

# Cree® LMH2 LED Modules Family

**LMH2 Light Source with Flat Lens**



**LMH2 Light Source with Dome Lens**



## PRODUCT DESCRIPTION

Cree LED modules provide lighting designers and manufacturers with simple, easy-to-adopt LED lighting solutions that reduce luminaire development time and speed time-to-market. Cree LMH2 family LED modules are the ideal choice for enabling rapid luminaire development where bright, beautiful, long-life lighting is required. The ease of use of the LMH family enables this versatile LED lighting module to jump-start the design process for recessed downlights, wall sconces or pendant lights in demanding end markets such as retail, museums and studio lighting. The sunset dimming option allows further application penetration into hospitality and restaurant environments.

## FEATURES

- Industry-leading light-source efficacy (steady state) of up to 97 lm/W for 850-3000 lm, 108 lm/W for 4000 lm, 85 lm/W for 6000 & 8000 lm LMH2, 125 lm/W for 1250-3000 lm LMH2+, all available in WhiteLight dimming
- 850-4000 lm available in 2700 K, 3000 K, 3500 K and 4000 K CCT
- 4000 lm & 6000 lm available in 5000 K
- 6000 lm & 8000 lm available in 3000 K, 3500 K and 4000 K CCT
- Sunset dimming available for 850-3000 lm modules (dim from 2700 K down to 1800 K)
- ≥ 90 CRI for all CCTs
- Minimum 95 CRI available for 3500 K at 3000 lm
- Industry-leading 5-year warranty
- Designed to last 50,000 hours at L<sub>70</sub>
- No UV in light output
- No mercury in light source

## TABLE OF CONTENTS

LMH2 Characteristics - WhiteLight Dimming .....2

LMH2 Order Codes - 90 CRI Minimum WhiteLight Dimming .....3

LMH2 Order Code - 95 CRI Minimum WhiteLight Dimming .....3

LMH2+ Characteristics - WhiteLight Dimming .....4

LMH2+ Order Codes - WhiteLight Dimming .....5

LMH2 Characteristics - Sunset Dimming ....6

LMH2 Order Codes - Sunset Dimming.....6

Thermal Management Guidelines.....7

Relative Spectral Power Distribution .....8

Relative Luminous Flux vs. Case Temperature .....10

Typical Voltage vs. Case Temperature .....12

Relative Luminous Flux vs. Current.....14

Photometry.....15

Performance Groups - Chromaticity .....18

Chromaticity Bins Plotted on the 1931 CIE Color Space.....19

Mechanical Dimensions .....20

Notes .....21

Packaging .....21

**LMH2 CHARACTERISTICS - WHITELIGHT DIMMING\* (Tc = 55 °C)**

| Characteristics                                  | Unit            | Minimum | Typical | Maximum |
|--|-----------------|---------|---------|---------|
| Viewing angle (FWHM) - 850- & 1250-lm flat lens  | degrees         |         | 82      |         |
| Viewing angle (FWHM) - 850- & 1250-lm dome lens  | degrees         |         | 96      |         |
| Viewing angle (FWHM) - 2000- & 3000-lm flat lens | degrees         |         | 82      |         |
| Viewing angle (FWHM) - 2000- & 3000-lm dome lens | degrees         |         | 105     |         |
| Viewing angle (FWHM) - 4000-lm flat lens         | degrees         |         | 85      |         |
| Viewing angle (FWHM) - 4000-lm dome lens         | degrees         |         | 105     |         |
| Viewing angle (FWHM) - 6000-lm flat lens         | degrees         |         | 86      |         |
| Viewing angle (FWHM) - 6000-lm dome lens         | degrees         |         | 110     |         |
| Viewing angle (FWHM) - 8000-lm flat lens         | degrees         |         | 84      |         |
| Viewing angle (FWHM) - 8000-lm dome lens         | degrees         |         | 110     |         |
| DC forward current - 850 & 1250 lm               | mA              | 400     | 440     | 480     |
| DC forward current - 2000 & 3000 lm              | mA              | 810     | 900     | 990     |
| DC forward current - 4000 lm                     | mA              | 850     | 940     | 1030    |
| DC forward current - 6000 lm                     | mA              | 1530    | 1700    | 1870    |
| DC forward current - 8000 lm                     | mA              | 1800    | 2000    | 2100    |
| Forward voltage - 850 lm (@ 440 mA, 55 °C)       | V               |         | 19      | 23      |
| Forward voltage - 1250 lm (@ 440 mA, 55 °C)      | V               |         | 29      | 34      |
| Forward voltage - 2000 lm (@ 900 mA, 55 °C)      | V               |         | 22      | 26      |
| Forward voltage - 3000 lm (@ 900 mA, 55 °C)      | V               |         | 33      | 38      |
| Forward voltage - 4000 lm (@ 940 mA, 55 °C)      | V               |         | 35.5    | 43      |
| Forward voltage - 6000 lm (@ 1700 mA, 55 °C)     | V               |         | 38      | 46      |
| Forward voltage - 8000 lm (@ 2000 mA, 55 °C)     | V               |         | 46.2    | 52      |
| Luminous flux - 850-lm (@ 440 mA, 55 °C)         | lm              | 790     | 850     | 909     |
| Luminous flux - 1250-lm (@ 440 mA, 55 °C)        | lm              | 1163    | 1250    | 1337    |
| Luminous flux - 2000-lm (@ 900 mA, 55 °C)        | lm              | 1860    | 2000    | 2140    |
| Luminous flux - 3000-lm (@ 900 mA, 55 °C)        | lm              | 2790    | 3000    | 3210    |
| Luminous flux - 4000-lm (@ 940 mA, 55 °C)        | lm              | 3720    | 4000    | 4280    |
| Luminous flux - 6000-lm (@ 1700 mA, 55 °C)       | lm              | 5580    | 6000    | 6420    |
| Luminous flux - 8000-lm (@ 2000 mA, 55 °C)       | lm              | 7440    | 8000    | 8560    |
| LED module case temperature (Tc)                 | °C              | 0       |         | 70      |
| CRI - 90 CRI                                     | 100-point scale | 90      | 92      |         |
| CRI - 95 CRI                                     | 100-point scale | 95      |         |         |

**Notes:**

- LMH2 modules are not designed for reverse bias operation.
- Cree maintains a tolerance of  $\pm 7\%$  on flux measurements,  $\pm 10\%$  on power measurements,  $\pm 0.005$  on chromaticity (CCx, CCy) measurements and a tolerance of  $\pm 2$  on CRI measurements.
- 55 °C measured at case temperature (Tc) point shown on page 20.
- Luminous flux values for the dome lens LMH2 LED module can be up to 3% higher.
- \* WhiteLight dimming provides consistent color across the entire dimming range.

**LMH2 ORDER CODES - 90 CRI MINIMUM WHITELIGHT DIMMING**

| Typical Luminous Flux (lm) | Typical Light Source Efficacy (lm/W) | CCT (K) | Order Code               |                          |
|----------------------------|--------------------------------------|---------|--------------------------|--------------------------|
|                            |                                      |         | Flat Lens                | Dome Lens                |
| 850                        | 97                                   | 4000    | LMH020-0850-40G9-00000TW | LMH020-0850-40G9-00001TW |
|                            |                                      | 3500    | LMH020-0850-35G9-00000TW | LMH020-0850-35G9-00001TW |
|                            |                                      | 3000    | LMH020-0850-30G9-00000TW | LMH020-0850-30G9-00001TW |
|                            |                                      | 2700    | LMH020-0850-27G9-00000TW | LMH020-0850-27G9-00001TW |
| 1250                       | 97                                   | 4000    | LMH020-1250-40G9-00000TW | LMH020-1250-40G9-00001TW |
|                            |                                      | 3500    | LMH020-1250-35G9-00000TW | LMH020-1250-35G9-00001TW |
|                            |                                      | 3000    | LMH020-1250-30G9-00000TW | LMH020-1250-30G9-00001TW |
|                            |                                      | 2700    | LMH020-1250-27G9-00000TW | LMH020-1250-27G9-00001TW |
| 2000                       | 97                                   | 4000    | LMH020-2000-40G9-00000TW | LMH020-2000-40G9-00001TW |
|                            |                                      | 3500    | LMH020-2000-35G9-00000TW | LMH020-2000-35G9-00001TW |
|                            |                                      | 3000    | LMH020-2000-30G9-00000TW | LMH020-2000-30G9-00001TW |
|                            |                                      | 2700    | LMH020-2000-27G9-00000TW | LMH020-2000-27G9-00001TW |
| 3000                       | 97                                   | 4000    | LMH020-3000-40G9-00000TW | LMH020-3000-40G9-00001TW |
|                            |                                      | 3500    | LMH020-3000-35G9-00000TW | LMH020-3000-35G9-00001TW |
|                            |                                      | 3000    | LMH020-3000-30G9-00000TW | LMH020-3000-30G9-00001TW |
|                            |                                      | 2700    | LMH020-3000-27G9-00000TW | LMH020-3000-27G9-00001TW |
| 4000                       | 108                                  | 5000    | LMH020-4000-50G9-00000TW | LMH020-4000-50G9-00001TW |
|                            |                                      | 4000    | LMH020-4000-40G9-00000TW | LMH020-4000-40G9-00001TW |
|                            |                                      | 3500    | LMH020-4000-35G9-00000TW | LMH020-4000-35G9-00001TW |
|                            |                                      | 3000    | LMH020-4000-30G9-00000TW | LMH020-4000-30G9-00001TW |
|                            |                                      | 2700    | LMH020-4000-27G9-00000TW | LMH020-4000-27G9-00001TW |
| 6000                       | 85                                   | 5000    | LMH020-6000-50G9-00000TW | LMH020-6000-50G9-00001TW |
|                            |                                      | 4000    | LMH020-6000-40G9-00000TW | LMH020-6000-40G9-00001TW |
|                            |                                      | 3500    | LMH020-6000-35G9-00000TW | LMH020-6000-35G9-00001TW |
|                            |                                      | 3000    | LMH020-6000-30G9-00000TW | LMH020-6000-30G9-00001TW |
| 8000                       | 85                                   | 4000    | LMH020-8000-40G9-00000TW | LMH020-8000-40G9-00001TW |
|                            |                                      | 3500    | LMH020-8000-35G9-00000TW | LMH020-8000-35G9-00001TW |
|                            |                                      | 3000    | LMH020-8000-30G9-00000TW | LMH020-8000-30G9-00001TW |

**LMH2 ORDER CODE - 95 CRI MINIMUM WHITELIGHT DIMMING**

| Typical Luminous Flux (lm) | Typical Light Source Efficacy (lm/W) | CCT (K) | Order Code               |
|----------------------------|--------------------------------------|---------|--------------------------|
|                            |                                      |         | Flat Lens                |
| 3000                       | 97                                   | 3500    | LMH020-3000-35GS-00000TW |

**LMH2+ CHARACTERISTICS - WHITELIGHT DIMMING\* (T<sub>c</sub> = 55 °C)**

| Characteristics                               | Unit            | Minimum | Typical | Maximum |
|---|-----------------|---------|---------|---------|
| Viewing angle (FWHM) - 1250-lm flat lens      | degrees         |         | 82      |         |
| Viewing angle (FWHM) - 1250-lm dome lens      | degrees         |         | 96      |         |
| Viewing angle (FWHM) - 2000-lm flat lens      | degrees         |         | 82      |         |
| Viewing angle (FWHM) - 2000-lm dome lens      | degrees         |         | 105     |         |
| Viewing angle (FWHM) - 3000-lm flat lens      | degrees         |         | 82      |         |
| Viewing angle (FWHM) - 3000-lm dome lens      | degrees         |         | 105     |         |
| DC forward current - 1250 lm                  | mA              |         | 450     | 750     |
| DC forward current - 2000 lm                  | mA              |         | 450     | 940     |
| DC forward current - 3000 lm                  | mA              |         | 600     | 1000    |
| Forward voltage - 1250 lm (@ 450 mA, 55 °C)   | V               |         | 22.5    | 25      |
| Forward voltage - 2000 lm (@ 450 mA, 55 °C)   | V               |         | 35      | 38.5    |
| Forward voltage - 3000 lm (@ 600 mA, 55 °C)   | V               |         | 40      | 44      |
| Luminous flux - 1250-lm (@ 450 mA, 55 °C)     | lm              | 1163    | 1250    | 1337.5  |
| Luminous flux - 2000-lm (@ 450 mA, 55 °C)     | lm              | 1860    | 2000    | 2140    |
| Luminous flux - 3000-lm (@ 600 mA, 55 °C)     | lm              | 2790    | 3000    | 3210    |
| LED module case temperature (T <sub>c</sub> ) | °C              | 0       |         | 70      |
| CRI   | 100-point scale | 90      | 92      |         |

**Notes:**

- LMH2+ modules are not designed for reverse bias operation.
- Cree maintains a tolerance of ±7% on flux measurements, ±10% on power measurements, ±0.005 on chromaticity (CC<sub>x</sub>, CC<sub>y</sub>) measurements and a tolerance of ±2 on CRI measurements.
- 55 °C measured at case temperature (T<sub>c</sub>) point shown on page 20.
- Luminous flux values for the dome lens LMH2+ LED module can be up to 3% higher.
- \* WhiteLight dimming provides consistent color across the entire dimming range.

**LMH2+ ORDER CODES - WHITELIGHT DIMMING**

| Typical Luminous Flux (lm) | Typical Light Source Efficacy (lm/W) | CCT (K) | Order Code               |                          |
|----------------------------|--------------------------------------|---------|--------------------------|--------------------------|
|                            |                                      |         | Flat Lens                | Dome Lens                |
| 1250                       | 125                                  | 4000    | LMH02B-1250-40G9-00000TW | LMH02B-1250-40G9-00001TW |
|                            |                                      | 3500    | LMH02B-1250-35G9-00000TW | LMH02B-1250-35G9-00001TW |
|                            |                                      | 3000    | LMH02B-1250-30G9-00000TW | LMH02B-1250-30G9-00001TW |
|                            |                                      | 2700    | LMH02B-1250-27G9-00000TW | LMH02B-1250-27G9-00001TW |
| 2000                       | 125                                  | 4000    | LMH02B-2000-40G9-00000TW | LMH02B-2000-40G9-00001TW |
|                            |                                      | 3500    | LMH02B-2000-35G9-00000TW | LMH02B-2000-35G9-00001TW |
|                            |                                      | 3000    | LMH02B-2000-30G9-00000TW | LMH02B-2000-30G9-00001TW |
|                            |                                      | 2700    | LMH02B-2000-27G9-00000TW | LMH02B-2000-27G9-00001TW |
| 3000                       | 125                                  | 4000    | LMH02B-3000-40G9-00000TW | LMH02B-3000-40G9-00001TW |
|                            |                                      | 3500    | LMH02B-3000-35G9-00000TW | LMH02B-3000-35G9-00001TW |
|                            |                                      | 3000    | LMH02B-3000-30G9-00000TW | LMH02B-3000-30G9-00001TW |
|                            |                                      | 2700    | LMH02B-3000-27G9-00000TW | LMH02B-3000-27G9-00001TW |

**LMH2 CHARACTERISTICS - SUNSET DIMMING\* (T<sub>c</sub> = 55 °C)**

| Characteristics                                     | Unit            | Minimum | Typical | Maximum |
|---|-----------------|---------|---------|---------|
| Viewing angle (FWHM) - 850- & 1250-lm flat lens     | degrees         |         | 82      |         |
| Viewing angle (FWHM) - 850- & 1250-lm dome lens     | degrees         |         | 96      |         |
| Viewing angle (FWHM) - 2000- & 3000-lm flat lens    | degrees         |         | 82      |         |
| Viewing angle (FWHM) - 2000- & 3000-lm dome lens    | degrees         |         | 105     |         |
| DC forward current - 850 & 1250 lm                  | mA              | 400     | 440     | 480     |
| DC forward current - 2000 & 3000 lm                 | mA              | 810     | 940     | 1030    |
| Forward voltage - 850 lm (@ 440 mA, 55 °C)          | V               |         | 20      | 25      |
| Forward voltage - 1250 lm (@ 440 mA, 55 °C)         | V               |         | 27      | 32      |
| Forward voltage - 2000 lm (@ 940 mA, 55 °C)         | V               |         | 20      | 26      |
| Forward voltage - 3000 lm (@ 940 mA, 55 °C)         | V               |         | 28      | 33      |
| Luminous flux - 850-lm flat lens (@ 440 mA, 55 °C)  | lm              | 790     | 850     | 909     |
| Luminous flux - 1250-lm flat lens (@ 440 mA, 55 °C) | lm              | 1163    | 1250    | 1337    |
| Luminous flux - 2000-lm flat lens (@ 940 mA, 55 °C) | lm              | 1860    | 2000    | 2140    |
| Luminous flux - 3000-lm flat lens (@ 940 mA, 55 °C) | lm              | 2790    | 3000    | 3210    |
| LED module case temperature (T <sub>c</sub> )       | °C              | 0       |         | 70      |
| CRI - 90 CRI  | 100-point scale | 90      | 92      |         |

**Notes:**

- LMH2 modules are not designed for reverse bias operation.
- Cree maintains a tolerance of ±7% on flux measurements, ±10% on power measurements, ±0.005 on chromaticity (CC<sub>x</sub>, CC<sub>y</sub>) measurements and a tolerance of ±2 on CRI measurements.
- 55 °C measured at case temperature (T<sub>c</sub>) point shown on page 20.
- Luminous flux values for the dome lens LMH2 LED module can be up to 3% higher.

\* Sunset dimming provides warm, rich light from 2700 K to 1800 K.

**LMH2 ORDER CODES - SUNSET DIMMING**

| Typical Luminous Flux (lm) | Typical Light Source Efficacy (lm/W) | CCT (K) | Order Code               |                          |
|----------------------------|--------------------------------------|---------|--------------------------|--------------------------|
|                            |                                      |         | Flat Lens                | Dome Lens                |
| 850                        | 97                                   | 2700    | LMH020-0850-27G9-00000SS | LMH020-0850-27G9-00001SS |
| 1250                       | 97                                   | 2700    | LMH020-1250-27G9-00000SS | LMH020-1250-27G9-00001SS |
| 2000                       | 89                                   | 2700    | LMH020-2000-27G9-00000SS | LMH020-2000-27G9-00001SS |
| 3000                       | 93                                   | 2700    | LMH020-3000-27G9-00000SS | LMH020-3000-27G9-00001SS |

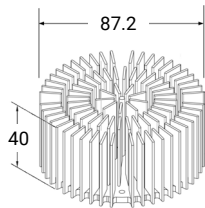
**THERMAL MANAGEMENT GUIDELINES**

The Cree LMH2 module family is designed to perform in a variety of environments without the need for active cooling. To achieve lifetime and performance estimates, and to maintain the warranty, the final luminaire design cannot allow the Tc point shown on page 20 to exceed 70 °C for the light source when the luminaire is at thermal equilibrium. Follow the mechanical and thermal design guidelines listed in the [Cree LMH2 LED Module Design Guide](#) to ensure proper thermal management. The optional heat sinks shown below are available.

Note: Refer to the LMH2 Design Guide for more information on choosing the appropriate heat sink for a given application.

**Optional Heat Sink 1<sup>1</sup>**

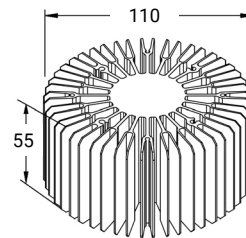
**Order code LMH020-HS00-0000-0000001**



For use with LMH2 850, 1250, 2000, 3000 & LMH2+ 1250, 2000, 3000

**Optional Heat Sink 2**

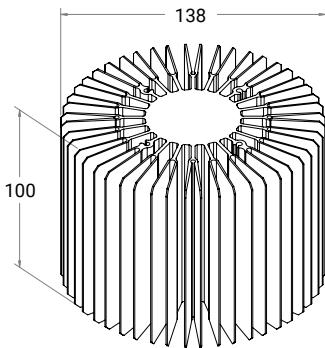
**Order code LMH020-HS00-0000-0000002**



For use with LMH2 850, 1250, 2000, 3000, 4000 & LMH2+ 1250, 2000, 3000

**Optional Heat Sink 3**

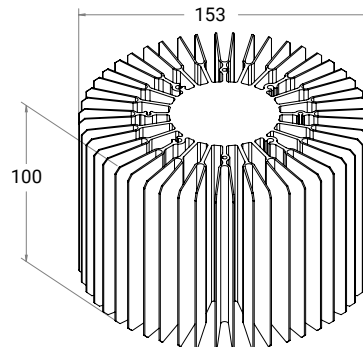
**Order code LMH020-HS00-0000-0000061**



For use with LMH2 850, 1250, 2000, 3000, 4000, 6000 & LMH2+ 1250, 2000, 3000

**Optional Heat Sink 4**

**Order code LMH020-HS00-0000-0000081**



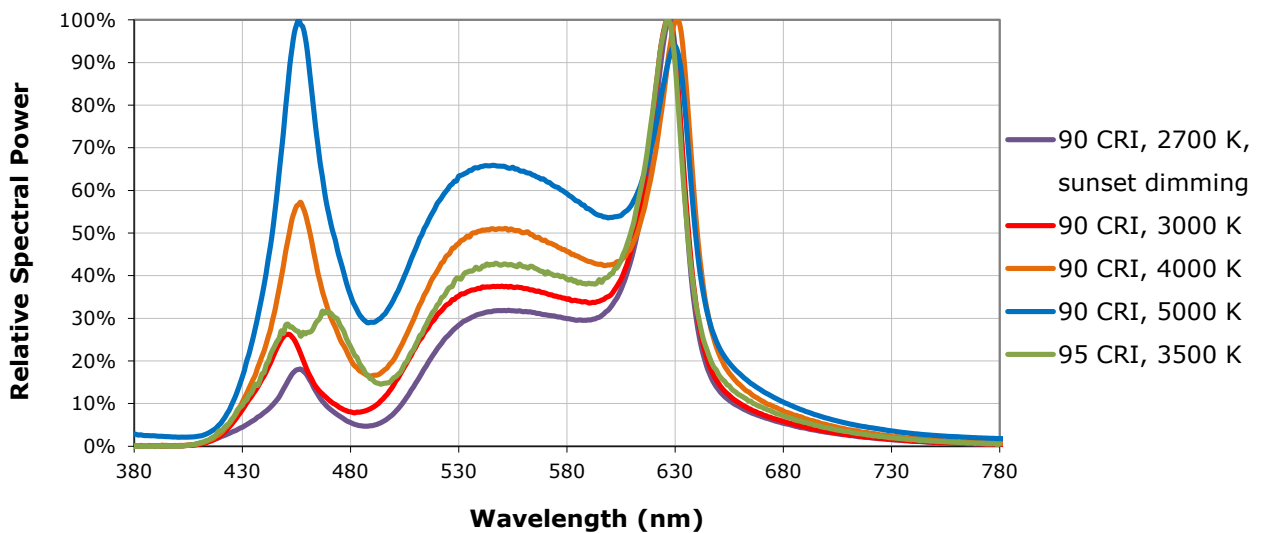
For use with LMH2 850, 1250, 2000, 3000, 4000, 6000, 8000 & LMH2+ 1250, 2000, 3000

<sup>1</sup> Dimensions for the diagrams are in mm and are for reference only. For exact dimensions and tolerances, refer to the 3-D models (.STEP file) for the optional heat sinks available by selecting the Documentation tab on the [LMH2 product page](#).

**RELATIVE SPECTRAL POWER DISTRIBUTION**

**LMH2**

Test Conditions:  $I_F = 440 \text{ mA}$ : 850 & 1250 lm WhiteLight & sunset dimming  
 $I_F = 900 \text{ mA}$ : 2000 & 3000 lm WhiteLight dimming  
 $I_F = 940 \text{ mA}$ : 2000 & 3000 lm sunset dimming  
 $I_F = 940 \text{ mA}$ : 4000 lm WhiteLight dimming  
 $I_F = 1700 \text{ mA}$ : 6000 lm WhiteLight dimming  
 $I_F = 2000 \text{ mA}$ : 8000 lm WhiteLight dimming  
 Steady-state operation





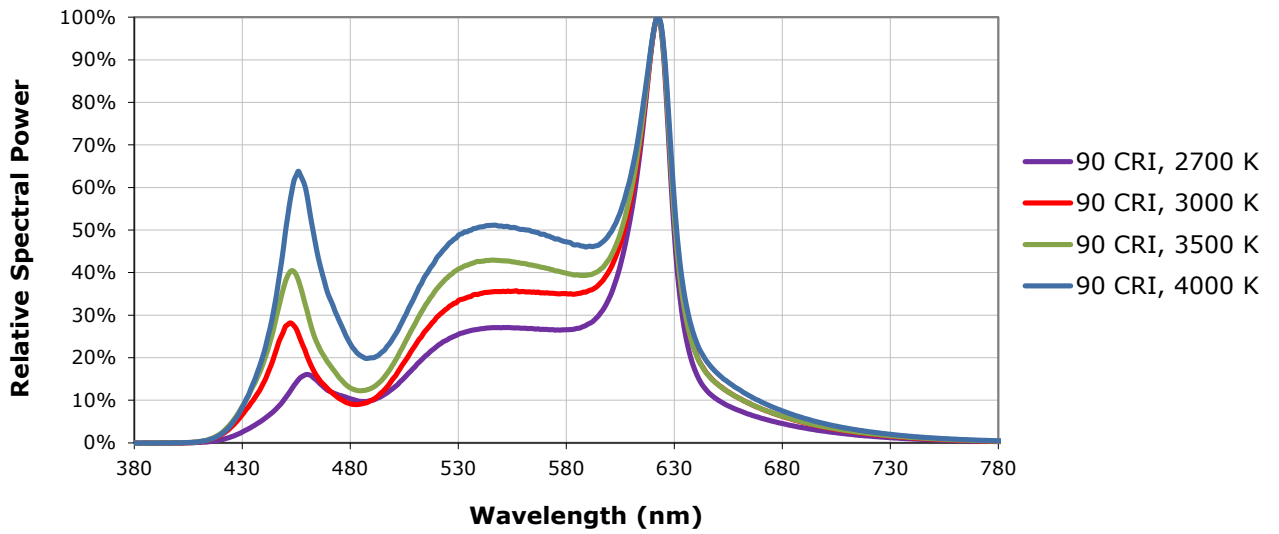
**RELATIVE SPECTRAL POWER DISTRIBUTION - CONTINUED**

**LMH2+**

Test Conditions:  $I_F = 450 \text{ mA}$ : 1250 & 2000 lm WhiteLight dimming

$I_F = 600 \text{ mA}$ : 3000 lm WhiteLight dimming

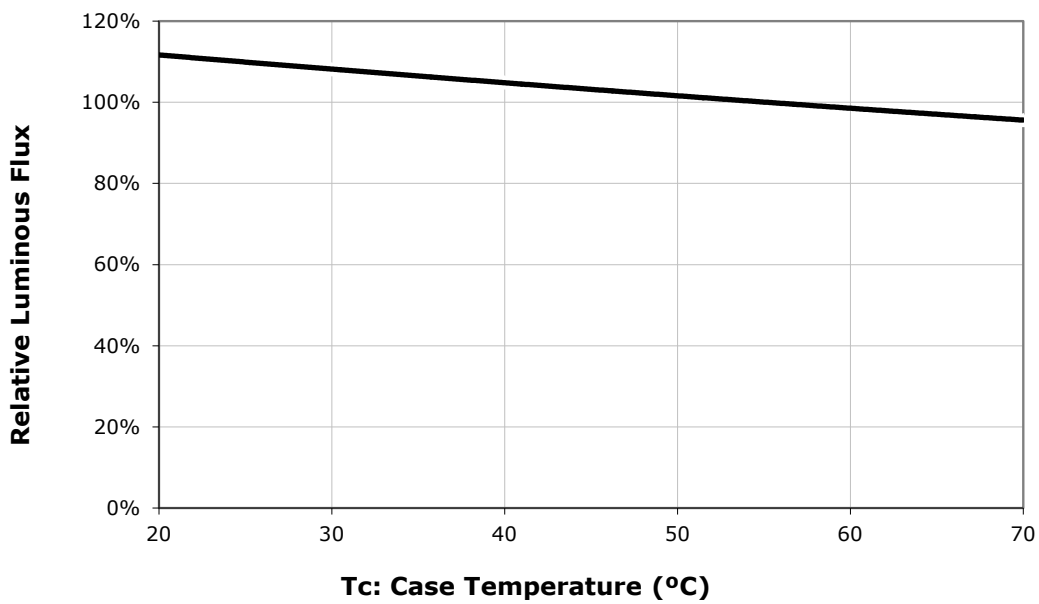
Steady-state operation



**RELATIVE LUMINOUS FLUX VS. CASE TEMPERATURE**

**LMH2**

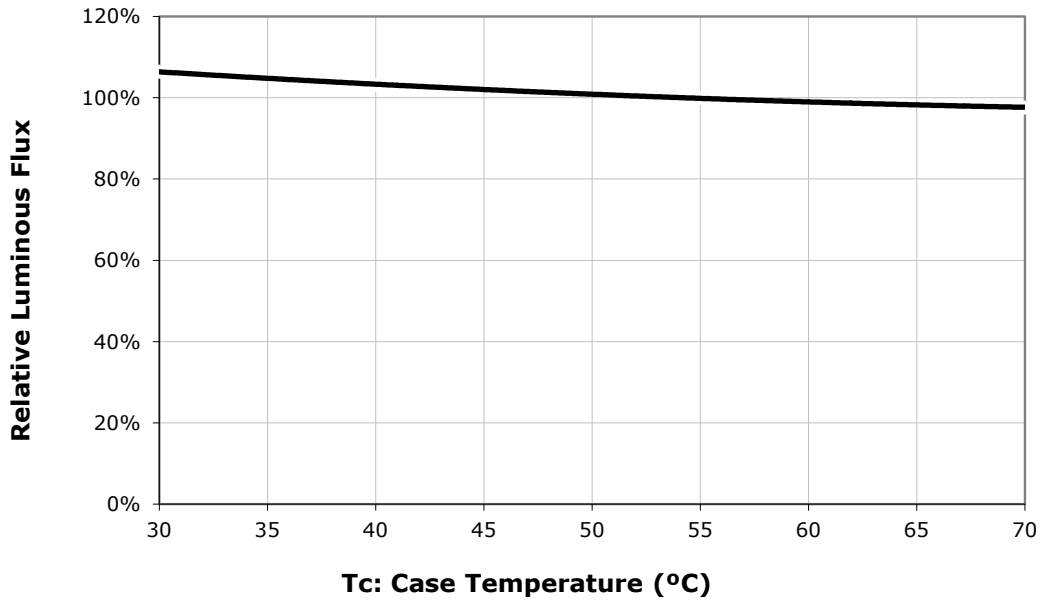
Test Conditions:  $I_F = 440 \text{ mA}$ : 850 & 1250 lm WhiteLight & sunset dimming  
 $I_F = 900 \text{ mA}$ : 2000 & 3000 lm WhiteLight dimming  
 $I_F = 940 \text{ mA}$ : 2000 & 3000 lm sunset dimming  
 $I_F = 940 \text{ mA}$ : 4000 lm WhiteLight dimming  
 $I_F = 1700 \text{ mA}$ : 6000 lm WhiteLight dimming  
 $I_F = 2000 \text{ mA}$ : 8000 lm WhiteLight dimming  
 Steady-state operation



**RELATIVE LUMINOUS FLUX VS. CASE TEMPERATURE - CONTINUED**

**LMH2+**

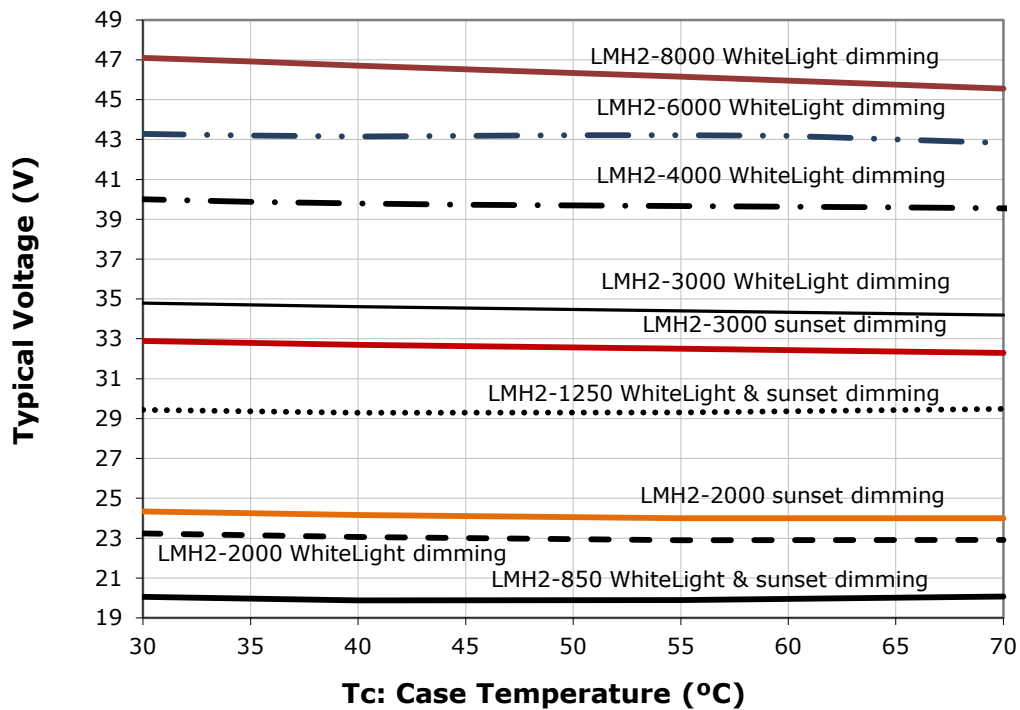
Test Conditions:  $I_F = 450 \text{ mA}$ : 1250 & 2000 lm WhiteLight dimming  
 $I_F = 600 \text{ mA}$ : 3000 lm WhiteLight dimming  
 Steady-state operation



**TYPICAL VOLTAGE VS. CASE TEMPERATURE**

**LMH2**

Test Conditions:  $I_F = 440 \text{ mA}$ : 850 & 1250 lm WhiteLight & sunset dimming  
 $I_F = 900 \text{ mA}$ : 2000 & 3000 lm WhiteLight dimming  
 $I_F = 940 \text{ mA}$ : 2000 & 3000 lm sunset dimming  
 $I_F = 940 \text{ mA}$ : 4000 lm WhiteLight dimming  
 $I_F = 1700 \text{ mA}$ : 6000 lm WhiteLight dimming  
 $I_F = 2000 \text{ mA}$ : 8000 lm WhiteLight dimming  
 Steady-state operation



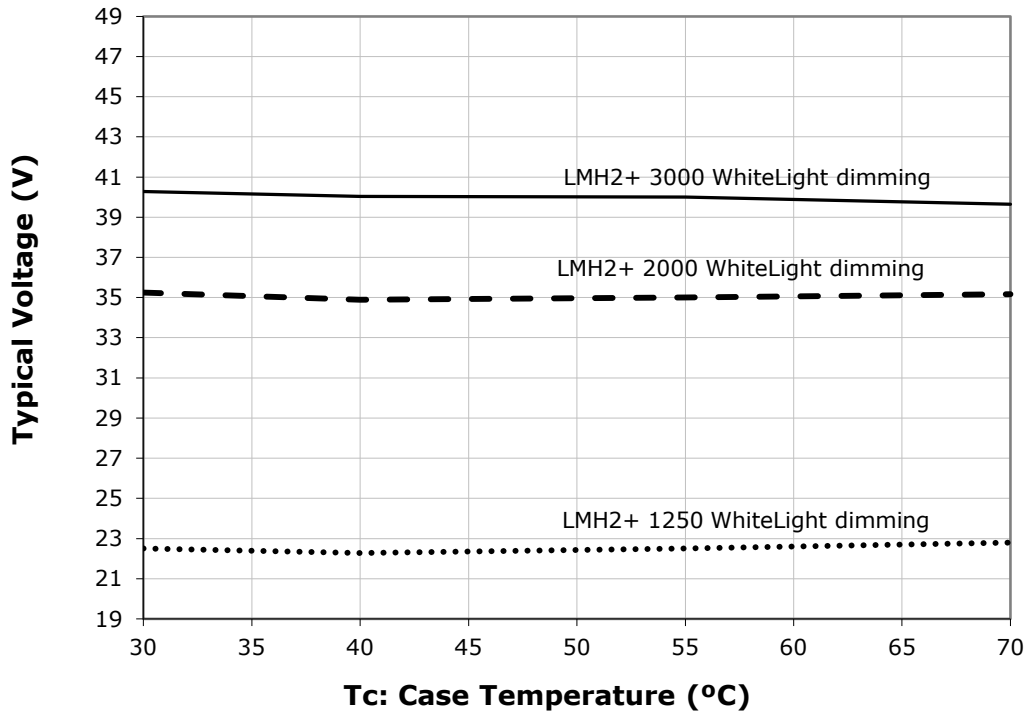
**TYPICAL VOLTAGE VS. CASE TEMPERATURE - CONTINUED**

**LMH2+**

Test Conditions:  $I_F = 450 \text{ mA}$ : 1250 & 2000 lm WhiteLight dimming

$I_F = 600 \text{ mA}$ : 3000 lm WhiteLight dimming

Steady-state operation

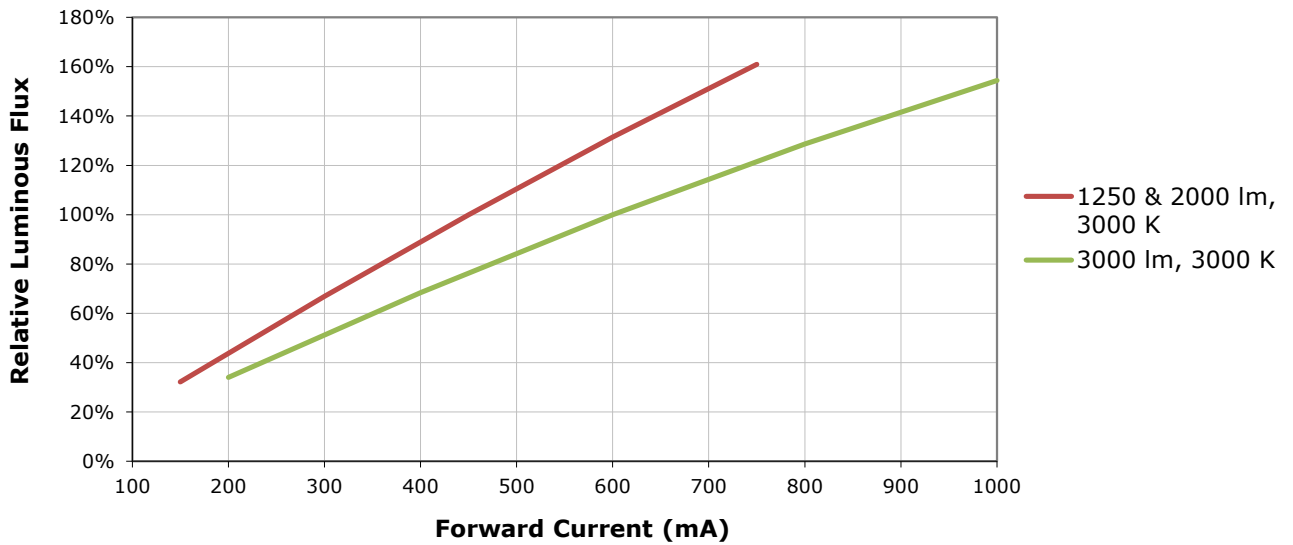


**RELATIVE LUMINOUS FLUX VS. CURRENT**

**LMH2+**

Test Conditions:  $T_c = 55\text{ }^\circ\text{C}$

Steady-state operation

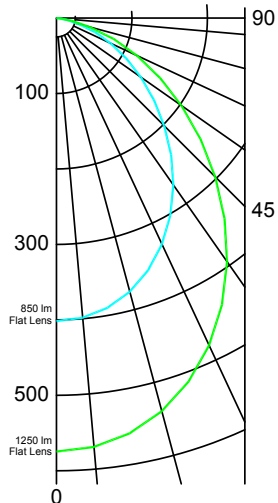


**PHOTOMETRY**

**With Flat Lens**

**Intensity (Candlepower)**

| Angle | 850 | 1250 |
|-------|-----|------|
| 0°    | 402 | 575  |
| 5°    | 399 | 571  |
| 15°   | 375 | 539  |
| 25°   | 331 | 479  |
| 35°   | 270 | 394  |
| 45°   | 202 | 297  |
| 55°   | 136 | 202  |
| 65°   | 79  | 118  |
| 75°   | 30  | 45   |
| 85°   | 3   | 5    |
| 90°   | 0   | 0    |



**Zonal Lumens - 850**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 295    | 34  |
| 0-40°  | 464    | 54  |
| 0-60°  | 742    | 87  |
| 0-90°  | 858    | 100 |
| 0-180° | 858    | 100 |

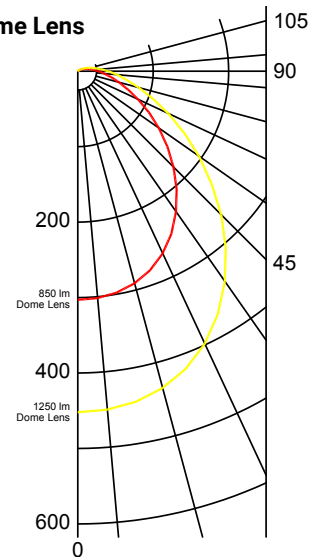
**Zonal Lumens - 1250**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 426    | 34  |
| 0-40°  | 672    | 54  |
| 0-60°  | 1082   | 86  |
| 0-90°  | 1256   | 100 |
| 0-180° | 1256   | 100 |

**With Dome Lens**

**Intensity (Candlepower)**

| Angle | 850 | 1250 |
|-------|-----|------|
| 0°    | 309 | 461  |
| 5°    | 307 | 457  |
| 15°   | 297 | 442  |
| 25°   | 272 | 405  |
| 35°   | 229 | 339  |
| 45°   | 177 | 262  |
| 55°   | 126 | 187  |
| 65°   | 84  | 124  |
| 75°   | 53  | 78   |
| 85°   | 34  | 50   |
| 90°   | 27  | 39   |



**Zonal Lumens - 850**

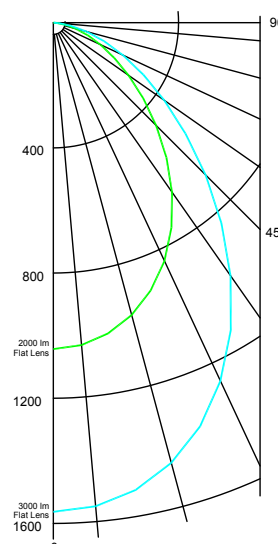
| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 233    | 27  |
| 0-40°  | 375    | 44  |
| 0-60°  | 631    | 73  |
| 0-90°  | 818    | 95  |
| 0-180° | 862    | 100 |

**Zonal Lumens - 1250**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 349    | 27  |
| 0-40°  | 561    | 44  |
| 0-60°  | 945    | 73  |
| 0-90°  | 1224   | 95  |
| 0-180° | 1289   | 100 |

**Intensity (Candlepower)**

| Angle | 2000 | 3000 |
|-------|------|------|
| 0°    | 1043 | 1563 |
| 5°    | 1034 | 1551 |
| 15°   | 967  | 1456 |
| 25°   | 840  | 1263 |
| 35°   | 661  | 987  |
| 45°   | 464  | 688  |
| 55°   | 293  | 433  |
| 65°   | 166  | 245  |
| 75°   | 73   | 110  |
| 85°   | 11   | 17   |
| 90°   | 0    | 0    |



**Zonal Lumens - 2000**

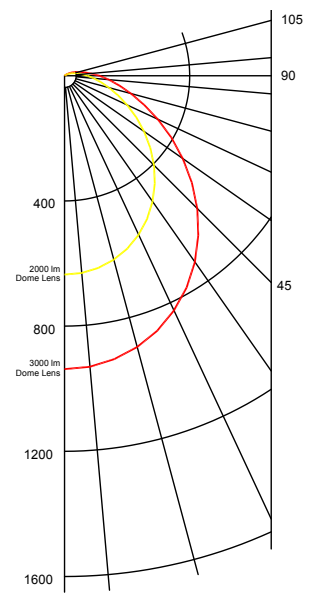
| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 755    | 37  |
| 0-40°  | 1168   | 57  |
| 0-60°  | 1790   | 87  |
| 0-90°  | 2049   | 100 |
| 0-180° | 2049   | 100 |

**Zonal Lumens - 3000**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 1136   | 37  |
| 0-40°  | 1752   | 57  |
| 0-60°  | 2673   | 87  |
| 0-90°  | 3058   | 100 |
| 0-180° | 3058   | 100 |

**Intensity (Candlepower)**

| Angle | 2000 | 3000 |
|-------|------|------|
| 0°    | 683  | 1008 |
| 5°    | 680  | 1003 |
| 15°   | 654  | 965  |
| 25°   | 603  | 890  |
| 35°   | 527  | 781  |
| 45°   | 435  | 645  |
| 55°   | 334  | 496  |
| 65°   | 237  | 354  |
| 75°   | 158  | 236  |
| 85°   | 101  | 153  |
| 90°   | 79   | 120  |



**Zonal Lumens - 2000**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 527    | 25  |
| 0-40°  | 856    | 40  |
| 0-60°  | 1490   | 70  |
| 0-90°  | 2006   | 94  |
| 0-180° | 2129   | 100 |

**Zonal Lumens - 3000**

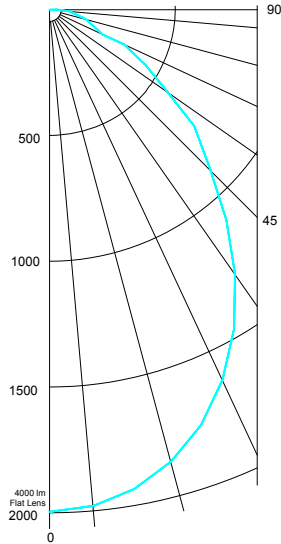
| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 777    | 25  |
| 0-40°  | 1266   | 40  |
| 0-60°  | 2207   | 70  |
| 0-90°  | 2977   | 94  |
| 0-180° | 3165   | 100 |

PHOTOMETRY - CONTINUED

**With Flat Lens**

**Intensity  
(Candlepower)**

| Angle | 4000 |
|-------|------|
| 0°    | 1996 |
| 5°    | 1981 |
| 15°   | 1861 |
| 25°   | 1626 |
| 35°   | 1286 |
| 45°   | 907  |
| 55°   | 575  |
| 65°   | 329  |
| 75°   | 151  |
| 85°   | 29   |
| 90°   | 0    |

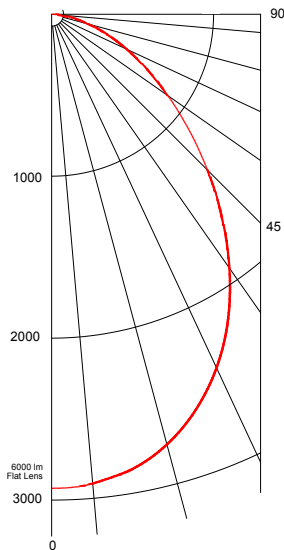


**Zonal Lumens - 4000**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 1457   | 36  |
| 0-40°  | 2260   | 56  |
| 0-60°  | 3477   | 87  |
| 0-90°  | 4004   | 100 |
| 0-180° | 4004   | 100 |

**Intensity  
(Candlepower)**

| Angle | 6000 |
|-------|------|
| 0°    | 2927 |
| 5°    | 2909 |
| 15°   | 2750 |
| 25°   | 2409 |
| 35°   | 1914 |
| 45°   | 1361 |
| 55°   | 877  |
| 65°   | 512  |
| 75°   | 237  |
| 85°   | 42   |
| 90°   | 0    |



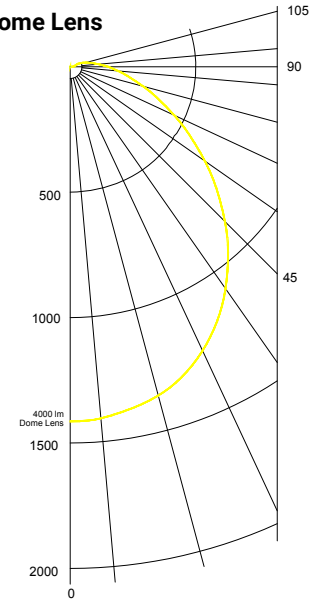
**Zonal Lumens - 6000**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 2155   | 36  |
| 0-40°  | 3349   | 56  |
| 0-60°  | 5189   | 86  |
| 0-90°  | 6008   | 100 |
| 0-180° | 6008   | 100 |

**With Dome Lens**

**Intensity  
(Candlepower)**

| Angle | 4000 |
|-------|------|
| 0°    | 1414 |
| 5°    | 1407 |
| 15°   | 1357 |
| 25°   | 1249 |
| 35°   | 1080 |
| 45°   | 873  |
| 55°   | 656  |
| 65°   | 458  |
| 75°   | 301  |
| 85°   | 192  |
| 90°   | 151  |

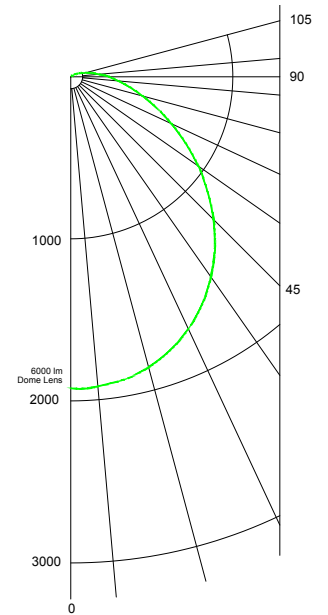


**Zonal Lumens - 4000**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 785    | 18  |
| 0-40°  | 1422   | 33  |
| 0-60°  | 2751   | 64  |
| 0-90°  | 4030   | 94  |
| 0-180° | 4275   | 100 |

**Intensity  
(Candlepower)**

| Angle | 6000 |
|-------|------|
| 0°    | 1925 |
| 5°    | 1919 |
| 15°   | 1856 |
| 25°   | 1717 |
| 35°   | 1508 |
| 45°   | 1247 |
| 55°   | 961  |
| 65°   | 688  |
| 75°   | 462  |
| 85°   | 299  |
| 90°   | 237  |



**Zonal Lumens - 6000**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 1497   | 24  |
| 0-40°  | 2440   | 40  |
| 0-60°  | 4262   | 70  |
| 0-90°  | 5766   | 94  |
| 0-180° | 6127   | 100 |

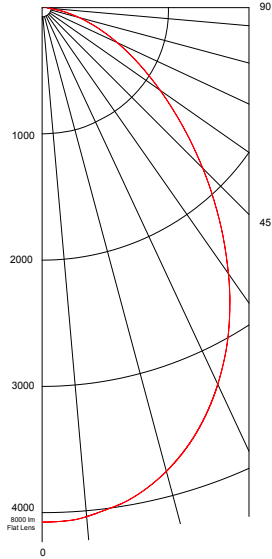


PHOTOMETRY - CONTINUED

**With Flat Lens**

**Intensity  
(Candlepower)**

| Angle | 8000 |
|-------|------|
| 0°    | 4075 |
| 5°    | 4047 |
| 15°   | 3802 |
| 25°   | 3292 |
| 35°   | 2573 |
| 45°   | 1800 |
| 55°   | 1141 |
| 65°   | 658  |
| 75°   | 304  |
| 85°   | 56   |
| 90°   | 4    |

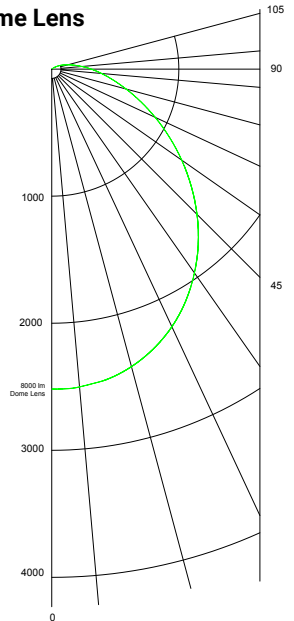


**Zonal Lumens - 8000**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 2963   | 37  |
| 0-40°  | 4569   | 57  |
| 0-60°  | 6986   | 87  |
| 0-90°  | 8041   | 100 |
| 0-180° | 8041   | 100 |

**Intensity  
(Candlepower)**

| Angle | 8000 |
|-------|------|
| 0°    | 2518 |
| 5°    | 2511 |
| 15°   | 2424 |
| 25°   | 2237 |
| 35°   | 1958 |
| 45°   | 1617 |
| 55°   | 1249 |
| 65°   | 899  |
| 75°   | 607  |
| 85°   | 394  |
| 90°   | 313  |



**Zonal Lumens - 8000**

| Zone   | Lumens | %   |
|--------|--------|-----|
| 0-30°  | 1953   | 24  |
| 0-40°  | 3177   | 40  |
| 0-60°  | 5543   | 69  |
| 0-90°  | 7514   | 94  |
| 0-180° | 8005   | 100 |

**PERFORMANCE GROUPS - CHROMATICITY**

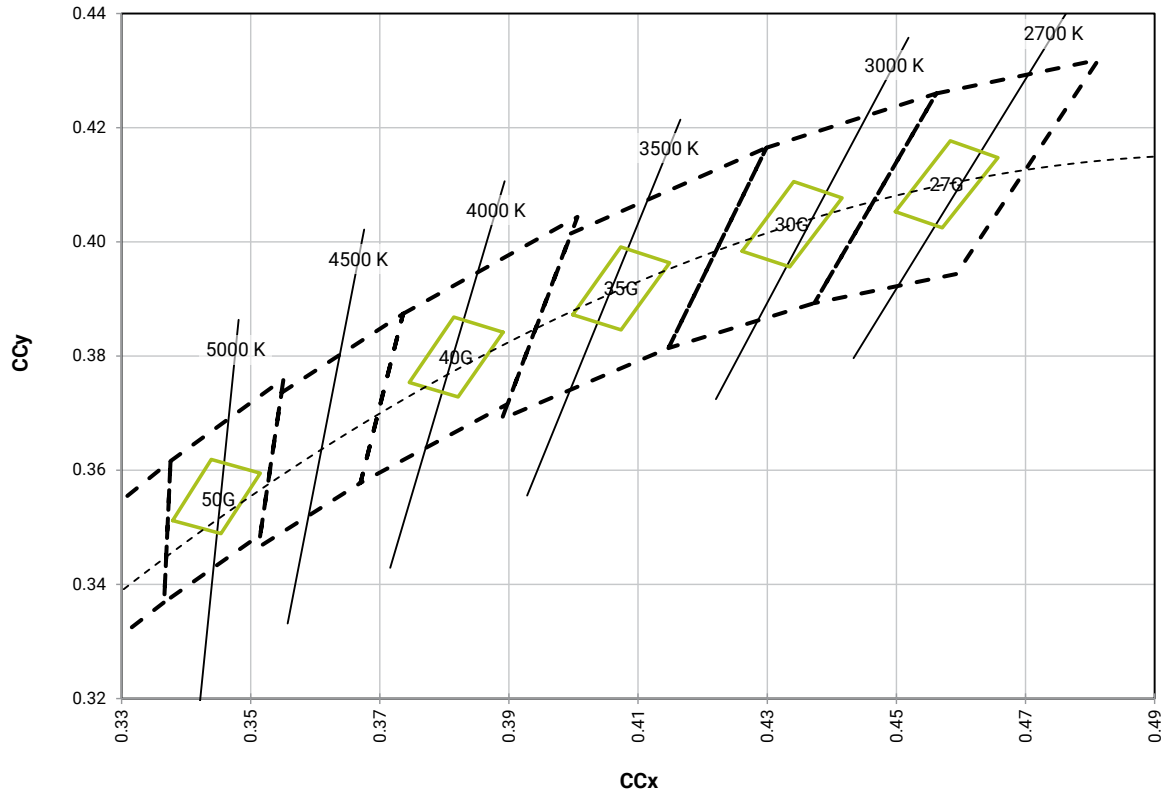
LMH2 test conditions:  $I_F = 440 \text{ mA}$ : 850 & 1250 lm WhiteLight & sunset dimming  
 $I_F = 900 \text{ mA}$ : 2000 & 3000 lm WhiteLight dimming  
 $I_F = 940 \text{ mA}$ : 2000 & 3000 lm sunset dimming  
 $I_F = 940 \text{ mA}$ : 4000 lm WhiteLight dimming  
 $I_F = 1700 \text{ mA}$ : 6000 lm WhiteLight dimming  
 $I_F = 2000 \text{ mA}$ : 8000 lm WhiteLight dimming  
 Steady-state operation

LMH2+ test conditions:  $I_F = 450 \text{ mA}$ : 1250 & 2000 lm WhiteLight dimming  
 $I_F = 600 \text{ mA}$ : 3000 lm WhiteLight dimming  
 Steady-state operation

LMH2 family modules are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates. LMH2 family modules will remain within their target ANSI C78.377A bin at full-on operation as long as the operating limits listed in the Characteristics sections on page 2, page 4 and page 6 are followed.

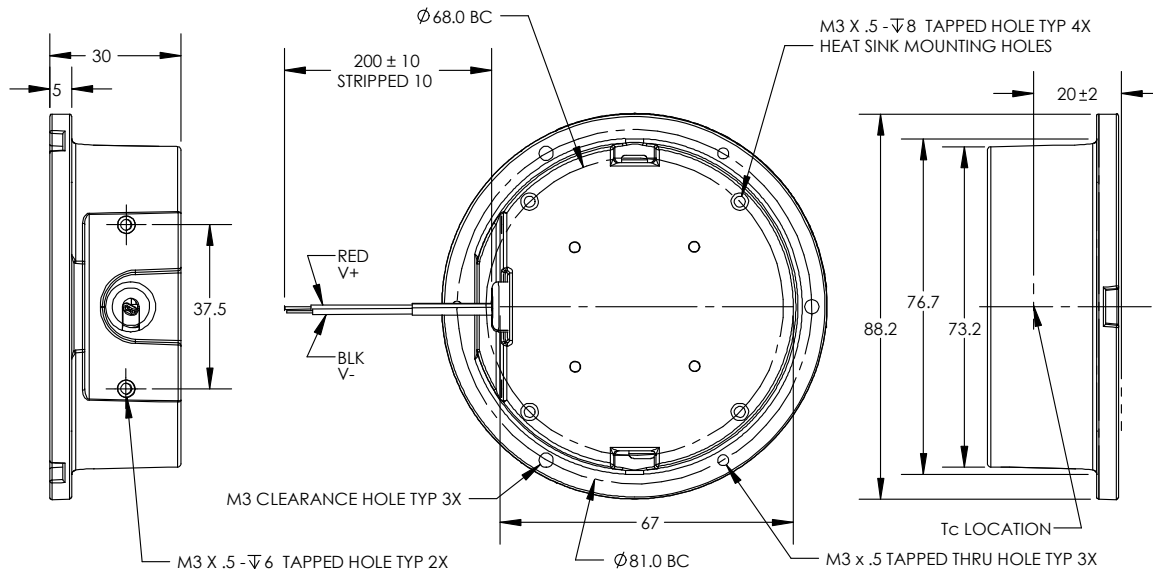
| Code | ccx    | ccy    |
|------|--------|--------|
| 27G  | 0.4499 | 0.4053 |
|      | 0.4584 | 0.4177 |
|      | 0.4657 | 0.4148 |
|      | 0.4571 | 0.4025 |
| 30G  | 0.4261 | 0.3984 |
|      | 0.4341 | 0.4106 |
|      | 0.4416 | 0.4077 |
|      | 0.4335 | 0.3956 |
| 35G  | 0.3999 | 0.3872 |
|      | 0.4073 | 0.3991 |
|      | 0.4149 | 0.3963 |
|      | 0.4073 | 0.3846 |
| 40G  | 0.3891 | 0.3842 |
|      | 0.3814 | 0.3868 |
|      | 0.3746 | 0.3754 |
|      | 0.3821 | 0.3729 |
| 50G  | 0.3379 | 0.3512 |
|      | 0.3439 | 0.3619 |
|      | 0.3515 | 0.3595 |
|      | 0.3454 | 0.3489 |

**CHROMATICITY BINS PLOTTED ON THE 1931 CIE COLOR SPACE**

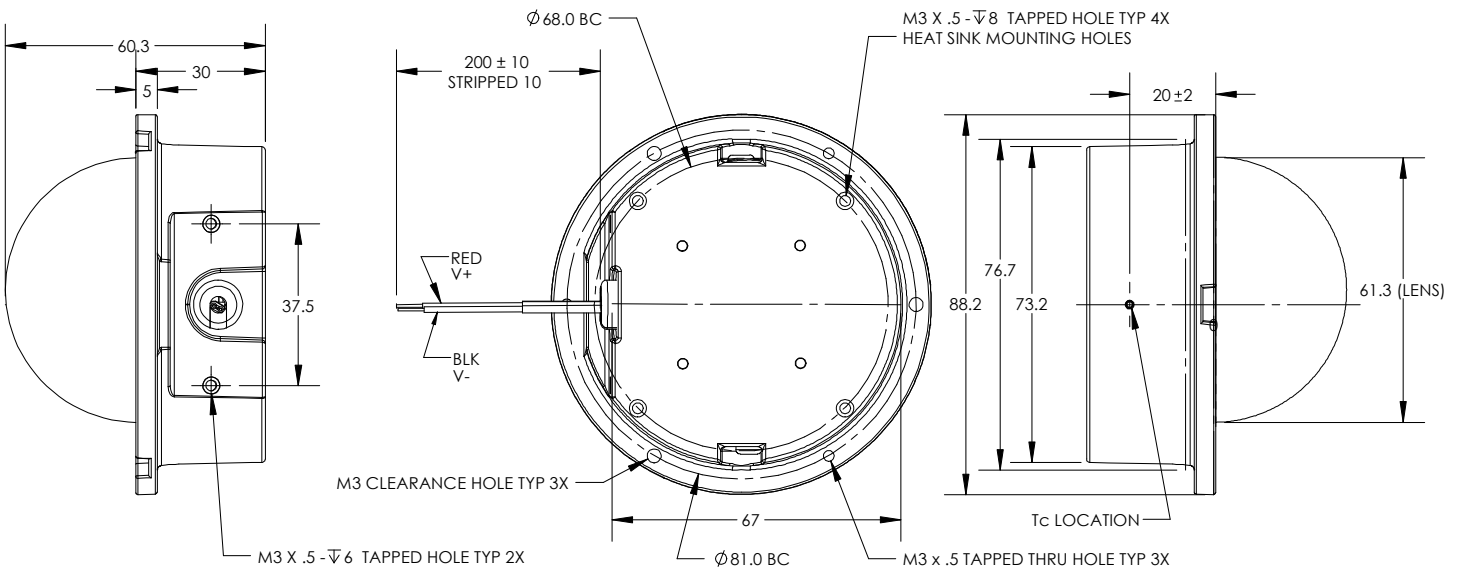


**MECHANICAL DIMENSIONS<sup>2</sup>**

**LMH2 Family Light Source (Flat Lens)**



**LMH2 Family Light Source (Dome Lens)**



<sup>2</sup> Dimensions for the diagrams are in mm and are for reference only. For exact dimensions and tolerances, refer to the 3-D models (.STEP files) for the LMH2 light sources available by selecting the Documentation tab on the [LMH2 product page](#).

**NOTES**

**RoHS Compliance**

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented January 2, 2013. RoHS Declarations for this product can be obtained from your Cree representative or from the Product Documentation sections of [www.cree.com](http://www.cree.com).

**ENERGY STAR®**

The 850- and 1250-lm versions of the LMH2 module are listed in the ENERGY STAR® [Certified Lighting Subcomponent Database \(CSD\)](#).

**Vision Advisory**

Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye. For more information about LEDs and eye safety, please refer to the [LED Eye Safety application note](#).

**PACKAGING**

LMH2 family light sources are packaged in boxes of 10, which are then combined in cartons of 5 boxes, or 50 LMH2 family light sources. Box and carton sizes are as follows.

Box of 10 LMH2 family light sources: 320 x 280 x 115 mm

Carton of 5 LMH2 family boxes: 600 x 300 x 350 mm

Optional heat sinks are packaged in boxes of 10. Each box also includes 40 screws. Boxes are combined in cartons as shown below. Box and carton sizes are as follows.

| Heat Sink            | Part Number            | Box Size (mm)   | Carton Size (mm)                                     |
|----------------------|------------------------|-----------------|--|
| Optional Heat Sink 1 | LMH020-HS00-000-000001 | 450 x 95 x 95   | Carton of 5 boxes, or 50 heat sinks: 500 x 460 x 115 |
| Optional Heat Sink 2 | LMH020-HS00-000-000002 | 600 x 120 x 120 | Carton of 2 boxes, or 20 heat sinks: 620 x 260 x 150 |
| Optional Heat Sink 3 | LMH020-HS00-000-000061 | 750 x 296 x 120 | No carton used                                       |
| Optional Heat Sink 4 | LMH020-HS00-000-000081 | 872 x 208 x 120 | No carton used                                       |