Streetlighting – Serviceability / Futureproofing

FORTALECIMIENTO DE ESTÁNDARES DE EFICIENCIA ENERGÉTICA EN ILUMINACIÓN
Primera Reunión y Taller Presencial del Grupo Técnico de Eficiencia Energética (GTEE)

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6 November 2019

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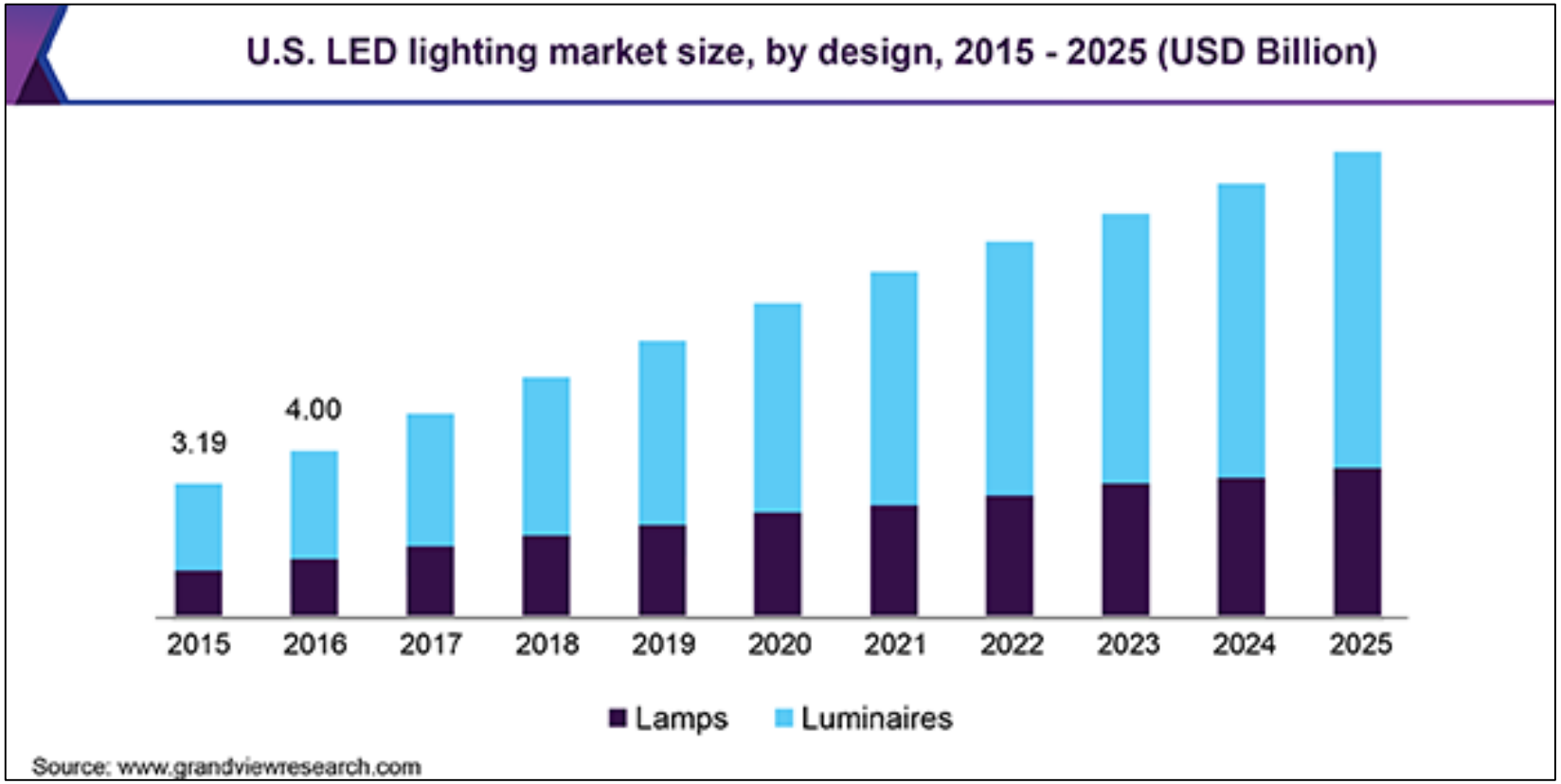
LED luminaire sales are growing

- Markets are shifting to LED, and new installations are rapidly moving toward LED Luminaires



Competition is Driving Down Costs

- Fierce competition in the LED market
- Cost reduction is a key to competitive advantage, but also survival of the business
- Glue is cheaper than machining parts to screw together
  - However glue means ‘disposable luminaires’ – if any component fails, the user will throw it away and buy a whole new luminaire
- The solution is to require manufacturers to make luminaires ‘serviceable’
- Luminaires should be serviceable, like other appliances, given the many potential failure mechanisms

Serviceability – What is it?

- The ability to replace a broken part or component in a luminaire
- Designed for disassembly and repair; maintain spare parts for a period of time
- Encourage standardization in the market - leads to more choices for consumers and lower costs
  - Zhaga Consortium: https://www.zhagastandard.org

Book 4

Zhaga Interface Specification Book 4 defines the interfaces of high-intensity LED light engines (LLEs) comprising a rectangular, non-socketable LED module with a separate LED driver (electronic control gear).

There are three LLE categories in Book 4, which are defined by the size of the rectangular light-emitting surface (LES):

- 30 mm x 7.5 mm
- 42 mm x 10.5 mm
- 60 mm x 15.0 mm

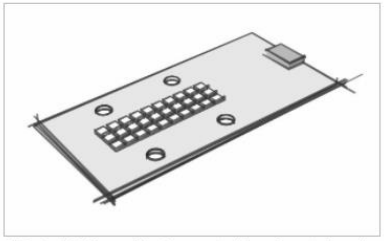
Book 4 LLEs are intended for applications that need a high-intensity light source, such as street lighting and industrial high-bay applications.

PUBLICATION STATUS

Public downloads are available:

→ Download Book 4 (English) - Edition 1.2, November 2014

The Zhaga Consortium will review and update this specification from time to time. To ensure you are aware of any updates to the Zhaga specifications, please subscribe to the Zhaga newsletter.

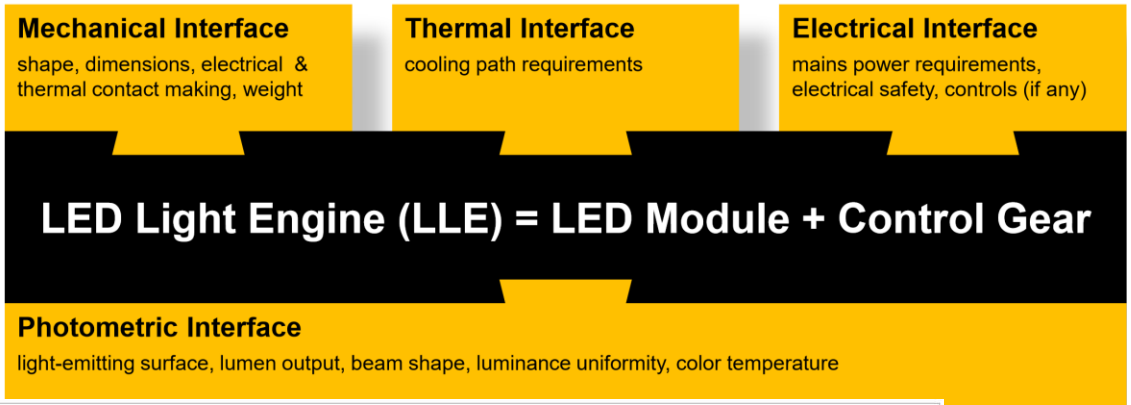


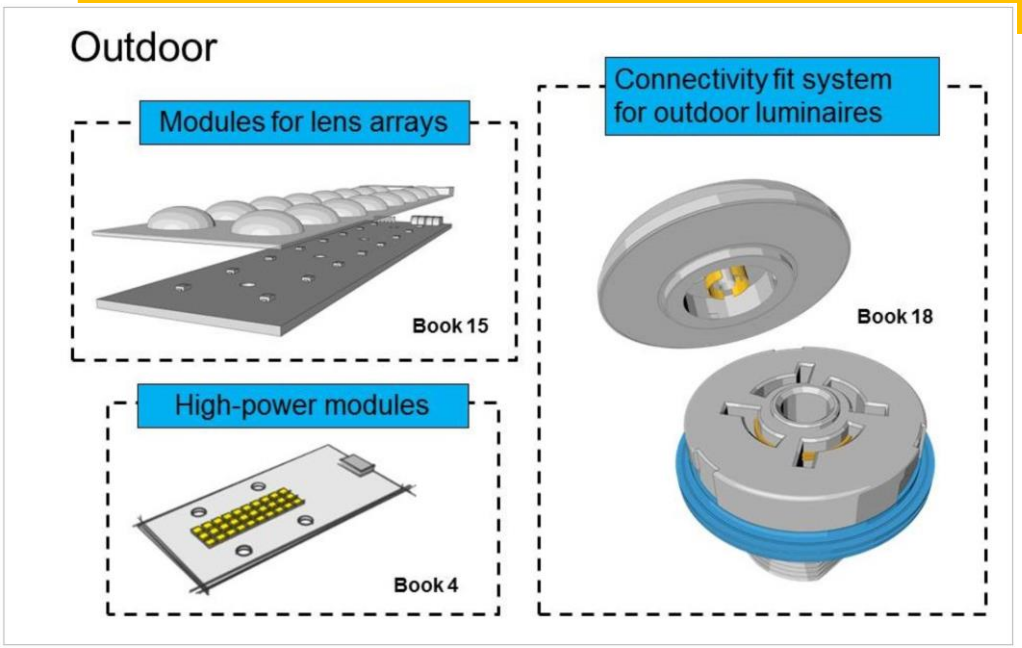
A Book 4 LED module (separate driver is not shown).

Zhaga

Serviceability of luminaires

- Zhaga consortium specifications for light modules - consistent
  - Electrical
  - Optical
  - Thermal
  - Mechanical
  - Controls





Potential definition of a Serviceable Luminaire

- **Serviceable Luminaire** –a luminaire that can be accessed by standard maintenance personnel and have major components replaced, such as the LED light engine, the driver electronics, control and other circuits, and any other components such as gaskets, optical lenses, etc. should they be damaged.

- Streetlights are already serviceable because the customer demands it

- Adding a requirement will ensure they continue to be serviceable and municipalities will get the long expected service life

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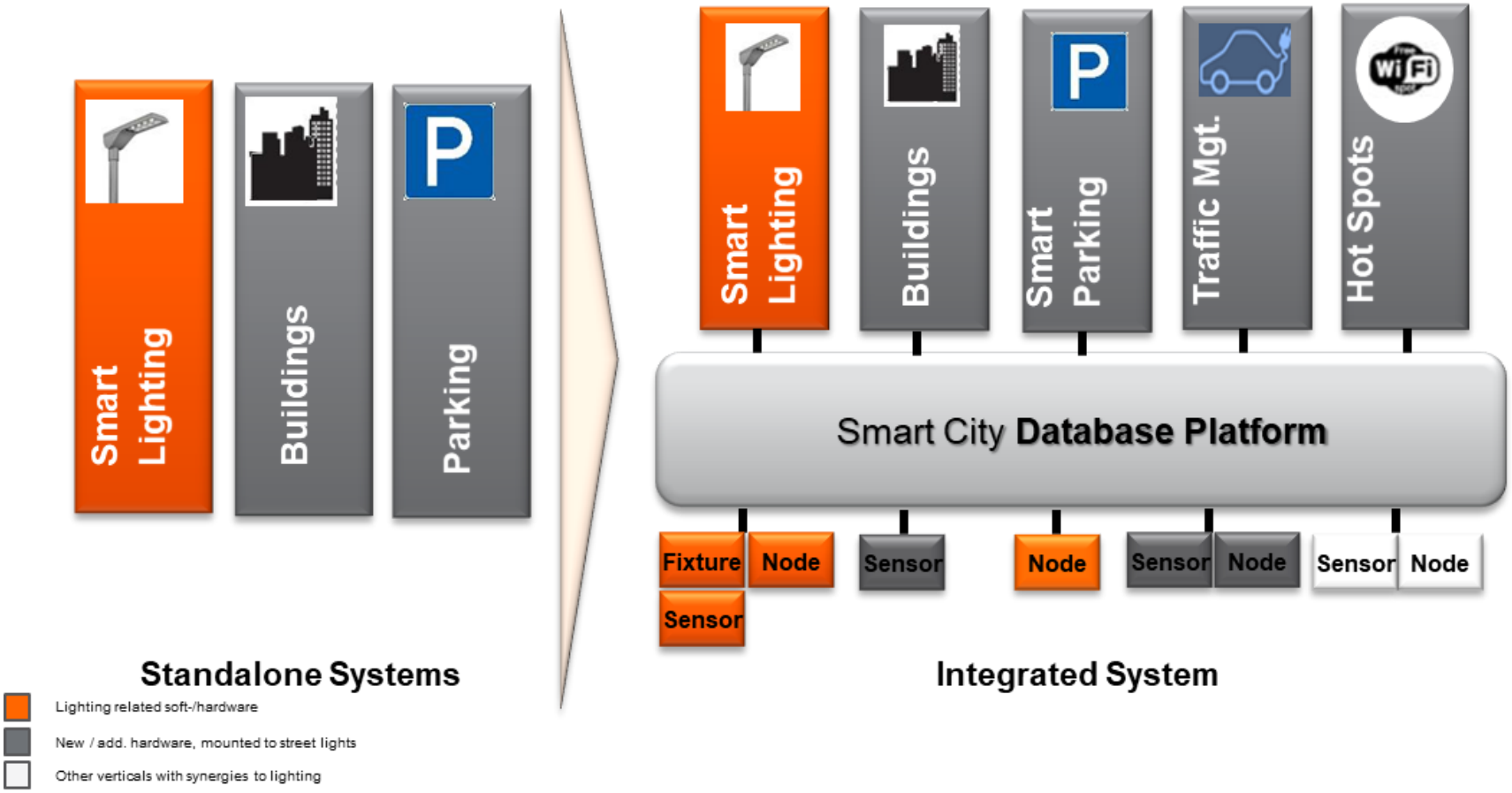
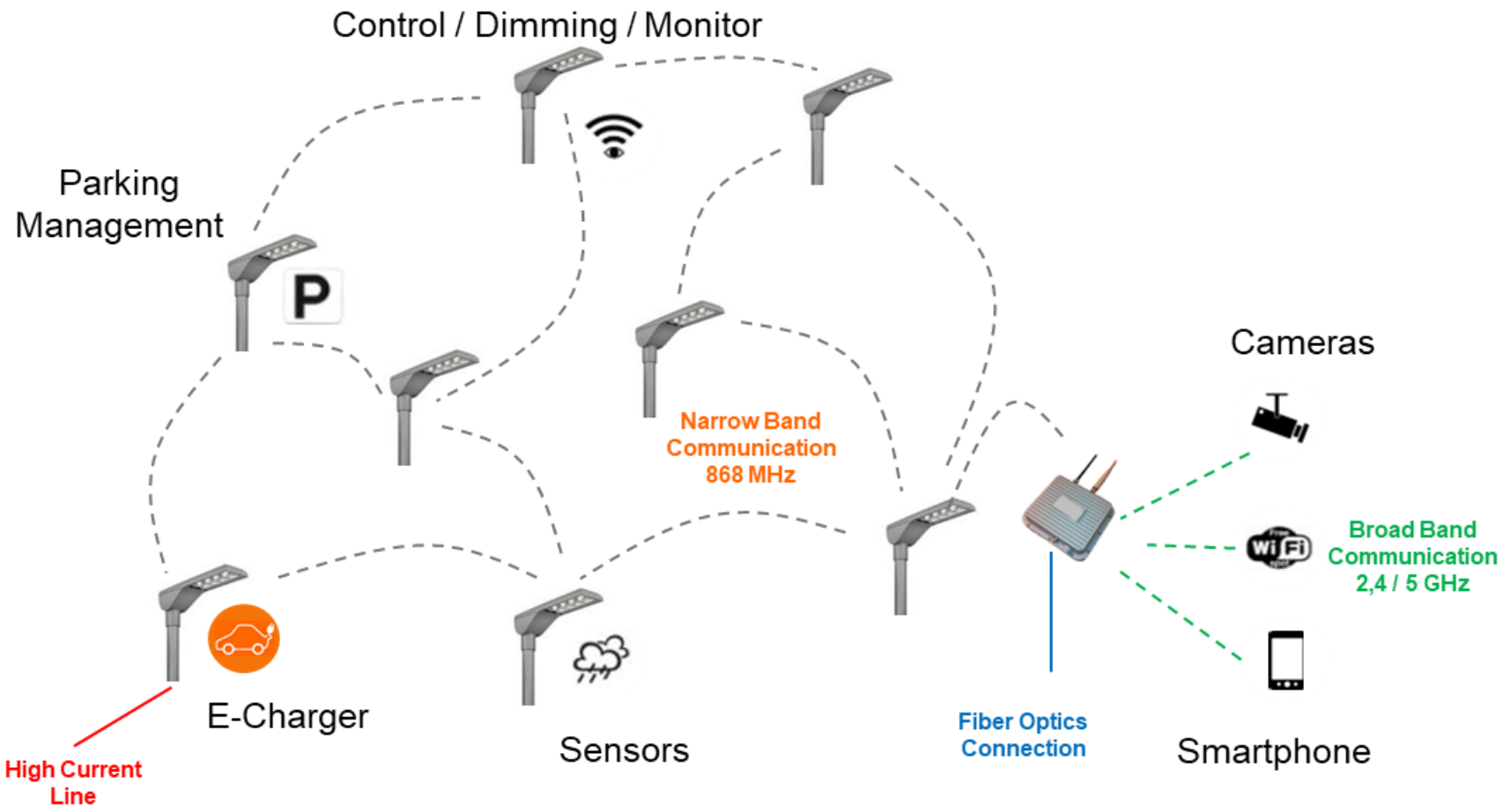
Future-Proofing Street Lights



Luminaires are nodes in a Network – City-Wide Data Communications



Streetlights can be the Communication Backbone

Future-Proofing Street Lights

- Municipalities should have the option to upgrade and add features to their street lighting system in the future
    - Promote “Smart Cities” initiatives, enhance and improve urban quality of life
- Streetlight luminaires are expected to have a 20 year service life
- Require a standardized connector which can offer the mechanical, electrical, and marking requirements for adding controls and receptacles in the future

NEMA/ANSI C136.41 sockets (NEMA 7-pin)

- Require luminaires to have NEMA/ANSI C136.41 sockets

- The socket provides a mechanical and electrical interconnection between the smart circuit being attached (e.g., photo control cell, wireless network capability, etc.) and the streetlight luminaire

- ANSI C136.41-2013 American National Standard for Roadway and Area Lighting Equipment– Dimming Control Between an External Locking Type Photocontrol and Ballast or Driver

- NEMA 7-pin socket to enable them to be upgraded in the future with a smart driver (compatible with NEMA/ANSI C136.41)

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Points for Discussion

- What is the experience of the TC with serviceable luminaires?
- Should serviceability be made mandatory for streetlights?
- What is the TC's experience with NEMA 7-pin sockets on luminaires?
- Should these sockets be required in order to "future-proof" the new streetlights installed?

Thank you, any questions?

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