurement of the amount of impairment would be based on generally accepted valuation methodologies, as deemed appropriate. As of December 31, 2011, Company management believed that no revision to the remaining useful lives or write-down of the Company's long-lived assets was required. No such revisions were required for the years ended December 31, 2011, 2010 or 2009.

## Stock Warrant Liability

On January 1, 2009, the Company adopted certain revised provisions of Accounting Standards Codification (ASC) 815, Derivatives and Hedging. These provisions apply to freestanding financial instruments or embedded features that have the characteristics of a derivative and to freestanding financial instruments that are potentially settled in an entity's own common stock and provide guidance related to the determination of whether these instruments should be classified as equity or debt. If an instrument is classified as debt, it is valued at fair value, and this value is re-measured on an ongoing basis, with changes recorded on the statement of operations in each reporting period. At January 1, 2009, the Company had warrants to purchase shares of common stock outstanding containing a "down-round" provision. In accordance with the guidance in these revised provisions, the fair value of these warrants was required to be reported as a liability, with the changes of fair value recorded on the statement of operations. As such, on January 1, 2009, the fair value of these warrants at that date of \$2,689,110 was reclassified from equity to a liability. As a result of the change, the original fair value of the warrants at the date of issuance of \$6,557,928 was recorded as a reduction to additional paid-in capital. In addition, accumulated deficit, as of January 1, 2009, decreased

to reflect the cumulative effect of the adoption of these provisions. The change in fair value of these warrants resulted in a non-cash loss on the Company's consolidated statement of operations of \$4,190,283, \$10,777,065 and \$1,031,055 for the years ended December 31, 2011, 2010 and 2009, respectively. In 2011, all remaining outstanding stock warrants to purchase shares of the Company's common stock were exercised.

The fair value of the stock warrant liability was determined using the Black-Scholes option pricing model as noted above in "Fair Value Measurements".

#### Net Income (Loss) Per Common Share

Basic net income (loss) per common share is computed by dividing the net income (loss) by the weighted-average number of shares of common stock outstanding for the period, excluding unvested restricted stock awards. Diluted net income (loss) per common share reflects the potential dilution from the exercise or conversion of securities into common stock, the effect of unvested restricted stock awards and restricted stock units, and the impact of shares to be issued under the ESPP.



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The following table is a reconciliation of net income (loss) and the shares used in calculating basic and diluted net income (loss) per common share for the years ended December 31, 2011, 2010 and 2009:

|  | 2011              | 2010              | 2009              |
|--|-------------------|-------------------|-------------------|
| <b>Numerator:</b>  |                   |                   |                   |
| Net income (loss)  | \$ 3,155,153      | \$ (19,917,410)   | \$ (20,505,320)   |
| <b>Denominator:</b>  |                   |                   |                   |
| Weighted average common shares outstanding – Basic           | 43,737,968        | 37,567,374        | 36,479,331        |
| <b>Effect of dilutive shares:</b>                            |                   |                   |                   |
| Common stock equivalents arising from stock options and ESPP | 956,803           | —                 | —                 |
| Restricted stock awards and units                            | 445,623           | —                 | —                 |
| <b>Weighted average common shares outstanding – Diluted</b>  | <b>45,140,394</b> | <b>37,567,374</b> | <b>36,479,331</b> |
| <b>Net income (loss) per common share:</b>                   |                   |                   |                   |
| Basic  | \$ 0.07           | \$ (0.53 )        | \$ (0.56 )        |
| Diluted  | \$ 0.07           | \$ (0.53 )        | \$ (0.56 )        |

For the year ended December 31, 2011, the effect of 586,972 warrants prior to their exercise was excluded from the calculation of diluted EPS as the impact would have been antidilutive. For the years ended December 31, 2010 and 2009, the effects of the assumed exercise of the combined outstanding stock options and warrants and unvested restricted stock awards and restricted stock units of 3,165,048 and 4,299,598, respectively, and the impact of shares to be issued under the ESPP, which was minor, were excluded from the calculation of diluted EPS as the impact would have been antidilutive.

#### Revenue Recognition and Deferred Revenue

In 2011, the Company revised the presentation of its revenue categories to better reflect its primary sources of revenue. Revenue categories for 2010 and 2009 were conformed to reflect the current presentation.

Material sales relate to the Company's sale of its OLED materials, for incorporation into its customers' commercial OLED products or for their OLED development and evaluation activities. Material sales are recognized at the time of shipment or at time of delivery, and passage of title, depending upon the contractual agreement between the parties.

The Company has received non-refundable advance license and royalty payments under certain commercial, development and technology evaluation agreements. Certain of the payments under development and technology evaluation agreements are creditable against future amounts payable under commercial license agreements that the parties may subsequently enter into and, as such, are deferred until such commercial license agreements are executed or negotiations have ceased and Company management determines that there is no appreciable likelihood of executing a commercial license agreement with the other party. Revenue would then be recognized over the term of the agreement or the expected useful life of the relevant licensed technology, for perpetual licenses, if there is an effective commercial license agreement or amounts are not creditable against future commercial license fees, or at the time Company management determines that there is no appreciable likelihood of an executable commercial license agreement. Amounts deferred are classified as current and non-current based upon current contractual remaining terms; however, based upon on-going relationships with customers, as well as future agreement extensions, amounts classified as current as of December 31, 2011, may not be recognized as revenue over the next twelve months. As of December 31, 2011, \$9,407,715 was recorded as deferred revenue, of which \$3,366,667 is creditable against future commercial license agreements that have not yet been executed or deemed effective. For the years ended December 31, 2010 and 2009, \$2,100,000 and \$1,500,000, respectively, of revenue was recognized relating to cash payments

received that were creditable against license fees and/or royalties for which the Company determined there was no appreciable likelihood of executing a commercial license agreement with the customer. For the year ended December 31, 2011, no such revenue was recognized. For arrangements with extended payment terms where the fee is not fixed and determinable, the Company recognizes revenue when the payment is due and payable. Royalty revenue is recognized when earned and the amount is fixed and determinable.

Technology development and support revenue is revenue earned from government contracts, development and technology evaluation agreements and commercialization assistance fees, which includes reimbursements by government entities for all or a portion of the research and development costs the Company incurs in relation to its government contracts. Revenues are recognized proportionally as research and development costs are incurred, or as defined milestones are achieved.

Included in accounts receivable as of December 31, 2011 and 2010 are unbilled receivables of \$869,982 and \$1,095,329, respectively. All amounts are billed and collected within one year.

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## Cost of Material Sales

Cost of material sales represents costs associated with the sale of materials that have been classified as commercial.

## Research and Development

Expenditures for research and development are charged to operations as incurred. Research and development expenses consist of the following:

|  | Year Ended December 31, |               |               |
|--|-------------------------|---------------|---------------|
|  | 2011                    | 2010          | 2009          |
| Development and operations in the Company's facility | \$ 18,658,616           | \$ 14,959,399 | \$ 14,350,130 |
| Costs incurred under sponsored research agreements   | 1,021,925               | 1,143,052     | 1,264,983     |
| PPG OLED Materials Agreement (Note 7)                | 3,539,017               | 3,296,227     | 3,266,980     |
| Amortization of intangibles                          | 48,849                  | 1,234,272     | 1,695,072     |
| Scientific Advisory Board compensation               | 860,826                 | 1,062,189     | 544,991       |
|  | \$ 24,129,233           | \$ 21,695,139 | \$ 21,122,156 |

## Patent Costs

Costs associated with patent applications, patent prosecution, patent defense and the maintenance of patents are charged to expense as incurred. Costs to successfully defend a challenge to a patent are capitalized to the extent of an evident increase in the value of the patent. Costs that relate to an unsuccessful outcome are charged to expense.

## Statement of Cash Flow Information

The following non-cash activities occurred:

|  | Year Ended December 31, |              |               |
|--|-------------------------|--------------|---------------|
|  | 2011                    | 2010         | 2009          |
| Unrealized (loss) gain on available-for-sale securities  | \$ (886 )               | \$ (11,819 ) | \$ (100,980 ) |
| Common stock issued for royalties that was earned in a previous period                                       | —                       | 81,273       | 81,954        |
| Common stock issued to Board of Directors and Scientific Advisory Board that was earned in a previous period | 299,943                 | 314,181      | 309,802       |
| Common stock issued to employees that was accrued for in a previous period, net of shares withheld for taxes | 1,113,483               | 929,552      | 1,031,645     |
| Fair value of stock warrant liability reclassified to shareholders' equity upon                              | 14,850,038              | 3,137,475    | —             |

exercise

#### Income Taxes

Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities. Deferred tax assets or liabilities at the end of each period are determined using the tax rate expected to be in effect when taxes are actually paid or recovered. The Company accounts for the sale of its state net operating losses on a cash basis; therefore, it does not record an income tax benefit until the cash is received. The Company classifies interest and penalties, if any, as a component of tax expense.

#### Share-Based Payment Awards

The Company recognizes in the statements of operations the grant-date fair value of stock options and other equity-based compensation, such as shares issued under employee stock purchase plans, restricted stock awards and units and stock appreciation rights (SARs), issued to employees and directors.

The grant-date fair value of stock options is determined using the Black-Scholes option pricing model. The fair value of share-based awards is recognized as compensation expense on a straight-line basis over the requisite service period, net of estimated forfeitures. The Company relies primarily upon historical experience to estimate expected forfeitures and recognizes compensation expense on a straight-line basis from the date of the grant. The Company issues new shares upon the exercise or vesting of share-based payment awards.

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Cash-settled SARs awarded in share-based payment transactions are classified as liability awards; accordingly, the Company records these awards as a component of accrued expenses on its consolidated balance sheets. The fair value of each SAR is estimated using the Black-Scholes option pricing model and is remeasured at each reporting period until the award is settled. Changes in the fair value of the liability award are recorded as expense or income in the statements of operations.

### Recent Accounting Pronouncements

In September 2009, the Financial Accounting Standards Board (FASB) issued guidance which affects the revenue recognition accounting policies for transactions that involve multiple deliverables. The new guidance requires companies to allocate revenue in arrangements involving multiple deliverables based on the estimated selling price of each deliverable, even though those deliverables are not sold separately either by the company itself or other vendors. This new guidance eliminates the requirement that all undelivered elements have objective and reliable evidence of fair value before a company can recognize the portion of the overall arrangement fee that is attributable to items that already have been delivered. In the absence of vendor-specific objective evidence and third-party evidence for one or more elements in a multiple-element arrangement, companies will estimate the selling prices of those elements. The overall arrangement fee is allocated to each element whether delivered or undelivered, based on their relative selling prices, regardless of whether those estimated selling prices are evidenced by vendor-specific objective evidence, third-party evidence of fair value or are based on the company's judgment. The new guidance was effective prospectively for revenue arrangements entered into or materially modified in fiscal years beginning on or after June 15, 2010. The Company adopted this new guidance on a prospective basis beginning January 1, 2011. The adoption of this new guidance did not have an impact on the Company's results of operations or financial position.

In January 2010, the FASB issued amended standards that require additional fair value disclosures. These amended standards require disclosures about inputs and valuation techniques used to measure fair value, as well as disclosures about significant transfers, beginning in the first quarter of 2010. Additionally, these amended standards require presentation of disaggregated activity within the reconciliation for fair value measurements using significant unobservable inputs (Level 3), beginning in the first quarter of 2011. The adoption of the additional disclosure requirements of this new guidance in the first quarter of 2011 did not have an impact on the Company's results of operations, financial position, or disclosures.

In April 2010, the FASB issued guidance allowing the milestone method as an acceptable revenue recognition methodology when an arrangement includes substantive milestones. The guidance provides a definition of a substantive milestone and should be applied regardless of whether the arrangement includes single or multiple deliverables or units of accounting. The scope of this consensus is limited to the transactions involving milestones relating to research and development deliverables. The guidance includes enhanced disclosure requirements about each arrangement, individual milestones and related contingent consideration, information about substantive milestones and factors considered in the determination. The consensus was effective prospectively to milestones achieved in annual reporting periods, and interim periods within those years, beginning after June 15, 2010. The Company adopted this new guidance on a prospective basis beginning January 1, 2011. The adoption of this new guidance did not have an impact on the Company's results of operations or financial position.

In May 2011, the FASB issued amended standards that revised the application of the valuation premise of highest and best use of an asset, the application of premiums and discounts for fair value determination, as well as the required disclosures for transfers between Level 1 and Level 2 fair value measures and the highest and best use of nonfinancial assets. The update provides additional disclosures regarding Level 3 fair value measurements and clarifies certain other existing disclosure requirements. The new guidance is effective prospectively for fiscal years, and interim periods within those years, beginning after December 15, 2011. The Company does not expect this new guidance to have an impact on the Company's results of operations or financial position.

In June 2011, the FASB issued amended standards for the reporting of other comprehensive income. The amendments require that all non-owner changes in shareholders' equity be presented either in a single continuous statement of comprehensive income or in two separate but consecutive statements. In either case, an entity is required to present each component of net income along with total net income, each component of other comprehensive income along with a total for other comprehensive income, and a total amount for comprehensive income. Regardless of which option is chosen, the entity is required to present on the face of the financial statements any adjustments for items that are reclassified from other comprehensive income to net income in the statements where the components of net income and the components of other comprehensive income are presented. In December 2011, the FASB issued additional standards which defer specific requirements to present reclassification adjustments for each component of accumulated other comprehensive income. The new guidance is effective retrospectively for fiscal years, and interim periods within those years, beginning after December 15, 2011. This new guidance will not have an impact on the Company's results of operations or financial position, but it will change the Company's presentation of comprehensive income (loss).

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3. RESEARCH AND LICENSE AGREEMENTS WITH PRINCETON UNIVERSITY,  
UNIVERSITY OF SOUTHERN CALIFORNIA AND THE UNIVERSITY OF MICHIGAN:

The Company funded OLED technology research at Princeton and, on a subcontractor basis, at USC, for 10 years under a Research Agreement executed with Princeton in August 1997 (1997 Research Agreement). The Principal Investigator conducting work under the 1997 Research Agreement transferred to Michigan in January 2006. Following this, the 1997 Research Agreement was allowed to expire on July 31, 2007.

As a result of the transfer, the Company entered into a new Sponsored Research Agreement with USC to sponsor OLED technology research at USC and, on a subcontractor basis, Michigan. This new Research Agreement (2006 Research Agreement) was effective as of May 1, 2006, and had an original term of three years. The 2006 Research Agreement superseded the 1997 Research Agreement with respect to all work being performed at USC and Michigan. Payments under the 2006 Research Agreement are made to USC on a quarterly basis as actual expenses are incurred. The Company incurred \$2,155,570 in research and development expense for work performed under the 2006 Research Agreement during the original term, which ended on April 30, 2009.

Effective May 1, 2009, the Company amended the 2006 Research Agreement to extend the term of the agreement for an additional four years. As of December 31, 2011, the Company is obligated to pay USC up to \$2,601,278 for work to actually be performed during the remaining extended term, which runs through April 30, 2013. From May 1, 2009 through December 31, 2011, the Company incurred \$2,181,369 in research and development expense for work performed under the amended 2006 Research Agreement.

On October 9, 1997, the Company, Princeton and USC entered into an Amended License Agreement (1997 Amended License Agreement) under which Princeton and USC granted the Company worldwide, exclusive license rights, with rights to sublicense, to make, have made, use, lease and/or sell products and to practice processes based on patent applications and issued patents arising out of work performed by Princeton and USC under the 1997 Research Agreement. Under this agreement, the Company is required to pay Princeton royalties for licensed products sold by the Company or its sublicensees. For licensed products sold by the Company, the Company is required to pay Princeton 3% of the net sales price of these products. For licensed products sold by the Company's sublicensees, the Company is required to pay Princeton 3% of the revenues received by the Company from these sublicensees. These royalty rates are subject to renegotiation for products not reasonably conceivable as arising out of the 1997 Research Agreement if Princeton reasonably determines that the royalty rates payable with respect to these products are not fair and competitive.

The Company is obligated under the 1997 Amended License Agreement to pay to Princeton minimum annual royalties. The minimum royalty payment is \$100,000 per year. The Company incurred \$1,219,256, \$555,546, and \$222,721 of royalty expense in connection with the agreement for the years ended December 31, 2011, 2010 and 2009, respectively.

The Company also is required under the 1997 Amended License Agreement to use commercially reasonable efforts to bring the licensed OLED technology to market. However, this requirement is deemed satisfied if the Company invests a minimum of \$800,000 per year in research, development, commercialization or patenting efforts respecting the patent rights licensed to the Company.

In connection with entering into the 2006 Research Agreement, the Company amended the 1997 Amended License Agreement to include Michigan as a party to that agreement effective as of January 1, 2006. Under this amendment, Princeton, USC and Michigan have granted the Company a worldwide exclusive license, with rights to sublicense, to make, have made, use, lease and/or sell products and to practice processes based on patent applications and issued patents arising out of work performed under the 2006 Research Agreement. The financial terms of the 1997 Amended

License Agreement were not impacted by this amendment.

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## 4. PROPERTY AND EQUIPMENT:

Property and equipment consist of the following:

|                                | December 31,<br>2011 | 2010          |
|--------------------------------|----------------------|---------------|
| Land                           | \$ 820,000           | \$ 820,000    |
| Building and improvements      | 11,469,304           | 11,163,569    |
| Office and lab equipment       | 15,597,065           | 14,630,062    |
| Furniture and fixtures         | 340,615              | 339,599       |
| Construction-in-progress       | 1,392,283            | 93,525        |
|                                | \$ 29,619,267        | \$ 27,046,755 |
| Less: Accumulated depreciation | (18,735,328)         | (17,335,662)  |
| Property and equipment, net    | \$ 10,883,939        | \$ 9,711,093  |

Depreciation expense was \$1,451,146, \$1,706,816 and \$2,069,626 for the years ended December 31, 2011, 2010 and 2009, respectively.

## 5. ACQUIRED TECHNOLOGY:

Acquired technology consists of acquired license rights for patents and know-how obtained from PD-LD, Inc. and Motorola. These intangible assets consist of the following:

|                                | December 31,<br>2011 | 2010         |
|--------------------------------|----------------------|--------------|
| PD-LD, Inc.                    | \$ 1,481,250         | \$ 1,481,250 |
| Motorola                       | 15,909,112           | 15,469,468   |
|                                | 17,390,362           | 16,950,718   |
| Less: Accumulated amortization | (16,999,567)         | (16,950,718) |
| Acquired technology, net       | \$ 390,795           | \$ —         |

Amortization expense for all intangible assets was \$48,849, \$1,234,272 and \$1,695,072 for the years ended December 31, 2011, 2010 and 2009, respectively.

In 2000, the Company entered into a license agreement with Motorola whereby Motorola granted the Company perpetual license rights to what are now 74 issued U.S. patents relating to Motorola's OLED technologies, together with foreign counterparts in various countries. These patents will start expiring in the U.S. in 2012.

The Company was required under a license agreement to pay Motorola annual royalties on gross revenues received on account of the Company's sales of OLED products or components, or from its OLED technology licenses, whether or not these revenues related specifically to inventions claimed in the patent rights licensed from Motorola.

On March 9, 2011, the Company purchased these patents from Motorola, including all existing and future claims and causes of action for any infringement of the patents, pursuant to a Patent Purchase Agreement. The Patent Purchase Agreement effectively terminated the Company's license agreement with Motorola, including any obligation to make royalty payments to Motorola.

The technology acquired from Motorola had an assigned value of \$439,644 as of March 9, 2011, which is being amortized over a period of 7.5 years. The Company accrued royalty expense in connection with the Motorola license agreement of \$310,356 and \$162,558 for the years ended December 31, 2010 and 2009, respectively. To satisfy the royalty obligation, the Company issued to Motorola 7,200 shares of the Company's common stock, valued at \$81,273, and paid \$81,285 in cash for the year ended December 31, 2009, which were issued and paid in 2010. There was no corresponding royalty expense for the year ended December 31, 2011.

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## 6. ACCRUED EXPENSES:

Accrued expenses consist of the following:

|                                     | December 31,<br>2011 | 2010                |
|-------------------------------------|----------------------|---------------------|
| Compensation                        | \$ 5,591,067         | \$ 4,013,391        |
| Royalties                           | 1,219,256            | 865,902             |
| Consulting                          | 338,701              | 340,543             |
| Professional fees                   | 758,952              | 558,929             |
| Subcontracts                        | 83,859               | 87,137              |
| Research and development agreements | 546,133              | 751,701             |
| Other                               | 481,754              | 288,686             |
|                                     | <b>\$ 9,019,722</b>  | <b>\$ 6,906,289</b> |

## 7. EQUITY AND CASH COMPENSATION UNDER THE PPG AGREEMENTS:

On October 1, 2000, the Company entered into a five-year Development and License Agreement (Development Agreement) and a seven-year Supply Agreement (Supply Agreement) with PPG Industries. Under the Development Agreement, a team of PPG Industries scientists and engineers assisted the Company in developing its proprietary OLED materials and supplied the Company with these materials for evaluation purposes. Under the Supply Agreement, PPG Industries supplied the Company with its proprietary OLED materials that were intended for resale to customers for commercial purposes.

On July 29, 2005, the Company entered into an OLED Materials Supply and Service Agreement with PPG Industries (OLED Materials Agreement). The OLED Materials Agreement superseded and replaced in their entirety the Development Agreement and Supply Agreement effective as of January 1, 2006, and extended the term of the Company's relationship with PPG Industries through December 31, 2009. The term of the OLED Materials Agreement was subsequently extended through December 31, 2014.

On September 22, 2011, the Company entered into an Amended and Restated OLED Materials Supply and Service Agreement with PPG Industries (the New OLED Materials Agreement). The New OLED Materials Agreement replaced the original OLED Materials Agreement with PPG Industries effective as of October 1, 2011. The term of the New OLED Materials Agreement runs through December 31, 2014. The new agreement contains provisions that are substantially similar to those of the original OLED Materials Agreement. Under the New OLED Materials Agreement, PPG Industries continues to assist the Company in developing its proprietary OLED materials and supplying the Company with those materials for evaluation purposes and for resale to its customers.

Under the New OLED Materials Agreement and the OLED Materials Agreement, the Company compensates PPG Industries on a cost-plus basis for the services provided during each calendar quarter. The Company is required to pay for some of these services in all cash. Up to 50% of the remaining services are payable, at the Company's sole discretion, in cash or shares of the Company's common stock, with the balance payable in cash. The actual number of shares of common stock issuable to PPG Industries is determined based on the average closing price for the Company's common stock during a specified number of days prior to the end of each calendar half-year period ending on March 31 and September 30. If, however, this average closing price is less than \$6.00, the Company is required to compensate PPG Industries in cash.

The Company is also to reimburse PPG Industries for raw materials used for research and development. The Company records the purchases of these raw materials as a current asset until such materials are used for research and development efforts.

The Company issued 181, 72,873 and 110,839 shares of the Company's common stock to PPG Industries as consideration for services provided by PPG Industries during the years ended December 31, 2011, 2010 and 2009, respectively. For these shares, the Company recorded expense of \$9,181, \$1,173,346 and \$1,088,766 for the years ended December 31, 2011, 2010 and 2009, respectively.

The Company recorded expense of \$3,529,835, \$2,122,882 and \$2,178,214 for the years ended December 31, 2011, 2010 and 2009, respectively, in relation to the cash portion of the reimbursement of expenses and work performed by PPG Industries, excluding amounts paid for commercial materials.

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8. PREFERRED STOCK:

The Company's Articles of Incorporation authorize it to issue up to 5,000,000 shares of preferred stock with designations, rights and preferences determined from time-to-time by the Company's Board of Directors. Accordingly, the Company's Board of Directors is empowered, without shareholder approval, to issue preferred stock with dividend, liquidation, conversion, voting or other rights superior to those of shareholders of the Company's common stock.

In 1995, the Company issued 200,000 shares of Series A Nonconvertible Preferred Stock (Series A) to American Biomimetics Corporation (ABC) pursuant to a certain Technology Transfer Agreement between the Company and ABC. The Series A shares have a liquidation value of \$7.50 per share. Series A shareholders, as a single class, have the right to elect two members of the Company's Board of Directors. This right has never been exercised. Holders of the Series A shares are entitled to one vote per share on matters which shareholders are generally entitled to vote. The Series A shareholders are not entitled to any dividends.

9. SHAREHOLDERS' EQUITY:

In March 2011, the Company sold 5,750,000 shares of its Common Stock at \$46.00 per share in a registered underwritten public offering. The offering resulted in proceeds to the Company of \$249,628,814, which was net of \$14,871,186 in underwriting discounts and commissions and other costs associated with completion of the offering.

During the year ended December 31, 2011, the Company issued a total 20,000 shares of common stock to members of its Board of Directors as partial compensation for services performed. The fair value of the shares was \$788,000 and was recorded as selling, general and administrative expense. The Company has also expensed \$28,138 as of December 31, 2011 in relation to shares granted to the Board of Directors on December 15, 2011. During the years ended December 31, 2010 and 2009, respectively, the Company issued 23,036 and 22,260 of fully vested common stock to its Board of Directors. The fair value of the shares issued was \$284,725 and \$205,905, respectively. For the years ended December 31, 2010 and 2009, the Company recorded, as a compensation charge related to these shares, selling, general and administrative expense of \$270,523 and \$210,302, respectively.

During the years ended December 31, 2011, 2010 and 2009, respectively, warrants to purchase 586,972, 677,826, and 61,024 shares of common stock were exercised, resulting in proceeds to the Company of \$7,397,710, \$9,515,232 and \$618,783, respectively. As of December 31, 2011, the Company had no warrants to purchase shares of the Company's common stock outstanding.

In January 2011 and 2010, respectively, the Company granted a total of 59,472 and 127,995 shares of fully vested common stock to employees and non-employee members of the Scientific Advisory Board for services performed in 2010 and 2009, respectively. The fair value of the shares issued was \$1,768,493 and \$1,513,710, respectively, for employees and \$299,943, and \$299,979, respectively, for non-employee members of the Scientific Advisory Board, which amounts were accrued at December 31, 2010 and 2009, respectively. In connection with the issuance of these grants, 18,792 and 41,259 shares, respectively, with a fair value of \$655,010 and \$585,220, were withheld in satisfaction of employee tax withholding obligations in 2011 and 2010, respectively. The stock awards were recorded as a compensation charge for the years ended December 31, 2010 and 2009 in selling, general and administrative expense in the amounts of \$1,193,545 and \$1,051,697, respectively, and in research and development expense in the amounts of \$874,891 and \$761,992, respectively.

10. STOCK-BASED COMPENSATION:

Equity Compensation Plan

In 1995, the Board of Directors of the Company adopted a stock option plan, which was amended and restated in 2003 and is now called the Equity Compensation Plan. The Equity Compensation Plan provides for the granting of incentive and nonqualified stock options, shares of common stock, stock appreciation rights and performance units to employees, directors and consultants of the Company. Stock options are exercisable over periods determined by the Compensation Committee, but for no longer than 10 years from the grant date. Through December 31, 2011, the Company's shareholders have approved increases in the number of shares reserved for issuance under the Equity Compensation Plan to 8,000,000, and have extended the term of the plan through 2015. At December 31, 2011, there were 1,534,311 shares that remained available to be granted under the Equity Compensation Plan.

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The following table summarizes the stock option activity during the year ended December 31, 2011 for all grants under the Equity Compensation Plan:

|                                  | Options   | Weighted<br>Average<br>Exercise<br>Price |
|----------------------------------|-----------|--|
| Outstanding at January 1, 2011   | 1,804,273 | \$ 10.30                                 |
| Granted                          | —         | —  |
| Exercised                        | (725,050) | 9.94                                     |
| Forfeited                        | —         | —  |
| Cancelled                        | —         | —  |
| Outstanding at December 31, 2011 | 1,079,223 | 10.54                                    |
| Vested and expected to vest      | 1,079,223 | 10.54                                    |
| Exercisable at December 31, 2011 | 1,079,223 | 10.54                                    |

The weighted average grant date fair value of stock options granted in 2010 and 2009 was \$3.84 and \$8.06, respectively. The fair value of the stock options granted was estimated using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model considers assumptions related to volatility, risk-free interest rates, dividend yields and expected life. Expected volatility was based on the Company's historical daily stock price volatility. The risk-free rate was based on average U.S. Treasury security yields in the quarter of the grant. The dividend yield was based on historical information. The expected life was determined using historical information and management estimates. The following table provides the assumptions used in determining the fair value of the stock options for the years ended December 31, 2010 and 2009, respectively:

|                          | 2010      | 2009     |
|--------------------------|-----------|----------|
| Dividend yield rate      | —         | —        |
| Expected volatility      | 46.3%     | 74.8%    |
| Risk-free interest rates | 0.2%      | 3.6%     |
| Expected life            | 0.3 Years | 10 Years |

A summary of stock options outstanding and exercisable by price range at December 31, 2011 is as follows:

| Exercise Price | Outstanding and Exercisable                                       |   |  |                                     |
|----------------|---|---|--|-------------------------------------|
|                | Number of<br>Options<br>Outstanding<br>at December<br>31,<br>2011 | Weighted<br>Average<br>Remaining<br>Contractual<br>Life (Years) | Weighted<br>Average<br>Exercise<br>Price | Aggregate<br>Intrinsic<br>Value (A) |
| \$ 5.45–8.17   | 386,480   | 2.04  | \$ 6.96                                  | \$ 11,488,302                       |
| 8.18–12.27     | 402,298   | 3.70  | 10.36                                    | 10,591,835                          |
| 12.28–18.48    | 290,445   | 2.50  | 15.56                                    | 6,137,608                           |
| \$ 5.45–18.48  | 1,079,223   | 2.78  | \$ 10.54                                 | \$ 28,217,745                       |

The difference between the stock option's exercise price and the closing price of the common (A)stock at December 31, 2011.

The total intrinsic value of stock awards exercised during the years ended December 31, 2011, 2010 and 2009 was \$25,022,463, \$8,075,057 and \$2,310,832, respectively. The Company recorded as compensation expense related to the vesting of all employee stock options charges of \$0, \$30,497 and \$97,145 for the years ended December 31, 2011, 2010 and 2009, respectively.

In 2011 and 2010, 32,800 and 54,650 shares of common stock, valued at \$1,259,506 and \$1,500,931, respectively, were tendered to net share settle the exercise of options. In connection with the exercise of options during the year ended December 31, 2011, 13,031 shares, with a fair value of \$437,711, were withheld in satisfaction of tax withholding obligations.

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In 2011, the Company granted 24,000 cash-settled SARs to certain executive officers. The SARs represent the right to receive, for each SAR, a cash payment equal to the amount, if any, by which the fair market value of a share of the common stock of the Company on the vesting date exceeds the base price of the SAR award. The SARs vest on the first anniversary of the date of grant, provided that the grantee is still an employee of the Company on the applicable vesting date.

The following table summarizes the SARs activity during the year ended December 31, 2011 for all grants under the Equity Compensation Plan:

|                                  | SARs   | Base Price |
|----------------------------------|--------|------------|
| Outstanding at January 1, 2011   | —      | \$ —       |
| Granted                          | 24,000 | 34.78      |
| Exercised                        | —      | —          |
| Forfeited                        | —      | —          |
| Cancelled                        | —      | —          |
| Outstanding at December 31, 2011 | 24,000 | 34.78      |
| Vested and expected to vest      | 24,000 | 34.78      |

The fair value of the SARs was \$1.93 per SAR at December 31, 2011, estimated using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model considers assumptions related to volatility, risk-free interest rates, dividend yields and remaining life. Expected volatility was based on the Company's historical daily stock price volatility. The risk-free rate was based on average U.S. Treasury security yields in the quarter of the grant. The dividend yield was based on historical information. The SARs are liability-classified awards that must be remeasured at fair value at the end of each reporting period, and cumulative compensation cost recognized to date must be adjusted each reporting period for changes in fair value prorated for the portion of the requisite service period rendered. The following table provides the assumptions used in determining the fair value of the SARs at December 31, 2011:

|                          |        |
|--------------------------|--------|
| Dividend yield rate      | —      |
| Expected volatility      | 23.4 % |
| Risk-free interest rates | 0.02 % |
| Expected life            | 0.02   |

The remaining life of the outstanding SARs was 0.02 years and the intrinsic value was \$45,840 at December 31, 2011. Based on the fair value as of December 31, 2011, the Company recorded, selling, general and administrative expense of \$13,261 and research and development expense of \$32,207 for the year ended December 31, 2011.

The Company has issued restricted stock awards and units to employees and non-employee members of the Scientific Advisory Board with vesting terms of one to six years. The fair value is equal to the market price of the Company's common stock on the date of grant for awards granted to employees and equal to the market price at the end of the reporting period for unvested non-employee awards or upon the date of vesting for vested non-employee awards. Expense for restricted stock awards and units is amortized ratably over the vesting period for the awards issued to employees and using a graded vesting method for the awards issued to non-employee members of the Scientific Advisory Board.

For the years ended December 31, 2011, 2010 and 2009, the Company recorded, as compensation charges related to all restricted stock awards and units, selling, general and administrative expense of \$2,977,130, \$2,024,507, and \$993,357, respectively, and research and development expense of \$1,726,183, \$1,368,314 and \$705,535, respectively. In connection with the vesting of restricted stock awards and units during the years ended December 31, 2011, 2010 and 2009, respectively, 83,089, 40,049 and 22,164 shares, with an aggregate fair value of \$3,379,828, \$581,833 and \$209,685, were withheld in satisfaction of tax withholding obligations.

For the years ended December 31, 2011, 2010 and 2009, the Company granted to employees and non-employees 3,196, 2,881 and 5,842 shares of common stock, which shares fully vested as of the date of grant. The Company recorded research and development expense of \$129,327, \$56,107 and \$51,055 for the years ended December 31, 2011, 2010 and 2009, respectively, for the fair value of these awards.

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The following table summarizes the stock activity related to restricted stock awards and units and fully vested share based payment awards:

|                             | Number of<br>Shares | Weighted-<br>Average<br>Grant-Date<br>Fair Value |
|-----------------------------|---------------------|--|
| Unvested, January 1, 2011   | 773,803             | \$ 12.87   |
| Granted                     | 202,390             | 35.21  |
| Vested                      | (318,852)           | 19.19  |
| Cancelled                   | —                   | —  |
| Unvested, December 31, 2011 | 657,341             | \$ 16.68   |

The weighted average grant-date fair value of restricted stock awards and units and fully vested shares based payment awards granted was \$35.21, \$13.54 and \$10.12 in 2011, 2010 and 2009, respectively.

#### Employee Stock Purchase Plan

On April 7, 2009, the Board of Directors of the Company adopted an Employee Stock Purchase Plan (ESPP). The ESPP was approved by the Company's shareholders and became effective on June 25, 2009. The Company has reserved 1,000,000 shares of common stock for issuance under the ESPP. Unless sooner terminated by the Board of Directors, the ESPP will expire when all reserved shares have been issued.

Eligible employees may elect to contribute to the ESPP through payroll deductions during consecutive three-month purchase periods, the first of which began on July 1, 2009. Each employee who elects to participate will be deemed to have been granted an option to purchase shares of the Company's common stock on the first day of the purchase period. Unless the employee opts out during the purchase period, the option will automatically be exercised on the last day of the period, which is the purchase date, based on the employee's accumulated contributions to the ESPP. The purchase price will equal 85% of the lesser of the price per share of common stock on the first day of the period or the last day of the period.

Employees may allocate up to 10% of their base compensation to purchase shares of common stock under the ESPP; however, each employee may purchase no more than 12,500 shares on a given purchase date, and no employee may purchase more than \$25,000 of common stock under the ESPP during a given calendar year.

For years ended December 31, 2011, 2010 and 2009, the Company issued 10,531, 19,583 and 14,056 shares of its common stock under the ESPP, resulting in proceeds of \$307,342, \$245,684 and \$130,184, respectively. For the year ended December 31, 2011, 2010 and 2009, the Company recorded charges of \$31,096, \$26,061 and \$15,276, respectively, to selling, general and administrative expense and \$76,088, \$50,834 and \$27,718, respectively, to research and development expense, related to the ESPP equal to the amount of the discount and the value of the look-back feature.

#### 11. SUPPLEMENTAL EXECUTIVE RETIREMENT PLAN

On March 18, 2010, the Compensation Committee and the Board of Directors of the Company approved and adopted the Universal Display Corporation Supplemental Executive Retirement Plan (SERP), effective as of April 1, 2010. The purpose of the SERP, which is unfunded, is to provide certain of the Company's executive officers with

supplemental pension benefits following a cessation of their employment. As of December 31, 2011 there were six participants in the SERP.

The SERP benefit is based on a percentage of the participant's annual base salary. For this purpose, annual base salary means 12 times the highest monthly base salary paid or payable to the participant during the 24-month period immediately preceding the participant's date of termination of employment, or, if required, the date of a change in control of the Company.

Under the SERP, if a participant resigns or is terminated without cause at or after age 65 and with at least 20 years of service, he or she will be eligible to receive a SERP benefit. The benefit is based on a percentage of the participant's annual base salary for the life of the participant. This percentage is 50%, 25% or 15%, depending on the participant's benefit class. All current participants in the SERP are in the 50% benefit class.

If a participant resigns at or after age 65 and with at least 15 years of service, he or she will be eligible to receive a

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prorated SERP benefit. If a participant is terminated without cause or on account of a disability after at least 15 years of service, he or she will be eligible to receive a prorated SERP benefit regardless of age. The prorated benefit in either case would be based on the participant's number of years of service (up to 20), divided by 20. In the event a participant is terminated for cause, his or her SERP benefit and any future benefit payments are subject to immediate forfeiture.

The SERP benefit is payable in installments over 10 years, beginning at the later of age 65 or the date of the participant's separation from service. Payments are based on a present value calculation of the benefit amount for the actuarial remaining life expectancy of the participant. This calculation is made as of the date benefit payments are to begin (later of age 65 or separation from service). If the participant dies after reaching age 65, any future or remaining benefit payments are made to the participant's beneficiary or estate. If the participant dies before reaching age 65, the benefit is forfeited.

In the event of a change in control of the Company, each participant will become immediately vested in his or her SERP benefit. Unless the participant's benefit has already fully vested, if the participant has less than 20 years of service at the time of the change in control, he or she will receive a prorated benefit based on his or her number of years of service (up to 20), divided by 20. If the change in control qualifies as a "change in control event" for purposes of Section 409A of the Internal Revenue Code, then each participant (including former employees who are entitled to SERP benefits) will receive a lump sum cash payment equal to the present value of the benefit immediately upon the change in control.

Certain of the Company's executive officers are designated as special participants under the SERP. If these participants resign or are terminated without cause after 20 years of service, or at or after age 65 and with at least 15 years of service, they will be eligible to receive a SERP benefit. If they are terminated without cause or on account of a disability, they will be eligible to receive a prorated SERP benefit regardless of age. The prorated benefit would be based on the participant's number of years of service (up to 20), divided by 20.

The SERP benefit for special participants is based on 50% of their annual base salary for their life and the life of their surviving spouse, if any. Payments are based on a present value calculation of the benefit amount for the actuarial remaining life expectancies of the participant and their surviving spouse, if any. If they die before reaching age 65, the benefit is not forfeited if the surviving spouse, if any, lives until the participant would have reached age 65. If their spouse also dies before the participant would have reached age 65, the benefit is forfeited.

The Company records amounts relating to the SERP based on calculations that incorporate various actuarial and other assumptions, including discount rates, rate of compensation increases, retirement dates, and life expectancies. The net periodic costs are recognized as employees render the services necessary to earn the SERP benefits.

In connection with the initiation of the SERP, the Company recorded cost related to prior service of \$5,611,079 as accumulated other comprehensive loss. The prior service cost is being amortized as a component of net periodic pension cost over the average of the remaining service period of the employees expected to receive benefits under the plan. The prior service cost expected to be amortized for the year ending December 31, 2012 is \$584,487.

Information relating to the Company's plan is as follows:

|                               | Year Ended<br>December 31, |              |
|-------------------------------|----------------------------|--------------|
|                               | 2011                       | 2010         |
| Change in benefit obligation: | \$ 7,077,901               | \$ 5,611,079 |

|  |              |              |
|--|--------------|--------------|
| Benefit obligation, beginning of year/upon plan adoption |              |              |
| Service cost   | 541,835      | 331,837      |
| Interest cost  | 385,038      | 256,041      |
| Actuarial loss   | 418,461      | 878,944      |
| Benefit obligation, end of year                          | 8,423,235    | 7,077,901    |
| Fair value of plan assets                                |              |              |
|  | —            | —            |
| Unfunded status of the plan, end of year                 | \$ 8,423,235 | \$ 7,077,901 |
| Current liability  |              |              |
|  | \$ 163,545   | \$ —         |
| Noncurrent liability                                     |              |              |
|  | 8,259,690    | 7,077,901    |

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The accumulated benefit obligation for the plan was \$6,967,000 and \$5,890,000 as of December 31, 2011 and 2010, respectively.

The components of net periodic pension cost were as follows:

|                                    | Year Ended<br>December 31, |              |
|------------------------------------|----------------------------|--------------|
|                                    | 2011                       | 2010         |
| Service cost                       | \$ 541,835                 | \$ 331,837   |
| Interest cost                      | 385,038                    | 256,041      |
| Amortization of prior service cost | 584,487                    | 438,366      |
| Amortization of loss               | 15,512                     | —            |
| Total net periodic benefit cost    | \$ 1,526,872               | \$ 1,026,244 |

The measurement date is the Company's fiscal year end. The net periodic pension cost is based on assumptions determined at the prior year end measurement date.

Assumptions used to determine the year end benefit obligation were as follows:

|                                | Year Ended<br>December 31, |       |
|--------------------------------|----------------------------|-------|
|                                | 2011                       | 2010  |
| Discount rate                  | 4.44%                      | 5.44% |
| Rate of compensation increases | 3.5%                       | 3.5%  |

Assumptions used to determine the net periodic pension cost were as follows:

|                                | Year Ended<br>December 31, |       |
|--------------------------------|----------------------------|-------|
|                                | 2011                       | 2010  |
| Discount rate                  | 5.44%                      | 6.13% |
| Rate of compensation increases | 3.5%                       | 3.5%  |

Actuarial losses are amortized from accumulated other comprehensive loss into net periodic pension cost over future years based upon the average remaining service period of active plan participants, when the accumulation of such losses exceeds 10% of the year end benefit obligation. The cost or benefit of plan changes that increase or decrease benefits for prior employee service (prior service cost [credit]) is included in the Company's results of operations on a straight-line basis over the average remaining service period of active plan participants.

The estimated amounts to be amortized from accumulated other comprehensive loss into the net periodic pension cost in 2012 are as follows:

|                                    |            |
|------------------------------------|------------|
| Amortization of prior service cost | \$ 584,000 |
| Amortization of loss               | 10,000     |
| Total                              | \$ 594,000 |





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Benefit payments, which reflect estimated future service, are currently expected to be paid as follows:

| Year       | Projected Benefits |
|------------|--------------------|
| 2012       | \$ 164,000         |
| 2013       | 393,000            |
| 2014       | 393,000            |
| 2015       | 393,000            |
| 2016       | 393,000            |
| 2017-2021  | 4,259,000          |
| Thereafter | 14,011,000         |

## 12. COMMITMENTS AND CONTINGENCIES:

### Commitments

Under the 2006 Research Agreement with USC, the Company is obligated to make certain payments to USC based on work performed by USC under that agreement, and by Michigan under its subcontractor agreement with USC. See Note 3 for further explanation.

Under the terms of the 1997 Amended License Agreement, the Company is required to make minimum royalty payments to Princeton. See Note 3 for further explanation.

The Company has agreements with six executive officers which provide for certain cash and other benefits upon termination of employment of the officer in connection with a change in control of the Company. Each executive is entitled to a lump-sum cash payment equal to two times the sum of the average annual base salary and bonus of the officer and immediate vesting of all stock options and other equity awards that may be outstanding at the date of the change in control, among other items.

### Opposition to European Patent No. 0946958

On December 8, 2006, Cambridge Display Technology Ltd. (CDT), which was acquired in 2007 by Sumitomo Chemical Company (Sumitomo), filed a Notice of Opposition to European Patent No. 0946958 (EP '958 patent). The EP '958 patent, which was issued on March 8, 2006, is a European counterpart patent to U.S. patents 5,844,363, 6,602,540, 6,888,306 and 7,247,073. These patents relate to the Company's FOLED™ flexible OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

The European Patent Office (the EPO) conducted an Oral Hearing in this matter on October 6, 2009. No representative from CDT attended the Oral Hearing. At the conclusion of the Oral Hearing, the EPO panel announced its decision to reject the opposition and to maintain the patent as granted. The minutes of the Oral Hearing were dispatched on October 27, 2009, and a written decision was issued on November 26, 2009.

CDT filed an appeal to the EPO panel decision on January 25, 2010. CDT timely filed its grounds for the appeal with the EPO on or about April 1, 2010. The EPO set August 12, 2010 as the due date for filing the Company's reply to this appeal. The Company's reply was timely filed.

At this time, based on its current knowledge, Company management believes that the EPO panel decision will be upheld on appeal. However, Company management cannot make any assurances of this result.

Opposition to European Patent No. 1449238

On March 8, 2007, Sumation Company Limited (Sumation), a joint venture between Sumitomo and CDT, filed a first Notice of Opposition to European Patent No. 1449238 (EP '238 patent). The EP '238 patent, which was issued on November 2, 2006, is a European counterpart patent, in part, to U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent application 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011. These patents and patent applications relate to the Company's UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

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Two other parties filed additional oppositions to the EP '238 patent just prior to the August 2, 2007 expiration date for such filings. On July 24, 2007, Merck Patent GmbH, of Darmstadt, Germany, filed a second Notice of Opposition to the EP '238 patent, and on July 27, 2007, BASF Aktiengesellschaft, of Mannheim, Germany, filed a third Notice of Opposition to the EP '238 patent. The EPO combined all three oppositions into a single opposition proceeding.

The EPO conducted an Oral Hearing in this matter on November 3, 2011. At the conclusion of the Oral Hearing, the EPO panel announced its decision to maintain the patent with claims directed to OLEDs comprising phosphorescent organometallic iridium compounds. The official minutes from the Oral Hearing and written decision were published on January 13, 2012. The EPO panel decision is open to appeal.

At this time, based on its current knowledge, Company management believes that the EPO panel decision, if appealed, would be upheld on appeal. However, Company management cannot make any assurances of this result.

#### Invalidation Trial in Japan for Japan Patent No. 3992929

On April 19, 2010, the Company received a copy of a Notice of Invalidation Trial from the Japanese Patent Office (the JPO) for the Company's Japan Patent No. 3992929 (the JP '929 patent), which was issued on August 3, 2007. The request for the Invalidation Trial was filed by Semiconductor Energy Laboratory Co., Ltd. (SEL), of Kanagawa, Japan. The JP '929 patent is a Japanese counterpart patent, in part, to the above-noted EP '238 patent and to the above-noted family of U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent applications 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011. These patents and patent applications relate to the Company's UniversalPHOLED phosphorescent OLED technology. Under its license agreement with Princeton, the Company is required to pay all legal costs and fees associated with this proceeding.

An Oral Hearing in this matter was held on November 16, 2010. On February 28, 2011, the Company learned that the JPO had issued a decision recognizing the Company's invention and upholding the validity of most of the claims, but finding the broadest claims in the patent invalid. Company management believes that the JPO's decision invalidating these claims was erroneous, and the Company filed an appeal to the Japanese IP High Court.

Both parties filed appeal briefs in this matter with the Japanese IP High Court. A technical explanation hearing was held on February 1, 2012. At the hearing, both parties filed technical materials supporting their respective positions.

At this time, based on its current knowledge, Company management believes that the JPO decision invalidating certain claims in the Company's JP '929 patent should be overturned on appeal as to all or a significant portion of the claims. However, Company management cannot make any assurances of this result.

#### Opposition to European Patent No. 1394870

On about April 20, 2010, five European companies filed Notices of Opposition to European Patent No. 1394870 (the EP '870 patent). The EP '870 patent, which was issued on July 22, 2009, is a European counterpart patent, in part, to U.S. patents 6,303,238; 6,579,632; 6,872,477; 7,279,235; 7,279,237; 7,488,542; 7,563,519; and 7,901,795; and to pending U.S. patent application 13/035,051, filed on February 25, 2011. These patents and this patent application relate to the Company's UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding. The five companies are Merck Patent GmbH; BASF Schweitz AG of Basel, Switzerland; Osram GmbH of Munich, Germany; Siemens Aktiengesellschaft of Munich, Germany; and Koninklijke Philips Electronics N.V., of Eindhoven, The Netherlands.

The EPO combined the oppositions into a single opposition proceeding. The matter has been briefed and the Company is waiting for the EPO to provide notice of the date of the Oral Hearing. The Company is also waiting to see whether any of the other parties in the opposition file additional documents, to which the Company might respond.

At this time, based on its current knowledge, Company management believes there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, Company management cannot make any assurances of this result.

Invalidation Trials in Japan for Japan Patent Nos. 4357781 and 4358168

On May 24, 2010, the Company received copies of two additional Notices of Invalidation Trials against Japan Patent Nos. 4357781 (the JP '781 patent) and 4358168 (the JP '168 patent), which were both issued on August 14, 2009. The requests for these two additional Invalidation Trials were also filed by SEL. The JP '781 and '168 patents are also Japanese

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counterpart patents, in part, to the above-noted family of U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent applications 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011. These patents and patent applications relate to the Company's UniversalPHOLED phosphorescent OLED technology. Under its license agreement with Princeton, the Company is also required to pay all legal costs and fees associated with these two proceedings.

An Oral Hearing in this matter was held on February 1, 2011. On March 31, 2011, the Company learned that the JPO had issued decisions finding all claims in the JP '781 and JP '168 patents invalid. Company management believes that the JPO's decisions invalidating these claims were erroneous, and the Company filed appeals for both cases to the Japanese IP High Court.

Both parties are in the process of filing appeal briefs in this matter with the Japanese IP High Court. The Japanese IP High Court held an initial hearing for this matter on November 22, 2011, and the Company is preparing for a technical explanation hearing in this matter.

At this time, based on its current knowledge, Company management believes that the JPO decisions invalidating all the claims in the Company's JP '781 and JP '168 patents should be overturned on appeal as to all or a significant portion of the claims. However, Company management cannot make any assurances of this result.

Interference No. 105,771 involving Claims 48-52 of US Patent No. 6,902,830

Patent Interference No. 105,771 was declared by the United States Patent and Trademark Office (the USPTO) on November 17, 2010 between The University of Southern California and The Trustees of Princeton University (the Universities), Junior Party, and Fujifilm Holding Corporation (Fuji), Senior Party. The dispute is between the Universities' U.S. Patent No. 6,902,830 (the '830 patent), claims 48-52, and Fuji's Patent Application No. 11/802,492, claims 1-5 (the Fuji application). The '830 patent relates to the Company's UniversalPHOLED phosphorescent OLED technology. It is exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

The USPTO declares an interference when two or more parties claim the same patentable invention. The objective of an interference is to contest which party, if any, has both a right to participate in the proceeding and a right to the claimed invention and, if more than one party does, then to contest which party has the earliest priority date for the claimed invention.

Subsequent to the filing of motions and responsive motions in this matter, the interference was concluded by the Company's purchase of the Fuji application. As a result of this purchase, the Fuji application was assigned to the Company effective September 13, 2011. The Company then requested that adverse judgment be entered against the Fuji application, which was entered by the USPTO on October 4, 2011. Thus, the Company's claims 48-52 of the '830 patent, and the '830 patent as a whole, remain intact as granted.

Invalidation Trial in Korea for Patent No. KR-0998059

On March 10, 2011, the Company received informal notice from the Company's Korean patent counsel of a Request for an Invalidation Trial from the Korean Intellectual Property Office (KIPO) for its Korean Patent No. 10-0998059 (the KR '059 patent), which was issued on November 26, 2010. The Request was filed by a certain individual petitioner, but the Company still does not know which company, if any, was ultimately responsible for filing this Request. The KR '059 patent is a Korean counterpart patent to the OVJP, Organic Vapor Jet Printing, family of U.S. patents originating from US 7,431,968.

On April 21, 2011, the Company's Korean patent counsel received a copy of the Appeal Brief for the Request from KIPO. The Company filed a response to the Request on June 20, 2011. The petitioner filed a rebuttal brief on August 8, 2011, and the Company filed a response to the rebuttal brief on October 12, 2011. The petitioner filed a second rebuttal brief on February 3, 2012, and the Company is preparing its response to this brief.

At this time, based on its current knowledge, Company management believes there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, Company management cannot make any assurances of this result.

Invalidation Trials in Korea for Patent Nos. KR-558632 and KR-963857

On May 11 and May 31, 2011, respectively, the Company learned that further Requests for Invalidation Trials were filed in Korea, on May 3 and May 26, 2011, respectively, for the Company's Korean Patent Nos. KR-558632 (the KR '632

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patent), which issued on March 2, 2006, and KR-963857 (the KR '857 patent), which issued on June 8, 2010. The Requests were filed by Duk San Hi-metal, Ltd. (Duk San) of Korea. The KR '632 and KR '857 patents are both Korean counterpart patents, in part, to U.S. patents 6,303,238; 6,579,632; 6,872,477; 7,279,235; 7,279,237; 7,488,542 and 7,563,519; and to pending U.S. patent application 12/489,045, filed on June 22, 2009; to the EP '870 patent, which is subject to one of the above-noted European Oppositions; and to the JP '024 patent, which is subject to the below-noted Japanese Invalidation Trial. These patents and the pending U.S. patent application relate to the Company's UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

The Company timely filed its formal responses to the Requests by the due dates of August 27, 2011 and September 8, 2011, respectively.

At this time, based on its current knowledge, Company management believes there is a substantial likelihood that the patents being challenged will be declared valid, and that all or a significant portion of their claims will be upheld. However, Company management cannot make any assurances of this result.

Invalidation Trials in Korea for Patent Nos. KR-744199 and KR-913568

On May 10 and May 31, 2011, respectively, the Company learned that further Requests for Invalidation Trials were filed in Korea, on May 3 and May 26, 2011, respectively, for the Company's Korean Patent Nos. KR-744199 (the KR '199 patent), which issued on July 24, 2007, and KR-913568 (the KR '568 patent), which issued on August 17, 2009. The Requests were also filed by Duk San. The KR '199 and KR '568 patents are both Korean counterpart patents, in part, to U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent applications 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011; to the EP '238 patent, which is subject to one of the above-noted European Oppositions; and to the JP '929 patent, which is subject to one of the above-noted Japanese Invalidation Trials. These patents and patent applications relate to the Company's UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

The Company timely filed its formal responses to the Requests by the due dates of September 1, 2011 and August 23, 2011, respectively. Both parties are in the process of filing briefs in these matters with the Korean Patent Office.

At this time, based on its current knowledge, Company management believes there is a substantial likelihood that the patents being challenged will be declared valid, and that all or a significant portion of their claims will be upheld. However, Company management cannot make any assurances of this result.

Invalidation Trial in Japan for Japan Patent No. 4511024

On June 16, 2011, the Company learned that a further Request for an Invalidation Trial was filed in Japan for the Company's Japanese Patent No. JP-4511024 (the JP '024 patent), which issued on May 14, 2010. The Request was filed by SEL, the same opponent as in the above-noted Japanese Invalidation Trial for the JP '929 patent. The JP '024 patent is a counterpart patent, in part, to U.S. patents 6,303,238; 6,579,632; 6,872,477; 7,279,235; 7,279,237; 7,488,542; 7,563,519; and 7,901,795; and to pending U.S. patent application 13/035,051, filed on February 25, 2011; to the EP '870 patent, which is subject to one of the above-noted European Oppositions; and to the KR '632 and KR '857 patents, which are subject to one of the above noted Korean Invalidation Trials. These patents and the pending U.S. patent application relate to the Company's UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all

legal costs and fees associated with this proceeding.

The Company timely filed a Written Reply to the Request for Invalidation Trial by the due date of November 2, 2011.

At this time, based on its current knowledge, Company management believes there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, Company management cannot make any assurances of this result.

#### Opposition to European Patent No. 1252803

On July 12 and 13, 2011, Oppositions were filed to the Company's European Patent No. 1252803 (the EP '803 patent). These Oppositions were filed by Sumitomo, Merck Patent GmbH and BASF SE, of Ludwigshaven, Germany. The EP '803 patent, which was issued on October 13, 2010, is a European counterpart patent, in part, to U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent application 13/009,001, filed on

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January 19, 2011, and 13/205,290, filed on August 9, 2011. These patents and patent applications relate to the Company's UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

The EPO combined the oppositions into a single opposition proceeding and set December 18, 2011 as the due date for the Company to file its response, subject to extension. The Company's response to the oppositions was timely filed prior to the February 18, 2012, extended due date.

At this time, based on its current knowledge, Company management believes there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld. However, Company management cannot make any assurances of this result.

Invalidation Trials in Korea for Patent Nos. KR-794,975, KR-840,637 and KR-937,470

On August 8, 2011, the Company received information indicating that further Requests for Invalidation Trials were filed against the Company's Korean Patent Nos. KR-840,637 (the KR '637 patent) and KR-937,470 (the KR '470 patent), which issued on June 17, 2008 and January 11, 2010, respectively. On December 12, 2011, the Company received information that a further Request for an Invalidation Trial was filed against the Company's Korean Patent No. KR-794,975 (the KR '975 patent). The Requests were also filed by Duk San. The KR '975, KR '637 and KR '470 patents are Korean counterpart patents, in part, to U.S. patents 6,830,828; 6,902,830; 7,001,536; 7,291,406; 7,537,844; and 7,883,787; and to pending U.S. patent application 13/009,001, filed on January 19, 2011, and 13/205,290, filed on August 9, 2011; to the EP '803 patent, which is subject to one of the above-noted European Oppositions; and to the JP '781 and JP '168 patents, which are subject to the above-noted Japanese Invalidation Trials. These patents and patent applications relate to the Company's UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

Formal, substantially non-substantive responses relating to KR '637 and KR '470, originally due in Korea on September 7 and 8, 2011, respectively, were extended until December 7 and 8, 2011, respectively. The Company's responses were timely filed. The Company is in the process of preparing its response for KR '975.

At this time, based on its current knowledge, Company management believes there is a substantial likelihood that the patents being challenged will be declared valid, and that all or a significant portion of their claims will be upheld. However, Company management cannot make any assurances of this result.

Opposition to European Patent No. 1390962

On November 16, 2011, Osram AG and BASF SE each filed a Notice of Opposition to European Patent No. 1390962 (EP '962 patent). The EP '962 patent, which was issued on February 16, 2011, is a European counterpart patent to U.S. patents 7,009,338 and 7,285,907. These patents relate to the Company's white phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

The EPO combined the oppositions into a single opposition proceeding. The Company is in the process of preparing its response to the oppositions.

At this time, based on its current knowledge, Company management believes there is a substantial likelihood that the patent being challenged will be declared valid, and that all or a significant portion of its claims will be upheld.

However, Company management cannot make any assurances of this result.

Opposition to European Patent No. 1933395

On February 24, 2012, the European Patent Office posted an Acknowledgement of Receipt of a Notice of Opposition by Sumitomo to European Patent No. 1933395 (EP '395 patent). The EP '395 patent is a counterpart patent to the above-noted Japan Patent No. 4358168, and to the above-noted Patent Nos. KR-840,637 and KR-937,470, and the related U.S. patents cited therewith. These patents and patent applications relate to the Company's UniversalPHOLED phosphorescent OLED technology. They are exclusively licensed to the Company by Princeton, and under the license agreement the Company is required to pay all legal costs and fees associated with this proceeding.

No further knowledge of this newly-reported opposition is available to the Company at this time.

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## 13. CONCENTRATION OF RISK:

Included in technology development and support revenue in the accompanying statement of operations, is \$5,773,957, \$4,939,546, and \$4,373,316 for the years ended December 31, 2011, 2010 and 2009, respectively, which has been derived from contracts with United States government agencies. Revenues derived from contracts with government agencies represented 9%, 16% and 28% of the consolidated revenue for the years ended December 31, 2011, 2010 and 2009, respectively.

Revenues and accounts receivable from our largest non-government customers for the years ended December 31 were as follows:

| Customer | 2011                     | Accounts<br>Receivable | 2010                     | Accounts<br>Receivable | 2009                     | Accounts<br>Receivable |
|----------|--------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|
|          | % of<br>Total<br>Revenue |                        | % of<br>Total<br>Revenue |                        | % of<br>Total<br>Revenue |                        |
| A        | 51%                      | \$ 5,208,085           | 35%                      | \$ 2,635,290           | 31%                      | \$ 528,150             |
| B        | 11%                      | 844,610                | 23%                      | 2,246,295              | 9%                       | 630,800                |
| C        | 18%                      | 62,955                 | —%                       | —                      | 10%                      | —                      |

The Company's relationships with customers B and C are under agreements that are presently scheduled to expire in less than twelve months.

Revenues from outside of North America represented 89%, 82%, and 70% of the consolidated revenue for the years ended December 31, 2011, 2010 and 2009, respectively. Revenues by geographic area are as follows:

| Country               | 2011          | 2010          | 2009          |
|-----------------------|---------------|---------------|---------------|
| United States         | \$ 6,842,202  | \$ 5,369,396  | \$ 4,789,536  |
| South Korea           | 38,581,685    | 18,015,390    | 6,570,447     |
| Japan                 | 15,004,708    | 5,341,803     | 2,737,514     |
| Taiwan                | 642,510       | 1,736,102     | 1,664,050     |
| Other                 | 217,573       | 81,689        | 25,070        |
| All foreign locations | 54,446,476    | 25,174,984    | 10,997,081    |
| Total revenue         | \$ 61,288,678 | \$ 30,544,380 | \$ 15,786,617 |

The Company attributes revenue to different geographic areas on the basis of the location of the customer.

Long-lived tangible assets at international locations are not significant for each of the periods presented.

All chemical materials were purchased from one supplier. See Note 7.

## 14. INCOME TAXES:

The components of income (loss) before income taxes are as follows:

|  | Year ended December 31,<br>2011 | 2010 | 2009 |
|--|---------------------------------|------|------|
|--|---------------------------------|------|------|

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|                                 |              |                 |                 |
|---------------------------------|--------------|-----------------|-----------------|
| United States                   | \$ 3,729,014 | \$ (20,022,838) | \$ (20,625,310) |
| Foreign                         | (1,287,914)  | (28,921)        | (9,925)         |
| Income (loss) before income tax | \$ 2,441,100 | \$ (20,051,759) | \$ (20,635,235) |

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The components of the income tax benefit are as follows:

|  | Year ended December 31, |                   |                   |
|--|-------------------------|-------------------|-------------------|
|  | 2011                    | 2010              | 2009              |
| <b>Current income tax benefit (expense):</b> |                         |                   |                   |
| Federal                                      | \$ —                    | \$ —              | \$ 104,428        |
| State  | 2,660,509               | 464,162           | 25,487            |
| Foreign                                      | (1,946,456)             | (329,813)         | —                 |
|  | 714,053                 | 134,349           | 129,915           |
| <b>Deferred income tax benefit:</b>          |                         |                   |                   |
| Federal                                      | —                       | —                 | —                 |
| State  | —                       | —                 | —                 |
| Foreign                                      | —                       | —                 | —                 |
|  | —                       | —                 | —                 |
| <b>Income tax benefit</b>                    | <b>\$ 714,053</b>       | <b>\$ 134,349</b> | <b>\$ 129,915</b> |

Reconciliation of the statutory U.S. federal tax rate to the Company's effective tax rate is as follows:

|  | Year ended December 31, |         |         |
|--|-------------------------|---------|---------|
|  | 2011                    | 2010    | 2009    |
| Statutory U.S. federal income tax rate     | 34.0%                   | 34.0%   | 34.0%   |
| State income taxes, net of federal benefit | 14.8%                   | 10.1%   | 7.8%    |
| Sale of New Jersey tax attributes          | 50.8%                   | 0.3%    | 0.0%    |
| Effect of foreign operations               | 17.9%                   | (1.7%)  | 0.0%    |
| Nondeductible employee compensation        | 44.4%                   | (0.2%)  | 0.0%    |
| Loss on stock warrant liability            | 58.4%                   | (17.1%) | (1.7%)  |
| Research tax credits                       | (34.7%)                 | 4.3%    | 3.5%    |
| Change in valuation allowance              | (226.9%)                | (35.3%) | (54.4%) |
| Other                                      | 12.0%                   | 6.3%    | 11.4%   |
| Effective tax rate                         | (29.3%)                 | 0.7%    | 0.6%    |

As of December 31, 2011, the Company had net operating loss and credit carry forwards. The Company's net operating loss carry forwards differ from the accumulated deficit principally due to the timing of the recognition of certain revenues and expenses. A portion of the Company's net operating loss carry forwards relates to tax deductions from stock-based compensation that would be accounted for as an increase to additional paid-in capital for financial reporting purposes to the extent such future deductions could be utilized by the Company. Pursuant to Internal Revenue Code section 382, utilization of the Company's net operating loss and tax credit carry forwards could be subject to limitation because of certain ownership changes.

The following table summarizes Company tax loss and tax credit carry forwards at December 31, 2011:

|                             | Related<br>Tax<br>Deduction | Tax<br>Benefit | Expiration<br>Date |
|-----------------------------|-----------------------------|----------------|--------------------|
| <b>Loss carry forwards:</b> |                             |                |                    |
| Federal net operating loss  | \$ 177,956,000              | \$ 60,505,000  | 2012 to<br>2030    |

|                             |                |               |                 |
|-----------------------------|----------------|---------------|-----------------|
| State net operating loss    | 87,481,000     | 5,180,000     | 2013 to<br>2030 |
| Total loss carry forwards   | \$ 265,437,000 | \$ 65,685,000 |                 |
| Tax credit carry forwards:  |                |               |                 |
| Research tax credits        | n/a            | \$ 7,856,000  | 2020 to<br>2031 |
| Foreign tax credits         | n/a            | 2,293,000     | 2012 to<br>2021 |
| State research tax credits  | n/a            | 2,210,000     | 2020 to<br>2026 |
| Total credit carry forwards | n/a            | \$ 12,359,000 |                 |

Significant components of the Company's net deferred tax assets are as follows:

|                                   | December 31,  |               |
|-----------------------------------|---------------|---------------|
|                                   | 2011          | 2010          |
| Deferred tax asset:               |               |               |
| Net operating loss carry forwards | \$ 57,974,000 | \$ 70,048,000 |
| Capitalized technology license    | 3,352,000     | 3,811,000     |
| Capitalized research expenditures | 976,000       | -             |
| Accruals and reserves             | 2,119,000     | 463,000       |
| Retirement plan                   | 3,364,000     | 2,827,000     |
| Deferred revenue                  | 3,758,000     | 3,235,000     |
| Tax credit carry forward          | 12,359,000    | 8,394,000     |
| Other                             | 502,000       | 1,237,000     |
|                                   | 84,404,000    | 90,015,000    |
| Valuation allowance               | (84,404,000)  | (90,015,000)  |
| Net deferred tax asset            | \$ —          | \$ —          |

During the year ended December 31, 2009, the Company received federal cash refunds of \$104,428 related to research and development credits. The Company also received state cash refunds of \$25,487 in 2009 from claims for overpaid New Jersey Alternative Minimum Assessment tax for taxable years 2003 to 2006.

During the years ended December 31, 2011 and 2010, the Company sold approximately \$45.2 million and \$3.8 million, respectively, of its state net operating losses and \$232,000 and \$194,000 of its state research and development tax credits under the New Jersey Technology Tax Certificate Transfer Program, and received or will receive net proceeds of \$2,660,509 and \$464,162, respectively. The Company recorded these sales as income tax benefit.

During the years ended December 31, 2011 and 2010 the Company paid foreign taxes on South Korean royalty and license fee income of \$1,946,456 and \$329,813, respectively, which were recorded as current income tax expense. Any potential tax credit to be received by the Company on its United States tax returns is currently offset by a full valuation allowance (see below). The Company filed for and was granted a five-year exemption on withholding tax on royalty payments received from SMD under its patent license agreement as part of a tax incentive program in South Korea. The exemption was granted in May 2005 and remained in effect until May 2010. Since then, SMD has been required to withhold tax upon payment of royalties and license fees to the Company. In 2011 and 2010, the withholding tax rate for royalty payments made by SMD was 16.5%.

A valuation allowance has been established for all deferred tax assets because the Company incurred substantial operating losses from inception through 2010 and Company management has not determined that the net deferred tax assets are more likely than not to be realized. The Company's valuation allowance decreased by \$5,611,000 for the year ended December 31, 2011 and increased by \$9,490,000 and \$11,232,000 for the years ended December 31, 2010, and 2009, respectively. In future periods, if the Company determines it is more likely than not that net deferred tax assets will be realized, the related valuation allowance would be reduced and an income tax benefit would be recorded. However, due to the uncertainty inherent in projections of future earnings within the statutory carry forward periods, it cannot be assured there will be any adjustment to the valuation allowance in the future.

The tax deduction resulting from exercise and vesting of certain share-based awards has exceeded the aggregate compensation expense recorded for financial reporting purposes for such awards. These "windfall" deductions resulted in excess tax benefits that must be analyzed to determine whether realization has occurred. The Company uses the "with and without" approach as described in ASC 740, Income Taxes, whereby the excess tax benefit of deductions

from stock-based compensation is reflected as an increase in additional paid-in capital only if an incremental benefit is provided after considering all other tax attributes available to the Company. Given the Company's net operating loss carry forward position, no income tax benefit has been recognized in paid-in capital for such excess tax benefits.

The Company did not record a liability for uncertain tax positions as of December 31, 2011 and December 31, 2010. Company management does not anticipate any material change in its uncertain tax positions in the next twelve months. The Company's federal income tax returns for 2008 through 2011 are open tax years and are subject to examination by the Internal Revenue Service. State tax years 2007 to 2011 remain open to examination by the jurisdictions (Pennsylvania, New Jersey, and Idaho) in which the Company is subject to tax.

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## 15. DEFINED CONTRIBUTION PLAN:

The Company maintains the Universal Display Corporation 401(k) Plan (Plan) in accordance with the provisions of Section 401(k) of the Internal Revenue Code (Code). The Plan covers substantially all full-time employees of the Company. Participants may contribute up to 15% of their total compensation to the Plan, not to exceed the limit as defined in the Code, with the Company matching 50% of the participant's contribution, limited to 6% of the participant's total compensation. For the years ended December 31, 2011, 2010 and 2009, the Company contributed \$250,803, \$245,026 and \$230,395, respectively, to the Plan.

## 16. QUARTERLY SUPPLEMENTAL FINANCIAL DATA (UNAUDITED):

The following tables present certain unaudited consolidated quarterly financial information for each of the eight quarters in the two-year period ended December 31, 2011. In the opinion of Company management, this quarterly information has been prepared on the same basis as the consolidated financial statements and includes all adjustments (consisting of only normal recurring adjustments) necessary to present fairly the information for the periods presented. The results of operations for any quarter are not necessarily indicative of the results for the full year or for any future period.

Year ended December 31, 2011:

|                                     | Three Months Ended |               |               | December 31   | Total         |
|-------------------------------------|--------------------|---------------|---------------|---------------|---------------|
|                                     | March 31           | June 30       | September 30  |               |               |
| Revenue                             | \$ 9,600,540       | \$ 11,252,415 | \$ 21,777,140 | \$ 18,658,583 | \$ 61,288,678 |
| Net (loss) income                   | (11,880,856)       | 3,312,700     | 5,989,426     | 5,733,883     | 3,155,153     |
| Net (loss) income per common share: |                    |               |               |               |               |
| Basic                               | (0.31 )            | 0.07          | 0.13          | 0.13          | 0.07          |
| Diluted                             | (0.31 )            | (0.03 )       | 0.12          | 0.12          | 0.07          |

Year ended December 31, 2010:

|   | Three Months Ended |              |              | December 31   | Total         |
|---|--------------------|--------------|--------------|---------------|---------------|
|   | March 31           | June 30      | September 30 |               |               |
| Revenue                                     | \$ 4,246,650       | \$ 8,446,829 | \$ 7,055,861 | \$ 10,795,040 | \$ 30,544,380 |
| Net loss                                    | (2,978,331)        | (4,436,095)  | (7,186,570)  | (5,316,414 )  | (19,917,410)  |
| Basic and diluted net loss per common share | (0.08 )            | (0.12 )      | (0.19 )      | (0.14 )       | (0.53 )       |

Per share amounts for each quarter have been calculated separately. Accordingly, quarterly amounts may not add to annual amounts.

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