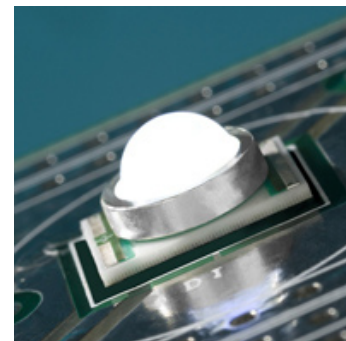


# Cree® XLamp® XR-E and XR-C LED Binning and Labeling

## Introduction

---

This document describes the product nomenclature required to select and order Cree’s XLamp XR-E and XR-C LEDs. XLamp XR-E and XR-C LEDs are tested and sorted into bins which are then combined into orderable kits identified by an order code.



All XLamp LEDs are tested and sorted by color and brightness into a unique bin. Each bin contains LEDs from only one color and brightness group and is uniquely identified by a bin code. White XLamp LEDs are sorted by chromaticity (color) and luminous flux (brightness). Color XLamp LEDs are sorted by dominant wavelength (color) and luminous flux (brightness), or in the case of royal blue, radiant flux (brightness). Amber, red-orange and red LEDs are additionally binned into forward voltage bins. LEDs are shipped on reels containing LEDs from one bin and are always labeled with the appropriate bin code.

Kits contain LEDs from a number of similar bins and are fully defined by their order codes. A full explanation of the order codes for each family, as well as a list of standard order codes, is provided in this document.

## Table of Contents

---

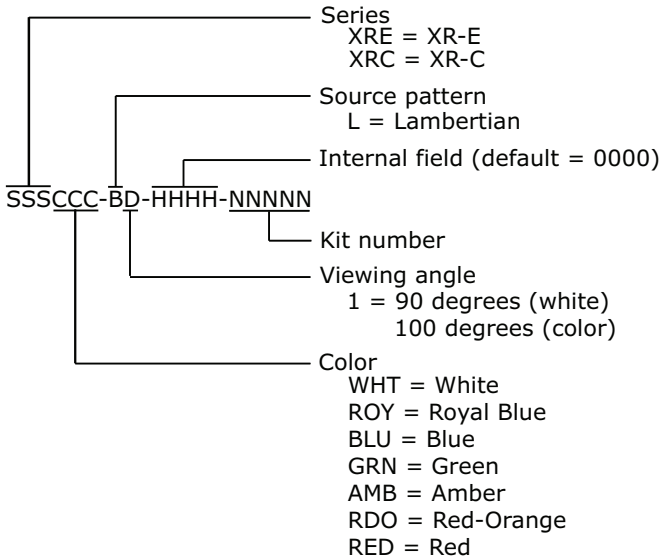
|  |    |
|--|----|
| Bin and Order-Code Format .....  | 2  |
| Performance Groups – Brightness .....                                    | 3  |
| Performance Groups – Chromaticity .....                                  | 4  |
| Performance Groups – Dominant Wavelength .....                           | 6  |
| Performance Groups – Forward Voltage .....                               | 6  |
| Cree’s Standard Chromaticity Regions Plotted on the 1931 CIE Curve ..... | 7  |
| Standard Order Codes and Bins (XR-C Cool White).....                     | 8  |
| Standard Order Codes and Bins (XR-C Neutral and Warm White).....         | 9  |
| Standard Order Codes and Bins (XR-C Color) .....                         | 10 |
| Standard Order Codes and Bins (XR-E Cool White).....                     | 11 |
| Standard Order Codes and Bins (XR-E Neutral White).....                  | 12 |
| Standard Order Codes and Bins (XR-E Warm White).....                     | 13 |
| Standard Order Codes and Bins (XR-E Color).....                          | 14 |

Application Note: CLD-AP12.005

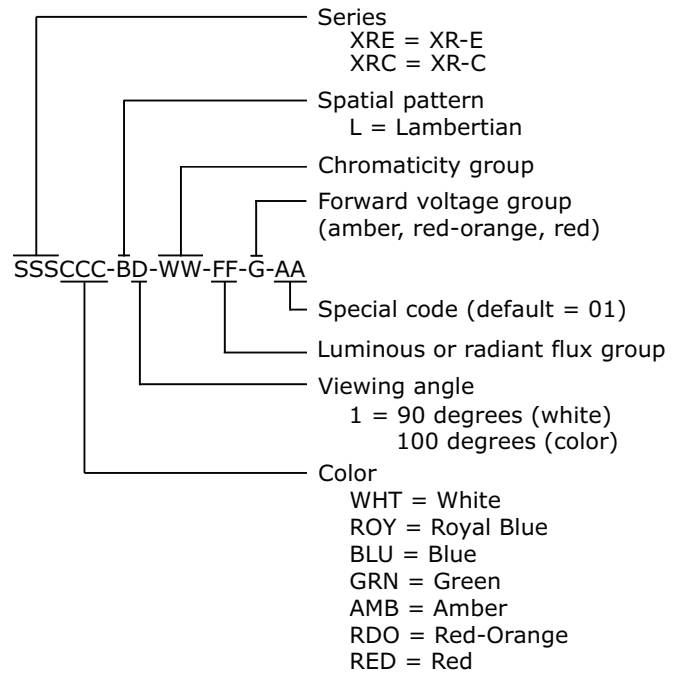
## Bin and Order-Code Format

Bin codes and order codes are configured in the following manner:

### Order Code



### Bin Code



## Performance Groups – Brightness

White XLamp LEDs are tested for luminous flux and placed into one of the following luminous-flux groups:

| Group Code | Min. Luminous Flux @ 350 mA (lm) | Max. Luminous Flux @ 350 mA (lm) |
|------------|----------------------------------|----------------------------------|
| M2         | 39.8                             | 45.7                             |
| M3         | 45.7                             | 51.7                             |
| N2         | 51.7                             | 56.8                             |
| N3         | 56.8                             | 62.0                             |
| N4         | 62.0                             | 67.2                             |
| P2         | 67.2                             | 73.9                             |
| P3         | 73.9                             | 80.6                             |
| P4         | 80.6                             | 87.4                             |
| Q2         | 87.4                             | 93.9                             |
| Q3         | 93.9                             | 100                              |
| Q4         | 100                              | 107                              |
| Q5         | 107                              | 114                              |

Color XLamp LEDs (except royal blue) are tested for luminous flux and placed into one of the following luminous-flux groups:

| Group | Min. Luminous Flux @ 350 mA (lm) | Max. Luminous Flux @ 350 mA (lm) |
|-------|----------------------------------|----------------------------------|
| G     | 13.9                             | 18.1                             |
| H     | 18.1                             | 23.5                             |
| J     | 23.5                             | 30.6                             |
| K     | 30.6                             | 39.8                             |
| M     | 39.8                             | 51.7                             |
| N     | 51.7                             | 67.2                             |
| P     | 67.2                             | 87.4                             |
| Q     | 87.4                             | 114                              |

Royal blue XLamp LEDs are tested for radiant flux and placed into one of the following radiant-flux groups:

| Group | Min. Radiant Flux (mW) @ 350 mA | Max. Radiant Flux (mW) @ 350 mA |
|-------|---------------------------------|---------------------------------|
| 12    | 250                             | 300                             |
| 13    | 300                             | 350                             |
| 14    | 350                             | 425                             |
| 15    | 425                             | 500                             |
| 16    | 500                             | 600                             |

## Performance Groups – Chromaticity

White XLamp LEDs are tested for chromaticity and placed into one of the regions defined by the bounding coordinates below.

White Chromaticity Region Bounding Coordinates

| Region | x    | y    | Region | x    | y    |
|--------|------|------|--------|------|------|
| WK     | .283 | .284 | WF     | .314 | .355 |
|        | .295 | .297 |        | .316 | .332 |
|        | .298 | .288 |        | .306 | .322 |
|        | .287 | .276 |        | .301 | .342 |
| WA     | .292 | .306 | WP     | .317 | .319 |
|        | .295 | .297 |        | .329 | .330 |
|        | .283 | .284 |        | .329 | .318 |
|        | .279 | .291 |        | .318 | .308 |
| WM     | .295 | .297 | WD     | .329 | .345 |
|        | .308 | .311 |        | .329 | .330 |
|        | .310 | .300 |        | .317 | .319 |
|        | .298 | .288 |        | .316 | .332 |
| WB     | .306 | .322 | WG     | .329 | .369 |
|        | .308 | .311 |        | .329 | .345 |
|        | .295 | .297 |        | .316 | .332 |
|        | .292 | .306 |        | .314 | .355 |
| WE     | .301 | .342 | WJ     | .329 | .330 |
|        | .306 | .322 |        | .329 | .345 |
|        | .292 | .306 |        | .346 | .359 |
|        | .287 | .321 |        | .344 | .342 |
| WN     | .308 | .311 | WH     | .348 | .384 |
|        | .317 | .319 |        | .346 | .359 |
|        | .318 | .308 |        | .329 | .345 |
|        | .310 | .300 |        | .329 | .369 |
| WC     | .316 | .332 |        |      |      |
|        | .317 | .319 |        |      |      |
|        | .308 | .311 |        |      |      |
|        | .306 | .322 |        |      |      |

## Performance Groups – Chromaticity (continued)

| Region | x     | y     | Region | x     | y     | Region | x     | y     | Region | x     | y     |
|--------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|
| 3A     | .3371 | .3490 | 3B     | .3376 | .3616 | 3C     | .3463 | .3687 | 3D     | .3451 | .3554 |
|        | .3451 | .3554 |        | .3463 | .3687 |        | .3551 | .3760 |        | .3533 | .3620 |
|        | .3440 | .3428 |        | .3451 | .3554 |        | .3533 | .3620 |        | .3515 | .3487 |
|        | .3366 | .3369 |        | .3371 | .3490 |        | .3451 | .3554 |        | .3440 | .3428 |
| 4A     | .3512 | .3465 | 4B     | .3529 | .3597 | 4C     | .3615 | .3659 | 4D     | .3590 | .3521 |
|        | .3529 | .3597 |        | .3548 | .3736 |        | .3641 | .3804 |        | .3615 | .3659 |
|        | .3615 | .3659 |        | .3641 | .3804 |        | .3736 | .3874 |        | .3702 | .3722 |
|        | .3590 | .3521 |        | .3615 | .3659 |        | .3702 | .3722 |        | .3670 | .3578 |
| 5A     | .3670 | .3578 | 5B     | .3702 | .3722 | 5C     | .3825 | .3798 | 5D     | .3783 | .3646 |
|        | .3702 | .3722 |        | .3736 | .3874 |        | .3869 | .3958 |        | .3825 | .3798 |
|        | .3825 | .3798 |        | .3869 | .3958 |        | .4006 | .4044 |        | .3950 | .3875 |
|        | .3783 | .3646 |        | .3825 | .3798 |        | .3950 | .3875 |        | .3898 | .3716 |
| 6A     | .3889 | .3690 | 6B     | .3941 | .3848 | 6C     | .4080 | .3916 | 6D     | .4017 | .3751 |
|        | .3941 | .3848 |        | .3996 | .4015 |        | .4146 | .4089 |        | .4080 | .3916 |
|        | .4080 | .3916 |        | .4146 | .4089 |        | .4299 | .4165 |        | .4221 | .3984 |
|        | .4017 | .3751 |        | .4080 | .3916 |        | .4221 | .3984 |        | .4147 | .3814 |
| 7A     | .4147 | .3814 | 7B     | .4221 | .3984 | 7C     | .4342 | .4028 | 7D     | .4259 | .3853 |
|        | .4221 | .3984 |        | .4299 | .4165 |        | .4430 | .4212 |        | .4342 | .4028 |
|        | .4342 | .4028 |        | .4430 | .4212 |        | .4562 | .4260 |        | .4465 | .4071 |
|        | .4259 | .3853 |        | .4342 | .4028 |        | .4465 | .4071 |        | .4373 | .3893 |
| 8A     | .4373 | .3893 | 8B     | .4465 | .4071 | 8C     | .4582 | .4099 | 8D     | .4483 | .3919 |
|        | .4465 | .4071 |        | .4562 | .4260 |        | .4687 | .4289 |        | .4582 | .4099 |
|        | .4582 | .4099 |        | .4687 | .4289 |        | .4813 | .4319 |        | .4700 | .4126 |
|        | .4483 | .3919 |        | .4582 | .4099 |        | .4700 | .4126 |        | .4593 | .3944 |

## Performance Groups – Dominant Wavelength

Color XLamp LEDs are tested for dominant wavelength (DWL) and placed into one of the DWL groups defined below.

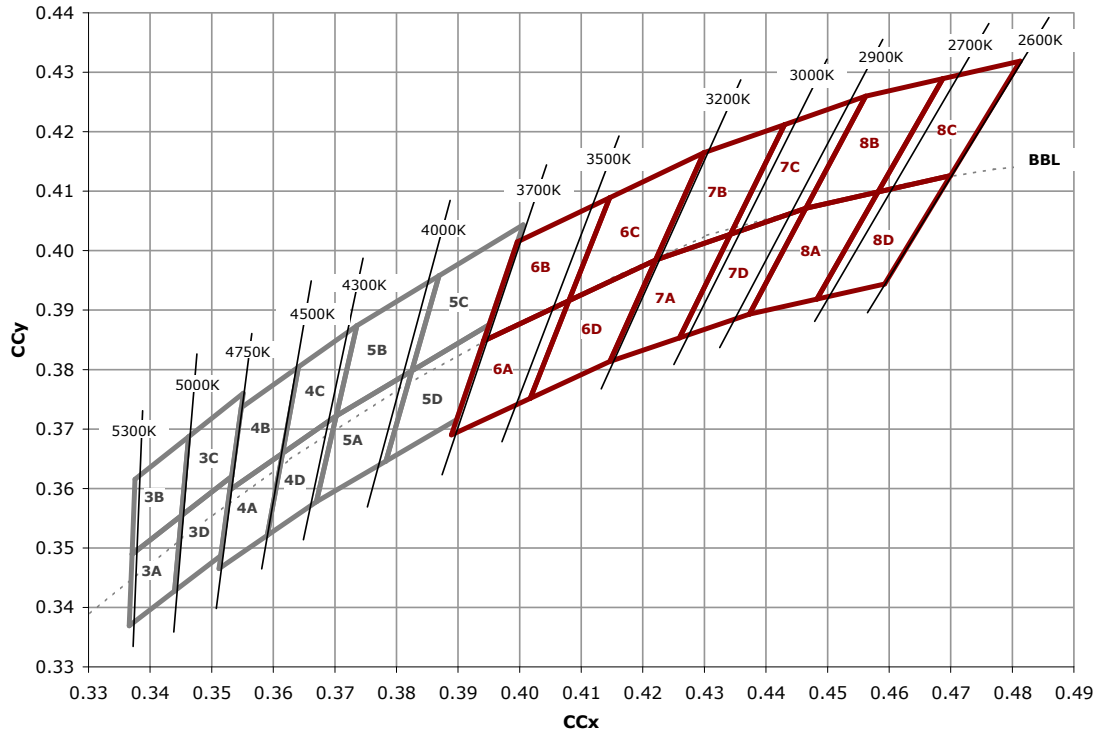
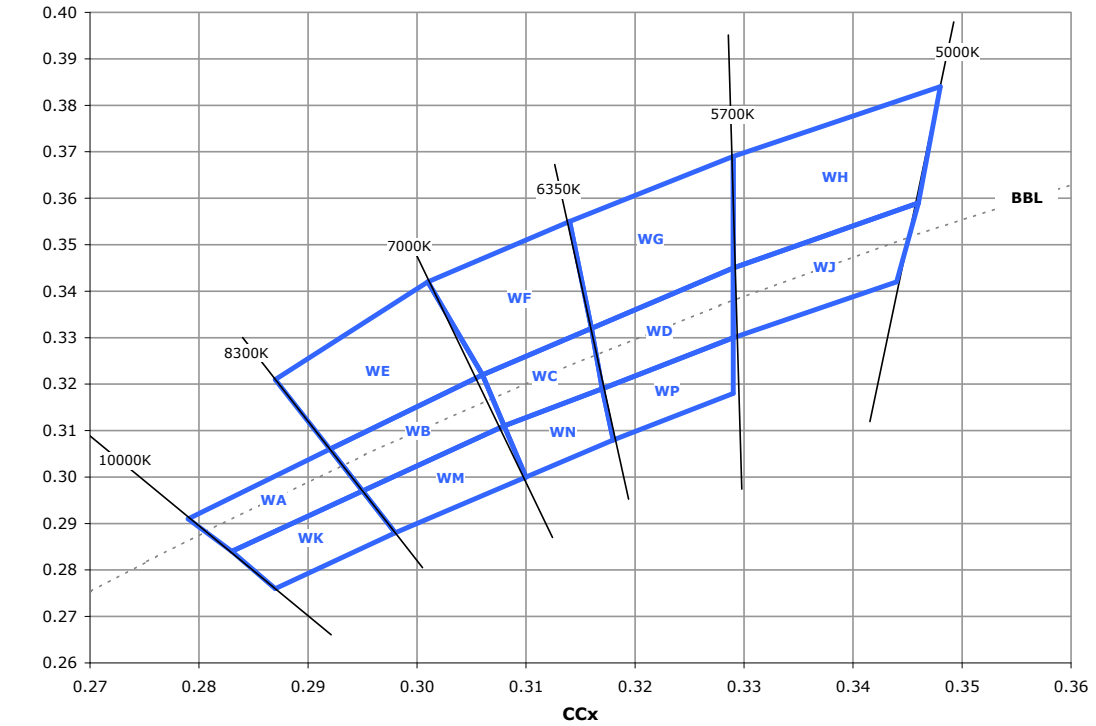
| Color      | DWL Group | Min. DWL (nm)<br>@ 350 mA | Max. DWL (nm)<br>@ 350 mA |
|------------|-----------|---------------------------|---------------------------|
| Royal Blue | D3        | 450                       | 455                       |
|            | D4        | 455                       | 460                       |
|            | D5        | 460                       | 465                       |
| Blue       | B3        | 465                       | 470                       |
|            | B4        | 470                       | 475                       |
|            | B5        | 475                       | 480                       |
|            | B6        | 480                       | 485                       |
| Green      | G2        | 520                       | 525                       |
|            | G3        | 525                       | 530                       |
|            | G4        | 530                       | 535                       |
| Amber      | A2        | 585                       | 590                       |
|            | A3        | 590                       | 595                       |
| Red-Orange | O3        | 610                       | 615                       |
|            | O4        | 615                       | 620                       |
| Red        | R2        | 620                       | 625                       |
|            | R3        | 625                       | 630                       |

## Performance Groups – Forward Voltage

Amber, red-orange and red XLamp LEDs are tested for forward voltage and placed into one of the forward voltage groups defined below.

| Forward Voltage Group | Min. Forward Voltage<br>@ 350 mA | Max. Forward Voltage<br>@ 350 mA |
|-----------------------|----------------------------------|----------------------------------|
| C                     | 2.0                              | 2.25                             |
| D                     | 2.25                             | 2.5                              |

## Cree's Standard Chromaticity Regions Plotted on the 1931 CIE Curve



## Standard Order Codes and Bins (XR-C Cool White)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

| XLamp XR-C LED Standard Order Codes - White |           |  |            |
|---|-----------|--|------------|
| Min. Luminous Flux (lm)<br>@ 350 mA*        |           | Chromaticity Regions                               | Kit Number |
| Group                                       | Flux (lm) |  |            |
| Cool White (5000 K - 10,000 K)              |           |  |            |
| N3  | 56.8      | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00501      |
| N4  | 62.0      | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00601      |
|   |           | WC, WD, WF, WG                                     | 00602      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00603      |
| P2  | 67.2      | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00701      |
|   |           | WC, WD, WF, WG                                     | 00702      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00703      |
| P3  | 73.9      | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00801      |
|   |           | WC, WD, WF, WG                                     | 00802      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00803      |
| P4  | 80.6      | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00901      |
|   |           | WC, WD, WF, WG                                     | 00902      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00903      |

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

\* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.



## Standard Order Codes and Bins (XR-C Neutral and Warm White)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

| XLamp XR-C LED Standard Order Codes - White |           |                      |            |        |
|---|-----------|----------------------|------------|--------|
| Min Luminous Flux (lm) @ 350 mA*            |           | Chromaticity Regions | Kit Number | CCT    |
| Group                                       | Flux (lm) |                      |            |        |
| Neutral White (3700 K – 5000 K)             |           |                      |            |        |
| M2  | 39.8      | 5C, 5D, 6A, 6B       | 002F6      | 3700 K |
| M3  | 45.7      | 3A, 3B, 3C, 3D       | 003E3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 003F4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 003E4      | 4500 K |
|   |           | 4C, 4D, 5A, 5B       | 003F5      | 4300 K |
|   |           | 5A, 5B, 5C, 5D       | 003E5      | 4000 K |
|   |           | 5C, 5D, 6A, 6B       | 003F6      | 3700 K |
| N2  | 51.7      | 3A, 3B, 3C, 3D       | 004E3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 004F4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 004E4      | 4500 K |
|   |           | 4C, 4D, 5A, 5B       | 004F5      | 4300 K |
|   |           | 5A, 5B, 5C, 5D       | 004E5      | 4000 K |
|   |           | 5C, 5D, 6A, 6B       | 004F6      | 3700 K |
| N3  | 56.8      | 3A, 3B, 3C, 3D       | 005E3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 005F4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 005E4      | 4500 K |
|   |           | 4C, 4D, 5A, 5B       | 005F5      | 4300 K |
|   |           | 5A, 5B, 5C, 5D       | 005E5      | 4000 K |
|   |           | 5C, 5D, 6A, 6B       | 005F6      | 3700 K |
| Warm White (2600 K – 3700 K)                |           |                      |            |        |
| M2  | 39.8      | 6A, 6B, 6C, 6D       | 002E6      | 3500 K |
|   |           | 6C, 6D, 7A, 7B       | 002F7      | 3200 K |
|   |           | 7A, 7B, 7C, 7D       | 002E7      | 3000 K |
|   |           | 7C, 7D, 8A, 8B       | 002F8      | 2900 K |
|   |           | 8A, 8B, 8C, 8D       | 002E8      | 2700 K |
| M3  | 45.7      | 6A, 6B, 6C, 6D       | 003E6      | 3500 K |
|   |           | 6C, 6D, 7A, 7B       | 003F7      | 3200 K |
|   |           | 7A, 7B, 7C, 7D       | 003E7      | 3000 K |
|   |           | 7C, 7D, 8A, 8B       | 003F8      | 2900 K |
| N2  | 51.7      | 6A, 6B, 6C, 6D       | 004E6      | 3500 K |
|   |           | 6C, 6D, 7A, 7B       | 004F7      | 3200 K |
|   |           | 7A, 7B, 7C, 7D       | 004E7      | 3000 K |
| N3  | 56.8      | 6A, 6B, 6C, 6D       | 005E6      | 3500 K |

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

\* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

## Standard Order Codes and Bins (XR-C Color)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's dominant-wavelength range and luminous- or radiant-flux range.

| XLamp XR-C LED Standard Order Codes - Royal Blue |                                     |           |                          |          |       |          |            |
|--|-------------------------------------|-----------|--------------------------|----------|-------|----------|------------|
| Color  | Min. Radiant Flux (mW)<br>@ 350 mA* |           | Dominant Wavelength (nm) |          |       |          | Kit Number |
|  | Group                               | Flux (mW) | Min.                     |          | Max.  |          |            |
|  |                                     |           | Group                    | DWL (nm) | Group | DWL (nm) |            |
| Royal Blue                                       | 12                                  | 250       | D3                       | 450      | D5    | 465      | 00701      |
|  |                                     |           | D3                       | 450      | D4    | 460      | 00702      |
|  |                                     |           | D4                       | 455      | D5    | 465      | 00703      |
|  | 13                                  | 300       | D3                       | 450      | D5    | 465      | 00801      |
|  |                                     |           | D3                       | 450      | D4    | 460      | 00802      |
|  |                                     |           | D4                       | 455      | D5    | 465      | 00803      |

| XLamp XR-C LED Standard Order Codes - Blue, Green, Amber, Red-Orange, Red |                                      |           |                          |          |       |          |            |
|---|--------------------------------------|-----------|--------------------------|----------|-------|----------|------------|
| Color   | Min. Luminous Flux (lm)<br>@ 350 mA* |           | Dominant Wavelength (nm) |          |       |          | Kit Number |
|   | Group                                | Flux (lm) | Min.                     |          | Max.  |          |            |
|   |                                      |           | Group                    | DWL (nm) | Group | DWL (nm) |            |
| Blue  | G                                    | 13.9      | B3                       | 465      | B4    | 475      | 00G01      |
|   | H                                    | 18.1      | B3                       | 465      | B4    | 475      | 00H01      |
| Green   | M                                    | 39.8      | G2                       | 520      | G4    | 535      | 00M01      |
|   |                                      |           | G2                       | 520      | G3    | 530      | 00M02      |
|   |                                      |           | G3                       | 525      | G4    | 535      | 00M03      |
|   | N                                    | 51.7      | G2                       | 520      | G4    | 535      | 00N01      |
|   |                                      |           | G2                       | 520      | G3    | 530      | 00N02      |
|   |                                      |           | G3                       | 525      | G4    | 535      | 00N03      |
| Amber   | J                                    | 23.5      | A2                       | 585      | A3    | 595      | 00J01      |
|   | K                                    | 30.6      | A2                       | 585      | A3    | 595      | 00K01      |
|   | M                                    | 39.8      | A2                       | 585      | A3    | 595      | 00M01      |
| Red-Orange  | K                                    | 30.6      | O3                       | 610      | O4    | 620      | 00K01      |
|   | M                                    | 39.8      | O3                       | 610      | O4    | 620      | 00M01      |
| Red   | J                                    | 23.5      | R2                       | 620      | R3    | 630      | 00J01      |
|   | K                                    | 30.6      | R2                       | 620      | R3    | 630      | 00K01      |
|   | M                                    | 39.8      | R2                       | 620      | R3    | 630      | 00M01      |

For other flux and dominant wavelength combinations, contact Cree or an authorized distributor.

\* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

## Standard Order Codes and Bins (XR-E Cool White)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

| XLamp XR-E LED Standard Order Codes - White |           |  |            |
|---|-----------|--|------------|
| Min. Luminous Flux (lm) @ 350 mA*           |           | Chromaticity Regions                               | Kit Number |
| Group                                       | Flux (lm) |  |            |
| Cool White (5000 K - 10,000 K)              |           |  |            |
| P4  | 80.6      | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00901      |
|   |           | WC, WD, WF, WG                                     | 00902      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00903      |
| Q2  | 87.4      | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00A01      |
|   |           | WC, WD, WF, WG                                     | 00A02      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00A03      |
| Q3  | 93.9      | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00B01      |
|   |           | WC, WD, WF, WG                                     | 00B02      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00B03      |
| Q4  | 100       | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00C01      |
|   |           | WC, WD, WF, WG                                     | 00C02      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00C03      |
| Q5  | 107       | WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP | 00D01      |
|   |           | WC, WD, WF, WG                                     | 00D02      |
|   |           | WC, WD, WF, WG, WH, WJ, WN, WP                     | 00D03      |

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

\* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

## Standard Order Codes and Bins (XR-E Neutral White)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

| XLamp XR-E LED Standard Order Codes - White |           |                      |            |        |
|---|-----------|----------------------|------------|--------|
| Minimum Luminous Flux (lm) @ 350 mA*        |           | Chromaticity Regions | Kit Number | CCT    |
| Group                                       | Flux (lm) |                      |            |        |
| Neutral White (3700 K - 5000 K)             |           |                      |            |        |
| N4  | 62.0      | 3A, 3B, 3C, 3D       | 006E3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 006F4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 006E4      | 4500 K |
|   |           | 4C, 4D, 5A, 5B       | 006F5      | 4300 K |
|   |           | 5A, 5B, 5C, 5D       | 006E5      | 4000 K |
|   |           | 5C, 5D, 6A, 6B       | 006F6      | 3700 K |
| P2  | 67.2      | 3A, 3B, 3C, 3D       | 007E3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 007F4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 007E4      | 4500 K |
|   |           | 4C, 4D, 5A, 5B       | 007F5      | 4300 K |
|   |           | 5A, 5B, 5C, 5D       | 007E5      | 4000 K |
|   |           | 5C, 5D, 6A, 6B       | 007F6      | 3700 K |
| P3  | 73.9      | 3A, 3B, 3C, 3D       | 008E3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 008F4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 008E4      | 4500 K |
|   |           | 4C, 4D, 5A, 5B       | 008F5      | 4300 K |
|   |           | 5A, 5B, 5C, 5D       | 008E5      | 4000 K |
|   |           | 5C, 5D, 6A, 6B       | 008F6      | 3700 K |
| P4  | 80.6      | 3A, 3B, 3C, 3D       | 009E3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 009F4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 009E4      | 4500 K |
|   |           | 4C, 4D, 5A, 5B       | 009F5      | 4300 K |
|   |           | 5A, 5B, 5C, 5D       | 009E5      | 4000 K |
|   |           | 5C, 5D, 6A, 6B       | 009F6      | 3700 K |
| Q2  | 87.4      | 3A, 3B, 3C, 3D       | 00AE3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 00AF4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 00AE4      | 4500 K |
|   |           | 4C, 4D, 5A, 5B       | 00AF5      | 4300 K |
|   |           | 5A, 5B, 5C, 5D       | 00AE5      | 4000 K |
|   |           | 5C, 5D, 6A, 6B       | 00AF6      | 3700 K |
| Q3  | 93.9      | 3A, 3B, 3C, 3D       | 00BE3      | 5000 K |
|   |           | 3C, 3D, 4A, 4B       | 00BF4      | 4750 K |
|   |           | 4A, 4B, 4C, 4D       | 00BE4      | 4500 K |

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

\* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

## Standard Order Codes and Bins (XR-E Warm White)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

| XLamp XR-E LED Standard Order Codes - White |           |                      |            |        |
|---|-----------|----------------------|------------|--------|
| Minimum Luminous Flux (lm) @ 350 mA*        |           | Chromaticity Regions | Kit Number | CCT    |
| Group                                       | Flux (lm) |                      |            |        |
| Warm White (2600 K - 3700 K)                |           |                      |            |        |
| N3  | 56.8      | 6C, 6D, 7A, 7B       | 005F7      | 3200 K |
|   |           | 7A, 7B, 7C, 7D       | 005E7      | 3000 K |
|   |           | 7C, 7D, 8A, 8B       | 005F8      | 2900 K |
|   |           | 8A, 8B, 8C, 8D       | 005E8      | 2700 K |
| N4  | 62.0      | 6A, 6B, 6C, 6D       | 006E6      | 3500 K |
|   |           | 6C, 6D, 7A, 7B       | 006F7      | 3200 K |
|   |           | 7A, 7B, 7C, 7D       | 006E7      | 3000 K |
|   |           | 7C, 7D, 8A, 8B       | 006F8      | 2900 K |
| P2  | 67.2      | 8A, 8B, 8C, 8D       | 006E8      | 2700 K |
|   |           | 6A, 6B, 6C, 6D       | 007E6      | 3500 K |
|   |           | 6C, 6D, 7A, 7B       | 007F7      | 3200 K |
|   |           | 7A, 7B, 7C, 7D       | 007E7      | 3000 K |
| P3  | 73.9      | 7C, 7D, 8A, 8B       | 007F8      | 2900 K |
|   |           | 8A, 8B, 8C, 8D       | 007E8      | 2700 K |
|   |           | 6A, 6B, 6C, 6D       | 008E6      | 3500 K |
|   |           | 6C, 6D, 7A, 7B       | 008F7      | 3200 K |
| P4  | 80.6      | 7A, 7B, 7C, 7D       | 008E7      | 3000 K |
|   |           | 7C, 7D, 8A, 8B       | 008F8      | 2900 K |
|   |           | 6A, 6B, 6C, 6D       | 009E6      | 3500 K |
| Q2  | 87.4      | 6C, 6D, 7A, 7B       | 009F7      | 3200 K |
|   |           | 7A, 7B, 7C, 7D       | 009E7      | 3000 K |
|   |           | 6A, 6B, 6C, 6D       | 00AE6      | 3500 K |

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

\* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

## Standard Order Codes and Bins (XR-E Color)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's dominant-wavelength range and luminous- or radiant-flux range.

| XLamp XR-E LED Standard Order Codes - Royal Blue |                                     |           |                          |          |       |          |            |
|--|-------------------------------------|-----------|--------------------------|----------|-------|----------|------------|
| Color  | Min. Radiant Flux (mW)<br>@ 350 mA* |           | Dominant Wavelength (nm) |          |       |          | Kit Number |
|  | Group                               | Flux (mW) | Min.                     |          | Max.  |          |            |
|  |                                     |           | Group                    | DWL (nm) | Group | DWL (nm) |            |
| Royal Blue                                       | 13                                  | 300       | D3                       | 450      | D5    | 465      | 00801      |
|  |                                     |           | D3                       | 450      | D4    | 460      | 00802      |
|  |                                     |           | D4                       | 455      | D5    | 465      | 00803      |
|  | 14                                  | 350       | D3                       | 450      | D5    | 465      | 00901      |
|  |                                     |           | D3                       | 450      | D4    | 460      | 00902      |
|  |                                     |           | D4                       | 455      | D5    | 465      | 00903      |
|  | 15                                  | 425       | D3                       | 450      | D5    | 465      | 00A01      |
|  |                                     |           | D3                       | 450      | D4    | 460      | 00A02      |
|  |                                     |           | D4                       | 455      | D5    | 465      | 00A03      |

| XLamp XR-E LED Standard Order Codes - Blue and Green |                                      |           |                          |          |       |          |            |
|--|--------------------------------------|-----------|--------------------------|----------|-------|----------|------------|
| Color  | Min. Luminous Flux (lm)<br>@ 350 mA* |           | Dominant Wavelength (nm) |          |       |          | Kit Number |
|  | Group                                | Flux (lm) | Min.                     |          | Max.  |          |            |
|  |                                      |           | Group                    | DWL (nm) | Group | DWL (nm) |            |
| Blue   | J                                    | 23.5      | B3                       | 465      | B6    | 485      | 00J01      |
|  |                                      |           | B3                       | 465      | B5    | 480      | 00J02      |
|  |                                      |           | B4                       | 470      | B5    | 480      | 00J03      |
|  | K                                    | 30.6      | B3                       | 465      | B6    | 485      | 00K01      |
|  |                                      |           | B3                       | 465      | B5    | 480      | 00K02      |
|  |                                      |           | B4                       | 470      | B5    | 480      | 00K03      |
| Green  | P                                    | 67.2      | G2                       | 520      | G4    | 535      | 00P01      |
|  |                                      |           | G2                       | 520      | G3    | 530      | 00P02      |
|  |                                      |           | G3                       | 525      | G4    | 535      | 00P03      |

For other flux and dominant wavelength combinations, contact Cree or an authorized distributor.

\* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.