

NEMA SSL 3

**HIGH-POWER WHITE
LED BINNING FOR
GENERAL ILLUMINATION**

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High-Power White LED Binning for General Illumination

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CONTENTS

	Foreword.....	ii
	Introduction	1
1	Scope.....	1
2	Normative References	1
3	Terms and Definitions.....	1
4	Color Binning	2
	4.1 Color Binning of White LEDs	2
	4.2 Bin Labeling of White LEDs	6
5	Luminous Flux and Luminous Intensity Binning.....	6
	5.1 Bin Labeling by Luminous Flux.....	6
6	Color Rendering Binning	7
7	Forward Voltage Binning	7
	7.1 Bin Labeling by Forward Voltage.....	7
Figures		
	Figure 4-1 White LED Color Binning Pictorial Representation.....	2
	Figure 4-2 White LED Color Binning 4500K–6500K Coordinate Representation	3
	Figure 4-3 White LED Color Binning 2700K–4000K Coordinate Representation	4
	Figure 5-1 Luminous Flux Binning Ranges	6
	Figure 7-1 Forward Voltage Binning.....	7

Foreword

The NEMA Solid State Lighting Section has prepared this standards publication, based on discussions among numerous LED and SSL manufacturers and integrators.

In the preparation of this standards publication, input of users and other interested parties has been sought and evaluated. Inquiries, comments, and proposed or recommended revisions should be submitted to the concerned NEMA product subdivision by contacting:

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Section approval of the standard does not necessarily imply that all section members voted for its approval or participated in its development. At the time the standard was approved, the Solid State Lighting Section was composed of the following members:

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Atlas Lighting Products, Inc.
Cooper Industries plc
Cree, Inc.
Dialight Corporation
EiKO, Ltd.
EYE Lighting International of N.A., Inc.
GE
Hatch Transformers, Inc.
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Introduction

The binning of LEDs is a practice used by LED manufacturers to manage the variation of LED performance in mass production processes. The inefficiencies of binning may create structural vulnerability in the supply chain for the market. To reduce the risk and at the same time protect product yields, LED manufacturers often choose binning schemes in accordance with their specific or unique mass production process. As a result, the LED components or packages produced by the manufacturers maintain structured variations for their performance characteristics.

Because of the uniqueness of the mass production and quality control process used by each LED manufacturer, the LED products supplied to LED system integrators or assemblers (module makers, luminaire makers, etc.) with similar performance characteristics produced by different manufacturers are binned and labeled differently. The binning structures and labeling (marking) used varies from manufacturer to manufacturer.

Binning structure inconsistency, as a result, requires more effort on the part of LED system integrators and assemblers. More unnecessary testing, verifications, qualification, and validations processes have to take place. As a result, overall solid state lighting (SSL) industry productivity may be negatively influenced. With a rapidly growing SSL market, more LED products will be manufactured and more manufacturers will be participating in the market. This makes it necessary and important to establish industry agreed-upon guidelines to ensure product consistency.

1 Scope

This standard applies to LEDs emitting incoherent, visible radiation in solid state lighting applications. It specifies bins and bin codes for LEDs for the following characteristics:

- Color
- Lumens
- Forward Voltage