



# The Zhaga LED Light Engine Lamp Base Standards

CA Emerging Technologies Summit  
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IDEAL INDUSTRIES, INC.

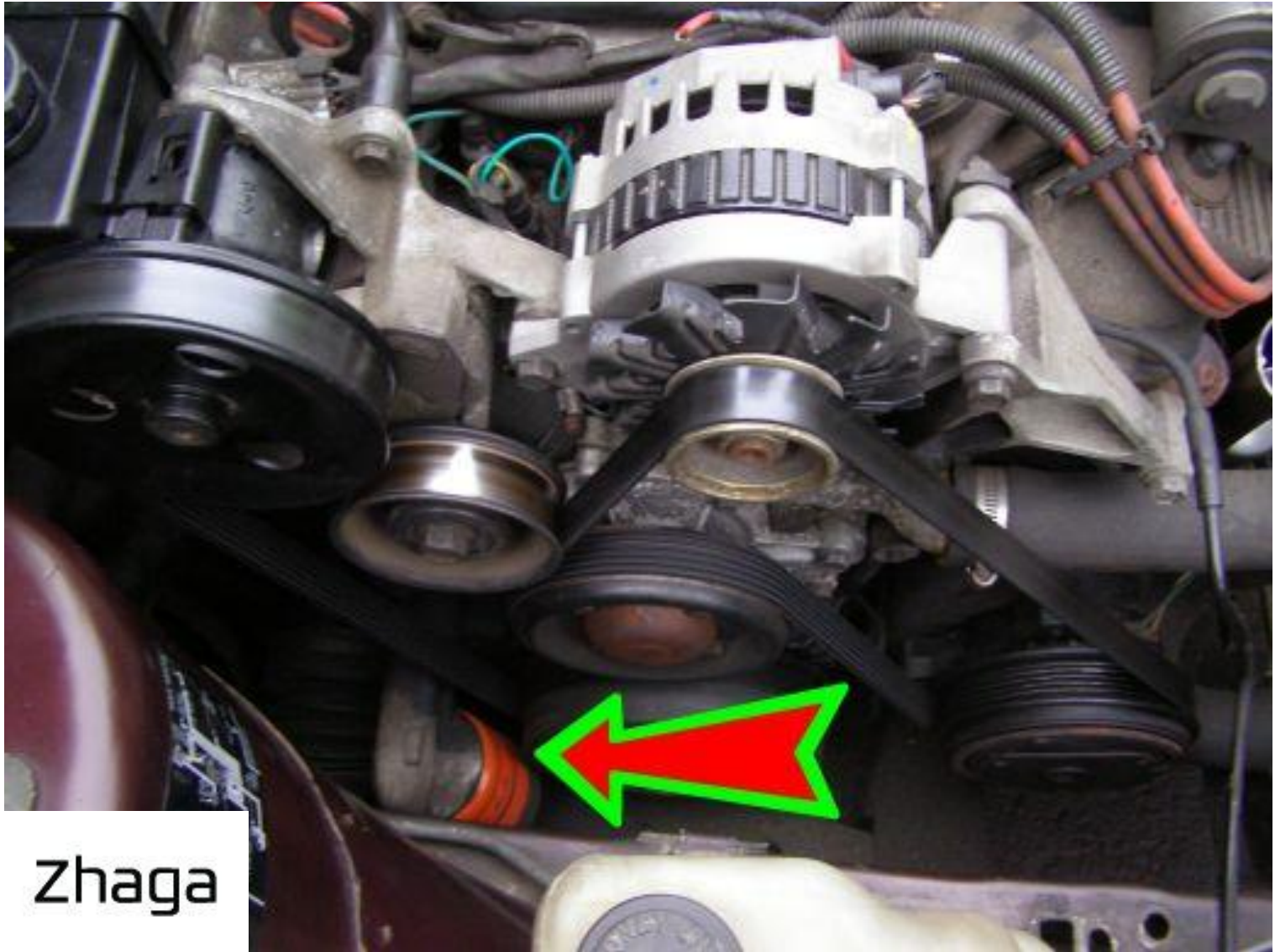


# Industry Forms Zhaga Consortium

- Dedicated to making LED light engines interchangeable through standardized LED interfaces:
  - backwards compatible
  - future proof
  - thermally optimized
- Formed 2010, currently 264+ member companies:



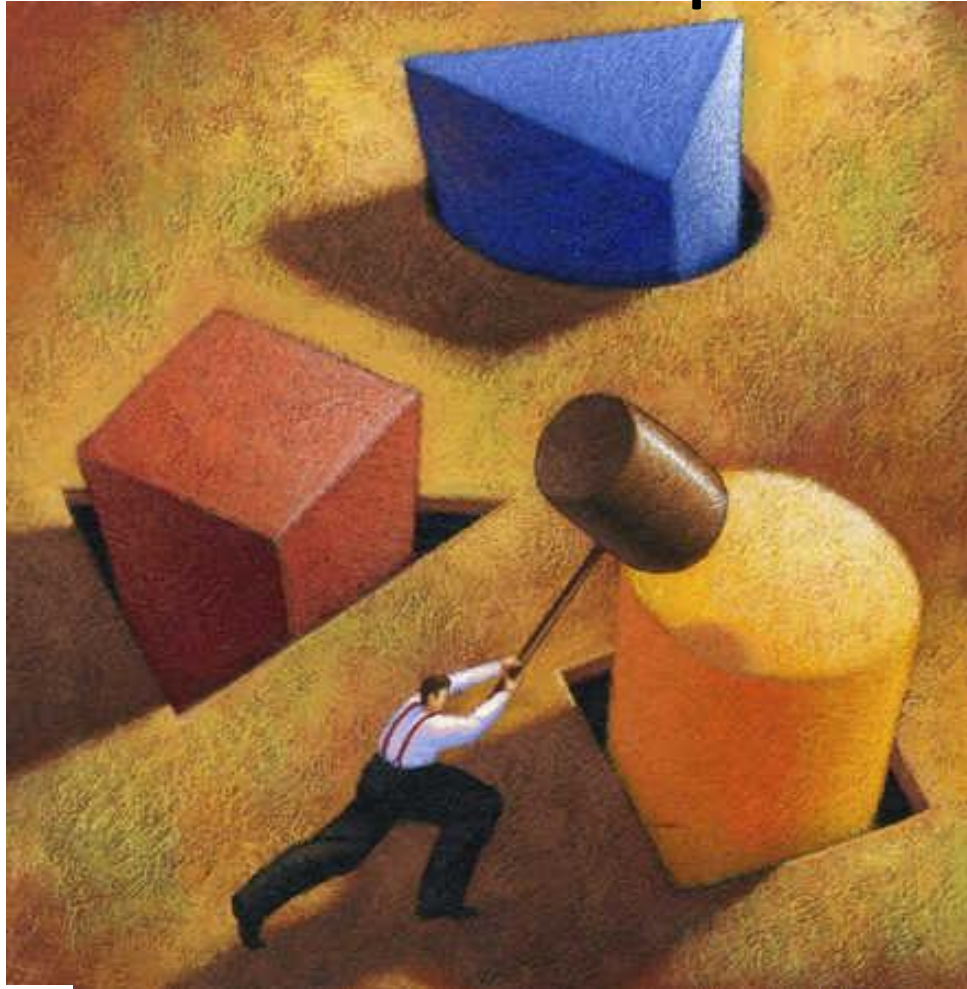
# Why make them easy to change?



...but what's it take to replace them  
when they do fail?



# Then Replaceable Modules, Each Unique



# Zhaga's Purpose

- Zhaga is about interchangeability
- Light Engines, luminaires, and holders must fit together - even when made by different OEMs
- The Zhaga logo delivers the message of interchangeability
- The Zhaga logo has no intended meaning for:
  - Quality
  - Reliability
  - Safety
  - Energy efficiency
  - Life time
  - Color stability



zhaga



# Zhaga Specification Process

Phase 1: Collecting Proposals - collect member proposals for light engines



Phase 2: Merger - merge into a single proposal to avoid unnecessary variation

Phase 3: Specification Development - draft specification and build prototypes to verify interchangeability. Once robust, members vote to approve



Phase 4: Maintenance by Zhaga - fix problems while maintaining compatibility with earlier revisions

Phase 5: Maintenance by a Standard Development Organization (SDO) – transfer to a formal SDO such as, the IEC once stable and in broad use. Zhaga is also in communication with NEMA/ANSI.



# Zhaga Certification Process

- Verified by 3<sup>rd</sup> party test lab (3 so far, more being approved)
- Certification from Zhaga Consortium
- Once certified, the Zhaga logo can be used on LED light engines, luminaires, modules, control gear (drivers), and lamp holders







on a Luminaire means:

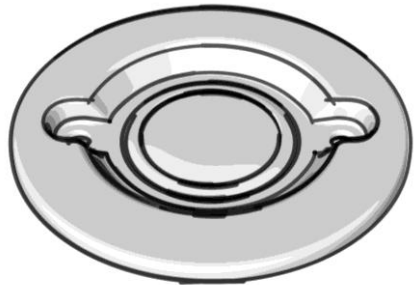
- A Zhaga-certified LED light engine will fit correctly
- The luminaire will produce the intended light distribution
- The maximum temperature of an LED light engine can be predicted

# Current Specifications in Progress

3<sup>rd</sup> PARTY CERTIFICATION



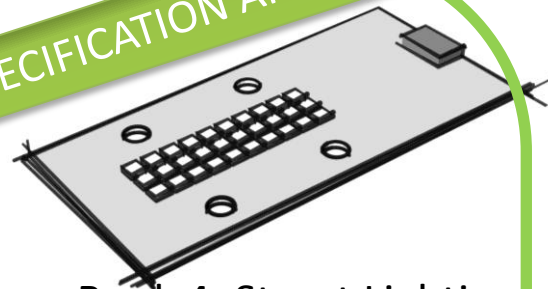
Book 2: Socketable, line dimming



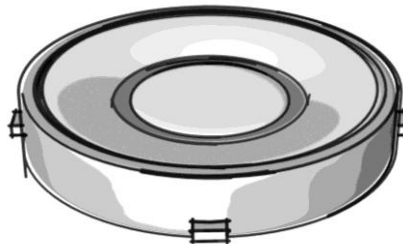
Book 3: remove driver



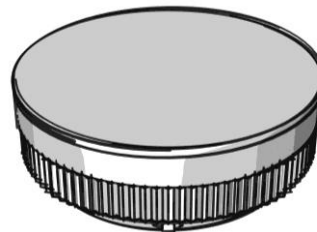
SPECIFICATION APPROVED



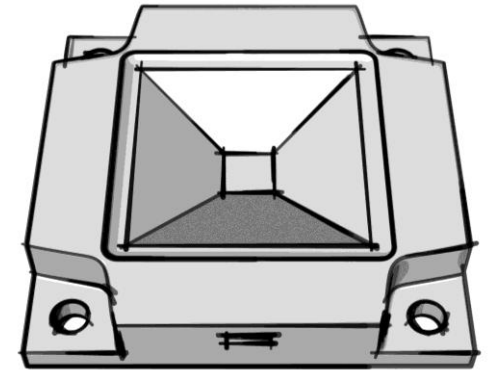
Book 4: Street Lighting



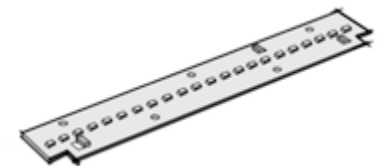
Book 5: Socketable, remote driver



Book 6: Socketable, 0-10V dimming



Book 7 : Office Lighting



# First Zhaga Certified Luminaire

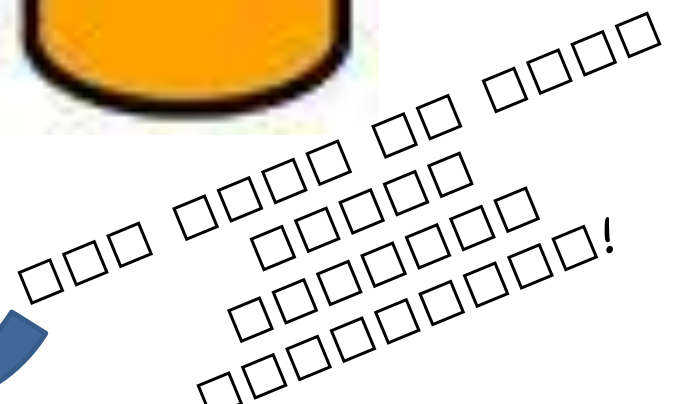


Cooper IRiS P3LED , using specification  
Book 2 spot source module

# LED Luminaires – Tomorrow!



With Zhaga, LEDs can be optimized,  
replaceable, and available



# Thank you!

- Zhaga must be robust and addresses the needs of all stakeholders....*please share your expertise now!*

