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THE WORLDWIDE ELECTRONICS ASSEMBLY MARKET FOR LED GENERAL LIGHTING - 2011 EDITION

**A Comprehensive Analysis of the Cost of Goods Sold for
Leading LED Lighting Products, Forecasted from 2010–2015**

Report Highlights

- **LED Technical Trends**
 - ◆ Major Components and Modules of LED Lamps
 - ◆ LED Lamp Manufacturing Process
 - ◆ LED Manufacturing Supply Chain
 - ◆ Transition within Lighting Industry Structure

- **LED Cost Trends and Industry Structure**
 - ◆ LED Cost Factors in General Lighting, 2009
 - ◆ LED Lighting Cost per Kilo Lumen over Time
 - ◆ General Lighting LED BOM, 2010 & 2015
 - ◆ LED Materials and Package Types, 2010 & 2015
 - ◆ LED Chip Count per Lamp, 2009–2015 (Units)

- **LED Market and Forecast, 2010-2015**
 - ◆ Total LED General Lighting Lamps, 2009–2015 (M Units)
 - ◆ Total LED Lamp Assembly Value, 2009–2015 (\$M)
 - ◆ PCB and Box Assemblies % of Total LED Manufacturing Costs

- **Outsourcing and Manufacturing Trends**
 - ◆ CM Production of LED Lamps, 2009–2015
 - ◆ ODM Production of LED Lamps, 2009–2015
 - ◆ OEMs and Subcontractors for LED Lamps, 2010

New Venture Research Corp.

337 Clay St., Suite 101
Nevada City, CA 95959
Tel: (530) 265-2004

A Technology Market Research Company

info@newventureresearch.com
www.newventureresearch.com
Fax: (530) 265-1998

Synopsis

The Worldwide Electronics Assembly Market for LED General Lighting - 2011 Edition is NVR's first foray into the exploding market for LED lighting. While this subject is widely covered by many other market research companies, this is the first time that anyone has examined the total costs involved in the market for manufacturing LEDs from a Cost of Goods Sold (COGS) standpoint. Whereas most of the coverage found today looks at the LED chip or IC market size, NVR's report examines the packaging, thermal management, optics, printed circuit board (PCB) assembly including drivers and related electrical components, final (box) assembly and test of the LED fixture. This survey is for the leading LED lighting applications' including:

- Replacement Lamps
- Architectural
- Entertainment
- Retail Display
- Commercial/Industrial
- Outdoor Lighting
- Off-grid/Alternative
- Residential Lighting
- Consumer Lighting
- Emergency/exit
- Special Lettering
- Other

This special report examines the major components and modules in LED lights, packaging and material trends, LED comparison costs over time, and the manufacturing supply chain and assembly trends. NVR's long-standing experience in tracking electronics assembly by OEM, EMS, and ODM supplier, is expanded to include leading LED OEMs along with the major subcontracting alliances and partnerships being established today. As a result, PCB and box assembly trends as a percent of total manufacturing costs for the leading LED lighting applications are quantified. Finally, estimates on the LED lamp assembly revenue per region are predicted, along with the percentage of in-house versus outsourced manufacturing of finished goods.

The Worldwide Electronics Assembly Market for LED General Lighting - 2011 Edition is presented in three separate formats. The report is published as a 36-page PowerPoint presentation with the titles of each slide summarized on the following page. It is sold for \$1995. It is supported by an Excel spreadsheet file, which is sold for an additional \$500. Lastly, a PDF file containing profiles of 140 leading LED lighting suppliers (partial list on page 4) can be purchased at an additional cost of \$500.

About the Authors

Randall Sherman is the president of New Venture Research Corp., a California market research and business consulting firm focused on the EMS and OEM electronics manufacturing industries, and serves as a principal analyst for this report. Mr. Sherman has more than 20 years' experience in technology and business research. He began his career as a telecom network design engineer. He has held senior positions at various market research firms including Creative Strategies and Frost and Sullivan. Mr. Sherman obtained his undergraduate degree in Astrophysics and holds two master's degrees - an MSEE from the University of Colorado and an MBA from the Edinburgh School of Business.

Frank Klomp is the principal consultant of Alerta Marketing Intelligence (AMI), a research consulting firm, located in Eindhoven, the Netherlands and serves as a principal analyst for this report. He has over 20 years' experience specializing in creating marketing intelligence, enabling marketing strategies, and delivering business development for high-tech companies. Mr. Klomp previously held senior marketing intelligence positions at Assembléon, formerly Philips Electronic Manufacturing Technology, and other divisions of Philips Electronics. He studied Business Administration in the UK and the USA, and earned a master's degree in International Economic Relations at the University of Amsterdam.

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Partial List of LED Company Profiles (140 total)

3M Company	Epilight Technology	Neo Neon	Shenzhen Fangda Semi.
Acclaim Lighting	Epistar Corp.	Nexxus Commercial Lgt.	Shina Optoelectric
Acuity Brands	Everlight Electronics	Nichia Corp.	ST Microelectronics
Advanced Optoelectronic	Formosa Epitaxy	Novaled AG	Stanley Electric
AIXTRON AG	Foxsemicon Int. Tech.	OPTEK Technology	Sumation Corp.
Applied Materials	FUJIFILM Dimatix	OSA Opto Light	Sumitomo Chemical
Arima Optoelectronics	GE App. & Lighting	OSRAM	Taeson LCD
Asahi Glass	HELIO Optoelectronics	Panasonic Elect. Works	Taiyo Nippon Sanso
AU Optronics	Hitachi Cable	PerkinElmer	Targetti
Avago Technologies	Hubbell Lighting	Permlight	Tekcore
Aveso	ilumisys	Pioneer Corp.	The Brinkman Corp.
BridgeLUX	K-Bridge Electronics	Prime View Intl.	Toppan Printing
Cambridge Display Tech.	KOITO Manufacturing	ProLight Opto	Toshiba Mobile Display
Casio Computer	Konica Minolta	QD Visions	Toyoda Gosei
Century Epitech	LedEngin	Radiant Opto	TSMC
Chemei Innolux	LEDtronics	ROHM Semiconductor	Traxon Technologies
Chi Mei Lighting	LG Innotek	Rubicon Technology	Unity Opto
Citizen Electronics	LG Philips LCD	Samsung SDI	Universal Display Corp.
Cooper Lighting	Lighting Science Group	Sanken Electric	UPEC Electronics
Cree, Inc.	Lite-On Optoelectronics	Schneider Electric	Veeco Instruments
Delta Optoelectronics	LSI Industries	Schreder	Vishay Intertechnology
Dowa Elect. Materials	Lumileds Lighting	Seiko Electric	Westinghouse Lighting
DuPont Microcircuit Mat.	Luminus Devices	SemiLEDs	Zumtobel
Edison Opto	MLED, Ltd.	Seoul Semiconductor	
elumin8	M.L.S. Electronics	Sharp Corp.	

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337 Clay St., Suite 101

Nevada City, CA 95959

Tel: (530) 265-2004 Fax: (530) 265-1998

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