# Introduction

**Purpose**

- Provide an Overview of Cree's XLamp MP-L EasyWhite multi-die component.

**Objective**

- Provide a quick tutorial on Cree EasyWhite Technology
- Give a brief summary of MP-L's performance
- Highlight Target Applications for MP-L
- Detail the Features & Characteristics of MP-L
- Reviews MP-L Order Codes & EasyWhite Bins
- Review MP-L L70 Lifetime Performance

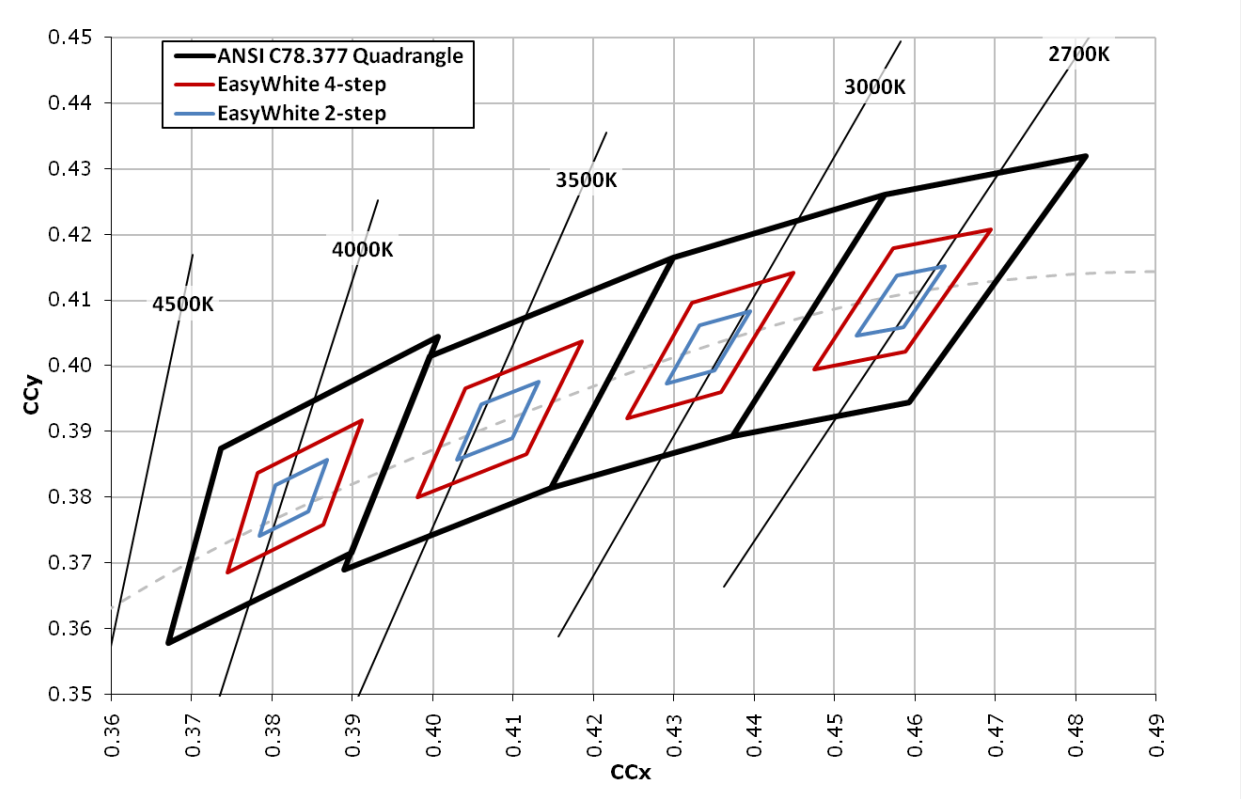
**Content**

- 13 slides

**Content**

- 5 Minutes

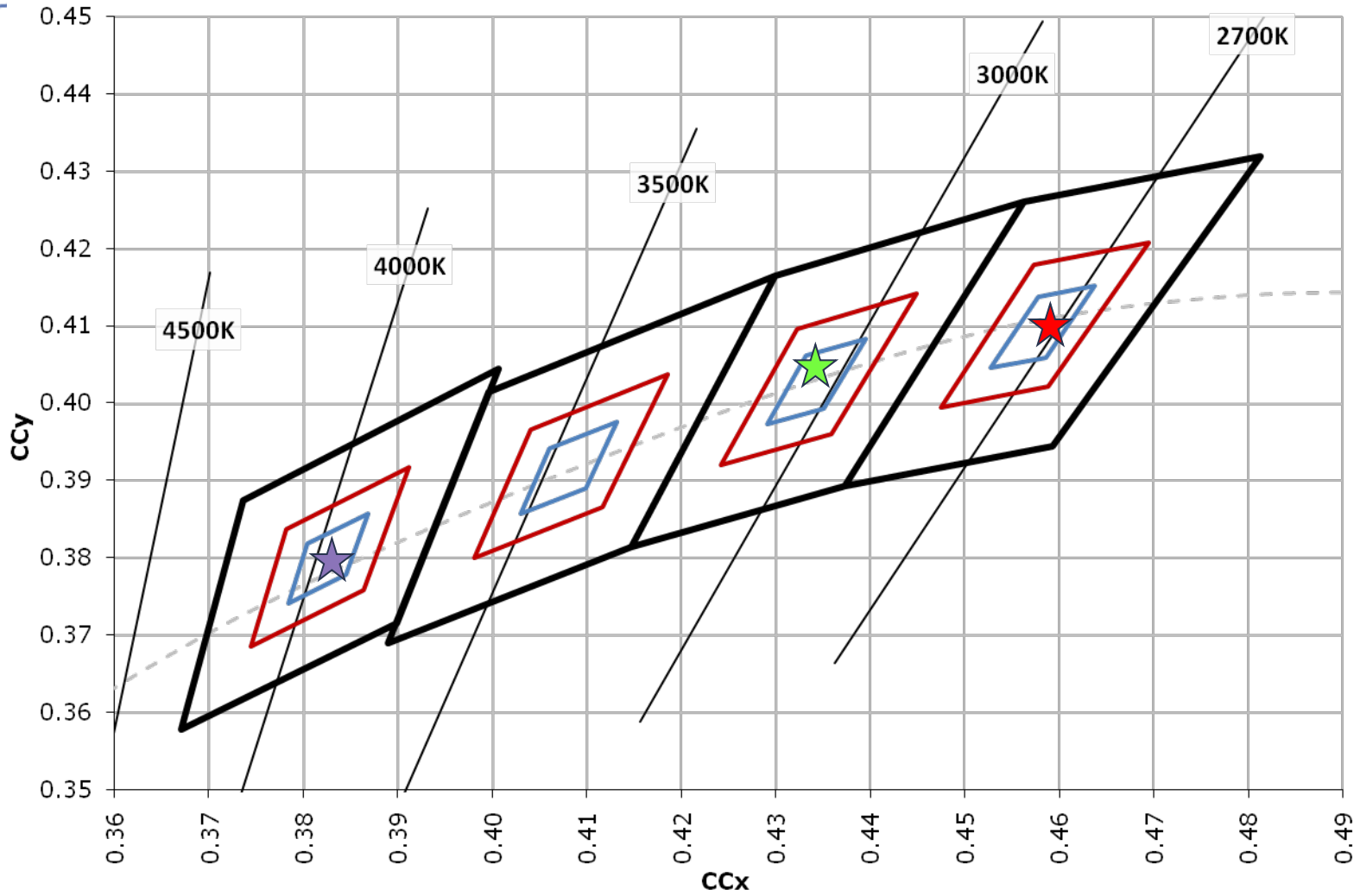
# What is EasyWhite?




## EasyWhite solves the problem of LED-to-LED color consistency

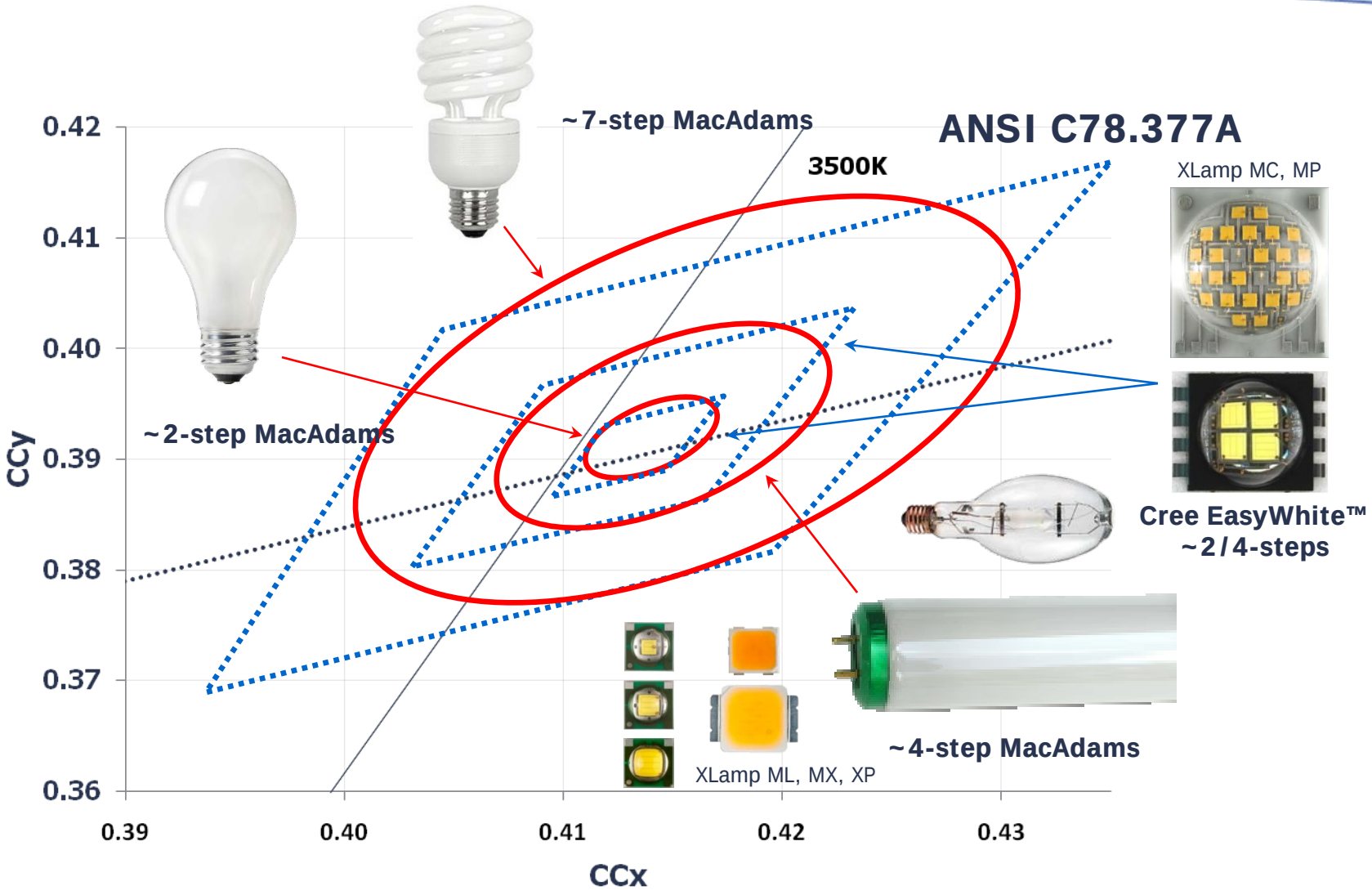
- Every LED is the same color and near the BBL
- Eliminates “A, B, C, D” versions of a CCT

# How Does EasyWhite Work?

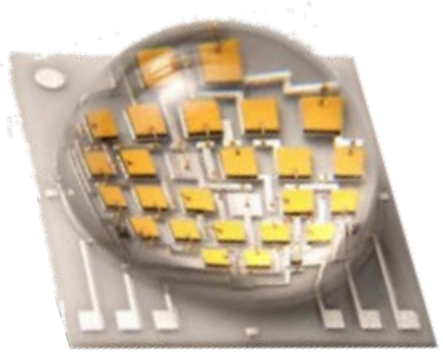


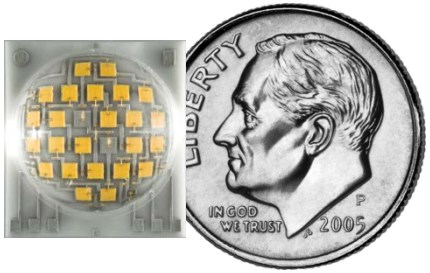

**The result is consistent color for each EasyWhite LED, accomplished using the full distribution of LEDs**

# How Does EasyWhite Compare To Traditional Lighting?



# XLamp MP-L EasyWhite LEDs






24 high-power LED die
12 x 13 mm footprint

## Simplifies LED system design & increases color consistency

- **Single point of light like incandescent or halogen**
  - **Up to 1500 lumens @ 20 W**
- **Incandescent color consistency without complex color mixing**
- **Solder-less assembly possible with connector**
  - **Allows XLamp MP-L to be screwed directly to the heat sink**

# XLamp MP-L Applications

## Directional Lighting

- Down lights
- Pendants
- Track lights

## Directional Retrofit Lamps

- PAR-style
- BR-style
- R-style

PAR-style 30/36/38

BR-style 25/30/38/40

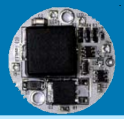
R-style 20/25/30/40

# Simplification - LED PAR-38 Example

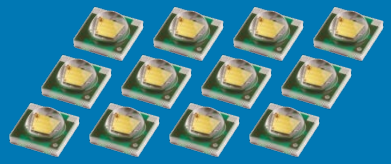
## Typical LED PAR38

Multi-reel pick & place

Heat sink



Driver



12 Optics

12 LEDs

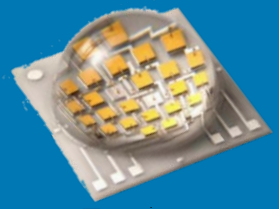
Complex mixing recipe

Inventory of 48+ bins

PCB

## With XLamp MP-L

1 Optic



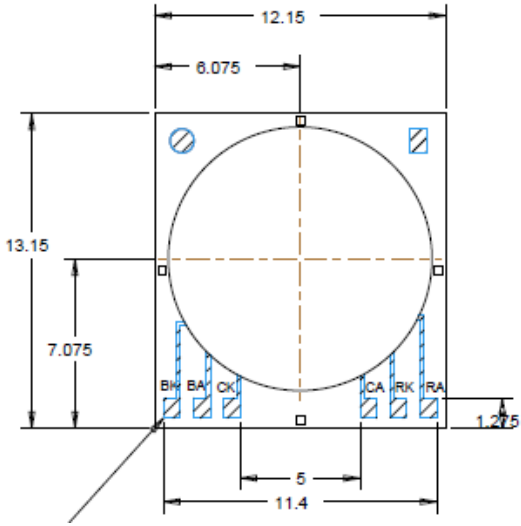
1 XLamp MP-L

Heat sink

Driver

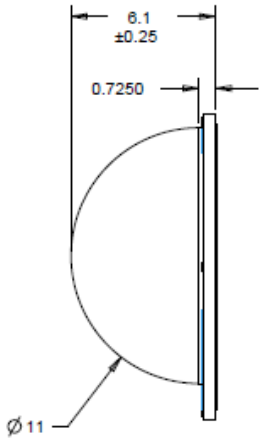
# XLamp MP-L Characteristics & Features

| | MP-L |
|---|---|
| Max Current | 250 mA (per string) |
| Viewing Angle | 125° |
| Typ. Vf @ 150 mA | 25 V (per string) |




- **Electrically neutral thermal path**
- **3 Individually addressable LED strings**
- **ENERGY STAR approved lumen maintenance**
- **Reflow solderable JEDEC J-STD-020C compatible**
- **RoHS- & REACH-compliant**

| EasyWhite | Neutral White | Warm White |
|---|---|---|
| CCT (K) | 4000K, 3500K | 3000K, 2700K |
| CRI (typ) | 80 | 82 |



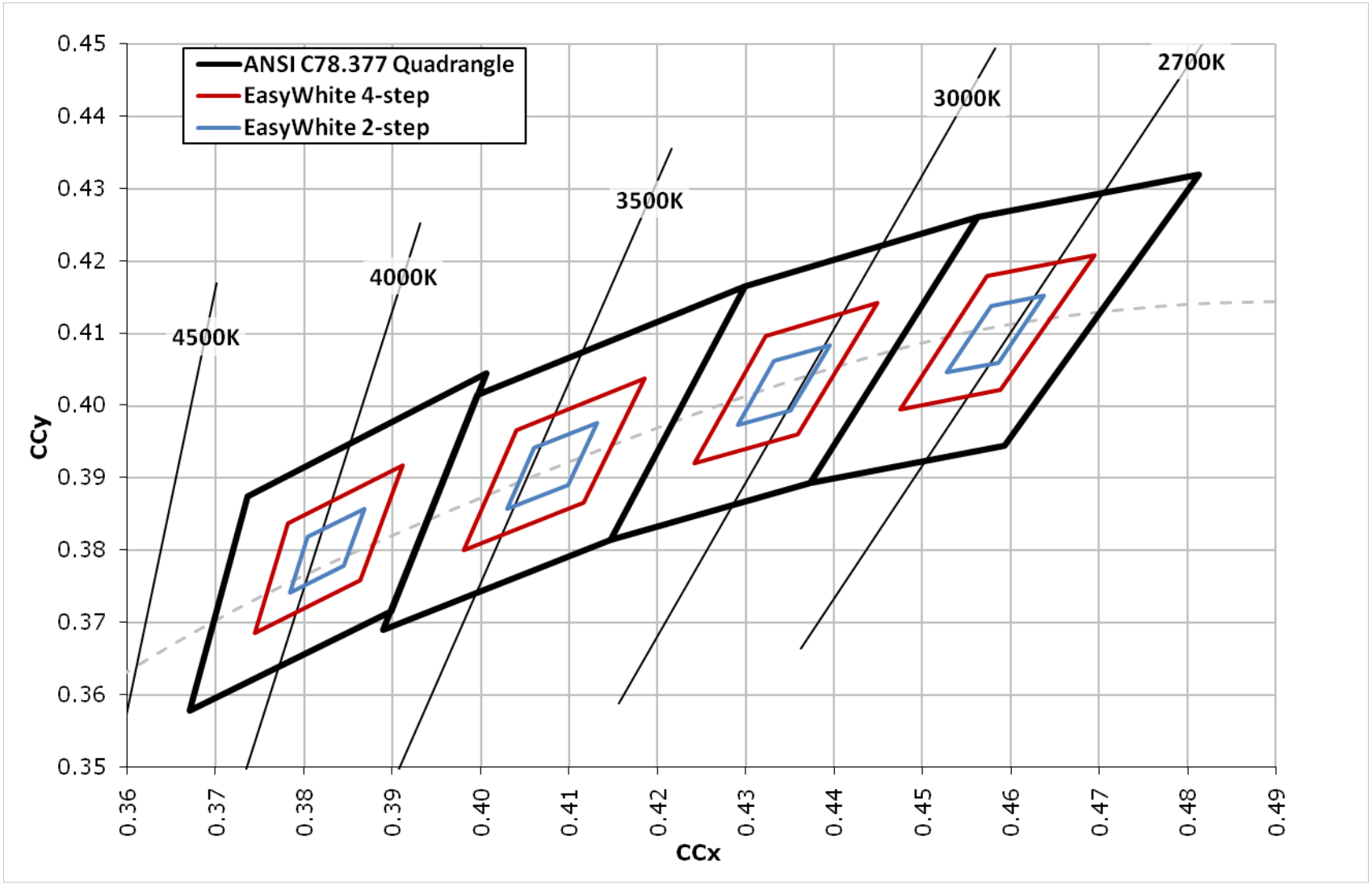
# XLamp MP-L EasyWhite
## Standard Order Codes

| Min. Flux Bin | 4-Step | | | | 2-Step | | | |
|---|---|---|---|---|---|---|---|---|
| | 4000K | 3500K | 3000K | 2700K | 4000K | 3500K | 3000K | 2700K |
| | 40F | 35F | 30F | 27F | 40H | 35H | 30H | 27H |
| E | 1000 | | | | 1000 | | | |
| D | 900 | | | | 900 | | | |
| C | | 800 | 800 | 800 | | 800 | 800 | 800 |
| B | | 700 | 700 | 700 | | 700 | 700 | 700 |

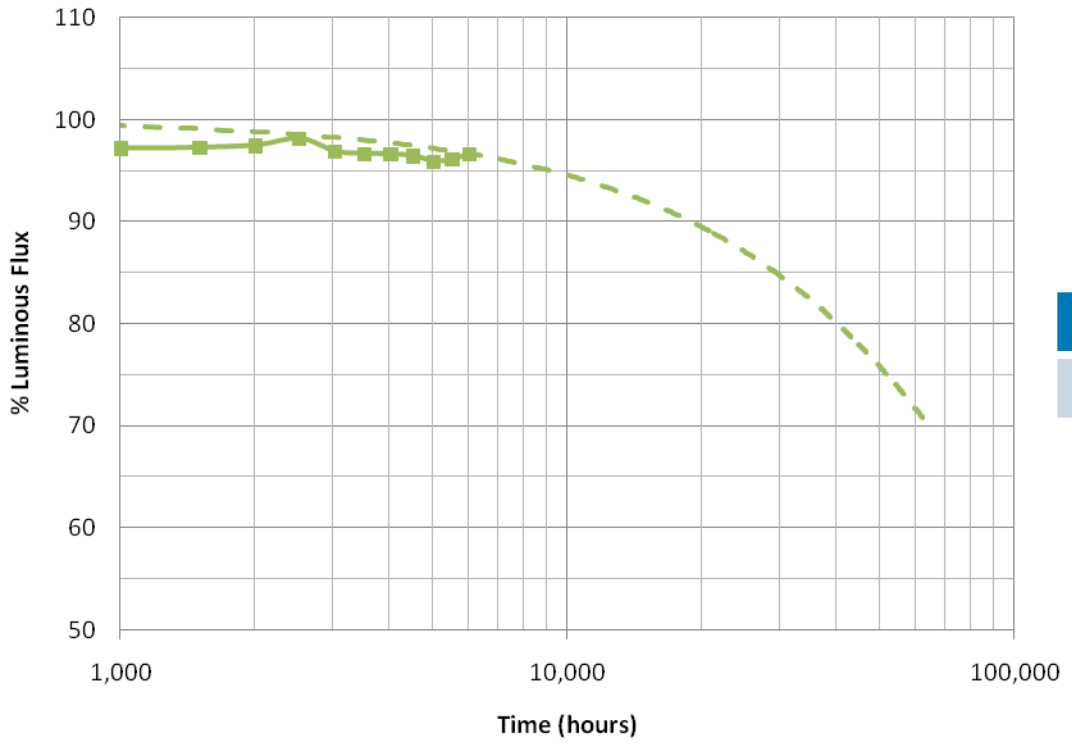
Minimum luminous flux @ 150 mA per string (lm)
The flux and chromaticity are measured with all LEDs lit simultaneously.

**4-Step : MPLEZW-A1-0000-0000D040F**
**2-Step : MPLEZW-A1-0000-0000D040H**

# XLamp MP-L EasyWhite Bins



# XLamp MP-L EasyWhite L70 Lifetime (Ta=85°C)




| Current | Ta/Tsp (°C) | L70 (hours) |
|---|---|---|
| 250 mA | 85 | 64,284 |

**Notes:**

- This extrapolation is for informational purposes only and is not a warranty or a specification.
- Extrapolated lifetimes are subject to change without notice.
- Extrapolations are performed using ENERGY STAR exponential method (fit to last data point).
- Notice: Cree will revise L70 lifetimes to those calculated by IES TM-21 methods once TM-21 is finalized.

# XLamp MP-L – Summary

- EasyWhite binning enables a new level of color consistency
- MP-L simplifies LED system design and increases color consistency
- MP-L is optimized for directional lighting applications
- Utilizing MP-L enables a much simpler lower cost design for directional bulbs
- MP-L is available in color temps between 2700 Kelvin and 4000 Kelvin and 4-Step and 2-Step Bins.
- EasyWhite 2-Step Bins are the tightest bins available in the market place
- The L70 lifetime projection for MP-L using the Energy Star method is over 64,000 hours

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## LED lighting: Energy efficient & planet friendly.

### Cree. Leading the LED lighting revolution.

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