

# Zhaga

## Consortium for the standardization of LED light engines

- Vision
- Way of working
- Progress

## What does Zhaga mean?

There is no special meaning.



Zhaga is a waterfall in China





# Zhaga is a cooperation between companies

- 144 members (54 members with voting rights)
  - From Asia, North America, Europe
- Meeting every 6-8 weeks
  - 3 day meeting
  - 80-90 participants



# What is an LED light engine?

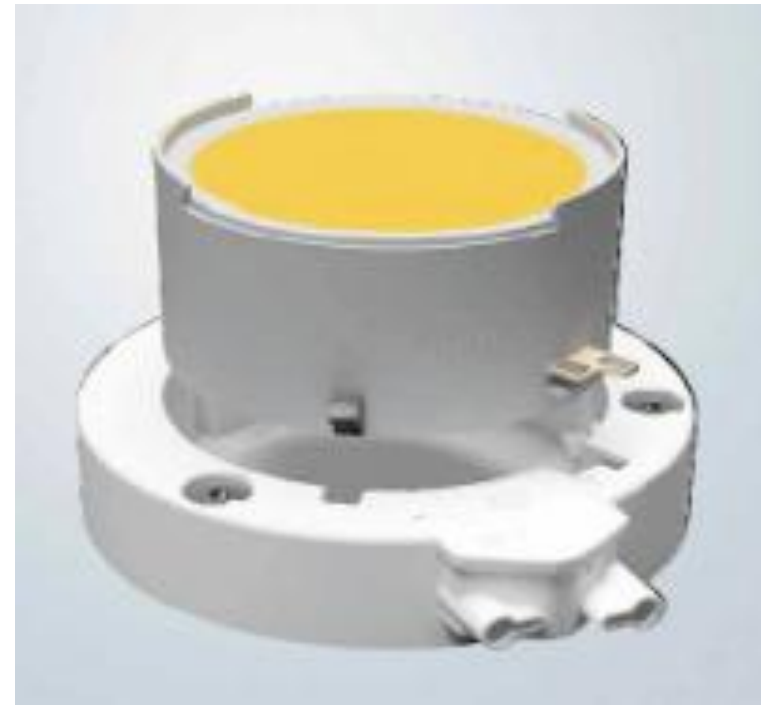
- An LED light engine is the combination of an LED module and its associated electronic control gear ('driver').



- An LED light engine can have integrated control gear, or control gear in a separate housing



# Light engine with integrated control gear



# Light engine with separate control gear



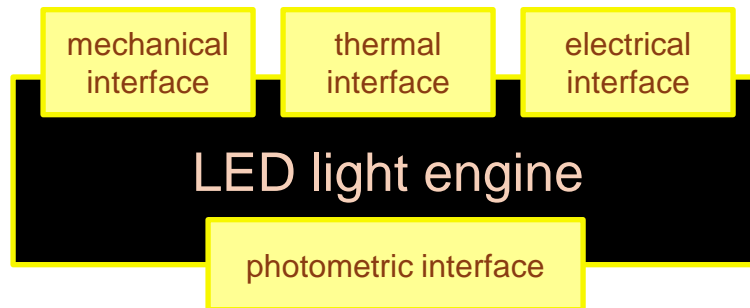


# Interchangeable light engines

- The lighting industry is used to work with standardized light sources
  - the industry needs stability
  - the industry needs choice between suppliers
- LED light sources are *not* interchangeable, until now.
- Zhaga will make LED light sources also interchangeable

## Stable interfaces – Rapid innovation

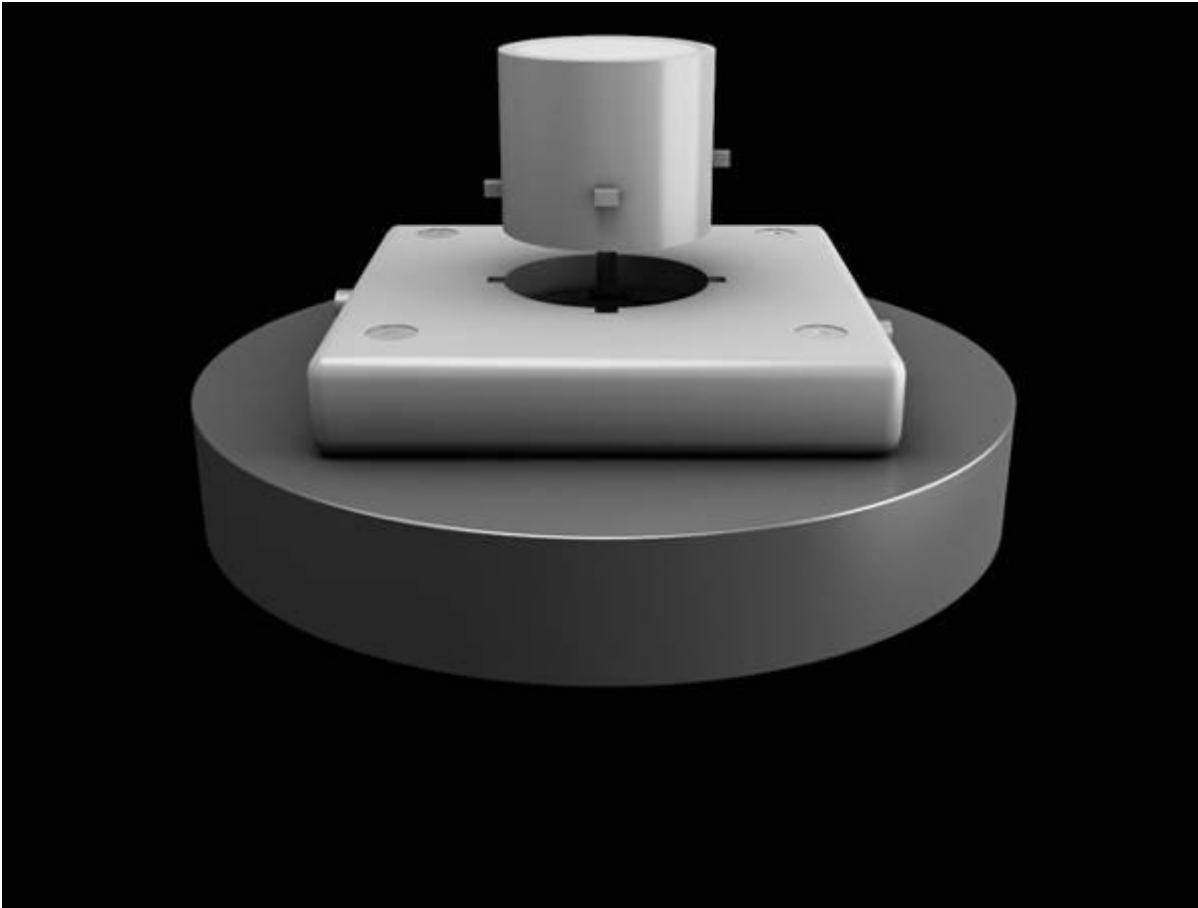
- Zhaga specifies *only* what is necessary to enable the *interchangeability* of light engines from different manufacturers.
- The design freedom inside the light engines and in the luminaires is maximized.



Zhaga treats the inside of a light engine as a 'black box'



## What is an interface? – Mechanical interface

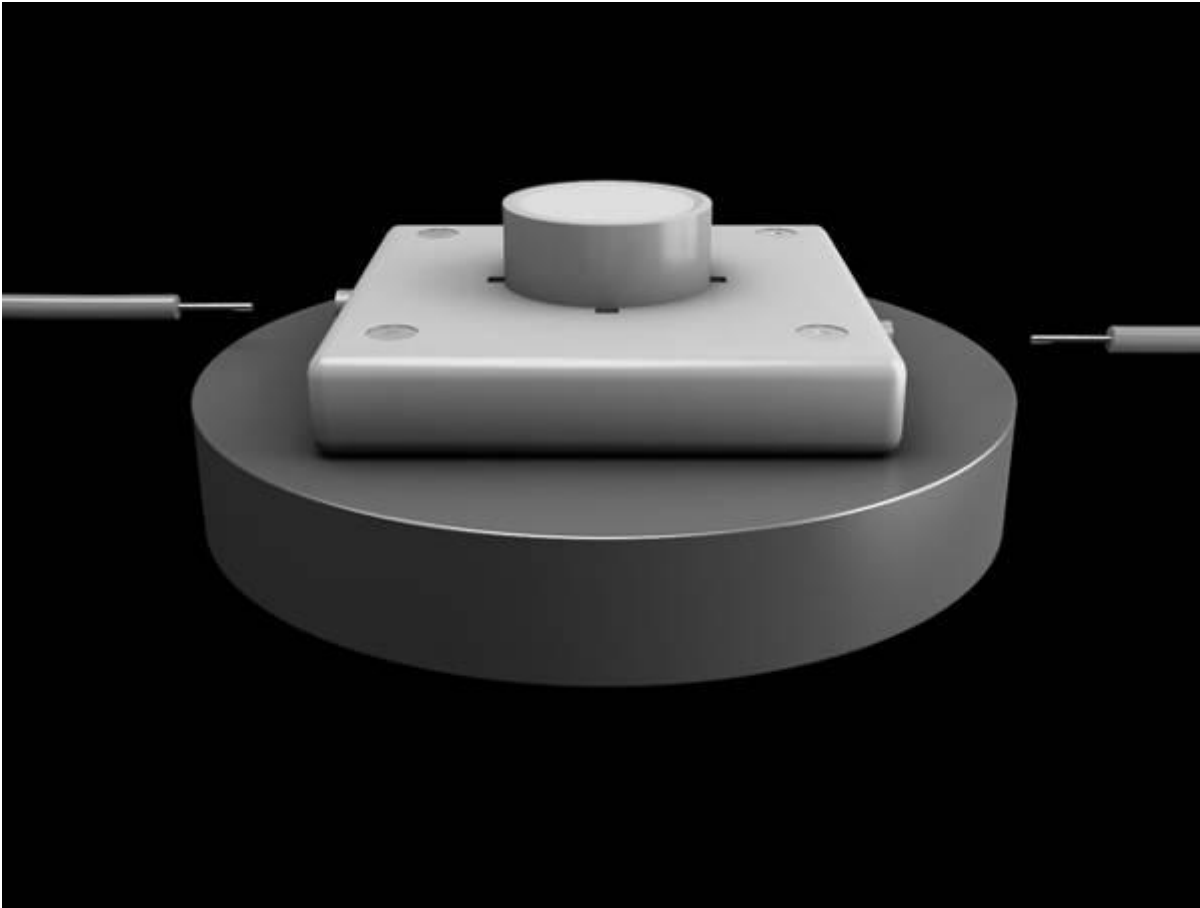


The fit between  
LED Light  
Engine and  
Holder

or heat sink

or luminaire  
housing.

## What is an interface? – Electrical interface



The part of the system where the electrical connection is made

Zhaga will focus on interoperability through interface standardization, not on performance specification

Int'l Standardization organizations  
Industry Consortia: Zhaga

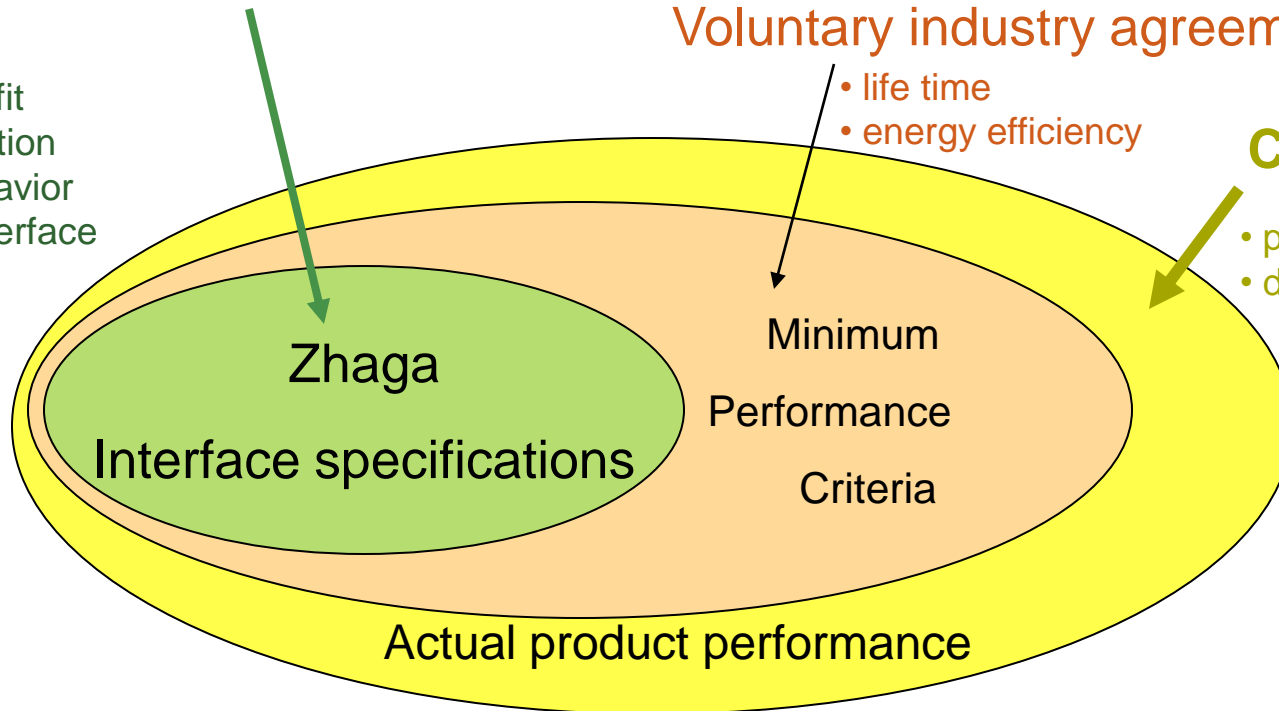
- mechanical fit
- light distribution
- thermal behavior
- electrical interface

Governments  
Quality label organizations  
Voluntary industry agreements

- life time
- energy efficiency

**Companies**

- product specifications
- data sheet



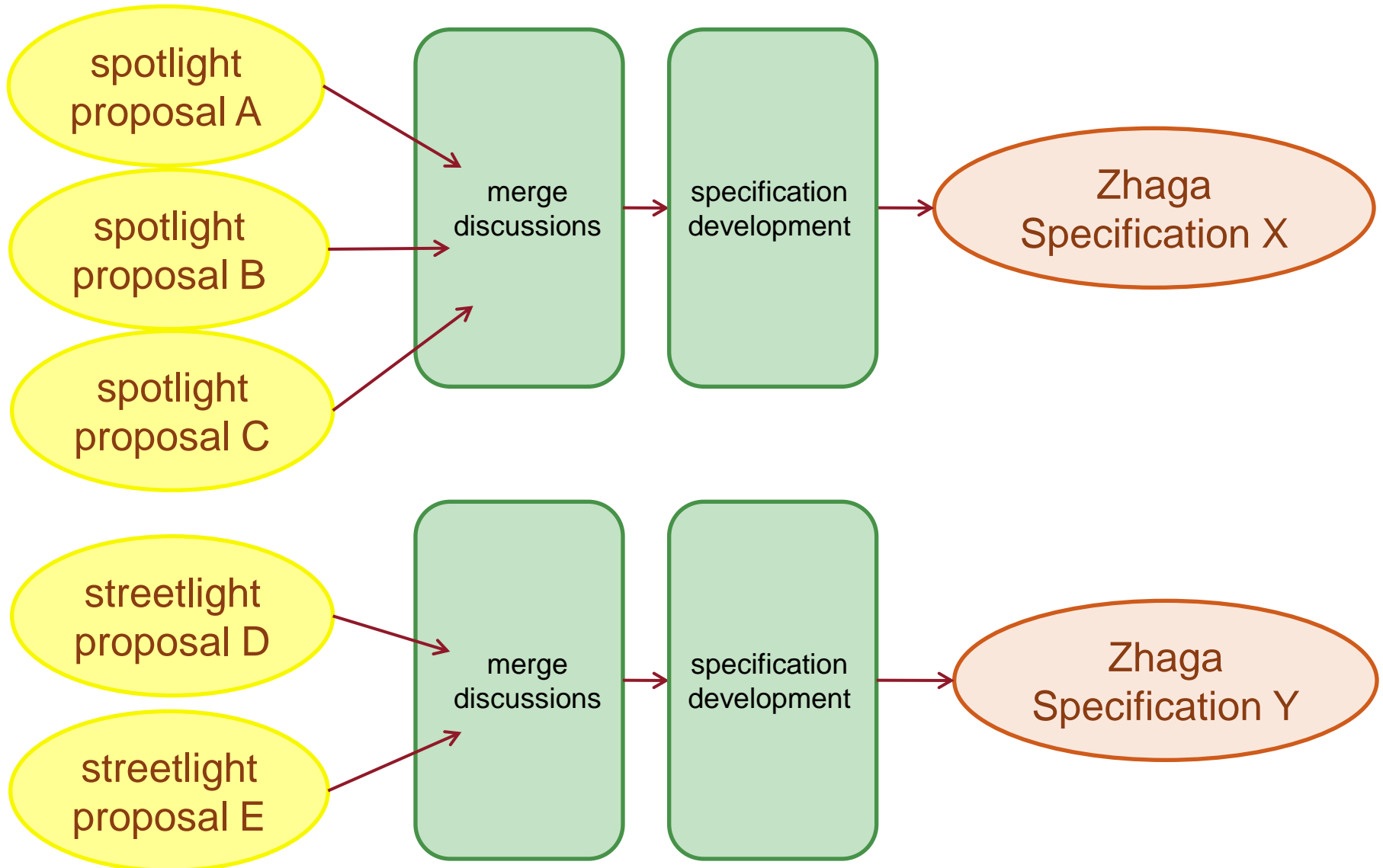
# Zhaga



Way of working



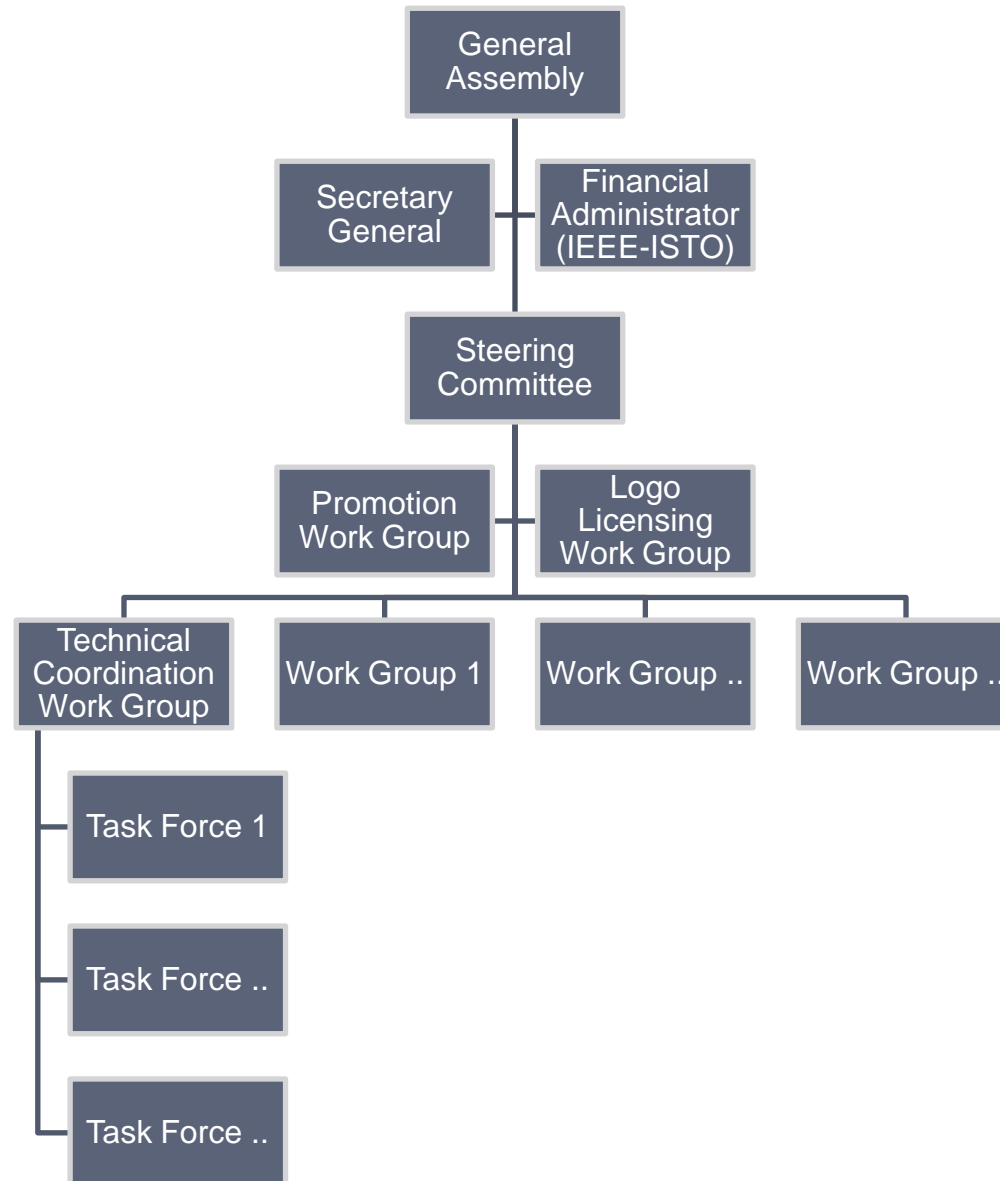
## Illustration of Zhaga's standardization process





## Merger phase is critical!

- Zhaga should not create two interface specifications with different mechanical fit for the same application
  - We must avoid arbitrary variations
- Differences between proposals must be analyzed and consequences understood before making choices.
- Choices must be based on technical merit



# Zhaga



## Progress

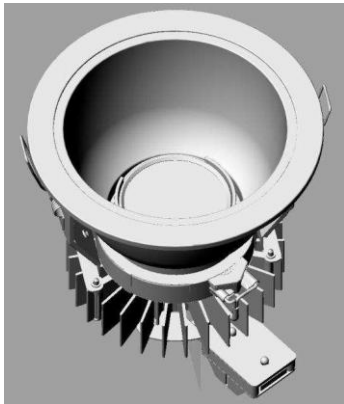
status September 2011





## Progress: downlight engine specification

- In February 2011, the Zhaga Consortium approved the first light engine specification.
  - A socketable LED light engine with integrated control gear



example downlight luminaire



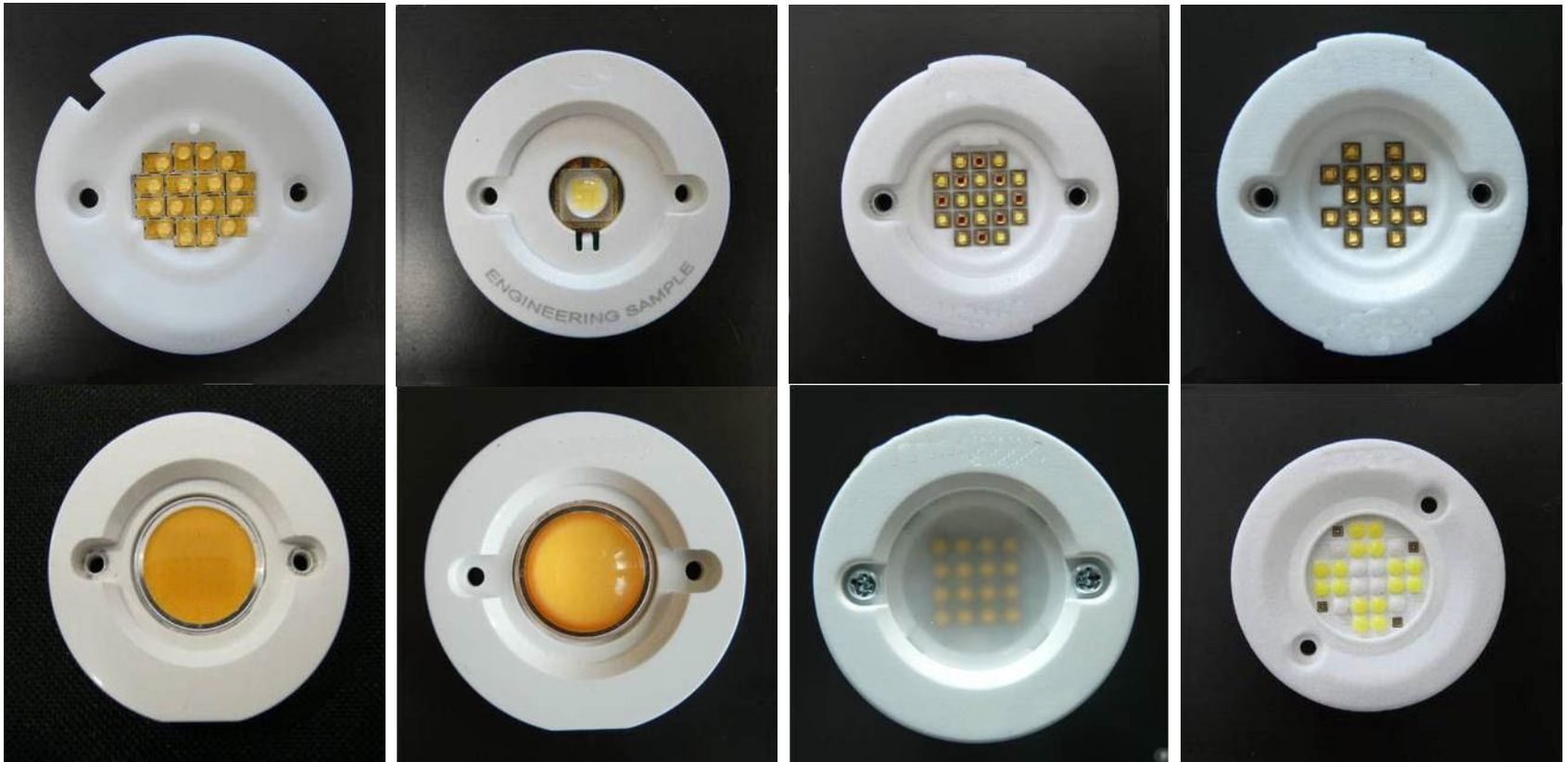
prototype lamp holders



prototype light engines

## Progress: spotlight engine ready

- In June 2011, the Zhaga Consortium approved the second light engine specification.
  - An LED spotlight engine with separate control gear



# Progress: Socketable LED Light Engine with Separate Electronic Control Gear

- In September 2011, the Zhaga Consortium approved the third specification. This is a socketable spot light engine. The control gear of the engine is located in a separate housing.

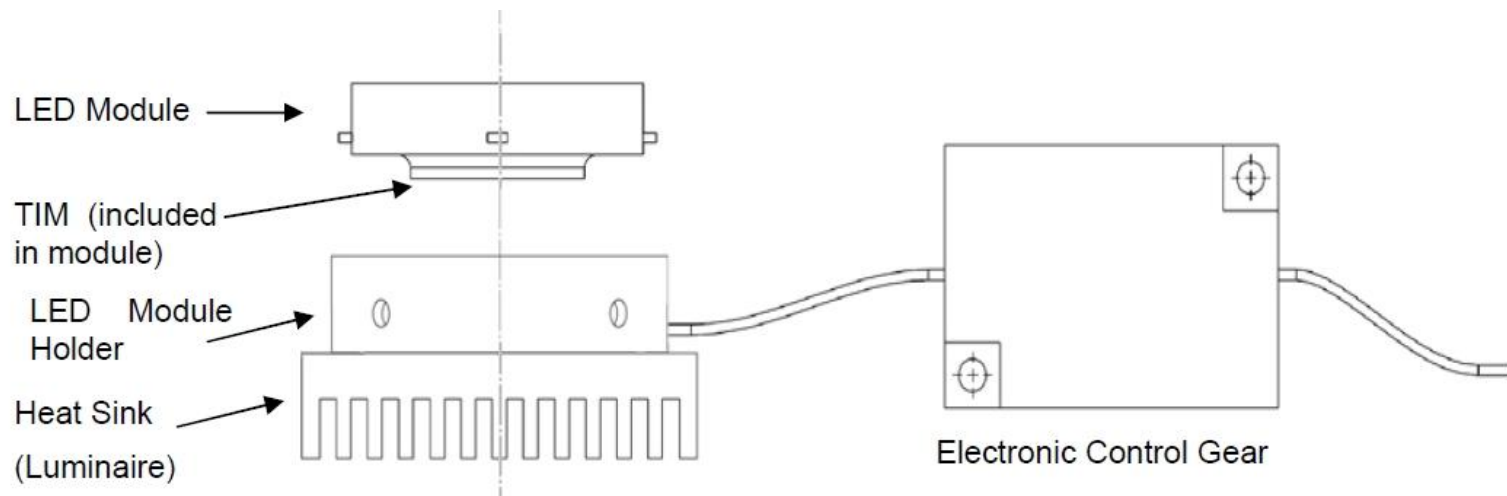
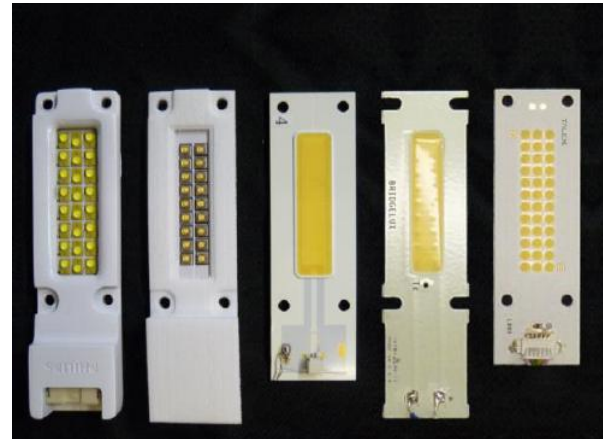
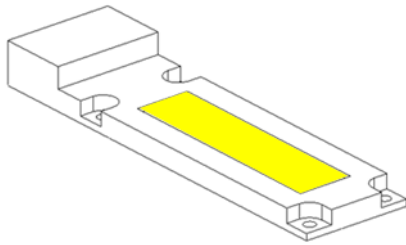


Figure 1: Schematic view of the assembly of LED Module, Luminaire with heat sink and Luminaire Optics, and Electronic Control Gear



# Specifications under development

- A streetlight engine (non-socketable with separate control gear)



- Mechanical dimensions of control gear (drivers)
  - several form factors and fixation methods
- Other light engines that are in a less advanced stage of development
- Website has regular updates on progress

# Zhaga

Logo

## The Zhaga logo

- The Zhaga Logo can be used on products that implement a Zhaga specification



- Compliance with the Zhaga specification must be verified by an independent test lab.



# Where are products with the Zhaga logo?

- Not available yet, because
- Certification (by independent test labs) is not available yet.



# Summary

- Zhaga guarantees stable design platforms for luminaries
- Zhaga prevent market fragmentation into a large number of incompatible light engines
- Zhaga enables second source supply of LED light engines
- Zhaga brings LED lighting in line with common industry practice in the lighting industry





[www.zhagastandard.org](http://www.zhagastandard.org)



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