

## CBM-360 LEDs



### Table of Contents

Table of Products.....	2
Shipping and Labeling Nomenclature .....	3
Bin Kit Ordering Nomenclature .....	4
White Binning Structure .....	5
White Chromaticity Binning Structure .....	6
CBM-360 Bin Kit Ordering Codes .....	7

### Introduction:

This document describes the binning and labeling nomenclature for CBM-360 Big Chip LED™ product as well as the orderable bin kits for each part.

With each build of parts, there is a distribution of performance in both flux and wave length or chromaticity. In order to guarantee specific performance for customers, each device is measured and subsequently grouped into flux and wavelength or chromaticity bins. Each individual package or reel of parts contains only one combination of flux and wavelength or chromaticity bin. Furthermore, bins are combined into orderable bin kits comprising of a selection of flux and wavelength or chromaticity bins to ease the ordering process.



### Table of Products

Products	Ordering Part Number	Description
CBM-360-W65S	CBM-360-W65S-D32-XX123	CBM-360 white Big Chip LED™ consisting of four 9 mm <sup>2</sup> LEDs wired in series, thermistor, 2-pin connector, and copper-core PCB
CBM-360-WDLS	CBM-360-WDLS-D32-XX123	

### CBM-360 Shipping and Labeling Nomenclature

All CBM-360 products are packaged and labeled with their respective bin as outlined in the following pages. Each package will only contain one bin. The part number designation is as follows:

**A B C — 1 2 3 — D 4 5 E — F 6 7 — G H — I 8**

Product Family	Chip Area	Color	Package Configuration	Flux Bin	Chromaticity Bin
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<b>Product Family</b>	A - Package type: "C" denotes Chip-on board B - Lens type: "B" denotes window (no lens) C - Chip quantity: "M" denotes multi-chip				
<b>Chip Area</b>	1 2 3 - Total LED chip area (mm <sup>2</sup> ) x 10: "360" denotes 36 mm <sup>2</sup>				
<b>Color</b>	D - Color: "W" denotes white 4 5 - Color temperature: "65" denotes 6500K, "DL" denotes daylight white (6500K through 5700K) etc. E - Color rendering: "S" (standard) denotes a typical CRI of 70				
<b>Package Config.</b>	F 6 7 - Package configuration (for internal use)				
<b>Flux Bin</b>	G H - Flux bin				
<b>Chromaticity Bin</b>	I 8 - Chromaticity bin				

**Example:**

The part number CBM-360-W65S-D32-VB-G4 refers to a 6500 standard CRI white, CBM-360 emitter, with a flux range of 4,550-4,860 lumens and a chromaticity value within the box defined by the four points (0.313, 0.338), (0.321, 0.348), (0.322, 0.336), (0.312, 0.328).

### CBM-360 Bin Kit Ordering Nomenclature

All CBM-360 White products are sold in sets of flux and chromaticity bins called bin kits. Each bin kit specifies a minimum flux bin and a specific selection of chromaticity bins. The ordering part number designation is as follows:

**A B C      —      1 2 3      —      D 4 5 E      —      F 6 7      —      G H 8 9 0**

Product Family	Chip Area	Color	Package Configuration	Bin Kit
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Product Family	A - Package type: "C" denotes Chip-on board B - Lens type: "B" denotes window (no lens) C - Chip quantity: "M" denotes multi-chip			
Chip Area	1 2 3 - Total LED chip area (mm <sup>2</sup> ) x 10: "360" denotes 36 mm <sup>2</sup>			
Color	D - Color: "W" denotes white 4 5 - Color temperature: "65" denotes 6500K, "DL" denotes daylight white (6500K through 5700K) etc. E - Color rendering: "S" (standard) denotes a typical CRI of 70			
Package Config.	F 6 7 - Package configuration (for internal use)			
Bin Kit	G H - Flux bin 8 9 0 - Chromaticity bin kit code			

**Example:**

The ordering part number CBM-360-W65S-D32-VB101 refers to a bin kit containing a minimum flux value of 4,550 lumens and falling in the F4, F3, G4, G3, EF, and DG chromaticity bins.

## CBM-360 White Binning Structure

CBM-360 LEDs are tested for luminous flux and chromaticity at a drive current of 6.3 A (0.70 A/mm<sup>2</sup>) and placed into one of the following luminous flux (FF) and chromaticity (WW) bins:

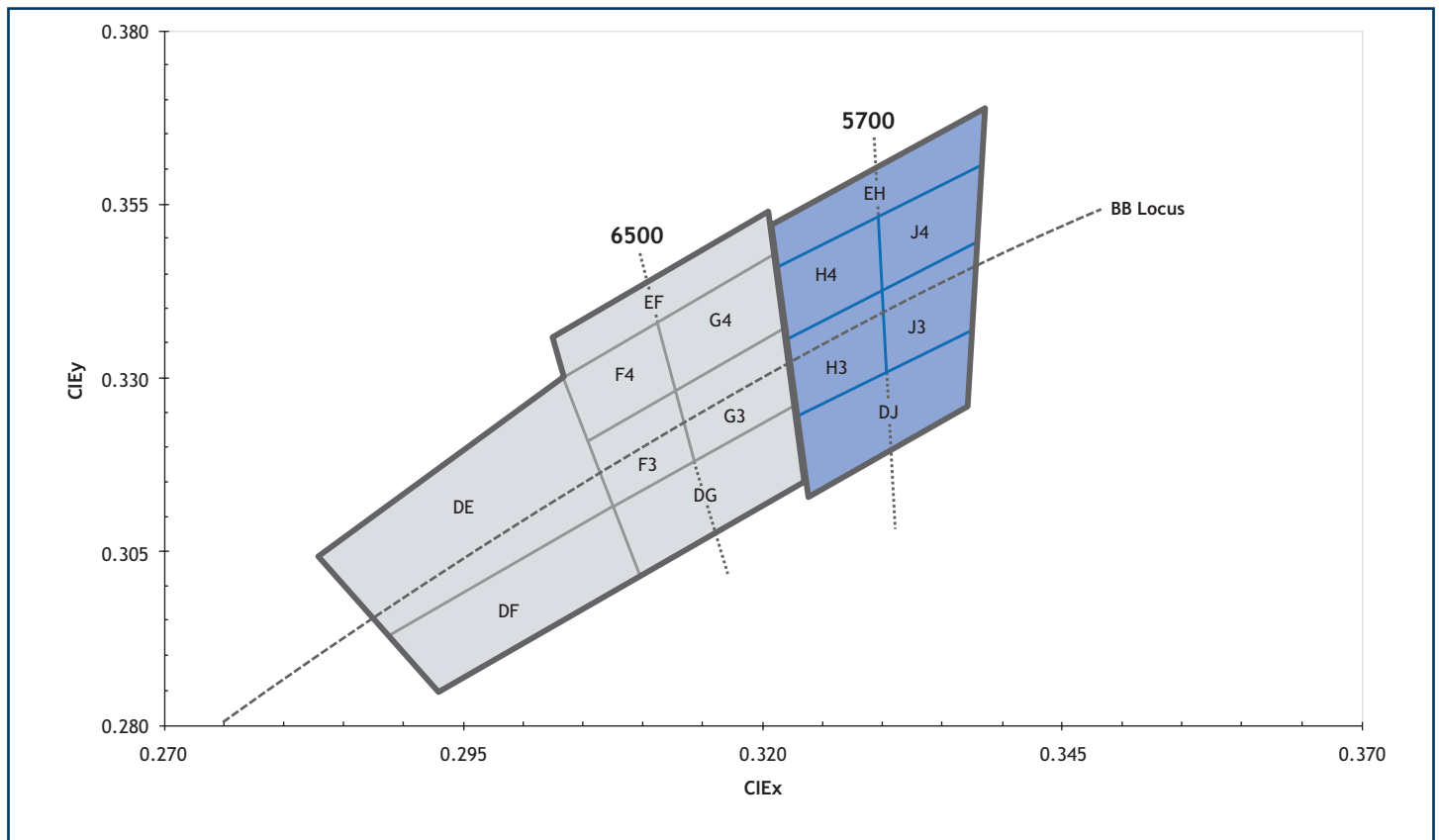
### Flux Bins

Color	Flux Bin (FF)	Minimum Flux (lm) @ 6.3A	Maximum Flux (lm) @ 6.3A
W65S 6500K, Standard CRI (typ. 70)	VB	4,550	4,860
	WA	4,860	5,225

\*Note: Luminus maintains a +/- 6% tolerance on flux measurements.

### Chromaticity Bins

Luminus' Standard Chromaticity Bins: 1931 CIE Curve



The following tables describe the four chromaticity points that bound each chromaticity bin. Chromaticity bins are grouped together based on the color temperature.

6500K Chromaticity Bins		
Bin Code (WW)	CIEx	CIEy
DG	0.307	0.311
	0.322	0.326
	0.323	0.316
	0.309	0.302
F3*	0.305	0.321
	0.313	0.329
	0.315	0.319
	0.307	0.311
F4*	0.303	0.330
	0.312	0.339
	0.313	0.329
	0.305	0.321
G3*	0.313	0.329
	0.321	0.337
	0.322	0.326
	0.315	0.319
G4*	0.312	0.339
	0.321	0.348
	0.321	0.337
	0.313	0.329
EF	0.302	0.335
	0.320	0.354
	0.321	0.348
	0.303	0.330
DE	0.283	0.304
	0.303	0.330
	0.307	0.311
	0.289	0.293
DF	0.289	0.293
	0.307	0.311
	0.309	0.302
	0.293	0.285

5700K Chromaticity Bins		
Bin Code (WW)	CIEx	CIEy
DJ	0.322	0.324
	0.337	0.337
	0.336	0.326
	0.323	0.314
H3*	0.321	0.335
	0.329	0.342
	0.329	0.331
	0.322	0.324
H4*	0.321	0.346
	0.329	0.354
	0.329	0.342
	0.321	0.335
J3*	0.329	0.342
	0.337	0.349
	0.337	0.337
	0.330	0.331
J4*	0.329	0.354
	0.338	0.362
	0.337	0.349
	0.329	0.342
EH	0.320	0.352
	0.338	0.368
	0.338	0.362
	0.321	0.346

\*Sub-bins within ANSI defined quadrangles per ANSI C78.377-2008

**CBM-360 Bin Kit Order Codes**

The following tables describe the bin kit ordering codes for CBM-360 and flux and chromaticity bins are also included in the bin kit. Each kit specifies a minimum flux and the listed chromaticity bins. A maximum flux is not specified. Within each kit, Luminus may ship any part meeting or exceeding the minimum flux specification. Shipments will always meet the listed chromaticity bins. For information on ordering bin kits not listed below, please contact Luminus or an official distributor.

**CBM-360 Bin Kit Order Codes**

Color	Luminous Flux		Chromaticity Bins	Kit Number
	Bin Kit Flux Code	Min. Flux		
White W65S 6500K, Standard CRI (typ. 70)	VB	4,550	F4, F3, G4, G3, EF, DG, DE, DF	VB100
			F4, F3, G4, G3, EF, DG	VB101
			F4, F3, G4, G3	VB102
	WA	4,860	F4, F3, G4, G3, EF, DG, DE, DF	WA100
			F4, F3, G4, G3, EF, DG	WA101
			F4, F3, G4, G3	WA102
White WDLS 6500K & 5700K Standard CRI (typ. 70)	VB	4,550	F4, F3, G4, G3, EF, DG, DE, DF H4, H3, J4, J3, EH, DJ	VB150
	WA	4,860	F4, F3, G4, G3, EF, DG, DE, DF H4, H3, J4, J3, EH, DJ	WA150

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