



BSI Standards Publication

## Zhaga interface specification Book 1 and Book 10

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## National foreword

This Published Document is the UK implementation of IEC PAS 63324:2020.

The UK participation in its preparation was entrusted to Technical Committee CPL/34/1, Electric lamps.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2020

ISBN 978 0 539 14309 6

ICS 29.140.99

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 November 2020.

### Amendments/corrigenda issued since publication

Date	Text affected
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# IEC PAS 63324

Edition 1.0 2020-10

# PUBLICLY AVAILABLE SPECIFICATION



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**Zhaga interface specification Book 1 and Book 10**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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ICS 29.140.99

ISBN 978-2-8322-8944-0

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ZHAGA INTERFACE SPECIFICATION BOOK 1 AND BOOK 10**

**FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC PAS 63324 has been processed by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

<b>Draft PAS</b>	<b>Report on voting</b>
34A/2194/DPAS	34A/2204/RVDPAS

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This PAS shall remain valid for an initial maximum period of 2 years starting from the publication date. The validity may be extended for a single period up to a maximum of 2 years, at the end of which it shall be published as another type of normative document, or shall be withdrawn.

**IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

## INTRODUCTION

This PAS is a reproduction of Zhaga Book 1 Edition 1.8 and Book 10 Edition 1.0 with no changes introduced.

The document layout, terms and definitions, etc within this PAS therefore do not follow the normal IEC drafting rules that would be applied for an International Standard.

Subdivision 1 comprises Zhaga Book 10 Edition 1.0 – Circular LED modules for spot lighting.

Subdivision 2 comprises Zhaga Book 1 Edition 1.8 – Overview and common information, which is essential to the interpretation of Zhaga Book 10 (and future Zhaga books).

The future intention is for the content of this PAS to be incorporated within one or more International Standards and at this time any conflict with IEC Directives and drafting rules will be addressed.

## **Subdivision 1**

### **Zhaga Interface Specification Book 10**

#### **Summary (informative)**

##### **Background**

The Zhaga Consortium is a global lighting-industry organization that aims to standardize LED light engines and associated components such as LED modules, Holders and electronic control gear (LED drivers).

Zhaga has created a set of interface specifications, known as Books. Each Book defines an LED light engine and/or associated components by means of the mechanical, photometric, electrical, thermal, and control interfaces of the product to its environment. This makes such products interchangeable in the sense that it is easy to replace one product with another, even if they have been made by different manufacturers.

##### **Contents**

The LED Modules defined in this Book have an essentially circular outer shape with a small, also preferably circular Light Emitting Surface, so that they are well suited to be used with collimating Luminaire Optics in spot lighting applications. The LED Modules are disc shaped, and are grouped into several size categories, to allow for different LES sizes and flux categories. The LED Modules are intended to be used with a separate Electronic Control Gear, which is specified in Zhaga Book 13.

This Book should be read together with Zhaga Book 1.

##### **Intended Use**

The LED module defined in this specification is intended to be screwed to a heat sink and to be connected to a separate electronic control gear. The light output is essentially Lambertian to enable the luminaire optics to shape the application's desired light distribution from a defined input.

The LED modules defined in this Book 10 are intended to be installed and replaced by luminaire manufacturers only.

## 1 General

### 1.1 Introduction

The Zhaga Consortium is a global organization that aims to standardize LED Light Engines and associated components. An LED Light Engine is a light source for general lighting that is based on solid state technology, and typically consists of one or more LEDs combined with Electronic Control Gear. Examples of associated components are LED Modules, Electronic Control Gear, and Holders. Zhaga has created a set of interface specifications, known as “Books” defining interfaces between LED Light Engines, associated components and Luminaires.

Book 1 is a special Book that provides common information relevant to all other Books in the series. In addition, Book 1 defines requirements and compliance tests which are applicable across multiple Zhaga Books. The Books refer to these requirements and compliance tests as applicable.

### 1.2 Scope

This Book 10 defines interfaces between LED Modules, associate components (Holders) and luminaires. Not all interface descriptions are applicable to LED Modules or Holders, but where applicable they are identical.

The scope of the interface descriptions is focused on a range of LED Modules with a circular shape and high luminance LES. A LED Module is intended to be fixed to a luminaire heat sink by means of screws. Its light output distribution is primarily Lambertian, to enable Luminaire Optics to shape an application-specific light distribution independently of that of the LED Module.

Zhaga Book 12 defines an LED (Chip on Board) Array component, which shares certain interface descriptions with this Book 10 (mainly photometric). It is possible to combine a Book 12 compliant LED Array with a Holder that ensures mechanical and electrical fit of the assembly. The Holder provides its own set of mechanical/electrical/thermal interfaces to a luminaire. If these interfaces are compliant with the interface descriptions in this Book 10, the Holder+LED Array assembly can be used in the same way as an LED Module compliant with this Book. Thus this Book can also be used to check compliance of Holders with respect to the Holder-Luminaire interface.

This Book 10 defines several size categories of the LED Module

- 35 mm, 50 mm maximum outer diameter

The size categories can have different LES diameters and different LES categories:

- LES6.3, LES9, LES13.5, LES19, LES23

The LED Modules are intended to be installed and replaced by professionals only.

### 1.3 Conformance and references

#### 1.3.1 Conformance

All provisions in the Zhaga interface Specifications are mandatory, unless specifically indicated as recommended, optional or informative. Verbal expressions of provisions in the Zhaga interface specifications follow the rules provided in Clause 7 of ISO/IEC Directives, Part 2:2018. For clarity, the word “shall” indicates a requirement that is to be followed strictly in order to conform to the Zhaga interface specifications, and from which no deviation is permitted. The word “should” indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is discouraged but not prohibited. The word “may” indicates a course of action