AUTOMOTIVE LIGHTING: TECHNOLOGY, INDUSTRY, AND MARKET TRENDS
Market & Technology report - April 2016

New technologies and new features and functionalities will make automotive lighting a $27.7 billion market by 2021 (and an exciting one at that)!

KEY FEATURES OF THE REPORT
Get the sample of the report on www.i-Micronews.com
- Automotive lighting market analysis
- Automotive lighting industry analysis (i.e. Tier-1 industry)
- Automotive lighting technologies analysis (LED, OLED, laser, etc.)
- Automotive lighting roadmap analysis (AFLS)

OBJECTIVES OF THE REPORT
This report’s objectives are to:
- Analyze the automotive lighting market/applications’ current status and future trends
- Review the automotive lighting industry’s structure and future trends
- Discuss the main technologies used for automotive lighting, and associated roadmaps
- Examine the main lighting systems used for automotive applications, and associated roadmaps
- Provide market insights (2013 - 2021) for automotive lighting applications

AUTOMOTIVE LIGHTING IS GROWING FAST ($27.7B IN 2021) BY INCREASING ITS DESIGN USES AND PROVIDING NEW FUNCTIONALITIES

With the recent integration of LED technology, lighting has evolved from a basic, functional feature to a distinctive feature with high-value potential in automotive. Indeed, LED technology has given manufacturers the opportunity for strong differentiation via lighting design and additional functionalities. This is particularly true for exterior lighting, but it is also spreading to interior lighting. These changes are heavily impacting the supply chain, with new suppliers and a new value chain emerging.

In 2015, the automotive lighting market totaled nearly $22.4B, up 5.4% from 2014. This growth was driven by increased lighting system content per vehicle and a more favorable product mix driven by strong adoption of LED-based front lighting systems. Indeed, headlamp and Day Running Light (DRL) systems represented 43% and 28% of total 2015 revenue, respectively. Other lighting systems (i.e. Rear Combination Light/Center High-Mounted Signal Light (CHMSL), interior light, and side turn-signal light) comprised the remaining 29% of 2015 revenue.

The automotive lighting market will continue growing, reaching a market size of almost $27.7B by 2021 - +23.7% compared to 2015, and driven by different growth areas:
- Short-term: increased LED technology penetration rate into different automotive lighting applications/systems, and increased lighting content per vehicle
- Middle/long-term: potential integration of new lighting technologies like OLED and laser, development of Advanced Front Lighting Systems (AFLS) and other security functions, and incredible developments employing lighting as a new design feature

This report presents all automotive lighting applications and the associated market revenue for the period 2013 - 2021, with details concerning drivers and challenges, integration status of different lighting technologies and systems, recent trends, and market size per application.

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FRONT LIGHTING SYSTEMS ARE UNDER DEEP MUTATION, IN TERMS OF BOTH TECHNOLOGY AND SUPPLY CHAIN

The integration of new lighting technologies is transforming automotive front lighting systems and their applications, offering more design flexibility, increased efficacy, and new functionalities.

LEDs are rapidly gaining popularity as their cost decreases and performance increases (i.e. efficiency, luminance, package size).
In 2015, the top five industry players (i.e. Tier-1s) held ~80% of total automotive lighting revenue: Koito (JP), Magneti Marelli (IT), Valeo (FR), Hella (DE), and Stanley (JP). The remaining revenue was distributed across a very fragmented industry counting 20+ players. But this situation could change in the future due to the automotive lighting market landscape’s (and associated requirements) rapid evolution:

- Integration of new lighting technologies like laser and OLED
- Development of new lighting systems, i.e. Advanced Front Lighting System (AFLS)
- Integration of new components, including cameras and sensors (for AFLS)
- Development of new knowledge/competencies such as image processing (for AFLS)

For example, full LED headlamps that first saw commercialization in 2008 on luxury cars like the V10 Audi R8 have since penetrated the C-segment vehicle market in 2012, and are now being commercialized in emerging markets. Nowadays, nearly all Tier-1s have developed full LED-based headlamp systems.

LED sources offer very high efficiency and high luminance in a small package, allowing new design possibilities and increased light beam control. Laser and OLED sources are still emerging technologies...

- The first commercial car (BMW i8) with laser-based headlamps was unveiled in fall 2014
- The first commercial car (BMW M4 GTS) with OLED-based Rear Combination Light (RCL) was unveiled in fall 2015

...and they could offer enhanced functionalities.

- Laser-based headlamps could enable long-distance night vision (up to 600m)
- Adoption of OLED in RCL will match with a design shift from 2D to 3D light source, made possible by the nature of the OLED device itself: thin, bendable, and a large emitting surface source

However, both technologies have price and technological issues that must be solved in order to match with automotive OEM requirements like reliability and lifetime.

Integration of these new semiconductor/electronic-based components is also enabling the realization of full electronic systems (i.e. Solid State Light + sensor + software), and by extension the development of advanced lighting functionalities. The main objective of these functionalities is to offer beam patterns that automatically adjust to the driving environment. More recently, the use of matrix LED systems combined with camera and image processing functions has allowed for creation of new lighting functions like adaptive front lighting and glare-free lighting. However, these combinations make the development of such systems more difficult, and require the development of new know-how. Indeed, reliable and dynamic systems induce strong expertise in domains like lighting, thermal management, sensor, and data processing.

This report presents a complete overview of automotive lighting technologies and systems, providing details regarding benefits and drawbacks, integration status per application, and recent trends. The report also offers an analysis of Advanced Front Lighting Systems (AFLS).

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Some emerging players - Xingyu (CN), Olisa (IT), Ta Yih (CN), and Grupo Antolin (ES) - have already exhibited a very high growth rate (more than +10% from 2014 - 2015, compared to the total market’s average +5.4% growth). To effectively differentiate from market leaders and gain additional market share, these players mainly focus on innovative systems and/or lower-cost solutions and/or emerging markets like China.

Also, it is important to understand that the introduction of new technologies/functionalities will push OEMs to be closer to device/component developers (i.e. Tier-2s and Tier-3s) and new suppliers – the consequence being that they will probably bypass more and more Tier-1s for development and production, thus creating a new supply/value chain. OEMs can work directly with Tier-2s or Tier-3s for laser lighting applications and optical engineering. This allows an OEM complete control of developments, and mastery of associated technologies.

This report presents an analysis of the automotive lighting industry (i.e. Tier-Is), with details on the top 15 suppliers’ revenue and market share (total and per region), emerging players, strategies developed, and more. The report also includes company profiles for 10 key players and an analysis of the Chinese industrial and market landscape.

COMPANIES CITED IN THE REPORT (non exhaustive list)

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AUTHORS
Pars Mukish holds a master degree in Materials Science & Polymers (ITECH - France) and a master degree in Innovation & Technology Management (EM Lyon - France). He works at Yole Développement, as Senior Market and Technology Analyst in the fields of LED, OLED, Lighting Technologies and Compound Semiconductors to carry out technical, economic and marketing analysis. Since 2015, Pars MUKISH has also taken on responsibility for developing LED/OLED and sapphire activities as Business Unit Manager at Yole Développement. Previously, he has worked as Marketing Analyst and Techno-Economic Analyst for several years at the CEA.

Pierrick Boulay works as Market and Technology Analyst in the fields of LED, OLED and Lighting Systems to carry out technical, economic and marketing analysis at Yole Développement. He has experience in both LED lighting (general lighting, automotive lighting...) and OLED lighting. In the past, he has mostly worked in R&D department for LED lighting applications. Pierrick holds a master degree in Electronics (ESEO - France).

Dr Eric Virey serves as a Senior Market and Technology Analyst and helps the development of sapphire & LED activities at Yole Développement. Since 2009, he’s authored multiple Yole’s reports and has also contributed to numerous custom projects dedicated to the LED and sapphire industry. Before that, he’s held various R&D, engineering, manufacturing and marketing positions with Fortune 500 Company Saint-Gobain in France and the United States. Dr Eric Virey received a Ph-D in Optoelectronics from the National Polytechnic Institute of Grenoble.
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- Financial Services: Jean-Christophe Eloy (eloy@yole.fr)
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