OLED Lighting Opportunities 2017-2027: Forecasts, Technologies, Players

Description:
OLED lighting is an emerging solid-state lighting technology. It potentially provides a route into the large and growing global lighting market. The lighting market is however complex as it is a highly fragmented space thanks to the existence of a broad technology mix and a diversity of customer needs.

The market segments include residential, office, industrial, outdoor, hospitality, shop and automotive. Each sector attaches a different degree of importance to upfront cost, energy efficiency, lifetime, light intensity, colour warmth and design features. This explains why the technology mix in each sector is different.

The analysts assess the market potential for OLED lighting across all major lighting sectors. We forecast that the market will grow to 2.5 billion USD in 2027 (optimistic scenario). The market growth will however be very slow until 2019/2020 where the overall sales at panel level will remain below 200 million USD globally.

Our forecast is segmented by sector. We find that architectural, hospitality and shop segments will be the first to grow as the prize design parameters the most. Automotive is also promising given the recent announcements by companies like BMW but lifetime and reliability still need to be improved. Residential, office, and outdoor to follow later once cost decreases and lifetime is prolonged.

OLED lighting has the potential to efficiently emit warm light across large surfaces and to bring new and novel form factors into the lighting sector. These are strong selling points on their own but the challenge is in that they are not always unique.

In particular, inorganic LED lighting has arrived first onto the market. Its technology, cost structure and supply base have dramatically improved, opening a large performance and cost gap between LEDs and the younger OLEDs. The performance gap has not drastically narrowed despite progress in OLEDs with companies such as Konica Minolta reporting champion 131 lm/W panels.

The challenge facing OLEDs is therefore identifying paths for differentiation. The differentiation challenge is also critical strategy question because many companies such as Osram and Phillips Lighting already have successful and growing business in the LED sector. Investment in OLED can provide a hedged bet and also a means of standing out in an increasingly commoditised LED market.

Surface emission is a possible differentiator although inorganic LEDs are also able to create effective surface emissions, despite being a point light source, thanks to waveguides. Flexibility is also another way although OLEDs themselves also face critical technology challenges that stand in the way of them achieving flexibility. However, the pressure building up in the value chain combined with commitments from large players such as Konica Minolta and LG Chem suggests these barriers are nearly resolved. The ability to offer customised or improved design features is also a selling point. In particular, the potential to act at the luminaire level as a slightly modified panel can be a competitive advantage.

Technology assessment
The analysts have been tracking the market for OLED lighting for several years. We have provided a comprehensive and detailed technology assessment section. Here, we cover both LED and OLED lighting technologies, assessing the fabrication processes, material compositions, technology roadmaps, and key players.

Moreover, we appraise the device attributes of each technology and examine parameters such as colour warmth and controllability, flexibility, efficiency, surface emission, lifetime, wafer size and luminaire design.

Critically, the analysts also have strong knowledge on enabling technologies in the OLED lighting ecosystem such as emerging thin film barrier/encapsulation technologies or transparent conducting films. For example, we have interviewed or visited 20 companies commercialising barriers including thin film, ALD and flexible glass technologies, and more than 27 suppliers working on a variety of transparent conducting film technologies such as silver nanowires, metal mesh, carbon nanotubes, etc.

Market assessment
The second part provides a detailed assessment of the market. Here, we provide ten-year market forecast segmented by lighting sector at the panel level. Our market forecasts are expressed in value, area coverage and also equivalent unit numbers. We also provide cost projections in $ per sqm and $ per klm split by the layer (OLED materials, encapsulations, integrated substrates, etc).

Moreover, we provide critical assessments of the value proposition of OLED technology in each lighting sector and use our analysis to build up our market share forecasts in each segment. Here, we analyse parameters such as light quality, technology mix diversity, price sensitivity, light controllability, lifetime and light intensity. Furthermore, we provide the latest industry updates and profiles on players in the industry such as Panasonic, LG Chem, Osram, Phillips Lighting, Sumitomo Chemical.

Contents:

1. EXECUTIVE SUMMARY
2. INTRODUCTION TO LIGHTING
   2.1. Natural and Artificial Light
      2.1.1. Evaluation of Artificial Lights
      2.1.2. Colour Characterization
      2.1.3. The Traditional Lighting Industry
   2.2. The Lighting Market
      2.2.1. Light Fixtures
      2.2.2. Lamps
      2.2.3. Application Segments
   2.3. Lighting Technologies
      2.3.1. Incandescents
      2.3.2. Halogens
      2.3.3. Linear Fluorescent Lamps (LFL)
      2.3.4. Compact Fluorescent Lamps (CFL)
      2.3.5. High intensity discharge lamps
      2.3.6. Induction Lamps
   2.4. SSL Lighting Drivers and Challenges
      2.4.1. Energy savings
      2.4.2. Low maintenance and long lifetime
      2.4.3. Special operating environments
      2.4.4. Digital controls
      2.4.5. Display Backlights
3. LED LIGHTING
   3.1. Device Structure
      3.1.1. Chips
      3.1.2. Phosphors
      3.1.3. Quantum Dots
      3.1.4. LED Packages
      3.1.5. Diffuse LED Luminaires
      3.1.6. Recessed Ceiling Fixtures
      3.1.7. Ceiling Mounted Flat Panel LED Luminaires
      3.1.8. LED Pendants
      3.1.9. Desk and Table Lamps
      3.1.10. Under-Cabinet Lights
   3.2. Efficiency Trajectory
   3.3. Technology Options and Performance Levels
      3.3.1. Efficient Production of Green Light
      3.3.2. LEDs for Ultra-thin Light Guides
      3.3.3. Light Guide Development
      3.3.4. Embedded LEDs
   3.4. Costs
4. OLED TECHNOLOGY
   4.1. OLED Structures
      4.1.2. Transparent vs opaque
      4.1.3. Rigid vs flexible
      4.1.4. Single stack or tandem
4.1.5. Small Molecules versus Polymers
4.1.6. Fluorescent vs Phosphorescent Emitters
4.2. Underlying Structures
4.2.1. Substrate
4.2.2. Extraction enhancement
4.2.3. Transparent conductor
4.3. Active Layers
4.3.2. Hole injection (HIL)
4.3.3. Hole transport (HTL)
4.3.4. Emissive layer
4.3.5. Electron transport
4.3.6. Electron injection
4.3.7. Charge generation
4.4. Top Layers
4.4.1. Cathode
4.4.2. Light extraction
4.4.3. Cover materials
4.4.4. Sealants and desiccants
4.4.5. Surface barriers

5. OLED LIGHTING PERFORMANCE AND PRODUCTS
5.1. Performance Measures
5.1.1. Efficacy
5.1.2. Colour
5.1.3. Lifetime and Reliability
5.2. OLED Modules
5.3. Drivers and Controls
5.4. Luminaires
5.5. Roadmaps of Future Performance

6. OLED LIGHTING MATERIALS
6.1. Higher Efficacy
6.1.2. Extraction efficiency
6.1.3. Electrical Efficiency
6.1.4. Internal Quantum Efficiency
6.1.5. Spectral efficiency
6.1.6. Driver efficiency
6.1.7. Beam Shaping
6.2. Longer Lifetime
6.2.1. Short Prevention
6.2.2. Organic Material Stability
6.2.3. Encapsulation
6.3. Cost Reduction
6.3.2. Substrate and Encapsulation
6.3.3. Organic Materials

7. OLED PANEL MANUFACTURING
7.1. Vapor Processing
7.1.1. Substrate Preparation
7.1.2. Evaporation
7.1.3. Electrode Deposition
7.1.4. Patterning
7.2. Solution Processing
7.2.1. Slot-die coating
7.2.2. Contact printing
7.2.3. Jet printing
7.2.4. Subtractive Patterning
7.3. Roll-to-Roll Processing
7.3.1. Deposition of Barrier Layers
7.4. Cost Reduction Drivers
7.4.1. Simplified Patterning
7.4.2. Equipment Size Scaling
7.4.3. Cycle Time
7.5.4. Encapsulation
7.5.5. Solution Processing and R2R Handling
7.5.6. Simpler Alternatives
7.6. Market Timing

8. LEDS VS OLEDS: FUTURE MARKET PROSPECTS
8.1. OLED Attributes
8.1.1. Soft Lighting
8.1.2. Form Factors: Thin, Light Weight, Flexible, Irregular Shapes
8.1.3. Transparent
8.1.4. Colour Quality
8.2. Additional Features for OLEDs
8.2.1. Dynamic colour
8.2.2. Beam Shaping
8.3. Economic factors
8.3.1. LED luminaire price trends
8.3.2. Total cost of ownership
8.3.3. Price forecasts for OLED luminaires
8.3.4. Efficacy Targets for OLEDs
8.4. Special Market Opportunities for OLEDs
8.4.1. Overhead Lighting
8.4.2. Task Lighting
8.4.3. Architectural Lighting
8.4.4. Signs and backlights
8.4.5. Mood Lighting
8.4.6. Vehicles
8.4.7. Novelty Lighting
8.5. Market Forecasts

9. COMPANY PROFILES
9.1. LED Lighting
9.1.1. GE
9.1.2. QD Vision
9.2. OLED Lighting Product Suppliers
9.2.1. Acuity Brands
9.2.2. Astron Fiamm (Blackbody)
9.2.3. First O-Lite
9.2.4. Kaneka
9.2.5. Konica Minolta
9.2.6. Ledon/Tridonic
9.2.7. LG Chem
9.2.8. Lumiotec
9.2.9. Moser Baer Technologies
9.2.10. OLEDWorks
9.2.11. Osram Opto
9.2.12. Panasonic
9.2.13. Philips Lighting
9.2.14. Samsung
9.2.15. Sumitomo Chemical
9.2.16. Toshiba
9.2.17. Verbatim
9.2.18. Visionox
9.2.19. WAC Lighting
9.3. OLED Lighting Organic Materials
9.3.1. Aglaia Tech
9.3.2. BASF
9.3.3. Borun Chemical
9.3.4. CDT
9.3.5. Cheil Industries
9.3.6. Doosan Electronics
9.3.7. Dow Chemical
9.3.8. Duksan Hi-Metal
9.3.9. DuPont
9.3.10. E-Ray Optoelectronics
9.3.11. Heraeus
9.3.12. Hodogaya Chemical
9.3.13. Idemitsu Kosan
9.3.14. Jilin O&E
9.3.15. Johnson Matthey
9.3.16. LG Chemicals
9.3.17. Merck
9.3.18. Mitsubishi Chemicals
9.3.19. Mitsui Chemicals
9.3.20. Novaled
9.3.21. Plextronics
9.3.22. PPG Industries
9.3.23. Sun Fine Chem
9.3.24. Universal Display Corporation
9.4. OLED Lighting Structural Materials
9.4.1. Arkema
9.4.2. Beneq
9.4.3. Cambrios
9.4.4. Corning
9.4.5. DELO
9.4.6. DuPont Teijin Films
9.4.7. Intrinsiq Materials
9.4.8. Novaled
9.4.9. Poly IC
9.4.10. SAES Getters
9.4.11. Schott
9.5. OLED Panel Manufacturing/Equipment Suppliers
9.5.1. Aixtron
9.5.2. Applied Materials
9.5.3. Beneq
9.5.4. Fluxim
9.5.5. NovaCentrix
9.5.6. nTact
9.5.7. Sung An Machinery (SAM)
9.5.8. Sunic
9.5.9. Toray
9.5.10. Ulvac
9.5.11. Veeco
9.5.12. Xenon Corporation

List of Tables
1.1. Revenue Forecast in €Bn for General Lighting Fixtures
1.2. Installed US Base of Lamps in 2010 in millions of units
1.3. Data on lamps in the US installed base (2010)
1.4. Market growth (€B) for each application segment 2012-2020
1.5. Market share by technology (%) in 2012 for each application segment
1.6. Introduction of restrictions on sales of incandescent bulbs by country
1.7. Tests of CFL recessed downlights (DOE Caliper Program)
2.1. Caliper Tests of Recessed Troffers
2.2. Technology Targets for LED Packages (DOE SSL MYPP 2012)
2.3. Performance targets for warm white LED luminaires (DOE SSL MYPP 2012)
4.1. Efficiency of phosphorescent emitters (UDC 2012)
4.2. Efficiency of light emitting polymers (CDT 2012)
4.3. Performance of OLED panel on plastic substrate (UDC 2012)
4.4. Lifetimes of OLED Panels
4.5. LG Chem Performance Roadmap
4.6. Performance Roadmap for Philips
4.7. Performance Roadmap for Panasonic Idemitsu (PIOL)
5.1. Comparison of internal and external scattering layers (First O-Lite 2012)
5.2. Direct Cost Projections for Panel Production by Vapor Processing ($/m2)
5.3. DOE Targets for 2012 compared to actual costs
6.1. Substrate sizes corresponding to each generation of display production
6.2. Production scale rates for deposition of organic materials (Aixtron 2012)
7.1. Characteristics of LED backlights
7.2. Cost projections for OLED panels ($/klm)
7.3. Performance Projections for OLED panels (US DOE 2012)
7.4. DOE Efficacy Targets for OLED Luminaires
7.5. Automobile lighting market 2011-20 (McKinsey)
7.6. OLED lighting forecasts made in 2011 (Novaled 2012)
8.1. Technology Roadmap from Kaneka (Max Kohno, 2012)
8.2. Performance Roadmap for Moser Baer Technologies (August 2012)

List of Figures

1.1. Spectral sensitivity of the cones in the human eye
1.2. Spectra of daylight in a spring afternoon in California
1.3. Artificial "white" light compared with daylight at sunset (Source: Steve Paolini, Telelumen)
1.4. Indirect costs of electric lights (LBNL)
1.5. Response function for the human eye as standardized by the CIE in 1924.
1.6. Historical evolution and future projections of lighting efficacy (DOE SSL MYPP 2011)
1.7. CIE chromaticity coordinates (a) (x,y) 1931: (b) (u',v') 1976
1.8. CIE 1960 (u,v) chromaticity diagram
1.9. Planckian locus, MacAdam ellipses and CCT bins.
1.10. Test color samples used in assessing color rendering
1.11. Source for US consumer purchases of CFLs and incandescents (D&R International, 2010)
1.12. Efficacy of LEDs available in 2002 (OIDA Technology Roadmap)
1.14. Lighting electricity consumption by capita in kWh/year (IEA 2005)
1.15. Global Electricity Use in Lighting by sector and region (IEA 2005)
1.16. Global lighting electricity consumption to 2030 (IEA 2005)
1.17. Forecasts of electricity demands in US from lighting 2010-2030 (Navigant 2012)
1.18. Replacement procedures for parking lot lighting (Acuity, 1997)
1.19. Problems of traditional lamps in grocery store refrigerator cases (GE, 2007)
1.20. Penetration of LED backlights in flat panel display market (DisplaySearch 2012)
2.1. Basic functionality of an LED luminaire system (PNNL)
2.2. P-N junction structure in LED chip (PNNL)
2.3. Dependence of luminance on voltage and current (Cree)
2.4. Spectral distribution of various LED sources (Cree)
2.5. Selection of LED emitters (Epistar 2011)
2.6. LED die (Lumileds)
2.7. Evolution of chip sizes 2011-2012 (Cree)
2.8. Spectrum of GaN blue emitter with Ce3+:YAG phosphor (Nichia)
2.9. Spectra of LEDs without and with a red phosphor (GE Research)
2.10. Spectra of LED phosphors (Intematix)
2.11. Spectral tuning of phosphors (Intematix 2011)
2.12. Phosphor coated bulbs (Intematix)
2.13. Quantum Dot Structure and Emissive Properties (QD Vision)
2.14. Quantum dot phosphors used in edge-lit backlights (QD Vision)
2.15. Quantum dot phosphors on entry (Quantum Rail) or exit (QDEF) from light guide (Nanosys)
2.16. Spectra of white LEDs with broadband phosphors and quantum dots (Nanosys)
2.17. Various LED package designs (Pivotal Lighting Design)
2.18. Heat sink used to lower junction temperature and enhance lifetime (PNNL)
2.19. Pathway to external heat sink (PNNL)
2.20. Cost breakdown of a typical LED package (DOE SSL 2011)
2.21. Expected price reduction of LED packages as a function of light output (DOE SSL 2011)
2.22. Light distribution structures in the CR series troffers (Cree)
2.23. CRI and efficacy of fluorescent troffers and LED replacements (Cree 2011)
2.24. Cost differential for an LED replacement for a fluorescent troffer (Cree 2011)
2.25. LED troffer with triple lens (Philips)
2.26. Shallow LED Troffer with top-side cooling (Lithonia Lighting)
2.27. Flat panel luminaires from Fern Howard
2.28. Angular distribution from flat panel luminaires (Fern Howard)
2.29. Round LED pendant with dynamic color control (TechSign LP)
2.30. Disk luminaire from TechSign LP
2.31. Reference luminaire designs with conformable light guides (Rambus)
2.32. Prize winning LED Desk lamps: (a) Mosso AR2000 (b) Prism TL-4400 (c) Horizon HNBES
2.33. Under-cabinet LED fixture from Halo
2.34. Advanced light bulb with curved light guide (3M)
2.35. LED Backlights for display applications (3M 2012)
2.36. Collimation of light entering a light guide (Rambus 2011)
2.37. Light pipes to direct light into ultra-thin light guide (Sony 2007)
2.38. Tape to diffuse light entering light guide from LEDs (3M 2011)
2.39. Light mixing in air guide vs solid guide (3M 2011)
2.40. Color mixing in light guide with RGB LEDs (3M 2011)
2.41. Structure of edge-lit light guide (Rambus 2011)
2.42. Specular reflection used to control angle of emission (Rambus)
2.43. Light Emission from a 2-sided edge lit pendant (Rambus 2011)
2.44. Light panels with embedded LEDs (Oree)
2.45. Window glass with embedded LEDs (OnlyGlass MediaFacade)
2.46. Costs of 40” backlights in LCD TVs (DisplaySearch 2012)
3.1. Basic structure of a conventional OLED (Osram)
3.2. Reference design for vapor deposition of a single-stack OLED (AMAT 2009)
3.3. Molecular energy levels in an OLED stack with an applied field (U. Aubsberg)
3.4. Transparent OLED panels from Novaled
3.5. Dynamic OLED luminaires (a) Manta Rhei from Tridonic; (b) Canvis Twist from Acuity-Winona
3.6. Triple-stacked OLED structure with 15 organic layers (Novaled)
3.7. Small molecule and polymer materials in OLEDs (CDT)
3.9. Five layer P-OLED structure (CDT 2012)
3.10. Excited states in OLEDs (CDT)
3.11. External microlens array to enhance extraction without angular colour anomalies (3M 2009)
3.12. External light extraction film (Bayer Material Science)
3.13. Internal MLA to enhance light extraction (Panasonic 2012)
3.14. Series connections in a segmented OLED panel (GE)
3.15. Hexagonal grid structure used to distribute current uniformly across the panel (Osram)
3.16. Effective sheet resistance of transparent conductor augmented by a metal grid (Fraunhofer COMEDD)
3.17. Function and desired characteristics of the active layers in a single-stack OLED (DuPont/HIL)
3.18. OLED structures with ion-doped transport layers (Novaled)
3.19. Color separation in white OLEDs (UDC)
3.20. Internal scattering layer for bottom emitting OLEDs (Novaled 2011)
3.21. Light extraction film for top-emitting OLEDs (3M 2012)
3.22. Multi-layer barrier film (Vitex 2010)
4.1. All-phosphorescent OLED devices (Panasonic 2012)
4.2. Device tested in Panasonic laboratories
4.3. Efficacy (blue) and external quantum efficiency (red) as a function of luminance (Toshiba 2012)
4.4. Single stack all-phosphorescent OLED (UDC 2012)
4.5. Efficacy of polymer OLEDs in 2” and 6” tiles (CDT 2012)
4.6. Components of the Color Rendering Index (Panasonic 2012)
4.7. Effect of scattering layers on angular color shifts (First O Lite)
4.8. Angular variation of color point with and without an external scattering film (Osram)
4.9. Colour shifts with brightness in OLED displays (LG Chem)
4.10. Luminance decay rates for three emitters (Konica Minolta 2012)
4.11. Lumen Maintenance in a hybrid OLED (Philips 2012)
4.12. Orbeos Air module (Osram 2012)
4.13. Standard Connector for Osram panels
4.14. Power systems and controls for SSL lighting (Ledon 2011)
4.15. Driver system designed for OLED development (Polymertronics)
4.16. OLED luminaires shown at Light & Building Show in Hanover 2012 (Osram)
4.18. Hanger luminaires from Lumiotec (2011)
4.19. "Living Shapes" interactive mirror (Philips 2012)
4.20. OLED luminaires in Jiyugaoka Station in Tokyo (Panasonic 2012)
4.21. Kindred from Acuity Brands with 45 panels from LG Chemical
5.1. OLED efficiency analysis (DOE MYPP 2012)
5.2. Emission and extraction of light from an OLED (U. Aubsberg)
5.3. Simulations of light energy distribution as a function of ETL thickness (U. Aubsberg)
5.4. Corrugated cathode formed on top of anode grid structure (LG Display 2012)
5.5. Cathode corrugation induced by crystallized scattering layer (Novaled 2012)
5.6. Effect of molecular orientation on light extraction (U. Augsburg)
5.7. Effectiveness of internal and external scattering films (Philips 2012)
5.8. Glass-based scattering layer (AGC 2012)
5.9. Light extraction enhancement by glass scattering layer (AGC 2012)
5.10. Light extraction enhancement by micro-structured film outside the substrate (3M 2009)
5.11. Hexagonal micro-lens array (Microsharp 2011)
5.12. Lowered voltage through increased conductivity of ETL (Toshiba 2012)
5.13. Electrical potential across an OLED stack (Plextronics 2011)
5.14. Dependence of luminance on drive voltage (Novaled 2012)
5.15. Voltage sensitivity of luminance in a tandem device (LG 2011)
5.16. Tandem structure with triplet harvesting (TU Dresden 2010)
5.17. OLED Spectra from six manufacturers
5.18. Flat cover glass without cavity (DuPont)
5.19. Needle dispensing of zeolite getter (Sud-Chemie 2006)
5.20. Ingress of water vapour through edge seals (3M 2011)
5.21. Edge seal requirements for small panels (3M 2011)
5.22. Dark spot production on OLED cathodes through water vapour (3M 2011)
5.23. Barrier performance requirements for several applications of plastic electronics(Konica Minolta 2012)
5.24. Bending tests on flexible glass (Corning 2012)
5.25. R2R processing on ultra-thin glass webs (Corning 2011)
5.27. Typical trade-offs for printed conductors (DuPont 2012)
5.28. Line and Contact Resistance of Cu and Ag paste (AIST 2012)
5.29. Emission uniformity from a panel with a hexagonal copper grid (CDT 2012)
5.30. Optical transmission vs sheet resistance for silver nanowires (Cambrios 2012)
5.31. Properties of PEDOT:PSS (Heraeus 2012)
5.32. Conductivity of PEDOT:PSS 1998-2012 (Heraeus)
5.33. Optical transmittance of PEDOT:PSS vs sheet resistance (Heraeus 2012)
5.34. Productivity increase in LCD manufacturing from substrate size scaling (DuPont 2012)
5.35. Triple cluster configuration in OLED manufacturing (Tokki)
5.36. Linear manufacturing configuration (Applied Materials 2010)
5.37. Evolution of Sunicel Deposition Equipment
5.38. 2nd gen system with in-line deposition chambers (LG Chem 2011)
5.39. Optimized tool design for 4th generation line (AMAT 2012)
5.40. Comparison of cleaning processes for ITO-coated glass (AMAT 2012)
5.41. Evolution of source geometries (Hitachi Zosen 2010)
5.42. OVPD with closely-coupled showerhead (Aixtron)
5.43. Cycle time for planar sources (Hitachi Zosen 2010)
5.44. Deposition source evolution at ULVAC
5.45. Operation of G-cell to control material feed (ULVAC 2009)
5.46. Flux distribution and material utilization in CNLS (YAS 2010)
5.47. Linear nozzle source from Veeco
5.48. Uniformity of linear nozzle source (Veeco 2011)
5.49. Deposition rates as a function of evaporation for various materials (AMAT 2010)
5.50. Dependence of evaporation rate on temperature and material loading (AMAT 2010)
5.51. Evaporation from powder aided by inert gas flow (Aixtron)
5.52. Deposition rate control by carrier gas flow (Aixtron)
5.53. Thermal decomposition rates as a function of temperature (Aixtron)
5.54. Temperature controlled deposition rate sensor (Colnatec 2012)
5.55. Reflectance from OLED stack as a function of wavelength (Laytec)
5.56. Layer thickness uniformity in vapor deposition (AMAT 2012)
5.57. Roughness in organic layers (Aixtron 2012)
5.58. Material utilization vs substrate size for a linear source (Veeco 2010)
5.59. Material utilization vs nozzle distance for a linear source (Veeco 2010)
5.60. In-line deposition system with hot-wall chamber (Panasonic 2012)
5.61. Comparative performance of low-damage cathode (ULVAC 2009)
5.62. Efficiency and lifetime of solution-processed and evaporated materials (Konica Minolta 2012)
5.63. Morphological differences between evaporated and solution-processed emission layers (Konica Minolta 2012)
5.64. Phosphorescent ink development at UDC (2012)
6.32. Hybrid fabrication system proposed by Sony (2012)
6.33. Slot-die coating of nanowire inks (Cambrios)
6.34. Patterned deposition during slot-die coating (nTact 2011)
6.35. Selective removal of coated layers (nTact 2011)
6.36. Nano-silver lines and electrodes deposited by contact printing (Cambrios 2012)
6.37. Microlens arrays formed by ink-jet printing (FujiFilm Dimatix 2012; Unijet 2012)
6.38. Quantum dots formed by ink jet printing (FujiFilm Dimatix 2012)
6.39. Nozzle jet printer (DuPont and Dai Nippon Screen)
6.40. Hybrid manufacturing scheme for striped OLEDs (DuPont)
6.41. Solvent Assisted Wipe (GE Central Research Laboratories)
6.43. R2R equipment implementing vacuum deposition (COMEDD)
6.44. Three main stages of R2R fabrication (COMEDD)
6.45. Monochrome flexible panels from R2R line (COMEDD 2011)
6.46. Monolayer deposition by ALD (Cambridge Nanotech)
6.47. ALD R2R tool for 500mm webs (Beneq/LUT ASTRaL Lab 2012)
6.48. Short term cost reduction plan (LG Chem 2012)
6.49. Cost Reduction Opportunities (LG Chem)
6.50. Production Roadmap for Evaporation and Encapsulation Systems (Sunic Systems 2012)
6.51. Cost of ownership projections for linear deposition system (Veeco 2010)
6.52. Deposition rate in a linear evaporator as a function of crucible temperature (AMAT 2012)
6.53. Luminance maintenance test of single-layer barrier (UDC)
6.54. Cost estimates for production by evaporation and solution processing (DuPont 2012)
6.55. Low Cost printing fabrication system for polymer OLEDs (Add-Vision 2008)
6.56. Fabrication of organic light emitting cells (Osram 2012)
7.1. Pros and cons of OLED lighting (Trilux 2012)
7.2. Age dependence of the border between comfort and discomfort (IESNA)
7.3. LED vs OLED performance comparison (LG Chem 2012)
7.4. Ultra-thin conformable panel (LG Chem 2012)
7.5. OLED leaf (COMEDD); OLED flower (Philips); edge-lit LED guitar (Rambus)
7.6. Energy harvesting luminescent curtains (Kennedy Violich Architects 2011)
7.7. OLEDs embedded in washi paper designs (Konica Minolta 2012)
7.8. "Rollercoaster" luminaire with semi-transparent OLED panels (Osram 2012)
7.9. Concept home with transparent OLED windows and skylights (UDC)
7.10. OLEDs embedded in auto sun roofs (BASF/Philips)
7.11. Transparent room dividers (Osram)
7.12. Combining PV, smart windows and OLEDs (Arup Lighting 2011)
7.13. Transparent LCD display case (Samsung 2012)
7.14. Tuning the blue spectrum to achieve high CRI (Panasonic 2012)
7.15. Tuning the red spectrum for colour quality and efficacy (CDT 2012)
7.16. Angular variation of chromaticity coordinates (LG Chem 2012)
7.17. Hue bulbs with wireless color control (Philips)
7.18. Light Sieve (Philips 2012)
7.19. Angular distribution of upward and downward light from the Light Sieve (Philips 2012)
7.20. Wasted light in a grocery store (Bardsley Consulting, 2012)
7.21. Pendant OLED luminaires (Philips)
7.22. OLED under-cabinet lights (UDC 2011)
7.23. Bedside table lamp (Kaneka 2012)
7.24. "Ambient" desk lamp (Panasonic 2012)
7.25. "Victory" desk lamp with OLED panels and carbon fibre frame (Novaled)
7.26. Moorea lamp (Philips 2012)
7.27. Maxi LED desk lamp (Magnuson 2012)
7.28. LED penetration forecast by segment (McKinsey 2012)
7.29. Marker lights for indoor and outdoor applications (Cooper Lighting)
7.30. LED pathway lights (Cooper Lighting)
7.31. Edge lit sign (Cooper Industries)
7.32. LED Backlights for retail sales and artwork (Cooper Lighting)
7.33. LED fixed format sign (Allen Designers 2012)
7.34. LED partitions and room dividers (Cooper Lighting)
7.35. Luminous SkyCeiling in dentist’s office (Sky Factory 2012)
7.36. LED dynamic luminous ceiling (Fraunhofer IIE-IAO, Stuttgart 2012)
7.37. eScape artificial window (Sky Factory 2012)
7.38. Distinctive rear lamps with OLED sources (Philips-Audi)
7.39. Variable colour LED ceiling wash aircraft lighting (Emteq 2011)
7.40. OLED indicators for aircraft cabins (Novaled/Airbus)
7.41. Opportunities for printed electronics in aircraft (United Technologies)
7.42. OLED panels for bus exterior (TECtint 2012)
7.43. Bar lights (Kaneka 2012)
7.44. OLEDs in clothing
7.45. More from Analysts
8.1. Kindred from Acuity Brands with 45 panels from LG Chemical
8.2. Revel (left) and Trilia (right) by Acuity Brands
8.3. OLED Technology Roadmap of Acuity Brands (October 2012)
8.4. OLED Chandeliers from Blackbody: "Rain", "Big Bang" and "Madame Cloud"
8.5. Helix pendant and 3'0" light bridge from Blackbody
8.6. Table Lamps from Blackbody: "Office", "Cigogne" and "Blossoms"
8.7. First O-Lite pilot line in Nanjing, China
8.8. Encapsulation scheme proposed by Kaneka (2012)
8.9. Technologies needed for OLEDs made by R2R solution processing (Konica Minolta 2012)
8.10. Pendant luminaires Light& Building Show (Ledon 2012)
8.11. OLED application concepts (Ledon 2012)
8.12. LG Chem OLED production line at Ochung, Korea
8.13. Lumiotec production line in Yamagata, Japan
8.15. Opening of Osram OLED Pilot Line in Regensburg, Germany
8.16. Qubique from Osram with 1400 Orbeos panels
8.17. Supply chain for P-LiOs OLED lighting panels
8.18. P-LiOs revenue targets for OLED panels
8.19. P-LiO Commercialization Plan
8.20. First Lumblade panels from Philips (2009)
8.21. Chandelier at Deutsche Bank with 384 OLED panels from Philips
8.22. Status of OLED lighting technology as assessed by Philips (September 2012)
8.23. Polymer OLED centres of Sumitomo Chemical
8.24. Market introduction plan for P-OLED lighting (Sumitomo 2012)
8.25. History of Lighting at Toshiba
8.26. Large passive matrix OLED display by Mitsubishi/Pioneer (2009)
8.27. Passive matrix OLED display prototypes from Visionox
8.28. Prototype OLED luminaires from Visionox
8.29. Sol chandelier (WAC Lighting)
8.30. Vela Chandelier and Wall Sconce (WAC Lighting 2012)
8.31. Hybrid OLED/LED Lumaire (WAC Lighting)
8.32. Printed circuits on plastic foil (PolyIC)
8.33. Microgrids in PolyTC films (PolyIC)
8.34. Vertical orientation reduces particulate deposition and glass sagging
8.35. Pulsed curing process (Novacentrix)
8.36. Customers of OLED equipment supplied by Sunic Systems
8.37. Expansion of equipment manufacturing facilities at Sunic Systems
8.38. Spectrum and pulse shapes of flash lamps (Xenon Corporation)

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